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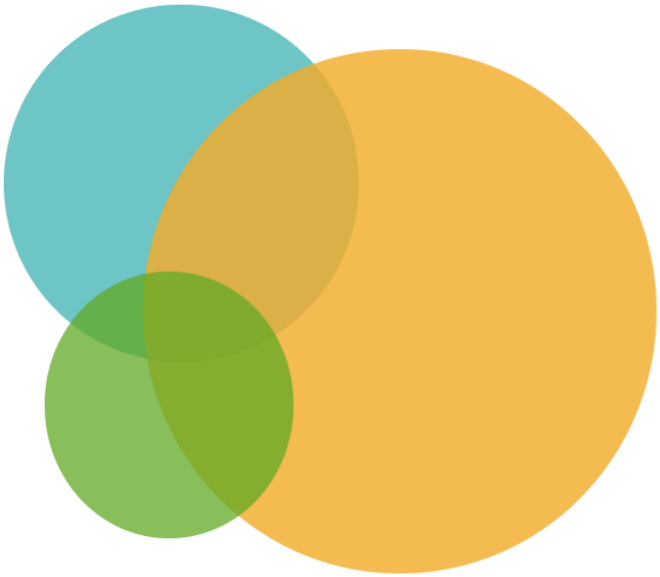
Air Sensors International Conference 2022



Pushing Ahead: Application and Communication in Science

Pasadena Convention Center, California | May 11-13, 2022

Thank you to our Committee Members

UC Davis Air Quality Research Center in partnership with the U.S. Environmental Protection Agency, California Air Resources Board, South Coast Air Quality Management District and Bay Area Air Quality Management District designed this educational conference to advance the science of air quality sensors with a focus on engaging communities. As a team, we enlisted the support from over 30 other individuals with knowledge and experience in air quality sensors and community science to create the incredible program experience at ASIC 2022.

The UC Davis AQRC would like to express our greatest appreciation for our partners and committee members who have shared knowledge and given time to make this enriching educational conference possible.

Adam Giandomenico, Particles Plus

Ajith Kaduwela, California Air Resources Board

Alena Bartonova, NILU

Alison Clune, US EPA

Amanda Kaufman, US EPA

Andrea Clements, US EPA

Arsineh Hecobian, Chevron

Ashley Collier-Oxandale, South Coast AQMD

Aubrey Burgess, City & County of Denver Colorado

Colin Barrette, US EPA

David Ridley, California Air Resources Board

Ethan McMahon, World Resources Institute

Gwendylon Smith, Community Health Aligning Revitalization Resilience & Sustainability

Heidi Vreeland, US EPA

Ingrid George, US EPA

Jan-Michael Archer, University of Maryland School of Public Health

Jessa Ellenburg, 2B Technologies

Joshua Apte, UC Berkeley

Karoline Barkjohn, US EPA

Martine Van Poppel, VITO Flemish Institute for Technological Research NV

Melissa Lunden, Aclima

Michael Ogletree, State of Colorado

R. Subramanian, QEERI

Rachelle Duvall, US EPA

Randy Chapman, US EPA

Rima Habre, University of Southern California

Robert Pinder, US EPA

Suresh Dhaniyala, Clarkson University

Susan Stone, US EPA

Tim Dye, TD Environmental

Tony Wexler, UC Davis

Trisha Curran, US EPA

Vasileios Papapostolou, South Coast AQMD

Walter Ham, California Air Resources Board

We couldn’t do this without you!

Thank you to our Generous Leading Sponsors!

CALIFORNIA
AIR RESOURCES BOARD

South Coast AQMD

South Coast
Air Quality
Management District

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Schedule Overview

Schedule - Tuesday

2:00 PM Registration Opens

Lobby

Pick up your name badge & conference bag

4:00 PM Sensor Data Science Bootcamp

Ballroom DE

Instructors: John Volkens, Colorado State University, Joshua Apte, University of California, Berkeley

The proliferation of low-cost aerosol and gas sensors has sparked much interest among the air-quality community. Such devices show promise to enable measurements at unprecedented spatial and temporal scales, which, in turn, can lead to the creation of distributed sensor networks to support both traditional research and community-based research. With these exciting prospects, however, come challenges of sensor performance, sensor reliability, and data management. This introductory tutorial will review basic principles of statistics and data science for real-time aerosol sensors, with a focus on low-cost (<$2,000) devices. Topics to be covered will include data management and cleaning, exploratory data analysis, linear models, troubleshooting techniques (and potential solutions), statistical issues relevant to time-series data (such as autocorrelation), and determination of analytic figures of merit (e.g., accuracy, bias, prevision, limit of detection). Participants need not have formal training in data science beforehand; self-help resources for learning basic data science in the R and MATLAB programming languages will be

6:15 PM Community & Indigenous Group Meeting

Ballroom H

Hosted by: Community Science Committee Members

Join this in-person meet and greet to connect with other attendees interested in similar topics. This is the perfect opportunity to find a conference buddy that will be attending similar sessions. Build collaborations with other attendees that will allow you to

7:15 PM *Conference Center Closes*

Thank you Platinum Sponsors

CALIFORNIA AIR RESOURCES BOARD

South Coast AQMD — South Coast Air Quality Management District

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Schedule Overview

Schedule - Wednesday

8:00 AM **Conference Welcome** *(Ballroom DE)*

Remarks by Vasileios Papapostolou, South Coast Air Quality Management District

Hosted by Tony Wexler, UC Davis Air Quality Research Center

8:15 AM **Plenary: Low Cost Air Quality Sensor Challenges & Hopes** *(Ballroom DE)*

Moderated by: *Gwen Smith, Founder & Executive Director, CHARSS, Tim Dye, TD Environmental Services, Jessa Ellenburg, 2B Technologies*

Dr. Kalpana Balakrishnan, Dean (Research) & Director, ICMR Center for Advanced Research on Air Quality, Climate and Health, Sri Ramachandra Institute of Higher Education and Research, Chennai, India

Ernest Omar Mohammad, Executive Director, LowCountry Alliance for Model Communities

Dr. Meiling Gao, Chief Operating Officer, Clarity Movement Co.

George Werito, President, Ojo Encino Chapter, Navajo Nation

Dr. Phil Fine, Principal Deputy Associate Administrator for Policy, US EPA

Deo Okure, Air Quality Scientist & Programme Manager, AirQo

9:30 AM *Break with Exhibitors*

10:15 AM **Breakout Sessions**

12:35 PM *Lunch On Your Own*

IQAir AirVisual - How to make world's largest air quality platform work for you *(Ballroom DE)*

Hosted by: *Frank Hammes, IQAir*

With over 50 million active users IQAir AirVisual is the world's largest real-time air quality data platform. Whether you are a community group, an environmental agency, a city, or a sensor manufacturer, the IQAir AirVisual platform helps to increase your visibility and drives engagement. The platform provides visibility to community efforts in over 100 countries and data to the United Nations Environment Programme's urban air action platform. IQAir CEO Frank Hammes will give an interactive introduction to new and exciting contributor features on the AirVisual iOS, Android and web apps. Learn how to integrate your air quality monitoring stations and sensors, manage your contributor profile and maximize your visibility on city and air quality map pages. Learn how to share your story and bring your air quality data to life on the world's air quality platform. Light refreshments will be served. (30 minutes)

1:30 PM *Break with Exhibitors*

2:00 PM **Breakout Sessions**

4:30 PM **Lightning Talks** *(Ballroom DE)*

Hear a quick overview of select posters. Presenters will have 1-minute, 1-slide to present their project highlights. This is a fun way to get the highlights!

