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 of 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 that had not been conducted last year.(AMSR2 : 2014/07/01 - 2016/12/31)

The product is under registration in the data provision system, and it is released as soon as registration is completed.

*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)	再処理実施期間 (period of reprocessing)	プロダクト数 (Number of products)
AMSR-E	TPW（積算水蒸気量）	210※	No（Scheduled for next fiscal year）	—	—
	CLW（積算雲水量）	210※	No（Scheduled for next fiscal year）	—	—
	PRC（降水量）	210	Yes (all observation periods)	2017/12/09 ～ 2017/12/10 (L2) 2017/12/11 ～ 2017/12/12 (L3)	98,099 (L2) 13,986 (L3)
	SST（海面水温）	300※	No（Scheduled for next fiscal year）	—	—
	SSW（海上風速）	300※	No（Scheduled for next fiscal year）	—	—
	SIC（海氷密接度）	300	No（Scheduled for next fiscal year）	—	—
	SND（積雪深）	210	Yes (all observation periods)	2017/12/09 ～ 2017/12/10 (L2) 2017/12/12 ～ 2017/12/14 (L3)	98,099 (L2) 27,972 (L3)
	SMC（土壌水分量）	300	Yes (all observation periods)	2017/12/09 ～ 2017/12/10 (L2) 2017/12/11 ～ 2017/12/12 (L3)	98,099 (L2) 13,986 (L3)
	TB（輝度温度）	220	Yes (L3 only)	2017/11/29 ～ 2017/12/03	293,706
AMSR2	TPW（積算水蒸気量）	210	No (Already released)	—	—
	CLW（積算雲水量）	210	No (Already released)	—	—
	PRC（降水量）	210	No (Already released)	—	—
	SST（海面水温）	300	Yes (Already released)	2017/05/08 ～ 2017/05/26 (L2) 2017/05/13 ～ 2017/05/26 (L3)	26,602 (L2) 3,780 (L3)
	SSW（海上風速）	300	Yes (Already released)	2017/05/23 ～ 2017/05/23 (L2) 2017/05/26 ～ 2017/05/26 (L3)	26,602 (L2) 3,780 (L3)
	SIC（海氷密接度）	300	Yes (Already released)	2017/05/29 ～ 2017/05/30 (L2) 2017/05/30 ～ 2017/05/30 (L3)	26,602 (L2) 3,780 (L3)
	SND（積雪深）	210	No (Already released)	—	—
	SMC（土壌水分量）	300	Yes (Already released)	2017/05/19 ～ 2017/05/19 (L2) 2017/05/25 ～ 2017/05/26 (L3)	26,602 (L2) 3,780 (L3)

※improved algorithm

Fig.1 Reprocessing Product List

● Publications

N/A

🔵 Usage of JSS2

● Computational Information

Parallelization Methods	N/A
Thread Parallelization Methods	N/A
Number of Processes	1
Elapsed Time per Case	5.00 seconds

● Resources Used

Fraction of Usage in Total Resources*1 (%): 0.10

Details

Computing Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage*2 (%)
SORA-MA	0.00	0.00
SORA-PP	21,975.67	0.28
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	148.48	0.10
/data	105,152.11	1.94
/ltmp	10,384.12	0.78

Archiver Resources		
Archiver System Name	Storage used(TiB)	Fraction of Usage*2 (%)
J-SPACE	0.49	0.02

*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