



STRATIGRAPHY AND EVOLUTION OF THE PLEISTOCENE BARRIER III IN THE SOUTHERN COASTAL PLAIN OF RIO GRANDE DO SUL, BRAZIL

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Coastal barriers are geomorphological features developed during marine transgressions and regressions on low-slope, wave-dominated coasts with abundant sediment supply. The coastal plain of Rio Grande do Sul state (CPRS), in southern Brazil, encompasses four large barrier-lagoon depositional systems, each one formed during an interglacial epoch between the middle Pleistocene and the Holocene. Although the Holocene Barrier IV is relatively well-studied, little is known about the structure and behavior of the Pleistocene barriers. Here is presented an interpretation of the stratigraphy and evolution of the Pleistocene Barrier III, based on outcrop descriptions, sedimentological analyses, standard penetration test (SPT) reports, GPR surveys, electron spin resonance (ESR) ages from fossil shells and optically-stimulated luminescence (OSL) ages from sediments. The data and samples were obtained during the installation of winds farms on an area encompassing the Barrier-Lagoon System III, and show a depositional sequence that unconformably overlies marine sediments of the Barrier System II. The base of the sequence is a 1 to 4 meter-thick clayey sand layer with plant remains and few shells of marine mollusks and foraminifers, interpreted as lagoon facies developed in the backbarrier. The infilling of the lagoon consists of fine muddy sand with fossils of marine and estuarine invertebrates and foraminifers, interpreted as lagoon margin deposits developed during the transgressive phase of the barrier, approximately between 125 and 114 kyrs ago. The GPR data suggest that sea-level during the highstand reached 5 to 7 meters above the present-day mean sea-level, and the barrier experienced a period of aggradation, followed by progradation during the regressive phase as sea-level began to drop around 104 kyrs ago. The barrier was subject to aeolian processes between <104 kyrs and 10,5 kyrs ago, and afterwards the uppermost portion of the aeolian deposits was stabilized due to pedogenesis, iron oxide precipitation and vegetation growth.

Palavras-chave: Pleistoceno, Barreira III, Estratigrafia

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