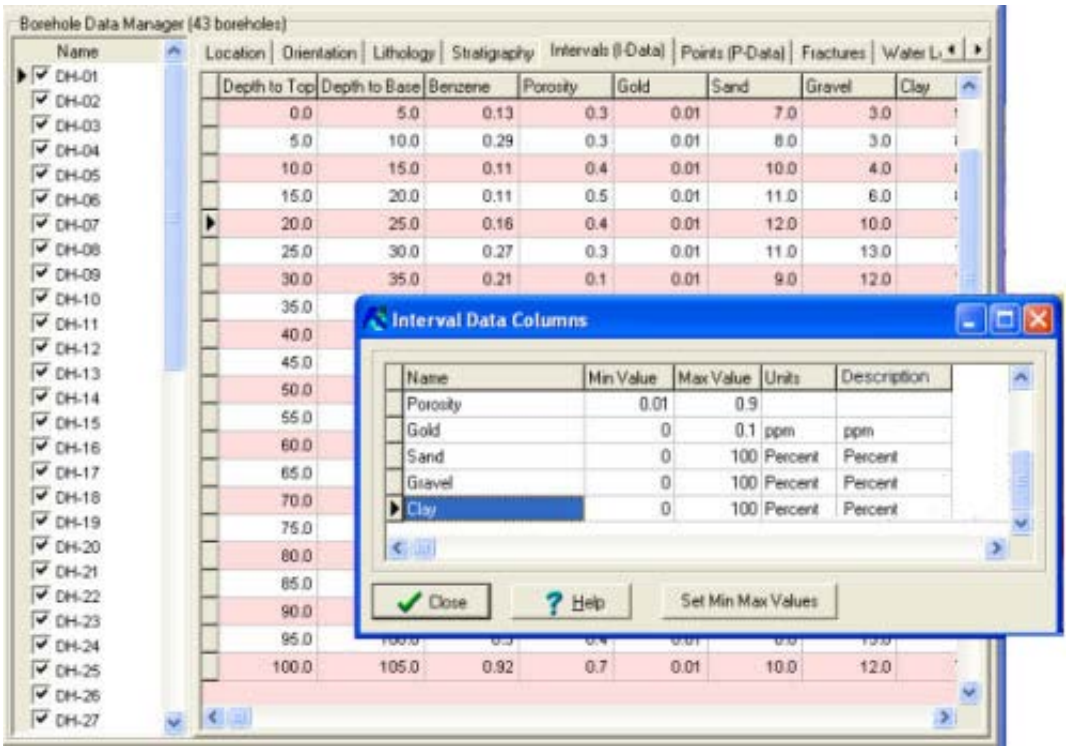
RockWorks2006 new features

New Database Features

Borehole data is stored in an Access-compatible (.MDB) database. This has many benefits, including:

- Relational integrity: The database keeps track of records in linked tables, such a stratigraphic unit for a borehole linking to the stratigraphy type table. This prevents accidental deletions (you can't delete a data table with linked fields), and allows for data updates (if you rename a formation from "Aquifer-1" to "Upper Aquifer", then all boreholes referencing that formation would be updated automatically).
- Data validation: Numerical values are checked and stored, preventing entry of alphabetical characters. Date fields (like Water Level Dates) are validated to be actual date/time values.

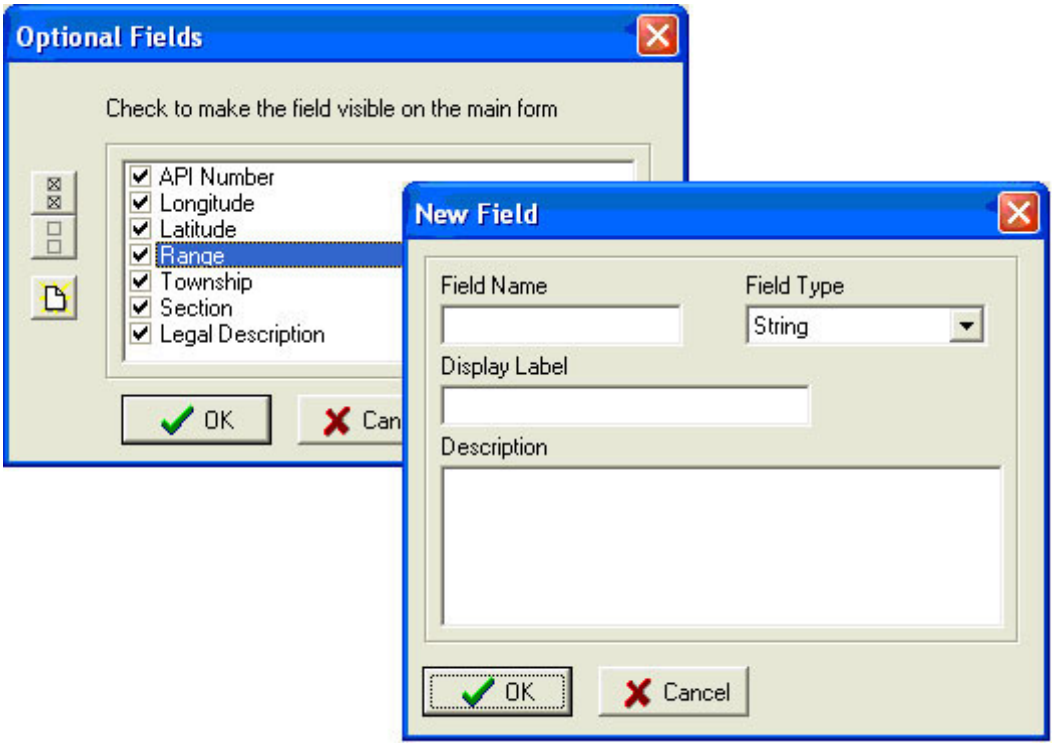


RockWorks I-Data column layout

- Easy-to-use Queries: RockWorks contains some built-in query tools, that allow you (for example) to enable all boreholes that contain a particular formation or lie within a specific area. In addition, advanced users could use Access for detailed queries.

