Transport Modeling with MT3DMS, MODFLOW-USG, and SEAWAT in Groundwater Vistas

Webinar

Instructor:
Jim Rumbaugh

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Location:
Your Home or Office!

Cost
Individual: $950
Office: $1,900

Contact Jim Rumbaugh (see above) to Register

Instructor Bio:

Jim Rumbaugh, hydrogeologist and groundwater modeler, has over 35 years of experience in application of groundwater models and in development of groundwater modeling software tools. He is the co-author of the Groundwater Vistas software and is President of Environmental Simulations, Inc., a company that specializes in groundwater modeling. Jim was a past Chairman of ASTM Subcommittee D18.21 on Groundwater and Vadose Zone Investigations. Subcommittee D18.21 was funded by U.S. EPA to develop standards for groundwater modeling practice. Jim was honored by the National Ground Water Association with the 1999 John Hem Excellence in Science and Engineering Award by NGWA. This award is given to those who have made a significant, recent scientific or engineering contribution to the understanding of groundwater. NGWA also presented Jim with the 2014 Technology Award, which is given to those who have made a significant contribution to the groundwater industry in the development of ideas and tools, along with exemplary service to colleagues throughout the industry in sharing these ideas. Jim teaches groundwater modeling seminars throughout the USA, Europe, Australia, and New Zealand. Jim has an active consulting practice and has worked on hundreds of groundwater modeling projects throughout the world.

Registration:

To register for this seminar, simply send Jim an email at **JRumbaugh@GroundwaterModels.com,** give us a call at (610) 670-3400, or pay by credit card on our web site at www.groundwatermodels.com and click Online Store. Registration is not confirmed until we receive payment for the Webinar.

Webinar Information:

- The Webinar is divided into 6 lectures lasting between 1 and 2 hours. After each lecture, there will be computer exercises that you may work on at your own pace. Help with exercises is provided by email (support@groundwatermodels.com).

- Lectures are live **but will be recorded** in case you cannot attend all of them. There will be periodic question/answer sessions during the lecture. You will call into the Webinar using either VoIP or telephone.

- Computer exercises are based on ESI's Groundwater Vistas Version 7 software. If you do not currently have Groundwater Vistas or if you have an older version, you may purchase a new license or upgrade with a 20% discount. You must order the software prior to the start of the Webinar to receive the discount.

- ESI reserves the right to cancel the Webinar if there are less than 6 participants

- Each lecture will start at 3:00 pm Eastern Time. Webinar Lectures will be on Monday, Tuesday, and Wednesday for 2 consecutive weeks. Question & Answer sessions will be held on Thursdays. Consult our webinar schedule for exact dates.

Course Description:

Transport Modeling using ESI Groundwater Vistas Software

The transport modeling seminar taught by James Rumbaugh of Environmental Simulations, Inc. is designed for intermediate and advanced level modelers. The course covers transport modeling using MT3DMS, MODFLOW-USG, and SEAWAT2000. The use of PEST to calibrate transport models is also covered. The course is divided into lecture and hands-on computer exercises.

Length of Course: 6 Lectures

Lecture 1:
Introduction to Transport Modeling

This lecture covers the fundamental issues of contaminant transport modeling. Topics include dispersion, chemical reactions, biologic decay, and numerical problems with transport models. The U.S. EPA model MT3DMS is also discussed as this is the most widely used transport model in this country. MT3DMS is compared to the MODFLOW-USG and SEAWAT models.

Lecture 2:
Transport Modeling in MT3DMS and MT3D-USGS

MT3DMS is the most widely used transport model and includes one variant (RT3D) and a recent release by the USGS (MT3DM-USGS). These three versions of MT3DMS are discussed, along with their implementation in Groundwater Vistas. These MT3DMS models are also contrasted with MODFLOW-Surfact, a proprietary MODFLOW version that is also widely used.

Lecture 3:
Transport Modeling in MODFLOW-USG

MODFLOW-USG is a new version of MODFLOW that includes its own transport model with capabilities similar to MT3DMS. A discussion is presented on MODFLOW-USG capabilities in general for those participants new to MODFLOW-USG.

Interactive Question & Answer Session 1:

Jim will present more details on questions coming out of the first 3 sessions. Any participants who would like additional information on any topic covered so far can send these questions via email or interactively during the discussion.

Lecture 4:
Density-dependent Transport Modeling with Seawat and MODFLOW-USG

Seawat is the most widely used transport model for simulating seawater intrusion and effects of dense brines. This lecture will show how to use seawat, which is a combination of MODFLOW2000 and MT3DMS. Seawat will be compared to the density-dependent transport features of MODFLOW-Surface as well.

Lecture 5:
Heat Transport in Seawat

The most recent version of Seawat has the capability of simulating heat transport. Heat can be simulated either on its own or in conjunction with other solutes. Examples will be presented showing the use of Seawat in seawater intrusion that incorporates head transport as well as simulation of geothermal systems that require the prediction of heat transport.

Lecture 6:
Calibrating Contaminant Transport Models
Preview of Transport Modeling in MODFLOW 6

PEST is the standard for groundwater model calibration. Some new tools have been created for use of PEST with the transport models presented in this course. These tools, along with differences in calibration are presented in the context of contaminant transport.

USGS is working on a transport version of MODFLOW 6. A beta version will be available for the webinar and we will go over its capabilities.

Interactive Question & Answer Session2:

Jim will present more details on any topic related to model calibration. Any participants who would like additional information on any topic covered so far can send these questions via email or interactively during the discussion.