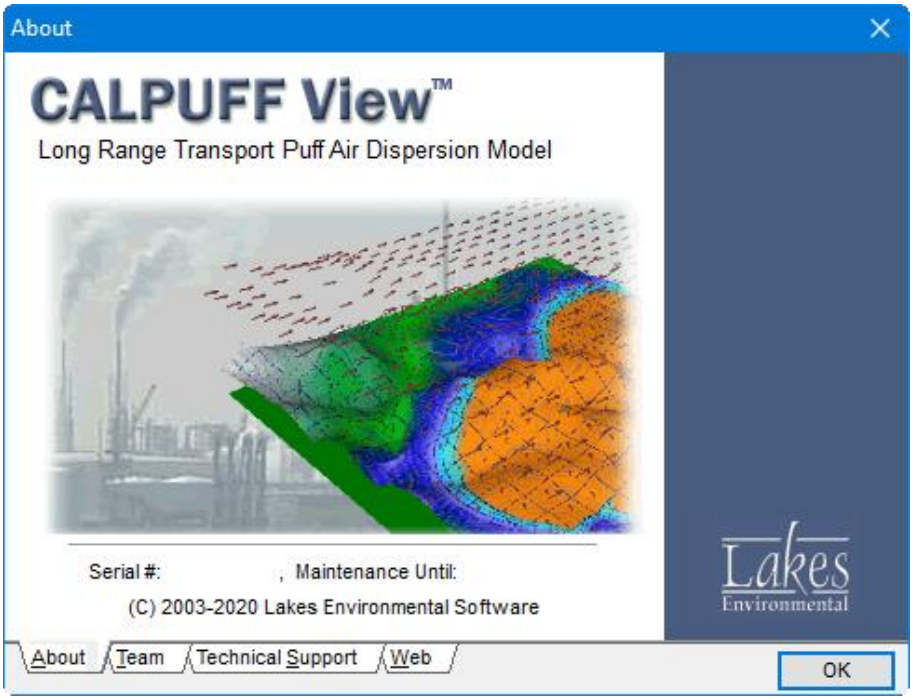
# CALPUFF View™

Puff Air Dispersion Model – CALPUFF

## Release Notes

Versions 9.0.0

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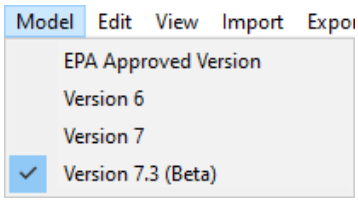
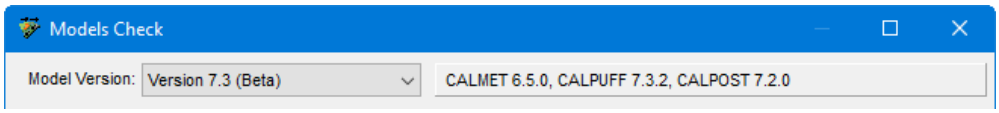
# CALPUFF View™ Version 9.0.0

# Release Notes

February 20, 2020

## New Features

| Topic | Feature Description |
|---|---|
| **Models** | **Support for New Version 7 BETA Release Executables**<br><br>**CALPUFF View Version 9.0** now supports the following BETA Version 7 system executables released on February 6, 2020:<br><br>• CALPUFF Version 7.3.2, Level 200113<br>• CALPOST Version 7.2.0, Level 150720<br>• POSTUTIL Version 7.1.0, Level 190930<br>• CALSUM Version 7.1.0, Level 190131<br><br>  <br><br>The **Models Check** utility searches for the updated executables and associated parameterization files as a separate **Version 7.3 (Beta)** in the **Model Version** selection.<br><br>  <br><br>**Note:** You must download the updated Version 7 system BETA models from the Exponent web site as the model executables are not included in the CALPUFF View installation. Follow the CALPUFF View Model Download Instructions document for specific installation information. |



