

COASTAL INFLUENCE IN THE ITAPECURU DEPOSITS (CRETACEOUS), GRAJAÚ BASIN, BRAZIL

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The Cretaceous Itapecuru Deposits cover a large area in the Grajaú Basin (Northern Brazil), which is probably an intracontinental rift associated with the break-up of the South American and African plates. Previous studies have considered these deposits as fluvio-lacustrine in origin. However, the Itapecuru Deposits cropping out near Açailândia (a town located 450km far from the present Atlantic coast) show sedimentary structures attributed to large-scale wave and tidal processes including: 1. swaley and hummocky cross stratification; 2. even-parallel to quasi-planar lamination; 3. low-angle cross stratification; 4. large-scale scour-and-fill structures; and 5. cross-strata with mud drapes and reactivation surfaces, which are locally arranged into couplets with lateral thickness variations attributed to tidal periodicities. The large-scale scour-and-fill structure in these deposits suggest that powerful waves crossed this basin. Those features formed in a large bay or marginal sea that extended to the Equatorial Atlantic Ocean throughout the São Luís Basin. Considering that the paleolatitude of this region (less than 10oS) was not favourable to the development of vigorous oceanic storms, a seismic origin is invoked for these large-scale waves. This interpretation is consistent with the occurrence of abundant deformation structures (convolute bedding, fractures, faults) which are confined to single beds within undeformed deposits.