



Voyage ss2012_v01

Sustained Monitoring of the East Australian Current: Mass, Heat and Freshwater Transports

Ken Ridgway (Chief Scientist), Dr. Bernadette Sloyan, CSIRO Marine and Atmospheric Research

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 retrieval of all moorings.
2. We have found that the observed vertical and horizontal structure of the EAC during April confirms the results obtained from BLUElink ocean models which were used to design the array. The complete results from the voyage will only be obtained after the array is retrieved in 2 years time.
3. We have 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 commenced a program of monitoring the mass, heat and freshwater transport of the East Australian Current. The moorings will be in place for 18-24 months before retrieval and data processing and analysis. Some form of observing array will be maintained at this location in a 2-year ongoing mode.

Itinerary

Departed Brisbane, 10:00, 20 April 2012

Arrived Brisbane, 16:00, 29 April 2012

> Voyage track ss2012_v01

