



# COUNTRY REPORT : MALAYSIA

**Ms. Mahani Abllah**

**Malaysian Meteorological Department (MetMalaysia)**

6<sup>th</sup> Asia/Oceania Meteorological Satellite User Conference

Tokyo, Japan, 9 -13 November 2015

Tokyo International Exchange Center/Plaza Heisei Meeting Facilities

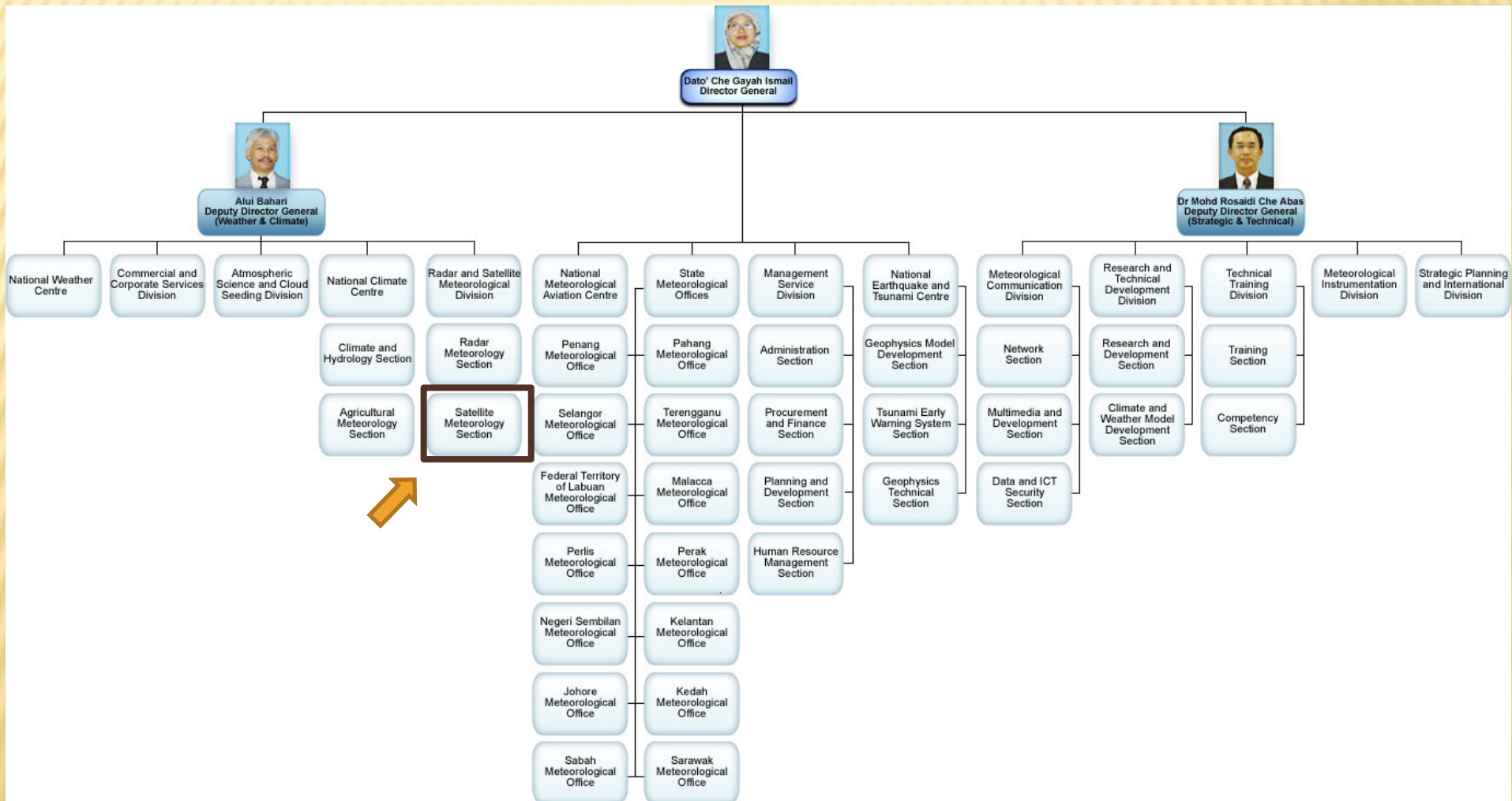
# OVERVIEW

---

- ✘ Organization's Introduction
- ✘ MetMalaysia's expectations of new-generation satellites for hazard monitoring
  - MetMalaysia's top three hazards that can be monitored by satellite
  - Summary: MetMalaysia's plans/expectations for utilization of new-generation geostationary meteorological satellite data

