Modeling Software for EHS Professionals



BREEZE AERSCREEN

Trinity Consultants

breeze

BREEZE AERSCREEN

Air Dispersion Screening Model Based on AERMOD

BREEZE AERSCREEN is a screening model based on the U.S. EPA (U.S. Environmental Protection Agency) AERMOD air quality dispersion model and is compatible with the BREEZE AERMOD modeling system. It is used to conduct first level screening analyses to predict worst-case concentrations from a single source in simple or complex terrain, so it will produce estimates of "worst-case" 1-hour concentrations for a single source, without the need for hourly meteorological data. BREEZE AERSCREEN also includes conversion factors to estimate "worst-case" 3-hour, 8-hour, 24-hour, and annual concentrations. These concentration estimates are intended to be equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data, however the degree of conservatism will vary depending on the application.

Product Features

BREEZE AERSCREEN is a simple to use, intuitive screening air quality modeling system designed to streamline the setup, execution, and analysis of a model scenario without the complications associated with data entry via a DOS command prompt window. The following are some of the features BREEZE AERSCREEN modelers enjoy.

Key Features

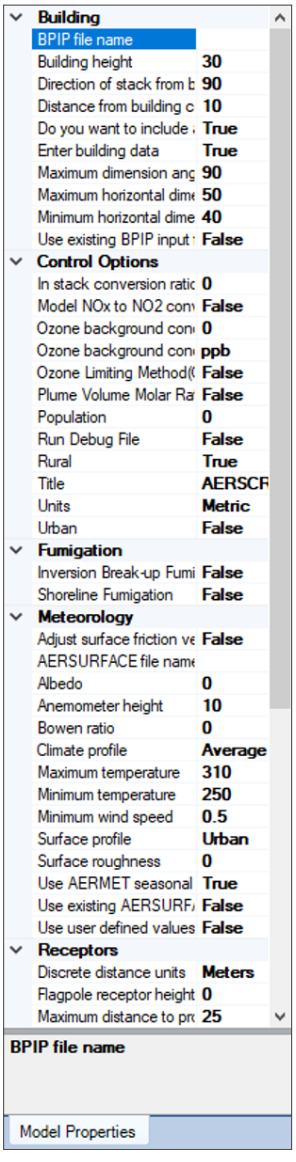
- Incorporates the latest U.S. EPA AERMOD executable and U.S. EPA AERMAP executable
- Continued support for earlier AERMOD executables
- Models a single source: point/stack (vertical, horizontal, capped), area (rectangular, circular), volume, flare
- Automates receptor arrays
- Automates BPIP model setup, execution, and importing
- Calculates maximum 1-hour concentration at each modeled receptor
- Conversion factors to estimate "worst-case" 3-hour, 8-hour, 24-hour, and annual concentrations

Basic Features

- Models single or multiple buildings
- Measures in English or Metric units
- Intuitive, user-friendly interface that walks users through setting up their modeling scenario
- Enables 64-bit operating system users to select between running the 64-bit or 32-bit version of AERMOD
- Diagnoses scenarios with IntelliClick
- Includes a diagnostic window that notifies users of potential problems during their model setup as well as the location where the potential issue can be resolved, saving users time and effort
- Built in "smart" file naming so users never overwrite results again
- Compatible files for post processing and plotting high values in BREEZE 3D Analyst
- Exports tabular results to Microsoft Excel format
- Exports charts to .bmp, .jpg, or .png formats

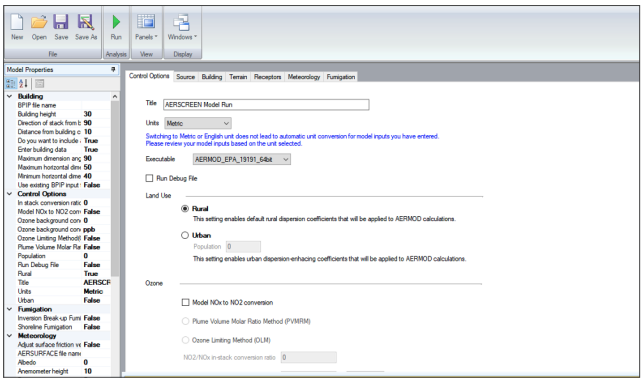
Model Setup and Execution

The BREEZE AERSCREEN interface helps to guide users through entering their modeling data in a quick and efficient manner. There are only a few steps that need to be completed to setup, execute and analyze model results, and all of the model setup is conveniently done in a series of data entry tabs or in a model properties panel. The data entry forms contain options and parameters associated with the various AERSCREEN data blocks. Setup of the various input files is done automatically and execution of the various Fortran programs (e.g., AERMOD, BPIPRM, AERMET) is seamless, streamlining the entire process and virtually eliminating the potential for costly errors.



