Earth observation satellite data processing for EarthCARE/CPR

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Abstract

The data from the Earth observation satellites "EarthCARE", which launched in May, 2024.To perform reprocessing accompanying algorithm upgrade of data.

These data are very important for clarifying the behavior of clouds and aerosols, which greatly affect the Earth system, and the mechanism of the effects of clouds and aerosols on the global climate, and contributing to the improvement of the accuracy of climate change prediction by incorporating the obtained knowledge into numerical climate models or by using it for the evaluation of numerical climate models.

Ref. URL: https://www.eorc.jaxa.jp/EARTHCARE/index.html

Reasons and benefits of using JAXA Supercomputer System

EarthCARE project utilizes JSS3 as one of the EarthCARE Mission Operation System which processes the observation data of EarthCARE. When processing algorithm is updated, JSS reprocesses all data observed in the past. Also, JSS2 is used as a remote storage of all data required for its reprocessing.

As the reprocessing targets of EarthCARE products extends to all data observed in the past, more computer resources (core, memory, storage, etc.) are required than in the real-time processing.

It is necessary to use JSS3 to shorten the reprocessing time and to provide the reprocessing products to EarthCARE users in a more timely manner.

Achievements of the Year

We have been transmitting L0 data from the EarthCARE Mission Operation System to JSS3 in preparation for reprocessing of L1 products on JSS3 since observation by CPR and ATLID and MSI and BBR.

In addition, construction of a reprocessing environment was carried out for the reprocessing which will be started in FY 2025.

The latest processors were introduced into the constructed environment, and it was confirmed that the reprocessing products were generated as expected.

Publications

N/A

Usage of JSS

Computational Information

Process Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	20 Minute(s)

JSS3 Resources Used

Fraction of Usage in Total Resources[*1](%): 0.01

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	4,090.45	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	0.00	0.00
TOKI-TST	0.00	0.00
TOKI-TGP	0.00	0.00
TOKI-TLM	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2] (%)
/home	15.00	0.01
/data and /data2	114,280.00	0.55
/ssd	0.00	0.00

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage*2 (%)
J-SPACE	55.67	0.18

*1: Fraction of Usage in Total Resources: Weighted average of three resource types (Computing, File System, and Archiver).

*2: Fraction of Usage：Percentage of usage relative to each resource used in one year.

- **ISV Software Licenses Used**

ISV Software Licenses Resources		
	ISV Software Licenses Used (Hours)	Fraction of Usage*2 (%)
ISV Software Licenses (Total)	0.00	0.00

*2: Fraction of Usage：Percentage of usage relative to each resource used in one year.