

Study on spatial-temporal distribution of rainstorm in China from 1961 to 2010

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Abstract Using daily precipitation data of 601 stations from 1961 to 2010 in China, the spatial and temporal distribution of rainstorm (daily precipitation ≥ 50 mm), heavy rainstorm (daily precipitation ≥ 100 mm) and extremely heavy rainstorm (daily precipitation ≥ 200 mm) were analysed based on mathematical statistics. The main results show that the days of rainstorm, heavy rainstorm and extremely heavy rainstorm all decreased gradually from southeast to northwest China, and the maximum records of them reached 737 days, 259 days, 50 days, respectively, during the last 50 years. There were almost no rainstorms in the western regions of China. The annual days of rainstorm, heavy rainstorm and extremely heavy rainstorm increased mainly in the Lower Yangtze-Huaihe areas, the south of the Lower Yangtze River, Guangdong Province, Guangxi Zhuang Nationality Autonomous Region, Hainan Island, etc. In these areas, the risk of meteorological and geological disasters such as flood inundation, mud-rock flow, landslide, etc. were increased. The annual curves of the rainstorm days with unimodal distribution were found in most regions of China, and with double-peaks in the Tibetan Plateau and Xisha Islands in the South China Sea. The maximum rainstorms occur in July in most regions of China, in June in Jiangnan (Shanghai City, Zhejiang Province, Fujian Province, Jiangxi Province and Hunan Province) and South China (Guangdong Province and Guangxi), in August in the Tibetan Plateau and Xisha Islands, and in October in Hainan Island. Some research results in this paper provide important information of climate background for analysing and evaluating disasters of flood inundation, mud-rock flow, landslides, etc.

Key words China; rainstorm; spatial and temporal distribution