

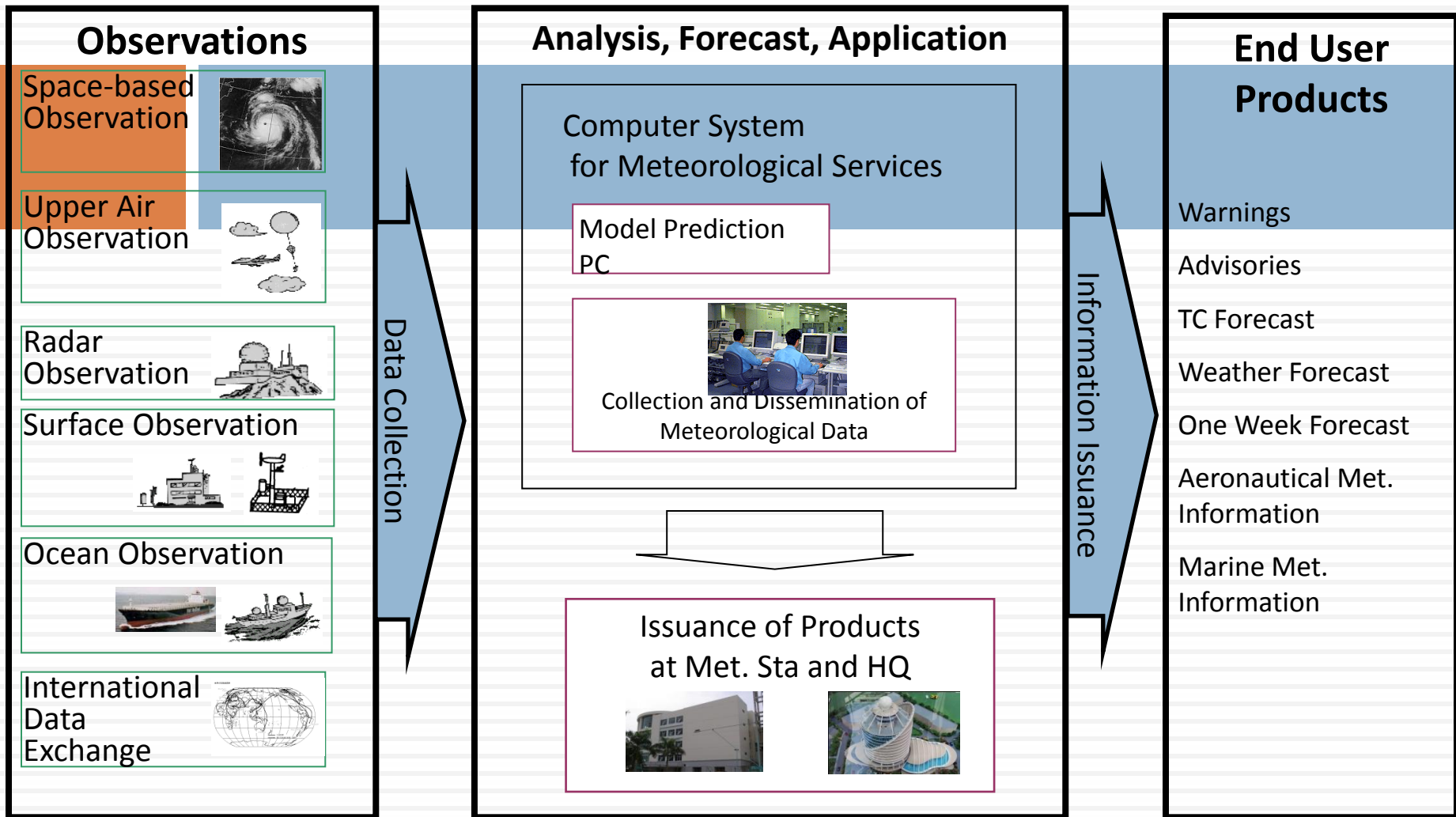
MTSAT DERIVED PRODUCTS FOR
OPERATIONAL METEOROLOGICAL
SERVICES AT BMKG INDONESIA
(and Future Expectations from RA V Region)

Riris Adriyanto
(BMKG-Indonesia)

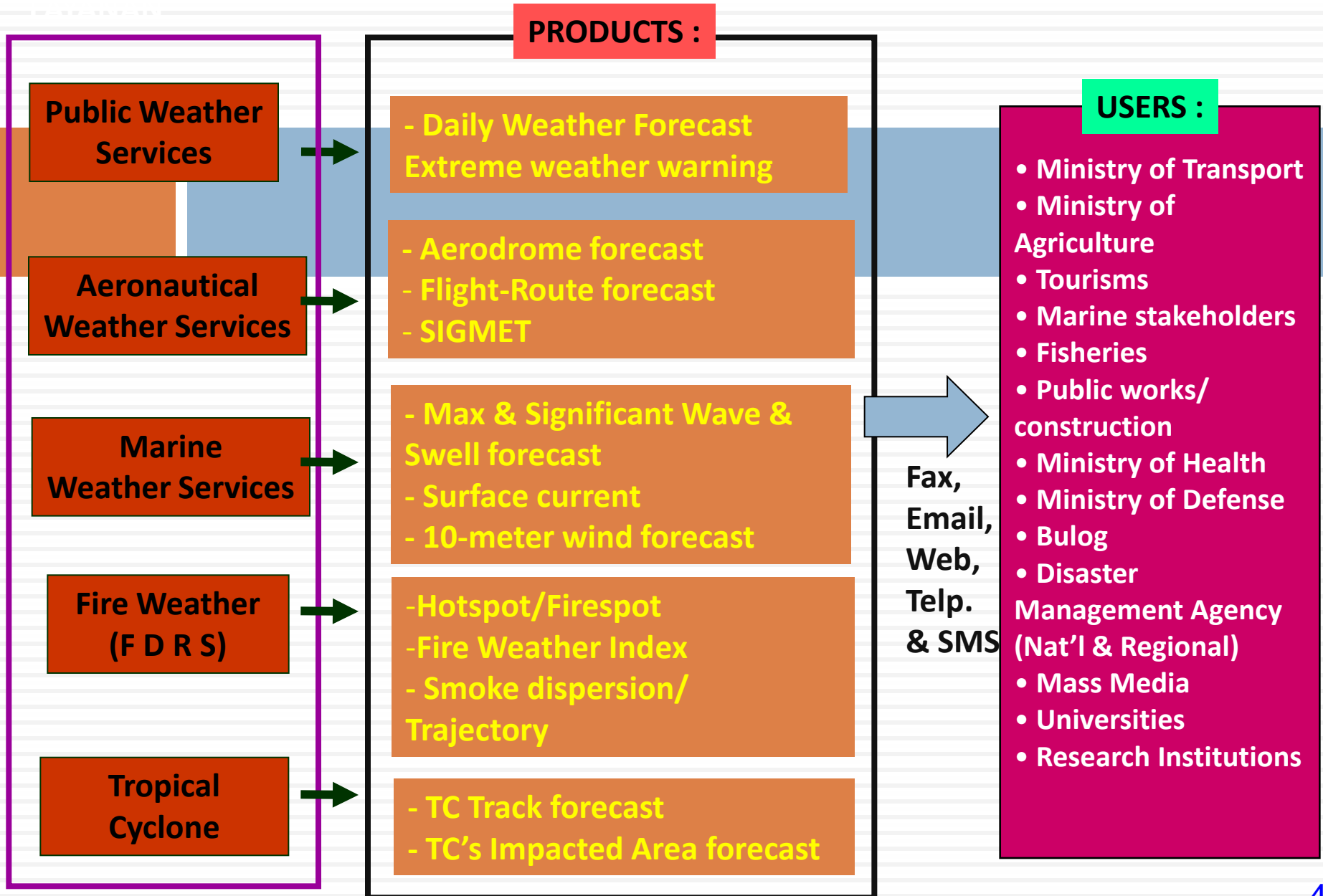
Outline

- 1. Meteorological services at BMKG**
- 2. Present status of satellite data reception in Indonesia and RA V Region**
- 3. MTSAT-derived products used in operational**
- 4. Products from other satellites**
- 5. Future expectations**

