

SOFTWARE REVIEW

Visual MODFLOW Pro 4.1

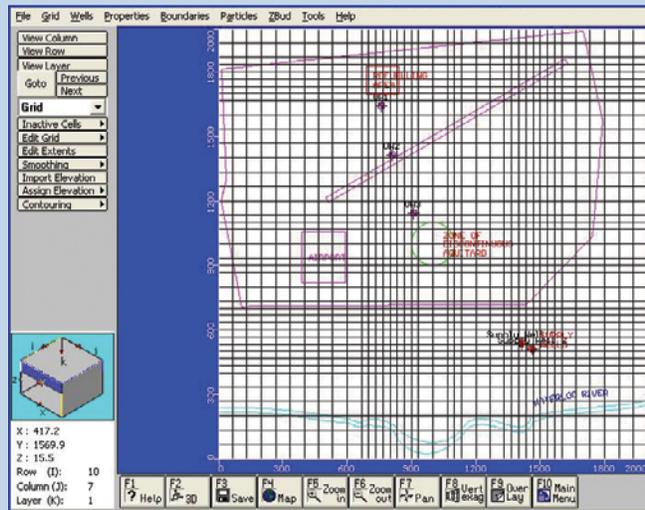
Reviewed by **Yi-Chang Lin** and **Kyle E. Murray** – Department of Earth and Environmental Science, University of Texas at San Antonio. Software Review courtesy of International Ground Water Modeling Center and Colorado School of Mines

The U.S. Geological Survey's MODFLOW is the most widely used model for simulating groundwater flow in saturated porous media. MODFLOW reads input from a variety of text files (e.g., .bas, .dis, .nam) and writes output to text files (e.g., .lst) and binary files (e.g., .bud, .shd). Several graphical user interfaces (GUIs), both public domain and commercial, are available to create input files for and read output files from MODFLOW. Visual MODFLOW Pro 4.1, developed by Waterloo Hydrogeologic, is one such commercial product.

Visual MODFLOW Pro 4.1 enables the user to employ MODFLOW, MODFLOW-SURFACT, MODPATH, ZoneBudget, MT3Dxx/RT3D, MGO, WinPEST, and SEAWAT-2000. The Visual MODFLOW interface consists of Input, Run, and Output sections. In the Input section, the user sets up conditions for groundwater flow and contaminant transport models using a graphical interface. In the Run section, the user translates the model conditions created with the Input section into the standard input files for the appropriate models. The 3D-Explorer in the Output section allows 3-D visualization and animation of model results.

In general, Visual MODFLOW Pro 4.1 has a practical design; however, we offer a few suggestions for improving the functionality. When assigning pumping well properties, the rates for each time period must be entered individually. An improved design would allow for transfer of pumping rates over multiple time periods. We also found that manipulation of grid data was difficult because copy-and-paste was limited to one cell at a time. A more efficient design would allow the grid editor to behave like an

Review of MODFLOW Pro 4.1



Application
Groundwater flow and transport

Best Features
Visualization

Worst Feature
Some edit functions

Ease of Use: ██████████

GUI: ██████████

Output/Plotting: ██████████

Documentation: ██████████

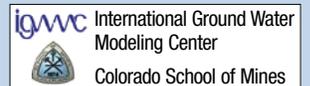
Speed: ██████████

OVERALL RATING: ██████████

Rating System:

Excellent ██████████

Poor ██████████



electronic spreadsheet. The help system could also be improved by adding help buttons and menus to pop-up windows.

Overall, Visual MODFLOW Pro 4.1 is a powerful package that makes model setup and manipulation easy and efficient. The interface is intuitive and easy to use, while giving the user the ability to simulate solute transport, particle tracking, and seawater intrusion. Users with adequate knowledge of

MODFLOW can easily master Visual MODFLOW using the tutorials that are provided with the software. Compared with MODFLOW GUI 4.0 from USGS, another commonly used GUI, Visual MODFLOW Pro 4.1 may lack the same level of complexity and flexibility, but it provides a streamlined platform that is easier to tackle for most users.

Visual MODFLOW Pro 4.1 prices start at \$2,495; visit www.waterloohydrogeologic.com. USGS public domain software may be downloaded from www.usgs.gov/pubprod/software.html.



Photo Courtesy of Phil Paski, HydroSystems, Inc.

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