



AIR & WASTE MANAGEMENT
ASSOCIATION

CONFERENCE PROGRAM

Guideline on Air Quality Models: A New Chapter

November 13-15, 2024 • Raleigh, NC

www.awma.org/aqmodels

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CONFERENCE PROGRAM

General Information

Conference Overview

Following the anticipated approval of the October 2023 proposed revisions to the Guideline on Air Quality Models (Appendix W to 40 CFR Part 51), members of the air quality modeling field will share their latest research, experience, and thoughts on the state of air quality modeling at this conference. The information discussed will provide an important basis for future development and advancements in the air quality modeling field, and provide opportunities for stakeholders and regulators to discuss the challenges and techniques needed to model ever-tightening air quality standards.

Location

Sheraton Raleigh Hotel
421 South Salisbury Street
Raleigh, NC 27601
Phone: 919-834-9900

Registration and Refund Policy

Register online at www.awma.org/aqmodels. Conference check-in and badge pickup will be held at the Sheraton Raleigh Hotel during the following hours:

Wednesday, November 13	7:30 am – 5:00 pm
Thursday, November 14	7:00 am – 5:00 pm
Friday, November 15	7:00 am – 12:00 pm

Cancellation and refund requests must be received in writing by October 15, 2024. After that date, no refunds will be issued for cancellations of any type, including no shows. All refunds will be subject to a \$100 USD administrative 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 an event cancellation, the Association is not liable for any expenses incurred by the registrant other than the full refund of registration fee(s) paid.

A&WMA Meetings Policy

By registering for this meeting, attendees agree to abide by and accept the terms of the A&WMA Code of Conduct (available at www.awma.org/governance). Additionally, A&WMA conference attendees acknowledge that they may be photographed by A&WMA for promotional purposes while at events.

Conference Committee

General Conference Chair:

Michael Hammer, Lakes Environmental Software

Planning Committee:

Abhishek Bhat, Ramboll

Dan Dix, All4 Inc.

Sergio Guerra, Colorado Department of Public Health and Environment

Mary Kaplan, AECOM

Ralph Morris, Ramboll

Tony Schroeder, Trinity Consultants

Christopher Warren, AECOM

Qi Zhang, GHD

Presenter Details

All presenters should bring their presentation on a flash drive and load onto the conference laptop in Oak Forest A the morning of their session. Presenters should report to their presentation room at least 15 minutes prior to their session and plan to stay for the entire session.

Conference Proceedings

Conference proceedings will include the secured PDF copies of the slides from presenters who have provided permission. The online proceedings will be posted a few weeks following the conference and attendees will be notified when the slides have been posted to a password-protected website.

Continuing Education Credits

Conference attendees may be eligible for continuing education credits and can apply to receive a Certificate of Participation for the sessions attended. Please sign the CEU sign-in sheet available at the registration desk and order your Certificate through the A&WMA Online Store. Members are eligible for free certificates. For more information, please contact Gloria Henning at +1-412-904-6021 or glhenning@awma.org.

Special Accommodations

The Air & Waste Management Association supports the Americans with Disabilities Act (ADA). Attendees requiring specific equipment, food, or services should contact Paige Parise at pparise@awma.org to make those needs known in advance. A&WMA will make every reasonable effort to accommodate them.

Technical Program – Wednesday, November 13

7:30 am – 5:00 pm
Conference Registration
Esplanade

7:30 am – 8:30 am
Continental Breakfast
Esplanade/Oak Forest B

Opening Keynote Plenary Session

Session 1: PM2.5 & Ozone Modeling

ALL SESSIONS WILL BE HELD IN OAK FOREST A

8:30 am – 8:50 am

Introduction and Welcome

Leah Blinn, Civil & Environmental Consultants, A&WMA President-Elect; Michael Hammer, Lakes Environmental Software, General Conference Chair

8:50 am – 11:10 am

Keynote Plenary

This session will include presentations from the U.S. EPA on the latest developments in regulatory atmospheric modeling.

