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Seismic Inversion to Improve the Reservoir Characterization: Case Study in Central Blue Nile Basin, Sudan

Authors : Safwat E. Musa, Nuha E. Mohamed, Nuha A. Bagi

Abstract : In this study, several crossplots of the P-impedance with the lithology logs (gamma ray, neutron porosity, deep resistivity, water saturation and Vp/Vs curves) were made in three available wells, which were drilled in central part of the Blue Nile basin in depths varies from 1460 m to 1600 m. These crossplots were successful to discriminate between sand and shale when using P-Impedance values, and between the wet sand and the pay sand when using both P-impedance and Vp/Vs together. Also, some impedance sections were converted to porosity sections using linear formula to characterize the reservoir in terms of porosity. The used crossplots were created on log resolution, while the seismic resolution can identify only the reservoir, unless a 3D seismic angle stacks were available; then it would be easier to identify the pay sand with great confidence; through high resolution seismic inversion and geostatistical approach when using P-impedance and Vp/Vs volumes.

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