



Monitoring and Forecasting Severe Weather due to Monsoon Surges during Northeast Monsoon Season in Malaysia

Ambun Dindang
Malaysian Meteorological Department
(Met Malaysia)

Webinar Series on Climate Change Projection for Disaster Risk Reduction in Asia-Pacific Region Fourth Webinar with Malaysia

27 February 2025
15:00 - 17:00 [Japan Time, UTC+9]
14:00 - 16:00 [Malaysia Time, UTC+8]

Source: Berita Harian

OUTLINE



1. Northeast Monsoon in Malaysia
2. Monsoon surge during Northeast Monsoon
3. Early Warning System of MET Malaysia
4. Recent monsoon surges and related weather warnings
5. Conclusions

1. NORTHEAST MONSOON IN MALAYSIA

Seasons in Malaysia : The Monsoons

Nov - Mar

- **Northeast Monsoon**
- Rainy season /heavy rainfall
- Floods / land slides
- Rough Seas
- Storm surges/ coastal flooding

Apr/May

- Inter Monsoon
- Thunderstorm
- Flash Floods
- Heatwaves
- Haze

Jun - Sept

- Southwest Monsoon
- Haze
- Less rainfall
- Heatwaves
- Forest and Peatland fires
- Sumatras / Squall

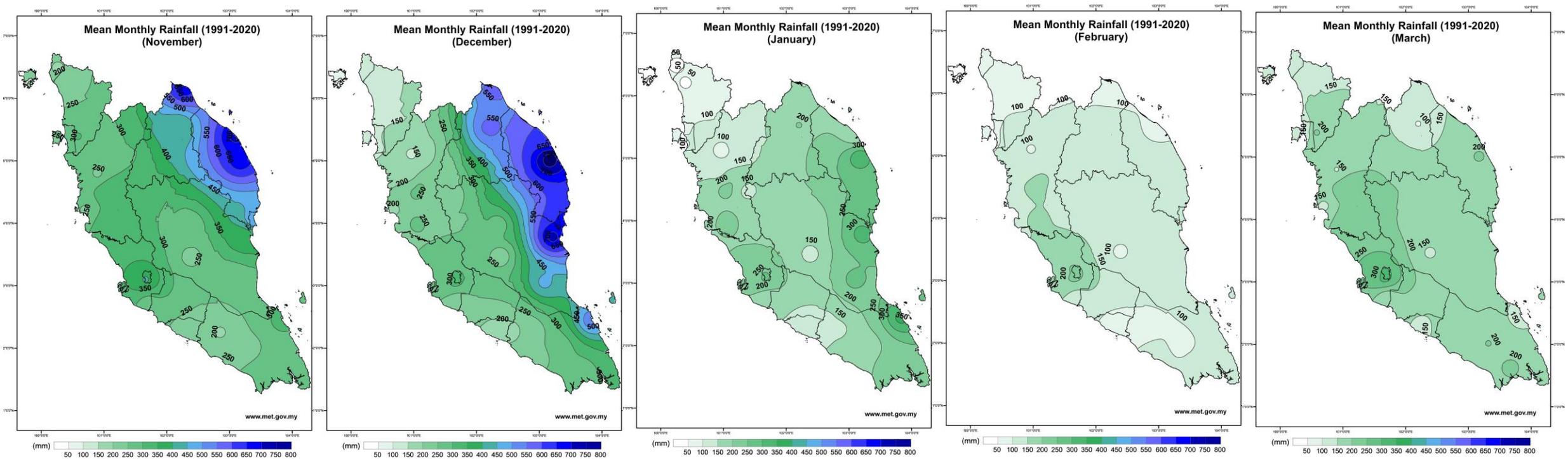
Oct

- Inter Monsoon
- Thunderstorm/Hailstorm
- Flash Flood
- Heatwaves
- Forest and Peatland fires
- Mini tornado



1. NORTHEAST MONSOON IN MALAYSIA

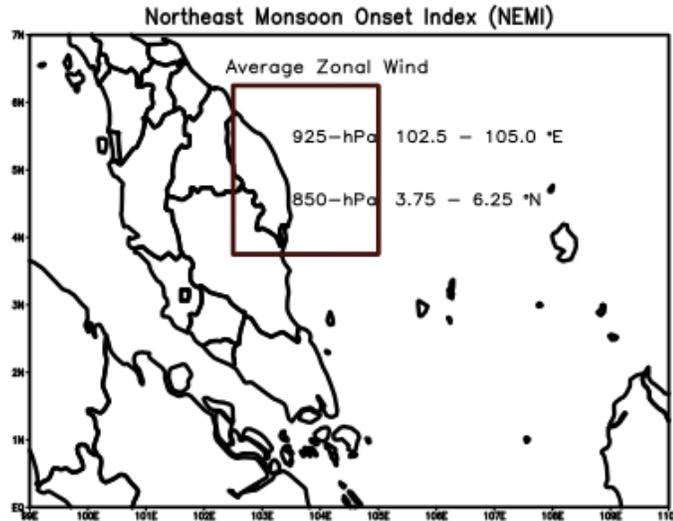
Mean Monthly Rainfall Pattern in Peninsular Malaysia (Nov-Mar)



- In the early phase of NEM, east coast states of peninsula receives more rainfall in Nov and Dec.
- Less rainfall recorded over northern peninsular during January and February, drier weather.
- Monsoon shifts towards Sarawak and Sabah during the second phase in January and February

1. NORTHEAST MONSOON IN MALAYSIA

The Onset and withdrawal of Northeast Monsoon Season.



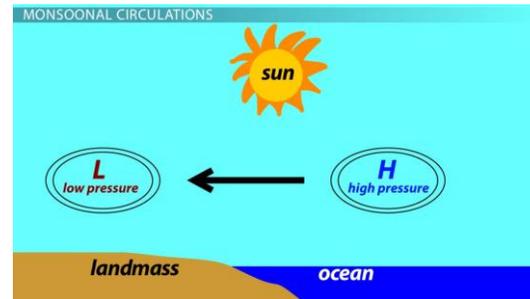
NEMI = U925,U850 (102.5-105.0E,3.75-6.25N)

MetMalaysia: Northeast Monsoon Expected To Start Nov 5

© 01/11/2024 04:21 PM



- The northeast monsoon **begins** when Northeast Monsoon Index (NEMI) is negative for 7 consecutive days with 1 day wind speed is less than -2.5 m/s.
- The northeast monsoon **end** when NEMI is positive wind speed is more than -2.5 m/s for 7 consecutive days with westerly penetration over Malaysia



- A monsoon is a shift in winds that often causes a very rainy season or a very dry season. Although monsoons are usually associated with parts of Asia, they can happen in many tropical and subtropical regions – including several locations in the United States.
- The onset date for NEM 2024/25 was on 5th Nov 2024, and press statement was issued on 1 Nov 2024

2. MONSOON SURGE DURING NORTHEAST MONSOON



What is monsoon surge?



A monsoon surge refers to a **strengthening of northeasterly winds** over the South China Sea (SCS), causing extensive rainclouds to form over a surrounding region and move inland causing **continuous heavy rain** in Malaysia.

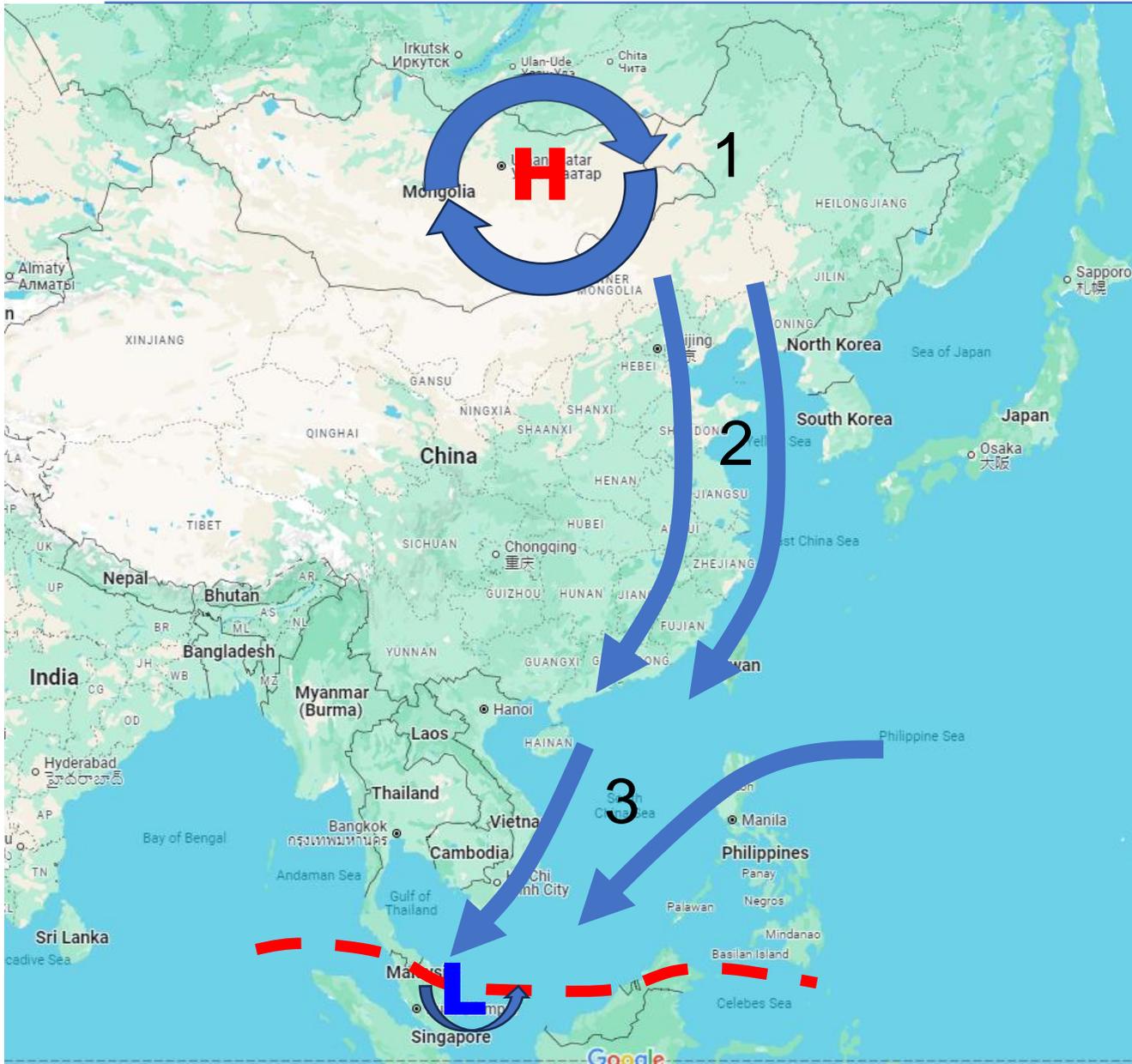
Why monitoring and forecasting monsoon surge is important?



