CALPUFF VIEW

LEADING INTERFACE FOR PUFF DISPERSION

Model Descriptions

CALPUFF

A Transport and Dispersion Model

CALPUFF is a non-steady-state Lagrangian Gaussian puff model which builds on the CALMET gridded wind field, and contains modules for complex terrain, overwater transport and coastal interaction effects, building ownwash, wet scavenging, dry deposition, and simple chemical transformation.

CALMET

A Diagnostic 3-D Meteorological Model

CALMET is a meteorological model which includes a iagnostic wind field generator containing objective analysis and parameterized treatments of slope flows, kinematic terrain effects, terrain blocking effects, a divergence minimization procedure, and a micrometeorological model for overland and overwater boundary layers.

CALPOST

A Post-Processing Program

CALPOST is a post-processing program with options for the computation of time-averaged concentrations and deposition fluxes predicted by the CALPUFF model. CALPOST computes visibility impacts in accordance with IWAQM and FLAG recommendations. CALPOST requires only the CALPUFF outputs, although the final visualization often requires multiple additional programs.

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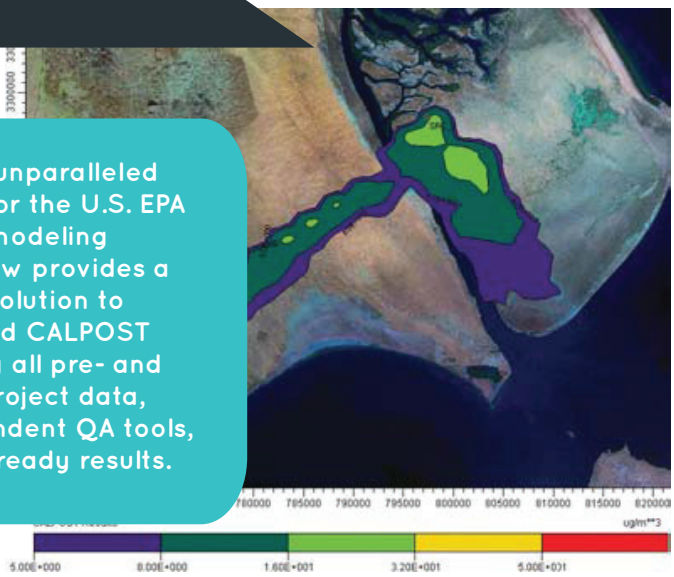
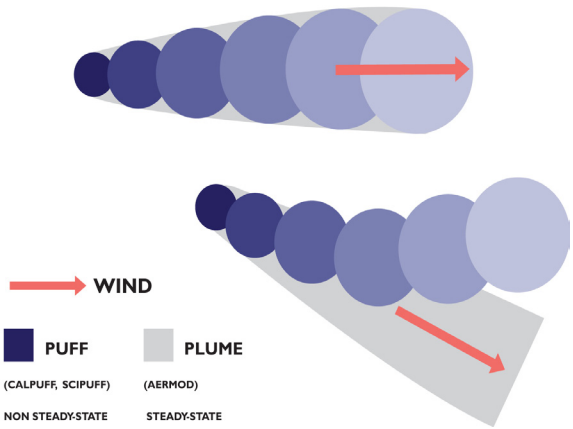
CALPUFF View is an unparalleled GISbased interface for the U.S. EPA approved CALPUFF modeling system. CALPUFF View provides a complete graphical solution to CALPUFF, CALMET and CALPOST modeling, supporting all pre- and post-processing of project data, powerful and independent QA tools, and stunning report-ready results.



Puff vs. Plume

A preliminary consideration on the advantages of puff models over plume models should be based on the following modeling requirements:

- Whether the straight-line steadystate assumptions on which a plume model is based are valid
- Transport distances
- Potential for temporally and/or spatially varying flow fields due to influences of complex terrain
- Non-uniform land use patterns
- Coastal effects
- Calm winds and stagnation conditions
- Variable wind directions

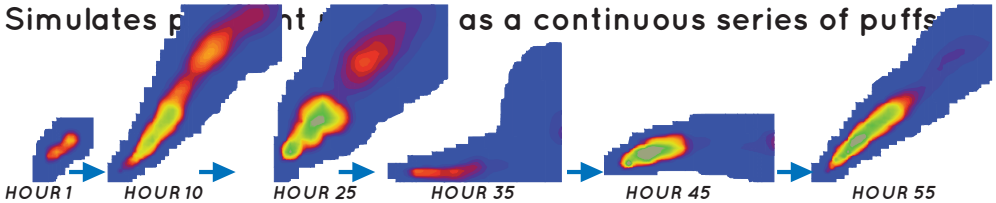


A schematic depicting the tracking differences of a puff and a plume model

For cases involving a high degree of spatial variability of the flow within the boundary layer, such as up-slope or down-slope flows or flows along a winding river valley, the straight-line steady state assumption may not be valid beyond even a few kilometers, and a puff model may be more appropriate.

