

David M. Anderson

Dr. David M. Anderson is the Director for the World Data Center for Paleoclimatology, Chief of the Paleoclimatology Branch of NOAA's National Climatic Data Center, and an Associate Professor Adjoint at the University of Colorado. As a paleoclimatologist, his research interests lie in the marine geologic record of the Asian monsoons and other aspects of tropical air-sea interaction, and in the ocean's role in regulating atmospheric carbon dioxide in the past and future. He has served on national and international advisory committees for paleoclimate research, ocean research, and data management issues, and contributed to national reports on abrupt climate change and climate extremes. Dr. Anderson received a B.S. degree in Biology in 1981, an M.S. in Marine Science from San Jose State University, and an M.S. and Ph.D. in Geological Sciences from Brown University in 1991.

Donald F. Boesch

Dr. Donald F. Boesch has served as a Professor in and President of the University of Maryland Center for Environmental Science since 1990. He currently is also Vice Chancellor for Environmental Sustainability for the University System of Maryland. He earned a B.S. in Biology from Tulane University and a Ph.D. in Biological Oceanography from the College of William and Mary. Dr. Boesch has conducted research on coastal and continental shelf environments along the Atlantic Coast and in the Gulf of Mexico, eastern Australia and the East China Sea, focusing on benthic ecology, sedimentary processes, tidal wetlands, and eutrophication. He has long been active in extending knowledge of environmental and resource management at regional, national and international levels, particularly with regard to the restoration of large ecosystems including the Chesapeake Bay, Mississippi Delta, Florida Everglades and Baltic Sea. Dr. Boesch has served multiple terms on the Ocean Studies Board of the National Research Council and has chaired NRC committees on marine environmental monitoring, coastal ecosystem science, and adaptive management of water resources projects. He was co-chair of the coastal and marine sector team for the First U.S. National Assessment of the Potential Consequences of Climate Variability and Change and chairs the Scientific

and Technical Working Group of the Maryland Commission on Climate Change.

Virginia Rose Burkett

Dr. Virginia Rose Burkett is the Chief Scientist for Global Change Research at the U.S. Geological Survey. She was formerly Chief of the Forest Ecology Branch at the National Wetlands Research Center. Dr. Burkett has served as Director of the Louisiana Department of Wildlife and Fisheries, Director of the Louisiana Coastal Zone Management Program, and Assistant Director of the Louisiana Geological Survey. She has published extensively on the topics of global change and low-lying coastal zones. She was a Lead Author on the United Nations Intergovernmental Panel on Climate Change (IPCC) Third and Fourth Assessment Reports (2001 and 2007) and the IPCC Technical Paper on Water (2008). She coordinated both the Coastal and Southeast synthesis chapters of the U.S. National Assessment of climate change and its impacts (2001). Burkett has been appointed to over 40 Commissions, Committees, Science Panels and Boards during her career. She received a B.S. in zoology and an M.S. in botany from Northwestern State University of Louisiana; her doctoral work in forestry was completed at Stephen F. Austin State University in 1996.

Lynne M. Carter

Dr. Lynne M. Carter is the Director of the Adaptation Network, a non-profit (501 c3) organization, and a project of the Earth Island Institute. Dr Carter has been working on climate change issues since her first workshop in 1989 as the executive director of the Center for Ocean Management Studies at the University of Rhode Island. She became the Regional Liaison to all of the 19 regions for the U.S. National Assessment of the Potential Consequences of Climate Variability and Change in 1998. She has developed and taught semester-long and short courses on climate change issues (including the first climate change course in the U.S. to combine science, society, and policy in 1991), both for formal education (students and faculty) and informally for the interested public and for informal educators (e.g. museums, nature centers, etc). She developed a climate change distance-learning course that was offered through the University of Maryland, has taught adult students

at Vermont College, and was an invited teaching fellow at the Environmental Change Institute at Oxford University. She has delivered many public presentations around climate change issues. Dr. Carter has organized conferences and workshops on various aspects of climate change, including for the bi-national New England Governors and Eastern Canadian Premiers on likely climate impacts to natural resources. She has written and contributed to articles and reports on climate change for a variety of audiences. Dr. Carter holds a B.S. in biology from the University of Hartford, an M.S. in zoology from the University of Connecticut, a Master of Marine Affairs from the University of Rhode Island, and a Ph.D. in Maritime Studies (climate change focus) from the University of Wales, Cardiff.

Stewart J. Cohen



Dr. Stewart Cohen is senior researcher with the Adaptation and Impacts Research Division of Environment Canada, and an Adjunct Professor with the Department of Forest Resources Management of the University of British Columbia (UBC). Dr. Cohen's research interests are in climate change impacts and adaptation at the regional scale, and exploring how climate change can affect sustainable development. Recent work includes a case study on climate change and water management in the Okanagan region of British Columbia, and a study on climate change visualization led by Stephen Sheppard of UBC. He is currently a member of the advisory committee for the Columbia Basin Trust climate change adaptation program. Previously, he led the Mackenzie Basin Impact Study (MBIS), a 7-year effort focused on climate change impacts in the western Canadian Arctic, completed in 1997. His earlier work included research on impacts in the Great Lakes and Saskatchewan River Basins. He has been a Lead Author for the Intergovernmental Panel on Climate Change (IPCC) Third and Fourth Assessment Reports, and has contributed to other IPCC documents and technical workshops since 1992. Dr. Cohen is a geographer having received his B.Sc., M.Sc. and Ph.D. from McGill University, University of Alberta, and University of Illinois, respectively.

