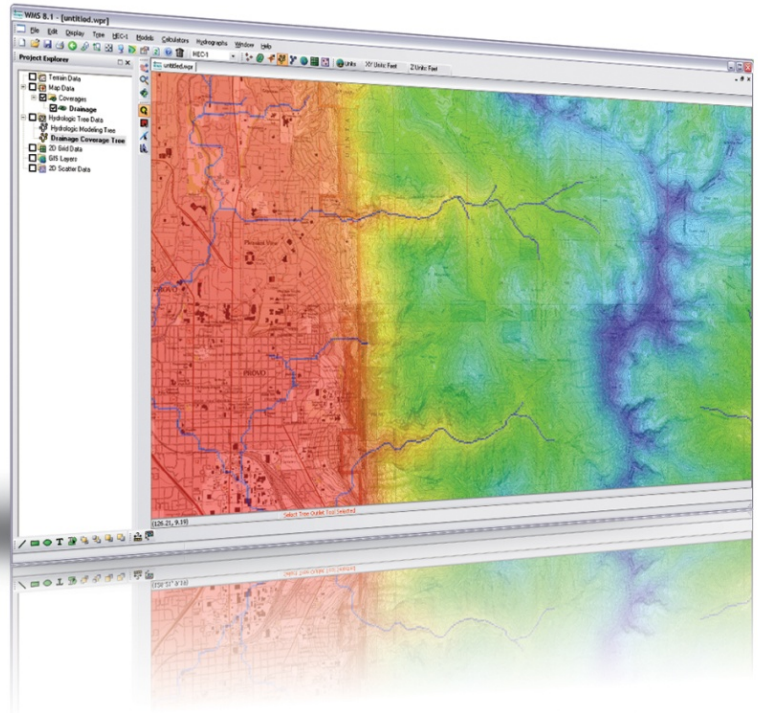


WMS

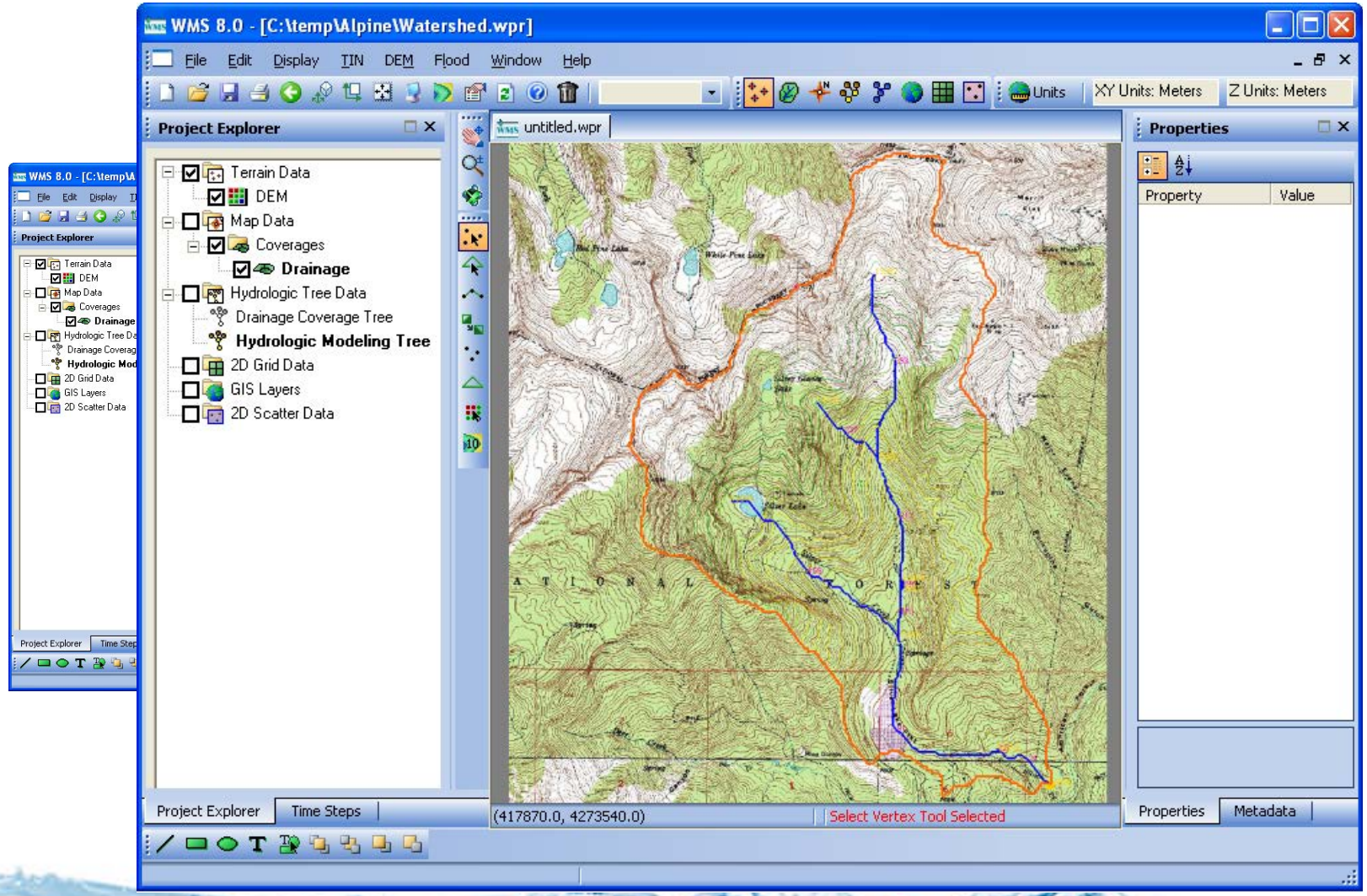
History of WMS

