

Invitation to Comment on Candidates for Benefits Methods and BenMAP Software Review Panel of the Science Advisory Board.

The EPA's Science Advisory Board (SAB) Staff Office announced in a *Federal Register Notice* on April 5, 2022 (FRN volume 87, number 65, page 19680) and a *Federal Register Notice* on June 13, 2022 (FRN volume 87, number 113, page 35771) that it was inviting nominations of experts to be considered for the Benefits Methods and BenMAP Software Review Panel. The panel was forming to provide independent advice to EPA through the chartered SAB on the approach for selecting and applying the evidence used to quantify and monetize air pollution related effects and how the BenMAP software performs these calculations. To form the panel, the SAB Staff Office sought public nominations of experts with extensive experience in air pollution epidemiology; biostatistics; risk assessment; demographics; public health data science; uncertainty analysis; and environmental economics, particularly, the valuation of benefits from pollution reductions; the health effects of air pollution and the development of economic values for reductions in air pollution.

Background information on the project and details on the nomination process appeared in the cited notices. Based on qualifications and interest, the SAB Staff Office identified the attached "List of Candidates." Brief biographical sketches of the forty-three (43) candidates are listed below. The SAB Staff Office Director makes the final decision about who will serve on the panel based on all relevant information. This includes a review of the candidate's confidential financial disclosure form (EPA Form 3110-48 or Form 450) and an evaluation of a lack of impartiality. For the EPA SAB Staff Office, a balanced committee or panel is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which, among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the general charge. Specific criteria to be used in evaluating a candidate include: (a) scientific and/or technical expertise, knowledge, and experience (primary factors); (b) availability and willingness to serve; (c) absence of financial conflicts of interest; (d) absence of an appearance of a lack of impartiality; (e) skills working in committees, subcommittees and advisory panels; and (f) diversity of, and balance among scientific expertise and viewpoints for the panel as a whole.

We welcome information, analysis or documentation for the Staff Office to consider in evaluating the candidates. Please provide any comments you may have with respect to the candidates no later than August 9, 2022. Please submit your comments to the attention of Dr. Bryan Bloomer, Designated Federal Officer at bloomer.bryan@epa.gov. Please be advised that comments are subject to release under the Freedom of Information Act when considering a submission.

Candidates for the BenMAP-Cloud Review Panel

Adams, Peter

Carnegie Mellon University

Dr. Peter Adams is a Professor in the Civil and Environmental Engineering Department and the Engineering and Public Policy Department at Carnegie Mellon University. Dr. Adams' research largely focuses on development of chemical transport models and their application to decision-making, especially related to particulate matter (PM_{2.5}). Dr. Adams also has extensive expertise in the simulation of aerosol microphysical processes, ultrafine particles and the formation of cloud condensation nuclei in global climate models. Areas of research have also included the effects of climate change on air quality, short-lived climate forcers, atmospheric ammonia and particulate matter formation from livestock operations, and the simulation organic particulate matter. Dr. Adams was selected for a Fulbright grant to collaborate with researchers at the Institute of Atmospheric Sciences and Climate in Bologna, has been a Visiting Senior Research Scientist at the National Aeronautics and Space Administration's Goddard Space Flight Center, and received the Sheldon K. Friedlander Award for outstanding doctoral thesis from the American Association for Aerosol Research. He has previously served on the Commonwealth of Pennsylvania's Air Quality Technical Advisory Committee and the Allegheny County Health Department's Air Toxics New Guidelines Proposal Committee as well as service to the American Association for Aerosol Research. His research is supported primarily by the Environmental Protection Agency, the National Science Foundation, the National Aeronautics and Space Administration, the Department of Energy, and the Department of Defense. Dr. Adams received his B.S. degree in Chemical Engineering, summa cum laude, from Cornell University. He was awarded a Hertz Foundation Applied Science Fellowship for graduate study and received M.S. and Ph.D. degrees in Chemical Engineering from the California Institute of Technology. He also holds an associated faculty position in the Chemical Engineering department at Carnegie Mellon.

Alberini, Anna

University of Maryland - College Park

Dr. Anna Alberini is currently a professor in the Department of Agricultural and Resources Economics at the University of Maryland, College Park. She teaches PhD-level econometrics courses, undergraduate statistics courses based on energy and environmental data, a course in the economics of climate change, and supervises numerous graduate and undergraduate research projects. Dr. Alberini is an energy and environmental economist with a major focus on the economics of health and safety and non-market valuation. Her energy economics research focuses on residential energy demand, energy efficiency decisions and consequences of such decisions, policies targeted as shaping residential energy demand, and on vehicle fuel economy and driving decisions. Her work has appeared in the Energy Journal, Energy Economics, Energy Efficiency, Journal of Environmental Economics and Management, the Review of Economics and Statistics, the Journal of Health Economics, and other journals. Dr. Alberini has served two stints on the Science Advisory Board for Environmental Economics to the Environmental Protection Agency and is currently the chair of the American Statistical Association committee that advises the US Energy Information Administration. She is also a member of the Editorial Board of The Energy Journal, of the International Advisory Board of Energy Policy, and an associate editor of Energy Efficiency. Dr. Alberini received her Ph.D. in Economics from the University of California San Diego.

Aldy, Joseph

Harvard University

Dr. Joseph E. Aldy is a Professor of the Practice of Public Policy and Faculty Chair of the Regulatory Policy Program at the Harvard Kennedy School, a University Fellow at Resources for the Future, a Faculty Research Fellow at the National Bureau of Economic Research, and a Senior Adviser at the Center for Strategic and International Studies. In 2009-2010, he served as the Special Assistant to the President for Energy and Environment at the White House. Dr. Aldy previously served as a Fellow at Resources for the Future, Co-Director of the Harvard Project on Climate Agreements, Co-Director of the International Energy Workshop, Treasurer of the Association of Environmental and Resource Economists, and served as a Senior Economist, Senior Adviser, and Staff Economist to the Council of Economic Advisers. He earned a Ph.D. in Economics from Harvard University, and holds a Master's degree in Environmental Management and a Bachelor's degree from Duke University. Dr. Aldy's research focuses on climate change policy, energy policy, and regulatory policy. This includes publications on valuing mortality risk reduction, the design and use of market-based instruments, the competitiveness impacts of climate change policy, international environmental agreements, energy efficiency subsidies, renewable power subsidies, retrospective review of regulations, and other topics. Government agencies including U.S. EPA, U.S. Office of Management and Budget (OMB), Council of Economic Advisers (CEA), the Departments of Energy, Health and Human Services, Homeland Security, and Transportation, as well as the National Research Council, U.S. Global Change Research Program, and National Science Foundation have formally solicited external peer review from Dr. Aldy. In 2020, he served on the EPA SAB Economic Guidelines Review Panel. In the past two years, Dr. Aldy has received research funding from the Harvard Solar Geoengineering Research Program, Resources for the Future, the Research Institute of Innovative Technology for the Earth, the Alfred P. Sloan Foundation, and the Belfer Center for Science and International Affairs.

Adin-Cristian, Andrei

Northwestern University

Dr. Adin-Cristian Andrei is a Professor of Biostatistics at Northwestern University in Chicago. He has over 20 years of experience in observational and randomized studies, with a focus on cardiac disease and serves as lead biostatistician on research projects funded by the National Institutes of Health. Dr. Andrei is a biostatistician and data scientist with a wide range of scientific interests and collaborative directions. His current focus is on using machine learning methodology and computationally-intensive methods in large-scale observational studies and randomized clinical trials. Areas of biostatistical methodology expertise include propensity score-based methods for causal inference problems, nonparametric or semiparametric survival analysis, recurrent/successive events, health-related quality-of-life and hierarchical Bayesian modeling for multiple testing problems. Since 2011, Dr. Andrei has provided continued biostatistical leadership for a diverse range of initiatives and patient-outcomes projects leading to cutting-edge research in the Northwestern Medicine's Bluhm Cardiovascular Institute. His current collaborative interests span a diverse range of areas, including adult and pediatric cardiac surgery, cardiology, thoracic surgery and endocrinology. In the past, he collaborated with investigators in areas that included pulmonary and critical care, anesthesiology, breast and prostate cancer or microbiology. Dr. Andrei currently serves as lead biostatistician on two externally-funded studies. The first one, SUSTAIN-IT, is an observational, non-inferiority study comparing quality-of-life outcomes in heart failure patients that receive either a heart transplant or mechanical support. The second project is an American Heart Association Strategically Focused Research Network grant focused on the study of atrial fibrillation and predictors of successful ablation.

