WEATHER-CHANGING PATTERN OF THE RECENTLY EARTH-SLIP AFFECTED AREA OF PUWAKGAHAWELA

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The village of Puwakgahawela with its 60 households and 342 inhabitants in the Imbulpe Divisional Secretariat under the Balangoda Electorate in the Ratnapura District of Sri Lanka was recently faced with a great disaster due to an earth slip. While several factors that had contributed to this earth slip were identified the weather-changing pattern (rainfall and temperature) was considered the most crucial among them. Therefore, in order to ascertain the scientific information about the earth movement vulnerability of the area, the Sabaragamuwa University Centre for Environment and Sustainable Development (SUCEDS) has implemented a research study that aims at investigating the rainfall pattern, making useful forecasts about future disasters, and finding out the recurrent interval of similar weather conditions (if there will be any) by decomposing the rainfall model developed by the SUCEDS. In this regard trend analyses of minimum, maximum, and average temperatures of the Puwakgahawela area were carried out while paying attention to the secondary data available.

For the forecasting of rainfall and temperature a linear trend model has been installed. The accuracy of fitted values was checked using the mean absolute percentage error (MAPE) and the mean absolute deviation (MAD). The MAD of the fitted trend line of rainfall data is 222.3 mm and the MAPE is 11.5%. According to these data, there is an increasing trend in the rainfall in the Puwakgahawela area. The predicted recurrent interval of the rainfall is five years within which two peaks and two falls have been obviously identified.

According to the negative regression coefficient (-1.13×10^{-2}) of the minimum temperature model for the area, there will be an approximately 1 ^{0}C reduction in the minimum temperature for the period of 8 years (1992-2000). The positive regression coefficient of the model (5.93×10^{-3}) denotes that there will be an approximately 0.6 ^{0}C increment in the maximum temperature in a period of 8 years. The negative regression coefficient (-2.68×10^{-3}) of the fitted linear model of average temperature, the approximate predicted reduction of the average temperature will be 0.25 ^{0}C for a period of 8 years. Therefore, in conclusion, the minimum, maximum and average temperatures of the focal area show decreasing, increasing and decreasing trends respectively.