



# AttributeStudio™



Seismic Attribute Interpretation Software



“Attribute interpretation represents a powerful mechanism for reservoir delineation and characterization. New advances in attribute analysis are at the leading edge of seismic interpretation.”

– Satinder Chopra, CSEG Meritorious Award Recipient.

Photo: Øyvind Hagen / StatoilHydro

## MOVE BEYOND CONVENTIONAL INTERPRETATION

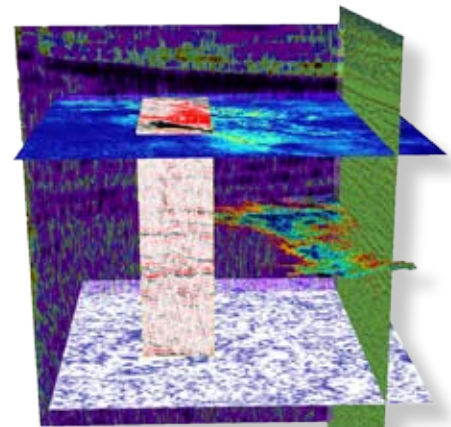
AttributeStudio™ is an integrated toolkit for 3D seismic attribute generation, visualization, calibration and interpretation. AttributeStudio combines fast rendering technology with easy-to-use analysis tools that enable geoscientists to move beyond conventional interpretation through a broad range of advanced capabilities. Included in a single application is a comprehensive suite of tightly-linked components with a familiar Microsoft Windows look-and-feel. AttributeStudio provides a powerful desktop environment for rapid, in-depth evaluation of seismic data.



## ONE PACKAGE, PACKED WITH FEATURES

AttributeStudio is packed with features that provide the most robust seismic attribute interpretation system available in one affordable package. No need to purchase multiple, poorly integrated application packages:

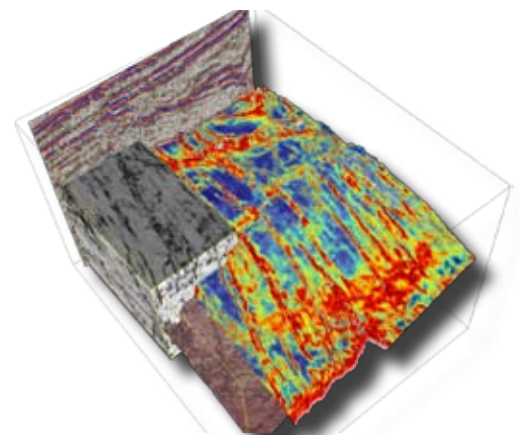
- Waveform Auto-picker
- Stratagrids
- Volume-based Attributes
- Horizon Attributes
- Interval Attributes
- Interactive Cross-Plotting
- Spectral Decomposition
- Semblance
- Volume Curvature
- Structure-Oriented Filtering
- Seismic Facies Classification (Neural Network)
- Multi-attribute Color Cube
- Geobody Tracking and Paintbrush
- Principal Component Analysis



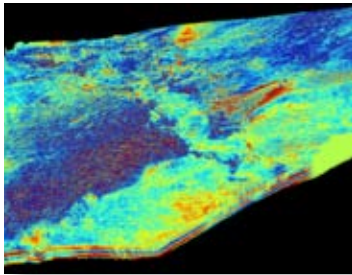
## BETTER RESULTS, FASTER

AttributeStudio enables users to analyze and interpret more data, faster and with better results than conventional interpretation systems. With AttributeStudio, you can:

- Delineate geologic structures and geometry in complex geologic environments and Stratigraphic plays
- Detect thin beds, faults and subtle anomalies below conventional seismic tuning thickness
- Evaluate the distribution of hydrocarbon-bearing intervals within prospective reservoir units
- Identify and correlate direct hydrocarbon indicators



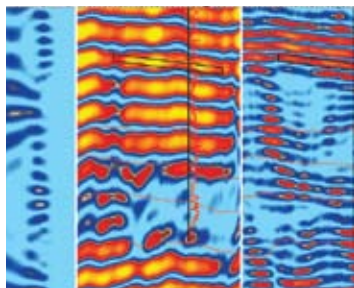
## ADVANCED TOOLS FOR ATTRIBUTE ANALYSIS



### STRATAGRIDS

AttributeStudio can extract stratagrids from seismic volumes using paleo-slices that are proportional or conformable to bounding horizons. Stratagrids in AttributeStudio offer the following advantages:

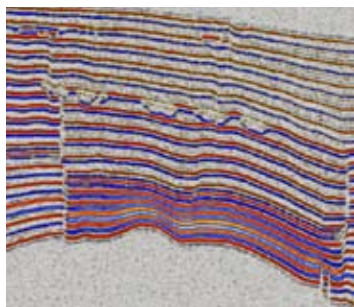
- Remove structural bias from interpretation
- Visualize paleo-surfaces
- Detect subtle changes in stratigraphy



### SPECTRAL DECOMPOSITION

AttributeStudio includes five different types of Spectral Decomposition enabling detection of thin beds and geologic features beyond the limits of traditional post-stack analysis:

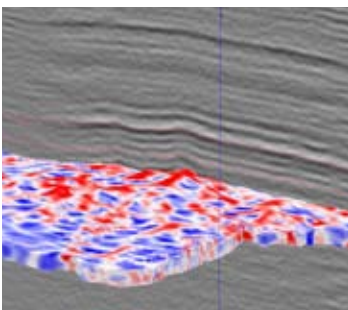
- Discrete Fourier Transform
- Continuous Wavelet Transform
- Time-Frequency Continuous Wavelet Transform
- S-transform
- Continuous Wavelet Packet-type Transform



### STRUCTURE-ORIENTED FILTERING

AttributeStudio includes a robust set of structure-preserving filters to improve attribute analysis through edge/feature enhancement and noise attenuation:

- Multi-window Kuwahara Filtering
- Anisotropic Diffusion Filtering
- Perona-Malik Filtering with Dip-Steering



### VOLUME CURVATURE

AttributeStudio provides fast Volume Curvature computation on your desktop to provide advanced detection capabilities for channels, fracture orientations and faults below the level of seismic resolution:

- Lambertian Reflectance
- Most Positive, Most Negative Curvature
- Contour Curvature
- and 9 more curvature attributes...

## ATTRIBUTE GENERATION

AttributeStudio can generate more than 70 seismic attributes including:

### Horizon Attributes

- Local Variability
- Dip
- Dip Azimuth
- Strike
- Throw
- Lambertian Reflectance
- Gaussian Curvature
- Maximum Curvature
- Minimum Curvature

### Interval Attributes

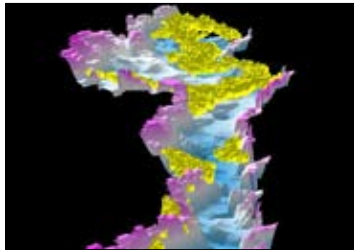
- Arithmetic Mean
- Geometric Mean
- Energy Value
- Isopach
- Integrated Absolute Amplitude
- Ratio of Adjacent Peak Amplitude
- Amplitude Slope

### Volume Attributes

- Semblance
- Wave-form Difference
- Instantaneous Phase
- Instantaneous Amplitude
- Instantaneous Weighted Frequency
- Instantaneous Thin Bed Indicator
- Phase Dip and Rotation
- Phase Dip Azimuth
- Relative Acoustic Impedance
- Spatial Frequency
- Average Weighted Frequency
- Sweetness

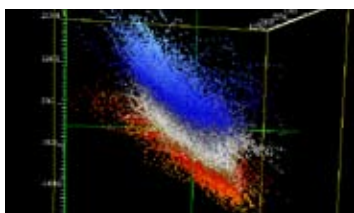
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## MORE ADVANCED TOOLS FOR ATTRIBUTE ANALYSIS



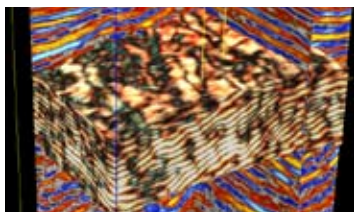
### GEOBODY EXTRACTION

Highlight complex geologic features, stratigraphic sequences, play concepts and geomorphology on time and strata slices using Geobodies in AttributeStudio. Geobodies can be created automatically or manually using the Geobody Paintbrush.



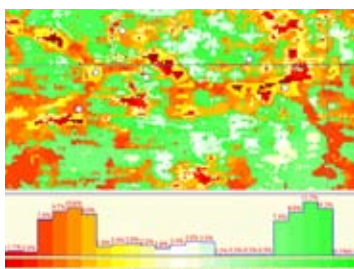
### CROSS-PLOTTING

AttributeStudio includes powerful interactive cross-plotting that enables quick correlation of attribute patterns that correspond to AVO anomalies, lithology trends and petrophysical properties of interest.



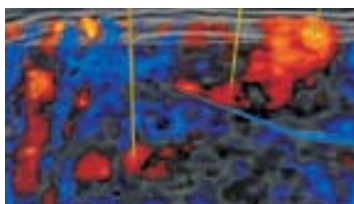
### COLOR CUBE

AttributeStudio includes powerful Color Cube technology allowing users to identify potential hydrocarbon indicators through blending of multiple attributes simultaneously in a single correlation display.



### SEISMIC FACIES CLASSIFICATION

AttributeStudio simplifies data analysis by extracting major attribute patterns through neural network seismic facies classification. By calibrating classification results to well data, users can refine facies maps to improve lithology discrimination, fluid prediction and target selection accuracy.



### ATTRIBUTE CORRELATION

AttributeStudio supports rapid calibration of seismic attributes to wellbore data for rapid identification of fracture patterns in unconventional shale plays and complex carbonate geology.

### ABOUT GEOMODELING

Geomodeling is the leader in realistic geologic and cross-scale modeling software for the up-stream E&P industry. Geomodeling enables oil and gas companies to maximize revenue and reduce costs with software solutions for improved reservoir characterization and recovery. Founded in 1996, Geomodeling has offices in Canada, China and the United States.

Visit us on the internet at  
[www.geomodeling.com](http://www.geomodeling.com)