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Evaluation of Basznia sulphur deposit properties on the base of simultaneous inversion

Abstract

The seismic sections are an approximation of the zero-offset response of the medium, therefore, the seismic inversion carried out as a standard on the data after assembly (seismic cross-sections) allows only to obtain the P wave impedance distribution, because this depends only on the zero angle of incidence wave to the boundary. The calculations do not take into account changes in the V_P / V_S coefficient and the resulting AVO effects. When there are seismic offset data available (pre stack CMP gathers) one can obtain more information than just anomalous effect seen on stacked seismic sections alone. Additional attributes which correlate with the properties of reservoir rock can be extracted from amplitude changes with offset by the process of generalized inversion called simultaneous inversion are P-wave impedance, S-wave impedance and density. From them we can calculate other geomechanical parameters such as $\lambda \cdot \rho$, $\mu \cdot \rho$, Poisson's ratio and Young Modulus.

In this article authors present an attempt to apply the estimation of impedance and geomechanical parameters for evaluation of Basznia sulphur deposit properties.