ALOS-2 / PALSAR-2 data processing for the entire observation period

● Responsible Representative

Sobue Shin-ichi,Associate Chief office of Earth Observation Missions,Space Technology Directorate I

● Contact Information

Kudoh fumio(kudoh.fumio@jaxa.jp)

● Members

Risako Dan, Takashi Goto, Hidetoshi Hayasaka, Osamu Isoguchi, Koichi Imamura, Shun Ito, Fumio Kudoh, Hirotaka Kurokawa, Yasuhiro Kawashima, Shunsuke Murakami, Nobuhiro Muramoto, Taroh Mutoh, Toshimi Nakata, Katsuyuki Otsuka, Masahiro Ogawa, Hiroyuki Yokok

● Abstract

Processing the synthetic aperture radar (PALSAR / PALSAR-2) data acquired by the terrestrial observation technology satellites `` DAICHI '' and `` DAICHI-2 '' to generate user-friendly image products (Analysis Ready Data), Make an offer.

● Reasons and benefits of using JAXA Supercomputer System

JAXA is developing data disclosure to expand the use of earth observation satellite data.

As part of this, JAXA needs to process a large amount of data for the entire observation period of ALOS-2 / PALSAR-2, and quickly release user-friendly image data.

To achieve this, JSS2 processing was optimal, so we used it.(Up to 50 parallel processing)

● Achievements of the Year

PALSAR-2 North American ScanSAR (L1.1) processing 2014.08 ～ 2021.08

Provided to ABCI via a transmission relay server. Provided 369 scenes to Tellus.

On the way, L1.1 was changed from burst mode to full aperture mode (burst processing was reprocessed) and processed and provided.

Save L0 (ScanSAR, SM2, SM3) from ALOS-2 / EICS to J-SPACE. (2014 ～ 2022.02)

JJ Asia ScnaSAR (L1.1 + L2.1,9171 scene) processing

- 2014.08 ～ 2021.08

- 2021.09 ～ 2021.12 (changed to burst processing)

- L2.1 @ India, Bangladesh and Thailand have been provided to ISRO for 2020-2021 minutes.
African Great Rift Valley L1.1 processing 1845DLS, about 14,000 scenes, 792TiB

- Scheduled to be transmitted to AIST in 22 batches. (Set1,2 completed, Set3,4 ready for transmission (as of 2022.3 / 9))
NASA request processing

- Alaska unimak island (4 scenes), San Andrea (64 scenes, not included in AIST request), remaining North and South America west coast (6567DLS, 2019-2021:processing completed)
South America ScanSAR (L1.1) Approximately 4,000 Reproduct ID 2014.08-2018.12 processing
L1.1 processing throughout Italy (703 Reproduct ID)

- Provide 1.7TB (39 scenes) and 5.8TB (124 scenes) to each requesting company via Sakura Internet FTP server.

Processes L1.1 processing 359 Reproduct ID and 683 scenes in the Mekong Delta area and provides them to ESA.

Implementation of PALSAR-2 / L2.2 (slope gradient corrected ortho) program and consideration of speeding up

Implementation test of land cover classification code(using Singularity)

🔵 **Publications**

N/A

🔵 **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	N/A
Thread Parallelization Methods	OpenMP, pthread, boost::thread
Number of Processes	1
Elapsed Time per Case	30 Minute(s)

● **JSS3 Resources Used**

Fraction of Usage in Total Resources[*1](%): 0.26

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	1,823,446.73	2.25
TOKI-GP	184.26	0.12
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	276.67	0.28
/data and /data2	103,803.33	1.11
/ssd	1,336.67	0.35

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2](%)
J-SPACE	5,099.32	34.48

[*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.

- **ISV Software Licenses Used**