

Scanlon Receives 2018 Hydrologic Sciences Award

Bridget Scanlon will receive the 2018 Hydrologic Sciences Award at AGU's Fall Meeting 2018, to be held 10–14 December in Washington, D. C. The award is for “outstanding contributions to the science of hydrology.”

By [AGU](#) © 12 November 2018

Citation



Bridget Scanlon

Dr. Bridget Scanlon has made outstanding contributions to the science of hydrology by linking land use and climate variability and change to subsurface hydrology through an extended series of important breakthroughs. Her research combines physical measurements, geophysical monitoring, chemical and isotopic tracers, and mathematical modeling to quantify the impacts of surface processes on groundwater systems as recorded in the vadose zone. Her recent research has expanded to include applications of Gravity Recovery and Climate Experiment (GRACE) satellite data and global models to understand trends in water resources.

Her pioneering research on vadose zone dynamics marked the start of a new era in quantitative paleohydrology with important implications for radioactive waste disposal in arid settings. Her studies of vegetation through detailed lysimetric field research combined with remote sensing highlight the importance of vegetation controls on the water balance and have contributed to the

emergent field of ecohydrology.

Dr. Scanlon has made substantial advances in estimating groundwater recharge in a variety of environments, including the U.S. High Plains and extending to the Loess Plateau in China; Rajasthan, India; and Israel through her postdoctoral researchers. Her studies of agroecosystems underscore the importance of understanding trade-offs between water, salt, and nutrient balances relevant to optimizing land use change to achieve environmental sustainability. More recently, Dr. Scanlon, through extensive collaboration, has embraced the challenge of quantifying large-scale water resources issues using satellite gravimetry (GRACE), emphasizing the importance of including ground-based data to interpret GRACE results.

Her research, which has changed the way we think about linkages of climate and land use to subsurface hydrology through the vadose zone, has important implications for managing land use and water resources, particularly groundwater resources.

—Lu Zhang, Commonwealth Scientific and Industrial Research Organization, Canberra, Australia

Response

I am honored to be selected to receive this year's Hydrologic Sciences Award and humbled when I consider past awardees. I would like to thank Lu Zhang for the nomination and the awards committee members for selecting me.

I have worked at the Bureau of Economic Geology, now part of the Jackson School of Geosciences, for the past 31 years. The bureau is a research organization that relies mostly on external support, requiring that we conduct applied research with societal relevance and encouraging collaboration. I am very grateful for the support from many colleagues at the bureau, particularly Bob Reedy and J.-P. Nicot.

One of my earliest projects was characterizing sites for radioactive waste disposal. In the pre-Wikipedia era, and without any formal background in vadose zone hydrology, I relied on long phone conversations with such leaders as Peter Wierenga, the late Glendon Gee, Gaylon Campbell, Fred Phillips, Bryan Travis, and Chris Milly for guidance on field instrumentation, lab techniques, and vadose zone modeling. I am extremely grateful for the time and effort these individuals spent in educating me. Many of the techniques used to characterize unsaturated systems could also be applied to estimating groundwater recharge, allowing us to quantify recharge in different regions. I also greatly appreciate collaborating with Rick Healy on research related to recharge.

Realizing that most of our water resources are used to support food production through irrigation, we shifted emphasis to this topic. Quantifying the impacts of agroecosystems on subsurface flow and transport in the U.S. High Plains—and extending our studies throughout the southwestern United States and parts of Australia through collaborations with David Stonestrom and Fred Leaney—provided valuable insights into more-sustainable land management with respect to water resources. Our most recent collaborative research focuses on applications of GRACE satellite data, with a heavy emphasis on ground-based data for interpretation.

I am very grateful for the collaborations I have had with colleagues throughout my career; this award reflects what we have been able to accomplish together.

—Bridget R. Scanlon, Bureau of Economic Geology, Jackson School of Geosciences, University of Texas at Austin

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