California Water and Environmental Modeling Forum

Promoting Excellence and Consensus in Water and Environmental Modeling

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Technical Workshop
on

Watershed and Urban Hydrology Modeling

Friday, June 22, 2007
9:30 a.m. to 4:50 p.m.
Secretary of State Building Auditorium, 1500 11th Street, Sacramento, CA.

Purpose

The purpose of the workshop is to introduce participants to: (1) watershed and urban hydrology models, (2) the capabilities and data requirements of each model, and (3) how the models are used for specific applications. Watershed and urban hydrology models are typically used to do the following:

- Quantify runoff flow rates and water quality impacts at any point in the watershed under various watershed change, urbanization, and management scenarios;
- Calculate TMDL load allocations;
- Size storm water control facilities, delineating flood plain areas, reservoir spillway design;
- Evaluate storage, treatment, and other best management practices for non-point source load reduction in a watershed; and
- Compare trade-offs of sewer extensions vs. on-site wastewater systems.

Agenda

9:30 a.m. **Welcome / Introduction** (.ppt)
George Nichol (California Water and Environmental Modeling Forum)
Eric Berntsen (State Water Resources Control Board)

9:40 a.m. **Overview of Event-Based and Continuous Simulation Watershed Modeling** (.ppt)
Eric Berntsen (State Water Resources Control Board)

10:00 a.m. **HEC-HMS (Hydrologic Modeling System) Watershed Model: Simulation of Precipitation-Runoff Processes** (.pdf; 1.2 MB)
Bill Scharffenberg (U.S. Corps of Engineers Hydrologic Engineering Center; Lead, HMS Development Team)

10:40 a.m. **WARMF (Watershed Analysis Risk Management Framework) Watershed Model: Decision Support System for Watershed Management and TMDL Analysis** (.ppt)
Carl Chen and Joel Herr (Systech Engineering, Inc.)

11:35 a.m. **Lunch**

12:30 p.m. **HSPF (Hydrologic Simulation Program-Fortran) Watershed Model: Simulation of Hydrology and Water Quality** (.pdf; 1.4 MB)
Tony Donigian (AQUA TERRA Consultants)

1:10 p.m. **SWMM (Storm Water Management Model) Watershed Model: Dynamic Rainfall-Runoff Model for Single-Event or Long-Term Simulations** (.pdf; 2.5 MB)
Basics of SWMM and project applications, Aaron Poresky, Senior Staff Engineer (Geosyntec Consultants)

1:50 p.m. **Break**

2:10 p.m. **Modeling Post-Development Runoff and Channel Impacts from Hydromodification:** (.pdf; 3.8 MB)
Practical Tools for Hydromodification Assessment — An Application of HEC-HMS and Other Modeling Tools used in Santa Clara and Contra Costa Counties' Hydrograph Modification Management Plans
Chris Bowles and Andy Collison (Phillip Williams & Associates).

2:50 p.m. **Practical Application of Modeling Results to Land Development Policies in Contra Costa County —** An Application of HSPF (.pdf; 8.2 MB)
Dan Cloak (Dan Cloak Environmental Consulting)

3:30 p.m. **Bay Area Hydrologic Model (BAHM) —** An HSPF-Based Hydromodification Control Design Tool for the Santa Clara, San Mateo, and Alameda Countywide Stormwater Programs,
Joe Brascher (Clear Creek Solutions)

4:10 p.m. **Development of a Hydro-Geomorphic Model for the Upper Laguna Creek Watershed, Sacramento, CA.** (.PDF; 4.4 MB) – An application of HEC-HMS to evaluate potential future impacts on the geomorphic characteristics of Laguna Creek due to water development and hydromodification as part of a larger watershed master planning effort.
Gary Palhegyi (Geosyntec)

4:50 p.m. **Adjourn** (Please turn in your evaluations)