

Sedimentary facies, depositional and palaeogeographic evolution of Mid-Triassic Kurrachine-Dolomite formation in Palmyra Basin, Syria

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The Palmyride fold belt is a Permian-Early Mesozoic NE-trending basin, a 400 x 100 km transpressive belt in central Syria connected to the Levantine passive margin. It was inverted and complexly deformed by the interfering effects of post-Oligocene movements along the Levant transform fault system and the Turkish Bitlis convergent zone [3]. Triassic deposits in Palmyra Basin are divided into: Lower Triassic Amanus-Shale formation, Middle Triassic Kurrachine-Dolomite formation, and Upper Triassic Kurrachine-Anhydrite formation [2].

Kurrachine-Dolomite formation is consisted of predominantly clean to argillaceous dolomite with fewer limestones and intercalated anhydrite halite-sylvite layers. It was studied using seismic methods, geophysical well-log data, petrophysical methods, core samples, cuttings and well reports. This paper presents the results of correlation between studied wells, a description of facies [1] composed of mud which have been subjected to synsedimentary or late dolomitisation through pumping or burial mechanisms, and the effect of diagenetic processes on reservoir properties. Dolomitisation process decreases towards the bottom of the formation and increases horizontally from the south to the north of the Palmyrian chain.

Determining sedimentary variables of the main facies led to the verification of sedimentary environments according to an evolution starting from deep marine environments (subtidal), to shallow environments (intertidal) belong to the marine platform, ending with the shallower environments (supratidal) belong to lakes, coastal lagoons and playa. Depths change within each of these environments due to continuous fluctuations of the eustatic sea level leading to local changes in the deposit base level. Sediments of the formation were deposited in several palaeogeographic phases, which gave the Kurrachine-Dolomite formation the aspect of a sedimentary megacycle in Palmyra Basin.

References

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