



AIR & WASTE MANAGEMENT
ASSOCIATION

FINAL PROGRAM

Guideline on Air Quality Models: Planning Ahead

March 19-21, 2019

Marriott at Research Triangle Park, Durham, NC



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FINAL PROGRAM

ABOUT THE CONFERENCE

This is the 8th 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 or on site in the Edison Ballroom Foyer during the following hours:

Tuesday, March 19: 7:30 am - 5:00 pm
Wednesday, March 20: 7:00 am - 5:00 pm
Thursday, March 21: 7:00 am - 12:00 pm

Your registration will not be processed without payment.

REFUND POLICY

If written notice of cancellation is received on or before March 1, 2019 payment will be refunded, less a \$75 cancellation fee. 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 CREDITS

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 as well as a short bio. The meeting will be held daily one hour before the conference begins each day in the Edison Ballroom.

CONFERENCE COMMITTEE

General Conference Chair:

Michael Hammer, Lakes Environmental Software

Technical Program Co-Chairs:

Pete Catizone, Woodard Curran
Robert Paine, AECOM

Planning Committee:

Abhishek Bhat, Ramboll
Sergio Guerra, GHD
Gale Hoffnagle, TRC Environmental Corporation
David Long, AEP
Ralph Morris, Ramboll
George Schewe, Trinity Consultants
Tony Schroeder, Trinity Consultants
Justin Walters, Southern Company

LOCATION

Marriott at Research Triangle Park

4700 Guardian Drive
Durham, NC 27703
Phone: 919.941.6200
www.marriott.com/hotels/hotel-reviews/rduc-p-marriott-at-research-triangle-park/

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PROFESSIONAL DEVELOPMENT COURSES

INTRODUCTION TO CAMX WITH SINGLE-SOURCE DISCUSSION

Monday, March 18, 8:00 am – 12:00 pm

Franklin Room

Instructors: Ralph Morris and Bart Brashers, *Ramboll US Corporation*

This course will be an introduction to Comprehensive Air-quality Model with extensions (CAMx), photochemical grid model (PGM). The course will provide a basic overview on 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.

INTRODUCTION TO SCICHEM 3.2

Monday, March 18, 1:00 pm – 5:00 pm

Franklin Room

Instructors: Prakash Karamchandani, Ramboll US Corp. and Doug Henn, Xator Corp.

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 PM_{2.5}. Photochemical models with a complete treatment of gas-phase and aerosol chemistry are the preferred method for a Tier 2 demonstration approach. Such models include PGMs, such as CMAQ and CAMx, as well as Lagrangian models, such as SCICHEM.

FINAL PROGRAM

TECHNICAL PROGRAM - Tuesday, March 19

7:30 am – 5:00 pm
Registration
Edison Foyer

7:30 am – 8:30 am
Continental Breakfast
Edison Foyer

7:30 am – 8:30 am
Presenters' Meeting
Edison Ballroom

OPENING KEYNOTE PLENARY SESSION

ALL SESSIONS WILL BE HELD IN THE EDISON BALLROOM

8:30 am

Introduction and Welcome

Michael Hammer, Lakes Environmental Software

8:45 am - 9:00 am

Status and Plans for EPA's Guideline

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

9:00 am - 9:45 am

AERMOD Modeling System Development Activities

Chris Owen, Physical Scientist, U.S. EPA OAQPS; Clint Tillerson, Physical Scientist, U.S. EPA OAQPS; James Thurman, Physical Scientist, U.S. EPA OAQPS

9:45 am - 10:00 am

Prognostic Meteorology

James Thurman, Physical Scientist, U.S. EPA – OAQPS; Chris Misenis, Physical Scientist, U.S. EPA OAQPS

