Impact of drought and precipitation on characteristics of vegetation index to estimate rice production in Indonesia

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Rice field is one of the important agriculture crops in Indonesia. In Indonesia large of rice field around 8.06 million ha with total production around 65 million tons/year. In the last five years the average rice field area affected droughts. Phenology of paddy field can be characterized by three main periods: the flooding and transplanting, the growing and fallow after harvest. In recent years remote sensing data used for measurement and monitoring of precipitation, drought and vegetation index such as Global Satellite Mapping of Precipitation (GSMaP), Multi-purpose Transmission SATellite (MTSAT) and Moderate Resolution Imaging Spectroradiometer (MODIS). The objective of this research to investigate impact of drought and precipitation on characteristics of vegetation index for estimation rice production in Indonesia. 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, development of relationships analysis and development of algorithm model to estimate rice production. The expected result on this research describes seasonal statistics and relationships among precipitations, drought and vegetation index and produce algorithm model based on vegetation index, drought and precipitation for estimation rice production in Indonesian.

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