# Earth Observation Satellite Data for SDGs



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# JAXA's Contributions to SDGs

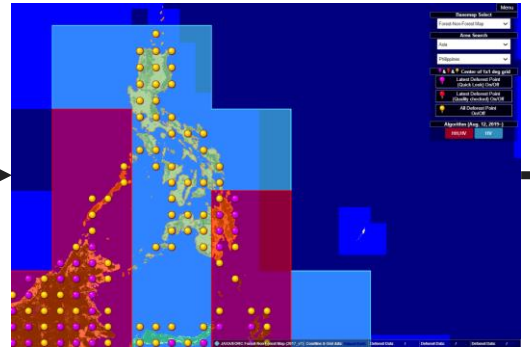
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALOS-2 | | ✓ | | | | | | | | | ✓ | | ✓ | ✓ | ✓ | | |
| GOSAT | | | ✓ | | | | | | | | ✓ | | ✓ | | | | |
| GOSAT-2 | | | ✓ | | | | | | | | ✓ | | ✓ | | | | |
| GCOM-W | | ✓ | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | | |
| GPM/DPR | | | | | | ✓ | | | | | | | ✓ | | | | |
| GCOM-C | | ✓ | ✓ | | | | | | | | ✓ | | ✓ | ✓ | ✓ | | |
| | | | | | | | | | | | | | | | | | |
| EarthCARE | | | ✓ | | | ✓ | | | | | ✓ | | ✓ | | | | |
| ALOS-4 | | ✓ | | | | | | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | |
| GOSAT-GW | | ✓ | ✓ | | | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | | |

# Save Tropical Forest

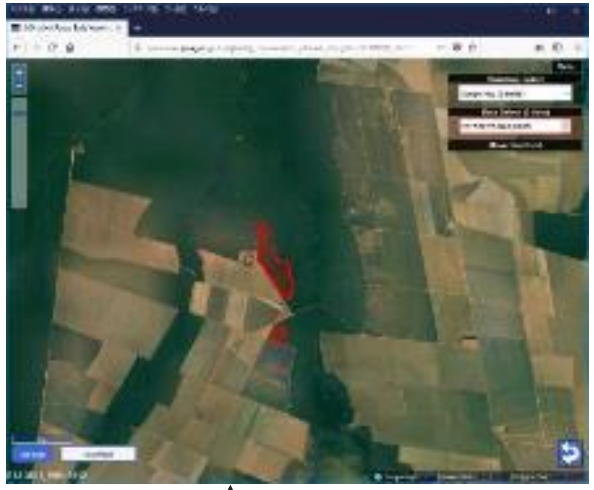
- Monitoring Forest Changes for More Than 25 Years
- Broad Ground Surface Observation by Radar Capable of Penetrating Clouds
- Contributing to the sustainable forest management using satellite data of forest changes

## JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)

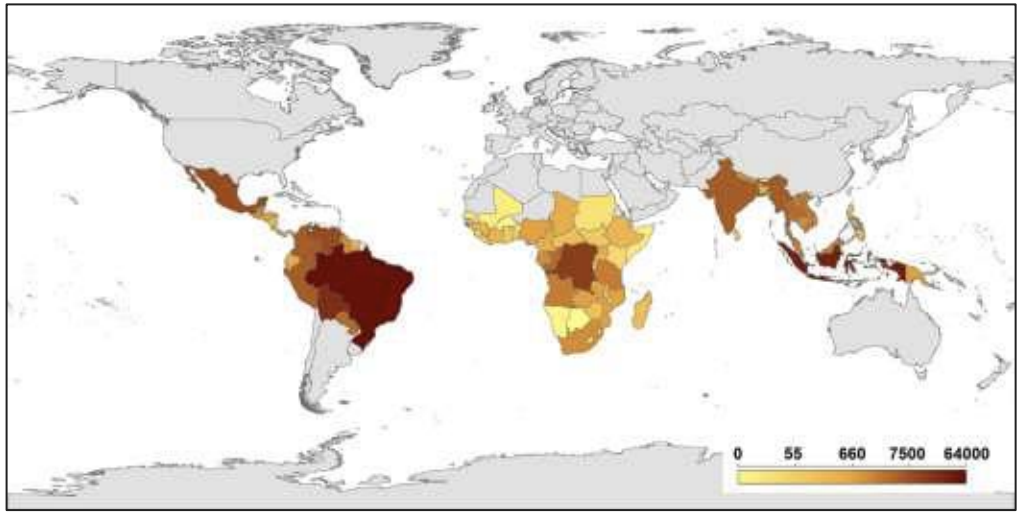
- JJ-FAST has been operated as a deforestation monitoring tool under the JICA-JAXA collaboration project since November 2016
- JJ-FAST covers 78 tropical countries and disseminates deforestation areas detected by ALOS-2 for every 1.5 months

