

Shale Gas ready technology from Polish Geofizyka Torun

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India has one of the fastest growing economies in the world, and consequently increasing demand for oil and gas. The country's E&P market has huge potential and what is more, it has recently emerged as one of the most prospective areas with oil and gas discoveries, both onshore and offshore.

India's potential is going to be increasing with the new exploration target which is shale gas. Therefore, the future is expected to present further need for oil and gas related services, shale gas focused in particular. Dedicated seismic surveys, seismic data processing and interpretation, as well as well logging are anticipated to confirm its significance for the new targets.

One of the leading players which is on the way to play a significant role in shale gas prospecting is Polish company – Geofizyka Torun (GT).



It has shale gas ready technology and necessary worldwide experience in this new field, not forgetting 30-year experience in India.

Efficient cooperation turns into promising future prospects

GT operates on diverse markets facing various challenges

worldwide. Improving solutions, introducing new technology, and maintaining partnership with Client became GT's international trademark. Indian E&P market known for extremely challenging programs appreciated GT's expertise that has already led to successful resources exploration.

The beginning of GT's operations in India is dated for 1983 with 10-year contract for Oil and Natural Gas Corporation Ltd over exploration concessions in Tamil Nadu and Gujarat where Indian and

Polish geoscientists cooperated for the first time. For this decade GT shoot 10 000 km of 2D seismic demonstrating high productivity and excellent data quality. This project turned out to be a milestone in GT activities in India.

Exploring oil and gas in India is extremely demanding due to various terrain conditions including desert, hilly jungle, transitions zones

GT offers unique solutions for unconventional plays prospecting. It employs innovative data acquisition and dedicated software package, called "Shale gas seismic data processing software package" based on the world-leading software Earth Study 360™ as well as proprietary software solutions and advanced seismic interpretation solutions

featuring coastal fish and shrimp ponds as well as large river estuaries. Therefore, operational areas of the projects require extremely well managed logistics and committed staff equipped with state-of-the art technology. GT provided all of them with success and on time.

GT has gained reputation of a reliable and responsive geophysical contractor, which led to awarding Polish company with numerous 3D seismic programs for the leading Indian E&P companies.

Innovative approach brings significant discoveries

Cooperation with Oil India Ltd required work performance in extreme conditions, such as remote jungle of Assam and Rajasthan Desert where GT has completed numerous programs, including the most extensive 3D desert survey in India featuring over 1500 sq km that involved the biggest number of active channels and receivers in E&P history of Indian Subcontinent. Equally difficult and demanding seismic survey GT executed for Cairn Energy Plc (now Cairn India Plc) in Rajasthan. The program combining a few successive 3D surveys with dedicated GT seismic methodology contributed to revealing oil-rich structures, that turned to be of the biggest onshore oil reserves in India - Mangala Field.

Facing challenges was supported by constant implementation of new technology solutions. GT's introduction of multicomponent seismic technology in 2005 to Oil and Natural Gas Corporation Ltd for 2D-3C seismic data acquisition, processing and interpretation over acreages in Gujarat is a perfect example of new technology that proved to be a

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proper and affordable way of getting rock parameters crucial to reservoir characterization in India. That is one of many pioneer solutions safely implemented by GT in India.

Using unique solutions and proprietary software, setting new technology standards and production records, opening new challenging frontiers, previously beyond of reach for seismic makes GT a major seismic contractor in India. Now the new era of seismic is about to start. This time unconventional one. It's

background is new technological approach in seismic acquisition, processing, imaging, and interpretation with integration of borehole reference data.

Unconventional resources reveal new goals

Nowadays the focus in India goes to unconventional resources like shale gas, shale oil or tight gas. That rises numerous questions discussed in geophysical exploration. Some of them are: is it necessary to use different geophysical approach in

