JMA Activities on New-generation Himawari-8 Geostationary Satellite in RA-V

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**Himawari-8/9**

- Himawari-8 was successfully launched on 7 October 2014
- Himawari-8 began operation on 7 July 2015
  - Geostationary position: 140.7E
  - Replacing the previous MTSAT-2 operational satellite
  - MTSAT-2 parallel operation was terminated on 24 March 2016
- Himawari-9 is planned to be launched in 2016

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<th>MTSAT-1R</th>
<th>Himawari-8</th>
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Coverage of Himawari-8/9

Satellite Zenith Angle (Elevation Angle)
- 65 deg. (25 deg.)
- 70 deg. (20 deg.)
- 75 deg. (15 deg.)

SWFDDP RA-V domain
JMA’s satellite imagery for SWFDDP
Himarari-8/9 Improved Resolutions

**Spectral**
- **VIS**: 1 band
- **NIR**: 3 bands
- **IR**: 4 bands
- **5 bands** for MTSAT-1R/2
- **16 bands** for Himawari-8/9

**Spatial**
- **At sub-satellite point**
  - **MTSAT-1R/2**: VIS 1 km, IR 4 km
  - **Himawari-8/9**: VIS 0.5/1 km, IR 2 km

**Temporal**
- **Observation Frequency**
  - **60min. full-disk obs.** for MTSAT-1R/2
  - **10min.** for Himawari-8/9
Observation Frequency

MTSAT-2 (VIS)  
Hourly in Monochrome

Himawari-8 (Band01-03)  
Every 10 minutes in Full-Color

16 UTC on 2\textsuperscript{nd} to 13 UTC on 3\textsuperscript{rd}, April 2015
“Himawari Project”
Two Ways of Data Distribution/Dissemination

HimawariCloud/HimawariCast

Himawari-8/9 → Communication Satellite (CS) → HimawariCast service → NMHSs → Users

Himawari-8/9

Communication Satellite (CS)

HimawariCloud service

CS Operator

raw data

HRIT files, SATAID files

All imagery (full data)

JMA

C-band antenna

LNB

DVB-S2 receiver

PC & software

Users
Data Distribution/Dissemination Methods

Two Ways of Himawari-8/9 Imagery Distribution/Dissemination

**HimawariCloud** via Internet Cloud
- Service for **NMHSs** with high-speed Internet access
- All **16 bands** (3 VIS and 13 NIR/IR)
- **Full Specification** (temporal and spatial) of Imagery
  

**HimawariCast** via Communication Satellite
- Service for **Everyone**
- **No Pass Code** for Receiving
- **JMA’s Baseline** for Imagery Dissemination
- **14 bands** (1 VIS and 13 NIR/IR) every **10 minutes** for Full Disk
- Spatial resolution is same as that of MTSAT **HRIT compatible**
  
**HimawariCast and SATAID Synergy**

HimawariCast assists weather monitoring and analysis with SATAID software (visualization tool).

- HimawariCast HRIT files can be converted into SATAID format. (JMA-prepared software also supports this conversion.)
- The latest SATAID software (Ver3.0) supports all 16 bands of Himawari-8.
- HimawariCast meteorological data can also be displayed in SATAID software.

SATAID (SATellite Animation and Interactive Diagnosis) is a sophisticated display software visualizing meteorological information in **multiple dimensions (spatial and temporal)**, which assists forecasters to analyze and monitor continually weather parameters and phenomena for better meteorological services.
Satellite imagery + NWP + ASCAT + SYNOP, SHIP, TEMP
SATAID software

RGB imageries
Training Seminars on **HimawariCast System**

- **Training seminars for individual NMHSs**
  - JMA dispatches experts to each NMHSs after the installation of HimawariCast receiving system.
  - Training seminars include...
    - Basics of satellite imagery analysis
    - Utilization of Himawari-8’s 16 bands
    - Analysis training using the SATAID software ... and so on.
  - Feedbacks from NMHSs help to improve JMA services.
Contents:

- Overview of satellite observation
- Overview of data dissemination
- Imager (AHI) specifications
- Operational status
- Sample data
- Sample source code to read

Himawari-8 data and convert into other formats

Feel free to contact:

Technical matters: jma-msc-contact@ml.kishou.go.jp
Data Providing: metsat@met.kishou.go.jp
Summary

- Himawari-8/9 characteristics and progress
- "Himawari Project"
  - Providing the user readiness for the benefit of next generation geostationary satellites
  - Deployment of more that 20 receiving systems in collaboration with WMO and JICA
  - Attachment training with SATAID by JMA experts