

SWWRP Course Announcement

Distributed Hydrologic Modeling Using the USACE Physics Based Distributed Hydrologic Model GSSHA

July 7-10, 2009

Micro Tek Denver Facility, Denver CO

You are invited to attend the System Wide Water Resources Program (SWRPP) sponsored course on spatial hydrologic modeling within the US Army Corps of Engineers (USACE). In this course, you will learn the basics of the USACE GSSHA model, developed at the Engineer Research and Development Center (ERDC). The course will feature the spatially distributed modeling components of this system with a combination of lecture and hands on applications. Attendees will use the Watershed Modeling System (WMS) to parameterize GSSHA models in the hands on portion of the training. The course will begin with an overview of WMS to ensure that the maximum benefit is derived from the hands on learning portions of the class.

Course attendees will:

- Learn the basic spatial data required to parameterize GSSHA distributed models
 - Learn how to find and use spatial geographic data to develop GSSHA models.
 - Learn basics of WMS interface for developing GSSHA gridded models
- Set up and run basic GSSHA distributed runoff models
- Use basic models to analyze changing conditions – land use, BMPs, streams, etc.

Having completed the course, you will have working knowledge of the spatial hydrology tools available to USACE personnel, WMS and GSSHA. You will have a better understanding of how, when, and why you might be able to apply the tools to your own specific studies and needs.

Who Should Attend?

The course is intended for those with basic hydrology and hydrologic modeling experience who want to learn about more advanced hydrologic modeling tools. Some prior knowledge of WMS and GSSHA is helpful, but not mandatory. Familiarity with GIS and digital spatial datasets is also helpful, but is not required.

When: July 7-10, 2009. Course hours are 8AM to 5PM. The first three days will consist of basic GSSHA instruction. The fourth day, which is optional, will be devoted to working on student's problems or advanced GSSHA features, depending on the interest of the remaining students.

Where: The course will be held at the Micro Tek Denver Facility, Denver, CO. The Micro Tek Denver Facility is located at 999 18th Street, Suite 300 Suite Tower, in Lower Downtown Denver, 1 ½ blocks from the 16th Street pedestrian mall. [MicroTek Denver Facility](#)

Accommodations: Rooms can be reserved at the Marriot Residence Inn at government per diem rates. Reserve your room directly from the MicroTek web site at <http://www.mclabs.com/hotels/denver/ResidenceInn.aspx> or call the hotel at (303) 296-3444 and specify that you would like the MicroTek government rate to receive the special contracted rate of \$149/night. We recommend that you reserve your hotel room early. If you cannot get a reservation at this hotel or would like to stay at another hotel, a list of hotels that have special MicroTek discounted rates is available at the following web site: <http://www.mclabs.com/facilities/Denver/hotels.aspx>

Meals and Breaks: Lunch and snacks/beverages will be provided. A nominal charge of \$50 will be charged for each attendee to cover these costs. Breakfast and dinner will be on your own.

Activities: Denver is an international destination featuring professional sports teams, world class dining, entertainment, outdoor activities, and cultural possibilities. The hotel and facility are located Lower Downtown Denver, home to Coors Field, the Pepsi Center, Denver Performing Arts Center, as well as numerous restaurants and other attractions.

Costs: The only cost for the course is the nominal \$50 expense of lunch and breaks. This \$50 fee will be collected at the beginning of the course.

Computers: Twenty desktop computers will be provided. Students may be paired, allowing potentially 40 students to attend. You may also bring your own laptop PC. The WMS and GSSHA software will be provided to all course attendees with installation help provided.

Attendance: Attendance is limited to 40 students.

Transportation: A full range of transportation options are available at the Denver International Airport. If you would like more information contact Laura White (lwhite@aquaveo.com).

Contact: To sign up for the course or for information on the materials covered, contact Barbara Parsons at (601) 634-2344, barbara.a.parsons@usace.army.mil. For information on lodging or transportation to/from Denver CO, contact Laura White at (801) 691-5528, lwhite@aquaveo.com.

Instructors: Instruction will be provided by the WMS and GSSHA model developers. Students will have a unique opportunity to work directly with the leading experts on the various models. Your instructors are:

Dr. Charles W. Downer, PE - Research Hydraulic Engineer, USACE-ERDC-CHL. Dr. Downer is a leader and innovator in the development and application of distributed hydrologic models. Dr Downer is one of the original developers of the GSSHA model, and as such has also played an important part in the development of the WMS interface, particularly in the area of distributed modeling in support of GSSHA. Dr. Downer leads the development, application, and instruction of the GSSHA model.

Dr. Jim N. Nelson – Professor, Department of Civil Engineering, Brigham Young University. Dr. Nelson is the architect and director of the WMS interface development. He is also the author of the WMS reference manual and tutorials. Dr. Nelson has taught hydrologic modeling courses at the university level and around the world for over 15 years. He has published several papers in the field of hydrologic modeling and maintains an ongoing research program to improve hydrologic modeling methods. Dr. Nelson is currently teaching a course on spatial hydrologic modeling at BYU and also teaches a course on GIS applications of Civil Engineering. He brings a wealth of teaching knowledge to the four day course.

Dr. Fred L. Ogden, PE, PH - Professor Cline Distinguished Chair of Engineering, Environment and Natural Resources Department of Civil & Architectural Engineering and Haub School of Environment and Natural Resources University of Wyoming. Dr Ogden is one of the pioneers in the field of distributed hydrologic modeling. He is one of the original developers of the GSSHA model and of the CASC2D model, the predecessor to CASC2D. Dr. Ogden has developed sediment transport and channel routing algorithms in GSSHA. Many of the features in GSSHA were taken from or patterned after the work of Dr. Ogden within the CASC2D model. Dr. Ogden currently directs the development of storm and tile drains in the GSSHA model.

Mr. Murari Paudel – Graduate Student, Department of Civil and Environmental Engineering, Brigham Young University. Mr. Paudel graduated from Tribhuvan University in Kathmandu, Nepal with an emphasis in hydraulics. He is currently working on his PhD at BYU, with an emphasis on spatial hydrologic modeling. He has taught both hydraulic and hydrologic modeling classes at BYU and Nepal, and some of his preliminary research on spatial modeling comparisons will be presented.

