Integrated Watershed-Channel Modeling

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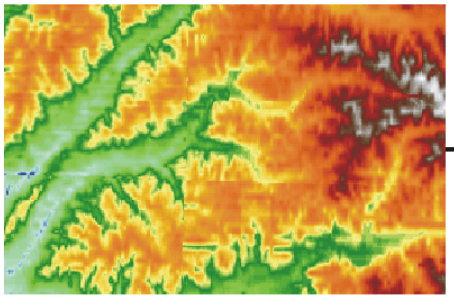
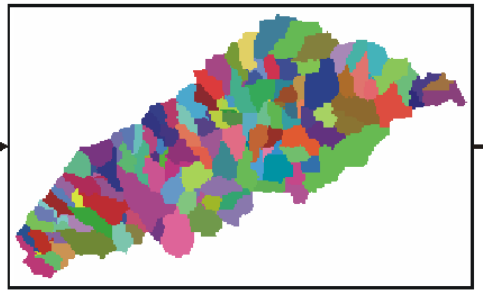
Integrated Basin–Channel Network Modeling

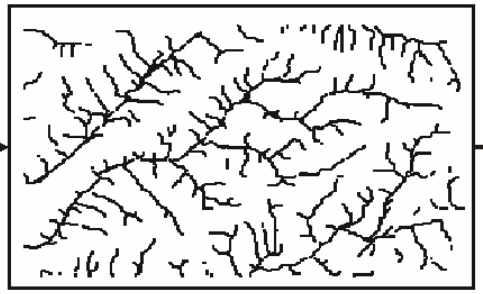
Vieira and Wu (2002)
Wu and Vieira (2002)



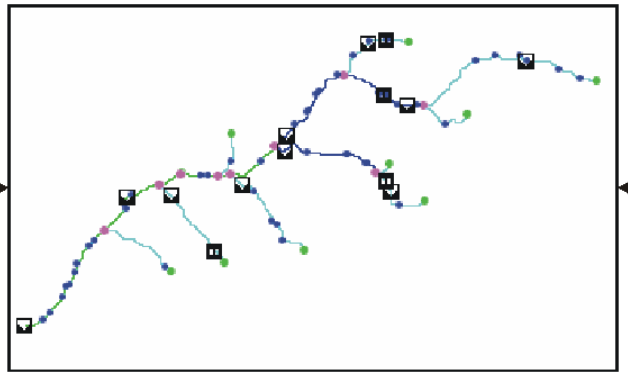
Digital Elevation Model (DEM)



Channel Network and Sub-basin Definition (TOPAZ)



Watershed Model (AGNPS or SWAT)