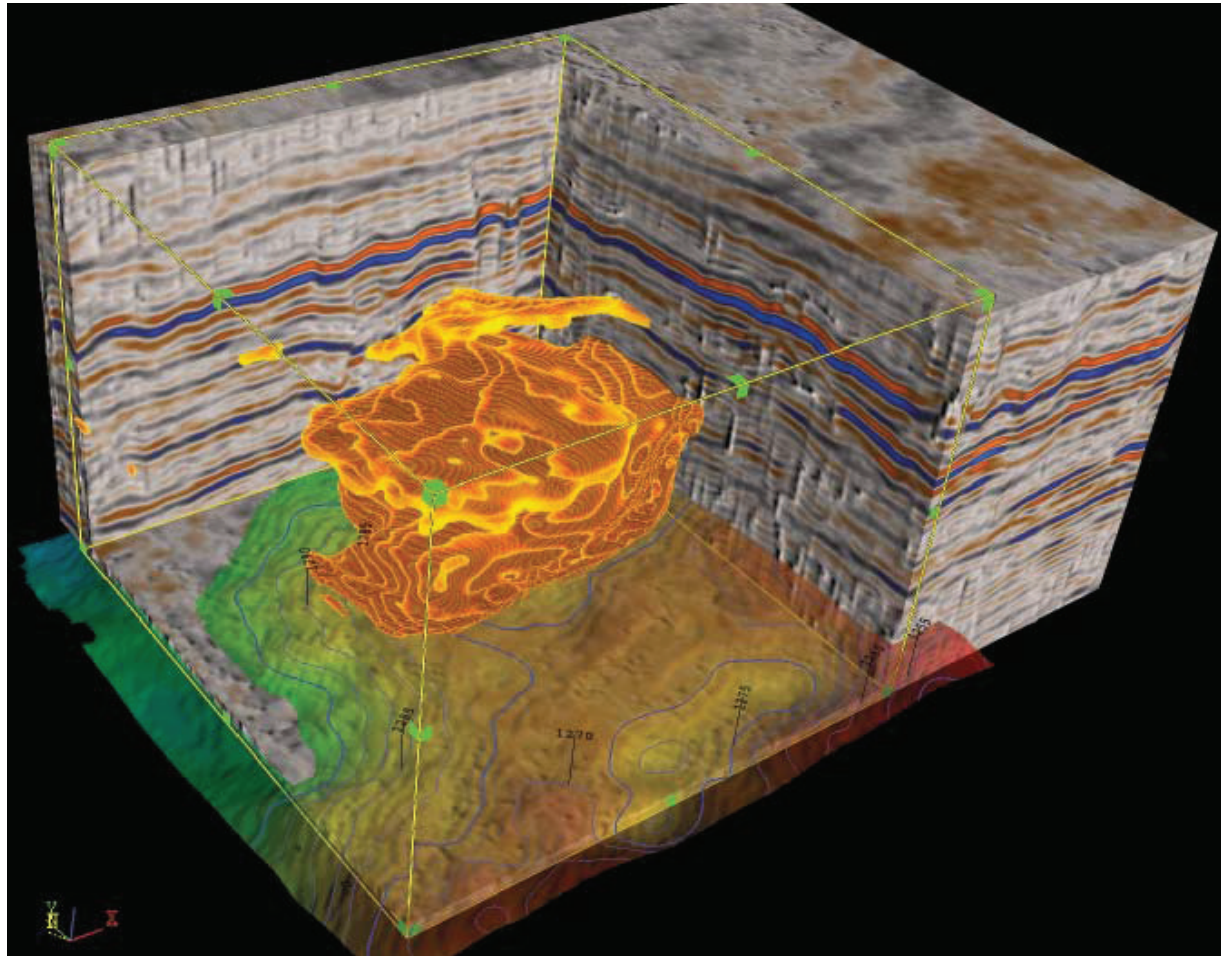
unconventional hydrocarbon exploration and development? What are dedicated geophysical methods to explore unconventional hydrocarbons or geothermal resources? Can we use existing processing and interpretation guidelines and tools for dealing with exploration of unconventional resources? What geophysical methods shall be applied to image all features crucial to plan drilling process?

Unconventional resources require re-evaluating geophysical technology. GT is ready to attain new goals as is the leading onshore contractor for unconventional resources in Europe providing its services to industry majors like ExxonMobil Corp, Chevron Corp, and ConocoPhillips Co. Its technology offers seismic data proved to be ready for optimized drilling locations, especially dealing with formation structural characteristics, azimuthal anisotropy, fracture characterization, stress estimation as well as geomechanical properties of the rock.

GT offers unique solutions for unconventional plays prospecting. It employs innovative data acquisition and dedicated software package, called "Shale gas seismic data processing software package" based on the world-leading software Earth Study 360™ as well as proprietary software solutions and advanced seismic interpretation solutions. One of the essential challenges in unconventional exploration is finding so called "sweet spots" and making them accessible for fracking by use of horizontal drilling. In this case, the objective of the survey become litho-facial interpretation, seismic inversion, fracture characterization and extraction of geomechanical properties of rocks, based on

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various seismic attributes.

Trying to apply conventional approach to seismic will fail to meet the crucial criteria and may result in unconventional exploration program being unsuccessful. As GT completed numerous surveys for prospecting unconventional hydrocarbon resources, it has learnt the major differences in methodology that differentiate conventional and unconventional approach.

Proven solutions maximize success

Extensive experience in India and numerous advanced seismic programs dedicated to unconventional plays make GT a competitive and competent seismic contractor. The company is ready to play again a significant role in exploration of hydrocarbons for India – this time delivering new seismic approach and proven

solutions to unconventional resources exploration. dewjournal.com

about the author



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Worldwide
Integrated
Geophysical
Services

Shale Gas Prospecting Company

Advanced & proprietary technology along with unique know-how distinguish GT among other competitors in shale gas prospecting challenges. Numerous successfully completed seismic shale campaigns in Europe proved that GT provides goal-oriented and efficient shale solutions, such as:

- Dedicated seismic data acquisition consisting of high resolution (HR), na full azimuth (FAZ), long offset P-wave, C-wave surveys
- Dedicated seismic data processing including time and depth domain anisotropic imaging
- Comprehensive seismic data interpretation leading to determination of sweet spots

Over 30-years presence in India enhanced by vast experience in shale gas exploration in Europe strengthens GT's position as a reliable geophysical partner and leading innovations provider.