

Review of the draft Fourth National Climate Assessment

Committee

Robin E. Bell

Chair

DR. ROBIN E. BELL is Palisades Geophysical Institute/Lamont Research Professor at Columbia University's Lamont-Doherty Earth Observatory. She is also currently President-elect of the American Geophysical Union. For 35 years, Dr. Bell has worked alongside a team of Lamont-Doherty Earth Observatory scientists and engineers to coordinate nine major aerogeophysical expeditions to Antarctica and Greenland in order to study ice sheet collapse. Dr. Bell was a leading proponent of the 2007-2008 International Polar Year and has chaired the National Academies' Polar Research Board. Her work examines the implications of climate change on the poles and involves adapting scientific instruments to produce imaginative new insights into the Polar regions. She also conducts work focused on estuarine processes and led a Lamont team to map the Hudson River from Staten Island to Albany. Dr. Bell received her Ph.D. in geophysics from Columbia University in 1989. She has been part of the research staff at Columbia University's Lamont-Doherty Earth Observatory since 1989 and is a member of the Earth Institute faculty. Dr. Bell has published over 90 peer-reviewed articles and more than 30 other publications, and continues to pursue new directions in her field to meet the challenges presented by climate change in the Polar regions.

Bilal M. Ayyub

Member

DR. BILAL M. AYYUB is Professor and Director of the Center for Technology & Systems Management in the Department of Civil and Environmental Engineering at the University of Maryland. Dr. Ayyub's main research interests and work are in risk, uncertainty and decision analysis, resilience, sustainability and adaptation to a changing climate, and systems engineering applied to civil, infrastructure, energy, defense and maritime infrastructure. His work includes risk-informed planning and decision making covering several aspects of project lifecycles and portfolios, such as sustainment and life expectancy assessment of systems, protection of critical infrastructure, bidding strategies, project execution risk, operational risk, risk management including risk transfer and risk finance, and liability and exposure analysis. Professor Ayyub is a distinguished member of the American Society of Civil Engineers (ASCE). He is also a fellow of the American Society of Mechanical Engineers (ASME), the Society of Naval Architects and Marine Engineers (SNAME) and the Society for Risk Analysis (2017-18 Treasurer), and a senior member of the Institute of Electrical and Electronics Engineers (IEEE). He is the FY2017-18 Chair of the ASCE Infrastructure Resilience Division (IRD), and the FY2017 Chair of the ASCE Committee on Adaptation to a Changing Climate (CACC). He chaired the ASME Safety Engineering and Risk Division (SERAD). He is currently the Editor-in-Chief of the ASCE-ASME J. of Risk and Uncertainty in Engineering Systems, and on the editorial boards of several journals, and chaired several ASCE and non-ASCE conferences and workshops. He is the author of over 300 refereed papers and over 30 books and edited volumes. He earned a doctorate degree from the Georgia Institute of Technology (1983).

Michelle L. Bell

Member

DR. MICHELLE L. BELL is a professor of environmental health at the Yale University School of Forestry and Environmental Studies, with secondary appointments at the Yale School of Public Health, Environmental Health Sciences Division and the Yale School of Engineering and Applied Science, Environmental Engineering Program. Dr. Bell's research investigates how human health is affected by atmospheric systems, including air pollution and weather. Much of this work is based in epidemiology, biostatistics, and environmental engineering. The research is designed to be policy-relevant and contribute to well-informed decision-making to better protect human health. She is the recipient of the Prince Albert II de Monaco / Institut Pasteur Award, Rosenblith New Investigator Award, and the NIH Outstanding New Environmental Scientist (ONES) Award. Dr. Bell received her Ph.D. in environmental engineering from John Hopkins University in 2002.

