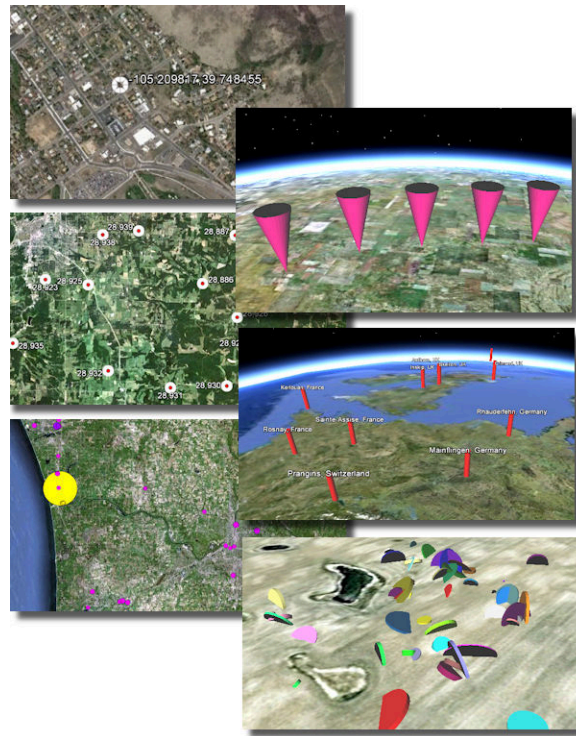


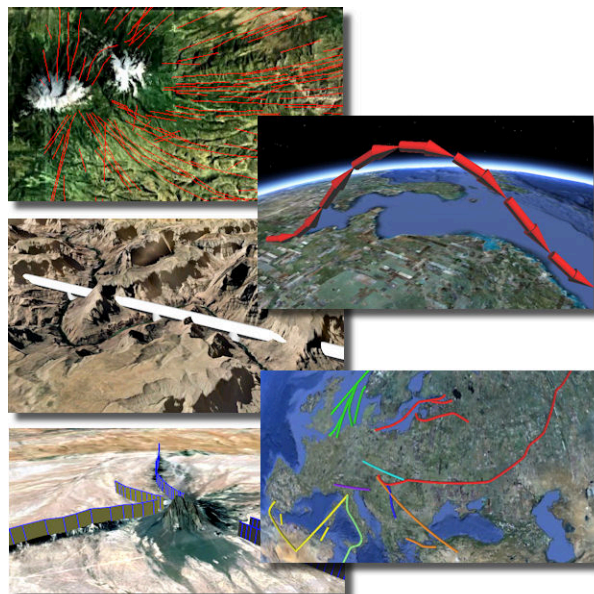
# New Features in RockWorks16

## New RockWorks EarthApps - Output spatial data to Google Earth

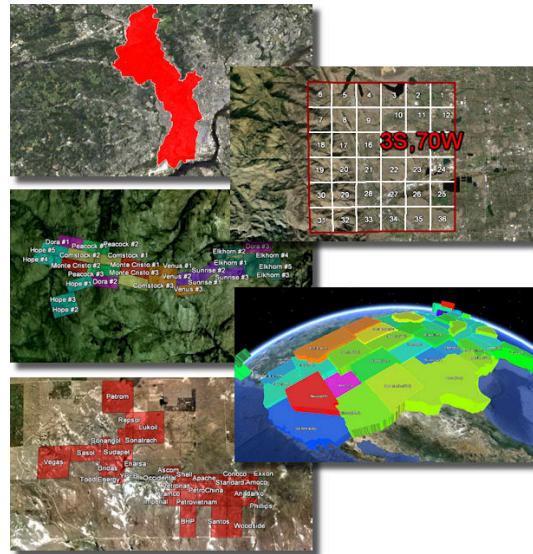
- Point Maps: Display map locations with icons, circles, cones, cylinders, and strike and dip symbols.



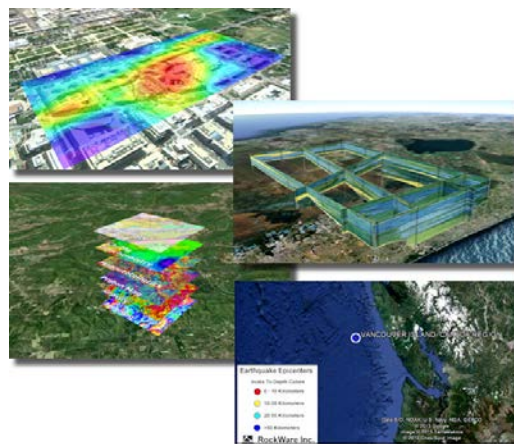
- Line Maps: Display lines, polylines, tubes, parabolas, and pipelines in Google Earth.



- Polygon Maps: Display polygons, claims, leases, PLSS sections, and U.S. state and country outlines in Google Earth.



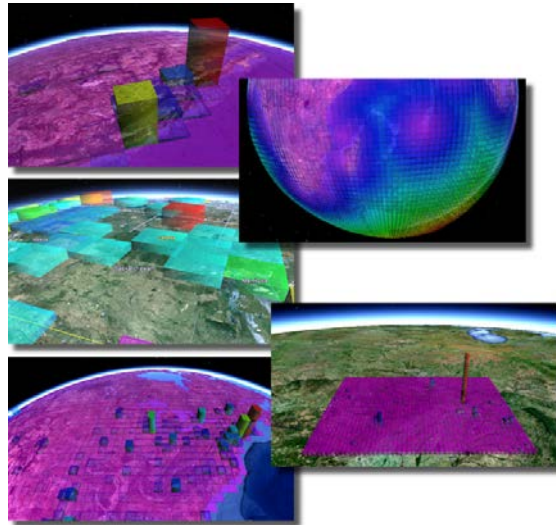
- Images: Display images as draped on the ground, floating, vertical, and as legends.



