

Stratigraphic framework of Aptian Sequences within the Shu'aiba Formation of the Eastern Rub' Al-Khali Basin, Saudi Arabia

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ABSTRACT

The Mid-Lower Cretaceous aged Shu'aiba Formation, one of the main oil productive reservoirs in the Arabian Plate, is composed of five Aptian aged sequences. The depositional environment of the Shu'aiba Formation in platform areas is interpreted to be transgressive shallow-marine carbonates that can be more than 370 feet thick. The time-equivalent Bab Basin is an intra-shelf area that has a relatively consistent thickness of 50 to 100 feet.

Based on newly acquired well and seismic data, a regional study was conducted to map the areal extent of the Shu'aiba Formation, for each of the five Aptian time sequences. This poster includes well cross-sections and thickness maps that show the continuous deposition of these Aptian sequences in the Rub' Al-Khali and the time-equivalent sequences in Oman and UAE. Regional well cross-sections of the Aptian sequences were created using all available well logs and core data. Electro-facies were generated from wireline logs to map the areal extent of four different lithofacies deposited in basin, slope, bank and lagoon environments. This study identifies the margins of these Aptian sequences in the Rub' Al-Khali and also the lateral trend of thickening and thinning across the area. These trends are generally consistent with published maps and were combined with the corresponding cross-sections to generate regional thickness maps of the Shu'aiba Formation Aptian sequences in the eastern Rub' Al-Khali, Oman and UAE.