CMAS ENVIRONMENT

NEWSLETTER OF THE COMMUNITY MODELING AND ANALYSIS SYSTEM

UPCOMING EVENTS

2015 Trainings

CMAQ:
April 21-22, 2016

SMOKE:
February 22-26, 2016 (*Online*)
April 18-20, 2016

Statistical/Graphical Analysis:
April 25-26, 2016

CMAS Conference

15th Annual CMAS Conference
October 24-26, 2016

Can't come to us for trainings?

Have CMAS training courses taught on-site at your location. See http://www.cmascenter.org/training/classes.cfm or email cmas@unc.edu for more information.

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New Release: CMAQ 5.1

We Need Your Feedback!

Early in December, the CMAS center released a new version of the Community Multiscale Air Quality (CMAQ) model, CMAQ version 5.1. This is a major release that includes new advancements in air quality modeling. The new version includes updates to three chemical mechanisms (CB05, SAPRC07, and RACM2), which are particularly meant to improve nitrogen cycling and halogen chemistry. The in-line calculation of photolysis rates has undergone significant changes in several areas, including the description of clouds and the scattering and extinction from aerosols. The aerosol model has been revised to include additional sources and mechanisms for formation of secondary organic aerosols. There are also improvements to biogenic and sea salt emissions, updated aerosol nucleation, gravitational settling of coarse aerosols, bidirectional soil NO, and several improvements to meteorology modeling, especially for high resolution applications. In addition, several modifications have been made to improve computational efficiency, including code restructuring and optimization, improved I/O, and faster PBL solver. The two-way coupled WRF-CMAQ is also upgraded for both its direct and indirect aerosol feedback effects and updated to the latest version of WRF (v3.7). This general release follows a beta version of CMAQv5.1 that was made available to requesting members of the community for early testing and contribution of additional components.

The CMAQv5.1 release package was tested with the Portland Group 15.7, Intel 16.0, and GNU Fortran 4.8.1 compilers. In addition to different serial and parallel configurations, the release was tested under different science configurations.

We want to hear from you on your experience using the CMAQ version 5.1, and specifically your feedback on the following features and processes of the new release:

- Type of application and a brief description of your modeling and computational protocol
- Computational efficiency
- Model performance in general and compared to previous versions of CMAQ
- Use of the two-way coupled WRF-CMAQ
- Any other comments that you think we need know

2015 CMAS Conference Summary

Winners of the Student Poster Competition

The 14th annual CMAS conference was held in the Friday Center of the University of North Carolina at Chapel Hill October 5-7, 2015. More than 300 participants attended the three-day conference. Dr. James Dean, Executive Vice Chancellor and Provost of the University of North Carolina at Chapel Hill gave the opening remarks. Professor Drew Shindell of Duke University gave the keynote address. Also a special presentation on "projecting wildfire and air quality in a changing climate" was given by Dr. Don McKenzie of the US Forest Service. For the first time, we ran parallel sessions during the three days of the conference to accommodate the increasing number of oral and poster submissions. The conference included nine sessions for oral presentations and two poster sessions. Parallel sessions were conducted during each of the three days.

Members of the CMAS External Advisory Committee (EAC) visited the poster presentation podium during the first two days of the conference. Each student gave a 5-minute presentation of his poster to EAC members. The CMAS Conference started the best poster competition last year and received very positive response from community members.

Winners of the student posters this year and last year are shown below.
Congratulations to these young scientists. Their prize is free registration for one CMAS conference. Links to all posters and presentations are available on the CMAS Conference live agenda (cmascenter.org).

The developer/user forum portion of the conference was conducted on Tuesday, October 6. This year's discussion topic was "Interpreting Model Results: Getting to the Right Answers for the Right Reasons".

Mark your calendar and watch for the call of papers for the 15th Annual CMAS conference (October 24-26, 2016). This conference will mark the 15th anniversary of the CMAS Center.

2015 Student Poster Winners

Day 1:
The Impact of Wildfires on Regional Air Pollution
Alexandra Larsen (North Carolina State University)

Day 2:
Reactive Oxygen Species Generation Linked to Sources of Atmospheric Particulate Matter and Cardiorespiratory Effects
Josephine T. Bates (Georgia Institute of Technology)

2014 Student Poster Winners

Day 1:
Contribution of Individual Anthropogenic Emissions Sectors to Global Human Mortality due to Outdoor Air Pollution
Raquel Silvia (University of North Carolina at Chapel Hill)

Day 2:
Evaluating the Role of Climate Uncertainty in Assessments of Climate Change Impacts on Air Quality
Fernando Garcia-Menendez (Massachusetts Institute of Technology)

New Online Training

Watch for Online CMAQ Training in Early 2016

Following the success of the SMOKE online training program that started a year ago, CMAS scientists are putting the final touches for the release of the first CMAQ online training program early in 2016. Registration is now available for the Online SMOKE training to be held the week of February 22, 2016.

- As usual, CMAS is offering in person training on campus at UNC Chapel Hill.
- April 18-20, 2016 (Chapel Hill, NC) - Introduction to SMOKE
- April 21-22, 2016 (Chapel Hill, NC) - Introduction to CMAQ
- April 25-26, 2016 (Chapel Hill, NC) - Evaluating Air Quality Model Performance: Statistical and Graphical Analysis Tools

Additional training dates and new classes will be announced in the new year. Stay tuned!

CMAQ Model Peer Review

The fifth peer review report of the CMAQ model is now available on the CMAS web site. Working with EPA, the CMAS center has organized the 5th review of the CMAQ model that was completed last September. A review committee was formed from selected lead scientists from the community to review various aspects of the modeling system. The panel member participated in a three days meeting at EPA offices in RTP to meet with EPA-CMAQ developers and listen to targeted presentations on the model formulations, performance and analyses. Dr. Mike Moran (Environment Canada) chaired the peer review panel. Members of the panel included; Dr. Marina Astith (University of Connecticut), Dr. Kelley Barsanti (University of California at Riverside), Dr. Nancy Brown (Lawrence Berkeley National Laboratory, Dr. Ajith Kaduwela (University of California at Davis/California Air Resources Board), Dr. Stuart McKeen (NOAA Earth System Research Laboratory, and Dr. (Kenneth Pickering (NASA Goddard Space Flight Center).

CMAS Support Tool Description/Purpose	URL
Central web portal to the CMAS Center	http://www.cmascenter.org
Air quality modeling	http://www.cmaq-model.org
Emissions processing	http://www.smoke-model.org
Economic and health impact modeling	http://www.benmap-model.org
Visualization and graphics	http://www.verdi-tool.org
E-mail–based technical support	http://bugz.unc.edu
Model output data distribution	http://www.cmascenter.org/irods
Model development wiki	http://cmas.wikidot.com
E-mail forum for technical support	m3user@listserv.unc.edu
E-mail forum for announcements	m3list@listserv.unc.edu
E-mail forum for software development discussion	m3dev@listserv.unc.edu
E-mail forum for emissions-related announcements and discussion	emregional@listserv.unc.edu
E-mail forum for BenMAP-related announcements and discussion	benmap-user@listserv.unc.edu