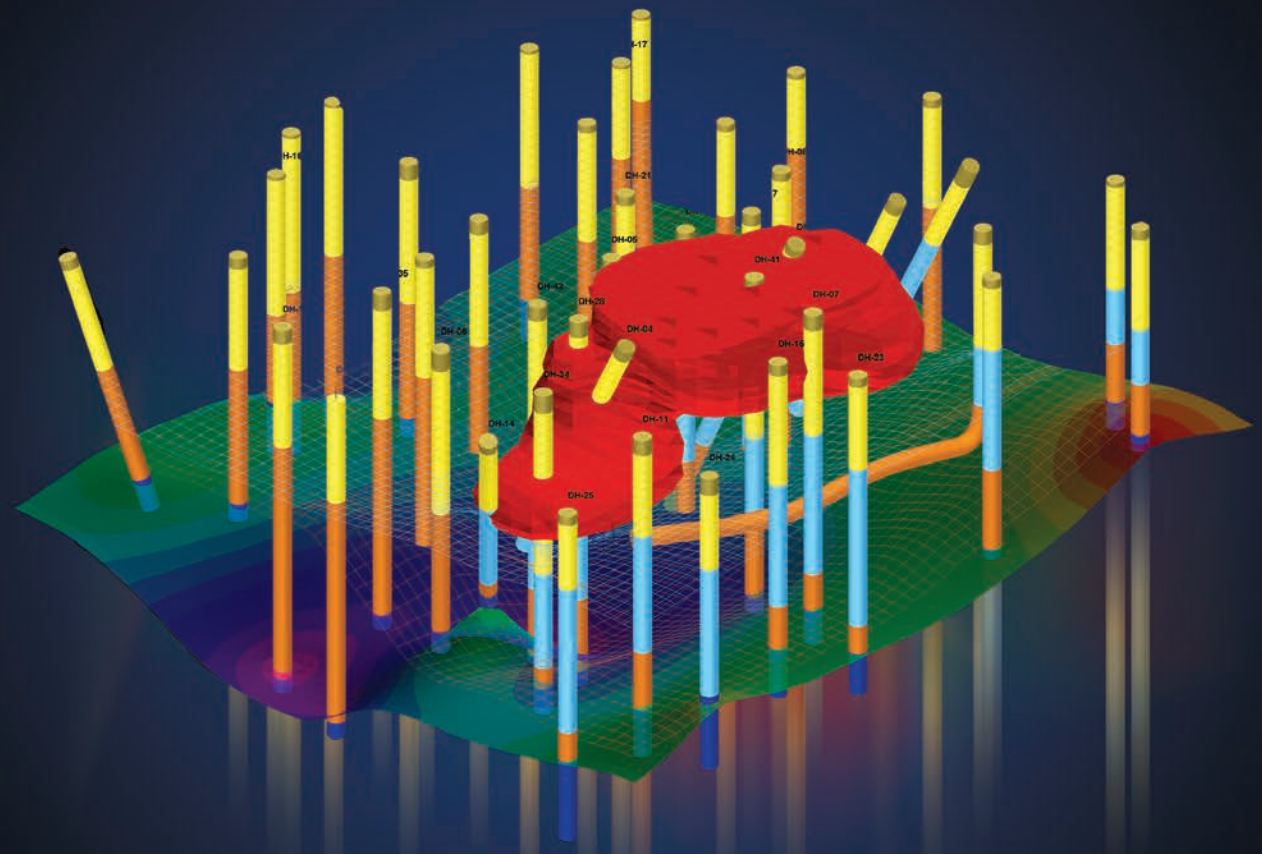
GEOSCIENCE SOFTWARE, CONSULTING & TRAINING

FOR OVER 39 YEARS



Environmental

Geotechnical

Hydrology

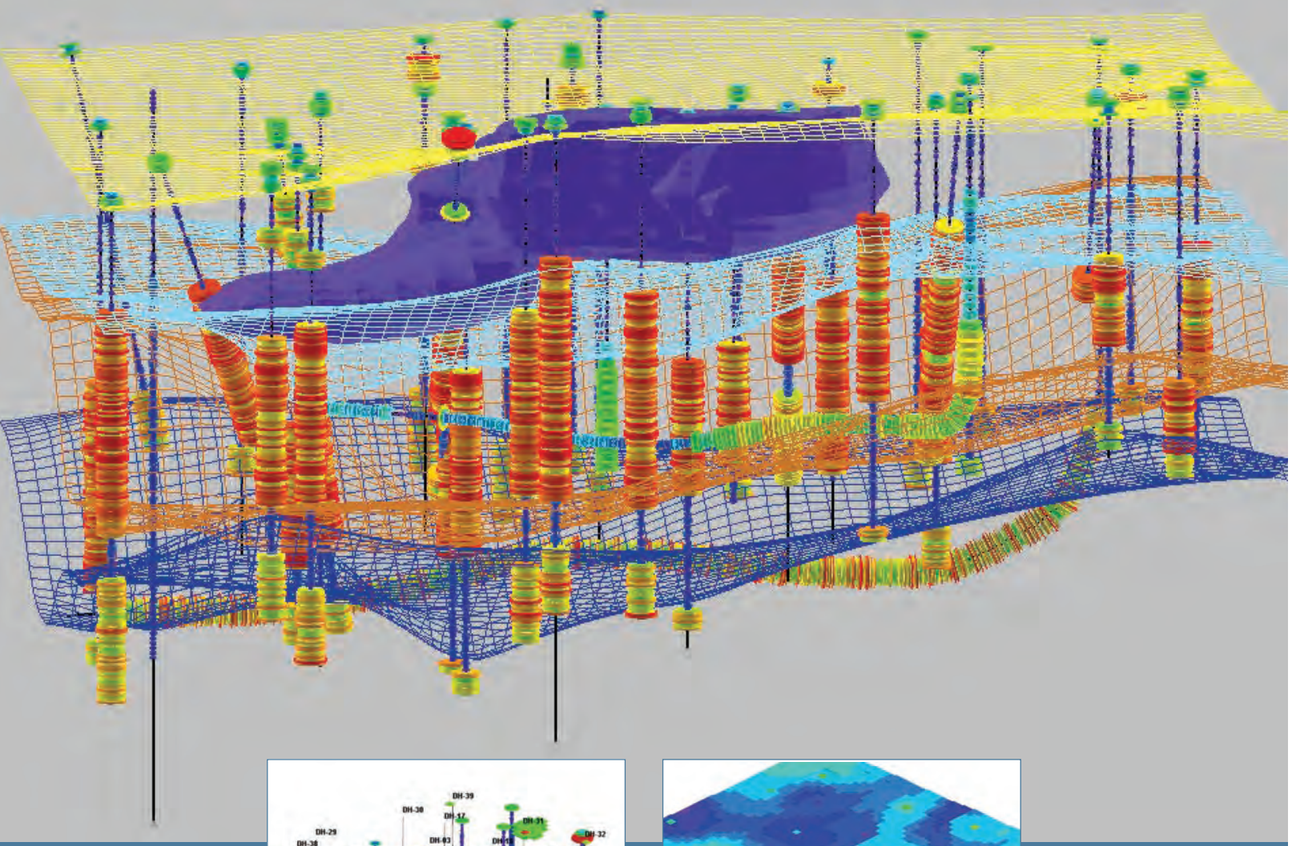
Mining

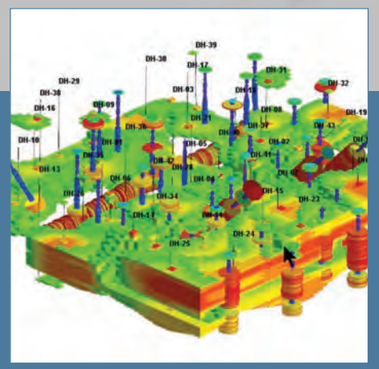
Petroleum

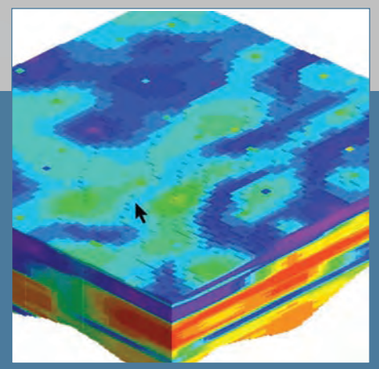
RockWare®

Since 1983

RockWorks 2022®







RockWorks is a comprehensive program that offers visualization and modeling of spatial data and subsurface data. Whether you are a petroleum engineer, environmental scientist, hydrologist, geologist or educator, RockWorks has what you need.

What's New in RockWorks 2022®

RockWorks contains tools that will save time and money, increase profitability and provide you with a competitive edge through high-quality graphics, models and plots. See what's new!

New Features

Mapping

- New raster symbols added to many programs, including borehole location maps, point maps, statistical diagrams and RockPlot3D.
- New contour map color schemes and color legend options are available, including a greatly improved color pallet creator.
- New dynamic filled scalebars are available for RockPlot2D maps.
- Create a total depth grid and contour map through the Borehole Manager based on the base elevation of boreholes.
- Improved spatial filtering for Borehole Manager maps plotting downhole stratigraphic, water level and I/T-Data labels has been added.

