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Seismic Facies Analysis in the Jurassic Reef Trend: A Case Study in the Bear Grass Field, East Texas

A seismic stratigraphic analysis using Stratimagic was performed on Sonat's Beargrass 3-D seismic survey located in the prolific reef trend of East Texas. Fifteen seismic anomalies had been identified and drilled during 1996-97. Production characteristics of these individual reefs varied widely indicating pervasive reservoir heterogeneity. Conventional seismic attribute analysis, although useful in delineating the distribution of reefal buildups was unsuccessful as a tool for characterizing differences in reservoir performance. Stratimagic facies maps were used to classify the trace shape of the reef interval into 15 different categories. Modifying the color palette to highlight reefs with a trace shape similar to the highly successful Fountain #1 anomaly gave a good correlation between high-rate and low-rate anomalies. This analysis quickly and accurately begins to characterize the differences between individual stratigraphic reservoir bodies that can be used for both future field development and as a tool for trend exploration before drilling.

Biographical Sketches

Curt Bateman is currently a senior geophysicist with Sonat Exploration in Tyler, Texas, working the East Texas and North Louisiana salt basins. His previous experience includes 15 years with Exxon Exploration and Production in a variety of domestic and international assignments. His technical strengths are structural style analysis and seismic stratigraphy.

Manuel Poupon is currently director of technology with Flagship Geosciences in Houston, Texas, specializing on Stratimagic projects in the U.S. (Texas, Louisiana, California). He joined the CGG group in 1991 and was involved in a variety of exploration and evaluation projects in the North Sea, Persian Gulf, Siberia, and in North and South America. He holds a Ph.D. in geology from the University of Paris, France, and is a member of the SEG, AAPG, and the HGS. □

HGS Luncheon Meeting • Wednesday, May 26 • Hyatt Regency Downtown, 1200 Louisiana • Social 11:15 a.m., Lunch 11:45 a.m.