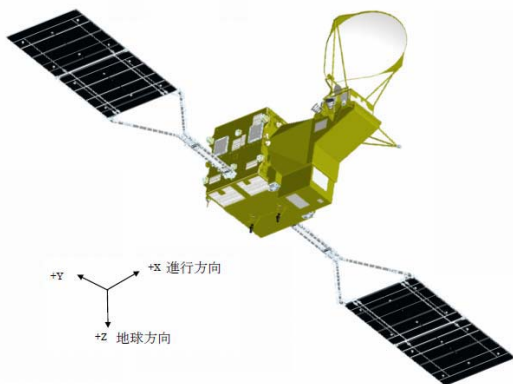
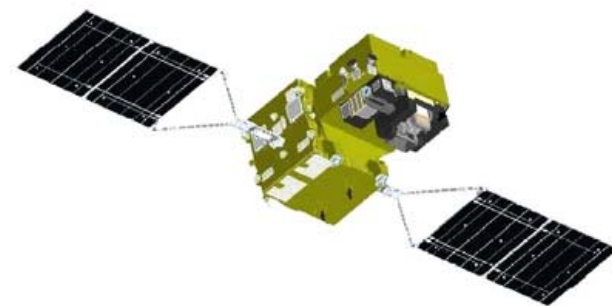




Global Change Observation Mission (GCOM)



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NOAA NESDIS
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GCOM-C [JAXA]



Overview

- Overview:
 - GCOM-W & GCOM-C satellite data will provide NOAA mitigation against data gaps as a result of delays in the planned next generation polar satellite program.
 - This international partnership with Japan will provide vital data continuity for NOAA users for only the cost of ground station equipment and operations.
 - Future GCOM spacecraft considered for potential next step of a broader NOAA-JAXA collaboration for a scatterometer flight.
 - Advanced Microwave Scanning Radiometer (AMSR) utilized today by NOAA (via NASA's *AQUA* satellite).
- AMSR-2 may serve as a potential substitute for the Joint Polar Satellite System (JPSS) former NPOESS Microwave Imager Sounder (MIS)
- Second Generation Global Imager (SGLI) to provide ocean color capability not accomplished by NPP, plus augment other VIIRS capabilities



Background and Overview

- Description:
 - NOAA to purchase critical ground reception hardware/software, communication links, and services to transfer GCOM satellite data to NOAA and JAXA by 2012.



GCOM-W1 & C1 Schedule

Japanese Fiscal Year	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Milestone		▲ GCOM-W1 Project start		▲ GCOM-C1 Project start			▲ GCOM-W1 Launch		▲ GCOM-C1 Launch (TBD)
GCOM-W1	▲ SDR Phase-A	▲ PDR Phase-B	Phase-C	▲ CDR Phase-D					
GCOM-C1		▲ SDR Phase-A	Phase-B	▲ PDR Phase-C		▲ CDR Phase-D			

(*) Japanese Fiscal Year starts in April and ends in March.

