September 4: Deadline for CMAS Conference Early-Bird Registration and Extended Abstract Submission

The 6th Annual CMAS Conference will be held October 1-3, 2007. Please see the CMAS web site to obtain information and register.

Upcoming Training Events

SMOKE Training:
- September 26-28, 2007
- January 16-18, 2008

CMAQ Training:
- October 4-5, 2007
- January 14-15, 2008

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www.cmascenter.org

Workshop on Air Quality Model Evaluation

This month, EPA collaborated with the American Meteorological Society to revisit a topic that is important to air quality modelers: evaluation methodologies for regional-scale air quality modeling systems. To build confidence in using such models for regulatory applications and for forecasting air quality, it is important to critically evaluate their ability to simulate the spatial and temporal features embedded in air quality observations.

In the 1980s, workshops were organized to build a collective set of conclusions and recommendations for evaluating local-scale air quality models. Now that more advanced air quality modeling systems have been developed that cover a variety of scales, new and more advanced methods of evaluation are required in order to properly judge model performance.

During the workshop held August 7-8 in Research Triangle Park, NC, approximately 100 national and international scientists gathered to discuss the evaluation of regional-scale air quality modeling systems (AQMSs). The key question to be addressed was "What constitutes a critical evaluation of an air quality model, within the context of its applications?"

Attendees debated what we know and do not know about air quality model evaluation, methodologies, data, and techniques that can be implemented. In a full day of breakout sessions, four panels discussed the following topics:

1) Evaluating the performance of meteorological processes within AQMSs

2) Evaluating the performance of source and sink processes within AQMSs

3) Evaluating the performance of chemistry and aerosol processes within AQMSs

4) Methods and processes for evaluating the performance of AQMSs

Each panel prepared a discussion summary that was presented to all participants at the end of the workshop.

Tyler Fox of EPA will present a full report on the workshop findings and recommendations during the opening session of the 6th Annual CMAS Conference in October. More details will also be provided on the CMAS web site.

Editor's Note: You may recall that a previous issue of the *CMAS Quarterly* announced plans to conduct training sessions on evaluation of air quality

modeling systems. We have decided to postpone these sessions in order to benefit from the important recommendations resulting from this workshop.

The 6th Annual CMAS Conference

The tentative agenda for the 6th Annual CMAS Conference, to be held at the University of North Carolina at Chapel Hill's Friday Center on October 1-3, is now posted on the CMAS web site. This year we received a record number of 133 papers for oral and poster presentations. Due to the limited number of oral presentation spots, some of the requested oral presentations were moved to the poster session. This again raises the question of whether we need to increase the number of days, or parallel sessions, in the conference. In the past the general consensus has been that three days is the optimum duration, especially due to the SMOKE and CMAQ trainings that precede and follow the conference; a three-day conference makes it easier for out-of-state travelers who want to attend both the training and the conference. The CMAS Director will discuss this issue with the External Advisory Committee during their October 4 meeting.

A Letter from the CMAS Director

2007 marks the sixth year of the CMAS Center, hosted at the University of North Carolina at Chapel Hill and operationally funded by the U.S. Environmental Protection Agency. We continue to address many needs of the air quality modeling community through development, outreach, and training activities.

This year, the third CMAQ model review was completed and the reviewers issued a report providing guidance related to model features and future model development. The review was generally very positive and reflected appreciation for the effort of various CMAQ scientists (especially at EPA) and organizations that contribute to the model's development.

The issue of *Journal of Applied Meteorology* that carries articles based on presentations given in the model development session of the 2005 CMAS conference has been published. The CMAS community has found these conference-related cycles of peer-reviewed publication to be very informative and rewarding. This year we are planning another special issue tied to the upcoming conference; the issue will be based on presentations addressing the topic of "Physics-Chemistry Interactions in the Atmosphere from the Perspective of Air Quality." CMAS and EPA are in negotiations with the editors of the journal *Environmental Fluid Dynamics* as a possible host of this year's issue.

Demand for our training program continues to grow. This is due in part to the many different ways in which SMOKE and CMAQ are being applied at the national and international levels, and to the growing user communities for these models. It also reflects increased recognition of the vital role such modeling tools play in supporting research and analyses to assess pollution and provide possible solutions to reduce it. In addition to the four sets of SMOKE and CMAQ local training sessions held annually, this year we hosted special sessions in Chapel Hill for visiting scientists from China and Canada. Also, this month the CMAS Applications and Training Coordinator is leading a two-week training session on SMOKE, CMAQ, and the WRF in Bulgaria for more than 30 European scientists. This is the second time CMAS has conduct training sessions in that country.

We continue to release new model versions. The latest is MCIP version 3.3, which was issued this month. Also, more and more newcomers (both users and developers) are using the CMAS Help Desk, reflecting the momentum of CMAS and the need for it by the community members. Further, CMAS has established a visiting scientist program for those who would like to spend a few weeks visiting the CMAS Center at UNC to work on applications of particular interest to them in consultation with CMAS scientists. All in all, there are more than 25 countries using CMAS at this time.

We use the CMAS web site (cmascenter.org) as a two-way information exchange tool. Please visit it often, and send us your comments and ideas. We count on you for valuable guidance and help.

I wish you all well, and I look forward to seeing you in October.

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Use of Satellite Data Assimilation to Improve the Description of Meteorology for Air Quality Models

CMAS scientists are collaborating with EPA scientists on modifications to the Mesoscale Model Version 5 (MM5) and the Weather Research and Forecasting (WRF) model to allow the assimilation of satellite data. WRF and MM5 are used as meteorological drivers to the CMAQ modeling system and other models. The assimilation is conducted through the ingestion of GOES satellite surface insolation into the MM5 version that was developed by the University of Alabama in Huntsville. The development will also include a soil moisture nudging scheme for the Pleim-Xiu Land Surface Model (PX LSM) using satellite skin temperatures. The satellite information—both skin temperature tendencies from GOES and skin temperatures from MODIS/GOES—will also be used to develop an indirect soil moisture nudging scheme in PX LSM within WRF. The testing and evaluation of the assimilation methodology will use TexAQS 2000 project data.