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Spatial distribution of Chlorophyll-a in the northeast Arabian Sea associated with monsoon, eddies and river discharge

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An attempt was made to study the spatial and temporal distribution of chlorophyll-a in the coastal and offshore waters of northeastern Arabian Sea during winter monsoon (northeast) period using Advanced Earth Observation Satellite (AEOS) Ocean Color and Temperature Sensor (OCTS) data. All along the western Indian coastal waters, the chlorophyll-a (Chl-*a*) concentration is found to vary with a significant variation in the Gulf of Cambay and Gulf of Kutch in the range 0.05 and 4.0 mg m^{-3}. Several intermittent eddies with a duration of 3 days to 4 weeks were observed in this season as a result of wind speed and circulation patterns along with high Chl-*a* concentrations (4.0 mg m^{-3}) at their centers. The coastal chlorophyll is observed to transfer in pole-ward direction coupled with eastern boundary current or West Indian Coastal current (WICC) and, the clockwise tendency of Coriolos effect from wind direction. Possible interactions between chlorophyll measurements, eddies, Sea Surface Temperature (SST), wind speed and river water discharge are discussed. The influence of coastal current and Coriolos effect on surface water movement and regional eddies on the Chl-*a* concentrations are found to be pounced.

Keywords: Chlorophyll, OCTS, eddy, WICC (West Indian Coastal Current), winter monsoon, Arabian Sea

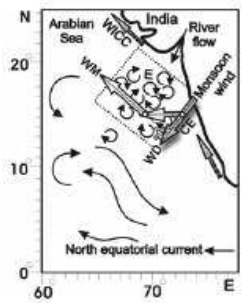

Figure 1: Hypothetical view of flow pattern and eddy formations in study area
(CE: Coriolis Effect; WICC: West Indian Coastal Current; WM: Water movement; WD: Wind direction; E: Eddy; Dotted square: Eddy zone)