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**Lecture: *The Use of Geophysical Methods for Groundwater Evaluation and Management***

**Bio:**

Dr. Rosemary Knight has worked for over 30 years on the challenge of using geophysical methods to image groundwater systems. Her research ranges from carefully controlled laboratory experiments to large-scale field experiments, all designed to explore new ways of remotely imaging hydrologic properties and processes. In 2008, Dr. Knight founded the Center for Groundwater Evaluation and Management, with the vision of advancing and promoting the use of geophysical methods through the development of partnerships—with real people, in the real world, with real problems. Dr. Knight has been active within the Society of Exploration Geophysicists, serving as Second Vice-President and Distinguished Lecturer, and within the American Geophysical Union, serving as the founding Chair of the Near-Surface Geophysics Focus Group, and as Associate Editor for *Water Resources Research* and the *Journal of Geophysical Research*. Current and past students and post-doctoral scientists within her research group all share her commitment to, and enthusiasm for, finding new ways to use geophysical methods to support the sustainable management of our groundwater resources.

**Abstract:**

The Sustainable Groundwater Management Act provides a new framework for the evaluation and management of groundwater in California. Unfortunately, the only data typically available for use in the required modeling and monitoring of groundwater systems are limited well data. This has led to a search for new ways to acquire data with the needed levels of spatial and temporal sampling. Over the past ten years, the Center for Groundwater Evaluation and Management at Stanford University has worked in a number of locations in the western U.S., to explore and demonstrate novel ways of acquiring, processing, and analyzing geophysical data to obtain information about subsurface properties and processes. Three examples are the use of electrical resistivity tomography to image saltwater intrusion along the Monterey Coast; the use of a helicopter-deployed electromagnetic method to map out the hydrostratigraphy in an area of the San Joaquin Valley; and the use of satellite (InSAR) data to monitor water levels in a confined aquifer in the San Luis Valley of Colorado. These three examples highlight ways in which geophysical methods can provide the critical information needed to support the sustainable management of groundwater systems.