



Asia Rice and JAXA Activities

GEOGLAM Asia-RiCE team co-lead

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Earth Observations for Asia-Oceania







Regional Rice Monitoring in Asia (Asia-RiCE)

- Activities focus on
 - Rice crop area estimates / maps
 - Crop calendar / crop growth status / crop outlook •
 - Damage assessment ٠
 - Yield estimation and forecasting
 - Capacity building of
 - Rice crop outlook for ASEAN using Japan ASEAN fund led by LAPAN and MOA
 - SAR data applications on rice monitoring in Hanoi, ٠ Quy Nhon (VN), New Delhi, Malaysia using funds from CNES, ESA and GEORICE and in Chinese Tapei (TARI)
 - Support to CEOS2019 Initiative of VNSC and CEOS2020 http://www.asia-rice.org Initiative of ISRO
 - Rice crop area estimation in low Mekong using VNSC data cube with ESA/CESBIO (GEORICE) and JAXA/INAHOR)
 - Rice crop area estimation in Bangladesh by ISRO and • JAXA
 - GEO-GEE cooperation on INAHOR with ALOS-2 ScanSAR data
 - Asia-Rice 2021 report was just published







Engagement of EO with Agricultural Monitoring

Dr. Shibendu Shankar Ray is a great mentor to develop this bridge







Asia-Rice phasing approach





Rice Planted Area Mapping using AI Technology

- Utilized AI technology (machine learning: Random Forest) to refine INAHOR (INAHOR-AI)
- Dramatically improved (more than 90%) the mapping accuracy from the conventional INAHOR.



Time-series Radar imageries

Training Data using VHR optical and ground base data



Rice | in the rai





CEOS 2019 VNSC chair initiative

Proposed Initiative Summary





- Rice crop maps (crop season product) of the Mekong area (Cambodia, Laos, Thailand, Vietnam) linked with ESA GEORice, JAXA and GEO GEOGLAM Asia Rice team
- Rice Phenology / Growth Stage (monthly product) of the Mekong Delta and Red River Delta, Vietnam.
- Rice Crop Production / Yield Estimation (crop season product) of provinces in the Mekong Delta and Red River Delta, Vietnam.
- 4. Continued development of GEOGLAM National Crop Monitor with NASA Harvest.









Aman' Rice Planted Area over Bangladesh – ISRO-JAXA joint initiative for BIMSTEC region (CEOS2020 Chair Initiative by ISRO)

- Major crop type mapping and acreage estimates are one of the major focus to use ISRO and JAXA data cubes for BIMSTEC countries as CEOS2020 chair initiative, a follow-up from CEOS2019 chair initiative by VNSC for low Mekong
- Opti-SAR combination from ISRO's Resourcesat-2 AWiFS and JAXA's ALOS-2 L-band PALSAR-2 ScanSAR data were used to map 'Aman' (July – December) rice planted area over Bangladesh for a common year, 2018. This resulted into acreage estimates with 95% accuracy of reported long-term averages and was found better than 'only-optical' and 'only-SAR' data.
- ISRO-JAXA will jointly continue this effort over specified regions over India, Thailand and other Asian countries including BIMSTEC for rice monitoring in cooperation with GEOGLAM Asia Rice and APRSAF SAFE rice crop project.







Rice Map Cross-Comparison Related Study

Continue and expand cross-comparison study for BIMSTEC countries as CEOS2020 chair initiative by ISRO, CEOS2019 chair initiative by VNSC for Lower Mekong River, and GEOGLAM/Asia-RiCE.

In addition to these area, cross-comparison study for Thailand has been started by GISTDA and JAXA, initial comparison has been conducting to improve mapping algorithms.