# Organization's Introduction

## ORGANIZATION CHART

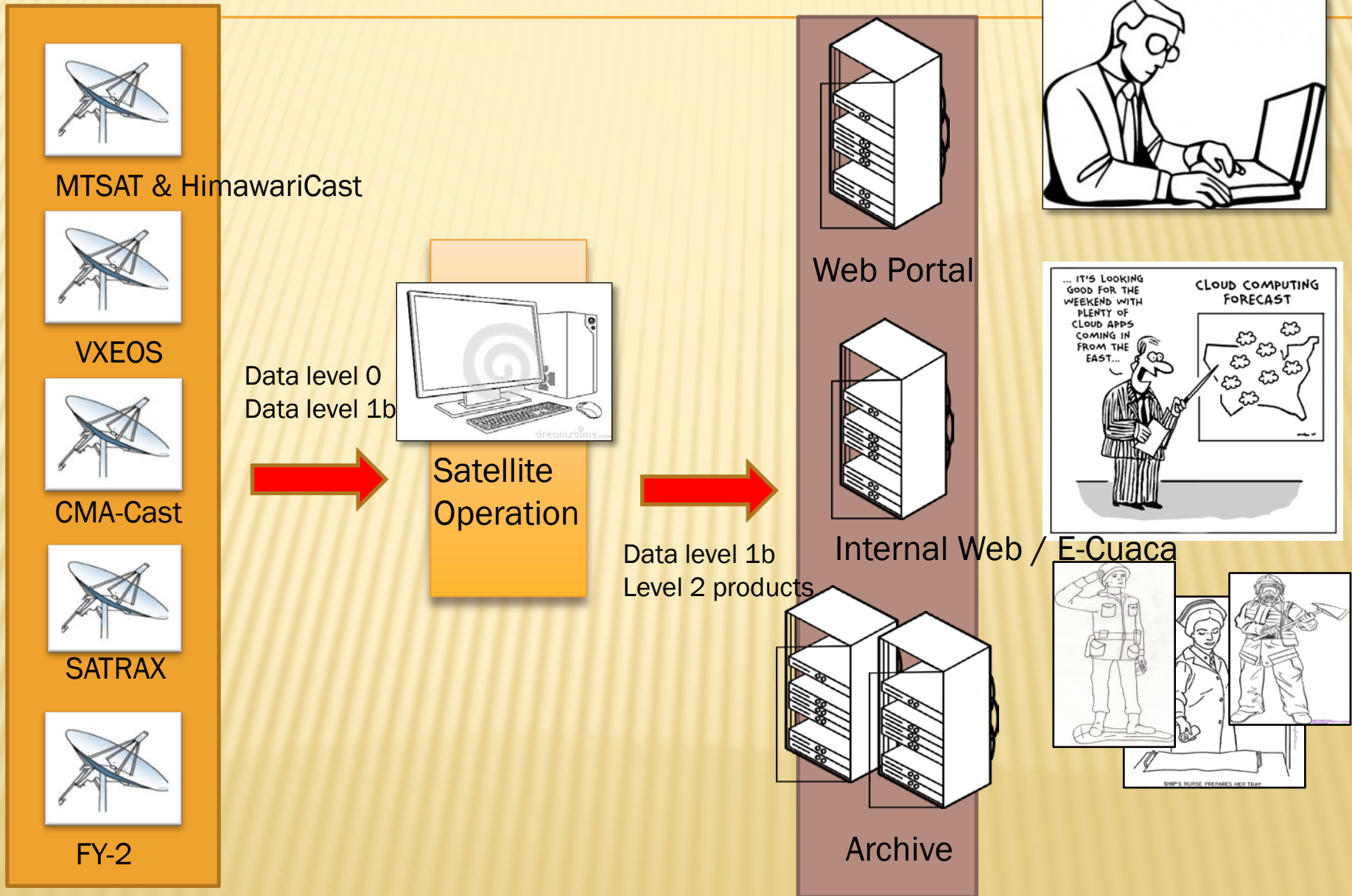


# SATELLITE METEOROLOGICAL SECTION

---

- Established in 1968.
- Provide satellite imageries for weather monitoring, weather forecast and cloud seeding operation.
- Monitoring hotspot which related to forest fire that contribute to the haze phenomena in the ASEAN region.
- Providing satellite images to clients from several private and government agencies.
- Also been provided to those who are involved in research work in MetMalaysia, institutes of higher learning and also other research agencies.

