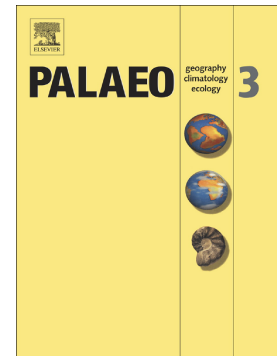


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Sedimentary evolution of the Yangtze River mouth (East China Sea) over the past 19,000 years, with emphasis on the Holocene variations in coastal currents

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Abstract

Water mass variations in the early Yangtze estuary during the postglacial transgression have not been thoroughly studied. This research gap has hampered the understanding of riverine sediment 'source to sink' processes in this region. This study presents the results of integrated analyses of grain size, pollen-spore-dinocyst assemblages, benthic foraminifera and ostracods from a borehole, H5, located at the northern Yangtze mouth, to investigate the complete sedimentary history and associated variations in coastal currents since 19 ka. At the core site, a fluvial floodplain developed from ca. 19-11.3 ka, whereas an estuary to shelf to subaqueous delta prevailed during most of the Holocene. Based on changes in the dominant microfauna species, which mainly consist of Chinese coastal water species, two main current patterns were distinguished: one dominated by the Yellow Sea coastal current (YSCC) before ca. 7.9 ka and one dominated by the Yangtze dilute water (YDW). Marked increases in open-sea saline species, including *Bolivina robusta*, and stratified water dinocyst species *Spiniferites ramosus* and *Spiniferites* spp. were interpreted as the encroachment of the Taiwan warm current (TWWC) and the intensification of the YDW, respectively. The YDW and TWWC penetrated the area dominated by the YSCC before 7.9 ka, which was likely related to intensity variations in the Kuroshio Current (KC) and Asian summer

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