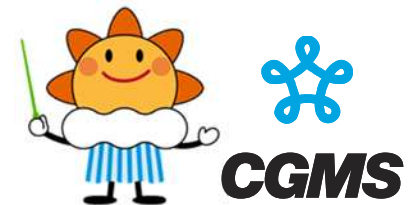


# JMA report on the status of current and future satellite systems

Presented to CGMS-42 Plenary session, agenda item D.1

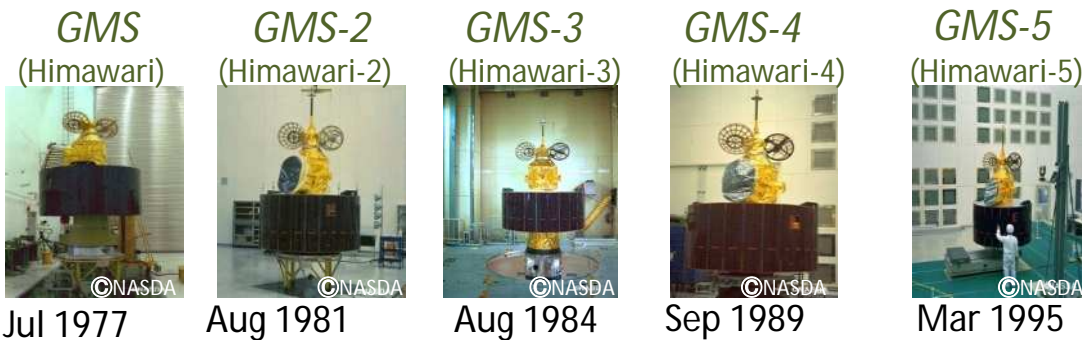
**Coordination Group for Meteorological Satellites**

**Japan Meteorological Agency**



## Overview - Planning of JMA satellite systems (Himawari-series)

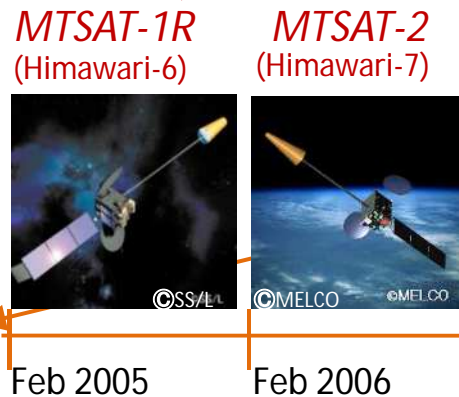
### GMS (Geostational Meteorological Satellite)



(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)



