Geomodeling™
insight from innovation

VisualVoxAt™

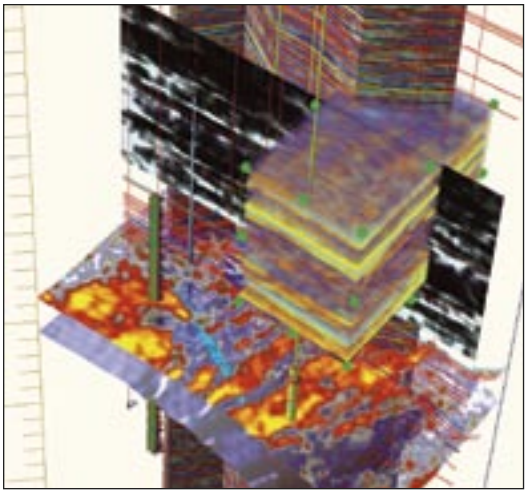
TECHNICAL BULLETIN

PRODUCTIVITY TOOLS FOR GEOPHYSICISTS

OVERVIEW

With increased pressures to quickly identify step out wells, optimize your infill drilling program, and find subtle anomalies in huge amounts of data comes the need for new levels of productivity. VisualVoxAt delivers time-saving tools in a modern environment that benefits from the latest advancements in computing and graphics power. It is now easier than ever to become more productive with helpful wizard-based workflows, familiar Windows look and feel, and responsive support and training.

Data Visualization

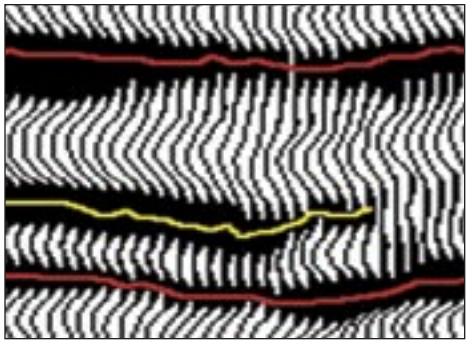


DATA VISUALIZATION

- Identify targets faster with high-resolution imaging and real-time data evaluation.
- Display multiple attribute volumes in 3D.
- View horizons, basemaps, well logs and multiple attribute volumes interactively.
- Apply real-time opacity to any object.

RAPID HORIZON PICKER

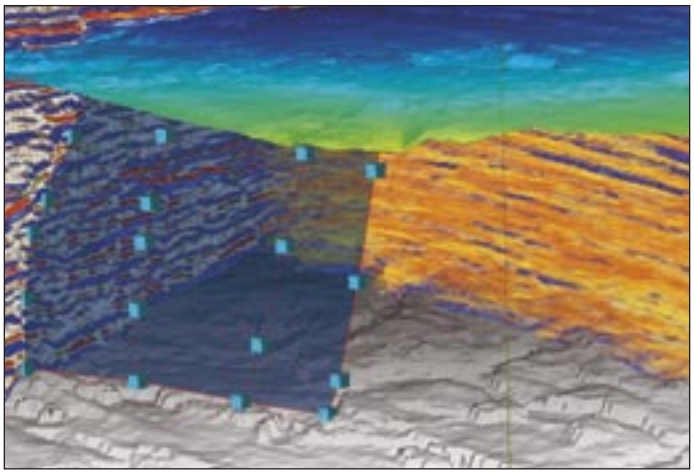
- Pick horizons in 2D and 3D based on advanced waveform analysis.
- Pick inline or crossline.
- Pick anywhere on a trace without restrictions to peak, trough or zero crossing.
- Interactively pick between basemap and section windows.
- Easily edit seismic picks with multiple levels of undo/redo.
- Extract horizons from a geobody based on attribute minimum and/or maximum values.