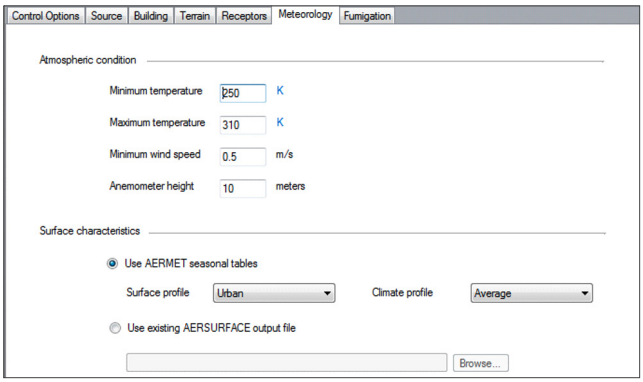
In addition to the data entry forms, BREEZE AERSCREEN allows for scenario settings to be set in a "Properties" panel. The Properties panel organizes data logically and displays all options in a single view. This panel is also dockable meaning that you can detach it from the main window and move it to where it is most convenient for you. When the panel is "docked", it can also be set to auto-hide.

Another time-saving feature that assists users with their model setup is the diagnostics panel that displays informational messages, warnings, and errors to alert users to potential problems with the scenario. Each message is preceded by a visual indicator to identify the severity of the alert. While informational and warning messages will not necessarily prevent a scenario from successfully completing, error messages indicate that if the run is executed, it will fail. Clicking on a message will take the user to the location within the application that triggered the message where the user can look into the matter and resolve it if needed. This unique feature serves as a convenient QA/QC step during the model setup and saves users time and money.



Meteorology

Entering meteorological data into BREEZE AERSCREEN takes only a matter of seconds. The user can either opt to use a built-in matrix of worst-case meteorological conditions or quickly and efficiently input specific meteorological conditions. Additionally, for the surface characteristics, users can use AERMET seasonal tables, upload an existing AERSURFACE output file, or use user-defined values.



Model Objects

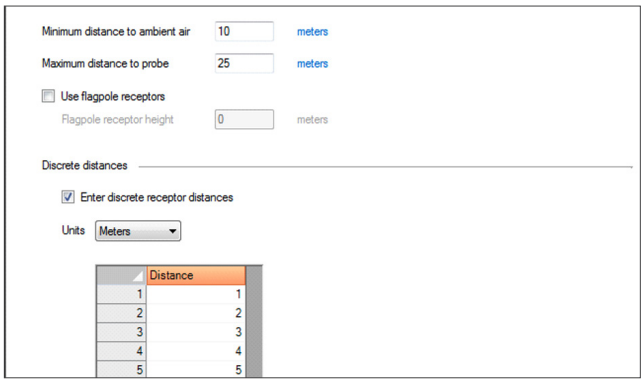
In BREEZE AERSCREEN, information on the source, receptors, and buildings are entered in the respective tabs, further streamlining the model setup process.

Sources and Receptors

BREEZE AERSCREEN models a single source. Within the software interface, users are able to easily choose between a point/stack (vertical, horizontal, capped), area (rectangular, circular), volume, or flare source, and they are also able to quickly customize the properties.

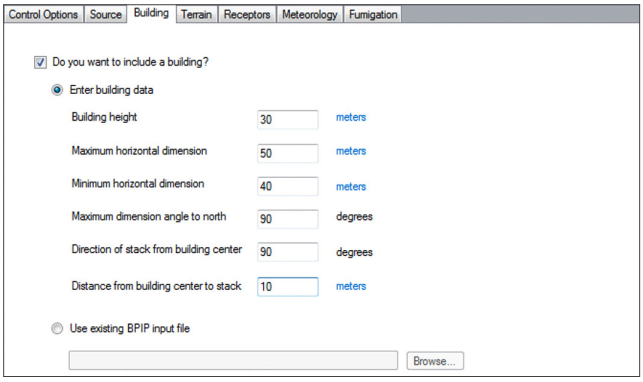


The receptors can be customized as well, and users have the option of using flagpole receptors should they choose. A receptor grid can be automatically generated or discretely defined to identify maximum concentrations. Receptor locations may be ground level or above ground level. A unit conversion option is also available when entering discrete receptor distances, making it easy to alternate between different units.



