

CFD analysis of wind fields around regional airports

Report Number: R22EEA10100

Subject Category: Aeronautical Technology

URL: <https://www.jss.jaxa.jp/en/ar/e2022/20851/>

● Responsible Representative

Atsushi Kanda, Hub Manager, Aviation Safety Innovation Hub.

● Contact Information

Midori Maki(maki.midori@jaxa.jp)

● Members

Midori Maki

● Abstract

Database construction for wind forecasting system around airports

● Reasons and benefits of using JAXA Supercomputer System

This is an outdoor terrain-dependent wind analysis of tens of millions of grids, and the use of a supercomputer is essential.

● Achievements of the Year

Using OpenFOAM, a mesh of regional airport at low-levels was created and wind LES analysis was performed mainly around Wakkanai Airport.

● Publications

N/A

● Usage of JSS

● Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	1 - 144
Elapsed Time per Case	24 Hour(s)

● **JSS3 Resources Used**

Fraction of Usage in Total Resources*1(%): 0.05

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage*2(%)
TOKI-SORA	0.00	0.00
TOKI-ST	417,334.10	0.42
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	6,577.13	0.44
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	100.00	0.09
/data and /data2	6,144.00	0.05
/ssd	1,024.00	0.14

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.