The feasibility study on Himawari-8 event-driven rapid-scan

Presented to CGMS-44 WGIII, JMA-WP-06, agenda item III/8

Japan Meteorological Agency

Coordination Group for Meteorological Satellites

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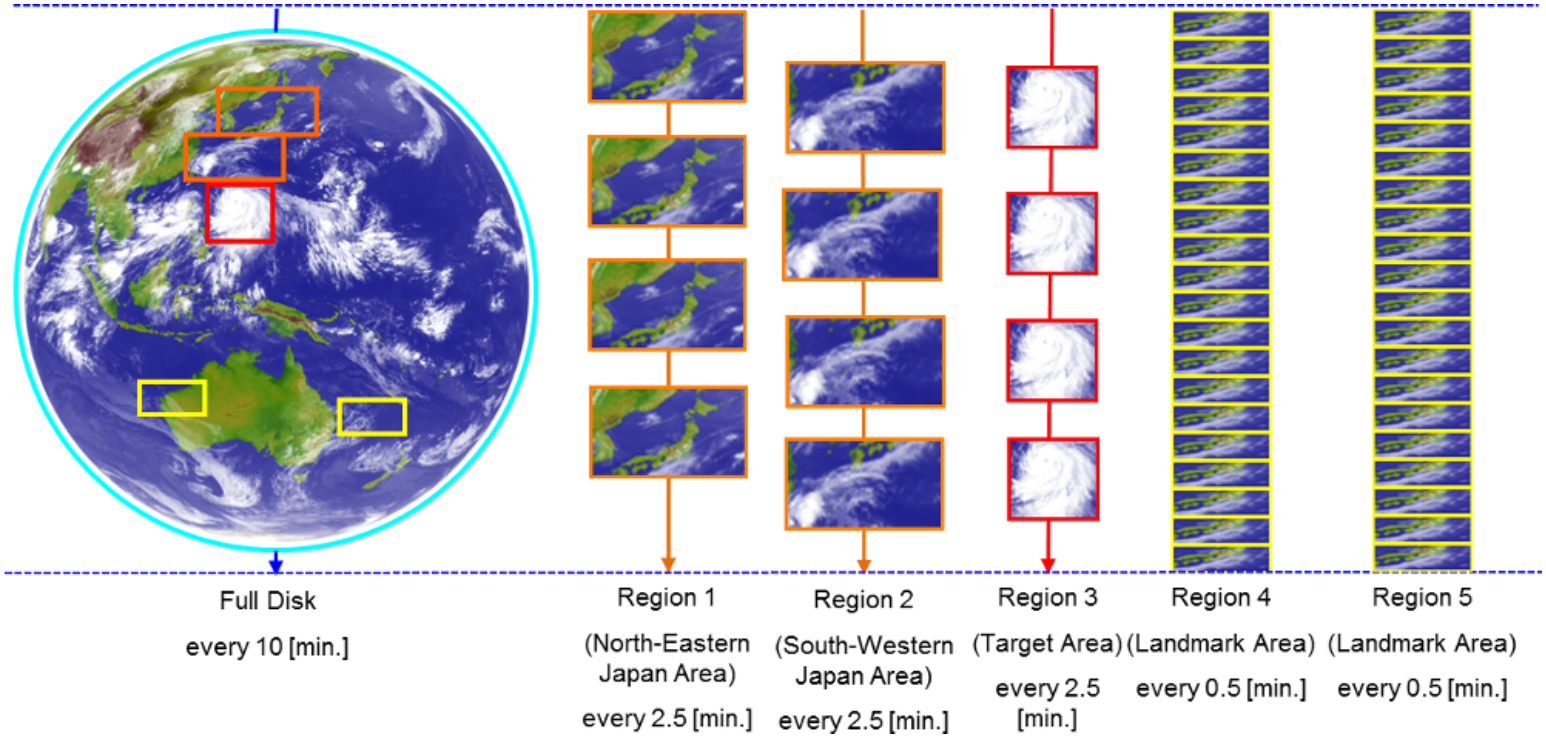
Introduction 1

- AHI (Advanced Himawari Imager) on Himawari-8 has the ability of various scans during 10 minutes Full Disk observation.
- AHI can flexibly change the scan range of “Target Area” for observation of phenomena such as typhoons and active volcanoes.



