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Trend and frequency of drought over Ethiopia using observational and RegCM4 driven indices

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Trends of temperature and precipitation are very important in the study of drought variability. In this study trend analysis of observational and RCM data set has been done on precipitation, temperature variables in addition to the most familiar drought indices such as palmer drought severity index ,PDSI and standardized precipitation index, SPI (derived from observational and RCM) over Ethiopia. Both nonparametric (Mann-kandall, trend empirical orthogonal function, TEOF) and parametric (linear regression analysis) are implemented. The result from precipitation/temperature analysis reveals that for the northern regions of the country significant positive/negative trend are observed whereas over the southwest and southeastern regions there is statistically significant decreasing/increasing trend in particular over the last 15 years. For this same period PDSI and SPI (for multiple time scales of 3, 6, 9 and 12 months) has been computed, and the trend patterns were qualitatively similar to the trend obtained from temperature and precipitation. Additional result obtained from analysis of drought frequency from both observation and RCM driven PDSI/SPI will be discussed.