RockWorks14 is a broad, integrated geological data management, analysis, and visualization tool.

It contains a borehole data manager for easy entry of downhole data: observed lithology/stratigraphy contacts, geophysics or geochemistry measurements, water levels, fractures and deviated drill hole surveys.

Downhole data can be easily analyzed using RockWorks14's two dimensional and three dimensional OpenGL visualization tools.

**Whats New**

**New Project Manager Features**

Use the new Project Manager interface to view and open files in the current project folder.

- Customize the types of files that are displayed
- Double-click on grid model names to display them as 2D contour maps and 3D surfaces.
- Double-click on solid model names to display them as 3D voxel or isosurface models.
- Hold your mouse over RockPlot2D and 3D files to see previews

**New 2D and 3D Striplog Options**

- Plot I-Data and P-Data using logarithmic scales in 2D and 3D logs.
- “Unwind” 2D directional logs to avoid projection onto itself.

**New Cross-Section Tools**
Plot lithology patterns in 2D Sections or Profiles. Patterns are included in layers that can be enabled or disabled, along with striplogs and other data types in the diagram. Plot logs in Striplog Sections based on true Easting/Northing location, or with equal spacing between logs. This should be helpful if you have sections with large gaps between boreholes. Plot multiple parallel profiles automatically. This options is now available for all data types in the Borehole Manager.

**Improved Stratigraphy Modeling**

Constrain your Stratigraphy models based on upper ground surface grids or lower pit surface grids. Clipped Stratigraphy models now plot side with panels along irregular boundaries.

**New 3D Visualization Tools**

Distribute RockPlot3D to your coworkers as a free viewer for your saved 3D scenes. (Download the RockPlot3D installation.) Includes “isomesh” contour lines in 3D isosurface diagrams.

**Durov Diagrams**

Plot hydrochemistry data as Durov diagrams, with optional point density of TDS color contours.

**Sieve Diagrams**

Use this tool to generate cumulative grain size distribution diagrams depicting grain size distributions for one or more samples. The direction of increase for the horizontal and vertical axes may be easily switched. Annotation options include millimeters, microns, Udden-Wentworth, ASTM, Tyler Mesh, and USCS.
Professional Applications of RockWorks14 Include:

**The Environmental Industry**

Perform standard tasks such as creating contour maps and site maps, picking your stratigraphy from your observed lithology, and generating two-dimensional cross-sections and three-dimensional fence diagrams.

Do analysis of chemical data with piper/stiff diagrams and the generation of two-dimensional contour maps and three-dimensional solid models of your contaminant distributions.

Use your stratigraphy data to generate three-dimensional stratigraphic models and see how your stratigraphy and plumes interact.

Perform volumetric and mass calculations on solid models of your contaminants as well as your different stratigraphic units.

**The Mining Industry**

Suited for use with coal, industrial mineral, and other stratabound economic deposits, in both the exploration and production phases.

Create surface geochem contour maps, two-dimensional elevation contour maps and three-dimensional terrain models.

Provides full volume and mass statistics for any orebody model.

**MAIN FEATURES**

**Downhole data management**

The borehole data manager is a data window used for entry and management downhole data including:

- Deviated drillhole surveys
- Lithology descriptions
- Stratigraphic formation names
- Geochemistry and geophysics data
- Fracture measurements
- Water level/aquifer data
- Log symbols and patterns

**OpenGL 3D viewer**

The RockPlot3D OpenGL plotting windows displays:

- Three dimensional diagrams
- Three dimensional borehole logs
- Fence diagrams
- Stratigraphy models and solid models
- Three dimensional surfaces

**BOREHOLE BASED FEATURES**

<table>
<thead>
<tr>
<th>Borehole Location Maps</th>
<th>Display unique symbols and colours for each sample and also subsurface traces for deviated or inclined wells. Convert borehole locations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borehole and Correlated Logs</td>
<td>For two and three dimensional borehole logs:</td>
</tr>
<tr>
<td></td>
<td>- Visualize vertical, inclined or deviated drillholes</td>
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<td></td>
<td>- Display stratigraphy and/or lithology columns</td>
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<tr>
<td></td>
<td>- View geochemistry as histograms</td>
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<td></td>
<td>- Show geophysics data as curves</td>
</tr>
</tbody>
</table>
Add lithology and stratigraphy text descriptions  
Add special symbols, patterns and text depth

