

VoxelGeo[®]

Voxel Volume Interpretation



Interpretation
and Modeling

The Interpreter's Tool of Choice

Paradigm™ VoxelGeo[®] was the first volume-based structural and stratigraphic interpretation solution offered to the oil and gas E&P industry, in the early 1990's. Today, VoxelGeo remains the tool of choice for interpreters, due to its powerful interpretation and visualization capabilities, simple usage, and complete integration with advanced multi-survey interpretation applications. From seismic processing to well planning and engineering, from depth imaging to advanced reservoir characterization, VoxelGeo provides a common interpretation and visualization workspace, for a complete understanding of the subsurface geology.

The Best Just Got Better

A new approach to 3D rendering has dramatically improved the visual integrity and refresh speed of VoxelGeo displays, improving the spatial perception of 3D features. Based on VoxelGeo's unique opacity technology, the improved rendering process is able to remove artifacts, revealing much more detail of the actual geology.

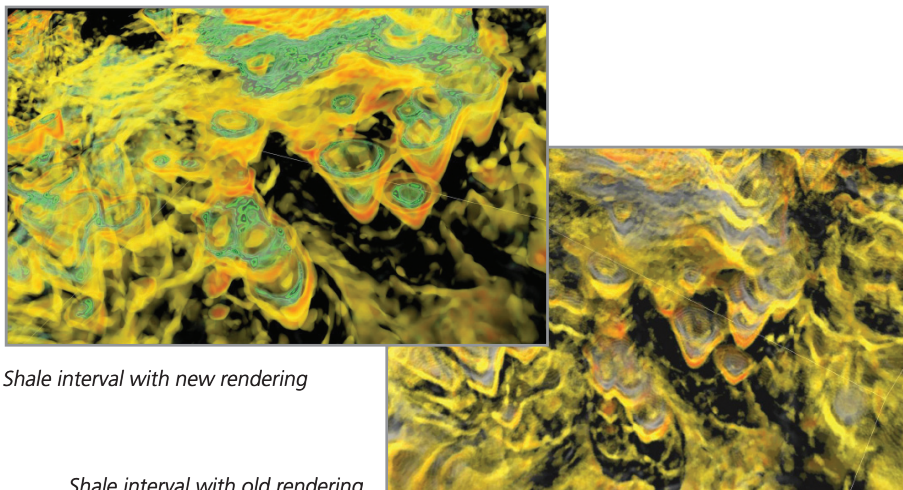
Full Integration into the Paradigm Interpretation Suite

VoxelGeo is an integral part of the Paradigm SeisEarth[®] multi-survey, multi-attribute product suite, sharing seismic, culture and interpretation data through the integrated 3D Canvas. Users can perform detailed visualization and interpretation in VoxelGeo, while concurrently sharing and reviewing the data on a regional scale with both 2D and 3D seismic. Integration with the Paradigm Stratimagic[®] seismic facies classification application improves the delineation of subtle stratigraphic features. VoxelGeo works seamlessly with the DirectorGeo[®] 3D directional well planning system to provide volume-based target picking and 3D visualization of the wellbore, including the identification of potential geohazards.

With these combined capabilities, asset and exploration teams can use geophysical, geologic and engineering data to plan wells in a single 3D view. The well plan is immediately available for analysis in other drilling applications, allowing quicker design of a fully engineered well trajectory, while steering clear of geohazards.

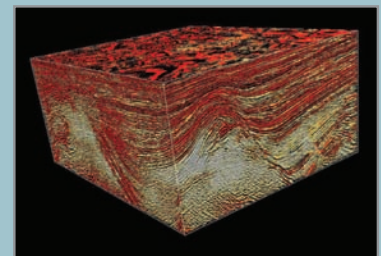
"Using the 3D Propagator in VoxelGeo, we were able to interpret surfaces, including QC, surface coloring and view orientation, in five minutes as opposed to several hours of line-based interpretation using a standard toolkit. We have had great success with the 3D Propagator, and have received positive feedback from people who have seen the software in action."

