



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

**National Bulletin No. 28 (BOB/06/2023)**

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**DATED: 05.12.2023**

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**Sub: Severe Cyclonic Storm “MICHAUNG” (pronounced as MIGJAUM) over Westcentral Bay of Bengal off south Andhra Pradesh coast (Cyclone Warning for Andhra Pradesh Coast: **Red Message**)**

The Severe Cyclonic Storm “**MICHAUNG**” (pronounced as **MIGJAUM**) over Westcentral Bay of Bengal along and off south Andhra Pradesh coast moved northwards with a speed of 12 kmph during past 06 hours and lay centered at 0830 hours IST of today, the 5<sup>th</sup> December, 2023 over the same region near Latitude 15.2°N and Longitude 80.25°E, about 40 km northeast of Kavali, 80 km north-northeast of Nellore, 80 km south-southwest of Bapatla and 140 km south-southwest of Machilipatnam.

As the system is moving nearly northwards close to coast, some parts of the wall cloud region continues to lie over land. The system is likely to move nearly northwards parallel and close to south Andhra Pradesh coast and cross south Andhra Pradesh coast close to Bapatla during next 4 hours 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
05.12.23/0830	15.2/80.25	90-100 kmph gusting to 110 kmph	Severe Cyclonic Storm
05.12.23/1130	15.7/80.3	85-95 kmph gusting to 105 kmph	Severe Cyclonic Storm
05.12.23/1730	16.2/80.5	70-80 kmph gusting to 90 kmph	Cyclonic Storm
05.12.23/2330	16.6/80.8	55-65 kmph gusting to 75 kmph	Deep Depression
06.12.23/0530	17.3/81.6	40-50 kmph gusting to 60 kmph	Depression

### Warnings:

#### (i) Rainfall Warning (graphics enclosed):

- **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 5<sup>th</sup> December. **Exceptionally heavy rainfall** at one or two places is also likely over central districts of coastal Andhra Pradesh on 5<sup>th</sup> December. Isolated **heavy rainfall** is likely over north coastal Andhra Pradesh on 6<sup>th</sup> December.
- **Telangana:** Light to moderate rainfall at most places with isolated **heavy to extremely heavy rainfall** on 5<sup>th</sup> December.
- **Odisha and Chhattisgarh:** Light to moderate rainfall at most places with isolated **heavy to very heavy rainfall** is likely over south Chhattisgarh, south Coastal and adjoining south Interior Odisha on 5<sup>th</sup> and isolated **heavy rainfall** over the same region on 6<sup>th</sup> December.
- **Rayalaseema:** Light to moderate rainfall at many places with isolated **heavy rainfall** on 5<sup>th</sup> December and decrease thereafter.
- **North Coastal Tamil Nadu & Puducherry:** Light to moderate rainfall at many places with isolated **heavy rainfall** on 5<sup>th</sup> December and decrease thereafter.

#### (ii) Wind warning:

- **Southwest Bay of Bengal along & off north Tamil Nadu-Puducherry Coasts:**  
**Squally wind** speed reaching **30-40 kmph gusting to 50 kmph** is prevailing along and off north Tamilnadu coast (Chennai and to its north) and southwest Bay of Bengal. It would decrease gradually.
- **Westcentral Bay of Bengal and along & off south Andhra Pradesh Coast:**  
**Gale wind** speed reaching **90-100 kmph gusting to 110 kmph** would prevail over westcentral Bay of Bengal around system centre during next 6 hours and gradually decreases thereafter.  
**Gale wind** speed reaching **70-80 kmph gusting to 90 kmph** prevailing along and off Nellore district & **90-100 kmph gusting to 110 kmph** along and off remaining districts of south Andhra Pradesh coast till 5<sup>th</sup> December is likely to continue till forenoon and gradually decrease thereafter.
- **Along & off north Andhra Pradesh Coast:**  
**Squally wind** speed reaching **50-60 kmph gusting to 65 kmph** is prevailing, it is likely to continue during next 12 hours. It would gradually decrease thereafter.
- **Along & off Odisha Coast:**  
**Squally wind** speed reaching **35-45 kmph gusting to 55 kmph** is likely to prevail till afternoon of 5<sup>th</sup> and it is likely to gradually increase becoming **40-50 kmph gusting to 60 kmph** from 5<sup>th</sup> 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:**

**Very rough to rough sea condition** is prevailing. It is likely to become rough to moderate by noon of 5<sup>th</sup> December and further improve thereafter.

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

**High to very high sea condition** is prevailing over the region. It is likely to continue till 5th December noon. It is likely to improve thereafter gradually becoming very rough by 5<sup>th</sup> evening and rough by 6<sup>th</sup> morning for subsequent 12 hours.

