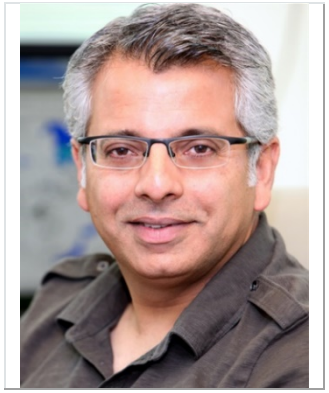
Session #1 Moderators & Presenters by Topic

S1: Air Quality Modeling



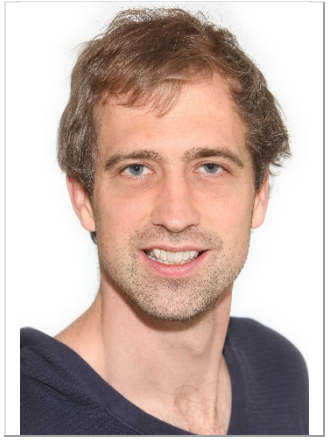
Session Lead: Rohit Mathur (CEMM)

Dr. Rohit Mathur is a Scientist with ORD's Center for Environmental Measurement and Modeling. His research deals with the development of novel methods to understand and represent the physical and chemical behavior of atmospheric pollutants in comprehensive modeling frameworks. Rohit has contributed to the development of several large-scale air pollution modeling systems and has served in numerous leadership and science management positions.

Christian Hogrefe (CEMM) | *Community Model for Air Quality (CMAQ)*

Christian Hogrefe pursued his undergraduate studies in physics at the Universities of Regensburg and Heidelberg (Germany) from 1991 to 1994. He then took advantage of an opportunity to study abroad which brought him to the Department of Earth and Atmospheric Sciences at the University at Albany where he stayed through 2000 to obtain his M.S. and Ph.D. From 2000 to 2011, he worked as air pollution meteorologist and research scientist at the New York State Department of Environmental Conservation. In these positions, he performed emissions and air quality modeling to support the preparation of state implementation plans and provide guidance for air quality forecasting. In parallel, he held adjunct appointments at the Atmospheric Sciences Research Center and led research projects modeling the impacts of climate change on air quality, integrating observations and model output for long-term air quality characterization, and implementing an experimental ensemble air quality forecasting system. In 2011 he joined EPA where his primary research is on the evaluation and application of CMAQ as well as the evaluation and intercomparison of air quality models on regional-to-hemispheric scales through international collaborations.

S1: Air Quality Modeling



Luke Valin (CEMM) | *Long Island Sound Tropospheric Ozone Study (LISTOS)*

Luke Valin is a research scientist at the US EPA Office of Research and Development's Center for Environmental Measurements and Modeling. He received a B.A. in chemistry from Macalester College in St. Paul, MN, and a Ph.D. in chemistry from UC Berkeley. The goal of his work at the EPA is characterizing remote sensing methods and implement these techniques at long-term monitoring sites in order to provide a direct and quantitative link between surface in situ monitors and the spatially and temporally rich satellite-based measurements overhead. This effort helps to support state Enhanced Monitoring Plan requirement detailed in the 2015 ozone NAAQS revision. Luke helped design and execute the Long Island Sound Tropospheric Ozone Study (LISTOS), amongst involvement in several other field studies to characterize remote sensing methods while simultaneously shedding light on challenging air quality issues. He sits on the Pandonia Global Network Working Group to advance these goals with representatives from NASA and ESA.

Havala Pye (CEMM) | *Volatile Chemical Products*

Dr. Havala O.T. Pye joined the EPA in 2011 as a research scientist in the Office of Research and Development. Her work focuses on computational methods to understand fine particles and other airborne pollutants that can impact human health and climate change. Specifically, she leads work on the representation of fine particles and organic species in the Community Multiscale Air Quality modeling system (www.epa.gov/cmaq) allowing for improved quantification of air pollution impacts in regulatory analysis. In addition, methods developed by her team are being used to estimate evaporative air emissions as part of the 2020 National Emissions Inventory. She has also worked on biogenic volatile organic compound chemistry, role of volatile chemical products in secondary pollutant formation, deposition to vegetation and other surfaces, and chemistry of suspended condensed phases such as liquid particles. She has mentored 9 postdocs and students at EPA and is an Adjunct Associate Professor at the University of North Carolina Gillings School of Public Health.

