AOGS 2005


# Interannual and Intraseasonal Variations of the South China Sea Summer Monsoon

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Many previous studies have identified variations of the South China Sea summer monsoon (SCSSM) on interannual and intraseasonal time scales. The former is usually linked to the El Niño/Southern Oscillation (ENSO) and the latter is sometimes attributed to the Madden-Julian Oscillation (MJO) and other higher-frequency (10-25 days) oscillations. Most of the previous results show only the relationship but the physical mechanism or causality has not been well established. In this study, these oscillations are re-examined using data from the past 50 years in an attempt to identify the possible physical explanations for such relationships.

It is found that the linkage between the interannual variations of SCSSM and ENSO is apparently through the interaction between the ocean and the atmosphere. Specifically, changes in the ocean heat content as a result of the development and decay of ENSO modify the intensity of the subtropical high, which subsequently alters the intensity of the SCSSM. On the intraseasonal time scales, it appears that the MJO may trigger a 10-20-day mode to affect the SCSSM, in addition to its own northward propagation from the equatorial region to the South China Sea.