Research for MOLI project

● **Responsible Representative**

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● **Contact Information**

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● **Abstract**

MOLI mission has no real-time processing requirements for observation data handling, and the HDD containing observation data is transported by hand-carry from the ISS. The project team will consider the necessary studies to move from the pre-production period to the priority use at the same time as the project transition.

Ref. URL: https://www.kenkai.jaxa.jp/research/moli/moli-index.html

● **Reasons and benefits of using JAXA Supercomputer System**

In processing satellite observation data, even complex algorithms can be processed at high speed by dividing and processing the data.

In addition, we expect that JSS, which is equipped with many nodes with high-performance GPUs, will be able to complete the deep learning process using large amounts of data in real time.

● **Achievements of the Year**

For the study of global high-precision biomass estimation, which is the final goal of the MOLI mission, we studied the fusion of observation data from GCOM-C/SGLI and the GEDI mission, which is a space lidar in operation.

By using the computational resources of JSS, we were able to achieve global-level data fusion processing in a short period of time. This result was released to the public as GCOM-C/SGLI AGB product Ver. 3.

https://suzaku.eorc.jaxa.jp/GCOM_C/data/update/Algorithm_AGB_en.html

🔵 **Publications**

N/A

🔵 **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	4 - 10
Elapsed Time per Case	12 Hour(s)

● **JSS3 Resources Used**

Fraction of Usage in Total Resources[*1](%): 0.46

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	3,108,225.24	3.83
TOKI-GP	64.81	0.04
TOKI-XM	0.00	0.00
TOKI-LM	46,711.33	3.48
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	10.00	0.01
/data and /data2	112,690.00	1.20
/ssd	100.00	0.03

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2](%)
J-SPACE	82.98	0.56

[*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.