

AVO, rock properties and pitfalls

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In recent years, Angle Dependent Reflection Coefficient or in short “AVO” has had considerable success in locating hydrocarbons, particularly gas. However, there has also been some glaring failures which has turned some explorers to have a somewhat skeptical approach towards the application of AVO for prospect evaluation. We believe that some of the pitfalls in interpreting AVO responses are not well understood or at the best not anticipated.

Traditionally the approach in industry towards AVO has been more of one from a seismic data processing standpoint only. The important connection with Rock Properties has been somewhat missing. This paper reviews this missing link and provides a workflow for AVO analysis and develops some guidelines.

The interpretational aspects of AVO is stressed. Modelling plays a keyrole in understanding the AVO behaviour and DSI shear log information is a must. Trend curves, for the important basins we are exploring in, helps a long way in decoding the elusive AVO response and relates it to lithological or porefill changes.

Finally, it is stressed that AVO should be seen more as one of the many variables that has to be considered in drilling a prospect. It is definitely a risk reducer that can enhance our overall chances of exploration success.