Rice Monitoring Project

• Summary

- <u>Confirmed the good progress of the project conducted under multilateral cooperation on rice map</u> <u>comparison study conducted by GISTDA and JAXA and data/tool sharing via ISRO's VEDAS or GEE</u>
- GISTDA-JAXA cross-comparison of rice maps has been completed, the cropping patterns changes will be examined during 2022-23.
- In data/tool sharing; 1) ALOS data were ingested to VEDAS covering India, Bangladesh, Lower Mekong River region, and Capacity building on the use of VEDAS are done 2) INAHOR made available on GEE

• Discussion and Future Plan

- The VEDAS scripting environment will be developed for data visualization, multitemporal analysis etc. by python and will be available in the near future (within one month).
- Develop and organize a training/workshop (AFSIS and other) for rice mapping using data analysis platform (GEE, VEDAS, etc.) to improve rice statistics in the region (14 Nov 2022, SAFE Workshop).
- Promote activities in various regional activities like SCOSA and AOGEO.
- <u>CARD4L compliant ALOS-2 ARD data (normalized backscattering L2.2) will be provided to VEDAS</u> before APRSAF, and planning continuous update with latest ALOS-2 data, likely on a



GROUP ON
EARTH OBSERVATIONSRice Growth Outlooks for Crop Monitorsia-Riceusing Agro-meteorological Information

- Asia-RiCE continued its work monthly with the ASEAN Food Security Information System (AFSIS) to provide rice growth outlooks using satellite derived agro-met information such as precipitation (GPM, Himawari etc.), NDVI, LST, and solar radiation (MODIS, GCOM-C), soil moisture (GCOM-W) to the GEOGLAM Crop Monitor (UMD) for FAO AMIS.
 - By Japan ASEAN integrated trust fund (JAIF) led by LAPAN and MOA, rice crop outlook capacity building to ASEAN member states has been implemented from May, 2018



Rice Growth Outlook

In the North, the seeding of autumnwinter rice (wet season rice) is completed. The sown area is around 1.1 million ha, accounting for 99.2% of the last year area. The weather in the North is not good for paddy due to storm and flood.

(example: Vietnam, Sep 2016)









APRSAF SAFE Evolution Agromet Project







Agromet Project

- Summary
 - <u>Confirmed the good progress of the Agromet multilateral project lead by ISRO with the</u> <u>support of JAXA and GISTDA</u>
 - To ensure continuous utilization of agroclimatic data for Rice Growing Outlook reports, ISRO developed the VEDAS system to avail precipitation data and made the system publicly available for AFSIS and other users.
 - Training program on co-organized by AFSIS, ISRO, GISTDA and JAXA "Satellite-Derived Agrometeorological Data for AFSIS's Rice Growing Outlook (RGO)" using ISRO's VEDAS system was successfully conducted for 33 statistician from 9 countries in ASEAN.

• Discussion and Future Plan

- Planning to promote agromet data for crop outlooks in South Asia (e.g. Sri Lanka, Bangladesh etc.) following the success story of AFSIS.
- Consider conducting cross-comparison and/or validation with in-situ data over longer time periods in more geographical locations with the support from other participating agencies
- Monitor/review the use of satellite-derived information for improvin activities.







Satellite-Derived Agromet Comparison Study

- Satellite derived agromet products (precipitation, LST and NDVI) comparison between ISRO and JAXA with GISTDA's in-situ data has been done, and consistency of these products were confirmed.
- The report for this activity is available at the APRSAF/SAFE Agromet website.



About SAFE Agromet Project

Agromet project in APRSAF/SAFE aims to provide high-quality space-based agrometeorological (agromet) information including extreme events such as flood or drought for end-users to evaluate rice crop growth. To implement this SAFE Agromet project, it is crucial to have various space based agromet information from Asian space organizations.



