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Interdecadal Change in SST Anomalies Associated with Winter Rainfall over South China

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ABSTRACT
The present study investigates the interdecadal change in winter (January-February-March, or "JFM") rainfall over South China and in South China JFM rainfall-sea surface temperature (SST) relationship by using station observations for the period of 1958-2002, the Met Office Hadley Center's SST data for the period of 1900-2008, and the ERA-40 re-analysis for the period of 1958-2002. It is found that the relationship between South China JFM rainfall and SST experienced an obvious interdecadal change around the year 1978. The analyses show that the JFM rainfall anomalies during 1960-1977 and 1978-2002 were closely associated with the South China Sea (SCS) SST and El Niño-Southern Oscillation (ENSO), respectively. Moreover, southwesterly anomalies at 700 hPa dominate over the South China Sea for positive SCS SST anomaly years during 1960-1977, and for El Niño years during 1978-2002, respectively. These wind anomalies, which are associated with the enhancement of the western Pacific subtropical high, transport more moisture into South China, favoring increases in rainfall.

KEY WORDS: ENSO; SCS SST; South China winter rainfall, western Pacific subtropical high.