Barents gets a boost

Barents Sea South East is set to explode into action

ALSO IN THIS EDITION...

- Groundbreaking seismic in Croatia.............. 2
- Pelotas Basin secrets revealed.................. 4
- South East Africa unexplored regions......... 7
- Race for space with Libra Pre-Salt block.... 6
- New seismic for North Sea Gas............... 6
Croatia: Spectrum gets ahead of the game

Spectrum to Acquire 2D Multi-Client Seismic Offshore Croatia Ahead of Licensing Round

Spectrum signed a contract with the Croatian Ministry of the Economy in July 2013 for the rights to acquire Multi-Client 2D seismic data offshore Croatia. A Seabird boat has been commissioned for the acquisition work which is expected to consist of 12,000 km of long offset seismic data. The survey covers both the northern and southern parts of the Croatian Adriatic Sea and the survey grid will connect with Spectrum’s reprocessed seismic data already covering much of the Italian Adriatic. The results of the survey will also be used for scientific research purposes in collaboration with local scientific institutions.

Ivan Vrdoljak, Croatia’s Minister of Economy, has stated, “The acquiring of 12,000 km of 2D seismic data in the Croatian Adriatic is our next step to encourage oil and gas exploration in Croatia. We have already approved a new hydrocarbon law and overall have attractive legislation in place to encourage investment... This new seismic survey is a precursor to an offshore license round that will be announced soon, with new data available to international oil companies by Q1 2014. The majority of the Croatian Adriatic is underexplored, and, if results from the northern part are any indication, we expect substantial hydrocarbon discoveries.”

David Rowlands, Executive Vice President, Spectrum added: “With the acquisition of seismic data, Croatia will have all the ingredients for a successful bid round in 2014...”

Bay of Biscay Seismic to Boost Exploration Interest

The Bay of Biscay is one of a number of new areas in South-West Europe which are to see a rejuvenation of seismic data by Spectrum in 2013. The company has announced the start of a 2D Multi-Client reprocessing project following an agreement which has been signed with SHESA, a company wholly owned by the Basque Energy Board. This allows Spectrum to re-process and market an extensive, regional 2D seismic offshore grid.

Open acreage in this vast unexplored area has triggered the execution of this project. The grid covers more than 5,000 km of 2D seismic, acquired in the 70s, 80s and 90s and will help promote hydrocarbon exploration and production in the Bay of Biscay.

The area’s hydrocarbon potential demonstrates identified structures, many of them undrilled.

SHESA’s chief geophysicist commented on the announcement, “We think that the Bay of Biscay’s potential is excellent and that the re-processing project will boost interest in hydrocarbon exploration and production. This area could potentially contain the largest undrilled structures left in the northeast Atlantic, with proven petroleum systems.”

The project will commence with key lines put through a re-processing sequence test. The final product is expected to be available in Q4 2013.

The acquiring of 12,000 km of 2D seismic data in the Croatian Adriatic is our next step to encourage oil and gas exploration in Croatia...

Ivan Vrdoljak, Minister of Economy, Croatia
The Pelotas Basin Oil Province revealed

The Pelotas Basin is an untapped hydrocarbon province comprising a 280,000 km² passive margin located on the south-east coast of Brazil, bordering Uruguay to the south.

A recent article written by Spectrum geoscientists for GEO ExPro magazine asks why pre-salt exploration in the Santos and Campos Basins of Brazil's Atlantic Margin have yielded extraordinary success while its southern sister, the Pelotas Basin, has seen little attention for over ten years despite displaying clear direct hydrocarbon indicators. Our authors describe how Spectrum’s new 2013 seismic is revealing new evidence for sand-rich systems and oil plays. Paleocene and Albian source rocks are actively generating hydrocarbons within the basin today, as is evidenced by a large plume of liquids and gas that is observed in an 40,000 km² direct hydrocarbon indicator.

In 2013, Spectrum acquired 7,500 km of seismic data with a 12 km cable and a 13 second record length, and is re-processing 6,000 km of legacy data. Modern pre-stack time and depth processing generated clear images of structural and stratigraphic features within the 3 km thick stratigraphic section and volcanic-rich extensional basement. There have been a total of 12 wells drilled in the offshore Pelotas basin. Of these wells, 11 were effectively stratigraphic probes and one well tested a Tertiary prospect on the shelf, which was dry. A more detailed examination of the seismic data would indicate that the deep water Pelotas basin contains substantially more prospective targets than the shelf. There is considerable evidence of a working petroleum system with a Paleocene source rock present within the oil window, which has been buried by a local delta. Correlation with the conjugate margin provides evidence of source rock in the deeper section which opens up a deeper Aptian-Albian sourced oil play. There are many good reasons to believe that the deep water Pelotas Basin would make an excellent choice for blocks to be nominated in the upcoming Bid Round 13.

