

Comparison of Statistical Methods for Estimating Missing Precipitation Data in the River Subbasin Lenguazaque, Colombia

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Abstract : In this work was compared and evaluated the applicability of statistical methods for the estimation of missing precipitations data in the basin of the river Lenguazaque located in the departments of Cundinamarca and Boyacá, Colombia. The methods used were the method of simple linear regression, distance rate, local averages, mean rates, correlation with nearby stations and multiple regression method. The analysis used to determine the effectiveness of the methods is performed by using three statistical tools, the correlation coefficient (r^2), standard error of estimation and the test of agreement of Bland and Altman. The analysis was performed using real rainfall values removed randomly in each of the seasons and then estimated using the methodologies mentioned to complete the missing data values. So it was determined that the methods with the highest performance and accuracy in the estimation of data according to conditions that were counted are the method of multiple regressions with three nearby stations and a random application scheme supported in the precipitation behavior of related data sets.

Keywords : statistical comparison, precipitation data, river subbasin, Bland and Altman

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