



**India Meteorological Department
(Ministry of Earth Sciences)**

National Bulletin No. 19 (BOB/06/2023)

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FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

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DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

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CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO 0413-2334145)

ADMINISTRATOR, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

Sub: Cyclonic Storm "MICHAUNG" (pronounced as MIGJAUM) over Westcentral & adjoining Southwest Bay of Bengal (Cyclone Warning for Andhra Pradesh and adjoining North Tamil Nadu-Puducherry Coasts: **Red Message)**

The Cyclonic Storm "MICHAUNG" (pronounced as MIGJAUM) over Southwest & adjoining Westcentral Bay of Bengal moved northwestwards with a speed of 10 kmph during past 06 hours and lay centered at 0530 hours IST of 4th December, 2023 over the Westcentral & adjoining Southwest Bay of Bengal off south Andhra Pradesh and adjoining north Tamilnadu coasts near Latitude 13.2°N and Longitude 81.2°E, about 110 km east-northeast of Chennai, 190 km southeast of Nellore, 210 km northeast of Puducherry, 310 km south-southeast of Bapatla and 330 km southeast of Machilipatnam.

It is likely to move north-northwestwards, intensify further into a severe cyclonic storm by today, 4th December forenoon. Thereafter, it would move nearly northwards almost parallel and close to south Andhra Pradesh coast and cross South Andhra Pradesh coast between Nellore and Machilipatnam, close to Bapatla during forenoon of 5th December as a **Severe Cyclonic Storm** with a maximum sustained wind speed of 90-100 kmph gusting to 110 kmph.

Track and Intensity Forecasts:

Date/Time (IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
04.12.23/0530	13.2/81.2	80-90 kmph gusting to 100 kmph	Cyclonic Storm
04.12.23/1130	13.7/80.9	85-95 kmph gusting to 105 kmph	Severe Cyclonic Storm
04.12.23/1730	14.2/80.6	90-100 kmph gusting to 110 kmph	Severe Cyclonic Storm
04.12.23/2330	14.7/80.5	95-105 kmph gusting to 115 kmph	Severe Cyclonic Storm
05.12.23/0530	15.4/80.4	90-100 kmph gusting to 110 kmph	Severe Cyclonic Storm
05.12.23/1730	16.3/80.6	70-80 kmph gusting to 90 kmph	Cyclonic Storm
06.12.23/0530	17.1/81.1	50-60 kmph gusting to 70 kmph	Deep Depression
06.12.23/1730	17.8/81.8	35-45 kmph gusting to 55 kmph	Depression

Warnings:

(i) Rainfall Warning (graphics enclosed):

- **North Coastal Tamil Nadu & Puducherry:** Light to moderate rainfall at most places with heavy to very heavy rainfall at a few places with isolated extremely heavy falls is very likely on 4th and isolated heavy rainfall on 5th December and decrease thereafter.
- **Coastal Andhra Pradesh:** Light to moderate rainfall at most places and heavy to very heavy rainfall at a few places with extremely heavy falls at isolated places over coastal Andhra Pradesh & Yanam on 4th & 5th December. Isolated heavy rainfall is likely over north coastal Andhra Pradesh on 6th December.
- **Rayalaseema:** Light to moderate rainfall at many places with isolated heavy to extremely heavy falls is very likely on 4th and isolated heavy rainfall on 5th December and decrease thereafter.
- **Telangana:** Light to moderate rainfall at few places with isolated heavy rainfall is likely on 4th & 5th with isolated very heavy rainfall over the same region on 5th December.
- **Odisha:** Light to moderate rainfall at most places with isolated heavy rainfall is likely over south Coastal and adjoining south Interior Odisha during 4th & 6th with isolated very heavy rainfall over the same region on 5th December.

(ii) Wind warning:

- **Southwest Bay of Bengal along & off north Tamil Nadu-Puducherry Coasts:**

Gale wind speed reaching **80-90 kmph gusting to 100 kmph** is prevailing over the region. It is likely to gradually increase becoming **85-95 kmph gusting to 105 kmph** from today 4th December noon for subsequent 12 hours. It will gradually decrease thereafter.

- **Westcentral Bay of Bengal and along & off south Andhra Pradesh Coast:**

Gale wind speed reaching **80-90 kmph gusting to 100 kmph** is prevailing over westcentral Bay of Bengal. It is likely to gradually increase becoming **90-100 kmph gusting to 110 kmph** from 4th evening and **95-105 kmph gusting to 115 kmph** from 4th mid night till 5th December morning. It would become **90-100 kmph gusting to 110 kmph** from morning of 5th till noon of 5th and further gradually decrease thereafter.

- **Along & off north Andhra Pradesh Coast:**

Squally wind speed reaching **45-55 kmph gusting to 75 kmph** likely from 4th December evening, likely to gradually increase **becoming 55-65 kmph gusting to 75 kmph** from 5th December morning for subsequent 24 hours. It would gradually decrease thereafter.

- **Along & off Odisha Coast:**

Squally wind speed reaching **35-45 kmph gusting to 55 kmph** likely from 4th December evening, likely to gradually increase becoming **40-50 kmph gusting to 60 kmph** from 5th December evening for subsequent 12 hours. It would gradually decrease thereafter.

(iii) Sea Condition:

- **Southwest Bay of Bengal and along & off north Tamil Nadu-Puducherry Coasts:**

High sea condition is prevailing and likely to continue till 4th December evening and likely to become high to very rough from 4th December night and very rough to rough thereafter till 5th December morning. It is likely to improve thereafter gradually.