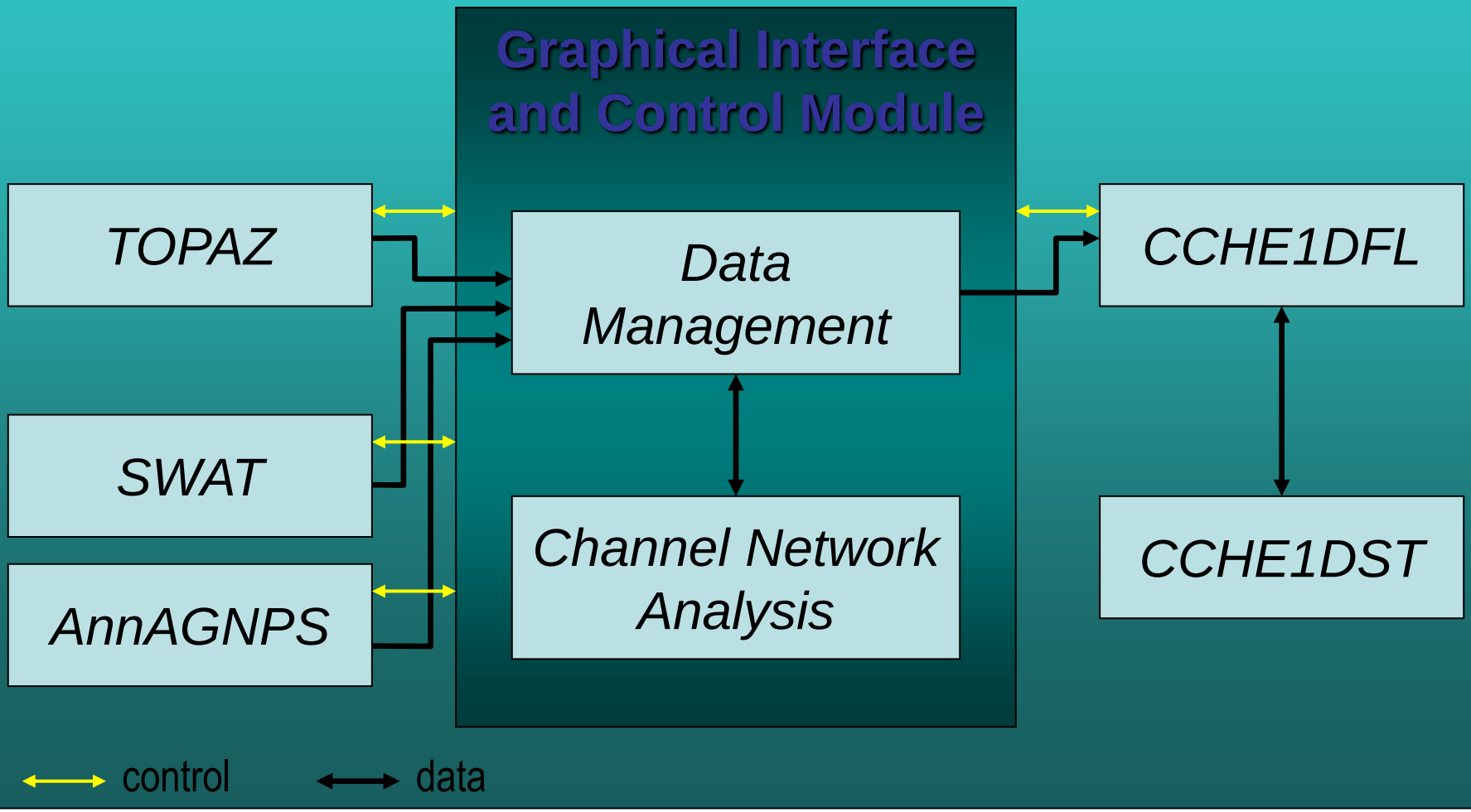


Channel Network Model (CCHE1D)