Meteorological Operation at BMKG

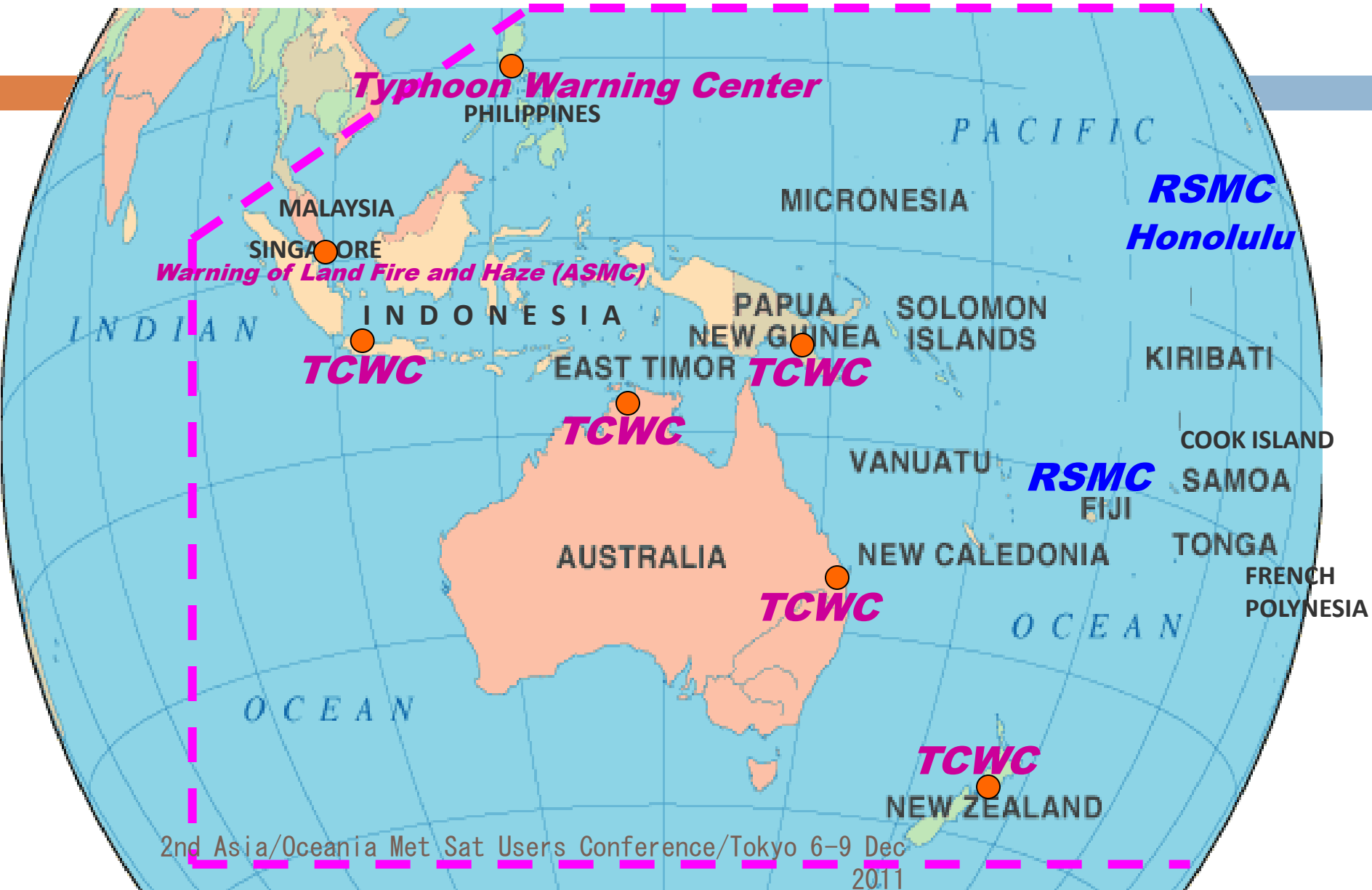


BMKG's Meteorological services and Users

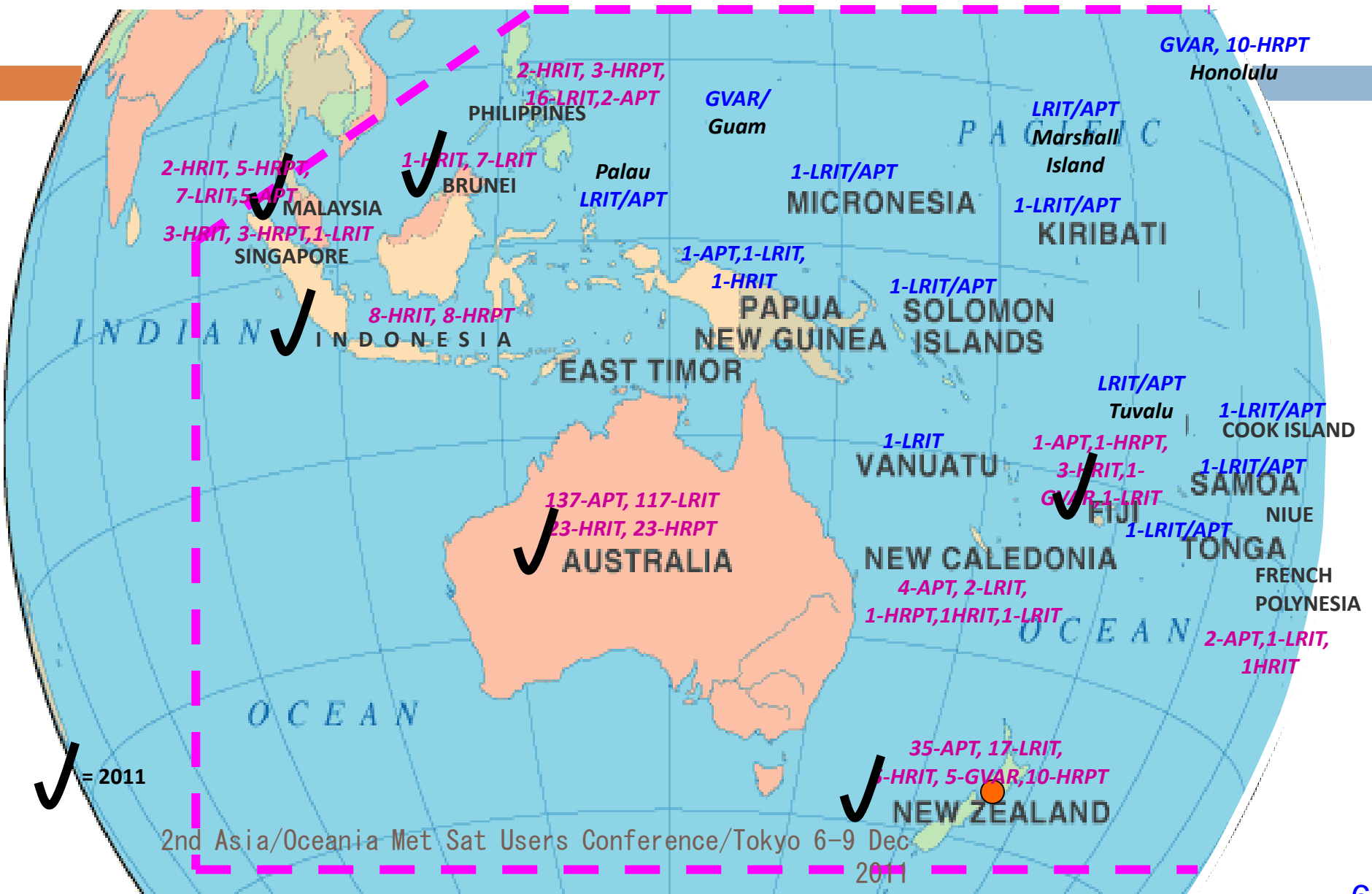


- USERS :**
- Ministry of Transport
 - Ministry of Agriculture
 - Tourisms
 - Marine stakeholders
 - Fisheries
 - Public works/
construction
 - Ministry of Health
 - Ministry of Defense
 - Bulog
 - Disaster Management Agency (Nat'l & Regional)
 - Mass Media
 - Universities
 - Research Institutions

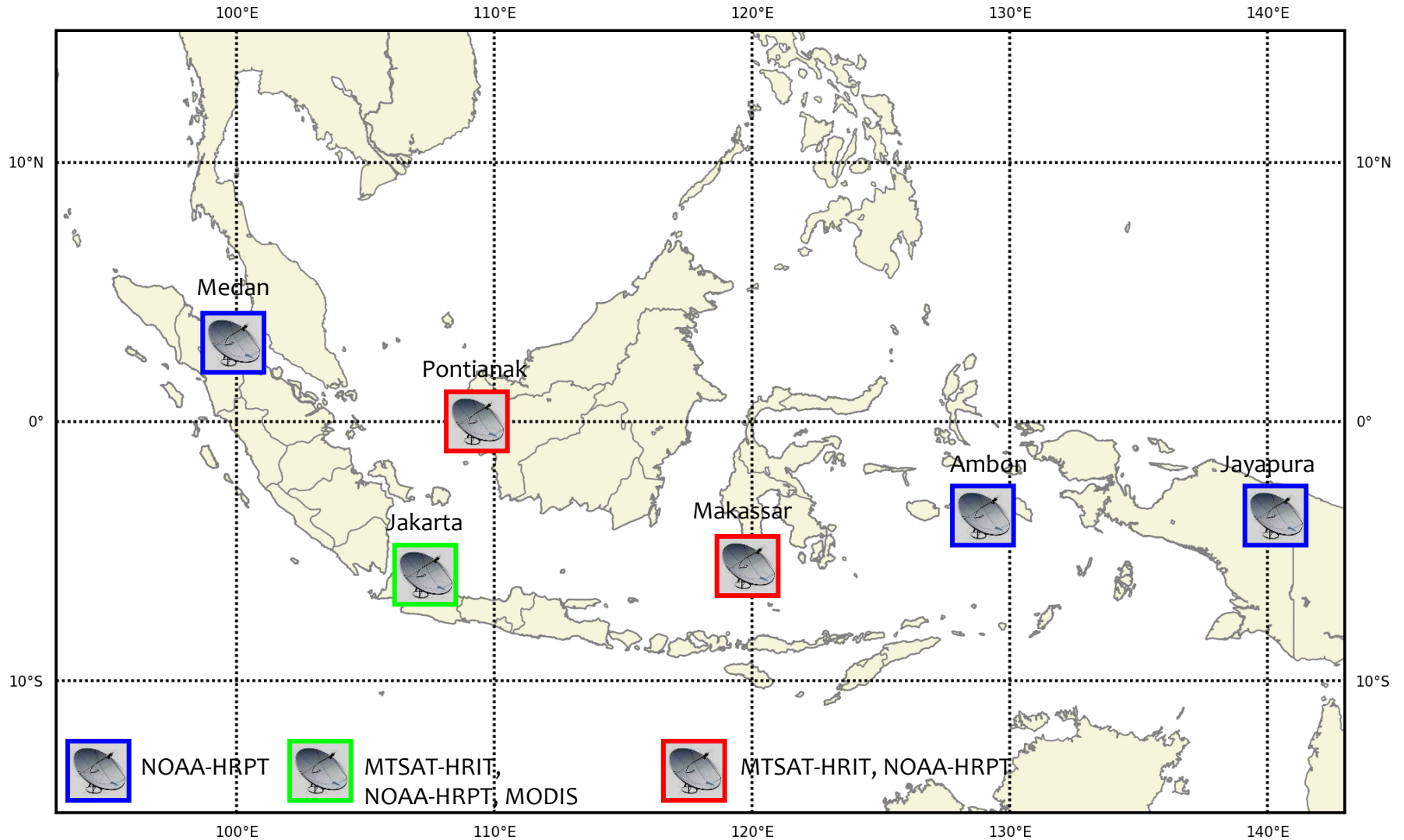
Regional warning centres of South-West Pacific Region (RA V)



