Integrated Groundwater Management:
Software for Data Interpretation, Analysis, and Modeling

Hydro GeoAnalyst

Visual MODFLOW

Analyze, interpret, and manage model inputs/outputs in a single package.

Perform advanced 3D groundwater flow, heat, and transport simulations.

Professional Applications:

- Complete groundwater vulnerability assessments and protection planning
- Manage data for municipal, state, and national groundwater monitoring networks
- Interpret geologic and hydrostratigraphic data
- Manage well construction details and registration information
- Map and report aquifer extents and geologic formations
- Store sanitary landfill monitoring data
- Manage data associated with remediation projects
- Evaluate and report the spatial distribution of water quality parameters
- Report downhole data

Groundwater modeling and simulation projects typically involve collecting numerous forms of data and constructing a numeric representation of the site. Hydro GeoAnalyst (HGA) combines an innovative suite of software tools to help you gain a big picture understanding. Analyze time series data, plot well completion details, interpret geologic contacts to build model layers, and store raster and vector files for the site layers - all within one software package!

Hydro GeoAnalyst allows groundwater modelers to:

- Pre and post-process all data relevant to your groundwater model
- Create model layers directly from borehole data for use in Visual MODFLOW*
- Query and pre-process hydrogeologic data
- Develop model properties (modeling parameters, initial heads, calibration targets etc.)
- Visualize model results in Hydro GeoAnalyst's Map Manager
- Maintain a consistent unit and co-ordinate system
- Gain a broader understanding by combining model results within a GIS environment

HGA provides a completely interactive environment to help you prepare your data for Visual MODFLOW projects. As an all-in-one software package, HGA will help you achieve a new level in modeling efficiency!

Download a trial version:
www.swstechnology.com

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WATER SERVICES

A Consistent Workflow for Hydrogeologists

Integrate I Interpret I Model I Query I Visualize

INTEGRATE VARIOUS DATA SOURCES

Visual MODFLOW supports raster images for map layers and GIS based data for assigning various model input (properties, boundaries, wells, recharge areas, etc.). HGA helps manage numerous raster and vector maps (DXF and ESRI™ shapefiles).

- On-the-fly geo-referencing of raster images for use in Visual MODFLOW
- Produce GIS-based maps and export into multiple formats
- Develop basemaps depicting a multitude of information including mapping of pre-defined risks, urban development, geology, groundwater table, etc.
- Learn more about the site using thematic maps

INTERPRET AND CREATE MODEL LAYERS DIRECTLY FROM BOREHOLE DATA FOR USE IN VISUAL MODFLOW

The cross-section editor in HGA simplifies the task of defining complex model layers. With HGA, interpret your model layers directly from your borehole data for use in Visual MODFLOW!

- Define multiple cross-section lines using the built-in Map Manager
- Digitize polygons to represent geologic units and polylines for model layers
- Select soil classification patterns to represent geologic formations
- Export all defined layer points for interpretation in Visual MODFLOW
- Import and display model layers for correlating to cross-section interpretations
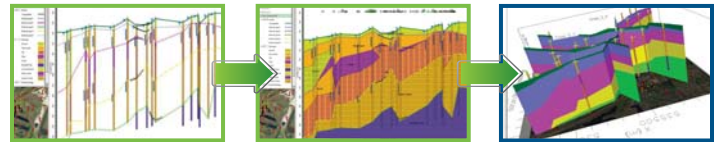
DEVELOP MODEL PROPERTIES (LAYERS, CONDUCTIVITIES, INITIAL HEADS, BOUNDARY CONDITIONS)

HGA's Map Manager provides the hydrogeologist with the ability to digitize line and polygon shapefiles and interpolate XYZ points to create raster grids. These files can be exported to Visual MODFLOW as model input.

- Digitize shapefiles for flow boundaries (rivers, drains, etc.)
- Digitize physical features relevant to the model (storage tanks, boundaries, etc.)
- Interpolate random water level data for use as initial heads
- Digitize and export the locations of hydraulic properties
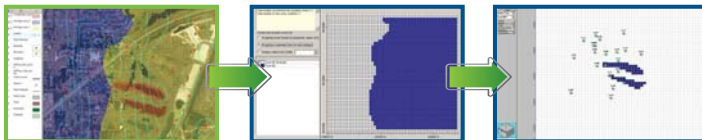
QUERY AND PRE-PROCESS DATA

Prior to building the numeric flow model, Visual MODFLOW modelers typically run through a quality check to ensure the data is representative and true to the site. As a complete data management tool, HGA provides practical search/query capabilities combined with 2D/3D visualization tools to assess the quality of your data and quickly find outliers and potential sources of errors.

- Import analytical lab results with data validation and error checking
- Determine discrepancies & remove erroneous data that could impact model results
- Use the quality control tools to analyze data and to help calibrate model results

VISUALIZE MODEL RESULTS IN HGA

HGA also allows you to import various Visual MODFLOW output data. Simply import your model results into HGA and generate your model report!

- Export concentration contours to the HGA Map Manager
- Export modeled head contours and compare to observed groundwater gradients
- Export pathlines for WHPA Delineation to the HGA Map Manager
- Display the model grid with results (heads, concentrations) in the Map Manager
- Visualize it all with HGA 3D-Explorer!
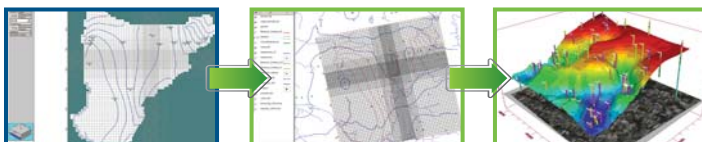
MAINTAIN UNIT AND CO-ORDINATE SYSTEM CONSISTENCY

Maintaining various units and co-ordinate systems presents a major challenge for modeling professionals. Whether dealing with chemistry data, water table elevations, or projected co-ordinate systems, Visual MODFLOW users rely on HGA to manage consistent units that can be easily transferred to Visual MODFLOW.

- Easy sharing of data with other programs
- Includes automatic conversions (measured units, map projections)
- Unit conversions are applied globally
- Eliminate the potential errors that can be introduced with manual calculations

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Download a trial version: www.swstechnology.com
Email sws-sales@slb.com or call (519) 342-1141