



# Report from JMA to GHRSSST-XVI

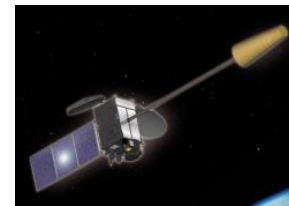
Japan Meteorological Agency

Masakazu HIGAKI\*, Shiro ISHIZAKI,  
Toshiyuki SAKURAI, Mika KIMURA,  
Akiko SHOJI, and Yoshiaki KANNO

\*e-mail: [m-higaki@naps.kishou.go.jp](mailto:m-higaki@naps.kishou.go.jp)

# Introduction

- Japan Meteorological Agency (JMA)
  - is the National Hydrological-Meteorological Service (NHMS) of Japan.
  - provides oceanographic information (incl. SST) as well as weather forecast and information, etc.
- SST Product
  - JMA produces a global L4 Product, MGDSSST with  $0.25^\circ$  resolution on near realtime basis,
  - and reanalysis dataset (1982-) of MGDSSST.
- Satellites
  - JMA operates geostationary satellites:
    - MTSAT-1R/2
    - Himawari-8

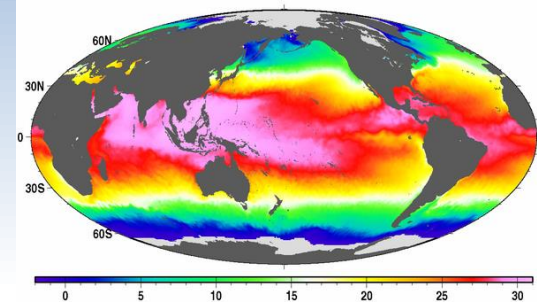


# Main activities since GHRSSST XV

- Preparation of MGDSST in GDS 2.0 format
- Ongoing development to improve MGDSST
  - plan to introduce new satellite data
    - such as ACSPO VIIRS, MetOp-B, etc
  - use of shorter timescale data of AMSR2 for better temporal response
- Development of regional analysis
  - using MTSAT SST data
  - plan to use Himawari-8 SST
- Himawari-8 geostationary satellite
  - was launched on 7 Oct. 2014
  - has been put into operation since 7 July 2015
  - L3 SST is now being prepared