Dr. Pye received her BS in Chemical Engineering summa cum laude from the University of Florida in 2005 and a PhD in Chemical Engineering with a minor in Environmental Science and Engineering from the California Institute of Technology in 2011. Dr. Pye has authored or co-authored 54 refereed journal articles with over 3,000 citations, including 5 articles in the Proceedings of the National Academy of Sciences, as well as given 17 invited talks. Dr. Pye is the recipient of multiple EPA Scientific and Technological Achievement Awards and a bronze medal for commendable service. In 2017, she was recognized with a Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the U.S. government on scientists and engineers beginning their independent careers. More information about her work can be found at havalapye.wordpress.com.

S1: Health Effects

Session Lead: Ian Gilmour (CPHEA)

Dr. M. Ian Gilmour is Chief of the Cardiopulmonary and Immunotoxicology Branch. He received an Honors degree in Microbiology from the University of Glasgow, and a Doctorate in Veterinary Science from the University of Bristol. After post-doctoral work at the John Hopkins School of Public Health and the University of North Carolina, he joined the EPA in 2000. He holds adjunct faculty positions and teaches at the UNC School of Public Health and Curriculum in Toxicology. He has published over 120 journal articles and reviews in the field of pulmonary immunobiology where his research focuses on the effect of air pollution chemistry on the development of infectious and allergic lung disease. He has served as elected councillor and president of the SOT Inhalation and Respiratory Specialty Section and is a member of several external scientific advisory committees and journal editorial boards.

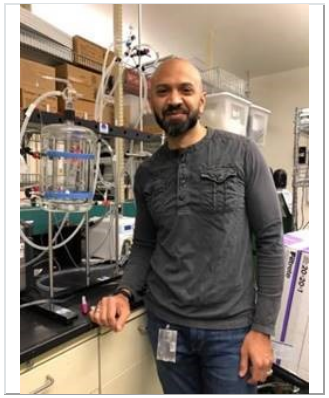
Cavin Ward-Caviness (CPHEA) | *Electronic Health Records*

Dr. Cavin Ward-Caviness is a Principal Investigator in the Public Health and Integrated Toxicology Division of the US Environmental Protection Agency. With a background in computational biology and environmental epidemiology, Dr. Ward-Caviness seeks to understand the environmental factors which influence health in vulnerable populations and the molecular mechanisms that influence environmental health risks. The Ward-Caviness lab uses a variety of "big data" approaches, and Dr. Ward-Caviness is the PI of the EPA CARES research resource, which allows researchers to study environmental health effects in vulnerable patient populations, e.g. individuals with heart failure, using large electronic health record databases. Dr. Ward-Caviness is also interested in how epigenetics and metabolomics can serve as an early indicator of adverse health effects from chemical and social environmental exposures and in particular how molecular biomarkers can give us insight into how the environment may accelerate the aging process and thus contribute to chronic disease. By integrating molecular and clinical data, Dr. Ward-Caviness seeks to understand environmental health as a way to advance personalized medicine and reduce health disparities.

S1: Health Effects

Anne Weaver (CPHEA) | *Epidemiology to Identify Environmental Justice Issues*

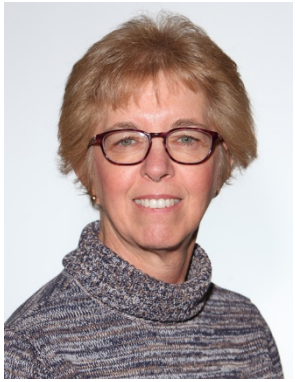
Dr. Anne M. Weaver joined the EPA in 2017 as a federal R-authority postdoc. She has served as a principle investigator in the EPA Office of Research and Development, Center for Public Health and Environmental Assessment, Public Health and Environmental Systems Division (PHESD) since 2019. Dr. Weaver's expertise is in air pollution epidemiology, particularly effects of air pollution on cardiovascular disease and social determinants of health. Her research aims to identify communities that may be more susceptible to health effects of air pollution, such as low-socioeconomic status communities and people with pre-existing health conditions. She also aims to conduct research in under-represented communities, such as Black communities, American Indian communities, and rural communities. Dr. Weaver earned her B.S. degree in biology from the State University of New York College at Geneseo in 2006 and her M.S. and PhD degrees in epidemiology from the State University of New York University at Buffalo in 2010 and 2015, respectively.