- Flyovers: Create simple and advanced, forward-looking or circular flyovers in Google Earth.



- Cellmaps: Create maps of spatial data to illustrate highs, lows, averages, weighted averages, etc.



- Survey maps: Compute and display point locations and polygons from survey data.





## New Coordinate Options

- Define project units and coordinate system for new and updated project databases.
- Map (XY) and depth (Z) units can be mixed (e.g. meters and feet).
- Project dimensions now represent Output Dimensions, and units are defined. Area, volume and mass units are also defined.



**Borehole Location Information**

Borehole Name\* DH-01

Symbol  Raster Symbol 

Collar Coordinates Comments Other Coords Optional Driller County

Horizontal: UTM Meters, Datum: WGS-84 (NAD-83), Zone: 13

Easting\* 481,976.2 Meters

Northing\* 4,399,822.3 Meters

Vertical: Meters

Z (Elevation)\* 1,754.5965314 Meters















Collar Elevation\* 1,755.8157314 Meters

Total Depth\* 56.32704 Meters

### Borehole Manager Location Coordinates

- Define units and coordinate system for spatial columns in the utilities datasheet.
- Coordinate conversion options have been added to all import tools.

Datasheet

Row#	Use	ID	Symbol	Easting	Northing	Elevation	Pumping Rate	Well Radius	
				UTM Meters	UTM Meters	Meters	Gallons	Inches	9
1	<input checked="" type="checkbox"/>	DH-01		481,966.1	4,399,815.4	1704.1	5	6	
2	<input checked="" type="checkbox"/>	DH-02		482,083.9	4,399,918.1	1711.2	5	6	
3	<input checked="" type="checkbox"/>	DH-03		481,936.5	4,399,944.1	1704.3	5	6	
4	<input checked="" type="checkbox"/>	DH-04		482,083.9	4,399,815.4	1708.3	5	6	
5	<input checked="" type="checkbox"/>	DH-05		482,025.2	4,399,866.9	1706.7	5	6	
6	<input checked="" type="checkbox"/>	DH-06		482,025.2	4,399,763.8	1704.0	5	6	
7	<input checked="" type="checkbox"/>	DH-07		482,143.0	4,399,866.9	1714.5	5	6	
8	<input checked="" type="checkbox"/>	DH-08		482,025.2	4,399,969.7	1707.8	5	6	
9	<input checked="" type="checkbox"/>	DH-09		481,907.0	4,399,866.9	1704.3	-100	6	
10	<input checked="" type="checkbox"/>	DH-10		481,907.0	4,399,763.8	1703.3	5	6	
11	<input checked="" type="checkbox"/>	DH-11		482,143.0	4,399,763.8	1710.0	25	6	
12	<input checked="" type="checkbox"/>	DH-12		482,143.0	4,399,969.7	1717.4	5	6	
13	<input checked="" type="checkbox"/>	DH-13		481,964.8	4,399,730.7	1701.9	5	6	
14	<input checked="" type="checkbox"/>	DH-14		482,094.8	4,399,720.5	1704.6	5	6	

### Utilities datasheet - coordinate headings

- Relabel coordinates for existing data/projects.
- Reproject coordinates for existing data/projects.
- Volume reports use project units

Reproject Coordinate System

**Reproject Project Coordinate System and Units**

Select the coordinate system and units to store your data and create your output. This will change the coordinate system or units and convert the data in the database.

Project Coordinates

Data

Horizontal Coordinates and Units

☐ Local (Custom)

☐ State Plane

☒ UTM

Eastings and Northings are in the Universal Transverse Mercator coordinate system. Please specify the Datum, Zone and units.

WGS-84 (NAD-83) Meters

Zone = 13 (Northern Hemisphere)

Vertical Units

The units representing the Elevation, Collar Elevation and all Depths. Meters

Output

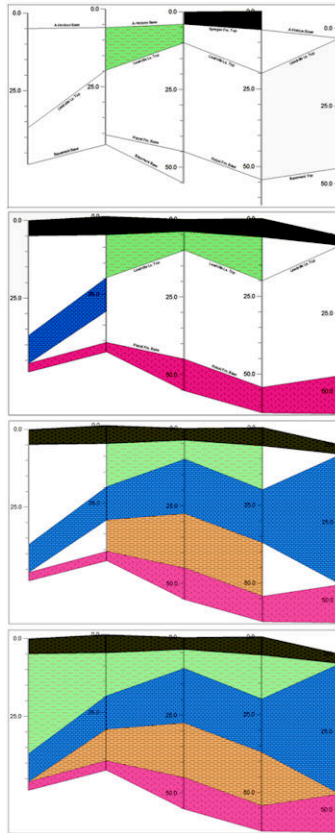
Horizontal: UTM Meters - Datum = WGS-84 (NAD-83), Zone = 13 (Northern Hemisphere); Vertical: Meters