Logs, Sections and Profiles

- Improved vertical scalebars can now plot labels showing depth below a datum, and with different settings for the left and right axes.
- Well construction striplogs are now drawn based on the order defined in the well construction type table, making it easier to display overlapping well components.
- Contoured sections and profiles are now drawn much faster.
- Water levels in 2D and 3D striplogs can now be colored based on the aquifer types table.

Borehole Manager Database

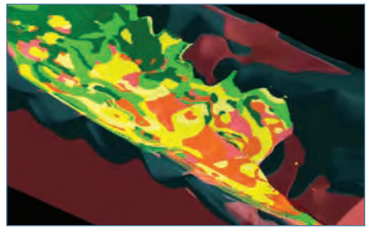
- New backup project tools are available.
- The adjust borehole elevations based on a grid feature now provides options for updating the collar elevation field.
- The Excel, text and CSV data Import options for water levels and I/P/T Data now more easily append data from new sampling events to the database.
- It is now possible to import point Shapefiles into the Borehole Manager database to create new boreholes.

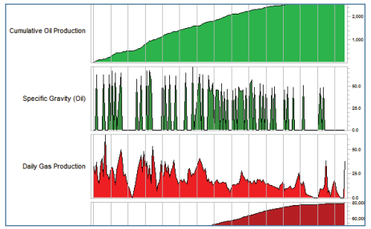
Stratigraphy/Lithology

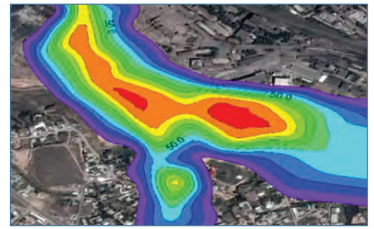
- Use contact data defined in an RwDat file during stratigraphy model creation such as surface contact information (dip angle and direction), geophysical data, seismic data, etc.
- The Stratigraphy Picker now has the option to snap to existing lithology contacts.
- Improved lithology isopach creation, now offering both grid-based and voxel-based tools.

I/P/T Data

- Improvements to the I-Data length composite weighting program, including options to limit the calculations to data between two gridded surfaces and to specify a background grade for missing intervals.
- Improvements to the time graph tools, including the additional spatial and time filters.







What's New Continued

Grid Models

- New Pinchout Filter for limiting the extent of stratigraphic units based on a minimum thickness or polygon file.
- New GeoTIFF import tools to convert DEMs to RwGrd files.
- Redesigned Grid Math interface with new equation options and multi-step calculations.
- New grid data extraction tool extracts data from an RwGrd file based on a list of XY points stored in the datasheet.
- Better null replacement value options are now available during grid creation.

Solid Models

- The Volume 'Extract Via Surface Extraction' program has been redesigned and improved to better calculate stripping ratios for floating cones.
- New resample (fine-to-coarse) program that converts high-resolution solids to low-resolution solids based on chosen options (high, low, average, etc.).
- New fade with depth program decreases model values (i.e., concentrations) below a specific elevation or user-defined surface.
- Redesigned solid math Interface with new equation options and multi-step calculations.
- New solid data extraction tools extract data along a borehole trace or based on a list of XYZ points stored in the datasheet.
- Better null replacement value and smoothing order options are now available during solid model creation.

Faulting

- New 2D Faults for faster modeling and visualization of vertical faults.
- Improved display of contours in faulted sections, profiles and maps.
- New fault import options, including triangulated surfaces and the conversion of contours to a fault surface.

Miscellaneous

- New QAPF Diagram program creates diagrams and igneous rock classifications based on relative mineral abundance data stored in the datasheet.
- The lateral Geo-Steering program has been redesigned to work in conjunction with the Borehole Manager database and datasheet.

RockPlot2D

- New lockable layers, for easier editing of complex diagrams.
- Greatly improved raster and PDF exports.
- Improved shapefile Import that now imports/labels contour lines based on elevations for 3D polylines or attributes.

RockPlot3D

- New copy and paste functionality allow for easily create duplicates of isosurfaces or other items.
- RockPlot3D now stores and uses relative file paths for images, making it easier to share projects or provide RW3D deliverables.
- Grid and solid Metadata is now stored and accessed through RockPlot3D.
- Improved OBJ File export for use with Sketchfab, 3DPDFs and other graphics tools.
- New option to offset items or groups of items in the X, Y or Z directions.

The Playlist

Program Automation

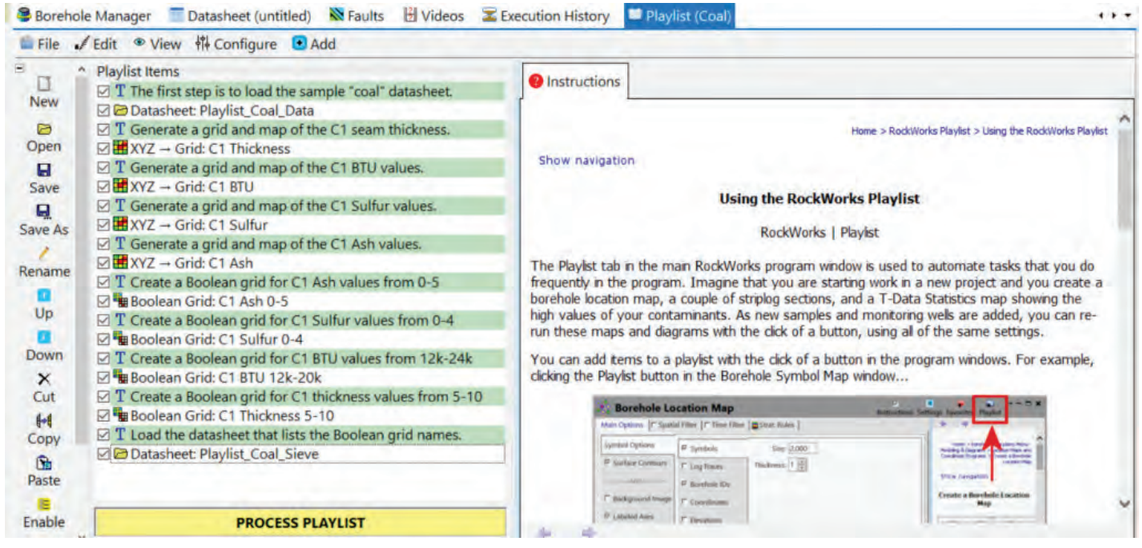
The new RockWorks Playlist offers easy automation – just click a button to add a program to the current Playlist. Then, click a button to run your Playlist to create models, maps, diagrams while you have lunch. Available for Basic (5 items), Standard (5 items) and Advanced (unlimited items).

The Playlist provides:

- **Turn-key tools** for colleagues or clients who need to use RockWorks capabilities without any downtime spent learning how to use it.
- **A memory aid** for projects that are infrequently re-visited.
- **An audit trail** to serve as a record of what was done and all of the associated menu settings.
- **Automation of data processing** in which new data is being introduced on an ongoing basis (e.g. resampling and monitoring).
- A **template** for processing different data sets/sites using a streamlined workflow.

Recent Playlist Improvements:

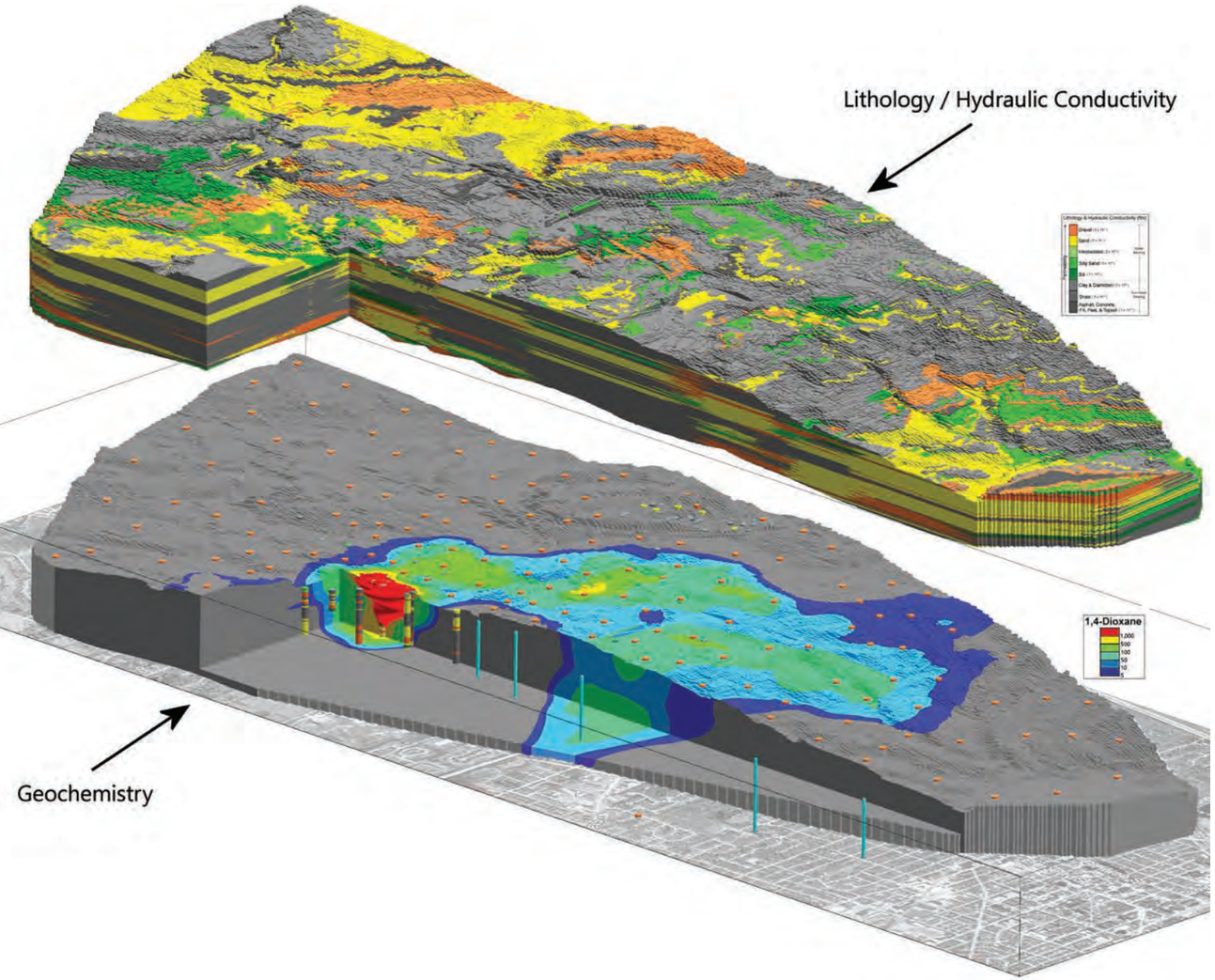
- Improved **Navigation**, with new drag, drop, copy, paste, delete and enable/disable tools.
- Better **Error Handling**, with an option to cancel processing when an error is encountered, or during a standard model run.
- New **Commands**: now includes a tool to Change Project Dimensions and a new Copy File command to create duplicates of existing files in the project.
- New **Manual Editing** tools that allow the user to search and replace through a Text Editor.