Himawari-8 Himawari-9  
Himawari

2014

2016

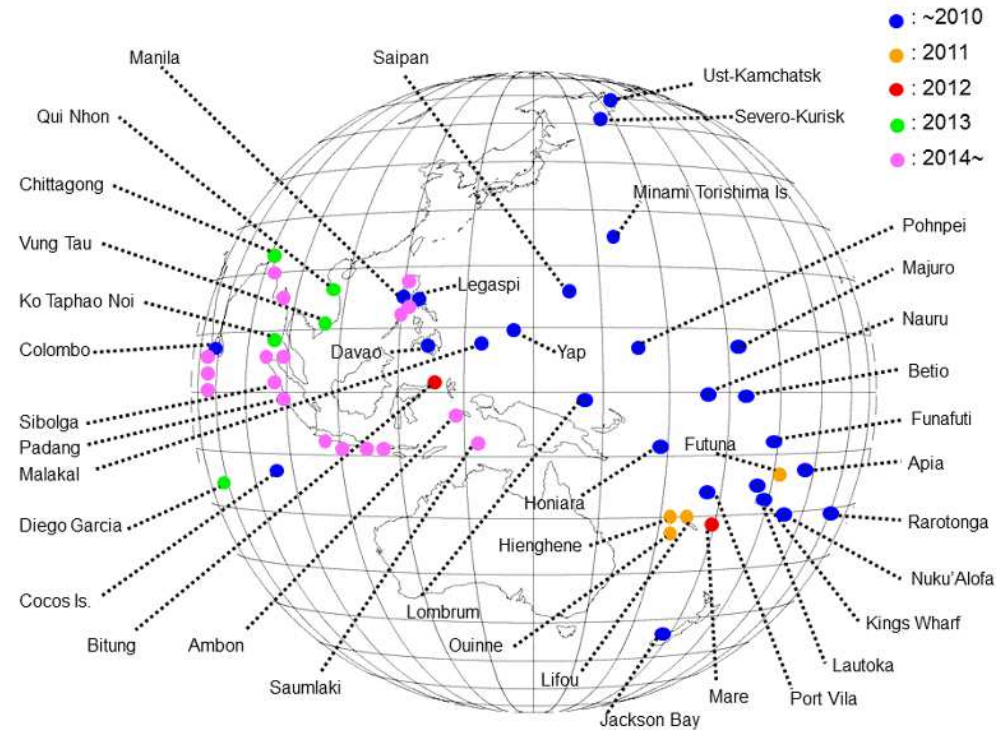


Satellite	Observation period
GMS	1978 – 1981
GMS-2	1981 – 1984
GMS-3	1984 – 1989
GMS-4	1989 – 1995
GMS-5	1995 – 2003
GOES-9	2003 – 2005
MTSAT-1R	2005 – 2010
MTSAT-2	2010 – 2015
Himawari-8	2015 – 2022
Himawari-9	2022 – 2029

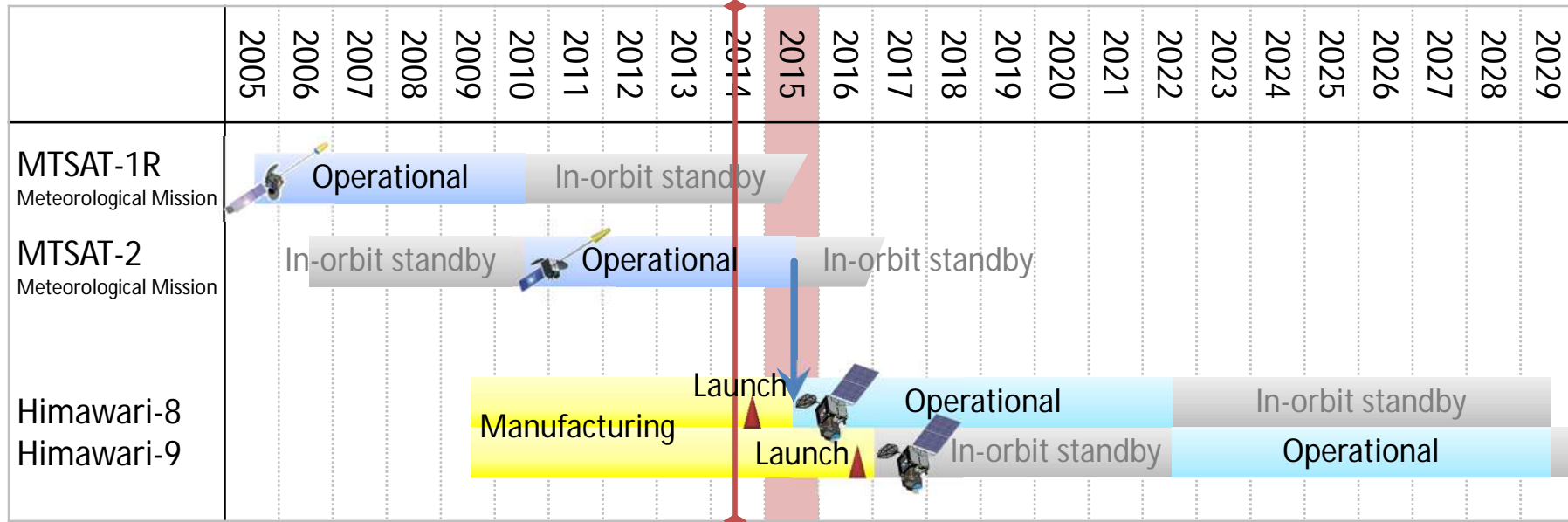
**Coordination Group for Meteorological Satellites**

