
The Kimmeridgian Oolitic Banks and their Exploration Potential in the Marina de Campeche Zone, Southeastern Mexico: Biostratigraphical and Sedimentological Implications

Marco A. Flores Flores¹, Jorge L. Tenorio Lavín², Noemí A. Franco³, and Marco A. Prado Peña³

¹Pemex Exploración y Producción, Gerencia de Recursos y Proyectos de Exploración, Mexico

²Pemex Exploración y Producción, Activo de Exploración Plataforma Continental Sur*Coordinación de Prospectos Primer Piso Ala Poniente PEMEX-PEP, Calle 33, N.90 Colonia Burócratas C.P. 24100, Mexico

³Soluciones Bioestratigráficas y Sedimentológicas; Gomez Farias # 16, Col. Santa Fe, C.P. 01210, Mexico D.F.

ABSTRACT

The geologic and seismic data were integrated to evaluate the sedimentary conditions of the Kimmeridgian oolitic banks and its exploration potential in the Marina de Campeche Zone, southeastern Mexico. This study utilizes data from 127 exploratory wells and is located in an area of 22,000 km².

Biostratigraphical and petrographical data were integrated to construct the sedimentological distribution of reservoir rocks. Several events were identified to generate the chronostratigraphic framework which has regional significance. The correlations were controlled from the upper Tithonian with the presence of *Crassicolaria*, while the top of the Kimmeridgian, by the abundance of *Rhaxella*, which also represents a maximum flooding surface.

A homoclinal distal ramp was interpreted from the facies analysis with the development of oolitic banks that represent three main facies. Facies deposition provides insight into the distribution and the geometry of the oolitic deposits, and the sedimentologic processes that generate reservoir intervals. The data suggest that the structural highs as well as the salt movements had a significant impact on the distribution and orientation of the oolitic complexes while the quality of the reservoir rocks is controlled by the petrophysical and diagenetic conditions. Traps are located on the anticlinal highs and in the upper part of the faults that developed from the Oxfordian to the Kimmeridgian. These traps were associated with paleotopographic characteristics since pre-Jurassic time.