New & Improved

Color Legend: NEW IMPROVED

- **Borehole-Related Operations**
  - **Maps**
    - Borehole Symbols
    - Optional Fields
    - Striplog Map
    - Striplogs - Plan View
    - Total Depth Grid
    - Google Earth BH Map Simple
    - Google Earth BH Map Advanced
  - **Striplogs**
    - 2D Striplog
    - 2D PDF Striplog
    - 2D Striplog Profile
    - 2D Striplog Section
    - 2D Projected Log Section
    - 3D Striplog
    - Stratigraphy Fence - Simple
    - Google Earth Logs - Simple
    - Google Earth Logs - Advanced
    - Endpoint Comparison
    - Surface Intersections
    - Lithology Picker
    - Stratigraphy Picker
    - Borehole Survey
    - Datasheet → Borehole Survey
    - Pay Zone → Optimum Path
    - XYZ → Optimum Well Path
    - Lateral Geosteering
  - **Lithology**
    - Lithology Types
    - Solid
    - Surface Map
    - Plan Map
    - 2D Isopach
    - 3D Isopach
    - Superface Grid
    - Subface Grid
    - Profile
    - Section
    - Projected Section
    - Fence
    - Multivariate Map
    - Volumetrics
    - Lithology → I-Data
    - Lithology → I-Data (Table)
    - Consolidate
    - Lithology/Stratigraphy By XY
  - **Stratigraphy**
    - Stratigraphy Types
    - Layered Model
    - Surface Map
    - Plan Map
    - Structure Grid
    - 3D Stratigraphic Contacts
    - Isopach
      - Isopach Map
      - 3D Isopach Diagram
    - Profile
    - Section
      - Linear Correlations
      - Model-Based
    - Projected Section
    - Fence
      - Model-Based
      - Hole-to-Hole
      - ESRI - Model-Based
      - ESRI - Hole-to-Hole
    - Grids Volumetrics
    - Solid Volumetrics
    - Consolidate
    - Fill
    - Grids > 3D Strat. Diagram
    - 3D Exploded Stratigraphy
    - 3D Stratigraphic Quadrants
    - Grids > 3D Stack Diagram
  - **I-Data**
    - I-Data Types
    - Solid
    - Profile
    - Section
      - Hole-to-Hole Interpolations
      - Model-Based
    - Projected Section
    - Fence
    - Surface Map
    - Plan Map
    - Statistics
    - Histogram
    - Statistics Map
    - Volumetrics
    - Length Composite Weighting
    - GT Compositing
    - Resample
  - **T-Data**
    - T-Data Types
    - Solid
    - Multiple Solids
    - Profile
    - Section
      - Hole-to-Hole Interpolations
      - Model-Based
    - Projected Section
    - Fence
    - Surface Map
    - Plan Map
    - Statistics
    - Histogram
    - Statistics Map
    - Time Graph
    - Time Graph Map
    - Billboards
    - Volumetrics
  - **P-Data**
    - P-Data Types
    - Solid
    - Profile
    - Section
      - Hole-to-Hole Interpolations
      - Model-Based
    - Projected Section
    - Fence
    - Surface Map
    - Plan Map
    - Statistics
    - Histogram
    - Histograms by Lithology
    - Statistics Map
    - Standardize
    - Add Random Numbers
    - Logarithmic Conversion
    - CPS → eU3O8 → I-Data
    - GT Compositing
    - Resample
    - Create Predictive Model
    - Apply Predictive Model
  - **Fractures**
    - Solid
    - Surface Map
    - Plan Map
    - Profile
    - Section
    - Projected Section
    - Fence
    - Rose Diagram
    - Rose Map
    - Stereonet
    - Stereonet Map
  - **Aquifers**
    - Aquifer Types
    - Grid-Based Model
    - Plan Map
    - Profile
    - Section
    - Projected Section
    - Fence
    - Hydrograph
    - Hydrograph Map
    - Hydrograph Billboards
  - **Colors**
    - Solid
    - Surface Map
    - Plan Map
    - Profile
    - Section
    - Projected Section
    - Fence
    - Comments → Colors
    - Imagery → Colors
  - **Vectors**
    - Solid
  - **Production**
    - Graph
    - Graph Map
    - Proportional Map
    - 3D Diagrams
    - Billboards
- **Model-Based Operations**
  - **Grid**
    - Create
      - XYZ → Grid
      - XYZ & Dips → Grid
      - Lineations → Grid
      - Polygon List → Grid
      - Single Elevation/Dip → Grid
      - ASCII LIDAR → Grid
      - XYZ → Google Earth Cell Map
      - Grid → 2D Map / 3D Diagram
    - Profile
      - Single Grid
      - Multiple Grids
    - Grids → Profile
    - Section
    - Grid → Fence
    - Grids → Fence
      - Single Grid
      - Multiple Grids
    - Directional
      - Flow Path Map
      - 3D Flow Diagram
      - Flow Table
      - Upgradient Drainage Area
      - Slope Grid
      - Aspect
      - Second Derivative
      - Slope/Aspect Analysis
      - Gradient Vector Map
      - Strike & Dip Map
      - Rose Diagram
      - Stereonet
      - Trend Surface Report
      - Trend Surface Residuals
    - Math
      - Grid Math
      - Grid Intersections
      - Thickness → Mass
      - Resample
    - Statistics
      - Stats - Single Grid
      - Stats - Multiple Grids
      - Grid Metadata
      - Histogram
      - Scattergram
      - Residuals
      - Normalize
      - Standardize
      - Correlate
      - Extract Values From Grid
      - Multivariate Anomalies
    - Grid Filters
      - Boolean
      - Distance Clipping
      - Fill Sinks
      - Gradational Margins
      - Truncate
      - Minimum Area
      - Polygon Clip
      - Range Filter
      - Replace
      - Round
      - Smooth
      - Pinchout Filter
    - Import
      - ASCII (Text)
      - Bitmap (BMP,PNG,JPG,etc.)
      - Digital Elevation Model (DEM)
      - ESRI ASCII Grid
      - Geosoft GXF
      - GeoTiff
      - RockWorks15
      - RockWorks7
      - Surfer
      - ZMAP
      - Custom
    - Export
      - ASCII Matrix
      - ASCII XYZ
      - DXF Matrix
      - GeoSoft
      - ESRI ASCII
      - ESRI Shape File
      - Ohio Scientific
      - RockWorks7 RTM
      - RockWorks Datasheet
      - RockWorks7 BIN
      - Surfer ASCII
      - Surfer/6 Binary
      - Surfer/7 Binary
      - Surfer/8 Binary
      - VistaPro
      - Grids → GWV Matrix
    - Edit
      - Grids → Strat
      - Grids → Solid
      - Mosaic
  - **Solid**
    - Create
      - XYZG → Solid
      - ASCII XYZG → Solid
      - Faults → Boolean Solid
      - Fractures → Solid
      - Images → Solid
      - Polygons → Solid
      - Survey → Solid
    - Display
      - Display as IsoShells
      - Paper Solid
      - Profile
      - Section
      - Projected Section
      - Fence
      - Plan Map
    - Math
      - Solid & Solid
      - Solid & Grid
      - Resample (Coarse-to-Fine)
      - Resample (Fine-to_Coarse)
    - Statistics
      - Report
      - Multiple Solid Statistics
      - Solid Metadata
      - Histogram
      - Normalize
      - Standardize
      - Residuals
      - Scattergram
      - Extract Values From Solid
      - Volumetrics
    - Filters
      - Range Filtering
      - Geobody
      - Surface Stripping
      - Distance Clipping
      - Gradational Margins
      - Fade With Depth
      - Polygon Clipping
      - RockPlot Polygon Filter
      - Solid && Grid(s)
      - Solid && Boolean Grid
      - Merge
      - Replacement Table
      - Replace Nodes
      - Round
      - Smooth
      - Tube
      - Borehole Clipped Solid
      - Fill Voids
    - Logic
      - Solid → Boolean Solid
      - Min. Ore Zone Thickness
      - Min. Total Ore Thickness
      - Maximum Waste
      - Max. Stripping Ratio
      - Mass
    - Extract Grid(s)
      - Solid → Grid
      - Solid → Grids
      - Solid + Grids → Zone Grids
      - Total Ore Thickness Grid
      - Solid → Total Waste Grid
      - Solid Layer → Grid
      - Solid → GT Grid
    - Import
      - microMODEL
      - Other ASCII
      - Grid
    - Export
      - GWV Matrix
    - Other Formats
      - ASCII XYZG
      - NOeSYs
      - Slicer Dicer
      - Voxel Analyst
      - ESRI Shape Point
    - Initialize
      - Grids → Stratigaphic Solid
      - Edit - Slice-By-Slice
      - Edit - As Block Model
  - **Volume**
    - Triangulation Volumetrics
    - Ore Grid
    - Thickness → GT Grid
    - Elevations → GT Grid
    - Extract via Surface Excavation
    - Time-Based Volumetrics
    - Time-Based Math
- **Utilities**
  - **Maps**
    - Point Symbols
    - Triangulation Contours
    - Barcharts
    - Faults (From 2D Fault Table)
    - Infrastructure
    - Land Grid
    - Lineations/Arrows
    - Mining Claims
    - Oil Leases
    - Piecharts
    - Spider Diagrams
    - Starburst Diagrams
    - Single Polyline
    - Multiple Polylines
    - Seismic Shotpoints
    - Single Polygon
    - Polygons
    - Polygons From Table
    - 3-Point Contours
  - **3-D**
    - Points
    - Triangulation Surface
    - Cage
    - Connected Polygons
    - Extract Values From Solid
    - Oriented Samples
    - Perimeter/Wall
    - Polyline/Pipeline
    - Tubes
    - Horizontal Tubes
    - Vertical Tubes
    - LIDAR → Triangle Mesh
    - Triangle Mesh
    - SpherePlot
      - 2D Cylindrical - Points
      - 2D Cylindrical - Polylines
      - 2D Spherical - Points
      - 2D Spherical - Polylines
      - 3D Sphere - Points
      - 3D Sphere - Polylines
  - **Earth**
    - Sample Point Icons
    - Circles
    - Cones
    - Cylinders
    - Lines/Arrows
    - Mining Claims
    - Oil & Gas Leases
    - Parabolic Arrows
    - Parabolic Lines
    - Parabolic Tubes
    - Pipeline - Single
    - Pipelines - Multiple
    - Polyline - Single
    - Polylines - Multiple
    - Polygon - Single
    - Polygons - Multiple
    - Predefined Polygons
    - Tubes
    - Public Land Grid
  - **Hydrology**
    - Drawdown Calculator
    - Drawdown Surface
    - Hydrograph
    - Flowpath Tubes
  - **Hydrochem**
    - Durov
    - Ion Balance
    - Piper
    - Stiff
    - Stiff Map
    - Total Dissolved Solids
  - **Linears**
    - Rose (Frequency)
    - Rose (Length-Based)
    - 2D Endpoints → Bearing, Etc.
    - 3D Endpoints → Bearing, Etc.
    - 3D PrismGram
    - 3D Urchingram
  - **Planes**
    - Stereonet
    - Strike & Dip Map
    - 3D Strike & Dip Discs
    - Google Earth Dip Symbols
    - Google Earth Dip Discs
    - 3-Points → Dip
    - Beta Intersections
    - Beta Pairs
    - Polylines → Planes
    - Rotate Dips
    - Strike → Dip Direction
    - XYZ & Dips → Profile
  - **Stats**
    - Univariate
    - Normalize
    - Standardize
    - Histogram
    - Histogram Matrix
    - Scattergram
    - Ternary
    - Ternary Map
    - XYZ Analysis
    - Variography
    - Sieve Analysis
    - QAPF Diagram
    - Volcanic Classification
    - Random
  - **Survey**
    - XYZ
    - Map
    - 3D
    - Panels
    - Tubes
    - Survey Data → KMZ Points
    - Survey Data → KMZ Polygons
    - Triangulation
    - Setup XY Stations
    - Interpolated Points Along Line
    - Movement Analysis
    - Mining Claim Area
    - Oil Lease
  - **Coords**
    - Quick Locator
    - Convert Point
    - Convert Points
    - Polar → XY
    - XY → Polar
    - XYZ → Polar
    - Azimuths → Quadrants
    - Quadrant → Azimuth
    - Rescale XY Data
    - Rotate XY Data
    - Shift XY
    - Public Land Survey → XY
    - Local Origin Lon/Lat
    - Dates → Stardates
    - Merge Time-Stamped Data
  - **Widgets**
  - **Misc**
    - Copy Files
    - HTML Builder
  - **Graphics**
    - Embellish
      - 3D Diagram
      - Chart
      - Map
      - Profile or Section
  - **2D Tools**
    - Clip
    - Reproject
    - Montage
    - Rescale
    - Import
      - AGL
      - DLG
      - DXF
      - Shape
    - Export
      - DXF
      - EMF
      - KMZ Export
      - MIF
      - PDF - Single
      - PDF - Multiple
      - Raster
      - RP3D
      - Shape
      - WMF
  - **3D Tools**
    - Combine
    - Merge 2 Files
    - Merge 2+ Files
  - **Animate**
    - XYZ → Contour Map Animation
    - XYZ → 3D Surface Animation
    - Grids → Contour Map Animation
    - Grids → 3D Surface Animation
    - Solids → 3D Animation
    - Solids → 3D IsoShell Animation
    - Solid Reveal
    - RockPlot3D File → Animation
    - Images → Animation
    - Slideshow
    - Google Earth Flyovers
      - Camera Looking Forward
      - Camera Looking At Midpoint
      - Spiral From Space
      - Flyover - Simple Tour
      - Command Driven
      - Circular
      - Golf Ball Flight Simulation
      - Clipboard → Circular Flyover
      - Clipboard → Forward Flyover
      - Google Earth Drape Animation
      - Google Earth Float Animation
      - Google Earth Sea-Level Change
  - **Images**
    - Image → Map
    - Drape
    - Float
    - Vertical
      - Single
      - Multiple
      - Single Curved
      - Multiple Curved
      - Vertical Images → XYZG
    - Image Cube
    - Georeference
    - Digitize
    - Reformat/Enhance
    - Google Earth
      - Drape - Single Midpoint
      - Drape - Two Corner Points
      - Drape - Raster Labels
      - Float - Single Midpoint
      - Float - Two Corner Points
      - Vertical - Single Midpoint
      - Vertical - Two Pts. Simple
      - Vertical - Two Pts. Advanced
      - Vertical - 90-Degree Images
      - Legend: Add Image As Legend
  - **Borehole Manager / Import**
    - ADO (ActiveX Data Object)
    - AGS
    - CSV/ASCII Text
    - Colog → P-Data
    - Database Import
    - Excel
    - Fugro CPT
    - Geoprobe DI (Direct Image)
    - gINT
    - GDS
    - IHS Energy Group
    - Kansas Geological Survey
    - LAS (Log ASCII Standard)
    - LogPlot
    - SHP (ESRI Shapefile)
    - Spectrum SC900 CPT
    - Tobin WCS
  - **Datasheet / Import**
    - ASCII (Text)
    - CSV
    - Database Import
    - DBF (dBase,ArcGIS)
    - DXF (AutoCAD) Lines
    - DXF (AutoCAD) Lines & Points
    - Excel
    - Garmin TXT
    - Geonics EM38
    - Google Earth (Clipboard/KML/KM
      - XYZ Coordinates
      - Lineation Coordinates
      - Single Polyline Coordinates
      - Multiple Polyline Coordinates
      - Single Polygon Coordinates
      - Multiple Polygon Coordinates
      - Polygon Corner Coordinates
    - GPL
    - GPX Track
    - GPS Points
    - GSM-19
    - Laser Atlanta (Survey)
    - LAS (Log ASCII Format v1.2-2.0)
    - ModPath (Particle Flowpaths)
    - NEIC (USGS Seismic)
    - SEG-P1 (Shotpoint Locations)
    - SHP (ESRI Shapefile)
    - WCS (Tobin Well Locations)
    - Create File List
  - **Datasheet / Export**
    - ASCII (Text)
    - DBF (dBase,ArcGIS)
    - XLS (Excel)
  - **Fault Manager**
    - 2D Map
    - 3D Diagram
    - Import Dips
    - Import Grid
    - Import Line 2D
    - Import Line 3D
    - Import Polyline 2D
    - Import Polyline 3D
    - Import Contours
    - Import Triangles
    - Import XYZ
    - Export to Triangles
  - Playlist
  - **RockPlot2D / Import**
    - AGL (ASCII Graphics Language)
    - ALG (USGS Digital Line Graph)
    - AXF (AutoDesk Data eXchange Fmt)
    - AOO (ESRI Arc/Info)
    - AHP (ESRI ArcView Shape File)
    - Raster Image (BMP,JPG,PNG,etc.)
  - **RockPlot2D / Export**
    - BMP (Microsoft BitMaP)
    - JPEG (Joint Photo. Experts Group)
    - PNG (Portable Network Graphics)
    - TIFF (Tagged Image File)
    - PDF (Portable Document Format)
    - ESRI Shape Files (shp,shx,dbf)
    - MIF (MapInfo MIF/MID)
    - KMZ (Google Earth Map,Section,etc.)
    - EMF & WMF (MicroSoft Metafile)
    - ReportWorks
    - RockPlot3D
    - Paint Program
  - **RockPlot3D / Import**
    - DXF (AutoDesk Data eXchange Form
  - **RockPlot3D / Export**
    - AVI (Video)
    - Animated GIF
    - Raster (BMP,JPG,PNG,TIF)
    - PDF (Portable Document Format)
    - DXF (AutoDesk Data eXchange Form
    - ESRI Shape Files (shp,shx,dbf)
    - KMZ (Google Earth)
    - DAE (Collada)
    - OBJ (Wavefront/Sketchfab)
  - ReportWorks