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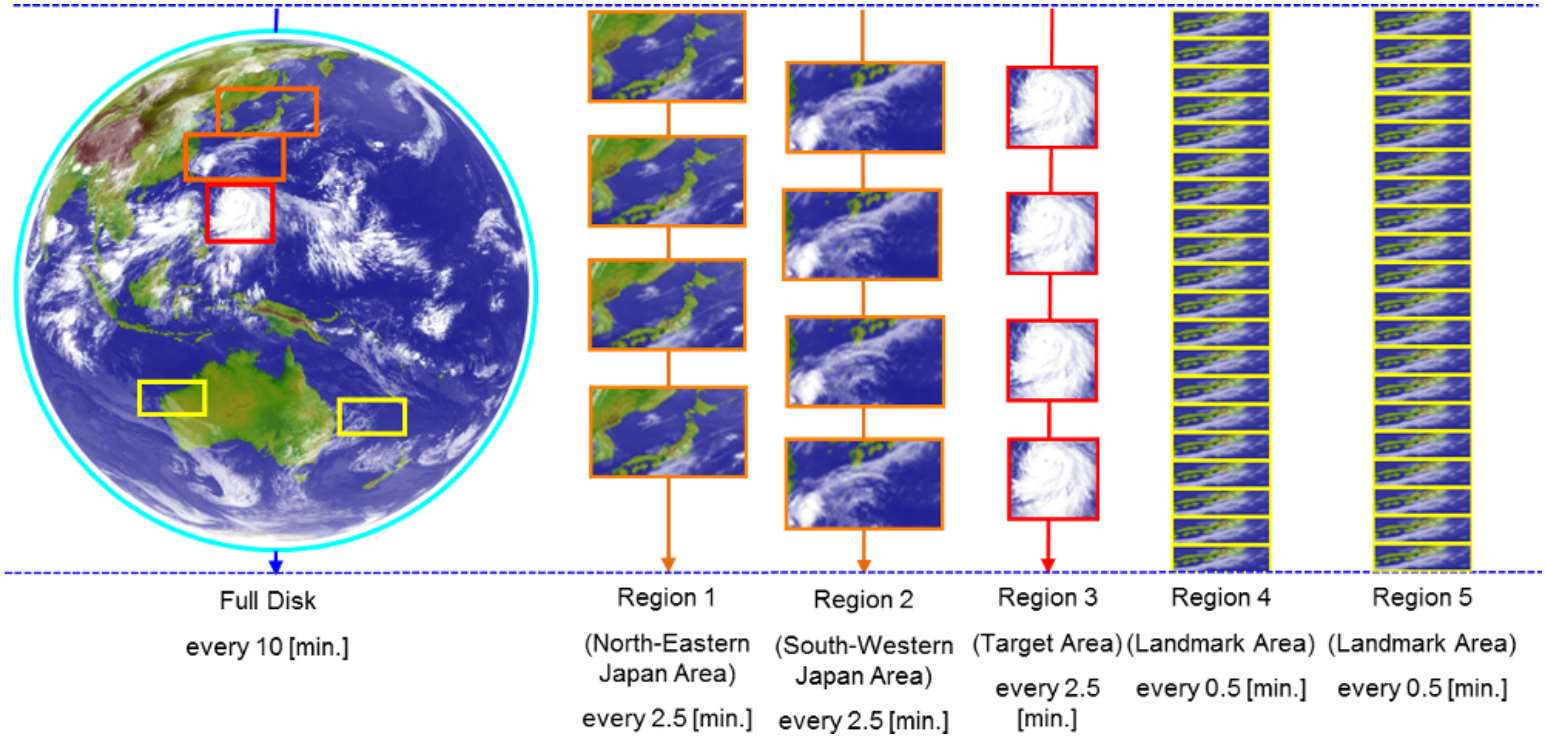
Introduction 2

- Essentially, the Himawari-8 rapid scan target area observation is focused on tropical cyclones in the RSMC Tokyo - Typhoon Center's area of responsibility and on volcanic eruptions for the Tokyo Volcanic Ash Advisory Center (VAAC Tokyo).
- In case a typhoon occurs in Western North Pacific, JMA operates the tracking observation of the typhoon in constantly shifted scan range of the Target Area.