# Data availability



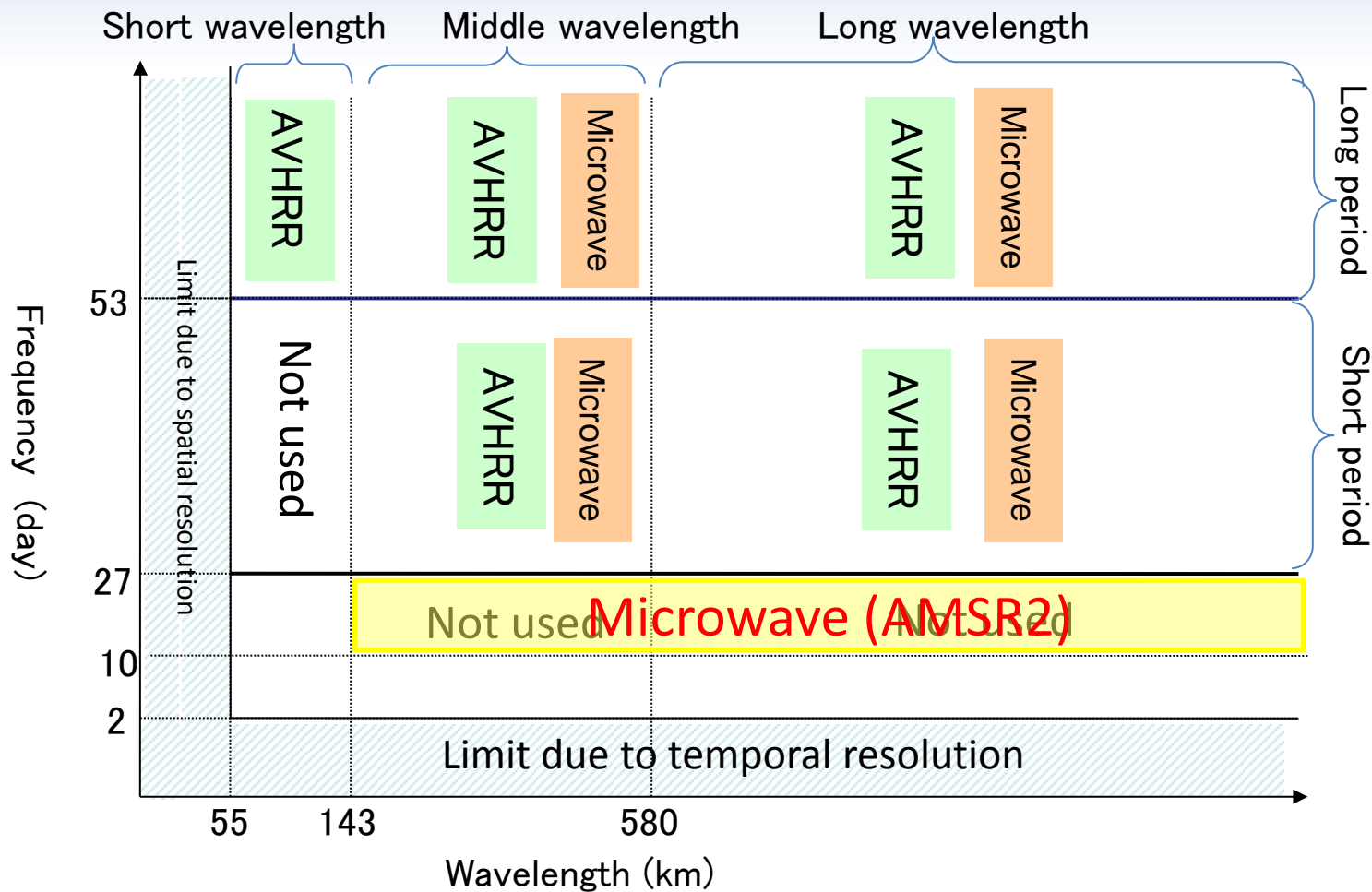
- MGDSST (L4 product)
  - Global, 0.25° resolution, Daily
  - Input: AVHRR (NOAA-18, 19, MetOp-A), AMSR2, Windsat, in-situ
  - Prompt/delayed analysis and reanalysis
    - Prompt analysis: conducted as a part of JMA's NWP System
    - Delayed analysis: conducted usually 5-months after
    - Reanalysis: reprocessed for 1982-2006 with Pathfinder SST v5.0/5.1
  - Available at NEAR-GOOS Database:
    - <http://ds.data.jma.go.jp/gmd/goos/data/database.html>
      - The URL has been changed since October 2014
    - Currently, the previous version of the reanalysis (1985-) is distributed through the NEAR-GOOS site.
    - We will distribute the latest version of reanalysis (1982-) soon.
  - Format: text
- Implementation of GDS2.0
  - Not yet, but in preparation
  - A program to convert MGDSST into GDS2.0 has been made

# GDS 2.0 implementation

- To facilitate the use of JMA's SST products in GHRSSST activities, JMA is preparing data sets in GDS 2.0 format
  - MGDSST
  - Regional SST analysis (under development)
- Done
  - A program to convert MGDSST into GDS2.0 has been made
- To be done
  - Determine and register parameters (e.g. center name, product name, etc) to GDS2.0 Specification
    - The file name would be “20150720-JMA-L4\_GHRSSST-SSTfnd-MGDSST0.25deg-GLOB-v02.0-fv01.0.nc”
  - Determine the method to distribute the data
    - JMA and JAXA are discussing the use of JAXA RDAC Server
- Release date (expected): 2015



