



AIR & WASTE MANAGEMENT
ASSOCIATION

FINAL PROGRAM

Guideline on Air Quality Models: The CHANGES

November 14-16, 2017

Sheraton Chapel Hill Hotel, Chapel Hill, NC

www.awma.org/aqmodels



Thank you to our sponsors

Gold



Silver



Break Sponsor



General



FINAL PROGRAM

ABOUT THE CONFERENCE

This is the 7th Specialty Conference on this evolving topic planned by the Air and Waste Management Association, in conjunction with the Atmospheric Modeling and Meteorology Committee (APM) of the Technical Council. This conference will build on past successes and cover the implementation of the changes, experience gained, and viable solutions.

GENERAL INFORMATION

REGISTRATION

Register online at www.awma.org/aqmodels until November 12, 2017 or onsite in the lobby during the following hours:

Monday, November 13:	7:00 am - 5:00 pm
Tuesday, November 14:	7:00 am - 5:00 pm
Wednesday, November 15:	7:00 am - 5:00 pm
Thursday, November 16:	7:00 am - 10:00 am

Your registration will not be processed without payment.

REFUND POLICY

If written notice of cancellation is received on or before October 30, 2017 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 after the conference. Attendees will be notified via e-mail when the extended abstracts / full manuscripts 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' MEETING

Presenters and Session Chairs will meet the morning of their session involvement to review program details. Presenters should bring their presentations on a memory stick/USB to this meeting. The meeting will be held daily at 7:30 am on Tuesday and 7:00 am on Wednesday and Thursday.

CONFERENCE COMMITTEE

General Conference Chair:

Gale Hoffnagle, TRC Environmental Corporation

Technical Program Co-Chair:

Pete Catizone, TRC Environmental Corporation

Technical Program Co-Chair:

Robert Paine, AECOM

Planning Committee:

Kevin Eldridge, ERM NC, INC.

Mark Garrison, ERM NC, INC.

Sergio Guerra, CPP Wind

Michael Hammer, Lakes Environmental Software

Sara Head, Yorke Engineering, LLC

David Long, AEP

Ralph Morris, Ramboll Environ

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

ADA/SPECIAL REQUIREMENTS

The Air & Waste Management Association supports the Americans with Disabilities Act (ADA). Attendees requiring specific equipment or services should contact Cindy Fontanesi at cfontanesi@awma.org to make those needs known in advance. We will make every reasonable effort to accommodate them.

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 6,000 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.

THANK YOU TO OUR SPONSORS

Gold Sponsor



TRC Environmental Corp.

www.trcsolutions.com

Since the 1960s, TRC has served clients with air quality systems design, permitting, dispersion modeling, licensing, regulatory compliance, engineering, auditing, due diligence review, litigation support, and expert witness services. As one of the nation's largest air measurement firms, TRC also provides emission testing, ambient monitoring, and meteorological monitoring services.

Silver Sponsor



Lakes Environmental Software

www.weblakes.com

Lakes Environmental is internationally recognized for its technologically advanced environmental modeling software and data products. We remain dedicated to providing industry and the regulatory community with exceptional service and cost effective environmental IT solutions. Our products increase productivity, reduce errors, and provide unique solutions in an ever-increasing regulatory constrained world.

Break Sponsor



Trinity Consultants

www.trinityconsultants.com

Founded in 1974, Trinity is an international EHS consulting firm specializing in air quality issues. With offices across North America, and in the U.K., China, and the Middle East, Trinity assists organizations with meeting their permitting and compliance obligations, and with broader EHS performance and risk management concerns. Trinity's T3 division provides EHS technology solutions to help organizations streamline EHS reporting and data management, and Trinity's BREEZE EHS modeling software is used by professionals worldwide. Trinity also provides training to several thousand EHS professionals annually. SafeBridge Consultants, a Trinity Consultants company, provides industrial hygiene and toxicology services to pharmaceuticals companies.

General Sponsors



Southern Company

www.southerncompany.com

With over 4.5 million customers and approximately 44,000 megawatts of generating capacity, Atlanta-based Southern Company is the premier energy company serving the Southeast through its subsidiaries. A leading U.S. producer of clean, safe, reliable and affordable electricity, Southern Company owns electric utilities in four states and a growing competitive generation company, as well as fiber optics and wireless communications. Southern Company brands are known for innovation, excellent customer service, high reliability and affordable prices that are below the national average. Southern Company is consistently ranked among the top utilities in Fortune's annual World's Most Admired Electric and Gas Utility rankings.



