

RAINFALL TRENDS IN DL_{1b} AGRO ECOLOGICAL REGION OF SRI LANKA

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Though the dry zone agriculture is based on reservoirs, cultivation in dry zone is still an uncertain venture due to the dependence of water upon the amount of rainfall received. Using over 30 years of rainfall records in three meteorological stations (Anuradhapura, Mahailuppallama and Vavuniya) a rainfall data analysis was carried out to extract the trends of monthly and seasonal rainfall and number of rainy days in DL_{1b} agro ecological zone, with the objective of better agricultural and resource planning. Rainfall trends were analyzed with the Mann-Kendall statistical test and simple linear regression methods. Considering all three locations, *Yala* and *Maha* seasons showed decreasing and increasing trends in rainfall, respectively. Anuradhapura and Mahailuppallama recorded increasing trends in rainfall during first and second inter monsoons. Anuradhapura recorded decreasing and increasing number of rainy days in *Yala* and *Maha* seasons, respectively. Mahailuppallama recorded increasing number of rainy days in first inter monsoon and *Maha* season and a decreasing trend in southwest monsoon while Vavuniya recorded a decreasing trend in *Yala* season and an increasing trend in northeast monsoon. Results revealed that, even within the agro ecological zone, a significant variation ($p < 0.05$) of rainfall was observed. Decreasing rainfall trend in *Yala* season indicated the need of adjusting the cropping calendars for early cultivations, which maximizes the utilization of rainfall and avoid crop failures due to less rainfall during the latter part of the growing season. Proper planning and management strategies of water saving is essential in *Maha* season to save more water for the next *Yala* season. Mann Kendall statistical test and simple linear regression analysis showed quite similar results in rainfall trend analysis and both methods could be successfully used to estimate rainfall trends.

Keywords: Mann Kendall statistical test, Rainy days, Seasonal rainfall, Simple linear regression, Trend