

Protocol for Himawari-8/9 Request-driven Rapid Scan in WMO RA II and RA V

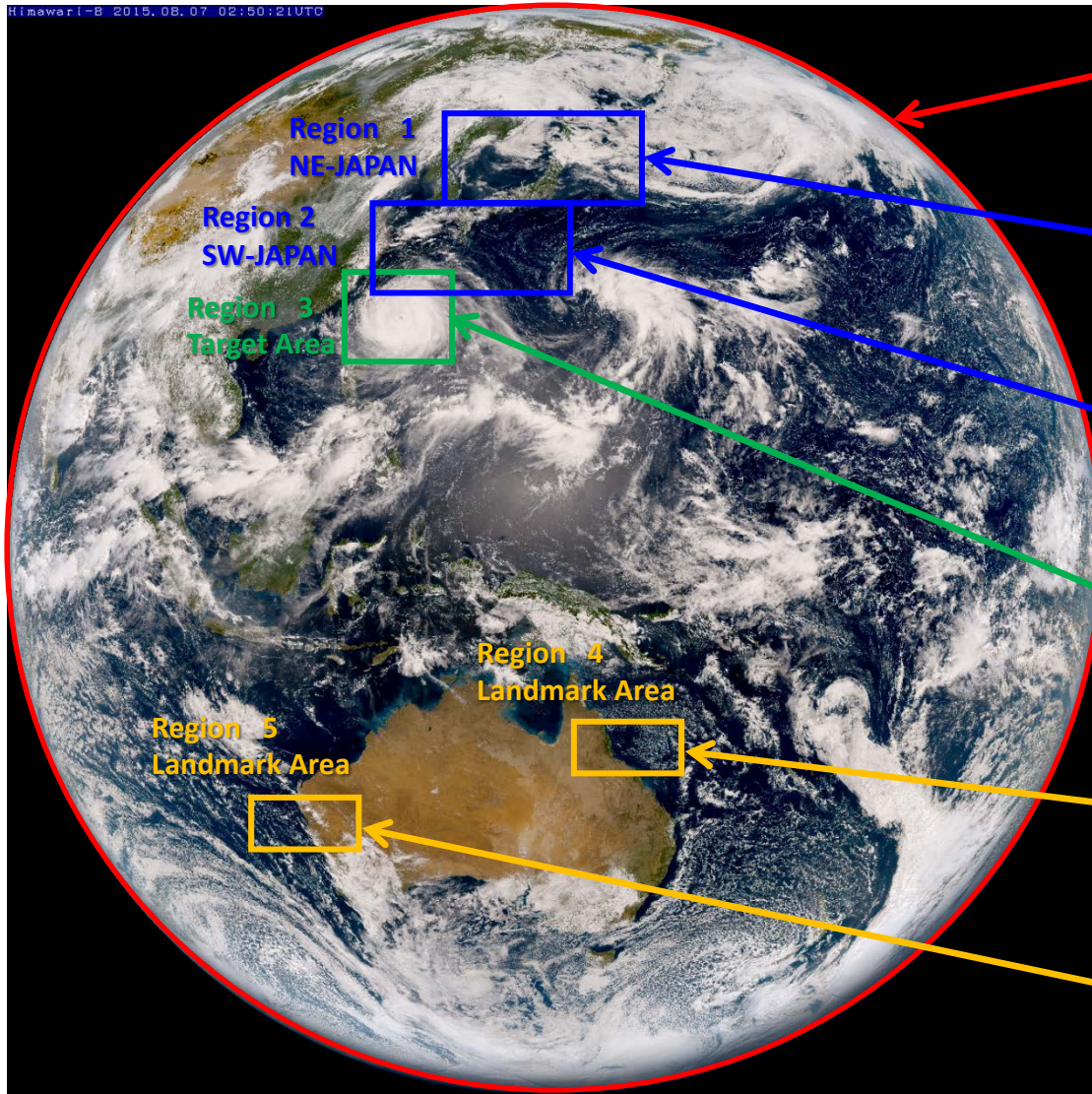
Draft v0.3, September 2017

SCOPE-Nowcasting-EP
18-20 September 2017

Japan Meteorological Agency

Overview of Himawari-8/9 Target Observation

Himawari-8/9 Observation Areas



Full disk

Interval : **10 minutes** (6 times per hour)

Region 1 JAPAN (North-East)

Interval : **2.5 minutes** (4 times in 10 min)

Dimension : EW x NS: 2000 x 1000 km

Region 2 JAPAN (South-West)