Finish Cancel Help

### Relabel or reproject coordinates

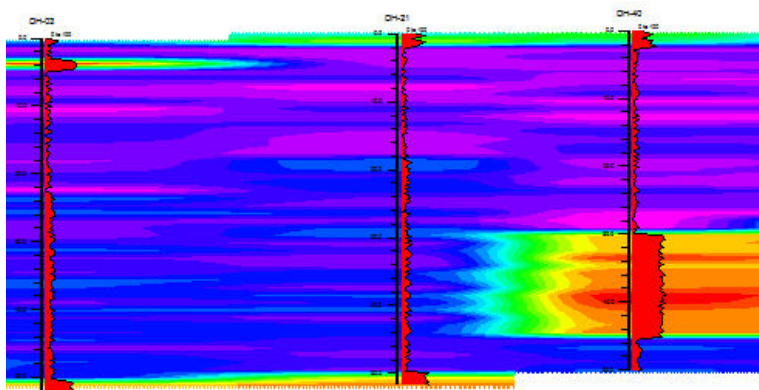
## New Diagram Types and Improvements

- New Stratigraphy Rules provide smarter cross sections and stratigraphy models.



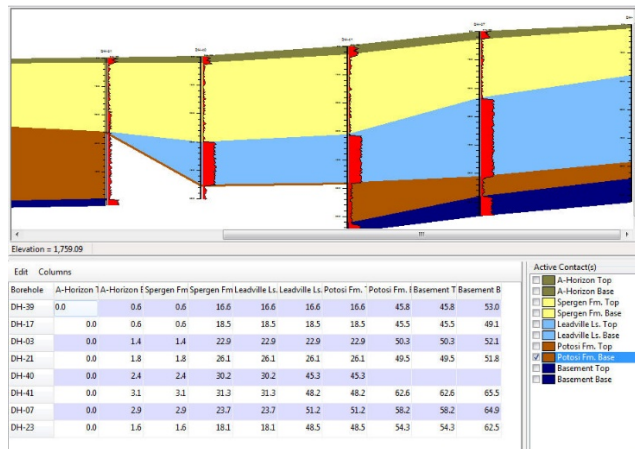
*Stratigraphic Cross Section*

- "EZ" P-Data, I-Data, Stratigraphy correlation panels in striplog sections.



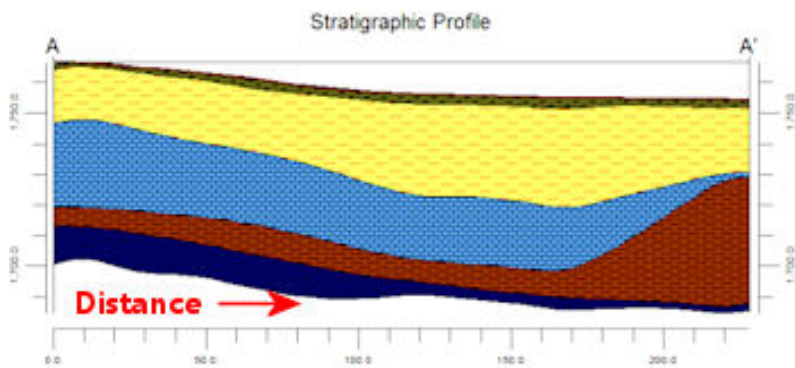
*P-Data correlations in log sections*

- Improvements to the Stratigraphy Picker and Lithology Picker programs



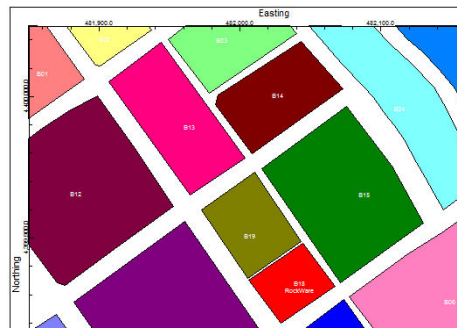
*RockWorks stratigraphy picker*

- Display faults in sections and profiles
- Distance labels -or- coordinate labels in profile diagrams



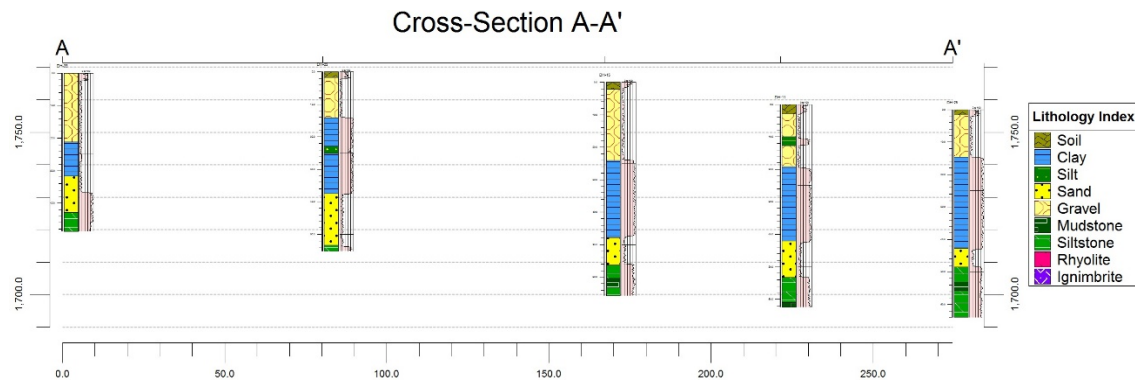
*Distance labels in Stratigraphy Profile*

- Claim area and lease area calculators
- Polygon maps: multiple polygons, claim maps



