

Geophysics 2019.4



GVERSE® Geophysics

Seismic Interpretation Software

A powerful 2D and 3D seismic interpretation system for rapid prospect generation.

GVERSE® Geophysics software is a fully integrated 2D and 3D seismic interpretation system with a full range of fit-for-purpose interpretation capabilities, attribute analysis, and mapping tools. Whether exploring complex structural areas, or looking for subtle stratigraphic traps, today's geoscientist can employ the many tools available in GVERSE Geophysics to solve these otherwise challenging problems.

Key Benefits

Full Integration

Maximize your investment with full integration between our geological, geophysical and mapping tools. Access most everyday workflows within the base package & license.

Superior Visualization

Gain deeper insights into subsurface structures and data in with our specialized 2D & 3D viewers. Our fast and highly intuitive viewers offer all tools for efficient interpretation workflows.

Speed & Performance

Work with large seismic files and hundreds of thousands of wells without compromising performance, even on off-the-shelf hardware.

Accuracy & Reliability

Make quick and accurate structural or stratigraphic interpretations with an extensive toolset for horizon, fault, and geobody interpretation.

On-the-Fly Attributes

Obtain a better understanding of your seismic data with on-the-fly attribute computation.

Ease of Use

Leverage a simple, intuitive UI to focus solely on making decisions that matter.

Key Features

Seismic Interpretation

In-Depth Horizon Interpretation

Access multiple picking modes to mark picks & track horizons across multiple 2D & 3D surveys.

- QC features like confidence, pick order, pick type, & pick relationships.
- Multi-Z horizon picking for 2D data.
- Snapping, smoothing, merging, dip & azimuth calculations, and other operations.

Rapid Fault Picking & Analysis

Detect and automatically pick all faults in a volume or pick manually with flexible picking and editing tools for vertical, horizontal, & three-dimensional seismic displays.

- Analysis tools like rose diagrams & stereonet for faster analysis & decisions.
- Correlation windows & fault projection to assist picking in noisy data.
- Fault polygons & heave calculations.

Cutting Edge Geobody Analysis

Pick structures on seismic volumes as geobodies. Interpolate picks, track signatures, or automatically detect & extract geobodies from seismic data.

- Calculate volumetrics and map thicknesses, convert to horizons, and compute attributes.
- Drape data on geobodies or show intersections on sections.
- Create layers to bring geobodies to other GeoGraphix apps.

Integrated Well Top Picking

Add new or adjust existing picks for formation tops and fault cuts in a well directly from the geophysics app. View & interact with multiple observations for each formation or fault in a well.

Time-Depth Workflows

Comprehensive Synthetic Modeling

Create or edit synthetic seismograms in SynView – an integrated synthetic editor with no additional license requirement.

- Adjust & update synthetic with undo-redo in SynView or in 3D.
- Create & edit wavelets or extract from seismic.
- Calibrate, estimate, process, & edit input curves.
- Drift, correlation & spectrum analyses to calculate optimum time & phase shifts.
- Work with deviated wells.

Robust, Reliable Depth Conversion

Experience fast & reliable depth conversion with an extensive set of options suitable for all your depth conversion requirements.

- Half-a-dozen types of velocity models including ability to use velocity cubes as models.
- Unique 3 component horizons & comprehensive conversion options.

- Dynamic depth conversion to keep backdrops in GVERSE Geomodeling up to date.
- Depth Mode to instantly convert time scenes to depth.
- Variety of velocity QC tools.

Data Management & Visualization

Effortless Data Management

Perform rapid interpretation in large 2D, 3D, or combination projects with our 64-bit architecture. Versatile SEG-Y readers handle all scenarios.

Interactive Mistie Analysis

Easily balance 2D, 3D, and 2D-3D datasets and auto-calculate phase, gain & time relationships.

- Add, edit & search shifts in a single location.
- Import and export shift values.
- Interactive line balancing to match lines quickly & easily.

Blazing Fast 3D

Use an engine built for subsurface data to view your seismic, wells, and other data in 3D. The LOD format does not compromise performance even with very large seismic files. Voxels, blending, selective transparency and other advanced features let you visualize structures for deeper insights and better decisions for your play.

Versatile Seismic & Well Displays

Feature rich vertical, horizontal, & three-dimensional seismic viewers with detailed well data posting.

- Load data into RAM for faster visualization.
- Wiggles, power spectrums, phase rotation, filters & other processing tools.
- Default color palettes based on data type.
- Display wellbores, tops & observations, well logs, production data, microseismic, and more.

Interpret, Analyze & Map

Attribute & Surface Calculations

Compute attributes with multiple options in an easy to use interface.

- Flexible windowing options.
- Integration with Zone Manager.
- Surface-to-surface calculations.
- Extract seismic data at well locations.

Crossplot Seismic, Attributes, & Logs

Create scatter plots for seismic, surfaces and well logs for insight into relationships between data.

- Crossplots for sections, horizons, wells or volumes.
- Select and display anomalies on maps & 3D.
- Complete annotation toolset.

Intelligent Facies Classification

Use the power of machine learning and neural networks to classify facies on horizons with automatic waveform classification by a self-organizing maps algorithm.

Indigenous Mapping Capability

Fulfill most of your mapping needs with a built-in mapping framework or leverage the full capabilities of our mapping tools with seamless integration with GeoAtlas.

- Multiple base maps with unique set of display parameters and color palettes.
- Comprehensive gridding and contouring options for maps and surfaces.
- Export or import layers to and from other GeoGraphix apps.