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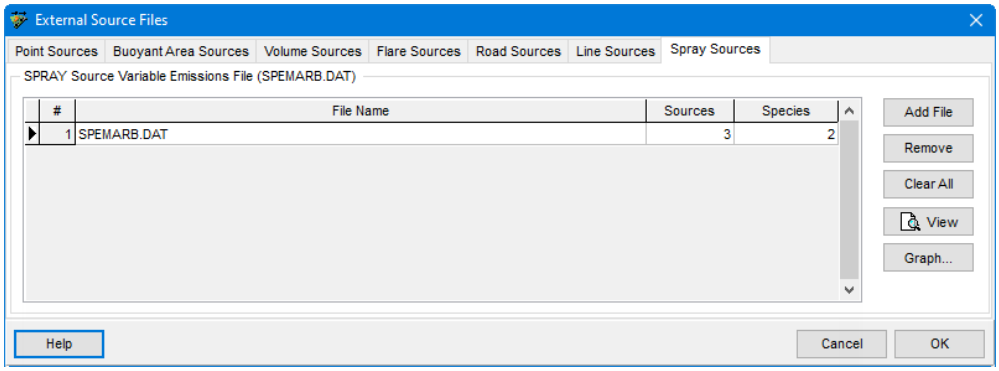
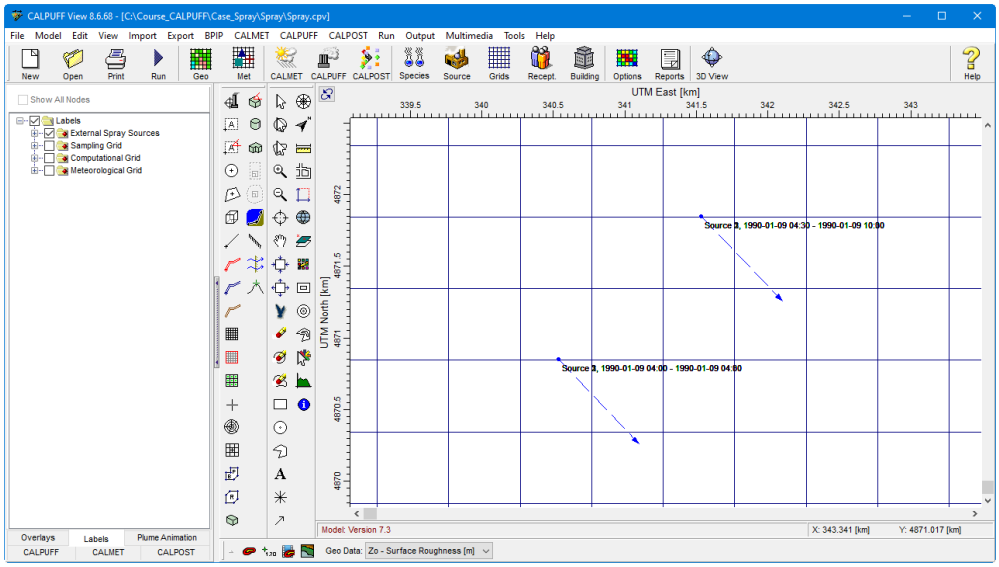
|---|---|
| **CALPUFF** | **New Agricultural Spraying Source Type (CALPUFF 7.3.2)**<br><br>CALPUFF Model Version 7.3.2 includes a new **SPRAY source type**. Designed to handle output from the U.S. Department of Agriculture (USDA) ADISP model, this source models emissions produced during aerial spraying activities as a set of line sources. Spray inputs are provided as an **external source file (SPEMARB.DAT)**.<br><br>  <br><br><br>  <br> |



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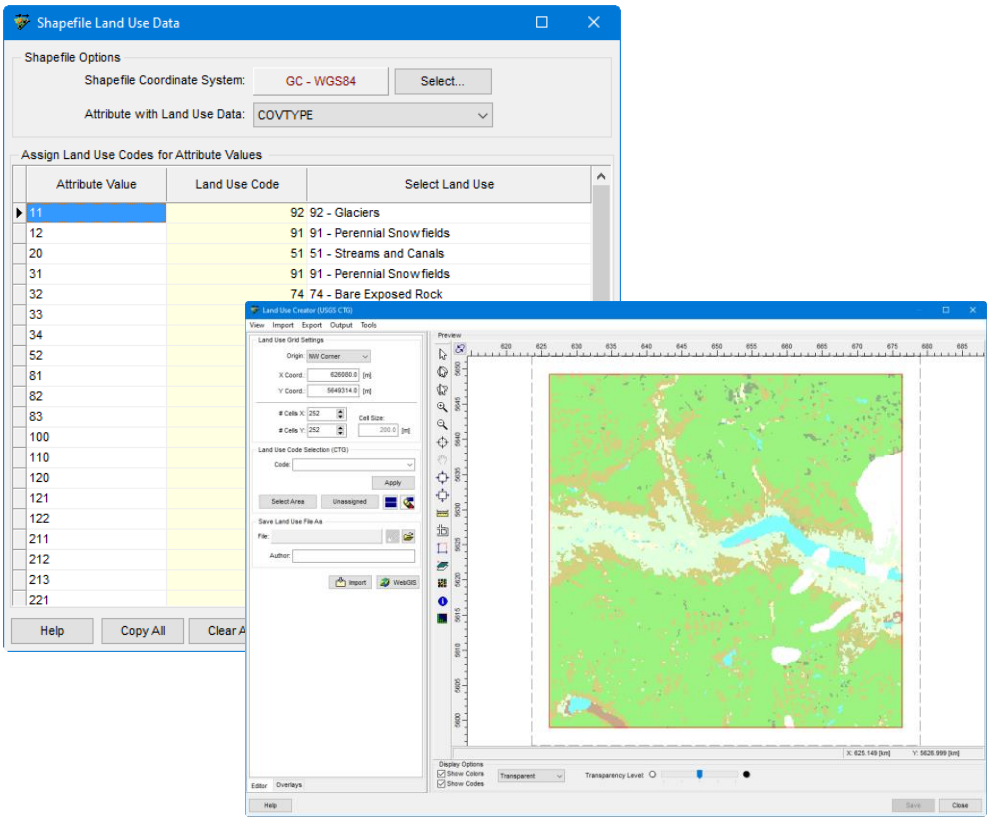
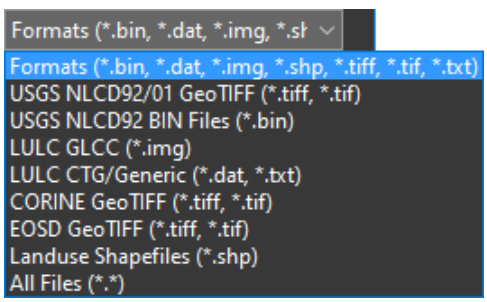
| **Land Use Creator** | **Support for Shapefile Land Use Data**<br><br>Shapefile land use data, including GeoBase Land Use data available from Natural Resources Canada's Geogratis FTP archive, can now be imported to the **Land Use Creator** utility to generate land use data files compatible with CALPUFF View's Geophysical Processor. This includes a utility for modelers to define land use codes for each shapefile attribute.<br><br>  |
| **Land Use Creator** | **Import List Updated with Additional Formats**<br><br>In addition to the existing USGS NLCD, GLCC, CORINE, and EOSD data formats, **USGS CTG**, **Generic**, and **Shapefile** land use files can now be imported directly to the **Land Use Creator** utility.<br><br>  |