Satellite Data Reception set up in RA V



Satellite Data Reception operated by BMKG



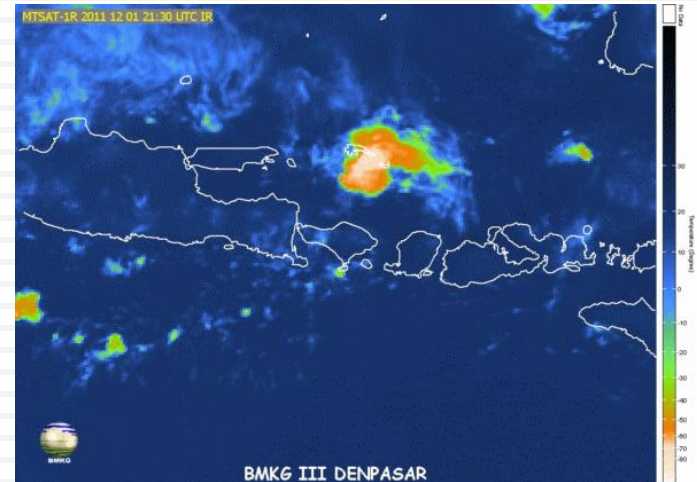
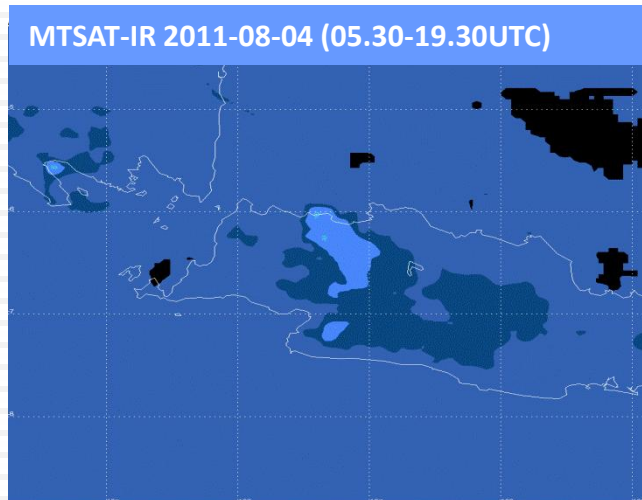
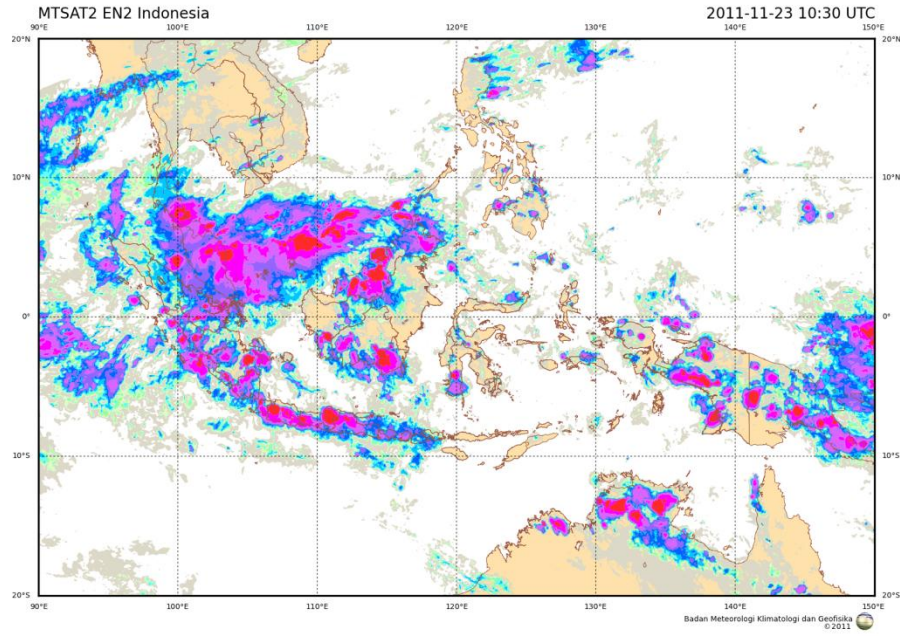
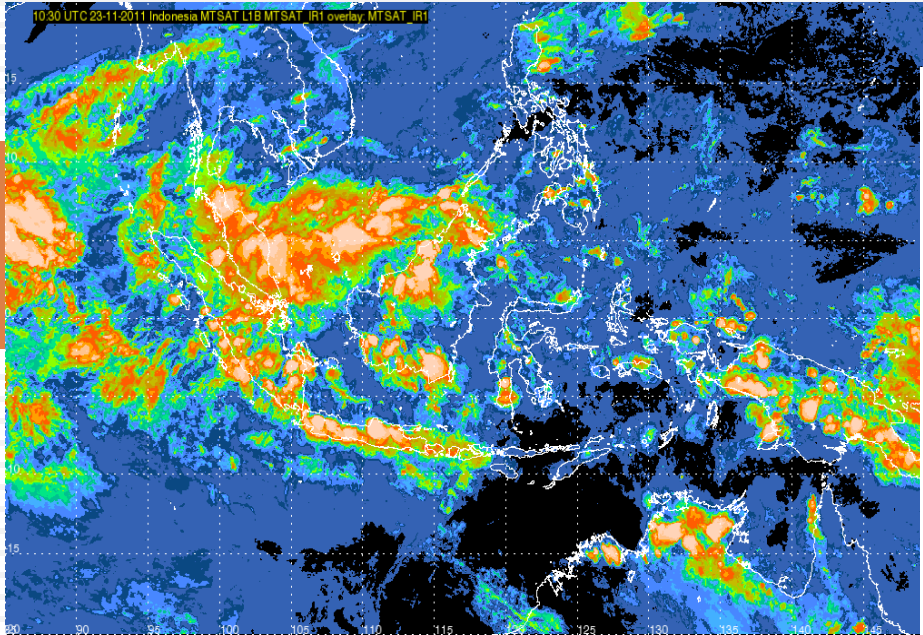
Application of satellite data in Indonesia and RA V Region

Satellite type	APPLICATION		
	<ul style="list-style-type: none"> • Monsoon • Weather System • Tropical Cyclone 	<ul style="list-style-type: none"> • SST • LST • Rainfall 	<ul style="list-style-type: none"> • Forest-fire • Haze • Ocean • Volcanic-ash
Geostationary Satellites	MTSAT (HRIT)	MTSAT (HRIT)	MTSAT (HRIT)
Polar-orbiting satellites		NOAA-HRPT, MODIS, TRMM	NOAA-HRPT, MODIS

MTSAT derived products used in operational ...

Enhanced-Infrared (MTSAT-2)

Rainfall area detection

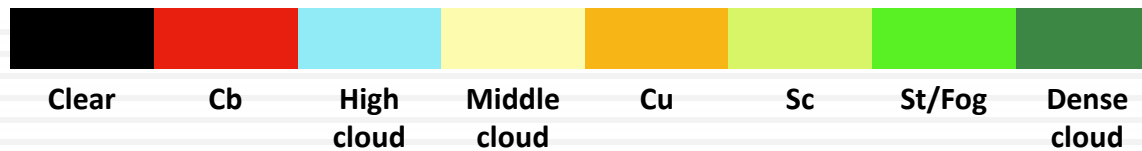
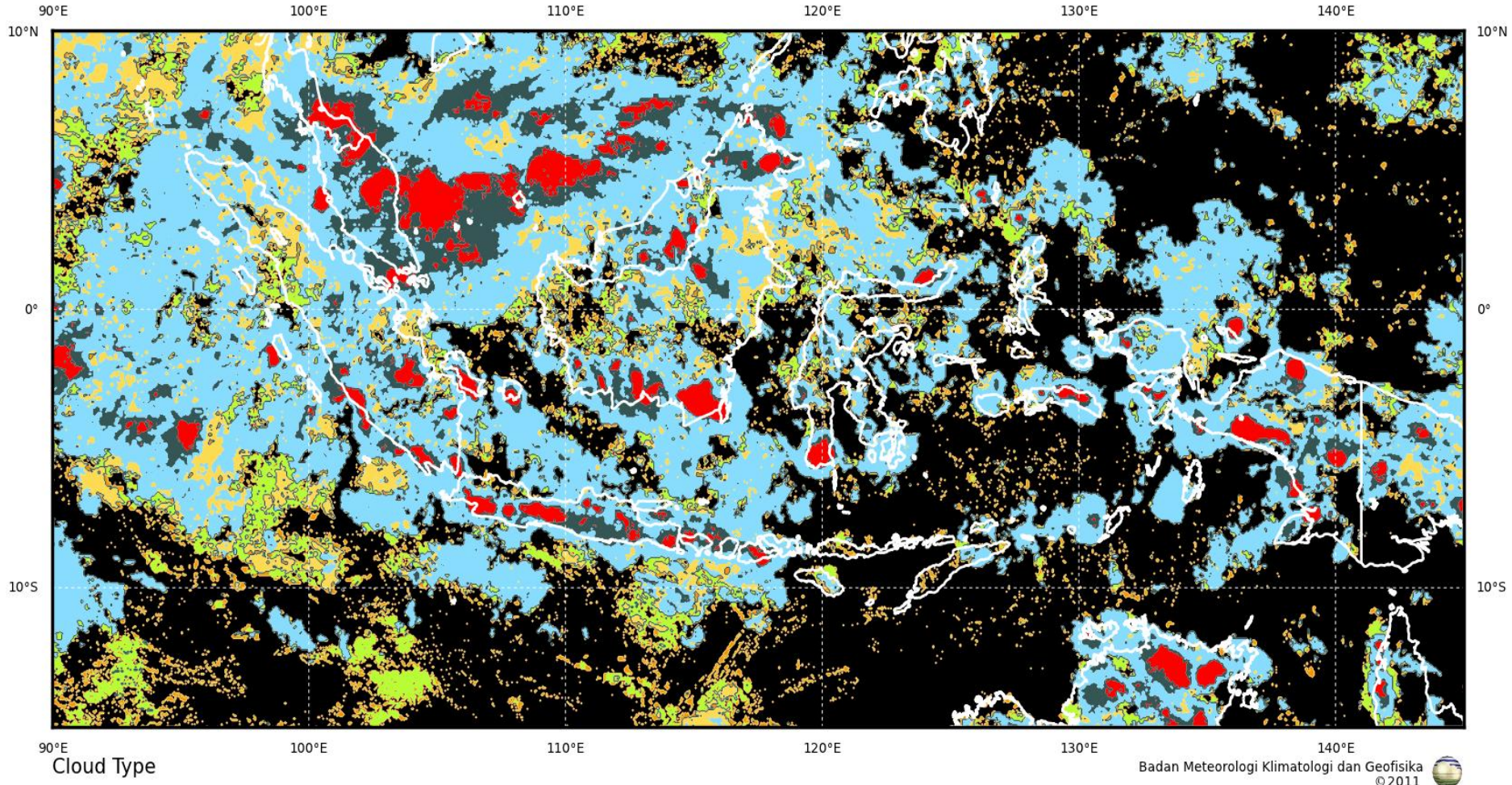


