



STAR GCOM-W1/AMSR2 PROJECT UPDATE AND STATUS

STAR GCOM-W1 Project Team Presented by Paul Chang

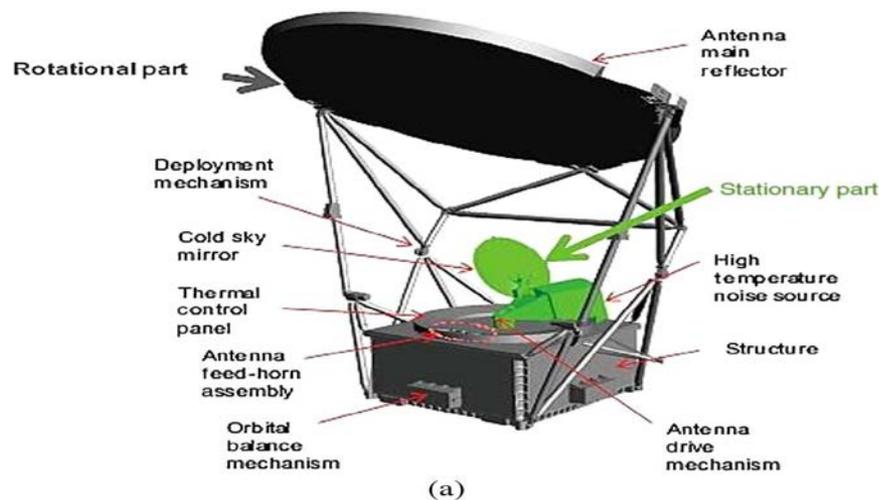
Paul Chang, Ralph Ferraro, Zorana Jelenak, Suleiman Alsheiss, Patrick Meyers, Qi Zhu, Mark Romer, Xiwu Zhan, Jicheng Liu, Eileen Maturi, Fuzhong Weng, Andy Harris, Jeff Key, Cezar Kongoli, Walt Meier, Yong-Keun Lee, Walter Wolf, Tom King, Letitia Soullaird, Peter Keehn, Mike Wilson ...

Outline

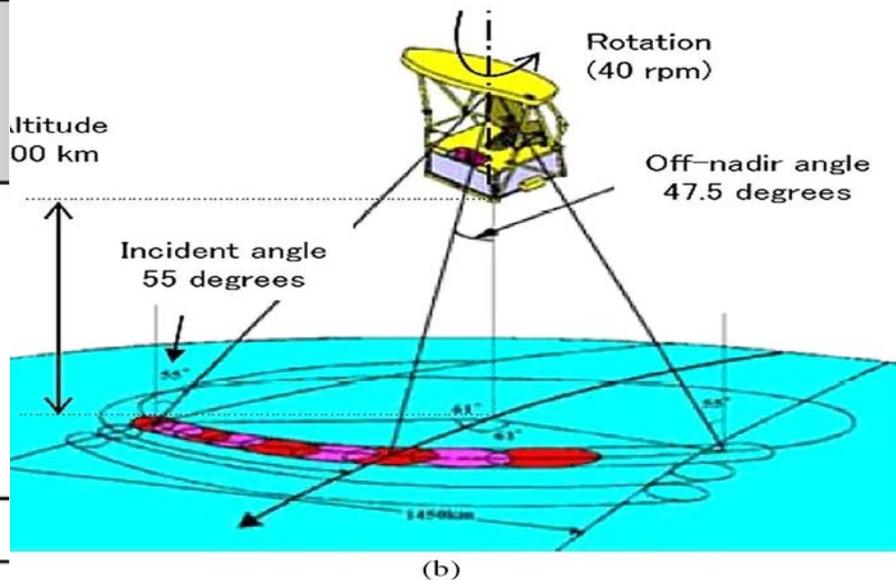
- Sensor Overview
- AMSR2 EDRs and Project Schedule
- Ongoing validation activities
- Long term monitoring and science maintenance
- Summary and Path Forward

General Information

- Launched: JAXA, 05/2012
- Swath: 1450 km
- EIA: 55°
- Rate: 40 rpm



Center freq. (GHz)	Band width (MHz)	Beam width (3 dB, deg.)	Ground IFOV (km)	Sampling interval (km)
6.925/7.3	350	1.8	35 × 62	10
10.65	100	1.2	24 × 42	
18.7	200	0.65	14 × 22	
23.8	400	0.75	15 × 26	
36.5	1000	0.35	7 × 12	
89.0	3000	0.15	3 × 5	5



