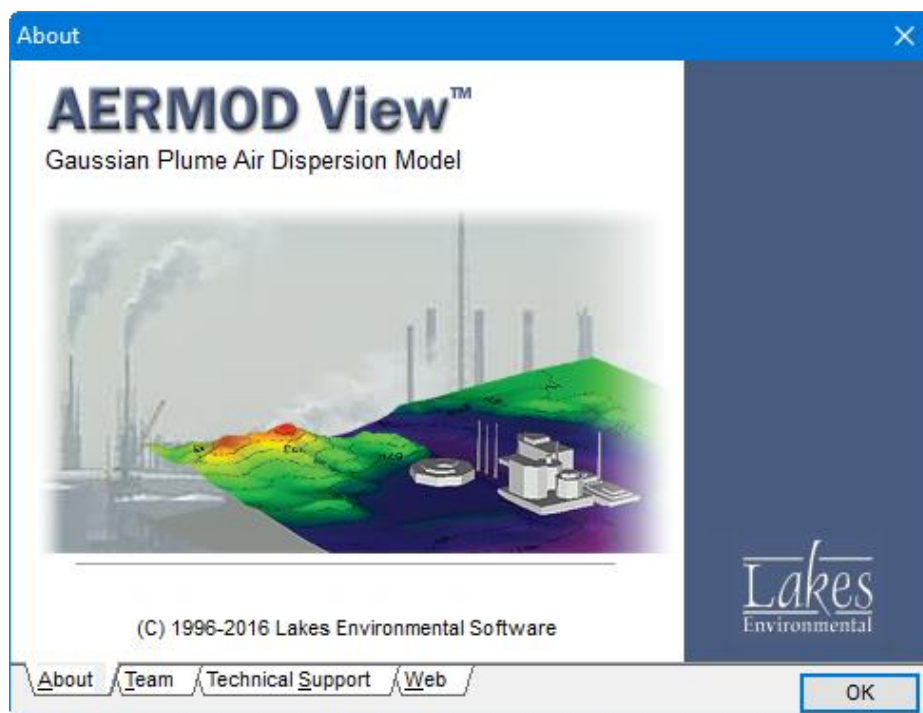# AERMOD View™

Gaussian Plume Air Dispersion Model - AERMOD

Release Notes

Versions 9.0, 9.1, and 9.2

Lakes Environmental Software
Tel: (519) 746-5995 – Fax: (519) 746-0793
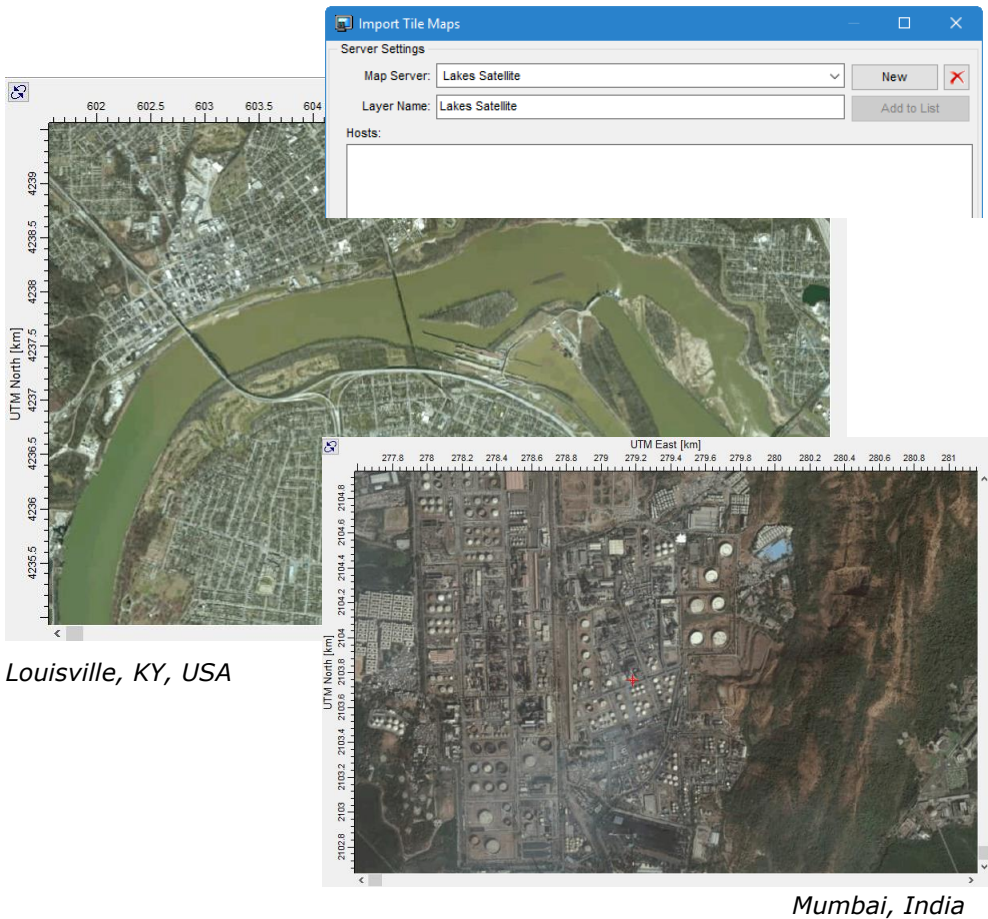E-mail: **support@webLakes.com**
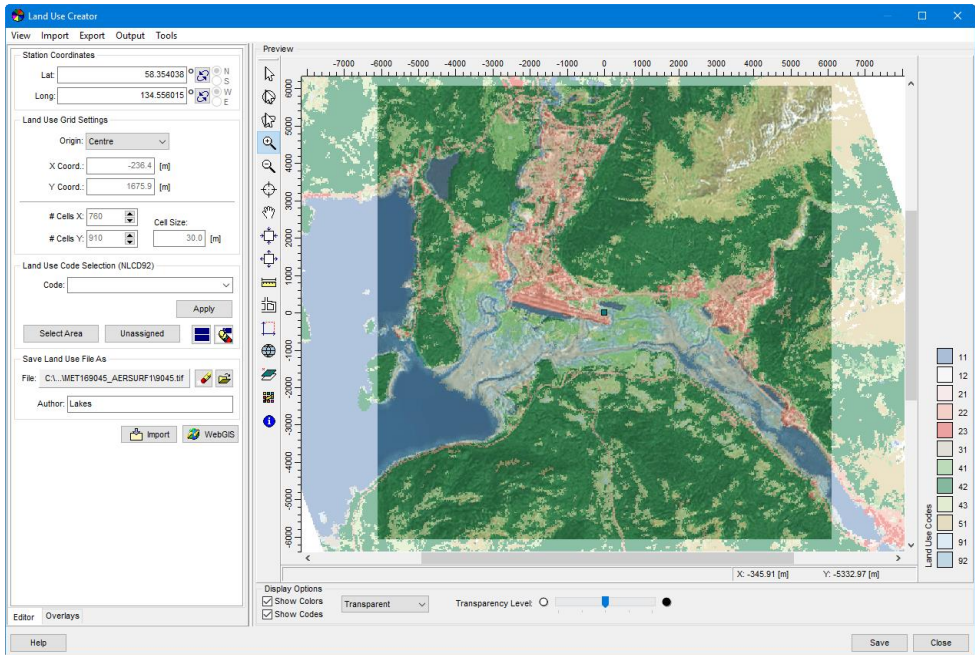Web Site: **www.webLakes.com**