- ✓ Continuous heavy rain
- ✓ Monsoon floods
- ✓ Landslides
- ✓ Strong wind and rough seas
- ✓ Storm surge
- ✓ Coastal erosion
- ✓ Coastal flooding



2. MONSOON SURGE DURING NORTHEAST MONSOON



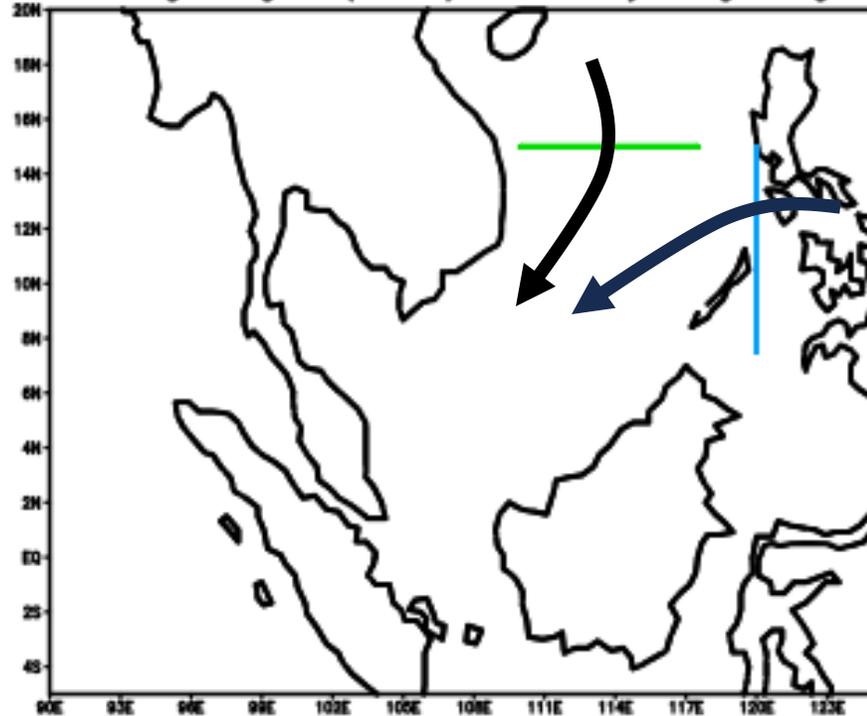
How does monsoon surge occur?

1. High Pressure area called **Siberia High (H)** develop during the Northern Hemisphere Winter (Nov-Mar). Air mass around the **H** circulates in clock wise manner (anticyclone)
2. When high pressure drops suddenly, cold air mass flow out from **H** towards tropics region (burst).
3. Cold & dry air mass from north and warm & moist air from east passes through ocean surface and collecting moisture evaporated from the South China Sea (SCS).
4. The meridional and easterly air mass called monsoon surge flow into a low pressure area (**L**) along the monsoon trough and caused heavy continuous rainfall over Malaysia.

2. MONSOON SURGE DURING NORTHEAST MONSOON

Monitoring and Forecasting NE Monsoon surges

Meridional Surge Region (Green) & Easterly Surge Region (Blue)



Meridional Surge = $V_{925} (110.0-117.5E, 15.0N)$

Easterly Surge = $U_{925} (120.0E, 7.5-15.0N)$

The **meridional surge index (MSI)** was adopted from C.P. Chang (2005). The MSI was defined as the average 925-hPa meridional wind bounded by **110 E to 117.5 E along 15 N**. The surge episode begins when the MSI is less than -8 m/s for 3 consecutive days and ends when the MSI is greater than -8 m/s for at least 3 consecutive days.

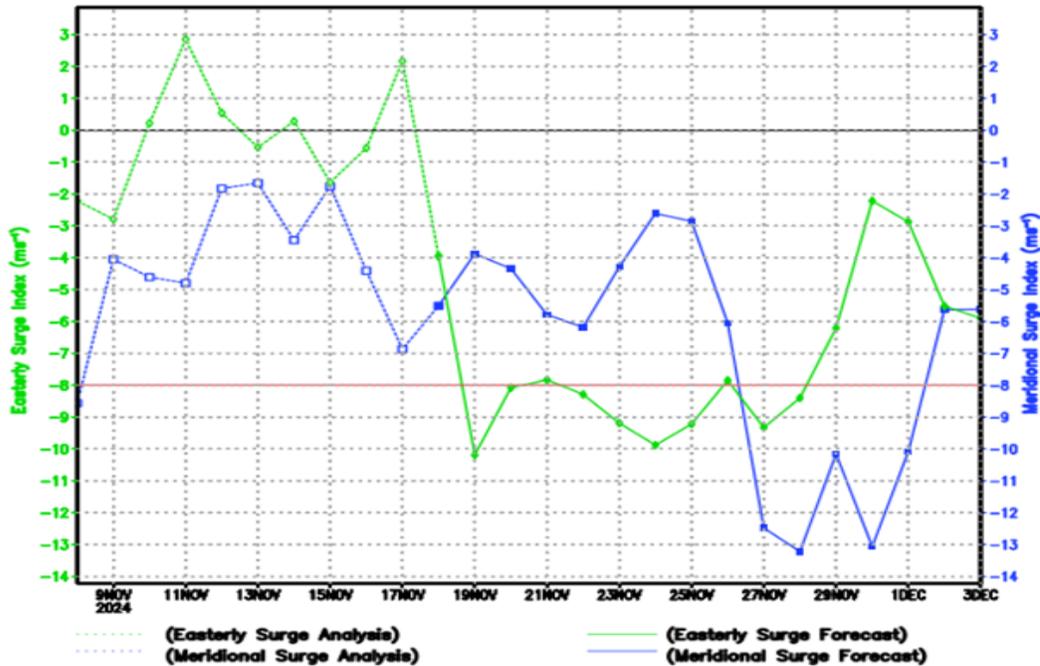
The **easterly surge index (ESI)** was adopted from Hai (2017). The ESI was defined as the average 925-hPa zonal wind between **7.5 N and 15 N along 120 E**. A surge episode is said to begin when the ESI is less than -8 m/s for 3 consecutive days and ends when the ESI goes above -8 m/s for at least 3 consecutive days.

2. MONSOON SURGE DURING NORTHEAST MONSOON



Monitoring and Forecasting NE Monsoon surges

Meridional & Easterly Surge Forecast – GFS GEFS (Analysis Time : 00Z18NOV2024)



- Weather model run at 8am 18 Nov 2024 forecast that strong MS expected to occur from 26 Nov until 1 Dec 2024.
- Press statement issued on the 19 Nov 2025 mentioned that east coast states of peninsula will be affected.
- Alert stage warning (Yellow) effective from 26-29 Nov 2024 issued on 23 Nov 2024.

KENYATAAN MEDIA
JABATAN METEOROLOGI MALAYSIA
KEMENTERIAN SUMBER ASLI DAN KELESTARIAN ALAM
19 NOVEMBER 2024

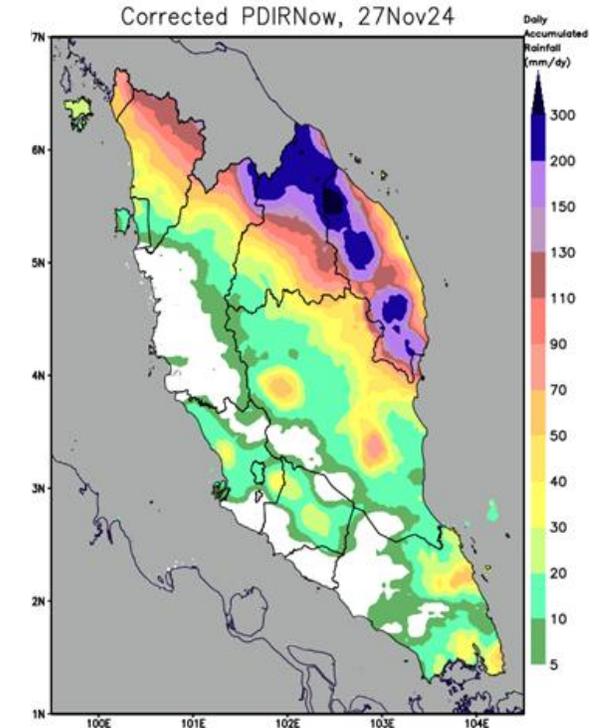
JANGKAAN LURUAN MONSUN KUAT
PADA 27 NOVEMBER SEHINGGA 1 DISEMBER 2024

Luruan monsun yang membawa hujan lebat berterusan sedang berlaku di timur dan selatan Semenanjung dijangka berlanjutan sehingga hujung November 2024. Analisis terhadap ramalan cuaca terkini menunjukkan kekuatan luruan monsun diramal meningkat pada **27 November hingga 1 Disember 2024**. Keadaan ini berpotensi menyebabkan hujan sangat lebat dan berterusan di timur Semenanjung dalam tempoh berkenaan.

MET Malaysia sentiasa memantau keadaan cuaca dari semasa ke semasa dan akan mengemas kini Amaran Hujan Berterusan sekiranya keadaan cuaca dijangka bertambah buruk.

Orang ramai dinasihatkan agar bersiap sedia serta sentiasa peka dengan maklumat, nasihat, ramalan dan amaran cuaca yang dikeluarkan oleh Jabatan Meteorologi Malaysia (MET Malaysia) melalui medium sebaran rasmi iaitu laman web www.met.gov.my, aplikasi mobil myCuaca dan media sosial rasmi MET Malaysia. Talian hotline MET Malaysia 1-300-22-1638 boleh dihubungi bagi sebarang pertanyaan lanjut.

