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Spatio-Temporal Variations of Precipitation Extremes in the Yangtze River Basin (1960-2002), China

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ABSTRACT

Daily precipitation data during 1960-2002 from 150 stations in the Yangtze River basin were analyzed with the help of linear trend analysis. Highest 5-day and 10-day precipitation amount (R5D and R10D) and percentile daily precipitation maxima (prec95p for 95th percentile and prec99p for 99th percentile) were accepted as the precipitation extreme index. The frequency of the R5D and R10D was in downward trend, this phenomenon is more obvious in the middle Yangtze River basin; The stations with total precipitation of R5D and R10D are in significant upward trend (> 95% confidence level) are mostly located in the lower Yangtze River basin and the south-western part of the Yangtze River basin; 2) the spatial distribution of the frequency of total precipitation of the percentile daily precipitation maxima is similar to that of R5D and R10D. However the frequency of prec95p and prec99p is in significant upward trend. The upward trend of total precipitation changes of prec95p and prec99p is more obvious than that of frequency of prec95p and prec99p. The regions dominated by upward trend of frequency/total precipitation of prec95p and prec99p are also the lower Yangtze River basin and south-western part of the Yangtze River basin. Therefore the occurrence probability of the flash floods in the lower Yangtze River basin and south-western part of the Yangtze River basin will be greater.

KEYWORDS

Extreme Precipitation, Linear Trend, Spatial Distribution Pattern, Yangtze River Basin

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