Project Leader: ISRO



ISRO: Indian Space Research Organisation GISTDA: Geo-Infomatics and Space Technology JAXA: Japan Aerospace Exploration Agency LAPAN: Lembaga Penerbangan dan Antariksa Nasional

https://www.eorc.jaxa.jp/SAFE/project/agromet/







AFSIS Rice Growing Outlook Report

- As a result of the SAFE agromet project, ISRO's agromet data (precipitation over a wide area) was used in the monthly ASEAN Rice Growing Outlook Report (RGO) published by AFSIS (ASEAN Food Security Information System), in addition to JAXA's agromet data provided through JASMIN system.
- Training workshop for the agricultural statistician in ASEAN countries to utilize agromet data were continuously held using ADB or JAIF (Japan-ASEAN Integration Fund) fund or in the framework of APRSAF/SAFE project.







Asia-RiCE as a multi-lateral alliance for SDGs

(1) Rice monitoring in the Asia-Oceania region during the Covid-19 pandemic

- Progress was made on the rice mapping algorithms, shared among Asia-RiCE members.
- A platform for sharing of data and tools is being established in Asia-RiCE, contributing to improved agricultural statistics and agricultural policy making in Ministry of Agriculture (e.g. sustainable crop management, food security etc).

(2) Integration of multi-platform data and connection to *in-situ* observations

- Initial success in data integration among ISRO, GISTDA and JAXA under the Agromet project.
- National rice production can be more precisely estimated with improved agromet information and rice crop monitoring.
- Regional cooperation on data and information sharing using available platform (such as ODC, Servir/Mekong and other public cloud systems) sharing (JAIF agromet project, UN ESCAP, ADPC/SERVIR, ASI







Asia-RiCE as a multi-lateral alliance for SDGs

(3) R&D partnership for agro-meteorological information and rice monitoring

- Multi-lateral projects are ongoing for agro-meteorological information and rice monitoring, participated by ISRO, GISTDA, JAXA, LAPAN, VNSC and other national partners.
- A new framework and advanced research topics (yield estimation, forecasting etc) for the Research & Development partnership are considered to strengthen the linkage among a number of bilateral projects and collaborations.

(4) Action for 2022 and beyond

- Collaboration with CEOS' Initiative for rice crop monitoring (Lower Mekong in 2019, BIMSTEC in 2020, coordinate with NASA as CEOS 2021 chair)
- Collaboration with various stakeholders (e.g. Ministry of Agriculture) on rice statistics





Discussion towards New SAFE Project

Evaluation of methane emission from paddy fields and water management

• Summary

- Agree to continue the discussion on the formulation (target, participating agencies etc.) for launching new project regarding evaluation of methane emission from paddy fields at coming SAFE meeting in Hanoi, APRSAF-28
- Sharing the experience regarding rice methane emission over India using satellite and in situ flux measurements, including modeling effort using agromet and other data (ISRO).
- Sharing past atmospheric GHG estimation project, and planning to make broad area data collection from satellite, ground based measurements, and other related factors to give a full view of methane over Thailand. (GISTDA)
- Dr. Takeuchi introduced number of research activities on CH4 emission in Bangladesh, Vietnam and Thailand including In-situ CH4 emission measurement in Mekong Delta, identification of irrigated paddy field for potential AWD area using MODIS, ALOS-2 ScanSAR utilization for classifying the water-filled fields. (UT)





Discussion towards New SAFE Project

Evaluation of methane emission from paddy fields and water management

• Discussion and Future Plan

- VNSC commented the national requirement to achieve zero emission and Vietnam willingness to support CH4 estimation activities, particularly given their large paddy field and mentioned to support new SAFE project about this topic
- ISRO showed interest to make a join activity on CH4 estimation
- NSPO will check if the university and institute are interested in joining this conversation on AWD. Will be discussed further during the Hanoi meeting.
- Dr. Kafle, APN/Nepal also expressed their interest
- Suggest start with water resource management on the ground using radar data since Lband ALOS-2 is able to estimate water in the rice field, ISRO to inform us of an appropriate site in india.
- Regarding water management, energy budget, evapotranspiration model should be considered, and cloud will be limitation factors for VIS and TIR data.
- The International Methane Emissions Observatory (IMEO) would be a great partner for SAFE. Their current priority is oil and gas industry and they will wo towards a big announcement at COP27, but in 2023 and beyond t next target.





