

Air Quality Measurement Methods and Technology Conference 2025

Aurora, Colorado, USA
23 - 25 April 2025

Volume 1 of 2

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Technical Tour

Mobile Air Quality Monitoring Laboratory Showcase Tour

Tuesday, April 22, 1:30 pm – 4:30 pm

Pre-registration required. Registered participants should meet in the hotel lobby by 1:15 pm.

There is a growing number of air quality agencies, academic researchers, consultants, and manufacturers/refineries utilizing mobile air quality monitoring. Mobile monitoring enhances our spatial understanding of air quality and can be used in communities, along fencelines, and for leak detection. To keep up with the changing air quality measurement methods and technology landscape, the conference organizers are pleased to announce the first Mobile Monitoring Laboratory Showcase.

If you are interested in learning about Mobile Air Quality Monitoring from some of the experts in the field, please join us for an afternoon of mobile laboratory tours at the Colorado Department of Public Health and Environment's (CDPHE) Air Toxics and Ozone Precursors Program's Facility in Wheat Ridge, CO. Several mobile labs from CDPHE, US Environmental Protection Agency, environmental consultants, and real-time mass spectrometry manufacturers will be available for attendees to view, discuss, and ask questions about applications and best practices.

Dress Code: Closed toe shoes are required.

Technical Program – Wednesday, April 23

7:30 am – 5:00 pm

Conference Registration
Aurora Foyer

7:30 am – 8:30 am

Continental Breakfast
Aurora Ballroom 1 and Foyer

9:45 am – 6:30 pm

Exhibition Viewing
Aurora Ballroom 234 & Foyer

Opening Keynote Session

8:30 am – 9:45 am

Aurora Ballroom 1

Welcome & Opening Remarks 1

Jim Walker, Consumers Energy, A&WMA Immediate Past President; Eric Winegar, Winegar Air Sciences, Conference Co-Chair; Aurelie Marcotte, Entanglement Technologies, Conference Co-Chair

Innovative Monitoring and Policy Actions in Colorado 6

Michael Ogletree, Director, Air Pollution Control Division, Colorado Department of Public Health and Environment

Emissions and Impacts of Wildfires and Fires at the Wildland-Urban Interface N/A

Joost de Gouw, Professor of Chemistry and Fellow of the Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder

Moderator: Jeffrey L. Collett, Jr., Colorado State University

9:45 am – 10:15 am

Networking Break and Exhibition Viewing
Aurora Ballroom 234 and Foyer

Sponsored By:



Michael Ogletree



Joost de Gouw

FINAL PROGRAM

Technical Program – Wednesday, April 23, con't.

Session 1A: Oil and Gas

[concurrent with Sessions 1B and 1C]
Conference Room I

Chairs: Jason Schroder, Colorado Department of Public Health and Environment, and Brian Taylor, Project Canary

10:35 am – 10:55 am

ME-63 Air Quality Modeling for the Community Health and Air Quality Implications of Refinery Retrofits and Retirements (CHAIRS) Project 21
Nick Heath, Christos Efstathiou, Chowdhury G. Moniruzzaman, Sofia Bisogno, Elena Krieger, Lee Ann Hill, Cassie Huang, Kelsey R. Bilsback, PSE Healthy Energy, Oakland, CA; Seth B.C. Shonkoff, PSE Healthy Energy, University of California, Berkeley and Lawrence Berkeley National Lab, Berkeley, CA; Marinelle Villanueva, Qi Meng, Lara J. Cushing, University of California, Los Angeles, CA; Jenni A Shearston, Rachel Morello-Frosch, University of California, Berkeley

10:55 am – 11:15 am

ME-62 Integration of Remote Sensing and Model Assessment for Evaluating Safety and Public Health Risks of Oil and Gas Methane Super-Emitter Events 36
Nick Heath, Chowdhury G. Moniruzzaman, Sofia Bisogno, Christos Efstathiou, Lee Ann L. Hill, Jasmine Lee, Quintin Munoz, Yanelli Nunez, Sebastian T. Rowland, Kelsey R. Bilsback, PSE Healthy Energy, Oakland, CA; Jeremy K. Domen, PSE Healthy Energy and Lawrence Berkeley National Lab, Berkeley, CA; Seth B.C. Shonkoff, PSE Healthy Energy, University of California, Berkeley, and Lawrence Berkeley National Lab

11:15 am – 11:35 am

ME-66 Fixed Open-Path Continuous Methane Emission Monitoring and Quantification 47
Shin-Juh Chen, Nicholas F. Aubut, Matan Aviram, Michael B. Frish, Physical Sciences Inc., Andover, MA; David Booker, Joe Morrill, Sensors Inc.

11:35 am – 11:55 am

ME-107 Leveraging Concentration Measurements for Enhanced Leak Locating, Alarming, and Quantification 58
Michelle Liu, Dennis Prince, Colin Jensen, Airdar Inc., Edmonton, AB, Canada

Session 1B: Indoor Air

[concurrent with Sessions 1A and 1C]
Conference Room II

Chairs: Eric Lebel, PSE Healthy Energy, and Abhilash Vijayan, Sonoma Technology

10:15 am – 10:35 am

ME-32 Whole Air Sampling: Overview and Applications in Indoor Air Monitoring 74
Alex Watts, Bevan Meade, ALS Environmental, Salt Lake City, UT

10:35 am – 10:55 am

ME-115 Evidence Synthesis of Volatile Organic Compounds in Non-Residential Environments 85
Will Claggett, Ellison Carter, Colorado State University

10:55 am – 11:15 am

ME-127 Building Air Leakage, Imaging Techniques, and Indoor Air Quality 98
Christian Carrico, Mercy Ike Ajigah, J. Ryan Himes, New Mexico Institute of Mining and Technology

11:15 am – 11:35 am

ME-61 Climate and Health-Damaging Pollutant Emissions from Natural Gas and Electric Cooking Appliances in Commercial Kitchens 138
Eric Lebel, Drew Michanowicz, Nicole Lucha, Gan Huang, PSE Healthy Energy, Oakland, CA; Christopher Galarza, Forward Dining Solutions; Colin Finnegan, Stanford University; et al.

