

The Role of Remote Sensing Data for Monitoring Agricultural Land

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Rice is main food of people in Southeast Asia, with the 5 largest producing countries being Indonesia, Vietnam, Thailand, Myanmar and the Philippines. In line with population growth, the national demand for rice is increasing. The Indonesian Ministry of AgricultureConditions reported that national rice consumption has increased by around 1.7% since 2014 until 2017. After that it increased again by around 2.1% in 2019 (29.13 million tons) until 2022 (29.78 million tons).

On the other hand, based on the results of the BPS (Statistics Office), the area of rice field harvested experienced a negative trend, in 2018-2022 the area of rice field harvested area in Indonesia has decreased, including during the Covid pandemic.

The use of remote sensing data such as Landsat 8/9,Sentinel-1/2 to produce information on rice growth phases has great potential in Indonesia and other Countries. Satellite remote sensing technology is very cost-effective but can cover large areas. The Sentinel-1 satellite, which has a spatial resolution of 10 m x 10 m, a temporal resolution of 12 days, and is resistant to cloud problems, is one solution for producing information on rice growth phases without worrying about cloud cover problems as occurs with optical satellites.

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- calculate the cropping index
- 3) Classification of rice growth phases to predict harvest area
- 4) Study the effect of climate change on harvest failure and rice production

Methodology

The research method was carried out using the Geo-Biophysical Parameter Detection and Machine Learning Classification using Random Forest and Support Vector Machine (SVM) Methods.





Phenology of rice plant growth based on back scattering (Gamma Nut) Sentinel-1, using parameters RPI = VH/VV









variation when : 35,40,45,50,55, 65-90 DAP & other environmental factors, eg: Rainfall, Surface Temperature, .. etc

