



AIR & WASTE MANAGEMENT
ASSOCIATION

SINCE 1907

CONFERENCE PROGRAM

**AIR QUALITY MEASUREMENT
METHODS AND TECHNOLOGY**
APRIL 23-25, 2025 • AURORA, CO

Sponsored by:



CONFERENCE PROGRAM

General Information

Conference Overview

One of our most popular specialty conferences, the Air Quality Measurement Methods and Technology Conference provides extensive coverage of all aspects of air measurement methodologies, including associated quality assurance protocols and how to use and interpret data. Sessions will also focus on the assessment of key substances of concern for humans and the environment, including criteria pollutants, greenhouse gases, and air toxics.

Location

Hyatt Regency Aurora-Denver Conference Center
13200 East 14th Place
Aurora, CO 80011
Phone: 303-365-1234

Registration and Refund Policy

Register online at www.awma.org/measurements. Conference check-in and badge pickup will be held in the Aurora Foyer at the Hyatt Regency Aurora-Denver Conference Center during the following hours:

Wednesday, April 23	7:30 am - 5:00 pm
Thursday, April 24	7:30 am - 5:00 pm
Friday, April 25	7:30 am - 12:00 pm

Cancellation and refund requests must be received in writing by March 26, 2025. 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

Conference Co-Chairs:

Aurelie Marcotte, Entanglement Technologies
Eric Winegar, Winegar Air Sciences

Technical Program Committee:

Doug Dziubla, ERM
Ingrid George, US Environmental Protection Agency (EPA)
Sergio Guerra, Colorado Department of Public Health and Environment (CDPHE)
Sara Head, Yorke Engineering
Ray Merrill, US EPA (Retired)
Ned Shappley, US EPA

Presenter Details

All presenters should bring their presentation on a flash drive and load onto the conference laptop the morning of their session in the room in which their session will be held. 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 Units

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.

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Love My Air's mission is to provide Denver's diverse communities with visible, accessible, and actionable air quality information. www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Public-Health-Environment/Environmental-Quality



Montrose's Real-time Air and Sensible EDP provide real-time air quality monitoring for oil and gas facilities and industrial companies—offering immediate visibility into emissions to help avoid fines, identify inefficiencies, and reduce safety risks. Our sensor-agnostic platform integrates multiple technologies into a centralized dashboard, ensuring compliance and proactive risk management through automated alerts that enhance efficiency, reduce costs, and support regulatory confidence. www.sensible-edp.com



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Since 2013, Tricorntech has pioneered industrial-grade VOC detection products, leveraging a cutting-edge gas analysis platform to deliver precise, continuous, and rapid onsite monitoring in a lightweight design. As Taiwan's sole manufacturer with a full in-house R&D team, we customize cost-effective hardware and software solutions tailored to diverse industries. Our specialized cross-domain gas analysis tools support businesses and governments in enhancing environmental safety, improving product quality, reducing waste, and conserving resources. Committed to innovation, Tricorntech aims to lead globally in micro gas detection technology, empowering clients with adaptable, high-performance air quality monitoring systems. www.tricorntech.com

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Tisch Environmental is the trusted source for air quality instruments. With over 70 years of experience in the industry, we have built our reputation on manufacturing high-quality air monitoring equipment. Our instruments meet regulatory standards, provide precise data for assessing air quality, and are known for their accuracy, reliability, and durability. www.tisch-env.com



VOC Instrumentation features a cutting edge sensor solution to detect and identify a wide range of indoor and outdoor airborne pollutants and gases. The sensor relies on a patented aerospace-grade technology, initially developed for the safety of astronauts on board the ISS, and successfully tested by NASA in 2011. Today the sensor technology is for indoor and outdoor use, as well as commercial and industrial applications. www.vocinstrumentation.com

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 Tour

Mobile Air Quality Monitoring Laboratory Showcase Tour

Tuesday, April 22, 1:30 pm - 4:30 pm

Pre-registration required.

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 the Environment's (CDPHE) Air Toxics and Ozone Precursors Program's Facility in Wheat Ridge, CO. Over 10 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

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

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

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

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Michael Ogletree



Joost de Gouw

CONFERENCE 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

10:15 am – 10:35 am

ME-72 Enabling Continuous Monitoring Technologies as Alternative Methods for EPA OOOOb/c Compliance

Manasi Doshi, Schlumberger-Doll Research Center, Cambridge, MA; Scott Quinn, Francisco Gomez, Drew Pomerantz, Tetsushi Yamada, SLB

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

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, Berkeley, CA

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

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, Berkeley, CA

11:15 am – 11:35 am

ME-66 Fixed Open-Path Continuous Methane Emission Monitoring and Quantification

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

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

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

Will Clagett, Ellison Carter, Colorado State University

10:55 am – 11:15 am

ME-127 Building Air Leakage, Imaging Techniques, and Indoor Air Quality

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

Eric Lebel, Drew Michanowicz, Nicole Lucha, Gan Huang, PSE Healthy Energy, Oakland, CA; Christopher Galarza, Forward Dining Solutions; Colin Finnegan, Stanford University; et al.