Nancy B. Grimm



Dr. Nancy B. Grimm is a Professor of Life Sciences and Leader of the Ecology, Evolution, and Environment Science faculty at Arizona State University (ASU). Her M.S. (1980) and Ph.D. (1985) degrees are from ASU, where she has held research scientist and faculty positions since 1990. An ecosystem ecologist and biogeochemist, Dr. Grimm studies how landscape heterogeneity and climate variability influence retention, cycling, and transport of nitrogen, both in desert and urban landscapes. She is Lead Principal Investigator and Co-Director of the Central Arizona-Phoenix Long-Term Ecological Research (LTER) project, a study of the Phoenix metropolis and surroundings that is one of the first comprehensive investigations of an urban ecosystem. In that capacity, Dr. Grimm oversees and coordinates interdisciplinary research in urban ecology involving over 100 scientists in many fields. She is a believer in interdisciplinary approaches to answering fundamental ecological questions, collaborating with hydrologists, engineers, geologists, chemists, sociologists, geographers, climatologists, and anthropologists in her urban and stream studies. She is a past president of the Ecological Society of America and the North American Benthological Society, and has served on numerous editorial boards and advisory or review panels. Dr. Grimm has published over 110 research articles and book chapters with students and colleagues, and has received over \$25 million in collaborative research and training awards, mostly from the National Science Foundation.

Susan Joy Hassol



Susan Joy Hassol is Director of Climate Communication. She is an analyst and author known for her ability to translate science into English, making complex issues accessible to policymakers and the public for two decades. She authored *Impacts of A Warming Arctic*, the synthesis report of the Arctic Climate Impact Assessment, and testified about the impacts of Arctic warming before the U.S. Senate. Ms. Hassol wrote HBO's documentary, *Too Hot Not To Handle*. She was a lead author of *Climate Change Impacts on the United States*, the synthesis report of the U.S. National Assessment of the Consequences of Climate Change. She contributed a chapter on Arctic climate impacts to a book titled *Avoiding Dangerous Climate Change*. She was Senior Editor of the U.S. Climate

Change Science Program's (CCSP) report *Weather and Climate Extremes in a Changing Climate* and Associate Editor of the CCSP report *Temperature Trends in the Lower Atmosphere*. In 2006, Ms. Hassol was honored by the Climate Institute with its first ever award for excellence in climate science communication. More information can be found at climatecommunication.org.

Jerry L. Hatfield



Dr. Jerry L. Hatfield is the Laboratory Director of the USDA-ARS National Soil Tilth Laboratory in Ames, Iowa, a position he has held since 1989. His expertise is in the quantifications of spatial and temporal interactions across the soil-plant-atmosphere continuum and his personal research has focused on the interactions of water, light, carbon, and nitrogen in cropping systems. Part of this effort involves the interactions with the measurement sites in Iowa as part of the Midcontinent Intensive Experiment as part of the North American Carbon program. He serves as the Lead Author for the Agricultural section of the Climate Change Science Program's (CCSP) Synthesis and Assessment Product (SAP) 4.3 "The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity" and an author of "Emissions from Livestock and Manure Management" for the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines for National Greenhouse Gas Inventories. He is the author of numerous publications that address environmental quality and agriculture, quantification of plant stress to water and temperature, remote sensing of agricultural systems, and energy and carbon exchanges across agricultural landscapes. He is the Past-President of the American Society of Agronomy and member of the Board of Directors of the Soil and Water Conservation Society. He serves as the USDA-ARS representative to the Heinz Center project on the State of the Nation's Ecosystems, the Key Indicators Initiative, National Audubon society project on Waterbirds on Working Lands, and Agricultural Air Quality Task Force for USDA.

Katharine Hayhoe



Katharine Hayhoe is a Research Associate Professor in the Department of Geosciences at Texas Tech University and Principal Scientist and CEO of ATMOS Research & Consulting. She holds a B.Sc. in Physics from the University of Toronto (1994) and an M.S. in Atmospheric Sciences from the University of Illinois (1997). Her research examines the potential impacts of human activities on the global environment, using numerical model simulations of

the earth-atmosphere system for both global and regional climate as well as chemical transport and integrated assessment modeling. To that end, Ms. Hayhoe has served as lead author for a number of regional assessments examining climate impacts on and adaptation potential for energy and water supply, agricultural and natural ecosystems, and infrastructure and public health. Assessments include the Great Lakes region (2003), the State of California (2004, 2006, 2008), the U.S. Northeast (2006, 2007), and the City of Chicago (2008). Together with these assessments, her more than 40 peer-reviewed studies, published in journals including *Science*, *Proceedings of the National Academy of Sciences*, and *Climatic Change*, have resulted in her work being presented before the U.S. Congress, cited by the IPCC Fourth Assessment Report, and highlighted by state and federal agencies as motivation for the development and implementation of policies to reduce emissions from human activities. Her work has also been featured in over 200 newspapers and media outlets around the world, including National Public Radio, the British Broadcasting Corporation, Discovery Channel, National Geographic, and Sports Illustrated.

