Drought Assessment on Rice and Corn Using Agricultural Drought Indices in the Philippines

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ABSTRACT

Agricultural drought is a hazard caused by the persistent low or no rainfall in a certain span of time which resulted to insufficient soil moisture for crop growth, thus affecting its yield. Drought indices are used to monitor droughts, both ground-based and satellite-based. In the Philippines, ground-based Standardized Precipitation Index (SPI) and Percent Normal Precipitation (PNP) were currently used for operational drought monitoring and assessment. This study will investigate spatial and temporal progress using Standardized Vegetation and Temperature Index (SVTR) and Vegetation Health Index derived from freely available satellite product of Moderate Resolution Imaging Spectroradiometer (MODIS). SVTR and VHI are both vegetation-temperature drought indices for assessing agricultural drought. The derived SVTR and VHI will be evaluated against SPI derived from Climate Hazards Group Infrared Precipitation with Station (CHIRPS) rainfall data to define the lag between meteorological and agricultural drought. Finally, correlation between vegetation-temperature indices (SVTR and VHI) and quarterly rice and corn production will be performed using Pearson's correlation. The results of this study will provide information on the progress of drought and will demonstrate the potential use of satellite-derived indices for drought monitoring and assessment in the country, where drought is frequent and can cause much damage to agriculture.

Keywords: *agricultural drought, MODIS, SVTR, VHI, drought assessment*