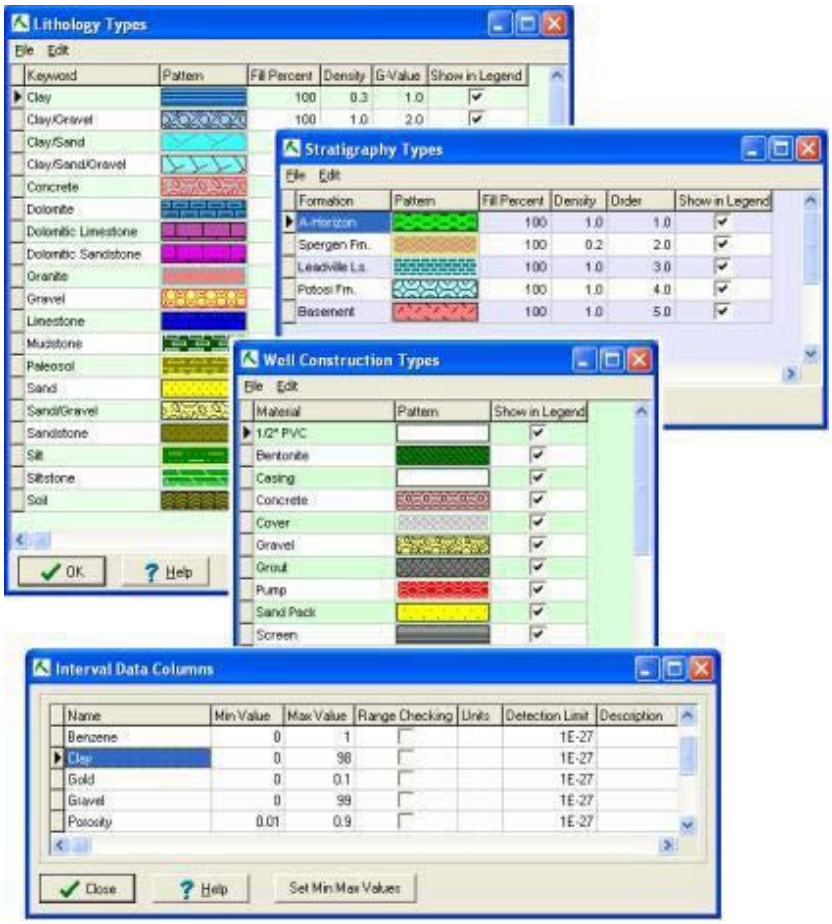
RockWorks database query screen

- New fields may now be added to the Borehole-Manager Location tab by right-clicking in the Optional Fields area of the Borehole Manager.



Setting up optional database fields

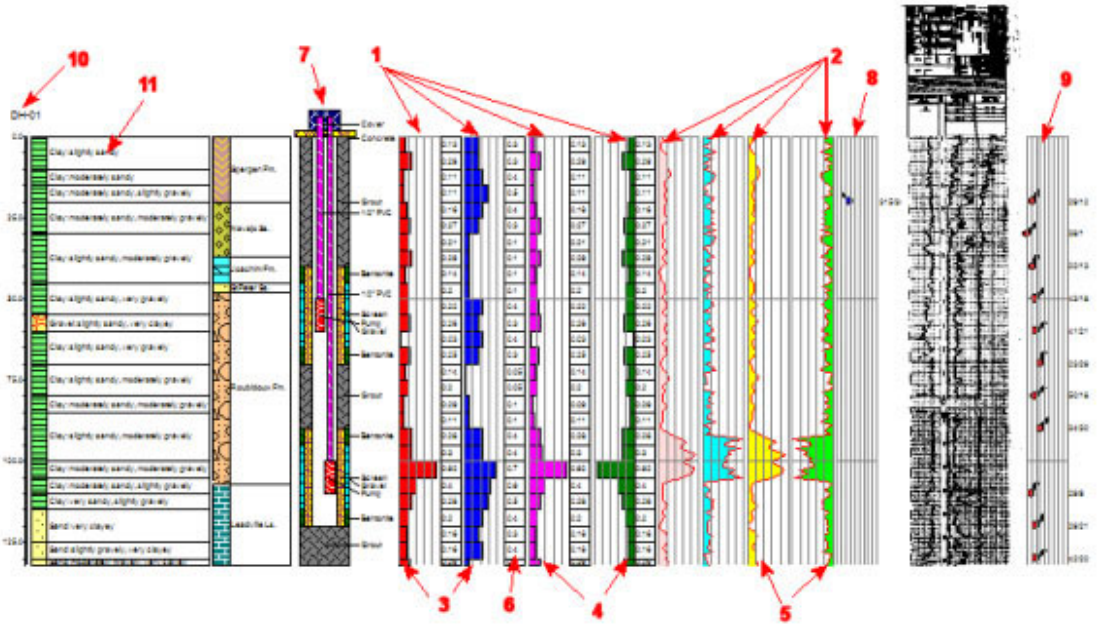
- Control display of which data tabs (tables) are displayed in the Borehole Manager.
- Data "Type" tables:
    - Lithology, Stratigraphy, and Well Construction Type table tools: Specify which are displayed in legends, and have the program turn off any materials not present in the database.
    - I-Data and P-Data "type" tables define data ranges, range checking, detection limits.



