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AN ASSESSMENT OF DROUGHT IN NORTHERN NIGERIA USING SPATIOTEMPORAL REMOTE
SENSING DATA

Abstract

Over the years, the issue of drought has top the agenda discussed at most climate change conferences and panels. Specifically, oftentimes the negative impact of drought can not be completely measured, since drought affects both natural habitat and livelihood of the region. This study attempts to assess the spatio-temporal dynamics of drought in Northern Nigeria within the last decade. It employs the use of Moderate Resolution Spectro-radiometer (MODIS) datasets for 2005,2010 and 2018. Temporal Normalized Difference Vegetation Index (NDVI) and Land Surface Temperature (LST) maps were extracted from MODIS satellite, and the spatio-temporal variation of drought in the study area was based on the 3 ecological zones (Guinea, Sudan and Sahel savanna) within Northern Nigeria. The Water Supplying Vegetation Index (WSVI) maps was computed from both the LST and NDVI and were further reclassified into three classes (extreme, moderate and mild drought). Analysis of WSVI, NDVI and LST were then carried out with respect to the pixels that fall within each ecological zone. A comparison of vegetation index and surface temperature characteristics of a particular area is useful for drought risk mapping. Hence, this drought risk map could play a vital role in the decision making process for drought monitoring strategies and policies