Mehdi Hazari (CPHEA) | *Air Pollution Toxicology*

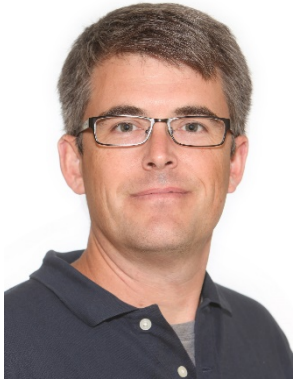
Dr. Mehdi Hazari is a Research Physiologist in the Cardiopulmonary and Immunotoxicology Branch in the Center for Public Health and Environmental Assessment. He examines the effects of environmental pollutants on the cardiovascular system. His research focuses on characterizing the neural mechanisms that alter body resiliency and compensatory capacity, particularly psychosocial and public health factors such noise and housing conditions. As such, his work seeks to bolster understanding of human toxicological responses by using models that mimic real-world conditions and measuring endpoints relevant to human populations.

S1: Deposition



Session Lead: Donna Schwede (CEMM)

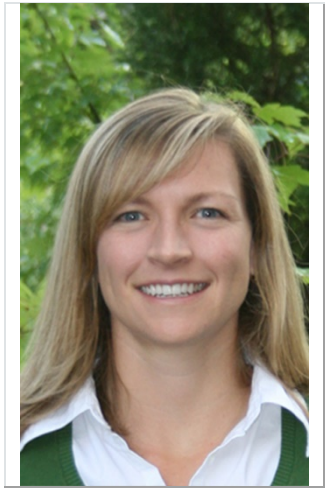
Donna B. Schwede is the chief of the Atmospheric Chemistry and Aerosols Branch in the Atmospheric and Environmental Systems Modeling Division in EPA ORD's Center for Environmental Measurement and Modeling. Over the last 28 years, Ms. Schwede has been a leader in the development and application of atmospheric deposition models at the field scale and in regional air quality models. She has served as the chair of the US National Atmospheric Deposition Program (NADP) and is on the steering committee of the NADP Total Deposition (TDep) Science Committee. Ms. Schwede was one of the leaders of the development of the TDep measurement-model fusion approach for producing estimates of total deposition for the US which are used in many ecological assessments such as critical loads assessments. As an extension of that work, Ms. Schwede also serves on the Steering Committee for the World Meteorological Organization Measurement-Model Fusion for Global Total Atmospheric Deposition initiative. She is also a member of the steering committee for the Air Quality Model Evaluation International Initiative Phase 4 (AQMEII-4) which is focusing on atmospheric deposition and has been instrumental in designing the modeling studies which will be used to intercompare and evaluate deposition modeling approaches. Ms. Schwede received her B.S. degree in Geology from the State University of New York at Cortland in 1982 and her M.S. degree from Duke University in 1985.



John Walker (CEMM) | *Measurements*

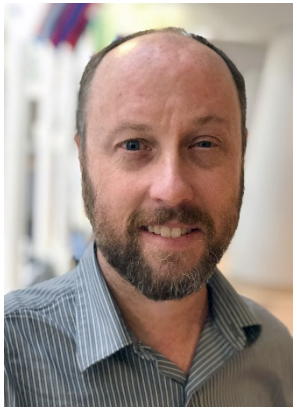
Dr. John T. Walker joined EPA in 1998 and is currently a Senior Research Physical Scientist in the Office of Research and Development, Center for Environmental Measurement and Modeling. Dr. Walker's research investigates atmosphere-biosphere exchange of reactive and radiatively important trace gases and particulate matter in natural and agricultural landscapes. Dr. Walker and his research team conduct field and laboratory experiments to improve emission inventories for gases such as ammonia, nitrous oxide, and methane from biogenic and agricultural sources, improve atmospheric deposition budgets for reactive nitrogen compounds, and improve air-surface exchange algorithms in chemical transport models. Much of Dr. Walker's work at EPA has focused on better understanding the processes by which ammonia is exchanged between the atmosphere and ecosystems and its contribution to reactive nitrogen deposition. Dr. Walker received B.S. and M.S. degrees in Atmospheric Science and a Ph.D. in Soil Science from North Carolina State University. He is an Adjunct Associate Professor in the Department of Marine, Earth and Atmospheric Sciences at North Carolina State University and is currently vice chair of the Executive Committee of the National Atmospheric Deposition Program.