Daniel G. Brown

Member

DR. DANIEL G. BROWN is a professor and director in the School of Environmental and Forest Sciences at the University of Washington. His work, published in over 200 refereed articles, chapters, and proceedings papers, has aimed at understanding human-environment interactions through a focus on land-use and land-cover changes, through modeling these changes, and through spatial analysis and remote sensing methods for characterizing landscape patterns. Recent work has used agent-based and other spatial simulation models to understand and forecast landscape changes that have impacts on carbon storage and other ecosystem services, and human health and well-being. He has conducted field work on three different continents: North America, Asia, and Africa. He has chaired the Land Use Steering Group and Carbon Cycle Steering Group and was a lead coordinating author for the third National Climate Assessment, all under the auspices of the U.S. Climate Change Science Program. He has served on the following National Academies committees: "Needs and Research Requirements for Land-Change Modeling" (chair), "Mapping Sciences Committee" (member), "Earth Science and Applications from Space" (member). In addition, he has served as a member of the NASA Land Cover and Land Use Change Science Team, as panelist for NASA, EPA, USDA Forest Service, the National Science Foundation, and the European Research Council, and on the Editorial Boards for Landscape Ecology, Computers, Environment and Urban Systems; International Journal of Geographical Information Science; and the Journal of Land Use Science. In 2009 he was elected fellow of the American Association for the Advancement of Science. Dr. Brown earned his Ph.D. in geography in 1992 from the University of North Carolina at Chapel Hill.

Daniel R. Cayan

Member

DR. DANIEL R. CAYAN is a Research Meteorologist at the Scripps Institution of Oceanography, University of California San Diego. His work is directed at understanding climate variability and changes over the Pacific Ocean and North America and climate impacts on water, wildfire, health, and agriculture in California and western North America. Dr. Cayan is co-lead for the California Nevada Applications Program, which delivers climate information to decision makers in California and Nevada. He is also one of the scientists involved in the Southwest Climate Science Center, sponsored by the Department of Interior through the U.S. Geological Survey. Cayan is a fellow of the American Geophysical Union. He received a B.S. in meteorology and oceanography from the University of Michigan and a Ph.D. in oceanography from the University of California, San Diego.

F. Stuart Chapin, III

Member

DR. F. STUART CHAPIN, III (NAS) is a professor emeritus of the University of Alaska Fairbanks. Dr. Chapin's research addresses the effects of changes in climate and wildfire on Alaskan ecology and rural communities. He explores ways that communities and agencies can develop options that increase sustainability of ecosystems and human communities over the long term despite rapid climatic and social changes. Through projections of future climate, ecology, and subsistence resources, his research helps people make more informed choices about options for long-term sustainability. Also, his research in earth stewardship explores ways that society can proactively shape changes toward a more sustainable future through actions that enhance ecosystem resilience and human well-being. Dr. Chapin pursues this internationally through the Resilience Alliance, nationally through the Ecological Society of America, and in Alaska through a community partnership that links the sustainability visions of rural indigenous communities with university research expertise to implement those visions. Dr. Chapin received his B.S. in biology from Swarthmore College in 1966 and his Ph.D. in biology from Stanford University in 1973. Dr. Chapin was elected as a member of NAS in 2004. He has participated in several activities with the National Academies including, most recently, serving on the Board on Environmental Change and Society (2012-) and participating as a member of the Committee on Preparing for Nine Billion on the Planet (2013) and the Committee to Review of U.S. Landscape Conservation Cooperatives (2015-16).

John B. Gates

Member

DR. JOHN B. GATES is currently a senior scientist at The Climate Corporation where he serves as Lead for Soil and Crop Modeling. His work leverages data science, numerical modeling and cloud computing to address precision agricultural challenges including nutrient management and risks from extreme weather. Dr. Gates' expertise lies in digital agriculture, nitrogen and irrigation management, soil fertility and hydrology. Dr. Gates received his B.S. in mathematical sciences from the University of Arkansas at Fayetteville in 2002, his M.Sc. in environmental change and management in 2003, and his Ph.D. in geography and the environment in 2007, both from the University of Oxford. He was a postdoctoral fellow at the University of Texas at Austin until 2009 and then served as Harold and Esther Edgerton Assistant Professor in the Department of Earth and Atmospheric Sciences at the University of Nebraska - Lincoln until 2014. He was an associate editor for Hydrogeology Journal from 2009-2014, and has been a Global Fellow of the Robert B. Daugherty Water for Food Institute since 2010.

