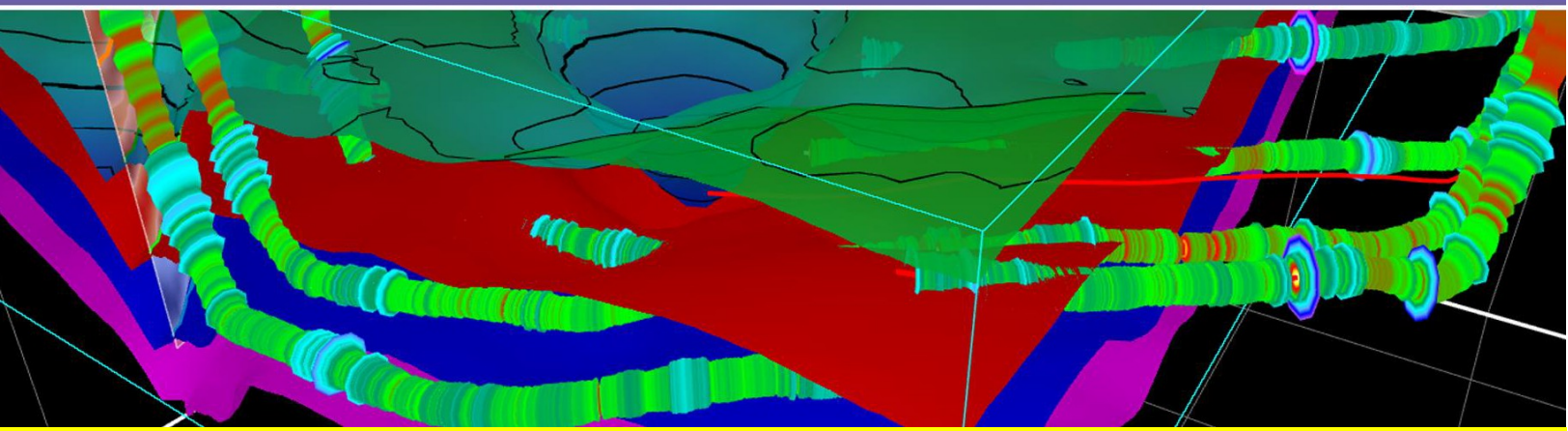
GVERSE® GeoGraphix®

GEOLOGY

SOFTWARE



A dynamic set of geological interpretation tools for structure and stratigraphic analysis, mapping, and geosteering

GeoGraphix for Geology provides a dynamic set of integrated tools that help today's geoscientists to accomplish their day-to-day tasks more easily and accurately. Whether you are working in an unconventional shale play or exploring for a conventional reservoir, GeoGraphix for Geology offers a diversified set of modules that can be used stand-alone for individual use or networked together within asset teams to provide an integrated platform for your interpretation workflows.

Enquiries: +1 855 GGX LMKR (449 5657) / USsales@lmkr.com

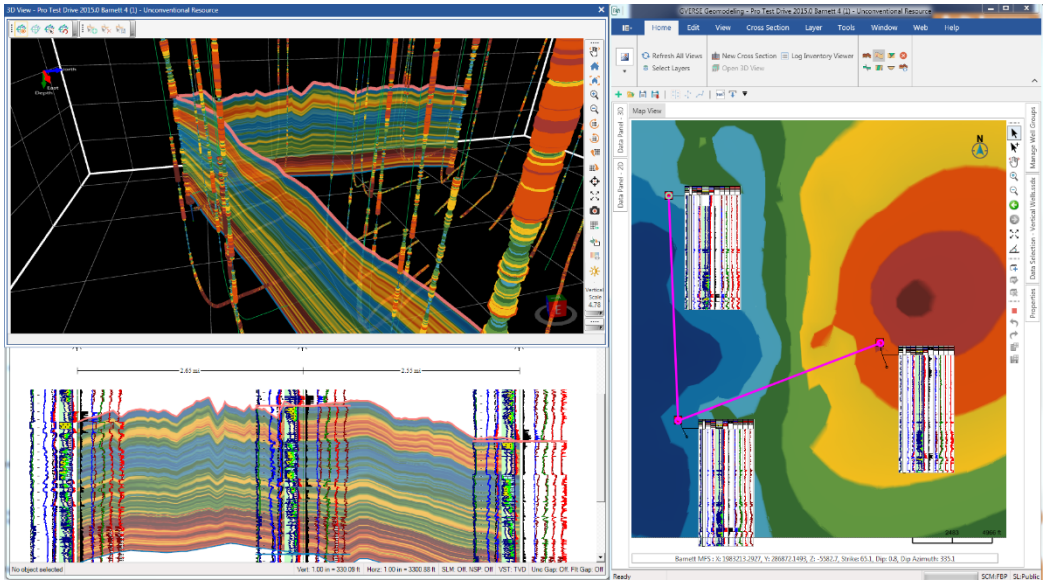
Key Benefits

- **Accuracy:** Improved accuracy of reservoir understanding through dynamic surface modeling including conformance, unconformity trimming, fault offset and polygon generation, channel modeling, subcrop maps, and automatic isochore and isopach mapping.
- **Integration:** Seismic data visualization and integration into the geomodel through real-time depth conversion of horizons, faults, geobodies, and seismic backdrop.
- **Analysis:** Log data management and interpretation to create presentation quality log templates; find relationships between attributes on multi-well cross plots, and perform industry-standard and customized multi-well log analysis with user-defined petrophysical models.
- **Visualization:** A dynamic 3D environment to interpret surfaces and faults, visualize seismic backdrops on fence diagrams, and view depth converted seismic geobodies.
- **Speed:** Fast and accurate cross section building, correlation, and on-the-fly geomodeling in a robust 3D environment.
- **Real-time data:** Geosteering while geomodeling to ensure the wellbore stays on target and the geomodel is updated in real time to make the next well better than the last.