## CURRENT GEO SATELLITES

- **MTSAT-DCS** (Data Collection System) plays a very important role in disaster prevention services in the Asia and Pacific regions.
- In recent years, the number of tidal/tsunami stations using **MTSAT-DCS** has rapidly increased. In addition, the high-frequent collection (6 minutes interval) is implemented.



## FUTURE GEO SATELLITES



- JMA plans to launch **Himawari-8** in 2014 and begin its operation in 2015. Around late July, JMA will announce the launch date of Himawari-8.
- The launch of **Himawari-9** for in-orbit standby is scheduled in 2016.
- **Himawari-8/9** will be in operation around 140 degrees East covering the East Asia and Western Pacific regions for 15 years.

FUTURE GEO SATELLITES

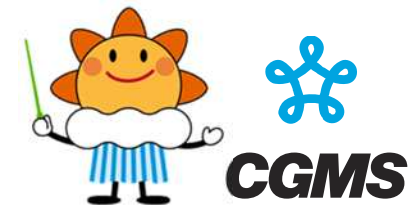
## Himawari-8 in the factory



JMA/Melco

**Coordination Group for  
Meteorological Satellites**

- Himawari-8 is now in the final test phase of its production.
- In August 2013, the Pre-Shipment Review (PSR) of **AHI for Himawari-8** was successfully finished.
- The PSR of **AHI for Himawari-9** will take place in a few months.

