



JMA report on the status of current and future satellite systems

Presented to CGMS-46 Plenary session, agenda item D

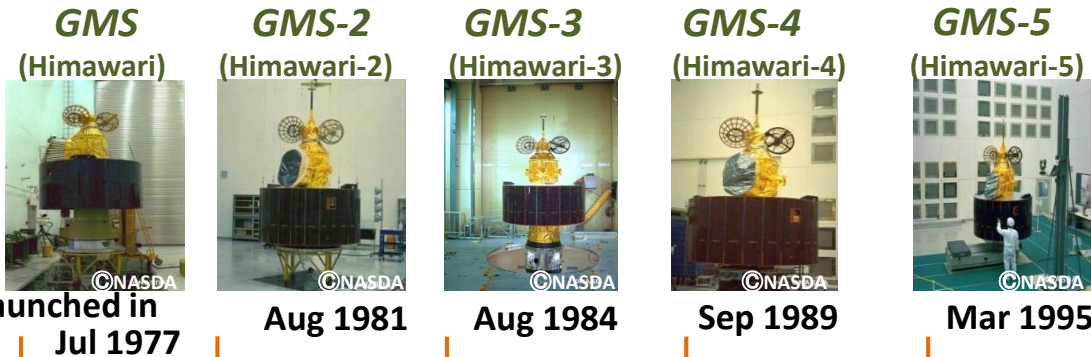
Japan Meteorological Agency

**Coordination Group for
Meteorological Satellites**



History of JMA's GEO Satellite Systems (Himawari-series)

GMS (Geostational Meteorological Satellite)

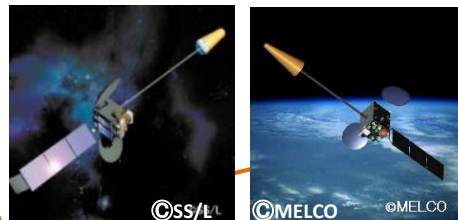


(GOES-9)

Back-up operation of GMS-5 with GOES-9 by NOAA/NESDIS from May 22, 2003 to June 28, 2005

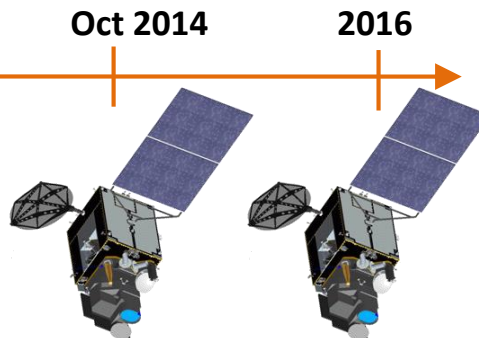
MTSAT (Multi-functional Transport SATellite)

MTSAT-1R (Himawari-6) MTSAT-2 (Himawari-7)



Himawari-8 Himawari-9
Himawari

Launched in Feb 2005 Feb 2006



Satellite	Observation period
GMS	1978 – 1981
GMS-2	1981 – 1984
GMS-3	1984 – 1989
GMS-4	1989 – 1995
GMS-5	1995 – 2003
GOES-9	2003 – 2005
MTSAT-1R	2005 – 2010
MTSAT-2	2010 – 2015
Himawari-8	2015 – 2022
Himawari-9	2022 – 2029