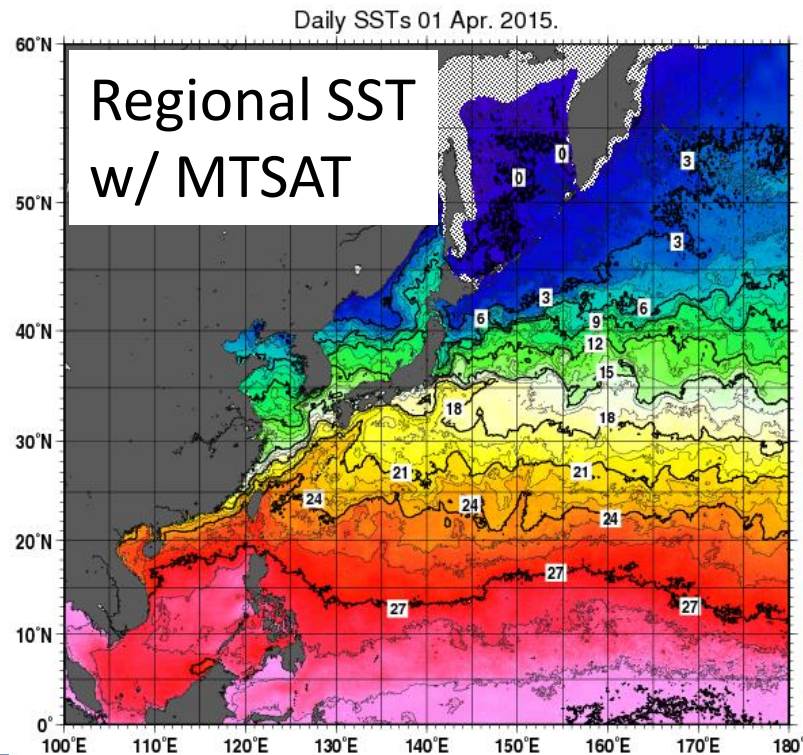
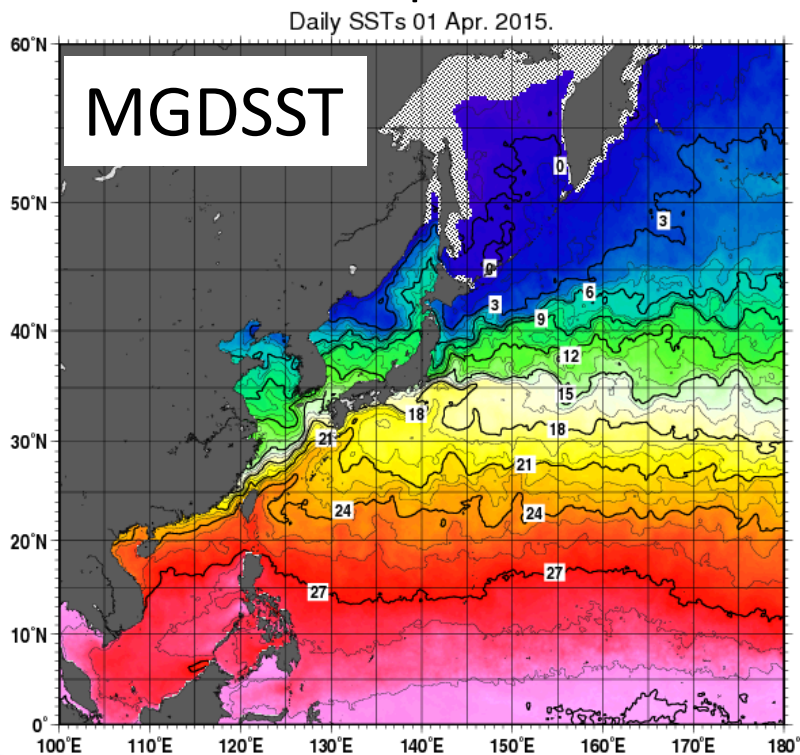
# Spatio-temporal scale decomposition in MGDSSST