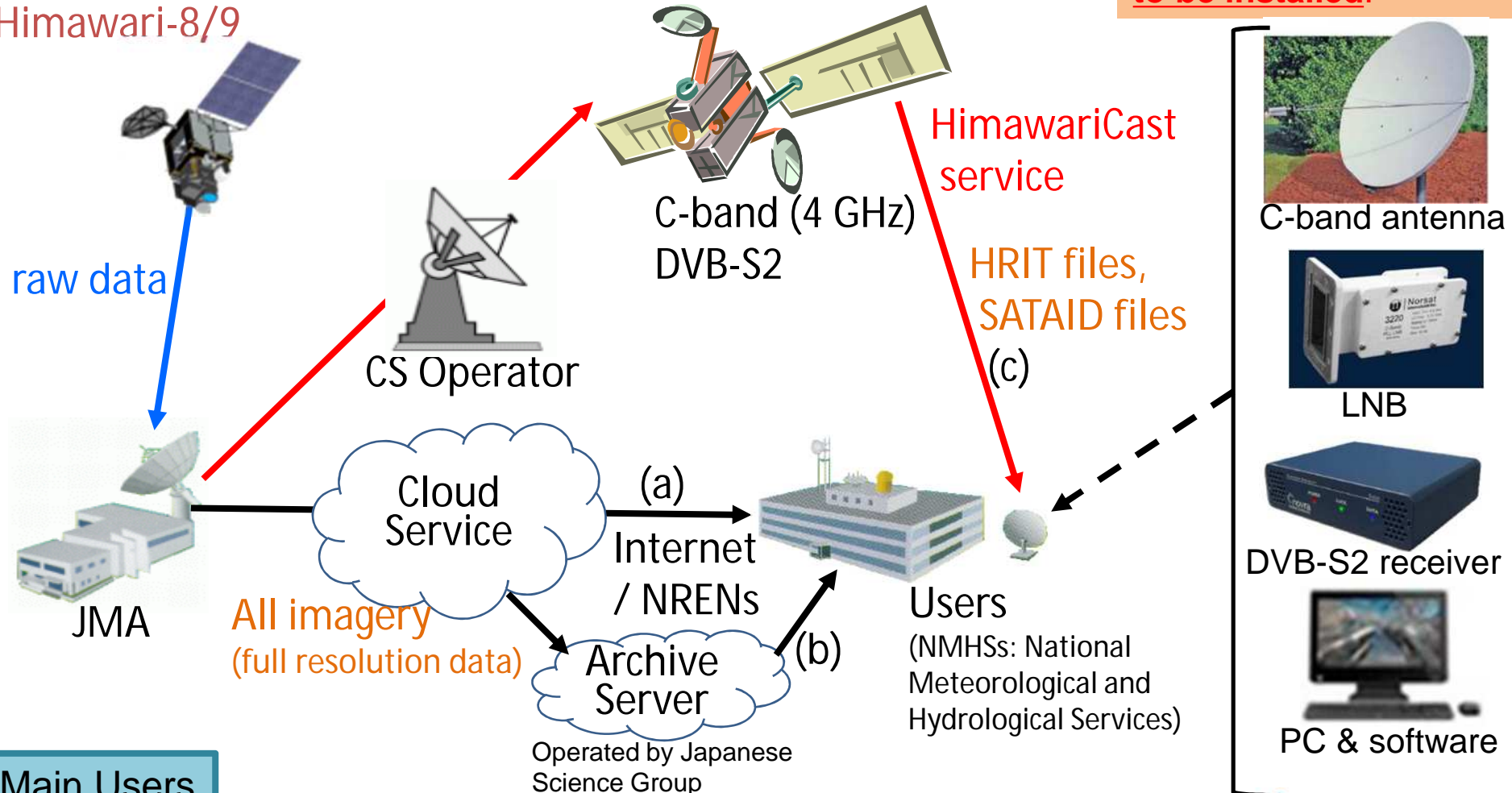


FUTURE GEO SATELLITES

Communication Satellite (CS)

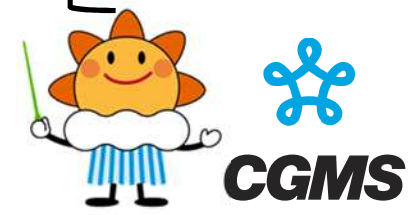
**New equipment needs to be installed.**

Himawari-8/9



Main Users

- (a) Cloud Service:** NMHSs (1 agency / 1 nation)
- (b) Archive Server:** universities and research agencies
- (c) HimawariCast:** NMHSs with a limited Internet access



## FUTURE GEO SATELLITES - USER READINESS -

To support research and development of products based on **Himawari-8/9**,

- Sample data files in the format of **“Himawari Standard Data”**, **HRIT**, **NetCDF** and **PNG** are available on JMA website.
- Sample decode program**, **latest SRFs** and **simulation data** are also available to support researcher and product developer.

1. Click

2. Click

Table 2 List of Himawari Standard Data (Full disk)

Band Number	Spatial Resolution [m]	Sample Data (Download Size [MB])
01	1	HS_H08_20130710_0300_001_FLDK.zip (30.7)
02	1	HS_H08_20130710_0300_002_FLDK.zip (31.1)
03	0.5	HS_H08_20130710_0300_003_FLDK.zip (84.1)
04	1	HS_H08_20130710_0300_004_FLDK.zip (33.8)
05	2	HS_H08_20130710_0300_005_FLDK.zip (11.1)
06	2	HS_H08_20130710_0300_006_FLDK.zip (9.4)
07	2	HS_H08_20130710_0300_007_FLDK.zip (9.2)
08	2	HS_H08_20130710_0300_008_FLDK.zip (2.7)
09	2	HS_H08_20130710_0300_009_FLDK.zip (3.6)
10	2	HS_H08_20130710_0300_010_FLDK.zip (6.3)
11	2	HS_H08_20130710_0300_011_FLDK.zip (11.0)
12	2	HS_H08_20130710_0300_012_FLDK.zip (8.4)
13	2	HS_H08_20130710_0300_013_FLDK.zip (11.1)
14	2	HS_H08_20130710_0300_014_FLDK.zip (11.1)
15	2	HS_H08_20130710_0300_015_FLDK.zip (10.7)
16	2	HS_H08_20130710_0300_016_FLDK.zip (7.0)