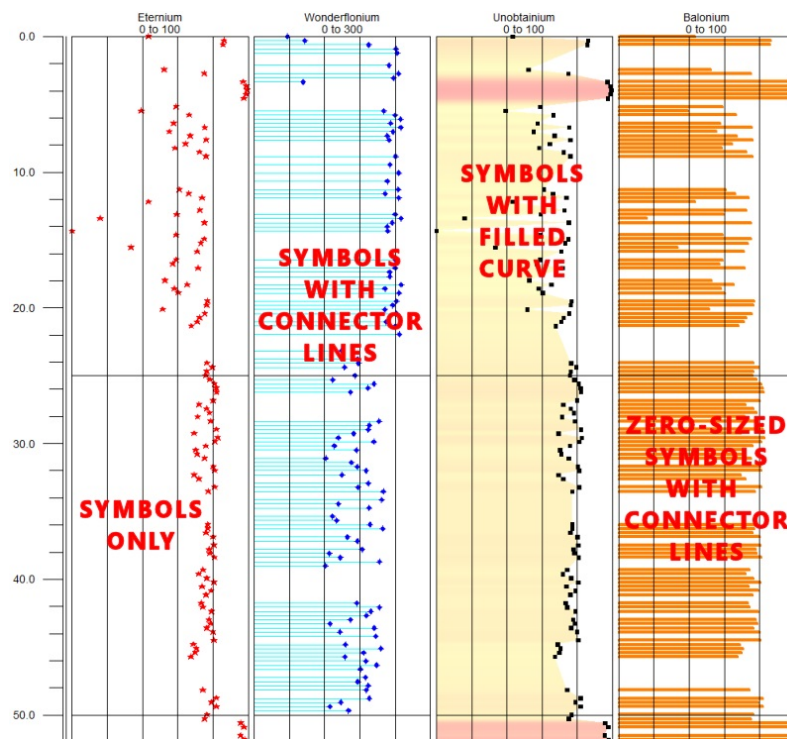
*Polygon Map*

- Automatically plot Horizontal Reference Lines on Sections and Profiles.



*Horizontal Reference Lines in cross-section.*

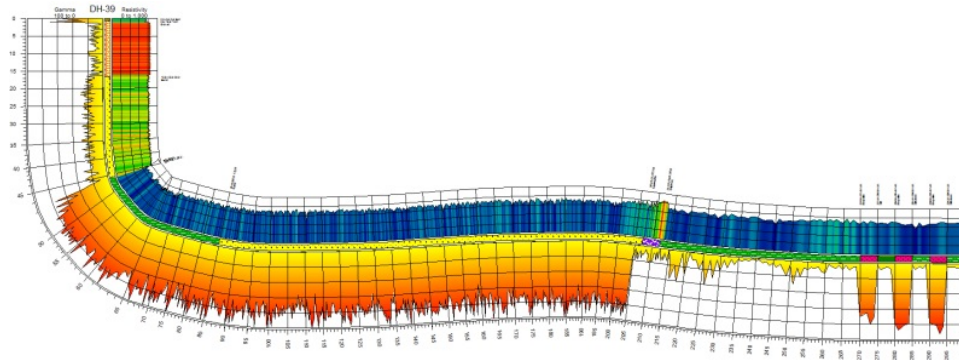
- New option to plot symbols with curves or connecting lines based on P-Data.



*New Symbol Options can be used to show geophysical data, geotechnical parameters, and more.*

## Striplogs

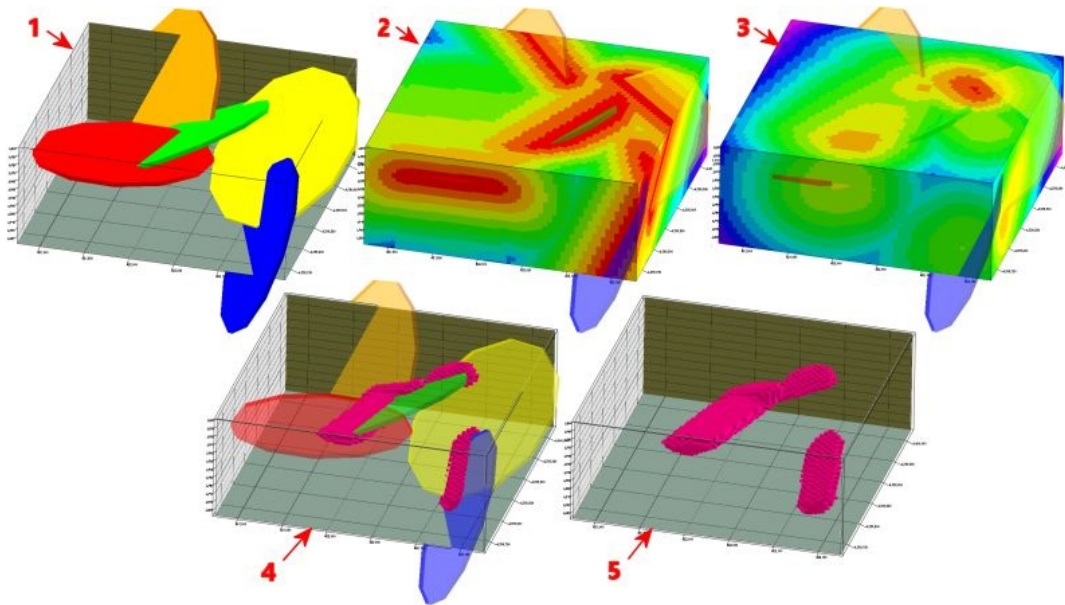
- New color-fill options for 2D Curves. Fill in either the vertical or horizontal directions.