Lithology, Stratigraphy, Well Construction, and Data "Types" tables

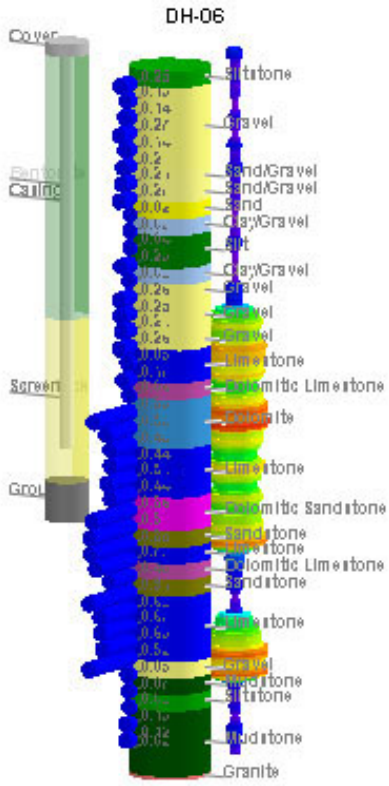
New 2D and 3D Striplog Layout Tools

- All-new log designer for 2D and 3D logs - change column positions using click-and-drag.
- Added data types and log columns:



RockWorks 2D log detail

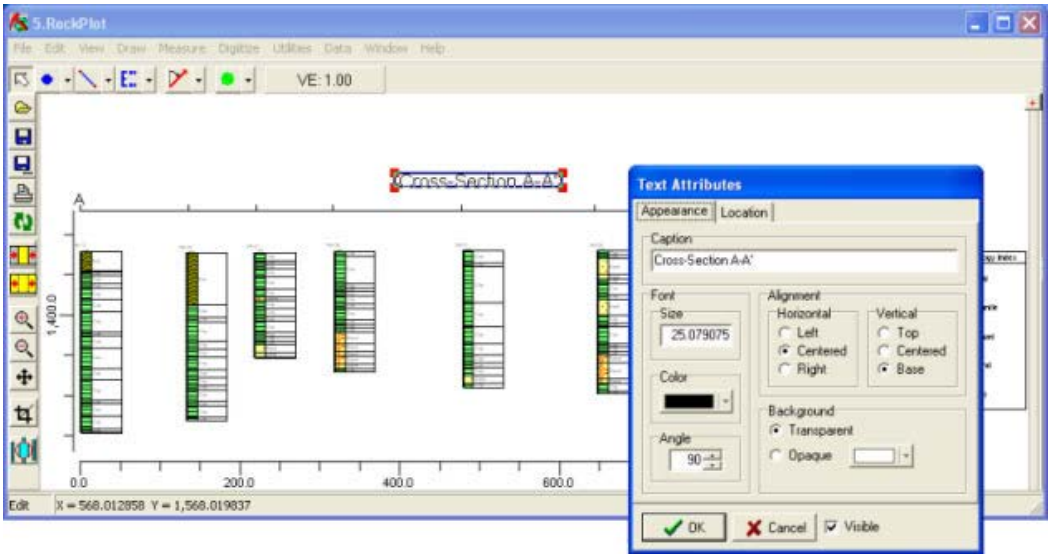
- Four bargraph (I-Data) columns.
- Four curve (P-Data) columns.
- The relative position of all log columns may be easily changed by simply dragging them from side to side.
- Plot I-Data from left-to-right or right-to-left.
- Plot P-Data from left-to-right or right-to-left.
- Plot I-Data values in a separate column.
- A new well-construction column depicts casings, screen, pumps, etc.
- Display fracture data as "tadpole" symbols.
- Display directional (e.g. flow) data as "tadpole" symbols.
- The borehole title is now centered above the column axis which may be repositioned anywhere within the log.
- The lithology text column may now include the entire descriptions as well as the keywords.



A 3D log depicting lithology materials, several I-Data columns, and well construction

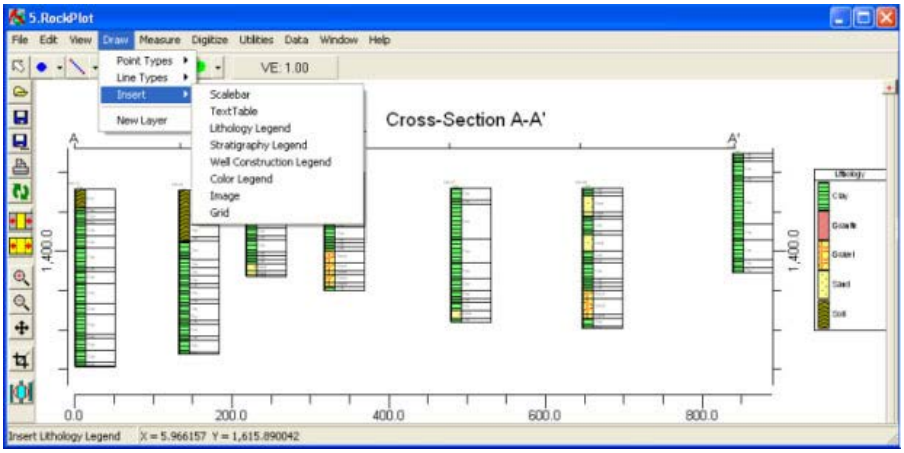
New and Improved RockPlot2D Graphics!

- Edit all 2D graphic entities: Click and drag to move, double-click to edit.



RockWorks graphic editing tools

- RockPlot2D Drawing tools - insert legends/shapes/text/symbols.

