Tuesday, November 17, 2009

Crowne Plaza Hotel - Greenspoint (former Sofitel)
425 North Sam Houston Pkwy E

Social 11:15 AM, Luncheon 11:30 AM

Cost: $31 pre-registered members; $35 for non-members & walk-ups.

To guarantee a seat, you must pre-register on the HGS website and pre-pay with a credit card.
Pre-registration without payment will not be accepted.
You may still walk up and pay at the door, if extra seats are available.

Quantitative Seismic Geomorphologic Analysis of Early Pliocene-Age Fans Outboard of the Sigsbee Escarpment, Mad Dog Area, Northern Gulf of Mexico

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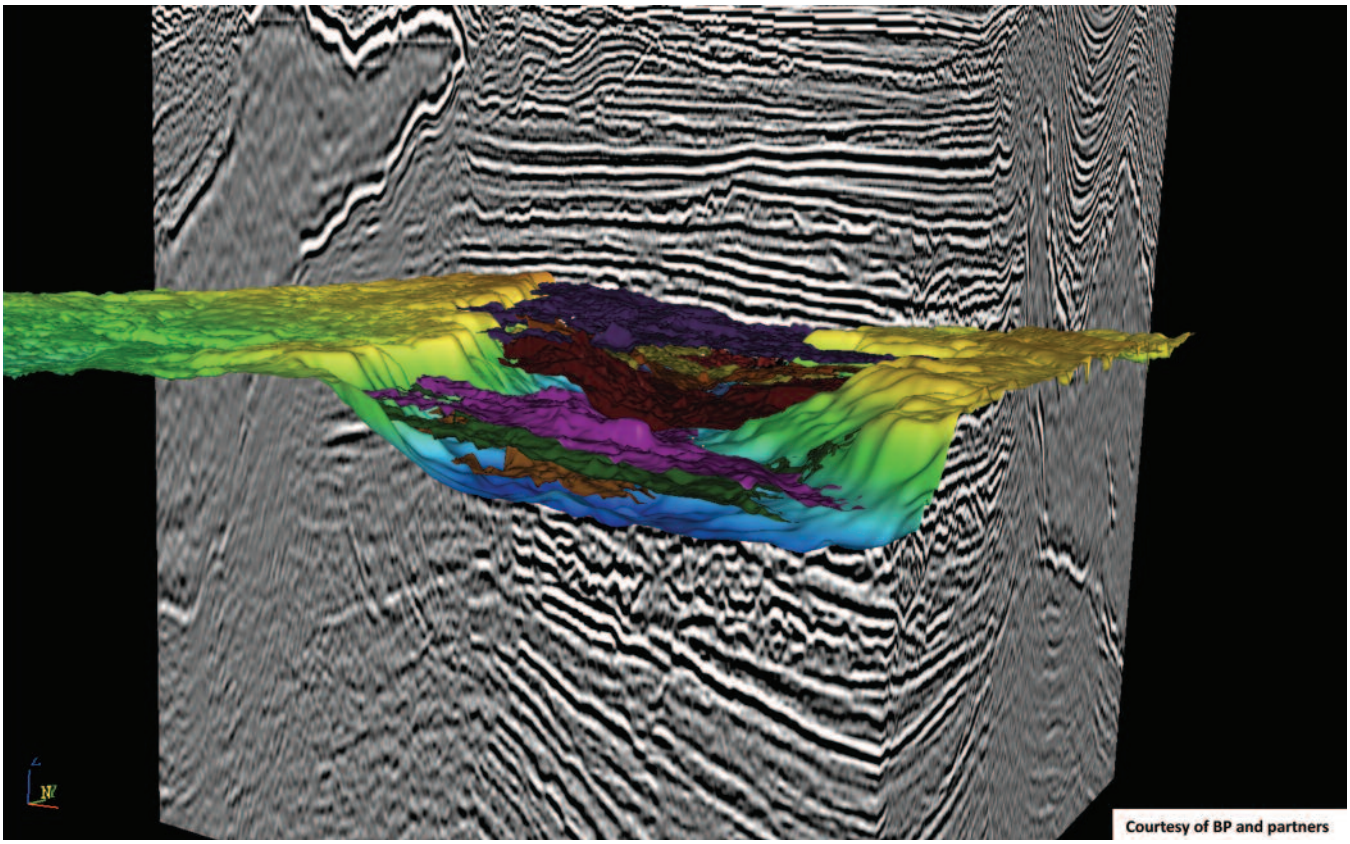

Figure 1 – Master channel base and interior lap surfaces within a large channel levee complex extending out of the Sigsbee Salt.

The Mad Dog study area lies along the western edge of the middle Miocene to Pliocene-age, Atwater deep water fold belt. The data set includes ~2200 km2 of 3D seismic data, along with information from several wells. Logs show these deposits are characterized by several hundred feet thick, sharp-based, basal coarse-grained fining up cycles. Sandy basin floor fans, mass transport complexes and small leveed channels comprise the major components of the system. Quantitative seismic geomorphologic analysis of these E. Pliocene fans can provide significant data for purposes of de-risking similar subsalt systems, building reservoir

