

SEC-2023042



# ESA-JAXA Pre-Launch EarthCARE Science and Validation Workshop

13 – 17 November 2023 | ESA-ESRIN, Frascati (Rome), Italy

## EarthCARE/CPR Project Status

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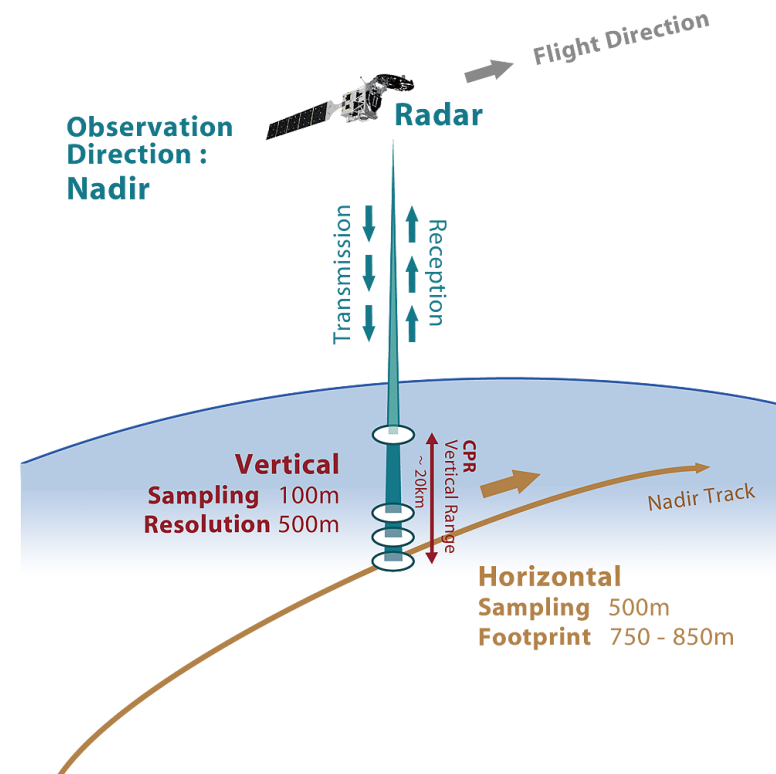
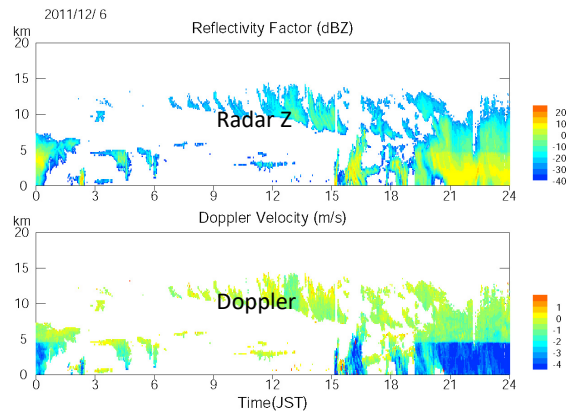
# 1. EarthCARE/CPR Overview



## CPR

The first space-borne cloud radar with Doppler velocity measurement capability.

- ✓ W-band (94GHz) nadir-pointing
- ✓ Doppler capability (accuracy 1.3m/s)
- ✓ Antenna aperture 2.5m
- ✓ Variable PRF : 6100-7500Hz
- ✓ Sensitivity : -35dBZ at 20km height



## 2. CPR Development Status

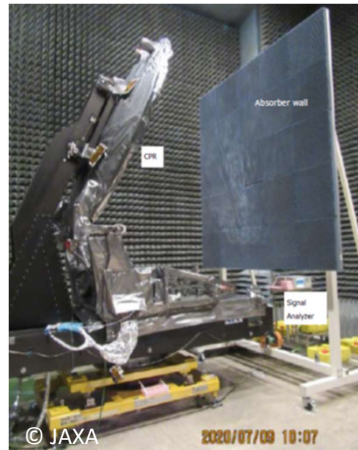


### CPR development status

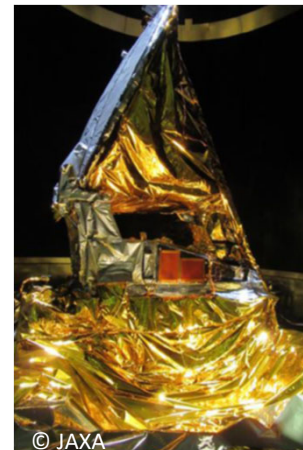
- ✓ CPR development started in 2008 and CDR completed in 2013.
- ✓ The CPR proto-flight tests campaign completed in 2017.
- ✓ The CPR has been handed over to ESA finally in 2022.
- ✓ The CPR has been integrated onto the EarthCARE spacecraft.