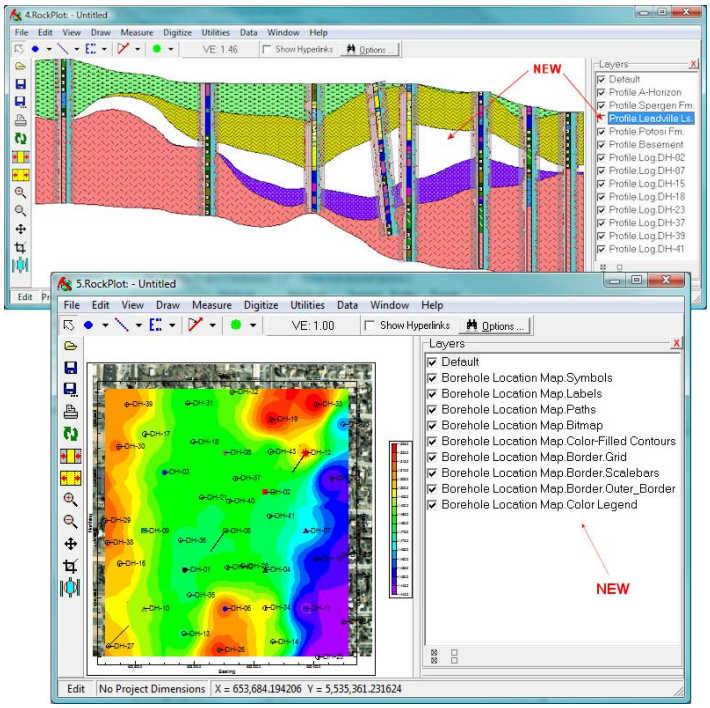


RockWorks drawing tools

- Insert Hyperlinks - link map locations in your RockPlot map to images, text, sound, web sites, presentations, etc.

RockWorks map with hyperlinks to images

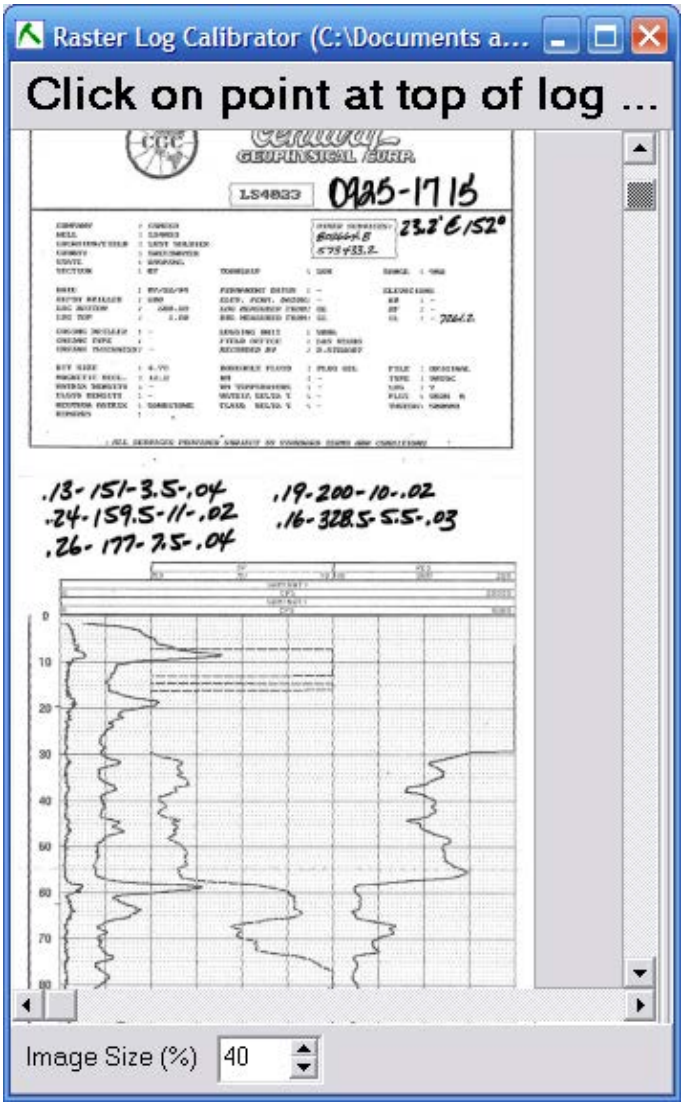
- Most of the programs that create two-dimensional diagrams now save the data in discrete layers that may be activated/deactivated within the RockPlot2D program.



RockPlot2D Layers

Raster Log Calibration

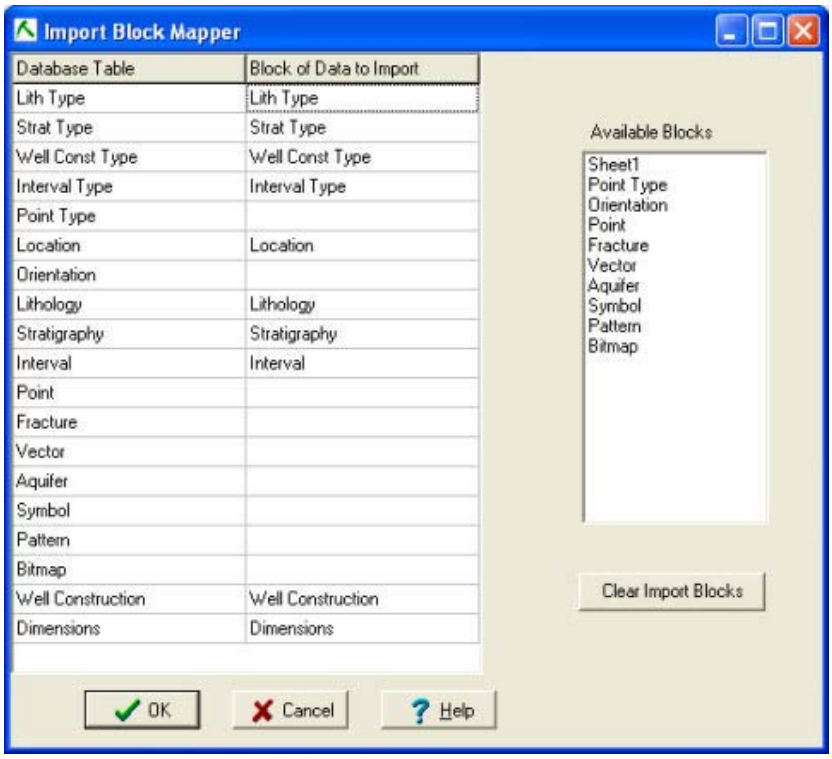
A new Raster Log Calibrator simplifies the process of depth registering raster logs and identifying the "header base" and "footer top".