| Borehole Lithology Tools | 2D Profiles  
Creates a solid model from your borehole lithology data, and you select a vertical plane within the model as your profile.  
3D Fence Diagrams  
Select multiple overlapping or cross-cutting panels in any direction.  
3D Lithology Models  
Create a solid three dimensional block model of your borehole lithology data  
Lithology Volumetrics  
Calculate volume or mass of the lithology layers in your solid model |
| Borehole Stratigraphy Tools | Two Dimensional Profiles  
The 2D Stratigraphic Profile generator creates a solid model of your stratigraphy.  
Fence Diagrams  
A three dimensional stratigraphic model is created from your borehole stratigraphy data.  
Stratigraphic Block Models  
Once you've created a 3D strat manipulate your model in the 3D viewer.  
Elevation Maps Of Formation Tops  
Make a two or three dimensional elevation map for the top of any of your stratigraphic units. |
| Borehole Geochemistry Data | Fence Diagrams  
Create fence diagrams to visualize multiple transects in three dimension through your solid geochemistry model.  
Solid Geochem Models  
Model your contaminant plume or other borehole geochem data, set concentration limits in the viewer to view isosurfaces.  
Volumetrics, Reserve Estimates  
Detailed volumetric and reserve estimate capability calculations are based on your geochemistry solid model. |
| Borehole Geophysics Data | Borehole Maps  
Create unique symbols and colors for each sample point/borehole and display subsurface traces for deviated or inclined wells.  
Coordinate Systems  
Convert borehole locations from lat/lon or township/range to UTM prior to display |
| Hydro/Aquifer Data | 2D Profiles  
Choose any transect to view your aquifer from multiple angles.  
Plan View Maps  
Create contour maps showing various features of your aquifer (superface elevations, subface elevations and isopach).  
3D Models  
Model the top and bottom surfaces of your aquifer in three dimension |

GEOLOGICAL UTILITIES

| 3D Surface Maps | Raised contour diagrams  
Continuous color diagrams |
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>East/west profiles and continuous color</td>
<td>Mesh diagram and continuous color</td>
</tr>
<tr>
<td>Raised contours and continuous color</td>
<td>Float bitmaps above or below 3D surfaces</td>
</tr>
<tr>
<td><strong>Point &amp; Multivariate Symbol Maps</strong></td>
<td>Highly customizable</td>
</tr>
<tr>
<td></td>
<td>Automatic label offsetting</td>
</tr>
<tr>
<td></td>
<td>Multivariate Symbol Maps can display small Piecharts, Starbursts or Barcharts on maps</td>
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<tr>
<td><strong>Contour Maps</strong></td>
<td>Color filled contours</td>
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<td></td>
<td>Color filled contours combined with conventional contours</td>
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<tr>
<td></td>
<td>Irregularly-spaced, non-numeric contour labeling</td>
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<tr>
<td><strong>Land Grid Utilities Tool</strong></td>
<td>Converts tables of land grid corner point coordinates to fully annotated section maps</td>
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<td></td>
<td>Full control of plotting parameters such as labeling verbosity, colors, and font dimensions</td>
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<tr>
<td></td>
<td>Convert legal descriptions to local or global coordinates</td>
</tr>
<tr>
<td></td>
<td>Convert tables of legal descriptions into cartesian coordinates</td>
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<tr>
<td><strong>Surveying Utilities</strong></td>
<td>Convert bearing, distance and inclination to XYZ values</td>
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<td></td>
<td>Convert triangulation-based survey data to known points</td>
</tr>
<tr>
<td><strong>Gridding Tools</strong></td>
<td>Interpolation algorithms</td>
</tr>
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<td></td>
<td>Multiple gridding algorithms</td>
</tr>
<tr>
<td><strong>Solid Models</strong></td>
<td>Solid modeling utilities read XYZG data from the data sheet and linked downhole data files, or from existing XYZG data files. Modeling methods: Inverse-distance, or closest point</td>
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<tr>
<td></td>
<td>Models may be displayed as solid block diagrams</td>
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<tr>
<td><strong>Volumetrics</strong></td>
<td>Use grid-based volumetrics with thickness, stripping ratios, distance-to-point, polygon clipping, and up to 5 other data column filters.</td>
</tr>
<tr>
<td><strong>Statistics (Ternary Plots etc.)</strong></td>
<td>Univariate statistics</td>
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<td></td>
<td>Relative frequency diagrams</td>
</tr>
<tr>
<td></td>
<td>XY Scatter plots</td>
</tr>
<tr>
<td></td>
<td>Ternary diagrams</td>
</tr>
<tr>
<td><strong>Structural (Stereonets, Rose Diagrams)</strong></td>
<td>Rose diagrams explain frequency of lineations in a given orientation. Create full or half rose diagrams. Create diagrams from azimuth bearing or line endpoint data.</td>
</tr>
</tbody>
</table>
Assign custom petal widths.
- **Lineation Gridding**
  Two and three-dimensional contour maps of lineation frequencies, lengths, intersections, or a weighted combination thereof
- **Arrow Maps**
  Depict the orientation of unidirectional features.
- **3D Planar Analysis**
  Planar data plotted as great circles or poles

