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Trends and Uncertainties in Surface Air Temperature over Tibetan Plateau, 1951–2013

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Trends and uncertainties of surface air temperature over the Tibetan Plateau (TP) are evaluated using observations at 100 meteorological stations from the period 1951–2013. The sampling error variances of gridded monthly data are estimated for every month and every grid box with data. The gridded data and their sampling error variances are used to calculate TP averages, their trends, and associated uncertainties. It is shown that large sampling error variances dominate the northern and western TP, while small variances appear over the southern and eastern TP. Every month from January to December had a positive linear trend during the study period. February had the largest trend of (0.34 ± 0.18) °C $(10\ \mathrm{yr})^{-1}$, and April the smallest at (0.15 ± 0.11) °C $(10\ \mathrm{yr})^{-1}$. The uncertainties decreased steadily in years, implying that they are not large enough to alter the TP warming trend.