5:20 PM **Welcome Reception** *(Exhibit Hall)*

Join us to mix & mingle with colleagues while enjoying some great appetizers and beverages! This is the perfect opportunity to discuss the latest technology at the exhibit booths and review the poster presentations based the latest programs and research in the field. This Welcome Reception is made possible in part by generous donations from air quality sensor organizations. Remember to stick around until the end of the reception for our a special drawing of prizes donated from sponsors!

7:00 PM *Conference Center Closes*

THANK YOU RAFFLE CONTRIBUTORS	
SPEC Sensors, LLC	2B Technologies
Piera Systems	Purple Air

Schedule Overview

Schedule - Thursday

8:00 AM **Virtual Discussions**

With a over 150 virtual attendees and another 400 in-person, we invite you to join a few virtual activities. In-person participants are encouraged to join from their hotels or homes. Additional space is available at the venue for laptops.

8:00 AM - Virtual Poster Discussion: Group A

8:30 AM - Virtual Poster Discussion: Group B

9:00 AM - Virtual Poster Discussion: Group C

9:30 AM - Roundtable Networking Session 1

10:00 AM - Roundtable Networking Session 2

8:00 AM **Breakout Session:** CAMS-Net

10:20 AM *Break with Exhibitors*

10:50 AM **Plenary: Sensors in Smoke: Reducing Exposure to PM** *(Ballroom DE)*

Moderated by: *Dr. Ajith Kaduwela, CARB, Dr. Susan Stone, US EPA, Alena Bartenova, NILU*

Dr. Ana Rappold, Center for Public Health and Environmental Assessment, Office of Research and Development, US EPA

Dan Johnson, Oregon Department of Environmental Quality

Dr. Nuria Castell, Senior Scientist, NILU-Norwegian Institute for Air Research

Dr. Josh Apte, Assistant Professor, UC Berkeley

12:05 PM *Lunch On Your Own*

PurpleAir Q&A *(Ballroom DE)*

Hosted by: Adrian Dybwad, PurpleAir

Have your questions on their air quality monitoring devices and systems answered! You will be able to see their new PA-II-FLEX sensor that employs the Plantower PMS6003 in-person and learn about it's use. PurpleAir is a hyper-local, real-time, public air quality map. They help visualize PM2.5 AQI in communities for free. Useful to citizen scientists or air quality professionals alike, PurpleAir sensors are easy to install, requiring only a power outlet and WiFi. Join this in-person small group discussion to learn more. Light refreshments will be served. (30 minutes)

1:05 PM *Break with Exhibitors*

Breakout Sessions

1:30 PM *Break with Exhibitors*

Connecting and Brainstorming on Free and Open Source Software (FOSS) for Air Sensor Data *(Ballroom H)*

Moderators: Priyanka DeSouza, University of Colorado-Denver and Gayle Hagler, U.S. EPA Office of Research and Development

All interested attendees (in-person and virtual) are welcome to join a facilitated dialogue about the technical needs of air sensor users for open source code and tools (e.g., based upon R, Python, etc.) to meet their data analysis goals and to share about existing and in-development solutions. We hope through this conversation we can connect solutions developers and end users, as well as talk about potential follow-on efforts to foster future exchanges of information on this topic. (45 minutes)

4:45 PM **Plenary: Personalizing Exposure and Advancing Precision Environmental Health Using Air Sensors** *(Ballroom DE)*

Moderated by: *John Volkens, Colorado State University*

Dr. Rima Habre, Associate Professor of Environmental Health and Spatial Sciences, University of Southern California

6:15 PM **Industry Member Meeting** *(Ballroom H)*

Moderators: Adam Giamdomenico, Particles Plus

7:15 PM *Conference Center Closes*

Schedule Overview

Schedule - Friday

8:00 AM **Plenary: How and why cities are using new sensor technologies: successes, challenges, and funding to achieve air quality goals** *(Ballroom DE)*

Moderated by: *Ethan McMahon, World Research Institute & Zoe Chafe, Air Quality at C40*

George Castelar, Head of Air Quality and Environmental Assessment Division, Municipality of Lima

Fantu Kifle, Team Leader, Addis Ababa Environmental protection and Green Development Commission

Aubrey Burgess, Love My Air Program Manager, City and County of Denver, Colorado

Pedro Oliveira, Technical Coordinator and Advisor of Environment and Energy, Lisbon City Council

Matt Whitney, Portfolio Manager, Clean Air Fund

9:20 AM *Break with Exhibitors*

9:50 AM **Breakout Sessions**

12:10 PM *Light Catered Lunch with Exhibitors*

Join us for a final light lunch with all attendees in the exhibit hall.

1:10 PM **Breakout Sessions**

3:30 PM **Toast to the Future** *(Ballroom DE)*

Let's have a toast to how far small, affordable air quality sensors have come and the exciting future ahead with them.

4:30 PM **International Connections Happy Hour**

Hosted by the Hyatt Pasadena, 168 South Los Robles Avenue, Pasadena

To extend our welcome to our international partners, we would like to invite attendees to join an International Connections Happy Hour. We are happy to highlight our international partners and thank them for their extensive travel through a personal happy our with local Californians as well as people across the United States and our Tribal Nations. This is a great opportunity to continue conversations over light appetizers and drinks. This will be hosted by one of our partner hotels, the Hyatt from 4:30 PM - 6:00 PM.

6:00 PM *Conference Center Closes*

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Bay Area Air Quality Management District

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Wednesday — Session 1

Ballroom FG

10:15 AM **Session 1A: Air Sensor Use in India Part 1**

Moderated by: *Josh Apte, UC Berkeley, Suresh Dhaniyala, Clarkson University*

Minimizing the effect of humidity on particulate matter PM2.5 by using a heated inlet with an ambient particulate monitor - Ayyan Karmakar, Oizom Instruments Pvt. Ltd.

Supplementing air pollution data using low-cost sensor network – CSTEP studies - Pratima Singh, Center for Study of Science, Technology and Policy

Considerations when deploying a sensor-based air quality network - Edurne Ibarrola, Kunak Technologies

Application of Machine Learning Regression Algorithms for Calibration of Low-Cost PM2.5 Sensor - Manoranjan Sahu, Indian Institute of Technology

11:20 AM *Speaker Transition Break*

11:30 AM **Session 1A: Air Sensor Use in India Part 2**

Moderated by: *Josh Apte, UC Berkeley, Suresh Dhaniyala, Clarkson University*

Quantifying long-term exposures to fine particulate matter (PM2.5) using real-time low-cost sensors in the Tamil Nadu Air Pollution and Health Effects (TAPHE-II) cohort, India - Naveen Puttaswamy, SRIHER

Improving Air Quality in 133 'Non Attainment' cities of India with Low-Cost Sensors & National Clean Air Policies - Ronak Sutaria, Respirer Living Sciences Pvt. Ltd.

