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# A FRAMEWORK FOR THE ASSESSMENT AND ANALYSIS OF MULTI-HAZARDS INDUCED RISK RESULTING FROM SPACE VEHICLES OPERATIONS

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Industrial Engineering and Management Systems
in the College of Engineering and Computer Science
at the University of Central Florida
Orlando, Florida

Spring Term
2007

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# ABSTRACT

With the foreseeable increase in traffic frequency to and from orbit, the safe operation of current and future space vehicles at designated spaceports has become a serious concern. Due to their high explosive energy potential, operating those launch vehicles presents a real risk to: (1) the spaceport infrastructure and personnel, (2) the communities surrounding the spaceport and (3) the flying aircrafts whose routes could be relatively close to spaceport launch and reentry routes. Several computer models aimed at modeling the effects of the different hazards generated by the breakup of such vehicles (e.g., fragmentation of debris, release of toxic gases, propagation of blast waves, etc.) have been developed, and are used to assist in Go-No Go launch decisions. They can simulate a total failure scenario of the vehicle and, estimate a number of casualties to be expected as a result of such failure.

However, as all of these models – which can be very elaborate and complex – consider only one specific explosion hazard in their simulations, the decision of whether or not a launch should occur is currently based on the evaluation of several estimates of an expected number of casualties. As such, current practices ignore the complex, nonlinear interactions between the different hazards as well as the interdependencies between the estimates.

In this study, we developed a new framework which makes use of information fusion theory, hazards' dispersion modeling and, geographical statistical analysis and visualization capabilities of geographical information systems to assess the risk generated by the operation of space launch vehicles. A new risk metric, which effectively addresses the lack of a common risk

metric with current methods, is also proposed. A case study, based on a proposed spaceport in the state of Oklahoma showed that the estimates we generate through our framework consistently outperform estimates provided by any individual hazard, or by the independent combination of those hazards. Furthermore, the study revealed that using anything else than fusion could provide seriously misleading results, with potentially catastrophic consequences.

I dedicate this work to my beloved parents, Daniel and Marie-Jose Sala-Diakanda

# ACKNOWLEDGMENTS

God and His son Jesus-Christ do I first acknowledge for the countless blessings I received. I will ever be grateful to my family members, for the unconditional support and love during those long years. I am particularly grateful to my wife, Valynn Anmouree Sala-Diakanda, for her understanding, patience and wisdom during the most difficult times.

To my advisors, Dr. Luis C. Rabelo and Dr. Jose A. Sepúlveda, I express my utmost gratitude. I thank them for their vision, wisdom and guidance during those years. I would like to thank the other members of my committee, Dr. Charles Reilly III, Dr. Jorge E. Bardina and Dr. Christopher D. Geiger. I am grateful for their significant contribution to the quality of this work.

To the many individuals who have helped me, I am very grateful. Among many, I thank Dr. Berleant, the members of the ESRI ArcGIS user forum and, the EPA AERMOD technical support team.

Finally, I thank my friends, for playing a critical role in making this experience as enjoyable as realistically possible.

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# LIST OF ACRONYMS AND SYMBOLS

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIHA | American Industrial Hygiene Association |
| B-CD | Belief Cumulative Distribution |
| BLEVE | boiling liquid expansion vapor explosions |
| BRAMA | Blast Risk Assessment Model for Arena |
| BST | Baker-Strehlow-Tang model |
| CAIB | Columbia Accident Investigation Board |
| CCD | census county subdivision |
| $C_D$ | drag coefficient |
| CDC | Center for Disease Control and Prevention |
| cdf | Cumulative distribution function |
| COM | component object model |
| COTS | commercial off-the-shelf |
| CRTF | Common Real-Time Footprint |
| DEM | Digital Elevation Model |
| DEnv | Distribution Envelope Determination |
| DLL | dynamically linked libraries |
| DRAMA | Debris Risk Assessment Model for Arena |
| D-S | Dempster-Shafer |
| $E_C$ | expectation of casualties |
| $E_{CFUS}$ | fused expectation of casualties |
| EFM | Entropy Fusion Model |
| ELV | expendable launch vehicle |
| EPA | Environmental Protection Agency |
| ET | external tank |
| EWR | Eastern and Western Range |
| FAA AST | Federal Aviation Administration Office of the Associate Administrator for Commercial Space Transportation |
| GIS | geographical information system |
| HCl | hydrogen chloride |
| IDLH | immediately dangerous to life and health |
| KSC | Kennedy Space Center |
| LARA | Launch Area Risk Analysis |
| LP | linear programming |
| MEM | Multi-Energy Model |
| MFCO | Mission Flight Control Officer |
| NAAQS | national ambient air quality standards |

| | |
|---|---|
| NASA | National Aeronautics and Space Administration |
| NIOSH | National Institute of Occupational Safety and Health |
| NWS | National Weather Services |
| ORNL | Oak Rigde National Laboratory |
| OSHA | Occupational Safety and Health Administration |
| $P_0$ | Blast overpressure |
| QRAS | Quantitative Risk Assessment System |
| REEDM | Rocket Exhaust Effluent Diffusion Model |
| RLV | reusable launch vehicle |
| SRB | solid rocket booster |
| SSME | Space Shuttle main engine |
| TNT | Trinitrotoluene |
| TSM | transportation simplex method |
| USGS | United States Geological Survey |
| UTM | Universal Transverse Mercator |
| V&V | Verification and Validation |
| VCE | vapor (and gas) cloud explosions |
| $\beta$ | ballistic coefficient |
| $\overline{R}$ | combustion energy scaled distance |

# CHAPTER 1 INTRODUCTION

## 1.1 Problem Statement

Operating a spaceport such as NASA's Kennedy Space Center (KSC) or a launch vehicle such as the Space Shuttle is a complex task. It involves addressing a number of safety issues, such as the safety of: (1) the public on the ground, (2) the astronauts, (3) the workforce and surrounding infrastructure, (4) the other airborne aircraft and when applicable, (5) seafaring vessels in the vicinity of the spaceport. Currently on U.S. soil, there are only two spaceports in operation; both operated by the federal government: Kennedy Space Center (also known as the Eastern Range) located in Florida and, Vandenberg Air Force Base (also known as the Western Range) located in California.

However, if the recent increase in activities at the Federal Aviation Administration Office of the Associate Administrator for Commercial Space Transportation (FAA AST), and the signing by President George W. Bush of the Commercial Space Launch Amendment Act are any indications, the projected growth of the commercial space transportation industry will prompt the development of new private and state-operated spaceports. Indeed, while the commercial space transportation industry is commonly associated with the use of expendable launch vehicles (ELV) – which carry payloads owned by private companies to and from orbit – sources indicate that a growing part of this industry is in the development of reusable launch vehicles (RLV), and the

development of private or state-operated launch, re-entry, and processing sites ( FAA Office of Commercial Space Transportation, 2004).

Therefore, with the foreseeable increase in commercial launch/return rates in the next few years and the resulting growing capacity demand on the National Airspace System (Van Suetendael 2003), there is a need to rigorously investigate the safety impact of any future spaceport site on the populated areas and infrastructure in its vicinity. This is supported by the FAA/AST since its first criterion in issuing a license to applicants to operate a launch site is the public health and safety (FAA Licensing Regulations and Regulatory Activity, 2005).

The risk to the public associated with the loss (breakup) of a launch vehicle (accidental or instructed) is expressed in terms of an expectation of casualty ($E_C$). It is formally defined as *a mean value from a statistical analysis of the probability and consequence of all foreseen outcomes of flight* (Risk and Lethality Commonality Team, 2002). For example, NASA uses a critical value of $E_C = 30 \times 10^{-6}$ when making a GO-NOGO launch decision (i.e., thirty casualties expected in a million launches). The general formulation of $E_C$ is a follows

$$E_C = E_{PH} \times P_{C/E} \times P_E \tag{1.1}$$

Where:

$E_C$ is the expected number of casualties

$E_{PH}$ (Expected Population Hazarded) is the parameter that represents the number of people in an impacted area. If there is no population in that area, then $E_{PH}$ and $E_C$ for that area are zero.

$P_{C/E}$ (Probability of casualty given an event) is the probability of having a casualty following the breakup of the launch vehicle; and

$P_E$ is the probability of loss of the launch vehicle

In the above equation, $E_{PH}$ is derived from population information obtained from sources like the Census and, the LandScan population databases developed from Oak Ridge National Laboratory (ORNL). The probability of loss of a launch vehicle ($P_E$) is a complex vehicle-dependent term provided by its manufacturer. It is determined throughout the mission of the vehicle and for specific time increments (Strom & Newton 2001). $P_{C/E}$ on the other hand, which is the probability of having a casualty given an event, is obtained from evaluating the effects of different hazards produced during the vehicle breakup. Three main hazards are generally produced: (1) an explosion blast, (2) a large number of pieces of debris resulting from the fragmentation of the vehicle and, (3) rocket fuel released in the form of gases such as hydrogen chloride (HCl) which could be harmful if released in large quantities. If the explosion occurs close enough to the launch pad, then the thermal effect of the fireball generated by the explosion constitutes an additional hazard.

However, because of the very complex nature of an explosion in terms of the physics and the interactions taking place between the hazards just mentioned, there has been, according to the published literature, no solution provided to estimate $E_C$ as a function of the combined effects of those hazards. In fact, although the hazards mentioned earlier are well identified, the computation of $E_C$ only considers the debris hazard (Calpuff vs Reedm). Therefore, the approach to assessing the risk, as we present in the next chapter, has been to develop hazards-specific

models, *i.e.*, debris dispersion model, blast propagation model and, gas dispersion model, and to draw independent conclusions from each of them.

## 1.2 Research Objective

In this study we seek to develop a framework aimed at assessing and analyzing the risk generated by the operation of space launch vehicles – whether they operate from coastal or inland spaceports – in which all the hazards they produce can be seamlessly integrated to provide a cohesive picture of the nature of that risk. Based on advances in information fusion theory, hazards modeling and geographical statistics, this study aims at developing a framework which will address (1) the lack of a unifying and truly informative risk metric, (2) the assumption of independence between the hazards' effects, which is rarely appropriate and, (3) the lack of a single platform from which this complex interdisciplinary problem can be confidently addressed. Enterprises such as the (1) selection, development and operation of spaceport sites, (2) the selection of new launch and return routes, or (3) the design of future launch vehicles are just some that would benefit from such a framework. However, the benefits of such a framework would extend beyond the space industry, finding use in any enterprise where the use of spatial information and, the need for consensus between highly heterogeneous information sources are critical.

## 1.3 Organization of this Document

This document is organized as follows: In Chapter 2, we review the three main hazards generated during a launch vehicle breakup. In Chapter 3, we discuss some of the information fusion theories developed and described in the literature. In Chapter 4, the implementation of a fusion methodology is proposed. In Chapter 5, we describe an early concept of a tool for such a framework. Chapters 6 and 7 discuss in detail the modeling approach and, the experiment conducted as proof of concept. In Chapter 6 we discuss the data preparation stage. Chapter 7 discusses the design of the experiment and the results generated. In Chapter 8 we conclude this study, highlighting its significance, suggesting possible directions for future research and, placing the importance of this work within the larger context of risk assessment, management and mitigation.

# CHAPTER 2 REVIEW OF PROSPECTIVE HAZARDS MODELING

The objective of this chapter is to provide to the reader a brief overview of the vast field of prospective hazards modeling. Specifically, we will describe the current state of the art in debris fragmentation and dispersion modeling, the major methodologies by which blast propagation properties are determined, and the state of knowledge in gas dispersion and toxicity modeling.

## 2.1 Fragmentation and Debris Dispersion Modeling

For a brief review of what has been accomplished in the modeling of fragmentation and debris impact dispersion resulting from the breakup of a space vehicle in flight, we describe the Common Real-Time Footprint (CRTF). CRTF is a state-of-the-art debris model developed by ACTA, Inc. for the National Aeronautics and Space Administration (NASA) to analyze and predict the impact dispersion of debris resulting from the explosion of a space vehicle in flight. Recently, CRTF was used to help determine the level of risk to the public associated with the thousands of debris (more than 80,000), which resulted from the Columbia breakup during its last reentry, on February 1, 2003.

For a more detailed description of CRTF, the reader is referred to CAIB Report 2003 where most of the information given in this section is found.

### 2.1.1 Physics of Debris Trajectory

When a space vehicle explodes in the air, whether during its ascent phase or its reentry phase, thousands of fragments of different shapes and sizes may be generated. Each of these free-falling fragments follows a trajectory which obeys Newton's Second Law. The law states that the acceleration of an object is dependent upon the net force acting upon the object and the mass of the object. This dependency is formulated as:

$$\sum F_i = ma_i \tag{2.1}$$

where $F_i$ is the sum of forces in the $i^{th}$ direction acting on the fragment of mass $m$ causing an acceleration $a_i$ in the same direction. Among those forces are those caused by gravity and wind as well as those due the aerodynamic properties of the fragment (e.g., forces of lift and drag). Often, the inertial effects and drag effects are combined to form a ballistic coefficient $\beta$ which is computed as:

$$\beta = \frac{W}{C_D A} \tag{2.2}$$

where $W$ is the weight of the fragment, $C_D$ is the drag coefficient and $A$ is a characteristic area of the fragment associated with the drag coefficient. Figure 2.1 illustrates the effects these forces may have on the trajectory of each fragment.

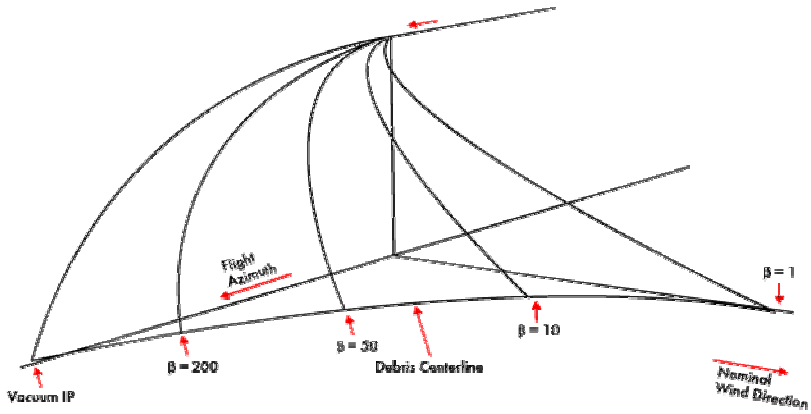



Figure 2.1 The effects of ballistic coefficient β and wind direction upon the nominal trajectory of a debris.
Objects with high ballistic coefficients are less affected by wind forces than those with low ballistic coefficients Source: (CAIB Report 2003)

### 2.1.2 Common Real-Time Debris Footprint (CRTF)

CRTF was developed under the joint sponsorship of the Eastern and Western Ranges[1] to assist the Mission Flight Control Officer (MFCO) in its decision to abort a launch. It is a probabilistically-based dispersion model that uses the actual state vector of the vehicle to perform the dispersion analysis of the fragments in real time. Although the CRTF program is designed to simulate impact dispersions resulting from a commanded destruct breakup mode, it has been proven capable of generating reliable results for other breakup modes, such as those due to aerodynamic pressure (CAIB Report 2003).

[1] These are the two US spacelift ranges, located at Patrick Air Force Base, Florida (ER) and Vandenberg Air Force Base, California (WR). They provide tracking, telemetry, command and control, communications and other support when space vehicles (Space shuttle, Delta rocket *etc*) are launched.

*2.1.2.1 The Six CRTF Uncertainty Modules*

The program is composed of six uncertainty modules that attempt to quantify the uncertainties associated with: (1) the location of the vehicle at the moment of breakup, (2) the type of debris fragments generated (*i.e*. to which ballistic coefficient range the debris belongs, whether the debris are inert or contain burning propellant, *etc*.), and (3) the wind conditions during free-fall. Four of the modules use Monte Carlo routines for the handling of uncertainties and the development of impact distributions that contribute to the total uncertainty.

The first module estimates the real-time state vector of the vehicle while the third model estimates the state vector of each fragment at breakup by augmenting the state vector of the first model with an impulse effect. Malfunction tumble turn effects are handled by the second module while the last three modules deal with the trajectory of the fragment debris during free fall.

*Module 1: Estimation of the Real-Time Vehicle State Vector*

To account for the errors in measurement provided by the tracking system[2], the program models the position and velocity of the vehicle at breakup with the assumption that in each of the three orthogonal directions, the uncertainties surrounding the two parameters follow a normal distribution. This information is then gathered in a Kalman filter covariance matrix as

[2] The tracking system is composed of multiple sensors, each of them having a degree of inaccuracy in their measurements.

$$\Sigma_{(x,y,z,\dot{x},\dot{y},\dot{z})} = \begin{bmatrix} \sigma_x^2 & \rho_{xy}\sigma_x\sigma_y & \rho_{xz}\sigma_x\sigma_z & \rho_{x\dot{x}}\sigma_x\sigma_{\dot{x}} & \rho_{x\dot{y}}\sigma_x\sigma_{\dot{y}} & \rho_{x\dot{z}}\sigma_x\sigma_{\dot{z}} \\ \rho_{yx}\sigma_y\sigma_x & \sigma_y^2 & \rho_{yz}\sigma_y\sigma_z & \rho_{y\dot{x}}\sigma_y\sigma_{\dot{x}} & \rho_{y\dot{y}}\sigma_y\sigma_{\dot{y}} & \rho_{y\dot{z}}\sigma_y\sigma_{\dot{z}} \\ \rho_{zx}\sigma_z\sigma_x & \rho_{zy}\sigma_z\sigma_y & \sigma_z^2 & \rho_{z\dot{x}}\sigma_z\sigma_{\dot{x}} & \rho_{z\dot{y}}\sigma_z\sigma_{\dot{y}} & \rho_{z\dot{z}}\sigma_z\sigma_{\dot{z}} \\ \rho_{\dot{x}x}\sigma_{\dot{x}}\sigma_x & \rho_{\dot{x}y}\sigma_{\dot{x}}\sigma_y & \rho_{\dot{x}z}\sigma_{\dot{x}}\sigma_z & \sigma_{\dot{x}}^2 & \rho_{\dot{x}\dot{y}}\sigma_{\dot{x}}\sigma_{\dot{y}} & \rho_{\dot{x}\dot{z}}\sigma_{\dot{x}}\sigma_{\dot{z}} \\ \rho_{\dot{y}x}\sigma_{\dot{y}}\sigma_x & \rho_{\dot{y}y}\sigma_{\dot{y}}\sigma_y & \rho_{\dot{y}z}\sigma_{\dot{y}}\sigma_z & \rho_{\dot{y}\dot{x}}\sigma_{\dot{y}}\sigma_{\dot{x}} & \sigma_{\dot{y}}^2 & \rho_{\dot{y}\dot{z}}\sigma_{\dot{y}}\sigma_{\dot{z}} \\ \rho_{\dot{z}x}\sigma_{\dot{z}}\sigma_x & \rho_{\dot{z}y}\sigma_{\dot{z}}\sigma_y & \rho_{\dot{z}z}\sigma_{\dot{z}}\sigma_z & \rho_{\dot{z}\dot{x}}\sigma_{\dot{z}}\sigma_{\dot{x}} & \rho_{\dot{z}\dot{y}}\sigma_{\dot{z}}\sigma_{\dot{y}} & \sigma_{\dot{z}}^2 \end{bmatrix}$$

where the $\sigma$'s are the standard deviations of position and speed and the $\rho$'s are the correlation coefficients between any combination of two variables.

*Module 2: Estimation of the Tumble Turn direction*

A malfunction tumble turn may occur during flight, with the effect of deviating the launch vehicle away from its nominal trajectory. CRTF accounts for this uncertainty by assuming that all the tumble turn rates and directions are equally likely unless specified otherwise by the manufacturer.[3]

*Module 3: Estimation of Initial Velocity Vector of Each Fragment*

At the moment of explosion, the fragment debris experiences an impulse away from the explosion causing a perturbation in the state velocity determined in the first model. CRTF models this phenomenon by making the following two assumptions: (1) the impulse speed along each of the three orthogonal axes follows a normal distribution and, (2) the standard deviation of this distribution is one-third the maximum explosion speed.

*Module 4: Estimation of Fragment's Type*

Given the potentially large number of fragments an explosion can produce, with their highly irregular shapes and sizes, CRTF assigns a ballistic coefficient to a group of fragments rather than to each fragment. It does it by randomly generating a $\beta$ from a normal distribution whose parameters are specified by the user.

*Module 5: Estimation of Lift Effects*

The lift generated by the surface of a fragment may be just as important as $\beta$ in determining the impact location of the fragment if its value is large. However, during the fall, the surface perpendicular to the direction of motion constantly changes making the lift for any fragment impossible to estimate. CRTF accounts for the effects of lift by computing two impact points, one with the assumption of no lift and the other with the assumption of a constant lift, which is determined by a ratio between lift and drag determined by the user.

*Module 6: Estimation of Wind Effects*

The estimation of wind effects in CRTF is a very complex procedure, which calculates the time a fragment, traveling at terminal velocity, passes through an altitude band. At terminal velocity, the fragment experiences no acceleration as the drag force is now equal to its weight. When the fragment passes through an altitude band, the fully-embedded fragment is assumed to travel laterally at the velocity of the wind.

For each fragment group, the output generated from the six modules is combined into three covariance matrices and then summed to determine the impact dispersion of the group, as

shown in Figure 2.2. When the program is executed, as many as 50 of those distributions may be generated (50 different ballistic classes), allowing one to analyze the effect an explosion may have on the surrounding area.

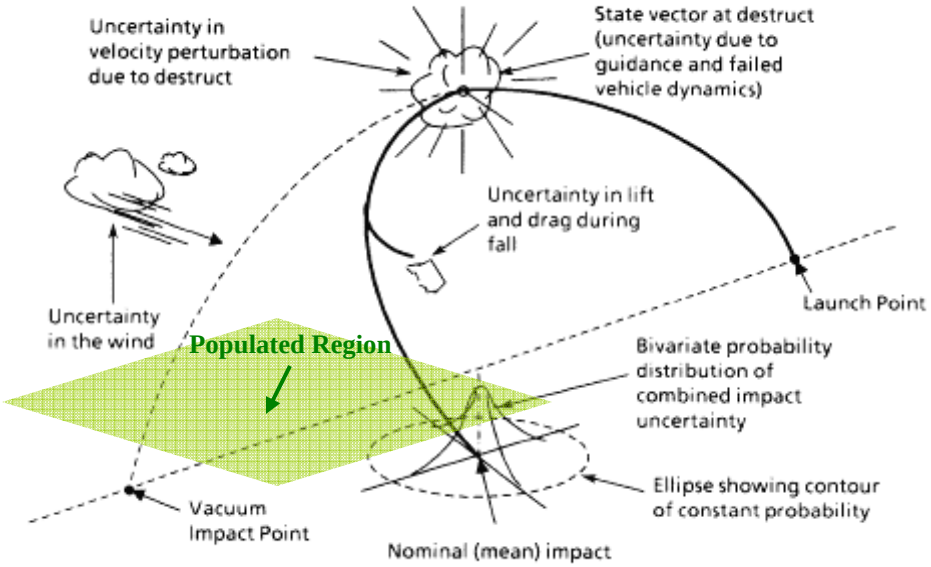



Figure 2.2 Debris impact dispersion obtained from CRTF.
For each fragment group, the uncertainties in aerodynamic coefficients, wind's direction and strength, and initial state vector contribute to the bi-variate normal distribution of the impact location.

In this section, we briefly describe CRTF, a sophisticated program for debris modeling. However, because the many factors that contribute to the final trajectory of the fragment debris generated at breakup are for the most part very difficult to accurately estimate, a number of assumptions must be made, possibly limiting the applicability of the results. With the Columbia accident, the analysts could only reproduce the breakup mode by refining a number of times the ballistic coefficient values so that the generated footprint would match what was actually

observed on the debris field. Fusing the output generated by all three hazard models (i.e., debris, blast and gas) would render the final estimation of the expectation of casualties less dependent upon any one of those models, potentially reducing the influence of the inherent assumptions made by those models.

## 2.2 Blast Modeling

An explosion is generally defined as a rapid release of energy into the atmosphere. This energy generates blast waves that can significantly damage the area surrounding the source of the explosion. Among other characteristics, explosions are identified as being either confined, partially-confined or unconfined. Some explosion phenomena are known as boiling liquid expansion vapor explosions (BLEVE), or vapor and gas cloud explosions (VCE) (Cozzani & Salzano 2004) .

In conventional launcher designs, the weight of the propellant carried by the vehicle can represent up to 90% of its total gross weight at launch. Therefore, it is important to understand the explosion potential of this propellant to reliably assess the level of risk to the public and the surrounding infrastructure (which may extend beyond the spaceport) associated with the use of a launch vehicle. However, literature associated with the study of consequences of fuel explosion concentrate in such industries as gas and chemical processing, and offshore oil drilling, where explosion potentials are elevated.

The explosion potential of a fuel is usually quantified in terms of its blast characteristics. An explosion produces a blast wave because the explosive event displaces the surrounding air

rapidly. Blast waves move air away from the point of detonation at velocities that reach up to 1,100 feet per second and pressure up to 1.5 million pounds per square inch, which makes them the single most devastating effect generated by an explosion (Pierorazio, *et al.*, 2005).

As the shock front expands into increasingly larger volumes of the medium, the peak incident pressure at the front decreases and the duration of the pressure increases. Also as the blast pressure decays exponentially, it eventually becomes negative as shown in Figure 2.2. This phenomenon affects buildings, which are subject to pressures acting in the direction opposite to that of the original shock front.

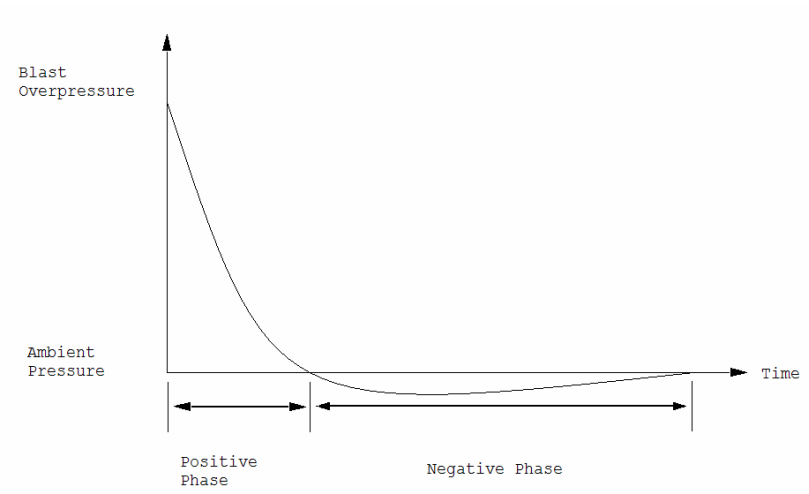



Figure 2.3 Blast overpressure curve (Amptiac Report, 2001)

The Center for Disease Control and Prevention (CDC) has information on explosions and blast-related injuries as Table 1 below illustrates. In the next subsections, we briefly review the three major blast modeling approaches implemented in most blast software currently available. In Section 2.2.2, we describe Trinitrotoluene (TNT) equivalency which is based on TNT charge detonation. In Sections 2.2.3 and 2.2.4, respectively, we review the TNO multi-energy model (MEM) and the Baker-Strehlow-Tang model (BST), which are based on gas charge explosions.

Table 2.1 Mechanism of blast injury (CDC[3], 2003)

| Category | Characteristics | Body Part Affected | Types of Injuries |
|---|---|---|---|
| **Primary** | Unique to High Order Explosive, results from the impact of the over-pressurization wave with body surfaces. | Gas filled structures are most susceptible - lungs, Gastrointestinal tract, and middle ear. | ▪ Blast lung (pulmonary barotrauma)<br>▪ TM rupture and middle ear damage<br>▪ Abdominal hemorrhage and perforation<br>▪ Globe (eye) rupture<br>▪ Concussion (Traumatic brain injury without physical signs of head injury) |
| **Secondary** | Results from flying debris and bomb fragments. | Any body part may be affected. | ▪ Penetrating ballistic (fragmentation) or blunt injuries<br>▪ Eye penetration (can be occult) |
| **Tertiary** | Results from individuals being thrown by the blast wind. | Any body part may be affected. | ▪ Fracture and traumatic amputation<br>▪ Closed and open brain injury |
| **Quaternary** | ▪ All explosion-related injuries, illnesses, or diseases not due to primary, secondary, or tertiary mechanisms.<br>▪ Includes exacerbation or complications of existing conditions. | Any body part may be affected. | ▪ Burns (flash, partial, and full thickness)<br>▪ Crush injuries<br>▪ Closed and open brain injury<br>▪ Asthma, COPD, or other breathing problems from dust, smoke, or toxic fumes<br>▪ Angina<br>▪ Hyperglycemia, hypertension |

### 2.2.1 TNT Equivalency

Perhaps the best known blast modeling approach is TNT equivalency. The objective of this model is to find, for any explosive, an equivalent weight charge of TNT. The U.S. Army and the United Kingdom Health & Safety Executive (HSE) have conducted a number of large-scale

[3] Center for Disease Control and Prevention

experiments from which the damage patterns associated with TNT explosions are well-documented (Haz Professional, 2004).

Among its applications in the aerospace industry, it is worth noting that NASA used the TNT equivalency method in 1993 to formulate its Safety Standard for Explosives, Propellants and Pyrotechnics which are still used today (Office of Safety and Mission Assurance 1993).

*2.2.1.1 Methodology*

For any explosive, the equivalent TNT mass is obtained from Equation (2.3)

$$W_{TNT} = \frac{(W_{gas})(\Delta H_{c(gas)})(Y)}{(\Delta H_{d(TNT)})} \tag{2.3}$$

where

$W_{TNT}$ is the equivalent mass of TNT, in kg

$W_{gas}$ is the mass of gas in the VCE generated by the explosive, in kg

$\Delta H_{c(gas)}$ is the heat of combustion of the gas, in J/kg

$\Delta H_{d(TNT)}$ is the heat of detonation of TNT, in J/kg

$Y$ is an efficiency factor which is typically between 1 and 2% for VCE (Tang & Baker 1999).

Given $W_{TNT,}$ one can determine the blast peak overpressure at any distance from the source of explosion using the cube root scaling law, which states that this distance is directly proportional to the cube root of the mass of the explosive involved in the explosion as shown in Equation 2.4 (The Quest Quarterly, 1999)

$$R = ZW_{TNT}^{1/3} \tag{2.4}$$

where

$R$ is the distance to a given peak overpressure, in m

$Z$ is the scaled distance measured, in m/kg$^{1/3}$

$W_{TNT}$ is the equivalent mass of TNT, in kg

The scale distance $Z$ for any peak overpressure $P_0$ and the resulting damages can be determined using the curve shown in Figure 2.3. This curve is the result of the extensive large-scale experiments mentioned earlier.

*2.2.1.2 Limitations of TNT*

Due to the assumptions there is growing opposition toward the use of TNT to model VCE phenomena. The MEM and the BST approaches described next are known to be better alternatives.

1. The TNT equivalency method does not differentiate between combustion modes of vapor cloud explosions. They are all treated as detonations.
2. The efficiency factor $Y$ is only a function of the amount of fuel burned while it has been shown experimentally that there is almost no correlation between those two factors.

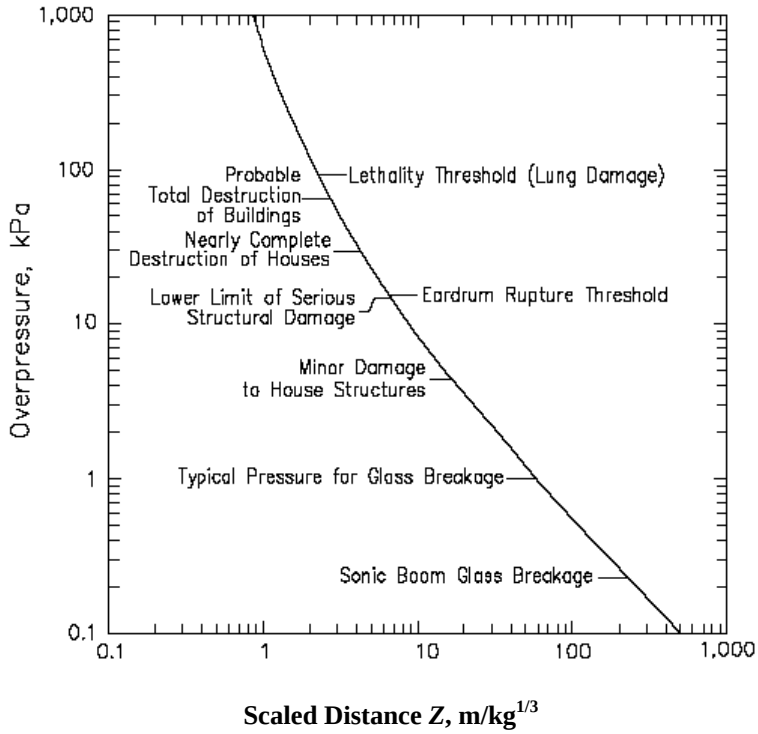



Figure 2.4 Peak side-on overpressure versus scaled distance for TNT explosions (The Quest Quarterly, 1999)

3. Due to the various combustion modes of VCE, the blast waves generated should be represented by a family of curves. However TNT blasts are only represented by a single curve.

4. The blast overpressure of TNT at close distances is generally much higher than the one generated by a VCE, making TNT equivalency a bad model for this case. However, for the far-field, TNT equivalency proves to be an adequate predictive model of VCE behavior under certain conditions (Bogosian, *et al.* 2002; Tang & Baker 1999).

### 2.2.2 TNO Multi-Energy

Although TNT equivalency is widely used in practical applications, the Multi-Energy-Model – and the Baker-Strehlow-Tang method as well – is now widely accepted as a better alternative (Mercx & Van den Berg 1997). MEM has gained considerable attention in the last decade and is now the adopted standard blast prediction model in the well-respected CPR 14E manual, also known as the yellow book, published by the Dutch Ministry of Social Affairs and Environment.

The major difference between MEM and TNT equivalency is that MEM considers that a VCE can only occur within that part of the flammable cloud that is confined to the portion of the vapor cloud that is not completely free to expand (Pierorazio *et al*. 2005). Therefore, the energy $E$ available for a VCE is limited by the volume of the confined region, as opposed to TNT where the volume of the entire cloud is considered.

#### *2.2.2.1 Methodology*

In order to use the MEM chart developed by TNO (shown in Figure 2.4), the overpressure $P_0$ and the total combustion energy $E$ – the two parameters which characterize the source of explosion – need to be determined (Mercx, et al. 1998).

1. To obtain $E$ in Equation 2.5, the confined volume is first converted to a hemisphere of equivalent volume $V_C$ and the fuel and air mixture is assumed to be homogeneous and stoichiometric[4] with a combustion energy of 3.5 million Joules per cubic meter:

[4] This refers to a perfect mixture between a fuel and air

$$E = 3.5 \times 10^6 V_C \tag{2.5}$$

where

$E$ is the total available energy for the explosion, in J

$V_C$ is the confined volume, in $m^3$

$3.5 \times 10^6\ J/m^3$ is the average heat of combustion of a stoichiometric mixture of hydrocarbon gas and air

2. For any distance $R$ from the center of the explosion (the hemisphere), compute combustion energy scaled distance $\overline{R}$ as follows:

$$\overline{R} = R\left( P_a / E \right)^{1/3} \tag{2.6}$$

where

$\overline{R}$ is the combustion energy scaled distance, dimensionless

$R$ is the distance from the center of the hemisphere, in m

$P_a$ is the ambient atmospheric pressure in, $J/m^3$

$E$ is the total available energy in J found in Equation 2.5

3. Given $\overline{R}$ , determine for any combustion mode – from mild deflagrations to detonations represented as curve 1 to 10 respectively in Figure 2.5[5] – the corresponding scaled overpressure $\overline{P}_0$ from the MEM chart.

4. Determine the blast peak side-on overpressure $P_0$ at $R$ as f

$$P_0 = \overline{P}_0 \times P_a \tag{2.7}$$

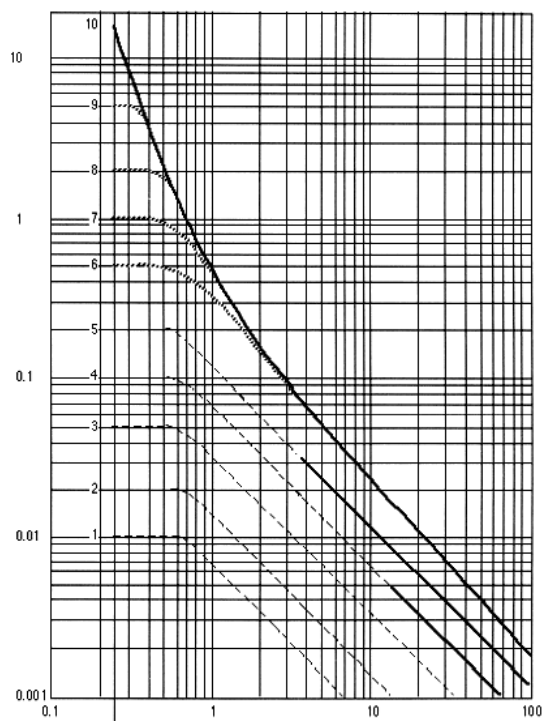



Figure 2.5 Blast side-on overpressure versus scaled distance – MEM model

[5] The ten curves are derived by TNO (A.J.Pierorazio *et al*. 2005b). Also, note that the single curve in Figure 2.4 for TNT represents a detonation combustion mode which is the considered highest level of severity according to TNO.

### 2.2.3 Baker-Strehlow-Tang

The BST method is very similar to MEM as it is also based on the premise that a VCE can only occur within that portion of a flammable cloud that is congested or partially-confined. Both the scaled distance $\overline{R}$ and the total energy $E$ are obtained using Equations 2.5 and 2.6. However, the blast curves developed are based on the flame speed $M_f$, (shown in Figure 2.6) which is measured in an Eulerian coordinate system[6] (Tang & Baker 1999). Flame speeds are measured in Mach number. As opposed to MEM where the confined is modeled as a hemisphere, the BST models the clouds as a sphere.

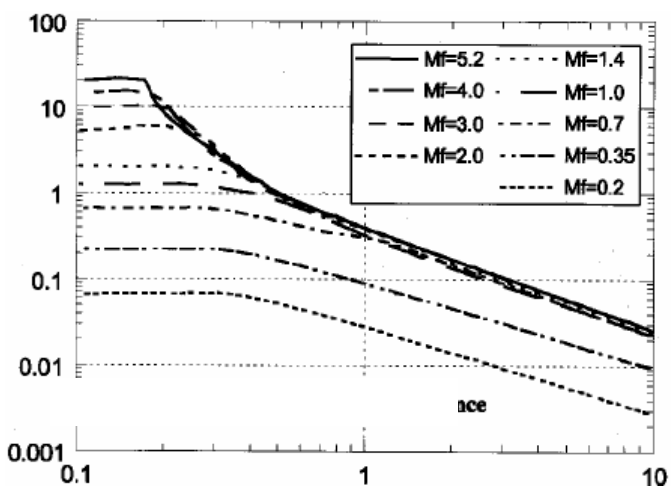



Figure 2.6 Blast positive side-on overpressure versus scaled distance $\overline{R}$ – BST model (Tang & Baker 1999)

[6] The flame velocity is measured relative to a fixed observer.

### 2.2.4 Blast Software

The three methodologies described in this chapter are sometimes classified as simplified models (Pierorazio *et al.* 2005; Clutter & Luckritz 2000) to differentiate them from more complex models such as FLACS and EXSIM, which do not limit the user to such assumptions as the shape of the cloud or the chemical reaction (stoichiometric mixture) taking place. However, it is the end goal of the study to determine the appropriate blast model for the user. Figure 2.7 below shows BlastDFO currently being developed by ACTA, Inc. The software seeks to determine the effects of launch vehicle explosions on off-base structures and occupants. Table 2.2 below is a partial list of blast modeling software currently available[7].

Table 2.2 Blast modeling tools

- FLACS
- EXSIM
- BlastDFO (In development)
- BLASTX
- CEBAM
- BLASTCX
- SHOCK
- ConWep
- Blast/FX

For the reader interested in blast effects studies, the Blast Mitigation Action Group (BMAG) of the US Army Corps of Engineers is a good source to find a number of organizations involved in blast mitigation. In addition, there are a number of manufacturers of commercial-off-the shelf (COTS) structural blast mitigation products (Blast Mitigation Action Group 2005).

[7] Some of these software are proprietary and therefore are only available through special conditions such as government contracts.

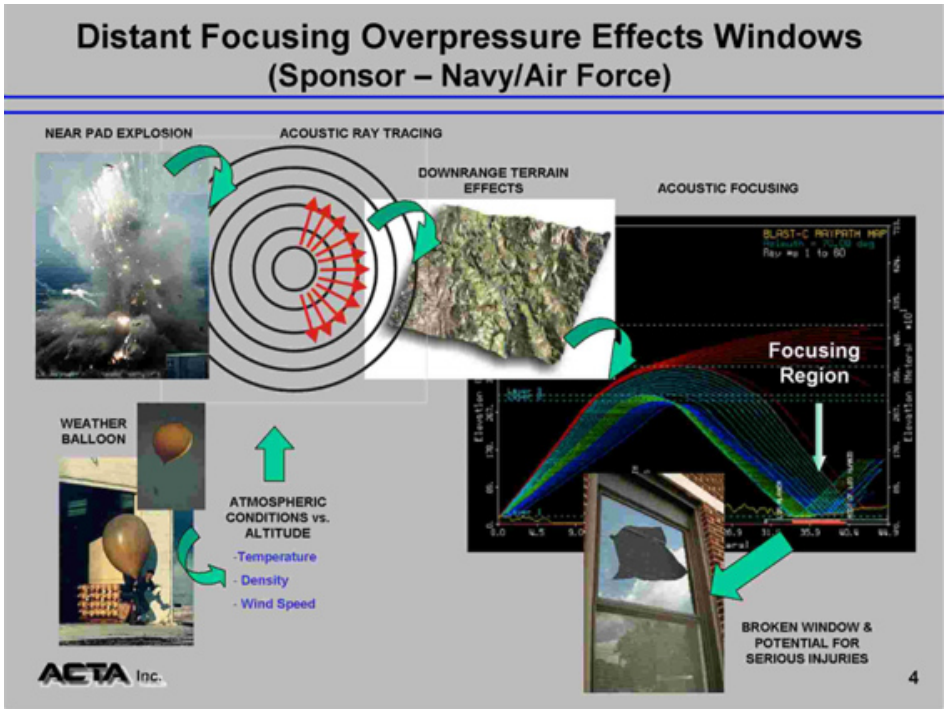



Figure 2.7 BlastDFO software currently under development with ACTA, Inc. BlastDFO is an advanced Blast modeling tool which will account for focusing sound waves, which can cause strong overpressure effects on localized regions at large distances from the blast source (Acta Inc., 2005).

## 2.3 Gas Dispersion and Toxicity Modeling

For a brief review of what has been accomplished in the modeling of gas dispersion and toxic effects that may result from the breakup (due to an explosion for example) of a space vehicle in flight, we will describe CALPUFF, an advanced non-steady-state meteorological and air quality modeling system developed and distributed by Earth Tech, Inc (CALPUFF Modeling System 2005). We have selected CALPUFF to introduce the state-of-the-art in gas dispersion modeling for two main reasons.

First, it can be considered the acknowledged standard in that domain as the U.S. Environmental Protection Agency (U.S. EPA) uses it in its *Guideline on Air Quality Models* (EPA, 2007). The U.S. EPA uses CALPUFF to assess long-range transport of pollutants and their impacts on certain areas and for certain near-field applications involving complex meteorological conditions (CALPUFF Modeling System 2005). Secondly, a recent study conducted by NASA recommended that CALPUFF be used in place of REEDM, NASA's current gas dispersion model developed by the U.S. Air Force. Its assessment of gas-related risk associated with the operation of space vehicles (such as the Delta rockets and the Space shuttle) is considerably more advanced and realistic approach (Anderson and McCaleb, 2004).

Depending on – among other factors – the release mode (proximity to the ground, quantity released, *etc*.), the toxicity of the gas released, and the meteorological conditions at the time after the release, the gas dispersion impact on the public health can be significant. For example, the effect of exposure to hydrochloric acid (HCl) – a major toxicant released at the loss of a space vehicle – may range from mild irritation and headache to incapacitation due to constriction of the airway and lack of oxygen delivery to the brain. Therefore, the objective of any gas dispersion model is to predict the ground concentration of a toxicant at specific locations and time intervals.

### 2.3.1 Dispersion Modeling Approach[8]

The approach by which a continuous plume is modeled as a number of discrete packets of pollutant materials is known as puff modeling. Traditionally, puff modeling is executed using a

[8] For a more in-depth discussion of the gas dispersion modeling and CALPUFF, we refer the reader to CALPUFF Modeling System (2005), where most of this information is found.

snapshot sampling function, in which each puff model is "frozen" at particular time intervals (typically one hour), and its gas concentration recorded. The total concentration of the toxicant at a particular receptor is then defined as the sum of the contributions of all nearby puffs averaged for all sampling steps within the basic time step. However, to represent a continuous plume close to a source, a large amount of puffs must be released, increasing the computational complexity of this type of model. To overcome this shortcoming, CALPUFF uses either: (1) a sampling scheme that employs radially symmetric Gaussian puffs (Integrated Puff sampling function) for the far-field , or (2) a scheme that uses a non-circular puff (slug sampling function), elongated in the direction of the wind during release to eliminate the need for frequent releases of puffs, for the near-field (CALPUFF Modeling System 2005).

The basic equations for the contribution of a puff are

$$C = \frac{Q}{2\pi\sigma_x\sigma_y} g \exp\left[-\frac{d_a^2}{2\sigma_x^2}\right]\exp\left[-\frac{d_c^2}{2\sigma_y^2}\right] \tag{2.8}$$

$$g = \frac{2}{(2\pi)^{1/2}\sigma_z}\sum_{n=-\infty}^{\infty}\exp\left[-\frac{(H_e+2nh)^2}{2\sigma_z^2}\right] \tag{2.9}$$

For the far-field formulation,

where,

$C$ is the ground-level concentration (g/m$^3$),

$Q$ is the pollutant mass (g) in the puff,

$\sigma_x$ is the standard deviation (m) of the Gaussian distribution in the along-wind direction,

$\sigma_y$ is the standard deviation (m) of the Gaussian distribution in the cross-wind direction,

$\sigma_z$ is the standard deviation (m) of the Gaussian distribution in the vertical direction,

$d_a$ is the distance (m) from the puff center to the receptor in the along-wind direction,

$d_c$ is the distance (m) from the puff center to the receptor in the cross-wind direction,

$g$ is the vertical term (m) of the Gaussian equation,

$H$ is the effective height (m) above the ground of the puff center, and

$h$ is the mixed-layer height (m).

$$C(t) = \frac{Fq}{(2\pi)^{1/2} u' \sigma_y} g \exp\left[ -\frac{d_c^2}{2\sigma_y^2} \frac{u^2}{u'^2} \right] \tag{2.10}$$

$$F = \frac{1}{2}\left\{ erf\left[ \frac{d_{a2}}{\sqrt{2}\sigma_{y2}} \right] - erf\left[ \frac{d_{a1}}{\sqrt{2}\sigma_{y1}} \right] \right\} \tag{2.11}$$

For the near-field formulation,

where,

$u$ is the vector mean wind speed (m/s)

$u'$ is the scalar wind speed (defined as $u' = \left(u^2 + \sigma_V^2\right)^{1/2}$ with $\sigma_v$ = wind speed variance),

$q$ is the source emission rate (g/s)

$F$ is a "causality" function, and

$g$ is the vertical term (m) of the Gaussian equation,

### 2.3.2 CALPUFF

CALPUFF represents the state of the art in gas dispersion and toxic effects modeling. It simulates the effects of time and space varying meteorological conditions on pollutant transport, transformation (e.g., chemical reaction *etc*.), and removal under inhomogeneous and non-stationary conditions with a one-hour time step. The CALPUFF system is composed of three main modules (CALMET, CALPUFF, and CALPOST) and includes several preprocessing programs to interface the model to standard, routinely-available, meteorological, and geophysical datasets.

Those modules interact to assess toxic effects of specific gases by accounting for factors such as variability of meteorological conditions, dry deposition and dispersion over a variety of spatially varying land surfaces, low wind speed dispersion, or pollutant wet removal.

CALMET is a meteorological model that develops hourly wind and temperature fields on a three-dimensional gridded modeling domain with associated two-dimensional fields such as mixing height, surface characteristics, and dispersion properties. As input, it requires surface meteorological data, upper-air data, over-water observations, and geophysical data (CALPUFF Modeling System 2005). The generated information are the inputs for CALPUFF.

CALPUFF is a multi-layer, multi-species non-steady-state puff dispersion model which can simulate the effects of time- and space-varying meteorological conditions on pollutant transport, transformation, and removal. CALPUFF accounts for a number of factor which can affect the dispersion of the plume near and far from the source, some of which are mentioned in Table 2.3. The primary output files from CALPUFF contain either hourly concentrations or hourly deposition fluxes evaluated at selected receptor locations.

Table 2.3 Factors determining the pollutant dispersion and concentration at the surface

| | |
|---|---|
| • Building Downwash | • This factor is included in the form of a variable which is function of the building height |
| • Plume Rise | This is a function of:<br>• Plume Buoyancy and momentum<br>• Stable atmospheric stratification<br>• Partial penetration of the plume into an elevated stable inversion layer<br>• Vertical wind shear |
| • Overwater and Coastal Dispersion | • This factor is included in terms of the heat flux over water (significantly higher than the one over land) |
| • Complex Terrain | • This factor is included by modeling the terrain according to some models such as CTDM, the complex terrain model developed by EPA. |
| • Dry Deposition Rates | • Refers to the deposition of pollutant at the surface. This factor is included by accounting for such variables as gas properties, the surface characteristics and the atmospheric variables. |
| • Chemical Transformation | • Account for any chemical transformation that may occur in the plume during its dispersion |
| • Wet Removal | • Refers to the scavenging effect of rain on reactive pollutant. The main factors include the solubility and reactivity of the pollutant, and the nature of the precipitation |

CALPOST is used to process the output files produced by CALPUFF and summarize the results of the simulation. When performing visibility-related modeling, CALPOST uses concentrations from CALPUFF to compute extinction coefficients and related measures of visibility, reporting these for selected averaging times and locations.

## 2.4 Summary

In this chapter, we briefly review the state of knowledge in the modeling of the three main prospective hazards resulting from the loss of space vehicle, whether that loss was due to an accident or was a commanded destruct. In Section 2.1, we describe CRTF, a state of the art

debris model developed by ACTA, Inc. for NASA to analyze and predict the impact dispersion of debris resulting from the explosion of a space vehicle in flight. In Section 2.2, we discuss the different models used to describe blast propagation characteristics resulting from an explosion. Finally in Section 2.3, we briefly introduce, CALPUFF, a state of the art gas dispersion model used by the EPA and currently being considered by NASA to model the dispersion and toxicity effects of gases released from the loss of the space vehicle.

These models have been very useful in a variety of fields as they are used to analyze a disaster which already occurred or to predict the destructive potential of a particular design configuration. However, these models are limited by a number of constraints and assumptions which are either made during their conceptualization or are made by the user as an input for their execution. Those assumptions are made for a variety of reasons such as poor understanding of the phenomenon to be modeled, improvement in execution speed and decrease in computer memory load, to name a few. Furthermore, since these models focus on one hazard at a time, they assume that there is no interaction between the hazard being modeled and the other hazards generated by the same explosion.

In the next chapter, we review some of the techniques which have been developed over the years for the fusion of information, techniques which have the potential to minimize the effects of those assumptions and constraints.

# CHAPTER 3 REVIEW OF INFORMATION FUSION

In this chapter, we present the concept of information fusion and discuss some of the techniques that have been developed in this domain. Many other fusion techniques which are currently being developed are not discussed in this chapter.

## 3.1 A Framework for Information Fusion

Over the past two decades, interest in information fusion – also known as multi-source data fusion – has grown tremendously. It is widely used in various Department of Defense (DoD) research areas such as automated target recognition, battlefield surveillance, and guidance and control of autonomous vehicles. Also, it is being used increasingly in a number of non-DoD applications such as monitoring of complex machinery and medical diagnosis, to name a few (Hall & Llinas 1997).

However, what exactly is information fusion and why is it needed? Are there different types of fusion of information? What are the characteristics of a good information fusion algorithm?

### 3.1.1 A Definition

Given the variety of applications where this concept is being used, providing a concise definition to this terminology is not straightforward. Hall and Llinas (1997) provide one of the most comprehensive definitions of data fusion:

> "Data fusion is a formal framework in which are expressed means and tools for the alliance of data originating from different sources. It aims at obtaining information of greater quality; the exact definition of 'greater quality' will depend upon the application."

In the literature, however, most definitions reflect the type of applications in which the information fusion process is to be applied. Fassinut-Mombot & Choquel (2004) describe it as "a process that combines a set of heterogeneous measurements (numerical and/or symbolic) from multiple information sources in order to access a more reliable global and complete information with a reduced uncertainty." Comparing these definitions, one can readily see that "information of greater quality" in the more general definition is interpreted as "information that is more reliable, complete and with a reduced uncertainty."

The concept of information fusion is not new as humans and animals have evolved the capability to use multiple senses to improve their ability to survive (Hall & Llinas 1997). In this sense, the field of information fusion can be described as an attempt to mimic, through the development of methodologies and algorithms of varied complexity, our natural ability to process heterogeneous information.

### 3.1.2 Levels of Information Fusion

Traditionally the fusion of information has been identified to occur at: (1) a feature level and, (2) a decision level. However, some authors have pointed to the fact that such categorization misses the important features that separate the different types of information fusion systems being developed. In an attempt to address this issue Kokar *et al*. (2004) propose a formal theoretical framework based on category theory to define the various levels of information fusion and the interrelationships between these types.

### 3.1.3 The Need for Data Fusion

The following is extracted from Clark & Yuille (1990). It illustrates the need to fuse information.

> "…in human vision illusions can occur when the assumptions used by the visual system are wrong. Nevertheless the human visual system is rarely fooled by illusions since a mistake made by one sensory information processing module is usually corrected by another module. Thus we could argue that, in order to obtain a *domain independent sensory system*, it is necessary to combine, or fuse the results obtained from a number of modules. In this way, the constraints used by individual modules can be, to some extent, factored out in the fused sensory system so that the fused sensory system does not depend, or only weakly depends, on the assumptions made by its components modules. The idea here is that *data fusion can reduce the dependence of the solution of a sensory information problem on invalid a priori natural constraints*."

Data fusion is needed because, when properly implemented, it can reduce the dependence that the information needed may have on a particular information source. In this thesis, one of the benefits of using information fusion is that we can expect the fused expectation of casualties

resulting from the three prospective hazards described in Chapter 2 to be more robust to the assumptions (constraints) made their modeling approaches.

### 3.1.4 Framework for Data Fusion

Little has been published in the literature about formal frameworks by which an information fusion system should be designed and evaluated. One of those exceptions is an article by Yager (2004b), where the author develops a basic framework which imposes a number of properties that should be satisfied by a rational data fusion technology. In particular, the author derives some conditions on the fused value depending on some underlying compatibility relationships between it and the information provided by a source.

## 3.2 Bayesian Inference

### 3.2.1 Definition

Within the framework of probability theory applied to information fusion, Bayesian inference fusion – which we refer to as Bayesian fusion – has generated considerable interest in the literature and in a wide variety of practical applications. Applications vary from military-related areas such as tactical air defense and intelligence, to pattern recognition areas such as image processing, robotic map building (Moshiri, et al. 2002) and, human-computer interaction, to name a few.

Bayesian fusion is a statistical approach in which all forms of uncertainty in the information provided by the different sources are expressed in terms of probability measures. This allows the information provided by the sources to be of different physical meanings. Bayesian fusion allows that uncertain information to be fused and the dependencies between those sources to be expressed through the Bayes rule for decision-making.

Suppose we have $N$ sources of information $S_i$, i.e. $S_i \in \{S_1,...S_i,...,S_N\}$ producing $N$ output vectors $\boldsymbol{X_i}$, i.e. $\boldsymbol{X_i} \in \{X_1,...X_i,...,X_N\}$. Also, suppose we have two mutually-exclusive and exhaustive hypotheses $H_1$ and $H_2$ – so that $\boldsymbol{X_i}$ belongs to either $H_1$ or $H_2$ – as a result of an event $E$.

For our purpose, we could have for example as an event $E$: "The space vehicle has exploded 15 seconds after liftoff". Two hypotheses could be:

$H_1$: There is at least one casualty as a result of $E$

$H_2$: There is no casualty

The objective of the Bayesian rule for decision making is to determine which of the two hypotheses the combined output vectors support. The rule is expressed as

$$p(H_j|X_1,...,X_N) = \frac{p(X_1,...,X_N|H_j)P(H_j)}{p(X_1,...,X_N)} \text{ for } j = 1, 2 \tag{3.1}$$

and

$$p(X_1,...,X_N) = \sum_{j=1}^{2} p(X_1,...,X_N|H_j)P(H_j) \tag{3.2}$$

where

$p(H_j | X_1,...,X_N)$ represents the probability of the hypothesis $H_j$ given the output vector observed from each source. This term is known as the *a posteriori probability*.

$p(X_1,...,X_N | H_j)$ represents the conditional probability that the output vector mentioned above from the different sources is observed given that the hypothesis is indeed $H_j$. This term is known as the *likelihood* or the *prior joint probability*.

$P(H_j)$ represents how likely the Hypothesis $H_j$ is before the output vectors above are measured. This is referred to as the *a priori probability*.

$p(X_1,...,X_N)$ is a normalization factor. It represents the probability of the event $E$ taking place.

If the sources of information can be considered independent of each other – or weakly coupled in physicists' term – the *likelihood* in the Equation 3.1 simply reduces to

$$p(X_1,...,X_N | H_j) = p(X_1 | H_j) \times p(X_2 | H_j) \times ... \times p(X_N | H_j) \tag{3.3}$$

If instead, the sources cannot or should not be considered independent, *i.e.*, the sources are tightly coupled, then Equation 3.1 must be used, otherwise any information about the intersources correlations will be lost.

### 3.2.2 Limitations of Bayesian Inference Fusion

Although Bayesian fusion has been extensively used in many real-world applications, two significant limitations to its implementation are recognized:

1. Because of the very high dimensionality of the joint data space $(X_1,...X_i,...,X_N)$, the likelihood is difficult to estimate. Conventional dimension-reduction methods such as principal component analysis (PCA) cannot be used for this effort since in our case (Pan 2001), those output vectors may have different physical meanings and ranges as mentioned earlier (one could be the blast overpressure, and the others the gas concentration and the debris footprint). Pan (2001) proposes to optimally estimate this likelihood in the sense of maximum entropy principle by creating mapping functions for each individual source to describe their intrasource correlations. However, this approach is only valid for two sources as the maximum mutual information criterion can only be applied between two random vectors.
2. In Bayesian fusion, there is no means by which the imprecision around the uncertainty about the information provided by the sources can be expressed (Boudraa *et al.* 2004). In other words, in Bayesian fusion, it is assumed that we can determine the prior probability $P(H_j)$ with absolute certainty.

## 3.3 Interval-Based Dependency Bounds Analysis

### 3.3.1 Definition

We describe here distribution envelope determination (DEnv), also known as interval based dependency bounds analysis, developed by Berleant and Goodman-Strauss (Daniel & Chaim 1998) . DEnv is an uncertainty propagation convolution-based method for determining dependency bounds on cumulative distribution functions (cdfs) for the results of binary arithmetic operations on random variables (*A* and *B*) when the inputs' cdfs may themselves be uncertain (Regan *et al.* 2004). The merit of this discretization method[9] resides in the fact that it is developed to address cases where the dependencies between the random variables (or sources in information fusion terms) to be fused are not fully specified. Some of the key points in favor of this approach are the following:

1. When one cannot (or should not) assume independence between the sources to be fused, DEnv is able to fuse those sources whether their dependency structure is only partially-known or completely unknown.
2. In the case where the dependency structure is completely unknown, DEnv generates bounds that are not "too conservative". The issue concerning bounds which are excessively wide, or "hyperconservative" is discussed in Ferson & Long (1995).

[9] Discretization is an alternative method to Monte Carlo simulation in problems requiring fusion of independent sources. For more information on this, we refer the interest reader to (Daniel 1993;Ferson 1996)

### 3.3.2 Methodology

Suppose there are two random variables whose measurements can be represented as probability density functions (pdfs) $f_A(x)$ and $f_B(y)$[10]. The objective is to construct an upper and a lower bound on the distribution of a new variable $Z$ defined as $Z = A * B$ where $* \in \{+, -, \times, \div\}$.

1. Discretize $f_A(x)$ and $f_B(y)$ using histograms. This discretization can be done by partitioning the range of values of $A$ and $B$ into intervals ($A_i$'s and $B_j$'s) and calculating the probability under the curves $f_A(x)$ and $f_B(y)$. Similar to a copula-based approach, this discretization is information-losing rather than approximating since, as illustrated in Figure 3.1, there is no information on how the probability mass is distributed *within* each bar of the histogram.

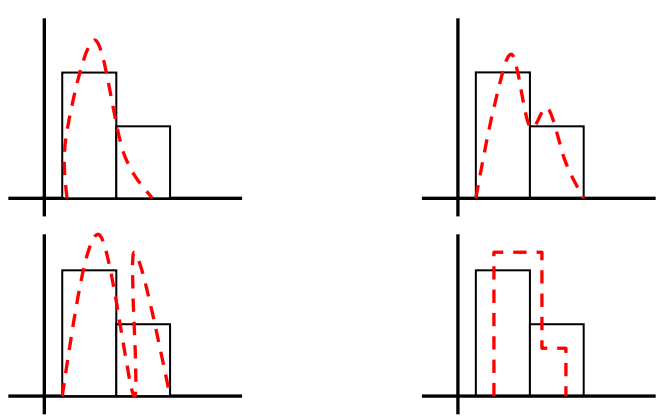


Figure 3.1 The dotted lines show a few members of the family of density functions corresponding to the same discretization (Daniel 1993). Therefore, by performing this discretization, some information provided by the source is lost.

[10] Berleant *et al*. (Daniel & Chaim 1998; Daniel, et al. 2003) show that this methodology also works when the sources present their information in forms other than pdfs.

2. As histograms, we may therefore reformulate these density functions as $f_A(x) = \{P(x \in A_i) = p_i : i = 1,...,n\}$ and $f_B(y) = \{P(x \in B_j) = p_j : j = 1,...,m\}$ where the $p_i$ 's and $p_j$ 's are probabilities associated with each interval $A_i$ and $B_j$ respectively.

3. A generated range of intervals with accompanying probabilities as shown in Figure 3.2 is called a *thicket* to suggest that those intervals may overlap (Regan et al. 2004).

4. Since different dependency relationships between the sources *A* and *B* will lead to different assignments of probability masses to the joint distribution matrix cells of the variable *Z*, which in turn will generate different pairs of bounding curves, the objective is to bound the space of *all these curves* by dependency bounds. Therefore, those dependency bounds will conservatively describe the space of all the possible results of a binary operation between *A* and *B*.

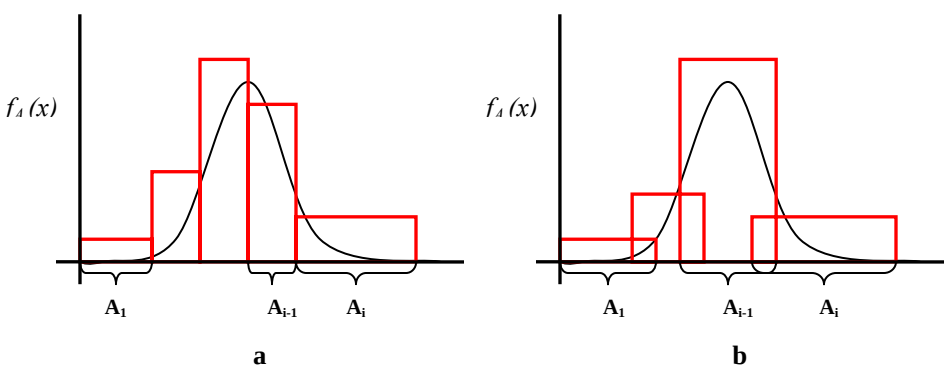



Figure 3.2 Pdf discretization a) Interval partition and b) Overlapping intervals (Regan *et al.* 2004)

5. For a joint distribution matrix, as shown in Table 3.1, of a random variable *Z* defined as $Z = A * B$ where $* \in \{+,-,\times,\div\}$, the following constraints are imposed:

| Column Constraints | Row Constraints |
|---|---|
| $p_{1*} = p_{11} + p_{12} + p_{13}$ | $p_{*1} = p_{11} + p_{21}$ |
| $p_{2*} = p_{21} + p_{22} + p_{23}$ | $p_{*2} = p_{12} + p_{22}$ |
| | $p_{*3} = p_{13} + p_{23}$ |

6. To derive the two dependency bounds mentioned in 4 above, one must know, for each point $z$ on the domain of $Z$, the highest and lowest cumulative probabilities (the extremes) that are possible for any dependency relationship between the sources $A$ and $B$.
7. Since the extremes have staircase shapes, one only needs to select the $z$ at which discontinuities occur.
8. It can be shown that the discontinuities can only occur at the endpoints of the intervals $z_{ij}$ of $Z$. Given those facts, the number of candidate points $z$ can be significantly reduced.

Table 3.1 Joint distribution matrix for random variable $Z$
Each cell contains a probability mass determined by the dependency between sources $A$ and $B$. Measurements from Source $A$ where divided in three intervals and those from Source $B$ in two

| $Z_{ij} = A_i * B_j$ (*Interval, associated mass*) | | *Source B* | | |
|---|---|---|---|---|
| | | $(B_1, p_{b1})$ | $(B_2, p_{b2})$ | |
| *Source A* | $(A_1, p_{a1})$ | $(Z_{11}, p_{11})$ | $(Z_{21}, p_{21})$ | $P_{*1}$ |
| | $(A_2, p_{a2})$ | $(Z_{12}, p_{12})$ | $(Z_{22}, p_{22})$ | $p_{*2}$ |
| | $(A_3, p_{a3})$ | $(Z_{13}, p_{13})$ | $(Z_{23}, p_{23})$ | $p_{*3}$ |
| | | $p_{1*}$ | $p_{2*}$ | $1$ |

9. For each point $z$ selected, determine the highest vertex $\overline{d}$ and lowest vertex $\underline{d}$.[11]

*Definition 1:* A joint distribution matrix $m \times n$ is called a vertex if at least $(m-1)\times(n-1)$ of its entries are equal to zero.

*Definition 2:* Given two joint distribution matrices $d_1$ and $d_2$ with entries $p_{ij}^1$ and $p_{ij}^2$ respectively, that $d_1$ is said to be *higher* than $d_2$ if

$$\sum_{(i,j)\in M} p_{ij}^1 > \sum_{(i,j)\in M} p_{ij}^2$$

where $M$ is a subset of the entries in $d_1$ and $d_2$

i.e. $$M \subseteq \{(i,j)/1 \le i \le n, 1 \le j \le m\}.$$

*Selection of M:* Consider the case where we are interested in $z \le a$ where $a \in \Re$. For $\overline{d}$, $M$ will consist of all the cells in which this situation may occur. For $\underline{d}$, $M$ will consist of all the cells in which this situation must occur. Table 3.2 and Table 3.3 are for $z \le 4$. Only the marginal probabilities, marginal intervals and the intervals of $Z$ are known

Table 3.2 Vertex $\overline{d}$.
The shaded cells represent $M$ if we want to maximize the probability of $z \le 4$.

| | | ***Source B*** | |
|---|---|---|---|
| | | [1, 2]<br>**1/2** | [2, 4]<br>**1/2** |
| ***Source A*** | [2, 3]<br>**1/4** | [2, 6]<br>* | [4, 12]<br>* |
| | [3, 4]<br>**1/2** | [3, 8]<br>* | [6, 16]<br>* |
| | [4, 5]<br>**1/4** | [4, 10]<br>* | [8, 20]<br>* |

[11] Daniel *et al*. describe in details the linear programming algorithm by which those vertices are found.

Table 3.3 Vertex $\underline{d}$ .
The shaded cells represent $M$ if we want to minimize the probability of $z \leq 4$

| | | ***Source B*** | |
|---|---|---|---|
| | | [1, 2]<br>**1/2** | [2, 4]<br>**1/2** |
| ***Source A*** | [2, 3]<br>**1/4** | [2, 6]<br>* | [4, 12]<br>* |
| | [3, 4]<br>**1/2** | [3, 8]<br>* | [6, 16]<br>* |
| | [4, 5]<br>**1/4** | [4, 10]<br>* | [8, 20]<br>* |

10. For each point $z$ selected, determine the highest and lowest cumulative probabilities by summing the probabilities contained in $M$.
11. Connect all the minima and maxima to form the lower and upper dependency bounds.

Berleant *et al.* (Daniel, *et al.* 2003) describe Statool, a DEnv software. Figure 3.3 shows typical output of this software.

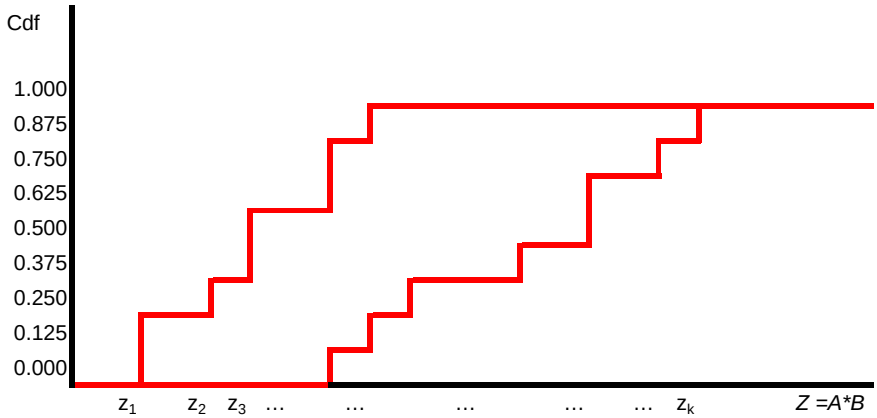



Figure 3.3 Typical Statool graphical output. Upper and lower envelopes on the distribution of a variable $Z = A*B$. As we can see, the upper bound rises faster than the lower bound. Under no assumption about the dependency, those envelopes are the maximum upper and lower limits of the distribution of $Z$.

## 3.4 Entropy Fusion Model

Here we describe the Entropy Fusion Model (EFM), one of the latest fusion methodology, proposed by Fassinut-Mombot *et al.* (2004). One of the problems in information fusion is the high computational complexity when the number of information sources is large (Fassinut-Mombot & Choquel 2004;Haenni & Lehmann 2002). To address this problem, EFM reduces the combination space by exploiting the redundancies and complementarities between the sources which it explicitly represents in the form of entropy measures. As the authors point out, the main advantage of this fusion approach is that it optimizes the choice of measurements provided by information sources in order to improve the performance of the information fusion system (Fassinut-Mombot & Choquel 2004).

EFM is a probabilistic fusion model based on Bayesian theory. However, the main difference between the two fusion approaches is that EFM provides a means to quantify the imprecision about the uncertainty of a hypothesis, while in Bayesian theory, imprecision is assumed to be null. To quantify imprecision, the authors to use Shannon's entropy measure, a measure of uncertainty in purely probabilistic systems.

For a discrete random variable $P$ (in this case the probability that a given hypothesis is true), Shannon's entropy describes the randomness (imprecision) of $P$ as follows (Shannon 1948):

$$H(P) = -\sum P \log P \tag{3.4}$$

### 3.4.1 Methodology

Given the following:

1. A set of $N$ hypotheses $\Theta = \{H_1, H_2, ..., H_N\}$ where each $H_i$, characterized by $M$ parameters $z_m^i$, is evaluated by $S$ sources of information $x_s$, each producing a set of measurement vectors $d^s = \{d_i^s\}_{i=1}^N$.

2. A fusion system $\sum = (X, Y)$ as shown in Figure 3.4 where $Y$ (the output) is the hypothesis $H_i$ supported by the vector $X$ (input) composed of the measurements provided by the $S$ information sources.

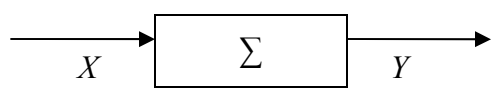



Figure 3.4 The fusion system

Then, according to Bayesian theory, the *uncertainty* that a source $x_s$ associates to the parameter $z_m^i$ of hypothesis $H_i$ can be described as a conditional probability as

$$P(z_m^i / d_i^s) = \frac{P(d_i^s, z_m^i)}{\sum_{m=1}^{M} P(d_i^s, z_m^i)} \tag{3.5}$$

While according to Shannon's entropy (1948), the *imprecision* around that uncertainty can be formulated as follows

$$H\left(H_i / d_i^s\right) = -\sum_{m=1}^{M} P\left(z_m^i / d_i^s\right) \log P\left(z_m^i / d_i^s\right) \tag{3.6}$$

where $P\left(z_m^i / d_i^s\right)$ is the *a posteriori* probability distribution of the parameter $z_m^i$ of the hypothesis $H_i$ given the measurement $d_i^s$ obtained from the source $x_s$, and $P\left(d_i^s, z_m^i\right)$ is the *joint* probability distribution of $d_i^s$ and $z_m^i$.

As the Bayesian rule to combine the *a posteriori* probabilities – calculated in Eg. 3.5 – of all the *S* information sources can prove very difficult and, sometime even impossible practically – since it requires the estimation of the a priori probability $P(H_i)$ and especially the likelihood $P\left(d_i^1, \ldots, d_i^s / H_i\right)$[12] – Fassinut-Mombot *et al.* (2004) propose an entropy combination rule which is briefly described below[13]:

*3.4.1.1 Entropy-Based Combination Rule*

This combination makes use of entropy measures whose relationships are illustrated in Figure 3.5.

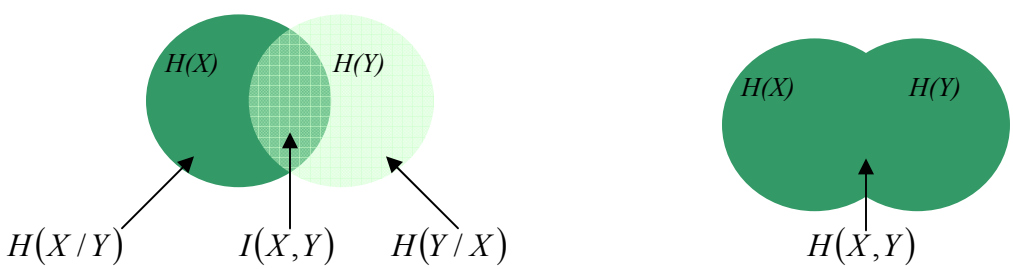



Figure 3.5 Venn diagram: Relationship between simple entropy, joint entropy and mutual information

*H(X), H(Y)*: Simple entropy measure of *X* and *Y*

[12] See Section 3.2 for Bayesian inference rule of combination

[13] This is only an overview. For a complete description, the interested reader is referred to Fassinut-Mombot *et al.* (2004).

*H(X, Y)*: Joint entropy of *X* and *Y*

$H(Y/X)$: Entropy of *Y* given that *X* has been measured

$I(X,Y)$: Mutual information between *X* and *Y*. (Measure of the degree of dependency between *X* and *Y*)

The following relationship can be deducted from Figure 3.5

$$I(X,Y)+H(Y/X)=H(Y)=constant \tag{3.7}$$

*Objective:* Find the reduced *optimal* subset $\widetilde{X}^*$ of *X* (composed of vector measurements $\{d_i^*\}_{i=1}^N$) that contains as much information as possible about the *most probable* hypothesis $\widetilde{H}_i^*$ (which is equivalent to maximizing $I(X,Y)$ in Figure 3.5) while *minimizing the imprecision* around it (which is equivalent to minimizing the conditional entropy $H(Y/X)$ in Figure 3.5). This objective can be formulated as

$$\widetilde{H}_i^* = \arg\min_i \left\{ H\left(H_i / \widetilde{d}_i^*\right) \right\} \tag{3.8}$$

To ensure the quality of the solution proposed in Equation 3.8 – which is based on the *minimization of the conditional entropy* – a second quality factor is defined based on *mutual information maximization* as

$$q\left(H_i / \widetilde{d}_i^*\right) = \frac{I\left(\widetilde{d}_i^*, H_i\right)}{\sum_{k=1}^{k=N} I\left(\widetilde{d}_k^*, H_k\right)} \tag{3.9}$$

where the denominator is the sum of the mutual information between each potential hypothesis and the optimal subset measurements.

Therefore, the optimal subset of measurements $\widetilde{d}_i^*$ corresponding to the most probable hypothesis $\widetilde{H}_i^*$ is found if and only if

$$H\left(\widetilde{H}_i^*, \widetilde{d}_i^*\right) = \min_i \left\{H\left(H_i / \widetilde{d}_i^*\right)\right\} \tag{3.10}$$

and

$$q\left(\widetilde{H}^*{}_i / \widetilde{d}_i^*\right) = \max_i \left\{q\left(H_i / \widetilde{d}_i^*\right)\right\} \tag{3.1}$$

However, the evaluation of Equations (3.10) and (3.11) necessitates the computation of the joint probabilities $P\left(d_i^s, z_m^i\right)$ in Equation (3.6). Using the maximum entropy principle (E.T.Jaynes 1957) with two observable functions $\phi_1\left(d_i^s, z_m^i\right)$ and $\phi_2\left(d_i^s, z_m^i\right)$, the joint probabilities are estimated as follows:

$$\hat{P}\left(d_i^s, z_m^i\right) = \frac{1}{N(\lambda)}.\exp - \left[\lambda_1 \phi_1\left(d_i^s, z_m^i\right) + \lambda_2 \phi_2\left(d_i^s, z_m^i\right)\right] \tag{3.2}$$

Where

$$\phi_1\left(d_i^s, z_m^i\right) = z_m^i . d_i^s \tag{3.3}$$

$$\phi_2\left(d_i^s, z_m^i\right) = d_i^s \log d_i^s \tag{3.4}$$

## 3.5 Dempster-Shafer Inference

Within the framework of evidence theory, Dempster-Shafer (D-S) fusion methodology, also known as the theory of belief functions, is a popular uncertainty propagation method. It is a generalization of Bayesian probability calculus as any Bayesian model of uncertainty is a special case of a belief function model.

Belief functions are probabilities that are constructed from evidence. However, a fundamental difference between traditional probability – which includes Bayesian probability – and belief theory is that in the former, evidence can only be assigned to a single hypothesis while in the latter, evidence can be assigned to a set of hypotheses. The theory of belief functions is based on two ideas:

1. The idea of obtaining degrees of belief for one question from subjective probabilities for a related question, and
2. Dempster's rule for combining (or "fusing") such degrees of belief when they are based on independent sources of evidence (Shafer 1990).

Although the D-S theory is developed to fuse sources only under the assumption of independence between them – an assumption which is sometimes unrealistic in some applications – some authors have recently shown that this assumption can be relaxed (Regan et al 2004; Pieczynski 2000) . Regan *et al.* (2004) for example, have shown that belief functions

perform similarly to dependency bounds convolutions, distribution envelope determination (DEnv) and interval probabilities when they are restricted to cumulative distributions on the positive reals.

### 3.5.1 Theory of Belief

#### *3.5.1.1 Belief and Plausibility Measures*

The main advantage of the D-S theory is its ability to effectively quantity the uncertainty (or ignorance) of a source about a given hypothesis. This ignorance is generally quantified with three fuzzy measures: the belief measure (*Bel*), the plausibility measure (*Pl*), and the basic probability assignment (*m*). A fuzzy measure $\mu$ on $\Theta$ is a mapping from subsets of $\Theta$ into the unit interval (Yager 1999;Yager 2004a), $\mu : 2^{\Theta} \rightarrow [0,1]$, such that

1. $\mu(\varnothing) = 0$
2. $\mu(\Theta) = 1$
3. $\mu(A) \geq \mu(B)$ if $B \subset A$

The basic probability assignment (bpa), belief and, plausibility are defined within the following framework: Given a set $\Theta$ of $N$ exhaustive and mutually exclusive hypotheses, also called the *frame of discernment*, defined as

$$\Theta = \{H_1, H_2, ..., H_N\}$$

for which the power set is formulated as

$$2^{\Theta} = \{\underbrace{\varnothing, H_1, ..., H_N}_{\text{Hypotheses}}, \underbrace{(H_1 \cup H_2), ....(H_1 \cup ... \cup H_{N-1})}_{\text{Set of Hypotheses}}, \Theta\}$$

The bpa function or *m-function* $m_i : 2^{\Theta} \rightarrow [0,1]$ assigns a mass $m_i(A_j)$ from a source of information $i$ to a single hypothesis or set of hypotheses[14] $A_j$ of $2^{\Theta}$. This probability mass represents how strongly the evidence from source $i$ supports $A_j$ (Colot et al., 2002). An information source assigns mass values only to those hypotheses for which it has direct evidence. That is, if an information source cannot distinguish between two propositions $A_j$ and $A_k$, it assigns a mass value to the set including both propositions, i.e. $A_j \cup A_k$ (Valerie Kaftandjian *et al.* 2003). The m-function verifies the fuzzy properties mentioned above:

1. $$m_i(\varnothing) = 0 \tag{3.5}$$

2. $$\sum_{A \subseteq 2^{\Theta}} m_i(A) \leq 1 \text{ [15]} \tag{3.6}$$

The *belief measure* $Bel_i(A_j)$ and the *plausibility measure* $Pl_i(A_j)$ on hypothesis $A_j$ of source $i$ can be seen, respectively, as the lower and upper bounds on the probability $m_i(A_j)$, and are obtained as follows:

$$Bel_i(A_j) = \sum_{B \subseteq A_j} m_j(B) \tag{3.7}$$

$$Pl_i(A_j) = \sum_{A_j \cap B \neq \phi} m_j(B) \tag{3.8}$$

where any $B$, subset of $A_j$, is called a focal element provided $m_i(B) > 0$.

[14] Recall that evidence can be assigned to a single hypothesis as well as to a set of hypotheses in D-S theory.
[15] Note that the *m*-function differs from basic probabilities as it sums does not necessarily add up to 1

Considering the power set $2^{\Theta}$ instead of the frame of discernment $\Theta$ only, as in the Bayesian inference case (section 3.2), allows for the quantification of uncertainties (*ambiguities*) between or *ignorance* about a set of hypotheses.

*3.5.1.2 Rule of Combination*

The objective in any information fusion technique is to combine, through the use of combination rules, the beliefs of all the sources toward a given proposition *A*. Suppose we have *S* sources of information.

If the combined mass assignment of all the *S* sources toward the proposition A can is

$$m_{\oplus} = m_1 \oplus m_2 \oplus \ldots \oplus m_S \tag{3.19}$$

where $\oplus$ is the operator of combination (Colot et al., 2002), then, in D-S theory, the combined belief of all those sources toward proposition *A* is expressed as

$$m_{\oplus}(A) = \frac{m_{\cap}(A)}{1 - m(\varnothing)} \quad \forall A \subseteq 2^{\Theta} \tag{3.20}$$

where

$$m_{\cap}(A) = \sum_{B \cap C = A} m_1(B) m_2(C) \quad \forall A \subseteq 2^{\Theta} \tag{3.21}$$

$$m(\varnothing) = \sum_{B \cap C = \varnothing} m_1(B) m_2(C) \tag{3.22}$$

where $1 - m(\varnothing)$ is a normalizing factor assuming that the sum of all the masses from the *S* sources for proposition *A* is equal to 1 (A special case of Equation (3.16)).

### 3.5.2 Conflict Management

In practical applications, the information provided by the different sources may conflict with each other. For example, a conflict could originate if for two of three prospective hazards sources (blast propagation, debris dispersion and toxicity level and dispersion), one concludes that there will be no casualties in a given area while the other concludes that all living in that area will be killed. One may take a conservative approach and choose to believe that everyone will be killed. However, practically, the actions to be taken based on this assumption might be very costly. The spaceport site is judged unsafe and therefore is disqualified; the resources (ambulance, emergency personnel and infrastructure, *etc.*) necessary to operate the spaceport might be overestimated, the number of cancelled launches because of potential consequences is much higher than it should be, *etc.*). Clearly, conflict is one criterion by which a fusion process robustness should be measured.

In the Dempster-Shafer rule of combination introduced earlier in Equation 3.19, conflict handling is reflected by the factor $m(\varnothing)$. However this combination rule has been heavily criticized in the literature because it can only work if the two sources are not totally conflicting. In other words, there exists at least two set hypotheses that intersect $B \cap C \neq \varnothing$). In our example above, the information provided by the two sources conflict totally. Therefore in this case, this combination rule cannot be used.

Several solutions to this problem have been proposed in the literature such as the hypothesis of non-exhaustivity of the frame of discernment proposed by Smets (1990) or the redistribution of the conflicting mass over the remaining focal elements of the frame of discernment proposed by Yager (1987). However, Colot et al. (2002) describe all the approaches

and subsequently propose a more generic framework from which all those solutions can be derived. We will not discuss the details of their approach. However, their main idea is to express the total belief toward a proposition $A$ in terms of the two contributors:

1. The conjunctive rule of combination $m_{\cap}(A)$, as defined in Equation 3.21
2. The portion of the conflicting mass assigned to subset A, $m^{c}(A)$, which is defined as

$$m^{c}(A) = w(A,M) \times m(\varnothing) \qquad \forall A \subseteq \mathrm{P} \tag{3.23}$$

$$m^{c}(A) = 0 \text{ Otherwise} \tag{3.24}$$

Subject to $\sum_{A \subseteq \mathrm{P}} w(A,M) = 1$

where

$w(A,M)$ is a weighting factor which is a function of A and the sources of conflict

$P$ is $\{\Theta\}$ in Yager's case and $\{\varnothing\}$ in Smets'case for example.

Therefore, according to Colot et al. (2002) the combined belief toward proposition $A$ should be expressed as

$$m(A) = m_{\cap}(A) + m^{c}(A) \qquad \forall A \subseteq \mathrm{P} \tag{3.25}$$

### 3.5.3 Mass Assignment

In evidence theory, one of the main difficulties lies in modeling the knowledge of the problem by initializing the belief functions $m_i$ as well as possible (Colot et al., 2002).

### 3.5.4 Cumulative Distribution Representation

One of the latest propositions for knowledge representation, is the idea of cumulative distribution functions induced by a Dempster-Shafer belief structure (a belief cumulative distribution or B-CD) introduced by Yager (2004a). The following are the main results from this work:

1. When a source represents its knowledge using a B-CD belief structure, it provides an *imprecise description of the cumulative distribution* associated with the assumed underlying probability distribution. On the contrary, when a source represents its knowledge using D-S belief functions, it provides an *imprecise description of the underlying probability distribution*.
2. The main difference between a B-CD $\mathcal{F}(x)$ and a classical cumulative distribution function $F(x)$ of variable $x$ is on the *uniqueness of the relationship* between those cumulative distributions and their associated density or mass functions. While for each cumulative distribution there is only one probability distribution in classical probability, a B-CD corresponds to a family of belief structures. This information losing scheme is analogous to the DEnv case presented earlier where a histogram may represent a family of pdfs.
3. As a result, B-CDs are a less informative way of source knowledge representation than belief structure. However, they may be easier to characterize (Yager 2004a)

*3.5.4.1 Methodology*

Suppose:

1. An *ordered* frame of discernment $\Theta = \{B_1, B_2, ..., B_N\}$[16] where $B_i$ are the focal elements of this frame, each of them assigned a bpa $m(B_i)$
2. Suppose the $B_i$s are convex, that is the $B_i$s can be formulated as intervals $B_i = [a_i, b_i)$

Then, all the elements $x_i \in [a_i, b_i)$ are assigned the same weight $m(B_i)$, resulting for example in the *belief structure* below for 4 focal elements $B_1, B_2, B_3$ and $B_4$ (Figure 3.6)

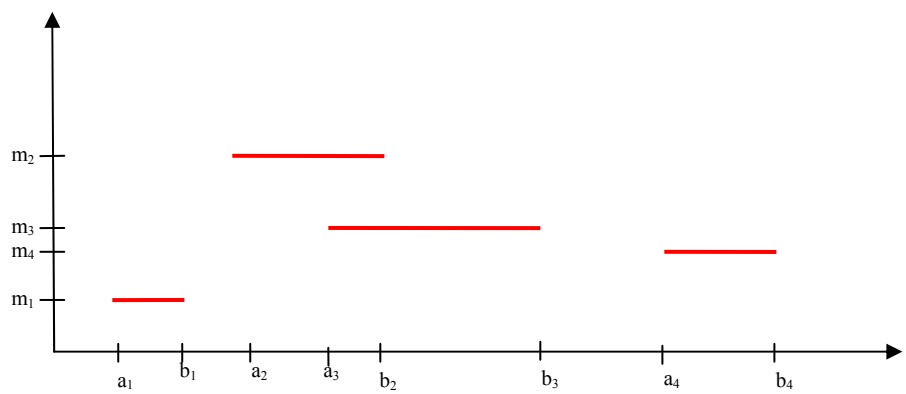



Figure 3.6 D-S belief structure

3. For $L_x = \{y | y \in \Theta, y \le x\}$, the subset of elements of $\Theta$ less than or equal to $x$, the cumulative distribution function of $x$ can be defined as $F(x) = \Pr(L_x)$.

Since in D-S theory, the probability of a hypothesis is bounded by its belief and its plausibility, we have the relationship $Bel(L_x) \le \Pr(L_x) \le Pl(L_x)$. Therefore

[16] This ordered frame of discernment can be seen as a subset of the real line.

$$F(x) \in [Bel(L_x), Pl(L_x)] \tag{3.26}$$

where, according to Equations 3.17 and 3.18,

$$Bel(L_x) = \sum_{B_i \subseteq L_x} m(B_i) \tag{3.27}$$

$$Pl(L_x) = \sum_{B_i \cap L_x \neq \phi} m(B_i) \tag{3.28}$$

Using the relations described above, the B-CD corresponding to the belief structure of Figure 3.6 can be derived as follows (Table 3.4). The graphical representation of this B-CD is shown in Figure 3.7.

Table 3.4 Lower and upper bounds for distribution function of *x*.

| **Disjoint Intervals** | $L_x$ | $Bel(L_x)$ | $Pl(L_x)$ |
|---|---|---|---|
| If $x < a_1$ | *0* | *0* | *0* |
| If $a_1 \leq x < b_1$ | $x < b_1$ | *0* | $m_1$ |
| If $b_1 \leq x < a_2$ | $x < a_2$ | $m_1$ | $m_1$ |
| If $a_2 \leq x < a_3$ | $x < a_3$ | $m_1$ | $m_1 + m_2$ |
| If $a_3 \leq x < b_2$ | $x < b_2$ | $m_1$ | $m_1 + m_2 + m_3$ |
| If $b_2 \leq x < b_3$ | $x < b_3$ | $m_1 + m_2$ | $m_1 + m_2 + m_3$ |
| If $b_3 \leq x < a_4$ | $x < a_4$ | $m_1 + m_2 + m_3$ | $m_1 + m_2 + m_3$ |
| If $a_4 \leq x < b_4$ | $x < b_4$ | $m_1 + m_2 + m_3$ | *1* |
| If $x \geq b_4$ | $x \geq b_4$ | *1* | *1* |

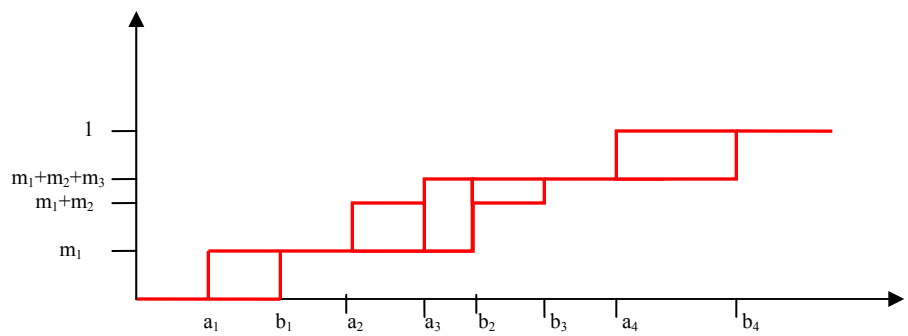



Figure 3.7 B-CD of belief structure of Table 3.4[17]

As an alternative way of knowledge representation, the author proposes those B-CDs where human agents, for example, could express their knowledge in the form of Figure 3.8 or as tuples $\mathcal{F} = \{(C_i, D_i), i = 1 \text{ to } q\}$, where $C_i$ are disjoint intervals forming a partitioning of $\Theta$ and, $D_i$ are intervals $[g_i, h_i] \subseteq [0, 1]$.

$\mathcal{F}$ must satisfy the following monotonicity condition:

$$\text{If } C_i > C_j, \text{ then } g_i > g_j \text{ and } h_i > h_j$$

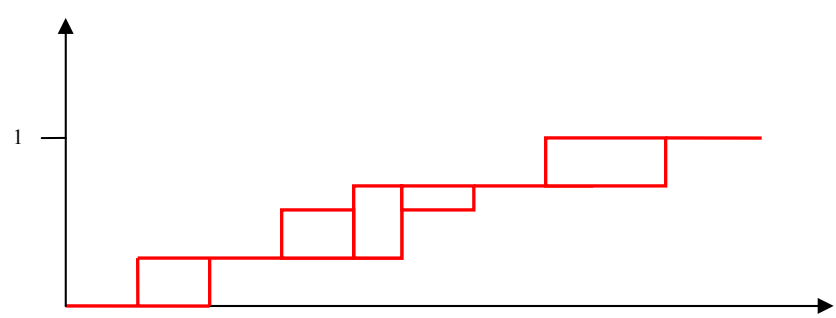



Figure 3.8 Typical agent supplied B-CD function

[17] This B-CD is constructed assuming a complete belief structure *i.e.* $\sum_{A \subseteq 2^{\Theta}} m_i(A) = 1$. However, the author addresses the case of an incomplete belief structure as well.

# CHAPTER 4 FUSION METHODOLOGY

In this chapter we describe our approach to solving the problem stated in Chapter 1. We first establish a set of criteria for the selection of an appropriate fusion scheme in Section 4.1. In Section 4.2, we expand on the theory of the selected scheme and illustrate how it would be used to fuse the three hazards outputs described in Chapter 3. A comparison between current practices and the approach proposed in this research is then presented in Section 4.3. However, to be used, such a tool should be appropriately implemented.

## 4.1 Criteria for Selecting an Appropriate Fusion Scheme

### 4.1.1 Interactions Between Hazards

An important criterion to consider in the selection of an appropriate fusion scheme should be its ability to account for the interactions between the effects of the hazards being studied. For example, how a blast impulse affects the different sizes of falling debris on one hand, and how it impacts the dispersion of a toxicant plume on the other are certainly very complex phenomena. Therefore, it results from these facts that failing to account for these effects and interactions, especially if they are significant can certainly invalidate the outcome of any fusion process between them.

### 4.1.2 Interdependency of Events

Considering, following a vehicle explosion, all the human casualties in a geographical area of interest, one can identify three events which can be defined as follows: Event 1: {The individual is a casualty of falling debris}, Event 2: {The individual is a casualty due of the explosion blast} and Event 3: {The individual is a casualty of the toxicant plume}. If only fatalities are considered casualties, then those events are obviously mutually exclusive. Furthermore, those events are also necessarily dependent because they are defined for the same geographical area. This observation imposes, therefore, the following second criterion the fusion scheme must satisfy: The fusion scheme should be able to account for the fact that the events (in terms of the type of casualties) resulting from the explosion of a launch vehicle may not necessarily be independent of each other.

### 4.1.3 Verification and Validation

#### *4.1.3.1 Verification and Validation Issues*

Verification is formally defined by the IEEE Standard Glossary of Software Engineering Terminology as "The process of evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase." On the other hand, validation is "The process of evaluating a system or component during or at the end of the development process to determine whether it satisfies specified requirements." Given the nature of the problem under study in this research, verification and validation (V&V)

is perhaps the most difficult criterion a fusion scheme should satisfy. This is the case because the problem under study comes with at least three major issues which must be addressed.

1. Scarcity of data related to a rare event: The explosion of a launch vehicle is an extremely rare event for which casualty data is scarce. Furthermore, accessibility to that limited amount of data can also prove problematic given the security concerns surrounding the operation of launch vehicles. Therefore, this issue is primarily of concern for the validation of the fusion scheme, as there may not be concrete data against which the fusion output could be compared.

2. Flaws with current methods for estimating $E_C$: We explained earlier that the methods currently used to estimate the expectation of casualties do not combine the outcomes of all the hazards in order to reach a consensus on the total number of casualties caused by a vehicle explosion. In order to properly verify a fusion scheme, one should formulate a set of conditions (such as independence between the events) under which, both the current methodology on one hand, and the fusion scheme being considered on the other, will be tested. Verification would be attained if the fusion scheme generates outputs similar to the current methodology. However, as current practices do not provide a single estimate while fusion does (current practices generate a separate estimate for each hazard), comparing the outputs of both approaches is problematic.

3. Complexity of interactions between hazards: This issue, which was introduced earlier as a criterion for the selection of a fusion scheme poses a V&V problem. How can a fusion scheme reliably account for the potentially complex interactions between the effects of all the hazards produced?

*4.1.3.2 Verification and Validation Approach*

In light of the issues discussed above, how one intends to verify and validate the fusion scheme should be clearly stated. To overcome the problem posed by the scarcity of data, a fusion scheme is given consideration if it has been (or can be) validated in a different problem setting, where the availability of data was not (or is) an issue. The assumption here is that if a fusion scheme has been proven to work elsewhere, then it is safe to assume that it will work here as well.

Evaluating a fusion scheme against current practices is problematic because it involves comparing one output on one hand to three on the other. However, this could be overcome provided the assumption is made that if current practices were combining their three estimates to generate a single one, it would be with the underlying assumption that the events corresponding to those estimates (as defined in Section 4.1.2) are independent of each other. This imposes therefore an additional criterion to the fusion scheme which we formulate as follows: The fusion scheme should allow for the combination of estimates whether their corresponding events are assumed to be independent or dependent. The independency case would simulate current practices (which we now refer as the base case) while the dependency case would represent what is being proposed in this research (which we now refer as the alternative case).

In addition to the two issues mentioned above, the V&V of a fusion scheme requires it to account, however it may be, for the potentially complex interactions between all the hazards. A solution to this issue can be found by properly selecting the level at which the fusion should take place. Information fusions are generally performed at either the feature level (data fusion) or at

the decision level (decision fusion). In light of the problem being addressed here, the difference between the two levels can be represented graphically as shown in Figure 4.1.

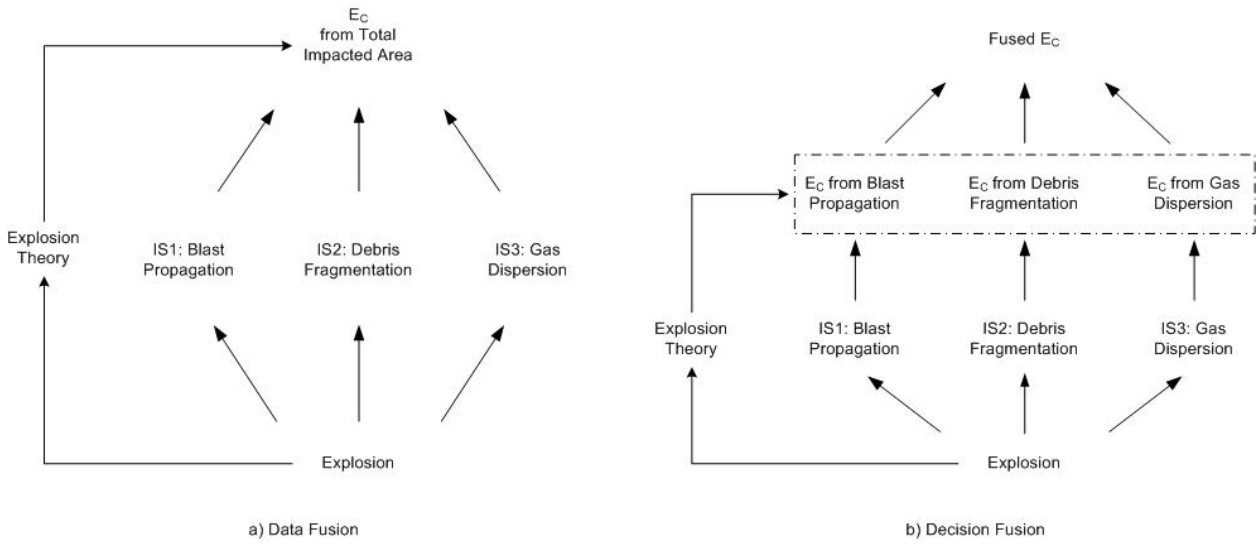



Figure 4.1The fusion of information sources (IS1, IS2 and IS3) after an explosion may be performed at the feature or at the decision level

Treating each hazard as a source of information, Figure 4.1 illustrates the following: In data fusion, once each source provides a set of features (such as number of fragments, explosion energy and quantity of toxicant released), explosion theory is used to determine the total impacted area from which an expectation of casualty can be estimated. In decision fusion, however, each information source uses explosion theory to determine an impacted area from which it estimates an expectation of casualties. The three expectations of casualties are then fused into a single estimate. Therefore, while in data fusion the handling of interactions between the hazards' effects is assigned to the fusion scheme through its implementation of explosion theory, in decision fusion this complex task is delegated to each hazard model, thereby greatly

reducing the requirement of the fusion scheme. However, it must be noted that by delegating such responsibility, the decision fusion approach is less robust than data fusion as it is more sensitive to the quality of (i.e. the proper implementation of explosion theory in) each hazard model. The following subsections formulate two additional criteria relating to the interpretation of the fusion output and its implementation.

#### 4.1.4 Output Interpretation

The output produced by the fusion process should not be difficult to interpret. This criterion favors the fusion scheme that produces outputs (fused data) that require a minimum amount of, or no post-processing before being of value to the decision maker. In other words, a fusion scheme is considered according to this criterion if it greatly simplifies the transformation process from fused data to usable information. In view of the larger application development effort undertaken in this research, this criterion falls into the usability category. We discuss usability criteria in more details in Section 5.1, where the most appropriate fusion scheme implementation approach is identified.

#### 4.1.5 Ease of Implementation

The difficulty with which a theory can be implemented and used in practical situations often limits its tangible benefits and appeal. Among the major barriers for the use of a theory, one can cite the high cost associated to implement it, or the large amount of computing resources it requires to perform as claimed. This leads to the formulation of an additional criterion: The fusion scheme should be such that the complete application in which it is embedded is able to

run on an average desktop computer (CPU of 1000 MHz and 1 GB of memory) without significant computation time penalty.

## 4.2 Distribution Envelope Determination (DEnv)

### 4.2.1 Fusion Techniques Evaluation

The criteria developed in the previous section were used to evaluate the fusion techniques presented in Chapter 3. From the evaluation results, summarized in Table 4.1 below, it was concluded that distribution envelope determination (DEnv) was the most suitable fusion techniques for the problem under study. A suitability scale (low, moderate and high) was used with the Dempster-Shafer theory of belief (DST) rated as moderate, and both the Bayesian Inference (BI) and the Entropy Fusion Model (EFM) rated as low.

Table 4.1 Assessment of fusion techniques

| **Fusion Scheme Criteria** | | **Fusion Techniques** | | | |
|---|---|---|---|---|---|
| | | **BI** | **DEnv** | **EFM** | **DST** |
| **Interaction Between Hazards** | | • | • | • | • |
| **Interdependency of Events** | | | • | | |
| **Verification and Validation** | **Scarcity of Data** | | • | | • |
| | **Flaws with current methods** | • | • | | • |
| | **Interactions Between hazards** | • | • | • | • |
| **Output Interpretation** | | • | • | • | • |
| **Ease of Implementation** | | | • | • | |
| **Suitability** | | Low | Low | High | Low |

Bayesian fusion has been used extensively in real world applications, and therefore using it comes with the benefits of having a great amount of resources published in the literature. However, to use Bayesian fusion, one must assume that the *a priori* probabilities of all the hypotheses in the hypothesis space are known with absolute certainty. Furthermore, the joint likelihood is traditionally very difficult given the high dimensionality of the joint data space. Therefore the criteria relating to the interdependency of events (for the joint likelihood) and the scarcity of data (for *a priori* probabilities) cannot be satisfied. The EFM is best suited when the number of information sources is large, as it specifically addresses the high computational complexity problem in those cases by exploiting the redundancies and complementarities between the sources. While this fusion scheme may prove attractive from an implementation standpoint, it does not respond to the objective of our study as we do not seek to reduce the number of information sources (hazards). DST's poor handling of conflicting information on the other hand limits its ability to address the interdependency between events.

### 4.2.2 Implementing DEnv

DEnv is a convolution-based method for determining dependency bounds of binary arithmetic operations on random variables (RVs), even when their corresponding cdfs may be uncertain. This is in contrast to Monte Carlo simulation which assumes that the distributions of the random variables are known. Furthermore, in cases where the dependency relationship between the RVs is not specified, DEnv can produce result bounds which include the entire range of possible dependencies.

To implement this method through decision fusion, we treat the expectation of casualties generated by the hazard models as RVs. We therefore define $E_{CB}$, $E_{CD}$ and $E_{CG}$ as the expectations of casualties' random variables generated respectively by blast propagation, debris fragmentation and gas dispersion. We also define $E_{CFUS}$ as the fused expectation of casualties RV generated by DEnv. We recall from Chapter 1 the general formulation of $E_C$.

$$E_C = E_{PH} \times P_{C/E} \times P_E \tag{4.1}$$

Where:

$E_C$ is the expected casualties

$E_{PH}$ is the expected population hazarded (or the number of people expected to be a casualties)

$P_{C/E}$ is the probability of having a casualty following an explosion of the vehicle; and

$P_E$ is the probability that an explosion of the vehicle will occur.

As it is not possible to determine with absolute certainty the exact number of people in a given area at any given time or, their exact location (whether they are outside or in some kind of shelter, such as home, office building etc.), the true distributions of $E_{CB}$, $E_{CD}$, or $E_{CG}$ cannot be found. However, by performing a set of $N$ simulations to represent selections of random conditions[18], a histogram can be produced for each of them. Those histograms can then be used as input for the use of DEnv.

### 4.2.3 Functionalities of Statool

DEnv has been implemented as software named Statool. Figure 4.2 below shows its graphical interface. Given two RVs, the software can perform 4 binary operations (+, -, /, ×) and

[18] Wind profile, explosion speed, position of vehicle, time of day, etc.

4 types of relational operations: greater than, greater than or equal to, less than, and less than or equal to. The Min ( ) and Max ( ) operations are also supported. The user also has the option of selecting whether the RVs should be treated as independent or dependent. In the latter case, the user can set a correlation value (button labeled as "known dep.") or make no assumption on the dependency structure between the two RVs (button labeled "unknown dep."). When opting for a correlation setting, the software has built-in capability to assist the user in specifying a correlation value by determining an acceptable range of values given the two RVs. However, as it uses the Pearson correlation coefficient (noted $\rho$) the software only supports correlations of a linear type.

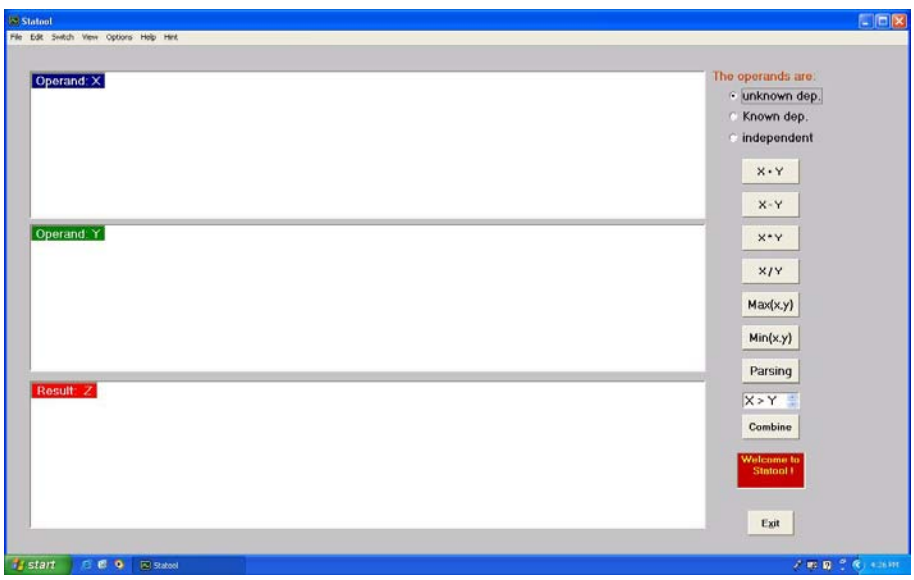



Figure 4.2 Statool graphical user interface

Given two RVs $X$ and $Y$, the Pearson correlation coefficient is defined as

$$\rho = \frac{E\left[\left(X - E(X)\right)\left(Y - E(Y)\right)\right]}{\sqrt{V(X)V(Y)}}$$

Where $V(X)$ and $V(Y)$ are variances of $X$ and $Y$, respectively, and $E$ is the expectation operator. As there is no reason for assuming that the dependency between any two hazards effects[19] is linear, we implement DEnv with the option of not making any assumption about the dependency relationships.

### 4.2.4 The DEnv Algorithm

Suppose $E_{CFUS} = E_{Ci} + E_{Cj}$ where $E_{Ci}$ and $E_{Cj}$ are RVs – corresponding to the effects of 2 known hazards – whose distributions are represented as histograms[20] (a set of intervals with their corresponding probabilities). These distributions can be represented in a "joint distribution tableau" in order to (1) determine (if the 2 RVs are considered independent of each other) or (2) bound (if the 2 RVs are dependent of each other) the joint distribution of $E_{Ci}$ and $E_{Cj}$ (in other words, $E_{CFUS}$). Using interval-based arithmetic[21], a "joint distribution tableau" as shown in Table 4.2 conveniently displays the relationship between a joint distribution and its associated marginals. If $E_{Ci}$ and $E_{Cj}$ are independent, then the joint probabilities are obtained by multiplying the marginals (e.g. $p_{11} = p_{j1} \times p_{i1}$). However, if $E_{Ci}$ and $E_{Cj}$ are dependent, and the nature of that dependency is unknown, then the joint probabilities cannot be determined. In such case, DEnv makes an inference about the joint distribution by identifying the possible range of the joint probabilities.

[19] Section 4.7 shows how our implementation is designed to accommodate additional hazards effects beyond the 3 considered in this study.

[20] As discussed in Section 4.3.2

[21] In interval analysis, if $Z = X+Y$ where $X$ is the interval $[i, j]$ and $Y$ the interval $[k, l]$, then $Z$ is the interval $[i+k, j+l]$

Table 4.2 Joint distribution tableau of $E_{CFUS} = E_{Ci} + E_{Cj}$

| | | | |
|---|---|---|---|
| $E_{CFUS} \in [i_1 + k_1, j_1 + l_1]$ <br> $p_{11}$=? | $E_{CFUS} \in [i_2 + k_1, j_2 + l_1]$ <br> $p_{12}$=? | $E_{CFUS} \in [i_3 + k_1, j_3 + l_1]$ <br> $p_{13}$=? | $E_{Cj} \in [k_1, l_1]$ <br> $p_{1j}$ |
| $E_{CFUS} \in [i_1 + k_2, j_1 + l_2]$ <br> $p_{21}$=? | $E_{CFUS} \in [i_2 + k_2, j_2 + l_2]$ <br> $p_{22}$=? | $E_{CFUS} \in [i_3 + k_2, j_3 + l_2]$ <br> $p_{23}$=? | $E_{Cj} \in [k_2, l_2]$ <br> $p_{2j}$ |
| $E_{CFUS} \in [i_1 + k_3, j_1 + l_3]$ <br> $p_{31}$=? | $E_{CFUS} \in [i_2 + k_3, j_2 + l_3]$ <br> $p_{32}$=? | $E_{CFUS} \in [i_3 + k_3, j_3 + l_3]$ <br> $p_{33}$=? | $E_{Cj} \in [k_3, l_3]$ <br> $p_{3j}$ |
| $E_{Ci} \in [i_1, j_1]$ <br> $p_{i1}$ | $E_{Ci} \in [i_2, j_2]$ <br> $p_{i2}$ | $E_{Ci} \in [i_3, j_3]$ <br> $p_{i3}$ | $\overset{\leftrightarrow}{E_{Ci}}$ $\overset{\updownarrow}{E_{Cj}}$ |

In other words, for every value of the random variable $E_{CFUS}$, we are interested in the minimum and maximum cumulative probability possible. For example, given Table 4.3 below, if we are interested in $e_{CFUS} \leq 0.057$, then[22] only the grey cells should be considered.

Table 4.3 Joint distribution tableau of $E_{CFUS} = E_{Ci} + E_{Cj}$

| | | | |
|---|---|---|---|
| $E_{CFUS} \in [0.021, 0.055]$ <br> $p_{11}$=? | $E_{CFUS} \in [0.025, 0.057]$ <br> $p_{12}$=? | $E_{CFUS} \in [0.027, 0.06]$ <br> $p_{13}$=? | $E_{Cj} \in [0.02, 0.05]$ <br> 0.5 |
| $E_{CFUS} \in [0.031, 0.065]$ <br> $p_{21}$=? | $E_{CFUS} \in [0.035, 0.067]$ <br> $p_{22}$=? | $E_{CFUS} \in [0.037, 0.07]$ <br> $p_{23}$=? | $E_{Cj} \in [0.03, 0.06]$ <br> 0.3 |
| $E_{CFUS} \in [0.061, 0.125]$ <br> $p_{31}$=? | $E_{CFUS} \in [0.065, 0.127]$ <br> $p_{32}$=? | $E_{CFUS} \in [0.067, 0.13]$ <br> $p_{33}$=? | $E_{Cj} \in [0.06, 0.12]$ <br> 0.2 |
| $E_{Ci} \in [0.001, 0.005]$ <br> 0.25 | $E_{Ci} \in [0.005, 0.007]$ <br> 0.5 | $E_{Ci} \in [0.007, 0.01]$ <br> 0.25 | $\overset{\leftrightarrow}{E_{Ci}}$ $\overset{\updownarrow}{E_{Cj}}$ |

[22] $e_{CFUS}$ is a sample value of the random variable $E_{CFUS}$.

Among those cells, the maximum cumulative probability at *0.057* can be found by maximizing the sum of the probabilities of the cells in which $e_{CFUS} \leq 0.057$ may occur. On the other hand, the minimum cumulative probability at *0.057* is found by minimizing the sum of the probabilities of the cells in which $e_{CFUS} \leq 0.057$ must occur. As Table 4.2 imposes the following constraints,

Row constraints: $\sum_{b=1}^{3} p_{ab} = p_{aj}$ for a = 1 to 3

Column constraints: $\sum_{a=1}^{3} p_{ab} = p_{ib}$ for b = 1 to 3

finding the maximum and minimum cumulative probabilities at $e_{CFUS} = 0.057$ becomes equivalent to solving a set of two optimization questions, which can be done through linear programming (LP):

$$\begin{aligned} &Maximize\left(p_{11}+p_{21}+p_{31}+p_{12}+p_{22}+p_{32}\right) \\ &subject\ to \\ &\sum_{b=1}^{3} p_{ab} = p_{aj}\ \ for\ a = 1\ to\ 3 \\ &\sum_{a=1}^{3} p_{ab} = p_{ib}\ \ for\ b = 1\ to\ 3 \\ &p_{ij} \geq 0 \end{aligned} \qquad \begin{aligned} &Minimize\left(p_{11}+p_{12}\right) \\ &subject\ to \\ &\sum_{b=1}^{3} p_{ab} = p_{aj}\ \ for\ a = 1\ to\ 3 \\ &\sum_{a=1}^{3} p_{ab} = p_{ib}\ \ for\ b = 1\ to\ 3 \\ &p_{ij} \geq 0 \end{aligned} \tag{4.2}$$

In Equation 4.2 above, what needs to be maximized or minimized is referred to as the objective function. Therefore, for each value of $E_{CFUS}$, two LP problems must be solved. Connecting all the cumulative probabilities produces a maximum and a minimum curve within which all the possible cumulative distribution functions of $E_{CFUS}$ must belong. Figure 4.3 is a screenshot of Statool.

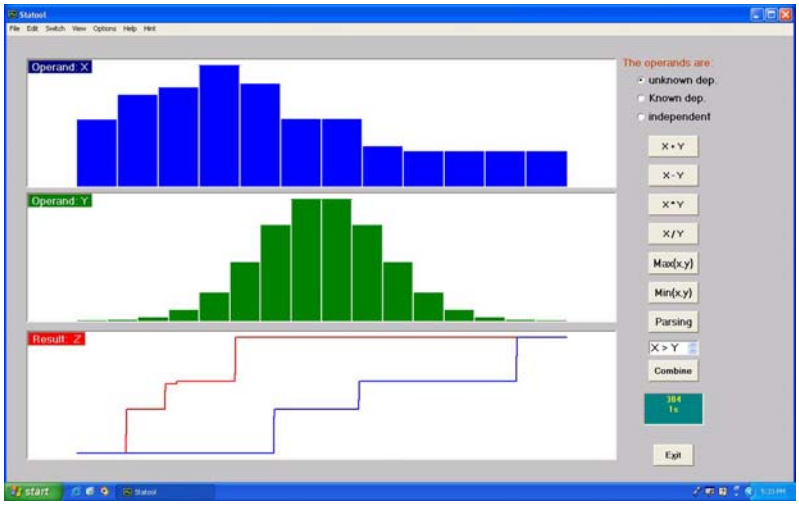



Figure 4.3 An output of Statool. The 3rd pane displays the bounding curves of all the possible CDF of the joint distribution of two RVs, *X* and *Y*.

LP problems can be solved through the traditional simplex method. However, given a joint distribution tableau of *R* rows and *C* columns, the corresponding simplex tableau could be large as it consists of $(R+C+1)$ rows and $(R+1)\times(C+1)$ columns. The transportation simplex method (TSM), which is a more efficient method for solving larger LP problems, can be used if the joint distribution tableau can be transformed into a transportation tableau. We limit the length of our discussion by omitting explanation of the simplex method, concentrating instead on how DEnv applies the TSM.

### 4.2.5 DEnv Implementation of the TSM

To transform Table 4.2 into a transportation tableau, the two marginals $E_{Cj}$ and $E_{Ci}$ are treated respectively as sources and destinations, where the total supply and the total demand are both equal to 1. The TSM is a two-phase procedure; it involves first finding an initial feasible

solution (IFS) and then proceeding iteratively to make improvements in the solution until an optimal solution is reached (Anderson et. al., 2000).

In the search of an IFS, DEnv implements both the Northwest corner method and Russell's approximation method, leaving the choice of using one or the other to the user. While the Northwest corner method is better suited to handle degeneracy[23] in the IFS, Russell's approximation strength resides in its ability to generate an IFS which is very close to the best solution, thereby diminishing subsequent computation efforts (Zhang & Berleant, 2003). The optimal solution is then found using an implementation of the modified distribution method (MODI) and the stepping stone method.

It must be noted however, that the objective of the TSM is to minimize the objective function. Therefore, for the upper bound cases (such as the left side of Equation 4.2) the goal of maximization must be transformed into one of minimization. DEnv does this by setting the costs $C_{ab}$'s of the cells contributing to the objective function to -1. For the lower bound cases (such as the right side of Equation 4.2), the $C_{ab}$'s are set to 1, while the costs of non-contributing cells are set to 0. Using Equation 4.2 to illustrate the transformation, DEnv actually solves the following:

$$\begin{array}{ll}
Minimize\left(-p_{11}-p_{21}-p_{31}-p_{12}-p_{22}-p_{32}\right) & Minimize\left(p_{11}+p_{12}\right) \\
subject\ to & subject\ to \\
\sum_{b=1}^{3} p_{ab} = p_{aj}\ \ for\ a=1\ to\ 3 & \sum_{b=1}^{3} p_{ab} = p_{aj}\ \ for\ a=1\ to\ 3 \\
\sum_{a=1}^{3} p_{ab} = p_{ib}\ \ for\ b=1\ to\ 3 & \sum_{a=1}^{3} p_{ab} = p_{ib}\ \ for\ b=1\ to\ 3 \\
C_{11}=C_{21}=C_{31}=C_{12}=C_{22}=C_{32}=-1 & C_{11}=1 \\
other\ C_{ab}=0,\ \ p_{ij}\geq 0 & other\ C_{ab}=0,\ p_{ij}\geq 0
\end{array} \qquad (4.3)$$

[23] Degeneracy occurs whenever the IFS has less than *R+C-1* cells with probabilities different than 0.

Table 4.4 below is the transportation tableau corresponding Table 4.3 when the objective is to find the maximum cumulative probability[24] at $e_{CFUS} = 0.057$.

Table 4.4 Transportation tableau for maximum cumulative probability at $e_{CFUS} = 0.057$

| Source | Destination | | | Supply |
|---|---|---|---|---|
| | $E_{Ci} \in [0.001, 0.005]$ | $E_{Ci} \in [0.005, 0.007]$ | $E_{Ci} \in [0.007, 0.01]$ | |
| $E_{Cj} \in [0.02, 0.05]$ | $E_{CFUS} \in [0.021, 0.055]$<br>$C_{11} = -1$ $p_{11} = ?$ | $E_{CFUS} \in [0.025, 0.057]$<br>$C_{12} = -1$ $p_{12} = ?$ | $E_{CFUS} \in [0.027, 0.06]$<br>$C_{13} = -1$ $p_{13} = ?$ | 0.5 |
| $E_{Cj} \in [0.03, 0.06]$ | $E_{CFUS} \in [0.031, 0.065]$<br>$C_{21} = -1$ $p_{21} = ?$ | $E_{CFUS} \in [0.035, 0.067]$<br>$C_{22} = -1$ $p_{22} = ?$ | $E_{CFUS} \in [0.037, 0.07]$<br>$C_{23} = -1$ $p_{23} = ?$ | 0.3 |
| $E_{Cj} \in [0.06, 0.12]$ | $E_{CFUS} \in [0.061, 0.125]$<br>$C_{31} = 0$ $p_{31} = ?$ | $E_{CFUS} \in [0.065, 0.127]$<br>$C_{32} = 0$ $p_{32} = ?$ | $E_{CFUS} \in [0.067, 0.13]$<br>$C_{33} = 0$ $p_{33} = ?$ | 0.2 |
| Demand | 0.25 | 0.5 | 0.25 | 1 |

[24] The transportation tableau to find the minimum cumulative probability at $e_{CFUS} = 0.057$ has $C_{11} = 1$ and all other $C_{ab}$'s equal to 0.

## 4.3 Fusion by DEnv versus Current Practices

Before discussing any implementation issues related to solving the problem under study, we make in Table 4.5, a comparison summary between the approach used by the decision level fusion being proposed and the one used in current practices, in estimating the expectation of casualties resulting from a launch vehicle explosion.

Table 4.5 Decision fusion by DEnv versus current practices

| | **Decision Level Fusion** | **Current Practices** |
|---|---|---|
| **Interaction Between Hazards** | Dependent upon the quality of the individual hazard models | Dependent upon the quality of the individual hazard models |
| **Interdependency of Events** | Accounted for, whether the events are considered interdependent or not | Not available |
| **Number of estimates to analyze before making a decision** | 1<br>(The fusion of all the hazard models' outputs) | Number of hazards considered in the analysis |
| **Metric of estimate(s)** | Upper and Lower probabilities of exceeding (or not exceeding) a pre-specified tolerance limit<br>(E.g. probability of exceeding the tolerance limit is at least 30%) | Mean $E_C$<br>Mean Expectation of Casualties<br>(E.g. 24 casualties in 1 million launches or $24\times10^{-6}$) |
| **Quality of metric** | Provides a range in which the true probability of exceeding the tolerance limit falls<br>(If the upper limit is 0, then it is known for certainty that the tolerance limit cannot be reached) [25] | – Lack of confidence interval around the means erodes the validity of the estimates.<br>– No information on the possibility of reaching or exceeding the pre-specified tolerance limit |
| **Metric Interpretation** | Requires no post processing – this information can be easily understood by the decision maker and the general public | Requires no post processing<br>– However, the physical meaning of $E_C$ may not be easy to understand by the general public.<br>– With more than 1 estimate to analyze, proper interpretation is problematic |

[25] It should be reminded that this depends on the quality of hazard models and, on the quality of the sheltering model which is discussed in Section 4.6.

Figure 4.4 below provides a graphical representation of the new metric being used with the decision level fusion approach.

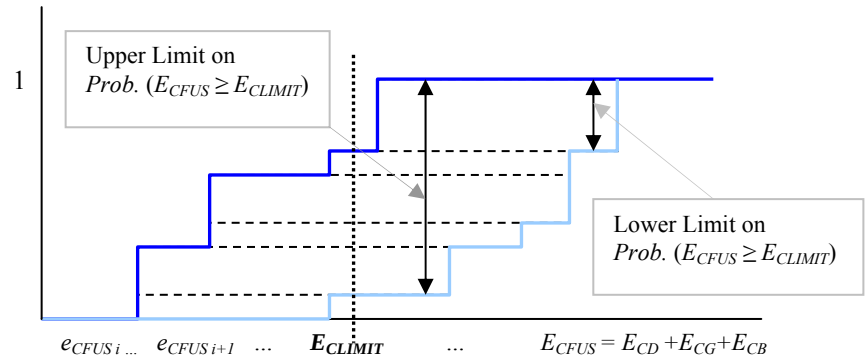



Figure 4.4 Curves bounding the true cdf of the fused output $E_{CFUS}$

# CHAPTER 5 SYSTEM DESIGN

While the previous chapter concentrated on establishing the theory on which the fusion of multiple hazards can be performed, here we discuss the development of a tool which would allow its user to design and perform simulations of launch vehicle disasters (explosions), and to analyze their outputs in terms of the risk likely to be inflicted on the population on the ground, should such disasters indeed occur. We establish a set of criteria for this tool in Section 5.1 and describe it in Section 5.2. Section 5.3 and 5.4 then discuss some key functionalities of the tool.

## 5.1 Criteria for Selecting an Appropriate Design Philosophy

### 5.1.1 Modularity and Expendability

We mentioned in Section 4.1.3.2 that a decision fusion approach was more sensitive (less robust) to the quality of the hazard models because it delegates to them the responsibility of implementing explosion theories. It is therefore desirable that the risk analysis tool that will implement the fusion scheme allows for the substitution of better, more advanced hazard models as they become available. In other words, the tool to be developed should have a modular architecture, one that allows individual components to be unplugged and replaced.

Along with being modular, the tool should be expandable. The present study concentrates on the three main hazards generated by the explosion of vehicles currently in operation, such as the space shuttle, the launcher Ariane 5 or, the Delta IV rocket. To ensure the viability of such a

tool, it should be designed to accommodate any additional hazard that could be produced by future vehicles. One may think of new fuels and new materials as being sources of new type of hazards.

### 5.1.2 Functionality

Since the expectation of casualties is a function of the distribution of people on the ground – irrespective of the nature of the hazard – the risk analysis tool should be able to build exposure and sheltering models for any geographical region under study. Among the many factors to be included in sheltering models, one may cite the population's distribution according to building types (whether they are outside, in a mobile home or in multi-story building) and, the age distribution of the population (to estimate their resistance to toxic gases for example). Issues related to the construction of sheltering models are discussed in Section 5.3. An additional desirable functionality of this tool should be the ability to graphically display its output on a geographical information system (GIS). This functionality is particular of importance for communicating any risk to the user, upper management and, the general public.

### 5.1.3 Usability

Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. Although a full usability study is not conducted in this study, it is necessary to acknowledge its importance in ensuring that the tool being developed is indeed, usable. The definition above translates into a risk analysis tool that is at least easy to learn and that allows for different experiments to be conducted with

relative ease. Variables in an experiment include the geographical location to study, the vehicle and the hazards to consider, and the dependency assumptions to make.

## 5.2 Development of an ArcGIS Extension

Based on the criteria identified above, we determined that ArcGIS Desktop 9.1, a geographical information system developed by ESRI, provided the best environment for the development and deployment of a launch vehicle risk analysis tool. The objectives of this section are (1) to introduce what are known as "extensions" in ArcGIS and, (2) to describe the risk analysis tool developed for this study.

### 5.2.1 ArcGIS Extensions

We use ArcView, which is one the four ArcGIS Desktop geographical information system software products developed by ESRI. It gives access to a suite of integrated applications such as ArcMap, ArcCatalog and ModelBuilder which allow the user to perform a number of GIS tasks of various complexities. The rich resources and the application framework it offers allows for the development of plug-in components which can be used to extend those applications in virtually any direction. Those capabilities (and the richness of the user interface ArcMap provides for communication purposes) fulfill well the criteria established in Section 5.1.

Since ArcGIS applications are component object model-based (or COM-based), they allow for custom components to be developed from COM-compliant environments (such as Visual Basic 6 and Visual C++) as dynamically linked libraries (DLLs) or as object linking and embedding control extensions (OCXs). Components that are developed for a specific task can

then be grouped into an extension which, when plugged into the ArcGIS Desktop framework, augments the functionalities of any application of interest (ArcMap in our case). A number of extensions, such as Spatial Analyst, 3D Analyst have been developed to extend the capabilities of ArcGIS in some specific areas. We call our risk analysis tool *Risk Analyst* and describe it in the next section. Information on how to build an extension can be downloaded from the ESRI website.

### 5.2.2 Risk Analyst

*Risk Analyst'*s function is to allow its users to design and perform simulations of launch vehicle disasters (explosions), and to analyze their outputs in terms of the risk likely to be inflicted on the population on the ground, should such disasters indeed occur. Standard simulations will typically consist of (1) selecting a geographical area of interest, (2) constructing a sheltering and exposure model for that area, (3) simulating vehicle explosions at various state vectors[26], (4) collecting the output from each hazard models, (5) fusing those outputs and, (6) displaying the fused output as a layer on ArcMap. Figure 5.5 illustrates the routine of such an experiment. Figure 5.1 shows the structure of *Risk Analyst*. It is composed of a toolbar (*RiskToolbar*) and a toolbox (*RiskToolbox*), as most ArcGIS extensions.

[26] Different speeds, angles, altitudes and, downranges.

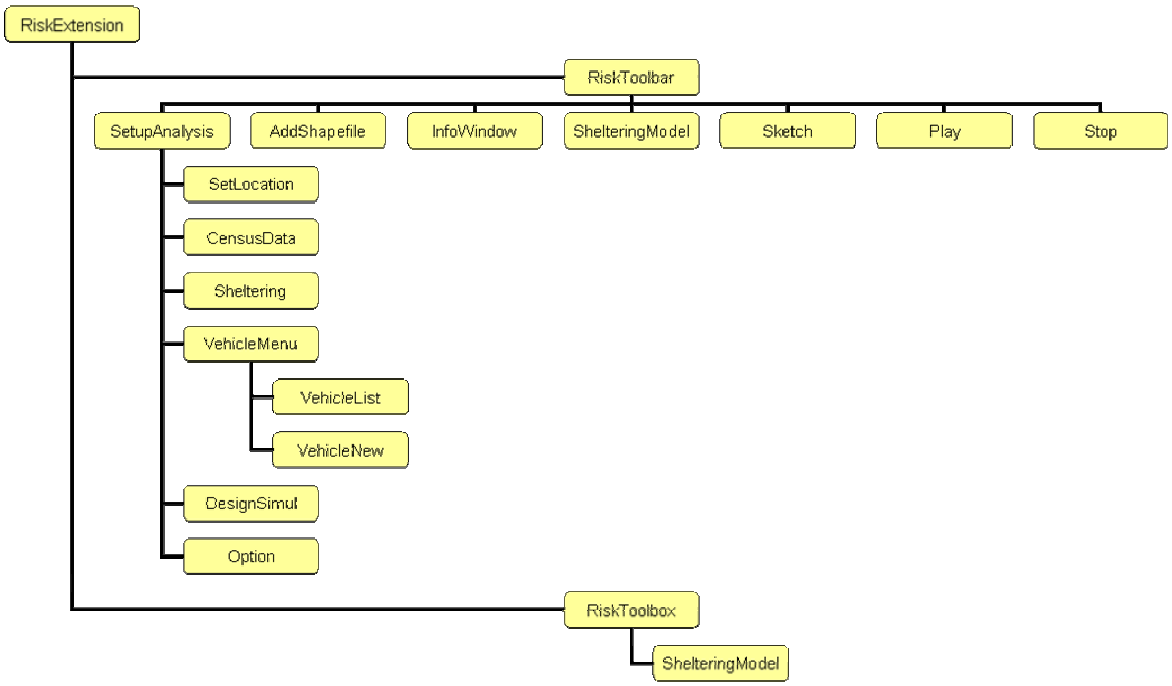



Figure 5.1 Structure of the extension *Risk Analyst*

The main user interface of *Risk Analyst* is its toolbar, shown in Figure 5.2 below. From it, the user can perform a series of tasks such as selecting and loading an area map, choosing a launch vehicle from a list, or designing a simulation experiment. The user can also launch the sheltering building tool located in the toolbox. We discuss the sheltering model in Section 5.3.

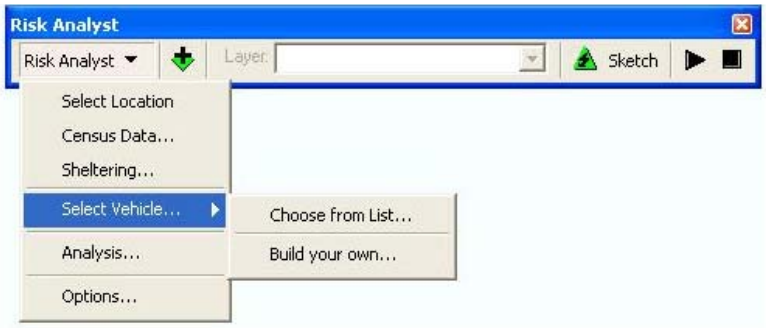



Figure 5.2 *Risk Analyst* toolbar

The form shown in Figure 5.3 below allows the user to specify such options as the types of hazards to be considered in the analysis, the fusion scheme (independent or dependent) to be adopted and, the tolerance level for the total expectation of casualties.

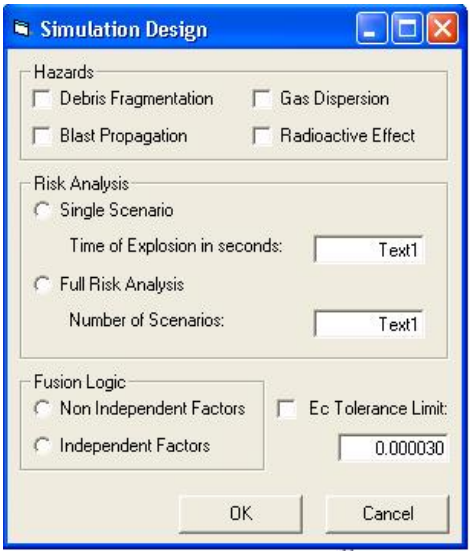



Figure 5.3 Analysis window

Figure 5.4 shows the census data input window, where the user can load census tables. Each of these tables is described in Section 5.3.

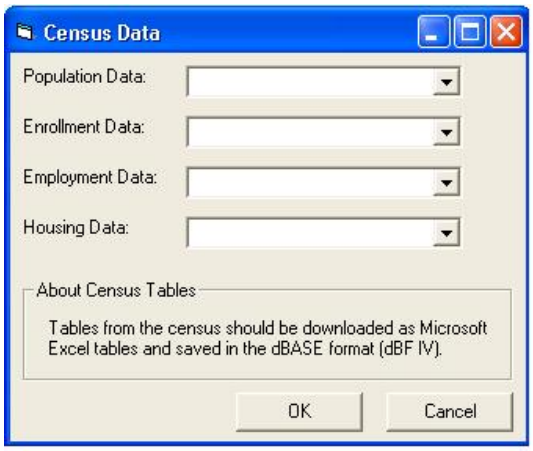



Figure 5.4 Census data window

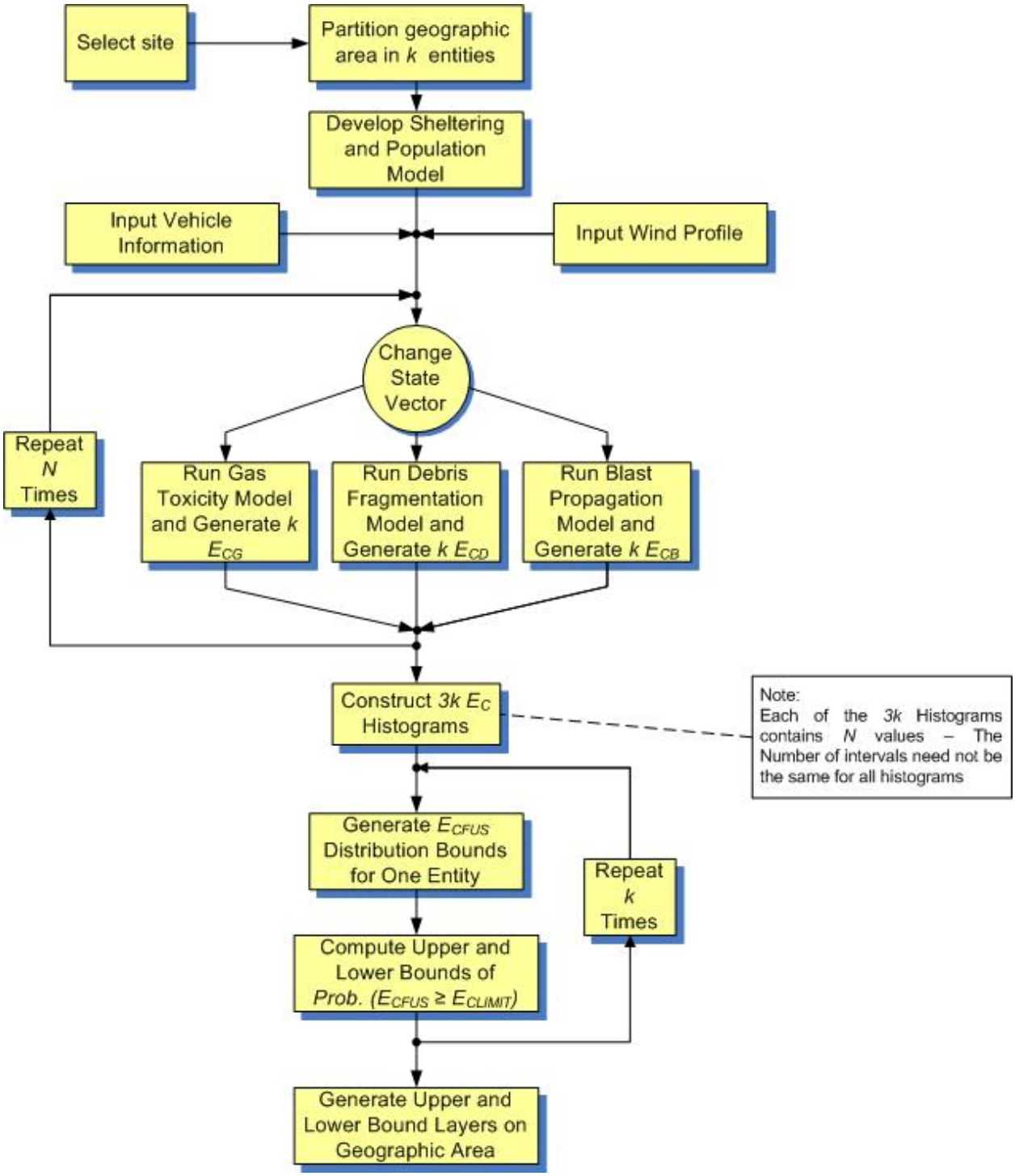



Figure 5.5 Simulation to estimate the risk incurred by the public as a result of a launch vehicle explosion.

## 5.3 Sheltering Model

### 5.3.1 Mathematical Model

The sheltering model introduced above is an implementation of a mathematical model derived from previous work by Larson and Jerold (Larson and Jerold, 2001). The original model was used by the Columbia Accident Investigation Board (CAIB) to develop the population sheltering model of the states of Texas and Louisiana to assess the debris impact of space shuttle Columbia in 2003 (Larson and Jerold, 2001). The only difference between this model and the one by Larson and Jerold is that the contribution of people living in group quarters[27] is clearly expressed (terms involving *gG*). Not only does this model compute the distribution of people by population center – which we address in the next section – in the area of interest (such as a state), it also provides degrees of sheltering offered by roofs and upper floors for categories of structures most likely to be found in that area. The sheltering distribution of people in a population center *c* is expressed in Equation 5.1 below while Table 5.1 describes each of its variables.

$$\vec{c} = p\left\{eE\underline{O}\vec{o} + sS\vec{s} + gG\vec{g} + \left(1 - eE - sS - gG\right)\left[\left(1-d\right)\underline{H}\vec{h} + \begin{pmatrix}0 & 0 & \dots & d\end{pmatrix}^T\right]\right\} \tag{5.1}$$

Or in its expanded form[28]

[27] The Census Bureau classifies all people not living in households as living in group quarters. There are two types of group quarters: institutional (for example, correctional facilities, nursing homes, and mental hospitals) and non-institutional (for example, college dormitories, military barracks, group homes, missions, and shelters (FactFinder.com).

[28] We note the matrix ***O*** as $\underline{O}$ and the vector ***o*** as $\vec{o}$

$$\begin{pmatrix} c_1 \\ c_2 \\ \vdots \\ c_i \end{pmatrix} = p\left\{ eE\begin{pmatrix} O_{11} & O_{12} & \dots & O_{1j} \\ O_{21} & O_{22} & \cdots & O_{2j} \\ \vdots & \vdots & \ddots & \vdots \\ O_{i1} & O_{i2} & \dots & O_{ij} \end{pmatrix}\begin{pmatrix} o_1 \\ o_2 \\ \vdots \\ o_j \end{pmatrix} + sS\begin{pmatrix} s_1 \\ s_2 \\ \vdots \\ s_i \end{pmatrix} + gG\begin{pmatrix} g_1 \\ g_2 \\ \vdots \\ g_i \end{pmatrix} + (1 - eE - sS - gG)\left[(1-d)\begin{pmatrix} H_{11} & H_{12} & \dots & H_{1k} \\ H_{21} & H_{22} & \cdots & H_{2k} \\ \vdots & \vdots & \ddots & \vdots \\ H_{i1} & H_{i2} & \dots & H_{ik} \end{pmatrix}\begin{pmatrix} h_1 \\ h_2 \\ \vdots \\ h_k \end{pmatrix} + \begin{pmatrix} 0 \\ 0 \\ \vdots \\ d \end{pmatrix}\right]\right\}$$

Where

Table 5.1 Sheltering mathematical model variables

| Variable Type | Variable | Description |
|---|---|---|
| **Census Data** | *p* | Population in a given population center |
| | *s* | Percentage of people enrolled in school |
| | *e* | Percentage of people employed |
| | *g* | Percentage of population registered in Group Quarters |
| | *o vector* | Percentage of people who are at work who are in each occupation category |
| | *h vector* | Percentage of housing units in each of the *k* housing structure categories |
| **User Assumptions** | *D* | Percentage of people at home who are outside (1-d is the percentage of people at home who are inside) |
| | *S* | Percentage of enrolled students actually in school |
| | *E* | Percentage of employed people actually at work |
| | *G* | Percentage of registered Group Quarter people actually in group Quarters |
| **Sheltering Structure Distribution by Census Categories**<br><br>**Engineering Judgment** | *O matrix* | Percentage of people in each occupation of the *j* category who are assigned to each of the *i* sheltering types |
| | *s vector* | Percentage of students in school who are assigned to each of the *i* sheltering types |
| | *g vector* | Percentage of people in Group Quarters who are assigned to each of the *i* sheltering types |
| | *H matrix* | Percentage of each housing structure category which are assigned to each of the *i* sheltering types |

### 5.3.2 Sheltering Data

As described in Table 5.1, the variables in Equation 5.1 are determined from a variety of data. In order to extract census data related to the demographic statistics of any geographical area, a decision had to be made to determine the census resolution for our population center. Data

from the census can be retrieved by geographic entity. The largest entities are the national and state levels while the smallest are identified as block groups and blocks. Given that the land area requirement for a spaceport and the likely impact on its surroundings will likely exceed the size of a census block or block group, this entity has a level of detail which may not be necessary for decision making. We selected as a default setting the census county subdivision level (known as CCD level), as our population center size for the following reasons:

- This level provides a good balance between entities that are too large (state and counties) and of little value for risk analysis and, entities that are too small (blocks) which may provide unnecessary detail for risk estimation. The state of Florida, for example, contains 299 census county subdivisions. Building a sheltering model for all of them can be done without significant time penalty on an average desktop.
- CCDs are named after counties and well-known local places, making them ideal for conveying information to the decision makers and the general public. For example, the subdivision where NASA's[29] Kennedy Space Center is located is simply called Space Center, which is how the general public calls that area as well. Figure 5.6 illustrates this point for Central Florida.
- CCDs provide a better resolution than the county level as any county may be composed of several CCDs (e.g. Brevard County, where KSC is located has 11 subdivisions).

[29] National Aeronautics and Space Administration

While we selected the CCD as a default population center size, the computer model we developed is capable of constructing sheltering models at other entity levels as well (block, block group, county) since all tables provided by the census follow the same format[30].

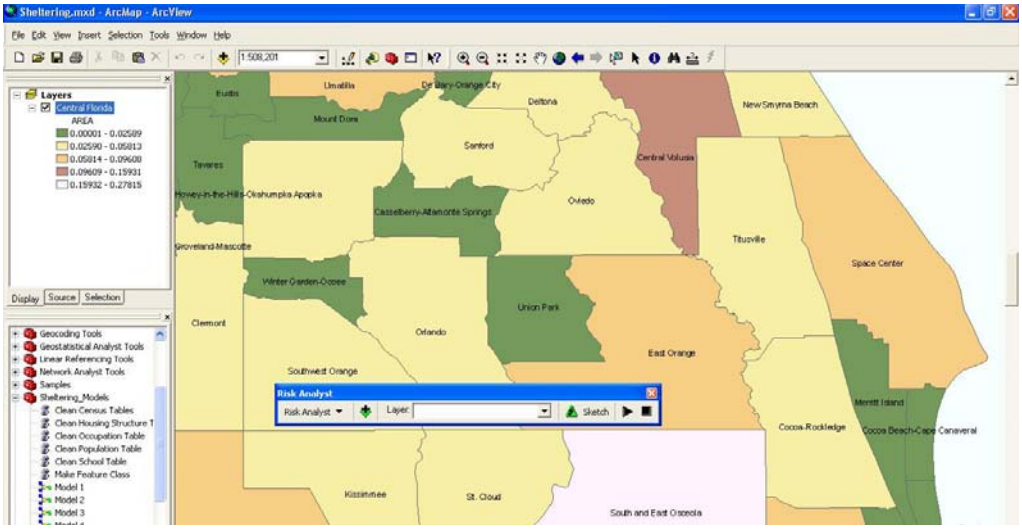



Figure 5.6 Central Florida census county subdivisions

With the default population center size selected, we chose the 2000 census summary file 3 (SF3)[31] since it contains most of the tables suitable for estimating the variables from Table 5.1. The 2000 census is also the latest comprehensive census available. The tables extracted from the census are described in Table 5.2. For variables $p$ and $g$, we use Table P9, while for the occupation variables ($\boldsymbol{o}$ vector and $e$) we use Table P50. Table P36 was used to extract school enrollment data (variable $s$) while Table H30 provided the necessary data to construct the $\boldsymbol{h}$ vector for each CCD.

[30] Figure B-1 in Appendix B-1 shows the geography types of the United States according to the Census Bureau.
[31] The Summary File 3 presents detailed population and housing data (such as place of birth, education, employment status, income, value of housing unit, year structure built) collected from a 1-in-6 sample and weighted to represent the total population (FactFinder.com).

Table 5.2 Census and translation tables' description

| |
|---|
| H30. Units in Structures |
| P9. Household Type by Relationship |
| P36. Sex by School Enrollment by Level of School by Type of School for the Population 3+ Years |
| P50. Sex by Occupation for the Employed Civilian Population 16+ Years |
| CAIB Table 5.3. Translation Table for Houses/Apartments |
| CAIB Table 5.4. Translation Table for Occupations |
| CAIB Table 5.5. Translation Table for Schools and Group Quarters |

To determine the sheltering structure distribution according to the each of the four population categories identified (people at school, work, home or group quarters we used the translation tables 5-3 (to develop the ***H*** matrices), 5-4 (to develop the ***O*** matrices) and 5-5 (to develop the ***g*** and **s** vectors) which were developed by a group of engineering experts for the analysis of the 2003 Space Shuttle Columbia accident. Table 5.3 defines the 16 roof types identified for the roof penetration model. Table 5-3, 5-4 and 5-5 can be found in Appendix A.

Table 5.3 Roof penetration models

| Index | Name | Building Description |
|---|---|---|
| 0 | Open | Exposed people without benefit of an overhead roof |
| 1 | Wood-Roof | Wood roof |
| 2 | Wood-1$^{st}$ | 1$^{st}$ floor beneath roof of wood framed structure |
| 3 | Wood-2$^{nd}$ | 2$^{nd}$ floor beneath roof of wood framed structure |
| 4 | Steel-Roof | Steel roof |
| 5 | Steel-1$^{st}$ | 1$^{st}$ floor beneath roof of steel roof structure |
| 6 | Steel-2$^{nd}$ | 2$^{nd}$ floor beneath roof of steel roof structure |
| 7 | Concrete-Roof | Reinforced concrete roof |
| 8 | Concrete-1$^{st}$ | 1$^{st}$ floor beneath concrete roof |
| 9 | Concrete-2$^{nd}$ | 2$^{nd}$ floor beneath concrete roof |
| 10 | Light-Metal | Roof of pre-engineered metal structure (or vehicle) |
| 11 | Composite | Layered roof made of light weight, non-metallic materials |
| 12 | Tile-Roof | Tile roof |
| 13 | Tile-1$^{st}$ | 1$^{st}$ floor beneath tile roof of wood-framed structure |
| 14 | Tile-2$^{nd}$ | 2$^{nd}$ floor beneath tile roof of wood-framed structure |
| 15 | Car | People traveling in cars |

### 5.3.3 Sheltering Computer Model

Using ModelBuilber® in ArcGIS 9.1, we implemented the sheltering mathematical model to automate the construction of sheltering models for any state of interest. The source codes were written in Python, which is the default programming language ArcGIS uses to develop scripts. As Figure 5.7 indicates, major steps in building a sheltering model involve cleaning the census tables and extracting the necessary information to perform the matrix calculations as required by Equation 5.1.

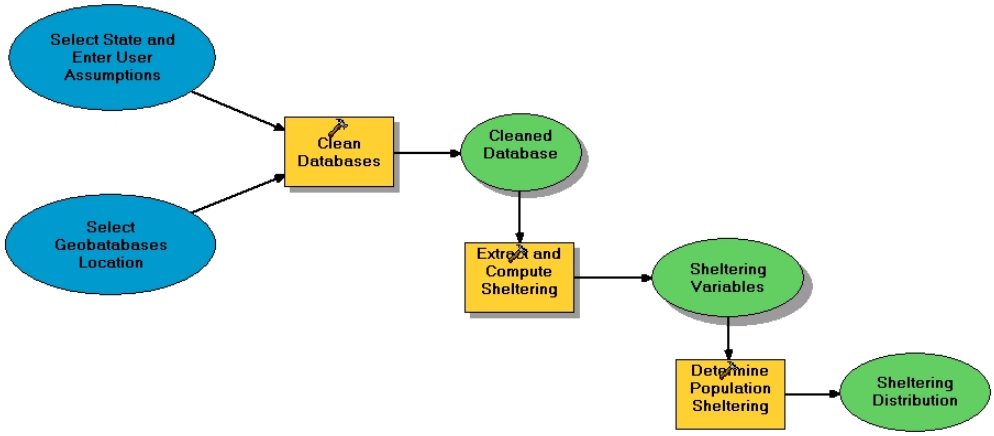



Figure 5.7 Sheltering model built with modelBuilber® from ArcGIS 9.1

The user interacts with the sheltering model above by accessing its user interface, shown in Figure 5.8, through the Risk Analyst or its toolbox. This interface allows the user to (1) make his or her assumptions in accordance with Table 5.1, (2) select the folder where the census tables are stored and (3) specify where the outputs of the model (population distribution, per CCD, per structure types) should be placed.

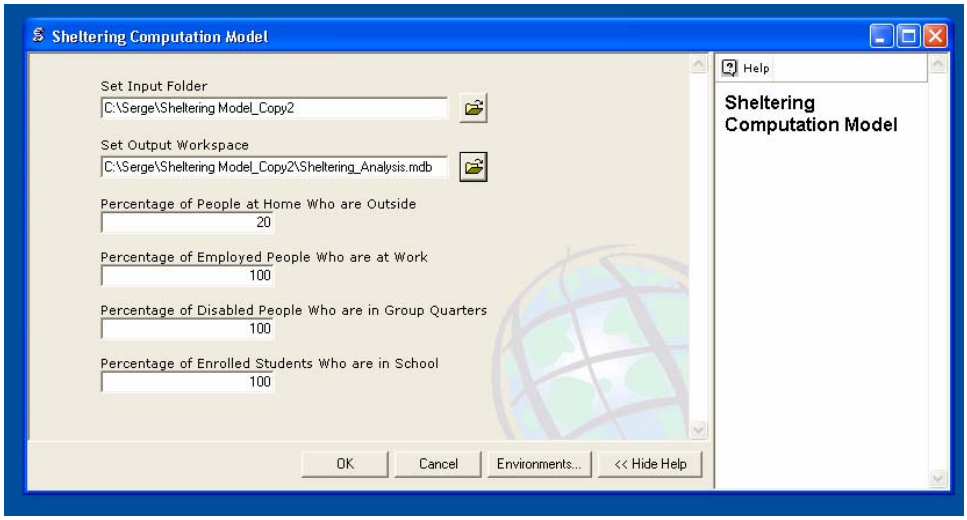



Figure 5.8 Sheltering model user interface

## 5.4 Fusion Model

In section 4.2, we explained in detail the DEnv algorithm and, how it is implemented in Statool. We also determined that of all the functionalities of Statool, only the "+" operator and two of the three dependency options (independent and unknown dependency) were of interest to this study. One can also notice from Figure 4.3 that Statool allows at most two RVs to be fused at one time, while *Risk Analyst* should be able to fuse 3 or more at any time, depending on the number of hazards being modeled. Figure 5.5 also suggests that the number of fusions to be performed could be significantly large if the number of geographic entities is large. It is therefore evident that the usability criterion established in Section 5.1.3 (ease of learning and ease of experiment design) can not be achieved if the user is required to interact with Statool. Instead,

what is desired is a seamless integration of the DEnv algorithm into *Risk Analyst*, with only the Statool functionalities of interest retained.

Implementing DEnv in *Risk Analyst* as described above could only have been possible by altering the Statool source codes, which the author was willing to provide. The layer design used to develop the architecture of Statool, as shown in Figure 5.9, significantly reduced the amount of work that would have had to be done if such design was not adopted.

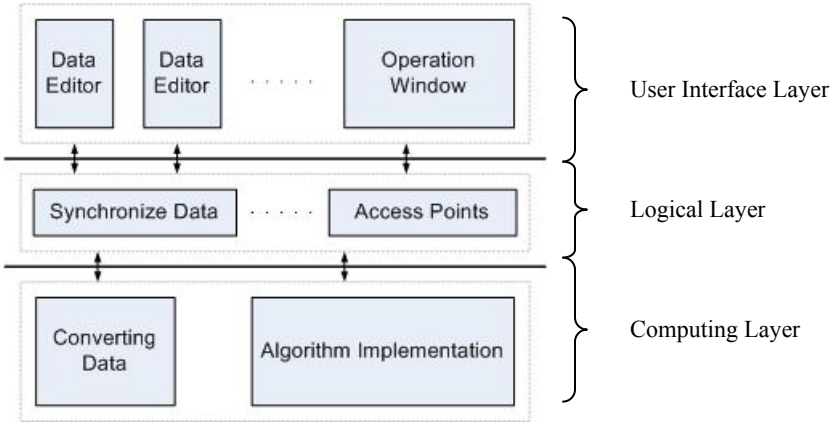



Figure 5.9 Statool architecture

The user interface layer – responsible for receiving the user settings and displaying the results – was removed and some its functions automated to respond to specific user interactions with the *Risk Analyst* toolbar. Some changes were also done to the logical layer – which transforms the user input to fit the algorithms in the computer layer – to better respond to the intended functionalities of *Risk Analyst*. No code in the computing layer, where the transportation algorithm is implemented was changed. However, since the author implemented

this layer as a series of independent DLLs, the libraries handling all the linear correlation settings were removed.

Consideration was also given to allow *Risk Analyst* users to fuse more than 2 hazards' outputs at a time. Not only was this capability necessary for our study, it also allowed for more hazards to be added in the future, should such need arises. Figure 5.10 is the algorithm implemented to generate this capability. We used a random testing approach[32] to ensure that the integrity of the DEnv algorithm was maintained during its translation from Statool to *Risk Analyst*.

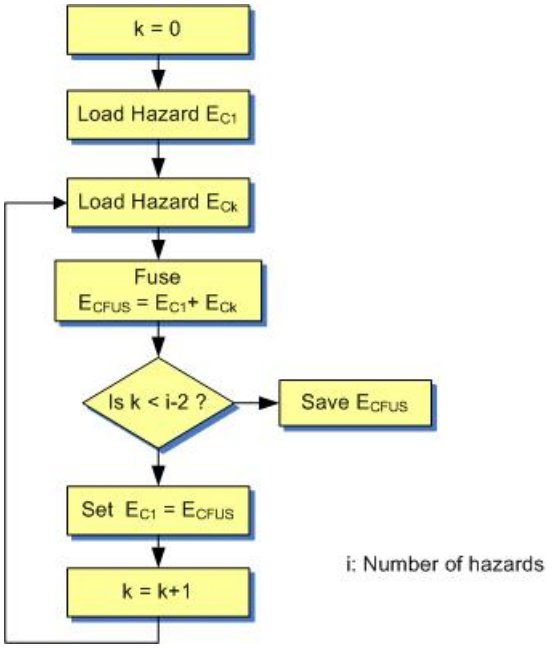



Figure 5.10 Algorithm to allow for the fusion of additional hazards

[32] A testing that freely chooses test cases among the set of all possible test cases. The use of randomly determined inputs can detect faults that go undetected by other systematic testing techniques. The purpose was to ensure that the newly built fusion model produced identical results to Statool.

# CHAPTER 6 EXPERIMENT: DATA PREPARATION

We perform, in Chapters 6 and 7 a full experiment which makes use of the DEnv-based fusion approach proposed in Chapter 4. In the present chapter, we discuss the important issues related to data preparation, and describe how these data were produced for the three hazards of concern in this study. All the assumptions and the reasons for making them are also listed and explained. However, to preserve the readability of this document, most of the data produced can be found in Appendices B, C and D.

## 6.1 Debris Dispersion Data Preparation

### 6.1.1 Developing a Debris Model

In Chapter 2 we described CRTF, the common real-time debris footprint used by NASA to propagate the fragments generated by a launch vehicle during its breakup. However, this model could not be obtained for our study for proprietary reasons. A more recent, Java3D debris dispersion model, described by Rajkumar and Bardina (Rajkumar and Bardina, 2004) was also considered. However, the model, being still under development, could not be used. We, therefore, set to develop a debris model for our study. Validation was evidently the biggest concern for this model. The model was developed in the simulation software package ARENA, using detailed description of debris modeling practices available in the literature (Baeker, Cavalli, Morris, 2005) and, as a template, the CRTF program modular approach in handling the uncertainties in debris

trajectories (Section 2.1.2). In an effort to validate it, the Debris Risk Assessment Model in Arena (DRAMA) we describe here was used to simulate the debris dispersion of the 2003 Space Shuttle Columbia accident. Using the coordinates of more than 4,000 actual debris recovered from that accident, DRAMA's stochastic parameters such as the fragments' ballistic coefficients could be calibrated. Also, some parameters were estimated from historical data (e.g. imparted velocity magnitude) while others were assumed in accordance to the literature (e.g. the lift-to-drag ratio was assumed to be 0.25). However, as described in Section 2.1, given the large amount of uncertainties surrounding the number of debris fragments generated, and their respective trajectories, it is clear that the validation of debris dispersion models – including the validation of the models we first considered – is very difficult to achieve. Therefore DRAMA was considered validated (acceptable for use) if it could propagate the Columbia debris in a similar fashion (downrange and crossrange spread of fragments), while (1) obeying the governing equations of motion, (2) using the last recorded state vector (position and velocity) of Columbia and, (3) maintaining its parameters within the boundaries of historical data. Figure 6.1 compares the debris location as estimated by DRAMA and, the actual locations of debris recovered from the Columbia accident.

The geographical area on the map covers parts of the states of Texas, Oklahoma, Arkansas and Louisiana. The Loss of Signal[33] (LOS) location -99.0413˚ E, 32.956˚ N, which we consider as the point of origin for our study, is shown on the map with an aircraft icon. The actual fragments' locations are represented as brown points. The red points however, represent the more than 4,000 mean locations of fragments as estimated by DRAMA. Each of these mean

[33] The last recorded location of the Space Shuttle

locations is the center of an uncertainty area – represented as a pink circle – indicating that the particular debris could have well fallen anywhere else in the circular region.

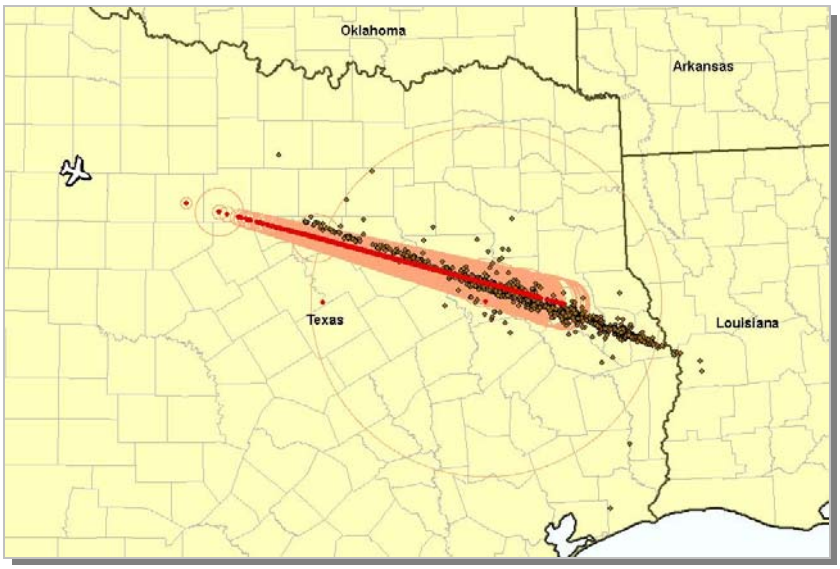



Figure 6.1 Comparison between DRAMA's outputs and actual locations of debris recovered from Space Shuttle Columbia

Although the pink areas and the Columbia debris do not completely overlap, the overlap is visually around 75% to 80% and, both the crossrange and downrange spreads are very similar to the ones of the recovered debris. In addition, Figure 6.2 shows similarity between DRAMA's outputs (Figure 6.1) and the CRTF initial fragment trajectories' estimations (red lines)[34]. Given this output and the lack of additional information, we judged DRAMA to be an acceptable debris model.

[34] Space Shuttle Columbia progressively broke up over a period of approximately 120 seconds. The multiple reference trajectories in CRTF are meant to capture this phenomenon. DRAMA assumes that the complete breakup took place at the original location of LOS.

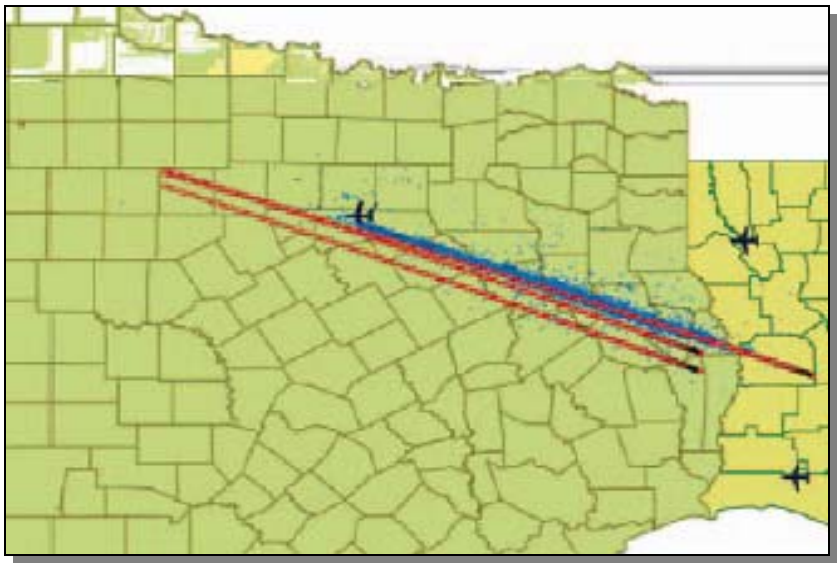


Figure 6.2 CRTF reference trajectories (CAIB Report)

### 6.1.2 DRAMA: Model Conceptualization

DRAMA was developed in Arena, a discrete-event simulation software package widely used in a variety of industries and, in academia for research and educational purposes. The package was selected for its availability, ease of use and, the Visual Basic for Application editor (VBA) it provides to extend its basic functionalities. Not unlike any other simulation package, an Arena model consists of entities that are first generated, then routed to be processed through a variety of modules and later, disposed of at the end of the model logic.

DRAMA generates two entities: a “time” entity and a “debris group” entity. As its name suggests, the time entity generates the breakup events of the vehicle. From this entity, a pre-

specified number of breakups (1 or more) are simulated, as shown in Figure 6.3. Stochasticity is introduced by modeling the time of breakup as a uniform distribution[35] over a specified range.

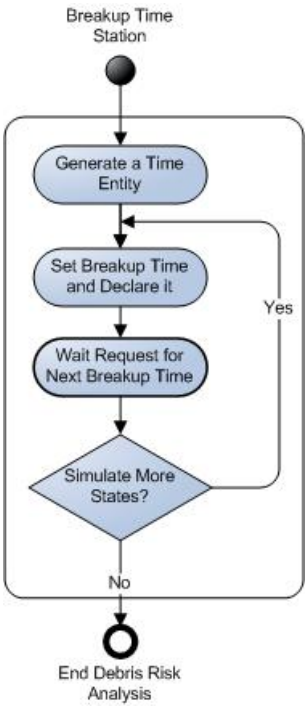



Figure 6.3 DRAMA Breakup Time station

The debris group entity on the other hand is processed through a variety of modules, to account for the uncertainties associated with its trajectory, as identified in CRTF (Section 2.1). This entity is referred to as a debris "group" entity since each entity actually represents a group of debris having similar characteristics (i.e. same ballistic coefficient) to simulate a very large number of fragments (e.g. more than 80,000 fragments of Columbia were recovered). A duplicate of this entity is produced each time the model is ready to simulate a new group. The debris group entity starts from the initial state vector station (Figure 6.4) where the vehicle's

[35] Each breakup is given the same probability of occurrence as the emphasis of the study is on the effects of each breakup rather than on the probability of occurrence of those breakups.

position and velocity at the specified breakup time are computed from high-order polynomial expressions. Using historical data (Appendix B) from one of three space shuttle missions – STS-114, STS-115 and STS-121 – the DataFit statistical software was used to derive high-order polynomial expressions for the vehicle altitude, downrange, velocity magnitude and direction as a function of time.

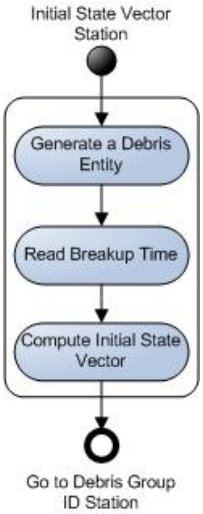



Figure 6.4 DRAMA Initial State Vector Station

The entity is then routed to the Debris Group ID station where its ballistic coefficient is determined from an empirical probability distribution (as obtained from the DRAMA validation stage[36]). As Figure 6.5 shows, this station is also responsible for triggering the simulation of the next debris group by generating a duplicate entity. Once all the debris group have been simulated for a specific breakup time, a request is sent for a new breakup time to be issued if multiple breakups are to be simulated. For our study, we assumed that 80,000 fragments were generated.

[36] In the absence of additional information, the debris were assumed to have characteristics similar to those of Columbia.

We classified them in 100 groups of equal numbers of fragments. From this point, a nominal trajectory for the debris can be estimated.

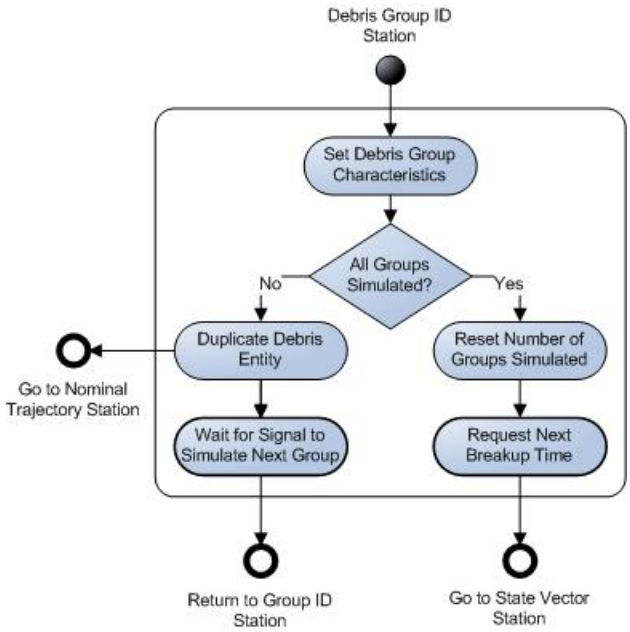



Figure 6.5 DRAMA Debris Group ID Station

*6.1.2.1 Nominal Trajectory Computation*

In accordance to debris trajectory analysis practices (Baeker, Cavalli, Morris, 2005), the nominal trajectory is computed by taking into account the debris' ballistic coefficient estimated earlier, its lift (assumed via the lift-to-drag ratio parameter), and a nominal wind speed and direction[37]. The wind that a fragment will experience can only be defined statistically in terms of a mean wind and a complex wind covariance matrix (Baeker, Cavalli, Morris, 2005). DRAMA simplifies this approach by considering that the wind remains constant during the flight of the fragment. However, as modeled in CRTF, the wind effect is computed once the fragment has reached terminal velocity (no vertical acceleration). The fragment then moves laterally at the

[37] We assume the nominal wind is in the same direction of the vehicle flight path

velocity of the wind and vertically at terminal velocity. The sample outputs from DRAMA in Figure 6.6 illustrate the effects of lift and wind on the fragment's trajectory.

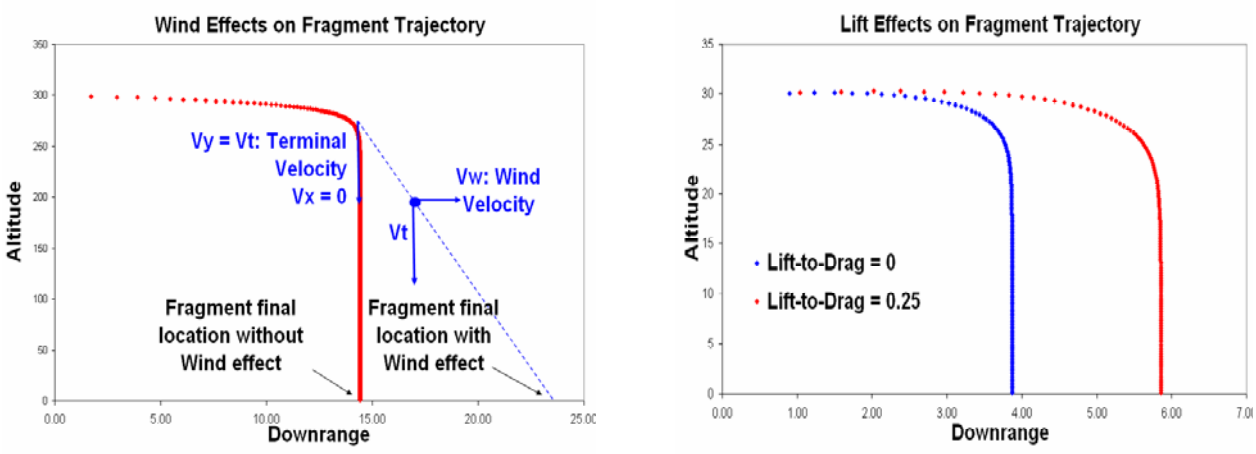



Figure 6.6 Illustration: Physics of debris trajectory[38]

*6.1.2.2 Uncertainty Analysis*

Once the nominal trajectory has been computed, and the nominal point of impact determined, the entity is routed to the uncertainty station (Figure 6.7) where the effects of the sources of uncertainty affecting the trajectory of the debris are estimated. Five of the six uncertainty sources described in Section 2.1 are accounted for in DRAMA. They are:

- Real time state vector (or Guidance and Performance ) uncertainty
- Fragment initial velocity (or Imparted Velocity) uncertainty
- Drag uncertainty
- Lift uncertainty
- Wind uncertainty

[38] The lift effects and wind effects are shown for two different debris, explaining the different altitudes and downranges.

DRAMA does not account for tumble turn malfunctions as this uncertainty requires extensive and detailed information on the vehicle being modeled. This information could not be obtained. However, DRAMA follows the procedures in the literature (CAIB, 2003, Baeker, Cavalli, Morris, 2005) in estimating the effects of the sources it accounts for. To explain briefly, each factor is allowed to deviate from its nominal value by a certain amount. For instance, for the drag uncertainty, the ballistic coefficient estimated in the Debris Group ID station is treated as the mean of a normal distribution with a standard deviation (sigma) equal to one-third of that mean. Then two impact points on the downrange axis are computed – one corresponding to the mean beta minus 3 sigma and the other, the mean beta plus 3 sigma – to determine a shift in the nominal location found earlier and its associated uncertainty. Lift and wind effects are estimated similarly.

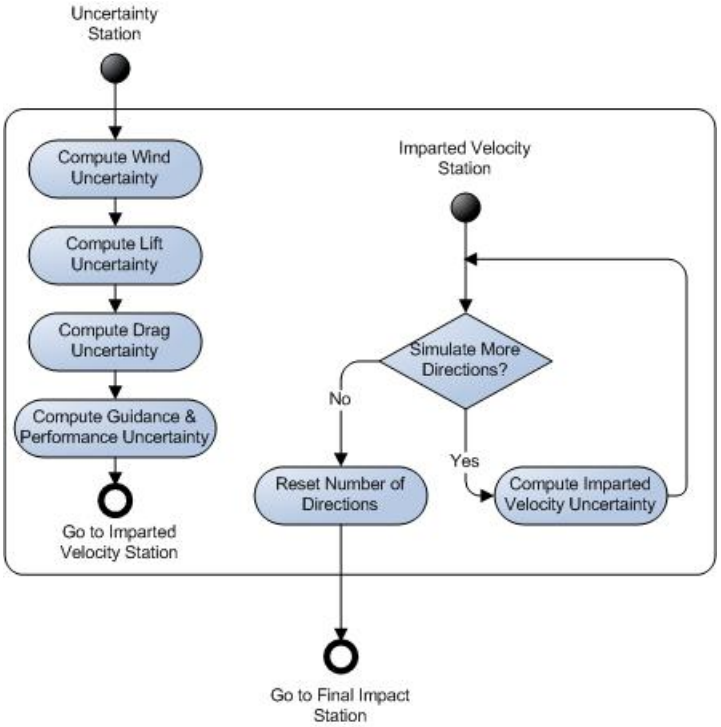



Figure 6.7 DRAMA Uncertainty Station

However, as the vehicle may deviate from its initial trajectory not only in the downrange direction but also, in the crossrange, the real time state vector uncertainty may shift the debris nominal location in both directions. The same applies to the uncertainty due to the velocity imparted to a debris fragment, as this velocity vector can be directed in any direction. We refer the reader to the literature (Baeker, Cavalli, Morris, 2005) for more information.

Upon leaving the uncertainty station, the entity is sent to the final impact station shown in Figure 6.8. Here the different shifts and uncertainties are combined to determine a new mean impact location and its associated uncertainty.

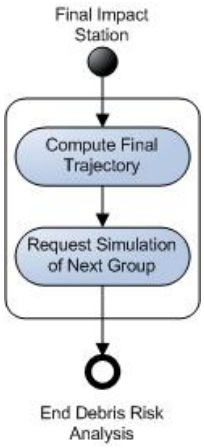



Figure 6.8 Final Impact Station

Figure 6.9 and 6.10 show the 3 sigma debris areas for 3 simulated breakups scenarios from a space shuttle launch out of KSC Launch Pad 39B. As the two maps illustrate, because KSC and its launch pads are located on the coast, most breakups simulated result in debris falling on the ocean, thereby posing limited or no risk to populated areas on land. However, the same may not be said for those spaceports sites located inland (Figure 6.11) which are being proposed by a number of states. Therefore, understanding the implications of locating a spaceport inland is

of critical importance in this study. To address this, the Clinton-Sherman Spaceport of Oklahoma (35.34˚ N, -99.20˚ E) located in the Northwest Washita CCD was selected for our experiment. The selection process was facilitated by the fact that as opposed to the other sites, there is already an infrastructure at Clinton-Sherman, making Oklahoma the forerunner among the candidate states.

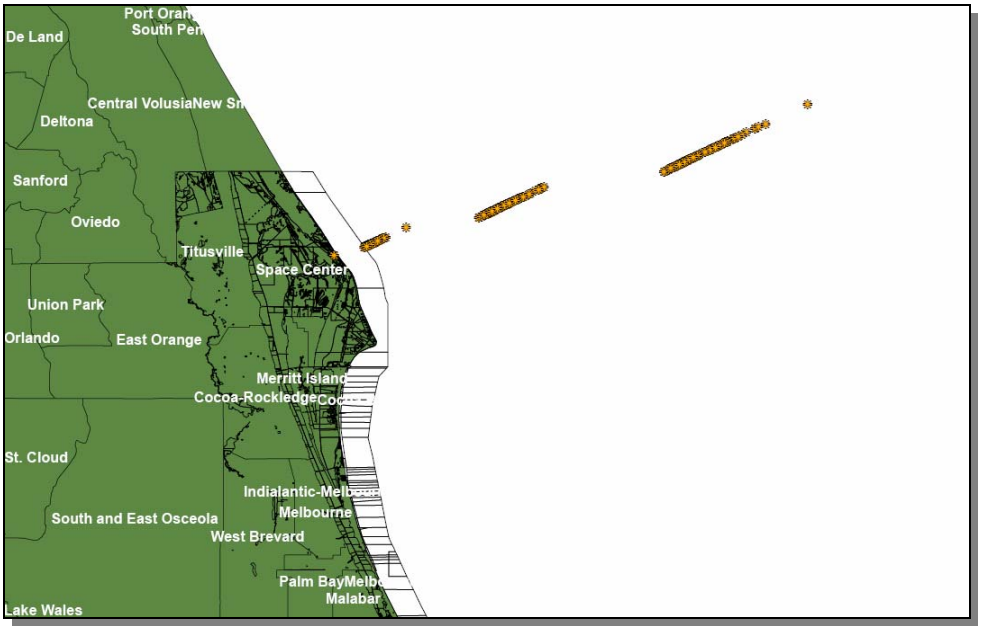



Figure 6.9 Example of debris mean locations three different breakup times from a launch out of KSC

DRAMA was then run to simulate 89 breakup states, each producing a debris field composed of 100 groups, each composed of 800 fragments. The outputs tables can be found in Appendix B. In those tables, the debris coordinates X and Y are referenced to the launch pad. To be displayed on a map, those coordinates must be translated to the proper coordinate system (UTM-14N for Clinton-Sherman spaceport). The map in Figure 6.12 shows the overlapping

debris fields for all the breakup states simulated. The debris impact areas from the different breakup scenarios are the debris hazards' input features for the experiment.

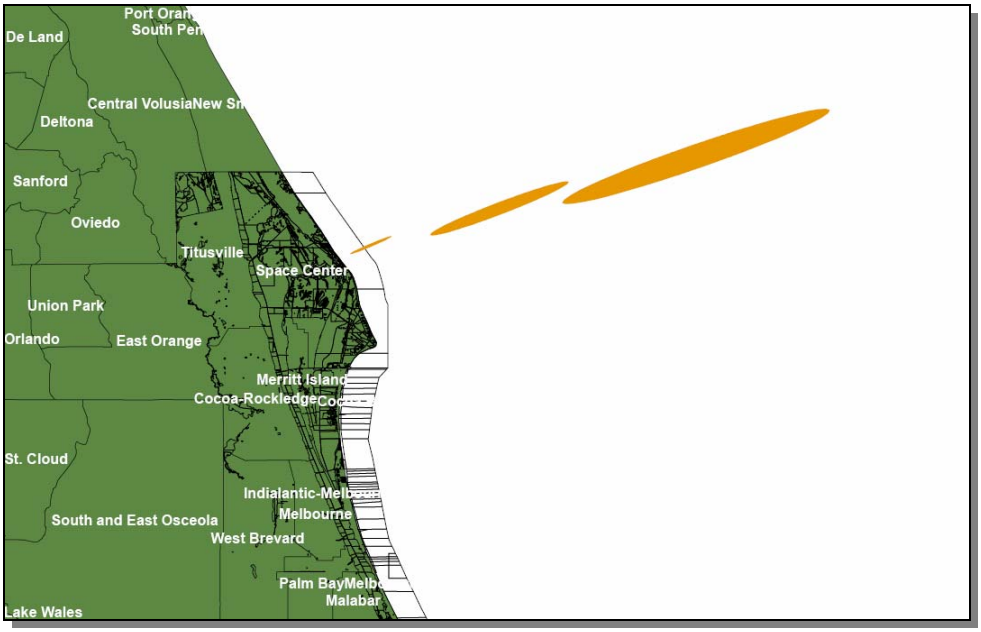



Figure 6.10 Corresponding debris uncertainty areas for the three different breakup times of Figure 6.9.

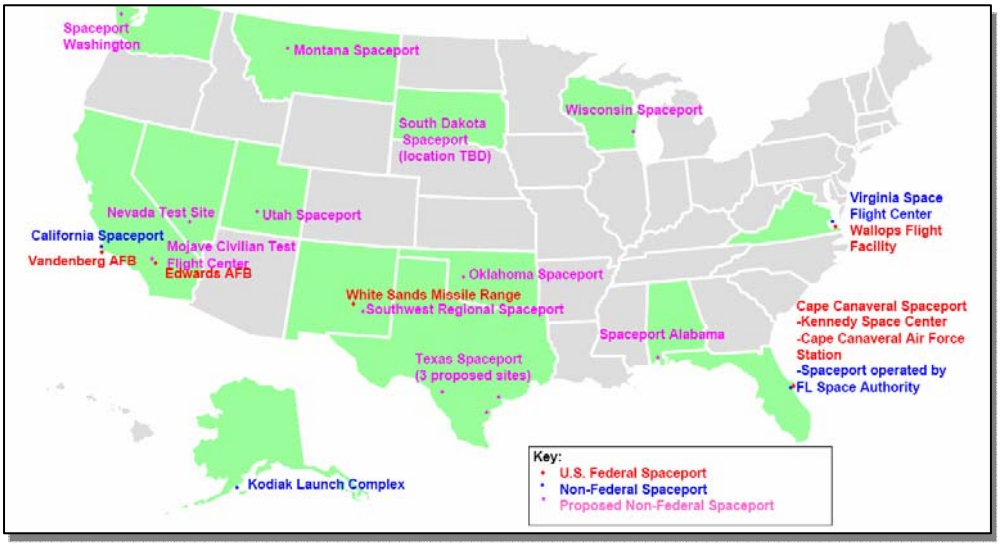



Figure 6.11 Commercial and government active and proposed launch and reentry Sites

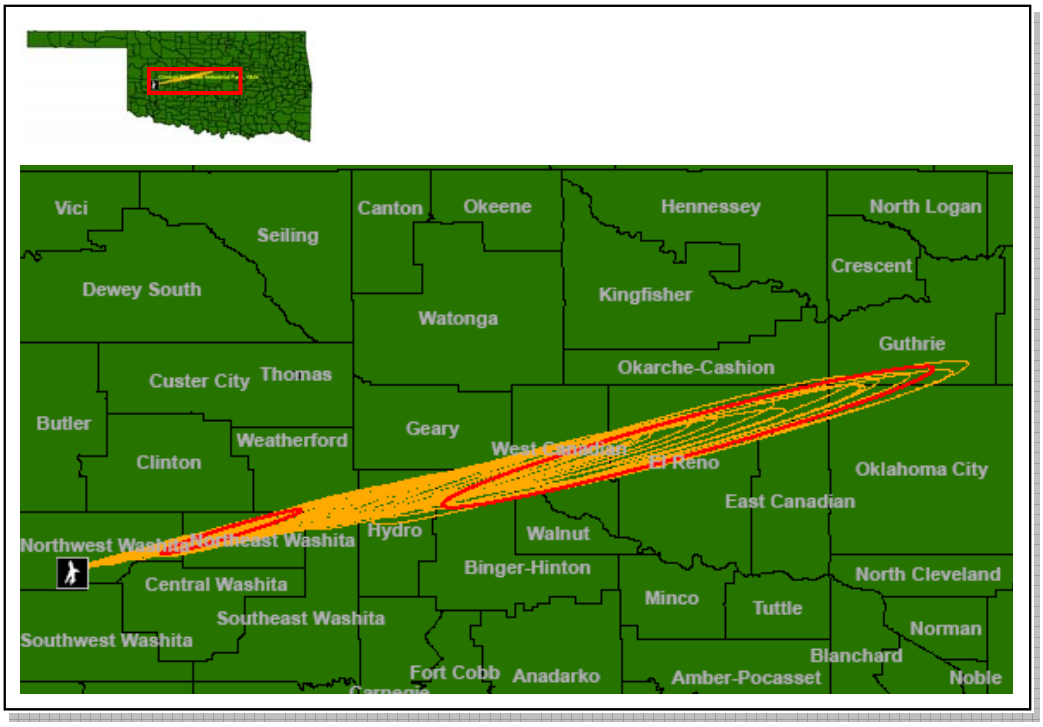



Figure 6.12 Debris impact areas from multiple breakup scenarios in Oklahoma. Two of the scenarios are highlighted in red

## 6.2 Gas Dispersion Data Preparation

We considered three air quality models to determine the dispersion and effects of pollutants released by a space shuttle during its eventual breakup. The first, REEDM was developed early in the space shuttle program for projecting air quality and acid rain out from nominal launches (B. Jeffrey Anderson and Rebecca C. McCaleb, 2004). The next two models, CALPUFF (Section 2.3) and AERMOD are U.S. EPA-recommended state-of-the-art dispersion models for determining compliance with National Ambient Air Quality Standards (NAAQS). In 2004, a comparative study conducted by NASA concluded that CALPUFF was significantly superior to REEDM. The report recommended that REEDM no longer be used for spaceflight

risk analysis as it often considerably underestimates the effects of an accidental release of pollutant into the atmosphere (Anderson and McCaleb, 2004). Since AERMOD is the latest of the two models to be recommended by the EPA (EPA, 2007), we selected it for our work.

### 6.2.1 Preparing Complex Terrain Data

AERMOD is a modeling system designed to calculate air pollutant concentration in all types of terrain, from flat surfaces to complex, mountainous terrains. AERMAP, AERMOD terrain preprocessor processes commercially available digital elevation data from the United States Geological Survey (USGS) and other commercial sites to produce terrain elevation data files used by AERMOD. Using this preprocessor, the user can also specify a layout of receptors. The user may design Cartesian and/or polar grid(s) of receptor networks, or even specify discrete receptor locations for locations that may be of particular interest.

The digital elevation data collected were of type Digital Elevation Model (DEM) 7.5-minutes. A total of 128 DEM files were downloaded, covering an area of approximately 200 kilometers in the east-west direction by 95 kilometers in the north-south direction. The area is shown in Figure 6.13. AERMAP also requires a modeling domain inside the area covered by the DEM files. In UTM-14N coordinates, we specified a domain with the southwest corner at 470,000 E and 3,895,000 N[39], and the northeast corner of the domain at 660,000 E and 3,965,000 N. The area and domain of study were designed to include the Clinton-Sherman spaceport and at least, all the CCDs affected by the blast and debris hazards.

[39] E: Easting, N: Northing

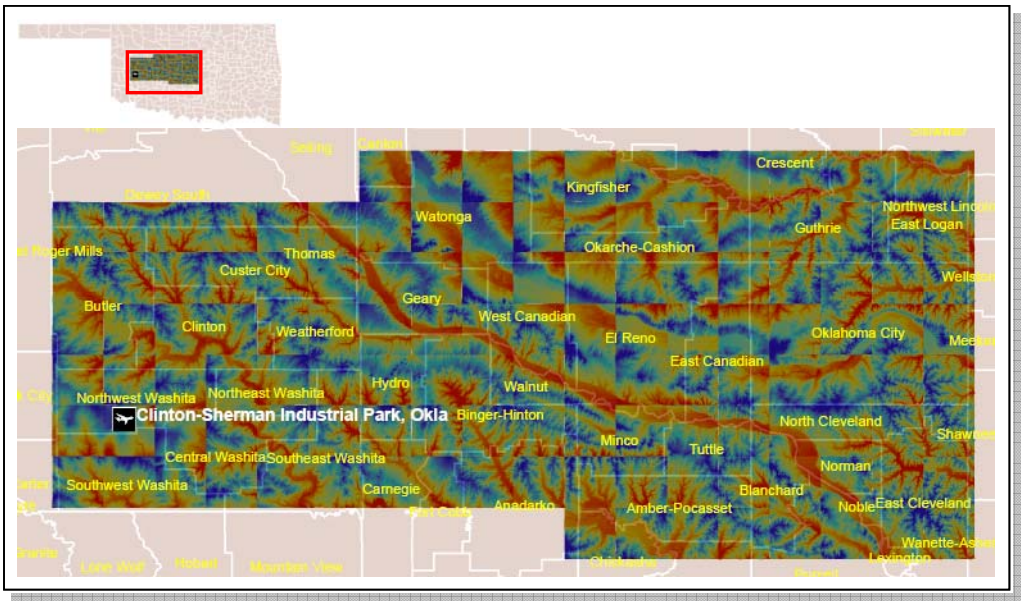



Figure 6.13 Terrain elevations for some of the CCDs of Oklahoma state

We then specified 10 Cartesian grids of receptors, each made of 2,500 receptors spaced at regular intervals of 720 meters in the east-west direction and 680 meters in the north-south direction. Therefore, a total of 25,000 receptors – the maximum currently permissible in AERMAP – were specified for this study. Figure 6.14 below shows the receptors' networks definition section of the input file prepared for AERMAP. For example, the first grid, defined as CART0 starts from 472,000 E and 3,896,000 N. There are 50 receptors in the eastern direction spaced at 720 meters each and, 50 receptors in the northern direction spaced at regular intervals of 680 meters. The input file developed for AERMAP can be found in Appendix C. The AERMAP output file is not included in this document given its size and format (designed to be read by another computer program).

```
RE STARTING
  GRIDCART CART0 STA
                 XYINC  472000 50 720 3896000 50 680
                 END
           CART1 STA
                 XYINC  508000 50 720 3896000 50 680
                 END
           CART2 STA
                 XYINC  544000 50 720 3896000 50 680
                 END
           CART3 STA
                 XYINC  580000 50 720 3896000 50 680
                 END
           CART4 STA
                 XYINC  616000 50 720 3896000 50 680
                 END
           CART5 STA
                 XYINC  472000 50 720 3930000 50 680
                 END
           CART6 STA
                 XYINC  508000 50 720 3930000 50 680
                 END
           CART7 STA
                 XYINC  544000 50 720 3930000 50 680
                 END
           CART8 STA
                 XYINC  580000 50 720 3930000 50 680
                 END
           CART9 STA
                 XYINC  616000 50 720 3930000 50 680
                 END
RE FINISHED
```

Figure 6.14 Receptors network grids defined in AERMAP Input File

### 6.2.2 Preparing Meteorological Data

The second type of input AERMOD needs is meteorological data. Using observations data from the National Weather Services (NWS), the meteorological processor AERMET produces two files for AERMOD: a file of hourly boundary layer parameter estimates and a file of multiple-level observations of wind speed and direction, temperature, and standard deviation of the fluctuating components of the wind.

An AERMET input file requires at least two types of data, which are first extracted and then assessed for quality: Hourly surface observations and twice-daily upper air soundings. On-site measurement data, such as from an instrumented tower can also be processed if necessary. Figure 6.15 shows the processes AERMET performs to produce the necessary input files needed by AERMOD.

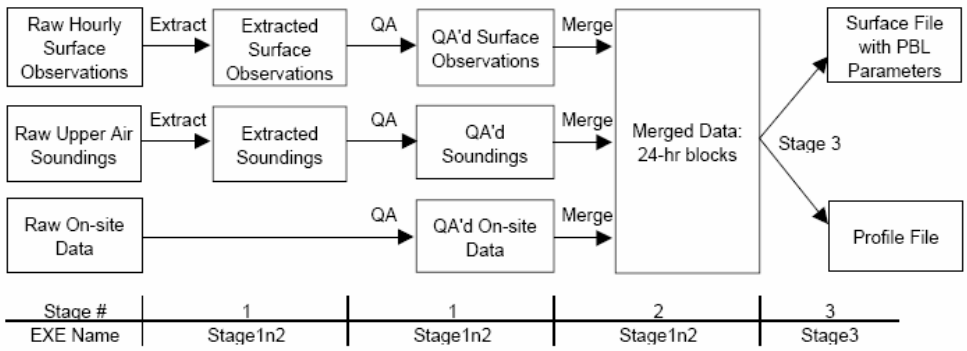



Figure 6.15 AERMET processing (EPA, 2007)

For our experiment, we collected both types of data from the *Will Rogers World Airport* station in Oklahoma City (station #13967), located in polar coordinates at latitude 35.389˚ N and longitude 97.600˚ W (Webmet, 2007). Each of the two data types comes in a variety of formats. We collected data for the year 1989 (the latest available dataset for hourly data in the area). The hourly surface observations archive dataset was collected in the National Climatic Data Center (NCDC) TD-6201 format (archive file 13967_89.UA), while the upper air soundings archive dataset was collected in the NCDC's SAMSON format (archive file 13967_89.SAM). Although both datasets are available for a full calendar year, the user may request AERMET to extract and assess the quality for a specific range of dates only, within that year. The parameter "XDATES" in our AERMET input file shown Figure 6.16 shows that both datasets were extracted and

checked for the entire year 1989. This allowed for any of the days of 1989 to be considered for the experiment.

```
JOB
   REPORT    Okla_S1.RPT                      Note: File for all messages
   MESSAGES  Okla_S1.MSG                      Note: File for the run summary

UPPERAIR
   DATA      13967_89.UA  6201FB  1           Note: Archive file name
   EXTRACT   Okla_UA.IQA                      Note: File to which the extracted data are written
   QAOUT     OKla_UA.OQA                      Note: File for output from the Quality Assessment

   XDATES    89/1/1 TO 89/12/31               Note: Data to extract from file

   LOCATION  00013967  97.60W  35.389N  6    Note: Station Identifier
   AUDIT     UATT  UAWS  UALR                 Note: Upper Air Variables for  Quality Assessment

SURFACE
   DATA      13967_89.SAM  SAMSON  1          Note: Archive file name
   EXTRACT   Okla_SF.IQA                      Note: File to which the extracted data are written
   QAOUT     Okla_SF.OQA                      Note: File for output from the Quality Assessment

   XDATES    89/1/1 TO 89/12/31               Note: Data to extract from file

   LOCATION  13967  97.600W  35.389N  6      Note: Station Identifier
```

Figure 6.16 AERMET input file for processing NWS hourly surface observations and upper air sounding data

Subsequent steps then included – as shown in Figure 6.15 – (1) merging the hourly surface observations and upper air soundings into a single file and (2) generating the input meteorological files for AERMOD. The 3 AERMET input files (one for each of the 3 processes) and their corresponding report files (.RPT file extension in Figure 6.16) are shown in Appendix C (OKLA_S1-3 RPT and INP).

### 6.2.3 Developing the AERMOD Input File

The AERMOD input files (one for each scenario) contains all the information pertaining to the experiment to be conducted. The input files, which specify a number of options, can be found in Appendix C. The list below shows the options we selected for our experiment. Each of the AERMOD keywords listed is followed by a brief description. The interested reader may find the complete list in the AERMOD user guide (EPA, 2007):

1. MODELOPT: Used to determine that concentration values are to be collected, that the terrain is complex and that the analysis should follow standard EPA regulatory procedures.
2. AVERTIME: Used to indicate the time period(s) over which average concentration values should be recorded. We use a 4-hour time average.
3. POLLUTID: Used to identify the type of pollutant to be modeled. The major pollutant of concern here is HCl.
4. LOCATION: Used to specify the locations of the sources of pollutant emission. The modeling approach is explained in 6.2.3.1.
5. HOUREMIS: Used to specify hourly emission rates from a separate file. The modeling approach is explained in 6.2.3.2.
6. RE (INCLUDED): Used to specify the receptors grid networks file produced by AERMAP.
7. SURFFILE: Used to specify the input meteorological surface data file produced by AERMET.

8. PROFFILE: Used to specify the input meteorological profile data file produced by AERMET.
9. UAIRDATA: Used to specify the station from which the meteorological data was collected.
10. PROFBASE: Used to specify the meteorological station base elevation.
11. STARTEND: Used to specify the start and end dates to be read and processed from the meteorological data files. We simulated a launch on March 15 in the morning (10:00AM). A different date could have been chosen. This particular date was selected since, as the time of our experiment, the next Space Shuttle launch, STS-117, was scheduled for that day in 2007.
12. MAXIFILE: Used to record all instances where a specified concentration threshold value has been exceeded. A number of exposure criteria are available in the literature (Anderson and McCaleb, 2004) and which one is selected depends on how restrictive the criterion should be, given the purpose of the experiment. The National Institute of Occupational Safety and Health (NIOSH)/Occupational Safety and Health Administration (OSHA) uses a dangerous to life and health (IDLH) value of 50 ppm HCl. The American Industrial Hygiene Association (AIHA) Emergency Response Planning Guideline–3 (ERPG–3) uses a level (IDLH level) of 100 ppm. On the other hand, the American Conference of Governmental Industrial Hygienists (ACGIH) use a threshold limit value of 5 ppm. We use a 4-hour average threshold value of 5 ppm (7.46 $mg/m^3$) for our experiment.

*6.2.3.1 Emission Sources Modeling Approach*

To run, AERMOD requires the user – through its LOCATION and HOUREMIS parameters – to define one or multiple sources from which the pollutant will be emitted. For a breakup of the Space Shuttle, those sources are the multiple burning solid propellant fragments originating from the two SRBs (Anderson and McCaleb, 2004). Experience with the Challenger accident (NASA, 1986) indicates that burning propellant fragments that fall into the ocean will be quenched by the cooling capability of the water. At KSC, this has the effect of significantly reducing the hazardous effects of toxic gas dispersion beyond 25 seconds after launch, since most the fragments would land in the ocean. However, the Clinton-Sherman spaceport is an inland spaceport, with very few large water surfaces in its surrounding area. Therefore, as the probability of a fragment landing over water is significantly smaller than its probability of landing over land, we make the reasonable assumption that all burning propellant fragments fall on land.

*Assumption on the two SRBs:* Since the SRBs are sufficiently robust to withstand the overpressures generated by a deflagration of the orbiter and external tank, they may continue to fly away from the nominal trajectory until a commanded destruct is given (Anderson and McCaleb, 2004). This has the consequence of producing debris fields which may be remotely located from one another. In this study, we only consider cases where the debris fields produced by the SRBs significantly overlap each other, and treat the effects of the two SRBs as a single unit having twice the capability of a single SRB (propellant mass and number of fragments generated).

*Assumption on size and number of fragments:* Due to the complex phenomenon taking place during a breakup, the number of fragments produced and their sizes cannot be estimated. Historical data (Anderson and McCaleb, 2004) indicates that for a breakup at 15 seconds after launch, the mean fragment size burning surface is around 0.41 $m^2$. In the absence of additional information, we used this mean to be the fragment size burning surface, regardless of the breakup scenario. This surface was also assumed to be square, so as to be modeled in AERMOD as an AREA source type having a side length of 0.64 m.

We also made the reasonable assumption that the percentage of all the fragments produced which are also burning propellant is proportional to the volume of the two SRBs with respect to the complete Space Shuttle vehicle (orbiter, external tank and the 2 SRBs). We estimated this proportion to be around 25%. In order words, 25% of all fragments groups produced by DRAMA are considered groups of burning propellant fragments.

We made no assumption on the location of those fragments within the debris fields. The burning fragments groups were selected randomly within each debris field, using a random number table.

*6.2.3.2 Modeling Hourly Sources Emission Rates*

In AERMOD, sources emission rates can only be varied in 1-hour increment. If no additional information is specified in the AERMOD input file, then this emission rate is assumed to occur every hour for the length of the experiment, such as pollutant released at a constant rate from a stack. For our study we used, through the HOUREMIS keyword a variable emission rate modeling approach by indicating that the fragments are only burning during the first hour after

the breakup has occurred. Figure 6.17 illustrates the variable emission rate entry in the AERMOD input file. The case shown here is for a breakup occurring 19.21 seconds after launch.

```
**                                    1   2   3   4   5   6   7   8   9   10    11  12
  ********** FRAG1-FRAG25 HROFDY   0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 34.504 0.0 0.0
**
**                                    13  14  15  16  17  18  19  20  21  22  23  24
  ********** FRAG1-FRAG25 HROFDY   0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
```

Figure 6.17 Definition of sources variable emission rate in an AERMOD input file

Although a 1-hour burn time may be longer than what has been historically observed[40], the emission rates, which were made to vary by time of breakup, were calculated such that all the propellant contained in the fragment group would take 1 hour to burn. The following example illustrates how the emission rate of 34.504 g/s-m$^2$ in Figure 6.17 was obtained.

Initial Mass of Propellant in SRBs ($M_0$): 1,179,340 kg

Propellant Consumption Rate ($q_b$): 8,369 kg/s

Time of Breakup (t): 19.21 seconds

Mass of Propellant at Breakup ($M_t$):

$$M_t = M_0 - q_b t = 1{,}179{,}340 - 8{,}369 \times 19.21$$
$$M_t = 1{,}018{,}571.51\ kg$$

Total Mass of Propellant in each Burning Fragment Group ($M_G$):

$$M_G = {M_t}/{25} = {1{,}018{,}571.51\ kg}/{25}$$
$$M_G = 40{,}742.86\ kg$$

[40] Fragments provided by the US Air Force (USAF) in a previous study had burn times of less than 15 minutes (Anderson and McCaleb, 2004)

Hourly Emission Rate for Fragment Group ($e_H$):

$$e_H = \frac{40{,}742.86\ kg}{3600\ s} = 11.317\ {}^{kg}\!/_{s}$$

Number of Fragments in Group: 800

Hourly Emission Rate for Fragment Group per Unit Area ($e_U$):

$$e_U = \frac{11317\ {}^{g}\!/_{s}}{(800 \cdot 0.41)\ m^2} = 34.504\ {}^{g}\!/_{s.m^2}$$

The AERMOD outputs files (instances of concentration threshold violations) produced for each of the breakup scenarios simulated can be found in Appendix C. The concentration values in the output files are in micrograms/m$^3$ ($10^{-3}$ mg/m$^3$) explaining the large figures. Figure 6.18 shows the map generated from the output files of two breakups simulated at t = +21 seconds and t = +43 seconds. Of the 25,000 receptors placed in the domain of study, only those which have recorded a high concentration value (above the threshold) are displayed.

Since the 10 Cartesian grids where designed such that the discrete receptors would be closely spaced to each other (680 m easting and 720 m northing), thereby providing a realistic picture of the pollutant dispersion, it is reasonable to assume that if the concentration threshold is exceeded at two adjacent receptors, then it is also exceeded in the area between the two receptors. This was accounted for by defining a buffer zone around two such receptors such that the area between them would be covered. This operation was applied only to cases where the receptors were immediately adjacent to each other. Figure 6.19 shows the map with the buffering applied, with the breakups of Figure 6.18 highlighted.

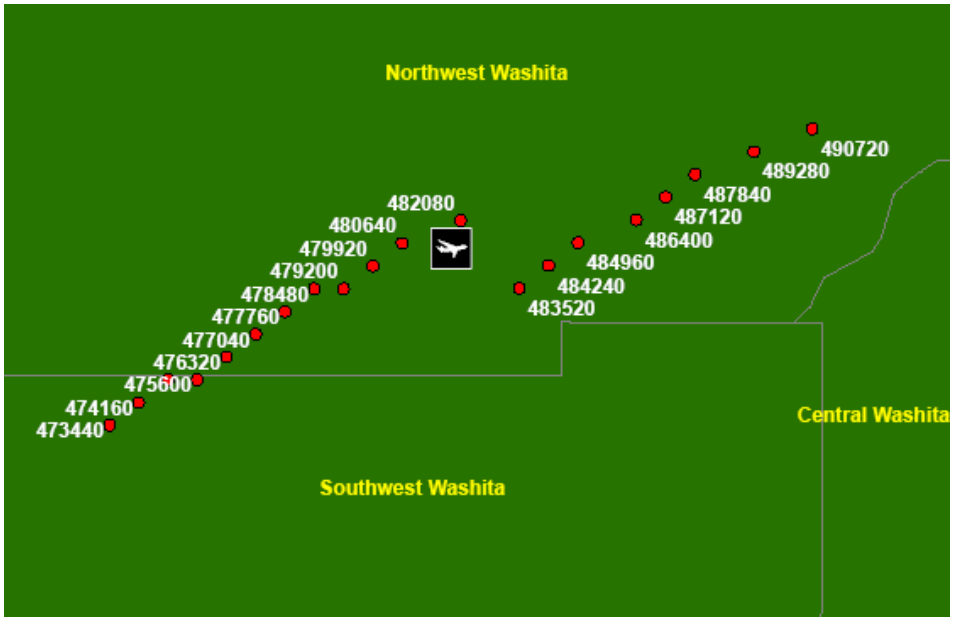



Figure 6.18 Receptors recording a 4-hour average HCl concentration value above the threshold from a breakup at t = +21 seconds and t = + 43 seconds.

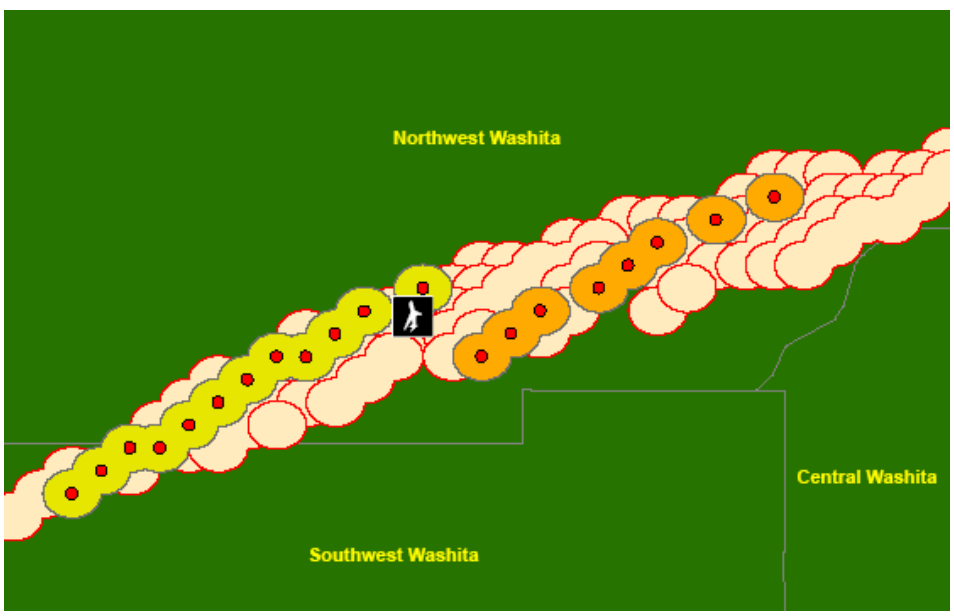



Figure 6.19 Buffering Operation on the Receptors from the Breakup at t = +21 seconds and t = +43 seconds.

The buffering operation allowed for the discrete receptors to be converted into pollutant clouds, thereby forming pollutant high risk areas. Similarly to the overlapping debris fields (Figure 6.12), Figure 6.20 shows the overlapping pollutant clouds for all the breakup scenarios. The HCl clouds from the different breakup scenarios are the gas hazards' input features for the experiment.

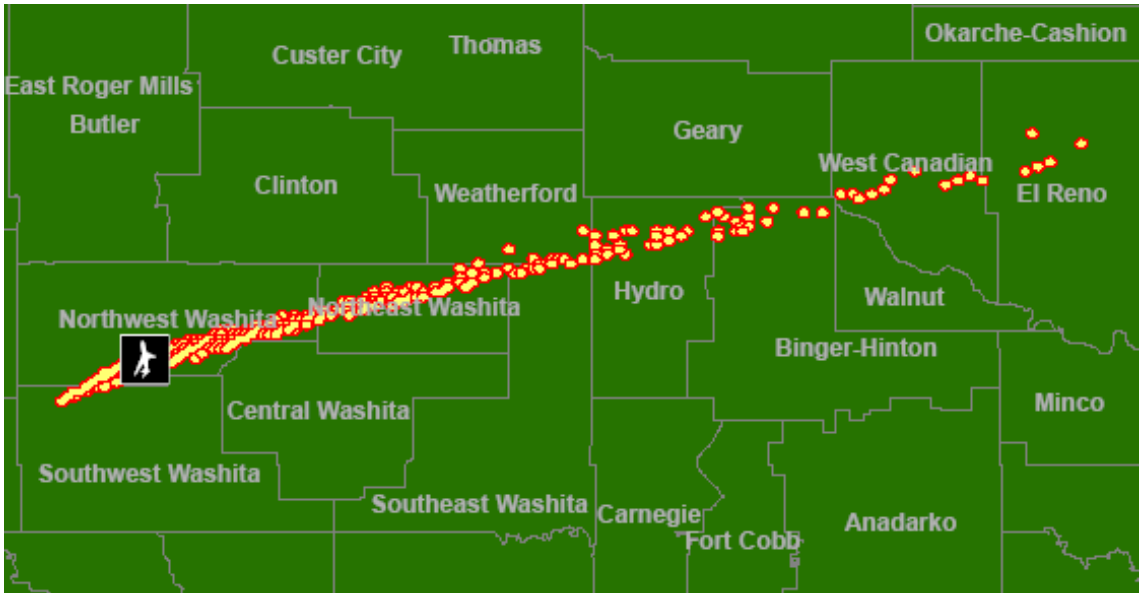



Figure 6.20 Overlapping HCl clouds from multiple breakup scenarios

## 6.3 Blast Dispersion Data Preparation

### 6.3.1 Developing a Blast Model

Of the nine blast models identified in Section 2.2.4, Blast/FX was the only one we could have access to, due to proprietary privileges. Developed by Northrop Grumman Mission Systems,

Blast/FX was designed to simulate close proximity explosions (less than 600 m) using the TNT equivalency method of blast overpressure prediction (Section 2.2.1). Blast/FX strength resides in its ability to simulate effects on people inside single or multistory buildings. However, Blast/FX could not be used since its modeling environment – a square with a maximum side length of 600 m – is significantly less than the geographical domain under study (200 kms by 95 kms).

Using the TNT equivalency method, we developed a simple Blast Risk Assessment Model in ARENA (BRAMA). The model implements the cube root scaling law (Section 2.2.1.1) to determine the radius of the blast for a given peak overpressure. Since Figure 2.4 indicates eardrum rupture as the first type of damage an individual may experience if too close to an explosion, we used the overpressure at which this phenomenon occurs as the threshold value for or study. This value is around 10 kPa, corresponding to a scaled distance $Z$ of approximately 9 $m/kg^{1/3}$.

After the liquid propellant remaining at the time of breakup has been converted to its TNT equivalent, BRAMA uses the cube root scaling law to find the radius of the blast sphere within which the overpressure is equal or greater than 10 kPa. This radius is then compared to the altitude of the vehicle at the time of breakup. If the blast radius is greater than the altitude, then the blast reaches the ground and the circular area representing the intersection between the blast sphere and the ground is calculated. Figure 6.21 is a graphical representation of the logic.

Figure 6.22 shows how the ground blast radius changes according to the breakup time. It indicates that from around 12 seconds after launch, the blast is no longer a hazard to the population on the ground. BRAMA's outputs, corresponding to the breakup times used in the

debris and gas analysis, can be found in Appendix D. Figure 6.23 shows a map of the non-concentric blast areas from the blast analysis.

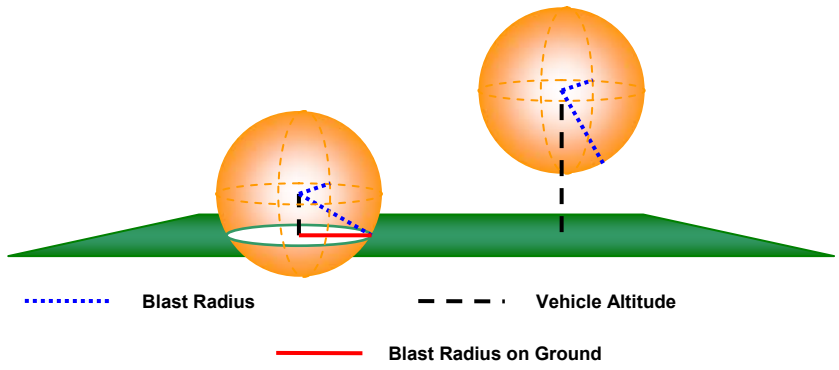



Figure 6.21 Estimation of the overpressure blast radius on the ground

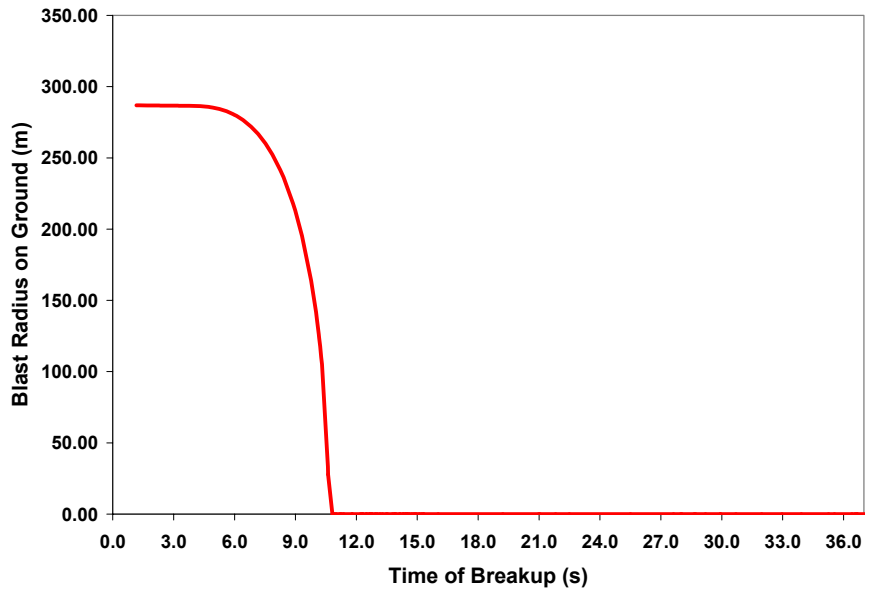



Figure 6.22 Ground blast radius versus time of breakup

When comparing the impact areas generated by the three hazards, the gas dispersion and the debris fragmentation have significantly larger effects than the propagation of blast. While the

overall areas of influence from the gas dispersion and, the debris fragmentation may span several CCDs, the effect of blast is limited to a small area inside Northwest Washita, the CCD in which the spaceport is located.

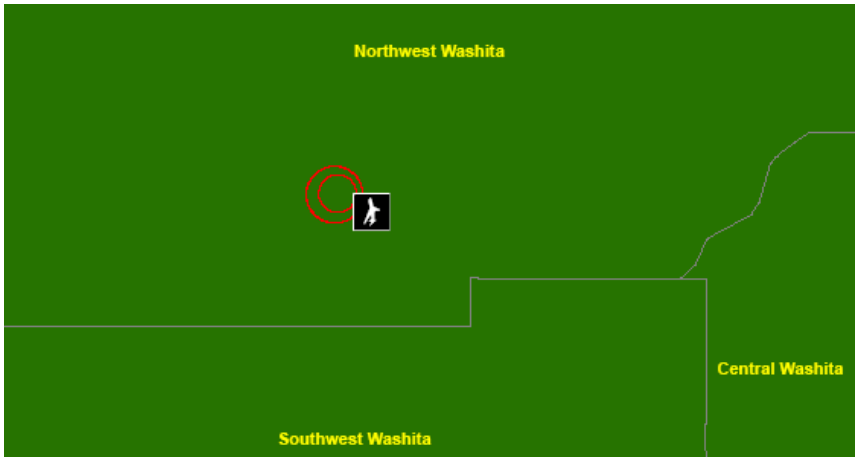



Figure 6.23 Blast areas from Space Shuttle breakups less than 12 seconds after launch

It should be mentioned that even if the SRBs were assumed to be contributing to the blast strength by exploding with the external tank and the orbiter (i.e. if we added the solid propellant as well), although the maximum blast radius would have increased (from around 290 m to around 990 m), the blast impact would have remained significantly small compared to the other two hazards. On the other hand, we did not model secondary blast effects that may result from high velocity impacts of fragments with the ground. Refining the blast modeling by accounting for those secondary effects may alter the outcome of a particular breakup. However, given that the fragments are generally small (mean of 0.41 $m^2$) and, that most of them are inert (75% of the fragments are assumed not to contain any propellant) it is highly unlikely that the basic conclusion stated earlier would have been altered.

The modeling and description of the features produced by the three hazards (blast waves, gas clouds and debris impact areas) reveal that the areas being impacted by them are not congruent, with degrees of overlaps which are highly irregular, as shown in Figures 6.24 and 6.25. Furthermore, while the gas clouds and the blast waves are continuous features over their impact areas, the same cannot be said about the discrete pieces of debris. In Chapter 7, we show that those complexities and, the uncertainties associated with them can be captured in the fusion methodology described in Chapter 4 to generate an informative, although not overly conservative picture of the combined risk generated by those hazards.

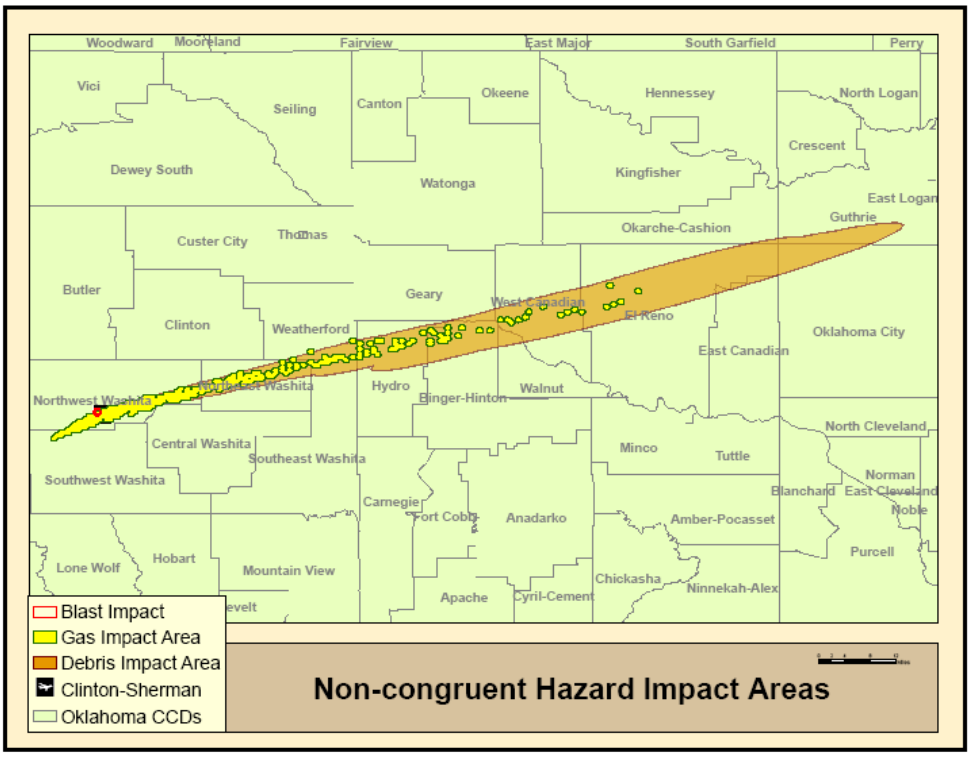



Figure 6.24 Debris, gas and blast non-congruent impact areas for all breakup scenarios simulated

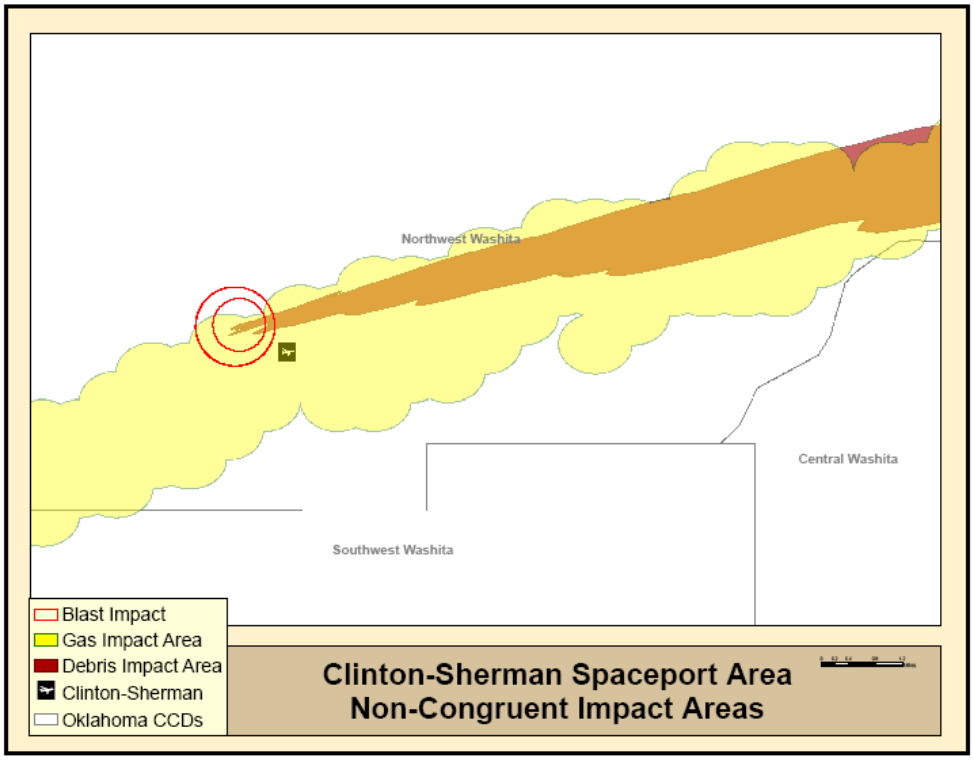



Figure 6.25 Close-up on impact areas for the 3 hazards around Clinton-Sherman airport

# CHAPTER 7 EXPERIMENT: SETUP AND ANALYSIS

The three types of features developed in Chapter 6 should be used in conjunction with population distribution data to generate the empirical probability distributions of casualties necessary to perform the fusion. We use the LandScan™ 2005 dataset, the most recent worldwide population database, developed by Oak Ridge National Laboratory (ORNL). Released in October 2006, LandScan™ 2005 is a population database compiled on a 30" X 30" latitude/longitude grid which includes the best available census counts at sub-national levels for each country. The census counts are allocated to rural and urban population distributions based on likelihood coefficients, which are calculated from factors such as proximity to roads, slope, land cover and, nighttime lights. Figure 7.1 shows the North America portion of the dataset.

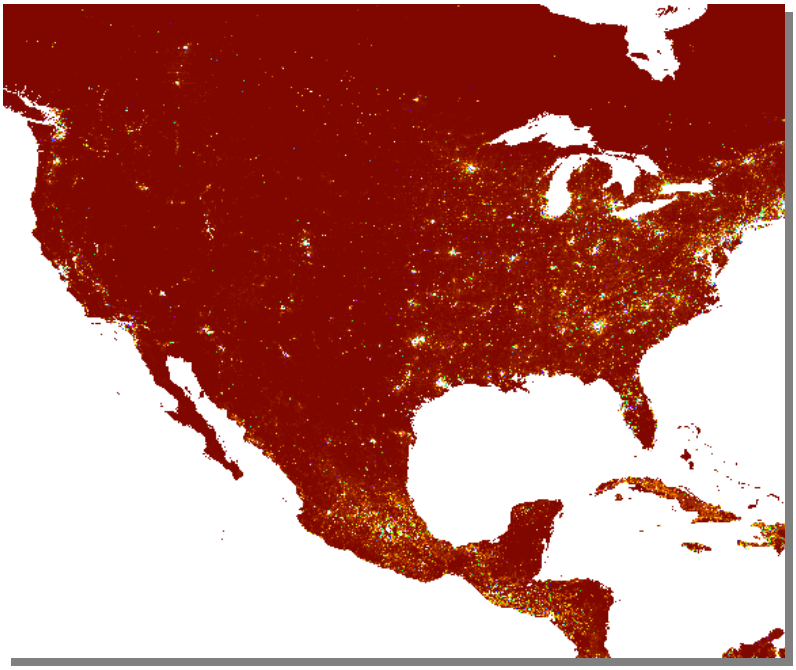


Figure 7.1 North America ambient population, 2005 (LandScan™ 2005)

We first describe how the different empirical probability distributions of casualties were generated, and then analyze and discuss the experiment results.

## 7.1 Debris Casualties' Probability Distributions

### 7.1.1 Using a Poisson Process Modeling Approach

Although debris impact areas were developed in the previous chapter, the features involved in the debris analysis – the debris themselves – are discrete. It is therefore unreasonable to assume that everyone inside a given debris area – a person exposed – is automatically a casualty. The Columbia accident attests of this fact. Although more than 80,000 pieces of debris fell over more than 10 counties, resulting in a large number of people exposed, there was no casualty reported. Therefore, we propose the following approach to estimating the number of debris casualties.

Consider a small area such that it is either occupied by one person, or it is empty. For our experiment, this area is set to a realistic $A_S = 1$ m$^2$. In other words, no hugging is allowed. Then, the series of trials: {Checking whether or not one was hit by a fragment[41]} are Bernoulli trials because:

1. There are only two possible outcomes for each trial: A person is either hit by a fragment (is a casualty) or is not.
2. The outcomes from the different trials are independent: Whether a person was hit by a fragment gives no indication as to whether the next person to be visited was also hit.

[41] Understanding that some of those people may no longer be alive!

3. The probability of success is the same for each trial: Considering a success as having been hit by a fragment, we consider each person in the area of impact to have the same probability of being hit.
4. There is a fixed number of Bernoulli trials conducted: The number of trials corresponds to the population inside the debris area (the population being exposed).

Therefore, we proceed as follows:

Consider an area of interest $A$ (the debris impact area in $m^2$), where there are $n$ people and where $f$ fragments fall. If we define the following events:

$E_1$: {a person is in a given small area, $A_S$}

$E_2$: {a fragment falls in a given small area, $A_S$}

$E_3$: {a person is hit by a fragment}

Then

$$prob(E_1) = \frac{population\ in\ area}{number\ of\ small\ areas} = \frac{n}{\left(\frac{A}{A_s}\right)} = \frac{n}{A} \quad \left(A_S = 1\,m^2\right)$$

$$prob(E_2) = \frac{fragments\ in\ area}{number\ of\ small\ areas} = \frac{f}{\left(\frac{A}{A_s}\right)} = \frac{f}{A} \quad \left(A_S = 1\,m^2\right) \tag{7.1}$$

$$prob(E_3) = prob(E_1 \cap E_2) = prob(E_1) \times prob(E_2) = \frac{nf}{A^2}$$

Let $X$ be the random variable that equals the number of successes (number of persons hit by fragments) in $n$ trials. Then $x = 0, 1, 2, \ldots, m \quad m \le n$ and the probability distribution of $X$ is binomial

$$b(x; n, p) = \binom{n}{x} p^x (1-p)^{n-x} \tag{7.2}$$

Where $p$ is the probability of event $E_3$. We first applied this approach to the Columbia accident to verify that its prediction is what was actually observed (no casualty reported).