- 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

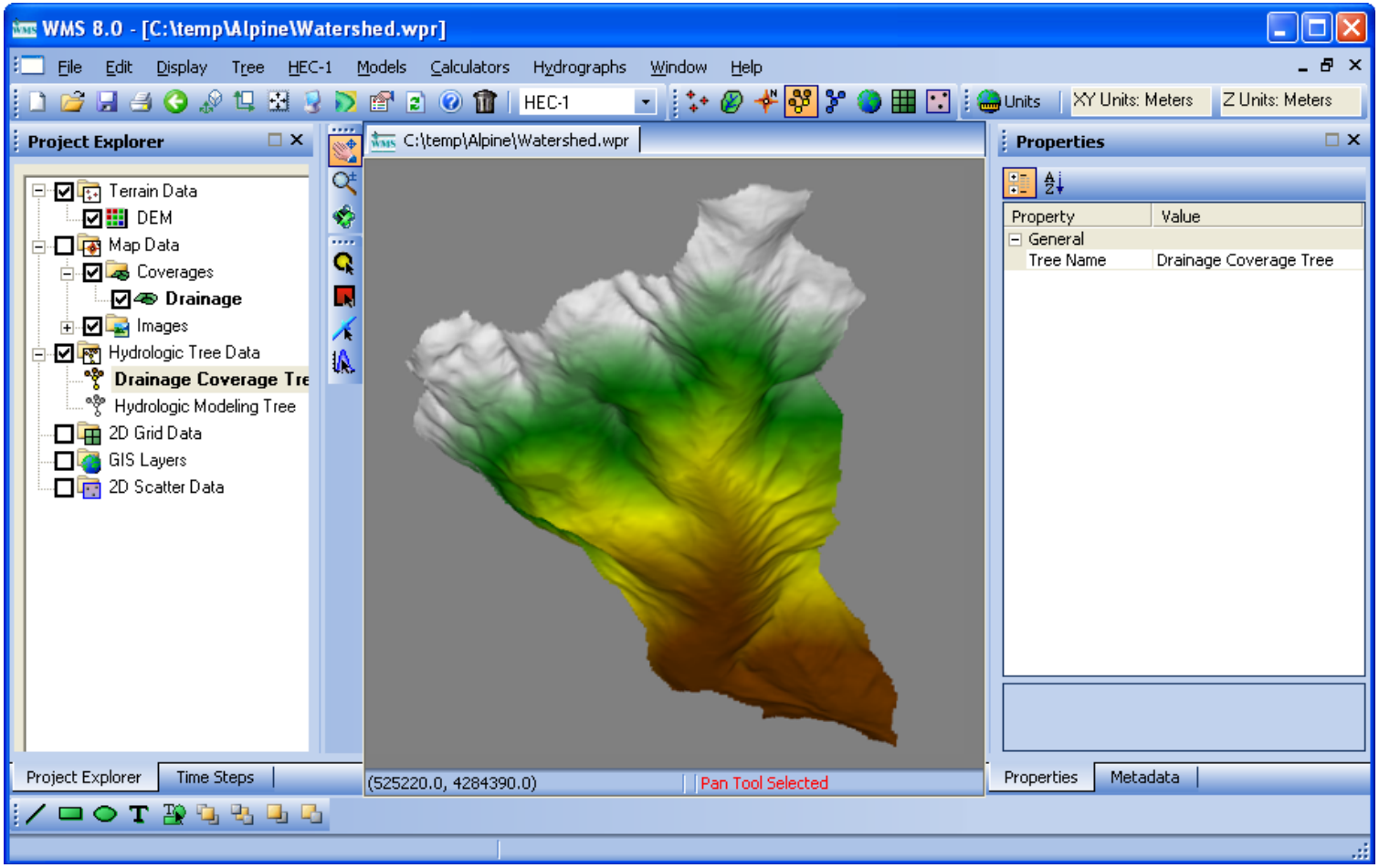
What Can WMS Do?