Session 1C: Community Monitoring

[concurrent with Sessions 1A and 1B]
Conference Room VI

Chairs: Steven Schill, Spheros Environmental, and Nick Spada, UC Davis

10:15 am – 10:35 am

ME-35 Community-Focused Air Quality Monitoring: Interests, Needs, and Impacts 152
Helena Pliszka, Story Schwantes, Tim Dye, TD Enviro, Boulder, CO

10:35 am – 10:55 am

ME-36 Advancing Denver's 'Love My Air' Program: High-Quality Monitoring, Public Health Outreach, and Policy Impact 161
Brendan Lawlor, Denver Department of Public Health & Environment, Denver, CO

10:55 am – 11:15 am

ME-103 Empowering Imperial County AB617 North End Communities With Low-Cost Monitoring Sensors 167
Jose Landeros, Sergio Valenzuela, SCS Engineers

11:15 am – 11:35 am

ME-34 Continuous Field Measurement of Airborne Formaldehyde Using a Newly Developed Automatic and Deeply-Enhanced Microfluidic Analyzer 179
Jean-Philippe Amiet, Mathilde Mascles, Audrey Grandjean, Damien Bazin, Chromatotec Inc.

11:35 am – 11:55 am

ME-58 Volatile Organic Compound and Ozone Measurements at Carlsbad Caverns National Park: Impacts of Oil and Natural Gas Operation Emissions on Park Air Quality 188
Barkley Sive, Analytical Chemist, Denver, CO; Ingrid George, US EPA ORD; Katherine B. Benedict, Los Alamos National Laboratory; Andrey Marsavin, Yong Zhou, Ilana B. Pollack, Colorado State University

12:00 pm – 1:10 pm
Lunch for all sessions
Aurora Ballroom 1 and Foyer

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RAMBOLL

Technical Program – Wednesday, April 23, con't.

Session 2A: Oil and Gas

[concurrent with Sessions 2B and 2C]

Conference Room I

Chairs: Jason Schroder, Colorado Department of Public Health and Environment, and Brian Taylor, Project Canary

1:10 pm – 1:30 pm

ME-70 Total Emission of Methane and Total VOC From Oil and Gas Production in St. Joaquin Basin Between 2018-2024 Using I-SOF N/A

Johan Mellqvist, Jerker Samuelsson, Brian Offerle, Anthony Babore, Daniel Ruiz, Jorge Molina, FluxSense Inc., San Diego, CA; Abhilash Vijayan, Sonoma Technology, Carson, CA

1:50 pm – 2:10 pm

ME-80 Lessons Learned From the Colorado Regulation 7 Oil and Gas Monitoring Program 204
Aaron Lamplugh, Joel Fay, Heather Runberg, Jacob Tamini, Nancy Chick, James Sheplock, William Vicars, Colorado Department of Public Health and Environment, Glendale, CO

2:10 pm – 2:30 pm

ME-108 Computational Fluid Dynamics (CFD)-Based Fine-Scale Modelling of Methane Flows Around O&G Equipment at the Methane Emissions and Technology Evaluation Centre (METEC) 210

Abhinav Anand, Aashish Upreti, Colorado State University, Fort Collins, CO; Stuart Riddick, Daniel Zimmerle, Colorado State University Energy Institute, Fort Collins, CO

2:30 pm – 2:50 pm

ME-94 Improved Emissions Monitoring Performance with Integration and Emissions Reconciliations 218

Quan Shen, Bas Kastelein, Junchuan Shi, Lingling An, Robert Kester, Honeywell Process Solutions, CityWest, Houston, TX

Session 2B: EPA HON Regulations

[concurrent with Sessions 2A and 2C]

Conference Room II

Chair: Patrick Clark, Brainard Environmental

1:10 pm – 1:30 pm

ME-151 Advancements in Sampling, Analysis, and Monitoring of Ethylene Oxide for Ambient Air, Source, and Mobile Monitoring 230

Patrick Clark, Brainard Environmental, LLC, Denver, CO; Antonios Tasoglou, Steve Yuchs, Montrose Air Quality Services, LLC

1:30 pm – 1:50 pm

ME-33 HON MACT Fenceline Monitoring Pilot Studies – Early Lessons Learned 243

Joe Espinosa, Enthalpy Analytical, Houston, TX; Jenna Granstra, Montrose Air Quality Services

1:50 pm – 2:10 pm

ME-22 EPA Method 327 - Navigating New Territory in Fenceline Monitoring 250

Clinton Thrasher, Enthalpy Analytical, LLC, Deer Park, TX

2:10 pm – 2:30 pm

ME-19 Mobile Monitoring of the HON-Regulated VOCs with SIFT-MS 258

Nathan Hoppens, Beau Bealmear, Sam Edwards, Rabi Musah, Sarah Ginsberg, Allix Coon, Leslie Silva, Syft Technologies, Inc., Austin, TX

2:30 pm – 2:50 pm

ME-71 Enhancing Air Quality Monitoring in Northwest Indiana's Industrial Sector: A Case Study Using the SENSIT SPOD for Regulatory Compliance 271

Steven Norlock, Jason Gu, SENSIT Technologies

Session 2C: Community Monitoring

[concurrent with Sessions 2A and 2B]

Conference Room VI

Chairs: Steven Schill, Spheros Environmental, and Nick Spada, UC Davis

1:10 pm – 1:30 pm

ME-56 The Skagway Air Quality Monitoring Array and Public Dashboard: A First Look at Understanding Impacts from Local Sources 282

Barkley Sive, Analytical Chemist, Denver, CO; Reuben Cash, Colton Belisle, Eric Dye, Skagway Traditional Council, Skagway, AK

1:30 pm – 1:50 pm

ME-132 Community-Focused Monitoring to Assess Pesticide Spraying Impacts in Fresno, CA 299

Josette Marrero, Jessica Klobas, Steve Brown, Sonoma Technology, Petaluma, CA; Nayamin Martinez, Rocio Madrigal, Central California Environmental Justice Network; William Bailes, AJWA Analytical Laboratories

1:50 pm – 2:10 pm

ME-98 A Comprehensive Study of Particulate Matter (PM) in the Environmental Justice (EJ) Community of Eastern Coachella Valley (ECV) 309