AERMOD View™ Version 9.2

Release Notes
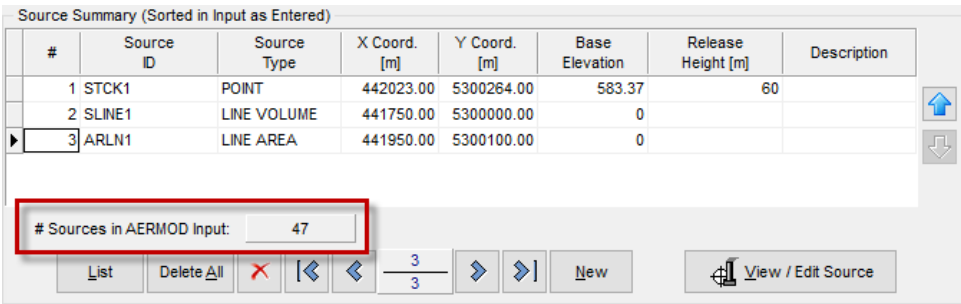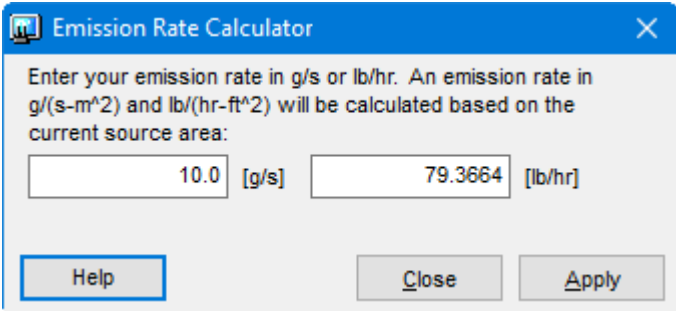
October 12, 2016

New Features

Topic	Feature Description
Tile Maps	**New Map Server – Lakes Satellite** AERMOD View now provides a new tile map server featuring aerial photography from satellite. This new **Lakes Satellite** map server has <u>more spatial coverage and higher resolution</u> than the previous MapQuest Satellite and MapQuest Aerial options that were previously available in AERMOD View. Select **Import | Tile Maps** menu option to access this new option. *Louisville, KY, USA* *Mumbai, India*

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

Topic	Feature Description
Tile Maps	**New Map Server – Lakes Satellite – Cont.** Below you will see a comparison of the previous satellite map and the new higher resolution **Lakes Satellite** map. *Previous maps on those few areas with coverage at maximum resolution.* *Maximum resolution of new map system is 4 times higher.* **Note:** Due to the high acquisition and maintenance cost of the new satellite maps, **Lakes Satellite Tile Maps** service is only available to users with a current paid maintenance agreement. If your maintenance has expired, or you are not eligible for this map service, please contact our sales department at sales@webLakes.com to upgrade your license.
Tile Maps	**Open Street Map Optimization** The Open Street Map tile maps server was optimizing to allow for faster downloads. This option is only available for users in current maintenance.

Topic	Feature Description
AERMET View	**Added NLCD 2001 Support to Land Use Creator** The **Land Use Creator** utility now supports reading USGS NLCD 2001 GeoTIFF files. This allows users to import data from Alaska and Hawaii as well as updated data for the contiguous United States and convert to a format usable in AERSURFACE. To promote this compatibility, NLCD 2001 categories are converted to equivalent NLCD 1992 categories. See help file for more information. You can download NLCD 2001 files from the USGS Multi-Resolution Land Characteristics Consortium webpage. See help file for specific instructions.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

Topic	Feature Description
Source Pathway	**Total Number of Sources Listed** The **Source Summary** table in the **Source Pathway** window now includes a count of the number of sources in the project. This helps clarify how many sources are actually being modeled when collected source types options (e.g., LINE-VOLUME, LINE-AREA), which feature multiple sources under a single type, are used.
Source Pathway	**Emission Rate Calculator Update** The **Emission Rate Calculator** for area sources has been updated to make it easier to use.
Receptor Pathway	**Discrete Receptors CSV File Group Name** When discrete receptors are exported to or imported from a CSV file, the program now includes the **Group Name** column.
MAXTABLE Viewer	**Support for Large Values** The **MAXTABLE Viewer** utility now supports values of 10000 and greater. Previous versions of the interface could not interpret the number of values above 9999 because the AERMOD executable would only write asterisks (****).

Topic	Feature Description
Source Pathway	**Support for LINE-AREA and LINE-VOLUME Source Types in Hourly Emission File** AERMOD View now allows users to input LINE-AREA and LINE-VOLUME source types to the **Hourly Emission File** input section of the Source Pathway. The user needs to make sure the proper individual source IDs are identified in the external file.

Fixed Issues

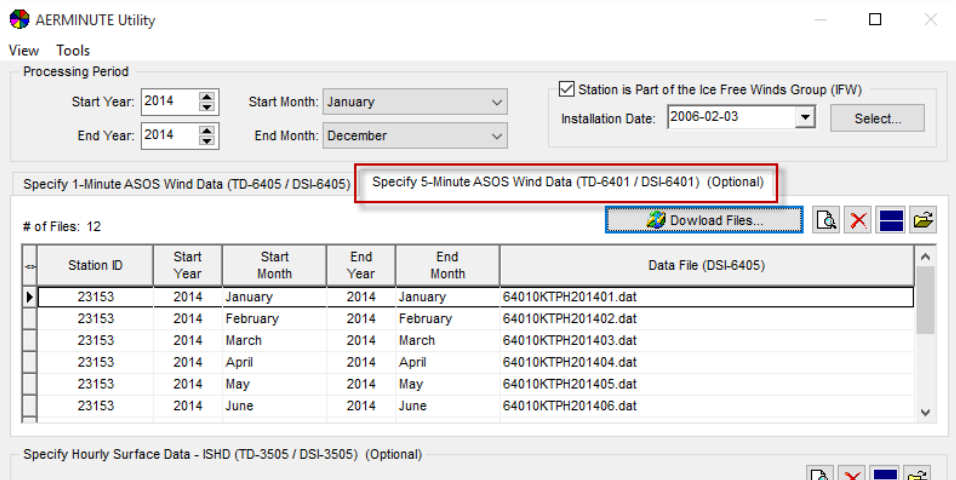| Topic	Issue Description
Tile Maps	**MapQuest Servers Removed** On July 11, 2016, MapQuest announced they were discontinuing access to their map servers. This policy change means that the **MapQuest Streets**, **MapQuest Satellite**, and **MapQuest Aerial** tile maps are no longer available for display in our software and they have been removed from the list.
Tile Maps	**Updated Transformation for New Israel Datum** When using the Israeli Transverse Mercator (New Israeli Grid) projection, the New Israeli Datum transformation parameters built into the application were outdated causing tile maps imagery to skew slightly. This has been fixed.
Control Pathway	**Report Maximum Annual Average for Each Met Year Option** A fatal error was introduced by not properly disabling the **Report Maximum Annual Average for Each Met Year** model option if the Annual averaging period was unchecked. This issue has been resolved.
Control Pathway	**Background Ozone Data Import** When importing data from an existing AERMOD input file using the NO2 pollutant ID with background ozone data, the interface improperly selected the "Specify Ozone Background Concentrations" option when the file only indicated use of the Hourly Ozone Data File. Additionally, the "Units" field of the Hourly Ozone Data File always selected µg/m^3 even when the input file specified PPB or PPM. Both of these issues have been fixed.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