10:00 am - 10:15 am

Networking Break

10:15 am - 10:30 am

Modeling Clearinghouse: LEAN Activities

George Bridgers, Physical Scientist, U.S. EPA OAQPS

10:30 am - 10:45 am

Ozone & PM2.5 Single Source Modeling

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

10:45 am - 11:00 am

NSR Policy Overview

Raghavendra (Raj) Rao, Environmental Manager, U.S. EPA OAQPS

11:00 am - 11:30 am

Keynote Plenary Discussion

11:30 am - 12:00 pm

The Progress of Air Quality Modeling During My Career

Stanley Krivo, U.S. EPA Region 4 Modeler (retired)

12:00 pm - 1:00 pm

Lunch

Newton's Restaurant

SESSION 1A: PM2.5 AND OZONE MODELING—REGULATORY APPLICATIONS

Co-Chair: Sergio Guerra, GHD

Co-Chair: Ralph Morris, Ramboll

1:00 pm - 1:20 pm

MO18

Case Study: PSD Permitting in the Age of MERPs

Kristin Fritchman, APTIM, Lenexa, KS

1:20 pm - 1:40 pm

MO45

Guidance on the Use of EPA's MERPs in Georgia

James W. Boylan, Di Tian, Georgia DNR, Atlanta, GA

1:40 pm - 2:00 pm

MO30

Tier 1 Secondary Formation Assessments

Beth Barfield, Environmental Resources Management, Raleigh, NC; Tom Wickstrom, Environmental Resources Management, Malvern, PA; Roxanne Fincher, EGGGER Wood Products, LLC, Linwood, NC

2:00 pm - 2:20 pm

MO33

Challenges with PM2.5 Permit Modeling with Primary and Precursor Emissions

Mary Kaplan, Robert Paine, AECOM, Chelmsford, MA

2:20 pm - 2:40 pm

MO26

Evaluation of Impacts of VOCs, Primary PM2.5 and NOx Emissions on Maximum Downwind PM2.5 Concentrations using SCICHEM

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

2:40pm - 3:00 pm

Networking Break

Edison Foyer

TECHNICAL PROGRAM - Tuesday, March 19

SESSION 1B: PM2.5 AND OZONE MODELING— CASE STUDIES

3:00 pm - 3:20 pm

MO01

PM2.5 Precursor Insignificant Demonstration for Allegheny County, Pennsylvania

Ralph Morris, Ramboll US Corporation, Novato, CA; Maria Zatko, Bart Brashers, Ramboll US Corporation, Lynnwood, WA; Jason Maranche, Allegheny County Health Department, Pittsburgh, PA

3:20 pm - 3:40 pm

MO02

Air Quality Modeling of the Gulf of Mexico Region Study

Ralph Morris, Till Stoeckenius, Tejas Shah, Bart Brashers, Ramboll US Corporation, Novato CA and Lynnwood, WA; Darcy Wilson, Bebhinn Do, Eastern Research Group, Raleigh, NC; Dennis McNally, Alpine Geophysics, Arvada, CO; Holli Ensz, Bureau of Ocean Energy Management, Washington DC

3:40 pm - 4:00 pm

MO04

Sensitivity of Modeled Secondary Particulate Formation to Ammonia Background Concentrations

Jyotsna Kashyap, RWDI, Calgary, Alberta; Francoise Robe, RWDI, Calgary, Alberta; Patrick Lauziere, Iron Ore Company of Canada, Labrador City, Newfoundland and Labrador; Alain Carriere, RWDI, Guelph, Ontario; Zahra Hosseini, RWDI, Calgary, Alberta; Martin Gauthier, RWDI, Ottawa, Ontario

4:00 pm - 4:20 pm

MO20

Impact of Power Redistribution on Regional Ozone

Karthikeyan (Surya) Ramaswamy, Mark E. Garrison, Environmental Resources Management, Malvern, PA

