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## INTERNATIONAL EXPLORATIONISTS

**HGS INTERNATIONAL GROUP  
DINNER MEETING—MARCH 15, 1993**  
Post Oak Doubletree Inn  
Social hour, 5:30 p.m., Dinner, 6:30 p.m.  
Technical Presentation, 7:30 p.m.  
\*DR. JORY A. PACT—Biographical Sketch



Dr. Pacht received his B.S. in geology from Ohio University in 1973. He worked as a wellsite geologist with Sentry Engineering for a year and a half, then completed his M.S. degree in 1976 at University of Wyoming. Dr. Pacht received his Ph.D. in geology in 1980 from Ohio State University. During his final year of study he served as Assistant Professor at Kent State University. In 1980 he joined the staff of the

Exploration Research Group of ARCO Oil and Gas Company, where he served as a Senior Research Geologist. Dr. Pacht left ARCO and joined RPI International in 1988 as a Senior Scientist. He was sent to TGS where he worked as sequence stratigraphic consultant. He joined TGS in 1990. Dr. Pacht has written over 70 outside and in-house research papers and abstracts. He won the "Excellence of Presentation" Award from the Gulf Coast Society of Economic Paleontologists and Mineralogists (1990) and the Best Paper Award from the Houston Geological Society (1990). He received Honorable Mention for best paper at the Society of Exploration Geophysicists National Meeting (1989) and was runner-up for the American Association of Petroleum Geologists Matson Award (1991). \*Presenting

DR. DAVID J. HALL—Biographical Sketch



Dr. Hall received his B.S. degree in geology from Beloit College in 1965. From 1965 through 1970 he was a graduate fellow at the University of Massachusetts from which he received both his M.S. in geology and his Ph.D. in geology and geophysics. Dr. Hall was a professor at Bucknell University and chaired the Earth Sciences Department at Adrian College before joining Gulf Oil in 1974. At Gulf he was

successively Director of U.S. Exploration Interpretation, Director of Continental Margins Research and Director of Regional Geophysics. Leaving Gulf in 1982, Dr. Hall was Manager of Geophysics at International Oil and Gas Corporation (subsidiary of Preussag AG) until 1987 and Chief Geophysicist at Total Minatome (U.S. subsidiary of Paris-based Total CFP) until 1991 when he joined TGS. Dr. Hall has broad experience in both domestic and international geophysics including 2-D and 3-D seismic interpretation, regional tectonics, gravity/magnetics interpretation and seismic acquisition and processing. He has published more than 30 papers and brings an in-depth knowledge of current geophysical technology and its practical use to TGS.

## SEQUENCE STRATIGRAPHIC FRAMEWORK OF NEOGENE STRATA IN OFFSHORE NIGERIA

The western portion of the Nigerian continental margin is underlain by continental and transitional crust. It exhibits stable to moderately unstable progradation and is characterized by a well-developed shelf-slope break. Systems tracts are similar to those described by Vail for stable progradational margins.

In contrast, strata off the central portion of the Nigerian coast, in the vicinity of the Niger Delta, are underlain by oceanic crust. Systems tracts are similar to those in Neogene strata of the offshore Gulf of Mexico. The continental margin exhibits highly unstable progradation. Large growth faults, toe-thrusts and well-developed shale diapirs are present. The shelf/slope break is commonly not well-developed. Instead, a ramp is usually observed. In some places, this ramp is cut by large growth faults that define the shelf margin.

Lowstand basin floor fans in both areas are defined by a well-developed upper reflection. This reflection downlaps along the sequence boundary or abuts against the downthrown side of a growth fault surface. The lowstand slope fan contains channel complexes characterized by chaotic bedding with small bright spots and less common large channels, which exhibit concave-upward reflections. Most of the slope fan systems tract is comprised of discontinuous to semi-continuous subparallel reflections. In the western portion of the study area, slope fan deposits commonly pinch out at or near the shelf margin. Sand-rich facies (suggested by amplitude anomalies) are developed immediately downdip of major canyon cuts and deposition occurred largely from point sources. In contrast, contemporaneous shallow-water facies are developed in slope fan systems tracts off the central portion of the Nigerian coast. Deposition occurred along a line source.

Large amplitude anomalies in the lowstand prograding wedge suggest well-developed sheet sands are present off both western and central portions of the coast. These sands are present in both shallow-water (interpreted as delta front facies) and deep-water deposits (interpreted as shingled turbidites). The transgressive and highstand systems tracts are usually very thin.

Different exploration strategies are appropriate for each systems tract off both the western and central portions of the Nigerian coast. The best plays off the central portion of the Nigerian coast are probably structural traps (this includes updip pinchouts) whereas hydrocarbons may occur in both structural and stratigraphic traps along the west coast of Nigeria.