



## **Interactions between Tropical Cyclones and Southwest Monsoon over the Arabian Sea during the Monsoon onset phase**

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This study describes the scenarios wherein a tropical cyclone formed over the Arabian Sea during the onset phase of the Indian summer monsoon. The analysis of the observed synoptic conditions from the period 1979 to 2017 with and without the formation of cyclonic storm over the Arabian Sea during the onset phase of southwest monsoon (SWM) has been carried out in this study. The effect of regional dynamical and thermodynamical factors like sea surface temperature (SST), outgoing longwave radiation (OLR), changes in the wind circulation over the Indian Ocean and the Indian subcontinent has been studied. Our diagnosis shows that anomalous high SSTs along with anomalously high specific humidity and a decreased vertical wind shear characterized by the weak monsoon circulation may be playing a role in the cyclogenesis over the Arabian Sea during the monsoon onset period. In addition, the impact of climate forcing factors like El Niño Southern Oscillation (ENSO) and its teleconnections has been taken into consideration. We have also explored the influence of Madden-Julian Oscillation (MJO) on the cyclogenesis over the Arabian Sea during the onset phase of SWM.