Bael, David**Minnesota Pollution Control Agency**

Dr. David Bael is Economic Policy Analyst for the Minnesota Pollution Control Agency (MPCA) with a primary focus on the economic analysis of air pollution. He is the MPCA's BenMAP expert and has used it extensively during his ten years in this position. One of Dr. Bael's most influential and impactful projects were four volumes of the Life and Breath reports, which were based on BenMAP analyses. Pairing BenMAP analyses with demographic data, Dr. Bael has addressed environmental justice and equity questions regarding demographic disparities by race, income, and age in the health impacts of air pollution across sub-populations of Minnesota. Additionally, he has used BenMAP to support testimony he has provided to the Minnesota state legislature about the health and economic costs of air pollution in Minnesota and in testimony to the Minnesota Public Utilities Commission about the externalities of power sector emissions in Minnesota. A long-time member of the BenMAP users' discussion forum, Dr Bael also served as a beta-tester for the development of BenMAP-CE in 2013. He has worked closely with epidemiologists from the Minnesota Department of Health and has developed a thorough understanding of both the economic and epidemiological research that comprise the core of BenMAP's analytical framework. At the MPCA, he works closely with photochemical air quality modelers to generate estimates of ambient air contaminant concentrations using CMAQ and CAMx models to serve as inputs into his BenMAP analyses. Although his focus is on air pollution, as the MPCA's lead economist, he provides economic analysis to support all Agency programs to realize the MPCA's mission of protecting and improving Minnesota's environment and human health. Dr. Bael is also one of the MPCA experts on statistical and data analysis tools, including the R Programming Language, MATLAB, Stata and SPSS, and uses them for all facets of the Agency's work as well as in collaborations with the EPA and academic partners. His graduate training in statistical analysis and econometrics provided the basis for these skills. Dr. Bael leads the Agency team that stays abreast with current statistical analysis techniques to ensure that Agency researchers and staff are using the latest statistical methods and software in their work. From his doctoral training in Applied Economics, with a focus on environmental and natural resources economics, Dr. Bael learned strong skills in non-market valuation techniques. In his professional and graduate work he has used contingent valuation techniques (including willingness-to-pay approaches that underlie many of BenMAP's valuation studies) along with hedonic valuation methods, travel cost methods, production function approaches, and other valuation techniques. Dr. Bael has used ArcGIS extensively in his work at the MPCA and his graduate school career. Prior to his doctoral training in Applied Economics, Dr. Bael obtained a master's degree in Public Policy from the University of Minnesota Humphrey School of Public Affairs and two bachelor's degrees from the Massachusetts Institute of Technology in Biology and in Management Science.

Berrocal, Veronica**University of California, Irvine**

Dr. Veronica Berrocal is an Associate Professor in the Department of Statistics at University of California, Irvine. Dr. Berrocal obtained her Ph.D. in Statistics from the University of Washington in 2007 working on developing spatial statistical models for probabilistic weather forecasting. After finishing her Ph.D., Dr. Berrocal was a National Research Council postdoctoral associate at the EPA National Exposure Research Laboratory in Research Triangle Park from September 2007 to August 2008. During this period, she developed (spatial) statistical downscaling models to produce improved estimates of air pollutants concentrations

by combining the output of air quality models, in particular CMAQ, with monitoring data. Her downscaler/data fusion model is currently used by EPA to develop what are typically referred to as "fused surfaces of ozone and PM2.5 concentrations" across the United States. After she completed her postdoctoral associate at EPA, from September 2008 to August 2010, Dr. Berrocal was a postdoctoral associate at Duke University and at the Statistical and Applied Mathematical Science Institute, one of 6 National Science Foundation (NSF)-supported mathematical research institutes. In September 2010, Dr. Berrocal joined the University of Michigan Department of Biostatistics as an Assistant Professor. She remained at University of Michigan until Fall 2019, when she joined the Department of Statistics at University of California in Irvine. Dr. Berrocal's research expertise is in spatial/spatio-temporal and environmental statistics, with a focus on developing statistical methods to address problems related to environmental exposure assessment, environmental epidemiology, and atmospheric and earth system sciences. Dr. Berrocal has been involved in multiple externally-funded research projects funded by NIH, the National Science Foundation (NSF), the Health Effects Institute, the California Air Quality Board, and Patient-Centered Outcomes Research Institute (PCORI). She has participated as ad-hoc member in Scientific Advisory Panels (SAP) for EPA, and since July 2021 she has been a member of the SAP for the Federal Insecticide, Fungicide and Rodenticide Act.

Buonocore, Jonathan

Harvard T.H. Chan School of Public Health

Dr. Jonathan Buonocore evaluates the health, environmental, and climate benefits and impacts of energy choices and climate change mitigation methods. Currently, he is researching air pollution from oil and gas development in the United States, climate policies for the transportation sector in the Northeast U.S., and possible health impacts of stratospheric aerosol injection – an intervention intended to mitigate climate change by reflecting sunlight. Previously, he has evaluated the health “co-benefits” of a number of climate policies, including options for nationwide power plant carbon standards in the United States, a carbon price in Massachusetts, and expansion of onshore and offshore wind energy, solar energy, and energy efficiency programs in the U.S. He has also applied these methods to financial investment portfolios, green buildings, forest fires in Indonesia, and worked on health impact assessments of transportation policies in the greater Boston area. Currently, he is funded by Environmental Defense Fund, Windward Foundation, the Barr Foundation, and the Energy Foundation. He has a BS from Clarkson University in Environmental Science & Policy, a MS in Environmental Health from Harvard School of Public Health, and an Sc.D. in Environmental Sciences and Risk Management from the Harvard School of Public Health.

Calder, Ryan

Virginia Tech

Dr. Ryan Calder is an Assistant Professor of Environmental Health and Policy at Virginia Tech. His training and expertise spans engineering and public health. He is interested in policy support tools that synthesize diverse stakeholder/disciplinary perspectives. Dr. Calder's work simulates human exposures to chemical contaminants under alternative industrial/energy generation scenarios, coupled with economic valuation to develop decision support tools. He is interested in how the large uncertainties inherent in environmental systems affect decision-maker preferences. Dr Calder's work has been supported by EPA, DoD, and various agencies in Canada (e.g., Department of Fisheries and Oceans, Newfoundland Ministry of Environment, Quebec Ministry of International Affairs, Natural Sciences and Engineering Research Council). Dr. Calder recently served as an ad-hoc member of the Science Advisory Committee on

Chemicals to review the Toxic Substances Control Act (TSCA) Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities.

Cromar, Kevin

New York University

Dr. Kevin Cromar is the Director of the Health, Environment and Policy Program at the Marron Institute of Urban Management and an Associate Professor of Population Health and Environmental Medicine at New York University Grossman School of Medicine. An environmental epidemiologist by training, Dr. Cromar also has broad expertise in exposure assessment, risk assessment, and economic analysis in support of regulatory and policy decision-making. His research and policy efforts over the last several years have been funded in part by the National Air and Space Administration (NASA), the National Institute of Environmental Health Sciences (NIEHS), EPA, the Center for Disease Control (CDC), the World Health Organization (WHO) and other non-profit organizations. He currently serves on the Utah Air Quality Board, the WHO Global Air Pollution and Health Technical Advisory Group, as well as other technical and policy-making committees at the local, national, and international level.