https://eodashboard.org/story?id=world-cereal-supply-and-demand

AGRICULTURE

Satellite are providing insights into agricultural production, crop conditions, and food supply

Shin-ichi Sobue, JAXA Kaori Kuroiwa, RESTEC

Advances in satellite monitoring – CROP MONITOR

- Providing insight into agricultural production, crop conditions, and food supply are among some of the most impactful information afforded by Earth observing satellites. Information derived from the data retrieved can affect the price we pay at grocery stores, policy implementation from regional to global scales, and food security around the world.
- Provides a public good of open, timely, science-driven information on crop conditions in support of market transparency. The GEOGLAM Crop Monitor Initiative are supported by the global agriculture community and national space agencies including the NASA Harvest Consortium and US-based institutions, JAXA and JASMIN, ESA and several European institutions, ministries of agriculture across the globe and many more.





Cesa Jaxa

https://eodashboard.org/story?id=world-cereal-supply-and-demand&page=1

EARTH OBSERVING DASHBOARD > AGRICULTURE

Satellite data applications for environmental impacts on world crop (cereal) supply and demand

Advances in satellite monitoring deliver a treasure-trove of data that scientists study and analyze for the betterment of humankind. These discoveries can help identify trends that better predict occurrences such as climate change and global warming. Since 2020, researchers at the European Space Agency, (JAXA), and NASA have been working together on a joint dashboard to combine their satellite data and openly share findings in an effort to elevate and protect the quality of life for the global population.

Providing insight into agricultural production, crop conditions, and food supply are among some of the most impactful information afforded by Earth observing satellites. Information derived from the data retrieved can affect the price we pay at grocery stores, policy implementation from regional to global scales, and food security around the world. Not only can satellite data tell us about current and near-future food and commodity crop conditions, but researchers are also studying the longterm trends in climate change and its effects on our food supply in support of agricultural resilience.

As demonstrated by recent global crises including the COVID-19 pandemic and the ongoing Russian war in Ukraine, the globally interconnected nature of the agrifood system has been thrust into the spotlight. These extreme disruptions to the global food supply underscore the importance of global agriculture monitoring, both of major producing countries and those who are major importers and therefore most vulnerable to food insecurity. A key example of international coordination in support of better food information is the **G20 GEOGLAM Crop Monitor** developed in response to a request from the G20 Agricultural Market Information System (AMIS). The Crop Monitor provides a public good of open, timely, science-driven information on crop conditions in support of market transparency. The GEOGLAM Crop Monitor Initiative are supported by the <u>global agriculture</u> <u>community</u> and national space agencies - including the NASA Harvest Consortium and US-based institutions, JAXA and JASMIN, ESA and several European institutions, ministries of agriculture across the globe and many more. It reflects an international, multi-source, consensus assessment of crop growing conditions, status, and agro-climatic factors likely to impact global production,

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Crop Conditions Exceptional Favourable Watch Poor Out-of-seas No data Apr 2022 0 -93.867, 51.333 PEEDBACK

17/7/2022





https://eodashboard.org/story?id=world-cereal-supply-and-demand&page=2



EDC service for ESA | Legal | Privacy

Winter wheat is mostly dormant in the northern hemisphere, with some areas of production raising some concern in Europhemisphere, maize is under mixed conditions in Argentina and southern Brazil. Brazil, soybeans are under mixed condition Satellite data helps us monitor these global crop conditions on a regular basis, especially in times and places where ground

Global PALSAR-2/PALSAR Forest/Non-Forest Map

• The global Forest/Non-Forest (FNF) maps are based on the PALSAR-2/PALSAR imageries to show the worldwide forest distribution from year to year. The map has a 25-meter resolution and is available in 2007-2010 interannual maps by ALOS PALSAR and 2015-2021 by ALOS-2 PALSAR-2. Such interannual forest distribution maps provide essential information for forest monitoring activities, including climate change countermeasures.