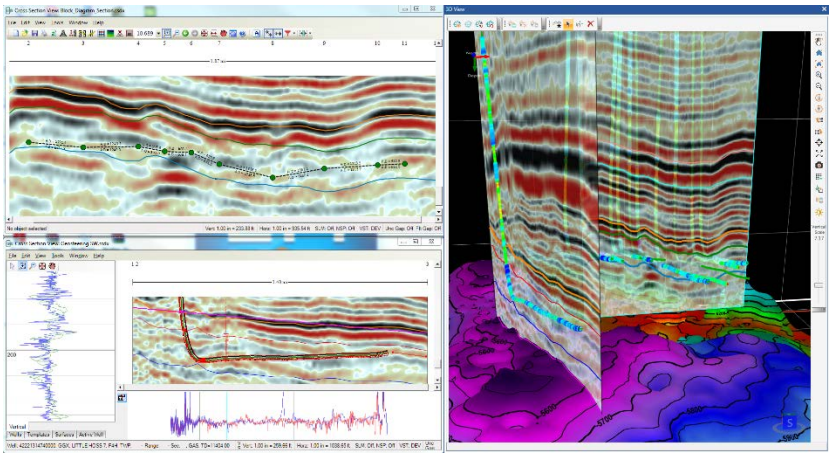
Key Features

Geology Software

Our geology software combines geological and geophysical interpretations, petrophysical attributes, and engineering data within an integrated 3D environment to visualize the developing geomodel.

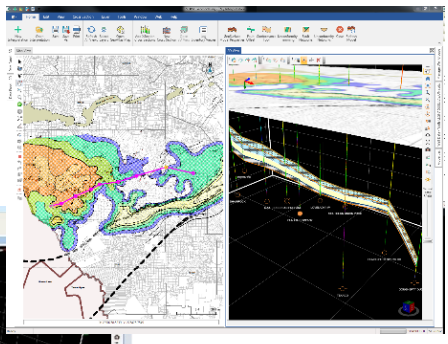


Real-time Integrated Visualization of Results: Geomodel while interpreting synchronized cross sections, 3D fence diagrams, and map view.

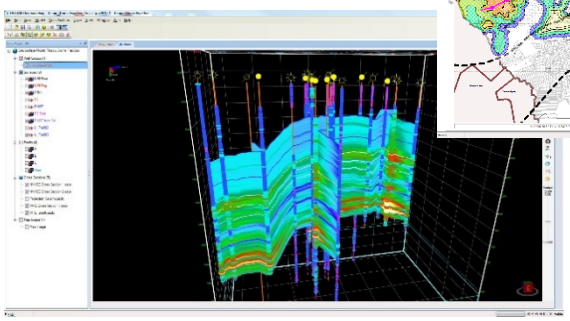


Integrate Geological, Geophysical and Petrophysical interpretations: Bring data from all disciplines of the asset team to build robust earth models that incorporate all available subsurface and GIS data.

Flexibility: Quick pick surfaces on cross sections and map view, clip the 3D scene, create integrated cross sections and 3D fence diagrams, and define modeling regions and well groups for greater workflow flexibility.



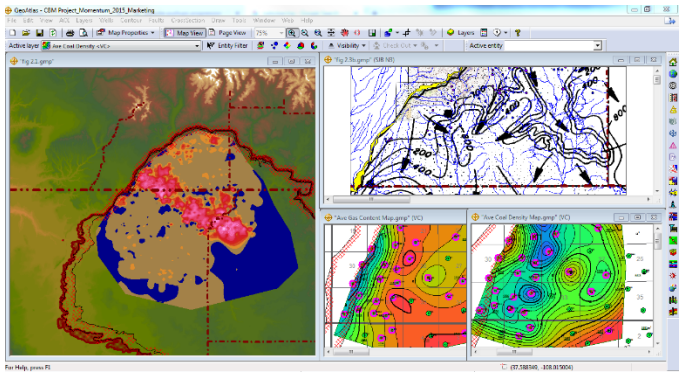
Quick and Easy: Quickly load and display large datasets. Dynamically subset the play with Modeling Regions for maximum performance and accuracy.