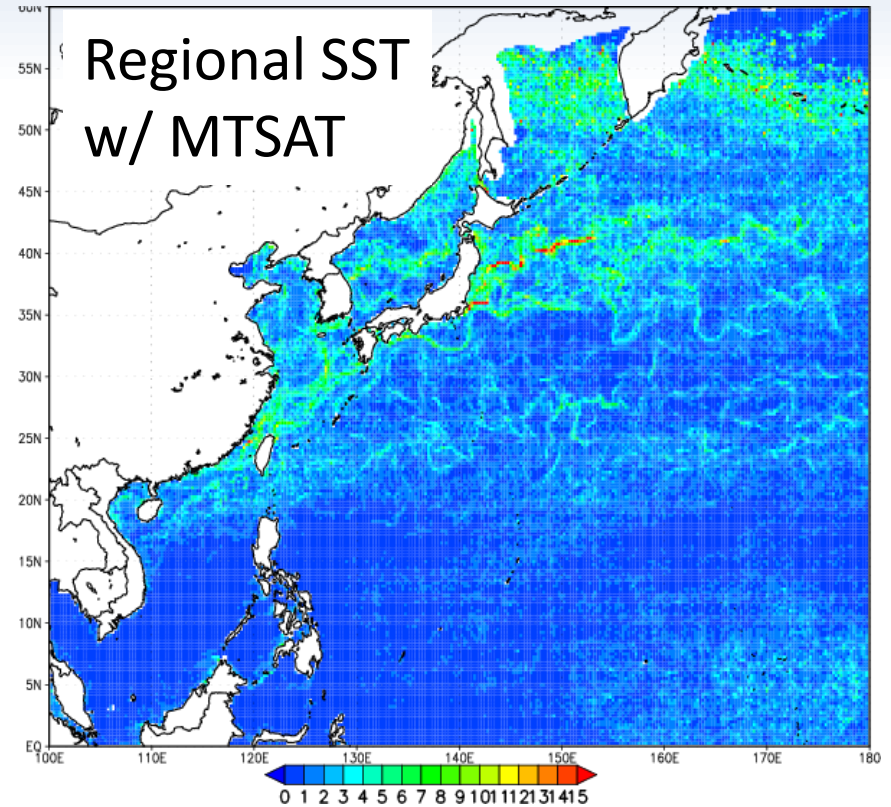
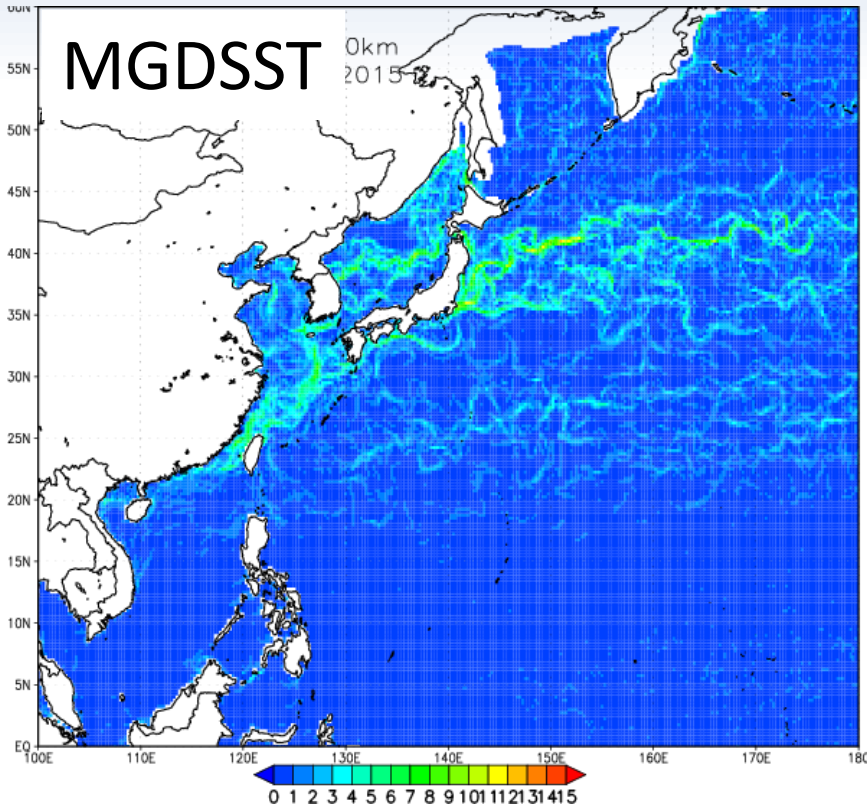
We are considering the use of the shorter timescale (10- to 27-day) component from AMSR2 for better response in MGDSSST.

# Regional SST analysis with MTSAT/Himawari-8 SST

- western North Pacific,  $1/10^\circ$  resolution, Daily
- Input : AVHRR, AMSR2, **MTSAT**, in-situ
- It utilizes shorter/smaller scale components, which are not used in MGDSST
- under development