Cloud classification

(using algorithm developed by MSC-JMA)

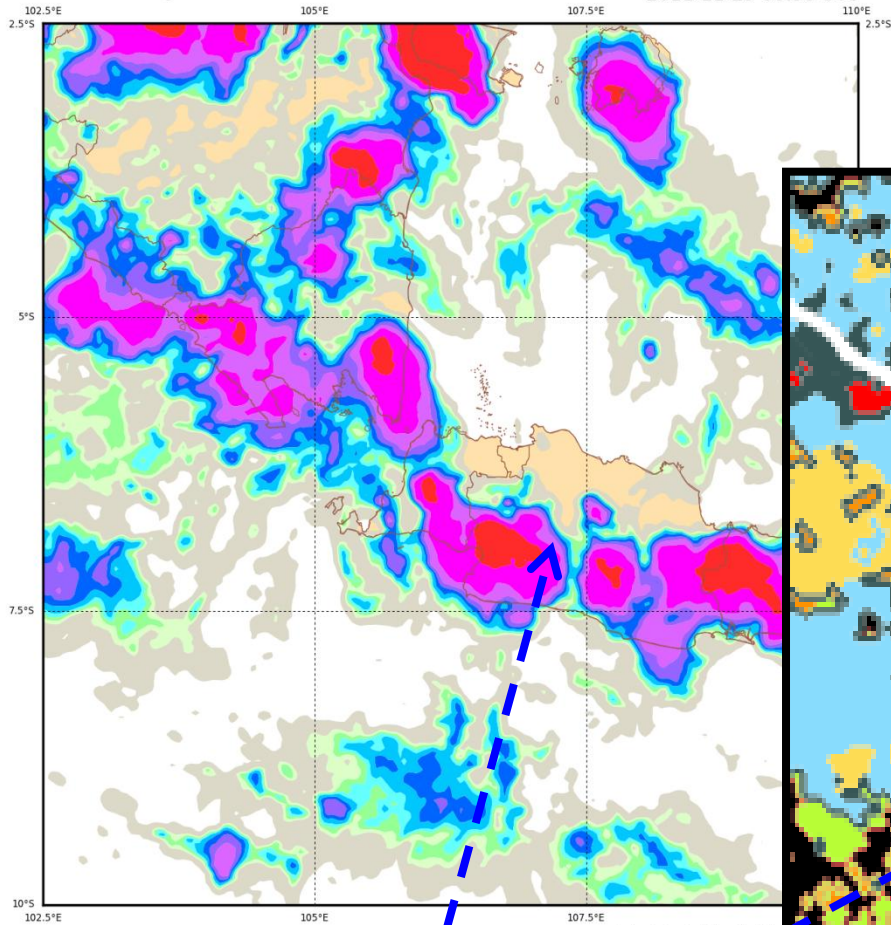
OCAI CLC Indonesia

2011-11-23 09:00 UTC



MTSAT2 EN2 Jakarta

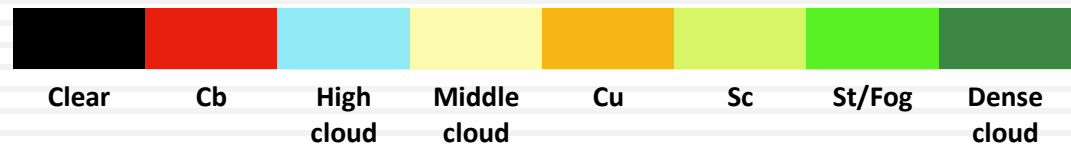
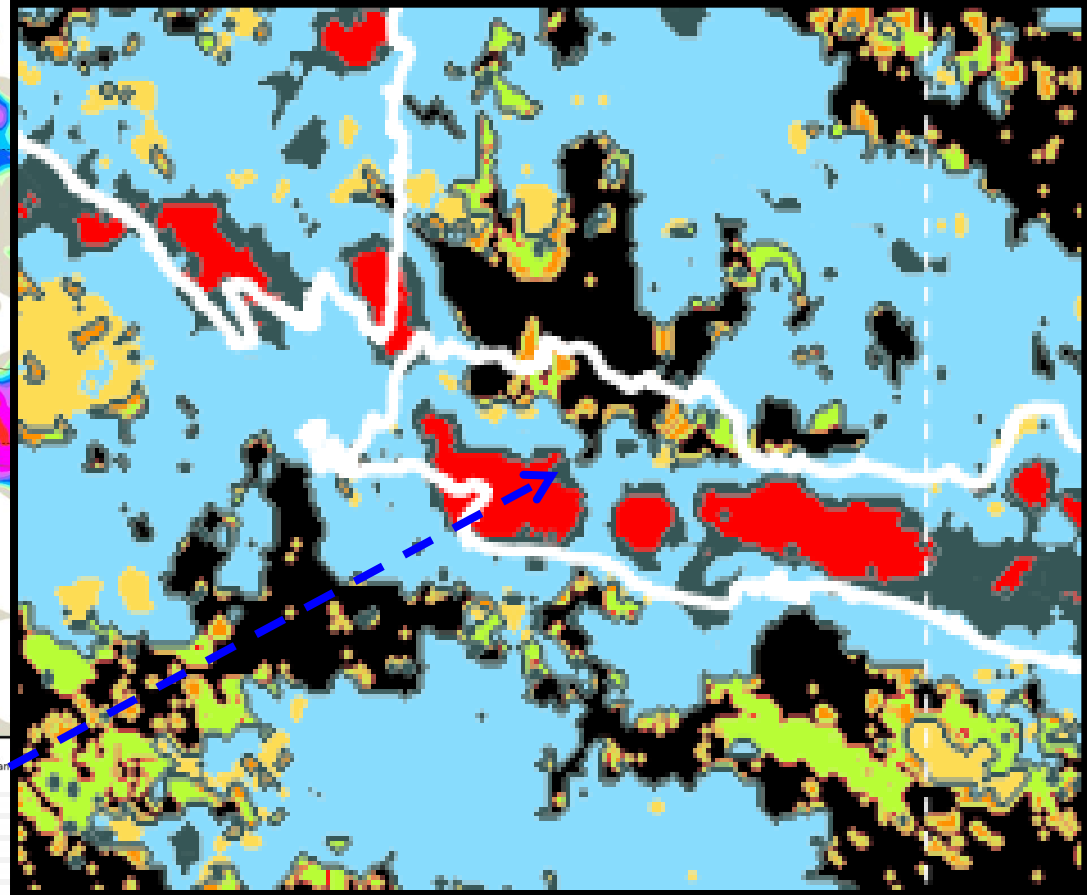
2011-11-23 08:30 UTC