- **Westcentral Bay of Bengal and along & off south Andhra Pradesh Coast:**

High sea condition is prevailing over the region. It is likely to become **high to very high** from 4th noon to 5th December morning. It is likely to improve thereafter gradually becoming high to very rough from 5th evening and very rough to rough from 6th morning for subsequent 12 hours.

- **Along & off North Andhra Pradesh Coast:**

Rough to Very Rough to sea condition is likely on 4th December, very rough to high on 5th and very rough to rough on 6th December.

- **Along & off Odisha Coast:**

Rough to Very Rough to sea condition is likely from 4th December evening till 6th December morning.

(iv) Fishermen Warning (graphics attached):

Fishermen are advised not to venture into:

- Southwest Bay of Bengal and along & off North Tamil Nadu-Puducherry Coasts till 5th December.
- Westcentral Bay of Bengal and along & off Andhra Pradesh Coast till 6th December.
- Along & off Odisha coast till 6th December

(v) Storm Surge (Graphics enclosed):

Storm surge of about 1-1.5 meter above astronomical tide likely to inundate south Coastal Andhra Pradesh districts at the time of landfall.

(vi) Damage Expected over coastal districts of South Andhra Pradesh (Nellore, Tirupati Prakasam, Bapatla, Guntur, Krishna and West Godavari) and adjoining coastal districts of North Tamil Nadu-Puducherry:

- Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.
- Possibilities of damage to vulnerable structure.
- Breaking of tree branches, uprooting of large avenue trees. Major damage to banana and papaya trees. Large dead limbs blown from trees.
- Minor damage to power and communication lines due to breaking of branches and uprooting of trees.
- Major damage to Kutcha and minor damage to Pucca roads due to heavy rain.
- Damage to paddy crops, horticultural crops and orchards.
- Sea water inundation in low lying areas after erosion of Kutcha embankments
- Inundation of low lying areas in coastal districts due to heavy rainfall and flash flood

- Localized Flooding of roads and closure of underpasses mainly in urban areas of the above region.
- Occasional reduction in visibility due to heavy rainfall.
- Disruption of traffic due to water logging and squally winds
- Localized Landslides/Mudslides
- It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC)

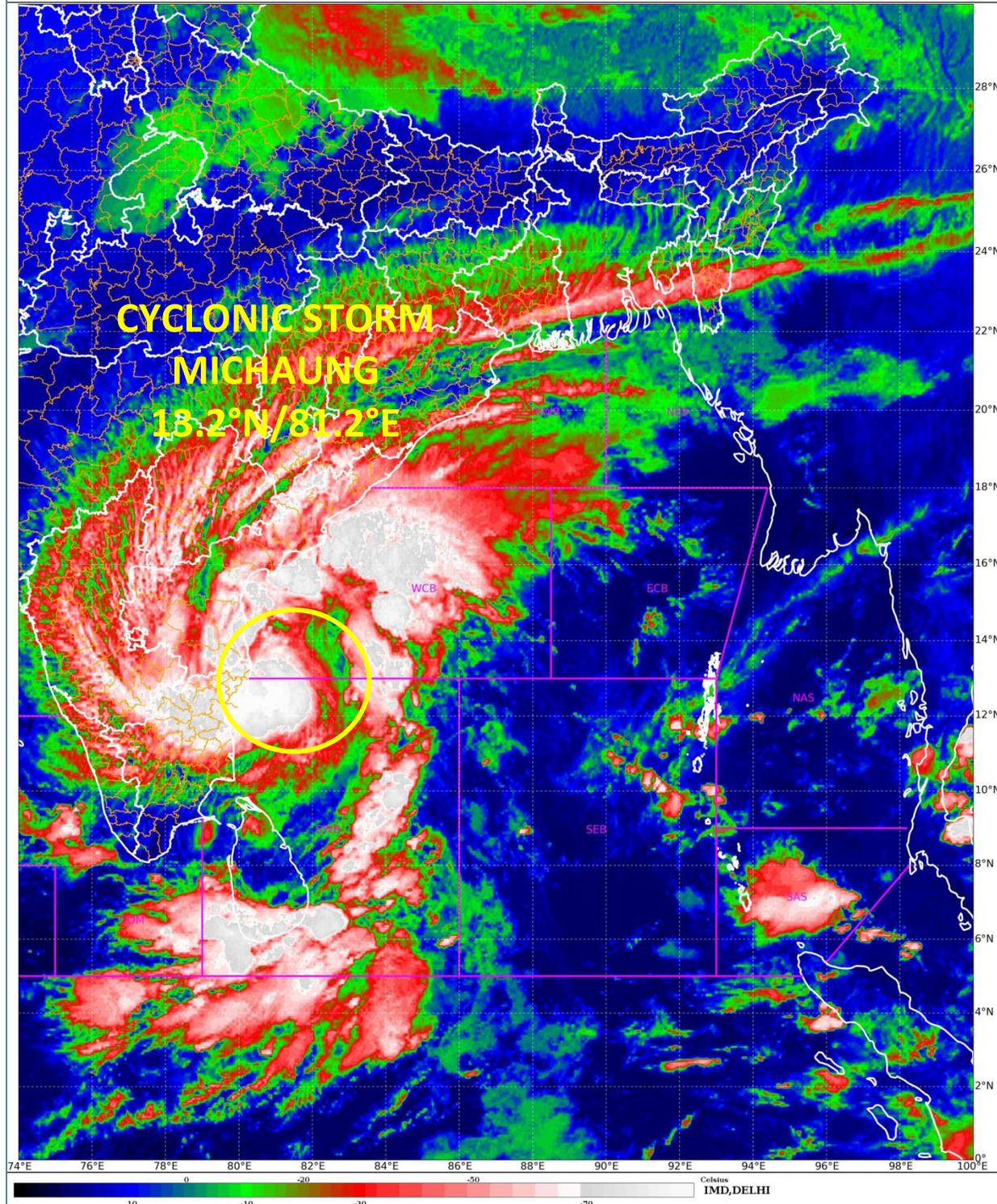
(vi) Action Suggested for coastal districts of South Andhra Pradesh and adjoining coastal districts of North Tamil Nadu-Puducherry:

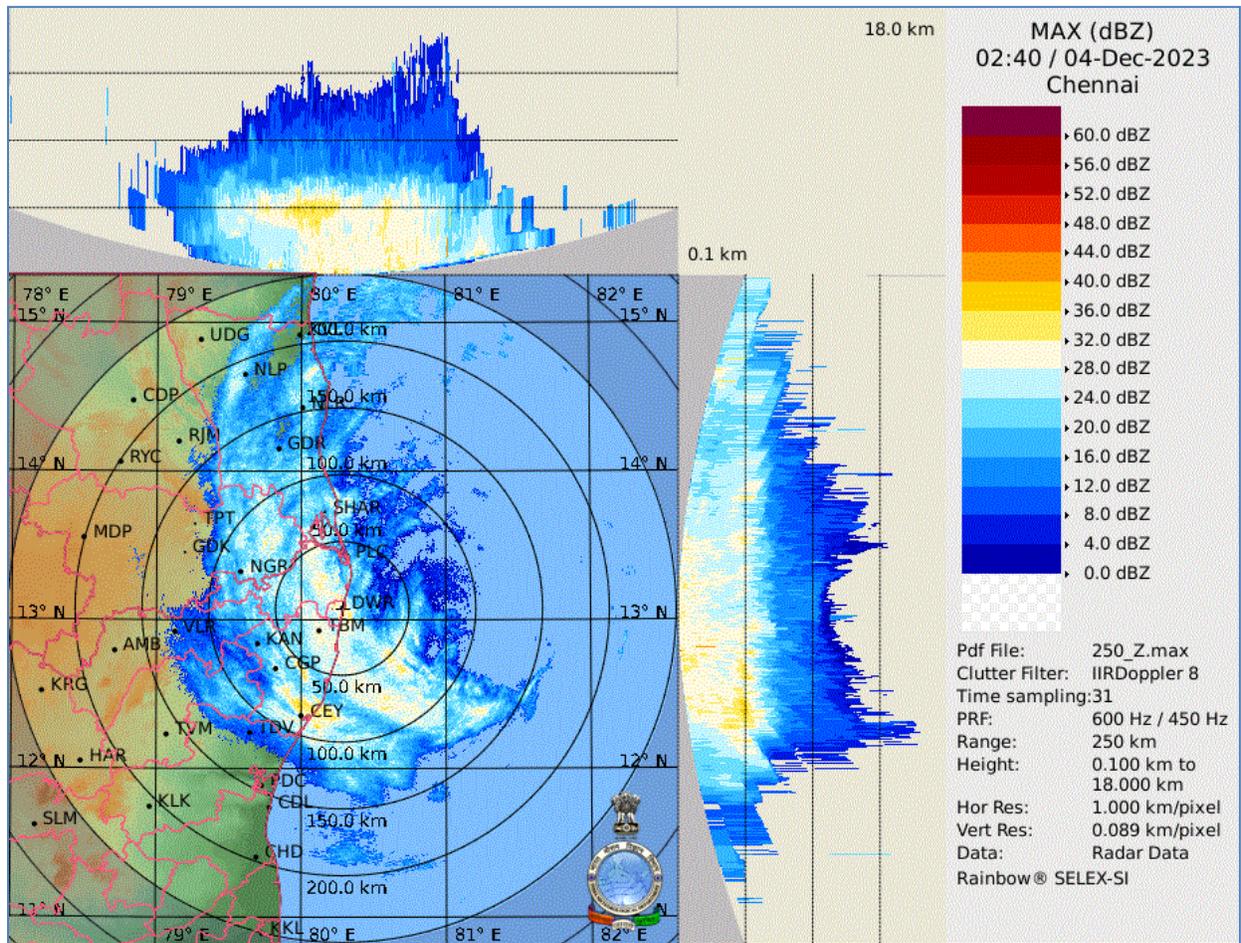
- Total suspension of fishing operations.
- Surface transport and shipping operations need to be regulated
- Onshore & Offshore operation need to be regulated as per guidelines
- Coastal hutment dwellers to be in safer places.
- People in affected areas to remain indoors.
- Avoid going to areas that face the water logging problems often.
- Avoid staying in vulnerable structure.

The system is under continuous surveillance and the next message will be issued at 1130 hours IST of 04th December, 2023.