Dickie, Mark

University of Central Florida

Dr. Mark Dickie (Ph.D., Economics, University of Wyoming) is a Professor of Economics at the University of Central Florida and former chair of the economics department. During a one-year leave of absence from the university, Dr. Dickie worked at the National Center for Environmental Economics in the EPA. He served six years on the Agency's Children's Health Protection Advisory Committee, after serving two years on the committee's Economics and Assessments Working Group. Currently he is Treasurer, Chair of the Finance Committee, and member of the Board of Directors of the Society for Benefit-Cost Analysis. Dr. Dickie's research focuses on estimating economic benefits of reducing environmental risks to human health; examining how people use uncertain information to form beliefs about health risks; and understanding how information and risk beliefs influence benefits of risk reduction. His work has been funded by EPA and has been published in journals including the Review of Economics and Statistics, Journal of Risk and Uncertainty, Journal of the American Statistical Association, Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, and Environmental and Resource Economics. He serves on the editorial board of the Journal of Benefit-Cost Analysis.

Graff Zivin, Joshua

UC San Diego

Joshua Graff Zivin is the Pacific Economic Cooperation Chair in International Economic Relations at UC San Diego, where he holds faculty positions in the School of Global Policy and Strategy and the Department of Economics. He is presently a research associate at the National Bureau of Economic Research and serves dual roles as director of the Center on Global Transformation and co-director of the Global Health Institute at UC San Diego. Dr. Graff Zivin is an internationally recognized economist whose research interests include the environment, health, development and innovation economics. He has published numerous articles on a wide range of topics in top economic, policy and science journals. Much of his current work is focused on three distinct areas of research: the relationship between the environment, health and human capital, the economics of innovation with a particular eye toward the role of institutions, social networks and financial incentives, and the design of health interventions and their economic impacts. At GPS, he teaches courses including Environmental and Regulatory

Economics and Economies of the Pacific Rim. Dr. Graff Zivin received his Ph.D. from UC Berkeley and his B.A. from Rutgers University. Prior to joining UC San Diego in 2008, he spent 11 years on the faculty at Columbia University, where he served as professor of economics in the Mailman School of Public Health and the School of International and Public Affairs and directed the Ph.D. Program in Sustainable Development. In 2004-05, he served as Senior Economist for Health and the Environment on the White House Council of Economic Advisers.

Henze, Daven

University of Colorado Boulder

Dr. Daven Henze is a Professor and the S. P. Chip and Lori Johnson Faculty Fellow in the Department of Mechanical Engineering at the University of Colorado Boulder, and an Adjunct Senior Research Scientist at the Lamont-Doherty Earth Observatory of Columbia University. He holds a Ph.D. in chemical engineering from Caltech. Prior to joining the faculty at UC Boulder he was an Earth Institute Postdoctoral Fellow at Columbia University, where he worked at the National Aeronautics and Space Administration (NASA) Goddard Institute for Space Studies. Dr. Henze's research focuses on air quality, long-range pollution transport, and climate change. A large part of his research stems from chemical data assimilation, the process by which both models and observations are combined to produce estimates of the atmospheric state that are often more complete than those provided by either approach alone. This encompasses more specific interests in remote sensing, adjoint sensitivity analysis, inverse problems, and source apportionment. Dr. Henze has received an EPA Early Career award, a National Air and Space Administration (NASA) New Investigator award, and several university awards for teaching and research. He is the lead scientist for the GEOS-Chem adjoint model, a member of the GEOS-Chem Steering Committee, a member of the NASA Earth Science Advisory Committee as well as multiple NASA satellite science teams, and he is a member of the EPA Clean Air Scientific Advisory Committee (CASAC) for Lead and the CASAC for secondary SO_x/NO_x standards.

Ho, Tin

Lawrence Berkeley National Laboratory

Mr. Tin Ho works at the Lawrence Berkeley National Laboratory and the University of California, Berkeley. He is a High Performance Cluster system engineer and Science IT Consultant. He held a pivotal role in the set up and management of a 2000+ nodes compute cluster for scientific research. He also collaborates with scientists to do research and visualization on air pollution, creating web-based GIS tools to map the effects of malodorous compounds or elevated air pollutants to receptors created by refuse-to-energy sites. Prior to his appointment at Berkeley, Mr. Ho was employed at Novartis Institute for Biomedical Research, Emeryville, CA, where he worked in tandem with bioinformatics and cheminformatics researchers on projects related to infectious diseases and cancer. Mr. Ho has over 15 years of experience in the Research IT space; he has a M.S. and B.S in Computer Science, both from Florida International University.

Jin, Ling

Lawrence Berkeley National Laboratory

Ling Jin is an Energy and Environmental Policy Research Scientist in the Energy Analysis and Environmental Impact Division of Lawrence Berkeley National Laboratory. She holds a PhD in Energy and Resources, a MA in Statistics, both from UC Berkeley, and a BS in Physical Geography from Peking University. Dr. Jin received multidisciplinary training in air quality

engineering, statistics, and resources economics. She specializes emission, air quality, and health assessment in the high performance computing environment, travel behavior modeling, and data science across domains. She develops and applies diagnostic and sensitivity analysis tools coupled with multi-scale photochemical transport models to identify effective pollution control strategies. She also strives to bring state-of-the-art data science (statistical, machine learning, and econometric techniques) to the domains of climate/atmospheric science, electricity market, and transportation. She has led projects funded by California's Energy Commission and Department of Energy on air quality modeling, travel demand modeling, spatial pattern and time series mining, social sequence analysis with work published in more than 30 peer reviewed journal articles and computer science conferences.

Keller, Joshua

Colorado State University

Dr. Joshua P. Keller is an Assistant Professor in the Department of Statistics at Colorado State University and has an adjunct appointment in the Department of Biostatistics and Informatics at the Colorado School of Public Health. Dr. Keller holds a Ph.D. and M.S. in Biostatistics from the University of Washington and a B.S. in Applied Mathematics from Emory University and was a postdoctoral fellow in the Department of Biostatistics at the Johns Hopkins Bloomberg School of Public Health. Dr. Keller's primary research area is environmental biostatistics, with particular focus on statistical methods for air pollution epidemiology, exposure assessment, measurement error, spatial confounding, and spatiotemporal data. Dr. Keller's work has included development of regional and national ambient air pollution prediction models and analyses of the relationships between environmental exposures and cardiovascular, respiratory, and allergic disease. Dr. Keller has been supported through funding from the National Institutes of Health.

Khubchandani, Jagdish

New Mexico State University

Dr. Jagdish Khubchandani is a Professor of Public Health at New Mexico State University. He received his Doctorate in Clinical Medicine from DAVV University in India, Master's in Public Health from Western Kentucky University, and Ph.D. in Health Education and Epidemiology from the University of Toledo. Within the past decade, he has mentored and taught over 500 students pursuing undergraduate and graduate degrees in the field of public health, nursing, or medicine. During this time, he has also coauthored more than 150 research articles in prestigious journals such as the Lancet, Journal of American Medical Association, and the New England Journal of Medicine with emphasis on global health, social epidemiology, and injury and violence prevention. More recently, his research has received widespread attention from prominent media outlets such as Fox News, MSN, Bloomberg News, Chicago Tribune, Wall Street Journal, and Huffington Post. Dr. Khubchandani has also served as an elected Director of the World Association of Medical Editors.

