

Reservoir Characterization Provides Basis of New Survey Offerings

New 3-D seismic data programs help reduce costs in unconventional reservoirs.

Contributed by ION

Building on its BasinSPAN multiclient library, ION has broadened its scope to include proprietary and multiclient 3-D programs called ResSCANS. Like BasinSPANS, ResSCANS are developed and managed by ION's GeoVentures group and are imaged by ION's GX Technology (GXT) group using the most advanced data processing techniques available. Both offerings encompass multiple industry disciplines to solve the industry's most difficult challenges.

While ION is applying a similar approach to delivering its SPANS and SCANS, the scale, objectives, and outcomes of these two offerings are very different. ION's 2-D BasinSPANS are geologically inspired basin-scale seismic programs that provide E&P companies with the ability to evaluate the geologic evolution, deep basin architecture, and depositional and structural histories of entire petroleum systems in a region. In contrast, ION is applying a reservoir characterization approach to development of its ResSCAN programs, initially focusing on unconventional reservoirs to help operators meet the unique challenges associated with those plays.

ResSCAN programs are custom-designed in collaboration with ION's geo-consulting team, outside specialists, and E&P companies. In resource plays, operators are seeking to understand the variability in rock properties to define more effective horizontal drilling programs and hydraulic fracturing designs. Relying on upfront geological, petrophysical, and rock physics analysis, ION's ResSCAN programs establish which seismic attributes tie the geology and rock physics for a given shale play and, most impor-



Crew members working on ION's ClearfieldSCAN program in the Marcellus shale play deploy INOVA FireFly and VectorSeis stations using the Connex operational management tool. (Photo courtesy of ION)

tantly, impact an operator's drilling and completion engineering decisions and parameters.

ION's GeoVentures group serves as project manager and applies the best survey design, acquisition, and processing technologies to the development of all ResSCAN programs. Three ResSCAN programs encompassing more than 1,550 sq km (600 sq miles) are currently under way. In the Marcellus play, acqui-

sition for Phase I of the ClearfieldSCAN program is complete, and recording of LakeviewSCAN is in progress. In the Niobrara, acquisition is set to start in the last quarter of 2011 for the BearCreekSCAN program. All three of these programs incorporate multicomponent acquisition and employ GXT's data

See OFFERINGS continued on page 26 >>

Ice Class Research Vessel Conducts Arctic Survey

Non-seismic vessel refitted for work with ION.

By James Pryor, WGP

Independent British geophysical contractor WGP Exploration Ltd. is currently assisting ION's GeoVentures group with its ongoing Arctic exploration program. WGP provided the source array, recording office, and source workshop components of the Thalassa-owned portable modular source system (PMSS) in addition to the technical crewing required for the 2011 seismic program.



The PMSS source system enabled a quick retrofit of a non-seismic vessel. (Photo courtesy of WGP Exploration Ltd.)

negated. The PMSS' self-sufficient recording office and gun workshop were quick and easy to install, providing instantaneous instrument and workshop facilities.

The PMSS systems were initially designed and constructed to target the permanent reservoir monitoring market, but WGP's approach and equipment flexibility helped provide a custom source solution to ION. ■

The vessel used for the operation was selected due to its ice class and research capability. Since the vessel is a non-seismic vessel, a custom umbilical winch design was required. A solution was quickly designed by WGP Engineering and subsequently installed under the supervision of the field crew. The PMSS' BOLT Technology annular port gun is ideally suited to the deployment methodology whereby conventional tow plates, spreader bars, and external air and electrical lines are

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processing technologies and techniques, including offset vector tile (OVT) and azimuthal velocity anisotropy processing (AZIM). ION's full-wave approach in the Marcellus programs includes the use of INOVA's FireFly cableless recording system and VectorSeis sensors to overcome the operational obstacles prevalent in the area.

"With BasinSPANS, ION has established the industry reference when it comes to exploration-focused, basin-scale programs," said Ken Williamson, senior vice president of ION's GeoVentures group. "ResSCANS have a similar value-creating potential with a development and production reservoir focus, leveraging the technology and expertise across the ION portfolio and from outside specialists. Our 3-D MarcellusSCAN and NiobraraSCAN programs exemplify this

approach, addressing the development cost challenges our customers are experiencing in resource plays like these."

