The role of tropical Atlantic SST anomalies in modulating western North Pacific tropical cyclone genesis

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The connection between north tropical Atlantic (NTA) sea surface temperature (SST) anomalies and tropical cyclone (TC) genesis over the western North Pacific (WNP) and associated physical mechanisms are investigated in this study.We demonstrate a remarkable negative correlation ofWNP TC genesis frequency with the (preceding) boreal spring NTA SST anomalies. Our analysis suggests that major factors for TC genesis including distributions of large-scale vorticity and midtropospheric humidity are rendered unfavorable by remote teleconnections while barotropic energy conversion from the large-scale flow is suppressed. As shown in recent studies, the remote teleconnection from the Atlantic is sustained and enhanced throughout the typhoon season through local air-sea interactions. These results suggest that boreal spring NTA SST anomaly could be a new predictor for the seasonal WNP TC activity.

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