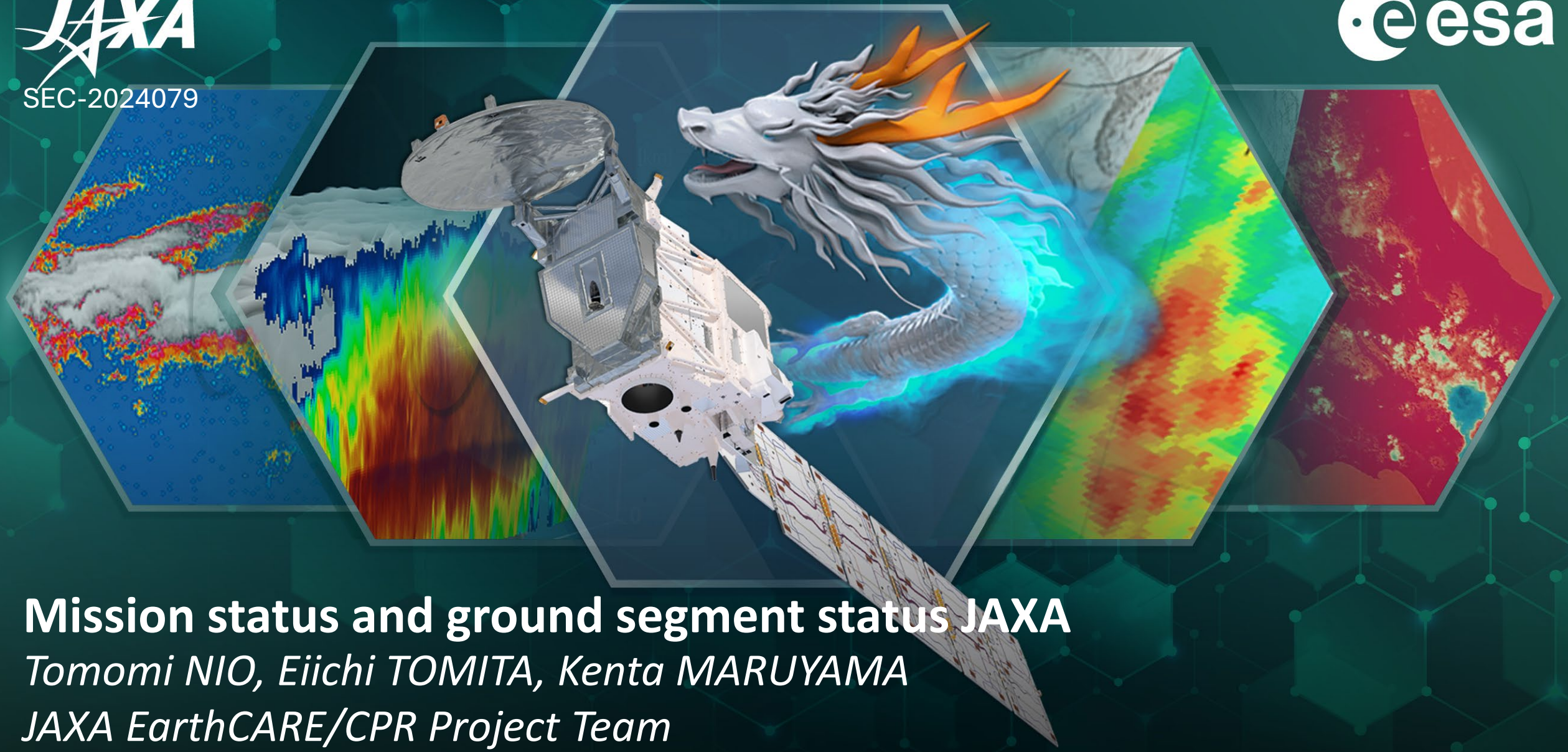
SEC-2024079



Mission status and ground segment status JAXA

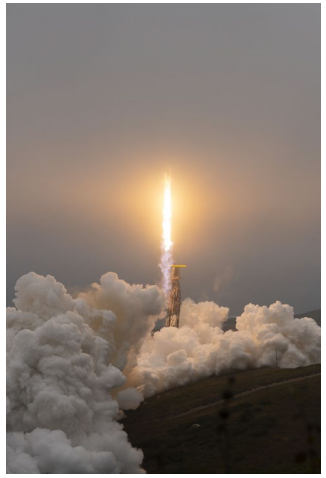
Tomomi NIO, Eiichi TOMITA, Kenta MARUYAMA
JAXA EarthCARE/CPR Project Team