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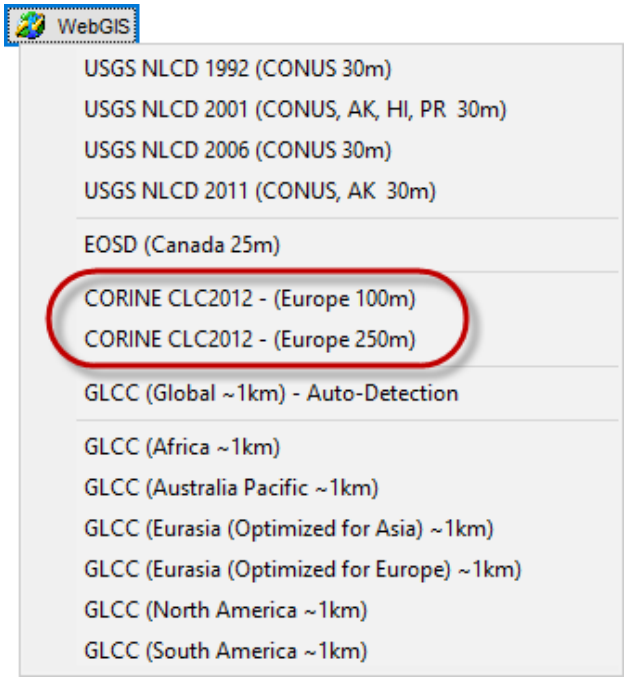
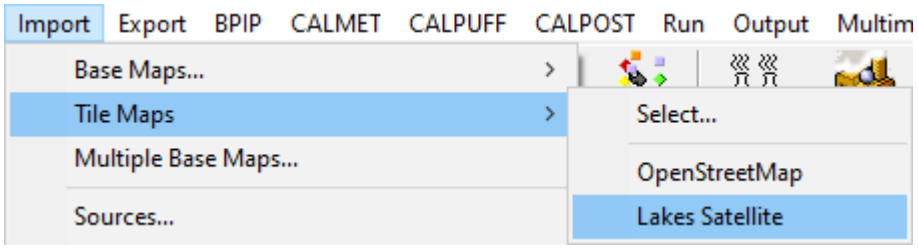
| **Land Use Data** | **Added CORINE 2012 Support**<br><br>Automated downloads of CORINE land use data (covering Europe) have been updated to the **2012 data products**. This includes WebGIS functions in the **Geophysical Processor** and **Land Use Creator** utility.<br><br>  |
| **Tile Maps** | **Direct Server Selection from Import Menu**<br><br>The **Import \| Tile Maps** menu has been expanded to allow automatic import of **OpenStreetMap** and **Lakes Satellite** layers from the menu itself.<br><br>The **Import Tile Maps** dialog for setting display options or selecting additional servers can be opened via the **Select…** option.<br><br>  |



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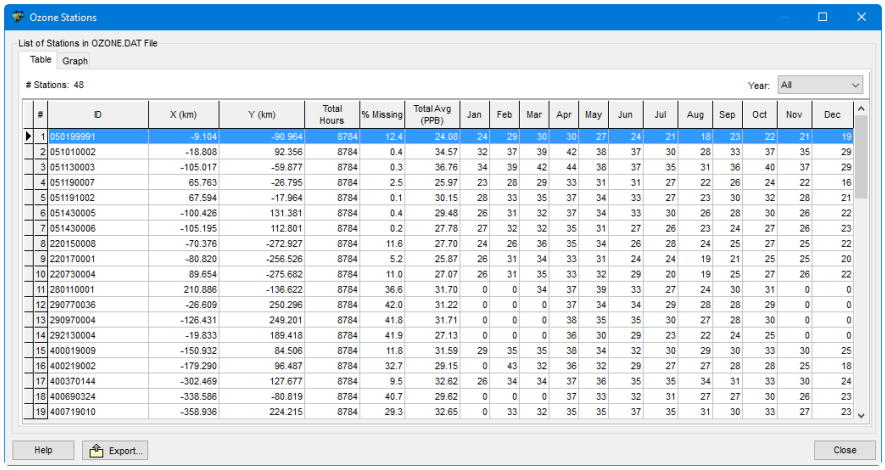
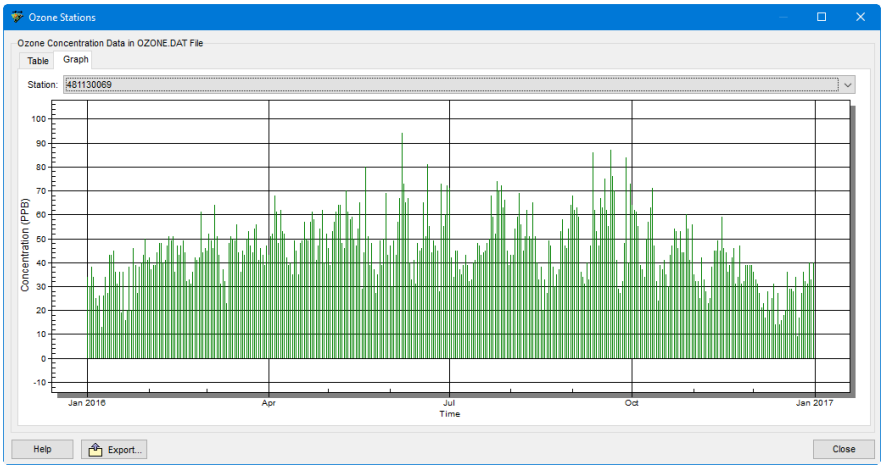
|---|---|
| **CALPUFF** | **Ozone Stations – Statistics & Graph**<br><br>The Ozone Stations dialog has been updated to provide additional information.<br><br>• The **Table** view displays additional data including Total Hours, percent of missing data, period average and monthly average concentrations.<br><br>  <br><br>• Table data can be **exported to Excel** spreadsheet.<br>• A new **Graph** display which shows a line graph of hourly data values.<br><br>  <br> |



