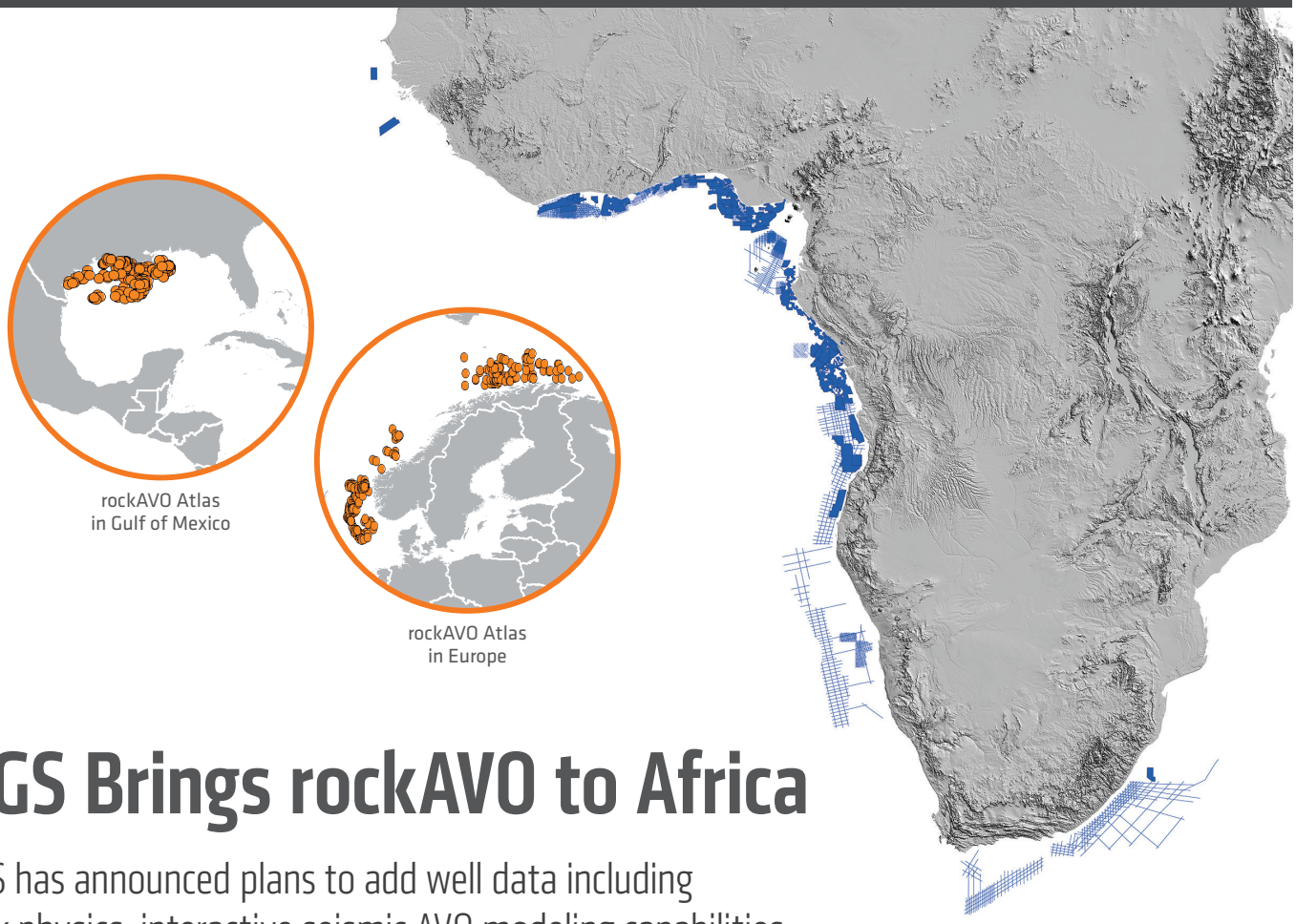
TechNote

rockAVO



PGS Brings rockAVO to Africa

PGS has announced plans to add well data including rock physics, interactive seismic AVO modeling capabilities, and data atlases to its Africa MultiClient data library.

The integration of seismic with well data enables oil and gas companies to calibrate PGS GeoStreamer and other seismic data with conditioned well data and known production scenarios.

For E&P companies active in Africa, access to a homogeneous database of interpreted well logs will make it possible to analyze the seismic AVO signature based on different fluid and matrix property perturbations.

For African governments keen to promote their offshore areas, the ability to provide harmonized seismic and well data in the same library will be a valuable asset in the competition for oil and gas company interest. Interactive rock physics modeling tools offered in addition to seismic will further improve derisking and make it easier for exploration teams to identify play analogs for prospect screening and analysis. Production teams can use them to interrogate nearfield opportunities.

