



CALPUFF Modeling System Status and Availability



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Guideline on Air Quality Models

- Mandated by the 1977 Amendments
- Codified in 40CFR Part 51, Appendix W
- CAA Requires open Modeling Conference every 3 years (delayed until March 2012) in order to keep the modeling up to date and adopting the State-of-the Science.
- The guidance is intended to be used for PSD permitting and attainment demonstrations for single sources.
- For multiple source State SIP demonstrations other guidance is used

Guideline on Air Quality Models (cont)

- For Class I demonstrations the Federal Land Managers Air Quality Related Values Work Group Guidance (FLAG) is used. Additionally it is used for the BART process.
- Since adoption of AERMOD to replace ISC, EPA has been taking a stronger and stronger position that AERMOD is preferred within 50 kilometers of the source. This EPA position reduces the potential use of CALPUFF's in obvious "complex winds" situations.
- CALPUFF is preferred for distances beyond 50 kilometers.
- CALPUFF is the specified model for Class I Area Impacts (IWAQM as reflected in FLAG).

CALPUFF Fulfills an Important Modeling Need

- Need a 3-D Lagrangian model – Eulerian model will not work well for individual sources. Current Point In Grid (PIG) and subgrid scale modules in Eulerian models are too simplistic and inaccurate.
- Better handling of low wind speed cases, stagnation, coastal, complex terrain and flow reversals.
- Better handling of deposition
- CALPUFF is a model with substantial user community experience

TRC Management of CALPUFF

- TRC maintains the EPA approved code for free use by the public. Version 5.8
- TRC answers questions about the code and teaches courses on its use.
- TRC provides multiple graphic user interfaces for user presentation of the results.
- TRC provides the CALPOST version 6.221 which supports the Federal Land Manager's FLAG assessments and the BART process.
- <http://www.src.com/calpuff>

EPA Management of CALPUFF

- EPA has not yet approved the bug fixes for Version 5.8 submitted in 2005. Model Change Bulletins E and F.
- EPA's only work to date on CALPUFF are meant to confine it's use (April 2008 memo) and to sponsor one study which uses CALPUFF as a long range transport model.

CALPUFF 6.4

- Several studies have demonstrated that version 5.8 significantly overestimates sulfate and nitrate production and thus visibility impacts.
- CALPUFF Version 6.4 incorporates more sophisticated handling of the atmospheric chemistry of sulfate and nitrate formation. This leads to more accurate reproduction of both particulate formation and visibility impact calculations.
 - RIVAD ozone chemical mechanism
 - ISORROPIA inorganic gas particle equilibrium
 - RADM for aqueous phase transformation
 - Secondary organic aerosol formation from CalTech
- TRC urges EPA to consider version 6.4 for application to these assessments.

CALPUFF 6.4

- Version 6.4 is “backward compatible” with Version 5.8
- Version 6.4 will provide much more accurate determinations of sulfate and nitrate production and thus, much more accurate determinations of visibility impact and BART determinations.
- TRC urges EPA to consider version 6.4 for application to these assessments.