Red indicates the latest Deforest Point
Yellow indicates all Deforest Point



Deforestation polygon




Total detected number: 308,353 points as of April, 2020
(92,787 points were detected in Brazil)

JJ-FAST website（http://www.eorc.jaxa.jp/jjfast//jj_index.html）

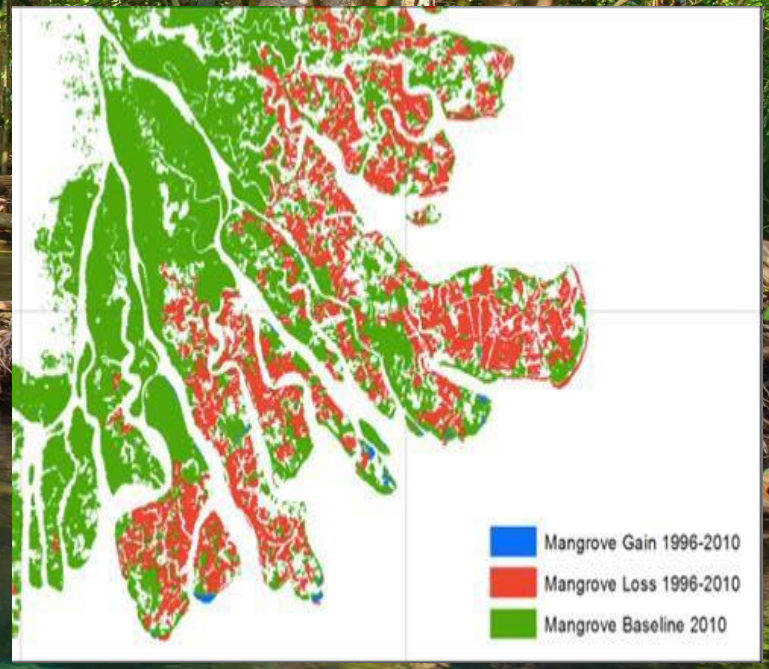
# Global Mangrove Watch (ALOS-2)

– Mapping Extent and Annual Changes in the Global Mangrove Cover –

The Global Mangrove Watch (GMW) was set up to provide fine resolution (25 m) geospatial information about mangrove extent and changes to Ramsar, national wetland practitioners, decision makers, and NGOs.

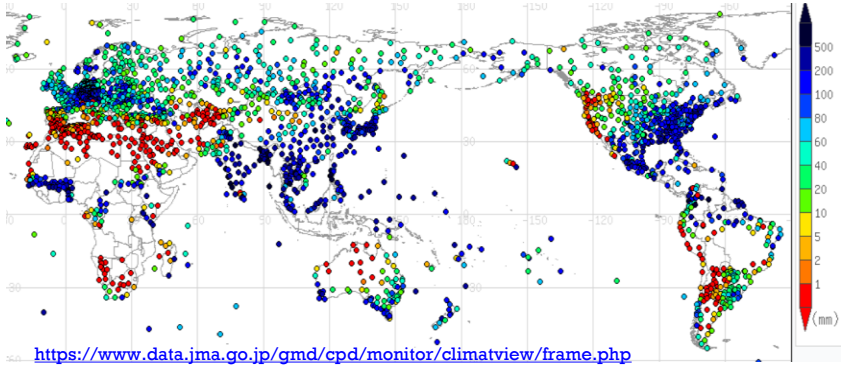
Released at UNEP SDG 6.6.1 website（https://www.sdg661.app/home）


Mahakam delta,
East Kalimantan
ALOS-2 L-band SAR
temporal composite



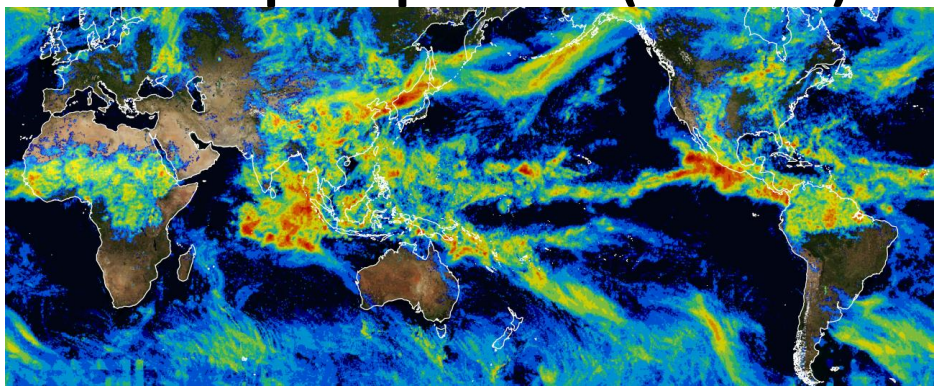
# Flood Prediction: Realized by Integration of Ground Observations and Satellite Precipitation (GSMaP)