From lab-scale research to multi city-scale implementation of low-cost sensors: A comprehensive overview of past five years works - Sachchida Nand Tripathi, Department of Civil Engineering, Indian Institute of Technology, Kanpur

A sensor network to map air quality across the rural-to-urban spectrum in North India - Saumya Singh, University of California, Berkeley

Ballroom BC

10:15 AM **Session 1B: Merging sensor data with other air pollution data sources: methods and benefits Pt 1**

Moderated by: *R. Subramanian, QEERI & OSU-Efluve, & Ethan McMahon, US EPA*

Data fusion for air quality mapping using low-cost sensor observations - Alicia Gressent, INERIS

Integration of Air Quality Sensor Data into the South Coast AQMD Real-Time Air Quality Index Map - Nico Schulte, South Coast Air Quality Management District

Using Crowd-Sourced Low-Cost Sensors in a Land Use Regression of PM2.5 in 6 US Cities - Tianjun Lu, California State University, Dominguez Hills

Air quality forecasting at sub-city-scale by combining models, satellites, and surface measures - Carl Malings, Morgan State University, GESTAR-II, NASA GSFC

11:20 AM *Speaker Transition Break*

11:30 AM **Session 1B: Merging sensor data with other air pollution data sources: methods and benefits Pt 2**

Moderated by: *R. Subramanian, QEERI & OSU-Efluve, & Ethan McMahon, US EPA*

Integrating multi-modal transportation data with low-cost air quality sensor data to improve understanding of traffic-related air pollution - James Hindson, University of British Columbia

The AirHeritage Hierarchical Network: Sensing, Calibration, Deployment strategies for fixed, mobile air quality monitoring and modeling in urban scapes. - Saverio De Vito, ENEA

Supporting timely, high-resolution air quality data availability in Africa by fusing satellite observations of aerosol optical depths, PM2.5 model data, and PM2.5 surface-based measurements - Nathan Pavlovic, Sonoma Technology, Inc

Closing the gap between air pollution data sources, tools and end users in LMIC - Beatriz Cardenas, WRI Mexico

Wednesday — Session 1

Ballroom DE

10:15 AM **Session 1C: Sensor Networks: From nuts and bolts to real-world impacts Part 1**

Moderated by: *Karoline Barkjohn, US EPA, Josh Apte, UC Berkeley, Jessa Ellenburg, 2B Technologies*

A tale of our hometown: how the low-cost sensor network helped in changing the air pollution legislation and started the fight with smog in Poland - Marcin Szwagrzyk, Airly

Citizen science monitoring of air pollution from residenial wood burning using low-cost sensors - Nuria Castell, NILU-Norwegian Institute for Air Research

Hyper-Local Air Quality Sensor Network in the Town of Cheverly, MD - Karen Moe, Cheverly Green Infrastructure Committee

The Smart and Trustworthy AIR quality network (STAIR): practical considerations in network design and community outreach - Haofei Yu, University of Central Florida

11:20 AM *Speaker Transition Break*

11:30 AM **Session 1C: Sensor Networks: From nuts and bolts to real-world impacts Part 2**

Moderated by: *Karoline Barkjohn, US EPA, Josh Apte, UC Berkeley, Jessa Ellenburg, 2B Technologies*

Investigating Use of Low-Cost Sensors to Increase Accuracy and Equity of Real-Time Air Quality Information Ellen Considine, PhD Student, Department of Biostatistics, Harvard T.H. Chan School of Public Health

Using a Remote Calibration Technique to Improve Data Quality for Large Networks of Particulate Matter Sensors Ashley Collier-Oxandale, South Coast Air Quality Management District

Calibration of citizen sensor networks using a mobile air monitoring platform Brian LaFranchi, Aclima Inc.

From CO and CO2 Measurements to Emissions Maps Naomi Asimow, UC Berkeley

Ballroom A

10:15 AM **Session 1D: Community Air Sensor Use Part 1**

Moderated by: *Aubrey Burgess, City and County of Denver, Colorado, Jan-Michael Archer, University of Maryland School of Public Health*

Environmental Justice for fence-line communities - Gertrude Naeema Gilyard, C.A.U.S.E. (Community Action Unified by Strengths & Engagement)

Community-driven open-data on Pakistan's air pollution problem - Abid Omar, Pakistan Air Quality Initiative

Air Quality Investigation and Research for Equity (AIRE) in Commerce City, CO - Aracely Navarro, Cultivando

Establishing an Air Quality Monitoring Network to Inform Local Strategies in Franklin County, Ohio - Brandi Whetstone, Mid-Ohio Regional Planning Commission

11:20 AM *Speaker Transition Break*

11:30 AM **Session 1D: Community Air Sensor Use Part 2**

Moderated by: *Aubrey Burgess, City and County of Denver, Colorado, Jan-Michael Archer, University of Maryland School of Public Health*

Community, Health and Science: Establishing the Pioneer Valley Air Quality Network - Anna Woodroof, Earthwatch Institute

Community-engaged air sensor analysis: Visualizing PM2.5 data from PurpleAir sensors in Southeast Los Angeles - Claire Bai, University of Southern California

Revolutionising air quality monitoring using DIY and IoT approaches to beat air pollution in Africa. - Collins Gameli Hodoli, Clean Air One Atmosphere

Wednesday — Session 2

Ballroom FG

2:00 PM **Session 2A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 1**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Closing the air pollution data gap in sub-Saharan Africa through low cost sensors, capacity building, international networking, and data science methods - Dan Westervelt, CAMS-Net

Air quality monitoring with TSI BlueSky sensors in the megacity Dhaka, Bangladesh - Shahid Uz Zaman, University of Dhaka

Presentation by Olalekan Popoola - Olalekan Popoola, University of Cambridge

Contrasting Pattern of PM2.5 Concentrations in Urban-Rural Pair Sensors from Nepal - Rejina Maskey Byanju, Central Department of Environmental Science, Tribhuvan University

3:05 PM *Speaker Transition Break*

3:15 PM **Session 2A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 2**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Air quality in Togo: Monitoring status and CAMS-Net opportunities - Kokou SABI, Université de Lomé

Public Engagement in Air Quality Management in Kenya - Godwin Opinde, Kenyatta University

An evaluation of particulate matter (PM2.5) in the City of Nairobi, Kenya, using nephelometers - Otienoh Oguge, Center for Advanced Studies in Environmental Law & Policy (CASELAP), University of Nairobi

Field-calibrated PM2.5 Measurements, Regional Trend Assessments, and Sensor Intercomparison Results from Low-Cost Monitoring Networks in Accra, Ghana and Lomé, Togo - Garima Raheja, Columbia University

Ballroom BC

2:00 PM **Session 2B: Swimming in Data: The current and future state of data management platforms Part 1**

