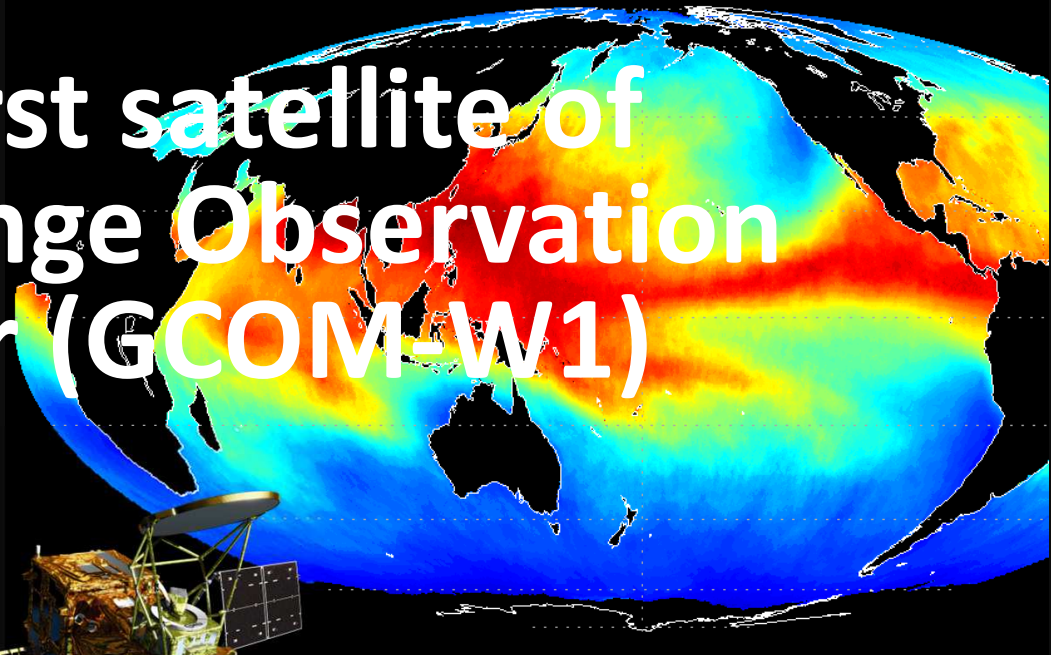


Status of the first satellite of the Global Change Observation Mission - Water (GCOM-W1)



*The 9th AWCI International Coordination
Group Meeting
29th – 30th September 2012
JAXA EORC/SAPC*

Current Status and Schedule

- **2012.5.18** GCOM-W1 (SHIZUKU) was launched
- **2012.6.29** Join A-Train orbit
- **2012.7.03** Start AMSR2 observation from A-Train orbit
- **2012.7.04** Release of AMSR2 observation images
- **2012.8.10** Initial functional verification completed
- **2012.8.31** Preliminary L1 delivery to PI and related agencies
- **2012.9.30** *Preliminary L2 delivery to PI and related agencies*
- **2013.1** *L1 public release*
- **2013.5** *L2 public release*

GCOM-W1

Global Change Observation Mission 1st- Water



AMSR2 Instrument



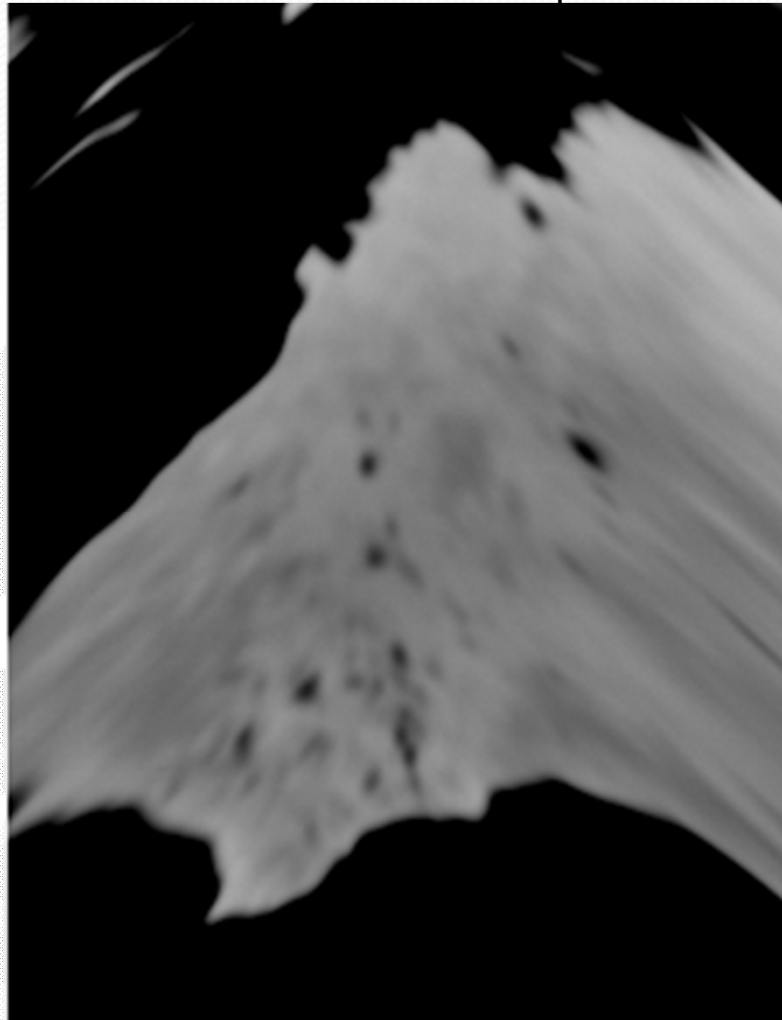
- Successor of AMSR-E on Aqua and AMSR on ADEOS-II.
- Deployable main reflector system with 2.0m diameter (1.6m for AMSR-E).
- Frequency channel set is identical to that of AMSR-E except 7.3GHz channels for helping RFI identification.
- Two-point external calibration with improved HTS (hot-load).
- Add a redundant momentum wheel to increase reliability.

