

Examination of ISAS's scientific satellitedata processing using JSS

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● Abstract

Examine and demonstrate technologies for parallel processing of scientific satellite data at ISAS.

● Reasons and benefits of using JAXA Supercomputer System

The resources required for fast data reprocessing are increasing due to the sophistication of observation equipment and longer operations.

● Achievements of the Year

Based on the digital altitude data (60,000 files, approx. 2 TB) of the lunar surface acquired by KAGUYA by around 2009, we processed the data into GeoTiff and CloudOptimizedGeotiff (COG). We added settings to access a database of engineering data from scientific satellites and probes, and prepared to apply anomaly detection analysis using machine learning.

● Publications

- Peer-reviewed papers

"Development of HEALPix-based KAGUYA's lunar digital elevation database and data provision system", KOBAYASHI, Nene; KAJIURA, Rio; NAKAHIRA, Satoshi; YAMAMOTO, Yukio; UCHIDA, H., Akihito; EBISAWA, Ken; Journal of Space Science Informatics Japan: (Accepted on 2023 Nov)

● Usage of JSS

● Computational Information

Process Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	10 Hour(s)

● JSS3 Resources Used

Fraction of Usage in Total Resources*1(%): 0.00

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage*2(%)
TOKI-SORA	0.00	0.00
TOKI-ST	16,901.12	0.02
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	22.50	0.02
/data and /data2	17,861.67	0.11
/ssd	2,416.33	0.23

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage* ² (%)
J-SPACE	6.81	0.02

*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.