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Mar'a Ornelas-Sánchez¹, Sonia Franco-Navarrete¹, Mónica Granados-Martínez¹ (1)
Instituto Mexicano del Petróleo, Mexico City, Mexico

Biosequences of the Oxfordian - Aptian of the Tampico - Tuxpan Basin, Northeastern Mexico

Based on the facies evolution of three subsurface sections in the Tampico-Tuxpan Basin, Northeastern Mexico, five megasequences are interpreted and related with the Gulf of Mexico opening event occurred during the Jurassic-Early Cretaceous.

The facies evolution during the Jurassic - Cretaceous is related with the Gulf of Mexico opening tectonic event, which possibly occurred in the Middle Jurassic-Early Cretaceous. This event consisted of a strong tectonic activity that produced an irregular sedimentation in time and space.

The first marine invasions registered during the Callovian, represent the beginning of a transgressive phase that had their maximum advances during Middle Tithonian and it is characterized in their initial stage by the deposition of carbonates in shallow platform facies with benthic foraminifera and algae during the Oxfordian-Kimmeridgian. During the Lower and Middle Tithonian those facies changed to deep platform basin facies with stomiosferids and radiolarians.

A second sequence of high level happened during the Late Tithonian-Berriasian, which is framed by basin environment, associated with calpionellids and calcareous nannofossils. During the Middle and Late Tithonian the transgressive sequence reached its maximum expression, the carbonated shallow platform facies change to calcareous deep open platform-terrigenous and basin facies where the benthic organisms were extinguished.

During the Valanginian-Lower Hauterivian a third sequence of transgressive character is identified. The basin was populated by radiolarians, calpionellids, nannoconids and planktonic foraminifera. A fourth sequence of high level is identified with regressive tendency in the Barremian in which the nannoconids prevailed. The fifth sequence is transgressive and occurred during the Aptian. During this time the water level increased, the nannoconids decreased and there was a proliferation of planktonic foraminifera.