Himawari-8/9 Mission Schedule

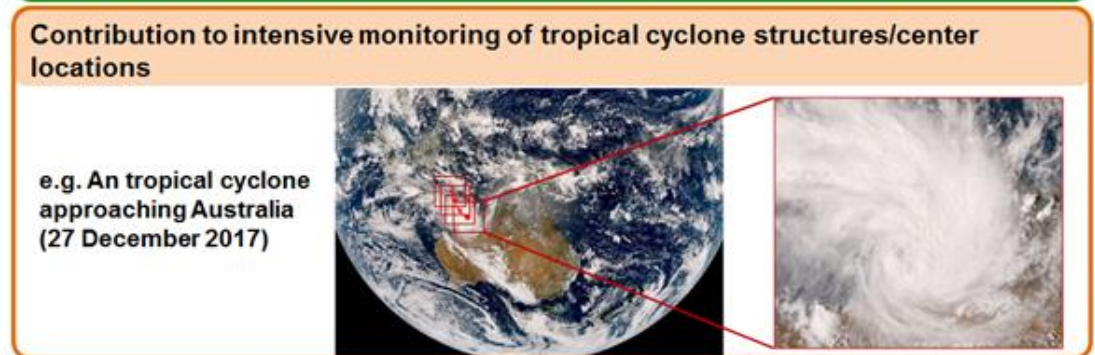
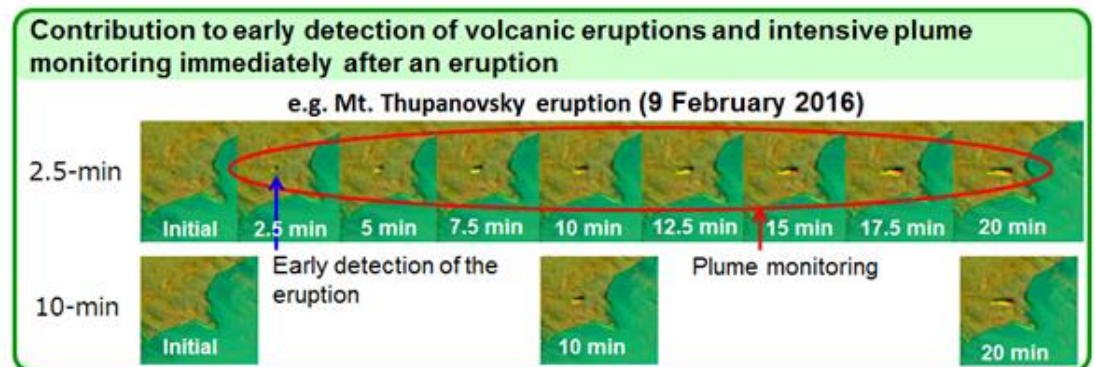
- Himawari-8 has stably been operational since July 2015.
- Himawari-9, launched in November 2016, began serving as back-up to Himawari-8 on 10 March 2017.
- This dual combination of new-generation satellites will support JMA's stable provision of continuous satellite observation data for the Asia-Oceania regions until 2029.



Launch of the HimawariRequest Service

- In January 2018, JMA launched a new international service “HimawariRequest”, allowing NMHS users in Himawari8/9 coverage area to request Target Area observation covering a 1,000km x 1,000km area every 2.5 minutes.
- As of 10 May 2018, JMA had taken registrations from nine NMHSs and opened the service to the four (the Solomon Islands, Hong Kong, New Zealand and Nepal).
- The HimawariRequest service is expected to support DRR activities.

Target Area observation benefits



Himawari-8/9 Data Dissemination

Himawari-8/9

raw data

Communication Satellite (CS)

HimawariCast
service

HRIT files,
SATAID files

CS Operator

All imagery
(full data)