11:35 am – 11:55 am

ME-18 Indoor Air Quality and Level of Volatile Organic Compounds in A New Administrative Buildings Complex – State of Kuwait

Nabeel M. Al-Khulaifi, Humood F. Al-Mudhaf, Mohammad Nasser Alhayan, Public Authority for Applied Education and Training, Kuwait; Abdelsattar Ibrahim Abushady, Kuwait Institute for Scientific Research, Kuwait

Session 1C: Community Monitoring

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

Chairs: Steven Schill, Sonoma Technology, and Nick Spada, UC Davis

10:15 am – 10:35 am

ME-35 Community-Focused Air Quality Monitoring: Interests, Needs, and Impacts

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

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

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

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

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

1:30 pm – 1:50 pm

ME-26 Significant Reductions in Ethane Emissions in the Denver-Julesburg Basin from 2015 to 2021 from Oil and Natural Gas Operations
Mercy Ngulat, Arthur Santos, Daniel Zimmerle, Colorado State University

1:50 pm – 2:10 pm

ME-80 Lessons Learned From the Colorado Regulation 7 Oil and Gas Monitoring Program
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)
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
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
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
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
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
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
Steven Norlock, Jason Gu, SENSIT Technologies

Session 2C: Community Monitoring

[concurrent with Sessions 2A and 2B]

Conference Room VI

Chairs: Steven Schill, Sonoma Technology, 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
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
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)
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
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
Daniel Mendoza, University of Utah

2:50 pm – 3:20 pm

Networking Break and Exhibition Viewing

Aurora Ballroom 234 and Foyer

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CONFERENCE 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 Ahmadvour, 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

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

James Shephlock, 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

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

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

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

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

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

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

Ericka Hachmeister, Hannah Calder, Morgane Cumbes, 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

Rudra Pokhrel, Christopher Lee, Riley Kloss, Zachary Finewax, Pamela Rickly, Derek Price, Jason Schroder, CDPHE

3:40 pm – 4:00 pm

ME-149 Analysis of Mobile VOC Measurements by PTR-TOF-MS in Commerce City, CO

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

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

Steven Norlock, Jason Gu, SENSIT Technologies

4:40 pm – 5:00 pm

ME-91 Benzene Detection on a Mobile Platform

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-08 Successful Aging in a Time of Wildfires Field Project

Allison Fagerson, Shelly Miller, University of Colorado Boulder, CO

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

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

ME-13 Summer and Winter Massive Impact of Nocturnal Terephthalic Acid Emissions from Pyrolysis of PET Waste Incineration in Seoul, South Korea

Min-Suk Bae, Chaehyeong Park, Seoyeong Choe, Hajeong Jeon, Myoungki Song, Mokpo National University, Muan, Republic of Korea

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)

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-29 Surface Ozone Dynamics and Precursor Emissions in Bhubaneswar City: Observational Analysis, Health Impact Assessment, and WRF-Chem Modeling Insights

Boopathy Ramasamy, M. Mishra, R. Boopathy, C. Mallik, T. Das, CSIR-Institute of Minerals and Materials Technology

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

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, Sara Mroue, Ecosystem Informatics Inc., ON, Canada

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

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

John Ryan Himes, Kip Carrico, 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

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

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-SWERL)

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

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

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

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

ME-91 Benzene Detection on a Mobile Platform

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

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

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

ME-114 Leveraging the US Postal Service to Reduce Methane Emissions From Natural Gas Supply Chain

Tony Gambony, Jessie Schiavone, Project Canary, Aeris Technologies

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

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

CONFERENCE 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 – 3:30 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

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

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 & Environment

8:30 am – 8:50 am

ME-51 Quantifying Optical Gas Imaging for OGMP 2.0 Framework Source Level Reporting (Level 4)

Ram Hashmonay, Opgal Optronics Ltd.

8:50 am – 9:10 am

ME-113 Single-Blind Controlled Release Testing to Evaluate the Performance of an In-Situ Methane Detection System

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

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

Nabil Saad, Manish Gupta, J. Brian Leen, Nikira Labs Inc., Mountain View, CA

8:30 am – 8:50 am

ME-137 Development of a New ASTM Standard Practice for Environmental Odor Assessment: Status Update

Jacek Koziel, USDA-ARS, Bushland, TX; Donald Wright, Don Wright & Associates

8:50 am – 9:10 am

ME-92 Defining New Methods for Evaluating Impacts of Odors Through Chemosensory Irritation

Kelli Hackney, Heidi C. O'Neill, Gretchen M. Bruce, Richard C. Pleus, Intertox, Inc.

9:10 am – 9:30 am

ME-16 Utilizing a Sensor Network to Mitigate Landfill Emissions and Prevent Odor Disturbances

Kathleen Masse, Irene Lara-Ibeas, Edurne Ibarrola-Ulzurrun, Javier Fernández, Apex Instruments, Inc.