# Regional SST analysis gradient comparison with MGDSST

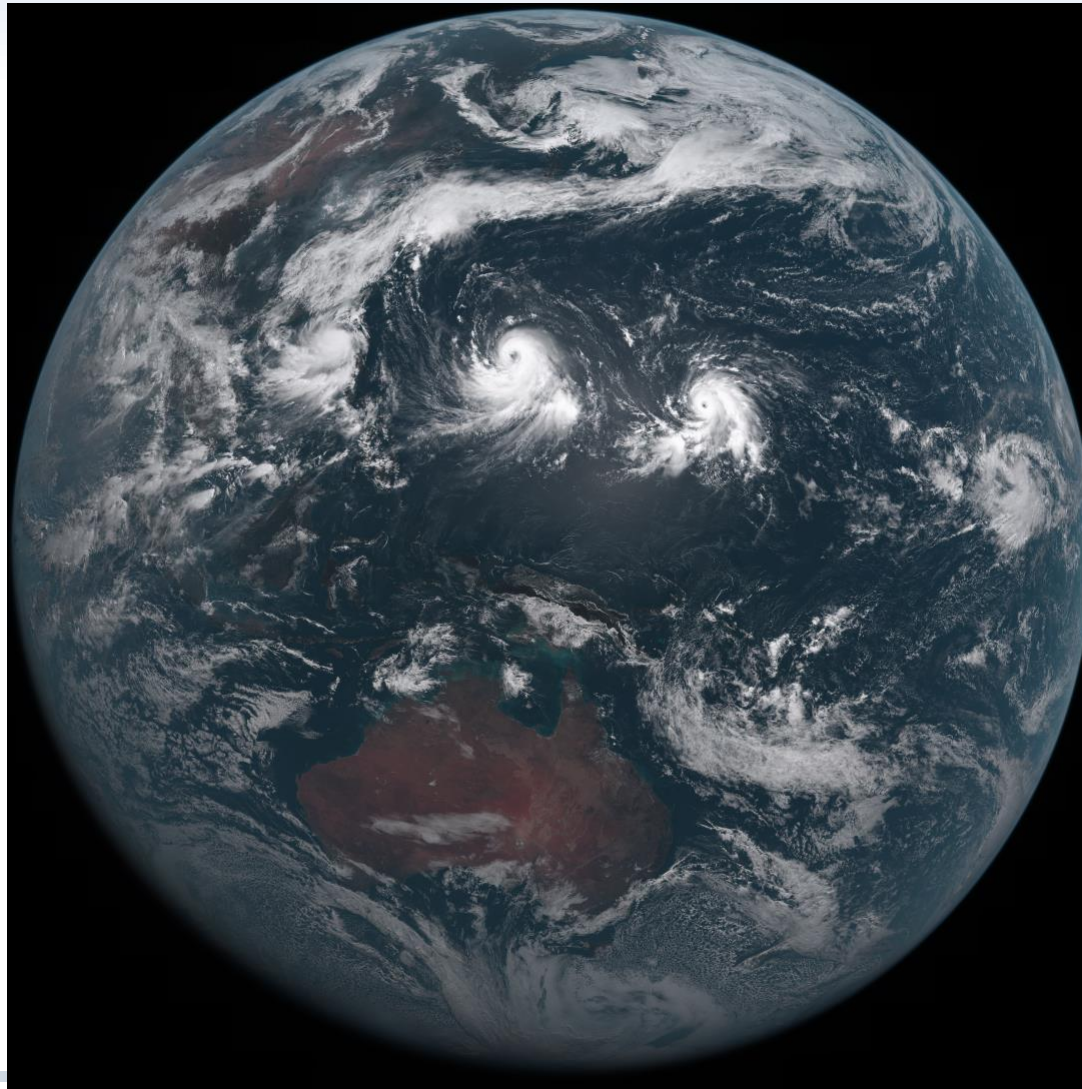


- The new regional SST analysis (right) shows sharper SST gradients than those of MGDSST because of its higher grid resolution and the use of short wavelength components from MTSAT.



# Himawari-8 is now operational!

Himawari-8 started operation at 02 UTC on 7 July 2015, replacing MTSAT-2.