The FNF maps were generated by a Random Forest machine learning-based classification method, with the re-processed global 25 m resolution PALSAR-2 mosaic dataset (Ver. 2.0.0) as input. Here, the "forest" is defined as the tree-covered land with an area larger than 0.5 ha and a canopy cover of over 10 %, following the FAO definition of forest.

Accuracy validation of the classification results was conducted for the four-category case and for the three-category case where the two forest areas were integrated. The results indicate that the overall accuracy was at least 86 % for three-categories and 76 % for four-categories for four years from 2017 to 2020. Accuracy thus improved by 5-10 % or more compared to the previous version. Please refer to the "Global 25m Resolution PALSAR-2 Forest/Non-forest Map (Ver2.0. for details on the classification p





Case study 1 Drought of U.S. Southern Plains region (2022)

- Soil Moisture anomaly
- Precipitation anomaly
- Normalized Difference Vegetation Index (NDVI) anomaly



Global / Regional monitor 2022 drought in the U.S. Southern Plains region a) NASA Harvest-GEOGLAM AGMET

The Southern Plains are a major wheat producing region in the U.S. and is monitored closely from planting to harvest given the importance of this major commodity crop. The AGMET Indicator graphic for the 2022 Southern Plains winter wheat season (above) shows below-average cumulative precipitation, NDVI, and soil moisture, consistent with drought conditions trending throughout the Southern Plains. U.S. winter wheat is typically harvested over the summer months but due to the drought conditions affecting the region, there is concern over the potential yields. With the help of satellite data, we understand several months ahead of the harvest that we might expect lower than average production as a result of the environmental indicators measured. With this knowledge comes the ability to respond and prepare appropriately while simultaneously providing market transparency.



Southern Plains (USA) Winter Wheat 2022

b) JAXA JASMIN/Japan JASMAI with MAFF

JAXA with Japanese MAFF provide agrometeorological information including Precipitation, Drought Index, Soil Moisture, Solar Radiation, Surface Temperature, Vegetation Index and anomaly, etc. Rainfall, Agriculture, Land, GPM Core Observatory, SHIZUKU (GCOM-W), MODIS, Multiple Satellites (GSMaP) bi-Monthly on JASMIN for Asia and on JASMAI for selected world areas. By using JAXA WMS with JASMIN/JASMAI products, the anomaly of Southern Plain in the US can be zoomed in with visualized map. The following are examples of composite averaged NDVI and NDVI anomaly.



The following time series reflect the precipitation, soil moisture and NDVI variables from Japan JASMIN/JASMAI for Kansas, USA.



https://eodashboard.org/story?id=world-cereal-supply-and-demand&pa

DATASETS 🚳 COSO MAA





BLUE AVE 2020.11 - 2022. 2021.11 - 2022. 2020.11 - 2022. U.S. winter wheat is typically harvested over the summer months but due to the drought conditions affecting the region, there is concern over the potential yields. With the help of satellite data, we understand several months ahead of the harvest that we might expect lower than average production as a result of the environmental indicators measured. + 2022年3月1日 ~ 15日 **KANSAS Soil Moisture** 45°N 積雪域 積雪域 NDVI 平年対差(Index) **KANSAS NDVI** 0.20 0.15 0.10 30°N 0.05 2020.11 - 2022.4 2021.11 - 2022.4 2020.11 - 2022.4 0.00平年並 -0.05-0.10 -0.15 -0.201 120°W 90°W 注: JAXA「JASMES植生指標(NDVI) プロダクト」、「JASMES積雪分布プロダクト」を加工して作成 https://eodashboard.org/story?id=world-cereal-supply-and-demand&page=4



KANSAS Precipitation





Demo flow using QGIS **QGIS**



7. Check and compare time dimensional variation of multi physical quar







Earth Observing Dashboard





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For All layers except for OpenStreetMap