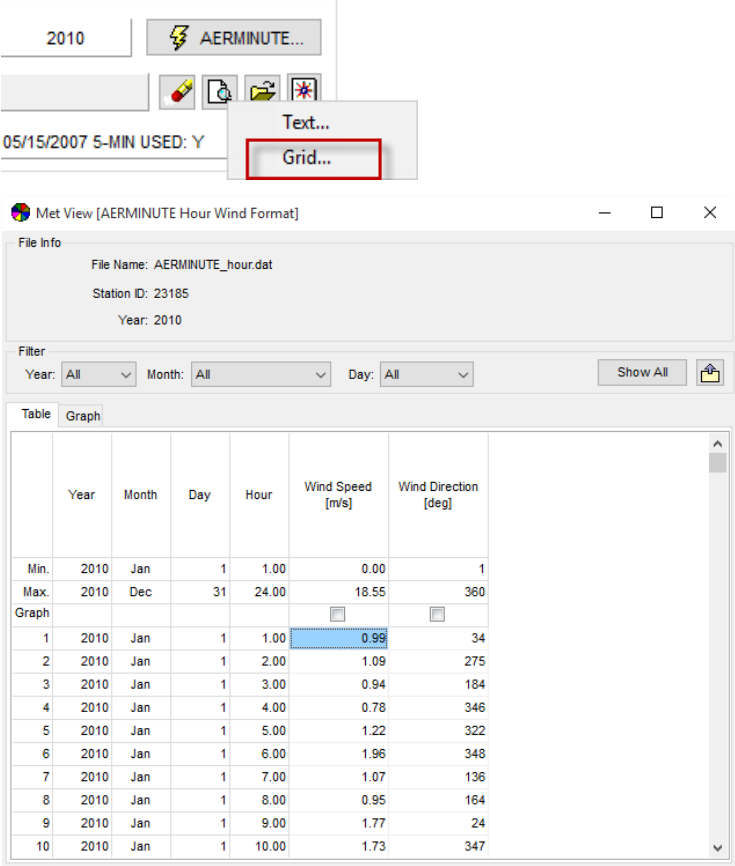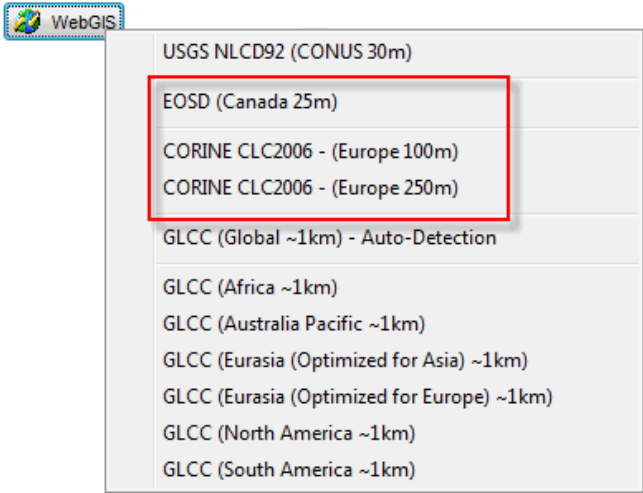| Topic	Issue Description
Receptor Pathway	**Imported Plant Boundary Display** An issue where an imported Plant Boundary would not immediately appear in the Receptor Pathway window has been fixed.
Receptor Pathway	**Terrain Elevations and Hill Heights for Imported Polar Grids** When importing polar grids, there were some instances where the terrain elevations and hill heights were not brought in with the receptor rings and radials. This has been fixed.
Plume Animation	**Display Data Options Only Shows Relevant Groups** The **Plume Animation** Tree View previously included all source groups in the Display Data Options drop-down menu. It now only displays the groups selected for in the Output Pathway.
Reports	**Variable Emissions Updated** The Source Pathway (Other Options) report was updated so the correct Variable Emissions scenario information was printed.
Overlays	**Zoom to Overlay for Single Point Source** If a project contains a single point source, the **Zoom to Overlay** button on the **Overlays Tree** View now zooms to the source.
AERMET View	**Updated ADMS UK to SAMSON Converter** The ADMS file converter was updated to correct an issue with identifying the correct missing indicator for each variable.
Met View	**Export to Excel** When exporting surface meteorological data files (.SFC) to Excel, the application could issue an error "index array out of bounds". This issue has been resolved.

