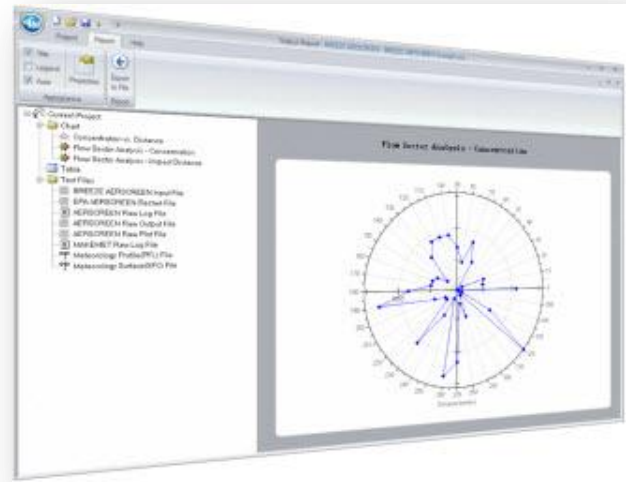


BREEZE AERSCREEN

AERSCREEN is a screening model based on U.S. EPA **AERMOD** air quality dispersion model. The model will produce estimates of "worst-case" 1 hour concentrations for a single source, without the need for hourly meteorological data, and also includes conversion factors to estimate "worst-case" 3-hour, 8-hour, 24-hour, and annual concentrations. AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data, but the degree of conservatism will vary depending on the application.

Model scenarios created with AERSCREEN are compatible with the **BREEZE AERMOD** modeling system. Simply open the AERSCREEN scenario in BREEZE AERMOD to transfer scenario information to this refined model.



BREEZE AERSCREEN is simple and easy to use. There are only a few steps that need to be completed to setup, execute and analyze model results. All of the model setup is done in a series of data entry tabs or in a model properties panel.

Integrated User Interface

BREEZE AERSCREEN integrates all the data entry, analysis, and display functionality into a single system. The Ribbon Bar organizes functionality while the display windows and property forms allow for easy data entry. Scenario data can be entered in well organized data entry forms or in a properties grid.

Model Properties

- Building**
 - BPIP file name
 - Building height: 0
 - Direction of stack from building center: 0
 - Distance from building center to stack: 0
 - Do you want to include a building: **False**
 - Enter building data: **False**
 - Maximum dimension angle to north: 0
 - Maximum horizontal dimension: 0
 - Minimum horizontal dimension: 0
 - Use existing BPIP input file: **False**
- Control Options**
 - Flagpole receptor height: 0
 - Maximum distance to probe: 5
 - Minimum distance to Ambient Air: 0
 - Population: 0
 - Rural: **True**
 - Title: **Example BREE**
 - Units: **Metric**
 - Urban: **False**
 - Use flagpole receptor?: **False**
- Source**
- Terrain**

Control Options | Source | Building | Terrain | Meteorology

Title: Example BREEZE AERSCREEN Model Scenario

Units: Metric

Land Use: Rural
This setting enables default rural dispersion coefficients that will be applied to AERMOD calculations.

Urban
Population: 0
This setting enables urban dispersion-enhancing coefficients that will be applied to AERMOD calculations.

Receptors:

Minimum distance to ambient air: 0 meters
Maximum distance to probe: 5 kilometers

Use flagpole receptors
Flagpole receptor height: 0 meters

Potential problems

Description (double-click to open)	Location
Minimum distance to ambient air must be > 0.	Control Options
One or more input parameters have changed since the last model run.	Input Output Consistency

Minimum distance to Ambient Air

Data Entry Forms

Data entry is organized in a series of folders. Each folder contains 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.

The screenshot shows a software window titled 'Control Options' with sub-tabs for 'Source', 'Building', 'Terrain', and 'Meteorology'. The 'Control Options' tab is selected. The form contains the following elements:

- Title:** A text input field containing 'Example BREEZE AERSCREEN Model Scenario'.
- Units:** A dropdown menu set to 'Metric'.
- Land Use:** Two radio button options: 'Rural' (selected) and 'Urban'. Below 'Urban' is a 'Population' input field with the value '0'.
- Receptors:** Two input fields: 'Minimum distance to ambient air' (0 meters) and 'Maximum distance to probe' (5 kilometers).
- Use flagpole receptors:** An unchecked checkbox with a 'Flagpole receptor height' input field (0 meters) below it.