| Hydrology (Piper/Stiff Plots) | Piper diagrams illustrate ion concentrations and total dissolved solids for multiple samples.  
|                             | Stiff diagrams illustrate relative ion concentrations for multiple samples

| Geotechnical | Slope/Aspect analysis- 3D view  
|             | Slope/Aspect analysis- plan view  
|             | Uphill & downhill gradient vector maps  
|             | Slope movement velocity analysis

**Coordinate Conversion**

RockWorks has coordinate conversion tools for UTM (XY), lat/lon (degree), land grid (Jeffersonian), polar coordinates, compass/survey data and more.

Use RockWorks to convert information for Geographic Coordinate Systems and Compass Survey Data.

**Miscellaneous Geology Tools**

Other RockWorks geology tools include:

- Geologic time scale
- Periodic table of the elements
- Unit conversion
- Structural geology and trig calculations
- Igneous rock identifier
- Geometry calculations
- Three point contouring

**LOGPLOT DATA IMPORT**

The LogPlot to RockWorks program is designed for the LogPlot user who wants to create a RockWorks project using two or more LogPlot "dat" files.

Using log design information, this tool can determine the LogPlot entities that can be imported into RockWorks and, where possible, it will offer the user control over the specific import options.

Lithology/stratigraphy data (LogPlot: "Lith"), geochemical data (LogPlot "Histogram"), geophysical data (LogPlot "Curve"), log symbols, and text can all be imported.
IMPORT & EXPORT OPTIONS

Import & export data, graphics, grid models and solid models into and out of RockWorks in the following formats.

**Import Formats:**
RockWorks99 Projects, ASCII, DBF, DXF, Contour Lines, XYZ Points, Laser Atlanta Survey Files, RockBase Fixed Field, SEG-P1 ShotPoint Data, Excel, AGL, DGL, ArcInfo EOO Polylines, BMP, DEM, ESR, Geosoft GXF, RockWorks7, Surfer

**Export Formats:**
ASCII, DBF, Excel, DXF, BMP, JPG, WMF, EMF, XYZ, Geosoft GXF, Ohio Automation ENZ, RockWorks7, RockwWare TRM Terrain Models, Surfer ASCII & Binary, VistaPro, NOeSYS, Slicer Dicer

HELP & TUTORIALS

Built-in software tutorials are displayed on the screen when you first start the program, with step-by-step information about creating a variety of maps, diagrams, and reports. The tutorial window can be accessed at any time from the RockWorks program. Lessons can be printed out for easy use.

Text and pictures are displayed in the program window with descriptions about the program tool and its settings. Simply point to a menu item and read the "abstract".

Click on the "Help" or "?" button in the program windows to launch the standard RockWorks2006 help messages with the applicable topic displayed.

RockWorks2006 is shipped with an instruction manual that complements the menu abstracts and on-line help.

SYSTEM REQUIREMENTS

- Windows 98 / ME / NT / 2000 / XP (NT/2000 recommended)
- 256 MB of RAM or better
- 200 mHz or faster CPU (Pentium or AMD)
- 3D graphics card with OpenGL support (if no graphics card, you can use software rendering which requires a 400 mHz or faster Pentium III CPU).