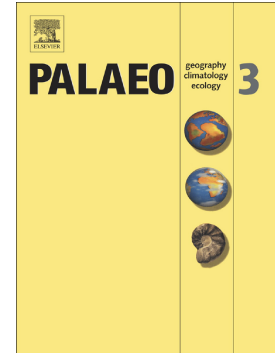


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Late Pleistocene-Holocene climate and sea level changes inferred based on the tidal terrace sequence, Kachchh, Western India

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Abstract

An estuarine tidal terrace sequence at the mouth of the Kharod River, Kachchh, Western India is investigated for Pleistocene to Holocene climate and sea-level changes. Based on sedimentology, major element geochemistry, mineralogy, supported by optical dating, the study reports a lowered sea level during 13.8 ka, followed by gradual rise in the sea level until around 6 ka. This is ascribed to a combination of enhanced melt water discharge and strengthened Indian Summer Monsoon (ISM). The temporal changes in major elements (detrital proxies), suggest a fluctuating to an overall arid monsoon conditions during 5.7 to 3.1 ka with a rapidly rising sea level. This is further supported by the dominance of fine textured sediment along with the occurrences of shell rich horizon. In the absence of any evidence of land-level changes, the study suggests that at around 6 ka to 3 ka, the sea was approximately 2 m higher than present. The decline in the concentration of geochemical proxies and occurrence of Aeolian sand after 3 ka is interpreted as the onset of aridity and present day like conditions. The three levels of sea stands, during ~ Early, Middle and Late Holocene are synchronous with various archeological (Harappan) settlements in the region.

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