*7.1.1.1 Probability of Observing a Casualty from the Columbia Accident*

For the Columbia accident, the parameters defined above take on the following values:

$A$ = 69,315,861,959.00 m$^2$, $A_S$ = 1 m$^2$, $n$ = 1,575,966, $f$ = 84,900[42]

Therefore

$$prob(E_1) = \frac{n}{A} = \frac{1{,}575{,}966}{69{,}315{,}861{,}959.00} = 2.2736 \times 10^{-5}$$

$$prob(E_2) = \frac{f}{A} = \frac{84{,}900}{69{,}315{,}861{,}959.00} = 1.2248 \times 10^{-6}$$

$$prob(E_3) = \frac{nf}{A^2} = \frac{1{,}575{,}966 \times 84{,}900}{(69{,}315{,}861{,}959.00)^2} = 2.784 \times 10^{-11}$$

We are interested in the probability that at least one person exposed would have been hit, i.e. $prob(X > 1)$. Since $p = 2.784\times10^{-11}$ is less than 0.05 and $n$ is greater than 20, we use the Poisson approximation to the binomial where the mean $\lambda = np = 4.388\times10^{-5}$.

We therefore have

$$prob(X > 1) = 1 - prob(X = 0)$$

$$prob(X > 1) = 1 - \frac{\lambda^0 e^{-\lambda}}{0!} = 1 - e^{-4.3887\times10^{-5}} = 4.38861 \times 10^{-5}$$

Since the Poisson approach determined that the probability that at least one person exposed would have been a casualty was less than 0.00005% (i.e. it was highly unlikely that a

[42] This is the number of fragment that were recovered from Columbia during the search effort immediately following the accident.

person would have been hit by a fragment), it agrees with what was observed. We therefore used this approach for the debris analysis. Both the Poisson and the normal approximations to the binomial were used throughout the debris analysis. Table 7.1 lists the conditions under which either one of the two approximations should be used.

Table 7.1 Approximation schemes

| **Poisson Approximation** | **Normal Approximation** |
|---|---|
| $n \geq 20$ and $p \leq 0.05$<br>Or<br>$n \geq 100$ and $np \leq 10$ | $np \geq 15$ and $n(1-p) \geq 15$ |

### 7.1.2 Developing Debris Casualties Probability Distributions

Since, as opposed to the Columbia accident, our study involves multiple breakup scenarios simulated, the probability of observing a success (a specified number of casualties) is the average of the probabilities of observing that success in each breakup. For example, suppose there are only 2 breakup scenarios possible for a launch, and each of the breakups has a 50% probability of occurring (i.e. the vehicle is certain to break). If $prob(X > 3) = 0.7$ for *Breakup 1* and 0.6 for *Breakup 2*, then the probability of observing more than 3 casualties for that launch is $prob(X > 3) = (0.6+0.7)/2 = 0.65$. This is the case since, although multiple breakups are simulated only one breakup can actually occur per launch.

The map of Figure 7.2 shows the map of Figure 6.12 with the population layer added. Therefore, it contains three layers: the CCDs layer, the LandScan population layer and, the layer

of the debris fields of all the breakup scenarios simulated. A close-up around Hydro and Binger-Hinton (Figure 7.3) reveal the degree of overlap between the debris fields. In GIS terms, those fields are shapes of type polygon. To generate a probability distribution of casualties, one must first determine the number of people exposed in each of these polygons. The Zonal Statistics tool from the ArcGIS extension Spatial Analyst was developed for this purpose. It calculates statistics on values of a raster[43] within the zones of another dataset. Each debris field polygon was modeled as one zone.

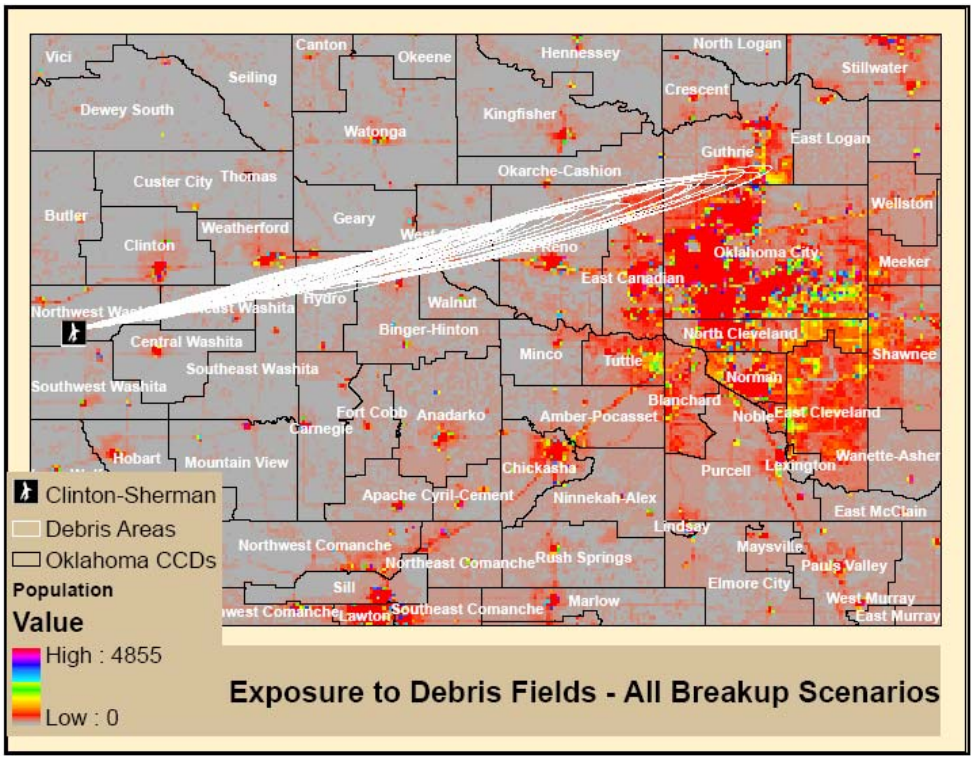



Figure 7.2 Oklahoma population distribution and exposure to debris fields for all breakup scenarios

[43] The LandScan™ 2005 population dataset is a raster dataset.

However, this tool[44] can only work if the polygons are not overlapping. Therefore, we used instead Zonal Statistics++, one of Hawth's Analysis tools (Hawths Analysis Tools, 2006[45]), developed specifically to overcome this problem. The frequency distribution of the number of people exposed across the 89 debris fields, which is the frequency distribution of the parameter *n*, is shown in Figure 7.4. Figure 7.5 shows the frequency distribution *A*, the debris impact areas.

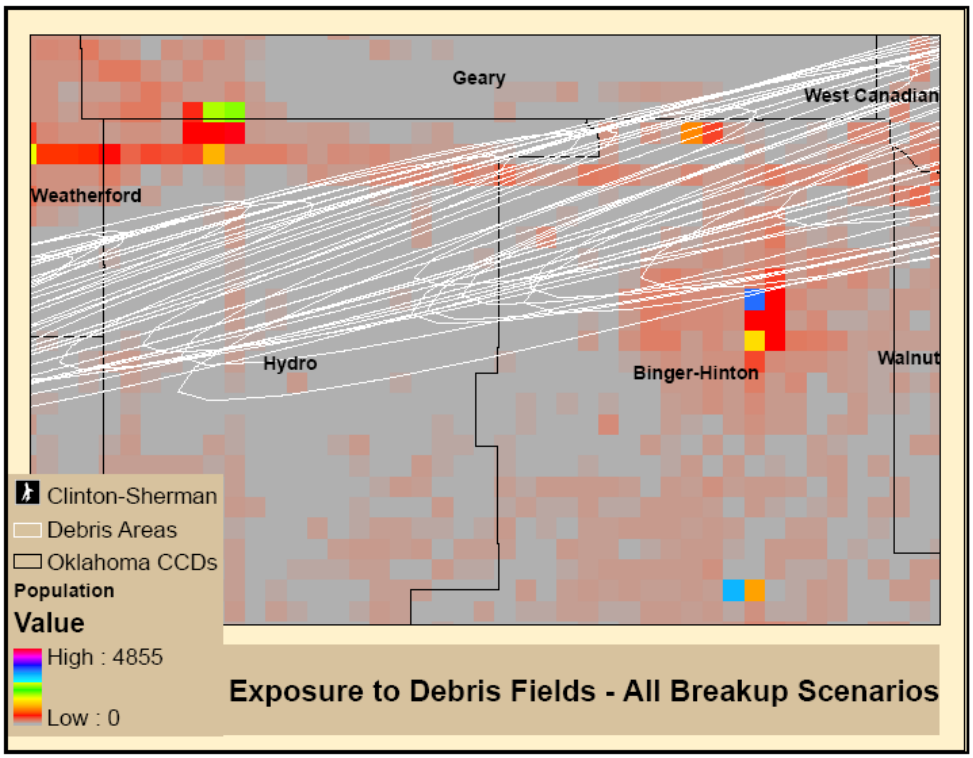



Figure 7.3 Close-up on overlapping debris fields and Oklahoma population distribution

[44] In ArcGIS 9.1.
[45] http://www.spatialecology.com/htools/tooldesc.php

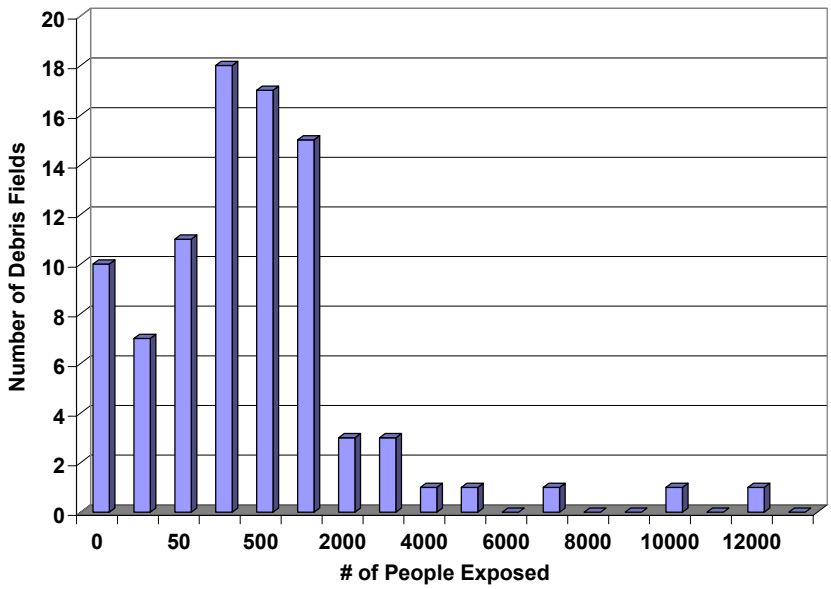



Figure 7.4 Frequency distribution of number of people exposed to debris fields – Distribution of *n*

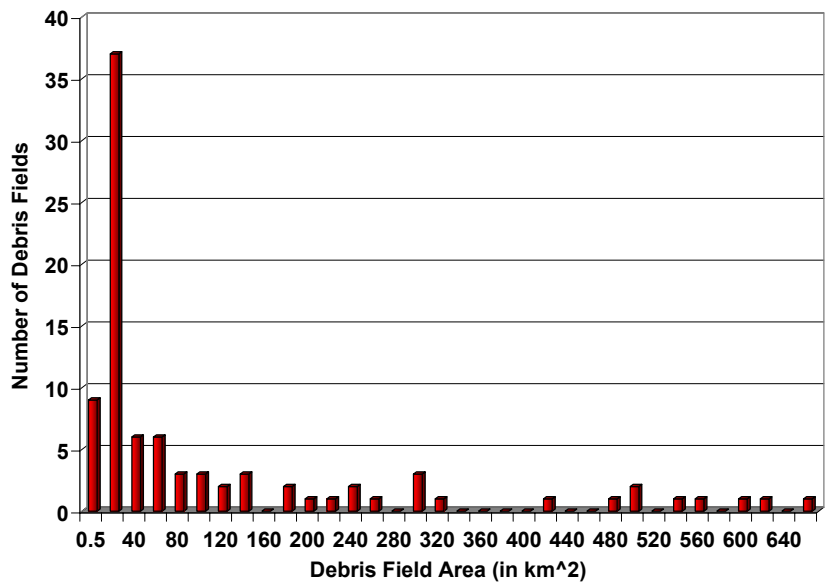



Figure 7.5 Frequency distribution of debris impact areas (in square kilometers) – Distribution of *A*

We then set $X$, the random variable of the number of casualties among the people exposed to take on the following values: $x$ = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 40, 100, 500. The resulting probability distribution is shown in table 7.2.

Table 7.2 Probability distribution of debris casualties

| ***X*** | | **Probability** |
|---|---|---|
| **≥** | **<** | |
| 0 | 1 | 9.9367E-01 |
| 1 | 2 | 6.1619E-03 |
| 2 | 3 | 1.6119E-04 |
| 3 | 4 | 3.3407E-06 |
| 4 | 5 | 5.6920E-08 |
| 5 | 6 | 8.2814E-10 |
| 6 | 7 | 1.0521E-11 |
| 7 | 8 | 1.1836E-13 |
| 8 | 9 | 1.1227E-15 |
| 9 | 10 | 0.0000E+00 |
| 10 | 20 | 0.0000E+00 |
| 20 | 40 | 0.0000E+00 |
| 40 | 100 | 0.0000E+00 |
| 100 | 500 | 0.0000E+00 |
| 500 | >500 | 0.0000E+00 |

## 7.2 Gas and Blast Casualties' Probability Distributions

As opposed to the dispersion of pieces of debris which is discrete, the dispersion of a gas is continuous over its area of impact. This is also the case with the blast wave. In order words, anyone exposed to (anyone inside the areas of impact of) those hazards is experiencing a pollutant concentration (for the case of gas) and/or a blast overpressure (for the case of blast) which are/is above the threshold(s) value(s) specified in Chapter 6. Therefore, anyone exposed to one or both of those hazards is a casualty. As for the debris case Zonal Statistics++ was used here. The number of casualties per breakup scenario was then summarized in the distribution

shown in Table 7.3 (for gas) and 7.4 (for blast). Those distributions are the three hazard inputs to the fusion scheme.

Table 7.3 Probability distribution of gas casualties

| ***X*** | | **Probability** |
|---|---|---|
| **≥** | < | |
| 0 | 1 | 0.22727 |
| 1 | 10 | 0.17045 |
| 10 | 50 | 0.22727 |
| 50 | 100 | 0.05682 |
| 100 | 200 | 0.09091 |
| 200 | 500 | 0.04545 |
| 500 | 800 | 0.10227 |
| 800 | 1100 | 0.01136 |
| 1100 | 1300 | 0.06818 |

Table 7.4 Probability distribution of blast casualties

| ***X*** | | **Probability** |
|---|---|---|
| **≥** | < | |
| 0 | 1 | 0.96591 |
| 1 | 10 | 0.01136 |
| 10 | 20 | 0.02273 |

## 7.3 Experiment Objectives

The types of tests conducted for the experiment were aimed at answering critical questions pertaining to the necessity of adopting a fusion based-approach to assessing and analyzing the risk generated by the operation of space launch vehicles, as they go to or return from space. From this point, we will refer to the unknown dependency fusion, described in Chapter 4, simply as fusion. The fusion made under the assumption of independence is now

referred to as independent. Listed below are the questions which motivated the design of our tests:

1. Is there a significant difference between the risk predicted by Fusion and the one predicted by Independent?
2. If yes, what is the nature of that difference? Does either one of the two have a tendency to under predict or over predict the risk being assessed?
3. How significant is that difference, if it exists? Is the significance of that difference dependent upon the threshold value on the number of casualties (e.g. observing at least one casualty)?
4. Does Fusion generate additional useful and critical information which cannot be obtained from Independent?

Similarly, when considering the different hazards, but now analyzed separately as in current practices, the following questions should be answered:

5. Are there significant differences between the risk predicted by Fusion and the ones predicted by each hazard?
6. What are the natures of those differences, if they exist? Does either one of the three hazards have a tendency to under predict or over predict the risk being assessed?
7. How significant are those differences, if they exist? Are the significances of those differences dependent upon the threshold value on the number of casualties (e.g. observing at least one casualty, or observing at least 100 casualties)?
8. Does Fusion generate additional useful information which cannot be obtained from any of those hazards?

To answer these questions, we first selected a series of number of casualties' threshold values to compare the risk estimates from each of the different predictors (Fusion, Independent, Debris, Gas and Blast). Those threshold values are:

$$X = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 40, 100, 500, 1000, 2000, 5000\}$$

Then, a series of matched-pairs comparisons which are listed in Tables 7.5, 7.6, 7.7 and, 7.8, were performed. All tests were performed at a level of confidence of 95%. Since the observations used in those tests may not be assumed of having been drawn from normally distributed populations, we used the nonparametric Wilcoxon rank sum test (also known as the Mann-Whitney U test or the Wilcoxon-Mann-Whitney test) to perform the matched-pairs tests.

The first set of tests, 16 in total as listed in Table 7.5, seek to determine if there is a significant difference between the fusion's estimates and the other predictors' estimates of the probability of either exceeding, or not exceeding[46] a particular number of casualties threshold value ($x$). If there are differences, then the remaining tests seek to determine whether any of those predictors has a tendency to over predict, when compared to Fusion. However, as opposed to the Debris, Gas, Blast and, Independent predictors where only a single cumulative distribution function (cdf) is derived, the Fusion derives a family of cdfs, bounded by an upper bound and, a lower bound. Those bounds contain within them every cdf resulting from the fusion of the effects of the three hazards (factors) under consideration in this study.

[46] Both cases are valid since they do not necessarily complement of each other. While for the Independent and the three hazard cases the probability of not exceeding is the complement of the probability of exceeding, arithmetically this is not the case with Fusion, since fusion has overlapping intervals (Figure 3.2). As a result, one interval may contribute to both cases in Fusion.

Table 7.5 First set of matched-pairs comparisons between predictors

| Test # | Predictors | Matched-Pairs Test Type | Test | Observations being Paired | |
|---|---|---|---|---|---|
| | | | | Probability of Observing at Least $x$ | Probability of Observing Less than $x$ |
| 1, 2 | Fusion Average ⊕ Independent | Two-Tailed Test | $H_0$: $\eta_A - \eta_I = 0$<br>$H_a$: $\eta_A - \eta_I \neq 0$ | Test 1 | Test 2 |
| 3, 4[47] | Fusion Average ⊕ Independent | One-Tailed Test | $H_0$: $\eta_A - \eta_I = 0$<br>$H_a$: $\eta_A - \eta_I > 0$ | Test 3 | Test 4 |
| 5, 6 | Fusion Average ⊕ Debris | Two-Tailed Test | $H_0$: $\eta_A - \eta_D = 0$<br>$H_a$: $\eta_A - \eta_D \neq 0$ | Test 5 | Test 6 |
| 7, 8 | Fusion Average ⊕ Debris | One-Tailed Test | $H_0$: $\eta_A - \eta_D = 0$<br>$H_a$: $\eta_A - \eta_D > 0$ | Test 7 | Test 8 |
| 9, 10 | Fusion Average ⊕ Gas | Two-Tailed Test | $H_0$: $\eta_A - \eta_G = 0$<br>$H_a$: $\eta_A - \eta_G \neq 0$ | Test 9 | Test 10 |
| 11, 12[48] | Fusion Average ⊕ Gas | One-Tailed Test | $H_0$: $\eta_A - \eta_G = 0$<br>$H_a$: $\eta_A - \eta_G > 0$ | Test 11 | Test 12 |
| 13, 14 | Fusion Average ⊕ Blast | Two-Tailed Test | $H_0$: $\eta_A - \eta_B = 0$<br>$H_a$: $\eta_A - \eta_B \neq 0$ | Test 13 | Test 14 |
| 15, 16 | Fusion Average ⊕ Blast | One-Tailed Test | $H_0$: $\eta_A - \eta_B = 0$<br>$H_a$: $\eta_A - \eta_B > 0$ | Test 15 | Test 16 |

Therefore, although we may not know which type of dependencies between those factors being fused would generate a cdf which equals the midpoint between the upper and lower bounds, we may use this average distribution as a representative of the Fusion predictor to perform the comparisons in Table 7.5. This is particularly important when comparing Fusion with Independent. Since Independent is one form of dependency, its shape is necessarily contained within the bounds of the fusion. Therefore, comparing it to either the upper or the lower bound would always produce results which are biased: The outcome would be either that the Independent overpredicts (if compared to the lower bound) or underpredicts (if compared to the upper bound). Using the average distribution removes such bias.

[47] Those tests are not necessary if $H_0$ can not be rejected in Tests # 1 and 2
[48] Those tests are not necessary if $H_0$ can not be rejected in Tests # 9 and 10

The second set of tests, 136 in total as listed in Table 7.6, seek to determine whether the significances of the differences identified in the first sets of tests (if any) are dependent upon the threshold values being specified. In other words, these tests seek to determine whether the differences identified earlier remain just as significant regardless of the value of $x$. This is important for the following reason:

Suppose that the significance varies from very significant to insignificant, depending on the value of $x$. Then, for those values of $x$ where the difference is insignificant, one may not need being strict about which predictor to use to assess the risk. However, for those values of $x$ where the difference is very significant, the assessment of the risk will depend on the predictor being used, with potentially devastating consequences if the predictor selected is not the one which should have been selected.

To perform those tests however, Table 7.6 indicates that the observations being paired are the probabilities of observing at least (or less than) $x$ in each of the CCDs being impacted by the hazards. This is necessary since each test involves comparing two predictors' estimates for a particular value of $x$. The p-values from these tests can then be plotted, with the values of $x$ on the horizontal axis, to help identify any trend (dependency) on $x$. Therefore, for each CCD impacted by at least two hazards[49] the steps of Sections 7.1 and 7.2 had to be performed. The casualties' distributions obtained for each CCD are listed in Appendix E. The remaining two sets of tests, each containing 102 tests compare the estimate of each hazard with either the upper bound (Table 7.7) or the lower bound (Table 7.8) of the fusion. The rationale behind those tests follows:

[49] This is necessary to perform the fusion.

Table 7.6 Second Set of matched-pairs comparisons between predictors – significance of difference as function of threshold value

| Test # | Predictors | Matched-Pairs Test Type | Test | Observations being Paired | |
|---|---|---|---|---|---|
| One test for each value of $x$ | | | | Probability of Observing at Least $x$ in each CCD | Probability of Observing Less than $x$ in each CCD |
| 17 - 50 | Fusion Average ⊕ Independent | Two-Tailed Test | $H_0$: $\eta_A - \eta_I = 0$<br>$H_a$: $\eta_A - \eta_I \neq 0$ | Tests 17-33 | Tests 34-50 |
| 51 - 84 | Fusion Average ⊕ Debris | Two-Tailed Test | $H_0$: $\eta_A - \eta_D = 0$<br>$H_a$: $\eta_A - \eta_D \neq 0$ | Tests 51- 67 | Tests 68-84 |
| 85 - 118 | Fusion Average ⊕ Gas | Two-Tailed Test | $H_0$: $\eta_A - \eta_G = 0$<br>$H_a$: $\eta_A - \eta_G \neq 0$ | Tests 85 - 101 | Tests 102 - 118 |
| 119 - 152 | Fusion Average ⊕ Blast | Two-Tailed Test | $H_0$: $\eta_A - \eta_B = 0$<br>$H_a$: $\eta_A - \eta_B \neq 0$ | Tests 119 - 135 | Tests 136 - 152 |

Rationale for tests of Table 7.7

Suppose the following question is asked: What are the chances that we incur at least a casualty if we launch? The fusion response to this question would take the shape: The probability that we incur at least a casualty is at a minimum Min% but could be as high as Max%. The response from any of the hazards would take the shape: The probability that we incur at least a casualty is P%. Two cases emerge:

1. If P% is greater than the upper bound Max%, then the particular hazard is being over conservative, ignoring the fact that the true probability may be in fact much lower.
2. However, if P% is less than the upper bound Max%, then the particular hazard underestimates the risk of incurring a casualty.

We are interested in seeing whether or not the second case may occur. A decision based on a single hazard in such a case may have devastating consequences, as one would decide on the assumption that the risk is at a particular level while in fact it could be higher. If the second case happens to occur, we also compare the hazard's estimate to the fusion lower bound.

Table 7.7 Third set of matched-pairs comparisons between predictors – observing at least x

| Test # | Predictors | Matched-Pairs Test Type | Test | Observations being Paired |
|---|---|---|---|---|
| One test for each value of $x$ | | | | Probability of Observing at Least $x$ in each CCD |
| 153 - 169 | Fusion Upper Bound ⊕ Debris | One-Tailed Test | $H_0$: $\eta_D - \eta_{UB} = 0$<br>$H_a$: $\eta_D - \eta_{UB} < 0$ | All 17 Tests |
| 170 - 186 | Fusion Lower Bound ⊕ Debris | One-Tailed Test | $H_0$: $\eta_D - \eta_{LB} = 0$<br>$H_a$: $\eta_D - \eta_{LB} < 0$ | All 17 Tests |
| 187 - 203 | Fusion Upper Bound ⊕ Gas | One-Tailed Test | $H_0$: $\eta_G - \eta_{UB} = 0$<br>$H_a$: $\eta_G - \eta_{UB} < 0$ | All 17 Tests |
| 204 - 220[50] | Fusion Lower Bound ⊕ Gas | One-Tailed Test | $H_0$: $\eta_G - \eta_{LB} = 0$<br>$H_a$: $\eta_G - \eta_{LB} < 0$ | All 17 Tests |
| 221 - 237 | Fusion Upper Bound ⊕ Blast | One-Tailed Test | $H_0$: $\eta_B - \eta_{UB} = 0$<br>$H_a$: $\eta_B - \eta_{UB} < 0$ | All 17 Tests |
| 238 - 254 | Fusion Lower Bound ⊕ Blast | One-Tailed Test | $H_0$: $\eta_B - \eta_{LB} = 0$<br>$H_a$: $\eta_B - \eta_{LB} < 0$ | All 17 Tests |

Rationale for tests Table 7.8

Suppose the following question is asked: What are the chances that we incur no casualty if we launch? The fusion response to this question would take the shape: The probability that we incur no casualty is at the very least Min% and could be as high as Max%. The response from any of the hazards would take the shape: The probability that we incur no casualty is P%. Two cases emerge:

1. If P% is less than the lower bound Min%, then the particular hazard is being over conservative, ignoring the fact that the true probability may be in fact higher.

[50] Those tests are not necessary if H0 can not be rejected in Tests # 187 - 203

2. However, if P% is greater than the lower bound Max%, then the particular hazard overestimates the fortune of not incurring a casualty.

Table 7.8 Fourth sets of matched-pairs comparisons between predictors – observing less than x

| Test # | Predictors | Matched-Pairs Test Type | Test | Observations being Paired |
|---|---|---|---|---|
| One test for each value of $x$ | | | | Probability of Observing Less than $x$ in each CCD |
| 255 - 271 | Fusion Lower Bound ⊕ Debris | One-Tailed Test | $H_0$: $\eta_D - \eta_{LB} = 0$<br>$H_a$: $\eta_D - \eta_{LB} > 0$ | All 17 Tests |
| 272 - 288 | Fusion Upper Bound ⊕ Debris | One-Tailed Test | $H_0$: $\eta_D - \eta_{UB} = 0$<br>$H_a$: $\eta_D - \eta_{UB} > 0$ | All 17 Tests |
| 289 - 305 | Fusion Lower Bound ⊕ Gas | One-Tailed Test | $H_0$: $\eta_G - \eta_{LB} = 0$<br>$H_a$: $\eta_G - \eta_{LB} > 0$ | All 17 Tests |
| 306 - 322[51] | Fusion Upper Bound ⊕ Gas | One-Tailed Test | $H_0$: $\eta_G - \eta_{UB} = 0$<br>$H_a$: $\eta_G - \eta_{UB} > 0$ | All 17 Tests |
| 323 - 339 | Fusion Lower Bound ⊕ Blast | One-Tailed Test | $H_0$: $\eta_B - \eta_{LB} = 0$<br>$H_a$: $\eta_B - \eta_{LB} > 0$ | All 17 Tests |
| 340 - 356 | Fusion Upper Bound ⊕ Blast | One-Tailed Test | $H_0$: $\eta_B - \eta_{UB} = 0$<br>$H_a$: $\eta_B - \eta_{UB} > 0$ | All 17 Tests |

We are interested in seeing whether or not the second case may occur. A decision based on a single hazard in such a case may have devastating consequences, as one would decide on the assumption that the probability of not incurring a casualty is at a particular level while in fact it could be lower. If the second case happens to occur, we also compare the hazard's estimate to the fusion upper bound.

[51] Those tests are not necessary if $H_0$ can not be rejected in Tests # 289 - 305

## 7.4 Experiment Results

The following tables and figures report the tests results. We analyze and discuss those results in Section 7.5. Figures 7.6, 7.7, 7.8 and 7.9 are graphical representations of the observations used to perform the first set of tests. The tabular forms of those observations can be found in Appendix E.

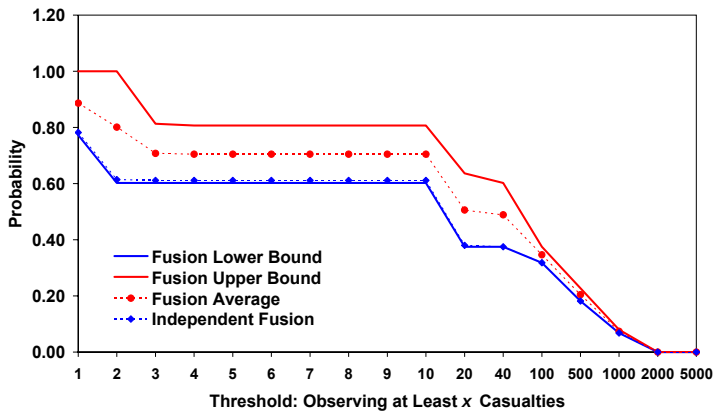



Figure 7.6 Prediction comparison between fusion and independent – observing at least *x*

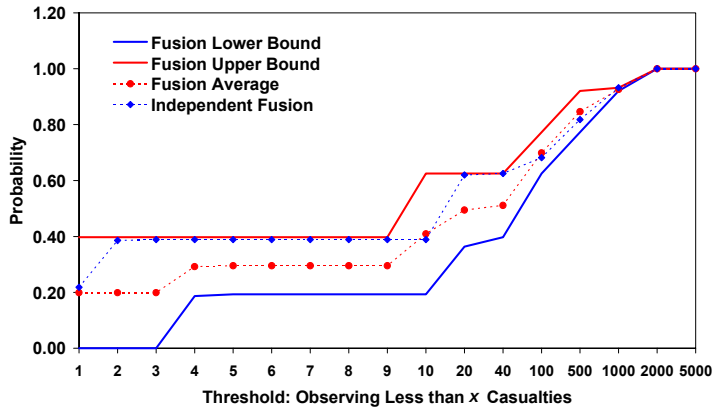



Figure 7.7 Prediction comparison between fusion and independent – observing less than *x*

Table 7.9 Results from tests of Table 7.4 (Tests # 1 – 16)

| Test # | | Test Type | 95% CI for Mean Difference | Wilcoxon Statistic W | p-value |
|---|---|---|---|---|---|
| 1 | Fusion Average ⊕ Independent | Two-Tailed Test | (-0.0773,0.2750) | 343.0 | 0.1183 |
| 2 | Fusion Average ⊕ Independent | Two-Tailed Test | (-0.1898,0.0773) | 262.0 | 0.2251 |
| 3 | Fusion Average ⊕ Independent | One-Tailed Test | (-0.0773,0.2750) | 343.0 | 0.0591 |
| 4 | Fusion Average ⊕ Independent | One-Tailed Test | (-0.1898,0.0773) | < 297.5 | |
| 5 | Fusion Average ⊕ Debris | Two-Tailed Test | (0.4886,0.7046) | 422.0 | 0.0000 |
| 6 | Fusion Average ⊕ Debris | Two-Tailed Test | (-0.7046,-0.4886) | 173.0 | 0.0000 |
| 7 | Fusion Average ⊕ Debris | One-Tailed Test | (0.4886,0.7046) | 422.0 | 0.000 |
| 8 | Fusion Average ⊕ Debris | One-Tailed Test | (-0.7046,-0.4886) | < 297.5 | - |
| 8a[52] | Fusion Average ⊕ Debris | One-Tailed Test | (-0.7046,-0.4886) | 173.0 | 0.0000 |
| 9 | Fusion Average ⊕ Gas | Two-Tailed Test | (-0.1081,0.1025) | 274.0 | 0.4222 |
| 10 | Fusion Average ⊕ Gas | Two-Tailed Test | (-0.1023,0.1820) | 319.0 | 0.4647 |
| 11 | Fusion Average ⊕ Gas | One-Tailed Test | (-0.1081,0.1025) | < 297.5 | - |
| 12 | Fusion Average ⊕ Gas | One-Tailed Test | (-0.1023,0.1820) | 319.0 | 0.2323 |
| 13 | Fusion Average ⊕ Blast | Two-Tailed Test | (0.4546,0.7045) | 415.0 | 0.0000 |
| 14 | Fusion Average ⊕ Blast | Two-Tailed Test | (-0.7046,-0.4546) | 180.0 | 0.0000 |
| 15 | Fusion Average ⊕ Blast | One-Tailed Test | (0.4546,0.7045) | 415.0 | 0.0000 |
| 16 | Fusion Average ⊕ Blast | One-Tailed Test | (-0.5113,-0.2613) | < 297.5 | - |
| 16a | Fusion Average ⊕ Blast | One-Tailed Test | (-0.5113,-0.2613) | 153.0 | 0.0000 |

[52] The alternative hypotheses for Tests 8a and 16a are: $H_a$: $\eta_A - \eta_D < 0$ and $H_a$: $\eta_A - \eta_B < 0$ respectively

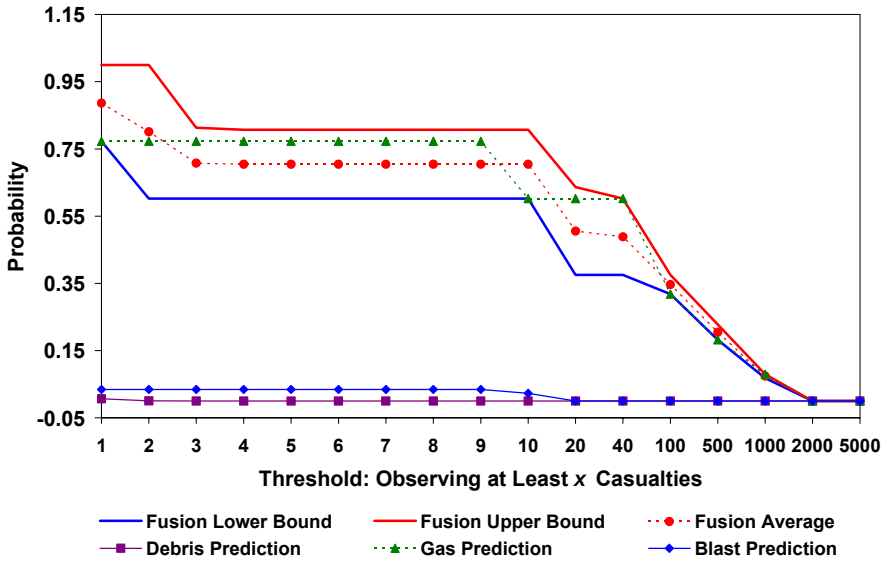



Figure 7.8 Prediction comparisons between fusion and the 3 hazards – observing at Least *x*

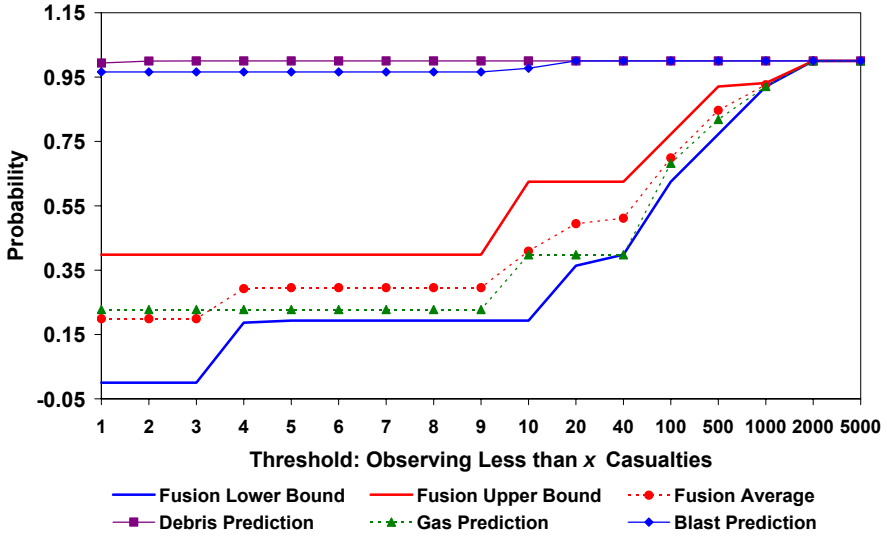



Figure 7.9 Prediction comparisons between fusion and the 3 hazards – observing less than *x*

Figure 7.10 shows graphically the outcomes of tests 17 to 50 from the second set of tests.

Figure 7.11 shows graphically the outcomes of tests 51 to 84 from the second set of tests. The

outcomes of tests 85 to 118 are shown in Figure 7.12 while those of tests 119 to 152 are shown in Figure 7.13.

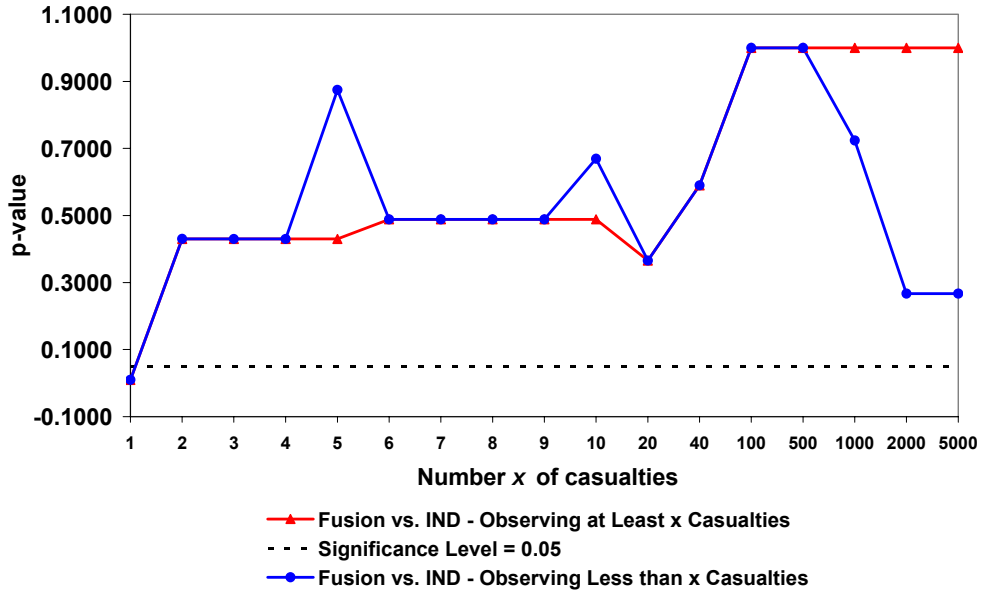



Figure 7.10 Significance of difference between fusion and independent as a function of threshold value (Tests # 17 – 50)

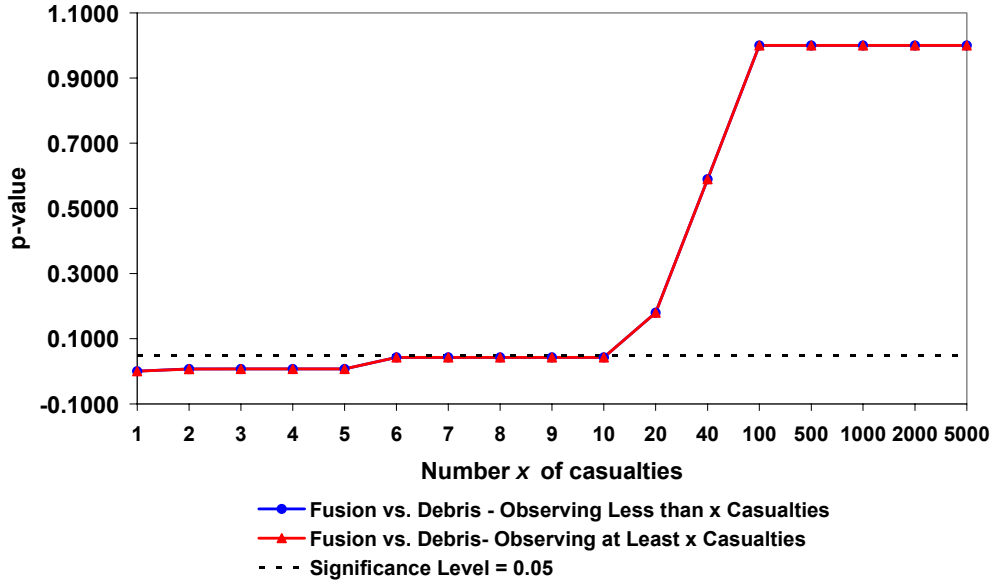



Figure 7.11 Significance of difference between fusion and debris as a function of threshold value (Tests # 51 – 84)

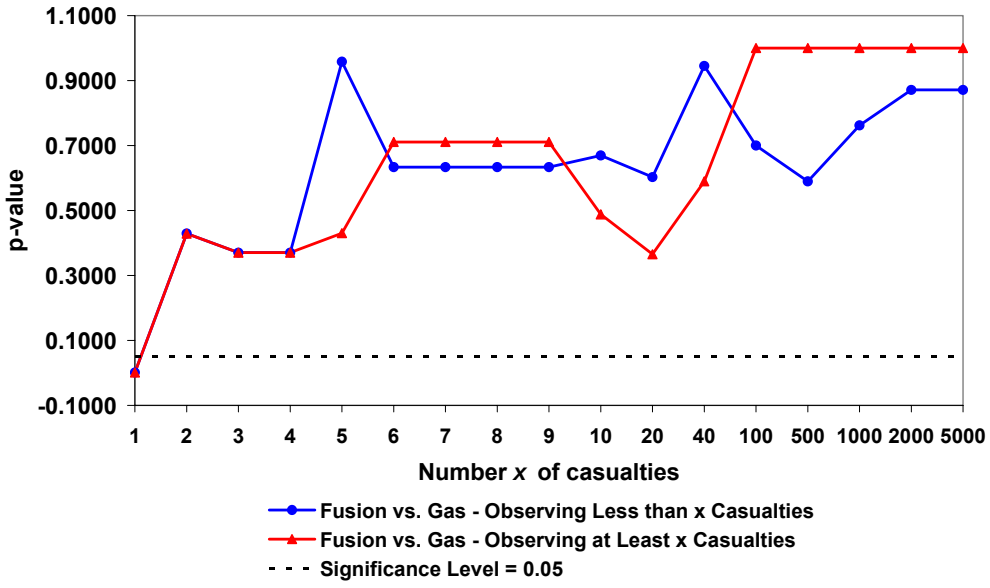



Figure 7.12 Significance of difference between fusion and gas as a function of threshold value (Tests # 85 – 118)

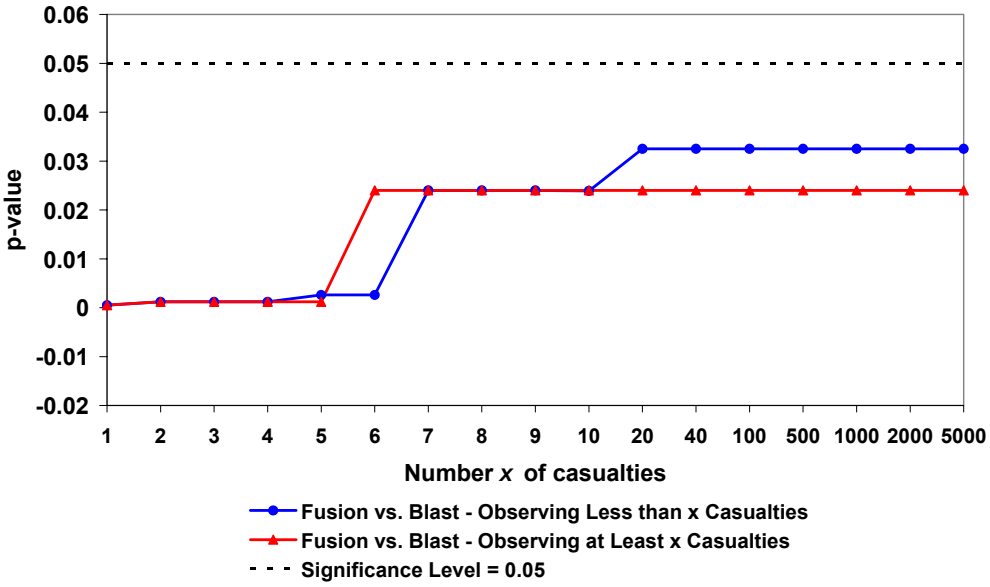



Figure 7.13 Significance of difference between fusion and blast as a function of threshold value (Tests # 119 – 152)

Figure 7.14 to 7.16 shows graphically the outcomes of tests 153 to 254 from the third sets of tests.

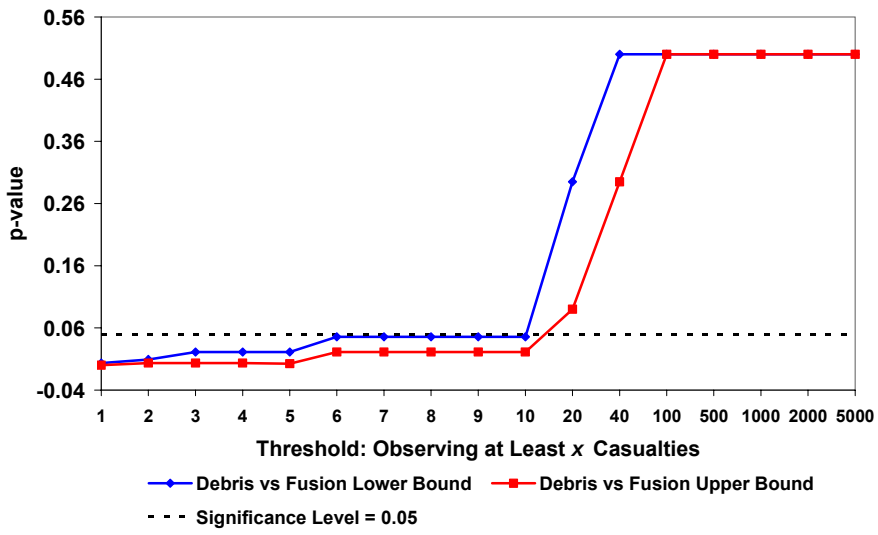



Figure 7.14 Hypothesis: Debris underestimates risk of incurring *x* casualties or more (Tests # 153 – 186)

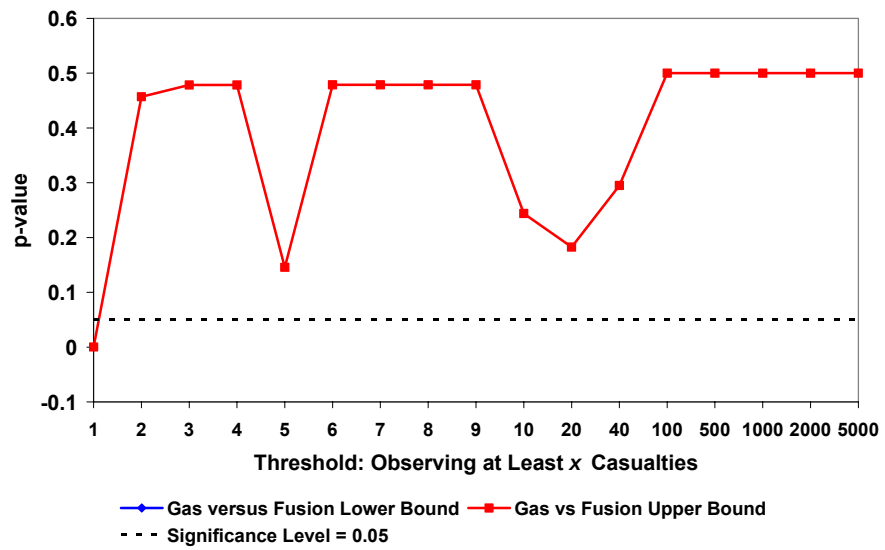



Figure 7.15 Hypothesis: Gas underestimates risk of incurring *x* casualties or more (Tests # 187 – 220)

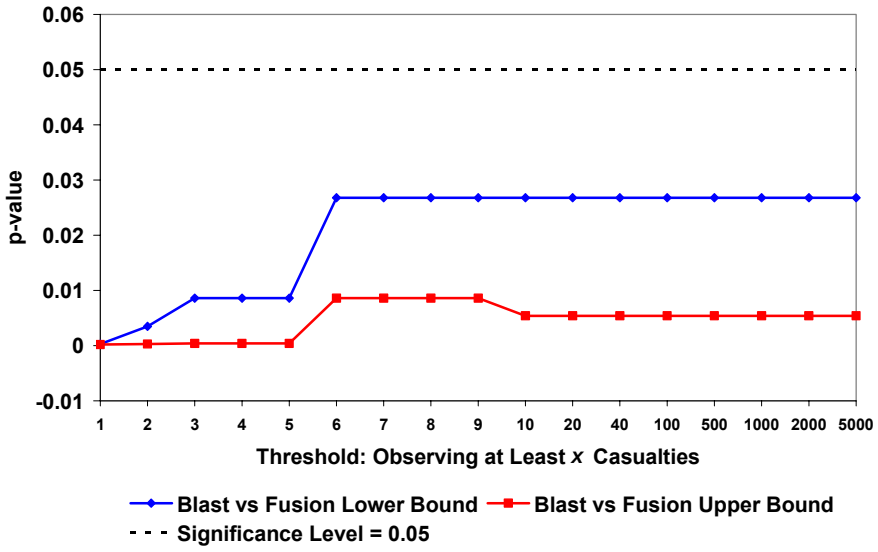



Figure 7.16 Hypothesis: Blast underestimates risk of incurring *x* casualties or more (Tests # 238 – 254)

Figure 7.17 to 7.19 shows the graphical representations of the outcomes of tests 153 to 254 from the third sets of tests.

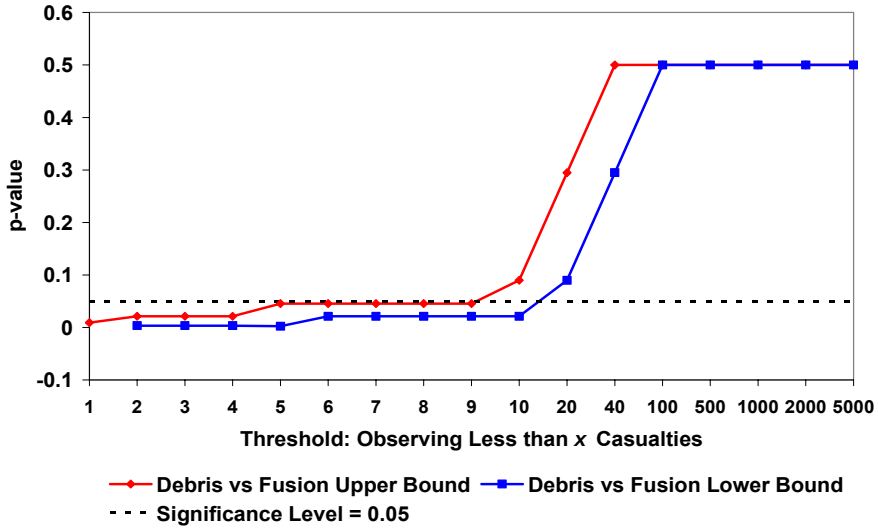



Figure 7.17 Hypothesis: Debris overestimates risk of incurring less than *x* casualties (Tests # 255 – 288)

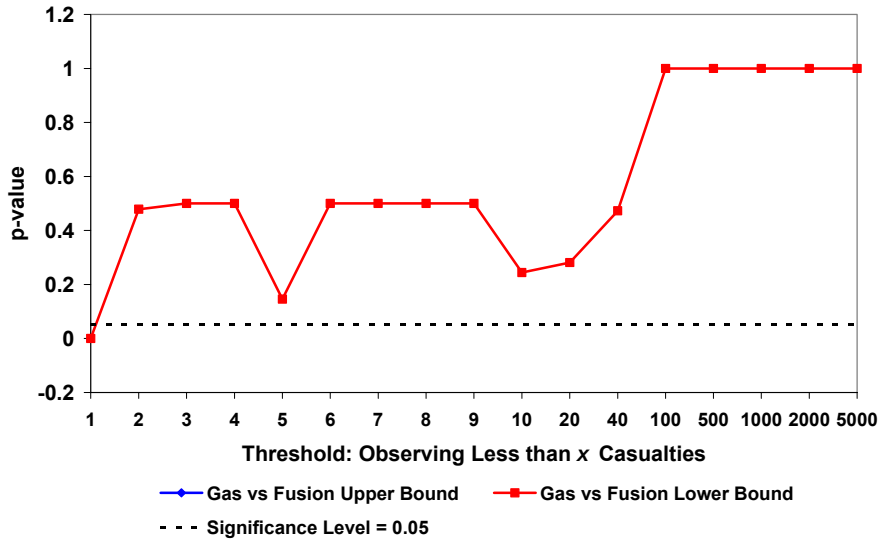



Figure 7.18 Hypothesis: Gas overestimates risk of incurring less than *x* casualties (Tests # 289 – 322)

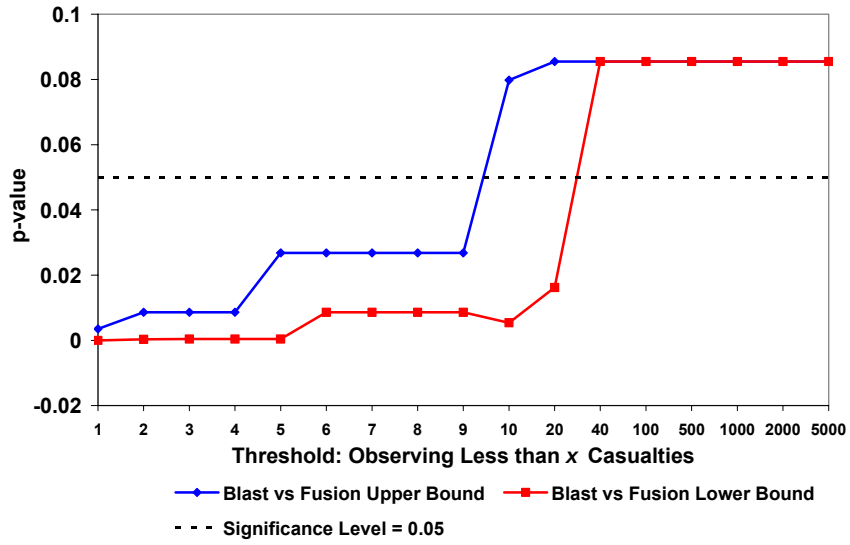



Figure 7.19 Hypothesis: Blast overestimates risk of incurring less than *x* casualties (Tests # 323 – 356)

The data used to perform the first set of tests are shown in Table 7.10 and 7.11. The tables used to perform the second, third and fourth sets of tests can be found in Appendix E. As a

sample, we show Tables 7.12 and 7.13 which were used to find the two p-values, at $x = 3$ in each of the Figures 7.10 to 7.13.

Table 7.10 Overall probability of observing at least $x$

| Threshold: $x$ | LB[53] | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| 1 | 7.727E-01 | 1.000E+00 | 8.864E-01 | 7.819E-01 | 6.326E-03 | 7.727E-01 | 3.409E-02 |
| 2 | 6.023E-01 | 1.000E+00 | 8.011E-01 | 6.144E-01 | 1.646E-04 | 7.727E-01 | 3.409E-02 |
| 3 | 6.023E-01 | 8.131E-01 | 7.077E-01 | 6.114E-01 | 3.398E-06 | 7.727E-01 | 3.409E-02 |
| 4 | 6.023E-01 | 8.070E-01 | 7.046E-01 | 6.113E-01 | 5.776E-08 | 7.727E-01 | 3.409E-02 |
| 5 | 6.023E-01 | 8.068E-01 | 7.046E-01 | 6.113E-01 | 8.388E-10 | 7.727E-01 | 3.409E-02 |
| 6 | 6.023E-01 | 8.068E-01 | 7.045E-01 | 6.113E-01 | 1.064E-11 | 7.727E-01 | 3.409E-02 |
| 7 | 6.023E-01 | 8.068E-01 | 7.045E-01 | 6.113E-01 | 1.200E-13 | 7.727E-01 | 3.409E-02 |
| 8 | 6.023E-01 | 8.068E-01 | 7.045E-01 | 6.113E-01 | 0.000E+00 | 7.727E-01 | 3.409E-02 |
| 9 | 6.023E-01 | 8.068E-01 | 7.045E-01 | 6.113E-01 | 0.000E+00 | 7.727E-01 | 3.409E-02 |
| 10 | 6.023E-01 | 8.068E-01 | 7.045E-01 | 6.113E-01 | 0.000E+00 | 6.023E-01 | 2.273E-02 |
| 20 | 3.750E-01 | 6.364E-01 | 5.057E-01 | 3.802E-01 | 0.000E+00 | 6.023E-01 | 0.000E+00 |
| 40 | 3.750E-01 | 6.023E-01 | 4.886E-01 | 3.750E-01 | 0.000E+00 | 6.023E-01 | 0.000E+00 |
| 100 | 3.182E-01 | 3.750E-01 | 3.466E-01 | 3.182E-01 | 0.000E+00 | 3.182E-01 | 0.000E+00 |
| 500 | 1.818E-01 | 2.273E-01 | 2.046E-01 | 1.818E-01 | 0.000E+00 | 1.818E-01 | 0.000E+00 |
| 1000 | 6.820E-02 | 7.956E-02 | 7.388E-02 | 6.820E-02 | 0.000E+00 | 7.954E-02 | 0.000E+00 |
| 2000 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
| 5000 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |

Table 7.11 Overall probability of observing less than $x$

| Threshold: $x$ | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| 1 | 0.000E+00 | 3.977E-01 | 1.989E-01 | 2.181E-01 | 9.937E-01 | 2.273E-01 | 9.659E-01 |
| 2 | 0.000E+00 | 3.977E-01 | 1.989E-01 | 3.856E-01 | 9.998E-01 | 2.273E-01 | 9.659E-01 |
| 3 | 0.000E+00 | 3.977E-01 | 1.989E-01 | 3.886E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 4 | 1.869E-01 | 3.977E-01 | 2.923E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 5 | 1.930E-01 | 3.977E-01 | 2.954E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 6 | 1.932E-01 | 3.977E-01 | 2.954E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 7 | 1.932E-01 | 3.977E-01 | 2.955E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 8 | 1.932E-01 | 3.977E-01 | 2.955E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 9 | 1.932E-01 | 3.977E-01 | 2.955E-01 | 3.887E-01 | 1.000E+00 | 2.273E-01 | 9.659E-01 |
| 10 | 1.932E-01 | 6.250E-01 | 4.091E-01 | 3.887E-01 | 1.000E+00 | 3.977E-01 | 9.773E-01 |
| 20 | 3.636E-01 | 6.250E-01 | 4.943E-01 | 6.198E-01 | 1.000E+00 | 3.977E-01 | 1.000E+00 |
| 40 | 3.977E-01 | 6.250E-01 | 5.114E-01 | 6.250E-01 | 1.000E+00 | 3.977E-01 | 1.000E+00 |
| 100 | 6.250E-01 | 7.727E-01 | 6.989E-01 | 6.818E-01 | 1.000E+00 | 6.818E-01 | 1.000E+00 |
| 500 | 7.727E-01 | 9.204E-01 | 8.466E-01 | 8.182E-01 | 1.000E+00 | 8.182E-01 | 1.000E+00 |
| 1000 | 9.204E-01 | 9.318E-01 | 9.261E-01 | 9.318E-01 | 1.000E+00 | 9.204E-01 | 1.000E+00 |
| 2000 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 |
| 5000 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 | 1.000E+00 |

[53] LB: Fusion Lower Bound, UB: Fusion Upper Bound, AVG: Average, IND: Independent

Table 7.12 Probabilities of observing at least 3 casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.022730 | 0.056820 | 0.039775 | 0.022730 | 0.000000 | 0.056810 | 0.000000 |
| NE Washita | 0.159089 | 0.181819 | 0.170454 | 0.159090 | 0.000000 | 0.181820 | 0.000000 |
| NW Washita | 0.375000 | 0.729030 | 0.552015 | 0.513659 | 0.201566 | 0.443170 | 0.034090 |
| SE Washita | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| W Canadian | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| El Reno | 0.000000 | 0.011360 | 0.005680 | 0.000000 | 0.000000 | 0.011360 | 0.000000 |
| Weatherford | 0.000000 | 0.045450 | 0.022725 | 0.000000 | 0.000000 | 0.045450 | 0.000000 |

Table 7.13 Probabilities of observing less than 3 casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.943180 | 0.977270 | 0.960225 | 0.977270 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.818180 | 0.840910 | 0.829545 | 0.840910 | 1.000000 | 0.818180 | 1.000000 |
| NW Washita | 0.270970 | 0.625000 | 0.447985 | 0.486341 | 0.798434 | 0.556820 | 0.965910 |
| SE Washita | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.988640 | 1.000000 | 0.994320 | 1.000000 | 1.000000 | 0.988640 | 1.000000 |
| Weatherford | 0.954550 | 1.000000 | 0.977275 | 1.000000 | 1.000000 | 0.954550 | 1.000000 |

## 7.5 Results Interpretation and Discussion

### 7.5.1 Results Interpretation

The first set of tests was designed to compare the estimates generated by the Independent predictor and by each individual hazard, with the estimate of the Fusion average. The results shown in Table 7.9 indicate the following:

1. There is no significant difference between the Fusion average estimates and the Independent estimates.
2. There is a significant difference between the Debris estimates and the Fusion average estimates. In fact, Test 7 indicates that when the objective of the analysis is to estimate

the probability of observing at least a number $x$ of casualties, the Debris estimates are generally lower than those of the Fusion midpoint. On the other hand, when the objective of the analysis is to estimate the probability of observing less than a number $x$ of casualties, the Debris estimates are generally higher than the Fusion average (Test 8a).

3. There is no significant difference between the Fusion average estimates and the Gas estimates.
4. There is a significant difference between the Blast estimates and the Fusion average estimates. In fact, similarly to the debris case, Test 15 indicates that when the objective of the analysis is to estimate the probability of observing at least a number $x$ of casualties, the Blast estimates are generally lower than those of the Fusion midpoint. On the other hand, when the objective of the analysis is to estimate the probability of observing less than a number $x$ of casualties, the Blast estimates are generally higher than the Fusion average (Test 16a).

The second set of tests was designed to determine whether the threshold values of $x$ have any effect on the significances observed in the first set of tests. The results shown in Figure 7.10 to 7.13 indicate the following:

1. The differences between the Fusion midpoint estimates and the Independent estimates remain insignificant, regardless of $x$. This is expected as in the first set of tests, no significant difference was detected between the two types of estimates. However, Figure 7.10 indicates that this is only true as long as $x$ is greater than 1. In other words, Tests 17 and 84[54] indicate that when the objective of the analysis is to estimate the probability of

[54] In which the hypotheses are tested at $x = 1$

observing either no or at least 1 casualty, the Fusion average and the Independent provide different estimates.

2. When it comes to the Fusion midpoint and the Debris, Figure 7.11 indicates that the significance of the differences between the two predictors depends on the value of $x$. The differences are significant for threshold values up to 10 casualties, but become increasingly insignificant as the threshold value is raised.
3. The differences between the Fusion midpoint estimates and the Gas estimates remain insignificant, regardless of $x$. This, as in the Independent case, is expected as in the first set of tests, no significant difference was detected between the two types of estimates. However, just as in the Independent case, Figure 7.12 indicates that this is only true as long as $x$ is greater than 1. In other words, Tests 85 and 102[55] indicate that when the objective of the analysis is to estimate the probability of observing either no or at least 1 casualty, the Fusion average and the Gas provide different estimates.
4. When it comes to the Fusion average and the Blast, Figure 7.13 indicates that although the significance of the differences between the two predictors depends on the value of $x$, it remains high across the range of $x$.

The third set of tests was designed to determine whether the hazards' estimates are lower than the Fusion upper bound, when the objective is to estimate the probability of observing at least a number $x$ of casualties. The results shown in Figure 7.14 to 7.16 indicate the following:

1. Statistically, the Debris estimates are lower than the Fusion upper bound when the threshold value is equal or less than 10, as shown in Figure 7.14. The same conclusion is

[55] In which the hypotheses are tested at $x = 1$

reached when compared with the Fusion lower bound. In other words, when the objective of the analysis is to estimate the probability of observing at least *x* casualties, the estimates from the Debris hazard are significantly lower than both the Fusion upper and lower bounds. There is however, no sufficient evidence to indicate that this is also the case when the threshold value is greater than 10.

2. As long as the threshold value is greater than 1, there is no sufficient evidence to support the hypothesis that the Gas estimates are lower than the Fusion upper bound.
3. Statistically, the Blast estimates are lower than the Fusion upper bound regardless of the threshold value, as shown in Figure 7.16. The same conclusion is reached when compared with the Fusion lower bound. In other words, when the objective of the analysis is to estimate the probability of observing at least *x* casualties, the estimates from the Blast hazard are significantly lower than both the Fusion upper and lower bounds.

The fourth set of tests was designed to determine whether the hazards' estimates are higher than the Fusion lower bound, when the objective is to estimate the probability of observing less than a number *x* of casualties. The results shown in Figures 7.17 to 7.19 indicate the following:

1. Statistically, the Debris estimates are higher than the Fusion lower bound when the threshold value is equal or less than 10, as shown in Figure 7.17. The same conclusion is reached when compared with the Fusion upper bound, however, only when the threshold is less or equal to 9. In other words, when the objective of the analysis is to estimate the probability of observing less than *x* casualties, the estimates from the Debris hazard are significantly higher than both the Fusion upper and lower bounds. There is however, no

sufficient evidence to indicate that this is also the case when the threshold value is greater than 9.

2. Figure 7.18 indicates that as long as the threshold value is greater than 1, there is not sufficient evidence to support the hypothesis that the Gas estimates are higher than the Fusion lower bound.
3. Statistically, the Blast estimates are higher than the Fusion lower bound when the threshold value is equal or less than 20 (or 9 when compared to the upper bound), as shown in Figure 7.19. In other words, when the objective of the analysis is to estimate the probability of observing at least $x$ casualties, the estimates from the Blast hazard are significantly lower than both the Fusion upper and lower bounds for threshold values which may be as high as 20.

### 7.5.2 Discussion

The experiment just conducted generated interesting results in terms of the performance of each of the predictors in assessing the risk associated with the use of space vehicles. There is enough evidence to suggest that both the debris and the blast hazards are very poor predictors of the risk being estimated, when taken alone. When compared to the bounds of the fusion, they tend to under predict the probability of incurring a number of casualties above a pre-specified threshold on one hand, while on the other hand they tend to over predict the probability of incurring a number of casualties below that threshold. Considering the probability of incurring at least 3 casualties, as shown in Table 7.12, as an example, Figure 7.20 shows the difference between the estimates. In all the CCDs except Northwest Washita, both the debris and the blast

indicate that it is impossible to incur 3 casualties or more. The fusion on the other hand, by means of either its upper or its lower bound, indicates that there is some probability of incurring at least 3 casualties in each of the same CCDs.

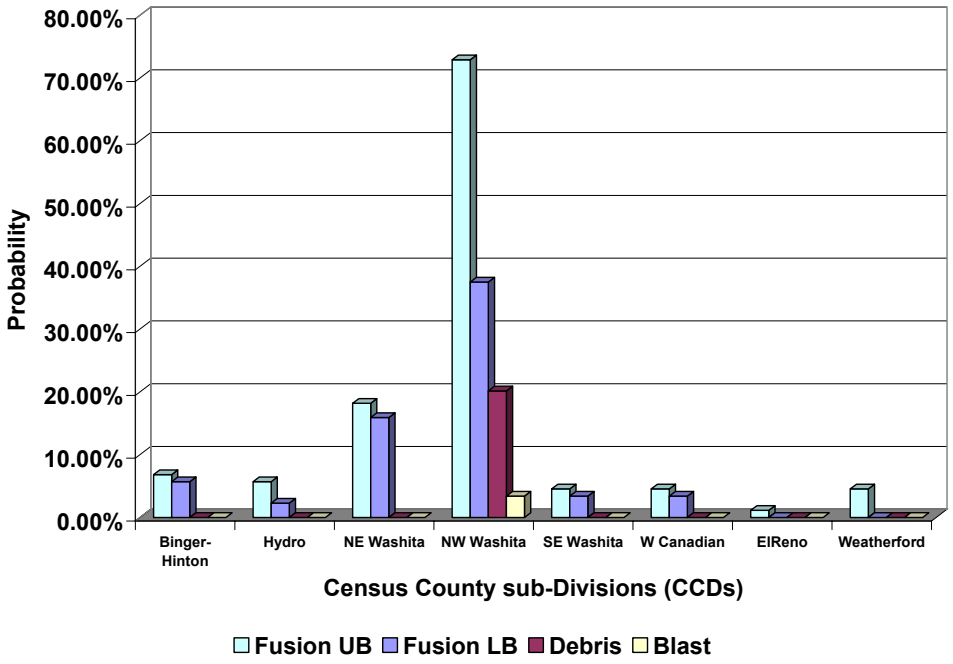



Figure 7.20 Estimates comparison of debris, blast and fusion for $prob(x \geq 3)$

The gas hazard however, being the dominant factor among the three hazards shows more agreement with the fusion estimates. In fact, both the gas cdf and the independent cdf behave more like an average cdf of a fusion which makes no assumption on the nature of the dependencies between the hazards (both show no significant difference with the average). However, our experiment indicates that as long as the threshold value is greater than 1 casualty, neither the gas nor the independent fusion has either a tendency to under predict (when compared to the upper bound) the probability of incurring more than a pre-specified number of casualties

or, over predict (when compared to the lower bound) the probability of incurring less than that number of casualties. The opposite should have been expected since their cdfs, being very similar to an average cdf of an unknown dependency fusion, should always be between the two bounds. This can be explained when we look at the case $x = 3$ as with the debris and the blast. Figure 7.20 indicates that both the debris and the blast estimate the probability of observing at least 3 casualties at zero for all the CCDs, except Northwest Washita. Therefore, those hazards, except for the case of Northwest Washita should not contribute to the computation of the fusion upper bound. Rather, they should contribute exclusively to the lower bound. Therefore, the gas being the only contributor to the upper bound at this threshold, we should expect it to estimate exactly the same probability as does the fusion upper bound. This is shown in Figure 7.21.

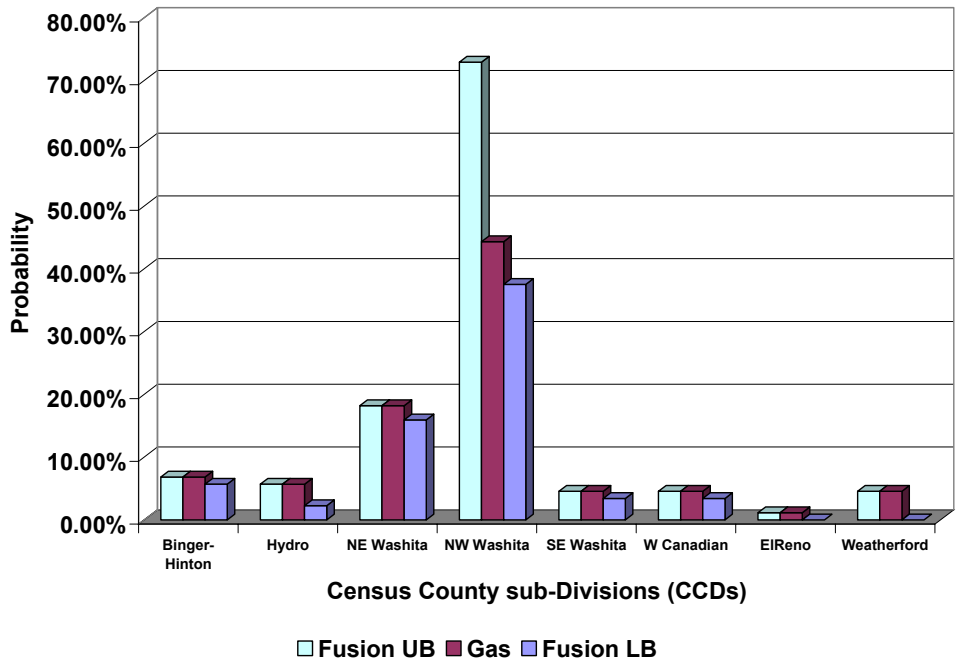
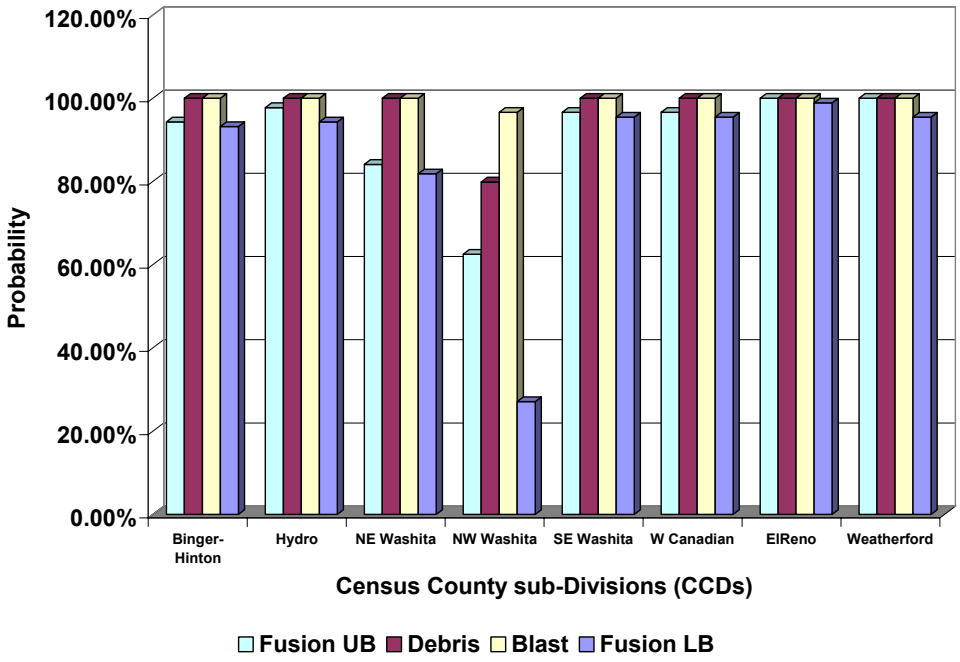
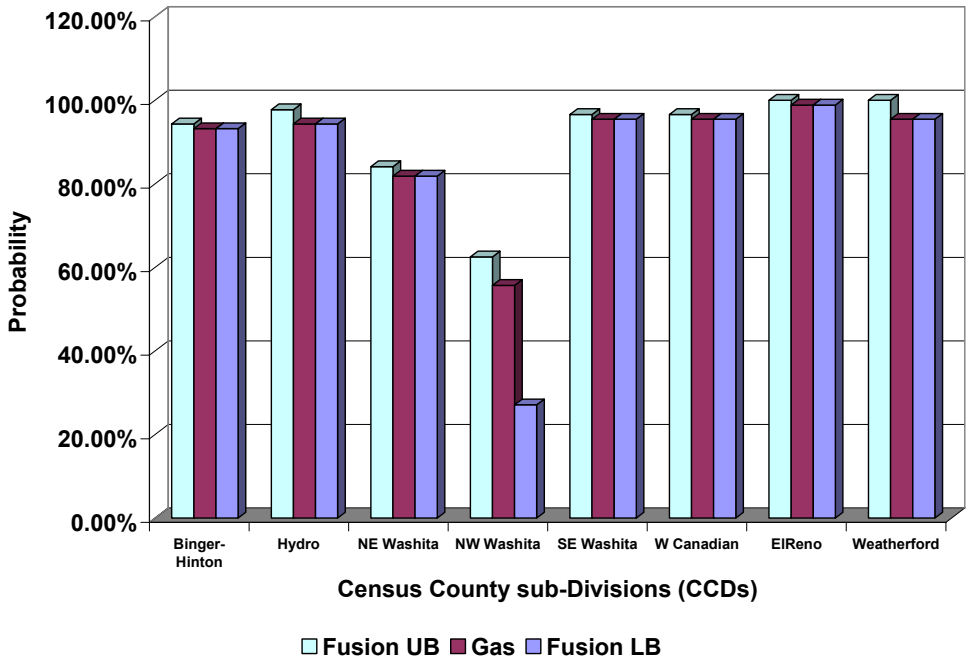



Figure 7.21 Estimates comparison of gas and fusion for $prob(x \geq 3)$

When the objective is to estimate the probability of observing less than 3 casualties (the complement of the former case), the same phenomenon occurs. Since both the debris and blast estimate that probability at 100% for all but Northwest Washita, they do not contribute to the computation of the fusion lower bound. Rather, they contribute exclusively to the upper bound in those CCDs. The gas being the only contributor to the lower bound at this threshold, we should expect it to estimate exactly the same probability as does the fusion lower bound. This is shown in Figure 7.22.




7.22a




7.22b

Figure 7.22 Estimates comparison of debris, blast and fusion (7.22a) and gas and fusion (7.22b) for *prob*($x < 3$)

When assessing the risk generated by the operation of launch vehicles, a fusion approach which makes no assumption about the nature of the dependency between the factors being fused has significant advantages over any single hazard or, over a fusion which assumes independence between the factors. The debris and blast clearly do not provide information which can be confidently used for decision making. The gas, although the factor with the most influence on the bounds of the fusion, is equally an inadequate predictor. This is the case since, by being equal either to the lower bound or the upper bound, it always gives the most optimistic estimate of the risk. Therefore, the real magnitude of the risk may never be known when gas is used alone. Fusion provides a bound, within which the probabilities of incurring a certain risk are uniformly distributed. Especially in those situations where the bounds are not too wide, the decision maker

has, through fusion, information which can be confidently used. Depending on the objective of the analysis, fusion leaves the option to the individual to make a decision based on either its upper bound (for example, when interested in incurring more than a certain number of casualties), its lower bound (for example, when interested in incurring less than a certain number of casualties) or any probability within those bounds, be it appropriate.

*7.5.2.1 The Case of x = 1*

The significance of what has just been discussed increases even more when the objective of the analysis is simply to determine whether or not there will be a casualty; in other words, when the threshold value is set to 1 ($x < 1$). This is particularly relevant since raising the probability of not incurring a casualty ought always to be the first priority in risk mitigation efforts. The experiment indicates that at such threshold, not only the debris and the blast, but also the gas and the independent cdfs significantly differ from the hypothetical fusion average cdf. At this threshold, the bounds of the fusion are the largest, resulting in an average which is significantly different from any other estimate. Table 7.14 shows the probabilities for $x < 1$.

Table 7.14 Probabilities of observing no casualty (x < 1) in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.943180 | 0.471590 | 0.931820 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.000000 | 0.977270 | 0.488635 | 0.943180 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.000000 | 0.840910 | 0.420455 | 0.818180 | 0.999999 | 0.818180 | 1.000000 |
| NW Washita | 0.000000 | 0.625000 | 0.312500 | 0.402432 | 0.748240 | 0.556820 | 0.965910 |
| SE Washita | 0.000000 | 0.965910 | 0.482955 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.000000 | 0.965910 | 0.482955 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.000000 | 0.988640 | 0.494320 | 0.965910 | 1.000000 | 0.965910 | 1.000000 |
| Weatherford | 0.000000 | 1.000000 | 0.500000 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |

The three hazards indicate that, in most CCDs there is a high probability that there will be no casualty. It therefore results that the independent fusion of those hazards also indicates the same. When it comes to the unknown dependency fusion however, one must recall how its bounds are calculated. Suppose an interval [0, $b$] where $b > 1$. In computing the probability of the upper bound of $x > 1$, the probability of [0, $b$] contributes to the upper bound probability, since $x > 1$ could occur. Since 0 is included in the interval, it results in the upper bound being just as high as the hazards and the independent estimates. On the other hand, in computing the lower bound, the probability of [0, $b$] is discarded since only those intervals in which $x > 1$ must occur contributes. This results in a lower bound which is extremely low.

Having bounds that are extremely wide such as in the case above is not necessarily desirable. However, it is better than having only probabilities that are close (sometimes higher) to the upper bound, as those probabilities could be misleading to the decision maker. As shown in Table 7.14, while the average fusion estimates the probability of not incurring a casualty at a more conservative 45.7% on average, the independent, debris, gas and blast estimates this probability at 86.6%, 96.9%, 88.5% and 99.6% respectively. Therefore, using the fusion average estimate in cases where the bounds are wide may be a reasonable approach.

*7.5.2.2 Hazards Effects as Function of Breakup Time*

The discussion above has established the inadequacy of any single hazard as a risk predictor. This was accomplished by comparing the risk estimates at different casualty threshold values. However, this inadequacy becomes even more apparent when, rather than considering a particular casualty threshold value, the emphasis is placed on the vehicle time of breakup. In

Figure 7.23, 7.24 and 7.25, the gas and debris impact areas are plotted for four different breakup times, t = +21.81s, +43.07s, +70.74s and, +100.12s. The maps in those figures indicate that which hazard generates the largest impact area for a particular breakup scenario depends on the time of that breakup. The gas impact areas are the most significant earlier in the launch phase (here t = +21.81s and +43.07s), where the amounts of propellant being released are the largest. Breakups which occur much later in the launch phase (here t = +70.74s and +100.12s) result in smaller gas impact areas since most of the propellant has already been consumed. On the contrary, the debris impact areas are the largest for breakups in the later stages of the launch and the smallest in the earliest, where the debris fields are much more concentrated. Therefore, no single hazard can be considered adequate when the risk to be generated by a vehicle launch is to be estimated.

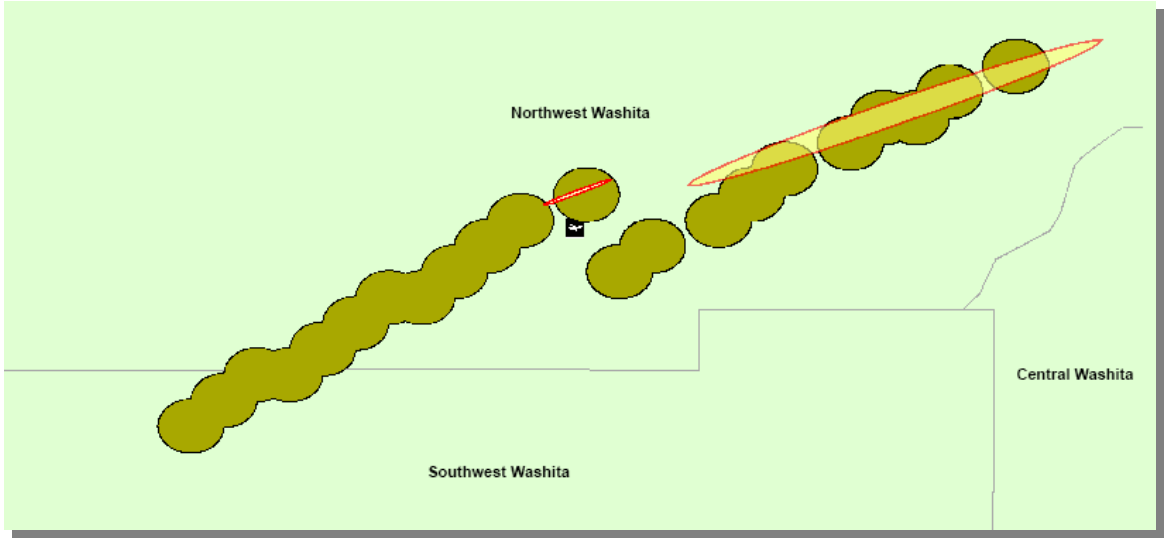



Figure 7.23 Debris and gas impact areas at t = +21.81s and +43.07s. The gas effects are most significant in the earliest phases of the launch, as opposed to the debris.

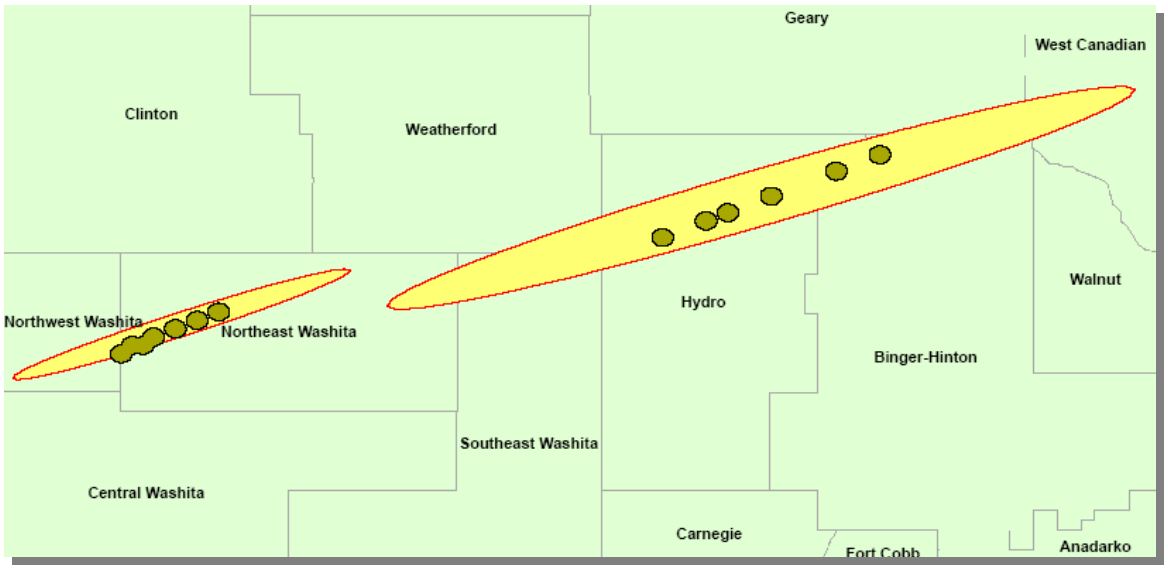



Figure 7.24 Debris and gas impact areas at t = +70.74s and +100.12s. The debris effects are most significant in the latest phases of the launch as opposed to the gas.

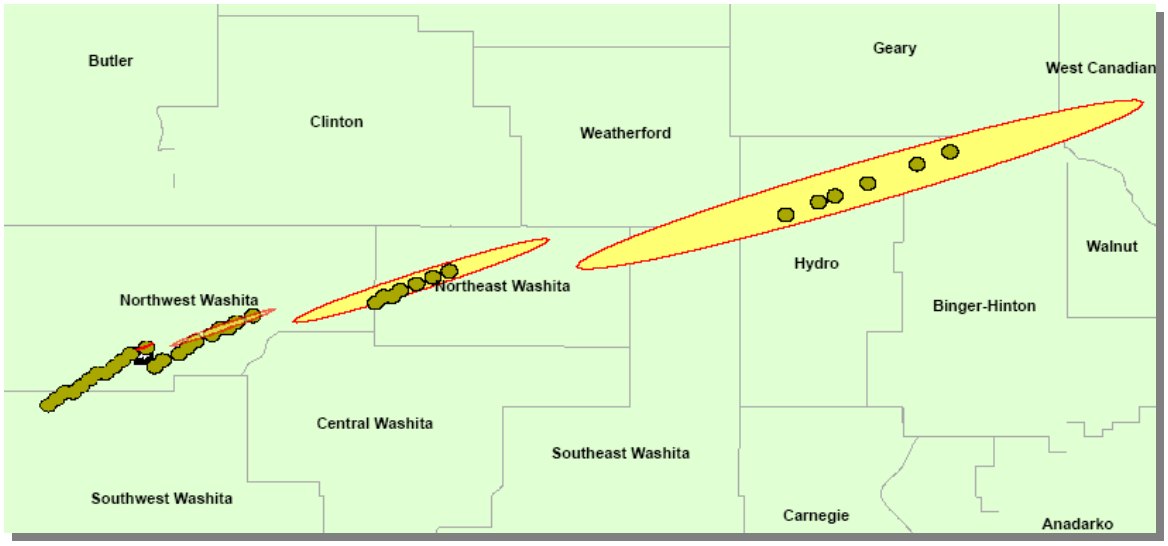
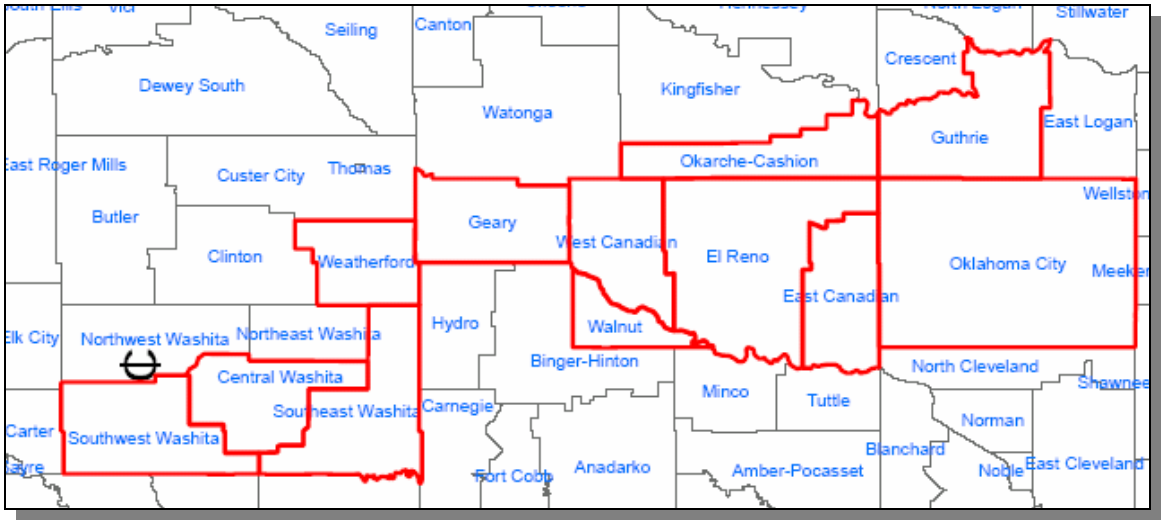


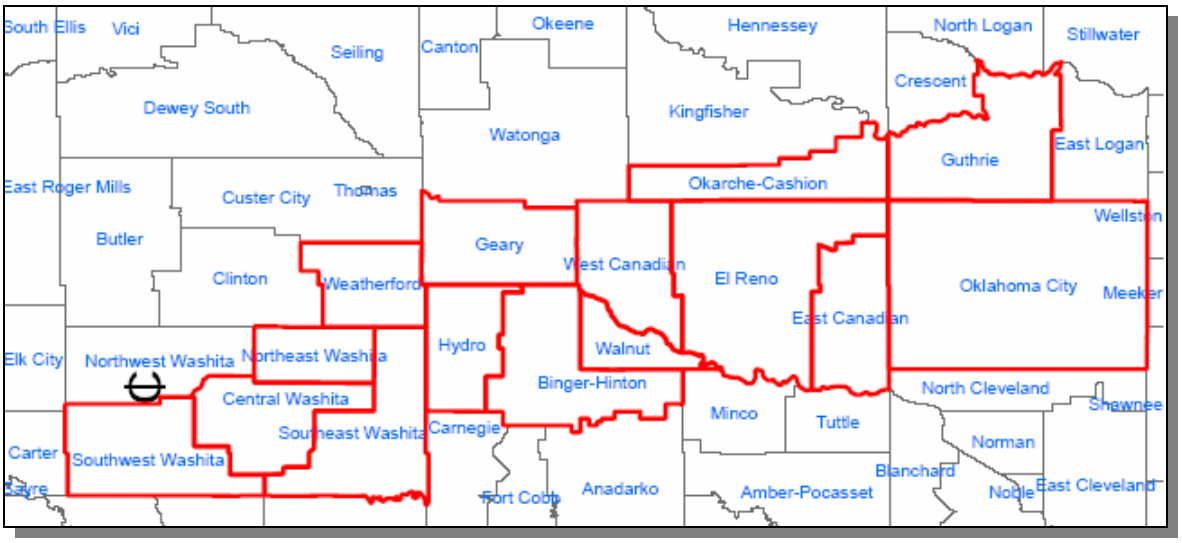

Figure 7.25 Dynamic of debris and gas impact areas as function of breakup time: t = +21.81s, +43.07s, +70.74s and +100.12s.

*7.5.2.3 Geographical Maps Comparison of Risk Estimates*

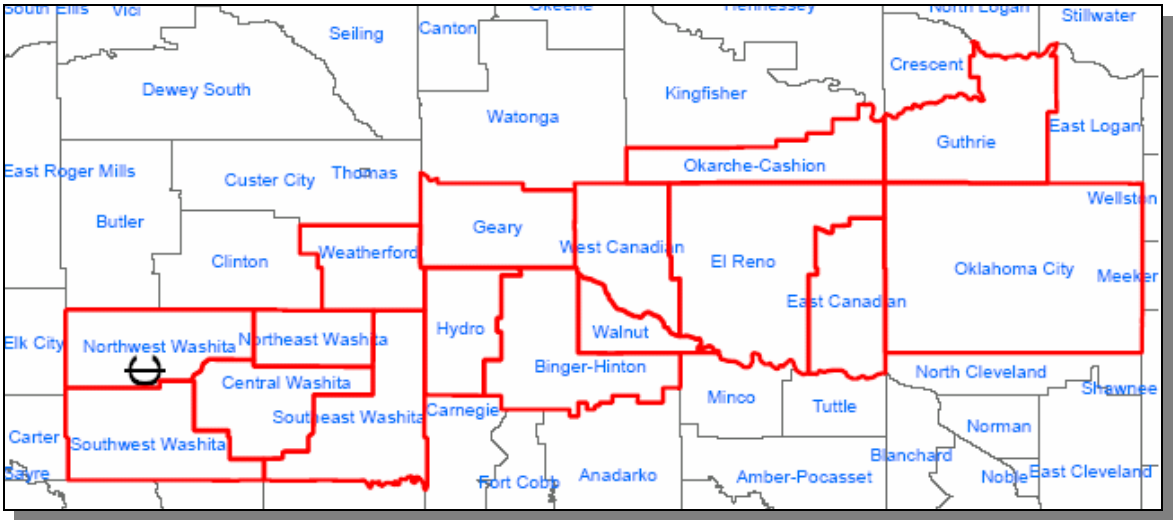
A series of maps where developed to illustrate the differences in predictions between the three hazards, the independent and the fusion. In the first set of maps shown in Figure 7.26, the CCDs highlighted in red are those in which the probability of observing less than 3 casualties is estimated to be more than 95%. In accordance with the testing logic of our experiment, the lower bound of the fusion was used. In the second set of maps shown in Figure 7.27, the CCDs highlighted in red are those in which the probability of observing more than 3 casualties is estimated to be at least 10%. In accordance with the testing logic of our experiment, the upper bound of the fusion was used.



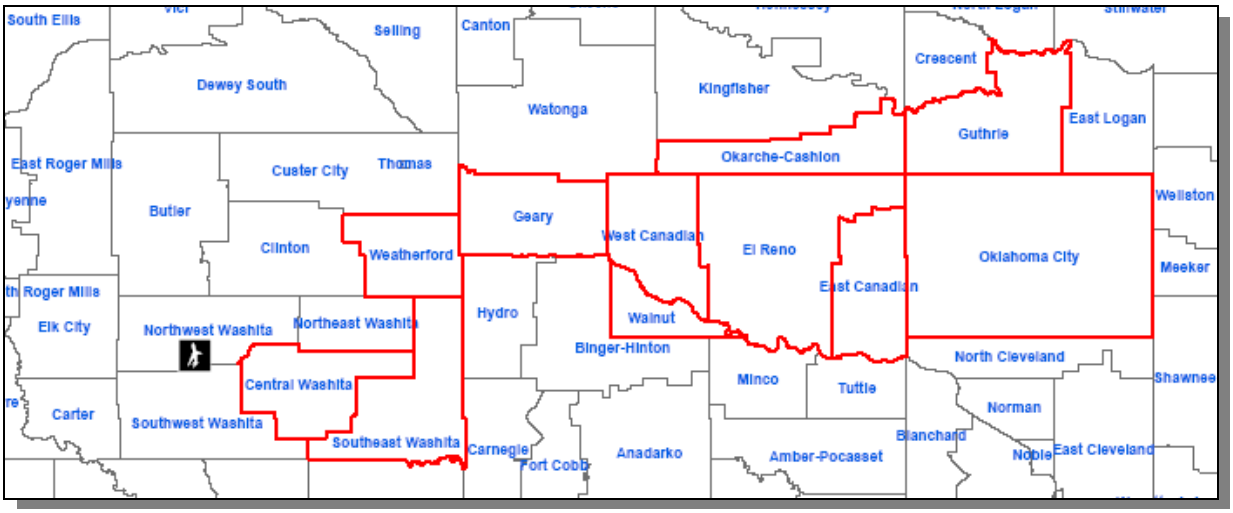

7.26a) Lower bound



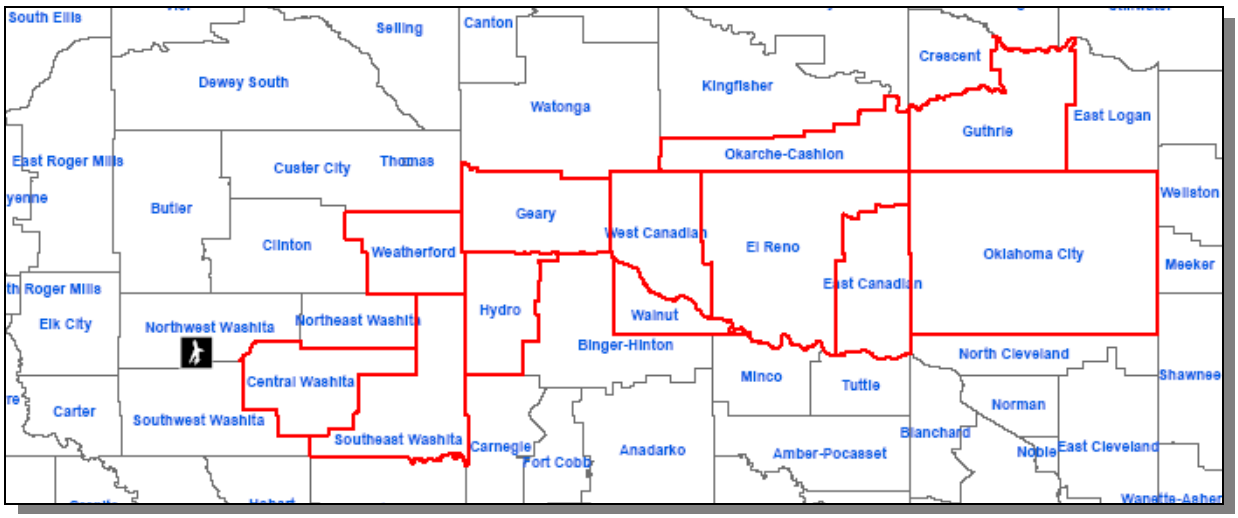

7.26b) Debris: Northeast Washita, Binger-Hinton and, Hydro added compared to Fusion lower bound




7.26c) Blast: Northwest Washita, Northeast Washita, Binger-Hinton and, Hydro added compared to Fusion lower bound

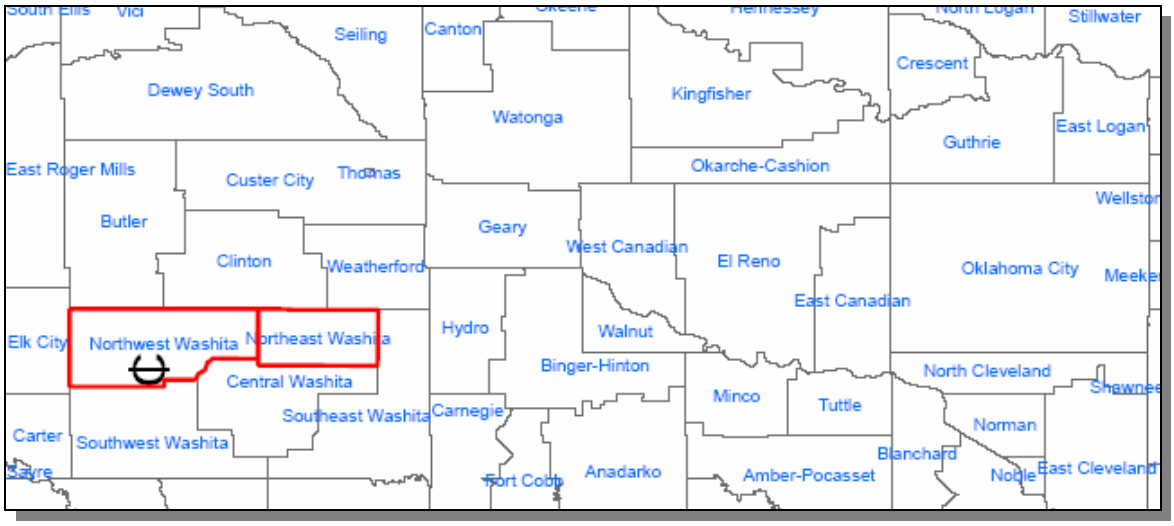



7.26d) Gas: Southwest Washita removed compared to Fusion lower bound

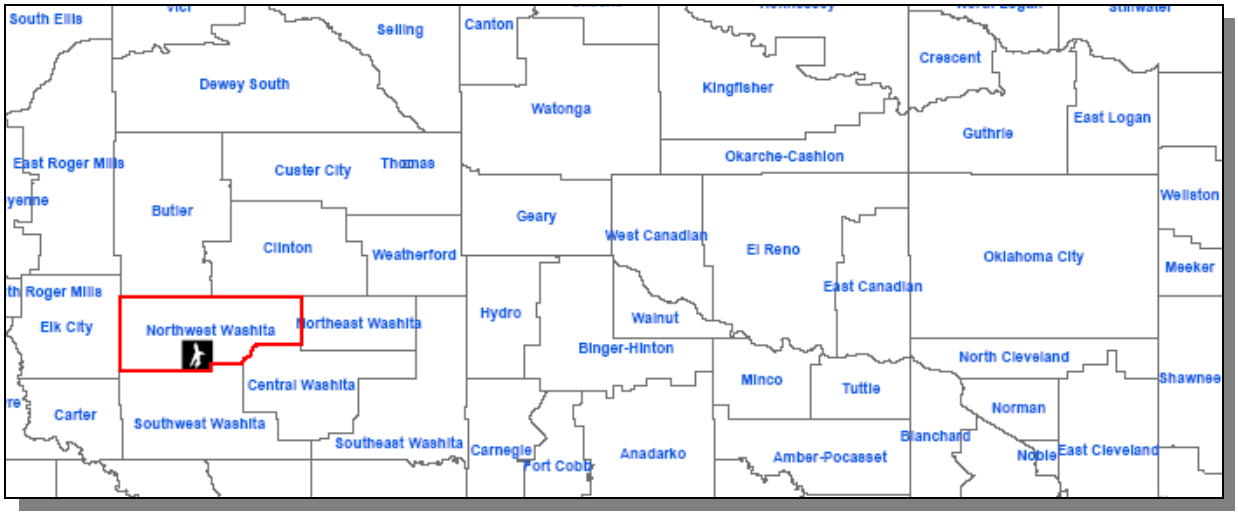



7.26e) Independent: Hydro added, Southwest Washita removed compared to Fusion lower bound

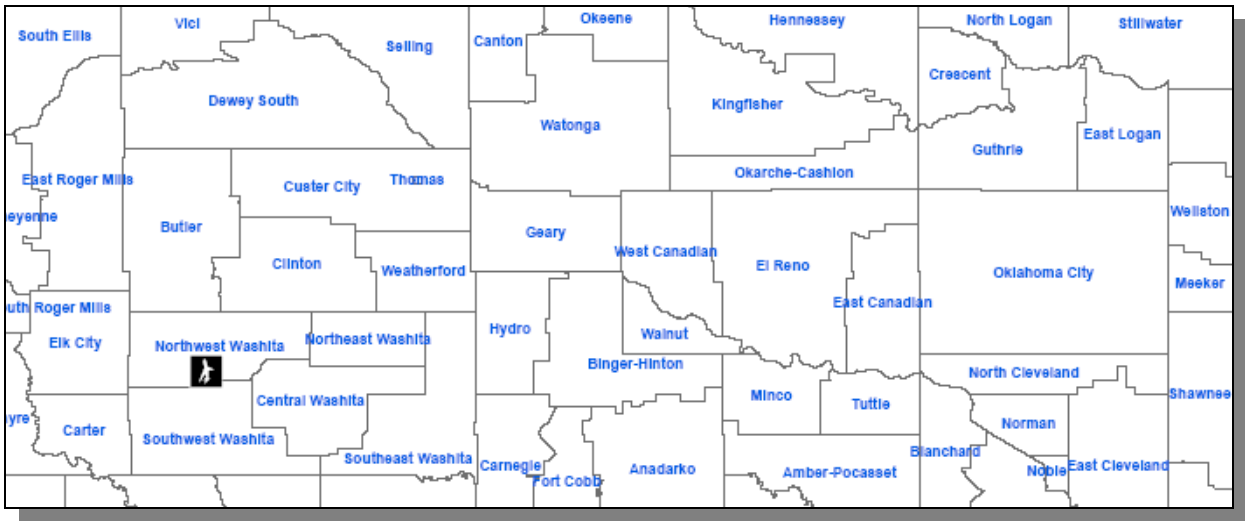
Figure 7.26 CCDs for which the probability of observing less than 3 casualties is more than 95%



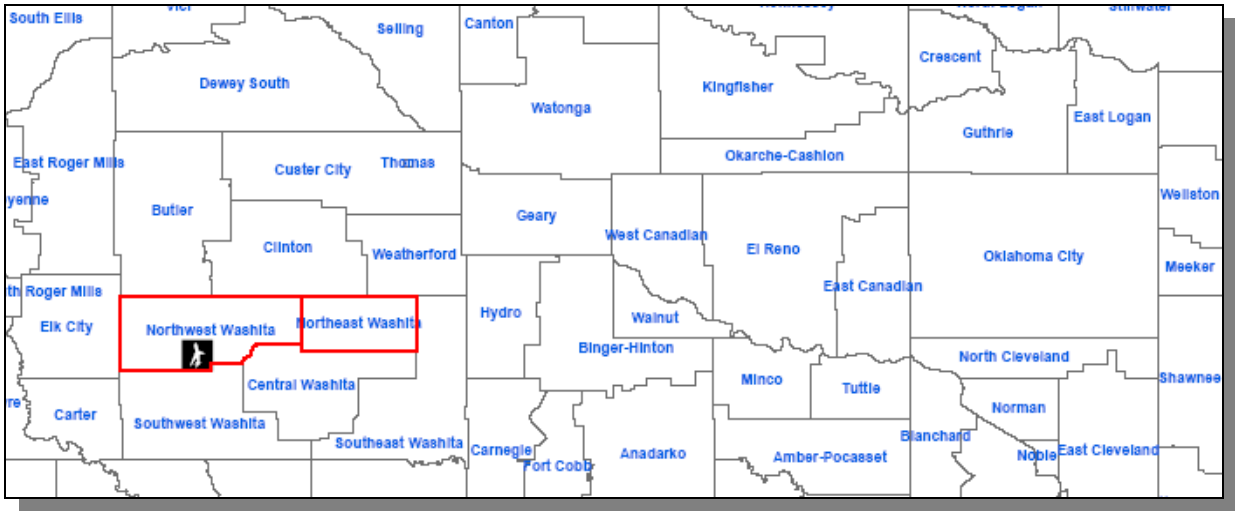

7.27a) Upper bound



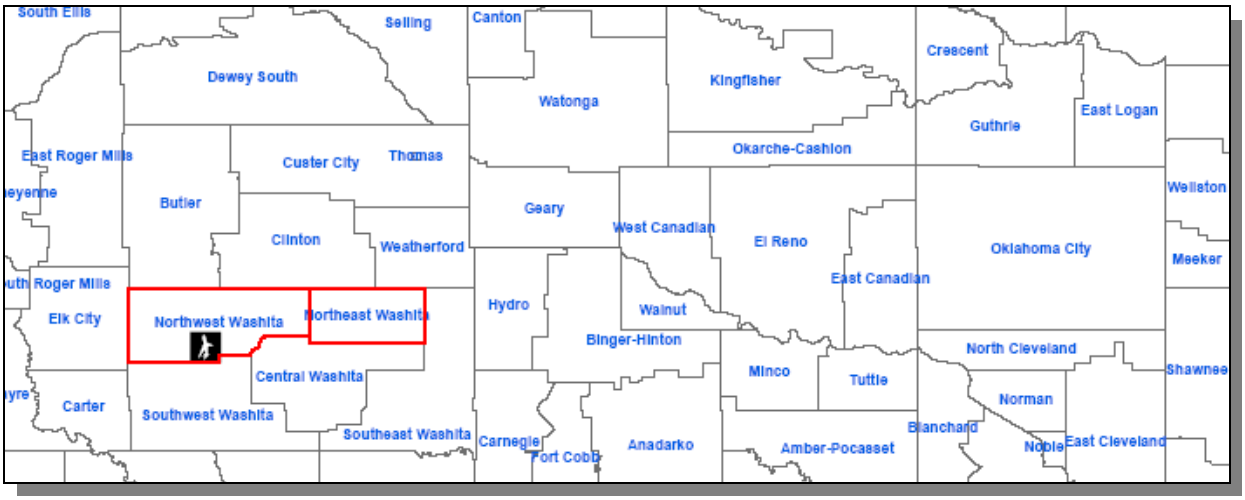

7.27b) Debris: Northeast Washita missing from Fusion upper bound




7.27c) Blast: All CCDs missing from Fusion upper bound




7.27d) Gas: Identical to Fusion upper bound




7.27e) Independent: Identical to from Fusion upper bound

Figure 7.27 CCDs for which the probability of observing at least 3 casualties is more than 10%

# CHAPTER 8 CONCLUSION

## 8.1 Summary

In this study, the assessment through fusion of the risk generated by the operation of space launch vehicles, to and from spaceports, was investigated. Detailed reviews of the literature on the state of the art in hazards modeling and, on the latest developments in information fusion were performed. Using Clinton-Sherman, a facility proposed as a future spaceport by the state of Oklahoma and NASA's Space Shuttle, this study performed a detailed study to assess the risk of operating launch vehicles from an inland site. The complexities of hazard modeling and the comprehensive approach which must be used for the evaluation of a site were illustrated. The fusion technique known as DEnv was then used as a proof of concept to illustrate the benefits of using information fusion in this type of problems.

Through 356 nonparametric statistical tests, the study indicated that fusion possesses characteristics which are highly desirable for this type of risk analysis. In fact when compared to risk estimates provided by any individual hazard, or by the independent combination of those hazards, our study shows that the fusion estimates consistently outperform those individual and independent estimates. Fusion estimates were found to be significantly more informative, generating upper and lower bounds around the true estimates, while at the same time being less conservative than the other estimates. A comparison of the maps generated by the different hazards and their independent combination with the fusion map showed that using anything else

than fusion could provide seriously misleading, with potentially catastrophic consequences. The maps showed that:

1. When one is interested in locating the areas in which the probability of observing less than a certain number of casualties is very high (i.e the safest areas), the individual hazards and their independent combination each can indicate more geographical areas than fusion, overestimating the number and location of the safest geographical areas.

2. When one is interested in locating the areas in which the probability of observing more than a certain number of casualties is high (i.e the areas most at risk), the individual hazards and their independent combination each can indicate less geographical areas than fusion, underestimating the number and location of the geographical areas at risk.

## 8.2 Significance of Work

In this study, we have successfully addressed the complex problem of confidently assessing the risk associated with the operation of launch vehicles. Considering the projected growth of the commercial space industry[56], the outcomes of this study are of significance, as they support our claim that current practices fail to rigorously investigate the safety impact of any future spaceport site on the populated areas and infrastructure in its vicinity. Through information fusion, our framework leaves the decision makers with the option of selecting a preferred level of conservatism to make a decision, ranging from the pessimistic to the optimistic, without however falling into the extremes (overly pessimistic or optimistic), which

[56] Which involves both the development of new launch vehicle and, the development of new spaceports.

are the only options available with current practices. Figure 8.1 illustrates the decision process with this framework, as applied to launch vehicle risk analysis.

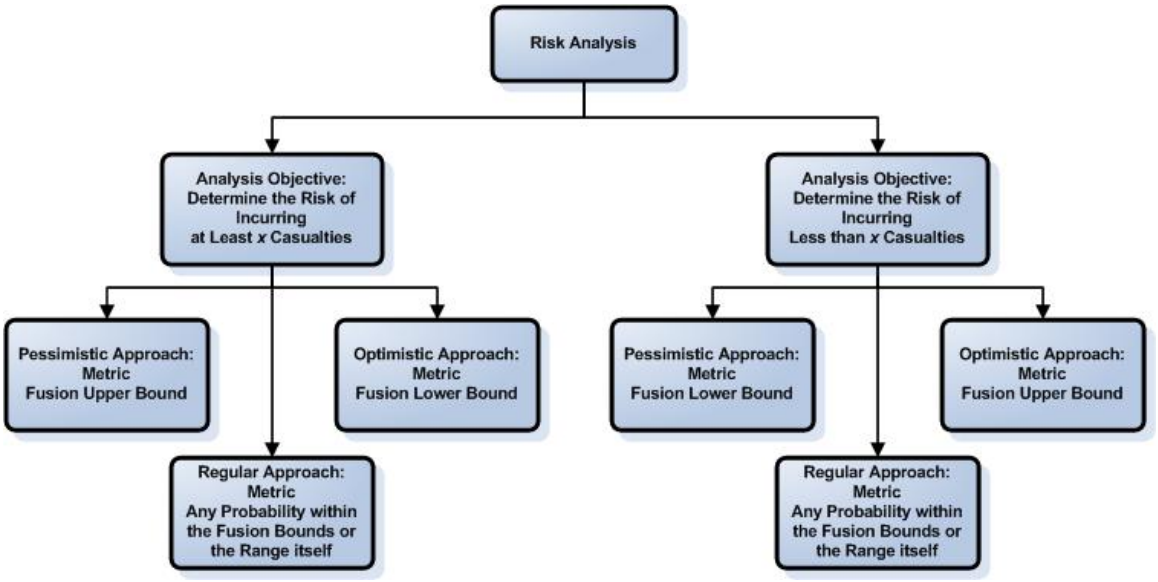



Figure 8.1 Decision making process within the proposed framework

### 8.2.1 Limitations

Some assumptions had to be made when performing the complex hazards' modeling processes. The complexities of debris, blast and gas dispersion, combined with the limited amount of historical data are the primary reasons for those assumptions. However, most of those assumptions, for which we provide a clear explanation for making them, are similar to those made in current practices. Therefore, it is highly unlikely that the conclusions reached in this work could be altered because of them.

Also, in designing our case, the assumption was made that the spaceport proposed by the state Oklahoma is intended to operate a vehicle as large as the Space Shuttle. Clearly, there is no

basis for this. Instead, our study focused on the modeling approach and, on the differences between estimates rather on the estimates themselves. This study addresses the real problem of licensing inland spaceports by providing a framework within which such a spaceport could be evaluated.

A computer implementation of a mathematical sheltering model was performed in this study. However, since this sheltering did not address the gas or the blast hazard, sheltering was not considered in the case study. However, as sheltering would have had to be implemented in all cases (whether individual hazards, independent combination of hazards or fusion), it is only a factor on the value of the estimates, not on the relationship between those estimates, which as we mentioned earlier was the focus of this study.

This study concentrated on a single launch trajectory, analyzing a large number of breakup scenarios within that trajectory. To evaluate a spaceport (or the adequacy of a vehicle to be operated from that spaceport), the same analyzing should be performed for all the realistic launch and return trajectories.

## 8.3 Directions for Future Research

The framework being proposed in this study opens a number of research avenues in assessing and analyzing the risk generated by the operations of launch vehicles, two of which are described below.

### 8.3.1 Risk on Infrastructure

In this study, the only risk which has been considered is the one incurred by the populations on the ground. Although the risk of human casualties should be the prime concern to the decision makers, the risk posed on the integrity of the infrastructure on land and, in the air (flying aircrafts) should also be considered. In other words, a decision of whether to operate a launch vehicle, or open a spaceport site for business should not be based solely on the risk it could pose to the populations on the ground, but also on the infrastructure, as their destruction could have far reaching economical and even psychological impacts.

This framework could be used to model the effects of those hazards on all types of infrastructures, whether they be man-made, such as office buildings, manufacturing plants and private homes or nature's landmarks, such as water resources, vegetations and, the air we breathe. The integration of geographical information systems capabilities within our framework is particularly well-suited for extending the assessment and analysis of risk in those directions.

### 8.3.2 Interdisciplinary Software Solution

Given the complexity of the problem being addressed and, its inherent interdisciplinary nature, there is a need for a software or a suite of software solutions which could implement the framework proposed in this study. The primary objectives of such a tool would be to reduce the interdisciplinary knowledge requirement from the analyst(s) while providing this individual or group of individuals with the best platform from which a comprehensive risk analysis can be performed and, risk mitigation procedures developed. The extension of the framework in the directions mentioned in Section 8.3.1 only reinforces the need for such a tool as the

interdisciplinary nature of the problem would only be enlarged. To serve its purpose, as envisioned in this study, this risk assessment suite of software would need to offer its users with key options:

1. Hazard Modeling: The user should be given the option of selecting a hazard model from a list of available models for each hazard of interest to the user. The same should be the case for sheltering models for each of hazard under study.

2. Fusion: As the number of fusion approaches being developed increases, all presenting their own sets of strengths and weaknesses, the user should be given the option of choosing from a variety of fusion schemes. As was discussed in Chapter 3, while some schemes are particularly suited to address the complexities of interactions between the sources of information being fused, others are preferable schemes when there is a need to identify those information sources which are redundant. On the other hand, both types could be used in a multiple fusion stages process to take advantage of the strength of each.

3. GIS: Our study used ArcGIS, the acknowledged standard, at the time of this study, among GIS software. However, being not the only GIS software available and, with the emergence of other GIS solutions such as Google Earth, the user should be given the option of selecting the GIS solution best suited for his or her analysis.

Evidently, given the requirements described above, the approach used to develop such a software solution is critical. A web-based, distributed system approach is attractive, as it will address the obvious computer resources requirement, the need for communication standard within the suite and, equally important, the need for protecting proprietary privileges.

## 8.4 Contribution to the Body of Knowledge

Our study contributes to the body of knowledge in several categories. From our extensive review of the published literature, each of the contributions, which we grouped in four categories, constitutes a "first" either in terms of its application or its development. Each contribution described below builds on and expands the scope of impact of the contribution described before it.

### 8.4.1 A New Application for DEnv

We provided in this study a new application for the DEnv fusion scheme. Risk analysis in the space vehicle operation industry is a significantly different application from the ones in which DEnv has been applied so far. Those applications have concentrated primarily on reliability and economic dispatch problems in the electric power generation industry.

### 8.4.2 First Application of Fusion for Space Ranges

To our knowledge, our study provides the first application of fusion in general for space vehicle ranges. Proposing the use of fusion theory to combine in a seamless manner the effects of the different hazards produced by launch vehicles, is a significant contribution. We showed in our study that fusion, when properly implemented, provides results which are significantly better (more informative while being less conservative) than those that are generated with current methods.

### 8.4.3 A New Metric for Space Vehicles Risk Analysis

With the use of fusion, we developed and are proposing a new risk metric for space vehicle risk analysis. Our study has shown that this metric, effectively addresses the lack of a common risk metric with current methods. This new risk metric focuses on the range of probabilities of exceeding or not exceeding a pre-specified expected number of casualties, rather than on the mean value of this number. We showed in our discussion (Section 7.5.2) how easily this metric can be shown graphically, on a map.

We have selected the Census County Subdivision (CCD) as the default geographical unit for our analysis. Clearly, a smaller level, such as a census track or block group or a larger one, such the county level could have been selected. Selecting one census level versus another should depend on the level of accuracy required for the analysis. For example, a risk analysis aimed at selecting a spaceport site may only need focusing on the larger census levels, as we did in our study. However, a risk analysis aimed as developing a risk mitigation procedure, where communicating with rescue crews on the ground may need more accuracy. For such analysis, a smaller level such as block groups may be preferable. However, regardless of the type of risk analysis, the risk metric we propose, based on fusion would perform equally well.

### 8.4.4 A Framework for Risk Analysis

In this study, a new framework aimed at assessing the risk generated by the operation of space launch vehicles – as they fly to or return from orbit – which makes use of information fusion theory, hazards' dispersion modeling and, geographical statistical analysis and visualization capabilities of geographical information systems was developed. Within this

framework, as we mentioned earlier, a new risk metric, which focuses on the range of probabilities of exceeding or not exceeding a pre-specified expected number of casualties, rather than on the mean value of this number, has been proposed. This framework, along with its metric provides a way to seamlessly integrate as many hazard factors as could be produced by a launch vehicle, regardless of the nature of their effects (whether some of them are discrete and others continuous over their impact areas), or the nature of their impact areas (whether they are highly congruent or even non-congruent) in order to estimate the overall risk they generate on populated areas.

Risk analysis and mitigation has gained great interest in recent years. Ranging from widely diversified industries such as the manufacturing industry or service industry to fields such as natural or man-made disaster management and homeland security, risk assessment, management and, mitigation efforts have taken center stages, increasingly gaining greater priority over the faster-better-cheaper philosophy in high-risk enterprises. Whenever critical spatial information is needed, and there are a large number of highly heterogeneous and uncertain factors contributing to the risk being considered, our framework provides a basis from which risk assessment, management and mitigation efforts can be initiated.

The following example illustrates the point just made. In an earthquake or flood disaster, the effectiveness of the response, the number of people having access to care shortly after the event has taken place and the speed with which life comes back to normal depends greatly on such factors as the shape of the disaster area, its size, its location – whether is located in densely populated areas – and on the emergency capacities of shelters and hospitals in and around the disaster area. Furthermore, secondary disasters generally occur after such an event, such as the

rupture of gas pipelines, or the falling on the ground of electrical power lines which are still active. Another, equally important factor is the decision making process itself, where local, state and federal authorities could all be involved. Clearly, the ability to use critical spatial information, such as population densities and demographics, road access, land topologies and, the ability to account for all possible scenarios, from the most pessimistic, to the most optimistic, as provided by the framework being proposed, is a significant advantage toward handling the complexities resulting from such a disaster. However, as shown in this study, a disaster need not be occurring for this framework to be of used. In fact, quite the contrary, as illustrated in Figure 8.2, this framework is most valued in mitigation efforts, where it can be used in the design, testing and implementation of emergency procedures.

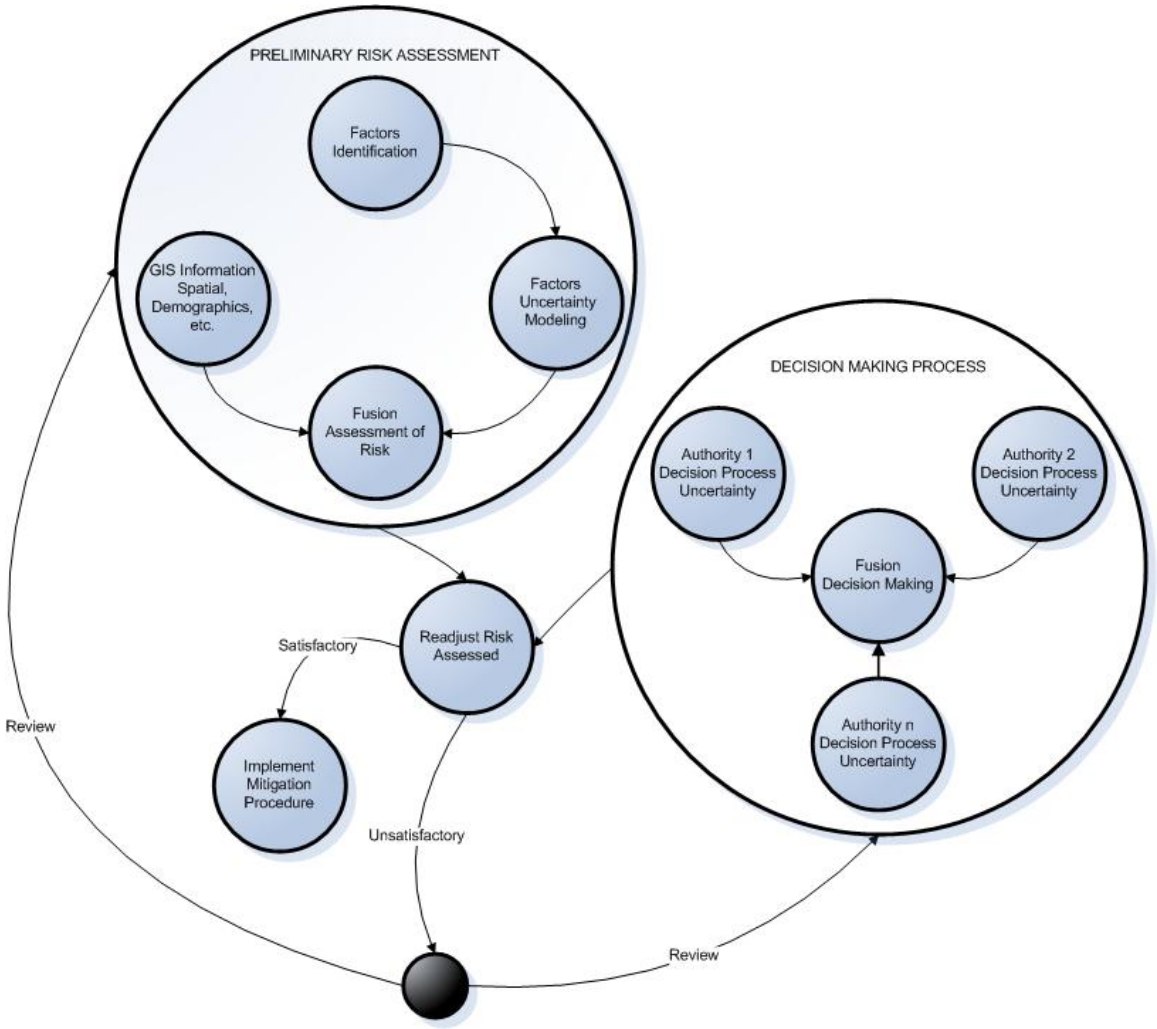
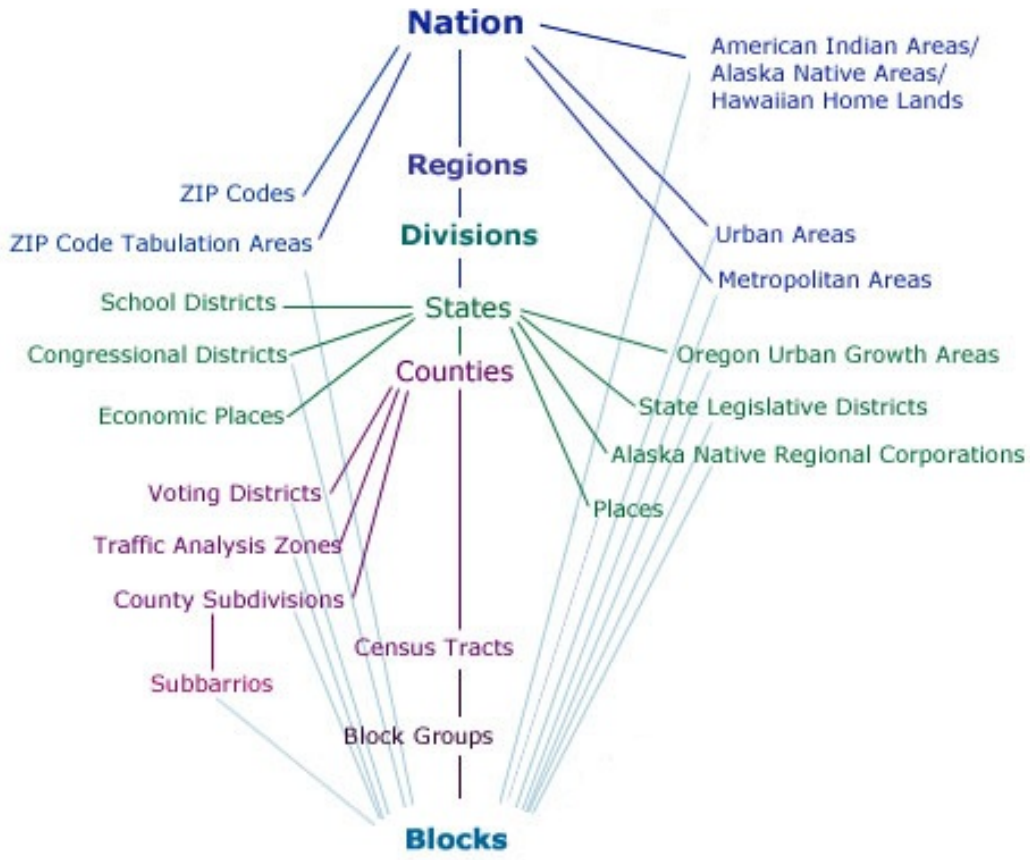



Figure 8.2 Framework for the design, testing and implementation of risk mitigation procedures in spatially critical, highly uncertain multi-factors and decision making process environments

# APPENDIX A CENSUS DATA AND SHELTERING MATRICES




Census Geographic Types in the United States (www.FactFinder.com)

Note: The following paragraph was copied verbatim from the 2003 Columbia Accident Investigation Board report.

Engineering judgment was applied in order to develop translations from demographic data to building distributions. Using their experience from looking at buildings and developing sheltering models, several experts independently estimated building distributions for each census category. In order to simplify the process, each expert chose several roof types and a height distribution for each roof type. These estimates were compared, and discrepancies discussed. The resulting translations from demographic data item to structure distributions are shown in the four tables in this Appendix.

## Translation Table for Occupations

| | Roof Type | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Census Category | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Car |
| Management occupations, except farmers and farm managers | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Farmers and farm managers | 0.0 | 28.5 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.0 | 20.0 | 0.0 | 0.0 | 0.0 | 25.0 |
| Business operation specialist | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Financial specialists | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Computer and mathematical Occupations | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Architects, surveyors, cartographers, and engineers | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Drafters, engineering, and mapping technicians | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Life, physical, and social science occupations | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Community and social services occupations | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Legal occupations | 0.0 | 11.7 | 6.5 | 1.8 | 7.7 | 6.4 | 10.9 | 9.0 | 7.0 | 9.0 | 0.0 | 20.0 | 5.6 | 3.0 | 0.3 | 1.0 |
| Education, training, and library occupations | 0.0 | 20.9 | 5.3 | 3.8 | 16.3 | 8.4 | 5.2 | 16.3 | 8.4 | 5.2 | 0.0 | 5.0 | 2.7 | 1.2 | 0.2 | 1.0 |
| Arts, design, entertainment, sports, and media occupations | 20.0 | 17.7 | 2.4 | 0.0 | 8.7 | 7.0 | 9.3 | 8.7 | 7.0 | 9.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 |
| Health diagnosing and treating practitioners and technical occupations | 0.0 | 12.0 | 6.8 | 1.3 | 8.6 | 7.4 | 13.9 | 8.7 | 7.0 | 9.3 | 0.0 | 15.0 | 5.6 | 3.1 | 0.3 | 1.0 |
| Health technologists and technicians | 0.0 | 12.0 | 6.8 | 1.3 | 8.6 | 7.4 | 13.9 | 8.7 | 7.0 | 9.3 | 0.0 | 15.0 | 5.6 | 3.1 | 0.3 | 1.0 |
| Healthcare support occupations | 0.0 | 12.0 | 6.8 | 1.3 | 8.6 | 7.4 | 13.9 | 8.7 | 7.0 | 9.3 | 0.0 | 15.0 | 5.6 | 3.1 | 0.3 | 1.0 |
| Fire fighting, prevention, and law enforcement workers, including supervisors | 20.0 | 1.3 | 0.6 | 0.1 | 9.9 | 4.3 | 0.8 | 16.6 | 7.2 | 1.3 | 0.0 | 2.0 | 0.7 | 0.3 | 0.1 | 35.0 |
| Other protective service workers, including supervisors | 10.0 | 1.3 | 0.6 | 0.1 | 16.6 | 7.2 | 1.3 | 26.5 | 11.5 | 2.0 | 0.0 | 2.0 | 0.7 | 0.3 | 0.1 | 20.0 |
| Food preparation and serving related occupations | 0.0 | 34.6 | 4.2 | 0.2 | 8.5 | 5.5 | 6.0 | 8.5 | 5.5 | 6.0 | 0.0 | 5.0 | 13.2 | 1.7 | 0.1 | 1.0 |
| Building and grounds cleaning and maintenance occupations | 20.0 | 24.4 | 2.6 | 0.1 | 7.7 | 5.0 | 5.4 | 7.7 | 5.0 | 5.4 | 0.0 | 1.0 | 0.7 | 0.3 | 0.1 | 15.0 |
| Personal care and service occupations | 0.0 | 34.6 | 4.2 | 0.2 | 8.5 | 5.5 | 6.0 | 8.5 | 5.5 | 6.0 | 0.0 | 5.0 | 13.2 | 1.7 | 0.1 | 1.0 |
| Sales and related occupations | 0.0 | 33.8 | 5.0 | 0.2 | 7.6 | 5.6 | 6.9 | 7.6 | 5.6 | 6.9 | 0.0 | 5.0 | 12.9 | 2.0 | 0.1 | 1.0 |
| Office and administrative support occupations | 0.0 | 12.7 | 6.0 | 1.4 | 10.3 | 7.8 | 11.9 | 10.2 | 6.9 | 7.9 | 0.0 | 15.0 | 5.9 | 2.7 | 0.4 | 1.0 |
| Farming, fishing, and forestry occupations | 50.0 | 4.8 | 0.3 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 5.0 | 5.0 | 4.8 | 0.3 | 0.0 | 29.0 |
| Supervisors, construction and extraction workers | 0.0 | 12.7 | 6.0 | 1.4 | 10.3 | 7.8 | 11.9 | 10.2 | 6.9 | 7.9 | 0.0 | 15.0 | 5.9 | 2.7 | 0.4 | 1.0 |
| Construction trade workers | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 |
| Extraction workers | 40.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.0 |
| Installation, maintenance, and repair occupations | 20.0 | 24.9 | 4.6 | 0.5 | 7.2 | 4.7 | 5.1 | 6.8 | 4.4 | 4.8 | | 1.0 | 0.7 | 0.3 | 0.1 | 15.0 |
| Production occupations | 0.0 | 3.2 | 1.6 | 0.2 | 10.8 | 2.9 | 0.3 | 15.4 | 4.2 | 0.4 | 50.0 | 5.0 | 5.0 | 1.6 | 0.2 | 1.0 |
| Supervisors, transportation and material moving workers | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 |
| Aircraft and traffic control occupations | 10.0 | 0.0 | 0.0 | | 23.6 | 5.6 | 0.8 | 23.6 | 5.6 | 0.8 | | 0.0 | 0.0 | 0.0 | 0.0 | 30.0 |
| Motor vehicle operators | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.0 |
| Rail, water and other transportation occupations | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 50.0 |
| Material moving workers | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 33.4 | 0.0 | 0.0 | 0.0 | 0.0 | 33.3 |

## Translation Table for House/Apartments

| | Roof Type | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Census Category | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Car |
| 1-detached | 0.0 | 57.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.5 | 1.5 | 0.0 | 10.0 |
| 1-attached | 0.0 | 57.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 28.5 | 1.5 | 0.0 | 10.0 |
| 2 units | 0.0 | 54.8 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.4 | 2.6 | 0.0 | 10.0 |
| 3 or 4 units | 0.0 | 48.6 | 9.6 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.3 | 4.8 | 0.9 | 10.0 |
| 5 to 9 units | 0.0 | 29.8 | 12.9 | 2.3 | 5.4 | 2.8 | 1.7 | 5.4 | 2.8 | 1.7 | 0.0 | 0.0 | 16.6 | 7.2 | 1.3 | 10.0 |
| 10 to 19 units | 0.0 | 26.5 | 11.5 | 2.0 | 8.2 | 4.2 | 2.6 | 8.2 | 4.2 | 2.6 | 0.0 | 0.0 | 13.3 | 5.8 | 1.0 | 10.0 |
| 20 to 49 units | 0.0 | 20.2 | 8.2 | 1.6 | 11.1 | 6.9 | 7.0 | 11.1 | 6.9 | 7.0 | 0.0 | 0.0 | 6.7 | 2.7 | 0.5 | 10.0 |
| 50+ units | 0.0 | 12.6 | 6.6 | 0.8 | 7.3 | 6.7 | 15.9 | 9.2 | 7.5 | 13.3 | 0.0 | 0.0 | 6.3 | 3.3 | 0.4 | 10.0 |
| Mobile home | 0.0 | 42.8 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 |
| Boat, RV, van, etc. | 0.0 | 42.8 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.0 |

## Translation Table for Schools

| | Roof Type | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Census Category | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Car |
| School | 15.0 | 34.2 | 3.3 | 0.0 | 9.3 | 4.8 | 3.0 | 9.3 | 4.8 | 3.0 | 0.0 | 4.3 | 7.7 | 0.8 | 0.0 | 0.9 |

## Translation Table for Group Quarters

| | Roof Type | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Census Categories | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Car |
| Group Quarters | 0.0 | 29.8 | 12.9 | 2.3 | 4.3 | 2.8 | 3.0 | 6.4 | 4.1 | 4.5 | 0.0 | 0.0 | 16.6 | 7.2 | 1.3 | 5.0 |

# APPENDIX B DEBRIS MODELING OUTPUTS

The tables in this appendix are the outputs generated by DRAMA for 89 simulated breakup scenarios. In each breakup, the trajectories of 100 groups of debris are estimated. The definitions of the parameters and, their units are listed below.

**BALCOEF:** Ballistic Coefficient (unit: $kg/m^2$)

**XF:** x - Impact point coordinate with respect to the launch pad (unit: meters)

**YF:** y - Impact point coordinate with respect to the launch pad (unit: meters)

**SIGDR:** standard deviation (uncertainty) in the downrange direction (unit: meters)

**SIGCR:** standard deviation (uncertainty) in the crossrange direction (unit: meters)

**TIME:** Time of breakup (unit: seconds after launch) – recorded in the first row of each table

**X:** x - impact point coordinate with respect to the launch pad in UTM-14N coordinates (unit: meters)

**Y:** y - impact point coordinate with respect to the launch pad in UTM-14N coordinates (unit: meters)

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 87.31 | 3788.08 | 1311.12 | 260.88 | 614.98 | **29.93** | 484604.00 | 3912692.00 |
| 55.30 | 4332.12 | 1574.14 | 409.68 | 643.59 | 0.00 | 485148.00 | 3912955.00 |
| 271.40 | 2833.16 | 861.71 | 324.75 | 716.07 | 0.00 | 483649.00 | 3912242.00 |
| 103.31 | 3614.04 | 1230.05 | 366.56 | 712.73 | 0.00 | 484430.00 | 3912611.00 |
| 178.66 | 3129.05 | 1006.94 | 318.25 | 643.78 | 0.00 | 483945.00 | 3912388.00 |
| 326.87 | 2712.58 | 801.83 | 295.47 | 724.76 | 0.00 | 483529.00 | 3912183.00 |
| 173.73 | 3152.74 | 1017.21 | 321.90 | 689.58 | 0.00 | 483969.00 | 3912398.00 |
| 333.65 | 2695.96 | 801.04 | 348.77 | 696.94 | 0.00 | 483512.00 | 3912182.00 |
| 247.23 | 2893.42 | 891.87 | 347.47 | 751.10 | 0.00 | 483710.00 | 3912273.00 |
| 421.86 | 2581.77 | 733.17 | 292.27 | 604.64 | 0.00 | 483398.00 | 3912114.00 |
| 181.89 | 3115.07 | 998.57 | 327.37 | 690.48 | 0.00 | 483931.00 | 3912379.00 |
| 137.29 | 3339.25 | 1104.66 | 285.11 | 667.03 | 0.00 | 484156.00 | 3912485.00 |
| 198.07 | 3055.18 | 968.84 | 342.39 | 627.73 | 0.00 | 483871.00 | 3912350.00 |
| 84.81 | 3814.69 | 1335.15 | 385.93 | 629.22 | 0.00 | 484631.00 | 3912716.00 |
| 105.55 | 3587.30 | 1219.32 | 224.26 | 640.57 | 0.00 | 484404.00 | 3912600.00 |
| 436.58 | 2551.33 | 726.48 | 324.17 | 638.01 | 0.00 | 483368.00 | 3912107.00 |
| 362.10 | 2652.75 | 776.36 | 302.70 | 645.00 | 0.00 | 483469.00 | 3912157.00 |
| 243.13 | 2905.63 | 897.31 | 309.27 | 712.63 | 0.00 | 483722.00 | 3912278.00 |
| 230.37 | 2946.71 | 911.38 | 318.32 | 623.02 | 0.00 | 483763.00 | 3912292.00 |
| 227.25 | 2951.80 | 917.46 | 275.37 | 658.07 | 0.00 | 483768.00 | 3912298.00 |
| 52.09 | 4412.82 | 1610.82 | 363.18 | 765.03 | 0.00 | 485229.00 | 3912992.00 |
| 280.38 | 2815.45 | 852.76 | 396.27 | 607.46 | 0.00 | 483632.00 | 3912234.00 |
| 315.31 | 2738.65 | 813.93 | 301.07 | 673.74 | 0.00 | 483555.00 | 3912195.00 |
| 631.48 | 2368.14 | 629.22 | 331.72 | 692.47 | 0.00 | 483184.00 | 3912010.00 |
| 241.28 | 2907.12 | 897.51 | 283.30 | 652.32 | 0.00 | 483723.00 | 3912278.00 |
| 338.71 | 2701.61 | 798.25 | 352.11 | 598.88 | 0.00 | 483518.00 | 3912179.00 |
| 396.02 | 2598.48 | 753.53 | 282.09 | 472.72 | 0.00 | 483415.00 | 3912134.00 |
| 146.30 | 3292.50 | 1078.11 | 338.56 | 650.99 | 0.00 | 484109.00 | 3912459.00 |
| 432.23 | 2542.79 | 725.93 | 280.15 | 607.03 | 0.00 | 483359.00 | 3912107.00 |
| 187.96 | 3093.51 | 981.43 | 248.81 | 614.12 | 0.00 | 483910.00 | 3912362.00 |
| 407.86 | 2583.94 | 748.57 | 374.02 | 557.17 | 0.00 | 483400.00 | 3912129.00 |
| 611.54 | 2368.30 | 642.30 | 325.66 | 624.85 | 0.00 | 483185.00 | 3912023.00 |
| 97.47 | 3671.33 | 1259.53 | 309.83 | 661.53 | 0.00 | 484488.00 | 3912640.00 |
| 286.60 | 2798.72 | 847.46 | 357.23 | 611.92 | 0.00 | 483615.00 | 3912228.00 |
| 405.98 | 2586.72 | 740.96 | 333.86 | 697.85 | 0.00 | 483403.00 | 3912122.00 |
| 422.35 | 2564.88 | 730.54 | 292.01 | 636.94 | 0.00 | 483381.00 | 3912111.00 |
| 260.06 | 2864.85 | 873.73 | 300.92 | 621.23 | 0.00 | 483681.00 | 3912255.00 |
| 346.35 | 2681.15 | 784.80 | 274.08 | 631.18 | 0.00 | 483497.00 | 3912166.00 |
| 336.48 | 2699.52 | 793.25 | 301.89 | 594.14 | 0.00 | 483516.00 | 3912174.00 |
| 552.13 | 2418.75 | 666.82 | 322.11 | 546.16 | 0.00 | 483235.00 | 3912048.00 |
| 487.25 | 2495.01 | 697.03 | 330.60 | 642.66 | 0.00 | 483311.00 | 3912078.00 |
| 53.67 | 4372.43 | 1589.51 | 328.59 | 678.20 | 0.00 | 485189.00 | 3912970.00 |
| 50.59 | 4453.98 | 1631.60 | 377.46 | 634.14 | 0.00 | 485270.00 | 3913012.00 |
| 120.06 | 3464.53 | 1165.60 | 331.46 | 715.66 | 0.00 | 484281.00 | 3912546.00 |
| 88.89 | 3763.52 | 1304.42 | 304.63 | 720.05 | 0.00 | 484580.00 | 3912685.00 |
| 363.42 | 2643.72 | 765.56 | 300.58 | 671.28 | 0.00 | 483460.00 | 3912146.00 |
| 30.17 | 5266.38 | 2009.70 | 343.21 | 685.13 | 0.00 | 486083.00 | 3913390.00 |
| 92.87 | 3717.12 | 1281.16 | 289.69 | 677.48 | 0.00 | 484533.00 | 3912662.00 |
| 222.34 | 2971.04 | 931.34 | 300.22 | 526.03 | 0.00 | 483787.00 | 3912312.00 |
| 306.84 | 2748.70 | 823.57 | 325.28 | 674.57 | 0.00 | 483565.00 | 3912204.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 690.67 | 2322.19 | 612.20 | 282.69 | 679.51 | 0.00 | 483138.00 | 3911993.00 |
| 325.20 | 2716.80 | 809.97 | 332.38 | 673.27 | 0.00 | 483533.00 | 3912191.00 |
| 298.05 | 2771.67 | 832.33 | 291.94 | 591.56 | 0.00 | 483588.00 | 3912213.00 |
| 229.13 | 2946.49 | 914.22 | 361.15 | 720.04 | 0.00 | 483763.00 | 3912295.00 |
| 417.32 | 2575.67 | 736.76 | 346.03 | 582.86 | 0.00 | 483392.00 | 3912118.00 |
| 210.64 | 3004.47 | 942.30 | 350.12 | 655.14 | 0.00 | 483821.00 | 3912323.00 |
| 223.50 | 2959.75 | 926.60 | 318.32 | 622.83 | 0.00 | 483776.00 | 3912307.00 |
| 57.51 | 4281.40 | 1542.90 | 310.23 | 724.95 | 0.00 | 485098.00 | 3912924.00 |
| 168.53 | 3181.15 | 1027.64 | 320.66 | 657.69 | 0.00 | 483997.00 | 3912408.00 |
| 434.37 | 2554.70 | 729.24 | 330.41 | 590.89 | 0.00 | 483371.00 | 3912110.00 |
| 322.24 | 2723.68 | 807.52 | 303.21 | 641.25 | 0.00 | 483540.00 | 3912188.00 |
| 261.10 | 2861.70 | 872.84 | 286.78 | 560.54 | 0.00 | 483678.00 | 3912254.00 |
| 669.23 | 2329.52 | 617.04 | 355.94 | 641.00 | 0.00 | 483146.00 | 3911998.00 |
| 253.57 | 2875.43 | 885.86 | 277.77 | 530.25 | 0.00 | 483692.00 | 3912267.00 |
| 150.42 | 3264.99 | 1071.73 | 318.62 | 589.50 | 0.00 | 484081.00 | 3912453.00 |
| 323.70 | 2717.27 | 810.65 | 345.22 | 645.60 | 0.00 | 483534.00 | 3912191.00 |
| 394.05 | 2599.28 | 752.62 | 276.77 | 621.80 | 0.00 | 483416.00 | 3912133.00 |
| 241.54 | 2905.23 | 899.63 | 306.54 | 720.93 | 0.00 | 483722.00 | 3912280.00 |
| 281.00 | 2806.97 | 852.49 | 351.41 | 686.68 | 0.00 | 483623.00 | 3912233.00 |
| 232.08 | 2935.04 | 918.45 | 397.88 | 597.69 | 0.00 | 483751.00 | 3912299.00 |
| 296.51 | 2771.98 | 836.30 | 285.99 | 559.28 | 0.00 | 483588.00 | 3912217.00 |
| 91.48 | 3736.72 | 1293.31 | 331.55 | 618.39 | 0.00 | 484553.00 | 3912674.00 |
| 320.26 | 2730.69 | 812.88 | 325.04 | 587.15 | 0.00 | 483547.00 | 3912194.00 |
| 304.06 | 2759.98 | 825.77 | 280.00 | 629.00 | 0.00 | 483576.00 | 3912207.00 |
| 599.53 | 2395.87 | 642.95 | 249.17 | 532.07 | 0.00 | 483212.00 | 3912024.00 |
| 67.17 | 4085.91 | 1454.59 | 317.32 | 629.14 | 0.00 | 484902.00 | 3912835.00 |
| 159.74 | 3207.85 | 1050.58 | 360.12 | 612.65 | 0.00 | 484024.00 | 3912431.00 |
| 107.60 | 3573.53 | 1213.20 | 317.05 | 708.77 | 0.00 | 484390.00 | 3912594.00 |
| 218.50 | 2974.67 | 934.71 | 344.95 | 701.48 | 0.00 | 483791.00 | 3912315.00 |
| 300.74 | 2762.42 | 827.14 | 265.69 | 683.20 | 0.00 | 483579.00 | 3912208.00 |
| 275.90 | 2819.31 | 855.59 | 339.68 | 634.97 | 0.00 | 483636.00 | 3912236.00 |
| 37.38 | 4904.26 | 1842.10 | 349.31 | 768.83 | 0.00 | 485721.00 | 3913223.00 |
| 360.45 | 2661.47 | 775.41 | 318.42 | 624.19 | 0.00 | 483478.00 | 3912156.00 |
| 179.94 | 3121.24 | 1001.63 | 303.06 | 659.54 | 0.00 | 483938.00 | 3912382.00 |
| 330.58 | 2712.20 | 804.49 | 335.61 | 511.77 | 0.00 | 483528.00 | 3912185.00 |
| 371.92 | 2637.26 | 768.85 | 380.59 | 646.05 | 0.00 | 483454.00 | 3912150.00 |
| 156.25 | 3237.18 | 1054.75 | 322.05 | 705.70 | 0.00 | 484053.00 | 3912436.00 |
| 933.00 | 2208.45 | 546.57 | 379.79 | 646.13 | 0.00 | 483025.00 | 3911927.00 |
| 189.88 | 3076.08 | 985.42 | 355.61 | 580.05 | 0.00 | 483892.00 | 3912366.00 |
| 58.06 | 4267.93 | 1542.51 | 339.46 | 629.62 | 0.00 | 485084.00 | 3912923.00 |
| 460.77 | 2509.45 | 708.11 | 309.51 | 644.56 | 0.00 | 483326.00 | 3912089.00 |
| 308.33 | 2758.97 | 817.00 | 315.92 | 629.65 | 0.00 | 483575.00 | 3912198.00 |
| 186.41 | 3095.20 | 983.85 | 335.94 | 631.04 | 0.00 | 483911.00 | 3912365.00 |
| 390.24 | 2621.22 | 752.20 | 324.99 | 758.06 | 0.00 | 483438.00 | 3912133.00 |
| 301.05 | 2761.94 | 829.63 | 324.79 | 624.92 | 0.00 | 483578.00 | 3912210.00 |
| 328.82 | 2702.67 | 805.69 | 333.60 | 561.93 | 0.00 | 483519.00 | 3912186.00 |
| 128.82 | 3400.03 | 1132.00 | 302.80 | 587.82 | 0.00 | 484216.00 | 3912513.00 |
| 61.10 | 4206.76 | 1513.55 | 331.48 | 712.82 | 0.00 | 485023.00 | 3912894.00 |
| 99.63 | 3647.19 | 1254.45 | 358.26 | 489.43 | 0.00 | 484463.00 | 3912635.00 |
| 474.24 | 2502.14 | 703.46 | 312.61 | 584.22 | 0.00 | 483318.00 | 3912084.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 104.48 | 27920.13 | 8740.48 | 1954.32 | 2053.11 | **69.79** | 508736.00 | 3920121.00 |
| 146.95 | 26315.12 | 7983.91 | 1488.84 | 2252.68 | 0.00 | 507131.00 | 3919365.00 |
| 311.04 | 23643.65 | 6692.82 | 865.28 | 1312.28 | 0.00 | 504460.00 | 3918074.00 |
| 116.65 | 27372.50 | 8479.38 | 1317.59 | 1511.60 | 0.00 | 508189.00 | 3919860.00 |
| 708.66 | 21743.71 | 5765.65 | 775.63 | 821.24 | 0.00 | 502560.00 | 3917146.00 |
| 131.56 | 26808.09 | 8198.98 | 1274.58 | 2121.33 | 0.00 | 507624.00 | 3919580.00 |
| 215.76 | 24823.49 | 7273.33 | 931.83 | 1188.58 | 0.00 | 505640.00 | 3918654.00 |
| 296.20 | 23783.06 | 6784.57 | 1044.26 | 1286.53 | 0.00 | 504599.00 | 3918165.00 |
| 62.59 | 30920.36 | 10132.41 | 2071.10 | 2472.82 | 0.00 | 511737.00 | 3921513.00 |
| 220.67 | 24737.80 | 7243.79 | 893.42 | 926.27 | 0.00 | 505554.00 | 3918625.00 |
| 307.74 | 23674.92 | 6724.29 | 886.34 | 1034.91 | 0.00 | 504491.00 | 3918105.00 |
| 343.75 | 23360.08 | 6571.29 | 832.02 | 1018.47 | 0.00 | 504176.00 | 3917952.00 |
| 437.36 | 22740.46 | 6270.49 | 707.46 | 648.11 | 0.00 | 503557.00 | 3917651.00 |
| 242.05 | 24420.26 | 7082.21 | 931.80 | 1259.78 | 0.00 | 505237.00 | 3918463.00 |
| 378.61 | 23097.51 | 6436.19 | 864.28 | 1142.57 | 0.00 | 503914.00 | 3917817.00 |
| 367.42 | 23174.56 | 6485.51 | 830.87 | 923.93 | 0.00 | 503991.00 | 3917866.00 |
| 177.23 | 25548.18 | 7621.00 | 1063.97 | 1201.49 | 0.00 | 506364.00 | 3919002.00 |
| 357.28 | 23251.84 | 6513.94 | 845.24 | 1088.48 | 0.00 | 504068.00 | 3917895.00 |
| 187.39 | 25329.73 | 7515.45 | 1302.42 | 1685.60 | 0.00 | 506146.00 | 3918896.00 |
| 214.95 | 24831.28 | 7275.06 | 1056.27 | 1489.95 | 0.00 | 505648.00 | 3918656.00 |
| 167.35 | 25779.30 | 7716.59 | 1027.15 | 1413.77 | 0.00 | 506596.00 | 3919097.00 |
| 460.08 | 22617.70 | 6207.10 | 736.44 | 728.20 | 0.00 | 503434.00 | 3917588.00 |
| 700.44 | 21768.28 | 5773.79 | 703.04 | 769.64 | 0.00 | 502585.00 | 3917155.00 |
| 161.67 | 25908.36 | 7790.92 | 1301.12 | 1753.62 | 0.00 | 506725.00 | 3919172.00 |
| 122.30 | 27149.92 | 8388.69 | 1367.60 | 1547.74 | 0.00 | 507966.00 | 3919769.00 |
| 78.71 | 29483.92 | 9468.93 | 1297.99 | 1835.60 | 0.00 | 510300.00 | 3920850.00 |
| 233.02 | 24549.23 | 7146.58 | 982.44 | 1222.47 | 0.00 | 505366.00 | 3918527.00 |
| 64.98 | 30675.15 | 10022.25 | 2083.84 | 2364.88 | 0.00 | 511491.00 | 3921403.00 |
| 174.47 | 25609.72 | 7643.55 | 1237.71 | 1768.51 | 0.00 | 506426.00 | 3919024.00 |
| 138.57 | 26568.08 | 8098.62 | 1359.24 | 1985.18 | 0.00 | 507384.00 | 3919479.00 |
| 403.38 | 22940.22 | 6361.73 | 794.70 | 967.91 | 0.00 | 503757.00 | 3917743.00 |
| 295.86 | 23785.43 | 6784.80 | 1147.78 | 1388.06 | 0.00 | 504602.00 | 3918166.00 |
| 41.55 | 33938.18 | 11551.62 | 2262.60 | 3419.37 | 0.00 | 514754.00 | 3922932.00 |
| 51.01 | 32350.53 | 10813.51 | 2119.55 | 2835.85 | 0.00 | 513167.00 | 3922194.00 |
| 205.18 | 25000.44 | 7354.40 | 994.99 | 1193.39 | 0.00 | 505817.00 | 3918735.00 |
| 328.86 | 23485.35 | 6629.72 | 739.01 | 776.57 | 0.00 | 504302.00 | 3918011.00 |
| 372.63 | 23140.94 | 6460.90 | 836.55 | 1110.90 | 0.00 | 503957.00 | 3917842.00 |
| 554.97 | 22205.20 | 5997.34 | 774.98 | 933.55 | 0.00 | 503021.00 | 3917378.00 |
| 418.86 | 22843.89 | 6319.35 | 828.68 | 956.85 | 0.00 | 503660.00 | 3917700.00 |
| 81.77 | 29260.68 | 9353.35 | 1364.84 | 2207.38 | 0.00 | 510077.00 | 3920734.00 |
| 367.39 | 23182.92 | 6482.24 | 859.99 | 1051.99 | 0.00 | 503999.00 | 3917863.00 |
| 107.05 | 27801.58 | 8684.09 | 1930.05 | 2222.18 | 0.00 | 508618.00 | 3920065.00 |
| 224.21 | 24683.91 | 7204.81 | 1009.40 | 1324.13 | 0.00 | 505500.00 | 3918586.00 |
| 128.58 | 26912.30 | 8258.50 | 1464.38 | 1936.79 | 0.00 | 507729.00 | 3919639.00 |
| 256.57 | 24228.98 | 6992.72 | 1136.59 | 1356.24 | 0.00 | 505045.00 | 3918373.00 |
| 34.83 | 35439.95 | 12246.01 | 2365.41 | 4495.22 | 0.00 | 516256.00 | 3923627.00 |
| 72.02 | 30024.16 | 9717.34 | 1582.81 | 2348.60 | 0.00 | 510840.00 | 3921098.00 |
| 194.90 | 25188.85 | 7444.37 | 948.31 | 1381.48 | 0.00 | 506005.00 | 3918825.00 |
| 318.72 | 23572.74 | 6669.18 | 891.70 | 1174.45 | 0.00 | 504389.00 | 3918050.00 |
| 509.74 | 22385.83 | 6094.58 | 932.42 | 1136.23 | 0.00 | 503202.00 | 3917475.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 53.56 | 31994.41 | 10645.34 | 2514.83 | 3534.26 | 0.00 | 512811.00 | 3922026.00 |
| 147.38 | 26299.96 | 7978.14 | 1221.92 | 1604.65 | 0.00 | 507116.00 | 3919359.00 |
| 171.96 | 25664.10 | 7668.01 | 953.80 | 1355.58 | 0.00 | 506480.00 | 3919049.00 |
| 352.10 | 23291.76 | 6545.15 | 786.59 | 796.02 | 0.00 | 504108.00 | 3917926.00 |
| 379.24 | 23096.48 | 6447.98 | 904.22 | 1076.97 | 0.00 | 503913.00 | 3917829.00 |
| 306.03 | 23687.83 | 6725.18 | 731.39 | 870.83 | 0.00 | 504504.00 | 3918106.00 |
| 348.88 | 23317.04 | 6551.58 | 906.23 | 1161.29 | 0.00 | 504133.00 | 3917932.00 |
| 373.15 | 23135.47 | 6462.06 | 906.71 | 1037.08 | 0.00 | 503952.00 | 3917843.00 |
| 346.51 | 23334.10 | 6564.41 | 968.54 | 1079.86 | 0.00 | 504150.00 | 3917945.00 |
| 194.19 | 25201.52 | 7453.31 | 1156.98 | 1614.29 | 0.00 | 506018.00 | 3918834.00 |
| 164.52 | 25840.29 | 7762.95 | 1542.60 | 1777.56 | 0.00 | 506657.00 | 3919144.00 |
| 459.54 | 22621.16 | 6204.07 | 786.80 | 903.90 | 0.00 | 503437.00 | 3917585.00 |
| 281.45 | 23943.99 | 6853.42 | 1004.77 | 1289.91 | 0.00 | 504760.00 | 3918234.00 |
| 347.24 | 23328.81 | 6560.03 | 906.58 | 1093.98 | 0.00 | 504145.00 | 3917941.00 |
| 303.08 | 23712.86 | 6746.48 | 1009.10 | 1333.16 | 0.00 | 504529.00 | 3918127.00 |
| 243.42 | 24403.20 | 7072.80 | 980.20 | 1156.15 | 0.00 | 505219.00 | 3918454.00 |
| 236.83 | 24495.55 | 7110.00 | 895.36 | 1117.00 | 0.00 | 505312.00 | 3918491.00 |
| 350.64 | 23302.09 | 6539.77 | 756.03 | 977.77 | 0.00 | 504118.00 | 3917921.00 |
| 496.84 | 22444.64 | 6123.34 | 816.18 | 905.25 | 0.00 | 503261.00 | 3917504.00 |
| 213.86 | 24847.10 | 7285.43 | 966.53 | 1226.32 | 0.00 | 505663.00 | 3918666.00 |
| 183.75 | 25405.57 | 7556.29 | 1071.19 | 1319.90 | 0.00 | 506222.00 | 3918937.00 |
| 200.31 | 25083.43 | 7391.71 | 1015.39 | 1477.52 | 0.00 | 505900.00 | 3918772.00 |
| 493.70 | 22460.91 | 6126.92 | 763.04 | 831.70 | 0.00 | 503277.00 | 3917508.00 |
| 160.60 | 25941.94 | 7788.08 | 1154.02 | 1734.95 | 0.00 | 506758.00 | 3919169.00 |
| 381.85 | 23074.36 | 6439.44 | 787.68 | 847.31 | 0.00 | 503891.00 | 3917820.00 |
| 79.92 | 29394.38 | 9419.91 | 1354.81 | 2107.10 | 0.00 | 510211.00 | 3920801.00 |
| 393.99 | 22993.33 | 6395.06 | 864.01 | 1039.19 | 0.00 | 503810.00 | 3917776.00 |
| 332.07 | 23453.15 | 6614.10 | 890.29 | 1218.51 | 0.00 | 504269.00 | 3917995.00 |
| 177.66 | 25540.46 | 7622.53 | 1398.36 | 1674.00 | 0.00 | 506357.00 | 3919003.00 |
| 319.02 | 23565.16 | 6674.92 | 962.33 | 1128.42 | 0.00 | 504381.00 | 3918056.00 |
| 118.98 | 27275.03 | 8445.09 | 1322.11 | 1527.79 | 0.00 | 508091.00 | 3919826.00 |
| 202.44 | 25045.04 | 7363.06 | 984.97 | 1667.62 | 0.00 | 505861.00 | 3918744.00 |
| 494.35 | 22454.10 | 6133.53 | 880.51 | 1007.50 | 0.00 | 503270.00 | 3917514.00 |
| 221.69 | 24721.03 | 7228.53 | 1111.40 | 1314.11 | 0.00 | 505537.00 | 3918609.00 |
| 271.02 | 24058.26 | 6913.32 | 1160.42 | 1361.38 | 0.00 | 504875.00 | 3918294.00 |
| 411.92 | 22887.09 | 6336.47 | 779.24 | 972.02 | 0.00 | 503703.00 | 3917717.00 |
| 872.41 | 21407.04 | 5575.94 | 630.73 | 582.71 | 0.00 | 502223.00 | 3916957.00 |
| 195.07 | 25184.74 | 7449.25 | 1123.51 | 1359.93 | 0.00 | 506001.00 | 3918830.00 |
| 304.01 | 23706.74 | 6729.22 | 951.65 | 1459.18 | 0.00 | 504523.00 | 3918110.00 |
| 201.20 | 25071.34 | 7384.54 | 887.32 | 1151.56 | 0.00 | 505888.00 | 3918765.00 |
| 252.56 | 24276.81 | 7019.71 | 1303.68 | 1529.76 | 0.00 | 505093.00 | 3918400.00 |
| 187.34 | 25337.45 | 7522.00 | 1206.77 | 1445.85 | 0.00 | 506154.00 | 3918903.00 |
| 212.98 | 24862.23 | 7287.77 | 1090.80 | 1726.68 | 0.00 | 505679.00 | 3918669.00 |
| 125.80 | 27016.58 | 8318.57 | 1317.84 | 1480.17 | 0.00 | 507833.00 | 3919699.00 |
| 250.20 | 24317.11 | 7033.28 | 935.76 | 1124.44 | 0.00 | 505133.00 | 3918414.00 |
| 310.80 | 23646.95 | 6703.92 | 717.22 | 717.45 | 0.00 | 504463.00 | 3918085.00 |
| 632.40 | 21942.68 | 5867.50 | 761.04 | 897.08 | 0.00 | 502759.00 | 3917248.00 |
| 91.95 | 28597.72 | 9048.90 | 1389.86 | 2031.48 | 0.00 | 509414.00 | 3920430.00 |
| 486.00 | 22487.89 | 6145.05 | 814.04 | 939.26 | 0.00 | 503304.00 | 3917526.00 |
| 489.40 | 22473.32 | 6135.85 | 745.85 | 846.48 | 0.00 | 503290.00 | 3917517.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 96.51 | 85817.82 | 25425.71 | 2023.01 | 2033.94 | **106.49** | 566634.00 | 3936806.00 |
| 636.59 | 70728.27 | 18237.97 | 1388.09 | 945.93 | 0.00 | 551545.00 | 3929619.00 |
| 179.80 | 79101.07 | 22267.07 | 1751.77 | 1664.24 | 0.00 | 559917.00 | 3933648.00 |
| 51.37 | 95183.07 | 29807.12 | 2655.01 | 2958.52 | 0.00 | 575999.00 | 3941188.00 |
| 361.56 | 73753.34 | 19721.24 | 1534.94 | 1280.16 | 0.00 | 554570.00 | 3931102.00 |
| 73.00 | 89599.82 | 27188.47 | 2541.75 | 3126.50 | 0.00 | 570416.00 | 3938569.00 |
| 268.22 | 75794.24 | 20696.95 | 1555.38 | 1277.68 | 0.00 | 556611.00 | 3932078.00 |
| 629.52 | 70777.44 | 18258.51 | 1384.55 | 927.58 | 0.00 | 551594.00 | 3929639.00 |
| 317.36 | 74603.81 | 20129.03 | 1528.56 | 1255.83 | 0.00 | 555420.00 | 3931510.00 |
| 292.73 | 75162.09 | 20396.98 | 1575.44 | 1345.72 | 0.00 | 555978.00 | 3931778.00 |
| 327.17 | 74401.06 | 20031.57 | 1534.15 | 1231.35 | 0.00 | 555217.00 | 3931412.00 |
| 278.04 | 75530.47 | 20570.97 | 1573.40 | 1348.44 | 0.00 | 556347.00 | 3931952.00 |
| 277.63 | 75543.29 | 20577.92 | 1635.43 | 1502.69 | 0.00 | 556360.00 | 3931959.00 |
| 121.15 | 83109.64 | 24152.99 | 2094.70 | 2316.29 | 0.00 | 563926.00 | 3935534.00 |
| 770.41 | 69939.29 | 17836.39 | 1328.31 | 735.64 | 0.00 | 550756.00 | 3929217.00 |
| 214.73 | 77545.25 | 21528.90 | 1714.67 | 1626.31 | 0.00 | 558362.00 | 3932910.00 |
| 474.48 | 72171.06 | 18955.85 | 1381.41 | 848.68 | 0.00 | 552987.00 | 3930337.00 |
| 370.05 | 73607.98 | 19642.28 | 1452.25 | 1065.05 | 0.00 | 554424.00 | 3931023.00 |
| 303.44 | 74910.13 | 20282.72 | 1541.14 | 1245.05 | 0.00 | 555726.00 | 3931664.00 |
| 390.81 | 73274.00 | 19487.22 | 1423.34 | 960.64 | 0.00 | 554090.00 | 3930868.00 |
| 506.46 | 71826.25 | 18783.51 | 1410.30 | 979.04 | 0.00 | 552643.00 | 3930164.00 |
| 811.53 | 69741.61 | 17730.81 | 1367.75 | 900.11 | 0.00 | 550558.00 | 3929112.00 |
| 122.92 | 82947.35 | 24083.12 | 2008.02 | 1997.87 | 0.00 | 563764.00 | 3935464.00 |
| 230.73 | 76958.28 | 21260.41 | 1618.81 | 1383.21 | 0.00 | 557775.00 | 3932641.00 |
| 381.71 | 73417.21 | 19557.75 | 1497.90 | 1200.60 | 0.00 | 554233.00 | 3930939.00 |
| 121.61 | 83067.67 | 24138.22 | 2022.56 | 2109.38 | 0.00 | 563884.00 | 3935519.00 |
| 269.58 | 75757.89 | 20683.31 | 1625.74 | 1438.07 | 0.00 | 556574.00 | 3932064.00 |
| 186.53 | 78766.51 | 22099.99 | 1801.05 | 1919.58 | 0.00 | 559583.00 | 3933481.00 |
| 602.77 | 70974.23 | 18363.35 | 1361.22 | 831.26 | 0.00 | 551791.00 | 3929744.00 |
| 155.54 | 80476.24 | 22924.01 | 1833.41 | 1751.92 | 0.00 | 561293.00 | 3934305.00 |
| 734.55 | 70128.62 | 17932.91 | 1394.58 | 1003.73 | 0.00 | 550945.00 | 3929314.00 |
| 320.34 | 74540.97 | 20093.54 | 1581.43 | 1437.96 | 0.00 | 555357.00 | 3931474.00 |
| 390.73 | 73274.60 | 19488.90 | 1453.19 | 1056.15 | 0.00 | 554091.00 | 3930870.00 |
| 245.61 | 76463.01 | 21013.82 | 1688.17 | 1623.45 | 0.00 | 557279.00 | 3932395.00 |
| 257.08 | 76112.20 | 20850.64 | 1589.27 | 1347.56 | 0.00 | 556928.00 | 3932231.00 |
| 396.37 | 73188.85 | 19455.10 | 1449.84 | 1041.04 | 0.00 | 554005.00 | 3930836.00 |
| 257.11 | 76113.82 | 20848.59 | 1624.53 | 1438.60 | 0.00 | 556930.00 | 3932229.00 |
| 147.83 | 80983.96 | 23147.97 | 1943.82 | 2083.78 | 0.00 | 561800.00 | 3934529.00 |
| 464.71 | 72281.52 | 19012.32 | 1429.23 | 1011.43 | 0.00 | 553098.00 | 3930393.00 |
| 513.53 | 71754.60 | 18748.88 | 1445.29 | 1109.74 | 0.00 | 552571.00 | 3930130.00 |
| 89.42 | 86799.49 | 25886.23 | 2210.54 | 2389.00 | 0.00 | 567616.00 | 3937267.00 |
| 466.75 | 72259.72 | 18994.11 | 1399.23 | 922.88 | 0.00 | 553076.00 | 3930375.00 |
| 627.77 | 70786.79 | 18270.05 | 1397.39 | 967.45 | 0.00 | 551603.00 | 3929651.00 |
| 119.25 | 83288.76 | 24236.55 | 1911.96 | 1830.11 | 0.00 | 564105.00 | 3935617.00 |
| 401.04 | 73120.06 | 19415.43 | 1515.44 | 1253.11 | 0.00 | 553936.00 | 3930796.00 |
| 107.73 | 84468.03 | 24779.81 | 2068.70 | 2169.73 | 0.00 | 565284.00 | 3936161.00 |
| 435.95 | 72635.66 | 19181.85 | 1415.57 | 967.19 | 0.00 | 553452.00 | 3930563.00 |
| 293.19 | 75150.92 | 20393.99 | 1623.77 | 1493.00 | 0.00 | 555967.00 | 3931775.00 |
| 198.11 | 78233.76 | 21871.51 | 1916.20 | 1944.45 | 0.00 | 559050.00 | 3933252.00 |
| 226.40 | 77111.12 | 21320.86 | 1613.34 | 1375.54 | 0.00 | 557927.00 | 3932702.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 181.84 | 78996.43 | 22214.50 | 1698.16 | 1509.05 | 0.00 | 559813.00 | 3933595.00 |
| 125.92 | 82679.87 | 23935.62 | 1882.52 | 1857.53 | 0.00 | 563496.00 | 3935316.00 |
| 655.08 | 70599.45 | 18177.46 | 1338.45 | 740.05 | 0.00 | 551416.00 | 3929558.00 |
| 208.28 | 77803.48 | 21658.22 | 1699.14 | 1570.81 | 0.00 | 558620.00 | 3933039.00 |
| 348.51 | 73986.65 | 19838.35 | 1489.53 | 1118.53 | 0.00 | 554803.00 | 3931219.00 |
| 180.89 | 79045.29 | 22241.87 | 1899.13 | 2022.75 | 0.00 | 559862.00 | 3933623.00 |
| 355.22 | 73864.93 | 19774.55 | 1464.67 | 1071.34 | 0.00 | 554681.00 | 3931155.00 |
| 153.59 | 80600.17 | 22967.78 | 1942.33 | 2123.74 | 0.00 | 561416.00 | 3934349.00 |
| 176.55 | 79268.10 | 22345.89 | 1741.62 | 1637.55 | 0.00 | 560084.00 | 3933727.00 |
| 127.96 | 82503.79 | 23862.39 | 2012.00 | 2214.39 | 0.00 | 563320.00 | 3935243.00 |
| 116.09 | 83592.83 | 24387.73 | 1902.81 | 1769.49 | 0.00 | 564409.00 | 3935769.00 |
| 107.00 | 84549.28 | 24808.63 | 2224.36 | 2755.56 | 0.00 | 565366.00 | 3936189.00 |
| 435.36 | 72644.38 | 19185.05 | 1425.76 | 990.44 | 0.00 | 553461.00 | 3930566.00 |
| 564.01 | 71289.73 | 18519.19 | 1404.75 | 975.46 | 0.00 | 552106.00 | 3929900.00 |
| 197.18 | 78275.10 | 21874.67 | 1663.36 | 1443.59 | 0.00 | 559091.00 | 3933255.00 |
| 107.21 | 84526.20 | 24810.25 | 1995.03 | 2015.37 | 0.00 | 565342.00 | 3936191.00 |
| 331.56 | 74309.62 | 19992.92 | 1536.73 | 1254.72 | 0.00 | 555126.00 | 3931374.00 |
| 62.56 | 91931.55 | 28280.87 | 2650.76 | 2963.55 | 0.00 | 572748.00 | 3939662.00 |
| 331.74 | 74307.47 | 19989.48 | 1575.99 | 1372.55 | 0.00 | 555124.00 | 3931370.00 |
| 432.95 | 72675.51 | 19201.59 | 1475.24 | 1134.79 | 0.00 | 553492.00 | 3930582.00 |
| 174.12 | 79396.95 | 22412.06 | 1729.03 | 1530.51 | 0.00 | 560213.00 | 3933793.00 |
| 316.66 | 74618.75 | 20134.09 | 1577.88 | 1407.38 | 0.00 | 555435.00 | 3931515.00 |
| 109.69 | 84254.13 | 24705.93 | 2312.16 | 2601.77 | 0.00 | 565070.00 | 3936087.00 |
| 455.21 | 72395.91 | 19063.73 | 1427.55 | 1015.85 | 0.00 | 553212.00 | 3930445.00 |
| 178.48 | 79168.58 | 22316.00 | 1822.12 | 1731.67 | 0.00 | 559985.00 | 3933697.00 |
| 65.15 | 91301.39 | 27990.51 | 2701.46 | 2943.82 | 0.00 | 572118.00 | 3939371.00 |
| 127.29 | 82561.01 | 23889.78 | 1988.13 | 2185.96 | 0.00 | 563377.00 | 3935271.00 |
| 326.66 | 74408.32 | 20044.11 | 1665.31 | 1542.48 | 0.00 | 555225.00 | 3931425.00 |
| 174.63 | 79369.69 | 22405.72 | 1837.74 | 1783.28 | 0.00 | 560186.00 | 3933787.00 |
| 72.61 | 89676.61 | 27232.78 | 2241.02 | 2211.77 | 0.00 | 570493.00 | 3938614.00 |
| 392.54 | 73247.43 | 19479.08 | 1512.60 | 1228.37 | 0.00 | 554064.00 | 3930860.00 |
| 448.81 | 72474.96 | 19095.11 | 1515.25 | 1295.90 | 0.00 | 553291.00 | 3930476.00 |
| 632.71 | 70755.46 | 18250.62 | 1428.14 | 1062.52 | 0.00 | 551572.00 | 3929631.00 |
| 319.95 | 74548.30 | 20108.56 | 1541.93 | 1240.28 | 0.00 | 555365.00 | 3931489.00 |
| 174.51 | 79375.26 | 22404.73 | 1700.50 | 1479.42 | 0.00 | 560192.00 | 3933786.00 |
| 217.15 | 77453.01 | 21490.99 | 1611.63 | 1329.76 | 0.00 | 558269.00 | 3932872.00 |
| 181.32 | 79022.31 | 22228.50 | 1771.93 | 1716.36 | 0.00 | 559839.00 | 3933609.00 |
| 192.12 | 78504.47 | 21990.43 | 1647.57 | 1363.06 | 0.00 | 559321.00 | 3933371.00 |
| 777.66 | 69902.59 | 17817.05 | 1373.87 | 922.95 | 0.00 | 550719.00 | 3929198.00 |
| 74.67 | 89271.39 | 27044.93 | 2351.45 | 2610.49 | 0.00 | 570088.00 | 3938426.00 |
| 286.91 | 75304.53 | 20469.67 | 1576.42 | 1326.25 | 0.00 | 556121.00 | 3931850.00 |
| 177.46 | 79219.84 | 22330.39 | 1838.08 | 1876.42 | 0.00 | 560036.00 | 3933711.00 |
| 543.24 | 71470.95 | 18608.11 | 1397.96 | 959.25 | 0.00 | 552287.00 | 3929989.00 |
| 188.62 | 78667.79 | 22061.02 | 1733.10 | 1609.27 | 0.00 | 559484.00 | 3933442.00 |
| 806.47 | 69763.56 | 17747.55 | 1309.18 | 651.11 | 0.00 | 550580.00 | 3929128.00 |
| 281.06 | 75452.59 | 20539.96 | 1617.01 | 1417.40 | 0.00 | 556269.00 | 3931921.00 |
| 154.99 | 80509.18 | 22932.44 | 1930.45 | 2000.23 | 0.00 | 561325.00 | 3934313.00 |
| 328.65 | 74370.20 | 20016.91 | 1589.55 | 1440.52 | 0.00 | 555186.00 | 3931398.00 |
| 132.90 | 82094.85 | 23681.52 | 1882.60 | 1792.48 | 0.00 | 562911.00 | 3935062.00 |
| 570.21 | 71236.22 | 18489.20 | 1425.10 | 1082.38 | 0.00 | 552053.00 | 3929870.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 357.35 | 2150.59 | 629.53 | 251.90 | 528.32 | **27.98** | 482967.00 | 3912010.00 |
| 75.13 | 3290.73 | 1173.10 | 270.52 | 528.24 | 0.00 | 484107.00 | 3912554.00 |
| 191.75 | 2525.26 | 812.81 | 244.66 | 482.99 | 0.00 | 483342.00 | 3912194.00 |
| 452.57 | 2042.71 | 576.47 | 277.65 | 491.29 | 0.00 | 482859.00 | 3911957.00 |
| 352.52 | 2166.04 | 637.65 | 265.34 | 476.91 | 0.00 | 482982.00 | 3912018.00 |
| 423.18 | 2075.31 | 592.41 | 281.14 | 526.81 | 0.00 | 482892.00 | 3911973.00 |
| 137.72 | 2757.84 | 916.62 | 207.31 | 484.30 | 0.00 | 483574.00 | 3912297.00 |
| 334.56 | 2189.34 | 649.18 | 246.26 | 575.09 | 0.00 | 483006.00 | 3912030.00 |
| 69.56 | 3370.07 | 1208.68 | 259.69 | 590.96 | 0.00 | 484186.00 | 3912589.00 |
| 318.35 | 2220.39 | 661.16 | 227.82 | 531.44 | 0.00 | 483037.00 | 3912042.00 |
| 181.17 | 2561.54 | 833.03 | 262.64 | 372.33 | 0.00 | 483378.00 | 3912214.00 |
| 416.23 | 2078.36 | 597.40 | 297.84 | 560.19 | 0.00 | 482895.00 | 3911978.00 |
| 167.25 | 2619.48 | 853.54 | 265.35 | 572.19 | 0.00 | 483436.00 | 3912234.00 |
| 650.52 | 1881.39 | 495.78 | 264.57 | 458.46 | 0.00 | 482698.00 | 3911877.00 |
| 209.29 | 2469.85 | 780.11 | 262.98 | 544.25 | 0.00 | 483286.00 | 3912161.00 |
| 195.31 | 2514.71 | 803.61 | 252.10 | 532.08 | 0.00 | 483331.00 | 3912184.00 |
| 362.85 | 2151.78 | 627.31 | 243.59 | 529.93 | 0.00 | 482968.00 | 3912008.00 |
| 403.34 | 2095.05 | 600.12 | 293.18 | 585.64 | 0.00 | 482911.00 | 3911981.00 |
| 255.79 | 2340.88 | 722.94 | 245.65 | 487.48 | 0.00 | 483157.00 | 3912104.00 |
| 284.08 | 2276.79 | 692.09 | 237.02 | 541.16 | 0.00 | 483093.00 | 3912073.00 |
| 103.03 | 2997.41 | 1035.81 | 219.00 | 569.77 | 0.00 | 483814.00 | 3912417.00 |
| 316.21 | 2219.49 | 668.48 | 280.86 | 491.03 | 0.00 | 483036.00 | 3912049.00 |
| 439.53 | 2054.36 | 580.33 | 283.87 | 514.75 | 0.00 | 482871.00 | 3911961.00 |
| 623.73 | 1895.22 | 502.56 | 275.07 | 530.54 | 0.00 | 482711.00 | 3911883.00 |
| 123.56 | 2842.49 | 961.71 | 274.07 | 606.53 | 0.00 | 483659.00 | 3912342.00 |
| 274.56 | 2296.34 | 703.73 | 252.26 | 589.45 | 0.00 | 483113.00 | 3912085.00 |
| 223.43 | 2423.92 | 764.42 | 152.31 | 380.80 | 0.00 | 483240.00 | 3912145.00 |
| 258.18 | 2342.49 | 717.67 | 258.18 | 528.44 | 0.00 | 483159.00 | 3912098.00 |
| 84.78 | 3172.21 | 1117.11 | 279.00 | 619.03 | 0.00 | 483988.00 | 3912498.00 |
| 249.63 | 2356.78 | 729.54 | 261.47 | 574.71 | 0.00 | 483173.00 | 3912110.00 |
| 574.49 | 1929.21 | 518.22 | 228.83 | 493.14 | 0.00 | 482745.00 | 3911899.00 |
| 175.83 | 2584.47 | 835.48 | 237.30 | 584.77 | 0.00 | 483401.00 | 3912216.00 |
| 244.76 | 2373.49 | 737.33 | 258.38 | 595.12 | 0.00 | 483190.00 | 3912118.00 |
| 337.84 | 2190.69 | 647.46 | 235.81 | 431.18 | 0.00 | 483007.00 | 3912028.00 |
| 167.15 | 2618.28 | 855.94 | 243.56 | 518.09 | 0.00 | 483435.00 | 3912237.00 |
| 367.26 | 2139.53 | 624.70 | 240.54 | 569.92 | 0.00 | 482956.00 | 3912005.00 |
| 242.34 | 2379.90 | 736.82 | 300.94 | 553.25 | 0.00 | 483196.00 | 3912118.00 |
| 235.53 | 2393.22 | 750.63 | 240.11 | 581.67 | 0.00 | 483210.00 | 3912131.00 |
| 434.64 | 2057.40 | 583.82 | 288.77 | 512.42 | 0.00 | 482874.00 | 3911965.00 |
| 176.19 | 2583.06 | 839.53 | 258.08 | 548.36 | 0.00 | 483399.00 | 3912220.00 |
| 219.42 | 2435.81 | 770.60 | 270.74 | 454.99 | 0.00 | 483252.00 | 3912151.00 |
| 105.62 | 2973.61 | 1021.76 | 245.86 | 545.93 | 0.00 | 483790.00 | 3912403.00 |
| 223.94 | 2424.52 | 761.51 | 263.36 | 571.25 | 0.00 | 483241.00 | 3912142.00 |
| 79.85 | 3228.32 | 1149.43 | 267.08 | 530.76 | 0.00 | 484045.00 | 3912530.00 |
| 444.28 | 2053.25 | 575.64 | 211.67 | 537.18 | 0.00 | 482870.00 | 3911956.00 |
| 97.09 | 3045.87 | 1054.11 | 193.45 | 449.28 | 0.00 | 483862.00 | 3912435.00 |
| 328.91 | 2207.09 | 653.22 | 277.44 | 482.12 | 0.00 | 483023.00 | 3912034.00 |
| 302.28 | 2249.80 | 679.62 | 274.15 | 481.70 | 0.00 | 483066.00 | 3912060.00 |
| 455.04 | 2034.67 | 573.37 | 290.98 | 568.49 | 0.00 | 482851.00 | 3911954.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 366.83 | 2152.18 | 627.91 | 260.85 | 552.01 | 0.00 | 482968.00 | 3912009.00 |
| 129.24 | 2808.12 | 946.93 | 250.12 | 579.55 | 0.00 | 483624.00 | 3912328.00 |
| 125.87 | 2825.68 | 956.22 | 273.55 | 491.85 | 0.00 | 483642.00 | 3912337.00 |
| 370.47 | 2129.20 | 625.39 | 257.64 | 498.23 | 0.00 | 482945.00 | 3912006.00 |
| 153.92 | 2675.57 | 880.12 | 269.50 | 546.65 | 0.00 | 483492.00 | 3912261.00 |
| 260.11 | 2330.87 | 718.70 | 250.26 | 506.04 | 0.00 | 483147.00 | 3912099.00 |
| 191.02 | 2531.25 | 811.67 | 246.84 | 482.08 | 0.00 | 483348.00 | 3912192.00 |
| 99.33 | 3022.16 | 1050.07 | 246.84 | 520.50 | 0.00 | 483838.00 | 3912431.00 |
| 34.44 | 4236.91 | 1617.71 | 314.04 | 577.65 | 0.00 | 485053.00 | 3912998.00 |
| 79.30 | 3234.60 | 1151.12 | 258.98 | 533.40 | 0.00 | 484051.00 | 3912532.00 |
| 122.10 | 2853.83 | 968.08 | 300.19 | 552.13 | 0.00 | 483670.00 | 3912349.00 |
| 156.21 | 2654.94 | 873.13 | 243.68 | 531.65 | 0.00 | 483471.00 | 3912254.00 |
| 60.60 | 3517.15 | 1282.92 | 314.34 | 523.02 | 0.00 | 484333.00 | 3912664.00 |
| 675.80 | 1857.05 | 490.02 | 186.22 | 503.57 | 0.00 | 482673.00 | 3911871.00 |
| 539.38 | 1963.41 | 534.91 | 280.96 | 462.02 | 0.00 | 482780.00 | 3911916.00 |
| 289.33 | 2263.29 | 689.40 | 291.23 | 644.82 | 0.00 | 483080.00 | 3912070.00 |
| 182.15 | 2562.05 | 829.00 | 246.44 | 543.89 | 0.00 | 483378.00 | 3912210.00 |
| 65.58 | 3429.81 | 1243.51 | 311.30 | 509.10 | 0.00 | 484246.00 | 3912624.00 |
| 53.24 | 3665.30 | 1347.75 | 255.40 | 571.66 | 0.00 | 484482.00 | 3912729.00 |
| 62.08 | 3493.50 | 1270.34 | 244.13 | 485.36 | 0.00 | 484310.00 | 3912651.00 |
| 538.87 | 1961.71 | 531.15 | 229.84 | 495.60 | 0.00 | 482778.00 | 3911912.00 |
| 156.31 | 2665.95 | 878.02 | 271.94 | 478.35 | 0.00 | 483482.00 | 3912259.00 |
| 500.29 | 1987.21 | 556.42 | 276.06 | 483.84 | 0.00 | 482803.00 | 3911937.00 |
| 421.97 | 2065.05 | 591.05 | 209.85 | 539.53 | 0.00 | 482881.00 | 3911972.00 |
| 227.61 | 2409.33 | 760.14 | 239.18 | 352.29 | 0.00 | 483226.00 | 3912141.00 |
| 149.00 | 2693.86 | 891.61 | 235.22 | 516.31 | 0.00 | 483510.00 | 3912272.00 |
| 583.92 | 1932.77 | 518.40 | 296.32 | 472.23 | 0.00 | 482749.00 | 3911899.00 |
| 118.07 | 2878.12 | 982.60 | 308.25 | 536.89 | 0.00 | 483694.00 | 3912363.00 |
| 217.52 | 2439.03 | 774.46 | 271.68 | 514.65 | 0.00 | 483255.00 | 3912155.00 |
| 70.36 | 3357.50 | 1206.65 | 255.88 | 502.01 | 0.00 | 484174.00 | 3912587.00 |
| 411.76 | 2085.68 | 597.09 | 273.92 | 561.67 | 0.00 | 482902.00 | 3911978.00 |
| 302.77 | 2250.02 | 674.17 | 274.26 | 514.22 | 0.00 | 483066.00 | 3912055.00 |
| 285.69 | 2277.05 | 690.02 | 224.41 | 488.08 | 0.00 | 483093.00 | 3912071.00 |
| 117.52 | 2884.68 | 976.76 | 253.17 | 492.51 | 0.00 | 483701.00 | 3912358.00 |
| 317.20 | 2216.99 | 664.63 | 266.05 | 497.47 | 0.00 | 483033.00 | 3912045.00 |
| 221.89 | 2429.47 | 764.64 | 266.20 | 551.28 | 0.00 | 483246.00 | 3912145.00 |
| 54.80 | 3633.73 | 1338.95 | 276.69 | 408.82 | 0.00 | 484450.00 | 3912720.00 |
| 365.29 | 2146.84 | 624.82 | 253.19 | 476.75 | 0.00 | 482963.00 | 3912006.00 |
| 347.29 | 2176.11 | 638.86 | 248.10 | 515.62 | 0.00 | 482992.00 | 3912020.00 |
| 220.79 | 2436.27 | 770.46 | 316.41 | 525.60 | 0.00 | 483253.00 | 3912151.00 |
| 178.40 | 2573.36 | 838.38 | 252.86 | 522.02 | 0.00 | 483390.00 | 3912219.00 |
| 181.95 | 2562.95 | 824.79 | 265.84 | 526.67 | 0.00 | 483379.00 | 3912206.00 |
| 315.29 | 2222.01 | 667.53 | 312.43 | 543.52 | 0.00 | 483038.00 | 3912048.00 |
| 174.29 | 2588.64 | 837.68 | 295.87 | 602.70 | 0.00 | 483405.00 | 3912218.00 |
| 190.34 | 2529.58 | 817.34 | 277.41 | 490.95 | 0.00 | 483346.00 | 3912198.00 |
| 176.36 | 2588.66 | 837.46 | 284.50 | 565.86 | 0.00 | 483405.00 | 3912218.00 |
| 325.88 | 2208.47 | 658.95 | 288.54 | 509.12 | 0.00 | 483025.00 | 3912040.00 |
| 298.28 | 2252.46 | 680.66 | 261.53 | 592.79 | 0.00 | 483069.00 | 3912061.00 |
| 83.50 | 3187.63 | 1128.75 | 278.42 | 497.75 | 0.00 | 484004.00 | 3912510.00 |
| 613.34 | 1902.84 | 505.19 | 283.50 | 499.75 | 0.00 | 482719.00 | 3911886.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 429.83 | 67536.80 | 17913.67 | 1396.33 | 1021.34 | **103.85** | 548353.00 | 3929294.00 |
| 328.06 | 69118.98 | 18672.91 | 1496.73 | 1339.28 | 0.00 | 549935.00 | 3930054.00 |
| 338.39 | 68924.96 | 18574.39 | 1427.80 | 1110.89 | 0.00 | 549741.00 | 3929955.00 |
| 159.34 | 74688.16 | 21326.52 | 1738.25 | 1679.86 | 0.00 | 555504.00 | 3932707.00 |
| 289.74 | 69929.42 | 19058.46 | 1565.95 | 1497.16 | 0.00 | 550746.00 | 3930439.00 |
| 1085.48 | 63777.89 | 15997.96 | 1250.94 | 652.42 | 0.00 | 544594.00 | 3927379.00 |
| 297.81 | 69746.07 | 18978.69 | 1489.02 | 1216.71 | 0.00 | 550562.00 | 3930359.00 |
| 132.64 | 76473.39 | 22163.74 | 1774.25 | 1681.32 | 0.00 | 557290.00 | 3933545.00 |
| 269.26 | 70435.09 | 19306.82 | 1520.68 | 1303.22 | 0.00 | 551251.00 | 3930688.00 |
| 280.23 | 70159.02 | 19175.49 | 1591.62 | 1520.70 | 0.00 | 550975.00 | 3930556.00 |
| 522.78 | 66534.64 | 17419.73 | 1366.62 | 1026.97 | 0.00 | 547351.00 | 3928801.00 |
| 320.36 | 69268.04 | 18749.39 | 1405.66 | 1017.42 | 0.00 | 550084.00 | 3930130.00 |
| 411.61 | 67773.58 | 18024.60 | 1374.81 | 994.53 | 0.00 | 548590.00 | 3929405.00 |
| 411.90 | 67769.13 | 18019.59 | 1405.35 | 1122.80 | 0.00 | 548585.00 | 3929400.00 |
| 87.63 | 81180.93 | 24378.45 | 2125.89 | 2257.50 | 0.00 | 561997.00 | 3935759.00 |
| 79.96 | 82362.12 | 24927.98 | 2861.85 | 3337.66 | 0.00 | 563178.00 | 3936309.00 |
| 124.79 | 77105.21 | 22450.25 | 1861.91 | 1893.24 | 0.00 | 557921.00 | 3933831.00 |
| 406.92 | 67835.61 | 18057.76 | 1469.68 | 1271.84 | 0.00 | 548652.00 | 3929439.00 |
| 275.53 | 70272.73 | 19230.18 | 1524.47 | 1346.65 | 0.00 | 551089.00 | 3930611.00 |
| 60.12 | 86407.82 | 26813.10 | 2488.36 | 2939.17 | 0.00 | 567224.00 | 3938194.00 |
| 365.93 | 68447.16 | 18356.37 | 1410.00 | 1115.23 | 0.00 | 549263.00 | 3929737.00 |
| 264.04 | 70573.60 | 19378.09 | 1634.07 | 1576.72 | 0.00 | 551390.00 | 3930759.00 |
| 373.52 | 68325.23 | 18291.70 | 1426.14 | 1149.24 | 0.00 | 549142.00 | 3929672.00 |
| 558.96 | 66219.54 | 17266.05 | 1333.12 | 900.67 | 0.00 | 547036.00 | 3928647.00 |
| 528.61 | 66482.81 | 17389.23 | 1349.30 | 978.30 | 0.00 | 547299.00 | 3928770.00 |
| 81.79 | 82065.19 | 24762.16 | 2132.27 | 2617.56 | 0.00 | 562881.00 | 3936143.00 |
| 330.66 | 69067.50 | 18644.63 | 1436.13 | 1151.77 | 0.00 | 549884.00 | 3930025.00 |
| 409.85 | 67795.39 | 18034.35 | 1431.70 | 1162.13 | 0.00 | 548612.00 | 3929415.00 |
| 116.56 | 77834.95 | 22797.57 | 1987.14 | 2095.64 | 0.00 | 558651.00 | 3934178.00 |
| 432.81 | 67498.19 | 17892.87 | 1363.49 | 986.74 | 0.00 | 548314.00 | 3929274.00 |
| 330.09 | 69079.43 | 18653.94 | 1413.84 | 1066.80 | 0.00 | 549896.00 | 3930035.00 |
| 155.52 | 74913.30 | 21429.15 | 1681.03 | 1517.83 | 0.00 | 555730.00 | 3932810.00 |
| 81.44 | 82122.45 | 24810.12 | 2442.40 | 2856.09 | 0.00 | 562939.00 | 3936191.00 |
| 603.17 | 65877.68 | 17093.11 | 1317.32 | 864.50 | 0.00 | 546694.00 | 3928474.00 |
| 393.65 | 68025.31 | 18147.73 | 1465.01 | 1248.47 | 0.00 | 548842.00 | 3929529.00 |
| 111.64 | 78311.43 | 23034.26 | 1960.53 | 1949.31 | 0.00 | 559128.00 | 3934415.00 |
| 269.14 | 70439.98 | 19303.32 | 1481.94 | 1236.72 | 0.00 | 551256.00 | 3930684.00 |
| 74.93 | 83233.10 | 25328.42 | 2320.41 | 2716.20 | 0.00 | 564049.00 | 3936709.00 |
| 235.72 | 71406.62 | 19755.25 | 1682.61 | 1749.31 | 0.00 | 552223.00 | 3931136.00 |
| 157.22 | 74813.62 | 21370.39 | 1708.67 | 1638.19 | 0.00 | 555630.00 | 3932751.00 |
| 609.63 | 65829.63 | 17073.69 | 1333.45 | 936.15 | 0.00 | 546646.00 | 3928454.00 |
| 319.25 | 69290.57 | 18759.99 | 1531.05 | 1395.66 | 0.00 | 550107.00 | 3930141.00 |
| 271.72 | 70372.50 | 19279.97 | 1596.11 | 1510.83 | 0.00 | 551189.00 | 3930661.00 |
| 221.69 | 71876.86 | 19989.78 | 1495.61 | 1188.71 | 0.00 | 552693.00 | 3931371.00 |
| 119.48 | 77567.01 | 22674.29 | 1782.11 | 1662.43 | 0.00 | 558383.00 | 3934055.00 |
| 166.69 | 74278.50 | 21132.26 | 1634.63 | 1428.81 | 0.00 | 555095.00 | 3932513.00 |
| 85.35 | 81514.60 | 24529.65 | 2284.08 | 2655.86 | 0.00 | 562331.00 | 3935910.00 |
| 932.79 | 64235.39 | 16243.74 | 1319.09 | 930.82 | 0.00 | 545052.00 | 3927625.00 |
| 223.52 | 71813.55 | 19948.44 | 1618.36 | 1597.83 | 0.00 | 552630.00 | 3931329.00 |
| 380.93 | 68212.77 | 18246.19 | 1421.24 | 1091.26 | 0.00 | 549029.00 | 3929627.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 331.71 | 69048.73 | 18649.79 | 1502.98 | 1288.58 | 0.00 | 549865.00 | 3930031.00 |
| 61.69 | 86018.18 | 26636.70 | 2717.54 | 3246.58 | 0.00 | 566834.00 | 3938017.00 |
| 304.87 | 69590.77 | 18900.68 | 1499.33 | 1320.95 | 0.00 | 550407.00 | 3930281.00 |
| 97.21 | 79909.08 | 23774.56 | 2035.87 | 2129.85 | 0.00 | 560725.00 | 3935155.00 |
| 134.35 | 76342.20 | 22099.09 | 1890.39 | 2005.31 | 0.00 | 557158.00 | 3933480.00 |
| 630.72 | 65682.06 | 16997.54 | 1318.49 | 869.52 | 0.00 | 546498.00 | 3928378.00 |
| 333.46 | 69017.43 | 18623.35 | 1476.01 | 1252.68 | 0.00 | 549834.00 | 3930004.00 |
| 326.45 | 69148.05 | 18689.75 | 1499.14 | 1293.69 | 0.00 | 549964.00 | 3930071.00 |
| 335.84 | 68971.04 | 18606.46 | 1511.16 | 1330.75 | 0.00 | 549787.00 | 3929987.00 |
| 449.00 | 67303.19 | 17796.58 | 1347.09 | 925.34 | 0.00 | 548119.00 | 3929177.00 |
| 145.24 | 75567.63 | 21735.73 | 1835.38 | 1879.60 | 0.00 | 556384.00 | 3933117.00 |
| 289.48 | 69936.20 | 19066.59 | 1564.65 | 1466.61 | 0.00 | 550752.00 | 3930447.00 |
| 392.70 | 68039.09 | 18153.41 | 1463.62 | 1270.94 | 0.00 | 548855.00 | 3929534.00 |
| 98.04 | 79806.71 | 23733.68 | 2157.26 | 2340.56 | 0.00 | 560623.00 | 3935114.00 |
| 393.67 | 68024.08 | 18146.74 | 1383.63 | 1001.17 | 0.00 | 548840.00 | 3929528.00 |
| 644.66 | 65587.62 | 16942.93 | 1315.79 | 896.13 | 0.00 | 546404.00 | 3928324.00 |
| 293.48 | 69842.49 | 19022.83 | 1489.02 | 1249.12 | 0.00 | 550659.00 | 3930404.00 |
| 418.31 | 67683.98 | 17990.77 | 1486.96 | 1327.96 | 0.00 | 548500.00 | 3929372.00 |
| 107.30 | 78757.11 | 23223.08 | 1876.04 | 1839.87 | 0.00 | 559573.00 | 3934604.00 |
| 54.75 | 87870.13 | 27501.85 | 2749.25 | 3070.17 | 0.00 | 568686.00 | 3938883.00 |
| 225.23 | 71753.29 | 19930.41 | 1636.83 | 1578.52 | 0.00 | 552570.00 | 3931311.00 |
| 243.69 | 71155.27 | 19654.82 | 1623.18 | 1585.41 | 0.00 | 551972.00 | 3931036.00 |
| 828.41 | 64633.33 | 16452.40 | 1276.41 | 774.01 | 0.00 | 545450.00 | 3927833.00 |
| 507.23 | 66680.61 | 17491.52 | 1420.34 | 1178.32 | 0.00 | 547497.00 | 3928872.00 |
| 291.68 | 69881.57 | 19046.45 | 1543.14 | 1413.10 | 0.00 | 550698.00 | 3930427.00 |
| 338.47 | 68922.19 | 18583.28 | 1441.47 | 1139.61 | 0.00 | 549738.00 | 3929964.00 |
| 52.38 | 88583.79 | 27830.51 | 2870.53 | 3477.84 | 0.00 | 569400.00 | 3939211.00 |
| 132.29 | 76499.83 | 22173.38 | 1798.53 | 1757.85 | 0.00 | 557316.00 | 3933554.00 |
| 305.95 | 69567.78 | 18892.49 | 1526.59 | 1364.90 | 0.00 | 550384.00 | 3930273.00 |
| 293.16 | 69850.99 | 19028.76 | 1560.67 | 1439.03 | 0.00 | 550667.00 | 3930410.00 |
| 83.79 | 81751.75 | 24628.65 | 2428.44 | 2913.12 | 0.00 | 562568.00 | 3936009.00 |
| 299.60 | 69704.87 | 18963.12 | 1529.97 | 1317.74 | 0.00 | 550521.00 | 3930344.00 |
| 169.05 | 74151.55 | 21070.34 | 1730.00 | 1650.44 | 0.00 | 554968.00 | 3932451.00 |
| 453.06 | 67254.55 | 17771.42 | 1381.70 | 1048.12 | 0.00 | 548071.00 | 3929152.00 |
| 313.79 | 69402.18 | 18814.92 | 1513.93 | 1342.21 | 0.00 | 550218.00 | 3930196.00 |
| 164.80 | 74377.47 | 21170.93 | 1858.94 | 1954.71 | 0.00 | 555194.00 | 3932552.00 |
| 96.17 | 80038.30 | 23831.53 | 2067.29 | 2211.54 | 0.00 | 560855.00 | 3935212.00 |
| 294.24 | 69825.64 | 19023.92 | 1564.86 | 1407.51 | 0.00 | 550642.00 | 3930405.00 |
| 283.70 | 70076.38 | 19133.82 | 1604.83 | 1552.77 | 0.00 | 550893.00 | 3930515.00 |
| 688.40 | 65327.57 | 16813.08 | 1262.77 | 670.24 | 0.00 | 546144.00 | 3928194.00 |
| 273.88 | 70316.56 | 19248.30 | 1459.97 | 1141.42 | 0.00 | 551133.00 | 3930629.00 |
| 122.96 | 77260.52 | 22529.90 | 1868.86 | 1889.20 | 0.00 | 558077.00 | 3933911.00 |
| 185.74 | 73326.09 | 20682.72 | 1677.78 | 1578.23 | 0.00 | 554142.00 | 3932064.00 |
| 77.74 | 82736.19 | 25110.26 | 2445.58 | 2837.58 | 0.00 | 563552.00 | 3936491.00 |
| 355.38 | 68624.84 | 18435.38 | 1421.84 | 1118.49 | 0.00 | 549441.00 | 3929816.00 |
| 499.65 | 66755.89 | 17523.13 | 1418.85 | 1209.15 | 0.00 | 547572.00 | 3928904.00 |
| 637.84 | 65633.62 | 16966.72 | 1316.28 | 882.97 | 0.00 | 546450.00 | 3928348.00 |
| 339.53 | 68902.14 | 18570.62 | 1435.26 | 1142.16 | 0.00 | 549718.00 | 3929951.00 |
| 501.58 | 66736.67 | 17522.38 | 1350.71 | 948.00 | 0.00 | 547553.00 | 3928903.00 |
| 47.36 | 90271.34 | 28618.24 | 2631.74 | 2885.82 | 0.00 | 571088.00 | 3939999.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 429.47 | 26690.35 | 7331.03 | 941.13 | 1095.06 | **74.33** | 507507.00 | 3918712.00 |
| 207.54 | 29150.25 | 8516.12 | 1065.81 | 1291.24 | 0.00 | 509967.00 | 3919897.00 |
| 195.07 | 29411.62 | 8641.38 | 1385.21 | 1654.40 | 0.00 | 510228.00 | 3920022.00 |
| 403.00 | 26867.47 | 7420.22 | 827.82 | 908.99 | 0.00 | 507684.00 | 3918801.00 |
| 248.69 | 28446.20 | 8191.01 | 1065.38 | 1188.58 | 0.00 | 509262.00 | 3919572.00 |
| 358.29 | 27211.56 | 7592.94 | 827.55 | 781.69 | 0.00 | 508028.00 | 3918974.00 |
| 122.07 | 31640.83 | 9695.41 | 1229.78 | 1567.27 | 0.00 | 512457.00 | 3921076.00 |
| 667.40 | 25638.92 | 6801.17 | 797.75 | 768.32 | 0.00 | 506455.00 | 3918182.00 |
| 207.07 | 29163.78 | 8518.57 | 1032.54 | 1364.89 | 0.00 | 509980.00 | 3919899.00 |
| 237.85 | 28613.37 | 8263.26 | 923.75 | 1116.05 | 0.00 | 509430.00 | 3919644.00 |
| 519.78 | 26187.69 | 7092.58 | 857.42 | 903.09 | 0.00 | 507004.00 | 3918473.00 |
| 245.14 | 28498.27 | 8210.24 | 879.81 | 977.06 | 0.00 | 509315.00 | 3919591.00 |
| 232.66 | 28700.92 | 8299.94 | 1170.43 | 1749.42 | 0.00 | 509517.00 | 3919681.00 |
| 198.62 | 29332.47 | 8597.77 | 1156.23 | 1646.10 | 0.00 | 510149.00 | 3919979.00 |
| 362.66 | 27174.93 | 7571.18 | 904.19 | 1180.98 | 0.00 | 507991.00 | 3918952.00 |
| 99.14 | 32827.60 | 10242.51 | 1606.47 | 2426.64 | 0.00 | 513644.00 | 3921623.00 |
| 297.09 | 27815.24 | 7877.82 | 853.02 | 1035.48 | 0.00 | 508632.00 | 3919259.00 |
| 619.50 | 25787.90 | 6883.02 | 804.43 | 868.25 | 0.00 | 506604.00 | 3918264.00 |
| 306.67 | 27713.24 | 7832.13 | 1021.23 | 1182.38 | 0.00 | 508530.00 | 3919213.00 |
| 182.91 | 29687.76 | 8765.89 | 1191.85 | 1816.34 | 0.00 | 510504.00 | 3920147.00 |
| 434.25 | 26656.18 | 7323.80 | 881.52 | 946.12 | 0.00 | 507472.00 | 3918705.00 |
| 25.85 | 44291.05 | 15622.16 | 3223.66 | 4330.76 | 0.00 | 525107.00 | 3927003.00 |
| 485.86 | 26366.98 | 7171.43 | 868.11 | 994.30 | 0.00 | 507183.00 | 3918552.00 |
| 294.78 | 27837.21 | 7900.66 | 1035.05 | 1129.67 | 0.00 | 508653.00 | 3919281.00 |
| 258.21 | 28310.43 | 8119.95 | 914.22 | 1095.04 | 0.00 | 509127.00 | 3919501.00 |
| 149.25 | 30615.94 | 9209.91 | 1688.05 | 2361.95 | 0.00 | 511432.00 | 3920591.00 |
| 109.75 | 32231.86 | 9994.71 | 1361.26 | 1409.52 | 0.00 | 513048.00 | 3921375.00 |
| 341.63 | 27361.86 | 7670.09 | 1045.31 | 1223.39 | 0.00 | 508178.00 | 3919051.00 |
| 167.71 | 30075.40 | 8956.76 | 1304.92 | 1620.13 | 0.00 | 510892.00 | 3920338.00 |
| 248.35 | 28451.95 | 8188.06 | 1030.06 | 1154.34 | 0.00 | 509268.00 | 3919569.00 |
| 551.77 | 26049.61 | 7020.55 | 802.44 | 754.92 | 0.00 | 506866.00 | 3918401.00 |
| 307.36 | 27698.77 | 7827.61 | 943.48 | 1061.93 | 0.00 | 508515.00 | 3919208.00 |
| 306.09 | 27720.29 | 7833.65 | 952.46 | 1107.25 | 0.00 | 508537.00 | 3919214.00 |
| 403.91 | 26866.93 | 7419.67 | 877.82 | 1018.50 | 0.00 | 507683.00 | 3918800.00 |
| 246.21 | 28482.75 | 8202.46 | 993.02 | 1167.37 | 0.00 | 509299.00 | 3919583.00 |
| 353.11 | 27258.22 | 7616.58 | 1065.75 | 1246.49 | 0.00 | 508074.00 | 3918997.00 |
| 245.22 | 28499.52 | 8212.88 | 942.32 | 996.51 | 0.00 | 509316.00 | 3919594.00 |
| 93.75 | 33164.89 | 10414.64 | 1638.27 | 1992.38 | 0.00 | 513981.00 | 3921795.00 |
| 209.39 | 29114.80 | 8509.69 | 1168.82 | 1495.81 | 0.00 | 509931.00 | 3919890.00 |
| 595.47 | 25874.31 | 6929.47 | 825.46 | 844.41 | 0.00 | 506691.00 | 3918310.00 |
| 203.71 | 29229.39 | 8558.81 | 1208.96 | 1611.59 | 0.00 | 510046.00 | 3919940.00 |
| 140.70 | 30907.77 | 9338.78 | 1125.59 | 1524.89 | 0.00 | 511724.00 | 3920720.00 |
| 387.24 | 26979.70 | 7482.89 | 878.74 | 978.72 | 0.00 | 507796.00 | 3918864.00 |
| 47.56 | 38134.62 | 12729.27 | 2185.29 | 3275.36 | 0.00 | 518951.00 | 3924110.00 |
| 175.93 | 29856.79 | 8860.25 | 1219.17 | 1368.02 | 0.00 | 510673.00 | 3920241.00 |
| 330.55 | 27464.70 | 7716.56 | 880.32 | 944.03 | 0.00 | 508281.00 | 3919097.00 |
| 108.44 | 32299.84 | 10014.36 | 1340.82 | 1545.20 | 0.00 | 513116.00 | 3921395.00 |
| 247.94 | 28459.75 | 8187.81 | 1093.80 | 1433.83 | 0.00 | 509276.00 | 3919569.00 |
| 615.44 | 25805.14 | 6885.58 | 819.73 | 885.59 | 0.00 | 506621.00 | 3918266.00 |
| 329.37 | 27473.86 | 7713.15 | 932.13 | 1067.69 | 0.00 | 508290.00 | 3919094.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 340.97 | 27364.34 | 7669.89 | 1026.79 | 1360.06 | 0.00 | 508181.00 | 3919051.00 |
| 531.19 | 26141.09 | 7065.13 | 744.69 | 667.33 | 0.00 | 506957.00 | 3918446.00 |
| 306.69 | 27709.65 | 7831.26 | 920.63 | 1019.58 | 0.00 | 508526.00 | 3919212.00 |
| 82.37 | 33983.00 | 10806.57 | 1739.30 | 2068.73 | 0.00 | 514799.00 | 3922187.00 |
| 447.96 | 26575.78 | 7279.16 | 885.58 | 1018.84 | 0.00 | 507392.00 | 3918660.00 |
| 201.48 | 29274.05 | 8588.50 | 1382.65 | 1673.58 | 0.00 | 510090.00 | 3919969.00 |
| 381.45 | 27026.11 | 7491.58 | 1009.67 | 1256.79 | 0.00 | 507842.00 | 3918872.00 |
| 264.81 | 28217.96 | 8070.91 | 1020.99 | 1271.56 | 0.00 | 509034.00 | 3919452.00 |
| 117.36 | 31857.05 | 9802.09 | 1422.16 | 1745.48 | 0.00 | 512673.00 | 3921183.00 |
| 317.45 | 27596.83 | 7772.27 | 1007.11 | 1393.09 | 0.00 | 508413.00 | 3919153.00 |
| 190.98 | 29502.36 | 8681.72 | 1240.30 | 1656.96 | 0.00 | 510319.00 | 3920063.00 |
| 255.01 | 28353.26 | 8135.08 | 855.27 | 954.77 | 0.00 | 509170.00 | 3919516.00 |
| 163.88 | 30172.74 | 9000.66 | 1121.88 | 1603.37 | 0.00 | 510989.00 | 3920381.00 |
| 130.69 | 31284.21 | 9511.61 | 1251.46 | 1819.02 | 0.00 | 512100.00 | 3920892.00 |
| 446.96 | 26582.16 | 7280.73 | 768.48 | 707.32 | 0.00 | 507398.00 | 3918662.00 |
| 66.30 | 35492.51 | 11510.27 | 1892.05 | 2334.35 | 0.00 | 516309.00 | 3922891.00 |
| 263.99 | 28227.25 | 8087.10 | 1250.52 | 1503.97 | 0.00 | 509044.00 | 3919468.00 |
| 219.20 | 28928.80 | 8404.92 | 989.42 | 1233.07 | 0.00 | 509745.00 | 3919786.00 |
| 324.45 | 27524.64 | 7747.11 | 1030.04 | 1231.45 | 0.00 | 508341.00 | 3919128.00 |
| 101.56 | 32679.40 | 10188.54 | 1883.95 | 2903.38 | 0.00 | 513496.00 | 3921569.00 |
| 93.81 | 33159.81 | 10405.17 | 1336.93 | 1815.33 | 0.00 | 513976.00 | 3921786.00 |
| 182.06 | 29707.64 | 8776.89 | 1121.96 | 1568.19 | 0.00 | 510524.00 | 3920158.00 |
| 360.25 | 27200.76 | 7581.14 | 892.46 | 1002.92 | 0.00 | 508017.00 | 3918962.00 |
| 457.95 | 26516.11 | 7251.80 | 824.74 | 826.50 | 0.00 | 507332.00 | 3918633.00 |
| 176.22 | 29850.61 | 8857.19 | 1144.93 | 1287.70 | 0.00 | 510667.00 | 3920238.00 |
| 76.49 | 34479.74 | 11021.15 | 1164.67 | 1443.01 | 0.00 | 515296.00 | 3922402.00 |
| 171.65 | 29968.89 | 8901.37 | 1238.35 | 1650.19 | 0.00 | 510785.00 | 3920282.00 |
| 482.04 | 26383.40 | 7180.45 | 928.93 | 1110.67 | 0.00 | 507200.00 | 3918561.00 |
| 583.20 | 25920.46 | 6949.98 | 786.95 | 818.10 | 0.00 | 506737.00 | 3918331.00 |
| 154.50 | 30450.71 | 9135.87 | 1375.32 | 1900.55 | 0.00 | 511267.00 | 3920517.00 |
| 288.10 | 27915.80 | 7934.62 | 921.05 | 1013.10 | 0.00 | 508732.00 | 3919315.00 |
| 208.19 | 29138.66 | 8520.88 | 1157.28 | 1319.02 | 0.00 | 509955.00 | 3919902.00 |
| 160.38 | 30273.83 | 9049.28 | 943.65 | 1184.75 | 0.00 | 511090.00 | 3920430.00 |
| 151.64 | 30542.00 | 9186.70 | 1477.49 | 1907.29 | 0.00 | 511358.00 | 3920567.00 |
| 235.22 | 28657.03 | 8279.95 | 949.82 | 1219.92 | 0.00 | 509473.00 | 3919661.00 |
| 234.14 | 28671.93 | 8283.52 | 934.21 | 1190.20 | 0.00 | 509488.00 | 3919664.00 |
| 411.09 | 26805.31 | 7394.86 | 868.62 | 885.76 | 0.00 | 507622.00 | 3918776.00 |
| 420.75 | 26751.10 | 7362.82 | 882.09 | 1021.82 | 0.00 | 507567.00 | 3918744.00 |
| 34.33 | 41193.71 | 14165.31 | 2620.95 | 3773.89 | 0.00 | 522010.00 | 3925546.00 |
| 376.81 | 27060.64 | 7518.97 | 1026.34 | 1212.52 | 0.00 | 507877.00 | 3918900.00 |
| 439.28 | 26624.93 | 7308.41 | 970.15 | 1091.52 | 0.00 | 507441.00 | 3918689.00 |
| 304.00 | 27740.64 | 7840.67 | 962.08 | 1135.01 | 0.00 | 508557.00 | 3919221.00 |
| 78.66 | 34290.98 | 10960.85 | 2255.95 | 2696.06 | 0.00 | 515107.00 | 3922342.00 |
| 203.43 | 29233.49 | 8557.89 | 935.33 | 1032.16 | 0.00 | 510050.00 | 3919939.00 |
| 417.88 | 26765.66 | 7374.62 | 972.09 | 1114.48 | 0.00 | 507582.00 | 3918755.00 |
| 150.95 | 30560.87 | 9195.79 | 1357.60 | 1646.51 | 0.00 | 511377.00 | 3920577.00 |
| 434.69 | 26656.46 | 7322.66 | 919.37 | 993.99 | 0.00 | 507473.00 | 3918703.00 |
| 136.57 | 31060.34 | 9434.45 | 1251.16 | 1527.99 | 0.00 | 511877.00 | 3920815.00 |
| 278.36 | 28040.75 | 7985.45 | 894.64 | 978.65 | 0.00 | 508857.00 | 3919366.00 |
| 160.50 | 30271.88 | 9058.44 | 1203.10 | 1423.94 | 0.00 | 511088.00 | 3920439.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 230.28 | 3568.52 | 1103.48 | 412.13 | 852.25 | **31.97** | 484385.00 | 3912484.00 |
| 627.99 | 2912.27 | 784.79 | 300.11 | 803.19 | 0.00 | 483729.00 | 3912166.00 |
| 280.52 | 3414.83 | 1033.59 | 460.53 | 778.23 | 0.00 | 484231.00 | 3912414.00 |
| 224.57 | 3583.20 | 1105.88 | 311.49 | 675.07 | 0.00 | 484399.00 | 3912487.00 |
| 339.01 | 3283.99 | 967.00 | 361.96 | 877.17 | 0.00 | 484100.00 | 3912348.00 |
| 293.11 | 3385.58 | 1019.72 | 343.86 | 742.42 | 0.00 | 484202.00 | 3912401.00 |
| 228.38 | 3576.97 | 1103.03 | 366.82 | 767.29 | 0.00 | 484393.00 | 3912484.00 |
| 321.99 | 3323.23 | 991.11 | 452.54 | 518.91 | 0.00 | 484140.00 | 3912372.00 |
| 362.48 | 3233.64 | 944.75 | 241.15 | 575.88 | 0.00 | 484050.00 | 3912326.00 |
| 1964.29 | 3438.00 | 994.73 | 431.01 | 717.46 | 0.00 | 484254.00 | 3912376.00 |
| 303.13 | 3357.19 | 1002.67 | 290.88 | 666.57 | 0.00 | 484173.00 | 3912383.00 |
| 281.29 | 3414.11 | 1030.30 | 285.77 | 771.74 | 0.00 | 484230.00 | 3912411.00 |
| 711.09 | 2859.25 | 758.61 | 430.02 | 780.50 | 0.00 | 483676.00 | 3912139.00 |
| 912.39 | 2750.37 | 697.77 | 354.51 | 644.93 | 0.00 | 483567.00 | 3912079.00 |
| 213.07 | 3627.46 | 1134.02 | 482.32 | 780.24 | 0.00 | 484444.00 | 3912515.00 |
| 122.72 | 4133.80 | 1371.54 | 345.87 | 760.86 | 0.00 | 484950.00 | 3912752.00 |
| 277.20 | 3419.79 | 1035.06 | 400.45 | 818.72 | 0.00 | 484236.00 | 3912416.00 |
| 478.84 | 3059.04 | 859.27 | 449.29 | 906.99 | 0.00 | 483875.00 | 3912240.00 |
| 291.21 | 3390.23 | 1011.69 | 316.77 | 675.56 | 0.00 | 484207.00 | 3912392.00 |
| 405.60 | 3160.34 | 911.80 | 447.21 | 729.96 | 0.00 | 483977.00 | 3912293.00 |
| 267.58 | 3453.77 | 1041.62 | 321.22 | 770.34 | 0.00 | 484270.00 | 3912422.00 |
| 134.95 | 4038.15 | 1325.64 | 295.89 | 856.63 | 0.00 | 484854.00 | 3912706.00 |
| 507.01 | 3032.77 | 850.75 | 310.53 | 438.36 | 0.00 | 483849.00 | 3912232.00 |
| 169.11 | 3824.06 | 1226.49 | 377.92 | 811.86 | 0.00 | 484640.00 | 3912607.00 |
| 197.15 | 3692.07 | 1162.36 | 375.02 | 705.57 | 0.00 | 484508.00 | 3912543.00 |
| 250.95 | 3507.78 | 1075.53 | 403.95 | 793.65 | 0.00 | 484324.00 | 3912456.00 |
| 128.09 | 4090.28 | 1352.45 | 417.25 | 803.01 | 0.00 | 484907.00 | 3912733.00 |
| 113.60 | 4215.69 | 1415.13 | 410.28 | 679.15 | 0.00 | 485032.00 | 3912796.00 |
| 275.89 | 3428.47 | 1034.52 | 366.45 | 793.48 | 0.00 | 484245.00 | 3912415.00 |
| 498.42 | 3038.70 | 850.18 | 486.69 | 746.15 | 0.00 | 483855.00 | 3912231.00 |
| 263.81 | 3461.33 | 1045.32 | 414.82 | 785.20 | 0.00 | 484278.00 | 3912426.00 |
| 144.94 | 3970.11 | 1299.54 | 444.27 | 666.74 | 0.00 | 484786.00 | 3912680.00 |
| 314.49 | 3328.79 | 990.79 | 350.97 | 842.66 | 0.00 | 484145.00 | 3912372.00 |
| 480.42 | 3061.71 | 856.31 | 303.58 | 631.54 | 0.00 | 483878.00 | 3912237.00 |
| 237.12 | 3540.80 | 1088.54 | 353.49 | 715.93 | 0.00 | 484357.00 | 3912469.00 |
| 366.72 | 3224.58 | 939.85 | 463.84 | 852.64 | 0.00 | 484041.00 | 3912321.00 |
| 166.19 | 3847.17 | 1229.37 | 317.08 | 785.40 | 0.00 | 484663.00 | 3912610.00 |
| 99.50 | 4370.97 | 1483.60 | 394.04 | 751.44 | 0.00 | 485187.00 | 3912864.00 |
| 332.33 | 3290.67 | 976.13 | 434.73 | 695.59 | 0.00 | 484107.00 | 3912357.00 |
| 161.82 | 3864.88 | 1243.22 | 421.60 | 837.08 | 0.00 | 484681.00 | 3912624.00 |
| 201.45 | 3675.14 | 1157.57 | 440.99 | 735.62 | 0.00 | 484491.00 | 3912538.00 |
| 389.67 | 3188.90 | 927.69 | 447.43 | 634.50 | 0.00 | 484005.00 | 3912308.00 |
| 214.72 | 3620.50 | 1124.57 | 421.67 | 865.01 | 0.00 | 484437.00 | 3912505.00 |
| 582.41 | 2966.67 | 801.51 | 335.61 | 698.58 | 0.00 | 483783.00 | 3912182.00 |
| 38.65 | 5746.15 | 2130.01 | 433.04 | 841.71 | 0.00 | 486562.00 | 3913511.00 |
| 489.99 | 3042.91 | 853.90 | 416.88 | 824.36 | 0.00 | 483859.00 | 3912235.00 |
| 133.15 | 4048.70 | 1334.65 | 322.21 | 736.83 | 0.00 | 484865.00 | 3912715.00 |
| 286.71 | 3396.39 | 1023.40 | 492.05 | 881.75 | 0.00 | 484213.00 | 3912404.00 |
| 67.77 | 4852.57 | 1709.37 | 363.02 | 790.78 | 0.00 | 485669.00 | 3913090.00 |
| 422.65 | 3133.92 | 897.55 | 399.56 | 709.75 | 0.00 | 483950.00 | 3912278.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 281.13 | 3412.75 | 1026.65 | 355.08 | 868.21 | 0.00 | 484229.00 | 3912407.00 |
| 529.25 | 3013.83 | 831.08 | 365.43 | 665.66 | 0.00 | 483830.00 | 3912212.00 |
| 229.45 | 3568.98 | 1099.59 | 406.11 | 773.30 | 0.00 | 484385.00 | 3912480.00 |
| 363.85 | 3236.13 | 944.66 | 325.92 | 682.05 | 0.00 | 484052.00 | 3912325.00 |
| 538.11 | 2995.59 | 824.91 | 339.93 | 807.18 | 0.00 | 483812.00 | 3912206.00 |
| 122.70 | 4135.27 | 1375.65 | 371.79 | 804.85 | 0.00 | 484952.00 | 3912756.00 |
| 334.54 | 3293.96 | 971.74 | 382.53 | 766.77 | 0.00 | 484110.00 | 3912353.00 |
| 161.77 | 3865.33 | 1243.08 | 377.10 | 761.51 | 0.00 | 484682.00 | 3912624.00 |
| 27.51 | 6418.79 | 2444.16 | 445.11 | 838.28 | 0.00 | 487235.00 | 3913825.00 |
| 400.68 | 3163.80 | 915.96 | 420.04 | 804.05 | 0.00 | 483980.00 | 3912297.00 |
| 592.19 | 2945.30 | 801.39 | 324.71 | 665.88 | 0.00 | 483762.00 | 3912182.00 |
| 90.48 | 4483.23 | 1534.20 | 399.46 | 845.98 | 0.00 | 485300.00 | 3912915.00 |
| 389.44 | 3194.44 | 920.46 | 384.89 | 767.82 | 0.00 | 484011.00 | 3912301.00 |
| 177.05 | 3791.51 | 1215.17 | 446.00 | 665.11 | 0.00 | 484608.00 | 3912596.00 |
| 345.66 | 3267.93 | 961.37 | 382.97 | 716.30 | 0.00 | 484084.00 | 3912342.00 |
| 358.03 | 3248.18 | 950.75 | 448.89 | 807.32 | 0.00 | 484064.00 | 3912332.00 |
| 320.66 | 3322.59 | 988.29 | 318.63 | 604.48 | 0.00 | 484139.00 | 3912369.00 |
| 236.54 | 3541.95 | 1096.27 | 388.42 | 705.41 | 0.00 | 484358.00 | 3912477.00 |
| 51.82 | 5253.24 | 1897.89 | 359.52 | 889.52 | 0.00 | 486070.00 | 3913279.00 |
| 252.87 | 3492.12 | 1066.48 | 334.60 | 774.77 | 0.00 | 484308.00 | 3912447.00 |
| 235.02 | 3549.76 | 1085.79 | 378.77 | 904.24 | 0.00 | 484366.00 | 3912467.00 |
| 736.66 | 2840.40 | 746.79 | 299.05 | 689.13 | 0.00 | 483657.00 | 3912128.00 |
| 213.31 | 3628.76 | 1130.09 | 404.01 | 942.79 | 0.00 | 484445.00 | 3912511.00 |
| 106.25 | 4292.49 | 1444.09 | 362.52 | 819.97 | 0.00 | 485109.00 | 3912825.00 |
| 42.59 | 5574.64 | 2045.99 | 416.54 | 759.49 | 0.00 | 486391.00 | 3913427.00 |
| 189.17 | 3731.68 | 1181.02 | 360.53 | 726.21 | 0.00 | 484548.00 | 3912562.00 |
| 221.91 | 3591.71 | 1113.53 | 440.64 | 847.45 | 0.00 | 484408.00 | 3912494.00 |
| 192.92 | 3712.27 | 1169.48 | 417.20 | 917.37 | 0.00 | 484529.00 | 3912550.00 |
| 431.95 | 3137.35 | 889.79 | 365.00 | 840.89 | 0.00 | 483954.00 | 3912271.00 |
| 28.10 | 6371.53 | 2419.15 | 447.29 | 781.30 | 0.00 | 487188.00 | 3913800.00 |
| 83.65 | 4580.34 | 1574.07 | 374.40 | 858.80 | 0.00 | 485397.00 | 3912955.00 |
| 360.92 | 3244.34 | 946.82 | 376.41 | 791.68 | 0.00 | 484061.00 | 3912328.00 |
| 184.56 | 3748.42 | 1188.58 | 401.75 | 825.95 | 0.00 | 484565.00 | 3912569.00 |
| 111.60 | 4240.42 | 1421.20 | 364.11 | 673.28 | 0.00 | 485057.00 | 3912802.00 |
| 103.68 | 4315.05 | 1458.82 | 389.63 | 897.29 | 0.00 | 485131.00 | 3912840.00 |
| 530.85 | 3012.31 | 831.27 | 280.25 | 708.78 | 0.00 | 483829.00 | 3912212.00 |
| 555.80 | 2970.21 | 818.68 | 398.98 | 751.67 | 0.00 | 483786.00 | 3912199.00 |
| 229.48 | 3568.09 | 1108.52 | 448.38 | 707.58 | 0.00 | 484384.00 | 3912489.00 |
| 400.28 | 3180.18 | 915.30 | 396.30 | 734.73 | 0.00 | 483996.00 | 3912296.00 |
| 416.47 | 3143.17 | 905.92 | 383.18 | 595.50 | 0.00 | 483959.00 | 3912287.00 |
| 327.11 | 3310.73 | 979.74 | 361.92 | 691.54 | 0.00 | 484127.00 | 3912361.00 |
| 333.60 | 3292.52 | 972.75 | 406.64 | 753.03 | 0.00 | 484109.00 | 3912354.00 |
| 136.54 | 4026.47 | 1320.21 | 379.09 | 808.18 | 0.00 | 484843.00 | 3912701.00 |
| 291.02 | 3386.08 | 1023.62 | 451.72 | 708.87 | 0.00 | 484202.00 | 3912404.00 |
| 277.16 | 3431.64 | 1030.95 | 356.27 | 773.86 | 0.00 | 484248.00 | 3912412.00 |
| 211.86 | 3638.66 | 1139.92 | 366.30 | 552.39 | 0.00 | 484455.00 | 3912521.00 |
| 368.19 | 3233.83 | 940.00 | 297.72 | 722.25 | 0.00 | 484050.00 | 3912321.00 |
| 223.97 | 3585.07 | 1117.20 | 368.45 | 678.87 | 0.00 | 484401.00 | 3912498.00 |
| 234.25 | 3544.63 | 1098.07 | 380.89 | 675.57 | 0.00 | 484361.00 | 3912479.00 |
| 153.88 | 3907.59 | 1269.92 | 411.67 | 758.30 | 0.00 | 484724.00 | 3912651.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 139.05 | 87634.25 | 25058.44 | 2113.32 | 2307.98 | **109.19** | 568451.00 | 3936439.00 |
| 588.19 | 76573.63 | 19782.38 | 1454.53 | 962.53 | 0.00 | 557390.00 | 3931163.00 |
| 73.04 | 96016.97 | 29008.61 | 2682.52 | 3101.64 | 0.00 | 576833.00 | 3940389.00 |
| 244.71 | 82250.11 | 22531.83 | 1705.87 | 1502.99 | 0.00 | 563066.00 | 3933913.00 |
| 239.85 | 82415.07 | 22601.44 | 1729.81 | 1542.83 | 0.00 | 563231.00 | 3933982.00 |
| 240.38 | 82397.80 | 22592.73 | 1773.88 | 1682.29 | 0.00 | 563214.00 | 3933974.00 |
| 86.83 | 93489.51 | 27816.12 | 2453.63 | 2734.49 | 0.00 | 574306.00 | 3939197.00 |
| 156.79 | 86353.91 | 24459.90 | 1919.24 | 1899.14 | 0.00 | 567170.00 | 3935841.00 |
| 208.85 | 83603.72 | 23174.18 | 1790.38 | 1619.12 | 0.00 | 564420.00 | 3934555.00 |
| 324.94 | 80099.46 | 21498.57 | 1590.87 | 1241.12 | 0.00 | 560916.00 | 3932879.00 |
| 186.34 | 84649.93 | 23656.73 | 1906.54 | 1948.33 | 0.00 | 565466.00 | 3935038.00 |
| 38.05 | 107790.00 | 34509.73 | 3902.64 | 4877.66 | 0.00 | 588606.00 | 3945891.00 |
| 386.46 | 78941.70 | 20941.19 | 1601.62 | 1347.27 | 0.00 | 559758.00 | 3932322.00 |
| 271.14 | 81434.15 | 22140.27 | 1638.06 | 1325.11 | 0.00 | 562250.00 | 3933521.00 |
| 247.07 | 82171.75 | 22490.22 | 1707.97 | 1474.23 | 0.00 | 562988.00 | 3933871.00 |
| 169.64 | 85559.50 | 24082.21 | 1926.61 | 1954.12 | 0.00 | 566376.00 | 3935463.00 |
| 304.86 | 80553.36 | 21722.16 | 1656.03 | 1433.73 | 0.00 | 561370.00 | 3933103.00 |
| 289.37 | 80938.04 | 21908.48 | 1625.18 | 1323.23 | 0.00 | 561754.00 | 3933289.00 |
| 263.71 | 81651.37 | 22236.83 | 1648.23 | 1365.69 | 0.00 | 562468.00 | 3933618.00 |
| 320.77 | 80189.28 | 21539.21 | 1596.48 | 1299.01 | 0.00 | 561006.00 | 3932920.00 |
| 597.50 | 76496.09 | 19744.54 | 1454.36 | 964.89 | 0.00 | 557312.00 | 3931125.00 |
| 224.06 | 82988.85 | 22878.04 | 1717.49 | 1502.29 | 0.00 | 563805.00 | 3934259.00 |
| 251.38 | 82032.79 | 22417.67 | 1642.32 | 1340.35 | 0.00 | 562849.00 | 3933798.00 |
| 357.72 | 79441.93 | 21181.25 | 1557.57 | 1192.85 | 0.00 | 560258.00 | 3932562.00 |
| 296.44 | 80759.12 | 21814.38 | 1533.80 | 1039.75 | 0.00 | 561575.00 | 3933195.00 |
| 128.75 | 88496.98 | 25474.94 | 1908.65 | 1766.20 | 0.00 | 569313.00 | 3936856.00 |
| 202.15 | 83896.67 | 23308.48 | 1706.70 | 1417.42 | 0.00 | 564713.00 | 3934689.00 |
| 256.78 | 81861.70 | 22335.36 | 1635.40 | 1332.71 | 0.00 | 562678.00 | 3933716.00 |
| 122.04 | 89118.21 | 25767.23 | 2169.89 | 2331.43 | 0.00 | 569934.00 | 3937148.00 |
| 142.51 | 87365.81 | 24943.08 | 1882.80 | 1693.83 | 0.00 | 568182.00 | 3936324.00 |
| 138.02 | 87715.21 | 25102.35 | 2033.38 | 2070.89 | 0.00 | 568531.00 | 3936483.00 |
| 393.21 | 78831.41 | 20889.82 | 1557.56 | 1207.76 | 0.00 | 559648.00 | 3932271.00 |
| 304.41 | 80566.05 | 21727.54 | 1684.35 | 1481.55 | 0.00 | 561382.00 | 3933108.00 |
| 433.73 | 78229.75 | 20598.18 | 1490.34 | 1030.18 | 0.00 | 559046.00 | 3931979.00 |
| 281.11 | 81156.46 | 22013.45 | 1647.40 | 1349.66 | 0.00 | 561973.00 | 3933394.00 |
| 466.52 | 77804.77 | 20387.39 | 1499.71 | 1080.14 | 0.00 | 558621.00 | 3931768.00 |
| 312.07 | 80385.50 | 21632.19 | 1565.67 | 1185.83 | 0.00 | 561202.00 | 3933013.00 |
| 372.93 | 79170.69 | 21052.47 | 1519.66 | 1065.41 | 0.00 | 559987.00 | 3932433.00 |
| 566.64 | 76758.59 | 19872.27 | 1448.80 | 947.85 | 0.00 | 557575.00 | 3931253.00 |
| 419.69 | 78426.76 | 20698.31 | 1544.17 | 1179.47 | 0.00 | 559243.00 | 3932079.00 |
| 575.79 | 76678.59 | 19828.15 | 1424.17 | 858.83 | 0.00 | 557495.00 | 3931209.00 |
| 65.87 | 97633.25 | 29763.80 | 2726.51 | 3004.42 | 0.00 | 578450.00 | 3941145.00 |
| 208.67 | 83611.44 | 23171.01 | 1732.36 | 1503.10 | 0.00 | 564428.00 | 3934552.00 |
| 225.09 | 82950.97 | 22854.68 | 1650.55 | 1309.01 | 0.00 | 563767.00 | 3934235.00 |
| 213.09 | 83426.84 | 23084.37 | 1709.61 | 1423.73 | 0.00 | 564243.00 | 3934465.00 |
| 872.61 | 74873.01 | 18910.32 | 1382.89 | 740.56 | 0.00 | 555689.00 | 3930291.00 |
| 134.98 | 87963.37 | 25215.57 | 2242.12 | 2662.15 | 0.00 | 568780.00 | 3936596.00 |
| 222.82 | 83037.87 | 22895.02 | 1759.20 | 1612.32 | 0.00 | 563854.00 | 3934276.00 |
| 377.33 | 79093.71 | 21013.58 | 1601.41 | 1361.98 | 0.00 | 559910.00 | 3932394.00 |
| 458.17 | 77907.50 | 20439.80 | 1524.65 | 1152.50 | 0.00 | 558724.00 | 3931821.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 277.10 | 81267.04 | 22059.82 | 1678.51 | 1443.55 | 0.00 | 562083.00 | 3933441.00 |
| 190.93 | 84421.84 | 23554.58 | 1757.10 | 1528.37 | 0.00 | 565238.00 | 3934935.00 |
| 165.62 | 85798.32 | 24202.20 | 1888.15 | 1823.26 | 0.00 | 566615.00 | 3935583.00 |
| 154.53 | 86503.74 | 24537.62 | 1933.69 | 1893.04 | 0.00 | 567320.00 | 3935918.00 |
| 95.28 | 92221.52 | 27224.39 | 2233.51 | 2299.80 | 0.00 | 573038.00 | 3938605.00 |
| 150.55 | 86777.88 | 24677.00 | 2130.30 | 2224.09 | 0.00 | 567594.00 | 3936058.00 |
| 102.40 | 91277.89 | 26788.83 | 2251.69 | 2365.38 | 0.00 | 572094.00 | 3938170.00 |
| 242.59 | 82322.08 | 22565.16 | 1778.43 | 1692.96 | 0.00 | 563138.00 | 3933946.00 |
| 226.49 | 82897.43 | 22836.78 | 1758.91 | 1595.89 | 0.00 | 563714.00 | 3934218.00 |
| 201.13 | 83943.62 | 23322.84 | 1751.02 | 1531.90 | 0.00 | 564760.00 | 3934704.00 |
| 42.51 | 105508.86 | 33426.53 | 2838.48 | 3218.88 | 0.00 | 586325.00 | 3944807.00 |
| 397.82 | 78756.99 | 20854.14 | 1545.44 | 1214.92 | 0.00 | 559573.00 | 3932235.00 |
| 404.92 | 78646.53 | 20792.56 | 1521.15 | 1143.77 | 0.00 | 559463.00 | 3932173.00 |
| 173.78 | 85321.73 | 23979.82 | 1848.48 | 1704.50 | 0.00 | 566138.00 | 3935361.00 |
| 73.74 | 95872.51 | 28939.17 | 2536.49 | 2736.58 | 0.00 | 576689.00 | 3940320.00 |
| 203.17 | 83851.73 | 23290.01 | 1838.89 | 1767.86 | 0.00 | 564668.00 | 3934671.00 |
| 243.60 | 82289.49 | 22541.86 | 1714.94 | 1514.58 | 0.00 | 563106.00 | 3933923.00 |
| 281.05 | 81158.77 | 22006.52 | 1716.06 | 1544.26 | 0.00 | 561975.00 | 3933387.00 |
| 257.52 | 81840.28 | 22334.17 | 1693.14 | 1483.40 | 0.00 | 562657.00 | 3933715.00 |
| 553.76 | 76874.94 | 19934.61 | 1484.72 | 1053.57 | 0.00 | 557691.00 | 3931315.00 |
| 236.76 | 82523.40 | 22648.90 | 1729.50 | 1540.88 | 0.00 | 563340.00 | 3934030.00 |
| 736.35 | 75551.79 | 19270.04 | 1421.63 | 874.15 | 0.00 | 556368.00 | 3930651.00 |
| 76.97 | 95226.92 | 28622.46 | 2472.31 | 2810.60 | 0.00 | 576043.00 | 3940003.00 |
| 314.69 | 80325.43 | 21605.06 | 1605.57 | 1287.51 | 0.00 | 561142.00 | 3932986.00 |
| 259.48 | 81778.97 | 22295.80 | 1644.68 | 1338.14 | 0.00 | 562595.00 | 3933677.00 |
| 149.86 | 86826.00 | 24698.44 | 1873.48 | 1657.95 | 0.00 | 567642.00 | 3936079.00 |
| 152.56 | 86637.38 | 24607.67 | 2090.46 | 2152.30 | 0.00 | 567454.00 | 3935988.00 |
| 125.78 | 88765.04 | 25607.59 | 2266.78 | 2511.89 | 0.00 | 569581.00 | 3936988.00 |
| 614.76 | 76357.58 | 19677.11 | 1434.39 | 897.00 | 0.00 | 557174.00 | 3931058.00 |
| 114.19 | 89914.48 | 26129.87 | 2148.68 | 2317.90 | 0.00 | 570731.00 | 3937511.00 |
| 459.37 | 77893.82 | 20432.24 | 1497.08 | 1055.60 | 0.00 | 558710.00 | 3931813.00 |
| 246.72 | 82182.79 | 22491.81 | 1668.95 | 1407.84 | 0.00 | 562999.00 | 3933873.00 |
| 219.10 | 83183.31 | 22971.86 | 1796.74 | 1667.58 | 0.00 | 564000.00 | 3934353.00 |
| 137.20 | 87782.22 | 25137.34 | 1993.16 | 1973.47 | 0.00 | 568599.00 | 3936518.00 |
| 223.23 | 83021.93 | 22902.17 | 1774.09 | 1613.71 | 0.00 | 563838.00 | 3934283.00 |
| 329.27 | 80006.51 | 21454.15 | 1606.68 | 1320.06 | 0.00 | 560823.00 | 3932835.00 |
| 632.19 | 76224.68 | 19610.40 | 1404.37 | 774.15 | 0.00 | 557041.00 | 3930991.00 |
| 193.67 | 84290.27 | 23490.19 | 1745.10 | 1500.29 | 0.00 | 565107.00 | 3934871.00 |
| 266.87 | 81557.22 | 22191.28 | 1609.91 | 1261.19 | 0.00 | 562373.00 | 3933572.00 |
| 250.33 | 82066.80 | 22439.77 | 1722.53 | 1607.47 | 0.00 | 562883.00 | 3933821.00 |
| 304.23 | 80569.79 | 21713.53 | 1671.20 | 1493.68 | 0.00 | 561386.00 | 3933094.00 |
| 35.54 | 109261.51 | 35174.78 | 3154.16 | 3639.27 | 0.00 | 590078.00 | 3946556.00 |
| 162.95 | 85958.55 | 24278.71 | 1932.54 | 1935.85 | 0.00 | 566775.00 | 3935659.00 |
| 530.28 | 77103.86 | 20046.50 | 1452.33 | 935.81 | 0.00 | 557920.00 | 3931427.00 |
| 363.16 | 79342.70 | 21134.89 | 1614.17 | 1368.46 | 0.00 | 560159.00 | 3932516.00 |
| 204.88 | 83775.86 | 23246.13 | 1747.63 | 1549.45 | 0.00 | 564592.00 | 3934627.00 |
| 316.93 | 80276.38 | 21580.15 | 1657.34 | 1439.36 | 0.00 | 561093.00 | 3932961.00 |
| 423.51 | 78373.78 | 20662.01 | 1527.99 | 1145.94 | 0.00 | 559190.00 | 3932043.00 |
| 122.25 | 89098.05 | 25753.46 | 2195.62 | 2392.91 | 0.00 | 569914.00 | 3937134.00 |
| 153.05 | 86603.50 | 24577.01 | 1974.63 | 2102.91 | 0.00 | 567420.00 | 3935958.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 227.70 | 70178.64 | 19501.11 | 1645.53 | 1637.86 | **103.10** | 550995.00 | 3930882.00 |
| 362.44 | 67059.85 | 18011.43 | 1403.46 | 1095.63 | 0.00 | 547876.00 | 3929392.00 |
| 308.33 | 68057.06 | 18490.18 | 1465.56 | 1256.52 | 0.00 | 548873.00 | 3929871.00 |
| 119.64 | 75978.22 | 22247.50 | 1951.61 | 2035.13 | 0.00 | 556795.00 | 3933628.00 |
| 238.49 | 69832.29 | 19331.53 | 1542.39 | 1422.56 | 0.00 | 550649.00 | 3930712.00 |
| 201.07 | 71156.03 | 19963.22 | 1602.26 | 1457.21 | 0.00 | 551972.00 | 3931344.00 |
| 552.23 | 64863.85 | 16932.25 | 1276.41 | 766.39 | 0.00 | 545680.00 | 3928313.00 |
| 219.21 | 70471.75 | 19641.68 | 1656.01 | 1665.54 | 0.00 | 551288.00 | 3931022.00 |
| 312.53 | 67969.53 | 18442.76 | 1412.16 | 1128.09 | 0.00 | 548786.00 | 3929824.00 |
| 106.54 | 77243.95 | 22827.29 | 1820.07 | 1716.84 | 0.00 | 558060.00 | 3934208.00 |
| 279.06 | 68720.52 | 18804.04 | 1474.79 | 1254.83 | 0.00 | 549537.00 | 3930185.00 |
| 393.10 | 66594.40 | 17783.87 | 1407.00 | 1134.48 | 0.00 | 547411.00 | 3929165.00 |
| 419.10 | 66242.95 | 17613.03 | 1332.55 | 907.55 | 0.00 | 547059.00 | 3928994.00 |
| 90.03 | 79219.63 | 23775.02 | 2182.25 | 2347.87 | 0.00 | 560036.00 | 3935156.00 |
| 270.76 | 68925.76 | 18908.35 | 1530.54 | 1370.10 | 0.00 | 549742.00 | 3930289.00 |
| 132.69 | 74908.93 | 21732.85 | 2007.79 | 2265.84 | 0.00 | 555725.00 | 3933114.00 |
| 58.71 | 85064.15 | 26497.93 | 2478.21 | 2889.01 | 0.00 | 565880.00 | 3937879.00 |
| 184.92 | 71847.93 | 20296.21 | 1675.10 | 1574.48 | 0.00 | 552664.00 | 3931677.00 |
| 322.38 | 67774.05 | 18353.08 | 1424.58 | 1132.71 | 0.00 | 548590.00 | 3929734.00 |
| 61.07 | 84471.68 | 26231.17 | 2419.19 | 2715.15 | 0.00 | 565288.00 | 3937612.00 |
| 184.32 | 71875.28 | 20311.68 | 1624.92 | 1480.38 | 0.00 | 552692.00 | 3931692.00 |
| 220.65 | 70419.82 | 19619.55 | 1651.40 | 1625.14 | 0.00 | 551236.00 | 3931000.00 |
| 409.19 | 66371.84 | 17674.28 | 1367.61 | 1028.18 | 0.00 | 547188.00 | 3929055.00 |
| 99.10 | 78073.09 | 23223.00 | 2125.59 | 2399.33 | 0.00 | 558889.00 | 3934604.00 |
| 215.26 | 70611.15 | 19703.17 | 1556.70 | 1361.11 | 0.00 | 551427.00 | 3931084.00 |
| 213.03 | 70694.40 | 19744.87 | 1622.47 | 1520.38 | 0.00 | 551511.00 | 3931126.00 |
| 697.61 | 63879.01 | 16441.23 | 1325.84 | 967.80 | 0.00 | 544695.00 | 3927822.00 |
| 257.43 | 69276.82 | 19072.51 | 1507.35 | 1293.70 | 0.00 | 550093.00 | 3930453.00 |
| 83.63 | 80138.44 | 24170.03 | 2116.06 | 2325.19 | 0.00 | 560955.00 | 3935551.00 |
| 82.87 | 80256.82 | 24236.44 | 2236.13 | 2552.29 | 0.00 | 561073.00 | 3935617.00 |
| 340.40 | 67437.92 | 18196.34 | 1417.38 | 1116.72 | 0.00 | 548254.00 | 3929577.00 |
| 183.15 | 71930.45 | 20331.02 | 1684.00 | 1658.97 | 0.00 | 552747.00 | 3931712.00 |
| 213.97 | 70660.24 | 19727.81 | 1604.68 | 1481.64 | 0.00 | 551477.00 | 3931109.00 |
| 252.16 | 69428.57 | 19143.78 | 1513.66 | 1296.27 | 0.00 | 550245.00 | 3930525.00 |
| 148.72 | 73795.61 | 21212.27 | 1782.40 | 1772.17 | 0.00 | 554612.00 | 3932593.00 |
| 209.31 | 70833.29 | 19801.45 | 1708.32 | 1747.46 | 0.00 | 551650.00 | 3931182.00 |
| 111.60 | 76728.55 | 22589.19 | 2061.66 | 2363.84 | 0.00 | 557545.00 | 3933970.00 |
| 149.93 | 73719.19 | 21165.26 | 1726.11 | 1697.11 | 0.00 | 554535.00 | 3932546.00 |
| 393.33 | 66591.51 | 17781.87 | 1428.34 | 1223.82 | 0.00 | 547408.00 | 3929163.00 |
| 272.29 | 68885.44 | 18883.16 | 1505.00 | 1336.77 | 0.00 | 549702.00 | 3930264.00 |
| 452.19 | 65837.31 | 17414.03 | 1341.24 | 960.63 | 0.00 | 546654.00 | 3928795.00 |
| 44.55 | 89560.50 | 28602.40 | 2885.77 | 3406.64 | 0.00 | 570377.00 | 3939983.00 |
| 111.73 | 76715.17 | 22584.09 | 2058.03 | 2231.37 | 0.00 | 557531.00 | 3933965.00 |
| 331.61 | 67597.42 | 18272.57 | 1470.16 | 1261.20 | 0.00 | 548414.00 | 3929653.00 |
| 103.92 | 77526.70 | 22960.28 | 2106.24 | 2316.49 | 0.00 | 558343.00 | 3934341.00 |
| 381.25 | 66768.47 | 17876.99 | 1399.85 | 1084.57 | 0.00 | 547585.00 | 3929258.00 |
| 242.70 | 69701.95 | 19268.51 | 1510.23 | 1328.13 | 0.00 | 550518.00 | 3930649.00 |
| 214.05 | 70653.56 | 19729.71 | 1598.85 | 1458.45 | 0.00 | 551470.00 | 3931110.00 |
| 246.99 | 69575.29 | 19216.41 | 1592.98 | 1485.24 | 0.00 | 550392.00 | 3930597.00 |

