



Voyage ss2013_v05

Sustained monitoring of the East Australian Current: mass, heat and freshwater transports

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Contribution to Australia's national benefit:

The project falls within the MNF goal of 'Responding to climate change and variability' and also addresses the theme, Improving the understanding and prediction of ocean currents and the links between large-scale offshore variability and the response of the Australian shelf/slope boundary current system in the IMOS Science Plan. This project provides sustained observations of one of Australia's major boundary currents – the East Australian Current (EAC). We seek to define the mean and time-varying components of the EAC, and to understand how these components vary over multi-year to decadal timescales. The EAC plays a central role in the global circulation system and this array will contribute directly to a proposed global network of boundary current arrays. National benefits include the provision of: the heat and freshwater budgets around Australia to determine the oceanic influence on climate, observational constraints on operational programs (BLUElink, ACCESS), in situ data for coastal studies, and coastal ocean state estimate systems, observations to link biological diversity and productivity to physical and chemical processes, climate change impacts on marine ecosystems.

As a result of this voyage:

1. We have a better understanding of the EAC off Brisbane from the CTD, ADCP and LADCP data collected on this voyage. These results will be included in an initial paper. A far more comprehensive understanding will await the processing and quality control of all moorings.
2. We have found that the observed vertical and horizontal structure of the EAC during August-September confirms the results obtained from BLUElink ocean models that were used to design the array. Once processed, results from the

array will be used to improve and possibly simplify the design of a future deployment of the array.

3. We have previously mapped the bottom topography at each mooring site at high resolution. This will facilitate future retrievals and deployments of the EAC moorings.
4. We have completed the first stage of a program to monitor the mass, heat and freshwater transport of the East Australian Current. The moorings were in place for 17 months before retrieval and data processing and analysis. Funding for a further deployment of the array in 2015 has now been approved.

> Voyage track ss2013_v05