- 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

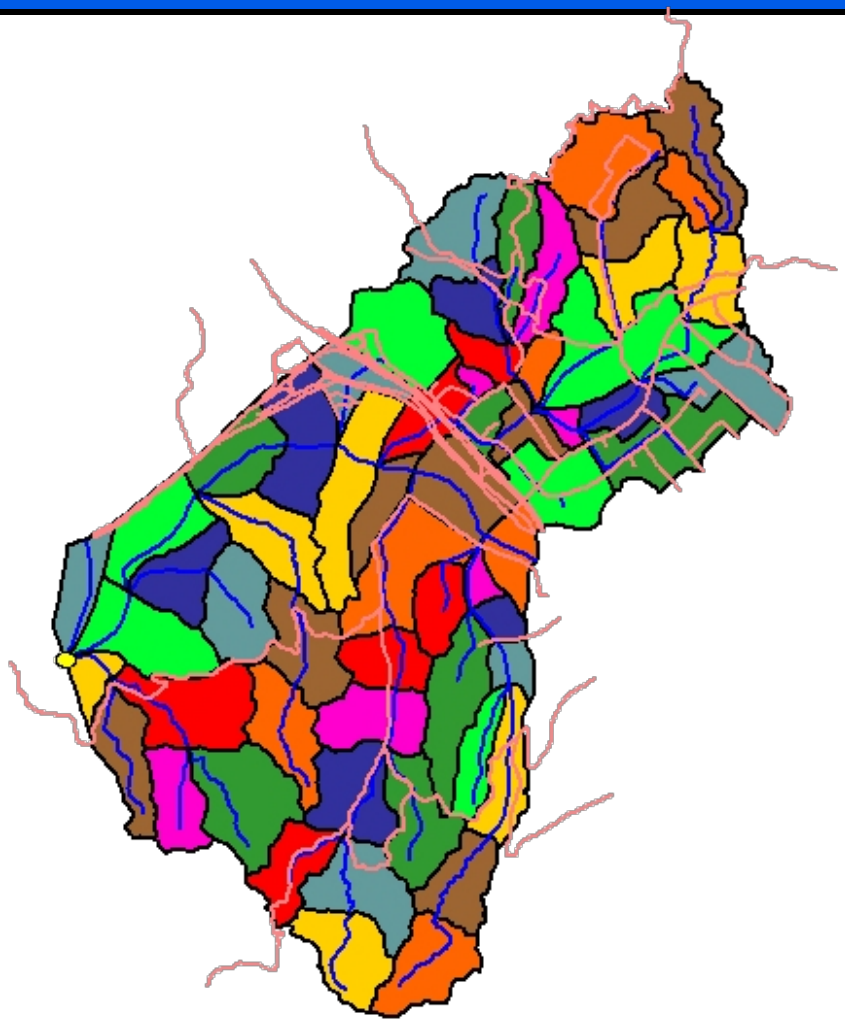
Watersheds From Computerized Maps



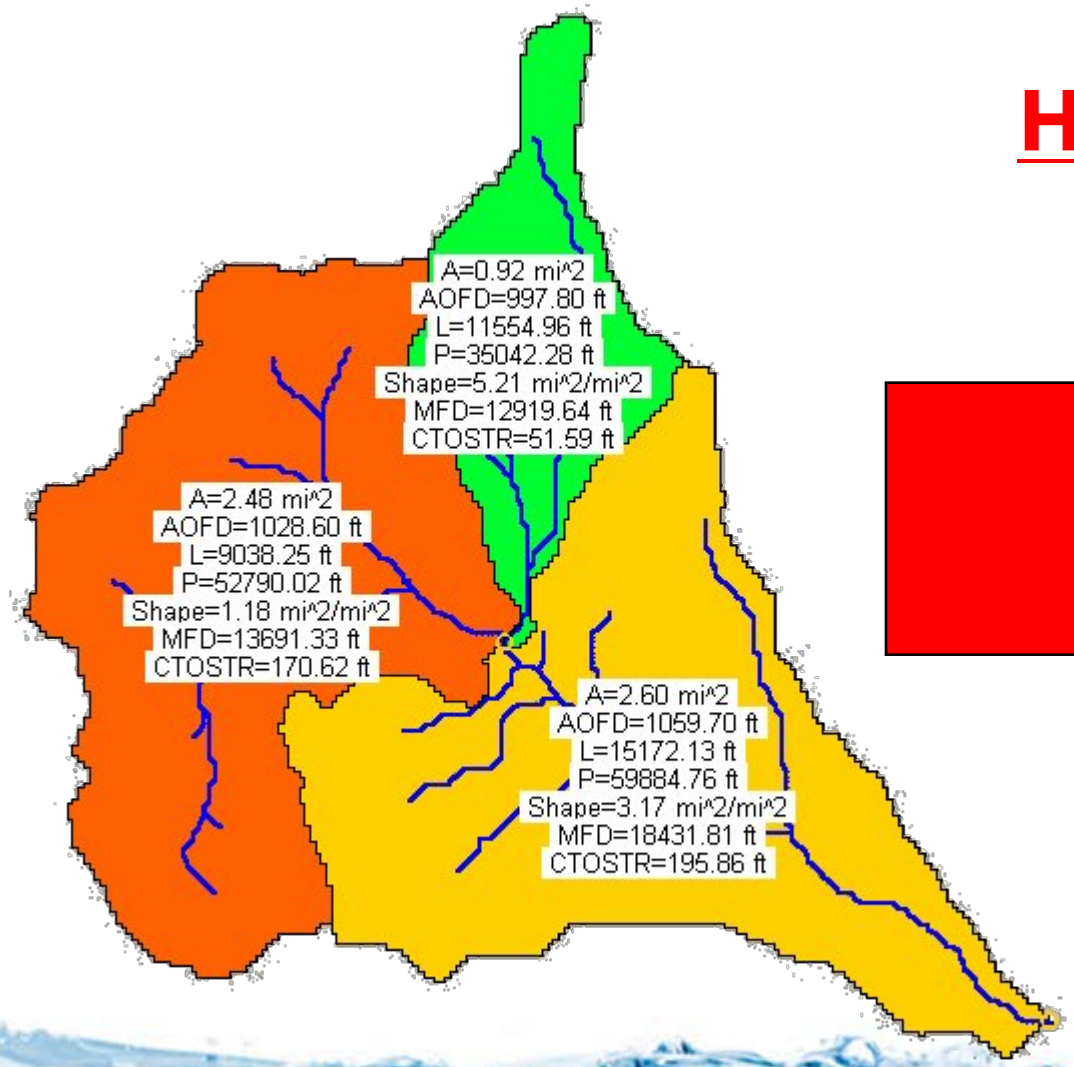
Watersheds From 3D Maps



Watersheds From CAD and GIS