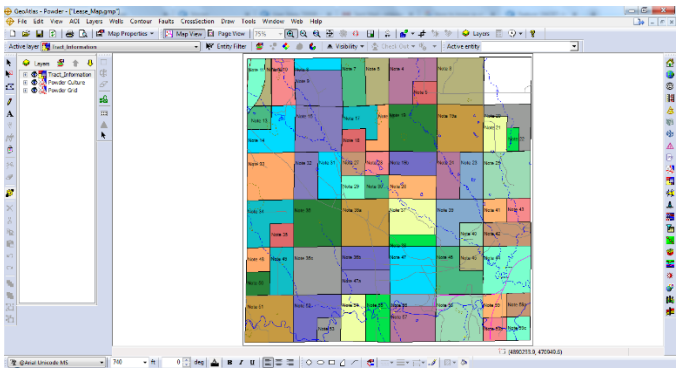


Mapping Software

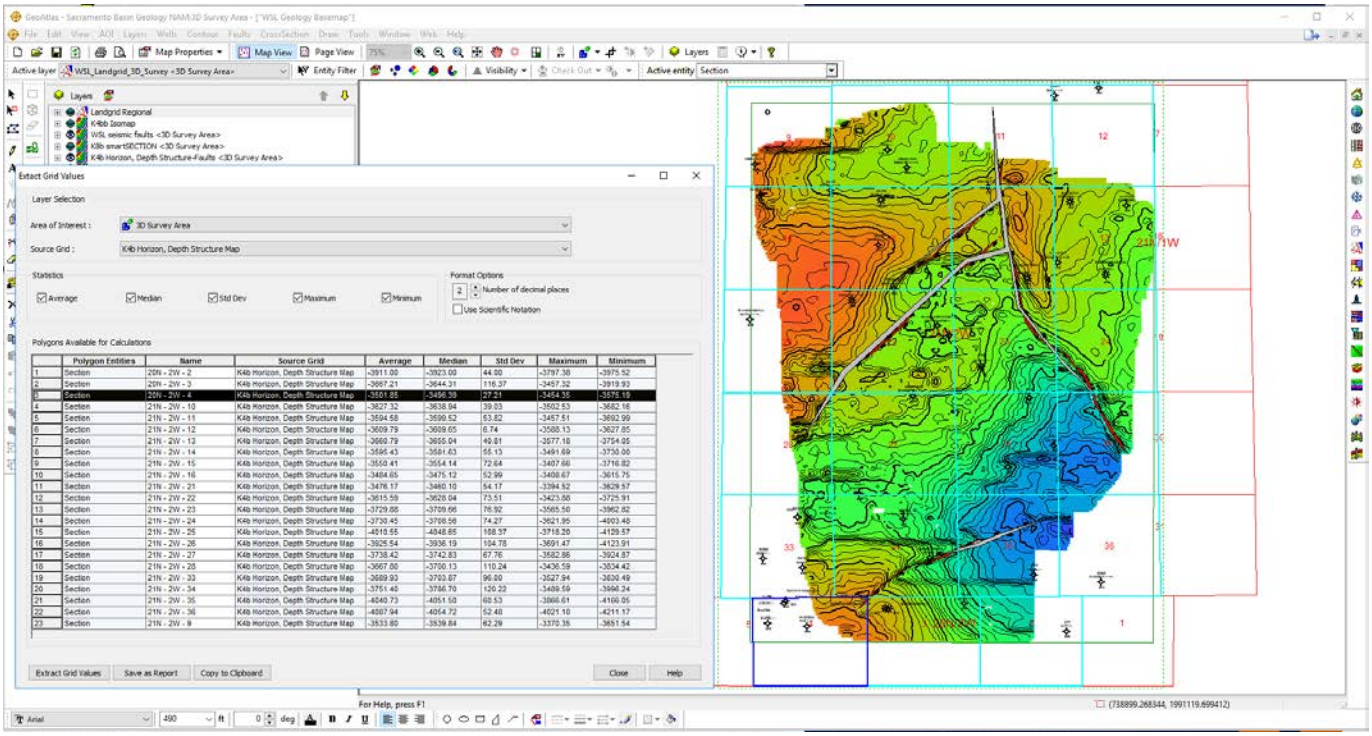
3D visualization of geologic cross sections and fence diagrams with interpolated well logs attributes, seismic geobodies, and map layers provides increased insight into the true nature of the sub-surface geology.

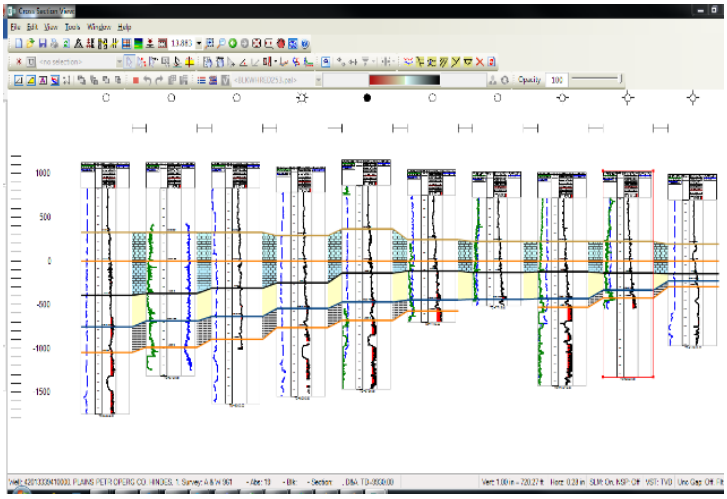
GeoAtlas: ESRI based map displays for high quality presentations.





IsoMap: Powerful surface gridding and contouring application that combines a wide variety of gridding algorithms and multiple data sources into a single surface or attribute layer.





Well Correlation Software

Fast and Robust Well Correlation Solution: XSection module is a fast and robust Well Correlation Software of GeoGraphix which supports creation of cross sections that can have as many as 1000 wells.

Stratigraphic and Structural Cross Section: Quickly toggle between structural and stratigraphic datum with the touch of the keyboard.

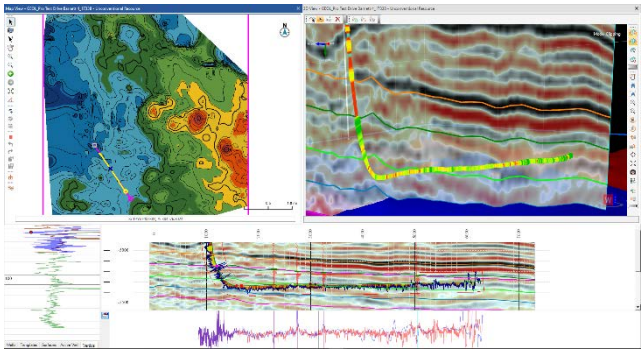
Support for Raster: Quickly and easily rectify and depth register raster logs, and digitize curves on Image Tracks in GVERSE Petrophysics.

