STORM AND TIDE-DOMINATED SILICICLASTIC DEPOSITS OF THE ARCHAEAN ÁGUAS CLARAS FORMATION, SERRA DOS CARAJÁS, BRAZIL

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The Archaean (2,6-2,7 Ga) Águas Claras Formation is widely distributed in the Carajás region in the southern part of the Amazon Craton. This formation, up to 1.5 km thick, is divided into (1) Lower Member, composed of mudstones and subordinate sandstones, and (2) Upper Member, comprising mainly sandstones. The Lower Member shows hummocky cross-stratification and ripple marks in the intercalated sandstone which record a storm-influenced marine platform whilst the Upper Member was deposited in littoral (lower part) and fluvial (upper part) environments. Characteristic structures of the littoral deposits include swaley and hummocky cross-stratifications, related to the passage of storms together with crossbed sets with tidal bundles and reactivation surfaces, herringbone cross-stratification and heterolithic bedding which indicate tidal processes. The uppermost braided alluvial sandstones and conglomerates display mainly tabular cross-bedding and small-scale trough cross-stratification. The facies succession of the Águas Claras Formation records a progradation of the shoreline, and it would appear that a braid delta complex linked the littoral with the fluvial environments. The onset of the fluvial environment was probably triggered by uplift of the source area northeast of the sedimentary basin. The occurrence of storm and, principally, tide-generated facies (ocean-influenced depositional setting) contradicts the previous interpretation of the Águas Claras Formation as an alluvial to lacustrine filling of small pull-apart basins.