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SPATIAL REGIME OF PENTAD RAINFALL IN SRI LANKA

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This study examines the spatial and temporal regimes of rainfall in Sri Lanka and the spatial variation in rainfall trends based on pentads of daily rainfall data obtained from the Department of Meteorology for 52 stations representing all regions of the country. The methodology used in this study includes correlation and regression analysis, universal kriging and spatial autocorrelation, and factor analysis.

The study revealed that most pentads are positively correlated within seasons and produce similar spatial patterns rendering most of the pentad data redundant in discovering spatial patterns. Thus, there is only a few unique spatial distribution patterns of the island's rainfall. In order to discover the underlying factors that control the spatial patterns, the study used Factor Analysis. The factor scores were interpolated to produce spatially continuous distribution patterns. The study shows that the patterns are controlled by the combined effect of the circulation pattern and orographic effects of the Central Highlands. The general spatial regime of rainfall is not very different from that obtained from monthly data. But pentad level data analysis has more relevance to the water security of the island.

The study shows that during the last 30 years, the rainfall of Sri Lanka has shown spatially variable trends. The most striking feature is the presence of a declining trend in the Central Highlands and the Northwestern region and increasing trends elsewhere.

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