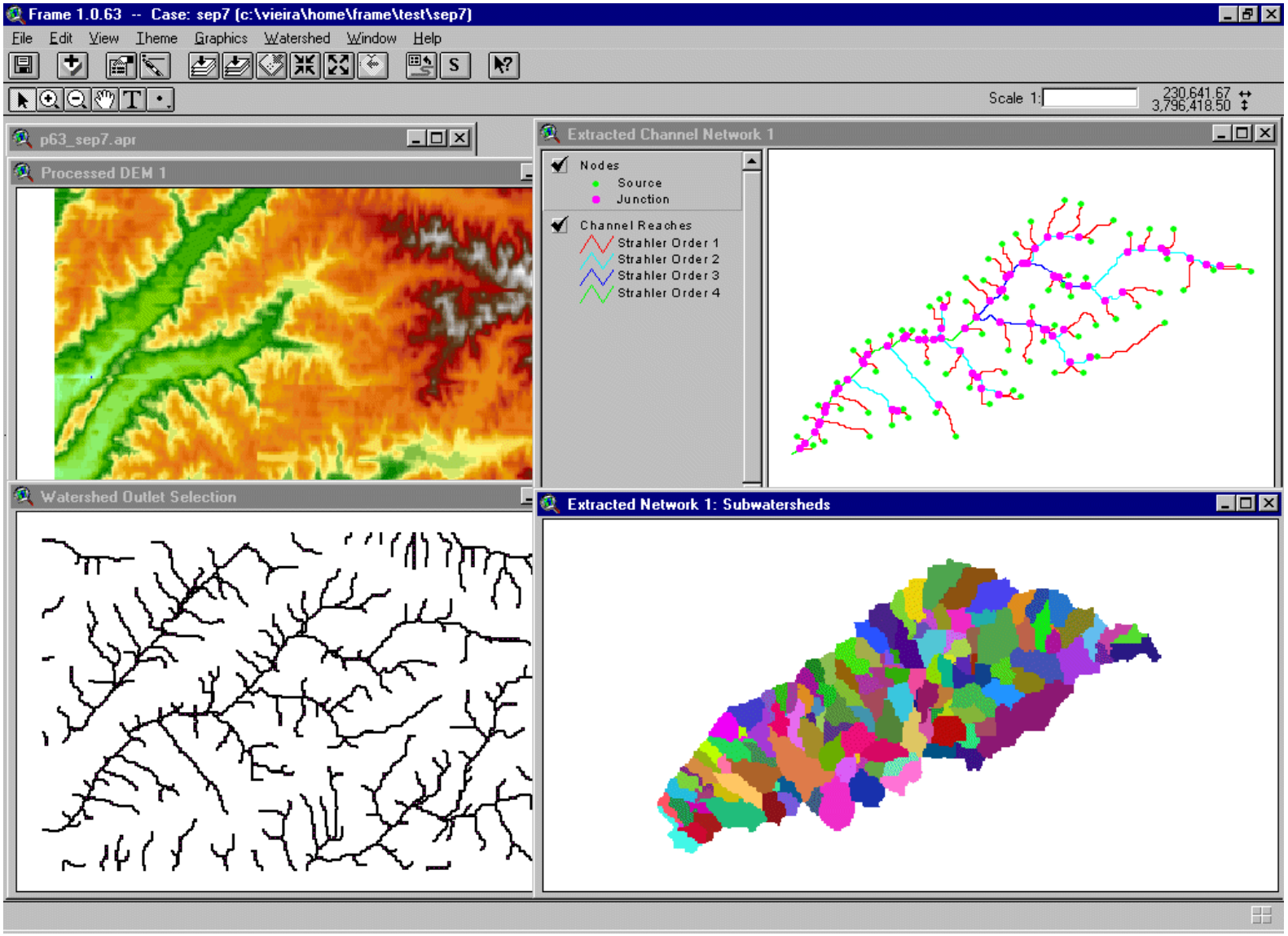
http://www.ncche.olemiss.edu/cche1d

CCHE1D model was designed to integrate with watershed model such as AGNPS and SWAT for watershed-scale studies. The watershed model simulates rainfall-runoff and soil erosion in upland areas and then CCHE1D simulates channel processes using watershed simulation results as input.