## Ground observations



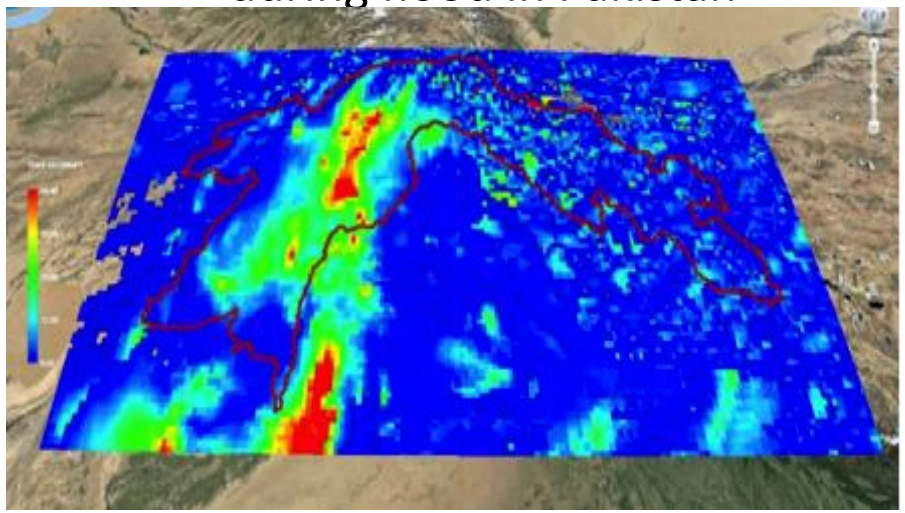

https://www.data.jma.go.jp/gmd/cpd/monitor/climatview/frame.php

## Satellite precipitation (GSMaP)



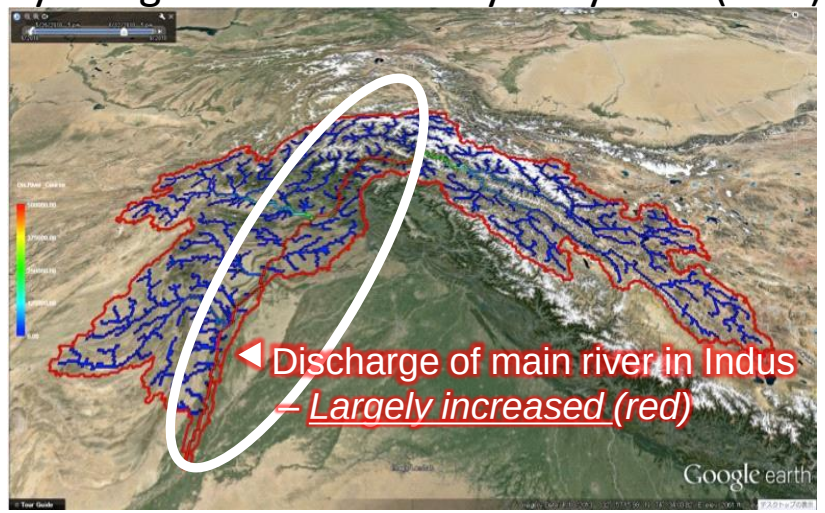

## Rainfall over the river basin

during flood in Pakistan



## River discharge using GSMaP

by Integrated Flood Analysis System (IFAS)




