

Global Terrestrial Hydrological Simulation System "Today's Earth"

Report Number: R24EER20200

Subject Category: Space Technology

URL: <https://www.jss.jaxa.jp/en/ar/e2024/26782/>

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● Abstract

Today's Earth is the global terrestrial hydrological simulation system to estimate various hydrological variables relating to the conditions of land surface and rivers utilizing satellite observation, developed under the joint-research of the JAXA and the University of Tokyo. In this project, long-term reprocessing of the past period of the system and development study of a future high-resolution simulation system for the global 10 km or more will be conducted on JSS.

● Reasons and benefits of using JAXA Supercomputer System

It is possible to perform large-scale processing that is difficult to execute on an EORC server, such as long-term reprocessing of past periods and the development of high-resolution simulation systems with a global resolution of 10 km or more.

● Achievements of the Year

Continuing from the previous fiscal year, the integrated land model ILS (Integrated Land Simulator) used in the simulation of the Today's Earth system was upgraded to a global resolution of 0.1 degrees, which is necessary for long-term reprocessing of past periods and for the development of high-resolution simulation systems. We confirmed the normal operation and the validity of the output results on JSS3 by constructing the environment to match the version of the actual operational environment in the EORC environment.

● Publications

N/A

● Usage of JSS

● Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	100
Elapsed Time per Case	70 Minute(s)

● JSS3 Resources Used

Fraction of Usage in Total Resources*1(%): 0.02

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage*2(%)
TOKI-SORA	147,285.33	0.01
TOKI-ST	0.00	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	1,024.00	0.69
/data and /data2	110,955.00	0.53
/ssd	30,720.00	1.65

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage* ² (%)
J-SPACE	16.81	0.05

*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.