



Use of Probability Distribution in Consecutive Days Maximum Rainfall Analysis at Raichur, Karnataka

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Abstract: The daily rainfall data of 34 years (1977–2010) were collected from the Agro-meteorological observatory, University of Agriculture Sciences, Raichur, India. The data were then processed to identify the maximum rainfall received on any one day and consecutive two to seven days. The data showed that the annual daily maximum rainfall received at any time ranged between 39.4 mm (minimum) to 380.0 mm (maximum) indicating a very large range of fluctuation during the period of study, which confirms from the test statistics values of standard deviation (65.8 mm) and coefficient of variation (71.85 per cent). The rainfall data were analysed to identify the best fit probability distribution for each period of study. The statistical goodness of fit test was carried out in order to select the best fit probability distribution on the basis of minimum deviation between actual and estimated values obtained from D-index of test statistic. The Pearson type III distribution was found as the best fit probability distribution for the maximum one day period. Log-Pearson type III and Log-normal distributions were found fit for three to seven consecutive days maximum rainfall of a study period and no distributions were found fit for the consecutive two days rainfall in a study period. The scientific results clearly established that, the analytical procedure devised and tested in this study may be suitably applied for the identification of the best fit probability distribution of weather parameters.

Key Words: Rainfall Analysis, Probability Distributions, D-Index
