

Integrating Drought, Precipitation and Vegetation Index for Assessment of Rice Production

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Abstract: Paddy field growing strongly influenced by water. In the fact amount of precipitation is unpredictable. Annual and interannual climate variability in Indonesia is unusual. In the last five years the average rice field area affected droughts. This condition influence rice production. In recent years remote sensing data used for measurement and monitoring of precipitation, drought and vegetation index such as derived from Global Satellite Mapping of Precipitation (GSMaP), Multi-purpose Transmission SATellite (MTSAT) and Moderate Resolution Imaging Spectroradiometer (MODIS). The objective of this research to combine drought, precipitation and vegetation index derived from remote sensing data for assessment of rice production. Study area in this research in West Java Province Indonesia. Based on administrative boundary West Java has 26 sub-province levels. Statistically data from sub-province level were used for supporting and verification. The methodology consists of collecting of enhanced vegetation index (EVI) from MODIS data, mosaicking of image, collecting of region of interest of paddy field, collecting of precipitation and drought index based on Keetch Bryam Drought Index (KBDI) from GSMaP and MTSAT, collecting statistical data from sub-province level, relationships analysis among drought, precipitation, vegetation index and rice production on sub-province level and development of algorithm model to estimate rice production. The expected result on this research describes seasonal statistics and relationships among precipitations, drought, vegetation index and rice production on sub-province level and produce algorithm model based on vegetation index, drought and precipitation for estimation rice production.

Key words: EVI, KBDI, MODIS, MTSAT, GSMaP, and algorithm model.