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|---|---|---|---|---|---|---|---|
| 393.06 | 66594.56 | 17782.20 | 1379.77 | 1058.23 | 0.00 | 547411.00 | 3929163.00 |
| 178.90 | 72133.18 | 20424.24 | 1575.74 | 1359.47 | 0.00 | 552949.00 | 3931805.00 |
| 202.06 | 71114.55 | 19933.66 | 1530.97 | 1314.95 | 0.00 | 551931.00 | 3931314.00 |
| 178.33 | 72157.82 | 20447.89 | 1851.34 | 1994.10 | 0.00 | 552974.00 | 3931829.00 |
| 291.27 | 68429.95 | 18671.82 | 1430.44 | 1117.64 | 0.00 | 549246.00 | 3930053.00 |
| 412.13 | 66334.72 | 17658.07 | 1391.21 | 1098.43 | 0.00 | 547151.00 | 3929039.00 |
| 329.72 | 67633.38 | 18288.85 | 1541.07 | 1465.43 | 0.00 | 548450.00 | 3929670.00 |
| 454.83 | 65808.53 | 17409.54 | 1386.53 | 1095.99 | 0.00 | 546625.00 | 3928790.00 |
| 95.95 | 78452.81 | 23392.14 | 2174.82 | 2511.38 | 0.00 | 559269.00 | 3934773.00 |
| 251.19 | 69454.75 | 19163.43 | 1524.90 | 1329.05 | 0.00 | 550271.00 | 3930544.00 |
| 378.79 | 66805.79 | 17883.16 | 1413.62 | 1146.88 | 0.00 | 547622.00 | 3929264.00 |
| 338.60 | 67469.79 | 18205.28 | 1485.37 | 1340.09 | 0.00 | 548286.00 | 3929586.00 |
| 138.95 | 74450.92 | 21519.16 | 1846.04 | 1910.28 | 0.00 | 555267.00 | 3932900.00 |
| 543.29 | 64940.12 | 16971.84 | 1296.18 | 835.65 | 0.00 | 545756.00 | 3928353.00 |
| 252.76 | 69409.77 | 19132.82 | 1514.48 | 1309.97 | 0.00 | 550226.00 | 3930514.00 |
| 558.10 | 64816.10 | 16915.06 | 1304.00 | 872.56 | 0.00 | 545632.00 | 3928296.00 |
| 314.32 | 67935.79 | 18431.11 | 1481.85 | 1291.63 | 0.00 | 548752.00 | 3929812.00 |
| 111.07 | 76780.51 | 22609.63 | 1893.99 | 1877.58 | 0.00 | 557597.00 | 3933990.00 |
| 104.46 | 77467.09 | 22933.87 | 1898.09 | 1921.36 | 0.00 | 558283.00 | 3934315.00 |
| 95.83 | 78467.18 | 23410.17 | 2084.39 | 2239.81 | 0.00 | 559283.00 | 3934791.00 |
| 202.14 | 71113.65 | 19942.68 | 1550.72 | 1387.80 | 0.00 | 551930.00 | 3931323.00 |
| 351.43 | 67244.37 | 18096.73 | 1440.34 | 1193.61 | 0.00 | 548061.00 | 3929478.00 |
| 202.83 | 71084.71 | 19946.37 | 1612.79 | 1442.88 | 0.00 | 551901.00 | 3931327.00 |
| 226.71 | 70213.99 | 19514.13 | 1551.04 | 1399.78 | 0.00 | 551030.00 | 3930895.00 |
| 401.38 | 66479.45 | 17727.93 | 1414.77 | 1181.99 | 0.00 | 547296.00 | 3929109.00 |
| 68.28 | 82854.55 | 25459.70 | 2684.79 | 3252.59 | 0.00 | 563671.00 | 3936840.00 |
| 188.59 | 71682.15 | 20213.54 | 1668.62 | 1609.60 | 0.00 | 552498.00 | 3931594.00 |
| 316.24 | 67895.61 | 18408.23 | 1423.39 | 1128.81 | 0.00 | 548712.00 | 3929789.00 |
| 848.01 | 63165.51 | 16069.28 | 1252.24 | 728.08 | 0.00 | 543982.00 | 3927450.00 |
| 178.01 | 72173.88 | 20448.67 | 1724.72 | 1815.52 | 0.00 | 552990.00 | 3931829.00 |
| 355.82 | 67170.83 | 18058.56 | 1470.89 | 1333.72 | 0.00 | 547987.00 | 3929439.00 |
| 335.21 | 67528.83 | 18237.70 | 1461.06 | 1233.31 | 0.00 | 548345.00 | 3929618.00 |
| 31.62 | 96084.69 | 31607.44 | 3210.42 | 4352.48 | 0.00 | 576901.00 | 3942988.00 |
| 186.07 | 71795.74 | 20259.75 | 1678.68 | 1636.52 | 0.00 | 552612.00 | 3931641.00 |
| 266.69 | 69029.33 | 18951.34 | 1479.46 | 1232.49 | 0.00 | 549846.00 | 3930332.00 |
| 285.57 | 68560.79 | 18734.43 | 1541.61 | 1442.46 | 0.00 | 549377.00 | 3930115.00 |
| 262.59 | 69139.28 | 19009.26 | 1539.28 | 1410.19 | 0.00 | 549956.00 | 3930390.00 |
| 220.62 | 70421.05 | 19622.98 | 1521.62 | 1270.73 | 0.00 | 551237.00 | 3931004.00 |
| 147.85 | 73852.27 | 21241.41 | 1768.88 | 1743.70 | 0.00 | 554669.00 | 3932622.00 |
| 307.25 | 68080.27 | 18503.93 | 1413.00 | 1094.14 | 0.00 | 548897.00 | 3929885.00 |
| 295.02 | 68344.59 | 18635.92 | 1551.65 | 1401.49 | 0.00 | 549161.00 | 3930017.00 |
| 171.63 | 72491.70 | 20589.61 | 1670.88 | 1640.47 | 0.00 | 553308.00 | 3931970.00 |
| 162.07 | 72996.09 | 20834.85 | 1802.69 | 1830.41 | 0.00 | 553812.00 | 3932216.00 |
| 175.10 | 72316.80 | 20513.71 | 1719.94 | 1723.58 | 0.00 | 553133.00 | 3931894.00 |
| 344.04 | 67371.89 | 18165.59 | 1569.52 | 1506.55 | 0.00 | 548188.00 | 3929546.00 |
| 320.04 | 67820.28 | 18380.85 | 1478.52 | 1248.99 | 0.00 | 548637.00 | 3929762.00 |
| 248.20 | 69541.32 | 19194.96 | 1479.80 | 1178.09 | 0.00 | 550358.00 | 3930576.00 |
| 361.27 | 67081.03 | 18019.47 | 1445.77 | 1221.65 | 0.00 | 547897.00 | 3929400.00 |
| 522.63 | 65122.05 | 17059.98 | 1364.23 | 1066.33 | 0.00 | 545938.00 | 3928441.00 |
| 251.48 | 69447.28 | 19155.36 | 1571.85 | 1417.12 | 0.00 | 550264.00 | 3930536.00 |
| 161.49 | 73031.31 | 20848.58 | 1688.06 | 1635.24 | 0.00 | 553848.00 | 3932229.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 444.30 | 4624.27 | 1316.68 | 542.50 | 721.36 | **36.66** | 485441.00 | 3912697.00 |
| 358.11 | 4803.65 | 1393.05 | 523.22 | 1091.12 | 0.00 | 485620.00 | 3912774.00 |
| 388.63 | 4735.31 | 1370.48 | 665.48 | 920.73 | 0.00 | 485552.00 | 3912751.00 |
| 336.69 | 4852.49 | 1424.11 | 591.02 | 814.42 | 0.00 | 485669.00 | 3912805.00 |
| 133.56 | 5843.09 | 1888.00 | 587.95 | 1154.78 | 0.00 | 486659.00 | 3913269.00 |
| 312.71 | 4919.13 | 1447.87 | 488.30 | 1091.83 | 0.00 | 485735.00 | 3912829.00 |
| 306.22 | 4935.99 | 1461.03 | 517.99 | 768.88 | 0.00 | 485752.00 | 3912842.00 |
| 309.86 | 4926.20 | 1456.38 | 506.37 | 1205.53 | 0.00 | 485742.00 | 3912837.00 |
| 355.21 | 4797.54 | 1396.12 | 566.57 | 1077.87 | 0.00 | 485614.00 | 3912777.00 |
| 263.12 | 5070.55 | 1529.07 | 661.81 | 1254.59 | 0.00 | 485887.00 | 3912910.00 |
| 320.95 | 4895.90 | 1436.02 | 492.36 | 1022.27 | 0.00 | 485712.00 | 3912817.00 |
| 114.05 | 6057.83 | 1983.02 | 690.74 | 1208.10 | 0.00 | 486874.00 | 3913364.00 |
| 502.20 | 4540.61 | 1269.84 | 635.61 | 941.12 | 0.00 | 485357.00 | 3912651.00 |
| 225.50 | 5223.03 | 1605.23 | 484.78 | 1061.88 | 0.00 | 486039.00 | 3912986.00 |
| 280.20 | 5019.01 | 1491.89 | 650.79 | 1101.18 | 0.00 | 485835.00 | 3912873.00 |
| 143.37 | 5749.03 | 1844.46 | 609.41 | 1122.44 | 0.00 | 486565.00 | 3913225.00 |
| 398.35 | 4721.81 | 1350.15 | 440.71 | 928.00 | 0.00 | 485538.00 | 3912731.00 |
| 273.22 | 5043.18 | 1515.24 | 593.47 | 1143.14 | 0.00 | 485859.00 | 3912896.00 |
| 709.82 | 4332.50 | 1151.82 | 263.96 | 662.78 | 0.00 | 485149.00 | 3912533.00 |
| 414.54 | 4681.48 | 1337.13 | 466.84 | 779.03 | 0.00 | 485498.00 | 3912718.00 |
| 56.86 | 7234.11 | 2547.98 | 673.26 | 1226.35 | 0.00 | 488050.00 | 3913929.00 |
| 151.13 | 5686.68 | 1818.48 | 527.19 | 1084.25 | 0.00 | 486503.00 | 3913199.00 |
| 369.26 | 4778.34 | 1381.50 | 451.57 | 777.17 | 0.00 | 485595.00 | 3912762.00 |
| 486.83 | 4555.29 | 1275.74 | 332.08 | 747.04 | 0.00 | 485372.00 | 3912657.00 |
| 443.19 | 4627.43 | 1315.24 | 599.16 | 892.02 | 0.00 | 485444.00 | 3912696.00 |
| 2487.52 | 4980.04 | 1384.46 | 375.37 | 452.71 | 0.00 | 485796.00 | 3912765.00 |
| 503.31 | 4534.58 | 1262.96 | 597.41 | 974.69 | 0.00 | 485351.00 | 3912644.00 |
| 138.75 | 5794.34 | 1869.63 | 625.64 | 1124.21 | 0.00 | 486611.00 | 3913250.00 |
| 105.60 | 6167.16 | 2036.63 | 406.72 | 978.87 | 0.00 | 486983.00 | 3913417.00 |
| 183.50 | 5454.25 | 1711.88 | 654.43 | 1007.40 | 0.00 | 486271.00 | 3913093.00 |
| 244.47 | 5145.58 | 1560.10 | 499.20 | 938.18 | 0.00 | 485962.00 | 3912941.00 |
| 56.31 | 7256.94 | 2548.37 | 620.08 | 1302.86 | 0.00 | 488073.00 | 3913929.00 |
| 100.51 | 6246.43 | 2070.61 | 554.91 | 1184.26 | 0.00 | 487063.00 | 3913451.00 |
| 408.43 | 4694.48 | 1343.93 | 493.73 | 890.42 | 0.00 | 485511.00 | 3912725.00 |
| 391.93 | 4733.49 | 1359.43 | 476.38 | 932.62 | 0.00 | 485550.00 | 3912740.00 |
| 479.01 | 4570.23 | 1281.30 | 493.91 | 831.86 | 0.00 | 485387.00 | 3912662.00 |
| 428.29 | 4656.08 | 1323.14 | 602.38 | 1222.50 | 0.00 | 485472.00 | 3912704.00 |
| 400.39 | 4705.31 | 1349.06 | 656.61 | 1158.58 | 0.00 | 485522.00 | 3912730.00 |
| 559.51 | 4458.20 | 1232.76 | 552.72 | 951.91 | 0.00 | 485274.00 | 3912614.00 |
| 229.24 | 5211.53 | 1590.32 | 605.95 | 1264.94 | 0.00 | 486028.00 | 3912971.00 |
| 280.95 | 5017.15 | 1492.15 | 600.02 | 1155.51 | 0.00 | 485833.00 | 3912873.00 |
| 216.01 | 5281.79 | 1615.49 | 594.44 | 1200.48 | 0.00 | 486098.00 | 3912996.00 |
| 180.50 | 5467.48 | 1719.67 | 618.46 | 1016.51 | 0.00 | 486284.00 | 3913100.00 |
| 110.96 | 6095.54 | 2020.19 | 578.93 | 995.54 | 0.00 | 486912.00 | 3913401.00 |
| 185.83 | 5441.24 | 1696.86 | 514.04 | 1182.90 | 0.00 | 486258.00 | 3913078.00 |
| 27.04 | 9017.09 | 3375.89 | 636.47 | 1466.62 | 0.00 | 489833.00 | 3914757.00 |
| 272.13 | 5042.26 | 1515.19 | 565.16 | 980.58 | 0.00 | 485859.00 | 3912896.00 |
| 343.05 | 4838.13 | 1412.24 | 356.42 | 856.28 | 0.00 | 485654.00 | 3912793.00 |
| 154.66 | 5652.41 | 1810.22 | 618.63 | 1033.58 | 0.00 | 486469.00 | 3913191.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 269.77 | 5055.42 | 1517.71 | 535.68 | 944.23 | 0.00 | 485872.00 | 3912898.00 |
| 169.24 | 5543.31 | 1745.13 | 550.51 | 1285.97 | 0.00 | 486360.00 | 3913126.00 |
| 270.45 | 5052.53 | 1512.29 | 333.06 | 929.99 | 0.00 | 485869.00 | 3912893.00 |
| 76.20 | 6695.18 | 2280.76 | 467.39 | 1109.98 | 0.00 | 487511.00 | 3913662.00 |
| 357.24 | 4807.19 | 1390.35 | 567.34 | 1171.43 | 0.00 | 485623.00 | 3912771.00 |
| 255.26 | 5101.23 | 1540.91 | 497.66 | 997.09 | 0.00 | 485918.00 | 3912922.00 |
| 233.79 | 5190.04 | 1581.75 | 553.96 | 1143.61 | 0.00 | 486006.00 | 3912963.00 |
| 110.30 | 6108.28 | 2021.54 | 593.28 | 912.43 | 0.00 | 486925.00 | 3913402.00 |
| 325.06 | 4889.25 | 1434.97 | 456.87 | 1047.40 | 0.00 | 485706.00 | 3912816.00 |
| 363.64 | 4784.66 | 1387.52 | 639.54 | 1164.13 | 0.00 | 485601.00 | 3912768.00 |
| 506.25 | 4522.16 | 1264.81 | 581.08 | 981.29 | 0.00 | 485338.00 | 3912646.00 |
| 461.92 | 4597.73 | 1298.65 | 487.67 | 758.58 | 0.00 | 485414.00 | 3912679.00 |
| 84.78 | 6512.59 | 2197.25 | 494.83 | 1028.57 | 0.00 | 487329.00 | 3913578.00 |
| 84.91 | 6512.85 | 2200.99 | 641.24 | 1192.86 | 0.00 | 487329.00 | 3913582.00 |
| 339.98 | 4848.80 | 1413.38 | 599.67 | 949.30 | 0.00 | 485665.00 | 3912794.00 |
| 183.54 | 5457.58 | 1699.93 | 626.18 | 1227.81 | 0.00 | 486274.00 | 3913081.00 |
| 310.91 | 4924.67 | 1458.33 | 674.54 | 1140.29 | 0.00 | 485741.00 | 3912839.00 |
| 159.75 | 5611.44 | 1781.81 | 571.12 | 1136.53 | 0.00 | 486428.00 | 3913163.00 |
| 414.57 | 4680.76 | 1339.71 | 657.92 | 896.24 | 0.00 | 485497.00 | 3912720.00 |
| 242.60 | 5159.45 | 1571.18 | 693.28 | 983.06 | 0.00 | 485976.00 | 3912952.00 |
| 54.99 | 7305.72 | 2570.91 | 433.39 | 1175.32 | 0.00 | 488122.00 | 3913952.00 |
| 277.31 | 5018.37 | 1498.98 | 557.86 | 1039.48 | 0.00 | 485835.00 | 3912880.00 |
| 382.67 | 4745.26 | 1361.96 | 506.19 | 1148.45 | 0.00 | 485562.00 | 3912743.00 |
| 172.83 | 5528.33 | 1739.05 | 498.50 | 904.71 | 0.00 | 486345.00 | 3913120.00 |
| 279.32 | 5023.97 | 1497.03 | 649.15 | 1094.76 | 0.00 | 485840.00 | 3912878.00 |
| 121.78 | 5962.08 | 1943.53 | 444.33 | 959.44 | 0.00 | 486778.00 | 3913324.00 |
| 63.75 | 7015.26 | 2437.45 | 502.43 | 1220.95 | 0.00 | 487832.00 | 3913818.00 |
| 405.03 | 4709.87 | 1345.41 | 412.52 | 829.80 | 0.00 | 485526.00 | 3912726.00 |
| 271.57 | 5043.69 | 1517.38 | 546.20 | 943.97 | 0.00 | 485860.00 | 3912898.00 |
| 262.36 | 5088.68 | 1528.05 | 515.19 | 843.09 | 0.00 | 485905.00 | 3912909.00 |
| 134.66 | 5825.67 | 1890.15 | 631.45 | 1041.60 | 0.00 | 486642.00 | 3913271.00 |
| 223.77 | 5234.18 | 1606.96 | 701.01 | 886.11 | 0.00 | 486050.00 | 3912988.00 |
| 313.97 | 4907.07 | 1444.39 | 405.54 | 1014.52 | 0.00 | 485723.00 | 3912825.00 |
| 195.41 | 5385.90 | 1677.38 | 624.76 | 941.01 | 0.00 | 486202.00 | 3913058.00 |
| 132.75 | 5845.83 | 1885.92 | 655.38 | 1128.05 | 0.00 | 486662.00 | 3913267.00 |
| 573.88 | 4448.16 | 1214.80 | 543.51 | 1140.97 | 0.00 | 485264.00 | 3912596.00 |
| 151.33 | 5679.57 | 1818.80 | 602.15 | 982.07 | 0.00 | 486496.00 | 3913200.00 |
| 106.66 | 6157.85 | 2028.55 | 543.87 | 1244.43 | 0.00 | 486974.00 | 3913409.00 |
| 324.56 | 4884.96 | 1431.92 | 384.84 | 988.25 | 0.00 | 485701.00 | 3912813.00 |
| 213.58 | 5284.26 | 1624.80 | 638.34 | 1265.84 | 0.00 | 486101.00 | 3913006.00 |
| 130.60 | 5869.20 | 1894.13 | 527.22 | 1210.57 | 0.00 | 486685.00 | 3913275.00 |
| 231.42 | 5207.94 | 1584.38 | 547.85 | 1158.39 | 0.00 | 486024.00 | 3912965.00 |
| 409.74 | 4690.17 | 1341.89 | 598.26 | 982.37 | 0.00 | 485506.00 | 3912723.00 |
| 347.50 | 4822.32 | 1403.06 | 604.98 | 1229.54 | 0.00 | 485639.00 | 3912784.00 |
| 215.22 | 5280.27 | 1621.69 | 524.02 | 1069.17 | 0.00 | 486097.00 | 3913002.00 |
| 481.93 | 4568.38 | 1281.36 | 454.66 | 929.44 | 0.00 | 485385.00 | 3912662.00 |
| 340.69 | 4839.18 | 1415.33 | 422.02 | 1012.55 | 0.00 | 485655.00 | 3912796.00 |
| 173.57 | 5518.55 | 1739.17 | 691.00 | 1112.45 | 0.00 | 486335.00 | 3913120.00 |
| 440.22 | 4635.08 | 1315.59 | 410.02 | 874.48 | 0.00 | 485451.00 | 3912696.00 |
| 290.41 | 4978.88 | 1487.56 | 602.69 | 995.90 | 0.00 | 485795.00 | 3912868.00 |
| 136.72 | 5809.97 | 1877.21 | 669.69 | 1121.02 | 0.00 | 486626.00 | 3913258.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 502.58 | 11742.43 | 3245.43 | 828.69 | 923.79 | **53.20** | 492559.00 | 3914626.00 |
| 501.12 | 11747.03 | 3243.07 | 578.74 | 713.27 | 0.00 | 492563.00 | 3914624.00 |
| 295.26 | 12572.24 | 3643.30 | 698.97 | 1108.78 | 0.00 | 493389.00 | 3915024.00 |
| 145.90 | 14095.28 | 4375.61 | 1443.93 | 1906.86 | 0.00 | 494912.00 | 3915756.00 |
| 187.90 | 13487.99 | 4090.98 | 1105.52 | 1168.08 | 0.00 | 494304.00 | 3915472.00 |
| 244.20 | 12936.95 | 3825.64 | 1054.04 | 1456.99 | 0.00 | 493753.00 | 3915206.00 |
| 137.24 | 14258.43 | 4449.09 | 1027.36 | 1750.52 | 0.00 | 495075.00 | 3915830.00 |
| 191.87 | 13442.66 | 4058.57 | 1176.95 | 1863.32 | 0.00 | 494259.00 | 3915439.00 |
| 201.77 | 13330.32 | 4004.53 | 1122.93 | 2112.24 | 0.00 | 494147.00 | 3915385.00 |
| 161.77 | 13842.62 | 4254.90 | 1089.35 | 1500.34 | 0.00 | 494659.00 | 3915636.00 |
| 569.06 | 11583.47 | 3154.98 | 670.60 | 956.54 | 0.00 | 492400.00 | 3914536.00 |
| 123.64 | 14540.82 | 4581.25 | 1095.83 | 1463.12 | 0.00 | 495357.00 | 3915962.00 |
| 293.25 | 12586.36 | 3654.91 | 921.10 | 1208.71 | 0.00 | 493403.00 | 3915036.00 |
| 274.89 | 12705.00 | 3708.55 | 780.72 | 1360.72 | 0.00 | 493521.00 | 3915089.00 |
| 487.02 | 11783.12 | 3270.37 | 794.13 | 858.55 | 0.00 | 492599.00 | 3914651.00 |
| 100.10 | 15168.47 | 4866.58 | 1100.54 | 2138.07 | 0.00 | 495985.00 | 3916247.00 |
| 136.03 | 14281.70 | 4458.26 | 977.79 | 1590.72 | 0.00 | 495098.00 | 3915839.00 |
| 596.20 | 11518.17 | 3129.93 | 628.32 | 795.08 | 0.00 | 492334.00 | 3914511.00 |
| 323.25 | 12408.93 | 3570.08 | 922.73 | 1297.19 | 0.00 | 493225.00 | 3914951.00 |
| 122.04 | 14576.69 | 4610.13 | 1533.55 | 1781.18 | 0.00 | 495393.00 | 3915991.00 |
| 133.46 | 14332.03 | 4479.09 | 981.43 | 1978.72 | 0.00 | 495148.00 | 3915860.00 |
| 421.82 | 11986.28 | 3356.73 | 631.45 | 941.85 | 0.00 | 492803.00 | 3914738.00 |
| 128.28 | 14437.63 | 4528.59 | 1360.49 | 2298.69 | 0.00 | 495254.00 | 3915909.00 |
| 471.09 | 11826.99 | 3275.83 | 531.95 | 931.97 | 0.00 | 492643.00 | 3914657.00 |
| 652.86 | 11413.31 | 3074.28 | 477.62 | 547.22 | 0.00 | 492230.00 | 3914455.00 |
| 264.59 | 12779.08 | 3756.77 | 1040.69 | 1242.31 | 0.00 | 493595.00 | 3915138.00 |
| 79.29 | 15936.50 | 5213.22 | 921.02 | 2358.50 | 0.00 | 496753.00 | 3916594.00 |
| 294.29 | 12575.98 | 3656.98 | 961.46 | 1087.32 | 0.00 | 493392.00 | 3915038.00 |
| 151.83 | 13996.60 | 4337.32 | 1357.19 | 1464.25 | 0.00 | 494813.00 | 3915718.00 |
| 282.59 | 12653.09 | 3688.02 | 1090.27 | 1329.90 | 0.00 | 493469.00 | 3915069.00 |
| 222.88 | 13114.94 | 3906.40 | 933.81 | 1466.13 | 0.00 | 493931.00 | 3915287.00 |
| 513.16 | 11711.98 | 3222.99 | 550.03 | 818.16 | 0.00 | 492528.00 | 3914604.00 |
| 291.82 | 12586.82 | 3656.49 | 802.09 | 1687.54 | 0.00 | 493403.00 | 3915037.00 |
| 361.31 | 12227.35 | 3473.23 | 688.22 | 1097.02 | 0.00 | 493044.00 | 3914854.00 |
| 587.29 | 11533.96 | 3145.36 | 748.46 | 861.50 | 0.00 | 492350.00 | 3914526.00 |
| 336.94 | 12338.72 | 3540.95 | 884.94 | 1054.58 | 0.00 | 493155.00 | 3914922.00 |
| 256.85 | 12836.08 | 3775.01 | 937.89 | 1262.23 | 0.00 | 493652.00 | 3915156.00 |
| 138.30 | 14237.66 | 4445.60 | 1178.49 | 1392.99 | 0.00 | 495054.00 | 3915826.00 |
| 346.99 | 12293.67 | 3520.50 | 719.02 | 918.88 | 0.00 | 493110.00 | 3914901.00 |
| 176.40 | 13635.11 | 4156.09 | 1181.84 | 1407.48 | 0.00 | 494451.00 | 3915537.00 |
| 180.10 | 13580.23 | 4130.73 | 1513.84 | 2101.05 | 0.00 | 494397.00 | 3915512.00 |
| 800.42 | 11210.26 | 2969.15 | 584.25 | 662.89 | 0.00 | 492027.00 | 3914350.00 |
| 268.69 | 12744.24 | 3731.54 | 864.99 | 1475.44 | 0.00 | 493561.00 | 3915112.00 |
| 62.48 | 16818.92 | 5625.52 | 1481.78 | 3000.15 | 0.00 | 497635.00 | 3917006.00 |
| 473.80 | 11815.39 | 3278.86 | 659.57 | 1134.81 | 0.00 | 492632.00 | 3914660.00 |
| 80.69 | 15875.18 | 5200.19 | 1273.80 | 2097.86 | 0.00 | 496691.00 | 3916581.00 |
| 487.05 | 11783.62 | 3265.56 | 773.09 | 829.66 | 0.00 | 492600.00 | 3914646.00 |
| 273.95 | 12711.55 | 3706.43 | 954.73 | 1538.91 | 0.00 | 493528.00 | 3915087.00 |
| 209.15 | 13254.91 | 3980.49 | 950.93 | 1086.84 | 0.00 | 494071.00 | 3915361.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 251.99 | 12863.95 | 3791.88 | 991.97 | 1351.01 | 0.00 | 493680.00 | 3915173.00 |
| 229.29 | 13063.24 | 3879.62 | 676.61 | 1106.09 | 0.00 | 493880.00 | 3915260.00 |
| 395.50 | 12077.81 | 3410.75 | 753.61 | 973.87 | 0.00 | 492894.00 | 3914792.00 |
| 141.44 | 14176.45 | 4406.69 | 974.71 | 1547.71 | 0.00 | 494993.00 | 3915787.00 |
| 250.27 | 12884.52 | 3803.32 | 1037.61 | 1370.63 | 0.00 | 493701.00 | 3915184.00 |
| 436.10 | 11944.93 | 3332.51 | 823.96 | 1186.85 | 0.00 | 492761.00 | 3914713.00 |
| 293.30 | 12585.10 | 3660.23 | 934.80 | 1025.93 | 0.00 | 493401.00 | 3915041.00 |
| 199.44 | 13360.28 | 4021.52 | 988.73 | 1373.12 | 0.00 | 494177.00 | 3915402.00 |
| 599.57 | 11513.23 | 3121.27 | 513.71 | 844.38 | 0.00 | 492330.00 | 3914502.00 |
| 299.19 | 12553.17 | 3631.89 | 672.67 | 1034.26 | 0.00 | 493369.00 | 3915013.00 |
| 239.93 | 12961.01 | 3847.51 | 1323.64 | 1612.66 | 0.00 | 493777.00 | 3915228.00 |
| 297.31 | 12554.68 | 3642.59 | 1203.68 | 1556.03 | 0.00 | 493371.00 | 3915023.00 |
| 637.18 | 11448.21 | 3090.36 | 643.55 | 757.19 | 0.00 | 492264.00 | 3914471.00 |
| 345.88 | 12289.98 | 3506.58 | 528.53 | 974.78 | 0.00 | 493106.00 | 3914887.00 |
| 30.91 | 20129.20 | 7195.82 | 1686.67 | 2567.63 | 0.00 | 500945.00 | 3918577.00 |
| 119.28 | 14640.06 | 4638.34 | 1437.85 | 2065.97 | 0.00 | 495456.00 | 3916019.00 |
| 164.89 | 13793.85 | 4221.20 | 1232.67 | 2285.47 | 0.00 | 494610.00 | 3915602.00 |
| 336.25 | 12350.84 | 3539.15 | 1086.65 | 1241.90 | 0.00 | 493167.00 | 3914920.00 |
| 56.51 | 17224.49 | 5824.77 | 1391.78 | 2928.96 | 0.00 | 498041.00 | 3917206.00 |
| 161.61 | 13841.75 | 4251.77 | 764.23 | 1188.79 | 0.00 | 494658.00 | 3915633.00 |
| 328.77 | 12375.95 | 3554.83 | 619.92 | 901.11 | 0.00 | 493192.00 | 3914936.00 |
| 307.20 | 12500.92 | 3617.82 | 641.43 | 995.92 | 0.00 | 493317.00 | 3914999.00 |
| 358.16 | 12245.10 | 3486.95 | 777.42 | 1092.85 | 0.00 | 493061.00 | 3914868.00 |
| 281.60 | 12651.66 | 3688.72 | 773.45 | 1371.72 | 0.00 | 493468.00 | 3915070.00 |
| 173.46 | 13677.00 | 4172.97 | 1520.36 | 1739.68 | 0.00 | 494493.00 | 3915554.00 |
| 169.82 | 13729.35 | 4198.91 | 1133.40 | 1797.63 | 0.00 | 494546.00 | 3915580.00 |
| 96.25 | 15285.03 | 4912.16 | 1223.57 | 2632.08 | 0.00 | 496101.00 | 3916293.00 |
| 246.57 | 12905.09 | 3805.79 | 913.72 | 1617.20 | 0.00 | 493721.00 | 3915187.00 |
| 171.63 | 13696.74 | 4162.88 | 1200.50 | 1989.57 | 0.00 | 494513.00 | 3915544.00 |
| 274.27 | 12700.77 | 3713.33 | 1039.28 | 1379.36 | 0.00 | 493517.00 | 3915094.00 |
| 360.61 | 12233.90 | 3481.62 | 709.79 | 982.52 | 0.00 | 493050.00 | 3914862.00 |
| 386.70 | 12123.42 | 3426.65 | 814.91 | 883.08 | 0.00 | 492940.00 | 3914807.00 |
| 261.12 | 12802.91 | 3766.20 | 1185.86 | 1363.36 | 0.00 | 493619.00 | 3915147.00 |
| 270.73 | 12732.09 | 3729.04 | 1108.53 | 1511.94 | 0.00 | 493548.00 | 3915110.00 |
| 222.35 | 13125.36 | 3919.20 | 1098.34 | 1191.61 | 0.00 | 493942.00 | 3915300.00 |
| 113.32 | 14788.49 | 4702.18 | 1523.28 | 2798.10 | 0.00 | 495605.00 | 3916083.00 |
| 189.86 | 13471.57 | 4073.36 | 1254.42 | 1410.63 | 0.00 | 494288.00 | 3915454.00 |
| 311.98 | 12473.00 | 3598.97 | 698.22 | 1236.41 | 0.00 | 493289.00 | 3914980.00 |
| 186.69 | 13502.88 | 4093.78 | 1227.89 | 1665.32 | 0.00 | 494319.00 | 3915475.00 |
| 243.76 | 12940.71 | 3826.88 | 844.21 | 1162.81 | 0.00 | 493757.00 | 3915208.00 |
| 168.53 | 13742.36 | 4179.06 | 961.95 | 2533.80 | 0.00 | 494559.00 | 3915560.00 |
| 249.58 | 12886.88 | 3804.38 | 937.97 | 965.18 | 0.00 | 493703.00 | 3915185.00 |
| 530.13 | 11675.85 | 3210.35 | 709.81 | 724.33 | 0.00 | 492492.00 | 3914591.00 |
| 222.61 | 13126.82 | 3909.67 | 754.21 | 1047.76 | 0.00 | 493943.00 | 3915290.00 |
| 349.76 | 12284.35 | 3508.64 | 775.30 | 1085.91 | 0.00 | 493101.00 | 3914889.00 |
| 236.37 | 12995.93 | 3845.33 | 757.49 | 1442.58 | 0.00 | 493812.00 | 3915226.00 |
| 120.84 | 14605.82 | 4624.72 | 1407.44 | 1591.67 | 0.00 | 495422.00 | 3916005.00 |
| 314.24 | 12458.64 | 3600.96 | 905.03 | 1254.71 | 0.00 | 493275.00 | 3914982.00 |
| 816.36 | 11185.12 | 2947.92 | 683.15 | 1007.31 | 0.00 | 492001.00 | 3914329.00 |
| 353.16 | 12262.65 | 3493.69 | 715.38 | 1119.84 | 0.00 | 493079.00 | 3914874.00 |
| 411.76 | 12024.21 | 3382.79 | 776.42 | 977.16 | 0.00 | 492840.00 | 3914764.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 77.42 | 106073.52 | 31619.94 | 2807.99 | 3199.12 | **113.57** | 586890.00 | 3943001.00 |
| 111.23 | 100775.87 | 29159.95 | 2466.11 | 2625.34 | 0.00 | 581592.00 | 3940541.00 |
| 296.99 | 90529.00 | 24306.31 | 1722.50 | 1336.09 | 0.00 | 571345.00 | 3935687.00 |
| 415.88 | 88083.38 | 23139.54 | 1635.15 | 1174.74 | 0.00 | 568900.00 | 3934520.00 |
| 189.37 | 94581.85 | 26241.88 | 2048.06 | 1998.87 | 0.00 | 575398.00 | 3937623.00 |
| 204.18 | 93835.47 | 25878.71 | 1950.29 | 1862.26 | 0.00 | 574652.00 | 3937259.00 |
| 258.08 | 91690.56 | 24861.91 | 1893.88 | 1768.91 | 0.00 | 572507.00 | 3936243.00 |
| 266.22 | 91426.46 | 24738.46 | 1786.16 | 1490.47 | 0.00 | 572243.00 | 3936119.00 |
| 141.99 | 97720.43 | 27711.35 | 2222.13 | 2314.53 | 0.00 | 578537.00 | 3939092.00 |
| 346.08 | 89359.71 | 23750.39 | 1649.45 | 1158.22 | 0.00 | 570176.00 | 3935131.00 |
| 483.55 | 87133.35 | 22668.16 | 1603.13 | 1114.12 | 0.00 | 567950.00 | 3934049.00 |
| 310.47 | 90179.99 | 24149.20 | 1761.25 | 1442.44 | 0.00 | 570996.00 | 3935530.00 |
| 223.75 | 92965.10 | 25470.81 | 1842.31 | 1556.84 | 0.00 | 573781.00 | 3936852.00 |
| 577.33 | 86121.76 | 22173.05 | 1565.06 | 1017.35 | 0.00 | 566938.00 | 3933554.00 |
| 177.24 | 95262.97 | 26561.56 | 1887.52 | 1569.30 | 0.00 | 576079.00 | 3937942.00 |
| 156.70 | 96590.27 | 27176.09 | 1997.48 | 1817.97 | 0.00 | 577407.00 | 3938557.00 |
| 318.48 | 89982.27 | 24051.78 | 1683.03 | 1242.01 | 0.00 | 570799.00 | 3935433.00 |
| 134.48 | 98368.51 | 28020.54 | 2119.87 | 2002.86 | 0.00 | 579185.00 | 3939401.00 |
| 465.17 | 87369.27 | 22786.64 | 1592.34 | 1058.62 | 0.00 | 568186.00 | 3934167.00 |
| 284.47 | 90875.65 | 24475.34 | 1745.47 | 1395.66 | 0.00 | 571692.00 | 3935856.00 |
| 432.69 | 87825.39 | 23010.90 | 1666.60 | 1274.82 | 0.00 | 568642.00 | 3934392.00 |
| 112.54 | 100621.85 | 29074.56 | 2335.68 | 2469.00 | 0.00 | 581438.00 | 3940455.00 |
| 407.28 | 88222.48 | 23200.05 | 1634.43 | 1164.75 | 0.00 | 569039.00 | 3934581.00 |
| 158.29 | 96478.09 | 27131.53 | 1999.23 | 1805.71 | 0.00 | 577294.00 | 3938512.00 |
| 130.84 | 98702.15 | 28166.30 | 2134.26 | 2053.55 | 0.00 | 579518.00 | 3939547.00 |
| 296.89 | 90529.70 | 24312.37 | 1728.82 | 1342.48 | 0.00 | 571346.00 | 3935693.00 |
| 52.64 | 112887.10 | 34816.25 | 3293.13 | 3719.74 | 0.00 | 593703.00 | 3946197.00 |
| 266.70 | 91411.50 | 24731.02 | 1818.19 | 1578.28 | 0.00 | 572228.00 | 3936112.00 |
| 203.72 | 93855.39 | 25888.54 | 1967.12 | 1900.38 | 0.00 | 574672.00 | 3937269.00 |
| 212.96 | 93429.57 | 25692.46 | 1841.87 | 1520.02 | 0.00 | 574246.00 | 3937073.00 |
| 125.02 | 99265.84 | 28432.28 | 2242.53 | 2310.28 | 0.00 | 580082.00 | 3939813.00 |
| 450.97 | 87563.47 | 22879.99 | 1670.55 | 1331.02 | 0.00 | 568380.00 | 3934261.00 |
| 291.64 | 90674.15 | 24385.29 | 1770.31 | 1461.12 | 0.00 | 571490.00 | 3935766.00 |
| 293.65 | 90619.72 | 24354.80 | 1709.46 | 1293.74 | 0.00 | 571436.00 | 3935736.00 |
| 378.81 | 88715.27 | 23433.69 | 1602.41 | 1047.32 | 0.00 | 569532.00 | 3934814.00 |
| 477.88 | 87203.43 | 22699.46 | 1621.24 | 1183.98 | 0.00 | 568020.00 | 3934080.00 |
| 372.63 | 88830.97 | 23495.46 | 1806.82 | 1636.25 | 0.00 | 569647.00 | 3934876.00 |
| 223.57 | 92972.59 | 25464.48 | 1861.19 | 1657.80 | 0.00 | 573789.00 | 3936845.00 |
| 75.46 | 106487.53 | 31824.60 | 2540.94 | 2588.80 | 0.00 | 587304.00 | 3943205.00 |
| 128.05 | 98966.28 | 28280.23 | 2245.89 | 2394.84 | 0.00 | 579783.00 | 3939661.00 |
| 604.65 | 85872.49 | 22046.61 | 1566.49 | 1045.07 | 0.00 | 566689.00 | 3933427.00 |
| 302.42 | 90383.96 | 24235.34 | 1720.72 | 1354.32 | 0.00 | 571200.00 | 3935616.00 |
| 124.31 | 99337.47 | 28470.99 | 2186.92 | 2213.28 | 0.00 | 580154.00 | 3939852.00 |
| 317.86 | 89997.51 | 24052.80 | 1794.11 | 1605.53 | 0.00 | 570814.00 | 3935434.00 |
| 406.95 | 88228.24 | 23206.90 | 1623.79 | 1133.37 | 0.00 | 569045.00 | 3934588.00 |
| 712.75 | 85067.04 | 21640.15 | 1521.30 | 903.26 | 0.00 | 565883.00 | 3933021.00 |
| 198.24 | 94123.44 | 26023.81 | 1898.79 | 1695.74 | 0.00 | 574940.00 | 3937405.00 |
| 313.50 | 90104.51 | 24108.06 | 1664.40 | 1175.16 | 0.00 | 570921.00 | 3935489.00 |
| 213.50 | 93405.45 | 25673.96 | 1875.06 | 1634.68 | 0.00 | 574222.00 | 3937055.00 |
| 85.58 | 104508.84 | 30900.86 | 2682.59 | 2877.87 | 0.00 | 585325.00 | 3942282.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 646.27 | 85531.67 | 21872.94 | 1557.55 | 1027.36 | 0.00 | 566348.00 | 3933254.00 |
| 551.14 | 86372.79 | 22293.20 | 1584.65 | 1090.98 | 0.00 | 567189.00 | 3933674.00 |
| 169.58 | 95732.35 | 26776.71 | 2183.89 | 2272.25 | 0.00 | 576549.00 | 3938157.00 |
| 500.34 | 86928.84 | 22560.24 | 1593.86 | 1117.13 | 0.00 | 567745.00 | 3933941.00 |
| 328.93 | 89739.39 | 23931.22 | 1744.64 | 1442.99 | 0.00 | 570556.00 | 3935312.00 |
| 277.18 | 91089.22 | 24579.78 | 1795.33 | 1525.14 | 0.00 | 571906.00 | 3935961.00 |
| 494.46 | 86999.70 | 22605.90 | 1562.00 | 964.77 | 0.00 | 567816.00 | 3933987.00 |
| 422.91 | 87974.59 | 23087.86 | 1611.08 | 1084.25 | 0.00 | 568791.00 | 3934469.00 |
| 45.64 | 115764.19 | 36167.64 | 3219.44 | 3462.92 | 0.00 | 596580.00 | 3947548.00 |
| 179.99 | 95102.81 | 26475.37 | 1927.26 | 1693.62 | 0.00 | 575919.00 | 3937856.00 |
| 440.90 | 87704.38 | 22941.91 | 1623.93 | 1167.73 | 0.00 | 568521.00 | 3934323.00 |
| 405.85 | 88246.32 | 23208.55 | 1598.01 | 1042.49 | 0.00 | 569063.00 | 3934589.00 |
| 157.12 | 96560.69 | 27172.28 | 2199.41 | 2263.72 | 0.00 | 577377.00 | 3938553.00 |
| 206.58 | 93721.84 | 25831.78 | 1873.19 | 1603.23 | 0.00 | 574538.00 | 3937213.00 |
| 227.42 | 92814.13 | 25394.99 | 1817.76 | 1530.02 | 0.00 | 573630.00 | 3936776.00 |
| 74.87 | 106613.67 | 31867.07 | 2774.39 | 3296.36 | 0.00 | 587430.00 | 3943248.00 |
| 469.84 | 87307.70 | 22750.82 | 1627.18 | 1197.49 | 0.00 | 568124.00 | 3934132.00 |
| 814.41 | 84467.74 | 21331.17 | 1495.27 | 816.28 | 0.00 | 565284.00 | 3932712.00 |
| 259.24 | 91652.88 | 24846.63 | 1785.41 | 1478.59 | 0.00 | 572469.00 | 3936227.00 |
| 24.67 | 130801.90 | 43164.17 | 3834.54 | 4318.44 | 0.00 | 611618.00 | 3954545.00 |
| 354.55 | 89184.23 | 23676.00 | 1705.99 | 1323.90 | 0.00 | 570001.00 | 3935057.00 |
| 210.11 | 93558.43 | 25739.69 | 1908.57 | 1736.19 | 0.00 | 574375.00 | 3937120.00 |
| 79.66 | 105620.63 | 31421.91 | 2705.66 | 2933.85 | 0.00 | 586437.00 | 3942803.00 |
| 746.98 | 84848.53 | 21530.70 | 1538.43 | 985.91 | 0.00 | 565665.00 | 3932911.00 |
| 196.72 | 94199.28 | 26052.92 | 1848.65 | 1528.02 | 0.00 | 575016.00 | 3937434.00 |
| 33.05 | 123072.41 | 39560.05 | 3577.80 | 4008.16 | 0.00 | 603889.00 | 3950941.00 |
| 393.17 | 88460.98 | 23320.02 | 1700.07 | 1366.98 | 0.00 | 569277.00 | 3934701.00 |
| 139.01 | 97970.44 | 27825.22 | 2050.67 | 1854.68 | 0.00 | 578787.00 | 3939206.00 |
| 136.46 | 98191.41 | 27938.43 | 2279.26 | 2410.29 | 0.00 | 579008.00 | 3939319.00 |
| 183.38 | 94908.91 | 26390.63 | 1979.57 | 1842.24 | 0.00 | 575725.00 | 3937771.00 |
| 246.80 | 92079.97 | 25041.64 | 1905.50 | 1828.32 | 0.00 | 572896.00 | 3936422.00 |
| 201.86 | 93946.65 | 25922.95 | 1881.02 | 1662.83 | 0.00 | 574763.00 | 3937304.00 |
| 253.86 | 91834.05 | 24928.12 | 1904.44 | 1771.74 | 0.00 | 572650.00 | 3936309.00 |
| 303.46 | 90358.47 | 24230.92 | 1772.96 | 1476.11 | 0.00 | 571175.00 | 3935612.00 |
| 120.16 | 99769.03 | 28676.96 | 2142.12 | 1993.98 | 0.00 | 580585.00 | 3940058.00 |
| 518.46 | 86720.22 | 22469.16 | 1618.26 | 1181.98 | 0.00 | 567537.00 | 3933850.00 |
| 677.65 | 85308.51 | 21766.78 | 1552.48 | 1007.79 | 0.00 | 566125.00 | 3933148.00 |
| 46.29 | 115467.53 | 36018.89 | 3293.56 | 3984.42 | 0.00 | 596284.00 | 3947400.00 |
| 201.75 | 93950.72 | 25939.61 | 2001.32 | 1916.36 | 0.00 | 574767.00 | 3937320.00 |
| 582.85 | 86069.57 | 22140.55 | 1568.97 | 1058.36 | 0.00 | 566886.00 | 3933521.00 |
| 399.98 | 88343.75 | 23252.42 | 1686.69 | 1358.50 | 0.00 | 569160.00 | 3934633.00 |
| 137.71 | 98082.88 | 27881.01 | 2133.05 | 2090.28 | 0.00 | 578899.00 | 3939262.00 |
| 259.19 | 91652.17 | 24844.17 | 1835.97 | 1612.98 | 0.00 | 572468.00 | 3936225.00 |
| 341.88 | 89450.52 | 23788.99 | 1695.35 | 1325.29 | 0.00 | 570267.00 | 3935170.00 |
| 368.48 | 88910.91 | 23528.54 | 1623.50 | 1105.91 | 0.00 | 569727.00 | 3934909.00 |
| 285.28 | 90853.08 | 24459.38 | 1742.62 | 1391.58 | 0.00 | 571669.00 | 3935840.00 |
| 406.43 | 88236.00 | 23210.81 | 1669.15 | 1290.98 | 0.00 | 569052.00 | 3934592.00 |
| 207.33 | 93685.67 | 25807.86 | 1993.23 | 1929.31 | 0.00 | 574502.00 | 3937189.00 |
| 139.94 | 97892.23 | 27792.91 | 2142.83 | 2145.27 | 0.00 | 578709.00 | 3939174.00 |
| 438.74 | 87737.62 | 22971.27 | 1606.37 | 1087.17 | 0.00 | 568554.00 | 3934352.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 325.59 | 54064.33 | 14791.12 | 1318.31 | 1222.47 | **95.38** | 534881.00 | 3926172.00 |
| 227.02 | 56190.76 | 15802.98 | 1529.18 | 1628.88 | 0.00 | 537007.00 | 3927184.00 |
| 291.11 | 54678.41 | 15078.40 | 1322.09 | 1304.16 | 0.00 | 535495.00 | 3926459.00 |
| 132.06 | 60249.36 | 17718.86 | 1713.14 | 2055.50 | 0.00 | 541066.00 | 3929100.00 |
| 88.87 | 64026.51 | 19504.47 | 2091.37 | 2460.75 | 0.00 | 544843.00 | 3930885.00 |
| 217.84 | 56459.57 | 15937.56 | 1542.73 | 1742.21 | 0.00 | 537276.00 | 3927318.00 |
| 123.76 | 60819.14 | 17997.45 | 1771.48 | 1931.68 | 0.00 | 541635.00 | 3929378.00 |
| 271.22 | 55087.30 | 15280.85 | 1354.52 | 1311.76 | 0.00 | 535904.00 | 3926662.00 |
| 92.37 | 63622.85 | 19300.05 | 1879.43 | 2197.78 | 0.00 | 544439.00 | 3930681.00 |
| 235.93 | 55939.86 | 15686.93 | 1380.09 | 1342.61 | 0.00 | 536756.00 | 3927068.00 |
| 467.33 | 52314.66 | 13948.28 | 1192.82 | 972.69 | 0.00 | 533131.00 | 3925329.00 |
| 184.50 | 57612.01 | 16472.40 | 1649.08 | 1939.75 | 0.00 | 538428.00 | 3927853.00 |
| 715.31 | 50709.08 | 13135.08 | 1115.52 | 758.69 | 0.00 | 531525.00 | 3924516.00 |
| 178.70 | 57843.26 | 16591.69 | 1733.98 | 2039.67 | 0.00 | 538660.00 | 3927972.00 |
| 393.36 | 53105.67 | 14322.68 | 1206.25 | 1006.64 | 0.00 | 533922.00 | 3925703.00 |
| 280.03 | 54901.28 | 15188.76 | 1321.30 | 1286.01 | 0.00 | 535718.00 | 3926570.00 |
| 382.85 | 53237.25 | 14398.68 | 1251.99 | 1082.23 | 0.00 | 534054.00 | 3925779.00 |
| 451.02 | 52475.59 | 14016.33 | 1214.35 | 1084.03 | 0.00 | 533292.00 | 3925397.00 |
| 446.36 | 52523.45 | 14043.32 | 1199.57 | 978.83 | 0.00 | 533340.00 | 3925424.00 |
| 222.72 | 56315.49 | 15855.88 | 1389.21 | 1432.27 | 0.00 | 537132.00 | 3927237.00 |
| 197.43 | 57131.94 | 16258.63 | 1550.48 | 1638.01 | 0.00 | 537948.00 | 3927639.00 |
| 189.46 | 57420.77 | 16393.32 | 1434.95 | 1448.83 | 0.00 | 538237.00 | 3927774.00 |
| 274.20 | 55023.36 | 15252.08 | 1363.97 | 1326.24 | 0.00 | 535840.00 | 3926633.00 |
| 125.32 | 60706.94 | 17927.62 | 1652.70 | 1823.87 | 0.00 | 541523.00 | 3929308.00 |
| 405.53 | 52959.14 | 14256.34 | 1216.89 | 1022.16 | 0.00 | 533775.00 | 3925637.00 |
| 210.28 | 56695.68 | 16044.72 | 1299.75 | 1095.75 | 0.00 | 537512.00 | 3927426.00 |
| 144.35 | 59499.96 | 17365.19 | 1578.04 | 1772.73 | 0.00 | 540316.00 | 3928746.00 |
| 173.79 | 58052.70 | 16691.78 | 1584.21 | 1744.76 | 0.00 | 538869.00 | 3928073.00 |
| 364.68 | 53476.20 | 14510.40 | 1220.17 | 998.01 | 0.00 | 534292.00 | 3925891.00 |
| 196.76 | 57154.07 | 16261.43 | 1514.95 | 1599.73 | 0.00 | 537970.00 | 3927642.00 |
| 175.03 | 57998.69 | 16667.22 | 1603.39 | 1694.22 | 0.00 | 538815.00 | 3928048.00 |
| 342.94 | 53790.36 | 14653.23 | 1203.14 | 962.41 | 0.00 | 534607.00 | 3926034.00 |
| 27.08 | 81141.80 | 27480.55 | 3592.19 | 4510.05 | 0.00 | 561958.00 | 3938861.00 |
| 159.32 | 58710.25 | 17008.22 | 1707.35 | 1885.53 | 0.00 | 539527.00 | 3928389.00 |
| 156.82 | 58834.19 | 17049.47 | 1564.75 | 1797.08 | 0.00 | 539650.00 | 3928430.00 |
| 176.38 | 57943.20 | 16637.78 | 1561.41 | 1675.21 | 0.00 | 538759.00 | 3928019.00 |
| 475.35 | 52245.32 | 13905.46 | 1213.21 | 1021.74 | 0.00 | 533062.00 | 3925286.00 |
| 361.22 | 53526.96 | 14525.59 | 1216.42 | 1016.68 | 0.00 | 534343.00 | 3925906.00 |
| 352.66 | 53646.46 | 14591.15 | 1320.95 | 1262.28 | 0.00 | 534463.00 | 3925972.00 |
| 240.38 | 55825.24 | 15641.11 | 1313.62 | 1107.13 | 0.00 | 536642.00 | 3927022.00 |
| 342.75 | 53794.85 | 14656.70 | 1265.00 | 1137.59 | 0.00 | 534611.00 | 3926037.00 |
| 217.47 | 56472.26 | 15947.09 | 1430.85 | 1409.03 | 0.00 | 537289.00 | 3927328.00 |
| 380.96 | 53259.81 | 14399.01 | 1379.79 | 1453.19 | 0.00 | 534076.00 | 3925780.00 |
| 1266.12 | 49196.89 | 12314.94 | 1060.22 | 556.31 | 0.00 | 530013.00 | 3923696.00 |
| 231.42 | 56067.99 | 15744.72 | 1461.44 | 1535.21 | 0.00 | 536884.00 | 3927126.00 |
| 432.17 | 52665.69 | 14113.00 | 1185.88 | 944.37 | 0.00 | 533482.00 | 3925494.00 |
| 337.12 | 53878.86 | 14703.18 | 1304.24 | 1154.12 | 0.00 | 534695.00 | 3926084.00 |
| 359.85 | 53543.83 | 14534.03 | 1182.56 | 916.29 | 0.00 | 534360.00 | 3925915.00 |
| 69.54 | 66774.46 | 20787.16 | 2325.96 | 2973.37 | 0.00 | 547591.00 | 3932168.00 |
| 496.09 | 52069.62 | 13818.06 | 1142.67 | 823.76 | 0.00 | 532886.00 | 3925199.00 |

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|---|---|---|---|---|---|---|---|
| 274.17 | 55023.22 | 15246.19 | 1260.79 | 1041.95 | 0.00 | 535840.00 | 3926627.00 |
| 1031.30 | 49659.54 | 12581.91 | 1096.13 | 702.38 | 0.00 | 530476.00 | 3923963.00 |
| 438.51 | 52602.46 | 14081.27 | 1214.29 | 998.38 | 0.00 | 533419.00 | 3925462.00 |
| 98.03 | 63019.26 | 19032.43 | 1931.21 | 2161.96 | 0.00 | 543836.00 | 3930413.00 |
| 559.54 | 51581.24 | 13572.31 | 1116.63 | 768.16 | 0.00 | 532398.00 | 3924953.00 |
| 233.17 | 56016.28 | 15716.41 | 1380.08 | 1421.47 | 0.00 | 536833.00 | 3927097.00 |
| 433.06 | 52657.77 | 14110.29 | 1161.88 | 827.96 | 0.00 | 533474.00 | 3925491.00 |
| 161.64 | 58597.82 | 16940.27 | 1459.53 | 1440.43 | 0.00 | 539414.00 | 3928321.00 |
| 253.35 | 55498.20 | 15479.62 | 1292.97 | 1130.26 | 0.00 | 536314.00 | 3926860.00 |
| 383.72 | 53225.23 | 14384.23 | 1251.54 | 1085.87 | 0.00 | 534042.00 | 3925765.00 |
| 325.57 | 54062.94 | 14793.49 | 1232.76 | 1009.30 | 0.00 | 534879.00 | 3926174.00 |
| 193.43 | 57274.61 | 16324.21 | 1482.67 | 1561.89 | 0.00 | 538091.00 | 3927705.00 |
| 106.30 | 62225.18 | 18653.13 | 1850.09 | 2159.59 | 0.00 | 543041.00 | 3930034.00 |
| 496.10 | 52064.21 | 13818.96 | 1184.82 | 934.08 | 0.00 | 532880.00 | 3925200.00 |
| 578.59 | 51453.47 | 13511.95 | 1118.18 | 756.72 | 0.00 | 532270.00 | 3924893.00 |
| 323.07 | 54104.53 | 14808.82 | 1238.10 | 1036.69 | 0.00 | 534921.00 | 3926190.00 |
| 208.61 | 56750.58 | 16075.15 | 1404.29 | 1388.67 | 0.00 | 537567.00 | 3927456.00 |
| 158.43 | 58755.90 | 17019.12 | 1675.65 | 1919.29 | 0.00 | 539572.00 | 3928400.00 |
| 158.46 | 58751.65 | 17031.88 | 1525.27 | 1461.20 | 0.00 | 539568.00 | 3928413.00 |
| 72.62 | 66264.69 | 20551.17 | 2205.35 | 2534.40 | 0.00 | 547081.00 | 3931932.00 |
| 243.55 | 55742.56 | 15598.60 | 1363.07 | 1309.57 | 0.00 | 536559.00 | 3926979.00 |
| 141.26 | 59681.44 | 17460.33 | 1790.95 | 1978.35 | 0.00 | 540498.00 | 3928841.00 |
| 174.69 | 58012.37 | 16674.86 | 1480.98 | 1497.71 | 0.00 | 538829.00 | 3928056.00 |
| 394.24 | 53097.02 | 14325.27 | 1216.28 | 975.14 | 0.00 | 533913.00 | 3925706.00 |
| 114.64 | 61511.51 | 18312.39 | 1732.80 | 2017.06 | 0.00 | 542328.00 | 3929693.00 |
| 542.97 | 51697.98 | 13636.01 | 1133.13 | 789.09 | 0.00 | 532514.00 | 3925017.00 |
| 186.38 | 57540.94 | 16441.42 | 1498.34 | 1579.51 | 0.00 | 538357.00 | 3927822.00 |
| 484.23 | 52166.18 | 13877.79 | 1217.84 | 1002.98 | 0.00 | 532982.00 | 3925259.00 |
| 552.14 | 51634.09 | 13595.63 | 1137.97 | 848.36 | 0.00 | 532450.00 | 3924976.00 |
| 193.00 | 57289.67 | 16329.38 | 1404.74 | 1312.45 | 0.00 | 538106.00 | 3927710.00 |
| 251.74 | 55537.03 | 15491.21 | 1339.75 | 1235.27 | 0.00 | 536353.00 | 3926872.00 |
| 83.47 | 64696.60 | 19796.56 | 1973.12 | 2412.57 | 0.00 | 545513.00 | 3931177.00 |
| 354.26 | 53621.41 | 14579.23 | 1275.48 | 1130.84 | 0.00 | 534438.00 | 3925960.00 |
| 147.85 | 59305.50 | 17274.41 | 1575.10 | 1667.88 | 0.00 | 540122.00 | 3928655.00 |
| 280.29 | 54895.42 | 15184.17 | 1381.86 | 1408.84 | 0.00 | 535712.00 | 3926565.00 |
| 220.42 | 56382.83 | 15897.53 | 1382.50 | 1335.95 | 0.00 | 537199.00 | 3927278.00 |
| 561.31 | 51566.44 | 13572.04 | 1157.28 | 882.68 | 0.00 | 532383.00 | 3924953.00 |
| 305.73 | 54404.65 | 14943.80 | 1217.73 | 996.01 | 0.00 | 535221.00 | 3926325.00 |
| 166.46 | 58377.62 | 16841.75 | 1577.53 | 1653.11 | 0.00 | 539194.00 | 3928223.00 |
| 314.40 | 54250.92 | 14882.20 | 1367.91 | 1386.82 | 0.00 | 535067.00 | 3926263.00 |
| 605.09 | 51286.28 | 13429.73 | 1094.39 | 669.62 | 0.00 | 532103.00 | 3924811.00 |
| 82.20 | 64863.74 | 19891.72 | 2041.19 | 2537.02 | 0.00 | 545680.00 | 3931273.00 |
| 194.98 | 57216.80 | 16294.12 | 1445.17 | 1403.93 | 0.00 | 538033.00 | 3927675.00 |
| 189.88 | 57405.27 | 16376.05 | 1694.50 | 1982.17 | 0.00 | 538222.00 | 3927757.00 |
| 112.93 | 61652.17 | 18382.31 | 1745.50 | 1930.26 | 0.00 | 542468.00 | 3929763.00 |
| 287.10 | 54759.80 | 15124.20 | 1362.73 | 1382.83 | 0.00 | 535576.00 | 3926505.00 |
| 248.93 | 55607.16 | 15527.78 | 1360.76 | 1292.69 | 0.00 | 536423.00 | 3926909.00 |
| 317.41 | 54198.46 | 14849.12 | 1280.32 | 1180.08 | 0.00 | 535015.00 | 3926230.00 |
| 516.15 | 51905.09 | 13738.62 | 1154.19 | 847.87 | 0.00 | 532721.00 | 3925119.00 |
| 179.64 | 57806.32 | 16572.18 | 1407.57 | 1290.20 | 0.00 | 538623.00 | 3927953.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 182.12 | 32316.06 | 9521.37 | 1214.43 | 1537.72 | **76.86** | 513132.00 | 3920902.00 |
| 356.93 | 29663.43 | 8256.08 | 984.27 | 1175.76 | 0.00 | 510480.00 | 3919637.00 |
| 57.50 | 39659.90 | 12965.81 | 2175.81 | 3401.54 | 0.00 | 520476.00 | 3924347.00 |
| 473.35 | 28813.37 | 7842.81 | 821.64 | 750.80 | 0.00 | 509630.00 | 3919224.00 |
| 510.29 | 28615.36 | 7736.16 | 888.07 | 871.04 | 0.00 | 509432.00 | 3919117.00 |
| 551.96 | 28404.59 | 7636.00 | 765.23 | 617.64 | 0.00 | 509221.00 | 3919017.00 |
| 260.85 | 30783.11 | 8793.53 | 1096.76 | 1315.95 | 0.00 | 511599.00 | 3920174.00 |
| 576.52 | 28299.22 | 7580.07 | 826.66 | 804.65 | 0.00 | 509115.00 | 3918961.00 |
| 106.56 | 35200.09 | 10878.83 | 1413.52 | 1959.62 | 0.00 | 516016.00 | 3922260.00 |
| 151.26 | 33223.44 | 9954.03 | 1484.74 | 1890.71 | 0.00 | 514040.00 | 3921335.00 |
| 439.35 | 29026.79 | 7939.32 | 818.92 | 772.04 | 0.00 | 509843.00 | 3919320.00 |
| 152.23 | 33191.77 | 9933.06 | 1435.50 | 1943.59 | 0.00 | 514008.00 | 3921314.00 |
| 279.01 | 30522.83 | 8667.71 | 1020.05 | 1246.02 | 0.00 | 511339.00 | 3920048.00 |
| 319.16 | 30042.18 | 8433.48 | 1027.46 | 1238.26 | 0.00 | 510858.00 | 3919814.00 |
| 237.39 | 31156.67 | 8975.98 | 1033.54 | 1087.41 | 0.00 | 511973.00 | 3920357.00 |
| 270.78 | 30636.97 | 8725.71 | 963.98 | 982.35 | 0.00 | 511453.00 | 3920106.00 |
| 248.91 | 30962.45 | 8886.48 | 1060.19 | 1164.24 | 0.00 | 511779.00 | 3920267.00 |
| 242.80 | 31062.23 | 8929.64 | 1087.74 | 1260.24 | 0.00 | 511879.00 | 3920310.00 |
| 435.82 | 29050.83 | 7949.76 | 828.11 | 848.77 | 0.00 | 509867.00 | 3919331.00 |
| 346.03 | 29766.84 | 8308.38 | 976.32 | 1058.99 | 0.00 | 510583.00 | 3919689.00 |
| 202.54 | 31830.38 | 9291.83 | 1139.38 | 1472.73 | 0.00 | 512647.00 | 3920673.00 |
| 142.87 | 33522.80 | 10093.65 | 1332.21 | 1717.38 | 0.00 | 514339.00 | 3921474.00 |
| 395.22 | 29342.51 | 8095.00 | 935.15 | 1072.67 | 0.00 | 510159.00 | 3919476.00 |
| 226.46 | 31352.47 | 9065.90 | 1138.70 | 1428.61 | 0.00 | 512169.00 | 3920447.00 |
| 297.44 | 30289.69 | 8559.18 | 880.19 | 874.92 | 0.00 | 511106.00 | 3919940.00 |
| 530.12 | 28515.44 | 7686.60 | 915.51 | 963.62 | 0.00 | 509332.00 | 3919067.00 |
| 117.38 | 34617.05 | 10619.73 | 1384.14 | 1743.64 | 0.00 | 515433.00 | 3922001.00 |
| 78.42 | 37241.46 | 11840.15 | 1849.12 | 2358.11 | 0.00 | 518058.00 | 3923221.00 |
| 237.34 | 31158.94 | 8968.99 | 1099.49 | 1302.50 | 0.00 | 511975.00 | 3920350.00 |
| 302.86 | 30225.56 | 8521.19 | 983.11 | 1093.83 | 0.00 | 511042.00 | 3919902.00 |
| 344.18 | 29781.19 | 8309.60 | 987.06 | 1187.29 | 0.00 | 510597.00 | 3919690.00 |
| 413.08 | 29205.04 | 8031.86 | 1008.39 | 1115.65 | 0.00 | 510021.00 | 3919413.00 |
| 122.83 | 34350.73 | 10481.76 | 1501.05 | 2202.89 | 0.00 | 515167.00 | 3921863.00 |
| 356.21 | 29666.85 | 8264.14 | 1006.70 | 1091.47 | 0.00 | 510483.00 | 3919645.00 |
| 415.95 | 29188.36 | 8021.77 | 953.22 | 1059.17 | 0.00 | 510005.00 | 3919403.00 |
| 188.92 | 32140.43 | 9437.78 | 1268.41 | 1665.50 | 0.00 | 512957.00 | 3920819.00 |
| 378.00 | 29478.33 | 8164.64 | 929.74 | 990.53 | 0.00 | 510295.00 | 3919545.00 |
| 219.00 | 31490.33 | 9135.43 | 1061.66 | 1213.73 | 0.00 | 512307.00 | 3920516.00 |
| 141.23 | 33580.94 | 10124.92 | 1304.44 | 1477.64 | 0.00 | 514397.00 | 3921506.00 |
| 127.44 | 34146.58 | 10376.31 | 1362.34 | 1871.97 | 0.00 | 514963.00 | 3921757.00 |
| 288.21 | 30405.76 | 8611.43 | 1007.46 | 1126.56 | 0.00 | 511222.00 | 3919992.00 |
| 53.44 | 40286.22 | 13243.23 | 2119.26 | 3430.84 | 0.00 | 521103.00 | 3924624.00 |
| 401.53 | 29290.35 | 8075.33 | 886.57 | 900.57 | 0.00 | 510107.00 | 3919456.00 |
| 518.39 | 28567.37 | 7714.73 | 798.57 | 764.13 | 0.00 | 509384.00 | 3919096.00 |
| 288.92 | 30395.76 | 8604.59 | 904.31 | 1026.26 | 0.00 | 511212.00 | 3919985.00 |
| 163.03 | 32841.45 | 9768.60 | 1363.71 | 1799.41 | 0.00 | 513658.00 | 3921149.00 |
| 457.48 | 28906.92 | 7885.38 | 837.43 | 794.43 | 0.00 | 509723.00 | 3919266.00 |
| 316.18 | 30072.62 | 8448.11 | 959.25 | 1116.47 | 0.00 | 510889.00 | 3919829.00 |
| 135.82 | 33790.13 | 10224.94 | 1282.61 | 1396.23 | 0.00 | 514606.00 | 3921606.00 |
| 257.24 | 30837.73 | 8810.17 | 1159.49 | 1721.55 | 0.00 | 511654.00 | 3920191.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 405.66 | 29264.64 | 8063.13 | 925.52 | 963.82 | 0.00 | 510081.00 | 3919444.00 |
| 484.50 | 28748.15 | 7801.71 | 914.80 | 1014.78 | 0.00 | 509564.00 | 3919182.00 |
| 304.52 | 30206.58 | 8515.32 | 936.52 | 972.63 | 0.00 | 511023.00 | 3919896.00 |
| 338.53 | 29838.02 | 8335.14 | 927.14 | 1053.43 | 0.00 | 510654.00 | 3919716.00 |
| 230.55 | 31275.23 | 9024.14 | 921.59 | 962.20 | 0.00 | 512092.00 | 3920405.00 |
| 104.91 | 35293.49 | 10930.16 | 1699.29 | 2198.97 | 0.00 | 516110.00 | 3922311.00 |
| 398.65 | 29312.09 | 8084.51 | 911.13 | 939.39 | 0.00 | 510128.00 | 3919465.00 |
| 524.45 | 28535.72 | 7699.72 | 761.72 | 627.78 | 0.00 | 509352.00 | 3919081.00 |
| 221.10 | 31449.75 | 9111.08 | 1162.36 | 1436.92 | 0.00 | 512266.00 | 3920492.00 |
| 283.87 | 30462.95 | 8633.63 | 1050.97 | 1266.43 | 0.00 | 511279.00 | 3920014.00 |
| 245.52 | 31015.56 | 8898.61 | 942.71 | 1141.18 | 0.00 | 511832.00 | 3920279.00 |
| 78.40 | 37243.49 | 11845.56 | 1651.41 | 2117.71 | 0.00 | 518060.00 | 3923226.00 |
| 275.00 | 30580.31 | 8696.72 | 1054.17 | 1148.91 | 0.00 | 511397.00 | 3920077.00 |
| 272.07 | 30624.14 | 8716.49 | 1073.60 | 1289.34 | 0.00 | 511440.00 | 3920097.00 |
| 622.99 | 28108.01 | 7484.53 | 763.29 | 646.82 | 0.00 | 508924.00 | 3918865.00 |
| 305.22 | 30197.88 | 8512.50 | 1091.90 | 1381.76 | 0.00 | 511014.00 | 3919893.00 |
| 660.52 | 27976.12 | 7419.18 | 835.01 | 800.98 | 0.00 | 508792.00 | 3918800.00 |
| 200.35 | 31878.10 | 9314.43 | 991.71 | 1054.49 | 0.00 | 512694.00 | 3920695.00 |
| 306.35 | 30185.36 | 8507.10 | 1076.92 | 1212.74 | 0.00 | 511002.00 | 3919888.00 |
| 232.39 | 31242.87 | 9011.86 | 1173.02 | 1489.38 | 0.00 | 512059.00 | 3920393.00 |
| 193.30 | 32039.55 | 9391.69 | 1194.81 | 1481.77 | 0.00 | 512856.00 | 3920772.00 |
| 227.26 | 31335.36 | 9053.11 | 1106.21 | 1422.21 | 0.00 | 512152.00 | 3920434.00 |
| 105.85 | 35240.54 | 10910.69 | 1527.76 | 1696.27 | 0.00 | 516057.00 | 3922291.00 |
| 540.35 | 28455.30 | 7657.01 | 861.73 | 904.06 | 0.00 | 509272.00 | 3919038.00 |
| 414.59 | 29189.46 | 8023.75 | 980.03 | 1111.23 | 0.00 | 510006.00 | 3919405.00 |
| 557.82 | 28380.01 | 7616.29 | 830.89 | 843.27 | 0.00 | 509196.00 | 3918997.00 |
| 202.57 | 31828.94 | 9283.56 | 1163.89 | 1567.10 | 0.00 | 512645.00 | 3920664.00 |
| 375.56 | 29498.94 | 8170.40 | 940.91 | 1044.80 | 0.00 | 510315.00 | 3919551.00 |
| 503.50 | 28643.60 | 7757.73 | 992.72 | 1166.55 | 0.00 | 509460.00 | 3919139.00 |
| 919.83 | 27325.18 | 7074.46 | 742.57 | 540.93 | 0.00 | 508141.00 | 3918455.00 |
| 98.00 | 35726.40 | 11132.89 | 1402.05 | 1644.95 | 0.00 | 516543.00 | 3922514.00 |
| 294.71 | 30326.90 | 8581.00 | 995.44 | 967.02 | 0.00 | 511143.00 | 3919962.00 |
| 368.17 | 29564.84 | 8202.12 | 951.83 | 1110.88 | 0.00 | 510381.00 | 3919583.00 |
| 155.20 | 33089.28 | 9887.53 | 1177.26 | 1349.54 | 0.00 | 513906.00 | 3921268.00 |
| 342.64 | 29799.26 | 8318.12 | 1099.90 | 1269.62 | 0.00 | 510616.00 | 3919699.00 |
| 179.16 | 32389.68 | 9552.92 | 1146.99 | 1452.68 | 0.00 | 513206.00 | 3920934.00 |
| 192.18 | 32065.79 | 9403.16 | 1168.66 | 1399.71 | 0.00 | 512882.00 | 3920784.00 |
| 144.49 | 33461.34 | 10063.00 | 1416.00 | 1827.20 | 0.00 | 514278.00 | 3921444.00 |
| 370.40 | 29545.00 | 8186.12 | 900.51 | 1015.76 | 0.00 | 510361.00 | 3919567.00 |
| 184.48 | 32251.90 | 9492.49 | 1110.12 | 1321.40 | 0.00 | 513068.00 | 3920873.00 |
| 46.47 | 41548.70 | 13833.79 | 1851.00 | 2888.38 | 0.00 | 522365.00 | 3925215.00 |
| 369.51 | 29554.73 | 8196.48 | 916.92 | 1005.75 | 0.00 | 510371.00 | 3919577.00 |
| 239.71 | 31115.85 | 8950.74 | 982.45 | 1056.21 | 0.00 | 511932.00 | 3920332.00 |
| 364.64 | 29599.68 | 8216.41 | 942.60 | 992.35 | 0.00 | 510416.00 | 3919597.00 |
| 225.55 | 31366.11 | 9071.47 | 1089.29 | 1231.67 | 0.00 | 512182.00 | 3920452.00 |
| 453.97 | 28930.39 | 7897.13 | 914.78 | 954.16 | 0.00 | 509747.00 | 3919278.00 |
| 167.36 | 32717.62 | 9712.52 | 1254.38 | 1358.01 | 0.00 | 513534.00 | 3921093.00 |
| 302.12 | 30231.26 | 8536.20 | 1046.95 | 1095.71 | 0.00 | 511048.00 | 3919917.00 |
| 439.68 | 29024.09 | 7940.23 | 837.42 | 818.54 | 0.00 | 509840.00 | 3919321.00 |
| 843.57 | 27489.58 | 7159.26 | 760.48 | 623.36 | 0.00 | 508306.00 | 3918540.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 104.04 | 3867.61 | 1311.59 | 352.12 | 834.57 | **30.70** | 484684.00 | 3912692.00 |
| 235.69 | 3154.83 | 972.72 | 359.26 | 721.43 | 0.00 | 483971.00 | 3912354.00 |
| 16.46 | 6946.59 | 2759.28 | 419.02 | 771.91 | 0.00 | 487763.00 | 3914140.00 |
| 305.49 | 2972.52 | 886.68 | 319.86 | 816.15 | 0.00 | 483789.00 | 3912267.00 |
| 81.95 | 4128.65 | 1433.19 | 371.24 | 604.44 | 0.00 | 484945.00 | 3912814.00 |
| 92.48 | 3989.10 | 1371.08 | 346.59 | 647.18 | 0.00 | 484805.00 | 3912752.00 |
| 207.46 | 3248.26 | 1030.59 | 384.91 | 637.93 | 0.00 | 484065.00 | 3912411.00 |
| 249.77 | 3108.19 | 955.79 | 307.84 | 680.82 | 0.00 | 483924.00 | 3912337.00 |
| 250.72 | 3107.64 | 958.24 | 381.61 | 641.16 | 0.00 | 483924.00 | 3912339.00 |
| 276.76 | 3039.94 | 920.37 | 328.76 | 639.72 | 0.00 | 483856.00 | 3912301.00 |
| 57.97 | 4571.84 | 1647.29 | 424.72 | 765.45 | 0.00 | 485388.00 | 3913028.00 |
| 570.66 | 2612.52 | 709.52 | 272.36 | 635.04 | 0.00 | 483429.00 | 3912090.00 |
| 363.73 | 2864.24 | 838.62 | 281.81 | 568.22 | 0.00 | 483681.00 | 3912219.00 |
| 88.35 | 4039.83 | 1395.44 | 323.74 | 674.70 | 0.00 | 484856.00 | 3912776.00 |
| 528.20 | 2648.21 | 735.33 | 375.81 | 731.97 | 0.00 | 483464.00 | 3912116.00 |
| 118.26 | 3731.74 | 1253.64 | 416.30 | 747.25 | 0.00 | 484548.00 | 3912634.00 |
| 227.12 | 3177.99 | 983.25 | 342.84 | 782.18 | 0.00 | 483994.00 | 3912364.00 |
| 248.36 | 3114.03 | 959.09 | 394.30 | 741.63 | 0.00 | 483930.00 | 3912340.00 |
| 425.36 | 2767.65 | 789.46 | 339.65 | 676.57 | 0.00 | 483584.00 | 3912170.00 |
| 181.21 | 3352.55 | 1067.53 | 371.67 | 745.44 | 0.00 | 484169.00 | 3912448.00 |
| 1263.97 | 2275.06 | 540.18 | 332.80 | 401.04 | 0.00 | 483091.00 | 3911921.00 |
| 233.35 | 3165.54 | 977.87 | 301.23 | 650.02 | 0.00 | 483982.00 | 3912359.00 |
| 90.35 | 4018.18 | 1387.45 | 305.17 | 701.72 | 0.00 | 484834.00 | 3912768.00 |
| 46.97 | 4871.98 | 1790.85 | 421.13 | 650.78 | 0.00 | 485688.00 | 3913172.00 |
| 104.40 | 3866.46 | 1318.71 | 418.14 | 651.99 | 0.00 | 484683.00 | 3912699.00 |
| 267.65 | 3063.80 | 931.21 | 264.96 | 668.11 | 0.00 | 483880.00 | 3912312.00 |
| 859.60 | 2436.86 | 624.35 | 364.27 | 443.08 | 0.00 | 483253.00 | 3912005.00 |
| 250.45 | 3105.17 | 954.18 | 282.58 | 597.30 | 0.00 | 483921.00 | 3912335.00 |
| 382.43 | 2830.97 | 822.58 | 286.68 | 679.68 | 0.00 | 483647.00 | 3912203.00 |
| 110.70 | 3802.92 | 1283.03 | 259.27 | 696.36 | 0.00 | 484619.00 | 3912664.00 |
| 342.74 | 2898.13 | 853.58 | 303.78 | 676.85 | 0.00 | 483714.00 | 3912234.00 |
| 508.16 | 2680.40 | 745.15 | 347.72 | 593.99 | 0.00 | 483497.00 | 3912126.00 |
| 341.87 | 2901.09 | 853.26 | 295.12 | 629.75 | 0.00 | 483717.00 | 3912234.00 |
| 151.27 | 3506.53 | 1145.96 | 363.99 | 756.76 | 0.00 | 484323.00 | 3912527.00 |
| 884.74 | 2413.01 | 613.75 | 352.53 | 538.68 | 0.00 | 483229.00 | 3911995.00 |
| 186.15 | 3332.58 | 1062.11 | 393.39 | 770.11 | 0.00 | 484149.00 | 3912443.00 |
| 193.72 | 3305.33 | 1044.00 | 378.86 | 733.92 | 0.00 | 484122.00 | 3912425.00 |
| 79.55 | 4169.23 | 1456.31 | 332.96 | 768.77 | 0.00 | 484986.00 | 3912837.00 |
| 296.62 | 2992.41 | 904.43 | 335.84 | 646.86 | 0.00 | 483809.00 | 3912285.00 |
| 698.77 | 2523.77 | 667.74 | 223.74 | 441.60 | 0.00 | 483340.00 | 3912049.00 |
| 465.73 | 2727.38 | 768.86 | 313.39 | 635.10 | 0.00 | 483544.00 | 3912150.00 |
| 319.37 | 2948.48 | 881.24 | 374.45 | 522.52 | 0.00 | 483765.00 | 3912262.00 |
| 143.49 | 3548.98 | 1169.10 | 359.98 | 658.41 | 0.00 | 484365.00 | 3912550.00 |
| 209.02 | 3242.35 | 1022.05 | 354.37 | 626.72 | 0.00 | 484059.00 | 3912403.00 |
| 101.12 | 3898.61 | 1326.28 | 354.00 | 760.66 | 0.00 | 484715.00 | 3912707.00 |
| 175.24 | 3389.73 | 1086.81 | 346.29 | 706.68 | 0.00 | 484206.00 | 3912468.00 |
| 444.53 | 2747.03 | 776.53 | 319.24 | 753.96 | 0.00 | 483563.00 | 3912157.00 |
| 955.60 | 2398.20 | 592.76 | 390.37 | 708.97 | 0.00 | 483214.00 | 3911974.00 |
| 346.61 | 2887.78 | 855.77 | 379.57 | 643.23 | 0.00 | 483704.00 | 3912237.00 |
| 143.65 | 3549.88 | 1167.17 | 343.99 | 666.48 | 0.00 | 484366.00 | 3912548.00 |

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|---|---|---|---|---|---|---|---|
| 671.44 | 2536.87 | 677.17 | 296.29 | 531.66 | 0.00 | 483353.00 | 3912058.00 |
| 263.79 | 3074.83 | 942.65 | 376.69 | 698.66 | 0.00 | 483891.00 | 3912323.00 |
| 140.58 | 3567.26 | 1178.57 | 412.98 | 686.45 | 0.00 | 484384.00 | 3912559.00 |
| 89.29 | 4029.12 | 1395.28 | 326.89 | 643.98 | 0.00 | 484845.00 | 3912776.00 |
| 324.82 | 2936.31 | 874.53 | 398.43 | 597.00 | 0.00 | 483753.00 | 3912255.00 |
| 472.84 | 2713.34 | 762.79 | 359.89 | 621.38 | 0.00 | 483530.00 | 3912144.00 |
| 285.65 | 3027.91 | 906.64 | 376.36 | 742.47 | 0.00 | 483844.00 | 3912287.00 |
| 149.05 | 3518.00 | 1150.61 | 380.47 | 757.82 | 0.00 | 484334.00 | 3912531.00 |
| 290.93 | 3011.11 | 901.30 | 319.84 | 757.66 | 0.00 | 483827.00 | 3912282.00 |
| 231.22 | 3169.64 | 991.77 | 426.92 | 465.41 | 0.00 | 483986.00 | 3912373.00 |
| 105.54 | 3855.03 | 1303.88 | 331.20 | 700.02 | 0.00 | 484671.00 | 3912685.00 |
| 227.05 | 3176.07 | 987.60 | 362.89 | 690.91 | 0.00 | 483992.00 | 3912368.00 |
| 25.83 | 5921.91 | 2278.22 | 389.04 | 906.09 | 0.00 | 486738.00 | 3913659.00 |
| 658.26 | 2540.11 | 675.64 | 325.69 | 656.19 | 0.00 | 483356.00 | 3912056.00 |
| 124.62 | 3680.18 | 1227.72 | 377.53 | 695.10 | 0.00 | 484496.00 | 3912609.00 |
| 272.19 | 3049.95 | 929.61 | 350.78 | 585.34 | 0.00 | 483866.00 | 3912310.00 |
| 369.51 | 2849.95 | 830.76 | 351.04 | 778.81 | 0.00 | 483666.00 | 3912212.00 |
| 164.21 | 3432.52 | 1111.08 | 340.50 | 711.01 | 0.00 | 484249.00 | 3912492.00 |
| 66.37 | 4390.49 | 1558.85 | 351.30 | 740.66 | 0.00 | 485207.00 | 3912940.00 |
| 441.34 | 2753.11 | 788.43 | 383.80 | 605.21 | 0.00 | 483569.00 | 3912169.00 |
| 227.65 | 3183.68 | 987.51 | 366.76 | 793.29 | 0.00 | 484000.00 | 3912368.00 |
| 247.75 | 3116.18 | 958.73 | 317.15 | 707.25 | 0.00 | 483932.00 | 3912340.00 |
| 248.63 | 3116.96 | 960.02 | 341.99 | 695.86 | 0.00 | 483933.00 | 3912341.00 |
| 282.73 | 3024.44 | 915.37 | 268.86 | 566.11 | 0.00 | 483841.00 | 3912296.00 |
| 178.28 | 3366.06 | 1078.02 | 381.78 | 725.00 | 0.00 | 484182.00 | 3912459.00 |
| 375.67 | 2848.81 | 828.07 | 328.03 | 766.68 | 0.00 | 483665.00 | 3912209.00 |
| 395.86 | 2810.38 | 815.63 | 336.53 | 551.73 | 0.00 | 483627.00 | 3912196.00 |
| 355.09 | 2874.71 | 842.61 | 392.29 | 803.29 | 0.00 | 483691.00 | 3912223.00 |
| 336.00 | 2915.85 | 858.29 | 312.59 | 707.16 | 0.00 | 483732.00 | 3912239.00 |
| 200.14 | 3279.25 | 1041.01 | 344.35 | 481.15 | 0.00 | 484096.00 | 3912422.00 |
| 382.56 | 2838.83 | 818.41 | 270.86 | 606.68 | 0.00 | 483655.00 | 3912199.00 |
| 277.50 | 3047.11 | 919.42 | 346.61 | 644.82 | 0.00 | 483863.00 | 3912300.00 |
| 175.15 | 3386.48 | 1092.68 | 347.49 | 641.11 | 0.00 | 484203.00 | 3912473.00 |
| 526.71 | 2658.79 | 736.95 | 375.96 | 639.92 | 0.00 | 483475.00 | 3912118.00 |
| 419.31 | 2782.65 | 790.76 | 325.62 | 717.83 | 0.00 | 483599.00 | 3912172.00 |
| 410.99 | 2788.70 | 797.46 | 336.18 | 769.91 | 0.00 | 483605.00 | 3912178.00 |
| 434.45 | 2753.69 | 782.57 | 301.38 | 687.26 | 0.00 | 483570.00 | 3912163.00 |
| 326.64 | 2934.63 | 865.80 | 308.58 | 787.09 | 0.00 | 483751.00 | 3912247.00 |
| 375.78 | 2844.63 | 822.87 | 342.01 | 623.94 | 0.00 | 483661.00 | 3912204.00 |
| 148.34 | 3519.08 | 1153.87 | 326.13 | 682.63 | 0.00 | 484335.00 | 3912535.00 |
| 221.09 | 3202.31 | 998.49 | 223.89 | 658.65 | 0.00 | 484019.00 | 3912379.00 |
| 287.94 | 3012.09 | 910.10 | 353.21 | 697.53 | 0.00 | 483828.00 | 3912291.00 |
| 235.18 | 3154.98 | 974.59 | 397.84 | 729.51 | 0.00 | 483971.00 | 3912355.00 |
| 194.41 | 3302.66 | 1041.81 | 363.17 | 762.60 | 0.00 | 484119.00 | 3912423.00 |
| 157.73 | 3471.37 | 1125.35 | 311.30 | 704.98 | 0.00 | 484288.00 | 3912506.00 |
| 49.79 | 4785.48 | 1745.75 | 371.76 | 685.86 | 0.00 | 485602.00 | 3913127.00 |
| 256.41 | 3099.54 | 945.45 | 300.00 | 664.70 | 0.00 | 483916.00 | 3912326.00 |
| 637.28 | 2566.64 | 689.28 | 295.02 | 544.61 | 0.00 | 483383.00 | 3912070.00 |
| 409.94 | 2793.06 | 800.74 | 357.13 | 720.95 | 0.00 | 483609.00 | 3912182.00 |
| 202.08 | 3273.38 | 1044.41 | 417.02 | 475.20 | 0.00 | 484090.00 | 3912425.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 334.44 | 4818.99 | 1402.34 | 548.27 | 1233.95 | **36.56** | 485635.00 | 3912783.00 |
| 76.41 | 6641.40 | 2272.15 | 528.65 | 1093.45 | 0.00 | 487458.00 | 3913653.00 |
| 326.91 | 4836.03 | 1417.68 | 453.98 | 1026.30 | 0.00 | 485652.00 | 3912798.00 |
| 214.43 | 5241.84 | 1608.26 | 550.85 | 1343.83 | 0.00 | 486058.00 | 3912989.00 |
| 80.29 | 6559.54 | 2232.08 | 525.75 | 1217.81 | 0.00 | 487376.00 | 3913613.00 |
| 352.92 | 4767.99 | 1388.22 | 444.90 | 884.51 | 0.00 | 485584.00 | 3912769.00 |
| 509.28 | 4494.77 | 1257.19 | 574.88 | 768.27 | 0.00 | 485311.00 | 3912638.00 |
| 288.73 | 4956.86 | 1478.01 | 524.41 | 735.84 | 0.00 | 485773.00 | 3912859.00 |
| 262.23 | 5045.38 | 1514.09 | 516.12 | 1120.58 | 0.00 | 485862.00 | 3912895.00 |
| 286.16 | 4956.96 | 1477.52 | 487.23 | 887.51 | 0.00 | 485773.00 | 3912858.00 |
| 291.48 | 4939.83 | 1463.40 | 474.95 | 1150.54 | 0.00 | 485756.00 | 3912844.00 |
| 353.99 | 4772.72 | 1388.72 | 416.07 | 878.21 | 0.00 | 485589.00 | 3912770.00 |
| 331.07 | 4831.43 | 1416.05 | 416.61 | 913.64 | 0.00 | 485648.00 | 3912797.00 |
| 279.77 | 4974.25 | 1492.41 | 507.09 | 898.24 | 0.00 | 485791.00 | 3912873.00 |
| 296.18 | 4924.72 | 1466.15 | 570.16 | 688.89 | 0.00 | 485741.00 | 3912847.00 |
| 255.66 | 5064.62 | 1534.96 | 699.27 | 1050.49 | 0.00 | 485881.00 | 3912916.00 |
| 166.61 | 5530.12 | 1738.67 | 597.09 | 1207.21 | 0.00 | 486346.00 | 3913119.00 |
| 53.37 | 7315.57 | 2588.08 | 593.51 | 1184.07 | 0.00 | 488132.00 | 3913969.00 |
| 382.01 | 4714.86 | 1359.84 | 505.72 | 985.99 | 0.00 | 485531.00 | 3912741.00 |
| 465.96 | 4561.84 | 1283.46 | 407.42 | 692.87 | 0.00 | 485378.00 | 3912664.00 |
| 189.68 | 5380.38 | 1665.41 | 563.48 | 1221.30 | 0.00 | 486197.00 | 3913046.00 |
| 114.03 | 6013.86 | 1966.31 | 496.27 | 1159.62 | 0.00 | 486830.00 | 3913347.00 |
| 234.19 | 5154.38 | 1568.32 | 533.23 | 1194.89 | 0.00 | 485971.00 | 3912949.00 |
| 80.59 | 6551.28 | 2230.30 | 516.82 | 1082.29 | 0.00 | 487368.00 | 3913611.00 |
| 251.26 | 5080.95 | 1532.87 | 542.83 | 1046.43 | 0.00 | 485897.00 | 3912914.00 |
| 163.90 | 5539.07 | 1748.63 | 494.43 | 1388.96 | 0.00 | 486355.00 | 3913129.00 |
| 227.41 | 5182.29 | 1585.26 | 555.39 | 1016.19 | 0.00 | 485999.00 | 3912966.00 |
| 397.24 | 4686.28 | 1349.81 | 626.08 | 710.14 | 0.00 | 485503.00 | 3912731.00 |
| 259.24 | 5055.32 | 1521.03 | 606.11 | 1168.36 | 0.00 | 485872.00 | 3912902.00 |
| 342.63 | 4804.68 | 1399.49 | 549.09 | 940.79 | 0.00 | 485621.00 | 3912780.00 |
| 337.38 | 4810.07 | 1403.22 | 519.56 | 1248.14 | 0.00 | 485626.00 | 3912784.00 |
| 315.72 | 4872.85 | 1431.51 | 592.92 | 1248.81 | 0.00 | 485689.00 | 3912812.00 |
| 71.11 | 6770.50 | 2327.19 | 629.50 | 1143.65 | 0.00 | 487587.00 | 3913708.00 |
| 453.34 | 4575.85 | 1298.57 | 559.09 | 901.48 | 0.00 | 485392.00 | 3912679.00 |
| 17.23 | 10396.61 | 4018.26 | 720.40 | 1401.90 | 0.00 | 491213.00 | 3915399.00 |
| 433.88 | 4614.38 | 1314.10 | 426.09 | 762.36 | 0.00 | 485431.00 | 3912695.00 |
| 259.93 | 5047.99 | 1515.29 | 477.50 | 1166.97 | 0.00 | 485864.00 | 3912896.00 |
| 262.47 | 5043.09 | 1510.40 | 383.72 | 1025.06 | 0.00 | 485859.00 | 3912891.00 |
| 161.18 | 5558.99 | 1762.14 | 426.14 | 1055.09 | 0.00 | 486375.00 | 3913143.00 |
| 398.13 | 4670.70 | 1343.53 | 567.84 | 1067.67 | 0.00 | 485487.00 | 3912724.00 |
| 205.48 | 5288.21 | 1629.61 | 539.95 | 1293.60 | 0.00 | 486104.00 | 3913010.00 |
| 145.58 | 5687.34 | 1818.65 | 469.57 | 1085.52 | 0.00 | 486504.00 | 3913199.00 |
| 280.63 | 4981.13 | 1498.10 | 537.40 | 566.27 | 0.00 | 485797.00 | 3912879.00 |
| 705.51 | 4291.83 | 1156.63 | 504.77 | 594.62 | 0.00 | 485108.00 | 3912537.00 |
| 520.49 | 4476.60 | 1236.56 | 379.03 | 942.74 | 0.00 | 485293.00 | 3912617.00 |
| 125.38 | 5888.28 | 1921.75 | 621.57 | 1012.78 | 0.00 | 486705.00 | 3913303.00 |
| 388.13 | 4704.02 | 1360.85 | 630.37 | 839.23 | 0.00 | 485520.00 | 3912742.00 |
| 180.23 | 5433.57 | 1710.06 | 549.14 | 923.51 | 0.00 | 486250.00 | 3913091.00 |
| 285.66 | 4966.99 | 1479.74 | 614.67 | 1051.65 | 0.00 | 485783.00 | 3912861.00 |
| 661.35 | 4308.70 | 1156.80 | 508.66 | 1067.65 | 0.00 | 485125.00 | 3912538.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 222.09 | 5209.00 | 1596.16 | 622.06 | 1222.71 | 0.00 | 486025.00 | 3912977.00 |
| 334.01 | 4826.24 | 1411.04 | 546.05 | 1087.74 | 0.00 | 485643.00 | 3912792.00 |
| 165.01 | 5532.50 | 1738.35 | 534.43 | 1087.11 | 0.00 | 486349.00 | 3913119.00 |
| 267.98 | 5019.10 | 1501.11 | 463.10 | 1134.30 | 0.00 | 485835.00 | 3912882.00 |
| 187.72 | 5390.13 | 1681.40 | 542.25 | 1161.52 | 0.00 | 486206.00 | 3913062.00 |
| 101.09 | 6192.60 | 2057.83 | 545.01 | 1169.10 | 0.00 | 487009.00 | 3913439.00 |
| 385.26 | 4698.95 | 1344.58 | 486.25 | 1120.75 | 0.00 | 485515.00 | 3912725.00 |
| 280.89 | 4978.08 | 1482.53 | 576.01 | 1147.40 | 0.00 | 485794.00 | 3912863.00 |
| 45.62 | 7648.43 | 2745.66 | 671.43 | 1199.90 | 0.00 | 488465.00 | 3914126.00 |
| 107.87 | 6096.61 | 2020.42 | 667.25 | 1120.51 | 0.00 | 486913.00 | 3913401.00 |
| 211.32 | 5262.13 | 1622.97 | 626.96 | 1113.29 | 0.00 | 486078.00 | 3913004.00 |
| 174.24 | 5476.26 | 1725.58 | 432.34 | 682.01 | 0.00 | 486293.00 | 3913106.00 |
| 134.81 | 5784.84 | 1861.31 | 630.92 | 1121.85 | 0.00 | 486601.00 | 3913242.00 |
| 245.37 | 5111.02 | 1549.79 | 603.43 | 1112.06 | 0.00 | 485927.00 | 3912931.00 |
| 245.35 | 5113.99 | 1549.74 | 419.30 | 913.03 | 0.00 | 485930.00 | 3912931.00 |
| 343.66 | 4801.98 | 1399.65 | 636.84 | 1183.18 | 0.00 | 485618.00 | 3912780.00 |
| 432.31 | 4609.83 | 1318.59 | 589.95 | 947.73 | 0.00 | 485426.00 | 3912699.00 |
| 318.11 | 4872.31 | 1436.02 | 492.80 | 729.90 | 0.00 | 485689.00 | 3912817.00 |
| 189.30 | 5382.61 | 1677.09 | 618.59 | 1266.55 | 0.00 | 486199.00 | 3913058.00 |
| 581.97 | 4397.92 | 1209.76 | 518.13 | 698.66 | 0.00 | 485214.00 | 3912591.00 |
| 169.62 | 5507.94 | 1731.38 | 406.01 | 970.07 | 0.00 | 486324.00 | 3913112.00 |
| 218.36 | 5224.23 | 1607.98 | 536.87 | 1004.56 | 0.00 | 486041.00 | 3912989.00 |
| 188.04 | 5390.70 | 1683.37 | 609.10 | 1036.09 | 0.00 | 486207.00 | 3913064.00 |
| 279.75 | 4985.16 | 1483.92 | 434.40 | 983.94 | 0.00 | 485801.00 | 3912865.00 |
| 476.90 | 4534.59 | 1269.75 | 377.36 | 894.08 | 0.00 | 485351.00 | 3912651.00 |
| 225.74 | 5192.47 | 1593.23 | 554.02 | 868.23 | 0.00 | 486009.00 | 3912974.00 |
| 482.14 | 4536.53 | 1270.98 | 440.12 | 767.91 | 0.00 | 485353.00 | 3912652.00 |
| 366.57 | 4747.85 | 1371.94 | 468.60 | 1015.26 | 0.00 | 485564.00 | 3912753.00 |
| 204.71 | 5295.73 | 1644.41 | 638.81 | 867.18 | 0.00 | 486112.00 | 3913025.00 |
| 185.74 | 5398.76 | 1686.82 | 677.99 | 1316.11 | 0.00 | 486215.00 | 3913068.00 |
| 228.76 | 5180.13 | 1578.77 | 494.08 | 1201.80 | 0.00 | 485996.00 | 3912960.00 |
| 272.16 | 5012.04 | 1505.71 | 577.55 | 843.44 | 0.00 | 485828.00 | 3912886.00 |
| 426.15 | 4626.20 | 1314.69 | 439.87 | 884.22 | 0.00 | 485442.00 | 3912695.00 |
| 153.10 | 5624.21 | 1789.68 | 478.42 | 1239.08 | 0.00 | 486440.00 | 3913170.00 |
| 190.51 | 5377.35 | 1683.33 | 679.09 | 909.26 | 0.00 | 486194.00 | 3913064.00 |
| 490.57 | 4522.33 | 1268.21 | 453.86 | 795.56 | 0.00 | 485339.00 | 3912649.00 |
| 156.04 | 5607.84 | 1783.43 | 417.83 | 791.60 | 0.00 | 486424.00 | 3913164.00 |
| 274.41 | 5000.65 | 1502.65 | 568.19 | 745.71 | 0.00 | 485817.00 | 3912883.00 |
| 32.28 | 8477.06 | 3133.56 | 569.67 | 1068.54 | 0.00 | 489293.00 | 3914514.00 |
| 40.39 | 7921.95 | 2876.93 | 616.64 | 1071.86 | 0.00 | 488738.00 | 3914258.00 |
| 193.91 | 5359.54 | 1667.45 | 520.00 | 790.41 | 0.00 | 486176.00 | 3913048.00 |
| 143.52 | 5713.41 | 1820.03 | 510.24 | 1187.12 | 0.00 | 486530.00 | 3913201.00 |
| 990.81 | 4110.30 | 1048.80 | 338.99 | 530.27 | 0.00 | 484927.00 | 3912430.00 |
| 251.43 | 5087.28 | 1546.54 | 497.41 | 798.48 | 0.00 | 485904.00 | 3912927.00 |
| 210.51 | 5270.98 | 1620.21 | 520.12 | 1127.16 | 0.00 | 486087.00 | 3913001.00 |
| 324.41 | 4851.72 | 1423.69 | 636.66 | 1105.91 | 0.00 | 485668.00 | 3912804.00 |
| 513.98 | 4491.26 | 1250.10 | 520.25 | 867.71 | 0.00 | 485308.00 | 3912631.00 |
| 211.60 | 5261.57 | 1622.54 | 575.81 | 991.26 | 0.00 | 486078.00 | 3913003.00 |
| 129.30 | 5838.95 | 1893.95 | 678.11 | 1365.02 | 0.00 | 486655.00 | 3913275.00 |
| 107.15 | 6106.31 | 2021.85 | 612.04 | 1023.08 | 0.00 | 486923.00 | 3913403.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 99.55 | 11103.54 | 3599.01 | 852.52 | 1999.82 | **46.38** | 491920.00 | 3914980.00 |
| 373.47 | 8775.64 | 2521.03 | 899.78 | 670.14 | 0.00 | 489592.00 | 3913902.00 |
| 520.58 | 8405.71 | 2318.25 | 479.47 | 621.92 | 0.00 | 489222.00 | 3913699.00 |
| 351.74 | 8846.80 | 2552.80 | 943.52 | 939.55 | 0.00 | 489663.00 | 3913934.00 |
| 364.77 | 8802.31 | 2520.88 | 529.56 | 889.75 | 0.00 | 489619.00 | 3913902.00 |
| 142.41 | 10308.62 | 3238.55 | 1247.08 | 2183.09 | 0.00 | 491125.00 | 3914619.00 |
| 247.49 | 9340.77 | 2786.77 | 1196.81 | 1712.72 | 0.00 | 490157.00 | 3914168.00 |
| 667.19 | 8165.82 | 2204.75 | 597.71 | 871.93 | 0.00 | 488982.00 | 3913586.00 |
| 364.86 | 8806.78 | 2526.74 | 737.94 | 934.91 | 0.00 | 489623.00 | 3913908.00 |
| 460.26 | 8532.76 | 2391.67 | 657.27 | 846.73 | 0.00 | 489349.00 | 3913772.00 |
| 221.64 | 9514.82 | 2867.28 | 1200.08 | 1337.78 | 0.00 | 490331.00 | 3914248.00 |
| 225.36 | 9491.75 | 2857.92 | 1014.27 | 1194.55 | 0.00 | 490308.00 | 3914239.00 |
| 70.25 | 12018.52 | 4026.15 | 967.39 | 2165.84 | 0.00 | 492835.00 | 3915407.00 |
| 268.04 | 9225.08 | 2721.72 | 761.00 | 1314.70 | 0.00 | 490041.00 | 3914103.00 |
| 232.25 | 9443.12 | 2822.52 | 880.07 | 1956.41 | 0.00 | 490259.00 | 3914203.00 |
| 250.45 | 9324.20 | 2779.44 | 1124.35 | 1404.42 | 0.00 | 490140.00 | 3914160.00 |
| 246.08 | 9357.02 | 2791.04 | 730.37 | 993.89 | 0.00 | 490173.00 | 3914172.00 |
| 517.42 | 8393.07 | 2321.17 | 887.18 | 1107.74 | 0.00 | 489209.00 | 3913702.00 |
| 441.69 | 8580.80 | 2413.55 | 647.73 | 724.20 | 0.00 | 489397.00 | 3913794.00 |
| 211.73 | 9587.36 | 2897.37 | 856.73 | 1546.02 | 0.00 | 490404.00 | 3914278.00 |
| 342.55 | 8885.54 | 2561.71 | 775.09 | 931.75 | 0.00 | 489702.00 | 3913942.00 |
| 156.60 | 10126.06 | 3143.93 | 825.60 | 1848.94 | 0.00 | 490942.00 | 3914525.00 |
| 609.31 | 8243.47 | 2244.08 | 566.26 | 670.78 | 0.00 | 489060.00 | 3913625.00 |
| 294.94 | 9083.95 | 2658.83 | 1038.87 | 1198.39 | 0.00 | 489900.00 | 3914040.00 |
| 467.58 | 8519.24 | 2375.87 | 411.49 | 805.74 | 0.00 | 489336.00 | 3913757.00 |
| 268.92 | 9225.24 | 2717.48 | 785.36 | 1656.59 | 0.00 | 490042.00 | 3914098.00 |
| 279.78 | 9159.03 | 2688.42 | 525.56 | 1038.79 | 0.00 | 489975.00 | 3914069.00 |
| 160.88 | 10072.82 | 3130.27 | 1062.17 | 1640.12 | 0.00 | 490889.00 | 3914511.00 |
| 383.17 | 8744.80 | 2489.76 | 553.24 | 1153.80 | 0.00 | 489561.00 | 3913871.00 |
| 318.91 | 8977.86 | 2603.95 | 553.33 | 959.77 | 0.00 | 489794.00 | 3913985.00 |
| 199.22 | 9690.14 | 2948.43 | 1012.09 | 1530.21 | 0.00 | 490506.00 | 3914329.00 |
| 285.25 | 9133.96 | 2675.31 | 835.49 | 1384.43 | 0.00 | 489950.00 | 3914056.00 |
| 102.03 | 11046.50 | 3581.92 | 989.86 | 2042.22 | 0.00 | 491863.00 | 3914963.00 |
| 549.34 | 8347.58 | 2291.99 | 454.60 | 693.84 | 0.00 | 489164.00 | 3913673.00 |
| 277.89 | 9177.53 | 2696.68 | 655.71 | 1331.24 | 0.00 | 489994.00 | 3914077.00 |
| 100.15 | 11096.50 | 3597.74 | 846.03 | 1980.73 | 0.00 | 491913.00 | 3914979.00 |
| 317.15 | 8990.80 | 2617.23 | 733.93 | 780.99 | 0.00 | 489807.00 | 3913998.00 |
| 75.46 | 11816.21 | 3938.47 | 1185.80 | 2141.60 | 0.00 | 492632.00 | 3915319.00 |
| 229.76 | 9462.41 | 2842.94 | 694.04 | 876.65 | 0.00 | 490279.00 | 3914224.00 |
| 116.50 | 10741.05 | 3436.92 | 1053.05 | 1681.35 | 0.00 | 491557.00 | 3914818.00 |
| 26.84 | 15532.00 | 5656.54 | 1122.20 | 2223.45 | 0.00 | 496348.00 | 3917037.00 |
| 307.81 | 9028.39 | 2626.70 | 832.05 | 1233.57 | 0.00 | 489845.00 | 3914007.00 |
| 406.42 | 8670.72 | 2452.68 | 442.68 | 722.50 | 0.00 | 489487.00 | 3913833.00 |
| 1368.16 | 7657.23 | 1916.40 | 400.48 | 497.59 | 0.00 | 488474.00 | 3913297.00 |
| 108.90 | 10894.20 | 3503.06 | 940.74 | 1885.13 | 0.00 | 491710.00 | 3914884.00 |
| 59.11 | 12532.82 | 4276.92 | 925.14 | 2214.32 | 0.00 | 493349.00 | 3915658.00 |
| 197.42 | 9708.74 | 2949.28 | 999.76 | 1907.26 | 0.00 | 490525.00 | 3914330.00 |
| 246.71 | 9345.67 | 2778.59 | 969.93 | 1384.16 | 0.00 | 490162.00 | 3914159.00 |
| 399.45 | 8696.24 | 2461.89 | 760.30 | 1398.00 | 0.00 | 489513.00 | 3913843.00 |

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|---|---|---|---|---|---|---|---|
| 227.41 | 9482.28 | 2846.73 | 829.83 | 1043.59 | 0.00 | 490299.00 | 3914228.00 |
| 264.85 | 9246.29 | 2724.10 | 905.33 | 1666.70 | 0.00 | 490063.00 | 3914105.00 |
| 379.73 | 8755.93 | 2495.09 | 697.52 | 1341.23 | 0.00 | 489572.00 | 3913876.00 |
| 303.13 | 9047.45 | 2629.83 | 769.80 | 1529.85 | 0.00 | 489864.00 | 3914011.00 |
| 256.16 | 9289.23 | 2762.79 | 807.67 | 901.68 | 0.00 | 490106.00 | 3914144.00 |
| 60.51 | 12461.54 | 4237.29 | 1087.26 | 2333.90 | 0.00 | 493278.00 | 3915618.00 |
| 378.76 | 8754.16 | 2502.58 | 809.22 | 925.98 | 0.00 | 489570.00 | 3913883.00 |
| 223.44 | 9506.49 | 2865.32 | 1031.46 | 1207.68 | 0.00 | 490323.00 | 3914246.00 |
| 255.22 | 9283.27 | 2756.25 | 1046.76 | 1763.90 | 0.00 | 490100.00 | 3914137.00 |
| 1177.40 | 7731.75 | 1967.46 | 512.91 | 624.12 | 0.00 | 488548.00 | 3913348.00 |
| 176.18 | 9913.73 | 3051.77 | 738.70 | 1242.12 | 0.00 | 490730.00 | 3914433.00 |
| 49.11 | 13135.20 | 4574.17 | 1282.82 | 1765.96 | 0.00 | 493951.00 | 3915955.00 |
| 520.37 | 8393.28 | 2323.19 | 627.64 | 1001.74 | 0.00 | 489210.00 | 3913704.00 |
| 136.86 | 10391.41 | 3270.74 | 885.90 | 1794.50 | 0.00 | 491208.00 | 3914652.00 |
| 80.96 | 11623.64 | 3840.00 | 1033.06 | 2123.11 | 0.00 | 492440.00 | 3915221.00 |
| 122.80 | 10626.49 | 3389.33 | 1077.32 | 1551.34 | 0.00 | 491443.00 | 3914770.00 |
| 455.74 | 8541.10 | 2382.85 | 602.81 | 1198.95 | 0.00 | 489357.00 | 3913764.00 |
| 157.66 | 10111.45 | 3133.87 | 1006.42 | 1981.05 | 0.00 | 490928.00 | 3914515.00 |
| 184.68 | 9822.80 | 3001.59 | 1147.31 | 1732.51 | 0.00 | 490639.00 | 3914382.00 |
| 346.16 | 8872.84 | 2551.94 | 886.98 | 1366.50 | 0.00 | 489689.00 | 3913933.00 |
| 248.17 | 9346.15 | 2788.35 | 976.97 | 1076.11 | 0.00 | 490162.00 | 3914169.00 |
| 314.74 | 9004.14 | 2624.82 | 732.77 | 701.22 | 0.00 | 489820.00 | 3914006.00 |
| 147.36 | 10252.32 | 3217.95 | 1157.96 | 1757.19 | 0.00 | 491069.00 | 3914599.00 |
| 492.69 | 8450.96 | 2354.47 | 821.56 | 1082.58 | 0.00 | 489267.00 | 3913735.00 |
| 626.61 | 8217.64 | 2225.77 | 851.79 | 937.57 | 0.00 | 489034.00 | 3913607.00 |
| 80.10 | 11657.16 | 3859.28 | 799.53 | 2038.20 | 0.00 | 492473.00 | 3915240.00 |
| 256.69 | 9289.28 | 2746.28 | 822.28 | 1342.63 | 0.00 | 490106.00 | 3914127.00 |
| 523.39 | 8386.89 | 2318.02 | 686.40 | 1041.25 | 0.00 | 489203.00 | 3913699.00 |
| 228.01 | 9468.47 | 2846.06 | 777.20 | 1466.83 | 0.00 | 490285.00 | 3914227.00 |
| 116.05 | 10749.24 | 3453.41 | 1156.63 | 1392.64 | 0.00 | 491566.00 | 3914834.00 |
| 142.37 | 10312.79 | 3239.22 | 663.13 | 1506.84 | 0.00 | 491129.00 | 3914620.00 |
| 322.35 | 8966.53 | 2596.54 | 822.35 | 1143.33 | 0.00 | 489783.00 | 3913977.00 |
| 133.75 | 10442.74 | 3293.96 | 870.05 | 1615.23 | 0.00 | 491259.00 | 3914675.00 |
| 124.14 | 10599.68 | 3356.82 | 862.82 | 1992.84 | 0.00 | 491416.00 | 3914738.00 |
| 171.58 | 9957.84 | 3069.75 | 841.70 | 1985.14 | 0.00 | 490774.00 | 3914451.00 |
| 253.26 | 9309.32 | 2764.62 | 731.47 | 1485.48 | 0.00 | 490126.00 | 3914145.00 |
| 240.00 | 9395.23 | 2796.77 | 841.78 | 1846.82 | 0.00 | 490212.00 | 3914178.00 |
| 639.31 | 8182.89 | 2218.59 | 596.05 | 856.51 | 0.00 | 488999.00 | 3913599.00 |
| 425.12 | 8618.14 | 2431.85 | 713.77 | 1150.57 | 0.00 | 489434.00 | 3913813.00 |
| 542.92 | 8356.01 | 2299.73 | 920.34 | 1000.04 | 0.00 | 489172.00 | 3913681.00 |
| 372.77 | 8784.48 | 2505.42 | 599.79 | 910.77 | 0.00 | 489601.00 | 3913886.00 |
| 490.49 | 8468.14 | 2351.96 | 639.26 | 810.24 | 0.00 | 489284.00 | 3913733.00 |
| 559.88 | 8326.22 | 2286.53 | 682.74 | 1025.24 | 0.00 | 489143.00 | 3913667.00 |
| 217.87 | 9545.74 | 2872.69 | 1126.10 | 1755.73 | 0.00 | 490362.00 | 3914253.00 |
| 388.50 | 8720.95 | 2484.93 | 775.24 | 1287.42 | 0.00 | 489537.00 | 3913866.00 |
| 714.91 | 8111.56 | 2169.97 | 565.39 | 744.00 | 0.00 | 488928.00 | 3913551.00 |
| 266.74 | 9231.56 | 2737.37 | 886.50 | 1123.10 | 0.00 | 490048.00 | 3914118.00 |
| 90.10 | 11346.93 | 3713.79 | 918.65 | 2049.36 | 0.00 | 492163.00 | 3915095.00 |
| 349.66 | 8858.03 | 2553.90 | 784.90 | 918.79 | 0.00 | 489674.00 | 3913935.00 |
| 269.93 | 9225.42 | 2710.34 | 886.70 | 1272.33 | 0.00 | 490042.00 | 3914091.00 |
| 347.34 | 8867.81 | 2554.96 | 571.90 | 742.43 | 0.00 | 489684.00 | 3913936.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 480.22 | 474.03 | 109.20 | 82.97 | 174.55 | **19.21** | 481290.00 | 3911490.00 |
| 440.09 | 508.25 | 123.21 | 88.65 | 155.12 | 0.00 | 481325.00 | 3911504.00 |
| 289.68 | 640.93 | 186.31 | 96.98 | 179.91 | 0.00 | 481457.00 | 3911567.00 |
| 172.71 | 794.96 | 269.54 | 74.91 | 150.77 | 0.00 | 481611.00 | 3911650.00 |
| 497.75 | 484.08 | 104.73 | 90.00 | 208.32 | 0.00 | 481300.00 | 3911486.00 |
| 233.95 | 704.14 | 217.89 | 75.93 | 153.24 | 0.00 | 481520.00 | 3911599.00 |
| 595.50 | 705.31 | 211.66 | 92.00 | 170.22 | 0.00 | 481522.00 | 3911592.00 |
| 276.44 | 649.04 | 192.22 | 87.64 | 180.76 | 0.00 | 481465.00 | 3911573.00 |
| 142.86 | 857.15 | 300.98 | 87.32 | 165.49 | 0.00 | 481673.00 | 3911682.00 |
| 299.20 | 625.77 | 179.98 | 70.77 | 170.49 | 0.00 | 481442.00 | 3911561.00 |
| 239.37 | 686.94 | 214.62 | 82.85 | 166.71 | 0.00 | 481503.00 | 3911595.00 |
| 344.00 | 584.67 | 157.61 | 81.58 | 151.42 | 0.00 | 481401.00 | 3911538.00 |
| 370.62 | 559.75 | 148.16 | 79.28 | 180.45 | 0.00 | 481376.00 | 3911529.00 |
| 116.12 | 945.24 | 339.03 | 90.18 | 132.91 | 0.00 | 481762.00 | 3911720.00 |
| 1116.86 | 969.88 | 327.77 | 106.12 | 188.57 | 0.00 | 481786.00 | 3911709.00 |
| 373.14 | 564.89 | 148.48 | 109.31 | 161.13 | 0.00 | 481381.00 | 3911529.00 |
| 490.80 | 484.10 | 105.95 | 67.70 | 160.48 | 0.00 | 481300.00 | 3911487.00 |
| 193.99 | 765.60 | 249.06 | 73.84 | 145.27 | 0.00 | 481582.00 | 3911630.00 |
| 172.10 | 805.24 | 270.44 | 86.52 | 152.60 | 0.00 | 481622.00 | 3911651.00 |
| 401.18 | 547.27 | 136.85 | 87.55 | 182.57 | 0.00 | 481364.00 | 3911518.00 |
| 140.10 | 877.40 | 303.69 | 93.59 | 164.52 | 0.00 | 481694.00 | 3911684.00 |
| 392.22 | 545.65 | 139.95 | 92.91 | 146.61 | 0.00 | 481362.00 | 3911521.00 |
| 88.28 | 1062.46 | 395.42 | 80.28 | 151.83 | 0.00 | 481879.00 | 3911776.00 |
| 308.85 | 618.50 | 175.04 | 84.22 | 199.16 | 0.00 | 481435.00 | 3911556.00 |
| 335.60 | 595.14 | 163.01 | 89.82 | 189.12 | 0.00 | 481411.00 | 3911544.00 |
| 111.22 | 963.01 | 348.77 | 99.00 | 160.32 | 0.00 | 481779.00 | 3911730.00 |
| 405.65 | 538.33 | 135.69 | 97.02 | 139.77 | 0.00 | 481355.00 | 3911516.00 |
| 281.70 | 638.70 | 189.53 | 84.97 | 169.30 | 0.00 | 481455.00 | 3911570.00 |
| 240.93 | 688.93 | 213.97 | 71.71 | 126.14 | 0.00 | 481505.00 | 3911595.00 |
| 187.50 | 774.03 | 254.72 | 81.30 | 160.37 | 0.00 | 481590.00 | 3911636.00 |
| 389.46 | 553.03 | 141.60 | 98.67 | 176.69 | 0.00 | 481369.00 | 3911522.00 |
| 198.89 | 759.64 | 244.79 | 83.25 | 160.20 | 0.00 | 481576.00 | 3911626.00 |
| 195.44 | 763.81 | 247.14 | 77.98 | 148.48 | 0.00 | 481580.00 | 3911628.00 |
| 907.64 | 818.05 | 251.23 | 114.59 | 179.77 | 0.00 | 481634.00 | 3911632.00 |
| 428.71 | 512.86 | 125.52 | 83.29 | 148.92 | 0.00 | 481329.00 | 3911506.00 |
| 418.45 | 521.60 | 130.60 | 89.50 | 169.28 | 0.00 | 481338.00 | 3911511.00 |
| 297.60 | 620.18 | 181.09 | 85.20 | 159.51 | 0.00 | 481436.00 | 3911562.00 |
| 277.91 | 648.53 | 190.54 | 73.48 | 153.24 | 0.00 | 481465.00 | 3911571.00 |
| 444.16 | 506.07 | 121.90 | 93.58 | 169.88 | 0.00 | 481322.00 | 3911503.00 |
| 61.75 | 1226.94 | 477.65 | 89.66 | 140.78 | 0.00 | 482043.00 | 3911858.00 |
| 117.02 | 944.73 | 337.11 | 75.57 | 160.03 | 0.00 | 481761.00 | 3911718.00 |
| 472.36 | 498.45 | 112.48 | 84.51 | 180.88 | 0.00 | 481315.00 | 3911493.00 |
| 394.61 | 544.27 | 139.63 | 63.43 | 153.76 | 0.00 | 481361.00 | 3911520.00 |
| 105.89 | 976.74 | 356.51 | 82.92 | 140.10 | 0.00 | 481793.00 | 3911737.00 |
| 140.57 | 872.39 | 302.76 | 77.57 | 162.11 | 0.00 | 481689.00 | 3911684.00 |
| 236.20 | 703.73 | 217.98 | 104.17 | 171.64 | 0.00 | 481520.00 | 3911599.00 |
| 354.01 | 569.87 | 154.45 | 83.70 | 168.84 | 0.00 | 481386.00 | 3911535.00 |
| 450.29 | 503.18 | 119.56 | 74.67 | 173.19 | 0.00 | 481319.00 | 3911500.00 |
| 120.67 | 927.00 | 331.56 | 81.34 | 134.95 | 0.00 | 481743.00 | 3911712.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 230.67 | 703.20 | 220.23 | 76.58 | 158.32 | 0.00 | 481519.00 | 3911601.00 |
| 512.65 | 469.25 | 102.19 | 100.11 | 185.50 | 0.00 | 481286.00 | 3911483.00 |
| 350.31 | 578.47 | 156.57 | 87.67 | 179.97 | 0.00 | 481395.00 | 3911537.00 |
| 251.25 | 685.70 | 206.52 | 91.34 | 163.48 | 0.00 | 481502.00 | 3911587.00 |
| 334.53 | 595.63 | 163.31 | 88.56 | 173.00 | 0.00 | 481412.00 | 3911544.00 |
| 300.43 | 630.38 | 180.35 | 96.01 | 161.09 | 0.00 | 481447.00 | 3911561.00 |
| 190.29 | 772.58 | 252.23 | 82.94 | 167.84 | 0.00 | 481589.00 | 3911633.00 |
| 168.80 | 814.39 | 273.62 | 93.84 | 165.47 | 0.00 | 481631.00 | 3911654.00 |
| 148.75 | 854.84 | 291.98 | 80.88 | 143.66 | 0.00 | 481671.00 | 3911673.00 |
| 207.40 | 750.52 | 239.58 | 103.41 | 167.48 | 0.00 | 481567.00 | 3911620.00 |
| 413.45 | 525.79 | 132.28 | 98.61 | 169.15 | 0.00 | 481342.00 | 3911513.00 |
| 168.82 | 815.19 | 273.01 | 96.55 | 174.93 | 0.00 | 481631.00 | 3911654.00 |
| 375.33 | 554.04 | 148.31 | 102.15 | 145.89 | 0.00 | 481370.00 | 3911529.00 |
| 161.14 | 830.13 | 277.37 | 84.09 | 155.92 | 0.00 | 481646.00 | 3911658.00 |
| 369.66 | 565.60 | 148.52 | 101.92 | 197.07 | 0.00 | 481382.00 | 3911529.00 |
| 161.11 | 819.41 | 277.81 | 86.28 | 163.96 | 0.00 | 481636.00 | 3911659.00 |
| 422.43 | 526.32 | 129.70 | 93.95 | 168.17 | 0.00 | 481343.00 | 3911510.00 |
| 395.39 | 541.48 | 138.26 | 77.15 | 168.78 | 0.00 | 481358.00 | 3911519.00 |
| 453.21 | 498.45 | 118.00 | 102.26 | 157.59 | 0.00 | 481315.00 | 3911499.00 |
| 208.64 | 737.91 | 235.70 | 73.98 | 159.51 | 0.00 | 481554.00 | 3911616.00 |
| 301.74 | 629.71 | 177.74 | 86.27 | 184.57 | 0.00 | 481446.00 | 3911559.00 |
| 401.12 | 540.39 | 137.15 | 111.20 | 165.05 | 0.00 | 481357.00 | 3911518.00 |
| 202.00 | 748.18 | 242.76 | 91.24 | 145.54 | 0.00 | 481564.00 | 3911624.00 |
| 321.83 | 608.67 | 170.73 | 107.29 | 156.04 | 0.00 | 481425.00 | 3911552.00 |
| 497.23 | 464.78 | 104.70 | 83.18 | 189.54 | 0.00 | 481281.00 | 3911485.00 |
| 312.41 | 612.30 | 173.73 | 86.62 | 190.07 | 0.00 | 481429.00 | 3911555.00 |
| 264.49 | 652.96 | 199.24 | 85.42 | 182.78 | 0.00 | 481469.00 | 3911580.00 |
| 146.89 | 847.11 | 294.87 | 62.38 | 138.30 | 0.00 | 481663.00 | 3911676.00 |
| 188.30 | 774.39 | 254.61 | 94.82 | 164.35 | 0.00 | 481591.00 | 3911635.00 |
| 385.64 | 567.56 | 143.65 | 95.41 | 161.72 | 0.00 | 481384.00 | 3911524.00 |
| 516.81 | 477.31 | 99.51 | 94.78 | 183.60 | 0.00 | 481294.00 | 3911480.00 |
| 276.01 | 659.23 | 191.80 | 93.27 | 170.79 | 0.00 | 481476.00 | 3911573.00 |
| 51.96 | 1321.09 | 521.57 | 89.84 | 164.08 | 0.00 | 482137.00 | 3911902.00 |
| 172.67 | 799.31 | 268.93 | 85.04 | 150.17 | 0.00 | 481616.00 | 3911650.00 |
| 172.06 | 807.34 | 270.00 | 89.85 | 170.09 | 0.00 | 481624.00 | 3911651.00 |
| 443.92 | 516.66 | 120.26 | 80.81 | 168.61 | 0.00 | 481333.00 | 3911501.00 |
| 383.50 | 556.32 | 143.64 | 95.97 | 147.79 | 0.00 | 481373.00 | 3911524.00 |
| 327.99 | 595.74 | 166.40 | 96.03 | 186.47 | 0.00 | 481412.00 | 3911547.00 |
| 594.95 | 630.15 | 170.11 | 102.71 | 157.14 | 0.00 | 481446.00 | 3911551.00 |
| 397.36 | 547.45 | 138.19 | 106.76 | 177.08 | 0.00 | 481364.00 | 3911519.00 |
| 460.05 | 500.27 | 116.00 | 97.65 | 170.91 | 0.00 | 481317.00 | 3911497.00 |
| 370.01 | 559.03 | 148.29 | 70.77 | 175.51 | 0.00 | 481375.00 | 3911529.00 |
| 316.26 | 610.99 | 171.46 | 83.40 | 183.86 | 0.00 | 481427.00 | 3911552.00 |
| 253.51 | 681.32 | 205.70 | 86.72 | 166.04 | 0.00 | 481498.00 | 3911586.00 |
| 207.63 | 733.48 | 237.59 | 88.14 | 157.61 | 0.00 | 481550.00 | 3911618.00 |
| 364.58 | 558.01 | 151.43 | 88.87 | 160.67 | 0.00 | 481374.00 | 3911532.00 |
| 148.08 | 852.16 | 293.14 | 89.45 | 166.52 | 0.00 | 481668.00 | 3911674.00 |
| 148.16 | 846.56 | 292.26 | 68.91 | 151.51 | 0.00 | 481663.00 | 3911673.00 |
| 406.38 | 528.09 | 134.47 | 95.97 | 168.51 | 0.00 | 481344.00 | 3911515.00 |
| 693.56 | 550.78 | 128.12 | 89.80 | 202.10 | 0.00 | 481367.00 | 3911509.00 |
| 215.64 | 730.69 | 231.93 | 83.76 | 162.93 | 0.00 | 481547.00 | 3911613.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 253.77 | 35114.94 | 9994.97 | 1035.25 | 1162.35 | **80.74** | 515931.00 | 3921376.00 |
| 655.39 | 31921.80 | 8434.93 | 849.77 | 753.27 | 0.00 | 512738.00 | 3919816.00 |
| 249.30 | 35194.32 | 10042.94 | 1169.25 | 1327.55 | 0.00 | 516011.00 | 3921424.00 |
| 242.25 | 35315.26 | 10089.74 | 1031.06 | 1230.67 | 0.00 | 516132.00 | 3921471.00 |
| 83.34 | 41660.98 | 13096.30 | 1676.09 | 2167.25 | 0.00 | 522477.00 | 3924477.00 |
| 136.02 | 38315.24 | 11511.10 | 1325.56 | 1768.22 | 0.00 | 519132.00 | 3922892.00 |
| 314.89 | 34227.37 | 9569.74 | 1028.48 | 1194.73 | 0.00 | 515044.00 | 3920951.00 |
| 491.22 | 32707.12 | 8834.98 | 854.29 | 695.91 | 0.00 | 513523.00 | 3920216.00 |
| 41.25 | 48167.98 | 16142.81 | 2440.68 | 3743.12 | 0.00 | 528984.00 | 3927524.00 |
| 153.51 | 37609.22 | 11170.55 | 1173.47 | 1508.31 | 0.00 | 518426.00 | 3922551.00 |
| 217.20 | 35821.13 | 10333.74 | 1259.07 | 1577.92 | 0.00 | 516637.00 | 3921715.00 |
| 292.89 | 34513.64 | 9709.38 | 1083.07 | 1327.15 | 0.00 | 515330.00 | 3921090.00 |
| 316.75 | 34204.91 | 9563.98 | 1038.84 | 1059.24 | 0.00 | 515021.00 | 3920945.00 |
| 408.59 | 33288.84 | 9112.84 | 911.53 | 844.12 | 0.00 | 514105.00 | 3920494.00 |
| 306.42 | 34336.48 | 9623.84 | 950.60 | 910.58 | 0.00 | 515153.00 | 3921005.00 |
| 472.40 | 32825.40 | 8893.30 | 1027.58 | 1197.60 | 0.00 | 513642.00 | 3920274.00 |
| 451.46 | 32965.98 | 8963.88 | 911.82 | 864.42 | 0.00 | 513782.00 | 3920345.00 |
| 139.16 | 38179.55 | 11455.75 | 1362.50 | 1551.06 | 0.00 | 518996.00 | 3922837.00 |
| 511.67 | 32584.20 | 8779.88 | 969.01 | 944.01 | 0.00 | 513400.00 | 3920161.00 |
| 270.91 | 34829.89 | 9867.39 | 1032.21 | 1068.56 | 0.00 | 515646.00 | 3921248.00 |
| 323.15 | 34129.90 | 9534.03 | 1055.75 | 1126.29 | 0.00 | 514946.00 | 3920915.00 |
| 147.79 | 37824.58 | 11295.25 | 1215.15 | 1313.21 | 0.00 | 518641.00 | 3922676.00 |
| 779.66 | 31518.35 | 8229.18 | 839.47 | 666.76 | 0.00 | 512335.00 | 3919610.00 |
| 322.30 | 34139.45 | 9531.12 | 979.13 | 955.26 | 0.00 | 514956.00 | 3920912.00 |
| 139.70 | 38153.63 | 11437.03 | 1321.94 | 1644.57 | 0.00 | 518970.00 | 3922818.00 |
| 358.23 | 33750.07 | 9344.27 | 1057.56 | 1150.79 | 0.00 | 514566.00 | 3920725.00 |
| 168.74 | 37092.58 | 10945.11 | 1318.53 | 1568.61 | 0.00 | 517909.00 | 3922326.00 |
| 416.90 | 33223.47 | 9092.59 | 902.36 | 807.47 | 0.00 | 514040.00 | 3920473.00 |
| 331.85 | 34029.64 | 9481.65 | 1063.91 | 1088.76 | 0.00 | 514846.00 | 3920862.00 |
| 248.21 | 35212.93 | 10047.48 | 1094.95 | 1186.78 | 0.00 | 516029.00 | 3921428.00 |
| 650.64 | 31942.63 | 8449.97 | 837.12 | 675.74 | 0.00 | 512759.00 | 3919831.00 |
| 307.87 | 34318.65 | 9620.72 | 994.24 | 1034.97 | 0.00 | 515135.00 | 3921002.00 |
| 61.96 | 44130.32 | 14247.86 | 1867.07 | 2717.06 | 0.00 | 524947.00 | 3925629.00 |
| 375.48 | 33580.72 | 9259.14 | 979.85 | 1024.73 | 0.00 | 514397.00 | 3920640.00 |
| 101.50 | 40212.18 | 12397.43 | 1526.41 | 2020.73 | 0.00 | 521028.00 | 3923778.00 |
| 390.55 | 33440.45 | 9195.19 | 952.17 | 912.76 | 0.00 | 514257.00 | 3920576.00 |
| 147.74 | 37826.74 | 11276.39 | 1232.92 | 1624.29 | 0.00 | 518643.00 | 3922657.00 |
| 387.96 | 33462.48 | 9210.51 | 984.83 | 964.42 | 0.00 | 514279.00 | 3920591.00 |
| 432.14 | 33106.18 | 9033.87 | 939.61 | 952.17 | 0.00 | 513922.00 | 3920415.00 |
| 304.92 | 34357.34 | 9631.22 | 1017.96 | 1135.46 | 0.00 | 515174.00 | 3921012.00 |
| 356.25 | 33766.03 | 9349.00 | 911.11 | 867.78 | 0.00 | 514582.00 | 3920730.00 |
| 222.30 | 35707.75 | 10279.34 | 1255.91 | 1597.60 | 0.00 | 516524.00 | 3921660.00 |
| 399.23 | 33371.34 | 9156.74 | 966.58 | 1061.27 | 0.00 | 514188.00 | 3920538.00 |
| 124.13 | 38877.37 | 11801.68 | 1592.22 | 1812.66 | 0.00 | 519694.00 | 3923182.00 |
| 67.58 | 43369.50 | 13884.60 | 1574.03 | 2226.34 | 0.00 | 524186.00 | 3925265.00 |
| 152.98 | 37630.07 | 11186.87 | 1282.56 | 1642.24 | 0.00 | 518446.00 | 3922568.00 |
| 398.54 | 33370.07 | 9163.24 | 926.31 | 883.48 | 0.00 | 514186.00 | 3920544.00 |
| 174.30 | 36922.75 | 10860.04 | 1200.24 | 1500.36 | 0.00 | 517739.00 | 3922241.00 |
| 136.41 | 38299.52 | 11499.27 | 1334.88 | 1600.68 | 0.00 | 519116.00 | 3922880.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 543.66 | 32413.33 | 8685.43 | 917.86 | 892.04 | 0.00 | 513230.00 | 3920066.00 |
| 159.06 | 37409.93 | 11085.41 | 1359.45 | 1876.27 | 0.00 | 518226.00 | 3922466.00 |
| 383.88 | 33504.70 | 9232.27 | 1033.81 | 1145.24 | 0.00 | 514321.00 | 3920613.00 |
| 356.10 | 33764.59 | 9353.78 | 1077.02 | 1234.48 | 0.00 | 514581.00 | 3920735.00 |
| 178.79 | 36782.21 | 10790.55 | 1230.81 | 1582.72 | 0.00 | 517598.00 | 3922171.00 |
| 226.74 | 35615.93 | 10241.31 | 985.43 | 951.57 | 0.00 | 516432.00 | 3921622.00 |
| 467.38 | 32857.52 | 8912.13 | 966.99 | 1013.03 | 0.00 | 513674.00 | 3920293.00 |
| 399.38 | 33366.34 | 9156.15 | 986.84 | 1074.07 | 0.00 | 514183.00 | 3920537.00 |
| 351.51 | 33818.22 | 9381.94 | 1075.89 | 1113.07 | 0.00 | 514634.00 | 3920763.00 |
| 94.64 | 40711.18 | 12649.43 | 1725.27 | 2170.49 | 0.00 | 521527.00 | 3924030.00 |
| 468.15 | 32854.96 | 8912.24 | 976.70 | 1000.77 | 0.00 | 513671.00 | 3920293.00 |
| 146.24 | 37888.09 | 11316.79 | 1277.78 | 1507.35 | 0.00 | 518704.00 | 3922698.00 |
| 998.29 | 31026.02 | 7966.08 | 825.02 | 648.29 | 0.00 | 511842.00 | 3919347.00 |
| 256.96 | 35059.24 | 9967.76 | 1068.89 | 1292.69 | 0.00 | 515876.00 | 3921349.00 |
| 175.22 | 36890.42 | 10845.66 | 1226.05 | 1442.12 | 0.00 | 517707.00 | 3922226.00 |
| 61.90 | 44134.99 | 14278.13 | 2311.57 | 3213.74 | 0.00 | 524951.00 | 3925659.00 |
| 242.39 | 35316.36 | 10095.64 | 1121.76 | 1191.74 | 0.00 | 516133.00 | 3921476.00 |
| 382.05 | 33517.18 | 9237.08 | 1018.95 | 1058.90 | 0.00 | 514333.00 | 3920618.00 |
| 321.78 | 34146.55 | 9533.72 | 967.72 | 1000.89 | 0.00 | 514963.00 | 3920915.00 |
| 163.54 | 37256.21 | 11022.28 | 1436.41 | 1785.12 | 0.00 | 518072.00 | 3922403.00 |
| 315.35 | 34219.92 | 9572.74 | 1004.10 | 1071.25 | 0.00 | 515036.00 | 3920954.00 |
| 227.06 | 35611.41 | 10240.35 | 1147.45 | 1289.02 | 0.00 | 516428.00 | 3921621.00 |
| 269.71 | 34850.59 | 9872.98 | 1064.77 | 1244.61 | 0.00 | 515667.00 | 3921254.00 |
| 335.96 | 33981.23 | 9463.78 | 1002.28 | 1001.99 | 0.00 | 514798.00 | 3920845.00 |
| 97.04 | 40531.94 | 12558.63 | 1540.53 | 2045.80 | 0.00 | 521348.00 | 3923939.00 |
| 112.72 | 39502.74 | 12075.99 | 1341.26 | 1595.44 | 0.00 | 520319.00 | 3923457.00 |
| 277.16 | 34738.16 | 9823.93 | 1194.38 | 1373.17 | 0.00 | 515554.00 | 3921205.00 |
| 230.64 | 35541.91 | 10210.28 | 1113.87 | 1194.73 | 0.00 | 516358.00 | 3921591.00 |
| 321.45 | 34151.48 | 9534.33 | 1035.34 | 1092.54 | 0.00 | 514968.00 | 3920915.00 |
| 217.57 | 35808.61 | 10339.57 | 1139.19 | 1261.63 | 0.00 | 516625.00 | 3921720.00 |
| 359.04 | 33737.89 | 9340.87 | 1018.05 | 1052.81 | 0.00 | 514554.00 | 3920722.00 |
| 208.00 | 36021.28 | 10434.80 | 1066.33 | 1090.69 | 0.00 | 516838.00 | 3921816.00 |
| 92.49 | 40878.52 | 12741.75 | 2277.86 | 2614.84 | 0.00 | 521695.00 | 3924123.00 |
| 574.27 | 32262.04 | 8613.27 | 866.20 | 757.68 | 0.00 | 513078.00 | 3919994.00 |
| 150.24 | 37728.74 | 11239.22 | 1230.29 | 1446.65 | 0.00 | 518545.00 | 3922620.00 |
| 67.84 | 43334.58 | 13880.60 | 1697.56 | 1964.45 | 0.00 | 524151.00 | 3925261.00 |
| 415.55 | 33236.35 | 9089.35 | 921.98 | 947.69 | 0.00 | 514053.00 | 3920470.00 |
| 426.19 | 33150.54 | 9054.46 | 961.55 | 975.42 | 0.00 | 513967.00 | 3920435.00 |
| 395.12 | 33398.00 | 9176.32 | 925.83 | 915.35 | 0.00 | 514214.00 | 3920557.00 |
| 525.01 | 32514.58 | 8738.13 | 838.24 | 644.52 | 0.00 | 513331.00 | 3920119.00 |
| 317.51 | 34192.17 | 9561.72 | 1102.88 | 1187.77 | 0.00 | 515008.00 | 3920942.00 |
| 100.73 | 40268.36 | 12434.48 | 1547.75 | 1817.32 | 0.00 | 521085.00 | 3923815.00 |
| 541.87 | 32427.65 | 8686.99 | 902.74 | 906.51 | 0.00 | 513244.00 | 3920068.00 |
| 128.27 | 38676.51 | 11687.75 | 1588.73 | 1949.12 | 0.00 | 519493.00 | 3923069.00 |
| 154.21 | 37583.40 | 11163.91 | 1266.09 | 1567.47 | 0.00 | 518400.00 | 3922545.00 |
| 260.99 | 34993.83 | 9944.84 | 1192.81 | 1370.84 | 0.00 | 515810.00 | 3921326.00 |
| 366.33 | 33666.38 | 9308.93 | 1027.74 | 1062.96 | 0.00 | 514483.00 | 3920690.00 |
| 61.98 | 44126.43 | 14238.75 | 1829.68 | 2282.99 | 0.00 | 524943.00 | 3925620.00 |
| 179.73 | 36758.51 | 10778.28 | 1172.14 | 1338.58 | 0.00 | 517575.00 | 3922159.00 |
| 151.00 | 37700.21 | 11221.75 | 1294.87 | 1534.05 | 0.00 | 518516.00 | 3922603.00 |
| 46.19 | 46962.35 | 15566.91 | 1959.47 | 2699.50 | 0.00 | 527779.00 | 3926948.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 261.44 | 2503.95 | 768.72 | 246.74 | 476.61 | **28.64** | 483320.00 | 3912150.00 |
| 29.80 | 4727.05 | 1818.20 | 356.55 | 643.79 | 0.00 | 485543.00 | 3913199.00 |
| 673.08 | 2027.36 | 532.91 | 265.28 | 477.39 | 0.00 | 482844.00 | 3911914.00 |
| 546.37 | 2111.44 | 574.61 | 247.49 | 497.55 | 0.00 | 482928.00 | 3911955.00 |
| 16.16 | 5895.10 | 2367.65 | 398.23 | 648.74 | 0.00 | 486711.00 | 3913748.00 |
| 240.99 | 2551.50 | 792.05 | 267.10 | 588.00 | 0.00 | 483368.00 | 3912173.00 |
| 60.28 | 3755.76 | 1362.30 | 295.87 | 616.22 | 0.00 | 484572.00 | 3912743.00 |
| 75.21 | 3505.05 | 1251.80 | 344.10 | 565.39 | 0.00 | 484321.00 | 3912633.00 |
| 353.44 | 2330.18 | 683.95 | 281.45 | 509.12 | 0.00 | 483146.00 | 3912065.00 |
| 332.03 | 2358.63 | 698.75 | 213.35 | 435.57 | 0.00 | 483175.00 | 3912080.00 |
| 445.92 | 2205.53 | 623.39 | 243.57 | 593.67 | 0.00 | 483022.00 | 3912004.00 |
| 287.42 | 2440.52 | 735.88 | 254.48 | 602.31 | 0.00 | 483257.00 | 3912117.00 |
| 236.80 | 2560.53 | 797.05 | 263.65 | 604.09 | 0.00 | 483377.00 | 3912178.00 |
| 135.97 | 2962.86 | 987.06 | 310.37 | 630.65 | 0.00 | 483779.00 | 3912368.00 |
| 109.86 | 3139.92 | 1075.47 | 319.46 | 592.79 | 0.00 | 483956.00 | 3912456.00 |
| 134.36 | 2962.95 | 990.45 | 270.92 | 571.12 | 0.00 | 483779.00 | 3912371.00 |
| 333.21 | 2357.35 | 698.11 | 277.05 | 592.88 | 0.00 | 483174.00 | 3912079.00 |
| 179.10 | 2754.21 | 886.03 | 257.59 | 529.49 | 0.00 | 483570.00 | 3912267.00 |
| 249.19 | 2535.15 | 785.19 | 315.05 | 535.97 | 0.00 | 483351.00 | 3912166.00 |
| 440.17 | 2212.44 | 622.92 | 256.62 | 568.63 | 0.00 | 483029.00 | 3912004.00 |
| 161.32 | 2828.35 | 922.69 | 271.99 | 614.89 | 0.00 | 483645.00 | 3912303.00 |
| 266.56 | 2481.49 | 757.56 | 270.99 | 582.42 | 0.00 | 483298.00 | 3912138.00 |
| 346.64 | 2344.63 | 691.72 | 295.57 | 581.52 | 0.00 | 483161.00 | 3912073.00 |
| 262.56 | 2500.68 | 767.95 | 276.01 | 495.36 | 0.00 | 483317.00 | 3912149.00 |
| 395.13 | 2267.78 | 655.19 | 285.96 | 625.18 | 0.00 | 483084.00 | 3912036.00 |
| 98.25 | 3246.04 | 1115.85 | 267.29 | 565.42 | 0.00 | 484062.00 | 3912497.00 |
| 277.82 | 2463.10 | 755.45 | 307.15 | 472.69 | 0.00 | 483279.00 | 3912136.00 |
| 121.67 | 3049.27 | 1025.91 | 252.90 | 597.48 | 0.00 | 483866.00 | 3912407.00 |
| 104.43 | 3186.42 | 1094.29 | 349.27 | 591.78 | 0.00 | 484003.00 | 3912475.00 |
| 30.24 | 4705.51 | 1811.32 | 299.97 | 566.28 | 0.00 | 485522.00 | 3913192.00 |
| 380.45 | 2280.32 | 666.22 | 260.33 | 466.11 | 0.00 | 483097.00 | 3912047.00 |
| 295.16 | 2435.01 | 734.14 | 300.44 | 490.07 | 0.00 | 483251.00 | 3912115.00 |
| 215.12 | 2623.37 | 832.18 | 325.15 | 525.01 | 0.00 | 483440.00 | 3912213.00 |
| 490.29 | 2151.03 | 602.67 | 212.34 | 460.74 | 0.00 | 482967.00 | 3911983.00 |
| 371.74 | 2300.97 | 673.47 | 299.92 | 494.00 | 0.00 | 483117.00 | 3912054.00 |
| 295.43 | 2431.98 | 735.46 | 336.53 | 583.31 | 0.00 | 483248.00 | 3912116.00 |
| 195.46 | 2691.99 | 858.22 | 258.75 | 589.80 | 0.00 | 483508.00 | 3912239.00 |
| 149.49 | 2882.76 | 952.59 | 243.19 | 434.62 | 0.00 | 483699.00 | 3912333.00 |
| 70.20 | 3580.62 | 1282.60 | 264.43 | 529.60 | 0.00 | 484397.00 | 3912663.00 |
| 119.45 | 3058.85 | 1041.53 | 263.58 | 575.53 | 0.00 | 483875.00 | 3912422.00 |
| 39.56 | 4293.67 | 1617.78 | 306.87 | 582.95 | 0.00 | 485110.00 | 3912999.00 |
| 433.65 | 2213.87 | 634.13 | 285.22 | 556.33 | 0.00 | 483030.00 | 3912015.00 |
| 438.14 | 2206.83 | 629.48 | 243.62 | 506.55 | 0.00 | 483023.00 | 3912010.00 |
| 166.92 | 2805.93 | 915.42 | 279.85 | 614.71 | 0.00 | 483622.00 | 3912296.00 |
| 215.21 | 2625.86 | 831.58 | 307.70 | 526.91 | 0.00 | 483442.00 | 3912212.00 |
| 156.99 | 2841.26 | 937.76 | 254.43 | 510.31 | 0.00 | 483658.00 | 3912319.00 |
| 193.90 | 2699.39 | 864.65 | 265.50 | 565.59 | 0.00 | 483516.00 | 3912245.00 |
| 463.05 | 2195.43 | 615.48 | 291.03 | 546.96 | 0.00 | 483012.00 | 3911996.00 |
| 266.38 | 2488.14 | 760.94 | 312.13 | 631.69 | 0.00 | 483304.00 | 3912142.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 136.83 | 2957.12 | 984.38 | 318.43 | 599.25 | 0.00 | 483773.00 | 3912365.00 |
| 268.83 | 2491.16 | 765.56 | 230.34 | 481.68 | 0.00 | 483307.00 | 3912146.00 |
| 370.20 | 2314.05 | 669.79 | 265.23 | 576.80 | 0.00 | 483130.00 | 3912051.00 |
| 306.77 | 2403.38 | 718.95 | 283.89 | 597.29 | 0.00 | 483220.00 | 3912100.00 |
| 162.34 | 2817.27 | 922.50 | 316.54 | 547.12 | 0.00 | 483634.00 | 3912303.00 |
| 204.06 | 2657.76 | 846.34 | 268.94 | 613.56 | 0.00 | 483474.00 | 3912227.00 |
| 139.30 | 2941.52 | 973.18 | 266.33 | 652.61 | 0.00 | 483758.00 | 3912354.00 |
| 239.52 | 2555.12 | 796.96 | 252.87 | 569.31 | 0.00 | 483371.00 | 3912178.00 |
| 107.94 | 3154.71 | 1082.81 | 285.85 | 541.32 | 0.00 | 483971.00 | 3912464.00 |
| 201.40 | 2675.55 | 849.40 | 289.04 | 656.54 | 0.00 | 483492.00 | 3912230.00 |
| 47.68 | 4040.26 | 1495.35 | 273.59 | 567.75 | 0.00 | 484857.00 | 3912876.00 |
| 134.57 | 2971.16 | 991.77 | 237.06 | 562.91 | 0.00 | 483787.00 | 3912373.00 |
| 201.47 | 2675.14 | 851.65 | 212.88 | 491.11 | 0.00 | 483491.00 | 3912232.00 |
| 167.89 | 2803.37 | 912.97 | 274.40 | 642.48 | 0.00 | 483620.00 | 3912294.00 |
| 203.36 | 2663.68 | 846.68 | 276.69 | 650.70 | 0.00 | 483480.00 | 3912227.00 |
| 431.88 | 2217.56 | 635.22 | 285.72 | 512.49 | 0.00 | 483034.00 | 3912016.00 |
| 620.58 | 2055.81 | 547.63 | 277.44 | 490.96 | 0.00 | 482872.00 | 3911928.00 |
| 339.40 | 2350.68 | 697.70 | 255.24 | 333.75 | 0.00 | 483167.00 | 3912078.00 |
| 429.38 | 2223.69 | 636.43 | 317.40 | 590.51 | 0.00 | 483040.00 | 3912017.00 |
| 313.03 | 2400.17 | 718.41 | 243.74 | 490.67 | 0.00 | 483216.00 | 3912099.00 |
| 212.49 | 2634.63 | 827.78 | 229.64 | 594.23 | 0.00 | 483451.00 | 3912209.00 |
| 351.87 | 2329.36 | 682.96 | 238.92 | 574.50 | 0.00 | 483146.00 | 3912064.00 |
| 762.19 | 1959.29 | 502.82 | 256.72 | 590.31 | 0.00 | 482776.00 | 3911884.00 |
| 249.75 | 2529.30 | 783.83 | 305.48 | 567.08 | 0.00 | 483346.00 | 3912165.00 |
| 291.09 | 2441.88 | 740.59 | 271.67 | 512.48 | 0.00 | 483258.00 | 3912121.00 |
| 178.88 | 2758.74 | 888.44 | 281.06 | 566.91 | 0.00 | 483575.00 | 3912269.00 |
| 107.68 | 3155.22 | 1079.70 | 251.35 | 586.73 | 0.00 | 483972.00 | 3912460.00 |
| 270.64 | 2481.32 | 756.07 | 305.28 | 538.29 | 0.00 | 483298.00 | 3912137.00 |
| 230.21 | 2573.84 | 809.28 | 253.90 | 673.66 | 0.00 | 483390.00 | 3912190.00 |
| 48.73 | 4012.80 | 1489.15 | 298.29 | 550.20 | 0.00 | 484829.00 | 3912870.00 |
| 203.72 | 2663.46 | 851.20 | 343.97 | 585.69 | 0.00 | 483480.00 | 3912232.00 |
| 208.13 | 2650.66 | 839.23 | 276.26 | 544.01 | 0.00 | 483467.00 | 3912220.00 |
| 433.87 | 2223.13 | 635.10 | 268.00 | 458.71 | 0.00 | 483039.00 | 3912016.00 |
| 366.25 | 2301.62 | 674.15 | 296.81 | 591.64 | 0.00 | 483118.00 | 3912055.00 |
| 152.85 | 2868.46 | 940.98 | 262.36 | 589.10 | 0.00 | 483685.00 | 3912322.00 |
| 474.15 | 2181.25 | 611.77 | 338.47 | 573.02 | 0.00 | 482998.00 | 3911993.00 |
| 379.30 | 2293.69 | 666.46 | 295.97 | 531.05 | 0.00 | 483110.00 | 3912047.00 |
| 138.32 | 2946.29 | 979.05 | 266.90 | 564.12 | 0.00 | 483763.00 | 3912360.00 |
| 767.52 | 1960.18 | 502.60 | 230.36 | 565.05 | 0.00 | 482776.00 | 3911883.00 |
| 1068.26 | 1810.03 | 438.57 | 316.49 | 503.99 | 0.00 | 482626.00 | 3911819.00 |
| 382.03 | 2285.03 | 664.61 | 306.46 | 504.25 | 0.00 | 483101.00 | 3912045.00 |
| 318.66 | 2383.51 | 712.79 | 287.80 | 591.99 | 0.00 | 483200.00 | 3912094.00 |
| 204.92 | 2657.40 | 845.53 | 260.34 | 554.82 | 0.00 | 483474.00 | 3912226.00 |
| 1227.79 | 1775.53 | 407.27 | 251.37 | 495.73 | 0.00 | 482592.00 | 3911788.00 |
| 254.50 | 2517.39 | 774.03 | 254.98 | 484.15 | 0.00 | 483334.00 | 3912155.00 |
| 63.25 | 3696.49 | 1333.30 | 260.53 | 555.95 | 0.00 | 484513.00 | 3912714.00 |
| 590.14 | 2075.14 | 554.83 | 308.24 | 577.04 | 0.00 | 482891.00 | 3911936.00 |
| 515.44 | 2130.00 | 590.45 | 257.91 | 576.22 | 0.00 | 482946.00 | 3911971.00 |
| 350.09 | 2341.52 | 687.28 | 282.58 | 605.81 | 0.00 | 483158.00 | 3912068.00 |
| 405.96 | 2252.90 | 643.44 | 215.83 | 501.23 | 0.00 | 483069.00 | 3912024.00 |
| 587.63 | 2080.38 | 557.67 | 219.21 | 513.67 | 0.00 | 482897.00 | 3911938.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 245.81 | 22055.87 | 6397.83 | 968.29 | 1404.12 | **66.96** | 502872.00 | 3917779.00 |
| 379.17 | 20874.54 | 5845.20 | 868.46 | 1023.93 | 0.00 | 501691.00 | 3917226.00 |
| 61.39 | 28212.52 | 9322.16 | 1458.44 | 1621.12 | 0.00 | 509029.00 | 3920703.00 |
| 409.85 | 20689.75 | 5749.70 | 802.29 | 980.21 | 0.00 | 501506.00 | 3917130.00 |
| 145.15 | 23895.87 | 7287.14 | 1236.23 | 1516.91 | 0.00 | 504712.00 | 3918668.00 |
| 398.48 | 20760.04 | 5781.45 | 861.85 | 1090.45 | 0.00 | 501576.00 | 3917162.00 |
| 500.25 | 20258.08 | 5534.69 | 827.31 | 959.16 | 0.00 | 501074.00 | 3916915.00 |
| 400.81 | 20742.43 | 5767.83 | 898.16 | 1242.38 | 0.00 | 501559.00 | 3917149.00 |
| 531.49 | 20141.09 | 5481.82 | 711.47 | 767.99 | 0.00 | 500957.00 | 3916863.00 |
| 818.06 | 19408.66 | 5097.34 | 614.20 | 556.69 | 0.00 | 500225.00 | 3916478.00 |
| 103.15 | 25385.07 | 7983.92 | 1660.18 | 2028.49 | 0.00 | 506201.00 | 3919365.00 |
| 120.18 | 24687.84 | 7647.16 | 1075.98 | 1759.06 | 0.00 | 505504.00 | 3919028.00 |
| 107.02 | 25211.37 | 7919.27 | 1619.80 | 1455.89 | 0.00 | 506028.00 | 3919300.00 |
| 162.60 | 23455.70 | 7076.66 | 1247.43 | 1609.02 | 0.00 | 504272.00 | 3918457.00 |
| 405.15 | 20717.14 | 5765.58 | 834.71 | 1048.13 | 0.00 | 501533.00 | 3917146.00 |
| 94.81 | 25800.97 | 8185.77 | 1509.32 | 1942.31 | 0.00 | 506617.00 | 3919567.00 |
| 124.24 | 24542.15 | 7585.59 | 1332.92 | 1779.65 | 0.00 | 505358.00 | 3918966.00 |
| 366.50 | 20960.78 | 5885.72 | 949.79 | 1217.91 | 0.00 | 501777.00 | 3917266.00 |
| 195.37 | 22800.22 | 6761.47 | 1215.56 | 1603.60 | 0.00 | 503616.00 | 3918142.00 |
| 212.24 | 22519.02 | 6639.42 | 1219.15 | 1452.52 | 0.00 | 503335.00 | 3918020.00 |
| 211.82 | 22523.81 | 6637.68 | 1043.78 | 1715.01 | 0.00 | 503340.00 | 3918018.00 |
| 176.52 | 23157.04 | 6929.70 | 1055.10 | 1494.51 | 0.00 | 503973.00 | 3918310.00 |
| 366.93 | 20958.00 | 5878.43 | 840.32 | 944.49 | 0.00 | 501774.00 | 3917259.00 |
| 259.58 | 21890.42 | 6333.70 | 892.77 | 1071.13 | 0.00 | 502707.00 | 3917714.00 |
| 155.51 | 23626.93 | 7148.88 | 1003.05 | 1334.47 | 0.00 | 504443.00 | 3918530.00 |
| 309.03 | 21399.38 | 6099.20 | 1023.29 | 1201.09 | 0.00 | 502216.00 | 3917480.00 |
| 200.50 | 22710.01 | 6723.70 | 1216.55 | 1629.11 | 0.00 | 503526.00 | 3918104.00 |
| 262.60 | 21854.81 | 6316.32 | 834.80 | 984.59 | 0.00 | 502671.00 | 3917697.00 |
| 329.30 | 21230.41 | 6011.60 | 870.64 | 1212.54 | 0.00 | 502047.00 | 3917392.00 |
| 372.80 | 20912.13 | 5856.17 | 841.53 | 1039.65 | 0.00 | 501728.00 | 3917237.00 |
| 209.49 | 22563.53 | 6652.19 | 1007.92 | 1306.92 | 0.00 | 503380.00 | 3918033.00 |
| 321.57 | 21287.88 | 6041.71 | 816.60 | 1044.45 | 0.00 | 502104.00 | 3917422.00 |
| 814.28 | 19402.25 | 5101.08 | 643.85 | 643.78 | 0.00 | 500219.00 | 3916482.00 |
| 257.97 | 21905.99 | 6340.72 | 1048.13 | 1442.24 | 0.00 | 502722.00 | 3917722.00 |
| 301.37 | 21462.96 | 6113.45 | 784.56 | 1214.64 | 0.00 | 502279.00 | 3917494.00 |
| 339.03 | 21152.45 | 5969.95 | 819.41 | 1117.38 | 0.00 | 501969.00 | 3917351.00 |
| 323.48 | 21279.39 | 6040.20 | 890.38 | 1079.79 | 0.00 | 502096.00 | 3917421.00 |
| 218.04 | 22433.09 | 6589.70 | 1133.37 | 1375.23 | 0.00 | 503249.00 | 3917970.00 |
| 1077.61 | 19047.65 | 4890.60 | 625.15 | 602.76 | 0.00 | 499864.00 | 3916271.00 |
| 104.31 | 25338.92 | 7970.03 | 1850.22 | 2088.48 | 0.00 | 506155.00 | 3919351.00 |
| 359.45 | 21004.56 | 5901.86 | 799.17 | 978.79 | 0.00 | 501821.00 | 3917283.00 |
| 49.77 | 29577.08 | 9947.51 | 2252.43 | 3261.58 | 0.00 | 510393.00 | 3921328.00 |
| 201.65 | 22686.64 | 6705.20 | 1001.19 | 1436.76 | 0.00 | 503503.00 | 3918086.00 |
| 465.40 | 20407.85 | 5609.89 | 868.40 | 1099.55 | 0.00 | 501224.00 | 3916991.00 |
| 77.27 | 26866.44 | 8671.94 | 1653.84 | 3016.94 | 0.00 | 507683.00 | 3920053.00 |
| 123.12 | 24583.90 | 7604.89 | 1507.53 | 2125.05 | 0.00 | 505400.00 | 3918986.00 |
| 162.02 | 23461.39 | 7072.64 | 1263.08 | 1991.13 | 0.00 | 504278.00 | 3918453.00 |
| 451.72 | 20472.13 | 5644.68 | 928.85 | 1115.31 | 0.00 | 501288.00 | 3917025.00 |
| 157.93 | 23565.54 | 7115.53 | 1189.84 | 1631.83 | 0.00 | 504382.00 | 3918496.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 197.81 | 22753.24 | 6743.85 | 1045.47 | 1423.73 | 0.00 | 503570.00 | 3918125.00 |
| 256.40 | 21928.05 | 6356.88 | 1044.72 | 1153.00 | 0.00 | 502744.00 | 3917738.00 |
| 276.70 | 21704.94 | 6229.01 | 936.12 | 1270.10 | 0.00 | 502521.00 | 3917610.00 |
| 453.36 | 20466.14 | 5638.29 | 806.55 | 1021.32 | 0.00 | 501282.00 | 3917019.00 |
| 123.03 | 24588.76 | 7601.43 | 1303.64 | 1984.27 | 0.00 | 505405.00 | 3918982.00 |
| 96.99 | 25687.49 | 8151.50 | 1885.07 | 1631.34 | 0.00 | 506504.00 | 3919532.00 |
| 392.08 | 20796.21 | 5799.28 | 759.22 | 887.24 | 0.00 | 501612.00 | 3917180.00 |
| 343.97 | 21117.63 | 5961.91 | 828.40 | 892.48 | 0.00 | 501934.00 | 3917343.00 |
| 738.66 | 19560.33 | 5180.18 | 642.08 | 620.61 | 0.00 | 500377.00 | 3916561.00 |
| 88.04 | 26174.04 | 8347.13 | 1659.47 | 2527.63 | 0.00 | 506990.00 | 3919728.00 |
| 283.83 | 21634.95 | 6206.06 | 987.04 | 1363.99 | 0.00 | 502451.00 | 3917587.00 |
| 332.29 | 21208.29 | 6005.25 | 894.71 | 1018.02 | 0.00 | 502025.00 | 3917386.00 |
| 101.68 | 25458.20 | 8018.56 | 1371.92 | 1954.99 | 0.00 | 506274.00 | 3919399.00 |
| 127.81 | 24416.64 | 7539.24 | 1240.95 | 1603.92 | 0.00 | 505233.00 | 3918920.00 |
| 99.07 | 25582.52 | 8076.42 | 1613.31 | 2281.57 | 0.00 | 506399.00 | 3919457.00 |
| 197.21 | 22764.21 | 6752.55 | 1232.36 | 1755.02 | 0.00 | 503580.00 | 3918133.00 |
| 291.26 | 21561.40 | 6174.41 | 1051.53 | 1467.31 | 0.00 | 502378.00 | 3917555.00 |
| 147.28 | 23839.89 | 7257.47 | 1370.29 | 1927.85 | 0.00 | 504656.00 | 3918638.00 |
| 435.62 | 20551.14 | 5683.71 | 831.87 | 951.56 | 0.00 | 501367.00 | 3917064.00 |
| 223.43 | 22352.42 | 6556.83 | 975.02 | 1182.36 | 0.00 | 503169.00 | 3917938.00 |
| 483.64 | 20325.68 | 5572.99 | 679.27 | 672.84 | 0.00 | 501142.00 | 3916954.00 |
| 275.84 | 21712.88 | 6248.05 | 886.44 | 1133.60 | 0.00 | 502529.00 | 3917629.00 |
| 164.13 | 23421.77 | 7056.64 | 1101.49 | 1468.29 | 0.00 | 504238.00 | 3918437.00 |
| 401.77 | 20739.88 | 5771.39 | 829.63 | 1065.11 | 0.00 | 501556.00 | 3917152.00 |
| 407.06 | 20707.33 | 5759.35 | 832.50 | 971.71 | 0.00 | 501524.00 | 3917140.00 |
| 269.48 | 21777.63 | 6277.27 | 1063.48 | 1477.51 | 0.00 | 502594.00 | 3917658.00 |
| 331.55 | 21207.76 | 6003.08 | 998.98 | 1300.28 | 0.00 | 502024.00 | 3917384.00 |
| 342.05 | 21132.61 | 5962.05 | 695.77 | 738.06 | 0.00 | 501949.00 | 3917343.00 |
| 208.43 | 22578.11 | 6666.92 | 1122.37 | 1303.26 | 0.00 | 503394.00 | 3918048.00 |
| 258.35 | 21902.57 | 6333.39 | 868.80 | 1383.15 | 0.00 | 502719.00 | 3917714.00 |
| 415.60 | 20666.36 | 5736.60 | 779.86 | 880.48 | 0.00 | 501483.00 | 3917117.00 |
| 513.92 | 20202.49 | 5496.19 | 735.31 | 1009.36 | 0.00 | 501019.00 | 3916877.00 |
| 67.82 | 27611.23 | 9043.20 | 2243.03 | 2148.68 | 0.00 | 508428.00 | 3920424.00 |
| 216.88 | 22447.63 | 6597.55 | 842.71 | 1056.83 | 0.00 | 503264.00 | 3917978.00 |
| 112.38 | 24986.04 | 7794.16 | 1183.02 | 1622.20 | 0.00 | 505802.00 | 3919175.00 |
| 538.57 | 20109.35 | 5459.30 | 725.46 | 800.25 | 0.00 | 500926.00 | 3916840.00 |
| 390.86 | 20804.67 | 5798.58 | 837.06 | 1173.07 | 0.00 | 501621.00 | 3917179.00 |
| 216.71 | 22450.50 | 6596.60 | 1073.32 | 1282.04 | 0.00 | 503267.00 | 3917977.00 |
| 428.37 | 20586.10 | 5703.98 | 881.34 | 1111.03 | 0.00 | 501402.00 | 3917085.00 |
| 118.85 | 24736.34 | 7677.92 | 1248.68 | 1573.48 | 0.00 | 505553.00 | 3919059.00 |
| 103.23 | 25383.12 | 7985.86 | 1921.85 | 1890.07 | 0.00 | 506199.00 | 3919367.00 |
| 73.88 | 27117.86 | 8806.31 | 1999.63 | 2171.36 | 0.00 | 507934.00 | 3920187.00 |
| 82.62 | 26506.32 | 8518.58 | 1803.18 | 2743.31 | 0.00 | 507323.00 | 3919899.00 |
| 547.49 | 20081.72 | 5445.55 | 740.19 | 859.44 | 0.00 | 500898.00 | 3916826.00 |
| 327.13 | 21246.98 | 6013.33 | 1040.80 | 1470.13 | 0.00 | 502063.00 | 3917394.00 |
| 369.28 | 20941.15 | 5872.93 | 808.96 | 810.21 | 0.00 | 501757.00 | 3917254.00 |
| 477.92 | 20353.54 | 5579.21 | 716.88 | 808.59 | 0.00 | 501170.00 | 3916960.00 |
| 159.05 | 23536.93 | 7108.32 | 1024.60 | 1495.08 | 0.00 | 504353.00 | 3918489.00 |
| 132.65 | 24262.74 | 7473.46 | 1405.11 | 1554.17 | 0.00 | 505079.00 | 3918854.00 |
| 174.42 | 23196.27 | 6952.66 | 1215.28 | 1570.90 | 0.00 | 504013.00 | 3918333.00 |
| 133.60 | 24234.91 | 7433.25 | 1074.52 | 1744.84 | 0.00 | 505051.00 | 3918814.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 540.63 | 2439.10 | 672.39 | 326.12 | 675.49 | **29.94** | 483255.00 | 3912053.00 |
| 324.75 | 2722.69 | 808.02 | 302.66 | 711.34 | 0.00 | 483539.00 | 3912189.00 |
| 166.34 | 3192.09 | 1034.86 | 321.62 | 568.48 | 0.00 | 484008.00 | 3912416.00 |
| 77.05 | 3932.12 | 1381.82 | 317.60 | 645.24 | 0.00 | 484748.00 | 3912763.00 |
| 171.94 | 3162.15 | 1010.26 | 258.37 | 585.19 | 0.00 | 483978.00 | 3912391.00 |
| 235.93 | 2928.58 | 904.11 | 278.08 | 658.38 | 0.00 | 483745.00 | 3912285.00 |
| 414.50 | 2581.57 | 738.92 | 310.36 | 611.91 | 0.00 | 483398.00 | 3912120.00 |
| 272.13 | 2837.09 | 864.40 | 355.71 | 653.06 | 0.00 | 483653.00 | 3912245.00 |
| 166.02 | 3193.74 | 1034.18 | 356.47 | 665.31 | 0.00 | 484010.00 | 3912415.00 |
| 93.32 | 3715.71 | 1287.21 | 295.24 | 661.83 | 0.00 | 484532.00 | 3912668.00 |
| 151.29 | 3262.29 | 1068.56 | 322.47 | 652.18 | 0.00 | 484079.00 | 3912449.00 |
| 250.22 | 2886.91 | 892.39 | 281.42 | 533.38 | 0.00 | 483703.00 | 3912273.00 |
| 323.20 | 2730.25 | 812.10 | 237.27 | 618.42 | 0.00 | 483547.00 | 3912193.00 |
| 269.88 | 2839.27 | 866.47 | 331.77 | 680.79 | 0.00 | 483656.00 | 3912247.00 |
| 75.91 | 3946.60 | 1394.99 | 348.39 | 587.87 | 0.00 | 484763.00 | 3912776.00 |
| 299.97 | 2767.08 | 834.77 | 351.59 | 580.77 | 0.00 | 483583.00 | 3912216.00 |
| 58.19 | 4270.99 | 1543.58 | 371.85 | 668.22 | 0.00 | 485087.00 | 3912924.00 |
| 222.68 | 2968.38 | 932.92 | 384.00 | 640.75 | 0.00 | 483785.00 | 3912314.00 |
| 88.66 | 3765.93 | 1311.03 | 270.14 | 647.28 | 0.00 | 484582.00 | 3912692.00 |
| 166.83 | 3181.84 | 1025.20 | 279.59 | 624.64 | 0.00 | 483998.00 | 3912406.00 |
| 731.95 | 2312.96 | 601.54 | 342.29 | 597.49 | 0.00 | 483129.00 | 3911982.00 |
| 294.54 | 2781.82 | 837.65 | 335.94 | 648.82 | 0.00 | 483598.00 | 3912218.00 |
| 549.95 | 2423.27 | 671.24 | 313.36 | 443.96 | 0.00 | 483240.00 | 3912052.00 |
| 333.10 | 2708.27 | 800.34 | 341.59 | 745.36 | 0.00 | 483525.00 | 3912181.00 |
| 160.86 | 3212.10 | 1045.96 | 293.18 | 582.57 | 0.00 | 484028.00 | 3912427.00 |
| 356.84 | 2659.22 | 780.21 | 200.82 | 536.02 | 0.00 | 483475.00 | 3912161.00 |
| 344.89 | 2687.14 | 787.62 | 359.77 | 791.03 | 0.00 | 483503.00 | 3912168.00 |
| 56.17 | 4320.42 | 1563.85 | 343.27 | 743.54 | 0.00 | 485137.00 | 3912945.00 |
| 510.94 | 2472.19 | 681.99 | 353.52 | 724.71 | 0.00 | 483288.00 | 3912063.00 |
| 182.71 | 3117.08 | 1003.02 | 358.32 | 597.70 | 0.00 | 483933.00 | 3912384.00 |
| 369.38 | 2634.35 | 771.86 | 311.70 | 608.37 | 0.00 | 483451.00 | 3912153.00 |
| 112.64 | 3529.36 | 1190.91 | 340.93 | 659.07 | 0.00 | 484346.00 | 3912572.00 |
| 278.55 | 2826.60 | 861.56 | 333.23 | 583.55 | 0.00 | 483643.00 | 3912242.00 |
| 695.45 | 2336.84 | 611.65 | 244.79 | 673.55 | 0.00 | 483153.00 | 3911992.00 |
| 129.28 | 3402.63 | 1136.26 | 310.12 | 635.03 | 0.00 | 484219.00 | 3912517.00 |
| 223.72 | 2972.22 | 930.11 | 312.57 | 551.95 | 0.00 | 483789.00 | 3912311.00 |
| 136.77 | 3350.12 | 1107.44 | 358.70 | 720.40 | 0.00 | 484166.00 | 3912488.00 |
| 142.14 | 3314.12 | 1096.03 | 374.77 | 561.76 | 0.00 | 484130.00 | 3912477.00 |
| 698.22 | 2325.89 | 612.98 | 243.03 | 531.32 | 0.00 | 483142.00 | 3911994.00 |
| 168.54 | 3179.04 | 1023.01 | 245.39 | 628.97 | 0.00 | 483995.00 | 3912404.00 |
| 120.73 | 3463.56 | 1167.01 | 355.22 | 716.20 | 0.00 | 484280.00 | 3912548.00 |
| 239.99 | 2917.02 | 906.66 | 392.93 | 611.30 | 0.00 | 483733.00 | 3912287.00 |
| 116.89 | 3492.80 | 1178.62 | 340.23 | 767.45 | 0.00 | 484309.00 | 3912559.00 |
| 156.60 | 3232.13 | 1053.36 | 292.88 | 595.34 | 0.00 | 484048.00 | 3912434.00 |
| 415.10 | 2586.98 | 739.02 | 298.51 | 669.24 | 0.00 | 483403.00 | 3912120.00 |
| 492.54 | 2496.20 | 698.19 | 348.95 | 524.06 | 0.00 | 483312.00 | 3912079.00 |
| 222.96 | 2965.89 | 928.55 | 316.48 | 645.68 | 0.00 | 483782.00 | 3912309.00 |
| 232.55 | 2940.64 | 908.15 | 242.33 | 637.02 | 0.00 | 483757.00 | 3912289.00 |
| 217.88 | 2982.60 | 934.31 | 297.83 | 611.00 | 0.00 | 483799.00 | 3912315.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 297.54 | 2779.22 | 835.03 | 290.82 | 619.98 | 0.00 | 483596.00 | 3912216.00 |
| 543.97 | 2438.07 | 670.33 | 345.62 | 568.71 | 0.00 | 483254.00 | 3912051.00 |
| 363.18 | 2659.24 | 775.96 | 356.09 | 618.35 | 0.00 | 483476.00 | 3912157.00 |
| 219.30 | 2988.45 | 933.07 | 369.69 | 647.14 | 0.00 | 483805.00 | 3912314.00 |
| 201.37 | 3048.18 | 962.46 | 319.84 | 684.87 | 0.00 | 483864.00 | 3912343.00 |
| 455.99 | 2521.88 | 715.26 | 313.88 | 670.23 | 0.00 | 483338.00 | 3912096.00 |
| 472.29 | 2497.88 | 701.29 | 308.72 | 622.31 | 0.00 | 483314.00 | 3912082.00 |
| 210.45 | 3016.16 | 945.52 | 284.50 | 657.84 | 0.00 | 483832.00 | 3912326.00 |
| 272.79 | 2834.07 | 860.62 | 263.62 | 636.25 | 0.00 | 483650.00 | 3912241.00 |
| 178.72 | 3136.20 | 1004.22 | 337.85 | 745.16 | 0.00 | 483952.00 | 3912385.00 |
| 270.30 | 2834.10 | 868.90 | 302.22 | 604.83 | 0.00 | 483650.00 | 3912250.00 |
| 55.48 | 4335.10 | 1573.39 | 319.85 | 662.77 | 0.00 | 485151.00 | 3912954.00 |
| 309.24 | 2756.77 | 824.53 | 285.47 | 615.38 | 0.00 | 483573.00 | 3912205.00 |
| 796.56 | 2262.80 | 583.65 | 317.73 | 526.49 | 0.00 | 483079.00 | 3911964.00 |
| 336.61 | 2706.32 | 798.99 | 370.71 | 673.03 | 0.00 | 483523.00 | 3912180.00 |
| 95.79 | 3695.29 | 1267.51 | 273.57 | 690.46 | 0.00 | 484512.00 | 3912648.00 |
| 415.84 | 2566.55 | 734.21 | 291.03 | 734.24 | 0.00 | 483383.00 | 3912115.00 |
| 368.30 | 2648.76 | 773.96 | 333.14 | 596.78 | 0.00 | 483465.00 | 3912155.00 |
| 426.69 | 2560.85 | 731.42 | 313.48 | 613.43 | 0.00 | 483377.00 | 3912112.00 |
| 207.96 | 3022.55 | 953.55 | 364.94 | 668.00 | 0.00 | 483839.00 | 3912334.00 |
| 89.15 | 3766.78 | 1309.94 | 327.36 | 602.09 | 0.00 | 484583.00 | 3912691.00 |
| 545.77 | 2431.01 | 668.76 | 331.50 | 608.71 | 0.00 | 483247.00 | 3912050.00 |
| 173.65 | 3155.54 | 1015.54 | 402.23 | 715.38 | 0.00 | 483972.00 | 3912396.00 |
| 221.36 | 2973.82 | 927.41 | 339.72 | 755.06 | 0.00 | 483790.00 | 3912308.00 |
| 406.53 | 2592.09 | 745.13 | 339.05 | 613.73 | 0.00 | 483408.00 | 3912126.00 |
| 228.65 | 2945.98 | 921.26 | 324.09 | 682.48 | 0.00 | 483762.00 | 3912302.00 |
| 120.47 | 3467.78 | 1166.80 | 317.99 | 623.91 | 0.00 | 484284.00 | 3912548.00 |
| 263.90 | 2852.32 | 866.84 | 339.82 | 724.05 | 0.00 | 483669.00 | 3912248.00 |
| 120.70 | 3463.88 | 1161.47 | 332.98 | 735.24 | 0.00 | 484280.00 | 3912542.00 |
| 105.11 | 3593.79 | 1226.83 | 310.24 | 691.52 | 0.00 | 484410.00 | 3912608.00 |
| 170.51 | 3171.43 | 1022.05 | 381.01 | 734.37 | 0.00 | 483988.00 | 3912403.00 |
| 60.67 | 4219.26 | 1516.70 | 366.50 | 647.85 | 0.00 | 485036.00 | 3912897.00 |
| 761.99 | 2288.55 | 590.54 | 271.72 | 575.64 | 0.00 | 483105.00 | 3911971.00 |
| 314.40 | 2743.11 | 817.89 | 347.73 | 679.81 | 0.00 | 483559.00 | 3912199.00 |
| 437.37 | 2550.35 | 727.52 | 399.91 | 656.19 | 0.00 | 483367.00 | 3912108.00 |
| 167.01 | 3189.31 | 1032.52 | 297.49 | 646.17 | 0.00 | 484006.00 | 3912413.00 |
| 252.90 | 2887.50 | 886.92 | 299.05 | 584.49 | 0.00 | 483704.00 | 3912268.00 |
| 558.32 | 2427.61 | 663.44 | 365.17 | 605.72 | 0.00 | 483244.00 | 3912044.00 |
| 329.38 | 2711.93 | 806.53 | 253.46 | 526.74 | 0.00 | 483528.00 | 3912187.00 |
| 133.83 | 3362.21 | 1119.81 | 307.40 | 737.14 | 0.00 | 484178.00 | 3912501.00 |
| 364.24 | 2658.88 | 775.44 | 330.07 | 539.37 | 0.00 | 483475.00 | 3912156.00 |
| 591.05 | 2398.31 | 650.52 | 383.54 | 584.58 | 0.00 | 483215.00 | 3912031.00 |
| 636.59 | 2365.51 | 631.13 | 268.83 | 535.87 | 0.00 | 483182.00 | 3912012.00 |
| 447.30 | 2542.08 | 720.25 | 382.81 | 647.60 | 0.00 | 483358.00 | 3912101.00 |
| 381.20 | 2630.87 | 761.63 | 354.73 | 611.38 | 0.00 | 483447.00 | 3912142.00 |
| 385.17 | 2632.27 | 763.03 | 351.18 | 551.72 | 0.00 | 483449.00 | 3912144.00 |
| 230.80 | 2946.71 | 916.02 | 365.05 | 701.32 | 0.00 | 483763.00 | 3912297.00 |
| 273.90 | 2835.79 | 866.57 | 385.41 | 578.19 | 0.00 | 483652.00 | 3912247.00 |
| 400.97 | 2600.37 | 749.92 | 347.97 | 574.56 | 0.00 | 483417.00 | 3912131.00 |
| 563.52 | 2424.78 | 656.07 | 279.36 | 607.52 | 0.00 | 483241.00 | 3912037.00 |
| 303.11 | 2765.36 | 828.45 | 328.40 | 604.06 | 0.00 | 483582.00 | 3912209.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 457.26 | 55929.75 | 14888.48 | 1184.36 | 789.55 | **97.54** | 536746.00 | 3926269.00 |
| 186.97 | 61271.67 | 17449.27 | 1606.80 | 1761.68 | 0.00 | 542088.00 | 3928830.00 |
| 510.62 | 55439.51 | 14647.53 | 1219.96 | 920.82 | 0.00 | 536256.00 | 3926028.00 |
| 522.87 | 55338.49 | 14593.75 | 1218.65 | 946.22 | 0.00 | 536155.00 | 3925975.00 |
| 185.33 | 61338.61 | 17477.58 | 1464.49 | 1349.96 | 0.00 | 542155.00 | 3928858.00 |
| 351.36 | 57239.13 | 15523.03 | 1345.25 | 1240.44 | 0.00 | 538055.00 | 3926904.00 |
| 572.52 | 54965.77 | 14410.59 | 1217.37 | 953.18 | 0.00 | 535782.00 | 3925791.00 |
| 176.90 | 61694.18 | 17651.16 | 1659.40 | 1769.71 | 0.00 | 542510.00 | 3929032.00 |
| 187.69 | 61242.85 | 17433.82 | 1600.06 | 1636.88 | 0.00 | 542059.00 | 3928815.00 |
| 147.10 | 63189.93 | 18346.23 | 1663.26 | 1813.51 | 0.00 | 544006.00 | 3929727.00 |
| 487.82 | 55639.57 | 14742.86 | 1256.42 | 1056.48 | 0.00 | 536456.00 | 3926124.00 |
| 79.39 | 69365.50 | 21255.33 | 2208.23 | 2577.80 | 0.00 | 550182.00 | 3932636.00 |
| 294.77 | 58228.98 | 15989.11 | 1385.67 | 1380.93 | 0.00 | 539045.00 | 3927370.00 |
| 104.61 | 66362.01 | 19845.71 | 1723.73 | 1748.18 | 0.00 | 547178.00 | 3931226.00 |
| 242.19 | 59452.06 | 16579.72 | 1344.51 | 1167.19 | 0.00 | 540268.00 | 3927961.00 |
| 432.20 | 56194.36 | 15013.56 | 1244.36 | 980.84 | 0.00 | 537011.00 | 3926394.00 |
| 190.37 | 61136.91 | 17377.54 | 1611.17 | 1642.61 | 0.00 | 541953.00 | 3928758.00 |
| 158.77 | 62550.20 | 18055.63 | 1540.98 | 1474.62 | 0.00 | 543366.00 | 3929436.00 |
| 381.78 | 56806.45 | 15310.94 | 1283.34 | 1090.71 | 0.00 | 537623.00 | 3926692.00 |
| 275.68 | 58628.76 | 16193.61 | 1389.06 | 1283.08 | 0.00 | 539445.00 | 3927574.00 |
| 29.72 | 84182.02 | 28185.75 | 3081.09 | 3520.68 | 0.00 | 564998.00 | 3939567.00 |
| 82.68 | 68896.89 | 21022.92 | 2222.57 | 2741.20 | 0.00 | 549713.00 | 3932404.00 |
| 156.69 | 62659.46 | 18104.68 | 1529.41 | 1430.16 | 0.00 | 543476.00 | 3929485.00 |
| 192.91 | 61036.37 | 17333.74 | 1546.53 | 1595.97 | 0.00 | 541853.00 | 3928715.00 |
| 136.66 | 63827.25 | 18651.94 | 1800.24 | 2011.26 | 0.00 | 544644.00 | 3930033.00 |
| 200.39 | 60761.21 | 17208.14 | 1581.04 | 1643.17 | 0.00 | 541577.00 | 3928589.00 |
| 249.48 | 59259.37 | 16490.94 | 1389.96 | 1268.78 | 0.00 | 540076.00 | 3927872.00 |
| 303.53 | 58056.56 | 15914.91 | 1328.60 | 1171.58 | 0.00 | 538873.00 | 3927296.00 |
| 227.14 | 59879.67 | 16788.09 | 1575.70 | 1679.15 | 0.00 | 540696.00 | 3928169.00 |
| 869.51 | 53520.98 | 13663.44 | 1106.37 | 584.10 | 0.00 | 534337.00 | 3925044.00 |
| 706.88 | 54186.64 | 14014.59 | 1134.17 | 687.58 | 0.00 | 535003.00 | 3925395.00 |
| 200.42 | 60759.09 | 17199.21 | 1453.97 | 1366.84 | 0.00 | 541575.00 | 3928580.00 |
| 198.38 | 60832.74 | 17244.02 | 1376.57 | 1133.48 | 0.00 | 541649.00 | 3928625.00 |
| 526.10 | 55311.97 | 14583.60 | 1193.30 | 857.35 | 0.00 | 536128.00 | 3925964.00 |
| 151.36 | 62946.09 | 18239.77 | 1608.53 | 1605.49 | 0.00 | 543762.00 | 3929621.00 |
| 438.57 | 56127.42 | 14983.82 | 1246.90 | 997.46 | 0.00 | 536944.00 | 3926365.00 |
| 321.51 | 57726.44 | 15757.70 | 1293.05 | 1088.61 | 0.00 | 538543.00 | 3927138.00 |
| 764.80 | 53922.57 | 13880.41 | 1197.93 | 916.47 | 0.00 | 534739.00 | 3925261.00 |
| 190.56 | 61129.03 | 17384.32 | 1547.73 | 1524.44 | 0.00 | 541945.00 | 3928765.00 |
| 129.26 | 64328.13 | 18878.63 | 1601.01 | 1642.85 | 0.00 | 545144.00 | 3930259.00 |
| 321.45 | 57729.32 | 15754.86 | 1390.46 | 1337.55 | 0.00 | 538546.00 | 3927136.00 |
| 199.46 | 60791.35 | 17225.95 | 1580.78 | 1615.10 | 0.00 | 541608.00 | 3928607.00 |
| 619.96 | 54660.36 | 14251.84 | 1169.97 | 819.85 | 0.00 | 535477.00 | 3925633.00 |
| 264.25 | 58894.05 | 16316.19 | 1399.91 | 1297.82 | 0.00 | 539710.00 | 3927697.00 |
| 292.67 | 58269.62 | 16026.89 | 1358.23 | 1216.45 | 0.00 | 539086.00 | 3927408.00 |
| 554.92 | 55094.24 | 14475.30 | 1230.62 | 969.48 | 0.00 | 535911.00 | 3925856.00 |
| 440.46 | 56104.05 | 14971.44 | 1258.15 | 1058.48 | 0.00 | 536920.00 | 3926352.00 |
| 113.58 | 65544.81 | 19458.66 | 1919.09 | 2155.12 | 0.00 | 546361.00 | 3930839.00 |
| 486.86 | 55649.86 | 14756.41 | 1196.14 | 834.20 | 0.00 | 536466.00 | 3926137.00 |