*(Images provided by ICHARM)*

## Partners

ICHARM

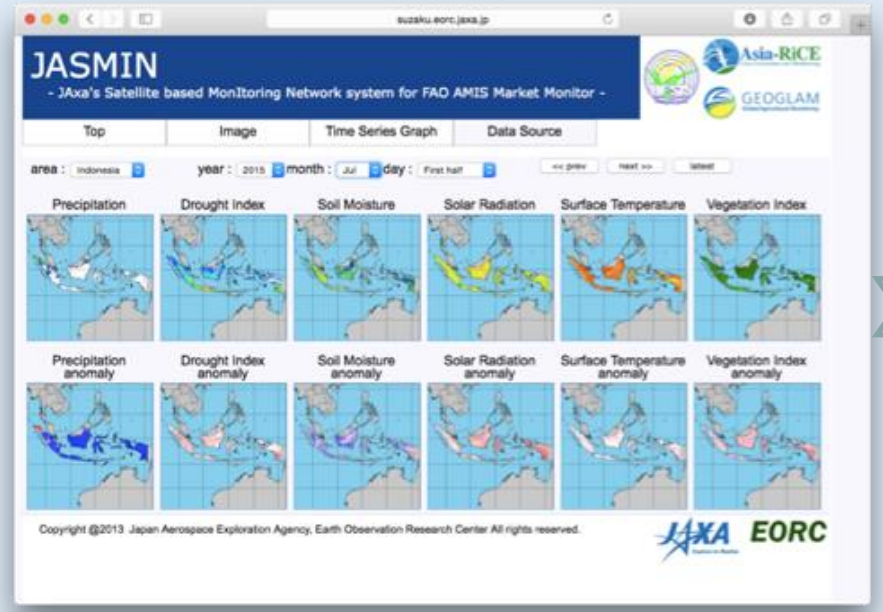
ADB

UNESCO

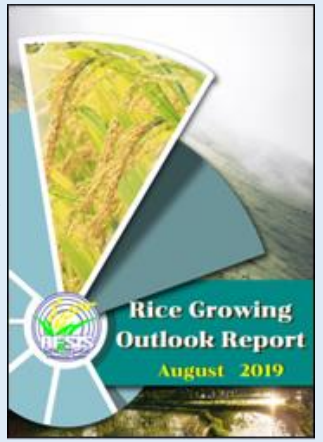
# Agriculture Monitoring

## ◆ Utilization for rice crop estimation in Southeast Asia

- **Rice Growing Report is released monthly in cooperation with AFSIS(ASEAN +3 Food Security Information System) and countries in Southeast Asia** using JASMIN providing agricultural meteorological information (precipitation/soil moisture/temperature) from satellite observation data
- Rice crop information is provided to AMIS (the Agricultural Market Information System) operated by FAO through **GEOGLAM(the Group on Earth Observations Global Agricultural Monitoring Initiative, lunched at the summit/the G20 Agriculture Ministers in 2011)**




JASMIN: JAxa's Satellite based MonItoring Network system(JAXA)



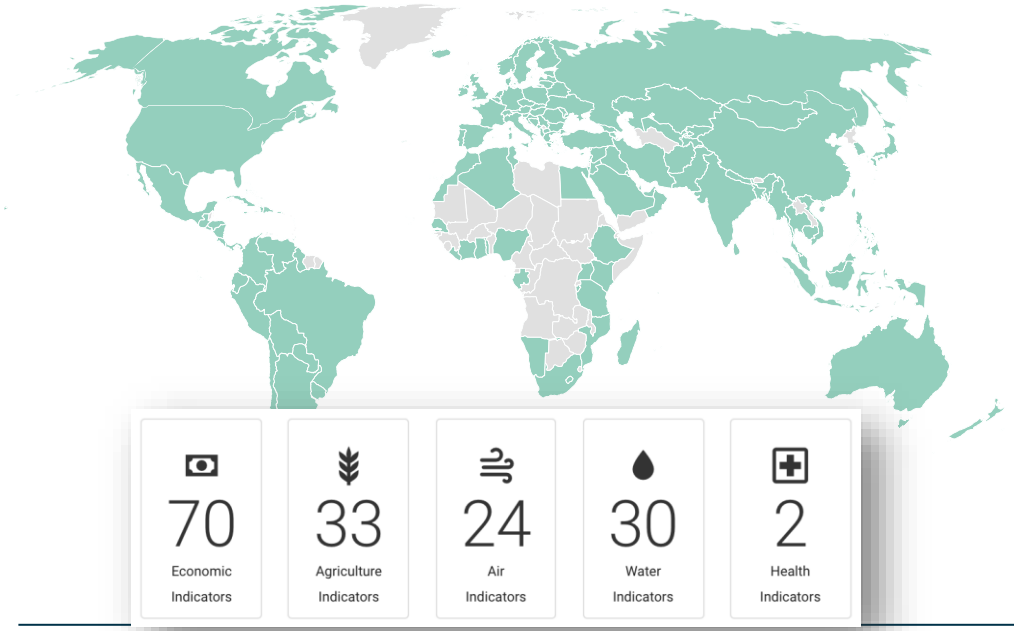

Rice Growing Outlook Report (released monthly by AFSIS)

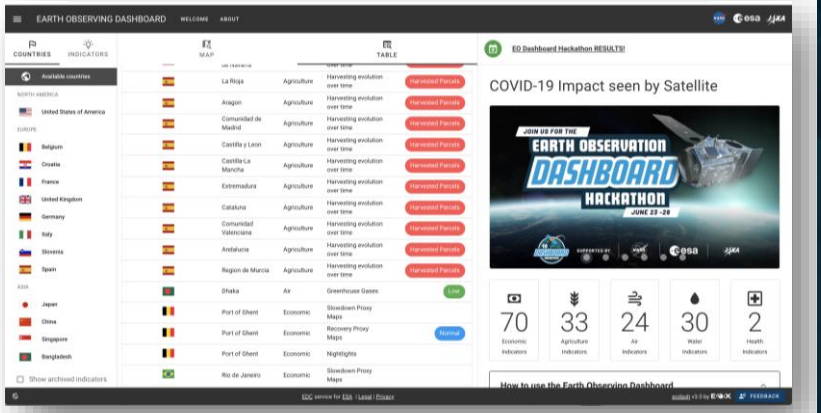

Market Monitor (released monthly by AMIS)