Mohammad Sowlat, Zihan Zhu, Joseph Salazar, Yumeng Cui, Julia Montoya-Aguilera, Christopher Lim, Steve Boddeker, Freyja Berg Lopez, South Coast Air Quality Management District, Diamond Bar, CA

2:10 pm – 2:30 pm

ME-101 Hyperlocal Mobile Monitoring of Particle-Bound Metals in Two Environmental Justice (EJ) Communities in the South Coast Air Basin 318

Mohammad Sowlat, Christopher Lim, Provat Saha, Steve Boddeker, Julia Montoya-Aguilera, Zihan Zhu, Sina Hasheminassab, South Coast Air Quality Management District, Diamond Bar, CA

2:30 pm – 2:50 pm

ME-163 Light Rail Trains, Cars, and Electric Buses as Air Pollution and Meteorological Observation Networks: Methodology and Preliminary Results N/A

Daniel Mendoza, University of Utah

2:50 pm – 3:20 pm
Networking Break and Exhibition Viewing
Aurora Ballroom 234 and Foyer

Sponsored By:



FINAL PROGRAM

Technical Program – Wednesday, April 23, con't.

Session 3A: Low-Cost Sensors for Oil and Gas Emissions

[concurrent with Sessions 3B and 3C]

Conference Room I

Chairs: Ali Lashgari, Project Canary, and Neda Ahmadpour, Honeywell

3:20 pm – 3:40 pm

ME-121 **Controlled Testing of Next Generation Leak Detection and Quantification Solutions to Evaluate Performance and Develop Consensus Assessment Metrics** 326

Chimezie Ilonze, Fancy Cheptonui, Colorado State University, Fort Collins, CO; Ezra Levin, Rachel Day, Daniel J. Zimmerle, Colorado State University Energy Institute, Fort Collins, CO

3:40 pm – 4:00 pm

ME-82 **Low Cost Sensor Pollutant Measurements and Leak Detection at Oil and Gas Facilities** 336

James Sheplock, Aaron Lamplugh, Colorado Department of Public Health and Environment, Denver, CO

4:00 pm – 4:20 pm

ME-125 **A Framework for Optimizing Continuous Methane Monitoring System Configuration for Minimal Blind Time: Application and Insights from Over 100 Operational Oil & Gas Facilities** 344

Noah Metzger, Ali Lashgari, Umair Ismail, David Ball, Nathan Eichenlaub, Project Canary, Denver, CO

4:20 pm – 4:40 pm

ME-65 **Comparison of Co-located Laser and Metal Oxide Continuous Monitoring Systems** N/A
Kellis Ward, William Daniels, Dorit Hammerling, Colorado School of Mines, Golden, CO

4:40 pm – 5:00 pm

ME-123 **Development and Testing of the SENSIT MOSPOD and Collocation with SENSIT FMD** 351

Jacob Melby, Jason Gu, Steven Norlock, SENSIT Technologies

Session 3B: PFAS

[concurrent with Sessions 3A and 3C]

Conference Room II

Chair: Kurt Thaxton, Gerstel

3:20 pm – 3:40 pm

ME-07 **Measurement of Indicator Compounds from Combustion/Incineration of PFAS Using FTIR Spectroscopy** 361

Thomas Dunder, Jim Barufaldi, Zach Mokrycki, TRC

3:40 pm – 4:00 pm

ME-42 **Advances in Real-Time Low-Level Concentration Measurements of PFAS Volatiles in Air Exhausts via FTIR Spectroscopic Techniques** 372

Curtis Laush, Spectrum Environmental Solutions, Mesa, AZ

4:00 pm – 4:20 pm

ME-129 **Optimizing Thermal Desorption and GC-MS/MS for the Analysis of Volatile PFAS via a New ASTM Standard Method** 379

Kurt Thaxton, Jochen Vandenberg, Jack Stuff, Jackie Whitecavage, GERSTEL GmbH & Co. KG

4:20 pm – 4:40 pm

ME-139 **Automated Monitoring of Organic Greenhouse Gases and Ozone-Depleting Substances** 391

Ericka Hachmeister, Hannah Calder, Morgane Cumbe, Stephen Davies, Markes International Inc.

Session 3C: Fenceline Monitoring

[concurrent with Sessions 3A and 3B]

Conference Room VI

Chair: Patrick Clark, Brainard Environmental

3:20 pm – 3:40 pm

ME-96 **The CDPHE Mobile Air Remote Monitoring Trailer (MARMOT): A Solar-Powered Modular Platform for Measuring Ambient Air Toxics** 408

Rudra Pokhrel, Christopher Lee, Riley Kloss, Zachary Finewax, Pamela Rickly, Derek Price, Jason Schröder, Colorado Department of Public Health and Environment

3:40 pm – 4:00 pm

ME-149 **Analysis of Mobile VOC Measurements by PTR-TOF-MS in Commerce City, CO** 418
Madison Rutherford, Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder

4:00 pm – 4:20 pm

ME-159 **Multi-Tiered Methane Monitoring Study Using Satellite, Aircraft, Drone, Mobile Platform, and Fenceline Measurements at a Refinery Site in California** 428

Abhilash Vijayan, Ethan Emerson, Josette Marrero, Charles Scarborough, Jessica Klobas, Sonoma Technology, Viviana Van Tassel, Melinda Palmer, Kern Energy

4:20 pm – 4:40 pm

ME-69 **Integrating Air Monitoring and Data Analytics for Enhanced Methane Leak Detection in California's Oilfields** 438
Steven Norlock, Jason Gu, SENSIT Technologies

4:40 pm – 5:00 pm

ME-91 **Benzene Detection on a Mobile Platform** 448
Shin-Juh Chen, Richard T. Wainner, Matan Aviram, Nicholas F. Aubut, Michael B. Frish, Physical Sciences Inc., Andover, MA

Technical Program – Wednesday, April 23, con't.

