A Workshop on Global Change and Extreme Hydrologic Events: Testing Conventional Wisdom

Committee

Charles J. Vorosmarty

Chair

Charles Vörösmarty is Director of the Global Environmental Sensing and Water Sciences Initiative, Professor in Civil Engineering Department, and NOAA-CREST Distinguished Scientist at The City University of New York. He was formerly Professor at the Institute for the Study of Earth, Oceans, and Space at the University of New Hampshire as well as founder and Director of its Water Systems Analysis Group. His research interests focus on the development of computer models, remote sensing application and geospatial data sets used in synthesis studies of the interactions among the water cycle, climate, biogeochemistry, and anthropogenic activities. His studies are built around local, regional, and continental to global-scale modeling of water balance, discharge, constituent fluxes in river systems, and the analysis of the impacts of large-scale water engineering on the terrestrial water cycle. He is a founding member of the Global Water System Project representing the inputs of more than 200 international scientists under ICSU's Global Environmental Change Programs. In this capacity he is spearheading efforts to develop global-scale indicators of water stress, to develop and apply databases of reservoir construction worldwide, and to analyze coastal zone risks associated with water diversion. Dr. Vörösmarty also serves on the US Arctic Research Commission, the NSF-ARCSS Committee (AC), and the Arctic HYDRA International Polar Year (IPY) Planning Team. He has served on NRC panels to review NASA's polar geophysical data sets and the decadal study on earth observations, and is co-Chair of the NSF-Arctic CHAMP hydrology initiative. For the United Nations he served as consultant to the 24-agency UN World Water Assessment Program and represented the International Council of Scientific Unions at recent UN Commission on Sustainable Development meeting

Victor R. Baker

Member

Victor R. Baker is regents professor in the Department of Hydrology and Water Resources at the University of Arizona. He is also professor of geosciences and professor of planetary sciences at the University of Arizona. His research interests include geomorphology, flood geomorphology, paleohydrology and paleoclimatology, Quaternary geology, natural hazards, history and philosophy of the Earth Sciences, and the interface of environmental science with public policy. Dr. Baker is a Fellow of the American Association for the Advancement of Science and a past Chair of its Geology and Geography Division. He is also a Fellow of the Geological Society of America, and a past President of the Society. He has served on numerous panels and committees of the National Research Council including the Chair of the U. S. National Committee for the International Union for Quaternary Research (INQUA). He currently is Vice-President of INQUA's Commission on Global Continental Paleohydrology. He holds a B.S. from Rensselaer Polytechnic Institute (1967) and a Ph.D. from the University of Colorado.

Dennis P. Lettenmaier

Member

Dennis P. Lettenmaier received his B.S. in Mechanical Engineering (summa cum laude) at the University of Washington in 1971, his M.S. in Civil, Mechanical, and Environmental Engineering at the George Washington University in 1973, and his Ph.D. at the University of Washington in 1975. He joined the University of Washington faculty in 1976 and directs the Surface Water Hydrology Research Group there. Dr. Lettenmaier's interests cover hydroclimatology, surface water hydrology, and GIS and remote sensing. He spent a year as visiting scientist at the U.S. Geological Survey in Reston, VA (1985-86) and was the Program Manager of the Land Surface Hydrology Program at NASA Headquarters in 1997-1998. He was a recipient of ASCE's Huber Research Prize in 1990, is a Fellow of the American Geophysical Union and American Meteorological Society, and is the author of over 100 journal articles. He is currently Chief Editor of the American Meteorological Society Journal of Hydrometeorology, and recently served on the NRC Committee on the National Ecological Observatory Network (2003-2004). He presently chairs the panel on Water Resources and the Global Hydrologic Cycle for the NRC study on Earth Science and Applications from Space.

Daniel P. Loucks

Member

Daniel P. Loucks (NAE) teaches and directs research in the application of economic theory, environmental engineering and systems analysis methods to the solution of environmental and regional water resources problems. He is author of the book "Water Resources Systems Planning and Management." He has been a Research Fellow at Harvard University, an Economist at the Development Research Center of the World Bank, a Research Scholar at the International Institute for Applied Systems Analysis in Austria, and as a Visiting Professor at the Massachusetts Institute of Technology, the University of Colorado in Boulder, the University of Adelaide in South Australia, Aachen University of Technology in Germany, the Technical University of Delft and the International Institute for Hydraulic and Environmental Engineering in Delft in The Netherlands, and the University of Texas in Austin. He has served as a consultant to private and government agencies and various organizations of the United Nations, the World Bank, and NATO involved in regional water resources development planning in Asia, Australia, Eastern and Western Europe, the Middle East, Africa, and Latin America. In the past three years he has had appointments at Delft Hydraulics in The Netherlands, the Institute for Water Resources of the US Army Corps of Engineers, and the South Florida Water Management District, all involving water resources and ecosystem planning and management projects. In addition to his membership in the NAE, he has served on seven NRC committees and boards.

George F. Smith

Member

Dr. George F. Smith is a Senior Program Manager with Riverside Technology, Inc. As an integral member of Riverside’s leadership, technical, and management teams, Dr. Smith identifies and develops solutions to meet the needs of Riverside’s growing client base in areas such as environmental sustainability and climate change. Dr. Smith spent 33 years with the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service (NWS). He started his career as a research hydrologist and held many leadership positions within NOAA, including chief of the National Weather Service Hydrology Laboratory and acting director of the Office of Hydrologic Development. Dr. Smith has broad experience in hydrologic science, technology, and operations. His last role in the federal government was as NOAA’s Weather and Water Goal Lead, responsible for long-term planning and programming for approximately one-quarter of NOAA’s budget, focused on weather and water services, and the research necessary to support and enhance them. He managed the integration of hydrologic scientific software into the Advanced Weather Interactive Prediction System, the high-speed computer and communication system that allows forecasters to quickly access and compile weather data gathered by radars, satellites, and automated surface observing systems, all in one workstation. He also oversaw the Advanced Hydrologic Prediction Service program, which combines the use of remote sensing, data automation and advanced computer modeling to analyze river data and create graphical displays of flood probability forecasts, including flood-forecast maps, pinpointing areas where flooding may occur. Dr. Smith received his B.S. degree in civil engineering from Massachusetts Institute of Technology and his M.S. degree and Ph.D. in environmental engineering sciences from the University of Florida. In his service with the federal government, Dr. Smith received outstanding performance awards in all of his scientific and leadership roles, and was the recipient of the U.S. Department of Commerce’s Silver Medal for Meritorious Service and the Distinguished Career Award.

Chunmiao Zheng

Member

Chunmiao Zheng is professor of Hydrogeology and SSPA Faculty Fellow in the Department of Geological Sciences at the University of Alabama. He received a B.S. in geology in 1983 and did postgraduate work in geology and applied mathematics in 1983-1984 at Chengdu Institute of Geology in China (now Chengdu University of Technology). He received his Ph.D. in hydrogeology with a minor in civil and environmental engineering from the University of Wisconsin-Madison in 1988. Dr. Zheng's research involves contaminant transport modeling, groundwater resources and groundwater quality management, and coupling of physical transport processes with biological and geochemical reactions. He is President-Elect of the International Commission on GroundWater (IAHS), software editor and associate editor for the journal Ground Water, and a member of the Editorial Board for the Journal of Hydrology. He was treasurer of CUAHSI from 2005-2007. His text on "Applied Contaminant Transport Modeling" is on its second edition.