

Reconstruction of sea surface temperature and salinity at the Java Sea from coral Sr/Ca and $\delta^{18}\text{O}$

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The Indonesian Archipelago is located between the Pacific and the Indian Ocean and Influenced from the Indonesian throughflow (ITF). The ITF varies heats and water budget between the Pacific and the Indian Ocean and may influence on variations of the Asian monsoon and the El Niño/Southern oscillation (ENSO). In addition, during northwest monsoon, the surface current carries buoyant, low salinity water from the South China Sea and the Java Sea into the southern Makassar Strait, and restrain transportation of ITF in the surface layer of the Makassar Strait. Since the behavior of water mass alters heat transportation from the Pacific into the Indian Ocean, it may influence the monsoon and the Indian Ocean Dipole (IOD). However, observed records have not been reported enough to understand climate systems around the Indonesian Seas because of the complexity of topography. In this study, we reconstructed decadal sea surface temperature (SST) and salinity (SSS) from Sr/Ca ratios and $\delta^{18}\text{O}$ in the coral core.

A coral core (*Porites* sp.) was collected from the Seribu Island located in the Java Sea. The average growth rate of this coral was about 22 mm/yr. we measured Sr/Ca ratios and $\delta^{18}\text{O}$ with interval of 1.6 mm, corresponding to time resolution of about a month.

We reconstructed SST and SSS from 1931–2002. Reconstructed SST has bimodal seasonal cycle and a warming trend ($\sim 0.7\text{ }^\circ\text{C}$) over the 70 years .It has been reported that during El Niño and positive IOD, cool SST anomaly appears and rainfall decreases around the Indonesian Seas. However, Based on time-series analysis, ENSO and/or IOD seems not to be predominant factor affecting SST and SSS in the Java Sea.