

OCGC SEMINAR

HYDROLOGY FROM THE BOTTOM UP: HOW GROUNDWATER SHAPES THE WATER CYCLE

Dr. Reed Maxwell

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To attend this conference you need to register at: <https://attendee.gotowebinar.com/register/7600612030848110864>.

Abstract: Groundwater is one of Earth's largest freshwater stores, yet it is often out of sight and out of mind. While groundwater is often conceptualized as a separate store from surface water, feedbacks between groundwater depth, soil moisture, streamflow, and plant water usage become increasingly important for characterizing the water and energy drivers of watershed fluxes. Thus, the literature shows that groundwater is intimately linked not only to surface water, but also the land surface, and the lower atmosphere. This lecture will explore the linkages between groundwater and the rest of the hydrologic cycle. It will discuss some fundamental relationships that describe groundwater's interconnections with land surface fluxes and how recent advances in our understanding these feedbacks can help us more holistically manage our watersheds. The growing body of evidence demonstrating the critical role of groundwater-surface water interactions has driven a new wave in groundwater hydrology. As we increasingly understand groundwater connections and learn how critical groundwater interactions are water-resource challenges, groundwater becomes a central part of integrated analyses that previously have been considered across disciplinary boundaries.

Reed Maxwell, Ph.D., is a professor in the Department of Civil and Environmental Engineering (CEE) and the Princeton Environmental Institute (PEI) at Princeton University. He also directs the Integrated GroundWater Modeling Center. His research interests are focused on understanding connections within the hydrologic cycle and how they relate to water quantity and quality under anthropogenic stresses. Maxwell is an elected Fellow of the American Geophysical Union, was the 2018 Boussinesq Lecturer, and the 2017 School of Mines Research Award recipient. He has authored more than 140 peer-reviewed journal articles and teaches classes on integrated hydrology, fluid mechanics, and modeling terrestrial water flow. At Princeton, Maxwell currently leads a research group of graduate students, postdoctoral researchers, and staff housed within CEE and PEI. Over his career, he has collaborated with, and mentored more than, 14 Ph.D. students and 20 M.S. thesis students. Prior to coming to Princeton, Maxwell was faculty at the Colorado School of Mines and a postdoc and then staff in the hydrologic sciences group at Lawrence Livermore National Laboratory. Maxwell received his Ph.D. degree in environmental water resources from the Civil and Environmental Engineering Department at the University of California, Berkeley.



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