FINAL PROGRAM

Guideline on Air Quality Models: The New Path

April 12-14, 2016
Sheraton Chapel Hill Hotel, Chapel Hill, NC

Professional Development Courses
April 11, 2016

- Introduction to CamX
- Introduction to AERMOD
- Introduction to SCICHEM

http://aqmodels.awma.org

Air & Waste Management Association

FINAL PROGRAM

ABOUT THE CONFERENCE

The Air & Waste Management Association, in conjunction with the Atmospheric Modeling and Meteorology Committee (APM) of the Technical Council, is hosting its 6th Specialty Conference on issues related to the U.S. EPA's Guideline on Air Quality Models (40CFR Part 51 Appendix W). "Guideline on Air Quality Models: The New Path" will provide a technical forum for environmental professionals to discuss the Guideline, which is required for use in the preparation of state implementation plans, federal construction permits, and state permits.

GENERAL INFORMATION

REGISTRATION

Registration will be in the hotel lobby and be open during the following hours:

Monday, April 11 - 7:00 am - 5:00 pm
Tuesday, April 12 - 8:00 am - 5:00 pm
Wednesday, April 13 - 8:00 am - 5:00 pm
Thursday, April 14 - 7:45 am - 12:00 pm

Or, register online at **http://aqmodels.awma.org** or download and print a hard copy and return it with your payment to the address listed on the form.

Your registration will not be processed without payment.

REFUND POLICY

If written notice of cancellation is received on or before February 29, 2016 payment will be refunded, less a $75 cancellation fee. (Cancellation fees apply regardless of payment method). Substitutions may be made at any time; payment for any difference is due at the time of substitution. This refund policy applies to all occurrences, including weather-related events and other natural disasters. In the unlikely occurrence of event cancellation, the Association is not liable for any expenses incurred by the registrant other than the full refund of registration fee(s) paid.

CONFERENCE PROCEEDINGS

Conference proceedings will be posted on the A&WMA website. Attendees will be notified via e-mail when the extended abstracts and presentations are available.

CONTINUING EDUCATION CREDIT OPPORTUNITIES

Conference attendees may be eligible for continuing education credits. For more information, visit the onsite registration area, or contact Gloria Henning at +1-412-904-6021 or glhenning@awma.org.

PRESENTERS' BREAKFAST

Presenters and Session Chairs will meet for a complimentary continental breakfast on the day of their session involvement to review program details. Presenters should bring their presentations on a memory stick/USB and brief biography to this meeting. The breakfast will be held at 8:00 am on Tuesday and Wednesday and 7:45 am on Thursday.

CONFERENCE COMMITTEE

General Conference Chair:
Gale Hoffnagle, *TRC Environmental Corporation*

Technical Program Co-Chairs:
Pete Catizone, *TRC Environmental Corporation*
Robert Paine, *AECOM*

Planning Committee:
Michael Hammer, *Lakes Environmental Software*
Sara Head, *Yorke Engineering, LLC*
David Long, *AEP*
Ralph Morris, *Ramboll Environ*
Ronald Petersen, *CPP Wind Engineering*
George Schewe, *Trinity Consultants*
Justin Walters, *Southern Company Services*

LOCATION

Sheraton Chapel Hill Hotel
1 Europa Drive
Chapel Hill, NC 27517 USA
Phone: +1-919-969-2174

Group rates are $130 single/double; $97 Government single/double. Cutoff: March 14, 2016

Reservations can be made using the links on the conference website, or by calling 919-969-2174 or 1-800-325-3535. Reference the Air Quality Modeling conference to secure the group rate.

PROFESSIONAL DEVELOPMENT COURSES

Three professional development courses are being offered prior to the conference on Monday, April 11, 2016. Course registration includes refreshment breaks and a copy of the course manual. The course registration fee is not included in the regular conference registration; for course prices please visit http://aqmodels.awma.org, and click on the Courses button. For more information about the courses and instructors, contact Robin Lebovitz at rlebovitz@awma.org or +1-412-904-6020.