Moderated by: *Tim Dye, TD Environmental & Ethan McMahon, WRI*

Air sensor data management, visualization, and analysis: understanding and meeting the needs of government air quality organizations in the United States - Gayle Hagler, US EPA Office of Research and Development

Unlocking the Value in Sensor Data - Graeme Carvlin, Puget Sound Clean Air Agency

Lessons Learned in designing, developing, and implementing the South Coast AQMD AQPortal environmental data management solution - Vasileios Papapostolou, South Coast Air Quality Management District

3:05 PM *Speaker Transition Break*

3:15 PM **Session 2B: Swimming in Data: The current and future state of data management platforms Part 2**

Moderated by: *Tim Dye, TD Environmental & Ethan McMahon, WRI*

Integrating an in-house developed sensor platform with the existing AQM network and its off-the-shelf DAS solution - Matt Shrensel, State of Oregon, DEQ

Using spatiotemporal infrastructure to manage and process air quality data for a rapid response to COVID-19 impact on air quality - Phil Yang, George Mason University

Universal Data Structures for Air Quality Data - Jonathan Callahan, Desert Research Institute

Wednesday — Session 2

Ballroom DE

2:00 PM **Session 2C: Sensor Networks: From nuts and bolts to real-world impacts Part 1**

Moderated by: *Karoline Barkjohn, US EPA, Josh Apte, UC Berkeley, Jessa Ellenburg, 2B Technologies*

Community Monitoring: Using Citizen Science, Technical Expertise, & Lived Experiences for Real World Impacts - Luis Olmedo, Comite Civico del Valle

Operationalizing air sensor data for EH&S at the nation's second-largest school district - Carlos Torres, Los Angeles Unified School District

Air quality use cases: assessing the impact of different events using air quality data from model and sensor network - Jill Chevalier, eLichens

Increasing Community Participation in Air Pollution Mitigation in Indore City, India - Timothy Dye, TD Environmental Services

3:05 PM *Speaker Transition Break*

3:15 PM **Session 2C: Sensor Networks: From nuts and bolts to real-world impacts Part 2**

Moderated by: *Karoline Barkjohn, US EPA, Josh Apte, UC Berkeley, Jessa Ellenburg, 2B Technologies, Josh Apte, UC Berkeley*

Using sensors to measure the impact of air pollution on early childhood. Lima Air Quality Network for Children Project. - Kyara Díaz Carrasco, Municipality of Lima

Air pollution monitoring in Vietnam with low-cost sensor network - An Le, University of California, San Diego

High density sensor network for air quality monitoring and source identification in Shanghai Ports - Han Mei, The Hong Kong University of Science and Technology

Evaluating the Spatial and Temporal Sensitivity of Sensor Networks to the Calibration Algorithm Applied - Priyanka deSouza, University of Colorado Denver

Ballroom A

2:00 PM **Session 2D: Community Air Sensor Use Part 1**

Moderated by: Ashley Collier-Oxandale, South Coast AQMD, Jill Johnston, University of Southern California

Presentation by Omar Muhammad - Omar Muhammad, Lowcountry Alliance for Model Communities

From the Ground Up- An Environmental Justice Approach to Community Science and Air Monitoring - Gustavo Aguirre Jr, CCEJN

Community led air monitoring informs land use policies in Kansas City - Beto Lugo, CleanAirNowKC

Aires Nuevos: Driving Meaningful Air Quality Action in Latin America - Christi Chester Schroeder, IQAir North America

3:05 PM *Speaker Transition Break*

3:15 PM **Session 2D: Community Air Sensor Use Part 2**

Moderated by: Ashley Collier-Oxandale, South Coast AQMD, Jill Johnston, University of Southern California

Improving Tribal and Citizen Science with Low-Cost Air Sensor Collocation Shelters - Ryan Brown, US EPA Region 4

Low-Cost Air Pollution Sensor Characterizes Excessive Smoke from a Neighborhood Restaurant and Highlights Gaps in Environmental Health Laws: An Observational, Citizen Science Study - Nick Newman, University of Cincinnati, College of Medicine, Dept of Pediatrics

Air Quality Chicago: Mobile Monitoring and Capacity-building with Chicago's Environmental Justice Communities. - Tiffany Werner, Environmental Law & Policy Center

Thursday — Session 3

Ballroom FG

8:00 AM **Session 3A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 1**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Partnerships in low-cost air quality monitoring and outreach in North Carolina - Brian Magi, UNC Charlotte

Assessment of diurnal and seasonal variation of ambient particulate matter (PM2.5) in Juja, Kenya - Josephine Ndiangui, Jomo Kenyatta University of Agriculture and Technology

Monitoring tropospheric airborne particles along a section of the busiest road in East and Central Africa (Thika road, Kenya) using low-cost monitors - Paul Njogu, Jomo kenyatta university of agriculture and technology

Assessment of NO2 and PM2.5 Variabilities in Nairobi and Evaluation of Low-Cost Sensor Performance in Long-Term Deployments - Ezekiel Nyaga, Universitè de Paris

9:05 AM *Speaker Transition Break*

9:15 AM **Session 3A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 2**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Observation of aerosol spatio-temporal variations over Ghana using MODIS-derived Aerosol Optical Depth - James Nimo, University of Ghana

Determination of local traffic emission and non-local background source contribution to on-road air pollution using fixed-route mobile air sensor network - Zhi Ning, The Hong Kong University of Science and Technology

Validation of LCS for air quality index in Jakarta, Indonesia - Driejana Driejana, Institut Teknologi Bandung

Evaluation of lower-cost air quality monitors for monitoring ambient air pollution and around athletic stadiums in Qatar - R Subramanian, Qatar Environment & Energy Research Institute

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CALIFORNIA AIR RESOURCES BOARD

South Coast AQMD — South Coast Air Quality Management District

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Join the Virtual Activities!

With a over 150 virtual attendees at ASIC, we want to ensure that virtual participants can connect with our in-person attendees. We invite both in-person and virtual attendees to join for a few different virtual activities on Thursday morning. Attendees will make new connections with others and can join in on more meaningful discussions through small group interactions.

Virtual Poster Discussions

Did you take a peak at the Poster Displays on Whova or at the Welcome Reception on Wednesday and have questions or comments for the Poster Presenter? Stop by these small group Virtual Poster Discussions Thursday morning to chat with presenters. We have over 90 posters that have exciting research and programs to share with attendees. Poster Presenters will have shared their poster on Whova as well as a short video explanation of the poster and they would love for you to join them on Whova for brief discussions about their displays. Join the discussion on Whova's agenda page.

Group A: Thursday, 8:00 - 8:30 AM PT
Group B: Thursday, 8:30 - 9:00 AM PT
Group C: Thursday, 9:00 - 9:30 AM PT

Roundtable Discussions

Are you trying to connect with other attendees, find mentors on topics, or create a discussion group around a topic important to you? Join our roundtable discussions! You can host your own table (contact Sandra Hall to do so) or join another table. Participants can view exactly which tables are available, who is sitting there, and how many seats are left. If you find an interesting-looking table or one with other attendees you'd like to "sit" with, you can join with just a click and then leave to find another table whenever you're ready.