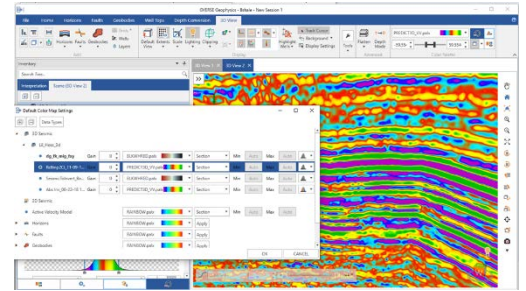
Ease of Use & True Mobility

Leverage the latest in technology to minimize your learning curve and focus on what's important. No more digging through tons of menus and dialogs to find what you are looking for. A true multi-screen, ribbon-based interface puts everything you need right in front of you. GVERSE Geophysics supports remote, desktop and mobile environments to accommodate some of the industry's largest regional projects while reducing the need for IT support.

What's New in 2019.4

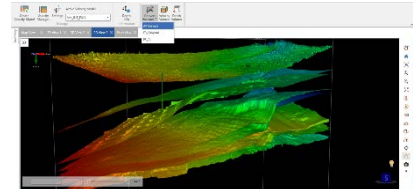
Integration with Geological Applications

- View geological cross-sections as arblines in GVERSE Geophysics.
- Open seismic sections as geological cross-sections with a dynamically converted seismic backdrop.
- View and consume geobodies picked on seismic in geological workflows.
- Track cursors across applications – on maps, sections, and 3D.
- Shared default color palettes for seismic data in geophysical and geological applications.
- Create more IsoMap layers from within GVERSE Geophysics.



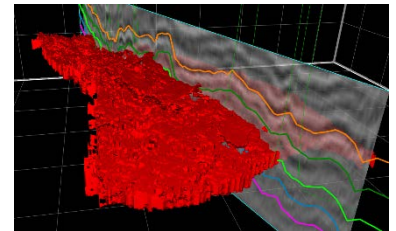
Depth Conversion

- Keep velocity & depth grids always up to date with one-click conversion for all horizons.
- Digitize or import depth control points and use to refine velocity models.
- Convert horizon, fault & geobody surfaces to depth on-the-fly in “Depth Mode”.



Geobody Interpretation

- Pick geobodies in bulk on one or more volume.
- Get more precise geobody picking with multi-attribute geobody tracking.
- Set tracking amplitude thresholds with more flexible condition definitions.
- Split, merge and edit geobodies in 3D.
- Delete one or more unwanted geobodies interactively.



Fault Interpretation & Analysis

- Plot and analyze faults on interactive stereonet.
- Split a single fault segment into two and re-assign, edit, or delete each segment separately.
- Convert interpolated fault intersections to fault segments.
- Merge overlapping fault polygons when digitizing manual fault polygons.
- Edit fault properties like color, interpolation, and display in bulk from the Fault Manager.

Synthetic Seismograms

- Model the effect of multiples on the synthetic trace.
- Upscale log curves with the advanced Backus Averaging algorithm.

Interpretation Tools

- Create proportional stratal slices between any two horizons.
- Create, save, and re-use polygons.
- Extract seismic along well bores for multiple wells from multiple volumes in batch.
- Save extracted traces to the database or write as LAS files in a folder.

Seismic Data Visualization

- Open arblines along deviated wells, for the entire bore or the horizontal portion only.
- Add trailing and leading distances to extend arblines beyond the well.
- Post distance of each trace from the first trace of a seismic section as “Length of Section”.
- Use quick access buttons in the side bar to adjust the horizontal and vertical scale of display.
- Open seismic sections faster using the side bar on seismic sections.
- Flatten and unflatten a section on any horizon directly from the right-click menu.

Data Management

- Manage velocity surveys for multiple wells at one convenient location.
- Update 3DX headers without recreating the file from SEG-Y data.
- Flag zero amplitude traces as null and exclude from calculations.
- Access Interpretation Manager and Interpretation Browser from the 3D window.
- Launch SEG-Y Loaders from the Interpretation Manager.
- Add Wells and Formations from the Interpretation Manager.

SEG-Y Loading

- Detect line increments automatically from traces headers.
- Read start time/depth directly from the header.
- Specify sample intervals in millimeters and millifeet for depth seismic.
- Toggle depth values between TVD and TVDSS.
- Interact easily with floating header reader windows.
- Convert 2D lines more intuitively with changes to line selection UI.

Usability Enhancements

- Auto-pick horizons on multiple surveys simultaneously.
- Switch between picking in 2D and 3D viewers with shared pick modes.
- Change color of deviated well bores on the main map.
- View distances, areas, and volumes in additional units of measure.
- Multiply contour values with constants for display on maps.
- Select data version to export when converting seismic to SEG-Y.
- Add color for new horizons in horizon calculator.
- Display a north arrow and scale bar on the main map view.
- Enjoy a more stable and user-friendly experience with many other bug fixes and enhancements.

Performance Improvements

- Export horizons up to 10 times faster with the new ASCII exporter.
- Interpolate horizon picks up to 3 times faster.
- Draw and edit fault polygons on maps faster and more interactively.
- Interact more smoothly and faster with the Fault Manager.

Requirements

To run the application, 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

- 2.4 GHz 64-bit processor
- 8 GB RAM
- Any DirectX 11.1 capable card comparable with Nvidia® GeForce GTX 430 with 1GB VRAM. DirectX is not shipped with GeoGraphix 2019.1. You must download and install it separately..
- 1366 x 768 screen resolution

Recommended

- Quad 3.2 GHz 64-bit processor
- 32 GB RAM
- Any DirectX 11.1 capable card comparable with Nvidia® GeForce GTX 1060 with 6GB VRAM. DirectX is not shipped with GeoGraphix 2019.4. You must download and install it separately.
- Solid state hard disk (SSD)
- 1920 x 1080 screen resolution

Licenses

The following licenses are required to run the software:

- GeoGraphix license version 2019.4
- GVERSE® Geophysics license version 2019.4