**Annual and Seasonal Trends in Extreme Climatic Events in Wet**

**Zone Sri Lanka**

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Climate change is the gradual change in the long-term condition of the atmosphere. The visible changes in the frequency or intensity of extreme events are associated with climate change. Recently Sri Lanka is experiencing frequent extreme climate events such as floods, drought and extreme heat. Therefore this study mainly focused on analyzing long-term (1981 to 2019) daily weather data (minimum temperature, daily maximum temperature and daily rainfall) in selected locations (i.e. Colombo, Galle, Rathnapura, Nuwaraeliya, Katunayaka, Kaluthara, Pelawatte, Lellopitiya, Raigama) representing the Wet zone of Sri Lanka. Eleven temperature indices and ten precipitation indices were selected as core climate extreme indices recommended by the Expert Team on Climate Change Detection and Indices (ETCCDI). Data quality control was done by using the RClimDex software (Version 4.2.1). Annual and seasonal trends of extreme climatic events were analyzed by using IBM SPSS software (version 26.0) and GraphPad prism software (version 9.0). Increasing trends of warm days (TN90P) indicate the warming trends at Colombo, Galle, Nuwaraeliya and Katunayaka. Decreasing cold days (TX10P) and diurnal temperature range (DTR) at Colombo, Galle, Nuwaraeliya, and Rathnapura are in agreement with the increasing trends of warm days. Nuwaraeliya and Pelawatte had shown a decreasing trend for annual consecutive wet days (CWD) and that shows a negative trend at Katunayaka. The maximum of minimum Maha season temperature (TNX) in Rathnapura had shown decreasing trend while Colombo, Galle, Katunayaka showed an increasing trend. Increasing the number of warm days (TN 90P) in Colombo, Galle, Katunayaka and Nuwaraeliya shows positive warming trends in Yala and Maha seasons. There was no significant change of the seasonal total rainfall. Most of the locations in Wet Zone show positive extreme temperatures while no significant precipitation extremes.

**Keywords-** *climate indices, drought, GraphPad Prism, RClimDex, IBM SPSS*