**(Shobhit Katiyar)
Scientist D, Cyclone Warning Division, New Delhi**

Copy to: ACWC Chennai/ ACWC Kolkata/ CWC Bhubaneswar/ CWC Vishakhapatnam/ MC Amravati

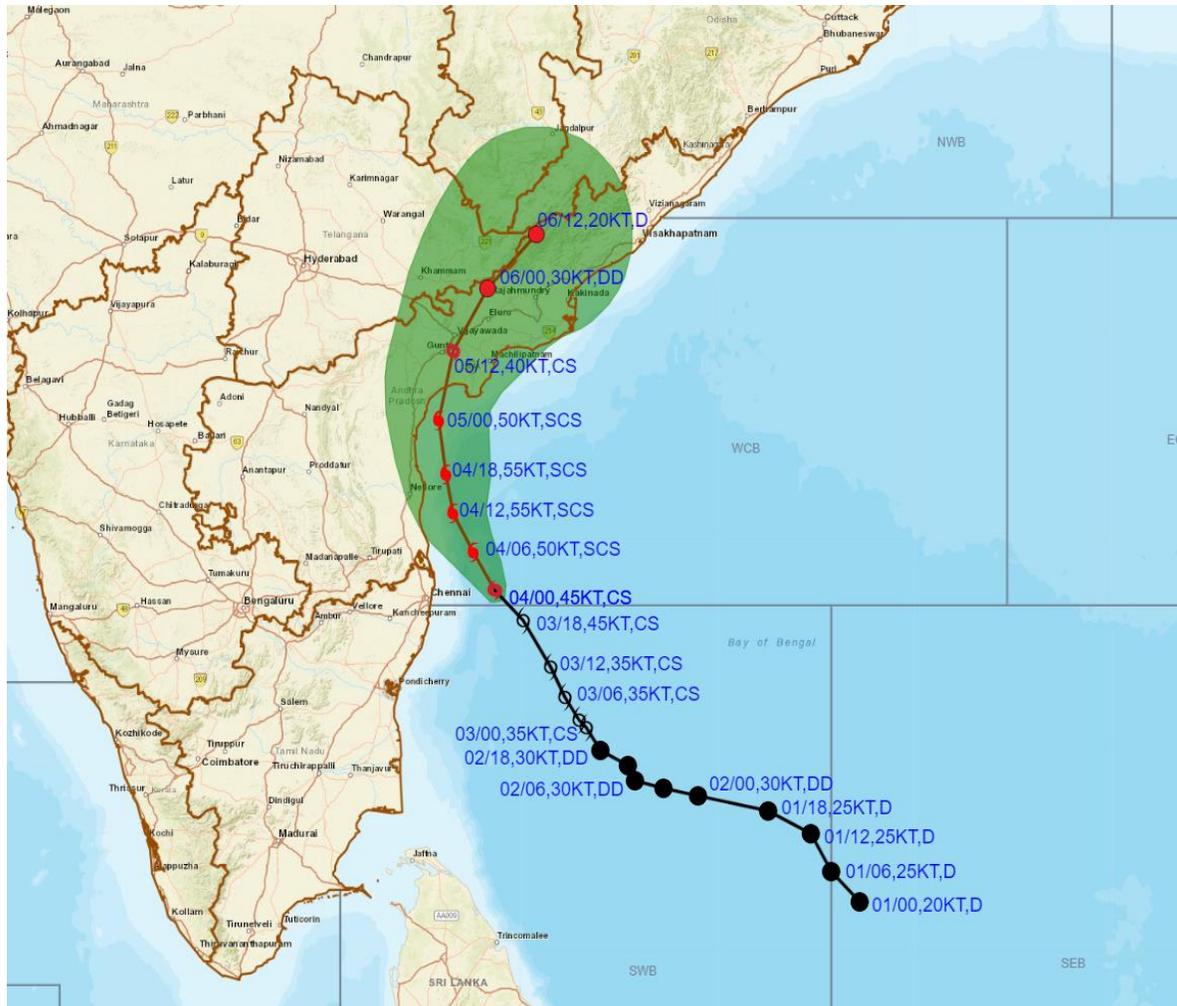




Chennai DWR



OBSERVED & FORECAST TRACK, MAXIMUM SUSTAINED WIND AND CONE OF UNCERTAINTY IN ASSOCIATION WITH CYCLONIC STORM "MICHAUNG" OVER WESTCENTRAL AND ADJOINING SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 04TH DECEMBER 2023.



