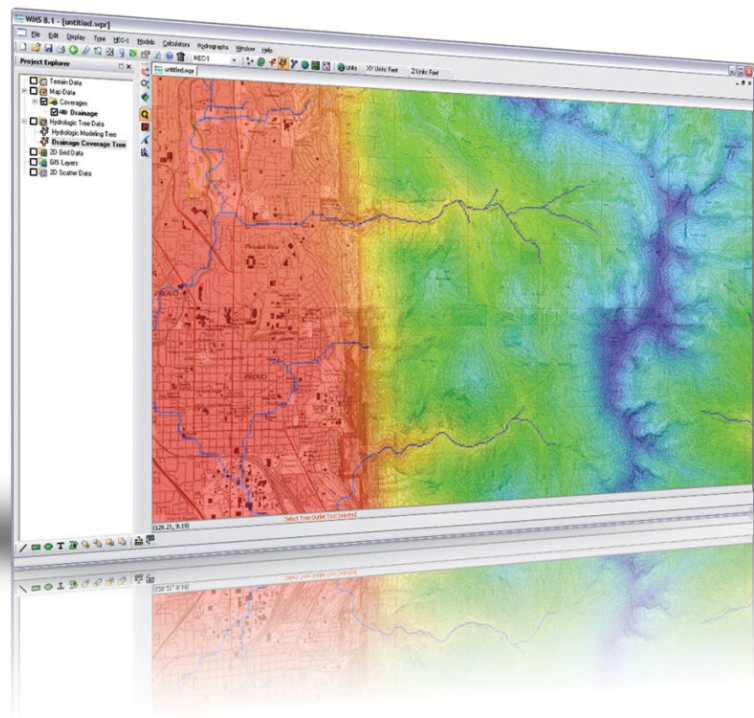




Watershed and Groundwater
Modeling Solutions





History of WMS

- Environmental Modeling Research Lab (EMRL) until April, 2007
- Now developed by Aquaveo
- Sponsorship
 - EMRL
 - Engineering Research and Development Center (ERDC) for the US Army Corps of Engineers
 - Federal Highway Administration (FHWA)
- First released in 1994
- Distribution
 - EMS-I
 - FHWA, ERDC





What Can WMS Do?

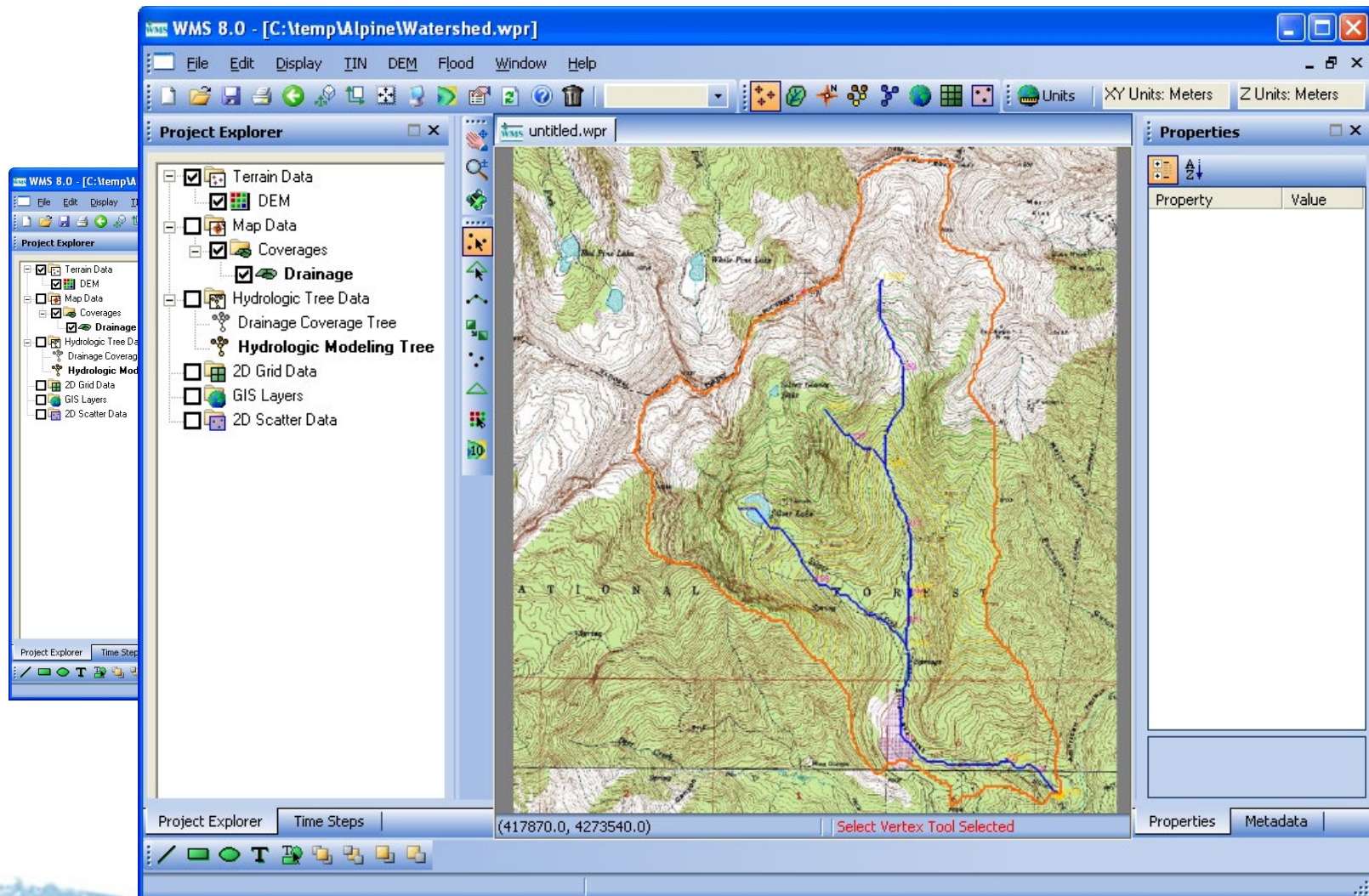
- Extract hydrologic model input data from computerized maps
 - DEMs, Land Use, Soils, Images
- Graphical user interface for hydrologic models
- Present model output in a form that is convenient for post-processing and report generation



