COUNTRY REPORT: MALAYSIA

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6th 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
- 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.
METMALAYSIA’S EXPECTATIONS OF NEW-GENERATION SATELLITES FOR HAZARD MONITORING

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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

- Strong wind and heavy rain left 30 houses damaged.

MTSAT-2: 21 Oct 2014 (0630 utc)

MTSAT-2: 21 Oct 2014 (0830 utc)
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.
RAINFALL AMOUNT DISTRIBUTION OVER MALAYSIA ON DECEMBER 2014
(ACTIVE PHASE NE MONSOON)
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.
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<th>Major Hazard</th>
<th>Features of new generation GEO met. satellite</th>
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<td>Hazard 1: Severe Thunderstorms</td>
<td><strong>Rapid scanning:</strong> Data from rapid scanning observation will enable early detection of convection cloud development.</td>
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|                                                                             | **High Spatial Resolution**  
|                                                                             | Could help to clarify the details of the atmospheric structure. |
|                                                                             | **Multi-spectral bands:**  
|                                                                             | 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. |
| Hazard 2: Monsoon Activity (Rainfall and Cloud Formation)                  | -same as above-                                                  |
### METMALAYSIA’S EXPECTATIONS OF NEW SERIES OF SATELLITES FOR HAZARD MONITORING

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| Hazard 3: Dust (Trans-Boundary Haze) | **Rapid scanning:** Data from rapid scanning observation will enable early for better fire detection or smoke/haze monitoring. As an alternative besides using Polar Orbiting Satellites.  
**High Spatial Resolution**  
Could help to clarify the details of the potential fire or hotspots detection.  
**Multi-spectral bands:** New signals derived from multi-spectral band observation are expected to be useful for better smoke/haze monitoring and fire detection. |
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| Hazard 1: Severe Thunderstorms                   | **Training in imagery analysis and product development:**  
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) | **Product algorithms:**  
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)             | **Easy-to-understand product:**  
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. |
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