3. Click

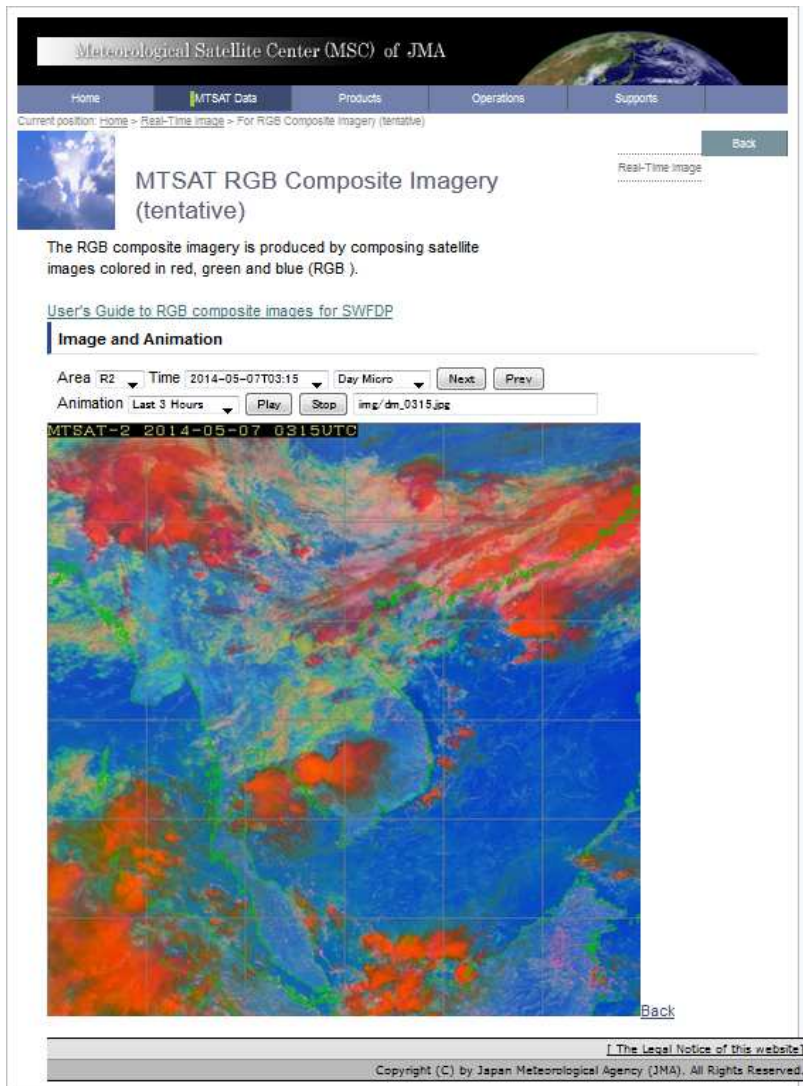
```

Himawari Standard Data (Full disk)
File structure:
The zipped files contain bzip2-compressed files as below.
The file sizes of bzip2-compressed and uncompressed one are also shown.
HS_H08_20130710_0300_001_FDK.zip (bzip2 compressed) (uncompressed)
- HS_H08_20130710_0300_001_FDK_R10_S0110_D01.b22 1.8 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0210_D01.b22 3.2 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0310_D01.b22 4.1 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0410_D01.b22 4.4 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0510_D01.b22 4.4 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0610_D01.b22 4.3 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0710_D01.b22 3.1 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0810_D01.b22 2.6 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S0910_D01.b22 1.8 MB 23.1 MB
- HS_H08_20130710_0300_001_FDK_R10_S1010_D01.b22 0.5 MB 23.1 MB
HS_H08_20130710_0300_002_FDK.zip (bzip2 compressed) (uncompressed)
- HS_H08_20130710_0300_002_FDK_R10_S0110_D01.b22 2.1 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0210_D01.b22 3.2 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0310_D01.b22 4.2 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0410_D01.b22 4.5 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0510_D01.b22 4.5 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0610_D01.b22 4.3 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0710_D01.b22 3.2 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0810_D01.b22 2.6 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S0910_D01.b22 1.8 MB 23.1 MB
- HS_H08_20130710_0300_002_FDK_R10_S1010_D01.b22 0.5 MB 23.1 MB
HS_H08_20130710_0300_003_FDK.zip (bzip2 compressed) (uncompressed)
- HS_H08_20130710_0300_003_FDK_R05_S0110_D01.b22 5.5 MB 92.3 MB
- HS_H08_20130710_0300_003_FDK_R05_S0210_D01.b22 8.9 MB 92.3 MB
- HS_H08_20130710_0300_003_FDK_R05_S0310_D01.b22 11.5 MB 92.3 MB
- HS_H08_20130710_0300_003_FDK_R05_S0410_D01.b22 12.2 MB 92.3 MB
- HS_H08_20130710_0300_003_FDK_R05_S0510_D01.b22 12.2 MB 92.3 MB
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- HS_H08_20130710_0300_003_FDK_R05_S0810_D01.b22 7.1 MB 92.3 MB
- HS_H08_20130710_0300_003_FDK_R05_S0910_D01.b22 4.0 MB 92.3 MB
    
```

