

In situ ESTIMATION OF THE UNDERWATER LIGHT FIELD DURING THE NORTHEAST MONSOON IN THE BAY OF BENGAL

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The west India coastal current and its merger with eastward flowing southwest monsoon current near south of Sri Lanka had significant influence on the monsoon rain in the west coast of India. The present study was aimed at determining the bio-optical characteristics of oceanic waters during northeast monsoon in Bay of Bengal using hyper-spectral radiometry. The upwelling irradiance was found to decrease from surface to deeper waters and the light intensity was halved every 10 m in depth. Upwelling irradiance maxima exhibited at 490 nm and the intensity was highest in surface waters. The upwelling irradiance was significant at 0-50 m and in deeper waters the absorption was confined to 490 nm and a sharp peak was observed. Downwelling irradiance (E_d) was significantly higher in surface waters during noon and morning hours. The E_d absorption peaks were recorded at wavelengths 374, 412, 470, 490 and 520 nm. The E_d values reduced to half every 10 m in depth as in the case of I_u . Photosynthetically active radiation (PAR) was higher at 13:45 h and was up to 0-40 m depth. CDOM concentration increased from surface to deeper waters and maximum concentration was recorded at 9:40 h in samples at depths studied, except 40-50 m depth. Lowest concentration was recorded during 11:45 h in all the depths except 20-40 m depth. At 20-30 m depth lowest CDOM concentration was exhibited during 13:45 h. This further highlights the characteristics of the euphotic zone where chlorophyll concentration was highest. The CDOM increased beyond 50 m during evening hours, which was due to the downward movement of plankton and other organic material. Increased concentrations of chlorophyll *a* were exhibited at 20-50 m depths and chlorophyll maxima were found to change with time.