2nd ESA-JAXA EarthCARE In-Orbit Validation Workshop
17 – 20 March 2025 | ESA-ESRIN | Frascati (Rome), Italy

1. JAXA's Mission Status

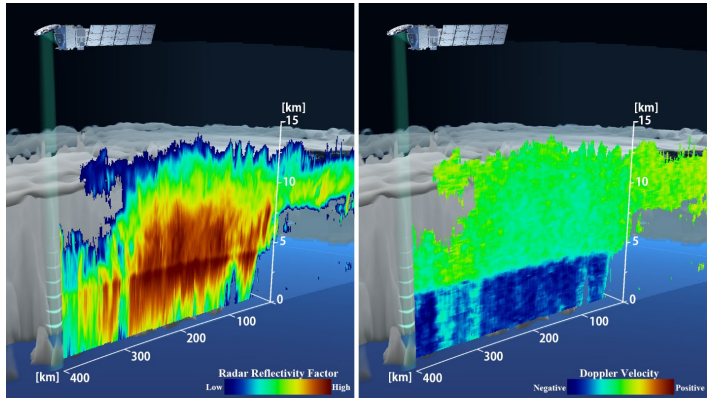
- Since the EarthCARE launch in May 2024, JAXA has been conducting the initial checkout and initial calibration/validation of the CPR, in collaboration with NICT and ESA.
- The nominal operation phase commenced in January 2025.

May 29, 2024 (JST) launch
Successfully launched by Falcon9, Space X



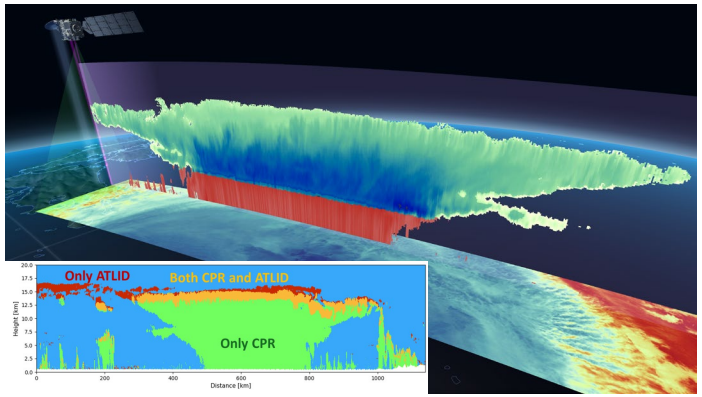
(c) ESA - S.Corvaja

June 27, 2024 CPR First Image
World's First: Cloud up/down motion captured from space!



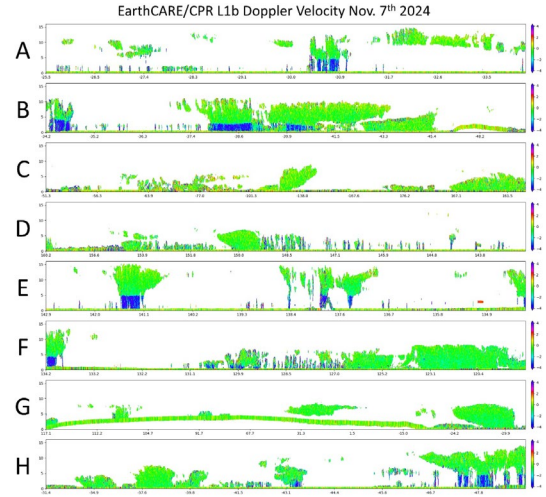
JAXA/NICT joint press-release
https://www.jaxa.jp/press/2024/06/20240627-1_j.html
https://www.nict.go.jp/press/2024/06/27-1.html

October 4, 2024
EarthCARE synergy observation cloud was released



https://www.satnavi.jaxa.jp/ja/news/2024/10/04/9923/index.html

January 14, 2025
EarthCARE L1 products were released to the public



JAXA/NICT joint press-release
https://www.jaxa.jp/press/2025/01/20250114-1_j.html
https://www.nict.go.jp/press/2025/01/14-1.html