INTRODUCTION TO CAMX

MONDAY, APRIL 11• 8:00 AM - 12:00 PM

Instructors: Ralph Morris and Bart Brashers, *Ramboll Environ*

This course will be a 4-hour Introduction to Comprehensive Air-quality Model with extensions (CAMx; www.camx.com) photochemical grid model (PGM). The course will provide a basic overview using a lecture-oriented presentation material on the basics of photochemistry and modeling; an introduction to CAMx, its features, data/computer requirements, Probing Tools, and new CAMx developments; and how CAMx is used in the regulatory modeling process. In addition to use of the CAMx model for regional air quality planning for ozone, PM2.5 and regional haze State Implementation Plans (SIPs), the course will also include a discussion and examples for using CAMx for single-source assessment modeling. A comparison of CAMx with EPA's Community Multiscale Air Quality (CMAQ) will also be discussed including advantages and disadvantages of the two models. Although much of the overview of photochemistry and PGM modeling will be common between CAMx and CMAQ, the operation of CMAQ will not be discussed. Issues related to the hands-on operation of CAMx will be presented, but actual hands-on training will not be included in this course.

INTRODUCTION TO AERMOD

MONDAY, APRIL 11 • 8:00 AM - 12:00 PM

Instructor: Robert Paine and Jeff Connors, *AECOM*

This 4-hour course presents information about EPA's preferred model for short-range applications, AERMOD. The course will not involve computer exercises, but course attendees will receive a CD with relevant documents and computer application examples. The key aspects covered by the course are as follows:

• AERMOD model history and formulation
• Applications of pre-processors AERMET and AERMAP
• Special applications of the dispersion model, including unique debug output and ability to combine the results of multiple modeling runs
• Low wind options
• Special source characterization approaches

INTRODUCTION TO SCICHEM

MONDAY, APRIL 11 • 1:00 PM - 5:00 PM

Instructors: Biswanath Chowdhury, *Sage Management* and Prakash Karamchandani, *Ramboll Environ*

SCICHEM is a non-steady state Lagrangian puff model that can be used to study the impact of single or multiple sources for short and long range applications. It includes an optimized chemistry scheme for near field applications (e.g., 1-hour NO2 concentrations) and full chemistry (CB05 for gas-phase chemistry and CMAQ 4.7 modules for aerosol and aqueous-phase chemistry) for far field applications (e.g., ozone and PM2.5). This course will begin with an overview of the underlying puff model (SCIPUFF) followed by a discussion of the chemistry enhancements and examples of applications for near-field and far-field air quality impacts of primary and secondary pollutants. In addition, this course will provide a hands-on discussion of the steps required to run the model including pre-processing of meteorology, running the main model and post processing the outputs.

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Pollution Equipment News is a magazine in the Pollution control industry. Our integrated media offering is unmatched with out reach of over 80,000+ readers. Pollution Equipment News covers the environmental industries of water, wastewater, air and hazardous waste pollution.

Providence Engineering and Environmental Group, LLC

Providence, owner of the BEEST Suite of modeling software, is a multidisciplinary engineering and environmental services firm with offices in Louisiana, Texas, and California. Since being formed in 2000, our work has taken us across the US and beyond in support of our governmental and industrial clients' goals and challenges.

TRC Environmental

A pioneer in groundbreaking scientific and engineering developments since the 1960s, TRC is a national engineering services, consulting and construction management firm that provides integrated services to the energy, environmental and infrastructure markets. TRC serves a broad range of clients in government and industry, implementing complex projects from initial concept to delivery and operation.

Trinity Consultants

Trinity Consultants is an international environmental consulting firm that specializes in air quality issues and markets BREEZE® air dispersion, fire, and explosion modeling software including AERMOD, Incident Analyst, and ExDAM®. Trinity also provides extensive professional training in air quality regulations and air dispersion modeling theory and practical application.

ABOUT THE AIR & WASTE MANAGEMENT ASSOCIATION

A&WMA is a not-for-profit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking, public education, and outreach to more than 5,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society. For more information, please visit www.awma.org. A&WMA Federal Tax ID #: 25-6048614

AMERICANS WITH DISABILITIES ACT

The Air & Waste Management Association supports the Americans with Disabilities Act (ADA). Attendees requiring speciic equipment or services should contact Dorothy Chmiel at dchmiel@awma.org to make their needs known in advance. We will make every reasonable efort to accommodate them.

