

REGIONAL ANALYSIS OF MAXIMUM RAINFALL USING L-MOMENT AND LQ-MOMENT: A COMPARATIVE CASE STUDY FOR THE NORTH EAST INDIA

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ABSTRACT

Rainfall data of twelve gauged stations of the North East India has been taken for selecting best fit model for rainfall frequency analysis. The five probability distributions, namely Generalized extreme value (GEV), Generalized Logistic (GLO), Pearson type 3 (PE3), 3 parameter Log normal (LN3) and Generalized Pareto (GPA) distributions have been considered. The methods of L-moment and LQ-moment have been used for estimating the parameters of the probability distributions. L-moment analysis shows that PE3 is the best fitting distribution. On the other hand based on LQ-moment analysis GPA is selected as the best fitting distribution for the North Eastern Region. Relative root mean square error (RRMSE) and RBIAS are employed to compare between the results found from L-moment and LQ-moment analysis. It is found that PE3 distribution is selected as suitable and the best fitting distribution for rainfall frequency analysis of the North East India. Also the L-moment method is significantly more efficient than LQ-moment for rainfall frequency analysis of the North east India. The rainfall frequency model for the region has been developed by using the identified robust distribution for the region.

KEYWORDS: L-Moments, LQ-Moments, Probability Distribution, RRMSE Error