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Variation of air temperature and rainfall during Yala and Maha agricultural seasons

Analysis of rainfall and air temperature data for long-term trends is useful for planners who are engaged in the agriculture, engineering and water resource management sectors. Analysis of the same parameters during the Yala and Maha agricultural seasons is vital especially for agricultural activities in Sri Lanka to properly plan suitable crops during the respective seasons.

The mean minimum air temperature, mean maximum air temperature, mean air temperature and rainfall during the Yala and Maha agricultural seasons for the last 70 years (1931-2000) at 12 representative meteorological stations have been selected for this study. Time series analyses were carried out using a Gaussian low-pass filter with 9 weights and linear regression analyses were done to quantify the variation.

Trend analysis indicated that the surface mean air temperatures have been increasing at almost all stations. Mean minimum air temperatures have shown increasing trends in most of the selected stations except at Kurunegala where it shows a slightly decreasing trend over the past 70 years at 0.0017 0C per year and 0.0013 0C per year during the Yala and Maha seasons respectively. The highest rate of increase of mean minimum air temperature is reported at Nuwara-Eliya during the Maha season at 0.0328 0C per year (Yala season also reported a significant increase of about 0.0184 0C per year. The highest increase of mean maximum air temperature of 0.0325 0C per year is reported at Puttalam during the Yala season and the lowest was 0.0013 0C per year at Nuwara-Eliya during the Maha season. Rainfall has decreased at almost all stations except at Puttalam where it has shown a slightly increasing trend. The highest decreasing trend is reported at Trincomalee during the Maha season (5.24 mm per year) followed by Anuradhapura during the same season (4.27 mm per year).