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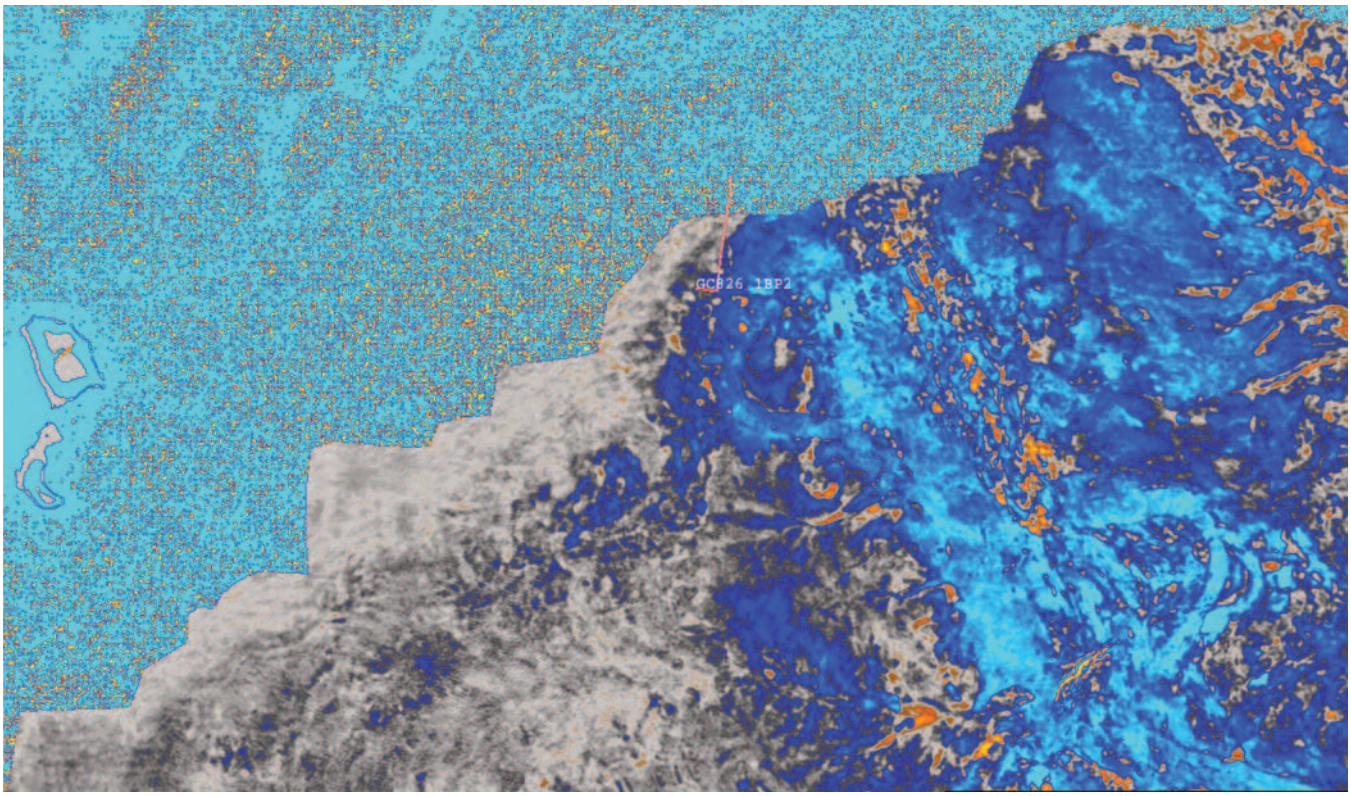

Figure 2 – Map view of channel system cut by salt emplacement showing well-defined meanderbelts and high amplitude fill.

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models of similar subsalt and non-subsalt systems and assessing the history of sediment pathways in this active salt tectonic province.

Two cycles of deep water fan development occupy the undeformed strata at the front of the modern salt sheet. The older Fan 1 initiates with a 400-700 meters (m) wide channel, with a meander belt over 6000 m wide and individual meander lengths of ~ 7000 m. Channel sinuosity is approximately 2.53. This system is underlain by a large mass transport deposit and overlain by a second phase of lower sinuosity channel development. Fan 2 shows channels ~ 1200 meters wide with a narrower meander belt (~2-2.5 km wide). Sinuosity in the upper fan system is ~ 1.06. Several secondary escarpment-front drainages riddle the area. They show bright high amplitude reflectivity in the channel core, and appear to be draining into the main leveed channel system, sourced by an area wholly contained within the interchannel areas of the escarpment front. This particular system is ~ 8 km from end to end with a straight trunk drainage and up to three orders of bifurcation to the northwest. Bifurcation angles range from 37 degrees up to a 90 degree trellis pattern that may be influenced by faulting. The channels themselves are of very consistent width, averaging 261 meters.

Levees in all three of these systems appear well developed. They are all oriented generally north-northwest to south-southeast and appear to have been sourced by large drainages that were uninhibited by salt wall inflation at the time of deposition, an indication of the through-going sediment pathways that existed at Pliocene time in the area. ■

Biographical Sketch

Jessica Leanne Morgan received a Bachelor of Science in Geology and a Bachelor of Arts in Anthropology from Auburn University in 2007. She completed an undergraduate Senior Honors thesis entitled Ecology and Taphonomy of Foraminifera at Cut Cay, San Salvador, Bahamas. She is currently pursuing a Master of Science in Sedimentology and Stratigraphy from the Jackson School of Geosciences at The University of Texas at Austin. Jessica is a ConocoPhillips Spirit Scholar and a ConocoPhillips Fellowship recipient. After graduation, she plans to pursue a career in the oil and gas industry.