Seasonal Time Series of MODIS Indices and Decision Tree Analysis for Paddy Field Mapping

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Abstract. Rice is staple food in Indonesia and is therefore broadly cultivated across the nation. The North Coastal Region of West Java (NCR) has been serving as "paddy basket" since Dutch colonization. Nonetheless, industrial and settlement development as well as the latest government vision have been threatening the sustainability of agricultural area. Frequent monitoring of paddy production is therefore important, since rice fields are distributed spatially and cropping system varies across time and regions. This research aims to explore the use of time series coupled with decision tree analysis to guide detailed paddy field mapping in the Subang Regency, Indonesia. MODIS 250m images were collected from United States Geological Survey (USGS) – Land Processes Distributed Active Archive Center (LP DAAC) to construct time series of NDVI and EVI. Seasonal adjustment time series was utilized to understand the farming pattern. The output was then employed to guide sampling scheme for detailed rice-growth classification using AVNIR-2. We conclude that seasonal adjustment of time series analysis is paramount to assist a precise selection, while decision tree are promising in detailed paddy growth mapping.

Keywords: AVNIR-2, decision trees, MODIS, rice, time series