

Wednesday, May 28, 2014

Petroleum Club • 800 Bell (downtown)
Social 11:15 AM, Luncheon 11:30 AM

Cost: \$30 pre-registered members; \$35 for non-members/walk-ups;
Emeritus/Life/Honorary: \$15; Students: FREE

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.
Pre-registration without payment will not be accepted.
Walk ups may pay at the door if extra seats are available.

HGS General Luncheon Meeting

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Rocky Roden, speaker (rodenr@wt.net) and Mike Forres, Consultants Rose & Associates
Roger Holeywell, Marathon Oil Company; Matthew Carr, QI Petrophysics; P. A. Alexander, Consultant

The Role of AVO in Prospect Risk Assessment

All companies exploring for oil and gas should perform a risk analysis to understand the uncertainties in their interpretations and to properly place the prospects in value order in the company's drilling portfolio. For conventional exploration in clastic environments, primarily sands encased in shales, a key component of the risk analysis process is evaluating direct hydrocarbon indicators which can have a significant impact on the final risk value. This talk investigates the role that amplitude-versus-offset (AVO) plays in the risk assessment process as a portion of a comprehensive and systematic Direct Hydrocarbon Indicator (DHI) evaluation. Documentation of the geologic context and quantification of data quality and DHI characteristics, including AVO characteristics, are necessary to assess a prospect's risk properly.

A DHI consortium database of over 230 drilled prospects provides statistics to determine the importance of data quality elements, primarily in Class 2 and 3 geologic settings. The most important AVO interpretation characteristics are also identified based on statistical results and correlated with well success rates. A significant conclusion is the relevance of AVO in risk analysis when it is the dominant component in the DHI portion of the risk. Critical in the risk assessment process is understanding the role AVO and DHI analysis play when prospects approach Class 1 geologic settings. The effect that hydrocarbons have on the seismic response is significantly diminished in this setting versus the other AVO classes. All of these observations confirm the necessity of properly evaluating a prospect's geological setting and of implementing a consistent and systematic risk analysis process, including appropriate DHI and AVO components. ■

Biographical Sketch

ROCKY RODEN has owned his own consulting company, Rocky Ridge Resources, Inc., for the last ten years and works with numerous oil companies around the world on interpretation technical issues, prospect generation, risk analysis evaluations, and reserve/resource calculations. He is a principal in the Rose and Associates DHI Risk Analysis Consortium which has involved over 50 oil companies since 2001, in developing a



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seismic amplitude risk analysis program and worldwide prospect database. He has also worked with Seismic Microtechnology, Geophysical Insights, and Rock Solid Images on the integration of advanced geophysical technology in software applications. He is a proven oil finder with 39 years in the industry and extensive knowledge of modern geoscience technical approaches. Mr. Roden is also the past Chairman of The Leading Edge editorial board.

As Chief Geophysicist and Director of Applied Technology for Repsol-YPF (from which he retired 2001) his role comprised advising corporate officers, geoscientists, and managers on interpretation, strategy and technical analysis for exploration and development in offices in the United States, Argentina, Spain, Egypt, Bolivia, Ecuador, Peru, Brazil, Venezuela, Malaysia, and Indonesia. Mr. Roden has been involved in the technical and economic evaluation of Gulf of Mexico lease sales, farmouts worldwide, and bid rounds in South America, Europe, and the Far East. Previous work experience includes exploration and development at Maxus Energy, Pogo Producing, Decca Survey, and Texaco. He holds a BS in oceanographic technology-geology from Lamar University and an MS in geological and geophysical oceanography from Texas A&M University.