GCOM-W1/AMSR2 characteristics	
Scan and rate	Conical scan at 40 rpm
Antenna	Offset parabola with 2.0m dia.
Swath width	1450km (> 1600km effective)
Incidence angle	Nominal 55 degrees
Digitization	12bits
Dynamic range	2.7-340K
Polarization	Vertical and horizontal

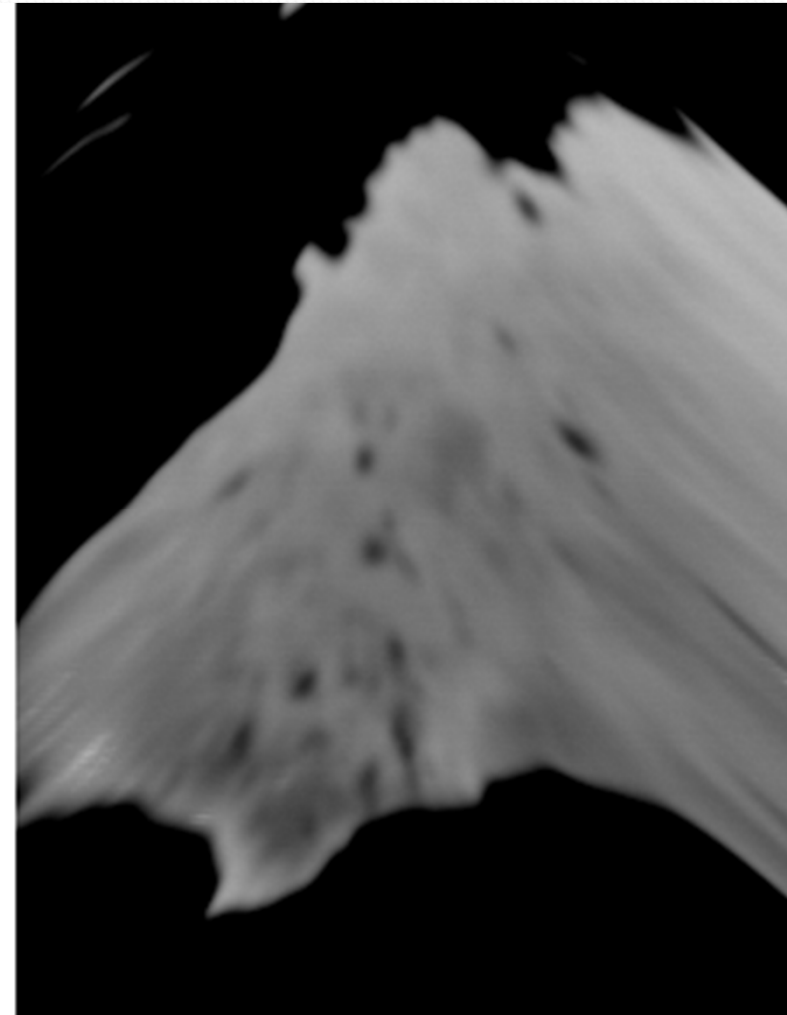
AMSR2 Channel Set				
Center Freq.[GHz]	Band width [MHz]	Pol.	Beam width [deg] (Ground res. [km])	Sampling interval [km]
6.925/7.3	350	V and H	1.8 (35 x 62)	10
10.65	100		1.2 (24 x 42)	
18.7	200		0.65 (14 x 22)	
23.8	400		0.75 (15 x 26)	
36.5	1000		0.35 (7 x 12)	5
89.0	3000	0.15 (3 x 5)		

