

# **An integrated approach on rice paddy irrigation pattern monitoring over Asia with MODIS and AMSR-E**

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## **Topics: Remote Sensing of Land**

### **Abstract**

This research focuses on an integrated monitoring of rice paddy cultivation with MODIS and AMSR-E data. A time series of analysis on single cropping rice cultivation was conducted on vegetation and inundation condition with MODIS derived indices and those of AMSR-E. It was found that AMSR-E captures a salient points on rice cropping phenology more precisely than MODIS because it is not affected by cloud contamination. Time series of inundation conditions observed from MODIS is basically consistent with AMSR-E and ground based water level. MODIS normalized water index (NDWI) has an anomaly value due to cloud contamination in August (rainy season). Minimum brightness temperature index (36.5H) represents an inundation condition better than normalized polarization index (NDPI) compared with ground based water level. A visual interpretation found that a spatial context on inundation conditions derived from AMSR-E and MODIS are similar although they have much difference in spatial resolutions (500m v.s. 10km). More efforts must be conducted in geometric correction errors, polarization difference and frequency selection in AMSR-E. A all-weather type monitoring with high frequency can be effective especially on inundation condition in wet season along with MODIS data with high spatial resolution.