Invited speakers include:

- **Tyler Fox**, Group Leader, Air Quality Modeling Group (AQMG), U.S. EPA Office of Air Quality Planning and Standards (OAQPS)
- **George Bridgers**, Model Clearinghouse Director, AQMG, EPA OAQPS
- **Clint Tillerson**, Model Development Team Lead, AQMG, EPA OAQPS
- **James Thurman**, Physical Scientist, AQMG, EPA OAQPS
- **Alyssa Piliero**, Physical Scientist, AQMG, EPA OAQPS
- **Matt Porter**, Physical Scientist, AQMG, EPA OAQPS
- **Chris Misenis**, Physical Scientist/Meteorologist, AQMG, EPA OAQPS
- **R. Chris Owen**, Acting Branch Chief, Combustion Source Branch, Air Methods & Characterization Division, U.S. EPA Office of Research and Development (ORD)

11:10 am – 11:30 am

Keynote Discussion

11:30 am – 12:00 pm

Featured Presentation: Dispersion Modeling: Remembering Our Past

George Schewe, Principal Consultant, Trinity Consultants (Retired)

12:00 pm – 1:00 pm

Lunch

Oak Forest B

Co-Chairs: Ralph Morris, Ramboll, and Christopher Warren, AECOM

1:00 pm – 1:20 pm

MO-10

Challenges in Showing Compliance with the NAAQS Under Climate Change and Increased Wildfire Impacts

Ralph Morris, Lynsey Parker, Marco Rodriguez, Jeremiah Johnson, Liji David, Ramboll

1:20 pm – 1:40 pm

MO-17

Development of PM2.5 Background Concentrations for PSD Applications in Georgia

Ryan Gallagher, Xiangyu Jiang, Sarah Ray, James Boylan, Byeong-Uk Kim, Georgia Environmental Protection Division; Ziqi Gao, University of Virginia

1:40 pm – 2:00 pm

MO-03

Measuring Enhanced Ozone Production Due to Wildfires Using Novel VOC Instrumentation

Yousaf Hameed, Crystal McClure, Clark County Department of Environment and Sustainability

2:00 pm – 2:20 pm

MO-19

Challenges in Demonstrating Ozone Attainment in Denver with Photochemical Modeling

Trang Tran, Marco Rodriguez, Jeremiah Johnson, Ralph Morris, Ramboll

2:20 pm – 2:40 pm

MO-11

Recent Developments in CAMx Photochemical Grid Model Treatment of Wildfires and Other Improvements

Ralph Morris, Chris Emery, Gary Wilson, Jeremiah Johnson, Ramboll

2:40 pm – 3:00 pm

Session 1 Discussion

3:00 pm – 3:20 pm

Networking Break and Display Viewing

Esplanade

CONFERENCE PROGRAM

Technical Program

Wednesday, November 13, con't.

Session 2: Environmental Justice Impacts

Co-Chairs: Qi Zhang, GHD, and Miriam Hacker, Colorado Department of Public Health and Environment

3:20 pm – 3:40 pm

MO-21

The Near-Source Safety and Health Risks of Methane Super-Emitter Events

Chowdhury Moniruzzaman, Sofia Bisogno, Christos Efstathiou, Lee Ann L. Hill, Nick Heath, Jasmine Lee, Quintin Munoz, Yanelli Nunez, Sebastian T. Rowland, Kelsey R. Bilback, PSE Healthy Energy; Jeremy K. Domen, PSE Healthy Energy and University of California, Berkeley; Seth B.C. Shonkoff, PSE Healthy Energy, University of California, Berkeley and Lawrence Berkeley National Lab

3:40 pm – 4:00 pm

MO-22

Advanced Dispersion Modeling of Hazardous Emissions in the Chemical Corridor of Louisiana

Jithin Kanayankottupoyil, Athira Ayyappankutty Nair, Kuruvilla John, University of North Texas, Denton; Helen Malmgren, Xavier University of Louisiana

4:00 pm – 4:20 pm

MO-23

Air Quality and Health Co-Benefits Driven from Carbon Neutrality in Southern California

Kai Wu, Michael MacKinnon, Scott Samuelsen, Advanced Power and Energy Program (APEP), UC Irvine

4:20 pm – 4:40 pm

MO-25

Navigating Environmental Justice in Air Permitting: Air Dispersion Modeling Case Study in Illinois

Ashley Kung, Amal Agharkar, Daniel Guido, ERM

4:40 pm – 5:00 pm

Session 2 Discussion

5:00 pm

APM Atmospheric Modeling and Meteorology Committee

Technical Program

Thursday, November 14

7:00 am – 5:00 pm

Conference Registration
Esplanade

7:00 am – 8:00 am

Continental Breakfast
Esplanade/Oak Forest B

Session 3: Recent AERMOD Developments

Co-Chairs: Mary Kaplan, AECOM, and Abhishek Bhat, Ramboll

8:00 am – 8:20 am

MO-07

Implementation of Shoreline Fumigation Algorithm into AERMOD

Rebecca Miller, Michelle G. Snyder, WSP USA Environment and Infrastructure Solutions; Clint Tillerson, US EPA Office of Air Quality Planning and Standards