Interval : **2.5 minutes** (4 times in 10 min)

Dimension : EW x NS: 2000 x 1000 km

Region 3 Target Area

Interval : **2.5 minutes** (4 times in 10 min)

Dimension : EW x NS: 1000 x 1000 km

Region 4 Landmark Area

Interval : **0.5 minutes** (20 times in 10 min)

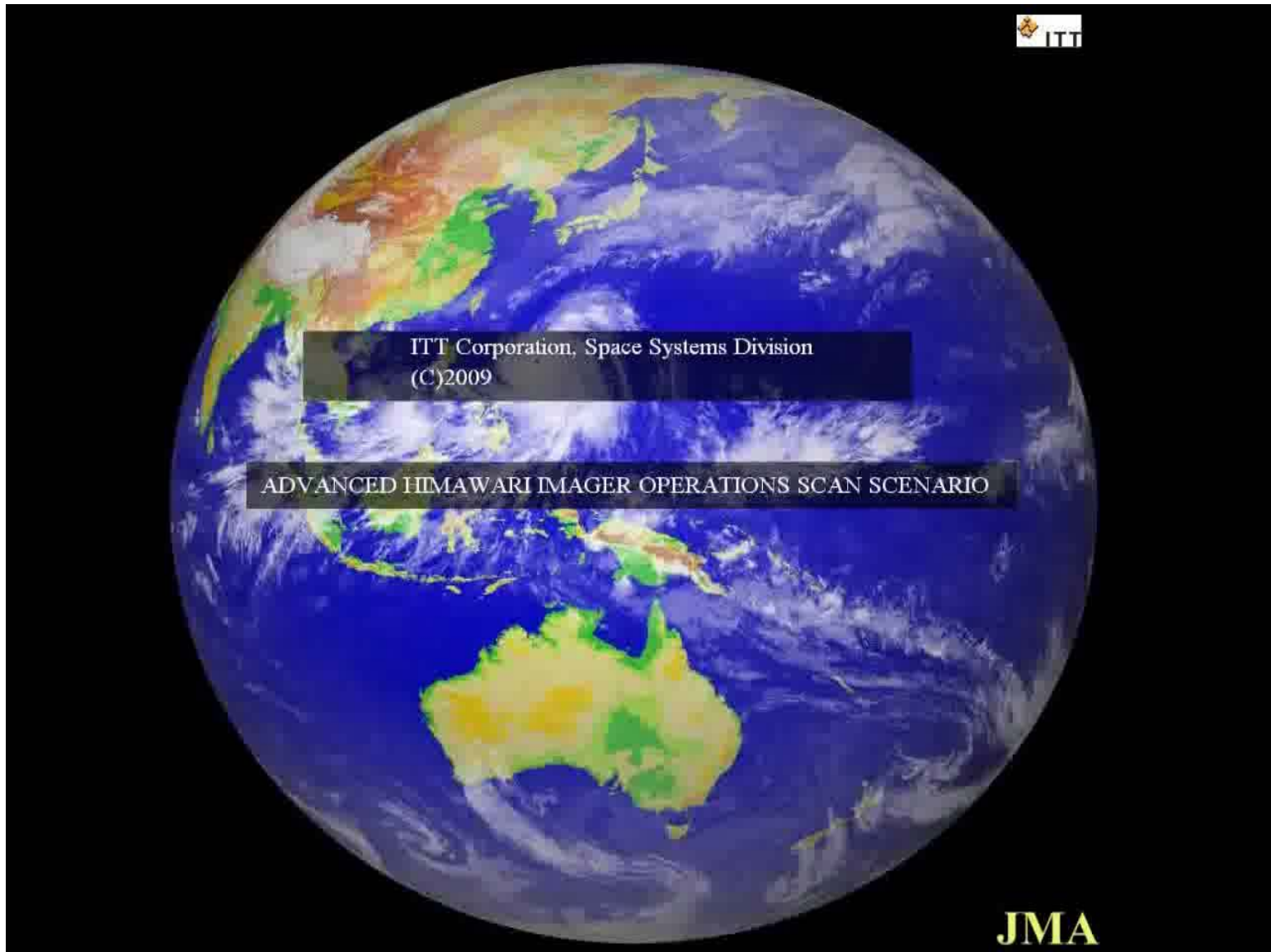
Dimension : EW x NS: 1000 x 500 km

Region 5 Landmark Area

Interval : **0.5 minutes** (20 times in 10 min)