# NASA-ESA-JAXA EO DASHBOARD

- **EODASHBOARD.ORG** launched in June 2020
- Demonstrate joint capabilities of **NASA-ESA-JAXA** to observe COVID-19 environmental and economic impacts from space
- Communicate indicators to the general public and decision makers
- Engage the wider public via competitions, e.g. **EODashboardHackathon**, SpaceApps

161.000+ visitors from 146 countries

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Correspondence | Published: 13 September 2021

**Can space-based technologies help manage and prevent pandemics?**

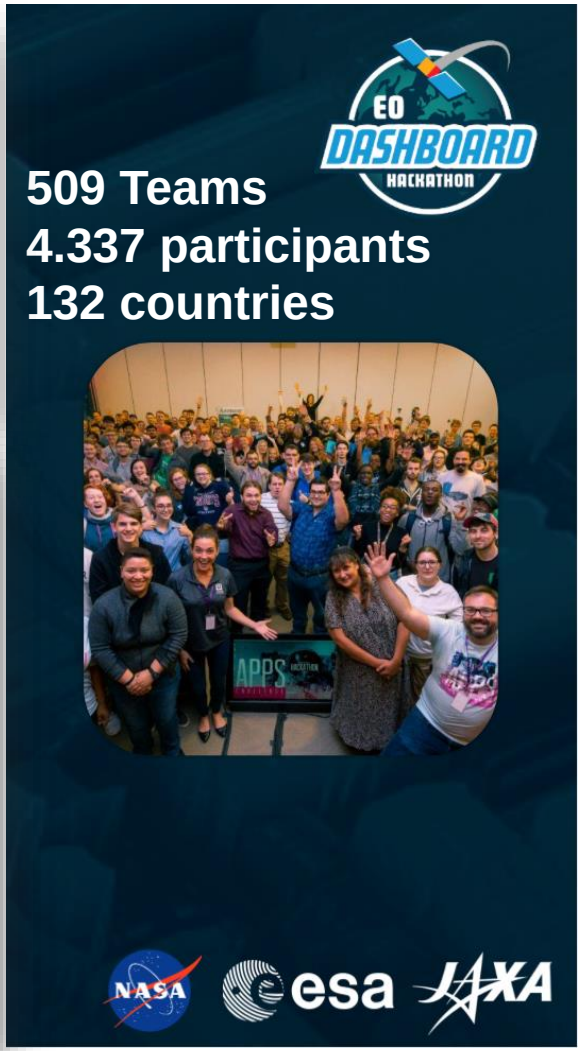
Farhan M. Asrar, David Saint-Jacques, Helena J. Chapman, Dave Williams, Shirish Ravan, Ross Upshur & Jonathan B. Clark

*Nature Medicine* **27**, 1489–1490 (2021) | Cite this article

**1080** Accesses | **8** Altmetric | Metrics

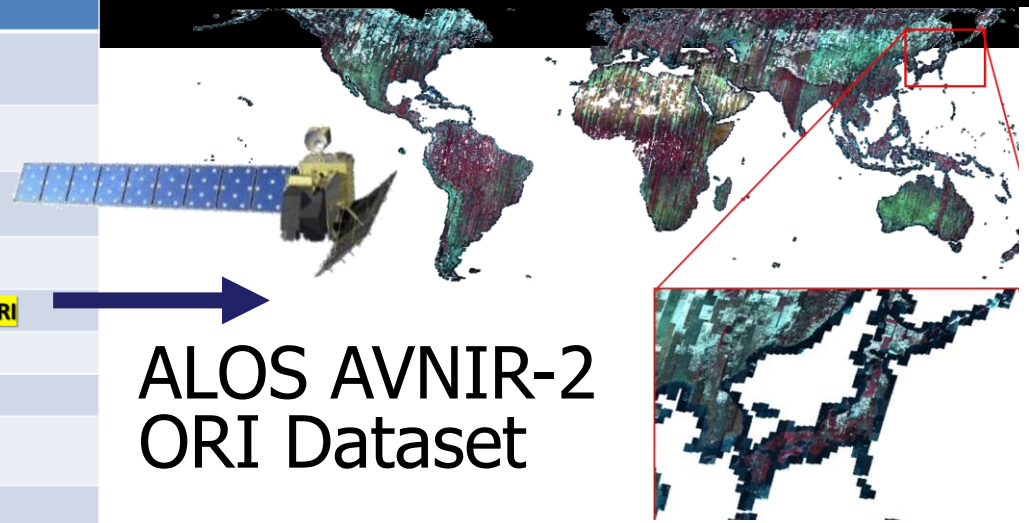
**To the Editor**—The COVID-19 pandemic has put the world at a standstill and has changed the way everyone works, communicates, studies and provides healthcare. Global vaccination strategies offer hope, but many health inequalities hinder access to vaccines, and there are increasing concerns about SARS-CoV-2 variants.

