STRONG PHYSICAL AND BIOLOGICAL CHANGES IN THE COASTAL AND OPEN OCEAN WATERS OF THE SOUTH CENTRAL BAY OF BENGAL DUE TO THE STIR OF WEAK CYCLONE BAAZ

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Abstract: Bay of Bengal is one of the cyclone vulnerable region in the world. Baaz cyclone is slow moving weak cyclone in the south central Bay of Bengal (SCBoB) and it lingered for 3 days and caused a significant cooling (2.6°C) and enhancement of chlorophyll-a (4.5mg/m3) at the right side of the cyclone track. In this study, the author explored the ocean biological and physical responses to Baaz cyclone by using multi satellite observations like chlorophyll-a (chl-a) concentration, sea surface temperature (SST), sea surface height (SSH), sea surface wind and in situ data. The chl-a concentration (>3 mg/m3) increased ten times in the SCBoB after the Baaz cyclone passage in comparison with the mean level of December averaged from 2003 to 2004. In connection with wind stress curl and upwelling, I found the speed of the upwelling is ten times more during the cyclone than pre cyclone period. Furthermore, the mixed layer deepened about 19 m. These divulge that the enhancement of chl-a concentration is caused by strong vertical mixing and upwelling. The maximum sea surface cooling (1.2-2.6°C) took place right side of the track in the SCBoB where the translation speed of Baaz cyclone is only 1.2-2.3 m/s and the mixed layer depth (from MOM model) is about 16.5 m in pre cyclone period. So the extent of the SST drop is probably due to the moving speed of cyclone and the mixed layer depth. In addition, the area with large decline of the SSH can signify the location where the maximum cooling occurs. But the decline of the SSH is more in the open ocean compared with the coastal. The same phenomena is also observed in all the above parameters.