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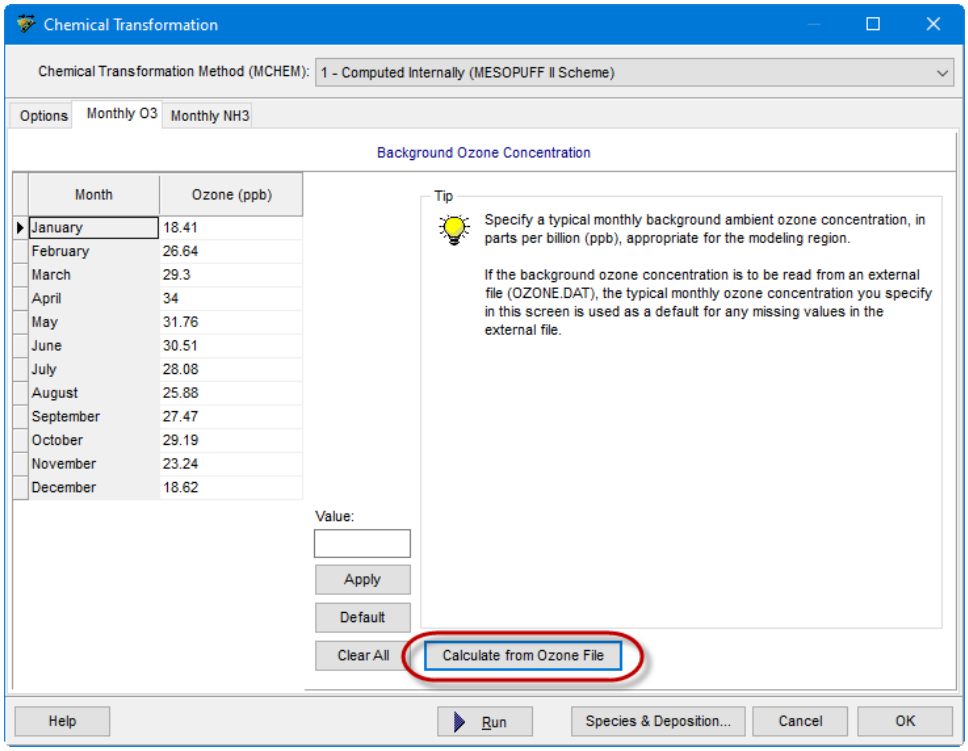
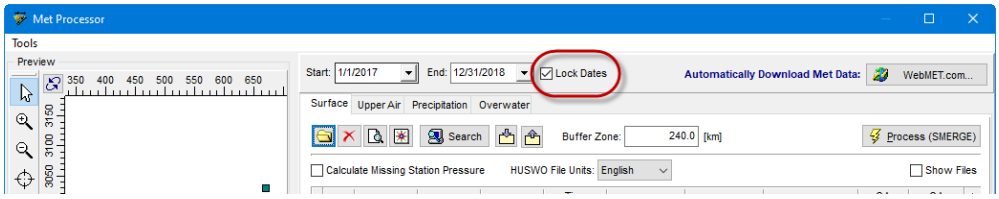
| **CALPUFF** | **Calculate Monthly Ozone from Hourly Background**<br><br>When an hourly background ozone file is provided, data in the Monthly O3 tab of the Chemical Transformation options can be calculated using data from the file itself. In this case, data from the Monthly O3 tab will be used to fill gaps in the hourly data file.<br><br>  |
| **Met Processor** | **Added Lock Dates Option**<br><br>A new checkbox added to the **Met Processor** gives users the ability to lock the **Start** and **End** dates for processing their Surface, Upper Air, Precipitation, and Overwater observations. This option overrides the application's default behavior of reading dates from the specified files.<br><br>  |



