Updated open source software

TAKING SEISMIC INTERPRETATION TO A NEW LEVEL

At a time when there is an increased focus on recovery rates and because fields are becoming ever more geologically complex, operators are looking for that extra 1 to 2% to squeeze out of their seismic data. According to dGB Earth Sciences, it is with this in mind that the company is showing the latest version of its open source interpretation software at the EAGE. OpendTect 4.4 comes with three new innovative plug-ins and a host of new features that will help seismic interpreters estimate seismic net pay from seismic color inversion data, enhance the signal from flat events, and improve petrophysics interpretation through improved well-to-seismic ties. "OpendTect 4.4 is a significant milestone in our quest to become the leading player in the seismic interpretation software and services market," said Paul de Groot, president and co-founder of dGB. "It's the result of our successes in creating a truly open platform for seismic interpretation and is also due to the collaboration and partnerships we have fostered."

Two of the new plug-ins have been developed by Ark CLS. Seismic Net Pay is an improved method to estimate net pay from seismic attributes by estimating net pay from seismic color inversion data and correcting average amplitude to seismic net-to-gross. Seismic Net Pay is used to make estimates of either net pay or net rock volume depending on the input data and calibration. Seismic Feature Enhancement (SFE) is a flat-spot enhancement tool that enhances the signal of consistent flat events and reduces the "noise" of channel reflections within the seismic data. SFE complements Common Contour Binning, a dGB plugin that stacks seismic traces along horizon contour

lines to highlight subtle hydrocarbon-related seismic anomalies and pin-point gas-water, gas-oil, and oil-water contacts. Through its ability to enhance flat spots earlier in the interpretation lifecycle, SFE can also play an important role in reducing the risk of drilling dry holes. The CLAS computer log analysis software plug-in, developed by an Argentinean geosciences company, Geoinfo SRL, is expected to lead to improved well-to-seismic ties, enhanced calibration of seismic attributes to reservoir properties, and more accurate interpretations of 3-D seismic data.

Enhanced collaboration, however, is also dependent on continuing software improvements. To this end, dGB says its HorizonCube and SSIS sequence stratigraphic interpretation system plug-ins also have been enhanced and extended. A new 3-D slider allows the easy extraction of 3-D bodies from the HorizonCubes generated and the new HorizonCube editor also supports manual updates of Horizon-Cubes as and where needed.

Other new features in OpendTect 4.4 include significant improvements in loading and editing of SEGY data, the ability to create 3-D volumes from 2-D seismic data, improvement in cross plotting features, improvements in multi-machine batch processing on Windows and Linux, a new installer with auto-update features, a new multi-gather pre-stack viewer, variogram analysis, and much more. dGB says that later this year it will be adding another plug-in that creates and uses forward models in qualitative and quantitative seismic interpretation studies. For more information, go to opendtect.org or visit dGB at booth 840.

INOVA delivers Hawk nodal system to Tesla Exploration

Tesla Exploration Ltd. has purchased 10,000 three-channel stations (30,000 channels) of INOVA Geophysical's cableless Hawk autonomous nodal system. The initial shipment of 18,000 channels is being deployed immediately to a project in the Marcellus Shale of West Virginia, and the balance of 12,000 channels will be delivered to Tesla by June 15, 2012. Hawk provides Tesla's crews with better productivity, system flexibility, and safety advantages in geographies that are more developed, environmentally sensitive and present challenging terrains, according to INOVA.

Hawk supports both three-channel analog geophones and VectorSeis multicomponent digital sensors with the same field station electronics for better characterization in unconventional plays. The node's rugged exterior, which is built from lightweight, high-grade aluminum, is made to maximize durability. Hawk's transcription time is three times faster or more, depending on total volume of production, compared to other nodal systems on the market, according to the company. Crews also have the benefit of advanced drive-by QC features via Wi-Fi link.

Tesla Exploration acquires seismic data for the oil and gas exploration industry across diverse regions of North America and worldwide. David Buttle, president of Tesla Exploration Inc. (Tesla's US subsidiary) said, "We look for equipment that allows our crews to operate efficiently and safely in any environment, so we were impressed with Hawk's ability to download data quickly without a lot of infrastructure. In February of this year, INOVA performed a side-by-side comparison of the Hawk system deployed next to their cableless recording system using analog and VectorSeis multicomponent sensors. From this test we were able to evaluate and witness productive output of high-quality data acquisition from the Hawk system."

Steve Bate, INOVA's president and CEO said, "It's our mission to drive the development of products that meet our customers' acquisition needs, and it's important that our products strike a balance between innovative high technology and usability. We believe that the Hawk system will provide maximum opportunity to utilize their investment on a full array of seismic projects."

For more information, go to inovageo.com or visit Ikon Science at booth 1760.

Seventh-generation rock physics software

Ikon Science is launching RokDocQED at EAGE 2012, the seventh generation of its rock physics software package, designed to bring a quantitative edge to the exploration and development workflow. Because the quantitative interpretation of seismic data is a non-linear process, RokDocQED has been designed to bring the all the pieces together – well and seismic data, elastic rock properties, pressure, geomechanics, and petrophysical rock properties – combined in a geological framework. The concept behind the software design is simple; seismic is the industry's predictive tool so more should be done with it, and rock physics is the key enabler. This is especially true in the days of $100-million-plus wells.

RokDocQED is built on a new 3-D/4-D architecture and is closely connected to Petrel via Ocean and Landmark through DecisionSpace. According to Ikon, for the first time interpreters can create quantitatively defined meaningful 3-D volumes and maps of all the key value elements in exploration and development – such as pressures, lithologies, fluids, and porosity – bringing high-end science to their desktops in an easy-to-use integrated system.

A number of important new tools are now available to users of RokDocQED. There is an expansion of the pressure capability with the addition of new features including calculators for fracture pressure and seismic pressure, allowing the creation of 3-D pressure cubes. Seismic data is easily handled in the new system and the new rock physics driven inversion module includes a seismic data conditioning tool as standard. The 3-D framework allows users to create maps and 3-D volumes in an interactive quantitative environment. The RokDoc 2-D forward modelling system is tightly integrated with the 3-D framework enabling sophisticated forward and inverse modelling of all the lithology, fluid, and pressure factors to increase chance of success.

RokDoc is built using Java and runs in a shared Windows/Linux environment, delivering efficiency across the multidisciplinary teams needed for quantitative interpretation. The new RokDoc/Petrel rock physics plugin, which runs alongside the existing two-way links between Petrel and RokDoc, has been written in native Ocean format using a combination of Java and C#, to enable Petrel users to directly run rock physics workflows in their Petrel interpretation session.

Ikon said that RokDocQED includes sophisticated tools for building customized workflows such that both workflows and process can be speeded up for general interpreters and non-expert users. The combination of science, usability, and the interdisciplinary nature of the package is designed to enable users to derive more geology from seismic, delivering better exploration and development decisions. For more information, go to ikonscience.com or visit Ikon Science at booth 1460.