

ASSESSMENT OF THE EFFECTIVENESS OF THE VEGETATION CONDITION INDEX (VCI) AS AN INDICATOR FOR MONITORING DROUGHT CONDITION ACROSS THE NIGER DELTA REGION OF NIGERIA USING AVHRR/MODIS NDVI

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ABSTRACT

This study assesses the effectiveness of the vegetation condition index (VCI) as an indicator for monitoring drought condition across the Niger Delta region of Nigeria. The vegetation condition index (VCI), which is derived from remote-sensing data was used to evaluate drought conditions across the States in the Niger Delta region of Nigeria from 1983 to 2016. Inter-annual, monthly and mean VCI values for each state of the study area was determine through a model created in ArcGIS software. The results of inter-annual analysis of VCI revealed that all through the years, there was no water stress in the study area except for the year 1994 which had low drought condition. Similarly, monthly temporal variation revealed that the entire study area had no water stress condition from January to December. Nevertheless, lower drought condition was recorded in February and August while October recorded the highest across the 33years period. Also, the mean VCI values of each of the State within the study area showed that Ondo, Akwa Ibom, Bayelsa, Cross River and Rivers States were the healthiest States while Abia, and Imo were the lowliest in terms of drought condition. From the study results, the derivation of inter-annual, monthly and mean VCI values offers robust information on agricultural fertility window and trend that can be utilize for agricultural planning scheme within the region.