The screenshot shows a 'Model Properties' window with a tree view of settings. The 'Control Options' section is expanded, showing the following settings:

- Building:** BPIP file name, Building height (0), Direction of stack from building (0), Distance from building to receptor (0), Do you want to include building data (False), Enter building data (False), Maximum dimension along wind direction (0), Maximum horizontal distance from building (0), Minimum horizontal distance from building (0), Use existing BPIP input (False).
- Control Options:** Flagpole receptor height (0), Maximum distance to probe (5), Minimum distance to Ambient Air (15), Population (0), Rural (True), Title (Example BREEZE AERSCREEN Model Scenario), Units (Metric), Urban (False), Use flagpole receptor? (False).
- Meteorology:** AERSURFACE file name, Albedo (0), Anemometer height (10), Bowen ratio (0), Climate profile (Average), Maximum temperature (310), Minimum temperature (250), Minimum wind speed (0.5), Surface profile (Water), Surface roughness (0), Use AERMET seasonal (True), Use existing AERSURFACE file (False).

Scenario / Model Properties

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.

Diagnostics / Problem Prevention

A diagnostics panel displays informational messages, warnings, and errors alerting the user to potential problems with the scenario. Each message is preceded by a visual indicator identifying the severity. 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.

Potential problems		
Description (double-click to open)		Location
Urban populaton can not be negative or less than 100 people.		Control Options
Minimum distance to ambient air must be > 0.		Control Options
Flagpole height can not be negative.		Control Options
Maximum distance can not be negative or less than fence line distance.		Control Options
Emission rate can not be negative.		Source
One or more input parameters have changed since the last model run.		Input Output Consistency

Text Reports

The Reports view organizes and displays input and output files generated by BREEZE AERSCREEN. In this view, model output can be view as generated by the AERSCREEN model. The user can change the attributes of the text (e.g., font style, color, size) and create additional external text files of what is displayed.

Output Report - BREEZE AERSCREEN - BREEZE AERSCREEN Example.azs

Project Report Help

Courier New 10 Select All Text Copy Text Export to File Export

Font Text Tools

Current Project

- Chart
 - Concentration vs. Distance
 - Flow Sector Analysis - Concentration
 - Flow Sector Analysis - Impact Distance
- Table
- Text Files
 - BREEZE AERSCREEN Input File
 - EPA AERSCREEN Restart File
 - AERSCREEN Raw Log File
 - AERSCREEN Raw Output File
 - AERSCREEN Raw Plot File
 - MAKEMET Raw Log File
 - Meteorology Profile(PFL) File
 - Meteorology Surface(SFC) File

TITLE: Example BREEZE AERSCREEN Model Scenario

***** STACK PARAMETERS *****

SOURCE EMISSION RATE: 1.0000 g/s 7.937 lb/hr
 STACK HEIGHT: 15.00 meters 49.21 feet
 STACK INNER DIAMETER: 1.000 meters 39.37 inches
 PLUME EXIT TEMPERATURE: 300.0 K 80.3 Deg F
 PLUME EXIT VELOCITY: 1.000 m/s 3.28 ft/s
 STACK AIR FLOW RATE: 1664 ACPM
 RURAL OR URBAN: RURAL

INITIAL PROBE DISTANCE = 5000. meters 16404. feet

***** BUILDING DOWNWASH PARAMETERS *****

BUILDING HEIGHT: 15.0 meters 49.2 feet
 MAX BUILDING DIMENSION: 15.0 meters 49.2 feet
 MIN BUILDING DIMENSION: 15.0 meters 49.2 feet
 BUILDING ORIENTATION TO NORTH: 15. degrees
 STACK DIRECTION FROM CENTER: 15. degrees
 STACK DISTANCE FROM CENTER: 15.0 meters 49.2 feet