Spatial Resolution

AMSR2 6.9GHz H-pol



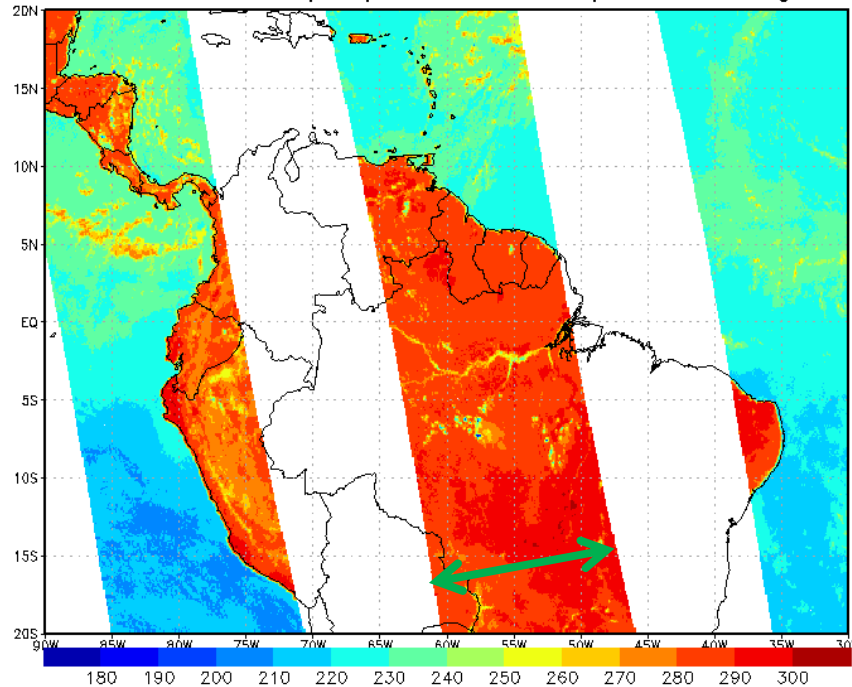
AMSR-E 6.9GHz H-Pol



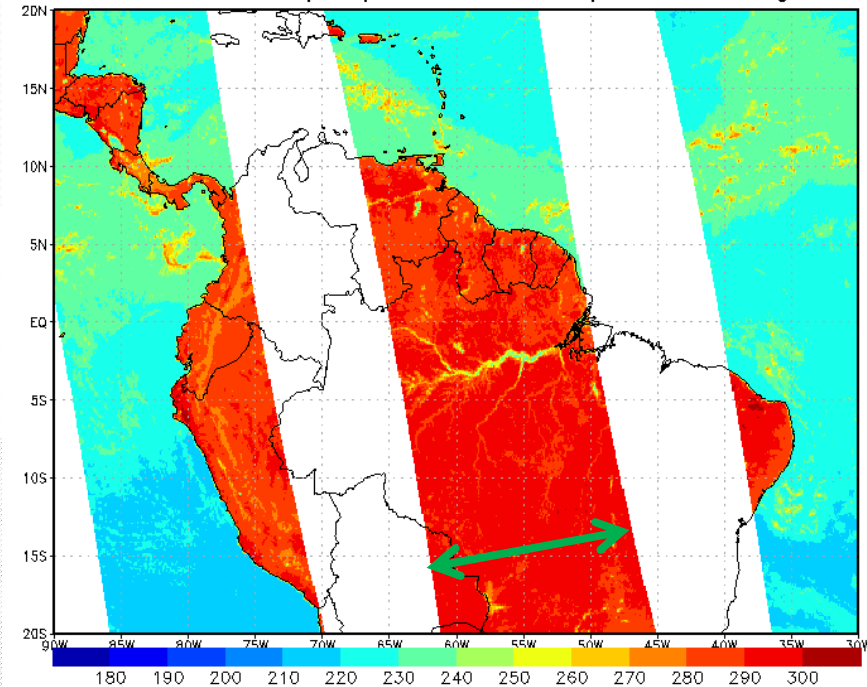
Increase of antenna size (1.6 to 2.0 m) resulted in around 18% improvement in spatial resolution at 6.9 GHz channels.