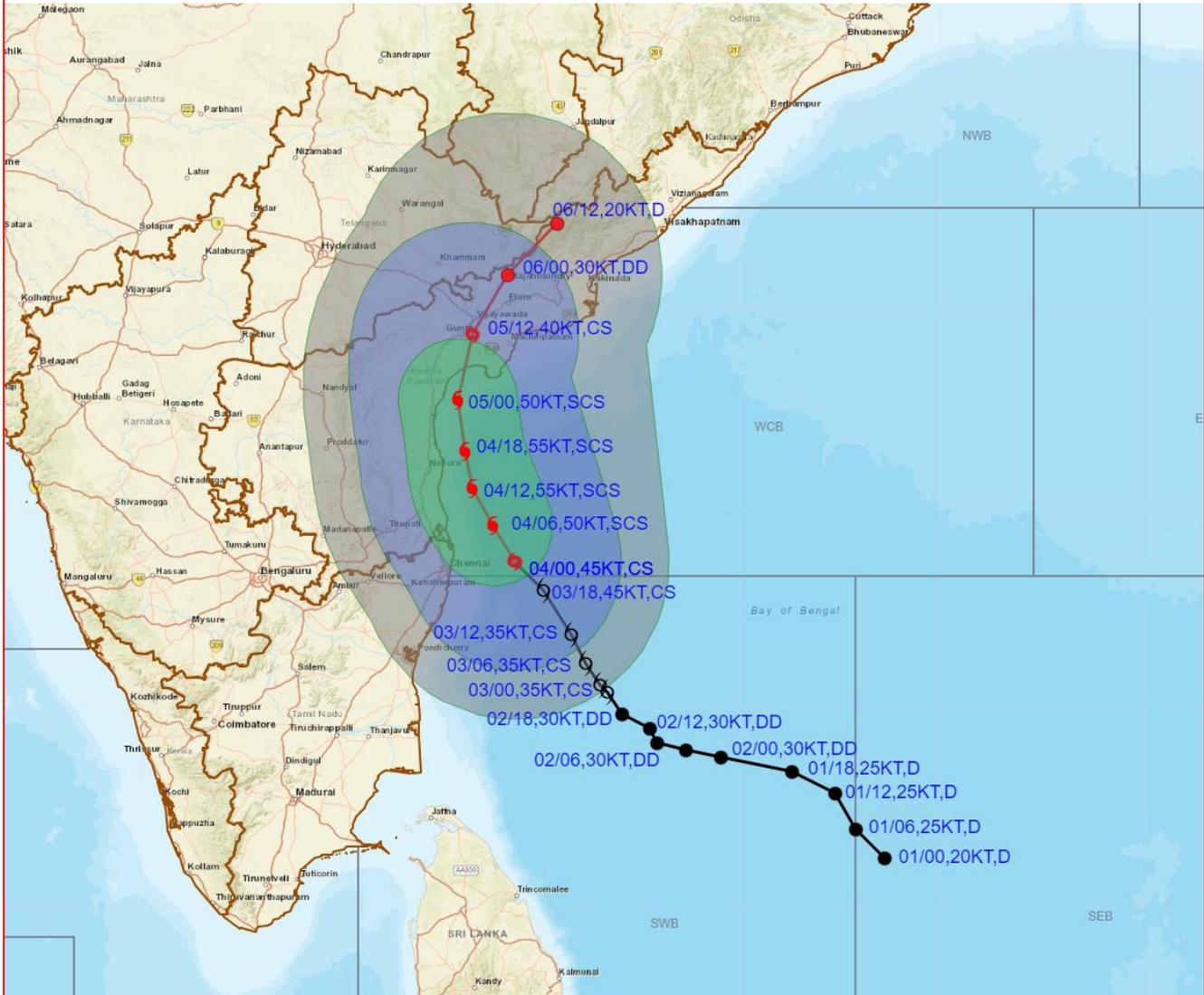
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuCS: SUPER CYCLONIC STORM (\geq 120 KT)

- LESS THAN 34 KT
- 34-47 KT
- \geq 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

Forecast Date and Time (UTC)	DISTANCE (KM) AND DIRECTION FROM STATIONS				
	MO PONDICHERRY	CHENNAI/MINAMBAKKAM	NELLORE	BAPATLA	MACHILIPATNAM/ FRANCHPET
04.12.23/0000	210, NE	120, ENE	190, SE	310, SSE	330, S
05.12.23/0000	390, N	270, N	120, NNE	60, S	110, SW
06.12.23/0000	590, NNE	470, NNE	320, NNE	150, NNE	110, N