# SATELLITE METEOROLOGY SECTION : DATA DISSEMINATION



# **METMALAYSIA'S EXPECTATIONS OF NEW- GENERATION SATELLITES FOR HAZARD MONITORING**

6<sup>th</sup> Asia/Oceania Meteorological Satellite User Conference

Tokyo, Japan, 9 - 13 November 2015

Tokyo International Exchange Center/Plaza Heisei Meeting Facilities

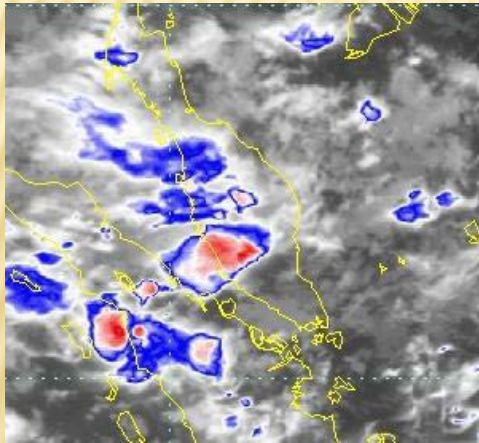
# METMALAYSIA'S TOP THREE HAZARDS THAT CAN BE MONITORED BY SATELLITE

## Hazard 1: Severe thunderstorms

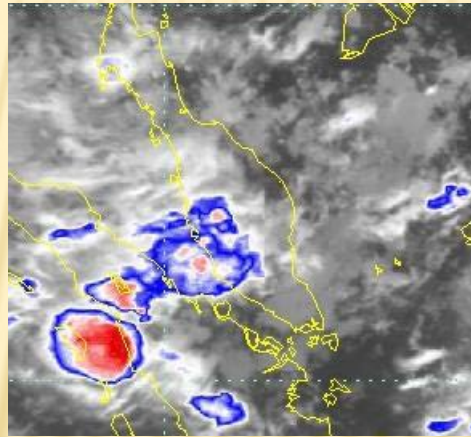
- *Severe thunderstorms are capable of producing hail, heavy rain, frequent lightning and strong gusty winds.*
- *Occur every year especially during two inter-monsoon seasons (apr-may & sept –oct).*
- *Effect : Flash flood, lightning strike, fallen trees, and even landslides.*

# EXAMPLE CASES: SEVERE THUNDERSTORMS

- Kuala Lumpur: 12 Oct 2014
- Kuala Lumpur city hit by flash floods
- Lightning strike and fallen trees left 2 people dead
- Maximum wind speed : 42.5km/h (nearby observation station)



MTSAT-2: 12 Oct 2014  
(1100utc)



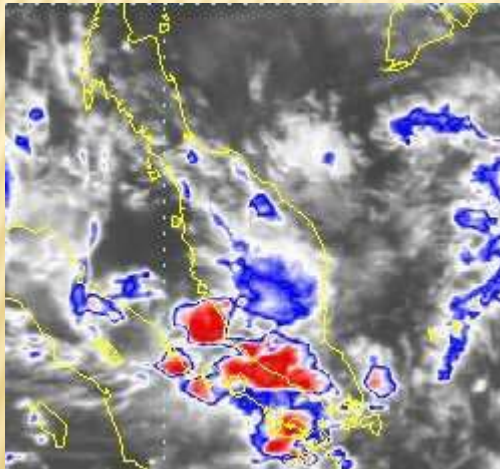
MTSAT-2 :12 Oct 2014  
(1300utc)



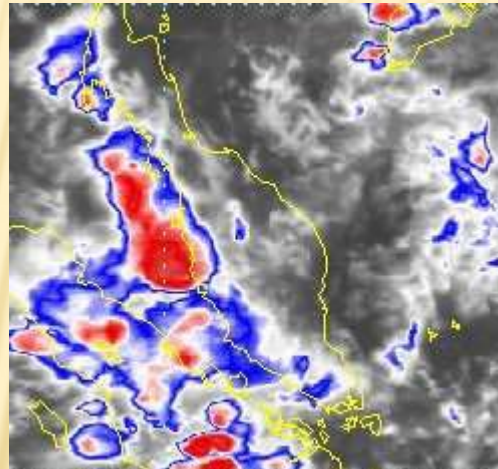


# EXAMPLE CASES: SEVERE THUNDERSTORMS

- Klang, Selangor : 21 Oct 2014
- Strong wind and heavy rain left 30 houses damaged.



