

Song, J., P. J. Klotzbach, Y. –F. Wang, and Yihong, Duan, 2025: Seasonality in the ENSO-independent influence of tropical Indian Ocean sea surface temperature anomalies on western North Pacific tropical cyclone genesis. *J. Meteor. Soc. Japan*, **103**, <https://doi.org/10.2151/jmsj.2025-013>.

Plain Language Summary: Number of tropical cyclones (TCs) over the western North Pacific is observed to be modulated by the Indian Ocean basin mode (IOBM) in previous studies. This study finds a seasonality in the the ENSO-independent influence of the IOBM on TC genesis, with a strong and significant correlation during the peak season July–September but a weak and insignificant correlation during the early season April–June and the late season October–December. This feature can be linked to the seasonality in Indo-Pacific large-scale circulation anomalies induced by the ENSO-independent IOBM.

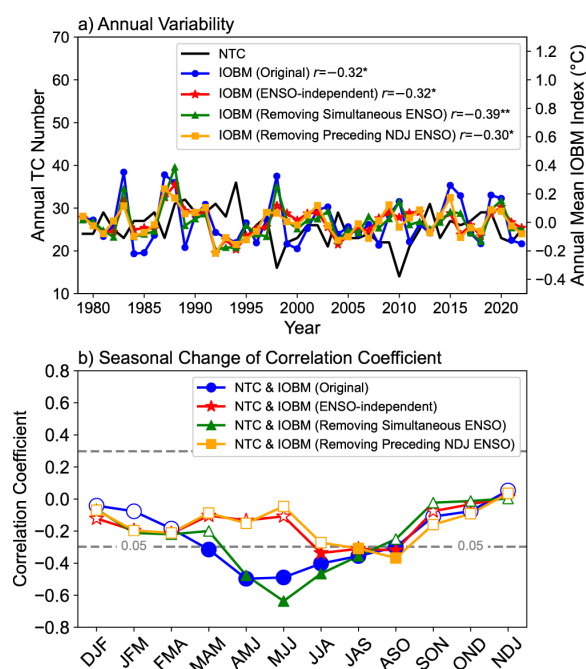


Figure 1. (a) Time series of the annual western North Pacific (WNP) tropical cyclone (TC) number and the four annual mean Indian Ocean basin mode (IOBM) indices investigated in this study from 1979 to 2022. The correlation coefficients between TC number and any IOBM index are given in the legend, while “*” and “**” denote significance at the 0.05 and 0.01 level, respectively. (b) Monthly correlation coefficients between the time series of 3-month running mean WNP TC number and the IOBM indices. Filled symbols denote correlations significant at the 0.05 level.

- There exists a seasonality in the Indian Ocean basin mode’s influence on western North Pacific tropical cyclone genesis independent of ENSO
- The significant relationship between the Indian Ocean basin mode and western North Pacific tropical cyclone genesis is predominantly controlled by the preceding ENSO’s impact during the early season April–June, while it is independent of ENSO during the peak season July–September.