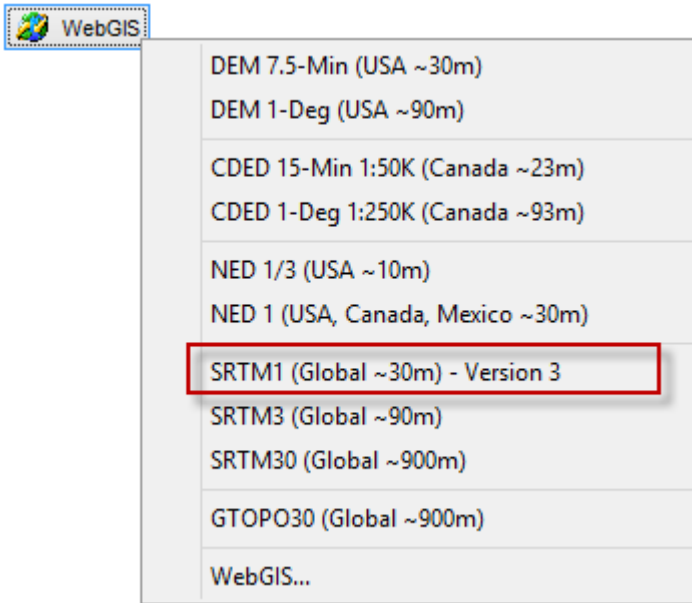# AERMOD View™ Version 9.1

Release Notes

December 10, 2015
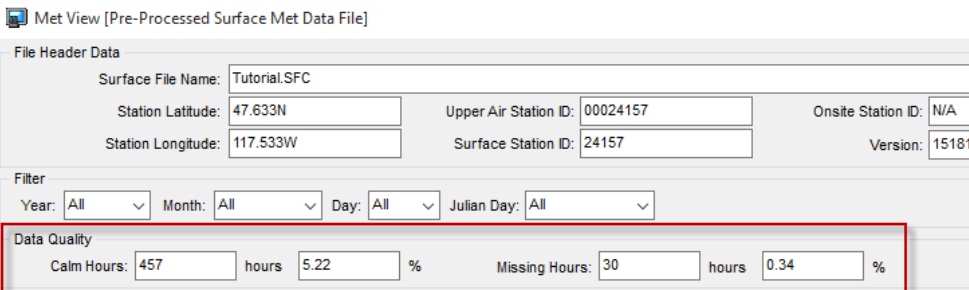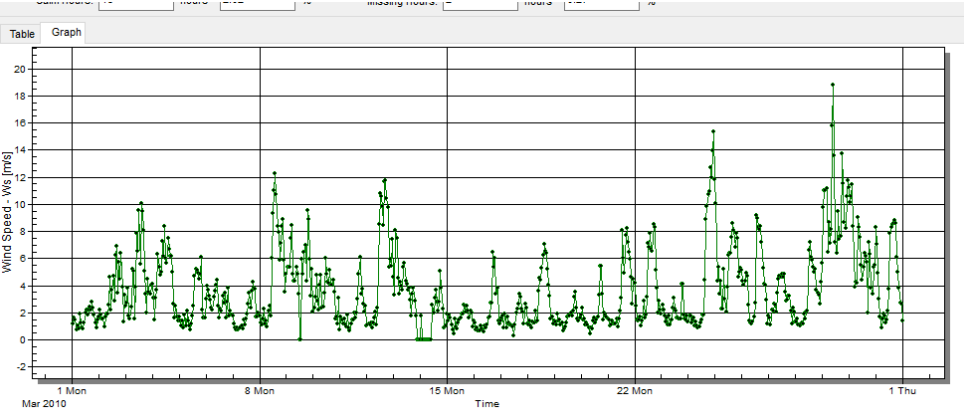
New Features
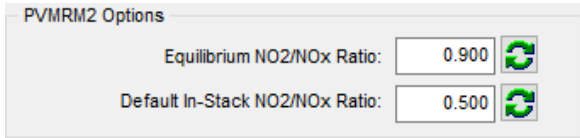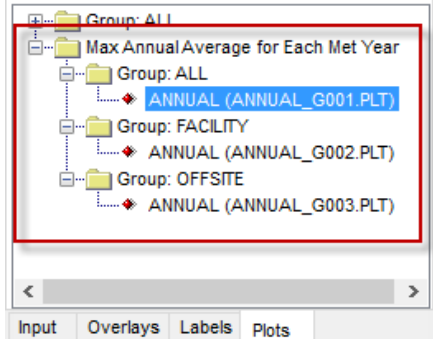
Topic	Feature Description
AERMET View	**Updated AERMINUTE Executable and Utility** The USEPA's update to the AERMINUTE executable dated 15272 has been added to AERMET View's Models list. The updated pre-processor now includes the option to incorporate **5-minute ASOS wind data**. The AERMINUTE Utility has been expanded to include the new 5-minute ASOS wind data. This includes automated downloads of the 5-minute data files from the National Centers for Environmental Information (NCEI, formerly NCDC).

Lakes Environmental Software
E-mail: support@webLakes.com
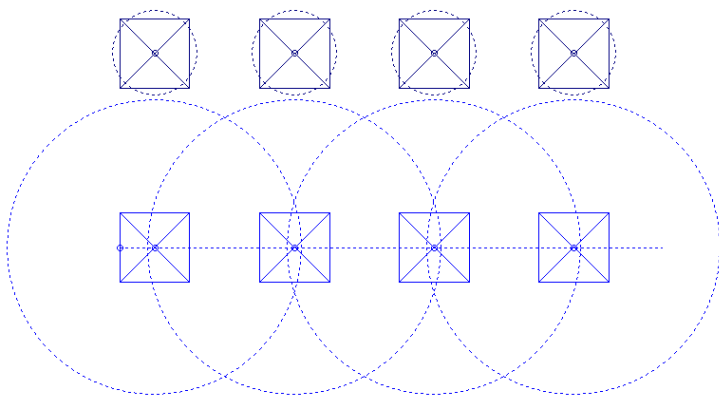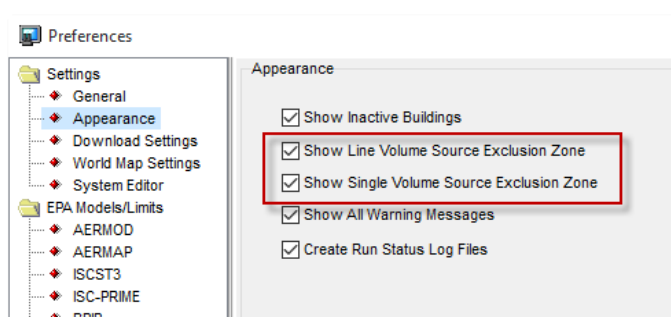Web: www.webLakes.com

Topic	Feature Description
AERMET View	**New AERMINUTE Output Display Options** The AERMINUTE output file display has been updated with additional options including: • Met View Grid display via the **Preview | Grid** option • **Wind Rose display** in WRPLOT View • File header information

Topic	Feature Description
AERMET View	**Support for New Land Use Data Sources in Land Use Creator** The **WebGIS** feature in the **Land Use Creator** now allows users to import land use data from **EOSD** (Canada) and **CORINE** (Europe) GeoTIFF image files. These file formats can also be imported via the **Import | Land Use Files**… menu option. WebGIS USGS NLCD92 (CONUS 30m) EOSD (Canada 25m) CORINE CLC2006 - (Europe 100m) CORINE CLC2006 - (Europe 250m) GLCC (Global ~1km) - Auto-Detection GLCC (Africa ~1km) GLCC (Australia Pacific ~1km) GLCC (Eurasia (Optimized for Asia) ~1km) GLCC (Eurasia (Optimized for Europe) ~1km) GLCC (North America ~1km) GLCC (South America ~1km) **Note:** Support for these formats is limited to in-maintenance users only. The EOSD Land Cover data does not cover portions of northern Quebec, southern Ontario, southern Saskatchewan, southeastern Alberta, or Nunavut.

Topic	Feature Description
Terrain Processor	**Support for New Terrain File Format – SRTM1 Global Version 3** Data offerings from WebGIS in the Terrain Processor now includes the SRTM1 (Global ~30m) – Version 3 data. This terrain data, from NASA, had voids filled using other data sources such as the ASTER GDEM2, GMTED2010, and NED. SRTM1 Version 3 is the highest quality SRTM data available to date. It covers regions between 60° north and 56° south latitude with exception of a few regions in west Asia and northeast Africa which may be available in the near future. **Note 1:** The download of "SRTM1 Global – Version 3" terrain data is only available to users with current maintenance. **Note 2:** The automated download of SRTM1 Version 2, which covered only the USA, was discontinued. You can still upload these files (*.hgt) using the Add button.

Topic	Feature Description
Met View	**Data Quality Display for AERMOD-Ready Surface Files (.SFC)** The Met View utility now reads and prints the number of calm and missing hours found in an AERMOD-ready surface file (.SFC). Percentages are also included. Values automatically update based upon the dates selected in the Filter.
Met View	**New Time Series Graph Display** A new Graph option is available for all variables of a meteorological data file opened with the Met View utility. Enabling the check box for variables will create a time series line graph in the **Graph** tab. The graph can be customized and exported to Bitmap or PNG image.