8:20 am – 8:40 am

MO-08

Platform Downwash in AERMOD: Additional Evaluation and Algorithm Improvements

Michelle Snyder, Surbhi Thakur, Michael Miller, WSP USA Environment and Infrastructure Solutions; Clint Tillerson, US EPA Office of Air Quality Planning and Standards

8:40 am – 9:00 am

MO-15

Enhanced BPIP Prototype for Improving Downwash Modeling Performance

Christopher Warren, Josh Molvar, Robert J. Paine, Jeffrey Connors, AECOM

9:00 am – 9:20 am

MO-34

PRIME Documented Formulation Problems and Solutions

Ron Petersen, Petersen Research and Consulting; Sergio Guerra, Colorado Department of Public Health and Environment; James Paumier, Consultant

9:20 am – 9:40 am

MO-16

Dispersion Modeling Pathways to Address Evolving Air Toxics Screening Levels

Laura Warren, Mary Kaplan, AECOM

9:40 am – 10:00 am

Session 3 Discussion

10:00 am – 10:20 am

Networking Break and Display Viewing
Esplanade

Technical Program – Thursday, November 14, con't.

Session 4: Mobile Source Modeling

Co-Chairs: Christopher Warren, AECOM, and Sergio Guerra, Colorado Department of Public Health and Environment

10:20 am – 10:40 am

MO-09

RLINE: A Discussion of Refinement and Future Plans

Michelle Snyder, WSP USA Environment and Infrastructure Solutions; R. Chris Owen, David Heist, US EPA Office of Research and Development

10:40 am – 11:00 am

MO-12

Air Modeling to Assess Air Quality Impacts in Environmental Justice Communities

Sonja Sax, Sharmin Akter, Epsilon Associates

11:00 am – 11:20 am

MO-29

Performance Evaluation of AERMOD Source Types for Estimating Near-Road Air Quality

Matthew Simon, Andrew Eilbert, Abby Raymond, Anjuliee Mittelman, U.S. DOT Volpe National Transportation Systems Center

11:20 am – 11:40 am

MO-28

Evaluation of a Dispersion Modeling Approach to Assess Pb Emissions Impacts from Piston Aircraft

Matthew Simon, Lyle Tripp, Andrew Malwitz, Jordan Cumper, Steve Goetzinger, Bradley Nicholas, Alessandra Vennema, Abby Raymond, Amanda Rapoza, Jason Ross, U.S. DOT Volpe National Transportation Systems Center

11:40 am – 12:00 pm

Session 4 Discussion

12:00 pm – 1:00 pm

Lunch

Oak Forest B

Session 5: NO2 Modeling Techniques with AERMOD (Part 1)

Co-Chairs: Anthony Schroeder, Trinity Consultants, and Qi Zhang, GHD

1:00 pm – 1:20 pm

MO-05

Case Study on PVMRM's Nonmonotonic Behavior at Low NO2 to NOx In-Stack Ratio

Qi Zhang, Elizabeth Klovenski, GHD

1:20 pm – 1:40 pm

MO-18

AERMOD GRSM Background Inputs Case Study

Anthony Schroeder, Katrina Becker, Trinity Consultants

1:40 pm – 2:00 pm

MO-31

A Consequence Analysis of the GRSM NOx Chemistry Option in AERMOD

Jason Reed, Lexie Brothers, Ramboll

2:00 pm – 2:20 pm

MO-37

A Comparison of Tier 3 Screening Techniques for NO2 Applied to Datacenters

Joseph Sabato, ALL4

2:20 pm – 2:40 pm

Networking Break and Display Viewing

Esplanade

CONFERENCE PROGRAM

Technical Program – Thursday, November 14, con't.

Session 5: NO2 Modeling Techniques with AERMOD (Part 2)

Co-Chairs: Anthony Schroeder, Trinity Consultants, and Qi Zhang, GHD

2:40 pm – 3:00 pm

MO-13

Cumulative Assessment of Modeled and Measured Concentrations of NO2 in the North Denver Region

Vinay Kumar, Sergio Guerra, Miriam Hacker, Colorado Department of Public Health and Environment (CDPHE); Elizabeth Wallace, CDPHE and University of Boulder, Colorado

3:00 pm – 3:20 pm

MO-14

Evaluation with Permitting Inputs of the NO2 2014 Colorado Oil and Gas Drill Rig Field Study

Jennifer Turk, Vinay Kumar, Sergio A. Guerra, Miriam Hacker, Colorado Department of Public Health and Environment

