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A Study on East India Coastal Current (EICC) using Satellite Remote Sensing Data

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A number of studies have helped to identify the principal mechanism that drives the general circulation in the Bay of Bengal and the East India Coastal Current (EICC). Due to seasonal reversal of the surface flow in the Bay of Bengal, the study on western boundary current is meager as compared to other oceans. Therefore, the present study aims at investigating EICC using wind field from NASA –QuikSCAT and Sea Surface height anomaly (SLA) from TOPEX/Poseidon.

The western boundary coastal current in the Bay of Bengal is known as East India Coastal Current (EICC). EICC changes its direction twice a year, poleward during Feb-June and equatorward during July-December, and extends to a depth of 200m and has a transport of ~10 Sv. The EICC strengthens as the winter monsoon progresses and remains strongest (0.7-1.0 ms $^{-1}$) in May-June. The poleward western boundary current starts with a seasonal subtropical gyre at ~12^{0}N and follow a meandering path. A change in the direction of EICC is observed below 18^{0}N in the peak southwest monsoon period. Sea surface height and wind stress observations indicate that the strength and direction of EICC follows closely the alongshore wind stress. The forcing mechanism of the EICC have been identified from the satellite observations. The role of Rossby and Kelvin waves and Ekmann pumping in the formation of EICC have also been examined.