RICE CULTIVATION DATE ESTIMATION USING PIA TIME SERIES MODIS IMAGERY

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Abstract: In Thailand, rice is more important to economy. Information relevant to rice is critical to the government policy in the field of rice cultivation. This data includes area of rice cropping, date of start and end of season which can be monitored by remote sensing. Remote sensing technique is used to recorded real data from all regions and can monitor in the long time from the initial planting to harvest. Monitoring of rice cultivation date based on Normalized Difference Vegetation Index (NDVI) which is derived on Moderate Resolution Imaging Spectroradiometer (MODIS) is phenology detection for estimating date of start season and date of end season. This study uses MOD13Q1 which is one product of MODIS 16-day composite for monitoring rice cultivation in Thailand to estimated period of cultivation date. Unfortunately, MODIS is estimated with noise, thus, preprocessing is required in order to increase the accuracy of rice cultivation date estimation. This research is proposed to create smooth curve for estimation date by Progressive Iteration Approximation (PIA) using Bezier curve. Smoothing signal with PIA using Bezier curve is a new method to smoothing time series of MODIS. The smoothed time series can provide more accuracy date estimation. The estimation from smoothed time series can be identifying to period of rice cultivation for estimate volume of rice product.

KEY WORDS: Rice crop phenology, Terra MODIS, PIA, Bezier curve fitting