Sumber:
DR. MOHD HISHAM BIN MOHD ANIP



3. EARLY WARNING SYSTEM (EWS) of MET MALAYSIA



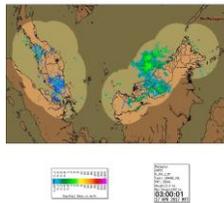
OBSERVATION & DATA ACQUISITION

PROCESSING & ANALYSIS

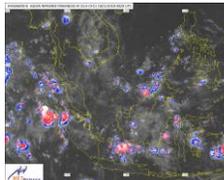
DISSEMINATION



424 Surface Observation Stations
8 Upper Air Stations



19 Weather Radars & 6 Wind Shear Detection Systems



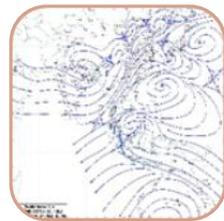
3 Geostationary Satellite Ground Stations



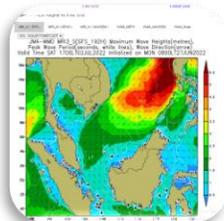
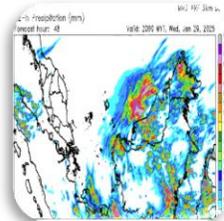
16 Lighting Detection Sensor (LDS)
6 LDS + EFM (Electric Field Mill)



International Data Sharing



Latest Weather Charts



Numerical Weather Prediction Models



Website
Mobile App myCuaca



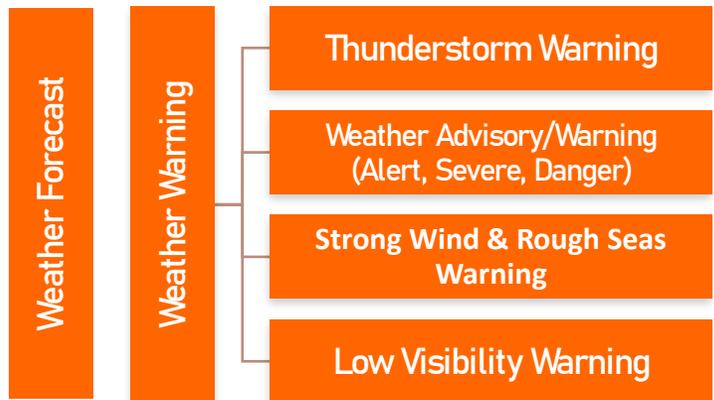
Social Media
TV Weather Report



SMS
Whatsapp
E-mail
Facsimile



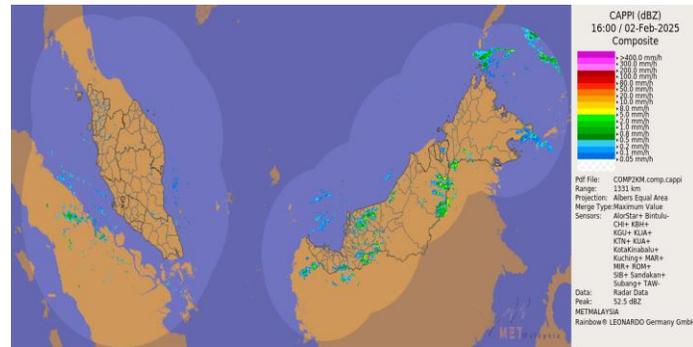
Mass Media



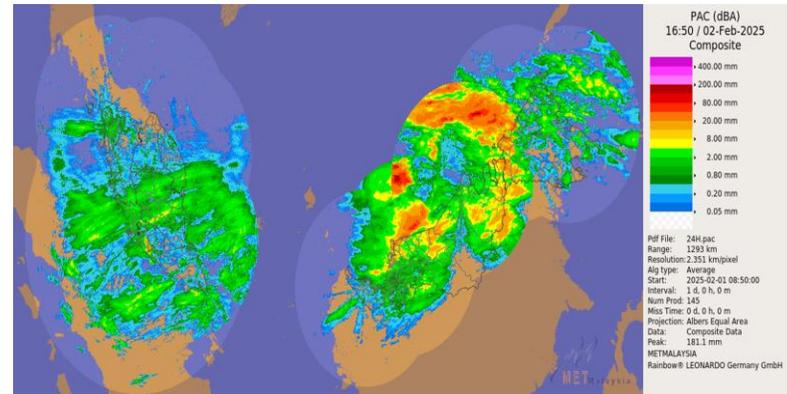
3. EARLY WARNING SYSTEM of MET MALAYSIA – Observation & Data Acquisition



a). Radar Observation Stations (19 + 6).

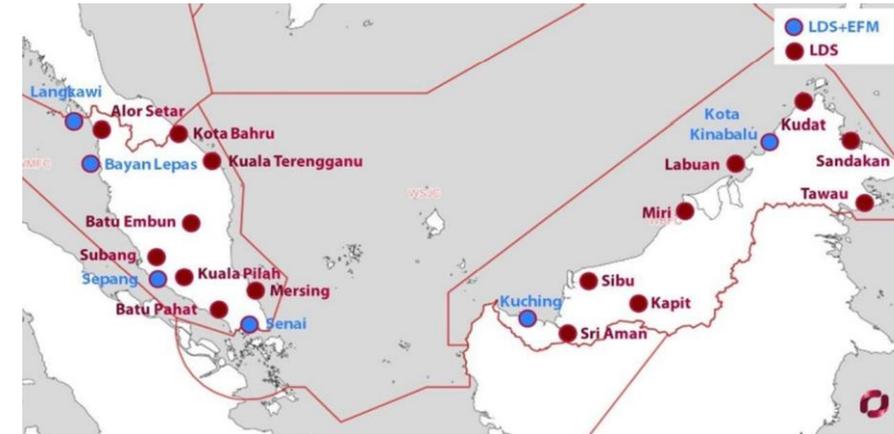


CAPPI Composite Radar

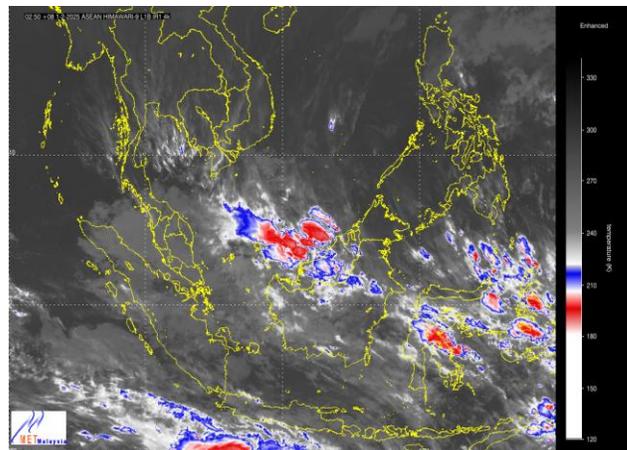


24 hours Accumulated Rainfall

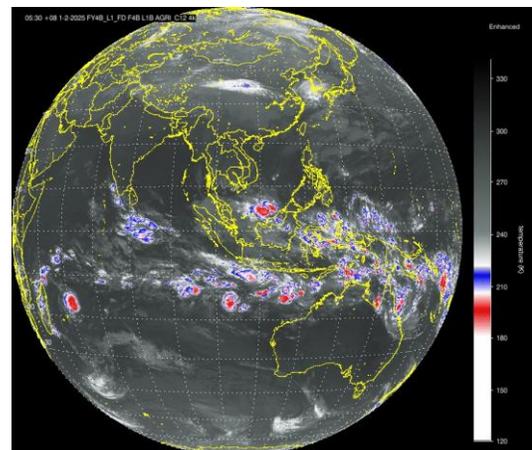
c). Lightning Detection and Alert System(16+6).



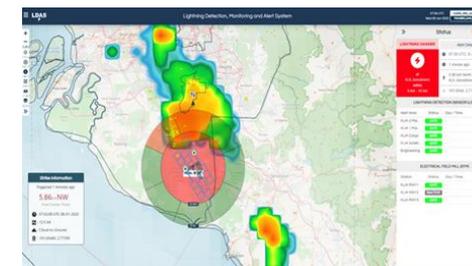
b). Satellite Ground Receiving stations (3).



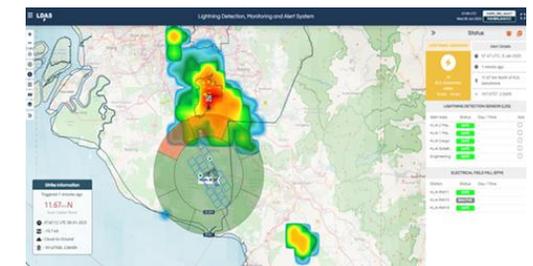
Infrared Enhanced



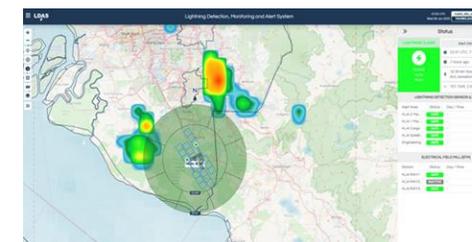
Infrared Enhanced



Lightning Danger (red)



Lightning warning (amber)

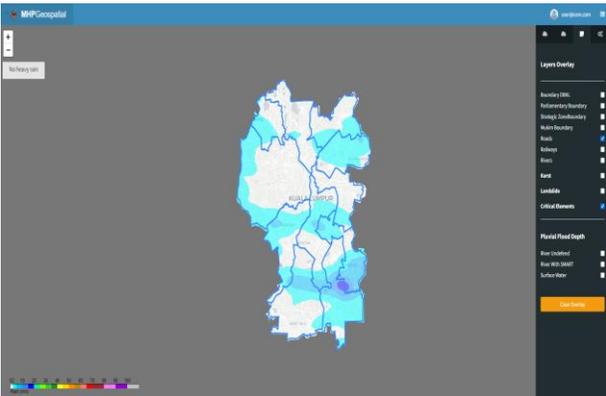


Lightning clear (green)

