

April 21, 2011

**PO Special Seminar  
Clark 507 @ 3pm**

*R. Dwi Susanto*

Lamont Doherty Earth Observatory of Columbia University

"Role of Indonesian throughflow on global ocean"

#### Abstract

The Indonesian Throughflow (ITF) is the leakage of western tropical Pacific water into the southeastern Indian Ocean through the complex topography and narrow passages of Indonesian Seas. The ITF is an important pathway for the transfer of climate signals around the world's oceans. The heat and freshwater water fluxes carried by the ITF are known to affect the basin budgets of both Pacific and Indian Oceans. Understanding this exchange, magnitude and variability, as well as ability to estimate it are therefore essential for global climate system. Prior to 2003, ITF measurements were conducted in different straits at different times.

A multinational (Indonesia, USA, Australia, France and the Netherlands) program called INSTANT (International Nusantara Stratification and Transport Program) conducted simultaneous measurement of the ITF in major inflow and outflow passages in 2003-2007. Overview of this program and their results as well as detailed transport estimates in the Makassar Strait will be presented.

Although the ITF measurements have been conducted for more than two decades, the ITF branch through the South China Sea-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, until recently when scientists from Indonesia-China-USA developed program called SITE (South China Sea-Indonesian Transport/Exchange). The on-going SITE field measurement program as well as preliminary results of velocity, volume and heat-fresh water fluxes will be presented.

Given the important of ITF on the global ocean circulation and climate and the fact that field measurements are logistically challenging and expensive, in the long run cost-effective techniques for developing proxy-ITF monitoring are needed, i.e. numerical model and remotely sensed data approaches.