Topic	Feature Description
Control Pathway	**Default In-Stack NO2/NOx Ratio Updated** The default in-stack ratio associated with the Ozone Limiting Method and Plume Volume Molar Ratio Method routines has been updated from 0.1 to 0.5 in accordance with current guidance from the USEPA.
Control Pathway	**Annual Average Concentrations Reported by Individual Year for Each Source Group** The **Report Maximum Annual Average for Each Met Year** function has been expanded to automatically generate Post-Processing files for every source group. The previous implementation was limited to the ALL source group only.

Topic	Feature Description
Source Pathway	**Updated Volume Source Display** The appearance of single volume source and line volume source types have been updated to more accurately depict the exclusion zone in which model calculations are not performed. The exclusion zones for each source type can be controlled separately via the **Preferences | Settings | Appearance** menu.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

Topic	Feature Description
Reports	**Annual Average Concentrations by Individual Year in Results Summary Report** When the option to output individual year annual average concentrations from a multi-year run is enabled, the Results Summary report now includes the individual year results. **Results Summary** 1-Hour NO2 NAAQS Example Met 1986-1990 Concentration - Source Group: ALL <table><tr><td>Averaging Period</td><td>Rank</td><td>Peak</td><td>Units</td><td>X (m)</td><td>Y (m)</td><td>ZELEV (m)</td><td>ZFLAG (m)</td><td>ZHILL (m)</td><td>Peak Date, Start Hour</td></tr><tr><td>1-HR</td><td>1ST</td><td>634.29960</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td>2/18/1990, 8</td></tr><tr><td>ANNUAL</td><td></td><td>3.46248</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td></td></tr><tr><td>ANNUAL Y1</td><td></td><td>3.55718</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td></td></tr><tr><td>ANNUAL Y2</td><td></td><td>4.01114</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td></td></tr><tr><td>ANNUAL Y3</td><td></td><td>3.37912</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td></td></tr><tr><td>ANNUAL Y4</td><td></td><td>3.23129</td><td>ug/m^3</td><td>504751.00</td><td>4969972.00</td><td>169.90</td><td>0.00</td><td>185.20</td><td></td></tr><tr><td>ANNUAL Y5</td><td></td><td>3.25969</td><td>ug/m^3</td><td>503751.00</td><td>4971972.00</td><td>73.40</td><td>0.00</td><td>73.40</td><td></td></tr></table>

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

15 of 29

Fixed Issues

Topic	Issue Description
AERMOD MPI	**Reconfigured Meander Factor Informational Message** For certain model option selections, AERMOD will write an informational message regarding the plume meander factor: `CN I494 2 MEANDR: Meander factor (FRAN) exceeds max @ YR MN DY ISRC` AERMOD MPI for model version 15181 was updated to maintain a count of these messages but limit the writing as compiling all of the possible messages could cause significant slowdowns in model runs. **Note:** This change does not impact any output produced with the previous version of AERMOD MPI 15181.
Project Status	**Fixed Receptor Count** The Receptor tab of the Project Status window displayed an incorrect receptor count when the Intermediate Cartesian Plant Boundary receptors were used. This update fixes that issue.
Source Pathway	**Elevation Units for Source Export** Updated the source export to Excel routine to convert base elevations based on the assigned unit (feet or meters).
Receptor Pathway	**Group Name Restored** Projects created using Version 9.0 were unable to display the Group Name for discrete Cartesian receptors. This functionality has been restored.
Graphical Options	**Updated Posting of Max Value Only** An issue was identified for displaying Posting layer with the Show Only Max Value option when the maximum value occurred at a location with co-located receptors at different flagpole heights.
Terrain Processor	**AERMAP Support for OPENPIT Sources** Updated the Terrain Processor to include OPENPIT sources directly in the AERMAP input file.
Terrain Processor	**Reformulated Handling of Disable Onsite/Offsite Gridded Receptors** The previous release of AERMOD View did not properly assign elevations from the Receptor Output File (.ROU) when the Disable Onsite or Disable Offsite receptor options were enabled for gridded receptor networks. This has been fixed.
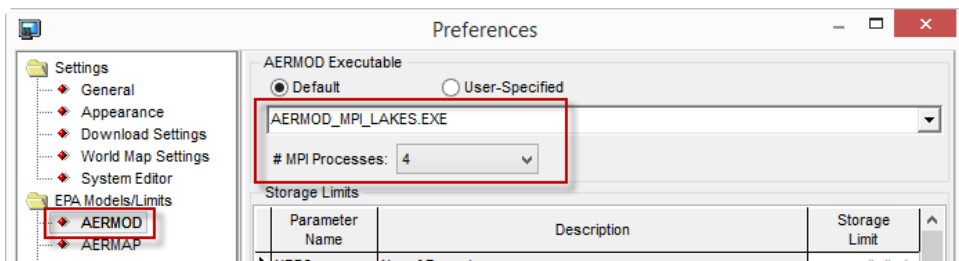
Topic	Issue Description
WRPLOT View	**Incomplete/Missing Hours Adjusted to Date & Time Period** The number of Incomplete / Missing hours in the Data File Info has been corrected to change based on the user-defined date and hour selections.
Map Projection	**UTM Zone Disappeared** Fixed an issue where the UTM Zone number would disappear after a fatal crash to the application.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