9:30 am – 9:50 am

ME-45 Identifying VOC Sources Within Landfills Using Online and Offline Measurements

Madison Rutherford, Abigail Koss, Joost de Gouw, Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder

9:50 am – 10:10 am

ME-60 Precision Odor Mapping: H₂S Detection Case Study Using the SnifferDRONE™

David Barron, Sniffer Robotics, Durham, NC

8:30 am – 8:50 am

ME-152 Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado

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

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

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

Allen Chou, Yi-Cian Shih, Tirah Wu, Tricornitech 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

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

Sponsored By:



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

Session 5A: Greenhouse Gas Emissions

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

Chairs: Chiemezie Illonze, 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
Mercy Mbuu, 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
Ronald Cohen, Naomi Asimow, UC Berkeley

11:20 am – 11:40 am

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

11:40 am – 12:00 pm

ME-160 Combining Multiscale Measurements to Infer Accurate & Reliable Estimates of Dynamic Methane Emissions: Insights from Operational Oil & Gas Sites & Landfills
Umair Ismail, David Ball, Ali Lashgari, Nathan Eichenlaub, Project Canary PBC

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
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
Leslie Silva, Tucker Kitchengs, Masood 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
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
Eva Luu, Armando Hurtado, SCS Engineers, Santa Maria, CA

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
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}
Rajasekhar Balasubramanian, Lixin Ma, Phuong Tran, National University of Singapore, Singapore

11:20 am – 11:40 am

ME-106 Assessing Measurement Consistency of the IMPROVE PM_{2.5} Element Concentrations
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
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
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

Sponsored By:



CONFERENCE 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

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

Maya Abou-Ghanem, TOFWERK

2:10 pm – 2:30 pm

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

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

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

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

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

1:50 pm – 2:10 pm

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

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

2:10 pm – 2:30 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

2:30 pm – 2:50 pm

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

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

2:50 pm – 3:10 pm

ME-136 Monitoring Deposition of Ammonia Emissions From a Beef Cattle Feedyard

Jacek Koziel, William Willis, Heather Robbe, USDA-ARS, Bushland, TX

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

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

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

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

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 Sessions 7A and 7C]

Conference Room II

Chairs: Nick Spada, UC Davis, and Steven Schill, Sonoma Technology

3:40 pm – 4:00 pm

ME-17 UAV-Based Methane Quantification Using ABB HoverGuard™

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

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

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-54 Distributions and Correlations of Volatile Organic Compounds (VOCs) During AEROMMA 2023

Victoria Treadaway, Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder, Boulder, CO; NOAA Chemical Sciences Laboratory, Boulder, CO

5:00 pm – 5:20 pm

ME-105 Combining Satellite Data with Ground-Based Observations to Investigate VOC Oxidation Chemistry in Denver, Colorado

Lindsey Anderson, University of Colorado Boulder, Boulder, CO

Session 7C: Low-Cost Sensors for Ambient Monitoring

[concurrent with Sessions 7A & 7B]

Conference Room VI

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

3:40 pm – 4:00 pm

ME-78 Development and Application of a Low-Cost Multi-Pollutant Air Sensor for Hyperlocal Air Monitoring

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

J.B. Dennison, Ryan Drover, Linda Dell, Ramboll

4:20 pm – 4:40 pm

ME-77 Enhancing PM2.5 Data Accuracy of Low-Cost Sensors Through Collocated Calibration at a Reference Station

Leonardo Vazquez-Raygoza, Mayra Chavez, Wen-Whai Li, The University of Texas at El Paso

4:40 pm – 5:00 pm

ME-05 A Flexible Calibration Method for Improved Low-Cost Sensor Accuracy in Dense Air Quality Monitoring Networks

Anna Winter, Yishu Zhu, Naomi Asimow, Milan Patel, Ronald Cohen, University of California, Berkeley

5:00 pm – 5:20 pm

ME-162 Field Evaluations of a Novel MOx Sensor-Based Methane Instrument

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

CONFERENCE 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

Session 8B: Wildfires

[concurrent with Sessions 8A and 8C]

Conference Room II

Chair: Yousaf Hameed, Clark County Nevada

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-104 Evaluating PM2.5 in Fort Collins, Colorado by Deploying Low-Cost Air Quality Monitors on School Buses

Priyanka DeSouza, Gordon Pierce, Jessa Ellenburg, Tim Dye, Helena Pliszka, Story Schwantes, Trudy Trimbath, University of Colorado, Denver

8:50 am – 9:10 am

ME-31 Forecasting Urban PM2.5 Concentrations Using Machine Learning: A Random Forest Approach in the District of Columbia

Kane Samuel, Joseph Jakuta, District of Columbia Department of Energy and Environment

9:10 am – 9:30 am

ME-73 JACKALOPE – Joint Analysis and Calibration Kit for Advanced Learning on Predictive Estimates

