

Assessing of variation of the Indonesian throughflow using a coral core collected from Seribu Island, Indonesia.

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The Indonesian throughflow (ITF) runs from the Pacific into the Indian Ocean through the Indonesian archipelago. The ITF varies heats and water budget between the Pacific and Indian Ocean, and may affect on variations of the El Niño/Southern Oscillation (ENSO) and Asian monsoon. In addition, there is a seasonal surface current corresponding to the monsoon in this area. During the northwest monsoon from January to March, the eastward surface current carries seawater with low density and salinity from the Java Sea into the surface layer of the southern Makassar Strait, and this low salinity water, which is called "freshwater plug", restrain transportation of ITF in the surface layer of the Makassar Strait. Conversely, during the southeast monsoon, the westward surface current removes the "freshwater plug" from the southern Makassar Strait, therefore, the transportation of ITF in the surface layer of the Makassar Strait is not restrained. Since the behavior of the "freshwater plug" alters heat transportation from the Pacific into the Indian Ocean in the surface, it may influence the Asian monsoon and the Indian Ocean dipole [Gordon et al., 2003]. Then, in this study, we analyzed geochemical tracers used as water temperature and salinity in the coral core which grew up in the Java Sea where is affected by the "freshwater plug". Consequently, we reconstructed sea surface temperature and sea surface salinity for about 20 years during 1982–2003. We will discuss these reconstructed marine environments in relation to variation of the "freshwater plug" and ITF.