Horizon Picker

2D/3D FAULT PICKING

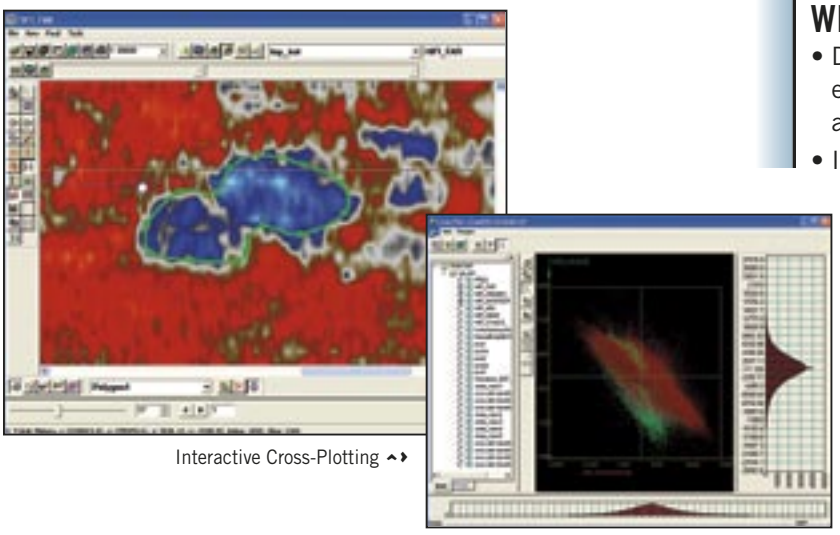
- Pick inline, crossline or surface.
- Faults picked in 2D section can be displayed as a surface in 3D view.
- Edit faults easily with click-and-drag fault nodes.
- Export picked faults as fault sticks or polygons.



2D/3D Fault Picking

INTERACTIVE CROSS-PLOTTING

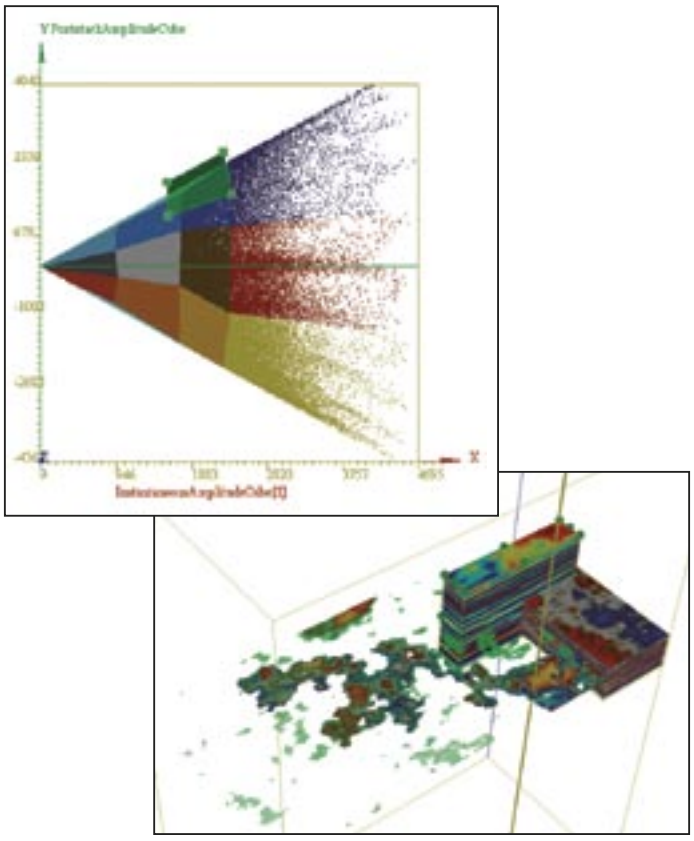
- Identify attribute patterns that correspond to AVO anomalies, lithology trends and petrophysical properties of interest.
- Quickly correlate cross-plot trends with seismic data using real-time coloring and interactive polygons.
- Digitize polygons in seismic display to highlight corresponding points in cross-plot space.
- OpenGL engine provides fast and seamless displays for more efficient correlations.



Interactive Cross-Plotting

GEOBODY TRACKING

- Track geobodies based on selected attribute values, seismic facies maps or cross-plot results.
- Color geobodies by different attributes to visualize patterns in the seismic volume.
- Perform simple volumetrics on geobodies.



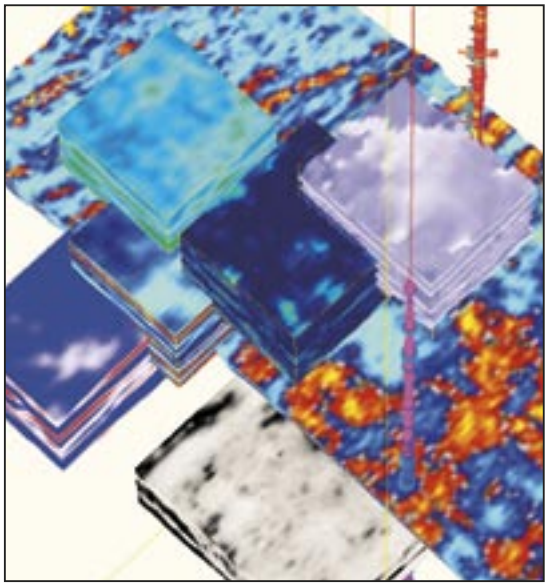
Geobody Tracking

CLEAN UP INTERPRETATION WITH CROSS-PLOT

- Delete bad or noisy picks by highlighting anomalous edge or structural attributes in cross-plot with a polygon.
- Interactively quality control the results on basemap.

