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

Report Number: R20EAR10600
Subject Category: Space Technology
URL: https://www.jss.jaxa.jp/en/ar/e2020/14242/

Responsible Representative

Sobue Shin-ichi, ALOS-2 Project Manager(Associate Principal Engineer),Space Technology Directorate I

Contact Information

Kudoh fumio(kudoh.fumio@jaxa.jp)

Members

Hidetoshi Hayasaka, Takashi Goto, Takashi Ikeda, Nobuhiro Muramoto, Kouji Hagiwara, Masahiro Ogawa, Shino Yamaguchi, Hiroyuki Yokokawa, Hirotaka Kurokawa, Shunsuke Murakami, Fumio Kudoh, Taroh Mutoh, Toshimi Nakata, Katsuyuki Otsuka

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.

Ref. URL: https://global.jaxa.jp/projects/sat/alos2/

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 350 parallel processing)

Achievements of the Year

Processing was carried out for the following period.

Period,region, observation mode,number of playback IDs

2014/8-9,Global except Antarctica,SM2/SM3/WB1/WB2,1915

2014/10-12,Global except Antarctica,WB1/WB2,1115

2015/1-2020/6,Cambodia,WB1/WB2,409

2015/1-4, Global, SM2, 1001

The test result was that the porting from JSS2 to JSS3 was carried out.

Ported from JSS2 to JSS3,

As a result, the speed is expected to increase as follows.

Processing instruction section 9:31:28 (JSS2) -> 2:11: 00 (JSS3)

Processing control unit 10:07:58 (JSS2) -> 7:18:44 (JSS3)

Product Registration Department 38:32:36 (JSS2) -> 17:36:59 (JSS3)

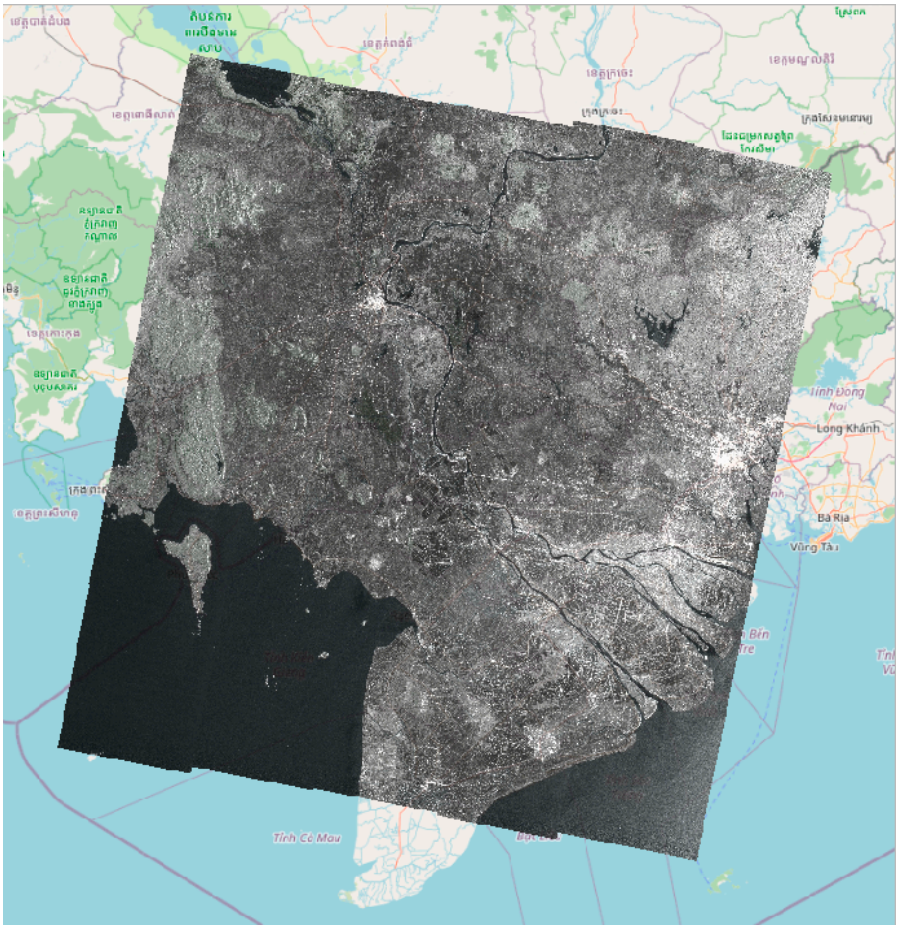

Fig. 1: PALSAR-2/WD1 L2.1@Cambodia (2015/1/16 observation, scene ID: ALOS2035053400-150116)

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)

- **Resources Used(JSS2)**

Fraction of Usage in Total Resources[*1](%): 0.15

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage[*2](%)
SORA-MA	0.00	0.00
SORA-PP	191,257.70	1.50
SORA-LM	6,945.83	4.08
SORA-TPP	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2](%)
/home	157.36	0.14
/data	50,296.81	0.97
/ltmp	13,085.94	1.11

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2](%)
J-SPACE	73.77	2.44

[*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.

- **Resources Used(JSS3)**

Fraction of Usage in Total Resources[*1](%): 0.09

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage[*2](%)
TOKI-SORA	0.00	0.00
TOKI-RURI	24,369.48	0.14
TOKI-TRURI	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2](%)
/home	246.37	0.17
/data	98,713.28	1.65
/ssd	866.25	0.45

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2](%)
J-SPACE	73.77	2.44

[*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.