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

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

Nicholas Spada, Dhawal Majithia, University of California, Davis

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

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

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

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

William Dresser, Joost de Gouw, University of Colorado Boulder; Shantanu Jathar, Christian L'Orange, Karthik Mohan Kumar, Kevin Ridgeway, Colorado State University

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

Douglas Goetz, Volker Schmid, Soudabeh Gorjinezhad, Joshua Gillespie, Clean Air Engineering

8:50 am – 9:10 am

ME-154 Synthetic Drilling Mud Emissions: Characterization and Implications for Regional Air Quality

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

Jeff Collett, 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

John Volckens, Emilio Molina Rueda, Jane Andales, Ellison Carter, Colorado State University; Lauren Padilla, Stephanie Coates, Grace Lewis, Environmental Defense Fund

10:10 am – 10:40 am
Networking Break and Exhibition Viewing
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

10:40 am – 11:00 am

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

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

11:00 am – 11:20 am

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

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

11:20 am – 11:40 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

11:40 am – 12:00 pm

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

Elijah Kiplimo, Stuart N. Riddick, Mercy Mbuu, 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

10:40 am – 11:00 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 PM2.5

Patrick Reddy, Tracey Holloway, University of Wisconsin-Madison

11:00 am – 11:20 am

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

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

11:20 am – 11:40 am

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

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

11:40 am – 12:00 pm

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

John Ryan Himes, Kip Carrico, 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

10:40 am – 11:00 am

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

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

11:00 am – 11:20 am

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

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

11:20 am – 11:40 am

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

Kathleen Masse, Sassan Teymouri, Apex Instruments, Inc.

11:40 am – 12:00 pm

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

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

**CONFERENCE ADJOURNS
12:00 pm**

CONFERENCE PROGRAM

Thank You to Our Exhibitors

2B Technologies

www.twobtech.io

Booth #13

We are dedicated to the development of new analytical instruments for atmospheric and environmental measurements. While our specialization has always been in miniaturized instruments for measurements of ozone (O₃), nitric oxide (NO), nitrogen dioxide (NO₂), mercury (Hg), and numerous other chemical species in air. Our goal has always been to use sound science and innovative technology to provide our customers with cutting-edge instrumentation. All the instruments we manufacture utilize absorbance-based monitoring techniques to measure and characterize various air pollutants with high precision and accuracy.

Access Sensor Technologies

www.accsensors.com

Booth #12

Access Sensor Technologies was founded in Fort Collins, Colorado in 2013. The company was spun out of Colorado State University by professors Charles Henry and John Volckens as well as a recent graduate of the Mechanical Engineering program, Daniel Miller-Lionberg. What unified these three founders was a desire to see cutting-edge technologies proliferate and become standard practice. Today, our team of five full-time employees works with consultants, manufacturing partners, and customers to develop, produce, and support high-quality products that make air sampling simple. Our products can help you collect more air samples with the time, team, and budget you have and make the experience better for everyone involved.

Aeris Technologies

www.aerissensors.com

Booth #14

Supporting wide-ranging applications in environmental monitoring, laboratory analysis, and industrial monitoring, Aeris Technologies provides high-accuracy, ultrasensitive gas analyzers in fixed, mobile and handheld configurations. Using direct absorption in the mid-infrared, the MIRA analyzer achieves specificity and high linearity over a wide range of concentrations in a robust and compact platform.

Aerosol Magee Scientific

www.aerosolmageesci.com

Booth #5

Aerosol Magee Scientific instruments are used by environmental monitoring agencies, research institutions and industries for real-time measurements of carbonaceous aerosols in more than 70 countries on all continents. As an industry pioneer in the research, design and production of carbonaceous aerosols monitoring equipment, we partner with researchers and clients globally for measurements relating to carbonaceous aerosol science, air pollution source characterization, health exposure and climate change impact studies. Our clients utilize the high-quality, real-time continuous carbonaceous data measured by our equipment to gauge the efficacy of fuel optimization measures and control strategies.

Agilaire

www.agilaire.com

Tabletop (Aurora Foyer)

Agilaire is the leading provider of ambient air data management systems, with data flow starting from its 8872 Site Node/ loggers, up to either self-hosted AirVision servers or Agilaire's AirVision cloud-based hosting. Data can then be disseminated through automatic email/FTP reports, the AgileWeb pre-built web site, and MyAQI mobile app. Coupled with Agilaire's experienced project engineers and support techs, Agilaire offers the most complete and easiest solution for ambient data management available. Agilaire also provides its AirVision/CEM software and CEM logger/controllers for 40CFR60 and international CEM projects, in a cost effective and simplified system that is easier to manage and use than most commercial CEM data management systems.

