

Multiattribute analysis of East Java Basin carbonate reef built-up

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The use of three-dimensional (3-D) seismic attributes to predict reservoir properties is becoming widespread in many areas, one of the most underutilized aspects of the methodology is that the property prediction maps can help geoscientists understand depositional and post depositional controls on reservoir development.

Seismic data are built by various seismic attributes such as amplitude, frequency, phase, time and their derivative. Multiattribute analysis is a technique using geostatistics approach to define log properties from seismic data. In simple way seismic attribute shape is used to estimate the nature of log properties shape such as porosity, density and other well logs properties.

We illustrate this point via a case study that examines an Early Miocened-aged carbonate built-up of Tuban Formation in East Java Basin, Indonesia. In the first attempt, seismic analysis is carried out to characterize carbonate facies by utilizing seismic attributes such as Instantaneous Frequency and Reflection then made positive average maps for 200 ms above and below interpreted Turban Carbonate interval. This approach is carried out for 3-D Sukowati Seismic.

The target log of this multiattributes study is porosity log in order to construct porosity cube controlled by nine wells log data which then utilized for reservoir mapping based on the distribution of carbonate reef built-up.

KEY WORDS: Seismic attribute, Multiattributes analysis, Porosity prediction, Carbonate reef built-up.