

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

Russell Dubiel¹, Janet Pitman¹, David Taylor¹ (1) U.S. Geological Survey, Lakewood, CO

Seismic Evaluation of Deep-Water Depositional Systems in the Upper Cretaceous Tuscaloosa-Woodbine Trend, Louisiana and Texas: Application to Exploration for Deep Gas

The deep Tuscaloosa-Woodbine trend in Louisiana and Texas is an important gas-exploration target in the Gulf Coast Region, and current USGS studies suggest that remaining undiscovered gas resources are large. Gas-bearing sandstone reservoirs downdip from the lower Cretaceous shelf edge are at depths of 15,000 to 23,000 ft in the Tuscaloosa (Louisiana) and at 12,000 to 16,000 ft in the Woodbine (Texas). The two producing areas are separated by the Sabine uplift, which was active during Late Cretaceous time. Seismic profiles document a deep-water depositional system with multiple sequences dominated by thick lowstand tracts (LST), with thin transgressive (TST) and highstand systems tracts (HST). Gas production in the Tuscaloosa is dominantly from LST-prograding complexes in growth-faulted, rollover anticlines that developed over small subbasins formed by the withdrawal of Jurassic Louann Salt. Woodbine production is from LST-prograding complexes that built successively downdip; the influence of salt on deposition is unknown. Application of a sequence stratigraphic model suggests that future exploration in both areas should focus on underexplored LST basin-floor and slope fan complexes beneath and basinward of present production where there is expected to be potential sandstone reservoirs and potential marine source rocks. The model also points to additional gas reservoirs in similar LST-prograding complexes along strike from known fields.