

The Legacies and Lessons of International Polar Year 2007-2008

Committee

Robert A. Bindschadler

Co-Chair

Dr. Robert Bindschadler has been an active Antarctic field researcher for the past 30 years. He has led 15 field expeditions to Antarctica and has participated in many other expeditions to glaciers and ice caps around the world. He maintains an active interest in the dynamics of glaciers and ice sheets, primarily on Earth, investigating how remote sensing can be used to improve our understanding of the role of ice in the Earth's climate and exploring the forces driving ice sheet change. Applications developed by Dr. Bindschadler include measuring ice velocity and elevation using both visible and radar imagery, monitoring melt of and snowfall on ice sheets by microwave emissions, and detecting changes in ice-sheet volume by repeat space-borne altimetry. He has advised the US Congress and the Vice President on the stability of ice sheets and ice shelves, led the West Antarctic Ice Sheet Initiative for 20 years, served on many scientific commissions and study groups as an expert in glaciology and remote sensing of ice, was instrumental in the planning of the International Polar Year and is a past President of the International Glaciological Society. Some of the more significant awards he has received are: Goddard Award of Merit (2008); Fellow of the American Geophysical Union (2001); Goddard Senior Fellow (2000); Excellence in Federal Career (1989); the Antarctic Service Medal (1984) and the NASA Exceptional Scientific Achievement Medal (1994). He has published over 140 scientific papers, numerous review articles and has appeared on television and been heard on radio commenting on glaciological impacts of the climate on the world's ice sheets and glaciers.

Julie Brigham-Grette

Co-Chair

Dr. Julie Brigham-Grette is a professor in the Department of Geosciences at the University of Massachusetts, Amherst. Dr. Brigham-Grette received her Ph.D. from the University of Colorado's Institute for Arctic and Alpine Research. After post-doctoral research at the University of Bergen, Norway, and the University of Alberta, Canada, with the Canadian Geological Survey, she joined the faculty at the University of Massachusetts in the fall of 1987. Dr. Brigham-Grette has been conducting research in the Arctic for nearly 24 years, including eight field seasons in remote parts of northeast Russia since 1991, participating in both the science program as well as dealing with difficult logistics. Her research interests and experience span a broad spectrum dealing with arctic paleoclimate records and the Late Cenozoic evolution of the Arctic climate both on land and off shore, especially in the Bering Strait region. She was a member of the Arctic Logistics Task Force for the NSF Office of Polar Programs (OPP) 1996-1999 and 2000-2003, and was member of the OPP Office Advisory Council 2002-2004. She chaired the U.S. Scientific Delegation to Svalbard for Shared Norwegian/U.S. Scientific Collaborations and Logistical Platforms in 1999. Brigham-Grette is currently Chair of the International Geosphere/Biosphere Program's Science Steering Committee on Past Global Change (PAGES) with an international program office in Bern, Switzerland, and President of the American Quaternary Association. She also serves as one of two U.S. representatives to the International Continental Drilling Program.

Mary R. Albert

Member

Dr. Mary R. Albert is Professor of Engineering at the Thayer School of Engineering at Dartmouth College. She was formerly Senior Research Scientist at the Army's Cold Regions Research and Engineering Laboratory. Her research interests include heat, mass, chemical transfer and electromagnetic processes in porous media, including atmosphere-snow exchange, ice core interpretation, and remote sensing of snow and ice. She has led and participated in many research expeditions in Antarctica and Greenland. Dr. Albert has served on the NRC Polar Research Board, including serving as Chair of the U.S. National Committee for the IPY from 2003 - 2005, which was a subcommittee of the PRB. She led the writing of the 2004 NRC Report: A Vision for the International Polar Year. Dr. Albert earned her Ph.D. in Applied Mechanics and Engineering Sciences in 1991 from the University of California, San Diego.

John Cassano

Member

Dr. John Cassano is an Associate Professor in the Department of Atmospheric and Oceanic Sciences and a Fellow of the Cooperative Institute for Research in the Environmental Sciences at the University of Colorado, Boulder. His research focuses on the meteorology and climate of the polar regions. He is currently serving as chair of the AMS Committee on Polar Meteorology and Oceanography. Dr. Cassano is a U.S. delegate to the International Arctic Sciences Committee. Dr. Cassano received his Ph.D in Atmospheric Science from the University of Wyoming in 1998.