STRATA-GRID ATTRIBUTES

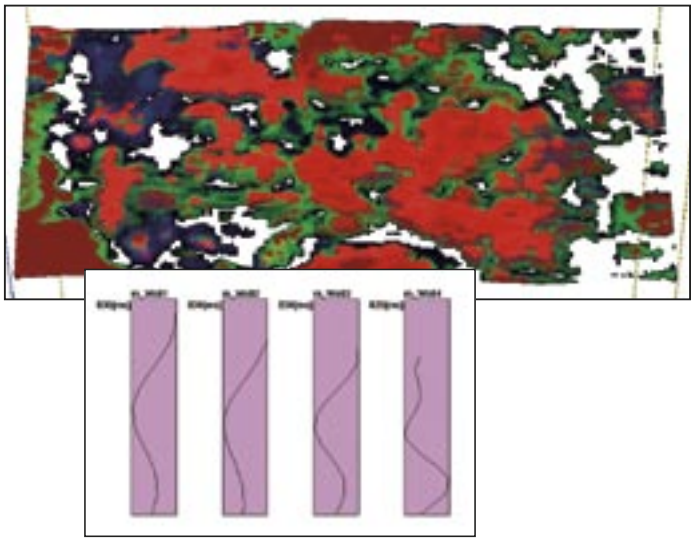
- Focus on a zone of interest by generating a sub-volume (strata-grid) from one or more picked horizons.
- Organize attributes into a stratigraphic grid that removes undesired structure and honors stratigraphic relationships.
- View data slices that accommodate different depositional rates for a specific event.



Strata-Grid Attributes

WAVEFORM CORRELATION MAPS

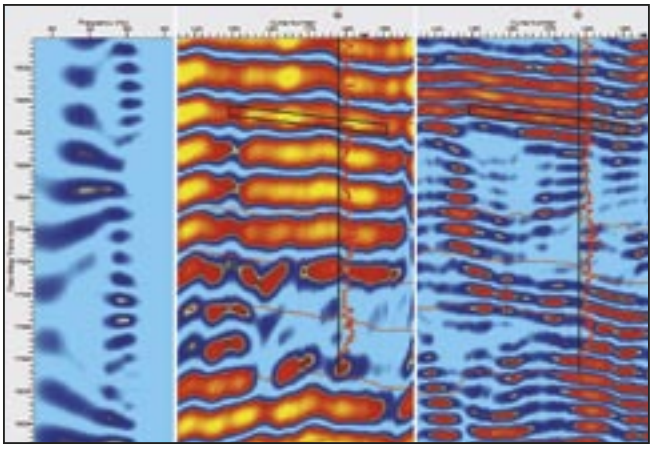
- Extract waveforms from seismic data at a specific well location or from a facies.
- Generate hierarchical facies classification maps based on extracted traces.
- Locate potential hydrocarbon zones by searching for waveforms similar to those at producing wells.



Waveform Correlation Maps

SPECTRAL DECOMPOSITION

- Detect thin beds, faults, fractures and anomalies at multiple seismic resolutions.
- Analyze the full frequency spectrum – even below tuning thickness – with interactive multi-frequency section, gather and map displays.
- Visualize in 3D with multi-zone, sub-sampled stratigraphic rendering.



Spectral Decomposition

EASY DATA IMPORT/EXPORT

- Data input wizards simplify project setup, data loading and data export.
- OpenSpirit™ link enables import and export of 2D and 3D seismic data, wells, faults and horizons from the OpenSpirit database.

VisualVoxAt BENEFITS

- **Enhanced Workflows** - Generate fit-for-purpose attributes to capture subtle variations in the seismic signal.
- **Improve Interpretation** - Speed up interpretation time with interactive waveform picking, fault editing and data input wizards.
- **Reduce Uncertainty** - Detect thin beds, faults and anomalies below seismic tuning thickness.
- **Faster Cycle Times** - Identify targets faster with multiple attribute volume visualization. View gathers, horizons, well logs and reservoir grids interactively.
- **Informed Decisions** - Discover the geologic meaning of the attributes with advanced regression methods and neural network facies analysis.

VisualVoxAt is an integrated, Windows-based toolkit for seismic attribute generation, visualization, calibration, classification and interpretation. The software combines fast rendering technology with easy-to-use analysis tools to reduce cycle times for faster decisions. As a plug-in to reservoir interpretation workflows, VisualVoxAt is a cost-effective solution for optimizing reservoir assets and increasing well accuracy.

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