

Subsurface Sequence Stratigraphy and Reservoir Characterization of the Southern Part of Anambra Basin, Nigeria

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The integration of geophysical logs and high resolution biostratigraphic data from few selected wells has been used to study the subsurface sequence stratigraphy and reservoir characterization of the southern part of Anambra Basin. Five sequence boundaries (SB I, II, III, IV and V) and maximum flooding surfaces (MFS I, II, III, IV and V) were identified. The depositional sequences were interpreted to be located between the Upper Nsukka Formation (Paleocene) and Eocene Ameki Group /Ogwashi-Asaba Formation. Each sequence is bounded by a type-1 sequence boundary, and most of them contain basal fluvio-marine portion representing the transgressive systems tract. This is succeeded by shoreface and foreshore deposits of the high-stand systems tract. Six reservoir units identified in the wells were analyzed for lithofacies and environmental characterization. Three major depositional environments were identified using the well logs signatures and matched with their biostratigraphic data to be: 1. Fluvial channel and/or tidally influenced channel and associated floodplain deposits; 2. Estuarine and/or proximal lagoonal in origin and 3. Distal lagoon to outer shelf.