https://www.nature.com/articles/s41591-021-01485-5



# JAXA ‘s Open and Free Data

| Satellite/ Sensor | | Before | NOW |
|---|---|---|---|
| MOS/JERS/ADEOS/ADEOS-2/ AMSR-E/TRMM | | O | O |
| GOSAT | | O | O |
| GCOM-W and GCOM-C | | O | O |
| GPM | | O | O |
| ALOS | AVNIR-2 (10m) | — | O AVNIR-2 ORI |
| | PALSAR (10m) | — | O |
| | DSM (30m) | O | O |
| | Annual Global Forest map / mosaic (25m) | O JERS/ALOS | O ALOS-2 |
| ALOS-2 | ScanSAR (100m) | — | O |
| | Fine mode (10m) | — | Under Negotiation with PD |

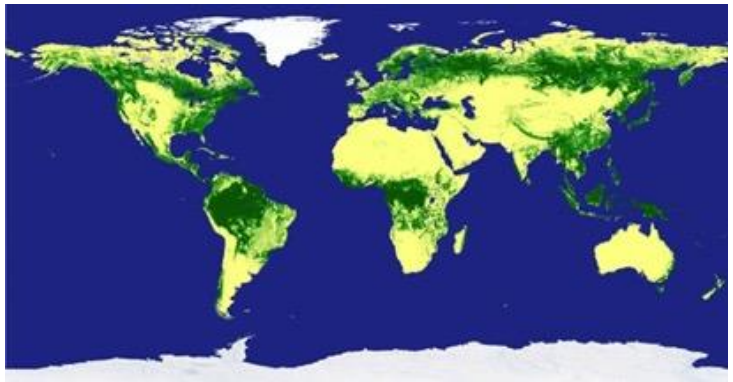


## ALOS AVNIR-2 ORI Dataset

AVNIR-2 Ortho Rectified Image (ORI)

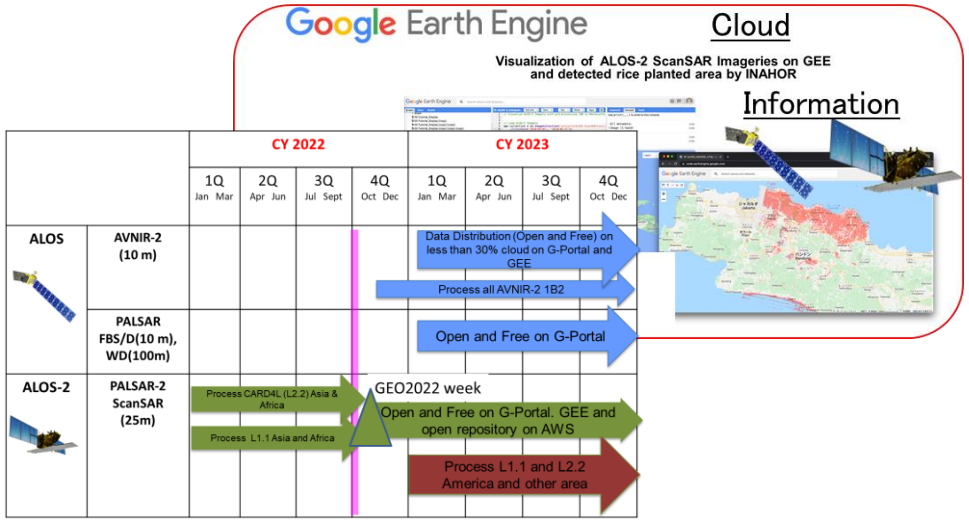
- Automatic processing using PRISM DSM and ORI.
- Areas within 60 deg. latitude had priority.
- Global areas will be done in 2019.
- < 30 % clouds / scene is processed.
- Scene-based product in total 0.8 mil. scenes.
- Acquired date: 2006 to 2011.
  This will be complemented Landsat-7.
- These does not apply atmospheric correction.
  Any suggestions?