Borehole logs, cross sections, concentration maps, plume models, geology models, time-based animations, geochemistry diagrams and more. RockWorks will help the environmental professional along the path from site characterization to remediation planning and execution.

RockWorks 2022®–Environmental

Mapping Tools

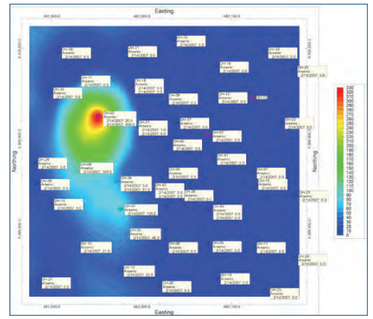
- Borehole location maps with detailed data labels
- Contaminant concentration maps with lines and color fills, custom color tables, date filters
- Plan- and surface-based slices from 3D models
- Stiff diagram maps
- Time-graph maps for user-selected analytes
- Potentiometric surface maps
- Flow maps in 2D and 3D
- Coordinate systems/conversions: lon/lat, UTM, State Plane, local, custom

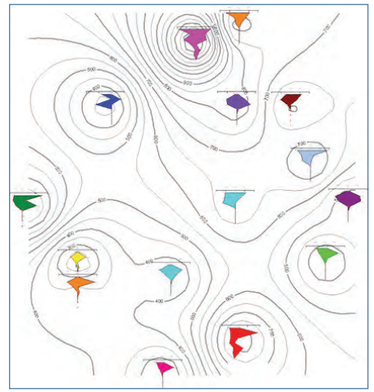
Borehole Database Tools

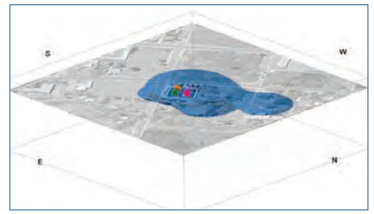
- Cross sections: multi-panel projected and hole to hole, with borehole logs and/or interpolated panels
- Correlations: model-based and “EZ” panels, snapping tools for hand-drawn correlations
- Borehole logs in 2D and 3D
- 3D fence diagrams
- Surface modeling of stratigraphic layers and water levels
- Plume modeling of analytical data, with display as voxel or isosurface diagrams, 2D plan and section slices
- Solid modeling of lithologic materials, geophysical and geotechnical measurements
- Volume reports of lithologic and stratigraphic models, contaminant extraction models
- Bulk data imports from Excel, text, LAS, other databases

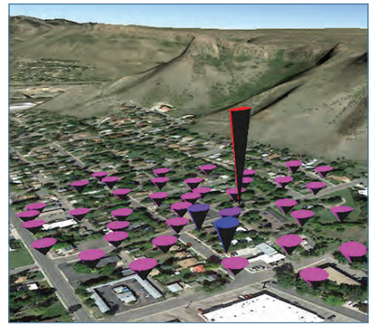
Other Tools

- Time-based animations
- Piper and Durov diagrams with TDS circles, Stiff diagrams for multiple samples
- Water level drawdown diagrams and surfaces
- 2D editing tools: contour lines, text, shapes, legends, images
- Composite scenes in 3D with maps, logs, surfaces, solids, panels, surface objects
- Page layout program for small to large format presentations and posters
- Exports to GIS Shapefiles, CAD DXF, raster formats, Google Earth
- Image import and rectification
- Program automation
- Google Earth output directly from data: points, cones, lines, polygons, images, flyovers

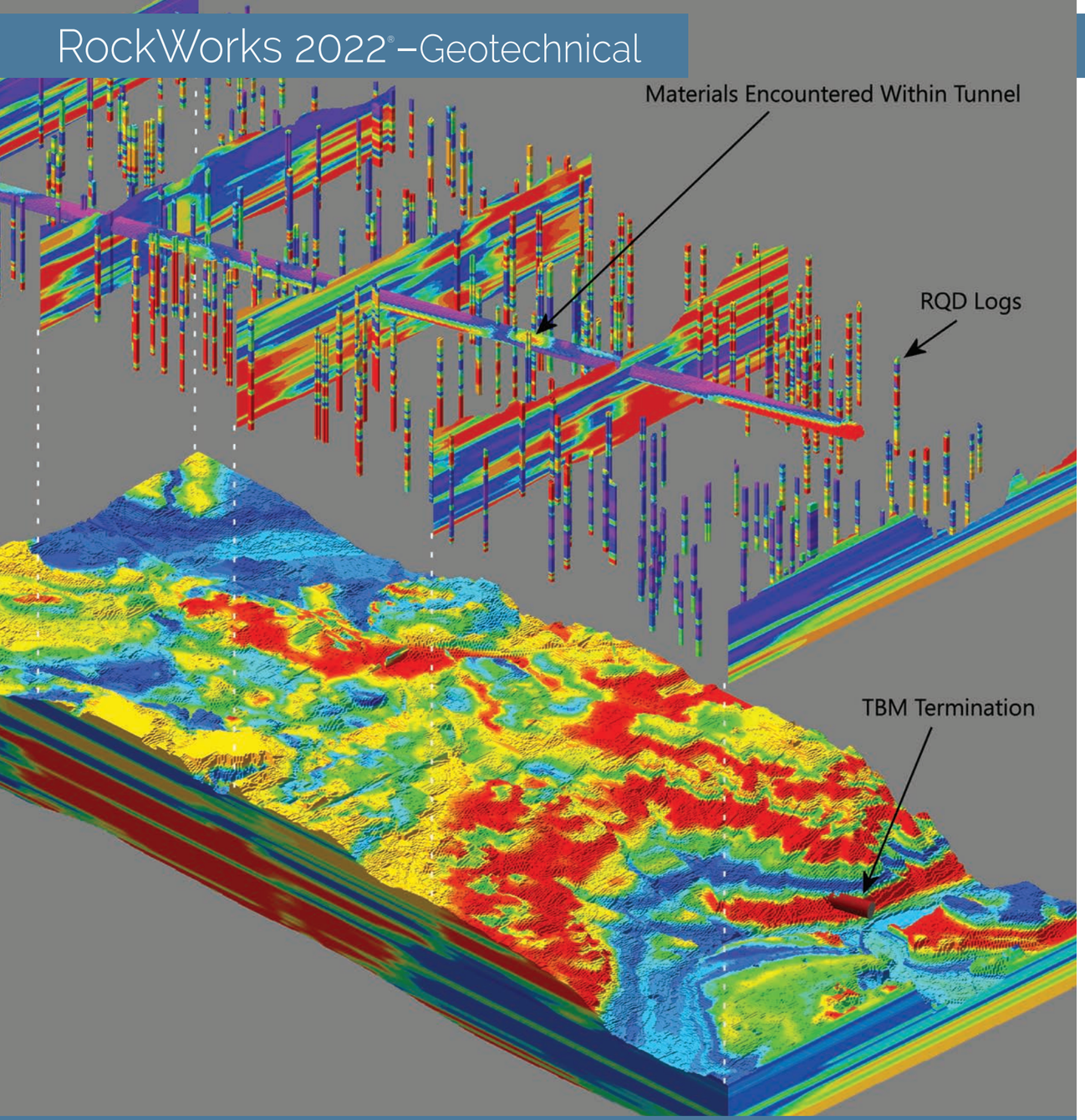








RockWorks 2022®–Geotechnical

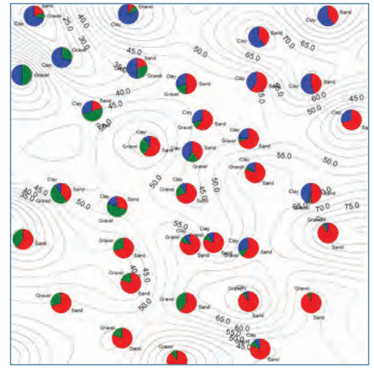


RockWorks offers geotechnical and civil engineers graphical and analytical tools for evaluating construction and excavation sites. Create borehole logs and cross sections, dozens of different types of maps, structural diagrams, geological/geotechnical/fracture/color models, volume reports and more.

