



SDI Review Form 1.6

Journal Name:	Asian Journal of Advances in Agricultural Research
Manuscript Number:	Ms_AJAAR_43843
Title of the Manuscript:	Use of Satellite Remote Sensing for Rice Yield Estimation: A Case Study of Polonnaruwa District, Sri Lanka
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	1- My concern is that vegetation indices are sensitive to wet and water covered fields. Where any of these issues encountered during the computation of the indices? If yes How did you overcome this problem? 2- IN section 2.4 paddy rice mapping should not be validated based on national statistics "land crop area". The authors should follow the normal classification process and field samples for verifications. Few pixels identified randomly as paddy rice and used to verify the results... How many? 3- What are the 10 coefficient and how did the authors set the threshold? 4- Rewrite equations 3 and 4 using MS Word equation. Does the x in the equation works for both indices? 5- In table 1 it is not clear how the difference between identified and statistical of 135 hectares out of 65756 ha worth 20%? The same for the others. 6- In table 2 NDVI seems more consistent but EVI is not it fluctuates from 72 and 94% why? This is not clear 7- No need for table 3 8- Need English language revision. 9- Check similar up to date references discuss them and add them.	1. yes. When we consider the vegetation indices over the Polonnaruwa district, there was a problem with the grass and forest lands, also the water covered fields. There were many other land features also giving the same NDVI as paddy. However, the temporal variation of NDVI values of paddy has a unique signature, we have adopted that to classify paddy cultivated lands. 2. 25 samples were selected. 3. Correlation coefficients were calculated by shifting the pre-defined NDVI matching pattern/profile along the NDVI time series derived based on MODIS 8 day composites data (MOD09Q1 images) for each season. Based on the resulting correlation coefficients, an appropriate threshold value for each season was selected, by equalizing the total paddy area identified by this algorithm and available census data. 4. Edited the two equations. Yes "x" woks for both "corresponding vegetation index" 5. There is a miscalculation. It should be 0.2% and similarly the values are corrected for other seasons as well. 6. After 80 days, NDVI gives an overall accuracy of 77.54% while that of the EVI2 model gives an overall accuracy of 83.68% for all the five seasons. However, the R^2 of models between estimated and reference yield data is 0.89 for NDVI, and 0.27 for an EVI2 model derived at 80 days. Thus, estimations provided at this time were highly correlated with reference yield data in NDVI model, but accuracy of that model was lesser than EVI2. The EVI2 model has high accuracy, but not highly correlated. (However, as reviewer highlighted, further analyses will carryout to investigate the fluctuation) 7. Comment Accepted and its removed



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		8. – Comment Accepted and done some revision 9. – Comment Accepted and done some revision
Minor REVISION comments	10- Change title to “Rice yield estimation in sri-lanka using remote sensing” 11- Rewrite the statement in the abstract “therefore, this study...remote sensing data” 12- EVI2 in the abstract is not identified before using the abbreviation 13- Remove the word “(MOD09Q1v006) » from the abstract 14- Remove the sentence “Besides, the temporal change of Normalized Differenced...minimum kappa coefficient was 0.9916” from the abstract. No need for it. 15- Line 58 change “Landsat 8 OLI/TIRS images for identify” to “Landsat 8 OLI/TIRS images to identify” 16- Note that Landsat is not considered low temporal resolution if both Landsat 8 and 7 are combined it will become moderate resolution which is good for crop yield estimation. Please correct and justify why Landsat 7 was not used. 17- Separate study area from data and methods and include more details about the study area such as size of fields crops, source of irrigation, landform, climate. etc. 18- Put the reference site of USGS in the reference page.	10. – Authors intention was to specify the research rather than generalizing it for entire country. So, if reviewers accepting, would like to keep it as it is. 11. - Comment Accepted and changed as “Therefore, this study focusses on to test rice yield estimation models derived beads satellite remote sensing data” 12. - Comment Accepted and revised accordingly 13. - Comment Accepted and revised accordingly 14. – Authors would like to keep it but changed as “In addition, the temporal change of Normalized Differenced Vegetation Index (NDVI) for paddy and forest were analysed to validate the classification.” 15. - Comment Accepted and revised accordingly 16. – Just because of the low temporal resolution, and accept that it is moderate spatial resolution 17. Polonnaruwa district is situated in a plain valley of Mahaweli river in North Central Province in Sri Lanka and 216 kilometers away from Colombo. District is located between Northern latitude 7°40’ – 8° 21’ and Eastern longitude 80° 44’ – 81° 20’ and elevation is 50-500 meters. (Figure 1), was selected as the study area because it is one of the major paddy cultivation regions in Sri Lanka. According to Irrigation Department of Sri Lanka, this area consists of approximately 85,505 acres (34,629.525 ha) of rice fields and due to the extensive rice cultivation lands, remote sensing can easily monitor this type of farming system. Throughout the district there are 04 major reservoirs, 03 middle scale reservoirs, 62 functioning small scale reservoirs, 35 defunct small scale reservoirs, to provide required water resources for agriculture and other basic needs. Average annual rain fall 1000 mm – 1500 mm and Average Temperature Minimum 24 °C – Maximum 31 °C. 18. Comment Accepted and the USGS web address is added to the text
Optional/General comments		

PART 2:

	Reviewer’s comment	Author’s comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	