4:20 pm - 4:40 pm

Session I Discussion

4:45 pm - 5:15 pm

APM Atmospheric Modeling and Meteorology Committee

TECHNICAL PROGRAM - Wednesday, March 20

7:00 am – 5:00 pm

Registration
Edison Foyer

7:00 am – 8:00 am

Continental Breakfast
Edison Foyer

7:00 am – 8:00 am

Presenters' Meeting
Edison Ballroom

SESSION 2A: NAAQS MODELING—NO₂ CASE STUDIES

Co-Chair: Robert Paine, AECOM

Co-Chair: Gale Hoffnagle, TRC

8:00 am - 8:20 am

MO22

Assessment of NO₂/NO_x Ratios at Fossil Fuel Power Plants

Eladio Knipping, Stephanie Shaw, Electric Power Research Institute, Washington DC; Rich Hamel, Mike Sussman, Beth Barfield, ERM, Washington, DC; Ana Alvarez, Contractor, Washington, DC

8:20 am - 8:40 am

MO25

Application of Alternate ARM₂_Min Parameter for 1-hour NO₂ NAAQS Compliance

Daniel R. Guido, Environmental Resources Management, Indianapolis, IN

8:40 am - 9:00 am

MO44

PRCI Ambient NO₂ AERMOD Performance Assessment and Model Improvement Project Modeled to Observed Comparison

Jeffrey A. Panek, James M. McCarthy, Adrian Z. Huth, Alan J. Krol, Innovative Environmental Solutions, Inc. Cary, Illinois; Christopher Nowak, Kinder Morgan Inc., Houston, TX

9:00 am - 9:20 am

MO09

Evaluation of Explicit NO_x Chemistry Methods in AERMOD Using a New Compressor Station Dataset

Jenny Stocker, David Carruthers, Martin Seaton, Stephen Smith, Cambridge Environmental Research Consultants, Cambridge, UK; Cathe Kalisz, American Petroleum Institute, Washington, DC; Robert Paine, Christopher Warren, AECOM, Chelmsford, MA

9:20 am - 9:40 am

MO13

Modeling of Intermittent Sources

Jon A. Pollack, Christopher DesAutels, Exponent, Maynard, MA

9:40 am - 10:00 am

Networking Break Edison Foyer

FINAL PROGRAM

TECHNICAL PROGRAM - Wednesday, March 20

SESSION 2B: NAAQS MODELING—SO₂ CASE STUDIES

10:00 am - 10:20 am

MO05

The SO₂ Data Requirements Rule: What Next?

Anthony J. Schroeder, Trinity Consultants, Beachwood, OH

10:20 am - 10:40 am

MO10

Evaluation of AERMOD SO₂ Predictions for a Research-Grade Field Experiment

Christopher J. Warren, Robert Paine, and Jeff Connors, AECOM, Chelmsford, MA

10:40 am - 11:00 am

MO14

An Initial Look at AERMOD Using a New Meteorologic and Monitoring Dataset from an area with Challenging Meteorology

David J. Long, American Electric Power Service Corporation, Columbus, OH; Christopher Beekman, Ohio EPA, Division of Air Pollution Control, Columbus, OH

11:00 am - 11:20 am

MO38

AERMOD Dispersion Modeling for Strategic Analysis of SO₂ Compliance

George J. Schewe, Brian Otten, Trinity Consultants, Covington, KY

11:20 am - 11:40 am

Session 2 Discussion

SESSION 3: METEOROLOGY CASE STUDIES

Chair: Michael Hammer, Lakes Environmental Software

11:40 am - 12:00 pm

MO36

Land Use Characterizations for AERMET: An Evaluation of WRF vs. AERSURFACE

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

12:00 pm - 12:20 pm

MO16

Performance Evaluation of AERMET's Convective Mixing Height Estimation Procedure

Christopher J. Warren, Robert Paine, and Jeff Connors, AECOM, Chelmsford, MA

12:20 pm - 12:40 pm

MO43

A WRF-MMIF Meteorological Dataset for CALPUFF Modeling in the Gulf of Mexico

Bart Brashers, Ramboll US Corporation, Lynnwood, WA; Holli Ensz, Bureau of Ocean Energy Management, Washington DC

