



California Water and Environmental Modeling Forum

Promoting Excellence and Consensus in Water and Environmental Modeling

P.O. Box 22529, Sacramento, CA 95822 916-833-6557 cwemf@cwemf.org www.cwemf.org

**Peer Review Workshop
on
IWFM, HGS and MODFLOW
Integrated Groundwater/Surface Water Models
(In cooperation with the U.S. Bureau of Reclamation)**

Monday, June 18, 2012
9:00 a.m. to 4:30 p.m.

“Joe Serna Jr.” Cal/EPA Building
Klamath Training Room, 2nd Floor
1001 “I” Street, Sacramento, CA (10th & “I” St.)
[Directions and Parking](#)

Workshop Fee: No-charge
Pre-registration is not required. However, if you plan on attending,
please send an email to gwmodelworkshop@cwemf.org.

Purpose and Objectives

California’s Central Valley is currently home to over six million people, and generates over \$20 billion in agricultural crops each year. An intricate surface water distribution system routes water from surrounding watersheds to the Central Valley, the Central Coast and Southern California. The Central Valley’s groundwater aquifers have historically provided water for agricultural and urban use, and are increasingly being used as a buffer for fluctuations in surface water supplies. The threat of long-term droughts and the uncertainty of climate change impacts on California’s surface water resources have caused increased interest in groundwater. Aquifer safe yield, the amount of groundwater that can be extracted over time without depleting the resource, land subsidence, and degradation of water quality are all important aspects of water resource management in California.

The California Water and Environmental Modeling Forum (CWEMF) in collaboration with the U.S. Bureau of Reclamation commissioned this peer review to provide an independent analysis and constructive suggestions about the strengths and weaknesses of three integrated groundwater/surface water models commonly used in the Central Valley of California: IWFM (Integrated Water and Flow Model), HGS (HydroGeoSphere) and MODFLOW. The purpose of the peer review is to evaluate the capabilities of these models for performing the various types of analyses that integrated groundwater/surface water models are typically employed in California’s Central Valley. The intention of the review is not to identify the best model, but rather to present a clear understanding of the types of applications that the models are capable of performing when simulating various hydrologic, biologic and water quality processes.

The peer review panel consists of two external reviewers who were selected for their expertise in the development and application of integrated groundwater/surface water modeling. The panel consists of Dr. Hubert Morel-Seytoux of Hydroprose Consulting International and formerly of Colorado State University, and Dr. Thomas Harter of U.C. Davis. The peer review panel will issue draft and final reports based on the information presented at this workshop and a review of supporting documents for the models. This workshop will consist of technical presentations by model developers/users to the review panel on the models’ key features, documentation, validation, limitations, applications and future development. There will also be an opportunity for brief questions and comments from the public. When the peer review panel completes the draft peer review report, the CWEMF will conduct another workshop to present the draft results and allow for public comment before the report is considered final.

Agenda

- 9:00 a.m. **Introduction, Purpose, and Objectives**
Dr. Ben Bray (CWEMF Vice-Convener, East Bay Municipal Utility District)
- 9:15 a.m. **IWFM – Key Features, Documentation, Validation, Limitations, Applications and Future Development**
Tariq Kadir and Dr. Emin (Can) Dogrul (California Department of Water Resources)
- 10:30 a.m. **Panel Questions on IWFM**
- 11:00 a.m. **HGS – Key Features, Documentation, Validation, Limitations, Applications and Future Development**
Dr. George Matanga (U.S. Bureau of Reclamation) and
Dr. Ed Sudicky (University of Waterloo, Ontario, Canada)
- 12:15 p.m. **Lunch**
- 1:15 p.m. **Panel Questions on HGS**
- 1:45 p.m. **MODFLOW – Key Features, Documentation, Validation, Limitations, Applications and Future Development**
[Examples of Advances in Groundwater Modeling: Flow, Transport & Groundwater/Surface Water Interactions
Conjunctive Use Analysis Using MODFLOW with the Farm Process](#)
Randy Hanson and Dr. Claudia Faunt (U.S. Geological Survey)
- 3:00 p.m. **Panel Questions on MODFLOW**
- 3:30 p.m. **Additional Panel Questions on All Models**
- 4:00 p.m. **Public Questions and Comments**
- 4:30 p.m. **Adjourn**