S1: Deposition



Kristen Foley (CEMM) | *EPA's Air QUAlity TimE Series Project (EQUATES)*

Dr. Kristen Foley is a Research Statistician with the EPA's Office of Research and Development (ORD). Since 2006 when she joined the agency, she has been part of the team within ORD that develops the Community Multiscale Air Quality (CMAQ) model. CMAQ is used by EPA program offices and state and local air agencies to simulate the air quality impacts of different emission reduction strategies. Outside of the agency, researchers around the world use CMAQ estimates of ozone, particulate matter, air toxics, and acid deposition to understand the linkages between these pollutants and different health and environmental outcomes. Dr. Foley's research includes development and application of statistical techniques to evaluate output from the numerical model against different types of air quality measurements. She also provides statistical consulting to her fellow team members to help them visualize, analyze, and interpret their data. Dr. Foley has a M.S. degree and a Ph.D. in Statistics from NC State University.

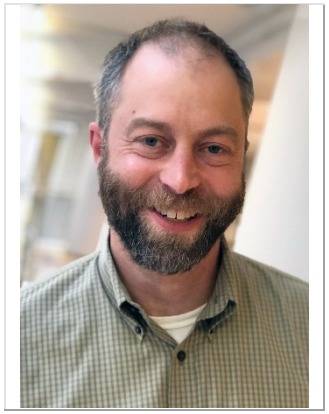


Chris Clark (CPHEA) | *Critical Loads*

Dr. Chris Clark is a research scientist with the Integrated Environmental Assessment Branch, in the Health and Environmental Effects Assessment Division. He has been one of the primary leaders in the development of critical loads in the U.S. for over 10 years. He serves on the Advisory Board of the Critical Loads of Atmospheric Deposition under the National Atmospheric Deposition Program and is the Deputy Director for the North American Chapter of the International Nitrogen Initiative. He works on a variety of subjects related to atmospheric deposition, including quantifying critical loads for plants and ecosystems, examining the interactive effects of climate change and nitrogen deposition on ecosystems, supporting policymaking through the Risk and Exposure Assessment for the ongoing review of the secondary standards for NO_x and SO_x, and developing online tools to support decision making. Dr. Clark also works on issues related to examining the environmental impacts from biofuels, promoting agricultural sustainability through the development of better fertilizers, and quantifying nitrogen and phosphorus budgets for the U.S. Dr. Clark got his Ph.D. from the University of Minnesota in 2007 in Ecology and has authored or co-authored >50 peer reviewed publications with roughly 5000 citations. Dr. Clark lives in Takoma Park, MD, with his wife Mari and son Soren.

Session #2 Moderators & Presenters by Topic

S2: Public Health and Environmental Impacts



Session Lead: Stephen LeDuc (CPHEA)

Dr. Stephen LeDuc is an ecologist with the US EPA's Office of Research and Development in Research Triangle Park, North Carolina, joining the Agency in 2009. He specializes in the ecosystem effects of energy extraction and other stressors in forested and agricultural systems. His research currently focuses on the soil and water quality impacts of biofuel production, and the ecosystem effects of wildland fire. He is currently the lead for synthesizing the effects of wildland fire for EPA's Air and Energy Research Program. He also provides scientific support for EPA Regional offices, particularly on the effects of oil and gas production in the western U.S. Dr. LeDuc received his PhD in forestry and ecology from Michigan State University.