RockWorks raster log calibration

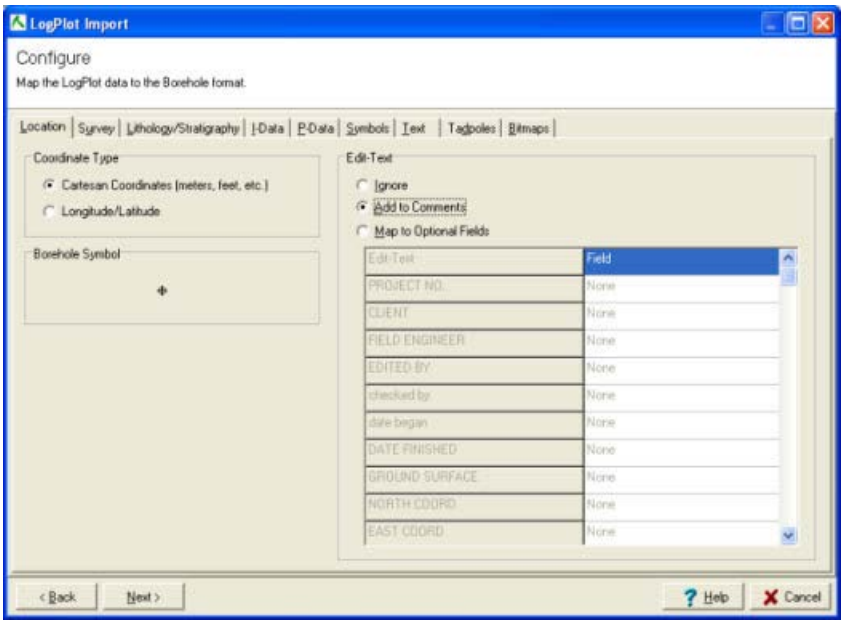
New and Improved Imports and Exports

- Expanded Excel and ASCII data imports.



RockWorks Excel import screen

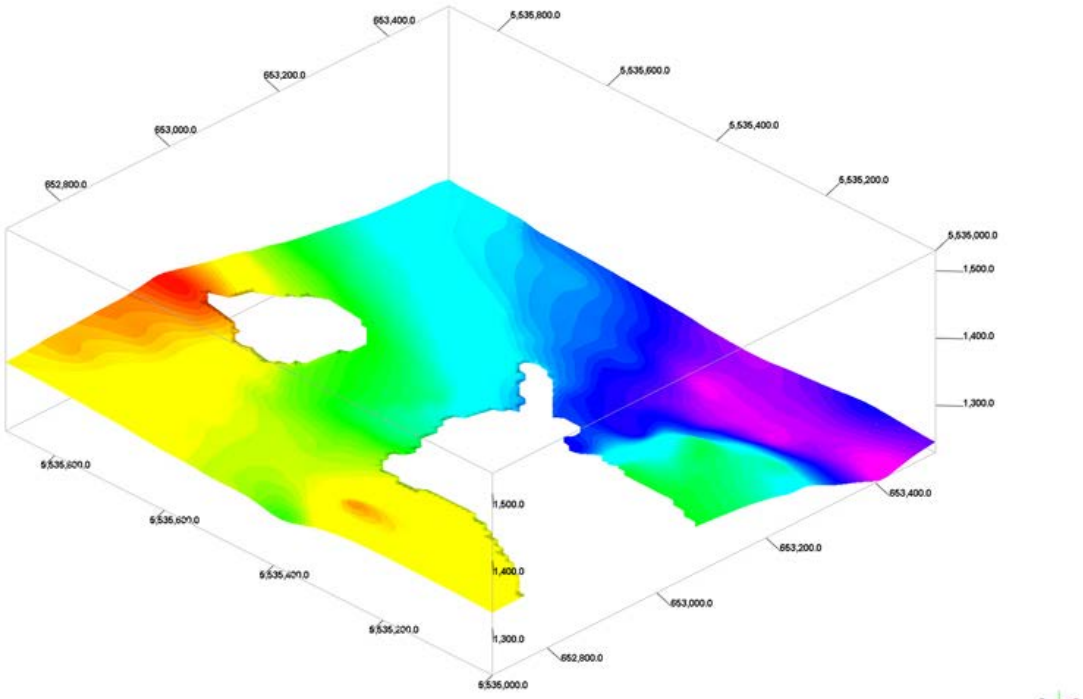
- Import and Export LogPlot data.
- Import data from these sources:
    - IHS
    - Tobin
    - LAS (single and multiple)
    - Kansas Geological Survey
    - Newmont Assay MDB
    - GDSII