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

**Rough to Very Rough to sea condition** is likely till 6<sup>th</sup> December morning and further improve thereafter.

• **Along & off Odisha Coast:**

**Rough to Very Rough to sea condition** is likely till 6<sup>th</sup> 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 5<sup>th</sup> December noon.
- Westcentral Bay of Bengal and along & off Andhra Pradesh Coast till 6<sup>th</sup> December evening.
- Northwest Bay of Bengal and along & off Odisha coast till 6<sup>th</sup> December morning.

**(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) Post landfall outlook:**

After landfall while weakening gradually, the system will maintain the intensity of cyclonic storm for about 12 hours. The wind speed will gradually decrease to 75-85 kmph gusting to 95 kmph by evening of 5<sup>th</sup> December and further gradually decrease becoming 55-65 kmph gusting to 75 kmph by 05<sup>th</sup> December midnight.

**(vii) 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)

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

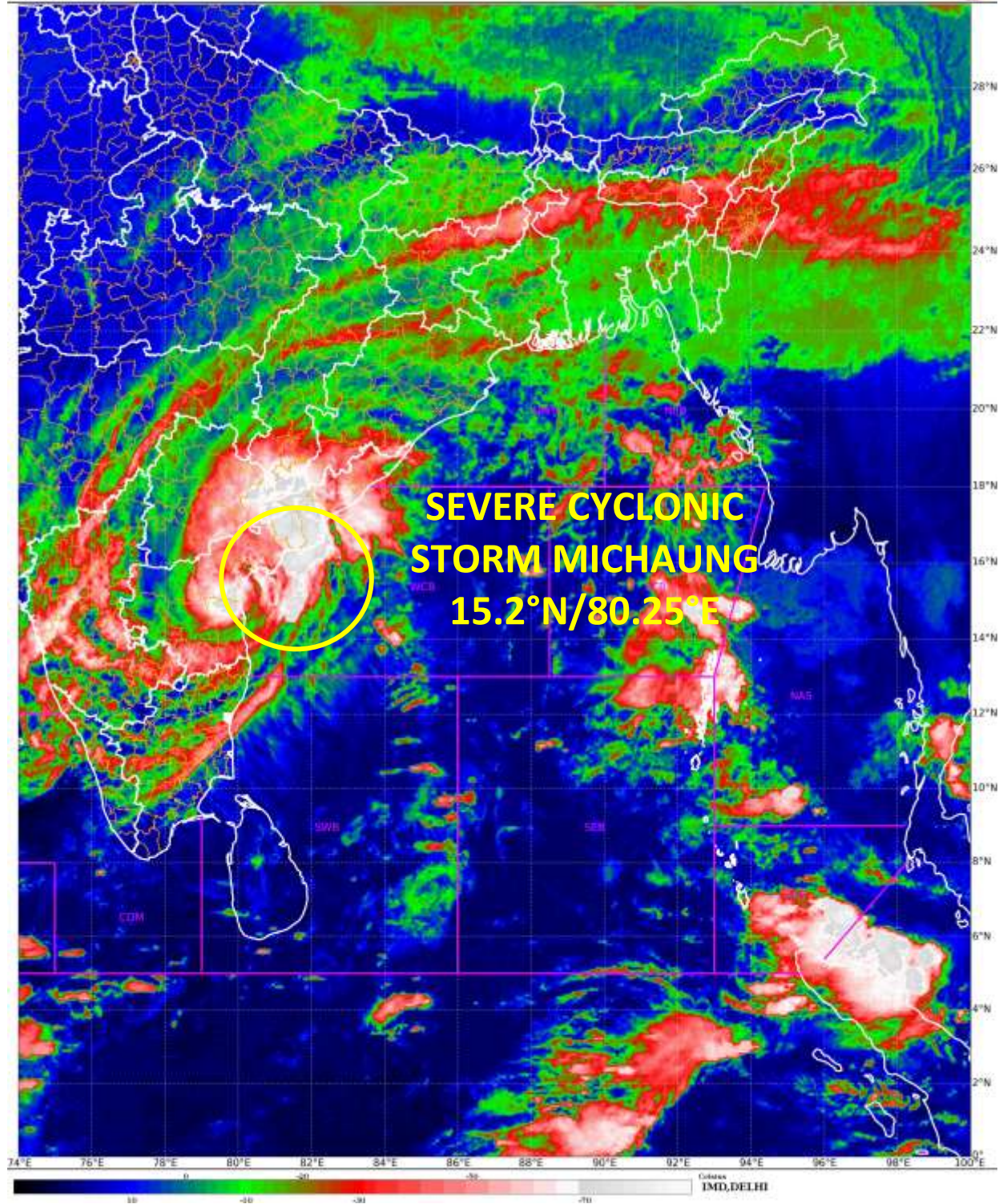
- Total suspension of fishing operations.
- Surface transport and shipping operations need to be regulated
- Onshore & Offshore operation need to be regulated as per guidelines
- Coastal hutment dwellers to be in safer places.
- People in affected areas to remain indoors.
- Avoid going to areas that 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 1430 hours IST of today, the 05<sup>th</sup> December, 2023.**