Session 1: Thursday, 9:30 - 10:00 AM PT
Session 2: Thursday, 10:00 - 10:30 AM PT

Virtual Exhibit Hall

Virtual expo is open for the full duration of the conference, but stop by when you're online during the virtual activities Thursday, 8:00 - 10:00 AM PT. Visit the virtual exhibit hall to connect with the exhibitors of the conference. You can read materials on exhibitor products, watch introductory videos and chat directly with booth attendants to ask questions or request advice. We are excited to host over 30 companies related to air quality sensors that are ready to hear from you on what projects you are working in your communities on.

Network through the Virtual App

The Whova platform on your phone and websites is available for you to connect with other attendees and discuss presentations. Be sure to download the app on your phone for the Q&A!

- View the event **agenda** and plan your personal schedule
- **Ask questions** of presenters as virtual or in-person attendees
- Access **handouts, video recording, or articles** uploaded by other participants
- Set up **in-person/virtual meet-ups** with other attendees to network
- Converse through various **Discussion Topics** in the **Community Board**
- Receive updates such as **last minute session changes** from the organizers

SCAN ME

Thursday — Session 4

Ballroom FG

1:35 PM **Session 4A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 1**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Insights into Urban CO2 Emissions from BEACO2N - Ronald C. Cohen, UC Berkeley

Estimation of hourly BC from BAM tapes using image reflectance-based method - Abhishek Anand, CMU

Air quality monitoring with low-cost sensors in Pioneer Valley of Western Massachusetts: strategies for sensor deployment and calibration - Dong Gao, Yale University

Evaluation of a reduced-complexity model against low-cost sensors in India and the United States - Medinat Akindele, CMU

2:40 PM *Speaker Transition Break*

2:50 PM **Session 4A: Clean Air Monitoring and Solutions Network: getting useful, actionable data out of low cost sensors for air quality action Part 2**

Moderated by: *Albert Presto, CAMS-Net & Dan Westervelt, CAMS-Net*

Six years of the Pittsburgh RAMP network: Lessons learned and where we go from here - Albert Presto, CMU

Maximizing insights from air quality sensor networks through continuous performance evaluation - Dan Peters, EDF

Evaluation of Correction Models for a Low-Cost Fine Particulate Matter Sensor Using the Canadian AQHI+ System - Brayden Nilson, University of Northern British Columbia

Field calibration and performance evaluation of low-cost sensors - Sinan Yatkin, Joint Research Centre

Ballroom BC

1:35 PM **Session 4B: The Potential of Air Sensors for Personalizing and Advancing Human Health Research**

Moderated by: *Susan Stone, US EPA & Rima Habre, University of Southern California*

Personalised enviornmental sensing for health research and disease management - lessons learnt and future challenges - Benjamin Barratt, Imperial College London

Ecologically-Valid, Multimodal Data Collection Platforms to Measure the Effects of Indoor Air Quality on Sleep Quality - Zoltan Nagy, The University of Texas at Austion

Indoor Air Quality Data Captured from Consumer-Grade Devices and Its Effect on Occupant Mood - Hagen Fritz, The University of Texas

Integration of Tools for Real-time Assessment of Residential Air Quality and Asthma Symptoms: Challenges and Lessons Learned - Luz Huntington-Moskos, University of Louisville School of Nursing

2:40 PM *Speaker Transition Break*

2:50 PM **Session 4B: The Potential of Air Sensors for Personalizing and Advancing Human Health Research**

Moderated by: *Susan Stone, US EPA & Rima Habre, University of Southern California*

Daily Associations of Air Pollution and Pediatric Asthma Risk using the Biomedical REAI-Time Health Evaluation (BREATHE) Kit - Hua Hao, Department of Population and Public Health Sciences, University of Southern California

Feasibility study on the application of low-cost sensors for epidemiological investigations - Miriam Chacón Mateos, University of Stuttgart

Reducing personal exposure of recreational runners to airborne particles in urban environments - Mar Viana, IDAEA-CSIC

Advancing personal air pollution exposure for pregnancy studies using air sensors - Yisi Liu, University of Southern California

Thursday — Session 4

Ballroom DE

1:35 PM

Session 4C: Sensor Networks: From nuts and bolts to real-world impacts Part 1

Moderated by: *Ajith Kaduwela, CARB, Heidi Vreeland, US EPA*

Wildfire smoke and ash: particle size, chemistry, and measurement needs - Jeff Wagner, California Dept. of Public Health

Investigating Indoor Air Quality in On-Campus Residences Using Low Cost Air Quality Sensors - Ran Zhao, University of Alberta

Testing of a Low-Cost Sensor and Sampling Platform Alongside Reference Instruments in a Home Kitchen - Jessica Tryner, Colorado State University

Air pollution exposures in rural and urban solid fuel-using households in sub-Saharan Africa - Stephanie Parsons, North Carolina State University

2:40 PM *Speaker Transition Break*

2:50 PM

Session 4C: Sensor Networks: From nuts and bolts to real-world impacts Part 2

Moderated by: *Ajith Kaduwela, CARB, Heidi Vreeland, US EPA*

Changing the Indoor Air Quality (IAQ) Landscape: New and Emerging Tools and Technologies Can Improve Traditional IAQ Best Practices. - Randy Chapman, US EPA

Standardized test instructions and test gases for VOC detectors for indoor air quality measurement - Christian Bur, Saarland University, Lab for Measurement Technology

Low-cost high-performance VOC sensor systems: comparison with analytical measurements and long-term stability - Johannes Amann, Saarland University, Lab for Measurement Technology

Development of ASTM Standard Test Methods for PM2.5 and CO2 Sensors Used for Indoor Air Quality Measurements - Wilton Mui, South Coast Air Quality Management District

Ballroom A

1:35 PM

Session 4D: Communication Strategies for Understanding, Insight, and Action Part 1

Moderated by: *Michael Ogletree, City & County of Denver, Dept. of Public Health & Environment, & Melissa Lunden, Aclima*

Environmental Justice for fence-line communities - Gertrude Naeema Gilyard, C.A.U.S.E. (COMMUNITY ACTION UNIFIED BY STRENGTH & ENGAGEMENT)

Community-driven open-data on Pakistan's air pollution problem - Abid Omar, Pakistan Air Quality Initiative

Air Quality Investigation and Research for Equity (AIRE) in Commerce City, CO - Aracely Navarro, Cultivando

Establishing an Air Quality Monitoring Network to Inform Local Strategies in Franklin County, Ohio - Brandi Whetstone, Mid-Ohio Regional Planning Commission

2:40 PM *Speaker Transition Break*

2:50 PM

Session 4D: Communication Strategies for Understanding, Insight, and Action Part 2

Moderated by: *Michael Ogletree, City & County of Denver, Dept. of Public Health & Environment, & Melissa Lunden, Aclima*

Community, Health and Science: Establishing the Pioneer Valley Air Quality Network - Anna Woodroof, Earthwatch Institute