- GCOM-W1 AMSR2 Algorithm Software Processor (GAASP) development :

- Day 1 Delivery:
 - Products
 - Microwave Brightness Temperature (MBT)
 - Total Precipitable Water (TPW)
 - Cloud Liquid Water (CLW)
 - Sea Surface Temperature (SST)
 - Sea Surface Wind Speed (SSW)
 - Precipitation Type/Rate (PT/R)
 - Reformatting Capability for MBT and SST into BUFR
 - SPSRB documentation

- Day 2 Delivery:
 - Products
 - Snow Cover/Depth (SC/D)
 - Snow Water Equivalent (SWE)
 - Sea Ice Characterization (SIC)
 - Soil Moisture (SM)
 - Surface Type (ST) – CCR being worked to remove
 - Reformatting Capability for Sea Ice into GRIB2
 - Updated SPSRB Documentation

- Update deliveries annually or as needed in response to issues such as sensor aging, calibration updates, etc.:
 - Updates and enhancements to existing EDRs

- Key Milestones –Project Milestones Day 1
 - Preliminary Design Review – Nov 8, 2012
 - Critical Design Review – May 1, 2013
 - Software Code Review – Sept 18, 2013
 - Algorithm Readiness Review – Dec 19, 2014
 - Operational Readiness Review – Aug 21, 2015
 - SPSRB Decision Briefing – Sept 23, 2015
 - Operations Commenced - November 4, 2015
 - Algorithm Readiness Review (Day 2) - May 9, 2016

- Since June 2013: Products available in near real-time to users (NHC, JTWC, NRL, etc.) via the GAASP on the STAR GCOM-W1/AMSR2 product development and validation system
- Discontinuities were found the level 1 files that were introduced by the IDPS granules. This necessitated moving to full orbit contacts through IDPS which which will be implemented in NDE 2.0 with IDPS B2.0.
 - Currently NDE is ingesting AMSR2 L1B files directly from JAXA (via NASA)
 - When IDPS2.0 is implemented NDE 2.0 will ingest AMSR RDRs and process to L1 locally utilizing JAXA provided software

Ongoing Validation Activities

- » Collocation of numerical model, objective analysis and satellite data with GCOM-W1/AMSR2 measurements
- » Collocation of in-situ data from gauges and field experiments
- » Statistical analysis of AMSR2 brightness temperature measurements (level 1 products) utilizing CRTM to characterize residual calibration errors that will impact higher level products
- » Statistical analysis of NOAA AMSR2 level 2 products
- » Responding to user feedback and questions
- » STAR quality monitoring and product display for visual analysis of AMSR2 products
 - » <http://manati.star.nesdis.noaa.gov/gcom/>
- » STAR AMSR2 EDR quick look product page
- » http://www.star.nesdis.noaa.gov/jpss/EDRs/products_gcom.php

The screenshot displays the STAR website interface for the GCOMW1-AMSR2 Radiometer. The main content area features two maps of the North Pacific region, showing wind speed and brightness temperature data. The top map is titled 'Ascending Pass' and shows wind speed data. The bottom map shows brightness temperature data. A legend on the right indicates various data products: TB (daily), Incidence Angle (daily), Model-Obs diff (daily), Buoy-Obs diff (daily), Model-Obs diff (monthly), and Buoy-Obs diff (monthly). The interface also includes a search bar, product description, data files, and contact information.

- » Extend validation datasets (spatially and temporally collocated numerical model and satellite data) to account for seasonal and annual trends.
- » Collect in-situ data from relevant field experiments to support validation and quality assurance not possible by utilizing existing satellite or numerical model datasets. For example, characterization of product performance in extreme environmental conditions (tropical and winter storms) generally require specialized datasets.
- » Algorithm sustainment, such as, updates to the algorithms when quality issues are identified in operation or when Level 1 processing updates are implemented by JAXA
- » Other event-driven anomalies, such as, channel loss, sensor degradation, which will impact the measurements and thus the derived products

Summary & Path Forward

- Implement EDR improvements and enhancements resulting from ongoing validation activities and user feedback into GAASP updates
- Calibration updates, product updates and continued monitoring and quality control
 - Continue working with JAXA on Level 1 calibration improvements
 - Address JAXA updates to Level 1 processing software as needed
 - Continue validation and product monitoring and implement product updates as needed
 - User product training and outreach
- Provide support to JAXA as appropriate to help them realize a GCOM-W1 follow-on mission.