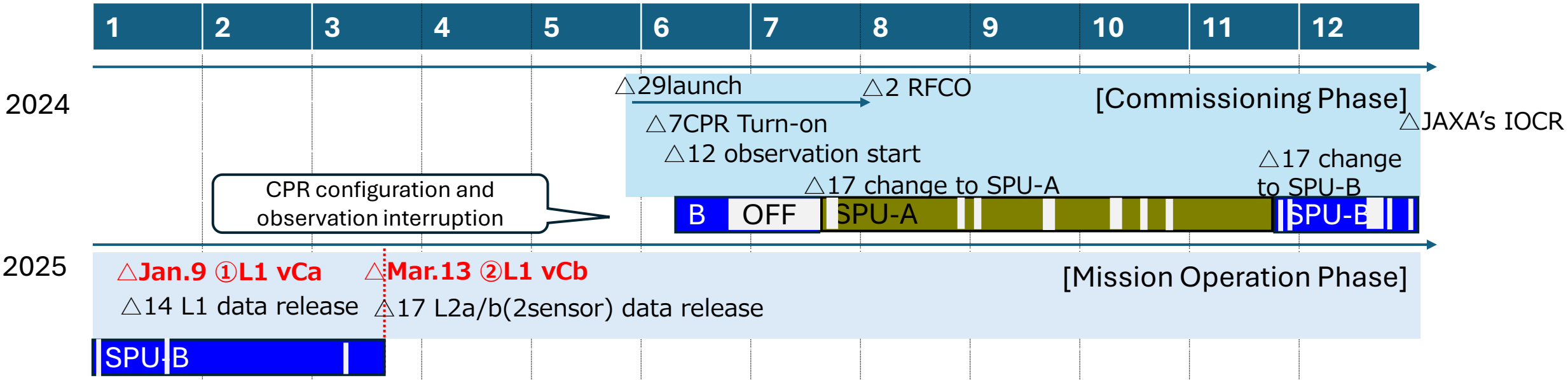
1. JAXA's Mission Status

- CPR: GREEN☑
  - CPR is working its observation nominally with pre-defined calibration operations.
  - No significant findings from HK trending are observed.
  - However, CPR observation is interrupted a few times per month.

- Ground Segment (Mission Operation System =MOS): GREEN☑
  - CPR planning and monitoring operations are nominal.
  - JAXA's data processing is also working nominally.
  - L1 products were released on 14 January 2025.
  - One-sensor L2a and two-sensor L2b products are just released on 17 March 2025.

2. CPR: Operation Status

- CPR observation has started from 12 June 2024 with HPT-B/SPU-B, which are prime subsystems.
- Due to the occurrence of HPT(high power transmitter)-OFF , CPR observation was interrupted several times(white part in below chart), and SPU was switched to SPU-A from July to November 2024.
- JAXA/NICT performs CPR Calibrations (Internal-Cal, External-Cal. and Sea Surface Cal.) routinely, then CPR calibration factor was tuned in L1b in ①vCa Jan.9 and ②vCb Mar.13 2025
- CPR operational status and relevant information that data users should be aware of are summarized in the data release note. → https://www.eorc.jaxa.jp/EARTHCARE/data/prd_list_std_e.html



3. CPR: Observation Interruption by HPT OFF

- Frequency of Interruptions: CPR observation is interrupted about a few times a month.
- Estimated cause:
  - Instantaneous body current caused by floating atoms inside the Klystron makes HPT to shut off as normal behavior.
  - The instantaneous body current caused by solar proton on orbit. The JAXA experts also consider that solar proton reaches low earth orbit in the polar regions corresponding with solar activity.
- Current countermeasure:
  - A recovery procedure has been prepared.
  - CPR observation is recovered by commands from ESA/ESOC operator.
- Additional countermeasure:
  - To reduce the observation interruptions, JAXA plans to implement auto-restart function into onboard software instead of relying on commands from a ground operator.
  - This onboard software update operation will be coordinated with ESA and performed in April 2025.

4. MOS: Processing Status

- CPR L1b
  - Baseline vCa was released on 14 January 2025.
  - Reprocessed vCa data from CPR observation start (2024/6/12) is also available.
  - The calibration factor was updated as vCb on 13 March 2025.
- JAXA one-sensor L2a and two-sensor L2b
  - L2a/L2b products were released to the public on 17 March 2025.
  - Reprocessed data will be made available progressively.
- Data Latency
  - The data timeliness meets the requirement. For example, more than 60% of L1 data should be available within 3.1hrs from the on-board sensing as nominal case. The average latency for nominal case is around 1.5 hrs.