**(Shashi Kant)  
Scientist D, Cyclone Warning Division, New Delhi**

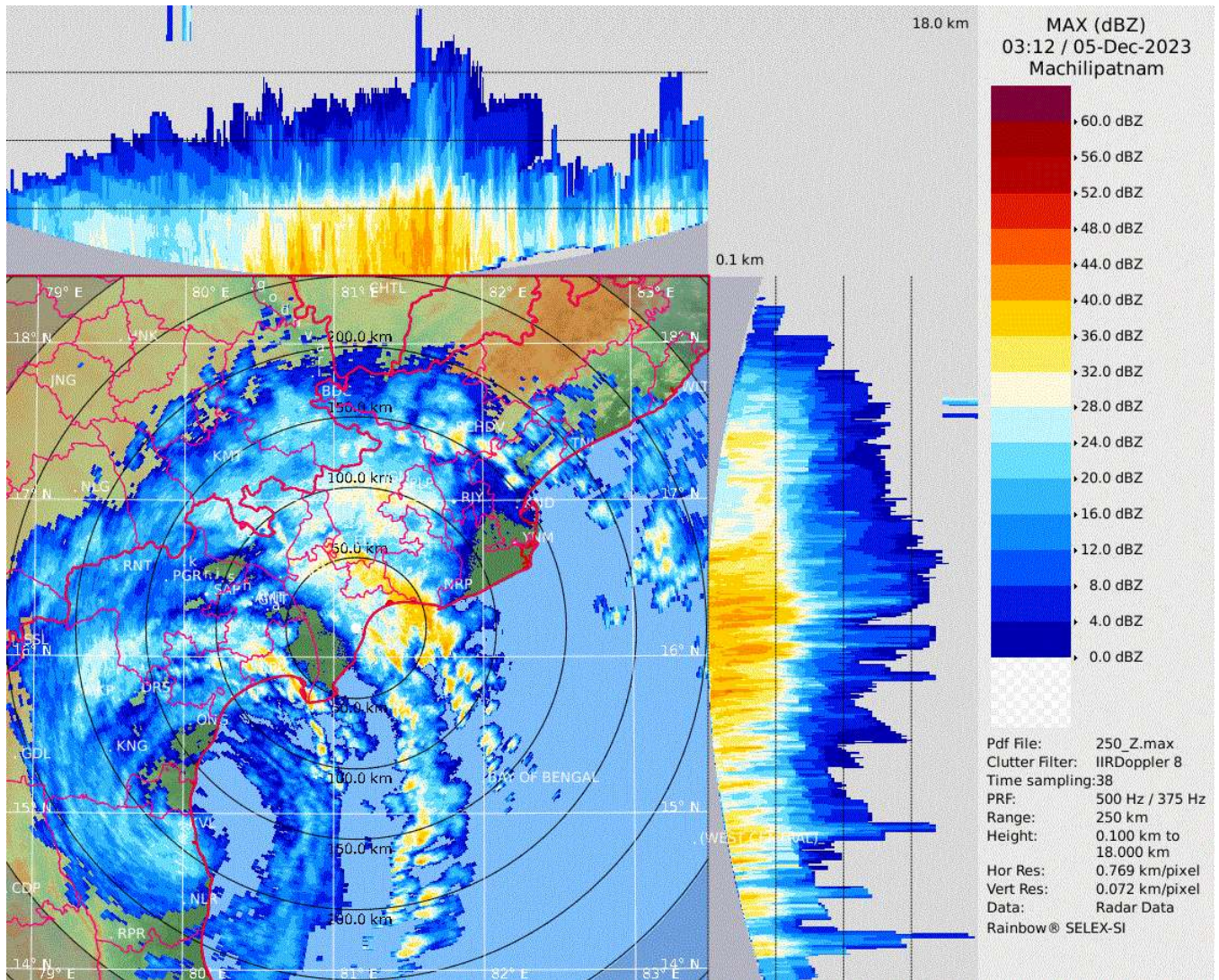
*Copy to: ACWC Chennai/ ACWC Kolkata/ CWC Bhubaneswar/ CWC Vishakhapatnam/ MC Amravati*





