Annual CMAS/Models-3 Conference in September Will Include New Features

The CMAS Center, in conjunction with the Carolina Environmental Program at the University of North Carolina, will host the Fourth Annual Models-3 Users' Conference on September 26-28 at the Friday Center in Chapel Hill, NC. The early bird registration deadline is August 24, 2005.

Eight conference sessions are planned:

(1) Model Development,
(2) Emissions Modeling and Analysis,
(3) Integrated Systems for Air Quality Management,
(4) Air Quality Analysis Tools,
(5) International Air Quality Studies,
(6) Urban/Regional Air Quality Applications,
(7) Use of Satellite Data in Modeling, and
(8) Regulatory Modeling.

A poster session will also be held.

As in past conferences, this year's conference will highlight advances in air quality modeling and management that benefit the community. For example, the new session on air quality analysis tools will be a kind of show-and-tell session where new analysis tools will be discussed and session participants will be given a chance to exercise specific software modules. The session on

using satellite data for modeling applications is another new session coming to this year's conference. The wealth of land use, tropospheric chemistry, and other data emerging from various remote sensing platforms is a vital resource that helps us understand complex aspects of air quality and its regional and global impacts.

The conference will also include two panel discussions on the morning of the third day. The first panel will address the status of air quality modeling science—how far we have come, what are the paths for the future. The second panel will discuss the use of air quality modeling results in analyzing socio-economic impacts of air pollution.

The deadline for submitting brief presentation abstracts for the eight sessions and the poster session was May 20. Over 120 abstracts were received. They will be screened by the session chairs, and the presenters notified by July 1 about the status of their papers. Extended abstracts are due August 24.

Many presenters from last year's conference are participating in a special issue of *Atmospheric Environment* on model evaluation. This year, CMAS

plans to have another peer-reviewed special journal issue resulting from the conference, for papers presented under the topic of "Model Development." CMAS has contacted a leading journal about publishing the issue.

Following the CMAS conference, the members of the External Advisory Committee (EAC) will meet with the CMAS Director to discuss the status of CMAS and possible improvements and recommendations. They will also provide feedback on the conference. The 14 EAC members provide important guidance to CMAS during the course of the year. At least four EAC conference calls are conducted annually to report on and discuss the progress of CMAS. We greatly appreciate the devotion of the committee members. EAC contributions and suggestions have resulted in many of the valuable features that are part of CMAS today.

We at CMAS are looking forward to seeing you this fall in Chapel Hill for what should be a very exciting conference. Please also remember that SMOKE and CMAQ training will be conducted by CMAS scientists prior to and after the conference.

CMAQ-SMOKE Research: New Developments

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CMAS is working with various members of the community to include advances in science in the CMAQ-SMOKE modeling system and the associated meteorological modeling drivers and analysis tools.

For inclusion in SMOKE, CMAS staff recently completed development and implementation of a modal method for estimating the splits of aggregate sea salt species emissions between the accumulation and coarse modes. These aggregated emissions estimates include parameterizations of the open ocean and surf zone fluxes, and are applicable to relative humidities in the range of 45% to 99%. The surf zone flux calculation uses a GIS to estimate the area of a 50-meter-wide surf zone along the shoreline in each coastal grid cell.

For CMAQ, CMAS staff completed delivery of the updates to the CMAQ aerosol module for inclusion of sea salt chemistry and partitioning of the volatile species mass among the modes. The new module is currently under review. Work on including sea salt species in the aqueous chemical mechanism is near completion. Evaluation of the entire suite of sea salt emissions and chemistry modules for inclusion in the next release is slated to begin by mid-June.

A new in-line photolysis component for CMAQ has been developed and is undergoing testing. The basic design of the component is to calculate the photolytic rates in seven wavelength intervals, or bins, covering the spectral range from 291 to 850 nm. This component consists of the following elements:

(1) A new version of PHOT that calls the in-line routines rather than calling the routines that process the file generated by JPROC.

(2) A Fortran 90 module that contains the absorption cross sections and quantum yields for each photolytic species, and the relevant reference temperatures and all of the necessary subroutines to calculate the photolysis rates, plus a separate suite of subroutines that deals with aerosol optical effects.

The new component is currently undergoing testing in a stand-alone mode for synthetic vertical profiles of atmospheric properties and is also being tested within CMAQ.

This spring, CMAS received updates to CMAQ from members of the community (AER and Georgia Tech). The updates are described below.

AER model developers submitted an updated version of CMAQ-MADRID and CMAQ-APT (gas-phase only), both based upon CMAQ version 4.4 released in October 2004; the submission also included four example applications and documentation. Key updates to CMAQ-MADRID are the following:

(1) An abridged mechanism for secondary organic aerosol (SOA) formation

(2) Addition of the SAPRC gas-phase chemical mechanism

(3) Treatment of mercury

(4) Modifications to improve computational efficiency

CMAS is in the process of reviewing and testing these modules and plans to release them to the community this summer.

Model developers from Georgia Tech submitted the source code for CMAQ-DDM-Aero along with a test dataset. During review of the submission, CMAS found some inconsistencies and deficiencies in the supporting documentation, and sent a request for clarification of these issues to Georgia Tech. Completion of the testing and review of the documentation, as well as release of the code to the community, are expected to happen in the next quarter.

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