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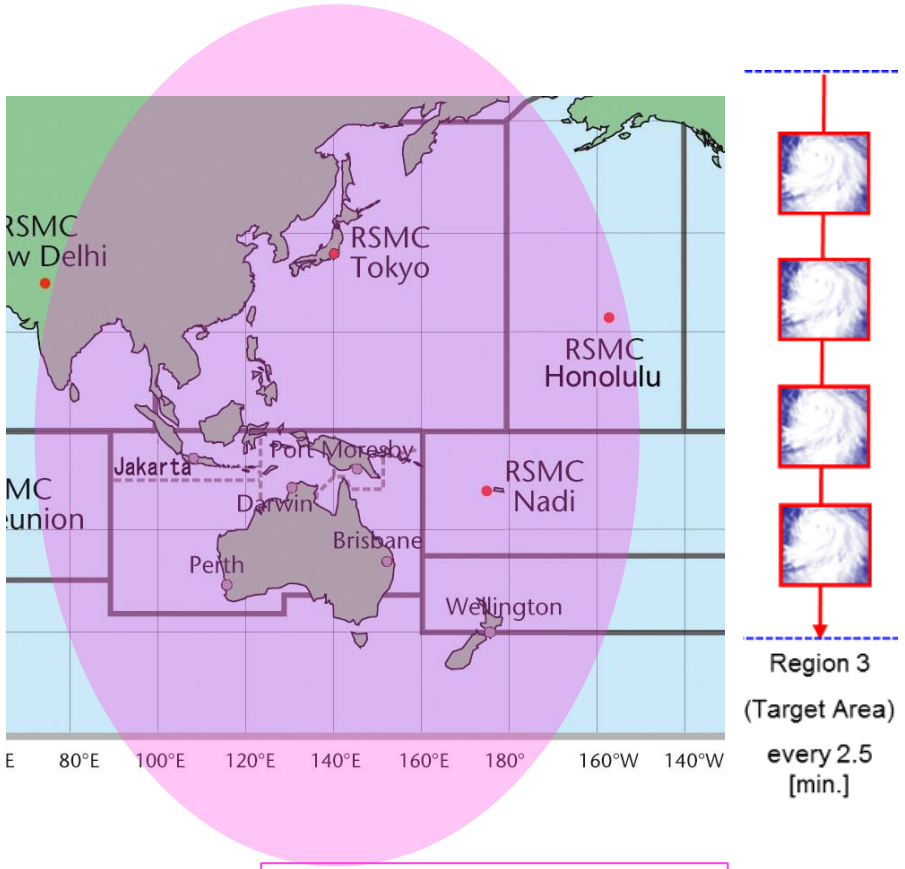
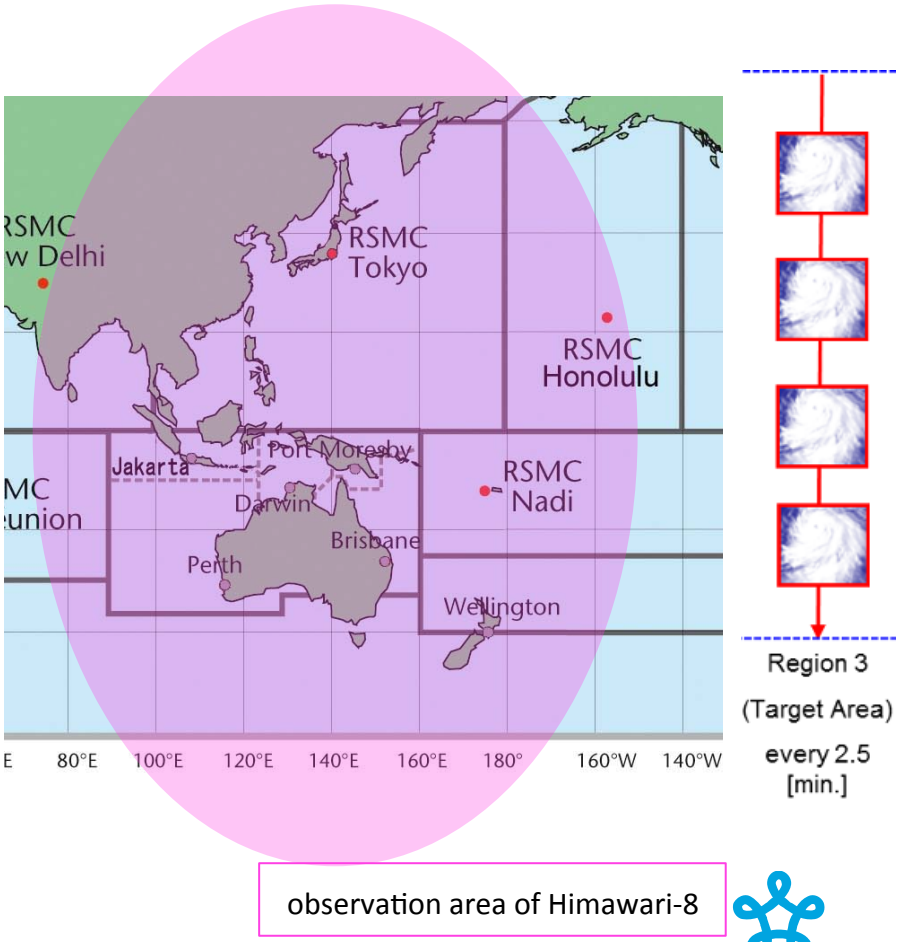
Introduction 3

