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Maria Veronica Castillo<sup>1</sup>, Paul Mann<sup>1</sup>, Albert Bally<sup>2</sup> (1) University of Texas at Austin, Austin, TX (2) Rice University, Houston, TX

### **3-D Seismic Reflection Interpretation of the Southern End of the Icotea and VLE Fault Trends in the Southern Maracaibo Basin, Venezuela**

The Icotea and VLE faults are two of the major faults in the Maracaibo Basin, which are known from seismic and well data to have been most active during Paleogene time. Both faults have linear traces over distances up to 100 km, are deeply buried by largely unfaulted Neogene sedimentary rocks, and are associated with localized continental growth strata of Paleogene age along their traces. The origin and displacement history of both faults has remained controversial partly because of along-strike complexities in fault structure, use of highly exaggerated 2D seismic lines, and the lack of synoptic views of the entire fault systems. Interpretations range from east-dipping basement-involved thrust faults to sub-vertical left-lateral strike-slip faults controlling pull-apart basins. In this study we use regional 2D seismic data crossing both faults and 3D seismic data covering a 1600 km<sup>2</sup> area of the southern basin to describe the structures associated with the terminations of both faults. These data show that both faults are inverted normal faults first formed during late Jurassic-early Cretaceous. The abrupt termination of both faults in the southern part of the basin probably corresponds to the southern ends of two parallel rift structures. While we cannot rule out strike-slip motion along both faults, their abrupt terminations and lack of termination structures suggest that strike-slip displacement is probably small. In addition, we cannot rule out low angle thrust tectonics in the genesis of both faults since thrusts are confined to the basin edges and are not observed in the basin center.