

**SAN ANTONIO GEOPHYSICAL SOCIETY
LUNCHEON MEETING**

Tuesday, April 28, 2009

SPEAKER: Scott Singleton, VP, Processing & Interpretation, OHM Rock Solid Images

TOPIC: Data Preparation and Calibration of Pre-Stack Simultaneous Impedance Inversion

LOCATION: San Antonio Petroleum Club, 8620 N. New Braunfels

TIME: 11:30 AM to 1:00 PM, Tuesday, April 28, 2009

COST: \$20.00 for SAGS members with reservation
\$25.00 for non-members or without reservation

RESERVATIONS: Please call Cathy at 210.824.7921 OR email
cathyohalloran@slb.com no later than Noon on Monday, April 27.

ABSTRACT:

The demands that reservoir characterization place on seismic far outweigh those of traditional structural interpretation. Because of this, gather conditioning is seen by many as a prerequisite to pre-stack inversion. This paper discusses three conditioning processes – signal/noise (S/N) improvement, stretch removal, and reflector alignment. It then seeks to document the improvements that these processes achieve in the gathers and in the inversion. Specifically, the gathers were measured for AVO fit using a 2-term Shuey equation and found to be improved by 20%. A comparison of wavelets extracted from the angle stacks found stabilized amplitude and phase spectra. The far angle stack seismic/synthetic inversion residuals showed a 40% drop in amplitude. Finally, the AI/SI cross-plot showed a much more compact signature that allowed lithology and pay discrimination.

Similarly, well data used for calibration of inversion results must be properly processed. This not only involves normal petrophysical conditioning but also appropriate rock physics modeling. In this case, it involves the application of laminated sand fluid substitution modeling due to the presence of a turbidite sand reservoir. Calibration of inversion results with known rock properties allows estimates to be made of reservoir properties such as reservoir thickness and quality.

BIOGRAPHY:

Mr. Singleton joined Rock Solid Images in 2004 to help run the Lithology and Fluid Prediction (LFP) Research Consortium, and since then he has managed the Project Services Group, implemented a corporate seismic inversion and data conditioning services strategy and is currently VP of Processing and Interpretation.

Prior to joining Rock Solid Images, Scott started his career in marine acquisition and processing for Western Geophysical, Seiscom Delta, and Digicon. He has also worked with Fugro-McClelland Marine Geosciences, Energy Innovations before joining Jason Geosystems in 1998 to work on seismic inversion and the incorporation of seismic velocities into low frequency inversion models. He also contributed to CoreLab's Reservoir Technology Division working on rock property technologies prior to the company's sale and joining Rock Solid Images.

Mr. Singleton received his BS in Geophysics from New Mexico Institute of Mining and Technology in 1979 and an MS in Geophysics from Texas A&M University in 1988.