Study on Paddy Phenomics Eco-system and Yield Estimation using Multi-temporal Remote Sensing Approach

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Abstract: Accurate estimation and management of paddy phenology is necessary to monitor the crop growth and yield estimation. Spatial time-series data playvitalrole for assessment of phenology across massive areas. In the present study the paddy phenological stages namely transplanting, heading, and harvesting stages are detected in Chittoor district of Andhra Pradesh, India. A comparative study is conducted using ground observation data collected in *rabi* season and MODIS NDVI data. The phenological stages are detected using MODIS time-series NDVI data. The phenological stages namely transplanting stage, heading stage and harvesting stages are observed on 26-12-2017, 06-02-2018 and 26-03-2018 respectively. The RMSE error calculated for transplanting, heading, and harvesting stage. 4, 5.5, 4 days respectively. The polynomial equation is developed using NDVI and yield data collected from field. The accuracy achieved to estimate yield is 80%.

Keywords: Remote sensing, Phenology, Paddy, Time series MODIS NDVI, Growth monitoring, Yield