JMA

HimawariCloud
service

NMHSs

Users



C-band antenna



LNB



DVB-S2 receiver



PC & software

Himawari Users



HimawariCast Receiving Systems

32 users



HimawariCloud accounts

21 users

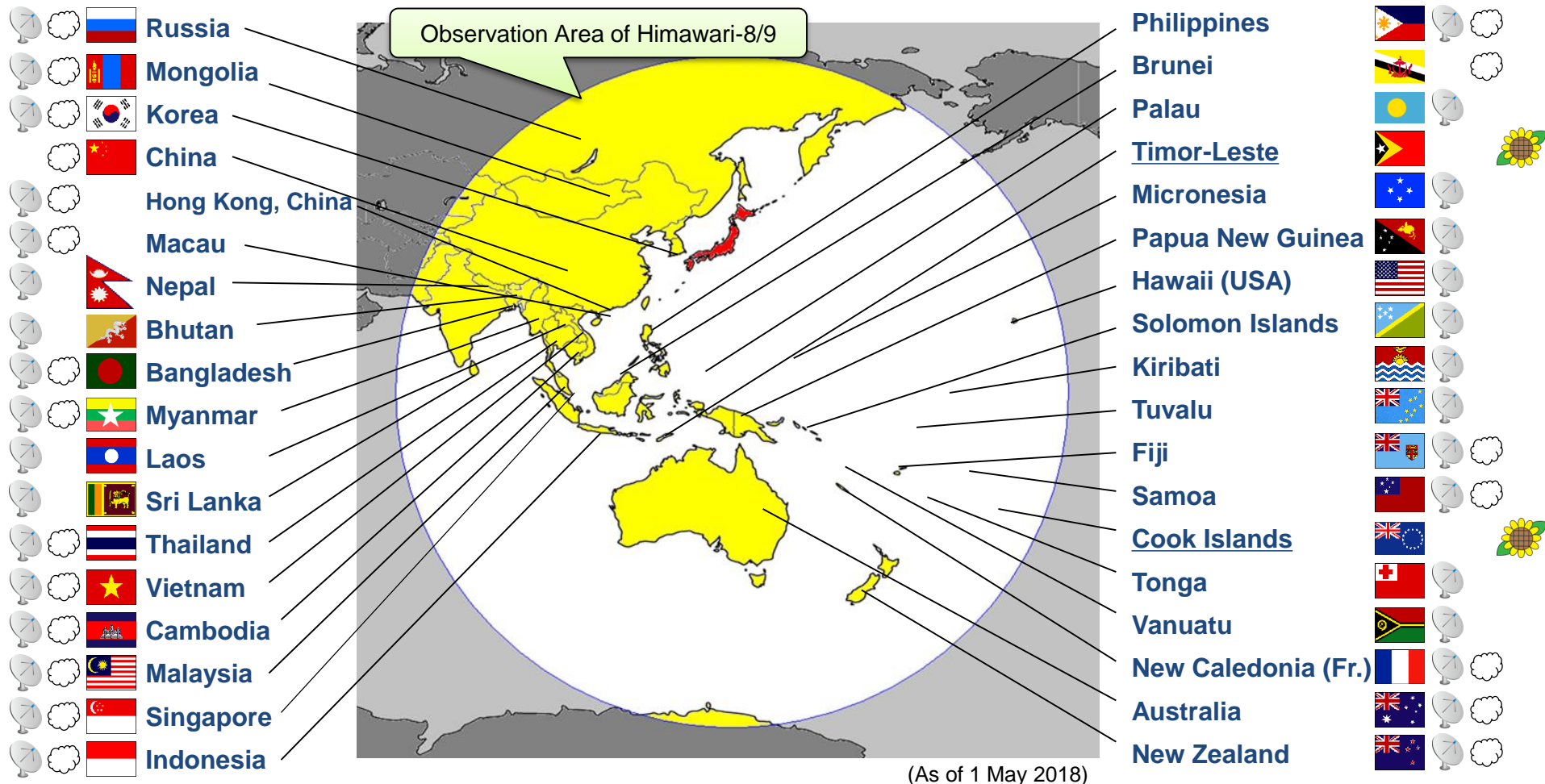
(In addition to these, NOAA/NESDIS and EUMETSAT have accounts.)



Web service covers

42 areas

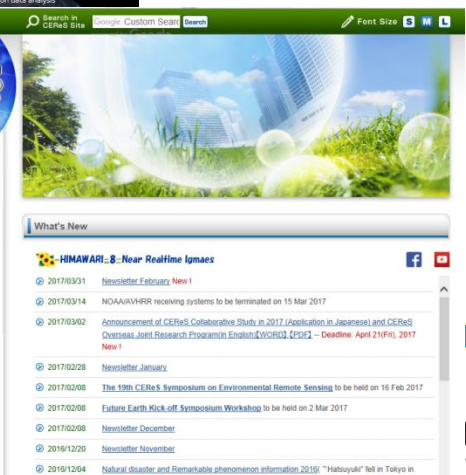
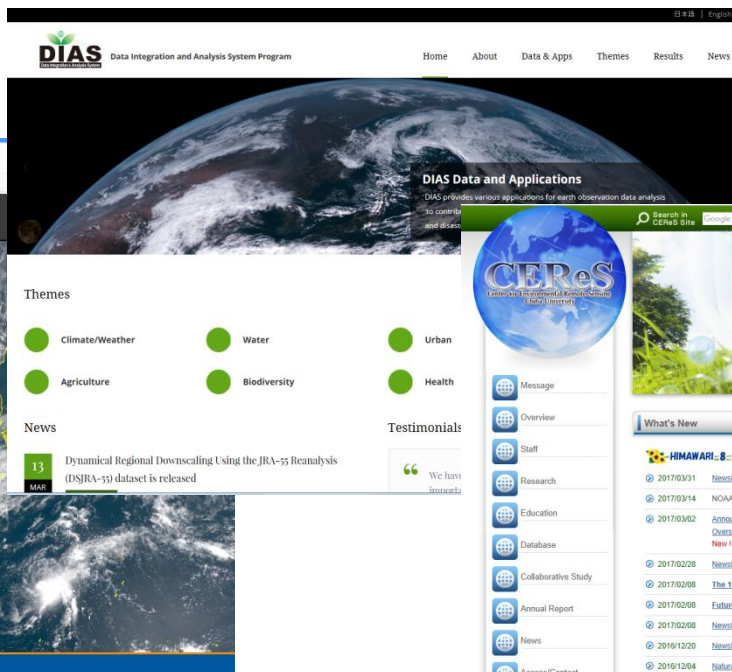
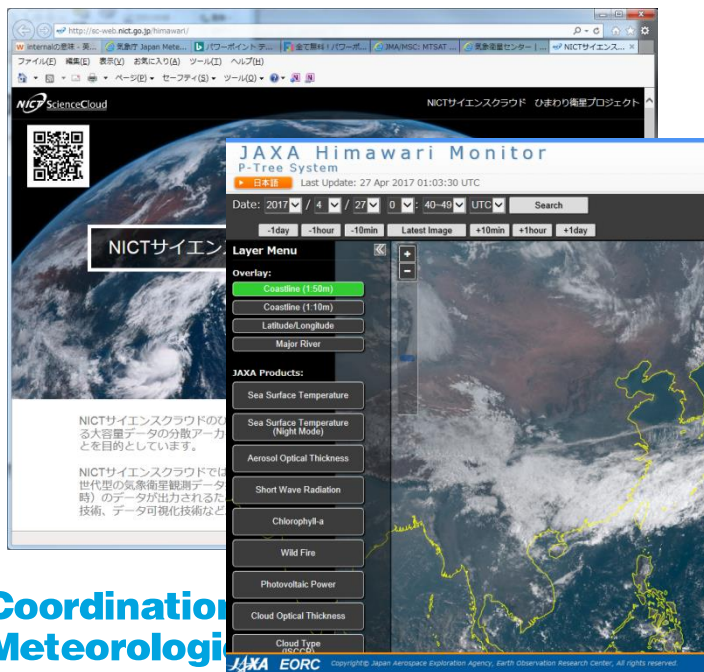
(including Timor-Leste and Cook Islands)



