

Modified Extended Elastic Impedance and Simultaneous Avo Inversion for Estimating Reservoir Lateral Lithologic and Pore-Fluid Heterogeneities from Seismic Data

Ahsanulkhair Y. R., author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20236362&lokasi=lokal>

Abstrak

Lateral lithology and saturation heterogeneities is the key for reservoir characterization. Amplitude versus offset (AVO), which is based on the reflection response change caused by the change of incident angle, provides the relationship between reservoir parameter, petrophysical parameter and elastic constant.

Conventional AVO analysis and modeling by iteratively picking on the reflection event sometimes could be difficult due to practicalities of picking, resolution problem, and thin layer effects. Lithofacies identification based on seismic impedance inversion can alleviate this difficulties. Impedance inversion also relatively free from the horizon interpretation problem, which can be subjective in heterogeneities reservoir.

In this study, we modify the Extended elastic Impedance (EEI) to predict lateral lithologic and saturation heterogeneities from seismic data. In order to validate the developed method we apply Simultaneous AVO inversion. The modified extended elastic impedance method is a least square weight combination of intercept and gradient to produce lateral and vertical elastic parameter or log analysis of interest. The method provides more reliable and stable result compare to the original extended elastic impedance. In addition, the method produces any type of elastic parameter without explicit relation function.