Product ID	Baseline version
CPR_NOM_1B	vCb
CPR_ECO_2A	vBa
CPR_CLP_2A	vBa
ATL_CLA_2A	vBa
MSI_CLP_2A	vBa
AC__CLP_2B	vBa
ACM_CLP_2B	In preparation
ALL_RAD_2B	In preparation

5. MOS: Data Dissemination

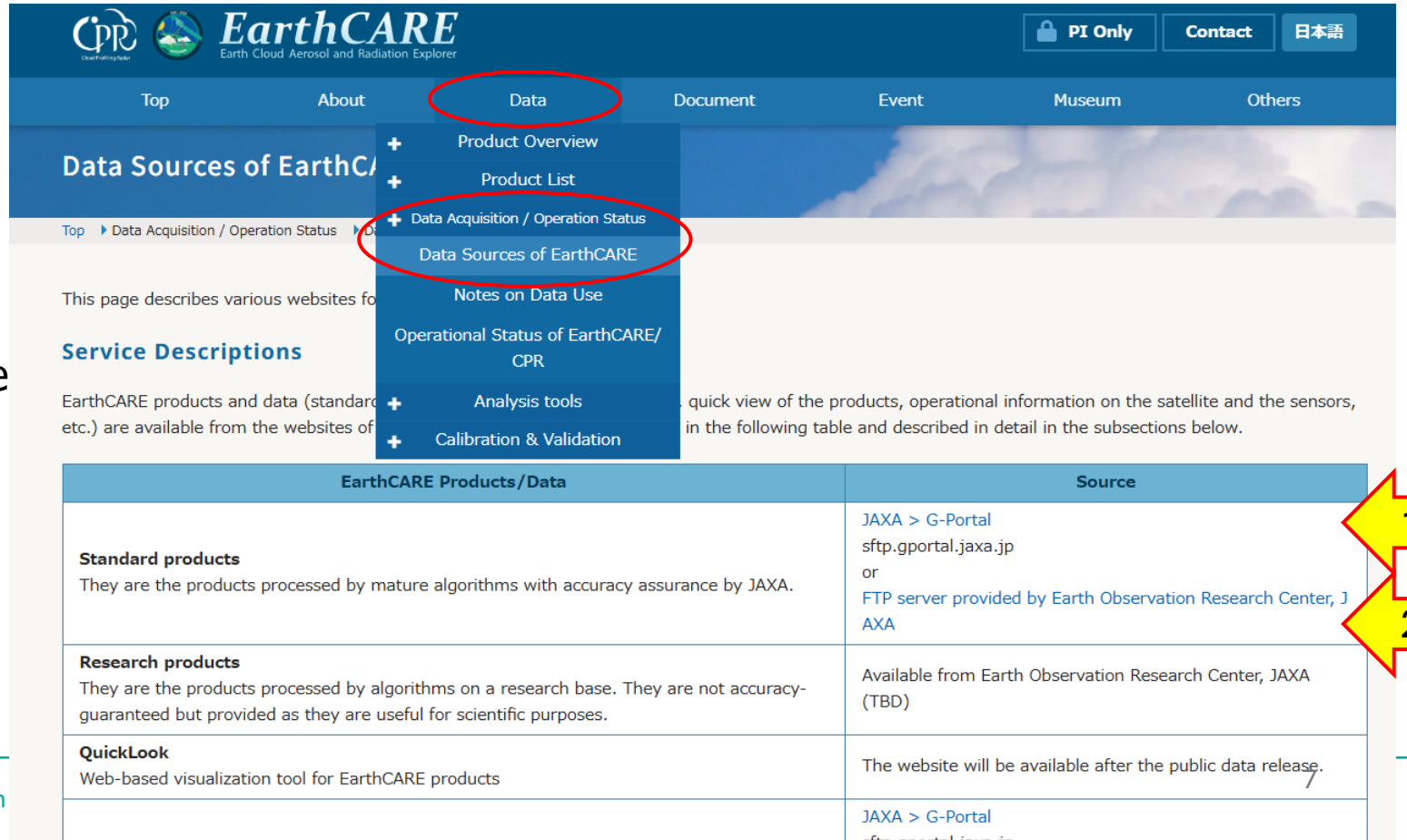
- EarthCARE product is available from both ESA and JAXA.
- You can access data from top page of JAXA/EORC EarthCARE;
  - ➢https://www.eorc.jaxa.jp/EARTHCARE/index.html