Data Distribution Services by Cooperation Institutes

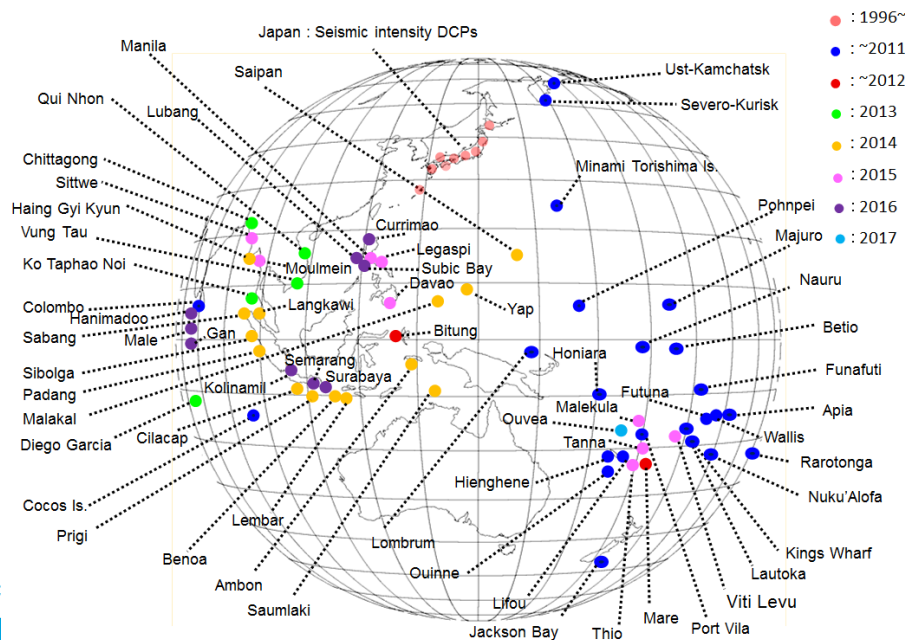
- Himawari-8 data are being redistributed to foreign and domestic R&D users by the following Japanese scientific institutes.
 - NICT* (via Science Cloud)
 - JAXA** (via Himawari Monitor)
 - University of Tokyo (via DIAS; Data Integration and Analysis System)
 - Chiba University CEReS***

* National Institute of information and Communications Technology
 ** Japan Aerospace Exploration Agency
 *** Center for Environmental Remote Sensing



Himawari-8/9 Data Collection System

- Himawari-8 and -9 are both equipped with Data Collection System (DCS) functionality. Himawari-8 currently supports the Data Collection Service with Himawari-9 in standby as back-up.
- In recent years, the number of tidal/tsunami stations using Himawari-DCS has increased. In addition, the high-frequent collection (6-minute intervals) has been implemented.



