



Watershed and Groundwater
Modeling Solutions

Channel Routing





Setting up 1D Stream Routing for GSSHA Models

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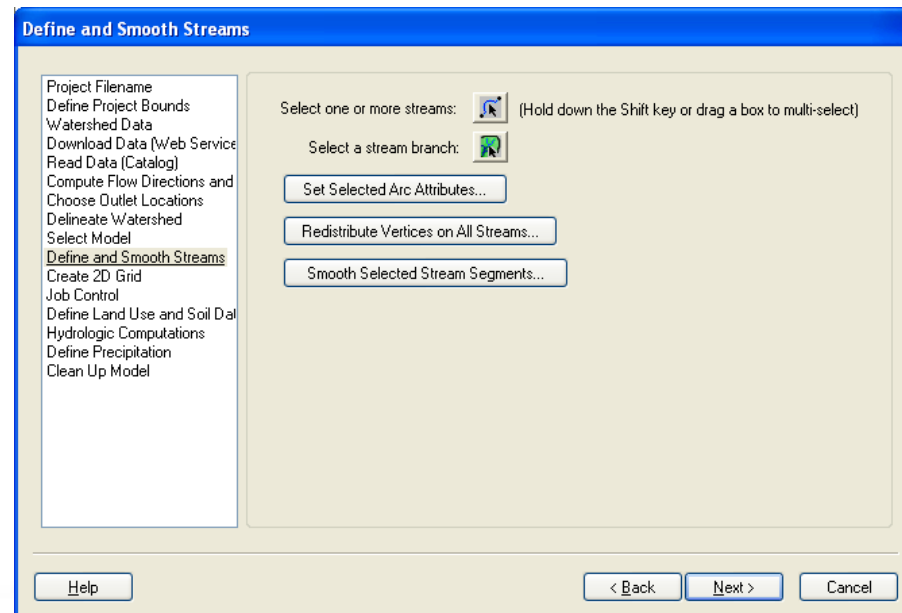
- Define channel cross section properties
- Redistribute vertices
- Smooth stream thalwegs
- Turn on channel simulation in the GSSHA job control
- Adjust output control as necessary
- Save and run
- Visualize results





Defining Channel

- The first three steps are handled in the “Define and Smooth Streams” step of the hydrologic modeling wizard:
 - Define channel cross section properties
 - Redistribute vertices
 - Smooth stream thalwegs





