Scientific Basis

Probability Distribution of Minimum Temperature in the Winter Half Year in China

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摘要 Based on the winter half year (from November to the April of next year) minimum temperature data at 160 stations in China during 1955-2005, the abrupt changes in minimum temperature were analyzed by using the Mann-Kendall statistic test. The probability distributions of minimum temperature series for the colder period (1955/1956-1988/1989) and the warmer period (1989/1990-2004/2005) were given, and the spatial differences of minimum temperature between the two climatic periods were also compared. The results show that: 1) the significant rising of minimum temperature occurred in the end of the 1980s, with a rising amplitude larger than that of mean temperature; 2) after the warming the probability of lower minimum temperature has apparently reduced and that of higher minimum temperature increased; 3) statistically, the rising trends of minimum temperature were all significant over most regions in China except those in Southwest China.

Abstract

Based on the winter half year (from November to the April of next year) minimum temperature data at 160 stations in China during 1955-2005, the abrupt changes in minimum temperature were analyzed by using the Mann-Kendall statistic test. The probability distributions of minimum temperature series for the colder period (1955/1956-1988/1989) and the warmer period (1989/1990-2004/2005) were given, and the spatial differences of minimum temperature between the two climatic periods were also compared. The results show that: 1) the significant rising of minimum temperature occurred in the end of the 1980s, with a rising amplitude larger than that of mean temperature; 2) after the warming the probability of lower minimum temperature has apparently reduced and that of higher minimum temperature increased; 3) statistically, the rising trends of minimum temperature were all significant over most regions in China except those in Southwest China.

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