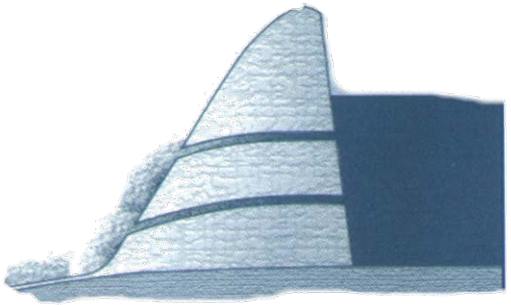
The Basic Goal



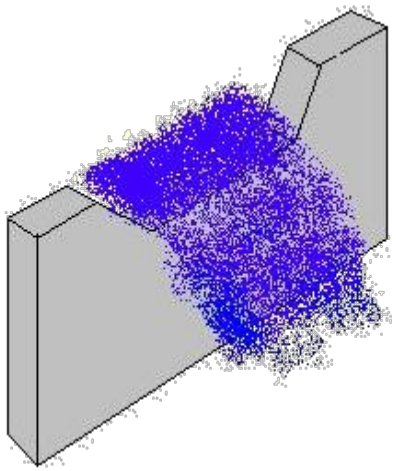
Hydrologic Model

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

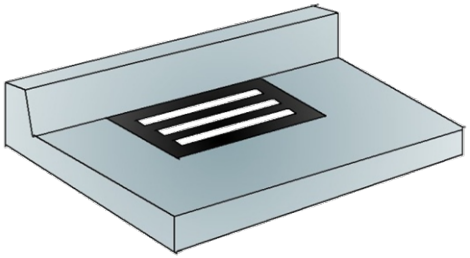