Define Channel Cross Section Properties

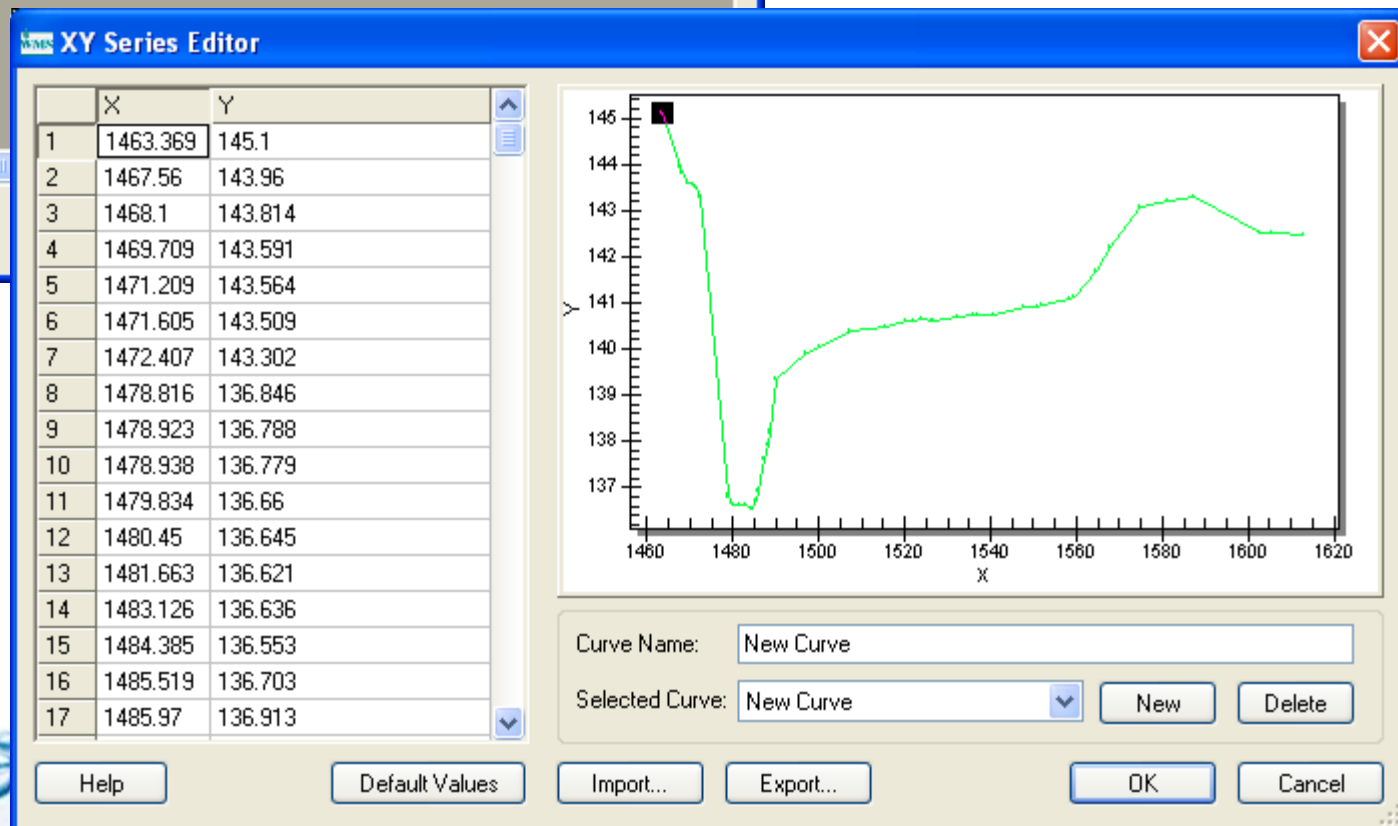
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Properties

Feature type: Show: Filter using: Column: Value:

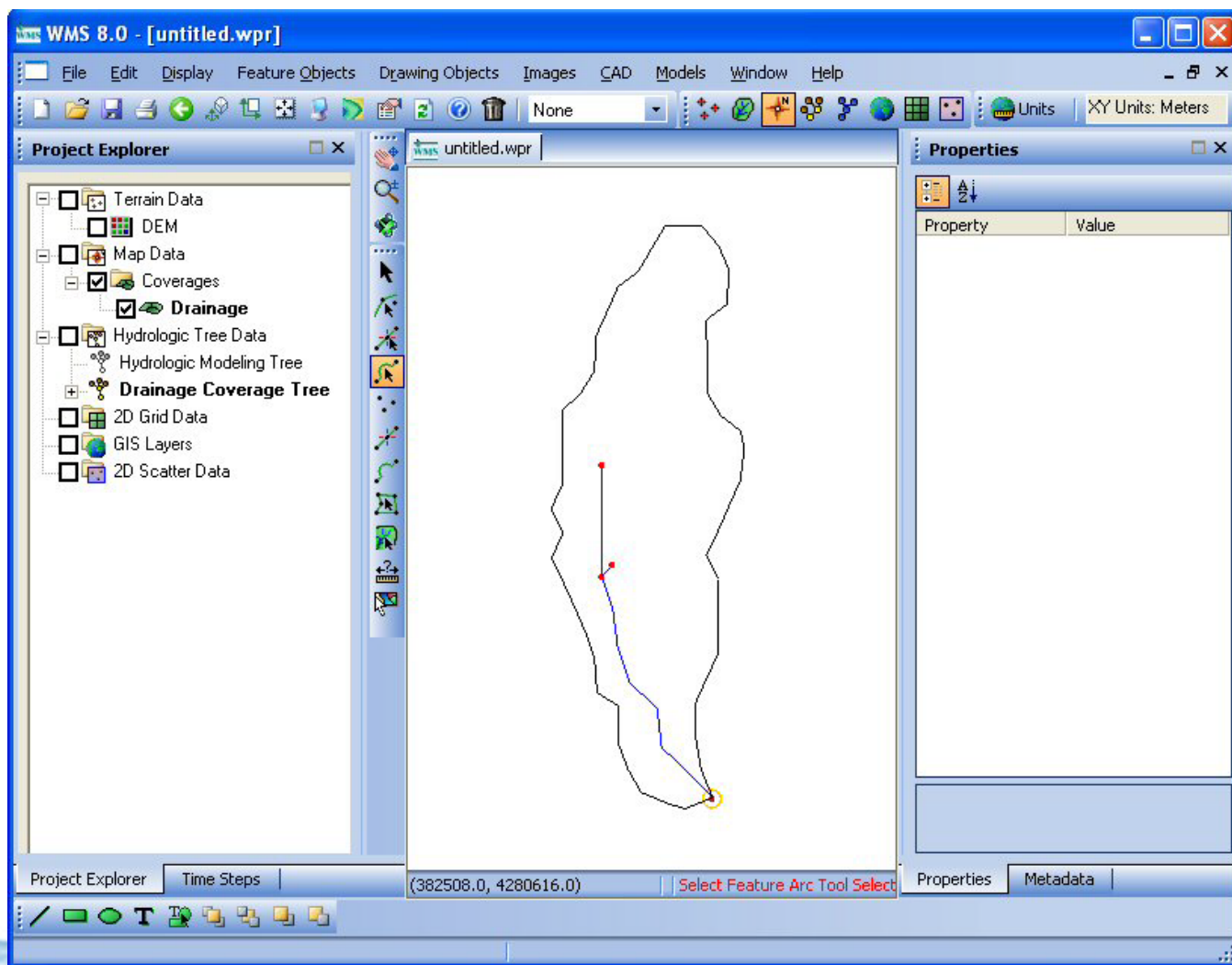
ID	Type	Link/Superlink	Manning's n	Depth (m)	Bottom width (m)	Side slope (H:V)
All						
2	Trapezoidal channel	2	0.043	1.0	3.0	1.0