Increase of Swath Width

AMSR-E 2011/09/24 36.5GHz Vpol Ascending



AMSR2 2012/07/24 36.5GHz Vpol Ascending



AMSR-E:1457.8km

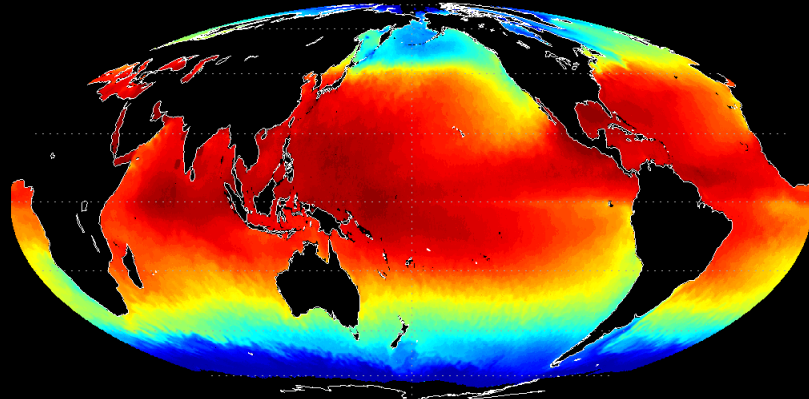
AMSR2:1617.6km

- AMSR2 Level-1B and -1R products retain all scan points from Level-1A product, resulting in the increase of swath width.
- Nominal swath width (instrument assured) is still 1450km, but effective swath width is wider than 1600km after scan-bias correction.

Monthly Mean Samples (un-validated)

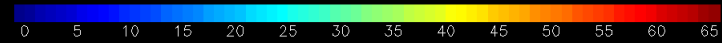
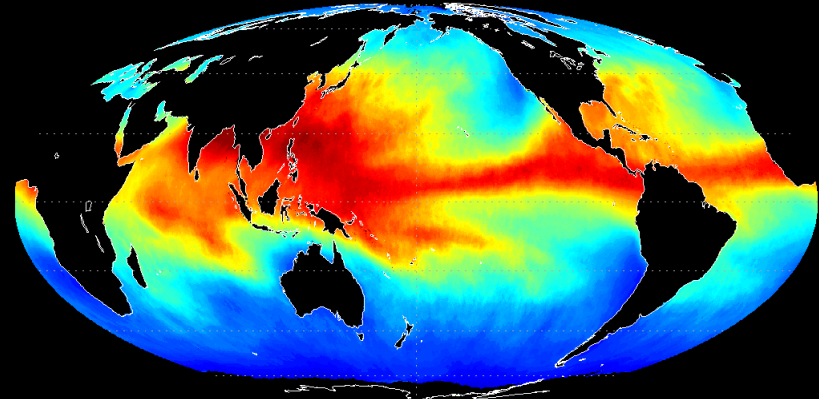
SST