12:40 pm - 1:40 pm

Lunch

Newton's Restaurant

SESSION 4: INNOVATIVE MODELING APPLICATIONS AND TECHNIQUES

Co-Chair: George Schewe, Trinity Consultants

Co-Chair: Abhishek Bhat, Ramboll

1:40 pm - 2:00 pm

MO06

A Regional Air Quality Impact Assessment Screening Tool based upon MOVES-Matrix and AERMOD

Daejin Kim, Haobing Liu, Hongyu Lu, Michael O. Rodgers, Randall Guensler, Georgia Institute of Technology, Atlanta, GA; Roger Wayson, AECOM, Cottonwood Shores, TX

2:00 pm - 2:20 pm

MO19

Developing Probability Maps for Accidental Releases Using AERMOD

Amy E. McVey, Matthew J. Alvarado, Chantelle R. Lonsdale, Elizabeth S. Bettencourt, AER, Lexington, MA

2:20 pm - 2:40 pm

MO21

Automated Software Tools to Investigate Ozone and PM_{2.5} from the Stratosphere and Wildfires

Chantelle R. Lonsdale, M. Alvarado, C. Brodowski, R. Pernak, J. Henderson, A. McVey, B. Brown-Stein, J. Hegarty, AER, Lexington, MA

2:40 pm - 3:00 pm

MO35

Complementarity of Models (CTM-PinG and Lagrangian) to Reproduce Full Chemistry in Refinerie Plumes

Olivier Duclaux, Valentin Raffort Cerea, Pierre Yves Foucher Onera, Yelva Roustan Cerea, Alexandre Armengaud Airpaca, Henri Wortham, Catherine Juery, Laboratoire Qualité de l'Air, Total Research Center, Solaize, France

3:00 pm - 3:20 pm

Networking Break

Edison Foyer

TECHNICAL PROGRAM - Wednesday, March 20

3:20 pm - 3:40 pm

MO11

SCICHEM 3.2: Update, Evaluation, and Application of a Photochemical Puff model for Single Source Impact Assessments

Prakash Karamchandani, Lynsey Parker, Greg Yarwood, Ralph Morris, Ramboll, Novato, CA; Eladio Knipping, EPRI, Washington, D.C.; Bart Brashers, Ramboll, Lynnwood, WA; Douglas Henn, Sage Management/Xator Corp, Princeton, NJ; Naresh Kumar, EPRI, Palo Alto, CA

3:40 pm - 4:00 pm

MO08

Visibility Impacts for Class II Areas - An Assessment of Regulatory Obligations and Best Practices

Thomas S. Wickstrom, Mark E. Garrison, Tianyi Chen, Jessica Ram, Environmental Resources Management, Malvern, PA

4:00 pm - 4:20 pm

Session 4 Discussion

4:30 pm - 6:00 pm

Town Hall Meeting: The Future of Regulatory Atmospheric Modeling

A favorite of past Air Quality Modeling Specialty Conferences, the Town Hall provides a forum for attendees to interact with regulators and modeling community stakeholders. Panelists are given the opportunity to address a topic followed by a question-and-answer session where attendees can submit questions to the panel. This conference's topic addresses the future of regulatory atmospheric modeling.

Panelists include:

- **Tyler Fox**, Group Leader, Air Modeling Group, U.S. EPA
- **James W. Boylan**, Ph.D.; Manager, Planning & Support Program, Georgia Department of Natural Resources
- **Ryan A. Gesser**, Certified Consulting Meteorologist; Georgia-Pacific Environmental Affairs
- **Rick Gillam**, Air Quality Modeler/Environmental Engineer U.S. EPA Region 4

ABOUT THE AIR & WASTE MANAGEMENT ASSOCIATION (A&WMA)

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. **Consider becoming a member! For more information, please visit www.awma.org.**