*New colorfill options for 2D striplog curves.*

## Modeling

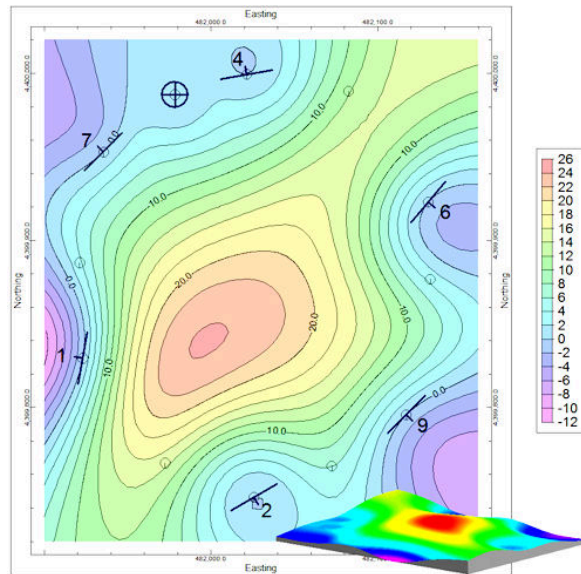
- Model Distance to Closest Intersection based on fracture data.



*Fracture Modeling in RockWorks16*

- Dip Gridding biases the surface modeling based on the dip-direction and dip-angle of the control points.





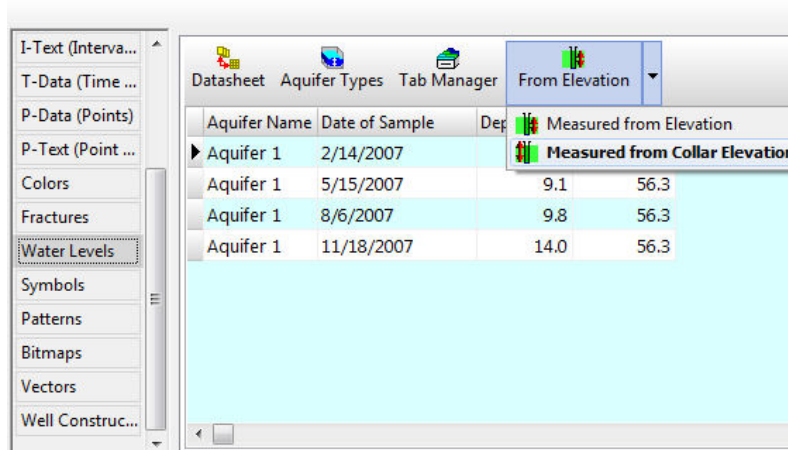
*RockWorks Dip Gridding*

## Borehole Manager Features

- New layout of the Location tab – better organization.
- Customized Location fields on their own "groups" or tabs for great flexibility,

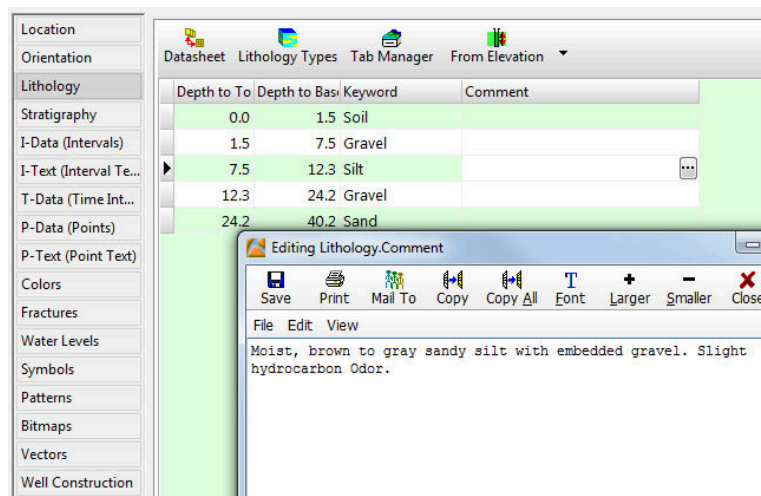
*Borehole Manager Location tabs for custom fields*

- Improved hole sorting options so enabled can show at top and boreholes can be easily grouped.
- Search for boreholes, hide disabled holes.
- Each database table can be referenced to the ground or collar elevations.



*Choose ground or collar elevation for each borehole table*

- Lithology, Stratigraphy, Water Level, Well Construction descriptions and Comments are now "memos" with unlimited content.



*Longer "memo" descriptions*

- Easily re-order I-Data, T-Data, P-Data, I-Text, P-Text columns (and they'll be remembered). Hide them, too.

## EarthApps and Utilities Datasheet

- Row checkboxes – unchecked items will not be processed.
- Filter rows based on Output Dimensions and Polygons.