Larry D. Hinzman

Member

Dr. Larry D. Hinzman is a Research Professor of Water Resources at the Water and Environmental Research Center at the Institute of Northern Engineering at the University of Alaska in Fairbanks. Dr. Hinzman specializes in hydrology where he has gained extensive experience in field research and modeling surface and subsurface flow, contaminant fate and transport; soil science and permafrost where he is proficient in thermal analysis through numerical and analytical solutions, soil physics and soil chemistry; and remote sensing. He has experience with aerial photography, satellite imagery, thermography and ground based sensors. Dr. Hinzman received his Ph.D. in Soil Physics with an emphasis in Arctic Hydrology from the University of Alaska, Fairbanks; a M.S. in Agronomy with an emphasis in Remote Sensing from Purdue University, West Lafayette, in Indiana and a B.S. in Soil Science and B.S. in General Chemistry from South Dakota State University, Brookings.

Eileen E. Hofmann

Member

Dr. Eileen E. Hofmann is a Professor of Oceanography in the Center for Coastal Physical Oceanography at Old Dominion University. Dr. Hofmann earned a Ph.D. in Marine Science and Engineering from North Carolina State University. Her research focuses on the analysis and modeling of biological and physical interactions in marine ecosystems and descriptive physical oceanography. She served on the Ocean Studies Board and on numerous NRC committees, including the Committee on Strategic Advice on the U.S. Climate Change Science Program. She is currently the Chair of the Integrating Marine Biogeochemical and Ecosystem Research Project, of the International Geosphere-Biosphere Program.

Igor I. Krupnik

Member

Dr. Igor I. Krupnik is Curator of Arctic and Northern Ethnology collections at the National Museum of Natural History, Smithsonian Institution, Washington, DC. His primary research fields are modern cultures, ecological knowledge, and cultural heritage of the people of the Arctic, primarily in Alaska and Siberia; culture change and contact history; human ecology; history of Arctic science and Arctic indigenous studies; impact of modern climate change on Arctic residents, their economies, and cultures. Dr. Krupnik served on the U.S. National Planning Committee for IPY in 2003–2004, before being nominated to the main international steering body for IPY, the ICSU-WMO Joint Committee, in 2004. On the Joint Committee, Igor served, as one of two social scientists representing the interests of social studies and Arctic residents. He was instrumental in bringing social/human research onto the IPY agenda. Igor's personal contribution to IPY 2007–2008 science program was an international project called SIKU (Sea Ice Knowledge and Use in the North), on which he coordinated activities of several research teams from Canada, US, Russia, Greenland, and France that worked in some 30 Arctic communities from Bering Strait to Greenland. He is currently the lead Co-Editor (with Dr. David Hik from Canada) of the main summary report on IPY activities, "Understanding Earth's Polar Challenges: International Polar Year 2007–2008" by the IPY Joint Committee that is due for release in spring 2011. Dr. Krupnik received his Ph.D. in Anthropology from the Institute of Ethnology, Russian Academy of Sciences.

Vera K. Metcalf

Member

Ms. Metcalf is the Director of the Eskimo Walrus Commission (EWC) with Kawerak, Inc. since 2002. She works to promote local community participation in research that involves a community's natural and cultural resources. In 2004 and in cooperation with U.S. Fish and Wildlife Service, EWC convened a workshop to discuss and begin integrating research concerns with Pacific walrus and its environment. As EWC Director, Ms. Metcalf also serves on the Pacific Walrus Technical Committee and is currently the Chair of the Pacific Walrus Conservation Fund. Ms. Metcalf also represents EWC on the Indigenous People's Council for Marine Mammals, consisting of commissions formed to identify and address marine mammal issues of common concerns. She is serving on the Inuit Circumpolar Council Alaska and its Executive Committee. Ms. Metcalf is a former commissioner for the U.S. Arctic Research Commission.

Stephanie Pfirman

Member

Dr. Stephanie Pfirman is Alena Wels Hirschorn '58 and Martin Hirschorn Professor in Environmental and Applied Sciences and Co-Chair of the Department of Environmental Science at Barnard College, which she joined in 1993. She is also a member of the Columbia Earth Institute faculty. Throughout her career, Pfirman has been involved with researching the Arctic environment, undergraduate education, environmental policy strategies, and public outreach. Current interests include environmental aspects of sea ice in the Arctic, climate change education, and the development of women scientists and interdisciplinary scholars. In 2010, Pfirman was elected a fellow of the American Association for the Advancement of Science "for distinguished contributions to scientific studies of the Arctic and effective outreach to policy makers, students, faculty and the general public." The first chair of NSF's Advisory Committee for Environmental Research and Education, Dr. Pfirman oversaw analysis of a 10 year outlook for environmental research and education. Dr. Pfirman rejoined the AC-ERE in 2010. She is a past member of the National Academy of Sciences Polar Research Board, which served as the US National Committee for the International Polar Year 2007-2009, past-President of the Council of Environmental Deans and Directors, and past-chair of NSF's Office Advisory Committee to the Office of Polar Programs. Dr. Pfirman earned her Ph.D. from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Oceanography and Oceanographic Engineering.

