

Spatial-temporal variation of temperature over China during 1961–2009

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Abstract The spatio-temporal variation of temperature is one of the basic signals for climate change. Analysis of its detailed distribution is useful for humans to adapt the ongoing and coming climate change. In this study, monthly mean temperature during 1961–2009 in China was used and processed by the classical Mann Kendall (MK) test. A Significant Year was defined as: (a) the time of break point for the temperature series, or (b) the time of 95% confidence level for the temperature series with monotonic trend. The rate of temperature changes before and after the Significant Year, and the trend magnitude were discussed. Our analysis shows: (a) all four annual regional average temperatures over China were decreasing before the 1970s, slightly or significantly; (b) the Tibetan Plateau and southwest Yunnan were the most significant warming areas during 1961–2009; and (c) the warming in northern China is much more significant than in the south, and the east coastal area was getting warmer more rapidly than the neighbouring interior.

Key words average temperature; Mann-Kendall test; spatial and temporal distribution; China