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Drought Analysis and Comparison of Methods – A case study of Western and Central Uganda

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There are several methods of analyzing meteorological drought. These include the drought volumes method and the Standard Precipitation Index. In the former, deficiencies are calculated between the expected and actual rainfall. In the latter, the ratio of the difference between the measured rainfall and the long term mean to the standard deviation is calculated.

In this study, stations that have sufficient years of data were selected. The objectives being to determine the extent of drought in the drought prone areas and derive a relationship between the two methods so that by applying one method, the appropriate values for the other method can be derived, which may be used in future assessments and prediction.

The missing data records were filled using the normal ratio method and extended using the Markov generation techniques. The data was then checked for homogeneity using the double mass curve. The Kolmogorov-Smirnov goodness of fit test was then used to fit the Log Normal distribution for the drought volumes method.

The analysis of drought show that the two regions have similar drought event patterns and that Rakai experiences more severe drought than Masindi. The two methods are related by a linear relationship. This study can be extended to other regions in Uganda.