

## **Pioneering the Global Subsalt/Presalt Play: The World Beyond Mahogany Field**

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Ten years into the 21st century, the Subsalt play that began in the U.S. offshore Gulf of Mexico during the 1980's, has evolved into a growing global Subsalt/Presalt play, of likely historic impact. Today, we are at the dawn of major reserve and production additions to the world oil & gas supply, as global Subsalt/Presalt petroleum exploration yields major results, not only in the Gulf of Mexico, but also off Brazil and West Africa. In the years ahead, these new discoveries will fuel further exploration & production below complex salt layers worldwide.

Since its inception, the greatest challenge for the Subsalt/Presalt play concept has been explorers' difficulty in using seismic data to accurately image the subsurface below and around salt, in order to identify structures to drill. As a result of recent major advances in seismic processing algorithms & computer processing speeds, explorers' can now see Subsalt/Presalt images much more clearly. The most progressive are applying these latest technologies to more salt basins globally.

Reverse Time Migration (RTM) represents the most recent and significant advance in seismic imaging below salt layers. Propelled by advances in workflows, computing power, and data management, RTM now provides the most accurate view of Subsalt/Presalt prospects, discoveries, and fields. In addition, improved seismic acquisition technology utilizing longer seismic cable lengths and denser, larger data volume collection programs, such as wide-azimuth (WAZ) and multi-azimuth (MAZ) geometries, provide extensive data volumes for the application of advanced RTM technology. Without accurate seismic imaging technology, the drilling and development of prospects is much riskier and more expensive than desired.

Discovery and development of Subsalt/Presalt fields found in past decades, using less-advanced pre-stack depth imaging applied to short-offset 2-D & narrow azimuth 3-D seismic surveys, has discovered significant reserves and production, but represents a fraction of the potential that will likely be globally discovered using new RTM technology. As was learned in the early years of exploring subsalt in the US Gulf of Mexico, we must accurately image below the salt layers, in order to have sufficient success rates to justify future economic investment. There are now fewer limits on the future global oil & gas potential below salt, and the likely discovery of substantial oil & gas reserves and production for the world of tomorrow.