Kleman, Michael

UC Davis

Dr. Michael Kleeman is a Professor of Civil and Environmental Engineering at the University of California at Davis. He holds a B.A.Sc. in Mechanical Engineering from the University of Waterloo (Canada) and M.S. / Ph.D. degrees in Environmental Engineering Science from the California Institute of Technology. Dr. Kleeman's research focuses on urban and regional air pollution with emphasis ranging from ultrafine particles to climate change. He combines measurements and modeling techniques to address challenging questions about emerging

pollutants in exposure science. Dr. Kleeman's research has been published in more than 150 peer-reviewed articles in top scientific journals that have been cited more than 15,000 times by other researchers and policy makers (Google Scholar h-index: 58). He has collaborated with a wide range of epidemiologists at other academic institutions and government agencies, leading to papers documenting significant associations between air pollution and death, preterm birth and low birthweight, and COVID-19 mortality. Dr. Kleeman teaches classes on programming, probability / statistics, atmospheric chemistry, aerosol science, and reactive chemical transport modeling. He has held numerous leadership positions within the University of California including serving as chair of the system-wide Committee on Research Policy and a member of the Portfolio Review Group that evaluated system-wide Research Centers. Outside of the University, Dr. Kleeman has served on the Editorial Advisory Board for Atmospheric Environment and Aerosol Science and Technology. Dr. Kleeman's research over the past two years has been supported by the US Environmental Protection Agency, the National Institute of Environmental Health Sciences, the Health Effects Institute, the California Air Resources Board, the Coordinating Research Council, Climateworks, and Earthjustice.

Kleinman, Michael T.

University of California, Irvine

Dr. Michael T. Kleinman is an Inhalation Toxicologist and Professor in the Department of Environmental and Occupational Health in the University of California, Irvine (UCI) College of Health Sciences, with joint appointments in the Department of Medicine and the Program in Public Health. He was previously an environmental scientist for the U.S. Atomic Energy Commission (AEC) and the director of the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He holds a M.S. in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from Institute of Environmental Medicine of New York University. He currently is the Co-Director of the Air Pollution Health Effects Laboratory at UCI. He has published more than 145 peer-reviewed journal articles on effects of environmental contaminants on cardiopulmonary and immunological systems and on global and regional distribution of toxic environmental materials including heavy metals and radioactive contaminants from nuclear weapons testing. His current research focuses on the effects of inhaled particles on the heart and brain to develop better understanding how these effects are mediated by toxic metals, organic constituents and elemental carbon components of inhaled substances. Funding for Dr. Kleinman's research is from grants from the California Health Effects of Air Pollution Foundation, the California Air Resources Board and the National Institutes of Health. Dr. Kleinman has served on several Clean Air Scientific Advisory Committee (CASAC) panels (Particulate Matter, Ozone, Nitrogen Oxides) and is a member of the Environmental Protection Agency (EPA) Board of Scientific Counselors Air and Energy (AE) Subcommittee, has formerly served on the STAA panel, is a member of the Scientific Review Panel for Toxic Substances for the state of California and is the Vice-Chair of the Science Advisory Council for the Bay Area Air Quality Management District.

Koutras, Carolina

Mindelio Inc., R-Zero Systems

Dr. Koutras combines an extensive background in research and innovation, having led global clinical science and R&D activities in the private sector, and the implementation of major strategic investments in health research and capacity building in the public sector. She serves on Health Canada's Science Advisory Committee on Pest Control Products as a Specialized Expert, Ultraviolet Devices; co-chairs the Technology and Research of Air and Surface Treatment (TRAST) Task Force at the International Ultraviolet Association (IUVA), and is a

member of the Association for Professionals in Infection Control & Epidemiology (APIC). Dr. Koutras was a Donald Burns and Louise Berlin Fellowship recipient, holds a PhD from Laval University, a BSc from Paris Descartes University, and is fluent in English, French, and Brazilian Portuguese. In addition, she has previously served in various community engagement roles at institutions such as the Canadian Science Policy Centre, Alberta Health Services, and The Alzheimer Society of Ontario.

Kuminoff, Nicolai

Arizona State University & NBER

Dr. Nick Kuminoff is an Associate Professor in the Economics Department at Arizona State University, a Research Associate at the National Bureau of Economic Research, and editor of the Journal of the Association of Environmental and Resource Economists. His research aims to understand consumer preferences for public goods and environmental amenities from their private market choices. His recent projects have included developing satellite accounts for non-market expenditures on environmental amenities, predicting the distributional welfare effects of choice architecture policies, examining how pollution exposures affects health and human capital among older adults, and estimating their willingness to pay to reduce morbidity and mortality risks. Dr. Kuminoff's research has been funded by the EPA, the National Institute of Health, and the National Science Foundation, and published in journals such as the American Economic Review, International Economic Review, Journal of Economic Literature, Journal of Environmental Economics and Management, Review of Environmental Economics and Policy, Land Economics, Environmental and Resource Economics, Journal of Econometrics, Proceedings of the Royal Society-B, and Water Resources Research. He currently serves as Secretary for the Association of Environmental and Resource Economists, and as an editorial board member at the Journal of Environmental Economics and Management and at the Review of Environmental Economics and Policy. Dr. Kuminoff obtained a Ph.D. in Economics from North Carolina State University (2006) and MS (2000) and BS (1999) degrees in Agricultural and Natural Resource Economics from the University of California-Davis.

Lone Fight, Lisa

Three Affiliated Tribes

Ms. Lisa Lone Fight (enrolled citizen of the Mandan, Hidatsa, and Arikara [MHA] Nation, Dripping Dirt Clan) is an environmental and remote sensing scientist and the Director of the MHA Nation's Science, Technology and Research Department. Her publications include, "Keeping Native American Communities Connected to the Land: Women as Change Agent," and "Rangelands and "A View from the Sky" in the book, Tribal GIS." Ms. Lone Fight lectures and presents widely on environmental science and remote sensing and was an invited presenter at the United Nations on Indigenous Women's Intellectual Property. Her current projects include the establishment of the Science, Technology, and Research Department of the MHA Nation. This will be the first governmental research department established by a tribal nation. She was also the founding Director of the Wind River Native Science Field Center, an NSF-funded project where she developed and implemented a collaborative model for creating informal science learning experiences for Native students. Her work has been profiled in the Emmy Award-winning PBS documentary, "Before They Were Parks," and in national news outlets. She has been a Sloan Fellow, Native Science Fellow, and Ph.D. student at Montana State University in the Department of Earth Sciences, Geosciences, as well as serving as the Senior Environmental Scientist for the Chairman's Office of the MHA Nation. She was selected to be one of 35 national participants in the, "Radical Innovation Summit to Advance STEM Education." Ms. Lone Fight currently serves on the North Dakota Advisory Committee to the U.S. Commission on Civil Rights, the MHA Nation Federal Partners Working Group, as well

as the International Souris River Study Board. She has served on the boards of the American Indian Science and Engineering Society, the Indigenous Women in Science Network, and the Society of STEM Women of Color Research Review Board.

McConnell, Rob

University of Southern California

Dr. Rob McConnell is a physician, environmental epidemiologist, and Professor of Population and Public Health Sciences at the University of Southern California (USC). He directs the National Institute of Environmental Health Sciences (NIEHS)-supported Southern California Environmental Health Sciences Center and the Southern California Children's Environmental Health Center. He has made important contributions to understanding the role of air pollution in childhood origins of asthma and lung function deficits, early markers for cardiovascular disease, obesity and metabolic disease, and autism and neurodevelopment. He has studied the respiratory hazards of e-cigarettes and the determinants of tobacco product use. Dr. McConnell's research includes novel methods for assessment of environmental exposure and susceptibility to the effects of air pollution related to psychosocial stress and social factors, exercise, and genetic variation. He has estimated the burden of disease associated with near-roadway air pollution as a local tool for risk communication with communities and policy makers. He served on the Clean Air Science Advisory Committee on PM2.5 before it was disbanded under the last administration. He co-directs the NIEHS T32 training program in environmental genomics. In 2019, Dr. McConnell received one of eight university-wide awards for mentorship of junior faculty and postdoctoral scholars. He serves on the Appointments and Promotions Committee of the Keck School of Medicine. Prior to coming to USC, as the director of a World Health Organization (WHO) regional center for environmental health for Latin America and the Caribbean, he was a member of advisory committees to the Ministries of Health in the Americas and of the senior management team to the WHO Regional Director for the Americas. He has published over 220 peer reviewed publications and is a fellow of the American Association for the Advancement of Science.

