

Studies on space-time characteristics of Yunnan rainy season and its relationship with atmospheric circulation

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In this paper, based on the criterion of Yunnan rainfall season, the temporal and spatial features of Yunnan rainy season were investigated using the data of 116 meteorological observation stations from 1951 to 2015, and the influences of atmospheric circulation on Yunnan rainy season were further studied. The results show that: (1) For 30-year (1981-2010) climatic mean, averaged Yunnan rainy season beginning and ending date are on May 22 and October 15, respectively, but the date in different region is obvious different. The rainy season begin gradually from southeast to northwest and retreat gradually from northwest and southeast to southwest, resulting in the length and total precipitation during the rainy season gradually decreased from south to north. (2) During the period of 1961-2015, the earliest and latest date of the Yunnan rainy season begin in May 8th and in June 8th, respectively. The end data of Yunnan rainy season is as early as in September 30th and the latest in November 2nd. (3) The changes of Yunnan rainy seasons are influenced jointly by the southwest monsoon and mid-latitude cold air. The early onset of southwest monsoon and frequent activities of cold air coming mid-latitude region may result in early rainy season, on the contrary, in late rainy season. Different from rainy season start, the end of rainy season is mainly affected by the tropical monsoon circulation. When the seasonal circulation changes from summer to winter early (late), the rainy season ends early (late).