Chris Rapley

Member

Professor Chris Rapley CBE is Professor of Climate Science at University College London. He earned a MSc in Radio Astronomy at Jodrell Bank in Cheshire followed by a PhD at the Mullard Space Science Laboratory (MSSL) at University College London on the origin of the cosmic soft X-ray diffuse background. Following a decade as the founder and head of the Earth Observation group and Associate Director at UCL's Mullard Space Science laboratory. Professor Rapely was appointed Executive Director of the International Geosphere-Biosphere Programme IGBP, which he ran from 1994 to 1998. He was Director of the British Antarctic Survey from 1998 to 2007 during which time he was a Vice-President then President of the Scientific Committee on Antarctic Research (SCAR) and the Chair of the planning group that developed the International Polar Year 2007-2008. He was Director of the Science Museum from 2007 to 2010 during which time the Museum delivered its Centenary programme, including the new gallery "atmosphere .. exploring climate science". In 2008 he was awarded the Edinburgh Science Medal - "For professional achievements judged to have made a significant contribution to the understanding and well-being of humanity".

Lisa Speer

Member

Ms. Lisa Speer is the Director of the International Oceans Program at the Natural Resources Defense Council (NRDC), an environmental organization dedicated to protecting natural resources and public health with offices in the United States and China. Her work currently focuses on conservation and management of the Arctic marine environment, and marine biodiversity beyond national jurisdiction, an area known as the "high seas." Ms. Speer conducts advocacy in a variety of international fora to promote integrated, ecosystem based management of human activities on the high seas and in the Arctic, with a particular focus on marine fisheries. She received her Master's degree from Yale University and her Bachelor's degree from Mount Holyoke College. Ms. Speer has served as a member of the NRC Board on Environmental Studies and Toxicology, and on ad hoc NRC study committees.

Thomas N. Taylor

Member

Dr. Thomas N. Taylor is Roy A. Roberts Distinguished Professor at the University of Kansas. He is also Senior Curator of the Natural History Museum and Biodiversity Research Center, and Courtesy Professor for the Department of Geology. He also serves as Director of the State of Kansas NSF EPSCoR Program. He earned his PH.D. in Botany and Geology from the University of Illinois in 1964. Dr. Taylor is a Member of the National Academy of Sciences. He also serves on the National Science Foundation - Education and Human Resources Advisory Committee, Chair of the Strategic Planning and Assessment Committee for NIH BRIN KU Medical Center, Senator Pat Roberts's Advisory Committee in Science, Technology, and the Future, Kansas Implementation Advisory Committee, the National Science Foundation - GPRA-Performance Assessment Advisory Committee, the National Science Foundation - MPSAC/EHRAC Committee to Review Undergraduate Education in the Math and Physical Sciences, Bioinformatics Core Advisory Committee. He serves on multiple NSF EPSCoR Advisory Boards and committees. He served on the Polar Research Board for the NRC. In addition he served as Faculty Advisor to the Chancellor of the Ohio Board of Regents and on the Government-University-Industry Research Roundtable for the State of Ohio.

Wilford F. Weeks

Member

Dr. Wilford F. Weeks is Professor Emeritus of Geophysics at the University of Alaska. His primary area of interest is in the properties and geophysical behavior of the sea ice covers of the world's oceans. Specific areas he has investigated include interrelations between growth conditions and the structure, composition and mechanical and electromagnetic properties of sea ice; formation and statistical characteristics of pressure ridges; ice-induced gouging of the sea floor, bearing capacity and forces exerted by moving ice; application of varied remote sensing techniques to sea ice problems and general problems relating to atmosphere-ice-ocean interactions. Dr. Weeks is a member of the National Academy of Engineering. He has also had considerable experience concerning the geophysics and engineering of snow and ice masses in general including the structure of lake and river ice, winter heat loss from rivers, avalanche forecasting, properties of alpine snow, and temperature distributions and snow property variations in central Greenland. Dr. Weeks received his Ph.D. from The University of Chicago.