While ResSCANS are relatively new, they build on ION's previous experience across all major North American shale plays. Since 2003, GXT has been involved in nearly 200 shale play projects, delivering approximately 46,600 sq km (18,000 sq miles) of data. For one E&P operator looking to optimize the location of horizontal wells and their associated hydraulic fracturing designs in the Niobrara, ION conducted a new wide-azimuth 3-D seismic survey that combined ION's expert survey design and planning, data acquisition using the FireFly cableless recording system and VectorSeis sensors, and data processing using GXT's AZIM/OVT prestack time migration technology. As a result, the client was able to quickly and efficiently locate and complete three new horizontal wells that

resulted in a fivefold to tenfold increase in productivity relative to previous wells in the area.

"ION's ResSCAN approach is the result of a tried and tested formula of the right technology, the right expertise, and the right business model, helping E&P companies efficiently develop conventional and unconventional reservoirs," Williamson said. "Today, typical multiclient surveys deliver processed P-wave volumes with the expectation that E&P companies will then extract any potential value. The value-creating deliverables of ION's ResSCAN programs will provide operators with 'business data volumes,' not 'science volumes,' to help them define the critical engineering parameters to maximize the number of high-productivity wells."

To learn more about ION's ResSCANS and their technologies and services for unconventional reservoir development, visit ION at booth 2028. ■

INDUSTRY NEWS (continued from page 20)

Eagle Orders More Sigma Cableless Channels from iSeis

Ponca City, Okla.-based iSeis reports that Eagle Vibroseis, based in Traverse City, Mich., has taken delivery of another 360 channels of the Sigma continuous recording cableless system to increase the capacity of its vibroseis operations.

Eagle Vibroseis specializes in quality 2-D and small 3-D surveys with vib or explosive sources. Eagle's Leonard Harrand said, "We are very pleased to announce the expansion of our Sigma-based vibroseis operation. The system has operated just as well as the iSeis folks promised, with the ability to monitor and remotely control the deployed spread through the mesh radio and Google Earth, a particularly useful feature."

iSeis President John Giles said, "We are very happy that Eagle has come back to iSeis to increase the Sigma

channel count on their crew. I think Leonard's remark demonstrates the commitment of iSeis to this industry. We look forward to a long association with Eagle." ■

PanAmerican Geophysical Establishes New Multiclient Data Company

PanAmerican Geophysical Company Ltd., a North and South America-focused seismic service company, has established a new company to offer multiclient seismic surveys. The new company, PanAmerican GeoExchange Inc., will concentrate on programs in the US and is actively planning a number of surveys targeting hydrocarbon-bearing shale plays.

PanAmerican GeoExchange Inc. has appointed Tony Clark as president. He will be based in Houston. Clark has grown a number of successful seismic data library businesses in the US over a 27-year career in the industry.

As a graduate of Mississippi State University (MSU) with a BBA in marketing, Clark began his career working for Geophysical Field Surveys then moved to Seismic Exchange Inc. Having gained an impressive sales track record, he became a cofounder and partner in Seismic Assistants Inc., which he grew to become a leading provider of multiclient 3-D surveys in Texas. Following a successful sale of this business, Clark went on to build a portfolio of diversified business ventures outside of the oil service industry.

In 2007, he returned to the seismic industry, setting up a multiclient seismic data division for a mid-sized seismic company. Since then, and until leaving and joining PanAmerican, he has grown that business to have annual sales of more than US \$125 million and built a data library asset worth more than \$400 million.

Clark serves on the board of the College of Business and Industry at MSU and has been awarded its National Alumni Association's Distinguished Service Award.

Mark Farine, chief executive officer of PanAmerican Geophysical Co., said, "We are extremely pleased to have Tony join us to lead PanAmerican GeoExchange Inc. He has an unparalleled track record in growing multiclient seismic data businesses in the United States. The establishment of PanAmerican GeoExchange Inc. accelerates our plans to become a leading provider of geophysical data and services in key markets in North and South America."

For more information, please visit PanAmerican Geophysical at Panamgeo.com. ■

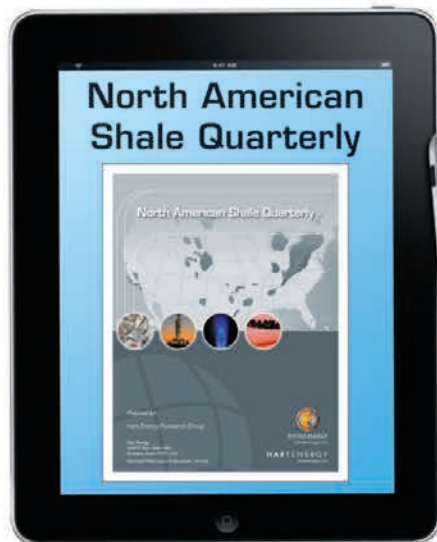
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