The GEO ExPro article can be found either by visiting www.spectrumasa.com/techpapers or by visiting www.geoexpro.com
**11 Companies in Race to Acquire Brazil’s Libra Pre-Salt Block**

A total of 11 companies remain in the race to acquire Brazil’s Libra pre-salt block, one of the world’s largest offshore oil discoveries. Each company paid a 2 million Brazilian reals (USD 886,014) fee and submitted documents to participate in Brazil’s bid round for the extensive Libra pre-salt block.

Spectrum holds a comprehensive library of Multi-Client seismic data in the Santos Basin, including several 2D lines which cover the Libra field and tie key wells within the area.

According to Brazil’s National Petroleum Agency (ANP), leading the list of interested companies are Anglo-Dutch supermajor Shell, France’s Total, and Repsol-Sinopec, the joint venture between the Spanish and Chinese players, according to Brazil’s National Petroleum Agency (ANP). They join fellow contenders China’s CNOOC and CNPC, Ecopetrol of Colombia, Mitui of Japan, Galp of Portugal and Malaysia’s Petronas.

The sale of the offshore field, called Libra, is scheduled for October 21. Libra is situated in the Santos basin offshore Brazil and is estimated to hold between 8 billion and 12 billion barrels of recoverable crude oil reserves and covers an area of 1,500 square kilometres.

**New Broadband Data in South-East Africa**

**DURBAN AND ZULULAND BASINS**

Spectrum has commenced the acquisition of a new 2D Multi-Client survey extending up to 9,500 km in the Durban and Zululand Basins. The survey covers over 100,000 km² of predominately unexplored basins in both held and open blocks. Water depths range from 500 m to 2,500 m. Phase 1 of acquisition is currently underway and is expected to be completed by Q1 2014. The survey is being acquired using BroadSeis™ broadband technology.

The region offers potential analogues in the Rovuma and Maafa Basins offshore Mozambique and Tanzania to the north, and the conjugate North and East Falkland Island Basins.

**MADAGASCAR**

Spectrum is soon to offer further seismic data offshore Madagascar, this time from the Mozambique Channel. This is in anticipation of a licensing round scheduled for June 2014. Reprocessing is currently in progress.

With the agreement of OMNIS (Office des Mines Nationales et des Industries Stratégiques), Spectrum has processed a variety of seismic surveys offshore West, South and East coasts of Madagascar. 3,626 km of PSTM data is available over the Morondava/Amhijura basins to the west, 1,440 km of PSTM data is also available over the Ife St Marie area in the East, as well as a further 622 km of PSTM data that’s available in the South over the Cap Ste Marie.

**New Surveys**

**North Sea Gas Exploration to Benefit from New Seismic Survey**

In September 2013 Spectrum completed the acquisition of a new high quality 2D Multi-Client seismic survey in the Southern North Sea Gas Basin, UK. The survey area covers over 15 blocks in Quadrants 36, 37, 42 and 43, the majority of which include acreage available for the 28th License Round, expected to open January 2014.

The Gas basin acquisition will focus on defining the early Carboniferous prospectivity in open blocks within the Slemmerston Coal Formation play (fanway, channel, braided analogues). The 3,736 km program is supported by industry pre-funding.

Kim Gunn Mavé, Spectrum’s EVP for Northwest Europe commented on the new acquisition: “Spectrum is excited to embark on this seismic campaign in an area with an under-explored Carboniferous section and with a large number of open blocks available for the next licensing round. The survey is designed to offer long-offset and broadband seismic for both regional exploration and detailed block evaluation. This is Spectrum’s first project in the UK since 1998 and it is part of our strategic plan to grow our library”. Final products for this survey are scheduled for delivery in Q4 2013, thus they will be available for the UK 28th Licensing Round.

**New Surveys**

**New Broadband Data in South-East Africa**

Spectrum has commenced the acquisition of a new 2D Multi-Client survey extending up to 9,500 km in the Durban and Zululand Basins. The survey covers over 100,000 km² of predominately unexplored basins in both held and open blocks. Water depths range from 500 m to 2,500 m. Phase 1 of acquisition is currently underway and is expected to be completed by Q1 2014. The survey is being acquired using BroadSeis™ broadband technology.

The region offers potential analogues in the Rovuma and Maafa Basins offshore Mozambique and Tanzania to the north, and the conjugate North and East Falkland Island Basins.

**MADAGASCAR**

Spectrum is soon to offer further seismic data offshore Madagascar, this time from the Mozambique Channel. This is in anticipation of a licensing round scheduled for June 2014. Reprocessing is currently in progress.

