

Intelligent application of technology is vital to seismic success



The 3D seismic vessel, Polarcus Nalia

For more than 75 years, the seismic industry has been at the forefront of adopting cutting edge data acquisition and processing technologies to increase the resolution of sub-surface imaging and lithologic attribute extraction. The application of new technologies has also dramatically increased the efficiency and safety of seismic field operations, both on land and at sea.

In the offshore environment, today's fleet of seismic survey vessels is capable of deploying very large receiver spreads, powerful and reliable sources and very accurate and repeatable positioning systems. On land, channel counts are now tallied in the tens of thousands, and new vibroseis techniques allow multiple source points to be acquired simultaneously.

3D seismic vessels

Technology on its own, however, is not the full story. What is equally, or even more, important is the intelligent application of technology. For example, with the large streamer capacities of modern marine 3D seismic vessels, it is often very tempting to routinely propose large streamer spreads to maximise operational efficiency, and

It is a well-recognised fact that seismic surveys are an integral component for the successful exploration and exploitation of newly discovered and existing oil and gas fields

thus reduce competitive pricing. However, consideration of efficiency factors alone can obscure some fundamental geophysical issues that can significantly impact the overall quality of the seismic data, and therefore jeopardise the overall objectives of a survey.

The full value of seismic can only be realised when technology is made available to geophysicists with the knowledge and experience to effectively formulate survey design parameters with respect to a project's geophysical objectives and operational environment. The old adage that "every survey is unique" needs to be remembered at the beginning of any project.

All sorts of geophysical and environmental aspects of a particular project need to be recognised, prioritised and balanced within the constraints of available time and budgets. This can only happen when the project geoscience team knows what they

want and understands how to get it.

Accepting a technology solution on blind faith is not the answer.

Today, there is significant experience and expertise within the seismic contractor community that can be leveraged by E&P geoscience teams early in the planning phases of a project. Such cooperative efforts can result in effective survey designs, where technologies are applied intelligently to meet the explicit geophysical objectives of each project.

The preferred solutions may not always be the cheapest, but cost should not be the overriding issue. The question "what is the value of a cheap survey that may not meet the project objective?" should always be asked when cost considerations start to dilute the effort required to do the job properly. ■

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