Ruby Leung

Member

DR. L. RUBY LEUNG (NAE) is a Battelle Fellow at Pacific Northwest National Laboratory and an Affiliate Scientist at National Center for Atmospheric Research. Her research broadly cuts across multiple areas in modeling and analysis of climate and water cycle including orographic processes, monsoon climate, climate extremes, land surface processes, land-atmosphere interactions, aerosol-cloud interactions, and human-Earth system interactions. She is the Chief Scientist of the U.S. Department of Energy (DOE)'s Energy Exascale Earth System Model (E3SM). She has been actively involved in development and application of regional climate models as well as evaluation and analysis of high resolution and variable resolution global climate models. She served on the National Academies committee on "A National Strategy for Advancing Climate Modeling" in 2012 and provided reviews on several National Academies' reports. Currently she is a member of National Academies Board on Atmospheric Sciences and Climate (BASC), DOE Biological and Environmental Research Advisory Committee (BERAC), National Oceanic and Atmospheric Administration (NOAA) Climate Working Group (CWG) of the Science Advisory Board (SAB), and the advisory panel for the National Center for Atmospheric Research (NCAR) Mesoscale and Microscale Meteorology (MMM) Laboratory. She has organized many workshops to define research needs and directions in areas such as integrated water cycle, regional climate modeling, and mountain hydroclimate and water resources. Dr. Leung is a member of the National Academy of Engineering and Washington State Academy of Sciences. She is also a fellow of the American Association for the Advancement of Science (AAAS), American Geophysical Union (AGU), and American Meteorological Society (AMS). She received a BS in Physics and Statistics from Chinese University of Hong Kong and an MS and PhD in Atmospheric Sciences from Texas A&M University.

Janet Peace

Member

DR. JANET PEACE is the Senior Vice President of Policy and Business Strategy at the Center for Climate and Energy Solutions (C2ES). As part of a three-person executive management, she oversees the center's domestic climate policy programs, its Business Environmental Leadership Council, its climate science and resilience program and analysis of market-based policy options. Dr. Peace brings more than 25 years and a wide spectrum of experience on environmental issues to her work at C2ES. As a recognized expert on climate policy, she is a member of the Program Advisory Board for American University's Center for Environmental Policy, a member of the External Advisory Committee for ASU's Urban Resilience to Extremes Sustainability Research Network and a past member of both the National Academies' Roundtable on Climate Change Education and the Council of Canadian Academies on oil sands environmental technologies. Prior to C2ES, Dr. Peace worked on climate policy in Alberta and taught environmental and natural resource economics at the University of Calgary. She also worked as a resource specialist with the U.S. General Accounting Office and as a geologist with the U.S. Geological Survey. She holds a Ph.D. (1994) and Master of Science (1992) in Mineral Economics from Colorado School of Mines and an undergraduate degree in geology (1985) from University of Colorado.

Julie Pullen

Member

DR. JULIE PULLEN is an associate professor in civil, environmental, and ocean engineering at Stevens Institute of Technology. She holds a joint appointment with Brookhaven National Laboratory and is an adjunct research scientist at Columbia's Lamont-Doherty Earth Observatory. Previously, she was the Director of the Department of Homeland Security (DHS) National Center of Excellence in Maritime Security at Stevens and a former science fellow at Stanford's Center for International Security and Cooperation. She studies complex coastal air/sea interactions utilizing high-resolution (5 km) coupled ocean/atmosphere/hydrology models and observations from targeted field campaigns around the globe. Dr. Pullen has served on the steering team for field studies in urban air contaminant dispersion (DHS/Defense Threat Reduction Agency NYC Urban Dispersion Program) and tropical meteorology and oceanography (Office of Naval Research, PhilEx and PISTON programs). Dr. Pullen's research contributes to the understanding and development of resilience and sustainability in coastal environments, and the enhancement of Earth System Models on weather, subseasonal-to-seasonal, and climate timescales. Her work also improves the treatment of air/sea/urban processes within transport and dispersion models for chemical/biological radiological and nuclear (CBRN) applications. In 2015 Dr. Pullen was elected as the physical oceanography councilor for The Oceanography Society. She was a member of the 2014-2016 National Academies committee on Subseasonal to Seasonal Earth System Prediction and is on the international GODAE Coastal Ocean and Shelf Seas Task Team. Dr. Pullen is a board member of the Waterfront Alliance, a civic organization representing over 1000 groups with a stake in the NY/NJ waterfront, and is co-chair of the policy committee. She serves on the Science Advisory Committee for the Environmental & Climate Sciences Department of Brookhaven National Laboratory. Dr. Pullen holds a master's degree in applied mathematics from the University of Arizona, and a Ph.D. in physical oceanography from Oregon State University.

