8th Conference on Air Quality Modeling
Agenda

22 - 23 September 2005
Research Triangle Park, NC

DAY 1 – September 22, 2005

9:00-9:30   Introduction and Opening remarks
John Bachmann, Associate Director, Science/Policy & New Program Initiatives
Tyler Fox, Leader, Air Quality Modeling Group

9:30-12:00   CURRENT MODELS - AERMOD (6 Presentations)

AERMOD is pending promulgation as the new preferred model to replace ISCST3.   This session provides an overview of the features of the AERMOD modeling system and supporting tools with science comparisons to ISCST3.   In addition, CALPUFF was approved for regulatory use in 200X and this session will provide a current status of the model and several implementation issues.

I.   AERMOD Modeling System
　　1. AERMOD
　　2. AERMET
　　3. AERMAP
　　4. AERMOD TOOLS
　　　　　　AERSCREEN
　　　　　　AERSURFACE
　　5. AERMOD Implementation Group

12:00-1:00   LUNCH BREAK (ON YOUR OWN, CAFETERIA IS AVAILABLE)

1:00-3:00   PART 1 - CURRENT MODELS - CALPUFF (3 Presentations)

II.   CALPUFF
　　1. The state of the model/outstanding evaluation issues
　　　　　　Secondary formation
　　　　　　300 km application
　　　　　　Puff splitting
　　2. Applications
　　　　　　PM/visibility
　　3. Updated air quality model settings

3:00-5:00   USE OF GRIDDED MET DATA IN DISPERSION MODELS (2 Presentations and Panel Discussion)

Meteorological data used in air dispersion modeling has expanded to include meteorological model outputs from the National Center for Environmental Prediction (NCEP) as well as other sources (Penn. State model, MM5, etc.). These data are used routinely in regional scale modeling. For local scale modeling, these model outputs can provide spatial coverage and additional parameters for locations which are not well-served by standard National Weather Service point source data. This session is designed to explore the state-of-the-science of these assimilated data output and engage in a discussion on the topic.

1. Overall plan, advantages, and issues using NWS products
        MM5 in the interim
        WRF or other model in the future
        Consistency, better science, etc.
        Issues of grid resolution, representativeness, etc.
2. Presentation of the Philadelphia study example of AERMOD w/ MM5
3. Panel discussion on scientific and practical issues with use of gridded met data

    a) Are there any fundamental meteorological constraints in using assimilated meteorological data?
    b) On specific technical issues with respect to using diagnostic met. model output, we have identified some for discussion: PBL heights in MM5, how very-near-calms are to be handled (MM5 rarely outputs calm), deriving cloud coverage and cloud height from MM5 moisture output, etc.
    c) When would on-site/local meteorological data be more representative than assimilated meteorological data?
    d) What are the differences between the various diagnostic/prognostic models and how do those differences affect dispersion modeling?
    e) When using assimilated data in a Gaussian-type dispersion models (i.e. AERMOD), how should sources located in multiple grid cells be handled?
    f) How does one determine the appropriate grid spacing resolution for a given applications?
    g) Who should manage the archive of approved assimilated meteorological data (such as MM5, which is generally used)?

4. Q/A with audience.

DAY 2 – September 23, 2005

8:00-8:30   Summary of Day 1 Discussions

8:30-9:30   EPA's New Approach for Updating Models: CALPUFF (1 Presentation)

This session provides an overview of our process by which we will update EPA approved version of CALPUFF.

1. Conducting model assessment (for example, comparing current version with beta version)
2. Posting of analysis protocol and summary of results (unique for each model)

9:30-10:30   Review of Current and Available Model Evaluation Methods (1 Presentation and Panel Discussion)

This session will provide an overview of current model evaluation methods and discuss additional approaches and methods available in conducting model performance evaluations. A review and re-evaluation on how to conduct model performance evaluation is warranted now that AERMOD and CALPUFF have been accepted for regulatory use.

1.   Current model evaluation procedures.
2.   Panel discussion on statistical tests, evaluation procedures, test methods; metrics of interest for evaluation particularly in regulatory context; need for datasets in conducting evaluations.
3.   Q/A with audience

10:30-12:00   Review of the Current Approach to Model Development, Acceptance and Implementation (Panel Discussion).

This session will consist of a panel discussion focused on reviewing and commenting on how we approach model development, acceptance, and implementation of regulatory models. We have recently completed the development and acceptance of two models that followed different paths into the regulatory process. For example, AERMOD was developed from the AERMIC process (a community-based approach) funded and maintained by EPA, while CALPUFF was developed in the private sector with funding from multiple sources and maintained by a private firm.

1. Panel discussion on process of approving new models.   Questions for the panel:

   a) Is the current approach of a single "preferred" model for each application necessary and adequate for the timely and consistent review of permits?
   b) If we moved away from the concept of a "preferred" model, then what would an alternative system look like?

c) Would these alterative approaches better encourage the development of improved modeling science and data with timely acceptance for use in regulatory arena? What are the pros and cons, the potential impacts to the regulatory community?
d) If an alternative approach recognized the use of more than one model for the same application, then how would we handle the resulting acceptable yet different results in a regulatory context?
e) What criteria should be satisfied by a model developer in order for EPA to consider the model for acceptance? (either in a 'preferred' model or a 'no preferred' model approach)
f) What should serve as the basis for determining acceptable model performance, i.e., how establish 'acceptance criteria'? For example, should it be based on absolute criteria or relative performance of competing models with or without minimal performance criteria?
g) Can we develop a set of generic acceptance criteria that are objective and can be applied broadly across model applications?

2. Q/A with audience.

12:00-1:00   LUNCH BREAK (ON YOUR OWN, CAFETERIA IS AVAILABLE)

1:00-5:00   Public Presentations
(As needed)