Challenges and Opportunities in Water Resources Research and Education

The recent NRC report “Challenges and Opportunities in the Hydrologic Sciences” noted that research and education in water resources will be different in the future than today primarily because humans have become such a dominant part of the water cycle. This observation leads to several conclusions. In addition to important work in the many disciplinary areas that are part of water resources science and engineering, there is a need for interdisciplinary research that takes advantage of cutting edge technologies to grapple with the complex water related challenges of today and tomorrow. To solve today’s complex water problems, scientists, engineers, and water managers need disciplinary depth and intellectual breadth to bridge disciplines and the ability to communicate science to policy makers effectively. Multi-way interactions among scientists, engineers, water managers, and decision makers (termed “translational hydrologic science” in the NRC report) are needed to connect science and decision making more closely in order to address increasingly urgent water policy issues. I will discuss research and education challenges associated with these issues, in part using Vanderbilt’s ongoing work in Sri Lanka and Bangladesh to provide context. I will pay special attention to the role and necessity of integrated, interdisciplinary research.

ABOUT THE SPEAKER

George M. Hornberger is Distinguished University Professor at Vanderbilt University, where he is the Director of the Vanderbilt Institute for Energy and the Environment and Chair of the Department of Civil and Environmental Engineering. He has a shared appointment as the Craig E. Philip Professor of Engineering and as professor of Earth and environmental sciences. He previously was a professor at the University of Virginia for many years, where he held the Ernest H. Ern Chair of Environmental Sciences. His research is aimed at understanding complex water-energy-climate interrelationships and at how hydrologic processes affect the transport of dissolved and suspended constituents through catchments and aquifers. Dr. Hornberger is a fellow of the American Geophysical Union (AGU), a fellow of the Geological Society of America, and a fellow of the Association for Women in Science. He has served on numerous boards and committees of the National Academies, including as chair of the Commission on Geosciences, Environment, and Resources (1996-2000) and chair of the Board on Earth Sciences and Resources (2003-2009). He currently is a member of the Water Science and Technology Board (WSTB). Professor Hornberger received his B.S. and M.S. from Drexel University and his Ph.D. in hydrology from Stanford University.

RESCHEDULE DATE:
MONDAY, NOVEMBER 26,
4:00 – 5:00 PM
Alumni Hall Auditorium,
The Inn at Virginia Tech
Reception to follow: 5:00 - 6:00 pm,
Latham Ballroom

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