

Toukimt Gas/Condensate Field: 3D seismic interpretation and attribute analysis

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Toukimt gas and condensate field is located in Essaouira basin, which is one of the most promising basins in Morocco with a large confirmed hydrocarbon potential to date. The reservoir is compounded of the Oxfordian-Kimmeridgian (Argovian) fractured carbonate, overlying both the Triassic salts and basalts. It is located at a depth of approximately 3100 m from the surface. The origin of this gas and condensate corresponds to a mixed source rock involving both Palaeozoic hot shale and Upper Jurassic marly carbonates.

From structural point of view, Toukimt gas-condensate field is unusual for the Essaouira Basin regarding its position in a downthrown fault block. The hanging wall rollover of Toukimt was formed due to gravity sliding, as salt withdrawal occurred to the west of the Meskala horst.

Since the discovery by TKM-1 well, four additional exploration wells were drilled between 1975 and 1977, with only two producers.

Recent studies, based on the newly acquired 3D seismic survey (185 Km², in 2007, by ONHYM) over Toukimt and the adjacent Meskala field, carried by ONHYM and Prism Seismic in 2009, have permitted to corroborate the structural framework of the Toukimt structure and to image the distribution of reservoir carbonates.

Furthermore, several seismic amplitude and structural attributes were calculated at the Argovian reservoir level. The attribute analysis has helped to characterize the reservoir and to better image its distribution.

Thus, two prospects were identified and ranked by the two studies using the volumetric calculations and the risk analysis.