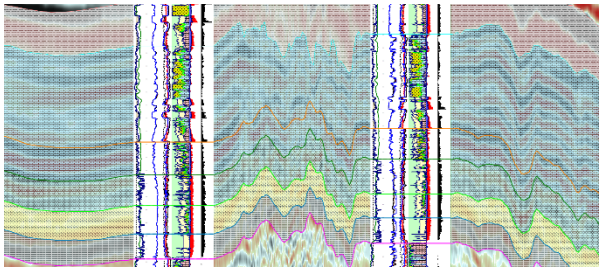
Lithology and Interpolation fill: Display the stratigraphic column lithologies on cross sections and interpolate log values within formations and between wells.

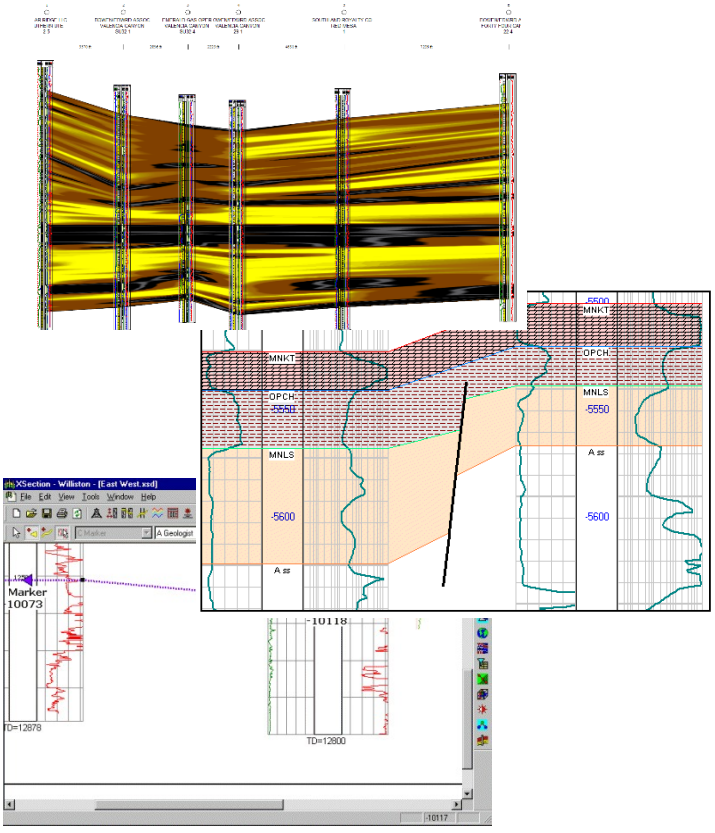
Advanced 3D visualization: Subsurface interpretation software that includes the latest DirectX 11 gaming technology to render high resolution subsurface models.

LeaseMap: Complete understanding of any region's mineral interest ownership and leasehold status.

Scalable Functionality: Includes over 250 predefined standard log analysis equations as well as several predefined water saturation, lithology, mechanical, and coal bed methane models.

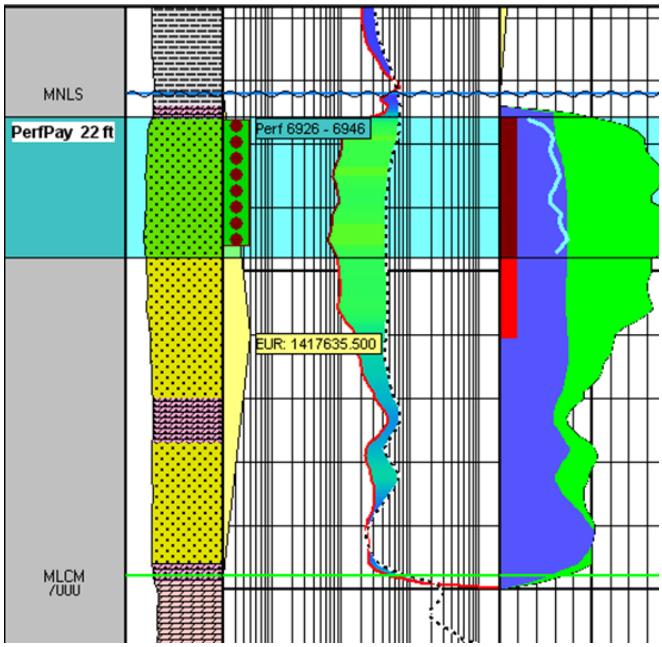






Petrophysics Software

GVERSE Petrophysics log analysis software is the ideal tool for performing full reservoir characterization on well datasets of all sizes and complexity in multi-zone projects.

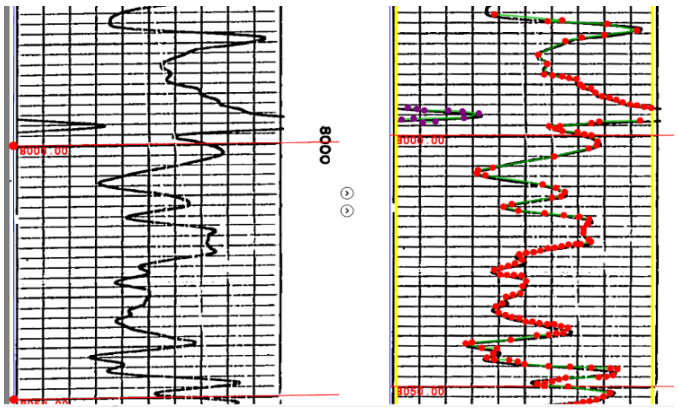


Seamless Petrophysical Analysis, Attribute Extraction, and Mapping: Analyze and interpret well log data with simple or advanced log interpretation workflows in a large multi-well, multi-user environment. Create customized petrophysical models, calculate statistics, reservoir pay summations and more with seamless integration of petrophysical analysis in all mapping, correlation and other workflows.

Electro-facies/Cluster Analysis: Apply machine-learning to cluster analysis to generate electro-facies logs and presentation displays. Use facies curves in your petrophysical models.

