**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

Henry W. Posamentier, Anadarko Canada Corporation, Calgary, AB

Seismic Geomorphologic and Seismic Stratigraphic Analyses Using 3-D Seismic Visualization Techniques: Examples from the Gulf Of Mexico and the Western Canadian Sedimentary Basin

A variety of 3-D seismic visualization techniques can be brought to bear on the study of seismic geomorphology and seismic stratigraphy. Techniques such as lighting, opacity rendering, voxbody interpretation, and 3-D imaging can reveal geologically significant, though subtle, features. Numerous examples will be shown illustrating a broad range of 3-D visualization applications from the Gulf of Mexico and the Western Canadian Sedimentary Basin. Geomorphic elements shown will include fluvial channels – incised as well as unincised, deltaic distributary channels, barrier bars, carbonate build-ups, submarine canyons, deep-water channels and associated features, and mass transport complexes on the continental slope and the basin floor.

A typical workflow involves an iterative analysis of plan view images, profile images, and 3-D perspective views coupled with borehole calibration. Initial reconnaissance of 3-D volumes involves time slices and flattened time slices, as well as opacity rendering. After geologic features of interest are identified, surfaces are interpreted and bracketing intervals are created. Subsequently, interval and horizon attributes are generated and analyzed. At this stage additional surfaces can be interpreted as needed and horizon intervals can be adjusted to yield the clearest images. Profile views are incorporated into the analysis and the interpretation is systematically refined. This approach involves a blend of stratigraphy and geomorphology, which yields a more robust geologic interpretation. At the end of the process anomalies are recognized and interpreted within the context of what is geologically (stratigraphically and/or structurally) reasonable, regardless of the seismic data volume used.