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Sedimentary responses to Holocene sea-level change in a shallow marine environment of southern China

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ABSTRACT

This study has examined how the sedimentary processes in the prevalent non-deltaic coastal marine environments along the southeast coast of China have responded to sea-level change and other environmental drivers during the Holocene. Three sediment cores collected from a shallow marine embayment of the Lantau Island, Hong Kong, on the northern coast of the South China Sea, were analyzed. The results of particle size, total organic carbon content, organic carbon and nitrogen ratios, organic carbon stable isotope ratios, abundance of alkenones and radiocarbon dating of these cores have helped reconstruct the sedimentary history of this site. This history shares the similarity in sedimentary processes within the deltaic environment for the early Holocene, because palaeo-incised channels exist in both environments. The first 1500 years of deposition involved rapid channel infill caused by the rapidly rising sea level and strong monsoon-derived discharge. This was followed by a period of decelerated sedimentation under strong marine influence as the sea flooded the wide accommodation space in the subsequent two millennia. Major differences between the two environmental settings occur in the past 7000 years: vertical accretion was seen in the non-deltaic coastal environment, whilst lateral shoreline advance was the dominant process in the deltaic

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