Help...



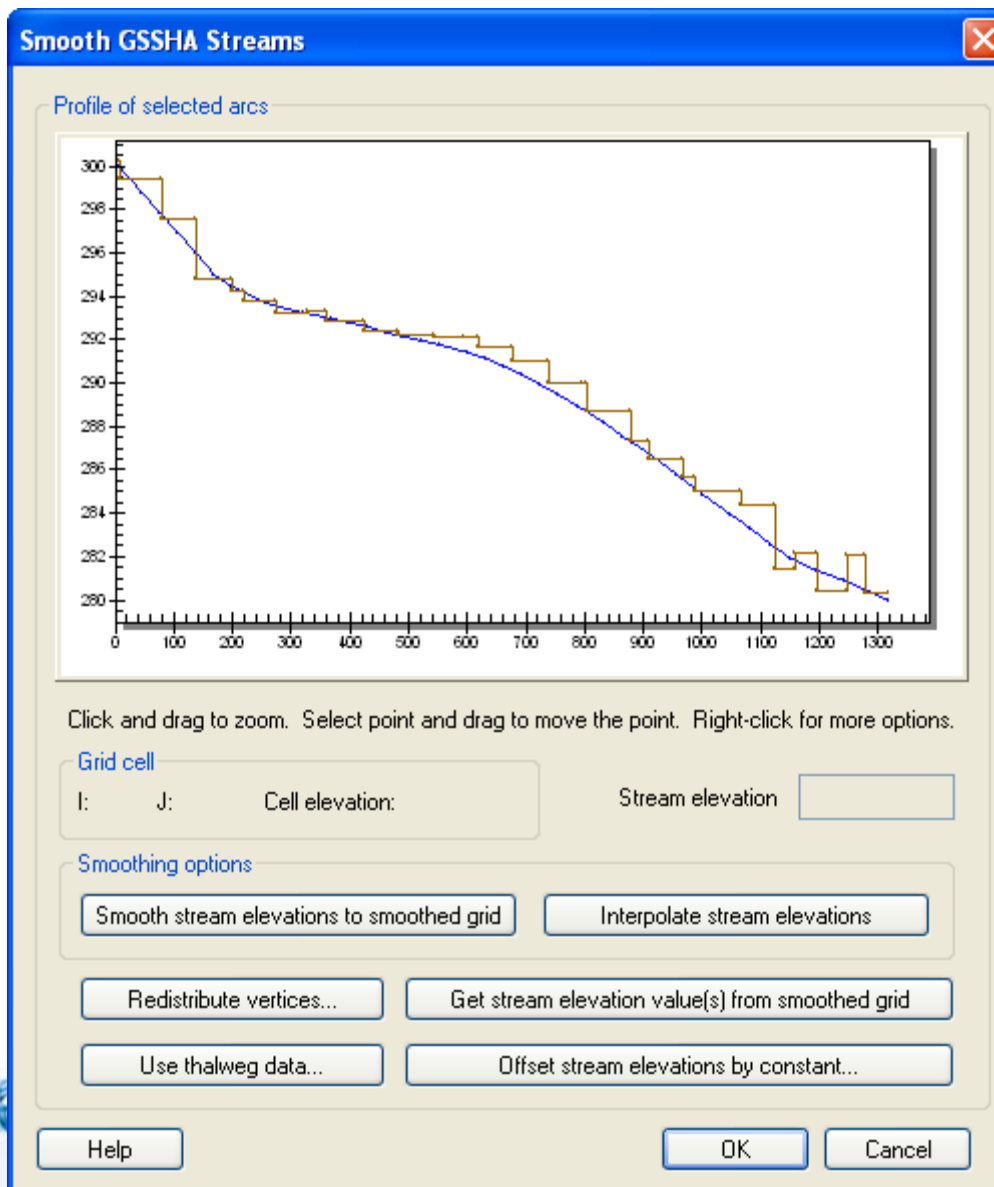


Redistribute Vertices





Smooth Stream Thalwegs





Turn on Channel Simulation in the Job Control

Control

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GSSHA Job Control Parameters

Computation parameters

Total time (min): 1500

Time step (sec): 10

Overland flow

Computation method: Explicit

☐ Interception

☐ Initial depth

☐ Retention depth

☐ Area reduction depth

Initialize GSSHA **Delete GSSHA Data**

Outlet information

Column: 1

Row: 64

Slope: 0.00100

Infiltration

☒ No infiltration

☐ Green + Ampt

☐ Green + Ampt with soil moisture redistribution

Sacramento Model...

☐ Richard's infiltration

Edit Parameters...

Channel routing computation scheme

☐ No routing

☒ Diffusive wave

☐ MESH

Edit Parameters...

<input type="checkbox"/> Groundwater	Edit parameter...
<input type="checkbox"/> Soil erosion	Edit parameter...
<input type="checkbox"/> Long term simulation	Edit parameter...
<input type="checkbox"/> Contaminant transport	Edit parameter...
<input type="checkbox"/> Nutrients	Edit parameter...
<input type="checkbox"/> Storm/tile drain	Edit parameter...
<input type="checkbox"/> Stochastic	Edit parameter...
<input type="checkbox"/> Link CE-QUAL-W2 ...	Edit parameter...
<input type="checkbox"/> Manage files	Edit parameter...

Evapotranspiration

☒ No evaporation

☐ Deardorff method

☐ Penman method

☐ Seasonal resist.

Help Output Control... OK Cancel



Adjust Output Control

GSSHA Output Control

Gridded data sets

Data type: General

- ☐ Distributed rainfall intensity
- ☒ Surface depth
- ☐ Cumulative infiltration depth
- ☒ Infiltration rate
- ☐ Surface soil moisture
- ☐ Groundwater elevations
- ☐ Volume suspended sediment
- ☐ Sediment flux
- ☐ Net sediment transfer

Link / Node data sets

- ☒ Channel depth
- ☒ Channel flow
- ☐ Channel velocity (avg)
- ☐ Sediment flux
- ☐ Net sediment transfer
- ☐ Flood (max) depth
- ☐ Water surface elev
- ☐ Pipe flow
- ☐ Pipe node depths
- ☐ Pipe node in/out flow
- ☐ Stream nitrite (NO2-)

Write frequency

Write frequency: 30 (min)

Gridded data set output format

☐ Binary ☒ ASCII ☐ GRASS ☐ XMDf

Hydrograph

Write frequency: 30 (min)