Anthony Janetos



Dr. Anthony C. Janetos is the Director of the Joint Global Change Research Institute, a joint venture between the Pacific Northwest National Laboratory and the University of Maryland. Previously, he served as Vice President and Director of the Global Change Program at the H. John Heinz III Center for Science, Economics and the Environment; Vice President for Science and Research at the World Resources Institute; and Senior Scientist for the Land-Cover and Land-Use Change Program in NASA's Office of Earth Science. He also was Program Scientist for NASA's Landsat 7 mission. Dr. Janetos has many years of experience in managing scientific and policy research programs on a variety of ecological and environmental topics, including air pollution effects on forests, climate change impacts, land-use change, ecosystem modeling, and the global carbon cycle. Dr. Janetos has served on numerous National Research Council (NRC) committees, including the Decadal Survey for Earth Observations. He is a member of the NRC's standing Climate Research Committee and a Fellow of the American Association for the Advancement of Science. He was also a co-chair of the U.S. National Assessment of the Potential Consequences of Climate Variability and Change and an author of the IPCC Special Report on Land-Use Change and Forestry and the Global Biodiversity

Assessment, and the Millennium Ecosystem Assessment. Most recently he was a co-convening lead author of the Climate Change Science Program's (CCSP) Synthesis and Assessment Product (SAP) 4.3, *Climate Change Impacts on US Ecosystems*. With many collaborators, Dr. Janetos has written and spoken about the need to understand the scientific, environmental, economic, and policy linkages among the major global environmental issues, and the need to keep basic human needs in the forefront of the thinking of the environmental science and policy communities. Dr. Janetos graduated Magna cum Laude from Harvard College with a bachelor's degree in biology and earned a master's degree and a Ph.D. in biology from Princeton University.

Thomas R. Karl



Dr. Thomas R. Karl is the Director of NOAA's National Climatic Data Center and is NOAA's Program Manager for Climate Observations and Analysis. Dr. Karl is author of many climatic atlases and technical reports, and has published over 150 articles in

various scientific journals. He was identified as one of the most frequently cited Earth Scientists of the 1990s. Dr. Karl has been a Lead Author on several Intergovernmental Panel on Climate Change (IPCC) Assessments and most recently has served as a Review Editor. He was part of the IPCC organization that received the 2007 Nobel Peace Prize. Dr. Karl is a fellow of the American Meteorological Society and the American Geophysical Union, and a National Associate of the National Research Council. In 2002, he was elected to serve on the Council of the American Meteorological Society and has recently been elected to serve a term as President of the Society.

Jack A. Kaye



Dr. Jack A. Kaye currently serves as Associate Director for Research of the Earth Science Division within NASA's Science Mission Directorate. He has been a member of the Senior Executive Service since August, 1999, managing NASA's Earth Science

Research Program. Earlier positions in his nearly 24 year career at NASA include being a Space Scientist at the Goddard Space Flight Center and Manager of the Atmospheric Chemistry Modeling and Analysis Program at NASA headquarters. His academic training is in chemistry (B.S. Adelphi University, 1976; Ph.D., California Institute of

Technology, 1982). As Associate Director for Research, Dr. Kaye is responsible for the research and data analysis programs for Earth System Science, covering the broad spectrum of scientific disciplines that constitute it. He represents NASA in many interagency and international activities and has been an active participant in the U.S. Climate Change Science Program (CCSP) in which he currently serves as NASA principal and Vice Chair of the Subcommittee on Global Change Research, as well as NASA's representative to the Senior Users' Advisory Group for the National Polar Orbiting Operational Environmental Satellite System and to the Joint Subcommittee on Ocean Science and Technology. He is a member of the Steering Committee for the Global Climate Observing System. He has received numerous NASA awards, as well as been recognized as a Meritorious Executive in the Senior Executive Service in 2004. He has published more than 50 refereed papers, contributed to numerous reports, books, and encyclopedias, and edited the book *Isotope Effects in Gas-Phase Chemistry* for the American Chemical Society.

Jay Lawrimore



Jay Lawrimore is Chief of the Climate Monitoring Branch at NOAA's National Climatic Data Center (NCDC). Since 2000 he has led a team of scientists that monitors the Earth's climate on an operational basis to provide policymakers, business leaders,

scientists, and the media with historical and current perspectives on the state of the national and global climate. As the pace of climate change has accelerated, the capacity to monitor the climate on an ongoing basis has grown in importance. This program culminates each year with a Bulletin of the American Meteorological Society report produced through a partnership with 150 scientists from more than 30 countries. Beyond State of the Climate reporting, Mr. Lawrimore leads other programs that span a range of issues at the center of the nation's need for climate information. He was instrumental in establishing the North American Drought Monitor through a trilateral partnership between the United States, Mexico, and Canada to enhance drought monitoring on the North American continent.

