MODELLING THE TEMPORAL PATTERNS OF SHORT WAVE AND LONG WAVE RADIATIONS OVER SUDAN AND SAHEL SAVANNAH

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ABSTRACT

The present study investigated the temporal patterns of short wave and long wave radiations over the Sudan and Sahel Savannah using Kano City as proxy. From the analysis, it was found that energy budget over the study area is characterized by marked variation, but generally below the mean mark. Shortwave radiation (Qₛ) in the City was generally below average between 1975 and 1997 before increasing steadily with the mean value towards the start of the year 2000. Seasonal variations of short wave and Net radiations showed that rainfall pattern in the study area is well in consistent with the seasonal energy balance distribution. Long wave (Qₜₜ) in the City showed that heat energy from the earth's surface increased above mean mark be from 1990 – 2005 suggesting some level of increase in energy emitting activities during this period. Investigation of Net radiation (RN) over the study area showed that RN values fell below average from 1972 to 1999 before the rise. Increase in the RN was however recorded between 1961 and 1963.

Keywords: Energy Balance, Desertification, Climate Change, Net Radiation