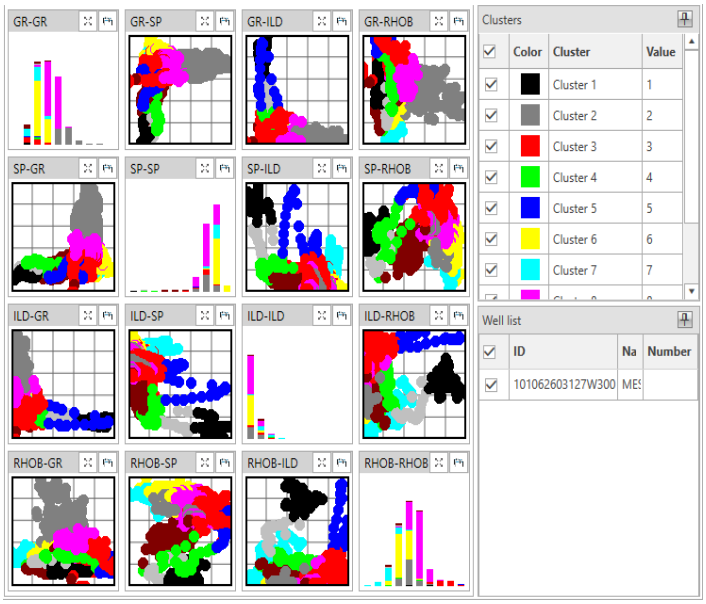
Log Curve Digitization

Easily digitize raster logs to create vector curves with the DepthRegistration tool. An intuitive workflow that handles multiscale wrapping, linear & logarithmic tracks, loading existing vector curves, and much more.



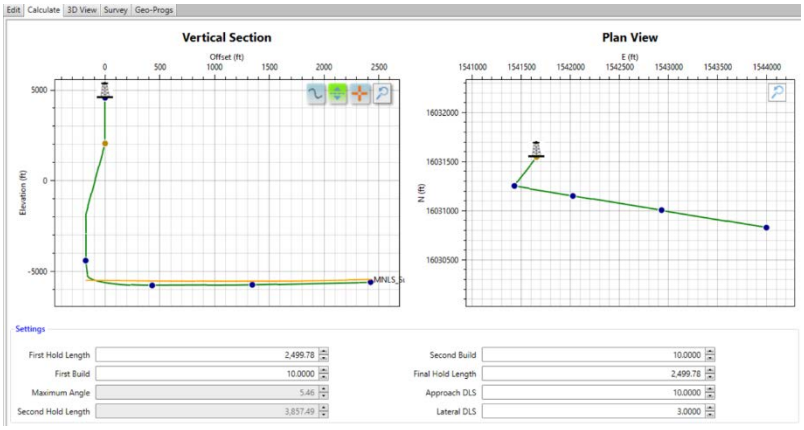
Python SDK for GeoGraphix

Leverage machine learning and artificial intelligence on your data in GeoGraphix projects through Python. Run scripts written in the Python programming language on well data (including log curves), grids, and seismic.



Well Planning Software

Use GVERSE Planner to plan wells within geologic surfaces or geomodels. Quickly create deviation surveys, and target and geoprognosis reports.

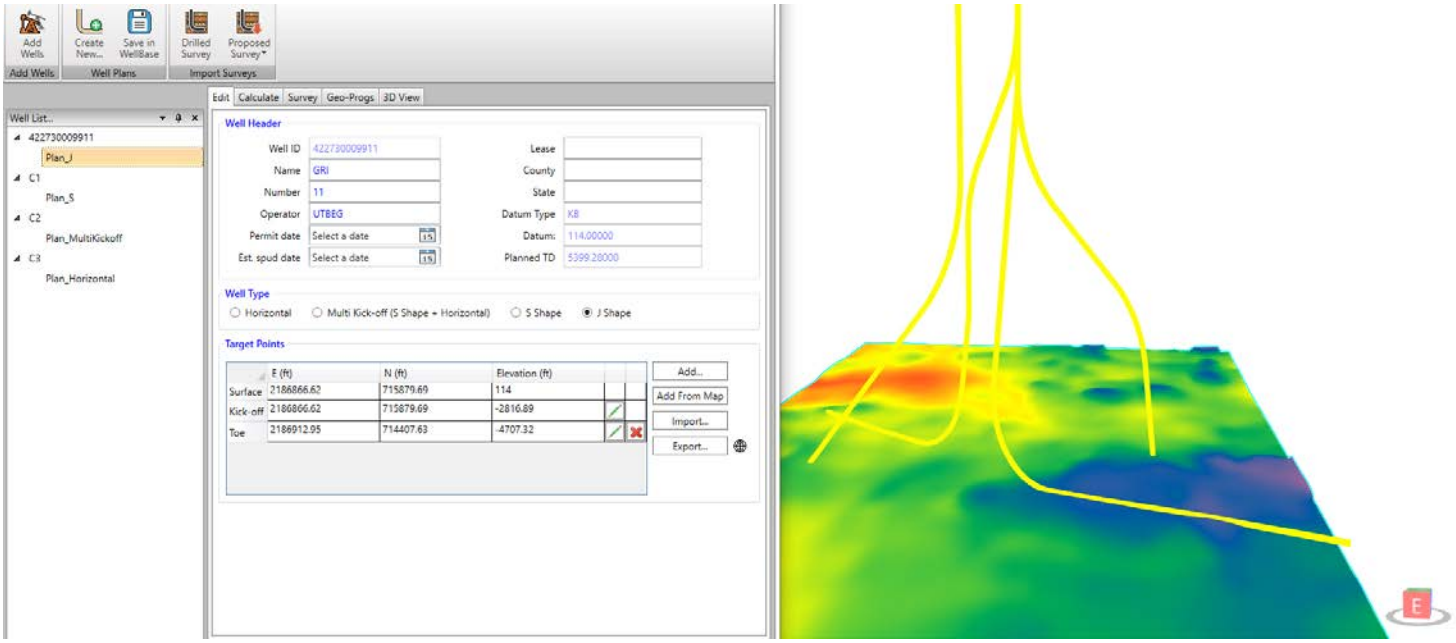


Well Planning: Seamless workflow for planning horizontal, J shape, S shape and multiple build-hold-build section wells in an integrated environment.