Combined Poster Session and Networking Reception

Aurora Ballroom 234 and Foyer

5:00 pm – 5:30 pm: Poster Session

5:30 pm – 6:30 pm: Networking Reception and Continued Poster Viewing

Reception Sponsored By:



Poster Session Chair: J.B. Dennison, Ramboll

ME-12 Volatile Organic Compound Emissions Using Low-Cost Sensors for Vail, CO Prescribed Fire 456

Marissa Dauner, Annamarie Guth, Evan Coffey, Sean Benjamin, Peter Hamlington, Michael Hannigan, University of Colorado, Boulder, CO

ME-28 A Study on the Nighttime Chemistry of Nitrate Formation by N₂O₅ and HNO₃ in Korea Using I-CIMS (Iodide Chemical Ionization Mass Spectrometer) N/A

Jeongin Song, Taehyoung Lee, Yoonseo Kim, Hankuk University of Foreign Studies; Song-Chul Hong, Jae-Bum Lee, Seung-Hee Eun, National Institute of Environmental Research; MinJoong J. Kim, Myongji University

ME-30 Beyond EPA OTM-45: A Review of New and Emerging Source Emissions Methods for the Characterization of PFAS 457

Courtney Adkins, Eurofins Environment Testing, Knoxville, TN

ME-41 Pollutant Hotspot Detection With Low-Cost Mobile Air Monitoring Using Public Buses Rama Goparaju, Pery Au, Ecosystem Informatics 460 Inc., ON, Canada

ME-44 Establishing a Quality Assurance Audit Program for the Community Air Toxics Mobile Laboratory 461

Steve Szocik, Leah Gibson, Ashley Collier-Oxandale, Jason Schroder, Robert Summers, Colorado Department of Public Health & Environment

ME-46 Using UAV Technology to Sample Aerosols Emitted From Wildfire Plumes 462

John Ryan Himes, Kip Carico, New Mexico Institute of Mining and Technology; Manvendra Dubey, Jon Reisner, Los Alamos National Laboratories

ME-52 Removal of Indoor Air TVOCs Using Industrial Waste Nano Fiber Sheet N/A

Alfred Lawrence, Farheen Zehra, Samridhi Dwivedi, Isabella Thoburn College, Lucknow, India

ME-57 Investigating Ozone Formation in Urban Areas With Explainable Machine Learning: A Case Study of Seoul N/A

Hwajin Kim, Qihua Hu, Yoojin Park, Sujin Kwon, Seoul National University; Joost de Gouw, University of Colorado, Boulder; Sojin Lee, Seoul Institute

ME-59 A Field Study to Characterize the Effectiveness of Adding Polymers to a Mining Tailings Beach to Control Dust and PM₁₀ Emissions Using a Portable In-Situ Wind Erosion Lab (PI-SWRL) 463

Vincent Fricaud, Abigail Stewart, Ryan Kangas, Susan Lyon, SLR International Corporation

ME-64 Continuous Methane Emissions Monitoring for Improved Compliance With Evolving Regulations: A Case Study at Northeast Energy Center, Massachusetts 464

Bonnie Ellwood, Ben Montgomery, Qube Technologies, Inc., Denver, CO; Zhi Hao (Edward) Li, Epsilon Associates, Inc.; Boris Brevnov, Kirk Hayden, Richard Oleksiak, Northeast Energy Center, LLC

ME-81 Performance of Leak Detection Solutions on Real-World Underground Natural Gas Pipelines N/A

Rachel Day, Venkata Rao, Joelle Uribe, Sergio Andres, Colorado State University Energy Institute

ME-86 Modeling of Methane Emission Dynamics in a Complex Aerodynamic Condition N/A

Aashish Upreti, Stuart Riddick, Daniel Zimmerle, Colorado State University Energy Institute

ME-91 Benzene Detection on a Mobile Platform 465

Shin-Juh Chen, Richard T. Wainner, Matan Aviram, Nicholas F. Aubut, Michael B. Frish, Physical Sciences Inc., Andover, MA

ME-93 Building Air Leakage and Energy Efficiency in Buildings: A Comparative Study of Blower Door Measurements of Modern and Historic Structures 466

Mercy Ike Ajigah, J. Ryan Himes, Christian M. Carrico, New Mexico Institute of Mining and Technology

ME-110 Satellite Measurements Evolution and Their Ever-Changing Place in Air Quality Regulations 467

Kevin Madry, Stantec, Denver, CO; Bud Pope, BlueSky Resources, Boulder, CO

ME-165 Field Testing of Low-Cost PM Sensors in Animal Production Facilities 468

Pradeep Kumar, South Dakota State University, Brookings, SD; Seyit Uguz, SD State and Yozgat Bozok University, Yozgat-Turkey; Shalini Tiwari, Young Chang, Xufei Yang

Posters will also be on display in the Aurora Foyer to view during networking breaks on Wednesday, April 23 and Thursday, April 24!

FINAL PROGRAM

Technical Program – Thursday, April 24

7:30 am – 5:00 pm
Conference Registration
Aurora Foyer

7:30 am – 8:30 am
Continental Breakfast
Aurora Ballroom 1 and Foyer

8:30 am – 3:40 pm
Exhibition Viewing
Aurora Ballroom 234 & Foyer

Session 4A: Greenhouse Gas Emissions

[concurrent with Sessions 4B and 4C]
Conference Room I

Chairs: Chiemezie Ilonze, Colorado State University, and Yousaf Hameed, Clark County Nevada

8:50 am – 9:10 am

ME-113 Single-Blind Controlled Release Testing to Evaluate the Performance of an In-Situ Methane Detection System 469
Semiu Fasasi, Timothy L. Vaughn, Daniel J. Zimmerle, Colorado State University Energy Institute

9:10 am – 9:30 am

ME-111 Heavy-Duty Diesel Emissions Monitoring Using Low-Cost Sensors 478
Darrell Sonntag, Spencer Larson, Amber Allen, Zachary Driskill, Sam Swindler, Matthew R. Jones, Dale Tree, Philip Lundrigan, Jacob D. Gates, Brigham Young University, Provo, UT

9:30 am – 9:50 am

ME-166 Real-time Graphic Estimates of Methane Fugitive Emission Rates Using Laser-based Portable Methane Analyzer 490
Nabil Saad, Manish Gupta, J. Brian Leen, Nikira Labs Inc., Mountain View, CA

Session 4B: Agriculture, Odors, and Landfills

[concurrent with Sessions 4A and 4C]
Conference Room II

Chairs: Bret Schichtel, Colorado State University/ National Park Service, and Kurt Thaxton, Gerstel

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ME-137 Development of a New ASTM Standard Practice for Environmental Odor Assessment: Status Update 502
Jacek Koziel, USDA-ARS, Bushland, TX; Donald Wright, Don Wright & Associates

8:50 am – 9:10 am

ME-136 Monitoring Deposition of Ammonia Emissions From a Beef Cattle Feedyard 512
Jacek Koziel, William Willis, Heather Robbe, USDA-ARS, Bushland, TX

9:10 am – 9:30 am

ME-92 Defining New Methods for Evaluating Impacts of Odors Through Chemosensory Irritation 522
Kelli Hackney, Heidi C. O'Neill, Gretchen M. Bruce, Richard C. Pleus, Intertox, Inc.

