HEC-RAS 5.0 2D Model Training Workshop
Advanced = seasoned attendees with 10 + years of experience in FPM or the topic area
SUNDAY, 5/30/2015 from 1:00pm - 5:00pm

DESCRIPTION
This workshop will provide an overview of the new HEC-RAS 2D model capabilities and solution processes through hands-on experience with the tool. The presentation cover the basic capabilities of the HEC-RAS 2D model, instructions on how to set-up a 2D model with HEC-RAS, how to review results, extract data and identify inconsistencies in the output that may warrant further model refinements.

PRE-REQUISITES
Participants should have a working knowledge of the following: Basic GIS fundamentals, Understanding of terrain data formats, Intermediate to advanced HEC-RAS experience.

TARGET AUDIENCE
Engineers who prepare or review hydraulic models

OBJECTIVES
1. Familiarization with the new HEC-RAS 2D model capabilities and solution processes
2. Understanding of the basic steps to developing a terrain surface for an HEC-RAS 2D model
3. Understanding of the HEC-RAS 2D features and how to implement them.
4. Familiarity with how to review the results, extract data and identify inconsistencies in the output that may warrant further model refinements.

TOPICS
- Overview of HEC-RAS 2D Computational Processes
- Solution options and process
- Model structure and differences with other models
- Overview of RAS Mapper Utility
- Terrain Data Formats
- Importance of a good terrain data set, inspecting your terrain
- Setting projection
- Modification of Terrain within RAS Mapper
- Incorporating Imagery and other data
- Post-Processing results and reviewing output data
- Model Setup
- Creating a 2D mesh
- Incorporating linear features in mesh building process
- Incorporating culverts and other features in 2D domain
- Editing a 2D mesh
- Establishing boundary conditions
- 1D/2D connections
- Using culverts and gates
- Inline structures
- Land use and variable roughness
- Solution Options
- Diffusion Wave St. Venant (Full Dynamic)
- Selection of appropriate time steps and output options
- Special Problems
- Dam Breach
- Modeling of Bridges
- Output Review and Validation
- Reviewing your output for inconsistencies
- Extracting hydrograph, stage, velocity, shear stress and other data
- Animation of output (depth, water surface elevation, velocity vectors)
- Particle trace option overview

OUTLINE
50% Lecture
50% Small Group Exercise

AGENDA
Instruction (90 min)
  - Overview of HEC-RAS 2D Computational Processes
  - Overview of RAS Mapper Utility
  - Model Setup
  - Solution Options
Small Group Exercise 1 – Simple Terrain (30 min)
  - Instruction (20 Min)
  - Special Problems
  - Output Review and Validation
  - Small Group Exercise 2 – Roadways, Culverts and Multiple Domains (30 min)
Small Group Exercise 3 – Visualization and Data Extraction (20 min)
Questions and Open Discussion (20 min)

Instructors:
Mark E. Forest
Practice Leader-Floodplain Management and Modeling, HDR Engineering

Mitchell Blum, P.E., CFM
Project Manager, HDR Engineering
Mr. Blum has over 13 years of water resources engineering experience in both the public and private sectors. His experience includes hydrologic and hydraulic modeling; fluvial geomorphic studies; integration of GIS and AutoCAD into model development; constructed advanced 1D and 2D, steady and unsteady hydraulic models; performed complex dam breach analysis; preparing Letters of Map Change and Flood Insurance Studies for FEMA and private clients; and supported storm water drainage design and analysis. His hydrologic and hydraulic modeling experience includes the development, stabilization, processing and calibration of both one- and two-dimensional, steady- and unsteady-state hydraulic models with complex hydraulic systems incorporating multiple split flow reaches, later overflow structures, overbank storage areas, storage area connections and hydraulic structures. He has modeled a variety of systems ranging from low gradient tidally influenced streams to steep mountain creeks. Specialty software experience includes ArcView, ArcMap, Spatial Analyst, 3D Analyst and Xtools extension utilities, ArcToolbox projection utilities, hydrologic (HEC-1, HEC-HMS) and hydraulic (HEC-RAS (1D and 2D), HEC-2, InfoWorks RS) modeling, AutoCAD, HEC-GeoRAS, HEC-GeoHMS, StormCAD, Hydraflo, Sediment transport modeling, and HY-22.