

The South China Sea Summer Monsoon and anomalous rainfalls over Eastern China for 1997 and 1999

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This paper aims basically at investigating the contributions of South China Sea summer monsoon to the rainfalls over eastern China under different climate states of the surface sea temperature for summer 1997 (El Niño) and 1999 (La Niño). The South China Sea summer monsoon is one of the conditions that result in the similar distribution of rainfalls over eastern China in the two years, which is the mostly positive anomalous rainfall covering South China, but negative anomalous rainfall dominating North China. In other words, it is very difficult to predict the analogical rainfall pattern over eastern China only in terms of the sea surface temperature of the equatorial eastern Pacific for the two years.

The main study results show: (1) The heavy rainfalls over the Yangtze River Valley or the south to it came mostly into being during the periods of weaker South China Sea monsoon on intraseasonal timescales. (2) The variations of transient disturbance winds at low-level make certainly contributions to heavy rainfalls over eastern China. And the transient disturbance winds over South China Sea at low-level came dominantly from the tropical western Pacific for the summer of 1997 and 1999. (3) The second strongest centers of 30-60-day low frequency oscillations for low-level zonal wind component (850hPa) were almost located in the south to 30 N. In addition, there were the low frequency meridional wind components from the south and from the north, which met at the Yangtze River Valley or the south to it. The southward-propagating minus phases from the north were stronger in 1997, extending southward to or through 30 N. But there were not obvious northward-propagating features of positive phases from the south in 1999. As a result, the rain belts were situated in much more southward in the summer of 1997 and 1999.

Meteorology (Poster)