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|---|---|---|---|---|---|---|---|
| 36.65 | 80381.44 | 26415.69 | 3319.87 | 3840.99 | 0.00 | 561198.00 | 3937796.00 |
| 436.34 | 56147.92 | 14994.84 | 1246.65 | 1023.75 | 0.00 | 536964.00 | 3926376.00 |
| 185.77 | 61322.73 | 17462.05 | 1619.47 | 1790.53 | 0.00 | 542139.00 | 3928843.00 |
| 531.94 | 55265.95 | 14560.49 | 1210.58 | 897.62 | 0.00 | 536082.00 | 3925941.00 |
| 251.93 | 59194.53 | 16463.69 | 1456.83 | 1434.65 | 0.00 | 540011.00 | 3927844.00 |
| 334.57 | 57506.09 | 15652.51 | 1404.76 | 1383.23 | 0.00 | 538322.00 | 3927033.00 |
| 97.79 | 67059.46 | 20180.57 | 1991.84 | 2173.30 | 0.00 | 547876.00 | 3931561.00 |
| 87.04 | 68316.38 | 20775.98 | 2007.15 | 2210.16 | 0.00 | 549133.00 | 3932157.00 |
| 116.71 | 65281.52 | 19333.67 | 1788.56 | 1996.80 | 0.00 | 546098.00 | 3930714.00 |
| 195.84 | 60927.22 | 17286.57 | 1579.98 | 1681.92 | 0.00 | 541743.00 | 3928667.00 |
| 339.24 | 57430.60 | 15619.31 | 1328.39 | 1148.48 | 0.00 | 538247.00 | 3927000.00 |
| 176.63 | 61705.48 | 17656.42 | 1593.62 | 1673.02 | 0.00 | 542522.00 | 3929037.00 |
| 150.24 | 63009.35 | 18263.02 | 1546.61 | 1543.36 | 0.00 | 543826.00 | 3929644.00 |
| 393.80 | 56648.69 | 15240.60 | 1221.60 | 890.92 | 0.00 | 537465.00 | 3926621.00 |
| 479.67 | 55714.19 | 14782.39 | 1229.07 | 934.47 | 0.00 | 536530.00 | 3926163.00 |
| 576.21 | 54944.15 | 14406.32 | 1220.05 | 933.04 | 0.00 | 535760.00 | 3925787.00 |
| 314.84 | 57848.23 | 15814.17 | 1272.34 | 1020.99 | 0.00 | 538665.00 | 3927195.00 |
| 149.06 | 63076.91 | 18288.87 | 1672.06 | 1788.05 | 0.00 | 543893.00 | 3929670.00 |
| 151.26 | 62952.88 | 18241.68 | 1767.25 | 1930.62 | 0.00 | 543769.00 | 3929622.00 |
| 230.24 | 59789.65 | 16746.30 | 1474.30 | 1450.74 | 0.00 | 540606.00 | 3928127.00 |
| 435.16 | 56163.05 | 14996.51 | 1237.24 | 970.48 | 0.00 | 536979.00 | 3926377.00 |
| 169.15 | 62045.94 | 17808.62 | 1745.77 | 1977.04 | 0.00 | 542862.00 | 3929189.00 |
| 491.62 | 55604.30 | 14725.69 | 1160.45 | 730.24 | 0.00 | 536421.00 | 3926106.00 |
| 240.48 | 59499.93 | 16600.78 | 1587.12 | 1654.16 | 0.00 | 540316.00 | 3927982.00 |
| 119.94 | 65022.14 | 19213.09 | 1820.07 | 2143.65 | 0.00 | 545838.00 | 3930594.00 |
| 337.67 | 57456.68 | 15621.99 | 1272.72 | 1053.75 | 0.00 | 538273.00 | 3927003.00 |
| 699.48 | 54223.54 | 14035.32 | 1125.23 | 642.39 | 0.00 | 535040.00 | 3925416.00 |
| 189.01 | 61191.63 | 17413.17 | 1517.19 | 1437.73 | 0.00 | 542008.00 | 3928794.00 |
| 110.73 | 65793.29 | 19573.44 | 1765.53 | 2041.25 | 0.00 | 546610.00 | 3930954.00 |
| 261.92 | 58946.76 | 16341.56 | 1502.27 | 1529.84 | 0.00 | 539763.00 | 3927722.00 |
| 1011.27 | 53098.46 | 13436.09 | 1124.31 | 658.75 | 0.00 | 533915.00 | 3924817.00 |
| 332.95 | 57533.71 | 15661.99 | 1305.08 | 1154.23 | 0.00 | 538350.00 | 3927043.00 |
| 314.91 | 57844.78 | 15817.52 | 1328.50 | 1155.63 | 0.00 | 538661.00 | 3927198.00 |
| 685.93 | 54295.98 | 14074.94 | 1133.03 | 660.88 | 0.00 | 535112.00 | 3925456.00 |
| 272.33 | 58707.74 | 16228.66 | 1354.71 | 1183.62 | 0.00 | 539524.00 | 3927609.00 |
| 183.41 | 61418.75 | 17507.70 | 1414.94 | 1269.75 | 0.00 | 542235.00 | 3928888.00 |
| 261.29 | 58961.98 | 16355.73 | 1330.72 | 1105.42 | 0.00 | 539778.00 | 3927737.00 |
| 289.25 | 58341.91 | 16052.17 | 1404.67 | 1326.03 | 0.00 | 539158.00 | 3927433.00 |
| 375.87 | 56885.94 | 15348.74 | 1217.47 | 873.87 | 0.00 | 537702.00 | 3926730.00 |
| 83.79 | 68743.94 | 20964.10 | 2110.84 | 2505.38 | 0.00 | 549560.00 | 3932345.00 |
| 72.78 | 70403.45 | 21731.29 | 2043.18 | 2276.11 | 0.00 | 551220.00 | 3933112.00 |
| 214.43 | 60278.96 | 16976.87 | 1406.67 | 1241.92 | 0.00 | 541095.00 | 3928358.00 |
| 113.11 | 65585.27 | 19480.92 | 1878.82 | 2162.69 | 0.00 | 546402.00 | 3930862.00 |
| 98.89 | 66940.28 | 20109.53 | 1935.01 | 2225.60 | 0.00 | 547757.00 | 3931490.00 |
| 216.31 | 60217.32 | 16941.04 | 1391.70 | 1229.04 | 0.00 | 541034.00 | 3928322.00 |
| 358.04 | 57141.18 | 15475.68 | 1238.07 | 924.50 | 0.00 | 537957.00 | 3926856.00 |
| 312.30 | 57893.92 | 15835.54 | 1453.26 | 1497.10 | 0.00 | 538710.00 | 3927216.00 |
| 265.52 | 58863.53 | 16301.94 | 1323.93 | 1108.17 | 0.00 | 539680.00 | 3927683.00 |
| 209.72 | 60432.96 | 17054.56 | 1513.64 | 1510.54 | 0.00 | 541249.00 | 3928435.00 |
| 341.35 | 57395.14 | 15603.57 | 1320.85 | 1172.65 | 0.00 | 538211.00 | 3926984.00 |
| 297.51 | 58174.13 | 15971.93 | 1317.72 | 1126.67 | 0.00 | 538990.00 | 3927353.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 471.86 | 14191.47 | 3921.28 | 578.76 | 712.40 | **57.48** | 495008.00 | 3915302.00 |
| 365.13 | 14626.67 | 4141.55 | 757.57 | 835.81 | 0.00 | 495443.00 | 3915522.00 |
| 83.90 | 18703.08 | 6068.68 | 1483.59 | 2336.20 | 0.00 | 499519.00 | 3917449.00 |
| 195.06 | 16003.57 | 4804.43 | 1086.38 | 1217.15 | 0.00 | 496820.00 | 3916185.00 |
| 473.32 | 14168.16 | 3923.91 | 618.86 | 766.78 | 0.00 | 494984.00 | 3915305.00 |
| 441.76 | 14288.55 | 3986.65 | 986.12 | 1075.28 | 0.00 | 495105.00 | 3915367.00 |
| 331.76 | 14813.94 | 4228.75 | 749.04 | 1001.90 | 0.00 | 495630.00 | 3915610.00 |
| 597.32 | 13838.57 | 3746.78 | 558.16 | 668.87 | 0.00 | 494655.00 | 3915128.00 |
| 39.38 | 22313.20 | 7751.23 | 1795.42 | 2791.77 | 0.00 | 503129.00 | 3919132.00 |
| 355.87 | 14673.61 | 4160.30 | 582.91 | 818.22 | 0.00 | 495490.00 | 3915541.00 |
| 124.66 | 17293.08 | 5414.54 | 1578.05 | 1951.65 | 0.00 | 498109.00 | 3916795.00 |
| 245.55 | 15439.60 | 4536.12 | 892.54 | 1212.23 | 0.00 | 496256.00 | 3915917.00 |
| 165.34 | 16436.32 | 5012.00 | 1385.17 | 1863.27 | 0.00 | 497253.00 | 3916393.00 |
| 156.63 | 16590.61 | 5079.26 | 1040.07 | 1606.38 | 0.00 | 497407.00 | 3916460.00 |
| 245.31 | 15443.63 | 4534.39 | 766.53 | 1269.54 | 0.00 | 496260.00 | 3915915.00 |
| 298.64 | 15014.31 | 4318.82 | 859.46 | 1424.38 | 0.00 | 495831.00 | 3915700.00 |
| 212.29 | 15789.33 | 4700.68 | 961.49 | 1378.58 | 0.00 | 496606.00 | 3916081.00 |
| 98.87 | 18081.51 | 5777.54 | 1528.47 | 3048.40 | 0.00 | 498898.00 | 3917158.00 |
| 69.97 | 19451.10 | 6410.29 | 1544.48 | 2836.80 | 0.00 | 500267.00 | 3917791.00 |
| 332.78 | 14803.86 | 4226.73 | 820.43 | 1152.83 | 0.00 | 495620.00 | 3915608.00 |
| 102.10 | 17972.11 | 5741.82 | 1712.06 | 1729.66 | 0.00 | 498788.00 | 3917123.00 |
| 220.03 | 15705.95 | 4663.11 | 1122.67 | 1422.48 | 0.00 | 496522.00 | 3916044.00 |
| 317.23 | 14898.81 | 4284.66 | 942.85 | 980.44 | 0.00 | 495715.00 | 3915665.00 |
| 190.88 | 16057.28 | 4828.37 | 1180.51 | 1719.23 | 0.00 | 496874.00 | 3916209.00 |
| 134.83 | 17039.73 | 5296.00 | 1280.15 | 2056.80 | 0.00 | 497856.00 | 3916677.00 |
| 458.95 | 14223.20 | 3949.47 | 717.84 | 867.50 | 0.00 | 495039.00 | 3915330.00 |
| 77.92 | 18999.69 | 6191.34 | 1688.13 | 2868.61 | 0.00 | 499816.00 | 3917572.00 |
| 110.85 | 17682.44 | 5593.05 | 1091.70 | 2285.19 | 0.00 | 498499.00 | 3916974.00 |
| 396.02 | 14476.08 | 4068.19 | 737.41 | 967.88 | 0.00 | 495292.00 | 3915449.00 |
| 130.74 | 17139.58 | 5344.44 | 1233.55 | 1385.23 | 0.00 | 497956.00 | 3916725.00 |
| 238.21 | 15515.02 | 4586.41 | 1089.62 | 1073.44 | 0.00 | 496331.00 | 3915967.00 |
| 160.43 | 16522.48 | 5055.30 | 1197.44 | 2079.27 | 0.00 | 497339.00 | 3916436.00 |
| 2007.11 | 12760.05 | 3110.16 | 472.78 | 418.77 | 0.00 | 493576.00 | 3914491.00 |
| 428.68 | 14339.45 | 4000.20 | 898.58 | 1173.45 | 0.00 | 495156.00 | 3915381.00 |
| 145.05 | 16815.25 | 5204.66 | 1659.38 | 1416.61 | 0.00 | 497632.00 | 3916585.00 |
| 239.64 | 15500.03 | 4561.06 | 904.52 | 1186.66 | 0.00 | 496316.00 | 3915942.00 |
| 136.88 | 16998.22 | 5279.46 | 1360.59 | 1567.34 | 0.00 | 497815.00 | 3916660.00 |
| 391.18 | 14492.20 | 4078.82 | 732.02 | 950.37 | 0.00 | 495308.00 | 3915460.00 |
| 345.90 | 14729.69 | 4184.80 | 775.54 | 1355.65 | 0.00 | 495546.00 | 3915566.00 |
| 361.37 | 14641.01 | 4155.60 | 895.87 | 1066.99 | 0.00 | 495457.00 | 3915536.00 |
| 71.30 | 19369.75 | 6357.14 | 1609.93 | 3614.83 | 0.00 | 500186.00 | 3917738.00 |
| 189.55 | 16074.26 | 4837.88 | 1092.33 | 1818.23 | 0.00 | 496891.00 | 3916219.00 |
| 79.42 | 18919.11 | 6153.21 | 1473.44 | 3949.12 | 0.00 | 499735.00 | 3917534.00 |
| 239.92 | 15494.73 | 4564.63 | 891.89 | 1356.42 | 0.00 | 496311.00 | 3915945.00 |
| 362.53 | 14638.64 | 4147.55 | 755.31 | 1017.89 | 0.00 | 495455.00 | 3915528.00 |
| 307.78 | 14957.30 | 4312.58 | 1104.17 | 1199.94 | 0.00 | 495774.00 | 3915693.00 |
| 401.95 | 14458.91 | 4057.72 | 671.61 | 832.68 | 0.00 | 495275.00 | 3915438.00 |
| 79.65 | 18910.90 | 6164.96 | 1232.83 | 1843.36 | 0.00 | 499727.00 | 3917546.00 |
| 231.43 | 15577.07 | 4596.76 | 948.32 | 1556.24 | 0.00 | 496393.00 | 3915978.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 343.61 | 14741.99 | 4191.01 | 902.39 | 1354.03 | 0.00 | 495558.00 | 3915572.00 |
| 721.60 | 13594.18 | 3623.77 | 667.16 | 826.73 | 0.00 | 494410.00 | 3915005.00 |
| 365.34 | 14621.97 | 4136.12 | 757.22 | 1198.25 | 0.00 | 495438.00 | 3915517.00 |
| 260.72 | 15312.21 | 4480.44 | 1052.93 | 1366.52 | 0.00 | 496128.00 | 3915861.00 |
| 540.67 | 13971.17 | 3816.37 | 508.75 | 563.60 | 0.00 | 494787.00 | 3915197.00 |
| 414.35 | 14396.08 | 4033.43 | 672.66 | 845.09 | 0.00 | 495212.00 | 3915414.00 |
| 190.02 | 16072.46 | 4838.22 | 1094.42 | 1692.40 | 0.00 | 496889.00 | 3916219.00 |
| 16.06 | 28800.32 | 10767.48 | 2050.53 | 3917.29 | 0.00 | 509617.00 | 3922148.00 |
| 408.56 | 14423.53 | 4043.11 | 760.08 | 1117.97 | 0.00 | 495240.00 | 3915424.00 |
| 451.71 | 14257.74 | 3958.98 | 798.26 | 1107.45 | 0.00 | 495074.00 | 3915340.00 |
| 389.75 | 14498.43 | 4083.21 | 942.77 | 1334.66 | 0.00 | 495315.00 | 3915464.00 |
| 395.64 | 14480.86 | 4074.21 | 784.56 | 1025.20 | 0.00 | 495297.00 | 3915455.00 |
| 140.42 | 16918.30 | 5230.58 | 1037.58 | 2072.83 | 0.00 | 497735.00 | 3916611.00 |
| 332.01 | 14803.91 | 4224.72 | 845.08 | 1460.52 | 0.00 | 495620.00 | 3915606.00 |
| 267.16 | 15257.07 | 4447.30 | 1095.32 | 1327.57 | 0.00 | 496073.00 | 3915828.00 |
| 127.31 | 17223.61 | 5366.51 | 1196.69 | 2102.22 | 0.00 | 498040.00 | 3916747.00 |
| 181.86 | 16185.61 | 4900.36 | 1203.89 | 1316.60 | 0.00 | 497002.00 | 3916281.00 |
| 220.26 | 15701.14 | 4657.59 | 824.69 | 1149.43 | 0.00 | 496517.00 | 3916038.00 |
| 316.24 | 14904.54 | 4273.79 | 798.87 | 1031.34 | 0.00 | 495721.00 | 3915655.00 |
| 190.87 | 16054.47 | 4835.18 | 1632.18 | 1687.08 | 0.00 | 496871.00 | 3916216.00 |
| 278.52 | 15168.08 | 4398.85 | 872.27 | 1339.73 | 0.00 | 495984.00 | 3915780.00 |
| 173.37 | 16309.68 | 4956.29 | 1335.78 | 1760.43 | 0.00 | 497126.00 | 3916337.00 |
| 144.58 | 16833.35 | 5195.97 | 1054.14 | 1440.31 | 0.00 | 497650.00 | 3916577.00 |
| 411.94 | 14412.40 | 4029.04 | 673.21 | 1069.77 | 0.00 | 495229.00 | 3915410.00 |
| 242.42 | 15471.29 | 4554.50 | 1019.14 | 1251.04 | 0.00 | 496288.00 | 3915935.00 |
| 181.44 | 16194.77 | 4884.15 | 904.04 | 1412.82 | 0.00 | 497011.00 | 3916265.00 |
| 250.82 | 15398.41 | 4514.58 | 974.91 | 1144.66 | 0.00 | 496215.00 | 3915895.00 |
| 150.05 | 16713.92 | 5135.62 | 1675.45 | 2074.75 | 0.00 | 497530.00 | 3916516.00 |
| 479.99 | 14156.43 | 3907.21 | 587.13 | 747.92 | 0.00 | 494973.00 | 3915288.00 |
| 290.85 | 15074.50 | 4351.53 | 1022.89 | 1526.83 | 0.00 | 495891.00 | 3915732.00 |
| 156.25 | 16601.23 | 5086.93 | 1093.25 | 1481.12 | 0.00 | 497418.00 | 3916468.00 |
| 262.90 | 15289.08 | 4459.82 | 818.78 | 1107.53 | 0.00 | 496105.00 | 3915841.00 |
| 542.48 | 13969.55 | 3821.40 | 856.60 | 1000.39 | 0.00 | 494786.00 | 3915202.00 |
| 164.94 | 16446.18 | 5003.29 | 992.90 | 2078.50 | 0.00 | 497262.00 | 3916384.00 |
| 338.69 | 14767.16 | 4210.41 | 967.40 | 1255.44 | 0.00 | 495583.00 | 3915591.00 |
| 245.60 | 15440.91 | 4537.94 | 991.61 | 1398.96 | 0.00 | 496257.00 | 3915919.00 |
| 205.03 | 15876.45 | 4743.64 | 847.30 | 1191.89 | 0.00 | 496693.00 | 3916124.00 |
| 625.84 | 13766.03 | 3715.92 | 627.77 | 739.10 | 0.00 | 494582.00 | 3915097.00 |
| 1221.91 | 13053.51 | 3323.34 | 476.70 | 490.79 | 0.00 | 493870.00 | 3914704.00 |
| 253.48 | 15370.71 | 4502.51 | 1289.45 | 1912.19 | 0.00 | 496187.00 | 3915883.00 |
| 167.87 | 16399.40 | 4988.90 | 911.37 | 1401.03 | 0.00 | 497216.00 | 3916370.00 |
| 349.31 | 14713.30 | 4185.17 | 876.37 | 1246.26 | 0.00 | 495530.00 | 3915566.00 |
| 293.28 | 15052.32 | 4358.90 | 905.67 | 1137.99 | 0.00 | 495869.00 | 3915740.00 |
| 417.47 | 14384.77 | 4026.07 | 798.11 | 973.20 | 0.00 | 495201.00 | 3915407.00 |
| 363.06 | 14638.70 | 4140.90 | 911.53 | 1372.72 | 0.00 | 495455.00 | 3915522.00 |
| 35.02 | 23009.71 | 8073.34 | 1828.42 | 3236.00 | 0.00 | 503826.00 | 3919454.00 |
| 69.47 | 19483.57 | 6408.81 | 1574.05 | 3489.12 | 0.00 | 500300.00 | 3917790.00 |
| 113.56 | 17601.02 | 5543.52 | 1244.95 | 2720.40 | 0.00 | 498417.00 | 3916924.00 |
| 566.12 | 13907.61 | 3779.66 | 693.61 | 1086.61 | 0.00 | 494724.00 | 3915160.00 |
| 302.03 | 14990.74 | 4318.11 | 1015.65 | 1461.75 | 0.00 | 495807.00 | 3915699.00 |
| 160.51 | 16522.84 | 5054.04 | 1432.44 | 1333.56 | 0.00 | 497339.00 | 3916435.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 31.20 | 51001.03 | 17502.14 | 2860.17 | 3807.62 | **80.44** | 531817.00 | 3928883.00 |
| 299.37 | 34092.82 | 9579.04 | 1081.68 | 1315.45 | 0.00 | 514909.00 | 3920960.00 |
| 188.34 | 36165.56 | 10561.15 | 1069.97 | 1260.72 | 0.00 | 516982.00 | 3921942.00 |
| 324.11 | 33789.30 | 9434.16 | 928.86 | 888.25 | 0.00 | 514606.00 | 3920815.00 |
| 595.41 | 31855.88 | 8482.58 | 846.59 | 730.25 | 0.00 | 512672.00 | 3919863.00 |
| 284.99 | 34292.06 | 9681.70 | 1236.65 | 1471.92 | 0.00 | 515108.00 | 3921062.00 |
| 43.02 | 47281.75 | 15782.30 | 2651.49 | 3661.91 | 0.00 | 528098.00 | 3927163.00 |
| 54.43 | 44914.79 | 14693.80 | 2489.29 | 2778.14 | 0.00 | 525731.00 | 3926075.00 |
| 292.60 | 34184.45 | 9624.63 | 1138.07 | 1291.38 | 0.00 | 515001.00 | 3921005.00 |
| 139.20 | 37820.00 | 11345.73 | 1577.08 | 2045.78 | 0.00 | 518636.00 | 3922727.00 |
| 370.72 | 33298.41 | 9196.55 | 960.13 | 1007.60 | 0.00 | 514115.00 | 3920577.00 |
| 100.49 | 39909.79 | 12329.09 | 1645.19 | 2054.55 | 0.00 | 520726.00 | 3923710.00 |
| 222.65 | 35359.92 | 10183.51 | 1025.65 | 1088.62 | 0.00 | 516176.00 | 3921564.00 |
| 467.09 | 32541.05 | 8824.36 | 888.36 | 856.64 | 0.00 | 513357.00 | 3920205.00 |
| 173.15 | 36601.98 | 10776.15 | 1360.86 | 1643.42 | 0.00 | 517418.00 | 3922157.00 |
| 337.80 | 33635.72 | 9359.82 | 1044.94 | 1106.72 | 0.00 | 514452.00 | 3920741.00 |
| 51.60 | 45429.05 | 14928.40 | 2088.70 | 2656.63 | 0.00 | 526245.00 | 3926309.00 |
| 404.96 | 32996.75 | 9049.79 | 1074.53 | 1221.94 | 0.00 | 513813.00 | 3920431.00 |
| 327.07 | 33754.62 | 9413.34 | 1015.86 | 1221.78 | 0.00 | 514571.00 | 3920794.00 |
| 196.02 | 35967.62 | 10479.74 | 1189.71 | 1239.77 | 0.00 | 516784.00 | 3921861.00 |
| 322.16 | 33814.90 | 9443.53 | 1064.28 | 1243.59 | 0.00 | 514631.00 | 3920824.00 |
| 325.34 | 33775.47 | 9422.03 | 1046.44 | 1180.31 | 0.00 | 514592.00 | 3920803.00 |
| 415.97 | 32906.96 | 9009.71 | 1061.22 | 1130.88 | 0.00 | 513723.00 | 3920390.00 |
| 527.80 | 32183.28 | 8650.70 | 892.28 | 771.59 | 0.00 | 513000.00 | 3920031.00 |
| 811.32 | 31131.43 | 8109.96 | 803.31 | 597.52 | 0.00 | 511948.00 | 3919491.00 |
| 482.92 | 32443.92 | 8773.02 | 866.81 | 756.38 | 0.00 | 513260.00 | 3920154.00 |
| 314.23 | 33907.55 | 9499.16 | 1000.98 | 1005.69 | 0.00 | 514724.00 | 3920880.00 |
| 180.69 | 36380.99 | 10672.11 | 1238.13 | 1341.11 | 0.00 | 517197.00 | 3922053.00 |
| 249.73 | 34844.57 | 9941.21 | 1080.35 | 1187.26 | 0.00 | 515661.00 | 3921322.00 |
| 335.78 | 33655.75 | 9368.86 | 1034.45 | 1084.60 | 0.00 | 514472.00 | 3920750.00 |
| 210.80 | 35617.22 | 10297.00 | 997.15 | 1078.94 | 0.00 | 516434.00 | 3921678.00 |
| 569.43 | 31974.84 | 8540.08 | 904.58 | 902.80 | 0.00 | 512791.00 | 3919921.00 |
| 280.18 | 34361.00 | 9709.39 | 1155.43 | 1278.28 | 0.00 | 515177.00 | 3921090.00 |
| 354.63 | 33457.36 | 9273.51 | 979.88 | 993.13 | 0.00 | 514274.00 | 3920654.00 |
| 233.19 | 35147.77 | 10084.67 | 1101.88 | 1232.60 | 0.00 | 515964.00 | 3921465.00 |
| 229.36 | 35228.59 | 10122.40 | 1111.21 | 1309.73 | 0.00 | 516045.00 | 3921503.00 |
| 110.75 | 39247.40 | 12023.55 | 1459.28 | 1809.49 | 0.00 | 520064.00 | 3923404.00 |
| 423.63 | 32852.99 | 8974.13 | 940.02 | 995.64 | 0.00 | 513669.00 | 3920355.00 |
| 260.93 | 34657.32 | 9849.95 | 1036.06 | 1134.28 | 0.00 | 515474.00 | 3921231.00 |
| 277.90 | 34393.67 | 9734.47 | 1033.70 | 1071.15 | 0.00 | 515210.00 | 3921115.00 |
| 258.94 | 34690.53 | 9869.87 | 1062.03 | 1104.34 | 0.00 | 515507.00 | 3921251.00 |
| 51.26 | 45492.87 | 14953.90 | 2411.20 | 2895.12 | 0.00 | 526309.00 | 3926335.00 |
| 16.37 | 60542.98 | 21974.03 | 2471.62 | 4523.75 | 0.00 | 541359.00 | 3933355.00 |
| 408.39 | 32970.92 | 9033.72 | 878.64 | 814.62 | 0.00 | 513787.00 | 3920414.00 |
| 341.94 | 33586.15 | 9328.13 | 897.90 | 875.89 | 0.00 | 514402.00 | 3920709.00 |
| 242.15 | 34981.93 | 10010.13 | 1190.50 | 1331.70 | 0.00 | 515798.00 | 3921391.00 |
| 387.81 | 33142.58 | 9125.22 | 1008.37 | 1041.63 | 0.00 | 513959.00 | 3920506.00 |
| 223.83 | 35337.66 | 10171.81 | 1275.93 | 1460.56 | 0.00 | 516154.00 | 3921553.00 |
| 214.68 | 35532.98 | 10272.49 | 1152.07 | 1365.91 | 0.00 | 516349.00 | 3921653.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122.46 | 38599.74 | 11711.99 | 1510.27 | 2092.37 | 0.00 | 519416.00 | 3923093.00 |
| 404.28 | 33003.50 | 9049.21 | 921.49 | 895.77 | 0.00 | 513820.00 | 3920430.00 |
| 261.91 | 34642.87 | 9841.52 | 964.84 | 934.62 | 0.00 | 515459.00 | 3921222.00 |
| 216.27 | 35496.79 | 10254.10 | 1163.77 | 1237.69 | 0.00 | 516313.00 | 3921635.00 |
| 80.47 | 41549.42 | 13102.71 | 1804.41 | 2284.82 | 0.00 | 522366.00 | 3924483.00 |
| 49.60 | 45818.60 | 15108.54 | 2309.21 | 3119.59 | 0.00 | 526635.00 | 3926489.00 |
| 122.80 | 38583.17 | 11714.78 | 1436.79 | 1727.35 | 0.00 | 519399.00 | 3923096.00 |
| 111.94 | 39177.53 | 11991.64 | 1537.94 | 1776.37 | 0.00 | 519994.00 | 3923372.00 |
| 253.86 | 34778.16 | 9910.11 | 1192.11 | 1390.12 | 0.00 | 515594.00 | 3921291.00 |
| 87.25 | 40927.88 | 12804.48 | 1507.67 | 1967.69 | 0.00 | 521744.00 | 3924185.00 |
| 199.06 | 35895.31 | 10446.63 | 1155.74 | 1255.00 | 0.00 | 516712.00 | 3921827.00 |
| 246.04 | 34912.10 | 9968.29 | 1114.84 | 1293.26 | 0.00 | 515728.00 | 3921349.00 |
| 183.31 | 36306.72 | 10635.36 | 1221.64 | 1385.71 | 0.00 | 517123.00 | 3922016.00 |
| 658.93 | 31592.72 | 8353.70 | 912.71 | 842.76 | 0.00 | 512409.00 | 3919734.00 |
| 140.86 | 37747.99 | 11318.25 | 1445.65 | 1700.77 | 0.00 | 518564.00 | 3922699.00 |
| 538.67 | 32124.13 | 8619.18 | 824.71 | 626.58 | 0.00 | 512940.00 | 3920000.00 |
| 26.84 | 52962.23 | 18461.67 | 3871.62 | 4399.31 | 0.00 | 533779.00 | 3929842.00 |
| 1325.26 | 30280.96 | 7625.82 | 815.94 | 620.24 | 0.00 | 511097.00 | 3919007.00 |
| 212.86 | 35572.27 | 10287.89 | 1193.43 | 1330.37 | 0.00 | 516389.00 | 3921669.00 |
| 358.18 | 33420.69 | 9260.74 | 1052.85 | 1128.05 | 0.00 | 514237.00 | 3920642.00 |
| 108.51 | 39387.85 | 12091.13 | 1271.64 | 1459.76 | 0.00 | 520204.00 | 3923472.00 |
| 217.80 | 35464.83 | 10239.37 | 1317.17 | 1582.70 | 0.00 | 516281.00 | 3921620.00 |
| 447.37 | 32674.27 | 8890.06 | 999.34 | 1176.37 | 0.00 | 513491.00 | 3920271.00 |
| 238.82 | 35042.12 | 10039.45 | 1221.37 | 1508.37 | 0.00 | 515858.00 | 3921420.00 |
| 66.25 | 43138.96 | 13861.81 | 2069.64 | 2702.75 | 0.00 | 523955.00 | 3925243.00 |
| 332.13 | 33699.31 | 9390.59 | 1110.93 | 1255.13 | 0.00 | 514516.00 | 3920771.00 |
| 166.46 | 36814.67 | 10880.28 | 1225.52 | 1377.67 | 0.00 | 517631.00 | 3922261.00 |
| 853.96 | 31022.86 | 8053.02 | 819.89 | 632.05 | 0.00 | 511839.00 | 3919434.00 |
| 420.93 | 32871.26 | 8985.61 | 931.31 | 934.12 | 0.00 | 513688.00 | 3920366.00 |
| 124.50 | 38493.51 | 11661.03 | 1345.44 | 1849.45 | 0.00 | 519310.00 | 3923042.00 |
| 234.57 | 35123.37 | 10074.75 | 1280.62 | 1630.97 | 0.00 | 515940.00 | 3921456.00 |
| 147.79 | 37471.02 | 11183.13 | 1449.38 | 1974.21 | 0.00 | 518287.00 | 3922564.00 |
| 266.33 | 34568.64 | 9810.30 | 1288.51 | 1684.08 | 0.00 | 515385.00 | 3921191.00 |
| 405.06 | 32995.52 | 9051.08 | 985.49 | 993.44 | 0.00 | 513812.00 | 3920432.00 |
| 347.01 | 33535.95 | 9310.55 | 952.58 | 951.00 | 0.00 | 514352.00 | 3920691.00 |
| 221.84 | 35377.11 | 10200.14 | 1148.55 | 1233.83 | 0.00 | 516193.00 | 3921581.00 |
| 298.80 | 34100.50 | 9585.53 | 1111.28 | 1266.11 | 0.00 | 514917.00 | 3920966.00 |
| 342.97 | 33578.84 | 9330.29 | 999.74 | 1111.70 | 0.00 | 514395.00 | 3920711.00 |
| 153.45 | 37255.86 | 11090.24 | 1270.34 | 1463.68 | 0.00 | 518072.00 | 3922471.00 |
| 523.51 | 32203.53 | 8658.09 | 948.38 | 951.66 | 0.00 | 513020.00 | 3920039.00 |
| 490.91 | 32394.05 | 8746.43 | 857.59 | 795.13 | 0.00 | 513210.00 | 3920127.00 |
| 326.08 | 33763.56 | 9427.99 | 1162.61 | 1322.33 | 0.00 | 514580.00 | 3920809.00 |
| 99.90 | 39949.95 | 12349.18 | 1443.54 | 1832.72 | 0.00 | 520766.00 | 3923730.00 |
| 358.05 | 33422.02 | 9257.53 | 939.41 | 882.44 | 0.00 | 514238.00 | 3920638.00 |
| 259.59 | 34679.34 | 9863.81 | 1098.28 | 1210.41 | 0.00 | 515496.00 | 3921245.00 |
| 562.74 | 32005.94 | 8557.20 | 919.74 | 927.28 | 0.00 | 512822.00 | 3919938.00 |
| 875.42 | 30972.09 | 8023.22 | 810.98 | 625.82 | 0.00 | 511788.00 | 3919404.00 |
| 408.37 | 32967.10 | 9036.63 | 924.30 | 901.09 | 0.00 | 513783.00 | 3920417.00 |
| 178.72 | 36438.06 | 10700.04 | 1190.94 | 1429.67 | 0.00 | 517254.00 | 3922081.00 |
| 374.35 | 33267.69 | 9179.00 | 919.00 | 915.51 | 0.00 | 514084.00 | 3920560.00 |
| 190.19 | 36118.52 | 10552.53 | 1370.46 | 1670.89 | 0.00 | 516935.00 | 3921933.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 279.36 | 104059.52 | 27866.93 | 1923.81 | 1575.51 | **119.04** | 584876.00 | 3939248.00 |
| 269.81 | 104375.30 | 28007.69 | 1962.68 | 1703.76 | 0.00 | 585192.00 | 3939388.00 |
| 234.69 | 105703.33 | 28649.53 | 2025.98 | 1798.63 | 0.00 | 586520.00 | 3940030.00 |
| 647.90 | 98034.48 | 24943.84 | 1651.42 | 937.84 | 0.00 | 578851.00 | 3936325.00 |
| 251.37 | 105037.79 | 28329.07 | 1976.81 | 1660.55 | 0.00 | 585854.00 | 3939710.00 |
| 193.96 | 107684.73 | 29586.55 | 2118.86 | 1940.53 | 0.00 | 588501.00 | 3940967.00 |
| 142.17 | 111365.24 | 31310.90 | 2334.25 | 2383.53 | 0.00 | 592182.00 | 3942692.00 |
| 359.32 | 101942.98 | 26847.52 | 1835.23 | 1422.32 | 0.00 | 582759.00 | 3938228.00 |
| 515.21 | 99389.78 | 25614.35 | 1695.58 | 1050.22 | 0.00 | 580206.00 | 3936995.00 |
| 146.63 | 110970.97 | 31128.67 | 2133.42 | 1805.41 | 0.00 | 591787.00 | 3942509.00 |
| 56.11 | 126629.72 | 38471.99 | 3411.85 | 4023.69 | 0.00 | 607446.00 | 3949853.00 |
| 435.75 | 100511.48 | 26166.12 | 1776.87 | 1270.45 | 0.00 | 581328.00 | 3937547.00 |
| 364.86 | 101823.93 | 26800.66 | 1802.52 | 1280.21 | 0.00 | 582640.00 | 3938181.00 |
| 100.92 | 116174.69 | 33569.55 | 2470.12 | 2385.23 | 0.00 | 596991.00 | 3944950.00 |
| 207.36 | 106968.38 | 29249.32 | 1980.24 | 1588.99 | 0.00 | 587785.00 | 3940630.00 |
| 117.49 | 113936.70 | 32520.10 | 2676.48 | 2990.07 | 0.00 | 594753.00 | 3943901.00 |
| 280.56 | 104021.15 | 27853.35 | 1851.64 | 1330.84 | 0.00 | 584837.00 | 3939234.00 |
| 182.67 | 108351.80 | 29895.04 | 2176.22 | 2039.83 | 0.00 | 589168.00 | 3941276.00 |
| 133.57 | 112178.72 | 31706.09 | 2324.30 | 2219.45 | 0.00 | 592995.00 | 3943087.00 |
| 137.83 | 111765.86 | 31514.05 | 2400.30 | 2402.66 | 0.00 | 592582.00 | 3942895.00 |
| 368.59 | 101744.74 | 26758.16 | 1806.21 | 1300.83 | 0.00 | 582561.00 | 3938139.00 |
| 420.45 | 100764.18 | 26285.55 | 1804.94 | 1364.65 | 0.00 | 581580.00 | 3937666.00 |
| 351.40 | 102119.15 | 26935.55 | 1889.61 | 1568.64 | 0.00 | 582935.00 | 3938316.00 |
| 199.24 | 107394.85 | 29446.75 | 2063.37 | 1806.61 | 0.00 | 588211.00 | 3940828.00 |
| 116.23 | 114089.09 | 32595.34 | 2578.30 | 2864.86 | 0.00 | 594905.00 | 3943976.00 |
| 291.17 | 103689.75 | 27686.22 | 1891.45 | 1491.68 | 0.00 | 584506.00 | 3939067.00 |
| 115.99 | 114119.86 | 32611.07 | 2438.66 | 2467.95 | 0.00 | 594936.00 | 3943992.00 |
| 222.72 | 106227.83 | 28911.28 | 2026.34 | 1728.73 | 0.00 | 587044.00 | 3940292.00 |
| 497.56 | 99615.74 | 25724.84 | 1738.67 | 1200.84 | 0.00 | 580432.00 | 3937106.00 |
| 558.91 | 98886.64 | 25370.14 | 1790.76 | 1398.34 | 0.00 | 579703.00 | 3936751.00 |
| 356.32 | 102008.48 | 26872.92 | 1819.50 | 1361.86 | 0.00 | 582825.00 | 3938254.00 |
| 135.23 | 112016.18 | 31633.22 | 2556.26 | 2762.07 | 0.00 | 592832.00 | 3943014.00 |
| 203.27 | 107180.24 | 29338.82 | 2038.14 | 1774.25 | 0.00 | 587997.00 | 3940720.00 |
| 80.37 | 119864.57 | 35316.67 | 2755.88 | 2872.17 | 0.00 | 600681.00 | 3946697.00 |
| 386.83 | 101376.21 | 26573.27 | 1836.19 | 1449.73 | 0.00 | 582192.00 | 3937954.00 |
| 203.19 | 107184.18 | 29348.02 | 2058.86 | 1790.44 | 0.00 | 588000.00 | 3940729.00 |
| 354.07 | 102058.59 | 26905.93 | 1835.10 | 1403.92 | 0.00 | 582875.00 | 3938287.00 |
| 254.70 | 104912.44 | 28276.49 | 1997.58 | 1716.51 | 0.00 | 585729.00 | 3939657.00 |
| 237.75 | 105576.09 | 28587.03 | 2009.19 | 1743.81 | 0.00 | 586392.00 | 3939968.00 |
| 208.75 | 106898.15 | 29212.83 | 2004.30 | 1651.99 | 0.00 | 587714.00 | 3940594.00 |
| 870.03 | 96578.92 | 24203.79 | 1622.21 | 862.27 | 0.00 | 577395.00 | 3935585.00 |
| 154.49 | 110320.62 | 30823.23 | 2265.26 | 2202.63 | 0.00 | 591137.00 | 3942204.00 |
| 230.49 | 105882.53 | 28734.19 | 1978.46 | 1628.42 | 0.00 | 586699.00 | 3940115.00 |
| 42.39 | 132823.47 | 41353.56 | 3818.78 | 4518.79 | 0.00 | 613640.00 | 3952734.00 |
| 253.59 | 104954.80 | 28296.08 | 2040.68 | 1855.89 | 0.00 | 585771.00 | 3939677.00 |
| 159.50 | 109931.40 | 30646.18 | 2153.09 | 1908.16 | 0.00 | 590748.00 | 3942027.00 |
| 342.30 | 102328.67 | 27036.38 | 1848.90 | 1453.71 | 0.00 | 583145.00 | 3938417.00 |
| 171.54 | 109072.99 | 30233.38 | 2283.78 | 2344.72 | 0.00 | 589889.00 | 3941614.00 |
| 243.02 | 105362.65 | 28482.90 | 2124.80 | 2080.93 | 0.00 | 586179.00 | 3939864.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 283.04 | 103941.74 | 27807.72 | 1986.25 | 1757.00 | 0.00 | 584758.00 | 3939189.00 |
| 713.55 | 97531.42 | 24691.10 | 1686.48 | 1086.99 | 0.00 | 578348.00 | 3936072.00 |
| 292.23 | 103659.14 | 27681.08 | 2004.76 | 1812.29 | 0.00 | 584475.00 | 3939062.00 |
| 253.03 | 104974.25 | 28303.84 | 1944.29 | 1596.36 | 0.00 | 585791.00 | 3939685.00 |
| 158.74 | 109989.40 | 30659.91 | 2191.36 | 2077.90 | 0.00 | 590806.00 | 3942041.00 |
| 99.31 | 116421.75 | 33699.19 | 2617.13 | 2666.29 | 0.00 | 597238.00 | 3945080.00 |
| 279.49 | 104054.58 | 27859.08 | 1935.44 | 1594.39 | 0.00 | 584871.00 | 3939240.00 |
| 444.35 | 100374.81 | 26094.55 | 1816.55 | 1409.22 | 0.00 | 581191.00 | 3937475.00 |
| 298.62 | 103469.98 | 27581.65 | 1921.00 | 1594.93 | 0.00 | 584286.00 | 3938962.00 |
| 25.50 | 146527.35 | 47767.62 | 4647.91 | 5766.19 | 0.00 | 627344.00 | 3959148.00 |
| 291.11 | 103693.11 | 27685.34 | 1951.94 | 1685.14 | 0.00 | 584509.00 | 3939066.00 |
| 405.43 | 101028.34 | 26406.12 | 1754.93 | 1194.33 | 0.00 | 581845.00 | 3937787.00 |
| 391.75 | 101280.74 | 26535.65 | 1755.92 | 1193.33 | 0.00 | 582097.00 | 3937916.00 |
| 328.38 | 102664.92 | 27196.09 | 1917.25 | 1654.61 | 0.00 | 583481.00 | 3938577.00 |
| 368.01 | 101756.76 | 26764.47 | 1837.25 | 1392.74 | 0.00 | 582573.00 | 3938145.00 |
| 55.36 | 126905.40 | 38589.77 | 3219.56 | 3677.30 | 0.00 | 607722.00 | 3949971.00 |
| 191.96 | 107798.59 | 29640.08 | 2236.81 | 2258.72 | 0.00 | 588615.00 | 3941021.00 |
| 295.23 | 103568.62 | 27633.66 | 1891.88 | 1508.12 | 0.00 | 584385.00 | 3939014.00 |
| 43.37 | 132282.88 | 41105.67 | 3613.53 | 4161.94 | 0.00 | 613099.00 | 3952486.00 |
| 105.71 | 115473.41 | 33253.24 | 2541.30 | 2519.30 | 0.00 | 596290.00 | 3944634.00 |
| 297.30 | 103507.98 | 27615.66 | 1883.10 | 1443.74 | 0.00 | 584324.00 | 3938996.00 |
| 41.95 | 133068.18 | 41486.88 | 3729.26 | 4399.84 | 0.00 | 613884.00 | 3952868.00 |
| 322.76 | 102809.35 | 27270.50 | 1868.40 | 1470.44 | 0.00 | 583626.00 | 3938651.00 |
| 944.59 | 96220.39 | 24012.19 | 1636.96 | 950.41 | 0.00 | 577037.00 | 3935393.00 |
| 71.74 | 121873.52 | 36243.70 | 2676.49 | 2577.48 | 0.00 | 602690.00 | 3947624.00 |
| 118.54 | 113811.00 | 32466.68 | 2422.49 | 2371.11 | 0.00 | 594627.00 | 3943847.00 |
| 184.94 | 108212.97 | 29850.87 | 2137.18 | 1918.22 | 0.00 | 589029.00 | 3941232.00 |
| 152.86 | 110451.77 | 30889.35 | 2242.54 | 2137.52 | 0.00 | 591268.00 | 3942270.00 |
| 206.26 | 107024.21 | 29286.69 | 2159.84 | 2059.85 | 0.00 | 587840.00 | 3940667.00 |
| 445.39 | 100358.27 | 26087.93 | 1788.74 | 1344.89 | 0.00 | 581175.00 | 3937469.00 |
| 131.04 | 112433.34 | 31825.30 | 2434.48 | 2486.20 | 0.00 | 593250.00 | 3943206.00 |
| 691.83 | 97690.60 | 24769.37 | 1671.25 | 1035.73 | 0.00 | 578507.00 | 3936150.00 |
| 144.98 | 111114.94 | 31199.49 | 2277.63 | 2172.81 | 0.00 | 591931.00 | 3942580.00 |
| 274.99 | 104201.96 | 27934.67 | 2016.05 | 1806.23 | 0.00 | 585018.00 | 3939315.00 |
| 344.06 | 102287.23 | 27014.17 | 1941.86 | 1711.09 | 0.00 | 583104.00 | 3938395.00 |
| 217.64 | 106464.26 | 29004.90 | 2085.50 | 1910.08 | 0.00 | 587281.00 | 3940386.00 |
| 146.20 | 111008.58 | 31157.16 | 2305.38 | 2212.03 | 0.00 | 591825.00 | 3942538.00 |
| 77.96 | 120392.05 | 35548.48 | 2913.21 | 3248.24 | 0.00 | 601208.00 | 3946929.00 |
| 629.58 | 98192.84 | 25020.45 | 1632.17 | 832.17 | 0.00 | 579009.00 | 3936401.00 |
| 709.73 | 97558.54 | 24705.16 | 1678.89 | 1068.20 | 0.00 | 578375.00 | 3936086.00 |
| 136.89 | 111855.06 | 31560.44 | 2346.59 | 2265.81 | 0.00 | 592671.00 | 3942941.00 |
| 268.61 | 104414.98 | 28034.01 | 1885.93 | 1435.64 | 0.00 | 585231.00 | 3939415.00 |
| 192.39 | 107774.67 | 29629.43 | 2127.16 | 1947.28 | 0.00 | 588591.00 | 3941010.00 |
| 354.83 | 102041.37 | 26900.11 | 1805.53 | 1294.23 | 0.00 | 582858.00 | 3938281.00 |
| 281.27 | 103997.96 | 27846.05 | 1990.93 | 1728.99 | 0.00 | 584814.00 | 3939227.00 |
| 386.30 | 101387.20 | 26582.54 | 1901.09 | 1603.44 | 0.00 | 582203.00 | 3937963.00 |
| 38.67 | 135045.77 | 42360.01 | 3789.07 | 4498.53 | 0.00 | 615862.00 | 3953741.00 |
| 344.88 | 102267.83 | 27007.00 | 1888.03 | 1599.76 | 0.00 | 583084.00 | 3938388.00 |
| 194.33 | 107665.42 | 29574.37 | 2206.98 | 2161.87 | 0.00 | 588482.00 | 3940955.00 |
| 292.62 | 103646.56 | 27671.42 | 1833.91 | 1300.50 | 0.00 | 584463.00 | 3939052.00 |
| 204.20 | 107130.90 | 29329.86 | 2042.45 | 1716.53 | 0.00 | 587947.00 | 3940711.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 228.72 | 49470.81 | 14001.06 | 1384.97 | 1512.46 | **91.18** | 530287.00 | 3925382.00 |
| 427.58 | 46345.80 | 12496.34 | 1154.29 | 1028.44 | 0.00 | 527162.00 | 3923877.00 |
| 117.95 | 54127.23 | 16203.87 | 1875.51 | 2221.29 | 0.00 | 534944.00 | 3927585.00 |
| 112.47 | 54527.03 | 16380.63 | 1581.11 | 1806.08 | 0.00 | 535343.00 | 3927761.00 |
| 205.40 | 50124.66 | 14304.59 | 1261.91 | 1197.59 | 0.00 | 530941.00 | 3925685.00 |
| 265.80 | 48619.40 | 13595.20 | 1254.15 | 1201.31 | 0.00 | 529436.00 | 3924976.00 |
| 366.47 | 47016.96 | 12820.85 | 1171.74 | 1099.65 | 0.00 | 527833.00 | 3924202.00 |
| 319.21 | 47671.94 | 13140.23 | 1223.45 | 1161.86 | 0.00 | 528488.00 | 3924521.00 |
| 531.14 | 45495.58 | 12070.06 | 1086.45 | 922.93 | 0.00 | 526312.00 | 3923451.00 |
| 371.12 | 46959.72 | 12793.97 | 1164.03 | 1036.19 | 0.00 | 527776.00 | 3924175.00 |
| 121.84 | 53860.96 | 16069.94 | 1642.73 | 1895.44 | 0.00 | 534677.00 | 3927451.00 |
| 385.09 | 46797.29 | 12717.62 | 1154.27 | 1042.26 | 0.00 | 527614.00 | 3924098.00 |
| 76.06 | 58210.70 | 18095.86 | 1789.42 | 2290.93 | 0.00 | 539027.00 | 3929477.00 |
| 544.31 | 45407.08 | 12032.25 | 1066.39 | 860.10 | 0.00 | 526223.00 | 3923413.00 |
| 175.91 | 51129.19 | 14779.13 | 1485.94 | 1787.16 | 0.00 | 531945.00 | 3926160.00 |
| 427.85 | 46341.43 | 12491.28 | 1106.31 | 911.80 | 0.00 | 527158.00 | 3923872.00 |
| 484.81 | 45841.50 | 12253.55 | 1094.70 | 871.14 | 0.00 | 526658.00 | 3923634.00 |
| 141.13 | 52703.14 | 15534.04 | 1639.82 | 1915.92 | 0.00 | 533519.00 | 3926915.00 |
| 254.65 | 48854.34 | 13712.88 | 1254.97 | 1162.29 | 0.00 | 529671.00 | 3925094.00 |
| 341.17 | 47350.33 | 12980.30 | 1165.08 | 1090.02 | 0.00 | 528167.00 | 3924361.00 |
| 412.33 | 46494.94 | 12575.22 | 1244.29 | 1200.13 | 0.00 | 527311.00 | 3923956.00 |
| 203.92 | 50168.91 | 14328.72 | 1391.26 | 1516.83 | 0.00 | 530985.00 | 3925710.00 |
| 194.94 | 50451.60 | 14460.51 | 1403.09 | 1512.74 | 0.00 | 531268.00 | 3925841.00 |
| 341.73 | 47342.94 | 12984.86 | 1117.26 | 884.28 | 0.00 | 528159.00 | 3924366.00 |
| 247.38 | 49018.01 | 13789.97 | 1393.15 | 1478.16 | 0.00 | 529834.00 | 3925171.00 |
| 348.38 | 47252.09 | 12942.72 | 1114.03 | 886.67 | 0.00 | 528068.00 | 3924323.00 |
| 140.93 | 52712.05 | 15533.01 | 1669.12 | 1981.63 | 0.00 | 533528.00 | 3926914.00 |
| 412.07 | 46498.36 | 12573.08 | 1175.13 | 1100.70 | 0.00 | 527315.00 | 3923954.00 |
| 195.58 | 50432.90 | 14458.73 | 1380.16 | 1433.27 | 0.00 | 531249.00 | 3925840.00 |
| 269.46 | 48544.24 | 13558.77 | 1289.49 | 1305.29 | 0.00 | 529361.00 | 3924940.00 |
| 233.72 | 49341.80 | 13937.56 | 1330.92 | 1392.95 | 0.00 | 530158.00 | 3925318.00 |
| 252.65 | 48899.12 | 13721.69 | 1202.70 | 1101.88 | 0.00 | 529715.00 | 3925102.00 |
| 165.97 | 51530.53 | 14952.74 | 1460.44 | 1830.80 | 0.00 | 532347.00 | 3926334.00 |
| 502.98 | 45699.79 | 12174.11 | 1075.60 | 845.23 | 0.00 | 526516.00 | 3923555.00 |
| 263.39 | 48668.22 | 13619.51 | 1202.73 | 1083.95 | 0.00 | 529485.00 | 3925000.00 |
| 118.90 | 54060.48 | 16172.61 | 1774.27 | 2078.86 | 0.00 | 534877.00 | 3927553.00 |
| 457.24 | 46068.97 | 12362.11 | 1119.73 | 963.55 | 0.00 | 526885.00 | 3923743.00 |
| 74.26 | 58463.21 | 18224.75 | 2149.55 | 2420.16 | 0.00 | 539279.00 | 3929606.00 |
| 116.32 | 54244.12 | 16251.70 | 1581.53 | 1755.66 | 0.00 | 535060.00 | 3927632.00 |
| 219.57 | 49714.69 | 14107.17 | 1360.19 | 1509.12 | 0.00 | 530531.00 | 3925488.00 |
| 221.40 | 49663.20 | 14092.15 | 1380.59 | 1454.98 | 0.00 | 530479.00 | 3925473.00 |
| 481.84 | 45864.23 | 12257.34 | 1082.01 | 900.39 | 0.00 | 526681.00 | 3923638.00 |
| 181.33 | 50922.40 | 14689.74 | 1507.27 | 1722.49 | 0.00 | 531739.00 | 3926071.00 |
| 22.20 | 75897.17 | 26380.09 | 3687.53 | 5393.49 | 0.00 | 556713.00 | 3937761.00 |
| 102.35 | 55349.40 | 16767.68 | 1803.71 | 2025.49 | 0.00 | 536166.00 | 3928148.00 |
| 369.43 | 46981.99 | 12802.70 | 1233.58 | 1247.68 | 0.00 | 527798.00 | 3924183.00 |
| 276.18 | 48410.84 | 13493.31 | 1230.61 | 1185.33 | 0.00 | 529227.00 | 3924874.00 |
| 208.40 | 50032.18 | 14270.29 | 1331.95 | 1342.01 | 0.00 | 530848.00 | 3925651.00 |
| 147.29 | 52383.92 | 15367.01 | 1545.61 | 1837.58 | 0.00 | 533200.00 | 3926748.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 309.56 | 47825.60 | 13205.55 | 1150.85 | 1003.77 | 0.00 | 528642.00 | 3924586.00 |
| 213.97 | 49873.00 | 14186.95 | 1375.51 | 1519.83 | 0.00 | 530689.00 | 3925568.00 |
| 184.62 | 50808.36 | 14632.04 | 1603.36 | 1783.39 | 0.00 | 531625.00 | 3926013.00 |
| 187.07 | 50720.30 | 14595.50 | 1417.81 | 1509.75 | 0.00 | 531537.00 | 3925976.00 |
| 154.99 | 52008.14 | 15204.50 | 1408.65 | 1420.44 | 0.00 | 532824.00 | 3926585.00 |
| 223.68 | 49602.91 | 14053.90 | 1268.39 | 1314.20 | 0.00 | 530419.00 | 3925435.00 |
| 471.51 | 45947.69 | 12297.90 | 1101.04 | 933.58 | 0.00 | 526764.00 | 3923679.00 |
| 401.55 | 46610.63 | 12631.89 | 1217.04 | 1185.31 | 0.00 | 527427.00 | 3924013.00 |
| 397.92 | 46651.79 | 12641.39 | 1102.78 | 895.62 | 0.00 | 527468.00 | 3924022.00 |
| 300.77 | 47967.44 | 13279.21 | 1254.09 | 1263.73 | 0.00 | 528784.00 | 3924660.00 |
| 1152.12 | 43326.70 | 10940.31 | 971.55 | 522.07 | 0.00 | 524143.00 | 3922321.00 |
| 963.54 | 43718.62 | 11153.91 | 983.14 | 593.29 | 0.00 | 524535.00 | 3922535.00 |
| 346.78 | 47273.33 | 12941.90 | 1107.45 | 924.98 | 0.00 | 528090.00 | 3924323.00 |
| 92.17 | 56313.11 | 17207.22 | 1842.41 | 2268.20 | 0.00 | 537129.00 | 3928588.00 |
| 298.54 | 48007.34 | 13305.85 | 1236.03 | 1174.06 | 0.00 | 528824.00 | 3924687.00 |
| 157.29 | 51904.03 | 15154.55 | 1617.29 | 1947.85 | 0.00 | 532720.00 | 3926535.00 |
| 347.09 | 47267.79 | 12940.31 | 1150.81 | 1001.07 | 0.00 | 528084.00 | 3924321.00 |
| 96.89 | 55847.73 | 17002.76 | 1496.79 | 1436.78 | 0.00 | 536664.00 | 3928384.00 |
| 283.33 | 48274.86 | 13430.67 | 1237.97 | 1215.96 | 0.00 | 529091.00 | 3924811.00 |
| 336.96 | 47409.90 | 13008.83 | 1203.03 | 1132.52 | 0.00 | 528226.00 | 3924390.00 |
| 177.81 | 51059.60 | 14747.23 | 1385.59 | 1503.08 | 0.00 | 531876.00 | 3926128.00 |
| 276.41 | 48413.03 | 13497.65 | 1264.90 | 1197.56 | 0.00 | 529229.00 | 3924878.00 |
| 71.13 | 58920.12 | 18443.09 | 2168.34 | 2752.83 | 0.00 | 539736.00 | 3929824.00 |
| 413.81 | 46481.36 | 12557.49 | 1104.91 | 921.64 | 0.00 | 527298.00 | 3923938.00 |
| 225.99 | 49543.33 | 14032.48 | 1390.55 | 1493.62 | 0.00 | 530360.00 | 3925413.00 |
| 423.70 | 46382.78 | 12514.54 | 1161.03 | 1012.29 | 0.00 | 527199.00 | 3923895.00 |
| 24.64 | 73943.48 | 25455.89 | 3552.89 | 4671.34 | 0.00 | 554760.00 | 3936837.00 |
| 410.30 | 46521.44 | 12575.02 | 1113.48 | 1009.26 | 0.00 | 527338.00 | 3923956.00 |
| 149.90 | 52253.44 | 15318.71 | 1565.42 | 1796.61 | 0.00 | 533070.00 | 3926699.00 |
| 184.73 | 50803.97 | 14632.20 | 1477.28 | 1515.73 | 0.00 | 531620.00 | 3926013.00 |
| 546.35 | 45393.52 | 12029.70 | 1078.58 | 862.54 | 0.00 | 526210.00 | 3923410.00 |
| 317.08 | 47705.93 | 13148.27 | 1187.83 | 1128.89 | 0.00 | 528522.00 | 3924529.00 |
| 522.83 | 45558.51 | 12108.46 | 1046.93 | 757.63 | 0.00 | 526375.00 | 3923489.00 |
| 416.98 | 46449.58 | 12549.83 | 1091.14 | 850.03 | 0.00 | 527266.00 | 3923931.00 |
| 257.92 | 48784.59 | 13668.19 | 1257.50 | 1282.84 | 0.00 | 529601.00 | 3925049.00 |
| 717.20 | 44512.05 | 11573.30 | 1030.20 | 746.38 | 0.00 | 525328.00 | 3922954.00 |
| 225.14 | 49562.20 | 14042.39 | 1391.57 | 1507.22 | 0.00 | 530378.00 | 3925423.00 |
| 384.11 | 46806.21 | 12716.68 | 1197.54 | 1159.60 | 0.00 | 527622.00 | 3924097.00 |
| 378.42 | 46875.07 | 12744.88 | 1116.06 | 1017.63 | 0.00 | 527691.00 | 3924126.00 |
| 68.74 | 59290.24 | 18634.30 | 2197.74 | 2472.17 | 0.00 | 540107.00 | 3930015.00 |
| 634.82 | 44882.91 | 11767.97 | 1097.51 | 919.88 | 0.00 | 525699.00 | 3923149.00 |
| 252.44 | 48905.51 | 13723.87 | 1303.83 | 1363.61 | 0.00 | 529722.00 | 3925105.00 |
| 449.57 | 46138.43 | 12402.37 | 1144.56 | 974.46 | 0.00 | 526955.00 | 3923783.00 |
| 261.84 | 48701.80 | 13626.79 | 1394.16 | 1563.36 | 0.00 | 529518.00 | 3925008.00 |
| 55.12 | 61840.66 | 19807.95 | 2530.49 | 3291.17 | 0.00 | 542657.00 | 3931189.00 |
| 171.90 | 51286.14 | 14858.96 | 1527.42 | 1718.37 | 0.00 | 532102.00 | 3926240.00 |
| 166.34 | 51515.74 | 14964.17 | 1422.93 | 1522.50 | 0.00 | 532332.00 | 3926345.00 |
| 320.66 | 47648.01 | 13127.62 | 1224.36 | 1163.70 | 0.00 | 528464.00 | 3924508.00 |
| 168.34 | 51431.93 | 14921.40 | 1365.68 | 1354.51 | 0.00 | 532248.00 | 3926302.00 |
| 310.38 | 47810.30 | 13209.50 | 1191.19 | 1071.01 | 0.00 | 528627.00 | 3924590.00 |
| 108.96 | 54798.34 | 16514.77 | 1667.70 | 1975.94 | 0.00 | 535615.00 | 3927896.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 385.48 | 24589.34 | 6835.71 | 775.45 | 856.69 | **71.63** | 505406.00 | 3918216.00 |
| 233.33 | 26164.18 | 7596.02 | 926.15 | 1081.76 | 0.00 | 506980.00 | 3918977.00 |
| 174.90 | 27274.03 | 8131.03 | 1469.04 | 1635.66 | 0.00 | 508090.00 | 3919512.00 |
| 224.14 | 26310.13 | 7674.27 | 1240.07 | 1399.67 | 0.00 | 507126.00 | 3919055.00 |
| 98.22 | 30060.58 | 9449.51 | 1631.14 | 1622.73 | 0.00 | 510877.00 | 3920830.00 |
| 257.78 | 25818.09 | 7427.36 | 1049.34 | 1281.18 | 0.00 | 506634.00 | 3918808.00 |
| 587.61 | 23575.29 | 6339.09 | 812.97 | 843.09 | 0.00 | 504392.00 | 3917720.00 |
| 258.72 | 25809.35 | 7426.17 | 999.73 | 1183.00 | 0.00 | 506626.00 | 3918807.00 |
| 571.54 | 23636.32 | 6367.32 | 764.38 | 725.50 | 0.00 | 504453.00 | 3917748.00 |
| 256.51 | 25837.68 | 7440.72 | 1075.45 | 1286.46 | 0.00 | 506654.00 | 3918822.00 |
| 459.21 | 24138.57 | 6615.62 | 782.01 | 823.10 | 0.00 | 504955.00 | 3917996.00 |
| 331.01 | 25023.67 | 7046.99 | 849.98 | 1010.31 | 0.00 | 505840.00 | 3918428.00 |
| 383.28 | 24605.03 | 6844.96 | 929.74 | 990.88 | 0.00 | 505421.00 | 3918226.00 |
| 526.13 | 23815.94 | 6457.49 | 828.42 | 924.29 | 0.00 | 504632.00 | 3917838.00 |
| 236.46 | 26117.51 | 7573.78 | 1042.11 | 1275.78 | 0.00 | 506934.00 | 3918955.00 |
| 495.42 | 23957.04 | 6526.11 | 773.74 | 894.59 | 0.00 | 504773.00 | 3917907.00 |
| 176.40 | 27240.26 | 8096.91 | 1195.63 | 1847.74 | 0.00 | 508057.00 | 3919478.00 |
| 412.54 | 24414.85 | 6754.08 | 921.66 | 1044.31 | 0.00 | 505231.00 | 3918135.00 |
| 333.76 | 25001.27 | 7038.06 | 989.94 | 1279.85 | 0.00 | 505818.00 | 3918419.00 |
| 185.55 | 27036.73 | 8017.08 | 1086.41 | 1294.54 | 0.00 | 507853.00 | 3919398.00 |
| 388.61 | 24571.52 | 6829.47 | 867.83 | 1049.34 | 0.00 | 505388.00 | 3918210.00 |
| 282.43 | 25516.43 | 7283.75 | 951.96 | 1219.20 | 0.00 | 506333.00 | 3918665.00 |
| 191.55 | 26908.85 | 7941.36 | 990.36 | 1283.52 | 0.00 | 507725.00 | 3919322.00 |
| 190.39 | 26931.80 | 7963.46 | 1463.16 | 1919.23 | 0.00 | 507748.00 | 3919344.00 |
| 253.92 | 25871.74 | 7458.61 | 996.47 | 1180.71 | 0.00 | 506688.00 | 3918839.00 |
| 111.59 | 29371.37 | 9122.29 | 1938.16 | 2161.42 | 0.00 | 510188.00 | 3920503.00 |
| 143.68 | 28131.88 | 8523.93 | 1216.55 | 1596.57 | 0.00 | 508948.00 | 3919905.00 |
| 289.82 | 25430.21 | 7243.86 | 857.29 | 935.48 | 0.00 | 506246.00 | 3918625.00 |
| 311.63 | 25206.49 | 7136.49 | 954.33 | 991.40 | 0.00 | 506023.00 | 3918517.00 |
| 390.89 | 24554.68 | 6825.04 | 919.40 | 1061.82 | 0.00 | 505371.00 | 3918206.00 |
| 287.56 | 25459.47 | 7246.79 | 885.62 | 1259.40 | 0.00 | 506276.00 | 3918628.00 |
| 551.09 | 23717.34 | 6404.92 | 845.91 | 986.29 | 0.00 | 504534.00 | 3917786.00 |
| 241.75 | 26042.25 | 7534.03 | 1126.96 | 1382.71 | 0.00 | 506859.00 | 3918915.00 |
| 351.59 | 24853.07 | 6965.84 | 880.54 | 1073.79 | 0.00 | 505669.00 | 3918347.00 |
| 569.83 | 23640.67 | 6365.18 | 819.20 | 980.11 | 0.00 | 504457.00 | 3917746.00 |
| 209.51 | 26561.13 | 7779.67 | 891.78 | 1144.76 | 0.00 | 507377.00 | 3919160.00 |
| 227.90 | 26243.47 | 7622.50 | 1057.22 | 1550.70 | 0.00 | 507060.00 | 3919003.00 |
| 165.12 | 27512.15 | 8232.52 | 1174.22 | 1671.28 | 0.00 | 508328.00 | 3919613.00 |
| 169.07 | 27416.69 | 8189.71 | 1341.42 | 1864.18 | 0.00 | 508233.00 | 3919570.00 |
| 156.56 | 27744.55 | 8356.01 | 1442.25 | 1886.18 | 0.00 | 508561.00 | 3919737.00 |
| 86.01 | 30824.95 | 9794.76 | 1838.06 | 2132.20 | 0.00 | 511641.00 | 3921176.00 |
| 100.15 | 29949.73 | 9376.49 | 1413.12 | 1741.82 | 0.00 | 510766.00 | 3920757.00 |
| 397.24 | 24515.35 | 6800.24 | 873.04 | 978.19 | 0.00 | 505332.00 | 3918181.00 |
| 202.52 | 26694.61 | 7832.37 | 1172.66 | 1732.58 | 0.00 | 507511.00 | 3919213.00 |
| 269.31 | 25675.99 | 7364.61 | 1060.72 | 1239.79 | 0.00 | 506492.00 | 3918745.00 |
| 29.37 | 39304.54 | 13734.70 | 3187.29 | 4537.91 | 0.00 | 520121.00 | 3925115.00 |
| 888.39 | 22831.47 | 5936.27 | 740.41 | 865.20 | 0.00 | 503648.00 | 3917317.00 |
| 429.89 | 24304.01 | 6699.54 | 859.69 | 942.79 | 0.00 | 505120.00 | 3918080.00 |
| 20.84 | 43124.12 | 15508.37 | 2717.83 | 6726.25 | 0.00 | 523940.00 | 3926889.00 |

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|---|---|---|---|---|---|---|---|
| 179.66 | 27164.30 | 8078.20 | 1147.99 | 1310.63 | 0.00 | 507981.00 | 3919459.00 |
| 318.96 | 25135.49 | 7102.54 | 911.43 | 1176.88 | 0.00 | 505952.00 | 3918483.00 |
| 253.58 | 25877.03 | 7454.84 | 860.65 | 955.75 | 0.00 | 506693.00 | 3918836.00 |
| 144.19 | 28116.49 | 8515.11 | 1419.49 | 2062.64 | 0.00 | 508933.00 | 3919896.00 |
| 237.48 | 26097.95 | 7558.99 | 842.50 | 1118.30 | 0.00 | 506914.00 | 3918940.00 |
| 167.88 | 27448.61 | 8215.71 | 1390.95 | 1693.74 | 0.00 | 508265.00 | 3919596.00 |
| 248.87 | 25943.22 | 7483.99 | 880.97 | 1000.49 | 0.00 | 506760.00 | 3918865.00 |
| 315.00 | 25174.70 | 7120.89 | 897.82 | 1037.36 | 0.00 | 505991.00 | 3918502.00 |
| 125.10 | 28791.66 | 8842.29 | 1209.03 | 1448.36 | 0.00 | 509608.00 | 3920223.00 |
| 129.25 | 28633.62 | 8762.86 | 1475.09 | 1933.90 | 0.00 | 509450.00 | 3920144.00 |
| 292.38 | 25405.08 | 7237.38 | 1033.04 | 1370.14 | 0.00 | 506221.00 | 3918618.00 |
| 237.47 | 26101.71 | 7561.01 | 990.37 | 1324.49 | 0.00 | 506918.00 | 3918942.00 |
| 740.99 | 23130.26 | 6105.69 | 734.31 | 738.36 | 0.00 | 503947.00 | 3917486.00 |
| 219.61 | 26381.73 | 7706.73 | 1227.28 | 1556.48 | 0.00 | 507198.00 | 3919088.00 |
| 287.76 | 25452.41 | 7259.55 | 1050.03 | 1272.68 | 0.00 | 506269.00 | 3918640.00 |
| 186.74 | 27006.48 | 7995.62 | 1176.33 | 1424.69 | 0.00 | 507823.00 | 3919376.00 |
| 86.31 | 30804.71 | 9765.09 | 1416.77 | 2419.36 | 0.00 | 511621.00 | 3921146.00 |
| 401.92 | 24480.23 | 6783.17 | 829.44 | 919.78 | 0.00 | 505297.00 | 3918164.00 |
| 104.12 | 29739.20 | 9287.86 | 1783.04 | 2177.71 | 0.00 | 510555.00 | 3920669.00 |
| 546.00 | 23728.63 | 6413.98 | 697.43 | 650.28 | 0.00 | 504545.00 | 3917795.00 |
| 291.08 | 25418.03 | 7248.66 | 962.81 | 1134.03 | 0.00 | 506234.00 | 3918629.00 |
| 959.41 | 22714.31 | 5880.08 | 703.92 | 651.61 | 0.00 | 503531.00 | 3917261.00 |
| 75.65 | 31614.37 | 10159.72 | 1427.11 | 2187.42 | 0.00 | 512431.00 | 3921541.00 |
| 403.99 | 24465.84 | 6780.44 | 788.85 | 727.60 | 0.00 | 505282.00 | 3918161.00 |
| 126.92 | 28717.31 | 8800.29 | 1430.71 | 1721.81 | 0.00 | 509534.00 | 3920181.00 |
| 285.07 | 25486.90 | 7271.05 | 884.50 | 1025.42 | 0.00 | 506303.00 | 3918652.00 |
| 166.83 | 27476.13 | 8214.98 | 1407.92 | 1810.67 | 0.00 | 508292.00 | 3919596.00 |
| 185.86 | 27025.52 | 8013.89 | 1105.54 | 1352.52 | 0.00 | 507842.00 | 3919395.00 |
| 169.62 | 27402.82 | 8190.46 | 1197.63 | 1776.87 | 0.00 | 508219.00 | 3919571.00 |
| 105.74 | 29653.40 | 9250.10 | 1391.39 | 1549.15 | 0.00 | 510470.00 | 3920631.00 |
| 393.68 | 24535.59 | 6806.69 | 850.64 | 1041.75 | 0.00 | 505352.00 | 3918187.00 |
| 70.19 | 32099.82 | 10378.34 | 1360.00 | 2016.76 | 0.00 | 512916.00 | 3921759.00 |
| 308.92 | 25234.53 | 7155.20 | 1036.97 | 1205.65 | 0.00 | 506051.00 | 3918536.00 |
| 204.44 | 26653.79 | 7817.84 | 1023.13 | 1414.12 | 0.00 | 507470.00 | 3919199.00 |
| 118.82 | 29051.67 | 8966.80 | 1423.52 | 1806.58 | 0.00 | 509868.00 | 3920348.00 |
| 301.93 | 25301.79 | 7173.84 | 870.74 | 1082.80 | 0.00 | 506118.00 | 3918555.00 |
| 278.91 | 25558.92 | 7302.89 | 1061.37 | 1384.18 | 0.00 | 506375.00 | 3918684.00 |
| 165.43 | 27503.58 | 8224.24 | 1189.03 | 1727.82 | 0.00 | 508320.00 | 3919605.00 |
| 329.27 | 25041.26 | 7064.97 | 1044.71 | 1185.69 | 0.00 | 505858.00 | 3918446.00 |
| 140.41 | 28238.26 | 8571.52 | 1320.44 | 1953.17 | 0.00 | 509055.00 | 3919952.00 |
| 515.61 | 23867.11 | 6479.45 | 871.16 | 978.05 | 0.00 | 504683.00 | 3917860.00 |
| 94.03 | 30306.07 | 9554.13 | 1459.96 | 2012.45 | 0.00 | 511122.00 | 3920935.00 |
| 444.00 | 24223.57 | 6651.16 | 790.75 | 898.82 | 0.00 | 505040.00 | 3918032.00 |
| 285.84 | 25478.78 | 7276.22 | 1054.77 | 1186.46 | 0.00 | 506295.00 | 3918657.00 |
| 288.00 | 25451.31 | 7256.03 | 961.64 | 1209.03 | 0.00 | 506268.00 | 3918637.00 |
| 187.01 | 27001.99 | 7994.81 | 1131.54 | 1436.80 | 0.00 | 507818.00 | 3919376.00 |
| 268.96 | 25681.73 | 7367.65 | 920.07 | 1015.10 | 0.00 | 506498.00 | 3918748.00 |
| 405.08 | 24462.02 | 6767.70 | 801.68 | 921.33 | 0.00 | 505278.00 | 3918148.00 |
| 129.60 | 28617.42 | 8763.00 | 1505.83 | 1531.43 | 0.00 | 509434.00 | 3920144.00 |
| 88.76 | 30637.27 | 9698.90 | 1396.13 | 2274.91 | 0.00 | 511454.00 | 3921080.00 |
| 523.69 | 23828.08 | 6458.57 | 731.38 | 735.69 | 0.00 | 504644.00 | 3917839.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 934.48 | 13758.46 | 3587.46 | 678.45 | 752.42 | **58.30** | 494575.00 | 3914968.00 |
| 204.49 | 16408.90 | 4900.80 | 1309.13 | 1347.38 | 0.00 | 497225.00 | 3916282.00 |
| 583.16 | 14335.52 | 3890.14 | 648.29 | 825.09 | 0.00 | 495152.00 | 3915271.00 |
| 888.46 | 13815.88 | 3614.57 | 561.25 | 733.02 | 0.00 | 494632.00 | 3914995.00 |
| 750.57 | 14009.67 | 3720.00 | 604.47 | 660.49 | 0.00 | 494826.00 | 3915101.00 |
| 194.31 | 16539.18 | 4966.67 | 1157.81 | 1598.42 | 0.00 | 497355.00 | 3916347.00 |
| 82.83 | 19361.14 | 6288.84 | 1543.33 | 2477.29 | 0.00 | 500177.00 | 3917670.00 |
| 219.76 | 16220.06 | 4802.89 | 787.94 | 1302.31 | 0.00 | 497036.00 | 3916184.00 |
| 392.50 | 14979.73 | 4218.97 | 1002.90 | 1170.57 | 0.00 | 495796.00 | 3915600.00 |
| 386.68 | 15004.48 | 4223.78 | 596.11 | 737.45 | 0.00 | 495821.00 | 3915605.00 |
| 895.51 | 13807.70 | 3613.05 | 721.08 | 863.80 | 0.00 | 494624.00 | 3914994.00 |
| 93.22 | 18888.09 | 6062.51 | 1217.38 | 2674.71 | 0.00 | 499704.00 | 3917443.00 |
| 219.89 | 16224.90 | 4803.65 | 929.62 | 1370.79 | 0.00 | 497041.00 | 3916184.00 |
| 386.31 | 15008.88 | 4223.90 | 778.12 | 1000.99 | 0.00 | 495825.00 | 3915605.00 |
| 440.18 | 14779.63 | 4111.75 | 848.15 | 1270.15 | 0.00 | 495596.00 | 3915493.00 |
| 302.32 | 15492.53 | 4458.05 | 796.55 | 1145.96 | 0.00 | 496309.00 | 3915839.00 |
| 136.99 | 17542.76 | 5427.00 | 1254.35 | 2346.91 | 0.00 | 498359.00 | 3916808.00 |
| 154.05 | 17186.55 | 5260.22 | 1091.79 | 1695.61 | 0.00 | 498003.00 | 3916641.00 |
| 115.61 | 18105.27 | 5695.47 | 1327.56 | 1796.18 | 0.00 | 498922.00 | 3917076.00 |
| 261.86 | 15810.45 | 4609.09 | 841.10 | 1210.17 | 0.00 | 496627.00 | 3915990.00 |
| 167.99 | 16941.83 | 5157.20 | 1181.90 | 1626.68 | 0.00 | 497758.00 | 3916538.00 |
| 297.64 | 15524.15 | 4483.45 | 920.64 | 1256.27 | 0.00 | 496340.00 | 3915864.00 |
| 434.68 | 14799.12 | 4126.56 | 1044.67 | 1098.68 | 0.00 | 495615.00 | 3915507.00 |
| 125.71 | 17824.61 | 5578.94 | 1156.35 | 1464.01 | 0.00 | 498641.00 | 3916960.00 |
| 292.37 | 15564.04 | 4500.61 | 865.56 | 1073.36 | 0.00 | 496380.00 | 3915881.00 |
| 118.87 | 18010.54 | 5652.76 | 1367.42 | 1761.91 | 0.00 | 498827.00 | 3917034.00 |
| 325.65 | 15340.27 | 4387.48 | 741.70 | 972.01 | 0.00 | 496157.00 | 3915768.00 |
| 118.99 | 18011.73 | 5663.65 | 1469.42 | 2125.09 | 0.00 | 498828.00 | 3917044.00 |
| 303.91 | 15487.25 | 4458.13 | 915.56 | 1059.65 | 0.00 | 496304.00 | 3915839.00 |
| 267.20 | 15757.46 | 4601.43 | 947.80 | 978.38 | 0.00 | 496574.00 | 3915982.00 |
| 297.70 | 15525.81 | 4480.95 | 944.40 | 1233.41 | 0.00 | 496342.00 | 3915862.00 |
| 148.72 | 17292.18 | 5319.03 | 1226.28 | 2079.20 | 0.00 | 498108.00 | 3916700.00 |
| 274.29 | 15699.28 | 4561.97 | 808.80 | 1099.62 | 0.00 | 496516.00 | 3915943.00 |
| 369.43 | 15093.02 | 4267.76 | 785.87 | 1039.99 | 0.00 | 495909.00 | 3915649.00 |
| 651.68 | 14186.52 | 3808.21 | 622.57 | 804.23 | 0.00 | 495003.00 | 3915189.00 |
| 337.51 | 15260.97 | 4354.72 | 761.82 | 991.23 | 0.00 | 496077.00 | 3915736.00 |
| 679.21 | 14132.85 | 3786.95 | 715.72 | 971.29 | 0.00 | 494949.00 | 3915168.00 |
| 630.58 | 14234.04 | 3838.32 | 638.95 | 684.49 | 0.00 | 495050.00 | 3915219.00 |
| 352.52 | 15177.10 | 4312.86 | 748.09 | 819.23 | 0.00 | 495993.00 | 3915694.00 |
| 332.53 | 15295.67 | 4366.66 | 921.66 | 1013.23 | 0.00 | 496112.00 | 3915747.00 |
| 173.12 | 16853.71 | 5115.44 | 1297.34 | 1545.69 | 0.00 | 497670.00 | 3916496.00 |
| 140.78 | 17454.48 | 5393.52 | 1206.92 | 2079.35 | 0.00 | 498271.00 | 3916774.00 |
| 293.26 | 15556.66 | 4496.10 | 1016.98 | 1393.78 | 0.00 | 496373.00 | 3915877.00 |
| 223.93 | 16174.40 | 4791.02 | 901.34 | 1068.72 | 0.00 | 496991.00 | 3916172.00 |
| 209.65 | 16341.09 | 4862.25 | 1007.12 | 1398.42 | 0.00 | 497157.00 | 3916243.00 |
| 415.58 | 14876.29 | 4168.39 | 846.59 | 858.87 | 0.00 | 495693.00 | 3915549.00 |
| 81.72 | 19409.46 | 6313.35 | 1884.44 | 3139.79 | 0.00 | 500226.00 | 3917694.00 |
| 197.21 | 16498.70 | 4950.82 | 1393.84 | 1499.62 | 0.00 | 497315.00 | 3916332.00 |
| 70.53 | 20037.21 | 6587.32 | 1041.26 | 2211.69 | 0.00 | 500853.00 | 3917968.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 52.70 | 21419.87 | 7259.89 | 1856.24 | 3182.29 | 0.00 | 502236.00 | 3918641.00 |
| 274.09 | 15702.08 | 4556.92 | 708.83 | 1001.48 | 0.00 | 496518.00 | 3915938.00 |
| 137.62 | 17531.23 | 5431.94 | 1440.37 | 1964.36 | 0.00 | 498348.00 | 3916813.00 |
| 479.36 | 14627.95 | 4044.23 | 621.95 | 675.44 | 0.00 | 495444.00 | 3915425.00 |
| 186.56 | 16646.88 | 5022.28 | 1249.12 | 1999.03 | 0.00 | 497463.00 | 3916403.00 |
| 156.79 | 17130.72 | 5239.24 | 1158.89 | 1723.62 | 0.00 | 497947.00 | 3916620.00 |
| 585.26 | 14331.51 | 3886.05 | 592.91 | 769.67 | 0.00 | 495148.00 | 3915267.00 |
| 277.62 | 15672.92 | 4539.05 | 684.04 | 1159.89 | 0.00 | 496489.00 | 3915920.00 |
| 435.81 | 14795.96 | 4119.96 | 692.47 | 955.69 | 0.00 | 495612.00 | 3915501.00 |
| 171.57 | 16878.33 | 5121.67 | 1249.73 | 1344.86 | 0.00 | 497695.00 | 3916502.00 |
| 328.19 | 15326.03 | 4378.05 | 770.67 | 995.08 | 0.00 | 496142.00 | 3915759.00 |
| 56.58 | 21060.75 | 7086.43 | 1885.51 | 2915.64 | 0.00 | 501877.00 | 3918467.00 |
| 88.44 | 19090.35 | 6147.91 | 1580.00 | 2876.68 | 0.00 | 499907.00 | 3917529.00 |
| 364.34 | 15116.63 | 4280.86 | 868.81 | 1079.22 | 0.00 | 495933.00 | 3915662.00 |
| 751.47 | 14008.08 | 3721.54 | 672.88 | 784.35 | 0.00 | 494824.00 | 3915102.00 |
| 280.05 | 15654.65 | 4546.97 | 738.61 | 871.50 | 0.00 | 496471.00 | 3915928.00 |
| 185.40 | 16661.00 | 5029.10 | 969.63 | 1531.43 | 0.00 | 497477.00 | 3916410.00 |
| 331.29 | 15303.74 | 4369.97 | 899.19 | 1403.61 | 0.00 | 496120.00 | 3915751.00 |
| 754.75 | 13997.65 | 3712.60 | 510.58 | 605.30 | 0.00 | 494814.00 | 3915093.00 |
| 393.31 | 14976.60 | 4214.25 | 730.82 | 893.48 | 0.00 | 495793.00 | 3915595.00 |
| 355.98 | 15162.06 | 4302.28 | 1097.18 | 1284.18 | 0.00 | 495978.00 | 3915683.00 |
| 220.95 | 16211.74 | 4805.33 | 884.48 | 1499.30 | 0.00 | 497028.00 | 3916186.00 |
| 282.89 | 15639.18 | 4525.34 | 793.95 | 1299.72 | 0.00 | 496455.00 | 3915906.00 |
| 213.79 | 16290.51 | 4843.44 | 865.29 | 1282.17 | 0.00 | 497107.00 | 3916224.00 |
| 482.82 | 14621.19 | 4037.29 | 863.53 | 1035.31 | 0.00 | 495437.00 | 3915418.00 |
| 244.87 | 15958.02 | 4680.74 | 1072.03 | 1369.37 | 0.00 | 496774.00 | 3916062.00 |
| 189.05 | 16615.70 | 4989.13 | 1092.45 | 1658.60 | 0.00 | 497432.00 | 3916370.00 |
| 258.06 | 15839.56 | 4614.15 | 681.49 | 1176.86 | 0.00 | 496656.00 | 3915995.00 |
| 323.32 | 15343.21 | 4391.03 | 677.04 | 870.31 | 0.00 | 496159.00 | 3915772.00 |
| 419.58 | 14859.80 | 4151.33 | 664.79 | 862.45 | 0.00 | 495676.00 | 3915532.00 |
| 582.37 | 14340.62 | 3889.36 | 763.11 | 1023.88 | 0.00 | 495157.00 | 3915270.00 |
| 374.99 | 15062.87 | 4257.12 | 957.68 | 1356.01 | 0.00 | 495879.00 | 3915638.00 |
| 166.73 | 16959.68 | 5159.52 | 1042.25 | 1232.67 | 0.00 | 497776.00 | 3916540.00 |
| 375.72 | 15053.57 | 4249.03 | 836.74 | 1145.84 | 0.00 | 495870.00 | 3915630.00 |
| 346.78 | 15214.96 | 4320.32 | 704.15 | 1092.81 | 0.00 | 496031.00 | 3915701.00 |
| 373.82 | 15066.45 | 4256.67 | 778.64 | 1051.98 | 0.00 | 495883.00 | 3915637.00 |
| 229.42 | 16120.08 | 4749.62 | 731.68 | 1370.22 | 0.00 | 496936.00 | 3916130.00 |
| 70.83 | 20020.00 | 6609.03 | 1446.92 | 1443.47 | 0.00 | 500836.00 | 3917990.00 |
| 507.67 | 14526.69 | 3998.20 | 641.53 | 794.74 | 0.00 | 495343.00 | 3915379.00 |
| 499.50 | 14568.37 | 4005.12 | 637.54 | 961.98 | 0.00 | 495385.00 | 3915386.00 |
| 285.65 | 15607.77 | 4524.13 | 1011.26 | 1247.10 | 0.00 | 496424.00 | 3915905.00 |
| 159.78 | 17077.33 | 5215.08 | 1113.92 | 1825.07 | 0.00 | 497894.00 | 3916596.00 |
| 266.87 | 15768.02 | 4593.56 | 1121.79 | 1201.68 | 0.00 | 496584.00 | 3915974.00 |
| 770.22 | 13980.45 | 3700.55 | 614.16 | 852.40 | 0.00 | 494797.00 | 3915081.00 |
| 277.91 | 15677.49 | 4549.97 | 811.34 | 1116.03 | 0.00 | 496494.00 | 3915931.00 |
| 196.81 | 16499.39 | 4957.75 | 1344.79 | 1129.58 | 0.00 | 497316.00 | 3916339.00 |
| 468.93 | 14673.98 | 4062.69 | 698.84 | 755.33 | 0.00 | 495490.00 | 3915443.00 |
| 244.17 | 15970.00 | 4690.22 | 836.96 | 1327.91 | 0.00 | 496786.00 | 3916071.00 |
| 530.86 | 14467.78 | 3965.24 | 836.20 | 898.70 | 0.00 | 495284.00 | 3915346.00 |
| 211.56 | 16314.22 | 4849.97 | 826.34 | 1900.66 | 0.00 | 497131.00 | 3916231.00 |
| 91.46 | 18961.19 | 6096.58 | 1587.15 | 2707.69 | 0.00 | 499777.00 | 3917477.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 465.58 | 4114.54 | 1154.15 | 350.06 | 877.68 | **35.26** | 484931.00 | 3912535.00 |
| 300.80 | 4447.89 | 1321.20 | 443.81 | 988.18 | 0.00 | 485264.00 | 3912702.00 |
| 425.63 | 4178.61 | 1193.47 | 578.42 | 957.42 | 0.00 | 484995.00 | 3912574.00 |
| 92.52 | 5765.26 | 1941.81 | 538.80 | 1084.06 | 0.00 | 486582.00 | 3913323.00 |
| 255.51 | 4595.63 | 1384.06 | 591.41 | 1071.57 | 0.00 | 485412.00 | 3912765.00 |
| 122.89 | 5377.40 | 1768.63 | 526.17 | 956.88 | 0.00 | 486194.00 | 3913149.00 |
| 262.29 | 4567.17 | 1376.37 | 473.08 | 989.47 | 0.00 | 485383.00 | 3912757.00 |
| 360.32 | 4300.32 | 1247.28 | 469.84 | 1058.67 | 0.00 | 485117.00 | 3912628.00 |
| 416.47 | 4188.68 | 1198.01 | 505.67 | 1174.28 | 0.00 | 485005.00 | 3912579.00 |
| 265.34 | 4560.58 | 1370.48 | 540.02 | 831.26 | 0.00 | 485377.00 | 3912751.00 |
| 273.02 | 4537.09 | 1361.22 | 469.44 | 1071.81 | 0.00 | 485353.00 | 3912742.00 |
| 295.22 | 4473.72 | 1325.74 | 339.12 | 830.78 | 0.00 | 485290.00 | 3912707.00 |
| 98.08 | 5683.48 | 1902.22 | 452.72 | 981.76 | 0.00 | 486500.00 | 3913283.00 |
| 268.29 | 4546.25 | 1353.48 | 517.67 | 1046.88 | 0.00 | 485363.00 | 3912734.00 |
| 527.65 | 4048.73 | 1117.67 | 383.20 | 706.05 | 0.00 | 484865.00 | 3912498.00 |
| 195.98 | 4851.17 | 1510.96 | 503.64 | 1047.79 | 0.00 | 485667.00 | 3912892.00 |
| 339.80 | 4346.76 | 1267.89 | 420.87 | 1063.00 | 0.00 | 485163.00 | 3912649.00 |
| 307.74 | 4429.49 | 1311.69 | 552.61 | 949.44 | 0.00 | 485246.00 | 3912692.00 |
| 563.37 | 3986.69 | 1100.36 | 542.50 | 976.48 | 0.00 | 484803.00 | 3912481.00 |
| 218.53 | 4741.59 | 1462.23 | 596.24 | 1086.02 | 0.00 | 485558.00 | 3912843.00 |
| 61.23 | 6433.94 | 2258.85 | 623.92 | 1264.45 | 0.00 | 487250.00 | 3913640.00 |
| 308.03 | 4436.93 | 1322.87 | 490.47 | 715.95 | 0.00 | 485253.00 | 3912704.00 |
| 323.38 | 4387.98 | 1298.43 | 480.11 | 986.71 | 0.00 | 485204.00 | 3912679.00 |
| 196.46 | 4849.50 | 1511.50 | 496.95 | 832.22 | 0.00 | 485666.00 | 3912892.00 |
| 321.29 | 4398.81 | 1295.66 | 364.03 | 829.93 | 0.00 | 485215.00 | 3912676.00 |
| 34.31 | 7616.70 | 2810.19 | 536.51 | 1125.28 | 0.00 | 488433.00 | 3914191.00 |
| 197.91 | 4842.10 | 1498.00 | 429.60 | 1120.39 | 0.00 | 485658.00 | 3912879.00 |
| 594.04 | 3951.84 | 1080.09 | 407.04 | 805.25 | 0.00 | 484768.00 | 3912461.00 |
| 1009.21 | 3673.25 | 935.37 | 402.85 | 559.95 | 0.00 | 484490.00 | 3912316.00 |
| 410.05 | 4202.33 | 1205.10 | 499.00 | 878.16 | 0.00 | 485019.00 | 3912586.00 |
| 254.10 | 4605.85 | 1382.28 | 503.05 | 1086.52 | 0.00 | 485422.00 | 3912763.00 |
| 558.23 | 3990.38 | 1095.67 | 360.25 | 893.30 | 0.00 | 484807.00 | 3912476.00 |
| 541.07 | 4017.13 | 1104.56 | 412.01 | 844.72 | 0.00 | 484833.00 | 3912485.00 |
| 510.88 | 4049.05 | 1124.53 | 356.83 | 680.65 | 0.00 | 484865.00 | 3912505.00 |
| 207.69 | 4789.54 | 1477.97 | 470.58 | 1049.13 | 0.00 | 485606.00 | 3912859.00 |
| 327.41 | 4376.69 | 1286.03 | 475.56 | 899.90 | 0.00 | 485193.00 | 3912667.00 |
| 321.33 | 4387.73 | 1286.04 | 467.70 | 1054.52 | 0.00 | 485204.00 | 3912667.00 |
| 336.88 | 4357.40 | 1273.39 | 490.57 | 1006.42 | 0.00 | 485174.00 | 3912654.00 |
| 171.02 | 4993.73 | 1574.49 | 462.25 | 1102.27 | 0.00 | 485810.00 | 3912955.00 |
| 439.25 | 4160.48 | 1181.32 | 498.08 | 940.56 | 0.00 | 484977.00 | 3912562.00 |
| 267.91 | 4544.89 | 1371.25 | 526.65 | 872.93 | 0.00 | 485361.00 | 3912752.00 |
| 281.49 | 4510.77 | 1347.80 | 571.75 | 1170.78 | 0.00 | 485327.00 | 3912729.00 |
| 52.10 | 6732.97 | 2396.72 | 564.47 | 1040.42 | 0.00 | 487549.00 | 3913777.00 |
| 617.44 | 3922.15 | 1068.82 | 498.35 | 749.13 | 0.00 | 484738.00 | 3912450.00 |
| 85.78 | 5875.92 | 1996.00 | 544.58 | 1097.34 | 0.00 | 486692.00 | 3913377.00 |
| 335.36 | 4365.07 | 1284.10 | 566.48 | 853.89 | 0.00 | 485181.00 | 3912665.00 |
| 523.75 | 4032.61 | 1116.19 | 445.47 | 914.59 | 0.00 | 484849.00 | 3912497.00 |
| 415.85 | 4194.59 | 1199.14 | 511.71 | 885.31 | 0.00 | 485011.00 | 3912580.00 |
| 245.54 | 4629.73 | 1407.67 | 448.89 | 984.47 | 0.00 | 485446.00 | 3912788.00 |

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|---|---|---|---|---|---|---|---|
| 104.78 | 5591.95 | 1860.14 | 480.77 | 988.65 | 0.00 | 486408.00 | 3913241.00 |
| 411.84 | 4198.07 | 1200.47 | 443.25 | 968.16 | 0.00 | 485014.00 | 3912581.00 |
| 179.72 | 4937.44 | 1546.99 | 501.92 | 1137.07 | 0.00 | 485754.00 | 3912928.00 |
| 173.40 | 4978.25 | 1566.56 | 363.00 | 993.92 | 0.00 | 485795.00 | 3912947.00 |
| 278.71 | 4512.43 | 1351.15 | 467.30 | 1124.93 | 0.00 | 485329.00 | 3912732.00 |
| 234.95 | 4660.94 | 1432.68 | 520.42 | 745.26 | 0.00 | 485477.00 | 3912813.00 |
| 167.22 | 5015.16 | 1588.02 | 511.56 | 1105.28 | 0.00 | 485831.00 | 3912969.00 |
| 199.54 | 4838.14 | 1492.38 | 550.92 | 1172.89 | 0.00 | 485654.00 | 3912873.00 |
| 297.34 | 4459.65 | 1326.17 | 506.20 | 997.47 | 0.00 | 485276.00 | 3912707.00 |
| 414.30 | 4191.21 | 1202.11 | 511.55 | 869.92 | 0.00 | 485007.00 | 3912583.00 |
| 706.33 | 3864.63 | 1036.40 | 538.96 | 640.21 | 0.00 | 484681.00 | 3912417.00 |
| 184.39 | 4913.47 | 1537.73 | 670.96 | 1026.22 | 0.00 | 485730.00 | 3912919.00 |
| 142.21 | 5200.11 | 1684.69 | 580.22 | 1059.81 | 0.00 | 486016.00 | 3913065.00 |
| 367.90 | 4291.92 | 1247.75 | 379.29 | 630.62 | 0.00 | 485108.00 | 3912629.00 |
| 355.53 | 4303.60 | 1255.12 | 470.48 | 1034.88 | 0.00 | 485120.00 | 3912636.00 |
| 127.47 | 5329.33 | 1735.49 | 492.24 | 1119.37 | 0.00 | 486146.00 | 3913116.00 |
| 309.75 | 4427.02 | 1315.22 | 477.16 | 658.27 | 0.00 | 485243.00 | 3912696.00 |
| 286.28 | 4494.50 | 1340.81 | 456.09 | 913.44 | 0.00 | 485311.00 | 3912722.00 |
| 310.15 | 4428.60 | 1314.47 | 542.67 | 798.02 | 0.00 | 485245.00 | 3912695.00 |
| 414.48 | 4198.07 | 1204.67 | 558.52 | 897.68 | 0.00 | 485014.00 | 3912585.00 |
| 127.86 | 5327.90 | 1735.47 | 556.00 | 1218.63 | 0.00 | 486144.00 | 3913116.00 |
| 360.07 | 4306.71 | 1257.05 | 533.50 | 693.75 | 0.00 | 485123.00 | 3912638.00 |
| 140.08 | 5217.87 | 1678.84 | 481.12 | 1008.26 | 0.00 | 486034.00 | 3913060.00 |
| 226.87 | 4703.11 | 1445.75 | 404.63 | 717.35 | 0.00 | 485519.00 | 3912827.00 |
| 848.34 | 3744.35 | 980.64 | 524.40 | 992.08 | 0.00 | 484561.00 | 3912361.00 |
| 281.84 | 4505.74 | 1349.97 | 548.76 | 991.15 | 0.00 | 485322.00 | 3912731.00 |
| 564.98 | 3990.00 | 1094.86 | 495.30 | 887.76 | 0.00 | 484806.00 | 3912476.00 |
| 372.84 | 4281.00 | 1242.42 | 443.99 | 703.68 | 0.00 | 485097.00 | 3912623.00 |
| 650.59 | 3898.41 | 1048.53 | 302.92 | 631.03 | 0.00 | 484715.00 | 3912429.00 |
| 119.76 | 5407.80 | 1770.55 | 487.53 | 965.34 | 0.00 | 486224.00 | 3913151.00 |
| 152.10 | 5124.26 | 1643.14 | 608.61 | 955.15 | 0.00 | 485941.00 | 3913024.00 |
| 905.03 | 3738.80 | 965.96 | 308.83 | 404.77 | 0.00 | 484555.00 | 3912347.00 |
| 83.35 | 5924.21 | 2019.48 | 549.76 | 1093.06 | 0.00 | 486740.00 | 3913400.00 |
| 390.54 | 4236.81 | 1218.65 | 542.13 | 996.36 | 0.00 | 485053.00 | 3912599.00 |
| 417.97 | 4193.06 | 1192.45 | 430.99 | 1022.85 | 0.00 | 485009.00 | 3912573.00 |
| 66.31 | 6295.41 | 2195.85 | 549.13 | 989.85 | 0.00 | 487112.00 | 3913577.00 |
| 40.88 | 7225.86 | 2624.65 | 555.64 | 1071.32 | 0.00 | 488042.00 | 3914005.00 |
| 355.73 | 4309.13 | 1256.57 | 483.44 | 932.98 | 0.00 | 485125.00 | 3912637.00 |
| 206.51 | 4794.35 | 1478.56 | 464.74 | 1103.10 | 0.00 | 485611.00 | 3912859.00 |
| 171.92 | 4991.23 | 1582.98 | 517.60 | 946.54 | 0.00 | 485808.00 | 3912964.00 |
| 314.63 | 4415.04 | 1299.44 | 423.08 | 900.16 | 0.00 | 485231.00 | 3912680.00 |
| 639.78 | 3918.47 | 1051.60 | 358.70 | 785.56 | 0.00 | 484735.00 | 3912432.00 |
| 163.35 | 5043.20 | 1605.94 | 448.25 | 917.28 | 0.00 | 485859.00 | 3912987.00 |
| 292.76 | 4482.05 | 1329.75 | 484.86 | 1014.26 | 0.00 | 485298.00 | 3912711.00 |
| 162.86 | 5038.69 | 1599.08 | 585.14 | 1168.20 | 0.00 | 485855.00 | 3912980.00 |
| 232.73 | 4681.90 | 1435.13 | 531.69 | 1054.49 | 0.00 | 485498.00 | 3912816.00 |
| 460.94 | 4118.24 | 1168.51 | 431.53 | 599.61 | 0.00 | 484935.00 | 3912549.00 |
| 491.29 | 4080.29 | 1140.73 | 368.64 | 747.58 | 0.00 | 484897.00 | 3912522.00 |
| 310.72 | 4420.51 | 1312.32 | 410.63 | 817.94 | 0.00 | 485237.00 | 3912693.00 |
| 245.75 | 4629.69 | 1408.78 | 459.61 | 960.94 | 0.00 | 485446.00 | 3912790.00 |
| 72.91 | 6135.05 | 2119.97 | 560.78 | 1007.79 | 0.00 | 486951.00 | 3913501.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 255.41 | 2664.41 | 818.79 | 347.04 | 648.99 | **29.20** | 483481.00 | 3912200.00 |
| 341.49 | 2494.22 | 734.73 | 345.07 | 610.07 | 0.00 | 483311.00 | 3912116.00 |
| 250.70 | 2682.10 | 827.53 | 282.27 | 598.05 | 0.00 | 483498.00 | 3912208.00 |
| 388.94 | 2418.35 | 704.74 | 317.98 | 616.82 | 0.00 | 483235.00 | 3912086.00 |
| 138.23 | 3110.21 | 1028.11 | 329.78 | 598.59 | 0.00 | 483926.00 | 3912409.00 |
| 358.88 | 2468.04 | 718.42 | 371.31 | 618.86 | 0.00 | 483284.00 | 3912099.00 |
| 675.58 | 2154.33 | 570.16 | 262.79 | 555.99 | 0.00 | 482971.00 | 3911951.00 |
| 238.29 | 2707.44 | 842.77 | 274.62 | 602.27 | 0.00 | 483524.00 | 3912224.00 |
| 313.86 | 2533.80 | 757.90 | 251.41 | 629.33 | 0.00 | 483350.00 | 3912139.00 |
| 369.31 | 2445.75 | 714.24 | 324.77 | 517.20 | 0.00 | 483262.00 | 3912095.00 |
| 185.11 | 2888.31 | 925.62 | 271.25 | 537.15 | 0.00 | 483705.00 | 3912306.00 |
| 451.83 | 2341.72 | 657.72 | 312.76 | 651.86 | 0.00 | 483158.00 | 3912039.00 |
| 131.88 | 3154.46 | 1048.21 | 327.37 | 659.80 | 0.00 | 483971.00 | 3912429.00 |
| 96.99 | 3429.20 | 1181.61 | 306.85 | 588.69 | 0.00 | 484245.00 | 3912562.00 |
| 474.49 | 2305.81 | 648.13 | 333.21 | 580.85 | 0.00 | 483122.00 | 3912029.00 |
| 240.13 | 2706.64 | 838.94 | 260.21 | 593.41 | 0.00 | 483523.00 | 3912220.00 |
| 353.07 | 2466.72 | 725.01 | 278.48 | 586.51 | 0.00 | 483283.00 | 3912106.00 |
| 134.03 | 3136.45 | 1048.07 | 353.85 | 529.67 | 0.00 | 483953.00 | 3912429.00 |
| 130.49 | 3156.31 | 1056.28 | 236.22 | 542.31 | 0.00 | 483973.00 | 3912437.00 |
| 363.62 | 2455.80 | 717.86 | 303.51 | 562.36 | 0.00 | 483272.00 | 3912099.00 |
| 142.38 | 3081.18 | 1018.64 | 318.35 | 670.47 | 0.00 | 483897.00 | 3912399.00 |
| 157.68 | 3008.56 | 980.42 | 262.94 | 514.15 | 0.00 | 483825.00 | 3912361.00 |
| 119.95 | 3230.42 | 1091.02 | 272.31 | 566.47 | 0.00 | 484047.00 | 3912472.00 |
| 53.34 | 4105.93 | 1503.26 | 348.67 | 612.13 | 0.00 | 484922.00 | 3912884.00 |
| 87.85 | 3529.62 | 1227.95 | 319.06 | 619.96 | 0.00 | 484346.00 | 3912609.00 |
| 189.62 | 2870.48 | 917.56 | 297.37 | 679.92 | 0.00 | 483687.00 | 3912298.00 |
| 240.93 | 2705.94 | 842.06 | 282.92 | 541.76 | 0.00 | 483522.00 | 3912223.00 |
| 273.48 | 2620.42 | 802.52 | 300.40 | 622.31 | 0.00 | 483437.00 | 3912183.00 |
| 84.41 | 3566.66 | 1246.05 | 334.40 | 669.11 | 0.00 | 484383.00 | 3912627.00 |
| 148.11 | 3054.01 | 1008.45 | 324.82 | 576.84 | 0.00 | 483870.00 | 3912389.00 |
| 78.60 | 3643.46 | 1286.61 | 307.02 | 664.16 | 0.00 | 484460.00 | 3912667.00 |
| 475.97 | 2320.04 | 649.39 | 318.56 | 630.58 | 0.00 | 483136.00 | 3912030.00 |
| 379.08 | 2432.10 | 706.38 | 286.47 | 538.70 | 0.00 | 483248.00 | 3912087.00 |
| 401.24 | 2404.28 | 697.62 | 315.09 | 451.11 | 0.00 | 483221.00 | 3912078.00 |
| 212.41 | 2790.37 | 881.24 | 321.20 | 657.25 | 0.00 | 483607.00 | 3912262.00 |
| 220.63 | 2764.29 | 864.00 | 316.57 | 650.25 | 0.00 | 483581.00 | 3912245.00 |
| 244.62 | 2698.59 | 833.97 | 316.28 | 567.08 | 0.00 | 483515.00 | 3912215.00 |
| 161.93 | 2981.96 | 974.68 | 316.68 | 646.58 | 0.00 | 483798.00 | 3912355.00 |
| 358.19 | 2468.52 | 719.75 | 265.99 | 664.65 | 0.00 | 483285.00 | 3912101.00 |
| 174.78 | 2927.15 | 945.11 | 323.80 | 596.28 | 0.00 | 483743.00 | 3912326.00 |
| 166.50 | 2971.56 | 963.33 | 268.93 | 587.80 | 0.00 | 483788.00 | 3912344.00 |
| 393.78 | 2418.51 | 693.75 | 221.02 | 478.05 | 0.00 | 483235.00 | 3912075.00 |
| 123.60 | 3205.53 | 1078.60 | 266.44 | 509.73 | 0.00 | 484022.00 | 3912459.00 |
| 228.16 | 2744.36 | 854.64 | 331.59 | 655.35 | 0.00 | 483561.00 | 3912235.00 |
| 441.33 | 2340.13 | 665.95 | 197.28 | 613.50 | 0.00 | 483156.00 | 3912047.00 |
| 665.03 | 2145.74 | 571.73 | 278.25 | 642.62 | 0.00 | 482962.00 | 3911953.00 |
| 542.68 | 2247.85 | 614.46 | 250.61 | 568.06 | 0.00 | 483064.00 | 3911995.00 |
| 267.12 | 2633.33 | 804.89 | 262.60 | 583.39 | 0.00 | 483450.00 | 3912186.00 |
| 180.76 | 2902.88 | 935.98 | 292.49 | 624.54 | 0.00 | 483719.00 | 3912317.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 638.67 | 2155.35 | 577.10 | 300.89 | 594.19 | 0.00 | 482972.00 | 3911958.00 |
| 188.06 | 2877.83 | 920.71 | 326.88 | 699.88 | 0.00 | 483694.00 | 3912301.00 |
| 233.33 | 2724.94 | 848.29 | 276.48 | 611.99 | 0.00 | 483541.00 | 3912229.00 |
| 134.44 | 3139.00 | 1044.47 | 291.39 | 604.18 | 0.00 | 483955.00 | 3912425.00 |
| 63.51 | 3890.80 | 1401.71 | 306.35 | 573.69 | 0.00 | 484707.00 | 3912782.00 |
| 173.38 | 2939.06 | 943.42 | 298.06 | 653.83 | 0.00 | 483755.00 | 3912324.00 |
| 170.53 | 2952.49 | 957.56 | 337.05 | 563.98 | 0.00 | 483769.00 | 3912338.00 |
| 261.99 | 2648.37 | 808.98 | 329.67 | 653.68 | 0.00 | 483465.00 | 3912190.00 |
| 1264.38 | 1903.19 | 432.94 | 316.24 | 551.84 | 0.00 | 482719.00 | 3911814.00 |
| 315.36 | 2536.76 | 758.78 | 337.44 | 617.17 | 0.00 | 483353.00 | 3912140.00 |
| 237.85 | 2712.93 | 848.55 | 298.37 | 441.46 | 0.00 | 483529.00 | 3912229.00 |
| 382.75 | 2425.57 | 704.87 | 354.86 | 654.83 | 0.00 | 483242.00 | 3912086.00 |
| 566.07 | 2232.51 | 610.89 | 345.56 | 454.70 | 0.00 | 483049.00 | 3911992.00 |
| 263.03 | 2642.17 | 808.46 | 234.64 | 559.88 | 0.00 | 483458.00 | 3912189.00 |
| 367.71 | 2451.94 | 715.83 | 295.27 | 559.71 | 0.00 | 483268.00 | 3912097.00 |
| 614.77 | 2190.32 | 582.71 | 279.80 | 603.46 | 0.00 | 483007.00 | 3911963.00 |
| 22.19 | 5504.60 | 2158.13 | 367.29 | 596.29 | 0.00 | 486321.00 | 3913539.00 |
| 85.72 | 3556.25 | 1243.34 | 327.01 | 569.25 | 0.00 | 484373.00 | 3912624.00 |
| 163.07 | 2974.59 | 970.58 | 312.05 | 686.80 | 0.00 | 483791.00 | 3912351.00 |
| 30.42 | 4931.88 | 1883.74 | 311.20 | 616.04 | 0.00 | 485748.00 | 3913265.00 |
| 227.38 | 2736.99 | 860.74 | 290.47 | 539.43 | 0.00 | 483553.00 | 3912242.00 |
| 222.63 | 2754.53 | 863.82 | 326.55 | 615.81 | 0.00 | 483571.00 | 3912245.00 |
| 214.07 | 2791.93 | 882.20 | 352.43 | 499.03 | 0.00 | 483608.00 | 3912263.00 |
| 425.35 | 2367.11 | 677.05 | 217.30 | 497.33 | 0.00 | 483183.00 | 3912058.00 |
| 180.34 | 2901.60 | 933.39 | 279.81 | 569.64 | 0.00 | 483718.00 | 3912314.00 |
| 313.85 | 2541.88 | 760.71 | 255.48 | 558.67 | 0.00 | 483358.00 | 3912141.00 |
| 122.13 | 3224.48 | 1081.34 | 274.31 | 661.04 | 0.00 | 484041.00 | 3912462.00 |
| 619.10 | 2177.36 | 585.87 | 313.38 | 582.80 | 0.00 | 482994.00 | 3911967.00 |
| 252.45 | 2674.66 | 823.77 | 290.55 | 608.36 | 0.00 | 483491.00 | 3912205.00 |
| 317.43 | 2532.36 | 757.18 | 298.29 | 651.18 | 0.00 | 483349.00 | 3912138.00 |
| 476.67 | 2320.38 | 651.19 | 324.41 | 573.53 | 0.00 | 483137.00 | 3912032.00 |
| 130.51 | 3163.05 | 1054.66 | 305.94 | 664.09 | 0.00 | 483979.00 | 3912435.00 |
| 68.70 | 3799.36 | 1352.84 | 281.86 | 662.53 | 0.00 | 484616.00 | 3912734.00 |
| 205.11 | 2812.88 | 893.09 | 324.86 | 577.80 | 0.00 | 483629.00 | 3912274.00 |
| 394.51 | 2415.78 | 697.27 | 288.93 | 568.62 | 0.00 | 483232.00 | 3912078.00 |
| 112.37 | 3290.06 | 1120.02 | 333.19 | 609.76 | 0.00 | 484106.00 | 3912501.00 |
| 385.89 | 2418.39 | 705.80 | 339.75 | 546.33 | 0.00 | 483235.00 | 3912087.00 |
| 346.94 | 2476.36 | 727.82 | 246.55 | 591.93 | 0.00 | 483293.00 | 3912109.00 |
| 329.50 | 2505.04 | 746.72 | 298.64 | 633.87 | 0.00 | 483321.00 | 3912128.00 |
| 459.91 | 2327.33 | 654.80 | 248.94 | 537.27 | 0.00 | 483144.00 | 3912036.00 |
| 336.84 | 2497.45 | 741.89 | 274.01 | 572.94 | 0.00 | 483314.00 | 3912123.00 |
| 304.20 | 2560.85 | 768.71 | 219.37 | 488.66 | 0.00 | 483377.00 | 3912149.00 |
| 283.73 | 2603.84 | 788.24 | 311.48 | 663.67 | 0.00 | 483420.00 | 3912169.00 |
| 396.41 | 2409.11 | 694.79 | 311.80 | 597.77 | 0.00 | 483225.00 | 3912076.00 |
| 446.66 | 2352.68 | 667.74 | 296.21 | 530.71 | 0.00 | 483169.00 | 3912049.00 |
| 556.94 | 2241.81 | 615.80 | 290.77 | 405.53 | 0.00 | 483058.00 | 3911997.00 |
| 473.69 | 2306.18 | 645.74 | 259.91 | 626.07 | 0.00 | 483122.00 | 3912027.00 |
| 229.99 | 2730.93 | 852.40 | 321.02 | 608.99 | 0.00 | 483547.00 | 3912233.00 |
| 211.50 | 2792.60 | 878.70 | 268.30 | 591.33 | 0.00 | 483609.00 | 3912259.00 |
| 610.52 | 2187.27 | 588.69 | 219.31 | 398.67 | 0.00 | 483004.00 | 3911969.00 |
| 77.13 | 3663.42 | 1297.22 | 331.38 | 632.20 | 0.00 | 484480.00 | 3912678.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 302.27 | 5214.79 | 1551.25 | 647.22 | 869.31 | **37.37** | 486031.00 | 3912932.00 |
| 121.48 | 6271.62 | 2043.19 | 530.98 | 1203.29 | 0.00 | 487088.00 | 3913424.00 |
| 290.53 | 5251.95 | 1558.70 | 487.58 | 1109.39 | 0.00 | 486068.00 | 3912939.00 |
| 246.60 | 5412.93 | 1637.58 | 632.66 | 1095.99 | 0.00 | 486229.00 | 3913018.00 |
| 637.74 | 4623.62 | 1248.98 | 519.50 | 1040.56 | 0.00 | 485440.00 | 3912630.00 |
| 63.87 | 7357.67 | 2556.96 | 660.99 | 1241.61 | 0.00 | 488174.00 | 3913938.00 |
| 163.64 | 5868.98 | 1855.91 | 669.93 | 1164.66 | 0.00 | 486685.00 | 3913237.00 |
| 177.04 | 5780.50 | 1816.64 | 461.37 | 1037.64 | 0.00 | 486597.00 | 3913197.00 |
| 265.69 | 5338.44 | 1599.27 | 515.98 | 944.93 | 0.00 | 486155.00 | 3912980.00 |
| 195.35 | 5664.09 | 1757.68 | 424.38 | 934.71 | 0.00 | 486480.00 | 3913138.00 |
| 255.10 | 5373.26 | 1610.18 | 539.74 | 1274.18 | 0.00 | 486190.00 | 3912991.00 |
| 179.44 | 5769.36 | 1809.47 | 565.88 | 1024.58 | 0.00 | 486586.00 | 3913190.00 |
| 703.59 | 4570.60 | 1228.60 | 480.31 | 677.96 | 0.00 | 485387.00 | 3912609.00 |
| 84.90 | 6833.05 | 2304.06 | 637.20 | 1317.49 | 0.00 | 487649.00 | 3913685.00 |
| 285.16 | 5274.79 | 1568.69 | 597.81 | 1087.47 | 0.00 | 486091.00 | 3912949.00 |
| 396.15 | 4974.87 | 1426.24 | 492.29 | 1016.62 | 0.00 | 485791.00 | 3912807.00 |
| 423.99 | 4918.35 | 1398.00 | 538.28 | 1201.46 | 0.00 | 485735.00 | 3912779.00 |
| 166.42 | 5856.65 | 1844.03 | 647.88 | 1302.18 | 0.00 | 486673.00 | 3913225.00 |
| 281.97 | 5279.03 | 1562.74 | 380.43 | 875.14 | 0.00 | 486095.00 | 3912944.00 |
| 25.72 | 9593.01 | 3594.80 | 673.79 | 1437.08 | 0.00 | 490409.00 | 3914976.00 |
| 384.25 | 5007.93 | 1439.54 | 603.32 | 1096.88 | 0.00 | 485824.00 | 3912820.00 |
| 235.85 | 5458.84 | 1654.60 | 457.16 | 1013.57 | 0.00 | 486275.00 | 3913035.00 |
| 137.16 | 6105.90 | 1955.03 | 585.40 | 1232.49 | 0.00 | 486922.00 | 3913336.00 |
| 412.37 | 4934.90 | 1413.72 | 593.44 | 988.88 | 0.00 | 485751.00 | 3912794.00 |
| 566.37 | 4700.05 | 1285.53 | 434.81 | 1147.69 | 0.00 | 485516.00 | 3912666.00 |
| 210.04 | 5584.34 | 1721.87 | 738.91 | 1289.16 | 0.00 | 486401.00 | 3913103.00 |
| 161.69 | 5885.54 | 1857.33 | 654.76 | 1349.88 | 0.00 | 486702.00 | 3913238.00 |
| 336.90 | 5114.33 | 1491.99 | 575.72 | 975.94 | 0.00 | 485931.00 | 3912873.00 |
| 240.58 | 5432.45 | 1650.60 | 469.98 | 917.53 | 0.00 | 486249.00 | 3913031.00 |
| 220.63 | 5530.10 | 1686.29 | 504.40 | 1157.34 | 0.00 | 486346.00 | 3913067.00 |
| 61.10 | 7445.00 | 2597.76 | 722.86 | 1132.77 | 0.00 | 488261.00 | 3913979.00 |
| 557.74 | 4716.14 | 1299.90 | 462.84 | 775.71 | 0.00 | 485532.00 | 3912681.00 |
| 266.84 | 5338.76 | 1588.70 | 534.73 | 1252.84 | 0.00 | 486155.00 | 3912969.00 |
| 351.34 | 5080.74 | 1468.30 | 610.53 | 1212.29 | 0.00 | 485897.00 | 3912849.00 |
| 174.21 | 5801.35 | 1830.87 | 593.60 | 826.95 | 0.00 | 486618.00 | 3913212.00 |
| 365.43 | 5042.15 | 1457.27 | 579.89 | 955.95 | 0.00 | 485858.00 | 3912838.00 |
| 76.34 | 7023.22 | 2387.12 | 695.67 | 1330.83 | 0.00 | 487840.00 | 3913768.00 |
| 316.18 | 5169.55 | 1520.75 | 481.64 | 957.91 | 0.00 | 485986.00 | 3912902.00 |
| 177.81 | 5777.84 | 1807.39 | 568.95 | 1087.70 | 0.00 | 486594.00 | 3913188.00 |
| 206.31 | 5607.36 | 1729.00 | 550.07 | 1232.51 | 0.00 | 486424.00 | 3913110.00 |
| 196.98 | 5653.48 | 1737.03 | 702.03 | 1282.92 | 0.00 | 486470.00 | 3913118.00 |
| 309.65 | 5195.22 | 1538.18 | 617.89 | 889.81 | 0.00 | 486012.00 | 3912919.00 |
| 206.31 | 5611.03 | 1731.11 | 411.00 | 860.83 | 0.00 | 486427.00 | 3913112.00 |
| 713.11 | 4557.47 | 1218.54 | 618.16 | 1004.73 | 0.00 | 485374.00 | 3912599.00 |
| 282.05 | 5279.92 | 1571.61 | 523.25 | 928.89 | 0.00 | 486096.00 | 3912952.00 |
| 153.20 | 5962.34 | 1895.05 | 631.69 | 1278.33 | 0.00 | 486779.00 | 3913276.00 |
| 182.90 | 5744.41 | 1796.21 | 580.46 | 1176.87 | 0.00 | 486561.00 | 3913177.00 |
| 381.49 | 5007.02 | 1440.24 | 511.22 | 1060.75 | 0.00 | 485823.00 | 3912821.00 |
| 751.53 | 4530.03 | 1205.67 | 594.36 | 763.04 | 0.00 | 485346.00 | 3912586.00 |

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|---|---|---|---|---|---|---|---|
| 264.25 | 5342.46 | 1601.69 | 547.36 | 1144.24 | 0.00 | 486159.00 | 3912982.00 |
| 285.39 | 5271.38 | 1572.54 | 607.09 | 865.28 | 0.00 | 486088.00 | 3912953.00 |
| 265.22 | 5335.98 | 1595.27 | 528.87 | 1270.24 | 0.00 | 486152.00 | 3912976.00 |
| 361.39 | 5055.28 | 1464.68 | 587.72 | 995.42 | 0.00 | 485872.00 | 3912845.00 |
| 70.13 | 7176.11 | 2466.48 | 683.68 | 1328.18 | 0.00 | 487992.00 | 3913847.00 |
| 27.91 | 9350.92 | 3477.76 | 736.00 | 1414.45 | 0.00 | 490167.00 | 3914859.00 |
| 197.17 | 5660.31 | 1738.45 | 565.54 | 1401.53 | 0.00 | 486477.00 | 3913119.00 |
| 296.48 | 5231.72 | 1543.05 | 493.01 | 1140.22 | 0.00 | 486048.00 | 3912924.00 |
| 413.83 | 4938.43 | 1411.63 | 603.79 | 1241.15 | 0.00 | 485755.00 | 3912792.00 |
| 61.46 | 7435.59 | 2583.31 | 655.15 | 1279.58 | 0.00 | 488252.00 | 3913964.00 |
| 576.63 | 4693.94 | 1286.31 | 408.80 | 855.41 | 0.00 | 485510.00 | 3912667.00 |
| 169.63 | 5828.87 | 1848.30 | 696.60 | 717.45 | 0.00 | 486645.00 | 3913229.00 |
| 313.50 | 5181.09 | 1530.12 | 560.63 | 880.62 | 0.00 | 485997.00 | 3912911.00 |
| 363.13 | 5051.63 | 1463.86 | 595.73 | 1063.68 | 0.00 | 485868.00 | 3912845.00 |
| 333.35 | 5124.79 | 1499.01 | 566.77 | 1057.93 | 0.00 | 485941.00 | 3912880.00 |
| 168.95 | 5846.87 | 1827.59 | 497.69 | 1192.62 | 0.00 | 486663.00 | 3913208.00 |
| 302.73 | 5209.91 | 1540.93 | 576.86 | 1134.00 | 0.00 | 486026.00 | 3912922.00 |
| 251.38 | 5391.92 | 1623.07 | 565.40 | 1036.05 | 0.00 | 486208.00 | 3913004.00 |
| 292.65 | 5243.77 | 1559.13 | 621.11 | 987.76 | 0.00 | 486060.00 | 3912940.00 |
| 303.37 | 5215.28 | 1536.68 | 569.31 | 1074.44 | 0.00 | 486032.00 | 3912917.00 |
| 120.67 | 6281.63 | 2046.71 | 656.66 | 1315.01 | 0.00 | 487098.00 | 3913427.00 |
| 105.22 | 6489.24 | 2140.83 | 554.60 | 1212.09 | 0.00 | 487306.00 | 3913522.00 |
| 197.64 | 5652.52 | 1745.52 | 523.98 | 1160.63 | 0.00 | 486469.00 | 3913126.00 |
| 211.20 | 5574.85 | 1709.79 | 586.47 | 1091.40 | 0.00 | 486391.00 | 3913091.00 |
| 59.57 | 7494.92 | 2607.50 | 493.21 | 1247.10 | 0.00 | 488311.00 | 3913988.00 |
| 360.25 | 5056.21 | 1463.00 | 516.57 | 1165.60 | 0.00 | 485872.00 | 3912844.00 |
| 414.80 | 4936.49 | 1403.65 | 348.97 | 901.15 | 0.00 | 485753.00 | 3912784.00 |
| 477.68 | 4834.63 | 1357.69 | 403.87 | 666.17 | 0.00 | 485651.00 | 3912738.00 |
| 264.35 | 5344.61 | 1603.43 | 377.00 | 890.50 | 0.00 | 486161.00 | 3912984.00 |
| 537.20 | 4743.25 | 1315.44 | 657.24 | 927.33 | 0.00 | 485560.00 | 3912696.00 |
| 267.73 | 5335.73 | 1596.28 | 479.71 | 1179.76 | 0.00 | 486152.00 | 3912977.00 |
| 487.69 | 4801.44 | 1337.28 | 660.93 | 1274.02 | 0.00 | 485618.00 | 3912718.00 |
| 310.55 | 5180.49 | 1526.59 | 544.67 | 1086.16 | 0.00 | 485997.00 | 3912907.00 |
| 129.67 | 6174.46 | 1995.61 | 426.24 | 1261.83 | 0.00 | 486991.00 | 3913376.00 |
| 94.06 | 6666.51 | 2229.46 | 562.47 | 1201.19 | 0.00 | 487483.00 | 3913610.00 |
| 213.52 | 5569.00 | 1710.58 | 554.39 | 1038.34 | 0.00 | 486385.00 | 3913091.00 |
| 652.59 | 4605.68 | 1247.20 | 457.93 | 719.85 | 0.00 | 485422.00 | 3912628.00 |
| 405.11 | 4952.19 | 1425.97 | 693.34 | 1028.30 | 0.00 | 485768.00 | 3912807.00 |
| 382.49 | 5013.11 | 1445.86 | 495.79 | 862.47 | 0.00 | 485829.00 | 3912827.00 |
| 536.42 | 4746.21 | 1319.27 | 500.10 | 493.35 | 0.00 | 485562.00 | 3912700.00 |
| 392.24 | 4978.53 | 1432.78 | 564.04 | 1084.97 | 0.00 | 485795.00 | 3912814.00 |
| 121.18 | 6278.09 | 2051.25 | 599.24 | 1074.03 | 0.00 | 487094.00 | 3913432.00 |
| 468.56 | 4845.06 | 1363.36 | 491.05 | 731.86 | 0.00 | 485661.00 | 3912744.00 |
| 219.43 | 5537.30 | 1696.28 | 640.31 | 1244.78 | 0.00 | 486354.00 | 3913077.00 |
| 415.96 | 4931.09 | 1414.50 | 548.54 | 651.53 | 0.00 | 485747.00 | 3912795.00 |
| 217.78 | 5540.07 | 1699.90 | 680.43 | 1402.93 | 0.00 | 486356.00 | 3913081.00 |
| 230.05 | 5481.33 | 1664.20 | 494.97 | 1199.90 | 0.00 | 486298.00 | 3913045.00 |
| 145.59 | 6024.60 | 1928.28 | 649.21 | 1138.54 | 0.00 | 486841.00 | 3913309.00 |
| 188.85 | 5709.76 | 1773.98 | 355.09 | 999.48 | 0.00 | 486526.00 | 3913155.00 |
| 138.54 | 6085.15 | 1961.06 | 663.25 | 1082.48 | 0.00 | 486901.00 | 3913342.00 |
| 47.73 | 7966.42 | 2832.59 | 509.78 | 1197.85 | 0.00 | 488783.00 | 3914213.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 403.43 | 2409.83 | 688.10 | 250.96 | 660.27 | **29.20** | 483226.00 | 3912069.00 |
| 117.94 | 3250.34 | 1099.08 | 329.39 | 609.78 | 0.00 | 484067.00 | 3912480.00 |
| 549.38 | 2255.62 | 613.20 | 304.61 | 600.42 | 0.00 | 483072.00 | 3911994.00 |
| 124.50 | 3201.70 | 1082.73 | 364.37 | 593.59 | 0.00 | 484018.00 | 3912464.00 |
| 545.02 | 2237.39 | 618.32 | 336.27 | 567.89 | 0.00 | 483054.00 | 3911999.00 |
| 22.67 | 5466.79 | 2142.14 | 362.64 | 688.31 | 0.00 | 486283.00 | 3913523.00 |
| 330.93 | 2502.48 | 744.52 | 339.01 | 536.61 | 0.00 | 483319.00 | 3912125.00 |
| 250.63 | 2680.24 | 827.09 | 297.41 | 588.74 | 0.00 | 483497.00 | 3912208.00 |
| 259.54 | 2663.48 | 819.10 | 285.75 | 524.36 | 0.00 | 483480.00 | 3912200.00 |
| 768.60 | 2109.63 | 541.22 | 304.93 | 548.51 | 0.00 | 482926.00 | 3911922.00 |
| 204.94 | 2809.64 | 894.24 | 251.54 | 520.20 | 0.00 | 483626.00 | 3912275.00 |
| 352.43 | 2477.60 | 726.89 | 336.75 | 557.19 | 0.00 | 483294.00 | 3912108.00 |
| 127.60 | 3185.36 | 1070.53 | 301.00 | 545.13 | 0.00 | 484002.00 | 3912451.00 |
| 154.90 | 3017.02 | 991.79 | 310.29 | 572.65 | 0.00 | 483833.00 | 3912373.00 |
| 182.73 | 2895.66 | 933.83 | 281.17 | 615.02 | 0.00 | 483712.00 | 3912315.00 |
| 136.00 | 3128.39 | 1038.58 | 318.04 | 609.60 | 0.00 | 483945.00 | 3912419.00 |
| 160.65 | 2991.76 | 972.44 | 276.24 | 617.20 | 0.00 | 483808.00 | 3912353.00 |
| 222.19 | 2765.61 | 865.11 | 302.24 | 612.01 | 0.00 | 483582.00 | 3912246.00 |
| 491.83 | 2290.90 | 643.86 | 335.99 | 636.90 | 0.00 | 483107.00 | 3912025.00 |
| 297.32 | 2562.58 | 771.51 | 284.11 | 650.38 | 0.00 | 483379.00 | 3912152.00 |
| 547.38 | 2235.22 | 613.25 | 276.20 | 572.25 | 0.00 | 483051.00 | 3911994.00 |
| 126.17 | 3194.71 | 1065.53 | 271.58 | 646.67 | 0.00 | 484011.00 | 3912446.00 |
| 174.86 | 2933.74 | 948.04 | 260.08 | 554.62 | 0.00 | 483750.00 | 3912329.00 |
| 246.28 | 2693.08 | 831.95 | 307.37 | 649.27 | 0.00 | 483509.00 | 3912213.00 |
| 168.01 | 2960.92 | 961.28 | 303.17 | 670.43 | 0.00 | 483777.00 | 3912342.00 |
| 694.31 | 2134.80 | 561.77 | 284.44 | 616.30 | 0.00 | 482951.00 | 3911943.00 |
| 139.25 | 3108.32 | 1030.75 | 323.07 | 652.50 | 0.00 | 483925.00 | 3912412.00 |
| 121.00 | 3227.80 | 1085.25 | 282.49 | 547.19 | 0.00 | 484044.00 | 3912466.00 |
| 235.25 | 2724.25 | 851.63 | 295.92 | 528.85 | 0.00 | 483541.00 | 3912232.00 |
| 128.27 | 3178.49 | 1063.80 | 302.76 | 597.69 | 0.00 | 483995.00 | 3912445.00 |
| 336.46 | 2502.25 | 739.56 | 315.41 | 659.54 | 0.00 | 483319.00 | 3912120.00 |
| 368.37 | 2441.89 | 715.34 | 248.79 | 525.35 | 0.00 | 483258.00 | 3912096.00 |
| 654.55 | 2163.56 | 572.86 | 289.32 | 606.62 | 0.00 | 482980.00 | 3911954.00 |
| 197.47 | 2846.05 | 906.08 | 341.73 | 579.12 | 0.00 | 483662.00 | 3912287.00 |
| 282.29 | 2602.06 | 791.42 | 325.10 | 522.02 | 0.00 | 483418.00 | 3912172.00 |
| 407.59 | 2400.97 | 686.25 | 262.17 | 518.59 | 0.00 | 483217.00 | 3912067.00 |
| 503.94 | 2287.51 | 628.90 | 246.52 | 576.06 | 0.00 | 483104.00 | 3912010.00 |
| 340.46 | 2491.63 | 735.59 | 276.85 | 645.98 | 0.00 | 483308.00 | 3912116.00 |
| 94.78 | 3455.13 | 1198.02 | 301.24 | 525.48 | 0.00 | 484271.00 | 3912579.00 |
| 322.73 | 2523.55 | 749.39 | 269.73 | 646.10 | 0.00 | 483340.00 | 3912130.00 |
| 415.30 | 2393.21 | 683.44 | 313.69 | 609.53 | 0.00 | 483209.00 | 3912064.00 |
| 143.02 | 3081.40 | 1018.27 | 235.56 | 619.02 | 0.00 | 483898.00 | 3912399.00 |
| 539.18 | 2244.11 | 616.63 | 346.51 | 599.24 | 0.00 | 483060.00 | 3911997.00 |
| 274.57 | 2622.07 | 798.72 | 291.70 | 665.08 | 0.00 | 483438.00 | 3912180.00 |
| 173.11 | 2943.28 | 949.44 | 300.31 | 596.60 | 0.00 | 483760.00 | 3912330.00 |
| 139.12 | 3107.65 | 1030.31 | 294.17 | 647.07 | 0.00 | 483924.00 | 3912411.00 |
| 616.17 | 2174.93 | 591.12 | 387.62 | 535.82 | 0.00 | 482991.00 | 3911972.00 |
| 150.11 | 3043.60 | 996.74 | 299.75 | 631.91 | 0.00 | 483860.00 | 3912378.00 |
| 311.84 | 2544.31 | 760.96 | 328.66 | 673.94 | 0.00 | 483361.00 | 3912142.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 219.77 | 2769.70 | 874.51 | 328.45 | 599.73 | 0.00 | 483586.00 | 3912255.00 |
| 128.26 | 3181.00 | 1060.47 | 220.85 | 561.68 | 0.00 | 483997.00 | 3912441.00 |
| 153.40 | 3025.93 | 993.11 | 287.40 | 601.08 | 0.00 | 483842.00 | 3912374.00 |
| 151.11 | 3044.84 | 1000.18 | 276.72 | 546.78 | 0.00 | 483861.00 | 3912381.00 |
| 80.32 | 3620.60 | 1279.07 | 272.85 | 457.57 | 0.00 | 484437.00 | 3912660.00 |
| 260.81 | 2651.00 | 814.43 | 260.34 | 590.05 | 0.00 | 483467.00 | 3912195.00 |
| 399.30 | 2401.34 | 692.16 | 280.23 | 627.68 | 0.00 | 483218.00 | 3912073.00 |
| 483.59 | 2304.26 | 645.83 | 293.19 | 493.70 | 0.00 | 483121.00 | 3912027.00 |
| 311.54 | 2549.67 | 765.00 | 265.40 | 554.55 | 0.00 | 483366.00 | 3912146.00 |
| 238.41 | 2710.56 | 844.70 | 303.12 | 552.77 | 0.00 | 483527.00 | 3912225.00 |
| 131.50 | 3153.40 | 1054.61 | 301.57 | 640.80 | 0.00 | 483970.00 | 3912435.00 |
| 371.76 | 2442.49 | 713.16 | 304.96 | 611.88 | 0.00 | 483259.00 | 3912094.00 |
| 326.55 | 2518.72 | 752.17 | 333.76 | 604.91 | 0.00 | 483335.00 | 3912133.00 |
| 393.84 | 2419.49 | 702.47 | 299.94 | 473.79 | 0.00 | 483236.00 | 3912083.00 |
| 410.72 | 2385.52 | 681.45 | 246.64 | 639.23 | 0.00 | 483202.00 | 3912062.00 |
| 38.20 | 4569.55 | 1714.82 | 333.21 | 674.05 | 0.00 | 485386.00 | 3913096.00 |
| 235.43 | 2718.15 | 849.55 | 308.28 | 511.69 | 0.00 | 483534.00 | 3912230.00 |
| 344.84 | 2496.35 | 734.29 | 324.56 | 612.42 | 0.00 | 483313.00 | 3912115.00 |
| 251.94 | 2688.88 | 826.26 | 311.89 | 620.61 | 0.00 | 483505.00 | 3912207.00 |
| 192.81 | 2862.08 | 918.95 | 302.86 | 459.10 | 0.00 | 483678.00 | 3912300.00 |
| 801.66 | 2071.83 | 529.11 | 260.92 | 628.83 | 0.00 | 482888.00 | 3911910.00 |
| 373.42 | 2442.43 | 713.42 | 333.95 | 596.97 | 0.00 | 483259.00 | 3912094.00 |
| 68.07 | 3811.44 | 1361.53 | 324.85 | 698.11 | 0.00 | 484628.00 | 3912742.00 |
| 471.68 | 2318.45 | 652.28 | 287.49 | 595.88 | 0.00 | 483135.00 | 3912033.00 |
| 224.67 | 2756.76 | 859.16 | 282.84 | 677.92 | 0.00 | 483573.00 | 3912240.00 |
| 260.62 | 2657.49 | 815.01 | 260.57 | 565.20 | 0.00 | 483474.00 | 3912196.00 |
| 119.75 | 3239.73 | 1093.16 | 252.61 | 543.65 | 0.00 | 484056.00 | 3912474.00 |
| 356.43 | 2461.38 | 720.74 | 218.52 | 539.65 | 0.00 | 483278.00 | 3912102.00 |
| 207.79 | 2799.97 | 885.58 | 271.54 | 645.12 | 0.00 | 483616.00 | 3912266.00 |
| 382.15 | 2432.86 | 704.23 | 251.38 | 537.91 | 0.00 | 483249.00 | 3912085.00 |
| 213.91 | 2787.40 | 876.39 | 313.02 | 563.96 | 0.00 | 483604.00 | 3912257.00 |
| 284.09 | 2601.77 | 791.90 | 337.43 | 569.29 | 0.00 | 483418.00 | 3912173.00 |
| 105.86 | 3349.91 | 1140.74 | 224.89 | 456.05 | 0.00 | 484166.00 | 3912522.00 |
| 61.06 | 3936.62 | 1424.90 | 329.59 | 622.54 | 0.00 | 484753.00 | 3912806.00 |
| 248.33 | 2688.41 | 828.00 | 273.91 | 644.51 | 0.00 | 483505.00 | 3912209.00 |
| 210.42 | 2800.13 | 878.83 | 275.20 | 623.98 | 0.00 | 483616.00 | 3912260.00 |
| 61.75 | 3924.40 | 1416.51 | 316.21 | 657.15 | 0.00 | 484741.00 | 3912797.00 |
| 347.94 | 2481.75 | 731.40 | 290.30 | 623.69 | 0.00 | 483298.00 | 3912112.00 |
| 468.38 | 2321.82 | 652.91 | 256.39 | 637.79 | 0.00 | 483138.00 | 3912034.00 |
| 210.58 | 2800.83 | 884.31 | 220.34 | 581.05 | 0.00 | 483617.00 | 3912265.00 |
| 332.07 | 2502.68 | 741.85 | 269.55 | 545.00 | 0.00 | 483319.00 | 3912123.00 |
| 340.92 | 2500.48 | 738.55 | 341.72 | 630.86 | 0.00 | 483317.00 | 3912119.00 |
| 537.59 | 2262.17 | 617.69 | 311.09 | 658.68 | 0.00 | 483078.00 | 3911998.00 |
| 54.01 | 4089.30 | 1495.11 | 317.37 | 648.03 | 0.00 | 484906.00 | 3912876.00 |
| 221.18 | 2758.85 | 863.52 | 290.49 | 653.80 | 0.00 | 483575.00 | 3912244.00 |
| 158.67 | 2999.41 | 978.71 | 302.40 | 715.24 | 0.00 | 483816.00 | 3912359.00 |
| 31.42 | 4880.06 | 1863.83 | 345.08 | 641.69 | 0.00 | 485696.00 | 3913245.00 |
| 57.82 | 4004.47 | 1453.22 | 306.81 | 612.13 | 0.00 | 484821.00 | 3912834.00 |
| 199.06 | 2833.56 | 900.22 | 290.19 | 635.18 | 0.00 | 483650.00 | 3912281.00 |
| 157.68 | 3000.86 | 980.74 | 248.66 | 663.70 | 0.00 | 483817.00 | 3912362.00 |
| 335.30 | 2495.52 | 744.77 | 342.60 | 425.95 | 0.00 | 483312.00 | 3912126.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 268.35 | 5309.34 | 1582.49 | 479.38 | 1348.62 | **37.32** | 486126.00 | 3912963.00 |
| 158.11 | 5901.70 | 1873.19 | 617.04 | 1112.22 | 0.00 | 486718.00 | 3913254.00 |
| 289.04 | 5245.36 | 1555.98 | 496.65 | 1098.50 | 0.00 | 486062.00 | 3912937.00 |
| 635.13 | 4602.38 | 1253.73 | 435.76 | 639.13 | 0.00 | 485419.00 | 3912635.00 |
| 23.75 | 9814.94 | 3696.69 | 735.31 | 1423.02 | 0.00 | 490631.00 | 3915077.00 |
| 227.38 | 5484.59 | 1672.29 | 542.49 | 1226.33 | 0.00 | 486301.00 | 3913053.00 |
| 326.74 | 5123.96 | 1506.88 | 664.73 | 1034.56 | 0.00 | 485940.00 | 3912888.00 |
| 373.57 | 5000.34 | 1437.69 | 555.20 | 1282.58 | 0.00 | 485817.00 | 3912818.00 |
| 212.21 | 5559.40 | 1713.67 | 567.52 | 975.38 | 0.00 | 486376.00 | 3913094.00 |
| 21.05 | 10205.57 | 3886.21 | 656.58 | 1320.35 | 0.00 | 491022.00 | 3915267.00 |
| 170.61 | 5814.93 | 1828.81 | 636.33 | 1161.40 | 0.00 | 486631.00 | 3913210.00 |
| 794.49 | 4481.89 | 1185.25 | 518.57 | 711.24 | 0.00 | 485298.00 | 3912566.00 |
| 224.22 | 5498.99 | 1679.60 | 660.71 | 1137.71 | 0.00 | 486315.00 | 3913060.00 |
| 459.12 | 4842.31 | 1366.76 | 542.56 | 927.13 | 0.00 | 485659.00 | 3912748.00 |
| 265.75 | 5323.19 | 1601.87 | 455.61 | 850.75 | 0.00 | 486139.00 | 3912983.00 |
| 316.18 | 5153.22 | 1514.40 | 581.70 | 1171.43 | 0.00 | 485970.00 | 3912895.00 |
| 252.01 | 5373.27 | 1617.00 | 582.77 | 1129.15 | 0.00 | 486190.00 | 3912998.00 |
| 502.60 | 4780.74 | 1331.39 | 439.82 | 824.71 | 0.00 | 485597.00 | 3912712.00 |
| 420.06 | 4912.69 | 1398.51 | 493.81 | 1073.48 | 0.00 | 485729.00 | 3912779.00 |
| 453.36 | 4850.77 | 1375.05 | 482.22 | 722.79 | 0.00 | 485667.00 | 3912756.00 |
| 291.48 | 5228.42 | 1546.20 | 544.87 | 1143.62 | 0.00 | 486045.00 | 3912927.00 |
| 141.75 | 6037.09 | 1937.25 | 604.96 | 1191.44 | 0.00 | 486853.00 | 3913318.00 |
| 384.05 | 4981.00 | 1435.10 | 613.88 | 1268.55 | 0.00 | 485797.00 | 3912816.00 |
| 453.35 | 4837.76 | 1372.91 | 478.14 | 725.04 | 0.00 | 485654.00 | 3912754.00 |
| 442.19 | 4868.06 | 1368.01 | 556.88 | 1195.47 | 0.00 | 485684.00 | 3912749.00 |
| 131.12 | 6142.71 | 1992.64 | 667.91 | 1111.21 | 0.00 | 486959.00 | 3913373.00 |
| 40.21 | 8342.53 | 3016.68 | 620.44 | 1147.46 | 0.00 | 489159.00 | 3914397.00 |
| 252.03 | 5369.83 | 1610.86 | 516.01 | 1225.10 | 0.00 | 486186.00 | 3912992.00 |
| 154.92 | 5920.86 | 1890.77 | 668.84 | 957.11 | 0.00 | 486737.00 | 3913272.00 |
| 325.75 | 5128.92 | 1501.87 | 582.10 | 1190.39 | 0.00 | 485945.00 | 3912883.00 |
| 246.52 | 5395.35 | 1636.23 | 546.76 | 925.93 | 0.00 | 486212.00 | 3913017.00 |
| 149.89 | 5962.17 | 1897.77 | 604.23 | 1251.22 | 0.00 | 486778.00 | 3913279.00 |
| 272.91 | 5291.46 | 1581.40 | 472.42 | 1136.67 | 0.00 | 486108.00 | 3912962.00 |
| 287.29 | 5243.19 | 1556.27 | 577.53 | 1091.41 | 0.00 | 486059.00 | 3912937.00 |
| 546.83 | 4716.19 | 1303.06 | 448.88 | 871.47 | 0.00 | 485532.00 | 3912684.00 |
| 206.32 | 5586.23 | 1726.49 | 647.06 | 1086.53 | 0.00 | 486403.00 | 3913107.00 |
| 183.02 | 5723.42 | 1776.90 | 557.76 | 1215.79 | 0.00 | 486540.00 | 3913158.00 |
| 503.88 | 4768.20 | 1327.43 | 565.66 | 1164.42 | 0.00 | 485584.00 | 3912708.00 |
| 296.14 | 5220.32 | 1540.25 | 488.84 | 1084.17 | 0.00 | 486037.00 | 3912921.00 |
| 416.72 | 4911.00 | 1398.80 | 563.80 | 1175.46 | 0.00 | 485727.00 | 3912780.00 |
| 700.03 | 4558.77 | 1221.99 | 399.76 | 668.78 | 0.00 | 485375.00 | 3912603.00 |
| 322.44 | 5137.73 | 1510.51 | 660.03 | 1068.26 | 0.00 | 485954.00 | 3912891.00 |
| 441.81 | 4872.45 | 1372.42 | 452.60 | 1119.13 | 0.00 | 485689.00 | 3912753.00 |
| 294.50 | 5221.70 | 1550.38 | 666.58 | 1183.29 | 0.00 | 486038.00 | 3912931.00 |
| 539.00 | 4722.82 | 1308.92 | 470.32 | 739.26 | 0.00 | 485539.00 | 3912690.00 |
| 574.58 | 4667.09 | 1273.46 | 541.23 | 1152.45 | 0.00 | 485483.00 | 3912654.00 |
| 152.59 | 5946.15 | 1891.24 | 456.15 | 1007.35 | 0.00 | 486762.00 | 3913272.00 |
| 159.49 | 5889.70 | 1865.76 | 584.05 | 1242.79 | 0.00 | 486706.00 | 3913247.00 |
| 265.88 | 5325.97 | 1600.18 | 589.83 | 811.90 | 0.00 | 486142.00 | 3912981.00 |

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|---|---|---|---|---|---|---|---|
| 461.33 | 4839.57 | 1356.98 | 552.88 | 1238.65 | 0.00 | 485656.00 | 3912738.00 |
| 256.86 | 5353.80 | 1614.79 | 747.86 | 1200.37 | 0.00 | 486170.00 | 3912996.00 |
| 227.67 | 5477.57 | 1659.57 | 506.24 | 1115.54 | 0.00 | 486294.00 | 3913040.00 |
| 181.79 | 5729.79 | 1786.54 | 614.97 | 1236.61 | 0.00 | 486546.00 | 3913167.00 |
| 147.45 | 5984.12 | 1911.28 | 640.70 | 1372.90 | 0.00 | 486800.00 | 3913292.00 |
| 250.41 | 5378.58 | 1614.87 | 592.33 | 1192.18 | 0.00 | 486195.00 | 3912996.00 |
| 198.38 | 5629.78 | 1744.95 | 658.71 | 1098.48 | 0.00 | 486446.00 | 3913126.00 |
| 405.61 | 4941.67 | 1413.07 | 531.99 | 1022.15 | 0.00 | 485758.00 | 3912794.00 |
| 441.99 | 4868.08 | 1382.66 | 515.54 | 743.82 | 0.00 | 485684.00 | 3912763.00 |
| 283.56 | 5256.24 | 1561.96 | 543.44 | 1153.81 | 0.00 | 486073.00 | 3912943.00 |
| 268.77 | 5299.93 | 1588.86 | 614.34 | 1079.32 | 0.00 | 486116.00 | 3912970.00 |
| 259.08 | 5334.07 | 1615.72 | 627.08 | 901.34 | 0.00 | 486150.00 | 3912997.00 |
| 213.62 | 5550.74 | 1712.87 | 676.89 | 909.05 | 0.00 | 486367.00 | 3913094.00 |
| 319.70 | 5141.68 | 1509.37 | 762.42 | 1182.00 | 0.00 | 485958.00 | 3912890.00 |
| 300.58 | 5202.89 | 1535.25 | 388.16 | 964.98 | 0.00 | 486019.00 | 3912916.00 |
| 199.75 | 5622.02 | 1737.43 | 699.14 | 1358.06 | 0.00 | 486438.00 | 3913118.00 |
| 177.28 | 5764.31 | 1802.32 | 613.93 | 1258.98 | 0.00 | 486581.00 | 3913183.00 |
| 232.74 | 5452.39 | 1654.97 | 595.69 | 1264.98 | 0.00 | 486269.00 | 3913036.00 |
| 294.85 | 5220.85 | 1548.50 | 610.22 | 1047.18 | 0.00 | 486037.00 | 3912929.00 |
| 178.83 | 5753.00 | 1799.31 | 579.62 | 857.45 | 0.00 | 486569.00 | 3913180.00 |
| 316.68 | 5146.05 | 1513.51 | 583.69 | 1138.66 | 0.00 | 485962.00 | 3912894.00 |
| 315.93 | 5157.74 | 1519.25 | 575.41 | 947.84 | 0.00 | 485974.00 | 3912900.00 |
| 209.64 | 5575.52 | 1719.46 | 490.22 | 907.99 | 0.00 | 486392.00 | 3913100.00 |
| 603.93 | 4640.66 | 1264.93 | 423.35 | 958.10 | 0.00 | 485457.00 | 3912646.00 |
| 301.05 | 5199.16 | 1536.17 | 605.71 | 1150.59 | 0.00 | 486015.00 | 3912917.00 |
| 207.31 | 5582.12 | 1724.22 | 476.30 | 862.77 | 0.00 | 486398.00 | 3913105.00 |
| 246.97 | 5395.67 | 1621.17 | 553.86 | 1156.81 | 0.00 | 486212.00 | 3913002.00 |
| 173.82 | 5787.53 | 1813.55 | 486.11 | 1050.25 | 0.00 | 486604.00 | 3913194.00 |
| 308.96 | 5170.46 | 1527.80 | 491.58 | 810.60 | 0.00 | 485987.00 | 3912909.00 |
| 82.81 | 6858.45 | 2316.89 | 620.59 | 1390.78 | 0.00 | 487675.00 | 3913698.00 |
| 531.00 | 4728.59 | 1313.12 | 502.49 | 969.31 | 0.00 | 485545.00 | 3912694.00 |
| 367.34 | 5025.80 | 1458.51 | 553.50 | 600.68 | 0.00 | 485842.00 | 3912839.00 |
| 193.33 | 5657.33 | 1759.24 | 646.55 | 1305.12 | 0.00 | 486474.00 | 3913140.00 |
| 127.81 | 6178.26 | 1999.65 | 624.64 | 1321.17 | 0.00 | 486995.00 | 3913380.00 |
| 486.77 | 4791.82 | 1342.16 | 416.10 | 786.41 | 0.00 | 485608.00 | 3912723.00 |
| 166.73 | 5828.94 | 1839.98 | 539.72 | 1077.26 | 0.00 | 486645.00 | 3913221.00 |
| 937.15 | 4395.92 | 1132.11 | 388.30 | 689.38 | 0.00 | 485212.00 | 3912513.00 |
| 662.71 | 4605.61 | 1246.07 | 542.30 | 687.44 | 0.00 | 485422.00 | 3912627.00 |
| 69.27 | 7175.64 | 2469.96 | 565.18 | 1323.88 | 0.00 | 487992.00 | 3913851.00 |
| 72.88 | 7085.55 | 2432.26 | 659.10 | 1345.69 | 0.00 | 487902.00 | 3913813.00 |
| 769.64 | 4497.23 | 1190.72 | 433.22 | 787.21 | 0.00 | 485314.00 | 3912571.00 |
| 509.97 | 4749.19 | 1317.69 | 382.19 | 957.78 | 0.00 | 485565.00 | 3912698.00 |
| 345.42 | 5071.30 | 1480.49 | 618.97 | 1015.13 | 0.00 | 485888.00 | 3912861.00 |
| 338.88 | 5092.98 | 1490.43 | 556.91 | 1097.65 | 0.00 | 485909.00 | 3912871.00 |
| 99.94 | 6545.85 | 2171.63 | 692.69 | 1415.29 | 0.00 | 487362.00 | 3913552.00 |
| 386.22 | 4978.46 | 1439.51 | 645.93 | 727.23 | 0.00 | 485795.00 | 3912820.00 |
| 550.04 | 4712.29 | 1300.94 | 328.07 | 557.77 | 0.00 | 485529.00 | 3912682.00 |
| 203.13 | 5606.36 | 1730.46 | 690.19 | 1354.63 | 0.00 | 486423.00 | 3913111.00 |
| 142.07 | 6037.23 | 1938.51 | 606.45 | 1019.16 | 0.00 | 486854.00 | 3913319.00 |
| 74.09 | 7054.53 | 2414.77 | 728.02 | 1291.30 | 0.00 | 487871.00 | 3913796.00 |
| 371.25 | 5007.25 | 1442.59 | 562.09 | 1192.58 | 0.00 | 485824.00 | 3912823.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 79.04 | 42640.60 | 13454.06 | 2266.00 | 2756.40 | **81.16** | 523457.00 | 3924835.00 |
| 462.91 | 33355.62 | 9047.39 | 954.54 | 949.64 | 0.00 | 514172.00 | 3920428.00 |
| 223.68 | 36177.04 | 10402.37 | 1222.20 | 1630.41 | 0.00 | 516993.00 | 3921783.00 |
| 199.09 | 36739.41 | 10680.54 | 1234.53 | 1376.43 | 0.00 | 517556.00 | 3922061.00 |
| 658.21 | 32366.49 | 8549.44 | 865.97 | 689.76 | 0.00 | 513183.00 | 3919930.00 |
| 361.04 | 34194.85 | 9454.76 | 1016.36 | 1083.55 | 0.00 | 515011.00 | 3920836.00 |
| 387.51 | 33940.94 | 9329.29 | 994.54 | 1100.70 | 0.00 | 514757.00 | 3920710.00 |
| 352.91 | 34275.53 | 9502.02 | 995.56 | 984.84 | 0.00 | 515092.00 | 3920883.00 |
| 345.43 | 34354.63 | 9534.06 | 1037.67 | 1108.96 | 0.00 | 515171.00 | 3920915.00 |
| 81.69 | 42379.81 | 13334.87 | 1724.76 | 2278.20 | 0.00 | 523196.00 | 3924716.00 |
| 407.58 | 33770.01 | 9249.77 | 946.67 | 903.29 | 0.00 | 514586.00 | 3920631.00 |
| 344.51 | 34364.01 | 9543.02 | 1080.64 | 1150.62 | 0.00 | 515180.00 | 3920924.00 |
| 238.21 | 35885.26 | 10272.01 | 1111.47 | 1177.84 | 0.00 | 516702.00 | 3921653.00 |
| 476.95 | 33260.73 | 8995.00 | 895.21 | 797.16 | 0.00 | 514077.00 | 3920376.00 |
| 644.54 | 32420.42 | 8574.69 | 917.92 | 871.83 | 0.00 | 513237.00 | 3919955.00 |
| 97.03 | 41082.79 | 12716.33 | 1619.79 | 1878.28 | 0.00 | 521899.00 | 3924097.00 |
| 347.79 | 34331.38 | 9521.26 | 981.71 | 982.92 | 0.00 | 515148.00 | 3920902.00 |
| 138.71 | 38721.32 | 11617.97 | 1506.34 | 1790.20 | 0.00 | 519538.00 | 3922999.00 |
| 61.25 | 44820.86 | 14482.90 | 2347.98 | 2823.42 | 0.00 | 525637.00 | 3925864.00 |
| 350.06 | 34306.23 | 9510.22 | 944.43 | 904.94 | 0.00 | 515123.00 | 3920891.00 |
| 426.81 | 33618.68 | 9181.06 | 1105.17 | 1211.07 | 0.00 | 514435.00 | 3920562.00 |
| 213.86 | 36390.80 | 10508.06 | 1150.79 | 1318.68 | 0.00 | 517207.00 | 3921889.00 |
| 264.80 | 35422.42 | 10043.53 | 992.23 | 995.09 | 0.00 | 516239.00 | 3921424.00 |
| 152.52 | 38164.28 | 11362.29 | 1213.84 | 1239.61 | 0.00 | 518981.00 | 3922743.00 |
| 481.10 | 33231.61 | 8991.53 | 945.44 | 888.02 | 0.00 | 514048.00 | 3920372.00 |
| 188.15 | 37024.49 | 10803.83 | 1131.57 | 1371.05 | 0.00 | 517841.00 | 3922185.00 |
| 179.30 | 37276.74 | 10932.08 | 1175.15 | 1292.08 | 0.00 | 518093.00 | 3922313.00 |
| 314.91 | 34705.92 | 9705.48 | 1017.13 | 1099.01 | 0.00 | 515522.00 | 3921086.00 |
| 117.00 | 39790.26 | 12109.05 | 1477.89 | 1951.94 | 0.00 | 520607.00 | 3923490.00 |
| 113.86 | 39970.68 | 12203.24 | 1597.75 | 2065.05 | 0.00 | 520787.00 | 3923584.00 |
| 199.85 | 36719.73 | 10674.81 | 1305.66 | 1420.01 | 0.00 | 517536.00 | 3922056.00 |
| 118.21 | 39726.11 | 12081.77 | 1495.83 | 1830.67 | 0.00 | 520542.00 | 3923463.00 |
| 480.56 | 33237.97 | 8993.39 | 918.44 | 867.69 | 0.00 | 514054.00 | 3920374.00 |
| 84.44 | 42119.46 | 13213.68 | 1739.30 | 2084.49 | 0.00 | 522936.00 | 3924594.00 |
| 604.95 | 32586.00 | 8661.76 | 921.78 | 853.36 | 0.00 | 513402.00 | 3920043.00 |
| 104.13 | 40578.71 | 12485.09 | 1559.36 | 2309.02 | 0.00 | 521395.00 | 3923866.00 |
| 516.04 | 33024.67 | 8883.70 | 924.48 | 886.76 | 0.00 | 513841.00 | 3920264.00 |
| 31.47 | 52015.37 | 17824.10 | 2266.09 | 4170.92 | 0.00 | 532832.00 | 3929205.00 |
| 445.97 | 33470.83 | 9100.93 | 1116.93 | 1325.90 | 0.00 | 514287.00 | 3920482.00 |
| 198.32 | 36756.66 | 10682.66 | 1176.56 | 1296.85 | 0.00 | 517573.00 | 3922063.00 |
| 73.51 | 43233.97 | 13739.90 | 1578.80 | 1713.21 | 0.00 | 524050.00 | 3925121.00 |
| 179.82 | 37262.98 | 10918.81 | 1210.49 | 1408.21 | 0.00 | 518079.00 | 3922300.00 |
| 189.77 | 36980.72 | 10791.62 | 1172.23 | 1381.04 | 0.00 | 517797.00 | 3922172.00 |
| 34.70 | 50804.47 | 17254.95 | 2093.54 | 2842.09 | 0.00 | 531621.00 | 3928636.00 |
| 334.92 | 34472.32 | 9586.88 | 1017.72 | 1071.06 | 0.00 | 515289.00 | 3920968.00 |
| 511.14 | 33054.05 | 8898.85 | 917.65 | 898.99 | 0.00 | 513870.00 | 3920280.00 |
| 465.20 | 33335.80 | 9036.12 | 876.15 | 806.59 | 0.00 | 514152.00 | 3920417.00 |
| 211.48 | 36442.58 | 10539.53 | 1325.28 | 1612.31 | 0.00 | 517259.00 | 3921920.00 |
| 247.26 | 35720.23 | 10182.66 | 1144.33 | 1345.62 | 0.00 | 516537.00 | 3921563.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 244.93 | 35757.30 | 10218.05 | 1080.82 | 1120.50 | 0.00 | 516574.00 | 3921599.00 |
| 182.61 | 37181.01 | 10883.82 | 1176.99 | 1365.60 | 0.00 | 517997.00 | 3922265.00 |
| 151.66 | 38195.75 | 11361.73 | 1143.28 | 1366.54 | 0.00 | 519012.00 | 3922743.00 |
| 771.21 | 32002.62 | 8355.83 | 826.38 | 636.33 | 0.00 | 512819.00 | 3919737.00 |
| 317.78 | 34670.85 | 9687.76 | 936.58 | 842.92 | 0.00 | 515487.00 | 3921069.00 |
| 360.06 | 34202.05 | 9464.49 | 1012.32 | 1028.03 | 0.00 | 515018.00 | 3920845.00 |
| 268.14 | 35363.53 | 10020.75 | 1090.79 | 1214.11 | 0.00 | 516180.00 | 3921402.00 |
| 343.03 | 34380.48 | 9541.46 | 1079.42 | 1264.83 | 0.00 | 515197.00 | 3920922.00 |
| 156.03 | 38032.78 | 11286.05 | 1355.35 | 1567.98 | 0.00 | 518849.00 | 3922667.00 |
| 168.08 | 37625.95 | 11097.54 | 1232.65 | 1408.53 | 0.00 | 518442.00 | 3922478.00 |
| 431.09 | 33582.85 | 9156.83 | 1062.53 | 1206.00 | 0.00 | 514399.00 | 3920538.00 |
| 606.94 | 32570.37 | 8655.04 | 849.53 | 685.19 | 0.00 | 513387.00 | 3920036.00 |
| 245.45 | 35749.90 | 10206.40 | 1094.75 | 1148.34 | 0.00 | 516566.00 | 3921587.00 |
| 322.12 | 34619.87 | 9664.77 | 921.59 | 811.33 | 0.00 | 515436.00 | 3921046.00 |
| 399.07 | 33841.49 | 9282.19 | 1090.81 | 1217.79 | 0.00 | 514658.00 | 3920663.00 |
| 449.36 | 33446.16 | 9091.67 | 896.56 | 814.73 | 0.00 | 514262.00 | 3920472.00 |
| 176.79 | 37352.73 | 10961.03 | 1358.17 | 1730.64 | 0.00 | 518169.00 | 3922342.00 |
| 461.07 | 33365.49 | 9051.25 | 962.66 | 1013.62 | 0.00 | 514182.00 | 3920432.00 |
| 386.62 | 33948.87 | 9334.80 | 1116.77 | 1285.84 | 0.00 | 514765.00 | 3920716.00 |
| 268.68 | 35355.24 | 10012.35 | 1024.37 | 1085.49 | 0.00 | 516172.00 | 3921393.00 |
| 171.60 | 37513.04 | 11034.61 | 1184.67 | 1446.83 | 0.00 | 518329.00 | 3922415.00 |
| 418.77 | 33678.64 | 9201.63 | 931.10 | 906.77 | 0.00 | 514495.00 | 3920582.00 |
| 245.55 | 35748.54 | 10208.59 | 1102.68 | 1228.83 | 0.00 | 516565.00 | 3921589.00 |
| 691.43 | 32253.48 | 8495.69 | 867.11 | 704.03 | 0.00 | 513070.00 | 3919876.00 |
| 128.61 | 39185.63 | 11834.41 | 1337.65 | 1579.43 | 0.00 | 520002.00 | 3923215.00 |
| 101.48 | 40761.80 | 12579.78 | 1457.97 | 1667.05 | 0.00 | 521578.00 | 3923961.00 |
| 135.11 | 38878.92 | 11676.15 | 1354.66 | 1838.32 | 0.00 | 519695.00 | 3923057.00 |
| 78.86 | 42659.10 | 13475.71 | 1536.30 | 1735.30 | 0.00 | 523475.00 | 3924856.00 |
| 288.66 | 35056.72 | 9874.53 | 1011.97 | 1041.83 | 0.00 | 515873.00 | 3921255.00 |
| 711.61 | 32181.70 | 8452.82 | 837.80 | 662.45 | 0.00 | 512998.00 | 3919834.00 |
| 535.78 | 32915.96 | 8825.88 | 874.75 | 780.27 | 0.00 | 513732.00 | 3920207.00 |
| 64.25 | 44390.62 | 14277.27 | 1931.29 | 2629.99 | 0.00 | 525207.00 | 3925658.00 |
| 306.63 | 34812.51 | 9760.96 | 998.44 | 972.32 | 0.00 | 515629.00 | 3921142.00 |
| 149.39 | 38282.52 | 11399.89 | 1353.97 | 1576.76 | 0.00 | 519099.00 | 3922781.00 |
| 167.11 | 37656.37 | 11109.73 | 1415.85 | 1743.94 | 0.00 | 518473.00 | 3922491.00 |
| 151.69 | 38194.63 | 11364.75 | 1186.75 | 1310.26 | 0.00 | 519011.00 | 3922746.00 |
| 391.88 | 33905.04 | 9318.72 | 1036.68 | 1080.96 | 0.00 | 514721.00 | 3920700.00 |
| 260.72 | 35485.84 | 10073.48 | 1008.04 | 1062.12 | 0.00 | 516302.00 | 3921454.00 |
| 247.86 | 35708.98 | 10179.61 | 1254.23 | 1529.42 | 0.00 | 516525.00 | 3921560.00 |
| 239.39 | 35864.37 | 10251.85 | 1017.37 | 1051.92 | 0.00 | 516681.00 | 3921633.00 |
| 514.66 | 33034.32 | 8885.24 | 898.75 | 827.74 | 0.00 | 513851.00 | 3920266.00 |
| 331.48 | 34511.52 | 9607.70 | 944.82 | 935.49 | 0.00 | 515328.00 | 3920988.00 |
| 254.82 | 35582.75 | 10124.75 | 1105.95 | 1232.50 | 0.00 | 516399.00 | 3921506.00 |
| 573.49 | 32727.72 | 8734.00 | 878.24 | 758.98 | 0.00 | 513544.00 | 3920115.00 |
| 560.67 | 32786.33 | 8763.19 | 895.10 | 841.44 | 0.00 | 513603.00 | 3920144.00 |
| 296.85 | 34942.45 | 9823.32 | 1121.72 | 1262.81 | 0.00 | 515759.00 | 3921204.00 |
| 122.39 | 39499.39 | 11975.02 | 1647.26 | 2211.59 | 0.00 | 520316.00 | 3923356.00 |
| 157.98 | 37962.46 | 11243.59 | 1226.59 | 1551.34 | 0.00 | 518779.00 | 3922624.00 |
| 78.74 | 42671.92 | 13460.66 | 1989.38 | 2549.06 | 0.00 | 523488.00 | 3924841.00 |
| 56.01 | 45652.02 | 14855.95 | 2092.10 | 2712.69 | 0.00 | 526468.00 | 3926237.00 |
| 50.94 | 46577.83 | 15299.67 | 2013.10 | 2396.46 | 0.00 | 527394.00 | 3926680.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 243.04 | 2285.34 | 709.35 | 230.36 | 530.18 | **27.63** | 483102.00 | 3912090.00 |
| 245.49 | 2271.95 | 705.81 | 187.78 | 445.47 | 0.00 | 483088.00 | 3912087.00 |
| 1034.53 | 1620.95 | 380.08 | 250.38 | 436.45 | 0.00 | 482437.00 | 3911761.00 |
| 348.01 | 2083.83 | 615.75 | 232.71 | 446.61 | 0.00 | 482900.00 | 3911997.00 |
| 393.55 | 2017.95 | 582.93 | 234.41 | 510.02 | 0.00 | 482834.00 | 3911964.00 |
| 386.44 | 2034.29 | 586.71 | 247.16 | 488.19 | 0.00 | 482851.00 | 3911967.00 |
| 258.72 | 2246.63 | 693.87 | 287.90 | 559.05 | 0.00 | 483063.00 | 3912075.00 |
| 243.01 | 2283.63 | 711.72 | 230.59 | 463.27 | 0.00 | 483100.00 | 3912092.00 |
| 162.68 | 2540.19 | 829.93 | 266.67 | 590.58 | 0.00 | 483356.00 | 3912211.00 |
| 1065.95 | 1613.02 | 373.43 | 208.54 | 495.64 | 0.00 | 482429.00 | 3911754.00 |
| 328.56 | 2116.92 | 628.79 | 312.78 | 548.44 | 0.00 | 482933.00 | 3912010.00 |
| 272.73 | 2217.13 | 676.50 | 234.85 | 573.92 | 0.00 | 483033.00 | 3912057.00 |
| 121.28 | 2753.31 | 937.58 | 284.84 | 469.56 | 0.00 | 483570.00 | 3912318.00 |
| 958.15 | 1641.39 | 394.28 | 309.11 | 491.30 | 0.00 | 482458.00 | 3911775.00 |
| 109.60 | 2831.44 | 978.08 | 277.05 | 542.80 | 0.00 | 483648.00 | 3912359.00 |
| 330.14 | 2119.27 | 626.01 | 248.07 | 517.37 | 0.00 | 482936.00 | 3912007.00 |
| 676.08 | 1779.89 | 467.63 | 263.17 | 401.77 | 0.00 | 482596.00 | 3911848.00 |
| 53.23 | 3543.98 | 1309.33 | 290.24 | 516.99 | 0.00 | 484360.00 | 3912690.00 |
| 295.91 | 2171.67 | 653.95 | 221.05 | 460.56 | 0.00 | 482988.00 | 3912035.00 |
| 249.46 | 2270.53 | 703.25 | 241.63 | 544.12 | 0.00 | 483087.00 | 3912084.00 |
| 255.42 | 2253.53 | 696.75 | 226.93 | 459.63 | 0.00 | 483070.00 | 3912078.00 |
| 221.18 | 2337.24 | 734.90 | 268.43 | 525.80 | 0.00 | 483154.00 | 3912116.00 |
| 190.64 | 2437.12 | 785.18 | 233.44 | 433.12 | 0.00 | 483253.00 | 3912166.00 |
| 979.90 | 1635.92 | 390.94 | 218.50 | 502.14 | 0.00 | 482452.00 | 3911772.00 |
| 9.77 | 6561.28 | 2729.79 | 393.65 | 460.85 | 0.00 | 487378.00 | 3914111.00 |
| 276.27 | 2208.53 | 677.08 | 263.87 | 459.59 | 0.00 | 483025.00 | 3912058.00 |
| 303.20 | 2158.11 | 649.91 | 251.18 | 565.37 | 0.00 | 482974.00 | 3912031.00 |
| 237.02 | 2295.11 | 721.96 | 262.31 | 414.30 | 0.00 | 483111.00 | 3912103.00 |
| 332.10 | 2104.04 | 627.13 | 214.99 | 463.50 | 0.00 | 482920.00 | 3912008.00 |
| 186.63 | 2458.50 | 789.01 | 259.51 | 546.02 | 0.00 | 483275.00 | 3912170.00 |
| 352.23 | 2088.90 | 614.43 | 261.64 | 443.58 | 0.00 | 482905.00 | 3911995.00 |
| 362.98 | 2056.99 | 602.37 | 195.00 | 444.03 | 0.00 | 482873.00 | 3911983.00 |
| 275.82 | 2212.42 | 677.12 | 232.55 | 486.24 | 0.00 | 483029.00 | 3912058.00 |
| 87.24 | 3034.35 | 1072.74 | 248.35 | 517.40 | 0.00 | 483851.00 | 3912454.00 |
| 329.81 | 2108.86 | 621.75 | 202.36 | 524.28 | 0.00 | 482925.00 | 3912003.00 |
| 262.21 | 2236.14 | 687.68 | 242.31 | 512.52 | 0.00 | 483052.00 | 3912068.00 |
| 293.56 | 2172.55 | 656.47 | 233.38 | 574.49 | 0.00 | 482989.00 | 3912037.00 |
| 488.15 | 1918.32 | 534.96 | 296.27 | 488.45 | 0.00 | 482735.00 | 3911916.00 |
| 586.46 | 1842.43 | 493.64 | 245.67 | 571.90 | 0.00 | 482659.00 | 3911874.00 |
| 171.52 | 2506.08 | 817.32 | 256.64 | 525.02 | 0.00 | 483322.00 | 3912198.00 |
| 398.30 | 2014.86 | 583.95 | 237.10 | 447.07 | 0.00 | 482831.00 | 3911965.00 |
| 514.55 | 1901.81 | 519.70 | 263.64 | 504.51 | 0.00 | 482718.00 | 3911900.00 |
| 263.79 | 2236.17 | 688.16 | 275.19 | 576.93 | 0.00 | 483052.00 | 3912069.00 |
| 247.97 | 2264.72 | 701.60 | 244.10 | 509.17 | 0.00 | 483081.00 | 3912082.00 |
| 688.98 | 1770.35 | 457.55 | 220.86 | 428.59 | 0.00 | 482587.00 | 3911838.00 |
| 544.68 | 1869.23 | 505.54 | 270.01 | 532.50 | 0.00 | 482686.00 | 3911886.00 |
| 576.91 | 1845.38 | 496.78 | 292.75 | 534.57 | 0.00 | 482662.00 | 3911878.00 |
| 625.59 | 1817.61 | 477.75 | 229.35 | 582.17 | 0.00 | 482634.00 | 3911859.00 |
| 319.71 | 2130.13 | 636.31 | 229.90 | 494.36 | 0.00 | 482946.00 | 3912017.00 |

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|---|---|---|---|---|---|---|---|
| 332.60 | 2102.21 | 623.40 | 233.24 | 536.75 | 0.00 | 482918.00 | 3912004.00 |
| 390.64 | 2041.83 | 583.32 | 281.66 | 582.40 | 0.00 | 482858.00 | 3911964.00 |
| 335.03 | 2095.11 | 626.85 | 229.10 | 456.82 | 0.00 | 482911.00 | 3912008.00 |
| 698.63 | 1768.65 | 458.04 | 230.93 | 517.64 | 0.00 | 482585.00 | 3911839.00 |
| 268.81 | 2216.86 | 679.56 | 173.79 | 486.94 | 0.00 | 483033.00 | 3912060.00 |
| 169.28 | 2509.69 | 818.02 | 256.20 | 516.57 | 0.00 | 483326.00 | 3912199.00 |
| 438.62 | 1968.33 | 555.09 | 222.48 | 484.43 | 0.00 | 482785.00 | 3911936.00 |
| 304.67 | 2156.88 | 646.75 | 256.64 | 487.37 | 0.00 | 482973.00 | 3912028.00 |
| 238.70 | 2292.87 | 716.90 | 245.83 | 542.27 | 0.00 | 483109.00 | 3912098.00 |
| 60.71 | 3399.52 | 1242.22 | 276.26 | 584.43 | 0.00 | 484216.00 | 3912623.00 |
| 128.38 | 2712.07 | 916.70 | 263.76 | 527.22 | 0.00 | 483528.00 | 3912297.00 |
| 105.00 | 2870.63 | 991.10 | 244.22 | 564.61 | 0.00 | 483687.00 | 3912372.00 |
| 744.21 | 1750.40 | 446.27 | 233.30 | 382.59 | 0.00 | 482567.00 | 3911827.00 |
| 244.26 | 2281.59 | 709.87 | 268.24 | 540.91 | 0.00 | 483098.00 | 3912091.00 |
| 251.27 | 2261.17 | 702.19 | 242.04 | 494.70 | 0.00 | 483077.00 | 3912083.00 |
| 373.71 | 2046.54 | 596.01 | 214.77 | 460.45 | 0.00 | 482863.00 | 3911977.00 |
| 409.11 | 2005.98 | 576.85 | 248.68 | 487.95 | 0.00 | 482822.00 | 3911958.00 |
| 121.83 | 2746.24 | 932.69 | 257.52 | 551.47 | 0.00 | 483563.00 | 3912313.00 |
| 132.98 | 2684.06 | 899.65 | 223.54 | 574.06 | 0.00 | 483500.00 | 3912280.00 |
| 420.98 | 1992.77 | 566.38 | 276.46 | 559.13 | 0.00 | 482809.00 | 3911947.00 |
| 102.71 | 2889.41 | 1001.17 | 255.63 | 474.25 | 0.00 | 483706.00 | 3912382.00 |
| 62.90 | 3359.07 | 1220.11 | 219.73 | 480.02 | 0.00 | 484175.00 | 3912601.00 |
| 334.69 | 2103.52 | 621.72 | 235.06 | 489.17 | 0.00 | 482920.00 | 3912003.00 |
| 478.24 | 1937.42 | 538.20 | 262.34 | 517.41 | 0.00 | 482754.00 | 3911919.00 |
| 171.58 | 2498.46 | 817.17 | 225.13 | 468.52 | 0.00 | 483315.00 | 3912198.00 |
| 266.24 | 2237.97 | 684.12 | 242.47 | 487.89 | 0.00 | 483054.00 | 3912065.00 |
| 282.28 | 2200.27 | 667.76 | 254.09 | 503.95 | 0.00 | 483017.00 | 3912049.00 |
| 265.42 | 2235.95 | 687.19 | 302.85 | 520.61 | 0.00 | 483052.00 | 3912068.00 |
| 406.32 | 2020.59 | 575.49 | 205.52 | 437.96 | 0.00 | 482837.00 | 3911956.00 |
| 124.13 | 2737.66 | 924.88 | 235.51 | 546.10 | 0.00 | 483554.00 | 3912306.00 |
| 437.65 | 1967.10 | 558.17 | 264.84 | 468.35 | 0.00 | 482783.00 | 3911939.00 |
| 129.10 | 2708.26 | 915.43 | 300.12 | 544.82 | 0.00 | 483525.00 | 3912296.00 |
| 106.03 | 2862.86 | 987.65 | 250.08 | 465.00 | 0.00 | 483679.00 | 3912368.00 |
| 68.41 | 3267.60 | 1182.89 | 289.33 | 586.24 | 0.00 | 484084.00 | 3912564.00 |
| 573.51 | 1845.67 | 500.34 | 321.40 | 484.21 | 0.00 | 482662.00 | 3911881.00 |
| 292.01 | 2181.43 | 663.06 | 226.16 | 459.45 | 0.00 | 482998.00 | 3912044.00 |
| 228.43 | 2319.60 | 726.67 | 227.54 | 464.52 | 0.00 | 483136.00 | 3912107.00 |
| 598.66 | 1833.50 | 489.68 | 264.71 | 459.24 | 0.00 | 482650.00 | 3911870.00 |
| 378.23 | 2036.84 | 593.75 | 236.60 | 486.11 | 0.00 | 482853.00 | 3911975.00 |
| 297.71 | 2170.22 | 654.28 | 267.12 | 453.49 | 0.00 | 482987.00 | 3912035.00 |
| 254.88 | 2259.97 | 698.77 | 279.21 | 517.14 | 0.00 | 483076.00 | 3912080.00 |
| 477.04 | 1931.46 | 537.35 | 210.72 | 490.97 | 0.00 | 482748.00 | 3911918.00 |
| 371.11 | 2056.52 | 601.23 | 248.62 | 468.29 | 0.00 | 482873.00 | 3911982.00 |
| 468.34 | 1949.47 | 543.34 | 255.95 | 456.47 | 0.00 | 482766.00 | 3911924.00 |
| 268.11 | 2235.51 | 684.95 | 236.64 | 494.09 | 0.00 | 483052.00 | 3912066.00 |
| 416.61 | 1989.89 | 573.29 | 244.17 | 454.76 | 0.00 | 482806.00 | 3911954.00 |
| 183.63 | 2460.90 | 791.25 | 234.39 | 508.34 | 0.00 | 483277.00 | 3912172.00 |
| 27.29 | 4447.69 | 1733.16 | 277.33 | 562.54 | 0.00 | 485264.00 | 3913114.00 |
| 283.86 | 2198.44 | 668.61 | 232.79 | 477.62 | 0.00 | 483015.00 | 3912049.00 |
| 418.30 | 1993.16 | 568.08 | 227.73 | 450.16 | 0.00 | 482809.00 | 3911949.00 |
| 182.46 | 2461.48 | 799.29 | 287.93 | 506.49 | 0.00 | 483278.00 | 3912180.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 227.12 | 76.28 | 7.39 | 26.46 | 53.46 | **9.78** | 480893.00 | 3911388.00 |
| 168.42 | 62.98 | 7.49 | 22.73 | 36.39 | 0.00 | 480879.00 | 3911388.00 |
| 812.58 | 114.17 | 7.93 | 47.72 | 73.47 | 0.00 | 480930.00 | 3911389.00 |
| 128.58 | 48.57 | 6.31 | 20.50 | 22.55 | 0.00 | 480865.00 | 3911387.00 |
| 350.81 | 69.21 | 1.34 | 31.40 | 56.63 | 0.00 | 480885.00 | 3911382.00 |
| 362.33 | 74.27 | 1.30 | 34.87 | 56.94 | 0.00 | 480891.00 | 3911382.00 |
| 107.63 | 52.54 | 9.16 | 18.55 | 23.74 | 0.00 | 480869.00 | 3911390.00 |
| 168.75 | 51.33 | 4.49 | 21.82 | 34.78 | 0.00 | 480868.00 | 3911385.00 |
| 218.43 | 61.10 | 6.28 | 26.37 | 40.03 | 0.00 | 480877.00 | 3911387.00 |
| 170.02 | 63.05 | 6.60 | 25.32 | 30.57 | 0.00 | 480879.00 | 3911387.00 |
| 325.54 | 84.81 | 6.15 | 38.40 | 54.54 | 0.00 | 480901.00 | 3911387.00 |
| 242.03 | 66.87 | 6.26 | 26.98 | 43.54 | 0.00 | 480883.00 | 3911387.00 |
| 234.32 | 65.84 | 5.64 | 27.05 | 41.99 | 0.00 | 480882.00 | 3911386.00 |
| 200.13 | 63.47 | 5.38 | 29.07 | 38.30 | 0.00 | 480880.00 | 3911386.00 |
| 230.20 | 65.07 | 5.73 | 29.57 | 43.03 | 0.00 | 480881.00 | 3911387.00 |
| 536.90 | 86.59 | 6.30 | 35.90 | 57.31 | 0.00 | 480903.00 | 3911387.00 |
| 724.54 | 117.36 | 6.54 | 53.92 | 77.55 | 0.00 | 480934.00 | 3911387.00 |
| 74.86 | 101.57 | 35.66 | 15.37 | 17.58 | 0.00 | 480918.00 | 3911416.00 |
| 185.48 | 95.62 | 19.88 | 24.50 | 35.57 | 0.00 | 480912.00 | 3911401.00 |
| 333.67 | 106.31 | 20.30 | 34.42 | 54.43 | 0.00 | 480923.00 | 3911401.00 |
| 204.38 | 99.04 | 19.53 | 23.11 | 47.71 | 0.00 | 480915.00 | 3911400.00 |
| 105.04 | 52.15 | 10.95 | 18.79 | 19.93 | 0.00 | 480868.00 | 3911392.00 |
| 374.06 | 95.49 | 11.76 | 34.40 | 56.19 | 0.00 | 480912.00 | 3911393.00 |
| 61.99 | 126.38 | 49.73 | 16.23 | 15.64 | 0.00 | 480943.00 | 3911431.00 |
| 364.20 | 183.12 | 48.76 | 38.30 | 62.40 | 0.00 | 480999.00 | 3911430.00 |
| 112.01 | 49.37 | 6.36 | 14.99 | 28.75 | 0.00 | 480866.00 | 3911387.00 |
| 106.14 | 55.53 | 10.30 | 18.09 | 28.86 | 0.00 | 480872.00 | 3911391.00 |
| 257.79 | 89.83 | 11.84 | 32.47 | 50.12 | 0.00 | 480906.00 | 3911393.00 |
| 367.35 | 121.90 | 12.41 | 40.61 | 66.43 | 0.00 | 480938.00 | 3911393.00 |
| 273.43 | 83.29 | 11.71 | 31.00 | 42.73 | 0.00 | 480900.00 | 3911392.00 |
| 343.45 | 99.40 | 12.30 | 36.34 | 62.80 | 0.00 | 480916.00 | 3911393.00 |
| 217.67 | 87.34 | 11.52 | 28.42 | 46.82 | 0.00 | 480904.00 | 3911392.00 |
| 450.00 | 101.95 | 12.62 | 43.87 | 59.84 | 0.00 | 480918.00 | 3911393.00 |
| 171.78 | 73.76 | 12.04 | 21.54 | 34.80 | 0.00 | 480890.00 | 3911393.00 |
| 214.21 | 68.48 | 5.03 | 25.85 | 46.66 | 0.00 | 480885.00 | 3911386.00 |
| 109.83 | 53.55 | 7.70 | 17.38 | 31.24 | 0.00 | 480870.00 | 3911388.00 |
| 360.54 | 100.95 | 13.96 | 33.38 | 57.29 | 0.00 | 480917.00 | 3911395.00 |
| 81.94 | 86.54 | 28.93 | 16.52 | 19.68 | 0.00 | 480903.00 | 3911410.00 |
| 332.82 | 151.36 | 30.29 | 34.81 | 69.81 | 0.00 | 480968.00 | 3911411.00 |
| 171.50 | 115.39 | 30.06 | 26.35 | 36.33 | 0.00 | 480932.00 | 3911411.00 |
| 281.34 | 72.86 | 5.08 | 24.18 | 54.88 | 0.00 | 480889.00 | 3911386.00 |
| 164.55 | 57.38 | 4.78 | 22.99 | 38.66 | 0.00 | 480874.00 | 3911386.00 |
| 369.49 | 90.84 | 8.57 | 37.60 | 55.92 | 0.00 | 480907.00 | 3911389.00 |
| 396.12 | 102.75 | 9.08 | 37.48 | 58.09 | 0.00 | 480919.00 | 3911390.00 |
| 307.48 | 90.89 | 8.46 | 32.88 | 55.09 | 0.00 | 480907.00 | 3911389.00 |
| 36.70 | 206.87 | 89.99 | 14.97 | 15.73 | 0.00 | 481023.00 | 3911471.00 |
| 279.93 | 210.36 | 74.63 | 36.02 | 37.40 | 0.00 | 481027.00 | 3911455.00 |
| 236.79 | 213.07 | 74.22 | 31.83 | 41.60 | 0.00 | 481029.00 | 3911455.00 |
| 43.08 | 182.53 | 78.01 | 15.37 | 15.47 | 0.00 | 480999.00 | 3911459.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 164.50 | 199.53 | 71.51 | 24.11 | 35.39 | 0.00 | 481016.00 | 3911452.00 |
| 186.60 | 68.65 | 8.06 | 26.53 | 41.69 | 0.00 | 480885.00 | 3911389.00 |
| 253.57 | 77.26 | 8.31 | 26.54 | 51.62 | 0.00 | 480894.00 | 3911389.00 |
| 160.69 | 61.77 | 8.18 | 22.80 | 36.49 | 0.00 | 480878.00 | 3911389.00 |
| 401.83 | 81.49 | 10.46 | 38.48 | 45.57 | 0.00 | 480898.00 | 3911391.00 |
| 192.33 | 77.38 | 9.59 | 24.78 | 49.14 | 0.00 | 480894.00 | 3911390.00 |
| 280.96 | 80.08 | 10.06 | 33.45 | 47.08 | 0.00 | 480896.00 | 3911391.00 |
| 95.62 | 64.53 | 17.64 | 14.30 | 25.68 | 0.00 | 480881.00 | 3911398.00 |
| 808.38 | 164.80 | 29.65 | 52.09 | 82.76 | 0.00 | 480981.00 | 3911410.00 |
| 331.04 | 131.22 | 28.12 | 34.08 | 53.15 | 0.00 | 480948.00 | 3911409.00 |
| 557.22 | 161.01 | 29.18 | 52.94 | 68.25 | 0.00 | 480977.00 | 3911410.00 |
| 141.87 | 98.32 | 27.56 | 20.51 | 36.16 | 0.00 | 480915.00 | 3911408.00 |
| 174.92 | 50.79 | 2.16 | 24.14 | 38.20 | 0.00 | 480867.00 | 3911383.00 |
| 284.76 | 73.82 | 4.13 | 31.88 | 48.88 | 0.00 | 480890.00 | 3911385.00 |
| 440.35 | 98.18 | 4.47 | 40.88 | 66.20 | 0.00 | 480914.00 | 3911385.00 |
| 364.87 | 80.68 | 4.04 | 33.84 | 57.09 | 0.00 | 480897.00 | 3911385.00 |
| 288.77 | 68.81 | 3.86 | 33.12 | 56.22 | 0.00 | 480885.00 | 3911385.00 |
| 316.21 | 55.55 | 3.86 | 30.39 | 40.75 | 0.00 | 480872.00 | 3911385.00 |
| 417.06 | 82.13 | 4.06 | 45.02 | 61.10 | 0.00 | 480898.00 | 3911385.00 |
| 264.15 | 60.58 | 3.39 | 28.49 | 36.28 | 0.00 | 480877.00 | 3911384.00 |
| 405.92 | 83.36 | 4.23 | 41.32 | 57.37 | 0.00 | 480900.00 | 3911385.00 |
| 358.49 | 77.31 | 3.84 | 36.08 | 45.93 | 0.00 | 480894.00 | 3911385.00 |
| 247.42 | 63.44 | 3.72 | 26.84 | 48.60 | 0.00 | 480880.00 | 3911384.00 |
| 473.21 | 91.14 | 4.69 | 40.33 | 67.06 | 0.00 | 480907.00 | 3911385.00 |
| 199.12 | 58.05 | 3.68 | 24.09 | 36.99 | 0.00 | 480874.00 | 3911384.00 |
| 353.54 | 85.97 | 4.28 | 37.59 | 58.78 | 0.00 | 480902.00 | 3911385.00 |
| 480.81 | 102.92 | 4.17 | 36.09 | 75.41 | 0.00 | 480919.00 | 3911385.00 |
| 230.95 | 70.23 | 3.64 | 22.54 | 49.14 | 0.00 | 480887.00 | 3911384.00 |
| 94.41 | 69.75 | 18.52 | 17.79 | 23.17 | 0.00 | 480886.00 | 3911399.00 |
| 172.58 | 95.14 | 24.73 | 23.34 | 32.72 | 0.00 | 480911.00 | 3911406.00 |
| 180.55 | 50.99 | 4.52 | 18.23 | 36.17 | 0.00 | 480867.00 | 3911385.00 |
| 176.93 | 48.24 | 0.92 | 21.36 | 35.94 | 0.00 | 480865.00 | 3911382.00 |
| 219.36 | 61.63 | 2.75 | 32.07 | 31.60 | 0.00 | 480878.00 | 3911384.00 |
| 278.57 | 70.99 | 2.92 | 28.29 | 57.46 | 0.00 | 480887.00 | 3911384.00 |
| 171.60 | 48.74 | 2.56 | 22.93 | 32.78 | 0.00 | 480865.00 | 3911383.00 |
| 543.30 | 99.13 | 5.59 | 41.36 | 71.65 | 0.00 | 480915.00 | 3911386.00 |
| 393.19 | 80.41 | 5.78 | 40.42 | 52.84 | 0.00 | 480897.00 | 3911387.00 |
| 281.84 | 73.43 | 5.25 | 36.69 | 47.35 | 0.00 | 480890.00 | 3911386.00 |
| 231.76 | 64.44 | 5.11 | 31.09 | 38.78 | 0.00 | 480881.00 | 3911386.00 |
| 665.29 | 115.26 | 5.58 | 48.83 | 81.25 | 0.00 | 480932.00 | 3911386.00 |
| 390.33 | 82.36 | 5.32 | 42.88 | 54.29 | 0.00 | 480899.00 | 3911386.00 |
| 160.77 | 50.39 | 5.03 | 20.56 | 35.16 | 0.00 | 480867.00 | 3911386.00 |
| 60.00 | 137.32 | 52.14 | 15.65 | 21.77 | 0.00 | 480954.00 | 3911433.00 |
| 165.52 | 155.81 | 48.99 | 24.56 | 38.64 | 0.00 | 480972.00 | 3911430.00 |
| 427.64 | 90.79 | 8.45 | 44.80 | 47.69 | 0.00 | 480907.00 | 3911389.00 |
| 332.37 | 86.44 | 7.93 | 39.42 | 51.04 | 0.00 | 480903.00 | 3911389.00 |
| 303.03 | 95.81 | 7.65 | 33.68 | 52.90 | 0.00 | 480912.00 | 3911388.00 |
| 295.79 | 84.18 | 7.87 | 27.94 | 59.06 | 0.00 | 480900.00 | 3911389.00 |
| 194.49 | 74.15 | 7.84 | 28.94 | 47.91 | 0.00 | 480890.00 | 3911389.00 |
| 357.55 | 88.72 | 8.23 | 34.47 | 57.62 | 0.00 | 480905.00 | 3911389.00 |
| 72.72 | 99.13 | 37.74 | 14.41 | 17.28 | 0.00 | 480915.00 | 3911419.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 144.24 | 110961.70 | 31174.13 | 2295.83 | 2216.57 | **118.96** | 591778.00 | 3942555.00 |
| 400.11 | 100918.77 | 26406.35 | 1819.13 | 1384.76 | 0.00 | 581735.00 | 3937787.00 |
| 262.87 | 104405.56 | 28069.71 | 1902.10 | 1498.53 | 0.00 | 585222.00 | 3939450.00 |
| 98.67 | 116294.82 | 33684.34 | 2634.66 | 2664.13 | 0.00 | 597111.00 | 3945065.00 |
| 50.62 | 128558.61 | 39420.39 | 3511.45 | 4150.25 | 0.00 | 609375.00 | 3950801.00 |
| 585.60 | 98405.74 | 25180.16 | 1692.36 | 1073.93 | 0.00 | 579222.00 | 3936561.00 |
| 194.19 | 107459.00 | 29522.70 | 2109.66 | 1907.39 | 0.00 | 588275.00 | 3940903.00 |
| 197.19 | 107292.15 | 29441.52 | 1993.40 | 1605.36 | 0.00 | 588108.00 | 3940822.00 |
| 310.57 | 102924.62 | 27365.17 | 1821.41 | 1321.71 | 0.00 | 583741.00 | 3938746.00 |
| 432.40 | 100360.45 | 26139.55 | 1837.81 | 1455.88 | 0.00 | 581177.00 | 3937520.00 |
| 328.93 | 102444.33 | 27134.01 | 1844.82 | 1432.83 | 0.00 | 583261.00 | 3938515.00 |
| 326.92 | 102494.88 | 27166.96 | 1868.02 | 1450.16 | 0.00 | 583311.00 | 3938548.00 |
| 529.10 | 99021.40 | 25481.52 | 1717.69 | 1151.82 | 0.00 | 579838.00 | 3936862.00 |
| 288.53 | 103561.49 | 27675.38 | 1942.72 | 1633.42 | 0.00 | 584378.00 | 3939056.00 |
| 237.64 | 105369.03 | 28543.85 | 2058.20 | 1842.64 | 0.00 | 586185.00 | 3939925.00 |
| 172.04 | 108822.75 | 30163.97 | 2065.80 | 1742.89 | 0.00 | 589639.00 | 3941545.00 |
| 84.98 | 118692.91 | 34795.13 | 2642.11 | 2744.84 | 0.00 | 599509.00 | 3946176.00 |
| 263.08 | 104398.25 | 28073.21 | 2044.29 | 1863.90 | 0.00 | 585215.00 | 3939454.00 |
| 532.38 | 98983.09 | 25458.89 | 1729.44 | 1190.47 | 0.00 | 579799.00 | 3936840.00 |
| 302.59 | 103147.72 | 27472.50 | 1871.68 | 1459.88 | 0.00 | 583964.00 | 3938853.00 |
| 538.55 | 98911.17 | 25429.83 | 1675.59 | 983.34 | 0.00 | 579727.00 | 3936811.00 |
| 204.91 | 106879.72 | 29249.66 | 2033.78 | 1748.15 | 0.00 | 587696.00 | 3940630.00 |
| 300.99 | 103192.72 | 27497.77 | 1935.75 | 1657.11 | 0.00 | 584009.00 | 3938879.00 |
| 215.07 | 106374.77 | 29002.93 | 1970.59 | 1593.38 | 0.00 | 587191.00 | 3940384.00 |
| 92.38 | 117329.37 | 34171.56 | 2540.56 | 2421.19 | 0.00 | 598146.00 | 3945552.00 |
| 133.03 | 112012.72 | 31658.66 | 2447.59 | 2562.06 | 0.00 | 592829.00 | 3943039.00 |
| 23.67 | 148577.44 | 48744.05 | 4688.27 | 5598.37 | 0.00 | 629394.00 | 3960125.00 |
| 112.32 | 114358.14 | 32765.68 | 2533.17 | 2679.01 | 0.00 | 595174.00 | 3944146.00 |
| 148.21 | 110618.10 | 31005.31 | 2284.35 | 2235.34 | 0.00 | 591434.00 | 3942386.00 |
| 108.10 | 114916.54 | 33035.49 | 2452.02 | 2397.74 | 0.00 | 595733.00 | 3944416.00 |
| 203.73 | 106941.40 | 29282.51 | 2028.16 | 1695.55 | 0.00 | 587758.00 | 3940663.00 |
| 330.77 | 102398.40 | 27121.34 | 1926.13 | 1638.62 | 0.00 | 583215.00 | 3938502.00 |
| 504.04 | 99329.46 | 25638.00 | 1791.21 | 1386.52 | 0.00 | 580146.00 | 3937019.00 |
| 264.98 | 104331.68 | 28054.02 | 1896.52 | 1447.58 | 0.00 | 585148.00 | 3939435.00 |
| 146.08 | 110800.22 | 31098.20 | 2312.00 | 2279.35 | 0.00 | 591617.00 | 3942479.00 |
| 606.15 | 98207.43 | 25084.60 | 1695.30 | 1082.27 | 0.00 | 579024.00 | 3936465.00 |
| 553.45 | 98743.13 | 25348.04 | 1712.30 | 1136.64 | 0.00 | 579559.00 | 3936729.00 |
| 461.93 | 99902.99 | 25917.60 | 1752.51 | 1238.36 | 0.00 | 580719.00 | 3937298.00 |
| 249.15 | 104911.82 | 28310.49 | 2024.14 | 1855.33 | 0.00 | 585728.00 | 3939691.00 |
| 546.51 | 98820.70 | 25382.83 | 1766.37 | 1329.42 | 0.00 | 579637.00 | 3936764.00 |
| 284.85 | 103676.04 | 27727.99 | 1940.23 | 1619.95 | 0.00 | 584492.00 | 3939109.00 |
| 176.72 | 108513.06 | 30024.12 | 2154.85 | 1993.47 | 0.00 | 589329.00 | 3941405.00 |
| 485.36 | 99574.58 | 25758.44 | 1717.92 | 1103.64 | 0.00 | 580391.00 | 3937139.00 |
| 597.88 | 98286.56 | 25117.42 | 1675.53 | 1018.84 | 0.00 | 579103.00 | 3936498.00 |
| 295.53 | 103352.23 | 27579.52 | 1931.11 | 1616.86 | 0.00 | 584169.00 | 3938960.00 |
| 82.64 | 119160.23 | 35010.41 | 2783.21 | 3026.14 | 0.00 | 599977.00 | 3946391.00 |
| 350.05 | 101942.45 | 26900.21 | 1788.40 | 1249.20 | 0.00 | 582759.00 | 3938281.00 |
| 313.08 | 102856.52 | 27341.66 | 1841.34 | 1367.91 | 0.00 | 583673.00 | 3938722.00 |
| 456.46 | 99985.95 | 25953.44 | 1812.86 | 1410.64 | 0.00 | 580802.00 | 3937334.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 409.88 | 100743.28 | 26325.31 | 1762.85 | 1194.52 | 0.00 | 581560.00 | 3937706.00 |
| 327.23 | 102486.93 | 27165.90 | 1888.01 | 1512.58 | 0.00 | 583303.00 | 3938547.00 |
| 422.94 | 100516.51 | 26215.13 | 1764.52 | 1232.96 | 0.00 | 581333.00 | 3937596.00 |
| 422.24 | 100528.36 | 26220.92 | 1859.67 | 1526.44 | 0.00 | 581345.00 | 3937602.00 |
| 366.89 | 101574.51 | 26726.91 | 1828.43 | 1389.58 | 0.00 | 582391.00 | 3938108.00 |
| 163.60 | 109408.87 | 30441.04 | 2323.00 | 2356.43 | 0.00 | 590225.00 | 3941822.00 |
| 438.66 | 100259.74 | 26093.37 | 1720.88 | 1087.10 | 0.00 | 581076.00 | 3937474.00 |
| 179.14 | 108356.94 | 29947.26 | 2216.25 | 2063.47 | 0.00 | 589173.00 | 3941328.00 |
| 489.75 | 99514.79 | 25721.43 | 1743.52 | 1235.19 | 0.00 | 580331.00 | 3937102.00 |
| 222.83 | 106011.15 | 28846.20 | 2062.23 | 1861.38 | 0.00 | 586827.00 | 3940227.00 |
| 359.14 | 101738.92 | 26802.04 | 1841.42 | 1458.33 | 0.00 | 582555.00 | 3938183.00 |
| 380.84 | 101288.10 | 26590.06 | 1767.02 | 1203.18 | 0.00 | 582104.00 | 3937971.00 |
| 262.61 | 104415.25 | 28081.94 | 1958.71 | 1641.72 | 0.00 | 585232.00 | 3939463.00 |
| 1791.86 | 94013.99 | 22806.51 | 1544.49 | 489.12 | 0.00 | 574830.00 | 3934187.00 |
| 185.98 | 107934.93 | 29750.58 | 2012.86 | 1623.43 | 0.00 | 588751.00 | 3941131.00 |
| 453.77 | 100024.33 | 25981.54 | 1770.12 | 1264.27 | 0.00 | 580841.00 | 3937362.00 |
| 451.13 | 100063.77 | 25997.83 | 1802.99 | 1369.58 | 0.00 | 580880.00 | 3937379.00 |
| 112.16 | 114378.54 | 32777.49 | 2587.51 | 2747.46 | 0.00 | 595195.00 | 3944158.00 |
| 529.86 | 99009.76 | 25484.91 | 1745.44 | 1242.89 | 0.00 | 579826.00 | 3936866.00 |
| 331.29 | 102386.50 | 27119.30 | 1853.63 | 1416.38 | 0.00 | 583203.00 | 3938500.00 |
| 246.80 | 105001.93 | 28365.28 | 2047.23 | 1827.17 | 0.00 | 585818.00 | 3939746.00 |
| 264.86 | 104336.68 | 28038.04 | 2010.35 | 1820.31 | 0.00 | 585153.00 | 3939419.00 |
| 205.44 | 106853.72 | 29239.99 | 2030.22 | 1717.34 | 0.00 | 587670.00 | 3940621.00 |
| 285.49 | 103656.42 | 27721.09 | 1934.81 | 1579.52 | 0.00 | 584473.00 | 3939102.00 |
| 24.02 | 148119.04 | 48543.71 | 4360.13 | 5001.92 | 0.00 | 628935.00 | 3959924.00 |
| 169.16 | 109019.05 | 30261.20 | 2150.82 | 1943.67 | 0.00 | 589835.00 | 3941642.00 |
| 116.69 | 113810.91 | 32514.33 | 2582.99 | 2737.12 | 0.00 | 594627.00 | 3943895.00 |
| 454.86 | 100009.94 | 25966.72 | 1758.96 | 1233.30 | 0.00 | 580826.00 | 3937348.00 |
| 197.62 | 107267.94 | 29435.22 | 2116.49 | 1942.49 | 0.00 | 588084.00 | 3940816.00 |
| 219.69 | 106155.54 | 28912.73 | 2146.74 | 2049.59 | 0.00 | 586972.00 | 3940294.00 |
| 869.78 | 96378.45 | 24155.17 | 1615.02 | 842.58 | 0.00 | 577195.00 | 3935536.00 |
| 178.46 | 108400.81 | 29960.68 | 2184.42 | 2072.09 | 0.00 | 589217.00 | 3941341.00 |
| 269.28 | 104184.14 | 27968.02 | 1972.88 | 1702.32 | 0.00 | 585000.00 | 3939349.00 |
| 129.49 | 112373.02 | 31843.26 | 2313.50 | 2159.84 | 0.00 | 593189.00 | 3943224.00 |
| 356.21 | 101804.41 | 26838.81 | 1842.77 | 1421.89 | 0.00 | 582621.00 | 3938220.00 |
| 151.17 | 110370.99 | 30885.22 | 2304.26 | 2292.95 | 0.00 | 591187.00 | 3942266.00 |
| 492.06 | 99483.90 | 25713.95 | 1738.76 | 1179.04 | 0.00 | 580300.00 | 3937095.00 |
| 267.19 | 104255.24 | 28015.24 | 1906.88 | 1475.09 | 0.00 | 585072.00 | 3939396.00 |
| 505.75 | 99306.03 | 25616.35 | 1681.80 | 997.66 | 0.00 | 580122.00 | 3936997.00 |
| 440.45 | 100230.54 | 26077.58 | 1787.05 | 1316.03 | 0.00 | 581047.00 | 3937458.00 |
| 439.45 | 100247.32 | 26077.62 | 1736.89 | 1156.21 | 0.00 | 581064.00 | 3937458.00 |
| 281.08 | 103794.29 | 27786.77 | 1895.46 | 1480.63 | 0.00 | 584611.00 | 3939168.00 |
| 236.16 | 105430.95 | 28567.79 | 1939.29 | 1527.12 | 0.00 | 586247.00 | 3939949.00 |
| 237.71 | 105365.87 | 28535.24 | 2016.57 | 1787.51 | 0.00 | 586182.00 | 3939916.00 |
| 191.68 | 107601.82 | 29591.94 | 2139.47 | 1944.17 | 0.00 | 588418.00 | 3940973.00 |
| 73.97 | 121087.88 | 35911.60 | 2963.80 | 3272.52 | 0.00 | 601904.00 | 3947292.00 |
| 113.14 | 114252.91 | 32700.05 | 2486.47 | 2587.81 | 0.00 | 595069.00 | 3944081.00 |
| 314.33 | 102822.66 | 27314.90 | 1867.77 | 1466.46 | 0.00 | 583639.00 | 3938696.00 |
| 260.05 | 104506.76 | 28120.36 | 1984.54 | 1725.61 | 0.00 | 585323.00 | 3939501.00 |
| 211.92 | 106527.06 | 29081.83 | 2068.20 | 1870.61 | 0.00 | 587343.00 | 3940463.00 |
| 430.08 | 100398.01 | 26152.11 | 1768.87 | 1282.84 | 0.00 | 581214.00 | 3937533.00 |

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|---|---|---|---|---|---|---|---|
| 240.03 | 25278.21 | 7323.68 | 806.45 | 949.03 | **70.75** | 506094.00 | 3918704.00 |
| 207.25 | 25802.13 | 7577.51 | 1172.76 | 1517.74 | 0.00 | 506618.00 | 3918958.00 |
| 239.75 | 25283.38 | 7326.29 | 1067.59 | 1411.73 | 0.00 | 506100.00 | 3918707.00 |
| 97.40 | 29222.28 | 9188.79 | 1310.55 | 2107.97 | 0.00 | 510039.00 | 3920570.00 |
| 804.49 | 22285.88 | 5845.31 | 663.03 | 598.64 | 0.00 | 503102.00 | 3917226.00 |
| 201.38 | 25913.34 | 7629.86 | 1014.11 | 1220.82 | 0.00 | 506730.00 | 3919011.00 |
| 163.38 | 26735.30 | 8022.12 | 1461.35 | 2008.14 | 0.00 | 507552.00 | 3919403.00 |
| 117.14 | 28260.75 | 8751.27 | 1472.78 | 1775.71 | 0.00 | 509077.00 | 3920132.00 |
| 270.07 | 24886.87 | 7131.08 | 797.69 | 1067.64 | 0.00 | 505703.00 | 3918512.00 |
| 336.95 | 24215.72 | 6821.35 | 894.95 | 1037.69 | 0.00 | 505032.00 | 3918202.00 |
| 47.76 | 33902.66 | 11412.48 | 2364.69 | 2243.68 | 0.00 | 514719.00 | 3922793.00 |
| 334.24 | 24236.46 | 6825.39 | 875.78 | 1083.15 | 0.00 | 505053.00 | 3918206.00 |
| 366.38 | 23982.18 | 6696.47 | 837.93 | 1158.50 | 0.00 | 504798.00 | 3918077.00 |
| 201.45 | 25908.81 | 7622.54 | 1099.80 | 1562.03 | 0.00 | 506725.00 | 3919003.00 |
| 157.39 | 26896.80 | 8107.57 | 1250.99 | 1414.92 | 0.00 | 507713.00 | 3919488.00 |
| 133.32 | 27637.67 | 8441.23 | 1271.90 | 1684.08 | 0.00 | 508454.00 | 3919822.00 |
| 144.92 | 27257.39 | 8242.79 | 1171.57 | 1978.94 | 0.00 | 508074.00 | 3919624.00 |
| 354.15 | 24078.58 | 6742.47 | 799.69 | 1026.98 | 0.00 | 504895.00 | 3918123.00 |
| 154.52 | 26974.03 | 8135.07 | 1152.15 | 1547.19 | 0.00 | 507790.00 | 3919516.00 |
| 364.86 | 23991.88 | 6706.16 | 907.20 | 1062.42 | 0.00 | 504808.00 | 3918087.00 |
| 233.12 | 25378.64 | 7380.87 | 998.63 | 1409.66 | 0.00 | 506195.00 | 3918762.00 |
| 311.63 | 24441.29 | 6928.22 | 950.29 | 1282.20 | 0.00 | 505258.00 | 3918309.00 |
| 182.71 | 26287.90 | 7802.67 | 1027.67 | 1390.34 | 0.00 | 507104.00 | 3919183.00 |
| 314.39 | 24417.12 | 6911.60 | 808.93 | 909.32 | 0.00 | 505233.00 | 3918292.00 |
| 26.95 | 39070.94 | 13792.24 | 2535.36 | 3772.37 | 0.00 | 519887.00 | 3925173.00 |
| 432.93 | 23543.68 | 6490.75 | 833.94 | 932.85 | 0.00 | 504360.00 | 3917872.00 |
| 158.37 | 26870.29 | 8078.33 | 1252.86 | 2212.21 | 0.00 | 507687.00 | 3919459.00 |
| 586.77 | 22855.28 | 6144.84 | 780.36 | 854.54 | 0.00 | 503672.00 | 3917526.00 |
| 259.43 | 25017.28 | 7191.58 | 913.22 | 1303.53 | 0.00 | 505834.00 | 3918572.00 |
| 362.66 | 24014.81 | 6715.80 | 818.06 | 906.33 | 0.00 | 504831.00 | 3918097.00 |
| 309.91 | 24459.29 | 6930.49 | 894.57 | 1166.60 | 0.00 | 505276.00 | 3918311.00 |
| 83.70 | 30085.61 | 9602.50 | 1979.32 | 2289.59 | 0.00 | 510902.00 | 3920983.00 |
| 219.53 | 25593.27 | 7477.23 | 1111.54 | 1453.59 | 0.00 | 506410.00 | 3918858.00 |
| 376.53 | 23903.96 | 6671.38 | 899.35 | 1054.37 | 0.00 | 504720.00 | 3918052.00 |
| 586.76 | 22853.56 | 6139.50 | 885.42 | 1089.36 | 0.00 | 503670.00 | 3917520.00 |
| 420.24 | 23611.83 | 6531.82 | 906.47 | 985.37 | 0.00 | 504428.00 | 3917913.00 |
| 332.40 | 24250.27 | 6831.60 | 1013.06 | 1323.76 | 0.00 | 505067.00 | 3918212.00 |
| 322.91 | 24335.63 | 6869.08 | 929.58 | 1305.10 | 0.00 | 505152.00 | 3918250.00 |
| 434.02 | 23541.74 | 6489.35 | 914.60 | 1046.96 | 0.00 | 504358.00 | 3917870.00 |
| 93.80 | 29432.35 | 9287.83 | 1913.24 | 2572.38 | 0.00 | 510249.00 | 3920669.00 |
| 376.11 | 23909.75 | 6670.32 | 1154.87 | 1418.94 | 0.00 | 504726.00 | 3918051.00 |
| 368.55 | 23960.76 | 6691.37 | 950.93 | 1145.51 | 0.00 | 504777.00 | 3918072.00 |
| 114.55 | 28371.09 | 8789.66 | 1378.11 | 2115.58 | 0.00 | 509187.00 | 3920170.00 |
| 202.91 | 25883.72 | 7628.70 | 1292.81 | 1396.57 | 0.00 | 506700.00 | 3919009.00 |
| 371.50 | 23947.44 | 6684.18 | 890.71 | 1072.68 | 0.00 | 504764.00 | 3918065.00 |
| 111.24 | 28518.21 | 8851.39 | 1112.75 | 1746.24 | 0.00 | 509334.00 | 3920232.00 |
| 236.87 | 25323.90 | 7354.46 | 1007.91 | 1244.12 | 0.00 | 506140.00 | 3918735.00 |
| 591.41 | 22842.55 | 6138.37 | 768.46 | 846.02 | 0.00 | 503659.00 | 3917519.00 |
| 133.01 | 27648.86 | 8443.17 | 1314.72 | 1798.21 | 0.00 | 508465.00 | 3919824.00 |
| 144.45 | 27270.54 | 8281.00 | 1512.71 | 1991.34 | 0.00 | 508087.00 | 3919662.00 |

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|---|---|---|---|---|---|---|---|
| 406.53 | 23708.32 | 6566.45 | 833.76 | 1184.75 | 0.00 | 504525.00 | 3917947.00 |
| 96.69 | 29264.33 | 9196.52 | 1354.64 | 2208.20 | 0.00 | 510081.00 | 3920577.00 |
| 198.48 | 25966.30 | 7647.44 | 1002.33 | 1571.59 | 0.00 | 506783.00 | 3919028.00 |
| 247.58 | 25171.95 | 7282.12 | 1198.88 | 1495.22 | 0.00 | 505988.00 | 3918663.00 |
| 778.11 | 22339.64 | 5876.77 | 694.16 | 633.61 | 0.00 | 503156.00 | 3917258.00 |
| 381.83 | 23865.66 | 6644.91 | 852.45 | 1071.95 | 0.00 | 504682.00 | 3918026.00 |
| 437.45 | 23518.05 | 6479.14 | 903.26 | 1052.05 | 0.00 | 504334.00 | 3917860.00 |
| 175.35 | 26449.48 | 7877.10 | 1071.43 | 1549.35 | 0.00 | 507266.00 | 3919258.00 |
| 389.15 | 23815.84 | 6622.04 | 787.31 | 879.25 | 0.00 | 504632.00 | 3918003.00 |
| 275.98 | 24817.29 | 7107.12 | 1067.72 | 1340.25 | 0.00 | 505634.00 | 3918488.00 |
| 324.53 | 24320.24 | 6874.58 | 971.91 | 1136.73 | 0.00 | 505137.00 | 3918255.00 |
| 538.66 | 23031.33 | 6235.73 | 777.51 | 858.66 | 0.00 | 503848.00 | 3917617.00 |
| 195.88 | 26017.19 | 7681.23 | 1184.71 | 1598.08 | 0.00 | 506833.00 | 3919062.00 |
| 54.21 | 32945.77 | 10943.25 | 1850.91 | 2178.73 | 0.00 | 513762.00 | 3922324.00 |
| 329.93 | 24278.27 | 6839.53 | 876.21 | 1118.49 | 0.00 | 505095.00 | 3918220.00 |
| 563.63 | 22940.82 | 6189.85 | 757.86 | 785.93 | 0.00 | 503757.00 | 3917571.00 |
| 381.82 | 23871.23 | 6646.77 | 767.62 | 824.17 | 0.00 | 504688.00 | 3918028.00 |
| 144.31 | 27276.71 | 8268.30 | 1258.65 | 1872.12 | 0.00 | 508093.00 | 3919649.00 |
| 329.42 | 24284.03 | 6850.13 | 860.10 | 1052.48 | 0.00 | 505100.00 | 3918231.00 |
| 823.89 | 22239.92 | 5826.73 | 681.59 | 618.32 | 0.00 | 503056.00 | 3917208.00 |
| 289.49 | 24666.29 | 7038.31 | 906.17 | 976.72 | 0.00 | 505483.00 | 3918419.00 |
| 141.38 | 27366.05 | 8322.46 | 1420.86 | 1922.22 | 0.00 | 508182.00 | 3919703.00 |
| 152.86 | 27023.32 | 8161.15 | 1262.82 | 1546.35 | 0.00 | 507840.00 | 3919542.00 |
| 158.11 | 26879.39 | 8080.12 | 1348.31 | 1918.75 | 0.00 | 507696.00 | 3919461.00 |
| 632.87 | 22702.17 | 6069.69 | 728.68 | 676.00 | 0.00 | 503518.00 | 3917450.00 |
| 190.70 | 26122.18 | 7728.48 | 1019.89 | 1412.12 | 0.00 | 506938.00 | 3919109.00 |
| 227.92 | 25453.13 | 7413.66 | 1018.31 | 1277.59 | 0.00 | 506269.00 | 3918794.00 |
| 522.49 | 23109.82 | 6272.34 | 811.84 | 892.69 | 0.00 | 503926.00 | 3917653.00 |
| 427.65 | 23580.45 | 6506.11 | 835.04 | 927.15 | 0.00 | 504397.00 | 3917887.00 |
| 394.15 | 23779.52 | 6609.53 | 815.83 | 902.05 | 0.00 | 504596.00 | 3917990.00 |
| 164.18 | 26719.94 | 7999.56 | 1149.68 | 1750.23 | 0.00 | 507536.00 | 3919380.00 |
| 109.70 | 28591.57 | 8880.71 | 1482.25 | 2414.17 | 0.00 | 509408.00 | 3920261.00 |
| 41.02 | 35134.79 | 11948.76 | 1901.82 | 3642.75 | 0.00 | 515951.00 | 3923330.00 |
| 688.65 | 22554.87 | 5990.65 | 718.09 | 731.50 | 0.00 | 503371.00 | 3917371.00 |
| 210.15 | 25750.00 | 7559.46 | 873.75 | 930.25 | 0.00 | 506566.00 | 3918940.00 |
| 353.88 | 24077.64 | 6742.85 | 909.38 | 1171.24 | 0.00 | 504894.00 | 3918124.00 |
| 422.07 | 23608.73 | 6518.68 | 892.99 | 975.37 | 0.00 | 504425.00 | 3917899.00 |
| 277.63 | 24802.91 | 7094.28 | 834.71 | 956.64 | 0.00 | 505619.00 | 3918475.00 |
| 361.32 | 24020.69 | 6721.47 | 950.24 | 1156.34 | 0.00 | 504837.00 | 3918102.00 |
| 91.69 | 29554.62 | 9345.07 | 1246.83 | 1929.15 | 0.00 | 510371.00 | 3920726.00 |
| 141.14 | 27375.48 | 8316.04 | 1218.93 | 1670.93 | 0.00 | 508192.00 | 3919697.00 |
| 341.09 | 24180.17 | 6803.27 | 948.59 | 1083.76 | 0.00 | 504996.00 | 3918184.00 |
| 327.32 | 24300.30 | 6854.01 | 824.79 | 919.12 | 0.00 | 505117.00 | 3918235.00 |
| 155.93 | 26941.22 | 8105.71 | 1099.56 | 1713.40 | 0.00 | 507758.00 | 3919486.00 |
| 247.03 | 25178.05 | 7282.24 | 1326.85 | 1826.33 | 0.00 | 505994.00 | 3918663.00 |
| 229.24 | 25438.70 | 7398.84 | 988.55 | 1301.26 | 0.00 | 506255.00 | 3918780.00 |
| 238.89 | 25293.25 | 7340.05 | 1026.75 | 1321.05 | 0.00 | 506110.00 | 3918721.00 |
| 73.73 | 30856.24 | 9954.94 | 2073.55 | 2544.59 | 0.00 | 511673.00 | 3921336.00 |
| 606.80 | 22791.36 | 6108.95 | 702.45 | 663.14 | 0.00 | 503608.00 | 3917490.00 |
| 378.68 | 23891.91 | 6656.04 | 847.30 | 1099.74 | 0.00 | 504708.00 | 3918037.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 237.85 | 20794.03 | 6063.54 | 798.10 | 1103.36 | **65.19** | 501610.00 | 3917444.00 |
| 241.75 | 20746.86 | 6058.13 | 1042.19 | 1209.60 | 0.00 | 501563.00 | 3917439.00 |
| 179.47 | 21692.22 | 6505.14 | 1215.25 | 1528.10 | 0.00 | 502509.00 | 3917886.00 |
| 233.98 | 20844.37 | 6103.80 | 1098.33 | 1221.14 | 0.00 | 501661.00 | 3917485.00 |
| 240.20 | 20769.70 | 6063.43 | 1117.75 | 1501.82 | 0.00 | 501586.00 | 3917444.00 |
| 443.46 | 19239.50 | 5314.51 | 653.10 | 749.13 | 0.00 | 500056.00 | 3916695.00 |
| 215.21 | 21096.24 | 6221.94 | 1118.96 | 1423.13 | 0.00 | 501913.00 | 3917603.00 |
| 268.93 | 20440.01 | 5912.42 | 1108.13 | 1400.50 | 0.00 | 501256.00 | 3917293.00 |
| 436.37 | 19269.80 | 5336.03 | 903.59 | 1184.31 | 0.00 | 500086.00 | 3916717.00 |
| 262.64 | 20510.07 | 5931.33 | 841.89 | 1313.99 | 0.00 | 501326.00 | 3917312.00 |
| 124.48 | 23056.05 | 7141.72 | 1323.85 | 1962.61 | 0.00 | 503872.00 | 3918523.00 |
| 409.34 | 19411.06 | 5401.74 | 789.33 | 985.75 | 0.00 | 500227.00 | 3916783.00 |
| 254.20 | 20598.90 | 5977.10 | 844.19 | 1108.84 | 0.00 | 501415.00 | 3917358.00 |
| 68.82 | 25891.44 | 8467.92 | 1824.51 | 2867.53 | 0.00 | 506708.00 | 3919849.00 |
| 518.99 | 18920.10 | 5159.47 | 631.49 | 671.47 | 0.00 | 499736.00 | 3916540.00 |
| 336.37 | 19859.13 | 5622.02 | 933.79 | 1322.44 | 0.00 | 500675.00 | 3917003.00 |
| 389.14 | 19520.68 | 5455.51 | 881.23 | 1273.90 | 0.00 | 500337.00 | 3916836.00 |
| 161.33 | 22053.36 | 6678.81 | 1143.75 | 1499.92 | 0.00 | 502870.00 | 3918060.00 |
| 663.34 | 18495.45 | 4946.91 | 660.28 | 720.15 | 0.00 | 499312.00 | 3916328.00 |
| 310.16 | 20061.03 | 5727.48 | 974.79 | 1175.33 | 0.00 | 500877.00 | 3917108.00 |
| 250.85 | 20638.82 | 6005.32 | 1021.89 | 1346.12 | 0.00 | 501455.00 | 3917386.00 |
| 436.72 | 19271.16 | 5341.32 | 1087.99 | 1396.37 | 0.00 | 500087.00 | 3916722.00 |
| 207.26 | 21218.04 | 6266.48 | 913.09 | 1343.66 | 0.00 | 502034.00 | 3917647.00 |
| 231.75 | 20866.59 | 6108.23 | 1017.43 | 1392.24 | 0.00 | 501683.00 | 3917489.00 |
| 249.48 | 20654.24 | 6011.77 | 1077.48 | 1270.70 | 0.00 | 501471.00 | 3917393.00 |
| 365.25 | 19660.62 | 5533.31 | 837.57 | 947.94 | 0.00 | 500477.00 | 3916914.00 |
| 269.06 | 20443.63 | 5903.40 | 889.76 | 1061.18 | 0.00 | 501260.00 | 3917284.00 |
| 193.08 | 21442.12 | 6383.48 | 1232.00 | 1862.81 | 0.00 | 502258.00 | 3917764.00 |
| 628.51 | 18572.73 | 4978.97 | 614.18 | 698.79 | 0.00 | 499389.00 | 3916360.00 |
| 513.51 | 18942.52 | 5171.14 | 697.27 | 752.81 | 0.00 | 499759.00 | 3916552.00 |
| 246.88 | 20685.14 | 6027.65 | 1157.31 | 1306.11 | 0.00 | 501501.00 | 3917408.00 |
| 160.35 | 22075.21 | 6679.29 | 1358.76 | 1619.17 | 0.00 | 502891.00 | 3918060.00 |
| 287.03 | 20268.11 | 5816.21 | 884.42 | 1196.17 | 0.00 | 501084.00 | 3917197.00 |
| 203.82 | 21272.15 | 6301.77 | 983.11 | 1335.22 | 0.00 | 502088.00 | 3917683.00 |
| 222.75 | 20989.05 | 6176.59 | 1092.33 | 1138.65 | 0.00 | 501805.00 | 3917557.00 |
| 104.81 | 23793.28 | 7489.94 | 1650.43 | 2023.12 | 0.00 | 504610.00 | 3918871.00 |
| 197.86 | 21362.39 | 6335.99 | 1182.91 | 1729.45 | 0.00 | 502179.00 | 3917717.00 |
| 474.59 | 19095.46 | 5246.33 | 605.09 | 618.46 | 0.00 | 499912.00 | 3916627.00 |
| 426.41 | 19319.76 | 5362.03 | 783.20 | 959.05 | 0.00 | 500136.00 | 3916743.00 |
| 243.06 | 20730.67 | 6044.42 | 1391.84 | 1584.19 | 0.00 | 501547.00 | 3917425.00 |
| 257.53 | 20564.27 | 5953.93 | 779.74 | 1026.63 | 0.00 | 501381.00 | 3917335.00 |
| 265.90 | 20473.47 | 5924.51 | 871.82 | 1129.75 | 0.00 | 501290.00 | 3917305.00 |
| 285.70 | 20278.07 | 5830.14 | 930.67 | 1050.99 | 0.00 | 501094.00 | 3917211.00 |
| 308.56 | 20077.33 | 5732.58 | 724.87 | 823.18 | 0.00 | 500894.00 | 3917113.00 |
| 392.54 | 19497.53 | 5446.36 | 782.73 | 1054.84 | 0.00 | 500314.00 | 3916827.00 |
| 637.86 | 18552.12 | 4972.28 | 716.08 | 849.99 | 0.00 | 499368.00 | 3916353.00 |
| 153.84 | 22224.82 | 6756.74 | 1198.16 | 1845.24 | 0.00 | 503041.00 | 3918138.00 |
| 185.86 | 21571.66 | 6442.95 | 937.04 | 1168.68 | 0.00 | 502388.00 | 3917824.00 |
| 468.48 | 19121.64 | 5265.28 | 747.54 | 849.40 | 0.00 | 499938.00 | 3916646.00 |

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|---|---|---|---|---|---|---|---|
| 443.16 | 19231.27 | 5319.23 | 764.55 | 1050.51 | 0.00 | 500048.00 | 3916700.00 |
| 318.33 | 19999.56 | 5695.56 | 984.72 | 1264.26 | 0.00 | 500816.00 | 3917076.00 |
| 471.24 | 19106.55 | 5254.15 | 781.50 | 961.02 | 0.00 | 499923.00 | 3916635.00 |
| 265.24 | 20483.07 | 5919.04 | 799.54 | 1047.47 | 0.00 | 501299.00 | 3917300.00 |
| 93.85 | 24302.54 | 7733.37 | 1519.83 | 1845.45 | 0.00 | 505119.00 | 3919114.00 |
| 211.06 | 21151.40 | 6250.53 | 960.36 | 1225.65 | 0.00 | 501968.00 | 3917631.00 |
| 148.61 | 22357.87 | 6825.40 | 1340.07 | 1711.54 | 0.00 | 503174.00 | 3918206.00 |
| 117.71 | 23288.22 | 7269.39 | 1536.19 | 1828.26 | 0.00 | 504105.00 | 3918650.00 |
| 214.83 | 21100.55 | 6224.69 | 999.38 | 1103.67 | 0.00 | 501917.00 | 3917605.00 |
| 273.94 | 20393.01 | 5886.54 | 1104.83 | 1324.12 | 0.00 | 501209.00 | 3917267.00 |
| 137.85 | 22647.04 | 6950.70 | 1523.27 | 2286.93 | 0.00 | 503463.00 | 3918331.00 |
| 263.26 | 20504.98 | 5926.25 | 731.11 | 864.66 | 0.00 | 501321.00 | 3917307.00 |
| 324.03 | 19954.79 | 5672.50 | 844.12 | 1088.02 | 0.00 | 500771.00 | 3917053.00 |
| 194.66 | 21411.76 | 6372.57 | 1039.34 | 1431.14 | 0.00 | 502228.00 | 3917753.00 |
| 179.30 | 21692.40 | 6496.53 | 956.03 | 1292.21 | 0.00 | 502509.00 | 3917877.00 |
| 301.66 | 20140.87 | 5753.76 | 922.39 | 1339.68 | 0.00 | 500957.00 | 3917135.00 |
| 118.81 | 23246.70 | 7219.08 | 1009.70 | 1794.34 | 0.00 | 504063.00 | 3918600.00 |
| 328.61 | 19917.39 | 5650.68 | 820.45 | 1081.70 | 0.00 | 500734.00 | 3917031.00 |
| 119.04 | 23240.82 | 7237.45 | 1276.74 | 1772.23 | 0.00 | 504057.00 | 3918618.00 |
| 78.63 | 25180.76 | 8155.09 | 2235.18 | 2706.93 | 0.00 | 505997.00 | 3919536.00 |
| 352.06 | 19748.55 | 5569.12 | 768.35 | 876.12 | 0.00 | 500565.00 | 3916950.00 |
| 215.35 | 21096.47 | 6211.22 | 849.76 | 1085.70 | 0.00 | 501913.00 | 3917592.00 |
| 286.21 | 20281.77 | 5825.82 | 921.64 | 1058.73 | 0.00 | 501098.00 | 3917207.00 |
| 259.78 | 20542.52 | 5951.31 | 1076.39 | 1411.04 | 0.00 | 501359.00 | 3917332.00 |
| 162.83 | 22022.83 | 6667.82 | 1327.31 | 1287.80 | 0.00 | 502839.00 | 3918049.00 |
| 377.13 | 19587.15 | 5498.75 | 948.50 | 1135.77 | 0.00 | 500403.00 | 3916880.00 |
| 386.12 | 19537.12 | 5460.19 | 778.13 | 1083.65 | 0.00 | 500353.00 | 3916841.00 |
| 204.63 | 21251.36 | 6291.97 | 993.42 | 1249.83 | 0.00 | 502068.00 | 3917673.00 |
| 449.64 | 19199.53 | 5304.94 | 823.76 | 980.03 | 0.00 | 500016.00 | 3916686.00 |
| 385.13 | 19548.47 | 5469.90 | 774.69 | 907.25 | 0.00 | 500365.00 | 3916851.00 |
| 79.70 | 25108.97 | 8124.32 | 2023.60 | 2414.99 | 0.00 | 505925.00 | 3919505.00 |
| 281.85 | 20314.43 | 5834.05 | 861.31 | 1252.72 | 0.00 | 501131.00 | 3917215.00 |
| 448.22 | 19212.83 | 5301.51 | 746.82 | 899.32 | 0.00 | 500029.00 | 3916682.00 |
| 569.61 | 18742.36 | 5077.76 | 700.75 | 762.58 | 0.00 | 499559.00 | 3916459.00 |
| 44.83 | 28537.53 | 9695.99 | 2239.84 | 4491.40 | 0.00 | 509354.00 | 3921077.00 |
| 201.13 | 21310.68 | 6320.29 | 1288.26 | 1568.21 | 0.00 | 502127.00 | 3917701.00 |
| 591.79 | 18684.47 | 5035.23 | 643.58 | 735.53 | 0.00 | 499501.00 | 3916416.00 |
| 574.79 | 18726.57 | 5066.97 | 744.44 | 862.40 | 0.00 | 499543.00 | 3916448.00 |
| 270.00 | 20435.42 | 5903.58 | 1006.89 | 1467.67 | 0.00 | 501252.00 | 3917284.00 |
| 367.33 | 19648.86 | 5516.14 | 843.07 | 1129.49 | 0.00 | 500465.00 | 3916897.00 |
| 216.54 | 21075.37 | 6205.41 | 951.97 | 1371.25 | 0.00 | 501892.00 | 3917586.00 |
| 421.72 | 19341.51 | 5369.12 | 832.65 | 990.35 | 0.00 | 500158.00 | 3916750.00 |
| 255.75 | 20589.54 | 5968.32 | 987.53 | 1420.40 | 0.00 | 501406.00 | 3917349.00 |
| 380.31 | 19570.81 | 5483.31 | 940.22 | 1174.24 | 0.00 | 500387.00 | 3916864.00 |
| 188.87 | 21516.83 | 6423.23 | 911.12 | 1118.46 | 0.00 | 502333.00 | 3917804.00 |
| 57.55 | 26925.40 | 8969.64 | 1816.49 | 2627.14 | 0.00 | 507742.00 | 3920350.00 |
| 77.13 | 25280.40 | 8180.25 | 1916.72 | 3034.16 | 0.00 | 506097.00 | 3919561.00 |
| 394.70 | 19489.37 | 5440.30 | 681.62 | 749.66 | 0.00 | 500306.00 | 3916821.00 |
| 393.19 | 19495.82 | 5445.25 | 819.67 | 1032.78 | 0.00 | 500312.00 | 3916826.00 |
| 426.94 | 19312.84 | 5349.46 | 730.41 | 1023.57 | 0.00 | 500129.00 | 3916730.00 |
| 349.63 | 19764.68 | 5582.96 | 1013.00 | 1364.04 | 0.00 | 500581.00 | 3916964.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 334.03 | 4774.19 | 1388.63 | 562.11 | 1176.32 | **36.41** | 485590.00 | 3912769.00 |
| 356.59 | 4722.03 | 1370.72 | 589.68 | 1174.39 | 0.00 | 485538.00 | 3912751.00 |
| 327.36 | 4800.46 | 1407.64 | 610.49 | 794.29 | 0.00 | 485617.00 | 3912788.00 |
| 234.78 | 5099.98 | 1544.86 | 591.00 | 1208.29 | 0.00 | 485916.00 | 3912926.00 |
| 314.34 | 4822.50 | 1412.83 | 505.24 | 1203.37 | 0.00 | 485639.00 | 3912794.00 |
| 329.39 | 4780.84 | 1406.67 | 446.49 | 762.83 | 0.00 | 485597.00 | 3912787.00 |
| 146.14 | 5622.84 | 1808.82 | 647.53 | 1089.31 | 0.00 | 486439.00 | 3913190.00 |
| 300.29 | 4860.26 | 1442.59 | 543.42 | 1079.78 | 0.00 | 485677.00 | 3912823.00 |
| 384.01 | 4653.69 | 1345.13 | 605.41 | 909.15 | 0.00 | 485470.00 | 3912726.00 |
| 118.39 | 5899.12 | 1934.90 | 549.58 | 1063.33 | 0.00 | 486715.00 | 3913316.00 |
| 290.82 | 4894.84 | 1462.21 | 565.10 | 909.04 | 0.00 | 485711.00 | 3912843.00 |
| 122.80 | 5854.95 | 1914.88 | 644.58 | 1127.45 | 0.00 | 486671.00 | 3913296.00 |
| 68.61 | 6765.85 | 2340.13 | 403.83 | 933.21 | 0.00 | 487582.00 | 3913721.00 |
| 360.12 | 4703.78 | 1366.00 | 436.61 | 929.38 | 0.00 | 485520.00 | 3912747.00 |
| 272.94 | 4953.76 | 1486.63 | 506.72 | 1096.64 | 0.00 | 485770.00 | 3912867.00 |
| 55.18 | 7174.85 | 2519.88 | 462.13 | 1168.12 | 0.00 | 487991.00 | 3913901.00 |
| 177.02 | 5397.03 | 1690.32 | 620.72 | 1284.96 | 0.00 | 486213.00 | 3913071.00 |
| 354.31 | 4715.38 | 1366.89 | 439.66 | 971.65 | 0.00 | 485532.00 | 3912748.00 |
| 119.74 | 5886.58 | 1926.62 | 620.33 | 1358.06 | 0.00 | 486703.00 | 3913307.00 |
| 663.36 | 4273.50 | 1157.20 | 469.99 | 595.86 | 0.00 | 485090.00 | 3912538.00 |
| 222.60 | 5152.14 | 1584.65 | 564.87 | 742.94 | 0.00 | 485968.00 | 3912965.00 |
| 367.28 | 4690.00 | 1357.86 | 573.73 | 1057.78 | 0.00 | 485506.00 | 3912739.00 |
| 217.21 | 5179.61 | 1592.70 | 517.45 | 1268.54 | 0.00 | 485996.00 | 3912973.00 |
| 152.65 | 5575.86 | 1769.05 | 594.01 | 1244.82 | 0.00 | 486392.00 | 3913150.00 |
| 135.48 | 5720.18 | 1848.39 | 580.97 | 1302.10 | 0.00 | 486536.00 | 3913229.00 |
| 163.49 | 5495.45 | 1740.99 | 568.53 | 1089.55 | 0.00 | 486312.00 | 3913122.00 |
| 114.80 | 5947.14 | 1965.05 | 587.80 | 931.02 | 0.00 | 486763.00 | 3913346.00 |
| 307.17 | 4842.86 | 1424.73 | 563.16 | 1227.82 | 0.00 | 485659.00 | 3912806.00 |
| 581.87 | 4343.49 | 1192.02 | 472.48 | 897.39 | 0.00 | 485160.00 | 3912573.00 |
| 192.33 | 5301.18 | 1646.54 | 662.01 | 1222.91 | 0.00 | 486117.00 | 3913027.00 |
| 254.24 | 5023.41 | 1517.28 | 529.74 | 995.19 | 0.00 | 485840.00 | 3912898.00 |
| 109.68 | 6006.30 | 1980.31 | 583.91 | 1252.80 | 0.00 | 486823.00 | 3913361.00 |
| 329.86 | 4784.07 | 1407.55 | 525.30 | 867.36 | 0.00 | 485600.00 | 3912788.00 |
| 134.77 | 5723.80 | 1844.49 | 569.84 | 1216.00 | 0.00 | 486540.00 | 3913225.00 |
| 328.95 | 4778.55 | 1397.85 | 509.11 | 1101.83 | 0.00 | 485595.00 | 3912779.00 |
| 259.01 | 4998.80 | 1500.92 | 471.14 | 1214.76 | 0.00 | 485815.00 | 3912882.00 |
| 298.39 | 4866.90 | 1439.90 | 594.65 | 1129.85 | 0.00 | 485683.00 | 3912821.00 |
| 263.05 | 4990.72 | 1498.38 | 511.19 | 969.19 | 0.00 | 485807.00 | 3912879.00 |
| 207.83 | 5222.84 | 1616.10 | 625.98 | 1127.86 | 0.00 | 486039.00 | 3912997.00 |
| 355.24 | 4721.34 | 1369.31 | 577.32 | 1135.59 | 0.00 | 485538.00 | 3912750.00 |
| 105.50 | 6065.89 | 2015.43 | 477.71 | 909.82 | 0.00 | 486882.00 | 3913396.00 |
| 306.84 | 4852.67 | 1426.40 | 527.93 | 1015.60 | 0.00 | 485669.00 | 3912807.00 |
| 397.14 | 4634.48 | 1330.19 | 494.16 | 854.84 | 0.00 | 485451.00 | 3912711.00 |
| 130.78 | 5772.38 | 1869.28 | 652.67 | 1254.86 | 0.00 | 486589.00 | 3913250.00 |
| 475.09 | 4498.15 | 1262.28 | 437.55 | 913.23 | 0.00 | 485314.00 | 3912643.00 |
| 423.08 | 4573.48 | 1301.50 | 516.98 | 1070.50 | 0.00 | 485390.00 | 3912682.00 |
| 166.30 | 5474.22 | 1727.86 | 482.38 | 1176.13 | 0.00 | 486291.00 | 3913109.00 |
| 249.70 | 5039.90 | 1525.54 | 566.62 | 1129.77 | 0.00 | 485856.00 | 3912906.00 |
| 573.11 | 4366.44 | 1198.10 | 544.66 | 876.46 | 0.00 | 485183.00 | 3912579.00 |

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|---|---|---|---|---|---|---|---|
| 135.15 | 5722.78 | 1842.49 | 569.82 | 1278.02 | 0.00 | 486539.00 | 3913223.00 |
| 225.21 | 5137.97 | 1564.04 | 434.36 | 1081.25 | 0.00 | 485954.00 | 3912945.00 |
| 219.01 | 5176.09 | 1591.93 | 501.28 | 1087.83 | 0.00 | 485992.00 | 3912973.00 |
| 323.09 | 4798.67 | 1409.85 | 626.43 | 1055.70 | 0.00 | 485615.00 | 3912791.00 |
| 287.63 | 4900.02 | 1453.09 | 474.67 | 1174.40 | 0.00 | 485716.00 | 3912834.00 |
| 27.63 | 8814.49 | 3300.22 | 739.85 | 1312.36 | 0.00 | 489631.00 | 3914681.00 |
| 72.22 | 6674.51 | 2299.30 | 658.70 | 1324.94 | 0.00 | 487491.00 | 3913680.00 |
| 85.09 | 6394.91 | 2166.69 | 585.78 | 1197.70 | 0.00 | 487211.00 | 3913547.00 |
| 315.09 | 4820.00 | 1422.96 | 576.03 | 1158.25 | 0.00 | 485636.00 | 3912804.00 |
| 181.53 | 5369.71 | 1685.39 | 617.07 | 1001.32 | 0.00 | 486186.00 | 3913066.00 |
| 264.58 | 4979.57 | 1494.98 | 649.22 | 1267.70 | 0.00 | 485796.00 | 3912876.00 |
| 390.14 | 4638.69 | 1339.74 | 639.16 | 951.67 | 0.00 | 485455.00 | 3912721.00 |
| 161.60 | 5502.11 | 1742.07 | 504.49 | 1061.39 | 0.00 | 486318.00 | 3913123.00 |
| 336.55 | 4761.25 | 1394.96 | 463.92 | 736.41 | 0.00 | 485578.00 | 3912776.00 |
| 118.58 | 5897.11 | 1925.66 | 556.55 | 1260.81 | 0.00 | 486713.00 | 3913306.00 |
| 202.87 | 5257.34 | 1617.40 | 423.23 | 952.00 | 0.00 | 486074.00 | 3912998.00 |
| 250.92 | 5032.61 | 1518.47 | 530.54 | 1207.90 | 0.00 | 485849.00 | 3912899.00 |
| 174.58 | 5413.84 | 1708.49 | 513.97 | 1071.18 | 0.00 | 486230.00 | 3913089.00 |
| 137.46 | 5703.78 | 1834.17 | 576.07 | 1142.09 | 0.00 | 486520.00 | 3913215.00 |
| 61.72 | 6958.13 | 2430.35 | 634.95 | 1182.11 | 0.00 | 487774.00 | 3913811.00 |
| 475.35 | 4493.85 | 1263.05 | 452.90 | 860.09 | 0.00 | 485310.00 | 3912644.00 |
| 211.63 | 5202.31 | 1604.58 | 600.12 | 1117.90 | 0.00 | 486019.00 | 3912985.00 |
| 541.70 | 4409.59 | 1212.86 | 457.57 | 1097.56 | 0.00 | 485226.00 | 3912594.00 |
| 829.30 | 4141.64 | 1088.98 | 432.16 | 629.99 | 0.00 | 484958.00 | 3912470.00 |
| 510.39 | 4440.05 | 1233.48 | 418.83 | 667.33 | 0.00 | 485256.00 | 3912614.00 |
| 665.26 | 4294.85 | 1152.28 | 284.46 | 708.73 | 0.00 | 485111.00 | 3912533.00 |
| 64.59 | 6873.94 | 2390.63 | 546.06 | 1161.32 | 0.00 | 487690.00 | 3913771.00 |
| 183.95 | 5357.84 | 1680.72 | 584.41 | 1056.66 | 0.00 | 486174.00 | 3913061.00 |
| 203.61 | 5244.26 | 1626.12 | 556.02 | 1247.61 | 0.00 | 486061.00 | 3913007.00 |
| 399.06 | 4628.24 | 1323.30 | 337.33 | 726.17 | 0.00 | 485445.00 | 3912704.00 |
| 83.65 | 6423.26 | 2178.47 | 647.47 | 1230.66 | 0.00 | 487240.00 | 3913559.00 |
| 359.24 | 4710.35 | 1363.96 | 510.60 | 1053.43 | 0.00 | 485527.00 | 3912745.00 |
| 417.42 | 4594.48 | 1309.97 | 540.49 | 978.21 | 0.00 | 485411.00 | 3912691.00 |
| 687.68 | 4262.25 | 1141.37 | 487.09 | 1042.36 | 0.00 | 485079.00 | 3912522.00 |
| 291.68 | 4887.83 | 1449.29 | 498.36 | 1117.67 | 0.00 | 485704.00 | 3912830.00 |
| 291.20 | 4887.30 | 1453.81 | 532.71 | 1052.73 | 0.00 | 485704.00 | 3912835.00 |
| 349.55 | 4731.52 | 1373.22 | 545.65 | 1030.98 | 0.00 | 485548.00 | 3912754.00 |
| 363.86 | 4696.98 | 1358.77 | 653.91 | 1165.56 | 0.00 | 485513.00 | 3912740.00 |
| 239.34 | 5072.64 | 1549.35 | 562.07 | 1150.07 | 0.00 | 485889.00 | 3912930.00 |
| 310.57 | 4840.85 | 1431.10 | 580.29 | 885.01 | 0.00 | 485657.00 | 3912812.00 |
| 409.88 | 4602.36 | 1317.27 | 372.79 | 787.17 | 0.00 | 485419.00 | 3912698.00 |
| 431.65 | 4573.94 | 1297.98 | 466.70 | 794.09 | 0.00 | 485390.00 | 3912679.00 |
| 258.92 | 5002.84 | 1504.31 | 564.67 | 1084.33 | 0.00 | 485819.00 | 3912885.00 |
| 156.17 | 5547.05 | 1767.95 | 566.03 | 1164.30 | 0.00 | 486363.00 | 3913149.00 |
| 117.23 | 5918.16 | 1931.61 | 464.36 | 1150.58 | 0.00 | 486734.00 | 3913312.00 |
| 326.91 | 4785.89 | 1411.30 | 476.42 | 916.84 | 0.00 | 485602.00 | 3912792.00 |
| 90.73 | 6298.35 | 2115.57 | 623.24 | 1284.82 | 0.00 | 487115.00 | 3913496.00 |
| 109.17 | 6019.77 | 1993.39 | 590.28 | 916.62 | 0.00 | 486836.00 | 3913374.00 |
| 225.07 | 5139.25 | 1571.46 | 485.01 | 976.55 | 0.00 | 485956.00 | 3912952.00 |
| 138.06 | 5698.39 | 1834.29 | 549.78 | 1070.70 | 0.00 | 486515.00 | 3913215.00 |
| 87.95 | 6346.01 | 2137.90 | 589.85 | 1108.74 | 0.00 | 487162.00 | 3913519.00 |

