

## **Phytoplankton community structure in the frontal regions of Indian Ocean sector of the Southern Ocean**

R. K. MISHRA\*, B. JENA, N ANILKUMAR  
AND R. K. SINHA

\*rajanimishra@yahoo.com

The phytoplankton pigment indices were used to characterize the spatial and seasonal succession of the community composition and associated biomass in the frontal regions of the subtropical front (STF), sub-Antarctic front (SAF) and polar front (PF) in the Indian Ocean sector of the Southern Ocean (SO). Diagnostic indices during 2013 revealed that the flagellates were dominant in the STF (51%) and progressively declined towards SAF (39%) and PF (11%). Similarly the prokaryotes were highest in the STF (43%) and decreased to the SAF (32%) and PF (28%). In contrast, the diatoms were gradually increased from the STF (6%) to the SAF (29%) and PF (61%). The variability of flagellates and diatoms from the STF to PF is attributed to the variation of environmental parameters such as photosynthetically available radiation (PAR), sea surface temperature (SST) and sea surface wind speed (SSWS). The variations in phytoplankton community composition, and their frontal adaptation could be explained according to the environmental changes. The *in-situ* pigment indices were then compared with the NASA Ocean Biogeochemical Model (NOBM) which shows the similar patterns of frontal community distribution except their magnitude. The Aqua-MODIS measured phytoplankton biomass was checked for its consistency after comparing with the *in-situ* observations and the result shows the underestimation of satellite observations. The present study has implications for the development of biogeochemical model and satellite measurements of biomass and primary production in the Indian Ocean sector of the SO.