AECOM

www.aecom.com

As the number and stringency of air, waste and environmental regulatory requirements increases, AECOM is working with our clients to strategize and implement compliance solutions using innovative approaches and advanced technology. With 85,000 employees in 150 countries, AECOM is at the forefront— tackling issues with strategic thinking and collaboration.

FINAL PROGRAM

PROFESSIONAL DEVELOPMENT COURSES - Monday, November 13, 2017

7:00 am - 5:00 pm

Conference and Course Registration

Lobby

8:00 am - 4:30 pm

INTRODUCTION TO AERMOD (ticket required)

Paris Room

Instructor: Michael Hammer, Lakes Environmental Software

This course provides a full understanding of the AERMOD modeling system by balancing theory with hands-on, real world case studies. Participants will learn the basics of regulatory air dispersion modeling for permit applications and risk assessments. Topics include • Physics of air dispersion and atmospheric physics • Meteorological pre-processing with AERMET • Terrain processing with AERMAP • EPA NAAQS overview and • Comparison of AERMOD to other models.

For complete course descriptions, go to www.awma.org/aqmodels and select the courses tab.

8:00 am - 12:00 pm

INTRODUCTION TO CAMx (ticket required)

Vienna A

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

The course will provide a brief 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.

1:00 pm - 5:00 pm

INTRODUCTION TO SCICHEM 3.1 (ticket required)

Vienna A

Instructors: Doug Henn, *Xator Corp.* and Prakash Karam-Chandani, *Ramboll Environ*

This course introduces SCICHEM, a non-steady state Lagrangian puff model that can be used to study the impact of single or multiple sources on primary pollutants as well as secondary pollutants, such as ozone and secondary PM2.5.

TECHNICAL PROGRAM - Tuesday, November 14, 2017

7:00 am - 5:00 pm

Conference Registration

Lobby

7:30 am - 8:30 am

Continental Breakfast

Lobby

7:30 am - 8:30 am

Presenter's Meeting

Brussels

KEYNOTE SESSION

Amsterdam-London

Moderator: Justin Walters, Southern Company

Co-Moderator: Pietro Catizone, TRC Environmental Corp.

8:30 am - 8:45 am

Introductions

Gale F. Hoffnagle, TRC Environmental Corporation

8:45 am - 9:00 am

Opening Remarks

Chet Wayland, Director, Air Quality Assessment Division, U.S. EPA

9:00 am - 9:15 am

Update on EPA's CAA Permit Streamlining Activities

Vera Kornylak, Senior Policy Advisor, U.S. EPA – OAQPS

9:15 am - 9:45 am

FRM Appendix W Guideline Revisions and Future Directions

Tyler Fox, Group Leader, Air Quality Group, U.S. EPA

9:45 am - 10:15 am

AERMOD Development Plan and Priorities

Chris Owen, Physical Scientist, U.S. EPA – OAQPS

10:15 am - 10:45 am

Cumulative Impact Analyses

George M. Bridgers, Model Clearinghouse Director, U.S. EPA – OAQPS

10:45 am - 11:00 am

Refreshment Break

Sponsored by:


11:00 am - 11:30 am

Single Source Ozone and PM2.5 Demonstrations

Kirk Baker, Physical Scientist, U.S. EPA – OAQPS

11:30 am - 12:00 pm

Update on Interagency Workgroup on Air Quality Modeling

Bret A. Anderson, National Air Modeling Coordinator, U.S. Forest Service

12:00 pm - 1:30 pm

Lunch Presentation

Venetian Room, Third Floor

"The Guidelines - A First Hand Retrospective"

Al Cimorelli, U.S. EPA Region 3 Meteorologist/Modeler (retired)

TECHNICAL PROGRAM - Tuesday, November 14, 2017

SESSION 1: AERMOD ISSUES

Amsterdam-London

Moderator: David Long, American Electric Power

Co-Moderator: Michael Hammer, Lakes Environmental

1:40 pm - 2:00 pm

MO02

Progress in Low Wind Modeling Refinements

Robert Paine, AECOM, Chelmsford, MA

2:00 pm - 2:20 pm

MO14

Optimizing Model Processing Time via FASTAREA and FASTALL

Kristin Fritchman, APTIM, Lenexa, KS; Leah Blinn, APTIM, Pittsburgh, PA

2:20 pm - 2:40 pm

MO01

Does AERMOD Double Count Hours in Design Value Determinations?

