

**RELIABILITY OF RAINFALL IN THE WET ZONE OF SRI LANKA
(A Comparative study for the Periods, 1941-1970 and 1971-2000).**

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Rainfall is the most dominant parameter in weather and climate in Sri Lanka, and its distribution is subject to spatial and temporal variations, leading to distinct patterns of seasonality, regionality, and intra-and inter-annual variability in the climate in general, and in the different parameters of the hydro-climate environment in particular. Several scientific studies have confirmed that the rainfall distribution pattern in Sri Lanka has changed during the recent past, particularly in the last two decades. For the identification of such changes different methods have been adopted, for example; space-averaged rainfall, time series analysis, reliability and variability analysis.

If one were to summarize the past studies of rainfall in Sri Lanka, one realizes that most of these studies have been based on the whole country, or the dry zone only. No rainfall studies have been done in depth especially for the wet zone of Sri Lanka (hereafter referred to as wet zone). The wet zone has a unique place in the wider geography in Sri Lanka, in terms of its physical geography as well as its human geography. The main element of the climatic milieu is the hydro-climate, in general, and rainfall, in particular, as reflected in the landforms, drainage, natural vegetation, economic activities, settlement patterns, and general social fabric and life style of the people. The wet zone is the economic power-house and the main population concentration in the country. It is against this background, the present study aims to provide a specific study of rainfall reliability of the wet zone.

Rainfall reliability can be treated as an index of the interplay of the mean conditions vis-à-vis the pattern of variability. The reliability of rainfall in Sri Lanka has been defined by several scholars and 75% probability level has considered as sufficient for the rainfall reliability studies. In other words, it can be said that the rainfall exceeding the probability of 0.75 or the value of 20th percentile. The main

justification for selecting this particular level is that is considered to be the rainfall which is sufficient for most agricultural pursuits in Sri Lanka, which can be taken as the type of human endeavor most sensitive to the hydro-climate environmental conditions. Therefore, the present study too, has selected the 75% probability level for the identification of the rainfall reliability in the wet zone.

This study deals with temporal and spatial patterns of rainfall reliability in the wet Zone within the period 1941-2000, and would ascertain if those patterns signify any differences according to the two 30-year periods analyzed 1941-1970 and 1971-2000. The main thrust of the investigation is the analysis of rainfall reliability according to different time farms, annual, seasonal and monthly. Among 36 rainfalls reporting stations in the wet zone were selected for the study and rainfall data of these stations obtained from the department of meteorology in Sri Lanka. Using Microsoft Excel, a statistical formula has been applied for the calculation of 75% probability level.

In this study, it has found that annual and seasonal 75% probability values are higher in the period, 1941-1970 than in the period, 1971-2000. The highest value of monthly reliability occurred in the period, 1971-2000. However it is worthy to note that in the period, 1971-2000 several stations have recorded zero as rainfall reliability values.