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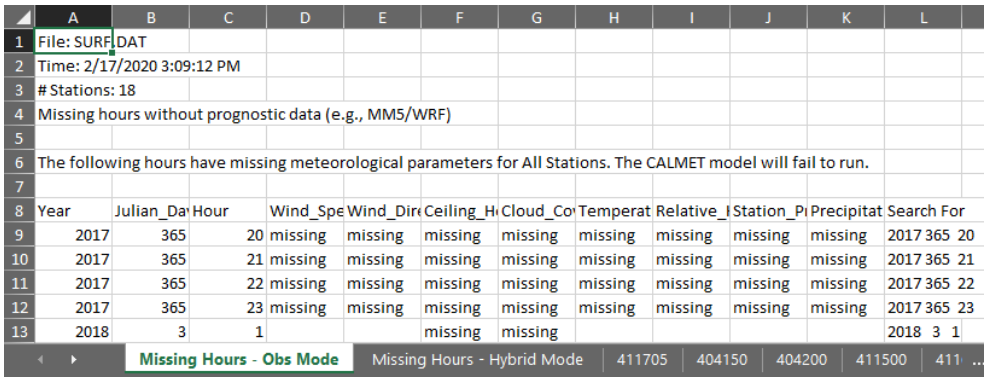
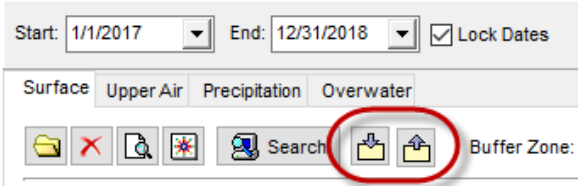
| **Met Processor** | **New SURF.DAT Automated QA Spreadsheet**<br><br>After a successful run of the surface meteorological data preprocessor (SMERGE), CALPUFF View now generates a quality assurance spreadsheet (**SURF.DAT_QA.xlsx**) detailing the dates and times of missing data variables. Missing data are detailed by variable (e.g., wind speed, wind direction, temperature, etc.) with missing counts detailed for each individual meteorological station.<br><br>The spreadsheet includes separate worksheets summarizing missing data for projects containing only station data or those using station data and prognostic data.<br><br>  <br>File: SURF.DAT<br>Time: 2/17/2020 3:09:12 PM<br># Stations: 18<br>Missing hours without prognostic data (e.g., MM5/WRF)<br>The following hours have missing meteorological parameters for All Stations. The CALMET model will fail to run.<br>Year \| Julian_Da \| Hour \| Wind_Spe \| Wind_Dir \| Ceiling_H \| Cloud_Co \| Temperat \| Relative_I \| Station_P \| Precipitat \| Search For<br>2017 \| 365 \| 20 \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| 2017 365 20<br>2017 \| 365 \| 21 \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| 2017 365 21<br>2017 \| 365 \| 22 \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| 2017 365 22<br>2017 \| 365 \| 23 \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| missing \| 2017 365 23<br>2018 \| 3 \| 1 \| missing \| missing \| 2018 3 1<br>Missing Hours - Obs Mode \| Missing Hours - Hybrid Mode \| 411705 \| 404150 \| 404200 \| 411500 |
| **Met Processor** | **TD-3505 (ISHD) Surface Met Data Processing Improvements**<br><br>**SMERGE v5.57** (EPA Approved) & **v5.7.0** (V6 & V7) nominally support the NCEI TD-3505 Integrated Surface Hourly ASCII data format. However, the TD-3505 data format has changed over the years, and SMERGE is currently unable to read and process all the data variables listed in the files.<br><br>CALPUFF View now includes internal routines to bypass the unrecognized variables so SMERGE can produce a valid SURF.DAT file using TD-3505 input data. |
| **Met Processor** | **Export Station Information**<br><br>Station information for all sections of the **Met Processor** can now be exported to a Microsoft Excel spreadsheet template.<br><br>  <br>Start: 1/1/2017 End: 12/31/2018 Lock Dates<br>Surface Upper Air Precipitation Overwater<br>Search Buffer Zone: |