Community-engaged air sensor analysis: Visualizing PM2.5 data from PurpleAir sensors in Southeast Los Angeles - Claire Bai, University of Southern California

Revolutionising air quality monitoring using DIY and IoT approaches to beat air pollution in Africa. - Collins Gameli Hodoli, Clean Air One Atmosphere

Friday — Session 5

Ballroom FG

9:50 PM **Session 5A: Filling in the air quality data gap and enabling air quality management in LMICs using low-cost sensors Part 1**

Moderated by: *Rob Pinder, US EPA, & Priyanka deSouza, Colorado State University*

Assessment of Traffic-derived Air Pollutants by Smart Sensors: Comparison of Pollutants at Street Levels, Mahesh Senarathna, Postgraduate Institute of Science, University of Peradeniya

Overview of the LCS-SA Campaign: Opportunities for the application of low-cost air quality sensors in South Africa - Brigitte Language, North-West University

Practical challenges of using PurpleAir-II-SD Low-cost sensors for Air Quality Monitoring in sub-Saharan Africa: The Measuring Air Quality in Africa for Advocacy (MA3) Experience - Babatunde Awokola, Medical Research Council Gambia at LSHTM

Air sensing to action in the African context: design and deployment of a community-driven digital air quality sensing network for African cities. - Engineer Bainomugisha, AirQo/Makerere University

10:55 AM *Speaker Transition Break*

11:05 AM **Session 5A: Filling in the air quality data gap and enabling air quality management in LMICs using low-cost sensors Part 2**

Moderated by: *Rob Pinder, US EPA, & Priyanka deSouza, Colorado State University*

First measurements of PM2.5 and NO2 in Mombasa, Kenya - Dan Westervelt, CAMS-Net

Using low-cost PM2.5 and GPS sensors with surveys to understand exposure in informal settlements in Nairobi, Kenya - Michael Johnson, Berkeley Air

Spatial variation of fine particulate matter levels in Nairobi before and during the COVID-19 curfew: implications for environmental justice - Priyanka deSouza, University of Colorado Denver

Improving low-cost PM2.5 sensor networks through retrospective analyses and satellite observations - Michael R Giordano, AfriqAir

Ballroom BC

9:50 PM **Session 5C1: Breathe London Panel**

Moderated by: Iyad Kheirbek, C40

Sara-Jane Millar, Greater London Authority

Dr. Ben Barratt, Imperial College

Annya Schneider, Bloomberg Philanthropies

Andrew Grieve, Imperial College

Dr. Meiling Gao, Clarity Movement

10:55 AM *Speaker Transition Break*

11:05 AM **Session 5C2: Mobile Monitoring/Monitoring Mobile Sources**

Moderated by: *Jessa Ellenburg, 2B Technologies, & Andrea Clements, US EPA*

Opportunistic mobile air quality mapping using service fleet vehicles: from point clouds to actionable insights - Jelle Hofman, Flemish Institute for Technological Research (VITO)

Mobile air sensing to detect PM2.5 hot spots in Houston, Texas - Timothy Dye, TD Environmental Services

Air Quality Sensors Deployed on Mobile Platforms: A Performance Evaluation Protocol and Recent Advances - Wilton Mui, South Coast Air Quality Management District

Large fleet taxi based mobile air sensor network development and data fusion for high resolution on-road pollution mapping in Shanghai - Yuxi Sun, Hong Kong University of Science and Technology

Friday — Session 5

Ballroom DE

9:50 PM

Session 5D: Standard, Supplemental and Informational Monitoring Part 1

Moderated by: *Colin Barrette, US EPA, Michael Ogletree, City & County of Denver, Dept. of Public Health & Environment*

Aggregating and Harmonizing Air Quality Data on a Global Scale - Chris Hagerbaumer, OpenAQ Inc

Evaluation of high-spatial-resolution air pollutant concentration and AQI estimates across the U.S. by fusing low-cost and reference monitor observations with chemical transport model forecasts - Jennifer DeWinter, Sonoma Technology

Data Quality Assessment Methods to Support Community-Level Air Quality Monitoring - Emily Gorrie, CARB

An Exploration of Gas Chromatograph and tVOC Sensor Data Collected During Two Different Releases from Oil and Natural Gas Well Pads in Colorado - Alicia Frasier, Colorado Department of Public Health and Environment, Denver, CO, USA

10:55 AM *Speaker Transition Break*

11:05 AM

Session 5D: Standard, Supplemental and Informational Monitoring Part 2

Moderated by: *Colin Barrette, US EPA, Michael Ogletree, City & County of Denver, Dept. of Public Health & Environment*

A real-time calibration and device management system for air quality sensors deployed in hierarchical networks - Lena Weissert, Aeroqual Ltd

tVOC sensor use in Colorado oil & gas Regulation 7 - Michael Ogletree, Colorado Department of Public Health & Environment, Denver, Colorado, USA

How can non-exhaust motorsports events improve urban air quality in cities with hyper-local monitoring? - Miguel Escribano, Kunak

AirNow Fire and Smoke Map - Ron Evans, US EPA

Ballroom A

9:50 PM

Session 5B: Performance targets for air quality sensors Part 1

Moderated by: *Marine Van Poppel, VITO, Flemish Institute for Technological Research NV, & Rachelle Duvall, US EPA*

Performance evaluation of sensors for gaseous pollutants and particulate matter in ambient air: status of European standardization- Martine Van Poppel, VITO

A French certification scheme for the evaluation of sensor systems dedicated to the ambient air quality monitoring. - Laurent Spinelle, Ineris

ASTM Standards for the Performance Evaluation of Outdoor Air Quality Sensors - Geoff Henshaw, Aeroqual Ltd

AQ-SPEC: Our Transition to the Latest Sensor Testing Protocols and Standards - Vasileios Papapostolou, South Coast Air Quality Management District

10:55 AM *Speaker Transition Break*

11:05 AM

Session 5B: Performance targets for air quality sensors Part 2

Moderated by: *Marine Van Poppel, VITO, Flemish Institute for Technological Research NV, & Rachelle Duvall, US EPA*

Highlights on U.S. EPA Efforts on Developing Performance Testing Protocols and Targets for Air Sensors - Rachelle Duvall, U.S. EPA

Is PM sensor testing really testing the sensors? Experiences from 400 days of field tests in the Life VAQUUMS project. - Jordy Vercauteren, Flemish Environment Agency

Using International Standards to prove the performance of low-cost sensors - the regulatory perspective - Richard Gould, Environment Agency

What is the Impact of Common Sources of Error on Air Quality LCS Measurements Performance? A Practical Guide - Sebastian Diez, University of York

Friday — Session 6

Ballroom FG

1:10 PM **Session 6A: Filling in the air quality data gap and enabling air quality management in LMICs using low-cost sensors Part 1**

Moderated by: *Rob Pinder, US EPA, & Priyanka deSouza, Colorado State University*

Redspira: Sharing information to transform communities. - Alberto Mexia, Redspira

Low-cost PM2.5 measurements in a binational metropolitan area along the U.S.-Mexico border - Mayra Chavez, University of Texas at El Paso

