



THE IMPACTS OF SEA-LEVEL AND CLIMATIC CHANGES DURING THE HOLOCENE ON MANGROVES OF THE DOCE RIVER DELTA, SOUTHEASTERN BRAZIL

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Sedimentological, palynological, isotopes ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) data with radiocarbon dating of the sedimentary organic matter provides a model of mangrove dynamics during the evolution of a wave-dominated delta, Southeastern Brazil. Mangrove dynamics are analyzed within the context of the Holocene climatic and sea level changes. Tidal flats, positioned at the highest limit of the intertidal zone along the edge of a lagoon sheltered by beach ridges, were occupied by wetlands represented by mangrove and herbaceous vegetation during the middle Holocene high sea level. After, considering the relative sea-level fall and relatively higher fluvial sediments discharge, during the last ~6350 years, progradation took place along this shoreline, resulting in extensive beach ridge deposits that overlie transgressive muds. This process led to loss of mangrove area. Similar dynamics repeated at ~3043 cal yr BP, although in a relatively more distal position. Between ~1337 and ~900 cal yr BP, a tidal flat attached to the edge of a lagoon near the modern coastline was colonized by herbaceous vegetation (C_4 plants). The next phase, which occurred between ~900 and ~400/~100 cal yr BP, is marked by the transition from herbaceous to mangrove tidal flats with an increased trend of terrestrial organic matter. During the recent centuries, a mangrove vegetation became established, and there was an increased trend of estuarine-derived organic matter. This mangrove phase, recorded during the last century(ies), may be due to a relative sea-level rise. Under this scenario, erosion of beach ridges and expansion of lagoons and mangroves are expected along the littoral of the State of Espírito Santo, Southeastern Brazil.

Keywords: Facies association, Isotopes, Palynology.

Agradecimentos: FAPESP (03615-5/2007 e 00995-7/11) e CNPq (470210/2012-5 e 202598/2011-0).