Ana Rappold (CPHEA) | *Epidemiology*

Dr. Ana Rappold is a Branch Chief of the Clinical Research Branch with EPA's Office of Research and Development. She is a scientific lead of the project aimed to integrate public health messaging with environmental models and understanding their effectiveness to reduce burden in population. She has conducted a number of clinical and epidemiological research studies of health effects from air pollution and has authored a number of studies specific to smoke impacts on health.

Dr. Rappold's major contributions toward advancement of this scientific field have been in adopting and developing innovative statistical methods to demonstrate associations between air pollution and health outcomes, understanding differential impacts of intrinsic and extrinsic risk factors on these associations, and in adopting principles from social science, economics and behavioral economics to provide groundbreaking, solutions-based research. Dr Rappold received Arthur S Flemming award in 2020 for her work with Smoke Sense.

S2: Public Health and Environmental Impacts

Michael Breen (CPHEA) | *Exposure*

Dr. Michael Breen is a Research Physical Scientist at the US Environmental Protection Agency (EPA) in the Center for Public Health and Environmental Assessment (CPHEA), and an Adjunct Professor in Civil, Construction, and Environmental Engineering at North Carolina State University. His research focuses on the development and application of air pollution exposure models integrated with novel personal sensor technologies and mobile apps to improve individual-level exposure assessments for epidemiological studies and public health applications. As an internationally recognized leading expert in air pollution exposure modeling, he is a co-investigator for epidemiological and exposure field studies at several international and U.S. universities. He has developed, evaluated, and applied novel exposure and inhaled dose modeling and time-activity tools, which includes a U.S. patented smartphone app and sensor system for exposure assessments (TracMyAir), the Exposure Model for Individuals (EMI), the accelerometer-based Ventilation Tracker (VTrac) model, and the GPS-based Microenvironment Tracker (MicroTrac) model, which was cited in the 2017 National Academies of Sciences Report: Using 21st Century Science to Improve Risk-Related Evaluations.

Jana Compton (CPHEA) | *Ecology*

Dr. Jana Compton is an ecologist with the US EPA's Office of Research and Development, based in Corvallis, OR. She studies the sources and effects of nutrients at scales from local to the nation. She earned her M.S. and PhD. degrees in forest ecosystems and biogeochemistry at the University of Washington, conducted postdoctoral work at Harvard University and was a member of the faculty at the University of Rhode Island prior to joining EPA in 1999. Jana leads EPA research projects on impacts and management of nitrogen and phosphorus. Her research has focused on soil, landscape and watershed-level research in biogeochemistry, examining the influence of human activities on nutrient sources, cycling and fate of major nutrients (carbon, nitrogen and phosphorus) in the environment, developing an understanding on the processes that supply and retain nutrients in soils, ecosystems and watersheds. Her work connecting nitrogen and ecosystem services was part of EPA's Sustainable and Healthy Communities Research program, and she has contributed to several National Ambient Air Quality Standards reviews and the third Report to Congress on biofuels leading the water quality chapter. She is involved in the International Nitrogen Management Systems and is a fellow of the Ecological Society of America.

S2: Emissions/Measurements

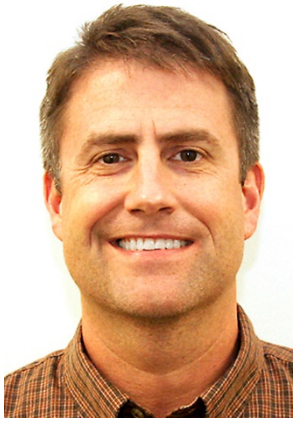
Session Lead: Peter Beedlow (CPHEA)

Dr. Peter Beedlow joined the EPA's Office of Research and Development in 1989 as an ecologist–Global Climate Change Team Leader. He has served as principle investigator, branch chief, division director and special assistant to the director for Air Climate and Energy in Pacific Ecological Systems Division, Center for Public Health and Environmental Assessment. His scientific expertise is in ecosystem responses to anthropogenic stress. During his tenure at EPA, he has lead research on the effects of air pollution and climate change on forest ecosystems. Dr. Beedlow received a Ph.D. in Ecology from Utah State University and an MBA from the University of Washington.

