

ABSTRACT

Increase of the global temperature particularly after the industrial era, has a number of impacts on climate leading to changes globally and locally. Lightning activity at any particular place has been affected by the global warming and the climate change during the past few decades.

The objective of this study was to determine the variability of thunder activity in Sri Lanka as a result of the climate change. Time series analysis was carried out to identify the trend in thunder activity and temperature over the period from 1961-2002. Correlation analysis was done by using **STATISTICA** to establish the relationship between thunder activity and temperature.

Data from six stations, Colombo, Galle, Kandy, Hambanthota, Anuradhapura and Katunayeka, were used in the investigation. Trend analysis revealed that there has been an up ward trend in the occurrence of thunder activity in all stations except Hambanthota and Katunayaka. The highest trend of thunder activity has been recorded as +0.78 thunder day/year at Colombo and the lowest rate of -0.04 thunder day/year at Hambanthota.

Trend analysis indicated that the mean temperature has been increasing at all the stations. The highest mean temperature trend has been recorded as +0.031⁰C/year at Anuradhapura and the lowest rate of increase of +0.016⁰C/year have been recorded at Katunayaka.

The trend of the thunder activity and mean temperature of the first half period (1961-1980) is larger than the second half period (1981-2002) at Colombo, Kandy and Anuradhapura. In other words rate of increment is decreasing at these stations. The