Download site on JAXA EORC web
http://www.eorc.jaxa.jp/ALOS/en/alos-ori/index.html



- ✓ Satellite: JERS-1/SAR (1996), ALOS/PALSAR (2007-2010), and ALOS-2/ PALSAR-2 (2015-)
- ✓ Frequency: Annual summer data (June-September)
- ✓ Data: gamma-zero image and forest/non-forest (FNF), ancillary data (local incidence, mask, etc.), spaced in 0.8 arcsec (approx. 25 m) and averaged in 100 m, ortho-rectified, and slope corrected
- ✓ Geometric accuracy: 10 m
- ✓ Expression: 2 byte data (unsigned short integer) for amplitude image
- ✓ Area: Global Land
- ✓ Download unit: 1 x 1 deg. or 5 x 5 degrees in lat/long unit

**JAXA’s SAR** ARD available from the web site:
http://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/fnf_index.htm

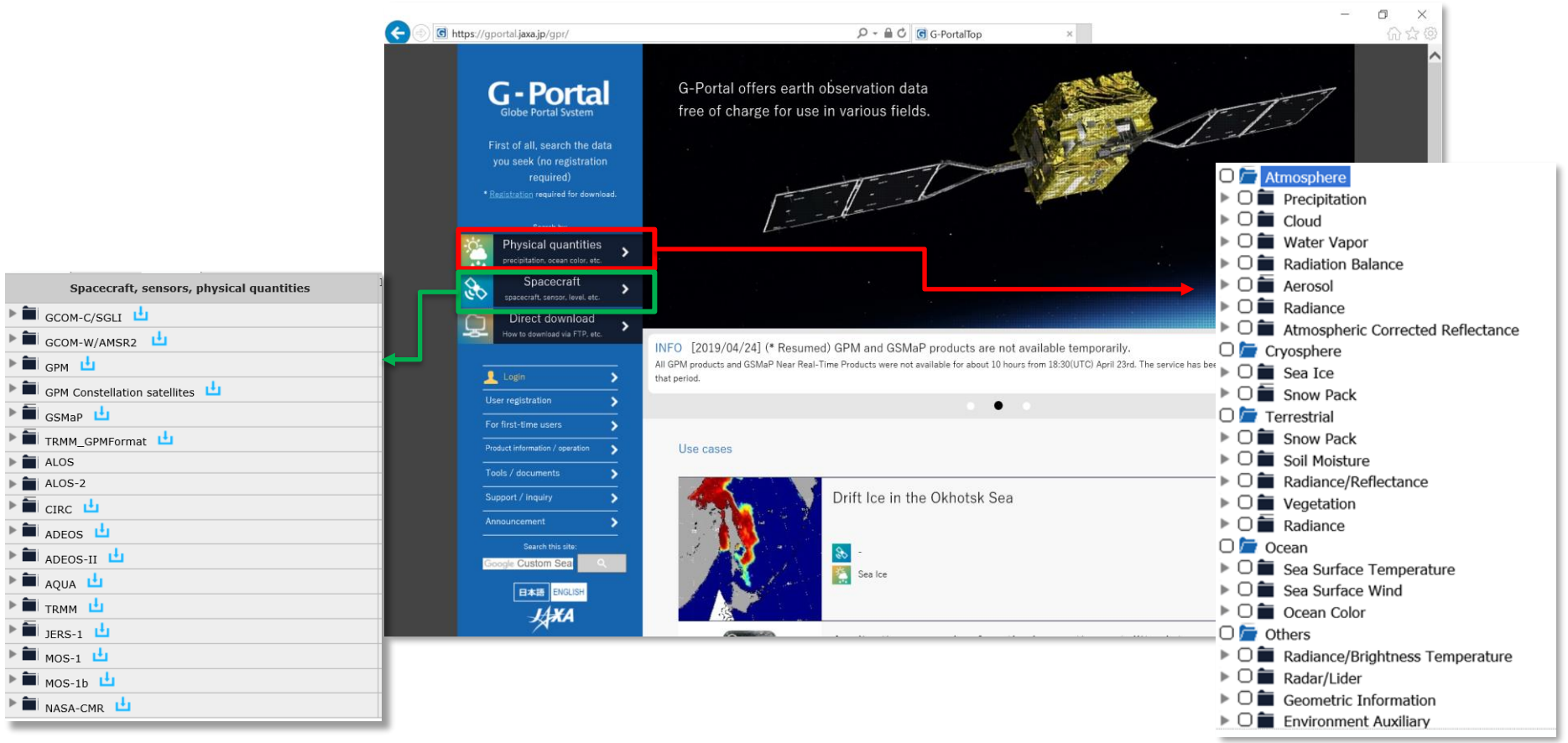



JAXA G-portal: https://gportal.jaxa.jp/gpr/?lang=en
AVNIR-2 EORC HP(Japan area): https://www.eorc.jaxa.jp/ALOS/en/dataset/ori_e.htm

