

## Abstract

Rainfall is the main source of water which is an important basic requirement for a living. It is therefore important to have proper planning and water resources management in any county. In this study, the purpose was to study monthly and annual trends of rainfall in Narok and Kisii counties. Specifically, the study sought to detect trends in the rainfall time series data, to determine significance and magnitude of the trends and to compare the trends behavior for Narok and Kisii counties. The data used for this study was obtained from the Kenya Meteorological Department for the period of 1963 to 2015 inclusive for Narok and Kisii counties. Studying trends will help the residents of the two counties to cope with the climate change in the area. Mann Kendall, Sen's Slope, seasonal Kendall and seasonal Sen's slope were used to analyse rainfall data. The results showed that Kisii County had a significant increasing trend in annual rainfall while Narok County had a significant decreasing trend. For the monthly rainfall data, all the twelve months showed existence of trends in both counties. Kisii County had equal of increasing and decreasing monthly trend while Narok had seven months which were negative and five months positive. Kisii County had February and May with significant trends while in Narok January, February and October had significant trend. Due to monotonic increase of rain in Kisii County, water related problems were less compared to Narok counties which had monotonic decrease in rainfall trends. The study recommends that Mann Kendall Seasonal Kendall methods be used to study annual and monthly rainfall trends.