



Seesaw Pattern of Rainfall Anomalies between the Tropical Western North Pacific and Central Southern China during Late Summer

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It is well known that suppressed convection in the tropical western North Pacific (WNP) induces an anticyclonic anomaly, and this anticyclonic anomaly results in more rainfall along the East Asian rain band through more water vapor transport during summer, as well as early and middle summer. However, the present results indicate that during late summer (from mid-August to the beginning of September), the anomalous anticyclone leads to more rainfall over central southern China (CSC), a region quite different from preceding periods. The uniqueness of late summer is found to be related to the dramatic change in climatological monsoon flows: southerlies over southern China during early and middle summer but easterlies during late summer. Therefore, the anomalous anticyclone, which shows a southerly anomaly over southern China, enhances monsoonal southerlies and induces more rainfall along the rain band during early and middle summer. During late summer, however, the anomalous anticyclone reflects a complicated change in monsoon flows: it changes the path, rather than the intensity, of monsoon flows. Specifically, during late summers of suppressed convection in the tropical WNP, southerlies dominate from the South China Sea to southern China, and during late summers of enhanced convection, northeasterlies dominate from the East China Sea to southern China, causing more and less rainfall in CSC, respectively.