LaVerne E. Ragster

Member

DR. LaVERNE E. RAGSTER is a retired professor of marine biology and President Emerita of the University of the Virgin Islands (UVI). She has conducted research and training in the areas of algal physiology and natural resource management, presented and published in the areas of plant physiology, natural resource management and training, and obtained training and practical experience in institutional and leadership development over a 35 year span. She has served on national, Caribbean, and local boards and commissions addressing higher education, environmental justice, waste management, natural resource management, fisheries, ocean observing systems, and sustainable development. Her current scholarly work at the UVI Caribbean Exploratory (NIMHD) Research Center addresses climate change adaptation and linkages to public health in the Caribbean. Dr. Ragster has been recognized and honored by Virgin Islands organizations, national organizations, higher education institutions, and the President of the United States for her teaching, work in conservation, leadership and community service. Her educational career included completion of a B.S. in biology and chemistry (University of Miami) in 1973, a M.S. in biology (San Diego State University - algal physiology concentration) in 1975 and a Ph.D. in biology (University of California, San Diego - plant biochemistry concentration) in 1980. During the last eight years she has published a number of papers on the role of natural resources in resource management and development, produced programs for the training of faculty and resource managers, and developed curriculum materials to teach natural resource management at the university level in the Caribbean.

Mary Ruckelshaus

Member

DR. MARY RUCKELSHAUS is the Director of The Natural Capital Project and a consulting professor at Stanford University. Mary previously led the Ecosystem Science Program at NOAA's Northwest Fisheries Science Center in Seattle, WA. Prior to that, she was an Assistant Professor of biological sciences at The Florida State University. The main focus of her recent work is on developing a universal approach for valuing nature and mainstreaming it into high-leverage decisions globally. Ruckelshaus serves on the Science Council of The Nature Conservancy and is a Trustee on its Washington Board, is a member of the US Ocean Research Advisory Panel--charged with providing independent science advice to the National Ocean Council, and is a past chair of the Science Advisory Board of the National Center for Ecological Analysis and Synthesis (NCEAS). She was Chief Scientist for the Puget Sound Partnership, a public-private institution charged with achieving recovery of the Puget Sound terrestrial, freshwater and marine ecosystems. Ruckelshaus has a bachelor's degree in human biology from Stanford University, a master's degree in fisheries from the University of Washington, and a doctoral degree in botany, also from Washington.

Susanne Torriente

Member

MS. SUSANNE TORRIENTE is chief resilience officer and assistant city manager for the city of Miami Beach. She is a seasoned public administrator with more than 27 years of service in Miami Dade County and several signature cities in the region. Her sustainability and resiliency portfolio in Miami Beach includes planning, building, code compliance, and environment and sustainability. The City of Miami Beach is a leader and pioneer in adaptation efforts in South Florida. As CRO she is leading the effort to develop an action-oriented citywide resiliency strategy and a broader Greater Miami & the Beaches 100 Resilient Cities Strategy supported by the Rockefeller Foundation. She is also on the board of the Association of Climate Change Officers (ACCO). During her four years as assistant city manager for operations in Fort Lauderdale, Ms. Torriente successfully focused on streamlining city services, initiating strategic management practices & performance measurement systems, and integrating sustainability into city operations. She was the lead staff to the city's visioning process producing Fast Forward Fort Lauderdale: Our City, Our Vision, 2035. She was also selected as a Fellow for the 2012 ICMA Sustainable Communities Fellowship. In 2009, Ms. Torriente was appointed Miami-Dade County's first Sustainability Director and became a founding member of the Southeast Florida Regional Climate Compact staff steering committee. This has afforded her the opportunity to share the south Florida climate resilience story around the world. Ms. Torriente earned her Master's in public administration from the University of Miami in 1990.