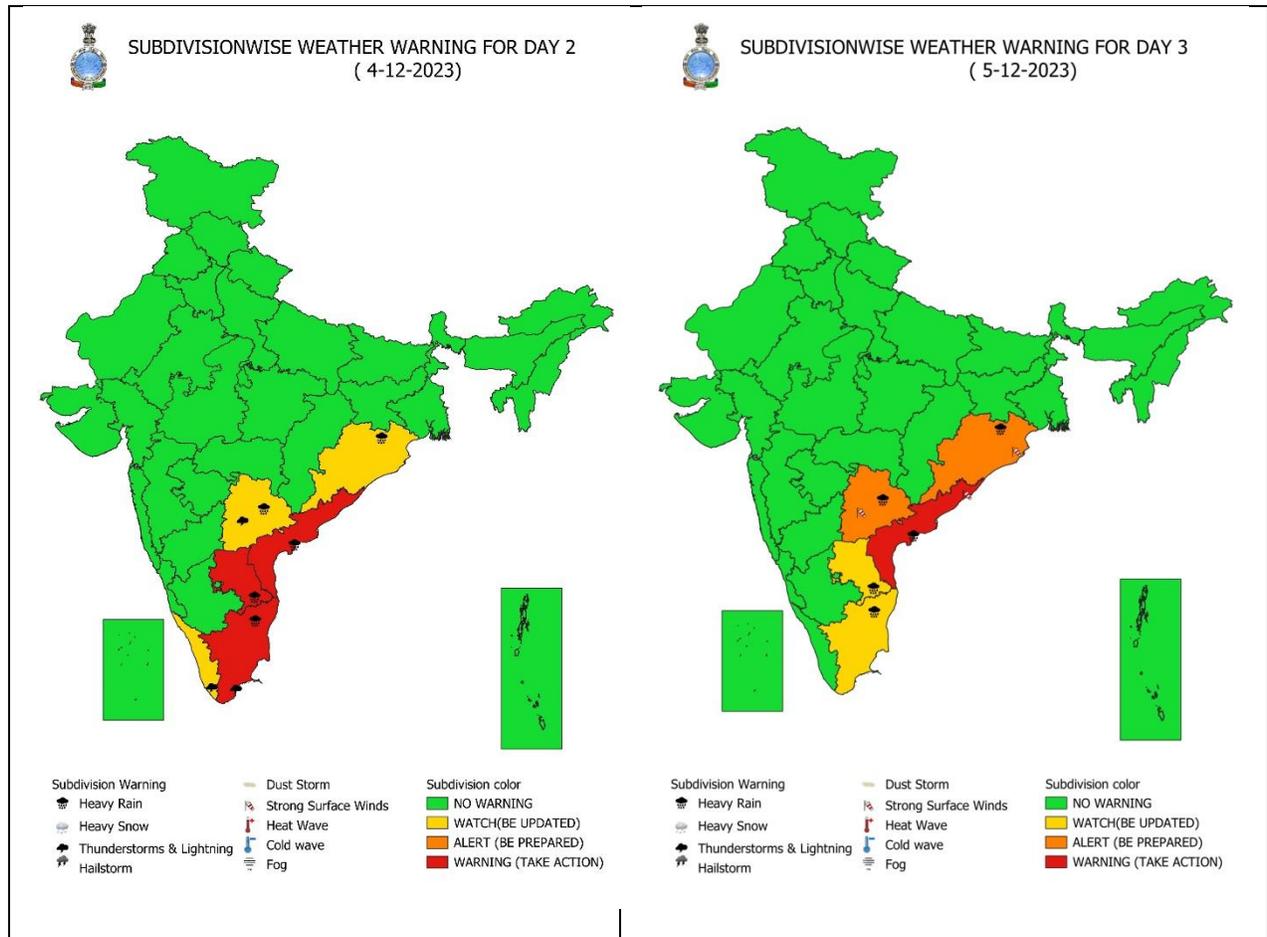
OBSERVED & FORECAST TRACK, MAXIMUM SUSTAINED WIND AND QUADRANT WIND IN ASSOCIATION WITH CYCLONIC STORM "MICHAUNG" OVER WESTCENTRAL AND ADJOINING SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC (0530 IST) OF 04TH DECEMBER 2023.



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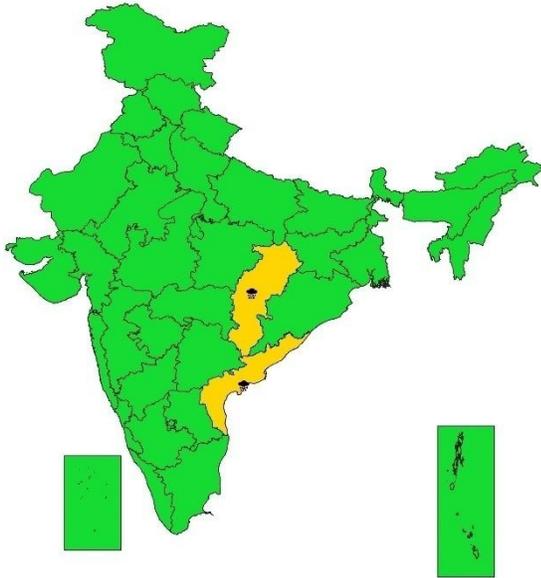
- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

Weather Warning Graphics





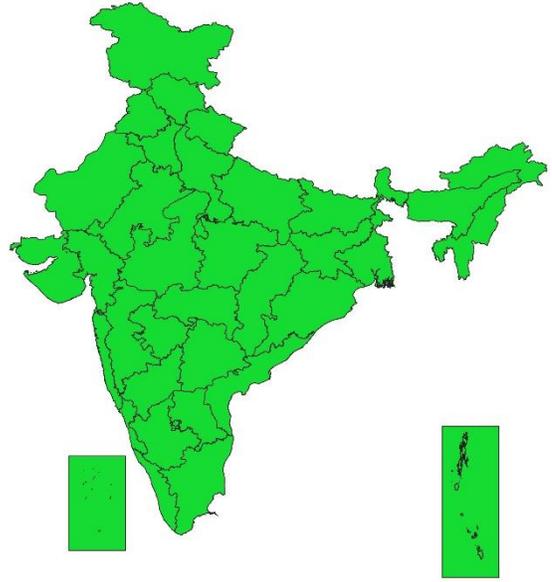
**SUBDIVISIONWISE WEATHER WARNING FOR DAY 4
(6-12-2023)**



- | | | |
|-----------------------------|------------------------|--------------------------|
| Subdivision Warning | Dust Storm | Subdivision color |
| ☁ Heavy Rain | 🌪 Strong Surface Winds | 🟢 NO WARNING |
| ❄ Heavy Snow | 🔥 Heat Wave | 🟡 WATCH(BE UPDATED) |
| ⚡ Thunderstorms & Lightning | ❄ Cold wave | 🟠 ALERT (BE PREPARED) |
| 🌨 Hailstorm | 🌫 Fog | 🔴 WARNING (TAKE ACTION) |