- In October 2015, the Joint RA-II/RA-V Workshop on WIGOS for Disaster Risk Reduction adopted the Jakarta Declaration, and one of its goals is aimed at developing a protocol for NMHSs of the countries in the region to request event-driven rapid scan imagery.



Introduction 4

- Based on the Declaration, JMA and Australian Bureau of Meteorology (AuBoM) conducted a joint feasibility study toward the development of a protocol for the request of Himawari-8 Rapid Scan observation between February and March 2016.
- JMA collaborates with AuBoM to create the cyclone tracking system by “Target Area” observation during high season for cyclone whereas low season for typhoon.



observation area of Himawari-8

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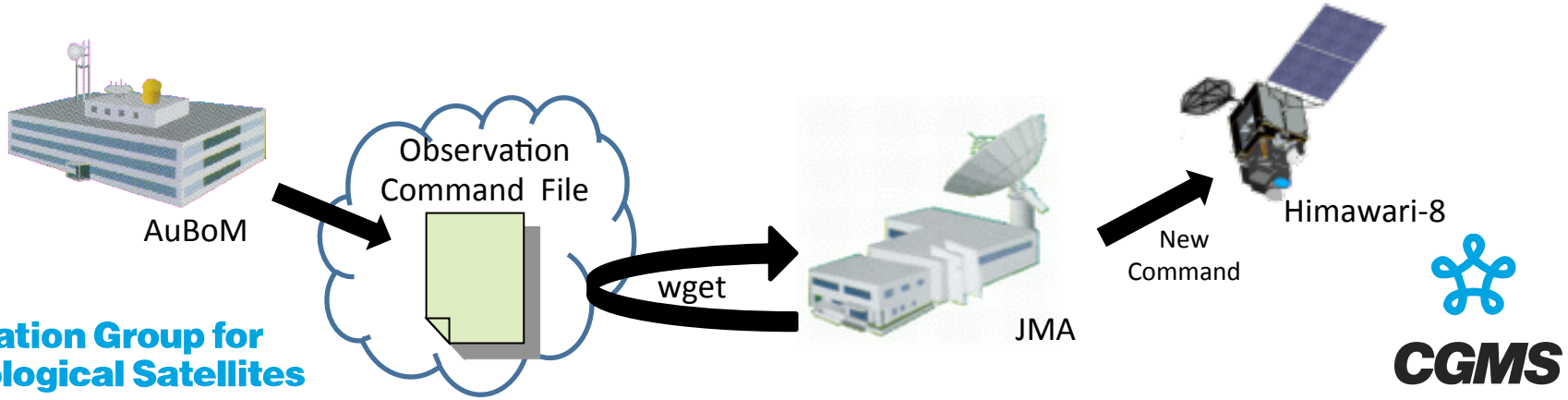
Method

- AuBoM creates the reservation file which specifies the duration and coordinates of observation.
  - AuBoM uploads the file on the dedicated web page.
  - JMA constantly surveils this web page.
- When AuBoM renews the reservation file, JMA “wget”s the file from the web page and makes a new command of “Target Area” determined by the file.
  - JMA checks format, duration and coordinate of the reservation file (automatically).
  - In case of conflict between JMA’s observation and AuBoM’s one, the schedule coordinate system in JMA adjusts each reservation in order of priority.

