

Interpreting climatic signals in a rift lake - an example from the Reconcavo Basin, Northeastern Brazil

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The Lower Cretaceous of Brazilian marginal basins comprises thick nonmarine rift sequences, for which the interplay between tectonism and high frequency climatic changes was the main factor controlling the different basin fill patterns.

The filling of the Reconcavo rift (Bahia state, Northeastern Brazil) evolved from initially deep lacustrine sediments to fluvial-eolian deposits, at later stages. This study focus on suggested evidence for climatically driven facies variations in a deltaic-lacustrine succession of Barremian age (Aratu local Stage), in central Reconcavo. In this area, a cyclic sedimentation pattern, represented by recurring periods of delta progradation and subsequent transgression, has evolved under relatively low rates of tectonic subsidence and depositional gradients. Nevertheless, the major depositional trend might reveal, by this time, the tectonic control over accommodation space.

Some of the transgressive mudstones, commonly punctuated by ostracod-rich beds, have a basinwide distribution and are consequently good stratigraphic markers. Climatically driven fluctuations of lake level have been assigned for explaining the small scale facies changes observed in these periods of minor siliciclastic input. The integrated analysis of lithologic, isotopic, organic geochemical and paleontological data has proved to be very helpful for the support of such interpretation and can be applied for a variety of nonmarine deposits.