Elke U. Weber

Member

DR. ELKE U. WEBER is the Gerhard R. Andlinger Professor in Energy and the Environment and a professor of psychology and public affairs at Princeton University. Dr. Weber's research interests include determinants of risky decision making, cultural, age, gender, and species differences in decision making under risk and uncertainty, measurement of risk perception and risk attitude, role of memory and other cognitive processes in preference construction, financial decision making, environmental decision making, decision neuroscience, and neuroeconomics. Dr. Weber is a fellow of the American Academy of Arts and Sciences, the American Psychological Association, the American Psychological Society, the Society for Experimental Psychology, and the Society for Risk Analysis. She also served previously as president of the Society for Judgment and Decision Making, the Society for Neuroeconomics, as well as the Society for Mathematical Psychology and is a member of the German National Academy of Sciences. Dr. Weber earned her B.A. in psychology from York University in 1980, and her Ph.D. in behavior and decision analysis from Harvard University in 1984.

Cathy L. Whitlock

Member

DR. CATHY WHITLOCK is a professor of Earth Sciences at Montana State University and a fellow of the Montana Institute on Ecosystems. Dr. Whitlock's research interests include Quaternary environmental change, paleoecology and paleoclimatology with a focus on vegetation, fire, and climate history. She is nationally and internationally recognized for her scholarly contributions and leadership activities in the field of past climatic and environmental change, and she has published over 190 reviewed journal articles and book chapters on this topic. Her current research sites extend from Yellowstone and the western U.S. to New Zealand, Tasmania, and Patagonia. Since her arrival at MSU in 2004, Dr. Whitlock has built a successful research and teaching program, and the MSU Paleoecology Lab supports post-docs, graduate students, and undergraduates and visiting scientists from around the world. Her research has been funded by grants from the National Science Foundation, Joint Fire Sciences Program, National Park Service, Department of Energy, USDA Forest Service, and US Geological Survey. She is past President of the American Quaternary Association and has served on national and international advisory committees concerned with climate change. Dr. Whitlock is also the lead author of the 2017 Montana Climate Assessment. She earned her Ph.D. in geological sciences from the University of Washington in 1983 and her BA from Colorado College in 1975.

Gary W. Yohe

Member

DR. GARY YOHE is the Huffington Foundation Professor of Economics and Environmental Studies at Wesleyan University; he has been on the faculty at Wesleyan for more than 30 years. He was educated at the University of Pennsylvania (in mathematics – 1970), and received his PhD in economics from Yale University in 1975. He is the author of more than 150 scholarly articles, several books, and many contributions to print and television coverage of climate issues. He began his work on climate change in 1982. Most of his current work has focused attention on the mitigation and adaptation/impacts sides of the climate issue. Involved since the early 1990's with the Intergovernmental Panel on Climate Change, he received a share of the 2007 Nobel Peace Prize and has been involved in their work supporting global negotiations under the United Nations Framework Convention on Climate Change. Professor Yohe serves as a member of the New York City Panel on Climate Change. He has testified before the Senate Foreign Relations Committee on the "Hidden (climate change) Cost of Oil", the Senate Energy Committee on the Stern Review, and the Senate Banking Committee on "Material Risk from Climate Change and Climate Policy". He served as a member of the Adaptation Panel of the National Academies initiative on America's Climate Choices and as a member of a National Academies Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations that was chaired by Susan Solomon (among many other appointments). Professor Yohe was also Vice Chair of the National Climate Assessment Development and Advisory Committee for Third National Climate Assessment for the Obama Administration that was released by the White House in May of 2014. He currently serves in his seventh year as co-editor of Climatic Change with Michael Oppenheimer.