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|---|---|---|---|---|---|---|---|
| 284.54 | 1132.83 | 339.93 | 147.70 | 278.77 | **22.49** | 481949.00 | 3911721.00 |
| 172.67 | 1333.22 | 443.69 | 121.17 | 285.33 | 0.00 | 482149.00 | 3911824.00 |
| 183.61 | 1307.21 | 429.04 | 127.49 | 277.47 | 0.00 | 482123.00 | 3911810.00 |
| 372.12 | 1024.20 | 291.93 | 146.32 | 265.01 | 0.00 | 481840.00 | 3911673.00 |
| 461.53 | 946.72 | 254.02 | 146.57 | 314.65 | 0.00 | 481763.00 | 3911635.00 |
| 155.97 | 1374.90 | 465.54 | 125.94 | 285.98 | 0.00 | 482191.00 | 3911846.00 |
| 39.99 | 2250.25 | 885.76 | 168.82 | 232.56 | 0.00 | 483067.00 | 3912267.00 |
| 150.83 | 1394.00 | 473.43 | 152.04 | 303.06 | 0.00 | 482210.00 | 3911854.00 |
| 609.32 | 862.91 | 205.70 | 140.35 | 312.41 | 0.00 | 481679.00 | 3911586.00 |
| 145.26 | 1413.56 | 484.08 | 151.16 | 288.69 | 0.00 | 482230.00 | 3911865.00 |
| 434.63 | 965.43 | 263.00 | 132.30 | 268.66 | 0.00 | 481782.00 | 3911644.00 |
| 566.90 | 867.15 | 219.39 | 133.10 | 231.93 | 0.00 | 481683.00 | 3911600.00 |
| 268.85 | 1147.19 | 351.50 | 136.69 | 301.03 | 0.00 | 481963.00 | 3911732.00 |
| 277.38 | 1130.18 | 345.67 | 132.66 | 280.66 | 0.00 | 481946.00 | 3911726.00 |
| 197.43 | 1266.45 | 412.57 | 122.59 | 241.36 | 0.00 | 482083.00 | 3911793.00 |
| 614.45 | 838.85 | 200.92 | 120.36 | 242.38 | 0.00 | 481655.00 | 3911582.00 |
| 260.86 | 1153.71 | 357.65 | 126.77 | 256.65 | 0.00 | 481970.00 | 3911738.00 |
| 186.12 | 1308.43 | 428.54 | 141.80 | 291.63 | 0.00 | 482125.00 | 3911809.00 |
| 169.04 | 1347.23 | 451.12 | 145.10 | 280.56 | 0.00 | 482164.00 | 3911832.00 |
| 424.47 | 963.98 | 270.09 | 156.32 | 261.96 | 0.00 | 481780.00 | 3911651.00 |
| 393.53 | 1007.23 | 282.50 | 144.39 | 237.18 | 0.00 | 481824.00 | 3911663.00 |
| 257.62 | 1163.37 | 359.11 | 113.61 | 280.42 | 0.00 | 481980.00 | 3911740.00 |
| 220.22 | 1222.94 | 392.50 | 122.09 | 269.53 | 0.00 | 482039.00 | 3911773.00 |
| 146.85 | 1409.67 | 481.74 | 143.66 | 302.62 | 0.00 | 482226.00 | 3911863.00 |
| 247.90 | 1178.14 | 369.83 | 126.51 | 230.68 | 0.00 | 481994.00 | 3911751.00 |
| 440.86 | 958.52 | 258.38 | 129.64 | 312.14 | 0.00 | 481775.00 | 3911639.00 |
| 432.21 | 958.85 | 264.43 | 106.55 | 250.34 | 0.00 | 481775.00 | 3911645.00 |
| 150.44 | 1395.36 | 476.85 | 140.68 | 215.48 | 0.00 | 482212.00 | 3911858.00 |
| 277.45 | 1133.01 | 345.54 | 146.20 | 280.96 | 0.00 | 481949.00 | 3911726.00 |
| 186.30 | 1299.00 | 429.53 | 130.57 | 247.24 | 0.00 | 482115.00 | 3911810.00 |
| 442.61 | 952.88 | 256.20 | 131.47 | 243.02 | 0.00 | 481769.00 | 3911637.00 |
| 246.26 | 1189.40 | 369.04 | 132.18 | 261.50 | 0.00 | 482006.00 | 3911750.00 |
| 162.47 | 1362.52 | 455.84 | 138.43 | 264.49 | 0.00 | 482179.00 | 3911837.00 |
| 299.99 | 1105.39 | 332.39 | 144.68 | 273.15 | 0.00 | 481922.00 | 3911713.00 |
| 581.98 | 869.84 | 213.38 | 157.14 | 256.96 | 0.00 | 481686.00 | 3911594.00 |
| 323.79 | 1075.56 | 315.78 | 155.90 | 293.81 | 0.00 | 481892.00 | 3911697.00 |
| 284.31 | 1122.08 | 341.96 | 134.54 | 271.45 | 0.00 | 481938.00 | 3911723.00 |
| 145.48 | 1411.48 | 482.06 | 134.92 | 275.84 | 0.00 | 482228.00 | 3911863.00 |
| 326.01 | 1074.25 | 315.93 | 161.11 | 299.65 | 0.00 | 481891.00 | 3911697.00 |
| 154.44 | 1389.70 | 470.29 | 142.48 | 288.18 | 0.00 | 482206.00 | 3911851.00 |
| 318.89 | 1078.65 | 319.75 | 148.25 | 270.37 | 0.00 | 481895.00 | 3911701.00 |
| 124.35 | 1497.02 | 523.53 | 138.12 | 249.08 | 0.00 | 482313.00 | 3911904.00 |
| 484.59 | 933.92 | 244.93 | 131.95 | 275.66 | 0.00 | 481750.00 | 3911626.00 |
| 90.20 | 1669.86 | 606.20 | 147.56 | 267.98 | 0.00 | 482486.00 | 3911987.00 |
| 297.80 | 1113.89 | 333.55 | 138.62 | 301.79 | 0.00 | 481930.00 | 3911714.00 |
| 219.94 | 1227.69 | 393.22 | 108.58 | 229.33 | 0.00 | 482044.00 | 3911774.00 |
| 117.53 | 1512.97 | 537.02 | 137.10 | 231.80 | 0.00 | 482329.00 | 3911918.00 |
| 306.04 | 1081.98 | 327.85 | 130.38 | 253.29 | 0.00 | 481898.00 | 3911709.00 |
| 161.24 | 1364.44 | 460.44 | 156.85 | 254.06 | 0.00 | 482181.00 | 3911841.00 |
| 472.71 | 937.42 | 248.23 | 145.44 | 258.58 | 0.00 | 481754.00 | 3911629.00 |

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|---|---|---|---|---|---|---|---|
| 378.41 | 1016.09 | 288.79 | 148.79 | 278.26 | 0.00 | 481832.00 | 3911670.00 |
| 198.31 | 1267.99 | 417.52 | 145.24 | 232.33 | 0.00 | 482084.00 | 3911798.00 |
| 440.45 | 975.86 | 261.70 | 149.57 | 244.86 | 0.00 | 481792.00 | 3911642.00 |
| 499.69 | 908.72 | 238.87 | 105.33 | 241.32 | 0.00 | 481725.00 | 3911620.00 |
| 235.24 | 1195.25 | 378.31 | 94.75 | 223.77 | 0.00 | 482012.00 | 3911759.00 |
| 117.17 | 1526.24 | 536.04 | 121.41 | 245.32 | 0.00 | 482343.00 | 3911917.00 |
| 162.21 | 1365.04 | 458.24 | 135.13 | 245.09 | 0.00 | 482181.00 | 3911839.00 |
| 250.30 | 1174.14 | 366.88 | 142.91 | 266.07 | 0.00 | 481990.00 | 3911748.00 |
| 95.21 | 1640.10 | 591.81 | 139.88 | 287.81 | 0.00 | 482456.00 | 3911973.00 |
| 119.37 | 1510.99 | 531.39 | 153.73 | 280.73 | 0.00 | 482327.00 | 3911912.00 |
| 551.02 | 887.23 | 221.53 | 164.65 | 296.81 | 0.00 | 481704.00 | 3911602.00 |
| 407.97 | 998.69 | 273.31 | 154.69 | 298.94 | 0.00 | 481815.00 | 3911654.00 |
| 336.07 | 1051.59 | 307.72 | 134.55 | 296.71 | 0.00 | 481868.00 | 3911688.00 |
| 193.97 | 1288.30 | 421.59 | 156.91 | 265.96 | 0.00 | 482105.00 | 3911802.00 |
| 185.57 | 1306.80 | 429.54 | 147.84 | 302.87 | 0.00 | 482123.00 | 3911810.00 |
| 313.08 | 1085.18 | 321.21 | 128.11 | 273.32 | 0.00 | 481901.00 | 3911702.00 |
| 254.56 | 1164.71 | 363.05 | 158.58 | 296.28 | 0.00 | 481981.00 | 3911744.00 |
| 452.99 | 954.45 | 255.08 | 124.69 | 288.03 | 0.00 | 481771.00 | 3911636.00 |
| 291.00 | 1118.48 | 336.82 | 130.68 | 256.81 | 0.00 | 481935.00 | 3911718.00 |
| 275.18 | 1131.31 | 348.09 | 149.83 | 280.56 | 0.00 | 481948.00 | 3911729.00 |
| 392.67 | 999.28 | 281.53 | 150.58 | 290.90 | 0.00 | 481816.00 | 3911662.00 |
| 394.06 | 1006.06 | 280.59 | 147.09 | 237.64 | 0.00 | 481822.00 | 3911661.00 |
| 206.17 | 1252.15 | 406.38 | 144.17 | 270.12 | 0.00 | 482068.00 | 3911787.00 |
| 166.11 | 1348.20 | 453.06 | 119.90 | 274.84 | 0.00 | 482164.00 | 3911834.00 |
| 234.34 | 1199.46 | 380.95 | 133.59 | 243.12 | 0.00 | 482016.00 | 3911762.00 |
| 429.68 | 974.63 | 260.61 | 126.87 | 212.11 | 0.00 | 481791.00 | 3911641.00 |
| 338.78 | 1053.47 | 308.06 | 145.73 | 290.37 | 0.00 | 481870.00 | 3911689.00 |
| 98.12 | 1621.25 | 583.06 | 129.28 | 253.41 | 0.00 | 482438.00 | 3911964.00 |
| 343.34 | 1052.03 | 305.01 | 109.52 | 272.53 | 0.00 | 481868.00 | 3911686.00 |
| 233.52 | 1205.78 | 381.37 | 149.03 | 274.77 | 0.00 | 482022.00 | 3911762.00 |
| 703.53 | 817.21 | 184.53 | 123.43 | 312.21 | 0.00 | 481633.00 | 3911565.00 |
| 79.43 | 1745.86 | 643.29 | 144.42 | 236.47 | 0.00 | 482562.00 | 3912024.00 |
| 228.94 | 1200.72 | 384.55 | 149.09 | 279.83 | 0.00 | 482017.00 | 3911765.00 |
| 340.44 | 1055.39 | 305.87 | 141.04 | 291.21 | 0.00 | 481872.00 | 3911687.00 |
| 280.56 | 1132.39 | 342.13 | 119.46 | 258.15 | 0.00 | 481949.00 | 3911723.00 |
| 278.42 | 1130.53 | 343.66 | 132.02 | 283.94 | 0.00 | 481947.00 | 3911724.00 |
| 173.17 | 1331.07 | 443.19 | 149.92 | 279.21 | 0.00 | 482147.00 | 3911824.00 |
| 366.80 | 1022.73 | 292.44 | 137.19 | 312.18 | 0.00 | 481839.00 | 3911673.00 |
| 352.59 | 1034.45 | 302.51 | 122.94 | 253.42 | 0.00 | 481851.00 | 3911683.00 |
| 185.07 | 1298.26 | 429.28 | 133.78 | 288.00 | 0.00 | 482115.00 | 3911810.00 |
| 427.79 | 974.47 | 262.52 | 131.11 | 280.05 | 0.00 | 481791.00 | 3911643.00 |
| 634.35 | 821.30 | 197.27 | 115.13 | 268.16 | 0.00 | 481638.00 | 3911578.00 |
| 363.11 | 1031.30 | 294.50 | 136.78 | 297.18 | 0.00 | 481848.00 | 3911675.00 |
| 230.17 | 1206.77 | 384.79 | 125.99 | 214.09 | 0.00 | 482023.00 | 3911766.00 |
| 192.31 | 1289.74 | 421.27 | 124.02 | 235.01 | 0.00 | 482106.00 | 3911802.00 |
| 102.91 | 1590.96 | 568.12 | 120.17 | 248.19 | 0.00 | 482407.00 | 3911949.00 |
| 313.03 | 1092.09 | 323.45 | 148.58 | 315.93 | 0.00 | 481908.00 | 3911704.00 |
| 110.76 | 1548.00 | 549.45 | 132.88 | 268.90 | 0.00 | 482364.00 | 3911930.00 |
| 327.27 | 1071.20 | 315.98 | 111.55 | 226.99 | 0.00 | 481887.00 | 3911697.00 |
| 395.58 | 1007.93 | 280.79 | 129.97 | 263.84 | 0.00 | 481824.00 | 3911662.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 183.05 | 20725.97 | 6212.40 | 1058.07 | 1257.47 | **64.03** | 501542.00 | 3917593.00 |
| 199.77 | 20451.30 | 6074.00 | 998.83 | 1223.14 | 0.00 | 501268.00 | 3917455.00 |
| 162.79 | 21114.79 | 6386.87 | 1152.43 | 2104.28 | 0.00 | 501931.00 | 3917768.00 |
| 127.27 | 22024.61 | 6820.68 | 1227.22 | 1779.74 | 0.00 | 502841.00 | 3918201.00 |
| 51.69 | 26493.63 | 8896.20 | 2134.49 | 3923.35 | 0.00 | 507310.00 | 3920277.00 |
| 309.71 | 19221.39 | 5489.20 | 903.08 | 1298.93 | 0.00 | 500038.00 | 3916870.00 |
| 328.92 | 19078.42 | 5421.63 | 885.91 | 1424.13 | 0.00 | 499895.00 | 3916802.00 |
| 99.01 | 23068.65 | 7324.69 | 1923.91 | 2495.80 | 0.00 | 503885.00 | 3918705.00 |
| 231.54 | 20004.26 | 5865.42 | 905.46 | 1062.68 | 0.00 | 500821.00 | 3917246.00 |
| 95.91 | 23214.37 | 7375.92 | 1203.54 | 2402.27 | 0.00 | 504031.00 | 3918757.00 |
| 159.98 | 21174.19 | 6423.98 | 1323.52 | 1561.71 | 0.00 | 501990.00 | 3917805.00 |
| 203.14 | 20393.09 | 6049.65 | 1150.39 | 1609.96 | 0.00 | 501209.00 | 3917430.00 |
| 134.17 | 21816.62 | 6740.62 | 1685.71 | 2020.12 | 0.00 | 502633.00 | 3918121.00 |
| 459.27 | 18348.79 | 5065.92 | 853.22 | 1050.61 | 0.00 | 499165.00 | 3916447.00 |
| 232.12 | 19996.66 | 5863.95 | 1052.45 | 1454.02 | 0.00 | 500813.00 | 3917245.00 |
| 343.74 | 18974.91 | 5367.49 | 723.26 | 1029.90 | 0.00 | 499791.00 | 3916748.00 |
| 97.48 | 23143.90 | 7326.95 | 1211.87 | 2452.86 | 0.00 | 503960.00 | 3918708.00 |
| 77.33 | 24245.50 | 7856.46 | 1494.12 | 2664.90 | 0.00 | 505062.00 | 3919237.00 |
| 233.91 | 19972.30 | 5856.64 | 961.55 | 1026.20 | 0.00 | 500789.00 | 3917237.00 |
| 333.13 | 19051.17 | 5410.29 | 948.30 | 1199.22 | 0.00 | 499867.00 | 3916791.00 |
| 314.93 | 19185.16 | 5472.55 | 904.18 | 1188.70 | 0.00 | 500001.00 | 3916853.00 |
| 544.62 | 18034.31 | 4902.35 | 682.55 | 801.31 | 0.00 | 498851.00 | 3916283.00 |
| 277.57 | 19506.53 | 5626.92 | 972.88 | 1306.04 | 0.00 | 500323.00 | 3917008.00 |
| 401.83 | 18624.69 | 5210.80 | 877.38 | 971.45 | 0.00 | 499441.00 | 3916592.00 |
| 186.69 | 20658.12 | 6177.03 | 962.88 | 1257.69 | 0.00 | 501474.00 | 3917558.00 |
| 358.87 | 18874.10 | 5313.79 | 755.55 | 1038.67 | 0.00 | 499690.00 | 3916695.00 |
| 96.78 | 23174.62 | 7363.45 | 1292.69 | 2025.61 | 0.00 | 503991.00 | 3918744.00 |
| 200.65 | 20435.28 | 6069.93 | 1044.18 | 1627.28 | 0.00 | 501252.00 | 3917451.00 |
| 303.29 | 19279.78 | 5510.29 | 880.15 | 1292.39 | 0.00 | 500096.00 | 3916891.00 |
| 291.67 | 19372.22 | 5565.24 | 1105.97 | 1458.60 | 0.00 | 500189.00 | 3916946.00 |
| 358.58 | 18871.69 | 5324.53 | 806.70 | 927.45 | 0.00 | 499688.00 | 3916705.00 |
| 345.80 | 18963.13 | 5364.80 | 1068.48 | 1407.24 | 0.00 | 499779.00 | 3916746.00 |
| 244.52 | 19846.01 | 5784.93 | 803.37 | 1377.42 | 0.00 | 500662.00 | 3917166.00 |
| 188.99 | 20623.08 | 6149.67 | 1010.49 | 1436.60 | 0.00 | 501439.00 | 3917530.00 |
| 969.62 | 17184.21 | 4457.55 | 635.71 | 656.92 | 0.00 | 498000.00 | 3915838.00 |
| 439.42 | 18433.94 | 5108.39 | 895.88 | 1059.64 | 0.00 | 499250.00 | 3916489.00 |
| 162.35 | 21119.01 | 6393.63 | 1203.00 | 2036.34 | 0.00 | 501935.00 | 3917774.00 |
| 309.35 | 19231.73 | 5486.88 | 890.46 | 1229.81 | 0.00 | 500048.00 | 3916868.00 |
| 106.03 | 22771.52 | 7179.33 | 1409.28 | 1994.66 | 0.00 | 503588.00 | 3918560.00 |
| 277.47 | 19508.53 | 5627.53 | 873.03 | 1090.75 | 0.00 | 500325.00 | 3917008.00 |
| 228.52 | 20042.31 | 5881.21 | 993.53 | 1400.71 | 0.00 | 500859.00 | 3917262.00 |
| 272.69 | 19553.09 | 5646.07 | 820.87 | 1139.51 | 0.00 | 500369.00 | 3917027.00 |
| 433.97 | 18460.84 | 5111.02 | 704.88 | 950.88 | 0.00 | 499277.00 | 3916492.00 |
| 62.00 | 25421.20 | 8407.02 | 1666.05 | 3081.92 | 0.00 | 506237.00 | 3919788.00 |
| 493.09 | 18211.37 | 4996.20 | 693.35 | 791.81 | 0.00 | 499028.00 | 3916377.00 |
| 513.85 | 18139.07 | 4950.27 | 650.17 | 834.10 | 0.00 | 498955.00 | 3916331.00 |
| 427.80 | 18495.64 | 5140.26 | 770.59 | 880.68 | 0.00 | 499312.00 | 3916521.00 |
| 352.91 | 18919.35 | 5343.26 | 756.35 | 883.42 | 0.00 | 499736.00 | 3916724.00 |
| 659.34 | 17707.46 | 4740.79 | 646.03 | 648.39 | 0.00 | 498524.00 | 3916122.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 252.22 | 19764.02 | 5746.94 | 951.81 | 1399.97 | 0.00 | 500580.00 | 3917128.00 |
| 154.41 | 21296.52 | 6490.57 | 1742.26 | 1881.96 | 0.00 | 502113.00 | 3917871.00 |
| 101.64 | 22958.00 | 7257.66 | 1100.57 | 1507.70 | 0.00 | 503774.00 | 3918638.00 |
| 260.40 | 19678.45 | 5709.76 | 1024.50 | 1257.19 | 0.00 | 500495.00 | 3917091.00 |
| 382.81 | 18729.44 | 5250.55 | 737.12 | 917.28 | 0.00 | 499546.00 | 3916631.00 |
| 246.28 | 19826.90 | 5783.30 | 1118.40 | 1498.59 | 0.00 | 500643.00 | 3917164.00 |
| 105.00 | 22814.71 | 7204.13 | 1892.29 | 1806.10 | 0.00 | 503631.00 | 3918585.00 |
| 632.85 | 17777.45 | 4773.70 | 669.70 | 722.95 | 0.00 | 498594.00 | 3916154.00 |
| 165.27 | 21062.60 | 6363.76 | 1011.03 | 1592.65 | 0.00 | 501879.00 | 3917745.00 |
| 427.14 | 18494.97 | 5145.28 | 861.52 | 1093.77 | 0.00 | 499311.00 | 3916526.00 |
| 254.56 | 19734.50 | 5740.20 | 1134.79 | 1405.05 | 0.00 | 500551.00 | 3917121.00 |
| 426.26 | 18502.40 | 5131.50 | 744.57 | 905.67 | 0.00 | 499319.00 | 3916512.00 |
| 58.10 | 25793.82 | 8587.14 | 2357.95 | 3084.36 | 0.00 | 506610.00 | 3919968.00 |
| 274.36 | 19534.07 | 5637.93 | 890.59 | 1428.30 | 0.00 | 500350.00 | 3917019.00 |
| 198.81 | 20457.08 | 6082.09 | 1153.88 | 1622.15 | 0.00 | 501273.00 | 3917463.00 |
| 141.55 | 21617.89 | 6617.22 | 1093.17 | 1686.82 | 0.00 | 502434.00 | 3917998.00 |
| 555.85 | 17994.77 | 4882.53 | 776.06 | 970.84 | 0.00 | 498811.00 | 3916263.00 |
| 233.73 | 19977.66 | 5847.67 | 838.00 | 1120.45 | 0.00 | 500794.00 | 3917228.00 |
| 67.78 | 24933.25 | 8176.32 | 1782.54 | 2766.39 | 0.00 | 505750.00 | 3919557.00 |
| 385.65 | 18715.40 | 5246.68 | 858.72 | 1022.77 | 0.00 | 499532.00 | 3916627.00 |
| 143.19 | 21570.37 | 6616.25 | 1215.53 | 1667.40 | 0.00 | 502387.00 | 3917997.00 |
| 146.69 | 21484.65 | 6564.23 | 1050.76 | 1833.21 | 0.00 | 502301.00 | 3917945.00 |
| 149.10 | 21425.27 | 6542.70 | 1210.36 | 1424.99 | 0.00 | 502242.00 | 3917923.00 |
| 156.33 | 21260.55 | 6457.89 | 1127.48 | 1644.36 | 0.00 | 502077.00 | 3917839.00 |
| 35.82 | 28973.86 | 10069.80 | 2289.84 | 3707.78 | 0.00 | 509790.00 | 3921451.00 |
| 145.10 | 21525.47 | 6588.39 | 1044.55 | 1540.48 | 0.00 | 502342.00 | 3917969.00 |
| 224.14 | 20099.72 | 5914.40 | 954.67 | 1060.34 | 0.00 | 500916.00 | 3917295.00 |
| 169.21 | 20985.13 | 6332.10 | 1132.19 | 1466.30 | 0.00 | 501801.00 | 3917713.00 |
| 475.74 | 18278.24 | 5030.74 | 671.65 | 728.24 | 0.00 | 499095.00 | 3916412.00 |
| 222.70 | 20118.60 | 5914.00 | 825.86 | 1091.48 | 0.00 | 500935.00 | 3917295.00 |
| 319.23 | 19153.39 | 5457.59 | 905.82 | 1166.19 | 0.00 | 499970.00 | 3916838.00 |
| 282.70 | 19457.71 | 5606.26 | 938.66 | 1092.96 | 0.00 | 500274.00 | 3916987.00 |
| 220.96 | 20134.10 | 5926.73 | 892.31 | 1324.63 | 0.00 | 500950.00 | 3917308.00 |
| 105.97 | 22773.30 | 7160.18 | 1048.49 | 2214.67 | 0.00 | 503590.00 | 3918541.00 |
| 291.91 | 19376.08 | 5567.87 | 911.52 | 1338.72 | 0.00 | 500192.00 | 3916949.00 |
| 95.19 | 23246.74 | 7405.95 | 1426.75 | 1631.28 | 0.00 | 504063.00 | 3918787.00 |
| 126.09 | 22060.64 | 6843.58 | 1591.54 | 1904.39 | 0.00 | 502877.00 | 3918224.00 |
| 469.67 | 18307.20 | 5042.20 | 789.90 | 934.99 | 0.00 | 499123.00 | 3916423.00 |
| 609.89 | 17834.54 | 4807.05 | 772.24 | 774.93 | 0.00 | 498651.00 | 3916188.00 |
| 346.99 | 18954.61 | 5354.11 | 874.95 | 1238.09 | 0.00 | 499771.00 | 3916735.00 |
| 290.94 | 19384.23 | 5562.18 | 725.53 | 951.37 | 0.00 | 500201.00 | 3916943.00 |
| 340.56 | 18994.67 | 5375.38 | 764.73 | 1074.02 | 0.00 | 499811.00 | 3916756.00 |
| 176.96 | 20837.59 | 6263.57 | 1222.96 | 1571.08 | 0.00 | 501654.00 | 3917644.00 |
| 243.85 | 19855.95 | 5788.46 | 833.23 | 1339.49 | 0.00 | 500672.00 | 3917169.00 |
| 437.36 | 18447.88 | 5115.79 | 730.39 | 783.41 | 0.00 | 499264.00 | 3916497.00 |
| 273.63 | 19539.71 | 5653.59 | 1133.88 | 1258.71 | 0.00 | 500356.00 | 3917034.00 |
| 220.48 | 20148.45 | 5931.33 | 1134.63 | 1770.63 | 0.00 | 500965.00 | 3917312.00 |
| 82.46 | 23926.20 | 7711.90 | 1691.65 | 2793.05 | 0.00 | 504742.00 | 3919093.00 |
| 299.23 | 19312.51 | 5533.23 | 894.49 | 1154.79 | 0.00 | 500129.00 | 3916914.00 |
| 44.94 | 27391.17 | 9321.91 | 1633.99 | 2380.55 | 0.00 | 508207.00 | 3920703.00 |
| 389.73 | 18686.85 | 5230.35 | 682.56 | 806.19 | 0.00 | 499503.00 | 3916611.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 190.91 | 5964.52 | 1852.04 | 680.36 | 1308.90 | **38.06** | 486781.00 | 3913233.00 |
| 477.32 | 5073.67 | 1427.45 | 615.42 | 888.96 | 0.00 | 485890.00 | 3912808.00 |
| 310.48 | 5447.68 | 1594.71 | 723.52 | 1338.93 | 0.00 | 486264.00 | 3912975.00 |
| 700.62 | 4818.94 | 1295.34 | 479.79 | 582.39 | 0.00 | 485635.00 | 3912676.00 |
| 255.13 | 5651.45 | 1693.53 | 577.94 | 1252.49 | 0.00 | 486468.00 | 3913074.00 |
| 512.25 | 5024.40 | 1389.03 | 480.45 | 1205.17 | 0.00 | 485841.00 | 3912770.00 |
| 398.90 | 5221.02 | 1501.17 | 548.41 | 794.15 | 0.00 | 486037.00 | 3912882.00 |
| 178.91 | 6047.73 | 1885.42 | 658.62 | 1306.22 | 0.00 | 486864.00 | 3913266.00 |
| 297.87 | 5486.59 | 1629.05 | 559.94 | 922.88 | 0.00 | 486303.00 | 3913010.00 |
| 344.33 | 5354.40 | 1552.00 | 459.10 | 1107.65 | 0.00 | 486171.00 | 3912933.00 |
| 189.55 | 5976.83 | 1857.94 | 571.63 | 1079.37 | 0.00 | 486793.00 | 3913239.00 |
| 52.81 | 8099.28 | 2850.48 | 639.15 | 1325.66 | 0.00 | 488916.00 | 3914231.00 |
| 754.77 | 4760.10 | 1270.21 | 569.24 | 690.86 | 0.00 | 485576.00 | 3912651.00 |
| 108.42 | 6748.67 | 2207.77 | 487.52 | 1299.85 | 0.00 | 487565.00 | 3913589.00 |
| 146.90 | 6301.96 | 2006.73 | 656.80 | 1377.44 | 0.00 | 487118.00 | 3913388.00 |
| 81.22 | 7235.58 | 2444.51 | 614.07 | 1322.14 | 0.00 | 488052.00 | 3913825.00 |
| 231.78 | 5747.23 | 1739.58 | 631.84 | 1313.87 | 0.00 | 486564.00 | 3913120.00 |
| 591.29 | 4925.30 | 1346.91 | 533.86 | 1036.12 | 0.00 | 485742.00 | 3912728.00 |
| 207.91 | 5876.58 | 1813.27 | 663.14 | 1061.18 | 0.00 | 486693.00 | 3913194.00 |
| 520.02 | 5015.44 | 1401.36 | 769.26 | 757.34 | 0.00 | 485832.00 | 3912782.00 |
| 160.22 | 6181.81 | 1956.34 | 700.25 | 1060.14 | 0.00 | 486998.00 | 3913337.00 |
| 145.05 | 6319.73 | 2015.84 | 527.09 | 1008.83 | 0.00 | 487136.00 | 3913397.00 |
| 543.41 | 4976.66 | 1366.38 | 570.76 | 1203.37 | 0.00 | 485793.00 | 3912747.00 |
| 231.62 | 5748.71 | 1747.74 | 807.80 | 1244.04 | 0.00 | 486565.00 | 3913129.00 |
| 503.35 | 5032.32 | 1408.32 | 741.34 | 942.06 | 0.00 | 485849.00 | 3912789.00 |
| 422.69 | 5184.08 | 1467.23 | 453.01 | 909.34 | 0.00 | 486000.00 | 3912848.00 |
| 227.16 | 5764.40 | 1754.83 | 760.89 | 1237.62 | 0.00 | 486581.00 | 3913136.00 |
| 101.20 | 6856.61 | 2273.34 | 757.13 | 1233.82 | 0.00 | 487673.00 | 3913654.00 |
| 181.72 | 6028.74 | 1875.35 | 583.39 | 1354.64 | 0.00 | 486845.00 | 3913256.00 |
| 282.36 | 5541.81 | 1653.08 | 599.51 | 1166.82 | 0.00 | 486358.00 | 3913034.00 |
| 307.15 | 5448.73 | 1617.02 | 556.16 | 661.29 | 0.00 | 486265.00 | 3912998.00 |
| 160.65 | 6180.98 | 1956.23 | 630.74 | 1259.53 | 0.00 | 486997.00 | 3913337.00 |
| 293.88 | 5502.99 | 1627.15 | 644.27 | 1191.03 | 0.00 | 486319.00 | 3913008.00 |
| 173.62 | 6086.18 | 1906.27 | 581.07 | 1279.69 | 0.00 | 486902.00 | 3913287.00 |
| 450.91 | 5123.86 | 1444.99 | 524.54 | 1001.85 | 0.00 | 485940.00 | 3912826.00 |
| 436.29 | 5150.36 | 1454.43 | 438.24 | 1025.09 | 0.00 | 485967.00 | 3912835.00 |
| 120.29 | 6582.35 | 2144.92 | 643.74 | 1130.82 | 0.00 | 487399.00 | 3913526.00 |
| 101.05 | 6859.08 | 2268.40 | 602.17 | 1121.07 | 0.00 | 487675.00 | 3913649.00 |
| 230.75 | 5752.24 | 1744.90 | 546.41 | 1166.14 | 0.00 | 486569.00 | 3913126.00 |
| 279.93 | 5554.96 | 1646.14 | 453.86 | 1231.35 | 0.00 | 486371.00 | 3913027.00 |
| 157.36 | 6206.44 | 1961.67 | 624.31 | 1342.06 | 0.00 | 487023.00 | 3913342.00 |
| 23.40 | 10323.50 | 3879.31 | 740.92 | 1580.18 | 0.00 | 491140.00 | 3915260.00 |
| 380.79 | 5257.55 | 1518.33 | 605.58 | 1152.39 | 0.00 | 486074.00 | 3912899.00 |
| 369.66 | 5294.75 | 1530.35 | 461.72 | 673.93 | 0.00 | 486111.00 | 3912911.00 |
| 173.32 | 6085.94 | 1911.48 | 650.61 | 1204.07 | 0.00 | 486902.00 | 3913292.00 |
| 188.34 | 5986.33 | 1859.88 | 384.11 | 945.83 | 0.00 | 486803.00 | 3913241.00 |
| 304.64 | 5464.21 | 1605.57 | 678.53 | 1286.87 | 0.00 | 486280.00 | 3912986.00 |
| 507.35 | 5023.26 | 1398.66 | 592.56 | 1164.29 | 0.00 | 485840.00 | 3912779.00 |
| 236.09 | 5731.13 | 1737.65 | 570.74 | 1152.34 | 0.00 | 486547.00 | 3913118.00 |

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|---|---|---|---|---|---|---|---|
| 135.96 | 6408.53 | 2062.38 | 757.48 | 1261.90 | 0.00 | 487225.00 | 3913443.00 |
| 331.03 | 5395.08 | 1581.50 | 584.38 | 869.21 | 0.00 | 486211.00 | 3912962.00 |
| 373.50 | 5282.05 | 1519.21 | 498.00 | 1041.93 | 0.00 | 486098.00 | 3912900.00 |
| 447.79 | 5120.78 | 1446.54 | 563.10 | 1035.41 | 0.00 | 485937.00 | 3912827.00 |
| 457.30 | 5115.10 | 1448.79 | 628.12 | 488.96 | 0.00 | 485931.00 | 3912830.00 |
| 122.54 | 6560.01 | 2123.46 | 622.09 | 1134.70 | 0.00 | 487376.00 | 3913504.00 |
| 1076.52 | 4569.73 | 1163.33 | 435.52 | 697.23 | 0.00 | 485386.00 | 3912544.00 |
| 456.50 | 5105.16 | 1442.76 | 683.58 | 1246.43 | 0.00 | 485921.00 | 3912824.00 |
| 430.95 | 5156.05 | 1467.87 | 593.83 | 1018.70 | 0.00 | 485972.00 | 3912849.00 |
| 409.97 | 5206.70 | 1489.91 | 523.12 | 710.59 | 0.00 | 486023.00 | 3912871.00 |
| 277.61 | 5565.42 | 1657.00 | 762.80 | 1144.24 | 0.00 | 486382.00 | 3913038.00 |
| 260.81 | 5622.73 | 1688.54 | 599.61 | 1281.26 | 0.00 | 486439.00 | 3913069.00 |
| 339.24 | 5362.97 | 1558.74 | 549.09 | 1211.24 | 0.00 | 486179.00 | 3912940.00 |
| 652.32 | 4844.67 | 1311.77 | 640.94 | 925.37 | 0.00 | 485661.00 | 3912693.00 |
| 63.09 | 7717.63 | 2678.05 | 765.17 | 1305.60 | 0.00 | 488534.00 | 3914059.00 |
| 111.32 | 6704.24 | 2197.14 | 569.41 | 1349.08 | 0.00 | 487521.00 | 3913578.00 |
| 161.47 | 6172.60 | 1946.02 | 663.56 | 1425.67 | 0.00 | 486989.00 | 3913327.00 |
| 268.39 | 5591.39 | 1669.88 | 604.45 | 1058.90 | 0.00 | 486408.00 | 3913051.00 |
| 51.82 | 8141.24 | 2868.26 | 545.03 | 1326.70 | 0.00 | 488958.00 | 3914249.00 |
| 217.68 | 5818.90 | 1774.50 | 732.10 | 1339.22 | 0.00 | 486635.00 | 3913155.00 |
| 268.80 | 5591.30 | 1669.90 | 524.49 | 1156.27 | 0.00 | 486408.00 | 3913051.00 |
| 200.09 | 5916.79 | 1823.48 | 502.36 | 1253.20 | 0.00 | 486733.00 | 3913204.00 |
| 309.38 | 5451.76 | 1601.15 | 710.18 | 1357.05 | 0.00 | 486268.00 | 3912982.00 |
| 329.88 | 5390.03 | 1578.88 | 689.25 | 1008.29 | 0.00 | 486206.00 | 3912960.00 |
| 136.23 | 6410.57 | 2062.11 | 757.82 | 1266.78 | 0.00 | 487227.00 | 3913443.00 |
| 538.60 | 4981.50 | 1381.28 | 488.66 | 646.19 | 0.00 | 485798.00 | 3912762.00 |
| 277.26 | 5557.11 | 1661.81 | 591.52 | 983.20 | 0.00 | 486373.00 | 3913043.00 |
| 143.30 | 6333.89 | 2024.09 | 574.49 | 1140.79 | 0.00 | 487150.00 | 3913405.00 |
| 395.11 | 5225.48 | 1492.06 | 502.30 | 1197.54 | 0.00 | 486042.00 | 3912873.00 |
| 308.29 | 5452.42 | 1610.33 | 623.16 | 988.94 | 0.00 | 486269.00 | 3912991.00 |
| 422.37 | 5171.25 | 1468.47 | 536.02 | 1253.27 | 0.00 | 485988.00 | 3912849.00 |
| 83.65 | 7180.86 | 2421.68 | 603.75 | 1269.05 | 0.00 | 487997.00 | 3913802.00 |
| 74.58 | 7389.86 | 2510.92 | 571.95 | 1231.67 | 0.00 | 488206.00 | 3913892.00 |
| 551.18 | 4958.16 | 1366.15 | 636.31 | 1394.26 | 0.00 | 485774.00 | 3912747.00 |
| 106.19 | 6780.44 | 2234.31 | 711.07 | 1335.70 | 0.00 | 487597.00 | 3913615.00 |
| 460.90 | 5098.19 | 1435.18 | 479.31 | 889.87 | 0.00 | 485914.00 | 3912816.00 |
| 130.38 | 6469.69 | 2087.60 | 774.94 | 1501.72 | 0.00 | 487286.00 | 3913468.00 |
| 541.01 | 4974.80 | 1373.84 | 627.62 | 820.60 | 0.00 | 485791.00 | 3912755.00 |
| 114.48 | 6660.39 | 2173.90 | 647.45 | 1358.91 | 0.00 | 487477.00 | 3913555.00 |
| 158.82 | 6194.53 | 1964.26 | 699.95 | 1208.28 | 0.00 | 487011.00 | 3913345.00 |
| 359.23 | 5309.20 | 1532.14 | 541.93 | 1129.64 | 0.00 | 486125.00 | 3912913.00 |
| 399.86 | 5217.76 | 1494.60 | 510.46 | 1014.66 | 0.00 | 486034.00 | 3912875.00 |
| 31.47 | 9408.52 | 3464.37 | 726.46 | 1377.20 | 0.00 | 490225.00 | 3914845.00 |
| 258.51 | 5636.25 | 1692.90 | 656.91 | 1191.87 | 0.00 | 486453.00 | 3913074.00 |
| 181.00 | 6034.25 | 1884.37 | 735.09 | 1332.36 | 0.00 | 486851.00 | 3913265.00 |
| 1144.52 | 4532.53 | 1140.89 | 602.50 | 902.86 | 0.00 | 485349.00 | 3912522.00 |
| 374.05 | 5276.50 | 1520.26 | 621.58 | 919.12 | 0.00 | 486093.00 | 3912901.00 |
| 184.13 | 6018.05 | 1877.83 | 700.55 | 1149.42 | 0.00 | 486834.00 | 3913259.00 |
| 367.40 | 5289.92 | 1527.61 | 669.81 | 1175.35 | 0.00 | 486106.00 | 3912908.00 |
| 421.16 | 5175.14 | 1477.22 | 639.13 | 1162.91 | 0.00 | 485991.00 | 3912858.00 |
| 608.63 | 4890.59 | 1337.63 | 740.39 | 1078.16 | 0.00 | 485707.00 | 3912718.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 222.58 | 9379.03 | 2835.82 | 1064.02 | 1007.19 | **46.11** | 490195.00 | 3914217.00 |
| 261.78 | 9127.37 | 2706.17 | 961.12 | 1603.29 | 0.00 | 489944.00 | 3914087.00 |
| 348.99 | 8731.96 | 2516.19 | 743.81 | 1057.67 | 0.00 | 489548.00 | 3913897.00 |
| 281.56 | 9019.80 | 2656.71 | 936.68 | 1364.37 | 0.00 | 489836.00 | 3914037.00 |
| 69.26 | 11899.03 | 4020.09 | 1076.74 | 1552.81 | 0.00 | 492715.00 | 3915401.00 |
| 87.75 | 11263.75 | 3695.03 | 1001.90 | 2077.14 | 0.00 | 492080.00 | 3915076.00 |
| 378.74 | 8635.92 | 2467.49 | 744.11 | 1125.17 | 0.00 | 489452.00 | 3913848.00 |
| 130.35 | 10349.63 | 3268.94 | 879.17 | 2007.70 | 0.00 | 491166.00 | 3914650.00 |
| 254.45 | 9165.79 | 2706.00 | 703.30 | 1925.02 | 0.00 | 489982.00 | 3914087.00 |
| 686.30 | 8023.81 | 2157.51 | 516.76 | 818.68 | 0.00 | 488840.00 | 3913538.00 |
| 275.82 | 9055.02 | 2665.06 | 640.28 | 1278.63 | 0.00 | 489871.00 | 3914046.00 |
| 120.07 | 10526.13 | 3344.37 | 908.44 | 2312.86 | 0.00 | 491342.00 | 3914725.00 |
| 273.74 | 9067.87 | 2674.66 | 958.31 | 1753.96 | 0.00 | 489884.00 | 3914055.00 |
| 285.81 | 8999.39 | 2647.96 | 945.66 | 1304.00 | 0.00 | 489816.00 | 3914029.00 |
| 261.33 | 9128.56 | 2694.24 | 527.67 | 1328.76 | 0.00 | 489945.00 | 3914075.00 |
| 460.08 | 8403.17 | 2357.99 | 830.11 | 925.27 | 0.00 | 489219.00 | 3913739.00 |
| 103.06 | 10874.93 | 3517.19 | 1168.53 | 1822.53 | 0.00 | 491691.00 | 3914898.00 |
| 380.63 | 8622.64 | 2463.09 | 757.72 | 1232.98 | 0.00 | 489439.00 | 3913844.00 |
| 284.68 | 9012.70 | 2635.43 | 745.16 | 1618.86 | 0.00 | 489829.00 | 3914016.00 |
| 395.65 | 8581.15 | 2436.53 | 529.47 | 826.14 | 0.00 | 489397.00 | 3913817.00 |
| 266.39 | 9108.93 | 2696.54 | 797.87 | 1318.28 | 0.00 | 489925.00 | 3914077.00 |
| 193.25 | 9606.70 | 2935.72 | 1065.96 | 1523.08 | 0.00 | 490423.00 | 3914317.00 |
| 189.49 | 9644.98 | 2941.86 | 900.30 | 1636.79 | 0.00 | 490461.00 | 3914323.00 |
| 138.99 | 10220.15 | 3206.77 | 983.33 | 1979.01 | 0.00 | 491036.00 | 3914588.00 |
| 89.11 | 11223.54 | 3692.00 | 968.99 | 2033.82 | 0.00 | 492040.00 | 3915073.00 |
| 349.99 | 8731.85 | 2515.38 | 783.77 | 928.04 | 0.00 | 489548.00 | 3913896.00 |
| 319.85 | 8852.85 | 2571.61 | 923.58 | 1300.30 | 0.00 | 489669.00 | 3913952.00 |
| 275.69 | 9055.91 | 2665.11 | 799.23 | 1287.80 | 0.00 | 489872.00 | 3914046.00 |
| 159.02 | 9959.56 | 3099.20 | 900.05 | 1893.59 | 0.00 | 490776.00 | 3914480.00 |
| 240.57 | 9262.31 | 2747.36 | 853.51 | 1844.42 | 0.00 | 490079.00 | 3914128.00 |
| 167.87 | 9861.58 | 3046.51 | 944.47 | 1580.49 | 0.00 | 490678.00 | 3914427.00 |
| 430.57 | 8477.12 | 2390.47 | 527.64 | 891.95 | 0.00 | 489293.00 | 3913771.00 |
| 252.32 | 9182.57 | 2738.55 | 935.42 | 1080.09 | 0.00 | 489999.00 | 3914119.00 |
| 270.83 | 9075.00 | 2678.59 | 896.63 | 1543.13 | 0.00 | 489891.00 | 3914059.00 |
| 226.24 | 9358.00 | 2816.74 | 859.04 | 1223.87 | 0.00 | 490174.00 | 3914198.00 |
| 173.41 | 9807.37 | 3019.14 | 828.35 | 1702.33 | 0.00 | 490624.00 | 3914400.00 |
| 266.24 | 9100.82 | 2682.03 | 820.38 | 1652.47 | 0.00 | 489917.00 | 3914063.00 |
| 276.56 | 9045.28 | 2660.42 | 872.13 | 1612.42 | 0.00 | 489862.00 | 3914041.00 |
| 213.17 | 9447.19 | 2849.89 | 871.00 | 1528.25 | 0.00 | 490263.00 | 3914231.00 |
| 1292.25 | 7578.49 | 1906.43 | 446.62 | 561.24 | 0.00 | 488395.00 | 3913287.00 |
| 391.81 | 8598.32 | 2443.68 | 870.29 | 1202.61 | 0.00 | 489415.00 | 3913824.00 |
| 161.42 | 9924.67 | 3096.35 | 1020.14 | 1149.35 | 0.00 | 490741.00 | 3914477.00 |
| 232.95 | 9306.79 | 2784.29 | 860.40 | 1527.45 | 0.00 | 490123.00 | 3914165.00 |
| 535.64 | 8254.61 | 2268.93 | 412.36 | 705.80 | 0.00 | 489071.00 | 3913650.00 |
| 329.17 | 8811.15 | 2545.00 | 706.47 | 1406.10 | 0.00 | 489627.00 | 3913926.00 |
| 393.22 | 8590.34 | 2442.29 | 666.27 | 1065.60 | 0.00 | 489407.00 | 3913823.00 |
| 146.65 | 10112.71 | 3164.05 | 787.41 | 1677.37 | 0.00 | 490929.00 | 3914545.00 |
| 479.12 | 8359.81 | 2337.44 | 927.64 | 862.69 | 0.00 | 489176.00 | 3913718.00 |
| 265.18 | 9107.77 | 2701.45 | 778.49 | 1117.88 | 0.00 | 489924.00 | 3914082.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 218.06 | 9409.60 | 2826.76 | 891.32 | 2032.59 | 0.00 | 490226.00 | 3914208.00 |
| 45.82 | 13201.91 | 4611.10 | 1104.98 | 2277.42 | 0.00 | 494018.00 | 3915992.00 |
| 413.92 | 8527.33 | 2415.35 | 651.47 | 610.68 | 0.00 | 489344.00 | 3913796.00 |
| 199.91 | 9553.89 | 2897.20 | 788.66 | 1358.05 | 0.00 | 490370.00 | 3914278.00 |
| 372.20 | 8652.45 | 2474.37 | 722.40 | 1376.53 | 0.00 | 489469.00 | 3913855.00 |
| 104.07 | 10853.81 | 3513.30 | 1256.82 | 2047.83 | 0.00 | 491670.00 | 3914894.00 |
| 186.47 | 9675.66 | 2970.07 | 947.05 | 1605.34 | 0.00 | 490492.00 | 3914351.00 |
| 192.07 | 9624.28 | 2932.09 | 900.61 | 1990.34 | 0.00 | 490441.00 | 3914313.00 |
| 174.08 | 9799.45 | 3005.64 | 473.30 | 1427.05 | 0.00 | 490616.00 | 3914386.00 |
| 78.27 | 11563.13 | 3844.36 | 1048.45 | 1876.32 | 0.00 | 492379.00 | 3915225.00 |
| 261.19 | 9127.05 | 2706.13 | 964.53 | 1193.67 | 0.00 | 489943.00 | 3914087.00 |
| 89.59 | 11213.87 | 3673.16 | 747.17 | 1658.06 | 0.00 | 492030.00 | 3915054.00 |
| 217.42 | 9413.53 | 2857.08 | 1172.12 | 1278.86 | 0.00 | 490230.00 | 3914238.00 |
| 484.20 | 8347.77 | 2331.82 | 763.29 | 1007.36 | 0.00 | 489164.00 | 3913713.00 |
| 269.89 | 9078.98 | 2691.18 | 1057.59 | 1061.23 | 0.00 | 489895.00 | 3914072.00 |
| 405.71 | 8548.04 | 2426.99 | 834.94 | 892.67 | 0.00 | 489364.00 | 3913808.00 |
| 347.18 | 8733.47 | 2498.41 | 609.74 | 1452.15 | 0.00 | 489550.00 | 3913879.00 |
| 276.19 | 9053.12 | 2661.36 | 761.23 | 1442.54 | 0.00 | 489869.00 | 3914042.00 |
| 127.97 | 10397.21 | 3300.26 | 914.01 | 1465.10 | 0.00 | 491213.00 | 3914681.00 |
| 83.21 | 11399.92 | 3763.33 | 1189.31 | 2213.65 | 0.00 | 492216.00 | 3915144.00 |
| 451.20 | 8428.05 | 2365.11 | 765.75 | 1252.18 | 0.00 | 489244.00 | 3913746.00 |
| 439.14 | 8459.40 | 2377.47 | 495.59 | 907.67 | 0.00 | 489276.00 | 3913758.00 |
| 385.30 | 8612.56 | 2445.90 | 638.78 | 1123.45 | 0.00 | 489429.00 | 3913827.00 |
| 197.69 | 9571.65 | 2901.75 | 606.39 | 1571.15 | 0.00 | 490388.00 | 3914283.00 |
| 125.63 | 10433.98 | 3316.50 | 1030.96 | 1905.83 | 0.00 | 491250.00 | 3914697.00 |
| 42.74 | 13447.74 | 4723.99 | 849.86 | 1906.63 | 0.00 | 494264.00 | 3916105.00 |
| 792.10 | 7897.75 | 2086.49 | 386.53 | 791.75 | 0.00 | 488714.00 | 3913467.00 |
| 101.91 | 10897.46 | 3533.50 | 817.78 | 1739.52 | 0.00 | 491714.00 | 3914914.00 |
| 383.39 | 8618.34 | 2457.83 | 762.56 | 1264.12 | 0.00 | 489435.00 | 3913839.00 |
| 391.19 | 8596.48 | 2451.55 | 645.70 | 726.88 | 0.00 | 489413.00 | 3913832.00 |
| 156.87 | 9983.82 | 3111.57 | 753.30 | 1706.22 | 0.00 | 490800.00 | 3914492.00 |
| 412.86 | 8522.21 | 2414.41 | 631.66 | 893.13 | 0.00 | 489338.00 | 3913795.00 |
| 1351.92 | 7554.98 | 1891.26 | 440.72 | 568.96 | 0.00 | 488371.00 | 3913272.00 |
| 62.66 | 12189.17 | 4150.22 | 1142.80 | 1806.98 | 0.00 | 493005.00 | 3915531.00 |
| 134.79 | 10280.64 | 3247.07 | 893.22 | 1845.05 | 0.00 | 491097.00 | 3914628.00 |
| 412.25 | 8532.59 | 2410.71 | 741.96 | 1008.43 | 0.00 | 489349.00 | 3913791.00 |
| 138.33 | 10229.05 | 3230.77 | 1236.82 | 1639.36 | 0.00 | 491045.00 | 3914612.00 |
| 91.68 | 11152.34 | 3651.35 | 1126.48 | 2260.98 | 0.00 | 491969.00 | 3915032.00 |
| 232.32 | 9310.03 | 2790.03 | 1110.94 | 1517.35 | 0.00 | 490126.00 | 3914171.00 |
| 490.25 | 8333.78 | 2324.11 | 660.58 | 707.68 | 0.00 | 489150.00 | 3913705.00 |
| 197.61 | 9570.23 | 2909.09 | 812.27 | 1630.65 | 0.00 | 490387.00 | 3914290.00 |
| 296.55 | 8949.33 | 2611.65 | 735.64 | 1502.48 | 0.00 | 489766.00 | 3913992.00 |
| 194.54 | 9605.08 | 2924.64 | 886.71 | 1733.00 | 0.00 | 490421.00 | 3914305.00 |
| 394.37 | 8589.81 | 2440.67 | 631.65 | 1122.86 | 0.00 | 489406.00 | 3913821.00 |
| 329.23 | 8805.74 | 2552.44 | 1126.93 | 1462.54 | 0.00 | 489622.00 | 3913933.00 |
| 303.18 | 8918.80 | 2598.66 | 965.88 | 1635.88 | 0.00 | 489735.00 | 3913979.00 |
| 673.68 | 8041.07 | 2170.71 | 700.16 | 669.77 | 0.00 | 488857.00 | 3913551.00 |
| 527.62 | 8261.00 | 2282.08 | 760.38 | 1006.24 | 0.00 | 489077.00 | 3913663.00 |
| 282.01 | 9025.76 | 2646.56 | 708.94 | 1105.34 | 0.00 | 489842.00 | 3914027.00 |
| 162.41 | 9912.20 | 3077.00 | 1069.72 | 1933.73 | 0.00 | 490728.00 | 3914458.00 |
| 165.89 | 9886.28 | 3058.85 | 748.56 | 1586.01 | 0.00 | 490703.00 | 3914440.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 453.78 | 21510.42 | 5918.71 | 737.93 | 757.61 | **68.33** | 502327.00 | 3917299.00 |
| 195.84 | 23921.04 | 7085.80 | 1121.52 | 1422.27 | 0.00 | 504737.00 | 3918467.00 |
| 488.48 | 21342.20 | 5840.48 | 845.58 | 935.35 | 0.00 | 502158.00 | 3917221.00 |
| 327.84 | 22309.64 | 6307.88 | 1012.34 | 1393.96 | 0.00 | 503126.00 | 3917689.00 |
| 305.55 | 22505.25 | 6405.07 | 868.11 | 1116.73 | 0.00 | 503322.00 | 3917786.00 |
| 317.82 | 22397.37 | 6342.10 | 828.16 | 1096.47 | 0.00 | 503214.00 | 3917723.00 |
| 446.08 | 21547.11 | 5940.12 | 874.89 | 947.60 | 0.00 | 502363.00 | 3917321.00 |
| 258.88 | 22994.58 | 6647.53 | 836.23 | 866.74 | 0.00 | 503811.00 | 3918028.00 |
| 166.18 | 24535.90 | 7372.48 | 934.66 | 1093.24 | 0.00 | 505352.00 | 3918753.00 |
| 312.27 | 22448.78 | 6372.94 | 810.70 | 904.34 | 0.00 | 503265.00 | 3917754.00 |
| 586.10 | 20976.47 | 5643.24 | 669.46 | 712.32 | 0.00 | 501793.00 | 3917024.00 |
| 117.47 | 26005.76 | 8071.50 | 1349.88 | 1851.60 | 0.00 | 506822.00 | 3919452.00 |
| 36.88 | 33293.84 | 11494.00 | 2850.01 | 3055.35 | 0.00 | 514110.00 | 3922875.00 |
| 339.97 | 22213.16 | 6272.09 | 974.33 | 1119.51 | 0.00 | 503029.00 | 3917653.00 |
| 341.95 | 22195.42 | 6255.65 | 888.17 | 1113.03 | 0.00 | 503012.00 | 3917636.00 |
| 503.88 | 21277.08 | 5807.06 | 805.96 | 915.40 | 0.00 | 502093.00 | 3917188.00 |
| 221.15 | 23501.38 | 6886.08 | 1155.90 | 1518.52 | 0.00 | 504318.00 | 3918267.00 |
| 143.23 | 25131.92 | 7641.58 | 1321.79 | 1832.33 | 0.00 | 505948.00 | 3919022.00 |
| 554.15 | 21082.67 | 5701.94 | 703.11 | 788.23 | 0.00 | 501899.00 | 3917083.00 |
| 219.96 | 23516.52 | 6893.93 | 1045.87 | 1461.52 | 0.00 | 504333.00 | 3918275.00 |
| 225.97 | 23434.93 | 6840.51 | 1048.15 | 1395.90 | 0.00 | 504251.00 | 3918221.00 |
| 176.61 | 24301.57 | 7266.16 | 990.72 | 1191.64 | 0.00 | 505118.00 | 3918647.00 |
| 337.44 | 22231.97 | 6275.11 | 823.06 | 967.32 | 0.00 | 503048.00 | 3917656.00 |
| 326.01 | 22322.78 | 6323.37 | 849.73 | 941.71 | 0.00 | 503139.00 | 3917704.00 |
| 98.07 | 26876.84 | 8486.45 | 1579.48 | 1893.76 | 0.00 | 507693.00 | 3919867.00 |
| 35.66 | 33573.49 | 11624.52 | 2213.24 | 3144.16 | 0.00 | 514390.00 | 3923005.00 |
| 311.70 | 22450.70 | 6388.37 | 888.52 | 975.60 | 0.00 | 503267.00 | 3917769.00 |
| 175.18 | 24330.33 | 7275.42 | 1258.05 | 1691.52 | 0.00 | 505147.00 | 3918656.00 |
| 66.23 | 29085.75 | 9499.74 | 1753.50 | 3058.87 | 0.00 | 509902.00 | 3920881.00 |
| 241.16 | 23218.97 | 6747.50 | 949.34 | 1201.44 | 0.00 | 504035.00 | 3918128.00 |
| 410.43 | 21739.18 | 6033.30 | 695.93 | 757.84 | 0.00 | 502555.00 | 3917414.00 |
| 130.05 | 25544.41 | 7850.65 | 1331.35 | 1681.46 | 0.00 | 506361.00 | 3919231.00 |
| 344.19 | 22183.58 | 6249.21 | 752.01 | 858.96 | 0.00 | 503000.00 | 3917630.00 |
| 223.86 | 23461.06 | 6864.52 | 1000.45 | 1356.07 | 0.00 | 504277.00 | 3918245.00 |
| 228.89 | 23387.73 | 6827.18 | 1038.51 | 1177.67 | 0.00 | 504204.00 | 3918208.00 |
| 249.48 | 23108.18 | 6695.99 | 1003.67 | 1382.10 | 0.00 | 503924.00 | 3918077.00 |
| 351.39 | 22128.57 | 6221.70 | 818.23 | 971.59 | 0.00 | 502945.00 | 3917602.00 |
| 505.29 | 21268.10 | 5804.86 | 705.66 | 719.04 | 0.00 | 502084.00 | 3917186.00 |
| 398.57 | 21803.04 | 6070.05 | 857.36 | 985.22 | 0.00 | 502619.00 | 3917451.00 |
| 177.80 | 24277.06 | 7248.21 | 1029.36 | 1306.39 | 0.00 | 505093.00 | 3918629.00 |
| 25.94 | 36483.42 | 12952.10 | 2382.11 | 4598.45 | 0.00 | 517300.00 | 3924333.00 |
| 728.95 | 20590.93 | 5443.90 | 637.92 | 650.64 | 0.00 | 501407.00 | 3916825.00 |
| 39.96 | 32640.13 | 11147.40 | 1956.61 | 3878.55 | 0.00 | 513456.00 | 3922528.00 |
| 396.36 | 21826.40 | 6073.66 | 806.22 | 1017.19 | 0.00 | 502643.00 | 3917454.00 |
| 382.04 | 21910.78 | 6118.74 | 922.14 | 1117.82 | 0.00 | 502727.00 | 3917500.00 |
| 278.85 | 22773.01 | 6527.99 | 902.89 | 1271.65 | 0.00 | 503589.00 | 3917909.00 |
| 605.24 | 20913.43 | 5616.75 | 666.89 | 651.88 | 0.00 | 501730.00 | 3916998.00 |
| 171.31 | 24417.58 | 7306.16 | 1011.90 | 1569.13 | 0.00 | 505234.00 | 3918687.00 |
| 717.44 | 20614.33 | 5462.98 | 694.79 | 781.76 | 0.00 | 501431.00 | 3916844.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 204.06 | 23776.35 | 7013.46 | 1170.62 | 1733.41 | 0.00 | 504593.00 | 3918394.00 |
| 147.38 | 25009.89 | 7583.82 | 1163.61 | 1824.95 | 0.00 | 505826.00 | 3918965.00 |
| 48.19 | 31217.82 | 10524.29 | 2709.23 | 3530.74 | 0.00 | 512034.00 | 3921905.00 |
| 267.42 | 22893.37 | 6598.45 | 787.89 | 840.74 | 0.00 | 503710.00 | 3917979.00 |
| 410.77 | 21734.74 | 6026.80 | 786.29 | 930.28 | 0.00 | 502551.00 | 3917408.00 |
| 529.75 | 21176.78 | 5749.24 | 742.97 | 826.50 | 0.00 | 501993.00 | 3917130.00 |
| 344.61 | 22179.62 | 6244.19 | 777.04 | 1023.82 | 0.00 | 502996.00 | 3917625.00 |
| 514.02 | 21230.58 | 5780.23 | 713.33 | 760.19 | 0.00 | 502047.00 | 3917161.00 |
| 236.46 | 23280.65 | 6774.98 | 1113.70 | 1351.11 | 0.00 | 504097.00 | 3918156.00 |
| 279.86 | 22764.10 | 6531.25 | 897.35 | 1089.95 | 0.00 | 503580.00 | 3917912.00 |
| 279.02 | 22770.41 | 6528.74 | 920.97 | 1167.89 | 0.00 | 503587.00 | 3917910.00 |
| 591.92 | 20950.18 | 5636.44 | 734.70 | 873.43 | 0.00 | 501766.00 | 3917017.00 |
| 255.62 | 23032.82 | 6661.68 | 1062.89 | 1298.49 | 0.00 | 503849.00 | 3918042.00 |
| 447.07 | 21537.84 | 5931.18 | 721.16 | 792.92 | 0.00 | 502354.00 | 3917312.00 |
| 183.19 | 24162.94 | 7193.63 | 1047.92 | 1521.86 | 0.00 | 504979.00 | 3918574.00 |
| 80.92 | 27905.14 | 8946.00 | 1408.94 | 2036.53 | 0.00 | 508721.00 | 3920327.00 |
| 219.89 | 23521.59 | 6891.69 | 1035.03 | 1525.12 | 0.00 | 504338.00 | 3918272.00 |
| 121.64 | 25845.21 | 7991.65 | 1516.24 | 1934.60 | 0.00 | 506661.00 | 3919372.00 |
| 97.71 | 26900.17 | 8492.77 | 1643.03 | 2031.71 | 0.00 | 507716.00 | 3919874.00 |
| 240.87 | 23220.21 | 6754.01 | 1142.10 | 1504.48 | 0.00 | 504036.00 | 3918135.00 |
| 131.07 | 25513.80 | 7841.68 | 1237.32 | 1333.78 | 0.00 | 506330.00 | 3919222.00 |
| 397.43 | 21810.14 | 6065.69 | 811.31 | 1013.22 | 0.00 | 502626.00 | 3917446.00 |
| 152.52 | 24874.16 | 7538.17 | 1343.22 | 1604.72 | 0.00 | 505690.00 | 3918919.00 |
| 399.37 | 21808.79 | 6063.14 | 741.41 | 881.94 | 0.00 | 502625.00 | 3917444.00 |
| 807.66 | 20417.16 | 5363.73 | 636.88 | 591.66 | 0.00 | 501233.00 | 3916745.00 |
| 458.26 | 21481.85 | 5908.33 | 869.50 | 947.79 | 0.00 | 502298.00 | 3917289.00 |
| 556.92 | 21065.84 | 5711.70 | 822.48 | 840.57 | 0.00 | 501882.00 | 3917092.00 |
| 159.49 | 24693.38 | 7448.81 | 1149.03 | 1452.75 | 0.00 | 505510.00 | 3918830.00 |
| 177.85 | 24275.41 | 7251.30 | 1455.12 | 1600.86 | 0.00 | 505092.00 | 3918632.00 |
| 316.01 | 22412.05 | 6351.93 | 898.33 | 1247.15 | 0.00 | 503228.00 | 3917733.00 |
| 136.01 | 25349.96 | 7759.09 | 1397.15 | 1966.00 | 0.00 | 506166.00 | 3919140.00 |
| 59.37 | 29781.20 | 9822.97 | 1521.26 | 2766.37 | 0.00 | 510597.00 | 3921204.00 |
| 176.20 | 24313.81 | 7277.21 | 1368.04 | 1557.09 | 0.00 | 505130.00 | 3918658.00 |
| 269.10 | 22881.64 | 6581.17 | 1037.60 | 1342.34 | 0.00 | 503698.00 | 3917962.00 |
| 288.38 | 22673.97 | 6492.98 | 1106.76 | 1299.45 | 0.00 | 503490.00 | 3917874.00 |
| 239.40 | 23237.40 | 6765.11 | 874.02 | 1002.87 | 0.00 | 504054.00 | 3918146.00 |
| 222.26 | 23482.77 | 6875.45 | 1143.93 | 1390.33 | 0.00 | 504299.00 | 3918256.00 |
| 67.93 | 28929.56 | 9416.79 | 1663.98 | 3522.38 | 0.00 | 509746.00 | 3920798.00 |
| 109.56 | 26331.96 | 8211.18 | 1592.65 | 2104.65 | 0.00 | 507148.00 | 3919592.00 |
| 68.27 | 28897.30 | 9425.20 | 1789.55 | 2489.80 | 0.00 | 509714.00 | 3920806.00 |
| 430.54 | 21627.09 | 5980.03 | 743.43 | 784.39 | 0.00 | 502443.00 | 3917361.00 |
| 461.63 | 21467.72 | 5903.80 | 798.66 | 843.41 | 0.00 | 502284.00 | 3917285.00 |
| 198.91 | 23868.43 | 7058.14 | 1169.43 | 1667.04 | 0.00 | 504685.00 | 3918439.00 |
| 401.73 | 21789.27 | 6058.48 | 799.61 | 921.66 | 0.00 | 502606.00 | 3917439.00 |
| 449.70 | 21527.05 | 5930.35 | 877.88 | 983.57 | 0.00 | 502343.00 | 3917311.00 |
| 1096.78 | 20009.11 | 5128.74 | 641.56 | 639.42 | 0.00 | 500825.00 | 3916510.00 |
| 138.90 | 25260.49 | 7707.89 | 1026.74 | 1444.79 | 0.00 | 506077.00 | 3919089.00 |
| 268.51 | 22886.45 | 6590.52 | 1018.26 | 1337.68 | 0.00 | 503703.00 | 3917971.00 |
| 116.25 | 26052.20 | 8096.35 | 1384.70 | 1934.16 | 0.00 | 506868.00 | 3919477.00 |
| 272.87 | 22840.61 | 6558.43 | 995.19 | 1419.15 | 0.00 | 503657.00 | 3917939.00 |
| 337.56 | 22235.34 | 6279.06 | 874.60 | 1027.66 | 0.00 | 503052.00 | 3917660.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 453.14 | 11243.49 | 3140.45 | 1034.82 | 1082.27 | **51.99** | 492060.00 | 3914521.00 |
| 253.77 | 12181.02 | 3597.82 | 1173.73 | 1257.65 | 0.00 | 492997.00 | 3914979.00 |
| 278.41 | 12012.83 | 3505.06 | 1197.81 | 1676.92 | 0.00 | 492829.00 | 3914886.00 |
| 548.62 | 10998.72 | 3016.20 | 592.12 | 880.05 | 0.00 | 491815.00 | 3914397.00 |
| 317.76 | 11788.20 | 3398.33 | 1037.56 | 1263.56 | 0.00 | 492604.00 | 3914779.00 |
| 290.24 | 11945.12 | 3476.88 | 875.38 | 1036.45 | 0.00 | 492761.00 | 3914858.00 |
| 355.67 | 11613.16 | 3308.17 | 881.41 | 1230.10 | 0.00 | 492429.00 | 3914689.00 |
| 325.47 | 11743.60 | 3382.70 | 851.40 | 1113.03 | 0.00 | 492560.00 | 3914763.00 |
| 154.38 | 13234.06 | 4100.94 | 1165.00 | 1507.85 | 0.00 | 494050.00 | 3915482.00 |
| 334.86 | 11698.83 | 3362.70 | 935.38 | 1228.17 | 0.00 | 492515.00 | 3914743.00 |
| 144.37 | 13398.96 | 4172.18 | 1112.49 | 1571.50 | 0.00 | 494215.00 | 3915553.00 |
| 134.02 | 13583.05 | 4259.35 | 1170.41 | 2318.93 | 0.00 | 494399.00 | 3915640.00 |
| 373.66 | 11537.77 | 3277.67 | 877.56 | 1202.60 | 0.00 | 492354.00 | 3914658.00 |
| 200.25 | 12649.04 | 3816.00 | 1100.84 | 1427.27 | 0.00 | 493465.00 | 3915197.00 |
| 95.93 | 14523.90 | 4691.14 | 1144.83 | 1879.92 | 0.00 | 495340.00 | 3916072.00 |
| 87.01 | 14823.19 | 4827.66 | 1420.69 | 2685.22 | 0.00 | 495639.00 | 3916208.00 |
| 390.43 | 11456.97 | 3251.40 | 833.48 | 1107.92 | 0.00 | 492273.00 | 3914632.00 |
| 98.23 | 14449.88 | 4646.28 | 1304.57 | 2630.16 | 0.00 | 495266.00 | 3916027.00 |
| 262.54 | 12120.97 | 3553.31 | 836.06 | 1571.96 | 0.00 | 492937.00 | 3914934.00 |
| 316.22 | 11791.55 | 3403.88 | 1081.94 | 1431.81 | 0.00 | 492608.00 | 3914785.00 |
| 211.88 | 12541.52 | 3756.46 | 863.38 | 1348.45 | 0.00 | 493358.00 | 3915137.00 |
| 163.26 | 13103.95 | 4018.70 | 862.60 | 1926.03 | 0.00 | 493920.00 | 3915399.00 |
| 376.24 | 11523.04 | 3269.47 | 784.06 | 1150.67 | 0.00 | 492339.00 | 3914650.00 |
| 102.15 | 14333.66 | 4599.88 | 1410.79 | 2355.44 | 0.00 | 495150.00 | 3915981.00 |
| 390.74 | 11467.56 | 3244.91 | 611.33 | 1005.73 | 0.00 | 492284.00 | 3914626.00 |
| 216.84 | 12491.40 | 3729.10 | 852.17 | 1294.51 | 0.00 | 493308.00 | 3915110.00 |
| 71.28 | 15497.89 | 5144.79 | 1371.37 | 2263.39 | 0.00 | 496314.00 | 3916526.00 |
| 163.88 | 13089.70 | 4019.35 | 1374.58 | 2195.24 | 0.00 | 493906.00 | 3915400.00 |
| 288.71 | 11950.87 | 3470.82 | 973.71 | 1592.05 | 0.00 | 492767.00 | 3914852.00 |
| 181.95 | 12859.66 | 3909.91 | 950.79 | 1601.66 | 0.00 | 493676.00 | 3915291.00 |
| 525.59 | 11051.19 | 3044.06 | 718.35 | 1141.20 | 0.00 | 491867.00 | 3914425.00 |
| 234.36 | 12332.13 | 3675.73 | 1105.38 | 1520.52 | 0.00 | 493148.00 | 3915057.00 |
| 164.19 | 13091.39 | 4014.97 | 1288.54 | 1721.55 | 0.00 | 493908.00 | 3915396.00 |
| 137.11 | 13531.23 | 4220.10 | 1137.22 | 1580.96 | 0.00 | 494348.00 | 3915601.00 |
| 371.38 | 11545.10 | 3287.68 | 965.11 | 966.45 | 0.00 | 492361.00 | 3914668.00 |
| 27.72 | 19744.00 | 7131.60 | 1571.99 | 2351.22 | 0.00 | 500560.00 | 3918512.00 |
| 277.42 | 12023.04 | 3509.64 | 748.67 | 1118.66 | 0.00 | 492839.00 | 3914890.00 |
| 217.00 | 12480.69 | 3742.42 | 1101.74 | 1303.81 | 0.00 | 493297.00 | 3915123.00 |
| 77.54 | 15204.77 | 4994.09 | 1238.16 | 2400.24 | 0.00 | 496021.00 | 3916375.00 |
| 562.81 | 10978.61 | 2998.61 | 686.18 | 678.83 | 0.00 | 491795.00 | 3914379.00 |
| 171.08 | 12997.10 | 3981.14 | 874.41 | 1552.02 | 0.00 | 493813.00 | 3915362.00 |
| 209.46 | 12561.75 | 3757.84 | 991.45 | 1977.75 | 0.00 | 493378.00 | 3915139.00 |
| 287.37 | 11951.71 | 3488.46 | 891.25 | 985.06 | 0.00 | 492768.00 | 3914869.00 |
| 154.03 | 13238.72 | 4077.69 | 961.30 | 2210.48 | 0.00 | 494055.00 | 3915458.00 |
| 380.02 | 11502.08 | 3263.92 | 693.02 | 1046.68 | 0.00 | 492318.00 | 3914645.00 |
| 49.26 | 16925.98 | 5804.55 | 1476.68 | 3013.15 | 0.00 | 497742.00 | 3917185.00 |
| 44.58 | 17359.94 | 6000.45 | 1510.32 | 2759.10 | 0.00 | 498176.00 | 3917381.00 |
| 481.92 | 11167.23 | 3103.77 | 761.11 | 830.77 | 0.00 | 491984.00 | 3914485.00 |
| 305.67 | 11852.01 | 3439.70 | 953.43 | 1076.92 | 0.00 | 492668.00 | 3914820.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 116.47 | 13959.48 | 4424.00 | 1127.88 | 2213.81 | 0.00 | 494776.00 | 3915805.00 |
| 100.13 | 14392.48 | 4637.21 | 1220.28 | 1945.41 | 0.00 | 495209.00 | 3916018.00 |
| 593.18 | 10917.05 | 2964.37 | 501.17 | 741.01 | 0.00 | 491733.00 | 3914345.00 |
| 428.43 | 11330.42 | 3177.27 | 748.05 | 1005.69 | 0.00 | 492147.00 | 3914558.00 |
| 316.53 | 11799.68 | 3398.28 | 638.65 | 1210.36 | 0.00 | 492616.00 | 3914779.00 |
| 718.97 | 10701.63 | 2858.04 | 453.30 | 579.41 | 0.00 | 491518.00 | 3914239.00 |
| 42.03 | 17625.92 | 6144.17 | 1626.29 | 2868.63 | 0.00 | 498442.00 | 3917525.00 |
| 319.31 | 11781.34 | 3386.45 | 600.48 | 1396.82 | 0.00 | 492598.00 | 3914767.00 |
| 339.32 | 11685.78 | 3349.94 | 703.77 | 1053.61 | 0.00 | 492502.00 | 3914731.00 |
| 157.49 | 13179.19 | 4074.53 | 1288.15 | 1829.92 | 0.00 | 493995.00 | 3915455.00 |
| 311.15 | 11817.70 | 3418.77 | 1096.23 | 1432.72 | 0.00 | 492634.00 | 3914800.00 |
| 182.27 | 12860.70 | 3913.06 | 928.44 | 1512.19 | 0.00 | 493677.00 | 3915294.00 |
| 409.17 | 11395.83 | 3215.83 | 862.84 | 1017.70 | 0.00 | 492212.00 | 3914597.00 |
| 352.05 | 11623.20 | 3317.26 | 723.49 | 1055.74 | 0.00 | 492439.00 | 3914698.00 |
| 369.44 | 11546.07 | 3282.59 | 872.94 | 1367.78 | 0.00 | 492362.00 | 3914663.00 |
| 156.06 | 13206.06 | 4083.35 | 1242.80 | 1460.24 | 0.00 | 494022.00 | 3915464.00 |
| 259.61 | 12145.81 | 3569.46 | 879.11 | 1491.36 | 0.00 | 492962.00 | 3914950.00 |
| 160.67 | 13135.56 | 4038.64 | 809.38 | 1638.18 | 0.00 | 493952.00 | 3915419.00 |
| 60.55 | 16095.05 | 5403.43 | 1238.15 | 2858.51 | 0.00 | 496911.00 | 3916784.00 |
| 235.56 | 12335.39 | 3654.41 | 785.85 | 1217.75 | 0.00 | 493152.00 | 3915035.00 |
| 388.80 | 11465.90 | 3241.81 | 807.69 | 1119.59 | 0.00 | 492282.00 | 3914623.00 |
| 241.43 | 12272.89 | 3645.27 | 954.06 | 1098.24 | 0.00 | 493089.00 | 3915026.00 |
| 117.28 | 13941.81 | 4420.12 | 1350.21 | 2037.99 | 0.00 | 494758.00 | 3915801.00 |
| 246.85 | 12233.22 | 3621.18 | 1138.17 | 1276.26 | 0.00 | 493050.00 | 3915002.00 |
| 67.19 | 15708.40 | 5264.09 | 1355.25 | 1491.61 | 0.00 | 496525.00 | 3916645.00 |
| 412.40 | 11379.40 | 3201.77 | 753.03 | 1202.71 | 0.00 | 492196.00 | 3914583.00 |
| 217.39 | 12474.75 | 3729.25 | 815.09 | 1691.47 | 0.00 | 493291.00 | 3915110.00 |
| 66.12 | 15765.27 | 5261.62 | 1133.68 | 2457.19 | 0.00 | 496582.00 | 3916642.00 |
| 440.90 | 11280.10 | 3161.95 | 744.83 | 997.44 | 0.00 | 492096.00 | 3914543.00 |
| 118.17 | 13916.03 | 4416.30 | 1571.45 | 2297.55 | 0.00 | 494732.00 | 3915797.00 |
| 143.64 | 13407.36 | 4161.97 | 1072.88 | 2738.78 | 0.00 | 494224.00 | 3915543.00 |
| 240.43 | 12290.23 | 3634.15 | 998.02 | 1597.81 | 0.00 | 493107.00 | 3915015.00 |
| 392.20 | 11457.28 | 3241.37 | 618.95 | 799.84 | 0.00 | 492274.00 | 3914622.00 |
| 226.68 | 12400.79 | 3691.76 | 857.58 | 1689.35 | 0.00 | 493217.00 | 3915073.00 |
| 308.19 | 11837.57 | 3421.69 | 871.99 | 1321.38 | 0.00 | 492654.00 | 3914802.00 |
| 105.32 | 14243.40 | 4565.82 | 1005.45 | 1672.93 | 0.00 | 495060.00 | 3915947.00 |
| 273.10 | 12048.05 | 3529.79 | 785.07 | 1295.78 | 0.00 | 492864.00 | 3914911.00 |
| 409.87 | 11385.79 | 3206.49 | 546.24 | 878.29 | 0.00 | 492202.00 | 3914587.00 |
| 341.61 | 11672.16 | 3344.00 | 868.75 | 1459.95 | 0.00 | 492488.00 | 3914725.00 |
| 487.08 | 11150.48 | 3087.34 | 510.52 | 779.61 | 0.00 | 491967.00 | 3914468.00 |
| 293.21 | 11924.47 | 3466.41 | 757.46 | 802.75 | 0.00 | 492741.00 | 3914847.00 |
| 53.61 | 16572.50 | 5644.64 | 1444.30 | 2846.49 | 0.00 | 497389.00 | 3917025.00 |
| 483.47 | 11153.97 | 3087.78 | 565.56 | 891.79 | 0.00 | 491970.00 | 3914469.00 |
| 39.02 | 17968.85 | 6271.61 | 1186.28 | 2885.05 | 0.00 | 498785.00 | 3917652.00 |
| 210.88 | 12544.97 | 3765.54 | 855.07 | 1103.09 | 0.00 | 493361.00 | 3915146.00 |
| 333.82 | 11712.47 | 3363.25 | 1059.03 | 1215.00 | 0.00 | 492529.00 | 3914744.00 |
| 197.97 | 12674.94 | 3833.19 | 1083.55 | 1549.75 | 0.00 | 493491.00 | 3915214.00 |
| 405.31 | 11407.29 | 3209.10 | 666.06 | 1071.85 | 0.00 | 492224.00 | 3914590.00 |
| 218.95 | 12469.41 | 3731.70 | 701.26 | 1178.87 | 0.00 | 493286.00 | 3915112.00 |
| 236.61 | 12312.17 | 3663.76 | 1189.17 | 1363.36 | 0.00 | 493128.00 | 3915045.00 |
| 115.53 | 13983.34 | 4435.42 | 1254.55 | 2303.54 | 0.00 | 494800.00 | 3915816.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 198.17 | 65544.81 | 18495.60 | 1505.32 | 1377.88 | **100.12** | 546361.00 | 3929876.00 |
| 305.56 | 62567.58 | 17077.01 | 1476.77 | 1400.29 | 0.00 | 543384.00 | 3928458.00 |
| 97.48 | 72133.41 | 21598.74 | 1822.42 | 1857.91 | 0.00 | 552950.00 | 3932980.00 |
| 604.57 | 59121.23 | 15401.68 | 1246.28 | 879.73 | 0.00 | 539938.00 | 3926782.00 |
| 328.58 | 62133.06 | 16872.30 | 1406.00 | 1264.41 | 0.00 | 542949.00 | 3928253.00 |
| 359.03 | 61629.38 | 16624.74 | 1337.03 | 1092.40 | 0.00 | 542446.00 | 3928006.00 |
| 368.65 | 61478.94 | 16554.27 | 1331.80 | 1076.36 | 0.00 | 542295.00 | 3927935.00 |
| 339.73 | 61938.29 | 16779.10 | 1448.75 | 1384.41 | 0.00 | 542755.00 | 3928160.00 |
| 463.89 | 60295.40 | 15982.71 | 1338.45 | 1158.57 | 0.00 | 541112.00 | 3927363.00 |
| 308.29 | 62513.60 | 17050.61 | 1367.17 | 1162.75 | 0.00 | 543330.00 | 3928431.00 |
| 108.47 | 70981.81 | 21065.31 | 1777.36 | 1769.76 | 0.00 | 551798.00 | 3932446.00 |
| 170.98 | 66724.86 | 19061.06 | 1676.88 | 1726.98 | 0.00 | 547541.00 | 3930442.00 |
| 165.51 | 66996.07 | 19188.19 | 1619.19 | 1619.30 | 0.00 | 547812.00 | 3930569.00 |
| 490.76 | 60029.42 | 15852.81 | 1231.52 | 791.24 | 0.00 | 540846.00 | 3927234.00 |
| 252.24 | 63800.52 | 17662.97 | 1504.06 | 1484.29 | 0.00 | 544617.00 | 3929044.00 |
| 447.29 | 60472.87 | 16067.84 | 1288.77 | 982.05 | 0.00 | 541289.00 | 3927449.00 |
| 401.97 | 61012.68 | 16340.22 | 1364.79 | 1145.35 | 0.00 | 541829.00 | 3927721.00 |
| 295.53 | 62769.98 | 17175.22 | 1452.19 | 1389.48 | 0.00 | 543586.00 | 3928556.00 |
| 279.02 | 63135.30 | 17357.26 | 1475.72 | 1405.20 | 0.00 | 543952.00 | 3928738.00 |
| 371.04 | 61442.73 | 16541.79 | 1324.93 | 1041.16 | 0.00 | 542259.00 | 3927923.00 |
| 130.33 | 69140.83 | 20190.17 | 1774.06 | 1895.00 | 0.00 | 549957.00 | 3931571.00 |
| 455.79 | 60380.16 | 16026.77 | 1312.00 | 1051.92 | 0.00 | 541196.00 | 3927408.00 |
| 553.80 | 59490.22 | 15575.91 | 1249.82 | 919.39 | 0.00 | 540307.00 | 3926957.00 |
| 182.37 | 66196.96 | 18803.59 | 1604.98 | 1605.68 | 0.00 | 547013.00 | 3930184.00 |
| 304.08 | 62595.61 | 17097.35 | 1346.10 | 1053.72 | 0.00 | 543412.00 | 3928478.00 |
| 218.85 | 64799.42 | 18144.39 | 1526.34 | 1488.14 | 0.00 | 545616.00 | 3929525.00 |
| 254.36 | 63742.98 | 17641.39 | 1447.93 | 1276.56 | 0.00 | 544559.00 | 3929022.00 |
| 141.77 | 68354.44 | 19820.48 | 1666.57 | 1685.25 | 0.00 | 549171.00 | 3931201.00 |
| 97.70 | 72109.72 | 21588.31 | 1909.56 | 2050.62 | 0.00 | 552926.00 | 3932969.00 |
| 52.41 | 80215.59 | 25391.69 | 2774.56 | 3386.30 | 0.00 | 561032.00 | 3936772.00 |
| 770.55 | 58217.73 | 14939.81 | 1209.62 | 783.35 | 0.00 | 539034.00 | 3926321.00 |
| 417.11 | 60822.89 | 16235.20 | 1357.69 | 1205.74 | 0.00 | 541639.00 | 3927616.00 |
| 491.26 | 60024.80 | 15844.12 | 1268.51 | 943.86 | 0.00 | 540841.00 | 3927225.00 |
| 234.03 | 64317.61 | 17920.51 | 1478.20 | 1319.22 | 0.00 | 545134.00 | 3929301.00 |
| 187.39 | 65979.86 | 18703.36 | 1534.19 | 1421.97 | 0.00 | 546796.00 | 3930084.00 |
| 277.57 | 63168.16 | 17369.93 | 1461.72 | 1375.02 | 0.00 | 543984.00 | 3928751.00 |
| 453.16 | 60409.97 | 16034.26 | 1277.01 | 952.01 | 0.00 | 541226.00 | 3927415.00 |
| 560.82 | 59434.94 | 15557.20 | 1293.16 | 1029.16 | 0.00 | 540251.00 | 3926938.00 |
| 135.20 | 68791.04 | 20030.85 | 1782.25 | 1882.59 | 0.00 | 549607.00 | 3931412.00 |
| 205.69 | 65257.78 | 18369.17 | 1493.26 | 1297.70 | 0.00 | 546074.00 | 3929750.00 |
| 199.86 | 65478.72 | 18474.96 | 1694.69 | 1748.95 | 0.00 | 546295.00 | 3929856.00 |
| 294.95 | 62783.04 | 17184.64 | 1417.97 | 1284.02 | 0.00 | 543599.00 | 3928565.00 |
| 310.70 | 62466.05 | 17035.27 | 1376.34 | 1147.03 | 0.00 | 543282.00 | 3928416.00 |
| 432.10 | 60643.81 | 16157.59 | 1290.92 | 948.54 | 0.00 | 541460.00 | 3927538.00 |
| 190.54 | 65848.37 | 18637.40 | 1689.26 | 1929.30 | 0.00 | 546665.00 | 3930018.00 |
| 495.94 | 59981.69 | 15823.74 | 1274.17 | 957.93 | 0.00 | 540798.00 | 3927205.00 |
| 317.71 | 62331.60 | 16962.89 | 1424.72 | 1328.20 | 0.00 | 543148.00 | 3928344.00 |
| 52.56 | 80172.34 | 25356.39 | 2430.50 | 2848.28 | 0.00 | 560989.00 | 3936737.00 |
| 397.96 | 61067.09 | 16352.40 | 1336.98 | 1137.74 | 0.00 | 541883.00 | 3927733.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 666.31 | 58745.55 | 15208.26 | 1208.11 | 762.37 | 0.00 | 539562.00 | 3926589.00 |
| 379.60 | 61320.14 | 16479.72 | 1418.99 | 1322.07 | 0.00 | 542136.00 | 3927861.00 |
| 444.55 | 60503.72 | 16088.09 | 1257.58 | 857.98 | 0.00 | 541320.00 | 3927469.00 |
| 162.67 | 67137.11 | 19245.86 | 1631.26 | 1636.50 | 0.00 | 547953.00 | 3930627.00 |
| 499.25 | 59952.45 | 15819.06 | 1243.59 | 834.59 | 0.00 | 540769.00 | 3927200.00 |
| 143.43 | 68246.15 | 19765.63 | 1704.18 | 1803.43 | 0.00 | 549062.00 | 3931146.00 |
| 641.60 | 58880.56 | 15279.78 | 1240.89 | 865.40 | 0.00 | 539697.00 | 3926661.00 |
| 57.54 | 78831.95 | 24730.55 | 2506.70 | 3052.59 | 0.00 | 559648.00 | 3936111.00 |
| 64.16 | 77298.46 | 24011.26 | 2383.66 | 2925.71 | 0.00 | 558115.00 | 3935392.00 |
| 225.68 | 64575.51 | 18034.73 | 1690.16 | 1861.04 | 0.00 | 545392.00 | 3929416.00 |
| 56.44 | 79112.92 | 24857.35 | 2324.25 | 2612.97 | 0.00 | 559929.00 | 3936238.00 |
| 569.61 | 59365.10 | 15525.76 | 1280.12 | 978.69 | 0.00 | 540181.00 | 3926907.00 |
| 253.39 | 63768.31 | 17656.72 | 1421.93 | 1222.69 | 0.00 | 544585.00 | 3929038.00 |
| 342.90 | 61883.12 | 16750.42 | 1403.90 | 1274.69 | 0.00 | 542699.00 | 3928131.00 |
| 386.57 | 61222.95 | 16429.04 | 1388.62 | 1245.90 | 0.00 | 542039.00 | 3927810.00 |
| 321.71 | 62257.52 | 16927.40 | 1347.64 | 1116.58 | 0.00 | 543074.00 | 3928308.00 |
| 165.86 | 66977.22 | 19177.51 | 1664.64 | 1681.35 | 0.00 | 547793.00 | 3930558.00 |
| 394.10 | 61117.91 | 16386.42 | 1301.56 | 1000.45 | 0.00 | 541934.00 | 3927767.00 |
| 305.76 | 62561.21 | 17076.60 | 1341.55 | 1061.77 | 0.00 | 543377.00 | 3928457.00 |
| 113.27 | 70530.56 | 20855.46 | 1899.71 | 2074.60 | 0.00 | 551347.00 | 3932236.00 |
| 84.15 | 73826.12 | 22411.02 | 1975.58 | 1942.19 | 0.00 | 554642.00 | 3933792.00 |
| 304.89 | 62580.32 | 17089.24 | 1390.14 | 1166.18 | 0.00 | 543397.00 | 3928470.00 |
| 122.47 | 69744.59 | 20477.60 | 1874.96 | 2042.97 | 0.00 | 550561.00 | 3931858.00 |
| 388.65 | 61193.44 | 16420.05 | 1299.96 | 985.28 | 0.00 | 542010.00 | 3927801.00 |
| 257.58 | 63660.28 | 17611.41 | 1433.25 | 1232.62 | 0.00 | 544477.00 | 3928992.00 |
| 127.69 | 69338.01 | 20278.40 | 1704.45 | 1718.74 | 0.00 | 550154.00 | 3931659.00 |
| 203.99 | 65321.07 | 18390.59 | 1696.60 | 1874.13 | 0.00 | 546137.00 | 3929771.00 |
| 271.30 | 63317.64 | 17444.71 | 1349.18 | 1031.35 | 0.00 | 544134.00 | 3928825.00 |
| 791.23 | 58130.21 | 14894.20 | 1209.22 | 790.30 | 0.00 | 538946.00 | 3926275.00 |
| 259.40 | 63612.09 | 17573.64 | 1445.45 | 1331.48 | 0.00 | 544428.00 | 3928954.00 |
| 216.79 | 64868.11 | 18185.23 | 1603.54 | 1629.52 | 0.00 | 545684.00 | 3929566.00 |
| 83.40 | 73935.54 | 22439.92 | 2268.61 | 2781.51 | 0.00 | 554752.00 | 3933821.00 |
| 398.91 | 61055.71 | 16348.62 | 1305.34 | 1030.97 | 0.00 | 541872.00 | 3927729.00 |
| 429.26 | 60676.42 | 16166.65 | 1287.99 | 964.99 | 0.00 | 541493.00 | 3927547.00 |
| 451.88 | 60423.38 | 16047.12 | 1314.52 | 1061.78 | 0.00 | 541240.00 | 3927428.00 |
| 217.62 | 64841.92 | 18165.54 | 1496.01 | 1375.40 | 0.00 | 545658.00 | 3929546.00 |
| 937.23 | 57595.20 | 14611.64 | 1160.97 | 592.15 | 0.00 | 538411.00 | 3925992.00 |
| 253.99 | 63752.45 | 17651.54 | 1473.73 | 1340.74 | 0.00 | 544569.00 | 3929032.00 |
| 356.72 | 61659.95 | 16645.68 | 1353.37 | 1117.78 | 0.00 | 542476.00 | 3928026.00 |
| 276.70 | 63190.63 | 17380.87 | 1515.39 | 1499.93 | 0.00 | 544007.00 | 3928762.00 |
| 655.47 | 58800.60 | 15237.13 | 1211.31 | 779.97 | 0.00 | 539617.00 | 3926618.00 |
| 101.14 | 71727.38 | 21404.38 | 2102.43 | 2329.96 | 0.00 | 552544.00 | 3932785.00 |
| 230.29 | 64430.75 | 17967.16 | 1460.45 | 1338.44 | 0.00 | 545247.00 | 3929348.00 |
| 43.32 | 83246.05 | 26806.35 | 3072.70 | 4367.70 | 0.00 | 564062.00 | 3938187.00 |
| 252.16 | 63801.83 | 17665.16 | 1462.33 | 1377.56 | 0.00 | 544618.00 | 3929046.00 |
| 349.07 | 61782.88 | 16704.69 | 1352.64 | 1127.26 | 0.00 | 542599.00 | 3928085.00 |
| 138.63 | 68559.47 | 19914.98 | 1850.11 | 2089.31 | 0.00 | 549376.00 | 3931296.00 |
| 463.51 | 60298.14 | 15980.49 | 1281.15 | 951.62 | 0.00 | 541114.00 | 3927361.00 |
| 213.69 | 64974.11 | 18234.13 | 1494.20 | 1333.19 | 0.00 | 545790.00 | 3929615.00 |
| 277.36 | 63173.60 | 17372.61 | 1393.55 | 1185.01 | 0.00 | 543990.00 | 3928753.00 |
| 183.65 | 66140.31 | 18780.61 | 1691.08 | 1769.09 | 0.00 | 546957.00 | 3930161.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 597.06 | 1919.10 | 512.04 | 289.25 | 526.73 | **28.03** | 482735.00 | 3911893.00 |
| 544.06 | 1971.54 | 534.98 | 277.33 | 546.05 | 0.00 | 482788.00 | 3911916.00 |
| 138.28 | 2770.41 | 922.63 | 263.95 | 589.91 | 0.00 | 483587.00 | 3912303.00 |
| 168.48 | 2625.46 | 858.72 | 284.18 | 553.32 | 0.00 | 483442.00 | 3912239.00 |
| 983.68 | 1731.72 | 416.94 | 282.64 | 479.18 | 0.00 | 482548.00 | 3911798.00 |
| 136.33 | 2782.45 | 935.93 | 341.67 | 475.49 | 0.00 | 483599.00 | 3912317.00 |
| 350.65 | 2185.59 | 643.04 | 254.33 | 523.55 | 0.00 | 483002.00 | 3912024.00 |
| 411.07 | 2098.50 | 600.17 | 275.25 | 553.68 | 0.00 | 482915.00 | 3911981.00 |
| 253.90 | 2367.13 | 728.63 | 276.20 | 605.19 | 0.00 | 483183.00 | 3912109.00 |
| 260.11 | 2348.42 | 721.53 | 267.11 | 552.19 | 0.00 | 483165.00 | 3912102.00 |
| 114.99 | 2919.34 | 990.75 | 231.01 | 553.53 | 0.00 | 483736.00 | 3912372.00 |
| 130.04 | 2812.77 | 950.40 | 306.50 | 521.84 | 0.00 | 483629.00 | 3912331.00 |
| 881.33 | 1786.12 | 433.80 | 274.03 | 514.36 | 0.00 | 482602.00 | 3911815.00 |
| 258.00 | 2356.21 | 726.21 | 287.64 | 512.30 | 0.00 | 483172.00 | 3912107.00 |
| 217.72 | 2458.70 | 772.78 | 266.60 | 571.60 | 0.00 | 483275.00 | 3912154.00 |
| 192.60 | 2532.74 | 811.39 | 272.21 | 564.33 | 0.00 | 483349.00 | 3912192.00 |
| 386.74 | 2128.13 | 616.66 | 309.83 | 549.61 | 0.00 | 482944.00 | 3911997.00 |
| 481.75 | 2028.39 | 562.38 | 235.80 | 539.78 | 0.00 | 482845.00 | 3911943.00 |
| 207.40 | 2494.47 | 794.94 | 298.04 | 418.39 | 0.00 | 483311.00 | 3912176.00 |
| 408.05 | 2101.24 | 603.49 | 259.36 | 530.54 | 0.00 | 482918.00 | 3911984.00 |
| 331.60 | 2205.39 | 656.37 | 242.62 | 563.99 | 0.00 | 483022.00 | 3912037.00 |
| 591.31 | 1921.09 | 520.21 | 296.89 | 441.93 | 0.00 | 482737.00 | 3911901.00 |
| 272.76 | 2315.55 | 707.52 | 212.22 | 432.47 | 0.00 | 483132.00 | 3912088.00 |
| 113.28 | 2929.37 | 1000.15 | 249.55 | 551.93 | 0.00 | 483746.00 | 3912381.00 |
| 87.26 | 3164.31 | 1111.09 | 293.11 | 568.99 | 0.00 | 483981.00 | 3912492.00 |
| 292.50 | 2280.63 | 690.37 | 259.11 | 526.54 | 0.00 | 483097.00 | 3912071.00 |
| 212.05 | 2470.07 | 780.44 | 263.29 | 577.69 | 0.00 | 483286.00 | 3912161.00 |
| 121.77 | 2870.23 | 972.90 | 263.08 | 590.74 | 0.00 | 483687.00 | 3912354.00 |
| 119.54 | 2884.89 | 977.88 | 246.68 | 492.24 | 0.00 | 483701.00 | 3912359.00 |
| 281.33 | 2302.49 | 698.33 | 230.40 | 536.00 | 0.00 | 483119.00 | 3912079.00 |
| 436.48 | 2068.30 | 589.85 | 279.08 | 483.58 | 0.00 | 482885.00 | 3911971.00 |
| 91.55 | 3117.26 | 1089.65 | 277.79 | 540.96 | 0.00 | 483934.00 | 3912470.00 |
| 199.16 | 2515.34 | 801.19 | 275.69 | 571.50 | 0.00 | 483332.00 | 3912182.00 |
| 241.09 | 2395.04 | 743.29 | 198.09 | 483.49 | 0.00 | 483211.00 | 3912124.00 |
| 302.38 | 2262.51 | 678.73 | 270.53 | 557.69 | 0.00 | 483079.00 | 3912060.00 |
| 266.82 | 2332.03 | 712.38 | 236.81 | 555.54 | 0.00 | 483148.00 | 3912093.00 |
| 368.98 | 2150.80 | 627.68 | 277.14 | 474.78 | 0.00 | 482967.00 | 3912008.00 |
| 357.37 | 2167.62 | 634.81 | 239.01 | 528.78 | 0.00 | 482984.00 | 3912016.00 |
| 249.19 | 2369.97 | 735.16 | 272.59 | 522.31 | 0.00 | 483186.00 | 3912116.00 |
| 469.57 | 2030.95 | 569.72 | 291.74 | 578.18 | 0.00 | 482847.00 | 3911951.00 |
| 619.66 | 1903.65 | 500.16 | 225.30 | 476.96 | 0.00 | 482720.00 | 3911881.00 |
| 59.64 | 3554.87 | 1294.40 | 296.98 | 563.53 | 0.00 | 484371.00 | 3912675.00 |
| 54.08 | 3668.46 | 1350.95 | 278.66 | 541.33 | 0.00 | 484485.00 | 3912732.00 |
| 248.08 | 2371.77 | 733.29 | 240.71 | 496.01 | 0.00 | 483188.00 | 3912114.00 |
| 256.78 | 2361.47 | 725.80 | 295.11 | 534.54 | 0.00 | 483178.00 | 3912107.00 |
| 524.37 | 1975.24 | 545.99 | 254.48 | 403.90 | 0.00 | 482792.00 | 3911927.00 |
| 182.20 | 2580.81 | 833.23 | 223.65 | 514.11 | 0.00 | 483397.00 | 3912214.00 |
| 708.13 | 1858.96 | 482.14 | 303.04 | 529.93 | 0.00 | 482675.00 | 3911863.00 |
| 202.54 | 2494.65 | 799.22 | 266.56 | 459.05 | 0.00 | 483311.00 | 3912180.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 240.37 | 2387.56 | 746.39 | 243.91 | 508.15 | 0.00 | 483204.00 | 3912127.00 |
| 31.46 | 4391.26 | 1693.83 | 305.41 | 528.45 | 0.00 | 485208.00 | 3913075.00 |
| 247.04 | 2382.52 | 736.61 | 287.98 | 560.96 | 0.00 | 483199.00 | 3912117.00 |
| 1255.96 | 1657.51 | 368.36 | 312.46 | 533.40 | 0.00 | 482474.00 | 3911749.00 |
| 213.85 | 2466.22 | 780.93 | 239.44 | 545.88 | 0.00 | 483282.00 | 3912162.00 |
| 104.03 | 3005.31 | 1034.73 | 283.96 | 596.41 | 0.00 | 483822.00 | 3912416.00 |
| 53.56 | 3678.59 | 1350.41 | 281.43 | 526.85 | 0.00 | 484495.00 | 3912731.00 |
| 287.99 | 2285.79 | 698.60 | 282.69 | 420.72 | 0.00 | 483102.00 | 3912079.00 |
| 416.34 | 2093.20 | 600.67 | 257.67 | 494.41 | 0.00 | 482909.00 | 3911981.00 |
| 520.88 | 1979.61 | 544.66 | 236.51 | 512.05 | 0.00 | 482796.00 | 3911925.00 |
| 13.31 | 6019.42 | 2453.14 | 384.84 | 572.76 | 0.00 | 486836.00 | 3913834.00 |
| 523.77 | 1975.66 | 541.92 | 286.11 | 575.21 | 0.00 | 482792.00 | 3911923.00 |
| 470.68 | 2031.29 | 568.21 | 229.36 | 541.98 | 0.00 | 482848.00 | 3911949.00 |
| 193.27 | 2534.52 | 810.45 | 266.43 | 630.43 | 0.00 | 483351.00 | 3912191.00 |
| 105.67 | 2988.98 | 1026.68 | 216.50 | 515.33 | 0.00 | 483805.00 | 3912407.00 |
| 37.29 | 4139.45 | 1569.64 | 259.52 | 549.82 | 0.00 | 484956.00 | 3912950.00 |
| 339.33 | 2191.52 | 651.69 | 253.25 | 541.75 | 0.00 | 483008.00 | 3912032.00 |
| 820.84 | 1805.87 | 451.32 | 217.27 | 517.00 | 0.00 | 482622.00 | 3911832.00 |
| 128.71 | 2825.21 | 956.29 | 265.85 | 543.65 | 0.00 | 483641.00 | 3912337.00 |
| 321.37 | 2230.00 | 665.58 | 260.13 | 518.81 | 0.00 | 483046.00 | 3912046.00 |
| 557.39 | 1954.51 | 530.81 | 240.62 | 525.90 | 0.00 | 482771.00 | 3911912.00 |
| 235.74 | 2405.17 | 745.09 | 266.64 | 511.75 | 0.00 | 483221.00 | 3912126.00 |
| 150.25 | 2698.29 | 892.86 | 245.12 | 573.94 | 0.00 | 483515.00 | 3912274.00 |
| 335.34 | 2206.69 | 655.98 | 227.51 | 421.58 | 0.00 | 483023.00 | 3912037.00 |
| 238.92 | 2401.29 | 747.77 | 275.61 | 552.16 | 0.00 | 483218.00 | 3912129.00 |
| 277.28 | 2314.11 | 707.33 | 263.75 | 444.80 | 0.00 | 483130.00 | 3912088.00 |
| 323.67 | 2223.47 | 664.42 | 265.14 | 547.50 | 0.00 | 483040.00 | 3912045.00 |
| 219.70 | 2455.03 | 771.49 | 290.73 | 527.77 | 0.00 | 483271.00 | 3912152.00 |
| 496.37 | 2007.84 | 559.05 | 276.45 | 436.01 | 0.00 | 482824.00 | 3911940.00 |
| 387.72 | 2134.49 | 618.54 | 302.64 | 547.18 | 0.00 | 482951.00 | 3911999.00 |
| 295.13 | 2281.07 | 686.39 | 298.95 | 616.04 | 0.00 | 483097.00 | 3912067.00 |
| 406.49 | 2104.90 | 606.18 | 204.63 | 465.31 | 0.00 | 482921.00 | 3911987.00 |
| 150.83 | 2702.47 | 897.12 | 230.62 | 468.98 | 0.00 | 483519.00 | 3912278.00 |
| 197.87 | 2517.91 | 804.97 | 273.89 | 528.00 | 0.00 | 483334.00 | 3912186.00 |
| 697.66 | 1851.08 | 486.39 | 291.15 | 511.60 | 0.00 | 482667.00 | 3911867.00 |
| 249.41 | 2372.41 | 735.39 | 303.96 | 582.22 | 0.00 | 483189.00 | 3912116.00 |
| 438.79 | 2070.32 | 583.96 | 257.89 | 487.49 | 0.00 | 482887.00 | 3911965.00 |
| 458.14 | 2047.05 | 578.11 | 278.98 | 535.39 | 0.00 | 482863.00 | 3911959.00 |
| 158.26 | 2663.18 | 877.11 | 298.17 | 536.71 | 0.00 | 483479.00 | 3912258.00 |
| 67.95 | 3412.18 | 1232.74 | 296.54 | 527.45 | 0.00 | 484228.00 | 3912614.00 |
| 354.41 | 2170.89 | 636.21 | 264.35 | 612.92 | 0.00 | 482987.00 | 3912017.00 |
| 82.49 | 3210.57 | 1136.73 | 231.66 | 496.02 | 0.00 | 484027.00 | 3912518.00 |
| 95.75 | 3073.56 | 1069.29 | 270.21 | 596.95 | 0.00 | 483890.00 | 3912450.00 |
| 112.41 | 2937.46 | 1003.43 | 275.38 | 550.90 | 0.00 | 483754.00 | 3912384.00 |
| 359.03 | 2174.64 | 636.66 | 247.92 | 503.80 | 0.00 | 482991.00 | 3912017.00 |
| 403.79 | 2104.16 | 608.90 | 306.77 | 403.13 | 0.00 | 482920.00 | 3911990.00 |
| 290.93 | 2297.10 | 691.12 | 276.15 | 581.23 | 0.00 | 483113.00 | 3912072.00 |
| 260.09 | 2342.26 | 720.82 | 248.34 | 565.40 | 0.00 | 483159.00 | 3912102.00 |
| 93.08 | 3104.56 | 1081.23 | 273.28 | 539.87 | 0.00 | 483921.00 | 3912462.00 |
| 59.75 | 3550.45 | 1300.08 | 278.87 | 432.79 | 0.00 | 484367.00 | 3912681.00 |
| 257.56 | 2354.03 | 725.15 | 313.94 | 589.72 | 0.00 | 483170.00 | 3912106.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 1011.74 | 25486.27 | 6556.14 | 739.57 | 694.88 | **75.00** | 506303.00 | 3917937.00 |
| 545.32 | 26689.96 | 7195.15 | 830.73 | 847.26 | 0.00 | 507506.00 | 3918576.00 |
| 120.99 | 32410.77 | 9944.12 | 1560.20 | 1565.49 | 0.00 | 513227.00 | 3921325.00 |
| 229.62 | 29410.82 | 8518.38 | 1177.60 | 1464.52 | 0.00 | 510227.00 | 3919899.00 |
| 238.72 | 29260.94 | 8429.09 | 1009.72 | 1434.05 | 0.00 | 510077.00 | 3919810.00 |
| 221.33 | 29559.38 | 8572.75 | 1037.26 | 1347.61 | 0.00 | 510376.00 | 3919954.00 |
| 149.82 | 31295.78 | 9414.62 | 1176.33 | 1418.10 | 0.00 | 512112.00 | 3920795.00 |
| 106.84 | 33118.14 | 10256.35 | 1088.53 | 1314.66 | 0.00 | 513934.00 | 3921637.00 |
| 42.08 | 40081.93 | 13481.09 | 1684.00 | 3794.03 | 0.00 | 520898.00 | 3924862.00 |
| 420.75 | 27367.75 | 7530.32 | 884.13 | 938.38 | 0.00 | 508184.00 | 3918911.00 |
| 207.65 | 29821.90 | 8711.32 | 1090.32 | 1153.00 | 0.00 | 510638.00 | 3920092.00 |
| 349.41 | 27924.38 | 7793.90 | 918.45 | 1099.71 | 0.00 | 508741.00 | 3919175.00 |
| 372.10 | 27734.66 | 7704.43 | 917.11 | 1012.29 | 0.00 | 508551.00 | 3919085.00 |
| 291.99 | 28523.16 | 8081.47 | 1047.98 | 1529.90 | 0.00 | 509339.00 | 3919462.00 |
| 155.70 | 31109.62 | 9316.77 | 1201.22 | 1508.97 | 0.00 | 511926.00 | 3920698.00 |
| 240.58 | 29228.51 | 8429.63 | 1126.00 | 1352.94 | 0.00 | 510045.00 | 3919810.00 |
| 179.42 | 30456.18 | 9009.16 | 1166.55 | 1391.31 | 0.00 | 511272.00 | 3920390.00 |
| 528.83 | 26772.73 | 7229.92 | 788.29 | 753.98 | 0.00 | 507589.00 | 3918611.00 |
| 466.06 | 27092.47 | 7393.00 | 842.51 | 886.52 | 0.00 | 507909.00 | 3918774.00 |
| 495.80 | 26929.81 | 7312.76 | 838.55 | 783.05 | 0.00 | 507746.00 | 3918694.00 |
| 86.30 | 34437.36 | 10879.26 | 1556.98 | 2503.13 | 0.00 | 515254.00 | 3922260.00 |
| 193.90 | 30109.28 | 8847.82 | 1236.80 | 1424.03 | 0.00 | 510926.00 | 3920229.00 |
| 272.61 | 28765.87 | 8193.27 | 930.56 | 1307.56 | 0.00 | 509582.00 | 3919574.00 |
| 294.36 | 28494.04 | 8077.35 | 933.99 | 963.19 | 0.00 | 509310.00 | 3919458.00 |
| 160.93 | 30954.30 | 9242.01 | 1001.29 | 1094.10 | 0.00 | 511771.00 | 3920623.00 |
| 85.80 | 34474.73 | 10909.75 | 1983.92 | 2176.55 | 0.00 | 515291.00 | 3922291.00 |
| 376.34 | 27700.96 | 7687.09 | 909.06 | 965.37 | 0.00 | 508517.00 | 3919068.00 |
| 212.08 | 29730.85 | 8663.07 | 1067.95 | 1281.09 | 0.00 | 510547.00 | 3920044.00 |
| 331.17 | 28097.39 | 7886.01 | 966.75 | 1172.69 | 0.00 | 508914.00 | 3919267.00 |
| 50.96 | 38372.71 | 12726.47 | 2228.20 | 2899.02 | 0.00 | 519189.00 | 3924107.00 |
| 80.75 | 34877.55 | 11096.66 | 1731.97 | 2405.49 | 0.00 | 515694.00 | 3922477.00 |
| 258.96 | 28950.15 | 8288.11 | 1141.47 | 1531.11 | 0.00 | 509766.00 | 3919669.00 |
| 38.29 | 40982.05 | 13953.93 | 2924.63 | 3617.80 | 0.00 | 521798.00 | 3925335.00 |
| 494.22 | 26941.32 | 7317.47 | 800.89 | 771.23 | 0.00 | 507758.00 | 3918698.00 |
| 251.66 | 29056.54 | 8353.67 | 1130.57 | 1255.71 | 0.00 | 509873.00 | 3919734.00 |
| 324.56 | 28165.34 | 7907.96 | 1056.88 | 1387.78 | 0.00 | 508982.00 | 3919289.00 |
| 346.44 | 27952.19 | 7817.15 | 970.86 | 1059.45 | 0.00 | 508768.00 | 3919198.00 |
| 312.78 | 28285.15 | 7974.31 | 970.23 | 1129.86 | 0.00 | 509101.00 | 3919355.00 |
| 448.48 | 27197.91 | 7440.10 | 833.74 | 848.11 | 0.00 | 508014.00 | 3918821.00 |
| 156.87 | 31071.00 | 9296.76 | 1131.42 | 1522.21 | 0.00 | 511887.00 | 3920678.00 |
| 70.71 | 35804.52 | 11521.19 | 1835.24 | 2864.93 | 0.00 | 516621.00 | 3922902.00 |
| 179.19 | 30457.16 | 9012.77 | 1075.50 | 1280.21 | 0.00 | 511273.00 | 3920394.00 |
| 224.92 | 29493.92 | 8546.58 | 1152.39 | 1461.18 | 0.00 | 510310.00 | 3919927.00 |
| 182.09 | 30386.91 | 8963.07 | 1098.98 | 1428.56 | 0.00 | 511203.00 | 3920344.00 |
| 220.58 | 29571.72 | 8594.44 | 992.18 | 1107.24 | 0.00 | 510388.00 | 3919975.00 |
| 125.51 | 32210.93 | 9834.18 | 1526.34 | 2075.50 | 0.00 | 513027.00 | 3921215.00 |
| 178.83 | 30465.90 | 9019.90 | 1214.74 | 1597.98 | 0.00 | 511282.00 | 3920401.00 |
| 535.81 | 26735.08 | 7212.70 | 812.61 | 805.17 | 0.00 | 507551.00 | 3918593.00 |
| 289.50 | 28552.87 | 8100.34 | 832.87 | 832.75 | 0.00 | 509369.00 | 3919481.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 436.75 | 27267.30 | 7475.17 | 844.01 | 894.92 | 0.00 | 508084.00 | 3918856.00 |
| 336.47 | 28046.52 | 7859.89 | 955.93 | 1152.99 | 0.00 | 508863.00 | 3919241.00 |
| 235.73 | 29309.24 | 8470.80 | 1176.92 | 1415.09 | 0.00 | 510126.00 | 3919852.00 |
| 120.83 | 32416.17 | 9919.88 | 1333.74 | 1992.41 | 0.00 | 513232.00 | 3921301.00 |
| 352.85 | 27898.17 | 7790.72 | 985.69 | 1123.39 | 0.00 | 508714.00 | 3919171.00 |
| 417.74 | 27392.27 | 7545.28 | 947.72 | 1035.04 | 0.00 | 508209.00 | 3918926.00 |
| 303.15 | 28389.43 | 8020.39 | 889.58 | 1019.87 | 0.00 | 509206.00 | 3919401.00 |
| 372.23 | 27735.74 | 7711.33 | 920.03 | 972.83 | 0.00 | 508552.00 | 3919092.00 |
| 217.20 | 29636.97 | 8624.33 | 1209.90 | 1421.92 | 0.00 | 510453.00 | 3920005.00 |
| 507.13 | 26872.17 | 7277.13 | 873.54 | 1016.58 | 0.00 | 507688.00 | 3918658.00 |
| 264.18 | 28877.13 | 8262.56 | 1143.24 | 1383.21 | 0.00 | 509693.00 | 3919643.00 |
| 154.84 | 31135.50 | 9329.16 | 1197.22 | 1610.15 | 0.00 | 511952.00 | 3920710.00 |
| 374.90 | 27712.75 | 7693.28 | 869.70 | 1003.23 | 0.00 | 508529.00 | 3919074.00 |
| 275.61 | 28725.12 | 8194.24 | 1133.91 | 1341.26 | 0.00 | 509541.00 | 3919575.00 |
| 277.90 | 28694.64 | 8173.69 | 979.10 | 1150.81 | 0.00 | 509511.00 | 3919554.00 |
| 354.71 | 27874.93 | 7774.85 | 903.26 | 1074.54 | 0.00 | 508691.00 | 3919156.00 |
| 198.62 | 30007.83 | 8809.48 | 1138.27 | 1151.25 | 0.00 | 510824.00 | 3920190.00 |
| 84.63 | 34564.22 | 10938.13 | 1607.56 | 2305.12 | 0.00 | 515381.00 | 3922319.00 |
| 769.70 | 25956.32 | 6808.64 | 736.68 | 692.03 | 0.00 | 506773.00 | 3918189.00 |
| 96.41 | 33733.85 | 10551.55 | 1311.39 | 1749.86 | 0.00 | 514550.00 | 3921932.00 |
| 326.31 | 28146.33 | 7910.00 | 867.04 | 895.41 | 0.00 | 508963.00 | 3919291.00 |
| 349.74 | 27925.60 | 7797.47 | 890.42 | 1066.08 | 0.00 | 508742.00 | 3919178.00 |
| 253.87 | 29024.79 | 8324.15 | 950.04 | 1129.17 | 0.00 | 509841.00 | 3919705.00 |
| 555.33 | 26648.78 | 7171.38 | 811.19 | 860.39 | 0.00 | 507465.00 | 3918552.00 |
| 80.55 | 34894.09 | 11088.68 | 1638.77 | 2321.23 | 0.00 | 515710.00 | 3922469.00 |
| 387.06 | 27613.07 | 7650.05 | 1006.66 | 1180.94 | 0.00 | 508429.00 | 3919031.00 |
| 108.36 | 33032.76 | 10235.26 | 1443.04 | 1897.90 | 0.00 | 513849.00 | 3921616.00 |
| 224.91 | 29495.17 | 8543.81 | 1003.42 | 1312.17 | 0.00 | 510311.00 | 3919925.00 |
| 464.03 | 27103.22 | 7394.85 | 794.70 | 759.76 | 0.00 | 507920.00 | 3918776.00 |
| 345.76 | 27960.37 | 7814.50 | 920.18 | 1064.70 | 0.00 | 508777.00 | 3919195.00 |
| 21.50 | 47542.37 | 16997.41 | 2848.49 | 4646.71 | 0.00 | 528359.00 | 3928378.00 |
| 53.28 | 37998.02 | 12545.43 | 1663.02 | 2432.38 | 0.00 | 518814.00 | 3923926.00 |
| 284.98 | 28605.43 | 8135.35 | 1031.22 | 1173.46 | 0.00 | 509422.00 | 3919516.00 |
| 326.70 | 28145.04 | 7908.48 | 904.76 | 950.32 | 0.00 | 508961.00 | 3919289.00 |
| 104.40 | 33252.37 | 10320.46 | 1391.50 | 2058.48 | 0.00 | 514069.00 | 3921701.00 |
| 76.70 | 35229.80 | 11245.26 | 1670.71 | 2417.57 | 0.00 | 516046.00 | 3922626.00 |
| 398.16 | 27530.64 | 7616.78 | 950.37 | 936.06 | 0.00 | 508347.00 | 3918998.00 |
| 92.39 | 33998.59 | 10672.16 | 1530.17 | 2040.33 | 0.00 | 514815.00 | 3922053.00 |
| 250.52 | 29077.52 | 8352.47 | 1056.04 | 1343.12 | 0.00 | 509894.00 | 3919733.00 |
| 519.21 | 26811.11 | 7257.15 | 858.22 | 991.74 | 0.00 | 507627.00 | 3918638.00 |
| 220.65 | 29570.78 | 8595.77 | 992.48 | 1084.54 | 0.00 | 510387.00 | 3919977.00 |
| 229.58 | 29411.27 | 8511.24 | 1052.44 | 1385.29 | 0.00 | 510228.00 | 3919892.00 |
| 321.83 | 28191.86 | 7935.58 | 1048.25 | 1186.26 | 0.00 | 509008.00 | 3919316.00 |
| 341.74 | 27995.35 | 7833.95 | 970.88 | 1119.47 | 0.00 | 508812.00 | 3919215.00 |
| 111.72 | 32856.58 | 10156.07 | 1756.49 | 2112.15 | 0.00 | 513673.00 | 3921537.00 |
| 110.32 | 32928.41 | 10176.09 | 1284.28 | 1862.11 | 0.00 | 513745.00 | 3921557.00 |
| 177.29 | 30502.56 | 9030.79 | 1216.77 | 1588.03 | 0.00 | 511319.00 | 3920412.00 |
| 182.27 | 30380.81 | 8968.04 | 995.25 | 1174.58 | 0.00 | 511197.00 | 3920349.00 |
| 109.98 | 32947.02 | 10192.45 | 1724.75 | 2059.15 | 0.00 | 513763.00 | 3921573.00 |
| 119.60 | 32475.83 | 9962.56 | 1369.14 | 1668.61 | 0.00 | 513292.00 | 3921343.00 |
| 330.41 | 28108.14 | 7883.73 | 921.15 | 1160.23 | 0.00 | 508924.00 | 3919265.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 143.50 | 1294.37 | 444.25 | 141.31 | 221.74 | **21.82** | 482111.00 | 3911825.00 |
| 87.36 | 1549.28 | 568.04 | 134.79 | 223.79 | 0.00 | 482366.00 | 3911949.00 |
| 495.37 | 812.03 | 209.48 | 120.01 | 275.61 | 0.00 | 481628.00 | 3911590.00 |
| 250.26 | 1061.99 | 331.14 | 123.80 | 250.72 | 0.00 | 481878.00 | 3911712.00 |
| 395.47 | 895.64 | 246.78 | 154.87 | 254.34 | 0.00 | 481712.00 | 3911628.00 |
| 636.03 | 736.64 | 169.79 | 129.83 | 236.65 | 0.00 | 481553.00 | 3911551.00 |
| 329.39 | 964.02 | 279.79 | 125.71 | 225.22 | 0.00 | 481780.00 | 3911661.00 |
| 751.95 | 696.23 | 146.60 | 157.46 | 235.31 | 0.00 | 481513.00 | 3911527.00 |
| 444.47 | 855.51 | 230.28 | 134.75 | 210.76 | 0.00 | 481672.00 | 3911611.00 |
| 273.71 | 1037.43 | 312.46 | 107.99 | 264.76 | 0.00 | 481854.00 | 3911693.00 |
| 354.38 | 938.17 | 265.35 | 144.05 | 234.06 | 0.00 | 481754.00 | 3911646.00 |
| 364.23 | 919.49 | 261.84 | 130.14 | 196.33 | 0.00 | 481736.00 | 3911643.00 |
| 136.65 | 1310.32 | 454.55 | 134.33 | 250.94 | 0.00 | 482127.00 | 3911835.00 |
| 167.34 | 1229.15 | 412.64 | 136.83 | 231.20 | 0.00 | 482045.00 | 3911793.00 |
| 291.86 | 998.13 | 301.74 | 113.40 | 276.71 | 0.00 | 481814.00 | 3911683.00 |
| 365.69 | 923.30 | 261.39 | 102.60 | 234.07 | 0.00 | 481740.00 | 3911642.00 |
| 391.17 | 892.07 | 248.17 | 110.43 | 244.51 | 0.00 | 481708.00 | 3911629.00 |
| 162.86 | 1225.10 | 413.67 | 113.91 | 259.02 | 0.00 | 482041.00 | 3911794.00 |
| 238.70 | 1088.56 | 341.62 | 136.51 | 242.60 | 0.00 | 481905.00 | 3911722.00 |
| 135.14 | 1314.08 | 457.40 | 136.20 | 253.62 | 0.00 | 482130.00 | 3911838.00 |
| 621.72 | 746.53 | 169.85 | 139.28 | 269.36 | 0.00 | 481563.00 | 3911551.00 |
| 302.25 | 995.72 | 294.03 | 131.23 | 267.33 | 0.00 | 481812.00 | 3911675.00 |
| 332.82 | 957.49 | 277.83 | 126.56 | 205.86 | 0.00 | 481774.00 | 3911659.00 |
| 216.59 | 1120.70 | 358.51 | 134.83 | 234.35 | 0.00 | 481937.00 | 3911739.00 |
| 72.92 | 1651.91 | 617.65 | 121.90 | 211.16 | 0.00 | 482468.00 | 3911998.00 |
| 66.16 | 1709.95 | 648.02 | 133.37 | 211.42 | 0.00 | 482526.00 | 3912029.00 |
| 180.95 | 1188.85 | 395.53 | 139.53 | 238.84 | 0.00 | 482005.00 | 3911776.00 |
| 157.31 | 1247.75 | 422.05 | 123.70 | 235.88 | 0.00 | 482064.00 | 3911803.00 |
| 68.46 | 1691.35 | 636.57 | 121.47 | 251.19 | 0.00 | 482508.00 | 3912017.00 |
| 301.80 | 993.84 | 294.27 | 132.85 | 260.89 | 0.00 | 481810.00 | 3911675.00 |
| 191.72 | 1165.42 | 383.08 | 117.00 | 244.52 | 0.00 | 481982.00 | 3911764.00 |
| 64.48 | 1728.68 | 655.74 | 124.51 | 246.15 | 0.00 | 482545.00 | 3912037.00 |
| 460.78 | 845.19 | 220.95 | 141.19 | 238.31 | 0.00 | 481661.00 | 3911602.00 |
| 454.55 | 855.60 | 223.02 | 109.65 | 256.98 | 0.00 | 481672.00 | 3911604.00 |
| 578.31 | 775.89 | 185.83 | 149.83 | 250.55 | 0.00 | 481592.00 | 3911567.00 |
| 353.38 | 938.50 | 267.78 | 135.58 | 245.01 | 0.00 | 481755.00 | 3911649.00 |
| 858.92 | 975.37 | 270.23 | 118.60 | 282.39 | 0.00 | 481792.00 | 3911651.00 |
| 170.19 | 1212.26 | 408.44 | 124.96 | 211.05 | 0.00 | 482029.00 | 3911789.00 |
| 252.80 | 1068.74 | 330.36 | 144.39 | 241.34 | 0.00 | 481885.00 | 3911711.00 |
| 248.66 | 1064.74 | 330.99 | 105.50 | 221.32 | 0.00 | 481881.00 | 3911712.00 |
| 331.20 | 949.68 | 279.32 | 114.24 | 212.32 | 0.00 | 481766.00 | 3911660.00 |
| 287.92 | 1012.19 | 304.70 | 138.28 | 266.12 | 0.00 | 481828.00 | 3911685.00 |
| 292.80 | 1002.12 | 299.48 | 121.37 | 265.32 | 0.00 | 481818.00 | 3911680.00 |
| 521.81 | 800.37 | 201.62 | 140.29 | 265.10 | 0.00 | 481617.00 | 3911582.00 |
| 484.93 | 818.32 | 211.71 | 120.62 | 253.14 | 0.00 | 481635.00 | 3911592.00 |
| 344.60 | 935.02 | 271.67 | 107.73 | 205.30 | 0.00 | 481751.00 | 3911652.00 |
| 96.47 | 1489.83 | 540.52 | 117.77 | 219.97 | 0.00 | 482306.00 | 3911921.00 |
| 353.49 | 928.96 | 265.94 | 125.11 | 246.58 | 0.00 | 481745.00 | 3911647.00 |
| 143.08 | 1297.13 | 444.31 | 117.70 | 214.30 | 0.00 | 482113.00 | 3911825.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 442.92 | 863.41 | 227.06 | 118.35 | 250.85 | 0.00 | 481680.00 | 3911608.00 |
| 167.31 | 1230.41 | 411.67 | 120.03 | 245.63 | 0.00 | 482047.00 | 3911792.00 |
| 447.92 | 847.90 | 224.39 | 104.02 | 233.75 | 0.00 | 481664.00 | 3911605.00 |
| 543.15 | 800.14 | 193.98 | 136.58 | 300.82 | 0.00 | 481616.00 | 3911575.00 |
| 289.99 | 1002.05 | 301.80 | 108.67 | 204.03 | 0.00 | 481818.00 | 3911683.00 |
| 418.44 | 867.58 | 238.18 | 110.66 | 248.14 | 0.00 | 481684.00 | 3911619.00 |
| 169.59 | 1210.60 | 408.43 | 108.65 | 226.72 | 0.00 | 482027.00 | 3911789.00 |
| 208.47 | 1135.80 | 364.56 | 122.09 | 250.14 | 0.00 | 481952.00 | 3911745.00 |
| 194.75 | 1160.72 | 379.86 | 127.64 | 274.31 | 0.00 | 481977.00 | 3911761.00 |
| 300.09 | 994.44 | 297.35 | 117.50 | 242.35 | 0.00 | 481811.00 | 3911678.00 |
| 402.26 | 886.30 | 244.71 | 136.91 | 221.47 | 0.00 | 481703.00 | 3911625.00 |
| 137.59 | 1310.04 | 452.56 | 95.85 | 242.64 | 0.00 | 482126.00 | 3911833.00 |
| 177.06 | 1201.36 | 400.81 | 115.10 | 222.67 | 0.00 | 482018.00 | 3911782.00 |
| 939.03 | 1260.11 | 405.47 | 111.79 | 259.52 | 0.00 | 482076.00 | 3911786.00 |
| 211.28 | 1130.06 | 362.38 | 138.33 | 238.23 | 0.00 | 481946.00 | 3911743.00 |
| 344.77 | 939.15 | 270.22 | 124.33 | 261.21 | 0.00 | 481755.00 | 3911651.00 |
| 231.02 | 1094.40 | 344.99 | 106.87 | 243.55 | 0.00 | 481911.00 | 3911726.00 |
| 267.53 | 1024.34 | 317.48 | 118.45 | 221.29 | 0.00 | 481841.00 | 3911698.00 |
| 252.74 | 1054.28 | 328.62 | 110.53 | 263.81 | 0.00 | 481871.00 | 3911709.00 |
| 585.93 | 759.64 | 181.53 | 129.28 | 239.79 | 0.00 | 481576.00 | 3911562.00 |
| 306.13 | 980.13 | 290.76 | 105.91 | 254.16 | 0.00 | 481796.00 | 3911672.00 |
| 448.94 | 851.71 | 226.84 | 120.49 | 278.98 | 0.00 | 481668.00 | 3911608.00 |
| 147.79 | 1278.49 | 435.93 | 108.72 | 228.09 | 0.00 | 482095.00 | 3911817.00 |
| 326.64 | 956.46 | 280.71 | 113.51 | 237.27 | 0.00 | 481773.00 | 3911661.00 |
| 572.22 | 758.38 | 183.65 | 107.78 | 234.93 | 0.00 | 481575.00 | 3911564.00 |
| 281.60 | 1012.65 | 307.33 | 132.00 | 248.97 | 0.00 | 481829.00 | 3911688.00 |
| 108.56 | 1425.89 | 508.22 | 141.84 | 214.16 | 0.00 | 482242.00 | 3911889.00 |
| 279.26 | 1014.37 | 309.81 | 116.44 | 216.29 | 0.00 | 481831.00 | 3911691.00 |
| 265.48 | 1039.62 | 320.00 | 101.49 | 206.38 | 0.00 | 481856.00 | 3911701.00 |
| 572.80 | 767.65 | 184.42 | 111.00 | 266.76 | 0.00 | 481584.00 | 3911565.00 |
| 240.69 | 1077.53 | 337.91 | 111.68 | 212.76 | 0.00 | 481894.00 | 3911719.00 |
| 202.14 | 1147.84 | 372.45 | 115.27 | 263.91 | 0.00 | 481964.00 | 3911753.00 |
| 112.59 | 1412.00 | 501.80 | 140.00 | 240.42 | 0.00 | 482228.00 | 3911883.00 |
| 316.99 | 970.16 | 287.28 | 128.11 | 255.61 | 0.00 | 481786.00 | 3911668.00 |
| 304.71 | 986.68 | 292.47 | 92.37 | 235.04 | 0.00 | 481803.00 | 3911673.00 |
| 189.44 | 1171.75 | 384.95 | 124.00 | 221.81 | 0.00 | 481988.00 | 3911766.00 |
| 96.66 | 1491.70 | 539.47 | 152.34 | 247.03 | 0.00 | 482308.00 | 3911920.00 |
| 103.64 | 1453.43 | 520.28 | 118.26 | 262.71 | 0.00 | 482270.00 | 3911901.00 |
| 212.61 | 1125.50 | 363.20 | 115.32 | 239.83 | 0.00 | 481942.00 | 3911744.00 |
| 222.87 | 1113.76 | 351.07 | 111.45 | 242.76 | 0.00 | 481930.00 | 3911732.00 |
| 168.53 | 1222.97 | 411.14 | 116.32 | 234.87 | 0.00 | 482039.00 | 3911792.00 |
| 366.97 | 921.32 | 258.90 | 111.89 | 236.76 | 0.00 | 481738.00 | 3911640.00 |
| 272.57 | 1032.87 | 312.92 | 110.86 | 272.28 | 0.00 | 481849.00 | 3911694.00 |
| 287.27 | 1015.21 | 306.41 | 126.53 | 239.74 | 0.00 | 481831.00 | 3911687.00 |
| 300.40 | 991.19 | 295.83 | 125.75 | 271.18 | 0.00 | 481807.00 | 3911677.00 |
| 631.98 | 755.00 | 169.90 | 132.27 | 277.00 | 0.00 | 481571.00 | 3911551.00 |
| 239.94 | 1075.16 | 339.43 | 126.41 | 242.69 | 0.00 | 481891.00 | 3911720.00 |
| 355.58 | 932.84 | 266.02 | 138.03 | 241.86 | 0.00 | 481749.00 | 3911647.00 |
| 256.05 | 1050.24 | 325.33 | 126.23 | 260.88 | 0.00 | 481867.00 | 3911706.00 |
| 202.03 | 1144.15 | 371.27 | 113.26 | 251.78 | 0.00 | 481960.00 | 3911752.00 |
| 162.37 | 1229.94 | 415.93 | 113.47 | 232.77 | 0.00 | 482046.00 | 3911797.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 576.48 | 32306.27 | 8616.13 | 907.24 | 937.10 | **80.79** | 513123.00 | 3919997.00 |
| 156.40 | 37560.93 | 11156.69 | 1506.84 | 1737.37 | 0.00 | 518377.00 | 3922537.00 |
| 390.71 | 33491.55 | 9209.96 | 1112.45 | 1272.13 | 0.00 | 514308.00 | 3920591.00 |
| 510.47 | 32645.08 | 8797.61 | 915.50 | 818.54 | 0.00 | 513461.00 | 3920178.00 |
| 139.91 | 38208.81 | 11461.65 | 1239.70 | 1399.85 | 0.00 | 519025.00 | 3922842.00 |
| 540.26 | 32485.52 | 8714.16 | 948.39 | 954.04 | 0.00 | 513302.00 | 3920095.00 |
| 364.20 | 33739.63 | 9329.73 | 1009.95 | 1093.97 | 0.00 | 514556.00 | 3920711.00 |
| 168.41 | 37160.42 | 10964.61 | 1345.20 | 1570.53 | 0.00 | 517977.00 | 3922345.00 |
| 202.80 | 36203.57 | 10497.95 | 1183.43 | 1480.15 | 0.00 | 517020.00 | 3921879.00 |
| 154.03 | 37648.39 | 11197.26 | 1402.62 | 1747.52 | 0.00 | 518465.00 | 3922578.00 |
| 211.80 | 35993.45 | 10412.00 | 1399.05 | 1725.17 | 0.00 | 516810.00 | 3921793.00 |
| 60.16 | 44458.80 | 14397.27 | 2130.98 | 2722.50 | 0.00 | 525275.00 | 3925778.00 |
| 246.86 | 35287.02 | 10064.03 | 1009.59 | 1163.27 | 0.00 | 516103.00 | 3921445.00 |
| 215.63 | 35907.29 | 10367.14 | 1101.33 | 1241.65 | 0.00 | 516724.00 | 3921748.00 |
| 387.35 | 33524.47 | 9227.22 | 972.59 | 996.72 | 0.00 | 514341.00 | 3920608.00 |
| 168.69 | 37149.06 | 10948.35 | 1342.81 | 1767.18 | 0.00 | 517965.00 | 3922329.00 |
| 513.01 | 32633.98 | 8784.59 | 914.77 | 878.49 | 0.00 | 513450.00 | 3920165.00 |
| 503.76 | 32681.70 | 8807.86 | 942.27 | 937.90 | 0.00 | 513498.00 | 3920189.00 |
| 425.48 | 33214.38 | 9069.49 | 940.07 | 948.27 | 0.00 | 514031.00 | 3920450.00 |
| 467.53 | 32909.94 | 8926.23 | 868.51 | 711.89 | 0.00 | 513726.00 | 3920307.00 |
| 322.57 | 34189.39 | 9547.25 | 998.61 | 984.28 | 0.00 | 515006.00 | 3920928.00 |
| 512.78 | 32631.80 | 8786.53 | 925.70 | 878.53 | 0.00 | 513448.00 | 3920167.00 |
| 95.61 | 40700.24 | 12626.84 | 1574.91 | 1929.11 | 0.00 | 521517.00 | 3924008.00 |
| 176.31 | 36913.60 | 10844.54 | 1100.22 | 1140.10 | 0.00 | 517730.00 | 3922225.00 |
| 406.60 | 33360.39 | 9142.11 | 947.93 | 976.62 | 0.00 | 514177.00 | 3920523.00 |
| 233.67 | 35535.86 | 10194.64 | 1052.38 | 1056.40 | 0.00 | 516352.00 | 3921575.00 |
| 87.97 | 41311.40 | 12927.01 | 1771.60 | 2105.71 | 0.00 | 522128.00 | 3924308.00 |
| 402.50 | 33392.75 | 9161.39 | 922.73 | 872.61 | 0.00 | 514209.00 | 3920542.00 |
| 915.12 | 31240.25 | 8071.91 | 844.65 | 697.54 | 0.00 | 512057.00 | 3919453.00 |
| 295.37 | 34533.34 | 9710.22 | 999.56 | 1044.96 | 0.00 | 515350.00 | 3921091.00 |
| 322.91 | 34187.78 | 9541.27 | 996.32 | 1061.47 | 0.00 | 515004.00 | 3920922.00 |
| 449.41 | 33033.27 | 8991.49 | 967.01 | 931.36 | 0.00 | 513850.00 | 3920372.00 |
| 99.65 | 40402.79 | 12497.70 | 1871.89 | 2128.06 | 0.00 | 521219.00 | 3923878.00 |
| 140.99 | 38161.49 | 11439.94 | 1496.98 | 1831.37 | 0.00 | 518978.00 | 3922821.00 |
| 435.43 | 33136.80 | 9032.16 | 956.21 | 955.37 | 0.00 | 513953.00 | 3920413.00 |
| 183.11 | 36716.70 | 10760.89 | 1250.12 | 1417.75 | 0.00 | 517533.00 | 3922142.00 |
| 117.91 | 39262.47 | 11973.70 | 1537.80 | 1880.59 | 0.00 | 520079.00 | 3923354.00 |
| 348.33 | 33901.61 | 9405.57 | 990.14 | 1057.44 | 0.00 | 514718.00 | 3920786.00 |
| 101.56 | 40269.88 | 12444.07 | 1731.91 | 2013.74 | 0.00 | 521086.00 | 3923825.00 |
| 316.20 | 34265.30 | 9581.25 | 1001.89 | 1112.57 | 0.00 | 515082.00 | 3920962.00 |
| 243.78 | 35343.97 | 10100.08 | 1181.25 | 1318.73 | 0.00 | 516160.00 | 3921481.00 |
| 58.00 | 44796.51 | 14542.65 | 1863.57 | 2300.43 | 0.00 | 525613.00 | 3925923.00 |
| 382.94 | 33567.33 | 9245.63 | 939.32 | 887.96 | 0.00 | 514384.00 | 3920626.00 |
| 881.17 | 31315.10 | 8107.46 | 818.87 | 627.21 | 0.00 | 512131.00 | 3919488.00 |
| 134.62 | 38435.85 | 11572.01 | 1246.72 | 1389.68 | 0.00 | 519252.00 | 3922953.00 |
| 100.00 | 40381.28 | 12464.88 | 1350.88 | 1850.87 | 0.00 | 521198.00 | 3923846.00 |
| 152.45 | 37705.61 | 11218.51 | 1309.26 | 1605.03 | 0.00 | 518522.00 | 3922599.00 |
| 333.25 | 34068.51 | 9483.72 | 1032.44 | 1145.29 | 0.00 | 514885.00 | 3920865.00 |
| 58.55 | 44707.60 | 14498.22 | 2012.43 | 3273.65 | 0.00 | 525524.00 | 3925879.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 307.62 | 34373.70 | 9635.84 | 1014.90 | 1060.75 | 0.00 | 515190.00 | 3921017.00 |
| 381.12 | 33580.78 | 9249.20 | 1081.20 | 1306.12 | 0.00 | 514397.00 | 3920630.00 |
| 694.15 | 31838.13 | 8386.99 | 917.49 | 882.90 | 0.00 | 512654.00 | 3919768.00 |
| 384.68 | 33548.19 | 9236.74 | 1006.06 | 1067.96 | 0.00 | 514364.00 | 3920618.00 |
| 347.38 | 33910.13 | 9412.26 | 1076.63 | 1230.38 | 0.00 | 514726.00 | 3920793.00 |
| 521.05 | 32583.72 | 8756.88 | 891.91 | 847.47 | 0.00 | 513400.00 | 3920138.00 |
| 314.98 | 34282.57 | 9590.45 | 968.37 | 958.04 | 0.00 | 515099.00 | 3920971.00 |
| 58.27 | 44754.18 | 14514.75 | 1938.80 | 2620.11 | 0.00 | 525570.00 | 3925896.00 |
| 218.74 | 35840.19 | 10326.58 | 1077.82 | 1360.22 | 0.00 | 516656.00 | 3921707.00 |
| 245.96 | 35307.08 | 10086.13 | 1030.42 | 1045.84 | 0.00 | 516123.00 | 3921467.00 |
| 55.06 | 45283.82 | 14783.82 | 2374.17 | 2682.01 | 0.00 | 526100.00 | 3926165.00 |
| 320.46 | 34213.98 | 9557.63 | 1058.30 | 1183.30 | 0.00 | 515030.00 | 3920938.00 |
| 249.17 | 35243.31 | 10051.85 | 1172.39 | 1389.79 | 0.00 | 516060.00 | 3921433.00 |
| 567.80 | 32341.48 | 8640.63 | 858.86 | 735.69 | 0.00 | 513158.00 | 3920021.00 |
| 449.77 | 33032.99 | 8979.59 | 1061.42 | 1174.36 | 0.00 | 513849.00 | 3920360.00 |
| 187.99 | 36585.07 | 10692.04 | 1173.71 | 1323.53 | 0.00 | 517401.00 | 3922073.00 |
| 323.59 | 34177.03 | 9544.48 | 1036.66 | 1122.95 | 0.00 | 514993.00 | 3920925.00 |
| 246.87 | 35286.02 | 10069.91 | 982.41 | 1060.52 | 0.00 | 516102.00 | 3921451.00 |
| 206.66 | 36109.92 | 10462.73 | 1209.12 | 1492.23 | 0.00 | 516926.00 | 3921844.00 |
| 103.01 | 40171.97 | 12367.34 | 1419.30 | 2165.78 | 0.00 | 520988.00 | 3923748.00 |
| 241.99 | 35377.60 | 10108.48 | 1186.14 | 1503.29 | 0.00 | 516194.00 | 3921489.00 |
| 174.67 | 36964.28 | 10858.73 | 1141.20 | 1365.25 | 0.00 | 517781.00 | 3922240.00 |
| 76.70 | 42380.67 | 13430.50 | 1850.58 | 2303.09 | 0.00 | 523197.00 | 3924811.00 |
| 101.51 | 40274.49 | 12423.60 | 1451.54 | 1846.69 | 0.00 | 521091.00 | 3923804.00 |
| 242.52 | 35366.76 | 10117.78 | 1090.16 | 1137.19 | 0.00 | 516183.00 | 3921499.00 |
| 311.97 | 34316.54 | 9612.86 | 1117.91 | 1213.95 | 0.00 | 515133.00 | 3920994.00 |
| 296.52 | 34520.41 | 9703.04 | 1065.45 | 1151.73 | 0.00 | 515337.00 | 3921084.00 |
| 483.81 | 32808.79 | 8871.41 | 841.55 | 650.33 | 0.00 | 513625.00 | 3920252.00 |
| 102.21 | 40226.45 | 12412.05 | 1419.95 | 1870.78 | 0.00 | 521043.00 | 3923793.00 |
| 426.62 | 33200.61 | 9060.47 | 932.27 | 930.01 | 0.00 | 514017.00 | 3920441.00 |
| 348.46 | 33901.26 | 9400.86 | 1027.87 | 1138.10 | 0.00 | 514718.00 | 3920782.00 |
| 113.32 | 39524.77 | 12069.21 | 1630.93 | 2318.25 | 0.00 | 520341.00 | 3923450.00 |
| 67.42 | 43451.10 | 13918.09 | 1833.84 | 2508.13 | 0.00 | 524267.00 | 3925299.00 |
| 458.35 | 32972.30 | 8954.11 | 897.62 | 826.52 | 0.00 | 513789.00 | 3920335.00 |
| 350.85 | 33875.15 | 9391.58 | 947.60 | 925.77 | 0.00 | 514691.00 | 3920772.00 |
| 180.71 | 36788.08 | 10787.22 | 1330.49 | 1451.73 | 0.00 | 517604.00 | 3922168.00 |
| 295.97 | 34525.50 | 9707.65 | 1032.13 | 1122.96 | 0.00 | 515342.00 | 3921088.00 |
| 414.56 | 33297.57 | 9111.74 | 941.28 | 967.24 | 0.00 | 514114.00 | 3920493.00 |
| 344.45 | 33940.78 | 9428.43 | 1097.62 | 1234.93 | 0.00 | 514757.00 | 3920809.00 |
| 62.26 | 44153.13 | 14248.06 | 1953.43 | 2575.83 | 0.00 | 524969.00 | 3925629.00 |
| 79.60 | 42082.83 | 13279.55 | 2198.70 | 2806.00 | 0.00 | 522899.00 | 3924660.00 |
| 241.66 | 35381.74 | 10124.33 | 1161.13 | 1258.63 | 0.00 | 516198.00 | 3921505.00 |
| 437.01 | 33122.11 | 9029.45 | 918.34 | 880.32 | 0.00 | 513938.00 | 3920410.00 |
| 559.37 | 32381.98 | 8659.78 | 835.66 | 676.39 | 0.00 | 513198.00 | 3920041.00 |
| 93.96 | 40827.74 | 12681.60 | 1405.52 | 1743.21 | 0.00 | 521644.00 | 3924062.00 |
| 149.41 | 37820.36 | 11274.76 | 1395.53 | 1734.70 | 0.00 | 518637.00 | 3922656.00 |
| 282.95 | 34704.16 | 9795.52 | 1047.39 | 1128.97 | 0.00 | 515520.00 | 3921176.00 |
| 376.45 | 33625.42 | 9277.08 | 996.20 | 1077.39 | 0.00 | 514442.00 | 3920658.00 |
| 120.68 | 39117.07 | 11872.16 | 1468.98 | 1971.58 | 0.00 | 519933.00 | 3923253.00 |
| 330.23 | 34100.37 | 9502.61 | 975.26 | 1031.17 | 0.00 | 514917.00 | 3920883.00 |
| 249.65 | 35239.51 | 10050.54 | 1181.64 | 1398.28 | 0.00 | 516056.00 | 3921431.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 59.18 | 748.08 | 298.66 | 46.74 | 75.57 | **16.03** | 481564.00 | 3911679.00 |
| 74.32 | 667.14 | 259.59 | 48.98 | 84.04 | 0.00 | 481483.00 | 3911640.00 |
| 405.47 | 734.93 | 266.82 | 61.37 | 128.18 | 0.00 | 481551.00 | 3911648.00 |
| 190.37 | 412.04 | 126.83 | 55.41 | 100.07 | 0.00 | 481228.00 | 3911508.00 |
| 542.73 | 425.00 | 122.23 | 51.57 | 118.38 | 0.00 | 481241.00 | 3911503.00 |
| 343.12 | 267.70 | 55.42 | 66.28 | 75.97 | 0.00 | 481084.00 | 3911436.00 |
| 316.49 | 289.60 | 64.18 | 69.81 | 95.16 | 0.00 | 481106.00 | 3911445.00 |
| 349.82 | 261.51 | 51.29 | 64.41 | 111.42 | 0.00 | 481078.00 | 3911432.00 |
| 113.80 | 537.01 | 194.51 | 47.34 | 88.15 | 0.00 | 481353.00 | 3911575.00 |
| 170.36 | 427.74 | 141.76 | 57.35 | 91.57 | 0.00 | 481244.00 | 3911523.00 |
| 173.94 | 433.49 | 138.19 | 58.53 | 104.00 | 0.00 | 481250.00 | 3911519.00 |
| 133.48 | 493.32 | 171.74 | 47.91 | 98.47 | 0.00 | 481310.00 | 3911553.00 |
| 281.41 | 310.05 | 77.87 | 58.41 | 110.76 | 0.00 | 481126.00 | 3911459.00 |
| 303.98 | 289.56 | 67.74 | 48.57 | 94.61 | 0.00 | 481106.00 | 3911449.00 |
| 203.79 | 384.28 | 117.86 | 49.92 | 99.35 | 0.00 | 481201.00 | 3911499.00 |
| 371.66 | 245.51 | 42.91 | 62.11 | 103.67 | 0.00 | 481062.00 | 3911424.00 |
| 519.63 | 257.17 | 39.60 | 64.49 | 134.75 | 0.00 | 481073.00 | 3911420.00 |
| 422.88 | 276.24 | 52.84 | 57.72 | 123.94 | 0.00 | 481093.00 | 3911434.00 |
| 367.04 | 247.76 | 45.52 | 59.01 | 106.67 | 0.00 | 481064.00 | 3911426.00 |
| 259.12 | 339.74 | 88.67 | 57.67 | 116.62 | 0.00 | 481156.00 | 3911469.00 |
| 237.97 | 351.09 | 98.48 | 53.59 | 96.02 | 0.00 | 481167.00 | 3911479.00 |
| 631.69 | 368.69 | 97.03 | 68.36 | 111.28 | 0.00 | 481185.00 | 3911478.00 |
| 178.50 | 427.16 | 134.44 | 60.07 | 102.03 | 0.00 | 481243.00 | 3911515.00 |
| 243.36 | 346.80 | 96.04 | 49.66 | 92.48 | 0.00 | 481163.00 | 3911477.00 |
| 230.57 | 356.83 | 102.04 | 50.84 | 104.92 | 0.00 | 481173.00 | 3911483.00 |
| 512.17 | 374.33 | 98.23 | 69.60 | 97.85 | 0.00 | 481191.00 | 3911479.00 |
| 420.28 | 277.59 | 55.55 | 72.43 | 111.85 | 0.00 | 481094.00 | 3911436.00 |
| 177.57 | 424.22 | 135.42 | 56.60 | 97.74 | 0.00 | 481241.00 | 3911516.00 |
| 158.50 | 445.97 | 148.12 | 50.99 | 84.03 | 0.00 | 481262.00 | 3911529.00 |
| 496.25 | 500.46 | 153.82 | 67.41 | 123.71 | 0.00 | 481317.00 | 3911535.00 |
| 233.19 | 355.67 | 101.48 | 59.61 | 91.25 | 0.00 | 481172.00 | 3911482.00 |
| 260.47 | 328.41 | 87.02 | 51.28 | 105.54 | 0.00 | 481145.00 | 3911468.00 |
| 163.53 | 440.85 | 143.60 | 56.42 | 99.64 | 0.00 | 481257.00 | 3911524.00 |
| 319.59 | 286.32 | 62.29 | 69.00 | 111.35 | 0.00 | 481103.00 | 3911443.00 |
| 232.72 | 358.20 | 101.24 | 53.27 | 102.15 | 0.00 | 481174.00 | 3911482.00 |
| 334.91 | 267.10 | 56.05 | 45.44 | 92.92 | 0.00 | 481083.00 | 3911437.00 |
| 68.28 | 694.43 | 274.33 | 54.81 | 84.82 | 0.00 | 481511.00 | 3911655.00 |
| 275.96 | 305.05 | 80.22 | 48.85 | 87.82 | 0.00 | 481121.00 | 3911461.00 |
| 205.25 | 385.34 | 116.78 | 49.30 | 104.23 | 0.00 | 481202.00 | 3911498.00 |
| 266.58 | 325.00 | 84.29 | 61.00 | 96.84 | 0.00 | 481141.00 | 3911465.00 |
| 531.47 | 279.54 | 60.49 | 57.39 | 102.12 | 0.00 | 481096.00 | 3911441.00 |
| 135.23 | 488.82 | 169.90 | 53.57 | 83.59 | 0.00 | 481305.00 | 3911551.00 |
| 194.94 | 400.93 | 123.15 | 56.65 | 95.52 | 0.00 | 481217.00 | 3911504.00 |
| 210.44 | 379.98 | 114.56 | 55.46 | 92.66 | 0.00 | 481196.00 | 3911495.00 |
| 311.28 | 289.92 | 65.43 | 52.00 | 111.00 | 0.00 | 481106.00 | 3911446.00 |
| 448.70 | 274.88 | 56.31 | 49.87 | 91.94 | 0.00 | 481091.00 | 3911437.00 |
| 272.69 | 311.18 | 81.77 | 57.93 | 103.83 | 0.00 | 481127.00 | 3911463.00 |
| 175.53 | 417.72 | 137.45 | 45.97 | 80.51 | 0.00 | 481234.00 | 3911518.00 |
| 328.72 | 268.20 | 58.86 | 61.26 | 98.25 | 0.00 | 481084.00 | 3911440.00 |

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|---|---|---|---|---|---|---|---|
| 234.62 | 348.94 | 100.26 | 57.35 | 96.71 | 0.00 | 481165.00 | 3911481.00 |
| 171.25 | 432.16 | 139.59 | 49.07 | 99.94 | 0.00 | 481248.00 | 3911520.00 |
| 611.15 | 485.40 | 146.86 | 77.37 | 108.88 | 0.00 | 481302.00 | 3911528.00 |
| 604.23 | 483.16 | 146.70 | 58.51 | 126.33 | 0.00 | 481299.00 | 3911527.00 |
| 178.58 | 424.93 | 135.74 | 59.38 | 97.99 | 0.00 | 481241.00 | 3911517.00 |
| 186.68 | 403.82 | 129.27 | 51.05 | 75.12 | 0.00 | 481220.00 | 3911510.00 |
| 229.82 | 358.76 | 103.27 | 60.58 | 104.57 | 0.00 | 481175.00 | 3911484.00 |
| 449.19 | 349.46 | 89.78 | 70.17 | 107.45 | 0.00 | 481166.00 | 3911471.00 |
| 192.50 | 399.47 | 125.21 | 51.57 | 101.18 | 0.00 | 481216.00 | 3911506.00 |
| 132.21 | 498.60 | 172.24 | 54.30 | 93.11 | 0.00 | 481315.00 | 3911553.00 |
| 305.35 | 286.24 | 67.55 | 57.70 | 88.12 | 0.00 | 481103.00 | 3911448.00 |
| 182.03 | 415.10 | 132.07 | 44.58 | 90.63 | 0.00 | 481231.00 | 3911513.00 |
| 447.33 | 424.39 | 125.58 | 60.55 | 109.59 | 0.00 | 481241.00 | 3911506.00 |
| 260.93 | 325.07 | 87.12 | 49.43 | 87.73 | 0.00 | 481141.00 | 3911468.00 |
| 672.55 | 374.48 | 92.09 | 71.97 | 112.79 | 0.00 | 481191.00 | 3911473.00 |
| 157.28 | 450.05 | 149.50 | 48.85 | 98.91 | 0.00 | 481266.00 | 3911530.00 |
| 206.95 | 384.26 | 115.84 | 56.51 | 103.87 | 0.00 | 481201.00 | 3911497.00 |
| 143.58 | 473.52 | 161.87 | 49.27 | 88.42 | 0.00 | 481290.00 | 3911543.00 |
| 288.02 | 307.54 | 75.60 | 61.03 | 100.71 | 0.00 | 481124.00 | 3911456.00 |
| 59.16 | 746.57 | 298.27 | 53.28 | 76.80 | 0.00 | 481563.00 | 3911679.00 |
| 443.52 | 819.31 | 305.53 | 82.70 | 101.59 | 0.00 | 481636.00 | 3911686.00 |
| 80.40 | 635.97 | 247.13 | 50.73 | 82.20 | 0.00 | 481452.00 | 3911628.00 |
| 863.69 | 729.46 | 251.84 | 83.23 | 145.98 | 0.00 | 481546.00 | 3911633.00 |
| 256.32 | 325.02 | 90.13 | 59.37 | 66.97 | 0.00 | 481141.00 | 3911471.00 |
| 243.19 | 349.49 | 95.61 | 46.38 | 118.38 | 0.00 | 481166.00 | 3911476.00 |
| 472.95 | 357.85 | 95.62 | 61.34 | 120.87 | 0.00 | 481174.00 | 3911476.00 |
| 108.90 | 553.93 | 200.29 | 48.31 | 89.32 | 0.00 | 481370.00 | 3911581.00 |
| 233.64 | 344.55 | 101.29 | 53.95 | 84.98 | 0.00 | 481161.00 | 3911482.00 |
| 324.34 | 269.10 | 60.92 | 56.97 | 102.29 | 0.00 | 481085.00 | 3911442.00 |
| 249.90 | 334.03 | 93.55 | 61.53 | 72.55 | 0.00 | 481150.00 | 3911474.00 |
| 288.46 | 309.05 | 74.47 | 60.74 | 107.76 | 0.00 | 481125.00 | 3911455.00 |
| 148.60 | 464.71 | 156.64 | 48.06 | 100.40 | 0.00 | 481281.00 | 3911537.00 |
| 247.84 | 336.39 | 93.40 | 51.47 | 103.13 | 0.00 | 481153.00 | 3911474.00 |
| 179.30 | 419.37 | 134.58 | 52.56 | 102.03 | 0.00 | 481236.00 | 3911515.00 |
| 145.43 | 462.54 | 159.28 | 41.44 | 79.16 | 0.00 | 481279.00 | 3911540.00 |
| 202.18 | 393.36 | 119.14 | 53.42 | 106.31 | 0.00 | 481210.00 | 3911500.00 |
| 104.19 | 565.34 | 206.96 | 55.56 | 90.96 | 0.00 | 481382.00 | 3911588.00 |
| 364.40 | 264.28 | 45.77 | 54.61 | 130.93 | 0.00 | 481081.00 | 3911427.00 |
| 83.86 | 628.52 | 240.09 | 51.39 | 84.41 | 0.00 | 481445.00 | 3911621.00 |
| 400.44 | 677.06 | 246.51 | 56.11 | 110.23 | 0.00 | 481493.00 | 3911627.00 |
| 529.67 | 256.69 | 41.53 | 66.83 | 117.99 | 0.00 | 481073.00 | 3911422.00 |
| 584.35 | 270.50 | 52.33 | 58.70 | 121.81 | 0.00 | 481087.00 | 3911433.00 |
| 245.75 | 340.91 | 94.60 | 50.74 | 93.36 | 0.00 | 481157.00 | 3911475.00 |
| 429.49 | 346.92 | 84.21 | 62.17 | 124.13 | 0.00 | 481163.00 | 3911465.00 |
| 216.63 | 378.13 | 110.20 | 49.43 | 106.77 | 0.00 | 481194.00 | 3911491.00 |
| 288.18 | 307.47 | 75.20 | 57.87 | 102.33 | 0.00 | 481124.00 | 3911456.00 |
| 169.79 | 444.70 | 141.06 | 42.66 | 93.08 | 0.00 | 481261.00 | 3911522.00 |
| 240.44 | 360.48 | 97.16 | 59.17 | 115.57 | 0.00 | 481177.00 | 3911478.00 |
| 188.59 | 405.37 | 128.51 | 54.10 | 107.70 | 0.00 | 481222.00 | 3911509.00 |
| 602.18 | 437.50 | 124.77 | 63.90 | 113.49 | 0.00 | 481254.00 | 3911506.00 |
| 419.52 | 418.67 | 122.55 | 53.95 | 125.89 | 0.00 | 481235.00 | 3911503.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 157.77 | 4233.87 | 1363.99 | 324.06 | 713.87 | **32.98** | 485050.00 | 3912745.00 |
| 220.42 | 3935.13 | 1217.50 | 437.59 | 869.70 | 0.00 | 484751.00 | 3912598.00 |
| 185.16 | 4080.39 | 1286.28 | 366.54 | 884.58 | 0.00 | 484897.00 | 3912667.00 |
| 369.05 | 3537.50 | 1032.38 | 451.39 | 815.57 | 0.00 | 484354.00 | 3912413.00 |
| 274.55 | 3758.76 | 1133.22 | 397.73 | 808.32 | 0.00 | 484575.00 | 3912514.00 |
| 249.10 | 3829.57 | 1172.91 | 365.99 | 645.32 | 0.00 | 484646.00 | 3912554.00 |
| 190.58 | 4059.56 | 1285.81 | 496.13 | 855.32 | 0.00 | 484876.00 | 3912667.00 |
| 88.59 | 4892.16 | 1672.75 | 375.81 | 743.94 | 0.00 | 485708.00 | 3913054.00 |
| 181.06 | 4112.42 | 1301.20 | 531.03 | 980.49 | 0.00 | 484929.00 | 3912682.00 |
| 131.02 | 4426.55 | 1447.85 | 435.23 | 993.20 | 0.00 | 485243.00 | 3912829.00 |
| 186.37 | 4076.92 | 1292.23 | 393.60 | 674.05 | 0.00 | 484893.00 | 3912673.00 |
| 595.13 | 3239.33 | 887.44 | 334.72 | 412.50 | 0.00 | 484056.00 | 3912268.00 |
| 317.75 | 3633.52 | 1076.97 | 370.07 | 739.57 | 0.00 | 484450.00 | 3912458.00 |
| 173.90 | 4143.81 | 1311.99 | 435.55 | 840.20 | 0.00 | 484960.00 | 3912693.00 |
| 234.25 | 3880.16 | 1186.74 | 368.51 | 902.58 | 0.00 | 484696.00 | 3912568.00 |
| 401.91 | 3475.59 | 1003.73 | 417.20 | 817.24 | 0.00 | 484292.00 | 3912385.00 |
| 400.03 | 3486.19 | 1005.32 | 388.72 | 795.37 | 0.00 | 484302.00 | 3912386.00 |
| 278.31 | 3737.19 | 1127.89 | 375.10 | 823.34 | 0.00 | 484553.00 | 3912509.00 |
| 388.83 | 3502.81 | 1006.21 | 427.69 | 853.63 | 0.00 | 484319.00 | 3912387.00 |
| 178.13 | 4118.65 | 1309.64 | 337.05 | 815.37 | 0.00 | 484935.00 | 3912690.00 |
| 202.83 | 3996.28 | 1251.92 | 337.94 | 870.03 | 0.00 | 484813.00 | 3912633.00 |
| 76.33 | 5094.95 | 1769.82 | 470.43 | 859.42 | 0.00 | 485911.00 | 3913151.00 |
| 137.94 | 4373.14 | 1418.78 | 387.09 | 845.67 | 0.00 | 485189.00 | 3912800.00 |
| 593.02 | 3226.06 | 878.76 | 332.78 | 797.48 | 0.00 | 484042.00 | 3912260.00 |
| 126.66 | 4461.50 | 1470.35 | 392.02 | 868.13 | 0.00 | 485278.00 | 3912851.00 |
| 320.54 | 3640.08 | 1086.83 | 503.72 | 644.41 | 0.00 | 484456.00 | 3912468.00 |
| 195.45 | 4041.12 | 1268.82 | 369.46 | 830.40 | 0.00 | 484857.00 | 3912650.00 |
| 137.14 | 4381.00 | 1425.27 | 383.58 | 948.17 | 0.00 | 485197.00 | 3912806.00 |
| 214.35 | 3955.23 | 1230.58 | 428.74 | 853.39 | 0.00 | 484772.00 | 3912611.00 |
| 733.93 | 3152.84 | 832.35 | 305.76 | 685.37 | 0.00 | 483969.00 | 3912213.00 |
| 339.66 | 3591.66 | 1051.92 | 273.26 | 667.04 | 0.00 | 484408.00 | 3912433.00 |
| 255.60 | 3812.28 | 1153.13 | 409.46 | 889.15 | 0.00 | 484629.00 | 3912534.00 |
| 463.33 | 3387.98 | 957.28 | 345.99 | 601.50 | 0.00 | 484204.00 | 3912338.00 |
| 496.65 | 3339.52 | 932.71 | 433.80 | 911.63 | 0.00 | 484156.00 | 3912313.00 |
| 201.33 | 4004.15 | 1252.11 | 337.89 | 820.47 | 0.00 | 484820.00 | 3912633.00 |
| 366.10 | 3539.05 | 1026.99 | 306.15 | 815.15 | 0.00 | 484355.00 | 3912408.00 |
| 297.53 | 3684.51 | 1097.19 | 409.12 | 932.83 | 0.00 | 484501.00 | 3912478.00 |
| 295.32 | 3692.48 | 1107.01 | 383.49 | 839.43 | 0.00 | 484509.00 | 3912488.00 |
| 524.51 | 3305.96 | 917.72 | 449.54 | 871.25 | 0.00 | 484122.00 | 3912299.00 |
| 89.66 | 4879.03 | 1665.41 | 386.34 | 901.75 | 0.00 | 485695.00 | 3913046.00 |
| 48.95 | 5783.56 | 2089.47 | 449.91 | 924.31 | 0.00 | 486600.00 | 3913470.00 |
| 385.66 | 3509.05 | 1011.42 | 393.57 | 781.05 | 0.00 | 484325.00 | 3912392.00 |
| 356.30 | 3563.61 | 1046.58 | 416.42 | 653.25 | 0.00 | 484380.00 | 3912427.00 |
| 331.50 | 3618.87 | 1062.45 | 370.42 | 932.20 | 0.00 | 484435.00 | 3912443.00 |
| 242.46 | 3849.25 | 1181.95 | 483.55 | 691.57 | 0.00 | 484666.00 | 3912563.00 |
| 474.61 | 3376.03 | 950.40 | 485.00 | 804.58 | 0.00 | 484192.00 | 3912331.00 |
| 165.22 | 4188.82 | 1336.32 | 368.90 | 908.02 | 0.00 | 485005.00 | 3912717.00 |
| 186.21 | 4078.69 | 1292.62 | 480.76 | 822.38 | 0.00 | 484895.00 | 3912673.00 |
| 356.98 | 3558.06 | 1040.28 | 375.78 | 805.99 | 0.00 | 484374.00 | 3912421.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 126.99 | 4460.59 | 1470.37 | 443.27 | 835.56 | 0.00 | 485277.00 | 3912851.00 |
| 370.78 | 3533.24 | 1027.22 | 478.00 | 808.63 | 0.00 | 484350.00 | 3912408.00 |
| 314.02 | 3649.21 | 1080.58 | 407.20 | 863.37 | 0.00 | 484465.00 | 3912461.00 |
| 309.01 | 3657.41 | 1085.56 | 398.20 | 853.22 | 0.00 | 484474.00 | 3912466.00 |
| 373.38 | 3524.59 | 1018.05 | 441.07 | 843.62 | 0.00 | 484341.00 | 3912399.00 |
| 230.20 | 3896.69 | 1205.45 | 414.01 | 936.81 | 0.00 | 484713.00 | 3912586.00 |
| 123.92 | 4493.62 | 1486.98 | 504.37 | 863.47 | 0.00 | 485310.00 | 3912868.00 |
| 335.41 | 3601.74 | 1060.22 | 389.43 | 772.99 | 0.00 | 484418.00 | 3912441.00 |
| 298.42 | 3687.79 | 1099.81 | 423.37 | 825.49 | 0.00 | 484504.00 | 3912481.00 |
| 327.11 | 3615.44 | 1073.19 | 468.11 | 752.82 | 0.00 | 484432.00 | 3912454.00 |
| 297.29 | 3686.47 | 1097.57 | 421.07 | 864.29 | 0.00 | 484503.00 | 3912478.00 |
| 293.66 | 3695.85 | 1102.36 | 344.87 | 908.64 | 0.00 | 484512.00 | 3912483.00 |
| 373.06 | 3535.52 | 1022.43 | 449.70 | 841.97 | 0.00 | 484352.00 | 3912403.00 |
| 191.08 | 4063.29 | 1279.55 | 465.78 | 719.08 | 0.00 | 484880.00 | 3912660.00 |
| 323.03 | 3631.31 | 1071.50 | 478.15 | 877.50 | 0.00 | 484448.00 | 3912452.00 |
| 159.02 | 4233.26 | 1359.75 | 481.78 | 824.96 | 0.00 | 485050.00 | 3912741.00 |
| 456.91 | 3392.79 | 960.53 | 503.77 | 1029.38 | 0.00 | 484209.00 | 3912341.00 |
| 348.17 | 3576.51 | 1046.10 | 384.42 | 841.21 | 0.00 | 484393.00 | 3912427.00 |
| 162.34 | 4206.83 | 1356.83 | 472.27 | 658.63 | 0.00 | 485023.00 | 3912738.00 |
| 269.70 | 3767.58 | 1139.38 | 463.39 | 841.23 | 0.00 | 484584.00 | 3912520.00 |
| 324.81 | 3620.81 | 1071.02 | 379.11 | 731.60 | 0.00 | 484437.00 | 3912452.00 |
| 318.43 | 3641.20 | 1079.24 | 385.02 | 820.47 | 0.00 | 484457.00 | 3912460.00 |
| 174.95 | 4142.83 | 1317.20 | 326.10 | 907.83 | 0.00 | 484959.00 | 3912698.00 |
| 241.87 | 3853.06 | 1175.88 | 351.56 | 820.62 | 0.00 | 484669.00 | 3912557.00 |
| 467.55 | 3381.02 | 952.47 | 441.34 | 795.81 | 0.00 | 484197.00 | 3912333.00 |
| 627.17 | 3214.27 | 867.40 | 396.43 | 896.77 | 0.00 | 484031.00 | 3912248.00 |
| 265.09 | 3779.39 | 1147.03 | 409.81 | 803.55 | 0.00 | 484596.00 | 3912528.00 |
| 291.88 | 3709.71 | 1113.41 | 367.06 | 592.25 | 0.00 | 484526.00 | 3912494.00 |
| 204.11 | 3998.14 | 1250.04 | 434.13 | 781.57 | 0.00 | 484814.00 | 3912631.00 |
| 394.94 | 3502.27 | 1005.76 | 380.55 | 703.57 | 0.00 | 484319.00 | 3912387.00 |
| 186.70 | 4077.46 | 1285.26 | 456.02 | 950.93 | 0.00 | 484894.00 | 3912666.00 |
| 312.28 | 3647.08 | 1078.67 | 375.20 | 913.53 | 0.00 | 484463.00 | 3912459.00 |
| 278.51 | 3734.83 | 1127.54 | 387.84 | 945.04 | 0.00 | 484551.00 | 3912508.00 |
| 443.87 | 3410.56 | 964.88 | 348.92 | 794.38 | 0.00 | 484227.00 | 3912346.00 |
| 321.57 | 3641.19 | 1079.08 | 432.95 | 846.37 | 0.00 | 484457.00 | 3912460.00 |
| 491.76 | 3344.96 | 933.04 | 298.68 | 767.64 | 0.00 | 484161.00 | 3912314.00 |
| 473.40 | 3375.32 | 946.11 | 367.02 | 784.08 | 0.00 | 484192.00 | 3912327.00 |
| 109.05 | 4639.90 | 1548.58 | 417.90 | 870.72 | 0.00 | 485456.00 | 3912929.00 |
| 279.67 | 3738.81 | 1122.80 | 436.84 | 958.84 | 0.00 | 484555.00 | 3912504.00 |
| 499.72 | 3332.39 | 931.11 | 386.23 | 818.23 | 0.00 | 484149.00 | 3912312.00 |
| 323.49 | 3620.58 | 1072.31 | 383.11 | 746.84 | 0.00 | 484437.00 | 3912453.00 |
| 88.95 | 4888.02 | 1664.62 | 437.02 | 1015.55 | 0.00 | 485704.00 | 3913045.00 |
| 398.73 | 3486.13 | 995.29 | 383.14 | 923.61 | 0.00 | 484302.00 | 3912376.00 |
| 297.28 | 3697.46 | 1103.41 | 414.17 | 945.19 | 0.00 | 484514.00 | 3912484.00 |
| 378.64 | 3521.31 | 1013.53 | 281.97 | 735.51 | 0.00 | 484338.00 | 3912394.00 |
| 502.05 | 3349.65 | 929.27 | 464.53 | 839.26 | 0.00 | 484166.00 | 3912310.00 |
| 306.12 | 3673.29 | 1096.59 | 407.29 | 599.64 | 0.00 | 484490.00 | 3912477.00 |
| 337.13 | 3597.44 | 1053.16 | 403.42 | 926.75 | 0.00 | 484414.00 | 3912434.00 |
| 442.30 | 3414.13 | 971.56 | 312.06 | 575.94 | 0.00 | 484230.00 | 3912352.00 |
| 64.27 | 5345.27 | 1886.16 | 422.01 | 830.13 | 0.00 | 486162.00 | 3913267.00 |
| 658.06 | 3176.22 | 854.76 | 414.25 | 654.88 | 0.00 | 483993.00 | 3912236.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 144.63 | 15504.81 | 4797.92 | 1054.43 | 1672.27 | **55.45** | 496321.00 | 3916179.00 |
| 199.24 | 14680.31 | 4411.78 | 936.92 | 1371.31 | 0.00 | 495497.00 | 3915793.00 |
| 343.37 | 13548.95 | 3866.66 | 902.83 | 1291.85 | 0.00 | 494365.00 | 3915247.00 |
| 463.13 | 13058.26 | 3626.43 | 704.67 | 893.89 | 0.00 | 493875.00 | 3915007.00 |
| 362.17 | 13455.72 | 3830.30 | 925.23 | 916.54 | 0.00 | 494272.00 | 3915211.00 |
| 191.66 | 14777.42 | 4460.32 | 1037.83 | 1275.06 | 0.00 | 495594.00 | 3915841.00 |
| 416.50 | 13236.71 | 3707.54 | 795.76 | 1109.82 | 0.00 | 494053.00 | 3915088.00 |
| 327.58 | 13642.10 | 3913.85 | 896.75 | 1120.46 | 0.00 | 494458.00 | 3915295.00 |
| 574.72 | 12757.21 | 3469.65 | 658.98 | 1043.42 | 0.00 | 493573.00 | 3914850.00 |
| 657.89 | 12573.35 | 3380.87 | 524.25 | 630.02 | 0.00 | 493390.00 | 3914762.00 |
| 201.56 | 14657.70 | 4399.81 | 923.73 | 1181.51 | 0.00 | 495474.00 | 3915781.00 |
| 106.87 | 16419.16 | 5228.01 | 1279.50 | 2266.89 | 0.00 | 497235.00 | 3916609.00 |
| 413.17 | 13233.97 | 3710.07 | 710.24 | 1263.49 | 0.00 | 494050.00 | 3915091.00 |
| 83.50 | 17279.09 | 5640.75 | 1302.40 | 1530.13 | 0.00 | 498095.00 | 3917022.00 |
| 423.42 | 13208.04 | 3690.84 | 638.83 | 1046.56 | 0.00 | 494024.00 | 3915072.00 |
| 152.69 | 15358.75 | 4724.23 | 1444.91 | 2118.75 | 0.00 | 496175.00 | 3916105.00 |
| 752.42 | 12437.25 | 3298.02 | 507.58 | 671.37 | 0.00 | 493254.00 | 3914679.00 |
| 276.50 | 13967.25 | 4080.51 | 787.34 | 806.27 | 0.00 | 494784.00 | 3915461.00 |
| 364.26 | 13449.45 | 3822.08 | 978.89 | 1284.59 | 0.00 | 494266.00 | 3915203.00 |
| 448.85 | 13111.80 | 3646.07 | 690.42 | 926.26 | 0.00 | 493928.00 | 3915027.00 |
| 1004.78 | 12140.67 | 3141.76 | 492.68 | 554.55 | 0.00 | 492957.00 | 3914523.00 |
| 523.78 | 12878.27 | 3533.63 | 787.90 | 981.40 | 0.00 | 493695.00 | 3914914.00 |
| 135.31 | 15697.08 | 4871.49 | 1231.22 | 2306.13 | 0.00 | 496513.00 | 3916252.00 |
| 149.92 | 15408.63 | 4753.25 | 938.00 | 1530.01 | 0.00 | 496225.00 | 3916134.00 |
| 522.55 | 12882.39 | 3535.40 | 672.96 | 1026.00 | 0.00 | 493699.00 | 3914916.00 |
| 178.64 | 14950.96 | 4546.32 | 1088.08 | 1514.71 | 0.00 | 495767.00 | 3915927.00 |
| 212.67 | 14528.53 | 4346.98 | 1156.41 | 1289.65 | 0.00 | 495345.00 | 3915728.00 |
| 602.09 | 12691.62 | 3443.21 | 697.68 | 816.02 | 0.00 | 493508.00 | 3914824.00 |
| 34.13 | 21427.97 | 7555.15 | 1544.26 | 3289.58 | 0.00 | 502244.00 | 3918936.00 |
| 205.51 | 14607.19 | 4375.67 | 1226.41 | 2135.08 | 0.00 | 495423.00 | 3915756.00 |
| 223.70 | 14419.67 | 4285.67 | 874.57 | 1351.69 | 0.00 | 495236.00 | 3915666.00 |
| 130.04 | 15813.33 | 4931.02 | 1136.42 | 2152.69 | 0.00 | 496630.00 | 3916312.00 |
| 574.65 | 12750.34 | 3470.15 | 519.92 | 580.43 | 0.00 | 493567.00 | 3914851.00 |
| 120.06 | 16055.84 | 5057.03 | 1746.61 | 2401.99 | 0.00 | 496872.00 | 3916438.00 |
| 332.51 | 13610.41 | 3898.72 | 872.01 | 1129.66 | 0.00 | 494427.00 | 3915279.00 |
| 682.26 | 12552.43 | 3357.91 | 453.98 | 563.96 | 0.00 | 493369.00 | 3914739.00 |
| 486.52 | 12991.05 | 3587.09 | 566.72 | 894.69 | 0.00 | 493807.00 | 3914968.00 |
| 209.46 | 14566.90 | 4347.37 | 983.10 | 1406.07 | 0.00 | 495383.00 | 3915728.00 |
| 169.49 | 15082.03 | 4596.39 | 1185.71 | 2153.49 | 0.00 | 495898.00 | 3915977.00 |
| 38.19 | 20796.17 | 7243.93 | 1409.67 | 3436.31 | 0.00 | 501612.00 | 3918625.00 |
| 62.41 | 18430.58 | 6147.20 | 1583.59 | 3647.30 | 0.00 | 499247.00 | 3917528.00 |
| 601.33 | 12691.63 | 3432.11 | 584.92 | 1022.19 | 0.00 | 493508.00 | 3914813.00 |
| 211.53 | 14537.62 | 4345.07 | 1330.46 | 1582.42 | 0.00 | 495354.00 | 3915726.00 |
| 89.18 | 17037.37 | 5514.75 | 1369.14 | 2728.99 | 0.00 | 497854.00 | 3916896.00 |
| 152.76 | 15357.63 | 4735.75 | 1420.63 | 1985.95 | 0.00 | 496174.00 | 3916117.00 |
| 121.41 | 16016.15 | 5051.50 | 1262.32 | 1881.55 | 0.00 | 496832.00 | 3916432.00 |
| 506.83 | 12919.11 | 3564.83 | 839.20 | 1055.28 | 0.00 | 493735.00 | 3914946.00 |
| 483.21 | 13000.71 | 3595.33 | 600.60 | 671.87 | 0.00 | 493817.00 | 3914976.00 |
| 343.94 | 13555.12 | 3862.36 | 827.67 | 1407.68 | 0.00 | 494371.00 | 3915243.00 |

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|---|---|---|---|---|---|---|---|
| 165.27 | 15144.80 | 4641.35 | 1420.18 | 1712.27 | 0.00 | 495961.00 | 3916022.00 |
| 465.17 | 13054.94 | 3620.02 | 676.69 | 996.10 | 0.00 | 493871.00 | 3915001.00 |
| 280.23 | 13940.39 | 4053.75 | 1046.01 | 1410.99 | 0.00 | 494757.00 | 3915435.00 |
| 339.53 | 13566.15 | 3877.89 | 826.85 | 1252.97 | 0.00 | 494382.00 | 3915259.00 |
| 303.72 | 13782.83 | 3976.99 | 869.01 | 1414.82 | 0.00 | 494599.00 | 3915358.00 |
| 195.93 | 14721.54 | 4430.17 | 789.79 | 1096.17 | 0.00 | 495538.00 | 3915811.00 |
| 130.30 | 15804.44 | 4930.70 | 1300.34 | 3022.73 | 0.00 | 496621.00 | 3916311.00 |
| 346.34 | 13535.62 | 3861.60 | 639.65 | 859.12 | 0.00 | 494352.00 | 3915242.00 |
| 250.77 | 14168.88 | 4169.28 | 994.58 | 1256.69 | 0.00 | 494985.00 | 3915550.00 |
| 192.73 | 14762.17 | 4453.69 | 1429.74 | 1738.91 | 0.00 | 495578.00 | 3915834.00 |
| 412.41 | 13246.31 | 3719.64 | 715.03 | 911.11 | 0.00 | 494063.00 | 3915100.00 |
| 378.92 | 13384.84 | 3780.29 | 784.55 | 1177.64 | 0.00 | 494201.00 | 3915161.00 |
| 257.14 | 14114.68 | 4137.29 | 1039.27 | 1185.08 | 0.00 | 494931.00 | 3915518.00 |
| 233.66 | 14318.08 | 4244.06 | 1107.25 | 1292.60 | 0.00 | 495134.00 | 3915625.00 |
| 717.78 | 12486.90 | 3331.41 | 461.83 | 533.82 | 0.00 | 493303.00 | 3914712.00 |
| 229.46 | 14366.49 | 4258.90 | 878.43 | 1057.90 | 0.00 | 495183.00 | 3915640.00 |
| 136.11 | 15679.37 | 4885.48 | 1409.36 | 1703.75 | 0.00 | 496496.00 | 3916266.00 |
| 226.58 | 14387.22 | 4264.89 | 1225.13 | 1962.23 | 0.00 | 495204.00 | 3915646.00 |
| 235.42 | 14309.91 | 4219.13 | 776.62 | 1357.38 | 0.00 | 495126.00 | 3915600.00 |
| 353.14 | 13511.02 | 3841.84 | 821.97 | 1082.61 | 0.00 | 494327.00 | 3915223.00 |
| 66.75 | 18151.90 | 6022.62 | 1292.02 | 2495.99 | 0.00 | 498968.00 | 3917403.00 |
| 354.00 | 13499.35 | 3839.64 | 903.95 | 1050.71 | 0.00 | 494316.00 | 3915220.00 |
| 135.67 | 15693.75 | 4891.26 | 1077.16 | 1509.92 | 0.00 | 496510.00 | 3916272.00 |
| 321.25 | 13680.03 | 3926.31 | 680.60 | 1400.94 | 0.00 | 494496.00 | 3915307.00 |
| 382.58 | 13373.70 | 3768.72 | 736.07 | 1275.37 | 0.00 | 494190.00 | 3915150.00 |
| 158.91 | 15246.59 | 4675.39 | 1387.25 | 2119.98 | 0.00 | 496063.00 | 3916056.00 |
| 141.68 | 15567.67 | 4828.20 | 1371.11 | 2162.40 | 0.00 | 496384.00 | 3916209.00 |
| 492.86 | 12970.76 | 3579.56 | 682.31 | 928.46 | 0.00 | 493787.00 | 3914960.00 |
| 274.18 | 13982.66 | 4082.99 | 1005.77 | 1321.41 | 0.00 | 494799.00 | 3915464.00 |
| 278.85 | 13950.03 | 4061.87 | 790.90 | 1066.34 | 0.00 | 494766.00 | 3915443.00 |
| 449.41 | 13104.27 | 3651.29 | 831.61 | 983.93 | 0.00 | 493921.00 | 3915032.00 |
| 367.16 | 13433.99 | 3808.47 | 848.04 | 1210.19 | 0.00 | 494250.00 | 3915189.00 |
| 893.86 | 12256.59 | 3208.40 | 578.12 | 676.21 | 0.00 | 493073.00 | 3914589.00 |
| 410.73 | 13247.01 | 3721.88 | 936.74 | 1235.27 | 0.00 | 494063.00 | 3915103.00 |
| 147.40 | 15450.67 | 4774.28 | 1468.20 | 2164.67 | 0.00 | 496267.00 | 3916155.00 |
| 162.15 | 15198.74 | 4656.18 | 1325.03 | 1591.63 | 0.00 | 496015.00 | 3916037.00 |
| 166.83 | 15123.87 | 4617.24 | 1088.27 | 1681.57 | 0.00 | 495940.00 | 3915998.00 |
| 374.00 | 13402.84 | 3794.12 | 682.55 | 1007.19 | 0.00 | 494219.00 | 3915175.00 |
| 254.87 | 14133.89 | 4148.34 | 1236.61 | 1328.88 | 0.00 | 494950.00 | 3915529.00 |
| 156.18 | 15293.37 | 4693.40 | 1180.39 | 2271.30 | 0.00 | 496110.00 | 3916074.00 |
| 438.27 | 13147.18 | 3662.96 | 663.96 | 1030.28 | 0.00 | 493963.00 | 3915044.00 |
| 547.12 | 12819.24 | 3506.00 | 779.10 | 934.22 | 0.00 | 493636.00 | 3914887.00 |
| 44.23 | 20029.53 | 6887.66 | 1894.04 | 3514.00 | 0.00 | 500846.00 | 3918268.00 |
| 504.23 | 12931.22 | 3567.14 | 629.98 | 792.17 | 0.00 | 493748.00 | 3914948.00 |
| 398.52 | 13288.23 | 3746.63 | 878.83 | 1009.39 | 0.00 | 494105.00 | 3915127.00 |
| 328.37 | 13638.24 | 3906.13 | 829.26 | 1116.54 | 0.00 | 494455.00 | 3915287.00 |
| 403.35 | 13280.48 | 3730.63 | 873.45 | 1145.72 | 0.00 | 494097.00 | 3915111.00 |
| 370.01 | 13425.17 | 3807.51 | 908.22 | 1222.87 | 0.00 | 494241.00 | 3915188.00 |
| 320.80 | 13683.10 | 3927.41 | 704.35 | 957.08 | 0.00 | 494499.00 | 3915308.00 |
| 131.38 | 15776.58 | 4916.25 | 1357.05 | 2526.63 | 0.00 | 496593.00 | 3916297.00 |
| 230.87 | 14347.49 | 4252.07 | 1288.83 | 1431.43 | 0.00 | 495164.00 | 3915633.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 703.63 | 11195.94 | 2989.83 | 463.31 | 676.26 | **52.92** | 492012.00 | 3914371.00 |
| 179.39 | 13425.98 | 4086.86 | 1268.19 | 2254.54 | 0.00 | 494242.00 | 3915468.00 |
| 214.86 | 13036.55 | 3895.62 | 1138.43 | 1293.25 | 0.00 | 493853.00 | 3915276.00 |
| 128.52 | 14259.23 | 4477.17 | 1453.84 | 2381.78 | 0.00 | 495076.00 | 3915858.00 |
| 263.30 | 12633.75 | 3708.64 | 1017.65 | 1097.00 | 0.00 | 493450.00 | 3915089.00 |
| 120.80 | 14431.31 | 4550.90 | 909.06 | 2217.79 | 0.00 | 495248.00 | 3915932.00 |
| 576.21 | 11418.93 | 3113.90 | 755.73 | 835.41 | 0.00 | 492235.00 | 3914495.00 |
| 164.76 | 13621.26 | 4172.72 | 1029.15 | 1687.98 | 0.00 | 494438.00 | 3915553.00 |
| 252.29 | 12706.60 | 3744.51 | 1091.06 | 1878.59 | 0.00 | 493523.00 | 3915125.00 |
| 155.87 | 13756.12 | 4237.39 | 1418.94 | 2124.22 | 0.00 | 494572.00 | 3915618.00 |
| 271.28 | 12569.79 | 3667.60 | 584.99 | 1350.55 | 0.00 | 493386.00 | 3915048.00 |
| 312.06 | 12321.92 | 3550.43 | 943.41 | 1938.33 | 0.00 | 493138.00 | 3914931.00 |
| 81.13 | 15670.18 | 5133.51 | 1362.88 | 2714.73 | 0.00 | 496486.00 | 3916514.00 |
| 134.53 | 14127.42 | 4412.59 | 1232.06 | 2479.15 | 0.00 | 494944.00 | 3915793.00 |
| 286.80 | 12472.32 | 3624.93 | 738.89 | 1217.22 | 0.00 | 493289.00 | 3915006.00 |
| 330.29 | 12218.32 | 3505.63 | 690.58 | 1365.25 | 0.00 | 493035.00 | 3914886.00 |
| 64.67 | 16487.91 | 5515.47 | 1246.82 | 2426.09 | 0.00 | 497304.00 | 3916896.00 |
| 160.71 | 13685.10 | 4198.81 | 1027.19 | 2368.82 | 0.00 | 494501.00 | 3915580.00 |
| 582.42 | 11405.12 | 3105.35 | 698.61 | 849.70 | 0.00 | 492221.00 | 3914486.00 |
| 311.16 | 12321.40 | 3555.89 | 615.96 | 862.10 | 0.00 | 493138.00 | 3914937.00 |
| 288.11 | 12459.01 | 3624.26 | 762.73 | 933.79 | 0.00 | 493275.00 | 3915005.00 |
| 188.68 | 13316.46 | 4041.95 | 1213.75 | 1777.05 | 0.00 | 494133.00 | 3915423.00 |
| 211.74 | 13060.98 | 3912.63 | 1223.47 | 1586.62 | 0.00 | 493877.00 | 3915293.00 |
| 455.94 | 11727.90 | 3268.60 | 645.17 | 822.07 | 0.00 | 492544.00 | 3914649.00 |
| 1505.58 | 10572.92 | 2634.89 | 417.15 | 423.11 | 0.00 | 491389.00 | 3914016.00 |
| 718.45 | 11169.56 | 2982.55 | 487.63 | 603.27 | 0.00 | 491986.00 | 3914363.00 |
| 226.44 | 12925.88 | 3840.05 | 1033.97 | 1827.80 | 0.00 | 493742.00 | 3915221.00 |
| 124.68 | 14341.68 | 4516.27 | 1051.34 | 1946.46 | 0.00 | 495158.00 | 3915897.00 |
| 106.37 | 14801.00 | 4743.58 | 1432.07 | 1827.60 | 0.00 | 495617.00 | 3916124.00 |
| 119.04 | 14472.26 | 4577.34 | 1458.23 | 2233.03 | 0.00 | 495289.00 | 3915958.00 |
| 182.55 | 13390.00 | 4078.90 | 1261.25 | 1350.42 | 0.00 | 494206.00 | 3915460.00 |
| 105.44 | 14824.45 | 4766.28 | 1770.04 | 2298.98 | 0.00 | 495641.00 | 3916147.00 |
| 218.57 | 13000.05 | 3875.12 | 773.62 | 1204.88 | 0.00 | 493816.00 | 3915256.00 |
| 244.43 | 12768.41 | 3772.65 | 980.61 | 1597.38 | 0.00 | 493585.00 | 3915153.00 |
| 336.82 | 12189.10 | 3500.02 | 929.62 | 1211.19 | 0.00 | 493005.00 | 3914881.00 |
| 109.23 | 14724.92 | 4679.10 | 1236.61 | 3058.55 | 0.00 | 495541.00 | 3916060.00 |
| 249.42 | 12732.79 | 3755.76 | 1193.68 | 1395.65 | 0.00 | 493549.00 | 3915137.00 |
| 287.88 | 12464.05 | 3622.18 | 903.63 | 1269.58 | 0.00 | 493280.00 | 3915003.00 |
| 354.28 | 12102.64 | 3450.28 | 611.18 | 884.41 | 0.00 | 492919.00 | 3914831.00 |
| 220.17 | 12977.33 | 3871.26 | 946.20 | 1415.70 | 0.00 | 493794.00 | 3915252.00 |
| 625.68 | 11320.06 | 3062.28 | 626.47 | 795.53 | 0.00 | 492136.00 | 3914443.00 |
| 229.82 | 12897.20 | 3832.44 | 998.04 | 1493.99 | 0.00 | 493713.00 | 3915213.00 |
| 531.91 | 11509.27 | 3157.61 | 620.41 | 897.83 | 0.00 | 492326.00 | 3914538.00 |
| 209.33 | 13083.72 | 3924.28 | 1266.37 | 1697.97 | 0.00 | 493900.00 | 3915305.00 |
| 233.81 | 12858.42 | 3805.31 | 953.35 | 1842.93 | 0.00 | 493675.00 | 3915186.00 |
| 329.50 | 12224.67 | 3513.91 | 719.49 | 1008.39 | 0.00 | 493041.00 | 3914895.00 |
| 316.91 | 12296.45 | 3541.54 | 812.57 | 1056.77 | 0.00 | 493113.00 | 3914922.00 |
| 185.21 | 13359.22 | 4057.59 | 1187.36 | 1435.86 | 0.00 | 494176.00 | 3915438.00 |
| 270.57 | 12579.92 | 3700.02 | 1149.66 | 1191.77 | 0.00 | 493396.00 | 3915081.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 264.86 | 12612.44 | 3703.53 | 813.55 | 1393.26 | 0.00 | 493429.00 | 3915084.00 |
| 377.51 | 12006.61 | 3403.09 | 665.32 | 999.53 | 0.00 | 492823.00 | 3914784.00 |
| 153.31 | 13799.75 | 4253.60 | 964.94 | 1547.19 | 0.00 | 494616.00 | 3915634.00 |
| 400.14 | 11911.42 | 3369.29 | 1166.89 | 1251.64 | 0.00 | 492728.00 | 3914750.00 |
| 288.53 | 12463.93 | 3619.39 | 620.52 | 1128.02 | 0.00 | 493280.00 | 3915000.00 |
| 269.04 | 12585.48 | 3684.16 | 983.64 | 1405.49 | 0.00 | 493402.00 | 3915065.00 |
| 106.70 | 14788.59 | 4729.74 | 1265.10 | 2160.49 | 0.00 | 495605.00 | 3916111.00 |
| 417.90 | 11847.62 | 3330.59 | 983.50 | 1319.34 | 0.00 | 492664.00 | 3914711.00 |
| 146.47 | 13915.54 | 4317.25 | 1425.98 | 1943.77 | 0.00 | 494732.00 | 3915698.00 |
| 205.38 | 13128.26 | 3938.47 | 973.69 | 1301.23 | 0.00 | 493945.00 | 3915319.00 |
| 401.15 | 11920.35 | 3358.31 | 658.07 | 835.60 | 0.00 | 492737.00 | 3914739.00 |
| 65.81 | 16423.29 | 5492.50 | 1297.30 | 1723.35 | 0.00 | 497240.00 | 3916873.00 |
| 389.28 | 11958.28 | 3379.12 | 951.92 | 1181.47 | 0.00 | 492775.00 | 3914760.00 |
| 468.53 | 11683.69 | 3245.71 | 637.68 | 966.25 | 0.00 | 492500.00 | 3914626.00 |
| 364.96 | 12060.50 | 3439.02 | 744.40 | 742.39 | 0.00 | 492877.00 | 3914820.00 |
| 379.87 | 11995.02 | 3396.80 | 850.87 | 1093.87 | 0.00 | 492811.00 | 3914778.00 |
| 275.96 | 12541.32 | 3670.32 | 1109.87 | 1210.50 | 0.00 | 493358.00 | 3915051.00 |
| 56.50 | 17022.36 | 5760.91 | 1590.36 | 2604.84 | 0.00 | 497839.00 | 3917142.00 |
| 120.57 | 14435.42 | 4561.98 | 902.85 | 1804.24 | 0.00 | 495252.00 | 3915943.00 |
| 256.72 | 12676.37 | 3729.16 | 788.77 | 1555.70 | 0.00 | 493493.00 | 3915110.00 |
| 424.31 | 11830.26 | 3312.57 | 504.98 | 734.43 | 0.00 | 492647.00 | 3914693.00 |
| 395.94 | 11932.65 | 3374.18 | 1028.13 | 1147.34 | 0.00 | 492749.00 | 3914755.00 |
| 609.52 | 11345.60 | 3074.78 | 500.17 | 619.97 | 0.00 | 492162.00 | 3914456.00 |
| 638.76 | 11294.29 | 3042.96 | 604.74 | 950.00 | 0.00 | 492111.00 | 3914424.00 |
| 336.48 | 12191.98 | 3494.93 | 752.25 | 1091.21 | 0.00 | 493008.00 | 3914876.00 |
| 190.87 | 13287.44 | 4016.32 | 990.23 | 1795.75 | 0.00 | 494104.00 | 3915397.00 |
| 246.65 | 12753.37 | 3764.10 | 732.04 | 1386.24 | 0.00 | 493570.00 | 3915145.00 |
| 330.50 | 12220.36 | 3513.79 | 1090.52 | 1157.83 | 0.00 | 493037.00 | 3914895.00 |
| 437.46 | 11786.25 | 3295.40 | 794.55 | 1137.33 | 0.00 | 492603.00 | 3914676.00 |
| 116.48 | 14534.39 | 4596.73 | 1055.06 | 2384.75 | 0.00 | 495351.00 | 3915978.00 |
| 301.84 | 12378.33 | 3586.29 | 668.67 | 897.67 | 0.00 | 493195.00 | 3914967.00 |
| 214.82 | 13032.84 | 3905.00 | 1338.10 | 1341.26 | 0.00 | 493849.00 | 3915286.00 |
| 263.13 | 12631.41 | 3705.74 | 1033.35 | 1711.95 | 0.00 | 493448.00 | 3915087.00 |
| 328.98 | 12230.09 | 3516.69 | 911.54 | 1043.11 | 0.00 | 493046.00 | 3914897.00 |
| 134.00 | 14145.08 | 4427.76 | 1384.58 | 2509.92 | 0.00 | 494961.00 | 3915809.00 |
| 79.26 | 15746.16 | 5171.90 | 1447.78 | 2365.00 | 0.00 | 496562.00 | 3916553.00 |
| 82.91 | 15594.49 | 5113.04 | 1531.73 | 1825.63 | 0.00 | 496411.00 | 3916494.00 |
| 260.33 | 12651.09 | 3709.95 | 807.35 | 1233.98 | 0.00 | 493467.00 | 3915091.00 |
| 316.58 | 12294.79 | 3547.86 | 835.04 | 1253.68 | 0.00 | 493111.00 | 3914929.00 |
| 372.31 | 12031.86 | 3420.14 | 748.14 | 945.56 | 0.00 | 492848.00 | 3914801.00 |
| 59.71 | 16795.08 | 5660.31 | 1382.49 | 2797.60 | 0.00 | 497611.00 | 3917041.00 |
| 489.66 | 11625.25 | 3215.25 | 815.96 | 981.22 | 0.00 | 492442.00 | 3914596.00 |
| 299.76 | 12394.07 | 3586.04 | 875.78 | 1413.30 | 0.00 | 493210.00 | 3914967.00 |
| 1499.06 | 10575.65 | 2637.46 | 470.05 | 493.56 | 0.00 | 491392.00 | 3914018.00 |
| 252.97 | 12700.69 | 3748.30 | 1095.43 | 1590.99 | 0.00 | 493517.00 | 3915129.00 |
| 29.01 | 20252.51 | 7249.10 | 1292.59 | 3424.46 | 0.00 | 501069.00 | 3918630.00 |
| 354.34 | 12111.88 | 3455.15 | 706.16 | 991.90 | 0.00 | 492928.00 | 3914836.00 |
| 135.44 | 14122.47 | 4425.47 | 1276.63 | 1771.79 | 0.00 | 494939.00 | 3915806.00 |
| 212.15 | 13050.52 | 3905.91 | 902.64 | 1523.78 | 0.00 | 493867.00 | 3915287.00 |
| 105.08 | 14835.98 | 4745.69 | 1421.47 | 2709.86 | 0.00 | 495652.00 | 3916126.00 |
| 364.43 | 12064.27 | 3432.14 | 755.23 | 1071.90 | 0.00 | 492881.00 | 3914813.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 128.74 | 126640.91 | 35623.79 | 2537.98 | 2465.08 | **124.36** | 607457.00 | 3947005.00 |
| 387.58 | 114392.79 | 29825.32 | 1900.46 | 1277.63 | 0.00 | 595209.00 | 3941206.00 |
| 396.19 | 114215.48 | 29738.29 | 1939.52 | 1411.30 | 0.00 | 595032.00 | 3941119.00 |
| 182.01 | 122007.38 | 33443.86 | 2412.40 | 2375.70 | 0.00 | 602824.00 | 3944825.00 |
| 402.26 | 114093.46 | 29678.25 | 2022.47 | 1688.95 | 0.00 | 594910.00 | 3941059.00 |
| 500.76 | 112453.37 | 28878.60 | 1900.32 | 1379.21 | 0.00 | 593270.00 | 3940259.00 |
| 547.97 | 111838.41 | 28581.96 | 1833.91 | 1161.90 | 0.00 | 592655.00 | 3939963.00 |
| 153.59 | 124173.47 | 34474.73 | 2418.29 | 2234.70 | 0.00 | 604990.00 | 3945856.00 |
| 209.21 | 120363.72 | 32669.82 | 2202.45 | 1895.28 | 0.00 | 601180.00 | 3944051.00 |
| 246.73 | 118567.10 | 31814.65 | 2185.34 | 1952.82 | 0.00 | 599383.00 | 3943195.00 |
| 160.85 | 123563.40 | 34174.16 | 2421.01 | 2321.83 | 0.00 | 604380.00 | 3945555.00 |
| 282.19 | 117216.79 | 31172.79 | 2039.66 | 1589.09 | 0.00 | 598033.00 | 3942554.00 |
| 381.73 | 114517.12 | 29877.23 | 1935.52 | 1416.72 | 0.00 | 595333.00 | 3941258.00 |
| 226.54 | 119477.92 | 32257.79 | 2163.59 | 1806.29 | 0.00 | 600294.00 | 3943639.00 |
| 203.94 | 120655.82 | 32809.32 | 2170.57 | 1763.28 | 0.00 | 601472.00 | 3944190.00 |
| 298.66 | 116675.28 | 30917.54 | 2098.67 | 1768.04 | 0.00 | 597492.00 | 3942298.00 |
| 414.74 | 113851.22 | 29561.95 | 1980.38 | 1549.44 | 0.00 | 594668.00 | 3940943.00 |
| 422.90 | 113699.85 | 29495.94 | 1913.20 | 1348.26 | 0.00 | 594516.00 | 3940877.00 |
| 272.12 | 117573.68 | 31343.64 | 2087.41 | 1703.41 | 0.00 | 598390.00 | 3942724.00 |
| 424.43 | 113671.51 | 29478.57 | 1943.95 | 1426.64 | 0.00 | 594488.00 | 3940859.00 |
| 47.74 | 145497.11 | 44455.37 | 3489.66 | 3735.98 | 0.00 | 626313.00 | 3955836.00 |
| 28.62 | 159579.14 | 51040.55 | 4776.72 | 5448.99 | 0.00 | 640395.00 | 3962421.00 |
| 195.47 | 121150.49 | 33042.18 | 2255.43 | 1993.04 | 0.00 | 601967.00 | 3944423.00 |
| 533.51 | 112018.37 | 28667.24 | 1874.77 | 1313.68 | 0.00 | 592835.00 | 3940048.00 |
| 285.36 | 117108.34 | 31125.66 | 2155.32 | 1936.20 | 0.00 | 597925.00 | 3942506.00 |
| 372.88 | 114710.28 | 29974.11 | 1961.24 | 1484.33 | 0.00 | 595527.00 | 3941355.00 |
| 388.74 | 114367.20 | 29815.40 | 1997.88 | 1612.69 | 0.00 | 595183.00 | 3941196.00 |
| 75.41 | 135631.91 | 39828.84 | 2906.90 | 2930.09 | 0.00 | 616448.00 | 3951210.00 |
| 279.48 | 117310.31 | 31206.53 | 2040.32 | 1594.76 | 0.00 | 598127.00 | 3942587.00 |
| 121.13 | 127546.52 | 36031.86 | 2656.46 | 2759.42 | 0.00 | 608363.00 | 3947413.00 |
| 83.21 | 133788.20 | 38979.95 | 2880.55 | 2977.23 | 0.00 | 614604.00 | 3950361.00 |
| 243.30 | 118713.90 | 31890.21 | 2113.99 | 1722.63 | 0.00 | 599530.00 | 3943271.00 |
| 217.76 | 119912.99 | 32446.56 | 2164.43 | 1836.79 | 0.00 | 600729.00 | 3943827.00 |
| 316.55 | 116136.41 | 30672.70 | 2085.00 | 1729.25 | 0.00 | 596953.00 | 3942053.00 |
| 331.37 | 115725.48 | 30458.99 | 1976.65 | 1486.88 | 0.00 | 596542.00 | 3941840.00 |
| 311.70 | 116278.35 | 30723.49 | 1981.58 | 1451.63 | 0.00 | 597095.00 | 3942104.00 |
| 152.01 | 124311.92 | 34525.09 | 2375.98 | 2169.16 | 0.00 | 605128.00 | 3945906.00 |
| 190.63 | 121448.05 | 33180.99 | 2320.21 | 2135.88 | 0.00 | 602264.00 | 3944562.00 |
| 397.70 | 114184.34 | 29725.87 | 2059.05 | 1761.24 | 0.00 | 595001.00 | 3941107.00 |
| 236.47 | 119015.48 | 32028.37 | 2202.94 | 1987.03 | 0.00 | 599832.00 | 3943409.00 |
| 47.17 | 145786.76 | 44577.61 | 3823.60 | 4266.17 | 0.00 | 626603.00 | 3955958.00 |
| 608.33 | 111167.79 | 28249.60 | 1770.83 | 934.47 | 0.00 | 591984.00 | 3939630.00 |
| 133.75 | 126087.41 | 35365.13 | 2699.11 | 2921.25 | 0.00 | 606904.00 | 3946746.00 |
| 317.97 | 116096.43 | 30643.51 | 2035.46 | 1626.86 | 0.00 | 596913.00 | 3942024.00 |
| 942.19 | 108823.33 | 27063.78 | 1744.42 | 928.62 | 0.00 | 589640.00 | 3938445.00 |
| 483.22 | 112705.85 | 29012.24 | 1898.69 | 1348.86 | 0.00 | 593522.00 | 3940393.00 |
| 170.89 | 122791.14 | 33829.68 | 2312.63 | 2031.61 | 0.00 | 603607.00 | 3945210.00 |
| 93.98 | 131633.22 | 37963.82 | 2998.94 | 3235.49 | 0.00 | 612450.00 | 3949345.00 |
| 284.80 | 117127.75 | 31127.84 | 2036.40 | 1589.32 | 0.00 | 597944.00 | 3942509.00 |

