

Is the climate system components favours to increase intense tropical cyclones (Category 5) in the North Indian Ocean?

Kailasam Muni Krishna[†];

[†] Andhra University, India

Leading author: munikrishna@yahoo.co.in

In recent years severe cyclonic storm (SCS) activity is increased in the North Indian Ocean (NIO), particularly in the central Arabian Sea and Bay of Bengal. In the present study I wish to investigate the role of climate change on increasing intense severe cyclonic storms (Cat 4 & 5) at each 2.5x2.5 grid boxes in the NIO. I used IPCC AR4 Model data sets for cyclone genesis parameters, sea surface temperature (SST) from Hadley Centre, cyclone tracks from Indian Meteorological Department and Joint Typhoon Warning Center during 1891-2010. In this I find out some stimulating results that the frequency of SCS increased during 1970-2010 (19) compared with 1891-1969 (12) at north of 15°N lat, but south of 15°N it is reversed in the Arabian Sea (AS) during southwest monsoon season(JJAS). In the Bay of Bengal (BoB) the scenario is reversed compared with Arabian Sea, the frequency of SCS is decreased in climate change environment. Strong latitudinal shift along with increase the frequency of SCS is seen in the Arabian Sea in climate change scenario (1970-2010), but such phenomena is not observed in the BoB. The main reason is reduction in vertical wind shear (easterly shear) along with increase in SSTs. To find out the relationship between the frequency of SCS and cyclone genesis parameters I did statistical tests, they also showed good results.