Row#	Use	Name	X1	Y1	X2	Y2	X3	UTM
			UTM Meters	UTM Meters	UTM Meters	UTM Meters	UTM Meters	UTM
1	<input type="checkbox"/>	Comstock #1	577,976.4	4,538,508.36	578,013.52	4,538,679.88	578,463.33	4,538,850.15
2	<input type="checkbox"/>	Comstock #2	577,512.34	4,538,604.83	577,556.67	4,538,777.96	578,013.52	4,538,850.15
3	<input type="checkbox"/>	Comstock #3	578,406.52	4,538,182.39	578,426.78	4,538,373.64	578,890.52	4,538,963.85
4	<input type="checkbox"/>	Monte Cristo #	578,441.86	4,538,476.15	578,463.33	4,538,644.51	578,908.85	4,538,963.85
5	<input checked="" type="checkbox"/>	Monte Cristo #	577,411.41	4,538,444.09	577,456.75	4,538,614.38	577,976.4	4,538,850.15
6	<input checked="" type="checkbox"/>	Monte Cristo #	578,426.78	4,538,373.64	578,441.86	4,538,476.15	578,897.95	4,538,963.85
7	<input type="checkbox"/>	Peacock #1	577,785.79	4,538,728.34	577,827.21	4,538,911.01	578,044.55	4,538,963.85
8	<input checked="" type="checkbox"/>	Peacock #2	578,013.52	4,538,679.88	578,044.55	4,538,874.15	578,253.57	4,538,850.15
9	<input type="checkbox"/>	Peacock #3	577,876.06	4,538,334.61	577,907.32	4,538,526.43	578,441.86	4,538,963.85
10	<input checked="" type="checkbox"/>	Hope #1	577,583.79	4,538,017.49	577,527.85	4,538,198.69	577,954.64	4,538,850.15
11	<input checked="" type="checkbox"/>	Hope #2	577,350.53	4,537,596.88	577,298.99	4,537,763.71	577,740.41	4,537,911.01
12	<input checked="" type="checkbox"/>	Hope #3	577,298.99	4,537,763.71	577,242.48	4,537,933.97	577,684.66	4,537,911.01
13	<input checked="" type="checkbox"/>	Hope #4	576,958.16	4,538,539.38	577,013.06	4,538,706.49	577,456.75	4,538,850.15
14	<input checked="" type="checkbox"/>	Hope #5	577,069.92	4,538,694.67	577,113.06	4,538,872.3	577,556.67	4,538,850.15

*RockWorks Utilities Datasheet*

- New column types in the Utilities datasheet.
- Specify coordinates and units.

**Content Type & Units**

**Generic Data**

☐ Text ☐ Date

**Geographic/Spatial Data**

☒ X or Y Coordinate

UTM Meters

☐ Linear (Z) Dimension

Meters

☐ Meridian

**Graphic Data**

☐ Color ☐ Pattern ☐ Vector Symbol

☐ Line Type ☐ Raster Symbol

**Linked Data**

☐ Hyperlink ☐ Image Name ☐ XYZ Table

☐ File Name ☐ RwDat File

**Other Units**

☐ Area: Square Meters

☐ Density: Grams Per Cubic Centimeter

☐ Mass: Kilograms

☐ Volume: Cubic Meters

*Utilities and EarthApps datasheet column types*

- Store metadata with your datasheets.

Row#	Use	ID	Symbol	Easting	Northing	Elevation	Sand	Gravel	Clay	Ca	Mg
				UTM Meters	UTM Meters	Meters					
1	<input checked="" type="checkbox"/>	DH-01	▲	481,972.24	399,823.9	1478.0	70	30	0	52	39
2	<input checked="" type="checkbox"/>	DH-02	■	482,075.84	399,914.6	1480.0	70	5	25	48	40
3	<input checked="" type="checkbox"/>	DH-03	●	481,946.14	399,937.5	1484.0	20	50	30	42	45
4	<input checked="" type="checkbox"/>	DH-04	▲	482,075.84	399,823.9	1480.0	60	10	30	70	64
5	<input checked="" type="checkbox"/>	DH-05	■	482,024.24	399,869.3	1480.0	70	20	10	16	40
6	<input checked="" type="checkbox"/>	DH-06	●	482,024.24	399,778.3	1515.0	60	40	0	89	69
7	<input checked="" type="checkbox"/>	DH-07	▲	482,127.84	399,869.3	1470.0	50	5	45	93	57
8	<input checked="" type="checkbox"/>	DH-08	●	482,024.24	399,960.1	1480.0	50	20	30	51	42
9	<input checked="" type="checkbox"/>	DH-09	■	481,920.24	399,869.3	1490.0	40	50	10	72	51
10	<input checked="" type="checkbox"/>	DH-10	▲	481,920.24	399,778.3	1492.0	70	30	0	91	51
11	<input checked="" type="checkbox"/>	DH-11	■	482,127.84	399,778.3	1443.0	95	5	0	39	46
12	<input checked="" type="checkbox"/>	DH-12	●	482,127.84	399,960.1	1503.0	45	0	55	12	80
13	<input checked="" type="checkbox"/>	DH-13	▲	481,971.04	399,749.1	1479.0	80	20	0	62	58
14	<input checked="" type="checkbox"/>	DH-14	■	482,085.44	399,740.1	1495.0	80	10	10	61	42
15	<input checked="" type="checkbox"/>	DH-15	●	482,141.74	399,836.3	1452.0	90	5	5	85	93

Columns: 1 Rows: 1 Rows: 98 C:\Users\ROCKWARE\Documents\RockWorks16 Data\Samples\Soil\_Properties\_01.rwDat

**Additional File Information**

Numeric Format

Decimal Separator: .