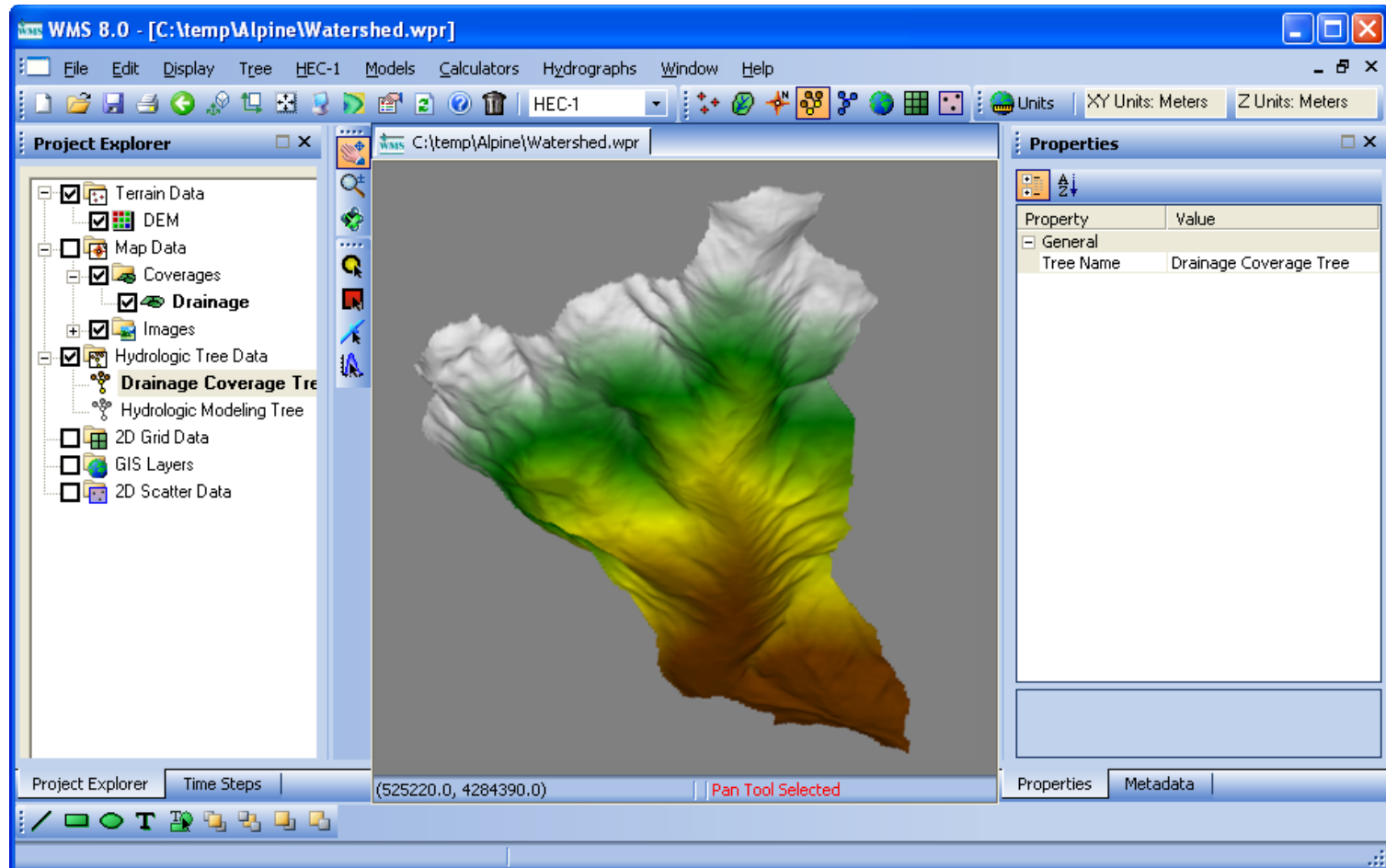


Watersheds From Computerized Maps

Watershed and Groundwater
Modeling Solutions



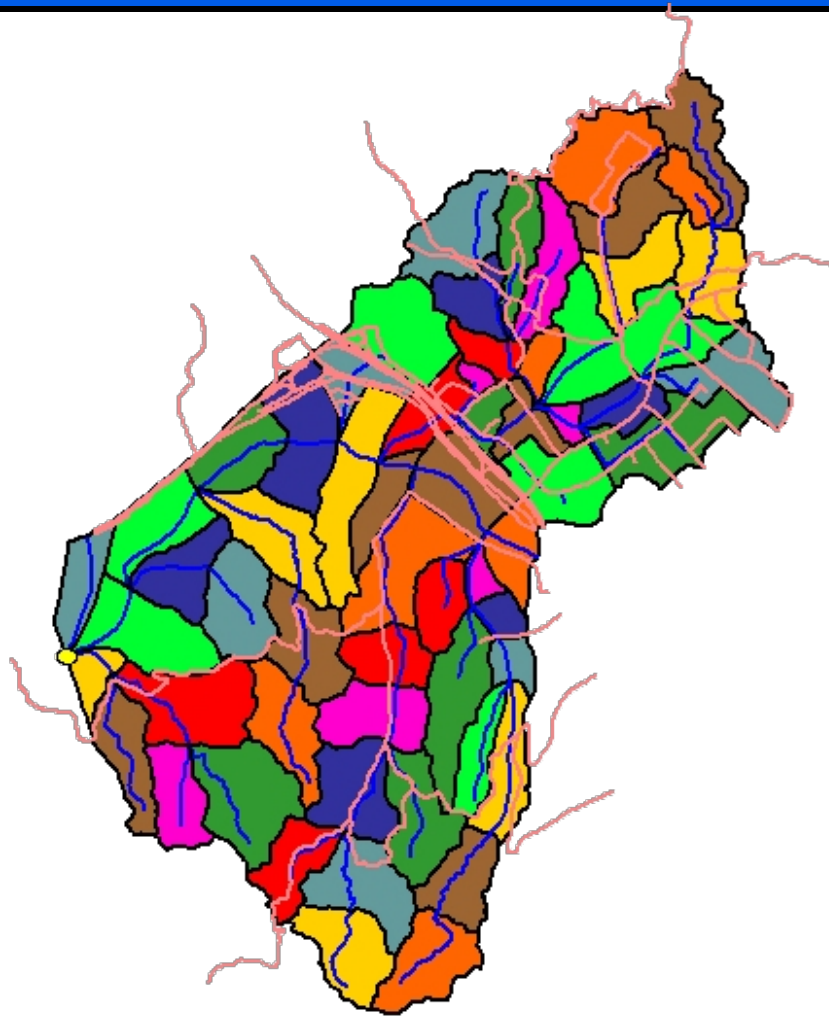
Watersheds From 3D Maps





Watersheds From CAD and GIS

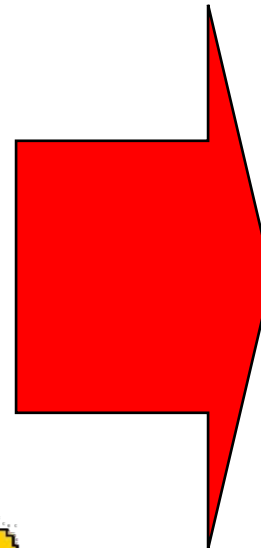
Watershed and Groundwater
Modeling Solutions