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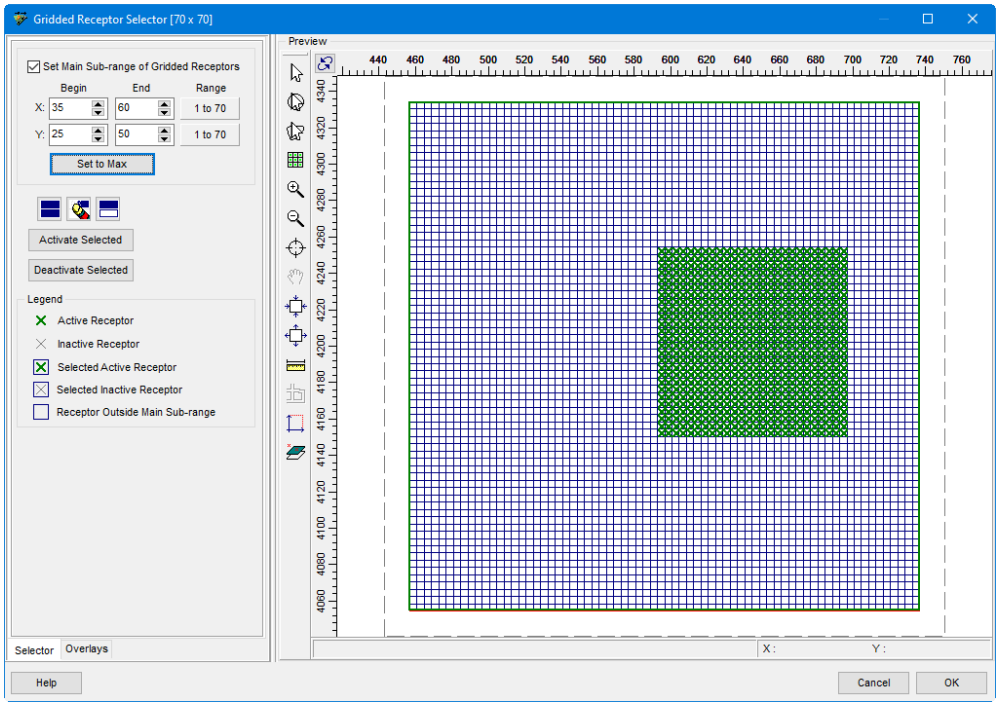
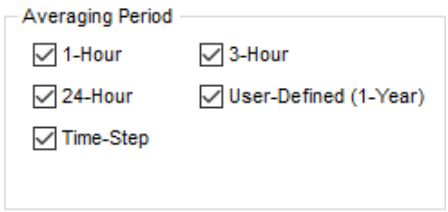
|---|---|
| **CALPOST** | **New Gridded Receptor Selector**<br><br>The **Select Gridded Subset** tool in the **CALPOST Options \| Run Info** settings has been updated with a graphical display of the active or inactive gridded receptors. The new layout includes selection tools, Overlays control with Tile Maps and base map layers, and easy-to-use buttons for activating or deactivating receptors.<br><br>  |
| **CALPOST** | **Percentiles Updated to Show Valid Averaging Periods**<br><br>Long-term averaging periods (i.e., Run Length, 1-Year) were removed from the CALPOST Options Percentiles settings. These were not valid because CALPOST only produces a single output value with these periods.<br><br>  |



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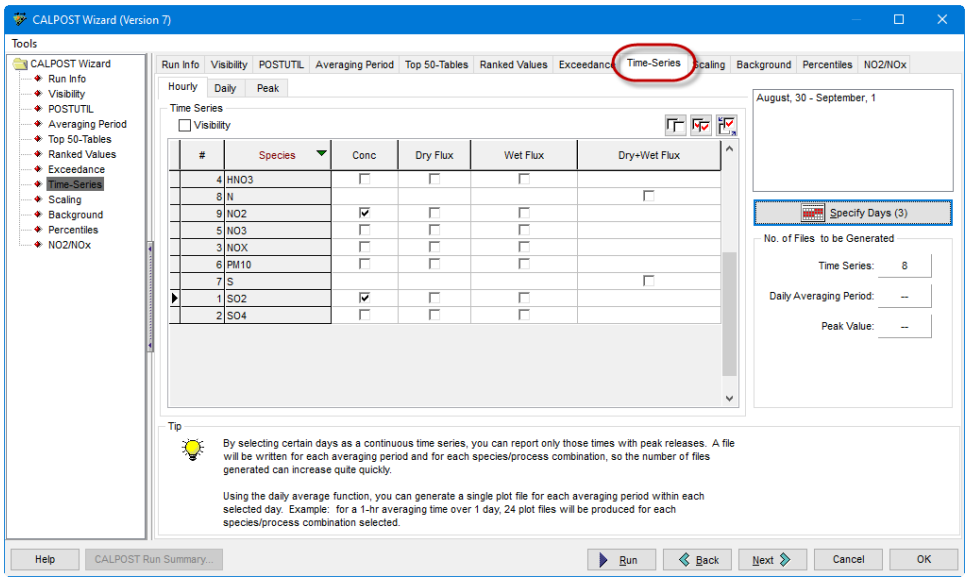
| **CALPOST** | **Selected Days Renamed to Time Series**<br><br>For clarity, the former **Selected Days** tab was renamed **Time Series** to better describe the features of these model options.<br><br>  |
| **CALPOST** | **Expanded Background Data File Maker Utility Import Options**<br><br>The BACK.DAT File Maker utility will now accept **monthly** or **daily average data** in CSV format for generating hourly background data files to run in CALPOST. Daily values are copied and written to all hours of the given day, while monthly values are applied to all hours of the assigned month.<br><br>A B C D<br>1 Year Month Day Concentration<br>2 2016 1 1 18<br>3 2016 1 2 20<br>4 2016 1 3 19<br>5 2016 1 4 19<br>6 2016 1 5 21<br>7 2016 1 6 22<br>8 2016 1 7 18<br>9 2016 1 8 17<br>10 2016 1 9 18<br>11 2016 1 10 19<br>12 2016 1 11 19<br>13 2016 1 12 19<br>14 2016 1 13 20<br>15 2016 1 14 22<br>16 2016 1 15 23<br>17 2016 1 16 21<br>18 2016 1 17 20 |



