

Predictive Analysis of Toxic Gas Dispersion

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Subject Category: Space Technology

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● Abstract

To improve the accuracy of analysis assuming an accident at the time of a launch of a key launch vehicle. During the launch of a key launch vehicle, propellant leakage due to satellite drop, etc., is considered to cause the diffusion of gases harmful to the human body. The scope of the impact is evaluated and appropriate personnel control/notification and communication plans are made. By improving the accuracy of the analysis, we will examine whether it is possible to reduce the extent of the impact and contribute to the reduction of the impact on the area around the launch site.

● Reasons and benefits of using JAXA Supercomputer System

The use of JAXA's supercomputer satisfies the above needs and has the advantage that the trials can be repeated in JAXA's in-house laboratory.

● Achievements of the Year

Analysis of hazardous gas diffusion in the plains and its evaluation were conducted.
Tanegashima Island topography was read.

● Publications

N/A

- **Usage of JSS**

- **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	1 - 2
Elapsed Time per Case	10 Minute(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	619.36	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	177.68	0.01
TOKI-TST	1,184.61	0.02
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	0.00	0.00
/data and /data2	0.00	0.00
/ssd	0.00	0.00

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)	23.02	0.02

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