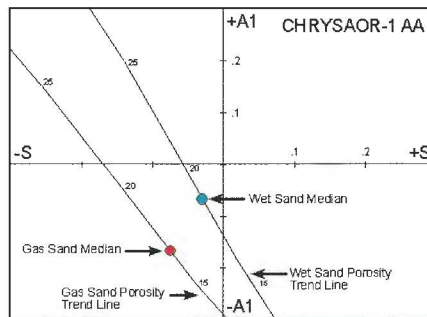
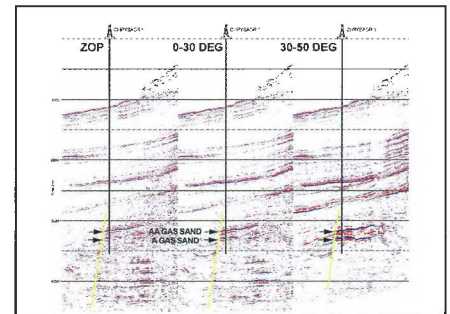
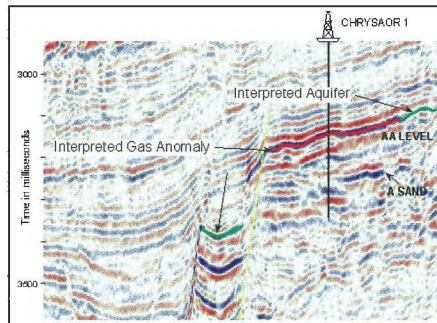


## Iterative Structural Modelling And 2D Seismic Imaging In The PNG Highlands

By Spencer Quam, BHP Petroleum (Vic/Tas Branch, 21st July 1999 Luncheon Meeting)

Historically, the extreme topography on the karstified limestone in the Papuan Fold Belt has limited exploration tools to surface geological mapping, aerial or satellite imagery, and structural cross sections. New techniques in seismic acquisition, processing, and modelling add seismic data to the subsurface characterisation tools.

A 2D seismic program was acquired during 1997 to assist in the appraisal of the new Moran discovery and the Iagifu / Hedinia and Gobe Fields, as well as to further define exploration leads between the two fields. The seismic was recorded on limestone ridges or in alluvium-filled valleys to provide optimum coupling. Seismic processing was developed to produce stacked sections with coherent panels of dip corresponding to real structural elements. Balanced structural cross-sections along each seismic line were iteratively modified and tied to the seismic stacks via ray tracing. The dip-line stacks were then depth migrated using interval velocities from the cross section models, and structural features seen on the seismic were evaluated.



Examples were shown which demonstrate that the 2D seismic has aided the identification of:

- Structural foci at key horizons, including reservoir
- Depth to detachment
- Strike compartmentalisation
- Hidden thrust plates