



Depositional System Transition from Braided River to Tide Dominated Delta-A Case Study of the MPE3 Block in the Eastern Venezuelan Basin

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The Eastern Venezuelan basin is a world-class petroliferous area, with the sedimentary environment controlled by the interaction between the Caribbean plate and the American plate. Based on interpretation of 3D seismic data, description of electrical well-logging facies and analysis of the sedimentary phenomena on the cores, we distinguished different types of sedimentary associations and clarified the evolution progress of the sedimentary system in the study area, the MPE3 Block. We put forward that depositional system in the study area changed from braided river in the early Miocene to tide dominated delta in the middle Miocene. Paralleled with sedimentary progress, the depositional hydrodynamic mechanism altered from the inertia dominated setting into the buoyancy dominated setting. During the middle Miocene, the tidal effect obviously reworked and formed tidal bars and tidal channels, both severing as the sedimentary framework. From the perspective of the tectonic movement, the study area varied from the foreland stage during the early Miocene to the compression and inverse stage during the middle Miocene. At the same time, the study area located in the southern part of the foreland basin began to extend and marine transgression occurred due to the tectonic extensional movement. We pointed out that critical factors influencing the transition from braided river to tidal dominate delta include palaeogeomorphology, sea level fluctuation, feeder system and the distance to catchment area.