9:30 am – 9:50 am

ME-16 Utilizing a Sensor Network to Mitigate Landfill Emissions and Prevent Odor Disturbances 531
Kathleen Masse, Irene Lara-Ibeas, Edurne Ibarrola-Ulzurrun, Javier Fernández, Apex Instruments, Inc.

9:50 am – 10:10 am

ME-45 Identifying VOC Sources Within Landfills Using Online and Offline Measurements 552
Madison Rutherford, Abigail Koss, Joost de Gouw, Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder

Session 4C: Air Toxics – Mobile and Community Monitoring

[concurrent with Sessions 4A and 4B]
Conference Room VI

Chairs: Jeffrey L. Collett, Jr., Colorado State University, and Leah Gibson, Colorado Department of Public Health and Environment

8:30 am – 8:50 am

ME-152 Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado 560
Lena Low, Derek Weber, Yong Zhou, Arsineh Hecobian, Amy Sullivan, Jeffery Collett, Jr., Emily Fischer, Colorado State University, Fort Collins, CO

8:50 am – 9:10 am

ME-158 Monitoring Air Toxics in Communities via Novel Mobile Platform 607
Aurelie Marcotte, Michael Armen, Jake Margolis, Anthony Miller, Entanglement Technologies, San Bruno, CA

9:10 am – 9:30 am

ME-85 The Use of Mobile Lab Measurements of Air Toxics to Monitor Neighborhood-Level Air Quality in Disproportionately Impacted Communities Along the Front Range of Colorado 616
Leah Gibson, Ashley Collier-Oxandale, Derek Price, Jason Schroder, Natalie Smith, Colorado Department of Public Health and Environment, Denver, CO

9:30 am – 9:50 am

ME-50 Online Air Toxics Tracking at Multiple Community-Level Industrial Complexes by Portable Automated Field-GC 629
Allen Chou, Yi-Cian Shih, Tirah Wu, Tricornetech Corporation, Taipei, Taiwan; Hung-Yi Chen, Wan-Ling Wu, Hou-Tsan Lai, Shian-Shin Liou, Taichung City Environmental Protection Bureau, Taichung, Taiwan

9:50 am – 10:10 am

ME-89 Estimation of Detection Limits for Real-Time Monitors 638
Steve Szocik, Rob Summers, Leah Gibson, Ashley Collier-Oxandale, Jason Schroder, Colorado Department of Health and the Environment, Wheat Ridge, CO

10:10 am – 10:40 am
Networking Break and Exhibition Viewing
Aurora Ballroom 234 and Foyer

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Technical Program – Thursday, April 24, con't.

Session 5A: Greenhouse Gas Emissions

[concurrent with Sessions 5B and 5C]
Conference Room I

Chairs: Chiemeeze Ilonze, Colorado State University, and Abhilash Vijayan, Sonoma Technology

10:40 am – 11:00 am

ME-48 Evaluating the Accuracy of Eddy Covariance, Aerodynamic Flux Gradient and Gaussian Plume Inverse Method for Quantifying Point Source Emissions 651
Mercy Mbua, Stuart N Riddick, Elijah Kiplimo, Daniel Zimmerle, Colorado State University Energy Institute

11:00 am – 11:20 am

ME-04 Tracking CO₂ Emissions in California: Insights from Bayesian Inversions and Ground-Based Measurements 666
Ronald Cohen, Naomi Asimow, University of California, Berkeley

11:20 am – 11:40 am

ME-09 Evaluation of Particle Size Analysis Methods for Measurement of Stationary Source PM_{2.5} Emissions 676
Robert Jerry Crawford, Jr., National Council for Air and Stream Improvement, Inc., Cary, NC

12:00 pm – 12:20 pm

ME-64 Continuous Methane Emissions Monitoring for Improved Compliance With Evolving Regulations: A Case Study at Northeast Energy Center, Massachusetts 684
Bonnie Ellwood, Ben Montgomery, Qube Technologies, Inc., Denver, CO; Zhi Hao (Edward) Li, Epsilon Associates, Inc.; Boris Brevnov, Kirk Hayden, Richard Oleksiak, Northeast Energy Center, LLC

Session 5B: Agriculture, Odors, and Landfills

[concurrent with Sessions 5A and 5C]
Conference Room II

Chairs: Bret Schichtel, Colorado State University/ National Park Service, and Kurt Thaxton, Gerstel

10:40 am – 11:00 am

ME-76 Real-Time Monitoring of Odorous VOCs From Production Facilities 692
Leslie Silva, Tucker Kitchengs, Massood Kadir, Eric Winegar, Daniel Kleist, Ron Kleist, Vaughan Langford, Syft Technologies Inc., Anaheim, CA

11:00 am – 11:20 am

ME-100 Development of a PTR-MS Measurement Approach for Nuisance Odor Monitoring 703
Angela Haar, South Coast Air Quality Management District, Diamond Bar, CA

11:20 am – 11:40 am

ME-87 Real-Time Monitoring of Odor Using Sulfur as a Surrogate 710
Eva Luu, Armando Hurtado, SCS Engineers, Santa Maria, CA

11:40 am – 12:00 pm

ME-60 Precision Odor Mapping: H₂S Detection Case Study Using the SnifferDRONE™ 722
David Barron, Sniffer Robotics, Durham, NC

Session 5C: Ambient Monitoring Methods

[concurrent with Sessions 5A and 5B]
Conference Room VI

Chairs: Martin Rigler, Aerosol Magee Scientific, and Abhinav Anand, Colorado State University

