

This work aims to provide data to contribute with the reconstruction of the Quaternary tectono-sedimentary history of one of the largest fluvial Island in the world, the Marajó Island. Despite the location in a passive continental margin, the Marajó Island was characterized by great tectonic and sedimentary dynamism throughout the Quaternary. Evidences come from mapping of tectonic lineaments with basis on SRTM data and Landsat images, combined with interpretation of the sedimentary record in outcrops and cores. Four main groups of tectonic lineaments, orientated to the NNW/N/NNE-SSE/S/SSW, NW-SE, NE-SW and E-W/ENE-WSW/ESE-WNW, were recognized. Physical relationships among these features provide elements for discussing the succession of events. This procedure led to the recognition of an important tectonic phase producing NNW/N/NNE-SSE/S/SSW lineaments that predate all the other tectonic phases. Subsequent events resulted in more widespread deformation in the NW-SE, and then NE-SW directions, with the first having caused a slight depression of the eastern side of Marajó Island. E-W/ENE-WSW/ESE-WNW lineaments might have developed in different phases, both predating and post-dating the other tectonic events. This complex tectonic history left an impressive signature in the sedimentary record, consisting of an abundance of ductile and brittle structures. Detailed analysis of these features supports seismic activities contemporaneous or shortly after deposition, when the sediment was still unconsolidated or semi-consolidated. Thus, tectonics had a crucial role in the creation of new space to accommodate the Quaternary sedimentation in the eastern Marajó Island.