Output units: ☒ Metric (cms) ☐ English (cfs)

Other

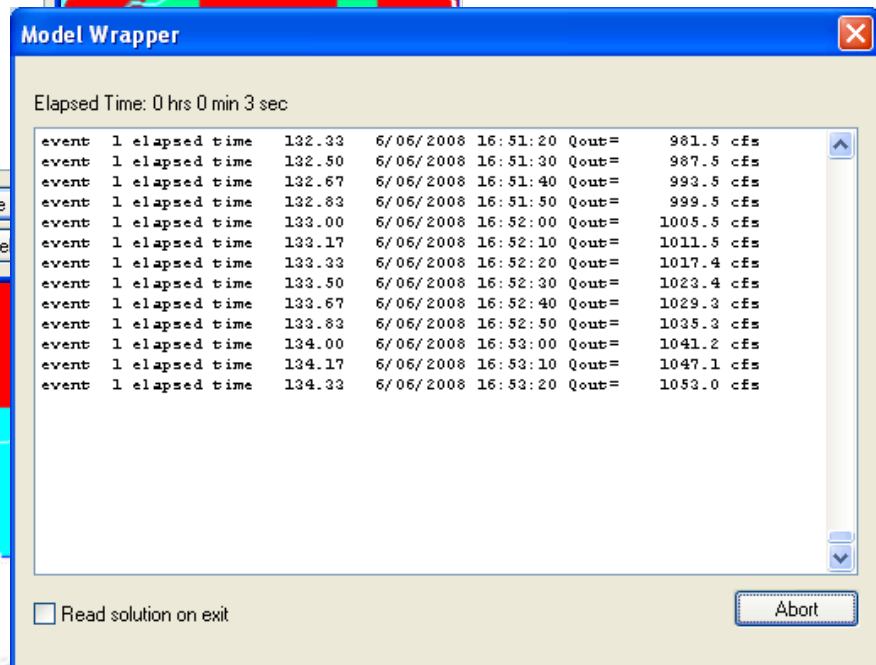
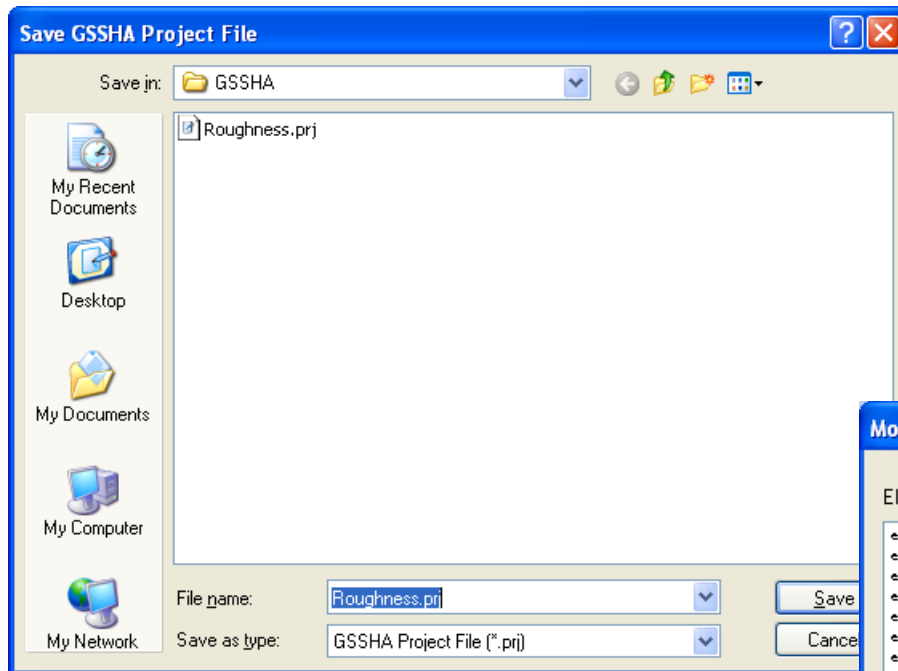
- ☒ Suppress screen printing
- ☐ Strict Julian dates

Help OK Cancel



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Save and Run





Visualize Results

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