Tuesday, January 20, 2004

HESS • 5430 Westheimer
Social 11:30 a.m., Lunch 12:00 p.m.

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

Make your reservations now on-line through the HGS website at www.hgs.org; or, by calling 713-463-9476 or by e-mail to Joan@hgs.org (include your name, email address, meeting you are attending, phone number and membership ID#).

Joint HGS/GSH General Luncheon Meeting

*by **John M. Jacques,** Tellus Division, Robertson Research International Limited, Llandudno, North Wales, United Kingdom*
*Presenter: **Antony D. Price,** Fugro-LCT Interpretation Services, Houston, TX*

A Composite Plate Tectonic and Basin Dynamic Model for the Gulf of Mexico, Using an Integration of Potential Fields and Geologic Data Sets

Understanding the tectonic history of the Gulf of Mexico Basin is essential in extending our knowledge of source rock and reservoir distribution into frontier areas. An advanced exploration program based on integrating tectonics, geophysics, geochemistry and sedimentology using Geographical Information System (GIS) technology has been developed to identify new play fairways and to extend existing play concepts.

Initially this program creates a digital tectonostratigraphic database for the region. Integration of potential field data with geological data provides detailed structural and geological coverage. Enhancements of potential field data define salt geometry and distribution and distinguishes between structural features. In concert, these data create a "paleo-template," including tectonic elements and oceanic, continental crustal distribution. This "paleo-template" is further evaluated using 2-D mega-regional gravity, magnetic modelling along a suite of basin traverses.

This new interpretation will be used to assess the multitude of alternative evolutionary models and to produce palinspastic basemaps and paleotectonic reconstructions for tectonic and basin modeling.

Biographical Sketches

John M. Jacques received a Ph.D. from the University of Durham, United Kingdon in 1995. Mr. Jaques is currently a structural geologist at Robertson Research International Limited, North Wales, U.K., where he has undertaken numerous regional and global studies. Areas of expertise include: the digital compilation of structural, geological and isopach maps using ARC/VIEW‘ and ARC/INFO‘ GIS formats; construction of cross sections showing basin structure and megasequence distribution; the creation of regional geohistory charts from patterns of subsidence; regional and global time-slice maps illustrating plate reconstructions, palaeotectonics and palaeodepositional environments; and field based brittle and ductile deformational studies (e.g., SW Yemen, northern Pakistan).

Mr. Jacques worked on 10 regional, genetically-related basin units that create a global database of play fairways and petroleum systems that included: Circum-South Atlantic, Sub-Andean, Southern Caribbean, Gulf of Mexico, East Africa, Indo-China, East and West Indonesia, Arctic, and offshore Southeast China. Of these, Mr. Jacques took an interest in evaluating and developing regional tectonic evolutionary models for South America, Gulf of Mexico-Caribbean and South Atlantic, recently publishing several papers on this subject, which emphasise the importance of tectonics on petroleum system development.

Mr. Jacques was the project manager for a GIS-based digital product that has been designed to create a fully consistent, attributed structural and geological digital coverage for the entire globe, with the principal aim of defining all the world's sedimentary basins. ■

Antony D. Price holds a BSc. (Honors) in Physics and Geology from the University of Western Australia and is currently a Geophysical Interpreter specializing in integration of seismic, gravity, magnetic and geologic information from the regional to the prospect level with the Interpretation Services Group at Fugro-LCT. Prior to this Mr. Price worked with Airborne Gravity Exploration; Fugro-LCT, Marine Gravity Gradient Exploration; Bell Geospace and Airborne Electromagnetic and Magnetic Acquisition with World Geoscience. Current interests include tectonic evolution of the Gulf of Mexico and investigation of sedimentary section sourced magnetic anomalies. Areas of experience includes Gulf of Mexico, Brazilian, French Guiana, West African and West Australian margins.