

MODTOOLS

Model Uses MODTOOLS translates data from MODFLOW and MODPATH into a GIS ready format.

Major Categories Hydrology and Water Use

Subject Knowledge Level
Intermediate

Minor Categories Flow

Technical Difficulty Level
Intermediate

Model Type Data Analysis Package

Geographic in Nature?
Semi

Abstract

MODTOOLS is a set of computer programs for translating data of the ground-water model, MODFLOW, and the particle-tracker, MODPATH, into a Geographic Information System (GIS). MODTOOLS translates data into the GIS software ARC/INFO. MODTOOLS uses the data arrays input to or output by MODFLOW during a ground-water flow simulation to construct several types of GIS output files. MODTOOLS can also be used to translate data from MODPATH into GIS files. MODTOOLS uses the particle data calculated by MODPATH to construct several types of GIS output. MODTOOLS uses particle information recorded by MODPATH such as the row, column, or layer of the model grid, to generate a set of characteristics associated with each particle. The user can choose from the set of characteristics associated with each particle and use the capabilities of the GIS to selectively trace the movement of water discharging from specific cells in the model grid. MODTOOLS allows the hydrogeologist to utilize the capabilities of the GIS to graphically combine the results of the particle-tracking analysis, which facilitates the analysis and understanding of complex ground-water flow systems.

Future Developments

Unknown

Model Limitations

Unknown

Model Features

- Convert the results from MODFLOW or MODPATH to ArcINFO usable data.

Required Data Types

Several files must be created before activating MODTOOLS. The number and types of files needed by MODTOOLS is determined by the type of GIS output produced. The minimum set of files are those required to describe the cell geometry of the finite-difference grid and cell properties. This set is commonly referred to as the "MAIN and NAME" files that are used by both MODPATH and MODTOOLS. Additional files are needed of MODFLOW and MODPATH to produce the many types of GIS output of MODTOOLS (see user manual for complete details).

Model Outputs

MODTOOLS produces several types of GIS output that include results from ground-water simulations of MODFLOW and particle tracking of MODPATH. This output can be in the form of files that list data for each model cell or digital files that contain both the spatial arrangement of particle pathlines or other features and characteristics about the particle or cell.

Hardware Requirements

At least 4mb of RAM

Software Requirements

ArcINFO

Supported Platforms

DOS UNIX

Windows Macintosh

Cost, Licensing and Availability

Free - available from link below.

Source

US Geological Survey

Source URL

http://oregon.usgs.gov/projs_dir/modtools/modtools.html