Different than a plume model, a puff model releases emissions ndependent of the source, allowing the puff to respond to the eteorology immediately surrounding it. This also allows puffs to be racked across multiple sampling periods until it has either completely diluted or has tracked across the entire modeling domain and out of the computational area.

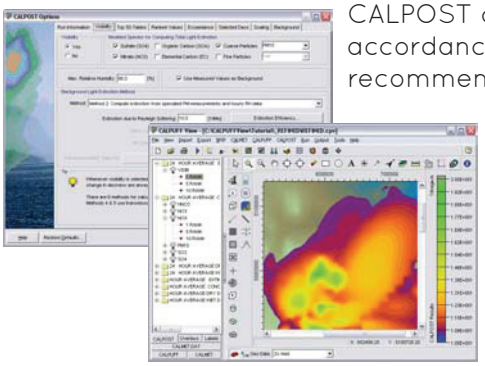
Simulates p nt as a continuous series of puffs



CALPUFF VIEW

INTEGRATED PRE & POST-PROCESSING FOR ALL YOUR PROJECT DATA

Visibility Analysis & Post-Processing



CALPOST computes visibility impacts in accordance with IWAQM and FLAG recommendations.

With the seamless integration of this powerful post-processor, model results of concentration, dry deposition, and wet deposition can be plotted with ease. The integrated contouring tools provide all the visualization effects of the most sophisticated GIS package, eliminating complicated exporting.

3-D Diagnostic Meteorological Model

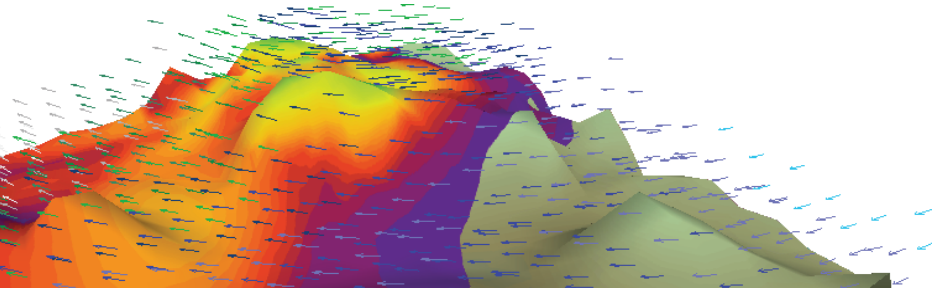
- Integrated prognostic model support (MM5/MM4 and CSUMM output)
- Streamline input & processing of hourly surface and precipitation observations, twice-daily upper air soundings, overwater stations, and gridded surface characteristics.

Recommended by the U.S. EPA

Some examples of applications for which CALPUFF may be suitable include:

- Near-field impacts in complex flow or dispersion situations
  - complex terrain
  - stagnation, inversion, recirculation, and fumigation conditions
  - overwater transport and coastal conditions
  - light wind speed and calm wind conditions
- Long range transport
- Visibility assessments and Class I area impact studies
- Criteria pollutant modeling, including application to State Implementation Plan (SIP) development
- Secondary pollutant formation and particulate matter modeling
- Buoyant area and line sources (e.g., forest fires and aluminium reduction facilities)

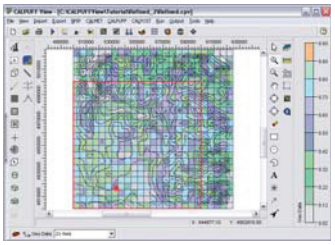
CALPUFF View facilitates the entry of detailed information regarding source geometry, spatial and temporal variability of emission sources, additional sub-grid definition, ozone monitoring, chemical transformation, and depositional velocity data for each species modeled.

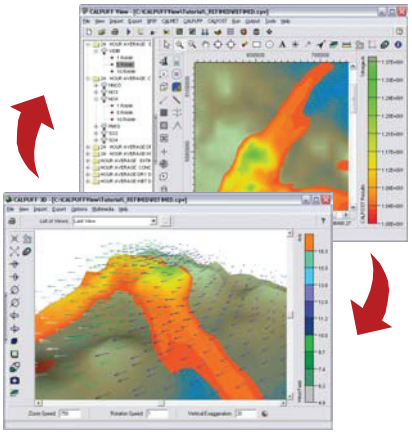


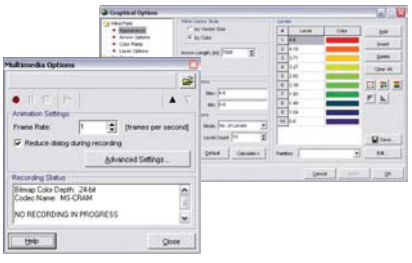
3D Visualization

Giving you total control, you can zoom in and rotate your site and modeling results in true 3-dimensional space. This allows you to view your model from any perspective and further investigate what is influencing your model results!

