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Abstract

We present mangrove dynamics, related to precipitation changes derived from migration of the Intertropical Convergence Zone (ITCZ) and the El Niño Southern Oscillation (ENSO) during middle and late Holocene of the northern and southern Yucatan Peninsula. Sea level rise was the major determinant for mangrove establishment during middle Holocene. Following the sea level rate stabilization, changes in precipitation and increasing ENSO activity determined periods of expansion and reduction of mangrove cover. At the onset of late Holocene, mangroves fluctuated abruptly due the coupled effect of the ENSO and latitudinal movement of the ITCZ. Trend correlation analysis revealed significant relationship between the presence of *Conocarpus erectus*, ENSO and ITCZ. *Rhizophora mangle* showed a significant relationship with ITCZ based on trend correlation analysis. Expansion of mangrove populations in seasonally flooded wetlands is recorded during the late Holocene.

Keywords

Mangrove, *Conocarpus erectus*, *Rhizophora mangle*, Pollen, ENSO, ITCZ

1. Introduction

One of the major concerns about global warming is the sea level rise and the impact to human society. This lead to an increasing number of research trying to comprehend the impact of climate