George Pouliot (CEMM) | *Emissions*

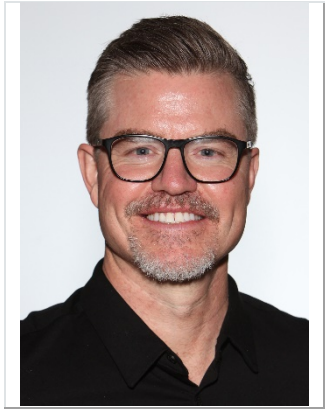
Dr. George A. Pouliot joined the EPA in 2008 as a Physical Scientist. He is a principle investigator in the Office of Research and Development at the Center for Environmental Modeling and Measurement in the Atmospheric and Environmental Systems Modeling Division. His expertise is in the preparation of emission inventories needed as input to a chemical transport modeling system. Key aspects of this include the use of an emissions processing system to provide hourly, gridded, and speciated emissions in a format suitable for the chemical transport model. In addition, he has focused estimating emissions from biomass burning sources such as wildfires and prescribed fires including crop residue burning, pre-harvest sugarcane burning, and annual burns in the Flint Hills region of Kansas. Recently, he has become the co-lead for the SPECIATE workgroup, EPA's repository of profiles for particulate matter and volatile organic compounds. He is also co-lead for the creation of a retrospective multi-year reanalysis of emission inventory times series from 2002-2017. This collection of datasets will provide a consistent approach to estimating emissions over the last two decades for use in chemical transport models. Dr. Pouliot received his B.A. in Mathematics and in Computing & Information Science in 1992 from St. Vincent College and his M.S. and Ph.D. in Atmospheric Science from North Carolina State University in 1995 and 2000 respectively.

S2: Emissions/Measurements



Matt Landis (CEMM) | *Mobile Ambient Smoke Investigation Capability (MASIC) study*

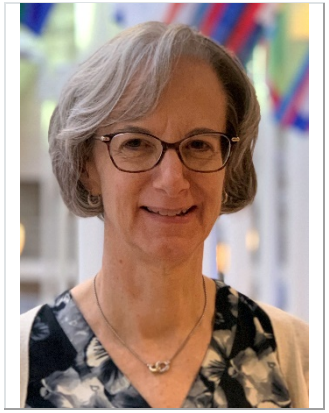
Dr. Matthew S. Landis joined the EPA in 1998 as a Research Environmental Health Scientist. He has primarily served as a Principle Investigator in EPA's Office of Research and Development and has over 30 years of experience in regulatory enforcement and environmental/public health research. Dr. Landis' current research interests include wildland fire, air quality sensors, air pollution measurements methods, biogeochemical cycling of hazardous pollutants, atmospheric mercury chemistry, wet and dry deposition processes, and source apportionment modeling. During his tenure at EPA, Dr. Landis has taken research leadership roles in the Agency's particulate matter health effects, atmospheric mercury, hydraulic fracturing, and wildland fire research programs. Currently Dr. Landis' research is focused on the emission of air pollutants from wildland fires including: chemical characterization of emissions, development and evaluation of measurement methodologies to quantify the impact of smoke emissions on ambient air quality, investigating the effects of smoke on public health, and the development of data analysis tools for disseminating health information to the public. Dr. Landis is also a technical point of contact for seven Small Business Innovation Research (SBIR) program wildland fire sensor awardees (2018-2022) and is managing (i) the EPA Mobile Ambient Smoke Investigative Capability (MASIC) Study in Boise, ID; Missoula, MT; and Reno, NV, (ii) collaborative EPA/US Forest Service Smoke Chamber experiments, and (iii) wildland fire sensor development and evaluation research. Dr. Landis received a B.A. in Geography – Environmental Planning from Bloomsburg University of Pennsylvania in 1989, and his M.S. and Ph.D. in Environmental Health Sciences from the University of Michigan in 1995 and 1998, respectively. Dr. Landis has published ~100 peer reviewed scientific papers and book chapters achieving a current h-index of 36 and an i10-index of 71 with >4900 total citations.



