



GeoNeurale

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-Postdoctoral and doctorand training for Geoscientists and Engineers
-Industry postdoctoral and cross-disciplinary training

Module 5.

3D Seismic Interpretation and Attributes Analysis

Multiattributes analysis.

Amplitude, complex, time attributes:

Hilbert transform, real and complex amplitude components.

Amplitude Envelope.

Instantaneous Phase.

Instantaneous Frequency.

Average Frequency.

Dominant Frequency.

Derivative.

Derivative Instantaneous Amplitude.

Second Derivative.

Second Derivative Instantaneous Amplitude.

Amplitude Weighted Cosine Phase.

Amplitude Weighted Frequency.

Amplitude Weighted Phase.

Cosine Instantaneous Phase.

Apparent Polarity.

Integrate.

Integrated Absolute Amplitude.

Predicting target properties in multiattribute space.

Decreasing the prediction error.

Crossvalidation.

Neural networks modeling: from linear to non linear prediction.

Nodes in hidden layers, total iterations.

Stochastic Inversion.

SPECTRAL BALANCING AND SPECTRAL DECOMPOSITION.

Colored spectrum.

Spectral decomposition and interpretation's workflow.

Tuning frequency and sensitivity of spectral components to formation thickness.

Multiattributes interpretation in the frequency domain.

Statistical discrimination on spectral components.
Sensitivity of spectral components to hydrocarbons.
Diffusive Q-model: fluid mobility attributes.
Singularity attributes.
Instantaneous frequency as reflector continuity indicator.
SPICE algorithm and waveform singularities as coherence attributes complement.