Neidell, Matthew

Columbia University

Dr. Matthew Neidell is an economics professor in the Department of Health Policy and Management at Columbia University's Mailman School of Public Health. He is also a faculty member with the Earth Institute and the Columbia Population Research Center, with research affiliations at the National Bureau of Economic Research and Institute of Labor Economics (IZA). Dr. Neidell received his PhD in economics from the University of California, Los Angeles (UCLA), and was a post-doc at the University of Chicago prior to joining Columbia. He has performed policy work for various organizations, including the EPA, Institute of Medicine, Rockefeller Foundation, and World Bank. His fields of specialization are environmental, health, and labor economics, with research primarily focused at the intersections of these. His most recent work applies the latest empirical methods to examine the relationship between the environment and a wide range of measures of well-being, including worker productivity and human capital, and how human behavior affects these relationships. As an interdisciplinary scholar, Dr. Neidell has published extensively in both economics and health science journals. He is currently a co-editor at the Journal of the Association of Environmental and Resource Economists, associate editor at the Journal of Human Resources, and serves on the editorial board of the Review of Environmental Economics and Policy.

Neptune, Enid

Johns Hopkins University

Dr. Enid Neptune is an Associate Professor of Medicine at Johns Hopkins School of Medicine in the Division of Pulmonary and Critical Care Medicine and the Institute of Genetic Medicine/Smilow Center of Marfan Research. She holds a B.A. in Biochemistry from Princeton University and an M.D. from Harvard Medical School. She completed an Internal Medicine Residency and Pulmonary and Critical Care Fellowship at University of California San Francisco. She completed a genetics fellowship at Johns Hopkins School of Medicine. She has been an active member of the American Thoracic Society (ATS) ascending to the upcoming Chair of the Respiratory Cell and Molecular Biology Assembly, the signature basic science assembly of the organization, and member of the Board of Directors. As vice-chair of the ATS Tobacco Action Committee, she guided the formulation of policies, positions and relevant publications for the ATS relevant to Tobacco Control Advocacy. Dr. Neptune is active in ATS and Johns Hopkins School of Medicine disparities efforts. Dr. Neptune has an extensive interest in environmental health especially as this converges onto ethnic disparities in tobacco product and air pollution exposure. She provided testimony at legislative sessions in which policies involving environmental health regulations were under consideration. Dr. Neptune is an internationally renowned expert on airspace injury and the pulmonary manifestations of genetic matrix disorders. She is on the professional advisory board of the Marfan Foundation. She is currently on the Board of Scientific Counselors of the National Institute of Health (NIH) Clinical Center and is a member of the Scientific Advisory Board of both the Tobacco-Related Disease Research Program and the American Lung Association. She is on the editorial board of journals including the American Journal of Respiratory and Critical Care Medicine (AJRCCM) and Journal of Clinical Investigation. Over the last 2 years, her research has been funded by four RO1 grants (as Principal Investigator on all) from the National Heart, Lung, and Blood Institute (NHLBI) and a Faculty Research Grant from the Marfan Foundation.

Newbold, Stephen

University of Wyoming

Dr. Stephen Newbold has been an Associate Professor in the Department of Economics, University of Wyoming since 2018. He holds an MS in Agricultural and Resource Economics and PhD in Ecology from the University of California, Davis (2001). His areas of expertise include environmental and natural resource economics, bio-economic modeling, applied econometrics, non-market valuation of environmental quality and human health outcomes, climate change economics, the value of information from scientific studies, and benefit-cost analysis of environmental and public health policies. Dr. Newbold's current research activities include integrated epidemiological and economic modeling of infectious diseases, meta-analysis of published estimates of the value per statistical life, and econometric analysis of demand for outdoor recreation activities.

Oliva, Paulina

University of Southern California

Dr. Paulina Oliva is an Associate Professor in the Economics Department of the University of Southern California. She received her PhD in Economics from UC, Berkeley in 2009. She specializes in the fields of Environmental Economics and Development. Her work looks at the relationship between air pollution and economic outcomes in large cities of the developing world. She also studies individual incentives to comply with environmental policy in low and middle-income countries, as well as the distributional impacts of environmental policy.

Patterson Regan

UCLA

Dr. Regan F. Patterson is a newly appointed Assistant Professor of Civil and Environmental Engineering at the University of California, Los Angeles. She was previously the Transportation Equity Research Fellow for the Congressional Black Caucus Foundation (CBCF), where she conducted intersectional transportation policy analysis and research. Prior to joining the CBCF, Dr. Patterson was a postdoctoral research fellow at the University of Michigan Institute for Social Research, where she examined the linkages between racial residential segregation and air pollution. She earned her PhD in Environmental Engineering at the University of California, Berkeley. While at UC Berkeley, she was a recipient of the US EPA STAR Fellowship, the Switzer Environmental Fellowship, and the UC Berkeley Chancellor's Fellowship. Dr. Patterson's dissertation research modeled the air quality and environmental justice benefits of state and local transportation policies for mitigating exposure to near-roadway, diesel-related air pollution. Her dissertation is published in the peer-reviewed journals Atmospheric Environment, Environmental Justice, and the International Journal of Environmental Research and Public Health. Additionally, she has conducted air quality research in Kenya and China. Dr. Patterson has taught courses on the environment, environmental justice, and Geographic Information Systems (GIS). Dr. Patterson's research agenda is informed by her experience working with environmental justice nonprofits as well as government agencies. She has volunteered with Communities for a Better Environment on their Just Transition climate justice initiative. She has also volunteered with Greenaction for Health and Environmental Justice, where she served as a member of the Bayview Hunters Point Environmental Justice Response Task Force. Additionally, Dr. Patterson interned with the Bay Area Air Quality Management District in their Community Engagement Office. She also interned with the California Office of Environmental Health Hazard Assessment. Dr. Patterson holds a B.S. in Chemical Engineering from UCLA and an M.S. in Environmental Engineering from UC Berkeley.

Patz, Jonathan

University of Wisconsin-Madison

Jonathan Patz, MD, MPH, the Vilas Distinguished Achievement Professor & John P. Holton Chair of Health and the Environment, and founding director of the Global Health Institute at the University of Wisconsin-Madison. His faculty appointments are in the Nelson Institute for Environmental Studies and the Department of Population Health Sciences. Dr. Patz co-chaired the health report for the first Congressionally mandated US National Assessment on Climate Change and for 15 years, served as a lead author for the United Nations Intergovernmental Panel on Climate Change (IPCC) – the organization that shared the 2007 Nobel Peace Prize. Some of his other awards include: the Aldo Leopold Leadership Fellows Award; shared Zayed International Prize for the Environment; Fulbright Scholarship; American Public Health Association's Homer Calver Award for environmental health leadership; Case Western School of Medicine Alumni Special Recognition award; Chanchlani Global Health Research Award; elected member of the National Academy of Medicine. Professor Patz has taught and conducted research on the health effects of climate change and global environmental change, "Planetary Health," for more than 20 years and has published over 200 science publications and several textbooks on the subject.

Peel, Jennifer

Colorado State University

Dr. Jennifer L. Peel is a Professor and Section of Head of Epidemiology in the Department of Environmental and Radiological Health Sciences at Colorado State University (CSU). She also holds an appointment as a Professor in the Departments of Epidemiology and Environmental and Occupational Health in the Colorado School of Public Health. She holds a B.S. in

Biochemistry and Molecular Biology from The Pennsylvania State University, and a Ph.D. and M.P.H. in Epidemiology from the Rollins School of Public Health at Emory University. Dr. Peel's research focuses on the health effects of air pollution, including ambient air pollution in the United States and household air pollution in low- and middle-income countries. She is currently one of three principal investigators (PIs) of the Household Air Pollution Intervention Network (HAPIN) trial, a multi-site randomized trial evaluating the impact of a liquefied petroleum gas stove and fuel intervention on exposure to air pollution and health across the lifespan among 3,200 households using biomass for cooking in Guatemala, India, Peru, and Rwanda. The trial, funded by the National Institutes of Health (NIH) and the Bill & Melinda Gates Foundation, is evaluating adverse birth outcomes, growth, cognitive development, and severe pneumonia among children, and indicators of chronic disease among older adult women, among other outcomes. Dr. Peel has also recently served as PI of two additional projects funded by NIH, one evaluating the emissions and acute health effects from emissions from household cookstoves and another evaluating exposures and acute health effects experienced while commuting by bicycle and by car. Dr. Peel is a member of the Review Committee for the Health Effects Institute, a standing member of the Infectious Disease, Respiratory, Asthma and Pulmonary Conditions Study Section for NIH, and an ad hoc member of several grant review sections for the National Institute of Environmental Health Sciences. She is also a member of the World Health Organization Technical Advisory Group on Global Air Pollution and Health, an Associate Editor for the journals *Environmental Health Perspectives* and *Indoor Air*, and the incoming Associate Chair of the Biomedical Institutional Review Board at CSU. She has additionally contributed written material and served on panels for the U.S. Environmental Protection Agency Integrated Science Assessment process for ambient pollution.

