Multivariate time series data analysis

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Abstract

Knowledge extraction techniques for large datasets are important because the computers and numerical simulation techniques have been highly developed and they are producing a huge amount of data. In this study, we have been developing knowledge extraction tools which extract patterns from large data obtained by unsteady fluid simulations and experiments.

Reasons and benefits of using JAXA Supercomputer System

To perform large-scale data analysis utilizing the large memory capacity and massively parallel simulations.

Achievements of the Year

We conducted three-dimensional unsteady flow simulations, including the buffet phenomenon. Currently, we are utilizing the results obtained from the simulations to develop data analysis techniques for non-periodic and intermittent phenomena, and to advance understanding of these phenomena.

Publications

N/A

Usage of JSS

Computational Information

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	100 - 144
Elapsed Time per Case	60 Hour(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	448,370.76	0.02
TOKI-ST	196.33	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	390.42	0.03
TOKI-TST	1.29	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	217.78	0.18
/data and /data2	23,280.00	0.14
/ssd	0.00	0.00

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2] (%)
J-SPACE	3.51	0.01

[*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)	2.43	0.00

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