Close Window
Print Story

Repsol Now Applying Advanced Seismic Imaging Technology to Energy Exploration in Gulf of Mexico and Brazil

Kaleidoscope Project Ushers In New Era Of Seismic Imaging; Yields Greater Clarity Up To 10-times Faster Than Conventional Technology

LAS VEGAS, Nov. 10 /PRNewswire-FirstCall/ -- SEG ANNUAL MEETING -- Repsol YPF (NYSE: REP), an international integrated oil and gas company operating in over 30 countries, today announced that the company's advanced seismic imaging project -- Kaleidoscope (**www.KaleidoscopeProject.info**) -- has begun exploration operations in the Gulf of Mexico and Brazil.

Kaleidoscope is powered by reverse-time migration (RTM), a sophisticated subsurface imaging tool whose potential is accepted by the oil industry, but until now has not been used because of technical hurdles. Repsol's next-generation Kaleidoscope technology overcomes those hurdles, enabling searches for energy reserves at greater depths and with greater clarity up to 10-times faster than conventional technology.

The Kaleidoscope project was launched in November 2006, and its research data, powered by the **IBM PowerXCell(TM) 8i processors**, proved this technology was successful in imaging areas of complex subsurface geological structure, such as the rich hydrocarbon provinces of the deep waters of the Gulf of Mexico, offshore Brazil and West Africa. These basins are the new frontiers in oil exploration, where significant oil reserves are known to be present below thick masses of salt but have been difficult to pinpoint using conventional seismic imaging technology. Now, Kaleidoscope's clearer, faster seismic images bring unprecedented opportunities for energy companies to accurately identify underground oil and gas reserves in these traditionally hard-to-image areas.

Kaleidoscope enables Repsol to locate oil reserves buried some 30,000 feet (10,000 feet of water and then 20,000 more feet of seabed) below the Gulf of Mexico's surface, for example. The U.S. Department of the Interior's Minerals Management Service estimates the Gulf holds approximately 56 billion barrels of oil equivalent (oil and natural gas), which, at $65/barrel, would be worth over $3 trillion and would meet the entire U.S. demand for oil and gas for about 2.5 years.

"Repsol is pleased to launch Kaleidoscope's exploration operations in the Gulf of Mexico and Brazil as the project proves the success of the collaborative approach to research we have pursued for the past two years," said Francisco Ortigosa, director of Geophysics, Repsol. "The speed and power of the IBM PowerXCell 8i processor-powered Kaleidoscope Supercomputer paired with the RTM imaging algorithm and the computational support of the Barcelona Supercomputing Center (BSC) truly positions Kaleidoscope at the cutting edge of innovative, and collaborative, exploration technology. Hard-to-image areas known to have rich fossil fuel reserves are now being opened to time- and cost-efficient exploration."

A Supercomputer Milestone

In addition to launching the project's first real-world applications, Repsol has also made the commitment and investment to build and operate its own supercomputer to provide the computational power and stability needed for Kaleidoscope's future expansion. The Kaleidoscope Supercomputer, a 120 Tflops, scalable Linux cluster computer system powered by **IBM** PowerXCell(tm) 8i processors, runs the project's RTM production code on large datasets of information. The IBM PowerXCell 8i, originally developed for next-generation gaming consoles, is a critical component to the development of this new class of seismic technology. As the first supercomputer to combine these technologies, the Kaleidoscope Supercomputer has a peak performance equivalent to 10,000 Pentium 4 processors, the mainstream desktop and laptop central processing units (CPUs).

Collaborations

CyrusOne, an ultra high-density data center in Houston, Texas, supports Repsol's high-performance computer. The CyrusOne facility is one of the only data centers in the region with the capability of accommodating Repsol's installation, operating at 750 watts per square foot, and is a model for achieving more affordable, energy efficient supercomputing for seismic imaging in the oil industry.

"In support of Repsol's innovative technology adoption and the development and implementation of the Kaleidoscope project, CyrusOne is excited to be the data center partner for this ultra-dense, energy-efficient computing solution," said Blake McLane, Senior Vice-President of Business Development, CyrusOne. "We look forward to working with Repsol during the exploration operations and beyond."