Pozefsky, Diane

UNC Chapel Hill

After earning a Ph.D. in Computer Science from University of North Carolina (UNC)-Chapel Hill, Dr. Diane Pozefsky spent 25 years at IBM where she reached the position of IBM Fellow. At IBM, she worked in the fields of software development and networking protocols, co-authoring 9 papers and being awarded 25 patents. Dr. Pozefsky retired early from IBM in order to pursue interests in teaching and worked full-time in that area at UNC for 15 years. During those years, Dr. Pozefsky taught project courses in software engineering and serious games, supervising 10-15 teams a semester as they developed software for clients (typically NGOs and university faculty or staff). During her time at UNC, she also worked in Dr. Alex Tropsha's Cheminformatics lab, developing Chembench, a publicly-available cheminformatics portal, and co-authoring four additional papers. Dr. Pozefsky stopped working in his lab when she became Director of Undergraduate Studies for the Department of Computer Science. Three years ago Dr. Pozefsky retired and now teaches project courses in serious games and user interfaces as an adjunct professor.

Pullen-Fedinick, Kristi

Natural Resources Defense Council

Dr. Kristi Pullen Fedinick is the Chief Science Officer at the Natural Resources Defense Council. She also holds a faculty appointment in the Department of Environmental and Occupational Health of the Milken Institute School of Public Health at The George Washington University. Dr. Pullen Fedinick holds a B.S. in Biochemistry and Molecular Biology from the University of Maryland Baltimore County and a Ph.D. in Molecular and Cell Biology with a focus on Biochemistry, Biophysics, and Structural Biology from the University of California, Berkeley. For her postdoctoral work, Dr. Pullen Fedinick was a Robert Wood Johnson Foundation Health and Society Scholar at the Harvard T. H. Chan School of Public Health. Dr.

Pullen Fedinick's current work resides at the intersection of science and public policy and seeks to advance protections for people and communities disproportionately impacted by environmental and social impacts. She uses a combination of geospatial, statistical, and computational tools to assess the distribution and impact of chemicals in the environment, with a particular emphasis on drinking water and cumulative exposures. Her work also includes the evaluation of the use of high-throughput technologies, predictive toxicology, epidemiology, and computational approaches in chemical evaluations. Dr. Pullen Fedinick has authored multiple policy reports, peer-reviewed articles, and policy comments, and served on numerous influential committees of the National Academies of Sciences (NAS), Engineering, and Medicine - including the Committee on the Application of Systematic Review in Toxic Substances Control Act (TSCA) Risk Evaluations, the Committee on Incorporating 21st Century Science in Risk-Based Evaluations, and the Standing Committee for Emerging Science for Environmental Health Decisions. She has also participated in multiple government, academic, and professional society panels, and committees.

Robinson, Lisa

Harvard T.H. Chan School of Public Health

Lisa A. Robinson is Deputy Director, Center for Health Decision Science, and Senior Research Scientist, Center for Health Decision Science and Center for Risk Analysis, Harvard T.H. Chan School of Public Health. She received her Masters' in public policy degree from the Harvard Kennedy School of Government. Her research and teaching focus on the conduct of benefit-cost analysis and other forms of economic evaluation. She has directed numerous assessments of the costs, benefits, and other impacts of environmental, health, and safety policies and regulations; developed related methods; and drafted guidance documents. Recently, she led the creation of economic analysis guidelines for the U.S. Department of Health and Human Services and the Bill & Melinda Gates Foundation. She has developed approaches to value mortality risk reductions (the value per statistical life, VSL) and morbidity risk reductions for several government agencies and other organizations. Ms. Robinson was previously a Senior Fellow at the Mossavar-Rahmani Center for Business and Government as well as an Affiliate Fellow of its Regulatory Policy Program at the Harvard Kennedy School; a Principal at Industrial Economics, Incorporated; the Director of Policy, Planning, and Budget for the federal Institute of Museum Services; and an analyst at the U.S. Office of Management and Budget. She is a past President of the Society for Benefit-Cost Analysis and served as a Councilor of the Society for Risk Analysis as well as Chair of its Economics and Benefits Analysis Specialty Group. She was named a Fellow of the Society of Benefit-Cost Analysis, its highest award for distinguished achievement, and received the Outstanding Practitioner award from the Society for Risk Analysis. She is also a recipient of the Richard J. Burk Outstanding Service Award from the Society for Risk Analysis and the Richard O. Zerbe Distinguished Service Award from the Society for Benefit-Cost Analysis, as well as a Fellow of the Society for Risk Analysis. Ms. Robinson serves on the Editorial Boards of Risk Analysis and the Journal of Benefit-Cost Analysis, which presented her with its Best Symposium award. She has served on several advisory committees and has received research funding for various topics related to benefit-cost analysis and risk analysis from government agencies and foundations.

Russell, Armistead (Ted)

Georgia Institute of Technology

Dr. Armistead (Ted) Russell is the Howard T. Tellepsen Chair and Regents' Professor of Civil and Environmental Engineering at Georgia Tech, where his research is aimed at better understanding the dynamics of air pollutants at urban and regional scales and assessing their impacts on health and the environment to develop approaches to design strategies to effectively

improve air quality. He earned his M.S. and Ph.D. degrees in Mechanical Engineering at the California Institute of Technology, conducting his research at Caltech's Environmental Quality Laboratory. His B.S. is from Washington State University. Dr. Russell was a member of EPA's Clean Air Science Advisory Committee (CASAC) and a member of the National Research Council's Board on Environmental Studies and Toxicology. He chaired the CASAC NO_x-SO_x Secondary National Ambient Air Quality Standard (NAAQS) Review Panel, the Ambient Air Monitoring Methods Subcommittee and the Council on Clean Air Compliance Analysis' Air Quality Modeling Subcommittee, and served on the Health Effects Institute's Report Review Committee. He was an Associate Editor of the journal Environmental Science and Technology and co-directed the Southeastern Center for Air Pollution and Epidemiology. He currently co-directs the National Science Foundation (NSF)-funded Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy, and Livable Cities network and is on the Health Effects Institute (HEI)-Energy Research Committee and Air and Waste Management Association (AWMA) Publications Committee. Funding for Dr. Russell's research currently includes the Department of Defense, HEI, the National Institutes of Health (NIH), EPA, Phillips 66 and the JPB Foundation.