MTSAT-2: 21 Oct 2014  
(0630utc)

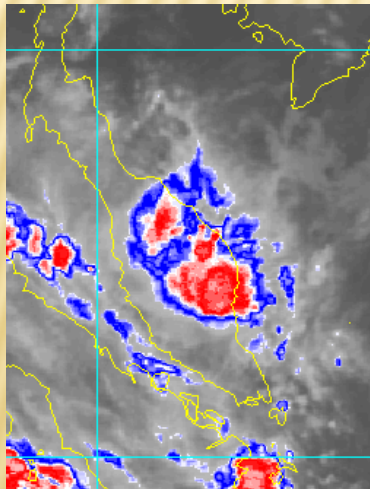


MTSAT-2: 21 Oct 2014  
(0830utc)

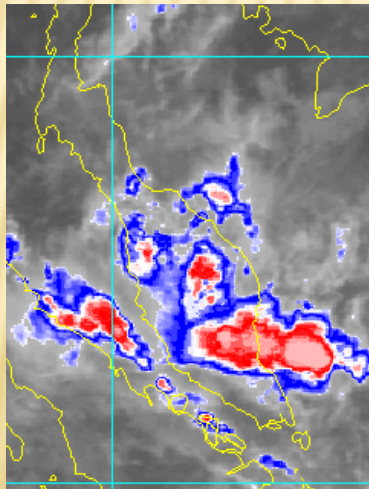


# HAZARD 2: MONSOON ACTIVITY (RAINFALL AND CLOUD FORMATION)

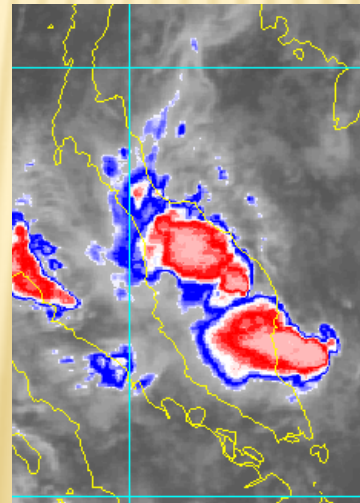
- Northeast Monsoon brings heavy rainfall continuously for four to seven days, particularly to the east coast states of Peninsular Malaysia and western Sarawak.
- On December 2014, worsening floods in the east coast states (Kelantan, Terengganu, Pahang, East Johor), Perlis and Perak.
- More than 100,000 victims have been evacuated following the floods there, deemed to be worst in the country's history.