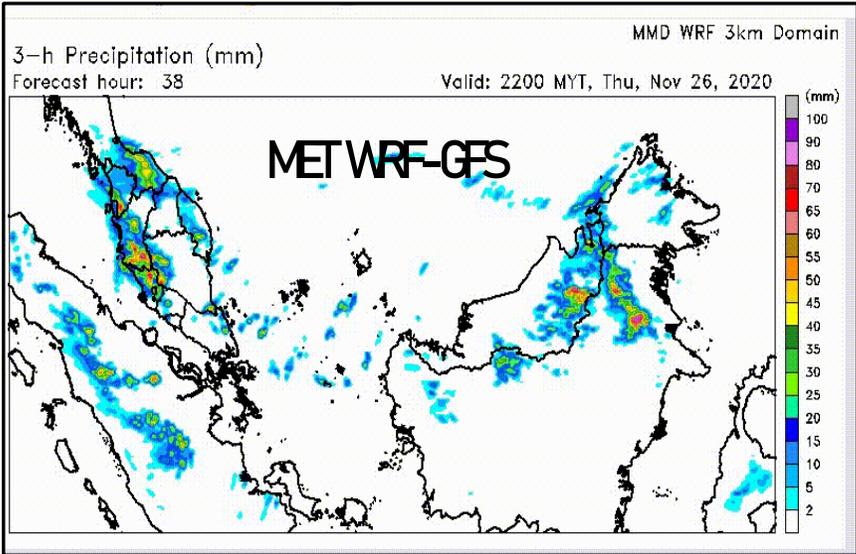


3. EARLY WARNING SYSTEM of MET MALAYSIA – Data Processing & Analysis

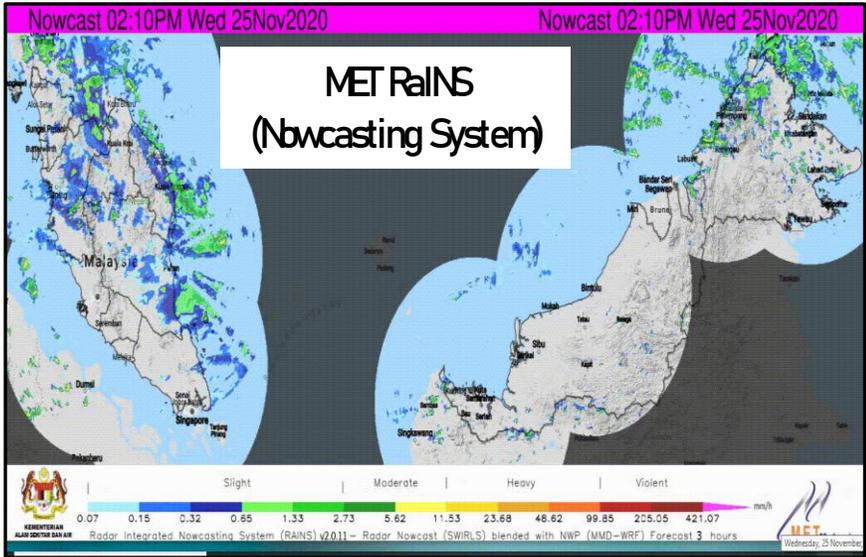
a). Weather models output produced by High Performance Computing (HPC).



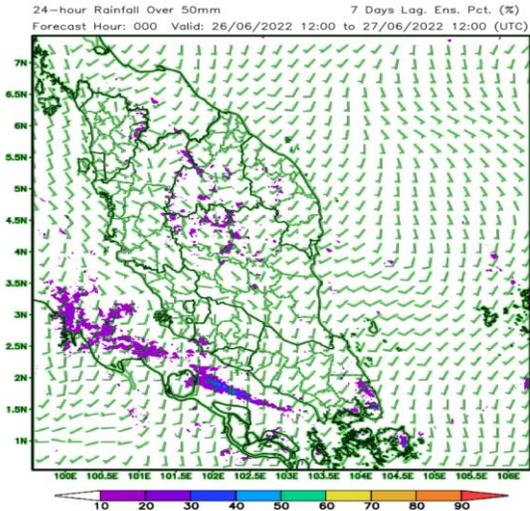
MET Kuala Lumpur City Hall Multi Hazard Platform



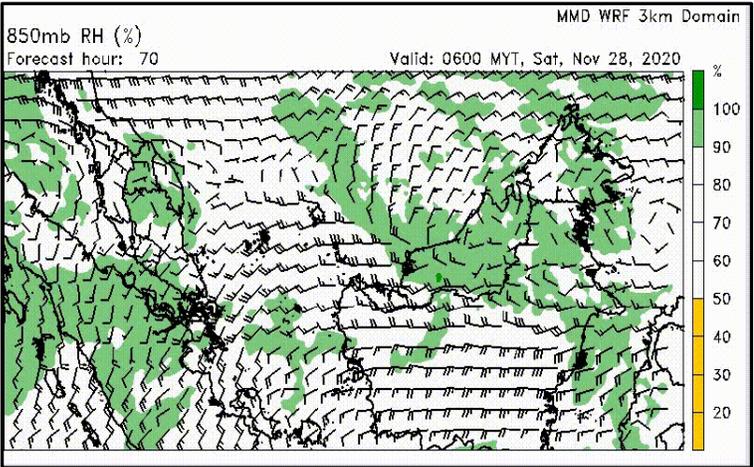
Precipitation Forecast



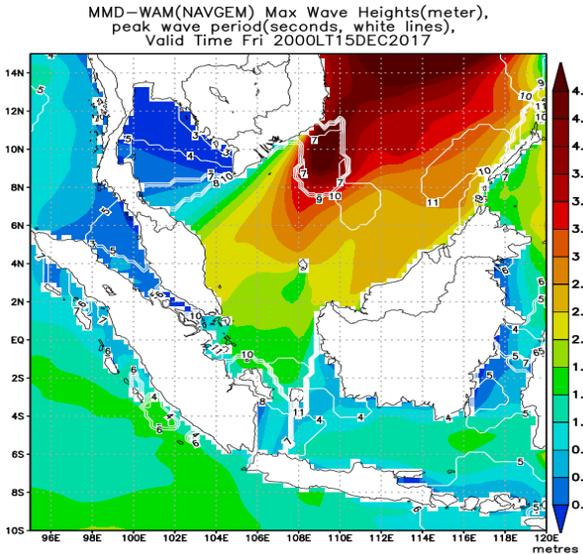
Nowcasting



Ensemble Forecast



Relative Humidity Forecast

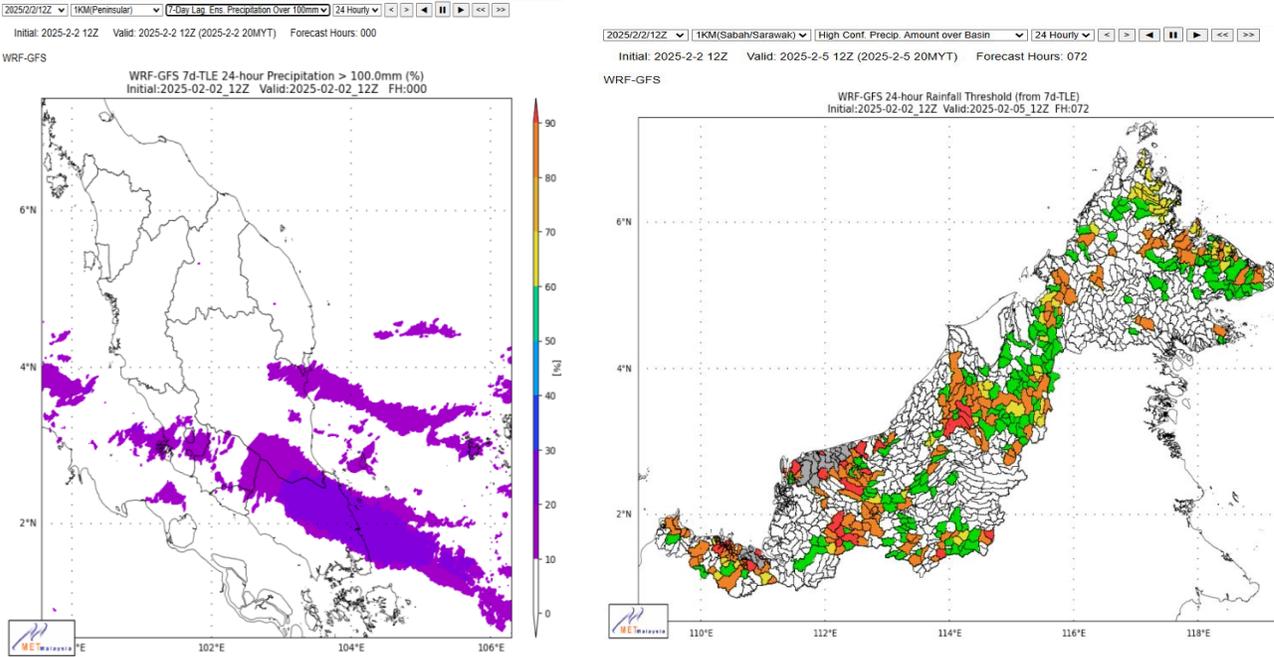


Marine Forecast

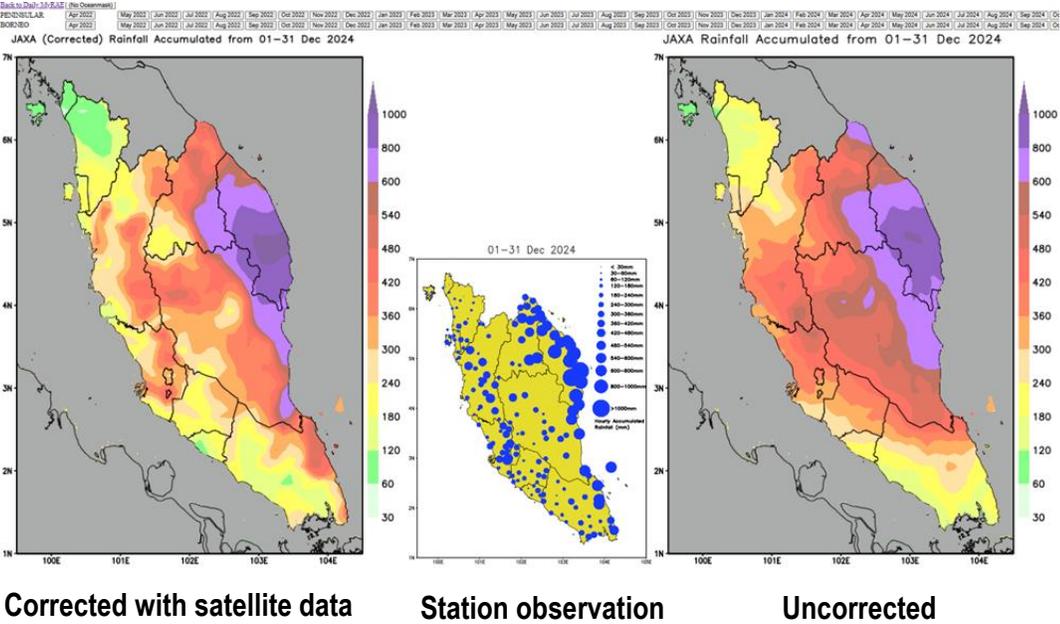
3. EARLY WARNING SYSTEM of MET MALAYSIA – Data Processing & Analysis



b). Time lag ensemble & River Basin forecasts



c). Malaysian Rainfall Analysis and Estimation (MyRAE)



