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Cyclone Driven Variation of Chlorophyll-a Concentration in Bay of Bengal

Authors : Nowshin Nabila Siddique, S. M. Mustafizur Rahman

Abstract : There is evidence of cyclonic events in Bay of Bengal (BoB) throughout the year. These cyclones cause a variety of fluctuations along its track including the is the influence in Chlorophyll-a (chl-a) concentration. The main purpose of this paper is to justify this variation pattern. Six Tropical Cyclones (TC) are studied using observational method. The result suggests that there is a noticeable change in productivity after a cyclone passes, when the pre cyclonic and post cyclonic condition is observed. In case of Cyclone Amphan, it shows 1.79 mg/m3 of chlorophyll-a concentration increase after a week of cyclonic occurrence. This change is affected by several attributes such as translation speed, intensity and Ocean Pre-condition, specifically Mixed Layer Depth (MLD). Translation Speed and MLD shows a strong negative correlation with the induced chlorophyll concentration. Whereas the effect of the intensity on a cyclone is not that prominent. It is also found that the period of starting an induction is not same for all cyclone such as in case of Cyclone Amphan, the changes started to occur after one day however for Cyclone Sidr and Cyclone Mora it started after three days. Furthermore, a slightly increase in overall productivity is also observed after a cyclone. In the case of Cyclone Amphan, Hudhud, Phailin it shows a rise up to 0.12 mg/m3 in productivity which decreases gradually taking around the period of two months. On a whole this paper signifies the changes in chlorophyll concentration caused by numerous cyclones and its different characteristics that regulates these changes.

Keywords : tropical cyclone, chlorophyll-a concentration, mixed layer depth, translation speed
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