PROFESSIONAL DEVELOPMENT COURSES - Monday, April 11, 2016

7:00 am - 5:00 pm
Conference and Course Registration
Lobby

8:00 am - 12:00 pm
Introduction to CamX (Ticket Required)
Paris Room

8:00 am - 12:00 pm
Introduction to AERMOD (Ticket Required)
Vienna Room

1:00 pm - 5:00 pm
Introduction to SCICHEM (Ticket Required)
Paris Room

TECHNICAL PROGRAM - Tuesday, April 12, 2016

8:00 am - 5:00 pm
Conference Registration
Lobby

8:00 am - 9:00 am
Presenters' Breakfast
Venetian Room

8:00 am - 9:00 am
Continental Breakfast
Lobby

OPENING PLENARY SESSION

Amsterdam/London

9:00 am - 9:15 am
Conference Opening
Gale Hoffnagle; *CCM, QEP, TRC Environmental Corporation*
General Conference Chair

9:15 am - 9:45 am
Status of the Guideline and Future Directions
Tyler Fox; *Lead, Air Quality Modeling Group, Office of Air Quality Planning and Standards (OAQPS), US EPA*

9:45 am - 10:15 am
Update on Model Clearinghouse
George M. Bridgers, *CPM; Model Clearinghouse Director, Air Quality Modeling Group, OAQPS, US EPA*

10:15 am - 10:45 am
Update on AERMOD
Roger Brode; *Air Quality Modeling Group, OAQPS, US EPA*

10:45 am - 11:00 am
Coffee Break
Lobby

11:00 am – 11:30 am
Estimating Ozone and Secondary $PM_{2.5}$ for Permit Related Programs
Kirk Baker; *Air Quality Modeling Group, OAQPS, US EPA*

11:30 am - 12:00 pm
Update on IWAQM
Bret A. Anderson; *U.S. Forest Service*

12:00 pm – 2:00 pm
Lunch Presentation
Venetian Room

Creating and Updating the Model Guidelines: 1996-2003
Joseph Tikvart*; Ret. Chief of the Source Receptor Analysis Branch, US EPA*

FINAL PROGRAM

TECHNICAL PROGRAM - Tuesday, April 12, 2016

SESSION 1: AERMOD
Amsterdam/London

Moderator: Dr. Ron Petersen; CPP Wind Engineering & Air Quality Consultants
Co-Moderator: Michael Hammer; Lakes Environmental

2:00 pm - 2:20 pm
Control #37
A Comparison Study in Response to the Proposed Replacement of CALINE3 with AERMOD in Appendix W
Weiping Dai, Ph.D.[1] CM, P.E, Qiguo Jing, Ph.D., [1] Tiffany Gardner, [2] Brian Holland; [1]Trinity Consultants Inc., Dallas, Texas, [2]Trinity Consultants Inc., Charlotte, North Carolina

2:20 pm - 2:40 pm
Control #7
Guideline Refinements: A More Realistic NAAQS Analysis in AERMOD?
George J. Schewe, CCM, QEP,[1] Anthony J. Schroeder, CCM[2]; [1]Trinity Consultants, Covington, KY, [2]Trinity Consultants, Indianapolis, IN

2:40 pm - 3:00 pm
Control #22
Looking Under the Hood: AERMET, AERMOD, and Meterology
Carlos Szembek[1], Mark E. Garrison[2], Thomas S. Wickstrom[2]; [1]Environmental Resources Management, Boston, MA, [2]Environmental Resources Management, Malvern, PA

3:00 pm - 3:20 pm
Refreshment Break
Lobby

3:20 pm - 3:40 pm
Control #21
Evaluation of Proposed Appendix W Recommendations for the Use of Prognostic Meteorological Data in Regulatory Air Quality Modeling with AERMOD
Thomas S. Wickstrom[1], Karthikeyan (Surya) Ramaswamy[1], Mark E. Garrison[1]; [1]Environmental Resources Management

3:40 pm - 4:00 pm
Control #20
Highlighting the Performance of WRF on Complex Terrain
Surya Ramaswamy[1], Mark E. Garrison[1]; [1]Environmenatl Resources Management

4:00 pm – 4:20 pm
Control #42
NOAA's HYSPLIT Atmospheric Transport and Dispersion Modeling System: History, Applications, and New Developments
Ariel Stein, NOAA Air Resources Lab

4:30 pm – 6:00 pm

Town Hall Meeting - The Future of Regulatory Modeling
Amsterdam/London

Panelists:
Eladio Knipping, *Electric Power Research Institute*
Bret Andersen, *US Forest Service*
John Pleim, *US EPA Office of Research and Development*
Ariel Stein, *NOAA Air Resources Lab*

The Town Hall is a tradition of this conference that allows the audience to ask unlimited questions of the panelists. The moderator will start with some generalized questions and the panelists can respond with a few minutes of general concepts, after which the audience can ask questions seeking to refine or refute the concepts presented.