10:40 am – 11:00 am

ME-84 Elemental Characterization for Airborne PM_{2.5} from a Nationwide Monitoring Network 733
Colleen Marciel Rosales, Air Quality Research Center at University of California, Davis and OpenAQ; Frank X. Weber, Tracy L. Dombek, Andrea McWilliams, Keith Levine, RTI International, Research Triangle Park, NC; Nicholas J. Spada, Nicole P. Hyslop, Air Quality Research Center at the University of California, Davis

11:00 am – 11:20 am

ME-11 Characteristics of Water-Soluble Organic Matter (WSOM) in PM_{2.5} 744
Rajasekhar Balasubramanian, Lixin Ma, Phuong Tran, National University of Singapore

11:20 am – 11:40 am

ME-106 Assessing Measurement Consistency of the IMPROVE PM_{2.5} Element Concentrations 755
Nicole Hyslop, Jiayuan Wang, Xiaolu Zhang, Warren White, Air Quality Research Center at the University of California, Davis

11:40 am – 12:00 pm

ME-146 Exploring the Relationship Between Filter Loading Effect and Aethalometer Multiple Scattering Enhancement Factor C for Accurate Assessment of the Climate Impact of Light-Absorbing Aerosols 762
Martin Rigler, Luca Ferrero, Matic Ivančič, Irena Ježek Breclj, Balint Alfoldy, Asta Gregorič, Aerosol Magee Scientific, Ljubljana, Slovenia

12:00 pm – 12:20 pm

ME-155 Ambient Air Monitoring as an Alternative Method to Demonstrate Compliance With the 1-hour Nitrogen Dioxide Standard 773
Jake Zaragoza, Courtney Taylor, Jason Reed, Christine Ng, Ramboll Americas Engineering Solutions Inc.

12:20 pm – 1:30 pm
Lunch for all sessions
Aurora Ballroom 1 and Foyer

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FINAL PROGRAM

Technical Program – Thursday, April 24, con't.

Session 6A: Real-Time Mass Spectrometry

[concurrent with Sessions 6B and 6C]
Conference Room I

Chairs: Angela Haar, South Coast Air Quality Management District, and Steven Yuchs, Montrose

1:30 pm – 1:50 pm

ME-55 Interpreting Urban VOC Measurements From PTR-MS Using Gas Chromatography Pre-Separation 782

Matthew Coggon, NOAA Chemical Sciences Laboratory, Boulder, CO

1:50 pm – 2:10 pm

ME-148 From Input to Insight: Automating the Path to Data Validation in Chemical Ionization Mass Spectrometry 798

Maya Abou-Ghanem, TOFWERK

2:10 pm – 2:30 pm

ME-97 PTR-MS Method Development for Mobile Monitoring in a Regulatory Setting 806

Sandra Blair, South Coast Air Quality Management District, Diamond Bar, CA

2:30 pm – 2:50 pm

ME-37 Development of a Real-Time Analytical Method for Volatile Halogenated Organic Compounds in Ambient Air Using SIFT-MS 817

Kangwook Kim, Peyton Pearce, Texas Commission on Environmental Quality, Austin, TX

2:50 pm – 3:10 pm

ME-27 Development of a Semi-Continuous Measurement System for Atmospheric HNO₃ and Understanding the Formation of NH₄NO₃ in the System of HNO₃ and NH₃ 824

Taehyoung Lee, Hankuk University of Foreign Studies

Session 6B: Agriculture, Odors, and Landfills

[concurrent with Sessions 6A and 6C]
Conference Room II

Chairs: Bret Schichtel, Colorado State University/ National Park Service, and Kurt Thaxton, Gerstel

1:30 pm – 1:50 pm

ME-117 A Controlled Release Experiment for Investigating Methane Measurement Performance at Landfills 832

Rafee Iftakhar Hossian, Pylyp Buntov, Yurii Dudak, Shadan Naseridoust, Evelise Bourlon, Afshawn Khaleghi, David Risk, St. Francis Xavier University, Antigonish, Canada

1:50 pm – 2:10 pm

ME-122 PFAS Emissions From Landfill Sources
Stephen Zemba, Lingke Zeng, Sanborn Head & Associates, Burlington, VT; Appala Raju Badireddy, University of Vermont; Florentino De la Cruz, University of North Florida; Wesley Fritz, Weston Solutions 842

2:10 pm – 2:30 pm

ME-74 NH₃ and CH₄ Emissions From Dairy Farms Measured by I-SOF 854

Johan Mellqvist, Chalmers University of Technology, Gothenburg, Sweden; Nathalia Thygesen Vechi, Technical University of Denmark, Denmark; Jerker Samuelsson, Brian Offerle, Samuel Brohede, Anthony Babore, Marianne Ericsson, FluxSense Inc., San Diego, CA

2:30 pm – 2:50 pm

ME-118 Methane Emissions in Canadian Landfills: Source Apportionment and Seasonal Variability From Mobile Surveys 865

David Risk, Athar Omid, Evelise Bourlon, Afshawn Khaleghi, Nadia Tarakki, Pylyp Buntov, Chelsie Hall, St. Francis Xavier University, Antigonish, Canada

Session 6C: Ambient Monitoring Methods

[concurrent with Sessions 6A and 6B]
Conference Room VI

Chairs: Martin Rigler, Aerosol Magee Scientific, and Abhinav Anand, Colorado State University

1:30 pm – 1:50 pm

ME-68 Insights from the Long-Term Deployment of a Dual Channel CRDS NO₂-NO_x Instrument at a Field Site in USA 875

Charles Odame-Ankrah, Matthew Landis, Russell Long, Kelly N. Pickrell, Vaswani Sanjay, Matthew Nordstrom, Brian Rosentreter, Global Analyzer Systems Ltd.

1:50 pm – 2:10 pm

ME-23 Exploring Seasonal Dynamics of VOCs, Ozone and Nitrogen Oxides in a Remote Monitoring Zone: Insights and Implications from a One-Year Study 886

Ana Maria Carmen Ilie, Erick Mattson, Colorado Department of Public Health and Environment, Denver, CO

2:10 pm – 2:30 pm

ME-15 A Low-Cost Instrument for Continuous, ppb Benzene Measurement in Ambient Air 896

Geoff Henshaw, Anna Farquhar, Lena Weiss, Matt Walbran, Aeroqual Ltd., Auckland, New Zealand

2:30 pm – 2:50 pm

ME-43 Understanding Molecular Chlorine Sources in the New York City Region 906

Katelyn Rediger, Colorado State University, Fort Collins, CO

3:10 pm – 3:40 pm
Networking Break and Exhibition Viewing
Aurora Ballroom 234 and Foyer

Sponsored By:



Technical Program – Thursday, April 24, con't.

