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Poster
Previous research has shown that SST anomalies in the tropical Atlantic main development region (MDR) and the tropical Pacific together play key roles in driving Atlantic tropical cyclone (TC) activity. While relative interbasin SST anomalies have been demonstrated to influence vertical wind shear and convection in the MDR via atmospheric teleconnections, it is still unknown whether the contributions of the local versus remote SST anomalies are stationary throughout the Atlantic hurricane season (June-November). In this study, a partial regression analysis using accumulated cyclone energy (ACE) shows that the local MDR and remote Niño 3 SST anomalies demonstrate roughly equal influence during the early Atlantic hurricane season (June-August, JJA) due to a weakened ENSO signal. However, the influence of the remote Niño 3 SST anomalies dominates in the late hurricane season (September-November, SON) and in those months comprises the major portion of the total SST variance. The reduced role of MDR SST anomalies in SON is likely a combination of the increased Niño 3 variance related to ENSO's phase locking to the seasonal cycle and forcing from the Atlantic multidecadal oscillation (AMO), whose low-frequency variability contributes little SST variance at interannual timescales. Insights into the seasonality of the relative interbasin SST contributions and their associated tropical teleconnections are an important step towards improving operational seasonal Atlantic hurricane outlooks.
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