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Daniel A. Bean<sup>1</sup>, William R. Bryant<sup>1</sup>, Niall C. Slowey<sup>1</sup>, Erik Scott<sup>2</sup>, Michael A. Whitehead<sup>3</sup>  
(1) Texas A&M University, College Station, TX (2) BHP Petroleum, Houston, TX (3)  
WesternGeco, Houston, TX

## **Past and Present Furrow Development in the Green Knoll Area Determined from 3D Seismic Data**

A field of deepsea furrows exists in the northeastern Gulf of Mexico on the continental rise at the base of the Sigsbee Escarpment. 3D seismic data has allowed an unprecedented regional view of these contemporary features and their development in relation to bathymetric structures of the slope and rise. These furrows, typically 5-10 m deep and 10-30 m wide, are coherent and long-lived features that parallel the Sigsbee Escarpment from the western edge of the Mississippi Canyon to Keathley Canyon. The modern furrow field begins at the top of the escarpment and continues seaward for 20 km across the continental rise and covers an areal extent of over 15,000 square km. Observed high velocity currents in the furrowed region range between 1 and 2 knots over periods of a week or more, indicating that the mechanism forming these features is presently active.

The 3D seismic data has also provided a means of looking at previous generations of furrows. A paleo-furrow field has been identified at approximately 150 mbsf directly beneath the present-day furrow field in the Green Knoll region. The initial hypothesis is strong currents erode furrows during interglacial sea-level highstands, when sedimentation rates on the slope and rise are low. In contrast, furrows are infilled and preserved during glacial lowstands when sedimentation rates increase and currents decrease.