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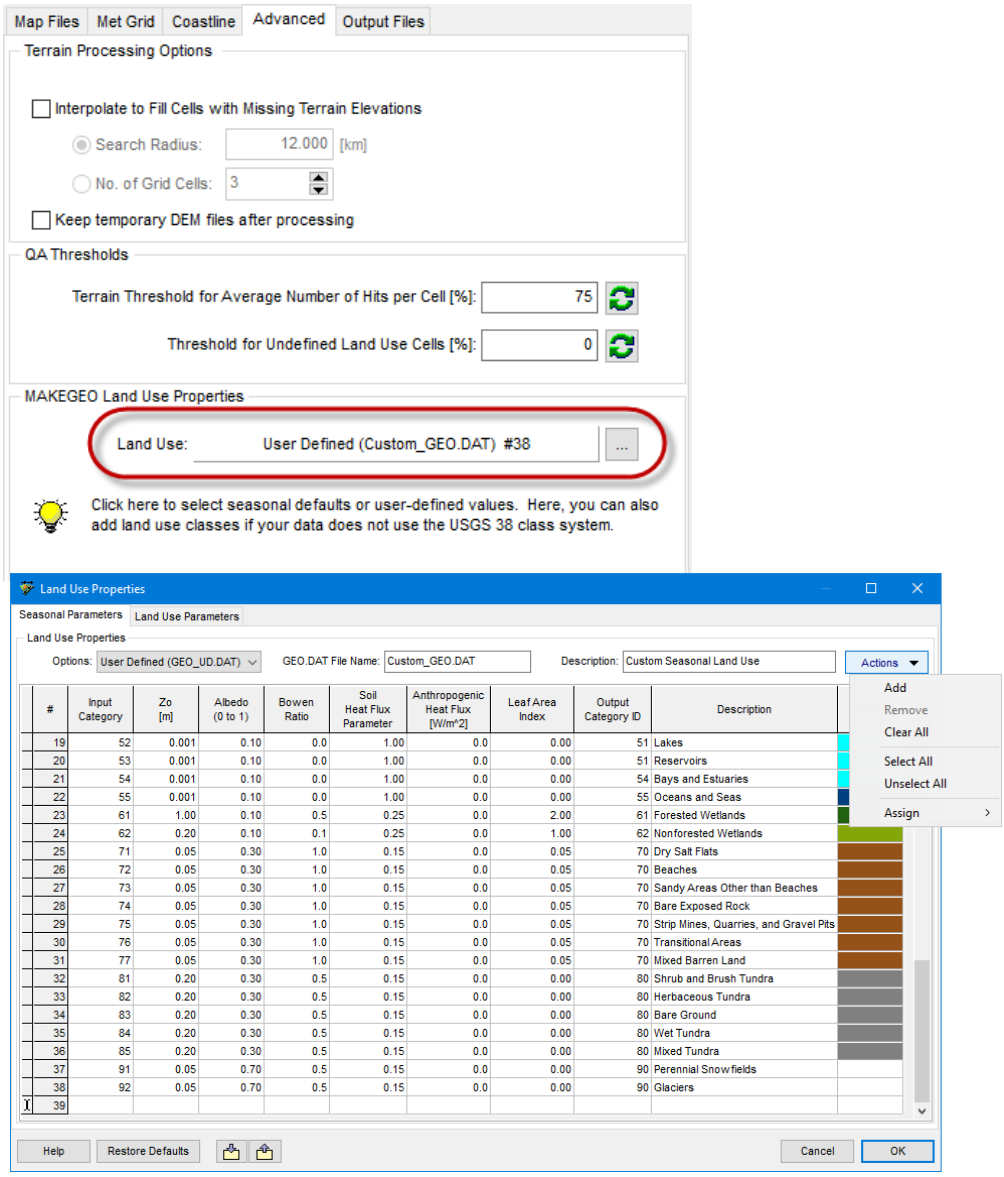
| **Geophysical Processor** | **Land Use Properties Updates**<br><br>The **MAKEGEO Land Use Properties** settings under the **Advanced** tab has been enhanced with the following options:<br><br>• Added **GEO.DAT File Name** field. The user can rename the file when using the **User Defined** Options.<br><br>• Moved the previous buttons to a single **Actions** menu<br><br>  |





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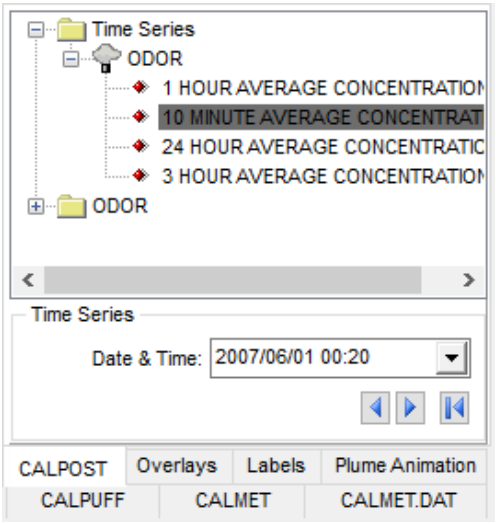
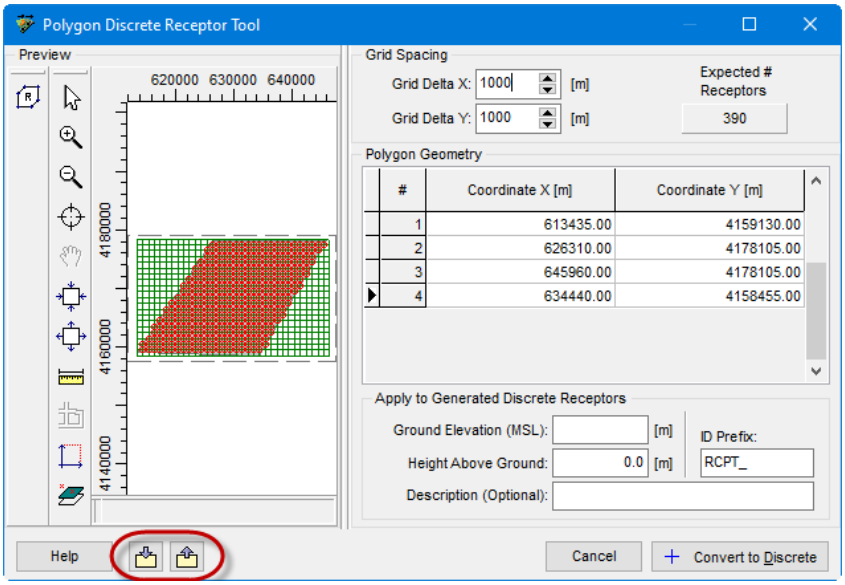
|---|---|
| **Tree View** | **Updated Time Series Display on CALPOST Tree View**<br><br>When visualizing Time Series output on the CALPOST Tree View, the time steps are now shown with their real date & time for improved usability.<br><br>  |
| **Receptors** | **Import / Export Options Added to Polygon Discrete Receptor Tool**<br><br>Coordinate pairs can now be imported from or exported to CSV files for easy access when using the tool. Coordinates can be exported using either meter or kilometer units.<br><br>  |