Building Effects

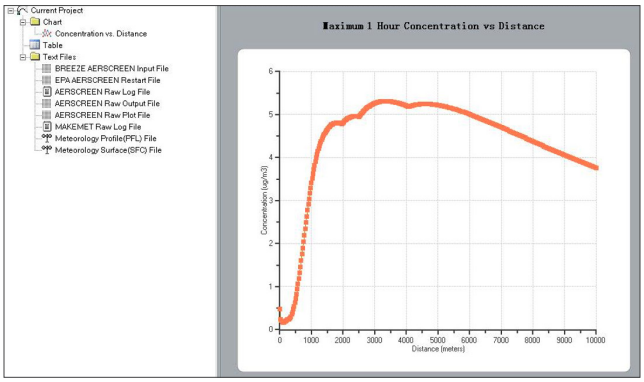
AERSCREEN allows one building to be included in a run. To enter the building data, BREEZE AERSCREEN provides users with two options: users can either enter the different dimensions of the building, or they can upload an existing BPIP input file. Automated BPIP model setup, execution, and importation is included in BREEZE AERSCREEN. When a building is included in AERSCREEN, the program will seamlessly and automatically calculate the impact of air flow over and around the building on the pollutant plume exiting the source.

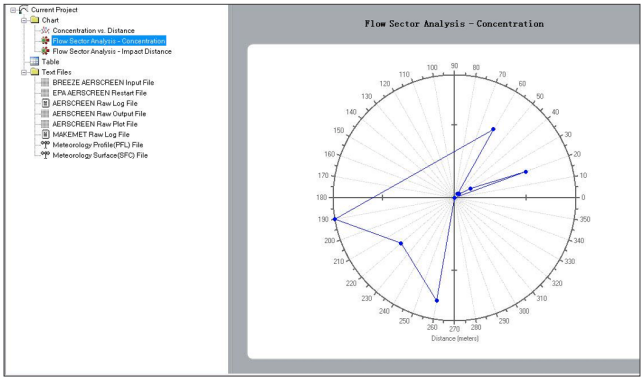


Results Analysis

BREEZE AERSCREEN provides multiple graphical and tabular results options to facilitate both analysis and documentation. The results from each model run can be displayed in three different formats: chart, table, and text file. The charts include a concentration vs distance line graph, a flow sector analysis of the concentration, and a flow sector analysis of the impact distance.

Concentration (ug/m3)	Distance (m)	Elevation (m)	Season/ Month	Zo sector	Date	H0 (W/m2)	U* (m/s)	W* (m/s)	DT/DZ (K/m)	Convective mixing height
26.895	900	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
26.369	925	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
25.867	950	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
25.385	975	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
24.924	1000	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
24.482	1025	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
24.057	1050	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
23.648	1075	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
23.255	1100	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
22.877	1125	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999
22.512	1150	0	Winter	0-360	10020601	-0.56	0.022	-9	0.02	-999





Pricing and What's Included

The price below is for the purchase of a single license. We offer a multiple license discount if you purchase multiple licenses within the same transaction. Additionally, if you don't expect to use the software long-term, we offer 1-, 3-, 6-, and 9-month leasing options. Contact us at breeze@trinityconsultants.com or +1 972.661.8881 for lease pricing details.

Price: $595 USD

What's Included?

- A perpetual license of the software
- One free year of technical support and maintenance (upgrades) for the registered user
- One 30 min to 1 hour "getting started" training recording

Related Products and Services

- BREEZE AERMOD
- BREEZE SCREEN3
- Specialized Consulting Services
- Training



trinityconsultants.com/software
P +1 972.661.8881 / F +1 972.385.9203
breeze@trinityconsultants.com

©2022 All Rights Reserved.