Shindell, Drew

Duke University

Dr. Drew Shindell is Nicholas Professor of Earth Sciences at Duke University. From 1995 to 2014 he was at the National Aeronautics and Space Agency (NASA) Goddard Institute for Space Studies in New York and taught at Columbia University. He earned a BA at the University of California Berkeley and PhD at Stony Brook University, both in Physics. He studies climate change, air quality, and links between science and policy. His research group is particularly focused on quantifying the impacts on human health, agricultural yields, climate and the economy of policies that might be put into place to mitigate climate change or improve air quality. He also studies how regional climate responds to changes in radiative forcing by different agents and in different locations. He has been an author on >275 peer-reviewed publications, received awards from Scientific American, the National Air and Space Administration (NASA), the National Science Foundation (NSF) and EPA, and is an elected fellow of the American Geophysical Union and American Association for the Advancement of Science. He has testified on climate issues before both houses of Congress (at the request of both parties), developed a climate change course with the American Museum of Natural History, and made numerous media appearances as part of his outreach efforts. He chaired the 2011 Integrated Assessment of Black Carbon and Tropospheric Ozone from the United Nations Environment Programme (UNEP), was a Coordinating Lead Author on the 2013 Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and on the 2018 IPCC Special Report on 1.5C and chaired the 2021 Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions from UNEP. He currently chairs the Scientific Advisory Panel to the Climate and Clean Air Coalition of nations and organizations. His recent research has been supported by NASA, the United Nations Environment Program (UNEP) and the NSF.

Smith, Richard

University of North Carolina, Chapel Hill

Dr. Richard L. Smith is Mark L. Reed III Distinguished Professor of Statistics and Professor of Biostatistics in the University of North Carolina, Chapel Hill. From 2010-2017 he was Director of the Statistical and Applied Mathematical Sciences Institute (SAMSI), a Mathematical Sciences Institute supported by the National Science Foundation. From January-June 2018, he was Associate Director of SAMSI. He obtained his Ph.D. from Cornell University and

previously held academic positions at Imperial College (London), the University of Surrey (Guildford, England) and Cambridge University. His main research interest is environmental statistics and associated areas of methodological research such as spatial statistics, time series analysis and extreme value theory. He is particularly interested in statistical aspects of climate change research, and in air pollution including its health effects. He is a Fellow of the American Statistical Association and the Institute of Mathematical Statistics, an Elected Member of the International Statistical Institute, and has won the Guy Medal in Silver of the Royal Statistical Society, and the Distinguished Achievement Medal of the Section on Statistics and the Environment, American Statistical Association. In 2004 he was the J. Stuart Hunter Lecturer of The International Environmetrics Society (TIES). He is also a Chartered Statistician of the Royal Statistical Society. In 2020, he was elected a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Smith was a member of the EPA SAB from December 2017 until the Board was dissolved in March 2021. He was also a member of the SAB Radiation Advisory Committee. His recent research funding has come through the National Science Federation (as Director or Associate Director, through June 2018, of the research institute SAMSI, and also as holder of a collaborative grant on climate extremes, through 2019) and the National Institutes of Health (as an investigator in a grant based at George Washington University, on the effect of air pollution on Alzheimer's disease and related dementia conditions). He also participated in an industry-funded research collaboration "A counterfactual approach to quantifying the causal effect of fine particulate matter on mortality" (the main activity took place in 2016-2018 but there is still a paper in process from that activity).

Sohn, Michael

Lawrence Berkeley National Laboratory

Dr. Michael Sohn is a Staff Scientist at Lawrence Berkeley National Laboratory. Since 1998, he conducts research on developing mathematical models of urban environments with particular interest in airflow and pollutant transport between buildings (e.g., urban canyons) and into exchange with buildings (e.g., indoor-outdoor transport). He also conducts large-scale tracer gas field experiments to calibrate and verify the performance of these models. He is the current lead of a multi-year multi-institution project for the US Department of Defense to develop a first-response hazard assessment software package which will provide a quick prediction capability for immediate chemical transport concerns. He recently completed tracer several field experiments, one to verify the efficacy of highway hazard assessment models, with particular interest in the chemical decay away from highways, another to consider chemical transport through subways, and another to consider the transport out of buildings to people outdoors. His Ph.D. in environmental engineering is from Carnegie Mellon University where he developed methods for assessing and reducing uncertainty in environmental models using Bayesian probabilistic methods.

Spak, Scott

University of Iowa

Dr. Scott Spak is an Associate Professor of Planning and Public Affairs and Civil and Environmental Engineering at the University of Iowa (UI) and Senior Research Fellow at the UI Public Policy Center. He studies how technology, policy, and societal change impact pollution, climate, and health, and models linked Earth and human systems to inform policy at urban to global scales. Dr. Spak's active research includes software development in photochemical air quality modeling, atmospheric modeling, demographic modeling, and statistics, frequently applying GIS, risk assessment, and economic modeling. He actively uses BenMAP applied to U.S. and international communities since 2009, with one current U.S. and one current international application. Dr. Spak is active and has recent research publications,

and provides graduate instruction, on statistics, demographics, and GIS. Recent research has been funded by the National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program. Dr. Spak holds a Ph.D. in Atmospheric and Oceanic Sciences from the University of Wisconsin-Madison and a BA in Engineering Sciences from Dartmouth College.

Tessum, Christopher

University of Illinois

Dr. Christopher Tessum is an Assistant Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign. Dr. Tessum received a B.M.E in Mechanical Engineering and an M.S. and Ph.D. in Civil, Environmental, and Geo- Engineering, with a minor in Public Health, from the University of Minnesota. His research assesses air pollution-related effects of human activity, focusing on mechanistic modeling of outdoor air pollution and its health impacts, quantifying inequities in the distribution of those impacts, and proposing and testing solutions. He studies the relationships between emissions, human activities that cause them, and the resulting health impacts, and we develop modeling capabilities to enable these types of analyses. His research has been supported by National Aeronautics and Space Administration (NASA) and the Environmental Protection Agency (EPA) and has been published in top academic journals such as the Proceedings of the National Academy of Sciences of the United States of America and Science Advances. Dr. Tessum is the lead developer of the Intervention Model for Air Pollution (InMAP), a reduced-complexity atmospheric model for air quality health impact assessment.

West, Jason

University of North Carolina at Chapel Hill

Dr. J. Jason West is Professor of Environmental Sciences & Engineering at the University of North Carolina at Chapel Hill. Dr. West is an engineer and leader in interdisciplinary research that connects air pollution, climate change, energy, and human health, using models of atmospheric transport and chemistry at global through local scales. He led some of the first studies to use computer models of the global atmosphere to assess the health impacts of ambient air pollution, addressing the global burden of air pollution on mortality, the co-benefits of greenhouse gas mitigation for global air quality and health, and the impacts of climate change on global air quality and health. Dr. West has served on the Scientific Steering Committee of the International Commission on Atmospheric Chemistry and Global Pollution, and the National Air and Space Administration (NASA) Health and Air Quality Applied Sciences Team, and is a Leopold Leadership Fellow. He is on the editorial board of Atmospheric Chemistry & Physics. He is currently lead author on the air quality chapter of the forthcoming Fifth US National Climate Assessment, and serves on EPA's Clean Air Scientific Advisory Committee for ozone. He is also co-chair of an expert working group on air pollution exposure for the World Health Organization. He earned a B.S. from Duke University, M.Phil. from the University of Cambridge, and an M.S. and Ph.D. from Carnegie Mellon University. He worked as a researcher at MIT and Princeton, was an American Association for the Advancement of Science Fellow at the U.S. Environmental Protection Agency, and a visiting scientist at the National Institute for Ecology in Mexico City. Dr. West has been Principal Investigator on grants from EPA, NASA, the National Science Foundation (NSF), and the National Institute of Environmental Health Sciences (NIEHS).