FHWA Calculators



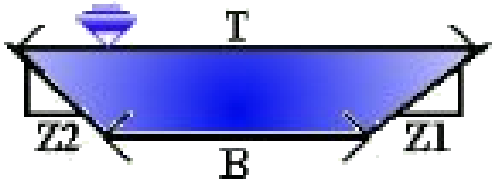
Detention Basins



Weir Flow

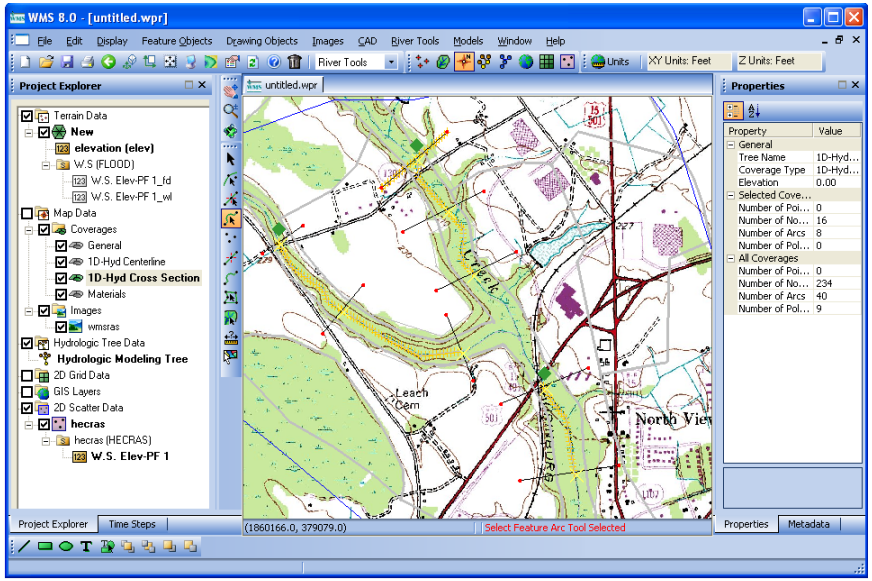


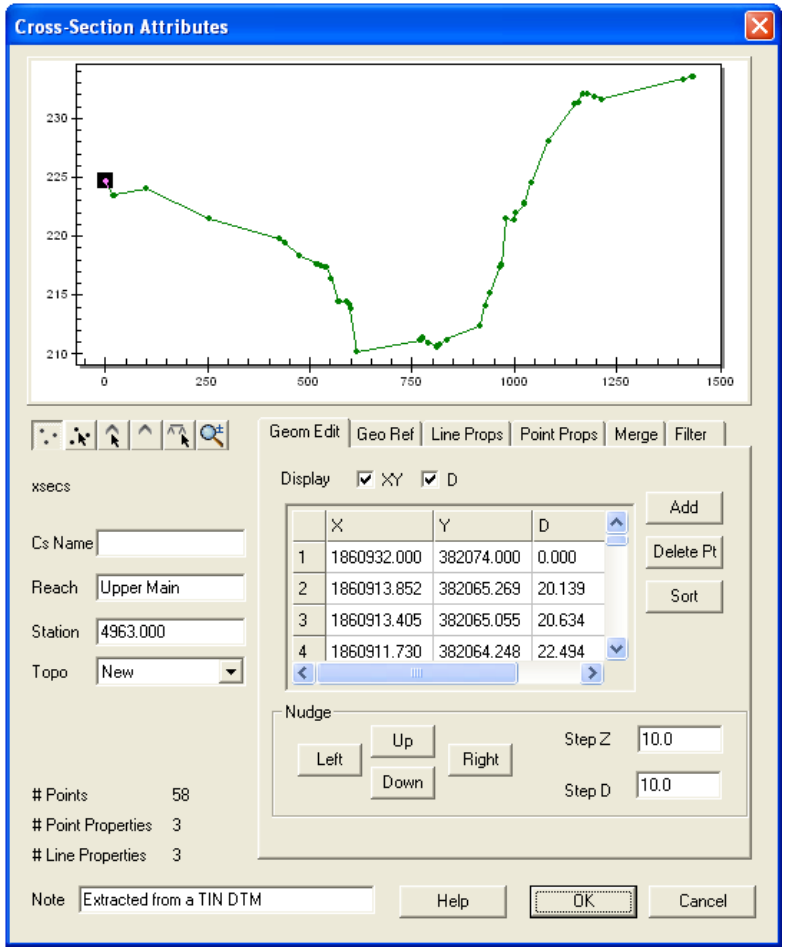
Curb & Gutter



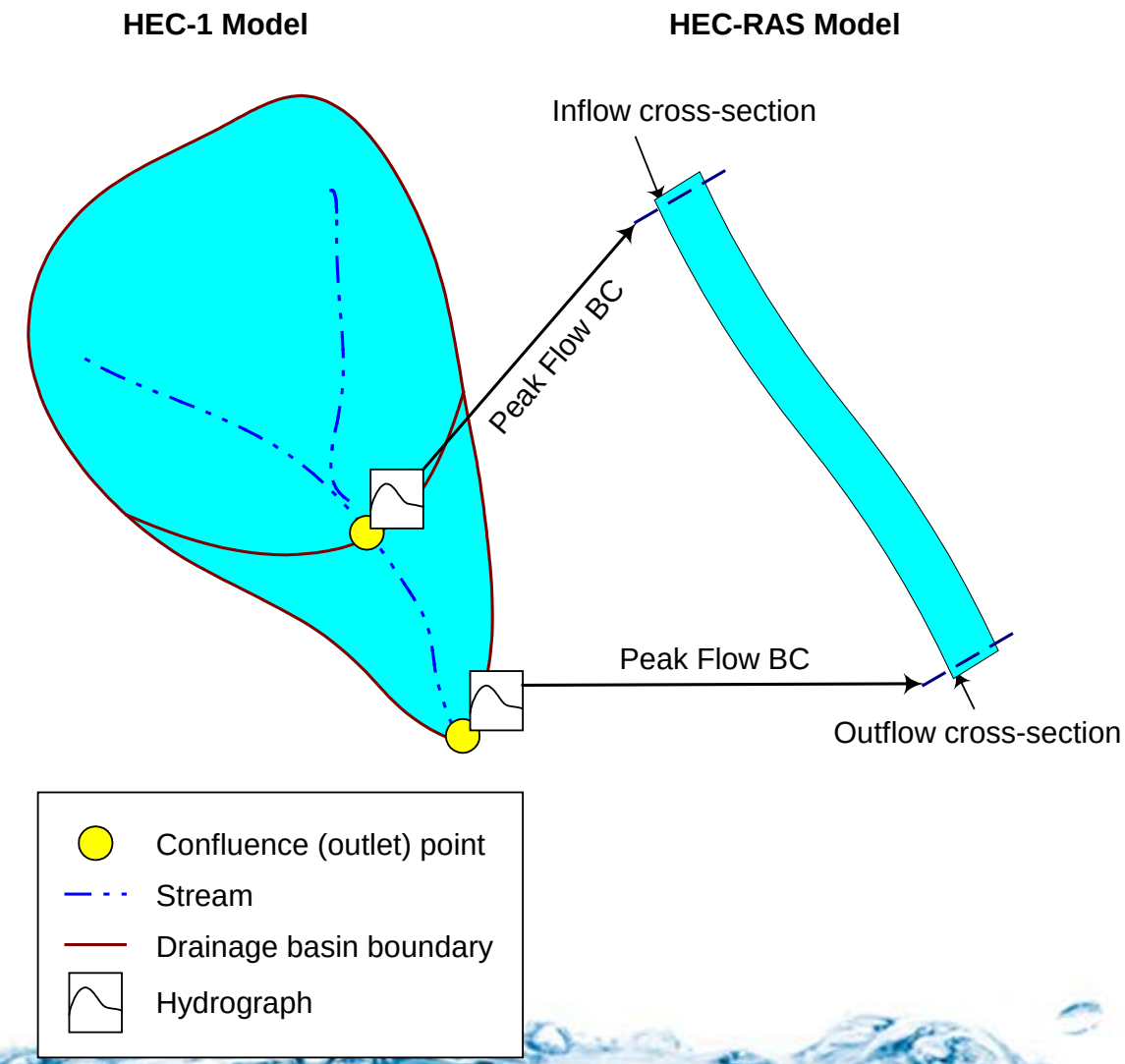