True-Color  
Composite

R: Band 3  
(0.64um)

G: Band 2  
(0.51um)

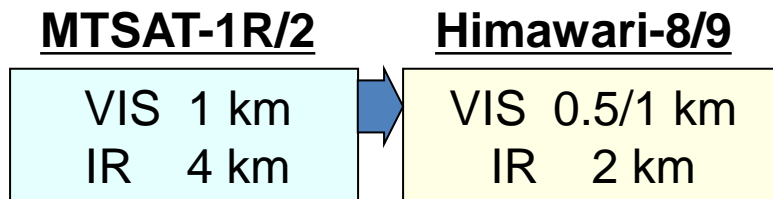
B: Band 1  
(0.47um)



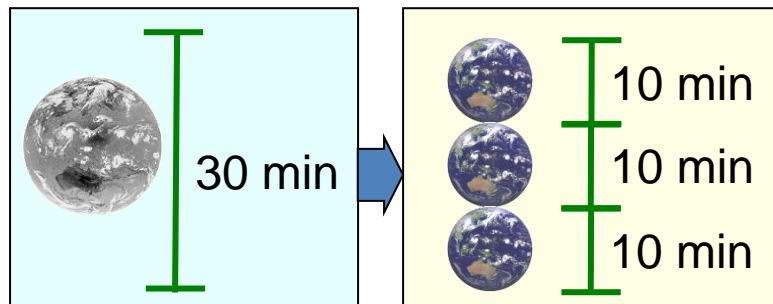
# MTSAT to Himawari

Himawari-8 multispectral observation with higher spatial/temporal resolution provides more information on atmosphere/ocean/land than MTSAT did.

