E1-10: Study of thunderactivity over some parts of Sri Lanka

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For a storm to be classified as a thundercloud or thunderstorm, meteorologists require that thunder must be heard. Hence the thunderday which is defined as a day when thunder is heard at an observing station, could be used as an indicator of thunderactivity at or near a station. In this study, the number of thunderdays recorded at Colombo, Badulla and Nuwara Eliya over the period 1951 - 1990 were analysed.

The purpose of the study was to investigate (a) whether there had been any trends in the occurrence of thunder activity and (b) whether there was any relationship between thunder activity and (i) rainfall (ii) air temperature.

Trends and relationships were investigated by filtering (using the Gaussian low-pass filter) and by calculating the product- moment correlation coefficients respectively. Annual data and data during the first and second inter-monsoon were used.

The highest mean number of thunderdays was from Colombo (83.5 annually, 28.1 and 18.4 during the first and second inter- monsoons respectively). The corresponding means for Badulla were 79.4, 21.2 and for Nuwara Eliya 58.3, 20.2 and 11.9 respectively. These indicate that there is more thunder activity during the first inter-monsoon than during the second inter-monsoon, and that thunder activity appears to be lesser at higher elevations.

The analyses also revealed (i) upward trends in the occurrence of thunder activity in all cases except at Nuwara Eliya during the first inter-monsoon, (2) positive correlations between thunder activity and rainfall and also between thunder activity and air temperature in all cases except at Badulla and Nuwara Eliya (with annual rainfall).