Dimension : EW x NS: 1000 x 500 km

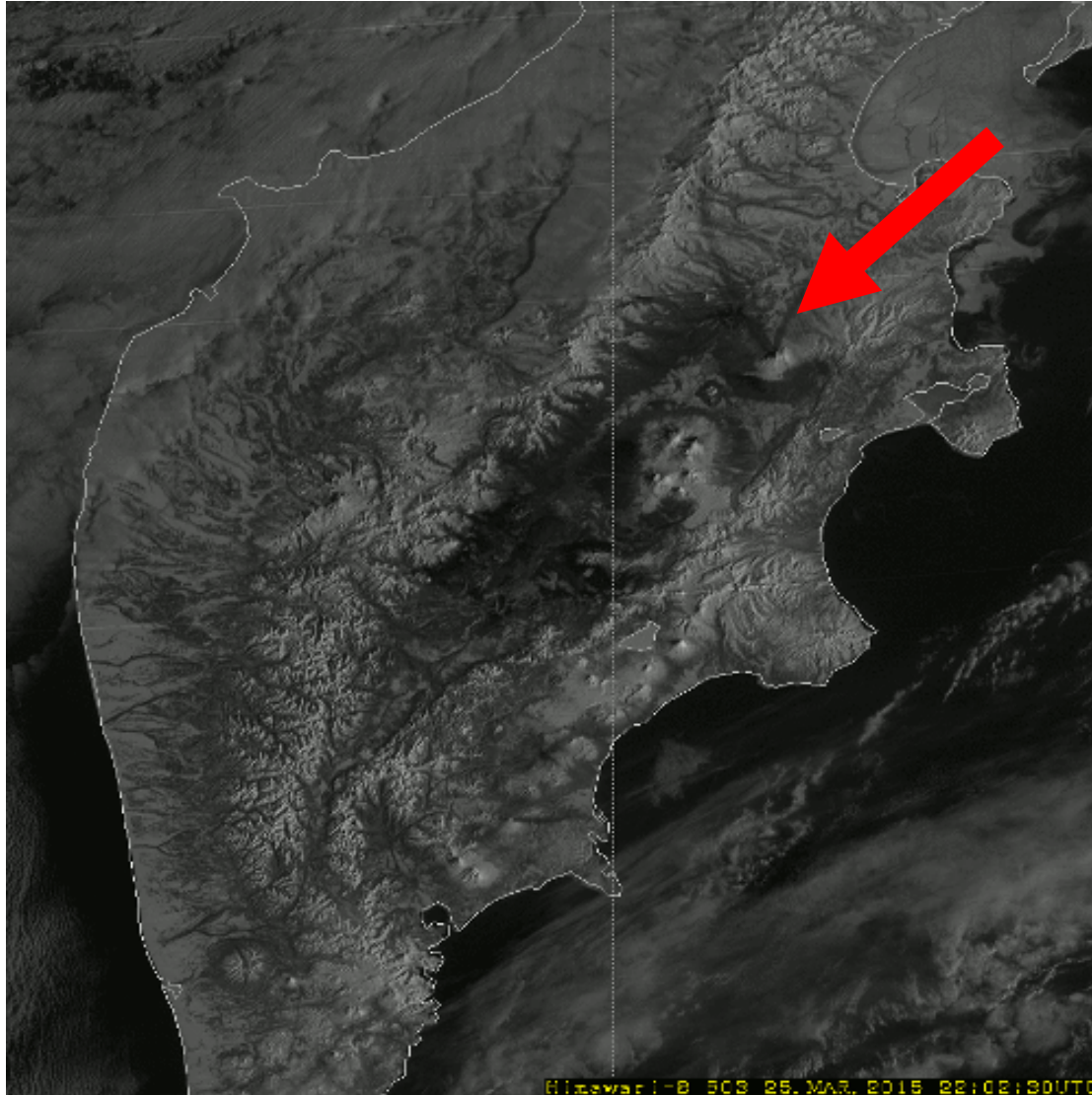
AHI Scan Sequence



Target Area Observation

- Covering 1000 km x 1000 km every 2.5 minutes
- Flexible to change its position in AHI's FOV
- Utilized for JMA's international services not covered by the 2.5-min Japan Area Observation
 - Normally focused on an area of active volcanoes in the domain of the Tokyo VAAC (e.g. Kamchatka Peninsula)
 - Pointed to a typhoon once it occurs in the responsibility area of the RSMC Tokyo Typhoon Center based on JMA's typhoon prediction and its priority