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|---|---|
| **Coastlines** | **Updated Coastline Data (GSHHG) via WebGIS**<br><br>The Coastline data inputs in the Geophysical Processor and CALPUFF options have been updated to the latest available release of the Global Self-consistent, Hierarchical, High-resolution Geography Database (GSHHG) shoreline database **Version 2.3.7** as published to the National Centers for Environmental Information website.<br><br>**Note:** GSHHG Version 2.3.7 will only work in the **Version 7 modeling system Geophysical Processor**. The Version 6 and EPA-Approved systems will continue to use Version 1.5. |
| **Multimedia** | **Record Animation Option - Default Codec**<br><br>When using the **Record Animation** option, the default video compression Codec has been reset to the **Intel IYUV codec**. The previous default (Microsoft Video 1) is not supported by Windows' default media player application which could lead to 'Can't play' errors when attempting to play CALPUFF View AVI files. |
| **Installation** | **Digital Signature Included**<br><br>Lakes Environmental is digitally signing our commercial product installations for additional security. |


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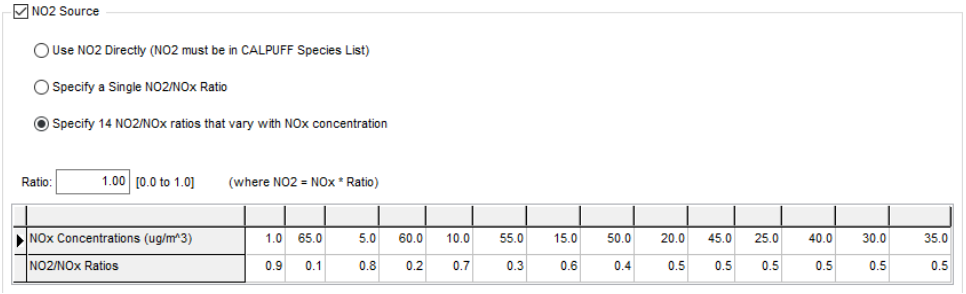
# Fixed Issues

| Topic | Issue Description |
|---|---|
| **Import** | **Improved Handling of CALPUFF Input Parameters When Importing Existing Files**<br><br>When importing an existing CALPUFF input file to CALPUFF View, additional checks were added to make sure all model keywords are imported correctly. |
| **Sources** | **External Sources Incorrectly Visualized with False Projection Coordinates**<br><br>When External Source Files used map projections containing false easting and northing coordinates, the external sources were incorrectly placed due to a conversion which read the false coordinate values as meters instead of kilometers. This has been corrected. |
| **Receptors** | **Ring Receptors Angle Bounds Applied**<br><br>When specifying angles for Ring Receptors, the values are now bounded to 0-360 degrees. |
| **CALPOST Options** | **Variable Order NO2/NOx Concentrations**<br><br>When using the "Specify 14 NO2/NOx ratios that vary with NOx concentration" option on CALPOST's NO2/NOx conversion, CALPUFF View now allows the NOx Concentrations to be entered in any order. These will be automatically written in ascending order in the CALPOST input file.<br><br>  |



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# Known Issues

| Topic | Issue Description |
|---|---|
| **CALPOST Options** | **Background Data Files Not Accepted in EPA-Approved Version**<br><br>A bug in the model code prevents the EPA-Approved CALPOST model (Version 6.221, Level 080724) from reading hourly background data files (BACK.DAT). Code modification is necessary for the process to work correctly. |
| **CALPUFF** | **Buoyant Line Source with Variable Emission Factors Not Recognized**<br><br>A bug in the CALPUFF model version 7.2.1 prevents the model from properly recognizing buoyant line source IDs when variable emission factors are included. The issue is addressed in CALPUFF 7.3.2. |
| **CALPUFF** | **Sub-Hourly External Source Files with Different Time Steps**<br><br>CALPUFF model version 7.2.1 is unable to process external source files with different sub-hourly time steps. |



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