Ambilabs

www.ambilabs.com

Booth #32

Ambilabs specializes in innovative air pollutant monitoring technology solutions to obtain accurate, valid data. We offer instrumentation with regulatory approval designations and are committed to applying cutting edge science and technology to help customers achieve the most precise air measurement information to assist in areas of defense, environment, research, and regulatory monitoring. Our solutions are utilized in applications including construction/demolition, coatings/components analysis, industrial process monitoring, smoke/dust analysis, human health studies, environmental research, and regulatory measurements. We offer expertise, engineering, software, instrumentation service, and turn-key solutions to assist government agencies, laboratories, industrial facilities, and research centers with their air monitoring needs.

ARA Instruments/Airmetrics

www.arainstruments.com

Booth #16

ARA Instruments is a manufacturer of innovative ambient air monitoring equipment. We specialize in portable, battery-powered samplers for air pollution research. Our goal is to help our customers make important air quality decisions by providing affordable and versatile equipment designed to produce reliable and accurate data.

Chromatotec Group

www.chromatotec.com

Tabletop (Aurora Foyer)

Chromatotec Group, established in 1975, specializes in designing and manufacturing advanced gas and liquid analyzers exclusively in France. With nearly 50 years of expertise, the company offers a comprehensive range of automatic gas chromatographs (autoGCs) for online monitoring across environmental, industrial, and petrochemical sectors. Chromatotec's products enable precise analysis of ambient air quality and industrial emissions, supporting global clients in monitoring pollutants and ensuring regulatory compliance, highlighting its commitment to innovation and quality in analytical instrumentation.

Thank You to Our Exhibitors, con't.

Clarity Movement www.clarity.io

Booth #37

Clarity Movement is transforming how industries, businesses, and governments understand and respond to air pollution. Clarity provides the most complete, scalable air monitoring solution, with unmatched hardware, software, and expert services. Used in more than 85 countries, Clarity's affordable air quality measurement equipment provides continuous monitoring and accurate, calibrated data in a fully supported, worry-free environment. Our MCERTS-certified Node-S particulate matter (PM) and nitrogen dioxide (NO₂) monitor is solar-powered, FCC/CE certified, UV-resistant, and weatherproof, offering >99% uptime with solar power even in low light conditions. Add-On Modules available for Dust (PM10), Black Carbon, Ozone, Wind, and more.

Clean Air Engineering www.cleanair.com

Booth #17

Global leaders in air and gas measurement and thermal performance testing. Since 1972, CleanAir has sought to be recognized worldwide for providing the highest value products and services in support of defensible data, with a variety of specializations across our organization: source testing, instrument rental services, advanced monitoring and consulting, product development and manufacturing, and lab analytical services.

Direct Optics by Global Analyzer Systems www.gasl.ca/direct-optics

Booth #18

Direct Optics is redefining emissions monitoring with cutting-edge technology designed for precise trace gas measurement. With a commitment to innovation, we develop advanced measurement solutions that push the boundaries of traditional monitoring methods. Our dual-channel CRDS-based analyzer offers unmatched speed and accuracy while directly and simultaneously measuring NO₂ – NO_x – NO. Our patented PhoNOTM enables traditionally utilized technologies to measure True NO₂, and our automated air sampler allows users to precisely capture pre-set or triggered pollution events. At Direct Optics, we are dedicated to delivering high-performance solutions that enhance environmental analysis and support a cleaner, safer world.

EarthSense Systems Limited www.earthsense.co.uk

Tabletop (Aurora Foyer)

EarthSense provides cutting-edge air quality monitoring through its Zephyr® sensors, MappAir® modelling, and MyAir® data platform. Spun out from University of Leicester research, EarthSense enables smarter decisions for cleaner air across smart cities, transport, and construction sectors, serving 200+ clients in 12 countries with fully integrated environmental technology solutions.

Ecosystem Informatics Inc. (ESI) www.ecosinfo.ai

Booth #26

Ecosystem Informatics Inc. (ESI) is a climate tech company, based in Ontario, Canada. We specialize in air monitoring solutions, as well as environmental data intelligence. We offer compact mobile solutions and are powered by our patented AI algorithm, allowing bigger area of coverage and with higher accuracy, all at a fraction of the cost. We've worked with cities, governments, regulatory bodies, not-for-profits, and emission-producing industries. Our tools provide actionable insights such as leaks, hotspot detection and alarm systems, that allow organizations and communities to take the necessary action.

Entanglement Technologies, Inc. www.entanglementtech.com

Booth #27

Entanglement Technologies manufactures thermal desorption, cavity ringdown spectroscopy (TD-CRDS) analyzers used to measure VOCs in ambient air and other complex matrices. Our flagship product, AROMA-VOC, measures BTEX, ethylene oxide, trichloroethylene, and more at part-per-trillion detection limits from the back of any vehicle or at long-term unattended monitoring sites.