Volcano Eruption

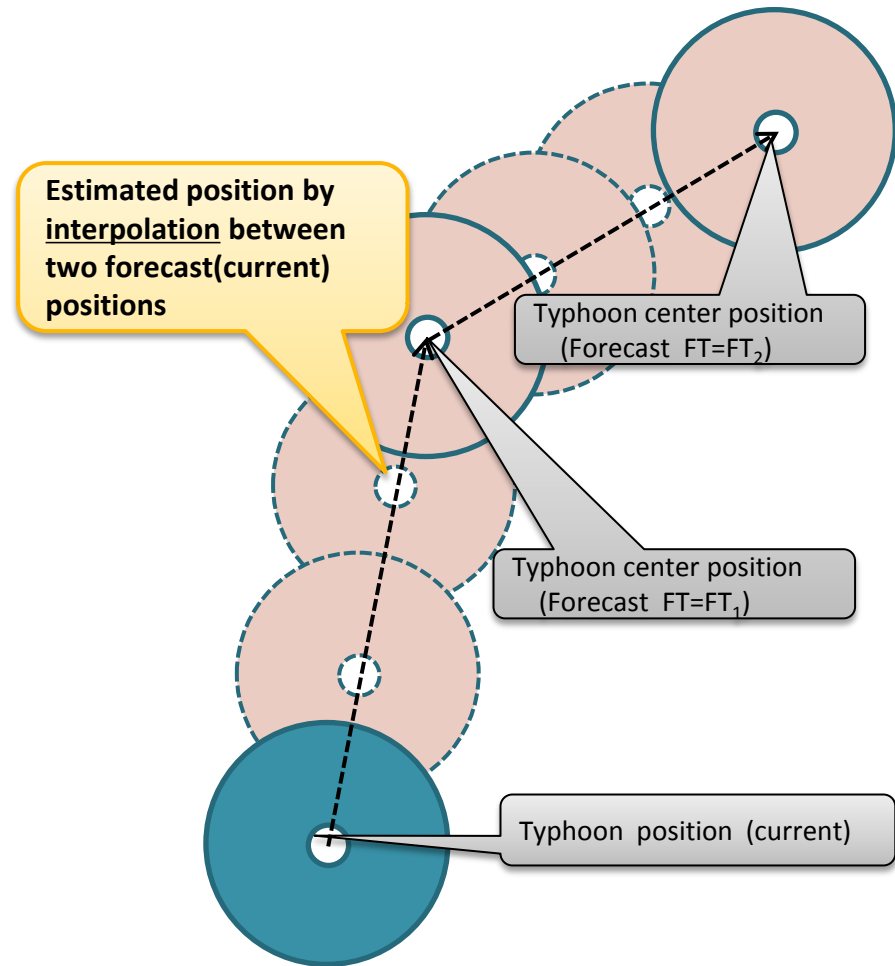


Mt. Shiveluch in Kamchatka
Band 03 (0.64 μm , visible)

Typhoon



21 UTC on 9th – 10 UTC on 10th, May 2015
Typhoon Noul (2015) Band 03



Background of the protocol

Back ground of the Protocol (1/2)

- The 67th WMO Executive Council (May 2015)
 - JMA willingly decided to develop a protocol through which NMHSs can request the Target Area Observation of Himawari-8/9.
- Joint RA-II/V Workshop on WIGOS for Disaster Risk Reduction (Oct. 2015)
 - Jakarta Declaration
 - One of its goals, *“developing a protocol for NMHSs of the countries in the region to request event-driven rapid scan imagery”*
- RA II WIGOS Project to Develop Support for NMHSs in Satellite Data, Products and Training
 - Its work plan 2017-2020 including *“(i) To develop a protocol for NMHSs of the countries in the Region to request event-driven rapid scan imagery; and (ii) to assist NMHSs to utilize rapid scan data in support of DRR in response to their requests”*

Back ground of the Protocol (2/2)

- JMA-AuBoM joint feasibility study on request-driven Target Area Observation with Himawari-8 (Feb-Mar 2016)
- Initial draft protocol kindly prepared by WMO Space Programme (March 2017)
- JMA's initiative for developing the protocol
 - Draft v0.1 reported at IPET-SUP-3 (2-5 May 2017)
 - Draft v0.2 reported at CGMS-45 (11-16 June 2017)
 - Draft v0.3 (to be) reported at SCOPE-Nowcasting-EP (18-20 Sep. 2017)

Out line of the latest draft protocol v0.3

Please note that this protocol is still “draft” version

Purpose and Scope

- This protocol describes a mechanism under which NMHSs of WMO RA II and RA V Members except for JMA (hereinafter referred to as the "Requesters") make requests for the Target Area Observation over selected areas provided by the operational satellite of Himawari-8 and -9.
- The protocol is expected to publicize the risk of severe phenomena to society and demonstrate the value of short interval regional observation.