Visualize geologic data, create targets, and generate a final well plan.

Quick Modification: Modifications to existing wells are quick and easy.

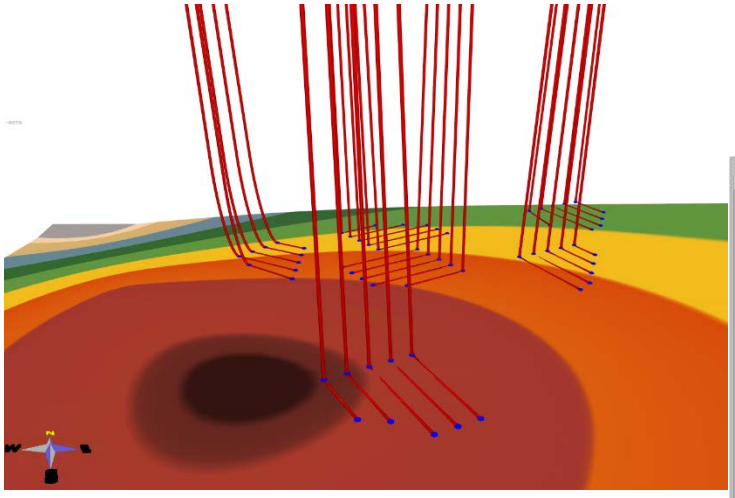
Enhances Collaboration: Streamlined workflows that reduce work time.