Enthalpy Analytical www.enthalpy.com

Booth #2

Our laboratory service experts provide precision testing, innovative scientific approaches, and high-quality data to support informed decisions. With expertise in federal, state, and local regulations, we offer best-in-class air, soil, water, sediment, toxicology, Ultratrace, and PFAS testing solutions. With decades of analytical chemistry experience, we analyze thousands of samples monthly and have the expertise to address unique projects. We collaborate with stakeholders to meet data-quality objectives and proactively address project-specific needs. By adhering to strict QA/QC guidelines, we ensure defensible results—empowering people with reliable laboratory data that contributes to a cleaner, healthier environment.

Envitech Ltd. www.envitechsoftware.com

Booth #9

Envitech is a leading provider of Environmental Quality Monitoring Software, specializing in Air Quality and Continuous Emission Monitoring. Their product range, in the Ambient Air Monitoring market, is renowned for its comprehensiveness, covering every aspect of air quality assessment, from maintenance gas analyzers to complete Air Quality Monitoring Networks for public information dissemination. Envitech's software solutions are accessible globally through a network of distributors, operating in over 40 countries, spanning from the USA to China.

GERSTEL Inc. www.gerstelus.com

Booth #22

GERSTEL Inc. provides systems for chemical analysis for automated sample prep and introduction for GC-MS and LC-MS. We address our customer's critical challenges in sample prep, clean-up, and high throughput while obtaining the lowest detection limits possible, combined with our Lifetime Support®.

LNI Swissgas www.lni-swissgas.eu/en

Booth #25

LNI is a multinational specialist in the manufacturing of premium gas generators for on-site hydrogen, zero air and nitrogen gas production, premium gas mixers and premium gas calibrators. LNI is ISO 9001 and ISO 14001 certified. To ensure the highest quality, LNI has received ISO 17025 accreditation of its Gas Flow Standard laboratory.

Markes International, Inc. www.markes.com

Booth #8

Markes International is a global manufacturer and supplier of analytical thermal desorption instrumentation, sampling technologies, and sample automation and concentration platforms. All of Markes TD instruments can be used with H₂, He, or N. In addition, Markes is involved in drafting standard methods and consulting with Government agencies on Air Pollution regulations.

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Met One Instruments Powered by Acoem

www.metone.com

Booth #23

Met One Instruments Powered by Acoem designs and manufactures precision particulate measurement devices, meteorological instruments, and ambient air quality monitoring systems to meet regulatory requirements, improve employee health and safety, maximize quality of life, and many other applications. Our instruments provide accurate, reliable data to help customers make informed decisions.

Montrose and Sensible EDP

www.sensible-edp.com

Booth #7

Montrose's Real-time Air and Sensible EDP provide real-time air quality monitoring for oil and gas facilities and industrial companies—offering immediate visibility into emissions to help avoid fines, identify inefficiencies, and reduce safety risks. Our sensor-agnostic platform integrates multiple technologies into a centralized dashboard, ensuring compliance and proactive risk management through automated alerts that enhance efficiency, reduce costs, and support regulatory confidence.

Nikira Labs

www.nikiralabs.com

Booth #31

At Nikira Labs, we are dedicated to developing and manufacturing cutting-edge gas analyzers to tackle some of today's most pressing climate change and air quality issues. Our expertise is focused on creating the tools to enable scientists and industry professionals to make accurate measurements to better understand greenhouse gas processes, air quality, and airborne molecular contamination. Guided by our mission, "Science Made Simple", we strive to empower the world through innovative solutions, scientific excellence, and ease-of-use.

Nutech Instruments, Inc.

www.nutechinst.com

Booth #33

Nutech Instruments for decades has been at the leading edge of development of instrumentation, and methods of sample collection. Preconcentration, pretreatment, online monitoring, and related technologies of volatile organic compounds in ambient air. We have a New Triggered Air Sampling Device which is triggered by PID, or Text, or wired to another device filling a canister. Nutech is committed to providing our customers with the highest quality products and support in the industry.

Ohio Lumex

www.ohiolumex.com

Booth #3

Ohio Lumex, founded in 1999, is a leader in analytical technology, providing precise mercury vapor analyzers for air quality and industrial hygiene. Over 25 years, it has expanded into toxic metals monitoring for ambient air, fence-line monitoring, and other process measurements in emissions, natural gas, biogas, and even life sciences, maintaining its commitment to innovation and excellence.

Orsat

www.orsat.com

Booth #28

For over 30 years, Orsat has provided continuous unattended ambient air VOC monitoring in a customized installation of hardware and software providing a robust application delivering lab-quality results in an unattended field operation. Our services encompass all aspects of site operation including deployment, data handling, tech support and training.

Pegasor

www.pegasor.fi

Booth #19

For almost 20 years, Pegasor has provided products and expertise in ultrafine particle measurements. Ranging from cost-effective real-time continuous particulate monitoring, OEM integrations and robust instruments for emissions applications, Pegasor leverages its expertise and experience in aerosol physics to drive innovation while providing user friendly, cost effective and scalable solutions.