LogPlot data import window

Null Values

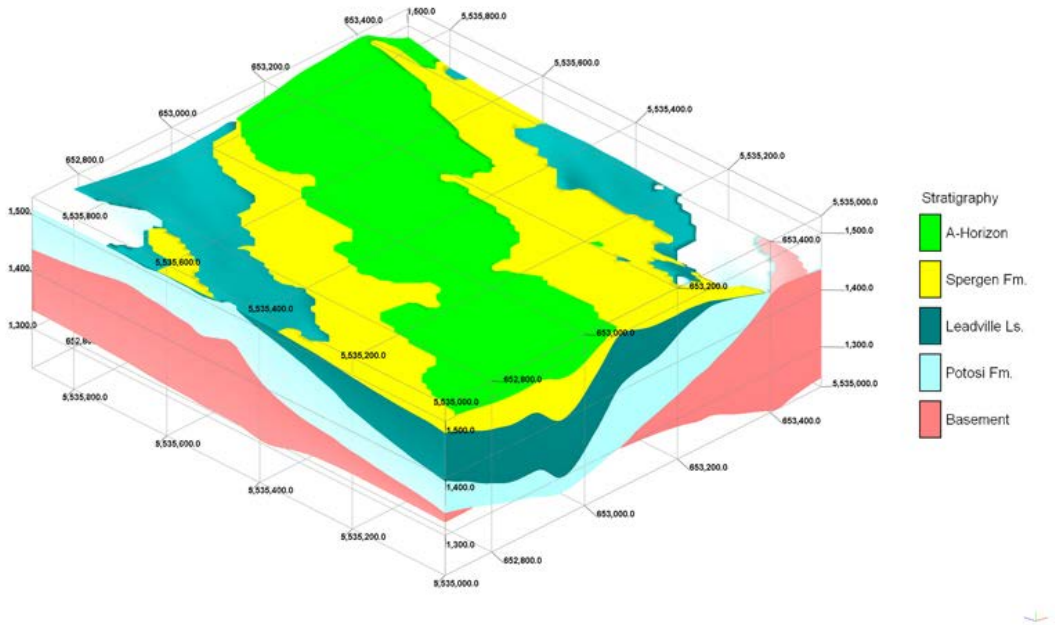
Null value support for all grid and solid model operations.



3D structure map showing areas of null values

Stratigraphy Modeling Tools

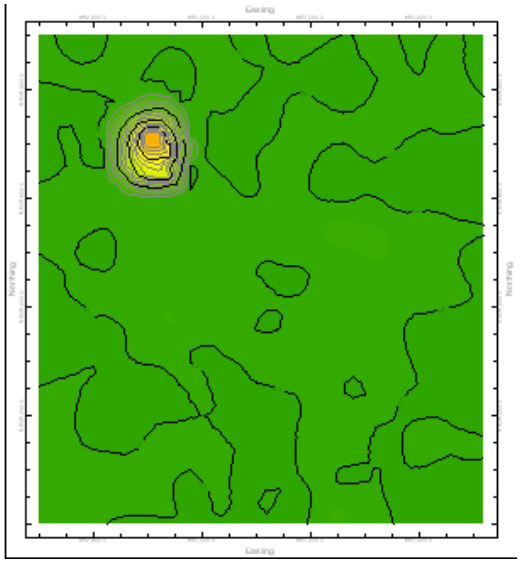
- Turn off surface interpolation for stratigraphic models.
- Render thin layers transparent.
- Compute volume reports from either surface-based stratigraphy models, or solid-model versions.



RockWorks stratigraphy model showing pinchouts

Grid Morphing

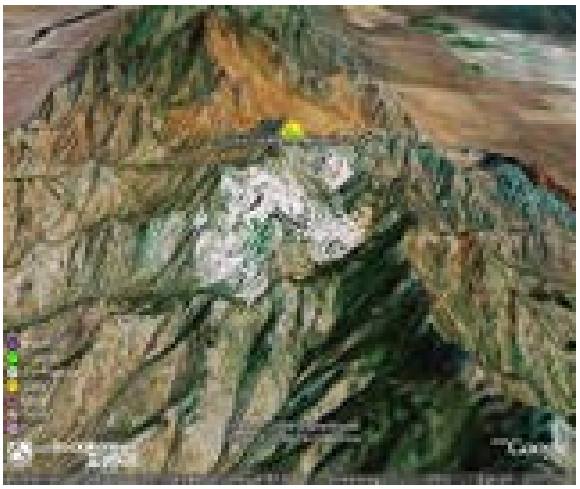
Generate a series of transitional grids / and/or contour-map images given two "end-member" grids, with animation output.



Morphed grid animation

Google™ Earth Export

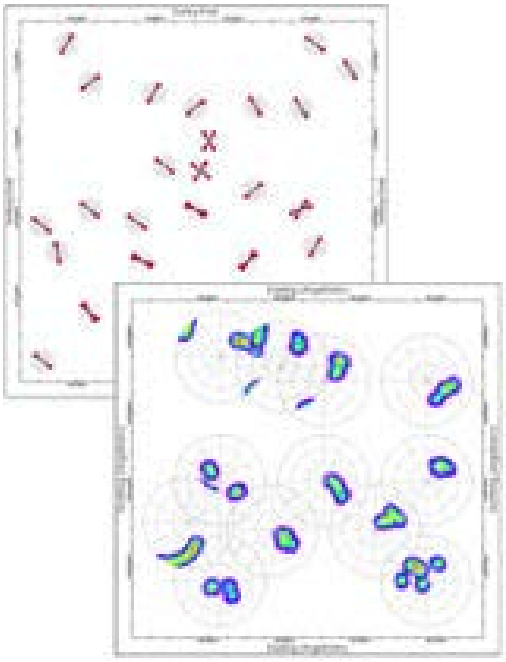
- Create placemark, polygon, and polyline KMZ files for display in Google™ Earth.



Google Earth image with placemarks from RockWorks

Rose Diagram Maps, Stereonet Maps

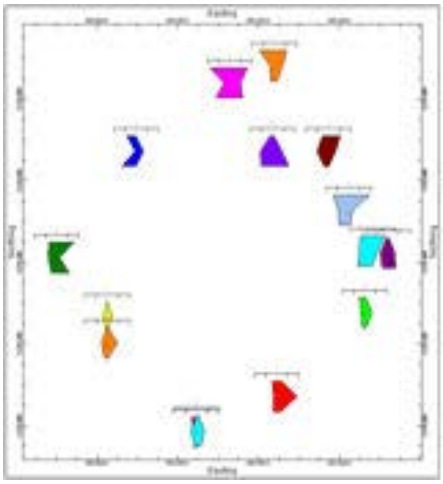
- Create maps of your downhole fracture data, with mini-rose-diagrams or mini-stereonets.