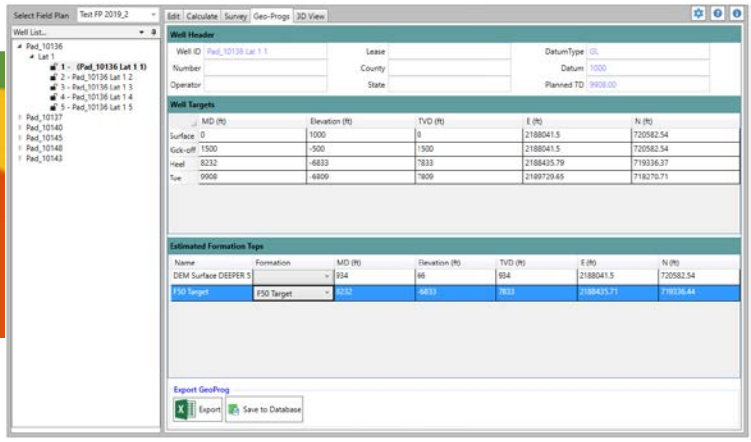


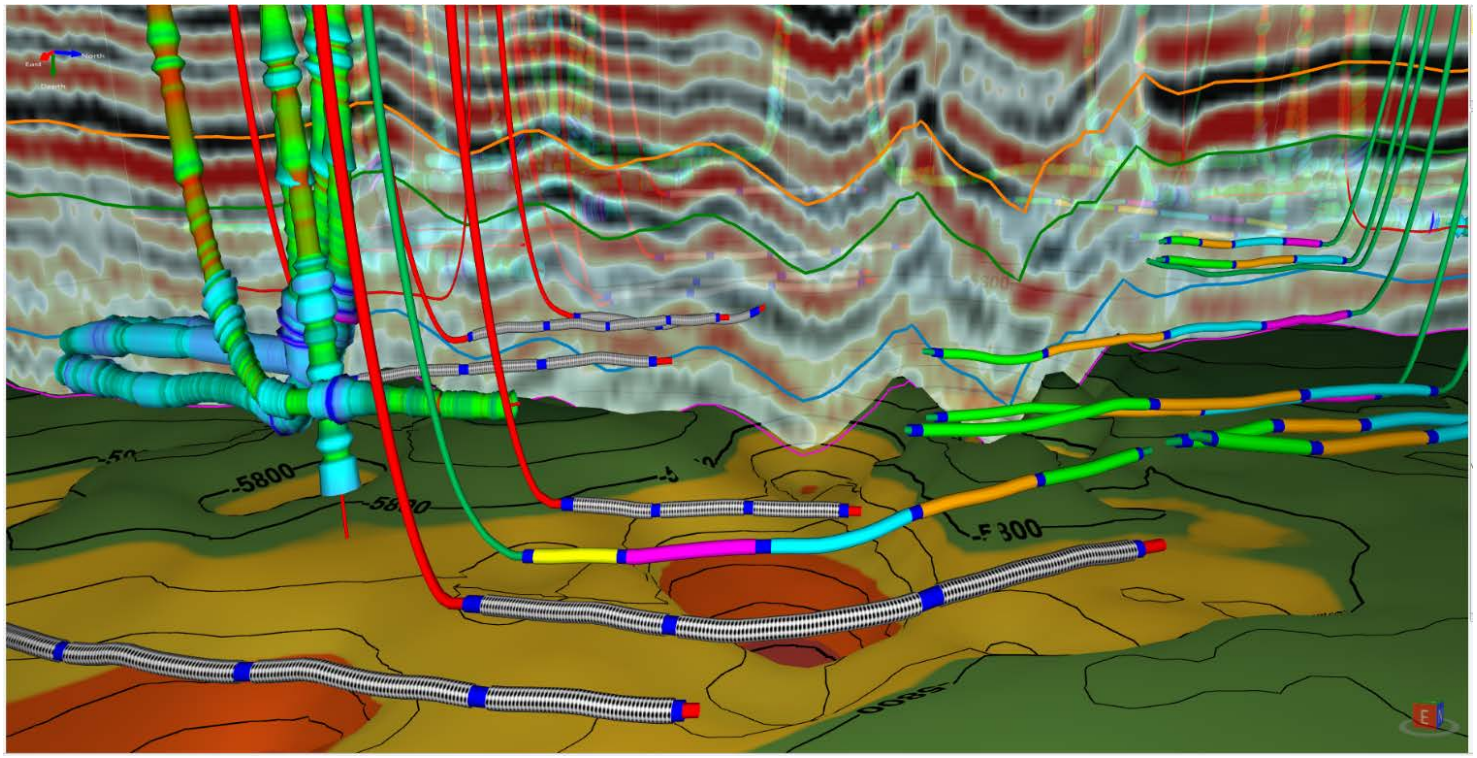
Field Planning Software

GVERSE FieldPlanner offers powerful field planning capabilities that result in time and cost reductions, allowing field planners to create, save, analyze, and manage multiple field plan scenarios to determine optimal hydrocarbon production.

- Plan hundreds of wells intelligently within minutes.
- Flexible enough to take into account surface lease, and subsurface hazards.
- Quickly create, save, and analyze multiple field plan scenarios.
- Generate geoprognosis reports from the well plan.
- Analyze field plan scenarios to determine optimal hydrocarbon production.







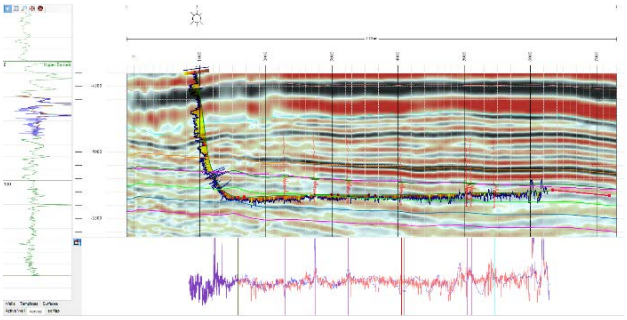
GVERSE® GeoGraphix®

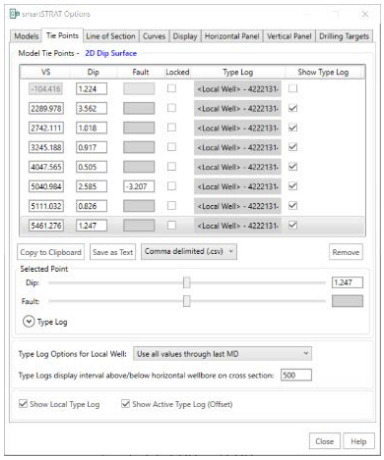
GEOLOGY

Geosteering Software

GVERSE® WebSteering is specifically designed to help geosteer horizontal wells in thin pay zones and to direct the drill bit in real time. It is the only web browser based geosteering application in the industry that delivers optimal well placement with simple data loading and full integration with GeoGraphix.

Flexible: Geosteer wells in the office, at home, or in the field.
Simple: Load LWD and survey data by drag and drop or by connecting to a WITSML server. Data is saved into GVERSE GeoGraphix projects with a single click of a button.
Integrated: Select gridded IsoMap surfaces from GeoGraphix to display against the drilling well for more accurate Geosteering and send the interpretation back to GVERSE Geomodeling to update the geologic model.
smartSTRAT: Geosteer while geomodeling to keep the well in zone and the geomodel constantly up to date so the next well is better than the last.





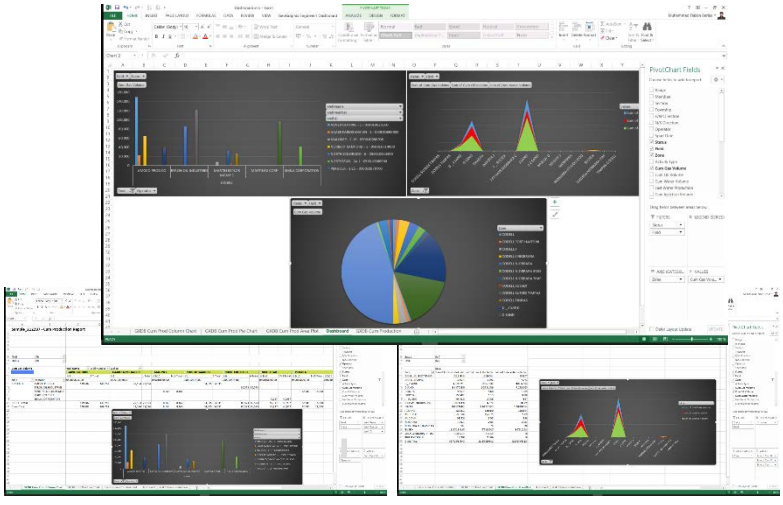
Lease Management

GeoGraphix for land management provides users with the means to capture vital lease information, filter that information to display specific conditions, and to augment this with needed geological layers. This enables the land professional to make better and more informed decisions quickly.

Engineering and Production Analysis

To an asset team, GeoGraphix provides an easy solution that identifies factors in engineering, geology, and petrophysics that impact key field development and production decisions of placing new wells, or maintaining current ones.

Engineers monitor production data to calculate estimated ultimate recovery and to estimate the life of a well. When forecasting production data is required, WellBase production analysis allows a user to calculate EUR and ERR using exponential or hyperbolic functions.

