

Magnitudes of Climate Variability and Changes over the Arid and Semi-Arid Lands of Kenya between 1961 and 2013 Period

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ABSTRACT

The magnitude and trend of temperature and rainfall extremes as indicators of climate variability and change were investigated in the Arid and Semi-Arid Lands (ASALs) of Kenya using in-situ measurements and gridded climate proxy datasets, and analysed using the Gaussian-Kernel analysis and the Mann-Kendall statistics. The results show that the maximum and minimum temperatures have been increasing, with warmer temperatures being experienced mostly at night time. The average change in the mean maximum and minimum seasonal surface air temperature for the region were 0.74°C and 0.60°C, respectively between the 1961-1990 and 1991-2013 periods. Decreasing but statistically insignificant trends in the seasonal rainfall were noted in the area, but with mixed patterns in variability. The March-April-May rainfall season indicated the highest decrease in the seasonal rainfall amounts. The southern parts of the region had a decreasing trend in rainfall that was greater than that of the northern areas. The results of this study are expected to support sustainable pastoralism system prevalent with the local communities in the ASALs.

Keywords: Arid and Semi-Arid Lands, Climate Variability and Change, Northern Kenya
American Journal of Climate Change Vol.7(1)pp.27-37 (2018),

See more at: http://file.scirp.org/pdf/AJCC_2018021316061904.pdf