<http://mscweb.kishou.go.jp/himawari89/>



## FUTURE GEO SATELLITES - USER READINESS -



JMA provides the Web site and the User's Guide documentation.

- **RGB composites** are created from MTSAT-2 imagery.
- Products are provided for users of RA II, RA V region.
- The provided products are IR(10.8um), IR(3.9um), WV(6.8um), VIS(0.68um), Day Micro, and Night Micro.

**It will be available soon!**

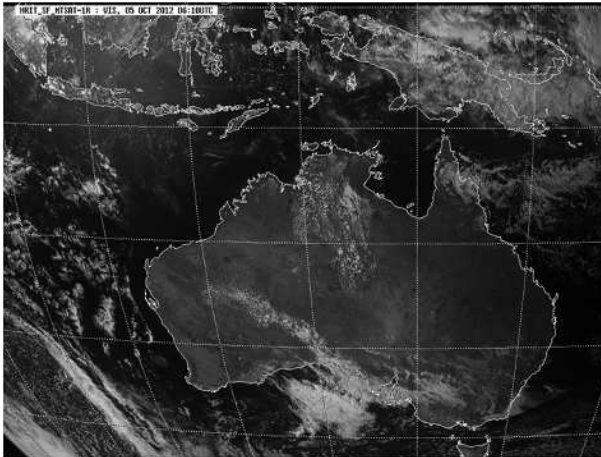
Future plan

- JMA investigates the user requirements.
  - ✓ Kind of imagery
  - ✓ Drawing extent
  - ✓ File format
  - ✓ Latency, etc.
- RGB composites that is based on the WMO standard recipe will be derived after starting Himawari-8/9 operation.



FUTURE GEO SATELLITES - USER READINESS -

Special Observations by the backup satellite, **MTSAT-1R**



JMA supported the HIWC Study field campaign by conducting **MTSAT-1R** rapid scan observation.