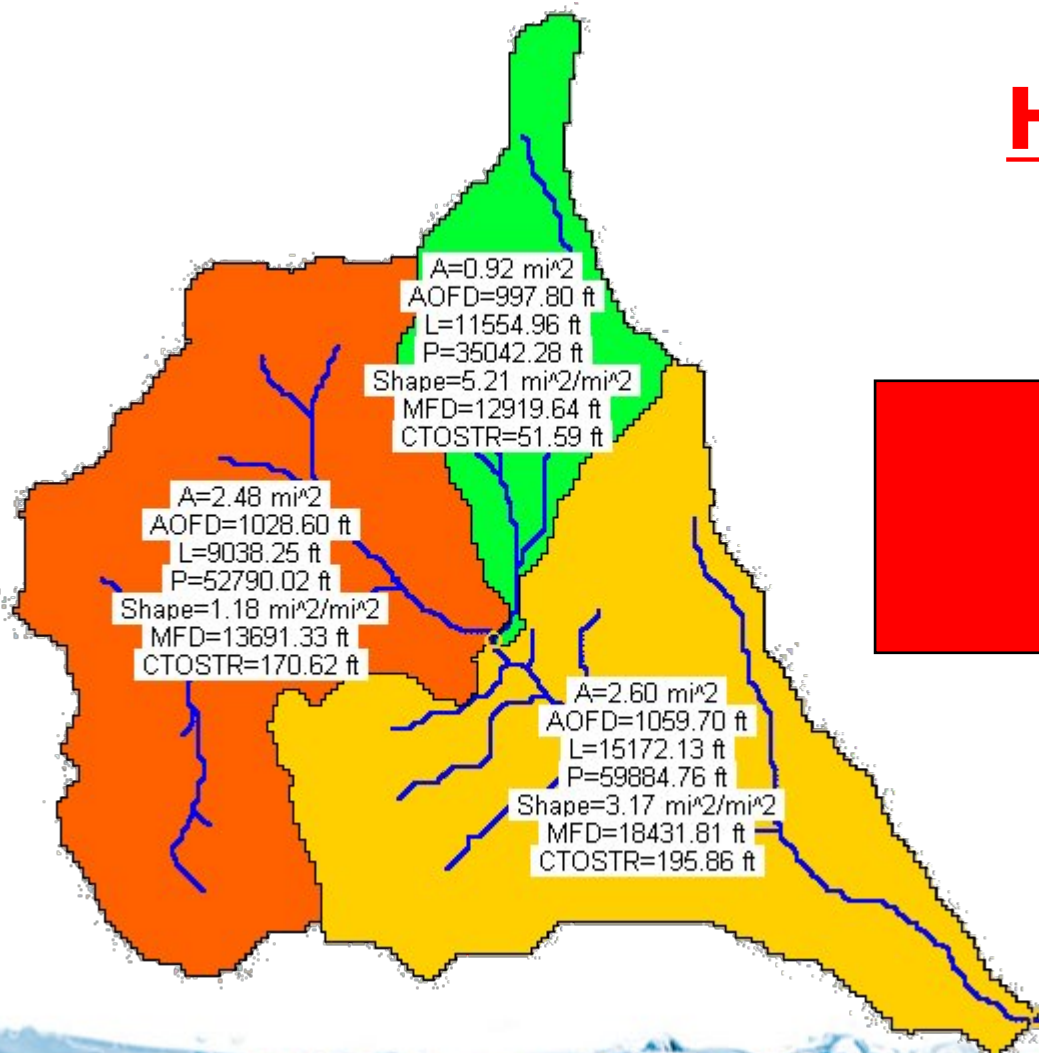


The Basic Goal

Hydrologic Model



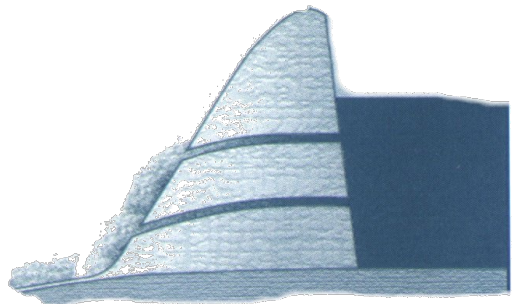
HEC-1
HMS
TR-20
TR-55
Rational
NSS
HSPF
GSSHA