Vibration test



Electrical performance test



Thermal vacuum test



CPR PFM integrated to the S/C  
@ESTEC

## 2. CPR Development Status



### CPR development status

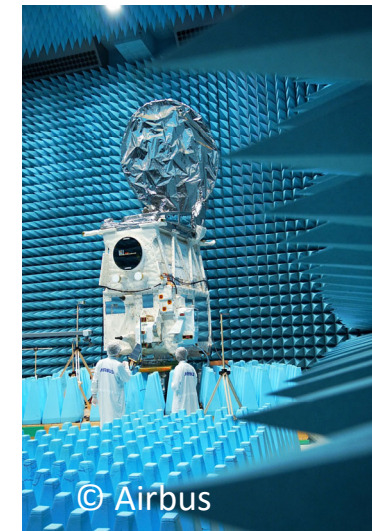
- ✓ The CPR has maintained its expected performance over the spacecraft level test campaign.
- ✓ The EarthCARE is under final preparation for the launch site activity.



Acoustic noise test @ ESTEC



Solar array deployment @ ESTEC



EMC test @ ESTEC



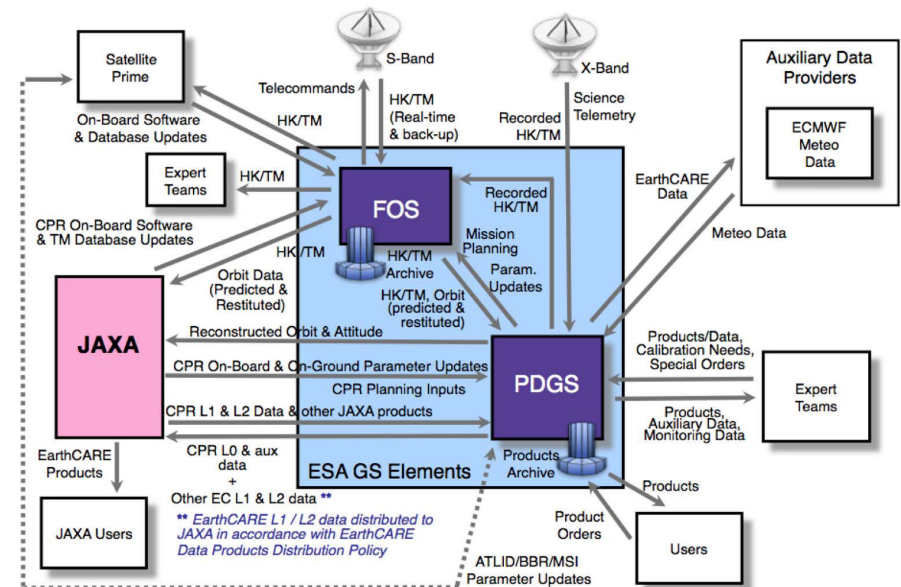
- ✓ A spare High Power Transmitter is prepared as a back-up and stored in ESTEC.

# 3. Ground Segment Development



## Ground Segment

- EarthCARE will be operated by ESA Flight Operations Segment (called FOS).
- The observation data of EarthCARE will be received by ESA Ground Segment (called PDGS).
  - ✓ JAXA Mission Operation System verification is completed in 2022.
  - ✓ GS Validation Test between ESA and JAXA is completed in October 2023.
  - ✓ JAXA GS review is planned in December 2023.



## 4. Preparation status for the launch and commissioning



### Launch preparation

- ✓ JAXA space segment development completion review was completed.
- ✓ The launch site preparation plan of the CPR is under final confirmation.

### JAXA initial operation team

- ✓ JAXA is preparing CPR initial operation as member of Integrated Commissioning Team organized by ESA.
- ✓ The Integrated Commissioning Team has already kicked-off the joint activity between ESA and JAXA toward the EarthCARE launch and operation.
- ✓ JAXA also preparing JAXA inside team which consists of JAXA high level management, JAXA CPR project team, ground segment development team, the project scientist, the scientific validation leader, and communication officers.
- ✓ This team allow the CPR launch and commissioning activities to be handled smoothly.

## 5. Conclusions



All work related to CPR is proceeding according to the plan toward launch and the realization of the EarthCARE mission.

Thank you for your attention!