Thousands Separator: ,

Datum = WGS-84 (NAD-83)

Zone = 13 (Northern Hemisphere)

**Notes (Metadata)**

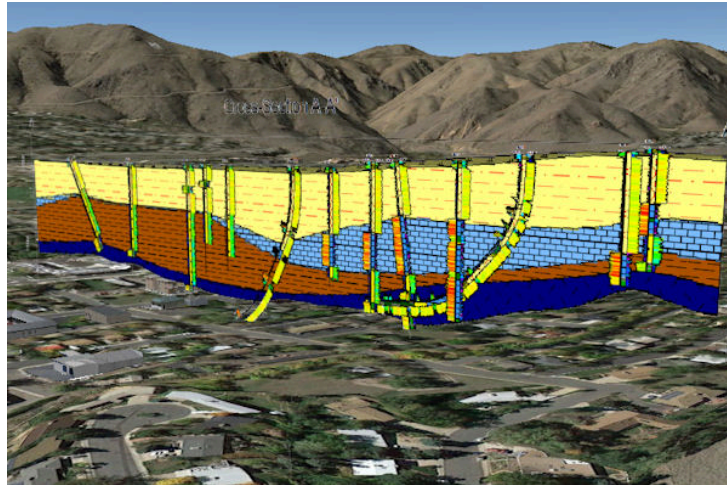
Soil Properties  
Johnson Site

*Utilities & EarthApps datasheet - metadata*

- Specify numeric format (regional numbering systems).
- Save / load datasheet layout templates.

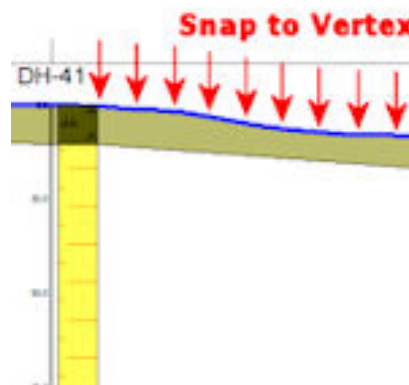
## RockPlot2D Updates

- Expanded Google Earth export tools - export cross sections as vertical panels, maps as floating or draped, etc.



*RockWorks cross section in Google Earth*

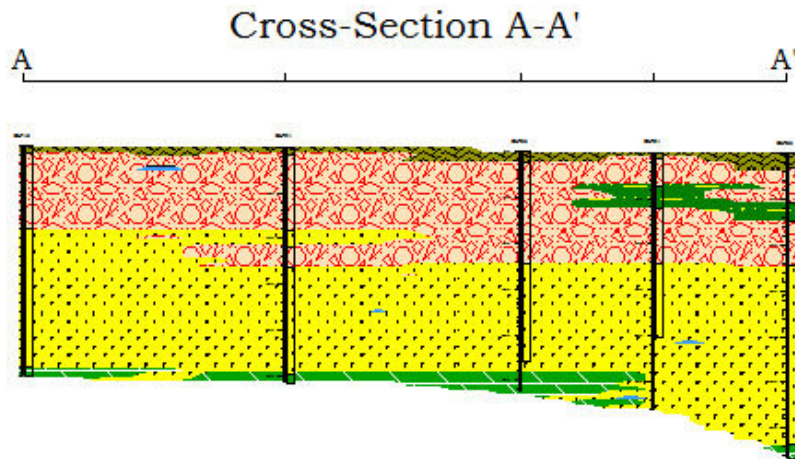
- Diagram type saved in RockPlot2D files: unknown, map, section/profile, chart
- Diagrams store coordinate system and units.
- New tools in RockPlot2D to hand-draw correlation panels. Includes "snap" nodes in logs, snap to lines.



*Snapping tools in RockPlot2D*

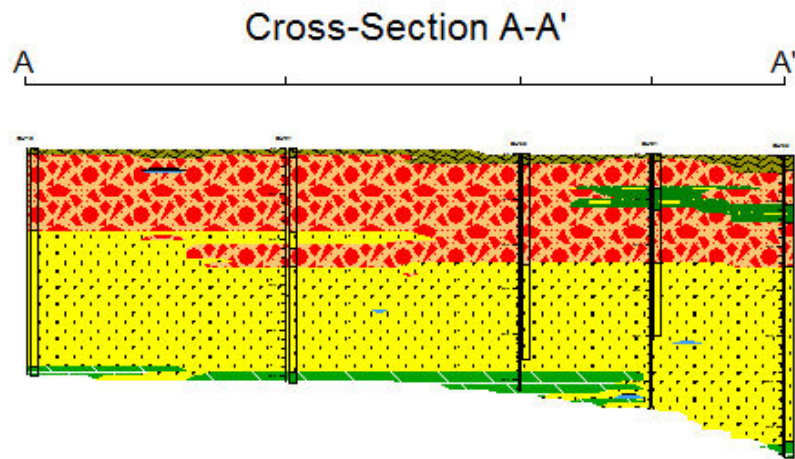
- Add vertices to polygons and polylines
- Establish a default font for 2D graphics; edit them individually in the plot window.





*Fonts in RockWorks 2D Diagrams*

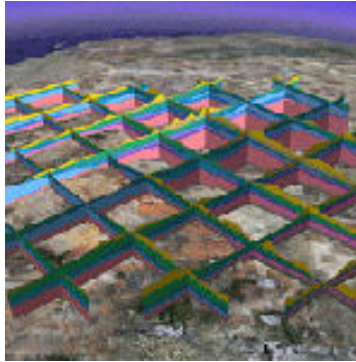
- Apply transparency to color-filled or pattern-filled polygons.
- 2D color legends include scientific notation and prefixes & suffixes
- Now include fills in vector patterns!