# APPENDIX G-PORTAL ACCESS

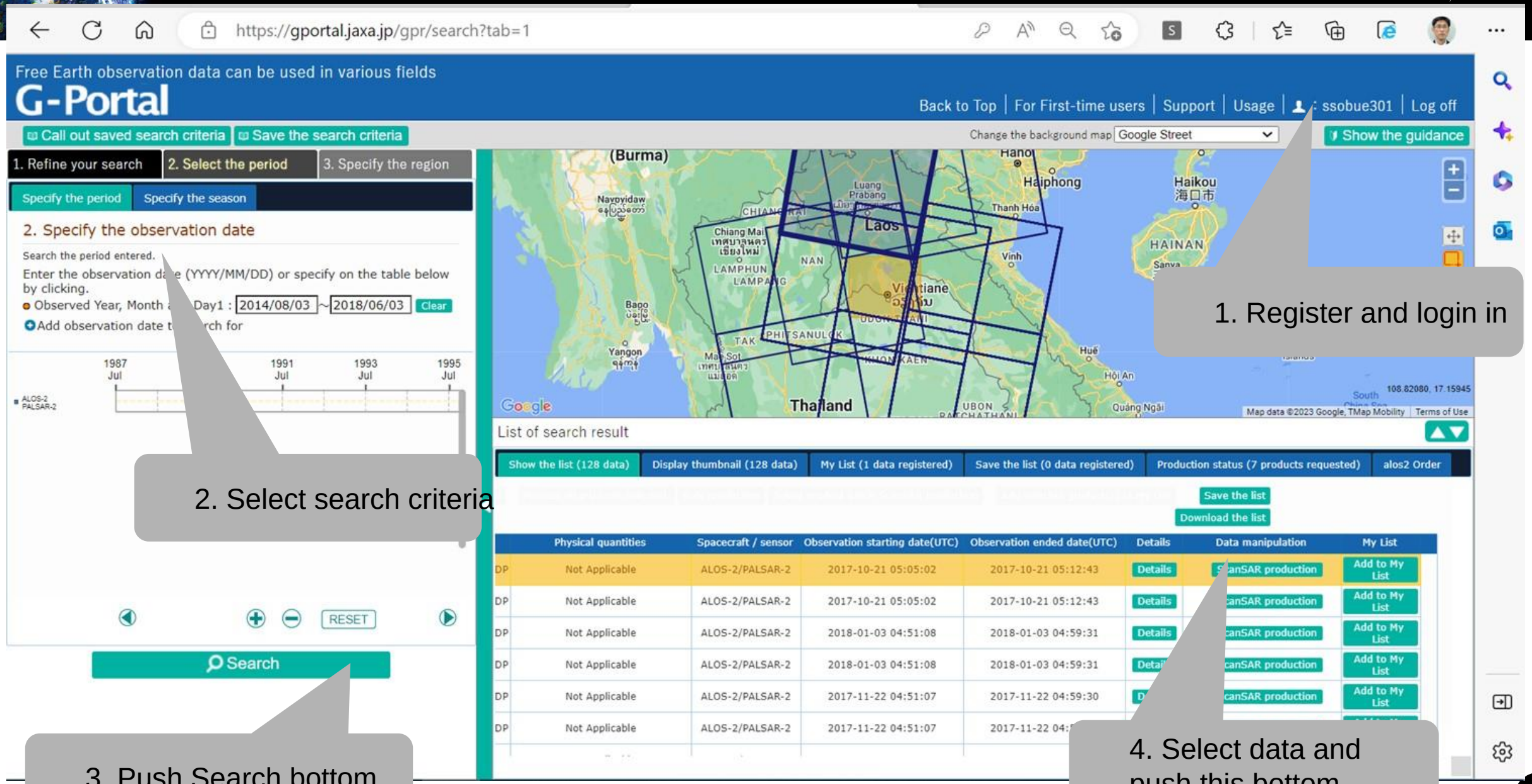
# JAXA's Data distribution system: G-Portal

Available at https://gportal.jaxa.jp/gpr/




G-Portal offers various earth observation data for free.

# JAXA G-Portal




1. Register and login in

2. Select search criteria

3. Push Search bottom

4. Select data and push this bottom

# JAXA G-Portal

https://gportal.jaxa.jp/gpr/scansarparameter

Free Earth observation data can be used in various fields

G-Portal

Back to Top | For First-time users | Support | : ssobue301

ALOS_PALSAR_AVNIR-2_PRISM_ALOS-2_PALSAR-2

Parameter setting  If you omit the parameter setting, default parameter is used.

| No. | Cancel | | ID | Observational day | Additional informa | Center latitude | Center longitude | Prosecing level |
|---|---|---|---|---|---|---|---|---|
| 1 | | ☑ | ALOS2184243200-171021 | 2017-10-21 05:05:02 | Mode: WD1 | 20.724 | 101.964 | 2.2 |

order


5. Push this bottom
Receive data ready notification e-mail and download data by sftp