17 of 29

AERMOD View™ Version 9.0
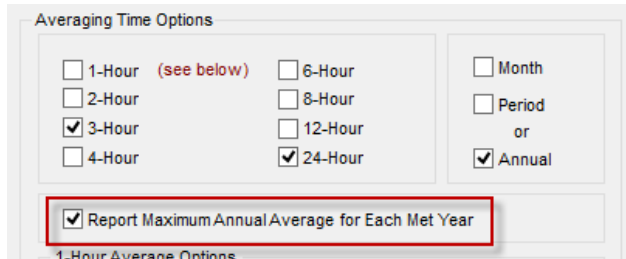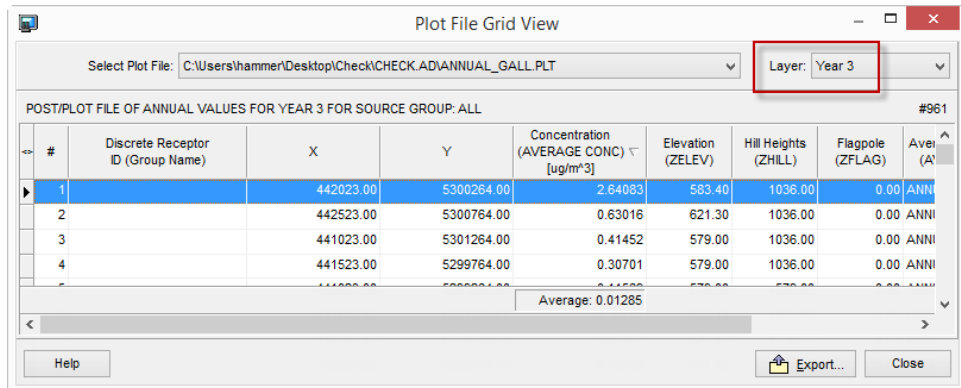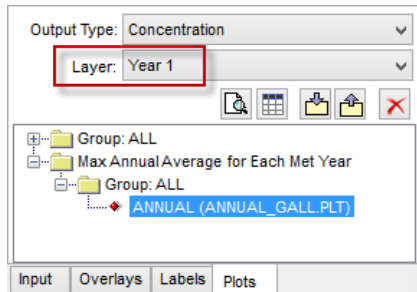
Release Notes
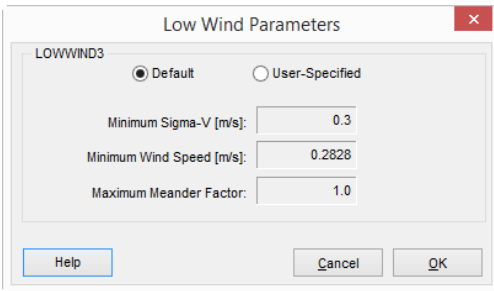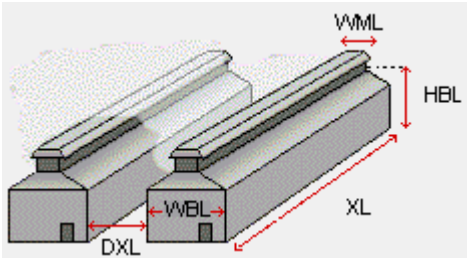
August 20, 2015
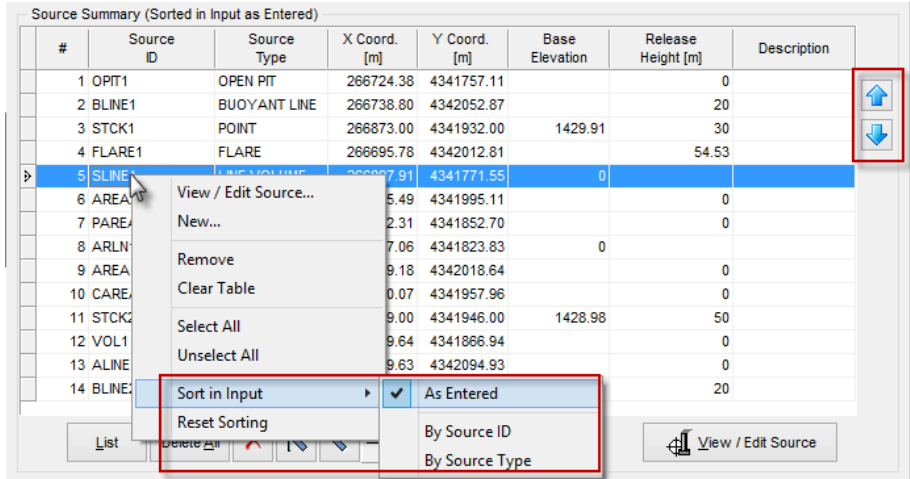
New Features

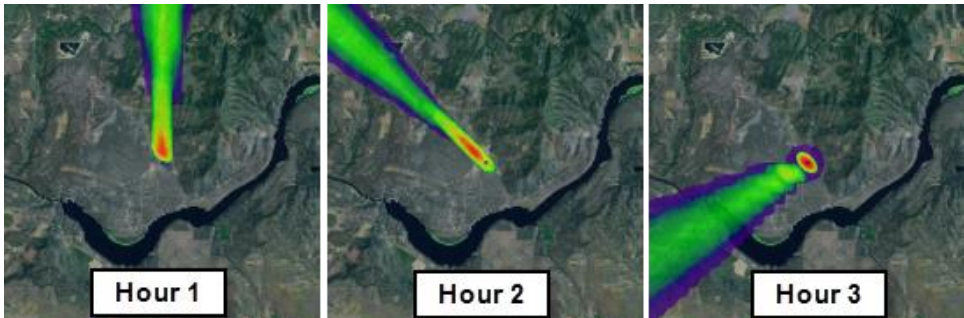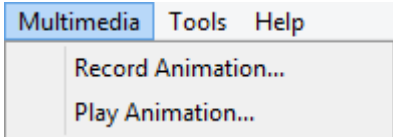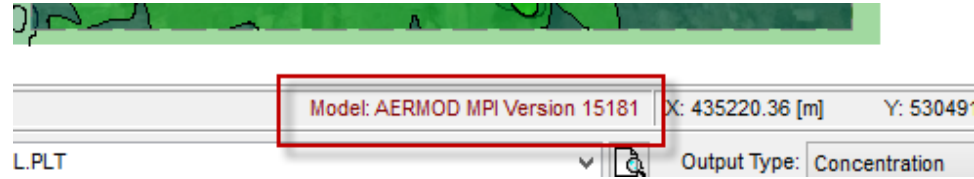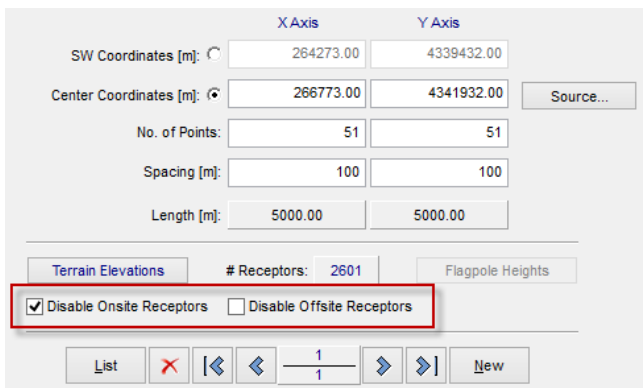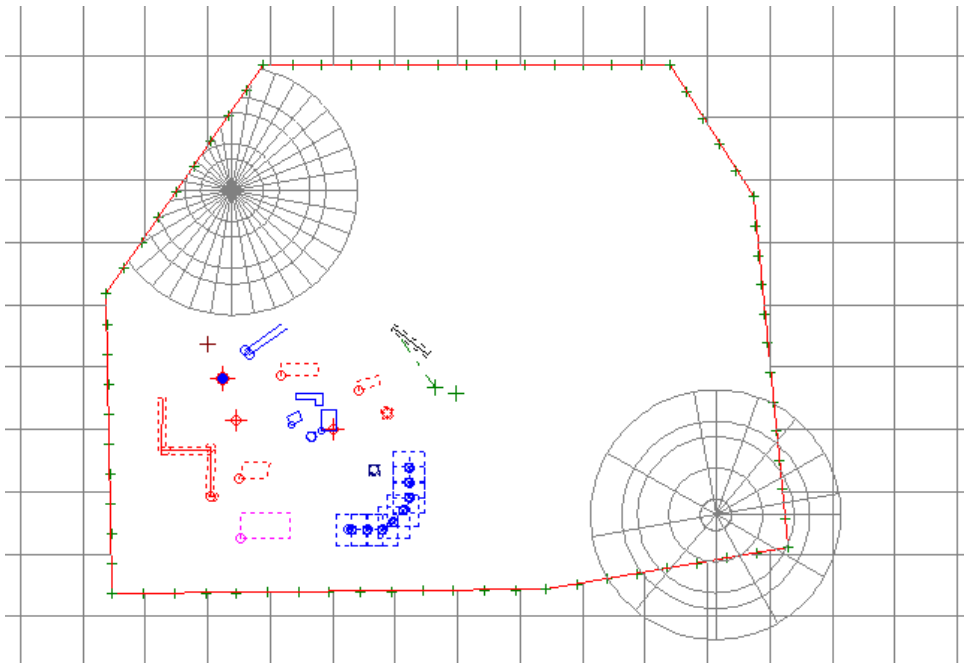| Topic	Feature Description
Models	**Latest Releases of US EPA Models Available** The following US EPA Models were released in July 2015 and are incorporated into AERMOD View Version 9.0: 1. AERMOD Model 15181 (Released July 2015) 2. AERMET Model 15181 (Released July 2015) 3. MAKEMET Model 15181 (Released July 2015) **Note:** AERMOD 15181 **will not run** using met data created using AERMET **11059 or earlier**. Old met data must be re-processed using a more recent version of AERMET (preferably 15181) or the modeler must use an older version of the AERMOD model.
AERMOD MPI	**New Version of Lakes AERMOD MPI 15181 (Parallel Version)** A new version of the Lakes AERMOD MPI for the US EPA Model Version 15181 is now available (AERMOD_MPI_Lakes_15181.exe). You can specify to use this model under the **Preferences** dialog. **Note:** AERMOD_MPI_LAKES_15181.EXE or AERMOD_MPI_LAKES.EXE will run the latest version of the AERMOD model (15181) in parallel mode using <u>up to a maximum of 8 cores</u>.
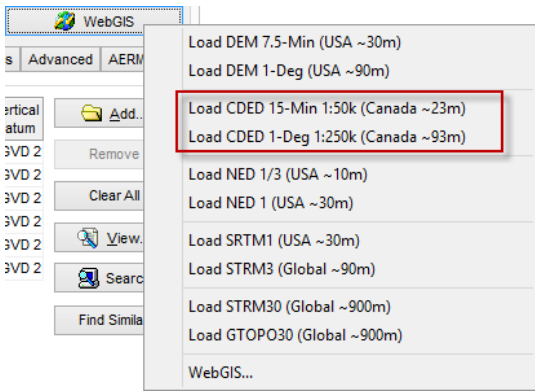
Topic	Feature Description
Plume Animation	**New Plume Animation** A new option in the **Output Pathway** enables AERMOD View to produce hourly time series contour plots which can be animated together. See the **Output Pathway | Plume Animation** setting.
Multimedia Tools	**New Multimedia Menu for Animation** Time series plume animations can be recorded and played using the **Multimedia** menu.
Status Bar	**Model Version Display Added** A new field was added to the Status Bar which displays the currently-selected version of the AERMOD executable from the **Preferences** menu.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