Breathe2Change initiative: Connecting Science and Society for a Smoke-Free Air - Dr. Rodrigo Gaston Gibilisco, Argentinian National Research Council

Prospects of emerging low-cost air quality sensors for bridging air pollution epidemiologic evidence gaps in Africa - A. Kofi Amegah, University of Cape Coast

2:15 PM *Speaker Transition Break*

2:25 PM **Session 6A: Filling in the air quality data gap and enabling air quality management in LMICs using low-cost sensors Part 2**

Moderated by: *Rob Pinder, US EPA, & Priyanka deSouza, Colorado State University*

Intercomparison of Low-Cost PM2.5 Sensors with Federal Regulatory Monitor in Sub-Saharan Africa - Emmanuel Appoh, Ghana Environmental Protection Agency

Annual observations of Air Quality using Cost-efficient Sensors in Cabo Verde - Sandra Freire, University of Cabo Verde

The role of philanthropy in filling air quality data gaps - Tom Grylls, Clean Air Fund

Ballroom BC

1:10 PM **Session 6C: Advanced measurement approaches for fenceline and fugitive monitoring applications Part 1**

Moderated by: *Ingrid George, US EPA & Arsineh Hecobian, Chevron*

Benefits of Using Sensor Technology in Conjunction with Traditional Sampling - Austin Heitmann, Montrose Air Quality Services

Combining low cost PID sensors and triggered canisters to document acute air toxics exposure episodes near oil and gas development - Jeffrey Collett, Colorado State University

Pairing high- and low-cost sensing technologies to understand cumulative health impacts for fenceline communities - Kirsten Koehler, Johns Hopkins University

A comparison of a PTR-ToF-MS against four other VOC measurement methods using standardized techniques during fence-line monitoring in four states - Justin Coughlin, US Environmental Protection Agency

2:15 PM *Speaker Transition Break*

2:25 PM **Session 6C: Advanced measurement approaches for fenceline and fugitive monitoring applications Part 2**

Moderated by: *Ingrid George, US EPA & Arsineh Hecobian, Chevron*

Monitoring volatiles using a mobile real-time mass spectrometer - Leslie Silva, Syft Technologies

On line monitoring of odor unit (OU) emissions and odor sources identification, by using a new generation of agas and odors analyzers - Dr Jean-Christophe Mifsud, ELLONA

Development and Evaluation of a Novel Continuous and Concurrent Sampling System for Sub-ppb Level Detection of Volatile Organic Compounds in an Industrialized Area in Los Angeles - Pami Mukherjee, South Coast AQMD

Complementary and Emerging Techniques for Fenceline Monitoring - Steven Schill, Sonoma Technology

Friday — Session 6

Ballroom DE

1:10 PM

Session 6B: Innovative Sensor Technologies Part 1

Moderated by: *Melissa Lunden, Aclima & Andrea Clements, US EPA*

A Compact High-Precision Microfluidic Platform for Wearable Sensing of Particulate Matter - Ehsan Ashoori, Michigan State University

Expanding stationary and mobile PM2.5 measurement capabilities near fires - Ashley Bittner, North Carolina State University

Unmanned Aerial Air Quality measurements: the potential for industrial fire plumes characterization with onboard low-cost sensor measurements. - Brice Berthelot, INERIS

A Low-Cost Industrial-Grade Carbon Sensor - David A. Gobeli, Met One Instruments, Inc.

2:15 PM *Speaker Transition Break*

2:25 PM

Session 6B: Innovative Sensor Technologies Part 2

Moderated by: *Melissa Lunden, Aclima & Andrea Clements, US EPA*

IoT VOC Monitoring with a Fully Autonomous MEMS-based Analyzer - Nabil Saad, OMNISCENT

Detecting toxic metals in ambient particulate matter using a low-cost and near real-time analyzer - Hanyang Li, Air Quality Research Center, University of California Davis

RADICAL: Developing an electronic sensor for detecting short-lived atmospheric radicals and other gases - Justin Holmes, University College Cork

US EPA Alternative Method 082, Next Generation Air Quality Monitoring, Forget the school and use the tool - Shawn Dolan, Virtual Technology LLC

Ballroom A

1:10 PM

Session 6D: Youth-Focused Education and Youth-Lead Initiatives Part 1

Moderated by: *Jessa Ellenburg, 2B Technologies, Aubrey Burgess, City and County of Denver, Colorado*

Using Air Monitoring Projects to Plant Social, Academic, and Economic Seeds in African American Youth - Gwen Smith, Community Health Aligning Revitalization Resilience & Sustainability (CHARRS)

Using personal air monitors with fast response sensors to enhance understanding of air quality for college level students - Austin Moon, University of Wyoming

Tribal Air Quality Education and Outreach - Mansel Nelson, Northern Arizona University

Championing Environmental Awareness in Communities Through Air Sensor Loan Programs - Ryder Freed, U.S. EPA R9

2:15 PM *Speaker Transition Break*

2:25 PM

Session 6D: Youth-Focused Education and Youth-Lead Initiatives Part 2

Moderated by: *Jessa Ellenburg, 2B Technologies, Aubrey Burgess, City and County of Denver, Colorado*

Building an aerosol sensing sensor network and inspiring citizen scientists - Kerry Kelly, University of Utah

Air Quality InQuiry: Adapting air quality sensors for use in high school settings in the United States and universities in Mongolia - Helena Pliszka, University of Colorado Boulder

Utilizing Indoor Air Quality Measurements as a Youth-Action Project During COVID-19 - Sarah Peterson, Denver Public Schools

Engaging Youth and the Community in Citizen Science with Air Sensors - Christina Yoka, Cleveland Department of Public Health - Division of Air Quality

Air Sensors International Conference, *India*

Friday, August 26 - Bangalore, India

We are excited to announce that ASIC will be hosting an International Connection Hub in Bangalore, India this Fall. With support from the Clean Air Fund, we have partnered with **Center for Science Technology and Policy (CSTEP)** to build a conference focused on small, affordable air quality sensors to be held in India. This conference will be based off the structure and content from ASIC, North America, with a focus on what is relevant and timely to India communities.

This International Connection Hub (ICH) is advised by a team of international researchers and who are stationed and work in India or have conducted relevant projects within India in the recent years. The committee has gathered to define the challenge and design the conference concept listed below. The team will continue to design the program content pulling from past and current ASIC presentations as well as recruit local India researchers and program managers.

This conference will be a one-day program on Friday, August 26th in Bangalore, India after the annual India Clean Air Summit happening Tuesday, August 23rd – Thursday, August 25th.

Session Topics

Opening Panel: Discussion of the current situation and perspectives regarding small, affordable air quality sensors and deliberate the common future we want to establish a vision that brings all perspectives together.
Session 1A: Data Modeling & Analytics
Session 1B: Choosing & evaluating a Sensor; co-location & calibration
Session 2A: Data Assimilation, Sharing & Harmonization
Session 2B: Network Design & Monitor Siting; Running a Network; long-term network maintenance
Session 3: Performance Targets & Sensor Calibration; regulation; sharing data
Session 4: Real World Sensor Applications
Closing Panel: How to create consensus and move forward with common standardization goals to influence improved air quality.