James J. McCarthy



Dr. James J. McCarthy is Alexander Agassiz Professor of Biological Oceanography and from 1982 until 2002 he was the Director of Harvard University's Museum of Comparative Zoology. He is the Head Tutor for Harvard's undergraduate degree program

in Environmental Science and Public Policy, and the Master of Harvard's Pforzheimer House. He received his undergraduate degree in biology from Gonzaga University, and his Ph.D. from Scripps Institution of Oceanography. His research interests relate to the regulation of plankton productivity in the sea, and in recent years have focused on regions that are strongly affected by seasonal and inter-annual variation in climate. From 1986 to 1993, he served as the first chair of the Scientific Committee for the International Geosphere - Biosphere Program. From 1986 to 1989 he was the founding editor for the American Geophysical Union's Global Biogeochemical Cycles. For the Third Intergovernmental Panel on Climate Change (IPCC) Assessment (2001), he headed Working Group II, which had responsibilities for assessing impacts of and vulnerabilities to global climate change. He was also one of the lead authors on the 2005 Arctic Climate Impact Assessment, and a Vice-Chair of the 2007 Northeast Climate Impacts Assessment. He has been elected a Fellow of the American Association for the Advancement of Science, a Fellow of the American Academy of Arts and Sciences, and a Foreign Member of the Royal Swedish Academy of Sciences. Currently, he is President of the American Association for the Advancement of Science.

David McGuire



Dr. A. David McGuire is a Professor of Ecology in the U.S. Geological Survey's Alaska Cooperative Fish and Wildlife Research Unit located at the University of Alaska Fairbanks (UAF). He is also director of the Spatial Ecology Laboratory in the Institute of Arctic Biology at UAF.

He earned his B.S. and M. Engineering in Electrical Engineering from Cornell University in 1976 and 1977, and his M.S. and Ph.D. in Biology from UAF in 1983 and 1989. Dr. McGuire has conducted studies on how responses of terrestrial ecosystems to climate change may influence the climate system since 1990. He served two terms on the Board of Editors for Ecological Applications and served on the Polar Research Board's committee to review NASA's Polar Geophysical Data Sets. Dr. McGuire is serving on several national level science steering committees (SSCs) including the

Carbon Cycle Science Steering Group of the U.S. Climate Research Program, the SSC for the Study of Environmental Arctic Change (SEARCH), and the SSC for the Arctic Community-wide Hydrological Analysis and Monitoring Program. He has also served on several international committees concerned with global change science in northern high latitudes. Dr. McGuire is currently serving as co-chair of the U.S. Arctic Research Commission study to develop the report "Scaling Studies in Arctic System Science and Policy Support: A Call-to-Research" and as chair of Arctic Monitoring and Assessment's Program's scientific assessment of the arctic carbon cycle.

Jerry M. Melillo



Dr. Jerry M. Melillo is the Director of The Ecosystems Center at the Marine Biological Laboratory in Woods Hole, Massachusetts, and a Professor of Biology at Brown University. His center at Woods Hole focuses on environmental research in three areas: global change; management of coastal zone ecosystems;

and globalization and transformation of the tropical landscape. Dr. Melillo specializes in understanding the impacts of human activities on the biogeochemistry of ecological systems, using a combination of field studies and simulation modeling. In 1996 and 1997, he served as the Associate Director for Environment in the U.S. President's Office of Science and Technology Policy. Dr. Melillo just completed terms as the President of the Ecological Society of America and of the Scientific Committee on Problems of the Environment (SCOPE), the environmental assessment body of the International Council for Science. He is an honorary Professor in the Institute of Geophysical Sciences and Natural Resources Research, Chinese Academy of Sciences, a member of the American Philosophical Society, and a Fellow of the American Academy of Arts and Sciences. His publication record includes more than 200 peer-reviewed articles, two ecology textbooks and three edited volumes on biogeochemistry.

Edward L. Miles



Dr. Edward L. Miles is the Virginia and Prentice Bloedel Professor of Marine Studies and Public Affairs at the University of Washington. He holds joint appointments in the School of Marine Affairs of the College of Ocean and Fisheries Sciences and the Evans School of Public Affairs. He is also a Senior Fellow in the Joint Institute for the Study of the Atmosphere and Ocean (JISAO), where he serves as the Co-Director of the

Center for Science in the Earth System and leader of the Climate Impacts Group. Dr. Miles has been a participant in the work of the Intergovernmental Panel on Climate Change (IPCC) since February 1994. On April 29, 2003 he was elected to membership in the U.S. National Academy of Sciences and on October 14, 2005 he was elected to the rank of Fellow of the American Association for the Advancement of Science (AAAS). Dr. Miles's fields of specialization are international science and technology policy, marine policy and ocean management, and the impacts of climate variability and change at global and regional scales.

Evan Mills



Dr. Evan Mills has worked on energy and environmental systems analyst since the early 1980s, from local to global scales. He received his Masters of Science degree from the Energy and Resources Group at UC Berkeley in 1987 and his Ph.D.

from the Department of Environmental and Energy Systems Studies at the University of Lund in Sweden in 1991. Dr. Mills is currently a Staff Scientist at the U.S. Department of Energy's Lawrence Berkeley National Laboratory (LBNL), one of the world's leading research centers on energy and environment with a staff of approximately 400 people, and past leader of LBNL's Center for Building Science. His work spans the domains of energy management, risk management, and climate change impacts, with emphasis on the nexus between these as illustrated in the case of innovations emerging from the insurance industry. He has published over 200 technical articles and reports and has contributed to nine books. He is a member of the Intergovernmental Panel on Climate Change (IPCC), an organization which shared the 2007 Nobel Peace Prize with former U.S. Vice President Albert Gore.