Period: January – March 2014

Interval: 10 minutes

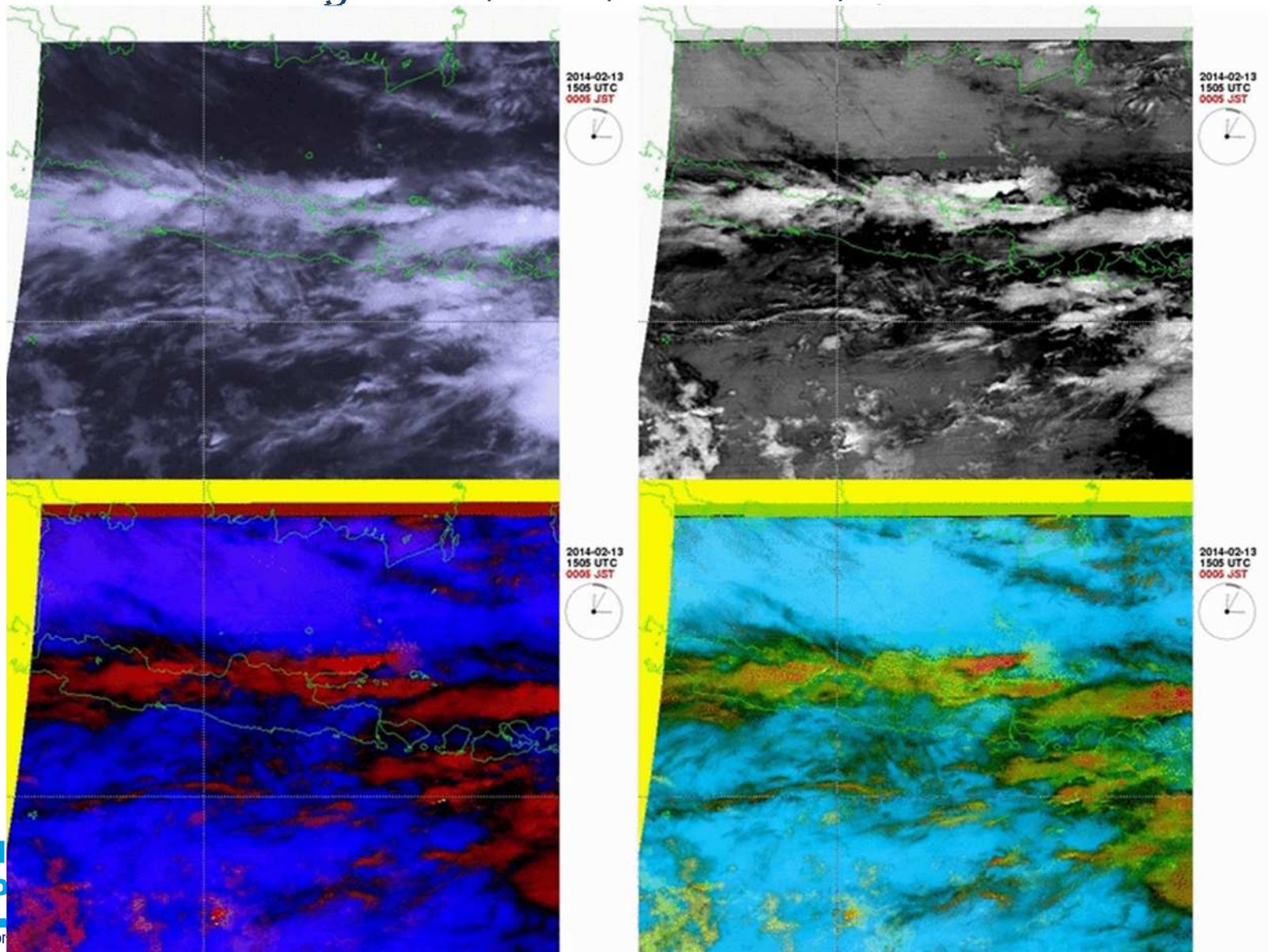
Area: around Australia

Special observation for HIWC campaign enabled **RA V users** to study **how to apply 10-minute interval data to their daily operation in advance of the Himawari-8's operation**. It strongly helped users in preparation for the new data.

On the occasion of **Kelud volcano eruption**, information derived from MTSAT-1R rapid scan observation was of great help to Indonesian people.

FUTURE GEO SATELLITES - USER READINESS -

*Gunung Kelud, Java, Indonesia, 13 Feb 2014*



Thank you.