Program Committee

Ajay Singh, World Resources Institute, India
Avijit Michael, Jhatkaa
Chetan Agarwal, CEDAR
Ethan McMahon, World Resources Institute
Josh Apte, UC Berkeley
Mohit Sharma, CII
Pallavi Pant, HEI
Pratima Singh, CSTEP
Priyanka DeSousa, University of Colorado, Denver
Ronak Sutaria, Respirer Living Sciences Pvt. Ltd.
S. N. Tripathi, IIT Kanpur
Sandra Hall, University of California, Davis
Subramanian Ramachandran, QEERI
V. Faye McNeil, Columbia University
Tanushree Ganguly, CEEW
Mike Bergin, Duke University

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NEW WEDNESDAY WORKSHOP

How to Make the World's Largest Air Quality Platform Work for You.

With over 50 million active users, IQAir AirVisual is the world's largest real-time air quality data platform. Whether you are a community group, an environmental agency, a city, or a sensor manufacturer, the IQAir AirVisual platform helps to increase your visibility and drives engagement. The platform provides visibility to community efforts in over 100 countries and data to the United Nations Environment Programme's urban air action platform.

On **Wednesday, May 11, from 12:35 – 1:05 pm** in **Ballroom DE**, IQAir's CEO Frank Hammes will host a half-hour workshop that includes an interactive introduction to new and exciting contributor features on the AirVisual iOS, Android, and web apps. Learn how to integrate your air quality monitoring stations and sensors, manage your contributor profile, and maximize your visibility on city and air quality map pages. Discover how to share your story and bring your air quality data to life on the world's air quality platform. Light refreshments will be served.

Who should attend:

- **Community groups:** Raise your public visibility and engage your community
- **Sensor manufacturers**: Learn how to integrate your monitors and win new customers
- **Environmental agencies**: Engage with citizens, increase air quality awareness, and communicate your efforts more effectively
- **City air quality initiators**: Showcase your city's monitoring effort and commitment to cleaner air

IQAir is recruiting!

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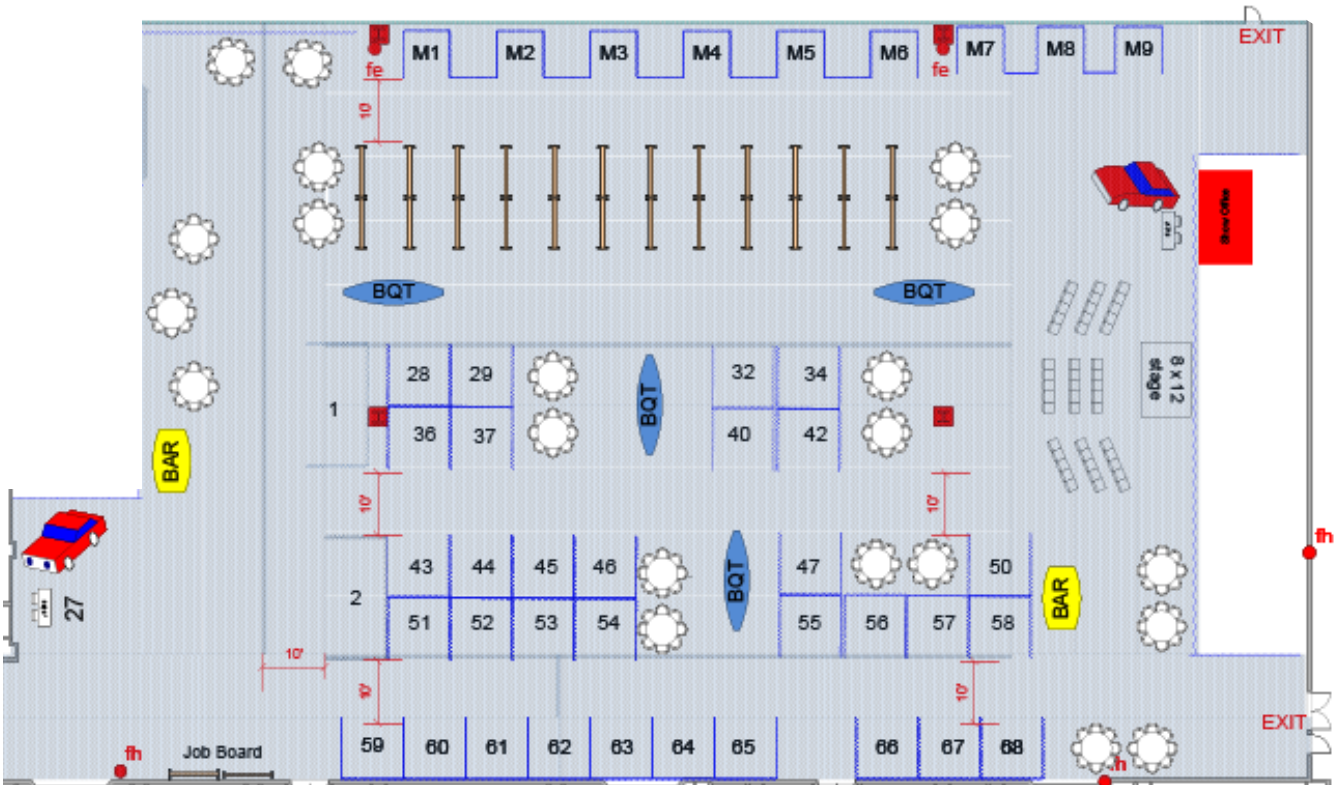
Exhibit Hall



Booth #	Organization
51 & 52	2B Technologies
31	Access Sensor Technologies
39	Aeroqual
46	Aethlabs
47	Airly
63	Ambilabs
67	Axetris
2	CARB
50	Clarity
42	Davis Instruments
32	Distributed Sensing Technologies
56	Dr. Das
44	Ecomeasure
62	Ellona
55	Entanglement Technologies
66	Geocene
27	IQAir

Booth #	Organization
64	Kunak
43	MetOne Instruments
65	Montrose
59 & 60	ParticlePlus
53	Pierra Systems
40	QuantAQ
36	Saibri Cooper Inc (SCI)
45	SGS
28	Sonoma Tech
27	South Coast AQMD
26	Syft Technologies
61	TD Environmental Services
68	Teledyne
58	TSI Incorporated
54	US EPA

Thank You for Attending

from the

UC Davis AQRC!

Our mission at the AQRC is to facilitate research on the scientific, engineering, health, social, and economic aspects of gaseous and particulate atmospheric pollutants. The best way for us to facilitate the research and education of the world is through educational conferences like this. We thank you, as our attendees, for joining us to learn about new science and technology and for sharing your experiences and knowledge with the world.

We look forward to hosting you again for ASIC 2024!

To keep up to date with UC Davis AQRC events including ASIC 2024, join our mailing list:
https://asic.aqrc.ucdavis.edu/contact
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