RockWorks rose diagram and stereonet maps

Stiff Diagram Maps

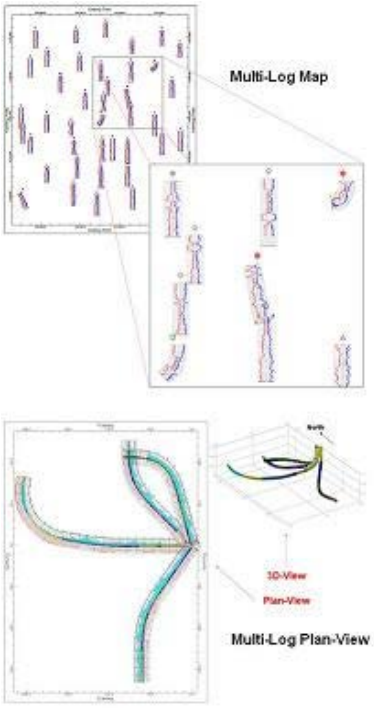
- Create Stiff diagrams for sample locations and display them on a site map.



RockWorks Stiff diagram map

Borehole Log Maps

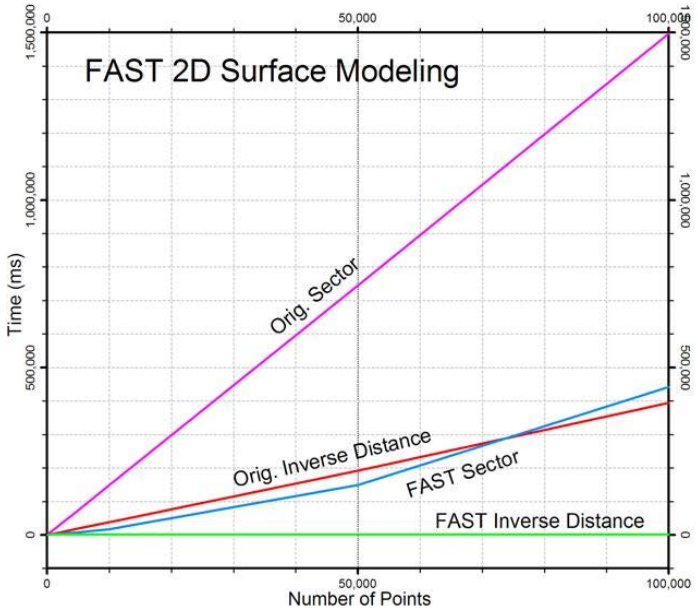
- Use RockWorks to create a plan view diagram of deviated or angled boreholes, or a log map of vertical boreholes.



Log Maps

New Inverse Distance Modeling and Gridding Options

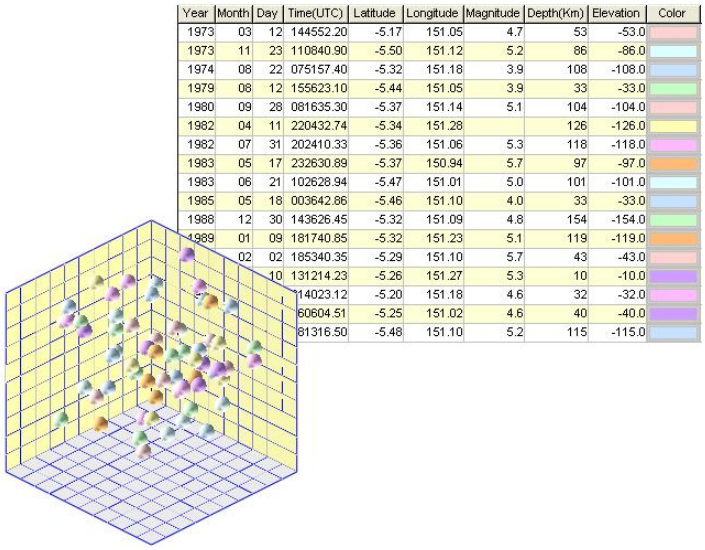
The search algorithms used for Inverse Distance interpolation have been improved to significantly speed up the gridding and solid modeling processes.



To create the graph here, we performed a series of tests to compare the execution speeds of the previous version with the new ("fast") version. These tests compare sector-based and non-sector-based IDW (inverse distance weighting) gridding. Notice the dramatic increases in speed.

3D Point Maps

- Unique size and color for each sample point
- Control colors and sizes in the Utilities spreadsheet or using linked tables
- View with surface and models created using the Borehole Manager or the RockWorks Utilities

