

Orbit Determination Analysis Operation Tool for Spiral Orbit Raising Phase

Report Number: R22EAUB0500

Subject Category: Space and Astronautical Science

URL: <https://www.jss.jaxa.jp/en/ar/e2022/20771/>

Responsible Representative

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Abstract

Perform Monte Carlo simulations of orbit planning and orbit determination operations during the spiral orbit raising phase of DESTINY⁺.

Ref. URL: <https://destiny.isas.jaxa.jp/>

Reasons and benefits of using JAXA Supercomputer System

Parallel computation is possible, thus reducing analysis time.

Achievements of the Year

Monte Carlo simulations of orbit planning and orbit determination operations during the spiral orbit raising phase of DESTINY⁺ are being conducted to evaluate the required ground station path assignment, ground station observation volume, IES outage period required for acquisition operations, and the consistency rate between long-term and short-term station adjustments, which will be reflected in the spacecraft operation design.

Publications

N/A

Usage of JSS

Computational Information

Process Parallelization Methods	Parallelization in the process control shell
Thread Parallelization Methods	N/A
Number of Processes	1 - 108
Elapsed Time per Case	240 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	1,055.44	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	45.00	0.04
/data and /data2	3,150.00	0.02
/ssd	250.00	0.03

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage*2 (%)
J-SPACE	0.00	0.00

*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.