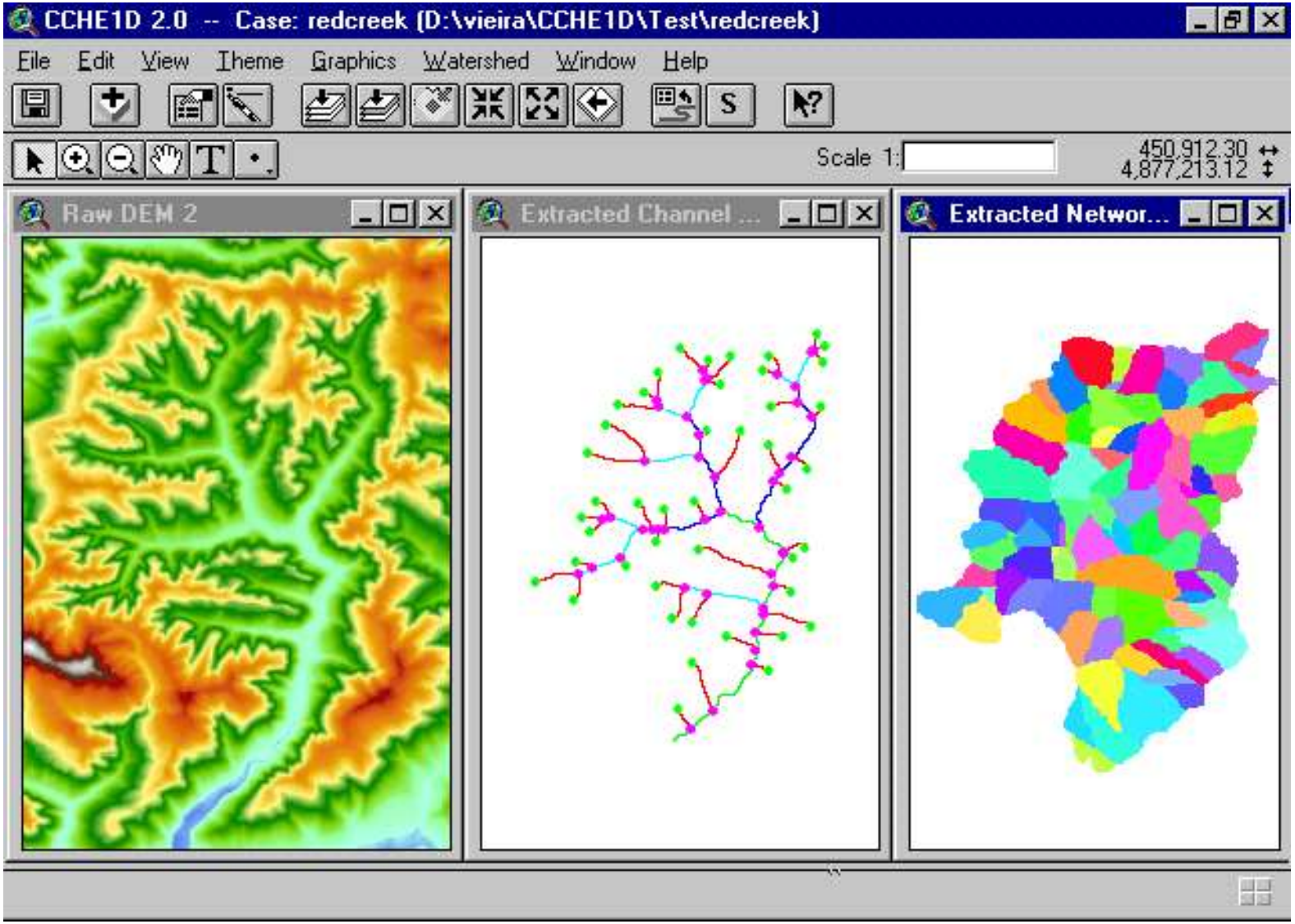
CCHE1D - Modeling Components



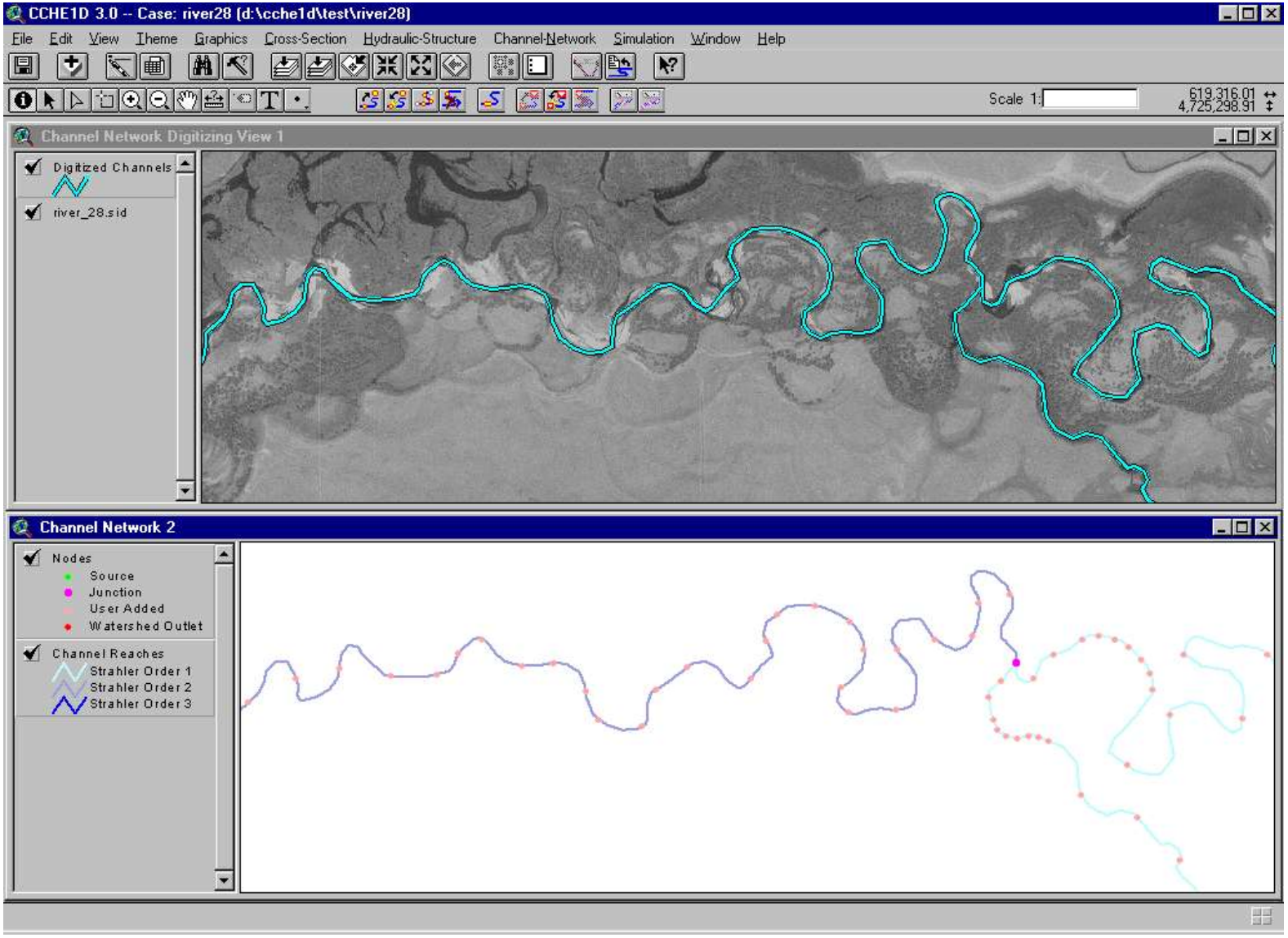
CCHE1D GUI Interface



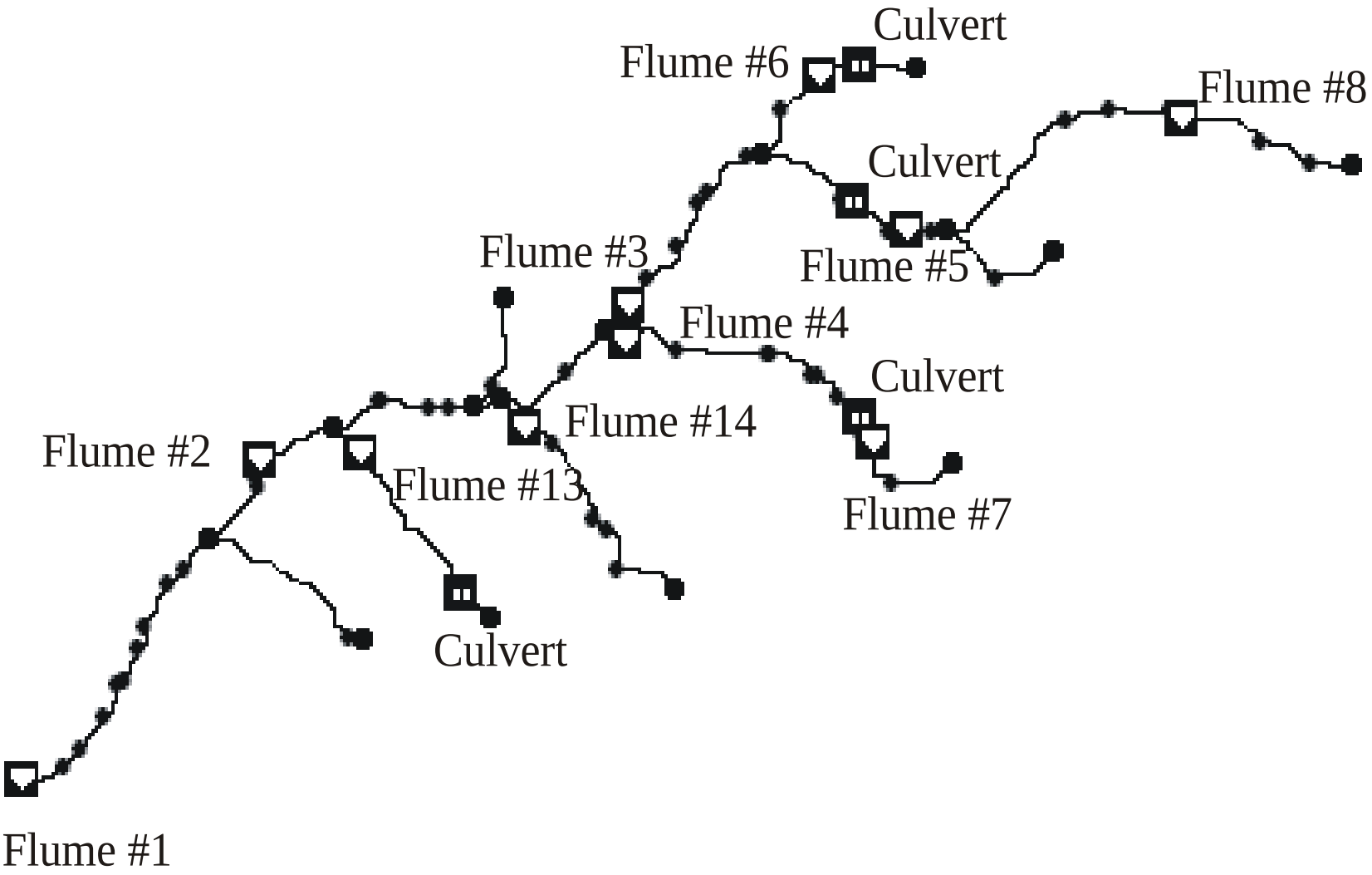
Landscape (Terrain) Analysis



