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Long-term trends of temperature in Sri Lanka

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Even though temperature variation in Sri Lanka is in a narrow range, being an island it is vulnerable to the changes happening in the global climate. In this paper, long-term trends in averages and extremes of Sri Lankan temperature were studied. The temperature data analysed consist of 55years of daily raw maximum and minimum temperature records from 20stations scattered throughout the island. The non-parametric Mann-Kendall and Sen-Theil methods were used for the investigation. The pre-whitening method was used to remove autocorrelation from the time series. To test the data with seasons, the modified seasonal Mann-Kendall trend test was applied. Results show a general increase in the maximum (T_{max}) and average temperature (T_{ave}) for most of the stations island-wide and a few stations showed an increasing trend in T_{min}. The T_{ave} was significantly increased for a majority of the stations in Sri Lanka during most of the months,especially the month of July, during which the greatest number of stations showed an increase in T_{ave}. Although it is difficult to give reasons for such an increase, deforestation in recent decades may be responsible, together with the global climate change, for the overall increase in the temperature of Sri Lanka. A regional trend attribution study is suggested as a window for uture research.

Keywords: averages, extremes, non parametrics, trend analysis.

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