RockWorks 2022®–Geotechnical

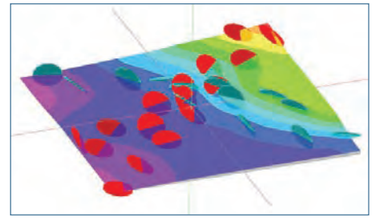
Mapping Tools

- Multiple components in piechart, spider maps
- Point maps with detailed data labels
- Topographic contour maps with lines and color fills, custom color tables
- 3D surface displays
- Strike and dip maps in 2D and 3D
- Coordinate systems/conversions: lon/lat, UTM, State Plane, local, custom



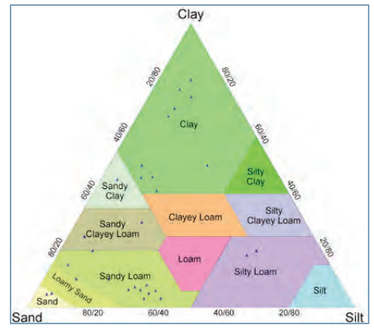
Borehole Database Tools

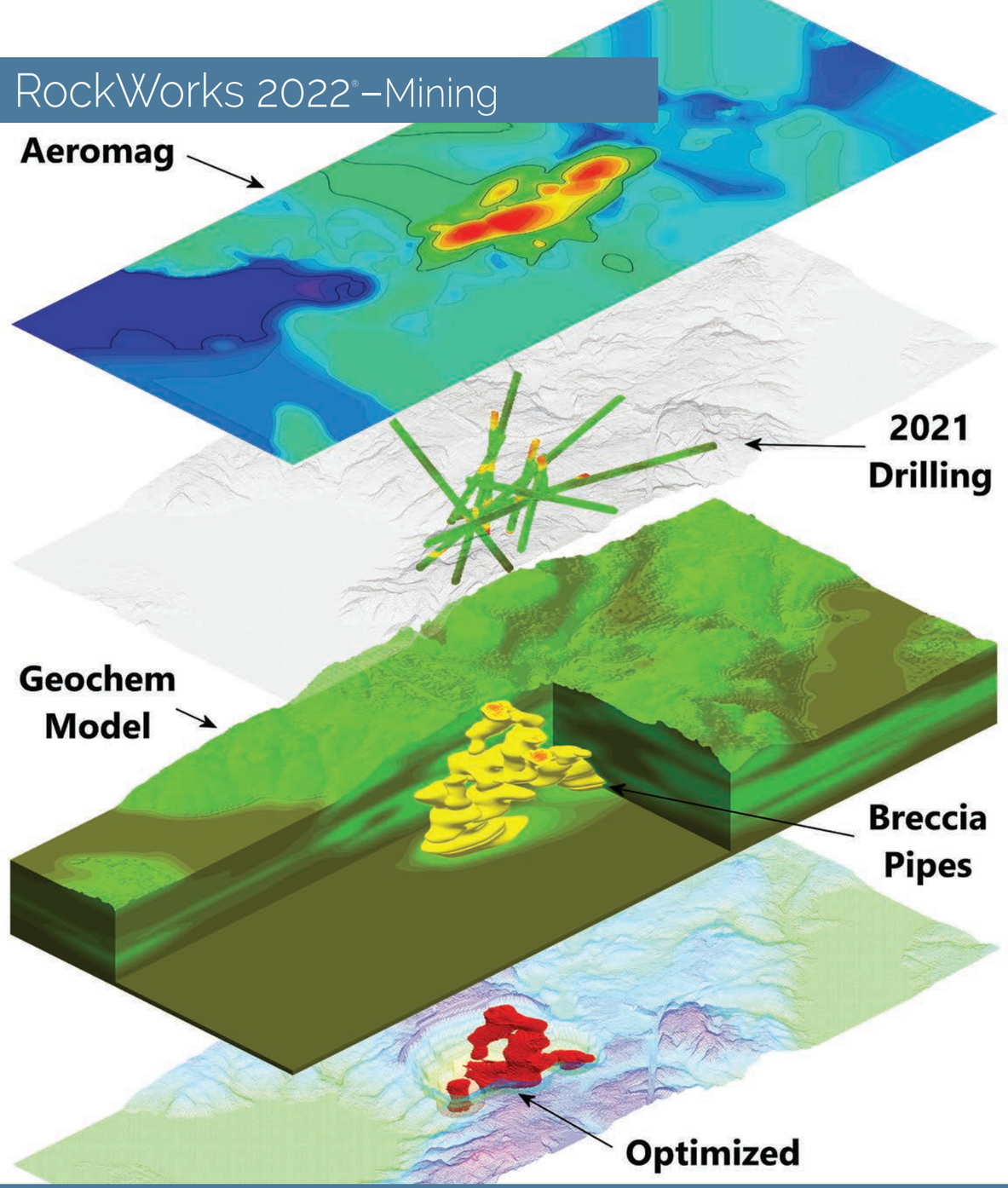
- Cross sections: multi-panel projected and hole to hole, with borehole logs and/or interpolated panels
- Correlations: model-based and "EZ" panels, snapping tools for hand-drawn correlations
- Borehole logs in 2D and 3D
- 3D fence diagrams
- Surface modeling of stratigraphic layers and water levels
- Solid modeling of lithologic materials, fractures, and geophysical, geotechnical, geochemical data, with display as voxel or isosurface diagrams, 2D plan and section slices
- Geology maps: plan slices from stratigraphy or lithology models
- Volume reports of lithologic, stratigraphic, excavation models
- Fracture display and modeling, stereonet maps, rose diagram maps
- Munsell colors for display in logs and interpolation into color models
- Data imports: Excel, AGS, Colog, Fugro CPT, gINT, LAS, Penetrometer, other databases



Other Tools

- Sieve diagrams, ternary diagrams with classification overlays
- Stereonet and rose diagrams
- Slope/aspect analysis on grid models
- Predictive tools: lithology materials from curves, interval data (porosities, strength, cohesion) from lithology
- 2D editing tools: contour lines, text, shapes, legends, images
- Composite scenes in 3D with maps, logs, surfaces, solids, panels, surface objects
- Page layout program for small to large format presentations and posters
- Exports to GIS Shapefiles, CAD DXF, raster formats, Google Earth
- Image import and rectification
- Program automation
- Google Earth output directly from data: points, cones, lines, polygons, images, flyovers





Mining professionals rely on RockWorks point and contour maps, 2D and 3D log displays, projected sections, block model interpolating and editing, detailed volume calculations, and import/export tools in both exploration and production phases of their projects.

RockWorks 2022®–Mining

Mapping Tools

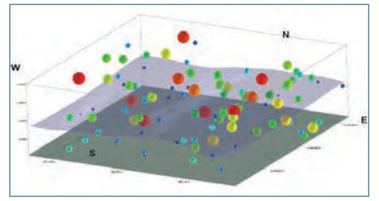
- Drillhole location maps with detailed data labels
- Assay, concentration maps with lines and color fills, custom color tables
- 3D surface displays: topographic surfaces, stratigraphic units
- 3D point maps
- Geology maps: plan or surface-based slices from block models
- Multivariate maps: pie chart, bar chart, starburst, spider maps
- Coordinate systems/conversions: lon/lat, UTM, State Plane, local, custom

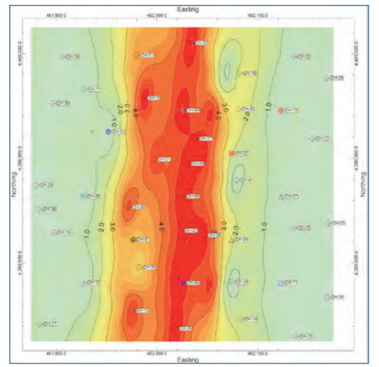
Borehole Database Tools

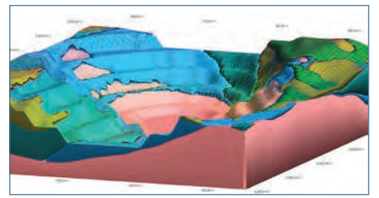
- Projected cross sections showing drillhole orientation
- Correlation panels: stratigraphy, lithology, grade/concentration, geophysics
- Drillhole logs in 2D and 3D with lithology, stratigraphy, bargraphs/disks, curves, color intervals, text
- Block model interpolation from XYZG point or drillhole data, display as voxels, isosurfaces, fence diagrams, 2D plan and section slices
- Surface model interpolation of stratigraphic units
- Downhole fracture display and modeling—closest fracture and closest fracture intersection
- Volume reports of lithologic, stratigraphic models
- Data imports: Excel, LAS, acQuire, Newmont, other databases

