

Characteristics of seasonal rainfall in the Wet Zone of Sri Lanka during the standard climatological period 1991-2020

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This study focused on the seasonal rainfall pattern in the Wet Zone of Sri Lanka, as rainfall is the most significant weather and climate factor in the country. The literature review revealed a research gap: a lack of rainfall studies that focus on the agroecological regions of Sri Lanka incorporating the most recent standard climatological period, i.e. 1991-2020. Accordingly, two objectives were formulated: to identify the inter-annual variability of seasonal rainfall and to analyse the trends of seasonal rainfall in the Wet Zone. The coefficient of variance (CV) and the least-squares regression method were employed using SPSS and Excel software to fulfil the first and second objectives, respectively. The research was entirely based on the secondary data of 10 agroecological regions in the Wet Zone. The study found that the CV values for seasonal rainfall in the Wet Zone range from 19% to 65%. The Southwest Monsoon had the lowest variability (CV: 19%-27%), while the Northeast Monsoon had the highest (CV: 32%-65%). Statistically significant decreasing rainfall trends were observed in two regions: Kalutara during the Southwest Monsoon and Kenilworth during the Second Inter-Monsoon season. The rainfall trends in all other regions were not statistically significant across any of the four rainy seasons. The conclusion of the study confirms that monotonic trends were not found across the study area during the study period and were followed by statistically insignificant increasing and decreasing trends in most of the agroecological regions. However, with the exception of the Southwest Monsoon season, the other three seasons were accompanied by a higher inter-annual variability of rainfall. Finally, the study suggests that the results obtained in this research could be compared with data from the previous standard period (1961-1990) to investigate the validity of climate model predictions for the period 1991-2020. It would also inform future predictions of seasonal rainfall in the Wet Zone, thereby benefiting the development of policies for agriculture, water management, and resilience.

Keywords: *Inter-annual variability, Seasonal rainfall, Standard 30-year climatological period, Wet Zone*