UCI Samueli School of Engineering | Department of Civil and Environmental Engineering

Presented By:
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Environmental Engineering Seminar

Friday, October 6, 2017
McDonnell Douglas Engineering Auditorium (MDEA)
1:30PM to 2:30PM

Hydrologic Signatures: Making the Most of Environmental Data

In this seminar, I will introduce the concept of a 'Hydrologic Signature', i.e. a targeted analysis of hydrologic data with the aim of understanding the dominant water flow paths within a watershed. I will describe why signatures are useful and how they help us to get the best value out of hydrologic data sets. Using examples from New Zealand, UK, and elsewhere, I will demonstrate how to design and apply hydrologic signature analyses. The examples include how to use geochemical tracers to choose between different groundwater models, and how to use soil moisture and flow data to understand thresholds in catchment drainage rates. I will discuss applications of hydrologic signatures in water resource management and hydrologic forecasting.

Hilary McMillan received her PhD in 2006 in Hydrology from the University of Cambridge, UK, and spent 10 years at the National Institute of Water and Atmospheric Research in Christchurch, NZ before joining San Diego State University in 2016. Her research asks how large-scale watershed hydrology dynamics arise from multiscale water interactions with soils, plants, people and landscape. Her current interests include how to make hydrological predictions on a national or continental scale, how to design and test hypotheses about watershed function, and how to include human impacts in hydrologic predictions. From 2015–17, Hilary was Chair of the International Association of Hydrological Sciences flagship project 'Panta Rhei: Hydrology, Society and Change', coordinating 400+ scientists across the globe understand the interfaces between water and society.