*INSAT 3D Image based on 0230 UTC (0800 hrs IST) of 05th Dec 2023*



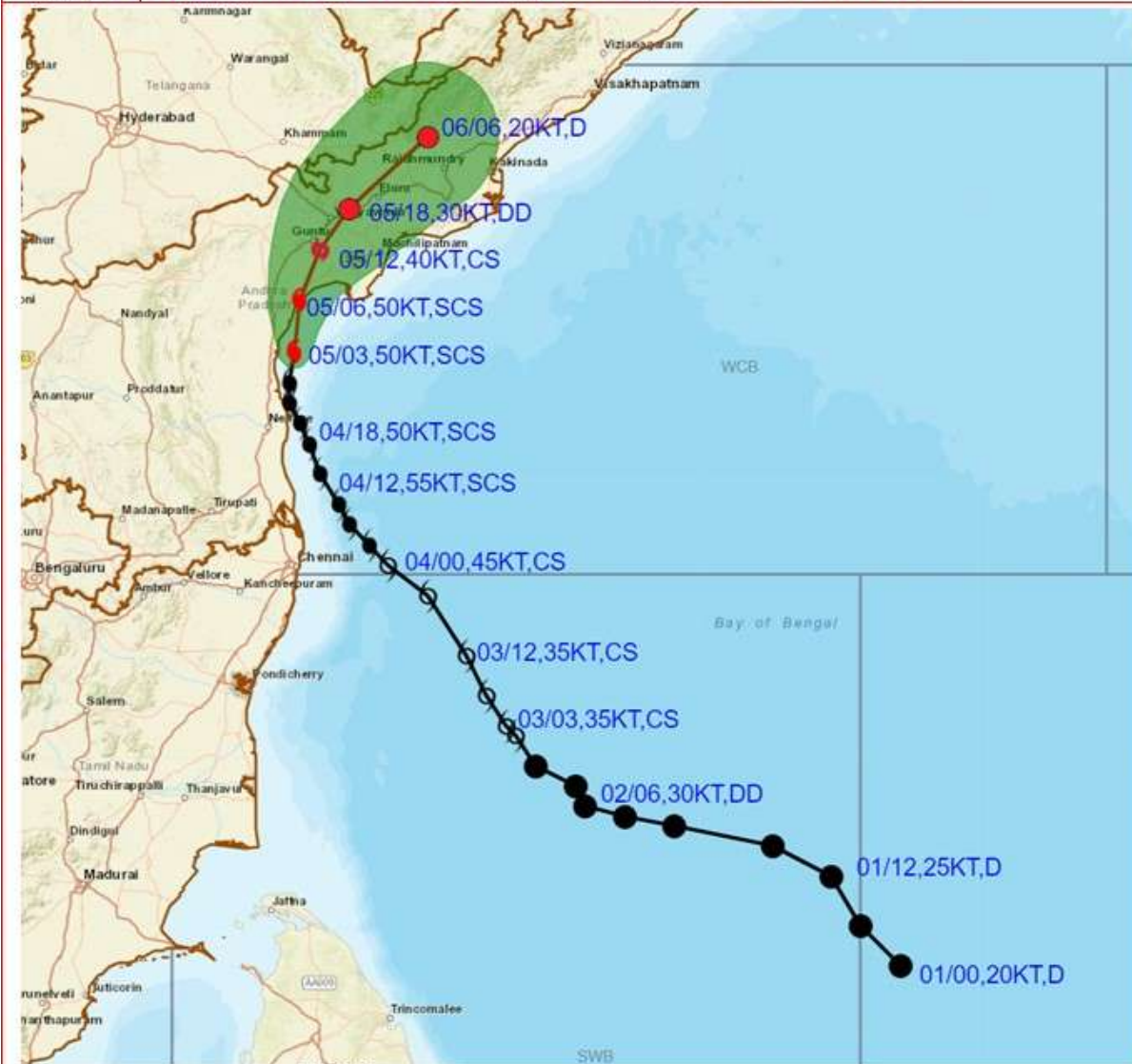


**Maximum Reflectivity from DWR Machilipatnam based on 0312 UTC (0842 hrs IST) of 05th December 2023**





**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MICHAUNG" OVER WESTCENTRAL BAY OF BENGAL ALONG AND OFF SOUTH ANDHRA PRADESH COAST BASED ON 0300 UTC (0830 IST) OF 5<sup>TH</sup> DECEMBER 2023.**