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|---|---|---|---|---|---|---|---|
| 847.74 | 109327.17 | 27327.86 | 1731.39 | 841.44 | 0.00 | 590143.00 | 3938709.00 |
| 607.12 | 111179.52 | 28257.27 | 1868.11 | 1321.32 | 0.00 | 591996.00 | 3939638.00 |
| 295.06 | 116789.83 | 30965.92 | 2016.45 | 1554.10 | 0.00 | 597606.00 | 3942347.00 |
| 400.99 | 114118.48 | 29693.62 | 2031.23 | 1705.51 | 0.00 | 594935.00 | 3941074.00 |
| 385.77 | 114430.52 | 29842.26 | 1912.10 | 1313.89 | 0.00 | 595247.00 | 3941223.00 |
| 170.04 | 122854.15 | 33840.03 | 2404.49 | 2359.14 | 0.00 | 603670.00 | 3945221.00 |
| 153.19 | 124207.94 | 34478.78 | 2521.37 | 2574.42 | 0.00 | 605024.00 | 3945860.00 |
| 211.82 | 120224.29 | 32603.31 | 2212.56 | 1930.14 | 0.00 | 601041.00 | 3943984.00 |
| 433.24 | 113513.75 | 29401.81 | 1850.17 | 1132.49 | 0.00 | 594330.00 | 3940783.00 |
| 576.12 | 111511.09 | 28417.16 | 1838.38 | 1195.09 | 0.00 | 592327.00 | 3939798.00 |
| 135.21 | 125932.58 | 35299.02 | 2529.85 | 2432.04 | 0.00 | 606749.00 | 3946680.00 |
| 154.48 | 124095.45 | 34426.71 | 2384.88 | 2218.27 | 0.00 | 604912.00 | 3945807.00 |
| 276.72 | 117407.83 | 31266.78 | 2050.31 | 1632.47 | 0.00 | 598224.00 | 3942648.00 |
| 188.74 | 121566.77 | 33235.93 | 2243.21 | 1946.45 | 0.00 | 602383.00 | 3944617.00 |
| 323.93 | 115927.45 | 30570.57 | 1975.02 | 1426.97 | 0.00 | 596744.00 | 3941951.00 |
| 196.65 | 121079.63 | 32998.22 | 2200.84 | 1857.87 | 0.00 | 601896.00 | 3944379.00 |
| 694.00 | 110393.31 | 27865.34 | 1767.42 | 969.05 | 0.00 | 591210.00 | 3939246.00 |
| 92.64 | 131880.75 | 38069.95 | 2749.23 | 2755.70 | 0.00 | 612697.00 | 3949451.00 |
| 121.68 | 127478.34 | 36009.96 | 2504.46 | 2373.04 | 0.00 | 608295.00 | 3947391.00 |
| 240.59 | 118832.01 | 31949.20 | 2179.87 | 1863.67 | 0.00 | 599648.00 | 3943330.00 |
| 74.79 | 135790.79 | 39917.68 | 3160.00 | 3413.86 | 0.00 | 616607.00 | 3951298.00 |
| 579.29 | 111476.53 | 28399.35 | 1858.89 | 1281.59 | 0.00 | 592293.00 | 3939780.00 |
| 352.41 | 115187.51 | 30209.73 | 1931.37 | 1313.72 | 0.00 | 596004.00 | 3941591.00 |
| 218.66 | 119866.98 | 32425.63 | 2217.09 | 2023.34 | 0.00 | 600683.00 | 3943806.00 |
| 394.29 | 114253.12 | 29755.91 | 1939.00 | 1424.36 | 0.00 | 595069.00 | 3941137.00 |
| 392.80 | 114283.76 | 29769.84 | 1909.27 | 1313.30 | 0.00 | 595100.00 | 3941151.00 |
| 187.48 | 121647.56 | 33284.66 | 2245.36 | 1918.80 | 0.00 | 602464.00 | 3944665.00 |
| 212.00 | 120213.76 | 32596.77 | 2318.94 | 2193.05 | 0.00 | 601030.00 | 3943978.00 |
| 301.68 | 116580.32 | 30875.94 | 2042.81 | 1630.61 | 0.00 | 597397.00 | 3942257.00 |
| 155.83 | 123980.52 | 34374.89 | 2447.98 | 2348.07 | 0.00 | 604797.00 | 3945756.00 |
| 612.52 | 111125.33 | 28228.93 | 1795.06 | 1049.16 | 0.00 | 591942.00 | 3939610.00 |
| 533.92 | 112013.01 | 28669.54 | 1830.19 | 1136.86 | 0.00 | 592829.00 | 3940050.00 |
| 240.95 | 118815.92 | 31930.60 | 2030.38 | 1460.49 | 0.00 | 599632.00 | 3943311.00 |
| 342.83 | 115424.88 | 30319.80 | 1970.41 | 1463.77 | 0.00 | 596241.00 | 3941701.00 |
| 20.69 | 170584.25 | 56149.56 | 5734.36 | 7301.78 | 0.00 | 651401.00 | 3967530.00 |
| 201.80 | 120778.37 | 32859.65 | 2209.66 | 1908.40 | 0.00 | 601595.00 | 3944240.00 |
| 278.93 | 117329.46 | 31239.94 | 2077.32 | 1667.79 | 0.00 | 598146.00 | 3942621.00 |
| 298.18 | 116689.87 | 30927.32 | 2075.05 | 1712.61 | 0.00 | 597506.00 | 3942308.00 |
| 120.33 | 127645.82 | 36081.56 | 2555.79 | 2544.86 | 0.00 | 608462.00 | 3947462.00 |
| 501.52 | 112442.95 | 28881.18 | 1862.17 | 1240.92 | 0.00 | 593259.00 | 3940262.00 |
| 313.98 | 116211.26 | 30690.25 | 2019.49 | 1591.45 | 0.00 | 597028.00 | 3942071.00 |
| 168.15 | 122996.26 | 33909.95 | 2546.71 | 2671.29 | 0.00 | 603813.00 | 3945291.00 |
| 512.58 | 112292.16 | 28807.08 | 1861.97 | 1236.99 | 0.00 | 593108.00 | 3940188.00 |
| 69.42 | 137253.65 | 40582.59 | 3235.95 | 3665.83 | 0.00 | 618070.00 | 3951963.00 |
| 268.61 | 117701.51 | 31415.35 | 2028.41 | 1513.88 | 0.00 | 598518.00 | 3942796.00 |
| 1065.89 | 108285.97 | 26771.81 | 1722.20 | 854.06 | 0.00 | 589102.00 | 3938153.00 |
| 150.75 | 124424.43 | 34589.46 | 2306.67 | 1953.85 | 0.00 | 605241.00 | 3945970.00 |
| 785.86 | 109712.43 | 27522.36 | 1748.88 | 912.88 | 0.00 | 590529.00 | 3938903.00 |
| 709.79 | 110264.49 | 27798.43 | 1798.33 | 1104.43 | 0.00 | 591081.00 | 3939179.00 |
| 211.77 | 120225.23 | 32600.78 | 2161.83 | 1803.92 | 0.00 | 601042.00 | 3943982.00 |
| 203.92 | 120656.89 | 32813.69 | 2231.73 | 1950.32 | 0.00 | 601473.00 | 3944194.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 163.15 | 4540.22 | 1444.34 | 459.02 | 963.42 | **33.92** | 485356.00 | 3912825.00 |
| 335.23 | 3904.37 | 1147.65 | 345.53 | 897.59 | 0.00 | 484721.00 | 3912528.00 |
| 51.02 | 6140.46 | 2201.54 | 476.79 | 952.51 | 0.00 | 486957.00 | 3913582.00 |
| 176.95 | 4462.87 | 1416.92 | 566.23 | 958.03 | 0.00 | 485279.00 | 3912798.00 |
| 251.19 | 4141.46 | 1262.07 | 529.97 | 941.41 | 0.00 | 484958.00 | 3912643.00 |
| 297.42 | 4003.16 | 1194.11 | 503.76 | 908.57 | 0.00 | 484819.00 | 3912575.00 |
| 177.88 | 4456.35 | 1409.34 | 390.49 | 818.88 | 0.00 | 485273.00 | 3912790.00 |
| 654.19 | 3466.58 | 935.52 | 540.47 | 880.53 | 0.00 | 484283.00 | 3912316.00 |
| 325.78 | 3924.77 | 1158.87 | 469.37 | 955.20 | 0.00 | 484741.00 | 3912540.00 |
| 519.85 | 3609.59 | 1005.75 | 504.77 | 798.42 | 0.00 | 484426.00 | 3912387.00 |
| 574.34 | 3556.19 | 972.30 | 349.59 | 831.67 | 0.00 | 484372.00 | 3912353.00 |
| 129.02 | 4795.87 | 1574.30 | 548.09 | 1005.48 | 0.00 | 485612.00 | 3912955.00 |
| 270.04 | 4073.82 | 1233.08 | 321.91 | 628.41 | 0.00 | 484890.00 | 3912614.00 |
| 414.81 | 3761.22 | 1072.54 | 327.34 | 853.39 | 0.00 | 484578.00 | 3912453.00 |
| 250.63 | 4141.68 | 1257.76 | 389.43 | 808.46 | 0.00 | 484958.00 | 3912639.00 |
| 220.05 | 4250.52 | 1311.11 | 393.31 | 854.66 | 0.00 | 485067.00 | 3912692.00 |
| 228.33 | 4218.44 | 1301.37 | 471.60 | 850.38 | 0.00 | 485035.00 | 3912682.00 |
| 79.21 | 5430.87 | 1869.74 | 397.85 | 933.99 | 0.00 | 486247.00 | 3913251.00 |
| 286.11 | 4025.55 | 1210.75 | 542.28 | 782.79 | 0.00 | 484842.00 | 3912592.00 |
| 390.83 | 3800.07 | 1096.20 | 396.69 | 834.53 | 0.00 | 484616.00 | 3912477.00 |
| 771.86 | 3387.45 | 894.77 | 449.73 | 666.49 | 0.00 | 484204.00 | 3912276.00 |
| 350.47 | 3873.49 | 1135.48 | 495.10 | 823.62 | 0.00 | 484690.00 | 3912516.00 |
| 518.71 | 3607.99 | 997.18 | 395.00 | 864.64 | 0.00 | 484424.00 | 3912378.00 |
| 191.65 | 4379.49 | 1371.92 | 494.10 | 1082.91 | 0.00 | 485196.00 | 3912753.00 |
| 270.58 | 4069.30 | 1231.90 | 434.99 | 823.08 | 0.00 | 484886.00 | 3912613.00 |
| 383.62 | 3813.36 | 1105.61 | 434.84 | 831.91 | 0.00 | 484630.00 | 3912486.00 |
| 516.62 | 3613.20 | 1002.32 | 428.42 | 941.65 | 0.00 | 484429.00 | 3912383.00 |
| 236.09 | 4198.05 | 1285.61 | 373.39 | 866.95 | 0.00 | 485014.00 | 3912666.00 |
| 292.23 | 4019.61 | 1199.74 | 365.33 | 711.36 | 0.00 | 484836.00 | 3912581.00 |
| 493.76 | 3637.14 | 1019.09 | 434.04 | 791.77 | 0.00 | 484453.00 | 3912400.00 |
| 327.14 | 3925.01 | 1155.72 | 414.65 | 928.73 | 0.00 | 484741.00 | 3912536.00 |
| 450.45 | 3699.37 | 1055.74 | 445.90 | 678.34 | 0.00 | 484516.00 | 3912437.00 |
| 404.10 | 3778.24 | 1086.51 | 419.00 | 778.23 | 0.00 | 484595.00 | 3912467.00 |
| 370.73 | 3834.03 | 1114.74 | 385.39 | 835.09 | 0.00 | 484650.00 | 3912496.00 |
| 287.56 | 4038.27 | 1202.48 | 469.10 | 900.89 | 0.00 | 484855.00 | 3912583.00 |
| 176.14 | 4467.45 | 1413.68 | 420.19 | 927.90 | 0.00 | 485284.00 | 3912794.00 |
| 252.60 | 4136.95 | 1260.17 | 456.95 | 988.14 | 0.00 | 484953.00 | 3912641.00 |
| 398.54 | 3775.54 | 1087.21 | 402.32 | 794.08 | 0.00 | 484592.00 | 3912468.00 |
| 91.77 | 5228.01 | 1773.52 | 530.78 | 1004.27 | 0.00 | 486044.00 | 3913154.00 |
| 165.58 | 4526.58 | 1443.39 | 424.57 | 964.71 | 0.00 | 485343.00 | 3912824.00 |
| 408.28 | 3764.84 | 1085.92 | 467.77 | 601.37 | 0.00 | 484581.00 | 3912467.00 |
| 49.57 | 6191.84 | 2232.33 | 504.53 | 918.27 | 0.00 | 487008.00 | 3913613.00 |
| 43.98 | 6418.93 | 2331.88 | 470.04 | 1024.64 | 0.00 | 487235.00 | 3913713.00 |
| 93.99 | 5192.71 | 1748.59 | 461.59 | 966.61 | 0.00 | 486009.00 | 3913129.00 |
| 695.61 | 3449.41 | 923.30 | 354.42 | 650.34 | 0.00 | 484266.00 | 3912304.00 |
| 285.38 | 4038.16 | 1204.47 | 509.26 | 964.73 | 0.00 | 484854.00 | 3912585.00 |
| 162.73 | 4544.41 | 1446.75 | 421.18 | 891.01 | 0.00 | 485361.00 | 3912828.00 |
| 151.06 | 4623.15 | 1490.90 | 564.37 | 985.50 | 0.00 | 485439.00 | 3912872.00 |
| 732.91 | 3435.65 | 903.59 | 334.04 | 683.98 | 0.00 | 484252.00 | 3912284.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 356.19 | 3865.97 | 1127.51 | 496.85 | 863.59 | 0.00 | 484682.00 | 3912508.00 |
| 363.97 | 3847.63 | 1122.33 | 506.90 | 794.87 | 0.00 | 484664.00 | 3912503.00 |
| 307.57 | 3976.26 | 1176.22 | 419.39 | 1013.21 | 0.00 | 484793.00 | 3912557.00 |
| 462.21 | 3683.59 | 1036.40 | 418.86 | 857.39 | 0.00 | 484500.00 | 3912417.00 |
| 290.31 | 4022.59 | 1204.93 | 432.34 | 692.53 | 0.00 | 484839.00 | 3912586.00 |
| 143.13 | 4683.73 | 1512.39 | 492.91 | 1103.08 | 0.00 | 485500.00 | 3912893.00 |
| 323.46 | 3941.37 | 1162.19 | 404.63 | 749.64 | 0.00 | 484758.00 | 3912543.00 |
| 475.09 | 3662.11 | 1030.46 | 452.08 | 758.63 | 0.00 | 484478.00 | 3912411.00 |
| 206.19 | 4313.98 | 1346.71 | 449.89 | 918.06 | 0.00 | 485130.00 | 3912727.00 |
| 366.80 | 3840.71 | 1112.74 | 458.66 | 921.20 | 0.00 | 484657.00 | 3912494.00 |
| 528.93 | 3596.01 | 996.14 | 445.24 | 869.52 | 0.00 | 484412.00 | 3912377.00 |
| 151.25 | 4621.46 | 1484.03 | 495.69 | 903.74 | 0.00 | 485438.00 | 3912865.00 |
| 252.39 | 4135.54 | 1253.83 | 346.29 | 807.47 | 0.00 | 484952.00 | 3912635.00 |
| 294.08 | 4011.16 | 1195.04 | 513.62 | 957.34 | 0.00 | 484827.00 | 3912576.00 |
| 169.70 | 4502.11 | 1427.94 | 431.76 | 1013.33 | 0.00 | 485318.00 | 3912809.00 |
| 490.54 | 3645.85 | 1018.29 | 429.82 | 801.55 | 0.00 | 484462.00 | 3912399.00 |
| 245.80 | 4158.75 | 1267.72 | 513.03 | 1134.57 | 0.00 | 484975.00 | 3912649.00 |
| 168.46 | 4511.02 | 1429.74 | 366.81 | 813.62 | 0.00 | 485327.00 | 3912811.00 |
| 297.99 | 3997.18 | 1190.45 | 426.61 | 917.77 | 0.00 | 484813.00 | 3912571.00 |
| 423.39 | 3745.66 | 1063.65 | 386.42 | 836.17 | 0.00 | 484562.00 | 3912444.00 |
| 186.44 | 4411.58 | 1388.20 | 492.61 | 1025.74 | 0.00 | 485228.00 | 3912769.00 |
| 41.57 | 6524.71 | 2387.75 | 558.23 | 902.12 | 0.00 | 487341.00 | 3913769.00 |
| 226.73 | 4232.41 | 1301.17 | 369.73 | 862.16 | 0.00 | 485049.00 | 3912682.00 |
| 279.56 | 4048.76 | 1217.49 | 443.34 | 875.17 | 0.00 | 484865.00 | 3912598.00 |
| 164.52 | 4532.21 | 1439.72 | 479.58 | 1054.85 | 0.00 | 485348.00 | 3912820.00 |
| 573.99 | 3530.06 | 969.29 | 414.96 | 823.44 | 0.00 | 484346.00 | 3912350.00 |
| 126.09 | 4821.62 | 1581.51 | 477.92 | 973.64 | 0.00 | 485638.00 | 3912962.00 |
| 342.05 | 3896.12 | 1141.69 | 414.43 | 864.41 | 0.00 | 484712.00 | 3912522.00 |
| 451.37 | 3703.59 | 1046.67 | 420.73 | 930.12 | 0.00 | 484520.00 | 3912427.00 |
| 286.65 | 4031.59 | 1208.76 | 476.42 | 857.79 | 0.00 | 484848.00 | 3912590.00 |
| 150.38 | 4625.27 | 1496.76 | 479.32 | 887.02 | 0.00 | 485442.00 | 3912878.00 |
| 486.61 | 3644.43 | 1021.20 | 328.22 | 815.54 | 0.00 | 484461.00 | 3912402.00 |
| 315.26 | 3956.57 | 1177.88 | 503.60 | 669.36 | 0.00 | 484773.00 | 3912559.00 |
| 166.34 | 4522.68 | 1442.24 | 468.91 | 1071.55 | 0.00 | 485339.00 | 3912823.00 |
| 317.12 | 3950.26 | 1166.82 | 537.94 | 988.24 | 0.00 | 484767.00 | 3912548.00 |
| 829.78 | 3358.66 | 878.17 | 365.39 | 629.83 | 0.00 | 484175.00 | 3912259.00 |
| 547.88 | 3571.27 | 990.94 | 348.92 | 608.89 | 0.00 | 484388.00 | 3912372.00 |
| 231.78 | 4203.37 | 1289.80 | 330.58 | 810.14 | 0.00 | 485020.00 | 3912671.00 |
| 233.92 | 4199.61 | 1284.15 | 432.01 | 936.23 | 0.00 | 485016.00 | 3912665.00 |
| 163.90 | 4530.36 | 1444.92 | 436.62 | 1030.06 | 0.00 | 485347.00 | 3912826.00 |
| 96.90 | 5150.30 | 1741.51 | 454.74 | 797.07 | 0.00 | 485967.00 | 3913122.00 |
| 203.23 | 4330.73 | 1343.86 | 396.47 | 922.05 | 0.00 | 485147.00 | 3912725.00 |
| 281.40 | 4045.82 | 1206.72 | 469.86 | 878.08 | 0.00 | 484862.00 | 3912587.00 |
| 395.23 | 3790.61 | 1086.27 | 504.43 | 1057.41 | 0.00 | 484607.00 | 3912467.00 |
| 121.86 | 4863.84 | 1598.48 | 508.35 | 899.07 | 0.00 | 485680.00 | 3912979.00 |
| 510.68 | 3612.50 | 1001.29 | 410.36 | 970.92 | 0.00 | 484429.00 | 3912382.00 |
| 234.32 | 4200.04 | 1296.70 | 445.57 | 616.59 | 0.00 | 485016.00 | 3912677.00 |
| 306.09 | 3977.75 | 1187.21 | 503.50 | 910.38 | 0.00 | 484794.00 | 3912568.00 |
| 88.17 | 5279.63 | 1790.64 | 375.39 | 1029.38 | 0.00 | 486096.00 | 3913171.00 |
| 540.44 | 3576.52 | 990.27 | 466.06 | 855.98 | 0.00 | 484393.00 | 3912371.00 |
| 383.70 | 3812.69 | 1101.37 | 399.37 | 664.80 | 0.00 | 484629.00 | 3912482.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 671.55 | 98549.52 | 25017.35 | 1655.91 | 943.33 | **119.34** | 579366.00 | 3936398.00 |
| 124.90 | 113856.40 | 32335.73 | 2330.09 | 2191.07 | 0.00 | 594673.00 | 3943717.00 |
| 350.39 | 102861.33 | 27132.96 | 1912.62 | 1588.39 | 0.00 | 583678.00 | 3938514.00 |
| 313.76 | 103770.29 | 27566.91 | 1965.62 | 1719.63 | 0.00 | 584587.00 | 3938948.00 |
| 333.06 | 103272.66 | 27325.83 | 1854.24 | 1422.77 | 0.00 | 584089.00 | 3938707.00 |
| 391.15 | 102010.13 | 26710.15 | 1756.57 | 1163.74 | 0.00 | 582826.00 | 3938091.00 |
| 342.24 | 103051.32 | 27224.62 | 1833.25 | 1345.16 | 0.00 | 583868.00 | 3938605.00 |
| 189.20 | 108706.58 | 29911.81 | 2168.19 | 1985.83 | 0.00 | 589523.00 | 3941293.00 |
| 23.08 | 150596.35 | 49491.77 | 4788.62 | 5639.31 | 0.00 | 631413.00 | 3960873.00 |
| 82.41 | 120239.82 | 35320.17 | 2530.24 | 2330.06 | 0.00 | 601056.00 | 3946701.00 |
| 478.63 | 100577.10 | 26031.20 | 1748.34 | 1189.37 | 0.00 | 581393.00 | 3937412.00 |
| 663.35 | 98615.46 | 25061.14 | 1651.28 | 897.65 | 0.00 | 579432.00 | 3936442.00 |
| 644.94 | 98762.00 | 25130.34 | 1659.81 | 941.83 | 0.00 | 579578.00 | 3936511.00 |
| 339.61 | 103114.25 | 27243.57 | 1909.08 | 1592.61 | 0.00 | 583931.00 | 3938624.00 |
| 247.60 | 105916.87 | 28589.65 | 2002.61 | 1686.75 | 0.00 | 586733.00 | 3939970.00 |
| 154.86 | 111049.41 | 31002.12 | 2176.84 | 1974.33 | 0.00 | 591866.00 | 3942383.00 |
| 446.42 | 101054.37 | 26256.50 | 1785.78 | 1292.10 | 0.00 | 581871.00 | 3937637.00 |
| 317.27 | 103676.99 | 27523.10 | 1991.68 | 1792.02 | 0.00 | 584493.00 | 3938904.00 |
| 94.07 | 118059.73 | 34295.42 | 2590.94 | 2698.28 | 0.00 | 598876.00 | 3945676.00 |
| 132.42 | 113061.37 | 31946.27 | 2422.03 | 2541.08 | 0.00 | 593878.00 | 3943327.00 |
| 138.35 | 112482.17 | 31693.70 | 2252.09 | 2031.87 | 0.00 | 593298.00 | 3943074.00 |
| 279.52 | 104783.71 | 28043.02 | 1924.62 | 1586.49 | 0.00 | 585600.00 | 3939424.00 |
| 315.30 | 103729.42 | 27547.27 | 1913.63 | 1588.71 | 0.00 | 584546.00 | 3938928.00 |
| 218.09 | 107183.15 | 29186.71 | 1990.99 | 1630.83 | 0.00 | 587999.00 | 3940567.00 |
| 611.81 | 99058.98 | 25277.77 | 1674.97 | 988.67 | 0.00 | 579875.00 | 3936659.00 |
| 234.44 | 106451.27 | 28843.09 | 2075.89 | 1876.19 | 0.00 | 587268.00 | 3940224.00 |
| 391.52 | 102002.91 | 26721.13 | 1858.75 | 1473.77 | 0.00 | 582819.00 | 3938102.00 |
| 74.97 | 121888.48 | 36094.82 | 2782.38 | 2878.77 | 0.00 | 602705.00 | 3947476.00 |
| 307.14 | 103953.52 | 27651.27 | 1819.03 | 1259.65 | 0.00 | 584770.00 | 3939032.00 |
| 340.56 | 103090.19 | 27237.69 | 1830.29 | 1350.12 | 0.00 | 583906.00 | 3938618.00 |
| 350.80 | 102853.05 | 27126.11 | 1828.31 | 1358.20 | 0.00 | 583669.00 | 3938507.00 |
| 825.31 | 97514.09 | 24496.62 | 1645.70 | 929.29 | 0.00 | 578330.00 | 3935877.00 |
| 430.74 | 101304.39 | 26378.52 | 1757.95 | 1193.53 | 0.00 | 582121.00 | 3937759.00 |
| 114.82 | 115040.71 | 32894.93 | 2598.08 | 2702.98 | 0.00 | 595857.00 | 3944276.00 |
| 335.73 | 103207.56 | 27293.18 | 1842.53 | 1392.52 | 0.00 | 584024.00 | 3938674.00 |
| 53.55 | 128438.57 | 39159.56 | 3311.95 | 3762.15 | 0.00 | 609255.00 | 3950540.00 |
| 130.56 | 113251.84 | 32056.04 | 2276.80 | 2050.15 | 0.00 | 594068.00 | 3943437.00 |
| 580.84 | 99360.51 | 25428.26 | 1719.50 | 1129.11 | 0.00 | 580177.00 | 3936809.00 |
| 146.55 | 111739.89 | 31337.44 | 2255.57 | 2106.85 | 0.00 | 592556.00 | 3942718.00 |
| 373.62 | 102358.14 | 26886.82 | 1855.31 | 1448.59 | 0.00 | 583174.00 | 3938268.00 |
| 124.30 | 113922.93 | 32353.13 | 2383.18 | 2345.49 | 0.00 | 594739.00 | 3943734.00 |
| 223.09 | 106950.79 | 29081.08 | 2068.18 | 1855.98 | 0.00 | 587767.00 | 3940462.00 |
| 270.97 | 105067.05 | 28176.74 | 1927.59 | 1556.79 | 0.00 | 585883.00 | 3939558.00 |
| 450.18 | 100996.20 | 26227.20 | 1753.18 | 1176.75 | 0.00 | 581812.00 | 3937608.00 |
| 124.95 | 113850.65 | 32322.64 | 2476.14 | 2564.06 | 0.00 | 594667.00 | 3943703.00 |
| 209.06 | 107624.68 | 29383.32 | 1985.35 | 1617.29 | 0.00 | 588441.00 | 3940764.00 |
| 790.01 | 97720.06 | 24598.19 | 1686.57 | 1091.51 | 0.00 | 578536.00 | 3935979.00 |
| 335.57 | 103209.71 | 27297.31 | 1833.99 | 1346.83 | 0.00 | 584026.00 | 3938678.00 |
| 154.61 | 111069.21 | 31020.01 | 2185.91 | 1942.76 | 0.00 | 591885.00 | 3942401.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 277.59 | 104846.49 | 28077.72 | 1894.36 | 1443.18 | 0.00 | 585663.00 | 3939459.00 |
| 194.17 | 108421.93 | 29768.41 | 2033.46 | 1700.71 | 0.00 | 589238.00 | 3941149.00 |
| 301.77 | 104105.09 | 27727.34 | 1956.31 | 1678.40 | 0.00 | 584921.00 | 3939108.00 |
| 81.11 | 120512.08 | 35457.19 | 2751.49 | 2816.63 | 0.00 | 601328.00 | 3946838.00 |
| 372.07 | 102389.30 | 26900.87 | 1915.78 | 1624.34 | 0.00 | 583206.00 | 3938282.00 |
| 235.32 | 106413.22 | 28828.70 | 1977.05 | 1617.18 | 0.00 | 587230.00 | 3940209.00 |
| 69.16 | 123360.38 | 36777.75 | 3113.09 | 3505.00 | 0.00 | 604177.00 | 3948159.00 |
| 160.33 | 110625.08 | 30808.21 | 2182.21 | 1999.93 | 0.00 | 591441.00 | 3942189.00 |
| 106.45 | 116151.84 | 33393.62 | 2696.05 | 3045.06 | 0.00 | 596968.00 | 3944774.00 |
| 504.55 | 100233.31 | 25848.91 | 1723.03 | 1135.09 | 0.00 | 581050.00 | 3937230.00 |
| 46.37 | 131599.38 | 40629.36 | 3426.41 | 3774.04 | 0.00 | 612416.00 | 3952010.00 |
| 336.55 | 103187.85 | 27286.94 | 1850.95 | 1397.15 | 0.00 | 584004.00 | 3938668.00 |
| 275.84 | 104903.91 | 28105.30 | 1877.09 | 1394.02 | 0.00 | 585720.00 | 3939486.00 |
| 106.55 | 116137.48 | 33419.58 | 2503.17 | 2446.62 | 0.00 | 596954.00 | 3944800.00 |
| 179.07 | 109327.48 | 30201.02 | 2079.73 | 1773.78 | 0.00 | 590144.00 | 3941582.00 |
| 541.64 | 99783.45 | 25632.70 | 1699.32 | 1055.48 | 0.00 | 580600.00 | 3937013.00 |
| 101.62 | 116855.67 | 33729.61 | 2525.54 | 2539.64 | 0.00 | 597672.00 | 3945110.00 |
| 381.53 | 102197.04 | 26816.34 | 1792.89 | 1259.58 | 0.00 | 583013.00 | 3938197.00 |
| 449.03 | 101013.94 | 26246.50 | 1806.66 | 1352.74 | 0.00 | 581830.00 | 3937627.00 |
| 310.27 | 103866.06 | 27615.46 | 1909.78 | 1527.79 | 0.00 | 584682.00 | 3938996.00 |
| 429.24 | 101328.41 | 26392.85 | 1740.17 | 1123.62 | 0.00 | 582145.00 | 3937774.00 |
| 379.42 | 102239.98 | 26840.82 | 1861.97 | 1480.98 | 0.00 | 583056.00 | 3938222.00 |
| 292.66 | 104372.84 | 27857.98 | 1961.49 | 1671.44 | 0.00 | 585189.00 | 3939239.00 |
| 239.39 | 106244.88 | 28740.72 | 2137.83 | 2050.57 | 0.00 | 587061.00 | 3940122.00 |
| 406.40 | 101725.42 | 26590.79 | 1774.84 | 1206.93 | 0.00 | 582542.00 | 3937972.00 |
| 148.87 | 111541.57 | 31237.25 | 2425.84 | 2637.81 | 0.00 | 592358.00 | 3942618.00 |
| 160.24 | 110631.62 | 30811.76 | 2260.97 | 2172.72 | 0.00 | 591448.00 | 3942193.00 |
| 208.07 | 107675.95 | 29415.20 | 2033.22 | 1734.75 | 0.00 | 588492.00 | 3940796.00 |
| 315.78 | 103716.56 | 27545.64 | 1944.30 | 1621.92 | 0.00 | 584533.00 | 3938926.00 |
| 194.10 | 108423.07 | 29780.88 | 2088.62 | 1861.24 | 0.00 | 589239.00 | 3941162.00 |
| 550.49 | 99683.24 | 25589.11 | 1681.64 | 981.43 | 0.00 | 580500.00 | 3936970.00 |
| 362.88 | 102584.98 | 26993.81 | 1815.05 | 1338.85 | 0.00 | 583401.00 | 3938375.00 |
| 342.61 | 103041.97 | 27218.51 | 1866.04 | 1451.44 | 0.00 | 583858.00 | 3938599.00 |
| 177.34 | 109439.61 | 30258.66 | 2257.87 | 2190.57 | 0.00 | 590256.00 | 3941639.00 |
| 207.26 | 107716.54 | 29448.08 | 2049.43 | 1734.13 | 0.00 | 588533.00 | 3940829.00 |
| 96.43 | 117668.69 | 34111.13 | 2515.47 | 2467.65 | 0.00 | 598485.00 | 3945492.00 |
| 236.08 | 106382.57 | 28815.08 | 2042.99 | 1785.71 | 0.00 | 587199.00 | 3940196.00 |
| 321.84 | 103557.26 | 27466.45 | 2008.50 | 1833.41 | 0.00 | 584374.00 | 3938847.00 |
| 477.99 | 100589.68 | 26033.32 | 1773.80 | 1278.22 | 0.00 | 581406.00 | 3937414.00 |
| 279.74 | 104776.19 | 28049.43 | 1854.67 | 1320.72 | 0.00 | 585592.00 | 3939430.00 |
| 140.22 | 112307.10 | 31596.72 | 2246.25 | 2086.69 | 0.00 | 593123.00 | 3942978.00 |
| 175.88 | 109534.17 | 30294.63 | 2283.28 | 2330.43 | 0.00 | 590350.00 | 3941675.00 |
| 789.05 | 97725.81 | 24604.03 | 1643.53 | 923.10 | 0.00 | 578542.00 | 3935985.00 |
| 173.83 | 109670.21 | 30365.39 | 2261.11 | 2189.00 | 0.00 | 590486.00 | 3941746.00 |
| 149.15 | 111517.77 | 31238.71 | 2206.37 | 1956.85 | 0.00 | 592334.00 | 3942619.00 |
| 320.68 | 103586.53 | 27472.45 | 1960.08 | 1767.17 | 0.00 | 584403.00 | 3938853.00 |
| 403.25 | 101782.79 | 26605.66 | 1806.27 | 1341.42 | 0.00 | 582599.00 | 3937986.00 |
| 261.09 | 105412.17 | 28356.11 | 2023.89 | 1761.19 | 0.00 | 586228.00 | 3939737.00 |
| 302.90 | 104072.35 | 27714.56 | 1926.70 | 1612.77 | 0.00 | 584889.00 | 3939095.00 |
| 223.82 | 106918.22 | 29067.15 | 2090.88 | 1936.28 | 0.00 | 587734.00 | 3940448.00 |
| 626.66 | 98922.01 | 25214.00 | 1705.12 | 1115.20 | 0.00 | 579738.00 | 3936595.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 349.76 | 37392.96 | 10332.87 | 1002.47 | 963.13 | **83.80** | 518209.00 | 3921714.00 |
| 448.11 | 36486.20 | 9889.64 | 987.23 | 927.97 | 0.00 | 517302.00 | 3921270.00 |
| 358.93 | 37295.57 | 10282.02 | 1041.28 | 1051.00 | 0.00 | 518112.00 | 3921663.00 |
| 46.01 | 51613.66 | 17028.55 | 2267.85 | 3154.19 | 0.00 | 532430.00 | 3928409.00 |
| 227.81 | 39296.83 | 11239.29 | 1152.48 | 1350.41 | 0.00 | 520113.00 | 3922620.00 |
| 386.30 | 37016.35 | 10151.44 | 1065.44 | 1047.39 | 0.00 | 517833.00 | 3921532.00 |
| 268.77 | 38510.06 | 10860.06 | 1214.45 | 1531.21 | 0.00 | 519326.00 | 3922241.00 |
| 315.65 | 37810.15 | 10527.21 | 1054.18 | 1081.63 | 0.00 | 518626.00 | 3921908.00 |
| 264.89 | 38574.49 | 10897.44 | 1055.43 | 1074.29 | 0.00 | 519391.00 | 3922278.00 |
| 95.82 | 44724.20 | 13817.34 | 1734.08 | 2052.06 | 0.00 | 525540.00 | 3925198.00 |
| 136.54 | 42207.91 | 12617.32 | 1455.03 | 1780.06 | 0.00 | 523024.00 | 3923998.00 |
| 159.05 | 41256.28 | 12173.87 | 1347.54 | 1656.28 | 0.00 | 522073.00 | 3923555.00 |
| 353.23 | 37358.10 | 10318.52 | 1058.36 | 1062.24 | 0.00 | 518174.00 | 3921699.00 |
| 269.96 | 38489.77 | 10864.09 | 1044.33 | 1022.53 | 0.00 | 519306.00 | 3922245.00 |
| 215.89 | 39566.79 | 11372.31 | 1176.09 | 1312.70 | 0.00 | 520383.00 | 3922753.00 |
| 161.99 | 41146.32 | 12119.82 | 1412.88 | 1708.30 | 0.00 | 521963.00 | 3923501.00 |
| 213.55 | 39625.16 | 11402.13 | 1073.46 | 1066.13 | 0.00 | 520441.00 | 3922783.00 |
| 215.52 | 39577.40 | 11377.26 | 1333.65 | 1454.93 | 0.00 | 520394.00 | 3922758.00 |
| 263.42 | 38602.19 | 10910.89 | 1018.03 | 1002.71 | 0.00 | 519418.00 | 3922292.00 |
| 301.57 | 38004.54 | 10624.76 | 1136.89 | 1182.72 | 0.00 | 518821.00 | 3922006.00 |
| 645.45 | 35369.95 | 9335.14 | 932.63 | 827.63 | 0.00 | 516186.00 | 3920716.00 |
| 361.39 | 37264.39 | 10276.29 | 1117.76 | 1128.07 | 0.00 | 518081.00 | 3921657.00 |
| 151.98 | 41533.21 | 12308.01 | 1613.51 | 2170.32 | 0.00 | 522349.00 | 3923689.00 |
| 138.02 | 42138.37 | 12577.19 | 1315.40 | 1576.12 | 0.00 | 522955.00 | 3923958.00 |
| 170.35 | 40857.78 | 11989.15 | 1545.86 | 1748.51 | 0.00 | 521674.00 | 3923370.00 |
| 269.74 | 38497.35 | 10865.25 | 998.22 | 896.67 | 0.00 | 519314.00 | 3922246.00 |
| 336.17 | 37552.71 | 10412.22 | 1112.84 | 1176.65 | 0.00 | 518369.00 | 3921793.00 |
| 398.25 | 36903.38 | 10088.36 | 970.86 | 914.77 | 0.00 | 517720.00 | 3921469.00 |
| 187.06 | 40328.57 | 11728.76 | 1296.74 | 1553.83 | 0.00 | 521145.00 | 3923110.00 |
| 166.63 | 40984.31 | 12032.81 | 1226.82 | 1589.17 | 0.00 | 521801.00 | 3923414.00 |
| 264.79 | 38577.50 | 10908.37 | 1137.21 | 1141.34 | 0.00 | 519394.00 | 3922289.00 |
| 146.54 | 41756.24 | 12414.69 | 1402.22 | 1808.24 | 0.00 | 522573.00 | 3923795.00 |
| 188.81 | 40280.01 | 11703.92 | 1204.69 | 1346.31 | 0.00 | 521096.00 | 3923085.00 |
| 298.76 | 38042.87 | 10640.78 | 1039.67 | 1072.11 | 0.00 | 518859.00 | 3922022.00 |
| 66.81 | 47792.54 | 15243.96 | 1758.90 | 2218.79 | 0.00 | 528609.00 | 3926625.00 |
| 266.78 | 38544.32 | 10886.71 | 1104.68 | 1134.87 | 0.00 | 519361.00 | 3922267.00 |
| 344.89 | 37453.41 | 10366.61 | 1162.73 | 1202.06 | 0.00 | 518270.00 | 3921747.00 |
| 170.35 | 40856.64 | 11975.55 | 1225.92 | 1493.91 | 0.00 | 521673.00 | 3923356.00 |
| 202.05 | 39913.71 | 11541.75 | 1252.19 | 1383.05 | 0.00 | 520730.00 | 3922923.00 |
| 227.04 | 39314.98 | 11251.98 | 1257.23 | 1401.76 | 0.00 | 520131.00 | 3922633.00 |
| 436.47 | 36580.57 | 9930.65 | 939.37 | 818.50 | 0.00 | 517397.00 | 3921311.00 |
| 359.11 | 37289.52 | 10286.52 | 1023.34 | 1005.99 | 0.00 | 518106.00 | 3921667.00 |
| 690.83 | 35203.93 | 9247.39 | 937.52 | 825.08 | 0.00 | 516020.00 | 3920628.00 |
| 342.96 | 37471.26 | 10373.71 | 1024.60 | 1030.44 | 0.00 | 518288.00 | 3921754.00 |
| 603.38 | 35561.85 | 9427.75 | 926.79 | 803.37 | 0.00 | 516378.00 | 3920809.00 |
| 236.41 | 39111.86 | 11151.12 | 1223.38 | 1478.96 | 0.00 | 519928.00 | 3922532.00 |
| 434.84 | 36587.50 | 9948.79 | 1008.38 | 951.94 | 0.00 | 517404.00 | 3921330.00 |
| 70.41 | 47311.13 | 15013.84 | 1769.04 | 2458.39 | 0.00 | 528127.00 | 3926395.00 |
| 143.09 | 41907.18 | 12483.63 | 1357.91 | 1622.42 | 0.00 | 522723.00 | 3923864.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 496.24 | 36146.88 | 9726.87 | 1015.92 | 987.22 | 0.00 | 516963.00 | 3921108.00 |
| 23.87 | 60332.47 | 21099.37 | 3007.82 | 4366.78 | 0.00 | 541149.00 | 3932480.00 |
| 129.43 | 42560.65 | 12796.40 | 1499.39 | 1592.48 | 0.00 | 523377.00 | 3924177.00 |
| 709.59 | 35131.78 | 9210.58 | 951.69 | 848.75 | 0.00 | 515948.00 | 3920591.00 |
| 142.39 | 41936.46 | 12505.16 | 1460.11 | 1576.75 | 0.00 | 522753.00 | 3923886.00 |
| 418.43 | 36724.27 | 10003.07 | 1047.17 | 1155.39 | 0.00 | 517541.00 | 3921384.00 |
| 445.29 | 36510.67 | 9900.90 | 948.79 | 822.67 | 0.00 | 517327.00 | 3921282.00 |
| 115.56 | 43336.75 | 13160.16 | 1457.72 | 1552.78 | 0.00 | 524153.00 | 3924541.00 |
| 211.50 | 39674.42 | 11425.72 | 1300.83 | 1620.08 | 0.00 | 520491.00 | 3922807.00 |
| 93.88 | 44880.96 | 13878.79 | 1615.92 | 2054.53 | 0.00 | 525697.00 | 3925260.00 |
| 141.90 | 41958.89 | 12511.79 | 1624.49 | 1991.29 | 0.00 | 522775.00 | 3923893.00 |
| 375.81 | 37117.63 | 10195.93 | 1057.87 | 1149.37 | 0.00 | 517934.00 | 3921577.00 |
| 119.30 | 43112.01 | 13039.12 | 1555.14 | 1954.58 | 0.00 | 523928.00 | 3924420.00 |
| 774.89 | 34919.99 | 9096.97 | 900.30 | 735.37 | 0.00 | 515736.00 | 3920478.00 |
| 98.51 | 44510.74 | 13709.14 | 1560.74 | 2042.88 | 0.00 | 525327.00 | 3925090.00 |
| 127.55 | 42657.35 | 12832.29 | 1500.09 | 1908.52 | 0.00 | 523474.00 | 3924213.00 |
| 319.07 | 37763.92 | 10511.75 | 1156.18 | 1239.12 | 0.00 | 518580.00 | 3921893.00 |
| 20.81 | 62550.35 | 22133.67 | 3020.55 | 4232.94 | 0.00 | 543367.00 | 3933514.00 |
| 293.29 | 38122.41 | 10682.71 | 1019.67 | 966.27 | 0.00 | 518939.00 | 3922063.00 |
| 76.41 | 46584.48 | 14677.55 | 1773.67 | 2397.03 | 0.00 | 527401.00 | 3926058.00 |
| 210.65 | 39694.47 | 11425.83 | 1342.29 | 1671.47 | 0.00 | 520511.00 | 3922807.00 |
| 661.70 | 35306.80 | 9293.56 | 878.45 | 706.78 | 0.00 | 516123.00 | 3920674.00 |
| 101.99 | 44245.41 | 13581.74 | 1503.22 | 1888.49 | 0.00 | 525062.00 | 3924963.00 |
| 198.01 | 40019.75 | 11595.86 | 1309.27 | 1355.69 | 0.00 | 520836.00 | 3922977.00 |
| 494.22 | 36160.97 | 9728.21 | 916.36 | 736.89 | 0.00 | 516977.00 | 3921109.00 |
| 62.04 | 48495.07 | 15592.69 | 2346.22 | 2636.00 | 0.00 | 529311.00 | 3926973.00 |
| 376.79 | 37107.43 | 10192.28 | 930.15 | 782.12 | 0.00 | 517924.00 | 3921573.00 |
| 461.90 | 36382.57 | 9841.21 | 989.96 | 961.84 | 0.00 | 517199.00 | 3921222.00 |
| 384.93 | 37031.67 | 10153.26 | 1075.70 | 1129.84 | 0.00 | 517848.00 | 3921534.00 |
| 203.80 | 39867.77 | 11523.25 | 1256.06 | 1398.74 | 0.00 | 520684.00 | 3922904.00 |
| 139.30 | 42078.50 | 12547.60 | 1273.45 | 1574.02 | 0.00 | 522895.00 | 3923928.00 |
| 261.27 | 38641.12 | 10929.24 | 1185.83 | 1304.05 | 0.00 | 519457.00 | 3922310.00 |
| 430.07 | 36630.07 | 9956.22 | 993.52 | 996.23 | 0.00 | 517446.00 | 3921337.00 |
| 208.21 | 39755.84 | 11450.58 | 1227.70 | 1488.13 | 0.00 | 520572.00 | 3922831.00 |
| 22.63 | 61173.22 | 21462.84 | 3361.88 | 5383.64 | 0.00 | 541989.00 | 3932844.00 |
| 474.81 | 36294.40 | 9792.74 | 995.19 | 977.64 | 0.00 | 517111.00 | 3921174.00 |
| 1420.34 | 33793.92 | 8461.15 | 843.07 | 522.27 | 0.00 | 514610.00 | 3919842.00 |
| 162.41 | 41131.66 | 12111.83 | 1325.15 | 1558.15 | 0.00 | 521948.00 | 3923493.00 |
| 432.48 | 36609.67 | 9949.03 | 942.62 | 826.96 | 0.00 | 517426.00 | 3921330.00 |
| 940.03 | 34488.79 | 8871.95 | 890.99 | 685.92 | 0.00 | 515305.00 | 3920253.00 |
| 266.47 | 38548.98 | 10886.17 | 1100.84 | 1219.76 | 0.00 | 519365.00 | 3922267.00 |
| 291.06 | 38153.65 | 10700.12 | 1200.60 | 1378.37 | 0.00 | 518970.00 | 3922081.00 |
| 149.09 | 41651.74 | 12358.04 | 1498.25 | 1988.87 | 0.00 | 522468.00 | 3923739.00 |
| 403.31 | 36856.58 | 10074.34 | 1020.46 | 975.05 | 0.00 | 517673.00 | 3921455.00 |
| 261.13 | 38647.09 | 10930.12 | 1162.28 | 1303.32 | 0.00 | 519463.00 | 3922311.00 |
| 74.16 | 46847.44 | 14788.60 | 1977.02 | 2770.26 | 0.00 | 527664.00 | 3926169.00 |
| 222.53 | 39413.46 | 11296.67 | 1056.40 | 1014.94 | 0.00 | 520230.00 | 3922677.00 |
| 340.26 | 37505.93 | 10382.15 | 1021.62 | 1011.43 | 0.00 | 518322.00 | 3921763.00 |
| 225.73 | 39339.99 | 11260.80 | 1197.11 | 1400.92 | 0.00 | 520156.00 | 3922642.00 |
| 750.64 | 34991.43 | 9135.94 | 849.50 | 582.51 | 0.00 | 515808.00 | 3920517.00 |
| 298.63 | 38045.41 | 10645.46 | 1137.91 | 1247.07 | 0.00 | 518862.00 | 3922026.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 485.01 | 26462.44 | 7194.92 | 807.87 | 903.58 | **74.44** | 507279.00 | 3918576.00 |
| 31.10 | 42362.98 | 14703.53 | 3194.06 | 4351.23 | 0.00 | 523179.00 | 3926084.00 |
| 239.22 | 28694.30 | 8279.80 | 1166.96 | 1553.01 | 0.00 | 509511.00 | 3919661.00 |
| 153.31 | 30600.00 | 9199.40 | 1381.78 | 1562.03 | 0.00 | 511416.00 | 3920580.00 |
| 136.25 | 31180.30 | 9452.28 | 1434.05 | 2042.83 | 0.00 | 511997.00 | 3920833.00 |
| 186.34 | 29711.96 | 8758.16 | 981.38 | 1194.58 | 0.00 | 510528.00 | 3920139.00 |
| 368.10 | 27230.68 | 7575.97 | 903.28 | 1096.74 | 0.00 | 508047.00 | 3918957.00 |
| 249.19 | 28539.04 | 8218.83 | 1107.38 | 1282.43 | 0.00 | 509355.00 | 3919600.00 |
| 252.66 | 28489.41 | 8189.92 | 1075.41 | 1298.35 | 0.00 | 509306.00 | 3919571.00 |
| 303.85 | 27841.34 | 7874.99 | 993.38 | 1149.85 | 0.00 | 508658.00 | 3919256.00 |
| 639.41 | 25814.63 | 6875.29 | 837.70 | 848.98 | 0.00 | 506631.00 | 3918256.00 |
| 251.83 | 28499.96 | 8185.10 | 881.14 | 1039.57 | 0.00 | 509316.00 | 3919566.00 |
| 618.00 | 25884.82 | 6910.18 | 786.44 | 758.41 | 0.00 | 506701.00 | 3918291.00 |
| 149.68 | 30713.38 | 9245.08 | 1178.67 | 1523.79 | 0.00 | 511530.00 | 3920626.00 |
| 317.60 | 27696.12 | 7797.76 | 858.59 | 964.63 | 0.00 | 508512.00 | 3919179.00 |
| 491.71 | 26429.54 | 7188.65 | 832.89 | 826.65 | 0.00 | 507246.00 | 3918569.00 |
| 266.95 | 28292.03 | 8091.68 | 1077.02 | 1231.88 | 0.00 | 509108.00 | 3919472.00 |
| 176.74 | 29944.65 | 8870.66 | 1032.39 | 1374.01 | 0.00 | 510761.00 | 3920251.00 |
| 138.16 | 31110.65 | 9429.36 | 1147.27 | 1509.55 | 0.00 | 511927.00 | 3920810.00 |
| 97.82 | 33021.65 | 10324.33 | 1393.92 | 2056.93 | 0.00 | 513838.00 | 3921705.00 |
| 454.40 | 26636.48 | 7280.93 | 744.27 | 672.20 | 0.00 | 507453.00 | 3918662.00 |
| 155.55 | 30528.87 | 9153.52 | 1235.83 | 1606.12 | 0.00 | 511345.00 | 3920534.00 |
| 192.09 | 29582.05 | 8710.73 | 1104.86 | 1251.36 | 0.00 | 510398.00 | 3920092.00 |
| 181.59 | 29824.88 | 8812.97 | 1089.65 | 1495.46 | 0.00 | 510641.00 | 3920194.00 |
| 321.20 | 27658.46 | 7789.64 | 930.88 | 980.09 | 0.00 | 508475.00 | 3919170.00 |
| 124.25 | 31660.42 | 9690.83 | 1662.30 | 2141.45 | 0.00 | 512477.00 | 3921072.00 |
| 39.68 | 39905.75 | 13525.70 | 2436.80 | 4042.29 | 0.00 | 520722.00 | 3924906.00 |
| 364.19 | 27266.95 | 7596.23 | 865.87 | 920.10 | 0.00 | 508083.00 | 3918977.00 |
| 39.77 | 39881.74 | 13516.26 | 1894.35 | 3792.58 | 0.00 | 520698.00 | 3924897.00 |
| 133.52 | 31283.62 | 9508.25 | 1529.95 | 2037.00 | 0.00 | 512100.00 | 3920889.00 |
| 370.99 | 27208.25 | 7566.75 | 859.66 | 951.26 | 0.00 | 508025.00 | 3918948.00 |
| 331.31 | 27561.62 | 7731.43 | 823.84 | 903.61 | 0.00 | 508378.00 | 3919112.00 |
| 152.49 | 30622.40 | 9194.40 | 1123.78 | 1434.94 | 0.00 | 511439.00 | 3920575.00 |
| 100.36 | 32866.59 | 10250.02 | 1617.78 | 2279.73 | 0.00 | 513683.00 | 3921631.00 |
| 432.15 | 26767.30 | 7351.87 | 805.82 | 791.93 | 0.00 | 507584.00 | 3918733.00 |
| 228.46 | 28873.12 | 8369.08 | 1050.45 | 1257.47 | 0.00 | 509689.00 | 3919750.00 |
| 303.92 | 27842.45 | 7868.39 | 892.44 | 1013.09 | 0.00 | 508659.00 | 3919249.00 |
| 60.28 | 36327.66 | 11873.21 | 2210.20 | 2894.97 | 0.00 | 517144.00 | 3923254.00 |
| 115.63 | 32053.44 | 9875.00 | 1284.78 | 1597.98 | 0.00 | 512870.00 | 3921256.00 |
| 403.12 | 26968.04 | 7445.98 | 861.38 | 979.84 | 0.00 | 507784.00 | 3918827.00 |
| 323.36 | 27634.86 | 7776.73 | 944.24 | 1027.52 | 0.00 | 508451.00 | 3919158.00 |
| 186.83 | 29702.28 | 8753.77 | 1399.81 | 1858.99 | 0.00 | 510519.00 | 3920135.00 |
| 299.62 | 27886.15 | 7903.96 | 1117.32 | 1228.71 | 0.00 | 508702.00 | 3919285.00 |
| 330.64 | 27565.59 | 7742.17 | 859.71 | 920.24 | 0.00 | 508382.00 | 3919123.00 |
| 690.24 | 25666.33 | 6794.21 | 756.93 | 747.57 | 0.00 | 506483.00 | 3918175.00 |
| 345.08 | 27428.32 | 7678.29 | 902.76 | 1051.69 | 0.00 | 508245.00 | 3919059.00 |
| 119.31 | 31882.44 | 9784.97 | 1227.91 | 1540.57 | 0.00 | 512699.00 | 3921166.00 |
| 315.75 | 27713.48 | 7807.14 | 837.65 | 920.73 | 0.00 | 508530.00 | 3919188.00 |
| 153.55 | 30585.79 | 9178.65 | 1085.87 | 1366.64 | 0.00 | 511402.00 | 3920559.00 |

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|---|---|---|---|---|---|---|---|
| 128.48 | 31485.24 | 9604.27 | 1487.06 | 2179.48 | 0.00 | 512302.00 | 3920985.00 |
| 298.23 | 27903.49 | 7915.86 | 1025.43 | 1091.48 | 0.00 | 508720.00 | 3919297.00 |
| 434.87 | 26751.24 | 7344.57 | 881.18 | 954.04 | 0.00 | 507568.00 | 3918725.00 |
| 224.75 | 28940.29 | 8395.98 | 1069.88 | 1350.26 | 0.00 | 509757.00 | 3919777.00 |
| 190.88 | 29608.63 | 8723.91 | 1351.01 | 1588.06 | 0.00 | 510425.00 | 3920105.00 |
| 496.01 | 26407.24 | 7170.32 | 839.25 | 917.39 | 0.00 | 507224.00 | 3918551.00 |
| 422.11 | 26837.65 | 7385.56 | 905.54 | 1037.76 | 0.00 | 507654.00 | 3918766.00 |
| 236.68 | 28734.36 | 8290.90 | 1029.44 | 1588.46 | 0.00 | 509551.00 | 3919672.00 |
| 361.47 | 27284.42 | 7605.40 | 1102.32 | 1373.56 | 0.00 | 508101.00 | 3918986.00 |
| 646.11 | 25784.62 | 6861.58 | 781.34 | 749.99 | 0.00 | 506601.00 | 3918242.00 |
| 251.71 | 28503.10 | 8197.80 | 1169.84 | 1527.33 | 0.00 | 509319.00 | 3919579.00 |
| 196.67 | 29482.19 | 8647.23 | 1133.05 | 1395.05 | 0.00 | 510298.00 | 3920028.00 |
| 77.70 | 34494.30 | 11019.65 | 1540.68 | 2124.26 | 0.00 | 515311.00 | 3922400.00 |
| 266.02 | 28303.01 | 8092.74 | 1043.59 | 1475.62 | 0.00 | 509119.00 | 3919474.00 |
| 253.32 | 28480.84 | 8176.52 | 1054.24 | 1277.37 | 0.00 | 509297.00 | 3919557.00 |
| 481.76 | 26481.03 | 7211.81 | 900.78 | 1038.51 | 0.00 | 507297.00 | 3918593.00 |
| 426.11 | 26806.13 | 7377.13 | 859.03 | 907.16 | 0.00 | 507622.00 | 3918758.00 |
| 321.11 | 27654.92 | 7787.88 | 969.23 | 1096.94 | 0.00 | 508471.00 | 3919169.00 |
| 213.20 | 29150.13 | 8494.11 | 1097.04 | 1490.54 | 0.00 | 509966.00 | 3919875.00 |
| 879.87 | 25213.51 | 6554.34 | 723.82 | 615.54 | 0.00 | 506030.00 | 3917935.00 |
| 435.47 | 26749.40 | 7341.73 | 907.32 | 951.46 | 0.00 | 507566.00 | 3918723.00 |
| 392.13 | 27041.74 | 7486.19 | 1010.22 | 1220.74 | 0.00 | 507858.00 | 3918867.00 |
| 253.60 | 28473.35 | 8176.01 | 1223.26 | 1649.04 | 0.00 | 509290.00 | 3919557.00 |
| 299.52 | 27889.42 | 7886.05 | 952.94 | 1246.35 | 0.00 | 508706.00 | 3919267.00 |
| 238.09 | 28713.11 | 8291.98 | 1045.61 | 1190.38 | 0.00 | 509529.00 | 3919673.00 |
| 37.76 | 40382.86 | 13767.91 | 2382.30 | 3282.93 | 0.00 | 521199.00 | 3925149.00 |
| 113.92 | 32138.80 | 9899.80 | 1409.20 | 1861.30 | 0.00 | 512955.00 | 3921281.00 |
| 161.91 | 30341.03 | 9070.94 | 1328.66 | 1590.91 | 0.00 | 511157.00 | 3920452.00 |
| 165.84 | 30234.15 | 9011.41 | 1414.44 | 1942.94 | 0.00 | 511050.00 | 3920392.00 |
| 135.06 | 31226.57 | 9484.77 | 1567.29 | 1940.02 | 0.00 | 512043.00 | 3920866.00 |
| 213.14 | 29151.58 | 8497.55 | 995.64 | 1131.87 | 0.00 | 509968.00 | 3919878.00 |
| 420.38 | 26844.57 | 7397.80 | 806.40 | 744.60 | 0.00 | 507661.00 | 3918779.00 |
| 234.95 | 28763.46 | 8316.19 | 1015.11 | 1259.58 | 0.00 | 509580.00 | 3919697.00 |
| 80.42 | 34262.38 | 10897.19 | 1566.50 | 2227.57 | 0.00 | 515079.00 | 3922278.00 |
| 196.51 | 29486.71 | 8660.88 | 1236.44 | 1381.28 | 0.00 | 510303.00 | 3920042.00 |
| 432.54 | 26770.68 | 7349.25 | 895.91 | 970.69 | 0.00 | 507587.00 | 3918730.00 |
| 315.56 | 27714.79 | 7811.58 | 897.94 | 1010.83 | 0.00 | 508531.00 | 3919192.00 |
| 437.24 | 26738.17 | 7338.95 | 778.54 | 720.28 | 0.00 | 507554.00 | 3918720.00 |
| 310.83 | 27766.24 | 7838.19 | 1040.06 | 1343.97 | 0.00 | 508583.00 | 3919219.00 |
| 330.74 | 27559.74 | 7736.24 | 946.57 | 1150.24 | 0.00 | 508376.00 | 3919117.00 |
| 408.21 | 26927.36 | 7431.68 | 940.79 | 1158.58 | 0.00 | 507744.00 | 3918812.00 |
| 173.57 | 30024.09 | 8912.90 | 1202.17 | 1618.79 | 0.00 | 510840.00 | 3920294.00 |
| 256.59 | 28432.33 | 8158.10 | 1090.51 | 1270.88 | 0.00 | 509249.00 | 3919539.00 |
| 589.88 | 25998.62 | 6964.83 | 716.45 | 599.01 | 0.00 | 506815.00 | 3918346.00 |
| 618.42 | 25883.03 | 6909.22 | 855.32 | 916.89 | 0.00 | 506699.00 | 3918290.00 |
| 295.43 | 27930.55 | 7925.28 | 969.89 | 1059.01 | 0.00 | 508747.00 | 3919306.00 |
| 316.54 | 27702.66 | 7806.00 | 1037.50 | 1319.46 | 0.00 | 508519.00 | 3919187.00 |
| 317.92 | 27689.28 | 7802.90 | 927.22 | 1126.07 | 0.00 | 508506.00 | 3919184.00 |
| 261.42 | 28362.85 | 8123.66 | 1160.37 | 1454.54 | 0.00 | 509179.00 | 3919504.00 |
| 394.73 | 27023.95 | 7474.52 | 885.58 | 1062.06 | 0.00 | 507840.00 | 3918855.00 |
| 194.51 | 29524.59 | 8669.90 | 1064.31 | 1352.12 | 0.00 | 510341.00 | 3920051.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 118.62 | 106558.25 | 30513.87 | 2321.77 | 2396.09 | **116.23** | 587375.00 | 3941895.00 |
| 252.79 | 98130.91 | 26544.55 | 1865.47 | 1548.94 | 0.00 | 578947.00 | 3937925.00 |
| 207.31 | 100031.00 | 27457.20 | 1950.56 | 1654.19 | 0.00 | 580847.00 | 3938838.00 |
| 370.05 | 95005.66 | 25060.99 | 1792.70 | 1489.46 | 0.00 | 575822.00 | 3936442.00 |
| 90.41 | 110482.08 | 32380.12 | 2787.08 | 3064.38 | 0.00 | 591298.00 | 3943761.00 |
| 380.49 | 94801.83 | 24964.05 | 1873.97 | 1705.10 | 0.00 | 575618.00 | 3936345.00 |
| 33.83 | 130151.25 | 41550.13 | 4160.40 | 5430.98 | 0.00 | 610968.00 | 3952931.00 |
| 756.01 | 90730.19 | 22952.70 | 1589.70 | 965.96 | 0.00 | 571546.00 | 3934333.00 |
| 305.43 | 96496.38 | 25774.20 | 1794.41 | 1414.39 | 0.00 | 577313.00 | 3937155.00 |
| 532.76 | 92584.47 | 23882.38 | 1656.43 | 1127.92 | 0.00 | 573401.00 | 3935263.00 |
| 332.70 | 95812.82 | 25454.25 | 1795.66 | 1405.93 | 0.00 | 576629.00 | 3936835.00 |
| 1620.95 | 88065.57 | 21478.76 | 1519.69 | 699.12 | 0.00 | 568882.00 | 3932860.00 |
| 178.10 | 101623.90 | 28214.13 | 2021.40 | 1767.19 | 0.00 | 582440.00 | 3939595.00 |
| 196.86 | 100559.13 | 27707.12 | 2020.06 | 1824.55 | 0.00 | 581375.00 | 3939088.00 |
| 222.93 | 99311.35 | 27106.19 | 1914.34 | 1655.93 | 0.00 | 580128.00 | 3938487.00 |
| 230.35 | 98996.29 | 26962.01 | 1853.79 | 1457.35 | 0.00 | 579813.00 | 3938343.00 |
| 62.22 | 116841.93 | 35317.26 | 2850.67 | 3230.27 | 0.00 | 597658.00 | 3946698.00 |
| 265.31 | 97697.61 | 26353.55 | 1903.60 | 1622.29 | 0.00 | 578514.00 | 3937734.00 |
| 27.85 | 135326.59 | 43978.37 | 4133.90 | 4938.48 | 0.00 | 616143.00 | 3955359.00 |
| 1107.04 | 89168.94 | 22130.19 | 1528.76 | 745.32 | 0.00 | 569985.00 | 3933511.00 |
| 185.08 | 101208.78 | 28015.24 | 2059.03 | 1867.23 | 0.00 | 582025.00 | 3939396.00 |
| 200.47 | 100371.66 | 27613.93 | 1969.13 | 1700.99 | 0.00 | 581188.00 | 3938995.00 |
| 639.28 | 91562.73 | 23376.52 | 1613.48 | 1009.04 | 0.00 | 572379.00 | 3934757.00 |
| 443.10 | 93744.85 | 24451.58 | 1682.22 | 1160.36 | 0.00 | 574561.00 | 3935832.00 |
| 221.60 | 99368.69 | 27138.00 | 1858.47 | 1454.00 | 0.00 | 580185.00 | 3938519.00 |
| 354.10 | 95333.91 | 25217.72 | 1764.83 | 1356.59 | 0.00 | 576150.00 | 3936599.00 |
| 441.05 | 93774.35 | 24464.10 | 1697.35 | 1205.79 | 0.00 | 574591.00 | 3935845.00 |
| 140.96 | 104337.09 | 29484.43 | 2190.70 | 2096.81 | 0.00 | 585153.00 | 3940865.00 |
| 233.64 | 98860.98 | 26900.39 | 1973.32 | 1746.14 | 0.00 | 579677.00 | 3938281.00 |
| 405.53 | 94348.55 | 24742.87 | 1703.54 | 1215.81 | 0.00 | 575165.00 | 3936124.00 |
| 91.65 | 110272.27 | 32260.13 | 2478.44 | 2500.80 | 0.00 | 591089.00 | 3943641.00 |
| 296.90 | 96733.12 | 25889.24 | 1834.78 | 1484.42 | 0.00 | 577549.00 | 3937270.00 |
| 360.22 | 95206.29 | 25158.38 | 1732.15 | 1269.07 | 0.00 | 576023.00 | 3936539.00 |
| 128.43 | 105510.92 | 30038.94 | 2199.55 | 2046.59 | 0.00 | 586327.00 | 3941420.00 |
| 76.37 | 113207.08 | 33636.69 | 2846.58 | 3270.09 | 0.00 | 594023.00 | 3945017.00 |
| 333.13 | 95803.09 | 25442.27 | 1778.38 | 1388.97 | 0.00 | 576619.00 | 3936823.00 |
| 409.71 | 94276.39 | 24704.42 | 1734.22 | 1332.09 | 0.00 | 575093.00 | 3936085.00 |
| 182.18 | 101378.86 | 28085.07 | 2036.86 | 1887.65 | 0.00 | 582195.00 | 3939466.00 |
| 356.38 | 95285.93 | 25189.77 | 1810.43 | 1515.47 | 0.00 | 576102.00 | 3936571.00 |
| 156.46 | 103084.74 | 28901.36 | 2093.02 | 1848.61 | 0.00 | 583901.00 | 3940282.00 |
| 83.80 | 111678.64 | 32926.99 | 2625.95 | 2818.45 | 0.00 | 592495.00 | 3944308.00 |
| 153.56 | 103303.08 | 28989.14 | 2159.60 | 2136.63 | 0.00 | 584119.00 | 3940370.00 |
| 391.44 | 94598.15 | 24869.70 | 1762.73 | 1362.61 | 0.00 | 575414.00 | 3936250.00 |
| 529.59 | 92620.30 | 23898.37 | 1679.48 | 1217.92 | 0.00 | 573437.00 | 3935279.00 |
| 526.03 | 92661.12 | 23918.89 | 1654.36 | 1118.34 | 0.00 | 573477.00 | 3935300.00 |
| 107.63 | 107902.66 | 31160.34 | 2484.57 | 2588.63 | 0.00 | 588719.00 | 3942541.00 |
| 44.96 | 123431.51 | 38413.86 | 3862.30 | 4558.48 | 0.00 | 604248.00 | 3949795.00 |
| 188.91 | 100991.96 | 27909.92 | 2026.51 | 1830.47 | 0.00 | 581808.00 | 3939291.00 |
| 642.65 | 91531.76 | 23362.72 | 1568.28 | 824.79 | 0.00 | 572348.00 | 3934744.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 208.91 | 99953.24 | 27411.35 | 2118.45 | 2147.04 | 0.00 | 580770.00 | 3938792.00 |
| 292.74 | 96849.50 | 25934.20 | 1782.06 | 1362.86 | 0.00 | 577666.00 | 3937315.00 |
| 452.91 | 93600.84 | 24380.13 | 1689.99 | 1196.74 | 0.00 | 574417.00 | 3935761.00 |
| 386.74 | 94683.67 | 24905.80 | 1721.97 | 1258.23 | 0.00 | 575500.00 | 3936287.00 |
| 201.25 | 100332.54 | 27591.07 | 1992.82 | 1806.27 | 0.00 | 581149.00 | 3938972.00 |
| 333.14 | 95802.66 | 25446.52 | 1815.40 | 1480.26 | 0.00 | 576619.00 | 3936827.00 |
| 18.05 | 148863.59 | 50292.85 | 5641.46 | 6647.83 | 0.00 | 629680.00 | 3961674.00 |
| 739.34 | 90837.50 | 23008.17 | 1582.28 | 927.57 | 0.00 | 571654.00 | 3934389.00 |
| 407.55 | 94313.13 | 24726.10 | 1686.34 | 1144.95 | 0.00 | 575129.00 | 3936107.00 |
| 123.02 | 106074.05 | 30292.02 | 2500.65 | 2725.63 | 0.00 | 586890.00 | 3941673.00 |
| 440.05 | 93790.94 | 24468.18 | 1684.82 | 1193.18 | 0.00 | 574607.00 | 3935849.00 |
| 244.97 | 98418.08 | 26684.72 | 1956.20 | 1836.04 | 0.00 | 579234.00 | 3938066.00 |
| 40.37 | 125861.32 | 39548.89 | 3347.76 | 3765.10 | 0.00 | 606678.00 | 3950930.00 |
| 69.15 | 114919.70 | 34438.49 | 3188.99 | 3776.27 | 0.00 | 595736.00 | 3945819.00 |
| 221.62 | 99369.37 | 27128.63 | 2028.38 | 1921.68 | 0.00 | 580186.00 | 3938509.00 |
| 525.25 | 92670.76 | 23925.84 | 1715.01 | 1301.32 | 0.00 | 573487.00 | 3935307.00 |
| 336.54 | 95723.57 | 25406.93 | 1918.65 | 1763.88 | 0.00 | 576540.00 | 3936788.00 |
| 219.32 | 99470.44 | 27188.12 | 1966.39 | 1740.43 | 0.00 | 580287.00 | 3938569.00 |
| 116.64 | 106786.58 | 30636.60 | 2230.21 | 2039.16 | 0.00 | 587603.00 | 3942017.00 |
| 252.40 | 98145.46 | 26548.80 | 1895.27 | 1634.24 | 0.00 | 578962.00 | 3937930.00 |
| 320.79 | 96100.69 | 25583.91 | 1812.60 | 1462.18 | 0.00 | 576917.00 | 3936965.00 |
| 172.81 | 101956.76 | 28368.64 | 2087.44 | 1929.21 | 0.00 | 582773.00 | 3939749.00 |
| 129.27 | 105427.24 | 29993.66 | 2283.07 | 2332.95 | 0.00 | 586244.00 | 3941374.00 |
| 877.48 | 90064.98 | 22608.93 | 1543.41 | 779.37 | 0.00 | 570881.00 | 3933990.00 |
| 329.97 | 95877.65 | 25478.44 | 1732.28 | 1231.81 | 0.00 | 576694.00 | 3936859.00 |
| 63.97 | 116327.01 | 35094.37 | 3208.70 | 3943.47 | 0.00 | 597143.00 | 3946475.00 |
| 328.99 | 95902.74 | 25485.17 | 1770.22 | 1356.91 | 0.00 | 576719.00 | 3936866.00 |
| 106.15 | 108098.40 | 31250.20 | 2277.61 | 2140.58 | 0.00 | 588915.00 | 3942631.00 |
| 152.43 | 103390.05 | 29043.15 | 2121.08 | 1938.42 | 0.00 | 584206.00 | 3940424.00 |
| 286.50 | 97033.42 | 26025.96 | 1835.25 | 1514.16 | 0.00 | 577850.00 | 3937407.00 |
| 155.79 | 103133.75 | 28920.96 | 2079.39 | 1850.69 | 0.00 | 583950.00 | 3940302.00 |
| 313.22 | 96293.39 | 25680.24 | 1756.70 | 1287.99 | 0.00 | 577110.00 | 3937061.00 |
| 347.88 | 95468.83 | 25282.61 | 1708.26 | 1165.77 | 0.00 | 576285.00 | 3936663.00 |
| 84.93 | 111464.74 | 32840.58 | 2664.70 | 2914.23 | 0.00 | 592281.00 | 3944221.00 |
| 126.25 | 105732.80 | 30142.42 | 2402.42 | 2584.86 | 0.00 | 586549.00 | 3941523.00 |
| 677.20 | 91271.26 | 23229.17 | 1620.99 | 1056.26 | 0.00 | 572088.00 | 3934610.00 |
| 495.70 | 93024.41 | 24093.34 | 1710.97 | 1297.45 | 0.00 | 573841.00 | 3935474.00 |
| 339.64 | 95652.41 | 25376.50 | 1789.92 | 1418.93 | 0.00 | 576469.00 | 3936757.00 |
| 549.78 | 92401.96 | 23785.66 | 1662.09 | 1174.87 | 0.00 | 573218.00 | 3935166.00 |
| 258.24 | 97938.34 | 26469.74 | 1866.84 | 1529.20 | 0.00 | 578755.00 | 3937851.00 |
| 266.58 | 97655.87 | 26338.39 | 1859.77 | 1514.62 | 0.00 | 578472.00 | 3937719.00 |
| 131.35 | 105222.18 | 29907.22 | 2248.42 | 2170.06 | 0.00 | 586038.00 | 3941288.00 |
| 253.80 | 98093.74 | 26529.76 | 1884.41 | 1605.09 | 0.00 | 578910.00 | 3937911.00 |
| 18.96 | 147177.81 | 49506.53 | 5251.79 | 6177.42 | 0.00 | 627994.00 | 3960887.00 |
| 236.34 | 98753.12 | 26845.15 | 1910.59 | 1655.93 | 0.00 | 579569.00 | 3938226.00 |
| 544.15 | 92458.36 | 23821.58 | 1679.80 | 1216.49 | 0.00 | 573275.00 | 3935202.00 |
| 128.33 | 105521.18 | 30041.11 | 2342.84 | 2390.96 | 0.00 | 586337.00 | 3941422.00 |
| 293.35 | 96831.97 | 25935.00 | 1765.32 | 1298.35 | 0.00 | 577648.00 | 3937316.00 |
| 239.60 | 98624.48 | 26785.98 | 1895.24 | 1616.36 | 0.00 | 579441.00 | 3938167.00 |
| 380.05 | 94809.94 | 24969.75 | 1731.11 | 1275.22 | 0.00 | 575626.00 | 3936351.00 |
| 322.65 | 96056.33 | 25570.31 | 1828.50 | 1494.69 | 0.00 | 576873.00 | 3936951.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 309.01 | 84758.91 | 22775.53 | 1623.35 | 1189.92 | **111.16** | 565575.00 | 3934156.00 |
| 254.46 | 86289.36 | 23498.56 | 1711.97 | 1409.50 | 0.00 | 567106.00 | 3934879.00 |
| 556.19 | 81028.59 | 20958.71 | 1545.18 | 1118.86 | 0.00 | 561845.00 | 3932339.00 |
| 270.33 | 85795.71 | 23269.52 | 1770.39 | 1570.65 | 0.00 | 566612.00 | 3934650.00 |
| 144.10 | 91791.46 | 26086.71 | 2003.33 | 1988.33 | 0.00 | 572608.00 | 3937467.00 |
| 150.95 | 91277.15 | 25864.10 | 2022.68 | 1966.65 | 0.00 | 572093.00 | 3937245.00 |
| 345.75 | 83945.67 | 22375.68 | 1636.36 | 1323.20 | 0.00 | 564762.00 | 3933756.00 |
| 557.12 | 81019.36 | 20957.25 | 1527.52 | 1059.64 | 0.00 | 561836.00 | 3932338.00 |
| 441.58 | 82341.75 | 21602.20 | 1575.81 | 1178.20 | 0.00 | 563158.00 | 3932983.00 |
| 61.58 | 103693.40 | 31674.90 | 2554.63 | 2559.00 | 0.00 | 584510.00 | 3943056.00 |
| 306.39 | 84823.90 | 22799.69 | 1653.06 | 1303.59 | 0.00 | 565640.00 | 3934180.00 |
| 106.91 | 95398.03 | 27811.53 | 2225.36 | 2160.42 | 0.00 | 576214.00 | 3939192.00 |
| 163.29 | 90437.75 | 25468.53 | 1959.01 | 1816.99 | 0.00 | 571254.00 | 3936849.00 |
| 137.36 | 92332.71 | 26357.97 | 2104.68 | 2131.40 | 0.00 | 573149.00 | 3937739.00 |
| 356.51 | 83733.58 | 22278.83 | 1614.00 | 1223.84 | 0.00 | 564550.00 | 3933660.00 |
| 200.46 | 88402.05 | 24508.01 | 1898.08 | 1782.61 | 0.00 | 569218.00 | 3935889.00 |
| 455.53 | 82152.95 | 21512.66 | 1572.54 | 1172.83 | 0.00 | 562969.00 | 3932893.00 |
| 552.44 | 81064.12 | 20977.80 | 1538.98 | 1105.43 | 0.00 | 561880.00 | 3932359.00 |
| 181.59 | 89357.39 | 24955.78 | 1919.74 | 1838.27 | 0.00 | 570174.00 | 3936337.00 |
| 236.48 | 86909.99 | 23790.83 | 1718.96 | 1382.80 | 0.00 | 567726.00 | 3935172.00 |
| 124.89 | 93450.71 | 26865.42 | 2102.05 | 2168.75 | 0.00 | 574267.00 | 3938246.00 |
| 208.05 | 88055.46 | 24333.70 | 1766.39 | 1489.16 | 0.00 | 568872.00 | 3935714.00 |
| 529.41 | 81294.39 | 21095.43 | 1468.43 | 818.83 | 0.00 | 562111.00 | 3932476.00 |
| 350.03 | 83860.98 | 22337.70 | 1595.52 | 1173.47 | 0.00 | 564677.00 | 3933718.00 |
| 366.40 | 83544.83 | 22185.39 | 1576.80 | 1123.85 | 0.00 | 564361.00 | 3933566.00 |
| 100.54 | 96210.81 | 28190.77 | 2218.92 | 2152.46 | 0.00 | 577027.00 | 3939572.00 |
| 168.46 | 90116.69 | 25306.37 | 1967.74 | 1955.25 | 0.00 | 570933.00 | 3936687.00 |
| 225.98 | 87308.75 | 23984.23 | 1799.67 | 1600.08 | 0.00 | 568125.00 | 3935365.00 |
| 162.04 | 90517.20 | 25496.17 | 2069.27 | 2166.22 | 0.00 | 571333.00 | 3936877.00 |
| 306.23 | 84828.44 | 22792.59 | 1607.00 | 1170.06 | 0.00 | 565645.00 | 3934173.00 |
| 52.68 | 106488.87 | 32981.34 | 2929.81 | 3341.49 | 0.00 | 587305.00 | 3944362.00 |
| 610.55 | 80546.78 | 20722.21 | 1520.83 | 1054.19 | 0.00 | 561363.00 | 3932103.00 |
| 81.10 | 99264.68 | 29618.34 | 2645.93 | 2899.53 | 0.00 | 580081.00 | 3940999.00 |
| 207.35 | 88086.12 | 24345.73 | 1878.46 | 1813.57 | 0.00 | 568902.00 | 3935727.00 |
| 388.45 | 83155.77 | 22000.59 | 1607.86 | 1221.60 | 0.00 | 563972.00 | 3933381.00 |
| 280.21 | 85511.56 | 23128.41 | 1770.99 | 1600.01 | 0.00 | 566328.00 | 3934509.00 |
| 210.87 | 87930.55 | 24274.29 | 1778.91 | 1532.76 | 0.00 | 568747.00 | 3935655.00 |
| 300.73 | 84963.06 | 22871.80 | 1612.68 | 1166.61 | 0.00 | 565779.00 | 3934253.00 |
| 102.14 | 95998.24 | 28077.08 | 2197.92 | 2181.47 | 0.00 | 576815.00 | 3939458.00 |
| 863.26 | 79018.74 | 19934.25 | 1448.42 | 845.18 | 0.00 | 559835.00 | 3931315.00 |
| 395.13 | 83043.95 | 21946.98 | 1598.19 | 1224.12 | 0.00 | 563860.00 | 3933328.00 |
| 307.22 | 84802.77 | 22798.59 | 1702.14 | 1426.48 | 0.00 | 565619.00 | 3934179.00 |
| 56.97 | 105059.44 | 32326.29 | 2954.98 | 3328.97 | 0.00 | 585876.00 | 3943707.00 |
| 199.14 | 88462.75 | 24537.17 | 1895.71 | 1806.13 | 0.00 | 569279.00 | 3935918.00 |
| 125.89 | 93355.19 | 26840.52 | 2076.34 | 1977.72 | 0.00 | 574171.00 | 3938221.00 |
| 162.28 | 90500.76 | 25481.45 | 1862.28 | 1658.93 | 0.00 | 571317.00 | 3936862.00 |
| 355.09 | 83761.11 | 22290.62 | 1715.43 | 1538.57 | 0.00 | 564577.00 | 3933671.00 |
| 165.60 | 90294.05 | 25392.52 | 1999.75 | 1947.06 | 0.00 | 571110.00 | 3936773.00 |
| 186.91 | 89074.03 | 24813.47 | 1921.47 | 1905.05 | 0.00 | 569890.00 | 3936194.00 |

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|---|---|---|---|---|---|---|---|
| 240.06 | 86782.05 | 23732.63 | 1746.35 | 1494.72 | 0.00 | 567598.00 | 3935113.00 |
| 441.33 | 82346.64 | 21610.26 | 1576.65 | 1158.79 | 0.00 | 563163.00 | 3932991.00 |
| 239.39 | 86805.70 | 23739.86 | 1802.44 | 1691.23 | 0.00 | 567622.00 | 3935121.00 |
| 138.95 | 92200.72 | 26290.55 | 2117.74 | 2145.76 | 0.00 | 573017.00 | 3937671.00 |
| 795.77 | 79344.61 | 20107.24 | 1429.75 | 748.99 | 0.00 | 560161.00 | 3931488.00 |
| 498.56 | 81627.43 | 21256.32 | 1518.85 | 1002.86 | 0.00 | 562444.00 | 3932637.00 |
| 215.24 | 87743.17 | 24187.99 | 1937.87 | 1966.35 | 0.00 | 568559.00 | 3935569.00 |
| 146.80 | 91583.50 | 26010.09 | 2213.96 | 2389.83 | 0.00 | 572400.00 | 3937391.00 |
| 126.23 | 93321.51 | 26825.26 | 2124.78 | 2128.74 | 0.00 | 574138.00 | 3938206.00 |
| 795.37 | 79346.61 | 20109.17 | 1448.27 | 832.11 | 0.00 | 560163.00 | 3931490.00 |
| 149.29 | 91398.55 | 25916.23 | 2087.28 | 2166.68 | 0.00 | 572215.00 | 3937297.00 |
| 314.51 | 84628.82 | 22703.32 | 1704.62 | 1475.59 | 0.00 | 565445.00 | 3934084.00 |
| 247.63 | 86517.57 | 23610.25 | 1835.37 | 1721.82 | 0.00 | 567334.00 | 3934991.00 |
| 353.10 | 83799.06 | 22310.24 | 1628.03 | 1256.66 | 0.00 | 564615.00 | 3933691.00 |
| 121.80 | 93753.52 | 27013.78 | 2109.43 | 2252.28 | 0.00 | 574570.00 | 3938395.00 |
| 331.56 | 84244.12 | 22520.94 | 1707.81 | 1483.09 | 0.00 | 565060.00 | 3933902.00 |
| 394.23 | 83059.41 | 21949.41 | 1593.14 | 1216.36 | 0.00 | 563876.00 | 3933330.00 |
| 297.59 | 85044.41 | 22900.48 | 1660.43 | 1326.35 | 0.00 | 565861.00 | 3934281.00 |
| 513.59 | 81460.85 | 21176.20 | 1644.99 | 1395.41 | 0.00 | 562277.00 | 3932557.00 |
| 346.08 | 83940.44 | 22382.91 | 1601.38 | 1153.08 | 0.00 | 564757.00 | 3933764.00 |
| 397.05 | 83010.97 | 21926.09 | 1580.26 | 1166.20 | 0.00 | 563827.00 | 3933307.00 |
| 426.59 | 82554.71 | 21704.29 | 1605.24 | 1271.96 | 0.00 | 563371.00 | 3933085.00 |
| 565.18 | 80942.24 | 20914.70 | 1540.32 | 1118.26 | 0.00 | 561759.00 | 3932295.00 |
| 597.27 | 80657.98 | 20779.86 | 1485.08 | 912.59 | 0.00 | 561474.00 | 3932161.00 |
| 333.72 | 84195.25 | 22507.01 | 1599.62 | 1145.48 | 0.00 | 565012.00 | 3933888.00 |
| 118.93 | 94046.91 | 27158.78 | 2156.73 | 2274.48 | 0.00 | 574863.00 | 3938540.00 |
| 381.82 | 83267.82 | 22054.27 | 1585.72 | 1156.63 | 0.00 | 564084.00 | 3933435.00 |
| 84.73 | 98614.23 | 29295.60 | 2486.59 | 2758.89 | 0.00 | 579431.00 | 3940676.00 |
| 340.64 | 84051.81 | 22426.77 | 1753.03 | 1649.51 | 0.00 | 564868.00 | 3933808.00 |
| 348.46 | 83892.20 | 22351.92 | 1623.29 | 1254.96 | 0.00 | 564708.00 | 3933733.00 |
| 54.13 | 105986.93 | 32756.50 | 3022.33 | 3352.07 | 0.00 | 586803.00 | 3944137.00 |
| 621.98 | 80456.31 | 20675.01 | 1491.20 | 962.38 | 0.00 | 561273.00 | 3932056.00 |
| 250.82 | 86412.04 | 23552.55 | 1784.49 | 1599.52 | 0.00 | 567228.00 | 3934933.00 |
| 335.33 | 84163.38 | 22483.76 | 1610.30 | 1211.61 | 0.00 | 564980.00 | 3933865.00 |
| 210.72 | 87936.71 | 24287.25 | 1784.93 | 1498.21 | 0.00 | 568753.00 | 3935668.00 |
| 157.05 | 90849.42 | 25648.09 | 2081.45 | 2117.87 | 0.00 | 571666.00 | 3937029.00 |
| 68.59 | 101884.95 | 30824.65 | 2719.25 | 3073.12 | 0.00 | 582701.00 | 3942205.00 |
| 411.33 | 82784.69 | 21823.30 | 1650.50 | 1373.60 | 0.00 | 563601.00 | 3933204.00 |
| 290.00 | 85242.66 | 23004.23 | 1795.32 | 1629.37 | 0.00 | 566059.00 | 3934385.00 |
| 408.32 | 82833.00 | 21841.13 | 1608.32 | 1251.74 | 0.00 | 563649.00 | 3933222.00 |
| 69.42 | 101688.51 | 30738.29 | 2923.00 | 3499.97 | 0.00 | 582505.00 | 3942119.00 |
| 142.56 | 91910.79 | 26138.65 | 2099.91 | 2257.71 | 0.00 | 572727.00 | 3937519.00 |
| 209.28 | 87999.28 | 24307.18 | 1778.27 | 1542.83 | 0.00 | 568816.00 | 3935688.00 |
| 317.77 | 84552.32 | 22667.19 | 1632.29 | 1275.97 | 0.00 | 565369.00 | 3934048.00 |
| 276.25 | 85623.60 | 23181.13 | 1798.24 | 1671.16 | 0.00 | 566440.00 | 3934562.00 |
| 318.31 | 84540.54 | 22668.40 | 1606.08 | 1154.09 | 0.00 | 565357.00 | 3934049.00 |
| 133.00 | 92705.59 | 26517.79 | 2054.42 | 2036.21 | 0.00 | 573522.00 | 3937899.00 |
| 631.28 | 80382.67 | 20638.60 | 1486.58 | 929.56 | 0.00 | 561199.00 | 3932019.00 |
| 65.85 | 102558.00 | 31151.77 | 2584.07 | 2742.64 | 0.00 | 583374.00 | 3942533.00 |
| 183.40 | 89259.70 | 24908.52 | 1860.53 | 1661.21 | 0.00 | 570076.00 | 3936289.00 |
| 240.47 | 86767.49 | 23720.69 | 1745.77 | 1518.94 | 0.00 | 567584.00 | 3935101.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 171.91 | 20108.63 | 6066.80 | 1438.73 | 1627.53 | **62.93** | 500925.00 | 3917448.00 |
| 801.26 | 16706.71 | 4403.63 | 553.61 | 566.83 | 0.00 | 497523.00 | 3915784.00 |
| 459.52 | 17604.81 | 4856.03 | 752.58 | 1016.58 | 0.00 | 498421.00 | 3916237.00 |
| 191.11 | 19772.11 | 5895.12 | 905.99 | 1372.37 | 0.00 | 500588.00 | 3917276.00 |
| 694.36 | 16921.93 | 4508.58 | 576.37 | 598.01 | 0.00 | 497738.00 | 3915889.00 |
| 730.17 | 16836.94 | 4467.18 | 640.10 | 810.30 | 0.00 | 497653.00 | 3915848.00 |
| 119.14 | 21416.36 | 6670.39 | 1036.09 | 2266.26 | 0.00 | 502233.00 | 3918051.00 |
| 1729.99 | 15968.88 | 3957.01 | 584.52 | 546.31 | 0.00 | 496785.00 | 3915338.00 |
| 384.56 | 17967.17 | 5040.14 | 708.09 | 880.82 | 0.00 | 498783.00 | 3916421.00 |
| 289.25 | 18625.33 | 5347.50 | 814.66 | 1345.03 | 0.00 | 499442.00 | 3916728.00 |
| 193.79 | 19734.04 | 5895.49 | 895.87 | 1110.81 | 0.00 | 500550.00 | 3917276.00 |
| 148.66 | 20596.76 | 6297.60 | 1100.24 | 1562.22 | 0.00 | 501413.00 | 3917678.00 |
| 211.79 | 19462.06 | 5754.18 | 1000.91 | 1615.48 | 0.00 | 500278.00 | 3917135.00 |
| 49.91 | 25698.36 | 8681.41 | 1605.65 | 3303.31 | 0.00 | 506515.00 | 3920062.00 |
| 174.71 | 20055.31 | 6036.19 | 1228.32 | 1563.93 | 0.00 | 500872.00 | 3917417.00 |
| 128.20 | 21133.84 | 6551.49 | 1244.55 | 1606.80 | 0.00 | 501950.00 | 3917932.00 |
| 143.87 | 20704.90 | 6337.57 | 1231.81 | 2231.74 | 0.00 | 501521.00 | 3917718.00 |
| 179.18 | 19976.43 | 5994.16 | 968.77 | 1505.63 | 0.00 | 500793.00 | 3917375.00 |
| 259.59 | 18899.28 | 5491.31 | 1026.76 | 1456.67 | 0.00 | 499716.00 | 3916872.00 |
| 201.23 | 19614.16 | 5837.96 | 1086.58 | 1344.58 | 0.00 | 500430.00 | 3917219.00 |
| 381.38 | 17988.54 | 5046.04 | 811.10 | 975.82 | 0.00 | 498805.00 | 3916427.00 |
| 152.07 | 20513.72 | 6245.63 | 894.56 | 1973.38 | 0.00 | 501330.00 | 3917626.00 |
| 581.66 | 17189.11 | 4643.41 | 680.99 | 849.85 | 0.00 | 498005.00 | 3916024.00 |
| 445.56 | 17664.32 | 4891.42 | 807.65 | 1022.94 | 0.00 | 498481.00 | 3916272.00 |
| 162.84 | 20285.49 | 6151.30 | 1079.60 | 1400.79 | 0.00 | 501102.00 | 3917532.00 |
| 110.69 | 21711.66 | 6830.45 | 1366.86 | 1531.39 | 0.00 | 502528.00 | 3918211.00 |
| 70.92 | 23739.71 | 7762.88 | 1804.40 | 3452.62 | 0.00 | 504556.00 | 3919144.00 |
| 426.75 | 17755.75 | 4936.99 | 728.79 | 935.77 | 0.00 | 498572.00 | 3916318.00 |
| 476.09 | 17538.44 | 4826.81 | 802.61 | 1026.40 | 0.00 | 498355.00 | 3916208.00 |
| 348.99 | 18182.14 | 5141.77 | 680.90 | 804.94 | 0.00 | 498998.00 | 3916523.00 |
| 150.72 | 20548.80 | 6268.95 | 1245.78 | 1923.19 | 0.00 | 501365.00 | 3917650.00 |
| 175.54 | 20033.85 | 6036.79 | 966.79 | 1055.22 | 0.00 | 500850.00 | 3917418.00 |
| 578.33 | 17197.86 | 4657.55 | 719.79 | 860.79 | 0.00 | 498014.00 | 3916038.00 |
| 217.36 | 19389.49 | 5728.35 | 1262.00 | 1611.34 | 0.00 | 500206.00 | 3917109.00 |
| 498.51 | 17452.56 | 4789.49 | 653.57 | 692.24 | 0.00 | 498269.00 | 3916170.00 |
| 340.18 | 18240.46 | 5164.67 | 750.40 | 1170.77 | 0.00 | 499057.00 | 3916545.00 |
| 118.30 | 21445.54 | 6687.23 | 926.27 | 1533.93 | 0.00 | 502262.00 | 3918068.00 |
| 143.96 | 20703.81 | 6348.03 | 915.64 | 1958.34 | 0.00 | 501520.00 | 3917729.00 |
| 152.33 | 20508.87 | 6258.26 | 1613.11 | 2307.72 | 0.00 | 501325.00 | 3917639.00 |
| 105.82 | 21897.07 | 6909.94 | 1837.00 | 2620.94 | 0.00 | 502713.00 | 3918291.00 |
| 391.48 | 17926.63 | 5022.42 | 902.37 | 1108.47 | 0.00 | 498743.00 | 3916403.00 |
| 474.80 | 17544.47 | 4829.74 | 1038.67 | 1284.97 | 0.00 | 498361.00 | 3916211.00 |
| 171.09 | 20120.43 | 6074.42 | 1652.29 | 2080.49 | 0.00 | 500937.00 | 3917455.00 |
| 530.27 | 17340.36 | 4732.03 | 663.32 | 743.68 | 0.00 | 498157.00 | 3916113.00 |
| 258.67 | 18910.51 | 5492.08 | 908.80 | 1085.28 | 0.00 | 499727.00 | 3916873.00 |
| 215.84 | 19409.98 | 5731.36 | 854.12 | 1038.31 | 0.00 | 500226.00 | 3917112.00 |
| 141.49 | 20766.83 | 6375.80 | 1155.57 | 1696.19 | 0.00 | 501583.00 | 3917757.00 |
| 135.80 | 20917.88 | 6449.72 | 1625.09 | 2020.74 | 0.00 | 501734.00 | 3917830.00 |
| 157.38 | 20395.01 | 6208.29 | 1171.38 | 1382.13 | 0.00 | 501211.00 | 3917589.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 160.10 | 20342.76 | 6168.59 | 980.13 | 1753.00 | 0.00 | 501159.00 | 3917549.00 |
| 146.81 | 20639.81 | 6306.36 | 916.73 | 1690.43 | 0.00 | 501456.00 | 3917687.00 |
| 927.50 | 16530.37 | 4301.45 | 629.53 | 750.46 | 0.00 | 497347.00 | 3915682.00 |
| 130.63 | 21061.32 | 6519.26 | 1379.57 | 1813.77 | 0.00 | 501878.00 | 3917900.00 |
| 292.27 | 18592.61 | 5342.23 | 732.23 | 1008.70 | 0.00 | 499409.00 | 3916723.00 |
| 725.00 | 16853.11 | 4479.73 | 696.09 | 823.23 | 0.00 | 497669.00 | 3915861.00 |
| 250.07 | 18995.56 | 5543.90 | 944.55 | 1249.57 | 0.00 | 499812.00 | 3916925.00 |
| 263.63 | 18858.87 | 5479.02 | 1365.31 | 1447.45 | 0.00 | 499675.00 | 3916860.00 |
| 67.61 | 23984.61 | 7884.20 | 1893.40 | 3154.93 | 0.00 | 504801.00 | 3919265.00 |
| 374.81 | 18020.57 | 5064.23 | 801.00 | 1163.64 | 0.00 | 498837.00 | 3916445.00 |
| 127.88 | 21144.31 | 6566.11 | 1325.27 | 1651.93 | 0.00 | 501961.00 | 3917947.00 |
| 474.12 | 17545.89 | 4836.98 | 727.61 | 797.35 | 0.00 | 498362.00 | 3916218.00 |
| 420.69 | 17775.34 | 4943.84 | 771.76 | 1028.46 | 0.00 | 498592.00 | 3916325.00 |
| 129.39 | 21098.53 | 6529.04 | 909.77 | 1551.81 | 0.00 | 501915.00 | 3917910.00 |
| 370.02 | 18048.74 | 5078.99 | 774.54 | 1018.77 | 0.00 | 498865.00 | 3916460.00 |
| 296.12 | 18565.18 | 5328.84 | 753.37 | 919.03 | 0.00 | 499381.00 | 3916710.00 |
| 127.86 | 21145.05 | 6551.60 | 1394.57 | 1606.45 | 0.00 | 501961.00 | 3917932.00 |
| 624.21 | 17061.32 | 4587.76 | 606.14 | 805.49 | 0.00 | 497878.00 | 3915969.00 |
| 264.35 | 18854.86 | 5462.05 | 890.15 | 1371.60 | 0.00 | 499671.00 | 3916843.00 |
| 434.94 | 17718.92 | 4920.19 | 719.82 | 763.93 | 0.00 | 498535.00 | 3916301.00 |
| 363.08 | 18086.83 | 5092.43 | 671.02 | 980.07 | 0.00 | 498903.00 | 3916473.00 |
| 267.73 | 18822.47 | 5449.61 | 823.70 | 1073.46 | 0.00 | 499639.00 | 3916830.00 |
| 425.58 | 17749.06 | 4937.57 | 714.78 | 871.69 | 0.00 | 498565.00 | 3916318.00 |
| 347.27 | 18185.88 | 5144.71 | 762.96 | 1091.20 | 0.00 | 499002.00 | 3916525.00 |
| 230.30 | 19224.85 | 5650.28 | 932.23 | 1170.55 | 0.00 | 500041.00 | 3917031.00 |
| 625.12 | 17067.49 | 4590.19 | 688.84 | 861.34 | 0.00 | 497884.00 | 3915971.00 |
| 247.67 | 19022.59 | 5557.86 | 1388.66 | 1689.18 | 0.00 | 499839.00 | 3916939.00 |
| 93.76 | 22414.50 | 7155.69 | 1424.81 | 1775.07 | 0.00 | 503231.00 | 3918536.00 |
| 243.56 | 19066.34 | 5572.26 | 1032.21 | 1739.16 | 0.00 | 499883.00 | 3916953.00 |
| 177.33 | 20002.81 | 6021.44 | 1202.57 | 1601.45 | 0.00 | 500819.00 | 3917402.00 |
| 113.33 | 21613.02 | 6764.00 | 1001.34 | 1765.63 | 0.00 | 502429.00 | 3918145.00 |
| 131.31 | 21047.54 | 6513.33 | 1449.18 | 1808.62 | 0.00 | 501864.00 | 3917894.00 |
| 374.44 | 18026.75 | 5073.89 | 808.87 | 912.04 | 0.00 | 498843.00 | 3916455.00 |
| 271.06 | 18789.10 | 5431.29 | 895.44 | 1321.72 | 0.00 | 499605.00 | 3916812.00 |
| 464.01 | 17588.53 | 4848.70 | 719.78 | 953.19 | 0.00 | 498405.00 | 3916229.00 |
| 438.30 | 17698.81 | 4907.28 | 663.18 | 828.27 | 0.00 | 498515.00 | 3916288.00 |
| 490.45 | 17482.49 | 4800.51 | 658.35 | 839.30 | 0.00 | 498299.00 | 3916181.00 |
| 792.18 | 16727.52 | 4412.11 | 616.00 | 699.17 | 0.00 | 497544.00 | 3915793.00 |
| 136.59 | 20898.82 | 6430.90 | 1008.44 | 1681.57 | 0.00 | 501715.00 | 3917812.00 |
| 68.12 | 23948.38 | 7860.56 | 1447.63 | 2316.83 | 0.00 | 504765.00 | 3919241.00 |
| 363.77 | 18085.61 | 5094.01 | 867.97 | 1154.35 | 0.00 | 498902.00 | 3916475.00 |
| 219.79 | 19354.06 | 5703.43 | 1008.11 | 1486.54 | 0.00 | 500170.00 | 3917084.00 |
| 147.97 | 20608.21 | 6306.21 | 1465.31 | 1853.81 | 0.00 | 501424.00 | 3917687.00 |
| 47.13 | 26050.61 | 8856.37 | 1888.06 | 2808.03 | 0.00 | 506867.00 | 3920237.00 |
| 537.85 | 17319.33 | 4716.35 | 678.77 | 814.63 | 0.00 | 498136.00 | 3916097.00 |
| 328.53 | 18315.85 | 5206.73 | 689.31 | 832.23 | 0.00 | 499132.00 | 3916588.00 |
| 361.49 | 18098.53 | 5098.90 | 636.74 | 877.89 | 0.00 | 498915.00 | 3916480.00 |
| 653.98 | 17002.24 | 4552.50 | 667.03 | 769.22 | 0.00 | 497819.00 | 3915933.00 |
| 273.57 | 18766.40 | 5430.76 | 1033.71 | 1427.51 | 0.00 | 499583.00 | 3916812.00 |
| 158.44 | 20373.65 | 6199.08 | 1368.70 | 1824.96 | 0.00 | 501190.00 | 3917580.00 |
| 163.38 | 20271.39 | 6131.31 | 912.91 | 1747.61 | 0.00 | 501088.00 | 3917512.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 89.90 | 133024.15 | 38474.68 | 2989.52 | 3329.09 | **124.59** | 613840.00 | 3949855.00 |
| 271.24 | 118178.36 | 31507.24 | 2017.87 | 1474.92 | 0.00 | 598995.00 | 3942888.00 |
| 252.90 | 118887.57 | 31837.07 | 2129.43 | 1803.06 | 0.00 | 599704.00 | 3943218.00 |
| 759.14 | 110444.95 | 27748.06 | 1772.01 | 978.15 | 0.00 | 591261.00 | 3939129.00 |
| 312.56 | 116820.60 | 30864.55 | 2035.86 | 1612.46 | 0.00 | 597637.00 | 3942245.00 |
| 669.59 | 111150.59 | 28101.14 | 1814.20 | 1127.69 | 0.00 | 591967.00 | 3939482.00 |
| 55.69 | 142568.08 | 42958.48 | 3541.07 | 3983.14 | 0.00 | 623384.00 | 3954339.00 |
| 255.67 | 118774.57 | 31793.44 | 2084.01 | 1646.66 | 0.00 | 599591.00 | 3943174.00 |
| 181.00 | 122662.39 | 33639.56 | 2213.15 | 1800.05 | 0.00 | 603479.00 | 3945020.00 |
| 299.20 | 117228.59 | 31048.88 | 2040.38 | 1603.81 | 0.00 | 598045.00 | 3942430.00 |
| 305.81 | 117023.96 | 30952.74 | 2076.08 | 1717.62 | 0.00 | 597840.00 | 3942334.00 |
| 371.66 | 115301.29 | 30126.00 | 1968.03 | 1489.70 | 0.00 | 596118.00 | 3941507.00 |
| 165.87 | 123761.36 | 34139.95 | 2314.74 | 2072.79 | 0.00 | 604578.00 | 3945521.00 |
| 82.24 | 134627.83 | 39242.18 | 3031.18 | 3242.61 | 0.00 | 615444.00 | 3950623.00 |
| 86.15 | 133782.41 | 38850.98 | 2865.43 | 2768.72 | 0.00 | 614599.00 | 3950232.00 |
| 154.14 | 124718.38 | 34606.64 | 2388.08 | 2176.45 | 0.00 | 605535.00 | 3945987.00 |
| 392.40 | 114854.15 | 29909.98 | 1944.86 | 1425.32 | 0.00 | 595670.00 | 3941291.00 |
| 293.01 | 117426.43 | 31153.10 | 1998.42 | 1441.14 | 0.00 | 598243.00 | 3942534.00 |
| 368.89 | 115363.39 | 30164.49 | 2023.90 | 1668.25 | 0.00 | 596180.00 | 3941545.00 |
| 339.20 | 116085.15 | 30506.74 | 1943.96 | 1340.01 | 0.00 | 596901.00 | 3941888.00 |
| 100.08 | 131184.55 | 37622.21 | 2870.04 | 3153.31 | 0.00 | 612001.00 | 3949003.00 |
| 269.97 | 118224.26 | 31515.08 | 2053.44 | 1618.77 | 0.00 | 599041.00 | 3942896.00 |
| 312.61 | 116819.32 | 30851.40 | 2029.52 | 1616.64 | 0.00 | 597636.00 | 3942232.00 |
| 299.74 | 117211.75 | 31042.34 | 2023.43 | 1548.46 | 0.00 | 598028.00 | 3942423.00 |
| 187.53 | 122230.65 | 33426.94 | 2383.09 | 2315.23 | 0.00 | 603047.00 | 3944808.00 |
| 201.19 | 121396.38 | 33032.11 | 2331.23 | 2180.52 | 0.00 | 602213.00 | 3944413.00 |
| 279.91 | 117867.70 | 31356.34 | 2168.52 | 1933.95 | 0.00 | 598684.00 | 3942737.00 |
| 238.78 | 119488.88 | 32133.46 | 2129.38 | 1735.54 | 0.00 | 600305.00 | 3943514.00 |
| 277.04 | 117969.68 | 31401.53 | 2166.81 | 1921.93 | 0.00 | 598786.00 | 3942782.00 |
| 240.44 | 119414.56 | 32095.07 | 2121.28 | 1715.90 | 0.00 | 600231.00 | 3943476.00 |
| 226.69 | 120049.91 | 32394.41 | 2182.69 | 1889.07 | 0.00 | 600866.00 | 3943775.00 |
| 199.26 | 121509.14 | 33094.69 | 2274.00 | 2022.65 | 0.00 | 602325.00 | 3944475.00 |
| 306.39 | 117006.63 | 30948.61 | 2091.21 | 1740.21 | 0.00 | 597823.00 | 3942329.00 |
| 351.41 | 115776.71 | 30356.95 | 1963.75 | 1440.87 | 0.00 | 596593.00 | 3941738.00 |
| 262.94 | 118489.41 | 31640.84 | 2075.39 | 1662.37 | 0.00 | 599306.00 | 3943022.00 |
| 175.94 | 123014.25 | 33793.60 | 2415.50 | 2379.22 | 0.00 | 603831.00 | 3945174.00 |
| 380.13 | 115114.25 | 30044.62 | 2011.39 | 1612.64 | 0.00 | 595931.00 | 3941425.00 |
| 73.22 | 136833.65 | 40265.98 | 3114.28 | 3449.25 | 0.00 | 617650.00 | 3951647.00 |
| 325.19 | 116460.91 | 30687.12 | 2049.34 | 1644.58 | 0.00 | 597277.00 | 3942068.00 |
| 287.04 | 117622.80 | 31247.41 | 2125.38 | 1816.32 | 0.00 | 598439.00 | 3942628.00 |
| 364.04 | 115475.18 | 30206.73 | 1963.95 | 1464.60 | 0.00 | 596291.00 | 3941588.00 |
| 278.64 | 117912.32 | 31382.81 | 2080.20 | 1671.19 | 0.00 | 598729.00 | 3942764.00 |
| 119.23 | 128391.18 | 36340.69 | 2678.49 | 2693.54 | 0.00 | 609207.00 | 3947721.00 |
| 75.24 | 136305.24 | 40017.85 | 3210.97 | 3585.95 | 0.00 | 617122.00 | 3951399.00 |
| 587.78 | 111936.05 | 28493.25 | 1795.69 | 998.17 | 0.00 | 592752.00 | 3939874.00 |
| 339.79 | 116069.53 | 30498.69 | 1943.61 | 1337.74 | 0.00 | 596886.00 | 3941879.00 |
| 531.36 | 112600.16 | 28816.81 | 1818.64 | 1073.53 | 0.00 | 593416.00 | 3940198.00 |
| 220.29 | 120365.12 | 32551.01 | 2215.94 | 1937.99 | 0.00 | 601181.00 | 3943932.00 |
| 400.17 | 114695.25 | 29836.85 | 1878.50 | 1186.12 | 0.00 | 595512.00 | 3941218.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 374.79 | 115231.35 | 30092.42 | 1977.03 | 1527.39 | 0.00 | 596048.00 | 3941473.00 |
| 212.60 | 120763.06 | 32729.27 | 2219.16 | 1946.06 | 0.00 | 601579.00 | 3944110.00 |
| 155.10 | 124636.07 | 34559.04 | 2319.74 | 2018.28 | 0.00 | 605452.00 | 3945940.00 |
| 343.60 | 115971.85 | 30450.40 | 2055.17 | 1717.12 | 0.00 | 596788.00 | 3941831.00 |
| 103.73 | 130592.68 | 37356.46 | 2847.06 | 2954.96 | 0.00 | 611409.00 | 3948737.00 |
| 125.57 | 127612.07 | 35953.47 | 2748.50 | 2911.58 | 0.00 | 608428.00 | 3947334.00 |
| 262.64 | 118500.92 | 31657.92 | 2131.43 | 1781.83 | 0.00 | 599317.00 | 3943039.00 |
| 263.29 | 118476.70 | 31646.63 | 2013.39 | 1443.40 | 0.00 | 599293.00 | 3943027.00 |
| 83.66 | 134314.52 | 39096.39 | 2824.50 | 2772.68 | 0.00 | 615131.00 | 3950477.00 |
| 261.41 | 118548.60 | 31683.39 | 2107.86 | 1729.66 | 0.00 | 599365.00 | 3943064.00 |
| 124.00 | 127798.40 | 36050.71 | 2528.05 | 2391.77 | 0.00 | 608615.00 | 3947431.00 |
| 108.42 | 129877.47 | 37008.58 | 2839.07 | 3063.37 | 0.00 | 610694.00 | 3948389.00 |
| 417.39 | 114362.53 | 29684.39 | 1918.89 | 1336.24 | 0.00 | 595179.00 | 3941065.00 |
| 226.38 | 120064.27 | 32411.22 | 2205.07 | 1945.82 | 0.00 | 600881.00 | 3943792.00 |
| 274.18 | 118071.87 | 31451.64 | 2095.63 | 1713.18 | 0.00 | 598888.00 | 3942832.00 |
| 109.85 | 129667.72 | 36922.67 | 2787.20 | 2937.37 | 0.00 | 610484.00 | 3948303.00 |
| 528.26 | 112639.04 | 28847.00 | 1922.67 | 1427.51 | 0.00 | 593455.00 | 3940228.00 |
| 235.27 | 119647.35 | 32204.50 | 2143.66 | 1769.60 | 0.00 | 600464.00 | 3943585.00 |
| 451.34 | 113763.20 | 29393.10 | 1888.45 | 1280.60 | 0.00 | 594579.00 | 3940774.00 |
| 280.43 | 117849.56 | 31344.14 | 2235.44 | 2150.01 | 0.00 | 598666.00 | 3942725.00 |
| 179.73 | 122748.95 | 33665.37 | 2312.01 | 2098.83 | 0.00 | 603565.00 | 3945046.00 |
| 47.70 | 146178.20 | 44660.38 | 3877.41 | 4287.54 | 0.00 | 626994.00 | 3956041.00 |
| 587.68 | 111938.05 | 28495.45 | 1849.41 | 1219.54 | 0.00 | 592754.00 | 3939876.00 |
| 141.05 | 125934.44 | 35172.49 | 2557.90 | 2532.53 | 0.00 | 606751.00 | 3946553.00 |
| 171.92 | 123304.93 | 33927.14 | 2459.95 | 2472.02 | 0.00 | 604121.00 | 3945308.00 |
| 194.11 | 121817.70 | 33235.26 | 2203.32 | 1816.63 | 0.00 | 602634.00 | 3944616.00 |
| 214.02 | 120688.27 | 32689.53 | 2306.98 | 2214.07 | 0.00 | 601505.00 | 3944070.00 |
| 437.24 | 114003.58 | 29514.48 | 1927.80 | 1385.56 | 0.00 | 594820.00 | 3940895.00 |
| 177.07 | 122933.91 | 33758.92 | 2466.32 | 2402.48 | 0.00 | 603750.00 | 3945140.00 |
| 259.38 | 118627.35 | 31716.72 | 2238.85 | 2097.24 | 0.00 | 599444.00 | 3943097.00 |
| 61.28 | 140473.58 | 41963.84 | 3353.23 | 3623.48 | 0.00 | 621290.00 | 3953345.00 |
| 57.27 | 141941.91 | 42669.18 | 3703.35 | 4295.31 | 0.00 | 622758.00 | 3954050.00 |
| 269.15 | 118254.29 | 31553.01 | 2175.79 | 1904.98 | 0.00 | 599071.00 | 3942934.00 |
| 131.71 | 126910.45 | 35628.22 | 2713.30 | 2791.34 | 0.00 | 607727.00 | 3947009.00 |
| 321.11 | 116574.35 | 30732.70 | 2055.53 | 1673.08 | 0.00 | 597391.00 | 3942113.00 |
| 233.33 | 119735.70 | 32246.77 | 2249.30 | 2033.66 | 0.00 | 600552.00 | 3943628.00 |
| 219.21 | 120419.49 | 32569.23 | 2159.49 | 1772.50 | 0.00 | 601236.00 | 3943950.00 |
| 120.26 | 128260.06 | 36255.10 | 2635.36 | 2658.78 | 0.00 | 609076.00 | 3947636.00 |
| 182.89 | 122534.01 | 33568.42 | 2360.78 | 2212.73 | 0.00 | 603350.00 | 3944949.00 |
| 293.59 | 117407.30 | 31140.95 | 2087.48 | 1729.79 | 0.00 | 598224.00 | 3942522.00 |
| 444.11 | 113884.78 | 29457.63 | 1965.45 | 1509.83 | 0.00 | 594701.00 | 3940838.00 |
| 276.88 | 117973.66 | 31399.32 | 2119.13 | 1810.24 | 0.00 | 598790.00 | 3942780.00 |
| 220.55 | 120351.57 | 32537.56 | 2232.65 | 1976.47 | 0.00 | 601168.00 | 3943918.00 |
| 402.56 | 114648.40 | 29816.80 | 1968.63 | 1483.81 | 0.00 | 595465.00 | 3941198.00 |
| 190.70 | 122028.02 | 33322.78 | 2284.80 | 2069.24 | 0.00 | 602844.00 | 3944704.00 |
| 524.87 | 112683.19 | 28859.49 | 1874.13 | 1282.83 | 0.00 | 593499.00 | 3940240.00 |
| 418.36 | 114344.14 | 29671.75 | 1883.09 | 1214.13 | 0.00 | 595160.00 | 3941053.00 |
| 391.69 | 114869.87 | 29930.77 | 1961.07 | 1452.98 | 0.00 | 595686.00 | 3941312.00 |
| 129.90 | 127112.08 | 35721.15 | 2574.92 | 2551.09 | 0.00 | 607928.00 | 3947102.00 |
| 349.68 | 115819.67 | 30377.64 | 1967.62 | 1436.39 | 0.00 | 596636.00 | 3941758.00 |
| 315.37 | 116739.34 | 30825.18 | 2073.30 | 1709.37 | 0.00 | 597556.00 | 3942206.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 78.43 | 73.29 | 21.15 | 14.61 | 25.35 | **9.32** | 480890.00 | 3911402.00 |
| 289.93 | 87.16 | 10.77 | 27.63 | 51.07 | 0.00 | 480903.00 | 3911392.00 |
| 292.67 | 78.13 | 10.91 | 26.67 | 49.39 | 0.00 | 480894.00 | 3911392.00 |
| 578.19 | 120.11 | 12.20 | 51.56 | 67.47 | 0.00 | 480936.00 | 3911393.00 |
| 82.18 | 62.05 | 18.08 | 14.97 | 16.57 | 0.00 | 480878.00 | 3911399.00 |
| 164.98 | 59.57 | 7.32 | 20.56 | 36.15 | 0.00 | 480876.00 | 3911388.00 |
| 387.98 | 47.13 | -1.02 | 31.93 | 44.74 | 0.00 | 480863.00 | 3911380.00 |
| 367.98 | 64.26 | -1.46 | 38.35 | 50.87 | 0.00 | 480881.00 | 3911379.00 |
| 49.26 | 132.81 | 53.91 | 12.79 | 14.97 | 0.00 | 480949.00 | 3911435.00 |
| 651.55 | 168.77 | 38.55 | 49.86 | 66.02 | 0.00 | 480985.00 | 3911419.00 |
| 280.11 | 143.48 | 37.78 | 29.83 | 40.68 | 0.00 | 480960.00 | 3911419.00 |
| 702.11 | 172.05 | 38.74 | 58.51 | 64.43 | 0.00 | 480988.00 | 3911420.00 |
| 400.57 | 164.29 | 38.66 | 32.45 | 64.18 | 0.00 | 480981.00 | 3911419.00 |
| 842.44 | 182.54 | 39.85 | 49.66 | 82.61 | 0.00 | 480999.00 | 3911421.00 |
| 74.50 | 71.01 | 24.68 | 14.69 | 16.04 | 0.00 | 480887.00 | 3911405.00 |
| 243.21 | 122.40 | 31.33 | 31.11 | 45.14 | 0.00 | 480939.00 | 3911412.00 |
| 323.76 | 124.60 | 31.52 | 25.58 | 51.96 | 0.00 | 480941.00 | 3911412.00 |
| 237.19 | 122.42 | 31.19 | 27.72 | 40.29 | 0.00 | 480939.00 | 3911412.00 |
| 266.70 | 114.36 | 31.04 | 28.24 | 41.29 | 0.00 | 480931.00 | 3911412.00 |
| 259.78 | 134.32 | 31.19 | 26.63 | 53.77 | 0.00 | 480951.00 | 3911412.00 |
| 183.88 | 110.69 | 31.22 | 27.77 | 27.33 | 0.00 | 480927.00 | 3911412.00 |
| 369.63 | 69.89 | -1.20 | 39.72 | 54.52 | 0.00 | 480886.00 | 3911380.00 |
| 201.11 | 32.75 | -1.46 | 20.90 | 31.28 | 0.00 | 480849.00 | 3911379.00 |
| 325.59 | 70.24 | -1.59 | 37.07 | 50.68 | 0.00 | 480887.00 | 3911379.00 |
| 219.30 | 43.50 | -1.27 | 27.23 | 29.92 | 0.00 | 480860.00 | 3911380.00 |
| 182.95 | 45.31 | -1.81 | 22.26 | 42.43 | 0.00 | 480862.00 | 3911379.00 |
| 346.24 | 53.63 | -1.30 | 30.20 | 47.56 | 0.00 | 480870.00 | 3911379.00 |
| 158.67 | 39.62 | -1.75 | 20.63 | 33.39 | 0.00 | 480856.00 | 3911379.00 |
| 91.20 | 47.75 | 10.82 | 15.49 | 24.45 | 0.00 | 480864.00 | 3911392.00 |
| 218.27 | 57.82 | 7.81 | 25.20 | 33.53 | 0.00 | 480874.00 | 3911389.00 |
| 256.87 | 70.31 | 8.06 | 32.58 | 38.03 | 0.00 | 480887.00 | 3911389.00 |
| 271.11 | 82.79 | 7.97 | 31.37 | 41.34 | 0.00 | 480899.00 | 3911389.00 |
| 281.56 | 77.43 | 8.26 | 30.30 | 52.11 | 0.00 | 480894.00 | 3911389.00 |
| 404.98 | 75.62 | 8.48 | 42.17 | 43.04 | 0.00 | 480892.00 | 3911389.00 |
| 276.73 | 82.30 | 8.07 | 26.67 | 55.15 | 0.00 | 480899.00 | 3911389.00 |
| 254.39 | 78.39 | 7.82 | 28.84 | 52.89 | 0.00 | 480895.00 | 3911389.00 |
| 141.10 | 54.00 | 7.66 | 20.66 | 29.55 | 0.00 | 480870.00 | 3911388.00 |
| 61.14 | 101.83 | 38.49 | 13.26 | 14.58 | 0.00 | 480918.00 | 3911419.00 |
| 193.11 | 117.72 | 35.93 | 25.51 | 34.04 | 0.00 | 480934.00 | 3911417.00 |
| 113.64 | 110.61 | 35.54 | 17.54 | 29.33 | 0.00 | 480927.00 | 3911416.00 |
| 64.42 | 93.43 | 34.75 | 15.09 | 16.40 | 0.00 | 480910.00 | 3911416.00 |
| 724.18 | 147.24 | 21.58 | 51.33 | 87.54 | 0.00 | 480964.00 | 3911402.00 |
| 145.70 | 85.52 | 20.79 | 18.57 | 30.34 | 0.00 | 480902.00 | 3911402.00 |
| 248.99 | 70.67 | 6.85 | 29.91 | 49.08 | 0.00 | 480887.00 | 3911388.00 |
| 95.57 | 46.96 | 7.67 | 14.06 | 28.28 | 0.00 | 480863.00 | 3911388.00 |
| 157.78 | 56.62 | 12.53 | 21.52 | 20.00 | 0.00 | 480873.00 | 3911393.00 |
| 101.80 | 35.40 | 3.19 | 16.83 | 21.67 | 0.00 | 480852.00 | 3911384.00 |
| 185.08 | 67.19 | 10.63 | 25.21 | 32.97 | 0.00 | 480883.00 | 3911391.00 |
| 457.32 | 112.89 | 11.04 | 42.47 | 58.03 | 0.00 | 480929.00 | 3911392.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 616.98 | 120.64 | 11.44 | 48.88 | 68.71 | 0.00 | 480937.00 | 3911392.00 |
| 362.59 | 90.09 | 11.42 | 36.30 | 53.50 | 0.00 | 480906.00 | 3911392.00 |
| 71.21 | 79.51 | 27.80 | 13.60 | 18.56 | 0.00 | 480896.00 | 3911409.00 |
| 466.17 | 111.25 | 13.47 | 40.19 | 51.56 | 0.00 | 480928.00 | 3911394.00 |
| 112.89 | 60.96 | 12.69 | 18.03 | 30.36 | 0.00 | 480877.00 | 3911393.00 |
| 98.98 | 35.97 | 5.17 | 16.35 | 15.00 | 0.00 | 480852.00 | 3911386.00 |
| 214.82 | 77.93 | 11.45 | 27.93 | 38.62 | 0.00 | 480894.00 | 3911392.00 |
| 255.60 | 83.55 | 11.32 | 26.45 | 47.53 | 0.00 | 480900.00 | 3911392.00 |
| 293.23 | 86.11 | 11.61 | 33.93 | 56.08 | 0.00 | 480902.00 | 3911392.00 |
| 299.75 | 92.99 | 11.51 | 31.88 | 53.97 | 0.00 | 480909.00 | 3911392.00 |
| 578.64 | 113.33 | 11.87 | 44.01 | 65.12 | 0.00 | 480930.00 | 3911393.00 |
| 45.55 | 142.92 | 59.62 | 13.54 | 13.40 | 0.00 | 480959.00 | 3911440.00 |
| 151.02 | 157.33 | 53.17 | 21.93 | 35.56 | 0.00 | 480974.00 | 3911434.00 |
| 122.36 | 39.62 | 3.82 | 18.27 | 23.00 | 0.00 | 480856.00 | 3911385.00 |
| 663.85 | 85.62 | -0.31 | 45.68 | 77.18 | 0.00 | 480902.00 | 3911380.00 |
| 79.80 | 66.23 | 20.09 | 15.36 | 14.69 | 0.00 | 480883.00 | 3911401.00 |
| 164.90 | 75.03 | 14.09 | 23.34 | 30.75 | 0.00 | 480891.00 | 3911395.00 |
| 516.21 | 62.08 | -1.25 | 40.56 | 48.12 | 0.00 | 480878.00 | 3911380.00 |
| 79.27 | 69.06 | 20.42 | 14.24 | 23.33 | 0.00 | 480885.00 | 3911401.00 |
| 277.73 | 92.85 | 19.20 | 29.40 | 45.25 | 0.00 | 480909.00 | 3911400.00 |
| 128.39 | 72.08 | 18.59 | 18.93 | 26.50 | 0.00 | 480888.00 | 3911399.00 |
| 443.38 | 112.62 | 16.23 | 41.49 | 53.08 | 0.00 | 480929.00 | 3911397.00 |
| 373.87 | 101.75 | 15.79 | 28.33 | 51.37 | 0.00 | 480918.00 | 3911397.00 |
| 692.50 | 139.48 | 16.44 | 55.86 | 93.35 | 0.00 | 480956.00 | 3911397.00 |
| 349.75 | 93.51 | 15.86 | 35.59 | 47.43 | 0.00 | 480910.00 | 3911397.00 |
| 486.41 | 101.72 | 15.89 | 32.02 | 66.29 | 0.00 | 480918.00 | 3911397.00 |
| 321.70 | 93.13 | 16.16 | 31.81 | 53.54 | 0.00 | 480909.00 | 3911397.00 |
| 572.13 | 109.94 | 16.72 | 46.76 | 66.45 | 0.00 | 480926.00 | 3911398.00 |
| 163.83 | 70.28 | 15.20 | 20.88 | 26.92 | 0.00 | 480887.00 | 3911396.00 |
| 365.00 | 55.05 | -1.02 | 26.01 | 52.07 | 0.00 | 480871.00 | 3911380.00 |
| 344.94 | 74.78 | -0.24 | 36.45 | 54.35 | 0.00 | 480891.00 | 3911381.00 |
| 253.98 | 56.55 | -0.85 | 29.56 | 47.03 | 0.00 | 480873.00 | 3911380.00 |
| 139.25 | 35.25 | -1.32 | 16.86 | 33.07 | 0.00 | 480852.00 | 3911379.00 |
| 250.10 | 81.62 | 9.65 | 28.93 | 45.78 | 0.00 | 480898.00 | 3911390.00 |
| 284.86 | 82.89 | 10.30 | 30.60 | 50.22 | 0.00 | 480899.00 | 3911391.00 |
| 263.61 | 79.65 | 10.06 | 31.94 | 42.19 | 0.00 | 480896.00 | 3911391.00 |
| 77.86 | 63.93 | 21.70 | 13.00 | 15.77 | 0.00 | 480880.00 | 3911402.00 |
| 454.76 | 105.14 | 4.44 | 31.95 | 83.00 | 0.00 | 480921.00 | 3911385.00 |
| 326.09 | 86.42 | 4.22 | 38.57 | 57.18 | 0.00 | 480903.00 | 3911385.00 |
| 108.61 | 29.42 | -1.15 | 14.84 | 28.97 | 0.00 | 480846.00 | 3911380.00 |
| 23.36 | 243.22 | 111.92 | 15.51 | 14.38 | 0.00 | 481060.00 | 3911493.00 |
| 221.33 | 268.41 | 98.94 | 26.82 | 49.80 | 0.00 | 481085.00 | 3911480.00 |
| 482.58 | 289.85 | 99.79 | 29.95 | 72.22 | 0.00 | 481106.00 | 3911481.00 |
| 169.16 | 252.47 | 98.61 | 23.66 | 35.94 | 0.00 | 481069.00 | 3911479.00 |
| 305.65 | 273.72 | 98.49 | 38.23 | 42.38 | 0.00 | 481090.00 | 3911479.00 |
| 439.95 | 282.96 | 99.47 | 42.21 | 59.98 | 0.00 | 481099.00 | 3911480.00 |
| 485.92 | 292.88 | 99.06 | 41.49 | 65.20 | 0.00 | 481109.00 | 3911480.00 |
| 459.92 | 294.28 | 99.30 | 39.28 | 67.88 | 0.00 | 481111.00 | 3911480.00 |
| 326.98 | 271.78 | 99.06 | 34.86 | 53.53 | 0.00 | 481088.00 | 3911480.00 |
| 341.08 | 281.72 | 98.91 | 36.83 | 56.50 | 0.00 | 481098.00 | 3911480.00 |
| 375.98 | 286.94 | 99.03 | 37.37 | 66.79 | 0.00 | 481103.00 | 3911480.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 666.24 | 32317.61 | 8530.94 | 814.75 | 611.83 | **81.14** | 513134.00 | 3919912.00 |
| 465.80 | 33313.08 | 9032.74 | 909.14 | 813.68 | 0.00 | 514129.00 | 3920414.00 |
| 25.70 | 54686.88 | 19094.49 | 2989.65 | 4598.67 | 0.00 | 535503.00 | 3930475.00 |
| 484.33 | 33193.95 | 8963.89 | 1001.41 | 1102.53 | 0.00 | 514010.00 | 3920345.00 |
| 141.78 | 38561.28 | 11545.04 | 1345.98 | 1598.68 | 0.00 | 519378.00 | 3922926.00 |
| 201.89 | 36644.38 | 10632.47 | 1147.91 | 1242.52 | 0.00 | 517461.00 | 3922013.00 |
| 234.80 | 35926.09 | 10294.90 | 1064.55 | 1148.81 | 0.00 | 516742.00 | 3921676.00 |
| 434.49 | 33530.94 | 9141.20 | 1012.67 | 1015.86 | 0.00 | 514347.00 | 3920522.00 |
| 409.46 | 33728.15 | 9235.74 | 822.26 | 574.64 | 0.00 | 514544.00 | 3920617.00 |
| 113.68 | 39950.89 | 12195.99 | 1538.66 | 1809.18 | 0.00 | 520767.00 | 3923577.00 |
| 646.84 | 32384.76 | 8560.61 | 860.00 | 755.57 | 0.00 | 513201.00 | 3919941.00 |
| 181.02 | 37196.21 | 10891.31 | 1177.26 | 1536.08 | 0.00 | 518012.00 | 3922272.00 |
| 437.73 | 33507.29 | 9121.07 | 1014.00 | 1155.68 | 0.00 | 514324.00 | 3920502.00 |
| 289.74 | 35009.83 | 9853.16 | 1168.54 | 1405.97 | 0.00 | 515826.00 | 3921234.00 |
| 457.47 | 33365.34 | 9051.81 | 953.52 | 952.96 | 0.00 | 514182.00 | 3920433.00 |
| 402.81 | 33782.51 | 9265.85 | 943.56 | 905.52 | 0.00 | 514599.00 | 3920647.00 |
| 283.18 | 35107.31 | 9904.24 | 1060.60 | 1134.07 | 0.00 | 515924.00 | 3921285.00 |
| 333.29 | 34460.90 | 9592.93 | 1004.99 | 1007.03 | 0.00 | 515277.00 | 3920974.00 |
| 303.24 | 34833.93 | 9767.75 | 995.39 | 1062.30 | 0.00 | 515650.00 | 3921149.00 |
| 413.59 | 33696.56 | 9218.52 | 963.10 | 1018.74 | 0.00 | 514513.00 | 3920599.00 |
| 751.50 | 32035.72 | 8385.24 | 888.75 | 818.29 | 0.00 | 512852.00 | 3919766.00 |
| 68.27 | 43827.23 | 14005.70 | 1758.96 | 2597.40 | 0.00 | 524644.00 | 3925386.00 |
| 422.60 | 33627.17 | 9185.06 | 960.48 | 954.13 | 0.00 | 514443.00 | 3920566.00 |
| 58.58 | 45197.40 | 14653.66 | 2019.81 | 2635.97 | 0.00 | 526014.00 | 3926034.00 |
| 285.21 | 35079.93 | 9888.94 | 1184.84 | 1447.97 | 0.00 | 515896.00 | 3921270.00 |
| 400.72 | 33800.37 | 9268.99 | 999.15 | 1043.83 | 0.00 | 514617.00 | 3920650.00 |
| 286.24 | 35064.40 | 9879.49 | 1001.49 | 1041.65 | 0.00 | 515881.00 | 3921260.00 |
| 229.63 | 36023.93 | 10344.38 | 1107.50 | 1160.98 | 0.00 | 516840.00 | 3921725.00 |
| 289.45 | 35018.94 | 9863.58 | 1096.35 | 1124.35 | 0.00 | 515835.00 | 3921244.00 |
| 332.92 | 34472.86 | 9593.20 | 1073.10 | 1238.40 | 0.00 | 515289.00 | 3920974.00 |
| 69.76 | 43640.45 | 13934.47 | 2112.86 | 2820.96 | 0.00 | 524457.00 | 3925315.00 |
| 301.42 | 34854.91 | 9784.48 | 985.14 | 1050.00 | 0.00 | 515671.00 | 3921165.00 |
| 372.18 | 34058.05 | 9397.19 | 1042.95 | 1075.54 | 0.00 | 514874.00 | 3920778.00 |
| 452.47 | 33402.99 | 9072.47 | 929.85 | 891.65 | 0.00 | 514219.00 | 3920453.00 |
| 287.68 | 35041.23 | 9876.23 | 1167.66 | 1357.81 | 0.00 | 515858.00 | 3921257.00 |
| 182.52 | 37155.72 | 10878.08 | 1174.26 | 1286.50 | 0.00 | 517972.00 | 3922259.00 |
| 356.66 | 34211.22 | 9472.29 | 982.76 | 970.21 | 0.00 | 515027.00 | 3920853.00 |
| 352.10 | 34256.60 | 9491.83 | 934.37 | 918.66 | 0.00 | 515073.00 | 3920873.00 |
| 326.03 | 34547.36 | 9632.61 | 1002.71 | 1063.01 | 0.00 | 515364.00 | 3921013.00 |
| 269.28 | 35321.72 | 10003.23 | 1176.90 | 1376.03 | 0.00 | 516138.00 | 3921384.00 |
| 61.46 | 44755.22 | 14446.16 | 2070.44 | 2692.46 | 0.00 | 525572.00 | 3925827.00 |
| 707.49 | 32171.03 | 8454.13 | 891.99 | 838.85 | 0.00 | 512987.00 | 3919835.00 |
| 30.21 | 52505.87 | 18034.24 | 2232.20 | 4252.54 | 0.00 | 533322.00 | 3929415.00 |
| 195.43 | 36805.03 | 10708.70 | 1229.15 | 1509.33 | 0.00 | 517621.00 | 3922089.00 |
| 122.14 | 39483.55 | 11985.24 | 1574.68 | 1888.48 | 0.00 | 520300.00 | 3923366.00 |
| 73.16 | 43240.06 | 13745.22 | 1862.58 | 2517.95 | 0.00 | 524056.00 | 3925126.00 |
| 62.92 | 44546.56 | 14339.87 | 1743.17 | 2315.85 | 0.00 | 525363.00 | 3925721.00 |
| 76.54 | 42869.57 | 13553.24 | 1914.91 | 2526.55 | 0.00 | 523686.00 | 3924934.00 |
| 193.71 | 36850.00 | 10736.18 | 1424.43 | 1816.34 | 0.00 | 517666.00 | 3922117.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 232.75 | 35965.36 | 10315.40 | 1135.87 | 1367.64 | 0.00 | 516782.00 | 3921696.00 |
| 53.90 | 45988.70 | 15044.01 | 2684.03 | 3081.40 | 0.00 | 526805.00 | 3926425.00 |
| 130.28 | 39076.96 | 11784.18 | 1789.04 | 2065.57 | 0.00 | 519893.00 | 3923165.00 |
| 228.61 | 36046.39 | 10348.91 | 1110.61 | 1276.40 | 0.00 | 516863.00 | 3921730.00 |
| 168.25 | 37590.90 | 11087.73 | 1420.25 | 1867.23 | 0.00 | 518407.00 | 3922469.00 |
| 156.31 | 37992.83 | 11273.00 | 1327.77 | 1693.82 | 0.00 | 518809.00 | 3922654.00 |
| 316.84 | 34656.08 | 9689.02 | 1160.84 | 1306.84 | 0.00 | 515472.00 | 3921070.00 |
| 493.93 | 33130.80 | 8944.43 | 916.73 | 821.65 | 0.00 | 513947.00 | 3920325.00 |
| 448.11 | 33433.61 | 9086.08 | 884.46 | 803.13 | 0.00 | 514250.00 | 3920467.00 |
| 217.94 | 36273.26 | 10456.52 | 1138.40 | 1248.04 | 0.00 | 517090.00 | 3921837.00 |
| 86.90 | 41869.36 | 13080.10 | 1358.17 | 2256.64 | 0.00 | 522686.00 | 3924461.00 |
| 180.17 | 37225.75 | 10911.70 | 1093.47 | 1142.88 | 0.00 | 518042.00 | 3922292.00 |
| 264.03 | 35402.46 | 10047.95 | 1085.51 | 1142.39 | 0.00 | 516219.00 | 3921429.00 |
| 212.68 | 36389.24 | 10515.54 | 1257.15 | 1432.30 | 0.00 | 517206.00 | 3921896.00 |
| 459.58 | 33351.71 | 9054.01 | 872.91 | 734.50 | 0.00 | 514168.00 | 3920435.00 |
| 414.12 | 33689.26 | 9217.12 | 950.29 | 908.26 | 0.00 | 514506.00 | 3920598.00 |
| 45.28 | 47756.99 | 15848.58 | 2223.72 | 2850.59 | 0.00 | 528573.00 | 3927229.00 |
| 201.93 | 36640.88 | 10627.99 | 1057.52 | 1182.46 | 0.00 | 517457.00 | 3922009.00 |
| 91.04 | 41518.54 | 12933.78 | 1546.85 | 1863.47 | 0.00 | 522335.00 | 3924315.00 |
| 229.55 | 36028.26 | 10344.26 | 1248.76 | 1540.67 | 0.00 | 516845.00 | 3921725.00 |
| 290.10 | 35008.21 | 9865.10 | 1080.74 | 1180.16 | 0.00 | 515824.00 | 3921246.00 |
| 909.14 | 31628.68 | 8167.41 | 800.32 | 528.43 | 0.00 | 512445.00 | 3919548.00 |
| 161.82 | 37798.73 | 11178.95 | 1178.20 | 1388.40 | 0.00 | 518615.00 | 3922560.00 |
| 45.81 | 47632.96 | 15804.88 | 2625.92 | 3635.86 | 0.00 | 528449.00 | 3927186.00 |
| 390.37 | 33889.77 | 9314.68 | 978.11 | 1008.26 | 0.00 | 514706.00 | 3920695.00 |
| 336.46 | 34428.07 | 9573.80 | 1022.82 | 1108.44 | 0.00 | 515244.00 | 3920955.00 |
| 223.51 | 36154.63 | 10395.78 | 1126.34 | 1279.54 | 0.00 | 516971.00 | 3921777.00 |
| 109.36 | 40213.75 | 12318.43 | 1497.17 | 1886.25 | 0.00 | 521030.00 | 3923699.00 |
| 54.13 | 45948.95 | 15008.69 | 1857.31 | 2585.80 | 0.00 | 526765.00 | 3926389.00 |
| 122.05 | 39487.73 | 11974.20 | 1497.93 | 1935.22 | 0.00 | 520304.00 | 3923355.00 |
| 420.61 | 33638.69 | 9198.86 | 941.64 | 881.63 | 0.00 | 514455.00 | 3920580.00 |
| 224.90 | 36123.63 | 10387.57 | 1151.91 | 1300.41 | 0.00 | 516940.00 | 3921768.00 |
| 390.35 | 33888.36 | 9308.43 | 996.79 | 1165.12 | 0.00 | 514705.00 | 3920689.00 |
| 222.46 | 36177.26 | 10414.27 | 1149.46 | 1331.79 | 0.00 | 516994.00 | 3921795.00 |
| 458.87 | 33357.54 | 9050.57 | 932.65 | 950.33 | 0.00 | 514174.00 | 3920431.00 |
| 581.41 | 32667.53 | 8707.97 | 913.51 | 881.33 | 0.00 | 513484.00 | 3920089.00 |
| 162.08 | 37791.34 | 11185.64 | 1447.87 | 1701.54 | 0.00 | 518608.00 | 3922566.00 |
| 528.19 | 32932.29 | 8833.67 | 833.38 | 680.17 | 0.00 | 513749.00 | 3920214.00 |
| 287.17 | 35050.06 | 9873.71 | 980.30 | 980.51 | 0.00 | 515866.00 | 3921254.00 |
| 91.74 | 41460.21 | 12914.75 | 1608.22 | 1806.08 | 0.00 | 522276.00 | 3924296.00 |
| 57.55 | 45365.63 | 14736.38 | 2161.19 | 2890.89 | 0.00 | 526182.00 | 3926117.00 |
| 143.66 | 38484.85 | 11504.01 | 1502.74 | 1817.36 | 0.00 | 519301.00 | 3922885.00 |
| 290.92 | 34995.69 | 9848.04 | 995.97 | 1057.97 | 0.00 | 515812.00 | 3921229.00 |
| 284.53 | 35086.28 | 9895.57 | 1084.65 | 1207.89 | 0.00 | 515903.00 | 3921276.00 |
| 275.82 | 35215.22 | 9952.11 | 1125.13 | 1302.88 | 0.00 | 516031.00 | 3921333.00 |
| 429.89 | 33566.79 | 9149.00 | 952.83 | 1004.46 | 0.00 | 514383.00 | 3920530.00 |
| 445.09 | 33455.22 | 9096.70 | 990.54 | 1042.80 | 0.00 | 514272.00 | 3920477.00 |
| 319.37 | 34626.47 | 9669.98 | 1089.33 | 1316.66 | 0.00 | 515443.00 | 3921051.00 |
| 193.53 | 36850.47 | 10740.09 | 1212.07 | 1287.27 | 0.00 | 517667.00 | 3922121.00 |
| 88.03 | 41769.61 | 13051.50 | 1825.63 | 2262.38 | 0.00 | 522586.00 | 3924432.00 |
| 60.23 | 44939.96 | 14541.53 | 1922.19 | 2350.60 | 0.00 | 525756.00 | 3925922.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 422.68 | 95087.54 | 24856.57 | 1699.98 | 1184.51 | **116.66** | 575904.00 | 3936237.00 |
| 217.28 | 100627.59 | 27503.08 | 1895.76 | 1533.62 | 0.00 | 581444.00 | 3938884.00 |
| 688.26 | 92195.08 | 23435.98 | 1586.25 | 880.31 | 0.00 | 573011.00 | 3934817.00 |
| 445.81 | 94726.85 | 24687.86 | 1671.78 | 1085.80 | 0.00 | 575543.00 | 3936069.00 |
| 304.52 | 97565.44 | 26051.06 | 1910.33 | 1728.26 | 0.00 | 578382.00 | 3937432.00 |
| 260.30 | 98919.51 | 26689.01 | 1872.42 | 1552.86 | 0.00 | 579736.00 | 3938070.00 |
| 385.26 | 95741.34 | 25176.59 | 1761.22 | 1354.42 | 0.00 | 576558.00 | 3936557.00 |
| 302.61 | 97617.26 | 26084.40 | 1775.83 | 1291.67 | 0.00 | 578434.00 | 3937465.00 |
| 512.49 | 93834.65 | 24256.49 | 1754.70 | 1400.28 | 0.00 | 574651.00 | 3935637.00 |
| 245.22 | 99466.02 | 26960.39 | 1831.25 | 1372.22 | 0.00 | 580282.00 | 3938341.00 |
| 320.93 | 97137.10 | 25853.02 | 1774.16 | 1304.55 | 0.00 | 577953.00 | 3937234.00 |
| 339.77 | 96685.91 | 25631.76 | 1764.90 | 1296.34 | 0.00 | 577502.00 | 3937013.00 |
| 380.30 | 95835.64 | 25227.63 | 1793.93 | 1416.27 | 0.00 | 576652.00 | 3936608.00 |
| 115.55 | 108033.27 | 30990.89 | 2314.09 | 2266.67 | 0.00 | 588850.00 | 3942372.00 |
| 259.80 | 98936.16 | 26708.72 | 1869.54 | 1518.17 | 0.00 | 579752.00 | 3938090.00 |
| 465.59 | 94441.53 | 24541.60 | 1670.40 | 1132.00 | 0.00 | 575258.00 | 3935922.00 |
| 260.92 | 98898.35 | 26681.24 | 1797.37 | 1324.59 | 0.00 | 579715.00 | 3938062.00 |
| 135.99 | 105884.55 | 29983.82 | 2283.74 | 2268.49 | 0.00 | 586701.00 | 3941365.00 |
| 329.41 | 96929.85 | 25743.12 | 1800.59 | 1440.13 | 0.00 | 577746.00 | 3937124.00 |
| 469.48 | 94386.96 | 24516.85 | 1686.18 | 1178.05 | 0.00 | 575203.00 | 3935898.00 |
| 193.54 | 101809.94 | 28072.49 | 1954.88 | 1602.46 | 0.00 | 582626.00 | 3939453.00 |
| 231.03 | 100027.15 | 27233.35 | 2017.75 | 1868.30 | 0.00 | 580843.00 | 3938614.00 |
| 337.87 | 96729.04 | 25653.30 | 1818.95 | 1488.42 | 0.00 | 577545.00 | 3937034.00 |
| 399.48 | 95481.30 | 25047.17 | 1764.04 | 1372.41 | 0.00 | 576298.00 | 3936428.00 |
| 359.07 | 96263.39 | 25425.92 | 1842.34 | 1550.21 | 0.00 | 577080.00 | 3936807.00 |
| 436.57 | 94866.58 | 24752.97 | 1674.91 | 1105.83 | 0.00 | 575683.00 | 3936134.00 |
| 104.99 | 109383.29 | 31628.78 | 2563.86 | 2854.49 | 0.00 | 590200.00 | 3943010.00 |
| 297.31 | 97764.13 | 26149.38 | 1814.80 | 1432.79 | 0.00 | 578580.00 | 3937530.00 |
| 557.65 | 93330.00 | 24000.39 | 1640.49 | 1049.44 | 0.00 | 574146.00 | 3935381.00 |
| 533.89 | 93587.06 | 24127.71 | 1681.63 | 1180.23 | 0.00 | 574403.00 | 3935508.00 |
| 191.12 | 101942.69 | 28135.20 | 2072.01 | 1942.90 | 0.00 | 582759.00 | 3939516.00 |
| 392.48 | 95608.43 | 25104.86 | 1790.81 | 1487.96 | 0.00 | 576425.00 | 3936486.00 |
| 202.39 | 101344.67 | 27840.85 | 2063.74 | 1961.49 | 0.00 | 582161.00 | 3939222.00 |
| 151.49 | 104556.02 | 29368.77 | 2256.29 | 2197.25 | 0.00 | 585372.00 | 3940750.00 |
| 266.08 | 98723.12 | 26603.53 | 1892.26 | 1603.66 | 0.00 | 579539.00 | 3937984.00 |
| 491.89 | 94088.93 | 24377.73 | 1670.07 | 1114.72 | 0.00 | 574905.00 | 3935759.00 |
| 213.19 | 100816.25 | 27603.26 | 2125.51 | 2042.54 | 0.00 | 581633.00 | 3938984.00 |
| 121.05 | 107402.04 | 30693.30 | 2399.17 | 2479.83 | 0.00 | 588218.00 | 3942074.00 |
| 287.33 | 98053.17 | 26288.30 | 1809.45 | 1388.26 | 0.00 | 578869.00 | 3937669.00 |
| 482.46 | 94214.04 | 24435.95 | 1683.26 | 1157.05 | 0.00 | 575030.00 | 3935817.00 |
| 56.82 | 119776.99 | 36490.36 | 2851.58 | 2933.77 | 0.00 | 600593.00 | 3947871.00 |
| 315.11 | 97285.97 | 25916.58 | 1880.07 | 1646.32 | 0.00 | 578102.00 | 3937297.00 |
| 194.46 | 101759.67 | 28040.31 | 2170.82 | 2218.99 | 0.00 | 582576.00 | 3939421.00 |
| 113.71 | 108254.06 | 31085.81 | 2392.09 | 2499.89 | 0.00 | 589070.00 | 3942467.00 |
| 203.44 | 101290.12 | 27815.76 | 2056.81 | 1949.73 | 0.00 | 582106.00 | 3939197.00 |
| 475.16 | 94310.39 | 24484.62 | 1720.05 | 1281.40 | 0.00 | 575127.00 | 3935865.00 |
| 259.94 | 98932.21 | 26700.63 | 1940.94 | 1740.95 | 0.00 | 579748.00 | 3938081.00 |
| 205.29 | 101197.85 | 27781.68 | 1921.60 | 1554.01 | 0.00 | 582014.00 | 3939162.00 |
| 265.78 | 98732.59 | 26603.49 | 1924.87 | 1719.67 | 0.00 | 579549.00 | 3937984.00 |

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|---|---|---|---|---|---|---|---|
| 534.03 | 93584.42 | 24128.55 | 1646.47 | 1054.90 | 0.00 | 574401.00 | 3935509.00 |
| 249.84 | 99293.06 | 26866.87 | 1884.54 | 1567.50 | 0.00 | 580109.00 | 3938248.00 |
| 95.38 | 110803.32 | 32288.75 | 2478.38 | 2531.68 | 0.00 | 591620.00 | 3943670.00 |
| 254.80 | 99112.69 | 26787.06 | 1933.35 | 1696.21 | 0.00 | 579929.00 | 3938168.00 |
| 520.22 | 93742.61 | 24205.18 | 1659.67 | 1105.44 | 0.00 | 574559.00 | 3935586.00 |
| 534.05 | 93586.08 | 24127.49 | 1637.45 | 1017.44 | 0.00 | 574402.00 | 3935508.00 |
| 368.40 | 96070.39 | 25339.25 | 1786.45 | 1386.21 | 0.00 | 576887.00 | 3936720.00 |
| 107.64 | 109026.18 | 31451.81 | 2447.64 | 2586.20 | 0.00 | 589842.00 | 3942833.00 |
| 226.08 | 100238.18 | 27321.61 | 1998.22 | 1828.53 | 0.00 | 581054.00 | 3938702.00 |
| 167.77 | 103371.84 | 28795.04 | 2208.87 | 2240.13 | 0.00 | 584188.00 | 3940176.00 |
| 518.41 | 93764.45 | 24215.63 | 1655.76 | 1086.12 | 0.00 | 574581.00 | 3935596.00 |
| 316.88 | 97239.14 | 25900.67 | 1842.77 | 1519.87 | 0.00 | 578055.00 | 3937281.00 |
| 150.82 | 104609.93 | 29379.65 | 2300.51 | 2396.15 | 0.00 | 585426.00 | 3940760.00 |
| 368.44 | 96069.19 | 25332.97 | 1822.47 | 1524.16 | 0.00 | 576885.00 | 3936714.00 |
| 585.31 | 93049.96 | 23860.60 | 1663.52 | 1150.57 | 0.00 | 573866.00 | 3935241.00 |
| 141.67 | 105371.80 | 29749.38 | 2113.10 | 1845.51 | 0.00 | 586188.00 | 3941130.00 |
| 156.34 | 104182.48 | 29182.47 | 2087.68 | 1881.00 | 0.00 | 584999.00 | 3940563.00 |
| 250.22 | 99280.04 | 26868.79 | 1834.06 | 1388.30 | 0.00 | 580096.00 | 3938250.00 |
| 247.70 | 99372.61 | 26915.56 | 1911.56 | 1620.95 | 0.00 | 580189.00 | 3938296.00 |
| 582.60 | 93079.90 | 23876.08 | 1659.29 | 1135.68 | 0.00 | 573896.00 | 3935257.00 |
| 577.21 | 93131.26 | 23896.96 | 1623.06 | 1000.84 | 0.00 | 573948.00 | 3935278.00 |
| 601.02 | 92904.96 | 23786.55 | 1653.07 | 1120.25 | 0.00 | 573721.00 | 3935167.00 |
| 264.44 | 98777.89 | 26633.54 | 1945.98 | 1719.05 | 0.00 | 579594.00 | 3938014.00 |
| 83.42 | 112903.92 | 33273.84 | 2605.03 | 2700.17 | 0.00 | 593720.00 | 3944655.00 |
| 194.91 | 101735.29 | 28036.49 | 2136.17 | 2049.00 | 0.00 | 582552.00 | 3939417.00 |
| 235.51 | 99844.27 | 27134.74 | 1936.30 | 1670.76 | 0.00 | 580661.00 | 3938516.00 |
| 342.56 | 96623.16 | 25595.15 | 1728.09 | 1200.95 | 0.00 | 577439.00 | 3936976.00 |
| 305.61 | 97536.71 | 26037.04 | 1838.32 | 1534.82 | 0.00 | 578353.00 | 3937418.00 |
| 311.95 | 97367.16 | 25956.95 | 1737.85 | 1189.04 | 0.00 | 578183.00 | 3937338.00 |
| 345.78 | 96550.89 | 25563.24 | 1750.04 | 1270.24 | 0.00 | 577367.00 | 3936944.00 |
| 216.06 | 100682.14 | 27530.76 | 1936.63 | 1626.63 | 0.00 | 581498.00 | 3938912.00 |
| 476.10 | 94297.28 | 24467.75 | 1702.32 | 1234.30 | 0.00 | 575114.00 | 3935849.00 |
| 496.12 | 94035.25 | 24346.94 | 1738.62 | 1362.13 | 0.00 | 574852.00 | 3935728.00 |
| 333.49 | 96831.55 | 25699.35 | 1798.71 | 1418.06 | 0.00 | 577648.00 | 3937080.00 |
| 251.47 | 99231.87 | 26859.98 | 1897.32 | 1551.20 | 0.00 | 580048.00 | 3938241.00 |
| 94.69 | 110913.01 | 32344.37 | 2500.75 | 2612.68 | 0.00 | 591729.00 | 3943725.00 |
| 443.24 | 94765.92 | 24705.88 | 1692.65 | 1184.95 | 0.00 | 575582.00 | 3936087.00 |
| 403.86 | 95404.83 | 25015.27 | 1746.13 | 1325.67 | 0.00 | 576221.00 | 3936396.00 |
| 632.99 | 92622.15 | 23646.11 | 1650.34 | 1112.32 | 0.00 | 573438.00 | 3935027.00 |
| 155.61 | 104237.01 | 29219.23 | 2258.32 | 2339.74 | 0.00 | 585053.00 | 3940600.00 |
| 204.90 | 101217.13 | 27782.18 | 2012.54 | 1836.41 | 0.00 | 582033.00 | 3939163.00 |
| 412.94 | 95250.19 | 24940.29 | 1748.97 | 1335.33 | 0.00 | 576066.00 | 3936321.00 |
| 259.72 | 98939.88 | 26708.96 | 1870.38 | 1522.33 | 0.00 | 579756.00 | 3938090.00 |
| 479.72 | 94247.03 | 24451.70 | 1719.13 | 1281.52 | 0.00 | 575063.00 | 3935832.00 |
| 317.12 | 97232.62 | 25895.74 | 1848.93 | 1523.23 | 0.00 | 578049.00 | 3937277.00 |
| 475.73 | 94301.07 | 24478.11 | 1662.88 | 1086.69 | 0.00 | 575117.00 | 3935859.00 |
| 93.18 | 111159.10 | 32478.67 | 2634.28 | 2744.87 | 0.00 | 591975.00 | 3943859.00 |
| 476.40 | 94291.52 | 24468.54 | 1685.16 | 1175.20 | 0.00 | 575108.00 | 3935849.00 |
| 340.20 | 96677.13 | 25631.39 | 1828.57 | 1489.62 | 0.00 | 577493.00 | 3937012.00 |
| 148.87 | 104765.69 | 29463.59 | 2143.56 | 1962.43 | 0.00 | 585582.00 | 3940844.00 |
| 113.02 | 108339.33 | 31147.77 | 2289.31 | 2088.89 | 0.00 | 589156.00 | 3942529.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 263.12 | 917.43 | 279.17 | 121.08 | 246.55 | **21.00** | 481734.00 | 3911660.00 |
| 336.90 | 828.95 | 238.90 | 117.21 | 204.08 | 0.00 | 481645.00 | 3911620.00 |
| 362.54 | 785.74 | 225.39 | 84.55 | 210.69 | 0.00 | 481602.00 | 3911606.00 |
| 270.91 | 887.34 | 274.76 | 79.82 | 157.66 | 0.00 | 481704.00 | 3911656.00 |
| 361.60 | 800.86 | 226.90 | 132.63 | 208.84 | 0.00 | 481617.00 | 3911608.00 |
| 346.85 | 817.16 | 233.53 | 124.07 | 213.84 | 0.00 | 481633.00 | 3911614.00 |
| 485.14 | 705.29 | 177.50 | 103.14 | 236.44 | 0.00 | 481522.00 | 3911558.00 |
| 130.45 | 1190.05 | 416.45 | 132.19 | 206.69 | 0.00 | 482006.00 | 3911797.00 |
| 374.63 | 793.94 | 220.43 | 115.04 | 205.16 | 0.00 | 481610.00 | 3911601.00 |
| 417.07 | 745.42 | 203.05 | 112.71 | 217.30 | 0.00 | 481562.00 | 3911584.00 |
| 1451.83 | 832.24 | 210.64 | 123.79 | 220.81 | 0.00 | 481649.00 | 3911591.00 |
| 174.33 | 1065.68 | 358.39 | 108.34 | 212.31 | 0.00 | 481882.00 | 3911739.00 |
| 532.16 | 691.16 | 161.64 | 117.75 | 260.05 | 0.00 | 481507.00 | 3911542.00 |
| 393.15 | 769.58 | 211.77 | 111.71 | 242.01 | 0.00 | 481586.00 | 3911593.00 |
| 280.22 | 889.85 | 269.69 | 127.04 | 234.17 | 0.00 | 481706.00 | 3911650.00 |
| 246.83 | 936.93 | 292.36 | 101.50 | 210.71 | 0.00 | 481753.00 | 3911673.00 |
| 67.53 | 1527.45 | 577.79 | 117.03 | 190.73 | 0.00 | 482344.00 | 3911959.00 |
| 250.96 | 934.79 | 287.61 | 107.30 | 230.85 | 0.00 | 481751.00 | 3911668.00 |
| 527.35 | 694.67 | 163.95 | 107.21 | 239.63 | 0.00 | 481511.00 | 3911545.00 |
| 307.90 | 871.37 | 252.61 | 104.57 | 232.56 | 0.00 | 481688.00 | 3911633.00 |
| 418.79 | 757.90 | 200.86 | 110.69 | 232.65 | 0.00 | 481574.00 | 3911582.00 |
| 165.18 | 1088.40 | 365.14 | 103.50 | 193.38 | 0.00 | 481905.00 | 3911746.00 |
| 315.00 | 837.67 | 249.30 | 107.71 | 233.04 | 0.00 | 481654.00 | 3911630.00 |
| 411.12 | 760.20 | 204.10 | 97.98 | 223.04 | 0.00 | 481576.00 | 3911585.00 |
| 346.78 | 812.47 | 232.51 | 119.63 | 222.55 | 0.00 | 481629.00 | 3911613.00 |
| 542.62 | 668.66 | 157.09 | 103.81 | 224.18 | 0.00 | 481485.00 | 3911538.00 |
| 354.94 | 814.03 | 228.02 | 112.70 | 225.24 | 0.00 | 481630.00 | 3911609.00 |
| 417.59 | 746.49 | 201.26 | 104.41 | 213.09 | 0.00 | 481563.00 | 3911582.00 |
| 536.57 | 676.19 | 160.19 | 109.21 | 221.46 | 0.00 | 481492.00 | 3911541.00 |
| 292.59 | 868.49 | 260.84 | 113.86 | 211.27 | 0.00 | 481685.00 | 3911642.00 |
| 66.79 | 1533.79 | 582.62 | 121.16 | 214.53 | 0.00 | 482350.00 | 3911963.00 |
| 237.67 | 951.61 | 298.13 | 93.71 | 218.33 | 0.00 | 481768.00 | 3911679.00 |
| 416.46 | 768.12 | 200.27 | 95.44 | 215.20 | 0.00 | 481584.00 | 3911581.00 |
| 372.99 | 789.45 | 219.51 | 114.01 | 218.57 | 0.00 | 481606.00 | 3911600.00 |
| 332.28 | 832.68 | 239.19 | 106.89 | 238.71 | 0.00 | 481649.00 | 3911620.00 |
| 266.69 | 902.02 | 279.18 | 117.97 | 189.73 | 0.00 | 481718.00 | 3911660.00 |
| 296.14 | 880.57 | 257.89 | 101.38 | 220.79 | 0.00 | 481697.00 | 3911639.00 |
| 41.83 | 1839.79 | 726.84 | 118.62 | 211.52 | 0.00 | 482656.00 | 3912108.00 |
| 360.19 | 820.14 | 224.15 | 121.30 | 217.92 | 0.00 | 481636.00 | 3911605.00 |
| 315.75 | 852.92 | 248.78 | 106.45 | 205.80 | 0.00 | 481669.00 | 3911630.00 |
| 55.95 | 1640.08 | 633.15 | 122.77 | 214.59 | 0.00 | 482456.00 | 3912014.00 |
| 419.84 | 760.67 | 202.28 | 132.72 | 245.17 | 0.00 | 481577.00 | 3911583.00 |
| 234.26 | 952.24 | 302.79 | 113.88 | 175.29 | 0.00 | 481769.00 | 3911684.00 |
| 216.03 | 983.26 | 316.90 | 107.15 | 201.17 | 0.00 | 481800.00 | 3911698.00 |
| 43.56 | 1809.68 | 715.07 | 119.21 | 202.23 | 0.00 | 482626.00 | 3912096.00 |
| 183.03 | 1050.64 | 347.15 | 104.79 | 205.51 | 0.00 | 481867.00 | 3911728.00 |
| 284.63 | 890.89 | 264.77 | 99.15 | 193.94 | 0.00 | 481707.00 | 3911646.00 |
| 125.23 | 1206.42 | 424.29 | 115.80 | 225.45 | 0.00 | 482023.00 | 3911805.00 |
| 330.79 | 834.30 | 240.51 | 104.52 | 231.55 | 0.00 | 481651.00 | 3911621.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 206.68 | 1002.31 | 326.21 | 117.45 | 170.65 | 0.00 | 481819.00 | 3911707.00 |
| 366.47 | 793.75 | 223.01 | 103.33 | 240.08 | 0.00 | 481610.00 | 3911604.00 |
| 243.20 | 952.02 | 294.80 | 114.33 | 218.59 | 0.00 | 481768.00 | 3911676.00 |
| 325.16 | 840.17 | 244.12 | 122.00 | 199.26 | 0.00 | 481656.00 | 3911625.00 |
| 281.94 | 879.37 | 267.93 | 106.23 | 199.49 | 0.00 | 481696.00 | 3911649.00 |
| 10.43 | 3268.44 | 1400.57 | 183.10 | 238.53 | 0.00 | 484085.00 | 3912781.00 |
| 128.55 | 1190.12 | 419.06 | 114.34 | 212.27 | 0.00 | 482006.00 | 3911800.00 |
| 294.90 | 868.19 | 261.16 | 120.89 | 229.44 | 0.00 | 481684.00 | 3911642.00 |
| 191.42 | 1029.61 | 339.27 | 109.59 | 229.41 | 0.00 | 481846.00 | 3911720.00 |
| 363.32 | 815.95 | 223.38 | 101.89 | 210.31 | 0.00 | 481632.00 | 3911604.00 |
| 247.01 | 941.71 | 290.93 | 122.27 | 217.56 | 0.00 | 481758.00 | 3911672.00 |
| 36.43 | 1940.43 | 777.40 | 134.77 | 199.86 | 0.00 | 482757.00 | 3912158.00 |
| 284.16 | 882.79 | 266.97 | 112.30 | 188.71 | 0.00 | 481699.00 | 3911648.00 |
| 242.16 | 946.37 | 294.89 | 105.97 | 220.53 | 0.00 | 481763.00 | 3911676.00 |
| 380.19 | 775.74 | 218.25 | 104.90 | 191.33 | 0.00 | 481592.00 | 3911599.00 |
| 325.47 | 828.59 | 243.64 | 110.50 | 224.82 | 0.00 | 481645.00 | 3911624.00 |
| 226.48 | 969.40 | 307.68 | 88.46 | 192.33 | 0.00 | 481786.00 | 3911688.00 |
| 566.52 | 658.58 | 152.98 | 112.50 | 241.35 | 0.00 | 481475.00 | 3911534.00 |
| 664.46 | 635.37 | 130.95 | 101.35 | 240.73 | 0.00 | 481452.00 | 3911512.00 |
| 180.49 | 1049.81 | 349.20 | 102.76 | 223.25 | 0.00 | 481866.00 | 3911730.00 |
| 218.11 | 979.29 | 313.20 | 112.09 | 221.76 | 0.00 | 481796.00 | 3911694.00 |
| 376.94 | 786.49 | 218.88 | 118.23 | 247.16 | 0.00 | 481603.00 | 3911600.00 |
| 399.43 | 781.69 | 209.84 | 112.87 | 230.50 | 0.00 | 481598.00 | 3911591.00 |
| 282.00 | 886.98 | 268.06 | 100.64 | 219.23 | 0.00 | 481703.00 | 3911649.00 |
| 417.33 | 754.85 | 203.08 | 99.55 | 203.78 | 0.00 | 481571.00 | 3911584.00 |
| 376.76 | 790.20 | 217.30 | 94.15 | 259.07 | 0.00 | 481606.00 | 3911598.00 |
| 65.39 | 1543.04 | 588.32 | 116.26 | 199.62 | 0.00 | 482359.00 | 3911969.00 |
| 170.93 | 1071.68 | 361.89 | 108.59 | 220.42 | 0.00 | 481888.00 | 3911743.00 |
| 426.98 | 730.79 | 198.64 | 111.85 | 206.58 | 0.00 | 481547.00 | 3911579.00 |
| 224.92 | 970.79 | 307.63 | 99.44 | 197.45 | 0.00 | 481787.00 | 3911688.00 |
| 433.21 | 753.31 | 195.24 | 114.65 | 209.62 | 0.00 | 481570.00 | 3911576.00 |
| 159.43 | 1105.66 | 372.12 | 95.70 | 213.03 | 0.00 | 481922.00 | 3911753.00 |
| 119.89 | 1228.91 | 435.25 | 111.10 | 202.55 | 0.00 | 482045.00 | 3911816.00 |
| 277.07 | 890.53 | 271.50 | 100.38 | 207.42 | 0.00 | 481707.00 | 3911652.00 |
| 466.24 | 710.27 | 184.93 | 110.09 | 215.28 | 0.00 | 481527.00 | 3911566.00 |
| 482.23 | 698.39 | 178.49 | 117.25 | 199.48 | 0.00 | 481515.00 | 3911559.00 |
| 324.03 | 833.75 | 243.62 | 117.60 | 240.46 | 0.00 | 481650.00 | 3911624.00 |
| 599.55 | 627.99 | 143.56 | 109.40 | 215.52 | 0.00 | 481444.00 | 3911524.00 |
| 165.66 | 1090.01 | 366.14 | 109.89 | 233.77 | 0.00 | 481906.00 | 3911747.00 |
| 2112.97 | 1179.84 | 381.41 | 119.85 | 241.80 | 0.00 | 481996.00 | 3911762.00 |
| 196.37 | 1020.84 | 334.60 | 109.88 | 219.01 | 0.00 | 481837.00 | 3911715.00 |
| 230.11 | 956.58 | 303.31 | 75.47 | 204.30 | 0.00 | 481773.00 | 3911684.00 |
| 69.04 | 1513.10 | 572.04 | 111.64 | 200.96 | 0.00 | 482329.00 | 3911953.00 |
| 221.65 | 968.70 | 311.88 | 116.17 | 185.86 | 0.00 | 481785.00 | 3911693.00 |
| 57.74 | 1619.49 | 622.72 | 104.72 | 202.27 | 0.00 | 482436.00 | 3912004.00 |
| 299.99 | 865.64 | 259.04 | 109.09 | 229.57 | 0.00 | 481682.00 | 3911640.00 |
| 84.16 | 1397.22 | 519.39 | 111.01 | 230.34 | 0.00 | 482213.00 | 3911900.00 |
| 287.46 | 875.22 | 265.57 | 116.45 | 205.73 | 0.00 | 481691.00 | 3911646.00 |
| 127.17 | 1200.49 | 420.78 | 92.30 | 200.23 | 0.00 | 482017.00 | 3911802.00 |
| 465.71 | 733.43 | 183.86 | 107.14 | 213.52 | 0.00 | 481550.00 | 3911565.00 |
| 267.41 | 902.01 | 277.28 | 115.27 | 230.12 | 0.00 | 481718.00 | 3911658.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 331.53 | 7435.34 | 2163.91 | 851.24 | 1163.54 | **43.07** | 488252.00 | 3913545.00 |
| 264.07 | 7708.54 | 2285.89 | 869.58 | 1554.40 | 0.00 | 488525.00 | 3913667.00 |
| 310.63 | 7507.98 | 2194.30 | 710.87 | 1301.13 | 0.00 | 488324.00 | 3913575.00 |
| 346.21 | 7385.89 | 2134.46 | 862.76 | 1237.32 | 0.00 | 488202.00 | 3913515.00 |
| 283.24 | 7628.80 | 2253.75 | 766.90 | 910.71 | 0.00 | 488445.00 | 3913635.00 |
| 228.36 | 7905.76 | 2393.20 | 750.06 | 1418.56 | 0.00 | 488722.00 | 3913774.00 |
| 194.42 | 8136.93 | 2484.12 | 720.10 | 1651.91 | 0.00 | 488953.00 | 3913865.00 |
| 301.19 | 7548.71 | 2210.12 | 854.51 | 1387.55 | 0.00 | 488365.00 | 3913591.00 |
| 313.27 | 7496.69 | 2185.41 | 669.44 | 1421.83 | 0.00 | 488313.00 | 3913566.00 |
| 54.29 | 10800.71 | 3743.60 | 877.64 | 1716.89 | 0.00 | 491617.00 | 3915124.00 |
| 429.86 | 7146.11 | 2005.87 | 693.65 | 1608.53 | 0.00 | 487962.00 | 3913387.00 |
| 240.98 | 7837.47 | 2353.98 | 751.82 | 1306.71 | 0.00 | 488654.00 | 3913735.00 |
| 195.25 | 8136.45 | 2496.79 | 863.93 | 1575.06 | 0.00 | 488953.00 | 3913878.00 |
| 139.43 | 8679.37 | 2748.69 | 568.05 | 1324.31 | 0.00 | 489496.00 | 3914129.00 |
| 15.66 | 15614.11 | 5986.49 | 1128.43 | 2089.02 | 0.00 | 496430.00 | 3917367.00 |
| 467.92 | 7067.99 | 1978.13 | 621.54 | 1055.08 | 0.00 | 487884.00 | 3913359.00 |
| 382.36 | 7269.06 | 2087.61 | 864.04 | 1166.77 | 0.00 | 488085.00 | 3913468.00 |
| 237.18 | 7865.82 | 2364.93 | 754.84 | 1210.42 | 0.00 | 488682.00 | 3913746.00 |
| 289.16 | 7601.51 | 2243.20 | 849.42 | 894.26 | 0.00 | 488418.00 | 3913624.00 |
| 457.14 | 7088.54 | 1994.97 | 638.89 | 1019.53 | 0.00 | 487905.00 | 3913376.00 |
| 392.02 | 7252.75 | 2063.00 | 434.26 | 984.77 | 0.00 | 488069.00 | 3913444.00 |
| 79.10 | 9834.42 | 3280.27 | 851.25 | 1904.02 | 0.00 | 490651.00 | 3914661.00 |
| 383.38 | 7267.86 | 2078.10 | 823.82 | 1461.72 | 0.00 | 488084.00 | 3913459.00 |
| 375.46 | 7296.54 | 2082.10 | 743.59 | 1508.13 | 0.00 | 488113.00 | 3913463.00 |
| 252.51 | 7764.14 | 2322.37 | 932.59 | 1690.75 | 0.00 | 488580.00 | 3913703.00 |
| 635.36 | 6793.22 | 1843.46 | 704.04 | 1050.33 | 0.00 | 487610.00 | 3913224.00 |
| 321.53 | 7469.98 | 2175.47 | 618.91 | 978.84 | 0.00 | 488286.00 | 3913556.00 |
| 472.30 | 7062.52 | 1974.46 | 672.54 | 1158.76 | 0.00 | 487879.00 | 3913355.00 |
| 361.02 | 7334.31 | 2118.11 | 719.97 | 841.93 | 0.00 | 488151.00 | 3913499.00 |
| 163.26 | 8406.21 | 2622.76 | 898.79 | 1781.88 | 0.00 | 489222.00 | 3914004.00 |
| 393.09 | 7248.82 | 2063.00 | 813.19 | 1261.75 | 0.00 | 488065.00 | 3913444.00 |
| 246.13 | 7807.53 | 2343.41 | 676.03 | 1009.45 | 0.00 | 488624.00 | 3913724.00 |
| 225.96 | 7926.83 | 2392.04 | 641.48 | 1403.72 | 0.00 | 488743.00 | 3913773.00 |
| 82.54 | 9737.21 | 3246.06 | 822.37 | 1607.29 | 0.00 | 490553.00 | 3914627.00 |
| 620.44 | 6825.67 | 1855.17 | 447.15 | 514.59 | 0.00 | 487642.00 | 3913236.00 |
| 79.39 | 9828.15 | 3275.38 | 784.14 | 1745.96 | 0.00 | 490644.00 | 3914656.00 |
| 91.27 | 9516.95 | 3143.08 | 838.43 | 1657.82 | 0.00 | 490333.00 | 3914524.00 |
| 244.98 | 7803.00 | 2345.22 | 1149.06 | 1669.28 | 0.00 | 488619.00 | 3913726.00 |
| 333.10 | 7425.30 | 2154.67 | 722.17 | 1179.37 | 0.00 | 488242.00 | 3913535.00 |
| 509.76 | 6982.33 | 1942.37 | 854.60 | 1217.05 | 0.00 | 487799.00 | 3913323.00 |
| 220.56 | 7958.54 | 2404.68 | 678.31 | 1359.39 | 0.00 | 488775.00 | 3913785.00 |
| 402.21 | 7221.67 | 2057.56 | 616.02 | 1005.69 | 0.00 | 488038.00 | 3913438.00 |
| 231.50 | 7890.72 | 2379.38 | 809.82 | 1376.00 | 0.00 | 488707.00 | 3913760.00 |
| 326.02 | 7461.07 | 2167.74 | 499.91 | 719.37 | 0.00 | 488277.00 | 3913549.00 |
| 434.36 | 7146.53 | 2019.42 | 743.87 | 1090.72 | 0.00 | 487963.00 | 3913400.00 |
| 182.17 | 8240.63 | 2547.94 | 743.05 | 1380.57 | 0.00 | 489057.00 | 3913929.00 |
| 47.90 | 11162.53 | 3898.81 | 1008.74 | 2114.56 | 0.00 | 491979.00 | 3915280.00 |
| 160.02 | 8441.98 | 2627.77 | 672.06 | 1525.18 | 0.00 | 489258.00 | 3914009.00 |
| 608.11 | 6832.18 | 1857.09 | 521.73 | 821.93 | 0.00 | 487648.00 | 3913238.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 250.68 | 7781.81 | 2320.65 | 932.64 | 1894.96 | 0.00 | 488598.00 | 3913701.00 |
| 120.11 | 8952.53 | 2886.65 | 801.12 | 1478.11 | 0.00 | 489769.00 | 3914267.00 |
| 61.57 | 10454.85 | 3584.58 | 955.17 | 1676.58 | 0.00 | 491271.00 | 3914965.00 |
| 170.94 | 8341.67 | 2576.75 | 892.22 | 1923.72 | 0.00 | 489158.00 | 3913958.00 |
| 449.43 | 7094.57 | 1990.70 | 757.57 | 1520.40 | 0.00 | 487911.00 | 3913371.00 |
| 111.40 | 9096.69 | 2941.05 | 806.09 | 1542.87 | 0.00 | 489913.00 | 3914322.00 |
| 331.28 | 7428.78 | 2164.60 | 619.68 | 977.20 | 0.00 | 488245.00 | 3913545.00 |
| 94.09 | 9446.33 | 3105.62 | 628.02 | 1508.63 | 0.00 | 490263.00 | 3914486.00 |
| 190.67 | 8170.37 | 2507.56 | 624.52 | 1314.57 | 0.00 | 488987.00 | 3913888.00 |
| 980.70 | 6488.83 | 1679.10 | 490.58 | 698.72 | 0.00 | 487305.00 | 3913060.00 |
| 102.20 | 9272.47 | 3019.80 | 965.69 | 1613.65 | 0.00 | 490089.00 | 3914401.00 |
| 168.05 | 8364.01 | 2595.56 | 911.48 | 1762.08 | 0.00 | 489180.00 | 3913976.00 |
| 249.09 | 7789.96 | 2331.24 | 772.56 | 1138.18 | 0.00 | 488606.00 | 3913712.00 |
| 254.21 | 7770.86 | 2318.99 | 777.36 | 1176.00 | 0.00 | 488587.00 | 3913700.00 |
| 457.92 | 7100.37 | 1987.99 | 676.62 | 1223.30 | 0.00 | 487917.00 | 3913369.00 |
| 299.16 | 7555.01 | 2215.12 | 634.28 | 1410.90 | 0.00 | 488371.00 | 3913596.00 |
| 345.63 | 7383.84 | 2138.29 | 733.25 | 1079.38 | 0.00 | 488200.00 | 3913519.00 |
| 89.14 | 9565.87 | 3150.21 | 920.03 | 1792.27 | 0.00 | 490382.00 | 3914531.00 |
| 176.30 | 8299.42 | 2564.68 | 717.95 | 1583.52 | 0.00 | 489116.00 | 3913945.00 |
| 234.13 | 7872.12 | 2374.64 | 872.37 | 1058.39 | 0.00 | 488688.00 | 3913755.00 |
| 130.28 | 8797.60 | 2795.02 | 840.05 | 2124.80 | 0.00 | 489614.00 | 3914176.00 |
| 243.82 | 7820.57 | 2336.99 | 746.42 | 1259.66 | 0.00 | 488637.00 | 3913718.00 |
| 198.26 | 8115.67 | 2469.86 | 489.22 | 1416.40 | 0.00 | 488932.00 | 3913851.00 |
| 135.79 | 8724.00 | 2777.82 | 805.85 | 1484.38 | 0.00 | 489540.00 | 3914159.00 |
| 394.77 | 7243.67 | 2060.84 | 679.47 | 1195.54 | 0.00 | 488060.00 | 3913442.00 |
| 58.69 | 10584.75 | 3632.70 | 929.26 | 1943.28 | 0.00 | 491401.00 | 3915013.00 |
| 78.88 | 9845.61 | 3286.19 | 808.51 | 1832.89 | 0.00 | 490662.00 | 3914667.00 |
| 111.73 | 9095.09 | 2946.27 | 800.95 | 1269.13 | 0.00 | 489911.00 | 3914327.00 |
| 461.83 | 7075.16 | 1986.82 | 546.93 | 1038.93 | 0.00 | 487891.00 | 3913368.00 |
| 316.27 | 7495.31 | 2192.38 | 858.91 | 1045.98 | 0.00 | 488312.00 | 3913573.00 |
| 405.92 | 7214.54 | 2050.30 | 638.80 | 867.83 | 0.00 | 488031.00 | 3913431.00 |
| 499.97 | 7004.90 | 1940.57 | 534.88 | 1029.47 | 0.00 | 487821.00 | 3913321.00 |
| 599.29 | 6839.78 | 1868.42 | 774.77 | 1025.93 | 0.00 | 487656.00 | 3913249.00 |
| 407.84 | 7200.45 | 2056.80 | 910.33 | 961.42 | 0.00 | 488017.00 | 3913438.00 |
| 376.82 | 7295.04 | 2088.56 | 552.59 | 995.85 | 0.00 | 488111.00 | 3913469.00 |
| 379.76 | 7273.55 | 2080.14 | 478.98 | 1000.93 | 0.00 | 488090.00 | 3913461.00 |
| 312.52 | 7503.00 | 2192.49 | 755.82 | 1213.69 | 0.00 | 488319.00 | 3913573.00 |
| 177.71 | 8270.76 | 2560.50 | 1056.44 | 1775.14 | 0.00 | 489087.00 | 3913941.00 |
| 55.67 | 10730.89 | 3702.96 | 1068.15 | 2001.09 | 0.00 | 491547.00 | 3915084.00 |
| 341.57 | 7401.60 | 2147.42 | 715.76 | 999.87 | 0.00 | 488218.00 | 3913528.00 |
| 187.11 | 8206.87 | 2528.90 | 907.02 | 1483.42 | 0.00 | 489023.00 | 3913910.00 |
| 82.51 | 9737.37 | 3251.39 | 982.34 | 1740.01 | 0.00 | 490554.00 | 3914632.00 |
| 497.37 | 7015.96 | 1944.41 | 705.14 | 1068.34 | 0.00 | 487832.00 | 3913325.00 |
| 198.82 | 8111.11 | 2483.74 | 799.50 | 1170.18 | 0.00 | 488927.00 | 3913865.00 |
| 396.84 | 7244.33 | 2055.27 | 413.94 | 974.08 | 0.00 | 488061.00 | 3913436.00 |
| 736.93 | 6694.39 | 1783.41 | 449.61 | 715.50 | 0.00 | 487511.00 | 3913164.00 |
| 129.73 | 8811.95 | 2814.45 | 842.64 | 1361.31 | 0.00 | 489628.00 | 3914195.00 |
| 94.43 | 9437.43 | 3110.25 | 799.77 | 1567.06 | 0.00 | 490254.00 | 3914491.00 |
| 250.11 | 7784.01 | 2323.50 | 553.77 | 1164.42 | 0.00 | 488600.00 | 3913704.00 |
| 457.50 | 7097.94 | 1992.04 | 471.15 | 669.23 | 0.00 | 487914.00 | 3913373.00 |
| 486.91 | 7029.63 | 1963.81 | 864.65 | 962.59 | 0.00 | 487846.00 | 3913345.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 492.25 | 18065.88 | 4955.00 | 728.47 | 892.99 | **63.81** | 498882.00 | 3916336.00 |
| 240.11 | 19745.03 | 5769.57 | 877.23 | 1241.93 | 0.00 | 500561.00 | 3917150.00 |
| 389.26 | 18540.81 | 5189.18 | 726.24 | 862.34 | 0.00 | 499357.00 | 3916570.00 |
| 250.73 | 19620.28 | 5717.88 | 1127.77 | 1441.36 | 0.00 | 500437.00 | 3917099.00 |
| 333.61 | 18896.56 | 5363.98 | 830.37 | 1048.90 | 0.00 | 499713.00 | 3916745.00 |
| 246.88 | 19667.66 | 5729.65 | 1058.15 | 1340.72 | 0.00 | 500484.00 | 3917110.00 |
| 525.48 | 17954.52 | 4897.88 | 647.67 | 723.53 | 0.00 | 498771.00 | 3916279.00 |
| 111.66 | 22381.75 | 7019.81 | 1588.55 | 2010.75 | 0.00 | 503198.00 | 3918401.00 |
| 163.37 | 20935.35 | 6345.51 | 1276.25 | 1385.01 | 0.00 | 501752.00 | 3917726.00 |
| 165.29 | 20899.90 | 6311.12 | 1201.00 | 1502.83 | 0.00 | 501716.00 | 3917692.00 |
| 155.06 | 21117.47 | 6413.89 | 1021.64 | 1959.76 | 0.00 | 501934.00 | 3917795.00 |
| 515.85 | 17988.51 | 4918.65 | 694.94 | 743.36 | 0.00 | 498805.00 | 3916299.00 |
| 586.65 | 17752.24 | 4803.38 | 765.40 | 866.92 | 0.00 | 498569.00 | 3916184.00 |
| 306.42 | 19102.10 | 5461.67 | 737.82 | 910.58 | 0.00 | 499918.00 | 3916842.00 |
| 293.68 | 19201.58 | 5514.12 | 987.21 | 1338.11 | 0.00 | 500018.00 | 3916895.00 |
| 89.86 | 23335.15 | 7464.86 | 1435.73 | 2643.26 | 0.00 | 504151.00 | 3918846.00 |
| 100.06 | 22850.40 | 7233.07 | 1604.36 | 2020.04 | 0.00 | 503667.00 | 3918614.00 |
| 573.55 | 17787.34 | 4816.24 | 722.62 | 955.67 | 0.00 | 498604.00 | 3916197.00 |
| 249.90 | 19633.29 | 5709.86 | 794.45 | 1105.62 | 0.00 | 500450.00 | 3917091.00 |
| 364.42 | 18690.35 | 5263.73 | 839.38 | 1022.60 | 0.00 | 499507.00 | 3916645.00 |
| 305.97 | 19104.76 | 5458.82 | 947.29 | 1418.47 | 0.00 | 499921.00 | 3916840.00 |
| 490.12 | 18078.54 | 4961.20 | 721.44 | 849.55 | 0.00 | 498895.00 | 3916342.00 |
| 231.18 | 19851.99 | 5824.35 | 1019.51 | 1344.76 | 0.00 | 500668.00 | 3917205.00 |
| 96.06 | 23028.76 | 7353.07 | 1606.93 | 1539.62 | 0.00 | 503845.00 | 3918734.00 |
| 120.84 | 22055.40 | 6862.86 | 1064.09 | 1728.47 | 0.00 | 502872.00 | 3918244.00 |
| 385.11 | 18567.47 | 5205.38 | 802.59 | 999.01 | 0.00 | 499384.00 | 3916586.00 |
| 121.62 | 22033.09 | 6857.18 | 1333.08 | 1957.37 | 0.00 | 502849.00 | 3918238.00 |
| 406.03 | 18456.28 | 5146.64 | 811.98 | 1005.76 | 0.00 | 499273.00 | 3916527.00 |
| 104.35 | 22666.44 | 7149.58 | 1295.69 | 1730.80 | 0.00 | 503483.00 | 3918530.00 |
| 134.92 | 21627.72 | 6675.09 | 1942.98 | 2052.48 | 0.00 | 502444.00 | 3918056.00 |
| 106.08 | 22594.83 | 7118.45 | 1153.17 | 1511.98 | 0.00 | 503411.00 | 3918499.00 |
| 323.97 | 18971.01 | 5401.23 | 792.80 | 958.10 | 0.00 | 499787.00 | 3916782.00 |
| 281.15 | 19316.42 | 5566.20 | 696.49 | 784.70 | 0.00 | 500133.00 | 3916947.00 |
| 463.54 | 18189.41 | 5017.69 | 744.63 | 874.86 | 0.00 | 499006.00 | 3916398.00 |
| 421.59 | 18372.59 | 5110.81 | 898.49 | 1100.84 | 0.00 | 499189.00 | 3916492.00 |
| 142.99 | 21410.74 | 6560.28 | 1225.64 | 1714.26 | 0.00 | 502227.00 | 3917941.00 |
| 65.45 | 24933.98 | 8213.38 | 1171.08 | 1539.94 | 0.00 | 505750.00 | 3919594.00 |
| 67.93 | 24728.52 | 8091.10 | 2244.80 | 4006.50 | 0.00 | 505545.00 | 3919472.00 |
| 402.56 | 18477.73 | 5153.95 | 978.83 | 1241.53 | 0.00 | 499294.00 | 3916535.00 |
| 281.77 | 19310.85 | 5566.78 | 887.16 | 1171.91 | 0.00 | 500127.00 | 3916948.00 |
| 395.68 | 18508.71 | 5173.32 | 632.84 | 705.47 | 0.00 | 499325.00 | 3916554.00 |
| 266.12 | 19465.56 | 5642.64 | 1087.51 | 1250.67 | 0.00 | 500282.00 | 3917023.00 |
| 427.42 | 18347.73 | 5089.92 | 723.42 | 951.68 | 0.00 | 499164.00 | 3916471.00 |
| 200.29 | 20277.69 | 6027.17 | 976.42 | 1453.07 | 0.00 | 501094.00 | 3917408.00 |
| 165.04 | 20903.41 | 6316.51 | 970.71 | 1328.15 | 0.00 | 501720.00 | 3917697.00 |
| 398.60 | 18493.61 | 5164.25 | 700.30 | 913.95 | 0.00 | 499310.00 | 3916545.00 |
| 146.20 | 21332.54 | 6520.59 | 1267.36 | 1865.18 | 0.00 | 502149.00 | 3917901.00 |
| 48.92 | 26636.80 | 8981.75 | 1685.31 | 4004.53 | 0.00 | 507453.00 | 3920363.00 |
| 477.19 | 18128.66 | 4989.91 | 685.80 | 781.60 | 0.00 | 498945.00 | 3916371.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 109.14 | 22473.39 | 7056.40 | 1520.59 | 2338.77 | 0.00 | 503290.00 | 3918437.00 |
| 178.13 | 20653.24 | 6203.99 | 1179.05 | 1457.84 | 0.00 | 501470.00 | 3917585.00 |
| 266.76 | 19450.89 | 5635.76 | 887.95 | 1190.80 | 0.00 | 500267.00 | 3917017.00 |
| 125.34 | 21908.07 | 6794.06 | 1151.66 | 1626.02 | 0.00 | 502724.00 | 3918175.00 |
| 360.99 | 18712.52 | 5275.52 | 831.47 | 1130.58 | 0.00 | 499529.00 | 3916656.00 |
| 413.15 | 18422.95 | 5124.89 | 726.20 | 948.95 | 0.00 | 499239.00 | 3916506.00 |
| 137.74 | 21548.30 | 6621.43 | 1226.59 | 2009.03 | 0.00 | 502365.00 | 3918002.00 |
| 121.93 | 22018.95 | 6840.37 | 1535.44 | 2632.82 | 0.00 | 502835.00 | 3918221.00 |
| 257.16 | 19554.04 | 5683.51 | 923.98 | 1159.42 | 0.00 | 500370.00 | 3917064.00 |
| 301.72 | 19139.06 | 5476.10 | 814.37 | 1090.28 | 0.00 | 499955.00 | 3916857.00 |
| 908.42 | 17116.12 | 4466.01 | 606.91 | 607.54 | 0.00 | 497932.00 | 3915847.00 |
| 184.24 | 20541.35 | 6142.73 | 1015.75 | 1661.99 | 0.00 | 501358.00 | 3917524.00 |
| 79.76 | 23905.49 | 7738.34 | 1888.95 | 2690.90 | 0.00 | 504722.00 | 3919119.00 |
| 78.39 | 23991.77 | 7784.82 | 1765.28 | 2471.06 | 0.00 | 504808.00 | 3919166.00 |
| 481.40 | 18114.98 | 4978.74 | 725.01 | 866.84 | 0.00 | 498931.00 | 3916360.00 |
| 358.43 | 18730.94 | 5285.13 | 980.10 | 1268.65 | 0.00 | 499547.00 | 3916666.00 |
| 250.51 | 19624.47 | 5712.02 | 795.38 | 1004.84 | 0.00 | 500441.00 | 3917093.00 |
| 179.02 | 20636.72 | 6194.02 | 1162.18 | 1416.58 | 0.00 | 501453.00 | 3917575.00 |
| 297.06 | 19177.09 | 5495.64 | 931.36 | 1245.74 | 0.00 | 499993.00 | 3916876.00 |
| 167.46 | 20857.51 | 6300.55 | 1015.91 | 1282.29 | 0.00 | 501674.00 | 3917681.00 |
| 559.40 | 17831.50 | 4840.12 | 634.31 | 661.60 | 0.00 | 498648.00 | 3916221.00 |
| 146.66 | 21317.13 | 6518.01 | 1044.80 | 1341.28 | 0.00 | 502133.00 | 3917899.00 |
| 116.45 | 22205.87 | 6950.48 | 1591.13 | 2089.35 | 0.00 | 503022.00 | 3918331.00 |
| 338.19 | 18864.74 | 5353.83 | 790.46 | 892.99 | 0.00 | 499681.00 | 3916735.00 |
| 414.50 | 18413.20 | 5125.62 | 701.59 | 830.32 | 0.00 | 499229.00 | 3916506.00 |
| 196.81 | 20327.39 | 6043.84 | 974.49 | 1567.93 | 0.00 | 501144.00 | 3917425.00 |
| 170.42 | 20800.27 | 6260.33 | 850.91 | 1447.95 | 0.00 | 501617.00 | 3917641.00 |
| 536.39 | 17914.39 | 4874.07 | 666.84 | 794.02 | 0.00 | 498731.00 | 3916255.00 |
| 369.98 | 18660.43 | 5244.09 | 878.62 | 1337.44 | 0.00 | 499477.00 | 3916625.00 |
| 360.33 | 18712.52 | 5273.08 | 914.34 | 1165.59 | 0.00 | 499529.00 | 3916654.00 |
| 251.49 | 19613.31 | 5708.69 | 1103.58 | 1418.91 | 0.00 | 500430.00 | 3917089.00 |
| 360.28 | 18719.46 | 5277.74 | 857.92 | 1062.59 | 0.00 | 499536.00 | 3916659.00 |
| 271.87 | 19404.99 | 5616.99 | 1152.56 | 1390.10 | 0.00 | 500221.00 | 3916998.00 |
| 383.47 | 18576.80 | 5207.38 | 792.41 | 1019.77 | 0.00 | 499393.00 | 3916588.00 |
| 377.77 | 18609.87 | 5221.60 | 804.54 | 961.99 | 0.00 | 499426.00 | 3916602.00 |
| 192.72 | 20399.54 | 6089.54 | 983.90 | 1250.32 | 0.00 | 501216.00 | 3917470.00 |
| 265.31 | 19470.53 | 5634.81 | 821.96 | 1269.76 | 0.00 | 500287.00 | 3917016.00 |
| 364.82 | 18687.65 | 5262.96 | 926.60 | 1207.83 | 0.00 | 499504.00 | 3916644.00 |
| 339.45 | 18852.21 | 5346.92 | 894.81 | 924.21 | 0.00 | 499668.00 | 3916728.00 |
| 188.58 | 20462.17 | 6119.29 | 1357.73 | 1915.44 | 0.00 | 501278.00 | 3917500.00 |
| 418.89 | 18390.55 | 5118.45 | 745.26 | 805.89 | 0.00 | 499207.00 | 3916499.00 |
| 266.21 | 19459.89 | 5632.22 | 969.61 | 1544.41 | 0.00 | 500276.00 | 3917013.00 |
| 369.64 | 18658.43 | 5235.49 | 691.96 | 1032.57 | 0.00 | 499475.00 | 3916616.00 |
| 56.14 | 25797.60 | 8588.07 | 1684.47 | 3473.80 | 0.00 | 506614.00 | 3919969.00 |
| 394.56 | 18518.53 | 5174.85 | 804.60 | 1023.22 | 0.00 | 499335.00 | 3916556.00 |
| 302.08 | 19133.99 | 5473.44 | 1066.47 | 1358.99 | 0.00 | 499950.00 | 3916854.00 |
| 196.17 | 20338.96 | 6060.90 | 950.87 | 1179.10 | 0.00 | 501155.00 | 3917442.00 |
| 123.40 | 21975.56 | 6834.38 | 1095.80 | 1652.31 | 0.00 | 502792.00 | 3918215.00 |
| 122.93 | 21990.29 | 6842.98 | 1469.37 | 1967.11 | 0.00 | 502807.00 | 3918224.00 |
| 169.30 | 20819.61 | 6293.86 | 1318.18 | 1322.50 | 0.00 | 501636.00 | 3917675.00 |
| 59.36 | 25476.03 | 8474.32 | 2135.17 | 3341.87 | 0.00 | 506292.00 | 3919855.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 279.82 | 906.12 | 271.17 | 120.99 | 253.62 | **21.04** | 481722.00 | 3911652.00 |
| 286.99 | 892.13 | 267.40 | 125.34 | 231.14 | 0.00 | 481708.00 | 3911648.00 |
| 133.73 | 1186.34 | 413.09 | 104.00 | 206.96 | 0.00 | 482003.00 | 3911794.00 |
| 305.70 | 866.68 | 255.24 | 93.28 | 247.86 | 0.00 | 481683.00 | 3911636.00 |
| 361.06 | 814.20 | 227.04 | 113.30 | 228.90 | 0.00 | 481630.00 | 3911608.00 |
| 207.74 | 1011.39 | 325.32 | 103.20 | 234.07 | 0.00 | 481828.00 | 3911706.00 |
| 341.70 | 814.04 | 236.81 | 117.31 | 248.26 | 0.00 | 481630.00 | 3911618.00 |
| 518.46 | 694.85 | 169.72 | 119.46 | 256.70 | 0.00 | 481511.00 | 3911551.00 |
| 152.55 | 1121.45 | 384.79 | 91.80 | 185.90 | 0.00 | 481938.00 | 3911766.00 |
| 258.17 | 918.65 | 285.56 | 115.19 | 201.87 | 0.00 | 481735.00 | 3911666.00 |
| 180.77 | 1060.68 | 353.09 | 116.49 | 210.35 | 0.00 | 481877.00 | 3911734.00 |
| 108.15 | 1286.62 | 459.86 | 120.76 | 209.22 | 0.00 | 482103.00 | 3911841.00 |
| 260.30 | 925.93 | 284.05 | 106.84 | 218.18 | 0.00 | 481742.00 | 3911665.00 |
| 84.27 | 1408.33 | 522.38 | 111.96 | 224.82 | 0.00 | 482225.00 | 3911903.00 |
| 517.26 | 695.99 | 169.24 | 117.83 | 259.00 | 0.00 | 481512.00 | 3911550.00 |
| 134.78 | 1181.74 | 411.42 | 116.34 | 210.21 | 0.00 | 481998.00 | 3911792.00 |
| 403.86 | 762.72 | 208.49 | 91.21 | 215.81 | 0.00 | 481579.00 | 3911589.00 |
| 229.62 | 963.39 | 306.11 | 104.39 | 210.78 | 0.00 | 481780.00 | 3911687.00 |
| 352.85 | 815.48 | 231.96 | 127.49 | 224.95 | 0.00 | 481632.00 | 3911613.00 |
| 443.23 | 750.68 | 194.08 | 106.75 | 211.65 | 0.00 | 481567.00 | 3911575.00 |
| 450.02 | 725.85 | 189.46 | 90.19 | 198.00 | 0.00 | 481542.00 | 3911570.00 |
| 147.43 | 1144.71 | 392.02 | 110.94 | 213.98 | 0.00 | 481961.00 | 3911773.00 |
| 211.70 | 997.53 | 322.65 | 134.83 | 222.25 | 0.00 | 481814.00 | 3911703.00 |
| 316.17 | 856.64 | 249.58 | 124.03 | 240.62 | 0.00 | 481673.00 | 3911630.00 |
| 392.13 | 787.60 | 212.65 | 123.19 | 246.87 | 0.00 | 481604.00 | 3911593.00 |
| 164.48 | 1094.87 | 368.78 | 104.68 | 211.68 | 0.00 | 481911.00 | 3911750.00 |
| 114.77 | 1247.13 | 446.23 | 111.71 | 223.46 | 0.00 | 482063.00 | 3911827.00 |
| 108.97 | 1282.75 | 458.49 | 121.84 | 207.61 | 0.00 | 482099.00 | 3911839.00 |
| 331.47 | 837.04 | 239.40 | 110.09 | 229.24 | 0.00 | 481653.00 | 3911620.00 |
| 402.21 | 771.75 | 211.82 | 128.63 | 215.78 | 0.00 | 481588.00 | 3911593.00 |
| 221.48 | 975.88 | 312.24 | 115.39 | 230.93 | 0.00 | 481792.00 | 3911693.00 |
| 377.13 | 797.22 | 220.48 | 115.73 | 231.82 | 0.00 | 481613.00 | 3911601.00 |
| 487.96 | 705.79 | 178.21 | 115.31 | 241.69 | 0.00 | 481522.00 | 3911559.00 |
| 463.26 | 734.31 | 187.46 | 113.17 | 204.65 | 0.00 | 481551.00 | 3911568.00 |
| 395.79 | 772.08 | 211.49 | 106.88 | 221.27 | 0.00 | 481588.00 | 3911592.00 |
| 616.09 | 639.07 | 141.08 | 138.99 | 242.68 | 0.00 | 481455.00 | 3911522.00 |
| 347.08 | 813.61 | 234.58 | 113.06 | 183.72 | 0.00 | 481630.00 | 3911615.00 |
| 182.31 | 1056.96 | 351.05 | 111.15 | 213.73 | 0.00 | 481873.00 | 3911732.00 |
| 327.38 | 834.67 | 244.01 | 93.55 | 205.80 | 0.00 | 481651.00 | 3911625.00 |
| 139.29 | 1167.80 | 403.97 | 114.08 | 212.40 | 0.00 | 481984.00 | 3911785.00 |
| 174.46 | 1074.08 | 357.75 | 101.16 | 220.94 | 0.00 | 481890.00 | 3911739.00 |
| 129.37 | 1190.65 | 419.58 | 110.26 | 202.48 | 0.00 | 482007.00 | 3911800.00 |
| 84.53 | 1408.78 | 519.17 | 111.20 | 227.89 | 0.00 | 482225.00 | 3911900.00 |
| 303.71 | 869.02 | 257.81 | 83.17 | 163.12 | 0.00 | 481685.00 | 3911639.00 |
| 471.47 | 713.33 | 183.97 | 111.65 | 187.32 | 0.00 | 481530.00 | 3911565.00 |
| 306.16 | 863.17 | 255.08 | 121.37 | 234.47 | 0.00 | 481679.00 | 3911636.00 |
| 330.31 | 829.19 | 242.18 | 105.07 | 226.90 | 0.00 | 481645.00 | 3911623.00 |
| 517.97 | 694.08 | 167.68 | 110.15 | 274.97 | 0.00 | 481510.00 | 3911548.00 |
| 399.13 | 767.92 | 211.13 | 111.27 | 216.91 | 0.00 | 481584.00 | 3911592.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 441.07 | 743.75 | 196.62 | 133.34 | 214.15 | 0.00 | 481560.00 | 3911577.00 |
| 298.21 | 879.40 | 260.61 | 127.62 | 208.46 | 0.00 | 481696.00 | 3911641.00 |
| 189.11 | 1041.83 | 344.56 | 115.36 | 208.02 | 0.00 | 481858.00 | 3911725.00 |
| 478.76 | 711.55 | 181.82 | 117.02 | 245.67 | 0.00 | 481528.00 | 3911563.00 |
| 573.58 | 672.30 | 150.16 | 106.91 | 226.35 | 0.00 | 481489.00 | 3911531.00 |
| 126.35 | 1208.11 | 423.83 | 103.04 | 210.46 | 0.00 | 482024.00 | 3911805.00 |
| 375.61 | 801.59 | 221.52 | 140.29 | 221.32 | 0.00 | 481618.00 | 3911602.00 |
| 352.90 | 823.02 | 230.32 | 119.17 | 243.36 | 0.00 | 481639.00 | 3911611.00 |
| 533.32 | 684.90 | 163.05 | 92.65 | 231.24 | 0.00 | 481501.00 | 3911544.00 |
| 71.44 | 1501.23 | 565.69 | 113.60 | 219.70 | 0.00 | 482318.00 | 3911946.00 |
| 482.95 | 713.75 | 179.80 | 106.86 | 232.96 | 0.00 | 481530.00 | 3911561.00 |
| 362.12 | 796.66 | 225.19 | 91.63 | 199.74 | 0.00 | 481613.00 | 3911606.00 |
| 66.45 | 1544.64 | 586.54 | 114.49 | 225.56 | 0.00 | 482361.00 | 3911967.00 |
| 190.60 | 1036.24 | 342.27 | 105.76 | 237.21 | 0.00 | 481853.00 | 3911723.00 |
| 315.18 | 855.26 | 249.85 | 119.18 | 243.22 | 0.00 | 481672.00 | 3911631.00 |
| 244.72 | 947.47 | 295.96 | 110.29 | 184.74 | 0.00 | 481764.00 | 3911677.00 |
| 279.26 | 900.25 | 271.98 | 96.66 | 209.79 | 0.00 | 481717.00 | 3911653.00 |
| 405.93 | 761.79 | 208.40 | 108.77 | 205.86 | 0.00 | 481578.00 | 3911589.00 |
| 239.71 | 950.40 | 296.19 | 114.72 | 197.02 | 0.00 | 481767.00 | 3911677.00 |
| 176.52 | 1069.67 | 358.96 | 115.73 | 166.21 | 0.00 | 481886.00 | 3911740.00 |
| 230.10 | 968.42 | 305.04 | 117.08 | 234.51 | 0.00 | 481785.00 | 3911686.00 |
| 263.45 | 907.47 | 281.47 | 131.76 | 220.26 | 0.00 | 481724.00 | 3911662.00 |
| 259.95 | 921.77 | 284.38 | 110.86 | 226.93 | 0.00 | 481738.00 | 3911665.00 |
| 504.89 | 693.03 | 173.46 | 127.58 | 194.91 | 0.00 | 481509.00 | 3911554.00 |
| 524.74 | 687.69 | 165.39 | 124.95 | 239.68 | 0.00 | 481504.00 | 3911546.00 |
| 291.36 | 873.65 | 264.97 | 105.65 | 220.82 | 0.00 | 481690.00 | 3911646.00 |
| 222.54 | 983.23 | 311.24 | 116.51 | 199.67 | 0.00 | 481800.00 | 3911692.00 |
| 191.71 | 1037.67 | 340.06 | 88.61 | 235.68 | 0.00 | 481854.00 | 3911721.00 |
| 230.58 | 966.79 | 306.45 | 119.34 | 256.61 | 0.00 | 481783.00 | 3911687.00 |
| 123.22 | 1218.87 | 430.16 | 119.17 | 215.21 | 0.00 | 482035.00 | 3911811.00 |
| 334.07 | 836.55 | 239.33 | 103.78 | 225.69 | 0.00 | 481653.00 | 3911620.00 |
| 121.69 | 1228.06 | 434.48 | 123.24 | 225.31 | 0.00 | 482044.00 | 3911815.00 |
| 45.52 | 1786.23 | 702.98 | 118.45 | 189.51 | 0.00 | 482603.00 | 3912084.00 |
| 607.82 | 651.54 | 142.01 | 117.94 | 250.05 | 0.00 | 481468.00 | 3911523.00 |
| 376.29 | 789.00 | 220.48 | 98.48 | 204.46 | 0.00 | 481605.00 | 3911601.00 |
| 96.05 | 1339.45 | 489.63 | 117.31 | 206.11 | 0.00 | 482156.00 | 3911870.00 |
| 585.13 | 649.40 | 150.64 | 116.33 | 217.35 | 0.00 | 481466.00 | 3911531.00 |
| 94.96 | 1346.58 | 490.25 | 114.52 | 239.99 | 0.00 | 482163.00 | 3911871.00 |
| 237.61 | 964.96 | 299.35 | 92.32 | 216.07 | 0.00 | 481781.00 | 3911680.00 |
| 157.04 | 1110.90 | 377.83 | 91.41 | 178.83 | 0.00 | 481927.00 | 3911759.00 |
| 461.93 | 736.29 | 186.26 | 134.31 | 252.26 | 0.00 | 481553.00 | 3911567.00 |
| 207.47 | 1010.14 | 324.85 | 94.29 | 220.65 | 0.00 | 481826.00 | 3911706.00 |
| 345.58 | 817.71 | 234.54 | 98.78 | 245.52 | 0.00 | 481634.00 | 3911615.00 |
| 433.97 | 752.55 | 196.67 | 129.11 | 208.12 | 0.00 | 481569.00 | 3911577.00 |
| 330.95 | 840.48 | 243.58 | 115.22 | 197.26 | 0.00 | 481657.00 | 3911624.00 |
| 354.83 | 809.78 | 231.55 | 105.66 | 173.27 | 0.00 | 481626.00 | 3911612.00 |
| 49.67 | 1724.49 | 674.87 | 127.21 | 206.71 | 0.00 | 482541.00 | 3912056.00 |
| 116.87 | 1246.31 | 442.24 | 112.50 | 255.55 | 0.00 | 482063.00 | 3911823.00 |
| 275.71 | 897.21 | 271.14 | 112.56 | 216.24 | 0.00 | 481713.00 | 3911652.00 |
| 266.95 | 908.71 | 278.65 | 100.29 | 208.41 | 0.00 | 481725.00 | 3911659.00 |
| 164.59 | 1093.07 | 366.89 | 79.64 | 189.95 | 0.00 | 481909.00 | 3911748.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 115.44 | 47542.20 | 14364.00 | 1554.72 | 1839.66 | **86.79** | 528358.00 | 3925745.00 |
| 402.55 | 40574.68 | 11046.23 | 976.35 | 759.46 | 0.00 | 521391.00 | 3922427.00 |
| 123.27 | 47049.83 | 14140.22 | 1631.92 | 1791.36 | 0.00 | 527866.00 | 3925521.00 |
| 171.13 | 44840.32 | 13098.41 | 1596.33 | 1928.71 | 0.00 | 525657.00 | 3924479.00 |
| 449.68 | 40164.93 | 10847.15 | 973.14 | 762.86 | 0.00 | 520981.00 | 3922228.00 |
| 213.15 | 43555.19 | 12486.08 | 1400.23 | 1585.68 | 0.00 | 524371.00 | 3923867.00 |
| 536.36 | 39552.05 | 10544.02 | 988.42 | 832.04 | 0.00 | 520368.00 | 3921925.00 |
| 254.19 | 42624.10 | 12041.92 | 1265.86 | 1315.55 | 0.00 | 523440.00 | 3923423.00 |
| 549.75 | 39468.37 | 10503.40 | 1063.94 | 1020.01 | 0.00 | 520285.00 | 3921884.00 |
| 291.59 | 41959.56 | 11715.13 | 1222.15 | 1361.73 | 0.00 | 522776.00 | 3923096.00 |
| 380.94 | 40797.33 | 11156.08 | 1085.16 | 1097.37 | 0.00 | 521614.00 | 3922537.00 |
| 1012.02 | 37873.13 | 9669.38 | 913.78 | 620.22 | 0.00 | 518689.00 | 3921050.00 |
| 214.25 | 43522.17 | 12461.36 | 1278.82 | 1517.37 | 0.00 | 524338.00 | 3923842.00 |
| 247.57 | 42758.87 | 12103.64 | 1174.87 | 1249.60 | 0.00 | 523575.00 | 3923484.00 |
| 347.19 | 41180.59 | 11345.13 | 1098.06 | 1058.45 | 0.00 | 521997.00 | 3922726.00 |
| 242.58 | 42862.27 | 12157.46 | 1378.80 | 1383.02 | 0.00 | 523679.00 | 3923538.00 |
| 528.54 | 39598.16 | 10568.64 | 989.93 | 832.95 | 0.00 | 520414.00 | 3921949.00 |
| 522.20 | 39637.72 | 10582.27 | 969.67 | 791.26 | 0.00 | 520454.00 | 3921963.00 |
| 638.40 | 39005.30 | 10266.85 | 953.94 | 730.56 | 0.00 | 519822.00 | 3921648.00 |
| 464.93 | 40040.98 | 10785.07 | 1025.13 | 899.89 | 0.00 | 520857.00 | 3922166.00 |
| 202.79 | 43833.57 | 12615.38 | 1140.59 | 1033.72 | 0.00 | 524650.00 | 3923996.00 |
| 494.66 | 39825.39 | 10674.03 | 957.36 | 762.61 | 0.00 | 520642.00 | 3922055.00 |
| 508.59 | 39726.78 | 10629.11 | 1019.74 | 933.16 | 0.00 | 520543.00 | 3922010.00 |
| 428.10 | 40343.43 | 10939.47 | 1050.46 | 953.38 | 0.00 | 521160.00 | 3922320.00 |
| 414.49 | 40463.94 | 10993.55 | 1026.58 | 940.46 | 0.00 | 521280.00 | 3922374.00 |
| 342.54 | 41237.18 | 11372.47 | 1069.08 | 944.12 | 0.00 | 522053.00 | 3922753.00 |
| 270.04 | 42324.74 | 11893.86 | 1161.51 | 1145.80 | 0.00 | 523141.00 | 3923275.00 |
| 229.86 | 43144.47 | 12277.79 | 1240.66 | 1381.85 | 0.00 | 523961.00 | 3923659.00 |
| 241.25 | 42890.52 | 12175.44 | 1298.02 | 1576.85 | 0.00 | 523707.00 | 3923556.00 |
| 41.70 | 57646.74 | 19081.74 | 2359.38 | 3309.76 | 0.00 | 538463.00 | 3930463.00 |
| 165.79 | 45040.04 | 13180.41 | 1331.74 | 1554.15 | 0.00 | 525856.00 | 3924561.00 |
| 140.85 | 46106.27 | 13686.41 | 1473.05 | 1592.33 | 0.00 | 526923.00 | 3925067.00 |
| 653.35 | 38942.47 | 10238.26 | 1015.31 | 902.74 | 0.00 | 519759.00 | 3921619.00 |
| 272.64 | 42279.62 | 11872.99 | 1199.17 | 1249.77 | 0.00 | 523096.00 | 3923254.00 |
| 409.30 | 40514.19 | 11015.86 | 1088.88 | 1079.47 | 0.00 | 521330.00 | 3922397.00 |
| 322.86 | 41494.48 | 11489.91 | 1040.90 | 897.51 | 0.00 | 522311.00 | 3922871.00 |
| 237.58 | 42970.44 | 12203.94 | 1145.32 | 1107.20 | 0.00 | 523787.00 | 3923585.00 |
| 382.21 | 40779.43 | 11148.84 | 1130.01 | 1157.76 | 0.00 | 521596.00 | 3922530.00 |
| 189.67 | 44219.53 | 12796.67 | 1359.02 | 1498.03 | 0.00 | 525036.00 | 3924177.00 |
| 434.62 | 40287.24 | 10912.03 | 1022.33 | 856.96 | 0.00 | 521104.00 | 3922293.00 |
| 128.06 | 46774.98 | 14002.76 | 1464.60 | 1587.80 | 0.00 | 527591.00 | 3925384.00 |
| 311.02 | 41660.56 | 11585.07 | 1236.21 | 1265.70 | 0.00 | 522477.00 | 3922966.00 |
| 443.10 | 40217.43 | 10876.33 | 1077.98 | 1032.30 | 0.00 | 521034.00 | 3922257.00 |
| 122.35 | 47106.67 | 14164.02 | 1680.99 | 1978.67 | 0.00 | 527923.00 | 3925545.00 |
| 191.52 | 44164.05 | 12777.48 | 1449.01 | 1610.82 | 0.00 | 524980.00 | 3924158.00 |
| 248.53 | 42740.25 | 12081.31 | 1151.68 | 1232.52 | 0.00 | 523557.00 | 3923462.00 |
| 267.26 | 42373.28 | 11916.41 | 1253.47 | 1332.09 | 0.00 | 523190.00 | 3923297.00 |
| 62.56 | 52992.62 | 16905.32 | 2024.86 | 2650.84 | 0.00 | 533809.00 | 3928286.00 |
| 463.89 | 40048.90 | 10795.59 | 1003.81 | 820.28 | 0.00 | 520865.00 | 3922176.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 211.54 | 43598.33 | 12499.93 | 1231.33 | 1269.04 | 0.00 | 524415.00 | 3923881.00 |
| 366.27 | 40958.03 | 11236.74 | 1038.21 | 906.67 | 0.00 | 521774.00 | 3922618.00 |
| 72.79 | 51484.85 | 16214.41 | 2036.30 | 2554.58 | 0.00 | 532301.00 | 3927595.00 |
| 230.41 | 43135.80 | 12280.21 | 1323.39 | 1428.12 | 0.00 | 523952.00 | 3923661.00 |
| 195.32 | 44047.09 | 12720.55 | 1389.70 | 1576.90 | 0.00 | 524863.00 | 3924101.00 |
| 53.59 | 54657.67 | 17698.01 | 2319.28 | 3077.97 | 0.00 | 535474.00 | 3929079.00 |
| 56.30 | 54112.90 | 17424.30 | 2224.09 | 3245.40 | 0.00 | 534929.00 | 3928805.00 |
| 253.36 | 42640.24 | 12042.01 | 1268.57 | 1464.16 | 0.00 | 523457.00 | 3923423.00 |
| 31.13 | 61632.73 | 20933.92 | 3244.14 | 4447.90 | 0.00 | 542449.00 | 3932315.00 |
| 363.65 | 40985.12 | 11254.32 | 1102.38 | 1030.22 | 0.00 | 521801.00 | 3922635.00 |
| 332.09 | 41372.84 | 11433.04 | 1076.11 | 1039.34 | 0.00 | 522189.00 | 3922814.00 |
| 220.80 | 43360.80 | 12389.41 | 1317.09 | 1449.94 | 0.00 | 524177.00 | 3923770.00 |
| 474.61 | 39965.37 | 10745.97 | 1066.55 | 1028.28 | 0.00 | 520782.00 | 3922127.00 |
| 594.56 | 39226.23 | 10378.44 | 989.88 | 837.88 | 0.00 | 520043.00 | 3921759.00 |
| 341.44 | 41253.07 | 11378.74 | 1126.21 | 1163.13 | 0.00 | 522069.00 | 3922760.00 |
| 320.65 | 41525.24 | 11503.76 | 1033.10 | 919.21 | 0.00 | 522342.00 | 3922885.00 |
| 204.16 | 43795.03 | 12593.78 | 1221.28 | 1268.69 | 0.00 | 524611.00 | 3923975.00 |
| 313.38 | 41631.16 | 11554.09 | 1098.23 | 1093.67 | 0.00 | 522447.00 | 3922935.00 |
| 342.92 | 41232.05 | 11363.29 | 1253.08 | 1453.97 | 0.00 | 522048.00 | 3922744.00 |
| 470.23 | 40001.28 | 10764.65 | 1027.47 | 958.53 | 0.00 | 520818.00 | 3922145.00 |
| 300.40 | 41819.53 | 11652.51 | 1195.86 | 1231.96 | 0.00 | 522636.00 | 3923033.00 |
| 96.94 | 48927.96 | 14983.19 | 1742.33 | 2594.10 | 0.00 | 529744.00 | 3926364.00 |
| 172.18 | 44801.38 | 13063.37 | 1461.49 | 1947.68 | 0.00 | 525618.00 | 3924444.00 |
| 419.49 | 40419.09 | 10971.23 | 1157.43 | 1249.63 | 0.00 | 521235.00 | 3922352.00 |
| 267.06 | 42381.77 | 11911.19 | 1090.59 | 1034.29 | 0.00 | 523198.00 | 3923292.00 |
| 133.91 | 46457.74 | 13846.75 | 1500.58 | 1736.28 | 0.00 | 527274.00 | 3925228.00 |
| 174.93 | 44704.34 | 13013.94 | 1286.78 | 1521.91 | 0.00 | 525521.00 | 3924395.00 |
| 330.42 | 41391.57 | 11435.93 | 1186.50 | 1341.18 | 0.00 | 522208.00 | 3922817.00 |
| 502.75 | 39767.48 | 10648.68 | 959.09 | 752.32 | 0.00 | 520584.00 | 3922029.00 |
| 221.01 | 43355.84 | 12387.73 | 1243.23 | 1350.82 | 0.00 | 524172.00 | 3923769.00 |
| 286.37 | 42046.33 | 11755.57 | 1108.98 | 1076.61 | 0.00 | 522863.00 | 3923136.00 |
| 294.20 | 41917.82 | 11701.95 | 1165.58 | 1210.89 | 0.00 | 522734.00 | 3923083.00 |
| 221.75 | 43337.23 | 12368.64 | 1343.29 | 1608.23 | 0.00 | 524154.00 | 3923749.00 |
| 476.07 | 39957.85 | 10739.87 | 1105.33 | 1134.23 | 0.00 | 520774.00 | 3922121.00 |
| 422.01 | 40397.04 | 10958.51 | 1135.45 | 1191.12 | 0.00 | 521213.00 | 3922339.00 |
| 433.25 | 40299.62 | 10913.71 | 1053.63 | 992.67 | 0.00 | 521116.00 | 3922294.00 |
| 451.00 | 40151.34 | 10842.77 | 1047.21 | 955.27 | 0.00 | 520968.00 | 3922224.00 |
| 42.36 | 57446.22 | 19003.87 | 2569.89 | 3013.08 | 0.00 | 538262.00 | 3930385.00 |
| 203.83 | 43806.44 | 12589.53 | 1128.65 | 1089.80 | 0.00 | 524623.00 | 3923970.00 |
| 364.55 | 40978.04 | 11243.87 | 1102.59 | 1117.28 | 0.00 | 521794.00 | 3922625.00 |
| 399.25 | 40609.91 | 11062.91 | 1058.47 | 1001.54 | 0.00 | 521426.00 | 3922444.00 |
| 229.40 | 43154.56 | 12288.75 | 1238.81 | 1311.99 | 0.00 | 523971.00 | 3923670.00 |
| 153.68 | 45520.74 | 13419.48 | 1516.15 | 1620.15 | 0.00 | 526337.00 | 3924800.00 |
| 316.25 | 41587.88 | 11539.95 | 1094.70 | 1021.94 | 0.00 | 522404.00 | 3922921.00 |
| 46.10 | 56405.97 | 18503.33 | 2214.75 | 2935.14 | 0.00 | 537222.00 | 3929884.00 |
| 442.08 | 40221.74 | 10879.65 | 1092.70 | 1073.51 | 0.00 | 521038.00 | 3922260.00 |
| 216.30 | 43472.79 | 12443.11 | 1173.68 | 1144.98 | 0.00 | 524289.00 | 3923824.00 |
| 375.10 | 40862.11 | 11188.33 | 1073.33 | 1015.63 | 0.00 | 521678.00 | 3922569.00 |
| 283.71 | 42087.94 | 11777.55 | 1192.11 | 1298.74 | 0.00 | 522904.00 | 3923158.00 |
| 434.66 | 40289.42 | 10901.97 | 995.29 | 838.35 | 0.00 | 521106.00 | 3922283.00 |
| 613.20 | 39128.22 | 10331.27 | 981.11 | 813.10 | 0.00 | 519945.00 | 3921712.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 264.42 | 4671.39 | 1405.66 | 477.95 | 967.65 | **35.55** | 485488.00 | 3912786.00 |
| 235.26 | 4774.44 | 1448.22 | 374.50 | 1062.49 | 0.00 | 485591.00 | 3912829.00 |
| 342.99 | 4449.87 | 1301.28 | 556.99 | 849.53 | 0.00 | 485266.00 | 3912682.00 |
| 262.64 | 4669.45 | 1405.93 | 425.37 | 895.41 | 0.00 | 485486.00 | 3912787.00 |
| 140.53 | 5330.44 | 1719.78 | 446.37 | 1107.57 | 0.00 | 486147.00 | 3913101.00 |
| 266.13 | 4666.41 | 1409.29 | 468.29 | 761.64 | 0.00 | 485483.00 | 3912790.00 |
| 76.89 | 6177.97 | 2114.89 | 611.27 | 975.56 | 0.00 | 486994.00 | 3913496.00 |
| 259.00 | 4680.04 | 1416.08 | 578.19 | 1106.74 | 0.00 | 485496.00 | 3912797.00 |
| 113.53 | 5602.44 | 1842.10 | 495.37 | 997.28 | 0.00 | 486419.00 | 3913223.00 |
| 235.16 | 4773.29 | 1455.42 | 515.88 | 1025.95 | 0.00 | 485590.00 | 3912836.00 |
| 301.57 | 4552.53 | 1354.63 | 488.57 | 857.84 | 0.00 | 485369.00 | 3912735.00 |
| 332.20 | 4468.65 | 1315.55 | 467.38 | 794.37 | 0.00 | 485285.00 | 3912696.00 |
| 186.40 | 5015.72 | 1568.77 | 476.81 | 1183.12 | 0.00 | 485832.00 | 3912950.00 |
| 308.73 | 4532.70 | 1342.56 | 456.78 | 691.84 | 0.00 | 485349.00 | 3912723.00 |
| 428.89 | 4268.38 | 1217.26 | 565.70 | 928.30 | 0.00 | 485085.00 | 3912598.00 |
| 216.91 | 4856.57 | 1494.71 | 626.05 | 1138.09 | 0.00 | 485673.00 | 3912875.00 |
| 133.30 | 5392.98 | 1749.47 | 589.27 | 1154.16 | 0.00 | 486209.00 | 3913130.00 |
| 477.01 | 4213.25 | 1180.56 | 467.46 | 822.62 | 0.00 | 485030.00 | 3912561.00 |
| 350.93 | 4426.91 | 1284.61 | 526.05 | 1100.16 | 0.00 | 485243.00 | 3912665.00 |
| 159.14 | 5183.79 | 1652.35 | 494.20 | 826.47 | 0.00 | 486000.00 | 3913033.00 |
| 511.03 | 4148.55 | 1154.69 | 532.27 | 942.83 | 0.00 | 484965.00 | 3912535.00 |
| 284.34 | 4608.85 | 1376.94 | 515.42 | 1030.60 | 0.00 | 485425.00 | 3912758.00 |
| 374.24 | 4367.18 | 1267.84 | 500.24 | 946.45 | 0.00 | 485183.00 | 3912649.00 |
| 152.02 | 5230.87 | 1676.59 | 371.16 | 959.87 | 0.00 | 486047.00 | 3913057.00 |
| 189.51 | 4992.61 | 1560.02 | 490.71 | 1022.91 | 0.00 | 485809.00 | 3912941.00 |
| 586.48 | 4048.85 | 1107.57 | 571.32 | 876.06 | 0.00 | 484865.00 | 3912488.00 |
| 380.21 | 4361.19 | 1259.07 | 407.84 | 761.59 | 0.00 | 485177.00 | 3912640.00 |
| 439.20 | 4251.18 | 1210.27 | 293.43 | 576.36 | 0.00 | 485067.00 | 3912591.00 |
| 387.42 | 4350.34 | 1255.85 | 425.47 | 732.73 | 0.00 | 485167.00 | 3912637.00 |
| 234.19 | 4779.03 | 1459.95 | 483.56 | 1014.38 | 0.00 | 485595.00 | 3912841.00 |
| 227.70 | 4807.93 | 1467.79 | 498.67 | 1042.25 | 0.00 | 485624.00 | 3912849.00 |
| 303.99 | 4544.55 | 1342.26 | 499.69 | 1257.42 | 0.00 | 485361.00 | 3912723.00 |
| 387.47 | 4350.27 | 1242.86 | 506.71 | 1160.47 | 0.00 | 485167.00 | 3912624.00 |
| 256.73 | 4693.59 | 1418.70 | 451.63 | 945.65 | 0.00 | 485510.00 | 3912799.00 |
| 103.74 | 5725.40 | 1904.08 | 457.92 | 1065.86 | 0.00 | 486542.00 | 3913285.00 |
| 462.52 | 4215.97 | 1186.81 | 577.63 | 1105.67 | 0.00 | 485032.00 | 3912568.00 |
| 161.05 | 5168.03 | 1638.12 | 386.84 | 945.48 | 0.00 | 485984.00 | 3913019.00 |
| 399.08 | 4328.64 | 1239.21 | 570.68 | 978.81 | 0.00 | 485145.00 | 3912620.00 |
| 319.64 | 4494.77 | 1330.91 | 529.45 | 980.44 | 0.00 | 485311.00 | 3912712.00 |
| 214.70 | 4866.99 | 1502.22 | 481.38 | 1018.25 | 0.00 | 485683.00 | 3912883.00 |
| 584.45 | 4061.23 | 1117.97 | 499.35 | 667.06 | 0.00 | 484878.00 | 3912499.00 |
| 190.84 | 4983.59 | 1555.59 | 479.51 | 961.05 | 0.00 | 485800.00 | 3912936.00 |
| 50.39 | 6937.08 | 2472.67 | 523.15 | 1115.62 | 0.00 | 487753.00 | 3913853.00 |
| 263.68 | 4673.79 | 1406.16 | 435.18 | 970.17 | 0.00 | 485490.00 | 3912787.00 |
| 221.06 | 4835.98 | 1479.78 | 467.28 | 1137.02 | 0.00 | 485652.00 | 3912861.00 |
| 624.32 | 4021.15 | 1087.40 | 394.72 | 873.54 | 0.00 | 484837.00 | 3912468.00 |
| 91.47 | 5908.00 | 1992.81 | 554.92 | 1072.56 | 0.00 | 486724.00 | 3913374.00 |
| 485.48 | 4184.14 | 1171.26 | 372.33 | 983.65 | 0.00 | 485000.00 | 3912552.00 |
| 506.62 | 4145.99 | 1157.26 | 501.12 | 890.99 | 0.00 | 484962.00 | 3912538.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 216.86 | 4859.66 | 1504.80 | 632.10 | 794.28 | 0.00 | 485676.00 | 3912886.00 |
| 403.65 | 4325.72 | 1240.39 | 503.92 | 935.76 | 0.00 | 485142.00 | 3912621.00 |
| 281.23 | 4608.30 | 1377.73 | 422.42 | 901.96 | 0.00 | 485425.00 | 3912759.00 |
| 298.13 | 4556.71 | 1352.25 | 596.58 | 1110.78 | 0.00 | 485373.00 | 3912733.00 |
| 673.83 | 3983.70 | 1072.24 | 312.70 | 642.34 | 0.00 | 484800.00 | 3912453.00 |
| 226.86 | 4807.09 | 1468.52 | 520.66 | 1171.61 | 0.00 | 485623.00 | 3912849.00 |
| 561.34 | 4085.77 | 1127.20 | 443.08 | 620.89 | 0.00 | 484902.00 | 3912508.00 |
| 371.39 | 4374.89 | 1273.92 | 441.17 | 473.25 | 0.00 | 485191.00 | 3912655.00 |
| 366.13 | 4405.93 | 1271.42 | 536.95 | 877.95 | 0.00 | 485222.00 | 3912652.00 |
| 331.28 | 4462.89 | 1313.01 | 398.81 | 745.40 | 0.00 | 485279.00 | 3912694.00 |
| 626.91 | 4017.17 | 1088.61 | 464.98 | 738.48 | 0.00 | 484833.00 | 3912469.00 |
| 453.18 | 4231.82 | 1196.16 | 454.54 | 888.35 | 0.00 | 485048.00 | 3912577.00 |
| 349.82 | 4431.33 | 1291.55 | 506.69 | 905.95 | 0.00 | 485248.00 | 3912672.00 |
| 747.85 | 3927.85 | 1041.14 | 519.90 | 831.09 | 0.00 | 484744.00 | 3912422.00 |
| 335.70 | 4461.23 | 1308.27 | 496.54 | 994.19 | 0.00 | 485278.00 | 3912689.00 |
| 311.86 | 4514.70 | 1342.58 | 444.37 | 739.96 | 0.00 | 485331.00 | 3912723.00 |
| 337.47 | 4453.89 | 1304.55 | 516.11 | 1001.33 | 0.00 | 485270.00 | 3912685.00 |
| 22.50 | 8896.73 | 3384.80 | 596.12 | 1211.61 | 0.00 | 489713.00 | 3914766.00 |
| 253.10 | 4704.08 | 1425.34 | 551.46 | 1209.68 | 0.00 | 485520.00 | 3912806.00 |
| 341.73 | 4445.95 | 1297.91 | 501.14 | 1194.64 | 0.00 | 485262.00 | 3912679.00 |
| 372.42 | 4372.79 | 1262.40 | 463.35 | 1165.31 | 0.00 | 485189.00 | 3912643.00 |
| 421.63 | 4290.35 | 1216.66 | 468.34 | 959.29 | 0.00 | 485107.00 | 3912597.00 |
| 394.43 | 4335.84 | 1242.97 | 504.31 | 1034.15 | 0.00 | 485152.00 | 3912624.00 |
| 432.11 | 4269.63 | 1214.22 | 441.11 | 743.87 | 0.00 | 485086.00 | 3912595.00 |
| 352.76 | 4425.21 | 1285.10 | 466.77 | 941.05 | 0.00 | 485241.00 | 3912666.00 |
| 235.62 | 4773.37 | 1457.90 | 459.57 | 963.74 | 0.00 | 485590.00 | 3912839.00 |
| 219.68 | 4846.46 | 1482.86 | 444.33 | 1123.63 | 0.00 | 485663.00 | 3912864.00 |
| 257.99 | 4693.32 | 1421.96 | 502.29 | 1013.40 | 0.00 | 485510.00 | 3912803.00 |
| 319.28 | 4494.63 | 1325.20 | 573.06 | 954.02 | 0.00 | 485311.00 | 3912706.00 |
| 395.66 | 4329.01 | 1244.31 | 585.92 | 1129.20 | 0.00 | 485145.00 | 3912625.00 |
| 267.85 | 4651.17 | 1404.96 | 497.13 | 829.94 | 0.00 | 485467.00 | 3912786.00 |
| 492.87 | 4169.42 | 1173.35 | 494.58 | 690.84 | 0.00 | 484986.00 | 3912554.00 |
| 450.77 | 4227.66 | 1195.05 | 546.77 | 1100.97 | 0.00 | 485044.00 | 3912576.00 |
| 299.42 | 4556.27 | 1354.11 | 581.40 | 1086.93 | 0.00 | 485373.00 | 3912735.00 |
| 121.88 | 5512.30 | 1806.00 | 614.67 | 1179.62 | 0.00 | 486329.00 | 3913187.00 |
| 431.65 | 4268.89 | 1207.33 | 391.67 | 879.03 | 0.00 | 485085.00 | 3912588.00 |
| 279.42 | 4627.41 | 1389.53 | 550.38 | 605.64 | 0.00 | 485444.00 | 3912770.00 |
| 172.07 | 5098.58 | 1610.57 | 420.63 | 895.04 | 0.00 | 485915.00 | 3912991.00 |
| 645.12 | 4011.87 | 1081.92 | 326.47 | 544.10 | 0.00 | 484828.00 | 3912463.00 |
| 231.10 | 4790.15 | 1461.00 | 427.06 | 988.03 | 0.00 | 485606.00 | 3912842.00 |
| 167.78 | 5126.59 | 1623.61 | 315.41 | 942.54 | 0.00 | 485943.00 | 3913004.00 |
| 465.16 | 4211.73 | 1182.06 | 517.98 | 1134.12 | 0.00 | 485028.00 | 3912563.00 |
| 639.69 | 4009.76 | 1085.28 | 578.21 | 1015.88 | 0.00 | 484826.00 | 3912466.00 |
| 367.03 | 4387.48 | 1261.90 | 383.28 | 1026.98 | 0.00 | 485204.00 | 3912643.00 |
| 523.85 | 4124.95 | 1145.81 | 428.99 | 870.30 | 0.00 | 484941.00 | 3912527.00 |
| 235.98 | 4778.57 | 1463.18 | 647.78 | 933.26 | 0.00 | 485595.00 | 3912844.00 |
| 169.08 | 5114.33 | 1626.19 | 592.93 | 979.91 | 0.00 | 485931.00 | 3913007.00 |
| 122.56 | 5500.04 | 1796.59 | 552.37 | 1135.36 | 0.00 | 486316.00 | 3913177.00 |
| 297.15 | 4566.30 | 1366.99 | 609.45 | 719.58 | 0.00 | 485383.00 | 3912748.00 |
| 812.01 | 3874.92 | 1023.23 | 606.77 | 836.75 | 0.00 | 484691.00 | 3912404.00 |
| 245.22 | 4734.92 | 1440.54 | 501.96 | 1021.21 | 0.00 | 485551.00 | 3912821.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 248.45 | 5139.39 | 1551.40 | 444.02 | 1040.71 | **36.68** | 485956.00 | 3912932.00 |
| 162.65 | 5595.91 | 1773.89 | 531.10 | 987.18 | 0.00 | 486412.00 | 3913155.00 |
| 175.76 | 5515.63 | 1725.40 | 512.07 | 1150.78 | 0.00 | 486332.00 | 3913106.00 |
| 203.49 | 5350.44 | 1648.54 | 703.53 | 1277.26 | 0.00 | 486167.00 | 3913029.00 |
| 232.50 | 5210.16 | 1592.04 | 489.11 | 964.34 | 0.00 | 486026.00 | 3912973.00 |
| 251.97 | 5130.61 | 1548.55 | 464.10 | 892.28 | 0.00 | 485947.00 | 3912929.00 |
| 300.65 | 4969.64 | 1474.42 | 536.29 | 940.23 | 0.00 | 485786.00 | 3912855.00 |
| 319.24 | 4898.56 | 1450.50 | 640.63 | 1134.76 | 0.00 | 485715.00 | 3912831.00 |
| 193.68 | 5409.76 | 1683.65 | 523.21 | 1142.56 | 0.00 | 486226.00 | 3913064.00 |
| 243.14 | 5165.36 | 1567.05 | 543.42 | 1138.77 | 0.00 | 485982.00 | 3912948.00 |
| 422.12 | 4676.49 | 1335.28 | 554.17 | 808.55 | 0.00 | 485493.00 | 3912716.00 |
| 78.48 | 6654.84 | 2274.59 | 606.19 | 855.37 | 0.00 | 487471.00 | 3913655.00 |
| 192.26 | 5410.03 | 1681.83 | 541.54 | 1015.51 | 0.00 | 486226.00 | 3913063.00 |
| 31.69 | 8595.60 | 3171.14 | 613.87 | 1274.79 | 0.00 | 489412.00 | 3914552.00 |
| 254.66 | 5114.96 | 1554.20 | 671.99 | 1070.64 | 0.00 | 485931.00 | 3912935.00 |
| 273.89 | 5041.30 | 1512.95 | 491.12 | 816.94 | 0.00 | 485858.00 | 3912894.00 |
| 288.56 | 4997.10 | 1492.52 | 510.79 | 1029.91 | 0.00 | 485813.00 | 3912873.00 |
| 136.42 | 5819.87 | 1872.00 | 460.27 | 1112.89 | 0.00 | 486636.00 | 3913253.00 |
| 267.70 | 5070.30 | 1519.34 | 513.09 | 1109.00 | 0.00 | 485887.00 | 3912900.00 |
| 412.29 | 4692.63 | 1349.39 | 576.20 | 714.38 | 0.00 | 485509.00 | 3912730.00 |
| 197.57 | 5381.00 | 1671.84 | 557.51 | 968.55 | 0.00 | 486197.00 | 3913053.00 |
| 369.38 | 4785.99 | 1387.38 | 620.00 | 912.56 | 0.00 | 485602.00 | 3912768.00 |
| 558.01 | 4468.19 | 1228.54 | 520.73 | 866.15 | 0.00 | 485284.00 | 3912609.00 |
| 295.73 | 4982.41 | 1480.23 | 548.15 | 1043.59 | 0.00 | 485799.00 | 3912861.00 |
| 271.27 | 5054.74 | 1519.84 | 563.63 | 944.57 | 0.00 | 485871.00 | 3912901.00 |
| 218.23 | 5272.74 | 1616.95 | 519.90 | 1033.54 | 0.00 | 486089.00 | 3912998.00 |
| 429.28 | 4658.75 | 1327.15 | 554.95 | 829.46 | 0.00 | 485475.00 | 3912708.00 |
| 123.70 | 5952.40 | 1936.76 | 488.50 | 993.92 | 0.00 | 486769.00 | 3913318.00 |
| 321.16 | 4899.71 | 1442.39 | 617.81 | 988.44 | 0.00 | 485716.00 | 3912823.00 |
| 43.34 | 7824.76 | 2820.33 | 545.14 | 1290.13 | 0.00 | 488641.00 | 3914201.00 |
| 504.45 | 4539.63 | 1259.46 | 482.45 | 1206.58 | 0.00 | 485356.00 | 3912640.00 |
| 195.99 | 5393.00 | 1682.90 | 628.60 | 843.83 | 0.00 | 486209.00 | 3913064.00 |
| 386.68 | 4740.99 | 1367.05 | 503.34 | 1055.55 | 0.00 | 485557.00 | 3912748.00 |
| 508.39 | 4533.72 | 1266.48 | 444.15 | 659.79 | 0.00 | 485350.00 | 3912647.00 |
| 905.41 | 4174.48 | 1084.94 | 572.65 | 736.22 | 0.00 | 484991.00 | 3912466.00 |
| 302.72 | 4960.48 | 1462.05 | 569.69 | 1181.17 | 0.00 | 485777.00 | 3912843.00 |
| 165.41 | 5583.77 | 1769.91 | 649.16 | 969.19 | 0.00 | 486400.00 | 3913151.00 |
| 127.44 | 5911.98 | 1917.38 | 489.72 | 913.68 | 0.00 | 486728.00 | 3913298.00 |
| 272.43 | 5055.38 | 1513.15 | 641.67 | 1216.09 | 0.00 | 485872.00 | 3912894.00 |
| 324.31 | 4894.51 | 1445.63 | 582.28 | 784.58 | 0.00 | 485711.00 | 3912826.00 |
| 153.92 | 5671.25 | 1819.39 | 639.61 | 892.14 | 0.00 | 486488.00 | 3913200.00 |
| 284.16 | 5013.68 | 1494.53 | 583.12 | 1090.00 | 0.00 | 485830.00 | 3912875.00 |
| 290.48 | 4988.25 | 1479.38 | 620.64 | 1220.56 | 0.00 | 485805.00 | 3912860.00 |
| 405.13 | 4701.31 | 1346.71 | 527.36 | 1150.55 | 0.00 | 485518.00 | 3912727.00 |
| 336.13 | 4865.97 | 1422.97 | 546.86 | 1109.10 | 0.00 | 485682.00 | 3912804.00 |
| 149.60 | 5698.20 | 1828.27 | 525.72 | 1034.76 | 0.00 | 486514.00 | 3913209.00 |
| 357.26 | 4806.50 | 1394.09 | 456.96 | 1102.25 | 0.00 | 485623.00 | 3912775.00 |
| 212.66 | 5302.60 | 1629.36 | 422.16 | 975.62 | 0.00 | 486119.00 | 3913010.00 |
| 372.83 | 4770.45 | 1379.73 | 556.50 | 1081.59 | 0.00 | 485587.00 | 3912761.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 390.43 | 4740.30 | 1352.78 | 462.33 | 1069.86 | 0.00 | 485557.00 | 3912734.00 |
| 130.46 | 5882.62 | 1893.42 | 486.28 | 1159.26 | 0.00 | 486699.00 | 3913274.00 |
| 46.57 | 7666.13 | 2728.76 | 584.22 | 1219.61 | 0.00 | 488482.00 | 3914110.00 |
| 223.47 | 5250.39 | 1610.73 | 563.56 | 944.58 | 0.00 | 486067.00 | 3912992.00 |
| 168.99 | 5557.80 | 1757.61 | 571.19 | 993.39 | 0.00 | 486374.00 | 3913138.00 |
| 158.78 | 5632.06 | 1784.35 | 449.76 | 1119.91 | 0.00 | 486448.00 | 3913165.00 |
| 285.96 | 5013.39 | 1493.26 | 552.77 | 1120.32 | 0.00 | 485830.00 | 3912874.00 |
| 492.30 | 4548.80 | 1275.44 | 427.70 | 883.13 | 0.00 | 485365.00 | 3912656.00 |
| 150.07 | 5699.51 | 1810.30 | 450.99 | 1216.90 | 0.00 | 486516.00 | 3913191.00 |
| 696.39 | 4334.15 | 1164.60 | 635.48 | 1098.65 | 0.00 | 485150.00 | 3912545.00 |
| 487.30 | 4567.54 | 1277.91 | 409.81 | 909.52 | 0.00 | 485384.00 | 3912659.00 |
| 390.04 | 4734.27 | 1358.56 | 494.73 | 1143.12 | 0.00 | 485551.00 | 3912739.00 |
| 226.56 | 5236.99 | 1598.56 | 484.01 | 893.53 | 0.00 | 486053.00 | 3912979.00 |
| 157.35 | 5644.60 | 1789.58 | 641.67 | 1275.92 | 0.00 | 486461.00 | 3913170.00 |
| 462.46 | 4605.20 | 1299.85 | 540.75 | 954.70 | 0.00 | 485421.00 | 3912681.00 |
| 205.89 | 5335.23 | 1639.96 | 501.50 | 1161.40 | 0.00 | 486152.00 | 3913021.00 |
| 102.91 | 6216.34 | 2063.33 | 578.63 | 1228.94 | 0.00 | 487033.00 | 3913444.00 |
| 272.05 | 5050.22 | 1511.23 | 479.37 | 1016.86 | 0.00 | 485867.00 | 3912892.00 |
| 113.81 | 6073.24 | 1989.24 | 543.32 | 1180.75 | 0.00 | 486890.00 | 3913370.00 |
| 208.02 | 5323.59 | 1636.39 | 612.72 | 1294.95 | 0.00 | 486140.00 | 3913017.00 |
| 104.09 | 6198.92 | 2040.41 | 615.54 | 1250.51 | 0.00 | 487015.00 | 3913421.00 |
| 181.26 | 5486.01 | 1710.97 | 704.81 | 1115.82 | 0.00 | 486302.00 | 3913092.00 |
| 502.48 | 4544.31 | 1265.15 | 392.08 | 867.22 | 0.00 | 485361.00 | 3912646.00 |
| 351.53 | 4818.94 | 1397.13 | 434.68 | 1080.38 | 0.00 | 485635.00 | 3912778.00 |
| 258.75 | 5100.96 | 1542.66 | 587.87 | 980.80 | 0.00 | 485917.00 | 3912923.00 |
| 468.27 | 4593.18 | 1289.30 | 543.83 | 966.15 | 0.00 | 485409.00 | 3912670.00 |
| 217.04 | 5279.34 | 1622.82 | 622.33 | 1054.89 | 0.00 | 486096.00 | 3913004.00 |
| 797.66 | 4242.65 | 1127.19 | 500.53 | 734.86 | 0.00 | 485059.00 | 3912508.00 |
| 446.93 | 4633.77 | 1311.71 | 513.19 | 809.98 | 0.00 | 485450.00 | 3912692.00 |
| 361.45 | 4800.96 | 1394.60 | 610.28 | 867.21 | 0.00 | 485617.00 | 3912775.00 |
| 121.30 | 5983.05 | 1949.37 | 571.07 | 1144.70 | 0.00 | 486799.00 | 3913330.00 |
| 164.96 | 5587.40 | 1760.01 | 527.25 | 1197.02 | 0.00 | 486404.00 | 3913141.00 |
| 94.83 | 6345.63 | 2119.64 | 397.55 | 951.59 | 0.00 | 487162.00 | 3913500.00 |
| 297.03 | 4972.82 | 1475.91 | 485.52 | 1089.49 | 0.00 | 485789.00 | 3912857.00 |
| 148.25 | 5716.12 | 1817.58 | 548.08 | 1265.24 | 0.00 | 486532.00 | 3913198.00 |
| 338.93 | 4850.13 | 1415.85 | 419.07 | 1095.87 | 0.00 | 485666.00 | 3912797.00 |
| 197.26 | 5381.69 | 1665.21 | 636.46 | 1187.79 | 0.00 | 486198.00 | 3913046.00 |
| 216.28 | 5283.20 | 1626.71 | 608.33 | 1114.56 | 0.00 | 486099.00 | 3913007.00 |
| 201.26 | 5360.09 | 1667.98 | 518.49 | 788.42 | 0.00 | 486176.00 | 3913049.00 |
| 269.06 | 5064.69 | 1525.92 | 466.57 | 765.57 | 0.00 | 485881.00 | 3912907.00 |
| 107.31 | 6158.88 | 2026.34 | 575.28 | 1318.76 | 0.00 | 486975.00 | 3913407.00 |
| 67.55 | 6918.51 | 2392.60 | 633.42 | 1224.97 | 0.00 | 487735.00 | 3913773.00 |
| 430.56 | 4654.23 | 1322.24 | 472.48 | 1061.77 | 0.00 | 485471.00 | 3912703.00 |
| 264.76 | 5073.58 | 1531.96 | 511.78 | 939.90 | 0.00 | 485890.00 | 3912913.00 |
| 350.71 | 4824.67 | 1410.74 | 621.09 | 790.80 | 0.00 | 485641.00 | 3912792.00 |
| 616.66 | 4409.15 | 1194.56 | 386.80 | 865.00 | 0.00 | 485225.00 | 3912575.00 |
| 121.80 | 5974.63 | 1945.24 | 562.39 | 1083.18 | 0.00 | 486791.00 | 3913326.00 |
| 272.34 | 5057.50 | 1510.39 | 600.06 | 1138.71 | 0.00 | 485874.00 | 3912891.00 |
| 281.56 | 5016.75 | 1500.18 | 573.41 | 1016.47 | 0.00 | 485833.00 | 3912881.00 |
| 234.16 | 5204.20 | 1587.63 | 568.24 | 1008.33 | 0.00 | 486020.00 | 3912968.00 |
| 251.43 | 5130.34 | 1549.30 | 591.56 | 1154.24 | 0.00 | 485947.00 | 3912930.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 169.14 | 9448.92 | 2925.45 | 1155.58 | 1712.63 | **45.31** | 490265.00 | 3914306.00 |
| 189.72 | 9251.77 | 2834.07 | 804.41 | 1709.14 | 0.00 | 490068.00 | 3914215.00 |
| 253.83 | 8793.43 | 2619.63 | 852.90 | 1073.32 | 0.00 | 489610.00 | 3914000.00 |
| 331.65 | 8427.35 | 2429.70 | 834.03 | 1823.77 | 0.00 | 489244.00 | 3913810.00 |
| 60.58 | 11809.97 | 4023.20 | 1027.23 | 1886.41 | 0.00 | 492626.00 | 3915404.00 |
| 108.36 | 10323.68 | 3345.70 | 1225.46 | 1761.27 | 0.00 | 491140.00 | 3914726.00 |
| 336.84 | 8416.78 | 2431.39 | 666.12 | 1217.54 | 0.00 | 489233.00 | 3913812.00 |
| 343.59 | 8382.49 | 2416.28 | 637.20 | 1310.22 | 0.00 | 489199.00 | 3913797.00 |
| 208.57 | 9088.27 | 2749.25 | 851.20 | 1793.14 | 0.00 | 489905.00 | 3914130.00 |
| 124.08 | 10034.58 | 3194.56 | 893.15 | 2056.00 | 0.00 | 490851.00 | 3914575.00 |
| 46.17 | 12662.56 | 4420.22 | 1267.02 | 2400.19 | 0.00 | 493479.00 | 3915801.00 |
| 167.28 | 9470.36 | 2929.46 | 843.49 | 1632.88 | 0.00 | 490287.00 | 3914310.00 |
| 45.64 | 12699.97 | 4451.37 | 1070.03 | 2036.98 | 0.00 | 493516.00 | 3915832.00 |
| 52.49 | 12247.14 | 4235.85 | 910.44 | 1794.59 | 0.00 | 493063.00 | 3915617.00 |
| 216.46 | 9043.50 | 2730.91 | 1004.16 | 1273.93 | 0.00 | 489860.00 | 3914112.00 |
| 293.13 | 8594.44 | 2523.85 | 901.99 | 1266.13 | 0.00 | 489411.00 | 3913905.00 |
| 207.66 | 9102.53 | 2761.89 | 748.53 | 1389.52 | 0.00 | 489919.00 | 3914143.00 |
| 133.34 | 9889.00 | 3128.73 | 884.55 | 1772.87 | 0.00 | 490705.00 | 3914510.00 |
| 94.24 | 10646.55 | 3481.13 | 1059.22 | 2017.08 | 0.00 | 491463.00 | 3914862.00 |
| 140.10 | 9785.04 | 3061.33 | 664.32 | 1728.67 | 0.00 | 490601.00 | 3914442.00 |
| 552.54 | 7869.63 | 2166.83 | 662.40 | 862.50 | 0.00 | 488686.00 | 3913548.00 |
| 386.05 | 8252.44 | 2352.46 | 883.36 | 1268.33 | 0.00 | 489069.00 | 3913733.00 |
| 356.43 | 8339.28 | 2401.41 | 945.25 | 1083.51 | 0.00 | 489156.00 | 3913782.00 |
| 31.99 | 14010.97 | 5047.56 | 1044.36 | 2002.67 | 0.00 | 494827.00 | 3916428.00 |
| 216.73 | 9036.02 | 2726.38 | 745.55 | 1530.99 | 0.00 | 489852.00 | 3914107.00 |
| 285.94 | 8626.82 | 2530.58 | 667.13 | 1274.44 | 0.00 | 489443.00 | 3913911.00 |
| 218.25 | 9017.70 | 2712.23 | 809.81 | 1802.10 | 0.00 | 489834.00 | 3914093.00 |
| 218.16 | 9024.91 | 2721.02 | 1004.09 | 1744.22 | 0.00 | 489841.00 | 3914102.00 |
| 309.16 | 8522.57 | 2486.91 | 771.54 | 842.46 | 0.00 | 489339.00 | 3913868.00 |
| 428.15 | 8123.23 | 2291.00 | 794.12 | 1231.37 | 0.00 | 488940.00 | 3913672.00 |
| 368.57 | 8301.97 | 2378.00 | 756.99 | 1303.81 | 0.00 | 489118.00 | 3913759.00 |
| 153.68 | 9615.59 | 3004.84 | 1039.33 | 1642.90 | 0.00 | 490432.00 | 3914386.00 |
| 60.66 | 11802.91 | 4036.93 | 1101.36 | 1868.23 | 0.00 | 492619.00 | 3915418.00 |
| 225.64 | 8973.86 | 2695.65 | 1076.81 | 1582.19 | 0.00 | 489790.00 | 3914076.00 |
| 352.44 | 8350.56 | 2406.98 | 560.75 | 695.99 | 0.00 | 489167.00 | 3913788.00 |
| 243.32 | 8857.79 | 2640.83 | 902.86 | 1700.55 | 0.00 | 489674.00 | 3914022.00 |
| 516.59 | 7926.99 | 2192.99 | 820.67 | 953.28 | 0.00 | 488743.00 | 3913574.00 |
| 241.60 | 8864.26 | 2645.57 | 694.00 | 1709.69 | 0.00 | 489681.00 | 3914026.00 |
| 513.64 | 7931.23 | 2200.53 | 718.10 | 835.75 | 0.00 | 488748.00 | 3913581.00 |
| 227.52 | 8952.44 | 2686.15 | 970.04 | 1666.41 | 0.00 | 489769.00 | 3914067.00 |
| 416.45 | 8157.08 | 2308.97 | 673.57 | 1074.60 | 0.00 | 488973.00 | 3913690.00 |
| 112.36 | 10242.77 | 3293.47 | 1003.38 | 2022.62 | 0.00 | 491059.00 | 3914674.00 |
| 401.32 | 8196.52 | 2339.10 | 1032.70 | 992.03 | 0.00 | 489013.00 | 3913720.00 |
| 82.87 | 10952.94 | 3638.84 | 1195.46 | 2051.17 | 0.00 | 491769.00 | 3915020.00 |
| 602.40 | 7786.11 | 2124.18 | 712.57 | 692.29 | 0.00 | 488602.00 | 3913505.00 |
| 107.30 | 10342.62 | 3336.20 | 1069.30 | 1920.85 | 0.00 | 491159.00 | 3914717.00 |
| 82.33 | 10970.53 | 3642.78 | 1073.71 | 1924.06 | 0.00 | 491787.00 | 3915024.00 |
| 649.82 | 7715.59 | 2082.83 | 557.23 | 785.13 | 0.00 | 488532.00 | 3913464.00 |
| 246.04 | 8837.46 | 2632.29 | 741.25 | 1616.26 | 0.00 | 489654.00 | 3914013.00 |

