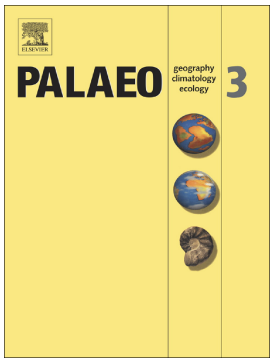

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Abstract

Climate and vegetation history from the Yucatán Peninsula, southeastern Mexico, are inferred from a mangrove sediment core deposited between the middle and late Holocene (~5600-1700 cal yr B.P.) in the Rio Hondo Delta. Fossil pollen and concentrations of Ca and Fe and Ca/Fe ratio in sediments are used to record changes in vegetation and climate. Palaeoecological and palaeoclimatic interpretations obtained from pollen abundances and associations and Fe/Ca ratio coincide with dynamics of major global forcings of climate change like ITCZ, ENSO and global cooling. Mesic conditions enabled tropical forest expansion during the middle Holocene (~5600-3650 cal yr B.P.), although there were periodic dry episodes at ~5200 cal yr B.P. and at ~4300 cal yr B.P. that caused disturbance and enabled herbaceous vegetation to expand. Changes in sedimentation and a gradual change from semi-evergreen to dry tropical forest occurred at ~3650 cal yr B.P., with increasing ENSO activity and southward migration of the ITCZ during transition of the middle to late Holocene.