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Determination of the Best Fit Probability Distribution for Annual Rainfall in Karkheh River at Iran

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Abstract : This study was designed to find the best-fit probability distribution of annual rainfall based on 50 years sample (1966-2015) in the Karkheh river basin at Iran using six probability distributions: Normal, 2-Parameter Log Normal, 3-Parameter Log Normal, Pearson Type 3, Log Pearson Type 3 and Gumbel distribution. The best fit probability distribution was selected using Stormwater Management and Design Aid (SMADA) software and based on the Residual Sum of Squares (R.S.S) between observed and estimated values Based on the R.S.S values of fit tests, the Log Pearson Type 3 and then Pearson Type 3 distributions were found to be the best-fit probability distribution at the Jelogir Majin and Pole Zal rainfall gauging station. The annual values of expected rainfall were calculated using the best fit probability distributions and can be used by hydrologists and design engineers in future research at studied region and other region in the world.

Keywords : Log Pearson Type 3, SMADA, rainfall, Karkheh River
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