
Understanding of the Earth's Subsurface through Improving the Seismic Image: Challenges and Solutions

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ABSTRACT

In order to reduce the uncertainty in the evaluation of the petroleum potential, Pemex's exploration strategy comprises actions to ensure seismic acquisition and processing for the next five years. Special attention is paid to the Mexican deepwater Gulf of Mexico, where the prospective resources represent around 29.5 billion barrels of oil equivalent that represent the 58% of the national total. PEMEX has signed long-term contracts in order to get competitive prices and ensure the availability of a vessel with the technology to acquire conventional and wide-azimuth seismic in geologically complex areas. This information will allow the mapping of the distribution and extent of established and hypothetical petroleum plays, give more certainty to potential resource assessment, strengthen the exploration portfolio, and enable the ranking of areas based on their economic value. As exploration has moved to areas with shallow allochthonous salt bodies, there has been an increasing need to improve both the image quality and the predictive capability of prestack depth migration, in support of prospect evaluation and risk assessment in subsalt plays. In parallel, state of the art processing technology is being accessed through collaboration with multiple service companies in order to have a robust solution for every geological environment. Therefore, access to technology is coupled to a program for the development of critical skills needed in the priority projects.