

Primary productivity in response to the nutrients availability associated with the water column stability and aerosol deposition in the tropical Indian Ocean

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In the tropical Indian Ocean, low saline waters distribute in the upper ocean by river runoff in the Bay of Bengal (BoB) and precipitation in the eastern equatorial Indian Ocean (EEIO). The freshwaters cause strong density stratification in the upper ocean. In such regions, the mixed layer depth (MLD) becomes shallower than the isothermal layer depth (ILD), and the layer between MLD and ILD is defined as the barrier layer. The barrier layer reduces the supply of nutrients from deeper waters, since the strong density stratification increases the stability of the water column and inhibits the thermocline mixing. Even though the river plume will bring low saline water into the offshore region, nutrients will be fully consumed in the nearshore water. However, aerosol deposition may be expected as the nutrients source in such stratified water. Longitudinal research observation from the BoB to the EEIO is scheduled in November 2018. One of our focuses in this observation is to estimate the longitudinal fluctuation of primary productivity in response to the nutrients availability associated with the water column stability and aerosol deposition. We here present about primary productivity in the tropical Indian Ocean with the observation results obtained in the EEIO and off Sumatra in December 2017.