

The Tectono-Sedimentary Framework of the Jurassic Carbonate Platform in the Atlantic Passive Margin of Morocco

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This paper will focus on the tectono-sedimentary features of the carbonate Atlantic continental passive margin of Morocco. As it provides a better understanding of the Atlantic passive margin. The geological interpretation of the passive margin is based principally on the data acquired from petroleum industry including seismic reflection surveys and wells.

Prior to the opening of the Atlantic Ocean, a continental rifting during the Upper Triassic – Lower Lias was marked by the deposition of continental red beds which grade upward to evaporates. The break up unconformity associated with the transition from synrift phase to drifting is believed to be Toarcian in age.

Carbonate sedimentation prevailed in the Jurassic time. Very thick, 4000 m carbonate sequences were deposited on the shelf. Highly platform subsidence is associated with the post rift and cooling of the lithosphere.

Laterally the Jurassic becomes thinner towards the slope and the abyssal plain reflecting starved sedimentation with most of the carbonate being deposited in the shelfal areas. The carbonate sedimentation is marked high energy carbonates which are expressed on seismic profiles as prograding reflectors. These progradations correspond to sand shoal oolitic carbonate beds which were deposited during the high stands. During the Lias and Dogger, these sand shoal oolitic deposit were prograding and aggrading.

The carbonate platform evolved from ramp type platform in the Lower and Middle Jurassic to shelf margin platform in the upper Jurassic. This evolution is associated with rapid rise of sea level and the carbonate platform was catching up in the upper Jurassic.

However, and locally salt tectonic prolonged the ramp type to up to upper Jurassic.

The salt uplift compensated for the rapid sea level rise and prevented the carbonate platform to evolve to self margin carbonate platform.