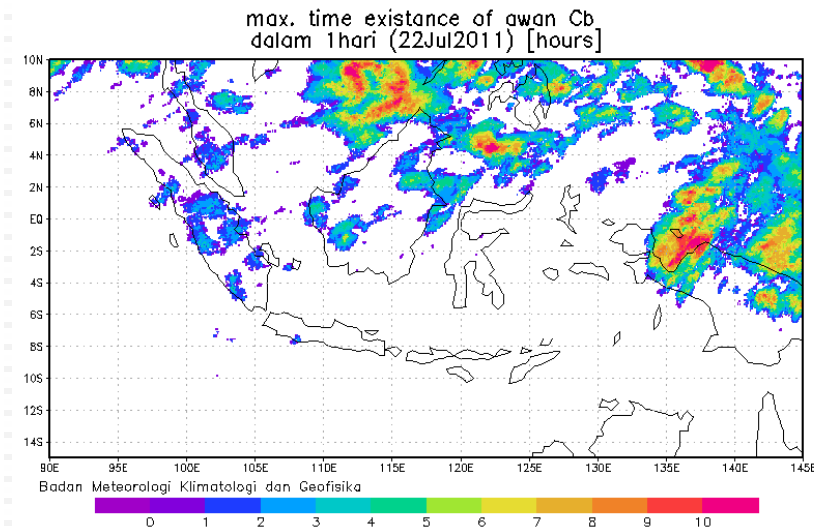
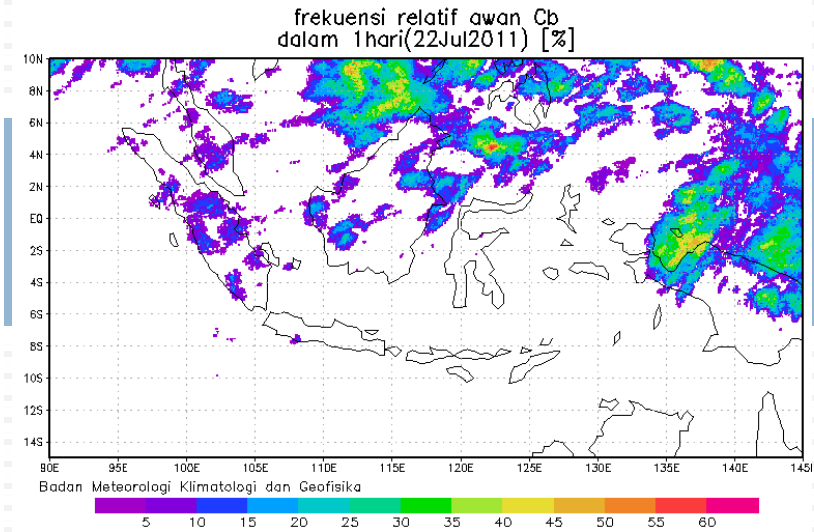
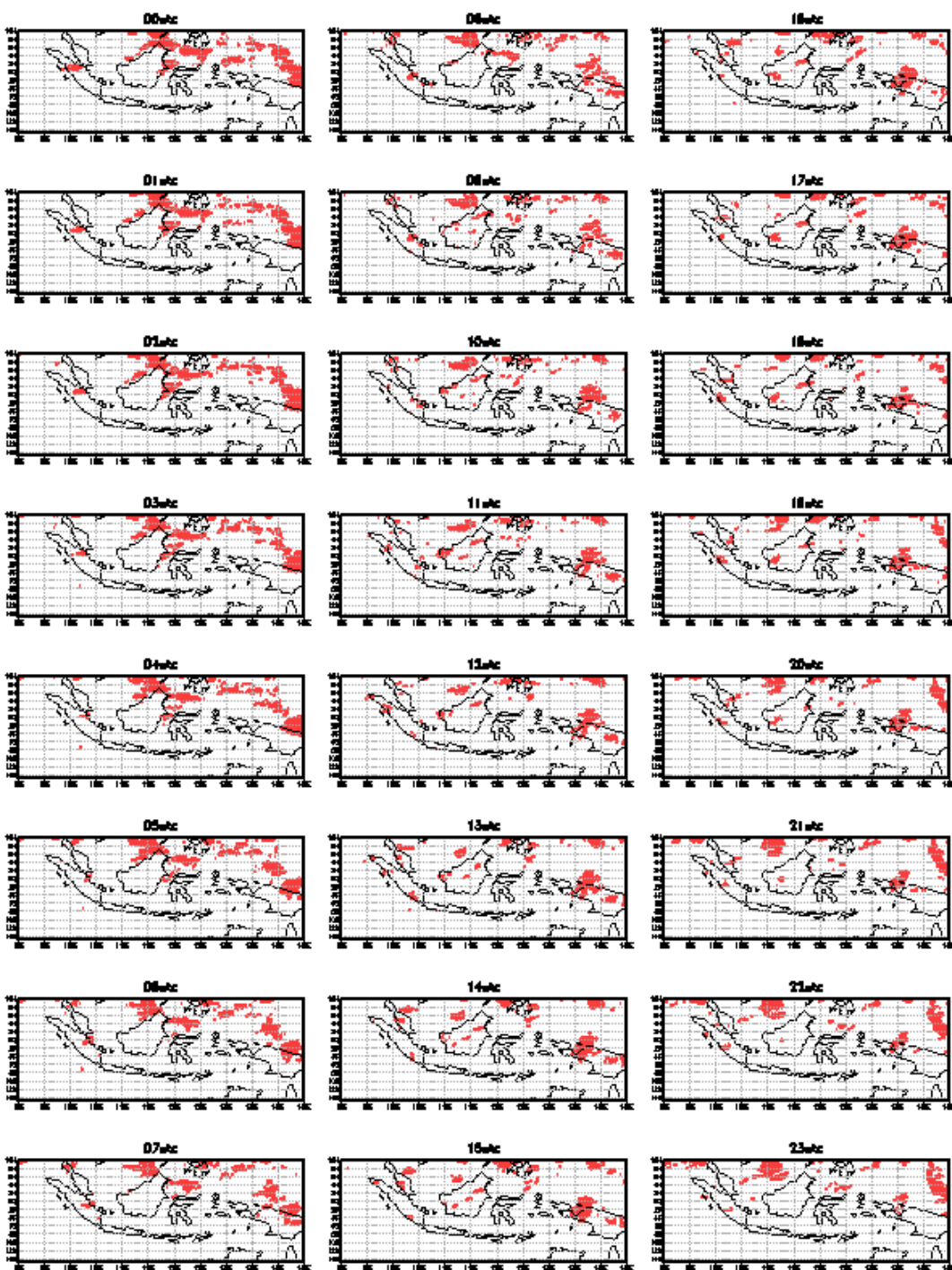
Rainfall area potential

Heavy rainfall &
strong wind at Bandung city
(2011-11-23 / 15.30LST)

Cloud types (2011-11-23 09:00UTC)

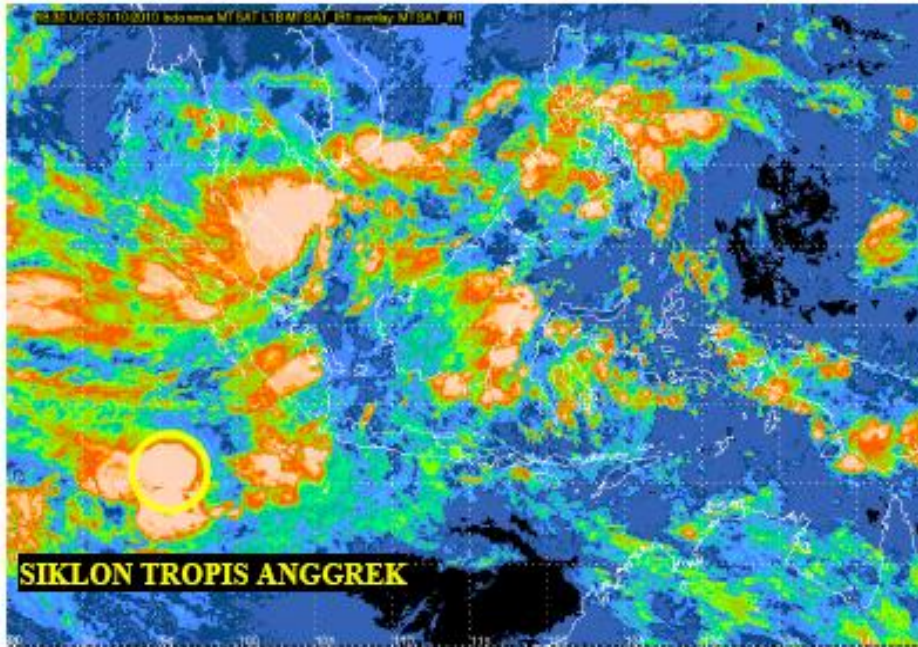


24-hours Relative-Frequency of Cb Cloud Occurrence and Its Max. Existence



Tropical Cyclone Monitoring

Tropical Cyclone "Anggrek"
From MTSAT-2 IR Enhanced Image 31 October 2010, 18.30 UTC

