Eliminating Seismic Blind Spots

Paradigm has developed a new seismic decomposition and imaging system that will take full advantage of today’s wide- and rich-azimuth seismic data. EarthStudy 360 performs the seismic decomposition and imaging in the local angle domain, resulting in continuous full-azimuth angle-gathers, using the full recorded wavefield in a new and extremely efficient manner. This method generates and extracts high resolution data and information related to subsurface angle-dependent reflectivity with a simultaneous emphasis on continuous and discontinuous (e.g. faults and small scale fractures) subsurface features. Because EarthStudy 360 angle-gathers carry both full azimuth reflection (amplitude) and directional (dip and azimuth) information, geoscientists are able to generate and work with a new set of deliverables for uncovering physical and geometric properties of the subsurface. The main advantage of the technology is its ability to extract unprecedented value from the seismic data, especially when acquired with rich azimuth surveys, both in onshore and offshore environments. The system was presented for the first time at this year’s Society of Exploration Geophysicists annual conference in Las Vegas.

New Land Seismic System

WesternGeco’s UniQ, a new integrated point-receiver land acquisition and processing system, was announced at the SEG National Convention in Las Vegas, Nevada. The system combines extreme channel count point-receiver technology with support for advanced simultaneous source techniques. Highly flexible, with built-in redundancies to be fault tolerant, the system has been tested in a multitude of environments ranging from the Arctic to the desert and is now ready to address most land seismic challenges. UniQ can support up to 150,000 line channels at a two millisecond sample interval. With the seismic system’s continuous recording capabilities and support for simultaneous source techniques, UniQ can be used for dense reservoir characterization projects, as well as for sparse fast-moving exploration surveys. UniQ will also provide significant advantages in challenging noise environments and in areas with complex geologies.

The proven Q-Land geophone accelerometer (GAC) has been improved for use with UniQ. The units are ‘plug and play’, automatically powering up and self-testing upon connection. WesternGeco has also integrated acquisition and processing with the system to reduce non-productive up time and turn-around of final processing and inversion products.

New Interpretation Project in Brazil

A new multi-client interpretive study of offshore Brazil utilizing TGS’s proprietary Facies Map Browser (FMB) application is now being launched. The FMB allows explorationists to visualize the distribution of and relationship between the various elements of a petroleum system within a depositional basin. This new study, which is funded by several oil companies, will utilize borehole information and seismic data to map the development of depositional systems offshore Brazil in the form of sequence constrained environmental facies distribution maps. The first phase of the project, the Santos Basin FMB, is scheduled for completion by end Q1 2009. Additional phases in the Campos and Espirito Santo basins will be completed in 2009 and 2010.

In Northwest Europe some 50 exploration companies subscribe to and utilize a series of nine regional FMB areas in their exploration and new ventures activities. Additional FMB studies have been conducted in North America and are planned for other international areas.