Gale Hoffnagle, TRC, Windsor, CT

2:40 pm - 3:00 pm

MO04

A Research on a Modeling Phenomenon in AERMOD and ISC3

Igor Schnayder, Sage ATC Environmental Consultants, Don Watzel, Sage ATC Environmental Consulting, LLC, Laramie, WI

3:00 pm - 3:20 pm

Refreshment Break

3:20 pm – 3:40 pm

MO27

Ambient NO2 AERMOD Performance Assessment and Model Improvement project data Summary

Jeffery Panek, James McCarthy, Adrian Huth, Alan Krol, Innovative Environmental Solutions Inc., Cary, IL; Christopher Nowak, Kinder Morgan, Houston, TX

3:40 pm - 4:00 pm

MO42

AERMOD Evaluations Revisited

Mark Garrison, ERM, Malvern, PA; Richard Hamel, Carlos Szembek, ERM, Boston, MA; Beth Barfield, ERM, Raleigh, NC

4:00 pm - 4:20 pm

MO05

Characterization of Moisture and Highly Industrialized Area Heat Effects on Plume Rise in Dispersion Modeling

Laura Warren, Robert Paine, AECOM, Chelmsford, MA

4:20 pm - 4:40 pm

Session Recap

4:40 pm - 5:40 pm

APM-Atmospheric Modeling and Meteorology Committee Meeting

Local Chapter Event

All attendees of the Modeling Conference are invited to attend the A&WMA Research Triangle Chapter event at 6:00 pm on Tuesday, November 14 in the Coach's Room at the Sheraton.

The presentation will be "**Modeling in the New Era: Personal Reflections**" by Gale Hoffnagle, *Director of Air Quality, TRC Environmental Corporation, and conference chair.*

The event is free and food and beverages will be available for purchase.

Contact Kevin Eldridge at kevin.eldridge@erm.com if you plan to attend.

FINAL PROGRAM

TECHNICAL PROGRAM - Wednesday, November 15, 2017

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

7:00 am - 8:00 am
Continental Breakfast
Lobby

7:00 am - 8:00 am
Presenter's Meeting
Vienna A, Brussels

SESSION 2: METEOROLOGICAL ISSUES

Amsterdam-London

Moderator: Sergio Guerra CPP, Wind Engineering
Co-Moderator: George Schewe, Trinity Consultants

8:00 am – 8:20 am

MO28

A Case Study Using Prognostic Meteorological Data in AERMOD

Anthony Schroeder, CCM, Trinity Consultants, Indianapolis, IN; Qiguo Jing, Neelesh V. Sule, Trinity Consultants, Dallas, TX

8:20 am – 8:40 am

MO32

A Comparative Study of Sensor Output from Solar Radiation Sensors with Varying Spectral Responses and the Impacts on AERMOD Modeling Results

Application of Parallel Gaussian Puff Model for Long Range Transport Studies
Shane Hansen, Inter-Mountain Labs, Sheridan, WY

8:40 am – 9:00 am

MO34

Practical Applications of Prognostic Meteorological Models to Support Air Quality Permitting

Thomas Wickstrom, Karthikeyan (Surya) Ramaswamy, Mark E. Garrison, Jessica Ram, Environmental Resources Management, Malvern, PA

9:00 am – 9:20 am

MO41

Evaluation of Low Wind Adjustments to U*

Mark Garrison, Thomas Wickstrom, Environmental Resources Management, Malvern, PA

9:20 am - 9:40 am

Session Recap

9:40 am – 10:00 am

Refreshment Break

SESSION 3: AERODYNAMIC DOWNWASH ISSUES

Amsterdam-London

Moderator: Kevin Eldridge, ERM
Co-Moderator: Dustin Pittman, ERM

10:00 am – 10:20 am

MO09

Solution to AERMOD/PRIME PM10 Over predictions for Extremely Short, Long and Wide Buildings