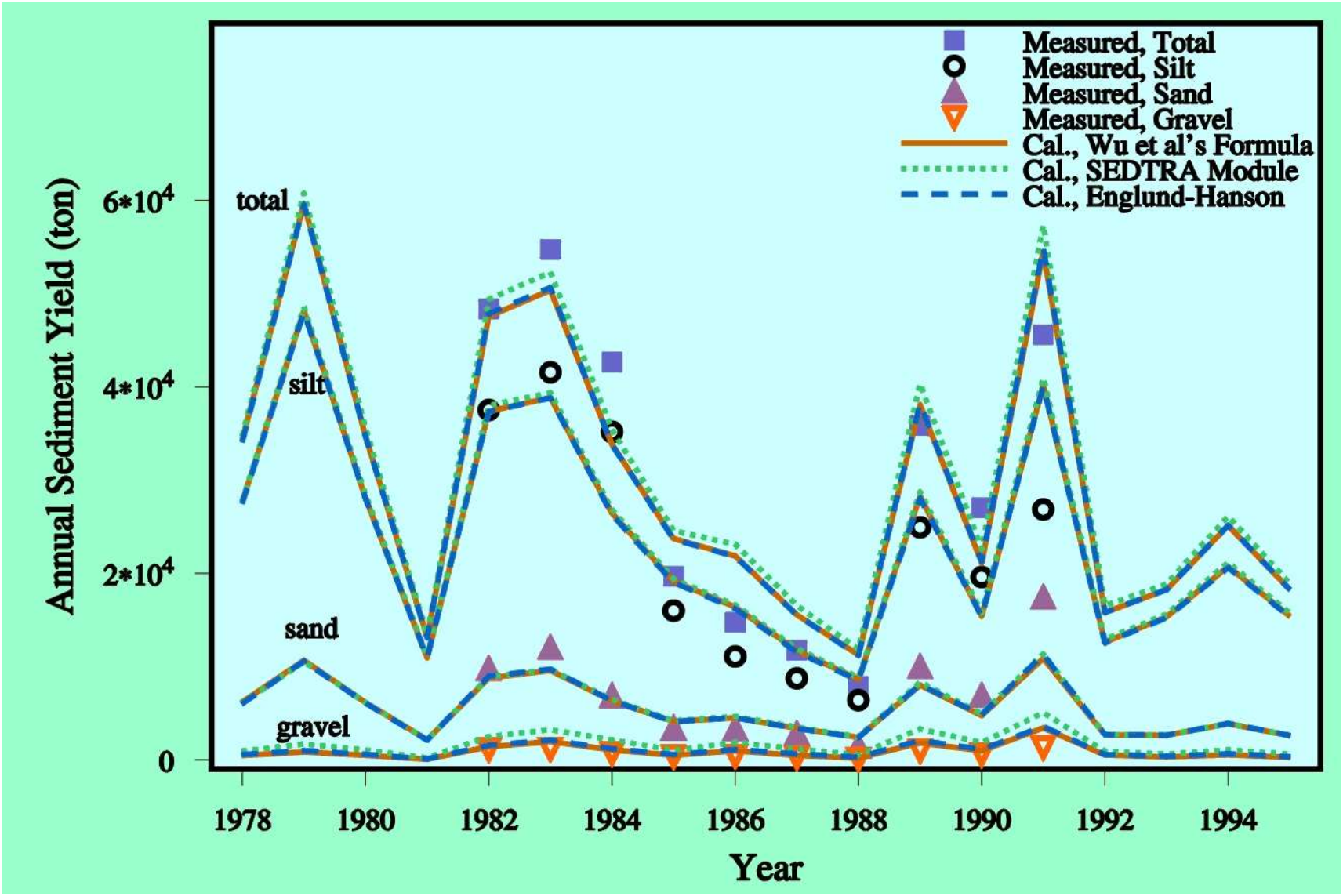
GIS Support & Interface



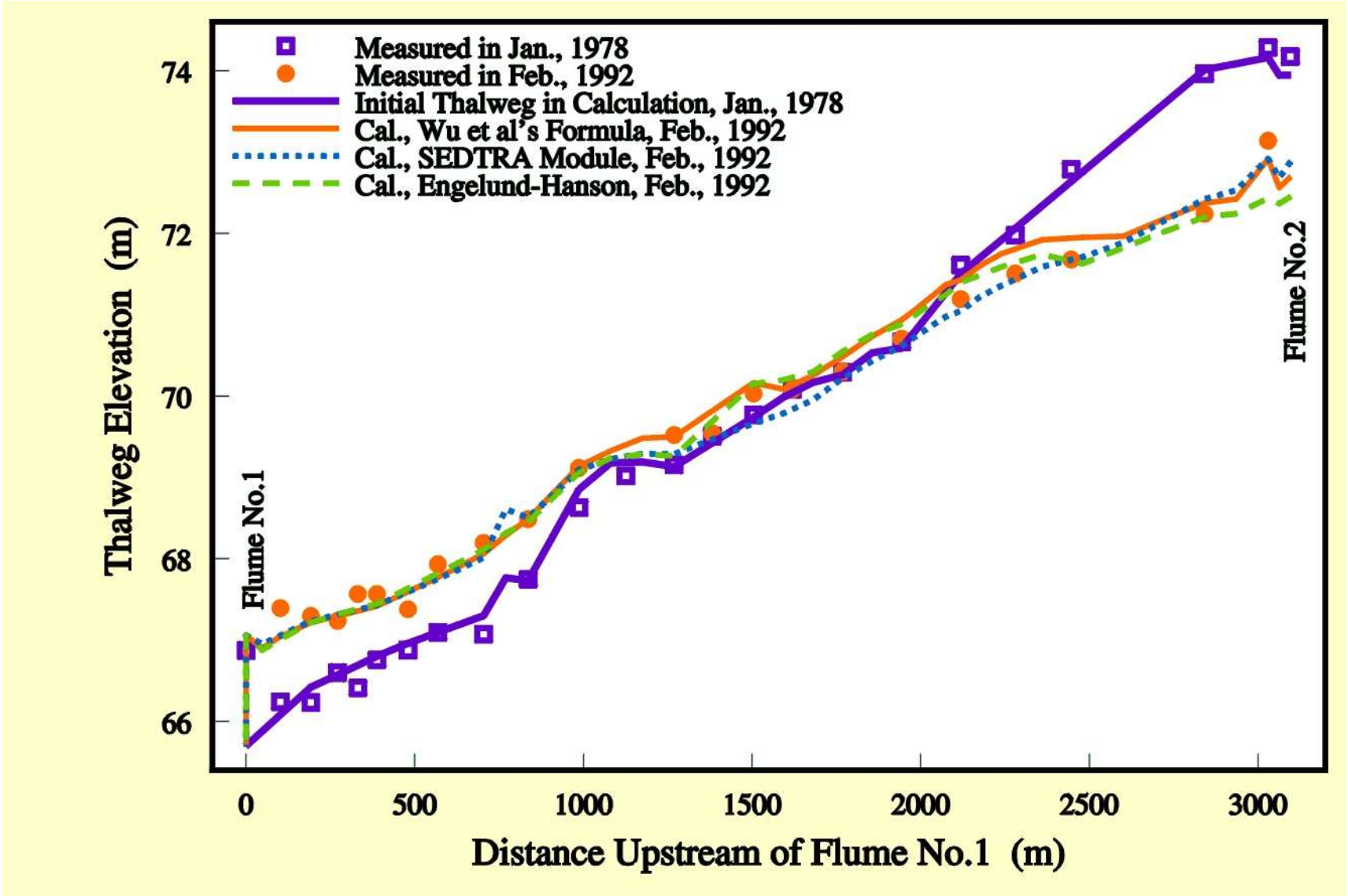
Goodwin Creek Experimental Watershed



18 Years' Sediment Yields at Goodwin Creek



Thalweg Changes



Publications Related

W. Wu and D. A. Vieira (2002). "One-dimensional channel network model CCHE1D 3.0 -- technical manual," Technical Report No. NCCHE-TR-2002-1, National Center for Computational Hydroscience and Engineering, The University of Mississippi.

D. A. Vieira and W. Wu (2002). "One-dimensional channel network model CCHE1D version 3.0 – user's manual," Technical Report No. NCCHE-TR-2002-2, National Center for Computational Hydroscience and Engineering, The University of Mississippi.

W. Wu, D. A. Vieira, and S. S.Y. Wang (2004). "A 1-D numerical model for nonuniform sediment transport under unsteady flows in channel networks," J. Hydraulic Eng., ASCE, 130(9), 914–923.