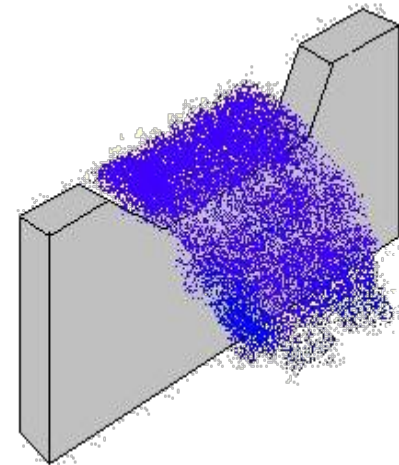


Watershed and Groundwater
Modeling Solutions

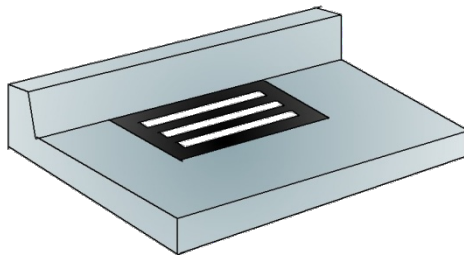
FHWA Calculators



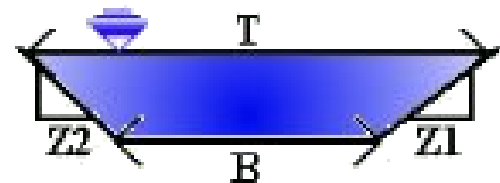
Detention Basins



Weir Flow



Curb & Gutter



