IMPACT OF CLIMATE CHANGE ON RAINFALL PATTERNS IN KADUNA METROPOLIS

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ABSTRACT

This study investigates the climate change impact on monthly and annual rainfall in Kaduna State. One of the major impacts of climate change is variation in rainfall pattern in terms of unpredictable onset and cessation of rainfall season, seasonal rainfall fluctuations, flooding due to heavy storms which are predominant at certain times of the year, possible occurrence of drought due to long period of no rainfall. The aim of the study is to analyze the pattern of rainfall in Kaduna Metropolis for the period of 1987-2016.The monthly rainfall data obtained from the Nigeria Metrological Agency (NIMET), Abuja cover a period of 30 years. Statistical tools and models in terms of correlation analysis was employed to determine the relationship of rainfall and time between the decades and time series analysis and linear line equation which was used to show the direction of change of rainfall. Results shown that mean monthly rainfall is uni-modal, peak in months of August and September. In terms of season, the March to October considered as the main rainy season and contributes more than 50 - 60 % of annual rainfall. The annual rainfall trend indicated Kaduna Metropolis is experiencing insufficient statistical evidence of a significance decreasing trends, while the lowest rainfall of 793.4mm and highest rainfall of 1780mm was recorded in the third decade, the first decade recorded the lowest mean annual rainfall of 1156.1mm while the highest of 1315.6mm was recorded in the third

decade. Results from correlation shows that there is a fair positive correlation between rainfall and time (1987-2016) in Kaduna Metropolis; this implies that there was a significant increase in rainfall through time in the study area. This study concluded that, the climate change and variability including recurrent of extremes rainfall are real in Kaduna, as the results show an increase, it also suggests that variability is an inherent characteristic of rainfall in the region.

Keywords: Climate Change, Evaporation, Hamarttan, Inter-Tropical Discontinuity, Rainfall, Seasonality, Variability