Chris Jackson
Geologist/Geophysicist
Norsk Hydro Research Center,
Bergen, Norway



Shale interval with new rendering

Shale interval with old rendering



A memory-resident 3D workspace for opacity-based interpretation and data sculpting

The Industry's Best Event Trackers

Embedding the 3D Propagator and FaultTrak capabilities into VoxelGeo combines the fastest and most efficient tools for computer-assisted horizon and fault tracking with the best volume interpretation/visualization solution. An ergonomic user interface assures ease of use while providing highly accurate interpretation results.

Multi-view Visualization

VoxelGeo's multi-view capability enables simultaneous visualization and interaction between maps, 2D sections and 3D volumes. VoxelGeo supports multiple linked 2D views that can be used to view volumes from different 3D aspects, showing the full extent of features within the volume.

VoxelGeo has direct, instant access to attribute calculation, enabling the interpreter to quickly select the most suitable attribute for the task at hand. Up to five separate attributes may be blended.

Sub-volume Detection and Crossplot

VoxelGeo's unique embedded volume-based crossplot add-on module enables the interpreter to interactively rotate a

three-dimensional, multi-attribute crossplot, in order to better distinguish anomalous areas from background trends. These areas can be quickly isolated as geobodies for automated mapping and body size analysis in VoxelGeo. Areas and sub-volumes of the 3D volume crossplot may be identified and flagged as detections. These can be further analyzed by sub-volume detection, including geobody mapping and analysis, for rapid interpretation of AVO anomalies and acoustic impedance volumes. Sub-volume detection and 3D crossplot enable interpreters to view and use the relationships between volumes. Together, they enable an open set of workflows for analysis.

Stratigraphic Interpretation Workflows

VoxelGeo's sophisticated flattening, formation and fault block sculpting capabilities, together with its variable color and opacity tools, allow interpreters to rapidly scan vast quantities of 3D seismic data looking for anomalies. The ability to recognize and then map anomalous features, such as channels, deltas, fans, dunes, barriers and point bars, both enhances interpretation productivity and provides gratification to the interpreter.

Features

- Display of seismic, well, interpretation, culture, GeoTiffs, micro-seismic, 3D glyphs, stratigraphic markers and notes
- Seismic display of sections, volumes, chair-cut volumes, traverses, slabs, and arbitrary planes
- Display of non-seismic data from Tiff slices
- Attribute generation and classification
- Custom applications using VgTools
- Volume math
- High-quality movies

Interoperability

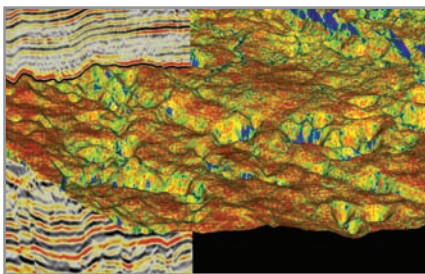
All Epos®-based applications enable interoperability with third-party data stores, including:

- OpenWorks® 2003.12
- OpenWorks R-5000
- GeoFrame® 4.5
- OpenSpirit® 3

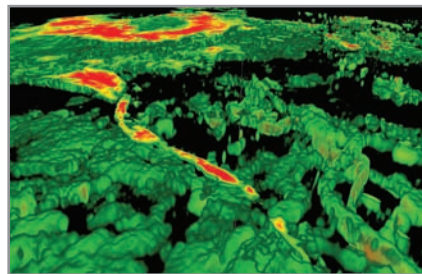
System specifications

- All 64-bit, for x64 architecture processors
- Microsoft® Windows® 7*
- Red Hat® Enterprise Linux® 5.3 and above, 6.0 and above

* Available in early 2012



Curvature attribute in VoxelGeo



Channel offshore New Zealand (seismic data courtesy of AWE)

The Paradigm Advantage

- + Improvements to industry-leading opacity technology remove artifacts, for extremely high-quality rendered displays.
- + Direct visualization of fluid contacts and amplitude anomalies enables easy identification of hydrocarbon accumulations.
- + 3D Propagator and FaultTrak provide the best automatic horizon and fault tracking in the industry.
- + 3D crossplotting reveals details of AVO volumes that assist in prospect identification.