Session 7B: Aerial Measurements

[concurrent with Session 7C]

Conference Room II

Chairs: Nick Spada, UC Davis, and Steven Schill, Spheros Environmental

Session 7C: Low-Cost Sensors for Ambient Monitoring

[concurrent with Session 7B]

Conference Room VI

Chairs: Ali Lashgari, Project Canary, and Mercy Mbua, Colorado State University

3:40 pm – 4:00 pm

ME-17 UAV-Based Methane Quantification Using ABB HoverGuard™ 915
Tharindu Jayasinghe, Alden Fan, Zach Plante, Julio D. Lobo Neto, Jason Ghiraldini, Douglas Baer, ABB, San Jose, CA

4:00 pm – 4:20 pm

ME-116 Advancing Tracer Flux Ratio Methodology for Quantifying Facility-Level Methane Emissions Using Tracer Drones: Overcoming Biases, Uncertainty, and Measurement Challenges 922
Ezekiel Alaba, Bryan Rainwater, Daniel Zimmerle, Colorado State University

4:20 pm – 4:40 pm

ME-164 Clearing the Air: Drones to Track Gas and Particle Emissions from Prescribed Fires 931
Shantanu Jathar, Abigail Maben, Karthick Mohan Kumar, Emilio Molina Rueda, John Volckens, Christian L'Orange, Colorado State University; Gabriel Issacman VanWertz, Virginia Tech; Jessica Tryner, Access Sensor Technologies

4:40 pm – 5:00 pm

ME-105 Combining Satellite Data with Ground-Based Observations to Investigate VOC Oxidation Chemistry in Denver, Colorado 941
Lindsey Anderson, University of Colorado Boulder, Boulder, CO

3:40 pm – 4:00 pm

ME-78 Development and Application of a Low-Cost Multi-Pollutant Air Sensor for Hyperlocal Air Monitoring 955
Abi Lawal, Timothy Cummins, Gabe Koleszar, Mark Lu, Leticia Tamaki, Nyshawn Robinson, Seun Akinola, University of Connecticut

4:00 pm – 4:20 pm

ME-153 Evaluating the Reliability of Personal Air Sensors for Air Pollution Accountability Research 976
J.B. Dennison, Ryan Drover, Linda Dell, Ramboll

4:20 pm – 4:40 pm

ME-05 A Flexible Calibration Method for Improved Low-Cost Sensor Accuracy in Dense Air Quality Monitoring Networks 986
Anna Winter, Yishu Zhu, Naomi Asimow, Milan Patel, Ronald Cohen, University of California, Berkeley

4:40 pm – 5:00 pm

ME-162 Field Evaluations of a Novel MOx Sensor-Based Methane Instrument 997
Geoff Henshaw, Anna Farquhar, Matt Walbran, Aeroqual Ltd., Auckland, New Zealand

Upcoming A&WMA Events

May 13-15, 2025

PFAS Treatment and Remediation Conference in Minneapolis, MN

June 9-12, 2025

A&WMA's 118th Annual Conference & Exhibition in Raleigh, NC

October 28-31, 2025

Atmospheric Optics and Visibility Conference in Lake Junaluska, NC

For more details on our events, visit www.awma.org/conferences.

FINAL PROGRAM

Technical Program – Friday, April 25

7:30 am – 12:00 pm
Conference Registration
Aurora Foyer

7:30 am – 8:30 am
Continental Breakfast
Aurora Ballroom 1 and Foyer

Session 8A: Artificial Intelligence and Machine Learning

[concurrent with Sessions 8B and 8C]
Conference Room I

Chair: John Thomas, CodeSlurry

8:30 am – 8:50 am

ME-104 Evaluating PM2.5 in Fort Collins, Colorado by Deploying Low-Cost Air Quality Monitors on School Buses 1005
Priyanka DeSouza, Gordon Pierce, Jessa Ellenburg, Tim Dye, Helena Pliszka, Story Schwantes, Trudy Trimbath, University of Colorado Denver

9:10 am – 9:30 am

ME-73 JACKALOPE – Joint Analysis and Calibration Kit for Advanced Learning on Predictive Estimates 1012
Erik Joplin, Ashley Collier-Oxandale, Jason Schroder, Colorado Department of Public Health and Environment

9:30 am – 9:50 am

ME-135 Use of Commercial AI Platform for Routine Analysis of Large Time-Series Data Sets 1019
John Thomas, CodeSlurry, Penn Grove, CA; Eric Winegar, Winegar Air Sciences; Tirah Wu, TricornTech

9:50 am – 10:10 am

ME-147 Detection of Coal Train Fugitive Dust with AI-Accelerated Computer Vision 1027
Nicholas Spada, Dhawal Majithia, University of California, Davis

Session 8B: Wildfires

[concurrent with Sessions 8A and 8C]
Conference Room II

Chair: Yousaf Hameed, Clark County Nevada

8:30 am – 8:50 am

ME-131 Fuel2Fire, Enhancing Wildland Fire Emissions Estimates: The Devil is in The Detail and The Purpose of the Emission Estimates 1036
Amber Soja, Emily Gargulinski, Elizabeth Wiggins, Chris Schmidt, NASA Langley Research Center

8:50 am – 9:10 am

ME-75 Carbon Emissions for Wildland Fire 1051
Emily Gargulinski, Amber Soja, Elizabeth Wiggins, National Institute of Aerospace

9:10 am – 9:30 am

ME-144 Characterization of Emissions and Fire-Line Exposures From Prescribed Fires With a Mobile Laboratory Measurement 1061
Lu Tan, Wade Permar, Joseph Knudsen, Emily Cope, Lixu Jin, Robert Yokelson, Carl Seielstad, University of Montana