- Complete 3D visualization
- Seamless 2D to 3D
- 3D wind fields
- Multi-layer visualization
- Realistic views
- Concentration contours
- 3D animations







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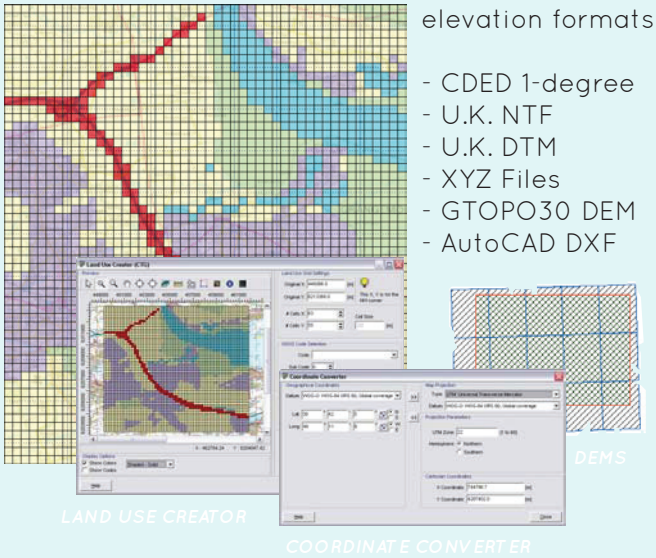
SPATIAL DATA



DEM Converter

Easily create USGS 7.5min DEM files from different terrain elevation formats:

- CDED 1-degree
- U.K. NTF
- U.K. DTM
- XYZ Files
- GTOPO30 DEM
- AutoCAD DXF

Coordinate Converter

Typically modeling must be done using a fixed length unit (i.e. meters). The length of each degree varies with latitude, and so geographic coordinates must be converted from lat/long to meters. The coordinate converter included with CALPUFF View supports UTM & Lambert Conic Conformal projections and five datums:

- WGS-84
- NAD-27
- NWS-84
- NWS-27
- ESRI Ref Sphere

Land User Creator

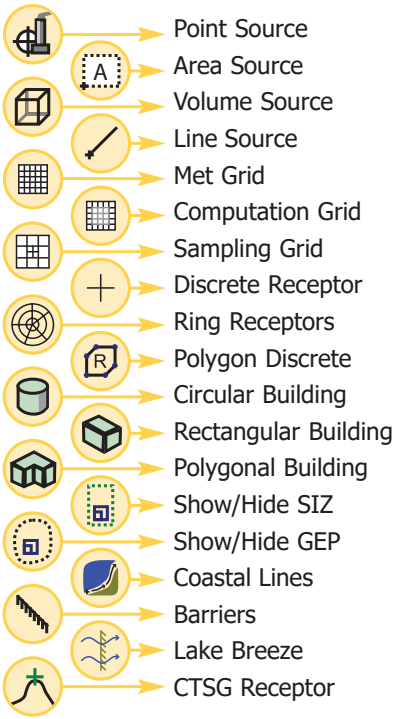
Finding accurate surface data for your CALPUFF projects can be difficult. CALPUFF View includes a Land Use Creator tool where you can digitize on-screen directly from any available base map (Bitmap, Shapefile, Mr.SID, etc.)

Code each cell using the USGS Land Use Classification Codes. Save in CTG format for direct importation into your CALPUFF View project.

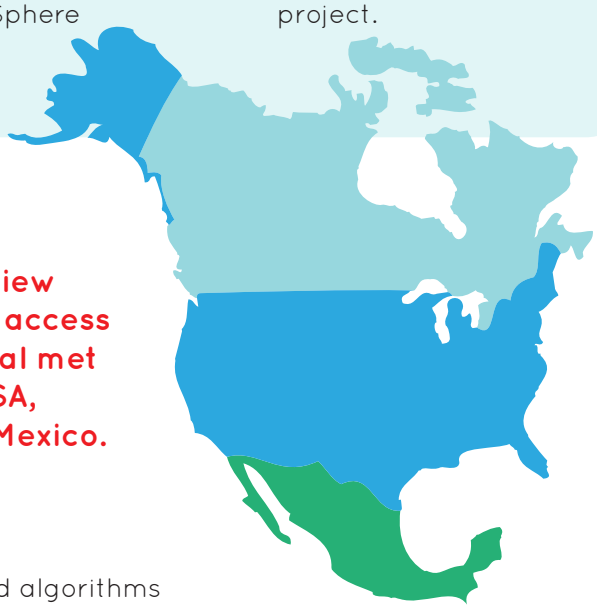
Graphical Tools

Graphical tools allow you to rapidly create your model while generating dynamic visualization.

Application Toolbar



Annotation Toolbar



CALPUFF View users have access to additional met data for USA, Canada & Mexico. FREE !

Features

- Calm wind algorithms
- Sub-grid boundary layer calculations
- Vertical wind shear
- Sub-grid complex terrain
- Building downwash & BPIP interface
- Overwater & coastal interaction effects
- Chemical transformation options
  - MESOPUFF II
  - RIVAD/ARM3
- ISCST3 or AERMOD project conversion
- Slope flow & kinematic terrain effects
- Stagnation, inversion, recirculation and fumigation conditions
- Criteria pollutant modeling
- Secondary pollutant formation and particulate modeling
- Non-steady-state emissions and meteorological conditions
- Automatic downloading of terrain and met data

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