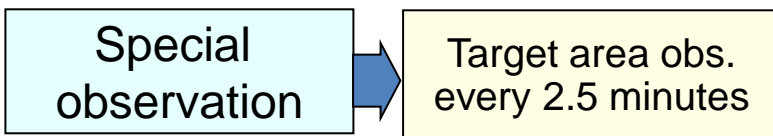
## Improved spatial resolution



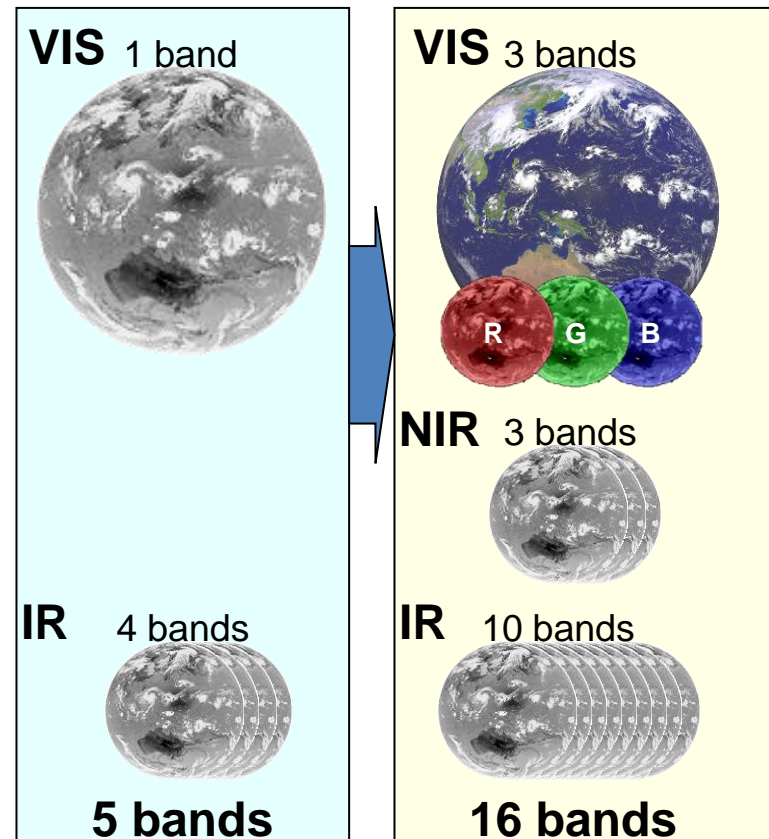
## More frequent observation



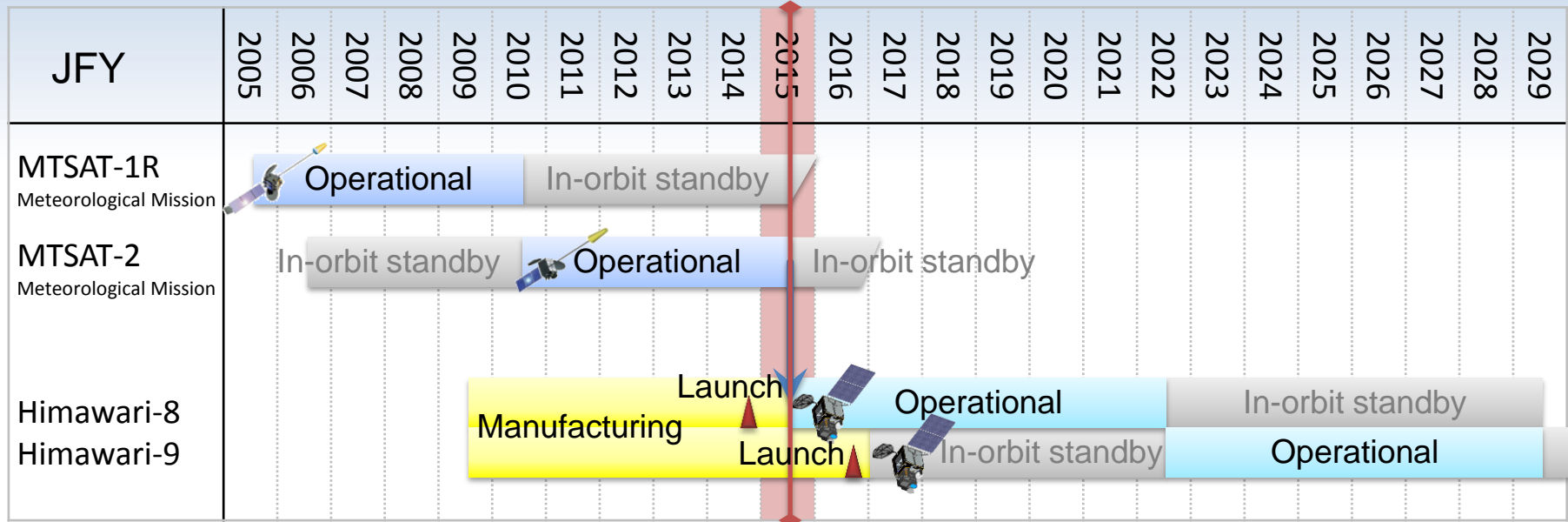
## More flexible regional observation



## More spectral bands



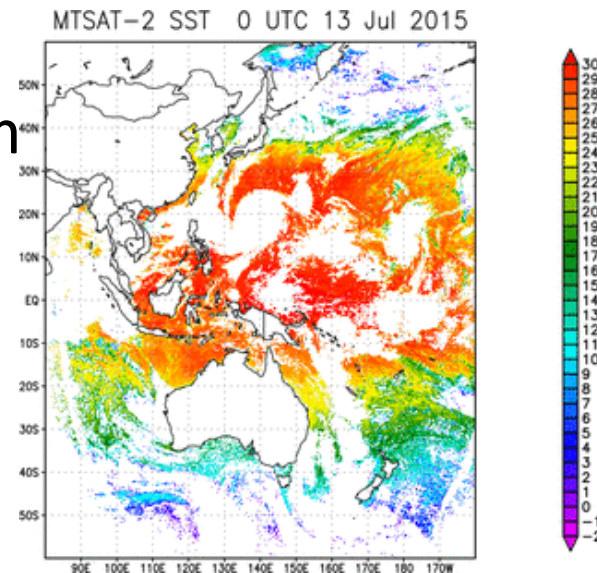
# Schedule of Himawari-8/9



- **Himawari-8** was launched on 7 October 2014.
- **Himawari-8** started operation on 7 July 2015, replacing **MTSAT-2**.
- **Himawari-8** will observe the East Asia and Western Pacific regions for a period of 15 years with **Himawari-9**.
- **Himawari-9** is scheduled to be launched in JFY2016.

# MTSAT/Himawari-8 L3 SST

- Meteorological Satellite Center (MSC) of JMA produces L3 SST products by using the observation of MTSAT-2.
  - Based on Kurihara's 1D-VAR algorithm
  - Hourly,  $0.04^\circ$  horizontal resolution
  - Coverage:  $60S \sim 60N$ ,  $80E \sim 160W$
  - Not distributed
- Himawari-8 L3 SST
  - now being prepared in MSC/JMA
  - Data processing will start in September 2015
  - Specification: same as MTSAT SST
    - except doubled ( $0.02^\circ$ ) horizontal resolution



*Thank you for your attention*

*Hartelijk dank voor de vriendelijke  
aandacht*

