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Drought highlights over Africa under climate change using Standard Precipitation Evapotranspiration Index (SPEI)

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This paper assesses the impact of climate change on drought in Africa and selects the vulnerable areas to drought by using Standard Precipitation Evapotranspiration Index (SPEI) as a index for drought monitoring under current and future climate. The paper evaluates a specific set of climate models over Africa on the historical years based on the reanalysis climate data (Era-Interim) and on the future years based on the moderate future scenario RCP4.5 of CMIP5 climate models. Results of this study refer to the characteristic of drought over Africa using the Stander Precipitation Evapotranspiration Index (SPEI) at time scale 12 for month of Dec. during the study period. Results concluded that the first decades were less drought area and the drought increased with time. Frequency of drought (SPEI values ≤ -1) increased in last decades. There are most difference between extreme drought and wet events while the severe and moderate classes were closer. The assessment of the drought impact in Africa needs to determine several systems (water resource, natural vegetation and crops) to quantify the impact of drought in terms of both system's resistance and resilience, to produce drought impact curve for each system and region.

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