

# Prestack Seismic Interpretation

Prestack seismic viewing, interpretation, and processing in Petrel software

The Prestack Seismic Interpretation (PSI) plug-in for the Petrel\* E&P software platform enables prestack seismic visualization, interpretation, and interactive processing.

PSI complements existing 3D volume interpretation workflows by allowing interpreters access to the wealth of information contained in prestack data. Bridging the gap between the 3D space and 2D prestack window, prestack gathers can be easily accessed anywhere and anytime with one click.

## FEATURES

### PSI-Visualize

Ideal for exploring and comparing different vintages of prestack data, the multilayer 2D prestack window can be synchronized to the 3D canvas in Petrel software for improved data investigation. Prestack locations and gathers can even be visualized directly in the 3D canvas as gathers or in a gather slab.

On-the-fly stacking is a powerful feature that enables the interpreter to perform interactive weighted stacks on prestack data, as well as visualize individual offset or angle panels in 3D space for quick amplitude versus offset (AVO) analysis.

### PSI-Interpret

Prestack event interpretation uses a true 4D tracker, seeded from gather picks, as well as horizons in Petrel software. Residual moveout, amplitude, picking confidence, and many other attributes, including AVO attributes like intercept and gradient, are automatically extracted to further enhance understanding and analysis of the data.

### PSI-Process

PSI-Process allows the interpreter to quickly create a virtual dataset and process gathers on-the-fly directly in Petrel software. It also enables interactive tuning of processing parameters and improves gathers quality. Gain, muting, bandpass filtering, radon demultiple, and normal moveout (NMO) are just a few examples of the algorithms included in PSI. PSI-Process features also allow for decomposition of AVO angles from prestack data and subsequent creation of angle stacks.

## APPLICATIONS

### Enhanced interpretation

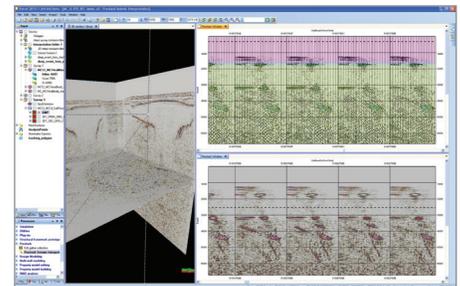
PSI allows for enhanced QC of poststack interpretation by leveraging the information contained within prestack gathers. Refinement of initial poststack interpretation with conditioning of prestack data improves stacking responses and the ability to interactively stack prestack data.

### Event-based AVO analysis

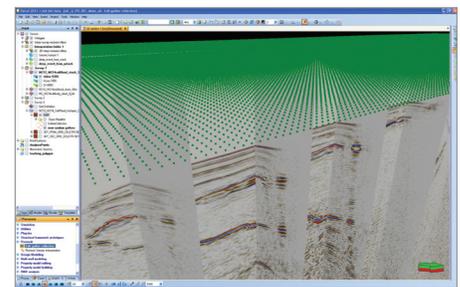
PSI true 4D prestack event tracking extracts AVO attributes (DHI, intercept, and gradient). Attributes can then be plotted, allowing for true AVO analysis from prestack data.

### Data preparation for AVO reconnaissance inversion

PSI enables the creation of AVO angle gathers and angle stacks from prestack data, which can be used in AVO workflows or with the WesternGeco inversion plug-ins.



*Linked 3D and 2D browsing of prestack seismic data.*



*Interactive event picking on prestack gathers.*

## PREREQUISITES

Petrel 2012

Petrel Geoscience Core

**For more information, please contact**  
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