Channel Hydraulics

Extraction of Hydraulic Modeling Geometry



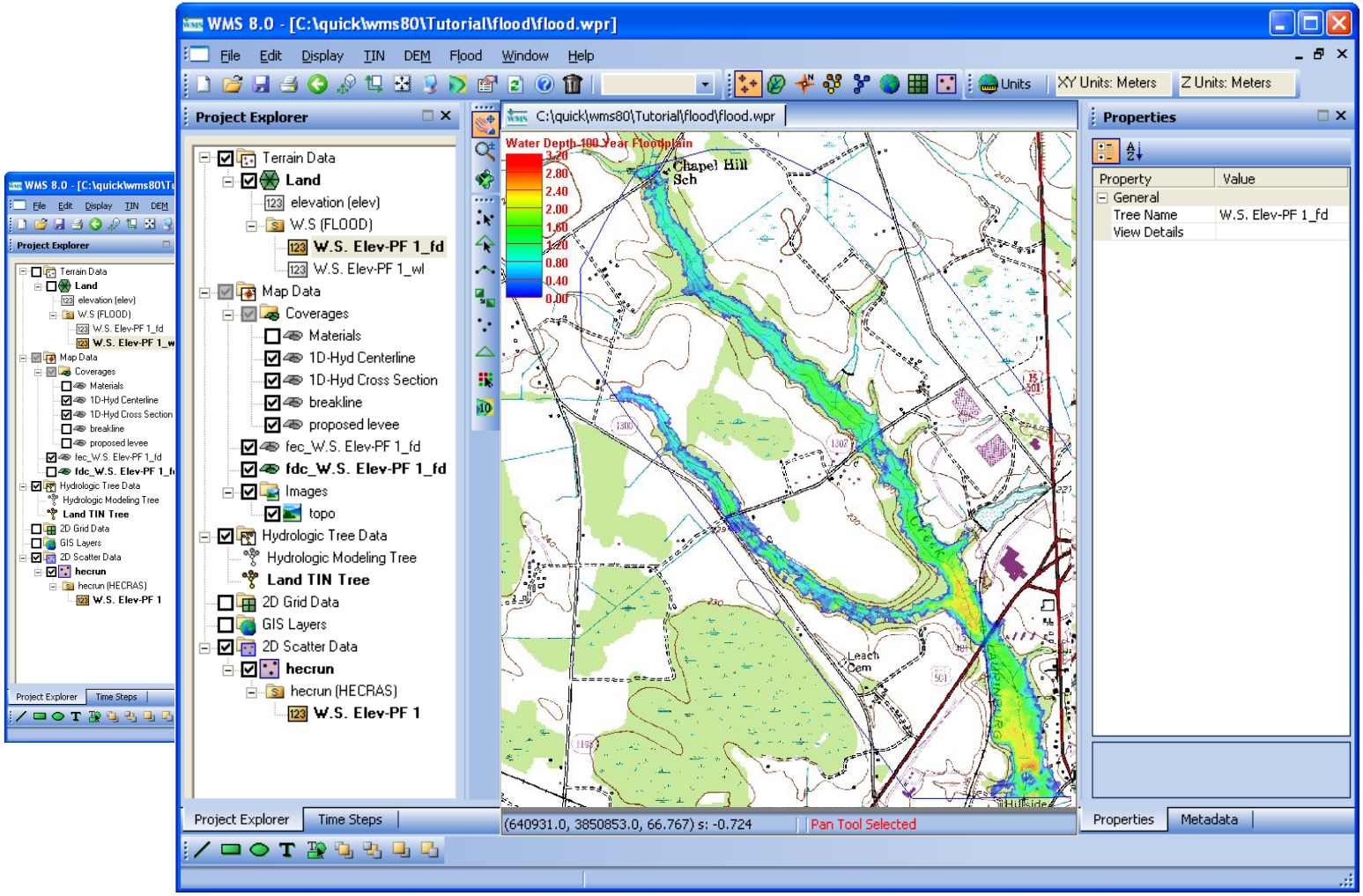


Model Linkage



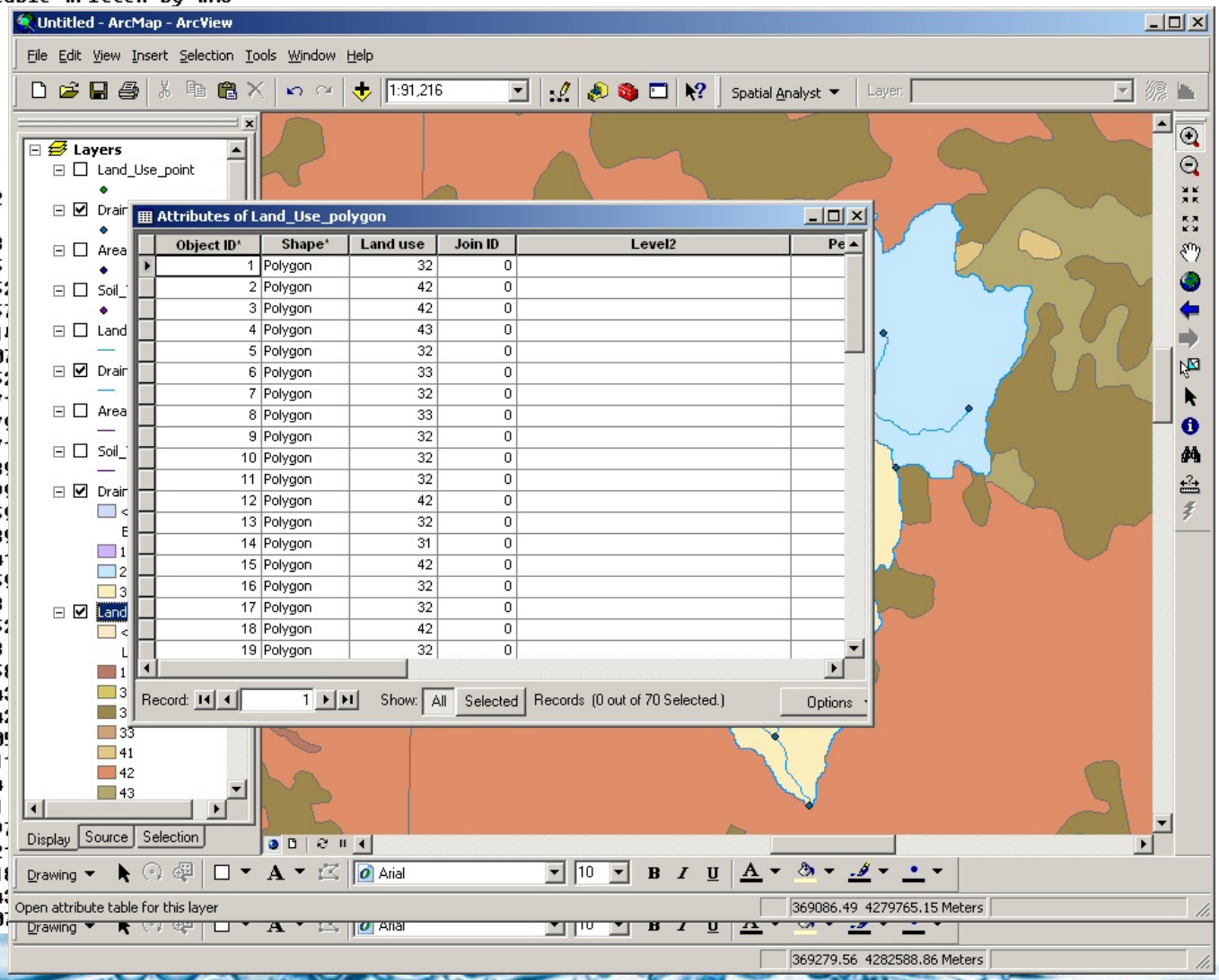
Watershed and Groundwater Modeling Solutions