    (e.g. set higher priority to typhoon observation than that of cyclone)



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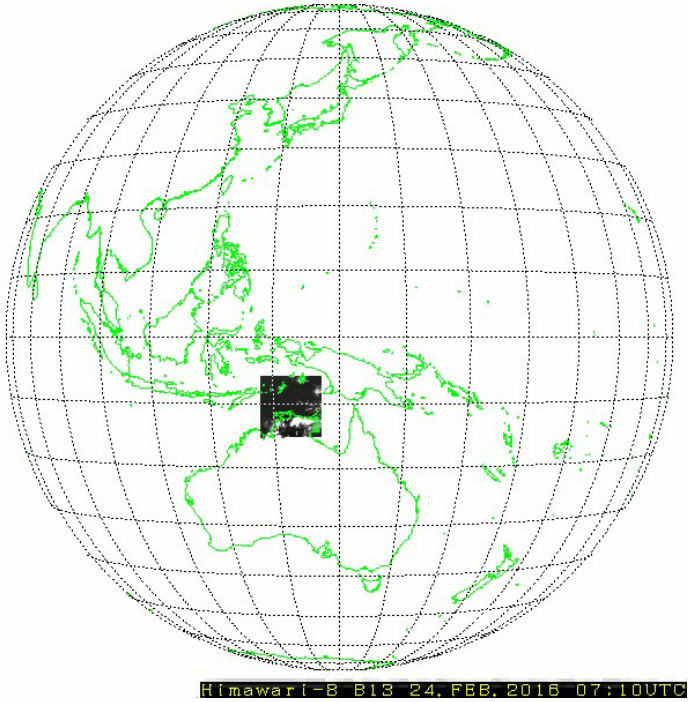
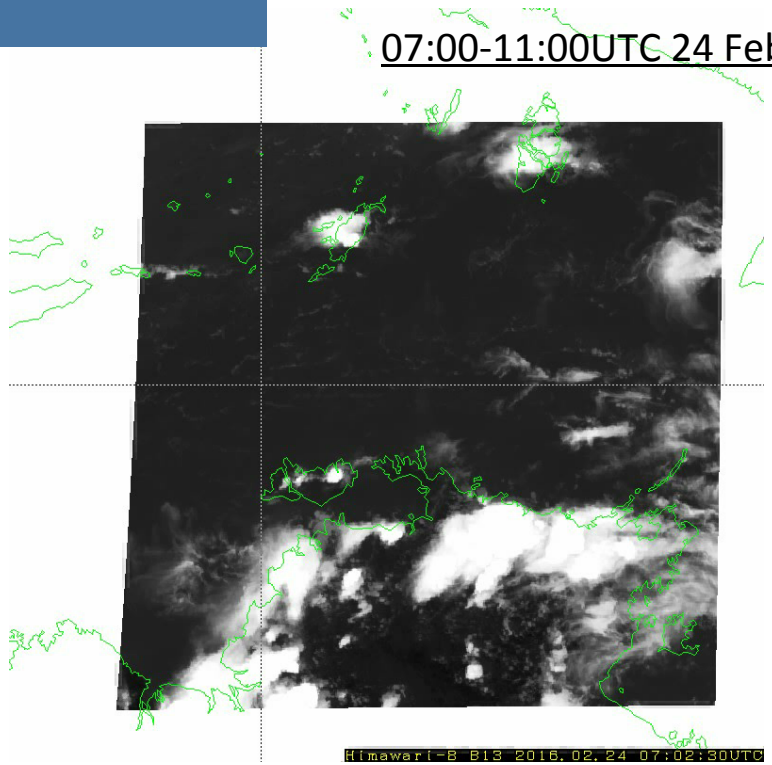
Result



07:00-11:00UTC 24 Feb. 2016



- The test observation was operated six days.
- There was no cyclone within the area of resbonsibility of AuBoM.
- The test itself were conducted and the observation successfully operated as AuBoM had expected.