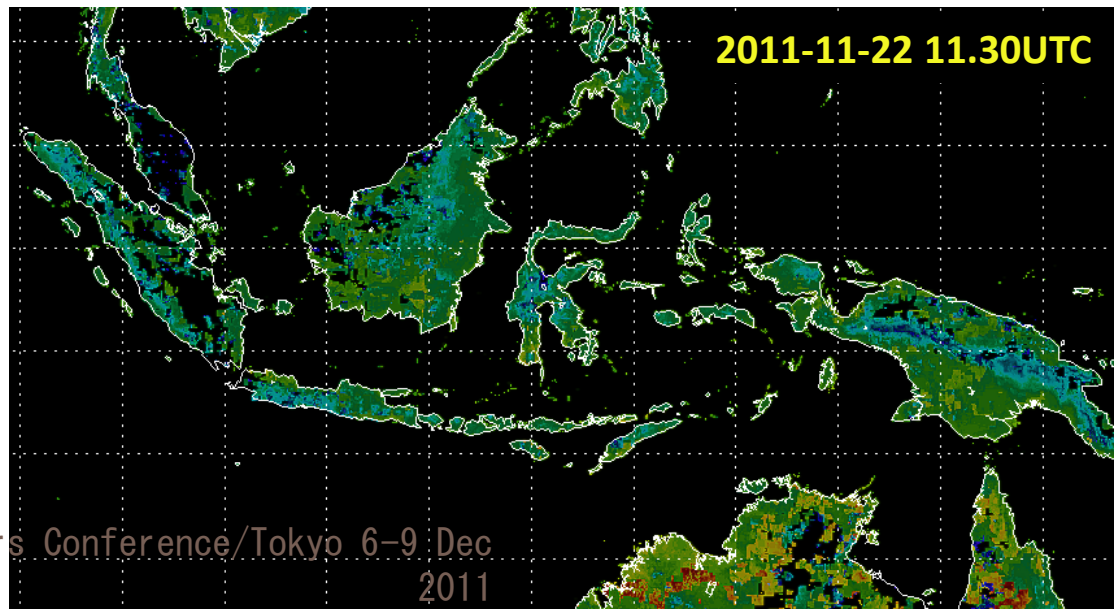
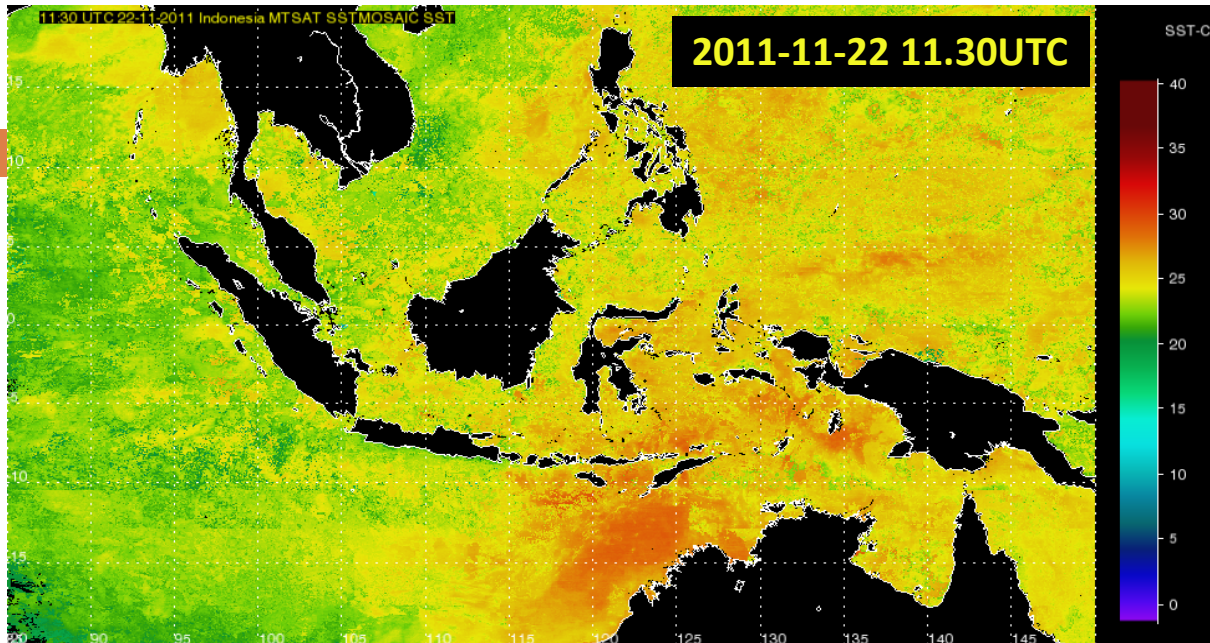


Track Forecast of Tropical Cyclone "Anggrek"
01 - 04 November 2010

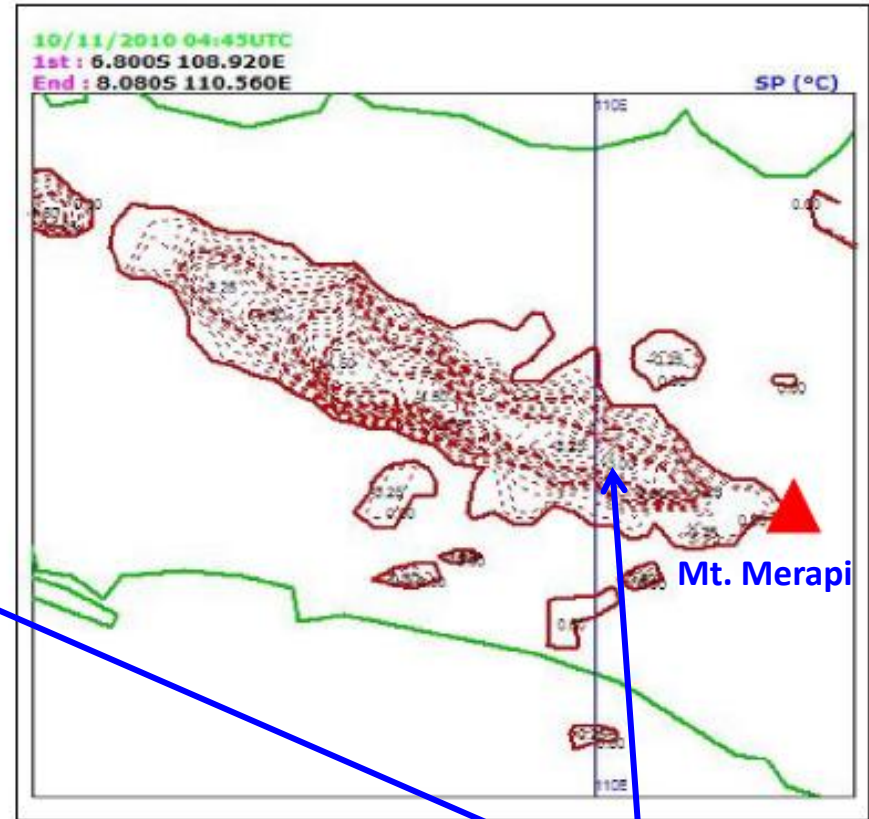
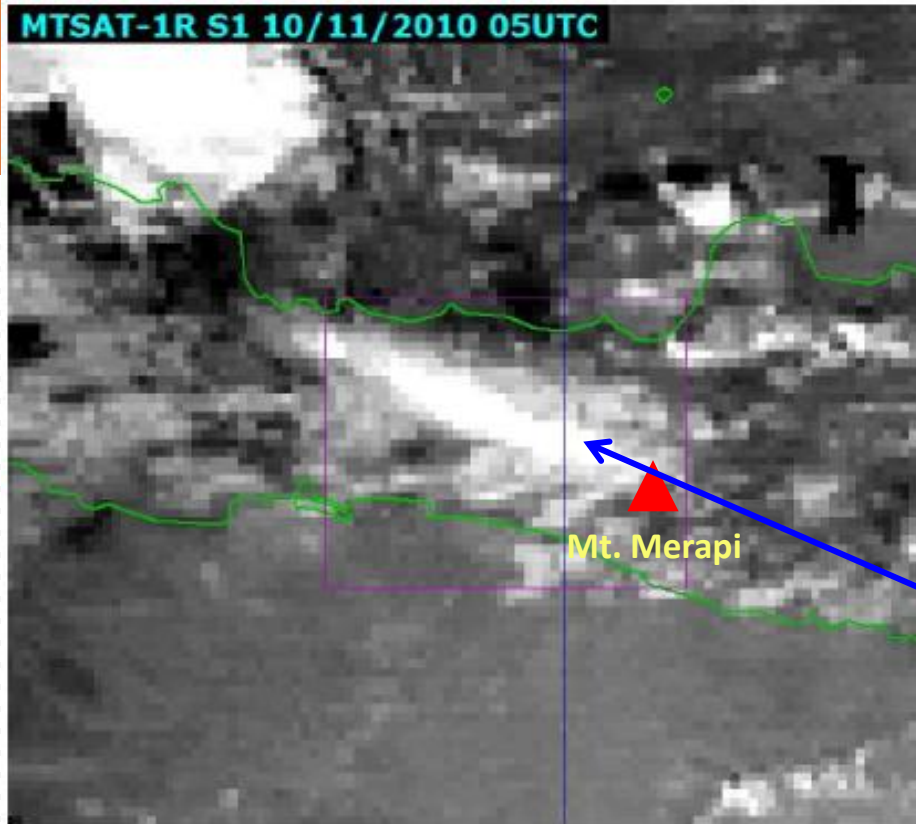


**TROPICAL CYCLONE MONITORING ISSUED BY JAKARTA TCWC
(EVENT : TC "ANGGREK" 01 NOVEMBER 2010)**

SST and LST Products



Volcanic-ash detection



Volcanic-Ash Detection Products - MTSAT-2 Split-Windows Imagery (Mt. Merapi eruption, 11 Nov 2010)

