Seasonal and Spatial Distribution of Chlorophyll in the Bay of Bengal Using Ocean Colour Data Sets

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The Bay of Bengal is a unique semi-enclosed basin experiencing seasonally reversing monsoons, depressions, severe cyclonic storms, and receives a large amount of rainfall and river run-off. In the present study the seasonal, inter-annual and spatial distribution of surface chlorophyll-a is analysed using monthly averaged SeaWiFS data at 9.0 km resolution for 1998 to 2006. Weekly chl-a from AQUA MODIS has also been used for detailed study of some features. Basin average of chl-a has been computed by masking the cloud and abnormal values. Monthly variability has been studied for all the years and observed that chlorophyll is maximum (0.28-0.3mg/m3) during August-Sept (southwest monsoon) and minimum (0.18-0.2mg/m3) during March-April. It is observed that the inter-annual chlorophyll variability is minimum except for the year 1998 at basin scale.

Based on the spatial and seasonal distribution of surface chlorophyll, four locations i.e. southern Bay of Bengal, Godavari/Mahanadi river mouth, head bay and north Andaman Sea has been identified. Enhanced chlorophyll is observed in the surface layer along Sri Lankan coast due to coastal upwelling by monsoon winds in all the years. A filament structure of high chlorophyll is observed near the Godavari river mouth during March-May. The phenomena appear almost every year by March and extends maximum into the sea as the current strength increases. Occurrence of phytoplankton bloom along Orissa coast is also been observed. Chlorophyll concentration is high in the Martaban bay from July to December.