Jim Markwiese (CPHEA) | *Virtual Tour of EPA's Pacific Ecological Systems Division (PESD)*

Dr. James Markwiese is chief of the Ecological Effects Branch for ORD's Center for Public Health and Environmental Assessment. His interest is in understanding effects of climate change on human health and the environment in both terrestrial and aquatic environments. Wildfires are increasing worldwide as a result of climate change and in the western United States, the size and intensity of the fires has increased as a result of higher temperatures, drought, earlier snowmelt, and historically high fuel loading (e.g., undergrowth, tree density). At the Pacific Ecological Systems Division, they are pursuing research to identify effects of wildfires on human and ecosystem health. They are interested in communicating research-derived insights and strategies to reduce risks to public health and the environment from wildfires, in close coordination with federal, state, and tribal organizations.

S2: Translational Science and Communications



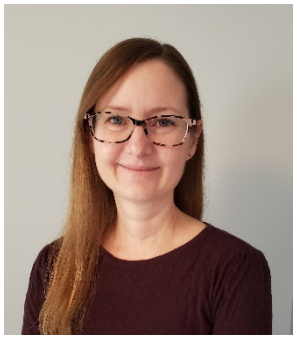
Session Lead: Gail Robarge (CPHEA)

Gail Robarge is an environmental scientist with ORD's Center for Public Health and Environmental Assessment. Her current work is focused on translational research projects and applying air pollution health research results to motivate public health actions, with a focus on wildfire smoke. Over the past few years, she served on ORD's Air, Climate and Energy team and on ORD's Innovation Team; activities included advancing the use of innovative monitoring technologies and managing internal innovation competitions. With more than 25 years at EPA, she also spent ten years managing air pollution grants in ORD's STAR program, and previously worked in ORD's science policy office. Gail has a B.A. in Economics from the University of Virginia and an M.S. in Environmental Science from Indiana University.

Mary Clare Hano (CPHEA) | *Smoke Sense*

Dr. Mary Clare Hano is an environmental health social scientist in EPA's Office of Research and Development, Center for Public Health and Environmental Assessment. With a strong emphasis on applied research and community health, her work focuses on addressing complex social problems through a systems-change lens. She earned her undergraduate and MPH degrees in environmental science and environmental health from the University of Kentucky. Mary Clare spent 10 years working in the public health field before beginning her doctoral work in 2013 at North Carolina State University with a focus on public management, leadership, and network governance. Mary Clare joined EPA in 2017 and currently serves in leadership roles in several studies aimed at reducing the public health burden of wildland fire smoke, increasing capacity to respond to smoke events, and improving resilience in the context of wildland fire smoke.

S2: Translational Science and Communications



Amara Holder (CEMM) | *Wildfire Study to Advance Science Partnerships for Indoor Reductions of Smoke Exposures (ASPIRE)*

Dr. Amara Holder is a research mechanical engineer with the U. S. Environmental Protection Agency (EPA) Office of Research and Development. Her research is on discovering the physical, chemical, and optical properties of combustion generated particles and understanding the process that determine these characteristics. Dr. Holder has studied numerous combustion systems, including wildland fires, woodstoves, and crude oil burns. She is active in the development, evaluation, and application of black carbon, particulate matter, and sensor-based measurement methods for combustion sources. She has worked to create low-cost measurement systems that are used for community air quality monitoring for wildfire smoke and quantify the impact of wildfire smoke indoors. She received her PhD in Mechanical Engineering from the University of California, Berkeley.

Andrea Clements (CEMM) | *AirNow Smoke Map Sensor Pilot*

Dr. Andrea L Clements joined the U.S.EPA Office of Research and Development, Center for Environmental Measurement and Modeling, and the Air Methods and Characterization Division as a research physical scientist in October of 2016. As part of the Air Sensor Performance Evaluation and Application Research program, Dr. Clements leads evaluation efforts, field campaigns, and research projects aimed at testing the performance and usability of air quality sensors and summarizes best practices to guide others in the most effective use of sensors and the data they produce. Before coming to EPA, her research involved measurement, chemical characterization, and source apportionment of both fine and coarse particulate matter in various environments and quantification of the emission rates of methane and volatile organic compounds from oil and natural gas operations in Colorado. She holds a Ph.D. in Civil and Environmental Engineering from Rice University in Houston, Texas and also has degrees in Environmental Science and Engineering (M.S. Caltech), Chemical Engineering (B.S. Washington University in St. Louis), and Mathematics (B.A. Cornell College).