21 dec 2014  
(2200utc) FY-2E

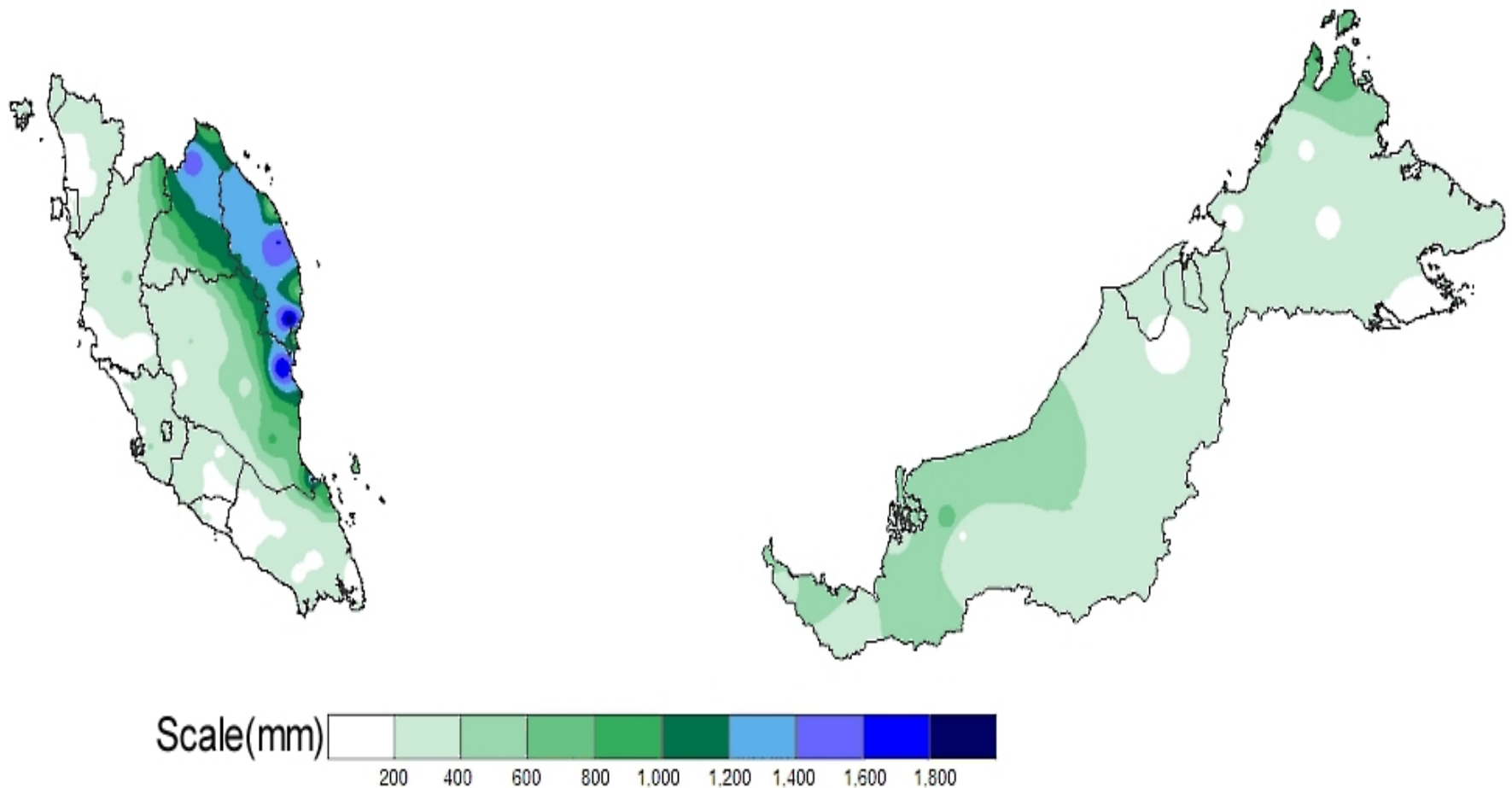


22 dec 2014  
(2200utc) FY-2E



23 dec 2014  
(2200utc) FY-2E

# RAINFALL AMOUNT DISTRIBUTION OVER MALAYSIA ON DECEMBER 2014 (ACTIVE PHASE NE MONSOON)



# HAZARD 3: DUST (TRANS-BOUNDARY HAZE)

Sept – Oct 2015

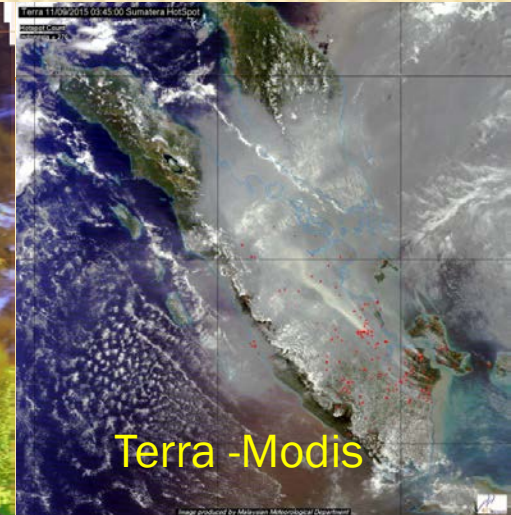
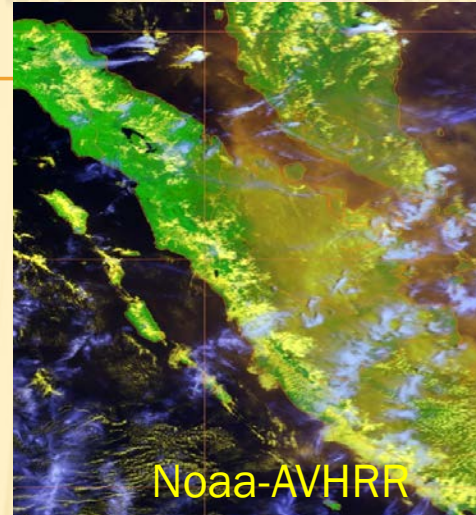
**Malaysia shuts schools amid 'unhealthy' haze**  
(*The Straits Times*, Oct 19, 2015)

