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The climatology characteristic of rainstorm over Northeast China in recent 45 years

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This study aims to investigate the temporal and spatial characteristics of frequency and intensity of rainstorm over Northeast China including Heilongjiang Province, Jilin Province, Liaoning Province and the east of Inner Mongolian in recent 45 years based on daily precipitation data over 232 observation stations.

The results show that annual mean rainstorm days of 1971-2000 assume the geographical distribution feature of increasing progressively from the northeast to the southwest, and rainstorm frequency is lower in the north and southeast of Heilongjiang Province and Hulunbuir of Inner Mongolian but higher in Liaoning Province. During the 30 years (1971-2000), rainstorm weather occurs from April to December every year in Northeast China. The seasonal change of its frequency and quantity shows single peak curve, and the highest values lie in the midsummer (July and August). The highest rainstorm frequency and quantity is 80.3% and 81.3% of whole year, respectively. The annual mean rainstorm intensity is strongest in August, next in July and September and smallest in November and December. During the 50 years (1951-2005), rainstorm ends earliest in the area where rainstorm presents latest but ends latest in the area where rainstorm presents earliest over Northeast China. The earliest initial and latest final dates of rainstorm are in April and December, respectively; Liaoning Province is the era of the longest rainstorm duration. There is the similar geographical distribution characteristic among the annual mean rainstorm intensity, most daily precipitation quantity and multi-annual mean rainstorm days, which shows that Liaoning lies in the higher value area, and the North of Hulunbuir of Inner Mongolian and Heilongjiang Province lies in the lower value area.