

## Application of Vegetation Health Index for Drought Monitoring in the North-East Region of Nigeria

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**Abstract :** Scientists have come to terms with the fact that climate change has been and is expected to cause a significant increase in the severity and frequency of drought events. The northeast region of Nigeria is one of the most, if not the most, affected regions by drought in the country. Therefore, it is on this note that the present study applied ArcGIS and XLSTAT Software and explored drought and its trend in the northeast region of the country using the vegetation health index (VHI), Mann-Kendal, and Sen's slope between 2001 and 2020. The study also explored the areas that remained under drought and no-drought conditions at intervals of five years for the period under review. The result of Mann-Kendal (-0.07) and Sen's slope (-0.19) revealed that there was a decreasing trend in VHI over the period under review. The result further showed that the period between 2010 and 2015 had a minimum area of no-drought conditions of about 24%, with Gombe State accounting for the lowest percentage among the six States, about 0.9% of the total area of no-drought conditions. The result further showed the areas that were under drought conditions between 2010 and 2015 represented about 9.1%, with Borno State accounting for the highest percentage among the six States, about 2.5% of the total area under drought conditions. The masked-out areas stood at 66.8%, with Borno State accounting for the highest percentage among the six States, about 20.2% of the total area under drought conditions. Therefore, collective efforts are needed to put in place sustainable land management in the affected areas so as to mitigate the sprawl of desertification in the region.

**Keywords :** climate change, drought, Mann Kendal, sustainable land management, vegetation health index

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