3:20 pm – 3:40 pm

MO-32

Comparison of AERMOD and CFD Air Quality Impacts at a Datacenter

Jason Reed, Jens Chr. Bennetsen, Ralph Morris, Jelena Popovic, Michael Keinath, Ramboll

3:40 pm – 4:00 pm

Session 4 Discussion

4:00 pm – 4:15 pm

Networking Break and Display Viewing

Esplanade

Town Hall Meeting

4:15 pm – 5:45 pm

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. The U.S. EPA is expected to release a revised version of the Guideline on Air Quality Models in fall 2024, and panelists will be given the opportunity to provide their thoughts on the finalized revisions and continued developments in the field of regulatory atmospheric dispersion modeling. Opening remarks will be followed by a question-and-answer session where attendees can submit questions to the panel. Invited panelists include members of EPA's OAQPS Air Dispersion Modeling Team, regional and state air quality modelers, and representatives from the Federal Land Managers.

About the Air & Waste Management Association



The Air & Waste Management Association is a not-for-profit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking opportunities, 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.

Technical Program – Friday, November 15

7:00 am – 12:00 pm
Conference Registration
Esplanade

7:00 am – 8:00 am
Continental Breakfast
Esplanade/Oak Forest B

Session 6: Innovative Modeling – Emissions Techniques

Co-Chairs: Mary Kaplan, AECOM, and Sergio Guerra, Colorado Department of Public Health and Environment

8:00 am – 8:20 am

MO-06

Modeling Fugitive Methane Emissions with Drones

Jeffrey Leadford, Pat Sullivan, SCS Engineers

8:20 am – 8:40 am

MO-26

AERMOD & Machine Learning to Attribute Air Pollutants to Oil & Gas Activities in Marcellus Shale

Sourav Das, Jeremy M. Gernand, Manzhu Yu, John Wang, Md Mostafijul Karim, Jood T. A. Mohsena, Brian Patrick Burns, Pennsylvania State University

8:40 am – 9:00 am

MO-33

Odor Modeling with AERMOD to Comply with Alternative Levels of Service Criteria

Phyllis Diosey, Richard J. Pope, Hazen and Sawyer

9:00 am – 9:20 am

MO-36

An Observation-Augmented LES Based Framework for Modeling Methane Emissions from Landfills

Umair Ismail, David Ball, Ali Lashgari, Nathan Eichenlaub, Shadan Naseridoust, Dave Risk, Project Canary PBC

9:20 am – 9:40 am

MO-02

Inverse Modeling of Hydrogen Sulfide Emissions Based on a Community Monitoring Network

Eduardo Olaguer, Jim Haywood, Michigan Department of Environment, Great Lakes, and Energy

9:40 am – 10:00 am

Session 6 Discussion

10:00 am – 10:20 am

Networking Break and Display Viewing

Esplanade

Session 7: Innovative Modeling – Permitting Case Studies

Co-Chairs: Abhishek Bhat, Ramboll, and Miriam Hacker, Colorado Department of Public Health and Environment

10:20 am – 10:40 am

MO-04

Use of AERMOD and Statistical Best-Fit Analysis of SO₂ Emissions to Demonstrate NAAQS Compliance

Jeffrey Connors, CareyAnne Howlett, AECOM

10:40 am – 11:00 am

MO-24

Impact of Gas Shortage on Upper Air Soundings and Availability of Meteorological Data for Modeling

Mary Kaplan, Christopher J. Warren, AECOM

11:00 am – 11:20 am

MO-27

Intelligent Interpretations: AI-Driven Insights into AERMOD Outputs

Pao Baylon, Jason Reed, Emily Tupper, Ramboll

11:20 am – 11:40 am

MO-30

Simulating Variability of Emissions in Regulatory Air Quality Modeling Analyses

Ryan Gesser, Katie Cooper, Georgia-Pacific LLC

11:40 am – 12:00 pm

MO-20

CALPUFF Modeling System Development and Updates

Michael Hammer, Jesse Van Griensven Thé, Lakes Environmental Software

12:00 pm – 12:20 pm

Session 7 Discussion

12:20 pm

Conference Adjourns

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Blue Sky Modeling, LLC (BSM) specializes in air quality modeling. Unlike most air dispersion modelers, BSM is not part of a larger consulting firm. Because of that we are exceptionally nimble in how we partner with our clients. Our innovative approach to business combines the reach of a large firm with the flexibility of a small firm, enabling us to provide our clients with decades of experience in the air dispersion modeling world while minimizing costs and maximizing our responsiveness.