

Utilization of JSS2 for AMSR-E higher level data processing

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● Abstract

AMSR-E*1, AMSR2*2 estimates various geophysical parameters by measuring radio waves in the weak microwave band radiated from the Earth's surface and the atmosphere with multiple frequencies and multiple polarizations.

Geophysical parameters include water vapor, cloud liquid water, precipitation, sea surface temperature, sea surface wind speed, sea ice concentration, snow water equivalent, and soil moisture.

The long-term geophysical record will play an important role in climate change monitoring and will provide valuable information for understanding the Earth's climate system, including water and energy circulation.

We will reprocess and provide AMSR-E high level product and AMSR2 high level product with the same algorithm (including improved algorithms), and provide a long-term data set useful for users.

*1: Advanced Microwave Scanning Radiometer for EOS equipped in Earth Observation Satellite 'Aqua'

*2: The Advanced Microwave Scanning Radiometer 2 equipped in Global Change Observation Mission - Water "SHIZUKU" (GCOM-W)

● Reasons for using JSS2

By using JSS2 with a large scalability processing environment and executing processing of enormous scenes in parallel, it becomes possible to provide products to users more quickly.

● Achievements of the Year

In this fiscal year, the improvement result of the algorithm shown in Table 1 was reflected in the reprocessing environment. We also conducted reprocessing of L2*3 and L3*4 products during the observation period.

AMSR-E reprocessed products will be released sequentially from the data provision system (G-Portal) from the begin of the next fiscal year.

*3: Product storing information on geophysical quantity which calculated through the physical quantity estimation algorithm. And the product is stored the position information of the data and the information on the quality.

Note that map projection of the geophysical quantity is not performed.

*4: Product mapped with time and spatial average values of geophysical quantities. The product is stored the daily average and monthly average global distribution of the brightness temperature and each physical quantity.

センサ名 (Sensor Name)	アルゴリズム名 (Algorithm name)	バージョン (Algorithm version)	プロダクトの作成 (Product creation)	プロダクト数 (Number of products)
AMSR-E	TPW(積算水蒸気量)	220	Yes (all observation periods)	98099(L2) 13986(L3)
	CLW(積算雲水量)	220	Yes (all observation periods)	98099(L2) 13986(L3)
	PRC(降水量)	210	No (Already processed)	-
	SST(海面水温)	300	Yes (all observation periods)	98099(L2) 13986(L3)
	SSW(海上風速)	300	Yes (all observation periods)	98099(L2) 13986(L3)
	SIC(海水氷接度)	300	Yes (all observation periods)	98099(L2) 27972(L3)
	SND(積雪深)	210	No (Already processed)	-
	SMC(土壌水分量)	300	No (Already processed)	-
	TB(輝度温度)	220	No (Already processed, L3 only)	-

Fig. 1: Reprocessing Product List

● **Publications**

N/A

● **Usage of JSS2**

● **Computational Information**

Process Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	3 Second (s)

● **Resources Used**

Fraction of Usage in Total Resources*1 (%): 0.08

Details

Computational Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage*2 (%)
SORA-MA	0.00	0.00
SORA-PP	6,891.46	0.06
SORA-LM	0.00	0.00
SORA-TPP	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage*2 (%)
/home	112.05	0.12
/data	108,052.30	1.91
/ltmp	10,421.32	0.89

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.