Ocean Software Development Framework for Petrel Geophysics

Extend and customize the Petrel platform to do more with your data

BENEFITS AND FEATURES

- Access all the seismic data in your Petrel* E&P software platform project
- Create new surveys, and new 2D lines and 3D post-stack cubes from scratch
- Import and export your seismic data in industry-standard SEG-Y and ZGY formats
- Access seismic bulk data by full trace of chunks of samples, with additional accessors supporting multi-threading
- Write your own post-stack or pre-stack seismic backends to load your proprietary formats into the Petrel platform
- Access, create, and manipulate virtual cropped 3D volumes and 2D lines
- Write your own seismic attribute algorithms and create virtual attributes in the Petrel platform, reusing the volume attributes framework
- Access all the interpretation data in your Petrel platform project, including the ability to create and edit 2D and 3D horizon interpretation, fault interpretation, and multi-Z interpretation
- Access, create, and manipulate horizon, well, and box probes
- Access, create, and manipulate geobodies

The geophysical exploration capabilities of the Petrel platform are in themselves flexible and powerful tools for the geoscientist; however, the Ocean* software development framework suite of application programming interfaces (APIs) for geophysics has allowed these capabilities to be extended to the next level. Enhancing the power of the Petrel platform, the geophysics APIs offer full access to seismic data from fast attribute computations to interpretation and provide a very open and powerful interface, offering you unlimited ways of extending and customizing the Petrel platform to do more with your geophysical data.

Seismic data

With the Ocean framework's geophysics APIs, you have full access to 2D and 3D post-stack and pre-stack seismic. Whether you are just trying to ease the loading process or you are writing new and innovative ways of visualizing this data using your own renderers, this suite of geophysics APIs can meet your needs.

With our backend APIs for pre-stack and post-stack data, you are not limited to the formats traditionally supported by the Petrel platform or to data residing on flat files. Your data will be seamlessly integrated within the Petrel platform, just like any native Petrel platform seismic data.
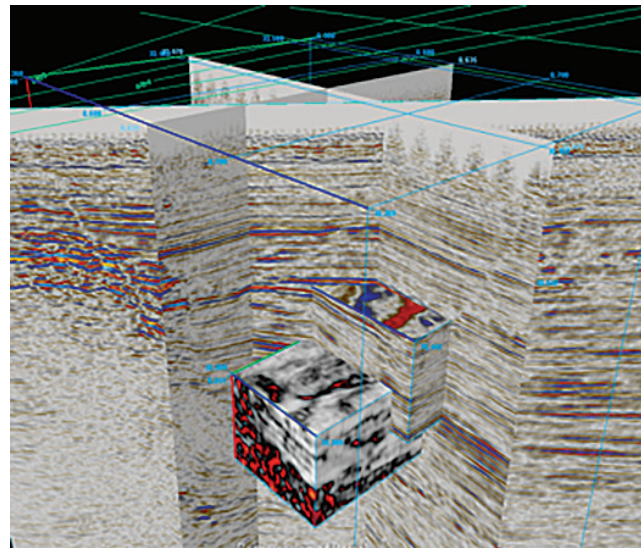
Loading and browsing through seismic data

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Seismic attribute computation

The geophysics APIs give you the ability to write your own seismic attributes. This unique architecture supporting multi-threading allows you to write seismic attributes which perform as fast as can be performed on the user's machine. An API can work on virtual cubes or lines, never going to disk, and can be done on an as-needed basis (for example, only on the currently viewed inline). You only have to write the algorithm and a user interface for your input parameters, and the framework will do the rest for you, including seismic access and visualization.

Seismic interpretation

Even for the more basic techniques, the geophysics APIs provide full access to the various types of seismic interpretation available on the Petrel platform. From multiple horizon interpretation representations, including regular height field surfaces and survey binned seismic interpretation, to fault data represented as polyline and/or surfaces, you can extend, modify, or even create your own interpretation.

With access to the window modes in the Petrel platform, you can respond to user interactions. This means you can extend horizon or fault picking. The ability to access and assign properties to the interpretation data points allows you to take your interpretation to the next dimension.

The geophysics APIs also allow you to create Multi-Z interpretation for representing complex shapes like salt bodies. You can also access existing Multi-Z interpretation and use your own algorithm to create triangular mesh bodies. These methods combined allow you to extend the Petrel platform's interpretation data, or create new interpretation data in your own unique way.
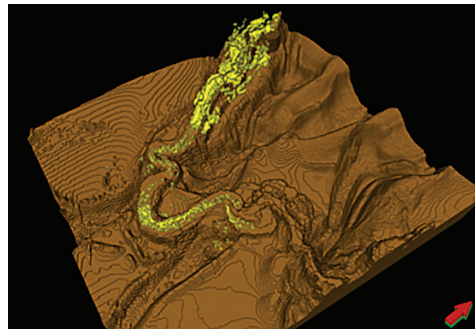
Advanced visualization and interpretation techniques

Using the Ocean framework's probe APIs, you can access existing probes on the Petrel platform, or create new ones, and you can manipulate their geometry and opacity curve.

Using opacity settings in color maps or other extraction techniques of your choice, you can create geobodies based on your own algorithms. You can also access existing geobodies and incorporate them in your own custom interpretation workflows.
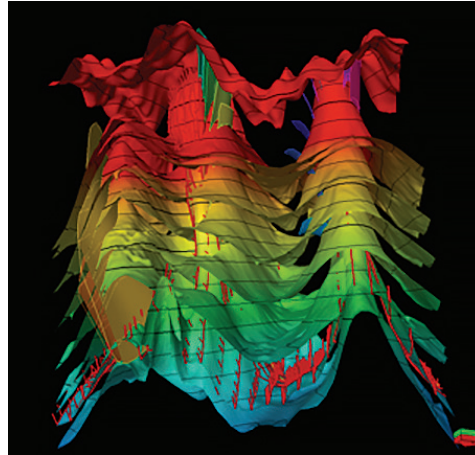
Enhancing seismic interpretation, managing horizon, fault and multi-Z interpretation data.

Taking advantage of Petrel advanced interpretation and visualization features.

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