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The impact of summertime north Indian Ocean SST on tropical cyclone genesis over the western North Pacific

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In this study, we investigate the impact of interannual variability of boreal summertime (June-September) north Indian Ocean (NIO) sea surface temperature (SST) on the distribution of tropical cyclone (TC) genesis over the western North Pacific (WNP) using observational datasets. In the boreal summers with warm (cold) SST in the NIO, fewer (more) than normal TCs form over the entire WNP, with fewer (more) TCs forming north of 10°N and more (fewer) TCs forming south of 10°N. The warm (cold) SST in the NIO induces anomalous anticyclonic (cyclonic) vorticity north of 10°N and cyclonic (anticyclonic) vorticity south of 10°N, which contributes to the meridional seesaw-like distribution of WNP TC genesis. This study provides a new perspective to understand TC activities over the WNP and may help seasonal TC prediction.