Floodplain Delineation



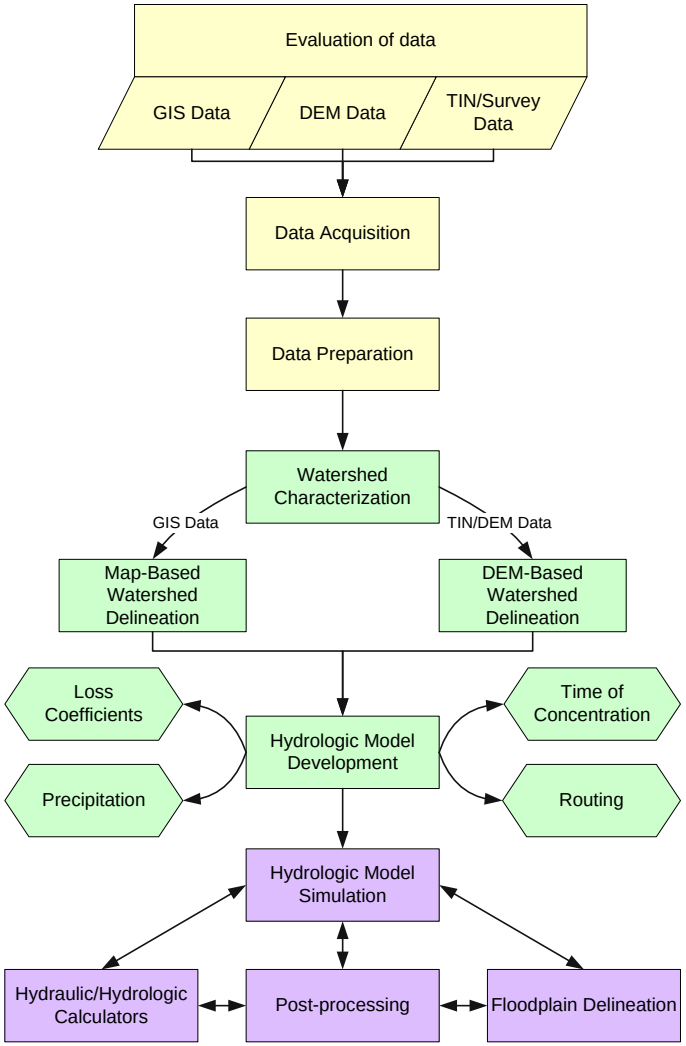
Post Processing

```
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
10:00 417.85
10:15 435.25
10:30 417.41
10:45 377.80
11:00 330.35
11:15 288.87
11:30 261.07
11:45 270.47
12:00 358.28
12:15 535.79
12:30 731.35
12:45 936.83
13:00 1119.4
13:15 1248.5
13:30 1318.3
13:45 1330.5
14:00 1290.3
14:15 1209.5
14:30 1100.4
14:45 986.94
15:00 890.00
15:15 806.31
15:30 730.54
15:45 662.31
16:00 602.09
16:15 550.82
16:30 501.71
16:45 457.54
17:00 425.70
```