    Data> Data Acquisition/Operation Status > Data Sources of EarthCARE

There are two options;

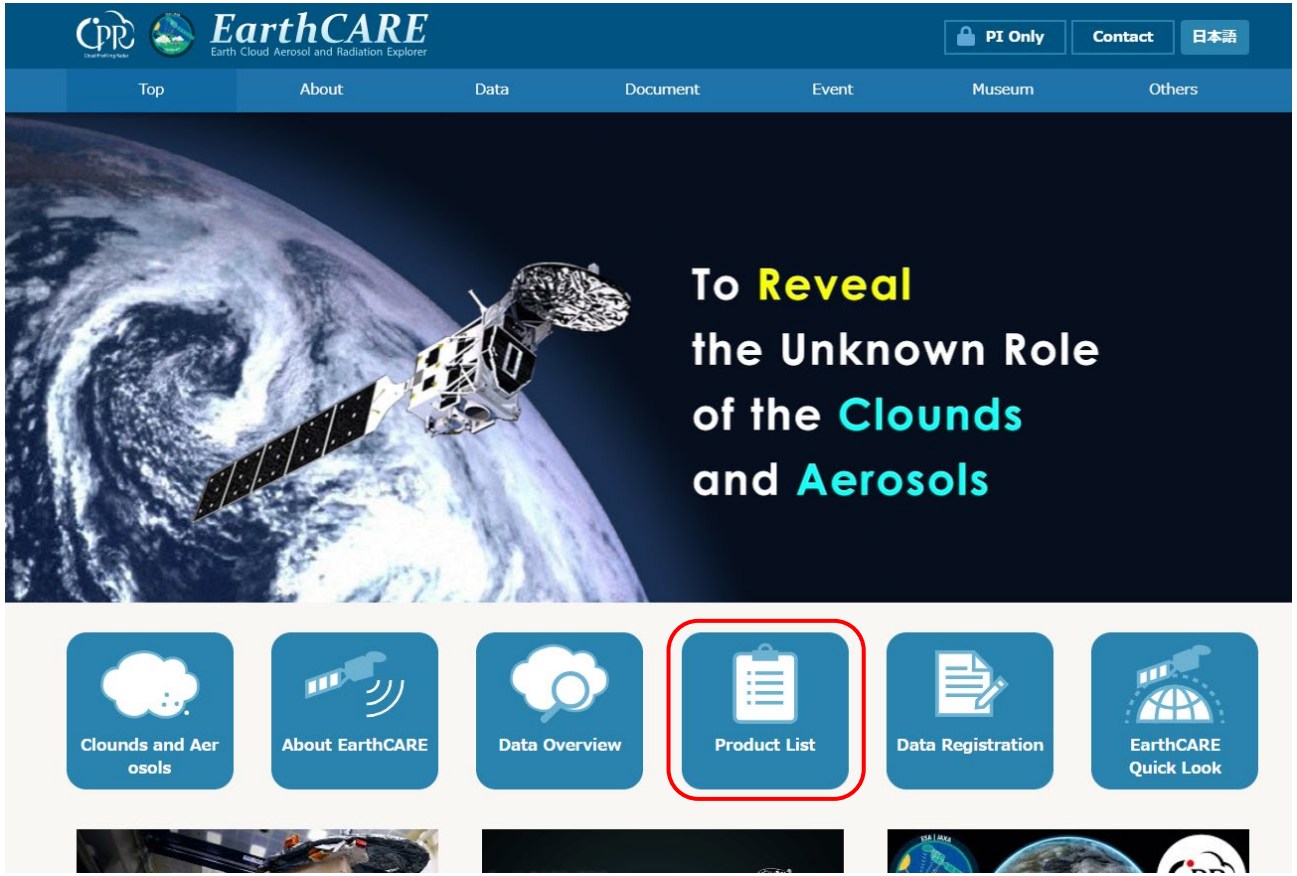
1) G-Portal REPO
2) EORC SFTP Server

Tentative alternative REPO service will end by the end of April.
The original G-Portal will resume on 1st April 2025.
The link will be updated soon.
FTP/SFTP and the data refining-search by physical parameters or area will be functional.



6. MOS: Data Utilization Guide

- The following documents for both L1 and L2 are available from the Product List on the EORC/EarthCARE website.
  - ATBD
  - Data format specification (PDD)
  - Release Note(caveats/disclaimer)
  - DOI



Let's enjoy utilizing EarthCARE data!