Jonathan Overpeck



Dr. Jonathan Overpeck is a climate system scientist at the University of Arizona, where he is also the Director of the Institute for the Study of Planet Earth, as well as a Professor of Geosciences and a Professor of Atmospheric Sciences. He received

his B.A. from Hamilton College, followed by a M.Sc. and Ph.D. from Brown University. Dr. Overpeck has published over 120 papers in climate and the environmental sciences, and recently served as a Coordinating Lead Author for the Nobel prize

winning United Nations Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment (2007). He has also been awarded the U.S. Department of Commerce Bronze and Gold Medals, as well as the Walter Orr Roberts award of the American Meteorological Society, for his interdisciplinary research. Dr. Overpeck has also been a Guggenheim Fellow, and was the 2005 American Geophysical Union Bjerknes Lecturer. He serves on the Board of Reviewing Editors for *Science Magazine*.

Jonathan Patz



Jonathan Patz, MD, MPH, is a Professor & Director of Global Environmental Health at the University of Wisconsin in Madison. He Co-chaired the health expert panel of the U.S. National Assessment on Climate Change and was a Convening

Lead Author for the United Nations/World Bank Millennium Ecosystem Assessment. For the past 14 years, Dr. Patz has been a lead author for the United Nations Intergovernmental Panel on Climate Change (IPCC), an organization awarded the 2007 Nobel Peace Prize. He is President of the International Association for Ecology and Health and has written over 75 peer-reviewed papers and a textbook addressing the health effects of global environmental change. He has served on several scientific committees of the National Academy of Sciences, and currently serves on science advisory boards for both the Centers for Disease Control and Prevention (CDC) and the Environmental Protection Agency (EPA). Dr. Patz received an Aldo Leopold Leadership Fellows Award in 2005, and shared the Zayed International Prize for the Environment in 2006. He has earned medical board certification in both Occupational/Environmental Medicine and Family Medicine and received his medical degree from Case Western Reserve University (1987) and his Master of Public Health degree (1992) from Johns Hopkins University.

Thomas C. Peterson



Dr. Thomas C. Peterson is a physical scientist at NOAA's National Climatic Data Center in Asheville, North Carolina. After earning his Ph.D. in Atmospheric Science from Colorado State University in 1991, Dr. Peterson primarily engaged in creating NCDC's

global land surface data set used to quantify long-term global climate change. Key areas of his expertise include data archaeology, quality control,

homogeneity testing, international data exchange and global climate analysis using both *in situ* and satellite data. He was a lead author on the Fourth Assessment Report of the Nobel Prize winning Intergovernmental Panel on Climate Change's Fourth Assessment Report. Currently he is a member of the Global Climate Observing System Atmospheric Observation Panel for Climate and chairs the United Nations' World Meteorological Organization Commission for Climatology Open Programme Area Group on Monitoring and Analysis of Climate Variability and Change. The U.S. Department of Commerce has honored him with three Bronze Medal Awards and one Gold Medal Award. Essential Science Indicators ranked him as one of the top one percent of scientists in the field of Geosciences based on Journal Citation Reports. He is the author or co-author of over 60 peer-reviewed publications and three data sets.

Roger S. Pulwarty



Dr. Roger S. Pulwarty is a Physical Scientist and the Director of the National Integrated Drought Information System (NIDIS) Program at the National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colorado. His interests and publications are on climate, assessing

social and environmental vulnerability, and developing climate information services for risk management. Dr. Pulwarty's work focuses on the U.S. West, Latin America, and the Caribbean. From 1998 to 2002 he directed the NOAA/Regional Integrated Sciences and Assessments (RISA) Program. He leads the vulnerability and capacity assessments component of the World Bank-funded project on Mainstreaming Adaptation to Climate Change in the Caribbean. He is also a lead author on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report Working Group 2, the forthcoming IPCC Technical Report on Climate and Water Resources, and on the U.S. Climate Change Science Program Synthesis and Assessments Reports. He has testified before the U.S. Congress on climate, impacts and adaptation and is the NOAA liaison to the Western States Water Council.

Benjamin Santer



Dr. Benjamin Santer is an atmospheric scientist at Lawrence Livermore National Laboratory (LLNL). His research focuses on such topics as climate model evaluation, the use of statistical methods in climate science, and identification of natural and anthropogenic

"fingerprints" in observed climate records. Dr. Santer's

early research on the climatic effects of combined changes in greenhouse gases (GHGs) and sulfate aerosols contributed to the historic "discernible human influence" conclusion of the 1995 Report by the Intergovernmental Panel on Climate Change (IPCC). He spent much of the last decade addressing the contentious issue of whether model-simulated changes in tropospheric temperature are in accord with satellite-based temperature measurements. His recent work has attempted to identify anthropogenic fingerprints in a number of different climate variables, such as tropopause height, atmospheric water vapor, the temperature of the stratosphere and troposphere, and ocean surface temperatures in hurricane formation regions. Dr. Santer holds a Ph.D. in Climatology from the University of East Anglia, England, where he studied under Professor Tom Wigley. After completion of his Ph.D. in 1987, he spent five years at the Max Planck Institute for Meteorology in Germany, and worked with Professor Klaus Hasselmann on the development and application of climate fingerprinting methods. In 1992, Dr. Santer joined Professor Larry Gates at Lawrence Livermore National Laboratory's Program for Climate Model Diagnosis and Intercomparison. Dr. Santer served as convening lead author of the climate change detection and attribution chapter of the 1995 IPCC report. More recently, he was the convening lead author of a key chapter of the U.S. Climate Change Science Program's report on "Temperature Trends in the Lower Atmosphere".