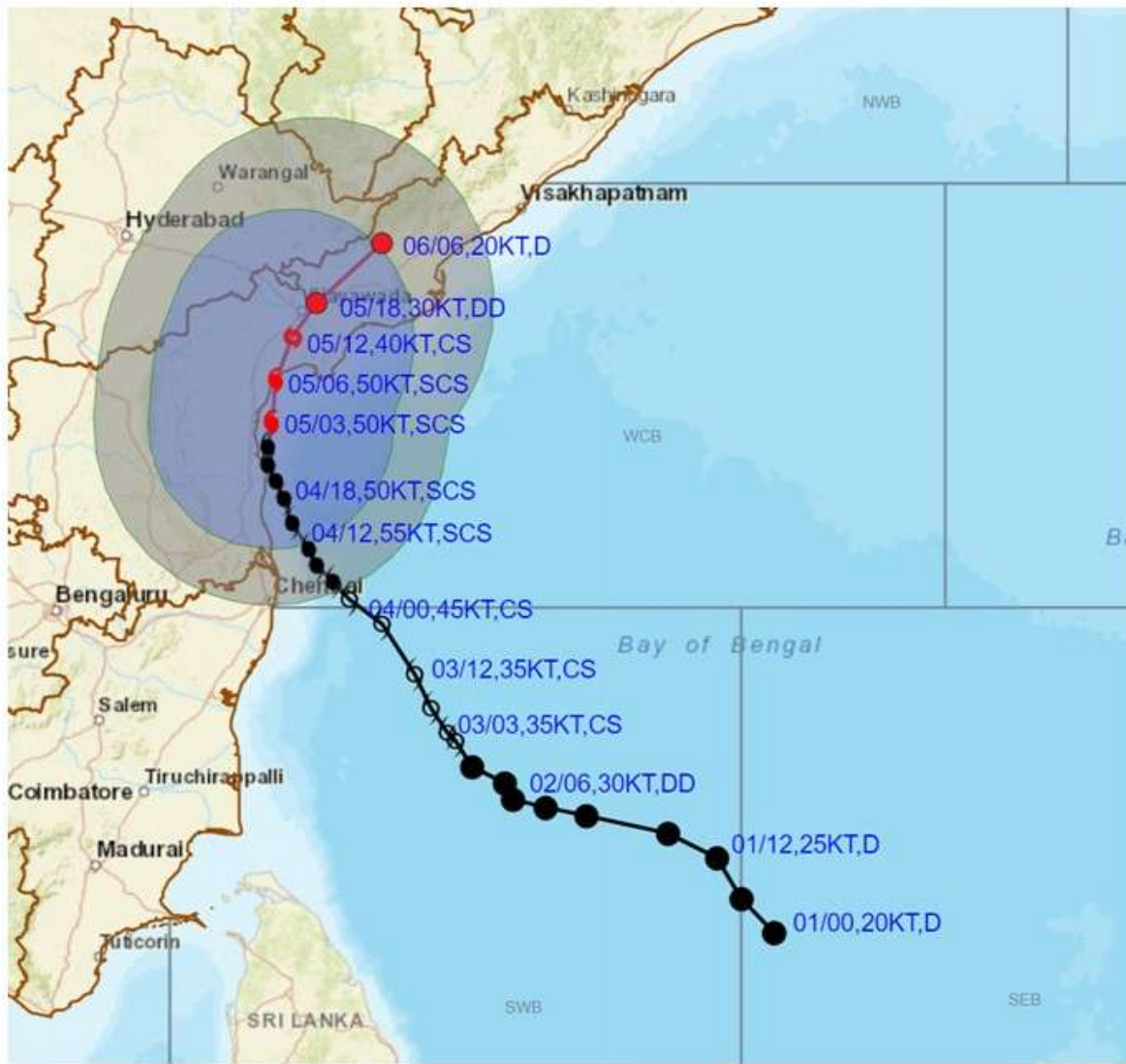
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE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

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

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS			
	NELLORE	BAPATLA	MACHILIPATNAM/ FRANCHPET	MO PONDICHER RY
Date and Time (UTC)				
05.12.23/0300	90, NNE	90, SSW	140, SW	370, N
06.12.23/0600	370, NNE	200, NE	140, NNE	630, NNE



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND IN ASSOCIATION WITH SEVERE CYCLONIC STORM "MICHAUNG" OVER WESTCENTRAL BAY OF BENGAL ALONG AND OFF SOUTH ANDHRA PRADESH COAST BASED ON 0300 UTC (0830 IST) OF 5<sup>TH</sup> 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 (≥ 120 KT)