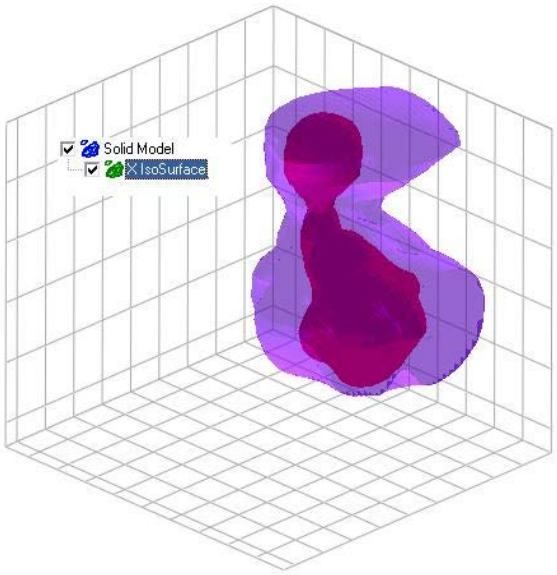


Year	Month	Day	Time(UTC)	Latitude	Longitude	Magnitude	Depth(Km)	Elevation	Color
1973	03	12	144552.20	-5.17	151.05	4.7	53	-53.0	
1973	11	23	110840.90	-5.50	151.12	5.2	86	-86.0	
1974	08	22	075157.40	-5.32	151.18	3.9	108	-108.0	
1979	08	12	155623.10	-5.44	151.05	3.9	33	-33.0	
1980	09	28	081635.30	-5.37	151.14	5.1	104	-104.0	
1982	04	11	220432.74	-5.34	151.28		126	-126.0	
1982	07	31	202410.33	-5.36	151.06	5.3	118	-118.0	
1983	05	17	232630.89	-5.37	150.94	5.7	97	-97.0	
1983	06	21	102628.94	-5.47	151.01	5.0	101	-101.0	
1985	05	18	003642.86	-5.46	151.10	4.0	33	-33.0	
1988	12	30	143626.45	-5.32	151.09	4.8	154	-154.0	
1989	01	09	181740.85	-5.32	151.23	5.1	119	-119.0	
	02	02	185340.35	-5.29	151.10	5.7	43	-43.0	
		10	131214.23	-5.26	151.27	5.3	10	-10.0	
			114023.12	-5.20	151.18	4.6	32	-32.0	
			160604.51	-5.25	151.02	4.6	40	-40.0	
			181316.50	-5.48	151.10	5.2	115	-115.0	

RockWorks 3D Point Map

X Iso-surfaces in RockPlot3D

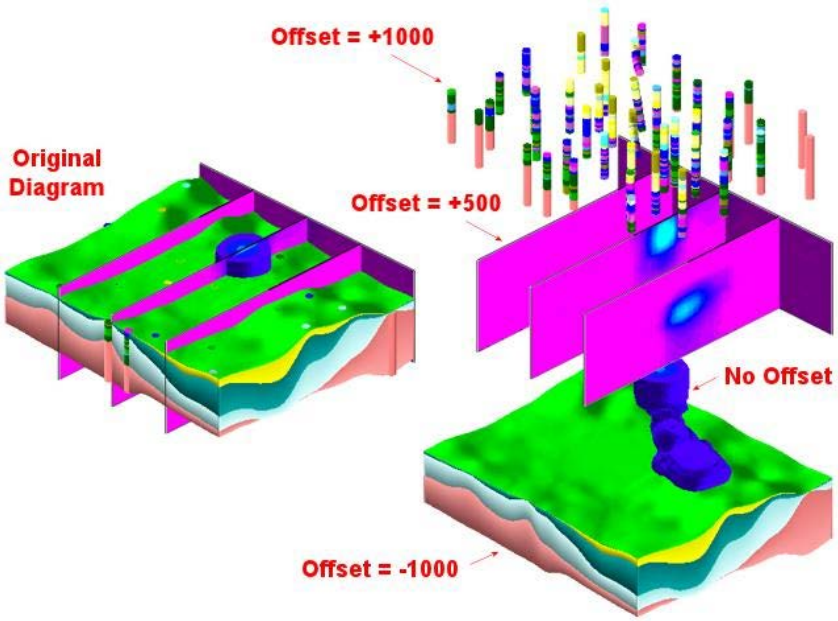
Right-clicking on a Solid Model isosurface within the RockPlot3D data tree now displays a new option titled "Add X Isosurface". This tools allows you to create isosurfaces within isosurfaces.



RockWorks Isosurfaces

Offset Objects in RockPlot3D

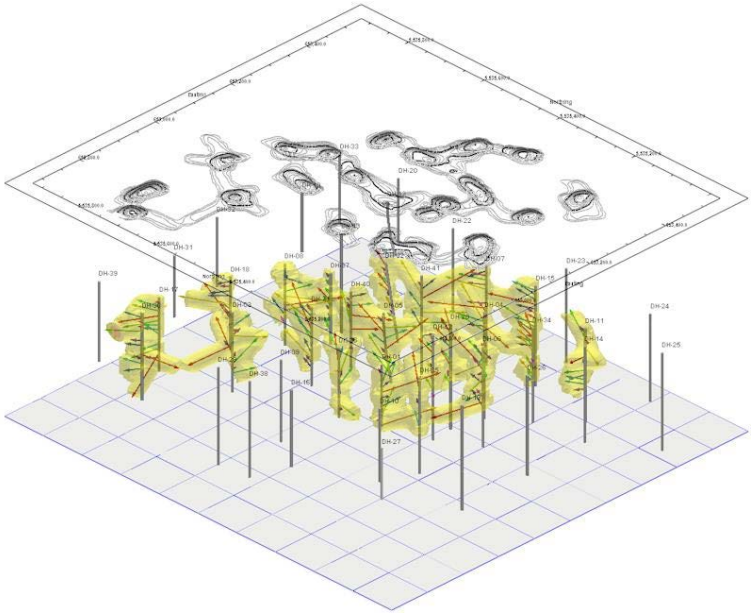
Any object displayed in RockPlot3D can easily be offset up or down based on a user-specified vertical distance.



Offset objects in RockPlot3D

Vector-Based "Void" Solid Modeling

This program is designed to convert directional downhole data (stored within the Vectors database table) into solid models that approximate the extents of the vectors. An example application is the generation of void geometries (cave models) based on downhole laser surveys.



RockWorks vector model

RockWorks Revision List

This is just a small sampling of the features that were added to the RockWorks2006 program. For a complete list - hundreds of items! - please refer to:
http://www.rockware.com/rockworks/revisions/index.html