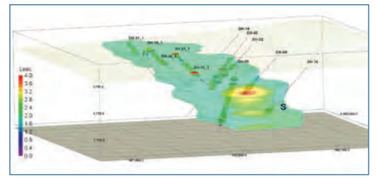
Other Tools

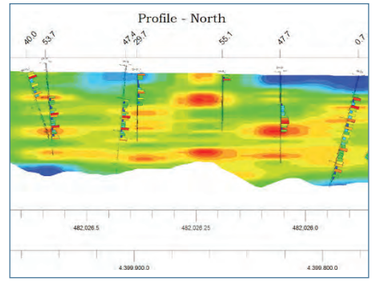
- Block model editor: 3D voxel/polyhedron editor or slice-based
- Volume calculations: grade statistics by level, extraction reports, GT calculators, floating cones model extraction tools
- Fracture display and modeling, stereonet and rose diagrams
- Ternary diagrams, frequency histograms for source data and models
- Graphic output: 2D and 3D output to RockWorks, Google Earth
- 2D editing tools: contour lines, text, shapes, legends, images
- Composite scenes in 3D with maps, drillhole logs, surfaces, blocks, panels
- Page layout program for small to large format presentations and posters
- Exports to GIS Shapefiles, CAD DXF, raster formats, Google Earth
- Image import and rectification
- Program automation

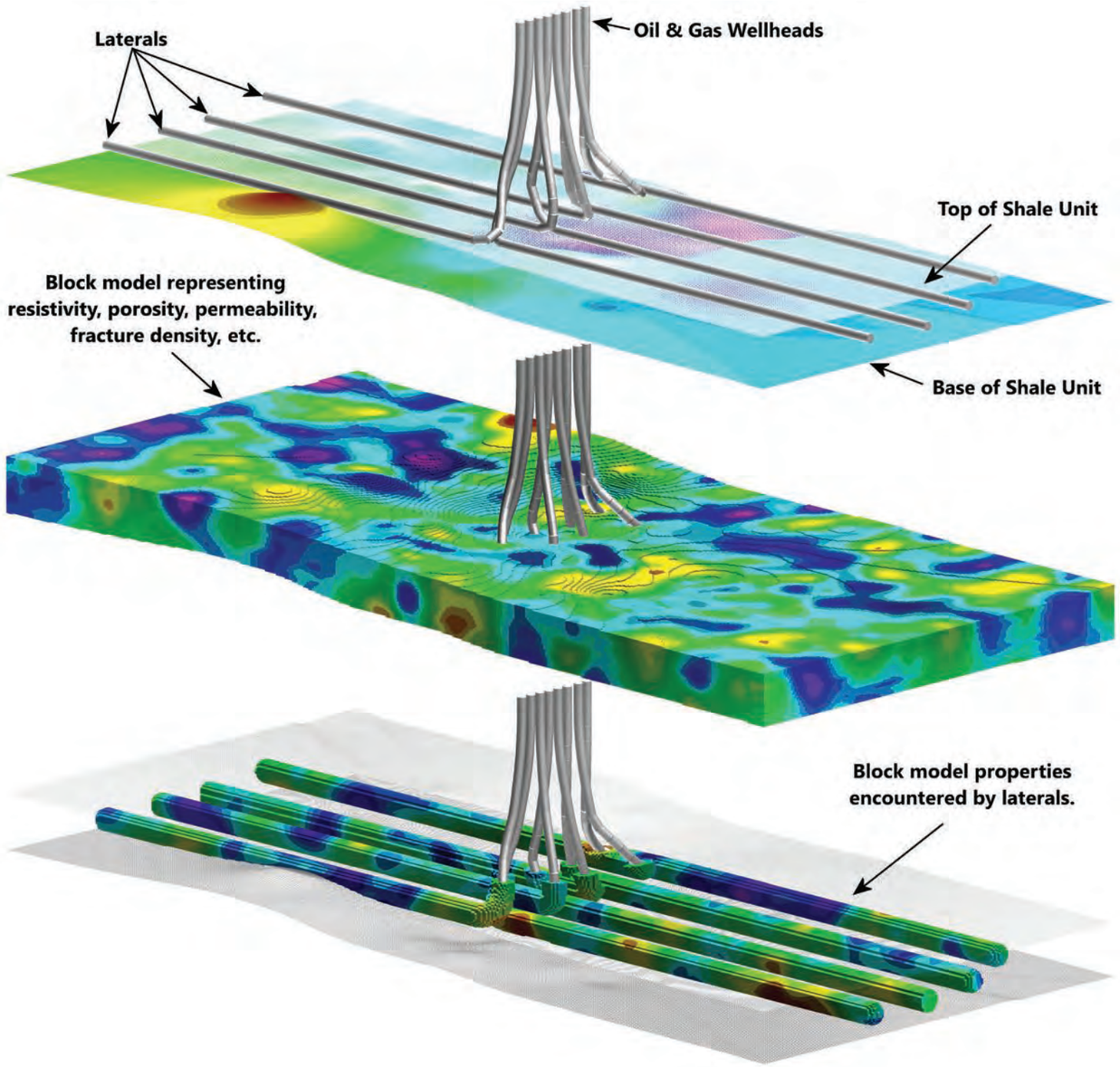












RockWorks gives the petroleum geologist the tools to get the job done: well spotting, mapping (bubble, structure, isopach, land grid, log maps), cross sections, stratigraphic modeling, reservoir modeling and much more.

RockWorks 2022®–Petroleum

Mapping Tools

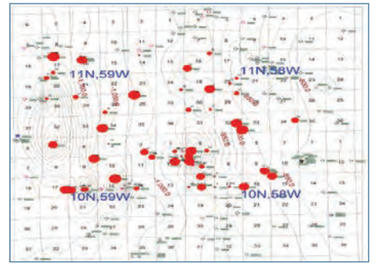
- Structure and isopach maps: contour maps with lines and color fills, custom color tables
- 3D surface displays
- Bubble maps of any well data (production, etc.)
- Well and lease spotting from Range, Township, Section descriptions
- Land grid and lease maps with section boundaries
- Coordinate systems/conversions: lon/lat, UTM, State Plane, local, custom
- Well location maps: customized symbols (e.g. well status), plan-view horizontal well traces
- Gridding algorithms: kriging, triangulation, inverse-distance, trend polynomial
- Grid model tools: filters, math operations, editor, imports and exports

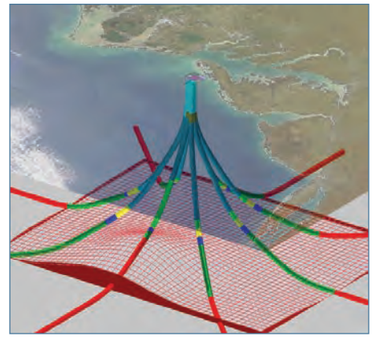
Well Database Tools

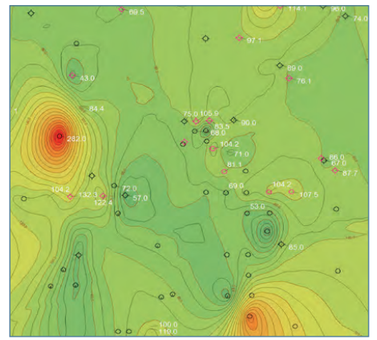
- Cross sections: hole to hole and projected
- 3D fence diagrams
- Correlations: model-based and “EZ” panels
- Horizontal and vertical wells: 2D and 3D, flexible log layout
- Stratigraphic modeling of all/selected formations
- Solid modeling of lithologic, geophysical, geotechnical, geochemical data, with display as voxel or isosurface diagrams
- Geosteering: optimal well paths based on target formations, lateral and 3D displays
- Well database for well locations and miscellaneous well data, formation contacts, raster images, geophysical data, lithology, well construction and production
- Data imports—Excel, LAS, LogPlot, IHS, KGS, Tobin, other databases
- Stratigraphic contacts from digital elog data or raster logs

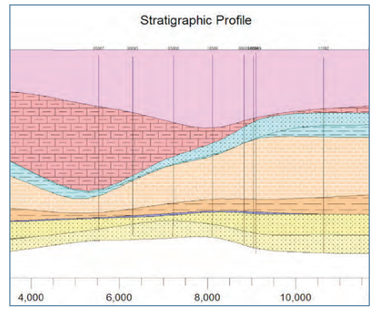
Other Tools

- Structural geology diagrams
- Graphic output: 2D and 3D output to RockWorks, Google Earth
- 2D editing tools: contour lines, text, shapes, legends, images
- Snapping tools for hand-drawn correlations
- Composite scenes in 3D with maps, logs, surfaces, solids, panels, surface objects
- Page layout program for small to large format presentations and posters
- Exports to GIS Shapefiles, CAD DXF, raster formats, Google Earth
- Image import, rectification, depth-registration
- Program automation using the new Playlist feature

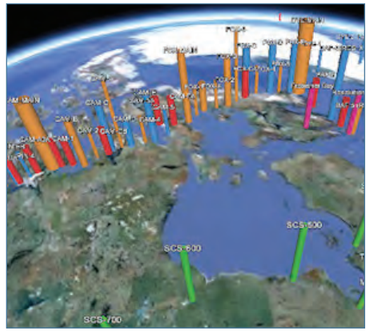








RockWorks 2022® Feature Levels

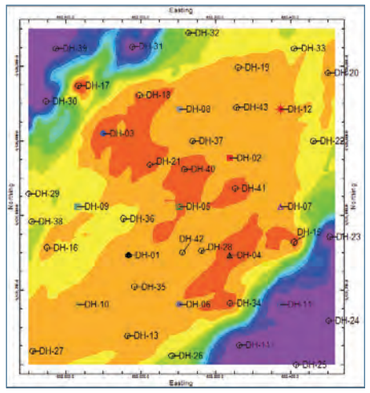


RockWorks is offered with three different feature levels: Basic, Standard, and Advanced.