With the topic focusing on "the future of regulatory modeling", the discussion will focus on questions such as: *Will other models replace those we currently use? Will the state of the art be crippled by current regulatory constraints? What other model results should we be looking for? Is it time for more significant field experiments?*

Join us for an engaging discussion on a critical issue!

8:00 am - 5:00 pm
Conference Registration
Lobby

8:00 am - 9:00 am
Presenters' Breakfast
Vienna Room

8:00 am - 9:00 am
Continental Breakfast
Lobby

SESSION 2: AERMOD, CON'T

Amsterdam/London

Co-Chairs:
Moderator: Ralph Morris; *Ramboll Environ*
Co-Moderator: Justin Walters; *Southern Company Services*

9:00 am - 9:20 am
Control #5
Modeling Plume Rise Effects for Unique Source Types
Robert Paine, [1]Gary Moore[1], and Laura Warren[1]; [1]AECOM

9:20 am - 9:40 am
Control #34
Critical Review of the Building Downwash Algorithms in AERMOD
Ron Petersen and Sergio Guerra; CPP, Inc.

9:40 am - 10:00 am
Control #25
Evaluation of the Theoretical Problems with Building Downwash Using A New Method to Determine Equivalent Building Dimensions
Sergio A. Guerra, Ron Petersen; CPP, Inc.

10:00 am - 10:30 am
Coffee Break
Lobby

10:30 am - 10:50 am
Control #40
Comparison Results with Seasonal Varying Geographical Data (GEO.DAT) using CALPUFF Version 7 and AERMOD 15181
Tina LT Liu and Tamer Alexan; Advisian

10:50 am - 11:10 am
Control #15
Modeling NO_2: Perspectives and Experience with ARM and ARM2
Miriam Hacker, Richard P. Hamel, Environmental Resource Management

11:10 am - 11:30 am
Control #16
1-Hour NO_2 NAAQS Modeling Strategies
Dan Dix,[1] Tom Saylor[2] Amanda Essner,[3] Matt Wolf,[4] Meghan Barber,[5] Mark Wenclawiak; [1-5]All4 Inc., Kimberton, PA, [6]All4 Inc., Kennesaw, GA

11:30 am - 11:50 am
Control #19
AERMOD Model Validation Study for Mining Operations
Sal Mohammad, Maria Sheen; Golder Associates, Inc.

11:50 am - 1:20 pm
Lunch
Vienna Room and Lobby

12:20 pm - 1:20 pm
PRIME2 Advisory Committee Meeting
Amsterdam

TECHNICAL PROGRAM - Wednesday, April 13, 2016

SESSION 3: APPLICATIONS AND ADVANCEMENTS

Amsterdam/London

Moderator: Pete Catizone, *TRC Environmental*
Co-Moderator: David Long, *American Electric Power*

1:20 pm - 1:40 pm
Control #8
A Monte-Carlo Method for Summing Modeled and Background Concentrations
Ranil Dhammapala and Clint Bowman; Washington State Department of Ecology

1:40 pm - 2:00 pm
Control #11
Refining Background Concentrations and Predicted Cumulative Ambient Impacts for NAAQS Analyses Using AERMOD
Albert Kennedy, RPS

2:00 pm - 2:20 pm
Control #6
Modeling Characterization for Highly Industrialized Areas and Fugitive Heat Releases
Robert Paine, Gary Moore, and Laura Warren; AECOM

2:20 pm - 2:40 pm
Control #3
High Resolution Dispersion Modeling of Lowered Highway with Cover
Michael R. Ogletree, Gregg Thomas, Department of Environmental Health, City & County of Denver, Colorado

2:40 pm - 3:00 pm
Refreshment Break
Lobby

3:00 pm - 3:20 pm
Control #26
Practical Implications of Applying the DRR Modeling TAD Using AERMOD
George J. Schewe; Trinity Consultants

3:20 pm – 3:40 pm
Control #30
The Use and Processing of USEPA Clean Air Markets Division CEMS Data for Air Quality Modeling and Other Applications
David J. Long; American Electric Power Service Corporation

