

Sub-seasonal, seasonal and interannual variability of chlorophyll-a concentrations in the tropical Indian Ocean.

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We studied the variability of chlorophyll-a distribution on different time scales ranging from sub-seasonal to interannual using SeaWiFs data for the period 1997-2003. We found that the sub-seasonal and interannual variability in chlorophyll-a distributions are strongly associated with the Indian Ocean Dipole (IOD), an air-sea coupled phenomenon in the Indian Ocean. During positive IOD events we observed above normal chlorophyll-a concentrations in the south-eastern tropical Indian Ocean and below normal chlorophyll-a concentrations in the western equatorial Indian Ocean. An important feature, is the occurrence of higher concentrations of chlorophyll-a in the southeastern Bay of Bengal at the beginning of a positive IOD events. On sub-seasonal time scales strong variations are observed particularly during fall season and these variations appear to be much stronger during IOD events. On the other hand seasonal cycle of chlorophyll-a concentrations are strongly associated with the monsoon. Role of large scale ocean dynamics on higher concentrations of chlorophyll-a are also discussed.

Keywords: Primary productivity, Indian Ocean Dipole, El Nino Southern Oscillation (ENSO).