GEOPHYSICS POSTER 26

AVO APPLICATION FOR CARBONATES RESERVOIR CHARACTERIZATION IN SARAWAK BASIN

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Recent development in geophysics technology keeps improving to fulfill the need of energy resources. Geoscientists have to think out of box and be creative to come out with ideas on how to fully utilize all available data to find more hydrocarbons within specify budget. In order to provide optimum analysis, a proper feasibility analysis shall be carried out to set some expectation before embarking for full project. In reservoir characterization analysis integration of both geophysical and geological data is a must for quantitative seismic interpretation. This paper will focus on the application of Extended Elastic Impedance (EEI) attributes for characterization of carbonate reservoir heterogeneities in the study area.

The study field is located in the Central Luconia Province which forms part of Sarawak Basin of Northwest Borneo. The carbonate build-up in this field overlies Cycle III mixed clastics and carbonates. As a result to the extensional tectonics at the end of Cycle III, submarine topographical highs were formed, where reef growth took place during Cycle IV/V. The middle Miocene Carbonates are hydrocarbon bearing and is the main reservoir interval seismic characterization. In the study

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area, the major challenge is the very small carbonate interval (~65-95m) and imposes a major constraint for seismic-well integration for reservoir characterization. Rock physics analysis based regional trends have been utilized for characterization of deeper interval.

Prior to EEI feasibility study, all input data are quality checked. In general, both seismic and well data are prone to operational issues, which may affect the data quality and quantity. Nevertheless, with proper planning and better understanding on the technical parameters needed for optimum reservoir characterization, modeling and analysis could benefit in achieving the objectives. A high correlation coefficient of elastic parameters with optimum "chi" angle provides "tuned" results to the desired output. The EEI were used to separate lithology and fluid effects.

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