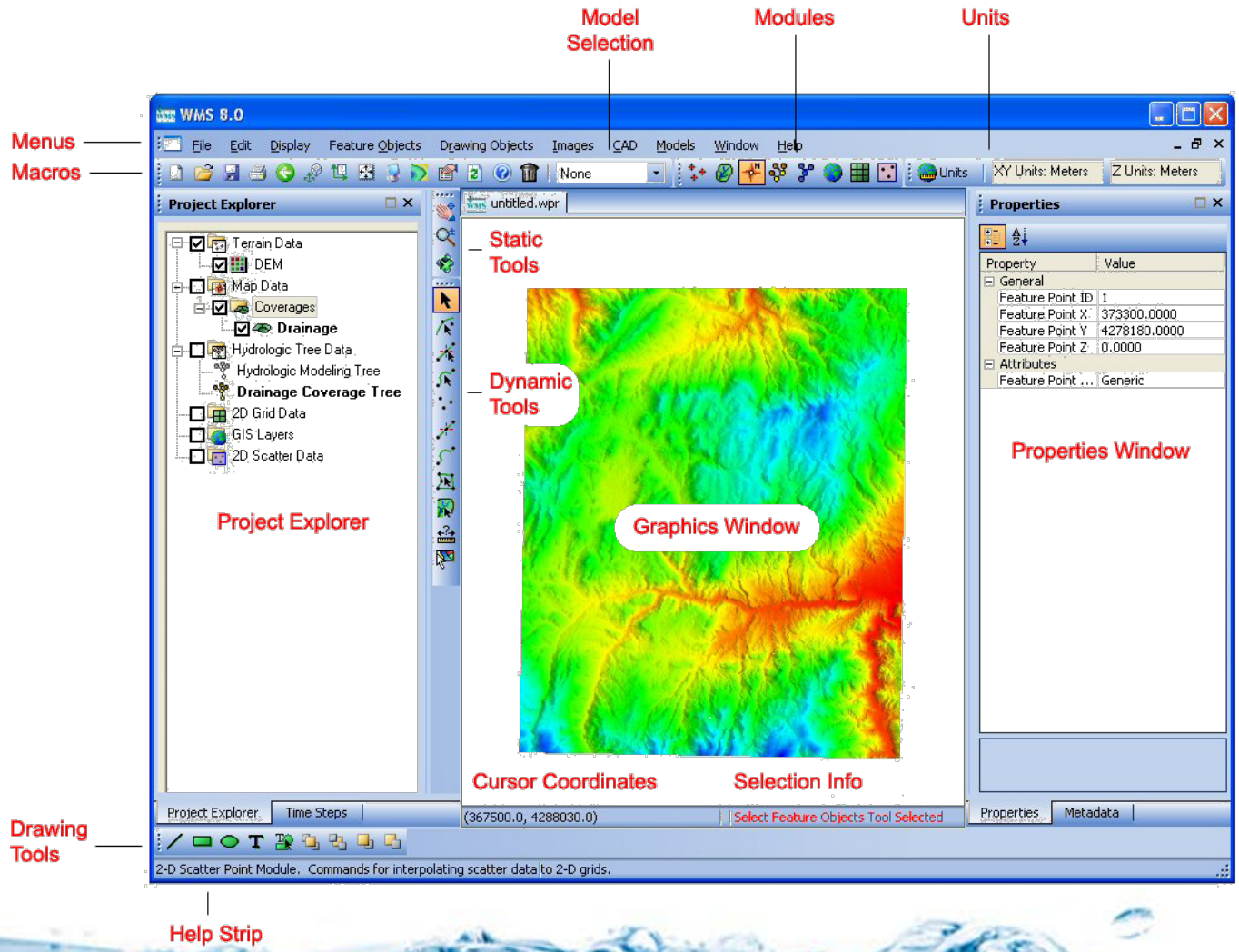


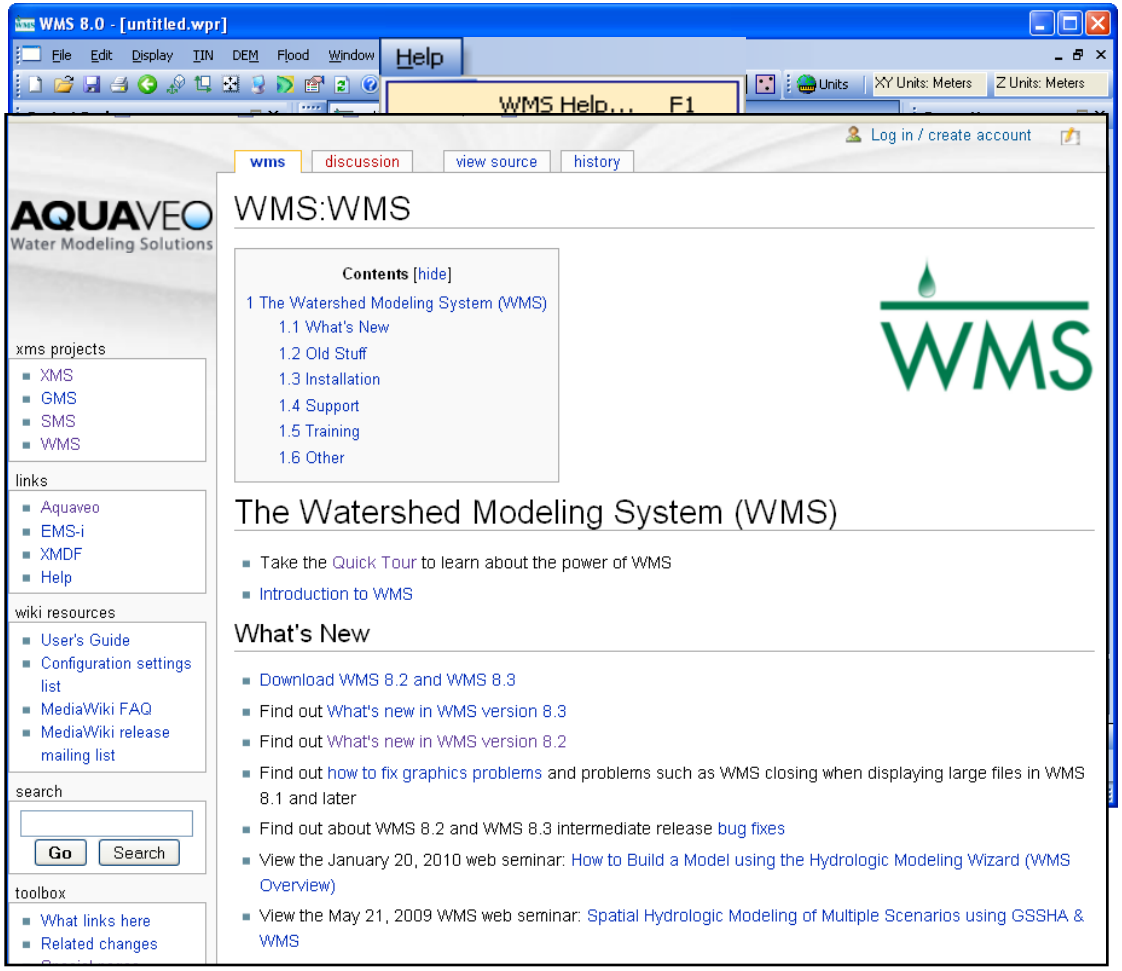
Object ID*	Shape*	Land use	Join ID	Level2	Pe
1	Polygon	32	0		
2	Polygon	42	0		
3	Polygon	42	0		
4	Polygon	43	0		
5	Polygon	32	0		
6	Polygon	33	0		
7	Polygon	32	0		
8	Polygon	33	0		
9	Polygon	32	0		
10	Polygon	32	0		
11	Polygon	32	0		
12	Polygon	42	0		
13	Polygon	32	0		
14	Polygon	31	0		
15	Polygon	42	0		
16	Polygon	32	0		
17	Polygon	32	0		
18	Polygon	42	0		
19	Polygon	32	0		

Work Flow


Evaluation of data
GIS Data
DEM Data
TIN/Survey Data
Data Acquisition
Data Preparation
Watershed Characterization
GIS Data
TIN/DEM Data
Map-Based Watershed Delineation
DEM-Based Watershed Delineation
Loss Coefficients
Precipitation
Hydrologic Model Development
Time of Concentration
Routing
Hydrologic Model Simulation
Hydraulic/Hydrologic Calculators
Post-processing
Floodplain Delineation

WMS Layout


Model Selection
Modules
Units
Menus
Macros
WMS 8.0
File
Edit
Display
Feature Objects
Drawing Objects
Images
CAD
Models
Window
Help
None
Units
XY Units: Meters
Z Units: Meters
Project Explorer
Terrain Data
DEM
Map Data
Coverages
Drainage
Hydrologic Tree Data
Hydrologic Modeling Tree
Drainage Coverage Tree
2D Grid Data
GIS Layers
2D Scatter Data
Project Explorer
untitled.wpr
Static Tools
Dynamic Tools
Graphics Window
Cursor Coordinates
Selection Info
Properties
Property
Value
General
Feature Point ID
1
Feature Point X
373300.0000
Feature Point Y
4278180.0000
Feature Point Z
0.0000
Attributes
Feature Point ...
Generic
Properties Window
Project Explorer
Time Steps
(367500.0, 4288030.0)
Select Feature Objects Tool Selected
Properties
Metadata
Drawing Tools
2-D Scatter Point Module. Commands for interpolating scatter data to 2-D grids.
Help Strip

Getting Around the GUI

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