

AERMOD/ISC Pro



SOFTWARE MODELED WITH YOU IN MIND...

BREEZE[®] AERMOD/ISC Pro for Windows[®] is a new generation air quality modeling system used to support both regulatory and non-regulatory modeling requirements worldwide. This application is used to assess the impact of air emissions from a variety of industrial sources and includes enhanced versions of both the AERMOD (with PRIME) and ISC dispersion models. These models predict pollutant concentrations from point, line, area, volume, and flare sources with variable emissions in all terrain regimes.

BREEZE AERMOD/ISC Pro includes many features designed to decrease model set-up time, streamline navigation, and provide robust visual effects. You will find this dispersion model is like nothing you have ever seen or used before!

AERMOD

AERMOD simulates essential atmospheric physical processes and provides refined concentration estimates over a wide range of meteorological conditions and modeling scenarios. This state-of-the-science dispersion modeling system includes:

- An advanced meteorological preprocessor to compute site-specific planetary boundary layer (PBL) parameters
- Highly developed dispersion formulations that incorporate current PBL understanding and variables for both convective and stable boundary inversions
- Enhanced treatment of plume rise and plume penetration for elevated inversions
 - Explicitly accounts for effects of strong updrafts and downdrafts that occur in unstable conditions
- Improved computation of vertical profiles of wind, turbulence, and temperature
 - Allows for partial plume penetration and re-entrainment
- Sustained treatment of receptors in terrain ranging from flat to complex
 - Uses “dividing streamline” approach for computations in complex terrain
 - Allows above ground (flagpole) receptors

- Ability to account for inhomogeneity of the atmosphere by calculating dispersion as a function of height
- Ability to account for urban areas using population density

New BREEZE Features

Modeling Wizard: Novice and expert modelers can follow a step-by-step process to set up and execute a modeling run.

Summary Reporting: View a detailed or abbreviated summary of model scenario input.

Multiple Contour Gridding Routines: Choose from 9 available gridding routines with Golden Software’s Surfer. Immediate changes to gridding options make analyzing concentration results quick and easy.

Enhanced 3-D Window: Easy navigation combined with multi-layer display functionality in the 3-D view assures data quality and renders report quality images of terrain relief, model objects, and concentration results.

“Navigate” Toolbar: One-click navigation combines controls for both 2-D and 3-D views. This increases productivity by allowing the user to control different perspectives with fewer mouse clicks.

Object Display Styles: View model objects in three different modes—solid, transparent, and wire frame. Simply change the viewing perspective to analyze building and source relationships.

Population Analysis*: Perform population analyses with census track data for user-defined threshold levels or for auto-generated concentration levels.

ArcView[®] Shapefile Importation*: Import Shapefiles for use as basemaps with appropriate adjustments for various projections, which is extremely important for correct conversion to UTM coordinates. Export Shapefile polygons to UTM coordinates.

.DXF, Bitmaps, and Basemaps: Import bitmap and AutoCad[®] .DXF files as basemaps to assist with model object placement or for other referencing purposes.

DATA SERVICES

Trinity Consultants provides worldwide meteorological and terrain data for input to your model run. Our staff of professional meteorologists process and quality-check each order. From simple, single scenario screening analyses to complicated mesoscale modeling applications, you can rely on Trinity for fast, quality data.

Meteorological Data

Surface observations are readily available from many locations around the world. Appropriate upper air data, used to determine mixing heights, are often more difficult to obtain. Upper air measurements are taken at fewer locations. Although Trinity has access to these observations, there may not be a location representative of the site being modeled. Another difficulty is that the measurements may be taken at a time of day that is incompatible with techniques for deriving hourly mixing heights. Finally, upper air data are often costly to obtain from national meteorological agencies.

To resolve the difficulties associated with upper air data, Trinity has developed a program for estimating hourly mixing heights based on readily available surface data. Based on surface layer (Monin-Obukhov) similarity theory, our method uses routine surface meteorological observations and site characteristics to estimate friction velocity, sensible heat flux, and Monin-Obukhov length. These three values are then used to estimate mixing height. This procedure enables us to provide hourly data for short-term modeling to *BREEZE* users worldwide.



Experience the user-friendliness of the *BREEZE* Data Server using the "Search by US State" method.

BREEZE Data Server™

Visit www.breeze-software.com and experience the new *BREEZE* Data Server. This user-friendly tool allows access to readily available meteorological data directly from the Web site. Search by latitude/longitude, UTM coordinates, station code, or by state to retrieve the data necessary for your modeling run. Each user can customize a data page, which saves all relevant data and previous orders, allowing users to access the results any time.

Terrain Data

International

Trinity Consultants' library contains terrain data for any location in the world. The data is acquired from high-resolution satellite maps and may be purchased in a 1:50,000 or 1:100,000 scale. Quads from the 1:50,000 maps are 10' latitude by 15' longitude and quads from the 1:100,000 maps are 20' latitude by 30' longitude. To purchase ready-to-use, importable terrain data, simply provide Trinity with the latitude and longitude of your facility along with your desired modeling area, and the *BREEZE* data services group will provide you with model-ready data.

United States

Many regulatory agencies require fine grid modeling using receptor spacing of less than 50 meters. With *BREEZE* terrain data, acquired from the U.S. Geological Survey (USGS), results are accurate. This data is in the USGS Digital Elevation Model (DEM) format and is ready for importation into any modeling scenario.

Trinity can provide data in any format you require. Model-ready data for the United States is typically delivered within 2-3 days from the time of order. International orders may require 8-10 days for delivery. You can order terrain data online at www.breeze-software.com using the Terrain Wizard. Simply select quad names or enter latitude/longitude and aerial coverage.

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