➤ Malaysia is shutting down schools on Monday (Oct 19) in three states and several large districts around the country as the choking haze made a comeback above the **"unhealthy" level**.

➤ Malaysia's Education Minister on Sunday told schools in Malacca, Negeri Sembilan and Selangor states to close on Monday, as the **country's Air Pollutant Index exceeded 120** at 7pm on Sunday. Also told to shut were schools in Putrajaya and Kuala Lumpur, as well as in Kuching and Samarahan in Sarawak, and Tawau in Sabah.

**Effects:** Schools have closed, flights are being cancelled and sea traffic through the Malacca Strait has been delayed because of poor visibility.

**Others:** lost productivity, lost tourism and lost workdays through respiratory illness, as well as higher prices for fresh food products.



# METMALAYSIA'S EXPECTATIONS OF NEW SERIES OF SATELLITES FOR HAZARD MONITORING

Major Hazard	Features of new generation GEO met. satellite
Hazard 1: Severe Thunderstorms	<p><b>Rapid scanning:</b> Data from rapid scanning observation will enable early detection of convection cloud development.</p> <p><b>High Spatial Resolution</b> Could help to clarify the details of the atmospheric structure.</p> <p><b>Multi-spectral bands:</b> New signals derived from multi-spectral-band observations for convection indicator and before extremely heavy rainfall are expected to be useful and will support issuance of more effective warnings.</p>
Hazard 2: Monsoon Activity (Rainfall and Cloud Formation)	-same as above-

# METMALAYSIA'S EXPECTATIONS OF NEW SERIES OF SATELLITES FOR HAZARD MONITORING

Major Hazard	Features of new generation GEO met. satellite
Hazard 3: Dust (Trans-Boundary Haze)	<p><b>Rapid scanning:</b> Data from rapid scanning observation will enable early for better fire detection or smoke/haze monitoring. As an alternative besides using Polar Orbiting Satellites.</p> <p><b>High Spatial Resolution</b> Could help to clarify the details of the potential fire or hotspots detection.</p> <p><b>Multi-spectral bands:</b> New signals derived from multi-spectral band observation are expected to be useful for better smoke/haze monitoring and fire detection.</p>

# METMALAYSIA'S REQUIREMENTS TO GET DESIRED BENEFITS FROM THE NEW GENERATION OF SATELLITES

Major hazard	Features of new generation GEO met. satellite
Hazard 1: Severe Thunderstorms	<b>Training in imagery analysis and product development:</b> Training would support the retrieval of atmospheric parameters from multi-spectral band observation, advanced imagery analysis and improved product for severe weather indicator.
Hazard 2: Monsoon Activity (Rainfall and Cloud Formation)	<b>Product algorithms:</b> The provision of product algorithms would support the creation of more accurate product that would help for better weather forecasting and severe weather event study and analysis..
Hazard 3: Dust (Trans-Boundary Haze)	<b>Easy-to-understand product:</b> MetMalaysia would be interested in using a product made with multi-spectral band data that indicates new signals prior to extremely heavy rain, severe thunderstorms and haze monitoring.

# METMALAYSIA'S PLANS/EXPECTATIONS FOR UTILIZATION OF NEW-GENERATION GEOSTATIONARY METEOROLOGICAL SATELLITE DATA

- Exploration and fully utilize the Himawari 8 data for supporting weather forecast office in Malaysia.
- Development of a weather monitoring system using enhanced features of new-generation satellites such as high spatial resolution and multi-spectral bands from Himawari 8/9.
  - ✓ Improve the internet speed connection and storage systems for fully receiving high spatial resolution data from HimawariCloud.
- Active participation in scientific meetings /workshop /training with focus on the imagery analysis, the utilization of new-generation satellite imagery and product development.



**THANK YOU FOR YOUR ATTENTION**