

**Monday, May 20th 2019**

**Workshop n° 1**

**State of the Art Techniques in Identifying and Characterizing Optimum Surface Spreading Groundwater Recharge Projects**

**Course Description**

Successful site selection and design of surface spreading groundwater recharge operations are highly dependent on subsurface geologic conditions, source water quality, land availability and nearby land use. This course is designed to present, discuss and evaluate the best tools for site evaluation and subsurface characterization and the application of these tools for feasibility studies and recharge system design. A brief overview of modeling and monitoring tools will also be presented. A spectrum of case studies will be presented to illustrate the application of these tools and interpretation of data. Specific topics to be covered include:

- Defining recharge site goals and criteria for selecting an optimum recharge site
- Phased approaches to site characterization and site selection
- Near-surface field methods for hydraulic characterization
- Deep sub-surface field methods for hydraulic characterization and monitoring
- Modeling of recharge basin performance
- Integration of characterization, monitoring and modeling
- Considerations and methods for maintaining optimum operations

**Course Objectives**

The objective of the course is to provide participants with knowledge of the best tools and exposure to real-life conditions to ensure success in siting, characterizing, designing and monitoring surface spreading groundwater recharge operations.

**Who Should Attend**

The course is designed for consulting and government scientists, engineers and managers who are or will be involved in groundwater recharge studies and operations. A background in the physical sciences or engineering is desirable.

**Course Instructors**

Mike Milczarek has over 25 years of experience in developing, implementing, and managing vadose zone, hydrogeologic and geochemical studies. Groundwater recharge experience ranges from managing or participating in over 30 groundwater recharge feasibility studies, evaluating and modeling recharge in riparian habitat restoration areas

and designing and implementing investigations on stormwater capture and recharge in ephemeral streams. He graduated with Bachelors' degrees in Chemistry and Environmental Science from Northern Arizona University and a Master's degree in Soil and Water Science from the University of Arizona.

Greg Woodside oversees the Planning and Watershed Management Department and the Natural Resources Department at the Orange County Water District. Greg has over 25 years of experience in water resources management and hydrogeology. He graduated with a Bachelor's degree in Geology from California State University, Fullerton, and he earned his Master's degree in Hydrology from New Mexico Tech. Greg is a registered Professional Geologist and Certified Hydrogeologist in the State of California.