

Uses of surface drifter trajectory to investigate large scale eddy formation in the Bay of Bengal during summer monsoon

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Indian Ocean (IO) is the least explored ocean compared to Atlantic and Pacific Oceans (AO and PO) due to its geo political settings. Limited information about IO dynamics has been explored by satellite remote sensing as well as by few research cruises. The Bay of Bengal is the region that substantially influences the Indian Ocean monsoon. The breakdown of the monsoon and its patterns are poorly understood.

This is the first effort of a surface drifter deployment around Sri Lankan waters in the history. Two satellite tracking temperature drifters were deployed in the South of Sri Lanka with the assistance of the Sri Lankan NAVY vessel "Jayasagara" in August 2011. One drifter came back to Trincomalee after completion of a long journey covering the Indonesian region at the end of December 2013. The main idea was to investigate the intensification of the circulation patterns and summer monsoon current (SMC) behaviour of the area.

The results indicated that the current speed is ~1 m/s, which was an extremely higher value in the ocean. The periods of eddies were calculated based on inertial force in different latitudes. The calculated inertial periods at 4.5N, 6N and 10 N were 12.7 days, 9.5 days and 5.8 days respectively. The calculated diameters of the eddies were 200 to 400 km's, which were exactly the same to the estimated values based on drifter

trajectories. Both drifters followed the same path up to the 82 latitude, where they separated from each other. The eddies formed by the drifter deployed on self always in anti-clockwise direction and the other one (away from the coast) formed a combination of clockwise and anti-clock wise eddies. However, the formation mechanism of eddies is not well established and more information are required.

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