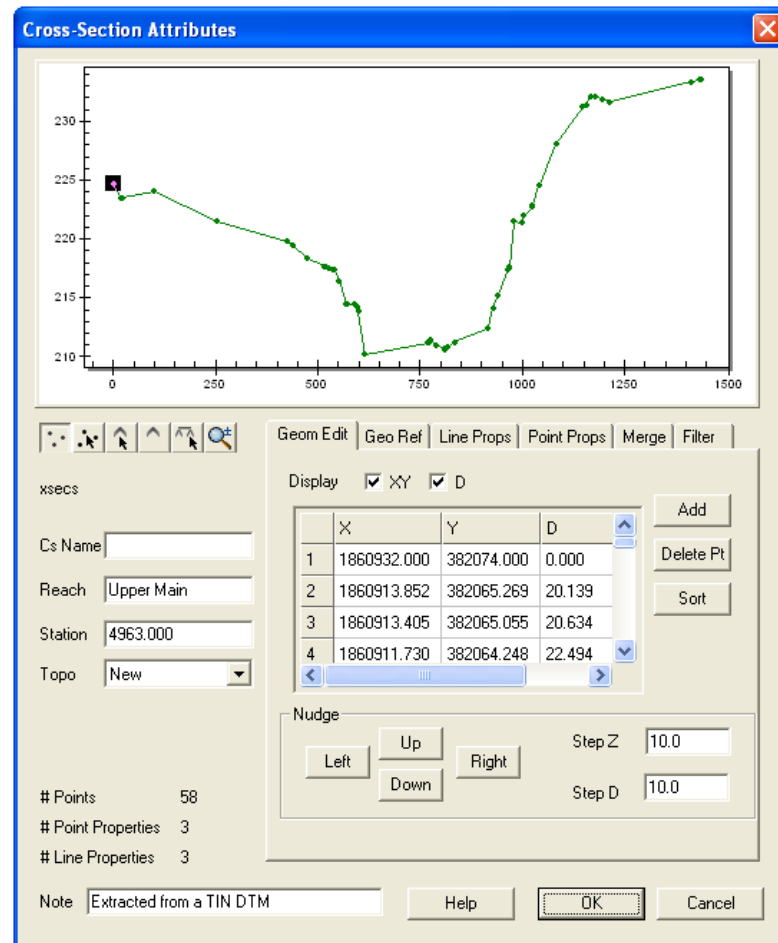
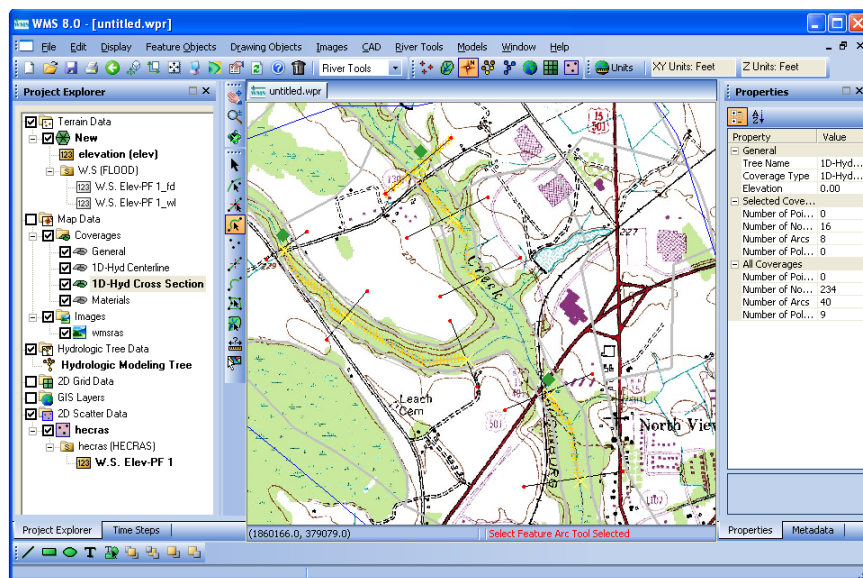
Channel Hydraulics





Extraction of Hydraulic Modeling Geometry

Watershed and Groundwater
Modeling Solutions



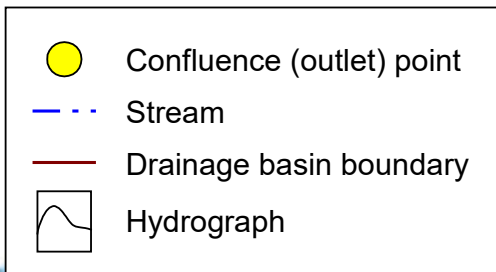
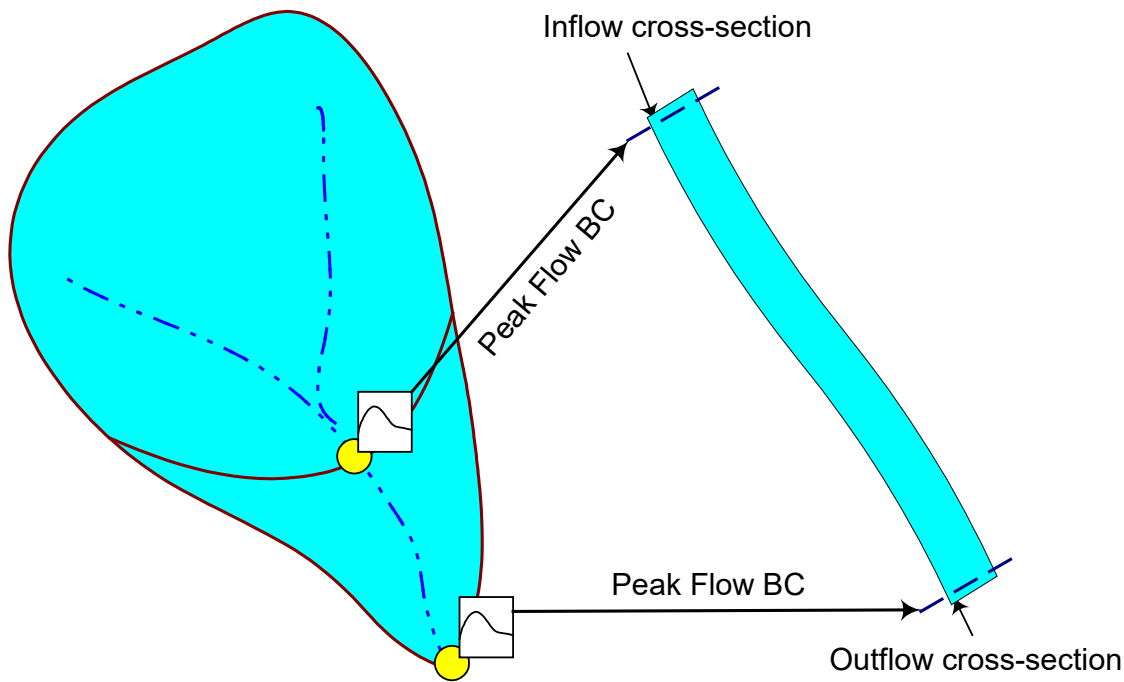