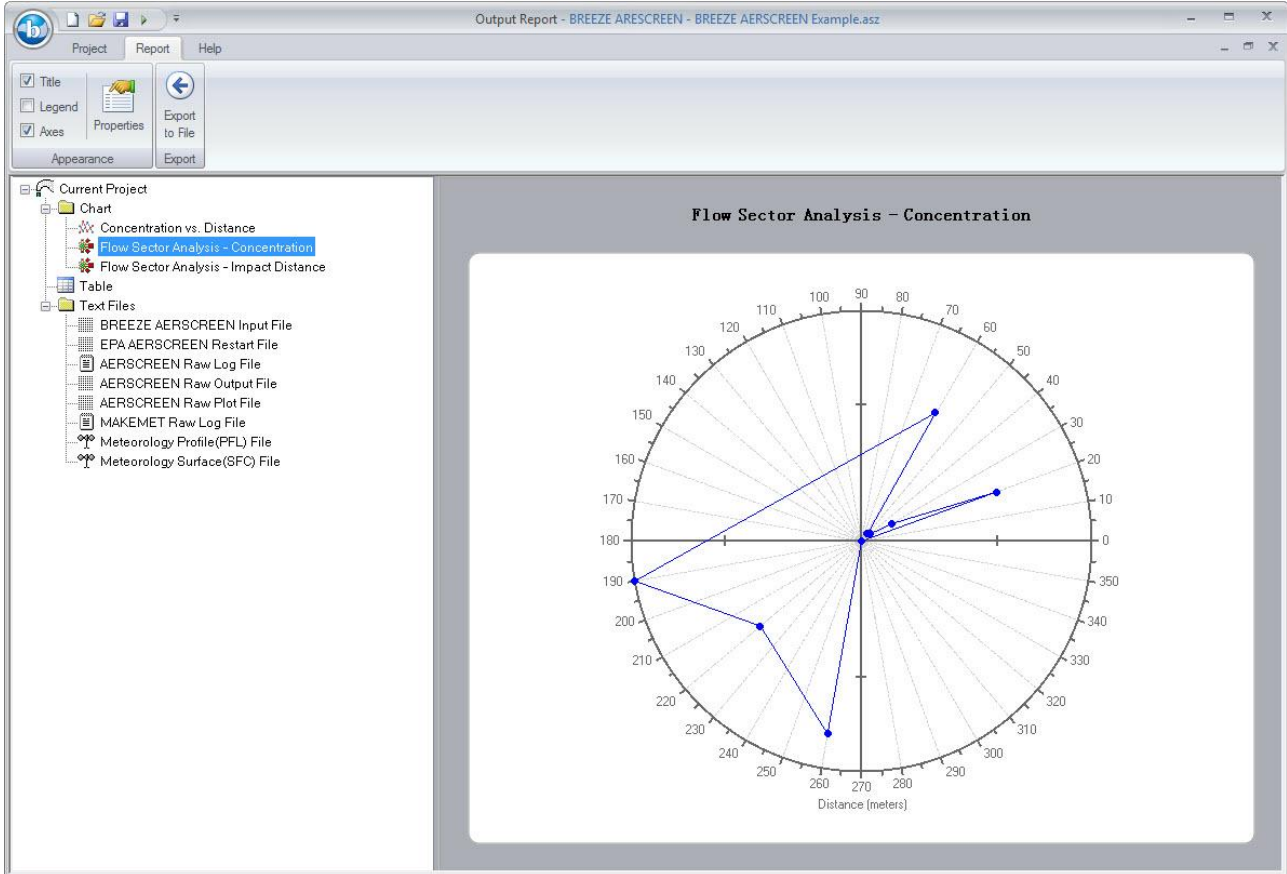
***** FLOW SECTOR ANALYSIS *****

25 meter receptor spacing: 15. meters - 5000. meters

FLOW BUILD BUILD MAX 1-HR DIST TEMPORAL

Charts / Plotting

After a model run, BREEZE AERSCREEN will create a variety of charts of modeled concentrations. Charts include concentration as a function of downwind distance and flow sector analyses for both concentrations and impact distance.



Requirements

This BREEZE application runs on Windows PC's. The following are minimum and recommended system requirements:

Parameter	Minimum	Recommended
Operating System	Windows XP, Windows Vista, Windows 7	Windows XP or Windows 7
Processor	Intel® 32-bit (x86) or 64-bit (x64)	Intel® 32-bit (x86) or 64-bit (x64)
RAM	256 MB	500 MB or greater
Available hard disk space	100 MB	500 MB or greater
CD-ROM	Not required	Not required
Mouse or pointing device	Required	Required
Monitor resolution	1024 x 768	1280 x 1024 or greater