All three levels include the RockWorks Datasheet and the ModOps, Utilities and Graphics menus. These menus offer numerous programs for mapping XYZ data, modeling XYZG points, creating stereonets and rose diagrams, creating Piper, Stiff and Durov plots, and much more.

All feature levels also include the three Graphic Output programs: RockPlot2D, RockPlot3D and ReportWorks.

All three levels also include the Borehole Manager and its local database for storing and managing borehole-based data.



RockWorks Basic

With Basic, the borehole processing tools are limited to observed data—no modeling: Borehole location maps, 2D and 3D strip logs, and striplog profiles and cross sections. Simple correlation panels are offered for Stratigraphy, I-Data and P-Data in 2D section diagrams. 5 items per playlist and 3 faults.

RockWorks Standard

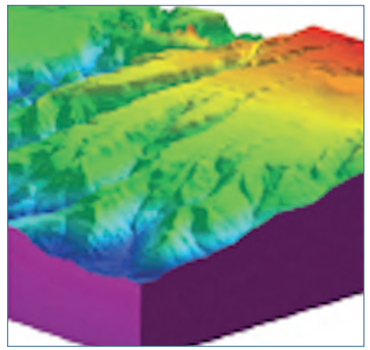
All Basic level tools, plus Borehole Manager modeling: lithology, stratigraphy, geophysical/geochemical/geotechnical, aquifers, colors, fractures. 5 items per playlist, 3 faults.

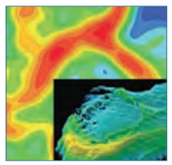
RockWorks Advanced

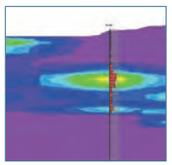
All Standard level tools, plus SQL-server database support, program automation (scripting), Borehole Manager petroleum production diagrams. Unlimited items per playlist, unlimited faults.

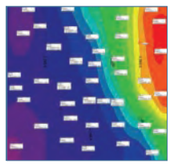
Academic

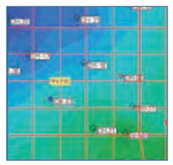
Ask us about our free college curriculum datasets, exercises, and significant academic discounts (see web site). These "canned" classes represent extended versions of the RockWorks training exercises tailored for educators. A great teaching resource. .

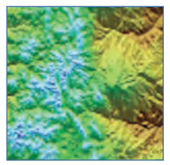


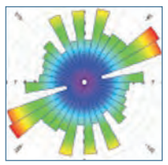








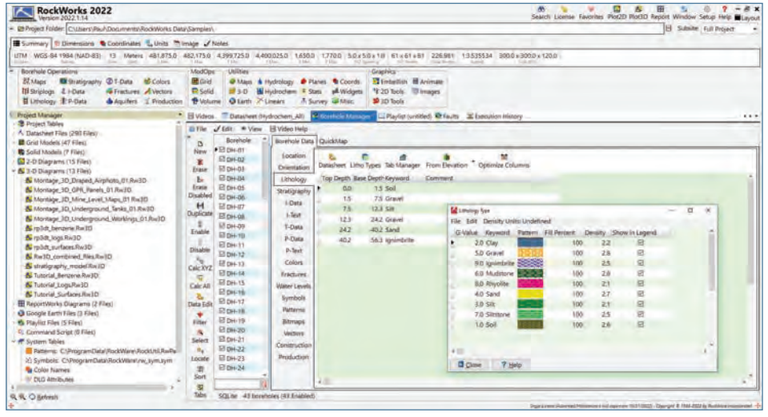


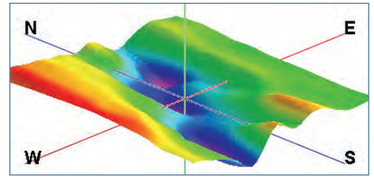


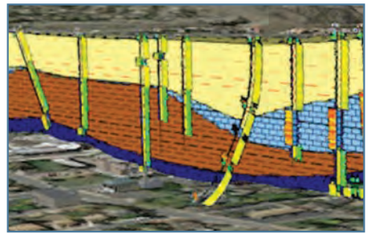
RockWorks 2022® Pricing

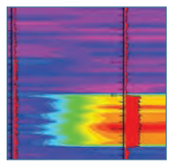
RockWorks Feature Levels	Download free trial at rockware.com		
License Level	**Basic**	**Standard**	**Advanced**
Single License price starting at	$1,500	$3,000	$5,000
-or- Network License price starting at	$2,625	$5,250	$8,750
-or- Annual Rental price	$650	$1,300	$2,200
ModOps, Utilities and Graphics menus	✓	✓	✓
Logs and Sections	✓	✓	✓
Borehole-Based Modeling	—	✓	✓
SQL Server; Command Script Automation	—	—	✓
Playlist Automation	5 items	5 items	unlimited
3D Faults	3 faults	3 faults	unlimited

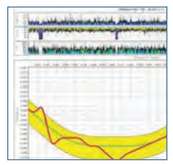
See https://www.rockware.com/product/rockworks/ for Academic Pricing

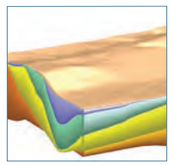












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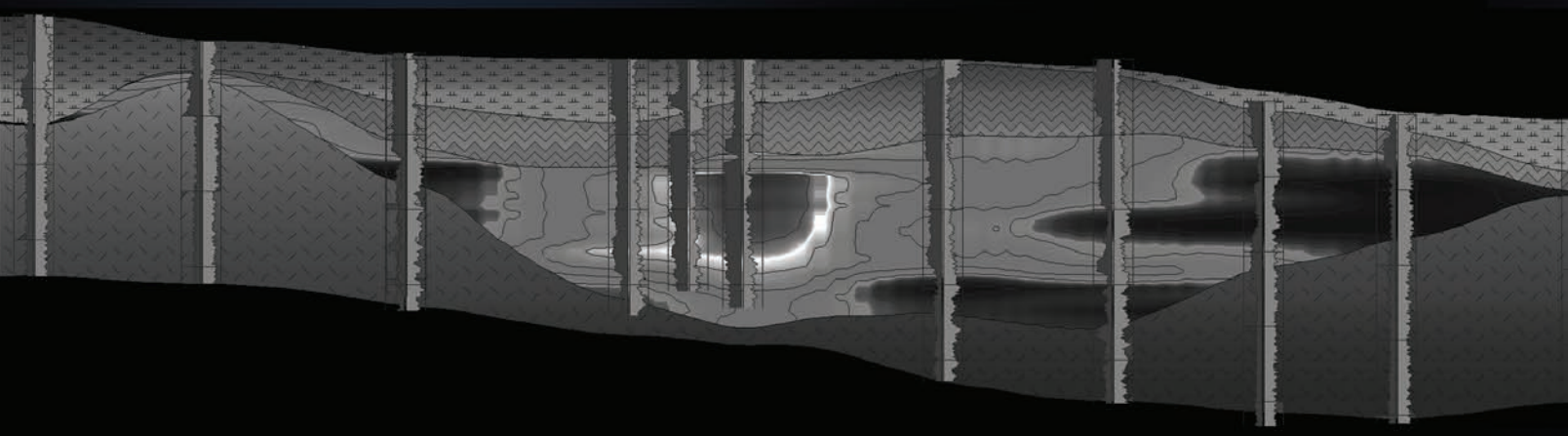

RockWare Training

Too busy to teach yourself? Get up to speed fast with RockWorks training courses.

- Focus on the software for two days—W ITHOUT office interruptions.
- RockWare trainers are both software and industry experts.
- Courses cater to all levels and backgrounds.

Workshops

Workshops are periodically held in Golden Colorado. See RockWare.com for a workshop schedule.

Custom Training

Custom courses can be held onsite in your office, or via the web in an online meeting. Courses can follow a standard curriculum or can be tailored to address client-specific problems and needs.

Email training@rockware.com
or visit rockware.com for pricing and additional information.