

The ENSO-East Asian monsoon teleconnection recorded in the Sr/Ca ratio of coral skeletons from the southern South China Sea

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The South China Sea (SCS) is a semi-enclosed marginal sea adjacent to the Southeast Asian mainland, and its sea-surface conditions are strongly influenced by the East Asian monsoon (EAM). The EAM is strongly teleconnected to the El Nino-Southern Oscillation (ENSO), and the ENSO-EAM system has a clear quasi-biennial oscillation (QBO). In the SCS region, the QBO appears most markedly in boreal winter, or in the East Asian winter monsoon (EAWM). The EAWM is generally weakened (strengthened) in El Nino (La Nina) phases. Consequently, the winter sea-surface temperature in the SCS shows a clear QBO and has a tendency to be higher (lower) in El Nino (La Nina) phases.

In this study, an annually-banded *Porites* coral skeleton collected from Con Dao Island in the southern SCS was measured for Sr/Ca, Mg/Ca and Ba/Ca ratios at near-monthly resolution through the annual bands of AD 1948-1999. The Sr/Ca time series shows a clear annual cyclicity, which is mostly indicative of sea-surface temperature variation around the island. The above-described QBO and tendency of the winter SCS surface temperature are faithfully recorded in the Sr/Ca time series. Therefore, it can be concluded that reconstructing the SCS surface temperature from coral skeletons at high temporal resolution is an important approach to investigate the variability of the ENSO-EAM teleconnection.