



Groundwater Resources  
Association of California



**For Groundwater Sustainability Agencies, Water Agencies, and Stakeholders:  
Introduction to Groundwater and Watershed Hydrology:  
Understanding, Monitoring, and Assessment for  
Sustainable Management**

**SHORTCOURSE NOVEMBER 2017**

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**Guest Speakers from Consulting and Agencies**

**November 14-15, 2017**

**UC Davis Conference Center, Ballroom B**

**Univ. of California Cooperative Extension - Groundwater Hydrology Program**  
<http://groundwater.ucdavis.edu/>

**Groundwater Resources Association of California**  
<http://www.grac.org/>

# Groundwater-Watersheds-Sustainability Plans SHORTCOURSE AGENDA

**Approximate Schedule / Subject to In-Course Adjustment**

<b>TIME</b>	<b>TOPIC</b>	<b>INSTRUCTOR</b>
<b>TUESDAY, November 14</b>		
<b>8:15 - 9:00</b>	Understanding Groundwater	<b>Thomas Harter</b>
<b>9:10 - 10:00</b>	Well Drilling and Construction	<b>Thomas Harter</b>
<b>10:10 - 11:00</b>	Understanding Watersheds	<b>Helen Dahlke</b>
<b>11:10 - 12:00</b>	Groundwater-Surface Water Interaction and Groundwater Dependent Ecosystems	<b>Helen Dahlke</b>
<b>12:00 - 1:00</b>	-----Lunch-----	
<b>1:00 - 1:50</b>	Surface Water Quality and Contaminants in California	<b>Randy Dahlgren</b>
<b>2:00 - 2:50</b>	Groundwater Quality & Contamination: Transport Processes, Monitoring & Sampling	<b>Thomas Harter</b>
<b>3:00 - 3:50</b>	Water Rights	<b>Virginia Cahill</b>
<b>4:00 - 4:50</b>	Sustainable Groundwater Management Act & Water Quality: Understanding the Regulatory Framework	<b>Thomas Harter</b>
<b>WEDNESDAY, November 15</b>		
<b>8:00 - 8:50</b>	Elements of a Groundwater Sustainability Plan: Overview, Hydrogeologic Conceptual Model, Water Budget, Recharge Areas	<b>Thomas Harter</b>
<b>9:00 - 9:50</b>	Managed Aquifer Recharge	<b>Helen Dahlke</b>
<b>10:00 - 10:50</b>	Designing Monitoring Networks, Representative Monitoring, and Sustainability Metrics; GSA Governance: The Yolo County Example.	<b>Tim O'Halloran, YFCWCD</b>
<b>11:00 - 11:50</b>	Sustainability Goals, Undesirable Results, Minimum Thresholds, and Measurable Objectives to Manage Seawater Intrusion in the Monterey Bay	<b>Cameron Tana, Hydrometrics</b>
<b>12:00 - 1:00</b>	-----Lunch-----	
<b>1:00 - 1:50</b>	Linking Sustainability Criteria and Goals to Monitoring and Management Activities: Lessons from Santa Clara Valley	<b>Bassam Kassab, SCVWD</b>
<b>2:00 - 2:50</b>	Climate Change and How to Incorporate that into Sustainability Planning	<b>Helen Dahlke and Tyler Hatch, DWR</b>
<b>3:00 - 4:30</b>	DWR and SWRCB Web-Based Water Data	<b>Craig Altare, DWR &amp; Diane Barclay, SWRCB</b>
<b>4:30 - 5:00</b>	Discussion	<b>Dahlgren/Dahlke/Harter</b>

## SHORCOURSE INSTRUCTORS

**Randy A. Dahlgren, Ph.D.**, is a professor of Soil Science and Biogeochemistry in the Department of Land, Air and Water Resources at the University of California, Davis. His research program in biogeochemistry examines the interaction of hydrological, geochemical, and biological processes in regulating surface and ground water chemistry. He is currently involved in water quality research spanning the scale from hillslopes and vernal pools to small headwater catchments (<10 ha) to the combined Sacramento-San Joaquin watersheds. Randy received his Ph.D. and M.S. in forest soils from the University of Washington and his B.S. in soil science from North Dakota State University. He was a post-doctoral research associate in the Department of Civil and Environmental Engineering at Syracuse University before coming to UCD in 1989. He has served as Chair of the Hydrologic Science Graduate Group, Director of the Kearney Foundation of Soil Science, and Chair of the Department of Land, Air, and Water Resources. He is a Fellow of the Soil Science Society of America, holds the Russell L. Rustici Endowed Chair in Rangeland Watershed Sciences, and is the recipient of the UC Davis Prize for Undergraduate Teaching and Scholarly Achievement.

**Helen E. Dahlke, Ph.D.**, is an associate professor in Integrated Hydrologic Sciences at the Department of Land, Air and Water Resources at the University of California. Her research focuses on contributing to a better mechanistic understanding of hydrological processes and their links to climate and biogeochemical cycling. She has extensive experience researching a wide range of hydrological processes in the field including the transport of various constituents (phosphorus, carbon) and conservative tracers. She received her B.S. and M.S. in Geography from the Friedrich-Schiller University of Jena, Germany and her Ph.D. in Environmental Engineering from Cornell University with emphasis on soil and water engineering, water resources and environmental geophysics. Before coming to UC Davis in 2013, Helen was a postdoctoral researcher at the Department of Physical Geography and Quaternary Geology at Stockholm University, Sweden where she studied climate change impacts on the hydrologic cycle and glaciers in the Scandinavian Mountains. Helen is currently managing a project that is exploring the feasibility of using agricultural fields as recharge sites for groundwater banking.

**Thomas Harter, Ph.D.**, is the Robert M. Hagan Endowed Chair for Water Resources Management and Policy at the University of California, Davis. Dr. Harter received his BS and MS in Hydrology from the Universities of Freiburg and Stuttgart, Germany; and his PhD in Hydrology from the University of Arizona. Dr. Harter's research and extension emphasizes the nexus between groundwater and agriculture. His research group focuses on nonpoint-source pollution of groundwater, sustainable groundwater management, groundwater and vadose zone modeling, groundwater resources evaluation under uncertainty, groundwater-surface water interaction, and on contaminant transport. His work uses a range of numerical, statistical, and stochastic modeling approaches and field work to evaluate the impacts of agriculture and human activity on groundwater flow and contaminant transport in complex aquifer and soil systems, and to support development of tools needed in agriculture and by decision- and policy makers to effectively address sustainable groundwater management and water quality issues in agricultural regions.