24 Hours Accumulated Rainfall Estimation using MyRAE

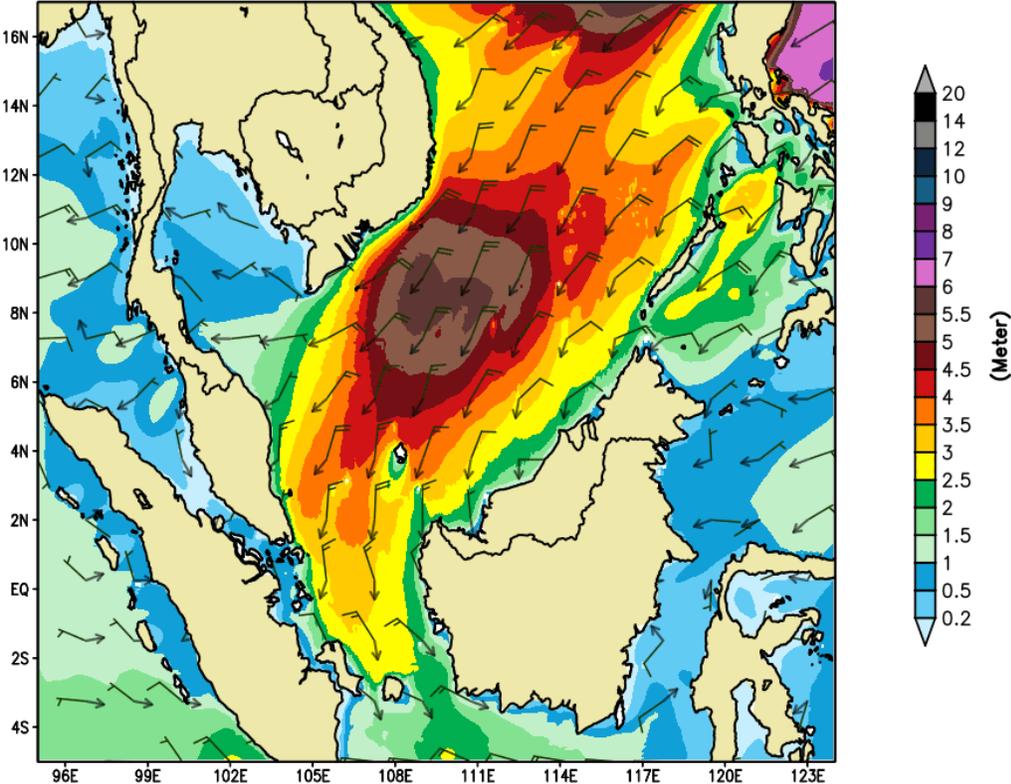
- MyRAE uses the method of Barnes Successive Correction (BSC) to fine-tune satellite gridded rainfall data with respect to rain gauge data.
- BCS is used because it is simple to understand and explain, while powerful enough to reduce the difference between satellites and rain gauge.



3. EARLY WARNING SYSTEM of MET MALAYSIA – Data Processing & Analysis

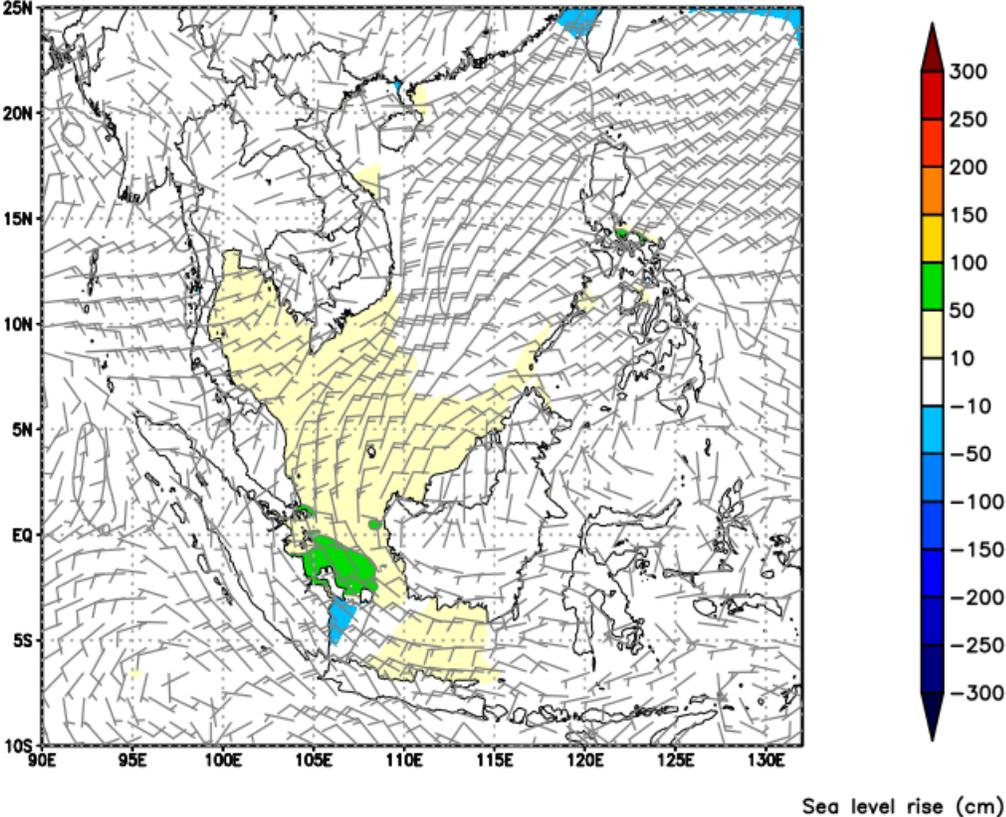
d). Marine models of MET Malaysia

JMA-MMD MRI3_S(GFS_Wind) Max_Wave = 1.9 X Hs Heights(metres),
10 meter Wind (Barb), Wave Direction (Arrow)
Analysis on WED 0800LT08JAN2025



Maximum wave forecast model

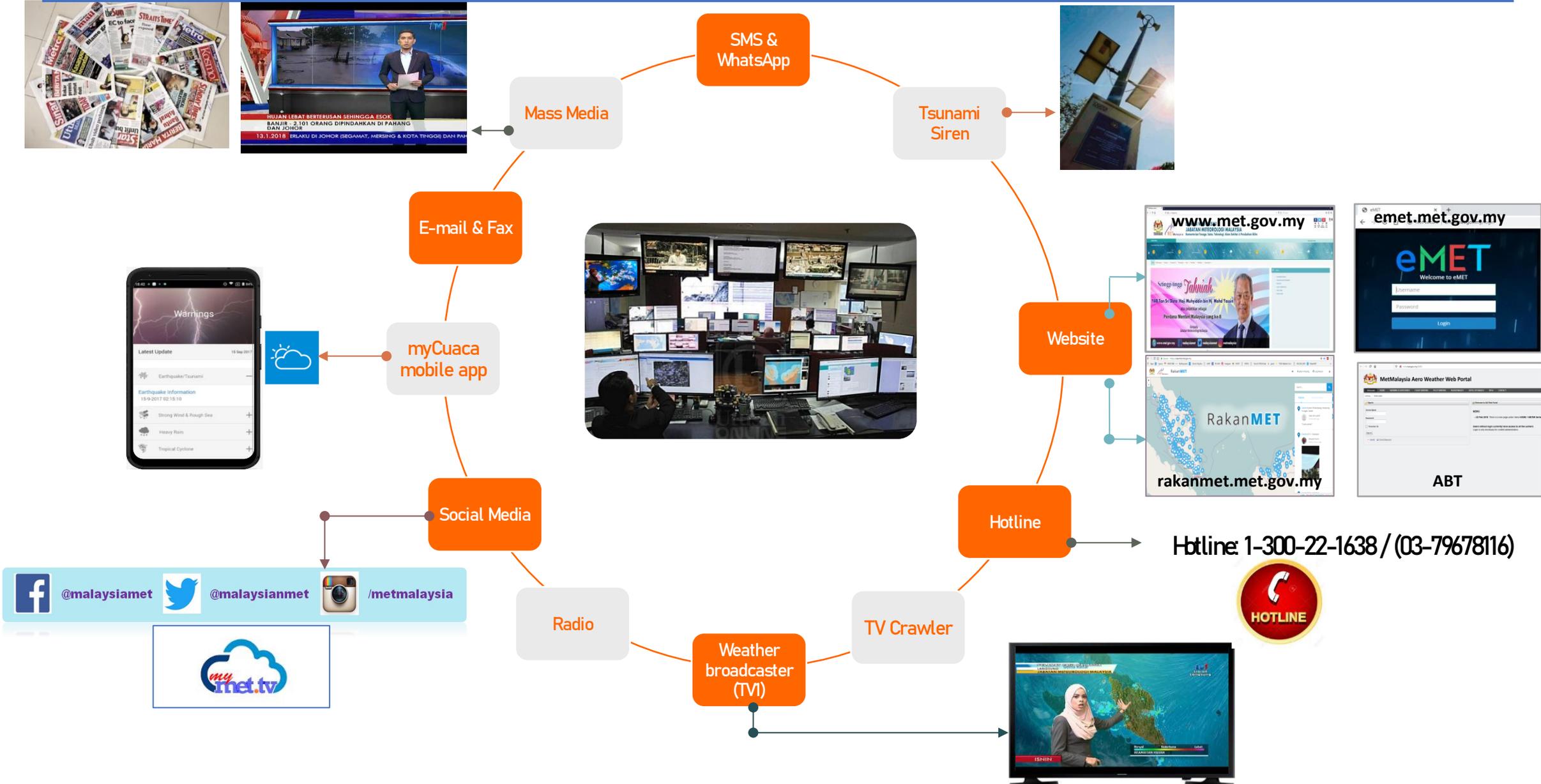
MMD-JMA(NAVGEN2) Storm Surge Model
Analysis on WED 0800LT08JAN2025



Storm surge forecast model



3. EARLY WARNING SYSTEM of MET MALAYSIA – Information Dissemination



4. RECENT MONSOON SURGES AND RELATED WEATHER WARNING

a) 1st monsoon surge on 19 – 22 November 2024



WASPADA: Hujan berterusan dijangka berlaku 19 November 2024 – 23 November 2024
Kelantan (Tumpat, Pasir Mas, Kota Bharu, Tanah Merah, Bachok, Machang dan Pasir Puteh) • Terengganu • Pahang (Kuantan, Pekan dan Rompin) • Johor (Segamat, Kluang, Mersing, Kulai, Kota Tinggi dan Johor Bahru)



BURUK: Hujan lebat berterusan dijangka berlaku sehingga 23 November 2024
Pahang (Kuantan, Pekan dan Rompin) • Johor (Segamat, Kluang, Mersing dan Kota Tinggi)

