

*Paper 9***AVO analysis of a 2D seismic line in the
Malay Basin**

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A regional 2D seismic line from the Malay Basin was processed and analysed to identify possible hydrocarbon accumulation in deep prospects within the Group L and M using Amplitude Variation with Offset (AVO) analysis.

The data analyses were carried out in two stages:

- Relative amplitude processing of seismic data to preserve amplitude information and remove noise, and
- AVO analysis to predict the presence of hydrocarbon.

Relative amplitude processing involved 2:1 trace decimation, t-squared scaling for geometric spreading correction, spiking deconvolution, velocity analyses at every 1 km interval, Radon velocity filtering and NMO correction. The NMO corrected CMP gathers were used for AVO analysis.

The AVO analysis was carried out in three parts:

- AVO reconnaissance using different type of techniques such as instantaneous amplitude plots, gradient stack and range limited stacks,
- AVO analysis within the known K-sand gas reservoir at well, and
- AVO analysis beyond the well interval.

The results show that an AVO response can be observed from prestack data within the K-sand and is due to the presence of gas. These results were used to validate other AVO anomalies identified from the same dataset. The study suggests that AVO techniques can be used to identify possible hydrocarbon accumulations in the Malay Basin, however the extent of the accumulation cannot be determined based only on a single line. It is recommended that further analyses be carried out on a number of lines from the same area.