*RockWorks cross section with fills in vector pattern*

## RockPlot3D Updates

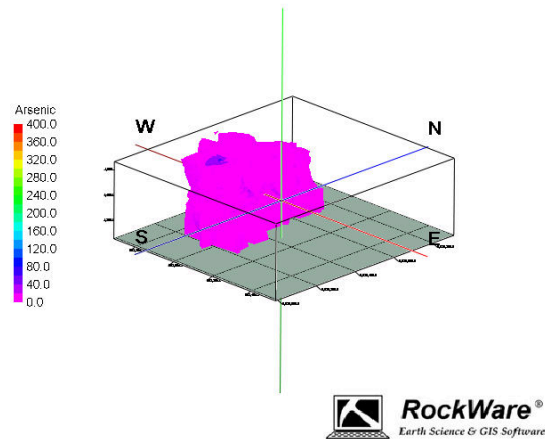
- Color schemes for 3D diagrams can be defined before they are created.
- Expanded Google Earth export tools.



*RockPlot3D - 3D Fence exported to Google Earth*

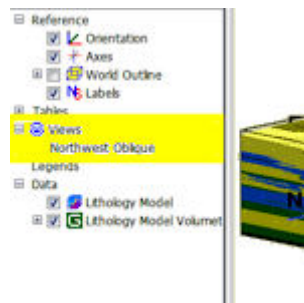
- Add titles and logos to 3D scenes.

Arsenic Feb 14



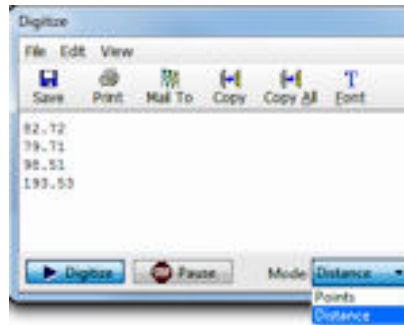
*RockPlot3D logos and labels*

- Extract grid models from Rw3D scenes.
- Store one or more viewpoints for quick restoring of view position and angle.



*RockPlot3D – Save Viewpoints*

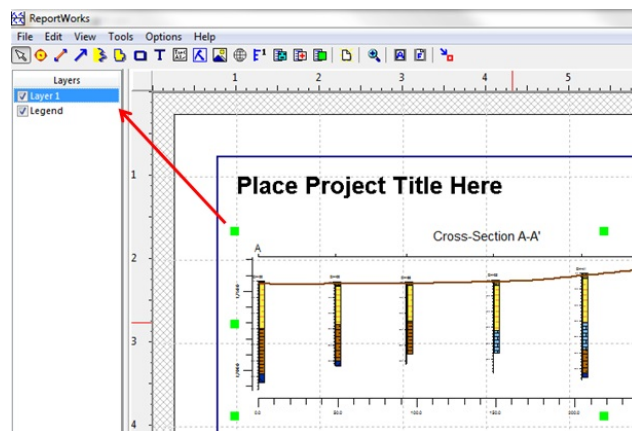
- Save Vertical Exaggeration in Rw3D scenes.
- Capture distance as well as XYZ coordinates in RockPlot3D window.



*Digitize coordinates and measure distances in RockPlot3D*

## ReportWorks

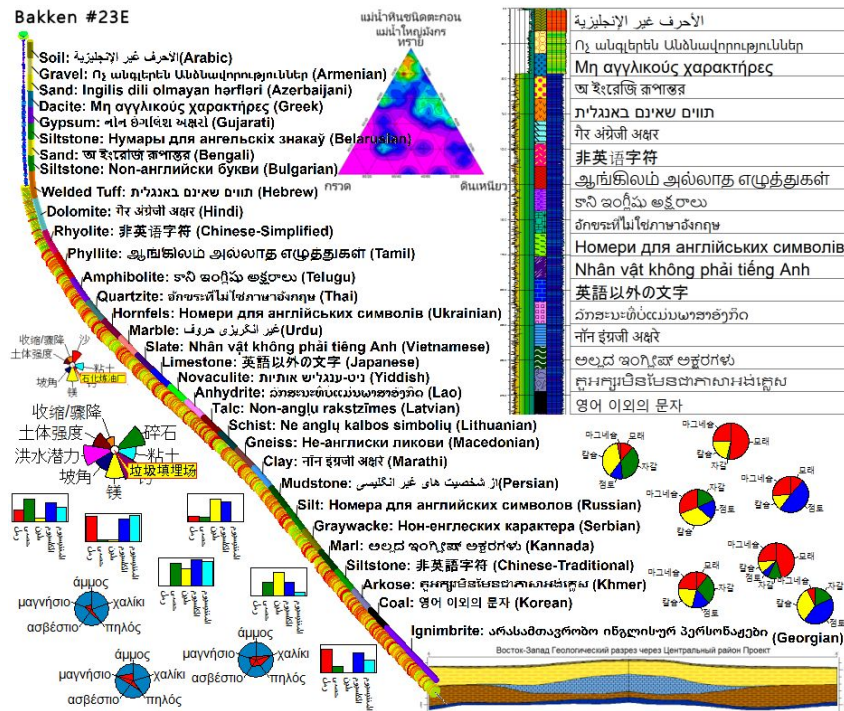
- Editing is easier than ever, with new freezable layers. Select a Layer to freeze other layers, or select no layers to access all objects.



*ReportWorks now includes an option to freeze layers.*

## System Improvements

- New network license manager
- Installation program offers options for user and sample file locations
- Wildcard names for file paths
- Unicode support of non-Latin alphabets



*RockWorks graphics supporting non-Latin alphabets*

- More consistent support of non-US number formats
- Project notes support RTF (Rich Text Format) thereby allowing for multiple fonts, font effects, and embedded imagery.
- User-specific menu settings for shared project folders.