

CLIMATIC VARIABILITY AND RIVER BENUE DISCHARGES IN YOLA AND GAROUA, WEST AFRICA

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ABSTRACT

Rainfall variability has been a major concern on the alluvial floodplain groundwater in semi-arid regions around the world. There is need to identify changes in the precipitation variability of rainfall on groundwater in river Benue floodplain for improving irrigation activities in North Eastern Nigeria. The climate variation of Yola and Garoua regions were examined, focusing mainly on rainfall and temperature and hydrological data (river discharge) and their response to the river Benue discharge on the alluvial floodplain groundwater sustainability. Method of the time series analysis for rainfall, temperature data, and the Standardised Precipitation Index (SPI) were used to show the variation of rainfall to the River Benue discharge. The study found that the climatic conditions of Yola and Garoua behave differently and they are negatively correlated. It was also observed that the Yola region climate sometimes behaves as the Sahel climate and sometimes do not behave as Sahel climate. The result of Standardised Precipitation Index analysis show that Garoua region did not show any sign of drought events, whilst Yola region showed drought events between 1966 and 1974. This suggests that Yola region is experiencing shortages of water more than Garoua region.

KEYWORDS: Climate Variability, River Benue, Standardised Precipitation Index, Sahel Climate, River Discharge