Sergio Guerra, Ron Petersen, CPP Inc., Fort Collins, CO; John Kirkpatrick, Basic American Foods, Blackfoot, ID; Stephen Nelson, Coal Creek Environmental Associates, Bellevue, WA

10:20 am – 10:40 am

MO44

CFD for Rooftop Stack Dispersion

Michael Carl, Aimee Smith, Goncalo Pedro, RWDI, Guelph, ON

10:40 am – 11:00 am

MO20

Evaluation of AERMOD/PRIME Theory for Porous Structures

Ron Petersen, Sergio Guerra, CPP Wind Engineering, Fort Collins, CO

11:00 am – 11:20 am

MO13

PRIME2: Development and Evaluation of Improved Building Downwash Algorithms for Solid and Streamlined Structures

Ron Petersen, Sergio Guerra, CPP Inc., Fort Collins, CO

11:20 am – 11:40 am

MO18

PRIME2: Model Evaluation and Consequence Analysis

Sergio Guerra, Ron Petersen, CPP Wind Engineering, Fort Collins, CO

11:40 am - 12:00 pm

Session Recap

12:00 pm - 1:00 pm

Lunch

Vienna A, B, Brussels

TECHNICAL PROGRAM - Wednesday, November 15, 2017

SESSION 4: SECONDARY FORMATION MODELING

Amsterdam-London

Moderator: Ralph Morris, Ramboll Environ

Co-Moderator: Mark Garrison, ERM

1:00 pm – 1:20 pm

MO03

Accounting for Secondary PM2.5 Formation in Georgia

James Boylan, Byeong-Uk Kim, Yan Huang, Georgia Department of Natural Resources, Atlanta, GA

1:20 pm – 1:40 pm

MO06

Photochemical Grid Modeling with CAMx for Ozone Impacts Supporting Inter-Precursor Trading for Nonattainment New Source Review Permit Offset – A Practical Case Study

Qi Zhang, James Red, Providence Engineering and Environmental Group LLC, Houston, TX

1:40 pm – 2:00 pm

MO08

Analyzing Secondary PM2.5 Formation from Single Source Modeling Data

Arjit Pakrasi, APTIM, Houston, TX; Amber Isaac, APTIM, Pittsburgh, PA

2:00 pm – 2:20 pm

MO22

Hybrid Plume/Grid Modeling for the Allegheny County, Pennsylvania

Annual PM2.5 State Implementation Plan

Ralph Morris, Ramboll Environ, Novato, CA; Bart Brashers, Ramboll Environ, Lynnwood, WA; Jason Maranche, Tony Sadar, Allegheny County Health Department, Pittsburgh, PA

2:20 pm – 2:40 pm

Refreshment Break

Sponsored by


2:40 pm – 3:00 pm

MO26

Model Comparison of Single Source Impacts on Secondary Pollutants: SCICHEM, CMAQ and CAMx

Prakash Karamchandani, Jaegun Jung, Tejas Shah, Greg Yarwood, Ralph Morris, Ramboll Environ, Novato, CA; Eladio Knipping, EPRI, Washington, D.C.; Biswanath Chowdhury, Xator Corp., Princeton, NJ; Ana Alvarez-Gomez, Contractor for STI, Petaluma, CA; Bart Brashers, Ramboll Environ, Lynnwood, WA; Naresh Kumar, Palo Alto, CA

3:00 pm – 3:20 pm

MO30

The Importance of Transport to Ozone Pollution in Delaware

Mojtaba Moghani, Cristina Archer, University of Delaware, Newark, DE

3:20 pm – 3:40 pm

MO35

Modeling Secondary Impact on PM2.5 in Urban Subarctic Environment

Wenxian Zhang, Mark Hixson, Thomas Carlson, Trinity Consultants, Sacramento, CA

3:40 pm - 4:00 pm

MO23

Windows Version of the Comprehensive Air-quality Model with extensions (CAMx)

Ralph Morris, Chris Emery, Gary Wilson, Ramboll Environ, Novato, CA

4:00 pm – 4:20 pm

MO38

Application of CAMx to refine MERPs for Maryland

Surya Ramaswamy, Mark Garrison, Environmental Resources Management, Malvern, PA

4:20 pm – 4:40 pm

MO36

Application of SCICHEM to develop MERPs

Tianyi Chen, Karthikeyan (Surya) Ramaswamy, Mark Garrison, Environmental Resources Management, Malvern, PA