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May











Case study 2 Global Monitoring / Biomass

• Forest/Non Forest Map





WMS Connection for Global PALSAR2 Forest/Non-Forest Map https://ogcpreview1.restecmap.com/examind/api/WS/wms/JAXA_WMS_Preview

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Sometimes it takes a while to get images for wide area selec "-low-resolution" layers are suitable for such cases





Checking classification categories numerically with QGIS



https://www.eorc.jaxa.jp/ALOS/en/dataset/pdf/DatasetDescription_PALS

JAXA Dashboard Service





WMS Layers of JAXA Dashboard Service Time-series images

https://ogcpreview2.restecmap.com/examind/api/WS/wms/default

Layer Name	Start Date	End Date	Description
SIC_N	1978/11/1	2021/12/31	Sea Ice Concentration, North hemisphere
SIC_S	1978/11/1	2021/12/31	Sea Ice Concentration, South hemisphere
ONPP-GCOMC-World-Monthly	2018/1/16	2022/6/15	Ocean net primary productivity
NDVI-GCOMC-World-Monthly	2022/1/16	2022/6/15	Normalized Difference Vegetation Index
NDVI-Anomaly-GCOMC-World-Monthly	2022/1/16	2022/6/15	Anomaly of Normalized Difference Vegetation Index
SMC-GCOMW-World-Monthly	2022/1/16	2022/6/15	Soil Moisture Content
SMC-Anomaly-GCOMW-World-Monthly	2022/1/16	2022/6/15	Anomaly of Soil Moisture Content
PRC-GSMaP-World-Monthly	2022/1/16	2022/6/15	Precipitation Rate
PRC-Anomaly-GSMaP-World-Monthly	2022/1/16	2022/6/15	Anomaly of Precipitation Rate
XCO2-GOSAT-Cairo	2018/6/30	2019/10/5	C02
NO2-TROPOMI-Cairo-Daily	2018/6/30	2019/10/5	NO2
SIF-TROPOMI-Cairo-Monthly	2018/6/15	2019/10/16	Solar Induced Chlorophyll Fluor
ODIAC-Cairo-Monthly	2018/6/15	2019/10/16	The Open-Data Inventory for A





WMS/WMTS Layers of JAXA Dashboard Service (Forest/Non-Forest Map)

WMS: https://ogcpreview1.restecmap.com/examind/api/WS/wms/JAXA_WMS_Preview

Layer Name	Start Date	End Date	Description
FNF-PALSAR2-World-2017-Yearly	(2017)	(2017)	Global Forest/Non-Forest (FNF) map
FNF-PALSAR2-World-2018-Yearly	(2018)	(2018)	Global Forest/Non-Forest (FNF) map
FNF-PALSAR2-World-2019-Yearly	(2019)	(2019)	Global Forest/Non-Forest (FNF) map
FNF-PALSAR2-World-2020-Yearly	(2020)	(2020)	Global Forest/Non-Forest (FNF) map

WMTS: https://ogcpreview1.restecmap.com/examind/api/WS/wmts/JAXA_WMTS_Preview

Layer Name	Start Date	End Date	Description
FNF-PALSAR2-Equatorial-2017-Yearly	(2017)	(2017)	Forest/Non-Forest (FNF) map, Equatorial area
FNF-PALSAR2-Equatorial-2018-Yearly	(2018)	(2018)	Forest/Non-Forest (FNF) map, Equatorial area
FNF-PALSAR2-Equatorial-2019-Yearly	(2019)	(2019)	Forest/Non-Forest (FNF) map, Equatorial area
FNF-PALSAR2-Equatorial-2020-Yearly	(2020)	(2020)	Forest/Non-Forest (FNF) map, Forest

(Faster than WMS, and world-wide layers are in preparation)





Example of WMS URL Request

https://ogcpreview2.restecmap.com/examind/api/WS/wms/default?SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&LAYERS=NDVI-GCOMC-World-Monthly&SRS=EPSG:4326&BBOX=70,-30,150,30&TIME=2022-03-16T11:59:30.000Z&STYLES=&WIDTH=800&HEIGHT=600&FORMAT=image/png&TRANSPARENT=TRUE





