

Mitigation Exploration Risk of Jurassic Reservoir by Seismic Inversion, Penobscot Area, Sable Sub Basin Nova Scotia, Offshore, Canada

Qadeer Ahmad¹, Anwar Qadir¹, and Mohsin Munir²

¹Bahria University, Islamabad, Pakistan

²Oil and Gas Development Company, Karachi, Pakistan

Abstract

High exploration costs require you to get it right the first time. Optimization technology innovates higher-value solutions. Inversion is one of those techniques, which mitigate the exploration risk by reservoir prediction. It is a process of transforming seismic reflection data into quantitative rock properties like Porosity, Saturation and Pore pressure. Better estimation of reservoir properties yields in easing the risk elements associated with prospect. Now a day seismic inversion is widely used in predicting porosity from seismic data in wide range of scale with varying level of complexities. This technique has been applied on the 3D data in Sable Sub Basin, Canada for porosity prediction of Jurassic Carbonate Reservoir. Inversion algorithm performed on the 3D seismic data resulted in the generation of impedance cube. Impedance values have been transformed into Porosity by cross plot analysis. Different cutoff used in term of Impedance to classify the change in reservoir. In addition, Gamma ray (API) values embedded with impedance to separate the reservoir part from non-reservoir part. In the study area, hydrocarbon exploration risks in term of reservoir quality tone down by using the inversion technique and it helped in identifying the sweet spots.