With the agreement of OMNIS (Office des Mines Nationales et des Industries Stratégiques), Spectrum has processed a variety of seismic surveys offshore West, South and East coasts of Madagascar. 3,626 km of PSTM data is available over the Morondava/Amhijura basins to the west, 1,440 km of PSTM data is also available over the Ife St Marie area in the East, as well as a further 622 km of PSTM data that’s available in the South over the Cap Ste Marie.

**New Surveys**

**New Surveys**

**North Sea Gas Exploration to Benefit from New Seismic Survey**

Spectrum News, issue 62

**New Surveys**

**North Sea Gas Exploration to Benefit from New Seismic Survey**

In September 2013 Spectrum completed the acquisition of a new high quality 2D Multi-Client seismic survey in the Southern North Sea Gas Basin, UK. The survey area covers over 15 blocks in Quadrants 36, 37, 42 and 43, the majority of which include acreage available for the 28th License Round, expected to open January 2014.

The Gas basin acquisition will focus on defining the early Carboniferous prospectivity in open blocks within the Slemmerston Coal Formation play (fanway, channel, braided analogues). The 3,736 km program is supported by industry pre-funding.

Kim Gunn Mavé, Spectrum’s EVP for Northwest Europe commented on the new acquisition: “Spectrum is excited to embark on this seismic campaign in an area with an under-explored Carboniferous section and with a large number of open blocks available for the next licensing round. The survey is designed to offer long-offset and broadband seismic for both regional exploration and detailed block evaluation. This is Spectrum’s first project in the UK since 1998 and it is part of our strategic plan to grow our library”. Final products for this survey are scheduled for delivery in Q4 2013, thus they will be available for the UK 28th Licensing Round.
Barents Sea Discovery... 

Barents Sea Discovery represents impeccable timing for new Multi-Client survey

September saw a significant oil discovery at the site of Spectrum’s new Barent’s Sea Seismic Survey. Austrian energy firm OMV announced that it has found up to 164 million barrels of recoverable oil in Norway’s Arctic, one of the first discoveries in a still-unexplored frontier region that is set to become a hotbed of activity in coming years. This discovery lies within the footprint of the first phase of a new 2D high quality seismic survey acquired by Spectrum between the Fingerdjupet Sub-basin and the Hoop Fault Complex. Situated around 310 km north of the Norwegian coast, this find represents Norway’s northernmost discovery to date. OMV stated that it had found between 63 and 164 million barrels of oil and up to 40 billion cubic feet of gas in this relatively shallow part of the Barents Sea near to Statoil’s Johan Castberg find.

Norway’s Barents Sea is set to become a key exploration area after the government awarded 20 Arctic licenses in June and said its next licensing round, scheduled for 2014, would focus on eastern areas. Many of these blocks will contain Spectrum Multi-Client seismic data where acquisition has focused on the Triassic plays with lines tying existing and planned wells. A comprehensive and advanced data package of AVO ready gathers, bandwidth extended seismic, well tie panels and seismic inversion results has been developed for the Fingerdjupet-Hoop survey. This will enable a fast and efficient seismic interpretation and help evaluate prospectivity. Phase 1 of this program is 2,150 km. The final products are scheduled for delivery in Q4 2013, thus they will be available for the Norwegian 23rd Licensing Round.

Brazil hails “beautiful” new oil find at the site of Spectrum’s latest seismic reprocessing in the Sergipe-Alagoas basin off Brazil’s northeast coast. Petrobras CEO, Maria das Graças Foster, claims it will produce a minimum of 100,000 barrels of petroleum a day starting in 2018. The discovery, centered on the SEAL-11 offshore exploration block, is likely to hold more than 1 billion barrels of oil which means that the region will soon become Brazil’s biggest new oil frontier.

The early stages of the first auction of oil and gas leases off Alaska got under way on Thursday as The Interior Department began seeking suggestions for additional offshore tracts that could be drilled for petroleum in the Chukchi Sea off Alaska’s northwest coast. The Bureau of Ocean Energy Management announced Thursday it is calling for tract nominations for a potential oil and gas lease sale.

Norway
Spectrum ASA
mc-nor@spectrumasa.com
+47 9018 3258
United Kingdom
Spectrum Geo Ltd.
mc-uk@spectrumasa.com
+44 1483 730201
United States
Spectrum Geo Inc.
mc-us@spectrumasa.com
+1 281 647 0602
Singapore
Spectrum (Singapore)
mc-asia@spectrumasa.com
+65 6827 9773
Australia
Spectrum ASB Pty Ltd.
mc-au@spectrumasa.com
+61 8 9322 3700