SAFE™

Spectral Adaptive Feature Extraction

Separate your seismic data into spectrally coherent 3-D volumes with SAFE™ and find regions that are spectrally similar to known hydrocarbon locations.

SAFE™ benefits exploration and development/production by

- identifying only 3-D features with similar frequency spectra to known reservoirs.
- scanning very large 3-D volumes for potential reservoirs and significantly reducing the cycle time of seismic interpretation.
- generating a small number of 3-D feature volumes useful for reservoir identification.

TECHNOLOGY

SAFE™ uses both Wavelet Packets Analysis (WPA) to locate spatial features in the seismic data and Prolate Spheroidal Wave Functions (PSWF) to help extract such features from the seismic data.

BENEFITS

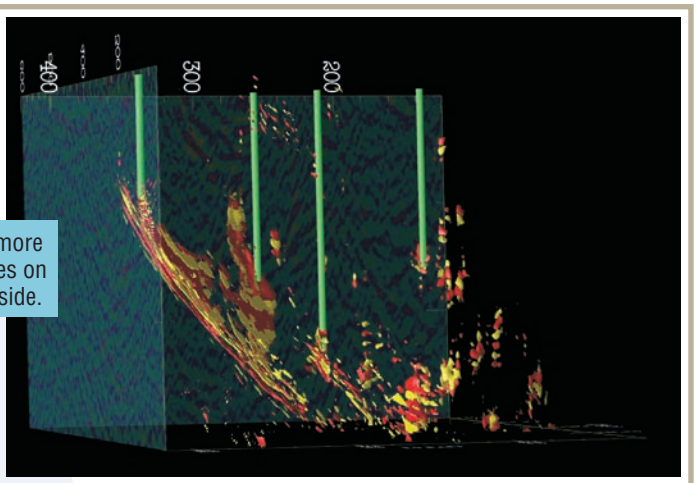
How does SAFE™ benefit exploration and development/production?

- Identify only 3-D features with similar frequency spectra to known reservoirs.
- Scan very large 3-D volumes for potential reservoirs and reduce substantially the cycle time of seismic interpretation.
- Generate a small number of 3-D feature volumes useful for reservoir identification
- Small incremental storage requirement
- Easy to visualize 3-D feature volumes together with original 3-D seismic volumes
- Compute thickness of selected 3-D feature volumes related to known reservoirs.

DELIVERABLES

Complete 3-D feature volumes, of identical dimensionality as the original 3-D seismic volume. Based on a priori information, the very few 3-D feature volumes in which the hydrocarbon reservoirs are mapped, are marked separately and provided for 3-D seismic interpretation and visualization.

See more images on backside.



Results of SAFE™ on a producing oil field

GeoEnergy

Get the Clear Picture

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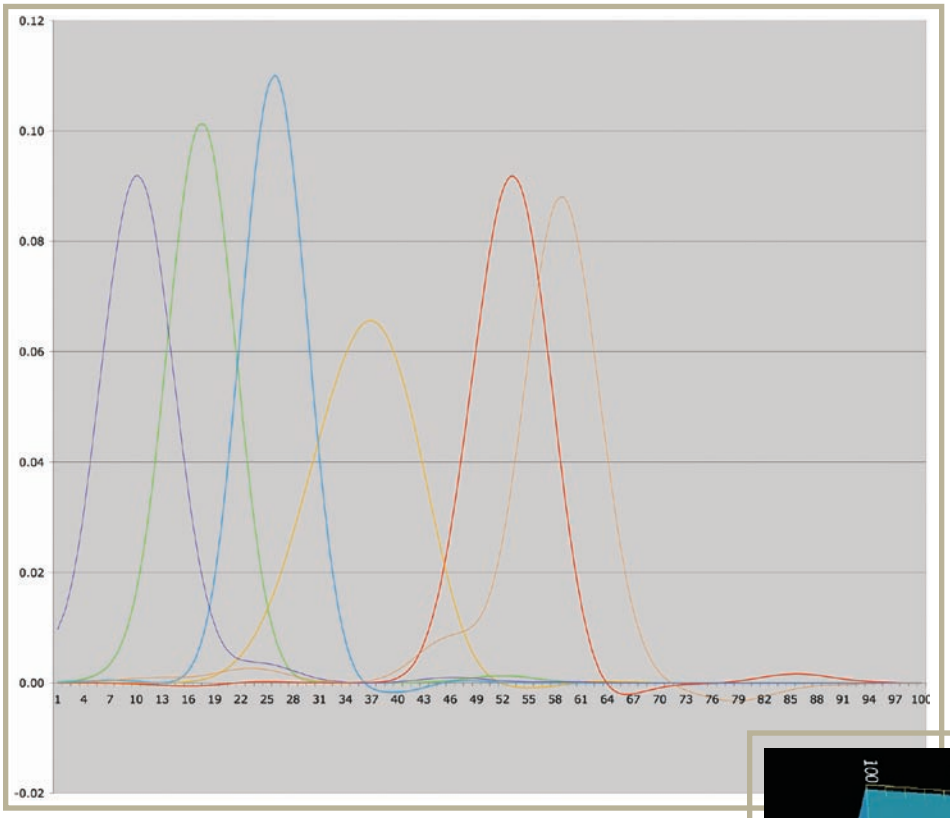
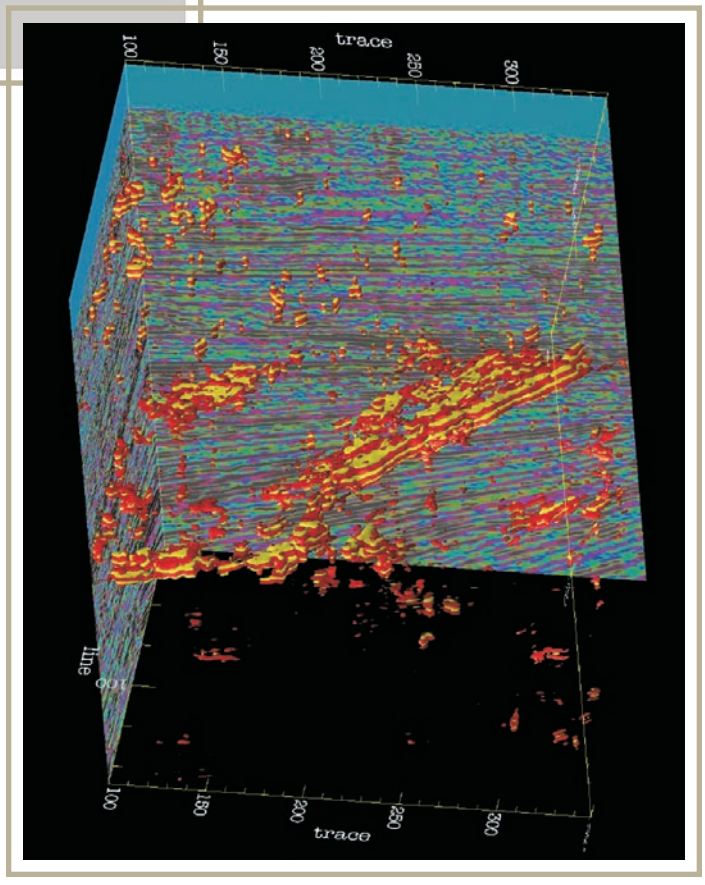


Spectra of the top 6 features of the data set



SAFE™ over a GOM producing oil field