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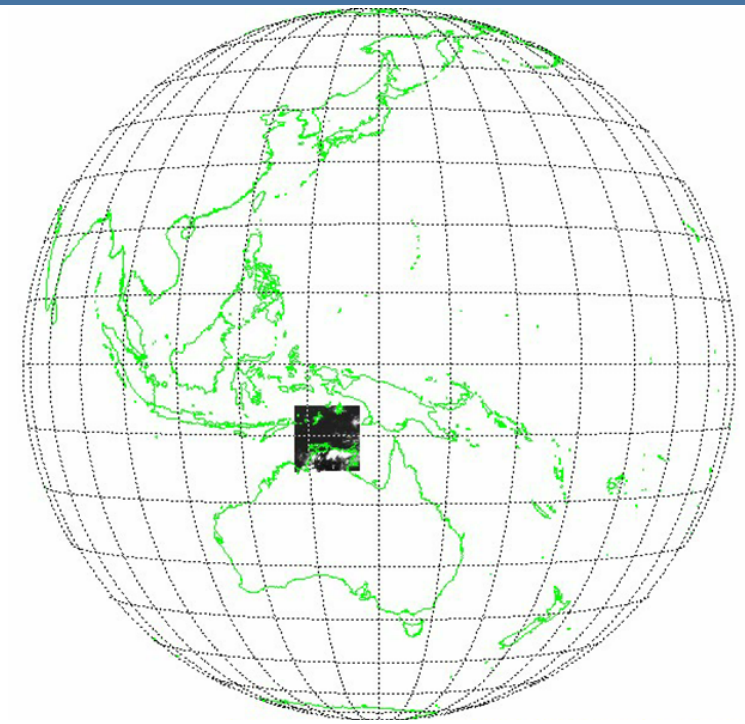
Result



07:10UTC 24 Feb. 2016

21UTC 09 – 10UTC 10 May 2015 (typhoon Noul)

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- There was no cyclone within the area of resbonsibility of AuBoM.
- The test itself were conducted and the observation successfully operated as AuBoM had expected.

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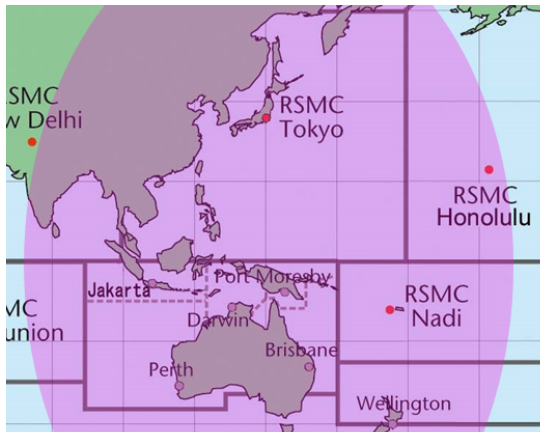
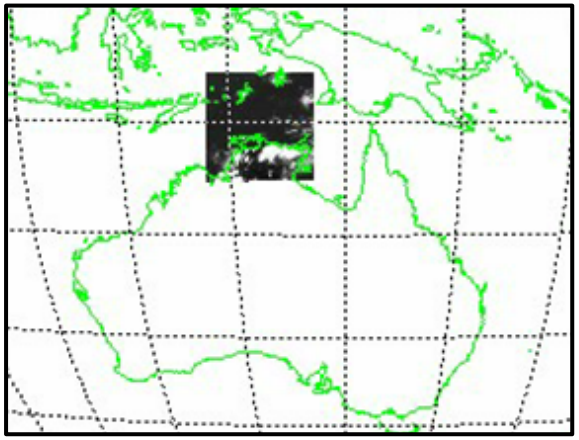
The feasibility study on Himawari-8 event-driven rapid-scan

- JMA and AuBoM conducted the feasibility study during high season for cyclone whereas low season for typhoon from Feb. to Mar. 2016. The six days test observations with the Target Area 2.5-min Himawari-8 rapid scan were successfully operated as AuBoM had expected.
- The request-based Target Area observation can be one option of rapid scan observation.
- It is necessary for users to be ready to utilize 2.5-min observations (in addition to the new 10-min 16band routine observations) for their disaster risk reduction activities.



Observation area of Himawari-8



Test observation of ''Target Area'' by the AuBoM command (07:10UTC 24 Feb. 2016)