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|---|---|---|---|---|---|---|---|
| 285.32 | 8628.02 | 2526.89 | 793.68 | 1703.78 | 0.00 | 489444.00 | 3913908.00 |
| 299.02 | 8564.56 | 2510.41 | 764.69 | 1097.50 | 0.00 | 489381.00 | 3913891.00 |
| 313.82 | 8504.79 | 2480.58 | 578.10 | 958.44 | 0.00 | 489321.00 | 3913861.00 |
| 384.11 | 8255.83 | 2353.97 | 685.05 | 1270.16 | 0.00 | 489072.00 | 3913735.00 |
| 307.12 | 8533.97 | 2488.45 | 583.43 | 806.85 | 0.00 | 489350.00 | 3913869.00 |
| 88.67 | 10790.35 | 3543.63 | 1162.60 | 1962.50 | 0.00 | 491607.00 | 3914924.00 |
| 391.31 | 8225.21 | 2341.93 | 678.21 | 1193.92 | 0.00 | 489041.00 | 3913723.00 |
| 458.11 | 8055.95 | 2257.24 | 763.80 | 986.14 | 0.00 | 488872.00 | 3913638.00 |
| 76.95 | 11147.29 | 3722.93 | 1000.22 | 1860.39 | 0.00 | 491964.00 | 3915104.00 |
| 532.29 | 7893.87 | 2182.19 | 602.09 | 763.40 | 0.00 | 488710.00 | 3913563.00 |
| 699.47 | 7661.18 | 2056.08 | 507.74 | 731.87 | 0.00 | 488477.00 | 3913437.00 |
| 217.13 | 9026.49 | 2723.79 | 555.75 | 1173.10 | 0.00 | 489843.00 | 3914105.00 |
| 44.43 | 12791.78 | 4487.62 | 1145.43 | 2002.67 | 0.00 | 493608.00 | 3915868.00 |
| 243.46 | 8850.74 | 2648.05 | 1133.17 | 1822.59 | 0.00 | 489667.00 | 3914029.00 |
| 164.66 | 9486.65 | 2954.07 | 1072.59 | 1618.02 | 0.00 | 490303.00 | 3914335.00 |
| 238.45 | 8889.30 | 2666.06 | 856.26 | 1044.17 | 0.00 | 489706.00 | 3914047.00 |
| 138.06 | 9822.69 | 3102.87 | 995.69 | 1379.38 | 0.00 | 490639.00 | 3914484.00 |
| 220.82 | 9000.52 | 2720.00 | 979.44 | 1420.41 | 0.00 | 489817.00 | 3914101.00 |
| 262.71 | 8744.44 | 2582.79 | 814.59 | 1811.59 | 0.00 | 489561.00 | 3913964.00 |
| 536.75 | 7887.43 | 2176.07 | 557.47 | 855.07 | 0.00 | 488704.00 | 3913557.00 |
| 113.22 | 10228.12 | 3291.21 | 845.66 | 1338.04 | 0.00 | 491044.00 | 3914672.00 |
| 653.20 | 7705.89 | 2080.23 | 467.34 | 625.31 | 0.00 | 488522.00 | 3913461.00 |
| 331.47 | 8432.07 | 2440.38 | 938.56 | 1614.51 | 0.00 | 489248.00 | 3913821.00 |
| 220.32 | 9005.31 | 2718.21 | 702.33 | 1211.63 | 0.00 | 489822.00 | 3914099.00 |
| 207.58 | 9104.15 | 2762.71 | 871.10 | 1204.77 | 0.00 | 489920.00 | 3914143.00 |
| 505.98 | 7951.33 | 2201.83 | 652.42 | 1125.66 | 0.00 | 488768.00 | 3913583.00 |
| 221.96 | 8994.16 | 2712.56 | 1020.68 | 1699.30 | 0.00 | 489810.00 | 3914093.00 |
| 412.10 | 8161.48 | 2314.20 | 787.39 | 1474.44 | 0.00 | 488978.00 | 3913695.00 |
| 56.30 | 12027.80 | 4130.78 | 1016.29 | 1937.91 | 0.00 | 492844.00 | 3915512.00 |
| 388.59 | 8245.47 | 2351.95 | 727.96 | 1079.18 | 0.00 | 489062.00 | 3913733.00 |
| 258.34 | 8771.95 | 2603.01 | 939.12 | 1533.04 | 0.00 | 489588.00 | 3913984.00 |
| 274.08 | 8688.18 | 2563.68 | 862.50 | 1412.66 | 0.00 | 489504.00 | 3913944.00 |
| 496.88 | 7971.53 | 2219.21 | 637.29 | 1013.09 | 0.00 | 488788.00 | 3913600.00 |
| 215.25 | 9044.10 | 2728.85 | 1033.82 | 1634.34 | 0.00 | 489860.00 | 3914110.00 |
| 113.09 | 10227.84 | 3273.74 | 974.60 | 2109.55 | 0.00 | 491044.00 | 3914655.00 |
| 128.79 | 9958.82 | 3158.23 | 743.15 | 1796.65 | 0.00 | 490775.00 | 3914539.00 |
| 207.87 | 9097.93 | 2756.60 | 629.20 | 1401.60 | 0.00 | 489914.00 | 3914137.00 |
| 434.28 | 8113.85 | 2285.20 | 865.19 | 1411.73 | 0.00 | 488930.00 | 3913666.00 |
| 111.20 | 10267.66 | 3314.37 | 1098.03 | 1674.16 | 0.00 | 491084.00 | 3914695.00 |
| 112.65 | 10239.68 | 3288.25 | 965.57 | 2138.69 | 0.00 | 491056.00 | 3914669.00 |
| 465.87 | 8029.69 | 2251.33 | 834.06 | 979.35 | 0.00 | 488846.00 | 3913632.00 |
| 178.16 | 9354.03 | 2873.17 | 831.93 | 1609.89 | 0.00 | 490170.00 | 3914254.00 |
| 110.42 | 10280.72 | 3316.36 | 795.20 | 1592.98 | 0.00 | 491097.00 | 3914697.00 |
| 245.61 | 8841.80 | 2628.76 | 785.87 | 1603.95 | 0.00 | 489658.00 | 3914010.00 |
| 347.89 | 8376.02 | 2414.32 | 572.96 | 1212.22 | 0.00 | 489192.00 | 3913795.00 |
| 244.66 | 8838.21 | 2642.25 | 656.79 | 1225.94 | 0.00 | 489654.00 | 3914023.00 |
| 243.65 | 8854.17 | 2643.54 | 807.80 | 1451.31 | 0.00 | 489670.00 | 3914024.00 |
| 183.35 | 9296.74 | 2842.53 | 855.48 | 1922.48 | 0.00 | 490113.00 | 3914223.00 |
| 154.48 | 9607.53 | 2998.56 | 677.86 | 1345.54 | 0.00 | 490424.00 | 3914379.00 |
| 184.28 | 9295.81 | 2864.61 | 893.90 | 1230.11 | 0.00 | 490112.00 | 3914245.00 |
| 996.32 | 7396.93 | 1908.12 | 403.50 | 645.99 | 0.00 | 488213.00 | 3913289.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 282.70 | 2476.47 | 746.62 | 280.15 | 659.69 | **28.72** | 483293.00 | 3912127.00 |
| 267.10 | 2506.94 | 768.13 | 317.95 | 582.89 | 0.00 | 483323.00 | 3912149.00 |
| 93.48 | 3312.54 | 1147.97 | 291.40 | 570.62 | 0.00 | 484129.00 | 3912529.00 |
| 262.03 | 2511.59 | 777.12 | 323.22 | 562.68 | 0.00 | 483328.00 | 3912158.00 |
| 452.80 | 2219.26 | 627.92 | 309.94 | 511.85 | 0.00 | 483036.00 | 3912009.00 |
| 377.59 | 2312.65 | 674.88 | 253.46 | 567.76 | 0.00 | 483129.00 | 3912056.00 |
| 180.80 | 2767.25 | 890.51 | 273.06 | 624.27 | 0.00 | 483584.00 | 3912271.00 |
| 175.49 | 2789.58 | 905.72 | 320.84 | 617.63 | 0.00 | 483606.00 | 3912287.00 |
| 545.03 | 2130.46 | 581.44 | 298.81 | 515.90 | 0.00 | 482947.00 | 3911962.00 |
| 316.59 | 2405.37 | 718.16 | 285.38 | 620.93 | 0.00 | 483222.00 | 3912099.00 |
| 215.63 | 2640.93 | 835.77 | 269.94 | 558.84 | 0.00 | 483457.00 | 3912217.00 |
| 232.24 | 2593.09 | 811.20 | 299.60 | 637.23 | 0.00 | 483409.00 | 3912192.00 |
| 165.26 | 2831.45 | 917.74 | 312.78 | 671.65 | 0.00 | 483648.00 | 3912299.00 |
| 547.08 | 2126.87 | 581.68 | 314.18 | 515.25 | 0.00 | 482943.00 | 3911962.00 |
| 114.04 | 3132.08 | 1065.13 | 268.90 | 626.16 | 0.00 | 483948.00 | 3912446.00 |
| 93.61 | 3318.57 | 1147.55 | 261.70 | 561.93 | 0.00 | 484135.00 | 3912528.00 |
| 483.03 | 2175.47 | 612.67 | 257.80 | 407.41 | 0.00 | 482992.00 | 3911993.00 |
| 59.01 | 3802.27 | 1382.86 | 310.77 | 633.10 | 0.00 | 484619.00 | 3912764.00 |
| 435.44 | 2238.70 | 636.25 | 268.32 | 490.35 | 0.00 | 483055.00 | 3912017.00 |
| 180.05 | 2768.67 | 892.57 | 306.69 | 606.05 | 0.00 | 483585.00 | 3912273.00 |
| 89.57 | 3354.10 | 1168.56 | 292.40 | 598.76 | 0.00 | 484170.00 | 3912549.00 |
| 264.08 | 2511.91 | 771.10 | 304.11 | 586.07 | 0.00 | 483328.00 | 3912152.00 |
| 329.78 | 2389.10 | 703.39 | 309.94 | 641.50 | 0.00 | 483205.00 | 3912084.00 |
| 205.62 | 2689.89 | 849.27 | 284.58 | 589.47 | 0.00 | 483506.00 | 3912230.00 |
| 304.81 | 2430.55 | 730.80 | 246.33 | 492.17 | 0.00 | 483247.00 | 3912112.00 |
| 155.30 | 2871.18 | 944.48 | 284.22 | 494.95 | 0.00 | 483687.00 | 3912325.00 |
| 870.84 | 1919.82 | 483.20 | 237.47 | 379.91 | 0.00 | 482736.00 | 3911864.00 |
| 430.06 | 2245.20 | 638.13 | 287.62 | 602.76 | 0.00 | 483061.00 | 3912019.00 |
| 724.13 | 2009.78 | 522.39 | 317.25 | 490.32 | 0.00 | 482826.00 | 3911903.00 |
| 47.74 | 4069.58 | 1507.02 | 290.65 | 596.14 | 0.00 | 484886.00 | 3912888.00 |
| 133.55 | 2993.05 | 1003.71 | 209.73 | 387.27 | 0.00 | 483809.00 | 3912384.00 |
| 127.76 | 3033.05 | 1021.78 | 290.86 | 520.24 | 0.00 | 483849.00 | 3912403.00 |
| 264.64 | 2520.67 | 767.45 | 249.78 | 573.78 | 0.00 | 483337.00 | 3912148.00 |
| 154.58 | 2883.28 | 945.81 | 308.79 | 600.60 | 0.00 | 483700.00 | 3912327.00 |
| 318.97 | 2408.42 | 717.97 | 269.96 | 578.59 | 0.00 | 483225.00 | 3912099.00 |
| 205.76 | 2679.37 | 852.05 | 286.46 | 574.19 | 0.00 | 483496.00 | 3912233.00 |
| 402.75 | 2281.09 | 655.11 | 256.02 | 507.85 | 0.00 | 483097.00 | 3912036.00 |
| 126.59 | 3036.75 | 1023.30 | 274.90 | 521.12 | 0.00 | 483853.00 | 3912404.00 |
| 329.95 | 2389.63 | 707.43 | 294.67 | 531.98 | 0.00 | 483206.00 | 3912088.00 |
| 350.34 | 2346.33 | 691.72 | 283.08 | 530.37 | 0.00 | 483163.00 | 3912072.00 |
| 806.99 | 1956.41 | 497.05 | 274.71 | 505.05 | 0.00 | 482773.00 | 3911878.00 |
| 404.96 | 2276.72 | 656.86 | 276.01 | 544.61 | 0.00 | 483093.00 | 3912038.00 |
| 29.54 | 4775.34 | 1838.75 | 343.12 | 613.10 | 0.00 | 485592.00 | 3913220.00 |
| 497.73 | 2173.69 | 608.83 | 320.17 | 436.53 | 0.00 | 482990.00 | 3911990.00 |
| 352.70 | 2339.42 | 690.00 | 237.66 | 566.55 | 0.00 | 483156.00 | 3912071.00 |
| 316.29 | 2408.93 | 716.01 | 262.45 | 593.35 | 0.00 | 483225.00 | 3912097.00 |
| 306.57 | 2431.33 | 728.69 | 310.02 | 541.88 | 0.00 | 483248.00 | 3912109.00 |
| 375.53 | 2319.12 | 676.11 | 331.12 | 589.70 | 0.00 | 483135.00 | 3912057.00 |
| 282.73 | 2467.68 | 753.53 | 321.82 | 586.16 | 0.00 | 483284.00 | 3912134.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 416.95 | 2263.03 | 645.22 | 258.31 | 525.80 | 0.00 | 483079.00 | 3912026.00 |
| 299.65 | 2437.55 | 731.13 | 293.66 | 596.63 | 0.00 | 483254.00 | 3912112.00 |
| 407.38 | 2264.04 | 657.75 | 263.41 | 388.68 | 0.00 | 483080.00 | 3912039.00 |
| 103.40 | 3218.79 | 1109.75 | 285.58 | 468.61 | 0.00 | 484035.00 | 3912491.00 |
| 178.20 | 2783.29 | 899.29 | 298.21 | 524.50 | 0.00 | 483600.00 | 3912280.00 |
| 156.13 | 2870.46 | 939.38 | 281.36 | 572.57 | 0.00 | 483687.00 | 3912320.00 |
| 124.83 | 3046.16 | 1029.07 | 339.23 | 566.07 | 0.00 | 483862.00 | 3912410.00 |
| 268.65 | 2509.15 | 765.99 | 251.11 | 545.39 | 0.00 | 483325.00 | 3912147.00 |
| 122.47 | 3067.45 | 1035.54 | 240.19 | 532.66 | 0.00 | 483884.00 | 3912416.00 |
| 967.63 | 1892.90 | 462.97 | 290.58 | 476.33 | 0.00 | 482709.00 | 3911844.00 |
| 139.17 | 2958.77 | 981.42 | 265.11 | 621.81 | 0.00 | 483775.00 | 3912362.00 |
| 230.25 | 2607.52 | 814.85 | 247.60 | 511.86 | 0.00 | 483424.00 | 3912196.00 |
| 245.12 | 2561.73 | 794.52 | 316.56 | 592.43 | 0.00 | 483378.00 | 3912175.00 |
| 299.10 | 2445.24 | 737.85 | 318.07 | 618.48 | 0.00 | 483262.00 | 3912119.00 |
| 200.12 | 2699.17 | 860.45 | 295.51 | 581.47 | 0.00 | 483515.00 | 3912241.00 |
| 308.50 | 2419.73 | 727.79 | 287.97 | 624.61 | 0.00 | 483236.00 | 3912109.00 |
| 365.32 | 2333.31 | 682.48 | 218.70 | 594.91 | 0.00 | 483150.00 | 3912063.00 |
| 297.84 | 2443.75 | 739.00 | 327.45 | 539.06 | 0.00 | 483260.00 | 3912120.00 |
| 437.43 | 2233.88 | 634.28 | 206.22 | 480.39 | 0.00 | 483050.00 | 3912015.00 |
| 225.56 | 2620.29 | 821.66 | 295.59 | 597.43 | 0.00 | 483437.00 | 3912202.00 |
| 480.11 | 2196.88 | 613.26 | 252.83 | 591.53 | 0.00 | 483013.00 | 3911994.00 |
| 258.94 | 2520.31 | 780.14 | 256.94 | 536.14 | 0.00 | 483337.00 | 3912161.00 |
| 187.65 | 2734.19 | 885.52 | 242.50 | 404.08 | 0.00 | 483550.00 | 3912266.00 |
| 295.96 | 2449.63 | 737.31 | 283.87 | 584.07 | 0.00 | 483266.00 | 3912118.00 |
| 236.86 | 2580.27 | 804.06 | 281.66 | 558.62 | 0.00 | 483397.00 | 3912185.00 |
| 589.32 | 2099.32 | 564.27 | 256.26 | 577.16 | 0.00 | 482916.00 | 3911945.00 |
| 434.54 | 2232.86 | 638.82 | 291.14 | 504.95 | 0.00 | 483049.00 | 3912020.00 |
| 255.84 | 2543.64 | 778.47 | 310.55 | 594.64 | 0.00 | 483360.00 | 3912159.00 |
| 343.86 | 2361.74 | 695.60 | 249.39 | 526.46 | 0.00 | 483178.00 | 3912076.00 |
| 317.85 | 2411.00 | 719.37 | 213.23 | 589.82 | 0.00 | 483227.00 | 3912100.00 |
| 135.30 | 2991.88 | 999.99 | 328.29 | 543.77 | 0.00 | 483808.00 | 3912381.00 |
| 237.02 | 2589.05 | 806.70 | 268.36 | 606.76 | 0.00 | 483405.00 | 3912187.00 |
| 540.16 | 2130.34 | 580.56 | 261.61 | 571.71 | 0.00 | 482947.00 | 3911961.00 |
| 543.13 | 2139.87 | 581.44 | 253.15 | 530.03 | 0.00 | 482956.00 | 3911962.00 |
| 105.70 | 3198.34 | 1096.91 | 276.97 | 647.94 | 0.00 | 484015.00 | 3912478.00 |
| 317.84 | 2410.18 | 714.42 | 208.93 | 566.81 | 0.00 | 483226.00 | 3912095.00 |
| 238.96 | 2578.48 | 801.37 | 270.94 | 571.12 | 0.00 | 483395.00 | 3912182.00 |
| 344.36 | 2359.25 | 697.84 | 256.58 | 563.84 | 0.00 | 483176.00 | 3912079.00 |
| 526.63 | 2145.52 | 590.52 | 259.00 | 484.83 | 0.00 | 482962.00 | 3911971.00 |
| 340.83 | 2368.33 | 699.90 | 299.88 | 624.23 | 0.00 | 483185.00 | 3912081.00 |
| 151.60 | 2894.94 | 952.44 | 338.76 | 550.11 | 0.00 | 483711.00 | 3912333.00 |
| 190.01 | 2733.86 | 871.47 | 302.09 | 574.35 | 0.00 | 483550.00 | 3912252.00 |
| 354.37 | 2342.88 | 692.03 | 262.58 | 487.29 | 0.00 | 483159.00 | 3912073.00 |
| 87.17 | 3378.89 | 1184.74 | 299.14 | 542.11 | 0.00 | 484195.00 | 3912566.00 |
| 77.71 | 3493.47 | 1238.48 | 252.95 | 561.42 | 0.00 | 484310.00 | 3912619.00 |
| 268.80 | 2513.05 | 762.75 | 242.29 | 583.30 | 0.00 | 483329.00 | 3912144.00 |
| 228.76 | 2604.49 | 818.86 | 291.67 | 522.64 | 0.00 | 483421.00 | 3912200.00 |
| 342.08 | 2363.01 | 698.29 | 253.54 | 630.84 | 0.00 | 483179.00 | 3912079.00 |
| 435.76 | 2242.08 | 632.44 | 227.35 | 505.31 | 0.00 | 483058.00 | 3912013.00 |
| 493.01 | 2181.19 | 603.17 | 297.98 | 668.19 | 0.00 | 482997.00 | 3911984.00 |
| 363.13 | 2327.31 | 677.76 | 298.08 | 659.02 | 0.00 | 483144.00 | 3912059.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 313.63 | 107981.96 | 28634.74 | 1974.84 | 1630.05 | **121.05** | 588798.00 | 3940016.00 |
| 129.87 | 117784.49 | 33252.15 | 2461.78 | 2497.70 | 0.00 | 598601.00 | 3944633.00 |
| 396.53 | 106063.30 | 27703.66 | 1861.53 | 1385.14 | 0.00 | 586880.00 | 3939084.00 |
| 104.05 | 121041.09 | 34787.43 | 2572.50 | 2584.35 | 0.00 | 601857.00 | 3946168.00 |
| 48.03 | 135732.67 | 41658.59 | 3463.38 | 3956.08 | 0.00 | 616549.00 | 3953039.00 |
| 90.23 | 123335.26 | 35858.67 | 2808.83 | 2950.23 | 0.00 | 604152.00 | 3947239.00 |
| 385.28 | 106285.51 | 27811.88 | 1794.15 | 1139.93 | 0.00 | 587102.00 | 3939193.00 |
| 364.79 | 106718.25 | 28022.13 | 1851.47 | 1326.50 | 0.00 | 587535.00 | 3939403.00 |
| 196.84 | 112597.04 | 30818.21 | 2054.19 | 1641.37 | 0.00 | 593413.00 | 3942199.00 |
| 477.98 | 104710.05 | 27041.94 | 1810.05 | 1290.11 | 0.00 | 585526.00 | 3938423.00 |
| 486.54 | 104588.54 | 26987.39 | 1770.30 | 1135.89 | 0.00 | 585405.00 | 3938368.00 |
| 145.94 | 116214.64 | 32521.25 | 2298.52 | 2121.68 | 0.00 | 597031.00 | 3943902.00 |
| 88.68 | 123626.77 | 35999.52 | 3135.06 | 3606.77 | 0.00 | 604443.00 | 3947380.00 |
| 244.90 | 110290.50 | 29728.69 | 2078.35 | 1843.54 | 0.00 | 591107.00 | 3941109.00 |
| 135.85 | 117167.49 | 32972.21 | 2541.35 | 2620.25 | 0.00 | 597984.00 | 3944353.00 |
| 317.53 | 107873.57 | 28582.75 | 1941.43 | 1525.62 | 0.00 | 588690.00 | 3939964.00 |
| 324.02 | 107700.27 | 28493.43 | 1872.73 | 1337.54 | 0.00 | 588517.00 | 3939874.00 |
| 130.06 | 117765.44 | 33243.04 | 2387.87 | 2305.49 | 0.00 | 598582.00 | 3944624.00 |
| 204.08 | 112197.68 | 30622.98 | 2193.21 | 2081.50 | 0.00 | 593014.00 | 3942004.00 |
| 374.80 | 106502.33 | 27912.65 | 1907.48 | 1524.35 | 0.00 | 587319.00 | 3939293.00 |
| 78.98 | 125636.38 | 36941.32 | 2997.70 | 3243.63 | 0.00 | 606453.00 | 3948322.00 |
| 256.59 | 109830.90 | 29504.74 | 2014.32 | 1695.84 | 0.00 | 590647.00 | 3940886.00 |
| 118.25 | 119117.46 | 33883.24 | 2573.41 | 2627.28 | 0.00 | 599934.00 | 3945264.00 |
| 116.56 | 119326.90 | 33984.50 | 2455.38 | 2381.03 | 0.00 | 600143.00 | 3945365.00 |
| 407.85 | 105850.81 | 27601.79 | 1840.93 | 1340.47 | 0.00 | 586667.00 | 3938983.00 |
| 180.88 | 113565.30 | 31278.70 | 2310.46 | 2268.25 | 0.00 | 594382.00 | 3942659.00 |
| 522.37 | 104115.33 | 26757.05 | 1792.59 | 1255.59 | 0.00 | 584932.00 | 3938138.00 |
| 149.45 | 115905.62 | 32377.54 | 2353.73 | 2287.32 | 0.00 | 596722.00 | 3943758.00 |
| 100.93 | 121516.48 | 35012.36 | 2569.19 | 2531.69 | 0.00 | 602333.00 | 3946393.00 |
| 322.77 | 107732.86 | 28502.62 | 1889.24 | 1420.59 | 0.00 | 588549.00 | 3939883.00 |
| 537.91 | 103927.81 | 26671.70 | 1823.20 | 1343.28 | 0.00 | 584744.00 | 3938052.00 |
| 312.88 | 108001.85 | 28634.04 | 1901.41 | 1419.72 | 0.00 | 588818.00 | 3940015.00 |
| 30.86 | 147097.15 | 46937.81 | 4628.27 | 5854.87 | 0.00 | 627913.00 | 3958319.00 |
| 157.02 | 115275.60 | 32079.86 | 2350.65 | 2416.96 | 0.00 | 596092.00 | 3943461.00 |
| 294.77 | 108531.76 | 28880.94 | 1889.29 | 1369.70 | 0.00 | 589348.00 | 3940262.00 |
| 301.55 | 108328.20 | 28794.70 | 1942.62 | 1514.85 | 0.00 | 589144.00 | 3940175.00 |
| 308.10 | 108137.97 | 28706.10 | 2001.83 | 1702.74 | 0.00 | 588954.00 | 3940087.00 |
| 520.30 | 104142.31 | 26774.45 | 1788.03 | 1223.11 | 0.00 | 584959.00 | 3938155.00 |
| 198.05 | 112529.43 | 30789.26 | 2096.95 | 1778.47 | 0.00 | 593346.00 | 3942170.00 |
| 372.12 | 106558.11 | 27945.85 | 1874.16 | 1419.88 | 0.00 | 587374.00 | 3939327.00 |
| 159.87 | 115050.06 | 31982.48 | 2319.17 | 2230.18 | 0.00 | 595866.00 | 3943363.00 |
| 250.73 | 110055.95 | 29605.83 | 2062.69 | 1811.85 | 0.00 | 590872.00 | 3940987.00 |
| 55.93 | 132369.11 | 40085.77 | 3494.49 | 4136.55 | 0.00 | 613185.00 | 3951467.00 |
| 80.20 | 125363.29 | 36803.96 | 2946.03 | 3238.86 | 0.00 | 606180.00 | 3948185.00 |
| 507.62 | 104304.41 | 26851.63 | 1727.12 | 983.71 | 0.00 | 585121.00 | 3938232.00 |
| 498.40 | 104426.36 | 26910.27 | 1774.80 | 1173.59 | 0.00 | 585243.00 | 3938291.00 |
| 244.57 | 110303.39 | 29728.97 | 2035.64 | 1697.28 | 0.00 | 591120.00 | 3941110.00 |
| 398.39 | 106029.18 | 27693.48 | 1812.32 | 1215.92 | 0.00 | 586845.00 | 3939074.00 |
| 269.47 | 109361.49 | 29278.67 | 2019.03 | 1749.65 | 0.00 | 590178.00 | 3940659.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 432.78 | 105412.86 | 27392.93 | 1803.30 | 1218.28 | 0.00 | 586229.00 | 3938774.00 |
| 46.46 | 136502.43 | 42014.13 | 3756.13 | 4505.52 | 0.00 | 617319.00 | 3953395.00 |
| 174.03 | 114021.08 | 31486.68 | 2149.65 | 1869.55 | 0.00 | 594837.00 | 3942867.00 |
| 447.54 | 105171.18 | 27270.30 | 1798.47 | 1224.11 | 0.00 | 585987.00 | 3938651.00 |
| 446.44 | 105188.60 | 27288.36 | 1834.19 | 1342.97 | 0.00 | 586005.00 | 3938669.00 |
| 273.17 | 109232.53 | 29227.41 | 1972.42 | 1581.16 | 0.00 | 590049.00 | 3940608.00 |
| 369.63 | 106611.84 | 27972.28 | 1818.47 | 1215.95 | 0.00 | 587428.00 | 3939353.00 |
| 230.56 | 110901.76 | 30012.73 | 2007.84 | 1592.05 | 0.00 | 591718.00 | 3941394.00 |
| 201.75 | 112324.88 | 30701.72 | 2215.32 | 2084.73 | 0.00 | 593141.00 | 3942082.00 |
| 403.03 | 105940.74 | 27645.13 | 1848.46 | 1366.97 | 0.00 | 586757.00 | 3939026.00 |
| 221.44 | 111321.17 | 30209.78 | 2137.10 | 1942.42 | 0.00 | 592137.00 | 3941591.00 |
| 440.63 | 105280.63 | 27328.07 | 1799.31 | 1215.35 | 0.00 | 586097.00 | 3938709.00 |
| 329.98 | 107544.52 | 28414.77 | 1954.31 | 1599.72 | 0.00 | 588361.00 | 3939796.00 |
| 142.00 | 116574.61 | 32684.12 | 2296.39 | 2137.34 | 0.00 | 597391.00 | 3944065.00 |
| 79.83 | 125445.66 | 36832.96 | 2791.68 | 2939.55 | 0.00 | 606262.00 | 3948214.00 |
| 679.76 | 102547.95 | 25987.23 | 1729.35 | 1072.85 | 0.00 | 583364.00 | 3937368.00 |
| 172.13 | 114152.24 | 31552.24 | 2250.27 | 2075.75 | 0.00 | 594969.00 | 3942933.00 |
| 290.42 | 108666.23 | 28956.73 | 1989.88 | 1669.30 | 0.00 | 589483.00 | 3940338.00 |
| 78.00 | 125860.92 | 37048.51 | 3023.56 | 3370.04 | 0.00 | 606677.00 | 3948429.00 |
| 82.66 | 124833.40 | 36573.40 | 3029.21 | 3403.84 | 0.00 | 605650.00 | 3947954.00 |
| 235.99 | 110662.75 | 29905.49 | 2033.97 | 1680.99 | 0.00 | 591479.00 | 3941286.00 |
| 411.51 | 105783.02 | 27576.44 | 1821.64 | 1259.74 | 0.00 | 586599.00 | 3938957.00 |
| 237.53 | 110596.34 | 29867.01 | 2025.42 | 1678.08 | 0.00 | 591413.00 | 3941248.00 |
| 185.50 | 113271.59 | 31138.83 | 2273.67 | 2196.59 | 0.00 | 594088.00 | 3942520.00 |
| 250.30 | 110073.31 | 29623.47 | 2088.49 | 1854.95 | 0.00 | 590890.00 | 3941004.00 |
| 532.96 | 103987.67 | 26700.30 | 1757.49 | 1123.14 | 0.00 | 584804.00 | 3938081.00 |
| 139.52 | 116808.91 | 32792.05 | 2315.62 | 2168.12 | 0.00 | 597625.00 | 3944173.00 |
| 545.18 | 103842.10 | 26629.14 | 1761.66 | 1128.19 | 0.00 | 584658.00 | 3938010.00 |
| 422.72 | 105584.19 | 27474.08 | 1808.55 | 1236.82 | 0.00 | 586400.00 | 3938855.00 |
| 368.22 | 106642.19 | 27995.97 | 1955.04 | 1624.26 | 0.00 | 587458.00 | 3939377.00 |
| 105.95 | 120761.35 | 34647.57 | 2593.34 | 2651.36 | 0.00 | 601578.00 | 3946028.00 |
| 333.41 | 107458.10 | 28378.88 | 1878.80 | 1375.41 | 0.00 | 588274.00 | 3939760.00 |
| 503.69 | 104356.02 | 26876.84 | 1810.83 | 1293.49 | 0.00 | 585172.00 | 3938258.00 |
| 657.25 | 102724.91 | 26077.65 | 1710.96 | 995.74 | 0.00 | 583541.00 | 3937458.00 |
| 121.96 | 118671.18 | 33678.05 | 2465.78 | 2406.38 | 0.00 | 599487.00 | 3945059.00 |
| 253.55 | 109946.55 | 29557.42 | 2091.26 | 1883.65 | 0.00 | 590763.00 | 3940938.00 |
| 87.09 | 123933.53 | 36125.12 | 2714.53 | 2811.00 | 0.00 | 604750.00 | 3947506.00 |
| 318.25 | 107853.90 | 28571.55 | 1958.18 | 1575.14 | 0.00 | 588670.00 | 3939952.00 |
| 318.49 | 107848.93 | 28564.51 | 1906.77 | 1440.27 | 0.00 | 588665.00 | 3939945.00 |
| 345.52 | 107159.30 | 28234.17 | 1952.28 | 1615.89 | 0.00 | 587976.00 | 3939615.00 |
| 272.34 | 109261.19 | 29238.40 | 1954.37 | 1511.02 | 0.00 | 590077.00 | 3940619.00 |
| 462.48 | 104937.82 | 27160.32 | 1864.58 | 1472.15 | 0.00 | 585754.00 | 3938541.00 |
| 461.43 | 104954.03 | 27166.99 | 1784.17 | 1182.06 | 0.00 | 585770.00 | 3938548.00 |
| 335.88 | 107394.92 | 28344.58 | 1975.89 | 1728.10 | 0.00 | 588211.00 | 3939725.00 |
| 419.10 | 105647.45 | 27509.13 | 1791.96 | 1166.46 | 0.00 | 586464.00 | 3938890.00 |
| 81.42 | 125097.14 | 36695.25 | 2902.04 | 3123.16 | 0.00 | 605913.00 | 3948076.00 |
| 341.42 | 107259.59 | 28285.38 | 1926.63 | 1515.39 | 0.00 | 588076.00 | 3939666.00 |
| 526.37 | 104068.07 | 26735.18 | 1760.08 | 1133.33 | 0.00 | 584884.00 | 3938116.00 |
| 216.25 | 111571.45 | 30345.36 | 2186.31 | 2015.08 | 0.00 | 592388.00 | 3941726.00 |
| 45.20 | 137147.45 | 42315.62 | 3601.22 | 4077.65 | 0.00 | 617964.00 | 3953696.00 |
| 56.39 | 132193.64 | 39998.16 | 3256.55 | 3642.67 | 0.00 | 613010.00 | 3951379.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 235.43 | 14847.54 | 4385.84 | 1100.57 | 1438.13 | **56.36** | 495664.00 | 3915767.00 |
| 372.94 | 13932.16 | 3947.07 | 805.43 | 1037.59 | 0.00 | 494748.00 | 3915328.00 |
| 117.49 | 16722.82 | 5270.75 | 1420.81 | 2440.82 | 0.00 | 497539.00 | 3916652.00 |
| 194.89 | 15295.89 | 4586.41 | 1342.81 | 2320.79 | 0.00 | 496112.00 | 3915967.00 |
| 63.38 | 19040.32 | 6343.52 | 1804.87 | 3055.76 | 0.00 | 499857.00 | 3917724.00 |
| 82.34 | 17970.83 | 5855.63 | 1465.87 | 2874.85 | 0.00 | 498787.00 | 3917236.00 |
| 389.05 | 13859.03 | 3902.20 | 751.12 | 1113.01 | 0.00 | 494675.00 | 3915283.00 |
| 295.61 | 14367.48 | 4157.70 | 812.46 | 1042.27 | 0.00 | 495184.00 | 3915538.00 |
| 676.54 | 13051.09 | 3506.44 | 615.86 | 688.63 | 0.00 | 493867.00 | 3914887.00 |
| 29.34 | 23130.27 | 8269.17 | 2140.62 | 3084.93 | 0.00 | 503947.00 | 3919650.00 |
| 141.64 | 16150.17 | 5009.35 | 1468.24 | 1811.25 | 0.00 | 496966.00 | 3916390.00 |
| 282.59 | 14454.98 | 4200.32 | 766.26 | 984.42 | 0.00 | 495271.00 | 3915581.00 |
| 367.70 | 13961.52 | 3951.48 | 657.05 | 879.47 | 0.00 | 494778.00 | 3915332.00 |
| 200.06 | 15231.22 | 4576.82 | 1198.60 | 1248.79 | 0.00 | 496048.00 | 3915958.00 |
| 82.59 | 17957.42 | 5823.39 | 1380.74 | 2819.22 | 0.00 | 498774.00 | 3917204.00 |
| 145.36 | 16076.32 | 4971.23 | 1204.71 | 1439.66 | 0.00 | 496893.00 | 3916352.00 |
| 89.42 | 17662.40 | 5712.21 | 1255.76 | 2003.39 | 0.00 | 498479.00 | 3917093.00 |
| 105.43 | 17079.13 | 5433.78 | 1316.70 | 2516.90 | 0.00 | 497895.00 | 3916815.00 |
| 28.26 | 23370.16 | 8361.03 | 2000.94 | 3135.65 | 0.00 | 504186.00 | 3919742.00 |
| 616.22 | 13164.02 | 3559.25 | 688.95 | 739.47 | 0.00 | 493980.00 | 3914940.00 |
| 62.88 | 19076.43 | 6368.25 | 1559.27 | 2809.86 | 0.00 | 499893.00 | 3917749.00 |
| 316.89 | 14239.66 | 4093.66 | 783.66 | 1008.92 | 0.00 | 495056.00 | 3915474.00 |
| 343.53 | 14080.27 | 4009.80 | 746.06 | 1028.55 | 0.00 | 494897.00 | 3915391.00 |
| 309.10 | 14283.37 | 4111.29 | 772.79 | 1003.05 | 0.00 | 495100.00 | 3915492.00 |
| 207.88 | 15141.79 | 4526.26 | 944.92 | 1083.96 | 0.00 | 495958.00 | 3915907.00 |
| 473.82 | 13543.76 | 3749.45 | 639.71 | 754.68 | 0.00 | 494360.00 | 3915130.00 |
| 158.07 | 15840.06 | 4861.20 | 1384.22 | 1446.12 | 0.00 | 496656.00 | 3916242.00 |
| 111.97 | 16880.77 | 5335.93 | 1052.92 | 2264.15 | 0.00 | 497697.00 | 3916717.00 |
| 24.93 | 24215.04 | 8760.06 | 1832.52 | 3311.76 | 0.00 | 505031.00 | 3920141.00 |
| 536.85 | 13348.30 | 3656.09 | 644.74 | 768.47 | 0.00 | 494165.00 | 3915037.00 |
| 90.91 | 17602.74 | 5696.31 | 1402.87 | 1716.03 | 0.00 | 498419.00 | 3917077.00 |
| 796.32 | 12863.08 | 3400.05 | 497.80 | 493.87 | 0.00 | 493679.00 | 3914781.00 |
| 325.14 | 14180.16 | 4064.76 | 845.18 | 1377.27 | 0.00 | 494996.00 | 3915446.00 |
| 47.62 | 20380.24 | 6982.70 | 1800.33 | 3013.86 | 0.00 | 501197.00 | 3918363.00 |
| 122.02 | 16606.46 | 5226.65 | 1407.02 | 1755.57 | 0.00 | 497423.00 | 3916607.00 |
| 198.55 | 15254.27 | 4571.96 | 1028.12 | 1728.06 | 0.00 | 496071.00 | 3915953.00 |
| 283.12 | 14454.63 | 4191.92 | 703.66 | 1120.31 | 0.00 | 495271.00 | 3915573.00 |
| 249.21 | 14725.06 | 4321.86 | 828.20 | 1371.08 | 0.00 | 495541.00 | 3915703.00 |
| 100.81 | 17235.74 | 5507.48 | 1613.15 | 2316.43 | 0.00 | 498052.00 | 3916888.00 |
| 302.81 | 14328.14 | 4129.19 | 727.35 | 1142.49 | 0.00 | 495144.00 | 3915510.00 |
| 334.38 | 14135.01 | 4037.58 | 1002.20 | 1288.41 | 0.00 | 494951.00 | 3915418.00 |
| 846.24 | 12800.57 | 3363.82 | 553.02 | 738.98 | 0.00 | 493617.00 | 3914745.00 |
| 591.21 | 13221.69 | 3585.98 | 651.16 | 764.60 | 0.00 | 494038.00 | 3914967.00 |
| 116.09 | 16764.45 | 5286.94 | 1292.47 | 2538.44 | 0.00 | 497581.00 | 3916668.00 |
| 612.61 | 13162.44 | 3572.02 | 571.58 | 515.79 | 0.00 | 493979.00 | 3914953.00 |
| 193.08 | 15321.97 | 4611.07 | 900.36 | 1252.25 | 0.00 | 496138.00 | 3915992.00 |
| 147.98 | 16031.71 | 4930.93 | 1000.06 | 1624.93 | 0.00 | 496848.00 | 3916312.00 |
| 417.85 | 13739.13 | 3846.29 | 716.20 | 842.46 | 0.00 | 494555.00 | 3915227.00 |
| 148.60 | 16013.41 | 4932.06 | 793.98 | 1866.54 | 0.00 | 496830.00 | 3916313.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 459.74 | 13582.58 | 3772.13 | 628.87 | 715.40 | 0.00 | 494399.00 | 3915153.00 |
| 300.71 | 14334.07 | 4133.72 | 818.94 | 1441.28 | 0.00 | 495150.00 | 3915515.00 |
| 290.30 | 14400.41 | 4168.60 | 981.89 | 1393.40 | 0.00 | 495217.00 | 3915549.00 |
| 323.30 | 14197.48 | 4065.36 | 721.94 | 1115.68 | 0.00 | 495014.00 | 3915446.00 |
| 155.36 | 15886.39 | 4871.14 | 1206.33 | 2110.52 | 0.00 | 496703.00 | 3916252.00 |
| 439.99 | 13646.20 | 3796.86 | 614.43 | 981.29 | 0.00 | 494462.00 | 3915178.00 |
| 154.91 | 15899.01 | 4886.86 | 1386.25 | 2059.11 | 0.00 | 496715.00 | 3916268.00 |
| 116.69 | 16746.19 | 5274.35 | 1345.53 | 2449.02 | 0.00 | 497562.00 | 3916655.00 |
| 54.12 | 19756.20 | 6696.79 | 1998.90 | 2913.09 | 0.00 | 500572.00 | 3918078.00 |
| 439.03 | 13654.26 | 3809.56 | 772.37 | 1170.05 | 0.00 | 494471.00 | 3915190.00 |
| 475.91 | 13531.21 | 3744.19 | 717.50 | 903.74 | 0.00 | 494347.00 | 3915125.00 |
| 291.38 | 14400.51 | 4166.98 | 891.70 | 1396.36 | 0.00 | 495217.00 | 3915548.00 |
| 95.46 | 17425.54 | 5591.01 | 1800.15 | 3183.89 | 0.00 | 498242.00 | 3916972.00 |
| 603.98 | 13184.48 | 3564.65 | 591.09 | 867.22 | 0.00 | 494001.00 | 3914945.00 |
| 814.17 | 12834.64 | 3387.63 | 579.59 | 735.41 | 0.00 | 493651.00 | 3914768.00 |
| 513.83 | 13415.31 | 3687.02 | 832.75 | 952.11 | 0.00 | 494232.00 | 3915068.00 |
| 234.05 | 14867.82 | 4393.52 | 811.71 | 1198.55 | 0.00 | 495684.00 | 3915774.00 |
| 167.48 | 15689.27 | 4780.86 | 1020.12 | 1742.64 | 0.00 | 496506.00 | 3916162.00 |
| 158.70 | 15832.88 | 4853.94 | 1373.37 | 1343.99 | 0.00 | 496649.00 | 3916235.00 |
| 451.56 | 13612.36 | 3780.34 | 728.69 | 1268.91 | 0.00 | 494429.00 | 3915161.00 |
| 425.41 | 13708.97 | 3836.06 | 804.77 | 1009.65 | 0.00 | 494525.00 | 3915217.00 |
| 477.47 | 13529.58 | 3737.34 | 666.04 | 910.21 | 0.00 | 494346.00 | 3915118.00 |
| 192.27 | 15336.31 | 4606.94 | 870.74 | 1312.70 | 0.00 | 496153.00 | 3915988.00 |
| 190.94 | 15345.73 | 4618.46 | 1267.03 | 2261.22 | 0.00 | 496162.00 | 3915999.00 |
| 49.69 | 20170.24 | 6875.92 | 1231.23 | 2025.25 | 0.00 | 500987.00 | 3918257.00 |
| 204.91 | 15171.37 | 4539.15 | 883.28 | 1251.68 | 0.00 | 495988.00 | 3915920.00 |
| 350.55 | 14045.72 | 4000.27 | 764.16 | 915.13 | 0.00 | 494862.00 | 3915381.00 |
| 299.88 | 14338.95 | 4142.42 | 804.65 | 885.84 | 0.00 | 495155.00 | 3915523.00 |
| 311.37 | 14269.98 | 4109.55 | 1052.22 | 1198.21 | 0.00 | 495086.00 | 3915490.00 |
| 238.89 | 14812.34 | 4366.07 | 900.31 | 1430.83 | 0.00 | 495629.00 | 3915747.00 |
| 182.68 | 15460.76 | 4670.99 | 1226.87 | 1763.86 | 0.00 | 496277.00 | 3916052.00 |
| 356.93 | 14011.37 | 3986.82 | 746.20 | 908.96 | 0.00 | 494828.00 | 3915368.00 |
| 146.70 | 16056.81 | 4953.61 | 1443.12 | 1551.01 | 0.00 | 496873.00 | 3916334.00 |
| 286.84 | 14430.00 | 4184.14 | 622.72 | 831.57 | 0.00 | 495246.00 | 3915565.00 |
| 275.11 | 14513.13 | 4221.69 | 896.63 | 1304.38 | 0.00 | 495329.00 | 3915602.00 |
| 278.39 | 14497.82 | 4209.09 | 892.23 | 1296.96 | 0.00 | 495314.00 | 3915590.00 |
| 476.58 | 13536.31 | 3745.23 | 660.25 | 823.22 | 0.00 | 494353.00 | 3915126.00 |
| 257.23 | 14654.54 | 4298.92 | 1050.60 | 1007.56 | 0.00 | 495471.00 | 3915680.00 |
| 121.16 | 16630.85 | 5240.12 | 1414.58 | 1410.45 | 0.00 | 497447.00 | 3916621.00 |
| 355.35 | 14023.94 | 3983.98 | 843.06 | 1183.22 | 0.00 | 494840.00 | 3915365.00 |
| 295.25 | 14376.56 | 4153.63 | 891.62 | 1388.11 | 0.00 | 495193.00 | 3915534.00 |
| 238.96 | 14819.70 | 4355.16 | 764.58 | 1260.32 | 0.00 | 495636.00 | 3915736.00 |
| 463.90 | 13567.89 | 3766.18 | 757.46 | 967.40 | 0.00 | 494384.00 | 3915147.00 |
| 69.80 | 18633.58 | 6134.12 | 1355.06 | 3009.84 | 0.00 | 499450.00 | 3917515.00 |
| 300.28 | 14340.29 | 4145.05 | 907.10 | 999.51 | 0.00 | 495157.00 | 3915526.00 |
| 162.34 | 15770.45 | 4831.87 | 1323.99 | 1808.65 | 0.00 | 496587.00 | 3916213.00 |
| 103.81 | 17138.23 | 5449.61 | 1227.09 | 2497.21 | 0.00 | 497955.00 | 3916830.00 |
| 93.48 | 17498.48 | 5612.60 | 869.12 | 2049.11 | 0.00 | 498315.00 | 3916993.00 |
| 612.30 | 13166.18 | 3557.11 | 595.95 | 972.43 | 0.00 | 493982.00 | 3914938.00 |
| 243.20 | 14776.99 | 4342.81 | 850.79 | 1658.82 | 0.00 | 495593.00 | 3915724.00 |
| 204.35 | 15186.08 | 4539.73 | 729.61 | 1428.60 | 0.00 | 496002.00 | 3915921.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 395.56 | 62860.40 | 16820.77 | 1323.64 | 993.23 | **101.10** | 543677.00 | 3928202.00 |
| 487.53 | 61799.34 | 16306.47 | 1315.59 | 1036.23 | 0.00 | 542616.00 | 3927687.00 |
| 189.50 | 67745.38 | 19151.15 | 1561.54 | 1495.74 | 0.00 | 548562.00 | 3930532.00 |
| 92.56 | 74706.02 | 22425.29 | 1978.06 | 2193.63 | 0.00 | 555522.00 | 3933806.00 |
| 515.18 | 61542.80 | 16182.01 | 1280.56 | 902.71 | 0.00 | 542359.00 | 3927563.00 |
| 996.05 | 59102.21 | 14933.13 | 1202.46 | 673.92 | 0.00 | 539918.00 | 3926314.00 |
| 231.31 | 66225.67 | 18430.35 | 1485.31 | 1375.80 | 0.00 | 547042.00 | 3929811.00 |
| 91.54 | 74835.01 | 22489.92 | 2275.84 | 2702.61 | 0.00 | 555651.00 | 3933871.00 |
| 360.76 | 63368.13 | 17068.03 | 1381.78 | 1166.30 | 0.00 | 544184.00 | 3928449.00 |
| 361.67 | 63353.64 | 17058.70 | 1353.43 | 1076.41 | 0.00 | 544170.00 | 3928439.00 |
| 104.07 | 73385.53 | 21804.12 | 1980.95 | 2299.03 | 0.00 | 554202.00 | 3933185.00 |
| 331.89 | 63852.92 | 17309.35 | 1482.47 | 1380.15 | 0.00 | 544669.00 | 3928690.00 |
| 429.17 | 62430.87 | 16610.21 | 1342.34 | 1100.39 | 0.00 | 543247.00 | 3927991.00 |
| 158.91 | 69222.04 | 19857.12 | 1633.06 | 1602.33 | 0.00 | 550038.00 | 3931238.00 |
| 144.37 | 70088.57 | 20267.65 | 1802.10 | 1945.72 | 0.00 | 550905.00 | 3931648.00 |
| 224.36 | 66448.07 | 18544.18 | 1541.10 | 1456.70 | 0.00 | 547264.00 | 3929925.00 |
| 254.29 | 65557.10 | 18120.31 | 1467.74 | 1342.35 | 0.00 | 546373.00 | 3929501.00 |
| 240.02 | 65959.69 | 18314.72 | 1525.05 | 1440.52 | 0.00 | 546776.00 | 3929695.00 |
| 422.79 | 62508.67 | 16654.55 | 1340.08 | 1074.98 | 0.00 | 543325.00 | 3928035.00 |
| 232.15 | 66198.95 | 18423.17 | 1468.23 | 1264.81 | 0.00 | 547015.00 | 3929804.00 |
| 366.56 | 63279.19 | 17025.09 | 1299.74 | 898.87 | 0.00 | 544095.00 | 3928406.00 |
| 465.49 | 62024.26 | 16416.00 | 1362.58 | 1168.72 | 0.00 | 542841.00 | 3927797.00 |
| 592.43 | 60925.76 | 15878.69 | 1251.56 | 817.33 | 0.00 | 541742.00 | 3927259.00 |
| 492.11 | 61753.69 | 16281.46 | 1286.13 | 925.01 | 0.00 | 542570.00 | 3927662.00 |
| 305.86 | 64348.52 | 17542.48 | 1494.33 | 1375.60 | 0.00 | 545165.00 | 3928923.00 |
| 541.23 | 61318.59 | 16069.78 | 1264.45 | 871.72 | 0.00 | 542135.00 | 3927451.00 |
| 339.52 | 63718.00 | 17240.35 | 1375.28 | 1113.39 | 0.00 | 544534.00 | 3928621.00 |
| 299.88 | 64474.15 | 17597.53 | 1443.40 | 1311.36 | 0.00 | 545290.00 | 3928978.00 |
| 171.15 | 68587.47 | 19555.78 | 1734.26 | 1842.08 | 0.00 | 549404.00 | 3930937.00 |
| 622.28 | 60720.63 | 15770.63 | 1280.91 | 952.74 | 0.00 | 541537.00 | 3927151.00 |
| 578.74 | 61026.73 | 15924.37 | 1353.38 | 1177.60 | 0.00 | 541843.00 | 3927305.00 |
| 311.01 | 64247.23 | 17494.91 | 1382.95 | 1126.02 | 0.00 | 545064.00 | 3928876.00 |
| 214.18 | 66794.64 | 18704.74 | 1530.87 | 1433.86 | 0.00 | 547611.00 | 3930086.00 |
| 262.68 | 65335.65 | 18012.65 | 1510.21 | 1393.94 | 0.00 | 546152.00 | 3929393.00 |
| 268.03 | 65201.05 | 17948.99 | 1467.95 | 1307.76 | 0.00 | 546017.00 | 3929330.00 |
| 189.20 | 67758.62 | 19166.09 | 1625.91 | 1633.60 | 0.00 | 548575.00 | 3930547.00 |
| 384.06 | 63020.01 | 16902.45 | 1407.19 | 1233.93 | 0.00 | 543836.00 | 3928283.00 |
| 327.01 | 63939.69 | 17347.50 | 1355.48 | 1055.53 | 0.00 | 544756.00 | 3928728.00 |
| 454.61 | 62140.89 | 16476.98 | 1294.18 | 933.90 | 0.00 | 542957.00 | 3927858.00 |
| 77.45 | 76872.86 | 23455.48 | 2175.56 | 2289.57 | 0.00 | 557689.00 | 3934836.00 |
| 227.69 | 66339.34 | 18483.34 | 1626.12 | 1684.47 | 0.00 | 547156.00 | 3929864.00 |
| 670.80 | 60434.34 | 15631.26 | 1227.52 | 740.79 | 0.00 | 541251.00 | 3927012.00 |
| 37.56 | 87961.99 | 28635.83 | 3519.59 | 4161.20 | 0.00 | 568778.00 | 3940017.00 |
| 119.17 | 71952.89 | 21141.06 | 1913.27 | 2054.73 | 0.00 | 552769.00 | 3932522.00 |
| 405.35 | 62728.71 | 16754.38 | 1301.95 | 949.23 | 0.00 | 543545.00 | 3928135.00 |
| 291.38 | 64656.38 | 17685.65 | 1455.92 | 1344.04 | 0.00 | 545473.00 | 3929066.00 |
| 192.26 | 67629.00 | 19105.37 | 1707.52 | 1788.91 | 0.00 | 548445.00 | 3930486.00 |
| 60.02 | 80329.16 | 25077.22 | 2648.22 | 3113.28 | 0.00 | 561145.00 | 3936458.00 |
| 142.06 | 70239.29 | 20318.53 | 1802.01 | 1988.19 | 0.00 | 551056.00 | 3931699.00 |

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|---|---|---|---|---|---|---|---|
| 309.63 | 64273.78 | 17512.55 | 1378.43 | 1103.56 | 0.00 | 545090.00 | 3928893.00 |
| 505.29 | 61631.32 | 16222.53 | 1335.96 | 1076.92 | 0.00 | 542448.00 | 3927603.00 |
| 329.90 | 63887.23 | 17325.84 | 1432.00 | 1256.72 | 0.00 | 544704.00 | 3928707.00 |
| 184.66 | 67954.81 | 19256.15 | 1577.40 | 1488.84 | 0.00 | 548771.00 | 3930637.00 |
| 261.97 | 65356.60 | 18027.47 | 1528.61 | 1407.63 | 0.00 | 546173.00 | 3929408.00 |
| 325.32 | 63971.69 | 17356.76 | 1371.67 | 1123.04 | 0.00 | 544788.00 | 3928738.00 |
| 324.26 | 63991.04 | 17372.89 | 1343.42 | 1009.17 | 0.00 | 544807.00 | 3928754.00 |
| 568.13 | 61105.45 | 15963.20 | 1306.63 | 1029.99 | 0.00 | 541922.00 | 3927344.00 |
| 406.94 | 62706.64 | 16749.14 | 1326.82 | 1004.48 | 0.00 | 543523.00 | 3928130.00 |
| 326.73 | 63947.90 | 17348.33 | 1366.98 | 1085.78 | 0.00 | 544764.00 | 3928729.00 |
| 342.92 | 63658.47 | 17212.86 | 1383.29 | 1154.19 | 0.00 | 544475.00 | 3928594.00 |
| 142.88 | 70183.69 | 20298.74 | 1765.27 | 1961.17 | 0.00 | 551000.00 | 3931680.00 |
| 432.33 | 62393.84 | 16602.39 | 1309.37 | 954.73 | 0.00 | 543210.00 | 3927983.00 |
| 57.74 | 80893.70 | 25322.49 | 2460.04 | 2955.69 | 0.00 | 561710.00 | 3936703.00 |
| 326.12 | 63958.42 | 17356.66 | 1351.16 | 1031.47 | 0.00 | 544775.00 | 3928737.00 |
| 288.66 | 64715.72 | 17727.09 | 1426.02 | 1184.65 | 0.00 | 545532.00 | 3929108.00 |
| 364.98 | 63302.88 | 17039.28 | 1356.24 | 1049.81 | 0.00 | 544119.00 | 3928420.00 |
| 188.85 | 67774.14 | 19175.05 | 1669.50 | 1679.71 | 0.00 | 548590.00 | 3930556.00 |
| 422.32 | 62515.15 | 16658.16 | 1368.06 | 1124.64 | 0.00 | 543331.00 | 3928039.00 |
| 128.51 | 71196.59 | 20788.95 | 1982.38 | 2324.82 | 0.00 | 552013.00 | 3932170.00 |
| 368.24 | 63253.74 | 17014.34 | 1390.67 | 1195.92 | 0.00 | 544070.00 | 3928395.00 |
| 524.74 | 61458.04 | 16138.90 | 1260.16 | 840.74 | 0.00 | 542274.00 | 3927520.00 |
| 266.97 | 65227.17 | 17970.64 | 1491.28 | 1358.12 | 0.00 | 546043.00 | 3929351.00 |
| 224.09 | 66457.92 | 18554.54 | 1653.29 | 1704.60 | 0.00 | 547274.00 | 3929935.00 |
| 435.80 | 62353.16 | 16577.52 | 1328.34 | 1029.69 | 0.00 | 543169.00 | 3927958.00 |
| 407.81 | 62695.25 | 16749.72 | 1332.20 | 1022.22 | 0.00 | 543512.00 | 3928131.00 |
| 436.15 | 62347.82 | 16574.80 | 1386.08 | 1196.69 | 0.00 | 543164.00 | 3927956.00 |
| 306.77 | 64330.58 | 17530.97 | 1378.43 | 1109.13 | 0.00 | 545147.00 | 3928912.00 |
| 445.47 | 62243.44 | 16525.34 | 1347.89 | 1103.55 | 0.00 | 543060.00 | 3927906.00 |
| 660.17 | 60487.95 | 15655.00 | 1258.74 | 873.32 | 0.00 | 541304.00 | 3927036.00 |
| 422.08 | 62517.73 | 16655.99 | 1338.77 | 1068.53 | 0.00 | 543334.00 | 3928037.00 |
| 215.59 | 66743.25 | 18677.48 | 1538.58 | 1464.23 | 0.00 | 547560.00 | 3930058.00 |
| 69.29 | 78326.36 | 24121.59 | 2616.01 | 3243.47 | 0.00 | 559143.00 | 3935502.00 |
| 177.81 | 68265.20 | 19404.04 | 1623.14 | 1556.75 | 0.00 | 549081.00 | 3930785.00 |
| 319.32 | 64084.95 | 17416.88 | 1457.94 | 1290.04 | 0.00 | 544901.00 | 3928798.00 |
| 495.64 | 61721.76 | 16264.47 | 1298.90 | 990.73 | 0.00 | 542538.00 | 3927645.00 |
| 364.53 | 63308.65 | 17039.13 | 1400.09 | 1212.13 | 0.00 | 544125.00 | 3928420.00 |
| 103.89 | 73405.14 | 21810.45 | 2059.82 | 2474.34 | 0.00 | 554221.00 | 3933191.00 |
| 198.87 | 67362.82 | 18972.95 | 1635.74 | 1683.29 | 0.00 | 548179.00 | 3930354.00 |
| 177.43 | 68282.86 | 19408.96 | 1687.54 | 1775.74 | 0.00 | 549099.00 | 3930790.00 |
| 156.57 | 69353.07 | 19908.80 | 1612.90 | 1553.33 | 0.00 | 550169.00 | 3931290.00 |
| 276.21 | 65002.27 | 17844.69 | 1476.96 | 1392.30 | 0.00 | 545819.00 | 3929225.00 |
| 370.92 | 63212.18 | 16992.77 | 1436.63 | 1351.06 | 0.00 | 544028.00 | 3928374.00 |
| 156.54 | 69356.39 | 19908.38 | 1627.55 | 1581.46 | 0.00 | 550173.00 | 3931289.00 |
| 163.54 | 68971.78 | 19747.02 | 1769.24 | 1889.58 | 0.00 | 549788.00 | 3931128.00 |
| 200.12 | 67312.83 | 18962.15 | 1632.65 | 1656.43 | 0.00 | 548129.00 | 3930343.00 |
| 256.43 | 65501.34 | 18089.88 | 1544.10 | 1486.85 | 0.00 | 546318.00 | 3929471.00 |
| 127.49 | 71278.42 | 20821.12 | 1868.01 | 2078.90 | 0.00 | 552095.00 | 3932202.00 |
| 562.74 | 61143.38 | 15984.64 | 1311.70 | 1031.25 | 0.00 | 541960.00 | 3927365.00 |
| 207.22 | 67046.50 | 18822.17 | 1564.46 | 1502.71 | 0.00 | 547863.00 | 3930203.00 |
| 294.18 | 64593.89 | 17658.19 | 1469.27 | 1405.54 | 0.00 | 545410.00 | 3929039.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 386.45 | 108713.00 | 28409.09 | 1884.65 | 1397.16 | **122.05** | 589529.00 | 3939790.00 |
| 165.70 | 117191.47 | 32446.85 | 2206.83 | 1883.03 | 0.00 | 598008.00 | 3943828.00 |
| 226.04 | 113630.69 | 30760.51 | 2127.18 | 1835.04 | 0.00 | 594447.00 | 3942141.00 |
| 244.96 | 112799.70 | 30366.40 | 2104.07 | 1830.42 | 0.00 | 593616.00 | 3941747.00 |
| 81.23 | 127875.37 | 37454.78 | 2837.11 | 2950.61 | 0.00 | 608692.00 | 3948836.00 |
| 394.30 | 108556.10 | 28330.12 | 1820.24 | 1176.76 | 0.00 | 589372.00 | 3939711.00 |
| 246.80 | 112724.06 | 30320.86 | 2187.34 | 2072.39 | 0.00 | 593540.00 | 3941702.00 |
| 460.31 | 107402.97 | 27776.99 | 1821.32 | 1239.07 | 0.00 | 588219.00 | 3939158.00 |
| 244.35 | 112824.72 | 30368.75 | 2114.29 | 1886.77 | 0.00 | 593641.00 | 3941750.00 |
| 378.82 | 108870.99 | 28485.93 | 1924.62 | 1498.52 | 0.00 | 589687.00 | 3939867.00 |
| 337.33 | 109826.16 | 28947.45 | 1949.15 | 1555.58 | 0.00 | 590642.00 | 3940328.00 |
| 249.83 | 112600.58 | 30278.16 | 2028.80 | 1624.99 | 0.00 | 593417.00 | 3941659.00 |
| 102.00 | 124030.32 | 35652.34 | 2611.79 | 2613.66 | 0.00 | 604847.00 | 3947033.00 |
| 477.10 | 107149.38 | 27655.22 | 1793.44 | 1154.25 | 0.00 | 587966.00 | 3939036.00 |
| 183.58 | 115951.60 | 31849.90 | 2208.90 | 2010.55 | 0.00 | 596768.00 | 3943231.00 |
| 299.18 | 110881.75 | 29449.37 | 1930.88 | 1442.66 | 0.00 | 591698.00 | 3940830.00 |
| 146.28 | 118786.17 | 33177.55 | 2349.07 | 2243.20 | 0.00 | 599602.00 | 3944558.00 |
| 449.44 | 107573.49 | 27864.20 | 1846.43 | 1311.27 | 0.00 | 588390.00 | 3939245.00 |
| 336.46 | 109848.30 | 28951.35 | 1925.14 | 1465.97 | 0.00 | 590665.00 | 3940332.00 |
| 249.36 | 112621.27 | 30284.61 | 2017.88 | 1582.61 | 0.00 | 593438.00 | 3941665.00 |
| 118.26 | 121760.97 | 34590.56 | 2776.51 | 2977.36 | 0.00 | 602577.00 | 3945971.00 |
| 214.58 | 114187.44 | 31030.81 | 2210.88 | 2018.59 | 0.00 | 595004.00 | 3942412.00 |
| 670.04 | 105023.29 | 26610.35 | 1717.45 | 932.71 | 0.00 | 585840.00 | 3937991.00 |
| 75.99 | 129087.24 | 38004.50 | 2949.78 | 3204.04 | 0.00 | 609904.00 | 3949385.00 |
| 207.45 | 114557.50 | 31203.75 | 2147.39 | 1846.85 | 0.00 | 595374.00 | 3942585.00 |
| 79.63 | 128232.75 | 37609.24 | 3162.37 | 3724.92 | 0.00 | 609049.00 | 3948990.00 |
| 263.01 | 112092.98 | 30044.10 | 2027.80 | 1623.76 | 0.00 | 592909.00 | 3941425.00 |
| 180.34 | 116163.23 | 31949.91 | 2245.95 | 2059.31 | 0.00 | 596980.00 | 3943331.00 |
| 121.33 | 121385.42 | 34409.73 | 2446.85 | 2328.14 | 0.00 | 602202.00 | 3945791.00 |
| 495.99 | 106881.59 | 27533.34 | 1777.58 | 1081.88 | 0.00 | 587698.00 | 3938914.00 |
| 70.82 | 130414.05 | 38658.67 | 2982.80 | 2997.74 | 0.00 | 611230.00 | 3950039.00 |
| 303.16 | 110762.84 | 29397.11 | 2014.24 | 1667.44 | 0.00 | 591579.00 | 3940778.00 |
| 314.82 | 110426.17 | 29238.78 | 1941.45 | 1474.51 | 0.00 | 591242.00 | 3940620.00 |
| 102.57 | 123941.18 | 35609.86 | 2567.59 | 2488.27 | 0.00 | 604757.00 | 3946991.00 |
| 415.28 | 108157.50 | 28151.13 | 1817.65 | 1179.51 | 0.00 | 588974.00 | 3939532.00 |
| 689.41 | 104864.03 | 26531.49 | 1746.51 | 1070.11 | 0.00 | 585680.00 | 3937912.00 |
| 163.00 | 117390.85 | 32520.50 | 2242.08 | 2026.93 | 0.00 | 598207.00 | 3943901.00 |
| 464.30 | 107340.43 | 27743.30 | 1798.98 | 1164.58 | 0.00 | 588157.00 | 3939124.00 |
| 552.28 | 106173.90 | 27185.74 | 1801.58 | 1212.56 | 0.00 | 586990.00 | 3938567.00 |
| 285.54 | 111311.13 | 29659.54 | 2043.14 | 1745.36 | 0.00 | 592127.00 | 3941040.00 |
| 301.15 | 110822.89 | 29423.99 | 2020.71 | 1701.54 | 0.00 | 591639.00 | 3940805.00 |
| 534.04 | 106390.02 | 27281.62 | 1798.65 | 1218.61 | 0.00 | 587206.00 | 3938662.00 |
| 314.88 | 110424.40 | 29227.55 | 2088.31 | 1935.42 | 0.00 | 591241.00 | 3940608.00 |
| 426.76 | 107954.01 | 28049.41 | 1906.13 | 1486.22 | 0.00 | 588770.00 | 3939430.00 |
| 424.60 | 107992.16 | 28067.86 | 1819.97 | 1186.26 | 0.00 | 588808.00 | 3939449.00 |
| 498.51 | 106848.66 | 27513.82 | 1813.20 | 1231.92 | 0.00 | 587665.00 | 3938895.00 |
| 163.51 | 117351.42 | 32521.09 | 2327.21 | 2180.65 | 0.00 | 598168.00 | 3943902.00 |
| 114.26 | 122274.50 | 34824.21 | 2567.90 | 2571.18 | 0.00 | 603091.00 | 3946205.00 |
| 255.81 | 112367.62 | 30157.00 | 2155.73 | 2011.88 | 0.00 | 593184.00 | 3941538.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 379.25 | 108863.18 | 28490.25 | 1909.72 | 1432.81 | 0.00 | 589679.00 | 3939871.00 |
| 338.56 | 109796.57 | 28939.48 | 1985.35 | 1626.10 | 0.00 | 590613.00 | 3940320.00 |
| 626.58 | 105399.12 | 26795.85 | 1750.12 | 1061.83 | 0.00 | 586215.00 | 3938177.00 |
| 389.30 | 108655.55 | 28382.26 | 1848.89 | 1269.47 | 0.00 | 589472.00 | 3939763.00 |
| 369.35 | 109075.10 | 28592.61 | 1943.60 | 1553.68 | 0.00 | 589891.00 | 3939973.00 |
| 437.92 | 107762.44 | 27942.39 | 1863.04 | 1388.06 | 0.00 | 588579.00 | 3939323.00 |
| 365.38 | 109163.55 | 28629.26 | 1956.85 | 1591.96 | 0.00 | 589980.00 | 3940010.00 |
| 303.23 | 110759.60 | 29404.11 | 2058.25 | 1816.46 | 0.00 | 591576.00 | 3940785.00 |
| 540.92 | 106306.76 | 27248.90 | 1850.53 | 1363.00 | 0.00 | 587123.00 | 3938630.00 |
| 198.08 | 115075.04 | 31433.68 | 2269.88 | 2156.91 | 0.00 | 595891.00 | 3942814.00 |
| 19.23 | 165683.15 | 55083.04 | 5209.59 | 6488.82 | 0.00 | 646499.00 | 3966464.00 |
| 169.56 | 116906.47 | 32300.40 | 2219.03 | 1985.66 | 0.00 | 597723.00 | 3943681.00 |
| 267.20 | 111940.00 | 29970.98 | 2008.16 | 1563.24 | 0.00 | 592756.00 | 3941352.00 |
| 277.27 | 111587.67 | 29785.47 | 1936.61 | 1403.15 | 0.00 | 592404.00 | 3941166.00 |
| 312.91 | 110478.39 | 29272.81 | 2010.43 | 1640.84 | 0.00 | 591295.00 | 3940654.00 |
| 23.98 | 157970.17 | 51508.25 | 5235.81 | 6721.76 | 0.00 | 638786.00 | 3962889.00 |
| 275.37 | 111652.29 | 29825.41 | 1968.25 | 1486.17 | 0.00 | 592469.00 | 3941206.00 |
| 309.73 | 110569.68 | 29305.45 | 1982.39 | 1616.09 | 0.00 | 591386.00 | 3940686.00 |
| 394.17 | 108558.49 | 28341.95 | 1886.37 | 1398.82 | 0.00 | 589375.00 | 3939723.00 |
| 138.27 | 119542.14 | 33537.89 | 2549.85 | 2704.06 | 0.00 | 600358.00 | 3944919.00 |
| 240.77 | 112975.06 | 30440.93 | 2090.35 | 1833.12 | 0.00 | 593791.00 | 3941822.00 |
| 40.86 | 142548.33 | 44300.46 | 3924.92 | 4796.64 | 0.00 | 623365.00 | 3955681.00 |
| 103.03 | 123871.70 | 35570.34 | 2810.36 | 3009.20 | 0.00 | 604688.00 | 3946951.00 |
| 770.48 | 104272.87 | 26228.00 | 1716.30 | 978.97 | 0.00 | 585089.00 | 3937609.00 |
| 383.80 | 108767.64 | 28445.49 | 1902.10 | 1444.52 | 0.00 | 589584.00 | 3939826.00 |
| 148.90 | 118550.64 | 33090.73 | 2420.36 | 2350.08 | 0.00 | 599367.00 | 3944472.00 |
| 143.58 | 119032.72 | 33308.63 | 2347.04 | 2169.05 | 0.00 | 599849.00 | 3944689.00 |
| 292.46 | 111089.42 | 29554.15 | 1930.11 | 1400.96 | 0.00 | 591906.00 | 3940935.00 |
| 316.78 | 110371.33 | 29209.30 | 1964.94 | 1573.98 | 0.00 | 591188.00 | 3940590.00 |
| 48.45 | 138422.47 | 42373.13 | 3835.19 | 4668.55 | 0.00 | 619239.00 | 3953754.00 |
| 185.80 | 115810.96 | 31795.19 | 2193.65 | 1924.53 | 0.00 | 596627.00 | 3943176.00 |
| 430.35 | 107891.75 | 28028.06 | 1864.04 | 1352.16 | 0.00 | 588708.00 | 3939409.00 |
| 356.06 | 109374.54 | 28731.56 | 1931.15 | 1496.66 | 0.00 | 590191.00 | 3940112.00 |
| 251.76 | 112525.23 | 30239.00 | 2078.22 | 1767.72 | 0.00 | 593342.00 | 3941620.00 |
| 167.41 | 117062.98 | 32392.18 | 2147.88 | 1733.22 | 0.00 | 597879.00 | 3943773.00 |
| 106.41 | 123364.01 | 35349.73 | 2527.93 | 2344.06 | 0.00 | 604180.00 | 3946731.00 |
| 81.48 | 127819.05 | 37422.60 | 3190.17 | 3788.84 | 0.00 | 608635.00 | 3948803.00 |
| 357.27 | 109347.00 | 28714.24 | 1913.15 | 1462.19 | 0.00 | 590163.00 | 3940095.00 |
| 324.59 | 110156.30 | 29106.85 | 1918.43 | 1421.14 | 0.00 | 590973.00 | 3940488.00 |
| 125.63 | 120882.78 | 34182.55 | 2412.94 | 2249.92 | 0.00 | 601699.00 | 3945563.00 |
| 343.75 | 109667.59 | 28870.36 | 1931.61 | 1484.76 | 0.00 | 590484.00 | 3940251.00 |
| 167.03 | 117091.81 | 32386.19 | 2212.85 | 1934.66 | 0.00 | 597908.00 | 3943767.00 |
| 229.41 | 113475.14 | 30690.74 | 2078.13 | 1720.50 | 0.00 | 594291.00 | 3942072.00 |
| 148.01 | 118630.25 | 33108.16 | 2395.16 | 2324.36 | 0.00 | 599447.00 | 3944489.00 |
| 418.67 | 108096.73 | 28115.54 | 1858.90 | 1341.84 | 0.00 | 588913.00 | 3939496.00 |
| 480.70 | 107098.18 | 27634.64 | 1863.25 | 1398.42 | 0.00 | 587914.00 | 3939015.00 |
| 237.13 | 113131.78 | 30523.11 | 2077.57 | 1767.19 | 0.00 | 593948.00 | 3941904.00 |
| 185.30 | 115843.12 | 31811.21 | 2295.27 | 2177.42 | 0.00 | 596659.00 | 3943192.00 |
| 427.51 | 107940.91 | 28035.94 | 1831.97 | 1246.05 | 0.00 | 588757.00 | 3939417.00 |
| 161.60 | 117499.36 | 32591.16 | 2369.65 | 2253.71 | 0.00 | 598316.00 | 3943972.00 |
| 368.67 | 109090.45 | 28593.18 | 1916.12 | 1490.37 | 0.00 | 589907.00 | 3939974.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 311.28 | 49239.15 | 13582.58 | 1338.11 | 1395.96 | **92.15** | 530055.00 | 3924963.00 |
| 529.59 | 46898.88 | 12433.07 | 1130.31 | 1002.07 | 0.00 | 527715.00 | 3923814.00 |
| 144.92 | 54046.68 | 15854.14 | 1537.16 | 1752.03 | 0.00 | 534863.00 | 3927235.00 |
| 347.23 | 48701.02 | 13318.65 | 1137.30 | 911.69 | 0.00 | 529517.00 | 3924699.00 |
| 267.02 | 50052.82 | 13965.40 | 1325.07 | 1364.93 | 0.00 | 530869.00 | 3925346.00 |
| 277.93 | 49833.32 | 13861.25 | 1231.50 | 1145.98 | 0.00 | 530650.00 | 3925242.00 |
| 276.87 | 49856.35 | 13873.24 | 1296.03 | 1297.51 | 0.00 | 530673.00 | 3925254.00 |
| 245.43 | 50533.36 | 14192.27 | 1278.51 | 1275.47 | 0.00 | 531350.00 | 3925573.00 |
| 714.78 | 45892.31 | 11921.57 | 1046.05 | 751.82 | 0.00 | 526709.00 | 3923302.00 |
| 28.43 | 73385.36 | 24896.18 | 3081.44 | 4633.36 | 0.00 | 554202.00 | 3936277.00 |
| 685.73 | 46020.79 | 11998.43 | 1033.70 | 693.95 | 0.00 | 526837.00 | 3923379.00 |
| 287.80 | 49648.67 | 13777.01 | 1232.74 | 1162.42 | 0.00 | 530465.00 | 3925158.00 |
| 69.69 | 60831.86 | 19039.41 | 2328.16 | 3134.02 | 0.00 | 541648.00 | 3930420.00 |
| 181.63 | 52424.68 | 15092.14 | 1493.63 | 1670.79 | 0.00 | 533241.00 | 3926473.00 |
| 345.87 | 48718.01 | 13324.35 | 1205.27 | 1156.50 | 0.00 | 529534.00 | 3924705.00 |
| 75.83 | 59916.01 | 18613.58 | 1717.33 | 1845.68 | 0.00 | 540732.00 | 3929994.00 |
| 427.31 | 47758.21 | 12863.37 | 1127.13 | 923.84 | 0.00 | 528574.00 | 3924244.00 |
| 469.84 | 47366.18 | 12664.33 | 1108.83 | 900.27 | 0.00 | 528182.00 | 3924045.00 |
| 317.12 | 49146.20 | 13537.40 | 1226.04 | 1106.02 | 0.00 | 529962.00 | 3924918.00 |
| 161.54 | 53241.46 | 15472.05 | 1526.80 | 1794.47 | 0.00 | 534058.00 | 3926853.00 |
| 478.73 | 47288.84 | 12630.99 | 1164.03 | 1057.96 | 0.00 | 528105.00 | 3924012.00 |
| 215.50 | 51313.33 | 14569.14 | 1352.72 | 1373.00 | 0.00 | 532130.00 | 3925950.00 |
| 529.43 | 46900.96 | 12441.20 | 1090.48 | 838.06 | 0.00 | 527717.00 | 3923822.00 |
| 233.16 | 50832.42 | 14342.84 | 1395.30 | 1485.22 | 0.00 | 531649.00 | 3925724.00 |
| 534.56 | 46866.53 | 12418.34 | 1088.47 | 858.96 | 0.00 | 527683.00 | 3923799.00 |
| 330.17 | 48942.63 | 13432.26 | 1172.81 | 1054.93 | 0.00 | 529759.00 | 3924813.00 |
| 120.71 | 55514.80 | 16549.19 | 1584.34 | 1771.89 | 0.00 | 536331.00 | 3927930.00 |
| 319.55 | 49109.67 | 13516.40 | 1187.35 | 1051.69 | 0.00 | 529926.00 | 3924897.00 |
| 723.69 | 45854.35 | 11905.16 | 1018.15 | 644.35 | 0.00 | 526671.00 | 3923286.00 |
| 208.91 | 51508.04 | 14666.46 | 1533.19 | 1702.12 | 0.00 | 532324.00 | 3926047.00 |
| 92.26 | 57931.89 | 17685.24 | 1668.48 | 1907.82 | 0.00 | 538748.00 | 3929066.00 |
| 47.02 | 65654.75 | 21288.34 | 2438.56 | 3209.53 | 0.00 | 546471.00 | 3932669.00 |
| 333.33 | 48898.95 | 13413.16 | 1190.67 | 1073.67 | 0.00 | 529715.00 | 3924794.00 |
| 113.63 | 56029.51 | 16785.94 | 1789.00 | 2126.74 | 0.00 | 536846.00 | 3928167.00 |
| 98.45 | 57316.73 | 17394.48 | 1763.97 | 2049.71 | 0.00 | 538133.00 | 3928775.00 |
| 82.72 | 59011.97 | 18187.64 | 2020.00 | 2520.04 | 0.00 | 539828.00 | 3929568.00 |
| 337.43 | 48836.37 | 13393.18 | 1287.30 | 1223.63 | 0.00 | 529653.00 | 3924774.00 |
| 252.12 | 50375.90 | 14123.02 | 1310.68 | 1330.93 | 0.00 | 531192.00 | 3925504.00 |
| 123.59 | 55317.14 | 16465.03 | 1640.80 | 1820.08 | 0.00 | 536133.00 | 3927846.00 |
| 135.55 | 54569.51 | 16111.31 | 1663.93 | 1974.51 | 0.00 | 535386.00 | 3927492.00 |
| 117.74 | 55726.48 | 16662.16 | 1747.69 | 1912.60 | 0.00 | 536543.00 | 3928043.00 |
| 252.67 | 50364.36 | 14124.56 | 1290.82 | 1217.33 | 0.00 | 531181.00 | 3925505.00 |
| 239.62 | 50673.09 | 14264.73 | 1445.34 | 1507.79 | 0.00 | 531489.00 | 3925646.00 |
| 296.79 | 49485.55 | 13683.45 | 1278.00 | 1400.99 | 0.00 | 530302.00 | 3925064.00 |
| 352.39 | 48625.52 | 13283.92 | 1274.06 | 1255.74 | 0.00 | 529442.00 | 3924665.00 |
| 267.73 | 50040.43 | 13963.21 | 1226.96 | 1174.91 | 0.00 | 530857.00 | 3925344.00 |
| 343.27 | 48754.27 | 13346.01 | 1201.28 | 1080.05 | 0.00 | 529571.00 | 3924727.00 |
| 296.29 | 49493.67 | 13703.63 | 1184.98 | 1022.60 | 0.00 | 530310.00 | 3925084.00 |
| 299.79 | 49432.78 | 13676.52 | 1317.90 | 1313.90 | 0.00 | 530249.00 | 3925057.00 |

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|---|---|---|---|---|---|---|---|
| 259.99 | 50206.08 | 14038.80 | 1218.63 | 1098.59 | 0.00 | 531022.00 | 3925420.00 |
| 707.06 | 45926.30 | 11948.09 | 1039.52 | 701.53 | 0.00 | 526743.00 | 3923329.00 |
| 247.76 | 50478.75 | 14173.34 | 1239.04 | 1148.38 | 0.00 | 531295.00 | 3925554.00 |
| 230.05 | 50912.67 | 14383.22 | 1439.67 | 1485.00 | 0.00 | 531729.00 | 3925764.00 |
| 100.78 | 57100.32 | 17291.76 | 1770.70 | 2206.18 | 0.00 | 537917.00 | 3928673.00 |
| 404.43 | 47997.56 | 12971.81 | 1144.85 | 980.01 | 0.00 | 528814.00 | 3924353.00 |
| 311.52 | 49234.93 | 13571.30 | 1340.17 | 1465.89 | 0.00 | 530051.00 | 3924952.00 |
| 362.39 | 48495.44 | 13217.65 | 1219.81 | 1156.93 | 0.00 | 529312.00 | 3924598.00 |
| 478.51 | 47292.44 | 12631.55 | 1160.06 | 1049.64 | 0.00 | 528109.00 | 3924012.00 |
| 218.47 | 51226.45 | 14527.95 | 1345.32 | 1370.69 | 0.00 | 532043.00 | 3925909.00 |
| 434.34 | 47690.92 | 12831.42 | 1143.62 | 982.25 | 0.00 | 528507.00 | 3924212.00 |
| 545.50 | 46793.74 | 12387.91 | 1150.56 | 1006.07 | 0.00 | 527610.00 | 3923769.00 |
| 410.67 | 47929.86 | 12949.61 | 1138.48 | 936.59 | 0.00 | 528746.00 | 3924330.00 |
| 413.45 | 47898.49 | 12928.26 | 1201.71 | 1127.67 | 0.00 | 528715.00 | 3924309.00 |
| 224.20 | 51069.08 | 14450.79 | 1292.85 | 1336.91 | 0.00 | 531885.00 | 3925832.00 |
| 140.43 | 54291.45 | 15983.04 | 1588.50 | 1786.39 | 0.00 | 535108.00 | 3927364.00 |
| 428.14 | 47752.22 | 12860.42 | 1094.18 | 814.53 | 0.00 | 528568.00 | 3924241.00 |
| 236.91 | 50739.22 | 14298.37 | 1318.38 | 1328.61 | 0.00 | 531556.00 | 3925679.00 |
| 310.16 | 49257.59 | 13591.03 | 1337.98 | 1342.68 | 0.00 | 530074.00 | 3924972.00 |
| 453.45 | 47512.46 | 12737.35 | 1100.88 | 884.01 | 0.00 | 528329.00 | 3924118.00 |
| 531.09 | 46893.47 | 12427.69 | 1060.85 | 749.29 | 0.00 | 527710.00 | 3923808.00 |
| 175.63 | 52655.78 | 15203.22 | 1355.88 | 1356.73 | 0.00 | 533472.00 | 3926584.00 |
| 143.50 | 54126.90 | 15891.23 | 1399.96 | 1446.95 | 0.00 | 534943.00 | 3927272.00 |
| 239.90 | 50666.22 | 14260.88 | 1249.34 | 1188.51 | 0.00 | 531483.00 | 3925642.00 |
| 318.28 | 49125.89 | 13522.11 | 1151.90 | 957.28 | 0.00 | 529942.00 | 3924903.00 |
| 879.31 | 45302.87 | 11617.09 | 1022.30 | 662.58 | 0.00 | 526119.00 | 3922998.00 |
| 501.25 | 47110.92 | 12542.13 | 1100.45 | 885.64 | 0.00 | 527927.00 | 3923923.00 |
| 261.27 | 50176.75 | 14033.49 | 1245.09 | 1140.73 | 0.00 | 530993.00 | 3925414.00 |
| 200.58 | 51769.35 | 14790.07 | 1446.54 | 1574.05 | 0.00 | 532586.00 | 3926171.00 |
| 83.62 | 58903.24 | 18137.37 | 1694.70 | 2065.10 | 0.00 | 539720.00 | 3929518.00 |
| 284.85 | 49702.36 | 13804.42 | 1179.47 | 973.01 | 0.00 | 530519.00 | 3925185.00 |
| 231.70 | 50873.47 | 14355.11 | 1344.98 | 1388.99 | 0.00 | 531690.00 | 3925736.00 |
| 47.68 | 65467.14 | 21196.92 | 2388.69 | 3093.93 | 0.00 | 546283.00 | 3932578.00 |
| 231.81 | 50870.11 | 14362.14 | 1290.99 | 1225.43 | 0.00 | 531686.00 | 3925743.00 |
| 260.67 | 50189.21 | 14036.91 | 1238.70 | 1089.64 | 0.00 | 531005.00 | 3925418.00 |
| 378.92 | 48290.67 | 13117.84 | 1159.78 | 1027.04 | 0.00 | 529107.00 | 3924499.00 |
| 411.43 | 47920.25 | 12935.05 | 1213.37 | 1197.23 | 0.00 | 528737.00 | 3924316.00 |
| 383.58 | 48234.57 | 13090.73 | 1115.71 | 899.21 | 0.00 | 529051.00 | 3924472.00 |
| 103.89 | 56822.14 | 17161.95 | 1930.35 | 2376.29 | 0.00 | 537638.00 | 3928543.00 |
| 327.31 | 48986.06 | 13461.40 | 1167.46 | 1006.82 | 0.00 | 529802.00 | 3924842.00 |
| 266.64 | 50062.86 | 13976.48 | 1414.05 | 1552.36 | 0.00 | 530879.00 | 3925357.00 |
| 227.03 | 50996.15 | 14416.31 | 1334.97 | 1353.10 | 0.00 | 531812.00 | 3925797.00 |
| 97.82 | 57376.91 | 17423.99 | 1885.52 | 2453.68 | 0.00 | 538193.00 | 3928805.00 |
| 79.46 | 59425.19 | 18392.08 | 2148.36 | 2768.28 | 0.00 | 540241.00 | 3929773.00 |
| 139.75 | 54330.10 | 15989.74 | 1537.22 | 1676.90 | 0.00 | 535146.00 | 3927371.00 |
| 134.47 | 54634.90 | 16132.70 | 1528.01 | 1654.86 | 0.00 | 535451.00 | 3927513.00 |
| 231.27 | 50882.95 | 14370.35 | 1252.97 | 1119.25 | 0.00 | 531699.00 | 3925751.00 |
| 105.05 | 56722.23 | 17112.66 | 1787.20 | 2225.11 | 0.00 | 537539.00 | 3928493.00 |
| 49.25 | 65036.91 | 21002.88 | 2269.88 | 2779.89 | 0.00 | 545853.00 | 3932384.00 |
| 278.83 | 49815.90 | 13862.13 | 1267.61 | 1191.06 | 0.00 | 530632.00 | 3925243.00 |
| 438.05 | 47656.40 | 12806.46 | 1194.00 | 1142.59 | 0.00 | 528473.00 | 3924187.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 262.40 | 34858.87 | 9902.16 | 1027.16 | 1124.97 | **80.64** | 515675.00 | 3921283.00 |
| 255.35 | 34978.20 | 9958.99 | 1190.92 | 1398.48 | 0.00 | 515794.00 | 3921340.00 |
| 479.28 | 32677.85 | 8846.35 | 978.65 | 1041.74 | 0.00 | 513494.00 | 3920227.00 |
| 267.44 | 34778.94 | 9861.02 | 1048.61 | 1179.97 | 0.00 | 515595.00 | 3921242.00 |
| 260.32 | 34894.84 | 9913.86 | 1090.78 | 1208.12 | 0.00 | 515711.00 | 3921295.00 |
| 103.88 | 39934.20 | 12296.28 | 1413.95 | 1802.66 | 0.00 | 520750.00 | 3923677.00 |
| 165.42 | 37080.07 | 10947.46 | 1234.96 | 1610.35 | 0.00 | 517896.00 | 3922328.00 |
| 320.63 | 34048.59 | 9515.06 | 1005.87 | 1050.34 | 0.00 | 514865.00 | 3920896.00 |
| 499.50 | 32556.86 | 8780.08 | 941.30 | 956.30 | 0.00 | 513373.00 | 3920161.00 |
| 559.12 | 32231.76 | 8619.15 | 984.00 | 1080.65 | 0.00 | 513048.00 | 3920000.00 |
| 685.85 | 31718.95 | 8357.85 | 803.60 | 599.95 | 0.00 | 512535.00 | 3919739.00 |
| 478.00 | 32687.14 | 8849.66 | 939.24 | 1004.32 | 0.00 | 513503.00 | 3920230.00 |
| 250.52 | 35057.80 | 10001.91 | 1167.65 | 1386.48 | 0.00 | 515874.00 | 3921383.00 |
| 337.38 | 33862.48 | 9418.52 | 1226.35 | 1544.47 | 0.00 | 514679.00 | 3920799.00 |
| 314.04 | 34130.25 | 9551.80 | 1111.81 | 1289.65 | 0.00 | 514947.00 | 3920933.00 |
| 182.64 | 36566.06 | 10711.45 | 1121.91 | 1224.77 | 0.00 | 517382.00 | 3922092.00 |
| 334.23 | 33888.98 | 9439.12 | 961.80 | 967.45 | 0.00 | 514705.00 | 3920820.00 |
| 393.16 | 33313.36 | 9156.08 | 1022.33 | 1147.59 | 0.00 | 514130.00 | 3920537.00 |
| 397.62 | 33277.17 | 9132.92 | 892.02 | 854.90 | 0.00 | 514093.00 | 3920514.00 |
| 399.19 | 33263.80 | 9131.91 | 966.74 | 975.31 | 0.00 | 514080.00 | 3920513.00 |
| 290.12 | 34445.20 | 9708.88 | 1121.00 | 1189.70 | 0.00 | 515261.00 | 3921090.00 |
| 482.78 | 32659.85 | 8825.12 | 911.63 | 990.67 | 0.00 | 513476.00 | 3920206.00 |
| 78.34 | 42023.68 | 13275.68 | 1473.80 | 1938.02 | 0.00 | 522840.00 | 3924656.00 |
| 227.07 | 35499.81 | 10206.14 | 1154.31 | 1321.14 | 0.00 | 516316.00 | 3921587.00 |
| 158.02 | 37329.31 | 11072.98 | 1309.78 | 1703.14 | 0.00 | 518146.00 | 3922454.00 |
| 194.03 | 36255.90 | 10557.94 | 1196.28 | 1440.45 | 0.00 | 517072.00 | 3921939.00 |
| 469.73 | 32741.89 | 8875.42 | 983.60 | 1061.16 | 0.00 | 513558.00 | 3920256.00 |
| 310.63 | 34176.88 | 9575.96 | 1016.47 | 1101.18 | 0.00 | 514993.00 | 3920957.00 |
| 225.87 | 35526.25 | 10213.27 | 1077.26 | 1213.14 | 0.00 | 516343.00 | 3921594.00 |
| 320.29 | 34056.57 | 9512.14 | 981.42 | 1065.38 | 0.00 | 514873.00 | 3920893.00 |
| 306.81 | 34222.61 | 9599.71 | 1000.04 | 991.17 | 0.00 | 515039.00 | 3920980.00 |
| 154.28 | 37465.40 | 11125.05 | 1157.74 | 1564.78 | 0.00 | 518282.00 | 3922506.00 |
| 145.07 | 37816.06 | 11308.02 | 1435.57 | 1713.84 | 0.00 | 518632.00 | 3922689.00 |
| 450.76 | 32868.72 | 8935.06 | 1014.98 | 1144.15 | 0.00 | 513685.00 | 3920316.00 |
| 274.77 | 34669.20 | 9800.32 | 975.60 | 1061.26 | 0.00 | 515485.00 | 3921181.00 |
| 338.86 | 33842.11 | 9407.05 | 899.71 | 838.45 | 0.00 | 514658.00 | 3920788.00 |
| 184.25 | 36514.83 | 10690.71 | 1337.54 | 1599.54 | 0.00 | 517331.00 | 3922071.00 |
| 585.00 | 32112.40 | 8559.99 | 955.59 | 973.27 | 0.00 | 512929.00 | 3919941.00 |
| 206.38 | 35954.16 | 10429.95 | 1016.69 | 970.46 | 0.00 | 516770.00 | 3921811.00 |
| 241.10 | 35227.39 | 10078.30 | 1127.03 | 1293.04 | 0.00 | 516044.00 | 3921459.00 |
| 420.12 | 33091.63 | 9041.93 | 926.32 | 976.29 | 0.00 | 513908.00 | 3920423.00 |
| 519.26 | 32444.42 | 8725.10 | 865.09 | 756.42 | 0.00 | 513261.00 | 3920106.00 |
| 576.56 | 32147.80 | 8580.39 | 920.68 | 926.58 | 0.00 | 512964.00 | 3919961.00 |
| 510.75 | 32492.19 | 8755.24 | 894.01 | 796.81 | 0.00 | 513308.00 | 3920136.00 |
| 46.73 | 46707.08 | 15452.48 | 2549.27 | 3810.15 | 0.00 | 527523.00 | 3926833.00 |
| 333.39 | 33908.20 | 9440.59 | 996.26 | 1063.09 | 0.00 | 514724.00 | 3920821.00 |
| 208.41 | 35904.99 | 10399.37 | 1136.69 | 1291.90 | 0.00 | 516721.00 | 3921780.00 |
| 270.37 | 34734.09 | 9853.65 | 1185.83 | 1228.70 | 0.00 | 515550.00 | 3921234.00 |
| 594.73 | 32069.70 | 8531.91 | 869.26 | 808.30 | 0.00 | 512886.00 | 3919913.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 332.21 | 33916.50 | 9444.30 | 1002.52 | 1052.14 | 0.00 | 514733.00 | 3920825.00 |
| 328.07 | 33963.05 | 9472.10 | 1039.24 | 1139.58 | 0.00 | 514779.00 | 3920853.00 |
| 706.79 | 31644.70 | 8318.64 | 814.74 | 654.10 | 0.00 | 512461.00 | 3919699.00 |
| 125.23 | 38706.81 | 11726.98 | 1254.66 | 1408.70 | 0.00 | 519523.00 | 3923108.00 |
| 90.40 | 40926.96 | 12763.47 | 1877.93 | 2569.04 | 0.00 | 521743.00 | 3924144.00 |
| 194.60 | 36240.98 | 10571.83 | 1330.17 | 1526.06 | 0.00 | 517057.00 | 3921953.00 |
| 494.28 | 32587.62 | 8800.95 | 953.40 | 966.43 | 0.00 | 513404.00 | 3920182.00 |
| 61.32 | 44093.73 | 14242.60 | 1870.72 | 2696.57 | 0.00 | 524910.00 | 3925623.00 |
| 401.15 | 33246.87 | 9122.40 | 956.05 | 983.43 | 0.00 | 514063.00 | 3920503.00 |
| 317.23 | 34096.02 | 9530.95 | 915.14 | 832.20 | 0.00 | 514912.00 | 3920912.00 |
| 229.18 | 35457.07 | 10196.69 | 1271.35 | 1443.67 | 0.00 | 516273.00 | 3921577.00 |
| 300.46 | 34307.70 | 9643.80 | 1091.91 | 1118.16 | 0.00 | 515124.00 | 3921025.00 |
| 168.88 | 36975.24 | 10914.26 | 1383.67 | 1611.31 | 0.00 | 517792.00 | 3922295.00 |
| 375.70 | 33471.29 | 9230.23 | 955.93 | 958.61 | 0.00 | 514288.00 | 3920611.00 |
| 386.39 | 33376.88 | 9195.42 | 877.42 | 717.75 | 0.00 | 514193.00 | 3920576.00 |
| 431.07 | 33010.24 | 9008.44 | 885.72 | 795.90 | 0.00 | 513827.00 | 3920389.00 |
| 216.63 | 35721.72 | 10305.58 | 1167.89 | 1373.42 | 0.00 | 516538.00 | 3921686.00 |
| 76.09 | 42253.95 | 13401.28 | 2102.66 | 2290.37 | 0.00 | 523070.00 | 3924782.00 |
| 117.42 | 39115.65 | 11900.96 | 1364.36 | 1742.73 | 0.00 | 519932.00 | 3923282.00 |
| 176.54 | 36742.05 | 10800.59 | 1391.16 | 1415.61 | 0.00 | 517558.00 | 3922181.00 |
| 184.96 | 36495.23 | 10681.58 | 1262.26 | 1537.54 | 0.00 | 517312.00 | 3922062.00 |
| 330.36 | 33939.58 | 9454.80 | 953.86 | 989.79 | 0.00 | 514756.00 | 3920836.00 |
| 394.01 | 33309.96 | 9154.23 | 920.97 | 836.64 | 0.00 | 514126.00 | 3920535.00 |
| 691.85 | 31697.61 | 8348.79 | 889.08 | 848.42 | 0.00 | 512514.00 | 3919730.00 |
| 513.34 | 32475.78 | 8737.77 | 904.51 | 883.20 | 0.00 | 513292.00 | 3920119.00 |
| 421.76 | 33082.99 | 9042.37 | 962.48 | 938.72 | 0.00 | 513899.00 | 3920423.00 |
| 192.11 | 36304.70 | 10586.88 | 1267.36 | 1535.19 | 0.00 | 517121.00 | 3921968.00 |
| 730.73 | 31572.81 | 8279.37 | 841.04 | 695.20 | 0.00 | 512389.00 | 3919660.00 |
| 357.77 | 33644.28 | 9328.20 | 1048.23 | 1084.29 | 0.00 | 514461.00 | 3920709.00 |
| 362.77 | 33592.80 | 9290.91 | 1041.47 | 1093.64 | 0.00 | 514409.00 | 3920672.00 |
| 275.50 | 34656.83 | 9796.65 | 1194.80 | 1451.34 | 0.00 | 515473.00 | 3921177.00 |
| 178.56 | 36677.72 | 10760.98 | 1303.43 | 1741.02 | 0.00 | 517494.00 | 3922142.00 |
| 389.31 | 33352.47 | 9169.15 | 932.45 | 947.17 | 0.00 | 514169.00 | 3920550.00 |
| 238.91 | 35269.92 | 10101.80 | 1067.48 | 1135.14 | 0.00 | 516086.00 | 3921483.00 |
| 840.45 | 31268.07 | 8118.79 | 868.06 | 746.27 | 0.00 | 512084.00 | 3919500.00 |
| 259.83 | 34902.45 | 9915.87 | 1096.11 | 1288.90 | 0.00 | 515719.00 | 3921297.00 |
| 131.78 | 38389.11 | 11571.21 | 1304.95 | 1424.45 | 0.00 | 519205.00 | 3922952.00 |
| 281.52 | 34568.13 | 9762.27 | 918.35 | 854.72 | 0.00 | 515384.00 | 3921143.00 |
| 404.69 | 33222.05 | 9104.52 | 943.00 | 935.18 | 0.00 | 514038.00 | 3920485.00 |
| 312.49 | 34149.39 | 9561.15 | 1069.87 | 1198.56 | 0.00 | 514966.00 | 3920942.00 |
| 283.43 | 34538.62 | 9749.65 | 1119.79 | 1156.62 | 0.00 | 515355.00 | 3921130.00 |
| 417.08 | 33120.01 | 9065.54 | 962.45 | 869.53 | 0.00 | 513936.00 | 3920446.00 |
| 227.18 | 35498.70 | 10198.84 | 1103.36 | 1312.63 | 0.00 | 516315.00 | 3921580.00 |
| 191.10 | 36330.89 | 10599.90 | 1060.44 | 1153.38 | 0.00 | 517147.00 | 3921981.00 |
| 397.03 | 33285.88 | 9140.35 | 923.90 | 891.36 | 0.00 | 514102.00 | 3920521.00 |
| 363.56 | 33592.13 | 9292.75 | 930.54 | 870.05 | 0.00 | 514408.00 | 3920674.00 |
| 448.38 | 32885.75 | 8950.80 | 922.66 | 818.68 | 0.00 | 513702.00 | 3920332.00 |
| 76.52 | 42208.77 | 13369.81 | 1810.93 | 2342.74 | 0.00 | 523025.00 | 3924751.00 |
| 506.77 | 32512.66 | 8758.41 | 939.22 | 954.21 | 0.00 | 513329.00 | 3920139.00 |
| 203.05 | 36030.27 | 10467.96 | 1288.48 | 1418.92 | 0.00 | 516847.00 | 3921849.00 |
| 209.17 | 35887.78 | 10383.26 | 1039.85 | 1251.56 | 0.00 | 516704.00 | 3921764.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 287.99 | 77091.58 | 20918.63 | 1567.44 | 1272.35 | **107.36** | 557908.00 | 3932299.00 |
| 574.74 | 72946.18 | 18911.37 | 1427.46 | 991.44 | 0.00 | 553762.00 | 3930292.00 |
| 849.38 | 71291.40 | 18064.72 | 1366.90 | 832.20 | 0.00 | 552108.00 | 3929446.00 |
| 280.31 | 77289.63 | 21016.83 | 1562.43 | 1226.75 | 0.00 | 558106.00 | 3932398.00 |
| 278.49 | 77337.17 | 21035.11 | 1718.11 | 1682.13 | 0.00 | 558153.00 | 3932416.00 |
| 402.54 | 74875.94 | 19855.26 | 1506.36 | 1194.20 | 0.00 | 555692.00 | 3931236.00 |
| 529.91 | 73348.47 | 19108.66 | 1415.73 | 946.66 | 0.00 | 554165.00 | 3930489.00 |
| 180.52 | 80939.02 | 22745.73 | 1882.64 | 1901.31 | 0.00 | 561755.00 | 3934127.00 |
| 249.09 | 78185.91 | 21446.62 | 1790.02 | 1780.04 | 0.00 | 559002.00 | 3932827.00 |
| 253.86 | 78037.83 | 21368.41 | 1591.46 | 1322.28 | 0.00 | 558854.00 | 3932749.00 |
| 770.90 | 71666.02 | 18258.35 | 1351.68 | 758.28 | 0.00 | 552482.00 | 3929639.00 |
| 116.97 | 85456.97 | 24869.16 | 2231.92 | 2524.39 | 0.00 | 566273.00 | 3936250.00 |
| 239.34 | 78503.84 | 21592.95 | 1636.09 | 1414.74 | 0.00 | 559320.00 | 3932974.00 |
| 602.74 | 72720.18 | 18798.19 | 1430.70 | 1013.61 | 0.00 | 553536.00 | 3930179.00 |
| 323.47 | 76276.19 | 20525.20 | 1517.19 | 1163.57 | 0.00 | 557092.00 | 3931906.00 |
| 171.22 | 81437.29 | 22990.13 | 1785.57 | 1601.67 | 0.00 | 562254.00 | 3934371.00 |
| 110.67 | 86108.63 | 25179.00 | 1990.43 | 1914.28 | 0.00 | 566925.00 | 3936560.00 |
| 411.57 | 74741.26 | 19785.74 | 1434.25 | 952.60 | 0.00 | 555558.00 | 3931167.00 |
| 386.80 | 75119.13 | 19973.80 | 1530.20 | 1238.09 | 0.00 | 555935.00 | 3931355.00 |
| 150.82 | 82685.01 | 23561.99 | 1869.38 | 1865.53 | 0.00 | 563501.00 | 3934943.00 |
| 108.39 | 86359.24 | 25292.81 | 2245.54 | 2546.84 | 0.00 | 567176.00 | 3936674.00 |
| 146.41 | 82991.64 | 23705.70 | 1906.91 | 1965.57 | 0.00 | 563808.00 | 3935086.00 |
| 109.06 | 86285.59 | 25269.53 | 2086.62 | 2113.39 | 0.00 | 567102.00 | 3936650.00 |
| 663.55 | 72291.82 | 18579.47 | 1361.73 | 783.89 | 0.00 | 553108.00 | 3929960.00 |
| 190.64 | 80439.11 | 22512.43 | 1722.62 | 1523.12 | 0.00 | 561255.00 | 3933893.00 |
| 77.59 | 90761.24 | 27362.90 | 2602.05 | 3243.64 | 0.00 | 571578.00 | 3938744.00 |
| 459.79 | 74107.98 | 19487.46 | 1479.97 | 1116.18 | 0.00 | 554924.00 | 3930868.00 |
| 525.04 | 73397.97 | 19132.49 | 1400.68 | 888.14 | 0.00 | 554214.00 | 3930513.00 |
| 287.76 | 77097.25 | 20926.85 | 1572.35 | 1270.07 | 0.00 | 557914.00 | 3932308.00 |
| 396.46 | 74966.96 | 19899.08 | 1472.25 | 1057.11 | 0.00 | 555783.00 | 3931280.00 |
| 127.24 | 84499.07 | 24414.79 | 2201.02 | 2516.15 | 0.00 | 565315.00 | 3935796.00 |
| 146.84 | 82960.47 | 23702.40 | 1938.02 | 1933.71 | 0.00 | 563777.00 | 3935083.00 |
| 140.09 | 83453.61 | 23921.78 | 1883.31 | 1856.02 | 0.00 | 564270.00 | 3935303.00 |
| 372.03 | 75361.19 | 20092.15 | 1523.67 | 1220.01 | 0.00 | 556177.00 | 3931473.00 |
| 438.28 | 74378.61 | 19608.15 | 1433.80 | 962.88 | 0.00 | 555195.00 | 3930989.00 |
| 621.85 | 72572.60 | 18719.28 | 1395.20 | 908.49 | 0.00 | 553389.00 | 3930100.00 |
| 77.27 | 90822.07 | 27379.53 | 2605.10 | 3072.42 | 0.00 | 571638.00 | 3938760.00 |
| 381.63 | 75198.14 | 20011.21 | 1485.13 | 1101.39 | 0.00 | 556014.00 | 3931392.00 |
| 101.48 | 87168.90 | 25669.57 | 2091.48 | 2168.82 | 0.00 | 567985.00 | 3937050.00 |
| 323.93 | 76266.69 | 20521.07 | 1559.43 | 1285.25 | 0.00 | 557083.00 | 3931902.00 |
| 368.11 | 75427.03 | 20124.27 | 1582.07 | 1380.26 | 0.00 | 556243.00 | 3931505.00 |
| 551.43 | 73148.68 | 19009.47 | 1398.23 | 895.90 | 0.00 | 553965.00 | 3930390.00 |
| 213.22 | 79458.56 | 22049.18 | 1690.81 | 1473.08 | 0.00 | 560275.00 | 3933430.00 |
| 693.97 | 72099.76 | 18480.74 | 1401.07 | 938.19 | 0.00 | 552916.00 | 3929862.00 |
| 308.04 | 76612.90 | 20694.18 | 1587.50 | 1328.43 | 0.00 | 557429.00 | 3932075.00 |
| 200.83 | 79975.34 | 22290.61 | 1845.25 | 1858.92 | 0.00 | 560792.00 | 3933671.00 |
| 359.75 | 75573.00 | 20191.69 | 1527.58 | 1207.17 | 0.00 | 556389.00 | 3931572.00 |
| 403.53 | 74859.93 | 19849.70 | 1465.84 | 1047.72 | 0.00 | 555676.00 | 3931230.00 |
| 496.54 | 73687.33 | 19278.62 | 1400.06 | 863.99 | 0.00 | 554504.00 | 3930659.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 88.41 | 88952.94 | 26518.19 | 2168.45 | 2217.15 | 0.00 | 569769.00 | 3937899.00 |
| 349.06 | 75768.18 | 20292.12 | 1598.41 | 1397.06 | 0.00 | 556584.00 | 3931673.00 |
| 107.84 | 86420.86 | 25325.19 | 2146.07 | 2267.33 | 0.00 | 567237.00 | 3936706.00 |
| 241.26 | 78438.28 | 21553.96 | 1702.77 | 1599.51 | 0.00 | 559255.00 | 3932935.00 |
| 154.83 | 82418.72 | 23445.90 | 1977.39 | 1978.78 | 0.00 | 563235.00 | 3934827.00 |
| 129.54 | 84300.19 | 24330.07 | 1983.28 | 1965.88 | 0.00 | 565116.00 | 3935711.00 |
| 469.85 | 73983.97 | 19419.31 | 1476.30 | 1119.58 | 0.00 | 554800.00 | 3930800.00 |
| 391.32 | 75046.37 | 19942.92 | 1492.31 | 1104.11 | 0.00 | 555863.00 | 3931324.00 |
| 384.08 | 75160.73 | 19995.50 | 1486.82 | 1106.65 | 0.00 | 555977.00 | 3931376.00 |
| 142.48 | 83275.06 | 23847.59 | 1918.38 | 1864.85 | 0.00 | 564091.00 | 3935228.00 |
| 333.57 | 76069.22 | 20430.33 | 1538.81 | 1239.03 | 0.00 | 556885.00 | 3931811.00 |
| 440.38 | 74349.62 | 19600.33 | 1480.36 | 1121.24 | 0.00 | 555166.00 | 3930981.00 |
| 429.87 | 74488.68 | 19664.57 | 1481.16 | 1128.15 | 0.00 | 555305.00 | 3931045.00 |
| 470.46 | 73978.10 | 19426.20 | 1495.33 | 1156.56 | 0.00 | 554794.00 | 3930807.00 |
| 877.94 | 71170.12 | 18003.96 | 1358.95 | 807.98 | 0.00 | 551986.00 | 3929385.00 |
| 95.50 | 87937.88 | 26017.35 | 2198.29 | 2428.05 | 0.00 | 568754.00 | 3937398.00 |
| 123.46 | 84836.92 | 24577.58 | 2140.20 | 2394.43 | 0.00 | 565653.00 | 3935958.00 |
| 377.00 | 75277.92 | 20042.59 | 1589.67 | 1464.76 | 0.00 | 556094.00 | 3931423.00 |
| 348.63 | 75775.12 | 20300.41 | 1607.92 | 1404.65 | 0.00 | 556591.00 | 3931681.00 |
| 306.37 | 76650.79 | 20706.79 | 1542.64 | 1226.68 | 0.00 | 557467.00 | 3932088.00 |
| 39.75 | 102141.95 | 32658.48 | 3225.26 | 4215.92 | 0.00 | 582958.00 | 3944039.00 |
| 128.42 | 84395.87 | 24376.71 | 2070.07 | 2242.93 | 0.00 | 565212.00 | 3935757.00 |
| 175.02 | 81229.14 | 22886.68 | 1855.96 | 1852.68 | 0.00 | 562045.00 | 3934267.00 |
| 122.81 | 84897.20 | 24614.01 | 2050.86 | 2069.21 | 0.00 | 565713.00 | 3935995.00 |
| 73.30 | 91588.10 | 27738.21 | 2651.51 | 3262.01 | 0.00 | 572404.00 | 3939119.00 |
| 295.03 | 76916.08 | 20833.25 | 1608.47 | 1406.66 | 0.00 | 557732.00 | 3932214.00 |
| 234.16 | 78678.95 | 21670.72 | 1678.31 | 1540.63 | 0.00 | 559495.00 | 3933051.00 |
| 422.15 | 74594.36 | 19715.75 | 1439.49 | 977.13 | 0.00 | 555411.00 | 3931097.00 |
| 243.72 | 78357.94 | 21525.42 | 1697.41 | 1550.81 | 0.00 | 559174.00 | 3932906.00 |
| 319.26 | 76366.00 | 20575.51 | 1557.76 | 1275.56 | 0.00 | 557182.00 | 3931956.00 |
| 177.91 | 81074.32 | 22798.49 | 1746.16 | 1625.37 | 0.00 | 561891.00 | 3934179.00 |
| 308.12 | 76609.82 | 20692.59 | 1581.84 | 1335.95 | 0.00 | 557426.00 | 3932073.00 |
| 420.00 | 74624.13 | 19728.54 | 1481.80 | 1117.12 | 0.00 | 555440.00 | 3931109.00 |
| 290.69 | 77025.67 | 20891.33 | 1657.74 | 1526.19 | 0.00 | 557842.00 | 3932272.00 |
| 157.37 | 82256.83 | 23361.36 | 1931.13 | 1978.17 | 0.00 | 563073.00 | 3934742.00 |
| 200.53 | 79989.36 | 22294.38 | 1783.68 | 1711.69 | 0.00 | 560806.00 | 3933675.00 |
| 328.86 | 76163.01 | 20469.70 | 1589.44 | 1420.22 | 0.00 | 556979.00 | 3931850.00 |
| 514.21 | 73504.95 | 19187.36 | 1427.84 | 973.54 | 0.00 | 554321.00 | 3930568.00 |
| 101.22 | 87200.56 | 25711.71 | 2211.47 | 2287.86 | 0.00 | 568017.00 | 3937092.00 |
| 271.57 | 77522.54 | 21134.78 | 1734.70 | 1679.71 | 0.00 | 558339.00 | 3932516.00 |
| 124.32 | 84759.81 | 24549.95 | 2060.35 | 2133.73 | 0.00 | 565576.00 | 3935931.00 |
| 243.82 | 78354.74 | 21520.27 | 1584.20 | 1235.15 | 0.00 | 559171.00 | 3932901.00 |
| 505.52 | 73593.55 | 19233.85 | 1436.04 | 993.31 | 0.00 | 554410.00 | 3930615.00 |
| 354.60 | 75667.54 | 20240.52 | 1611.20 | 1437.65 | 0.00 | 556484.00 | 3931621.00 |
| 605.76 | 72694.81 | 18786.25 | 1397.83 | 901.56 | 0.00 | 553511.00 | 3930167.00 |
| 304.29 | 76697.75 | 20727.54 | 1533.29 | 1197.37 | 0.00 | 557514.00 | 3932108.00 |
| 269.37 | 77585.90 | 21161.49 | 1695.52 | 1532.51 | 0.00 | 558402.00 | 3932542.00 |
| 66.48 | 93062.42 | 28436.65 | 2390.50 | 2505.81 | 0.00 | 573879.00 | 3939817.00 |
| 130.31 | 84233.71 | 24300.54 | 1860.14 | 1702.45 | 0.00 | 565050.00 | 3935681.00 |
| 271.55 | 77524.99 | 21134.24 | 1606.11 | 1348.40 | 0.00 | 558341.00 | 3932515.00 |
| 428.00 | 74514.54 | 19678.71 | 1459.78 | 1047.59 | 0.00 | 555331.00 | 3931059.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 399.61 | 71443.16 | 18996.37 | 1523.22 | 1329.19 | **105.64** | 552259.00 | 3930377.00 |
| 394.34 | 71520.55 | 19026.55 | 1491.90 | 1233.38 | 0.00 | 552337.00 | 3930407.00 |
| 144.61 | 79381.94 | 22776.47 | 2008.48 | 2105.30 | 0.00 | 560198.00 | 3934157.00 |
| 321.73 | 72790.70 | 19655.03 | 1539.04 | 1306.22 | 0.00 | 553607.00 | 3931036.00 |
| 337.91 | 72471.18 | 19485.37 | 1509.28 | 1246.88 | 0.00 | 553287.00 | 3930866.00 |
| 620.67 | 69180.66 | 17887.31 | 1392.97 | 1014.00 | 0.00 | 549997.00 | 3929268.00 |
| 694.59 | 68704.72 | 17642.57 | 1362.73 | 923.25 | 0.00 | 549521.00 | 3929023.00 |
| 181.22 | 77236.68 | 21761.84 | 1827.63 | 1893.38 | 0.00 | 558053.00 | 3933143.00 |
| 383.51 | 71687.70 | 19111.65 | 1488.20 | 1222.31 | 0.00 | 552504.00 | 3930492.00 |
| 33.33 | 101382.05 | 33068.81 | 3110.18 | 3572.80 | 0.00 | 582198.00 | 3944450.00 |
| 171.41 | 77744.49 | 21993.08 | 1739.10 | 1649.20 | 0.00 | 558561.00 | 3933374.00 |
| 479.10 | 70438.06 | 18502.61 | 1411.97 | 1038.96 | 0.00 | 551254.00 | 3929883.00 |
| 474.11 | 70491.13 | 18533.15 | 1410.21 | 1014.83 | 0.00 | 551307.00 | 3929914.00 |
| 235.63 | 75035.54 | 20712.77 | 1778.83 | 1847.41 | 0.00 | 555852.00 | 3932094.00 |
| 511.30 | 70102.54 | 18342.09 | 1361.98 | 853.01 | 0.00 | 550919.00 | 3929723.00 |
| 359.90 | 72073.61 | 19301.99 | 1474.53 | 1164.80 | 0.00 | 552890.00 | 3930683.00 |
| 327.18 | 72682.08 | 19596.44 | 1513.37 | 1232.22 | 0.00 | 553498.00 | 3930977.00 |
| 314.32 | 72945.70 | 19714.04 | 1490.56 | 1198.06 | 0.00 | 553762.00 | 3931095.00 |
| 252.58 | 74501.33 | 20458.79 | 1612.40 | 1465.01 | 0.00 | 555318.00 | 3931840.00 |
| 151.48 | 78918.68 | 22562.06 | 1815.47 | 1769.58 | 0.00 | 559735.00 | 3933943.00 |
| 279.47 | 73757.30 | 20098.70 | 1549.20 | 1325.54 | 0.00 | 554574.00 | 3931479.00 |
| 42.97 | 96324.12 | 30697.58 | 2734.19 | 2954.37 | 0.00 | 577140.00 | 3942078.00 |
| 69.87 | 88275.67 | 26921.82 | 2443.70 | 2912.32 | 0.00 | 569092.00 | 3938303.00 |
| 166.33 | 78025.40 | 22125.24 | 1983.36 | 2181.45 | 0.00 | 558842.00 | 3933506.00 |
| 407.19 | 71334.66 | 18941.10 | 1418.56 | 1016.93 | 0.00 | 552151.00 | 3930322.00 |
| 354.95 | 72160.29 | 19340.91 | 1473.33 | 1148.30 | 0.00 | 552977.00 | 3930722.00 |
| 553.86 | 69708.02 | 18145.07 | 1385.03 | 971.54 | 0.00 | 550524.00 | 3929526.00 |
| 271.78 | 73959.57 | 20204.94 | 1586.69 | 1447.49 | 0.00 | 554776.00 | 3931586.00 |
| 342.46 | 72387.30 | 19449.43 | 1445.99 | 1078.37 | 0.00 | 553204.00 | 3930830.00 |
| 363.67 | 72011.02 | 19269.90 | 1454.09 | 1106.80 | 0.00 | 552827.00 | 3930651.00 |
| 357.27 | 72119.42 | 19318.07 | 1457.59 | 1141.24 | 0.00 | 552936.00 | 3930699.00 |
| 221.31 | 75532.01 | 20952.80 | 1829.55 | 2003.38 | 0.00 | 556348.00 | 3932334.00 |
| 109.19 | 82434.59 | 24202.22 | 1927.22 | 1878.37 | 0.00 | 563251.00 | 3935583.00 |
| 42.25 | 96641.41 | 30847.39 | 2939.87 | 3440.09 | 0.00 | 577458.00 | 3942228.00 |
| 200.08 | 76370.16 | 21346.24 | 1735.11 | 1722.51 | 0.00 | 557186.00 | 3932727.00 |
| 309.83 | 73043.95 | 19760.90 | 1458.87 | 1069.75 | 0.00 | 553860.00 | 3931142.00 |
| 730.15 | 68504.11 | 17538.75 | 1377.33 | 964.63 | 0.00 | 549320.00 | 3928920.00 |
| 375.66 | 71812.97 | 19174.89 | 1459.23 | 1112.75 | 0.00 | 552629.00 | 3930556.00 |
| 215.68 | 75743.08 | 21050.79 | 1691.87 | 1573.21 | 0.00 | 556559.00 | 3932432.00 |
| 459.13 | 70664.89 | 18612.52 | 1391.96 | 971.04 | 0.00 | 551481.00 | 3929993.00 |
| 239.98 | 74890.58 | 20656.02 | 1654.53 | 1517.75 | 0.00 | 555707.00 | 3932037.00 |
| 478.98 | 70437.71 | 18511.56 | 1431.61 | 1058.94 | 0.00 | 551254.00 | 3929892.00 |
| 70.93 | 88057.71 | 26833.32 | 2493.60 | 2993.01 | 0.00 | 568874.00 | 3938214.00 |
| 65.25 | 89293.34 | 27408.91 | 2655.13 | 3180.33 | 0.00 | 570110.00 | 3938790.00 |
| 232.57 | 75137.52 | 20764.48 | 1571.20 | 1313.79 | 0.00 | 555954.00 | 3932145.00 |
| 273.00 | 73927.17 | 20187.15 | 1603.94 | 1473.20 | 0.00 | 554743.00 | 3931568.00 |
| 263.07 | 74198.20 | 20321.32 | 1626.89 | 1506.37 | 0.00 | 555014.00 | 3931702.00 |
| 378.09 | 71772.44 | 19154.25 | 1502.13 | 1254.46 | 0.00 | 552589.00 | 3930535.00 |
| 345.34 | 72332.01 | 19417.56 | 1434.49 | 1030.53 | 0.00 | 553148.00 | 3930798.00 |

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|---|---|---|---|---|---|---|---|
| 469.79 | 70540.41 | 18554.02 | 1397.59 | 977.51 | 0.00 | 551357.00 | 3929935.00 |
| 417.93 | 71184.42 | 18871.35 | 1431.75 | 1075.50 | 0.00 | 552001.00 | 3930252.00 |
| 160.03 | 78386.72 | 22303.35 | 1977.49 | 2299.47 | 0.00 | 559203.00 | 3933684.00 |
| 282.06 | 73693.16 | 20079.22 | 1568.95 | 1341.90 | 0.00 | 554509.00 | 3931460.00 |
| 150.08 | 79011.03 | 22599.62 | 1928.83 | 2030.88 | 0.00 | 559827.00 | 3933980.00 |
| 195.94 | 76549.73 | 21432.00 | 1806.78 | 1870.94 | 0.00 | 557366.00 | 3932813.00 |
| 378.49 | 71766.32 | 19161.71 | 1477.97 | 1155.35 | 0.00 | 552583.00 | 3930542.00 |
| 277.12 | 73820.31 | 20138.17 | 1609.30 | 1464.30 | 0.00 | 554637.00 | 3931519.00 |
| 175.64 | 77520.69 | 21881.73 | 1818.31 | 1897.74 | 0.00 | 558337.00 | 3933263.00 |
| 144.74 | 79374.46 | 22773.51 | 1849.92 | 1810.58 | 0.00 | 560191.00 | 3934154.00 |
| 367.10 | 71952.68 | 19236.68 | 1468.83 | 1171.79 | 0.00 | 552769.00 | 3930617.00 |
| 93.75 | 84281.48 | 25076.11 | 2384.41 | 2772.67 | 0.00 | 565098.00 | 3936457.00 |
| 375.08 | 71820.46 | 19179.27 | 1527.78 | 1329.76 | 0.00 | 552637.00 | 3930560.00 |
| 31.81 | 102378.30 | 33508.88 | 3154.14 | 3977.47 | 0.00 | 583195.00 | 3944890.00 |
| 353.08 | 72193.02 | 19352.61 | 1525.84 | 1324.54 | 0.00 | 553009.00 | 3930733.00 |
| 210.08 | 75961.57 | 21148.07 | 1702.14 | 1615.31 | 0.00 | 556778.00 | 3932529.00 |
| 163.04 | 78208.29 | 22212.35 | 1931.99 | 2028.45 | 0.00 | 559025.00 | 3933593.00 |
| 757.46 | 68358.03 | 17465.79 | 1314.45 | 746.65 | 0.00 | 549174.00 | 3928847.00 |
| 246.09 | 74698.71 | 20551.69 | 1621.99 | 1498.63 | 0.00 | 555515.00 | 3931932.00 |
| 42.95 | 96334.71 | 30701.60 | 2997.01 | 3524.96 | 0.00 | 577151.00 | 3942082.00 |
| 240.96 | 74861.10 | 20636.78 | 1516.16 | 1128.51 | 0.00 | 555677.00 | 3932018.00 |
| 218.97 | 75619.24 | 20987.17 | 1747.74 | 1776.22 | 0.00 | 556436.00 | 3932368.00 |
| 101.87 | 83256.72 | 24581.54 | 2260.49 | 2750.08 | 0.00 | 564073.00 | 3935962.00 |
| 69.88 | 88274.09 | 26927.68 | 2277.21 | 2528.40 | 0.00 | 569090.00 | 3938308.00 |
| 161.49 | 78298.42 | 22263.33 | 1748.73 | 1573.59 | 0.00 | 559115.00 | 3933644.00 |
| 294.71 | 73385.67 | 19929.75 | 1575.03 | 1418.64 | 0.00 | 554202.00 | 3931311.00 |
| 377.95 | 71771.64 | 19151.27 | 1452.38 | 1116.24 | 0.00 | 552588.00 | 3930532.00 |
| 346.40 | 72313.07 | 19411.12 | 1451.15 | 1085.12 | 0.00 | 553129.00 | 3930792.00 |
| 229.53 | 75243.19 | 20819.01 | 1589.17 | 1319.36 | 0.00 | 556059.00 | 3932200.00 |
| 509.84 | 70117.73 | 18340.42 | 1449.78 | 1178.62 | 0.00 | 550934.00 | 3929721.00 |
| 263.61 | 74182.24 | 20311.79 | 1637.68 | 1507.99 | 0.00 | 554999.00 | 3931693.00 |
| 700.08 | 68671.98 | 17628.61 | 1340.86 | 841.07 | 0.00 | 549488.00 | 3929009.00 |
| 62.23 | 90018.29 | 27764.85 | 2845.69 | 3385.63 | 0.00 | 570835.00 | 3939146.00 |
| 564.97 | 69611.71 | 18098.47 | 1409.28 | 1042.45 | 0.00 | 550428.00 | 3929479.00 |
| 408.93 | 71309.13 | 18930.31 | 1492.86 | 1237.86 | 0.00 | 552125.00 | 3930311.00 |
| 312.01 | 72995.36 | 19746.04 | 1561.41 | 1350.22 | 0.00 | 553812.00 | 3931127.00 |
| 165.77 | 78057.36 | 22152.18 | 1794.22 | 1693.04 | 0.00 | 558874.00 | 3933533.00 |
| 504.43 | 70167.88 | 18373.93 | 1371.47 | 907.39 | 0.00 | 550984.00 | 3929755.00 |
| 357.75 | 72112.03 | 19316.86 | 1428.13 | 1011.70 | 0.00 | 552928.00 | 3930698.00 |
| 98.85 | 83624.50 | 24775.60 | 2386.00 | 2536.94 | 0.00 | 564441.00 | 3936156.00 |
| 402.70 | 71398.55 | 18973.86 | 1461.91 | 1154.44 | 0.00 | 552215.00 | 3930355.00 |
| 79.29 | 86485.45 | 26113.72 | 2706.95 | 3275.05 | 0.00 | 567302.00 | 3937495.00 |
| 274.88 | 73878.59 | 20166.36 | 1563.63 | 1336.72 | 0.00 | 554695.00 | 3931547.00 |
| 231.14 | 75185.87 | 20784.92 | 1592.91 | 1389.73 | 0.00 | 556002.00 | 3932166.00 |
| 150.36 | 78994.55 | 22585.76 | 1847.30 | 1840.54 | 0.00 | 559811.00 | 3933967.00 |
| 485.65 | 70364.46 | 18467.89 | 1412.34 | 1051.30 | 0.00 | 551181.00 | 3929849.00 |
| 274.83 | 73879.44 | 20167.13 | 1634.18 | 1554.11 | 0.00 | 554696.00 | 3931548.00 |
| 112.39 | 82100.87 | 24056.10 | 2060.66 | 2142.75 | 0.00 | 562917.00 | 3935437.00 |
| 354.85 | 72161.72 | 19340.92 | 1476.79 | 1174.85 | 0.00 | 552978.00 | 3930722.00 |
| 248.14 | 74635.34 | 20532.93 | 1671.33 | 1551.20 | 0.00 | 555452.00 | 3931914.00 |
| 347.81 | 72288.08 | 19403.38 | 1452.40 | 1087.07 | 0.00 | 553104.00 | 3930784.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 374.03 | 28560.70 | 7929.96 | 992.35 | 1131.86 | **75.89** | 509377.00 | 3919311.00 |
| 154.62 | 32068.98 | 9592.73 | 1103.36 | 1471.26 | 0.00 | 512885.00 | 3920974.00 |
| 247.01 | 30005.85 | 8617.38 | 1173.30 | 1528.81 | 0.00 | 510822.00 | 3919998.00 |
| 625.12 | 27188.22 | 7249.08 | 886.72 | 943.93 | 0.00 | 508004.00 | 3918630.00 |
| 227.11 | 30343.00 | 8776.75 | 967.26 | 1224.08 | 0.00 | 511159.00 | 3920158.00 |
| 178.20 | 31392.24 | 9280.45 | 1128.34 | 1302.23 | 0.00 | 512209.00 | 3920661.00 |
| 154.04 | 32085.69 | 9606.83 | 1376.03 | 1841.60 | 0.00 | 512902.00 | 3920988.00 |
| 382.90 | 28488.43 | 7887.29 | 877.69 | 973.03 | 0.00 | 509305.00 | 3919268.00 |
| 53.82 | 39003.60 | 12855.27 | 2045.00 | 3018.90 | 0.00 | 519820.00 | 3924236.00 |
| 207.56 | 30713.72 | 8952.71 | 1227.41 | 1645.26 | 0.00 | 511530.00 | 3920333.00 |
| 362.43 | 28657.98 | 7972.82 | 962.25 | 1022.59 | 0.00 | 509474.00 | 3919354.00 |
| 360.42 | 28677.51 | 7982.07 | 915.58 | 1002.64 | 0.00 | 509494.00 | 3919363.00 |
| 418.19 | 28227.57 | 7761.17 | 887.63 | 875.57 | 0.00 | 509044.00 | 3919142.00 |
| 368.70 | 28607.57 | 7944.90 | 938.55 | 1221.03 | 0.00 | 509424.00 | 3919326.00 |
| 137.58 | 32662.94 | 9883.30 | 1415.68 | 1947.03 | 0.00 | 513479.00 | 3921264.00 |
| 34.04 | 43360.15 | 14886.23 | 2220.75 | 3144.28 | 0.00 | 524176.00 | 3926267.00 |
| 183.43 | 31257.21 | 9218.63 | 1101.12 | 1240.06 | 0.00 | 512073.00 | 3920599.00 |
| 298.91 | 29302.63 | 8284.12 | 933.99 | 1059.67 | 0.00 | 510119.00 | 3919665.00 |
| 475.72 | 27863.37 | 7583.46 | 853.72 | 913.34 | 0.00 | 508680.00 | 3918964.00 |
| 207.94 | 30709.31 | 8957.19 | 1155.62 | 1370.90 | 0.00 | 511526.00 | 3920338.00 |
| 203.60 | 30798.93 | 9011.60 | 1081.02 | 1070.43 | 0.00 | 511615.00 | 3920392.00 |
| 442.77 | 28063.94 | 7674.75 | 814.16 | 850.88 | 0.00 | 508880.00 | 3919056.00 |
| 401.59 | 28347.25 | 7824.89 | 972.61 | 1070.75 | 0.00 | 509164.00 | 3919206.00 |
| 178.51 | 31385.40 | 9271.49 | 946.25 | 1029.41 | 0.00 | 512202.00 | 3920652.00 |
| 258.77 | 29824.93 | 8533.56 | 999.95 | 1226.23 | 0.00 | 510641.00 | 3919914.00 |
| 292.50 | 29378.94 | 8319.99 | 988.71 | 1046.19 | 0.00 | 510195.00 | 3919701.00 |
| 62.01 | 37842.73 | 12310.17 | 2000.81 | 2200.71 | 0.00 | 518659.00 | 3923691.00 |
| 37.52 | 42347.02 | 14429.51 | 2708.05 | 3506.85 | 0.00 | 523163.00 | 3925810.00 |
| 119.14 | 33452.20 | 10239.63 | 1212.24 | 1798.32 | 0.00 | 514268.00 | 3921620.00 |
| 335.71 | 28906.41 | 8097.03 | 1039.67 | 1224.00 | 0.00 | 509723.00 | 3919478.00 |
| 327.28 | 28992.26 | 8128.47 | 840.17 | 913.39 | 0.00 | 509809.00 | 3919509.00 |
| 501.43 | 27726.66 | 7517.60 | 807.67 | 731.77 | 0.00 | 508543.00 | 3918898.00 |
| 283.95 | 29483.84 | 8379.02 | 1066.35 | 1262.30 | 0.00 | 510300.00 | 3919760.00 |
| 654.20 | 27083.48 | 7199.06 | 731.01 | 531.82 | 0.00 | 507900.00 | 3918580.00 |
| 329.41 | 28971.35 | 8122.07 | 917.15 | 967.26 | 0.00 | 509788.00 | 3919503.00 |
| 145.07 | 32391.04 | 9747.66 | 1321.02 | 1735.19 | 0.00 | 513207.00 | 3921128.00 |
| 544.56 | 27518.76 | 7407.73 | 789.87 | 738.32 | 0.00 | 508335.00 | 3918789.00 |
| 304.33 | 29242.88 | 8253.40 | 1018.15 | 1200.11 | 0.00 | 510059.00 | 3919634.00 |
| 399.69 | 28357.65 | 7830.93 | 878.39 | 934.18 | 0.00 | 509174.00 | 3919212.00 |
| 184.12 | 31241.21 | 9205.12 | 1177.53 | 1488.66 | 0.00 | 512057.00 | 3920586.00 |
| 774.25 | 26748.31 | 7013.49 | 748.20 | 655.48 | 0.00 | 507565.00 | 3918394.00 |
| 147.03 | 32322.98 | 9718.30 | 1103.24 | 1325.76 | 0.00 | 513139.00 | 3921099.00 |
| 268.61 | 29687.24 | 8473.41 | 1148.56 | 1343.68 | 0.00 | 510504.00 | 3919854.00 |
| 191.40 | 31070.25 | 9116.94 | 1160.43 | 1587.76 | 0.00 | 511887.00 | 3920498.00 |
| 351.18 | 28762.23 | 8016.70 | 964.13 | 1101.02 | 0.00 | 509579.00 | 3919397.00 |
| 122.07 | 33313.56 | 10166.13 | 1188.41 | 1795.41 | 0.00 | 514130.00 | 3921547.00 |
| 178.48 | 31386.87 | 9277.01 | 1185.81 | 1543.69 | 0.00 | 512203.00 | 3920658.00 |
| 259.33 | 29815.60 | 8525.37 | 1027.50 | 1277.25 | 0.00 | 510632.00 | 3919906.00 |
| 228.27 | 30325.88 | 8781.70 | 1189.47 | 1382.30 | 0.00 | 511142.00 | 3920162.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 222.71 | 30424.63 | 8817.82 | 1047.18 | 1369.40 | 0.00 | 511241.00 | 3920199.00 |
| 159.82 | 31903.65 | 9514.37 | 1312.02 | 2137.07 | 0.00 | 512720.00 | 3920895.00 |
| 332.16 | 28941.27 | 8113.07 | 1073.55 | 1299.28 | 0.00 | 509758.00 | 3919494.00 |
| 208.86 | 30687.06 | 8943.44 | 1166.98 | 1504.41 | 0.00 | 511503.00 | 3920324.00 |
| 388.83 | 28442.10 | 7867.57 | 951.24 | 1063.65 | 0.00 | 509258.00 | 3919248.00 |
| 167.73 | 31675.41 | 9410.22 | 1080.54 | 1283.08 | 0.00 | 512492.00 | 3920791.00 |
| 490.50 | 27785.43 | 7542.44 | 814.99 | 786.79 | 0.00 | 508602.00 | 3918923.00 |
| 184.50 | 31231.16 | 9208.50 | 1179.34 | 1328.72 | 0.00 | 512047.00 | 3920589.00 |
| 468.67 | 27909.63 | 7607.39 | 887.35 | 868.80 | 0.00 | 508726.00 | 3918988.00 |
| 517.59 | 27642.79 | 7477.48 | 798.82 | 725.39 | 0.00 | 508459.00 | 3918858.00 |
| 374.64 | 28552.75 | 7927.49 | 978.68 | 1072.77 | 0.00 | 509369.00 | 3919308.00 |
| 385.07 | 28476.31 | 7881.44 | 912.09 | 1042.95 | 0.00 | 509293.00 | 3919262.00 |
| 243.15 | 30065.74 | 8651.09 | 1076.81 | 1268.90 | 0.00 | 510882.00 | 3920032.00 |
| 246.91 | 30008.20 | 8616.42 | 980.54 | 1154.26 | 0.00 | 510824.00 | 3919997.00 |
| 373.59 | 28568.54 | 7920.53 | 1006.96 | 1297.92 | 0.00 | 509385.00 | 3919301.00 |
| 114.31 | 33693.16 | 10368.33 | 1322.48 | 1751.91 | 0.00 | 514509.00 | 3921749.00 |
| 331.98 | 28943.30 | 8113.21 | 970.04 | 1095.02 | 0.00 | 509760.00 | 3919494.00 |
| 85.17 | 35528.76 | 11221.82 | 1463.22 | 1973.26 | 0.00 | 516345.00 | 3922603.00 |
| 104.83 | 34202.38 | 10606.24 | 1812.46 | 2706.65 | 0.00 | 515019.00 | 3921987.00 |
| 558.38 | 27451.45 | 7379.71 | 861.98 | 934.41 | 0.00 | 508268.00 | 3918760.00 |
| 134.09 | 32802.54 | 9939.14 | 1329.16 | 1722.68 | 0.00 | 513619.00 | 3921320.00 |
| 289.77 | 29410.98 | 8322.49 | 895.14 | 1122.77 | 0.00 | 510227.00 | 3919703.00 |
| 162.96 | 31813.15 | 9483.49 | 1313.08 | 1683.06 | 0.00 | 512629.00 | 3920864.00 |
| 536.39 | 27551.07 | 7431.34 | 834.51 | 840.65 | 0.00 | 508367.00 | 3918812.00 |
| 321.21 | 29054.38 | 8165.94 | 983.42 | 1063.03 | 0.00 | 509871.00 | 3919547.00 |
| 319.44 | 29075.05 | 8176.16 | 1021.17 | 1233.18 | 0.00 | 509891.00 | 3919557.00 |
| 632.61 | 27160.86 | 7228.52 | 807.34 | 785.60 | 0.00 | 507977.00 | 3918609.00 |
| 341.39 | 28854.35 | 8065.74 | 958.86 | 1197.32 | 0.00 | 509671.00 | 3919447.00 |
| 134.59 | 32781.48 | 9939.07 | 1430.83 | 1901.73 | 0.00 | 513598.00 | 3921320.00 |
| 205.20 | 30768.89 | 8977.88 | 996.25 | 1185.58 | 0.00 | 511585.00 | 3920359.00 |
| 287.86 | 29432.93 | 8339.78 | 870.44 | 1018.08 | 0.00 | 510249.00 | 3919721.00 |
| 226.50 | 30353.53 | 8778.61 | 1004.11 | 1159.12 | 0.00 | 511170.00 | 3920159.00 |
| 76.77 | 36246.12 | 11554.20 | 1579.71 | 2504.98 | 0.00 | 517062.00 | 3922935.00 |
| 94.58 | 34843.21 | 10905.07 | 1805.83 | 2830.95 | 0.00 | 515659.00 | 3922286.00 |
| 585.32 | 27341.10 | 7313.73 | 797.41 | 846.93 | 0.00 | 508157.00 | 3918695.00 |
| 133.86 | 32812.60 | 9939.63 | 1320.21 | 1964.06 | 0.00 | 513629.00 | 3921320.00 |
| 429.07 | 28152.81 | 7729.36 | 900.15 | 977.35 | 0.00 | 508969.00 | 3919110.00 |
| 543.16 | 27524.09 | 7408.49 | 785.64 | 770.38 | 0.00 | 508340.00 | 3918789.00 |
| 116.87 | 33563.38 | 10300.74 | 1555.31 | 1795.26 | 0.00 | 514380.00 | 3921682.00 |
| 490.26 | 27783.37 | 7543.97 | 772.51 | 689.99 | 0.00 | 508600.00 | 3918925.00 |
| 495.16 | 27760.70 | 7533.16 | 796.26 | 714.55 | 0.00 | 508577.00 | 3918914.00 |
| 385.44 | 28471.15 | 7872.44 | 937.23 | 1166.36 | 0.00 | 509287.00 | 3919253.00 |
| 323.38 | 29033.37 | 8149.58 | 911.65 | 971.88 | 0.00 | 509850.00 | 3919530.00 |
| 125.50 | 33160.45 | 10121.19 | 1723.45 | 2107.76 | 0.00 | 513977.00 | 3921502.00 |
| 63.74 | 37626.63 | 12200.62 | 1761.34 | 2854.44 | 0.00 | 518443.00 | 3923581.00 |
| 198.59 | 30905.96 | 9046.75 | 1258.80 | 1822.38 | 0.00 | 511722.00 | 3920428.00 |
| 147.86 | 32293.05 | 9717.92 | 1455.43 | 1602.48 | 0.00 | 513109.00 | 3921099.00 |
| 311.82 | 29155.37 | 8212.40 | 867.56 | 911.33 | 0.00 | 509972.00 | 3919593.00 |
| 304.24 | 29241.92 | 8255.60 | 961.71 | 1006.89 | 0.00 | 510058.00 | 3919636.00 |
| 247.63 | 29997.60 | 8610.77 | 1099.69 | 1341.81 | 0.00 | 510814.00 | 3919992.00 |
| 363.95 | 28646.62 | 7965.86 | 848.94 | 873.33 | 0.00 | 509463.00 | 3919347.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 133.89 | 9680.14 | 3057.28 | 724.92 | 1802.47 | **44.91** | 490496.00 | 3914438.00 |
| 466.29 | 7860.09 | 2205.85 | 838.54 | 979.31 | 0.00 | 488676.00 | 3913587.00 |
| 341.46 | 8212.81 | 2371.68 | 836.75 | 1220.31 | 0.00 | 489029.00 | 3913752.00 |
| 434.87 | 7942.33 | 2242.39 | 577.45 | 866.15 | 0.00 | 488759.00 | 3913623.00 |
| 224.57 | 8789.64 | 2648.71 | 882.23 | 1255.64 | 0.00 | 489606.00 | 3914029.00 |
| 421.31 | 7965.03 | 2254.61 | 720.57 | 1172.00 | 0.00 | 488781.00 | 3913635.00 |
| 410.12 | 8008.96 | 2268.67 | 537.67 | 745.62 | 0.00 | 488825.00 | 3913649.00 |
| 310.92 | 8339.76 | 2427.14 | 592.06 | 1130.09 | 0.00 | 489156.00 | 3913808.00 |
| 319.95 | 8298.45 | 2417.04 | 926.97 | 957.52 | 0.00 | 489115.00 | 3913798.00 |
| 136.64 | 9641.12 | 3039.10 | 1005.35 | 1861.67 | 0.00 | 490457.00 | 3914420.00 |
| 187.44 | 9068.05 | 2772.48 | 933.67 | 1808.78 | 0.00 | 489884.00 | 3914153.00 |
| 168.29 | 9259.02 | 2866.52 | 573.42 | 1336.16 | 0.00 | 490075.00 | 3914247.00 |
| 397.84 | 8037.74 | 2284.72 | 613.39 | 892.79 | 0.00 | 488854.00 | 3913665.00 |
| 477.47 | 7839.26 | 2189.93 | 695.31 | 1073.79 | 0.00 | 488656.00 | 3913571.00 |
| 309.56 | 8335.59 | 2415.53 | 635.22 | 1625.55 | 0.00 | 489152.00 | 3913796.00 |
| 267.78 | 8526.46 | 2518.24 | 538.10 | 1388.17 | 0.00 | 489343.00 | 3913899.00 |
| 195.39 | 9007.73 | 2747.71 | 576.61 | 1216.15 | 0.00 | 489824.00 | 3914128.00 |
| 240.03 | 8685.43 | 2604.81 | 866.18 | 1213.53 | 0.00 | 489502.00 | 3913986.00 |
| 130.75 | 9723.07 | 3084.94 | 759.66 | 1691.33 | 0.00 | 490539.00 | 3914466.00 |
| 626.28 | 7566.34 | 2056.61 | 583.66 | 837.12 | 0.00 | 488383.00 | 3913437.00 |
| 464.46 | 7859.88 | 2200.25 | 688.71 | 1209.52 | 0.00 | 488676.00 | 3913581.00 |
| 259.27 | 8577.62 | 2549.38 | 950.66 | 1398.49 | 0.00 | 489394.00 | 3913930.00 |
| 549.31 | 7705.29 | 2123.54 | 594.06 | 914.49 | 0.00 | 488522.00 | 3913504.00 |
| 725.36 | 7443.22 | 2000.11 | 730.73 | 1002.08 | 0.00 | 488260.00 | 3913381.00 |
| 314.56 | 8317.27 | 2431.46 | 662.26 | 769.22 | 0.00 | 489134.00 | 3913812.00 |
| 283.37 | 8461.82 | 2489.31 | 730.16 | 1184.24 | 0.00 | 489278.00 | 3913870.00 |
| 413.77 | 7987.95 | 2261.41 | 554.44 | 1036.02 | 0.00 | 488804.00 | 3913642.00 |
| 250.97 | 8622.84 | 2569.91 | 1100.39 | 1137.74 | 0.00 | 489439.00 | 3913951.00 |
| 782.26 | 7394.78 | 1965.64 | 607.04 | 783.68 | 0.00 | 488211.00 | 3913346.00 |
| 267.76 | 8533.65 | 2517.23 | 530.86 | 1453.04 | 0.00 | 489350.00 | 3913898.00 |
| 225.51 | 8782.44 | 2640.05 | 667.50 | 1313.04 | 0.00 | 489599.00 | 3914021.00 |
| 422.90 | 7976.88 | 2257.63 | 706.59 | 792.60 | 0.00 | 488793.00 | 3913638.00 |
| 276.12 | 8490.50 | 2507.25 | 681.05 | 1149.86 | 0.00 | 489307.00 | 3913888.00 |
| 295.41 | 8397.07 | 2455.83 | 577.67 | 961.03 | 0.00 | 489213.00 | 3913837.00 |
| 207.64 | 8911.31 | 2709.22 | 1095.25 | 1366.88 | 0.00 | 489728.00 | 3914090.00 |
| 130.38 | 9725.71 | 3102.57 | 848.91 | 1690.95 | 0.00 | 490542.00 | 3914483.00 |
| 246.77 | 8647.11 | 2579.38 | 657.89 | 1220.01 | 0.00 | 489463.00 | 3913960.00 |
| 343.56 | 8205.47 | 2372.17 | 766.73 | 1044.00 | 0.00 | 489022.00 | 3913753.00 |
| 281.94 | 8466.37 | 2492.10 | 706.91 | 1281.88 | 0.00 | 489283.00 | 3913873.00 |
| 194.43 | 9016.02 | 2756.60 | 1018.47 | 1687.64 | 0.00 | 489832.00 | 3914137.00 |
| 110.65 | 10064.02 | 3242.05 | 838.80 | 1886.25 | 0.00 | 490880.00 | 3914623.00 |
| 141.58 | 9564.24 | 3008.89 | 815.95 | 1837.35 | 0.00 | 490381.00 | 3914390.00 |
| 355.01 | 8165.24 | 2355.41 | 774.08 | 1019.40 | 0.00 | 488982.00 | 3913736.00 |
| 249.94 | 8628.72 | 2564.50 | 971.89 | 1740.49 | 0.00 | 489445.00 | 3913945.00 |
| 284.13 | 8452.98 | 2490.23 | 837.69 | 1281.93 | 0.00 | 489269.00 | 3913871.00 |
| 222.11 | 8804.44 | 2654.26 | 751.96 | 1562.76 | 0.00 | 489621.00 | 3914035.00 |
| 303.29 | 8363.62 | 2446.07 | 753.64 | 1078.13 | 0.00 | 489180.00 | 3913827.00 |
| 545.80 | 7700.98 | 2116.63 | 584.89 | 932.09 | 0.00 | 488517.00 | 3913497.00 |
| 214.65 | 8854.79 | 2673.10 | 802.81 | 1315.35 | 0.00 | 489671.00 | 3914054.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 260.39 | 8577.30 | 2539.49 | 563.98 | 1166.04 | 0.00 | 489394.00 | 3913920.00 |
| 373.17 | 8106.29 | 2323.13 | 974.64 | 1116.59 | 0.00 | 488923.00 | 3913704.00 |
| 146.36 | 9506.57 | 2979.43 | 778.66 | 1640.14 | 0.00 | 490323.00 | 3914360.00 |
| 221.28 | 8814.54 | 2666.35 | 1055.37 | 1315.11 | 0.00 | 489631.00 | 3914047.00 |
| 566.11 | 7664.70 | 2098.57 | 638.02 | 1152.85 | 0.00 | 488481.00 | 3913479.00 |
| 352.21 | 8176.37 | 2353.80 | 586.78 | 1207.23 | 0.00 | 488993.00 | 3913735.00 |
| 87.53 | 10602.54 | 3511.53 | 1178.03 | 1607.70 | 0.00 | 491419.00 | 3914892.00 |
| 226.41 | 8776.92 | 2636.76 | 856.80 | 1417.10 | 0.00 | 489593.00 | 3914018.00 |
| 362.89 | 8142.64 | 2342.28 | 942.34 | 1024.64 | 0.00 | 488959.00 | 3913723.00 |
| 388.58 | 8064.80 | 2305.15 | 880.39 | 855.39 | 0.00 | 488881.00 | 3913686.00 |
| 433.66 | 7935.36 | 2243.68 | 798.87 | 892.84 | 0.00 | 488752.00 | 3913624.00 |
| 354.45 | 8169.78 | 2348.19 | 763.39 | 1349.26 | 0.00 | 488986.00 | 3913729.00 |
| 368.84 | 8119.71 | 2325.84 | 644.26 | 1181.36 | 0.00 | 488936.00 | 3913707.00 |
| 293.93 | 8406.41 | 2468.28 | 842.55 | 1125.14 | 0.00 | 489223.00 | 3913849.00 |
| 169.03 | 9250.13 | 2860.99 | 1066.68 | 1716.44 | 0.00 | 490066.00 | 3914242.00 |
| 191.80 | 9039.06 | 2758.34 | 928.75 | 1654.22 | 0.00 | 489855.00 | 3914139.00 |
| 983.76 | 7238.25 | 1867.84 | 393.24 | 676.17 | 0.00 | 488055.00 | 3913249.00 |
| 78.31 | 10875.76 | 3617.62 | 929.41 | 2030.46 | 0.00 | 491692.00 | 3914998.00 |
| 306.52 | 8357.31 | 2439.69 | 772.72 | 1031.19 | 0.00 | 489174.00 | 3913820.00 |
| 274.64 | 8497.85 | 2512.21 | 751.61 | 1036.47 | 0.00 | 489314.00 | 3913893.00 |
| 360.99 | 8144.51 | 2346.74 | 956.18 | 808.76 | 0.00 | 488961.00 | 3913728.00 |
| 86.23 | 10635.45 | 3505.05 | 961.81 | 1923.52 | 0.00 | 491452.00 | 3914886.00 |
| 169.39 | 9245.56 | 2857.30 | 1104.73 | 1908.73 | 0.00 | 490062.00 | 3914238.00 |
| 343.05 | 8208.67 | 2370.60 | 868.10 | 1300.80 | 0.00 | 489025.00 | 3913751.00 |
| 52.91 | 11973.06 | 4135.40 | 793.32 | 1993.46 | 0.00 | 492789.00 | 3915516.00 |
| 509.49 | 7779.69 | 2158.10 | 722.27 | 680.39 | 0.00 | 488596.00 | 3913539.00 |
| 21.43 | 15490.24 | 5771.68 | 1192.27 | 2096.44 | 0.00 | 496307.00 | 3917152.00 |
| 82.90 | 10735.35 | 3563.72 | 1038.53 | 2049.15 | 0.00 | 491552.00 | 3914944.00 |
| 480.71 | 7826.16 | 2189.61 | 659.85 | 703.99 | 0.00 | 488642.00 | 3913570.00 |
| 241.54 | 8679.43 | 2589.46 | 531.48 | 1290.45 | 0.00 | 489496.00 | 3913970.00 |
| 407.35 | 8010.22 | 2275.11 | 915.61 | 1472.12 | 0.00 | 488827.00 | 3913656.00 |
| 476.82 | 7835.55 | 2190.63 | 531.90 | 689.33 | 0.00 | 488652.00 | 3913571.00 |
| 625.66 | 7589.47 | 2053.48 | 690.20 | 762.38 | 0.00 | 488406.00 | 3913434.00 |
| 512.34 | 7757.28 | 2152.55 | 589.14 | 730.56 | 0.00 | 488574.00 | 3913533.00 |
| 498.86 | 7799.30 | 2164.44 | 544.89 | 929.34 | 0.00 | 488616.00 | 3913545.00 |
| 545.64 | 7702.80 | 2117.74 | 440.21 | 847.65 | 0.00 | 488519.00 | 3913499.00 |
| 231.24 | 8747.18 | 2616.38 | 719.01 | 1420.75 | 0.00 | 489563.00 | 3913997.00 |
| 600.97 | 7607.41 | 2074.12 | 493.95 | 690.89 | 0.00 | 488424.00 | 3913455.00 |
| 473.17 | 7841.46 | 2188.40 | 698.84 | 1251.24 | 0.00 | 488658.00 | 3913569.00 |
| 504.38 | 7784.89 | 2158.64 | 594.83 | 753.98 | 0.00 | 488601.00 | 3913539.00 |
| 518.89 | 7750.57 | 2141.28 | 621.52 | 1114.10 | 0.00 | 488567.00 | 3913522.00 |
| 303.91 | 8357.01 | 2433.22 | 618.06 | 1106.07 | 0.00 | 489173.00 | 3913814.00 |
| 54.80 | 11872.37 | 4101.33 | 949.25 | 1515.91 | 0.00 | 492689.00 | 3915482.00 |
| 352.62 | 8172.30 | 2340.72 | 618.39 | 1493.91 | 0.00 | 488989.00 | 3913722.00 |
| 167.86 | 9266.68 | 2866.41 | 842.15 | 1626.43 | 0.00 | 490083.00 | 3914247.00 |
| 395.08 | 8039.44 | 2294.10 | 810.16 | 985.84 | 0.00 | 488856.00 | 3913675.00 |
| 440.66 | 7919.36 | 2227.34 | 655.80 | 1191.93 | 0.00 | 488736.00 | 3913608.00 |
| 443.33 | 7918.54 | 2234.07 | 745.04 | 666.17 | 0.00 | 488735.00 | 3913615.00 |
| 385.92 | 8072.18 | 2300.51 | 662.09 | 1142.06 | 0.00 | 488888.00 | 3913681.00 |
| 110.10 | 10081.00 | 3243.26 | 1086.20 | 1958.62 | 0.00 | 490897.00 | 3914624.00 |
| 286.78 | 8443.37 | 2477.25 | 622.22 | 1255.16 | 0.00 | 489260.00 | 3913858.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 279.02 | 1712.65 | 526.46 | 186.33 | 349.15 | **25.50** | 482529.00 | 3911907.00 |
| 767.51 | 1294.12 | 316.14 | 167.97 | 412.18 | 0.00 | 482110.00 | 3911697.00 |
| 975.38 | 1218.68 | 275.51 | 208.26 | 316.41 | 0.00 | 482035.00 | 3911656.00 |
| 353.25 | 1604.78 | 468.00 | 195.47 | 424.00 | 0.00 | 482421.00 | 3911849.00 |
| 144.86 | 2069.69 | 693.69 | 195.33 | 450.79 | 0.00 | 482886.00 | 3912074.00 |
| 229.61 | 1809.49 | 573.45 | 152.66 | 334.99 | 0.00 | 482626.00 | 3911954.00 |
| 218.55 | 1840.66 | 581.81 | 177.33 | 410.41 | 0.00 | 482657.00 | 3911963.00 |
| 121.59 | 2178.17 | 749.22 | 192.74 | 347.56 | 0.00 | 482994.00 | 3912130.00 |
| 181.40 | 1943.63 | 634.93 | 227.23 | 376.07 | 0.00 | 482760.00 | 3912016.00 |
| 521.27 | 1451.02 | 388.16 | 193.07 | 411.42 | 0.00 | 482267.00 | 3911769.00 |
| 217.47 | 1839.84 | 583.58 | 181.47 | 406.65 | 0.00 | 482656.00 | 3911964.00 |
| 399.67 | 1546.01 | 444.25 | 210.12 | 466.40 | 0.00 | 482362.00 | 3911825.00 |
| 218.09 | 1843.25 | 583.65 | 199.96 | 375.19 | 0.00 | 482660.00 | 3911964.00 |
| 206.18 | 1867.62 | 601.94 | 208.21 | 357.94 | 0.00 | 482684.00 | 3911983.00 |
| 202.52 | 1878.95 | 604.64 | 200.72 | 396.14 | 0.00 | 482695.00 | 3911985.00 |
| 70.02 | 2602.01 | 948.63 | 191.41 | 381.71 | 0.00 | 483418.00 | 3912329.00 |
| 425.02 | 1518.04 | 430.11 | 155.10 | 364.30 | 0.00 | 482334.00 | 3911811.00 |
| 267.14 | 1734.85 | 532.21 | 198.65 | 363.47 | 0.00 | 482551.00 | 3911913.00 |
| 390.22 | 1560.44 | 449.22 | 196.51 | 363.54 | 0.00 | 482377.00 | 3911830.00 |
| 153.39 | 2029.09 | 677.06 | 198.34 | 419.23 | 0.00 | 482845.00 | 3912058.00 |
| 357.02 | 1597.39 | 470.30 | 241.65 | 366.08 | 0.00 | 482414.00 | 3911851.00 |
| 184.79 | 1928.67 | 629.73 | 194.55 | 384.38 | 0.00 | 482745.00 | 3912011.00 |
| 190.65 | 1908.69 | 622.19 | 215.70 | 440.06 | 0.00 | 482725.00 | 3912003.00 |
| 363.40 | 1588.20 | 463.27 | 203.97 | 420.21 | 0.00 | 482404.00 | 3911844.00 |
| 240.14 | 1800.23 | 562.91 | 242.62 | 415.58 | 0.00 | 482617.00 | 3911944.00 |
| 129.95 | 2135.20 | 728.11 | 161.18 | 354.67 | 0.00 | 482951.00 | 3912109.00 |
| 61.37 | 2719.84 | 1005.97 | 176.33 | 360.87 | 0.00 | 483536.00 | 3912387.00 |
| 589.72 | 1381.60 | 363.10 | 179.32 | 383.08 | 0.00 | 482198.00 | 3911744.00 |
| 253.10 | 1766.46 | 545.25 | 202.46 | 414.19 | 0.00 | 482583.00 | 3911926.00 |
| 240.94 | 1791.50 | 562.69 | 174.20 | 306.11 | 0.00 | 482608.00 | 3911943.00 |
| 54.05 | 2836.84 | 1063.38 | 221.49 | 408.49 | 0.00 | 483653.00 | 3912444.00 |
| 95.68 | 2356.31 | 832.71 | 206.23 | 422.01 | 0.00 | 483173.00 | 3912213.00 |
| 1089.78 | 2458.35 | 855.67 | 204.92 | 269.73 | 0.00 | 483275.00 | 3912236.00 |
| 388.77 | 1555.38 | 449.39 | 220.81 | 365.20 | 0.00 | 482372.00 | 3911830.00 |
| 219.96 | 1829.67 | 587.02 | 197.33 | 306.35 | 0.00 | 482646.00 | 3911968.00 |
| 89.18 | 2401.49 | 857.85 | 208.43 | 426.16 | 0.00 | 483218.00 | 3912239.00 |
| 226.91 | 1817.28 | 576.22 | 211.54 | 385.88 | 0.00 | 482634.00 | 3911957.00 |
| 104.33 | 2291.70 | 802.62 | 189.58 | 458.88 | 0.00 | 483108.00 | 3912183.00 |
| 352.81 | 1604.93 | 466.28 | 153.42 | 325.32 | 0.00 | 482421.00 | 3911847.00 |
| 193.52 | 1907.88 | 611.44 | 204.75 | 429.02 | 0.00 | 482724.00 | 3911992.00 |
| 324.07 | 1634.67 | 490.06 | 215.53 | 423.67 | 0.00 | 482451.00 | 3911871.00 |
| 244.17 | 1775.87 | 557.02 | 198.11 | 395.54 | 0.00 | 482592.00 | 3911938.00 |
| 333.95 | 1632.84 | 483.72 | 172.32 | 397.82 | 0.00 | 482449.00 | 3911864.00 |
| 448.71 | 1488.22 | 416.17 | 173.93 | 440.17 | 0.00 | 482305.00 | 3911797.00 |
| 97.44 | 2338.92 | 825.61 | 227.81 | 434.95 | 0.00 | 483155.00 | 3912206.00 |
| 261.59 | 1742.33 | 540.03 | 150.20 | 332.25 | 0.00 | 482559.00 | 3911921.00 |
| 134.44 | 2123.25 | 717.86 | 178.34 | 390.15 | 0.00 | 482940.00 | 3912099.00 |
| 351.50 | 1596.41 | 472.92 | 179.09 | 320.45 | 0.00 | 482413.00 | 3911854.00 |
| 566.98 | 1384.83 | 373.32 | 242.54 | 388.92 | 0.00 | 482201.00 | 3911754.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 252.07 | 1761.18 | 550.16 | 195.05 | 386.20 | 0.00 | 482577.00 | 3911931.00 |
| 292.24 | 1694.99 | 511.78 | 218.14 | 356.73 | 0.00 | 482511.00 | 3911893.00 |
| 345.02 | 1621.74 | 474.43 | 240.18 | 440.98 | 0.00 | 482438.00 | 3911855.00 |
| 139.25 | 2091.70 | 709.35 | 200.40 | 378.99 | 0.00 | 482908.00 | 3912090.00 |
| 322.12 | 1646.54 | 492.09 | 217.99 | 412.49 | 0.00 | 482463.00 | 3911873.00 |
| 281.65 | 1708.55 | 519.11 | 138.49 | 348.69 | 0.00 | 482525.00 | 3911900.00 |
| 566.26 | 1400.19 | 371.14 | 193.25 | 356.77 | 0.00 | 482216.00 | 3911752.00 |
| 202.28 | 1877.29 | 604.60 | 216.48 | 409.47 | 0.00 | 482694.00 | 3911985.00 |
| 104.46 | 2293.21 | 800.99 | 217.22 | 403.24 | 0.00 | 483109.00 | 3912182.00 |
| 443.61 | 1500.18 | 420.19 | 198.68 | 404.54 | 0.00 | 482316.00 | 3911801.00 |
| 245.81 | 1764.92 | 556.95 | 204.25 | 403.88 | 0.00 | 482581.00 | 3911938.00 |
| 122.88 | 2182.53 | 746.63 | 179.97 | 403.83 | 0.00 | 482999.00 | 3912127.00 |
| 205.80 | 1869.29 | 598.63 | 169.85 | 423.41 | 0.00 | 482686.00 | 3911979.00 |
| 690.45 | 1331.95 | 338.39 | 158.80 | 305.03 | 0.00 | 482148.00 | 3911719.00 |
| 343.47 | 1623.08 | 471.77 | 160.87 | 405.59 | 0.00 | 482439.00 | 3911853.00 |
| 163.10 | 1994.19 | 660.01 | 197.04 | 406.92 | 0.00 | 482810.00 | 3912041.00 |
| 81.74 | 2474.66 | 890.46 | 170.38 | 353.63 | 0.00 | 483291.00 | 3912271.00 |
| 80.81 | 2485.06 | 894.76 | 186.76 | 356.69 | 0.00 | 483301.00 | 3912276.00 |
| 364.13 | 1597.19 | 460.05 | 198.50 | 395.40 | 0.00 | 482413.00 | 3911841.00 |
| 102.04 | 2302.55 | 813.89 | 212.06 | 335.28 | 0.00 | 483119.00 | 3912195.00 |
| 325.36 | 1641.39 | 486.49 | 159.22 | 384.62 | 0.00 | 482458.00 | 3911867.00 |
| 150.73 | 2038.46 | 684.98 | 182.65 | 382.73 | 0.00 | 482855.00 | 3912066.00 |
| 189.66 | 1913.11 | 621.78 | 205.91 | 399.62 | 0.00 | 482729.00 | 3912003.00 |
| 256.97 | 1751.71 | 543.11 | 193.42 | 435.38 | 0.00 | 482568.00 | 3911924.00 |
| 410.80 | 1540.13 | 437.91 | 204.66 | 450.29 | 0.00 | 482356.00 | 3911819.00 |
| 326.78 | 1636.24 | 488.44 | 210.57 | 396.58 | 0.00 | 482453.00 | 3911869.00 |
| 273.60 | 1727.04 | 524.93 | 190.03 | 478.25 | 0.00 | 482543.00 | 3911906.00 |
| 172.07 | 1969.62 | 646.95 | 193.04 | 394.37 | 0.00 | 482786.00 | 3912028.00 |
| 378.35 | 1577.15 | 454.20 | 205.69 | 457.01 | 0.00 | 482393.00 | 3911835.00 |
| 303.75 | 1676.24 | 501.89 | 202.04 | 406.17 | 0.00 | 482493.00 | 3911883.00 |
| 1124.26 | 1767.08 | 523.75 | 245.88 | 362.71 | 0.00 | 482583.00 | 3911905.00 |
| 207.13 | 1863.60 | 600.09 | 198.74 | 411.99 | 0.00 | 482680.00 | 3911981.00 |
| 325.87 | 1636.04 | 487.58 | 143.65 | 326.56 | 0.00 | 482452.00 | 3911868.00 |
| 508.15 | 1450.56 | 389.45 | 170.99 | 364.18 | 0.00 | 482267.00 | 3911770.00 |
| 86.81 | 2430.66 | 867.69 | 238.27 | 391.09 | 0.00 | 483247.00 | 3912248.00 |
| 120.86 | 2186.87 | 752.27 | 209.71 | 415.60 | 0.00 | 483003.00 | 3912133.00 |
| 846.19 | 1242.35 | 298.75 | 212.16 | 459.73 | 0.00 | 482059.00 | 3911680.00 |
| 126.77 | 2148.88 | 738.17 | 199.00 | 439.16 | 0.00 | 482965.00 | 3912119.00 |
| 504.33 | 1442.06 | 394.92 | 179.50 | 341.31 | 0.00 | 482258.00 | 3911776.00 |
| 441.91 | 1509.71 | 422.85 | 185.06 | 319.97 | 0.00 | 482326.00 | 3911804.00 |
| 156.12 | 2029.27 | 674.68 | 148.77 | 287.20 | 0.00 | 482846.00 | 3912055.00 |
| 239.27 | 1789.17 | 561.42 | 206.68 | 410.03 | 0.00 | 482605.00 | 3911942.00 |
| 311.44 | 1645.47 | 496.67 | 204.76 | 404.13 | 0.00 | 482462.00 | 3911877.00 |
| 97.96 | 2337.11 | 822.56 | 206.60 | 411.96 | 0.00 | 483153.00 | 3912203.00 |
| 308.09 | 1665.68 | 499.20 | 143.23 | 332.96 | 0.00 | 482482.00 | 3911880.00 |
| 204.88 | 1873.81 | 602.68 | 228.29 | 387.35 | 0.00 | 482690.00 | 3911983.00 |
| 242.79 | 1782.24 | 556.50 | 216.15 | 410.71 | 0.00 | 482599.00 | 3911937.00 |
| 403.09 | 1544.61 | 441.23 | 169.40 | 361.68 | 0.00 | 482361.00 | 3911822.00 |
| 32.85 | 3380.98 | 1316.29 | 227.03 | 442.48 | 0.00 | 484197.00 | 3912697.00 |
| 412.81 | 1532.23 | 438.02 | 209.22 | 348.98 | 0.00 | 482349.00 | 3911819.00 |
| 117.97 | 2200.16 | 758.78 | 226.66 | 433.69 | 0.00 | 483016.00 | 3912140.00 |

| BALCOEF | XF | YF | SIGDR | SIGCR | TIME | X | Y |
|---|---|---|---|---|---|---|---|
| 357.35 | 2150.59 | 629.53 | 251.90 | 528.32 | **27.98** | 482967.00 | 3912010.00 |
| 75.13 | 3290.73 | 1173.10 | 270.52 | 528.24 | 0.00 | 484107.00 | 3912554.00 |
| 191.75 | 2525.26 | 812.81 | 244.66 | 482.99 | 0.00 | 483342.00 | 3912194.00 |
| 452.57 | 2042.71 | 576.47 | 277.65 | 491.29 | 0.00 | 482859.00 | 3911957.00 |
| 352.52 | 2166.04 | 637.65 | 265.34 | 476.91 | 0.00 | 482982.00 | 3912018.00 |
| 423.18 | 2075.31 | 592.41 | 281.14 | 526.81 | 0.00 | 482892.00 | 3911973.00 |
| 137.72 | 2757.84 | 916.62 | 207.31 | 484.30 | 0.00 | 483574.00 | 3912297.00 |
| 334.56 | 2189.34 | 649.18 | 246.26 | 575.09 | 0.00 | 483006.00 | 3912030.00 |
| 69.56 | 3370.07 | 1208.68 | 259.69 | 590.96 | 0.00 | 484186.00 | 3912589.00 |
| 318.35 | 2220.39 | 661.16 | 227.82 | 531.44 | 0.00 | 483037.00 | 3912042.00 |
| 181.17 | 2561.54 | 833.03 | 262.64 | 372.33 | 0.00 | 483378.00 | 3912214.00 |
| 416.23 | 2078.36 | 597.40 | 297.84 | 560.19 | 0.00 | 482895.00 | 3911978.00 |
| 167.25 | 2619.48 | 853.54 | 265.35 | 572.19 | 0.00 | 483436.00 | 3912234.00 |
| 650.52 | 1881.39 | 495.78 | 264.57 | 458.46 | 0.00 | 482698.00 | 3911877.00 |
| 209.29 | 2469.85 | 780.11 | 262.98 | 544.25 | 0.00 | 483286.00 | 3912161.00 |
| 195.31 | 2514.71 | 803.61 | 252.10 | 532.08 | 0.00 | 483331.00 | 3912184.00 |
| 362.85 | 2151.78 | 627.31 | 243.59 | 529.93 | 0.00 | 482968.00 | 3912008.00 |
| 403.34 | 2095.05 | 600.12 | 293.18 | 585.64 | 0.00 | 482911.00 | 3911981.00 |
| 255.79 | 2340.88 | 722.94 | 245.65 | 487.48 | 0.00 | 483157.00 | 3912104.00 |
| 284.08 | 2276.79 | 692.09 | 237.02 | 541.16 | 0.00 | 483093.00 | 3912073.00 |
| 103.03 | 2997.41 | 1035.81 | 219.00 | 569.77 | 0.00 | 483814.00 | 3912417.00 |
| 316.21 | 2219.49 | 668.48 | 280.86 | 491.03 | 0.00 | 483036.00 | 3912049.00 |
| 439.53 | 2054.36 | 580.33 | 283.87 | 514.75 | 0.00 | 482871.00 | 3911961.00 |
| 623.73 | 1895.22 | 502.56 | 275.07 | 530.54 | 0.00 | 482711.00 | 3911883.00 |
| 123.56 | 2842.49 | 961.71 | 274.07 | 606.53 | 0.00 | 483659.00 | 3912342.00 |
| 274.56 | 2296.34 | 703.73 | 252.26 | 589.45 | 0.00 | 483113.00 | 3912085.00 |
| 223.43 | 2423.92 | 764.42 | 152.31 | 380.80 | 0.00 | 483240.00 | 3912145.00 |
| 258.18 | 2342.49 | 717.67 | 258.18 | 528.44 | 0.00 | 483159.00 | 3912098.00 |
| 84.78 | 3172.21 | 1117.11 | 279.00 | 619.03 | 0.00 | 483988.00 | 3912498.00 |
| 249.63 | 2356.78 | 729.54 | 261.47 | 574.71 | 0.00 | 483173.00 | 3912110.00 |
| 574.49 | 1929.21 | 518.22 | 228.83 | 493.14 | 0.00 | 482745.00 | 3911899.00 |
| 175.83 | 2584.47 | 835.48 | 237.30 | 584.77 | 0.00 | 483401.00 | 3912216.00 |
| 244.76 | 2373.49 | 737.33 | 258.38 | 595.12 | 0.00 | 483190.00 | 3912118.00 |
| 337.84 | 2190.69 | 647.46 | 235.81 | 431.18 | 0.00 | 483007.00 | 3912028.00 |
| 167.15 | 2618.28 | 855.94 | 243.56 | 518.09 | 0.00 | 483435.00 | 3912237.00 |
| 367.26 | 2139.53 | 624.70 | 240.54 | 569.92 | 0.00 | 482956.00 | 3912005.00 |
| 242.34 | 2379.90 | 736.82 | 300.94 | 553.25 | 0.00 | 483196.00 | 3912118.00 |
| 235.53 | 2393.22 | 750.63 | 240.11 | 581.67 | 0.00 | 483210.00 | 3912131.00 |
| 434.64 | 2057.40 | 583.82 | 288.77 | 512.42 | 0.00 | 482874.00 | 3911965.00 |
| 176.19 | 2583.06 | 839.53 | 258.08 | 548.36 | 0.00 | 483399.00 | 3912220.00 |
| 219.42 | 2435.81 | 770.60 | 270.74 | 454.99 | 0.00 | 483252.00 | 3912151.00 |
| 105.62 | 2973.61 | 1021.76 | 245.86 | 545.93 | 0.00 | 483790.00 | 3912403.00 |
| 223.94 | 2424.52 | 761.51 | 263.36 | 571.25 | 0.00 | 483241.00 | 3912142.00 |
| 79.85 | 3228.32 | 1149.43 | 267.08 | 530.76 | 0.00 | 484045.00 | 3912530.00 |
| 444.28 | 2053.25 | 575.64 | 211.67 | 537.18 | 0.00 | 482870.00 | 3911956.00 |
| 97.09 | 3045.87 | 1054.11 | 193.45 | 449.28 | 0.00 | 483862.00 | 3912435.00 |
| 328.91 | 2207.09 | 653.22 | 277.44 | 482.12 | 0.00 | 483023.00 | 3912034.00 |
| 302.28 | 2249.80 | 679.62 | 274.15 | 481.70 | 0.00 | 483066.00 | 3912060.00 |
| 455.04 | 2034.67 | 573.37 | 290.98 | 568.49 | 0.00 | 482851.00 | 3911954.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 366.83 | 2152.18 | 627.91 | 260.85 | 552.01 | 0.00 | 482968.00 | 3912009.00 |
| 129.24 | 2808.12 | 946.93 | 250.12 | 579.55 | 0.00 | 483624.00 | 3912328.00 |
| 125.87 | 2825.68 | 956.22 | 273.55 | 491.85 | 0.00 | 483642.00 | 3912337.00 |
| 370.47 | 2129.20 | 625.39 | 257.64 | 498.23 | 0.00 | 482945.00 | 3912006.00 |
| 153.92 | 2675.57 | 880.12 | 269.50 | 546.65 | 0.00 | 483492.00 | 3912261.00 |
| 260.11 | 2330.87 | 718.70 | 250.26 | 506.04 | 0.00 | 483147.00 | 3912099.00 |
| 191.02 | 2531.25 | 811.67 | 246.84 | 482.08 | 0.00 | 483348.00 | 3912192.00 |
| 99.33 | 3022.16 | 1050.07 | 246.84 | 520.50 | 0.00 | 483838.00 | 3912431.00 |
| 34.44 | 4236.91 | 1617.71 | 314.04 | 577.65 | 0.00 | 485053.00 | 3912998.00 |
| 79.30 | 3234.60 | 1151.12 | 258.98 | 533.40 | 0.00 | 484051.00 | 3912532.00 |
| 122.10 | 2853.83 | 968.08 | 300.19 | 552.13 | 0.00 | 483670.00 | 3912349.00 |
| 156.21 | 2654.94 | 873.13 | 243.68 | 531.65 | 0.00 | 483471.00 | 3912254.00 |
| 60.60 | 3517.15 | 1282.92 | 314.34 | 523.02 | 0.00 | 484333.00 | 3912664.00 |
| 675.80 | 1857.05 | 490.02 | 186.22 | 503.57 | 0.00 | 482673.00 | 3911871.00 |
| 539.38 | 1963.41 | 534.91 | 280.96 | 462.02 | 0.00 | 482780.00 | 3911916.00 |
| 289.33 | 2263.29 | 689.40 | 291.23 | 644.82 | 0.00 | 483080.00 | 3912070.00 |
| 182.15 | 2562.05 | 829.00 | 246.44 | 543.89 | 0.00 | 483378.00 | 3912210.00 |
| 65.58 | 3429.81 | 1243.51 | 311.30 | 509.10 | 0.00 | 484246.00 | 3912624.00 |
| 53.24 | 3665.30 | 1347.75 | 255.40 | 571.66 | 0.00 | 484482.00 | 3912729.00 |
| 62.08 | 3493.50 | 1270.34 | 244.13 | 485.36 | 0.00 | 484310.00 | 3912651.00 |
| 538.87 | 1961.71 | 531.15 | 229.84 | 495.60 | 0.00 | 482778.00 | 3911912.00 |
| 156.31 | 2665.95 | 878.02 | 271.94 | 478.35 | 0.00 | 483482.00 | 3912259.00 |
| 500.29 | 1987.21 | 556.42 | 276.06 | 483.84 | 0.00 | 482803.00 | 3911937.00 |
| 421.97 | 2065.05 | 591.05 | 209.85 | 539.53 | 0.00 | 482881.00 | 3911972.00 |
| 227.61 | 2409.33 | 760.14 | 239.18 | 352.29 | 0.00 | 483226.00 | 3912141.00 |
| 149.00 | 2693.86 | 891.61 | 235.22 | 516.31 | 0.00 | 483510.00 | 3912272.00 |
| 583.92 | 1932.77 | 518.40 | 296.32 | 472.23 | 0.00 | 482749.00 | 3911899.00 |
| 118.07 | 2878.12 | 982.60 | 308.25 | 536.89 | 0.00 | 483694.00 | 3912363.00 |
| 217.52 | 2439.03 | 774.46 | 271.68 | 514.65 | 0.00 | 483255.00 | 3912155.00 |
| 70.36 | 3357.50 | 1206.65 | 255.88 | 502.01 | 0.00 | 484174.00 | 3912587.00 |
| 411.76 | 2085.68 | 597.09 | 273.92 | 561.67 | 0.00 | 482902.00 | 3911978.00 |
| 302.77 | 2250.02 | 674.17 | 274.26 | 514.22 | 0.00 | 483066.00 | 3912055.00 |
| 285.69 | 2277.05 | 690.02 | 224.41 | 488.08 | 0.00 | 483093.00 | 3912071.00 |
| 117.52 | 2884.68 | 976.76 | 253.17 | 492.51 | 0.00 | 483701.00 | 3912358.00 |
| 317.20 | 2216.99 | 664.63 | 266.05 | 497.47 | 0.00 | 483033.00 | 3912045.00 |
| 221.89 | 2429.47 | 764.64 | 266.20 | 551.28 | 0.00 | 483246.00 | 3912145.00 |
| 54.80 | 3633.73 | 1338.95 | 276.69 | 408.82 | 0.00 | 484450.00 | 3912720.00 |
| 365.29 | 2146.84 | 624.82 | 253.19 | 476.75 | 0.00 | 482963.00 | 3912006.00 |
| 347.29 | 2176.11 | 638.86 | 248.10 | 515.62 | 0.00 | 482992.00 | 3912020.00 |
| 220.79 | 2436.27 | 770.46 | 316.41 | 525.60 | 0.00 | 483253.00 | 3912151.00 |
| 178.40 | 2573.36 | 838.38 | 252.86 | 522.02 | 0.00 | 483390.00 | 3912219.00 |
| 181.95 | 2562.95 | 824.79 | 265.84 | 526.67 | 0.00 | 483379.00 | 3912206.00 |
| 315.29 | 2222.01 | 667.53 | 312.43 | 543.52 | 0.00 | 483038.00 | 3912048.00 |
| 174.29 | 2588.64 | 837.68 | 295.87 | 602.70 | 0.00 | 483405.00 | 3912218.00 |
| 190.34 | 2529.58 | 817.34 | 277.41 | 490.95 | 0.00 | 483346.00 | 3912198.00 |
| 176.36 | 2588.66 | 837.46 | 284.50 | 565.86 | 0.00 | 483405.00 | 3912218.00 |
| 325.88 | 2208.47 | 658.95 | 288.54 | 509.12 | 0.00 | 483025.00 | 3912040.00 |
| 298.28 | 2252.46 | 680.66 | 261.53 | 592.79 | 0.00 | 483069.00 | 3912061.00 |
| 83.50 | 3187.63 | 1128.75 | 278.42 | 497.75 | 0.00 | 484004.00 | 3912510.00 |
| 613.34 | 1902.84 | 505.19 | 283.50 | 499.75 | 0.00 | 482719.00 | 3911886.00 |
| 207.27 | 2479.09 | 785.66 | 279.47 | 485.92 | 0.00 | 483295.00 | 3912166.00 |

