South Asia monsoon: contribution of atmosphere – ocean interactions over Bay of Bengal to seasonal variability in atmospheric circulation

Monsoon refers to rainy phase of seasonally reversing winds and precipitation anomalies in a presence of asymmetric heating of land and ocean surfaces. Globally, major monsoon systems consist of West African and Asia-Australian monsoons as well as North and South American monsoons. However, the latter one is associated with incomplete reversal of winds.

South Asian monsoon occurs from July to September. Weather systems that form over the Bay of Bengal (BoB) and then move over land contribute a significant amount of the rainfall received over India, Bangladesh and Myanmar annually. Monsoon depressions that form over the BoB and then move along the monsoon trough provide about 50% of the total rainfall over central India. Air-sea interaction over the BoB has been known to play a central role in nurturing such systems, owing to its ability to sustain a high SST through the season. A hitherto unexplored region important to the spatial patterns of the summer monsoon is the southern BoB where the features of the ocean as well as the overlying atmosphere are unique in many respects effectively weakening or intensifying monsoon circulation on intraseasonal time scale.

Bay of Bengal Boundary Layer Experiment (BoBBLE) was designed to obtain high quality in situ data sets of the ocean, air-sea interface and atmosphere during the summer monsoon in the southern BoB. Observational array was created across BoB at 8N and served by CTD stations, uCTD transects, 5 gliders and 7 Argo floats, as well as ship-borne surface fluxes, radiosondes and ADCP measurements.

This presentation will provide an overview of the BoBBLE field campaign conducted on board RV Sindhu Sadhana, during break phase of 2016 South Asia monsoon (June-July, 2016) and preliminary results thus obtained.