

Estimation of dependable monthly rainfall from monthly average rainfall in southern region of Sri Lanka

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Probability values of rainfall are essential in hydropower projects, for Planning of Agricultural activities. However, daily to monthly rainfall values for individual years are meager, particularly in dry zone of Sri Lanka.

A model was developed to use available monthly average rainfall values to calculate monthly dependable rainfall values in selected fifteen rain gauge stations in southern dry zone of Sri Lanka. First, the average monthly rainfall values and dependable monthly rainfall values were obtained for twelve months in selected rain gauge stations. Then, the coefficients of the simple linear association between monthly average rainfall and monthly dependable rainfall were calculated by fitting a simple linear trend line to the two data sets of the twelve months. The model directly gives the dependable rainfall value of a respective month when average monthly rainfall value is given.

Where, $X_{75} = b + a\bar{X}$ X_{75} = dependable monthly rainfall value

b = coefficient

a = coefficient

\bar{X} = Average monthly rainfall value

The developed model was verified for respective regions using "unifit ii" software package. The model was recommended for ten rain gauge stations out of the fifteen studied. The simple linear relationship between average monthly rainfall value and monthly dependable rainfall values with respective coefficients can be used in respective rain gauge stations in the months where average rainfall is over 50 mm to estimate dependable monthly rainfall from monthly average rainfall.

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