

**Trend Analysis of Rainy Days of Kandy in Sri Lanka**

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**Abstract**

The rainfall of Sri Lanka is of multiple origins including monsoonal, convectional, and depression. Rainfall variability over space and time must be regarded as the most significant aspect of the monsoon climate of Sri Lanka. Kandy is located on the western slope of the central highlands. The highlands are an important catchment area for the river systems of Sri Lanka. The main objective of this study was to examine the trend analysis of rainy days in Kandy. The value for a rainy day has been taken with a minimum of 0.3mm rain/per day according to the definition given by the meteorology department. The total monthly rainy days have been collected in Kandy station from 1961 to 2020. The rainy days trend over the last 60 years periods were estimated using the linear regression analysis. The Mann-Kendall statistical test was applied to identify significant or non-significant monotonic trends in the annual and seasonal time series. The study revealed that annual rainy days have shown a statistically significant ( $p < 0.05$ ) decreasing trend during 1961-2020. However, trend analysis of the rainy days in the first inter monsoon (FIM), second inter monsoon (SIM), north east monsoon (NEM) seasons does not show a monotonic decreasing or increasing trend at the 95% confidence level according to the Mann-Kendall statistical test. In contrast, the south west monsoon (SWM) rainy days demonstrate a decreasing trend at the same level of confidence. The trend computation for the study period of rainy days in the months of July and August have shown a statistically significant ( $p < 0.05$ ) negative trend in Kandy. The study clearly revealed that the rainy days have a significant decreasing trend during the last 60 years and especially in the SWM season in Kandy. SWM is the dominant rainfall season in the Wet Zone of Sri Lanka. The decreasing trend of annual and SWM rainy days will have negative consequences to the irrigation, domestic, industrial water supply, hydro power generation, plantation agriculture, other human activities and natural environmental process of Kandy.

**Keywords:** *Mann-Kendall test, rainy days, seasons, significant, trend*

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