Monday, October 8, 2001

Westchase Hilton • 9999 Westheimer
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 Nonmembers & Walk-ups

Make your reservations now by calling 713-917-0218 (5-0-1) or by e-mail to Joan@hgs.org (include your name, meeting you are attending, phone number, and membership ID#).

Louis Liro[1], Kimberly Cline[1], Dan Knupp[1], and Mary Kadri[2]
[1]Veritas Exploration Services, Houston, Texas, USA
[2]Veritas Exploration Services, Calgary, Alberta, Canada

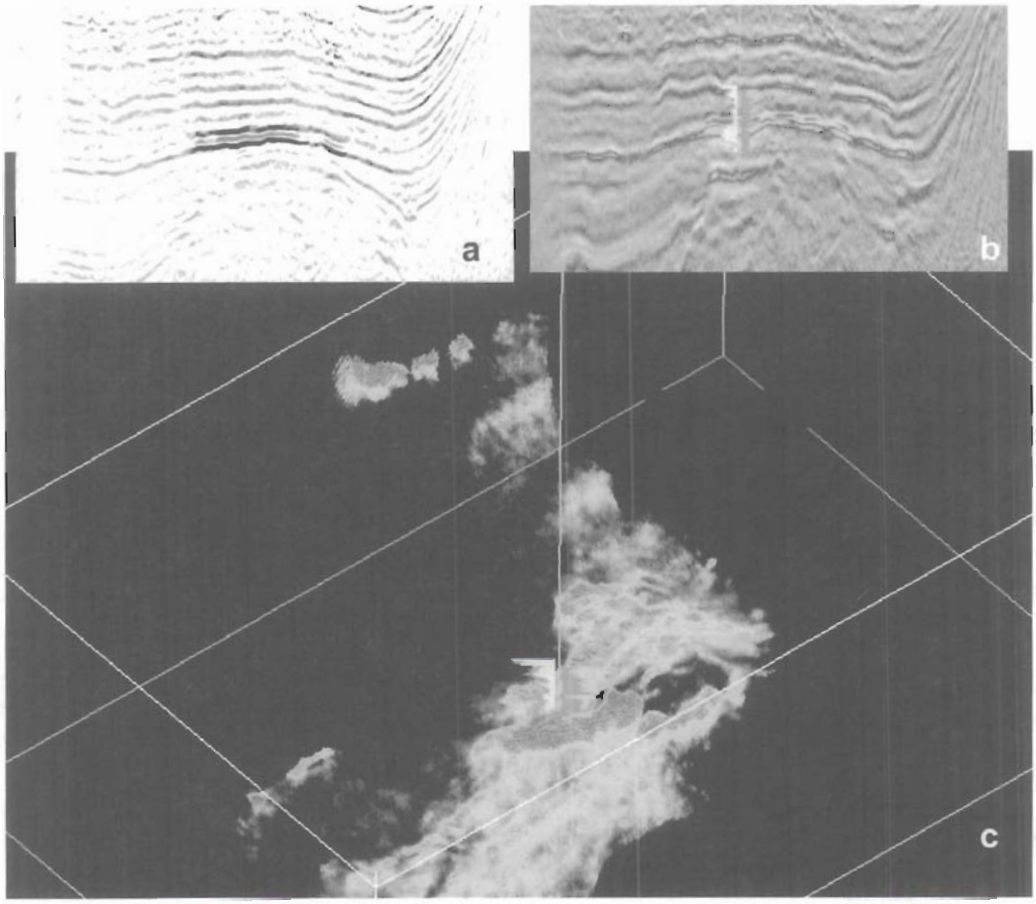

Figure 1: *Well log correlation and attribute co-rendering, deepwater Gulf of Mexico field. (a) Strong amplitude observed on vertical section of conventional (amplitude) data can be compared with (b) AVO fluid factor data and well control and (c) visualized view of these attributes away from well control.*

Workstation Visualization Techniques and Workflows: Examples from the Deepwater Gulf of Mexico

Abstract

All phases of the upstream petroleum industry, from wildcat exploration to field development, now benefit from massive amounts of available data. Seismic interpretation in particular benefits from 3D seismic data volumes that nearly blanket the entire offshore Gulf of Mexico. Depth migration of seismic data has advanced to the point where the interpreter can literally treat views extracted from a three-dimensional seismic volume as a "digital outcrop".

Armed with these data and well control for calibration, it is now possible to rapidly quantify stratigraphic mapping, seismic facies analysis, and fault definition. By interactively decimating the data through opacity and subvolume detection techniques, individual fairways and prospects can be described and evaluated. Co-rendering amplitude with other seismic attribute volumes allows rapid calibration to well data and identification of attribute combinations that effectively delineate exploration and production

General Dinner Meeting *continued on page 11*

General Dinner *continued from page 9*

parameters, providing effective input to reservoir characterization (Figure 1).

The essence of modern data visualization is the opportunity to view many classes and types of data rapidly and seamlessly in a machine-independent manner. The use of 3D visualization is independent of user interpretation, maintaining objectivity in the project evaluation. 3D visualization also retires the "2D paradigm", where all interpretation and data presentation occurs on paper, poster, or monitors. Data visualization, while commonly portrayed in large visualization rooms employing expensive hardware, begins rather with the simplest question of "what if...?" in the interpreter's mind as he or she works at more conventional workstations. The key to visualization is to translate that question rapidly into a working model, which can be constructed and evaluated in realtime by a technically integrated staff. Visualization allows for rapid evaluation of work programs; it is now possible at the onset of a project to review the data, identify prospective regions or reservoir trends, assess key technologic challenges, and determine an efficient work direction, all in the course of an afternoon.

We demonstrate these techniques by displaying workflows and examples from 3D prestack depth-migrated seismic volumes in the deepwater Gulf of Mexico and other deepwater basins. Examples of full-volume description of allochthonous shallow salt bodies, use of supra-salt sediment geometries to unravel complex shallow salt remobilization history, identification and 3D mapping of channelized and fan-form sediment intervals, and mapping of probable field extent utilizing calibrated seismic attributes will be displayed in both images and animations.

Biographical Sketch

Lou Liro is a senior geologist for Veritas Exploration Services in Houston. He has over 20 years of experience in exploration and field development. Prior to Veritas, Lou worked in geophysical and geologic research units, domestic and international exploration, and international development for a major oil company. His specialties are reservoir stratigraphy, salt tectonics, and petroleum systems evaluation. He has published and presented over 50 papers on sequence stratigraphy, salt tectonics, and workstation visualization and has taught courses in sequence stratigraphy and basin evaluation.

For more information contact Mr. Liro at Veritas DGC, 10300 Town Park, Houston, Texas 77072, telephone: 832 351-8950, fax 832 351-8775, and e-mail louis_liro@ veritasdgc.com. □