Reconstruction of missing monthly temperature observations in Jaffna, Sri Lanka

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Abstract

A well known method of estimating missing temperature observations has been refined and applied to estimate monthly temperature with a higher accuracy. The estimates are based on the temperature departures of stations in the same geographical regions from their standard normal. The method was successfully applied for reconstructing the missing monthly temperature records at the Meteorological Station, Jaffna (80°02'E, 9°41'N) during the period 1980 - 2000 where large gaps in weather observations can be seen. With the available past data, it is shown that the accuracy of estimates is ± 0.3 °C and over 90 % of the estimates are within ± 0.5 °C from the observed values. Although the method can be applied to any region having a cluster of meteorological stations, the method depends on the density of the stations in the proximity of the target station and the availability of data in the nearby stations.

Author keywords

Mean temperature; Missing data; Standard departure; Weather stations