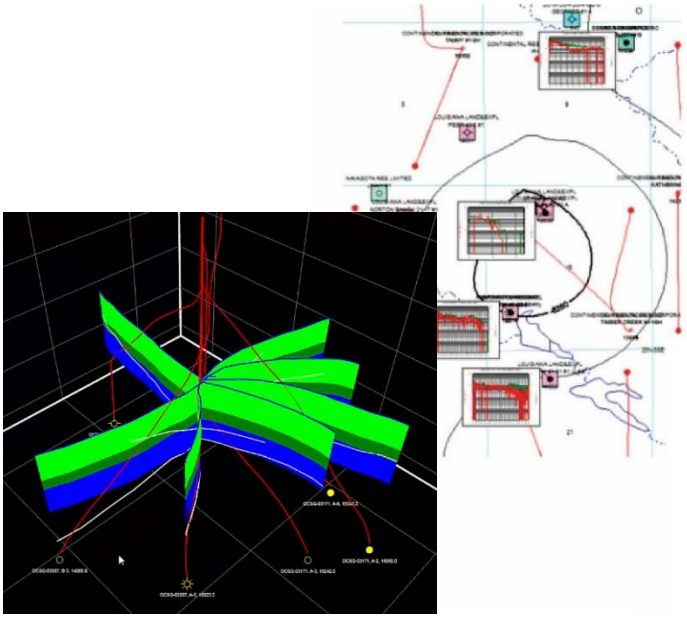


GVERSE® GeoGraphix®

Asset Management

GeoGraphix for asset teams:

- Gives you a comprehensive tool kit for finding hydrocarbons.
- Removes the barriers between geological disciplines and to provide seamless access to all project data.
- Handles networked project sizes of hundreds of thousands of wells including millions of monthly production records and pick markers for concurrent use access via a fully relational database.
- Stores project data in a powerful relational database to ensure integration of your critical data and to provide exceptional search and QC capabilities.



Requirements

To run these applications, you need one of the following operating systems installed on your system:

- Windows® 7 Professional x64
- Windows® 7 Enterprise x64
- Windows® 7 Ultimate x64
- Windows® 10 Professional x64
- Windows® 10 Enterprise x64

Hardware

Minimum

- Core i5
- 8 GB RAM
- Any DirectX 11 capable card
- 2 GB VRAM

Recommended

- Core i7 Quad-core and above with latest generation
- 16+ GB RAM
- SSD drives recommended
- Any DirectX 11 capable card
- 4 GB VRAM

Licenses

The following licenses are required to run the software:

- GeoGraphix license version 2019.4
- GVERSE Geomodeling license version 2019.4

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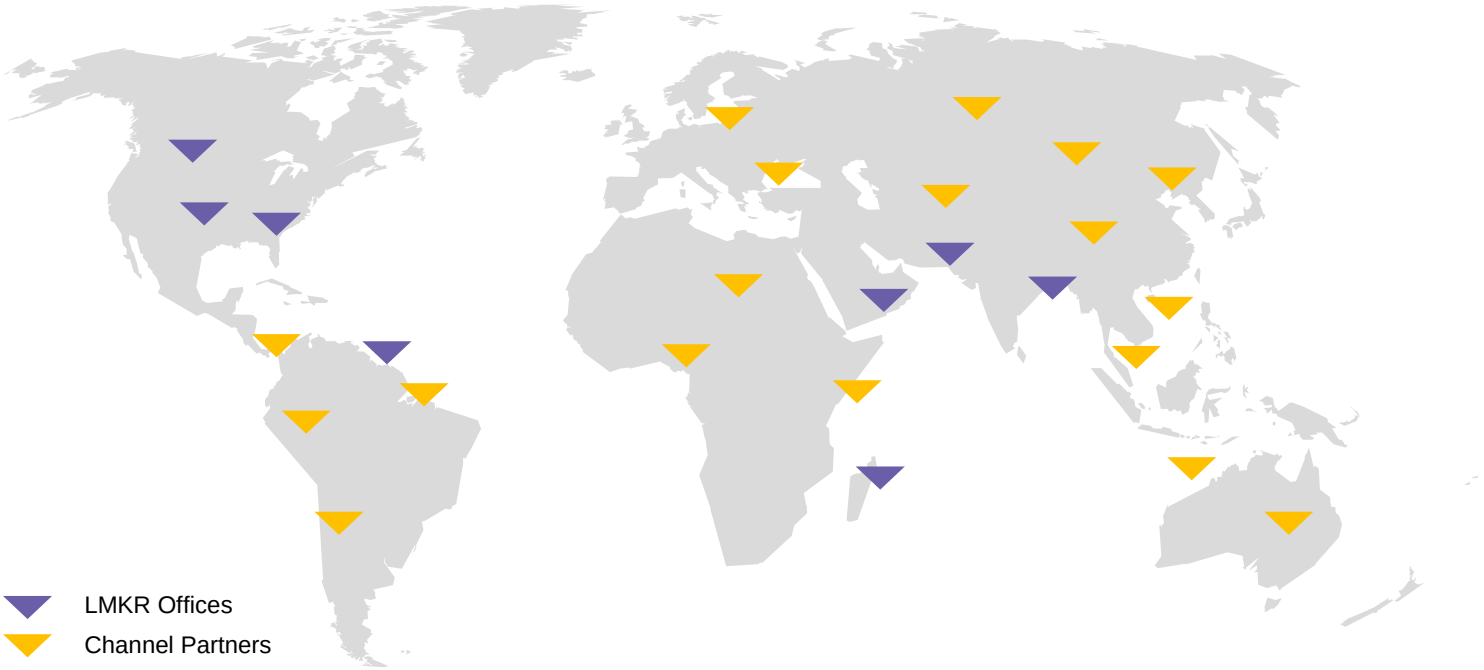

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