# APPENDIX C GAS MODELING INPUTS AND OUTPUTS

## C.1 Gas Modeling Inputs (AERMOD)

This appendix includes the input and outputs files used for the gas analysis. The AERMOD input files only those section which differ according to the breakup scenario. We show below the common sections among those files.

```
CO  STARTING
      TITLEONE  Effects of Space Shuttle Breakup before Booster Separation
      MODELOPT  DFAULT CONC
      **        Averaging Time to Process (4 hour)
      AVERTIME  4
      POLLUTID  HCL
      RUNORNOT  RUN
      ERRORFIL  ERRORS.OUT
CO FINISHED
```

```
RE    STARTING
**    25,000 receptors processed by AERMAP
      INCLUDED  AERMAP.REC
RE    FINISHED
```

```
ME STARTING
**        The file Okla_MP.SFC contains a full year of data from the Oklahoma City
**        Station. This was the closest station to Clinton-Sherman from which
**        yearly data in the TD-6201 format was available.
**
     SURFFILE  Okla_MP.SFC
     PROFFILE  Okla_MP.PFL
     SURFDATA  13967      1989  Oklahoma_City
     UAIRDATA  00013967    1989  Oklahoma_City
**
**        The base elevation of the Oklahoma City tower
**        is 397.46 m (1304 ft)
     PROFBASE  397.46**
**        Simulating a launch an early morning
**        in March (as STS-117)
     STARTEND  89 03 15 10  89 03 15 24
**   DAYRANGE  89 04 09 10  89 04 09 11
ME FINISHED
```

```
AERMOD Input File - Breakup Time: 9.32 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID    Type      x(m)        y(m)       z(m)
**                ---------- ---------- ----------- ------------- ---------
SO LOCATION FRAG1   AREA   480894   3911392   0.0
SO LOCATION FRAG2   AREA   480863   3911380   0.0
SO LOCATION FRAG3   AREA   480881   3911379   0.0
SO LOCATION FRAG4   AREA   480886   3911380   0.0
SO LOCATION FRAG5   AREA   480849   3911379   0.0
SO LOCATION FRAG6   AREA   480862   3911379   0.0
SO LOCATION FRAG7   AREA   480899   3911389   0.0
SO LOCATION FRAG8   AREA   480918   3911419   0.0
SO LOCATION FRAG9   AREA   480934   3911417   0.0
SO LOCATION FRAG10 AREA   480927   3911416   0.0
SO LOCATION FRAG11 AREA   480964   3911402   0.0
SO LOCATION FRAG12 AREA   480902   3911402   0.0
SO LOCATION FRAG13 AREA   480887   3911388   0.0
SO LOCATION FRAG14 AREA   480894   3911392   0.0
SO LOCATION FRAG15 AREA   480900   3911392   0.0
SO LOCATION FRAG16 AREA   480974   3911434   0.0
SO LOCATION FRAG17 AREA   480856   3911385   0.0
SO LOCATION FRAG18 AREA   480929   3911397   0.0
SO LOCATION FRAG19 AREA   480918   3911397   0.0
SO LOCATION FRAG20 AREA   480909   3911397   0.0
SO LOCATION FRAG21 AREA   480873   3911380   0.0
SO LOCATION FRAG22 AREA   480852   3911379   0.0
SO LOCATION FRAG23 AREA   480880   3911402   0.0
SO LOCATION FRAG24 AREA   480903   3911385   0.0
SO LOCATION FRAG25 AREA   481085   3911480   0.0

**
SO HOUREMIS  Emission9_32.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     ----------- ---------- ---------    -------------------
      MAXIFILE             4         ALL      7460       Max9_32.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 9.77 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                 SrcID    Type     x(m)        y(m)        z(m)
**                ---------- --------- ----------- ------------- ---------
SO LOCATION FRAG1   AREA   480930   3911389    0.0
SO LOCATION FRAG2   AREA   480869   3911390    0.0
SO LOCATION FRAG3   AREA   480868   3911385    0.0
SO LOCATION FRAG4   AREA   480868   3911392    0.0
SO LOCATION FRAG5   AREA   480912   3911393    0.0
SO LOCATION FRAG6   AREA   480866   3911387    0.0
SO LOCATION FRAG7   AREA   480904   3911392    0.0
SO LOCATION FRAG8   AREA   480903   3911410    0.0
SO LOCATION FRAG9   AREA   480968   3911411    0.0
SO LOCATION FRAG10 AREA   480932   3911411    0.0
SO LOCATION FRAG11 AREA   480874   3911386    0.0
SO LOCATION FRAG12 AREA   480907   3911389    0.0
SO LOCATION FRAG13 AREA   480919   3911390    0.0
SO LOCATION FRAG14 AREA   480896   3911391    0.0
SO LOCATION FRAG15 AREA   480881   3911398    0.0
SO LOCATION FRAG16 AREA   480867   3911383    0.0
SO LOCATION FRAG17 AREA   480890   3911385    0.0
SO LOCATION FRAG18 AREA   480894   3911385    0.0
SO LOCATION FRAG19 AREA   480902   3911385    0.0
SO LOCATION FRAG20 AREA   480919   3911385    0.0
SO LOCATION FRAG21 AREA   480865   3911382    0.0
SO LOCATION FRAG22 AREA   480878   3911384    0.0
SO LOCATION FRAG23 AREA   480897   3911387    0.0
SO LOCATION FRAG24 AREA   480881   3911386    0.0
SO LOCATION FRAG25 AREA   480867   3911386    0.0
**
SO HOUREMIS  Emission9_77.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     0.64
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       ----------- ---------- ---------    -------------------
       MAXIFILE              4         ALL      7460       Max9_77.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 16.03 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID    Type       x(m)        y(m)       z(m)
**                ---------- ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   481551     3911648     0.0
SO LOCATION FRAG2    AREA   481106     3911445     0.0
SO LOCATION FRAG3    AREA   481078     3911432     0.0
SO LOCATION FRAG4    AREA   481185     3911478     0.0
SO LOCATION FRAG5    AREA   481243     3911515     0.0
SO LOCATION FRAG6    AREA   481191     3911479     0.0
SO LOCATION FRAG7    AREA   481145     3911468     0.0
SO LOCATION FRAG8    AREA   481121     3911461     0.0
SO LOCATION FRAG9    AREA   481202     3911498     0.0
SO LOCATION FRAG10  AREA   481141     3911465     0.0
SO LOCATION FRAG11  AREA   481305     3911551     0.0
SO LOCATION FRAG12  AREA   481217     3911504     0.0
SO LOCATION FRAG13  AREA   481196     3911495     0.0
SO LOCATION FRAG14  AREA   481175     3911484     0.0
SO LOCATION FRAG15  AREA   481166     3911471     0.0
SO LOCATION FRAG16  AREA   481241     3911506     0.0
SO LOCATION FRAG17  AREA   481141     3911468     0.0
SO LOCATION FRAG18  AREA   481452     3911628     0.0
SO LOCATION FRAG19  AREA   481174     3911476     0.0
SO LOCATION FRAG20  AREA   481370     3911581     0.0
SO LOCATION FRAG21  AREA   481281     3911537     0.0
SO LOCATION FRAG22  AREA   481153     3911474     0.0
SO LOCATION FRAG23  AREA   481382     3911588     0.0
SO LOCATION FRAG24  AREA   481445     3911621     0.0
SO LOCATION FRAG25  AREA   481087     3911433     0.0


**
SO HOUREMIS  Emission16_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max16_03.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 19.21 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type      x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   481457    3911567     0.0
SO LOCATION FRAG2    AREA   481522    3911592     0.0
SO LOCATION FRAG3    AREA   481465    3911573     0.0
SO LOCATION FRAG4    AREA   481362    3911521     0.0
SO LOCATION FRAG5    AREA   481879    3911776     0.0
SO LOCATION FRAG6    AREA   481779    3911730     0.0
SO LOCATION FRAG7    AREA   481576    3911626     0.0
SO LOCATION FRAG8    AREA   481465    3911571     0.0
SO LOCATION FRAG9    AREA   481322    3911503     0.0
SO LOCATION FRAG10  AREA   482043    3911858     0.0
SO LOCATION FRAG11  AREA   481315    3911493     0.0
SO LOCATION FRAG12  AREA   481361    3911520     0.0
SO LOCATION FRAG13  AREA   481793    3911737     0.0
SO LOCATION FRAG14  AREA   481589    3911633     0.0
SO LOCATION FRAG15  AREA   481631    3911654     0.0
SO LOCATION FRAG16  AREA   481370    3911529     0.0
SO LOCATION FRAG17  AREA   481646    3911658     0.0
SO LOCATION FRAG18  AREA   481357    3911518     0.0
SO LOCATION FRAG19  AREA   481429    3911555     0.0
SO LOCATION FRAG20  AREA   481469    3911580     0.0
SO LOCATION FRAG21  AREA   481476    3911573     0.0
SO LOCATION FRAG22  AREA   482137    3911902     0.0
SO LOCATION FRAG23  AREA   481373    3911524     0.0
SO LOCATION FRAG24  AREA   481446    3911551     0.0
SO LOCATION FRAG25  AREA   481375    3911529     0.0

**
SO HOUREMIS  Emission19_21.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max19_21.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 20.99 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    481602   3911606    0.0
SO LOCATION FRAG2    AREA    481522   3911558    0.0
SO LOCATION FRAG3    AREA    482006   3911797    0.0
SO LOCATION FRAG4    AREA    481905   3911746    0.0
SO LOCATION FRAG5    AREA    481654   3911630    0.0
SO LOCATION FRAG6    AREA    481485   3911538    0.0
SO LOCATION FRAG7    AREA    481768   3911679    0.0
SO LOCATION FRAG8    AREA    482656   3912108    0.0
SO LOCATION FRAG9    AREA    481636   3911605    0.0
SO LOCATION FRAG10  AREA    481669   3911630    0.0
SO LOCATION FRAG11  AREA    481577   3911583    0.0
SO LOCATION FRAG12  AREA    481769   3911684    0.0
SO LOCATION FRAG13  AREA    481800   3911698    0.0
SO LOCATION FRAG14  AREA    482006   3911800    0.0
SO LOCATION FRAG15  AREA    481684   3911642    0.0
SO LOCATION FRAG16  AREA    481699   3911648    0.0
SO LOCATION FRAG17  AREA    481763   3911676    0.0
SO LOCATION FRAG18  AREA    481603   3911600    0.0
SO LOCATION FRAG19  AREA    481606   3911598    0.0
SO LOCATION FRAG20  AREA    482359   3911969    0.0
SO LOCATION FRAG21  AREA    481922   3911753    0.0
SO LOCATION FRAG22  AREA    482045   3911816    0.0
SO LOCATION FRAG23  AREA    481650   3911624    0.0
SO LOCATION FRAG24  AREA    481906   3911747    0.0
SO LOCATION FRAG25  AREA    481773   3911684    0.0
**
SO HOUREMIS  Emission20_99.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max20_99.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 21.03 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    482003    3911794    0.0
SO LOCATION FRAG2    AREA    481630    3911618    0.0
SO LOCATION FRAG3    AREA    481511    3911551    0.0
SO LOCATION FRAG4    AREA    481961    3911773    0.0
SO LOCATION FRAG5    AREA    481814    3911703    0.0
SO LOCATION FRAG6    AREA    481911    3911750    0.0
SO LOCATION FRAG7    AREA    481613    3911601    0.0
SO LOCATION FRAG8    AREA    481873    3911732    0.0
SO LOCATION FRAG9    AREA    481651    3911625    0.0
SO LOCATION FRAG10  AREA    481984    3911785    0.0
SO LOCATION FRAG11  AREA    482007    3911800    0.0
SO LOCATION FRAG12  AREA    482225    3911900    0.0
SO LOCATION FRAG13  AREA    481685    3911639    0.0
SO LOCATION FRAG14  AREA    481618    3911602    0.0
SO LOCATION FRAG15  AREA    481639    3911611    0.0
SO LOCATION FRAG16  AREA    482361    3911967    0.0
SO LOCATION FRAG17  AREA    481853    3911723    0.0
SO LOCATION FRAG18  AREA    481724    3911662    0.0
SO LOCATION FRAG19  AREA    481690    3911646    0.0
SO LOCATION FRAG20  AREA    481800    3911692    0.0
SO LOCATION FRAG21  AREA    482044    3911815    0.0
SO LOCATION FRAG22  AREA    482603    3912084    0.0
SO LOCATION FRAG23  AREA    481466    3911531    0.0
SO LOCATION FRAG24  AREA    481781    3911680    0.0
SO LOCATION FRAG25  AREA    481826    3911706    0.0
**
SO HOUREMIS  Emission21_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max21_03.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 21.81 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    481628    3911590    0.0
SO LOCATION FRAG2    AREA    481780    3911661    0.0
SO LOCATION FRAG3    AREA    481513    3911527    0.0
SO LOCATION FRAG4    AREA    481812    3911675    0.0
SO LOCATION FRAG5    AREA    481774    3911659    0.0
SO LOCATION FRAG6    AREA    482526    3912029    0.0
SO LOCATION FRAG7    AREA    482545    3912037    0.0
SO LOCATION FRAG8    AREA    482029    3911789    0.0
SO LOCATION FRAG9    AREA    481885    3911711    0.0
SO LOCATION FRAG10  AREA    481881    3911712    0.0
SO LOCATION FRAG11  AREA    481828    3911685    0.0
SO LOCATION FRAG12  AREA    481818    3911680    0.0
SO LOCATION FRAG13  AREA    481617    3911582    0.0
SO LOCATION FRAG14  AREA    482027    3911789    0.0
SO LOCATION FRAG15  AREA    481952    3911745    0.0
SO LOCATION FRAG16  AREA    482018    3911782    0.0
SO LOCATION FRAG17  AREA    482076    3911786    0.0
SO LOCATION FRAG18  AREA    481668    3911608    0.0
SO LOCATION FRAG19  AREA    481829    3911688    0.0
SO LOCATION FRAG20  AREA    482242    3911889    0.0
SO LOCATION FRAG21  AREA    481964    3911753    0.0
SO LOCATION FRAG22  AREA    482228    3911883    0.0
SO LOCATION FRAG23  AREA    482308    3911920    0.0
SO LOCATION FRAG24  AREA    481942    3911744    0.0
SO LOCATION FRAG25  AREA    481738    3911640    0.0
**
SO HOUREMIS  Emission21_81.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max21_81.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 22.49 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    482123   3911810    0.0
SO LOCATION FRAG2    AREA    483067   3912267    0.0
SO LOCATION FRAG3    AREA    482210   3911854    0.0
SO LOCATION FRAG4    AREA    481980   3911740    0.0
SO LOCATION FRAG5    AREA    482039   3911773    0.0
SO LOCATION FRAG6    AREA    481775   3911639    0.0
SO LOCATION FRAG7    AREA    482006   3911750    0.0
SO LOCATION FRAG8    AREA    482228   3911863    0.0
SO LOCATION FRAG9    AREA    481891   3911697    0.0
SO LOCATION FRAG10  AREA    482206   3911851    0.0
SO LOCATION FRAG11  AREA    482313   3911904    0.0
SO LOCATION FRAG12  AREA    481750   3911626    0.0
SO LOCATION FRAG13  AREA    482486   3911987    0.0
SO LOCATION FRAG14  AREA    482343   3911917    0.0
SO LOCATION FRAG15  AREA    482181   3911839    0.0
SO LOCATION FRAG16  AREA    481815   3911654    0.0
SO LOCATION FRAG17  AREA    481868   3911688    0.0
SO LOCATION FRAG18  AREA    481816   3911662    0.0
SO LOCATION FRAG19  AREA    482016   3911762    0.0
SO LOCATION FRAG20  AREA    481791   3911641    0.0
SO LOCATION FRAG21  AREA    481633   3911565    0.0
SO LOCATION FRAG22  AREA    482562   3912024    0.0
SO LOCATION FRAG23  AREA    481947   3911724    0.0
SO LOCATION FRAG24  AREA    481839   3911673    0.0
SO LOCATION FRAG25  AREA    481791   3911643    0.0
**
SO HOUREMIS  Emission22_49.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max22_49.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 25.50 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    482035   3911656    0.0
SO LOCATION FRAG2    AREA    482657   3911963    0.0
SO LOCATION FRAG3    AREA    482994   3912130    0.0
SO LOCATION FRAG4    AREA    482745   3912011    0.0
SO LOCATION FRAG5    AREA    482725   3912003    0.0
SO LOCATION FRAG6    AREA    482951   3912109    0.0
SO LOCATION FRAG7    AREA    483173   3912213    0.0
SO LOCATION FRAG8    AREA    483108   3912183    0.0
SO LOCATION FRAG9    AREA    482421   3911847    0.0
SO LOCATION FRAG10   AREA    482724   3911992    0.0
SO LOCATION FRAG11   AREA    482592   3911938    0.0
SO LOCATION FRAG12   AREA    482449   3911864    0.0
SO LOCATION FRAG13   AREA    482305   3911797    0.0
SO LOCATION FRAG14   AREA    482216   3911752    0.0
SO LOCATION FRAG15   AREA    482694   3911985    0.0
SO LOCATION FRAG16   AREA    482686   3911979    0.0
SO LOCATION FRAG17   AREA    482148   3911719    0.0
SO LOCATION FRAG18   AREA    482855   3912066    0.0
SO LOCATION FRAG19   AREA    482453   3911869    0.0
SO LOCATION FRAG20   AREA    482543   3911906    0.0
SO LOCATION FRAG21   AREA    482680   3911981    0.0
SO LOCATION FRAG22   AREA    482452   3911868    0.0
SO LOCATION FRAG23   AREA    482059   3911680    0.0
SO LOCATION FRAG24   AREA    482605   3911942    0.0
SO LOCATION FRAG25   AREA    482258   3911776    0.0


**
SO HOUREMIS  Emission25_50.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max25_50.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 27.62 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    482437    3911761    0.0
SO LOCATION FRAG2    AREA    483063    3912075    0.0
SO LOCATION FRAG3    AREA    483100    3912092    0.0
SO LOCATION FRAG4    AREA    483154    3912116    0.0
SO LOCATION FRAG5    AREA    483253    3912166    0.0
SO LOCATION FRAG6    AREA    483025    3912058    0.0
SO LOCATION FRAG7    AREA    482873    3911983    0.0
SO LOCATION FRAG8    AREA    482735    3911916    0.0
SO LOCATION FRAG9    AREA    482659    3911874    0.0
SO LOCATION FRAG10   AREA    483322    3912198    0.0
SO LOCATION FRAG11   AREA    482718    3911900    0.0
SO LOCATION FRAG12   AREA    483052    3912069    0.0
SO LOCATION FRAG13   AREA    483081    3912082    0.0
SO LOCATION FRAG14   AREA    482785    3911936    0.0
SO LOCATION FRAG15   AREA    482973    3912028    0.0
SO LOCATION FRAG16   AREA    482567    3911827    0.0
SO LOCATION FRAG17   AREA    483098    3912091    0.0
SO LOCATION FRAG18   AREA    484175    3912601    0.0
SO LOCATION FRAG19   AREA    483054    3912065    0.0
SO LOCATION FRAG20   AREA    483017    3912049    0.0
SO LOCATION FRAG21   AREA    483525    3912296    0.0
SO LOCATION FRAG22   AREA    483679    3912368    0.0
SO LOCATION FRAG23   AREA    483136    3912107    0.0
SO LOCATION FRAG24   AREA    482853    3911975    0.0
SO LOCATION FRAG25   AREA    482748    3911918    0.0

**
SO HOUREMIS  Emission27_62.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max27_62.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 27.98 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    483342   3912194    0.0
SO LOCATION FRAG2    AREA    483574   3912297    0.0
SO LOCATION FRAG3    AREA    483006   3912030    0.0
SO LOCATION FRAG4    AREA    483036   3912049    0.0
SO LOCATION FRAG5    AREA    482871   3911961    0.0
SO LOCATION FRAG6    AREA    483113   3912085    0.0
SO LOCATION FRAG7    AREA    483401   3912216    0.0
SO LOCATION FRAG8    AREA    483210   3912131    0.0
SO LOCATION FRAG9    AREA    482874   3911965    0.0
SO LOCATION FRAG10  AREA    483399   3912220    0.0
SO LOCATION FRAG11  AREA    483790   3912403    0.0
SO LOCATION FRAG12  AREA    483241   3912142    0.0
SO LOCATION FRAG13  AREA    484045   3912530    0.0
SO LOCATION FRAG14  AREA    483348   3912192    0.0
SO LOCATION FRAG15  AREA    483838   3912431    0.0
SO LOCATION FRAG16  AREA    484333   3912664    0.0
SO LOCATION FRAG17  AREA    482673   3911871    0.0
SO LOCATION FRAG18  AREA    483482   3912259    0.0
SO LOCATION FRAG19  AREA    483510   3912272    0.0
SO LOCATION FRAG20  AREA    482749   3911899    0.0
SO LOCATION FRAG21  AREA    483066   3912055    0.0
SO LOCATION FRAG22  AREA    483093   3912071    0.0
SO LOCATION FRAG23  AREA    484450   3912720    0.0
SO LOCATION FRAG24  AREA    482992   3912020    0.0
SO LOCATION FRAG25  AREA    483379   3912206    0.0


**
SO HOUREMIS  Emission27_98.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max27_98.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 28.03 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    483587    3912303    0.0
SO LOCATION FRAG2    AREA    483002    3912024    0.0
SO LOCATION FRAG3    AREA    482915    3911981    0.0
SO LOCATION FRAG4    AREA    482737    3911901    0.0
SO LOCATION FRAG5    AREA    483132    3912088    0.0
SO LOCATION FRAG6    AREA    483097    3912071    0.0
SO LOCATION FRAG7    AREA    483934    3912470    0.0
SO LOCATION FRAG8    AREA    482984    3912016    0.0
SO LOCATION FRAG9    AREA    483186    3912116    0.0
SO LOCATION FRAG10   AREA    482847    3911951    0.0
SO LOCATION FRAG11   AREA    484371    3912675    0.0
SO LOCATION FRAG12   AREA    484485    3912732    0.0
SO LOCATION FRAG13   AREA    483188    3912114    0.0
SO LOCATION FRAG14   AREA    484495    3912731    0.0
SO LOCATION FRAG15   AREA    483102    3912079    0.0
SO LOCATION FRAG16   AREA    482848    3911949    0.0
SO LOCATION FRAG17   AREA    483351    3912191    0.0
SO LOCATION FRAG18   AREA    483221    3912126    0.0
SO LOCATION FRAG19   AREA    483130    3912088    0.0
SO LOCATION FRAG20   AREA    483040    3912045    0.0
SO LOCATION FRAG21   AREA    482921    3911987    0.0
SO LOCATION FRAG22   AREA    483519    3912278    0.0
SO LOCATION FRAG23   AREA    482887    3911965    0.0
SO LOCATION FRAG24   AREA    483479    3912258    0.0
SO LOCATION FRAG25   AREA    484027    3912518    0.0

**
SO HOUREMIS  Emission28_03.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max28_03.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 28.64 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    482844   3911914    0.0
SO LOCATION FRAG2    AREA    484572   3912743    0.0
SO LOCATION FRAG3    AREA    484321   3912633    0.0
SO LOCATION FRAG4    AREA    483298   3912138    0.0
SO LOCATION FRAG5    AREA    483161   3912073    0.0
SO LOCATION FRAG6    AREA    484062   3912497    0.0
SO LOCATION FRAG7    AREA    483251   3912115    0.0
SO LOCATION FRAG8    AREA    483699   3912333    0.0
SO LOCATION FRAG9    AREA    484397   3912663    0.0
SO LOCATION FRAG10  AREA    483875   3912422    0.0
SO LOCATION FRAG11  AREA    483030   3912015    0.0
SO LOCATION FRAG12  AREA    483023   3912010    0.0
SO LOCATION FRAG13  AREA    483622   3912296    0.0
SO LOCATION FRAG14  AREA    483758   3912354    0.0
SO LOCATION FRAG15  AREA    483371   3912178    0.0
SO LOCATION FRAG16  AREA    483491   3912232    0.0
SO LOCATION FRAG17  AREA    483620   3912294    0.0
SO LOCATION FRAG18  AREA    483146   3912064    0.0
SO LOCATION FRAG19  AREA    483575   3912269    0.0
SO LOCATION FRAG20  AREA    483972   3912460    0.0
SO LOCATION FRAG21  AREA    483467   3912220    0.0
SO LOCATION FRAG22  AREA    483039   3912016    0.0
SO LOCATION FRAG23  AREA    483110   3912047    0.0
SO LOCATION FRAG24  AREA    482776   3911883    0.0
SO LOCATION FRAG25  AREA    483200   3912094    0.0
**
SO HOUREMIS  Emission28_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460      Max28_64.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 28.71 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    484129    3912529    0.0
SO LOCATION FRAG2    AREA    483584    3912271    0.0
SO LOCATION FRAG3    AREA    483606    3912287    0.0
SO LOCATION FRAG4    AREA    483328    3912152    0.0
SO LOCATION FRAG5    AREA    483205    3912084    0.0
SO LOCATION FRAG6    AREA    483687    3912325    0.0
SO LOCATION FRAG7    AREA    483849    3912403    0.0
SO LOCATION FRAG8    AREA    483853    3912404    0.0
SO LOCATION FRAG9    AREA    483206    3912088    0.0
SO LOCATION FRAG10  AREA    483163    3912072    0.0
SO LOCATION FRAG11  AREA    483093    3912038    0.0
SO LOCATION FRAG12  AREA    485592    3913220    0.0
SO LOCATION FRAG13  AREA    482990    3911990    0.0
SO LOCATION FRAG14  AREA    483862    3912410    0.0
SO LOCATION FRAG15  AREA    483325    3912147    0.0
SO LOCATION FRAG16  AREA    483378    3912175    0.0
SO LOCATION FRAG17  AREA    483262    3912119    0.0
SO LOCATION FRAG18  AREA    483337    3912161    0.0
SO LOCATION FRAG19  AREA    482916    3911945    0.0
SO LOCATION FRAG20  AREA    483049    3912020    0.0
SO LOCATION FRAG21  AREA    483405    3912187    0.0
SO LOCATION FRAG22  AREA    482947    3911961    0.0
SO LOCATION FRAG23  AREA    483395    3912182    0.0
SO LOCATION FRAG24  AREA    482962    3911971    0.0
SO LOCATION FRAG25  AREA    483550    3912252    0.0
**
SO HOUREMIS  Emission28_71.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max28_71.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 29.20 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    483072   3911994    0.0
SO LOCATION FRAG2    AREA    483319   3912125    0.0
SO LOCATION FRAG3    AREA    483497   3912208    0.0
SO LOCATION FRAG4    AREA    484011   3912446    0.0
SO LOCATION FRAG5    AREA    483750   3912329    0.0
SO LOCATION FRAG6    AREA    482951   3911943    0.0
SO LOCATION FRAG7    AREA    483258   3912096    0.0
SO LOCATION FRAG8    AREA    483308   3912116    0.0
SO LOCATION FRAG9    AREA    484271   3912579    0.0
SO LOCATION FRAG10   AREA    483340   3912130    0.0
SO LOCATION FRAG11   AREA    483898   3912399    0.0
SO LOCATION FRAG12   AREA    483060   3911997    0.0
SO LOCATION FRAG13   AREA    483438   3912180    0.0
SO LOCATION FRAG14   AREA    483218   3912073    0.0
SO LOCATION FRAG15   AREA    483121   3912027    0.0
SO LOCATION FRAG16   AREA    483335   3912133    0.0
SO LOCATION FRAG17   AREA    483236   3912083    0.0
SO LOCATION FRAG18   AREA    483259   3912094    0.0
SO LOCATION FRAG19   AREA    483474   3912196    0.0
SO LOCATION FRAG20   AREA    484056   3912474    0.0
SO LOCATION FRAG21   AREA    483418   3912173    0.0
SO LOCATION FRAG22   AREA    484166   3912522    0.0
SO LOCATION FRAG23   AREA    484741   3912797    0.0
SO LOCATION FRAG24   AREA    483138   3912034    0.0
SO LOCATION FRAG25   AREA    483317   3912119    0.0
**
SO HOUREMIS  Emission29_20.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max29_20.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 29.92 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    483649   3912242    0.0
SO LOCATION FRAG2    AREA    483969   3912398    0.0
SO LOCATION FRAG3    AREA    483512   3912182    0.0
SO LOCATION FRAG4    AREA    483632   3912234    0.0
SO LOCATION FRAG5    AREA    483555   3912195    0.0
SO LOCATION FRAG6    AREA    483518   3912179    0.0
SO LOCATION FRAG7    AREA    483185   3912023    0.0
SO LOCATION FRAG8    AREA    483497   3912166    0.0
SO LOCATION FRAG9    AREA    483516   3912174    0.0
SO LOCATION FRAG10  AREA    483235   3912048    0.0
SO LOCATION FRAG11  AREA    485189   3912970    0.0
SO LOCATION FRAG12  AREA    485270   3913012    0.0
SO LOCATION FRAG13  AREA    484281   3912546    0.0
SO LOCATION FRAG14  AREA    483821   3912323    0.0
SO LOCATION FRAG15  AREA    483776   3912307    0.0
SO LOCATION FRAG16  AREA    483678   3912254    0.0
SO LOCATION FRAG17  AREA    483146   3911998    0.0
SO LOCATION FRAG18  AREA    483588   3912217    0.0
SO LOCATION FRAG19  AREA    483212   3912024    0.0
SO LOCATION FRAG20  AREA    484902   3912835    0.0
SO LOCATION FRAG21  AREA    483636   3912236    0.0
SO LOCATION FRAG22  AREA    485721   3913223    0.0
SO LOCATION FRAG23  AREA    483454   3912150    0.0
SO LOCATION FRAG24  AREA    483025   3911927    0.0
SO LOCATION FRAG25  AREA    483326   3912089    0.0
**
SO HOUREMIS  Emission29_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max29_92.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 29.94 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    484008    3912416    0.0
SO LOCATION FRAG2    AREA    483398    3912120    0.0
SO LOCATION FRAG3    AREA    483653    3912245    0.0
SO LOCATION FRAG4    AREA    483598    3912218    0.0
SO LOCATION FRAG5    AREA    483240    3912052    0.0
SO LOCATION FRAG6    AREA    483475    3912161    0.0
SO LOCATION FRAG7    AREA    484346    3912572    0.0
SO LOCATION FRAG8    AREA    484130    3912477    0.0
SO LOCATION FRAG9    AREA    483142    3911994    0.0
SO LOCATION FRAG10  AREA    483995    3912404    0.0
SO LOCATION FRAG11  AREA    483733    3912287    0.0
SO LOCATION FRAG12  AREA    484309    3912559    0.0
SO LOCATION FRAG13  AREA    484048    3912434    0.0
SO LOCATION FRAG14  AREA    483314    3912082    0.0
SO LOCATION FRAG15  AREA    483832    3912326    0.0
SO LOCATION FRAG16  AREA    483573    3912205    0.0
SO LOCATION FRAG17  AREA    483079    3911964    0.0
SO LOCATION FRAG18  AREA    483247    3912050    0.0
SO LOCATION FRAG19  AREA    483762    3912302    0.0
SO LOCATION FRAG20  AREA    484284    3912548    0.0
SO LOCATION FRAG21  AREA    485036    3912897    0.0
SO LOCATION FRAG22  AREA    483105    3911971    0.0
SO LOCATION FRAG23  AREA    483704    3912268    0.0
SO LOCATION FRAG24  AREA    483528    3912187    0.0
SO LOCATION FRAG25  AREA    483215    3912031    0.0
**
SO HOUREMIS  Emission29_94.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max29_94.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 30:70 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    487763   3914140    0.0
SO LOCATION FRAG2    AREA    484065   3912411    0.0
SO LOCATION FRAG3    AREA    483924   3912337    0.0
SO LOCATION FRAG4    AREA    483982   3912359    0.0
SO LOCATION FRAG5    AREA    484834   3912768    0.0
SO LOCATION FRAG6    AREA    483880   3912312    0.0
SO LOCATION FRAG7    AREA    483497   3912126    0.0
SO LOCATION FRAG8    AREA    484986   3912837    0.0
SO LOCATION FRAG9    AREA    483809   3912285    0.0
SO LOCATION FRAG10  AREA    483340   3912049    0.0
SO LOCATION FRAG11  AREA    483765   3912262    0.0
SO LOCATION FRAG12  AREA    484365   3912550    0.0
SO LOCATION FRAG13  AREA    484059   3912403    0.0
SO LOCATION FRAG14  AREA    483530   3912144    0.0
SO LOCATION FRAG15  AREA    483844   3912287    0.0
SO LOCATION FRAG16  AREA    483992   3912368    0.0
SO LOCATION FRAG17  AREA    486738   3913659    0.0
SO LOCATION FRAG18  AREA   484000   3912368    0.0
SO LOCATION FRAG19  AREA   484182   3912459    0.0
SO LOCATION FRAG20  AREA   483665   3912209    0.0
SO LOCATION FRAG21  AREA   483655   3912199    0.0
SO LOCATION FRAG22  AREA   483863   3912300    0.0
SO LOCATION FRAG23  AREA   483605   3912178    0.0
SO LOCATION FRAG24  AREA   483751   3912247    0.0
SO LOCATION FRAG25  AREA   484019   3912379    0.0
**
SO HOUREMIS  Emission30_70.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max30_70.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 31:97 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    484231   3912414    0.0
SO LOCATION FRAG2    AREA    484393   3912484    0.0
SO LOCATION FRAG3    AREA    484140   3912372    0.0
SO LOCATION FRAG4    AREA    484854   3912706    0.0
SO LOCATION FRAG5    AREA    483849   3912232    0.0
SO LOCATION FRAG6    AREA    484324   3912456    0.0
SO LOCATION FRAG7    AREA    484786   3912680    0.0
SO LOCATION FRAG8    AREA    485187   3912864    0.0
SO LOCATION FRAG9    AREA    484107   3912357    0.0
SO LOCATION FRAG10  AREA    484681   3912624    0.0
SO LOCATION FRAG11  AREA    484005   3912308    0.0
SO LOCATION FRAG12  AREA    484437   3912505    0.0
SO LOCATION FRAG13  AREA    483783   3912182    0.0
SO LOCATION FRAG14  AREA    484952   3912756    0.0
SO LOCATION FRAG15  AREA    484110   3912353    0.0
SO LOCATION FRAG16  AREA    485300   3912915    0.0
SO LOCATION FRAG17  AREA    484011   3912301    0.0
SO LOCATION FRAG18  AREA    484366   3912467    0.0
SO LOCATION FRAG19  AREA    486391   3913427    0.0
SO LOCATION FRAG20  AREA    484548   3912562    0.0
SO LOCATION FRAG21  AREA    485397   3912955    0.0
SO LOCATION FRAG22  AREA    484061   3912328    0.0
SO LOCATION FRAG23  AREA    483829   3912212    0.0
SO LOCATION FRAG24  AREA    484384   3912489    0.0
SO LOCATION FRAG25  AREA    484127   3912361    0.0

**
SO HOUREMIS  Emission31_97.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max31_97.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 32:97 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    484897    3912667    0.0
SO LOCATION FRAG2    AREA    484876    3912667    0.0
SO LOCATION FRAG3    AREA    485708    3913054    0.0
SO LOCATION FRAG4    AREA    485911    3913151    0.0
SO LOCATION FRAG5    AREA    485189    3912800    0.0
SO LOCATION FRAG6    AREA    484456    3912468    0.0
SO LOCATION FRAG7    AREA    484629    3912534    0.0
SO LOCATION FRAG8    AREA    484509    3912488    0.0
SO LOCATION FRAG9    AREA    484122    3912299    0.0
SO LOCATION FRAG10  AREA    485695    3913046    0.0
SO LOCATION FRAG11  AREA    484325    3912392    0.0
SO LOCATION FRAG12  AREA    484380    3912427    0.0
SO LOCATION FRAG13  AREA    484435    3912443    0.0
SO LOCATION FRAG14  AREA    485310    3912868    0.0
SO LOCATION FRAG15  AREA    484418    3912441    0.0
SO LOCATION FRAG16  AREA    484352    3912403    0.0
SO LOCATION FRAG17  AREA    484880    3912660    0.0
SO LOCATION FRAG18  AREA    484457    3912460    0.0
SO LOCATION FRAG19  AREA    484031    3912248    0.0
SO LOCATION FRAG20  AREA    484596    3912528    0.0
SO LOCATION FRAG21  AREA    484463    3912459    0.0
SO LOCATION FRAG22  AREA    484551    3912508    0.0
SO LOCATION FRAG23  AREA    484192    3912327    0.0
SO LOCATION FRAG24  AREA    484555    3912504    0.0
SO LOCATION FRAG25  AREA    485704    3913045    0.0


**
SO HOUREMIS  Emission32_97.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max32_97.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 33:92 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   486957   3913582     0.0
SO LOCATION FRAG2    AREA   485273   3912790     0.0
SO LOCATION FRAG3    AREA   484283   3912316     0.0
SO LOCATION FRAG4    AREA   484690   3912516     0.0
SO LOCATION FRAG5    AREA   484424   3912378     0.0
SO LOCATION FRAG6    AREA   484630   3912486     0.0
SO LOCATION FRAG7    AREA   484516   3912437     0.0
SO LOCATION FRAG8    AREA   484592   3912468     0.0
SO LOCATION FRAG9    AREA   486044   3913154     0.0
SO LOCATION FRAG10   AREA   485343   3912824     0.0
SO LOCATION FRAG11   AREA   487008   3913613     0.0
SO LOCATION FRAG12   AREA   487235   3913713     0.0
SO LOCATION FRAG13   AREA   486009   3913129     0.0
SO LOCATION FRAG14   AREA   484758   3912543     0.0
SO LOCATION FRAG15   AREA   484478   3912411     0.0
SO LOCATION FRAG16   AREA   484952   3912635     0.0
SO LOCATION FRAG17   AREA   484827   3912576     0.0
SO LOCATION FRAG18   AREA   487341   3913769     0.0
SO LOCATION FRAG19   AREA   484346   3912350     0.0
SO LOCATION FRAG20   AREA   485638   3912962     0.0
SO LOCATION FRAG21   AREA   484461   3912402     0.0
SO LOCATION FRAG22   AREA   484773   3912559     0.0
SO LOCATION FRAG23   AREA   484388   3912372     0.0
SO LOCATION FRAG24   AREA   485016   3912665     0.0
SO LOCATION FRAG25   AREA   485147   3912725     0.0


**
SO HOUREMIS  Emission33_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max33_92.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 35:26 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    484995   3912574    0.0
SO LOCATION FRAG2    AREA    485383   3912757    0.0
SO LOCATION FRAG3    AREA    485117   3912628    0.0
SO LOCATION FRAG4    AREA    485253   3912704    0.0
SO LOCATION FRAG5    AREA    485204   3912679    0.0
SO LOCATION FRAG6    AREA    488433   3914191    0.0
SO LOCATION FRAG7    AREA    484807   3912476    0.0
SO LOCATION FRAG8    AREA    485174   3912654    0.0
SO LOCATION FRAG9    AREA    485810   3912955    0.0
SO LOCATION FRAG10   AREA    484977   3912562    0.0
SO LOCATION FRAG11   AREA    485327   3912729    0.0
SO LOCATION FRAG12   AREA    487549   3913777    0.0
SO LOCATION FRAG13   AREA    484738   3912450    0.0
SO LOCATION FRAG14   AREA    485831   3912969    0.0
SO LOCATION FRAG15   AREA    485654   3912873    0.0
SO LOCATION FRAG16   AREA    486016   3913065    0.0
SO LOCATION FRAG17   AREA    485108   3912629    0.0
SO LOCATION FRAG18   AREA    485123   3912638    0.0
SO LOCATION FRAG19   AREA    485322   3912731    0.0
SO LOCATION FRAG20   AREA    484806   3912476    0.0
SO LOCATION FRAG21   AREA    484555   3912347    0.0
SO LOCATION FRAG22   AREA    486740   3913400    0.0
SO LOCATION FRAG23   AREA    488042   3914005    0.0
SO LOCATION FRAG24   AREA    485611   3912859    0.0
SO LOCATION FRAG25   AREA    484735   3912432    0.0

**
SO HOUREMIS  Emission35_26.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max35_26.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 35:55 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    485266    3912682    0.0
SO LOCATION FRAG2    AREA    486994    3913496    0.0
SO LOCATION FRAG3    AREA    485496    3912797    0.0
SO LOCATION FRAG4    AREA    485425    3912758    0.0
SO LOCATION FRAG5    AREA    485183    3912649    0.0
SO LOCATION FRAG6    AREA    484865    3912488    0.0
SO LOCATION FRAG7    AREA    485361    3912723    0.0
SO LOCATION FRAG8    AREA    485145    3912620    0.0
SO LOCATION FRAG9    AREA    485311    3912712    0.0
SO LOCATION FRAG10   AREA    485683    3912883    0.0
SO LOCATION FRAG11   AREA    485800    3912936    0.0
SO LOCATION FRAG12   AREA    487753    3913853    0.0
SO LOCATION FRAG13   AREA    485490    3912787    0.0
SO LOCATION FRAG14   AREA    484902    3912508    0.0
SO LOCATION FRAG15   AREA    485191    3912655    0.0
SO LOCATION FRAG16   AREA    485248    3912672    0.0
SO LOCATION FRAG17   AREA    484744    3912422    0.0
SO LOCATION FRAG18   AREA    485107    3912597    0.0
SO LOCATION FRAG19   AREA    485590    3912839    0.0
SO LOCATION FRAG20   AREA    485663    3912864    0.0
SO LOCATION FRAG21   AREA    484986    3912554    0.0
SO LOCATION FRAG22   AREA    485044    3912576    0.0
SO LOCATION FRAG23   AREA    485444    3912770    0.0
SO LOCATION FRAG24   AREA    484828    3912463    0.0
SO LOCATION FRAG25   AREA    485028    3912563    0.0

**
SO HOUREMIS  Emission35_55.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max35_55.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 36:41 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    485617    3912788    0.0
SO LOCATION FRAG2    AREA    486439    3913190    0.0
SO LOCATION FRAG3    AREA    485677    3912823    0.0
SO LOCATION FRAG4    AREA    485506    3912739    0.0
SO LOCATION FRAG5    AREA    485996    3912973    0.0
SO LOCATION FRAG6    AREA    486312    3913122    0.0
SO LOCATION FRAG7    AREA    486823    3913361    0.0
SO LOCATION FRAG8    AREA    485807    3912879    0.0
SO LOCATION FRAG9    AREA    486039    3912997    0.0
SO LOCATION FRAG10  AREA    485538    3912750    0.0
SO LOCATION FRAG11  AREA    485669    3912807    0.0
SO LOCATION FRAG12  AREA    485451    3912711    0.0
SO LOCATION FRAG13  AREA    486589    3913250    0.0
SO LOCATION FRAG14  AREA    487491    3913680    0.0
SO LOCATION FRAG15  AREA    487211    3913547    0.0
SO LOCATION FRAG16  AREA    486318    3913123    0.0
SO LOCATION FRAG17  AREA    485578    3912776    0.0
SO LOCATION FRAG18  AREA    486019    3912985    0.0
SO LOCATION FRAG19  AREA    485111    3912533    0.0
SO LOCATION FRAG20  AREA    487690    3913771    0.0
SO LOCATION FRAG21  AREA    485527    3912745    0.0
SO LOCATION FRAG22  AREA    485411    3912691    0.0
SO LOCATION FRAG23  AREA    485548    3912754    0.0
SO LOCATION FRAG24  AREA    485889    3912930    0.0
SO LOCATION FRAG25  AREA    485390    3912679    0.0
**
SO HOUREMIS  Emission36_41.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max36_41.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 36:56 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   485652    3912798    0.0
SO LOCATION FRAG2    AREA   485311    3912638    0.0
SO LOCATION FRAG3    AREA   485773    3912859    0.0
SO LOCATION FRAG4    AREA   486830    3913347    0.0
SO LOCATION FRAG5    AREA   485971    3912949    0.0
SO LOCATION FRAG6    AREA   486355    3913129    0.0
SO LOCATION FRAG7    AREA   485689    3912812    0.0
SO LOCATION FRAG8    AREA   485859    3912891    0.0
SO LOCATION FRAG9    AREA   486375    3913143    0.0
SO LOCATION FRAG10  AREA   485487    3912724    0.0
SO LOCATION FRAG11  AREA   486504    3913199    0.0
SO LOCATION FRAG12  AREA   485797    3912879    0.0
SO LOCATION FRAG13  AREA   485108    3912537    0.0
SO LOCATION FRAG14  AREA   487009    3913439    0.0
SO LOCATION FRAG15  AREA   485515    3912725    0.0
SO LOCATION FRAG16  AREA   486293    3913106    0.0
SO LOCATION FRAG17  AREA   486601    3913242    0.0
SO LOCATION FRAG18  AREA   486324    3913112    0.0
SO LOCATION FRAG19  AREA   485351    3912651    0.0
SO LOCATION FRAG20  AREA   486009    3912974    0.0
SO LOCATION FRAG21  AREA   485996    3912960    0.0
SO LOCATION FRAG22  AREA   485828    3912886    0.0
SO LOCATION FRAG23  AREA   485339    3912649    0.0
SO LOCATION FRAG24  AREA   485817    3912883    0.0
SO LOCATION FRAG25  AREA   486176    3913048    0.0

**
SO HOUREMIS  Emission36_56.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max36_56.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 36:65 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    485552   3912751    0.0
SO LOCATION FRAG2    AREA    485752   3912842    0.0
SO LOCATION FRAG3    AREA    485742   3912837    0.0
SO LOCATION FRAG4    AREA    486503   3913199    0.0
SO LOCATION FRAG5    AREA    485595   3912762    0.0
SO LOCATION FRAG6    AREA    485796   3912765    0.0
SO LOCATION FRAG7    AREA    488073   3913929    0.0
SO LOCATION FRAG8    AREA    485522   3912730    0.0
SO LOCATION FRAG9    AREA    485274   3912614    0.0
SO LOCATION FRAG10  AREA    486028   3912971    0.0
SO LOCATION FRAG11  AREA    486098   3912996    0.0
SO LOCATION FRAG12  AREA    486284   3913100    0.0
SO LOCATION FRAG13  AREA    486912   3913401    0.0
SO LOCATION FRAG14  AREA    486006   3912963    0.0
SO LOCATION FRAG15  AREA    486925   3913402    0.0
SO LOCATION FRAG16  AREA    487329   3913578    0.0
SO LOCATION FRAG17  AREA    487329   3913582    0.0
SO LOCATION FRAG18  AREA    485835   3912880    0.0
SO LOCATION FRAG19  AREA    486778   3913324    0.0
SO LOCATION FRAG20  AREA    487832   3913818    0.0
SO LOCATION FRAG21  AREA    486050   3912988    0.0
SO LOCATION FRAG22  AREA    485723   3912825    0.0
SO LOCATION FRAG23  AREA    486496   3913200    0.0
SO LOCATION FRAG24  AREA    485701   3912813    0.0
SO LOCATION FRAG25  AREA    486024   3912965    0.0

**
SO HOUREMIS  Emission36_65.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max36_65.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 36:68 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    486332   3913106     0.0
SO LOCATION FRAG2    AREA    485786   3912855     0.0
SO LOCATION FRAG3    AREA    485715   3912831     0.0
SO LOCATION FRAG4    AREA    485602   3912768     0.0
SO LOCATION FRAG5    AREA    485284   3912609     0.0
SO LOCATION FRAG6    AREA    486089   3912998     0.0
SO LOCATION FRAG7    AREA    486209   3913064     0.0
SO LOCATION FRAG8    AREA    486728   3913298     0.0
SO LOCATION FRAG9    AREA    485872   3912894     0.0
SO LOCATION FRAG10  AREA    485711   3912826     0.0
SO LOCATION FRAG11  AREA    485830   3912875     0.0
SO LOCATION FRAG12  AREA    485805   3912860     0.0
SO LOCATION FRAG13  AREA    485518   3912727     0.0
SO LOCATION FRAG14  AREA    485830   3912874     0.0
SO LOCATION FRAG15  AREA    485365   3912656     0.0
SO LOCATION FRAG16  AREA    486053   3912979     0.0
SO LOCATION FRAG17  AREA    486461   3913170     0.0
SO LOCATION FRAG18  AREA    486302   3913092     0.0
SO LOCATION FRAG19  AREA    485409   3912670     0.0
SO LOCATION FRAG20  AREA    486096   3913004     0.0
SO LOCATION FRAG21  AREA    486404   3913141     0.0
SO LOCATION FRAG22  AREA    487162   3913500     0.0
SO LOCATION FRAG23  AREA    486198   3913046     0.0
SO LOCATION FRAG24  AREA    486176   3913049     0.0
SO LOCATION FRAG25  AREA    487735   3913773     0.0
**
SO HOUREMIS  Emission36_68.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max36_68.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 37:32 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    486062   3912937    0.0
SO LOCATION FRAG2    AREA    485940   3912888    0.0
SO LOCATION FRAG3    AREA    485817   3912818    0.0
SO LOCATION FRAG4    AREA    486853   3913318    0.0
SO LOCATION FRAG5    AREA    485797   3912816    0.0
SO LOCATION FRAG6    AREA    486959   3913373    0.0
SO LOCATION FRAG7    AREA    486778   3913279    0.0
SO LOCATION FRAG8    AREA    485584   3912708    0.0
SO LOCATION FRAG9    AREA    486037   3912921    0.0
SO LOCATION FRAG10   AREA    485727   3912780    0.0
SO LOCATION FRAG11   AREA    485954   3912891    0.0
SO LOCATION FRAG12   AREA    485689   3912753    0.0
SO LOCATION FRAG13   AREA    486038   3912931    0.0
SO LOCATION FRAG14   AREA    486446   3913126    0.0
SO LOCATION FRAG15   AREA    485758   3912794    0.0
SO LOCATION FRAG16   AREA    486367   3913094    0.0
SO LOCATION FRAG17   AREA    485958   3912890    0.0
SO LOCATION FRAG18   AREA    485974   3912900    0.0
SO LOCATION FRAG19   AREA    486398   3913105    0.0
SO LOCATION FRAG20   AREA    486212   3913002    0.0
SO LOCATION FRAG21   AREA    485842   3912839    0.0
SO LOCATION FRAG22   AREA    486474   3913140    0.0
SO LOCATION FRAG23   AREA    485212   3912513    0.0
SO LOCATION FRAG24   AREA    487992   3913851    0.0
SO LOCATION FRAG25   AREA    485565   3912698    0.0

**
SO HOUREMIS  Emission37_32.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max37_32.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 37:37 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    486068   3912939    0.0
SO LOCATION FRAG2    AREA    486685   3913237    0.0
SO LOCATION FRAG3    AREA    486597   3913197    0.0
SO LOCATION FRAG4    AREA    486275   3913035    0.0
SO LOCATION FRAG5    AREA    486922   3913336    0.0
SO LOCATION FRAG6    AREA    486401   3913103    0.0
SO LOCATION FRAG7    AREA    485532   3912681    0.0
SO LOCATION FRAG8    AREA    485986   3912902    0.0
SO LOCATION FRAG9    AREA    486594   3913188    0.0
SO LOCATION FRAG10   AREA    486424   3913110    0.0
SO LOCATION FRAG11   AREA    486012   3912919    0.0
SO LOCATION FRAG12   AREA    486427   3913112    0.0
SO LOCATION FRAG13   AREA    485374   3912599    0.0
SO LOCATION FRAG14   AREA    486477   3913119    0.0
SO LOCATION FRAG15   AREA    486048   3912924    0.0
SO LOCATION FRAG16   AREA    485997   3912911    0.0
SO LOCATION FRAG17   AREA    485868   3912845    0.0
SO LOCATION FRAG18   AREA    487306   3913522    0.0
SO LOCATION FRAG19   AREA    485872   3912844    0.0
SO LOCATION FRAG20   AREA    485753   3912784    0.0
SO LOCATION FRAG21   AREA    485618   3912718    0.0
SO LOCATION FRAG22   AREA    485997   3912907    0.0
SO LOCATION FRAG23   AREA    485422   3912628    0.0
SO LOCATION FRAG24   AREA    485829   3912827    0.0
SO LOCATION FRAG25   AREA    487094   3913432    0.0

**
SO HOUREMIS  Emission37_37.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max37_37.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 38:06 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    486264    3912975    0.0
SO LOCATION FRAG2    AREA    486037    3912882    0.0
SO LOCATION FRAG3    AREA    486864    3913266    0.0
SO LOCATION FRAG4    AREA    487136    3913397    0.0
SO LOCATION FRAG5    AREA    485793    3912747    0.0
SO LOCATION FRAG6    AREA    486000    3912848    0.0
SO LOCATION FRAG7    AREA    486997    3913337    0.0
SO LOCATION FRAG8    AREA    487675    3913649    0.0
SO LOCATION FRAG9    AREA    486569    3913126    0.0
SO LOCATION FRAG10  AREA    486371    3913027    0.0
SO LOCATION FRAG11  AREA    491140    3915260    0.0
SO LOCATION FRAG12  AREA    486074    3912899    0.0
SO LOCATION FRAG13  AREA    486111    3912911    0.0
SO LOCATION FRAG14  AREA    485386    3912544    0.0
SO LOCATION FRAG15  AREA    485921    3912824    0.0
SO LOCATION FRAG16  AREA    486179    3912940    0.0
SO LOCATION FRAG17  AREA    485661    3912693    0.0
SO LOCATION FRAG18  AREA    486733    3913204    0.0
SO LOCATION FRAG19  AREA    485798    3912762    0.0
SO LOCATION FRAG20  AREA    486373    3913043    0.0
SO LOCATION FRAG21  AREA    487997    3913802    0.0
SO LOCATION FRAG22  AREA    488206    3913892    0.0
SO LOCATION FRAG23  AREA    487286    3913468    0.0
SO LOCATION FRAG24  AREA    487477    3913555    0.0
SO LOCATION FRAG25  AREA    486034    3912875    0.0

**
SO HOUREMIS  Emission38_06.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max38_06.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 43:07 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    488324    3913575    0.0
SO LOCATION FRAG2    AREA    488953    3913865    0.0
SO LOCATION FRAG3    AREA    488365    3913591    0.0
SO LOCATION FRAG4    AREA    490651    3914661    0.0
SO LOCATION FRAG5    AREA    488084    3913459    0.0
SO LOCATION FRAG6    AREA    487610    3913224    0.0
SO LOCATION FRAG7    AREA    488624    3913724    0.0
SO LOCATION FRAG8    AREA    488619    3913726    0.0
SO LOCATION FRAG9    AREA    488242    3913535    0.0
SO LOCATION FRAG10   AREA    487799    3913323    0.0
SO LOCATION FRAG11   AREA    488038    3913438    0.0
SO LOCATION FRAG12   AREA    488707    3913760    0.0
SO LOCATION FRAG13   AREA    488277    3913549    0.0
SO LOCATION FRAG14   AREA    488245    3913545    0.0
SO LOCATION FRAG15   AREA    490263    3914486    0.0
SO LOCATION FRAG16   AREA    488606    3913712    0.0
SO LOCATION FRAG17   AREA    488587    3913700    0.0
SO LOCATION FRAG18   AREA    488637    3913718    0.0
SO LOCATION FRAG19   AREA    491401    3915013    0.0
SO LOCATION FRAG20   AREA    490662    3914667    0.0
SO LOCATION FRAG21   AREA    487821    3913321    0.0
SO LOCATION FRAG22   AREA    487656    3913249    0.0
SO LOCATION FRAG23   AREA    488319    3913573    0.0
SO LOCATION FRAG24   AREA    491547    3915084    0.0
SO LOCATION FRAG25   AREA    490554    3914632    0.0

**
SO HOUREMIS  Emission43_07.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max43_07.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 44:92 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                  SrcID     Type       x(m)         y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA     489029 3919752          0.0
SO LOCATION FRAG2    AREA     488825.0 3913649.0   0.0
SO LOCATION FRAG3    AREA     489156.0 3913808.0   0.0
SO LOCATION FRAG4    AREA     489394.0 3913930.0   0.0
SO LOCATION FRAG5    AREA     488522.0 3913504.0   0.0
SO LOCATION FRAG6    AREA     489278.0 3913870.0   0.0
SO LOCATION FRAG7    AREA     488793.0 3913638.0   0.0
SO LOCATION FRAG8    AREA     489022.0 3913753.0   0.0
SO LOCATION FRAG9    AREA     489283.0 3913873.0   0.0
SO LOCATION FRAG10  AREA     489832.0 3914137.0   0.0
SO LOCATION FRAG11  AREA     490381.0 3914390.0   0.0
SO LOCATION FRAG12  AREA     488982.0 3913736.0   0.0
SO LOCATION FRAG13  AREA     489445.0 3913945.0   0.0
SO LOCATION FRAG14  AREA     491419.0 3914892.0   0.0
SO LOCATION FRAG15  AREA     489593.0 3914018.0   0.0
SO LOCATION FRAG16  AREA     488936.0 3913707.0   0.0
SO LOCATION FRAG17  AREA     489223.0 3913849.0   0.0
SO LOCATION FRAG18  AREA     491452.0 3914886.0   0.0
SO LOCATION FRAG19  AREA     488596.0 3913539.0   0.0
SO LOCATION FRAG20  AREA     496307.0 3917152.0   0.0
SO LOCATION FRAG21  AREA     488652.0 3913571.0   0.0
SO LOCATION FRAG22  AREA     488406.0 3913434.0   0.0
SO LOCATION FRAG23  AREA     489563.0 3913997.0   0.0
SO LOCATION FRAG24  AREA     488658.0 3913569.0   0.0
SO LOCATION FRAG25  AREA     489173.0 3913814.0   0.0

**
SO HOUREMIS  Emission44_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max44_92.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 45:31 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    489610   3914000    0.0
SO LOCATION FRAG2    AREA    489233   3913812    0.0
SO LOCATION FRAG3    AREA    489199   3913797    0.0
SO LOCATION FRAG4    AREA    489069   3913733    0.0
SO LOCATION FRAG5    AREA    489156   3913782    0.0
SO LOCATION FRAG6    AREA    489443   3913911    0.0
SO LOCATION FRAG7    AREA    490432   3914386    0.0
SO LOCATION FRAG8    AREA    489681   3914026    0.0
SO LOCATION FRAG9    AREA    488748   3913581    0.0
SO LOCATION FRAG10  AREA    489769   3914067    0.0
SO LOCATION FRAG11  AREA    491059   3914674    0.0
SO LOCATION FRAG12  AREA    489013   3913720    0.0
SO LOCATION FRAG13  AREA    491769   3915020    0.0
SO LOCATION FRAG14  AREA    489041   3913723    0.0
SO LOCATION FRAG15  AREA    488872   3913638    0.0
SO LOCATION FRAG16  AREA    493608   3915868    0.0
SO LOCATION FRAG17  AREA    489667   3914029    0.0
SO LOCATION FRAG18  AREA    488522   3913461    0.0
SO LOCATION FRAG19  AREA    488768   3913583    0.0
SO LOCATION FRAG20  AREA    489810   3914093    0.0
SO LOCATION FRAG21  AREA    489504   3913944    0.0
SO LOCATION FRAG22  AREA    488788   3913600    0.0
SO LOCATION FRAG23  AREA    489914   3914137    0.0
SO LOCATION FRAG24  AREA    491084   3914695    0.0
SO LOCATION FRAG25  AREA    490170   3914254    0.0

**
SO HOUREMIS  Emission45_31.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max45_31.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 46:11 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    489548   3913897    0.0
SO LOCATION FRAG2    AREA    489452   3913848    0.0
SO LOCATION FRAG3    AREA    491166   3914650    0.0
SO LOCATION FRAG4    AREA    490423   3914317    0.0
SO LOCATION FRAG5    AREA    490461   3914323    0.0
SO LOCATION FRAG6    AREA    489548   3913896    0.0
SO LOCATION FRAG7    AREA    489293   3913771    0.0
SO LOCATION FRAG8    AREA    489862   3914041    0.0
SO LOCATION FRAG9    AREA    490263   3914231    0.0
SO LOCATION FRAG10  AREA    488395   3913287    0.0
SO LOCATION FRAG11  AREA    490741   3914477    0.0
SO LOCATION FRAG12  AREA    490123   3914165    0.0
SO LOCATION FRAG13  AREA    489071   3913650    0.0
SO LOCATION FRAG14  AREA    490492   3914351    0.0
SO LOCATION FRAG15  AREA    490441   3914313    0.0
SO LOCATION FRAG16  AREA    490230   3914238    0.0
SO LOCATION FRAG17  AREA    489164   3913713    0.0
SO LOCATION FRAG18  AREA    489276   3913758    0.0
SO LOCATION FRAG19  AREA    494264   3916105    0.0
SO LOCATION FRAG20  AREA    488714   3913467    0.0
SO LOCATION FRAG21  AREA    489338   3913795    0.0
SO LOCATION FRAG22  AREA    488371   3913272    0.0
SO LOCATION FRAG23  AREA    491045   3914612    0.0
SO LOCATION FRAG24  AREA    490126   3914171    0.0
SO LOCATION FRAG25  AREA    489766   3913992    0.0

**
SO HOUREMIS  Emission46_11.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max46_11.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 46:38 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    489222   3913699    0.0
SO LOCATION FRAG2    AREA    490157   3914168    0.0
SO LOCATION FRAG3    AREA    488982   3913586    0.0
SO LOCATION FRAG4    AREA    490942   3914525    0.0
SO LOCATION FRAG5    AREA    489060   3913625    0.0
SO LOCATION FRAG6    AREA    490042   3914098    0.0
SO LOCATION FRAG7    AREA    489950   3914056    0.0
SO LOCATION FRAG8    AREA    492632   3915319    0.0
SO LOCATION FRAG9    AREA    490279   3914224    0.0
SO LOCATION FRAG10  AREA    491557   3914818    0.0
SO LOCATION FRAG11  AREA    489845   3914007    0.0
SO LOCATION FRAG12  AREA    489487   3913833    0.0
SO LOCATION FRAG13  AREA    488474   3913297    0.0
SO LOCATION FRAG14  AREA    489570   3913883    0.0
SO LOCATION FRAG15  AREA    490323   3914246    0.0
SO LOCATION FRAG16  AREA    489210   3913704    0.0
SO LOCATION FRAG17  AREA    491208   3914652    0.0
SO LOCATION FRAG18  AREA    489820   3914006    0.0
SO LOCATION FRAG19  AREA    492473   3915240    0.0
SO LOCATION FRAG20  AREA    490106   3914127    0.0
SO LOCATION FRAG21  AREA    489783   3913977    0.0
SO LOCATION FRAG22  AREA    491259   3914675    0.0
SO LOCATION FRAG23  AREA    490212   3914178    0.0
SO LOCATION FRAG24  AREA    489434   3913813    0.0
SO LOCATION FRAG25  AREA    489284   3913733    0.0

**
SO HOUREMIS  Emission46_38.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max46_38.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 51:98 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    492829   3914886    0.0
SO LOCATION FRAG2    AREA    492429   3914689    0.0
SO LOCATION FRAG3    AREA    492560   3914763    0.0
SO LOCATION FRAG4    AREA    493920   3915399    0.0
SO LOCATION FRAG5    AREA    492339   3914650    0.0
SO LOCATION FRAG6    AREA    493308   3915110    0.0
SO LOCATION FRAG7    AREA    493148   3915057    0.0
SO LOCATION FRAG8    AREA    493297   3915123    0.0
SO LOCATION FRAG9    AREA    496021   3916375    0.0
SO LOCATION FRAG10  AREA    491795   3914379    0.0
SO LOCATION FRAG11  AREA    493378   3915139    0.0
SO LOCATION FRAG12  AREA    492768   3914869    0.0
SO LOCATION FRAG13  AREA    494055   3915458    0.0
SO LOCATION FRAG14  AREA    498442   3917525    0.0
SO LOCATION FRAG15  AREA    492598   3914767    0.0
SO LOCATION FRAG16  AREA    492212   3914597    0.0
SO LOCATION FRAG17  AREA    492439   3914698    0.0
SO LOCATION FRAG18  AREA    493089   3915026    0.0
SO LOCATION FRAG19  AREA    492196   3914583    0.0
SO LOCATION FRAG20  AREA    493291   3915110    0.0
SO LOCATION FRAG21  AREA    493107   3915015    0.0
SO LOCATION FRAG22  AREA    492274   3914622    0.0
SO LOCATION FRAG23  AREA    492864   3914911    0.0
SO LOCATION FRAG24  AREA    492488   3914725    0.0
SO LOCATION FRAG25  AREA    497389   3917025    0.0

**
SO HOUREMIS  Emission51_98.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max51_98.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 52:91 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    493853   3915276    0.0
SO LOCATION FRAG2    AREA    492235   3914495    0.0
SO LOCATION FRAG3    AREA    494438   3915553    0.0
SO LOCATION FRAG4    AREA    494133   3915423    0.0
SO LOCATION FRAG5    AREA    493877   3915293    0.0
SO LOCATION FRAG6    AREA    491986   3914363    0.0
SO LOCATION FRAG7    AREA    495641   3916147    0.0
SO LOCATION FRAG8    AREA    493280   3915003    0.0
SO LOCATION FRAG9    AREA    492919   3914831    0.0
SO LOCATION FRAG10  AREA    493794   3915252    0.0
SO LOCATION FRAG11  AREA    493713   3915213    0.0
SO LOCATION FRAG12  AREA    492326   3914538    0.0
SO LOCATION FRAG13  AREA    493900   3915305    0.0
SO LOCATION FRAG14  AREA    495605   3916111    0.0
SO LOCATION FRAG15  AREA    492664   3914711    0.0
SO LOCATION FRAG16  AREA    492775   3914760    0.0
SO LOCATION FRAG17  AREA    492500   3914626    0.0
SO LOCATION FRAG18  AREA    492749   3914755    0.0
SO LOCATION FRAG19  AREA    494104   3915397    0.0
SO LOCATION FRAG20  AREA    493570   3915145    0.0
SO LOCATION FRAG21  AREA    493849   3915286    0.0
SO LOCATION FRAG22  AREA    493448   3915087    0.0
SO LOCATION FRAG23  AREA    496411   3916494    0.0
SO LOCATION FRAG24  AREA    493111   3914929    0.0
SO LOCATION FRAG25  AREA    492442   3914596    0.0

**
SO HOUREMIS  Emission52_91.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max52_91.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 53:20 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1   AREA    493389    3915024    0.0
SO LOCATION FRAG2   AREA    495075    3915830    0.0
SO LOCATION FRAG3   AREA    494259    3915439    0.0
SO LOCATION FRAG4   AREA    492803    3914738    0.0
SO LOCATION FRAG5   AREA    495254    3915909    0.0
SO LOCATION FRAG6   AREA    493595    3915138    0.0
SO LOCATION FRAG7   AREA    492528    3914604    0.0
SO LOCATION FRAG8   AREA    495054    3915826    0.0
SO LOCATION FRAG9   AREA    493110    3914901    0.0
SO LOCATION FRAG10  AREA    494451    3915537    0.0
SO LOCATION FRAG11  AREA    492027    3914350    0.0
SO LOCATION FRAG12  AREA    493561    3915112    0.0
SO LOCATION FRAG13  AREA    497635    3917006    0.0
SO LOCATION FRAG14  AREA    493401    3915041    0.0
SO LOCATION FRAG15  AREA    494177    3915402    0.0
SO LOCATION FRAG16  AREA    492264    3914471    0.0
SO LOCATION FRAG17  AREA    493106    3914887    0.0
SO LOCATION FRAG18  AREA    493317    3914999    0.0
SO LOCATION FRAG19  AREA    494546    3915580    0.0
SO LOCATION FRAG20  AREA    496101    3916293    0.0
SO LOCATION FRAG21  AREA    492940    3914807    0.0
SO LOCATION FRAG22  AREA    493619    3915147    0.0
SO LOCATION FRAG23  AREA    494288    3915454    0.0
SO LOCATION FRAG24  AREA    494319    3915475    0.0
SO LOCATION FRAG25  AREA    493703    3915185    0.0
**
SO HOUREMIS  Emission53_20.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max53_20.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 55:44 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    494365   3915247    0.0
SO LOCATION FRAG2    AREA    494053   3915088    0.0
SO LOCATION FRAG3    AREA    494458   3915295    0.0
SO LOCATION FRAG4    AREA    493695   3914914    0.0
SO LOCATION FRAG5    AREA    496513   3916252    0.0
SO LOCATION FRAG6    AREA    495767   3915927    0.0
SO LOCATION FRAG7    AREA    496630   3916312    0.0
SO LOCATION FRAG8    AREA    495383   3915728    0.0
SO LOCATION FRAG9    AREA    495898   3915977    0.0
SO LOCATION FRAG10  AREA    501612   3918625    0.0
SO LOCATION FRAG11  AREA    493508   3914813    0.0
SO LOCATION FRAG12  AREA    495354   3915726    0.0
SO LOCATION FRAG13  AREA    497854   3916896    0.0
SO LOCATION FRAG14  AREA    496621   3916311    0.0
SO LOCATION FRAG15  AREA    494352   3915242    0.0
SO LOCATION FRAG16  AREA    494931   3915518    0.0
SO LOCATION FRAG17  AREA    495134   3915625    0.0
SO LOCATION FRAG18  AREA    494316   3915220    0.0
SO LOCATION FRAG19  AREA    496063   3916056    0.0
SO LOCATION FRAG20  AREA    496384   3916209    0.0
SO LOCATION FRAG21  AREA    494250   3915189    0.0
SO LOCATION FRAG22  AREA    493073   3914589    0.0
SO LOCATION FRAG23  AREA    495940   3915998    0.0
SO LOCATION FRAG24  AREA    494950   3915529    0.0
SO LOCATION FRAG25  AREA    493636   3914887    0.0

**
SO HOUREMIS  Emission55_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max55_44.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 56:36 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    497539   3916652    0.0
SO LOCATION FRAG2    AREA    494675   3915283    0.0
SO LOCATION FRAG3    AREA    495184   3915538    0.0
SO LOCATION FRAG4    AREA    495056   3915474    0.0
SO LOCATION FRAG5    AREA    494897   3915391    0.0
SO LOCATION FRAG6    AREA    494360   3915130    0.0
SO LOCATION FRAG7    AREA    493679   3914781    0.0
SO LOCATION FRAG8    AREA    495541   3915703    0.0
SO LOCATION FRAG9    AREA    498052   3916888    0.0
SO LOCATION FRAG10   AREA    495144   3915510    0.0
SO LOCATION FRAG11   AREA    493617   3914745    0.0
SO LOCATION FRAG12   AREA    494038   3914967    0.0
SO LOCATION FRAG13   AREA    497581   3916668    0.0
SO LOCATION FRAG14   AREA    496715   3916268    0.0
SO LOCATION FRAG15   AREA    497562   3916655    0.0
SO LOCATION FRAG16   AREA    498242   3916972    0.0
SO LOCATION FRAG17   AREA    494001   3914945    0.0
SO LOCATION FRAG18   AREA    494346   3915118    0.0
SO LOCATION FRAG19   AREA    495988   3915920    0.0
SO LOCATION FRAG20   AREA    494862   3915381    0.0
SO LOCATION FRAG21   AREA    494828   3915368    0.0
SO LOCATION FRAG22   AREA    496873   3916334    0.0
SO LOCATION FRAG23   AREA    494353   3915126    0.0
SO LOCATION FRAG24   AREA    497447   3916621    0.0
SO LOCATION FRAG25   AREA    495636   3915736    0.0
**
SO HOUREMIS  Emission56_36.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max56_36.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 57:48 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ---------- ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    499519    3917449     0.0
SO LOCATION FRAG2    AREA    495630    3915610     0.0
SO LOCATION FRAG3    AREA    494655    3915128     0.0
SO LOCATION FRAG4    AREA    496522    3916044     0.0
SO LOCATION FRAG5    AREA    495715    3915665     0.0
SO LOCATION FRAG6    AREA    495039    3915330     0.0
SO LOCATION FRAG7    AREA    497339    3916436     0.0
SO LOCATION FRAG8    AREA    495308    3915460     0.0
SO LOCATION FRAG9    AREA    495546    3915566     0.0
SO LOCATION FRAG10   AREA    495457    3915536     0.0
SO LOCATION FRAG11   AREA    496891    3916219     0.0
SO LOCATION FRAG12   AREA    499735    3917534     0.0
SO LOCATION FRAG13   AREA    496311    3915945     0.0
SO LOCATION FRAG14   AREA    496889    3916219     0.0
SO LOCATION FRAG15   AREA    509617    3922148     0.0
SO LOCATION FRAG16   AREA    497735    3916611     0.0
SO LOCATION FRAG17   AREA    495620    3915606     0.0
SO LOCATION FRAG18   AREA    497126    3916337     0.0
SO LOCATION FRAG19   AREA    497011    3916265     0.0
SO LOCATION FRAG20   AREA    496215    3915895     0.0
SO LOCATION FRAG21   AREA    496105    3915841     0.0
SO LOCATION FRAG22   AREA    494786    3915202     0.0
SO LOCATION FRAG23   AREA    496693    3916124     0.0
SO LOCATION FRAG24   AREA    493870    3914704     0.0
SO LOCATION FRAG25   AREA    495530    3915566     0.0

**
SO HOUREMIS  Emission57_48.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max57_48.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 58:30 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    495152   3915271    0.0
SO LOCATION FRAG2    AREA    500177   3917670    0.0
SO LOCATION FRAG3    AREA    497036   3916184    0.0
SO LOCATION FRAG4    AREA    496340   3915864    0.0
SO LOCATION FRAG5    AREA    495615   3915507    0.0
SO LOCATION FRAG6    AREA    498827   3917034    0.0
SO LOCATION FRAG7    AREA    498108   3916700    0.0
SO LOCATION FRAG8    AREA    495050   3915219    0.0
SO LOCATION FRAG9    AREA    495993   3915694    0.0
SO LOCATION FRAG10   AREA    496112   3915747    0.0
SO LOCATION FRAG11   AREA    498271   3916774    0.0
SO LOCATION FRAG12   AREA    496373   3915877    0.0
SO LOCATION FRAG13   AREA    496991   3916172    0.0
SO LOCATION FRAG14   AREA    495148   3915267    0.0
SO LOCATION FRAG15   AREA    496489   3915920    0.0
SO LOCATION FRAG16   AREA    499907   3917529    0.0
SO LOCATION FRAG17   AREA    495933   3915662    0.0
SO LOCATION FRAG18   AREA    497028   3916186    0.0
SO LOCATION FRAG19   AREA    496774   3916062    0.0
SO LOCATION FRAG20   AREA    497432   3916370    0.0
SO LOCATION FRAG21   AREA    495879   3915638    0.0
SO LOCATION FRAG22   AREA    497776   3916540    0.0
SO LOCATION FRAG23   AREA    496936   3916130    0.0
SO LOCATION FRAG24   AREA    495343   3915379    0.0
SO LOCATION FRAG25   AREA    497894   3916596    0.0

**
SO HOUREMIS  Emission58_30.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max58_30.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 62:92 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    498421    3916237    0.0
SO LOCATION FRAG2    AREA    502233    3918051    0.0
SO LOCATION FRAG3    AREA    496785    3915338    0.0
SO LOCATION FRAG4    AREA    501330    3917626    0.0
SO LOCATION FRAG5    AREA    498005    3916024    0.0
SO LOCATION FRAG6    AREA    502528    3918211    0.0
SO LOCATION FRAG7    AREA    500850    3917418    0.0
SO LOCATION FRAG8    AREA    501520    3917729    0.0
SO LOCATION FRAG9    AREA    501325    3917639    0.0
SO LOCATION FRAG10  AREA    502713    3918291    0.0
SO LOCATION FRAG11  AREA    498361    3916211    0.0
SO LOCATION FRAG12  AREA    500937    3917455    0.0
SO LOCATION FRAG13  AREA    498157    3916113    0.0
SO LOCATION FRAG14  AREA    499812    3916925    0.0
SO LOCATION FRAG15  AREA    499675    3916860    0.0
SO LOCATION FRAG16  AREA    498592    3916325    0.0
SO LOCATION FRAG17  AREA    501915    3917910    0.0
SO LOCATION FRAG18  AREA    499639    3916830    0.0
SO LOCATION FRAG19  AREA    497884    3915971    0.0
SO LOCATION FRAG20  AREA    499839    3916939    0.0
SO LOCATION FRAG21  AREA    501864    3917894    0.0
SO LOCATION FRAG22  AREA    498843    3916455    0.0
SO LOCATION FRAG23  AREA    498299    3916181    0.0
SO LOCATION FRAG24  AREA    501715    3917812    0.0
SO LOCATION FRAG25  AREA    500170    3917084    0.0

**
SO HOUREMIS  Emission62_92.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max62_92.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 63:81 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    499357   3916570    0.0
SO LOCATION FRAG2    AREA    498771   3916279    0.0
SO LOCATION FRAG3    AREA    503198   3918401    0.0
SO LOCATION FRAG4    AREA    498895   3916342    0.0
SO LOCATION FRAG5    AREA    500668   3917205    0.0
SO LOCATION FRAG6    AREA    499384   3916586    0.0
SO LOCATION FRAG7    AREA    499787   3916782    0.0
SO LOCATION FRAG8    AREA    505545   3919472    0.0
SO LOCATION FRAG9    AREA    499294   3916535    0.0
SO LOCATION FRAG10  AREA    500127   3916948    0.0
SO LOCATION FRAG11  AREA    500282   3917023    0.0
SO LOCATION FRAG12  AREA    499164   3916471    0.0
SO LOCATION FRAG13  AREA    501094   3917408    0.0
SO LOCATION FRAG14  AREA    502365   3918002    0.0
SO LOCATION FRAG15  AREA    502835   3918221    0.0
SO LOCATION FRAG16  AREA    504722   3919119    0.0
SO LOCATION FRAG17  AREA    504808   3919166    0.0
SO LOCATION FRAG18  AREA    502133   3917899    0.0
SO LOCATION FRAG19  AREA    501144   3917425    0.0
SO LOCATION FRAG20  AREA    501617   3917641    0.0
SO LOCATION FRAG21  AREA    499536   3916659    0.0
SO LOCATION FRAG22  AREA    500221   3916998    0.0
SO LOCATION FRAG23  AREA    500287   3917016    0.0
SO LOCATION FRAG24  AREA    499668   3916728    0.0
SO LOCATION FRAG25  AREA    500276   3917013    0.0


**
SO HOUREMIS  Emission63_81.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max63_81.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 64:02 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    501931    3917768    0.0
SO LOCATION FRAG2    AREA    499895    3916802    0.0
SO LOCATION FRAG3    AREA    503885    3918705    0.0
SO LOCATION FRAG4    AREA    498851    3916283    0.0
SO LOCATION FRAG5    AREA    500323    3917008    0.0
SO LOCATION FRAG6    AREA    499690    3916695    0.0
SO LOCATION FRAG7    AREA    499779    3916746    0.0
SO LOCATION FRAG8    AREA    500048    3916868    0.0
SO LOCATION FRAG9    AREA    503588    3918560    0.0
SO LOCATION FRAG10   AREA    500325    3917008    0.0
SO LOCATION FRAG11   AREA    500369    3917027    0.0
SO LOCATION FRAG12   AREA    499277    3916492    0.0
SO LOCATION FRAG13   AREA    506237    3919788    0.0
SO LOCATION FRAG14   AREA    503631    3918585    0.0
SO LOCATION FRAG15   AREA    498594    3916154    0.0
SO LOCATION FRAG16   AREA    506610    3919968    0.0
SO LOCATION FRAG17   AREA    500350    3917019    0.0
SO LOCATION FRAG18   AREA    502301    3917945    0.0
SO LOCATION FRAG19   AREA    502342    3917969    0.0
SO LOCATION FRAG20   AREA    500916    3917295    0.0
SO LOCATION FRAG21   AREA    500274    3916987    0.0
SO LOCATION FRAG22   AREA    500950    3917308    0.0
SO LOCATION FRAG23   AREA    502877    3918224    0.0
SO LOCATION FRAG24   AREA    498651    3916188    0.0
SO LOCATION FRAG25   AREA    499811    3916756    0.0


**
SO HOUREMIS  Emission64_02.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max64_02.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 65:19 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    502509   3917886    0.0
SO LOCATION FRAG2    AREA    501913   3917603    0.0
SO LOCATION FRAG3    AREA    501256   3917293    0.0
SO LOCATION FRAG4    AREA    500087   3916722    0.0
SO LOCATION FRAG5    AREA    502034   3917647    0.0
SO LOCATION FRAG6    AREA    500477   3916914    0.0
SO LOCATION FRAG7    AREA    502891   3918060    0.0
SO LOCATION FRAG8    AREA    499912   3916627    0.0
SO LOCATION FRAG9    AREA    500136   3916743    0.0
SO LOCATION FRAG10   AREA    501547   3917425    0.0
SO LOCATION FRAG11   AREA    501290   3917305    0.0
SO LOCATION FRAG12   AREA    501094   3917211    0.0
SO LOCATION FRAG13   AREA    500894   3917113    0.0
SO LOCATION FRAG14   AREA    503174   3918206    0.0
SO LOCATION FRAG15   AREA    504105   3918650    0.0
SO LOCATION FRAG16   AREA    500771   3917053    0.0
SO LOCATION FRAG17   AREA    502228   3917753    0.0
SO LOCATION FRAG18   AREA    501913   3917592    0.0
SO LOCATION FRAG19   AREA    500403   3916880    0.0
SO LOCATION FRAG20   AREA    500353   3916841    0.0
SO LOCATION FRAG21   AREA    501131   3917215    0.0
SO LOCATION FRAG22   AREA    500029   3916682    0.0
SO LOCATION FRAG23   AREA    499501   3916416    0.0
SO LOCATION FRAG24   AREA    501252   3917284    0.0
SO LOCATION FRAG25   AREA    500158   3916750    0.0

**
SO HOUREMIS  Emission65_19.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max65_19.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 68:33 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    502158   3917221    0.0
SO LOCATION FRAG2    AREA    502363   3917321    0.0
SO LOCATION FRAG3    AREA    503811   3918028    0.0
SO LOCATION FRAG4    AREA    505118   3918647    0.0
SO LOCATION FRAG5    AREA    503048   3917656    0.0
SO LOCATION FRAG6    AREA    514390   3923005    0.0
SO LOCATION FRAG7    AREA    506361   3919231    0.0
SO LOCATION FRAG8    AREA    502084   3917186    0.0
SO LOCATION FRAG9    AREA    502619   3917451    0.0
SO LOCATION FRAG10  AREA    505093   3918629    0.0
SO LOCATION FRAG11  AREA    501407   3916825    0.0
SO LOCATION FRAG12  AREA    513456   3922528    0.0
SO LOCATION FRAG13  AREA    502643   3917454    0.0
SO LOCATION FRAG14  AREA    502996   3917625    0.0
SO LOCATION FRAG15  AREA    502047   3917161    0.0
SO LOCATION FRAG16  AREA    503849   3918042    0.0
SO LOCATION FRAG17  AREA    502354   3917312    0.0
SO LOCATION FRAG18  AREA    502626   3917446    0.0
SO LOCATION FRAG19  AREA    502298   3917289    0.0
SO LOCATION FRAG20  AREA    501882   3917092    0.0
SO LOCATION FRAG21  AREA    510597   3921204    0.0
SO LOCATION FRAG22  AREA    505130   3918658    0.0
SO LOCATION FRAG23  AREA    504299   3918256    0.0
SO LOCATION FRAG24  AREA    507148   3919592    0.0
SO LOCATION FRAG25  AREA    502284   3917285    0.0

**
SO HOUREMIS  Emission68_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max68_33.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 68:95 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    509029   3920703     0.0
SO LOCATION FRAG2    AREA    501074   3916915     0.0
SO LOCATION FRAG3    AREA    501559   3917149     0.0
SO LOCATION FRAG4    AREA    503973   3918310     0.0
SO LOCATION FRAG5    AREA    501774   3917259     0.0
SO LOCATION FRAG6    AREA    502216   3917480     0.0
SO LOCATION FRAG7    AREA    502104   3917422     0.0
SO LOCATION FRAG8    AREA    503249   3917970     0.0
SO LOCATION FRAG9    AREA    499864   3916271     0.0
SO LOCATION FRAG10   AREA    506155   3919351     0.0
SO LOCATION FRAG11   AREA    510393   3921328     0.0
SO LOCATION FRAG12   AREA    503503   3918086     0.0
SO LOCATION FRAG13   AREA    501224   3916991     0.0
SO LOCATION FRAG14   AREA    501612   3917180     0.0
SO LOCATION FRAG15   AREA    501934   3917343     0.0
SO LOCATION FRAG16   AREA    506274   3919399     0.0
SO LOCATION FRAG17   AREA    505233   3918920     0.0
SO LOCATION FRAG18   AREA    502529   3917629     0.0
SO LOCATION FRAG19   AREA    502594   3917658     0.0
SO LOCATION FRAG20   AREA    502024   3917384     0.0
SO LOCATION FRAG21   AREA    501019   3916877     0.0
SO LOCATION FRAG22   AREA    508428   3920424     0.0
SO LOCATION FRAG23   AREA    501621   3917179     0.0
SO LOCATION FRAG24   AREA    501402   3917085     0.0
SO LOCATION FRAG25   AREA    507934   3920187     0.0

**
SO HOUREMIS  Emission68_95.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max68_95.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 69:78 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    504460    3918074    0.0
SO LOCATION FRAG2    AREA    505640    3918654    0.0
SO LOCATION FRAG3    AREA    504599    3918165    0.0
SO LOCATION FRAG4    AREA    503434    3917588    0.0
SO LOCATION FRAG5    AREA    502585    3917155    0.0
SO LOCATION FRAG6    AREA    510300    3920850    0.0
SO LOCATION FRAG7    AREA    504602    3918166    0.0
SO LOCATION FRAG8    AREA    503021    3917378    0.0
SO LOCATION FRAG9    AREA    503660    3917700    0.0
SO LOCATION FRAG10   AREA    510077    3920734    0.0
SO LOCATION FRAG11   AREA    508618    3920065    0.0
SO LOCATION FRAG12   AREA    505500    3918586    0.0
SO LOCATION FRAG13   AREA    507729    3919639    0.0
SO LOCATION FRAG14   AREA    504504    3918106    0.0
SO LOCATION FRAG15   AREA    504133    3917932    0.0
SO LOCATION FRAG16   AREA    503437    3917585    0.0
SO LOCATION FRAG17   AREA    504760    3918234    0.0
SO LOCATION FRAG18   AREA    506222    3918937    0.0
SO LOCATION FRAG19   AREA    503891    3917820    0.0
SO LOCATION FRAG20   AREA    510211    3920801    0.0
SO LOCATION FRAG21   AREA    508091    3919826    0.0
SO LOCATION FRAG22   AREA    505861    3918744    0.0
SO LOCATION FRAG23   AREA    503703    3917717    0.0
SO LOCATION FRAG24   AREA    506001    3918830    0.0
SO LOCATION FRAG25   AREA    505093    3918400    0.0

**
SO HOUREMIS  Emission69_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max69_78.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 70:74 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    506100   3918707    0.0
SO LOCATION FRAG2    AREA    507552   3919403    0.0
SO LOCATION FRAG3    AREA    509077   3920132    0.0
SO LOCATION FRAG4    AREA    505258   3918309    0.0
SO LOCATION FRAG5    AREA    507104   3919183    0.0
SO LOCATION FRAG6    AREA    504360   3917872    0.0
SO LOCATION FRAG7    AREA    510902   3920983    0.0
SO LOCATION FRAG8    AREA    505152   3918250    0.0
SO LOCATION FRAG9    AREA    504358   3917870    0.0
SO LOCATION FRAG10  AREA    510249   3920669    0.0
SO LOCATION FRAG11  AREA    504777   3918072    0.0
SO LOCATION FRAG12  AREA    509187   3920170    0.0
SO LOCATION FRAG13  AREA    506700   3919009    0.0
SO LOCATION FRAG14  AREA    504682   3918026    0.0
SO LOCATION FRAG15  AREA    504334   3917860    0.0
SO LOCATION FRAG16  AREA    503848   3917617    0.0
SO LOCATION FRAG17  AREA    506833   3919062    0.0
SO LOCATION FRAG18  AREA    505483   3918419    0.0
SO LOCATION FRAG19  AREA    503518   3917450    0.0
SO LOCATION FRAG20  AREA    506938   3919109    0.0
SO LOCATION FRAG21  AREA    507536   3919380    0.0
SO LOCATION FRAG22  AREA    509408   3920261    0.0
SO LOCATION FRAG23  AREA    504894   3918124    0.0
SO LOCATION FRAG24  AREA    505619   3918475    0.0
SO LOCATION FRAG25  AREA    508192   3919697    0.0

**
SO HOUREMIS  Emission70_74.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max70_74.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 71:63 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)       z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    508090   3919512    0.0
SO LOCATION FRAG2    AREA    504392   3917720    0.0
SO LOCATION FRAG3    AREA    506626   3918807    0.0
SO LOCATION FRAG4    AREA    506333   3918665    0.0
SO LOCATION FRAG5    AREA    507725   3919322    0.0
SO LOCATION FRAG6    AREA    510188   3920503    0.0
SO LOCATION FRAG7    AREA    504534   3917786    0.0
SO LOCATION FRAG8    AREA    508328   3919613    0.0
SO LOCATION FRAG9    AREA    508233   3919570    0.0
SO LOCATION FRAG10   AREA    508561   3919737    0.0
SO LOCATION FRAG11   AREA    510766   3920757    0.0
SO LOCATION FRAG12   AREA    505332   3918181    0.0
SO LOCATION FRAG13   AREA    507511   3919213    0.0
SO LOCATION FRAG14   AREA    506760   3918865    0.0
SO LOCATION FRAG15   AREA    505991   3918502    0.0
SO LOCATION FRAG16   AREA    503947   3917486    0.0
SO LOCATION FRAG17   AREA    507198   3919088    0.0
SO LOCATION FRAG18   AREA    503531   3917261    0.0
SO LOCATION FRAG19   AREA    506303   3918652    0.0
SO LOCATION FRAG20   AREA    508292   3919596    0.0
SO LOCATION FRAG21   AREA    512916   3921759    0.0
SO LOCATION FRAG22   AREA    506051   3918536    0.0
SO LOCATION FRAG23   AREA    506375   3918684    0.0
SO LOCATION FRAG24   AREA    505858   3918446    0.0
SO LOCATION FRAG25   AREA    511122   3920935    0.0

**
SO HOUREMIS  Emission71_63.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max71_63.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 74:33 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)       z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    510228   3920022    0.0
SO LOCATION FRAG2    AREA    512457   3921076    0.0
SO LOCATION FRAG3    AREA    506455   3918182    0.0
SO LOCATION FRAG4    AREA    525107   3927003    0.0
SO LOCATION FRAG5    AREA    507183   3918552    0.0
SO LOCATION FRAG6    AREA    511432   3920591    0.0
SO LOCATION FRAG7    AREA    508515   3919208    0.0
SO LOCATION FRAG8    AREA    513981   3921795    0.0
SO LOCATION FRAG9    AREA    509931   3919890    0.0
SO LOCATION FRAG10   AREA    506691   3918310    0.0
SO LOCATION FRAG11   AREA    511724   3920720    0.0
SO LOCATION FRAG12   AREA    507796   3918864    0.0
SO LOCATION FRAG13   AREA    518951   3924110    0.0
SO LOCATION FRAG14   AREA    510090   3919969    0.0
SO LOCATION FRAG15   AREA    507842   3918872    0.0
SO LOCATION FRAG16   AREA    509170   3919516    0.0
SO LOCATION FRAG17   AREA    510989   3920381    0.0
SO LOCATION FRAG18   AREA    513976   3921786    0.0
SO LOCATION FRAG19   AREA    510667   3920238    0.0
SO LOCATION FRAG20   AREA    515296   3922402    0.0
SO LOCATION FRAG21   AREA    508732   3919315    0.0
SO LOCATION FRAG22   AREA    509955   3919902    0.0
SO LOCATION FRAG23   AREA    509488   3919664    0.0
SO LOCATION FRAG24   AREA    507567   3918744    0.0
SO LOCATION FRAG25   AREA    507441   3918689    0.0

**
SO HOUREMIS  Emission74_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max74_33.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 74:44 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)         y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   509511.0  3919661.0   0.0
SO LOCATION FRAG2    AREA   508047.0  3918957.0   0.0
SO LOCATION FRAG3    AREA   509355.0  3919600.0   0.0
SO LOCATION FRAG4    AREA   511345.0  3920534.0   0.0
SO LOCATION FRAG5    AREA   510398.0  3920092.0   0.0
SO LOCATION FRAG6    AREA   512477.0  3921072.0   0.0
SO LOCATION FRAG7    AREA   508378.0  3919112.0   0.0
SO LOCATION FRAG8    AREA   517144.0  3923254.0   0.0
SO LOCATION FRAG9    AREA   512870.0  3921256.0   0.0
SO LOCATION FRAG10   AREA   507784.0  3918827.0   0.0
SO LOCATION FRAG11   AREA   510519.0  3920135.0   0.0
SO LOCATION FRAG12   AREA   508702.0  3919285.0   0.0
SO LOCATION FRAG13   AREA   508382.0  3919123.0   0.0
SO LOCATION FRAG14   AREA   507654.0  3918766.0   0.0
SO LOCATION FRAG15   AREA   509551.0  3919672.0   0.0
SO LOCATION FRAG16   AREA   515311.0  3922400.0   0.0
SO LOCATION FRAG17   AREA   509119.0  3919474.0   0.0
SO LOCATION FRAG18   AREA   507858.0  3918867.0   0.0
SO LOCATION FRAG19   AREA   521199.0  3925149.0   0.0
SO LOCATION FRAG20   AREA   512955.0  3921281.0   0.0
SO LOCATION FRAG21   AREA   507661.0  3918779.0   0.0
SO LOCATION FRAG22   AREA   509580.0  3919697.0   0.0
SO LOCATION FRAG23   AREA   508531.0  3919192.0   0.0
SO LOCATION FRAG24   AREA   508583.0  3919219.0   0.0
SO LOCATION FRAG25   AREA   510840.0  3920294.0   0.0

**
SO HOUREMIS  Emission74_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max74_44.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 75:00 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    513227    3921325     0.0
SO LOCATION FRAG2    AREA    512112    3920795     0.0
SO LOCATION FRAG3    AREA    513934    3921637     0.0
SO LOCATION FRAG4    AREA    510926    3920229     0.0
SO LOCATION FRAG5    AREA    509582    3919574     0.0
SO LOCATION FRAG6    AREA    515291    3922291     0.0
SO LOCATION FRAG7    AREA    509766    3919669     0.0
SO LOCATION FRAG8    AREA    509101    3919355     0.0
SO LOCATION FRAG9    AREA    508014    3918821     0.0
SO LOCATION FRAG10   AREA    511887    3920678     0.0
SO LOCATION FRAG11   AREA    511273    3920394     0.0
SO LOCATION FRAG12   AREA    510310    3919927     0.0
SO LOCATION FRAG13   AREA    511203    3920344     0.0
SO LOCATION FRAG14   AREA    509206    3919401     0.0
SO LOCATION FRAG15   AREA    508552    3919092     0.0
SO LOCATION FRAG16   AREA    508529    3919074     0.0
SO LOCATION FRAG17   AREA    509541    3919575     0.0
SO LOCATION FRAG18   AREA    508742    3919178     0.0
SO LOCATION FRAG19   AREA    508429    3919031     0.0
SO LOCATION FRAG20   AREA    513849    3921616     0.0
SO LOCATION FRAG21   AREA    518814    3923926     0.0
SO LOCATION FRAG22   AREA    509422    3919516     0.0
SO LOCATION FRAG23   AREA    508347    3918998     0.0
SO LOCATION FRAG24   AREA    509894    3919733     0.0
SO LOCATION FRAG25   AREA    510228    3919892     0.0

**
SO HOUREMIS  Emission75_00.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max75_00.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 75:88 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    510822    3919998     0.0
SO LOCATION FRAG2    AREA    512902    3920988     0.0
SO LOCATION FRAG3    AREA    509305    3919268     0.0
SO LOCATION FRAG4    AREA    508880    3919056     0.0
SO LOCATION FRAG5    AREA    509164    3919206     0.0
SO LOCATION FRAG6    AREA    510195    3919701     0.0
SO LOCATION FRAG7    AREA    508543    3918898     0.0
SO LOCATION FRAG8    AREA    510059    3919634     0.0
SO LOCATION FRAG9    AREA    509174    3919212     0.0
SO LOCATION FRAG10   AREA    512057    3920586     0.0
SO LOCATION FRAG11   AREA    513139    3921099     0.0
SO LOCATION FRAG12   AREA    510504    3919854     0.0
SO LOCATION FRAG13   AREA    511887    3920498     0.0
SO LOCATION FRAG14   AREA    508602    3918923     0.0
SO LOCATION FRAG15   AREA    512047    3920589     0.0
SO LOCATION FRAG16   AREA    510882    3920032     0.0
SO LOCATION FRAG17   AREA    510824    3919997     0.0
SO LOCATION FRAG18   AREA    510227    3919703     0.0
SO LOCATION FRAG19   AREA    509891    3919557     0.0
SO LOCATION FRAG20   AREA    507977    3918609     0.0
SO LOCATION FRAG21   AREA    511170    3920159     0.0
SO LOCATION FRAG22   AREA    517062    3922935     0.0
SO LOCATION FRAG23   AREA    508969    3919110     0.0
SO LOCATION FRAG24   AREA    514380    3921682     0.0
SO LOCATION FRAG25   AREA    509287    3919253     0.0

**
SO HOUREMIS  Emission75_88.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max75_88.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 76:86 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    520476    3924347     0.0
SO LOCATION FRAG2    AREA    511599    3920174     0.0
SO LOCATION FRAG3    AREA    509115    3918961     0.0
SO LOCATION FRAG4    AREA    514339    3921474     0.0
SO LOCATION FRAG5    AREA    510159    3919476     0.0
SO LOCATION FRAG6    AREA    509332    3919067     0.0
SO LOCATION FRAG7    AREA    510021    3919413     0.0
SO LOCATION FRAG8    AREA    512307    3920516     0.0
SO LOCATION FRAG9    AREA    514397    3921506     0.0
SO LOCATION FRAG10   AREA    514963    3921757     0.0
SO LOCATION FRAG11   AREA    521103    3924624     0.0
SO LOCATION FRAG12   AREA    510107    3919456     0.0
SO LOCATION FRAG13   AREA    509384    3919096     0.0
SO LOCATION FRAG14   AREA    516110    3922311     0.0
SO LOCATION FRAG15   AREA    510128    3919465     0.0
SO LOCATION FRAG16   AREA    518060    3923226     0.0
SO LOCATION FRAG17   AREA    511397    3920077     0.0
SO LOCATION FRAG18   AREA    512856    3920772     0.0
SO LOCATION FRAG19   AREA    510006    3919405     0.0
SO LOCATION FRAG20   AREA    509196    3918997     0.0
SO LOCATION FRAG21   AREA    516543    3922514     0.0
SO LOCATION FRAG22   AREA    511143    3919962     0.0
SO LOCATION FRAG23   AREA    513206    3920934     0.0
SO LOCATION FRAG24   AREA    514278    3921444     0.0
SO LOCATION FRAG25   AREA    522365    3925215     0.0

**
SO HOUREMIS  Emission76_86.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max76_86.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 80:44 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)         y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   516982     3921942      0.0
SO LOCATION FRAG2    AREA   528098     3927163      0.0
SO LOCATION FRAG3    AREA   525731     3926075      0.0
SO LOCATION FRAG4    AREA   514592     3920803      0.0
SO LOCATION FRAG5    AREA   513723     3920390      0.0
SO LOCATION FRAG6    AREA   513260     3920154      0.0
SO LOCATION FRAG7    AREA   512791     3919921      0.0
SO LOCATION FRAG8    AREA   513669     3920355      0.0
SO LOCATION FRAG9    AREA   515474     3921231      0.0
SO LOCATION FRAG10   AREA   515210     3921115      0.0
SO LOCATION FRAG11   AREA   526309     3926335      0.0
SO LOCATION FRAG12   AREA   541359     3933355      0.0
SO LOCATION FRAG13   AREA   513787     3920414      0.0
SO LOCATION FRAG14   AREA   519399     3923096      0.0
SO LOCATION FRAG15   AREA   519994     3923372      0.0
SO LOCATION FRAG16   AREA   517123     3922016      0.0
SO LOCATION FRAG17   AREA   512409     3919734      0.0
SO LOCATION FRAG18   AREA   516281     3921620      0.0
SO LOCATION FRAG19   AREA   514516     3920771      0.0
SO LOCATION FRAG20   AREA   517631     3922261      0.0
SO LOCATION FRAG21   AREA   518287     3922564      0.0
SO LOCATION FRAG22   AREA   515385     3921191      0.0
SO LOCATION FRAG23   AREA   514917     3920966      0.0
SO LOCATION FRAG24   AREA   518072     3922471      0.0
SO LOCATION FRAG25   AREA   514580     3920809      0.0

**
SO HOUREMIS  Emission80_44.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value       Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max80_44.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 80:64 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    513494    3920227     0.0
SO LOCATION FRAG2    AREA    519205    3922952     0.0
SO LOCATION FRAG3    AREA    514038    3920485     0.0
SO LOCATION FRAG4    AREA    513936    3920446     0.0
SO LOCATION FRAG5    AREA    517896    3922328     0.0
SO LOCATION FRAG6    AREA    514865    3920896     0.0
SO LOCATION FRAG7    AREA    512929    3919941     0.0
SO LOCATION FRAG8    AREA    516770    3921811     0.0
SO LOCATION FRAG9    AREA    516044    3921459     0.0
SO LOCATION FRAG10   AREA    513261    3920106     0.0
SO LOCATION FRAG11   AREA    512964    3919961     0.0
SO LOCATION FRAG12   AREA    513308    3920136     0.0
SO LOCATION FRAG13   AREA    518282    3922506     0.0
SO LOCATION FRAG14   AREA    513404    3920182     0.0
SO LOCATION FRAG15   AREA    524910    3925623     0.0
SO LOCATION FRAG16   AREA    517792    3922295     0.0
SO LOCATION FRAG17   AREA    514288    3920611     0.0
SO LOCATION FRAG18   AREA    513476    3920206     0.0
SO LOCATION FRAG19   AREA    557732    3932214     0.0
SO LOCATION FRAG20   AREA    517072    3921939     0.0
SO LOCATION FRAG21   AREA    514756    3920836     0.0
SO LOCATION FRAG22   AREA    513899    3920423     0.0
SO LOCATION FRAG23   AREA    517121    3921968     0.0
SO LOCATION FRAG24   AREA    517494    3922142     0.0
SO LOCATION FRAG25   AREA    514169    3920550     0.0

**
SO HOUREMIS  Emission80_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max80_64.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 80:73 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    516011    3921424      0.0
SO LOCATION FRAG2    AREA    515044    3920951      0.0
SO LOCATION FRAG3    AREA    513523    3920216      0.0
SO LOCATION FRAG4    AREA    518641    3922676      0.0
SO LOCATION FRAG5    AREA    512335    3919610      0.0
SO LOCATION FRAG6    AREA    514566    3920725      0.0
SO LOCATION FRAG7    AREA    515135    3921002      0.0
SO LOCATION FRAG8    AREA    514279    3920591      0.0
SO LOCATION FRAG9    AREA    513922    3920415      0.0
SO LOCATION FRAG10   AREA    515174    3921012      0.0
SO LOCATION FRAG11   AREA    516524    3921660      0.0
SO LOCATION FRAG12   AREA    514188    3920538      0.0
SO LOCATION FRAG13   AREA    519694    3923182      0.0
SO LOCATION FRAG14   AREA    513674    3920293      0.0
SO LOCATION FRAG15   AREA    514183    3920537      0.0
SO LOCATION FRAG16   AREA    511842    3919347      0.0
SO LOCATION FRAG17   AREA    515876    3921349      0.0
SO LOCATION FRAG18   AREA    516428    3921621      0.0
SO LOCATION FRAG19   AREA    520319    3923457      0.0
SO LOCATION FRAG20   AREA    515554    3921205      0.0
SO LOCATION FRAG21   AREA    516838    3921816      0.0
SO LOCATION FRAG22   AREA    521695    3924123      0.0
SO LOCATION FRAG23   AREA    514053    3920470      0.0
SO LOCATION FRAG24   AREA    514214    3920557      0.0
SO LOCATION FRAG25   AREA    521085    3923815      0.0

**
SO HOUREMIS  Emission80_73.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max80_73.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 80:78 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    514308    3920591      0.0
SO LOCATION FRAG2    AREA    514556    3920711      0.0
SO LOCATION FRAG3    AREA    517977    3922345      0.0
SO LOCATION FRAG4    AREA    513448    3920167      0.0
SO LOCATION FRAG5    AREA    521517    3924008      0.0
SO LOCATION FRAG6    AREA    516352    3921575      0.0
SO LOCATION FRAG7    AREA    513850    3920372      0.0
SO LOCATION FRAG8    AREA    514718    3920786      0.0
SO LOCATION FRAG9    AREA    521086    3923825      0.0
SO LOCATION FRAG10   AREA    515082    3920962      0.0
SO LOCATION FRAG11   AREA    525613    3925923      0.0
SO LOCATION FRAG12   AREA    514384    3920626      0.0
SO LOCATION FRAG13   AREA    512131    3919488      0.0
SO LOCATION FRAG14   AREA    515099    3920971      0.0
SO LOCATION FRAG15   AREA    525570    3925896      0.0
SO LOCATION FRAG16   AREA    516060    3921433      0.0
SO LOCATION FRAG17   AREA    513158    3920021      0.0
SO LOCATION FRAG18   AREA    517781    3922240      0.0
SO LOCATION FRAG19   AREA    515133    3920994      0.0
SO LOCATION FRAG20   AREA    515337    3921084      0.0
SO LOCATION FRAG21   AREA    520341    3923450      0.0
SO LOCATION FRAG22   AREA    524267    3925299      0.0
SO LOCATION FRAG23   AREA    515342    3921088      0.0
SO LOCATION FRAG24   AREA    514757    3920809      0.0
SO LOCATION FRAG25   AREA    516198    3921505      0.0

**
SO HOUREMIS  Emission80_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max80_78.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 81:13 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    535503    3930475     0.0
SO LOCATION FRAG2    AREA    516742    3921676     0.0
SO LOCATION FRAG3    AREA    514347    3920522     0.0
SO LOCATION FRAG4    AREA    524644    3925386     0.0
SO LOCATION FRAG5    AREA    514443    3920566     0.0
SO LOCATION FRAG6    AREA    514617    3920650     0.0
SO LOCATION FRAG7    AREA    515671    3921165     0.0
SO LOCATION FRAG8    AREA    515073    3920873     0.0
SO LOCATION FRAG9    AREA    515364    3921013     0.0
SO LOCATION FRAG10   AREA    516138    3921384     0.0
SO LOCATION FRAG11   AREA    512987    3919835     0.0
SO LOCATION FRAG12   AREA    533322    3929415     0.0
SO LOCATION FRAG13   AREA    517621    3922089     0.0
SO LOCATION FRAG14   AREA    515472    3921070     0.0
SO LOCATION FRAG15   AREA    513947    3920325     0.0
SO LOCATION FRAG16   AREA    516219    3921429     0.0
SO LOCATION FRAG17   AREA    517206    3921896     0.0
SO LOCATION FRAG18   AREA    512445    3919548     0.0
SO LOCATION FRAG19   AREA    515244    3920955     0.0
SO LOCATION FRAG20   AREA    516971    3921777     0.0
SO LOCATION FRAG21   AREA    516940    3921768     0.0
SO LOCATION FRAG22   AREA    514705    3920689     0.0
SO LOCATION FRAG23   AREA    518608    3922566     0.0
SO LOCATION FRAG24   AREA    515866    3921254     0.0
SO LOCATION FRAG25   AREA    519301    3922885     0.0

**
SO HOUREMIS  Emission81_13.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max81_13.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 81:16 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    516993    3921783     0.0
SO LOCATION FRAG2    AREA    514757    3920710     0.0
SO LOCATION FRAG3    AREA    515092    3920883     0.0
SO LOCATION FRAG4    AREA    517207    3921889     0.0
SO LOCATION FRAG5    AREA    516239    3921424     0.0
SO LOCATION FRAG6    AREA    517841    3922185     0.0
SO LOCATION FRAG7    AREA    520542    3923463     0.0
SO LOCATION FRAG8    AREA    532832    3929205     0.0
SO LOCATION FRAG9    AREA    514287    3920482     0.0
SO LOCATION FRAG10   AREA    517573    3922063     0.0
SO LOCATION FRAG11   AREA    518079    3922300     0.0
SO LOCATION FRAG12   AREA    517797    3922172     0.0
SO LOCATION FRAG13   AREA    531621    3928636     0.0
SO LOCATION FRAG14   AREA    516180    3921402     0.0
SO LOCATION FRAG15   AREA    515197    3920922     0.0
SO LOCATION FRAG16   AREA    516566    3921587     0.0
SO LOCATION FRAG17   AREA    515436    3921046     0.0
SO LOCATION FRAG18   AREA    514495    3920582     0.0
SO LOCATION FRAG19   AREA    521578    3923961     0.0
SO LOCATION FRAG20   AREA    519695    3923057     0.0
SO LOCATION FRAG21   AREA    525207    3925658     0.0
SO LOCATION FRAG22   AREA    515629    3921142     0.0
SO LOCATION FRAG23   AREA    514721    3920700     0.0
SO LOCATION FRAG24   AREA    516525    3921560     0.0
SO LOCATION FRAG25   AREA    515328    3920988     0.0

**
SO HOUREMIS  Emission81_16.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max81_16.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 83:80 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    518112    3921663     0.0
SO LOCATION FRAG2    AREA    519326    3922241     0.0
SO LOCATION FRAG3    AREA    518626    3921908     0.0
SO LOCATION FRAG4    AREA    518081    3921657     0.0
SO LOCATION FRAG5    AREA    522349    3923689     0.0
SO LOCATION FRAG6    AREA    519314    3922246     0.0
SO LOCATION FRAG7    AREA    522573    3923795     0.0
SO LOCATION FRAG8    AREA    521673    3923356     0.0
SO LOCATION FRAG9    AREA    520730    3922923     0.0
SO LOCATION FRAG10   AREA    520131    3922633     0.0
SO LOCATION FRAG11   AREA    518106    3921667     0.0
SO LOCATION FRAG12   AREA    516020    3920628     0.0
SO LOCATION FRAG13   AREA    518288    3921754     0.0
SO LOCATION FRAG14   AREA    517327    3921282     0.0
SO LOCATION FRAG15   AREA    524153    3924541     0.0
SO LOCATION FRAG16   AREA    523928    3924420     0.0
SO LOCATION FRAG17   AREA    515736    3920478     0.0
SO LOCATION FRAG18   AREA    516123    3920674     0.0
SO LOCATION FRAG19   AREA    529311    3926973     0.0
SO LOCATION FRAG20   AREA    517924    3921573     0.0
SO LOCATION FRAG21   AREA    519457    3922310     0.0
SO LOCATION FRAG22   AREA    517446    3921337     0.0
SO LOCATION FRAG23   AREA    514610    3919842     0.0
SO LOCATION FRAG24   AREA    517426    3921330     0.0
SO LOCATION FRAG25   AREA    518970    3922081     0.0

**
SO HOUREMIS  Emission83_80.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max83_80.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 86:78 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    527866    3925521     0.0
SO LOCATION FRAG2    AREA    520368    3921925     0.0
SO LOCATION FRAG3    AREA    523440    3923423     0.0
SO LOCATION FRAG4    AREA    520642    3922055     0.0
SO LOCATION FRAG5    AREA    520543    3922010     0.0
SO LOCATION FRAG6    AREA    522053    3922753     0.0
SO LOCATION FRAG7    AREA    526923    3925067     0.0
SO LOCATION FRAG8    AREA    521596    3922530     0.0
SO LOCATION FRAG9    AREA    525036    3924177     0.0
SO LOCATION FRAG10   AREA    521104    3922293     0.0
SO LOCATION FRAG11   AREA    522477    3922966     0.0
SO LOCATION FRAG12   AREA    521034    3922257     0.0
SO LOCATION FRAG13   AREA    527923    3925545     0.0
SO LOCATION FRAG14   AREA    534929    3928805     0.0
SO LOCATION FRAG15   AREA    523457    3923423     0.0
SO LOCATION FRAG16   AREA    520782    3922127     0.0
SO LOCATION FRAG17   AREA    520043    3921759     0.0
SO LOCATION FRAG18   AREA    529744    3926364     0.0
SO LOCATION FRAG19   AREA    527274    3925228     0.0
SO LOCATION FRAG20   AREA    525521    3924395     0.0
SO LOCATION FRAG21   AREA    522734    3923083     0.0
SO LOCATION FRAG22   AREA    524154    3923749     0.0
SO LOCATION FRAG23   AREA    520968    3922224     0.0
SO LOCATION FRAG24   AREA    524623    3923970     0.0
SO LOCATION FRAG25   AREA    523971    3923670     0.0

**
SO HOUREMIS  Emission86_78.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max86_78.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 90:43 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    526314    3923705     0.0
SO LOCATION FRAG2    AREA    526754    3923918     0.0
SO LOCATION FRAG3    AREA    527895    3924471     0.0
SO LOCATION FRAG4    AREA    528553    3924784     0.0
SO LOCATION FRAG5    AREA    527364    3924210     0.0
SO LOCATION FRAG6    AREA    528307    3924675     0.0
SO LOCATION FRAG7    AREA    529490    3925229     0.0
SO LOCATION FRAG8    AREA    534356    3927536     0.0
SO LOCATION FRAG9    AREA    529864    3925423     0.0
SO LOCATION FRAG10   AREA    527977    3924506     0.0
SO LOCATION FRAG11   AREA    528839    3924917     0.0
SO LOCATION FRAG12   AREA    530266    3925596     0.0
SO LOCATION FRAG13   AREA    526326    3923719     0.0
SO LOCATION FRAG14   AREA    529295    3925141     0.0
SO LOCATION FRAG15   AREA    536894    3928729     0.0
SO LOCATION FRAG16   AREA    538341    3929402     0.0
SO LOCATION FRAG17   AREA    527787    3924416     0.0
SO LOCATION FRAG18   AREA    524516    3922815     0.0
SO LOCATION FRAG19   AREA    529751    3925354     0.0
SO LOCATION FRAG20   AREA    525495    3923303     0.0
SO LOCATION FRAG21   AREA    528206    3924626     0.0
SO LOCATION FRAG22   AREA    525865    3923479     0.0
SO LOCATION FRAG23   AREA    531820    3926334     0.0
SO LOCATION FRAG24   AREA    526369    3923726     0.0
SO LOCATION FRAG25   AREA    526189    3923647     0.0

**
SO HOUREMIS  Emission90_43.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max90_43.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 91:18 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    534944    3927585     0.0
SO LOCATION FRAG2    AREA    527833    3924202     0.0
SO LOCATION FRAG3    AREA    528488    3924521     0.0
SO LOCATION FRAG4    AREA    530985    3925710     0.0
SO LOCATION FRAG5    AREA    531268    3925841     0.0
SO LOCATION FRAG6    AREA    528068    3924323     0.0
SO LOCATION FRAG7    AREA    529715    3925102     0.0
SO LOCATION FRAG8    AREA    539279    3929606     0.0
SO LOCATION FRAG9    AREA    535060    3927632     0.0
SO LOCATION FRAG10   AREA    530531    3925488     0.0
SO LOCATION FRAG11   AREA    526681    3923638     0.0
SO LOCATION FRAG12   AREA    531739    3926071     0.0
SO LOCATION FRAG13   AREA    556713    3937761     0.0
SO LOCATION FRAG14   AREA    526764    3923679     0.0
SO LOCATION FRAG15   AREA    527427    3924013     0.0
SO LOCATION FRAG16   AREA    528090    3924323     0.0
SO LOCATION FRAG17   AREA    537129    3928588     0.0
SO LOCATION FRAG18   AREA    529229    3924878     0.0
SO LOCATION FRAG19   AREA    527199    3923895     0.0
SO LOCATION FRAG20   AREA    554760    3936837     0.0
SO LOCATION FRAG21   AREA    528522    3924529     0.0
SO LOCATION FRAG22   AREA    526375    3923489     0.0
SO LOCATION FRAG23   AREA    530378    3925423     0.0
SO LOCATION FRAG24   AREA    527691    3924126     0.0
SO LOCATION FRAG25   AREA    529722    3925105     0.0

**
SO HOUREMIS  Emission91_18.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max91_18.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 92:15 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    534863     3927235      0
     LOCATION,FRAG2    AREA    530673     3925254      0
     LOCATION,FRAG3    AREA    531350     3925573      0
     LOCATION,FRAG4    AREA    532130     3925950      0
     LOCATION,FRAG5    AREA    527717     3923822      0
     LOCATION,FRAG6    AREA    529759     3924813      0
     LOCATION,FRAG7    AREA    546471     3932669      0
     LOCATION,FRAG8    AREA    531192     3925504      0
     LOCATION,FRAG9    AREA    536133     3927846      0
     LOCATION,FRAG10   AREA    535386     3927492      0
     LOCATION,FRAG11   AREA    531181     3925505      0
     LOCATION,FRAG12   AREA    531489     3925646      0
     LOCATION,FRAG13   AREA    530302     3925064      0
     LOCATION,FRAG14   AREA    530051     3924952      0
     LOCATION,FRAG15   AREA    529312     3924598      0
     LOCATION,FRAG16   AREA    528746     3924330      0
     LOCATION,FRAG17   AREA    528715     3924309      0
     LOCATION,FRAG18   AREA    533472     3926584      0
     LOCATION,FRAG19   AREA    526119     3922998      0
     LOCATION,FRAG20   AREA    527927     3923923      0
     LOCATION,FRAG21   AREA    531690     3925736      0
     LOCATION,FRAG22   AREA    546283     3932578      0
     LOCATION,FRAG23   AREA    528737     3924316      0
     LOCATION,FRAG24   AREA    537638     3928543      0
     LOCATION,FRAG25   AREA    531812     3925797      0


**
SO HOUREMIS  Emission92_15.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value       Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max92_15.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 95:38 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    535495    3926459      0.0
SO LOCATION FRAG2    AREA    541635    3929378      0.0
SO LOCATION FRAG3    AREA    535904    3926662      0.0
SO LOCATION FRAG4    AREA    538237    3927774      0.0
SO LOCATION FRAG5    AREA    535840    3926633      0.0
SO LOCATION FRAG6    AREA    537512    3927426      0.0
SO LOCATION FRAG7    AREA    534607    3926034      0.0
SO LOCATION FRAG8    AREA    534343    3925906      0.0
SO LOCATION FRAG9    AREA    534463    3925972      0.0
SO LOCATION FRAG10   AREA    536642    3927022      0.0
SO LOCATION FRAG11   AREA    537289    3927328      0.0
SO LOCATION FRAG12   AREA    534076    3925780      0.0
SO LOCATION FRAG13   AREA    530013    3923696      0.0
SO LOCATION FRAG14   AREA    536833    3927097      0.0
SO LOCATION FRAG15   AREA    533474    3925491      0.0
SO LOCATION FRAG16   AREA    538091    3927705      0.0
SO LOCATION FRAG17   AREA    543041    3930034      0.0
SO LOCATION FRAG18   AREA    536559    3926979      0.0
SO LOCATION FRAG19   AREA    542328    3929693      0.0
SO LOCATION FRAG20   AREA    532514    3925017      0.0
SO LOCATION FRAG21   AREA    536353    3926872      0.0
SO LOCATION FRAG22   AREA    545513    3931177      0.0
SO LOCATION FRAG23   AREA    537199    3927278      0.0
SO LOCATION FRAG24   AREA    535221    3926325      0.0
SO LOCATION FRAG25   AREA    532103    3924811      0.0

**
SO HOUREMIS  Emission95_38.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value       Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max95_38.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 97:54 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    536256    3926028       0.0
SO LOCATION FRAG2    AREA    535782    3925791       0.0
SO LOCATION FRAG3    AREA    542510    3929032       0.0
SO LOCATION FRAG4    AREA    549713    3932404       0.0
SO LOCATION FRAG5    AREA    543476    3929485       0.0
SO LOCATION FRAG6    AREA    541577    3928589       0.0
SO LOCATION FRAG7    AREA    541575    3928580       0.0
SO LOCATION FRAG8    AREA    534739    3925261       0.0
SO LOCATION FRAG9    AREA    541945    3928765       0.0
SO LOCATION FRAG10   AREA    545144    3930259       0.0
SO LOCATION FRAG11   AREA    541608    3928607       0.0
SO LOCATION FRAG12   AREA    535477    3925633       0.0
SO LOCATION FRAG13   AREA    539710    3927697       0.0
SO LOCATION FRAG14   AREA    547876    3931561       0.0
SO LOCATION FRAG15   AREA    549133    3932157       0.0
SO LOCATION FRAG16   AREA    543826    3929644       0.0
SO LOCATION FRAG17   AREA    537465    3926621       0.0
SO LOCATION FRAG18   AREA    542862    3929189       0.0
SO LOCATION FRAG19   AREA    538273    3927003       0.0
SO LOCATION FRAG20   AREA    535040    3925416       0.0
SO LOCATION FRAG21   AREA    538350    3927043       0.0
SO LOCATION FRAG22   AREA    538661    3927198       0.0
SO LOCATION FRAG23   AREA    539778    3927737       0.0
SO LOCATION FRAG24   AREA    537702    3926730       0.0
SO LOCATION FRAG25   AREA    541095    3928358       0.0

**
SO HOUREMIS  Emission97_54.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------   -------------------
      MAXIFILE              4         ALL      7460      Max97_54.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 100:12 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    552950    3932980      0.0
SO LOCATION FRAG2    AREA    542295    3927935      0.0
SO LOCATION FRAG3    AREA    542755    3928160      0.0
SO LOCATION FRAG4    AREA    541196    3927408      0.0
SO LOCATION FRAG5    AREA    540307    3926957      0.0
SO LOCATION FRAG6    AREA    545616    3929525      0.0
SO LOCATION FRAG7    AREA    541639    3927616      0.0
SO LOCATION FRAG8    AREA    540251    3926938      0.0
SO LOCATION FRAG9    AREA    549607    3931412      0.0
SO LOCATION FRAG10   AREA    546074    3929750      0.0
SO LOCATION FRAG11   AREA    543599    3928565      0.0
SO LOCATION FRAG12   AREA    543282    3928416      0.0
SO LOCATION FRAG13   AREA    541460    3927538      0.0
SO LOCATION FRAG14   AREA    539697    3926661      0.0
SO LOCATION FRAG15   AREA    559648    3936111      0.0
SO LOCATION FRAG16   AREA    544585    3929038      0.0
SO LOCATION FRAG17   AREA    542699    3928131      0.0
SO LOCATION FRAG18   AREA    543397    3928470      0.0
SO LOCATION FRAG19   AREA    550154    3931659      0.0
SO LOCATION FRAG20   AREA    546137    3929771      0.0
SO LOCATION FRAG21   AREA    554752    3933821      0.0
SO LOCATION FRAG22   AREA    541872    3927729      0.0
SO LOCATION FRAG23   AREA    538411    3925992      0.0
SO LOCATION FRAG24   AREA    542476    3928026      0.0
SO LOCATION FRAG25   AREA    552544    3932785      0.0

**
SO HOUREMIS  Emission100_12.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max100_12.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 101:1 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    548562    3930532      0.0
SO LOCATION FRAG2    AREA    547042    3929811      0.0
SO LOCATION FRAG3    AREA    555651    3933871      0.0
SO LOCATION FRAG4    AREA    542841    3927797      0.0
SO LOCATION FRAG5    AREA    541742    3927259      0.0
SO LOCATION FRAG6    AREA    544756    3928728      0.0
SO LOCATION FRAG7    AREA    542957    3927858      0.0
SO LOCATION FRAG8    AREA    557689    3934836      0.0
SO LOCATION FRAG9    AREA    542135    3927451      0.0
SO LOCATION FRAG10   AREA    541251    3927012      0.0
SO LOCATION FRAG11   AREA    568778    3940017      0.0
SO LOCATION FRAG12   AREA    552769    3932522      0.0
SO LOCATION FRAG13   AREA    545064    3928876      0.0
SO LOCATION FRAG14   AREA    544807    3928754      0.0
SO LOCATION FRAG15   AREA    541922    3927344      0.0
SO LOCATION FRAG16   AREA    543210    3927983      0.0
SO LOCATION FRAG17   AREA    561710    3936703      0.0
SO LOCATION FRAG18   AREA    542274    3927520      0.0
SO LOCATION FRAG19   AREA    543512    3928131      0.0
SO LOCATION FRAG20   AREA    543164    3927956      0.0
SO LOCATION FRAG21   AREA    547560    3930058      0.0
SO LOCATION FRAG22   AREA    559143    3935502      0.0
SO LOCATION FRAG23   AREA    544125    3928420      0.0
SO LOCATION FRAG24   AREA    545819    3929225      0.0
SO LOCATION FRAG25   AREA    548179    3930354      0.0

**
SO HOUREMIS  Emission101_1.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max101_1.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 103:09 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    548873    3929871      0.0
SO LOCATION FRAG2    AREA    545680    3928313      0.0
SO LOCATION FRAG3    AREA    551288    3931022      0.0
SO LOCATION FRAG4    AREA    551236    3931000      0.0
SO LOCATION FRAG5    AREA    547188    3929055      0.0
SO LOCATION FRAG6    AREA    551511    3931126      0.0
SO LOCATION FRAG7    AREA    552747    3931712      0.0
SO LOCATION FRAG8    AREA    554535    3932546      0.0
SO LOCATION FRAG9    AREA    547408    3929163      0.0
SO LOCATION FRAG10   AREA    549702    3930264      0.0
SO LOCATION FRAG11   AREA    570377    3939983      0.0
SO LOCATION FRAG12   AREA    557531    3933965      0.0
SO LOCATION FRAG13   AREA    548414    3929653      0.0
SO LOCATION FRAG14   AREA    548450    3929670      0.0
SO LOCATION FRAG15   AREA    546625    3928790      0.0
SO LOCATION FRAG16   AREA    555267    3932900      0.0
SO LOCATION FRAG17   AREA    545756    3928353      0.0
SO LOCATION FRAG18   AREA    548061    3929478      0.0
SO LOCATION FRAG19   AREA    563671    3936840      0.0
SO LOCATION FRAG20   AREA    552498    3931594      0.0
SO LOCATION FRAG21   AREA    548345    3929618      0.0
SO LOCATION FRAG22   AREA    576901    3942988      0.0
SO LOCATION FRAG23   AREA    549956    3930390      0.0
SO LOCATION FRAG24   AREA    554669    3932622      0.0
SO LOCATION FRAG25   AREA    553308    3931970      0.0

**
SO HOUREMIS  Emission103_09.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max103_09.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 103:84 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    549741    3929955     0.0
SO LOCATION FRAG2    AREA    550562    3930359     0.0
SO LOCATION FRAG3    AREA    557290    3933545     0.0
SO LOCATION FRAG4    AREA    551390    3930759     0.0
SO LOCATION FRAG5    AREA    549142    3929672     0.0
SO LOCATION FRAG6    AREA    562881    3936143     0.0
SO LOCATION FRAG7    AREA    555730    3932810     0.0
SO LOCATION FRAG8    AREA    564049    3936709     0.0
SO LOCATION FRAG9    AREA    552223    3931136     0.0
SO LOCATION FRAG10   AREA    555630    3932751     0.0
SO LOCATION FRAG11   AREA    550107    3930141     0.0
SO LOCATION FRAG12   AREA    551189    3930661     0.0
SO LOCATION FRAG13   AREA    552693    3931371     0.0
SO LOCATION FRAG14   AREA    546498    3928378     0.0
SO LOCATION FRAG15   AREA    549834    3930004     0.0
SO LOCATION FRAG16   AREA    550752    3930447     0.0
SO LOCATION FRAG17   AREA    548855    3929534     0.0
SO LOCATION FRAG18   AREA    552570    3931311     0.0
SO LOCATION FRAG19   AREA    550698    3930427     0.0
SO LOCATION FRAG20   AREA    549738    3929964     0.0
SO LOCATION FRAG21   AREA    562568    3936009     0.0
SO LOCATION FRAG22   AREA    550521    3930344     0.0
SO LOCATION FRAG23   AREA    555194    3932552     0.0
SO LOCATION FRAG24   AREA    550642    3930405     0.0
SO LOCATION FRAG25   AREA    551133    3930629     0.0

**
SO HOUREMIS  Emission103_84.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max103_84.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 105:64 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    560198    3934157      0.0
SO LOCATION FRAG2    AREA    549521    3929023      0.0
SO LOCATION FRAG3    AREA    558053    3933143      0.0
SO LOCATION FRAG4    AREA    577140    3942078      0.0
SO LOCATION FRAG5    AREA    569092    3938303      0.0
SO LOCATION FRAG6    AREA    552977    3930722      0.0
SO LOCATION FRAG7    AREA    556348    3932334      0.0
SO LOCATION FRAG8    AREA    552629    3930556      0.0
SO LOCATION FRAG9    AREA    556559    3932432      0.0
SO LOCATION FRAG10   AREA    551481    3929993      0.0
SO LOCATION FRAG11   AREA    551254    3929892      0.0
SO LOCATION FRAG12   AREA    568874    3938214      0.0
SO LOCATION FRAG13   AREA    570110    3938790      0.0
SO LOCATION FRAG14   AREA    552583    3930542      0.0
SO LOCATION FRAG15   AREA    554637    3931519      0.0
SO LOCATION FRAG16   AREA    552637    3930560      0.0
SO LOCATION FRAG17   AREA    583195    3944890      0.0
SO LOCATION FRAG18   AREA    556436    3932368      0.0
SO LOCATION FRAG19   AREA    554202    3931311      0.0
SO LOCATION FRAG20   AREA    552588    3930532      0.0
SO LOCATION FRAG21   AREA    549488    3929009      0.0
SO LOCATION FRAG22   AREA    570835    3939146      0.0
SO LOCATION FRAG23   AREA    558874    3933533      0.0
SO LOCATION FRAG24   AREA    552928    3930698      0.0
SO LOCATION FRAG25   AREA    567302    3937495      0.0

**
SO HOUREMIS  Emission105_64.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max105_64.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 106:48 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    559917    3933648     0.0
SO LOCATION FRAG2    AREA    556611    3932078     0.0
SO LOCATION FRAG3    AREA    551594    3929639     0.0
SO LOCATION FRAG4    AREA    550558    3929112     0.0
SO LOCATION FRAG5    AREA    563764    3935464     0.0
SO LOCATION FRAG6    AREA    563884    3935519     0.0
SO LOCATION FRAG7    AREA    555357    3931474     0.0
SO LOCATION FRAG8    AREA    561800    3934529     0.0
SO LOCATION FRAG9    AREA    553098    3930393     0.0
SO LOCATION FRAG10   AREA    552571    3930130     0.0
SO LOCATION FRAG11   AREA    553076    3930375     0.0
SO LOCATION FRAG12   AREA    551603    3929651     0.0
SO LOCATION FRAG13   AREA    564105    3935617     0.0
SO LOCATION FRAG14   AREA    559862    3933623     0.0
SO LOCATION FRAG15   AREA    554681    3931155     0.0
SO LOCATION FRAG16   AREA    565366    3936189     0.0
SO LOCATION FRAG17   AREA    553461    3930566     0.0
SO LOCATION FRAG18   AREA    560213    3933793     0.0
SO LOCATION FRAG19   AREA    559985    3933697     0.0
SO LOCATION FRAG20   AREA    572118    3939371     0.0
SO LOCATION FRAG21   AREA    554064    3930860     0.0
SO LOCATION FRAG22   AREA    553291    3930476     0.0
SO LOCATION FRAG23   AREA    558269    3932872     0.0
SO LOCATION FRAG24   AREA    559321    3933371     0.0
SO LOCATION FRAG25   AREA    556121    3931850     0.0


**
SO HOUREMIS  Emission106_48.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max106_48.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 107:35 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    552108    3929446      0.0
SO LOCATION FRAG2    AREA    554165    3930489      0.0
SO LOCATION FRAG3    AREA    561755    3934127      0.0
SO LOCATION FRAG4    AREA    563808    3935086      0.0
SO LOCATION FRAG5    AREA    567102    3936650      0.0
SO LOCATION FRAG6    AREA    556014    3931392      0.0
SO LOCATION FRAG7    AREA    567985    3937050      0.0
SO LOCATION FRAG8    AREA    557083    3931902      0.0
SO LOCATION FRAG9    AREA    553965    3930390      0.0
SO LOCATION FRAG10   AREA    560275    3933430      0.0
SO LOCATION FRAG11   AREA    552916    3929862      0.0
SO LOCATION FRAG12   AREA    571578    3938744      0.0
SO LOCATION FRAG13   AREA    563777    3935083      0.0
SO LOCATION FRAG14   AREA    554800    3930800      0.0
SO LOCATION FRAG15   AREA    555863    3931324      0.0
SO LOCATION FRAG16   AREA    555305    3931045      0.0
SO LOCATION FRAG17   AREA    554794    3930807      0.0
SO LOCATION FRAG18   AREA    565212    3935757      0.0
SO LOCATION FRAG19   AREA    557732    3932214      0.0
SO LOCATION FRAG20   AREA    559495    3933051      0.0
SO LOCATION FRAG21   AREA    557426    3932073      0.0
SO LOCATION FRAG22   AREA    555440    3931109      0.0
SO LOCATION FRAG23   AREA    556979    3931850      0.0
SO LOCATION FRAG24   AREA    559171    3932901      0.0
SO LOCATION FRAG25   AREA    568017    3937092      0.0

**
SO HOUREMIS  Emission107_35.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max107_35.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 109:18 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    576833    3940389      0.0
SO LOCATION FRAG2    AREA    574306    3939197      0.0
SO LOCATION FRAG3    AREA    567170    3935841      0.0
SO LOCATION FRAG4    AREA    563805    3934259      0.0
SO LOCATION FRAG5    AREA    562849    3933798      0.0
SO LOCATION FRAG6    AREA    569313    3936856      0.0
SO LOCATION FRAG7    AREA    559648    3932271      0.0
SO LOCATION FRAG8    AREA    559987    3932433      0.0
SO LOCATION FRAG9    AREA    557575    3931253      0.0
SO LOCATION FRAG10   AREA    559243    3932079      0.0
SO LOCATION FRAG11   AREA    578450    3941145      0.0
SO LOCATION FRAG12   AREA    564428    3934552      0.0
SO LOCATION FRAG13   AREA    563767    3934235      0.0
SO LOCATION FRAG14   AREA    567594    3936058      0.0
SO LOCATION FRAG15   AREA    572094    3938170      0.0
SO LOCATION FRAG16   AREA    559573    3932235      0.0
SO LOCATION FRAG17   AREA    559463    3932173      0.0
SO LOCATION FRAG18   AREA    563340    3934030      0.0
SO LOCATION FRAG19   AREA    562595    3933677      0.0
SO LOCATION FRAG20   AREA    567642    3936079      0.0
SO LOCATION FRAG21   AREA    558710    3931813      0.0
SO LOCATION FRAG22   AREA    562999    3933873      0.0
SO LOCATION FRAG23   AREA    560823    3932835      0.0
SO LOCATION FRAG24   AREA    565107    3934871      0.0
SO LOCATION FRAG25   AREA    561386    3933094      0.0

**
SO HOUREMIS  Emission109_18.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max109_18.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 111:15 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    561845    3932339     0.0
SO LOCATION FRAG2    AREA    564762    3933756     0.0
SO LOCATION FRAG3    AREA    561836    3932338     0.0
SO LOCATION FRAG4    AREA    568872    3935714     0.0
SO LOCATION FRAG5    AREA    562111    3932476     0.0
SO LOCATION FRAG6    AREA    577027    3939572     0.0
SO LOCATION FRAG7    AREA    561363    3932103     0.0
SO LOCATION FRAG8    AREA    565779    3934253     0.0
SO LOCATION FRAG9    AREA    576815    3939458     0.0
SO LOCATION FRAG10   AREA    559835    3931315     0.0
SO LOCATION FRAG11   AREA    565619    3934179     0.0
SO LOCATION FRAG12   AREA    585876    3943707     0.0
SO LOCATION FRAG13   AREA    569279    3935918     0.0
SO LOCATION FRAG14   AREA    568559    3935569     0.0
SO LOCATION FRAG15   AREA    572400    3937391     0.0
SO LOCATION FRAG16   AREA    567334    3934991     0.0
SO LOCATION FRAG17   AREA    564615    3933691     0.0
SO LOCATION FRAG18   AREA    563371    3933085     0.0
SO LOCATION FRAG19   AREA    574863    3938540     0.0
SO LOCATION FRAG20   AREA    564084    3933435     0.0
SO LOCATION FRAG21   AREA    561273    3932056     0.0
SO LOCATION FRAG22   AREA    567228    3934933     0.0
SO LOCATION FRAG23   AREA    582701    3942205     0.0
SO LOCATION FRAG24   AREA    566059    3934385     0.0
SO LOCATION FRAG25   AREA    572727    3937519     0.0


**
SO HOUREMIS  Emission111_15.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value       Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max111_15.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 113:57 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    571345    3935687      0.0
SO LOCATION FRAG2    AREA    572507    3936243      0.0
SO LOCATION FRAG3    AREA    572243    3936119      0.0
SO LOCATION FRAG4    AREA    581438    3940455      0.0
SO LOCATION FRAG5    AREA    569039    3934581      0.0
SO LOCATION FRAG6    AREA    571346    3935693      0.0
SO LOCATION FRAG7    AREA    568380    3934261      0.0
SO LOCATION FRAG8    AREA    573789    3936845      0.0
SO LOCATION FRAG9    AREA    587304    3943205      0.0
SO LOCATION FRAG10   AREA    579783    3939661      0.0
SO LOCATION FRAG11   AREA    571200    3935616      0.0
SO LOCATION FRAG12   AREA    580154    3939852      0.0
SO LOCATION FRAG13   AREA    570814    3935434      0.0
SO LOCATION FRAG14   AREA    571906    3935961      0.0
SO LOCATION FRAG15   AREA    567816    3933987      0.0
SO LOCATION FRAG16   AREA    569063    3934589      0.0
SO LOCATION FRAG17   AREA    577377    3938553      0.0
SO LOCATION FRAG18   AREA    570001    3935057      0.0
SO LOCATION FRAG19   AREA    575016    3937434      0.0
SO LOCATION FRAG20   AREA    603889    3950941      0.0
SO LOCATION FRAG21   AREA    572896    3936422      0.0
SO LOCATION FRAG22   AREA    574763    3937304      0.0
SO LOCATION FRAG23   AREA    567537    3933850      0.0
SO LOCATION FRAG24   AREA    596284    3947400      0.0
SO LOCATION FRAG25   AREA    569160    3934633      0.0

**
SO HOUREMIS  Emission113_57.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value       Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max113_57.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 116:22 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    580847    3938838       0.0
SO LOCATION FRAG2    AREA    610968    3952931       0.0
SO LOCATION FRAG3    AREA    571546    3934333       0.0
SO LOCATION FRAG4    AREA    581188    3938995       0.0
SO LOCATION FRAG5    AREA    572379    3934757       0.0
SO LOCATION FRAG6    AREA    576150    3936599       0.0
SO LOCATION FRAG7    AREA    577549    3937270       0.0
SO LOCATION FRAG8    AREA    582195    3939466       0.0
SO LOCATION FRAG9    AREA    576102    3936571       0.0
SO LOCATION FRAG10   AREA    583901    3940282       0.0
SO LOCATION FRAG11   AREA    584119    3940370       0.0
SO LOCATION FRAG12   AREA    575414    3936250       0.0
SO LOCATION FRAG13   AREA    573437    3935279       0.0
SO LOCATION FRAG14   AREA    629680    3961674       0.0
SO LOCATION FRAG15   AREA    571654    3934389       0.0
SO LOCATION FRAG16   AREA    606678    3950930       0.0
SO LOCATION FRAG17   AREA    595736    3945819       0.0
SO LOCATION FRAG18   AREA    582773    3939749       0.0
SO LOCATION FRAG19   AREA    597143    3946475       0.0
SO LOCATION FRAG20   AREA    576719    3936866       0.0
SO LOCATION FRAG21   AREA    577110    3937061       0.0
SO LOCATION FRAG22   AREA    576285    3936663       0.0
SO LOCATION FRAG23   AREA    573841    3935474       0.0
SO LOCATION FRAG24   AREA    573218    3935166       0.0
SO LOCATION FRAG25   AREA    586038    3941288       0.0

**
SO HOUREMIS  Emission116_22.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max116_22.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 116:66 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    573011    3934817      0.0
SO LOCATION FRAG2    AREA    576558    3936557      0.0
SO LOCATION FRAG3    AREA    578434    3937465      0.0
SO LOCATION FRAG4    AREA    580843    3938614      0.0
SO LOCATION FRAG5    AREA    577545    3937034      0.0
SO LOCATION FRAG6    AREA    575683    3936134      0.0
SO LOCATION FRAG7    AREA    576425    3936486      0.0
SO LOCATION FRAG8    AREA    588218    3942074      0.0
SO LOCATION FRAG9    AREA    578869    3937669      0.0
SO LOCATION FRAG10   AREA    575030    3935817      0.0
SO LOCATION FRAG11   AREA    578102    3937297      0.0
SO LOCATION FRAG12   AREA    582576    3939421      0.0
SO LOCATION FRAG13   AREA    589070    3942467      0.0
SO LOCATION FRAG14   AREA    576887    3936720      0.0
SO LOCATION FRAG15   AREA    589842    3942833      0.0
SO LOCATION FRAG16   AREA    585426    3940760      0.0
SO LOCATION FRAG17   AREA    576885    3936714      0.0
SO LOCATION FRAG18   AREA    573721    3935167      0.0
SO LOCATION FRAG19   AREA    580661    3938516      0.0
SO LOCATION FRAG20   AREA    577439    3936976      0.0
SO LOCATION FRAG21   AREA    575114    3935849      0.0
SO LOCATION FRAG22   AREA    574852    3935728      0.0
SO LOCATION FRAG23   AREA    575582    3936087      0.0
SO LOCATION FRAG24   AREA    573438    3935027      0.0
SO LOCATION FRAG25   AREA    576066    3936321      0.0

**
SO HOUREMIS  Emission116_66.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max116_66.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 118:95 seconds

CO STARTING
     ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    585222    3939450       0.0
SO LOCATION FRAG2    AREA    588275    3940903       0.0
SO LOCATION FRAG3    AREA    588108    3940822       0.0
SO LOCATION FRAG4    AREA    587696    3940630       0.0
SO LOCATION FRAG5    AREA    584009    3938879       0.0
SO LOCATION FRAG6    AREA    592829    3943039       0.0
SO LOCATION FRAG7    AREA    583215    3938502       0.0
SO LOCATION FRAG8    AREA    580719    3937298       0.0
SO LOCATION FRAG9    AREA    585728    3939691       0.0
SO LOCATION FRAG10  AREA    579637    3936764       0.0
SO LOCATION FRAG11  AREA    589329    3941405       0.0
SO LOCATION FRAG12  AREA    580391    3937139       0.0
SO LOCATION FRAG13  AREA    579103    3936498       0.0
SO LOCATION FRAG14  AREA    581076    3937474       0.0
SO LOCATION FRAG15  AREA    589173    3941328       0.0
SO LOCATION FRAG16  AREA    585232    3939463       0.0
SO LOCATION FRAG17  AREA    574830    3934187       0.0
SO LOCATION FRAG18  AREA    585153    3939419       0.0
SO LOCATION FRAG19  AREA    589835    3941642       0.0
SO LOCATION FRAG20  AREA    594627    3943895       0.0
SO LOCATION FRAG21  AREA    589217    3941341       0.0
SO LOCATION FRAG22  AREA    585000    3939349       0.0
SO LOCATION FRAG23  AREA    580300    3937095       0.0
SO LOCATION FRAG24  AREA    580122    3936997       0.0
SO LOCATION FRAG25  AREA    584611    3939168       0.0


**
SO HOUREMIS  Emission118_95.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
     ************
RE FINISHED

ME STARTING
     ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                      -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max118_95.OUT
```

```
OU FINISHED
AERMOD Input File - Breakup Time: 119:04 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**               ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   586520     3940030      0.0
SO LOCATION FRAG2    AREA   592182     3942692      0.0
SO LOCATION FRAG3    AREA   582759     3938228      0.0
SO LOCATION FRAG4    AREA   581580     3937666      0.0
SO LOCATION FRAG5    AREA   582935     3938316      0.0
SO LOCATION FRAG6    AREA   584506     3939067      0.0
SO LOCATION FRAG7    AREA   592832     3943014      0.0
SO LOCATION FRAG8    AREA   585729     3939657      0.0
SO LOCATION FRAG9    AREA   586392     3939968      0.0
SO LOCATION FRAG10   AREA   587714     3940594      0.0
SO LOCATION FRAG11   AREA   591137     3942204      0.0
SO LOCATION FRAG12   AREA   586699     3940115      0.0
SO LOCATION FRAG13   AREA   613640     3952734      0.0
SO LOCATION FRAG14   AREA   584871     3939240      0.0
SO LOCATION FRAG15   AREA   581191     3937475      0.0
SO LOCATION FRAG16   AREA   582097     3937916      0.0
SO LOCATION FRAG17   AREA   583481     3938577      0.0
SO LOCATION FRAG18   AREA   613884     3952868      0.0
SO LOCATION FRAG19   AREA   594627     3943847      0.0
SO LOCATION FRAG20   AREA   589029     3941232      0.0
SO LOCATION FRAG21   AREA   578507     3936150      0.0
SO LOCATION FRAG22   AREA   591931     3942580      0.0
SO LOCATION FRAG23   AREA   591825     3942538      0.0
SO LOCATION FRAG24   AREA   579009     3936401      0.0
SO LOCATION FRAG25   AREA   585231     3939415      0.0

**
SO HOUREMIS  Emission119_04.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max119_04.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 119:33 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    583678    3938514      0.0
SO LOCATION FRAG2    AREA    583868    3938605      0.0
SO LOCATION FRAG3    AREA    589523    3941293      0.0
SO LOCATION FRAG4    AREA    585600    3939424      0.0
SO LOCATION FRAG5    AREA    584546    3938928      0.0
SO LOCATION FRAG6    AREA    587268    3940224      0.0
SO LOCATION FRAG7    AREA    578330    3935877      0.0
SO LOCATION FRAG8    AREA    580177    3936809      0.0
SO LOCATION FRAG9    AREA    592556    3942718      0.0
SO LOCATION FRAG10   AREA    583174    3938268      0.0
SO LOCATION FRAG11   AREA    587767    3940462      0.0
SO LOCATION FRAG12   AREA    585883    3939558      0.0
SO LOCATION FRAG13   AREA    581812    3937608      0.0
SO LOCATION FRAG14   AREA    604177    3948159      0.0
SO LOCATION FRAG15   AREA    591441    3942189      0.0
SO LOCATION FRAG16   AREA    585720    3939486      0.0
SO LOCATION FRAG17   AREA    596954    3944800      0.0
SO LOCATION FRAG18   AREA    583056    3938222      0.0
SO LOCATION FRAG19   AREA    592358    3942618      0.0
SO LOCATION FRAG20   AREA    591448    3942193      0.0
SO LOCATION FRAG21   AREA    583401    3938375      0.0
SO LOCATION FRAG22   AREA    583858    3938599      0.0
SO LOCATION FRAG23   AREA    587199    3940196      0.0
SO LOCATION FRAG24   AREA    581406    3937414      0.0
SO LOCATION FRAG25   AREA    590350    3941675      0.0

**
SO HOUREMIS  Emission119_33.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max119_33.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 121:05 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    586880    3939084       0.0
SO LOCATION FRAG2    AREA    587102    3939193       0.0
SO LOCATION FRAG3    AREA    587535    3939403       0.0
SO LOCATION FRAG4    AREA    590647    3940886       0.0
SO LOCATION FRAG5    AREA    599934    3945264       0.0
SO LOCATION FRAG6    AREA    594382    3942659       0.0
SO LOCATION FRAG7    AREA    588818    3940015       0.0
SO LOCATION FRAG8    AREA    584959    3938155       0.0
SO LOCATION FRAG9    AREA    593346    3942170       0.0
SO LOCATION FRAG10   AREA    587374    3939327       0.0
SO LOCATION FRAG11   AREA    590872    3940987       0.0
SO LOCATION FRAG12   AREA    613185    3951467       0.0
SO LOCATION FRAG13   AREA    606180    3948185       0.0
SO LOCATION FRAG14   AREA    587428    3939353       0.0
SO LOCATION FRAG15   AREA    591718    3941394       0.0
SO LOCATION FRAG16   AREA    588361    3939796       0.0
SO LOCATION FRAG17   AREA    597391    3944065       0.0
SO LOCATION FRAG18   AREA    586599    3938957       0.0
SO LOCATION FRAG19   AREA    584804    3938081       0.0
SO LOCATION FRAG20   AREA    597625    3944173       0.0
SO LOCATION FRAG21   AREA    588274    3939760       0.0
SO LOCATION FRAG22   AREA    585172    3938258       0.0
SO LOCATION FRAG23   AREA    604750    3947506       0.0
SO LOCATION FRAG24   AREA    588665    3939945       0.0
SO LOCATION FRAG25   AREA    585754    3938541       0.0

**
SO HOUREMIS  Emission121_05.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                     -----------  ---------  ---------   -------------------
      MAXIFILE              4         ALL      7460      Max121_05.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 122:05 seconds

CO STARTING
      ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)         y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA   594447     3942141     0.0
SO LOCATION FRAG2    AREA   593540     3941702     0.0
SO LOCATION FRAG3    AREA   588219     3939158     0.0
SO LOCATION FRAG4    AREA   595004     3942412     0.0
SO LOCATION FRAG5    AREA   585840     3937991     0.0
SO LOCATION FRAG6    AREA   609049     3948990     0.0
SO LOCATION FRAG7    AREA   591579     3940778     0.0
SO LOCATION FRAG8    AREA   588157     3939124     0.0
SO LOCATION FRAG9    AREA   586990     3938567     0.0
SO LOCATION FRAG10   AREA   592127     3941040     0.0
SO LOCATION FRAG11   AREA   587206     3938662     0.0
SO LOCATION FRAG12   AREA   591241     3940608     0.0
SO LOCATION FRAG13   AREA   588770     3939430     0.0
SO LOCATION FRAG14   AREA   589980     3940010     0.0
SO LOCATION FRAG15   AREA   591576     3940785     0.0
SO LOCATION FRAG16   AREA   592756     3941352     0.0
SO LOCATION FRAG17   AREA   592404     3941166     0.0
SO LOCATION FRAG18   AREA   623365     3955681     0.0
SO LOCATION FRAG19   AREA   588708     3939409     0.0
SO LOCATION FRAG20   AREA   590191     3940112     0.0
SO LOCATION FRAG21   AREA   608635     3948803     0.0
SO LOCATION FRAG22   AREA   599367     3944472     0.0
SO LOCATION FRAG23   AREA   599849     3944689     0.0
SO LOCATION FRAG24   AREA   590973     3940488     0.0
SO LOCATION FRAG25   AREA   597908     3943767     0.0

**
SO HOUREMIS  Emission122_05.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
      ************
RE FINISHED

ME STARTING
      ************
ME FINISHED

OU STARTING
**     Parameters:        Period    Source   Value        Filename
**                       -----------  ----------  ---------    -------------------
       MAXIFILE              4         ALL      7460       Max122_05.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 124:36 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                 SrcID     Type       x(m)        y(m)        z(m)
**                ----------  ---------  -----------  -------------  ---------
SO LOCATION FRAG1    AREA    595032    3941119      0.0
SO LOCATION FRAG2    AREA    592655    3939963      0.0
SO LOCATION FRAG3    AREA    604990    3945856      0.0
SO LOCATION FRAG4    AREA    640395    3962421      0.0
SO LOCATION FRAG5    AREA    601967    3944423      0.0
SO LOCATION FRAG6    AREA    595527    3941355      0.0
SO LOCATION FRAG7    AREA    599530    3943271      0.0
SO LOCATION FRAG8    AREA    602264    3944562      0.0
SO LOCATION FRAG9    AREA    595001    3941107      0.0
SO LOCATION FRAG10   AREA    599832    3943409      0.0
SO LOCATION FRAG11   AREA    591984    3939630      0.0
SO LOCATION FRAG12   AREA    606904    3946746      0.0
SO LOCATION FRAG13   AREA    596913    3942024      0.0
SO LOCATION FRAG14   AREA    605024    3945860      0.0
SO LOCATION FRAG15   AREA    601041    3943984      0.0
SO LOCATION FRAG16   AREA    598224    3942648      0.0
SO LOCATION FRAG17   AREA    602383    3944617      0.0
SO LOCATION FRAG18   AREA    592293    3939780      0.0
SO LOCATION FRAG19   AREA    595100    3941151      0.0
SO LOCATION FRAG20   AREA    602464    3944665      0.0
SO LOCATION FRAG21   AREA    592829    3940050      0.0
SO LOCATION FRAG22   AREA    599632    3943311      0.0
SO LOCATION FRAG23   AREA    598146    3942621      0.0
SO LOCATION FRAG24   AREA    608462    3947462      0.0
SO LOCATION FRAG25   AREA    603813    3945291      0.0

**
SO HOUREMIS  Emission124_36.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source   Value       Filename
**                      -----------  ----------  ---------    -------------------
      MAXIFILE              4         ALL      7460       Max124_36.OUT

OU FINISHED
```

```
AERMOD Input File - Breakup Time: 124:59 seconds

CO STARTING
   ************
CO FINISHED

SO STARTING
**                SrcID     Type       x(m)        y(m)        z(m)
**              ----------  ---------  ----------  ----------  ---------
SO LOCATION FRAG1    AREA    599704    3943218       0.0
SO LOCATION FRAG2    AREA    623384    3954339       0.0
SO LOCATION FRAG3    AREA    599591    3943174       0.0
SO LOCATION FRAG4    AREA    599041    3942896       0.0
SO LOCATION FRAG5    AREA    597636    3942232       0.0
SO LOCATION FRAG6    AREA    602213    3944413       0.0
SO LOCATION FRAG7    AREA    602325    3944475       0.0
SO LOCATION FRAG8    AREA    617650    3951647       0.0
SO LOCATION FRAG9    AREA    597277    3942068       0.0
SO LOCATION FRAG10   AREA    598439    3942628       0.0
SO LOCATION FRAG11   AREA    598729    3942764       0.0
SO LOCATION FRAG12   AREA    609207    3947721       0.0
SO LOCATION FRAG13   AREA    617122    3951399       0.0
SO LOCATION FRAG14   AREA    599317    3943039       0.0
SO LOCATION FRAG15   AREA    599293    3943027       0.0
SO LOCATION FRAG16   AREA    595179    3941065       0.0
SO LOCATION FRAG17   AREA    600881    3943792       0.0
SO LOCATION FRAG18   AREA    626994    3956041       0.0
SO LOCATION FRAG19   AREA    602634    3944616       0.0
SO LOCATION FRAG20   AREA    601505    3944070       0.0
SO LOCATION FRAG21   AREA    622758    3954050       0.0
SO LOCATION FRAG22   AREA    599071    3942934       0.0
SO LOCATION FRAG23   AREA    601236    3943950       0.0
SO LOCATION FRAG24   AREA    603350    3944949       0.0
SO LOCATION FRAG25   AREA    598790    3942780       0.0
**
SO HOUREMIS  Emission124_59.SRC FRAG1-FRAG25

SO SRCPARAM FRAG1-FRAG25     29.77    0.0     18.11
SO FINISHED

RE STARTING
   ************
RE FINISHED

ME STARTING
   ************
ME FINISHED

OU STARTING
**    Parameters:        Period    Source    Value       Filename
**                     -----------  ----------  ---------   -------------------
      MAXIFILE              4         ALL      7460      Max124_59.OUT

OU FINISHED
```

## C.2 Emission Rates Files

| Emission Rate File | Emission Rate ($g/s\text{-}m^2$) | Emission Rate File | Emission Rate ($g/s\text{-}m^2$) |
|---|---|---|---|
| Emission9_32.SRC | 37.308 | Emission64_02.SRC | 21.801 |
| Emission9_77.SRC | 37.181 | Emission65_19.SRC | 21.469 |
| Emission16_03.SRC | 35.406 | Emission68_33.SRC | 20.579 |
| Emission19_21.SRC | 34.504 | Emission68_95.SRC | 20.403 |
| Emission20_99.SRC | 34.000 | Emission69_78.SRC | 20.168 |
| Emission21_03.SRC | 33.988 | Emission70_74.SRC | 19.896 |
| Emission21_81.SRC | 33.767 | Emission71_63.SRC | 19.643 |
| Emission22_49.SRC | 33.575 | Emission74_33.SRC | 18.878 |
| Emission25_50.SRC | 32.721 | Emission74_44.SRC | 18.847 |
| Emission27_62.SRC | 32.120 | Emission75_00.SRC | 18.688 |
| Emission27_98.SRC | 32.018 | Emission75_88.SRC | 18.438 |
| Emission28_03.SRC | 32.004 | Emission76_86.SRC | 18.161 |
| Emission28_64.SRC | 31.831 | Emission80_44.SRC | 17.146 |
| Emission28_71.SRC | 31.811 | Emission80_64.SRC | 17.089 |
| Emission29_20.SRC | 31.672 | Emission80_73.SRC | 17.063 |
| Emission29_92.SRC | 31.468 | Emission80_78.SRC | 17.048 |
| Emission29_94.SRC | 31.462 | Emission81_13.SRC | 16.950 |
| Emission30_70.SRC | 31.247 | Emission81_16.SRC | 16.941 |
| Emission31_97.SRC | 30.887 | Emission83_80.SRC | 16.193 |
| Emission32_97.SRC | 30.603 | Emission86_78.SRC | 15.348 |
| Emission33_92.SRC | 30.334 | Emission90_43.SRC | 14.313 |
| Emission35_26.SRC | 29.954 | Emission91_18.SRC | 14.101 |
| Emission35_55.SRC | 29.872 | Emission92_15.SRC | 13.826 |
| Emission36_41.SRC | 29.628 | Emission95_38.SRC | 12.910 |
| Emission36_56.SRC | 29.586 | Emission97_54.SRC | 12.298 |
| Emission36_65.SRC | 29.560 | Emission100_12.SRC | 11.566 |
| Emission36_68.SRC | 29.552 | Emission101_10.SRC | 11.288 |
| Emission37_32.SRC | 29.370 | Emission103_09.SRC | 10.724 |
| Emission37_37.SRC | 29.356 | Emission103_84.SRC | 10.512 |
| Emission38_06.SRC | 29.163 | Emission105_64.SRC | 10.001 |
| Emission43_07.SRC | 27.740 | Emission106_48.SRC | 9.763 |
| Emission44_92.SRC | 27.216 | Emission107_35.SRC | 9.517 |
| Emission45_31.SRC | 27.105 | Emission109_18.SRC | 8.998 |
| Emission46_11.SRC | 26.878 | Emission111_15.SRC | 8.439 |
| Emission46_38.SRC | 26.802 | Emission113_57.SRC | 7.753 |
| Emission51_98.SRC | 25.214 | Emission116_22.SRC | 7.002 |
| Emission52_91.SRC | 24.950 | Emission116_66.SRC | 6.877 |
| Emission53_20.SRC | 24.868 | Emission118_95.SRC | 6.228 |
| Emission55_44.SRC | 24.233 | Emission119_04.SRC | 6.202 |
| Emission56_36.SRC | 23.972 | Emission119_33.SRC | 6.120 |
| Emission57_48.SRC | 23.655 | Emission121_05.SRC | 5.633 |
| Emission58_30.SRC | 23.422 | Emission122_05.SRC | 5.349 |
| Emission62_92.SRC | 22.113 | Emission124_36.SRC | 4.694 |

| | | | |
|---|---|---|---|
| Emission63_81.SRC | 21.860 | Emission124_59.SRC | 4.629 |

## C.3 Gas Modeling Outputs (AERMOD)

The illustration below describes the AERMOD outputs files shown in this appendix.

**X:** x - coordinate of receptor in UTM-14N coordinates (unit: meters)

**Y:** y - coordinate of receptor in UTM-14N coordinates (unit: meters)

**ZELEV, ZHILL:** Terrain elevation based on terrain elevation DEM 7.5. files (unit: meters)

**AVERAGE CONC:** Average HCl concentration (unit: $10^{-3}$ mg/m$^3$)

**Threshold:** 7460 μg/m$^3$

Max9_32.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  472000.00000 3904840.00000  546.00  546.00    0.00    8628.63965
   4 ALL      89031512  472720.00000 3905520.00000  549.00  549.00    0.00    9496.31641
   4 ALL      89031512  473440.00000 3906200.00000  537.00  537.00    0.00    9008.83984
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    8222.59863
   4 ALL      89031512  474880.00000 3906880.00000  566.00  566.00    0.00   12082.45312
   4 ALL      89031512  475600.00000 3907560.00000  574.00  574.00    0.00   15648.18262
   4 ALL      89031512  476320.00000 3908240.00000  584.00  584.00    0.00   15755.75391
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00    8586.60059
   4 ALL      89031512  477040.00000 3908920.00000  586.00  586.00    0.00    9666.46094
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   19060.36719
   4 ALL      89031512  478480.00000 3909600.00000  593.00  593.00    0.00   38149.47656
   4 ALL      89031512  479200.00000 3910280.00000  592.00  592.00    0.00   48757.37500
```

Max9_77.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  472000.00000 3904840.00000  546.00  546.00    0.00    8609.07910
   4 ALL      89031512  472720.00000 3905520.00000  549.00  549.00    0.00    9468.98340
   4 ALL      89031512  473440.00000 3906200.00000  537.00  537.00    0.00    8981.61426
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    8207.35449
   4 ALL      89031512  474880.00000 3906880.00000  566.00  566.00    0.00   12078.05957
   4 ALL      89031512  475600.00000 3907560.00000  574.00  574.00    0.00   15638.56738
   4 ALL      89031512  476320.00000 3908240.00000  584.00  584.00    0.00   15788.01953
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00    8490.72949
   4 ALL      89031512  477040.00000 3908920.00000  586.00  586.00    0.00    9691.49902
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   18983.64062
   4 ALL      89031512  478480.00000 3909600.00000  593.00  593.00    0.00   38220.60547
   4 ALL      89031512  479200.00000 3910280.00000  592.00  592.00    0.00   49112.38672
```

Max16_03.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  472000.00000 3904840.00000  546.00  546.00    0.00    8136.92188
   4 ALL      89031512  472720.00000 3905520.00000  549.00  549.00    0.00    7959.20557
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    9346.22949
   4 ALL      89031512  474880.00000 3906880.00000  566.00  566.00    0.00   11876.64062
   4 ALL      89031512  475600.00000 3907560.00000  574.00  574.00    0.00   12726.30176
   4 ALL      89031512  476320.00000 3908240.00000  584.00  584.00    0.00    9964.74121
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00   13385.56738
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   23190.35938
   4 ALL      89031512  478480.00000 3909600.00000  593.00  593.00    0.00   29570.64062
   4 ALL      89031512  479200.00000 3910280.00000  592.00  592.00    0.00   15702.65723
   4 ALL      89031512  479920.00000 3910280.00000  589.00  589.00    0.00    8868.23535
   4 ALL      89031512  480640.00000 3910960.00000  588.00  588.00    0.00   88687.38281
```

Max19_21.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 473440.00000 | 3905520.00000 | 537.00 | 537.00 | 0.00 | 7736.73975 |
| 4 | ALL | 89031512 | 474160.00000 | 3906200.00000 | 552.00 | 552.00 | 0.00 | 9642.64160 |
| 4 | ALL | 89031512 | 474880.00000 | 3906880.00000 | 566.00 | 566.00 | 0.00 | 10559.09961 |
| 4 | ALL | 89031512 | 475600.00000 | 3907560.00000 | 574.00 | 574.00 | 0.00 | 9357.22363 |
| 4 | ALL | 89031512 | 476320.00000 | 3907560.00000 | 580.00 | 580.00 | 0.00 | 10014.16797 |
| 4 | ALL | 89031512 | 477040.00000 | 3908240.00000 | 582.00 | 582.00 | 0.00 | 16091.07422 |
| 4 | ALL | 89031512 | 477760.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 21179.25977 |
| 4 | ALL | 89031512 | 478480.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 17394.37305 |
| 4 | ALL | 89031512 | 479200.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 8792.09473 |
| 4 | ALL | 89031512 | 479920.00000 | 3910280.00000 | 589.00 | 589.00 | 0.00 | 32499.16211 |
| 4 | ALL | 89031512 | 480640.00000 | 3910960.00000 | 588.00 | 588.00 | 0.00 | 176756.60938 |

Max20_99.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 473440.00000 | 3905520.00000 | 537.00 | 537.00 | 0.00 | 8165.18701 |
| 4 | ALL | 89031512 | 474160.00000 | 3906200.00000 | 552.00 | 552.00 | 0.00 | 9205.75684 |
| 4 | ALL | 89031512 | 474880.00000 | 3906880.00000 | 566.00 | 566.00 | 0.00 | 8951.89160 |
| 4 | ALL | 89031512 | 475600.00000 | 3906880.00000 | 571.00 | 571.00 | 0.00 | 7501.62354 |
| 4 | ALL | 89031512 | 476320.00000 | 3907560.00000 | 580.00 | 580.00 | 0.00 | 11671.89355 |
| 4 | ALL | 89031512 | 477040.00000 | 3908240.00000 | 582.00 | 582.00 | 0.00 | 16050.12598 |
| 4 | ALL | 89031512 | 477760.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 16819.25977 |
| 4 | ALL | 89031512 | 478480.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 9758.92773 |
| 4 | ALL | 89031512 | 479200.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 16862.87109 |
| 4 | ALL | 89031512 | 479920.00000 | 3910280.00000 | 589.00 | 589.00 | 0.00 | 44974.26953 |
| 4 | ALL | 89031512 | 480640.00000 | 3910960.00000 | 588.00 | 588.00 | 0.00 | 94429.75000 |
| 4 | ALL | 89031512 | 482080.00000 | 3911640.00000 | 582.00 | 582.00 | 0.00 | 12756.95020 |

Max21_03.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  473440.00000 3905520.00000  537.00  537.00    0.00    8163.05664
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    9122.82227
   4 ALL      89031512  474880.00000 3906880.00000  566.00  566.00    0.00    8720.32715
   4 ALL      89031512  475600.00000 3906880.00000  571.00  571.00    0.00    7741.27002
   4 ALL      89031512  476320.00000 3907560.00000  580.00  580.00    0.00   11804.63184
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00   15847.28027
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   16156.58105
   4 ALL      89031512  478480.00000 3909600.00000  593.00  593.00    0.00    9072.19336
   4 ALL      89031512  479200.00000 3909600.00000  593.00  593.00    0.00   17891.51758
   4 ALL      89031512  479920.00000 3910280.00000  589.00  589.00    0.00   44606.32812
   4 ALL      89031512  480640.00000 3910960.00000  588.00  588.00    0.00   83344.60156
   4 ALL      89031512  482080.00000 3911640.00000  582.00  582.00    0.00   12525.77441
```

Max21_81.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  473440.00000 3905520.00000  537.00  537.00    0.00    8210.54785
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    8751.92676
   4 ALL      89031512  474880.00000 3906880.00000  566.00  566.00    0.00    7918.69287
   4 ALL      89031512  475600.00000 3906880.00000  571.00  571.00    0.00    8436.16016
   4 ALL      89031512  476320.00000 3907560.00000  580.00  580.00    0.00   12216.75684
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00   15215.53906
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   13952.61621
   4 ALL      89031512  478480.00000 3908920.00000  594.00  594.00    0.00    9566.87402
   4 ALL      89031512  479200.00000 3909600.00000  593.00  593.00    0.00   21281.27148
   4 ALL      89031512  479920.00000 3910280.00000  589.00  589.00    0.00   44503.98047
   4 ALL      89031512  480640.00000 3910960.00000  588.00  588.00    0.00   52314.11328
   4 ALL      89031512  482080.00000 3911640.00000  582.00  582.00    0.00   27143.64062
```

Max22_49.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  473440.00000 3905520.00000  537.00  537.00    0.00    8103.93604
   4 ALL      89031512  474160.00000 3906200.00000  552.00  552.00    0.00    8274.24902
   4 ALL      89031512  475600.00000 3906880.00000  571.00  571.00    0.00    8993.79199
   4 ALL      89031512  476320.00000 3907560.00000  580.00  580.00    0.00   12279.39355
   4 ALL      89031512  477040.00000 3908240.00000  582.00  582.00    0.00   14184.17285
   4 ALL      89031512  477760.00000 3908920.00000  590.00  590.00    0.00   11691.27832
   4 ALL      89031512  478480.00000 3908920.00000  594.00  594.00    0.00   11661.11035
   4 ALL      89031512  479200.00000 3909600.00000  593.00  593.00    0.00   23504.38086
   4 ALL      89031512  479920.00000 3910280.00000  589.00  589.00    0.00   40703.52734
   4 ALL      89031512  480640.00000 3910960.00000  588.00  588.00    0.00   29790.34570
   4 ALL      89031512  482080.00000 3911640.00000  582.00  582.00    0.00   52377.89453
```

Max25_50.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 474880.00000 | 3906200.00000 | 558.00 | 558.00 | 0.00 | 8188.43604 |
| 4 | ALL | 89031512 | 475600.00000 | 3906880.00000 | 571.00 | 571.00 | 0.00 | 9748.37598 |
| 4 | ALL | 89031512 | 476320.00000 | 3907560.00000 | 580.00 | 580.00 | 0.00 | 9909.93066 |
| 4 | ALL | 89031512 | 477040.00000 | 3908240.00000 | 582.00 | 582.00 | 0.00 | 7764.95312 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 11821.20605 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 17796.76367 |
| 4 | ALL | 89031512 | 479200.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 20453.54102 |
| 4 | ALL | 89031512 | 479920.00000 | 3910280.00000 | 589.00 | 589.00 | 0.00 | 12214.47363 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 14487.11426 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 59324.53516 |
| 4 | ALL | 89031512 | 482080.00000 | 3911640.00000 | 582.00 | 582.00 | 0.00 | 617165.43750 |

Max27_62.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 474880.00000 | 3906200.00000 | 558.00 | 558.00 | 0.00 | 8076.13330 |
| 4 | ALL | 89031512 | 475600.00000 | 3906880.00000 | 571.00 | 571.00 | 0.00 | 7760.97803 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 10083.82910 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 13160.59375 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 13728.79688 |
| 4 | ALL | 89031512 | 479200.00000 | 3909600.00000 | 593.00 | 593.00 | 0.00 | 9011.75879 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 15122.21875 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 30656.07031 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 50667.71484 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 11244.98340 |
| 4 | ALL | 89031512 | 483520.00000 | 3912320.00000 | 583.00 | 583.00 | 0.00 | 13843.92578 |

Max27_98.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 7750.46533 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 10225.68652 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 11774.05176 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 10510.34570 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9949.17871 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 17825.64258 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 27597.68555 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 28022.23242 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 7834.00586 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 38664.09375 |

Max28_03.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 7620.97900 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 10097.21777 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 11778.79004 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 10726.16992 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9565.57129 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 17203.92188 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 27882.68750 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 30068.24219 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 7971.60938 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 27311.43164 |

Max28_64.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 7875.10303 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 9640.79980 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10090.31152 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 7972.88232 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 11314.65332 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 17946.76758 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 22955.18750 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 15909.60449 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 13839.23340 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 62812.70703 |

Max28_71.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 8165.28760 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 10217.20898 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10902.23340 |
| 4 | ALL | 89031512 | 478480.00000 | 3908920.00000 | 594.00 | 594.00 | 0.00 | 8665.53418 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 11536.82812 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 19327.72852 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 25469.85938 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 16292.85254 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 10675.59863 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 67791.17969 |

Max29_20.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 8482.03613 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 10128.10352 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10155.59570 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 12733.97363 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 19765.56836 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 22830.43945 |
| 4 | ALL | 89031512 | 481360.00000 | 3910960.00000 | 584.00 | 584.00 | 0.00 | 10859.79395 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 15529.92188 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 86872.19531 |

Max29_92.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 8289.69824 |
| 4 | ALL | 89031512 | 477040.00000 | 3907560.00000 | 584.00 | 584.00 | 0.00 | 8949.52344 |
| 4 | ALL | 89031512 | 477760.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 7965.07861 |
| 4 | ALL | 89031512 | 478480.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 8731.33496 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 13373.07031 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 17710.70898 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 15678.22754 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 8555.60547 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 24224.45117 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 141014.23438 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 21105.03320 |

Max31_97.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 477760.00000 | 3907560.00000 | 586.00 | 586.00 | 0.00 | 8734.81738 |
| 4 | ALL | 89031512 | 478480.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10511.54395 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10420.19238 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 7720.55518 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 13579.24219 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 21805.84961 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 27247.05273 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 9831.54492 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 19394.03516 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 201498.14062 |

Max30_70.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 476320.00000 | 3906880.00000 | 581.00 | 581.00 | 0.00 | 7794.71484 |
| 4 | ALL | 89031512 | 478480.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10156.29688 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 13477.19629 |
| 4 | ALL | 89031512 | 479920.00000 | 3909600.00000 | 591.00 | 591.00 | 0.00 | 13816.11328 |
| 4 | ALL | 89031512 | 480640.00000 | 3910280.00000 | 588.00 | 588.00 | 0.00 | 7832.27539 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 15167.24902 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 38330.12891 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 90957.42969 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 21160.47461 |
| 4 | ALL | 89031512 | 487120.00000 | 3913680.00000 | 547.00 | 547.00 | 0.00 | 11417.74316 |

Max31_97.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 477760.00000 | 3907560.00000 | 586.00 | 586.00 | 0.00 | 8734.81738 |
| 4 | ALL | 89031512 | 478480.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 10511.54395 |
| 4 | ALL | 89031512 | 479200.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10420.19238 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 7720.55518 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 13579.24219 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 21805.84961 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 27247.05273 |
| 4 | ALL | 89031512 | 482800.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 9831.54492 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 19394.03516 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 201498.14062 |

Max32_97.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 477040.00000 | 3906880.00000 | 582.00 | 582.00 | 0.00 | 7500.49609 |
| 4 | ALL | 89031512 | 477760.00000 | 3907560.00000 | 586.00 | 586.00 | 0.00 | 8865.92676 |
| 4 | ALL | 89031512 | 478480.00000 | 3908240.00000 | 591.00 | 591.00 | 0.00 | 9087.97363 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10600.39746 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 15879.18750 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 19058.54688 |
| 4 | ALL | 89031512 | 482080.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 12560.18066 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 12622.55078 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 44797.56250 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 1144046.37500 |
| 4 | ALL | 89031512 | 485680.00000 | 3913000.00000 | 564.00 | 564.00 | 0.00 | 289259.28125 |

Max33_92.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 7707.29639 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10703.69922 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 13343.71973 |
| 4 | ALL | 89031512 | 481360.00000 | 3910280.00000 | 585.00 | 585.00 | 0.00 | 12157.14453 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 8821.35156 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 17989.09570 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 59024.39453 |
| 4 | ALL | 89031512 | 484240.00000 | 3912320.00000 | 577.00 | 577.00 | 0.00 | 180969.23438 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 12626.48438 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 9011.85840 |
| 4 | ALL | 89031512 | 487120.00000 | 3913680.00000 | 547.00 | 547.00 | 0.00 | 49922.23828 |

Max35_26.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 8989.64258 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10275.17480 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 9129.51660 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 8910.01074 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 15687.79980 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 25511.60156 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 28598.42188 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 37828.30859 |

Max35_55.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 478480.00000 | 3907560.00000 | 588.00 | 588.00 | 0.00 | 7583.84814 |
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 9800.64160 |
| 4 | ALL | 89031512 | 479920.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10832.78320 |
| 4 | ALL | 89031512 | 480640.00000 | 3909600.00000 | 588.00 | 588.00 | 0.00 | 8881.10059 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 10346.25488 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 18530.94727 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 27349.78125 |
| 4 | ALL | 89031512 | 483520.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 20414.51758 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 61524.91797 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 9768.58691 |

Max36_41.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 478480.00000 | 3907560.00000 | 588.00 | 588.00 | 0.00 | 7791.67578 |
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 7922.83984 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9175.57129 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 13082.32129 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 15499.56543 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 11391.13770 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 11429.25098 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 29589.46289 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 158490.89062 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 25771.14062 |

Max36_56.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 478480.00000 | 3907560.00000 | 588.00 | 588.00 | 0.00 | 8003.85303 |
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 7948.57764 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9755.94629 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 13637.50781 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 15417.58984 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 10635.18457 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 13577.03613 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 33871.09766 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 134939.17188 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 32597.97852 |

Max36_65.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9633.69824 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 12287.86328 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 12482.55176 |
| 4 | ALL | 89031512 | 482800.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 7914.07227 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 14778.60645 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 32772.86328 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 100319.38281 |
| 4 | ALL | 89031512 | 485680.00000 | 3912320.00000 | 568.00 | 568.00 | 0.00 | 9377.73047 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 52548.45703 |
| 4 | ALL | 89031512 | 487840.00000 | 3913680.00000 | 540.00 | 540.00 | 0.00 | 9182.10059 |

Max36_68.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 478480.00000 | 3907560.00000 | 588.00 | 588.00 | 0.00 | 7800.75977 |
| 4 | ALL | 89031512 | 479200.00000 | 3908240.00000 | 588.00 | 588.00 | 0.00 | 7504.97314 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9959.34180 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 13431.79688 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 14304.36426 |
| 4 | ALL | 89031512 | 482800.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 8758.70215 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 14711.37891 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 36087.62109 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 130442.62500 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 23183.56445 |

Max37_32.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 478480.00000 | 3907560.00000 | 588.00 | 588.00 | 0.00 | 7473.42334 |
| 4 | ALL | 89031512 | 479920.00000 | 3908240.00000 | 589.00 | 589.00 | 0.00 | 7513.42578 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10640.55957 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 13104.28809 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 11958.19238 |
| 4 | ALL | 89031512 | 482800.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 8969.24316 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 18633.21289 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 41290.94141 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 103028.80469 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 59322.83203 |
| 4 | ALL | 89031512 | 487840.00000 | 3913680.00000 | 540.00 | 540.00 | 0.00 | 18972.95117 |

Max37_37.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 479920.00000 | 3908240.00000 | 589.00 | 589.00 | 0.00 | 7747.30029 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 10651.44922 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 12669.91309 |
| 4 | ALL | 89031512 | 482080.00000 | 3910280.00000 | 581.00 | 581.00 | 0.00 | 11114.53027 |
| 4 | ALL | 89031512 | 482800.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 10029.19824 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 19493.69336 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 38471.28516 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 79599.77344 |
| 4 | ALL | 89031512 | 485680.00000 | 3912320.00000 | 568.00 | 568.00 | 0.00 | 9740.81250 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 118122.44531 |

Max38_06.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 479920.00000 | 3908240.00000 | 589.00 | 589.00 | 0.00 | 7822.38867 |
| 4 | ALL | 89031512 | 480640.00000 | 3908920.00000 | 590.00 | 590.00 | 0.00 | 9333.54590 |
| 4 | ALL | 89031512 | 481360.00000 | 3909600.00000 | 584.00 | 584.00 | 0.00 | 9457.12695 |
| 4 | ALL | 89031512 | 482800.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 11837.05762 |
| 4 | ALL | 89031512 | 483520.00000 | 3910960.00000 | 581.00 | 581.00 | 0.00 | 18880.37695 |
| 4 | ALL | 89031512 | 484240.00000 | 3911640.00000 | 581.00 | 581.00 | 0.00 | 28334.01367 |
| 4 | ALL | 89031512 | 484960.00000 | 3912320.00000 | 573.00 | 573.00 | 0.00 | 17578.58594 |
| 4 | ALL | 89031512 | 485680.00000 | 3912320.00000 | 568.00 | 568.00 | 0.00 | 19338.39844 |
| 4 | ALL | 89031512 | 486400.00000 | 3913000.00000 | 555.00 | 555.00 | 0.00 | 148230.29688 |
| 4 | ALL | 89031512 | 487840.00000 | 3913680.00000 | 540.00 | 540.00 | 0.00 | 125113.36719 |
| 4 | ALL | 89031512 | 490720.00000 | 3915040.00000 | 513.00 | 513.00 | 0.00 | 8830.68262 |

Max43_07.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 482800.00000 | 3909600.00000 | 576.00 | 576.00 | 0.00 | 8629.44922 |
| 4 | ALL | 89031512 | 483520.00000 | 3910280.00000 | 576.00 | 576.00 | 0.00 | 8552.65625 |
| 4 | ALL | 89031512 | 484960.00000 | 3910960.00000 | 579.00 | 579.00 | 0.00 | 11210.96191 |
| 4 | ALL | 89031512 | 485680.00000 | 3911640.00000 | 572.00 | 572.00 | 0.00 | 18680.34961 |
| 4 | ALL | 89031512 | 486400.00000 | 3912320.00000 | 554.00 | 554.00 | 0.00 | 26775.13086 |
| 4 | ALL | 89031512 | 487840.00000 | 3913000.00000 | 538.00 | 538.00 | 0.00 | 15163.60840 |
| 4 | ALL | 89031512 | 488560.00000 | 3913680.00000 | 526.00 | 526.00 | 0.00 | 3492998.75000 |
| 4 | ALL | 89031512 | 489280.00000 | 3913680.00000 | 524.00 | 524.00 | 0.00 | 12884.40137 |
| 4 | ALL | 89031512 | 490000.00000 | 3914360.00000 | 507.00 | 519.00 | 0.00 | 22209.71094 |
| 4 | ALL | 89031512 | 491440.00000 | 3915040.00000 | 511.00 | 513.00 | 0.00 | 109022.55469 |

Max44_92.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 483520.00000 | 3909600.00000 | 574.00 | 574.00 | 0.00 | 7984.57275 |
| 4 | ALL | 89031512 | 484240.00000 | 3910280.00000 | 577.00 | 577.00 | 0.00 | 10259.74023 |
| 4 | ALL | 89031512 | 484960.00000 | 3910960.00000 | 579.00 | 579.00 | 0.00 | 10488.89355 |
| 4 | ALL | 89031512 | 486400.00000 | 3911640.00000 | 560.00 | 560.00 | 0.00 | 12405.57031 |
| 4 | ALL | 89031512 | 487120.00000 | 3912320.00000 | 549.00 | 549.00 | 0.00 | 26457.68750 |
| 4 | ALL | 89031512 | 487840.00000 | 3913000.00000 | 538.00 | 538.00 | 0.00 | 66918.11719 |
| 4 | ALL | 89031512 | 489280.00000 | 3913680.00000 | 524.00 | 524.00 | 0.00 | 17966.11523 |
| 4 | ALL | 89031512 | 490720.00000 | 3914360.00000 | 524.00 | 524.00 | 0.00 | 15908.94531 |

Max45_31.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 483520.00000 | 3909600.00000 | 574.00 | 574.00 | 0.00 | 8388.35254 |
| 4 | ALL | 89031512 | 484240.00000 | 3910280.00000 | 577.00 | 577.00 | 0.00 | 9367.98438 |
| 4 | ALL | 89031512 | 484960.00000 | 3910960.00000 | 579.00 | 579.00 | 0.00 | 7975.64453 |
| 4 | ALL | 89031512 | 485680.00000 | 3910960.00000 | 573.00 | 573.00 | 0.00 | 8943.51172 |
| 4 | ALL | 89031512 | 486400.00000 | 3911640.00000 | 560.00 | 560.00 | 0.00 | 15292.32520 |
| 4 | ALL | 89031512 | 487120.00000 | 3912320.00000 | 549.00 | 549.00 | 0.00 | 25194.41992 |
| 4 | ALL | 89031512 | 487840.00000 | 3913000.00000 | 538.00 | 538.00 | 0.00 | 32869.14062 |
| 4 | ALL | 89031512 | 488560.00000 | 3913000.00000 | 537.00 | 537.00 | 0.00 | 10471.47852 |
| 4 | ALL | 89031512 | 489280.00000 | 3913680.00000 | 524.00 | 524.00 | 0.00 | 77675.24219 |
| 4 | ALL | 89031512 | 490720.00000 | 3914360.00000 | 524.00 | 524.00 | 0.00 | 24342.02539 |

Max46_11.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 483520.00000 | 3909600.00000 | 574.00 | 574.00 | 0.00 | 7716.68604 |
| 4 | ALL | 89031512 | 484960.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 7647.89795 |
| 4 | ALL | 89031512 | 485680.00000 | 3910960.00000 | 573.00 | 573.00 | 0.00 | 11362.30371 |
| 4 | ALL | 89031512 | 486400.00000 | 3911640.00000 | 560.00 | 560.00 | 0.00 | 15217.22754 |
| 4 | ALL | 89031512 | 487120.00000 | 3912320.00000 | 549.00 | 549.00 | 0.00 | 18405.17383 |
| 4 | ALL | 89031512 | 487840.00000 | 3912320.00000 | 543.00 | 543.00 | 0.00 | 10356.05176 |
| 4 | ALL | 89031512 | 487840.00000 | 3913000.00000 | 538.00 | 538.00 | 0.00 | 10438.77637 |
| 4 | ALL | 89031512 | 488560.00000 | 3913000.00000 | 537.00 | 537.00 | 0.00 | 24298.49023 |
| 4 | ALL | 89031512 | 489280.00000 | 3913680.00000 | 524.00 | 524.00 | 0.00 | 142702.89062 |
| 4 | ALL | 89031512 | 490720.00000 | 3914360.00000 | 524.00 | 524.00 | 0.00 | 44883.89062 |

Max46_38.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 484960.00000 | 3910280.00000 | 578.00 | 578.00 | 0.00 | 8117.72119 |
| 4 | ALL | 89031512 | 485680.00000 | 3910960.00000 | 573.00 | 573.00 | 0.00 | 11548.28613 |
| 4 | ALL | 89031512 | 486400.00000 | 3911640.00000 | 560.00 | 560.00 | 0.00 | 14373.02344 |
| 4 | ALL | 89031512 | 487120.00000 | 3912320.00000 | 549.00 | 549.00 | 0.00 | 13075.91797 |
| 4 | ALL | 89031512 | 487840.00000 | 3912320.00000 | 543.00 | 543.00 | 0.00 | 10840.06934 |
| 4 | ALL | 89031512 | 488560.00000 | 3913000.00000 | 537.00 | 537.00 | 0.00 | 28295.40820 |
| 4 | ALL | 89031512 | 489280.00000 | 3913680.00000 | 524.00 | 524.00 | 0.00 | 219682.82812 |
| 4 | ALL | 89031512 | 490000.00000 | 3913680.00000 | 521.00 | 521.00 | 0.00 | 9099.72168 |
| 4 | ALL | 89031512 | 490720.00000 | 3914360.00000 | 524.00 | 524.00 | 0.00 | 78634.44531 |
| 4 | ALL | 89031512 | 492160.00000 | 3915040.00000 | 509.00 | 513.00 | 0.00 | 42282.29297 |

Max51_98.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 488560.00000 | 3911640.00000 | 537.00 | 537.00 | 0.00 | 9191.40918 |
| 4 | ALL | 89031512 | 489280.00000 | 3912320.00000 | 541.00 | 541.00 | 0.00 | 13739.10156 |
| 4 | ALL | 89031512 | 490000.00000 | 3913000.00000 | 538.00 | 538.00 | 0.00 | 16275.51270 |
| 4 | ALL | 89031512 | 490720.00000 | 3913680.00000 | 526.00 | 526.00 | 0.00 | 10120.26562 |
| 4 | ALL | 89031512 | 491440.00000 | 3913680.00000 | 521.00 | 521.00 | 0.00 | 13692.41699 |
| 4 | ALL | 89031512 | 492160.00000 | 3914360.00000 | 518.00 | 518.00 | 0.00 | 58371.20312 |
| 4 | ALL | 89031512 | 493600.00000 | 3915040.00000 | 497.00 | 497.00 | 0.00 | 7484.72852 |
| 4 | ALL | 89031512 | 497920.00000 | 3917080.00000 | 482.00 | 482.00 | 0.00 | 7511.91943 |

Max52_91.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  _____________
   4 ALL      89031512  487840.00000 3910960.00000  542.00  542.00    0.00    7613.52686
   4 ALL      89031512  488560.00000 3911640.00000  537.00  537.00    0.00    9632.82910
   4 ALL      89031512  489280.00000 3912320.00000  541.00  541.00    0.00   10323.42480
   4 ALL      89031512  490720.00000 3913000.00000  525.00  525.00    0.00   12209.72559
   4 ALL      89031512  491440.00000 3913680.00000  521.00  521.00    0.00   21513.47656
   4 ALL      89031512  492160.00000 3914360.00000  518.00  518.00    0.00  113472.71875
   4 ALL      89031512  492880.00000 3914360.00000  513.00  513.00    0.00    8430.23535
   4 ALL      89031512  493600.00000 3915040.00000  497.00  497.00    0.00  109874.03906
   4 ALL      89031512  495040.00000 3915720.00000  483.00  483.00    0.00   22059.16992
```

Max53_20.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  _____________
   4 ALL      89031512  488560.00000 3911640.00000  537.00  537.00    0.00    8267.11621
   4 ALL      89031512  490000.00000 3912320.00000  537.00  537.00    0.00    8669.44629
   4 ALL      89031512  490720.00000 3913000.00000  525.00  525.00    0.00   13375.22754
   4 ALL      89031512  491440.00000 3913680.00000  521.00  521.00    0.00   20756.75586
   4 ALL      89031512  492160.00000 3914360.00000  518.00  518.00    0.00   96332.91406
   4 ALL      89031512  492880.00000 3914360.00000  513.00  513.00    0.00   15183.56543
   4 ALL      89031512  493600.00000 3915040.00000  497.00  497.00    0.00   35848.56641
   4 ALL      89031512  495040.00000 3915720.00000  483.00  483.00    0.00   36060.00781
```

Max55_44.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  _____________
   4 ALL      89031512  491440.00000 3913000.00000  513.00  513.00    0.00   10263.54688
   4 ALL      89031512  492160.00000 3913680.00000  515.00  515.00    0.00   14832.83301
   4 ALL      89031512  492880.00000 3914360.00000  513.00  513.00    0.00   32726.13477
   4 ALL      89031512  493600.00000 3914360.00000  503.00  503.00    0.00   12043.51855
   4 ALL      89031512  494320.00000 3915040.00000  483.00  483.00    0.00   31687.10938
   4 ALL      89031512  495760.00000 3915720.00000  479.00  479.00    0.00   27405.41992
   4 ALL      89031512  497200.00000 3916400.00000  480.00  480.00    0.00    7991.54688
```

Max56_36.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 490720.00000 | 3912320.00000 | 523.00 | 523.00 | 0.00 | 8465.90918 |
| 4 | ALL | 89031512 | 491440.00000 | 3913000.00000 | 513.00 | 513.00 | 0.00 | 11263.53223 |
| 4 | ALL | 89031512 | 492160.00000 | 3913680.00000 | 515.00 | 515.00 | 0.00 | 12371.94824 |
| 4 | ALL | 89031512 | 492880.00000 | 3913680.00000 | 507.00 | 507.00 | 0.00 | 7642.33545 |
| 4 | ALL | 89031512 | 493600.00000 | 3914360.00000 | 503.00 | 503.00 | 0.00 | 17465.82227 |
| 4 | ALL | 89031512 | 494320.00000 | 3915040.00000 | 483.00 | 483.00 | 0.00 | 67012.50000 |
| 4 | ALL | 89031512 | 495760.00000 | 3915720.00000 | 479.00 | 479.00 | 0.00 | 33770.42578 |
| 4 | ALL | 89031512 | 496480.00000 | 3915720.00000 | 482.00 | 482.00 | 0.00 | 8051.17920 |
| 4 | ALL | 89031512 | 497200.00000 | 3916400.00000 | 480.00 | 480.00 | 0.00 | 96935.50000 |

Max57_48.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 492160.00000 | 3913000.00000 | 502.00 | 502.00 | 0.00 | 9759.65625 |
| 4 | ALL | 89031512 | 492880.00000 | 3913680.00000 | 507.00 | 507.00 | 0.00 | 12543.20020 |
| 4 | ALL | 89031512 | 493600.00000 | 3914360.00000 | 503.00 | 503.00 | 0.00 | 14743.75781 |
| 4 | ALL | 89031512 | 494320.00000 | 3914360.00000 | 490.00 | 490.00 | 0.00 | 10472.17773 |
| 4 | ALL | 89031512 | 495040.00000 | 3915040.00000 | 472.00 | 472.00 | 0.00 | 22969.07227 |
| 4 | ALL | 89031512 | 496480.00000 | 3915720.00000 | 482.00 | 482.00 | 0.00 | 8647.72656 |
| 4 | ALL | 89031512 | 497200.00000 | 3916400.00000 | 480.00 | 480.00 | 0.00 | 9764.02637 |

Max58_30.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
```

| *AVE | GRP | DATE | X | Y | ZELEV | ZHILL | ZFLAG | AVERAGE CONC |
|---|---|---|---|---|---|---|---|---|
| 4 | ALL | 89031512 | 491440.00000 | 3912320.00000 | 505.00 | 509.00 | 0.00 | 7669.75049 |
| 4 | ALL | 89031512 | 492160.00000 | 3913000.00000 | 502.00 | 502.00 | 0.00 | 8885.98047 |
| 4 | ALL | 89031512 | 492880.00000 | 3913680.00000 | 507.00 | 507.00 | 0.00 | 8020.76514 |
| 4 | ALL | 89031512 | 493600.00000 | 3913680.00000 | 486.00 | 486.00 | 0.00 | 9311.26953 |
| 4 | ALL | 89031512 | 494320.00000 | 3914360.00000 | 490.00 | 490.00 | 0.00 | 14692.40332 |
| 4 | ALL | 89031512 | 495040.00000 | 3915040.00000 | 472.00 | 472.00 | 0.00 | 32889.55859 |
| 4 | ALL | 89031512 | 495760.00000 | 3915040.00000 | 470.00 | 470.00 | 0.00 | 8455.42285 |
| 4 | ALL | 89031512 | 496480.00000 | 3915720.00000 | 482.00 | 482.00 | 0.00 | 34959.58594 |
| 4 | ALL | 89031512 | 499360.00000 | 3917080.00000 | 471.00 | 471.00 | 0.00 | 13578.55176 |

Max62_92.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  495760.00000 3914360.00000  475.00  475.00    0.00    8930.11816
   4 ALL      89031512  496480.00000 3915040.00000  474.00  474.00    0.00   14716.71777
   4 ALL      89031512  497920.00000 3915720.00000  470.00  470.00    0.00   11858.62109
   4 ALL      89031512  498640.00000 3915720.00000  476.00  476.00    0.00    7520.93213
   4 ALL      89031512  499360.00000 3916400.00000  476.00  476.00    0.00    9344.35547
   4 ALL      89031512  500800.00000 3917080.00000  472.00  472.00    0.00   16675.77344
```

Max63_81.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  496480.00000 3914360.00000  472.00  472.00    0.00    9717.61816
   4 ALL      89031512  497200.00000 3915040.00000  467.00  467.00    0.00   12850.23145
   4 ALL      89031512  497920.00000 3915720.00000  470.00  470.00    0.00   12067.77441
   4 ALL      89031512  498640.00000 3915720.00000  476.00  476.00    0.00   10388.91797
   4 ALL      89031512  499360.00000 3916400.00000  476.00  476.00    0.00   35113.50391
   4 ALL      89031512  500800.00000 3917080.00000  472.00  472.00    0.00   13568.96777
   4 ALL      89031512  502240.00000 3917760.00000  481.00  481.00    0.00   11790.91406
   4 ALL      89031512  505120.00000 3919120.00000  479.00  479.00    0.00   11296.89941
```

Max64_02.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  496480.00000 3914360.00000  472.00  472.00    0.00    8765.98438
   4 ALL      89031512  497200.00000 3915040.00000  467.00  467.00    0.00   10550.81348
   4 ALL      89031512  497920.00000 3915720.00000  470.00  470.00    0.00   15160.11719
   4 ALL      89031512  498640.00000 3915720.00000  476.00  476.00    0.00   13694.40625
   4 ALL      89031512  499360.00000 3916400.00000  476.00  476.00    0.00   68308.27344
   4 ALL      89031512  502240.00000 3917760.00000  481.00  481.00    0.00   10036.65918
```

Max65_19.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  497200.00000 3914360.00000  463.00  463.00    0.00    9572.85938
   4 ALL      89031512  497920.00000 3915040.00000  463.00  463.00    0.00   13703.69043
   4 ALL      89031512  498640.00000 3915720.00000  476.00  476.00    0.00   18894.71680
   4 ALL      89031512  499360.00000 3915720.00000  471.00  471.00    0.00    9203.78027
   4 ALL      89031512  500080.00000 3916400.00000  464.00  464.00    0.00   22471.84375
   4 ALL      89031512  500800.00000 3917080.00000  472.00  472.00    0.00   97592.75781
   4 ALL      89031512  501520.00000 3917080.00000  477.00  477.00    0.00    7831.57275
   4 ALL      89031512  502240.00000 3917760.00000  481.00  481.00    0.00 8687821.00000
```

Max68_33.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  499360.00000 3915040.00000  459.00  459.00    0.00    9273.73340
   4 ALL      89031512  500080.00000 3915720.00000  460.00  460.00    0.00   13858.40527
   4 ALL      89031512  500800.00000 3916400.00000  467.00  467.00    0.00   17257.06641
   4 ALL      89031512  502240.00000 3917080.00000  479.00  479.00    0.00   27316.70312
   4 ALL      89031512  503680.00000 3917760.00000  479.00  479.00    0.00    9271.34082
```

Max68_95.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  498640.00000 3915040.00000  460.00  460.00    0.00    9495.63965
   4 ALL      89031512  499360.00000 3915720.00000  471.00  471.00    0.00    9519.97949
   4 ALL      89031512  500800.00000 3916400.00000  467.00  467.00    0.00   13615.10449
   4 ALL      89031512  501520.00000 3917080.00000  477.00  477.00    0.00  229987.70312
   4 ALL      89031512  502960.00000 3917760.00000  474.00  474.00    0.00   36254.55469
   4 ALL      89031512  505840.00000 3919120.00000  473.00  473.00    0.00   37738.16016
   4 ALL      89031512  508720.00000 3920480.00000  437.00  437.00    0.00   25772.02148
   4 ALL      89031512  510160.00000 3921160.00000  462.00  462.00    0.00   41622.16406
```

Max69_78.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  500800.00000 3915720.00000  467.00  467.00    0.00    7542.05518
   4 ALL      89031512  502240.00000 3916400.00000  480.00  480.00    0.00    8951.48145
   4 ALL      89031512  502960.00000 3917080.00000  465.00  465.00    0.00   19373.25977
   4 ALL      89031512  504400.00000 3917760.00000  481.00  481.00    0.00   10739.73926
   4 ALL      89031512  508000.00000 3919800.00000  468.00  468.00    0.00   51823.21875
```

Max70_74.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  502240.00000 3916400.00000  480.00  480.00    0.00    8812.25781
   4 ALL      89031512  502960.00000 3917080.00000  465.00  465.00    0.00   12869.08203
   4 ALL      89031512  503680.00000 3917080.00000  475.00  475.00    0.00    8989.00293
   4 ALL      89031512  504400.00000 3917760.00000  481.00  481.00    0.00   46108.71875
   4 ALL      89031512  505840.00000 3918440.00000  473.00  473.00    0.00   15853.54297
   4 ALL      89031512  507280.00000 3919120.00000  454.00  454.00    0.00   16223.72168
   4 ALL      89031512  508720.00000 3919800.00000  443.00  443.00    0.00   24022.68164
```

Max71_63.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  503680.00000 3917080.00000  475.00  475.00    0.00    7804.00537
   4 ALL      89031512  505120.00000 3917760.00000  485.00  485.00    0.00   16768.61719
   4 ALL      89031512  505840.00000 3918440.00000  473.00  473.00    0.00 1805134.50000
   4 ALL      89031512  506560.00000 3918440.00000  467.00  467.00    0.00   11388.46973
   4 ALL      89031512  507280.00000 3919120.00000  454.00  454.00    0.00   10901.75879
   4 ALL      89031512  510160.00000 3920480.00000  436.00  436.00    0.00  864544.56250
```

Max74_33.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  505840.00000 3917760.00000  476.00  476.00    0.00   12446.14941
   4 ALL      89031512  507280.00000 3918440.00000  465.00  465.00    0.00   21023.16211
   4 ALL      89031512  508720.00000 3919120.00000  450.00  450.00    0.00   16404.16602
   4 ALL      89031512  510160.00000 3919800.00000  438.00  438.00    0.00   11744.03125
   4 ALL      89031512  524560.00000 3926600.00000  546.00  546.00    0.00    8879.81348
```

Max74_44.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  506560.00000 3917760.00000  465.00  465.00    0.00   11591.71973
   4 ALL      89031512  507280.00000 3918440.00000  465.00  465.00    0.00   46142.45703
   4 ALL      89031512  508720.00000 3919120.00000  450.00  450.00    0.00   27287.73438
   4 ALL      89031512  510160.00000 3919800.00000  438.00  438.00    0.00   15311.60547
```

Max75_00.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  505840.00000 3917080.00000  476.00  476.00    0.00    7554.77686
   4 ALL      89031512  506560.00000 3917760.00000  465.00  465.00    0.00    7939.70459
   4 ALL      89031512  508000.00000 3918440.00000  452.00  452.00    0.00   12513.55566
   4 ALL      89031512  508720.00000 3919120.00000  450.00  450.00    0.00   35522.95703
   4 ALL      89031512  510160.00000 3919800.00000  438.00  438.00    0.00   90636.86719
   4 ALL      89031512  511600.00000 3920480.00000  461.00  461.00    0.00   34869.56641
   4 ALL      89031512  513040.00000 3921160.00000  462.00  462.00    0.00   37079.37109
   4 ALL      89031512  518800.00000 3923880.00000  504.00  504.00    0.00   15445.22168
```

Max75_88.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  507280.00000 3917760.00000  460.00  460.00    0.00   10343.79492
   4 ALL      89031512  508000.00000 3918440.00000  452.00  452.00    0.00   26114.39258
   4 ALL      89031512  508720.00000 3918440.00000  452.00  452.00    0.00    7792.28174
   4 ALL      89031512  509440.00000 3919120.00000  441.00  441.00    0.00   23341.13867
   4 ALL      89031512  510880.00000 3919800.00000  438.00  438.00    0.00    8237.57520
   4 ALL      89031512  512320.00000 3920480.00000  441.00  441.00    0.00    8105.33594
```

Max76_86.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  508720.00000 3918440.00000  452.00  452.00    0.00   11297.00879
   4 ALL      89031512  510880.00000 3919800.00000  438.00  438.00    0.00   32181.36719
   4 ALL      89031512  513760.00000 3921160.00000  469.00  469.00    0.00    9725.57715
   4 ALL      89031512  520960.00000 3924560.00000  522.00  522.00    0.00   43795.08203
```

Max80_44.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  511600.00000 3919120.00000  437.00  437.00    0.00    7519.35205
   4 ALL      89031512  513040.00000 3919800.00000  465.00  465.00    0.00   13052.61719
   4 ALL      89031512  514480.00000 3920480.00000  452.00  464.00    0.00    9157.62891
```

Max80_64.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  510880.00000 3918440.00000  443.00  443.00    0.00    7487.99951
   4 ALL      89031512  513040.00000 3919800.00000  465.00  465.00    0.00   24065.45508
   4 ALL      89031512  515920.00000 3921160.00000  478.00  478.00    0.00    9048.17188
   4 ALL      89031512  517360.00000 3921840.00000  491.00  491.00    0.00    7609.67334
```

Max80_73.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  511600.00000 3919120.00000  437.00  437.00    0.00   18813.69727
   4 ALL      89031512  512320.00000 3919120.00000  443.00  443.00    0.00   10087.50684
   4 ALL      89031512  513040.00000 3919800.00000  465.00  465.00    0.00   24981.79492
   4 ALL      89031512  514480.00000 3920480.00000  452.00  464.00    0.00   19197.28906
   4 ALL      89031512  515920.00000 3921160.00000  478.00  478.00    0.00   11382.42676
```

Max81_13.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  513760.00000 3919800.00000  463.00  463.00    0.00    9447.06738
   4 ALL      89031512  514480.00000 3920480.00000  452.00  464.00    0.00   37539.89844
   4 ALL      89031512  515920.00000 3921160.00000  478.00  478.00    0.00   26267.39844
   4 ALL      89031512  517360.00000 3921840.00000  491.00  491.00    0.00   10967.08496
   4 ALL      89031512  518800.00000 3922520.00000  516.00  516.00    0.00    9357.21387
   4 ALL      89031512  533200.00000 3929320.00000  502.00  502.00    0.00   93231.34375
```

Max81_16.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  513760.00000 3919800.00000  463.00  463.00    0.00    9319.82812
   4 ALL      89031512  514480.00000 3920480.00000  452.00  464.00    0.00   49601.03125
   4 ALL      89031512  515920.00000 3921160.00000  478.00  478.00    0.00   40796.67188
   4 ALL      89031512  517360.00000 3921840.00000  491.00  491.00    0.00   33528.83203
   4 ALL      89031512  520240.00000 3923200.00000  512.00  512.00    0.00   13584.90332
```

Max83_80.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  514480.00000 3919800.00000  458.00  458.00    0.00   18591.33203
   4 ALL      89031512  515920.00000 3920480.00000  478.00  478.00    0.00   20707.03125
   4 ALL      89031512  516640.00000 3920480.00000  482.00  482.00    0.00    7779.10400
   4 ALL      89031512  517360.00000 3921160.00000  494.00  494.00    0.00   24424.52344
   4 ALL      89031512  518800.00000 3921840.00000  507.00  507.00    0.00   21839.92578
   4 ALL      89031512  521680.00000 3923200.00000  516.00  516.00    0.00    8583.77930
```

Max86_78.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  519520.00000 3921160.00000  513.00  513.00    0.00   10748.73145
   4 ALL      89031512  520240.00000 3921840.00000  506.00  506.00    0.00  112348.58594
   4 ALL      89031512  521680.00000 3922520.00000  522.00  522.00    0.00   14129.96387
   4 ALL      89031512  523120.00000 3923200.00000  518.00  518.00    0.00   36304.96484
   4 ALL      89031512  524560.00000 3923880.00000  518.00  518.00    0.00   27389.32227
   4 ALL      89031512  527440.00000 3925240.00000  532.00  532.00    0.00   18480.64844
   4 ALL      89031512  534640.00000 3928640.00000  499.00  499.00    0.00   15824.04004
```

Max90_43.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  525280.00000 3923200.00000  510.00  510.00    0.00   17198.54102
   4 ALL      89031512  526720.00000 3923880.00000  521.00  521.00    0.00  264376.68750
   4 ALL      89031512  528160.00000 3924560.00000  519.00  519.00    0.00  110711.68750
   4 ALL      89031512  529600.00000 3925240.00000  544.00  544.00    0.00   83331.44531
   4 ALL      89031512  536800.00000 3928640.00000  499.00  499.00    0.00   73407.33594
   4 ALL      89031512  538240.00000 3929320.00000  500.00  500.00    0.00   99471.71094
```

Max91_18.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  526000.00000 3923200.00000  516.00  516.00    0.00   19638.07617
   4 ALL      89031512  527440.00000 3923880.00000  510.00  511.00    0.00   29251.04492
   4 ALL      89031512  528880.00000 3924560.00000  528.00  528.00    0.00   12202.74219
   4 ALL      89031512  530320.00000 3925240.00000  554.00  554.00    0.00    9386.95410
   4 ALL      89031512  534640.00000 3927280.00000  512.00  512.00    0.00   10955.54980
   4 ALL      89031512  538960.00000 3929320.00000  492.00  492.00    0.00    8327.12793
```

Max92_15.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  528160.00000 3923880.00000  527.00  527.00    0.00   18473.26953
   4 ALL      89031512  529600.00000 3924560.00000  540.00  540.00    0.00   12216.95801
   4 ALL      89031512  531040.00000 3925240.00000  549.00  549.00    0.00   15415.31348
```

Max95_38.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y          ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  531760.00000 3924560.00000  517.00  525.00    0.00   15876.18262
   4 ALL      89031512  533200.00000 3925240.00000  529.00  529.00    0.00   12461.43848
   4 ALL      89031512  534640.00000 3925920.00000  519.00  519.00    0.00    9253.13184
   4 ALL      89031512  536080.00000 3926600.00000  514.00  514.00    0.00   22448.99414
   4 ALL      89031512  537520.00000 3927280.00000  512.00  512.00    0.00    9414.96094
   4 ALL      89031512  541840.00000 3929320.00000  486.00  486.00    0.00    7599.60742
```

Max97_54.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ___________ ___________  ______  ______  ______  ___________
   4 ALL      89031512  534640.00000 3925240.00000  518.00  518.00    0.00   12701.00391
   4 ALL      89031512  536080.00000 3925920.00000  515.00  515.00    0.00   38720.62109
   4 ALL      89031512  537520.00000 3926600.00000  511.00  511.00    0.00   40225.98828
   4 ALL      89031512  541840.00000 3928640.00000  490.00  490.00    0.00   16704.91602
   4 ALL      89031512  543280.00000 3929320.00000  486.00  486.00    0.00   28681.65039
   4 ALL      89031512  547600.00000 3931360.00000  477.00  477.00    0.00   18723.16992
   4 ALL      89031512  549040.00000 3932040.00000  482.00  482.00    0.00   14142.33203
```

Max100_12.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ___________ ___________  ______  ______  ______  ___________
   4 ALL      89031512  538240.00000 3925920.00000  507.00  507.00    0.00   14401.71582
   4 ALL      89031512  541120.00000 3927280.00000  490.00  490.00    0.00   21119.64648
   4 ALL      89031512  542560.00000 3927960.00000  495.00  495.00    0.00   17607.50195
   4 ALL      89031512  545440.00000 3929320.00000  465.00  477.00    0.00   10833.78125
   4 ALL      89031512  549760.00000 3931360.00000  484.00  484.00    0.00    9072.28320
   4 ALL      89031512  552640.00000 3932720.00000  464.00  464.00    0.00   10184.12402
```

Max101_1.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ___________ ___________  ______  ______  ______  ___________
   4 ALL      89031512  541840.00000 3927280.00000  497.00  497.00    0.00  133143.60938
   4 ALL      89031512  543280.00000 3927960.00000  499.00  499.00    0.00   23592.46094
   4 ALL      89031512  544720.00000 3928640.00000  487.00  487.00    0.00   23288.63477
```

Max103_09.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ___________ ___________  ______  ______  ______  ___________
```

Max103_84.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE          X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ___________ ___________  ______  ______  ______  ___________
   4 ALL      89031512  549040.00000 3929320.00000  492.00  492.00    0.00    8865.08594
   4 ALL      89031512  551200.00000 3930680.00000  459.00  467.00    0.00   12504.16504
   4 ALL      89031512  552640.00000 3931360.00000  465.00  465.00    0.00   84668.53906
   4 ALL      89031512  555520.00000 3932720.00000  461.00  461.00    0.00   21445.20117
```

Max105_64.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*          MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*          FOR SOURCE GROUP: ALL
*          FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  549040.00000 3928640.00000  494.00  494.00    0.00    9763.57520
   4 ALL      89031512  551920.00000 3930000.00000  464.00  475.00    0.00   13494.55469
```

Max106_48.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*          MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*          FOR SOURCE GROUP: ALL
*          FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  551200.00000 3929320.00000  481.00  481.00    0.00   12746.70312
   4 ALL      89031512  552640.00000 3930000.00000  475.00  475.00    0.00   13796.09863
```

Max107_35.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*          MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*          FOR SOURCE GROUP: ALL
*          FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  551920.00000 3929320.00000  481.00  481.00    0.00   28837.49023
   4 ALL      89031512  554800.00000 3930680.00000  478.00  478.00    0.00    9807.96387
   4 ALL      89031512  563440.00000 3934760.00000  445.00  465.00    0.00    7672.18115
```

Max109_18.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*          MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*          FOR SOURCE GROUP: ALL
*          FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  559120.00000 3932040.00000  464.00  464.00    0.00   13063.07129
   4 ALL      89031512  564880.00000 3934760.00000  479.00  482.00    0.00    9309.57129
   4 ALL      89031512  569200.00000 3936800.00000  468.00  468.00    0.00   46744.21484
   4 ALL      89031512  572080.00000 3938160.00000  469.00  469.00    0.00  932308.00000
```

Max111_15.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*          MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*          FOR SOURCE GROUP: ALL
*          FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________ ____________  ______  ______  ______  ____________
   4 ALL      89031512  561280.00000 3932040.00000  439.00  443.00    0.00  118904.53125
   4 ALL      89031512  565600.00000 3934080.00000  458.00  458.00    0.00   16119.40527
   4 ALL      89031512  567040.00000 3934760.00000  441.00  441.00    0.00   22972.11523
   4 ALL      89031512  568480.00000 3935440.00000  462.00  463.00    0.00    9599.63672
   4 ALL      89031512  585760.00000 3943600.00000  435.00  435.00    0.00   32269.46289
```

Max113_57.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
```

Max116_22.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
```

Max118_95.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
   4 ALL      89031512  580000.00000 3936800.00000  424.00  424.00    0.00    7726.93750
```

Max119_04.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
   4 ALL      89031512  591520.00000 3942240.00000  413.00  413.00    0.00    7938.75244
```

Max119_33.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
   4 ALL      89031512  587200.00000 3940200.00000  407.00  407.00    0.00 3599787.00000
```

Max121_05.OUT

```
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                        DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y        ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
   4 ALL      89031512  585040.00000 3938160.00000  411.00  411.00    0.00   29558.05664
   4 ALL      89031512  586480.00000 3938840.00000  408.00  408.00    0.00   21044.97070
   4 ALL      89031512  587920.00000 3939520.00000  407.00  407.00    0.00    9949.85449
```

```
                                        Max122_05.OUT
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                          DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y         ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
```

```
                                        Max124_36.OUT
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                          DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y         ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
```

```
                                        Max124_59.OUT
* AERMOD (06341):  Effects of Space Suttle Breakup before Booster Separation
* MODELING OPTIONS USED:
*  CONC                          DFAULT ELEV
DRYDPL WETDPL
*         MAXI-FILE FOR  4-HR VALUES >= A THRESHOLD OF    7460.
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP     DATE           X             Y         ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  ____________  ____________  ______  ______  ______  ____________
```

## C.4 Gas Modeling Inputs (AERMET)

AERMET 1st Input File: Okla_S1.INP

```
JOB

        REPORT          Okla_S1.RPT
        MESSAGES        Okla_S1.MSG


UPPERAIR

        DATA            13967_89.UA  6201FB  1
        EXTRACT         Okla_UA.IQA
        QAOUT           Okla_UA.OQA

        XDATES          89/1/1 TO 89/12/31

        LOCATION        00013967  97.60W  35.389N  6
        AUDIT           UATT  UAWS  UALR


SURFACE

        DATA            13967_89.sam  SAMSON  1
        EXTRACT         Okla_SF.IQA
        QAOUT           Okla_SF.OQA

        XDATES          89/1/1 TO 89/12/31

        LOCATION        13967  97.600W  35.389N  6
```

AERMET 2nd Input File: Okla_S2.INP

```
JOB
        REPORT          Okla_S2.RPT
        MESSAGES        Okla_S2.MSG

UPPERAIR
       QAOUT            Okla_UA.OQA

SURFACE
       QAOUT            Okla_SF.OQA

MERGE
     OUTPUT             Okla_MR.MET

     XDATES             89/3/15 TO 89/3/15
```

AERMET 3rd Input File: Okla_S3.INP

```
JOB
        REPORT          Okla_S3.RPT
        MESSAGES        Okla_S3.MSG

METPREP
        DATA            Okla_MR.MET
        OUTPUT          Okla_MP.SFC
        PROFILE         Okla_MP.PFL

        LOCATION        Clinton 99.20W 35.34N 6

        METHOD          REFLEVEL  SUBNWS
        METHOD          WIND_DIR  RANDOM
        NWS_HGT         WIND      6.1
        FREQ_SECT       ANNUAL 1
        SECTOR          1    0     360
        SITE_CHAR       1 1  0.15  2.0  0.12
```

## C.5 Gas Modeling Inputs (AERMAP)

### AERMAP input file and summary file

```
** AERMAP - VERSION     06341
 **
 CO STARTING
   TITLEONE Terrain and Receptor data for Oklahoma Experiment
   TERRHGTS EXTRACT
   DATATYPE DEM7
   DATAFILE Bridgeport.dem
   DATAFILE Greenfield.dem
   DATAFILE EaklyNE.dem
   DATAFILE SquawCreek.dem
   DATAFILE EagleCity.dem
   DATAFILE Hitchcock.dem
   DATAFILE Watonga.dem
   DATAFILE WatongaLake.dem
   DATAFILE GearyNorth.dem
   DATAFILE Hydro.dem
   DATAFILE GearySouth.dem
   DATAFILE OakwoodSE.dem
   DATAFILE WatongaSE.dem
   DATAFILE Aledo.dem
   DATAFILE Clinton.dem
   DATAFILE FossDam.dem
   DATAFILE Putnam.dem
   DATAFILE Weatherford.dem
   DATAFILE Anthon.dem
   DATAFILE RockMary.dem
   DATAFILE ClintonNE.dem
   DATAFILE Indianapolis.dem
   DATAFILE Rhea.dem
   DATAFILE WeatherfordNW.dem
   DATAFILE Butler.dem
   DATAFILE CusterCity.dem
   DATAFILE Leedey.dem
   DATAFILE RoughCreek.dem
   DATAFILE Carpenter.dem
   DATAFILE Fay.dem
   DATAFILE McClure.dem
   DATAFILE Stafford.dem
   DATAFILE Cole.dem
   DATAFILE Washington.dem
   DATAFILE Newcastle.dem
   DATAFILE Norman.dem
   DATAFILE Alfalfa.dem
   DATAFILE Eakly.dem
   DATAFILE Hinton.dem
   DATAFILE AnadarkoNW.dem
   DATAFILE Binger.dem
   DATAFILE FortCoddDam.dem
   DATAFILE Sickles.dem
   DATAFILE Cogar.dem
   DATAFILE Gracemont.dem
```

DATAFILE AnadarkoNE.dem
DATAFILE CogarSE.dem
DATAFILE Pocasset.dem
DATAFILE Blanchard.dem
DATAFILE Dibble.dem
DATAFILE Tabler.dem
DATAFILE Chickasha.dem
DATAFILE Minco.dem
DATAFILE Tuttle.dem
DATAFILE ChickashaNE.dem
DATAFILE OklahomaCitySW.dem
DATAFILE Verden.dem
DATAFILE Arcadia.dem
DATAFILE Edmond.dem
DATAFILE Luther.dem
DATAFILE BethanyNE.dem
DATAFILE Harrah.dem
DATAFILE MidwestCity.dem
DATAFILE Britton.dem
DATAFILE HorseshoeLake.dem
DATAFILE OklahomaCity.dem
DATAFILE Choctaw.dem
DATAFILE Jones.dem
DATAFILE Spencer.dem
DATAFILE Bethany.dem
DATAFILE ElRenoNE.dem
DATAFILE MincoNE.dem
DATAFILE PorcupineButte.dem
DATAFILE CogarNE.dem
DATAFILE FortReno.dem
DATAFILE Mustang.dem
DATAFILE Richland.dem
DATAFILE CogarNW.dem
DATAFILE FortRenoNE.dem
DATAFILE Okarche.dem
DATAFILE UnionCity.dem
DATAFILE ElReno.dem
DATAFILE FortRenoSW.dem
DATAFILE Piedmont.dem
DATAFILE Cashion.dem
DATAFILE KingfisherSE.dem
DATAFILE Omega.dem
DATAFILE Dover.dem
DATAFILE Loyal.dem
DATAFILE Kingfisher.dem
DATAFILE LoyalNW.dem
DATAFILE KingfisherNE.dem
DATAFILE LoyalSE.dem
DATAFILE Bessie.dem
DATAFILE Cordell.dem
DATAFILE DillCity.dem
DATAFILE Foss.dem
DATAFILE Rocky.dem
DATAFILE Canute.dem
DATAFILE Corn.dem
DATAFILE DillCityNE.dem

```
  DATAFILE GoteboNW.dem
  DATAFILE Sentinel.dem
  DATAFILE CloudChief.dem
  DATAFILE Cowden.dem
  DATAFILE DillCitySE.dem
  DATAFILE LakeValley.dem
  DATAFILE Colony.dem
  DATAFILE CrowderLake.dem
  DATAFILE ElkCitySE.dem
  DATAFILE Retrop.dem
  DATAFILE Denver.dem
  DATAFILE Moore.dem
  DATAFILE Stella.dem
  DATAFILE Eason.dem
  DATAFILE OklahomaCitySE.dem
  DATAFILE Franklin.dem
  DATAFILE LittleAxe.dem
  DATAFILE Purcell.dem
  DATAFILE Coyle.dem
  DATAFILE GuthrieSE.dem
  DATAFILE Navina.dem
  DATAFILE Crescent.dem
  DATAFILE GuthrieSouth.dem
  DATAFILE CrescentNW.dem
  DATAFILE Langston.dem
  DATAFILE GuthrieNorth.dem
  DATAFILE Meridian.dem
  DOMAINXY 470000.0 3895000.0 14 660000.0 3965000.0 14
  ANCHORXY 565000.0 3930000.0 565000 3930000 14 1
  RUNORNOT RUN
CO FINISHED

SO STARTING
  LOCATION SOURCE POINT 483721.74 3907288.67
SO FINISHED

RE STARTING
  GRIDCART CART0 STA
            XYINC  472000 50 720 3896000 50 680
            END
        CART1 STA
            XYINC  508000 50 720 3896000 50 680
            END
        CART2 STA
            XYINC  544000 50 720 3896000 50 680
            END
        CART3 STA
            XYINC  580000 50 720 3896000 50 680
            END
        CART4 STA
            XYINC  616000 50 720 3896000 50 680
            END
        CART5 STA
            XYINC  472000 50 720 3930000 50 680
            END
        CART6 STA
```

```
            XYINC  508000 50 720 3930000 50 680
            END
        CART7 STA
            XYINC  544000 50 720 3930000 50 680
            END
        CART8 STA
            XYINC  580000 50 720 3930000 50 680
            END
        CART9 STA
            XYINC  616000 50 720 3930000 50 680
            END
RE FINISHED

OU STARTING
  RECEPTOR AERMAP.REC
  SOURCLOC AERMAP.SRC
OU FINISHED

   Default Data Grids
 #  AREA NAME
==============================================================================
 1  Conus
 2  Hawaii
 3  P.R. and V.I.
 4  St. Laurence I.
 5  St. George I.
 6  St. Paul I.
 7  Alaska

Finished Reading Input DEM Data


***********************************
*** SETUP Finishes Successfully ***
***********************************

1 *** AERMAP - VERSION 06341 ***    *** Terrain and Receptor data for Oklahoma Experiment                    ***
01/23/07
                        ***                                                  ***       16:03:18


                              ***     AERMAP SETUP OPTIONS SUMMARY       ***
- - - -
```

```
**The Following Debug Output Files Have Been Automatically Generated:

  DOMDETAIL.OUT - Details of User-specified Domain and Relation to DEM Files
  MAPDETAIL.OUT - Details Regarding Input DEM Files
  MAPPARAMS.OUT - Summary of DEM File Parameters and DEM File Adjacency
1 *** AERMAP - VERSION 06341 ***    *** Terrain and Receptor data for Oklahoma Experiment                    ***
01/23/07
                        ***                                                  ***       16:03:18

 *** Message Summary For AERMAP Execution ***

  --------- Summary of Total Messages --------

 A Total of          0  Fatal Error Message(s)
 A Total of          0  Warning Message(s)
 A Total of          0  Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
          ***  NONE  ***


   ********   WARNING MESSAGES   ********
          ***  NONE  ***


   ************************************
   *** AERMAP Finishes Successfully ***
   ************************************
```

# APPENDIX D BLAST MODELING OUTPUTS

Note: Blast Output file: A breakup at the launch pad (t = 0 second) results in a blast radius of approximately 290 meters, as mentioned in Section 6.3.

| Time (s) | Blast Radius (m) | Time (s) | Blast Radius (m) |
|---|---|---|---|
| 9.32 | 195.31 | 64.02 | 0.00 |
| 9.77 | 163.94 | 65.19 | 0.00 |
| 16.03 | 0.00 | 68.33 | 0.00 |
| 19.21 | 0.00 | 68.95 | 0.00 |
| 20.99 | 0.00 | 69.78 | 0.00 |
| 21.03 | 0.00 | 70.74 | 0.00 |
| 21.81 | 0.00 | 71.63 | 0.00 |
| 22.49 | 0.00 | 74.33 | 0.00 |
| 25.50 | 0.00 | 74.44 | 0.00 |
| 27.62 | 0.00 | 75.00 | 0.00 |
| 27.98 | 0.00 | 75.88 | 0.00 |
| 28.03 | 0.00 | 76.86 | 0.00 |
| 28.64 | 0.00 | 80.44 | 0.00 |
| 28.71 | 0.00 | 80.64 | 0.00 |
| 29.20 | 0.00 | 80.73 | 0.00 |
| 29.92 | 0.00 | 80.79 | 0.00 |
| 29.94 | 0.00 | 81.13 | 0.00 |
| 30.70 | 0.00 | 81.16 | 0.00 |
| 31.97 | 0.00 | 83.80 | 0.00 |
| 32.97 | 0.00 | 86.78 | 0.00 |
| 33.92 | 0.00 | 90.43 | 0.00 |
| 35.26 | 0.00 | 91.18 | 0.00 |
| 35.55 | 0.00 | 92.15 | 0.00 |
| 36.41 | 0.00 | 95.38 | 0.00 |
| 36.56 | 0.00 | 97.54 | 0.00 |
| 36.65 | 0.00 | 100.12 | 0.00 |
| 36.68 | 0.00 | 101.10 | 0.00 |
| 37.32 | 0.00 | 103.09 | 0.00 |
| 37.37 | 0.00 | 103.84 | 0.00 |
| 38.05 | 0.00 | 105.64 | 0.00 |
| 43.07 | 0.00 | 106.48 | 0.00 |
| 44.92 | 0.00 | 107.35 | 0.00 |
| 45.31 | 0.00 | 109.18 | 0.00 |
| 46.11 | 0.00 | 111.15 | 0.00 |
| 46.38 | 0.00 | 113.57 | 0.00 |
| 51.98 | 0.00 | 116.22 | 0.00 |
| 52.91 | 0.00 | 116.66 | 0.00 |
| 53.20 | 0.00 | 118.95 | 0.00 |
| 55.44 | 0.00 | 119.04 | 0.00 |
| 56.36 | 0.00 | 119.33 | 0.00 |
| 57.48 | 0.00 | 121.05 | 0.00 |
| 58.30 | 0.00 | 122.05 | 0.00 |
| 62.92 | 0.00 | 124.36 | 0.00 |
| 63.81 | 0.00 | 124.59 | 0.00 |

# APPENDIX E EXPERIMENT INPUTS AND OUTPUTS

## E.1 CCD Casualties Distribution

### CCD: Northeast Washita

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999939675721 |
| 1 | 2 | 0.00000060324185 |
| 2 | 3 | 0.00000000000094 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.81818 |
| 1 | 5 | 0.02273 |
| 5 | 10 | 0.05682 |
| 10 | 20 | 0.09091 |
| 20 | 30 | 0.00000 |
| 30 | 40 | 0.01136 |

### CCD: Northwest Washita

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.74823953457500 |
| 1 | 2 | 0.03220995443153 |
| 2 | 3 | 0.01798450660579 |
| 3 | 4 | 0.01186182007568 |
| 4 | 5 | 0.00839589460036 |
| 5 | 6 | 0.00599040573373 |
| 6 | 7 | 0.00428165588537 |
| 7 | 8 | 0.00323549410608 |
| 8 | 9 | 0.00274481155503 |
| 9 | 10 | 0.00261361588884 |
| 10 | 20 | 0.02552789663583 |
| 20 | 40 | 0.03449168879843 |
| 40 | 100 | 0.06277971800950 |
| 100 | 500 | 0.03964300309883 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.55682 |
| 1 | 10 | 0.06818 |
| 10 | 50 | 0.00000 |
| 50 | 100 | 0.05682 |
| 100 | 200 | 0.09091 |
| 200 | 500 | 0.04545 |
| 500 | 800 | 0.10227 |
| 800 | 1100 | 0.01136 |
| 1100 | 1300 | 0.06818 |

Blast

| | | |
|---|---|---|
| 0 | 1 | 0.96591 |
| 1 | 10 | 0.01136 |
| 10 | 20 | 0.02273 |

CCD: Binger-Hinton

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999993935372 |
| 1 | 2 | 0.00000006064627 |
| 2 | 3 | 0.00000000000001 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.93182 |
| 1 | 10 | 0.01136 |
| 10 | 15 | 0.03409 |
| 15 | 20 | 0.02273 |
| 20 | 30 | 0.00000 |

CCD: El Reno

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999971281266 |
| 1 | 2 | 0.00000028718671 |
| 2 | 3 | 0.00000000000063 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.96591 |
| 1 | 2 | 0.02273 |
| 2 | 5 | 0.01136 |

## CCD: Hydro

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999999135992 |
| 1 | 2 | 0.00000000864008 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.94318 |
| 1 | 5 | 0.03409 |
| 5 | 10 | 0.01136 |
| 10 | 15 | 0.01136 |
| 15 | 20 | 0.00000 |

## CCD: Southeast Washita

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999999650094 |
| 1 | 2 | 0.00000000349906 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.95455 |
| 1 | 5 | 0.01136 |
| 5 | 10 | 0.03409 |

CCD: West Canadian

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999985616171 |
| 1 | 2 | 0.00000014383822 |
| 2 | 3 | 0.00000000000006 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.95455 |
| 1 | 5 | 0.01136 |
| 5 | 10 | 0.02273 |
| 10 | 16 | 0.01136 |

CCD: Weatherford

Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999999360354 |
| 1 | 2 | 0.00000000639646 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

Gas

| | | |
|---|---|---|
| 0 | 1 | 0.95455 |
| 1 | 5 | 0.04545 |
| 5 | 10 | 0.00000 |

CCD: Guthrie – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999893808249 |
| 1 | 2 | 0.00000106189482 |
| 2 | 3 | 0.00000000002270 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

CCD: Geary – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999999997916 |
| 1 | 2 | 0.00000000002084 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

CCD: East Canadian – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999962250015 |
| 1 | 2 | 0.00000037749669 |
| 2 | 3 | 0.00000000000316 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

CCD: Oklahoma – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999974988834 |
| 1 | 2 | 0.00000025011066 |
| 2 | 3 | 0.00000000000100 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

CCD: Okarche-Cashion – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999999996361 |
| 1 | 2 | 0.00000000003640 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

CCD: Walnut – Debris

| | | |
|---|---|---|
| 0 | 1 | 0.99999998995243 |
| 1 | 2 | 0.00000001004757 |
| 2 | 3 | 0.00000000000000 |
| 3 | 4 | 0.00000000000000 |
| 4 | 5 | 0.00000000000000 |
| 5 | 6 | 0.00000000000000 |
| 6 | 7 | 0.00000000000000 |
| 7 | 8 | 0.00000000000000 |
| 8 | 9 | 0.00000000000000 |
| 9 | 10 | 0.00000000000000 |
| 10 | 20 | 0.00000000000000 |
| 20 | 40 | 0.00000000000000 |
| 40 | 100 | 0.00000000000000 |
| 100 | 500 | 0.00000000000000 |
| 500 | 501 | 0.00000000000000 |

## E.2 CCD Data for Matched-Pairs Tests

Probabilities of Observing at Least 1 Casualty in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.068180 | 1.000000 | 0.534090 | 0.068180 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.056820 | 1.000000 | 0.528410 | 0.056820 | 0.000000 | 0.056810 | 0.000000 |
| NE Washita | 0.181819 | 0.999999 | 0.590909 | 0.181821 | 0.000001 | 0.181820 | 0.000000 |
| NW Washita | 0.443180 | 1.000000 | 0.721590 | 0.597568 | 0.251760 | 0.443170 | 0.034090 |
| SE Washita | 0.045450 | 1.000000 | 0.522725 | 0.045450 | 0.000000 | 0.045450 | 0.000000 |
| W Canadian | 0.045450 | 1.000000 | 0.522725 | 0.045450 | 0.000000 | 0.045450 | 0.000000 |
| El Reno | 0.034090 | 1.000000 | 0.517045 | 0.034090 | 0.000000 | 0.034090 | 0.000000 |
| Weatherford | 0.045450 | 1.000000 | 0.522725 | 0.045450 | 0.000000 | 0.045450 | 0.000000 |

Probabilities of Observing Less than 1 Casualty in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.943180 | 0.471590 | 0.931820 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.000000 | 0.977270 | 0.488635 | 0.943180 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.000000 | 0.840910 | 0.420455 | 0.818180 | 0.999999 | 0.818180 | 1.000000 |
| NW Washita | 0.000000 | 0.625000 | 0.312500 | 0.402432 | 0.748240 | 0.556820 | 0.965910 |
| SE Washita | 0.000000 | 0.965910 | 0.482955 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.000000 | 0.965910 | 0.482955 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.000000 | 0.988640 | 0.494320 | 0.965910 | 1.000000 | 0.965910 | 1.000000 |
| Weatherford | 0.000000 | 1.000000 | 0.500000 | 0.954550 | 1.000000 | 0.954550 | 1.000000 |

Probabilities of Observing at Least 2 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.022730 | 0.056820 | 0.039775 | 0.022730 | 0.000000 | 0.056810 | 0.000000 |
| NE Washita | 0.159089 | 0.181820 | 0.170455 | 0.159090 | 0.000000 | 0.181820 | 0.000000 |
| NW Washita | 0.375000 | 1.000000 | 0.687500 | 0.526236 | 0.219551 | 0.443170 | 0.034090 |
| SE Washita | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| W Canadian | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| El Reno | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.011360 | 0.000000 |
| Weatherford | 0.000000 | 0.045450 | 0.022725 | 0.000000 | 0.000000 | 0.045450 | 0.000000 |

Probabilities of Observing Less than 2 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.943180 | 0.977270 | 0.960225 | 0.977270 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.818179 | 0.840910 | 0.829545 | 0.840910 | 1.000000 | 0.818180 | 1.000000 |
| NW Washita | 0.000000 | 0.625000 | 0.312500 | 0.473764 | 0.780449 | 0.556820 | 0.965910 |
| SE Washita | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.965910 | 1.000000 | 0.982955 | 0.988640 | 1.000000 | 0.988640 | 1.000000 |
| Weatherford | 0.954550 | 1.000000 | 0.977275 | 1.000000 | 1.000000 | 0.954550 | 1.000000 |

Probabilities of Observing at Least 3 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.022730 | 0.056820 | 0.039775 | 0.022730 | 0.000000 | 0.056810 | 0.000000 |
| NE Washita | 0.159089 | 0.181819 | 0.170454 | 0.159090 | 0.000000 | 0.181820 | 0.000000 |
| NW Washita | 0.375000 | 0.729030 | 0.552015 | 0.513659 | 0.201566 | 0.443170 | 0.034090 |
| SE Washita | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| W Canadian | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| El Reno | 0.000000 | 0.011360 | 0.005680 | 0.000000 | 0.000000 | 0.011360 | 0.000000 |
| Weatherford | 0.000000 | 0.045450 | 0.022725 | 0.000000 | 0.000000 | 0.045450 | 0.000000 |

Probabilities of Observing Less than 3 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.943180 | 0.977270 | 0.960225 | 0.977270 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.818180 | 0.840910 | 0.829545 | 0.840910 | 1.000000 | 0.818180 | 1.000000 |
| NW Washita | 0.270970 | 0.625000 | 0.447985 | 0.486341 | 0.798434 | 0.556820 | 0.965910 |
| SE Washita | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.988640 | 1.000000 | 0.994320 | 1.000000 | 1.000000 | 0.988640 | 1.000000 |
| Weatherford | 0.954550 | 1.000000 | 0.977275 | 1.000000 | 1.000000 | 0.954550 | 1.000000 |

Probabilities of Observing at Least 4 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.022730 | 0.056820 | 0.039775 | 0.022730 | 0.000000 | 0.056810 | 0.000000 |
| NE Washita | 0.159089 | 0.181819 | 0.170454 | 0.159090 | 0.000000 | 0.181820 | 0.000000 |
| NW Washita | 0.375000 | 0.696820 | 0.535910 | 0.505956 | 0.189704 | 0.443170 | 0.034090 |
| SE Washita | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| W Canadian | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.045450 | 0.000000 |
| El Reno | 0.000000 | 0.011360 | 0.005680 | 0.000000 | 0.000000 | 0.011360 | 0.000000 |
| Weatherford | 0.000000 | 0.045450 | 0.022725 | 0.000000 | 0.000000 | 0.045450 | 0.000000 |

Probabilities of Observing Less than 4 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.943180 | 0.977270 | 0.960225 | 0.977270 | 1.000000 | 0.943180 | 1.000000 |
| NE Washita | 0.818180 | 0.840910 | 0.829545 | 0.840910 | 1.000000 | 0.818180 | 1.000000 |
| NW Washita | 0.303180 | 0.625000 | 0.464090 | 0.494044 | 0.810296 | 0.556820 | 0.965910 |
| SE Washita | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| W Canadian | 0.954550 | 0.965910 | 0.960230 | 0.965910 | 1.000000 | 0.954550 | 1.000000 |
| El Reno | 0.988640 | 1.000000 | 0.994320 | 1.000000 | 1.000000 | 0.988640 | 1.000000 |
| Weatherford | 0.954550 | 1.000000 | 0.977275 | 1.000000 | 1.000000 | 0.954550 | 1.000000 |

Probabilities of Observing at Least 5 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.022730 | 0.056820 | 0.039775 | 0.022730 | 0.000000 | 0.022720 | 0.000000 |
| NE Washita | 0.159089 | 0.181819 | 0.170454 | 0.159090 | 0.000000 | 0.159090 | 0.000000 |
| NW Washita | 0.375000 | 0.678836 | 0.526918 | 0.500570 | 0.181308 | 0.443170 | 0.034090 |
| SE Washita | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.034090 | 0.000000 |
| W Canadian | 0.034090 | 0.045450 | 0.039770 | 0.034090 | 0.000000 | 0.034090 | 0.000000 |
| El Reno | 0.000000 | 0.011360 | 0.005680 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.045450 | 0.022725 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 5 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.943180 | 0.988630 | 0.965905 | 0.977270 | 1.000000 | 0.977270 | 1.000000 |
| NE Washita | 0.818180 | 0.897730 | 0.857955 | 0.840910 | 1.000000 | 0.840910 | 1.000000 |
| NW Washita | 0.321164 | 0.625000 | 0.473082 | 0.499430 | 0.818692 | 0.556820 | 0.965910 |
| SE Washita | 0.954550 | 1.000000 | 0.977275 | 0.965910 | 1.000000 | 0.965910 | 1.000000 |
| W Canadian | 0.954550 | 0.988640 | 0.971595 | 0.965910 | 1.000000 | 0.965910 | 1.000000 |
| El Reno | 0.988640 | 1.000000 | 0.994320 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 0.954550 | 1.000000 | 0.977275 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 6 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.011370 | 0.022730 | 0.017050 | 0.011370 | 0.000000 | 0.022720 | 0.000000 |
| NE Washita | 0.102269 | 0.159090 | 0.130680 | 0.102270 | 0.000000 | 0.159090 | 0.000000 |
| NW Washita | 0.375000 | 0.666974 | 0.520987 | 0.496733 | 0.175318 | 0.443170 | 0.034090 |
| SE Washita | 0.000000 | 0.034090 | 0.017045 | 0.000000 | 0.000000 | 0.034090 | 0.000000 |
| W Canadian | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.034090 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 6 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.977270 | 0.988630 | 0.982950 | 0.988630 | 1.000000 | 0.977270 | 1.000000 |
| NE Washita | 0.840909 | 0.897730 | 0.869320 | 0.897730 | 1.000000 | 0.840910 | 1.000000 |
| NW Washita | 0.333026 | 0.625000 | 0.479013 | 0.503267 | 0.824682 | 0.556820 | 0.965910 |
| SE Washita | 0.965910 | 1.000000 | 0.982955 | 1.000000 | 1.000000 | 0.965910 | 1.000000 |
| W Canadian | 0.965910 | 0.988640 | 0.977275 | 0.988640 | 1.000000 | 0.965910 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 7 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.011370 | 0.022730 | 0.017050 | 0.011370 | 0.000000 | 0.022720 | 0.000000 |
| NE Washita | 0.102269 | 0.159089 | 0.130679 | 0.102270 | 0.000000 | 0.159090 | 0.000000 |
| NW Washita | 0.375000 | 0.658578 | 0.516789 | 0.493991 | 0.171036 | 0.443170 | 0.034090 |
| SE Washita | 0.000000 | 0.034090 | 0.017045 | 0.000000 | 0.000000 | 0.034090 | 0.000000 |
| W Canadian | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.034090 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 7 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.977270 | 0.988630 | 0.982950 | 0.988630 | 1.000000 | 0.977270 | 1.000000 |
| NE Washita | 0.840910 | 0.897730 | 0.869320 | 0.897730 | 1.000000 | 0.840910 | 1.000000 |
| NW Washita | 0.341422 | 0.625000 | 0.483211 | 0.506009 | 0.828964 | 0.556820 | 0.965910 |
| SE Washita | 0.965910 | 1.000000 | 0.982955 | 1.000000 | 1.000000 | 0.965910 | 1.000000 |
| W Canadian | 0.965910 | 0.988640 | 0.977275 | 0.988640 | 1.000000 | 0.965910 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 8 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.011370 | 0.022730 | 0.017050 | 0.011370 | 0.000000 | 0.022720 | 0.000000 |
| NE Washita | 0.102269 | 0.159089 | 0.130679 | 0.102270 | 0.000000 | 0.159090 | 0.000000 |
| NW Washita | 0.375000 | 0.652588 | 0.513794 | 0.491937 | 0.167801 | 0.443170 | 0.034090 |
| SE Washita | 0.000000 | 0.034090 | 0.017045 | 0.000000 | 0.000000 | 0.034090 | 0.000000 |
| W Canadian | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.034090 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 8 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.977270 | 0.988630 | 0.982950 | 0.988630 | 1.000000 | 0.977270 | 1.000000 |
| NE Washita | 0.840910 | 0.897730 | 0.869320 | 0.897730 | 1.000000 | 0.840910 | 1.000000 |
| NW Washita | 0.347412 | 0.625000 | 0.486206 | 0.508063 | 0.832199 | 0.556820 | 0.965910 |
| SE Washita | 0.965910 | 1.000000 | 0.982955 | 1.000000 | 1.000000 | 0.965910 | 1.000000 |
| W Canadian | 0.965910 | 0.988640 | 0.977275 | 0.988640 | 1.000000 | 0.965910 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 9 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.068180 | 0.000000 |
| Hydro | 0.011370 | 0.022730 | 0.017050 | 0.011370 | 0.000000 | 0.022720 | 0.000000 |
| NE Washita | 0.102269 | 0.159089 | 0.130679 | 0.102270 | 0.000000 | 0.159090 | 0.000000 |
| NW Washita | 0.375000 | 0.648306 | 0.511653 | 0.490224 | 0.165056 | 0.443170 | 0.034090 |
| SE Washita | 0.000000 | 0.034090 | 0.017045 | 0.000000 | 0.000000 | 0.034090 | 0.000000 |
| W Canadian | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.034090 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 9 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.943180 | 0.937500 | 0.943180 | 1.000000 | 0.931820 | 1.000000 |
| Hydro | 0.977270 | 0.988630 | 0.982950 | 0.988630 | 1.000000 | 0.977270 | 1.000000 |
| NE Washita | 0.840910 | 0.897730 | 0.869320 | 0.897730 | 1.000000 | 0.840910 | 1.000000 |
| NW Washita | 0.351694 | 0.625000 | 0.488347 | 0.509776 | 0.834944 | 0.556820 | 0.965910 |
| SE Washita | 0.965910 | 1.000000 | 0.982955 | 1.000000 | 1.000000 | 0.965910 | 1.000000 |
| W Canadian | 0.965910 | 0.988640 | 0.977275 | 0.988640 | 1.000000 | 0.965910 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 10 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.056820 | 0.068180 | 0.062500 | 0.056820 | 0.000000 | 0.056820 | 0.000000 |
| Hydro | 0.011370 | 0.022730 | 0.017050 | 0.011370 | 0.000000 | 0.011360 | 0.000000 |
| NE Washita | 0.102269 | 0.159089 | 0.130679 | 0.102270 | 0.000000 | 0.102270 | 0.000000 |
| NW Washita | 0.375000 | 0.645071 | 0.510035 | 0.488618 | 0.162442 | 0.374990 | 0.022730 |
| SE Washita | 0.000000 | 0.034090 | 0.017045 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.011360 | 0.034090 | 0.022725 | 0.011360 | 0.000000 | 0.011360 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 10 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.931820 | 0.977270 | 0.954545 | 0.943180 | 1.000000 | 0.943180 | 1.000000 |
| Hydro | 0.977270 | 0.999990 | 0.988630 | 0.988630 | 1.000000 | 0.988630 | 1.000000 |
| NE Washita | 0.840910 | 0.988640 | 0.914775 | 0.897730 | 1.000000 | 0.897730 | 1.000000 |
| NW Washita | 0.354929 | 0.625000 | 0.489965 | 0.511382 | 0.837558 | 0.625000 | 0.977270 |
| SE Washita | 0.965910 | 1.000000 | 0.982955 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 0.965910 | 1.000000 | 0.982955 | 0.988640 | 1.000000 | 0.988640 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 20 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.022730 | 0.011365 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000010 | 0.000005 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.011359 | 0.102269 | 0.056814 | 0.011360 | 0.000000 | 0.011360 | 0.000000 |
| NW Washita | 0.375000 | 0.574146 | 0.474573 | 0.460938 | 0.136914 | 0.374990 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 20 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.977270 | 1.000000 | 0.988635 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 0.999990 | 1.000000 | 0.999995 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.897730 | 0.988640 | 0.943185 | 0.988640 | 1.000000 | 0.988640 | 1.000000 |
| NW Washita | 0.425854 | 0.625000 | 0.525427 | 0.539062 | 0.863086 | 0.625000 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 40 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.011359 | 0.005680 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.375000 | 0.534644 | 0.454822 | 0.439014 | 0.102423 | 0.374990 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 40 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.988640 | 0.999999 | 0.994320 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 0.465356 | 0.625000 | 0.545178 | 0.560986 | 0.897577 | 0.625000 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 100 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.318180 | 0.477423 | 0.397801 | 0.345290 | 0.039643 | 0.318170 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 100 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.999999 | 0.999999 | 0.999999 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 0.522577 | 0.772730 | 0.647654 | 0.654709 | 0.960357 | 0.681820 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 500 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.181820 | 0.266913 | 0.224366 | 0.181820 | 0.000000 | 0.181810 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 500 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.999999 | 0.999999 | 0.999999 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 0.733087 | 0.920450 | 0.826769 | 0.818180 | 1.000000 | 0.818180 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 1000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.068190 | 0.119193 | 0.093691 | 0.068190 | 0.000000 | 0.079540 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 1000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.999999 | 0.999999 | 0.999999 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 0.880807 | 0.931810 | 0.906308 | 0.931810 | 1.000000 | 0.920450 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 2000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 2000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.999999 | 0.999999 | 0.999999 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

Probabilities of Observing at Least 5000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Hydro | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| NW Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| SE Washita | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| W Canadian | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| El Reno | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Weatherford | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

Probabilities of Observing Less than 5000 Casualties in each CCD

| CCD | LB | UB | AVG | IND | DEBRIS | GAS | BLAST |
|---|---|---|---|---|---|---|---|
| Binger-Hinton | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Hydro | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| NE Washita | 0.999999 | 0.999999 | 0.999999 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| NW Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 0.999990 | 1.000000 |
| SE Washita | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| W Canadian | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| El Reno | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |
| Weatherford | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 |

## E.3 Matched-Pairs Tests Results

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 17 - 33
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 17 | 1 | (0.3465,0.5228) | 93.00 | 0.0096 |
| 18 | 2 | (-0.0965,0.1363) | 76.00 | 0.4299 |
| 19 | 3 | (-0.0966,0.1137) | 76.00 | 0.4299 |
| 20 | 4 | (-0.0966,0.1137) | 76.00 | 0.4299 |
| 21 | 5 | (-0.0967,0.1137) | 76.00 | 0.4299 |
| 22 | 6 | (-0.0569,0.0738) | 75.00 | 0.4884 |
| 23 | 7 | (-0.0568,0.0738) | 75.00 | 0.4884 |
| 24 | 8 | (-0.0568,0.0739) | 75.00 | 0.4884 |
| 25 | 9 | (-0.0568,0.0738) | 75.00 | 0.4884 |
| 26 | 10 | (-0.0568,0.0739) | 75.00 | 0.4884 |
| 27 | 20 | (-0.0001,0.0569) | 76.00 | 0.3654 |
| 28 | 40 | (-0.0001,0.0056) | 72.00 | 0.5897 |
| 29 | 100 | (0.0000,0.0000) | 68.50 | 1.0000 |
| 30 | 500 | (0.0000,0.0000) | 68.50 | 1.0000 |
| 31 | 1000 | (0.00002,0.00001) | 68.50 | 1.0000 |
| 32 | 2000 | | | |
| 33 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 34 - 50
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 34 | 1 | (-0.5056,-0.3353) | 43.00 | 0.0098 |
| 35 | 2 | (-0.1363,0.0967) | 60.00 | 0.4302 |
| 36 | 3 | (-0.1137,0.0966) | 60.00 | 0.4299 |
| 37 | 4 | (-0.1137,0.0966) | 60.00 | 0.4299 |
| 38 | 5 | (-0.0852,0.0965) | 66.00 | 0.8746 |
| 39 | 6 | (-0.0738,0.0569) | 61.00 | 0.4884 |
| 40 | 7 | (-0.0738,0.0568) | 61.00 | 0.4884 |
| 41 | 8 | (-0.0739,0.0568) | 61.00 | 0.4884 |
| 42 | 9 | (-0.0738,0.0568) | 61.00 | 0.4884 |
| 43 | 10 | (-0.0455,0.0568) | 63.50 | 0.6693 |
| 44 | 20 | (-0.0569,0.0001) | 60.00 | 0.3654 |
| 45 | 40 | (-0.0056,0.0001) | 64.00 | 0.5897 |
| 46 | 100 | (-0.0000,0.0001) | 67.50 | 1.0000 |
| 47 | 500 | (-0.0000,0.0000) | 68.50 | 1.0000 |
| 48 | 1000 | (-0.0000,-0.0000) | 64.50 | 0.7237 |
| 49 | 2000 | (-0.0000,-0.0000) | 57.00 | 0.2670 |
| 50 | 5000 | (-0.0000,-0.0000) | 57.00 | 0.2670 |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 51 - 67
Two Tailed
Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 51 | 1 | (0.5170,0.5908) | 100.00 | 0.0005 |
| 52 | 2 | (0.0226,0.1704) | 93.00 | 0.0071 |
| 53 | 3 | (0.0056,0.1705) | 93.00 | 0.0072 |
| 54 | 4 | (0.0057,0.1704) | 93.00 | 0.0072 |
| 55 | 5 | (0.0057,0.1705) | 93.00 | 0.0072 |
| 56 | 6 | (-0.0001,0.1306) | 86.00 | 0.0428 |
| 57 | 7 | (0.0000,0.1306) | 86.00 | 0.0428 |
| 58 | 8 | (0.0000,0.1307) | 86.00 | 0.0428 |
| 59 | 9 | (-0.0001,0.1307) | 86.00 | 0.0428 |
| 60 | 10 | 0.0000,0.1307) | 86.00 | 0.0428 |
| 61 | 20 | (-0.0000,0.0568) | 79.00 | 0.1800 |
| 62 | 40 | (-0.0001,0.0057) | 72.00 | 0.5897 |
| 63 | 100 | (0.0000,-0.0000) | 68.50 | 1.0000 |
| 64 | 500 | | | |
| 65 | 1000 | | | |
| 66 | 2000 | | | |
| 67 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 68 - 84
Two Tailed
Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 68 | 1 | (-0.5796,-0.5000) | 36.00 | 0.0005 |
| 69 | 2 | (-0.1704,-0.0170) | 43.00 | 0.0072 |
| 70 | 3 | (-0.1705,-0.0056) | 43.00 | 0.0072 |
| 71 | 4 | (-0.1704,-0.0057) | 43.00 | 0.0072 |
| 72 | 5 | (-0.1420,-0.0057) | 43.00 | 0.0072 |
| 73 | 6 | (-0.1306,0.0001) | 50.00 | 0.0428 |
| 74 | 7 | (-0.1306,-0.0000) | 50.00 | 0.0428 |
| 75 | 8 | (-0.1307,-0.0000) | 50.00 | 0.0428 |
| 76 | 9 | (-0.1307,0.0001) | 50.00 | 0.0428 |
| 77 | 10 | (-0.0853,-0.0001) | 50.00 | 0.0427 |
| 78 | 20 | (-0.0568,0.0000) | 57.00 | 0.1800 |
| 79 | 40 | (-0.0057,0.0001) | 64.00 | 0.5897 |
| 80 | 100 | (0.0000,-0.0000) | 67.50 | 1.0000 |
| 81 | 500 | | | |
| 82 | 1000 | | | |
| 83 | 2000 | | | |
| 84 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 85 - 101
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 85 | 1 | (0.3465,0.5228) | 100.00 | 0.0009 |
| 86 | 2 | (-0.1195,0.1135) | 60.00 | 0.4289 |
| 87 | 3 | (-0.1193,0.1087) | 59.00 | 0.3703 |
| 88 | 4 | (-0.1193,0.1023) | 59.00 | 0.3703 |
| 89 | 5 | (-0.0966,0.1023) | 76.00 | 0.4299 |
| 90 | 6 | (-0.0966,0.0777) | 64.00 | 0.7109 |
| 91 | 7 | (-0.0967,0.0737) | 64.00 | 0.7109 |
| 92 | 8 | (-0.0965,0.0706) | 64.00 | 0.7109 |
| 93 | 9 | (-0.0967,0.0684) | 64.00 | 0.7109 |
| 94 | 10 | (-0.0568,0.1193) | 75.00 | 0.4880 |
| 95 | 20 | (-0.0000,0.0569) | 76.00 | 0.3654 |
| 96 | 40 | (0.0001,0.0057) | 72.00 | 0.5897 |
| 97 | 100 | (0.0000,0.0001) | 68.50 | 1.0000 |
| 98 | 500 | (0.0000,0.0000) | 68.50 | 1.0000 |
| 99 | 1000 | (-0.00001,0.00001) | 68.50 | 1.0000 |
| 100 | 2000 | | | |
| 101 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 102- 118
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 102 | 1 | (-0.5058,-0.3352) | 36.00 | 0.0009 |
| 103 | 2 | (-0.1136,0.1194) | 76.00 | 0.4292 |
| 104 | 3 | (-0.1087,0.1193) | 77.00 | 0.3703 |
| 105 | 4 | (-0.1023,0.1193) | 77.00 | 0.3703 |
| 106 | 5 | (-0.0836,0.0966) | 67.00 | 0.9580 |
| 107 | 6 | (-0.0777,0.0966) | 73.00 | 0.6337 |
| 108 | 7 | (-0.0737,0.0967) | 73.00 | 0.6337 |
| 109 | 8 | (-0.0706,0.0967) | 73.00 | 0.6337 |
| 110 | 9 | (-0.0684,0.0967) | 73.00 | 0.6337 |
| 111 | 10 | (-0.0738,0.0569) | 63.50 | 0.6693 |
| 112 | 20 | (-0.0569,0.0000) | 63.00 | 0.6025 |
| 113 | 40 | (-0.0057,-0.0000) | 67.00 | 0.9450 |
| 114 | 100 | (-0.0001,0.0000) | 71.00 | 0.7001 |
| 115 | 500 | (-0.0000,0.0000) | 72.00 | 0.5897 |
| 116 | 1000 | (-0.0000,0.0000) | 71.00 | 0.7620 |
| 117 | 2000 | (-0.0000,0.0000) | 70.00 | 0.8710 |
| 118 | 5000 | (-0.0000,0.0000) | 70.00 | 0.8710 |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 119 - 135
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 119 | 1 | (0.51708,0.59089) | 100.00 | 0.0005 |
| 120 | 2 | (0.0228,0.1703) | 98.00 | 0.0012 |
| 121 | 3 | (0.0228,0.1705) | 98.00 | 0.0012 |
| 122 | 4 | (0.0228,0.1705) | 98.00 | 0.0012 |
| 123 | 5 | (0.0227,0.1705) | 98.00 | 0.0012 |
| 124 | 6 | (0.0001,0.1307) | 88.00 | 0.0240 |
| 125 | 7 | (-0.0001,0.1307) | 88.00 | 0.0240 |
| 126 | 8 | (-0.0001,0.1307) | 88.00 | 0.0240 |
| 127 | 9 | (0.0000,0.1306) | 88.00 | 0.0240 |
| 128 | 10 | (0.0001,0.1307) | 88.00 | 0.0240 |
| 129 | 20 | | | |
| 130 | 40 | | | |
| 131 | 100 | | | |
| 132 | 500 | | | |
| 133 | 1000 | | | |
| 134 | 2000 | | | |
| 135 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 136- 152
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 136 | 1 | (-0.5796,-0.5000) | 36 | 0.0005 |
| 137 | 2 | (-0.1705,-0.0227) | 38 | 0.0012 |
| 138 | 3 | (-0.1705,-0.0228) | 38 | 0.0012 |
| 139 | 4 | (-0.1705,-0.0228) | 40 | 0.0012 |
| 140 | 5 | (-0.1420,-0.0227) | 40 | 0.0026 |
| 141 | 6 | (-0.1307,-0.0001) | 48 | 0.0026 |
| 142 | 7 | (-0.1307,0.0001) | 48 | 0.024 |
| 143 | 8 | (-0.1307,0.0001) | 48 | 0.024 |
| 144 | 9 | (-0.1306,-0.0000) | 48 | 0.024 |
| 145 | 10 | (-0.0853,0.0001) | 48 | 0.0239 |
| 146 | 20 | (-0.0569,0.0000) | 52 | 0.0325 |
| 147 | 40 | | | |
| 148 | 100 | | | |
| 149 | 500 | | | |
| 150 | 1000 | | | |
| 151 | 2000 | | | |
| 152 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 153 - 169
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 153 | 1 | (-1.0000,-1.0000) | 36.00 | 0.0001 |
| 154 | 2 | (-0.1818,-0.0341) | 43.00 | 0.0035 |
| 155 | 3 | (-0.1819,-0.0113) | 43.00 | 0.0035 |
| 156 | 4 | (-0.1818,-0.0113) | 43.00 | 0.0035 |
| 157 | 5 | (-0.1818,-0.0113) | 42.00 | 0.0025 |
| 158 | 6 | (-0.1590,0.0001) | 50.00 | 0.0213 |
| 159 | 7 | (-0.1591,-0.0000) | 50.00 | 0.0213 |
| 160 | 8 | (-0.1590,0.0001) | 50.00 | 0.0213 |
| 161 | 9 | (-0.1592,0.0000) | 50.00 | 0.0213 |
| 162 | 10 | (-0.1590,0.0000) | 50.00 | 0.0213 |
| 163 | 20 | (-0.1023,-0.0001) | 57.00 | 0.0900 |
| 164 | 40 | (-0.0114,-0.0001) | 64.00 | 0.2949 |
| 165 | 100 | (0.0000,0.0001) | 67.50 | 0.5000 |
| 166 | 500 | | | |
| 167 | 1000 | | | |
| 168 | 2000 | | | |
| 169 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 170 - 186
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 170 | 1 | (-0.1819,-0.0341) | 43 | 0.0035 |
| 171 | 2 | (-0.1591,0.0000) | 46.5 | 0.0092 |
| 172 | 3 | (-0.1591,0.0000) | 50 | 0.0213 |
| 173 | 4 | (-0.1591,-0.0001) | 50 | 0.0213 |
| 174 | 5 | (-0.1591,0.0000) | 50 | 0.0213 |
| 175 | 6 | (-0.1023,0.0001) | 53.5 | 0.0456 |
| 176 | 7 | (-0.1022,-0.0000) | 53.5 | 0.0456 |
| 177 | 8 | (-0.1023,0.0000) | 53.5 | 0.0456 |
| 178 | 9 | (-0.1023,-0.0000) | 53.5 | 0.0456 |
| 179 | 10 | (-0.1023,0.0000) | 53.5 | 0.0456 |
| 180 | 20 | (-0.0114,-0.0000) | 64 | 0.2949 |
| 181 | 40 | (0.0001,-0.0000) | 67.5 | 0.5 |
| 182 | 100 | (-0.0001,0.0000) | 67.5 | 0.5 |
| 183 | 500 | | | |
| 184 | 1000 | | | |
| 185 | 2000 | | | |
| 186 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 187 - 203
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 187 | 1 | (-0.9545,-0.8182) | 36 | 0.0002 |
| 188 | 2 | (-0.1252,0.1135) | 66.5 | 0.457 |
| 189 | 3 | (-0.1250,0.1136) | 67 | 0.4785 |
| 190 | 4 | (-0.1250,0.1136) | 67 | 0.4785 |
| 191 | 5 | (-0.1477,0.0910) | 57.5 | 0.1456 |
| 192 | 6 | (-0.1250,0.0908) | 67 | 0.4787 |
| 193 | 7 | (-0.1250,0.0908) | 67 | 0.4787 |
| 194 | 8 | (-0.1250,0.0908) | 67 | 0.4787 |
| 195 | 9 | (-0.1250,0.0908) | 67 | 0.4787 |
| 196 | 10 | (-0.1478,0.0568) | 61 | 0.2439 |
| 197 | 20 | (-0.1022,0.0000) | 60 | 0.1827 |
| 198 | 40 | (-0.0113,-0.0001) | 64 | 0.2949 |
| 199 | 100 | (-0.0000,0.0000) | 67.5 | 0.5 |
| 200 | 500 | (-0.0000,0.0000) | 67.5 | 0.5 |
| 201 | 1000 | (0.00001,0.00002) | 67.5 | 0.5 |
| 202 | 2000 | | | |
| 203 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 221 - 237
Two Tailed Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 221 | 1 | (-1.0000,-1.0000) | 36 | 0.0002 |
| 222 | 2 | (-0.1817,-0.0342) | 36.5 | 0.0003 |
| 223 | 3 | (-0.1819,-0.0340) | 37 | 0.0004 |
| 224 | 4 | (-0.1817,-0.0341) | 37 | 0.0004 |
| 225 | 5 | (-0.1819,-0.0341) | 37 | 0.0004 |
| 226 | 6 | (-0.1590,-0.0000) | 47 | 0.0086 |
| 227 | 7 | (-0.1590,0.0001) | 47 | 0.0086 |
| 228 | 8 | (-0.1591,-0.0001) | 47 | 0.0086 |
| 229 | 9 | (-0.1590,0.0001) | 47 | 0.0086 |
| 230 | 10 | (-0.1591,0.0000) | 45.5 | 0.0054 |
| 231 | 20 | | | |
| 232 | 40 | | | |
| 233 | 100 | | | |
| 234 | 500 | | | |
| 235 | 1000 | | | |
| 236 | 2000 | | | |
| 237 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 238 - 254
Two Tailed
Tests

| Test # | Threshold x | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 238 | 1 | (-0.1819,-0.0341) | 36.5 | 0.0003 |
| 239 | 2 | (-0.1591,-0.0114) | 43.5 | 0.0035 |
| 240 | 3 | (-0.1591,-0.0000) | 47 | 0.0086 |
| 241 | 4 | (-0.1591,-0.0000) | 47 | 0.0086 |
| 242 | 5 | (-0.1591,-0.0000) | 47 | 0.0086 |
| 243 | 6 | (-0.1023,-0.0000) | 51.5 | 0.0268 |
| 244 | 7 | (-0.1023,-0.0000) | 51.5 | 0.0268 |
| 245 | 8 | (-0.1023,-0.0000) | 51.5 | 0.0268 |
| 246 | 9 | (-0.1023,-0.0000) | 51.5 | 0.0268 |
| 247 | 10 | (-0.1023,0.0001) | 51.5 | 0.0268 |
| 248 | 20 | | | |
| 249 | 40 | | | |
| 250 | 100 | | | |
| 251 | 500 | | | |
| 252 | 1000 | | | |
| 253 | 2000 | | | |
| 254 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 255 - 271
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 255 | 1 | | | |
| 256 | 2 | (0.0341,0.1818) | 93 | 0.0035 |
| 257 | 3 | (0.0113,0.1819) | 93 | 0.0035 |
| 258 | 4 | (0.0113,0.1818) | 93 | 0.0035 |
| 259 | 5 | (0.0113,0.1818) | 94 | 0.0025 |
| 260 | 6 | (-0.0001,0.1590) | 86 | 0.0213 |
| 261 | 7 | (0.0000,0.1591) | 86 | 0.0213 |
| 262 | 8 | (-0.0001,0.1590) | 86 | 0.0213 |
| 263 | 9 | (-0.0000,0.1592) | 86 | 0.0213 |
| 264 | 10 | (-0.0000,0.1590) | 86 | 0.0213 |
| 265 | 20 | (0.0001,0.1023) | 79 | 0.09 |
| 266 | 40 | (0.0001,0.0114) | 72 | 0.2949 |
| 267 | 100 | (-0.0001,-0.0000) | 68.5 | 0.5 |
| 268 | 500 | | | |
| 269 | 1000 | | | |
| 270 | 2000 | | | |
| 271 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 272 - 288
Two Tailed
Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 272 | 1 | (-0.0000,0.1591) | 89.5 | 0.0092 |
| 273 | 2 | (0.0000,0.1591) | 86 | 0.0213 |
| 274 | 3 | (-0.0000,0.1591) | 86 | 0.0213 |
| 275 | 4 | (0.0001,0.1591) | 86 | 0.0213 |
| 276 | 5 | (0.0000,0.1023) | 82.5 | 0.0456 |
| 277 | 6 | (-0.0001,0.1023) | 82.5 | 0.0456 |
| 278 | 7 | (0.0000,0.1022) | 82.5 | 0.0456 |
| 279 | 8 | (-0.0000,0.1023) | 82.5 | 0.0456 |
| 280 | 9 | (0.0000,0.1023) | 82.5 | 0.0456 |
| 281 | 10 | (-0.0000,0.0227) | 79 | 0.09 |
| 282 | 20 | (0.0000,0.0114) | 72 | 0.2949 |
| 283 | 40 | (0.0000,-0.0001) | 68.5 | 0.5 |
| 284 | 100 | (-0.0000,-0.0000) | 68.5 | 0.5 |
| 285 | 500 | | | |
| 286 | 1000 | | | |
| 287 | 2000 | | | |
| 288 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 289 - 305
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 289 | 1 | | | |
| 290 | 2 | (-0.1135,0.1252) | 69.00 | 0.4785 |
| 291 | 3 | (-0.1136,0.1250) | 68.50 | 0.5000 |
| 292 | 4 | (-0.1136,0.1250) | 68.50 | 0.5000 |
| 293 | 5 | (-0.0910,0.1477) | 78.50 | 0.1456 |
| 294 | 6 | (-0.0908,0.1250) | 68.50 | 0.5000 |
| 295 | 7 | (-0.0908,0.1250) | 68.50 | 0.5000 |
| 296 | 8 | (-0.0908,0.1250 | 68.50 | 0.5000 |
| 297 | 9 | (-0.0908,0.1250) | 68.50 | 0.5000 |
| 298 | 10 | (-0.0568,0.1478) | 75.00 | 0.2440 |
| 299 | 20 | (-0.0000,0.1023) | 73.50 | 0.2812 |
| 300 | 40 | (0.0001,0.0113) | 69.00 | 0.4725 |
| 301 | 100 | (-0.0000,0.0000) | 65.00 | 1.0000 |
| 302 | 500 | (-0.0000,-0.0000) | 65.00 | 1.0000 |
| 303 | 1000 | (-0.0000,-0.0000) | 65.00 | 1.0000 |
| 304 | 2000 | (-0.0000,0.0000) | 66.00 | 1.0000 |
| 305 | 5000 | (-0.0000,0.0000) | 66.00 | 1.0000 |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 323 - 339
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 323 | 1 | | | |
| 324 | 2 | (0.0342,0.1817) | 99.50 | 0.0003 |
| 325 | 3 | (0.0340,0.1819) | 99.00 | 0.0004 |
| 326 | 4 | (0.0341,0.1817) | 99.00 | 0.0004 |
| 327 | 5 | (0.0341,0.1819) | 99.00 | 0.0004 |
| 328 | 6 | (0.0000,0.1590) | 89.00 | 0.0086 |
| 329 | 7 | (-0.0001,0.1590) | 89.00 | 0.0086 |
| 330 | 8 | (0.0001,0.1591) | 89.00 | 0.0086 |
| 331 | 9 | (-0.0001,0.1590) | 89.00 | 0.0086 |
| 332 | 10 | (-0.0000,0.1591) | 90.50 | 0.0054 |
| 333 | 20 | (0.0000,0.1023) | 84.00 | 0.0162 |
| 334 | 40 | | | |
| 335 | 100 | | | |
| 336 | 500 | | | |
| 337 | 1000 | | | |
| 338 | 2000 | | | |
| 339 | 5000 | | | |

Wilcoxon-Mann-Whitney Nonparametric Test: Matched-Pairs
Test # 340 - 356
Two Tailed Tests

| Test # | Threshold *x* | 95% CI for Mean Difference (Two-Tailed Tests) | Test Statistic W | p-value |
|---|---|---|---|---|
| 340 | 1 | (0.0114,0.1591) | 92.5 | 0.0035 |
| 341 | 2 | (0.0000,0.1591) | 89 | 0.0086 |
| 342 | 3 | (0.0000,0.1591) | 89 | 0.0086 |
| 343 | 4 | (0.0000,0.1591) | 89 | 0.0086 |
| 344 | 5 | (0.0000,0.1023) | 84.5 | 0.0268 |
| 345 | 6 | (0.0000,0.1023 | 84.5 | 0.0268 |
| 346 | 7 | (0.0000,0.1023) | 84.5 | 0.0268 |
| 347 | 8 | (0.0000,0.1023) | 84.5 | 0.0268 |
| 348 | 9 | (0.0000,0.1023) | 84.5 | 0.0268 |
| 349 | 10 | (-0.0000,0.0228) | 79.5 | 0.0798 |
| 350 | 20 | (0.0001,0.0114) | 76 | 0.0855 |
| 351 | 40 | | | |
| 352 | 100 | | | |
| 353 | 500 | | | |
| 354 | 1000 | | | |
| 355 | 2000 | | | |
| 356 | 5000 | | | |

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