Wilson, Sacoby

University of Maryland-College Park

Dr. Sacoby Wilson is an Associate Professor with the Maryland Institute for Applied Environmental Health and Department of Epidemiology and Biostatistics, School of Public

Health, University of Maryland-College Park. Dr. Wilson has over 20 years of experience as an environmental health scientist in the areas of exposure science, environmental justice, environmental health disparities, community-engaged research including community-based participatory research (CBPR), citizen science, and crowd science, water quality analysis, air pollution studies, built environment, industrial animal production, climate change, community resiliency, and sustainability. He works primarily in partnership with community-based organizations to study and address environmental justice and health issues and translate research to action. Dr. Wilson is Director of Community Engagement, Environmental Justice and Health (CEEJH). CEEJH is focused on providing technical assistance and research support to communities fighting against environmental injustice and environmental health disparities in the DMV region and across the nation. Through CEEJH, Dr. Wilson is engaging communities in the Washington, DC region and beyond on environmental health issues including exposure and health risks for individuals who fish and recreate on the Anacostia River; use of best management practices to reduce stormwater inputs in the Chesapeake Bay; air pollution and health impacts due to industrial and commuter traffic in Bladensburg, MD; built environment, environmental injustice, and vectors in West Baltimore; cumulative impacts of environmental hazards on air quality in Brandywine, MD; goods movement, industrial pollution, and environmental injustice in South Baltimore, MD; environmental justice and health issues in Buzzard Point area of Washington, DC; industrial chicken farming on Maryland's Eastern Shore; health impact of assessment in the Sheriff Road community; and other topics. In addition, he is working with schools in the region on pipeline development efforts in the STEM+H disciplines (Science, Technology, Engineering, Mathematics, and Health). He has worked on environmental justice issues including environmental racism with community-based organizations through community-university environmental health and justice partnerships in South Carolina and North Carolina including the Low-Country Alliance for Model Communities (LAMC), in North Charleston, South Carolina; the West End Revitalization Association (WERA) in Mebane, NC; and the Graniteville Community Coalition (GCC) in Graniteville, SC. He has provided technical assistance to REACH in Duplin County, NC; RENA in Orange County, NC; and the NC Environmental Justice Network. He also has worked on environmental justice and air pollution issues with community-based groups in Houston, Texas, Savannah, GA, Uniontown, AL, and Wilmington, DE. Dr. Wilson has been very active professionally to advance environmental justice science. He is a member of EPA's National Environmental Justice Advisory Council (NEJAC), member of the National Academy of Science's Board on Environmental Studies and Toxicology (BEST), board member of the Citizen Science Association, Editor in Chief of Environmental Justice, a past Chair of the APHA Environment Section, former Board member of Community-Campus Partnerships for Health, a former member of Board of Scientific Counselors for the CDC NCEH/ATSDR, and former Chair of the Alpha Goes Green Initiative, Alpha Phi Alpha Fraternity, Inc. He is also a senior fellow in the Environmental Leadership Program. Dr. Wilson has helped to build numerous environmental justice organizations and coalitions. He is Co-Founder of the District of Columbia, Maryland and Virginia (DMV) Environmental Justice Coalition which has been relaunched as the Chesapeake Bay Environmental Justice Coalition in 2021. He is Founder of 17 for Peace and Justice, an environmental justice advocacy organization. He currently is faculty advisor for a student chapter of 17 for Peace and Justice on the campus of the University of Maryland-College Park. He is on the steering committee for the recently relaunched National Black Environmental Justice Network (NBEJN). Additionally, he hosts an annual environmental justice symposium that brings together community members, advocates, policymakers, researchers, students, and practitioners to discuss ways to address environmental justice issues in the DMV region and around the country. Dr. Wilson has received many awards for his contributions and achievements as an environmental justice researcher and advocate. He

won the 2018 Taking Nature Black Environmental Champion Award. He also received the American Public Health Association (APHA) Environment Section Damu Smith Environmental Justice Award in 2015. From the University of Maryland School of Public Health, he received the George F. Kramer Practitioner of the Year Award (2014-2015) and the Muriel R. Sloan Communitarian Award (2019-2020, 2012-2013). He also received the Reverend Dr. Martin Luther King Jr. Social Justice Award from the University of South Carolina in 2011. He received an EPA Environmental Justice Achievement Award given to Low Country Alliance for Model Communities, North Charleston, SC and Mitigation Agreement Committee. Additionally, Dr. Wilson received the Steve Wing International Environmental Justice Award in 2008. Dr. Wilson, a two-time EPA Science to Achieve Results (STAR) fellow, EPA Minority Academic Institutions (MAI) fellow, Udall Scholar, National Air and Space Administration (NASA) Space Scholar, and Thurgood Marshall Scholar, received his BS degree in Biology/Ecotoxicology with a minor in Environmental Science from Alabama Agricultural and Mechanical University in 1998. He received training in environmental health in the Department of Environmental Sciences and Engineering, at the University of North Carolina at Chapel Hill. Dr. Wilson received his MS degree in 2000 from UNC-Chapel Hill and his PhD from UNC-Chapel Hill in 2005.

Zhang, Nanhua

Cincinnati Children's Hospital

Dr. Nanhua Zhang is an Associate Professor in the Division of Biostatistics & Epidemiology at the Cincinnati Children's Hospital Medical Center (CCHMC) and the University of Cincinnati College of Medicine. His research interests in study design, causal inference, and methods for handling incomplete data. His paper in the American Journal of Public Health was among the first to link early childhood lead exposure to academic achievement. Dr. Zhang has authored or co-authored over 100 peer-reviewed articles with some in top medical or public health journals such as the New England Journal of Medicine, Journal of the American Medical Association (JAMA)-Pediatrics, and American Journal of Public Health. Dr. Zhang served as the President of the American Statistical Association Cincinnati from 2019 to 2020. He has reviewed articles for over 40 different journals and is currently on the Editorial Board of British Journal of Psychiatry as a Statistical Advisor. Dr. Zhang also reviewed grants submitted to the Patient-Centered Outcome Research Institute (PCORI), Department of Defense (DoD) and the National Security Agency (NSA). In the past two years, Dr. Zhang research was supported by grants from the National Institute of Health (NIH), Cystic Fibrosis Foundation (CFF), and CCHMC. Dr. Zhang has served as a reviewer for over 50 different journals.

Zhu, Yiliang

University of New Mexico School of Medicine

Dr. Yiliang Zhu is Professor and Chief in the Division of Epidemiology, Biostatistics, and Preventive Medicine, School of Medicine at the University of New Mexico (UNM). Prior to joining UNM in 2017, he was Professor, the founding director of the Biostatistics PhD program, the Center for Collaborative Research at the University of South Florida College of Public Health. His research focuses on data analytic methods in health risk assessment, including integrative modeling of biological systems, dose-response modeling, benchmark-dose methods, and uncertainty quantification. He also conducts work in biostatistics methods, health service research, as well as directs an ongoing cohort study of the rural healthcare system and policies in northwestern Loess Plateau China. Dr. Zhu was a Fulbright Scholar studying public policy in China (2012-13) and a Science and Technology Policy Fellow of American Association for the Advancement of Science and EPA (2013-15). Dr. Zhu has served on a

number of National Academies committees, including the Committees related to IRIS and Formaldehyde: Committee to Review EPA's Draft Integrated Risk Information System (IRIS) Assessment of Formaldehyde, Committee to Review the IRIS Process, and Committee to Review Advances Made to the IRIS Process, among others.

van der Mensbrugge, Dominique

Purdue University

Dr. Dominique van der Mensbrugge is Research Professor and Director of the Center for Global Trade Analysis (GTAP) at Purdue University. As Director of GTAP he has responsibility for overall management of the development of the GTAP Data Base and Model, working with the GTAP Advisory Board, supervising the Center's short courses, and organizing the annual GTAP Conference. His research focuses in analyzing economic policies of a global nature such as multilateral trade agreements and climate change. His work on climate change has assessed the nature and cost of carbon regimes carbon tax versus cap and trade, size and composition of country coalitions, ambitious versus sub-optimal climate targets and the role of the cost and availability of clean' technologies. His more recent work has included looking at the damage' side of climate change, particularly on agriculture, and assessing the economic tradeoffs between carbon taxes and lower climate damage. His analysis relies on the development and use of a so-called integrated assessment model that integrates economics, greenhouse gas emissions, climate and damages in a coherent modeling framework. Prior to joining Purdue University in 2014, he worked at the Organization for Economic Co-Operation and Development in Paris, France (1988-1998), the World Bank in Washington, DC (1998-2011), and the Food and Agriculture Organization of the United Nations in Rome, Italy (2011-2014). He has an undergraduate degree in mathematics from the University of Louvain in Belgium and a PhD in economics from the University of California at Berkeley.