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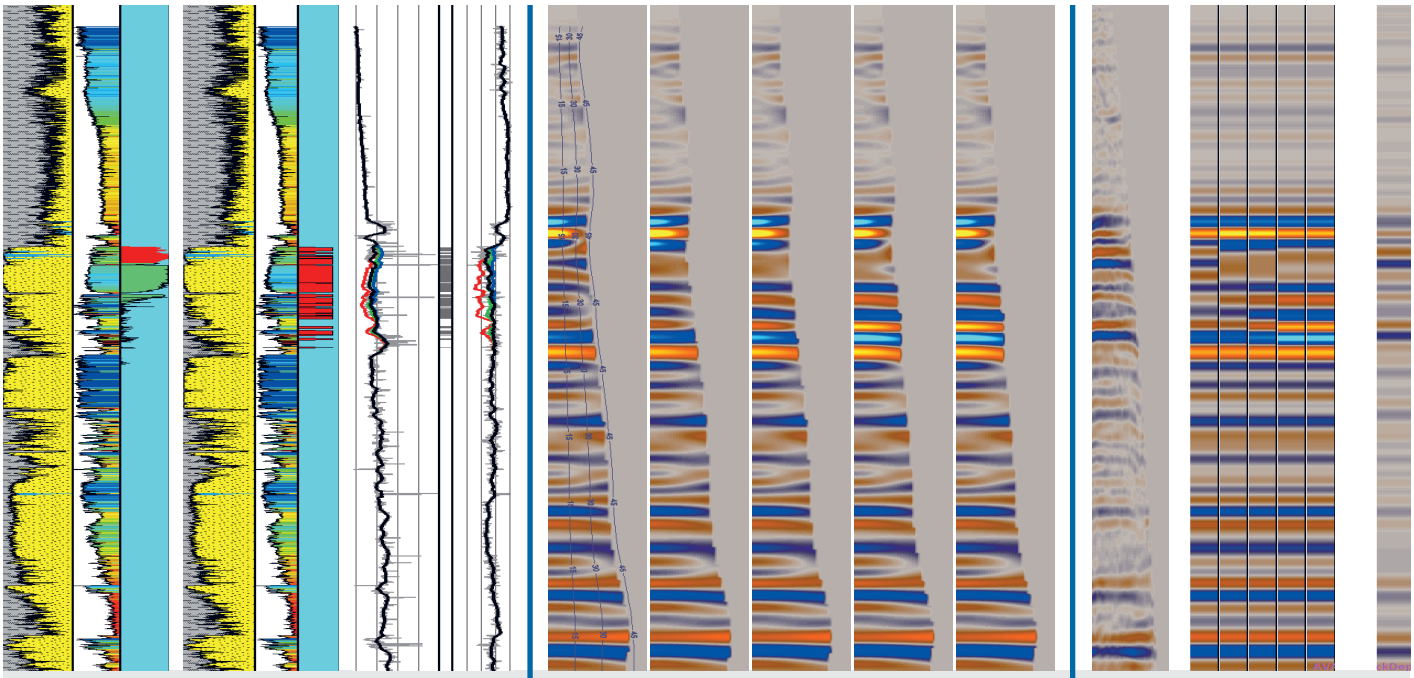
Key Benefits

- Seamless and fast integration of seismic and well data
- Allows for QC of seismic data by checking for AVO compliance and image integrity
- Rapid screening for analogs and scenario testing of lithology, fluid and porosity in real-time
- Interactive rock physics tool for derisking plays
- Access to rock property information for non-rock-physics experts



rockAVO well view showing the rock physics modeled elastic logs and the corresponding synthetic seismic (for differing fluid content) for direct comparison with the measured seismic traces.

PGS Gets Closer to the Reservoir with Rock Physics Integration

Rock physics is the link between the seismic response and geological properties. It explains how rock properties like clay content, porosity and fluid fill influence elastic properties such as velocity and Poisson's ratio and therefore the prestack seismic amplitude response at the well location.

PGS is integrating well-based rock physics data in their MultiClient data library and will offer the interactive rock physics atlas browser rockAVO as a MultiClient product. The current suite of rock physics atlases is a good fit with the PGS seismic data library, especially in the US and Europe, with wells in the Gulf of Mexico, the Barents Sea, the Norwegian Sea, the North Sea, and the UK Central Graben.

The combination of GeoStreamer, reprocessed broadband seismic and imaging technology with rockAVO rock physics tools and atlases offers significant benefits when integrating seismic with well data, for example in demonstrating AVO compliance.

Unlocking Reservoir Properties

Rock physics properties vary from basin to basin, and from stratigraphic interval to interval. For each, a separate model or rock physics template is required that relates the seismic response to earth properties. PGS has ample access to seismic and are now adding the geological part that comes from well data. rockAVO, a proven software tool, delivers fully interactive, well by well, rock physics AVO modeling. It transforms a static hardcopy study into a fully dynamic live report making it accessible to every non-rock physics expert.

Expanding Rock Physics Products in support of Exploration

Regional rockAVO atlases for Europe and the Gulf of Mexico will be expanded to new areas, such as West Africa. At the exploration stage, combining regional rock physics atlases with seismic data library coverage will permit fuller and faster calibration of zones of interest and analog screening.

Calibrating Well Data to 4D Seismic

Combining 4D well modeling with 4D seismic will offer further proof of the 4D AVO compliance and imaging integrity of PGS seismic data.

4D synthetic AVO modeling can be integrated with measured seismic gathers, using the rockAVO interactive software. Therefore, PGS can now deliver enhanced 4D feasibility studies and scenario modeling of reservoir characteristics, like saturation and pressure changes.

Quantitative Interpretation (QI) Advantage

The objective of QI is to derive elastic seismic attributes within their proper geologic context. Rock-physics-driven QI techniques combining rockAVO, prestack AVO compliant seismic data and additional post-seismic inversion technologies will enhance the ability of PGS clients to predict rock and fluid type accurately during reservoir review and prospect analysis.