An Integrated Chronostratigraphic Evaluation and Calibration of the Early Miocene Oficina Formation at Petrozuata, Venezuela

The integration of palynology with sequence stratigraphic and sedimentologic interpretations has provided a robust chronostratigraphic framework for the reservoir strata of the early Miocene Oficina Formation at Petrozuata, Venezuela. Palynofloral assemblages including varying abundances and diversities of dinoflagellates, mangrove and terrestrial pollen delineate significant surfaces and systems tracts. Age-diagnostic taxa and assemblages can be correlated to global sequences. Pollen and spore assemblages are consistent with the early Miocene *Verrutricolporites usmensis* Zone, *Psiladoporites minimus* Subzone of northern South America. Mangrove pollen are primarily *Zonocostites ramonae*. Dinoflagellate taxa include *Cribroperidinium tenuitabulatum*, *Lingulodinium machaerophorum*, *Hemicystodinium zoharyi*, and *Spiniferites* spp. primarily indicative of coastal paleoenvironments. No foraminifera were identified, with sparse calcareous nannofossil data confirming an early Miocene (Zone NN4/NN3) age. At least six sequences can be identified within this observed prograding paralic succession. The five recognized major sequence boundaries are presently correlated to global sequences of the early Miocene. The lower three sequences are dominated by non-marine pollen and spore, indicative of terrestrial fluvial paleoenvironments. The younger three sequences exhibit varying degrees of marine influence; tidal, estuarine and paralic paleoenvironments, and the subsequent palynofloral assemblages are dominated by mangrove pollen, abundant and diverse dinoflagellates, with subordinate pollen and spores.