**SUBDIVISIONWISE WEATHER WARNING FOR DAY 5
(7-12-2023)**



- | | | |
|-----------------------------|------------------------|--------------------------|
| Subdivision Warning | Dust Storm | Subdivision color |
| ☁ Heavy Rain | 🌪 Strong Surface Winds | 🟢 NO WARNING |
| ❄ Heavy Snow | 🔥 Heat Wave | 🟡 WATCH(BE UPDATED) |
| ⚡ Thunderstorms & Lightning | ❄ Cold wave | 🟠 ALERT (BE PREPARED) |
| 🌨 Hailstorm | 🌫 Fog | 🔴 WARNING (TAKE ACTION) |

WARNING

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO ACTION)

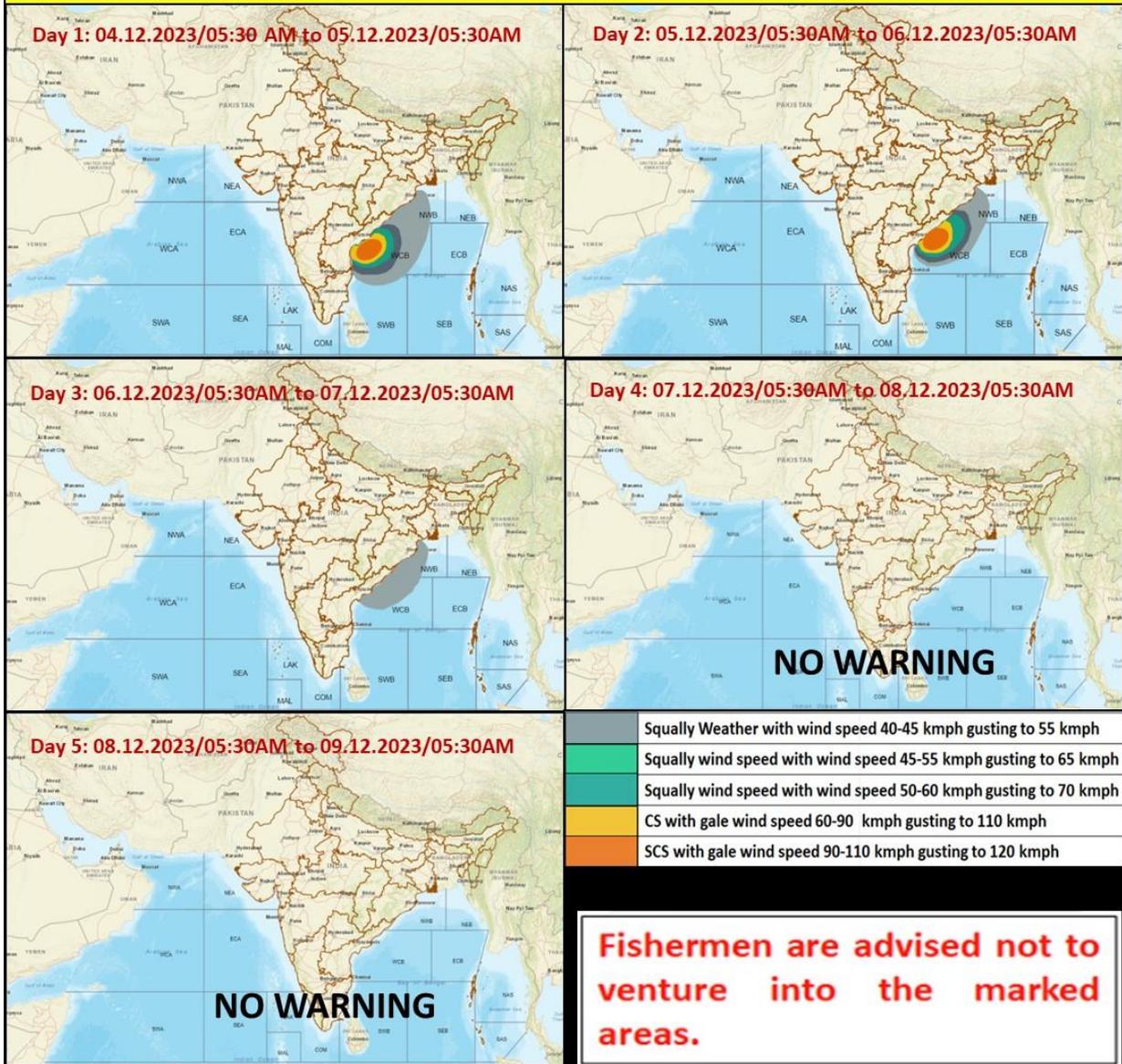
- ☁ Heavy Rain
- 🌪 Strong Winds
- ❄ Frost

