

## Field Test of High-Resolution 3D Seismic Acquisition Using P-Cable Technology

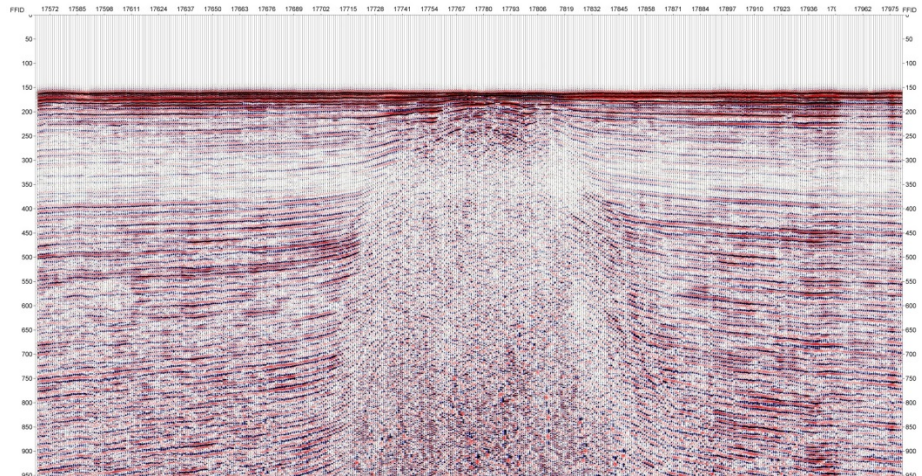
In October 2013, **TDI-Brooks International** provided the **RV Brooks McCall**, four technicians led by Daniel Brooks and logistical support for the **Texas Bureau of Economic Geology's** 10-day 3D seismic data collection cruise off the Texas coast.



The *R/V Brooks-McCall* towing the P-Cable system in October 2013 in the Gulf of Mexico.

Dr. Tip Meckel and three scientists from The University of Texas at Austin were conducting the second field test of the relatively new **P-Cable system** manufactured by **Geometrics**. The P-Cable system is designed to provide extremely high resolution 3D seismic data for relatively shallow stratigraphic depths (<1500 m).

The Bureau of Economic Geology at the Jackson School of Geosciences is the only research institution in the US currently operating such high resolution 3D (HR3D) seismic acquisition technology, which was deployed for the first time in the Gulf of Mexico in 2012 by Meckel and his team. The 2013 seismic array consisted of one GI-airgun source (90 cu. in.) and twelve 25 m long, 8-channel streamers (total 96 channels). Over 400 line-km (> 250 miles) were shot in an area offshore southern Galveston Island, adjacent to and including portions of the San Luis Pass shallow salt dome. The goals of the survey were to image subsurface stratigraphy and structure above a reservoir interval for a Miocene-age CO<sub>2</sub> storage prospect at ~2,000 m depth.



Single-channel field record for recent survey shows salt dome with a top near the seafloor Center portion.

The field test was part of **Gulf Coast Carbon Center's** multi-year geologic characterization effort to identify potential CO<sub>2</sub> storage sites beneath the Texas portion of the Gulf of Mexico within 10 miles offshore. These depths have previously been of secondary interest to the hydrocarbon industry, but are increasing in interest in relation to shallow geohazard identification and understanding subsurface fluid migration processes related to seafloor fluid seeps.

Initial results indicate that the seismic system will be an extremely valuable tool for imaging subsurface volumes in high resolution. As well as, identifying, understanding, and reducing risks of offshore storage projects by proving up regional sealing characteristics over large continuous areas. Interest from the offshore industry has been building and acquiring datasets such as these are an important part of developing commercial applications of HR3D technologies. Data processing from the October cruise is ongoing and one more Gulf of Mexico cruise using **TDI-Brooks** vessel **RV Brooks McCall** is planned for 2014.



Technical participation included Daniel Brooks, Adam Ariganello, Joe Wassom and Blanton Beard of **TDI-Brooks International**, Finn Michelsen of **GeoSurvey Systems**, assisted by Rick Hubneur of **Seismic Equipment Solutions**. Paravane expertise contracted with Glen Barker of **GB Consulting. NCS SubSea, Inc.** provided array geometry solutions and navigation for real-time coverage mapping. Portable air compression units were provided by **Alpha Seismic Compressors**.

**Paravane deployment off the vessel stern. The paravanes pull the cross cable perpendicular (P-Cable) to ship direction (see aerial photo), allowing a dozen closely spaced multi-channel streamers to be attached for high resolution three dimensional seismic mapping.**