Picarro

www.picarro.com

Booth #10

For more than 25 years, Picarro has been empowering the world with timely, trusted, and actionable data. Our advanced optical spectroscopy technology is the gold standard for analyzing trace gases, volatile organic compounds, and stable isotopes across many applications. Scientists rely on our ultra-precise, real-time monitoring solutions and world-class support to achieve scientific excellence in air, water, and soil research. For more information on our Environmental Analysis Solutions, visit our booth or website.

QuantAQ

www.quant-aq.com

Tabletop (Aurora Foyer)

QuantAQ helps communities, companies and governments build air quality networks that are accurate, reliable and easy to scale.

SENSIT Technologies

www.gasleaksensors.com

Booth #6

SENSIT Technologies specializes in environmental and emissions monitoring solutions that help protect life, property, and the planet from hazardous gases. We design, manufacture, and service a complete line of gas leak detectors, combustible gas indicators, and confined space monitors. For over 40 years, SENSIT has delivered reliable tools for detecting leaks and monitoring air quality. SENSIT Technologies is proud to be an ISO 9001:2015 Certified Company.

Sonoma Technology, Inc.

www.sonomatech.com

Booth #34

Sonoma Technology has decades of experience providing science and technology solutions for environmental needs worldwide. Our scientists apply the latest modeling, analysis, and visualization software and methods for air quality management, planning, and decision support projects. Our modeling work covers local-to-hemispheric scales and includes multi-pollutant impact assessments, single-source impact analysis, exceptional event demonstrations, policy analysis, permitting and compliance efforts, and the development of real-time modeling systems. Stop by our booth to learn how we can support your air quality needs with state-of-the-science modeling and analysis solutions.

Spectrum Environmental Solutions

www.spectrumenvsoln.com

Booth #11

Spectrum Environmental Solutions specializes in providing innovative environmental solutions through real-time data analysis and monitoring. They offer a range of products and services including air monitoring devices, software, data management, and consultancy, primarily for industrial applications. Their world-class spectroscopy based devices and services enable facilities to overcome complex air and process monitoring challenges and enhance operational efficiency.

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Syft Technologies

www.syft.com

Booth #4

Syft Technologies, established in 2002, is the global leader in real-time, direct injection mass spectrometry, specializing in Selected Ion Flow Tube Mass Spectrometry (SIFT-MS). With over 150 professionals across seven countries, Syft provides rapid and precise trace gas analysis solutions to industries including pharmaceuticals, environmental protection, consumer goods, food, flavor and fragrance, and semiconductor manufacturing. Their instruments are continually developed and proven in high-stakes commercial environments, ensuring operational robustness, speed, and support. Syft maintains offices worldwide, offering 24/7 service and support, including locations in New Zealand, Korea, Taiwan, Singapore and the U.S.

Teledyne API

www.teledyne-api.com/en-us

Booth #36

Teledyne API designs and builds precision air quality and industrial gas monitoring instrumentation. Our products are used in worldwide in ambient air quality monitoring systems (AQMS), continuous emissions monitoring systems (CEMS) and industrial process applications.

Terra Applied Systems

www.terraappliedsystemsllc.com

Booth #35

Our mission is to be a premier bridge between manufacturers and end users of emerging and maturing technologies providing practical applications and integrated systems. Since installing the Rodeo fence line monitoring system in 1992, TAS continues to design and complete open path projects that require a multidisciplinary and systems approach. Systems may seem simple in the laboratory but fielding them in real-world environments can prove to be more difficult. With consistent care, attention to detail, professional continuity, and seeking to simplify, TAS is well equipped when given a challenge.

Tisch Environmental, Inc.

www.tisch-env.com

Booth #1

Tisch Environmental is the trusted source for air quality instruments. With over 70 years of experience in the industry, we have built our reputation on manufacturing high-quality air monitoring equipment. Our instruments meet regulatory standards, provide precise data for assessing air quality, and are known for their accuracy, reliability, and durability.

TOFWERK

www.tofwerk.com

Booth #21

TOFWERK is making the world a cleaner place by providing innovative chemical analysis solutions. Our mobile and stationary mass spectrometers enable real-time monitoring of trace VOCs, VICs, air toxics, emerging contaminants, and indoor air quality. Designed to tackle diverse analytical challenges, TOFWERK delivers reliable, turnkey solutions for robust data collection in environmental and industrial settings.

Tricorntech Corporation

www.tricorntech.com

Booth #15

Since 2013, Tricorntech has pioneered industrial-grade VOC detection products, leveraging a cutting-edge gas analysis platform to deliver precise, continuous, and rapid onsite monitoring in a lightweight design. As Taiwan's sole manufacturer with a full in-house R&D team, we customize cost-effective hardware and software solutions tailored to diverse industries. Our specialized cross-domain gas analysis tools support businesses and governments in enhancing environmental safety, improving product quality, reducing waste, and conserving resources. Committed to innovation, Tricorntech aims to lead globally in micro gas detection technology, empowering clients with adaptable, high-performance air quality monitoring systems.