WASPADA: Hujan berterusan dijangka berlaku sehingga 23 November 2024
Kelantan (Tumpat, Pasir Mas, Kota Bharu, Tanah Merah, Bachok, Machang dan Pasir Puteh) • Terengganu • Pahang (Jerantut, Temerloh, Maran dan Bera)

WASPADA: Hujan berterusan dijangka berlaku sehingga 20 November 2024
Negeri Sembilan (Kuala Pilah, Jempol dan Tampin) • Melaka • Johor (Tangkak, Muar, Batu Pahat, Pontian, Kulai dan Johor Bahru)



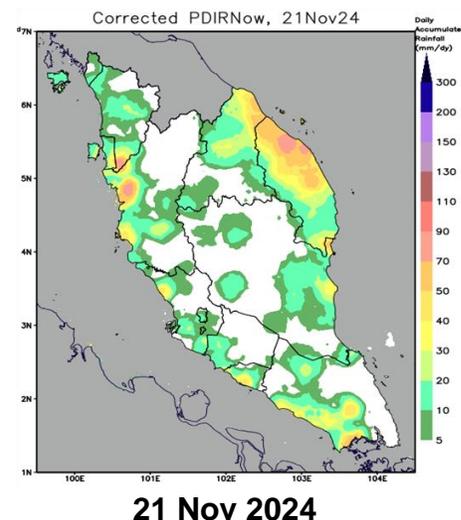
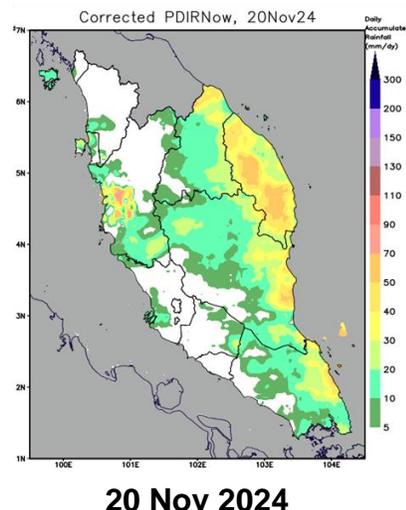
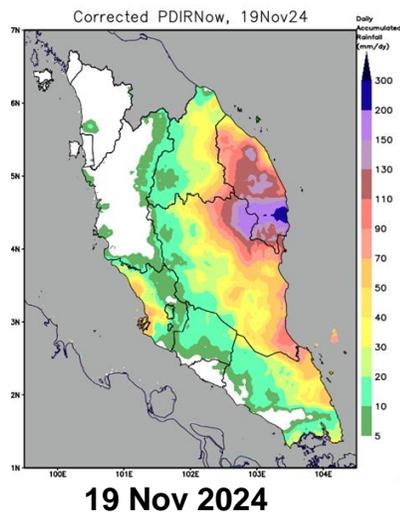
BURUK: Hujan lebat berterusan dijangka berlaku sehingga 23 November 2024
Kelantan (Tumpat, Pasir Mas, Kota Bharu, Jeli, Tanah Merah, Bachok, Machang, Pasir Puteh dan Kuala Krai) • Terengganu • Pahang (Jerantut, Kuantan, Pekan dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku sehingga 23 November 2024
Kelantan (Gua Musang) • Pahang (Tanah Tinggi Cameron, Lipis, Raub, Bentong, Temerloh, Maran dan Bera) • Johor (Mersing dan Kota Tinggi)

WASPADA: Hujan berterusan dijangka berlaku 23 November 2024 – 25 November 2024
Sabah: Pantai Barat (Ranau dan Kota Belud), Tawau (Lahad Datu), Sandakan (Telupid, Kinabatangan, Beluran dan Sandakan) dan Kudat

Alert warning issued on 15 Nov 2024

Warning was updated to amber stage on 18 Nov 2024 and 20 Nov 2024



- Heavy rain was recorded mainly in the state of Terengganu on 19 Nov 2024
- Moderate rain was recorded in Kelantan, Pahang and east of Johor.

4. RECENT MONSOON SURGES AND RELATED WEATHER WARNING



b) 2nd monsoon surge on 26 – 30 November 2024

KENYATAAN MEDIA
JABATAN METEOROLOGI MALAYSIA
KEMENTERIAN SUMBER ASLI DAN KELESTARIAN ALAM
 19 NOVEMBER 2024

JANGKAAN LURUAN MONSUN KUAT
PADA 27 NOVEMBER SEHINGGA 1 DISEMBER 2024

Luruan monsun yang membawa hujan lebat berterusan sedang berlaku di timur dan selatan Semenanjung, dijangka berterusan sehingga hujung November 2024. Analisis terhadap ramalan cuaca terkini menunjukkan kekuatan luruan monsun dramatik meningkat pada 27 November hingga 1 Disember 2024. Keadaan ini berpotensi menyebabkan hujan sangat lebat dan berterusan di timur Semenanjung dalam tempoh berkenaan.

MET Malaysia sentiasa memantau keadaan cuaca dat di semua ke semua dan akan mengemaskini Amaran Hujan Berterusan sekiranya keadaan cuaca dijangka bertambah buruk.

Orang ramai dinasihatkan agar bersedia sedia sentiasa peka dengan maklumat, rasmi, ramalan dan amaran cuaca yang dikeluarkan oleh Jabatan Meteorologi Malaysia (MET Malaysia) melalui media sosial rasmi atau laman web: www.met.gov.my, aplikasi mobil myCuaca dan media sosial rasmi MET Malaysia. Talian hotline MET Malaysia 1-300-22-1638 boleh ditubuhkan bagi sebarang pertanyaan lanjut.

Sumber:
 DR. MOHD HISHAM BIN MOHD ANIP
 Ketua Pengarah
 Jabatan Meteorologi Malaysia (MET Malaysia)
 Kementerian Sumber Asli dan Kelestarian Alam
 19 November 2024, 2:50 petang

Press Statement was issued on 19 Nov 2024

JABATAN METEOROLOGI MALAYSIA
KEMENTERIAN SUMBER ASLI DAN KELESTARIAN ALAM

Amaran Hujan Berterusan (Waspada)

Masa dikeluarkan:
 12:35 tengah hari; 23 November 2024

WASPADA: Hujan berterusan dijangka berlaku **sehingga 29 November 2024**
 Kelantan (Tumpat, Pasir Mas, Kota Bharu, Jeli, Tanah Merah, Bachok, Machang, Pasir Puteh dan Kuala Krai) - Terengganu - Pahang (Jerantut, Kuantan, Pekan dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku **sehingga 25 November 2024**
 Sabah: Sandakan (Telupid, Beluran dan Sandakan) dan Kudat

WASPADA: Hujan berterusan dijangka berlaku **26 November 2024 - 29 November 2024**
 Perlis - Kedah (Kudang Pasu, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak) - Kelantan (Gua Musang) - Pahang (Tanah Tinggi Cameron, Lipis, Raub, Bentong, Temerloh, Maran dan Bera)

Alert stage warning (Yellow) was issued on 23 Nov 2024

JABATAN METEOROLOGI MALAYSIA
KEMENTERIAN SUMBER ASLI DAN KELESTARIAN ALAM

Amaran Hujan Berterusan (Bahaya)

Masa dikeluarkan:
 1:00 tengah hari; 27 November 2024

BAHAYA: Hujan sangat lebat berterusan dijangka berlaku **sehingga 29 November 2024**
 Kelantan - Terengganu - Pahang (Jerantut dan Kuantan)

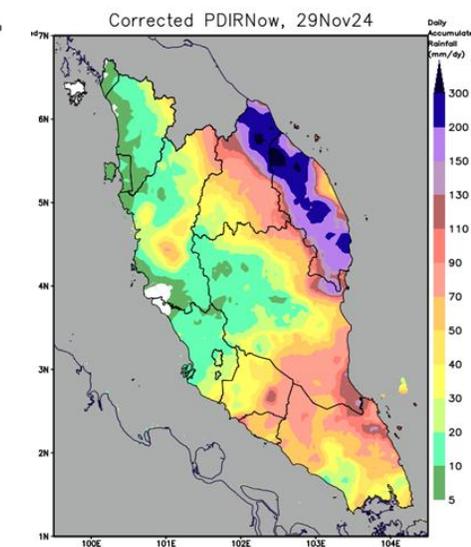
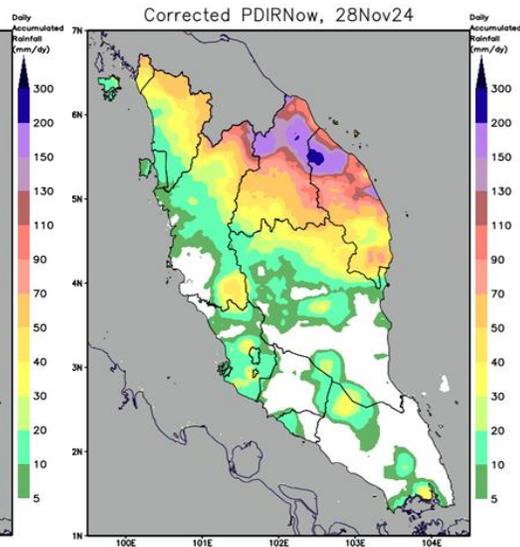
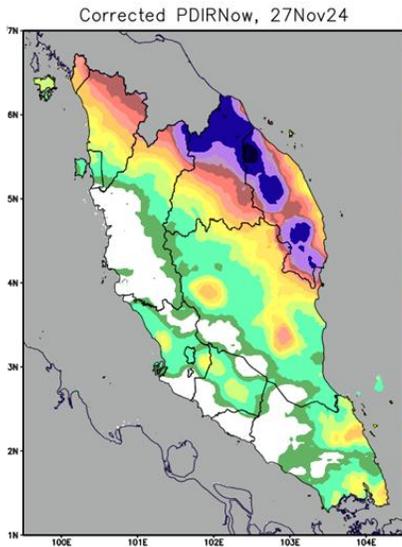
BURUK: Hujan lebat berterusan dijangka berlaku **sehingga 29 November 2024**
 Perlis - Kedah (Kubang Pasu, Kota Setar, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak) - Pahang (Tanah Tinggi Cameron, Lipis, Maran, Pekan dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku **sehingga 29 November 2024**
 Kedah (Langkawi, Yan, Kuala Muda, Kulim dan Bandar Baharu) - Pulau Pinang - Perak (Kerian, Larut, Matang Dan Selama, Kuala Kangsar, Kinta dan Kampar) - Pahang (Raub, Bentong, Temerloh dan Bera) - Johor (Segamat, Mersing dan Kota Tinggi) - Sabah: Sandakan (Telupid, Beluran dan Sandakan) dan Kudat

