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A Miocene wave-dominated estuarine system in the Paraíba Basin, northeastern Brazil

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ABSTRACT

A number of publications have documented the effect of the Miocene transgression on several coasts of the world. However, this event is incompletely documented along the Brazilian margin, despite the existence of an impressive record of Miocene deposits exposed mostly as several coastal cliffs along more than 5,000 km of distance. The transgressive nature of Miocene deposits, so far recognized only in a few localities of northeastern Brazil, needs to be amplified in order to better characterize the impact of the Miocene transgression in eastern South America. In this work, we provide facies analysis of early/middle Miocene strata exposed in the Paraíba Basin, northeastern Brazil, aiming reconstruct the depositional paleoenvironments and analyze their evolution within the context of relative sea-level fluctuations data. The results revealed deposits characterized by several features that were related to the action of tidal currents, such as alternating thicker/thinner forest packages, abundant reactivation surfaces, mud drapes and oppositely-dipping (herringbone) cross sets. These sedimentary structures were associated with an ichnological assemblage indicative of marine-influenced and brackish water, best represented by *Ophiomorpha*, *Planolites-Palaeophycus-Thalassinoides* and *Thallassinoides-Planolites-Palaeophycus*