Trinity Consultants

www.trinityconsultants.com

Booth #30

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth and capabilities to help clients achieve their goals across the natural and built environments.

URG Corporation

www.urgcorp.com

Booth #24

URG is helping to ensure the air we breathe is the best it can be by creating the Ambient Ion Monitor (AIM) for the time-resolved, direct measurement of gas (hydrogen chloride, nitric acid, nitrous acid, sulfur dioxide, ammonia) and artifact free particulate matter (nitrate, sulfate, nitrite, phosphate, chloride ammonium, sodium, calcium, potassium, magnesium) air pollutants. We specialize in Teflon coated cyclones with various cut-points and flow rates, and stainless steel cyclones for diesel emissions.

VOC Instrumentation

www.vocinstrumentation.com

Booth #20

VOC Instrumentation features a cutting edge sensor solution to detect and identify a wide range of indoor and outdoor airborne pollutants and gases. The sensor relies on a patented aerospace-grade technology, initially developed for the safety of astronauts on board the ISS, and successfully tested by NASA in 2011. Today the sensor technology is for indoor and outdoor use, as well as commercial and industrial applications.

Wilbur Technical Services, LLC

www.jjwilbur.com

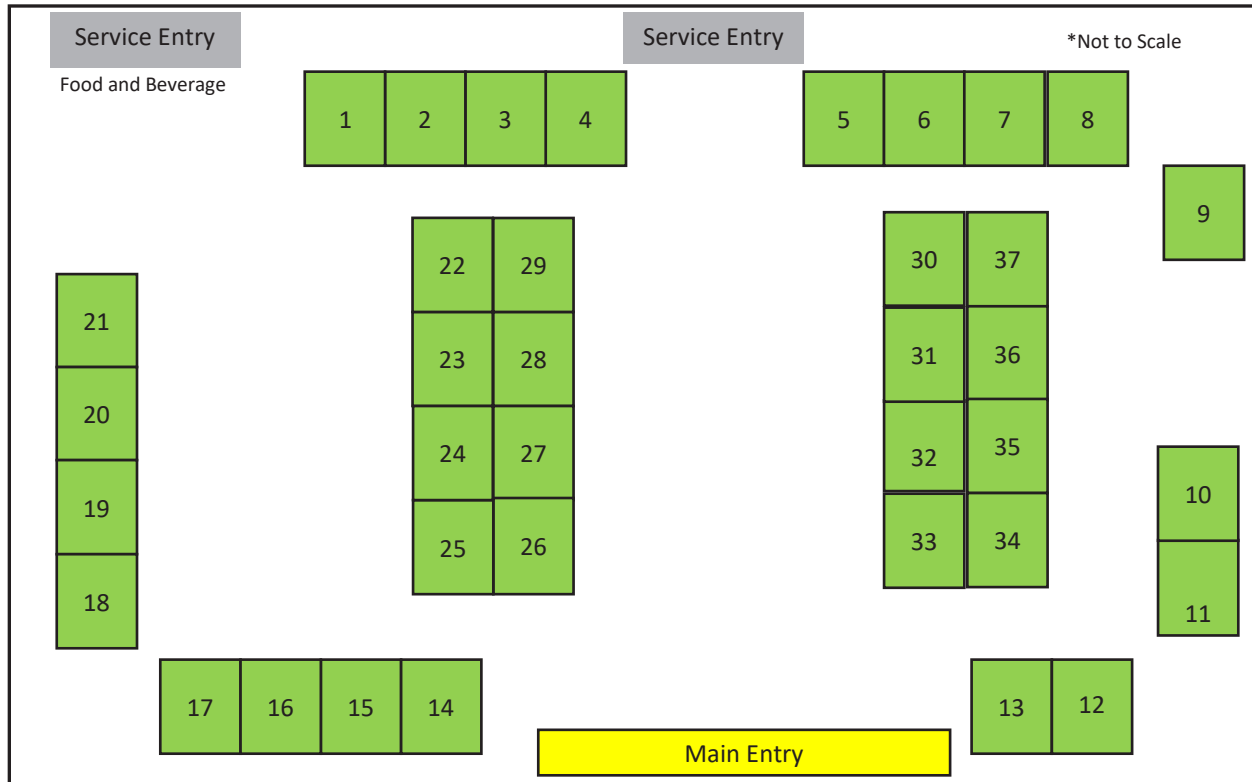
Booth #29

WTS specializes in instrumentation sales, systems integration, field service, and instrument repair. WTS has provided several custom-built mobile monitoring systems. Utilizing vans, SUVs, and cargo trailers. WTS has offices in New Hampshire, Connecticut, and Raleigh North Carolina. Clients include government regulatory agencies, tribal environmental organizations, university researchers, and private industry in combustion, scrubbing and mitigation systems for pollution control. WTS team is 13-people and we have over 100 years' combined experience operating and servicing ambient air quality monitoring equipment.

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Exhibit Hall Floor Plan

Aurora Ballroom 234



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