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Effect of Warm SST in the Subtropical Eastern North Pacific on Triggering the Abrupt Change of the Mei-Yu Rainfall over South China in the Early 1990s

Abstract

This article aims to investigate the relationship between the rainfall in the south and that in the north of the Yangtze and Huaihe River valley, which changed from out-of-phase into an in-phase relationship in the early 1990s.

The observations revealed that the western North Pacific subtropical high (WNPSH), sea surface temperature (SST) in the subtropical eastern North Pacific (SENP), and the mei-yu rainfall in South China, which exhibited an abrupt increase in the early 1990s, are correlated. From the observations and results of numerical experiments, the article proposed that the abrupt SST warming in the SENP in the early 1990s generated an east–west overturning circulation anomaly in the Pacific Ocean, enhanced and westward extended the WNPSH, created a low-level southeasterly anomaly that transported considerable humid and warm air into East Asia, and finally triggered the abrupt increase of mei-yu rainfall in the South China.

Keywords

Mei-yu fronts

Atmosphere-ocean interaction

Reference

Wu, Y. K., Huang, A. Y., Wu, C. K., Hong, C. C., & Chang, C. C. (2020). Effect of warm SST in the subtropical eastern North Pacific on triggering the abrupt change of the mei-yu rainfall over South China in the early 1990s. *Journal of Climate*, 33(2), 657-673.