Warning was updated to severe (Orange) and danger stage (Red) on 27 Nov 2024



Source: Utusan Malaysia



Source: ASTRO

Pasir Mas daerah terbaru dilanda banjir di Kelantan
 Oleh Hidayatidayu Razali - Disember 30, 2024 @ 1:34pm
 bhnews@bh.com.my

Antara kawasan dilanda banjir di Kelantan. semalam - NSTP/NIK ARDUI I IAH NIK OMAR

Source: Berita Harian

4. RECENT MONSOON SURGES AND RELATED WEATHER WARNING



c) 3rd monsoon surge on 9 – 12 December 2024



WASPADA: Hujan berterusan dijangka berlaku
8 Disember 2024 - 11 Disember 2024
Perlis - Kedah (Kubang Pasu, Kota Setar, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak) - Kelantan - Terengganu

WASPADA: Hujan berterusan dijangka berlaku
9 Disember 2024 - 11 Disember 2024
Pahang (Tanah Tinggi Cameron, Lipis, Jerantut, Maran, Kuantan, Pekan dan Rompin) - Johor (Mersing dan Kota Tinggi)



BURUK: Hujan lebat berterusan dijangka berlaku
sehingga 11 Disember 2024
Terengganu (Dungun dan Kemaman) - Pahang (Jerantut, Maran, Kuantan, Pekan dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku
sehingga 11 Disember 2024
Perlis - Kedah (Kubang Pasu, Kota Setar, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak) - Kelantan - Terengganu (Besut, Setiu, Kuala Nerus, Hulu Terengganu, Kuala Terengganu dan Marang) - Pahang (Tanah Tinggi Cameron, Lipis, Raub, Bentong, Temerloh dan Bera) - Johor (Segamat, Mersing dan Kota Tinggi)



BAHAYA: Hujan sangat lebat berterusan dijangka berlaku
sehingga 11 Disember 2024
Terengganu (Hulu Terengganu, Marang, Dungun dan Kemaman) - Pahang (Kuantan dan Pekan)

BURUK: Hujan lebat berterusan dijangka berlaku
sehingga 11 Disember 2024
Kelantan (Jeli, Tanah Merah, Machang, Pasir Puteh, Kuala Kral dan Gua Musang) - Terengganu (Besut, Setiu, Kuala Nerus dan Kuala Terengganu) - Pahang (Jerantut, Maran dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku
sehingga 11 Disember 2024
Perlis - Kedah (Kubang Pasu, Kota Setar, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak, Kuala Kangsar, Kota dan Kampar) - Kelantan (Tumpat, Pasir Mas, Kota Bharu dan Bachok) - Pahang (Tanah Tinggi Cameron, Lipis, Raub, Bentong, Temerloh dan Bera) - Johor (Segamat, Mersing dan Kota Tinggi)



BURUK: Hujan lebat berterusan dijangka berlaku
sehingga 11 Disember 2024
Terengganu (Hulu Terengganu, Marang, Dungun dan Kemaman) - Pahang (Jerantut, Maran, Kuantan, Pekan dan Rompin)

WASPADA: Hujan berterusan dijangka berlaku
sehingga 12 Disember 2024
Perlis - Kedah (Langkawi, Kubang Pasu, Kota Setar, Pokok Sena, Padang Terap, Pendang, Sik dan Baling) - Perak (Hulu Perak dan Kuala Kangsar) - Kelantan - Terengganu (Besut, Setiu, Kuala Nerus dan Kuala Terengganu)

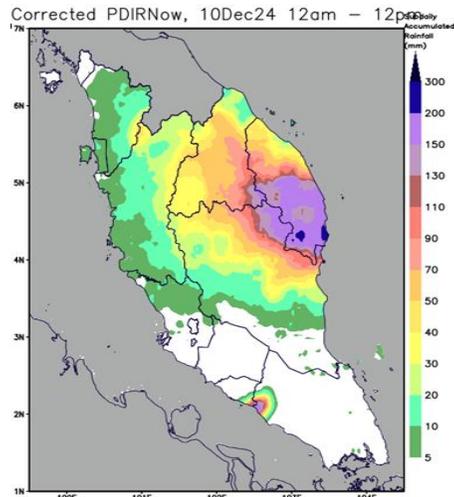
WASPADA: Hujan berterusan dijangka berlaku
sehingga 11 Disember 2024
Pahang (Tanah Tinggi Cameron, Lipis, Temerloh dan Bera)

Alert warning issued on 5 Dec 2024

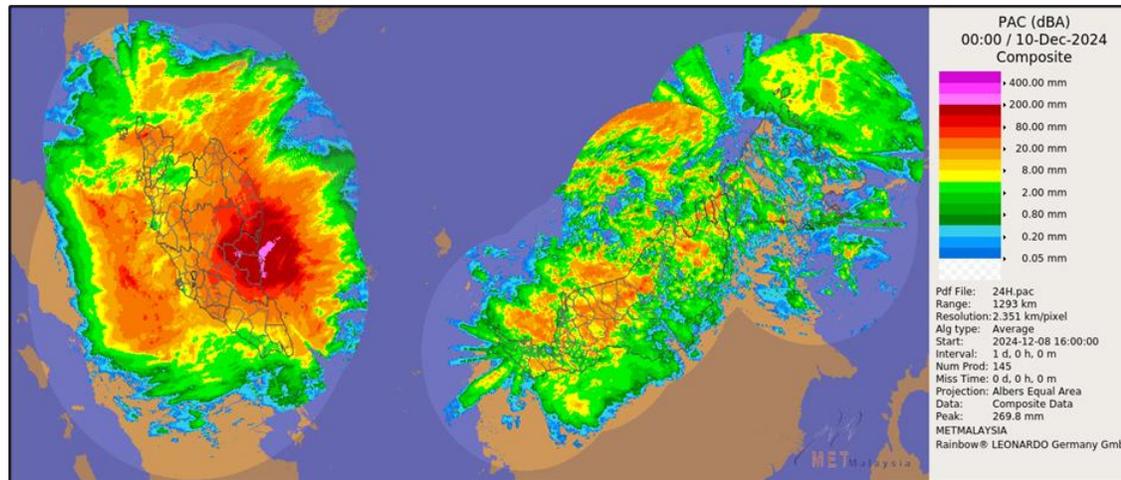
Upgrade to severe stage (Orange) on 9 Dec 2024, 9 am

Upgrade to danger stage (Red) on 9 Dec 2024, 730pm

Downgrade to severe stage (Orange) on 9 Dec 2024, 730pm



9 Dec 2024



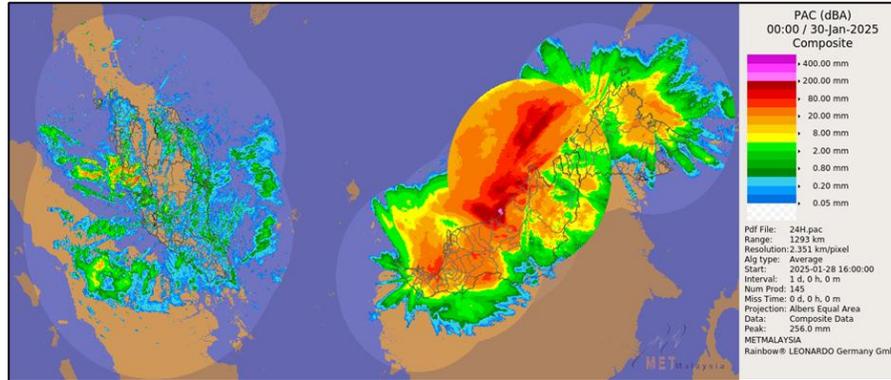
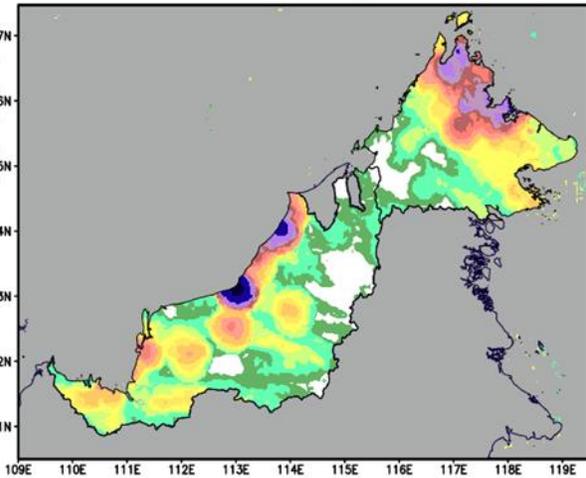
24 hours accumulated rainfall based on radar echo on 10 Dec 2024

4. RECENT MONSOON SURGES AND RELATED WEATHER WARNING



d) 7th monsoon surge on 28 – 31 January 2025

Corrected PDIRNow, 29Jan25



24 Hours Accumulated rainfall on 29 JANUARI 2025



Bintulu, Sarawak
Source: Berita Harian



Bintulu, Sarawak
Source: Utusan



WASPADA: Hujan berterusan dijangka berlaku
 27 Januari 2025 – 30 Januari 2025
 Sarawak: Kuching, Serian, Samarahan, Sri Aman, Betong, Sarikei, Sibul, Mukah, Kapit (Song dan Kapit), Bintulu dan Miri (Subis, Beluru, Miri dan Marudi)

WASPADA: Hujan berterusan dijangka berlaku
 27 Januari 2025 – 29 Januari 2025
 Sabah: Pantai Barat (Ranau dan Kota Belud), Tawau (Lahad Datu), Sandakan (Telupid, Kinabatangan, Beluran dan Sandakan) dan Kudat



BURUK: Hujan lebat berterusan dijangka berlaku
 sehingga 30 Januari 2025
 Sarawak: Kuching, Serian, Samarahan, Sri Aman, Betong, Sarikei, Sibul, Mukah, Kapit (Song), Bintulu (Tatau dan Bintulu) dan Miri (Subis dan Miri)

WASPADA: Hujan berterusan dijangka berlaku
 sehingga 30 Januari 2025
 Sarawak: Kapit (Kapit), Bintulu (Sebah) dan Miri (Beluru dan Marudi)

WASPADA: Hujan berterusan dijangka berlaku
 sehingga 29 Januari 2025
 Sabah: Pantai Barat (Ranau dan Kota Belud), Tawau (Lahad Datu), Sandakan (Telupid, Kinabatangan, Beluran dan Sandakan) dan Kudat