Michael Savonis



Michael J. Savonis has 25 years of experience in transportation policy, with extensive expertise in air quality and emerging environmental issues. He has served as Air Quality Team Leader at the Federal Highway Administration (FHWA), since 1996. For the past 16 years, Mr.

Savonis has overseen the Congestion Mitigation and Air Quality Improvement Program which invests more than \$1.5 billion annually to improve air quality. He directs FHWA's transportation/air quality policy development, research program, and public education. He received the Department of Transportation's (DOT) Silver Medal in 1997 and FHWA's Superior Achievement Award in 2004. Mr. Savonis was instrumental to the creation of the DOT Center for Climate Change. He is co-Chair of the Transportation Research Board's Climate Change Subcommittee, was a member of the Air Quality Committee 1999 to 2004, and served as Chair of the Subcommittee on Transportation Control Measures, 2000 to 2004. He is author of several papers on climate and air quality, including: *The Gulf Coast*

Study, Synthesis and Assessment Product 4.7, Climate Change Science Program; Toward a Strategic Plan for Transportation Air Quality Research, 2000-2010, Transportation Research Record; and Clean Air Through Transportation: Challenges in Meeting the National Ambient Air Quality Standards, Report to Congress. Mr. Savonis holds a Masters Degree in Regional Planning from Cornell University and a B.S. in Chemistry from the State University of New York at Buffalo.

Gerry Schwartz



Dr. Henry G. "Gerry" Schwartz Jr., (Princeton University, Washington University in St. Louis, B.S. and M.S.; and California Institute of Technology, Ph.D.) is an internationally recognized leader in environmental and civil engineering. He spent virtually his entire career designing and managing major water, wastewater, and transportation projects throughout the country, serving as President/Chairman of Sverdrup/Jacobs Civil, one of the nation's most respected civil engineering firms, from 1993 until his retirement in 2003. Thereafter, he was a Senior Professor at Washington University until 2007. Earlier in his career, he served as President of the Water Environment Federation and was the founding Chairman of the Water Environment Research Foundation which now provides well over \$10 million annually in water quality research funds. In 2001/2002 he was elected President of the American Society of Civil Engineers (ASCE) and created their Critical Infrastructure Response Initiative to address the nation's infrastructure security needs following the events of September 11, 2001. Recipient of many awards, Dr. Schwartz was inducted into the National Academy of Engineering in 1997 and received the Distinguished Alumni Award from California Institute of Technology in 2004. Today, he serves on the Board of Berger Group Holdings, Inc., is a member of the Executive Committee of the Transportation Research Board, and is a private consultant. He also chaired the National Research Council Committee that authored *Special Report 290: Potential Impacts of Climate Change on U. S. Transportation* published in 2008.

Eileen L. Shea



Eileen L. Shea has served as Director of the NOAA Integrated Data and Environmental Applications (NOAA IDEA) Center since fall of 2005. The NOAA IDEA Center was established to advance NOAA's mission objectives and meet critical needs for ocean, climate and ecosystem information to protect lives and property, support economic development and enhance the resilience of Pacific Island communities in the face of changing environmental conditions. On January 3, 2008, Ms. Shea assumed responsibility as the Chief of the Climate Services Division of the NOAA's National Climatic Data Center with responsibility for NCDC's programs in data access; data integration and visualization; user engagement, education and outreach; and international, national and regional climate services partnerships. Ms. Shea is involved in a number of Pacific Island regional endeavors in the field of environmental science and services including: membership on the Steering Committees for the Pacific Islands Global Climate Observing System (PI-GCOS) and Pacific Islands Global Ocean Observing System (PI-GOOS) programs; supporting the emergence of a Pacific Islands Integrated Ocean Observing System (PaIOOS) program; leading regional efforts to implement the Pacific Climate Information System (PaCIS) including serving as the first chair of the PaCIS Steering Committee, and in addition, Ms. Shea is Chair of the Pacific Risk Management 'Ohana (PRiMO). In early 2007 Ms Shea was elected to the rank of Fellow of the American Meteorological Society. Her educational experience focused on marine science and environmental law and resource management at the University of Delaware and the Virginia Institute of Marine Science, College of William and Mary.