Parameter of WMS URL request

Itemization of request URL

- https://ogcpreview2.restecmap.com/examind/api/ WS/wms/default?SERVICE=WMS&VERSION=1.1.1
- &REQUEST=GetMap
- &LAYERS=NDVI-GCOMC-World-Monthly
- &SRS=EPSG:4326&BBOX=70,-30,150,30
- &TIME=2022-03-16T11:59:30.000Z
- &STYLES=
- &WIDTH=800&HEIGHT=600
- &FORMAT=image/png&TRANSPARENT=TRUE

- ···· Means ····
- "From JAXA dashboard WMS service, version 1.1.1",
- "I want a map image of …"
- "This data around …"
- "This area (in 'longitude, latitude' box form) on \cdots
- "This date and time (in UTM) with \cdots "
- "Default color palette as …"
- "This size image in …"
- "This format".

More details : https://www.ogc.org/standards/wms (Version 1.3.0 is also av



SAR international cooperation



- Science and apps: Ocean (Sea Ice, ship, oil spill), Land use (agriculture, soil moisture, SWE, crustal deformation volcano, subsidence, LULCC, forest) with disaste
- FS for ALOS-4 DT in international partners



ALOS/ALOS-2 mass processing for O&F



- ALOS/ALOS-2 ScanSAR data mirroring at NASA/ASF
- Plan to start to produce L2.2 for ScanSAR of ALOS-2 as ARD with CAR from 2022/4

ALOS-2 ScanSAR L1.1 full aperture mode and L2.2 will be provided t

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Data/Tool Sharing: VEDAS (ISRO's Data Analysis Platform) with ALOS-2

2020 and 2021 data of Asia region (and few data of 2019 for Indian region) published on VEDAS, users can visualize and perform spatio-temporal analysis of ALOS data online with a very high speed.

Rice mapping tool (e.g. JAXA's INAHOR) will be installed in the VEDAS.



https://vedas.sac.gov.in/vegetation-monitoring/index.html



Multi-temporal profile of ALOS-2 data of 2020





Data/Tool Sharing: Google Earth Engine with ALOS-2

ALOS-2 ScanSAR data covering India, Bangladesh, Lower Mekong River region, have been ingested into GEE in collaboration with Google to facilitate rice monitoring related activities in the Asian region.

At the AOGEO Task Group 5 (agriculture) held on 20th Oct 2021, joint study for rice mapping using S1+A2 etc. on GEE for Runtan irrigated area (JICA's irrigation project area) in West Java, Indonesia were proposed.

JAXA's rice mapping tool (INAHOR) is available on Google Earth Engine (GEE) and tutorial material (document and video) is currently preparing (will be used training for the agricultural statistician). Visualization of ALOS-2 ScanSAR Imageries Tutorial material

Visualization of ALOS-2 ScanSAR Imageries on GEE and detected rice planted area by INAHOR



1) Uploading training data to GEE
Upload training data (in shape file format) and administrative boundary data (in shape file format) to Assets
Click "Assets" tab in Click "NEW " Buttor "Table Upload".
Coogle Earth Engine
Coogle Ear

For More Information on the Asia-RiCE

Please visit our website: http://asia-rice.org





Outreach: Book Publication



Remote Sensing of Agriculture and Land Cover/Land Use Changes in South/Southeast Asian Countries"

Editors: Krishna Prasad Vadrevu (USA), Thuy Le Toan (France), Shibendu Ray (India) and Chris Justice (USA)

- Three session for Asia-RiCE related activities
 - Asia-RiCE Activities Overview
 - Rice monitoring activities in Southeast Asia (Cambodia, Indonesia, Thailand, Vietnam etc.)
 - Rice Growing Outlook using satellite-based agrometeorological data in Southeast Asia