19 of 29
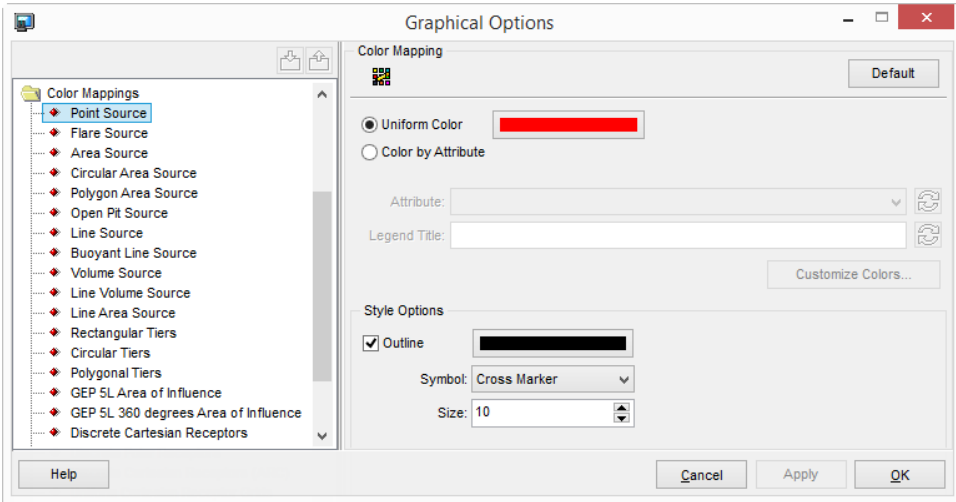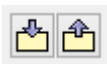
Topic	Feature Description
Control Pathway	**Annual Average Concentrations Reported by Individual Year** The AERMOD 15181 release contains an option to automatically output individual year annual average concentrations from a multi-year run to a POSTFILE. This option is enabled via the **Control Pathway** in AERMOD View. Enabling this option will create an annual average POSTFILE in ASCII Plot format. The file is subsequently imported into the **Plots Tree View** of AERMOD View. The results can also be viewed in the **Plot File Grid View** and sorted by year.
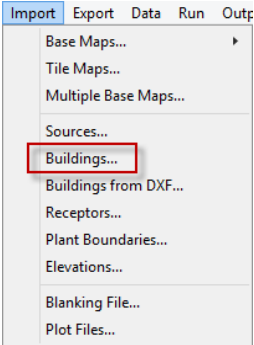
Topic	Feature Description
Control Pathway	**New Beta LOWWIND3 Option** Introduced in AERMOD 15181, a new Beta option for handling low wind speeds (**LOWWIND3**) has been added to the Non-Default Options. This option increases minimum horizontal turbulence (as in LOWWIND2) and eliminates concentrations outside a 6 * sigma-y value similar to FASTALL.
Control Pathway	**New PVMRM2 NO_x-to-NO_2 Conversion Option** AERMOD 15181 includes a new NO_2 conversion option: **PVMRM2**. An update to the existing Plume Volume Molar Ratio Method (PVMRM), PVMRM2 incorporates modifications such as use of downwind distance from source to receptor for calculating plume volume. A full description of the new method is available in the US EPA's Model Formulation Document Addendum.
Source Pathway	**New Buoyant Line Source Type** The US EPA added a new **buoyant line** source type in AERMOD 15181 based on algorithms from the Buoyant Line and Point source (BLP) dispersion model. The new source type can be drawn in AERMOD View using the Buoyant Line source tool . For every buoyant line input to the model, the user must also provide a collective set of average building parameters and an average buoyancy parameter.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com
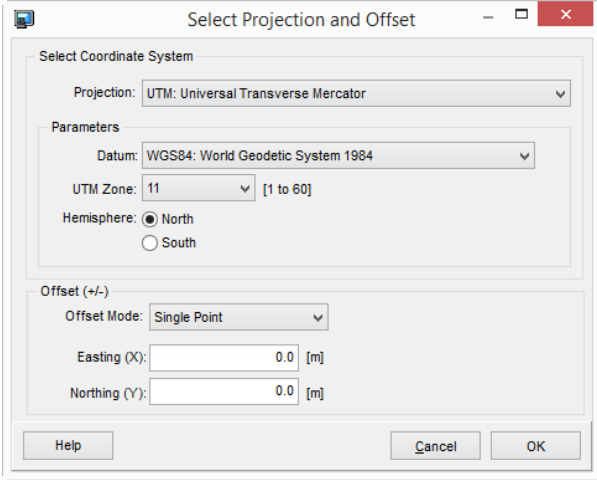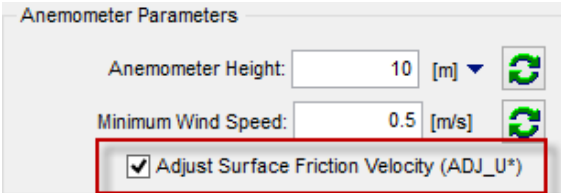
Topic	Feature Description
Source Pathway	**New Source Summary Sorting Features** Sources in the Source Summary table can now be sorted through multiple methods: 1. **Drag-and-drop** sources in the table 2. Use **arrow buttons** to move selected sources up and down the table. 3. Right-click and select a **Sort in Input** method (As Entered, By Source ID, or By Source Type). The order specified in the table is the order in which sources will be written to the model input file.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