- ❄ Heavy Snow
- 👁 Visibility
- 🌡- Cold Wave

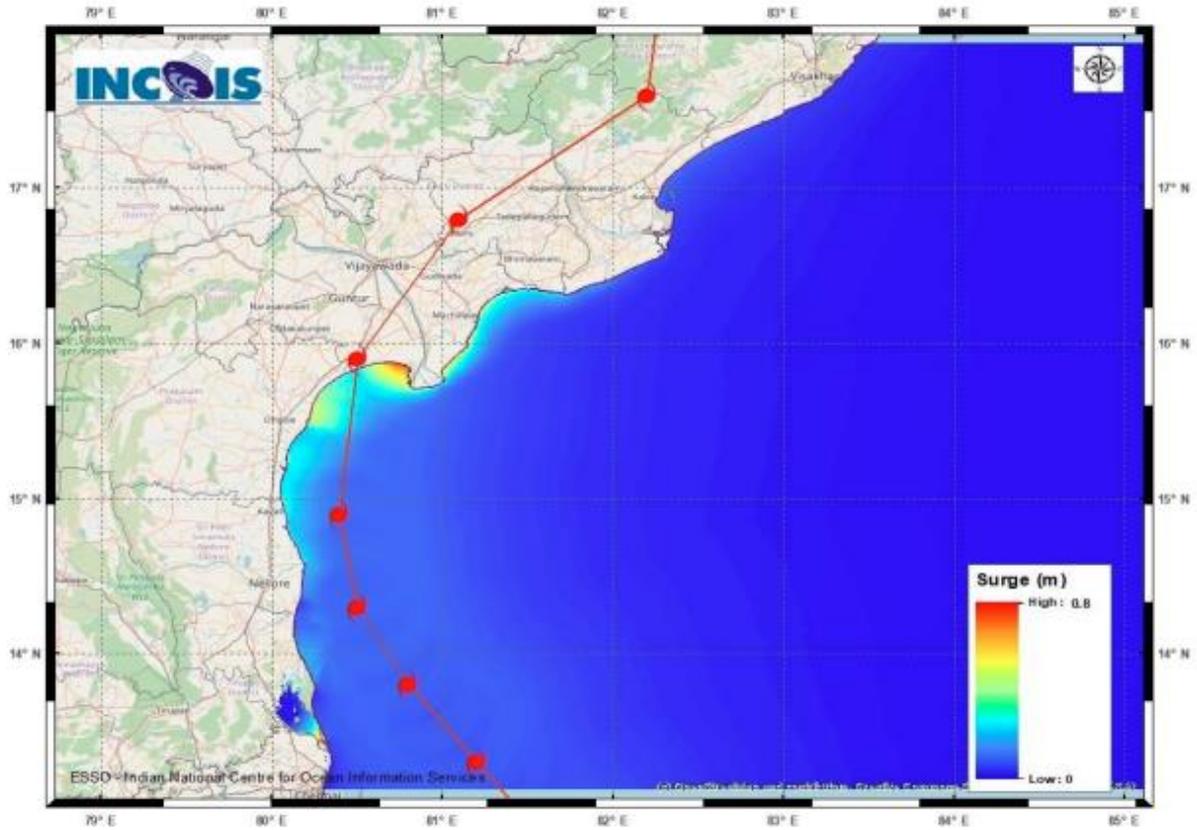
- ⚡ Thunderstorm
- 🌀 Cyclone
- 🌡+ Heat Wave

- 🌪 Dust Storm
- 🌨 Squall/ Hail
- 🌊 Sea State

Fishermen warning graphics



Storm Surge Warning Graphics based on Forecast Track



STORM SURGE HEIGHT INFORMATION:

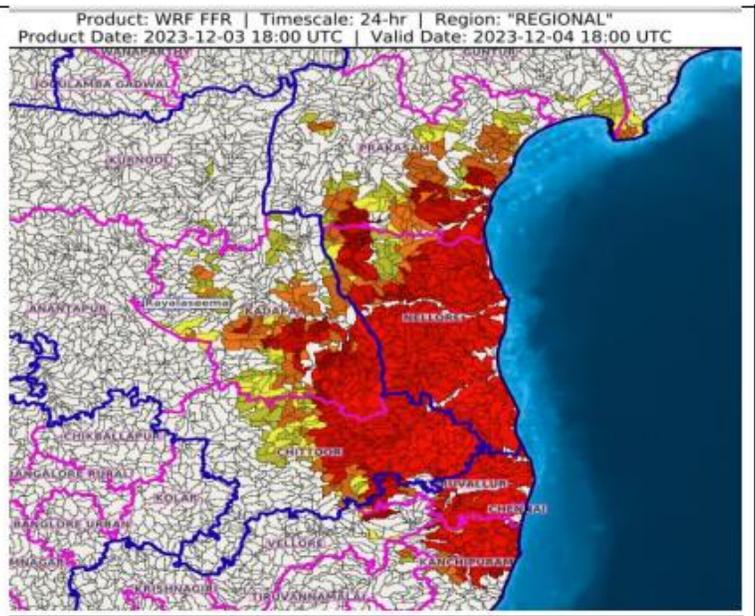
* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE/UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m)	EXPECTED INUNDATION EXTENT (km)
Avanigadda	Krishna	Andhra Pradesh	Ramakrishnapuram	0.3-0.6	Upto 0.25
Machilipatnam	Krishna	Andhra Pradesh	Perupalem	0.3-0.5	Upto 0.17
Ongole	Prakasam	Andhra Pradesh	Kanuparthi	0.2-0.5	Upto 0.15
Ponneri	Thiruvallur	Tamil Nadu	Karimanal	0.2-0.7	Upto 0.27
Repalle	Guntur	Andhra Pradesh	Repalle	0.4-0.8	Upto 0.25
Sullurpeta	Nellore	Andhra Pradesh	Pudilayadoruvu	0.2-0.6	Upto 0.18

24 hours Outlook for the Flash Flood Risk (FFR) till 0030 IST of 05-12-2023 :

Moderate to High flash flood risk likely over few watersheds & neighbourhoods of Southern part of Coastal AP and Yanam and adjoining area of South-East part of Rayalaseema and Northern part Tamil Nadu – Pudu & Karaikal Met Sub-divisions during next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



Flash Flood Guidance

Hazard Map with Cyclonic Storm MICHAUNG over Southwest Bay of Bengal