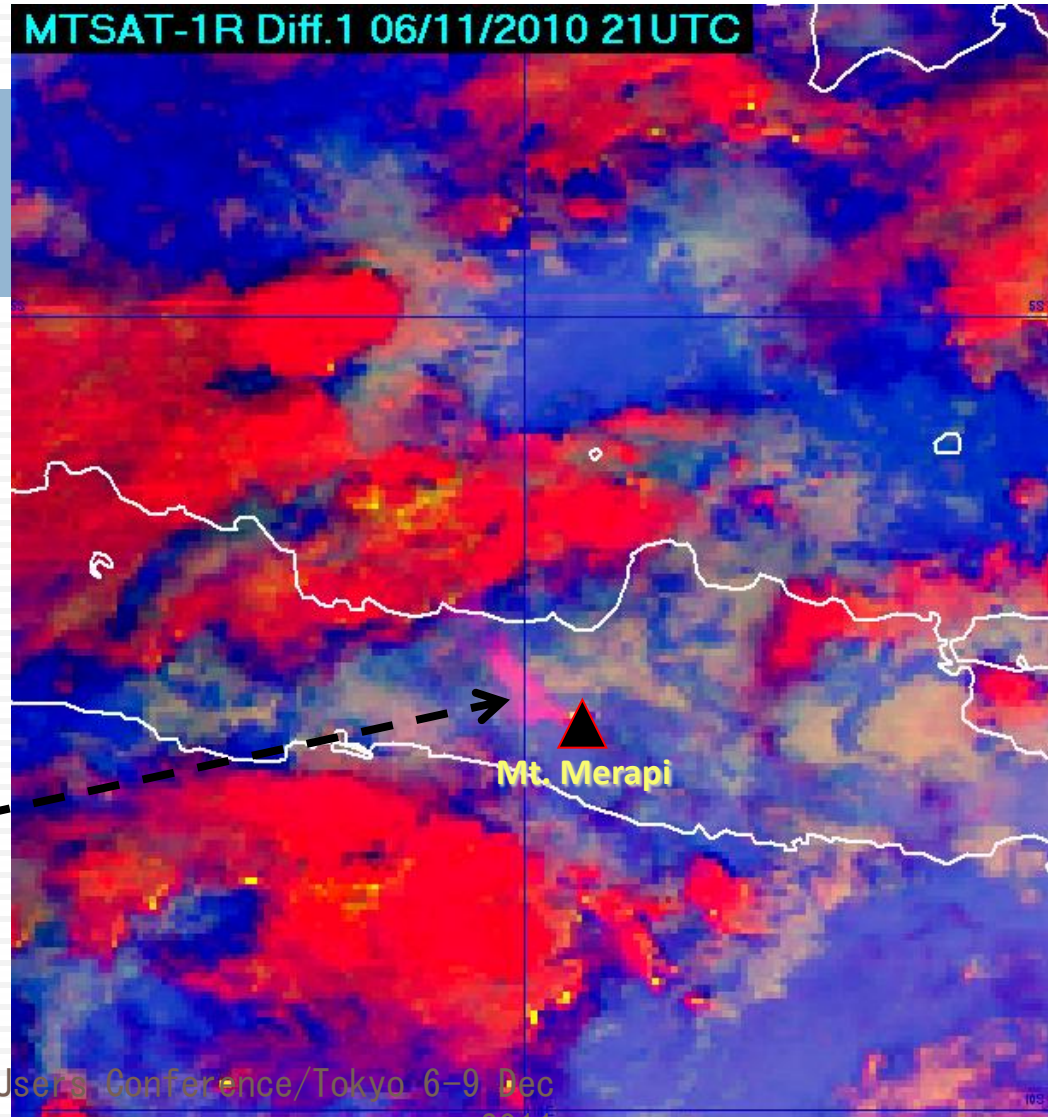
Volcanic-cloud

RGB technique for Volcanic-cloud detection

MTSAT-1R Diff.1 06/11/2010 21UTC

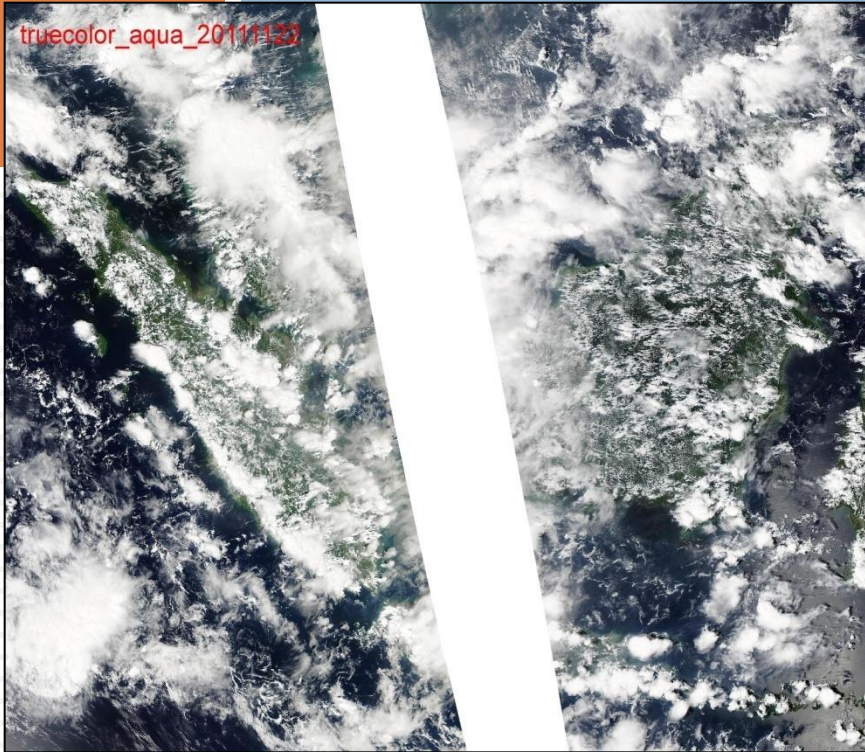
- Red** : IR1-IR2 (10.8 - 12 μ m)
- Green** : IR4-IR1 (3.8 - 10.8 μ m)
- Blue** : IR4 (3.8 μ m)

Volcanic-cloud

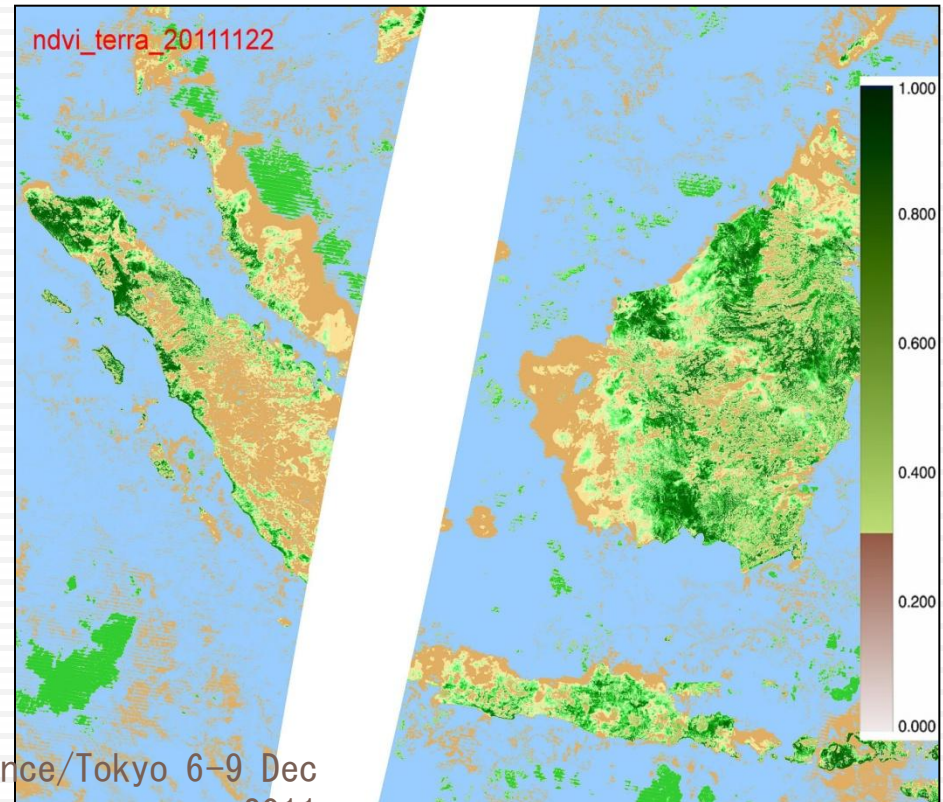


Operational products from other satellites ...

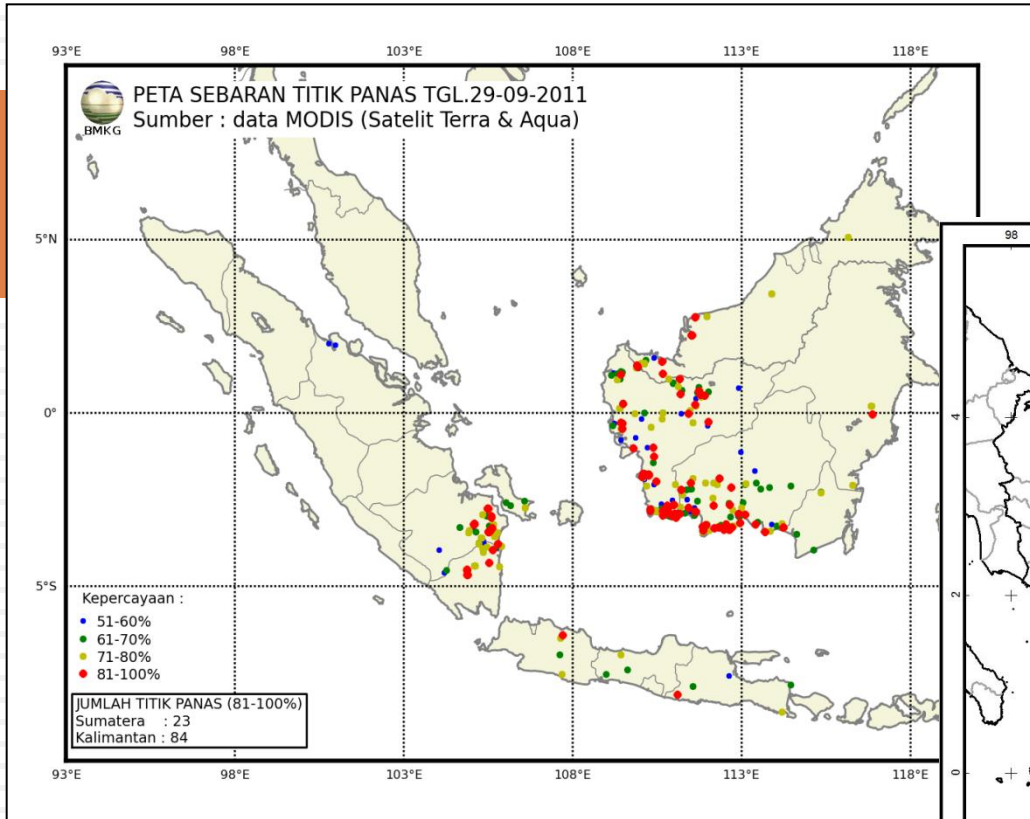
MODIS True-color image (Aqua)



