Probability Analysis of Rainfall at Semi Arid Area of Chandrabanda, Raichur District, Karnataka

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ABSTRACT

Daily rainfall data were obtained from the rain gauge station of Chandrabanda and were analyzed for fitting one day maximum rainfall, maximum monthly and annual rainfall data, using different distributions like Normal, Log-normal, Gumbel and Log-Pearson III to determine the best fit distribution, which will be very much useful for design of any water harvesting and soil conservation structures. From the rainfall analysis over the study area, the Log-normal (0.16), and Log-Pearson type III (0.17) distributions are identified for the reliable estimation of one day maximum rainfall with minimum D-index. From the result Log-normal (0.21) and Log-Pearson type III (0.26) distributions are identified for the consistent estimation of maximum monthly rainfall with minimum D-index. For annual rainfall estimation all four distributions namely Normal (017), Log-Pearson type III (0.20), Gumbel (0.26) and Log-normal (0.27) distributions are recognized with minimum D-index. However, from the study Log-Pearson type III and Log-normal distributions are the fitting distributions for all one day maximum, maximum monthly and annual rainfall analysis for the study area.

Key words : D-index; Gumbel; Log-normal; Log-Pearson type III; and Normal.