

## What's new in GMS 9.1?

The following is a list of the more significant changes in GMS 9.1.

1. PHT3D interface
2. Improvements to importing transient data including new tutorials
3. New tutorials:
  - MODFLOW - Transient Calibration Pump Test
  - MODFLOW - Transient Observation Data
  - PHT3D - Ion Exchange And Surface Complexation
4. PHT3D - Transport And Mineral Reactions
5. Framing improvements
6. Snap Boreholes to TINs command
7. Exporting material names/colors/patterns/transparency
8. Computed flow and Residual flow columns added to the map attribute table for flow observations
9. Iso-surface transparency
10. Copy feature objects to another coverage
11. Activate / Inactivate scatter points command
12. More bitmaps in pop-up menus
13. Simplified and consistent main menus and pop-up menus

The following is a list of the more significant changes that will be introduced in GMS 9.0.

1. **MODFLOW**
  - MODFLOW SUB package interface
  - MODFLOW Gage package interface
  - MODFLOW PCGN Package solver interface
  - Model checker for SFR package added
  - Simplified MODFLOW menu
  - UZF package option to save only groundwater data
  - Gage folder in solution starts out collapsed by default

- Global Options dialog now shows executable options: single vs. double precision, MODFLOW 2000 vs. MODFLOW 2005, serial vs. parallel. These options are now saved in the MODFLOW super file and are therefore portable.
- Capture Zone Analysis dialog rearranged
- CCF files are read more generically and data in unsupported packages is imported
- MODFLOW writes out the final array values of input arrays that use parameters. For example, if HK is being estimated with pilot points then part of the MODFLOW solution in the Project Explorer will be an HK data set with the final array values.
- Stochastic analysis of MODFLOW solutions now includes calculating the min, max, mean, and standard deviation of the MODFLOW parameter arrays that are part of the MODFLOW solutions.

## **2. PEST**

- Push-of-a-button support for PEST null space Monte Carlo. Generate multiple calibrated models for uncertainty analysis.
- Pilot points can now be used with all array based parameter types
- Convergence Options command and dialog renamed to PEST ASP Package to help clarify what it really is.

## **3. Images**

- Online dynamic images
  1. Choose from several online images, maps, and elevation data to include as background images. The images update automatically while panning and zooming.
  2. Create a static image from the dynamic image to save with the project
- Raster/DEM import and interpolation
  1. Support for large DEMs (multiple formats) and GeoTIFFs containing elevation data (such as those created from USGS NED data online maps). These can be imported and interpolated directly to TINs, 2D scatter points, 2D grids and 2D meshes without the need to convert to 2D scatter points. DEMs can be exported in multiple formats.
  2. Images moved to be under GIS layers. Images folder no longer exists.
  3. Horizons to Solids using rasters

## **4. CAD file changes**

- Support for having multiple CAD files added to the project
- CAD files are no longer saved when the project is saved
- CAD properties dialog

## **5. Tutorials**

- MNW2 tutorial for non-vertical wells and pump capacity

- MODFLOW Subsidence Package
- MODFLOW STR Package
- Split MODFLOW conceptual model tutorial into two
- Null Space Monte Carlo
- Online Maps
- Rasters
- Horizons with Rasters

## 6. Project On-The-Fly

- Individual objects can now define their own projections and get projected on-the-fly to the display projection. This is how images have always worked and now it's available for all GMS objects.
- Projection files saved and imported
  1. A projection file (.prj) is saved whenever a geometric object (TIN, mesh, borhole etc) is exported to a file. GMS will also look for a corresponding .prj file whenever a file is opened if the current projection is local. If one is found, it is opened and the current projection is set to the information in the file. This is a precursor to full project-on-the-fly which is in the works.
- Current projection displayed at the bottom of the graphics window
- Latitude/longitude displayed at the bottom of the graphics window

## 7. Miscellaneous

- Measure tool  
The static tool palette gets a new tool for quickly and easily measuring distances.
- Selected items
  1. Locate Selections: This new command in the Edit menu causes an animated rectangle to zoom in around whatever is currently selected.
  2. Zoom To Selections: This new command in the Display menu causes the screen to be framed around whatever is currently selected.
- GMS version number appears in window title
- New round logos
- More and better menu bitmaps
- View Values menu command now opens data set values dialog in editable state.
- Collapse / Expand menu items added on multiple items in Project Explorer
- More "Open Containing Folder" commands throughout
- Open multiple files at once via the File|Open dialog.
- TINs, 2D meshes and 2D scatter points now have a clear separation between z value and data set value

- Wells are now included in MT3D TOB package so that mass flux is calculated and mass vs. time plots can be generated
- Node XYZ coordinates in coverages are now displayed in the attribute table.
- Bitmaps in right-click menus