Topic	Feature Description
Receptor Pathway	**Automatically Disable Onsite / Offsite Receptors for Gridded Receptors** All gridded receptor networks now have an option to automatically disable onsite or offsite receptors where the grid intersects with a Plant Boundary. Simply check the box to disable onsite or offsite receptors for each gridded receptor network. Disabled receptors will be removed from the main display, and the gridded network will be converted to discrete receptors when the model input file is prepared.

Topic	Feature Description
Output Pathway	**Additional US EPA NAAQS Files Available for PM-2.5** As part of the AERMOD 15181 update, the Daily Maximum (**MAXDAILY**) and Maximum Day by Year (**MXDYBYYR**) output files can now be output for PM-2.5 NAAQS analyses. These files were previously limited to the 1-hour NO_2 and 1-hour SO_2 NAAQS options.
Terrain Processor	**WebGIS Menu Updated** Rearranged the **WebGIS** download menu to better identify the source of Canadian Digital Elevation Data (CDED). The data source is the same as in previous AERMOD View versions. The only difference is that now the CDED terrain data is under a different menu option description. *Old menu options for CDED terrain data* *New menu options for CDED terrain data*

Topic	Feature Description
Graphical Options	**Change Display Color and Style of All Model Objects** Users can now change the color and style of all objects in the main display. Select the object type from the **Color Mappings** group of the **Graphical Options** window.
Graphical Options	**Apply Graphical Options to Multiple Plots** Users can use the **Ctrl+Click** operation on the **Plots Tree View** to select multiple plots at once. Edits made to the **Graphical Options** will apply to all selected plots.
Graphical Options	**Save Graphical Options to a Layout** The Graphical Options window now contains **Import Layout** and **Export Layout** buttons. The following Graphical Options will be saved to the layout. • **Contours:** Levels, Smoothing, Labeling, and Color Ramp • **Posting**

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

25 of 29

Topic	Feature Description
Multi-Chemical Run	**Additional Columns Available in Multi-Chemical Plot Files** When performing a Multi-Chemical Run, plot files generated by the utility now include additional information to match the current US EPA contour plot file format. New columns include: • Rank (short-term averages) • Number of Years (annual average) • Gridded Receptor Network ID
Buildings	**Import and Export Buildings from Excel** Under the Import menu and in the Building Inputs dialog there is now the option to import buildings from Excel. An Excel template has been provided in the C:\Lakes\AERMOD View\Templates folder. Buildings can also be exported to this Excel format from the Export menu and from the Building Inputs dialog.
Reports	**Additional Model Options Available in Reports** Several reports were updated to include other model options: 1. The **Control Pathway** report now captures **NO$_x$-to-NO$_2$ Options** as well as NAAQS options for NO$_2$, SO$_2$, and PM$_{2.5}$. 2. **Variable Emissions** are written to the **Source Pathway (Other Options)** report 3. NAAQS Output Files are now written to the **Output Pathway** report.

Topic	Feature Description
Tools	**Automated Coordinate Conversion via Move Site** The Move Site utility was enhanced to allow for automatic coordinate conversion from one map projection to another. The tool will move all sources, receptors, annotations, and bitmap images. • Keep the assigned projection and use Single Point offset to move objects a given X and Y distance. • Change the projection and use Two Point offset to move points to assign coordinates in a new projection.
MAKEMET Utility	**New US EPA MAKEMET Model Version 15181** On June 30, 2015, the US EPA released a new version of the MAKEMET model (15181). This update incorporates the beta adjust u-star (**ADJ_U***) option added to AERMET in the 12345 release. The MAKEMET Utility was updated to incorporate this option.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

Topic	Feature Description
AERMET View	**New US EPA AERMET Model Version 15181** On June 30, 2015, the US EPA released a new version of the AERMET model (15181). For a complete description of the changes, please see the US EPA Model Change Bulletin #6 ([MCB#6](#)). This new AERMET model version was incorporated into the software as the default model version. Older model versions are also available.

Fixed Issues

Topic	Issue Description
Details	**Reclassified Date Period Message as Warning** The previous release of AERMOD View generated an Error message in the Details window if the starting year from the **Date Period** was different from the starting year of the met file. This gave the appearance that the project could not be run. The message has been reclassified as a warning to avoid confusion.
Export Sources	**Export Failure for Specific Source IDs** Source IDs which followed the format **E#**, where # represents a numeric value, were improperly exported to Excel format due to Excel's default format assignment of such values. This has been corrected.
Output Pathway	**Clarified Warning Message for Contour Plot Files** When results in a contour plot file could not be contoured, an informational message reported that all results were equal to 0.0. This message has been updated to reflect the unreadable results of the file ("All points for selected result have the same value. No contours can be displayed.")
Output Pathway	**Disable Percentile/Rolling Average Option for PM-2.5 NAAQS** The "PM-2.5 NAAQS" pollutant ID allows only the 24-hour short-term averaging period to be selected. This conflicts with Lakes' Percentile/Rolling Average utility on the Output Pathway which requires a 1-hour averaging period be specified. This utility is now disabled when the "PM-2.5 NAAQS" pollutant ID is selected.
Terrain Processor	**Coordinate Conversion Update for OSNG Projection** The Terrain Processor was updated to correct a coordinate conversion issue when the Ordnance Survey National Grid map projection was used.

Lakes Environmental Software
E-mail: support@webLakes.com
Web: www.webLakes.com

28 of 29

Topic	Issue Description
AERMET View	**Fixed Station Database Coordinates** When importing station data from the Station Database, the coordinates were always imported in the North and West hemispheres. This has been fixed and the Database updated to reflect conventional coordinate notation (negative values for West longitude and South latitude).

Known Issues

Topic	Issue Description
New Project Wizard	**No Spaces in Project Name with ISC** The ISCST3 and ISC-PRIME models are included in AERMOD for backwards compatibility purposes. Due to limitations in their code, these models will issue a fatal error if the project name contains spaces or special characters.
MAKEMET Utility	**Log File References Incorrect Version** A bug in the US EPA's MAKEMET code causes the log file output by the model to reference the previous version number (09183). The surface file (.SFC) reflects the correct version (15181).