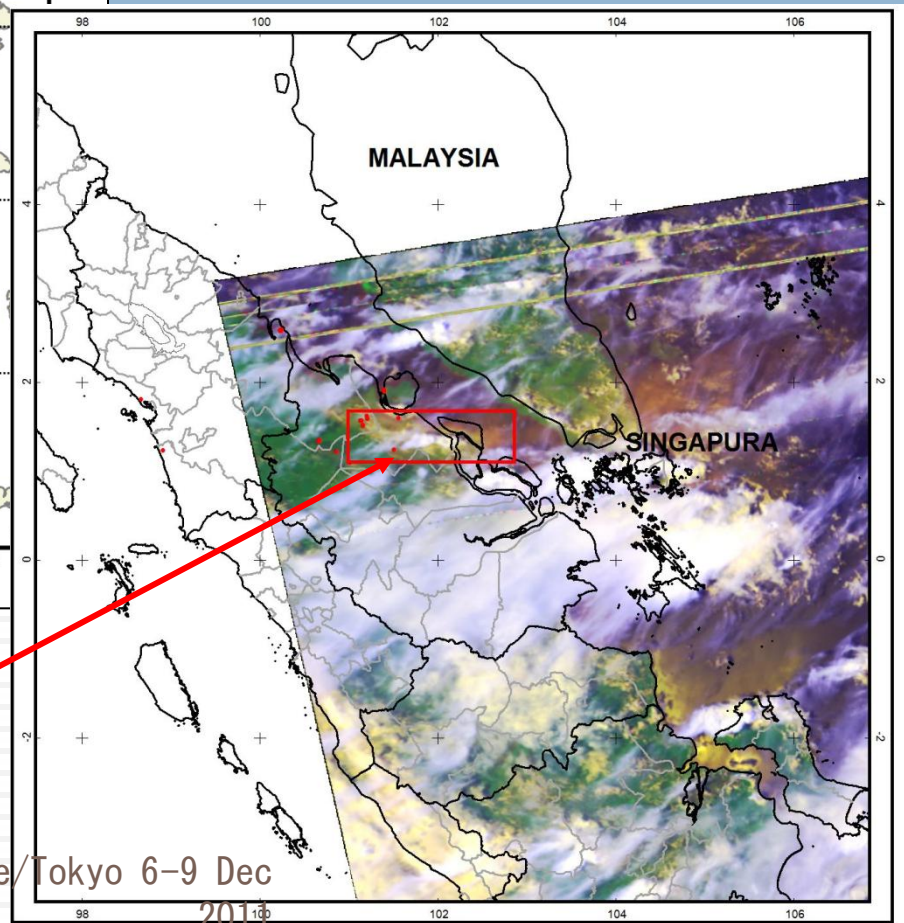
MODIS Vegetation Index (Terra)



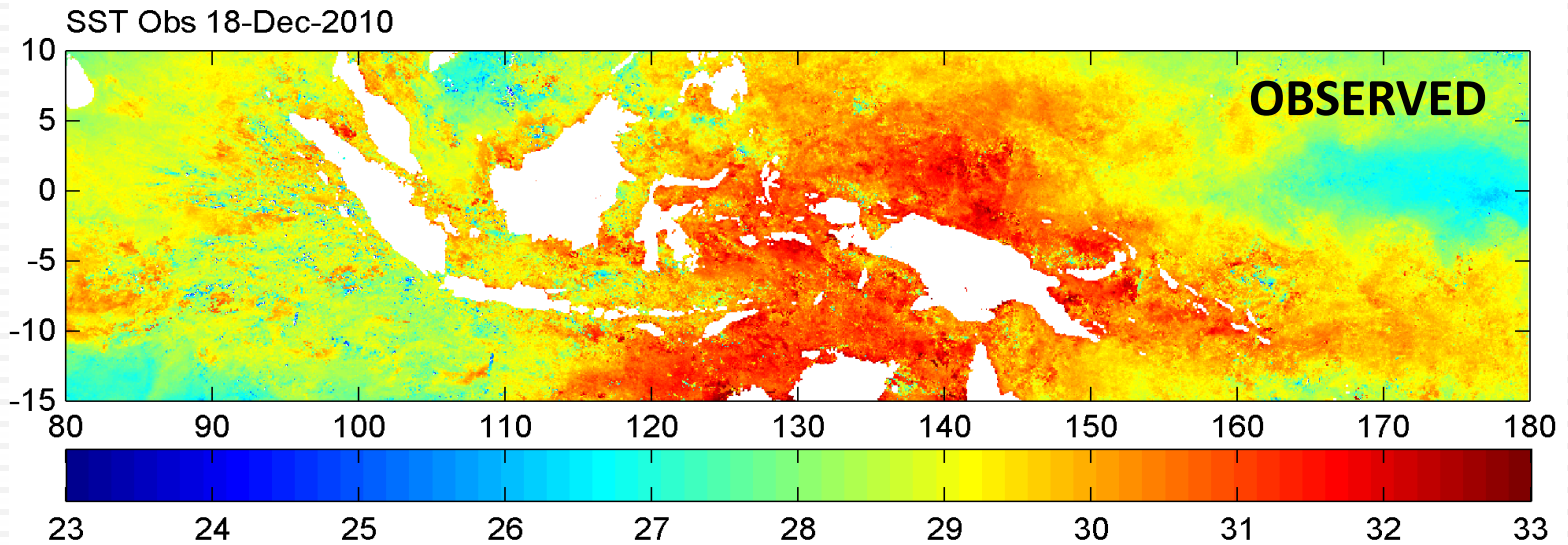
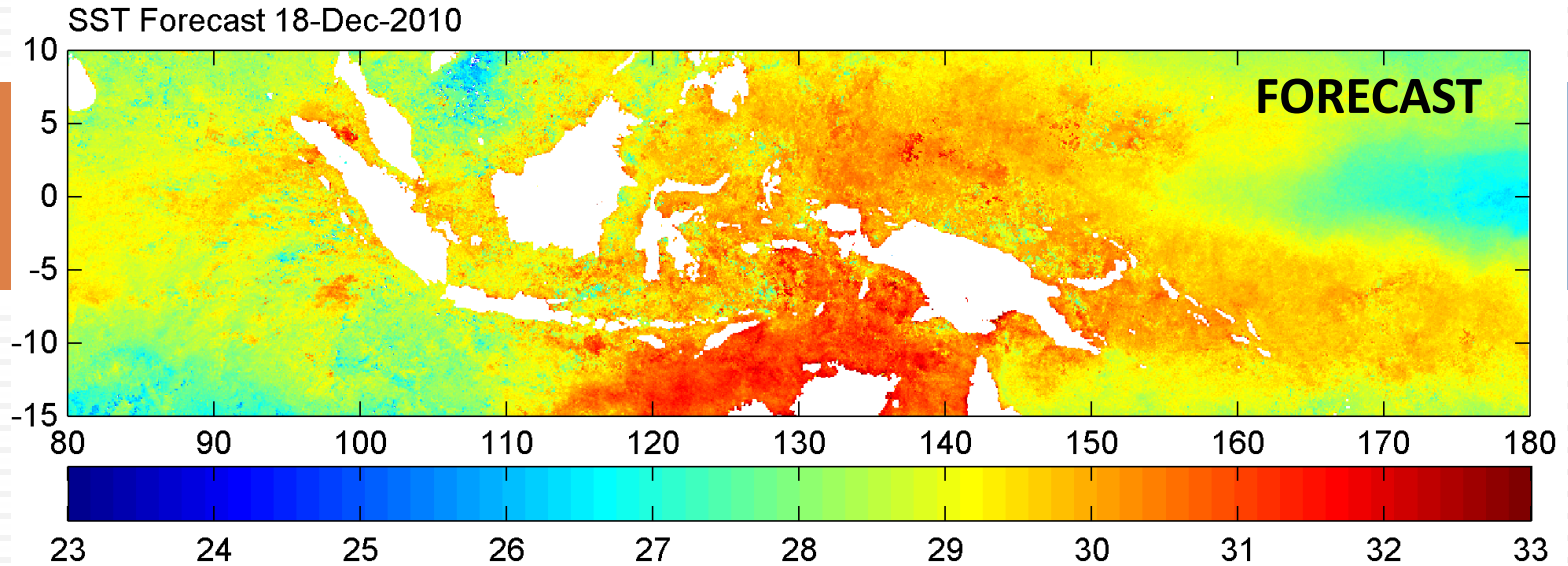
MODIS Fire Hotspot Detection Haze Distribution detection (NOAA-AVHRR)



Haze distribution



Monthly SST forecast with MODIS data



Future expectations :

- 1) Next generation of operational meteorological satellite products:
 - Requires an increased temporal & spatial resolution and Low-light visible channels.
 - Hyper-spectral geostationary satellite data with cost-efficient ground system in the future.
 - Ocean color and surface wind retrieval products.
- 2) There are land-line communications limitations in many small island developing countries, hence Direct Broadcast of satellite data still needed (e.g. Himawari-8/9) to ensure real-time data access that is very critical in operational short-range forecast.
- 3) Hardware issues : Compatibility and more affordable of next generation satellite receiving system to the existing ground receiver.
- 4) Continuously of broader Data Collection Platforms (DCPs) utilization for data communication from remote sites of countries under satellite's foot-print.

5) Continuity of:

- EOS satellite mission (e.g. MODIS) and their free data-access policy which have demonstrate huge benefit to global scientific and operational meteorological and environmental monitoring
- Capacity building supports for least developing countries (e.g. small islands countries in RAV/Southwest Pacific region) which enable them to benefit from next generation satellite data and products.
- Assistances for upgrading equipments for least developing countries in case any changes in data broadcast for next-generation satellites (e.g. Himawari 8/9, GOES-R)

Thank you ...