John M.R. Stone



Dr. John M.R. Stone is an Adjunct Research Professor in the Department of Geography and Environmental Studies at Carleton University. Dr. Stone received a Ph.D. in Chemical Spectroscopy (1969) and an Honours B.Sc. in Chemistry (1966) from the University of Reading U.K. He held Post-Doctoral Fellowships, with the National Research Council of Canada and the Czechoslovak Academy of Sciences. Prior to his retirement from the federal government he served as Executive Director (Climate Change), for the Meteorological Service of Canada,

Environment Canada; Director-General, Climate and Atmospheric Research, Environment Canada; Director (Meteorological Research Branch and Climate Research Branch), Atmospheric Environment Service, Environment Canada; and Co-ordinator for the Second World Climate Conference (on secondment from the Department of External Affairs and International Trade). His experiences since 2005 include: Senior Fellow with the International Development Research Council; Senior Consultant, Gartner-Lee Consultants Ltd.; author of an assessment of Extreme Climate and Weather Events for the U.S. Climate Change Science Program and for an assessment on Agricultural Science and Technology for Development for the World Bank as well as giving talks on climate change to government and private sector audiences. His current and past professional responsibilities include: Member of the Bureau of the Intergovernmental Panel on Climate Change (IPCC), specifically as Vice-chair of Working Group I for Third Assessment Report and Vice-chair of Working Group II for Fourth Assessment Report; Chairman of the Management Board for the Canadian GEWEX program studying the hydrology and climate of the Mackenzie Basin; Past Secretary and Member of the Scientific Steering Committee for the START international program on building capacity for global change research; and previously as Canadian representative to the UN Framework Convention on Climate Change (responsible for science-related issues); UN/ECE Senior Advisors on Science and Technology; International Institute for Applied Systems Analysis; and NATO Science Committee. He is a member of the Canadian Meteorological and Oceanographic Society.

Bradley H. Udall



Bradley H. Udall (B.S. Stanford, M.B.A. Colorado State University) is the Director of the University of Colorado Western Water Assessment, one of eight National Oceanic and Atmospheric Administration (NOAA)-funded Regional Integrated Sciences and Assessments. Formerly,

Mr. Udall was a consulting engineer and principal at Hydrosphere Resource Consultants. As a member of the research faculty at the University of Colorado, Mr. Udall's expertise includes water and policy issues of the American West and especially the Colorado River. He was a co-author of a chapter in a recent Bureau of Reclamation Environmental Impact Statement on incorporating climate change information into future Colorado River planning studies. Mr. Udall has provided testimony for a Senate committee on climate change impacts on water resources. He has received the Climate Science Service Award from the

California Department of Water Resources for his work in facilitating interactions between water managers and scientists. Mr. Udall serves on the American Water Works Association Research Foundation expert panel on climate change and serves as an advisor to the Water Utility Climate Alliance.

John E. Walsh



Dr. John E. Walsh is a President's Professor of Global Change at the University of Alaska, Fairbanks and Professor Emeritus of Atmospheric Sciences at the University of Illinois. He is also the Director of the National Oceanic and Atmospheric Administration's (NOAA) Cooperative Institute for Arctic Research at the University of Alaska, and a lead investigator of the Alaska Center for Climate Assessment and Policy, which is Alaska's NOAA-supported Regional Integrated Sciences and Assessments (RISA) center. He received his B.A. in Mathematics at Dartmouth College in 1970 and a Ph.D. in Meteorology at M.I.T in 1974. He served for 30 years on the faculty of the Department of Atmospheric Sciences, University of Illinois, Urbana. His research interests include the climate of the Arctic, especially interactions between the atmosphere and the polar surfaces; extreme weather events as they relate to climate; and climate-cryosphere interactions. Dr. Walsh has published over 100 scientific papers, and he has co-authored a textbook, *Severe and Hazardous Weather*. He was a lead author of the Arctic Climate Impact Assessment (2001-2005) and the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment (Working Group II, Polar Regions). He co-chairs the Climate Expert Group of the Arctic Monitoring and Assessment Program, and he is a former member of the Polar Research Board. He is an associate editor of the *Journal of Climate* and a Fellow of the American Meteorological Society.

Michael F. Wehner



Dr. Michael F. Wehner is a member of the Scientific Computing Group at the Lawrence Berkeley National Laboratory in Berkeley, California. He has been active in both the design of global climate models and in the analysis of their output. Under funding from the Department of Energy (DOE) Computer Hardware, Advanced Mathematics and Model Physics program (CHAMMP), he designed the first fully coupled ocean-atmosphere general circulation model to run on distributed memory parallel computers. Later, as part of the DOE Program for Climate Model Diagnosis and

Intercomparison (PCMDI), he developed innovative methods to ascertain the quality of climate model simulations. His current research interests include the statistics of extreme climate events and the quantification of uncertainty in future climate change predictions. A seventeen year veteran of the Lawrence Livermore National Laboratory, he received his doctorate degree in Nuclear Engineering from the University of Wisconsin-Madison in 1983 and joined the Berkeley Laboratory in May, 2002.

