Geophysical Research Abstracts
Vol. 13, EGU2011-1565, 2011
EGU General Assembly 2011
© Author(s) 2010

SITE, western route of Indonesian Throughflow via the South China Sea

Raden Dwi Susanto (1), Guohong Fang (2), Rameyo Adi (3), and Zexun Wei (2)

(1) Lamont-Doherty Earth Observatory of Columbia University, New York, United States (dwi@ldeo.columbia.edu), (2) First Institute of Oceanography, Qingdao, China (fanggh@fio.org.cn; weizx@fio.org.cn), (3) Agency for Marine and Fisheries Research, Jakarta, Indonesia (t_rameyo@yahoo.com)

Indonesian throughflow (ITF), the transfer of water from tropical/subtropical Pacific to Indian Ocean through the Indonesian seas plays a significant role of the global ocean system of interocean fluxes, ocean-scale heat and freshwater budgets, sea-air fluxes, and biogeochemical exchange. The ITF is believed to play interactive link with Asia-Australian monsoon, ENSO and Indian Ocean Dipole, and to the large extent governs the overall oceanographic stratification, circulation, and ecosystems within the Indonesian Seas.

Although the ITF measurements have been conducted for more than two decades, the ITF branch through the South China Sea (SCS)-Karimata Strait has always been ignored and has received little observational attention. There have been no field measurements to quantify the total transport and its associate heat-freshwater fluxes before conduction of the Indonesia, China and the United States collaborative research program called SITE (South China Sea - Indonesia Seas Transport/Exchange) program, even though trajectories of sea surface drifters of the Global Drifter Program have indicated that the Karimata Strait is another important channel for the Throughflow from the SCS to the Indonesian Seas. Despite several numerical studies that have attempted to quantify the Karimata flow, there has not been a consensus among numerical models, in terms of the mean and variability. Based on our short mooring data during the winter 2008, the volume transport from the South China Sea to Indonesian Seas could reach -3.6 $\pm$ 0.8 Sv (Sv =10^6 m3/s).

Under the SITE program, three trawl resistant bottom mounted ADCPs were deployed in the Karimata Strait, and full-year flow observations at 2 sites were obtained. We will present our results from the mooring recovered in 2009 and 2010. During boreal winter SITE flow carries a significant amount of freshwater from the South China Sea to the Java Sea, and thus changes water properties both in the South China Sea and Indonesian Seas. In addition, two bottom mounted ADCPs with CTD have been deployed in the Sunda Strait in November 2008 to measure the water mass and fresh water fluxes between Java Sea and eastern Indian Ocean which is the center of Indian Ocean Dipole. We will presents the ADCP time series recovered in 2009 and 2010.