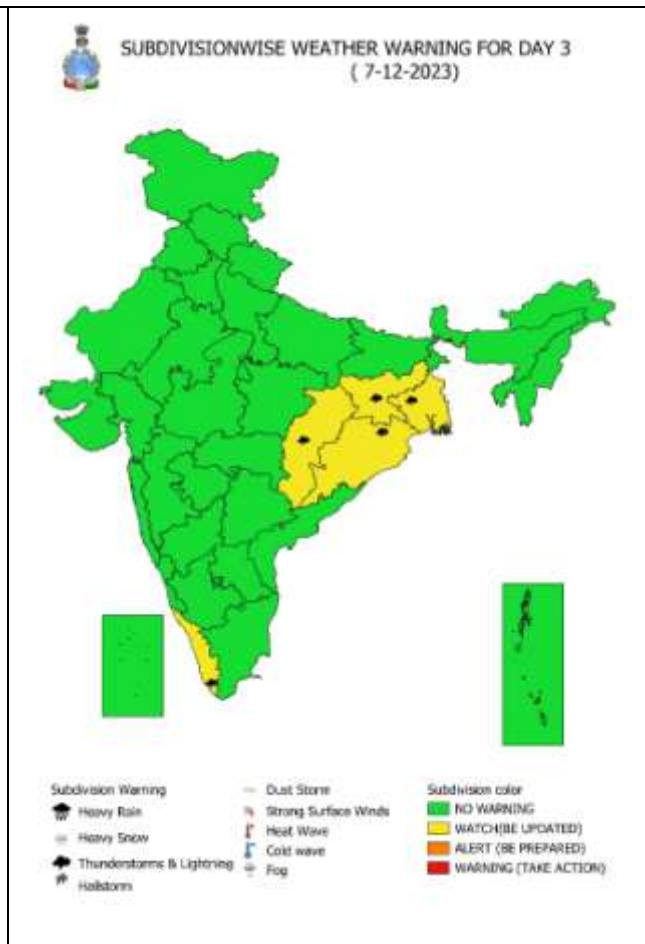
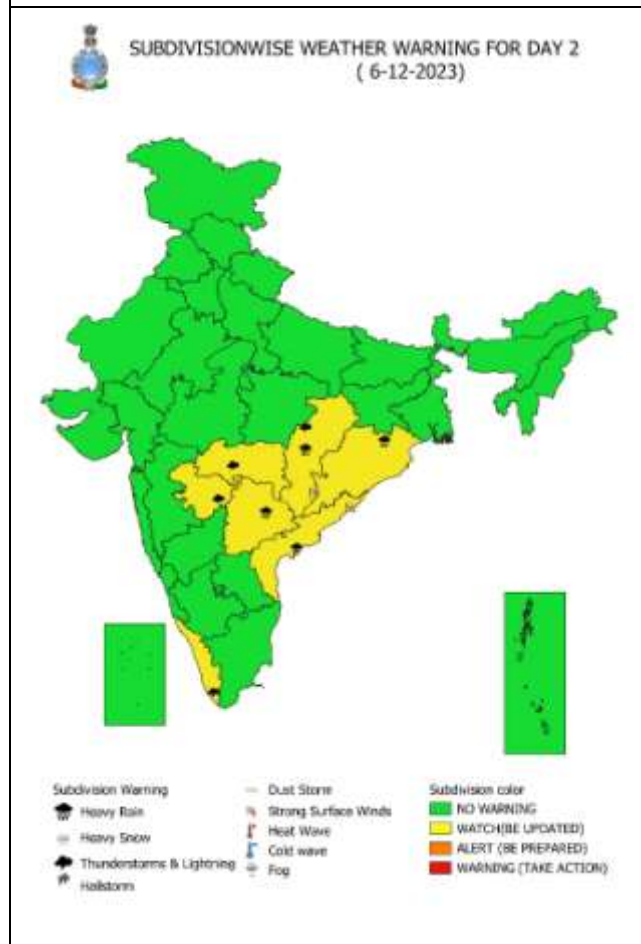
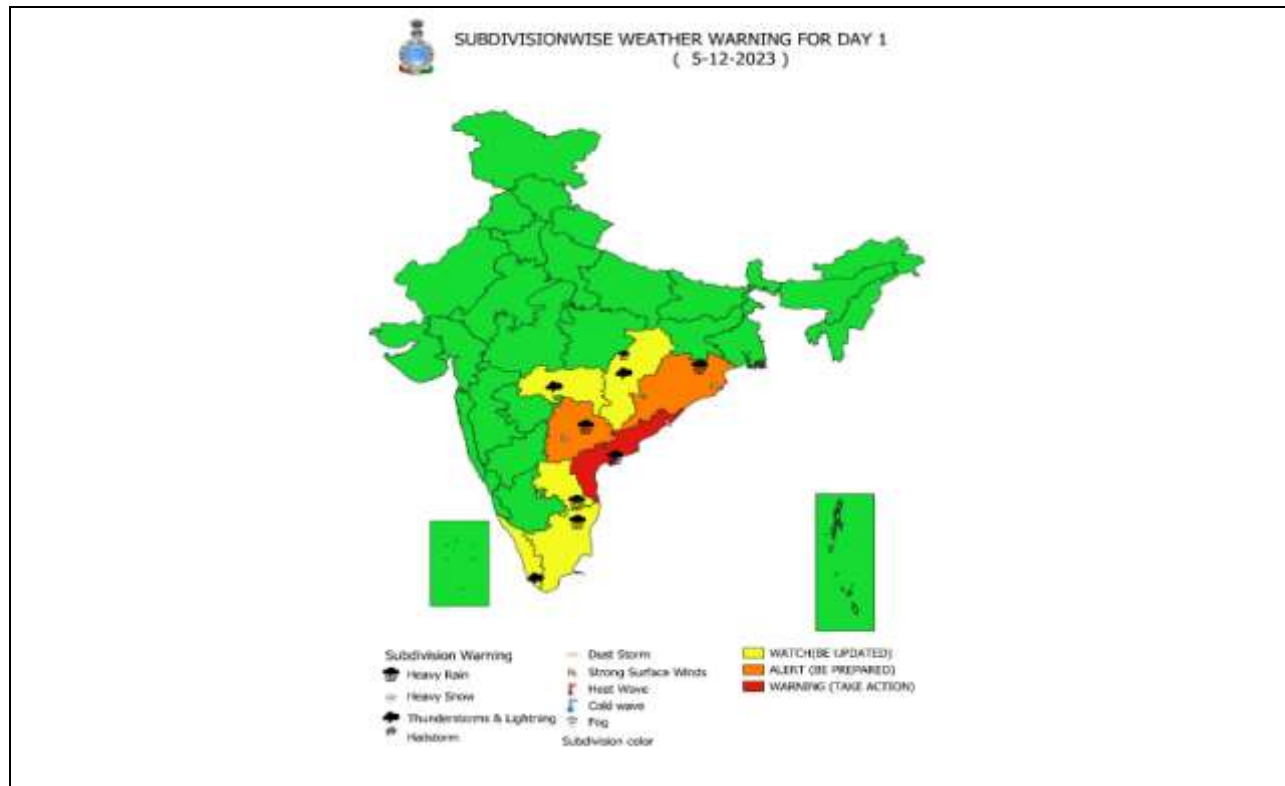
● LESS THAN 34 KT  
○ 34.47 KT  
● ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
— CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
28-33 KT (52-61 KMPH)  
34-49 KT (62-91 KMPH)  
50-63 KT (92-117 KMPH)  
≥ 64 KT (≥ 118 KMPH)