9:30 am – 9:50 am

ME-102 Investigation of VOCs in Structural Emissions From WUI Fires N/A
William Dresser, Joost de Gouw, University of Colorado Boulder; Shantanu Jathar, Christian L'Orange, Karthik Mohan Kumar, Kevin Ridgeway, Colorado State University

Session 8C: Air Toxics and Other VOCs – Oil & Gas

[concurrent with Sessions 8A and 8B]
Conference Room VI

Chairs: Jeffrey L. Collett, Jr., Colorado State University, and Steven Yuchs, Montrose

8:30 am – 8:50 am

ME-157 Large-Scale PM2.5 and Air Toxics Fenceline Monitoring at Unconventional Natural Gas Development Sites in the Appalachian Basin 1068
Douglas Goetz, Volker Schmid, Soudabeh Gorjinezhad, Joshua Gillespie, CleanAir Engineering

8:50 am – 9:10 am

ME-154 Synthetic Drilling Mud Emissions: Characterization and Implications for Regional Air Quality 1081
I-Ting Ku, Da Pan, Weixin Zhang, Yong Zhou, Lena Low, Seongjun Kim, Jeffrey L. Collett Jr., Colorado State University, Fort Collins, CO

9:10 am – 9:30 am

ME-20 Air Toxics Concentrations and Acute Exposure Potential Near Oil and Gas Well Pads During Well Drilling, Completions, and Production 1090
Jeffrey L. Collett Jr., Da Pan, Weixin Zhang, I-Ting Ku, Brent Buck, Morgan Frazier, Seongjun Kim, Colorado State University, Fort Collins, CO

9:30 am – 9:50 am

ME-156 A Low-Cost, Community-Based Platform for Monitoring Ambient Concentrations of Hazardous Air Pollutants 1097
John Volckens, Emilio Molina Rueda, Jane Andales, Ellison Carter, Colorado State University; Lauren Padilla, Stephanie Coates, Grace Lewis, Environmental Defense Fund

10:10 am – 10:30 am
Networking Break
Aurora Foyer

Sponsored By:



Technical Program – Friday, April 25, con't.

Session 9A: Artificial Intelligence and Machine Learning

[concurrent with Sessions 9B and 9C]

Conference Room I

Chair: John Thomas, CodeSlurry

10:30 am – 10:50 am

ME-21 Changing Idling Behavior Through Dynamic Air Quality and Idle Detection Messaging N/A

Tristalee Mangin, Xiwen Li, Saba Mahmoudi, Rehman Mohammed, Nathan Page, Ashton Snelgrove, Evan Blanchard, Dillon Tang, Lizzie Pinegar, Owen Leishman, Gregory Madden, Pierre-Emmanuel Gaillardon, Ross Whitaker, Kerry Kelly, University of Utah

10:50 am – 11:10 am

ME-40 Combining a Small Footprint Sensor and Machine Learning for Mobile Tailpipe Emissions Detection 1106

Stéphane Attal, Rama Goparaju, Pery Au, Ecosystem Informatics Inc., ON, Canada

11:10 am – 11:30 am

ME-39 Machine Learning Based Mobile Air Monitoring System for Smart City Platforms

Stéphane Attal, Rama Goparaju, Pery Au, Ecosystem Informatics Inc., ON, Canada 1112

11:30 am – 11:50 am

ME-47 Addressing Low-Cost Methane Sensor Calibration Shortcomings With Machine Learning 1120

Elijah Kiplimo, Stuart N. Riddick, Mercy Mbua, Daniel J. Zimmerle, Colorado State University Energy Institute

Session 9B: Wildfires

[concurrent with Sessions 9A and 9C]

Conference Room II

Chair: Yousaf Hameed, Clark County Nevada

10:30 am – 10:50 am

ME-67 The NASA HAQAST Smoke Console: A Google Earth Engine Tool for Assessing the Impacts of Wildfire Smoke on Surface Concentrations of Ozone and PM_{2.5} 1140

Patrick Reddy, Tracey Holloway, University of Wisconsin-Madison

10:50 am – 11:10 am

ME-112 A Low-Cost Sensor Network for Air Quality Measurements and Wildfire Monitoring at Remote Locations 1149

Quamrul Huda, Nubal Manhas, Lei Yang, Alberto L. Cevallos, Northern Alberta Institute of Technology

11:10 am – 11:30 am

ME-02 Measuring Wildfire-Specific VOCs to Demonstrate Enhanced Ozone Production 1160

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

11:30 am – 11:50 am

ME-46 Using UAV Technology to Sample Aerosols Emitted From Wildfire Plumes 1169
John Ryan Himes, Kip Carico, New Mexico Institute of Mining and Technology; Manvendra Dubey, Jon Reisner, Los Alamos National Laboratories

Session 9C: Air Toxics and Other VOCs – Measurement and Impacts

[concurrent with Sessions 9A and 9B]

Conference Room VI

Chairs: Jeffrey L. Collett, Jr., Colorado State University, and Aurelie Marcotte, Entanglement Technologies

10:30 am – 10:50 am

ME-95 Sources and Trends of Atmospheric Volatile Organic Compounds in the Northern Colorado Front Range 1182

Detlev Helmig, Jacques Hueber, Gunnar Schade, Lisa Darby, Sue Simoncic, Ryan Daly, Dani Caputi, Michel Stahl, Gabriel Greenberg, Kat Potter, Boulder AIR LLC, Boulder, CO

10:50 am – 11:10 am

ME-83 Observations of Summertime Ozone and its Precursors in the Colorado Northern Front Range 1210

Andrey Marsavin, Amy Sullivan, Grace Servia, Jeffrey L. Collett Jr., Yong Zhou, Colorado State University; Matthew Landis, Russell Long, US EPA ORD

11:10 am – 11:30 am

ME-133 A Microscale Gas Chromatograph for In-field Speciation of VOCs 1225

Kathleen Masse, Sassan Teymouri, Apex Instruments, Inc.

11:30 am – 11:50 am

ME-130 State-of-the-Art TD-GC-MS ISDP Technology for the Addition of Internal or External Standards in Common Air Toxics Methods Using Either Gas or Liquid Phase Standards 1243

Kurt Thaxton, Jack Stuff, Jackie Whitecavage, GERSTEL GmbH and Co. KG

CONFERENCE ADJOURNS

11:50 am