



Discussion on the Relationship Between Plateau Monsoon and East Asian Monsoon

Yidan Wang (1,2), Zeyong Hu (1,3), Genhou Sun (4), Zhipeng Xie (5), Xiaoqiang Yan (6), Huixuan Zheng (1,2), Chunwei Fu (1,2)

(1) Key Laboratory for land process and climate change in cold and Arid Regions, Northwest Institute of Ecological and Environmental Resources, Chinese Academy of Sciences, Lanzhou, China (yidanwang@lzb.ac.cn), (2) University of Chinese Academy of Sciences, Beijing, China, (3) Center for Excellence in Tibetan Plateau Earth Science, Chinese Academy of Science, Beijing, China [U+FF1B], (4) School of Atmospheric Sciences, Sun Yat-Sen University, Guangzhou, China, (5) Institute of Tibetan Plateau, Chinese Academy of Sciences, Beijing, China, (6) Chengdu Meteorological Administration, Chengdu, China

Using ERA-Interim's geopotential height field and wind field reanalysis data to calculate TPMI and DPMI from 1988 to 2017. The spatial distribution characteristics and temporal evolution of the plateau monsoon were analyzed. The relationship between the plateau monsoon and the East Asian monsoon was discussed based on EASMI. The results show that: 1) The seasonal and interannual variations of TPMI and DPMI have obvious trends. Because the plateau monsoon selected by DPMI is moving rather than fixed, DPMI can more accurately and more closely represent the formation, evolution and disappearance of monsoon than TPMI. 2) Study the Pearson correlation coefficient between DPMI and EASMI, the correlation coefficient between DPMI and EASMI for the first two months is the largest; the geopotential height field in the mid-latitude area affected by the East Asian monsoon and the geopotential height field in the Qinghai-Tibet Plateau are positively correlated. In the region, further correlation analysis shows that the whole process of plateau summer monsoon from formation, development to regression is earlier than the East Asian summer monsoon, indicating that the plateau monsoon has certain indication significance for the formation and evolution of the East Asian monsoon.