

Variations of surface mixed layer heat budget during DYNAMO

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Abstract

The response of the oceanic surface mixed layer heat budget to different phases of the Madden---Julian oscillation (MJO) in the central Indian Ocean is evaluated. Shipboard and mooring observations (September 2011 – January 2012) from the DYNAMO field campaign is analyzed. During the DYNAMO campaign, 2 to 3 MJO events (depending on definition) were recorded. Of particular interest is the 2011 Thanksgiving arrival of a strong cyclone--- assisted MJO event.

Variations in surface heat flux, time rate of change of heat content, turbulent flux, and the mixed layer depth seem to dominate the overall results for the mixed layer throughout the observation period. We anticipate that these results can provide accurate tests of air---sea coupled models and help interpret the role of air---sea coupling and ocean heat storage on the evolution of the MJO.