Present



GCOM-W1 Status

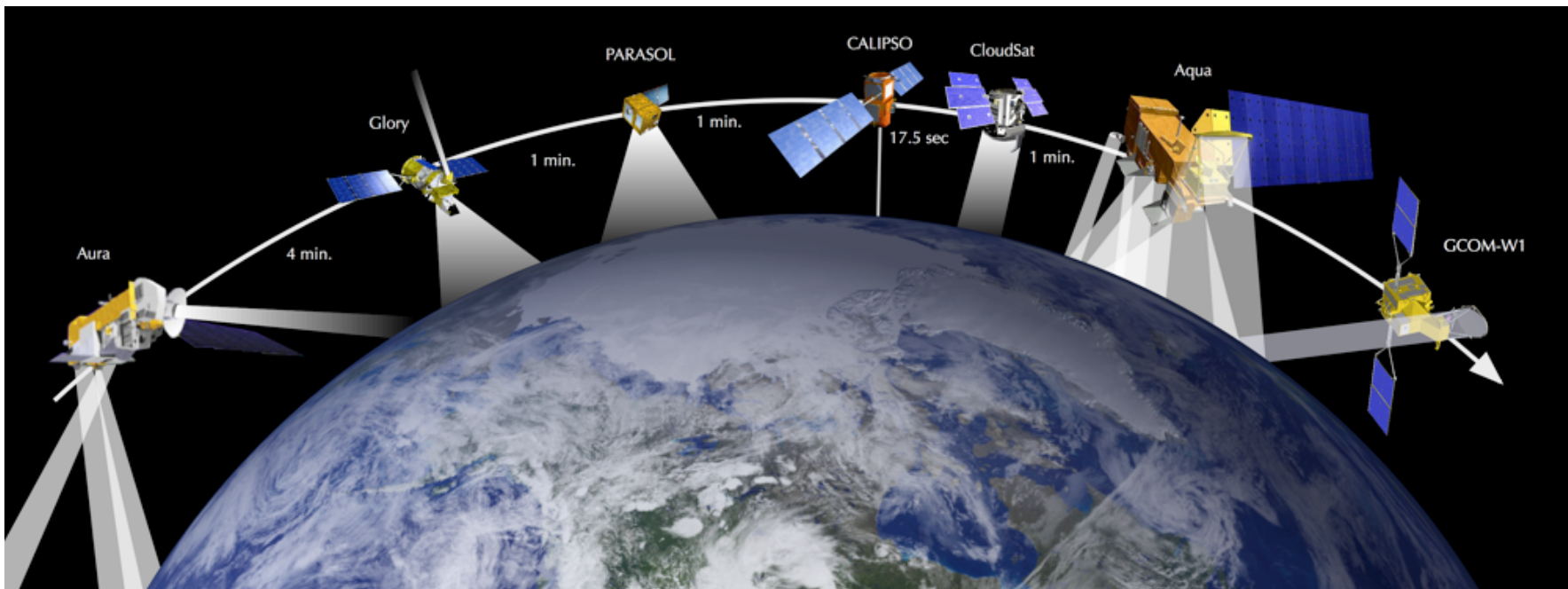
GCOM-W1 STM

- Satellite

- AMSR2 PFM has been integrated and tested until this summer.
- The system CDR was over in October, 2009.
- The tests of PFM components of bus system have been performed. The system proto-flight test will start in summer this year.
- The target of the launch date is November 1st, 2011.



GCOM-W1 Position in A-Train



The MLTAN of GCOM-W1 orbit is between (Aqua - 259.5 sec) and (Aqua - 79.5 sec).



GCOM-W1 Status

- Ground system
 - The CDR's of the satellite house-keeping system (command generation and telemetry processing) and the observation data processing system were over in December, 2009. These ground systems are under manufacturing.
 - The GCOM website for providing observation products has been manufactured from April, 2010.
 - The test of total ground system will be performed in autumn this year.



GCOM-C1 Status

- GCOM-C1 program was approved by Japanese Space Activity Commission in December, 2009.
- **Satellite**
 - The system design and EM design of GCOM-C1 including SGLI started in July 2009.
 - The SGLI PDR was over in March, 2010. The manufacturing of SGLI EM has been started.
 - The system PDR is planned to be held in July, 2010.



GCOM-W2 Study

- AMSR3 for GCOM-W2
 - The study of AMSR2 improvement for GCOM-W2 has been performed. (Addition of 160GHz and/or 183GHz channels)
- Scatterometer
 - The feasibility study of US provided Dual-Frequency Scatterometer (DFS) installation on GCOM-W2 has been performed together with NOAA and JPL. The feasibility study was finalized at the end of March, 2010.
 - The RF interference between DFS and AMSR3 is still the issue to be solved. In order to perform the detailed analysis we need to go ahead to the next phase.



Benefits

- GCOM W and C cooperation directly contributes to the Disaster, Water, Weather and Climate Societal Benefit Areas (SBA) by providing critical meteorological, climate and environmental observation data. The cooperation also will contribute indirectly to the other SBAs of Health, Energy, Ecosystem, Agriculture and Biodiversity.
- GCOM C oceanographic benefits include improved ocean current analysis and forecast, fine scale ocean color, turbidity, and sea state.
- Both of these global satellite imaging capabilities have been identified by the National Academy of Sciences *Decadal Survey*.
- This new requirement provides continuity of existing observations for sea surface temperatures, sea ice and snow cover extent, vegetation index, soil moisture, ocean surface wind speed, water vapor, precipitation rates and ocean color.



Ground Schedule

- 2011: Purchase necessary hardware, software, and communications for reception at polar ground station, delivery to NOAA ingest systems, and product processing and delivery systems
- 2012: Test GCOM-W ground system pre launch. Ingest and process GCOM-W1 data post-launch. Complete development of GCOM-C ground system
- 2013: Test GCOM-C ground system. Ingest and data product processing GCOM-W1 data; GCOM-C ground system
- 2014: Ingest, process, and deliver GCOM-C and GCOM-W data
- 2015: Ingest, process, and deliver GCOM-C and GCOM-W data



Summary

- Climate change observations are a priority for the administration. Both GCOM satellites will provide critical meteorological, climate and environmental observation data to be used in developing forecasts and warnings.
- NOAA is receiving satellite observation data for the cost of data reception, communications, utilization, and archive.
 - The NRC Decadal Survey recommended that NOAA offer cost-effective additions to international missions that help extend the values of those missions.
- The US will receive vital climate and weather data for a minimal investment

International TOVS Study Conference, 17th, ITSC-17, Monterey, CA, 14-20 April 2010.
Madison, WI, University of Wisconsin-Madison, Space Science and Engineering Center,
Cooperative Institute for Meteorological Satellite Studies, 2011.