



Impact of the interannual variability of the tropical Low-frequency Oscillation intensity on the wintertime rainfall over East China

Ziniu Xiao

LASG, Institute of Atmosphere Physics, CAS, Beijing 100029, China (xiaozn@lasg.iap.ac.cn)

Using the percentage of the low-frequency oscillation energy in the total energy as the low-frequency oscillation intensity index, the associations of the interannual variability of low-frequency oscillation intensity with rainfall in the area of East China in the boreal winter have been investigated based on NOAA outgoing longwave radiation (OLR) data, NCAR/NCEP data and observed precipitation data of 160 stations in China. The results demonstrate that when the index of tropical low-frequency oscillation intensity is higher (lower), the precipitation in East China is more (less). The results also show that the interannual variability of low-frequency oscillation intensity is linked to the interannual variability of both subtropical wave train and East Asian Winter Monsoon. In the high-index years of the low-frequency oscillation intensity, the North Africa trough and the Bay of Bengal trough deepen, but East Asia trough and East Asian Winter Monsoon is weakened. At meantime, the south wind anomaly appears in East China and the moisture transportation is increased, which results in more rainfall. In the low-index years of the low-frequency oscillation intensity, the North Africa trough and the Bay of Bengal trough weaken, but East Asia trough is deepened and East Asian Winter Monsoon is stronger. While the north wind anomaly appears in East China and the moisture is decreased, which leads less rainfall over East China.