

2020 DARCY LECTURE

REED MAXWELL, PH.D.

SEPTEMBER 11, 2020 – 2PM ONLINE



The University of Delaware

Sponsored by the Departments of Civil and Environmental Engineering, Earth Sciences, and Geography and Spatial Sciences; and the Graduate Program in Water Science and Policy

Online - <https://attendee.gotowebinar.com/register/5908343788778287628>.

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

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.

Speaker Biography

Dr. Reed Maxwell is faculty in the Geology and Geological Engineering Department, core faculty in the Hydrologic Science and Engineering Program, and the Director of the Integrated GroundWater Modeling Center (IGWMC) at the Colorado School of Mines. His research interests are focused on understanding connections within the hydrologic cycle and how they relate to water quantity and quality under anthropogenic stresses. He is an elected Fellow of the American Geophysical Union, was the 2018 Boussinesq Lecture and the 2017 School of Mines Research Award recipient. He has authored more than 120 peer-reviewed journal articles and teaches classes on integrated hydrology, fluid mechanics and modeling terrestrial water flow. He currently leads a research group of graduate students, postdoctoral researchers and staff housed in the IGWMC at Mines. He has graduated 13 PhD students and 20 MS thesis students since coming to Mines in 2009. Before joining the faculty at Mines, Dr. Maxwell was a postdoc and then staff in the Hydrologic Sciences group at Lawrence Livermore National Laboratory and he holds a Ph.D. degree in Environmental Water Resources from the Civil and Environmental Engineering Department at the University of California, Berkeley.