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Integrated Use of Dipmeter and Conventional Logs for Characterization of Fluvial Deposits of Triassic Argilo Greseux Inferieur Formation within the Rhourde El Khrouf Field, Berkine Basin (Algeria)

This study aims to discuss the sedimentology and potential reservoir architecture in the area of Rhourde El Khrouf (RKF) Field (Algeria) on the basis of the interpretation of oil-base dipmeter data and conventional logs of six wells. Triassic Argilo Greseux Inferieur (TAGI) formation is made up of sediments of fluvial origin. The research was focused on Middle and Upper TAGI units. Detailed work and specific analysis on oil-base dipmeter processing yields a picture on the geometry and predominant paleoflow directions within the RKF field. Dip and orientation measurements obtained within sand bodies outline predominant orientation of downstream accreting bars and paleoflow directions for the different stratigraphic units analyzed.

Dipmeter analysis results are combined with the analysis of conventional logs and also with available core information (core pictures, core descriptions and grain-size curves) in order to achieve a more complete geological interpretation and a comprehensive characterization of Middle and Upper TAGI facies. Sedimentological features point to a consistent pattern with predominance of low sinuosity channels in Middle and Upper TAGI although high sinuosity channel facies are characterized in the uppermost section of fluvial TAGI sediments within the RKF Field.

The new data result in a more detailed facies definition and a better understanding of the sand/floodplain architecture, sandbody distribution and connectivity and outline the paleogeography of Middle and Upper TAGI fluvial sediments. Results have been integrated with petrophysical, structural, and dynamic data (pressure responses, well interference tests) in order to define a reliable static and dynamic reservoir simulation model.