

Sedimentary Geology of Part of the Southern Benue Trough.

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Abstract:

The Cretaceous sediments of the southern Benue Trough, comprising the Abakaliki Shale, the Ebonyi Formation (new name), the Eze A1- Formation, the Awgu Formation (all pre-Santonian) and the Enugu Formation (post-Santonian) totaling about 5,000m thick, were studied. The pre-Santonian deposits are arkosie wacke sandstones and shales with abundant illite, smectite/ illite and chlorite. Illite and chlorite increase with depth of burial with corresponding decrease in smectite and smectite/illite. A depth of burial of approximately 3,500m - 4,000m is suggested for the
the Abakaliki Shale.

The post-Santonian elastics are quartz arenite with higher ZTR-maturity index while the shales have abundant kaolinite. The carbonates studied are chlorozoan oolitic grainstones, wackestone-packstone and mudstone-wackestone referable to facies belts 6-8 of Wilson (1975). Pyroclastic extrusives contributed both to the smectite development and sandstone (diagenesis). Cross-beddings, paleochannels, interference ripple marks and evaporite aminite suggest lower Clow regime of denositi of the azimuth direction of the cross-beds provides evidence for west and southwest paleocurrent dime tien that were variable during the Coniacian. There was a corresponding stable pa l euslope throughout the pre-Coniacian and the post-Santonian time. A paleohigh (the Cameroun Basement Complex and the Oban massif) persisted east of the southern Benue throughout the period of deposition and steadily supplied detritus to the sub-basin. The environments of deposition range from restricted shallow marine (Abakaliki Shale) at the base through transitional (Ebonyi Formation), shallow marine (Eze Aku and Awgu Formations) and fluvial to paralic (Enugu Formation) at the top. Warm, humid tropical climate and probably locally short-lived arid conditions characterised the sub-basin during the Cretaceous

Keywords: Sediments / Cretaceous/ Pre-coniacian/ post-santonian/ sub-basin/ Cross-beddings

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