Analysis of Agricultural Drought over Central Dry Zone, Myanmar

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Abstract:

This study utilizes remote sensing technologies, particularly the Vegetation Health Index (VHI), to assess agricultural drought patterns in Myanmar's central dry zone. The Normalized Difference Vegetation Index (NDVI) and Land Surface Temperature (LST) are determined using MODIS satellite Image data (MOD13Q1 and MOD11A2) from 2001 to 2022 which are integrated to determine the Vegetation Health Index (VHI). The VHI values are categorized into drought severity levels, spanning from extreme drought to no drought. These results indicate that spatial and temporal variations in agricultural drought patterns are the most impacted intensities occurring in 2010. Drought patterns in 2001, 2005, 2015, and 2021 are displayed varying intensities, with mild to moderate drought being the most widespread. In land use land cover, the gradual expansion of urbanized areas reflected improvements in infrastructure. The study emphasizes the effectiveness of remote sensing indices in evaluating and analyzing agricultural drought, offering critical insights for sustainable management of land and water resources in drought-vulnerable areas such as Myanmar's central dry zone.

Keywords:

Agricultural drought, Central dry zone, MODIS, Remote sensing, Vegetation Health Index.