Sea Surface Temperature [deg.C] Jul.15–Aug.14, 2012



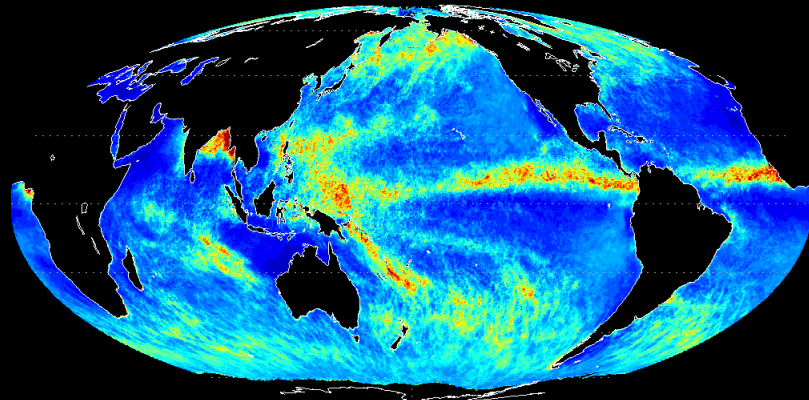
Total Precipitable Water

Total Precipitable Water [mm] Jul.15–Aug.14, 2012



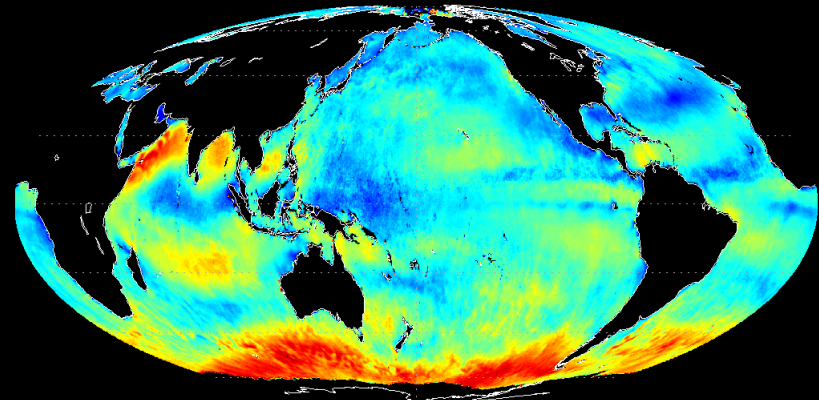
Cloud Liquid Water

Cloud Liquid Water [mm] Jul.15–Aug.14, 2012

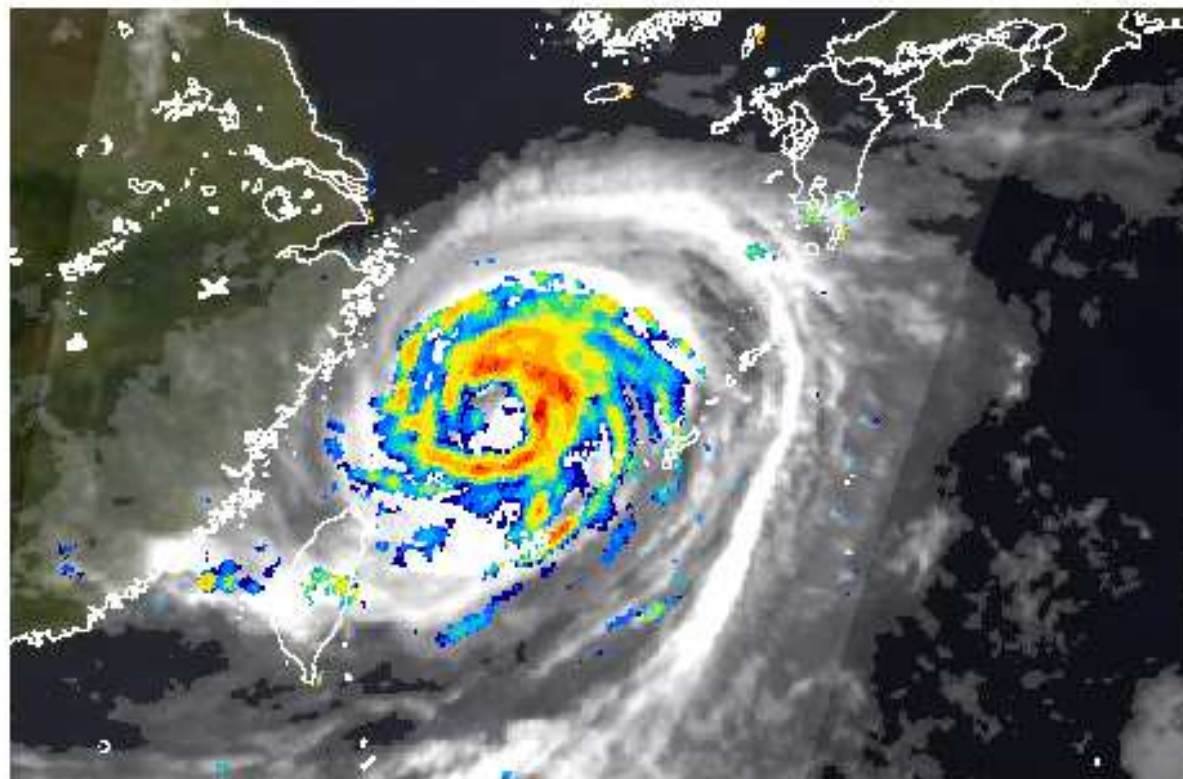


Wind Speed

Sea Surface Wind Speed [m/s] Jul.15–Aug.14, 2012



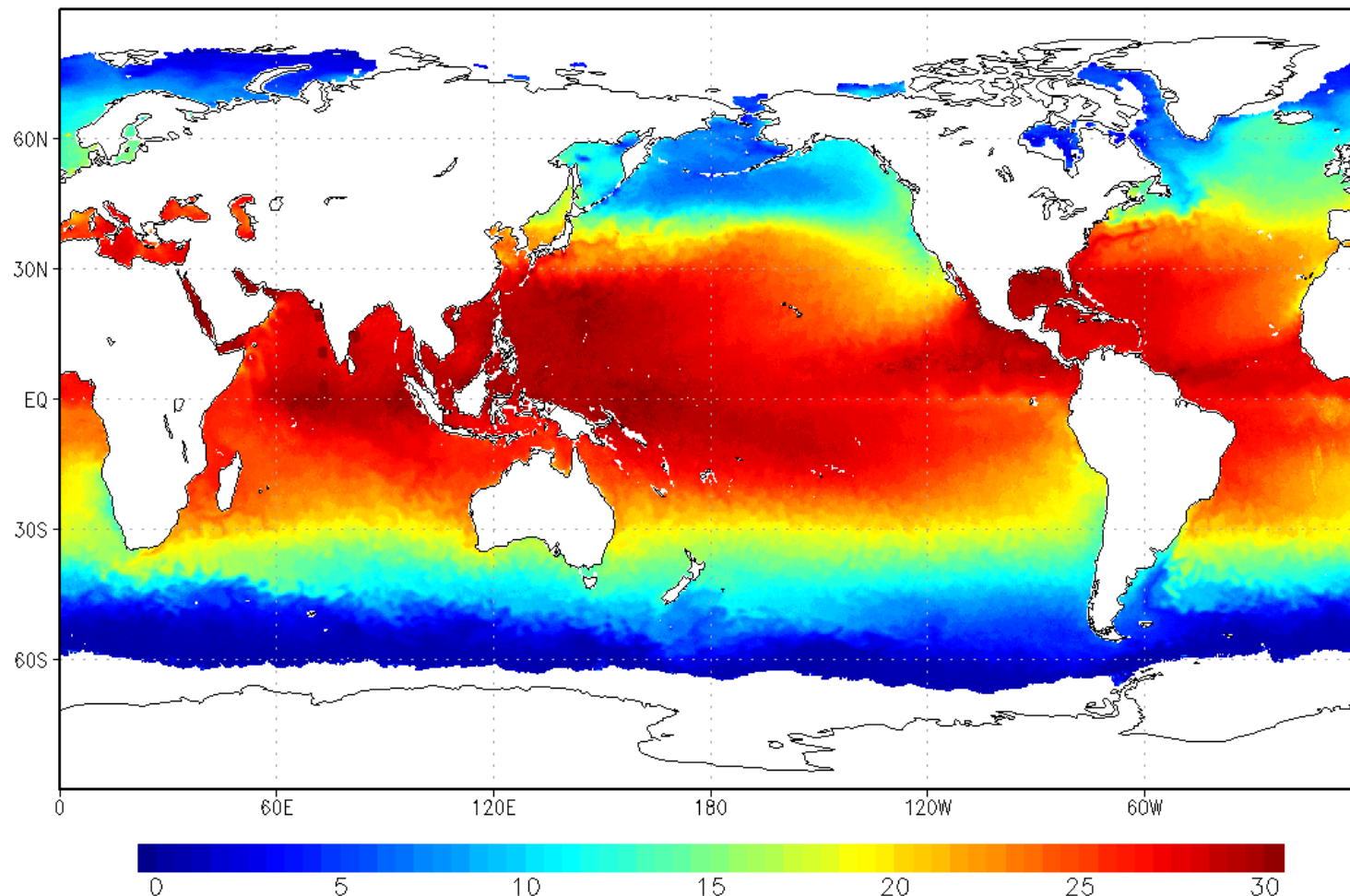
AMSR2 Rainfall of Typhoon No.11



Weak  Heavy

