# Atmospheric Environmental Monitoring Simulation

## ● Responsible Representative

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## ● Abstract

This project is aimed at development of an integrated system of numerical modeling and satellite observation of air pollution for its reliable monitoring and prediction. Specially, an atmospheric air pollution transport model (NICAM-Chem) with a data assimilation technique using atmospheric aerosol products retrieved from multiple satellite sensors such as GCOM-C/SGLI and EarthCARE/ATLID is developed for more accurate forecast of air pollution in high-resolution.

## ● Reasons and benefits of using JAXA Supercomputer System

In the project, we need to conduct numerical simulations and assimilations with higher spatial grid spacings over wide area for reliable monitoring and predictions of air pollutions over the region. This requires us to exploit high performance super computing resources of JAXA Supercomputer System (JSS) available at JAXA.

## ● Achievements of the Year

Due to the huge amount of numerical simulations and assimilation using a global high-resolution model, NICAM-Chem, we planned to use JSS, but we only performed test calculations on a relatively small supercomputer and did not use JSS this fiscal year, so there are no results on JSS.

## ● Publications

N/A

🔵 **Usage of JSS**

● **Computational Information**

| | |
|---|---|
| Process Parallelization Methods | MPI |
| Thread Parallelization Methods | Automatic Parallelization |
| Number of Processes | 1 - 2 |
| Elapsed Time per Case | 0.01 Second(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 | 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 | 490.00 | 0.33 |
| /data and /data2 | 10,140.00 | 0.05 |
| /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) | 0.00 | 0.00 |

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