Thomas J. Wilbanks



Thomas J. Wilbanks is a Corporate Research Fellow at the Oak Ridge National Laboratory and leads the Laboratory's Global Change and Developing Country Programs. A past President of the Association of American Geographers, he conducts research on such issues as sustainable development, energy and environmental technology and policy, responses to global climate change, and the role of geographical scale in all of these regards. Co-edited recent books include *Global Change and Local Places* (2003), *Geographical Dimensions of Terrorism* (2003), and *Bridging Scales and Knowledge Systems: Linking Global Science and Local Knowledge* (2006). Wilbanks is Chair of the National Research Council's Committee on Human Dimensions of Global Change and a member of a number of other National Academy of Sciences (NAS)/National Research Council (NRC) boards and panels. In recent years, he has been Coordinating Lead Author for the Intergovernmental Panel on Climate Change (IPCC)'s Fourth Assessment Report, Working Group II, Chapter 7 (Industry, Settlement, and Society); Coordinating Lead Author for the Climate Change Science Program's (CCSP) Synthesis and Assessment Product (SAP) 4.5 (Effects of Climate Change on Energy Production and Use in the United States); and Lead Author for one of three sections (Effects of Global Change on Human Settlements) of SAP 4.6 (Effects of Global Change on Human Health and Welfare and Human Systems).

Donald J. Wuebbles



Dr. Donald (Don) J. Wuebbles is the Director of the School of Earth, Society, and Environment at the University of Illinois. He is also a Professor in the Department of Atmospheric Sciences as well as in the Department of Electrical and Computer Engineering. He earned his B.S. (1970) and M.S. (1972) degrees in Electrical Engineering from the University of Illinois. He received his Ph.D. in Atmospheric Sciences from the University of California at Davis in 1983. He is the author of almost 400 peer-reviewed scientific articles, most of which relate to atmospheric chemistry and global climate change as affected by both human activities and natural phenomena. He has been a lead author on a number of national and international assessments related to these issues. Dr. Wuebbles was elected a member of the International Ozone Commission in 2000, and in 2005 received the Stratospheric Ozone Protection Award from the U.S. Environmental Protection Agency. He is a Fellow of the American Association for the Advancement of Science and a Faculty Fellow in the National Center for Supercomputing Applications. He has been a lead author on international climate assessments sponsored by the Intergovernmental Panel on Climate Change (IPCC) and thus shares in the Nobel Peace Prize received by IPCC in 2007. Dr. Wuebbles was a leader in assessments of the potential impacts of climate change on the Great Lakes region and on the U.S. Northeast, and recently was co-leader of an assessment of the potential impacts of climate change on the city of Chicago.

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Icon	Description	Icon	Description
	Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences		The Effects of Climate Change on Agriculture, Land Resources, Water Resources and Biodiversity
	Past Climate Variability and Change in the Arctic and at High Latitudes		Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources
	Re-Analyses of Historical Climate Data for Key Atmospheric Features: Implications for Attribution of Causes of Observed Change		Effects of Climate Change on Energy Production and Use in the United States
	Scenarios of Greenhouse Gas Emissions and Atmospheric Concentrations, Review of Integrated Scenario Development and Application		Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems
	North American Carbon Budget and Implications for the Global Carbon Cycle		Impacts of Climate Variability and Change on Transportation Systems and Infrastructure -- Gulf Coast Study
	Aerosol Properties and their Impacts on Climate		Uses and Limitations of Observations, Data, Forecasts, and Other Projections in Decision Support for Selected Sectors and Regions
	Trends in Emissions of Ozone-Depleting Substances, Ozone Layer Recovery, & Implications for Ultraviolet Radiation Exposure		Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Decisionmaking
	Climate Models: An Assessment of Strengths and Limitations		Decision Support Experiments and Evaluations Using Seasonal to Interannual Forecasts and Observational Data
	Climate Projections Based on Emissions Scenarios for Long-Lived Radiatively Active Trace Gases and Future Climate Impacts of Short-Lived Radiatively Active Gases and Aerosols		Working Group I The Physical Science Basis of Climate Change
	Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands		Working Group II Impacts, Adaptation and Vulnerability
	Abrupt Climate Change		Working Group III Mitigation of Climate Change
	Coastal Elevations and Sensitivity to Sea Level Rise		Arctic Climate Impact Assessment
	Thresholds of Change in Ecosystems		National Research Council, Transportation Research Board: The Potential Impacts of Climate Change on U.S. Transportation, <i>Climate Variability and Change with Implications for Transportation</i>

Icon	Description
	National Assessment Synthesis Team Climate Change Impacts on the United States: <i>The Potential Consequences of Climate Variability and Change</i>
	Recent Material Articles recently released
	Original Synthesis Material synthesized from existing data

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UNDER DEVELOPMENT**ACRONYMS:**

CCSP: Climate Change Science Program
 CIESIN: Center for International Earth Science Information Network
 CIRES: Cooperative Institute for Research in Environmental Sciences
 DOE: Department of Energy
 EIA: Energy Information Administration
 GAO: General Accounting Office
 IARC: International Arctic Research Center
 IPCC: Intergovernmental Panel on Climate Change
 NASA: National Aeronautics and Space Administration
 NASS: National Agricultural Statistics Service
 NCDC: National Climatic Data Center
 NESDIS: National Environmental Satellite, Data, and Information Service
 NOAA: National Oceanic and Atmospheric Administration
 NSIDC: National Snow and Ice Data Center
 NWS: National Weather Service
 PISCO: Partnership for Interdisciplinary Studies of Coastal Oceans
 SRH: Southern Regional Headquarter
 USDA: United States Department of Agriculture
 USDOE: United States Department of Energy
 USEPA: United States Environmental Protection Agency
 USFS: United States Forest Service
 USGS: United States Geological Survey

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