Basic Principle

1. JMA may at any time prioritize Japan's national priorities or interests for the Target Area Observation over those from the Requesters.
2. JMA will consider requests from the Requesters on a best-effort basis in consideration of operational limitations, and it does not ensure its instantaneity, integrity and availability.
3. Among requests from the Requesters, the highest priority will be given to the one for a tropical cyclone or for a volcanic eruption.
4. Observation duration by each request from the Requesters shall not exceed 48 hours, and any extension requires a further request.

Request Management

- Requesters in RA II submit their requests to JMA directly.
- Based on the feasibility conducted in 2015, the Requesters in RA V submit their requests to AuBoM.
- AuBoM, who plays a broker role in the protocol, manages requests from RA V and informs JMA of one request for a certain time slot.

Registration

- Requesters are required to be registered in advance by using the Registration Form (Annex I).
- In the form, an e-mail address from which requests will be sent must be specified so that JMA and AuBoM can confirm its validity.

Request Procedure

- Requesters shall provide JMA with the Request Email (Annex II).
- The Request Email notifies JMA of request information including a center position and start/end times of observation, and it triggers subsequent procedure.
- Request procedure is different between RA II and RA V.

Request Email (draft) Example

Subject Line: “Himawari Rapid Scanning Request”

1. Requestor Information

Nation: Australia

Organization: Bureau of Meteorology

Name: XXXX XXXX

2. Event Type

-Tropical Cyclone (Debbie)

3. Location

Geographical Name: Queensland

East Longitude, North Latitude [deg]: 142.70, -20.92

4. Start and End Time [UTC]

Start: 2017/03/27 09:00

End: 2017/03/28 12:00

5. Purpose

-Disaster Risk Reduction

Detail: To precisely determine the TC's center position.

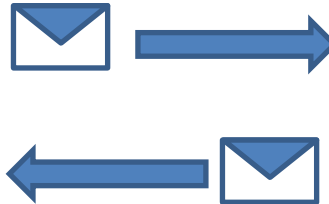
6. URL for the reference of the event (if any)

<http://www.bom.gov.au/cyclone/>

Procedure for RA II

NMHSs in RA II

1. Send Request Email to JMA

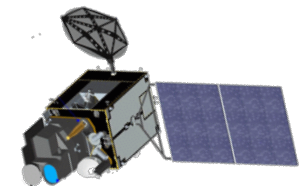


MSC/JMA

2. Reply by e-mail
(if the request can be realized)
3. Change relevant settings



Request-driven observation



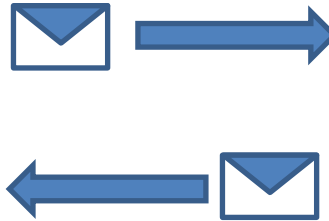
Observation result

- HimawariCloud
- Himawari Real-Time Image (Website)

Procedure for RA V

AuBoM (broker)

2. Assign priority (if necessary) and Forward Request Email to JMA

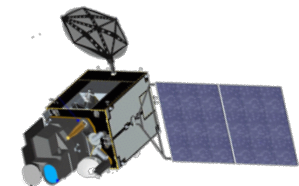


MSC/JMA

3. Reply by e-mail
(if the request can be realized)
4. Change relevant settings



Request-driven observation



NMHSs in RA V

1. Send Request Email to AuBoM



Observation result

- HimawariCloud
- Himawari Real-Time Image (Website)

Data Access

- Target Area Observation data are disseminated via the HimawariCloud service.
- Related imagery is also available on the Himawari Real-time Image website at:
http://www.data.jma.go.jp/mscweb/data/himawari/sat_tga.php

Feedback

- After the requested observation, the Requesters shall provide JMA with feedback on how they utilize the observation data.

Way Forward

- The final draft will be reported at the 5th coordination group meeting of the RA II WIGOS satellite project (21 Oct 2017).
- JMA aims to implement this protocol from Jan. 2018.

We believe this attempt will serve to demonstrate the value of rapid scan and to strengthen NMHSs' DRR services.