Model Linkage

Watershed and Groundwater
Modeling Solutions

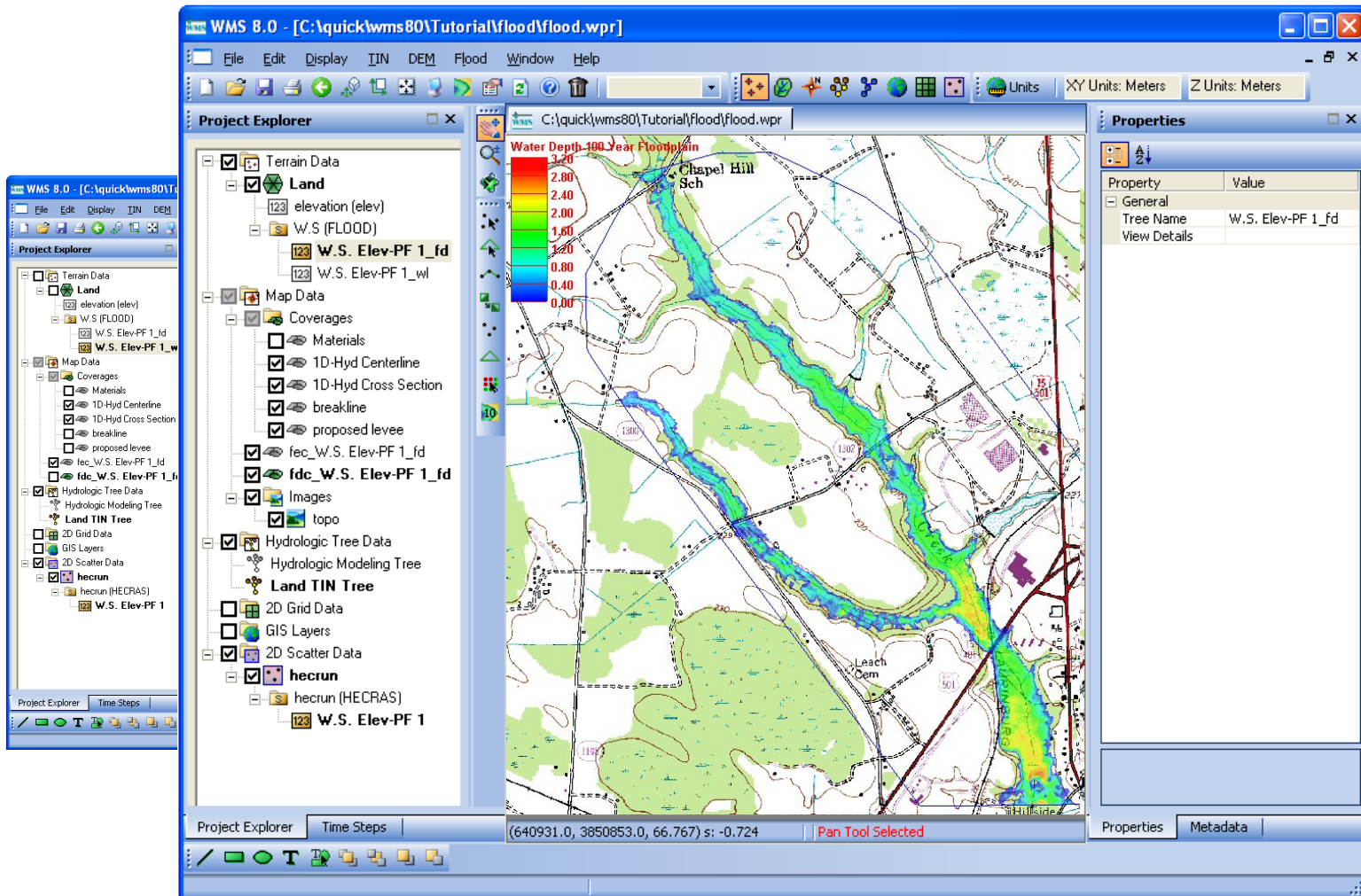
HEC-1 Model

HEC-RAS Model



Floodplain Delineation

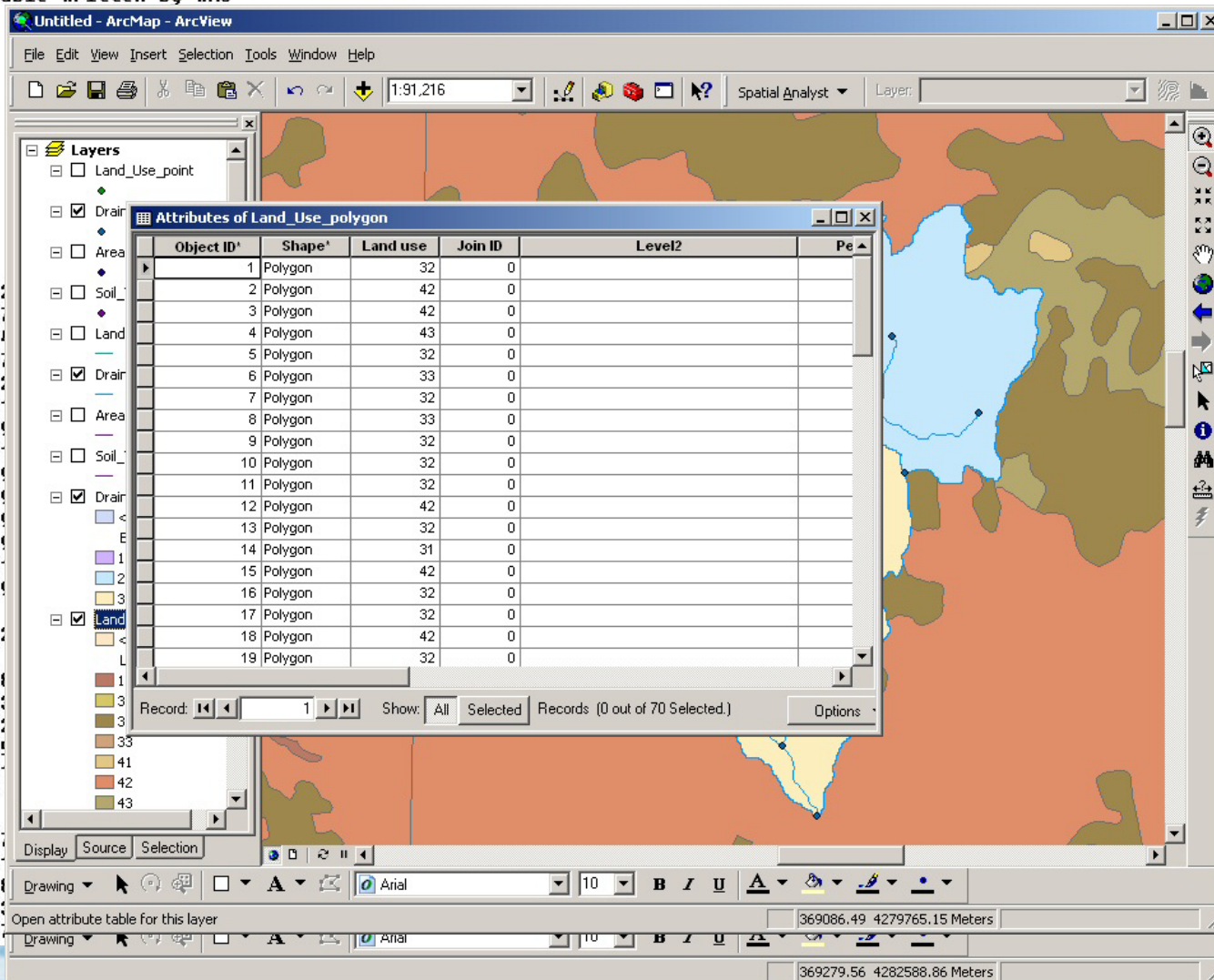
Watershed and Groundwater
Modeling Solutions



Post Processing

Hydrograph table written by WMS

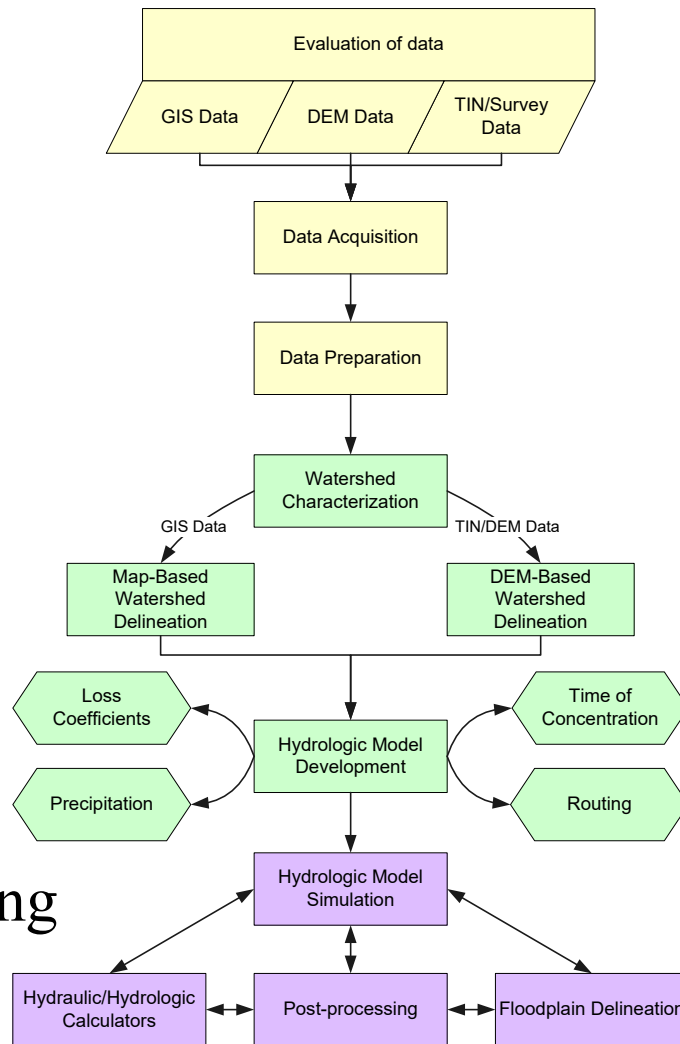
Time RED30
7:15 37.5
7:30 37.148
7:45 37.177
8:00 38.017
8:15 39.896
8:30 45.664
8:45 63.729
9:00 106.052
9:15 178.17
9:30 269.718
9:45 358.505
10:00 417.854
10:15 435.254
10:30 417.414
10:45 377.804
11:00 330.354
11:15 288.874
11:30 261.074
11:45 270.474
12:00 358.284
12:15 535.794
12:30 731.354
12:45 936.834
13:00 1119.44
13:15 1248.54
13:30 1318.3
13:45 1330.54
14:00 1290.3
14:15 1209.54
14:30 1100.44
14:45 986.944
15:00 890.004
15:15 806.314
15:30 730.54
15:45 662.31
16:00 602.094
16:15 550.824
16:30 501.714
16:45 457.544
17:00 425.704



