NITROGEN SOURCES FOR NEW PRODUCTION IN THE NE INDIAN OCEAN

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Productivity measurements were carried out during spring 2007 in the north-eastern (NE) Indian Ocean, where light availability is controlled by clouds and surface productivity by nutrient and light availability. New productivity is found to be higher than regenerated productivity at most locations, consistent with the earlier findings from the region. A comparison of the present results with the earlier findings reveals that the region contributes significantly in the sequestration of CO₂ from the atmosphere, particularly during spring. Diatom-dominated plankton community is more efficient than those dominated by other organisms in the uptake of CO₂ and its export to the deep. Earlier studies on plankton composition suggest that higher new productivity at most locations could also be due to the dominance of diatoms in the region.

Keywords: Bay of Bengal; nitrate; new productivity; light intensity.

1. Introduction

The Bay of Bengal (BOB) is a tropical basin of the NE Indian Ocean, land-locked in the north and forced by seasonally reversing monsoon winds; the surface circulation of the basin undergoes seasonal reversal [1]. The chlorophyll and the productivity are the highest during winter, followed by the spring intermonsoon, and are the lowest during summer. This low productivity in the BOB is due to strong stratification of the upper waters under the influence of fresh water influx from rivers as well as oceanic precipitation under monsoon conditions [2]. Despite the above observations for the chlorophyll and primary productivity in the BOB, sediment trap data show that the average annual fluxes of organic carbon are comparable to those