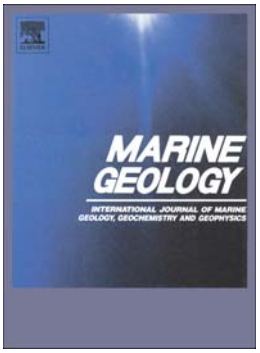

The stratigraphic evolution of a large back-barrier lagoon system with a non-migrating barrier

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The stratigraphic evolution of a large back-barrier lagoon system with a non-migrating barrier

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Abstract

Lake St Lucia, the largest estuarine system in Africa, is enclosed by a 120 m-high compound Quaternary barrier-dune system in northern KwaZulu-Natal, South Africa. It comprises several discrete sedimentary basins within a single shallow back-barrier water body. This paper reports the first very-high-resolution seismic study of the system. Seven seismic units (A-G) are identified and interpreted based on their geometry, acoustic properties and a sediment coring programme. The units are bounded by regionally developed sequence boundaries and lower order unconformity surfaces corresponding to bay and tidal ravinement and hiatus surfaces. The lowermost subaerial unconformity formed during regression related to late-Pliocene hinterland uplift. Initial infilling of this surface in the proximal areas reflects estuarine sedimentation in a mixed wave- and tide-dominated system during the subsequent