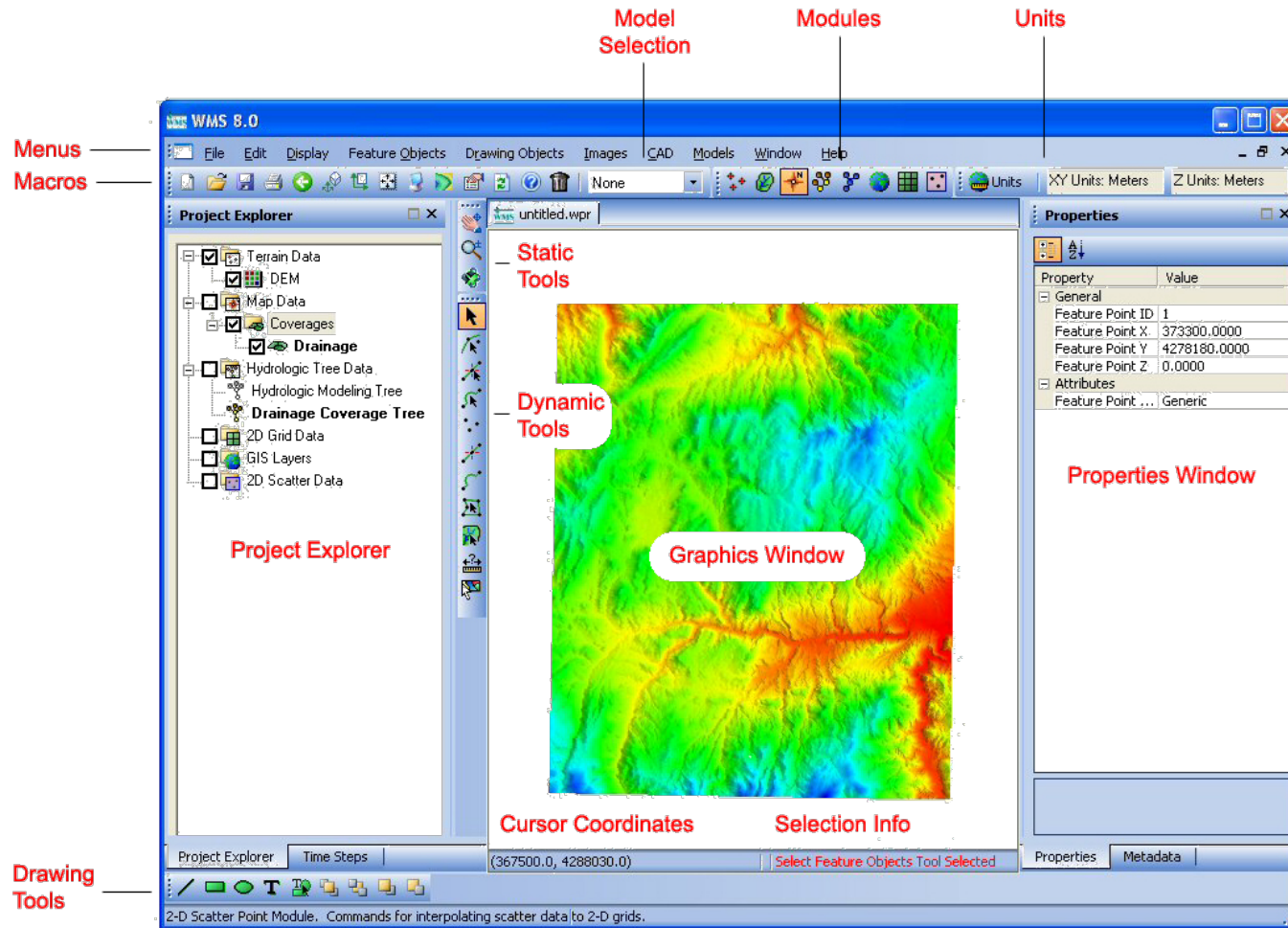
Data Aquisition

Model Development

Modeling/Post Processing



WMS Layout





Getting Around the GUI

- Menus
- Modules
- Project Explorer
- Tools
- Zoom/Pan/Rotate
- Display Options
- Contour Options
- Saving a Project File
- Documentation