RTM, the imaging technology at the heart of the Kaleidoscope Project, was born out of a collaboration between Repsol; the **Barcelona Supercomputing Center (also called the "Mare Nostrum,"** one of the world's most powerful supercomputers that utilizes IBM technology, and **FusionGeo Inc**. FusionGeo is a company newly formed out of the November 3rd merger between **Fusion Geophysical LLC** and **3DGeo**.

Repsol conducted its original work on Kaleidoscope with Houston-based 3DGeo, an imaging company founded by Stanford University professor and seismic imaging pioneer **Biondo Biondi** and **Stanford University's Stanford Exploration Project (SEP),** a leading industry-funded academic consortium, whose purpose was to improve the theory and practice of constructing 3-D and 4-D images of the earth from seismic echo soundings.

FusionGeo is a leading provider of integrated geophysical, geological and reservoir engineering technology and services to the global oil and gas industry. Dr. Alan R. Huffman, CEO of FusionGeo Inc. said, "Our work with Repsol on Kaleidoscope is only the start of what we envision to be broad range of totally new integrated imaging and reservoir technologies and innovation that will be created in Kaleidoscope. These technologies will include new analysis tools for geopressure prediction and fracture detection with 3D seismic, advanced applications of land statics and waveform inversion, and full scale integration of these technologies at the reservoir scale to enhance the characterization of the reservoir during exploration and improve the performance of the reservoir during production."

About Repsol

Repsol is an integrated international oil and gas company, operating in more than 30 countries and is the leader in Spain and Argentina. It is one of the ten major private oil companies in the world and the largest private energy company in Latin America in terms of assets.

From exploration and production to marketing, Repsol is present in all stages of the business. With an oil and gas production of over 1.1 million barrels of oil equivalent per day and a refining capacity that surpasses 1.2 million barrels per day, the company operates nine refineries, and is the leader in Spain, Argentina, and Peru.

Repsol sells its oil products through a wide network of 6,800 sales outlets spread over Europe and Latin America. In chemicals, Repsol is the top-ranking producer of petrochemical products in Spain and Portugal. In the liquefied petroleum gas business (LPG), it is the third largest company in the world and one of the most efficient operators. Repsol also distributes natural gas, directly or via its affiliates, to over 9 million customers in Spain and Latin America. For more information, visit **www.repsolypf.com**.

About CyrusOne

CyrusOne is a leader in high availability, high-density data center services, providing colocation and implementation services for customers in the healthcare, energy and financial industries. We help businesses optimize returns on technology investments while ensuring application availability, data security and superior IT performance. CyrusOne was recently acquired by ABRY Partners, a Boston-based private equity investment firm with $18 billion of leveraged transactions and other private equity and mezzanine investments, representing investments in more than 450 media and communications properties. For more information, visit **www.cyrusone.com**.

About FusionGeo Inc.

Fusion is a leading provider of integrated geophysical, geological and reservoir engineering technology and services to the global oil and gas industry. Fusion provides a full suite of integrated products and services in the following areas: Acquisition Design, Seismic Imaging, Inversion & Modeling, Seismic Analysis, Geopressure Analysis, Petrophysical Analysis, Reservoir Studies, Integrated Interpretation, Research Services, Software Sales & Support and Technical Training Services. Fusion has assembled a team of recognized experts in geophysics, geology and reservoir engineering to meet the most demanding geophysical challenges of NOCs, international oil companies, and independent producers. Fusion is headquartered in Houston, Texas.

About Barcelona Supercomputing Center (BSC)

The Barcelona Supercomputing Center -- Centro Nacional de Supercomputacion (BSC) is the National Supercomputing Facility in Spain. Established in 2005, BSC manages MareNostrum, one of the most powerful supercomputers in Europe. BCS is a research center in Computer Sciences as well as in fields that demand high performance computing resources such as Life Sciences and Earth Sciences. Following this multidisciplinary approach, BSC brings together a critical mass of researchers, high performance computing experts and cutting-edge supercomputing technologies in order to foster scientific progress. For more information about BSC, please, visit **www.bsc.es**.


```
For More Information Contact:
David Kalson
RF|Binder Partners
212.994.7513
david.kalson@rfbinder.com

Caroline Dickson
RF|Binder Partners
212.994.7560
646.206.1779 mobile
caroline.dickson@rfbinder.com
```


SOURCE Repsol