Distribution of tidal/tsunami and seismic intensity DCPs in Himawari-DCS

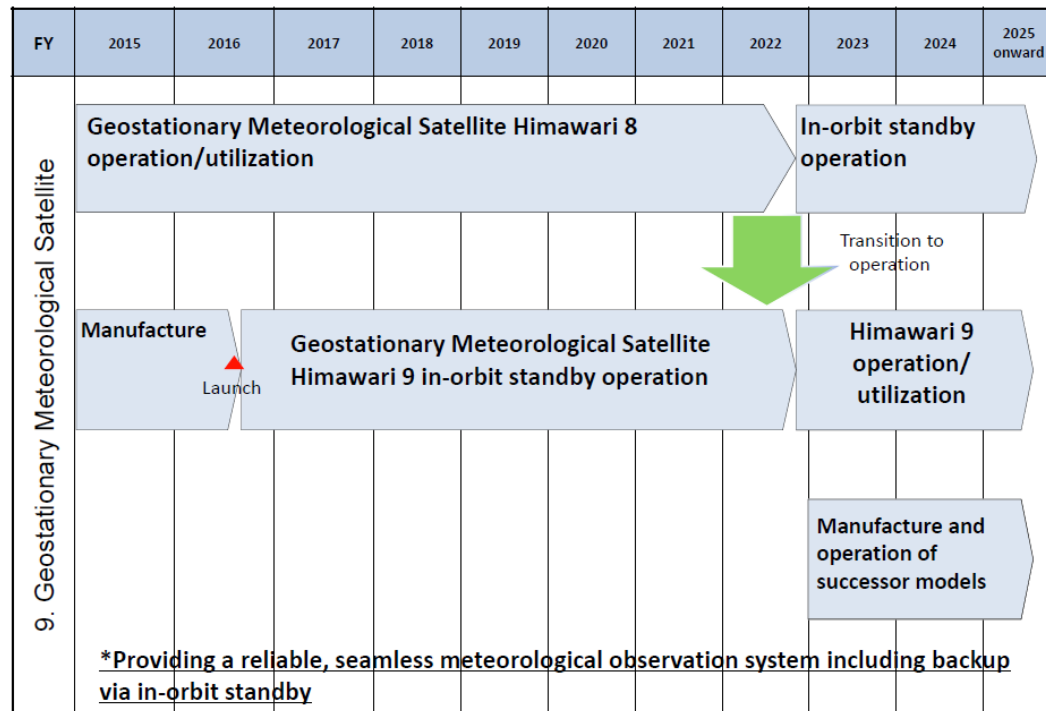
Himawari-8/9 Space Environment Data Acquisition (SEDA)

- Himawari-8 and -9 have instruments to sense proton and electron flux for satellite housekeeping known as SEDA.
- SEDA data acquired by both satellites are provided to the National Institute of Information and Communications Technology (NICT) to support near-real-time space environment monitoring and forecasting.
- NICT operates “Himawari/SEDA DATABASE WEB”, providing data access services for users.
 - <http://seg-web.nict.go.jp/himawari-seda/>

Next Himawari Program (1/2)

- ✓ In 2018, JMA has started considering the next GEO satellite program.
- ✓ The Implementation Plan of the Basic Plan on Space Policy states that *“By FY2023 Japan will start manufacturing the Geostationary Meteorological Satellites that will be the successors to Himawari-8 and -9, aiming to put them into operation in around FY2029”*.

4. (2)①ii) Satellite remote sensing



*All of the above: MLIT

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Description of Japan's geostationary meteorological satellites in the Implementation Plan revised in FY2017

Full Text (Tentative Translation): <http://www8.cao.go.jp/space/english/basicplan/2017/basicplan.pdf>

Next Himawari Program (2/2)

- JMA will pursue seamless GEO satellite system, keeping in mind the CGMS baseline, the Vision for WIGOS in 2040 and the Implementation Plan.
- GEO instruments on the Vision (e.g. IR Hyperspectral sounder and Lightning mapper) need to be considered.
- JMA and other CGMS members would benefit from information on expected impacts (e.g. OSSE/OSE results) brought by the instruments to meteorological services such as weather monitoring and forecasting.
 - Provision of the information by advanced CGMS members who (will) operate the instruments is highly appreciated.
 - The information is expected to be documented in the Vision or other related document.

Thank you