

SPATIO-TEMPORAL ANALYSIS OF RAINFALL, TEMPERATURE AND WIND FOR EVIDENCE OF CLIMATIC VARIABILITY AND CHANGE IN JIGAWA STATE, NORTHERN NIGERIA (1981-2020)

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Abstract

Throughout the history of the earth, climates at all level be it (global, regional, and local) have never been static. The non-static natures are in various magnitudes ranging from variability through fluctuations, trends, and abrupt to gradual changes. The aim of this research is to analyze the climatic data and identify trends, in order to re-validate if climate change exist in the Sudano-Sahel Agro Ecological Zone of Northern part of Jigawa State. Climatic data of Temperature. Rainfall and Wind speed for the period of 1981-2020 (39years), obtained from. KNARDA, JARDA and NASA. Monthly, annual and seasonal trends in average temperature, total precipitation, and average wind speed data calculated by Mann-Kendall, linear trend and Sen's trend tests was used to analyze the data. The results indicated mixed results via the null hypothesis which states "there is no trend in the series" of the climatic variables (rainfall, temperature, and wind). Rainfall series was reject except for Kirikasamma and Sule-Tankarkar LGAs. Because the computed p-value is greater than the significance level $\alpha=0.05$. The H_0 for temperature series was accepted only for Kaugama LGA. Because the computed p-value is greater than the significance level $\alpha=0.05$. The H_0 for wind speed was accepted in all the LGAs except Sule-Tankarkar, Kirikasamma and Maigatari LGAs.. Rainfall trend only exist in two LGAs out of the seven LGAs. Temperature trend exist in only one LGA The result suggest that only variations exist rather than change in climate of the area, as deduced from the trend synthesis of the climate data for 39 years (1981-2020).

Keyword: Mann-Kendall, Climate Change, Trend, Variability, Jigawa