BAHAYA: Hujan sangat lebat berterusan dijangka berlaku
 sehingga 31 Januari 2025
 Sarawak: Kuching, Serian, Samarahan, Sarikei (Meradong), Sibul (Sibu dan Selangau), Mukah, Bintulu (Tatau dan Bintulu) dan Miri (Subis)

BURUK: Hujan lebat berterusan dijangka berlaku
 sehingga 31 Januari 2025
 Sarawak: Sri Aman, Betong, Sarikei (Pakan, Sarikei dan Julau), Sibul (Kanowit), Kapit (Song dan Kapit), Bintulu (Sebah) dan Miri (Beluru, Miri dan Marudi) • Sabah: Pantai Barat (Ranau dan Kota Belud), Sandakan (Telupid, Kinabatangan, Beluran dan Sandakan) dan Kudat

WASPADA: Hujan berterusan dijangka berlaku
 sehingga 31 Januari 2025
 Sabah: Pedalaman (Keningau dan Tambunan), Pantai Barat (Papar, Putatan, Penampang, Kota Kinabalu dan Tuaran), Tawau (Lahad Datu) dan Sandakan (Tongod)

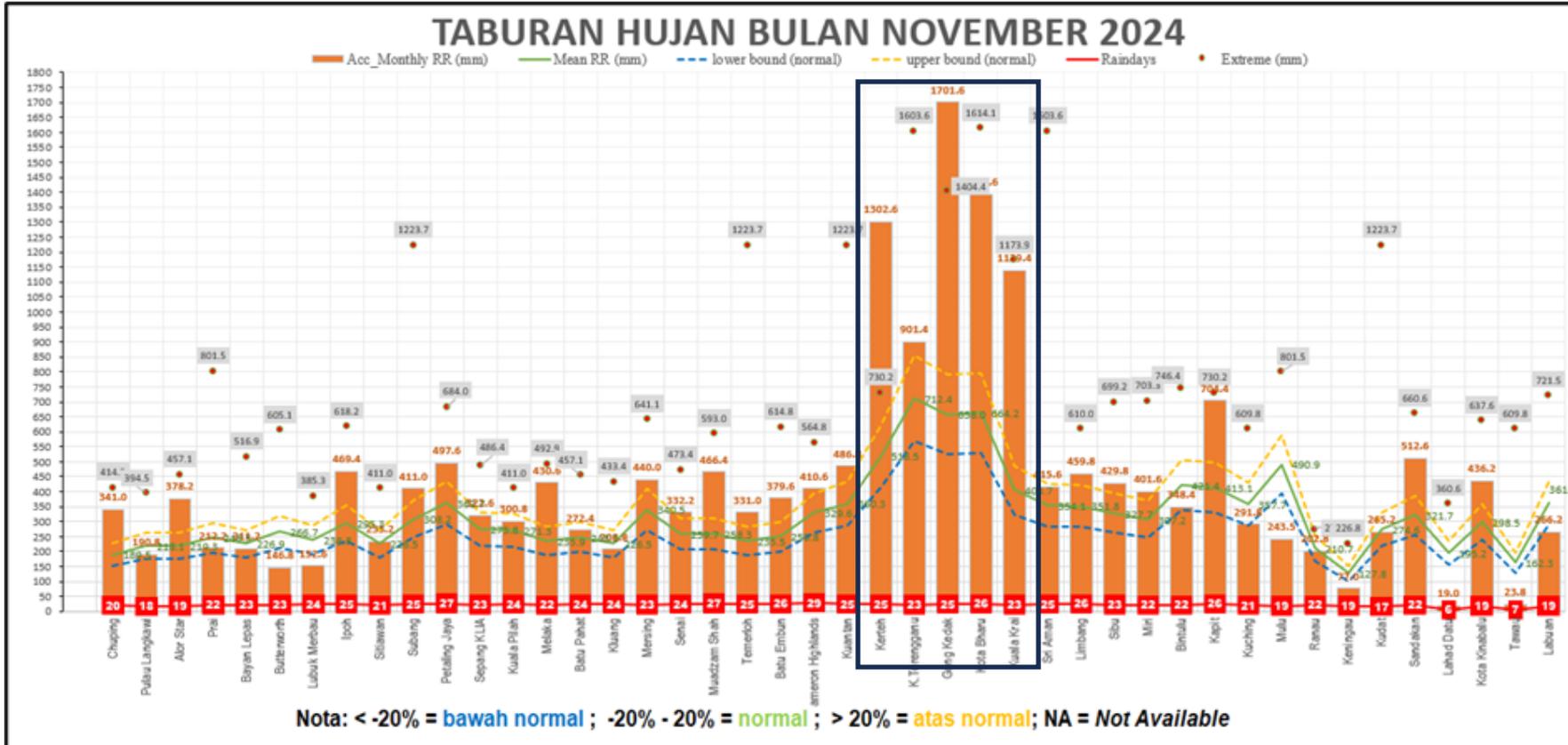


Sabah
Source: Nabalu News

Alert warning (Yellow) issued on 24 Jan 2025, updated to severe (Orange) 28 Jan 2025 and danger stage (Red) on 29 Jan 2025

STATISTICS ON THE HEAVY RAINFALL EPISODES DUE TO MONSOON SURGES

Monthly Rainfall for November 2024



Five stations located at east coast states (Kerteh, Kuala Terengganu, Gong Kedak, Kota Bharu and Kuala Krai) recorded monthly rainfall amount very much higher than its monthly mean values for Nov 2024.

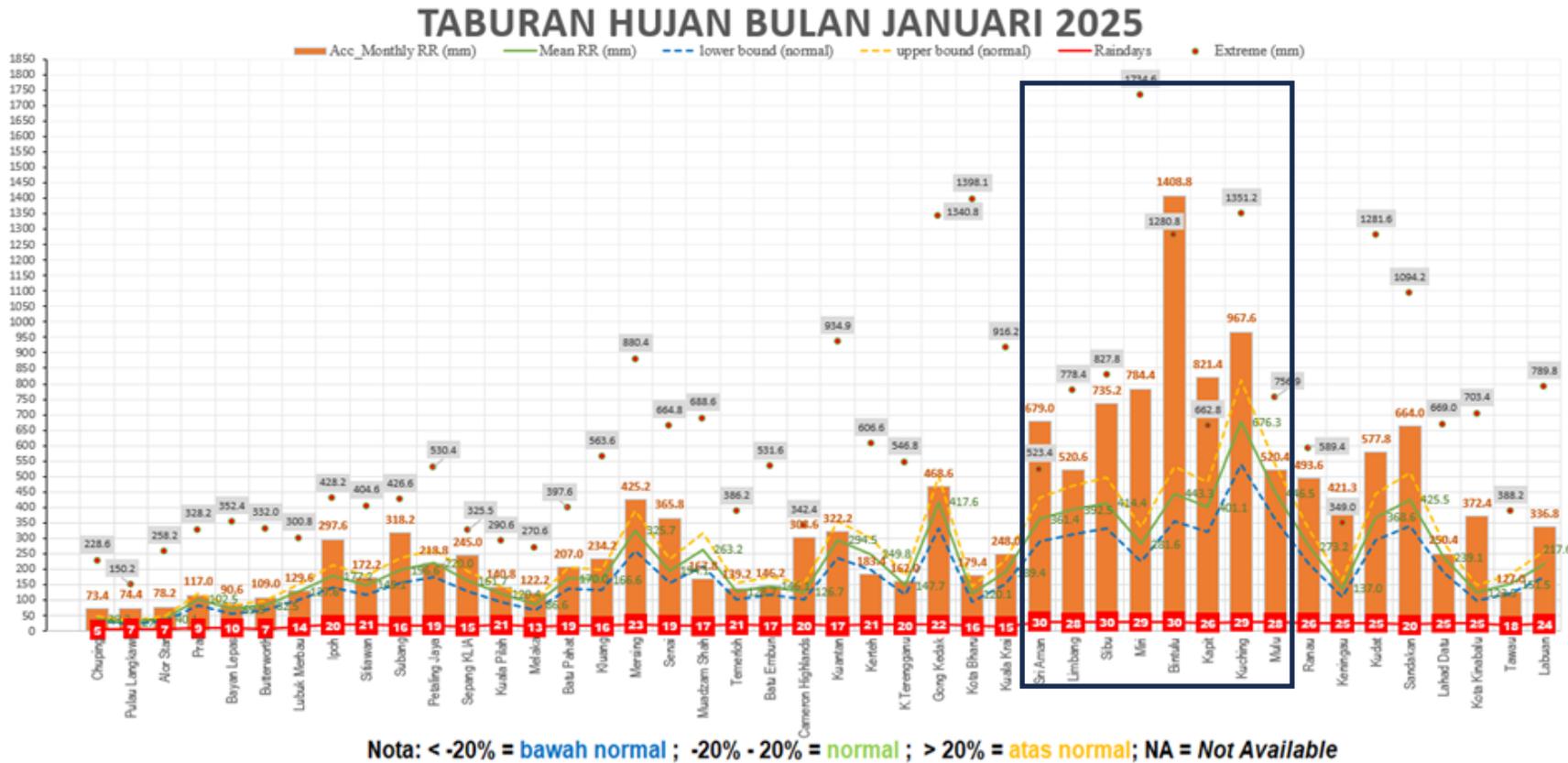
Two new records were created in Nov 2024;

1. Kerteh recorded 1302.6 mm superseded previous record, 730.2 mm.
2. Gong Kedak recorded 1701.6mm compared to previous record, 1404.4 mm.
3. Kuala Krai almost equal with previous record, 1173.9mm

STATISTICS ON THE HEAVY RAINFALL EPISODES DUE TO MONSOON SURGES



Monthly Rainfall for January 2025



All principal stations in states of Sarawak recorded higher than normal rainfall for the month of January 2025.

Three new records were created in Jan 2025;

1. Sri Aman recorded 679.0 mm superseded previous record, 523.4 mm.
2. Bintulu recorded 1408.8 mm compared to previous record, 180.8 mm.
3. Kapit recorded 821.4 mm as compared with previous record, 662.8 mm

5. CONCLUSIONS



1. MET Malaysia is able to provide early warnings on the occurrences of heavy rainfall due to monsoon surges.
2. Weather models are performed well throughout the Northeast Monsoon season.
3. Continuous monitoring the weather is important to warn in advance the occurrences of monsoon surges.
4. Some new records were made during the recent heavy rainfall associated with monsoon surges in Malaysia

Terima Kasih

A futuristic cityscape with tall, slender towers and a large, multi-tiered structure, all set against a backdrop of a cloudy sky and a body of water. The scene is viewed from an elevated perspective, showing the city's architecture and the surrounding environment.

Thank you for your attention