Rainfall of Typhoon No.11 "HAIKUI" at around 2:30 a.m. on August 7, 2012 (JST). AMSR2 data will be added to processing of JAXA's GSMaP NRT product later, and AMSR2 rainfall algorithm will be base algorithm of GSMaP for GPM era.

AMSR2 Weekly SST (3-8 July 2012)

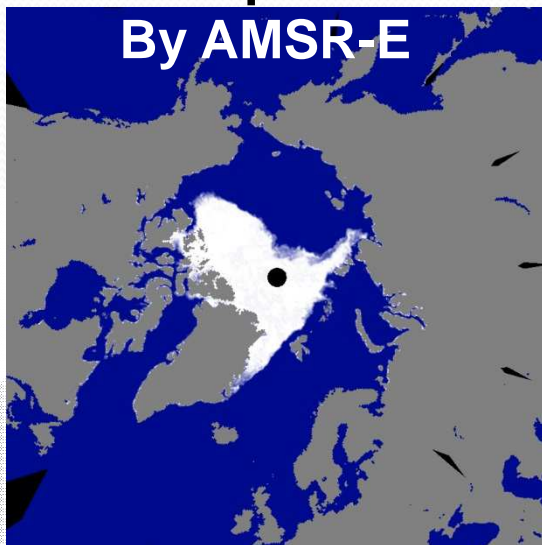


Simple bias correction is applied to AMSR2 Tb before retrieval of SST using comparison result between AMSR2 and AMSR-E, Some RFIs and scan biases are not removed yet, but global distribution is totally reasonable.

