The influence of sea surface temperature on tropical cyclone formed in the Bay of Bengal

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Abstract

The influence of Sea Surface Temperature (SST) on tropical cyclone formed in the Bay of Bengal was examined, using 314 months (November 1981–December 2007) of National Oceanic and Atmospheric Administration (NOAA) Optimum Interpolation version 2 weekly mean SST data. The study area was from 5.5-21.5ºN to 80.5-95.5°E; with a total 272 grid points at 1º × 1º grid spans were found. The formation of depression was dominated during the monsoon period whereas the formation of very severe cyclonic storms (VSCS) was dominated during pre-monsoon and post-monsoon periods. The SST shows positive trend whereas occurrence number of tropical disturbance shows negative trend. The SST variation shows two peaks, one major peak in May and another peak in October. Total numbers of disturbance were 168 out of which 54 % were converted into cyclone. The disturbances which formed in the area-3 (7.5ºN ≤ latitude < 13.5ºN) had maximum probability to convert into VSCS. Within area-3 the average temporal SST remains nearly constant and value was about 28.70ºC. The study revealed that the frequency of cyclone has a step-like, rather than continuous relationship with SST.

Keywords: Cyclone; SST; Bay of Bengal