High Resolution Temperature and Salinity Data for the Bay of Bengal using ARGO Observation

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This work produces a new higher resolution (10km x 10km) climatology dataset for temperature and salinity for the Bay of Bengal (4˚N-24˚N and 76˚E-100˚E). The recent in-situ Array for Real-time Geostrophic Oceanography (ARGO) data during 2003 2007 is assimilated with the Levitus climatology data using Objective Analysis[1]. The monthly variations of temperature and salinity at different depths are studied using the above analyzed datasets. The dynamic height and the geostrophic currents are also studied from the analyzed data. It shows the semi-annual reversing pattern of the coastal current. It also detects the location of the small scale circulation patterns. The Levitus data and the objective analyzed data are used as the initial condition for the climatology run of the Regional Ocean Model System (ROMS) for different months. The terrain following model has been setup for the basin with higher resolution both in horizontal (10 km X 10 km) and vertical (32 vertical levels). The output from the latter run shows many realistic meso-scale features[2,3]. This study shows that the inclusion of ARGO dataset increases the performance of the model to detect the meso-scale features in the region.

Keywords: Objective Analysis; Bay of Bengal; ARGO; ROMS

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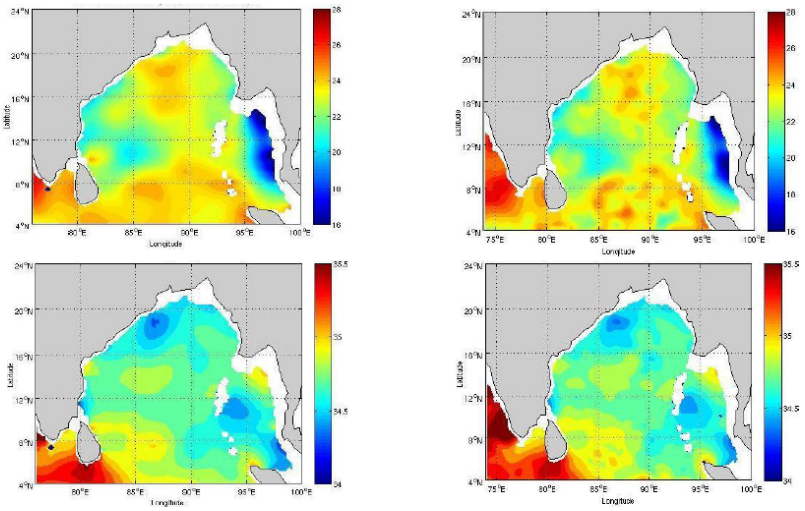

Fig: 25km Levitus Temperature (in °C) [upper-left], 10 km OA temperature (in °C) [upper-right], 25 km Levitus Salinity (in p.s.u)[lower-left], 10 km OA salinity (in p.s.u) [lower-right] at 100m depth for January

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