Arctic Sea Ice Concentration

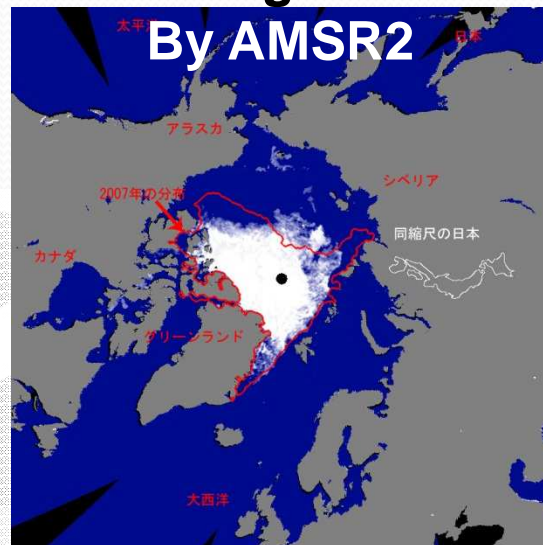
24 Sep. 2007

By AMSR-E



24 Aug. 2012

By AMSR2

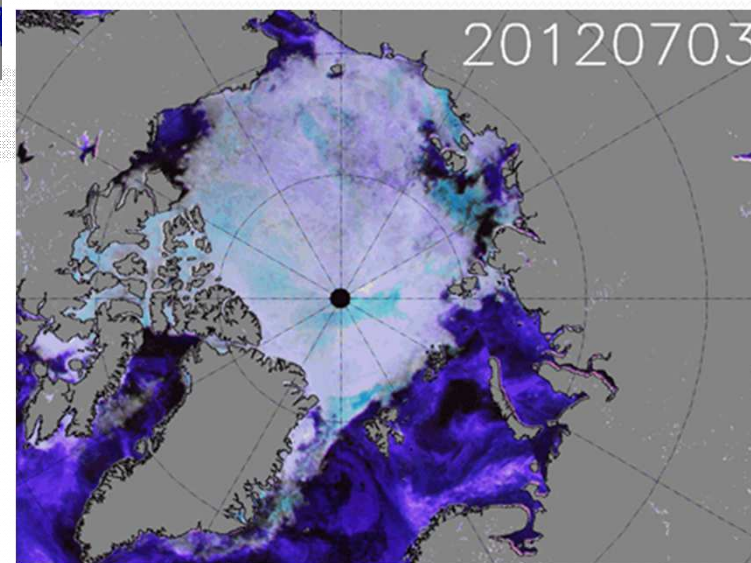


Arctic Sea Ice Extent recorded 4.25 million km² in 24 Aug. 2012, the lowest one by the satellite observation in Sep. 2007.

GCOM-W

Global Change Observation Mission for Water

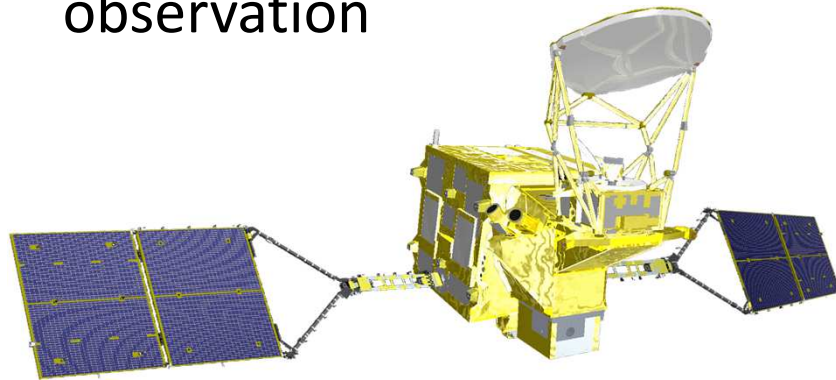
Animation of AMSR2 RGB composites from 3 July to 24 August, 2012.



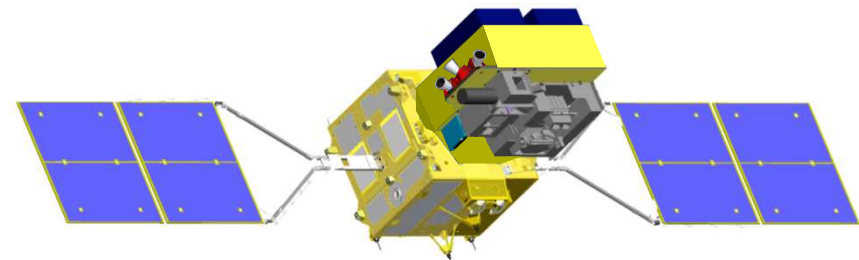
Arctic Sea Ice Monitor at <http://www.ijis.iarc.uaf.edu/cgi-bin/seaice-monitor.cgi?lang=j>

GCOM 1st Generation Satellites

2 types of medium-sized satellites and 3 generations: 10-15 years observation



GCOM-W1 (Water)

