Reserch of Vasitation Lidar data using HPC

● **Responsible Representative**

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● **Abstract**

To develop an analysis algorithm for vegetation lidar data, we calculate of vasitation lidar simulator and GPU computing using JSS2.

● **Reasons and benefits of using JAXA Supercomputer System**

By calculation on multiple nodes equipped with sufficient memory, the time required for iteration of lidar data proccesing algorithm development is reduced. In addition, we want to comfirm result of distributed deep learning using big remote sensing data.

● **Achievements of the Year**

In this fiscal year, the vegetation rider simulator developed by the Sensor Research Group was executed on JSS2, and more than 1 million cases of simulation could be executed in a short time. In addition, the simulation results were deep-learned using a GPU on the JSS, and a new data analysis algorithm was developed.

● **Publications**

N/A

● **Usage of JSS2**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	OpenMP
Number of Processes	1 - 4
Elapsed Time per Case	10 Hour(s)

● **Resources Used**

Fraction of Usage in Total Resources[1](%): 0.03

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage[2](%)
SORA-MA	0.00	0.00
SORA-PP	62,703.96	0.41
SORA-LM	0.00	0.00
SORA-TPP	292.88	0.02

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage*2(%)
/home	9.54	0.01
/data	9,813.31	0.17
/ltmp	1,953.13	0.17

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.