FINAL PROGRAM

TECHNICAL PROGRAM - Thursday, March 21

7:00 am – 12:00 pm

Registration

Edison Foyer

7:00 am – 8:00 am

Continental Breakfast

Edison Foyer

7:00 am – 8:00 am

Presenters' Meeting

Edison Ballroom

SESSION 5: PRIME2—UPDATES TO BUILDING DOWNWASH

Co-Chair: David Long, American Electric Power

Co-Chair: Justin Walters, Southern Company

8:00 am - 8:20 am

MO40

Alpha Version Development and Submission Process

Ron L. Petersen, Petersen Research and Consulting, LLC., Fort Collins, Co; Sergio A. Guerra, GHD, Golden, CO; James Paumier, Consultant, Raleigh, NC

8:20 am - 8:40 am

MO41

Initial Assessment of the Plume Rise Theory in PRIME

Ron L. Petersen, Petersen Research and Consulting, LLC., Fort Collins, Co; Sergio A. Guerra, GHD, Golden, CO; James Paumier, Consultant, Raleigh, NC

8:40 am - 9:00 am

MO42

Prime2: Model Evaluations

Sergio A. Guerra, GHD, Golden, CO; Ron L. Petersen, Petersen Research and Consulting, LLC. Fort Collins, CO; James Paumier, Consultant, Raleigh, NC

9:00 am - 9:20 am

MO03

Sensitivity Evaluation Analysis of Updates to PRIME and BPIP Downwash Algorithms

Robert Paine; Olga Samani, AECOM, Chelmsford, MA

9:20 am - 9:40 am

MO37

An Evaluation of AERMOD with the PRIME2 Downwash Updates

Carlos Szembek, Environmental Resources Management, Metairie, LA; Milena Borissova, Environmental Resources Management, Boston, MA; Mark Garrison, Environmental Resources Management, Malvern, PA

9:40 am - 10:00 am

MO46

Differences in AERMOD Results Obtained Using BPIP and Equivalent Building Dimension Inputs for PRIME and PRIME2

Stephen J. Nelson, Coal Creek Environmental Associates, Bellevue, WA; Sergio Guerra, GHD, Golden, CO; John Kirkpatrick, BAF, Bellevue, WA; Ron Petersen, CPPWIND, Bellevue, WA

10:00 am - 10:20 am

Session 5 Discussion

10:20 am - 10:40 am

Networking Break

SESSION 6: MODELING CASE STUDIES

Co-Chair: Pietro Catizone, Woodard & Curran

Co-Chair: Anthony Schroeder, Trinity Consultants

10:40 am - 11:00 am

MO12

Characterize Roadway Dispersion Using Near Road Field Measurements and Compare to Air Quality Dispersion Models

Sheng Xiang, Yu-Ting Yu, Zhice Hu, Liuyang Sun, Kenneth Noll, Department of Civil and Environmental Engineering, Illinois Institute of Technology, Chicago, IL

11:00 am - 11:20 am

MO23

Revisiting the Monte Carlo Method for Combining Modeled Pollutant Concentrations with Monitored Values: Case Study in Idaho

Pao Baylon, Kevin Schilling, Idaho Department of Environmental Quality, Boise, ID

11:20 am - 11:40 am

MO27

Air Toxics Modeling of Complex Facilities in Rhode Island for Maximum Flexibility Using AERMOD

Jennifer Beaulieu, Woodard & Curran, Middletown, CT

11:40 am - 12:00 pm

MO32

What Can We Use from The Guideline on Air Quality Models When Conducting Historical Air Dispersion Modeling Studies?

Roberto Gasparini, Spirit Environmental, LLC, Houston, TX

12:00 pm - 12:20 pm

MO34

AERMOD Modeling For Health Impact Assessment of Dimethyl Mercury

Tapashree Tah, Andrea Siefers, Geosyntec Consultants, Indianapolis, IN

12:20 pm - 12:40 pm

Session 6 Discussion

12:40 pm Conference Adjourns