

## New Software from EMS-I for Watershed, Surface Water, and Groundwater Modeling

Environmental Modeling Systems, Incorporated (EMS-I) announces three new software packages.

### *Watershed Modeling System (WMS)*

WMS is a complete hydrologic modeling interface that includes graphical tools for automatic watershed delineation from digital elevation and GIS data. WMS has interfaces for standard hydrologic models such as HEC-1, TR55, TR-20, NFF and the Rational Method. Basin parameters from the delineated watersheds are calculated and used in the hydrologic analyses. WMS also has excellent tools for creating and displaying hydrographs and other results. All functions are performed seamlessly within the WMS interface. WMS also includes an interface to HSPF and CEQUAL-W2 2D profile model. These models can be used to model both hydrology and water quality, and can be used to develop models for TMDL analysis. WMS also has

tools for floodplain delineation from river stage input, and will soon include 1D hydrodynamic models to provide a complete and seamless tool for flood plain mapping.

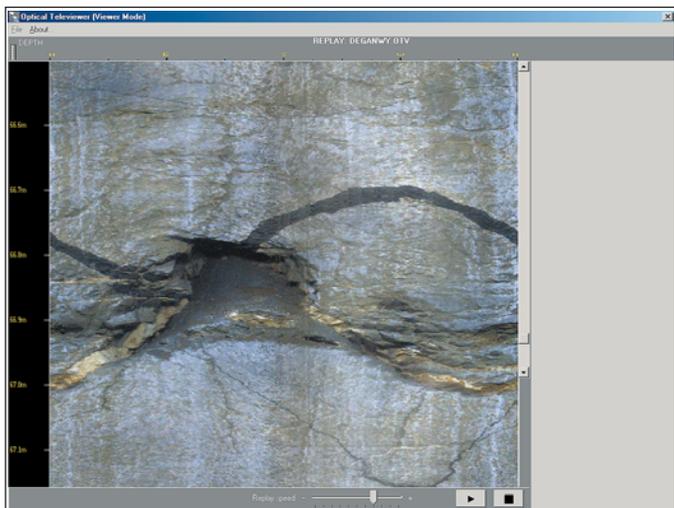
### *Surface-Water Modeling System (SMS)*

SMS is a graphical user interface primarily for developing 2D hydraulic depth-averaged flow models required for modeling complex river and coastal systems. SMS has sophisticated finite element mesh generation tools and advanced visualization tools for interpreting results. SMS has an interface for the TABS model developed at the US Army Corps of Engineers. TABS includes RMA2, RMA4, HIVEL2D, and SED2D, and includes standard hydrodynamic sub-critical flow, super-critical flow, and sediment transport. SMS also has an interface for the FESWMS model. FESWMS is similar to RMA2, but was developed for the Federal Highway Administration, and includes special tools that account for bridge structures. SMS has new tools for automated cross-section generation from digital data for 1D hydraulic models such as HEC-RAS and UNET. SMS also has interfaces for several sophisticated wave and circulation coastal models.

### *Groundwater Modeling System (GMS)*

GMS provides a comprehensive graphical user environment for groundwater modeling. GMS has tools for site characterization, geostatistical interpolation, and advanced visualization in both 2 & 3 dimensions. GMS offers a unique and powerful conceptual modeling approach that uses GIS feature objects to develop and define the model, and automated tools to generate the model grid or mesh and assign properties and boundary conditions. GMS has excellent links with ArcView through shapefile format input. GMS has interfaces for the USGS MODFLOW flow model, the MODPATH particle tracking code, the MT3D contaminant transport model, and the RT3D reactive transport model, among others. It also has an interface to FEMWATER, an Army Corps' finite element model that includes flow and transport capabilities, and allows for modeling flow in the unsaturated zone, and density dependent characteristics. Advanced calibration tools are also included, and GMS has interfaces to parameter estimation software such as PEST and UCODE, and tools for stochastic modeling.

visit [www.ems-i.com](http://www.ems-i.com)



Digital view of a fracture viewed with Welenco's optical televiwer

## Welenco Has New Optical Televiwer

A new optical televiwer, now in use by Welenco, Inc. of Bakersfield, CA, uses a camera focused on a hyperbolic mirror to view the entire borehole circumference at once. The data are then digitized so that the wellbore image is "unrolled" into a two-dimensional image. The device works in dry or fluid-filled boreholes, as long as the

fluid is clear and the borehole walls are fairly clean. The wellbore is scanned from top to bottom at a rate of about four feet per minute, and the image can be viewed on-screen as it is recorded. Once the image is recorded, Welenco uses their in-house software, RGDip, to process the data into a variety of plots that provide a very clear image of the fractures. The technology can be used to identify fractures (location and orientation),

fracture fillings, differently colored geologic units, zones above the water table where fluids are entering the borehole, or anything else that shows up as a distinct color. The optical televiwer has been used in the Fresno, CA area to determine fracture pathways for contaminant plume transport near filling stations, and it is also useful for identifying water-producing fractures for water-supply wells.

visit [www.welenco.com](http://www.welenco.com), (800) 445-9914

## "Live" On-Line Training Available for Hydrologic Software

GroundwaterSoftware.com has teamed up with Waterloo Hydrogeologic to offer "live" interactive Internet courses for a variety of hydrologic software. "How to" courses being offered at press time include the use of Surfer, Aquifer Test, RISC WorkBench, AquaChem, and Visual MODFLOW. These courses last two hours, and cost \$149 or \$199. Class size is limited to only four students to facilitate student/instructor interaction. The host that is used to present the course allows the application to be shared and voice waves to be transmitted. The instructor gives a Power Point presentation and demonstrates the software at the same time. Students are given a web site link and password, and are able to view the instructor's computer screen. Audio instruction is included, and students are able to ask questions as the class proceeds.

visit [www.groundwatersoftware.com/courses.htm](http://www.groundwatersoftware.com/courses.htm)