4:40 pm – 5:00 pm

MO39

Uncertainties of Long-Range Concentration Predictions from Photochemical Grid Models

Mary Kaplan, Robert Paine, AECOM, Chelmsford, MA; Marco Rodriguez, Courtney Taylor, AECOM, Fort Collins, CO

5:00 pm - 6:30 pm

Town Hall Meeting -The Revisions to the Guideline on Air Quality Models: Successes and Challenges

Amsterdam-London

Panelists:

- *Bret Anderson, National Air Modeling Coordinator, U.S. Forest Service*
- *Jim Boylan, Program Manager, Georgia EPD*
- *Chris Owen, Physical Scientist, U.S. EPA – OAQPS*
- *Tyler Fox, Group Leader, Air Quality Modeling Group, U.S. EPA – OAQPS*
- *Maggie Peloso, Counsel, Environmental and Natural Resources, Vinson & Elkins*

The Town Hall is a mainstay of this conference that encourages the audience to engage the panelists on important and relevant topics. Each panelist will have the opportunity to provide brief opening remarks, which will be followed by open discussion and Q&A with the audience. Bring your questions!

FINAL PROGRAM

TECHNICAL PROGRAM - Thursday, November 16, 2017

7:00 am - 10:00 am
Conference Registration
Lobby

7:00 am - 8:00 am
Continental Breakfast
Lobby

7:00 am - 8:00 am
Presenter's Meeting
Vienna

SESSION 5: AERMOD APPLICATIONS

Amsterdam-London

Moderator: Robert Paine, AECOM
Co-Moderator: Ron Petersen, CPP Wind Engineering

8:00 am – 8:20 am
MO10
SO2 Designation Modeling Case Study – W.A. Parish Generating Station
Richard Hamel, ERM, Boston, MA; Craig Eckberg, NRG Energy, Houston, TX

8:20 am – 8:40 am
MO21
SO2 NAAQS Designation Modeling Analyses for DRR Applicable Sources Compliance Demonstration – Case Study
Pietro Catizone, Matthew Jones, TRC Environmental Corp., Windsor, CT; Paz Tison, Roger Pabunan, Guam Power Authority, Hagatna, Guam

8:40 am – 9:00 am
MO07
Modeling of Infrequent and Random Peak Emission Events for Permit Applications
Christopher Warren, Robert Paine, AECOM, Chelmsford, MA

9:00 am – 9:20 am
MO24
Methods for Simulating Actual Emissions in Regulatory Air Quality Modeling Analyses
Ryan Gesser, Matthew Stresing, Georgia-Pacific LLC, Atlanta, GA

9:20 am – 9:40 am
MO29
Determining Background and Nearby Source Concentrations
George Schewe, Brian Otten, Trinity Consultants, Covington, KY

9:40 am – 10:00 am
Refreshment Break

10:00 am – 10:20 am
MO33
Updating the 20D Tool for the Cumulative Impact Analysis
Kevin Eldridge, ERM NC, Inc., Raleigh, NC; Dustin Pitman, ERM, Seattle, WA

10:20 am – 10:40 am
MO37
Pseudo-Source Parameters for Flares
Michael Zelensky, Alberta Energy Regulatory, Calgary, Alberta; B.W. Zelt, Zelt Professional Services Inc., Calgary, Alberta

10:40 am – 11:00 am
MO40
Monte Carlo Methods for Addressing Intermittent Emissions
Mark Garrison, ERM, Malvern, PA; Richard Hamel, Carlos Szembek, Environmental Resources Management, Boston, MA

11:00 am – 11:20 am
MO43
BLP and AERMOD – Not Perfect Together
Milena Borissova, Environmental Resources Management, Boston, MA; Jenny Brown, Environmental Resources Management, Charleston, SC; Mark Garrison, Environmental Resources Management, Malvern, PA

11:20 am – 11:40 am
MO25
A Novel Approach for Developing a Background Value or Weight of Evidence for a Background Value to Use in Air Quality Modeling
David Long, American Electric Power, Columbus, OH

11:40 am – 12:00 pm
Session Recap
Conference Wrap-up and Adjourn