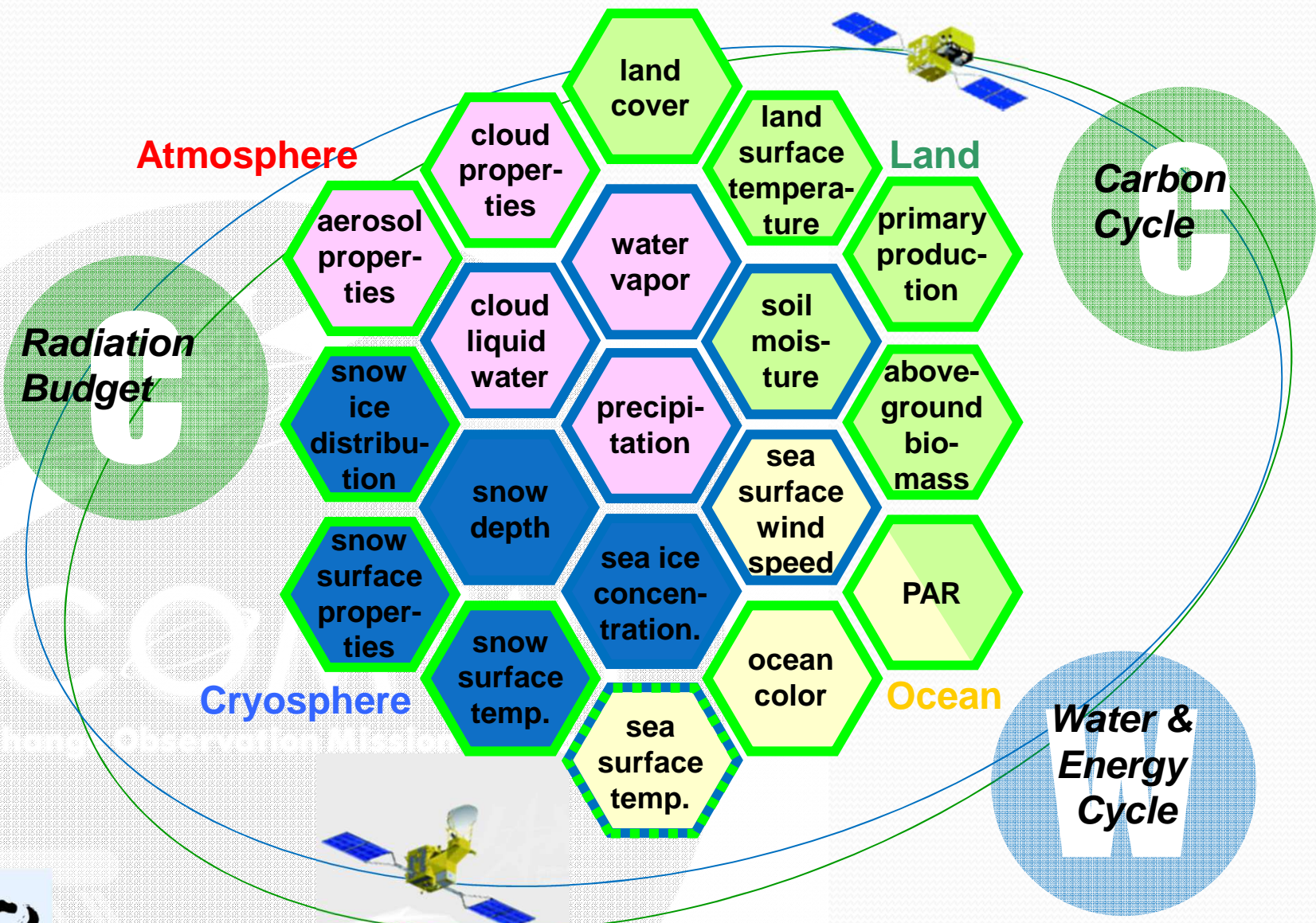


GCOM-C1 (Climate)

Instrument	Advanced Microwave Scanning Radiometer-2
Orbit	Sun Synchronous orbit Altitude: 699.6km (on Equator) Inclination: 98.2 degrees Local sun time: 13:30+/-15 min
Size	5.1m (X) * 17.5m (Y) * 3.4m (Z) (on-orbit)
Mass	1991kg
Power gen.	More than 3880W (EOL)
Launch	18 May 2012 by H-IIA Rocket
Design Life	5-years

Instrument	Second-generation Global Imager
Orbit	Sun Synchronous orbit Altitude: 798km (on Equator) Inclination: 98.6 deg. Local sun time: 10:30+/- 15min
Size	4.6m (X) * 16.3m (Y) * 2.8m (Z) (on orbit)
Mass	2093kg
Power gen.	More than 4000W (EOL)
Launch	JFY 2015 by H-IIA Rocket
Design Life	5-years

GCOM Geophysical Parameters



Summary

- GCOM-W1 was successfully launched and initial checkout has completed without major problems. AMSR2 performances is excellent.
- Preliminary results of L2 geophysical parameters seems good condition, but validation activities will be conducted from now.
- AMSR2 standard products will be distributed through GCOM-W1 Data Providing Service (<https://gcom-w1.jaxa.jp/>) by http & sftp.
 - To general users;
 - Data will be distributed after completion of CAL/VAL phase (L1: Jan. 2013, L2/L3: May 2013)

Global Change Observation Mission 1st- Water



The 4th TRMM and GPM International Science Conference

13 - 16 November, 2012

Tokyo, Japan

- ~~Call for papers: **Oral and Poster presentation**~~
- Abstract deadline: **14 September, 2012 (extended)**
- Conference web site:
<http://www.eorc.jaxa.jp/TRMM/4thConf.htm>

**** The 15th Anniversary of the TRMM ****

Water for Life: Symposium on the role of space data

12 November, 2012 in Tokyo, Japan

Thank you

GCOM-W1

Global Change Observation Mission 1st- Water