3:40 pm – 4:00 pm
Control #36
Best Use of Numerical Weather Prediction Output for Nonattainment Modeling of SO2
Bart Brashers,[1] Tim Sturtz,[1] Jason Maranche[2];[1]Ramboll Environ, Lynnwood, WA, [2]Allegheny County Health Department, Pittsburgh, PA

4:00 pm – 4:20 pm
Control #14
Single-Source Secondary Ozone and PM2.5 Modeling Concerns
Richard P. Hamel, Environmental Resources Management

4:20 pm – 4:40 pm
Control #28
Single-Source Ozone Modeling Studies
Ralph E. Morris, Ramboll Environ

4:45 pm – 6:15 pm
APM-Atmospheric Modeling and Meteorology Committee Meeting
Amsterdam/London

TECHNICAL PROGRAM - Thursday, April 14, 2016

7:45 am – 12:00 pm
Registration Open
Lobby

7:45 am - 8:15 am
Presenters' Breakfast
Vienna Room

7:45 am - 8:15 am
Continental Breakfast
Lobby

SESSION 4:
NEW MODEL METHODS
Amsterdam/London

Moderator: Bob Paine; AECOM
Co-Moderator: George Schewe; Trinity Consultants

8:20 am – 8:40 am
Control #13
Application of Parallel Gaussian Puff Model for Long Range Transport Studies
Biswanath Chowdhury[1], Ian Sykes[1], Doug Henn[1], Steve Parker[1] and Steve Schneider[1]; [1]Sage-Xator

8:40 am – 9:00 am
Control #23
Evaluation of the SCICHEM Model for Applications Involving Single Source Ozone and $PM_{2.5}$ Evaluations
Mark E. Garrison[1], Karthikeyan (Surya) Ramaswamy[1],Thomas S. Wickstrom[1]; [1]Environmental Resources Management

9:00 am – 9:20 am
Control #27
Improving Multi-year WRF Accuracy by Simple Ensemble Methods
Matthew S. Jones; TRC Environmental Corporation

9:20 am– 9:40 am
Control #29
Comparison of CALPUFF, CAMx, and SCICHEM in Modeling Visibility Extinction at Class I Areas
Dr. Abhishek Bhat; Trinity Consultants

9:40 am – 10:00 am
Control #1
Three-Dimensional Computational Fluid Dynamics Model Simulation of Flue Gas Dispersion from Multiple Stacks
Liaqat A. Khan, Northwest Hydraulic Consultants

10:00 am – 10:20 am
Coffee Break
Lobby

10:20 am – 10:40 am
Control #31
SCICHEM: Recent Updates and Model Performance Evaluation
Eladio Knipping[1], Prakash Karamchandani[2], Biswanath Chowdhury[3], Bart Brashers[4]¬, Lynsey Parker[2], Aaron Kaulfus[5], Naresh Kumar[6], and Eric Edgerton[7]; [1]Electric Power Research Institute, Washington, DC; [2]Ramboll Environ, Novato, CA; [3]Sage - an Xator Company, Princeton, NJ; [4]Ramboll Environ, Lynnwood, WA; [5]Southern Company, Birmingham, AL; [6]Electric Power Research Institute, Palo Alto, CA; [7]Atmospheric Research & Analysis, Inc., Cary, NC

10:40 am – 11:00 am
Control #32
Dust Generation Modeling from a Coal Ash Pond
Robert Paine[1],Gary Moore[1], Adam Plant[2]; [1]AECOM, Chelmsford, MA USA and [2]AECOM, Hunter, NSW, AU

11:00 am – 11:20 am
Control #33
Two Near Source Air Quality Model Applications Using the WindStation CFD Model
Robert Paine, Gary Moore, and Andrew Desrosiers, AECOM, Chelmsford, MA USA

11:20 am – 11:40 am
Control #41
Single Source Secondary Impacts using SCICHEM
Aaron Kaulfus[1], Justin Walters[1], John Jansen[1], Prakash Karamchandani[2], Biswanath Chowdhury[3], Eladio Knipping[4]; [1]Southern Company, Birmingham, Alabama, [2]Ramboll Environ, Novato, CA; [3]Sage - an Xator Company, Princeton, NJ; [4]Electric Power Research Institute

11:40 am – 12:00 pm
Conference Wrap-up

NOTES

FINAL PROGRAM

Thank you for attending our conference. We value your feedback and will be sending a short survey via email following the conference. Please take a moment to complete it so we can continue to improve our products and services.

AIR & WASTE MANAGEMENT
ASSOCIATION

SINCE 1907