

Global Terrestrial Hydrological Simulation System "Today's Earth"

Report Number: R22EER20200

Subject Category: Space Technology

URL: <https://www.jss.jaxa.jp/en/ar/e2022/20856/>

● Responsible Representative

Kosuke Yamamoto, Space Technology Directorate I, Earth Observation Research Center

● Contact Information

Today's Earth Research and Development Group(Z-watercnt@ml.jaxa.jp)

● Members

Takafusa Andoh, Tomohiko Higashiawatoko, Misako Kachi, Takuji Kubota, Ryosuke Kakuda, Yukihiro Onuma, Kazuhiro Sakamoto, Kei Yoshimura, Haruya Yoshikawa, Kosuke Yamamoto

● 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

Prepared for the long-term reprocessing of past periods and the development of a high-resolution simulation system with a global resolution of 10 km or more. ILS (Integrated Land Simulator) which is the integrated model of land surface model MATSIRO and river hydrodynamics model CaMa-Flood used in Today's Earth system was run on JSS3 and the output was confirmed to be consistent with the output in a conventional environment.

● Publications

N/A

● Usage of JSS

● Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	24
Elapsed Time per Case	4 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	100.09	0.00
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	61.67	0.06
/data and /data2	616.67	0.00
/ssd	616.67	0.09

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage* ² (%)
J-SPACE	16.81	0.07

*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.