



Development of China homogenized monthly precipitation dataset during 1900–2009

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Based on the collection and processing of the China national-wide monthly station observational precipitation data in 1900–2009, the data series for each station has been tested for their homogeneity with the Standard Normalized Homogeneity Test (SNHT) method and the inhomogeneous parts of the series are adjusted or corrected. Based on the data, the precipitation anomalies during 1900–2009 and the climatology normals during 1971–2000 have been transformed into the grid boxes at $5^{\circ} \times 5^{\circ}$ and $2^{\circ} \times 2^{\circ}$ resolutions respectively. And two grid form datasets are constructed by combining the normal and anomalies. After that, the missing values for the $5^{\circ} \times 5^{\circ}$ grid dataset are interpolated by Empirical Orthogonal Function (EOF) techniques. With the datasets of different resolutions, the precipitation change series during 1900–2009 over Mainland China are built, and the annual and seasonal precipitation trends for the recent 110 years are analyzed. The result indicates that the annual precipitation shows a slight dryer trend during the past 110 years, notwithstanding lack of statistical confidence. It is worth noting that after the interpolation of the missing values, the annual precipitation amounts in the early 1900s become less, which increases the changing trend of the annual precipitation in China for the whole 110 years slightly (from -7.48 mm/100a to -6.48 mm/100a)