AOGS 2006

Role of Ocean Processes in the Evolution of the Warm Pool in the Southeastern Arabian Sea

S. S. C. SHENOI

National Institute of Oceanography

The recently concluded Arabian Sea Monsoon Experiment (ARMEX) provided insights into the role of ocean in the genesis and annihilation of the core of warm pool in the southeastern Arabian Sea (SEAS). Prior to the onset of summer monsoon (April - May) the north Indian Ocean becomes the warmest among the world oceans. Though the north Indian Ocean warm pool forms in response to the northward movement of Sun, during northern summer, its core starts forming in the SEAS in March largely owing to ocean dynamics (Shenoi et al., 1999). It has been hypothesized that the warm pool plays an important role in the onset processes of summer monsoon over the Indian sub-continent (Shenoi et al., 1999; Rao and Sivakumar, 1999). The earlier hypothesis, stated in the ARMEX Science Plan (Anonymous, 2001), believed that the ocean plays an important, but passive, role in the genesis of the core of warm pool in the SEAS. The examination of new data collected during the warm pool experiment of ARMEX not only confirmed the hypothesis it also provided further insights into the oceanic process those contribute to the formation and decay of the core of warm pool in the SEAS. This presentation summarises the results based on the new data obtained from the SEAS during 2002-2003 and the results from an OGCM . The results show that the remotely forced ocean dynamics plays an active, not passive, role during the genesis as well as the collapse of core of warm pool in the SEAS (Durand et al., 2004; Shenoi et al., 2004; Shankar et al., 2004, Shenoi et al., 2005).
References: Anonymous, 2001, Arabian Sea Monsoon Experiment (ARMEX), Science plan, Department of Science and Technology, New Delhi. Durand et al., 2004, Geophys. Res. Lett., 31, L01305, doi:10.1029/2003GL018906. Rao and Sivakumar, 1999, Q. J. R. Meteorol. Soc., 125, 787-809. Shankar et al., 2004, Geophys. Res. Let., 31, doi:10.1029/2004GL19652. Shenoi et al., 2004, Geophys. Res. Lett., L05307, doi:10.1029/2003GL019270. Shenoi et al., 2005, Mausam, 56, 147-160.