**IMPACT OVER THE SEA**

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥ 118)	Phenomenal	Total suspension of fishing operations



# Weather Warning Graphics





**SUBDIVISIONWISE WEATHER WARNING FOR DAY 4  
( 8-12-2023)**



- |                             |                        |                          |
|-----------------------------|------------------------|--------------------------|
| <b>Subdivision Warning</b>  | <b>Dust Storm</b>      | <b>Subdivision color</b> |
| ☁ 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 RAINFALL FORECAST FOR DAY 5  
( 9-12-2023)**



- |                             |                        |                          |
|-----------------------------|------------------------|--------------------------|
| <b>Subdivision Warning</b>  | <b>Dust Storm</b>      | <b>Subdivision color</b> |
| ☁ 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**



- |                |              |                |                |
|----------------|--------------|----------------|----------------|
| ☁ Heavy Rain   | ❄ Heavy Snow | ⚡ Thunderstorm | 🌪 Dust Storm   |
| 🌪 Strong Winds | 👁 Visibility | 🌀 Cyclone      | 🌨 Squall/ Hail |
| 🌨 Frost        | 🌡 Cold Wave  | 🔥 Heat Wave    | 🌊 Sea State    |

## Fishermen Warning Graphics

Day 1: 05.12.2023/05:30AM to 06.12.2023/05:30AM



Day 2: 06.12.2023/05:30AM to 07.12.2023/05:30AM



Day 3: 07.12.2023/05:30AM to 08.12.2023/05:30AM



Day 4: 08.12.2023/05:30AM to 09.12.2023/05:30AM



Day 5: 09.12.2023/05:30AM to 10.12.2023/05:30AM



Squally Weather with wind speed 40-45 kmph gusting to 55 kmph

Squally wind speed with wind speed 45-55 kmph gusting to 65 kmph

Squally wind speed with wind speed 50-60 kmph gusting to 70 kmph

CS with gale wind speed 60-90 kmph gusting to 110 kmph

SCS with gale wind speed 90-110 kmph gusting to 120 kmph

**Fishermen are advised not to venture into the marked areas.**

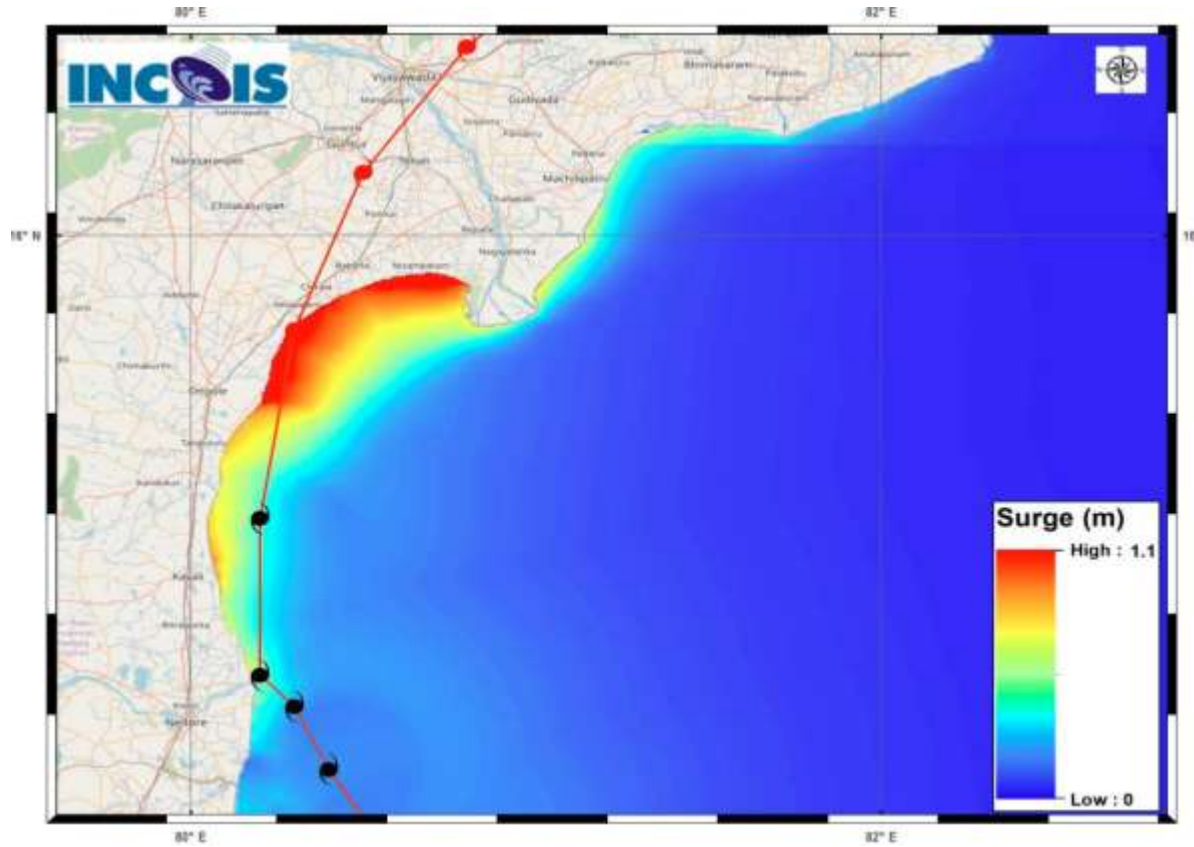


## Storm Surge Warning Graphics based on Forecast Track

### 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)
Repalle	Guntur	Andhra Pradesh	Repalle	0.5-1.1	Upto 0.23
Sullurpeta	Nellore	Andhra Pradesh	Duggaraja Patnam	0.5-1.0	Upto 0.24
Ongole	Prakasam	Andhra Pradesh	Kanuparthi	0.4-0.0	Upto 0.16
Bapatla	Guntur	Andhra Pradesh	Bapatla	0.6-0.8	Upto 0.19
Chirala	Prakasam	Andhra Pradesh	Kotha Peta (Rural)	0.6-0.8	Upto 0.17
Kovvur	Nellore	Andhra Pradesh	Isakapalle	0.4-0.7	Upto 0.13



**Storm Surge Map**

# Flash Flood Guidance

## **24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 06-12-2023 :**

**High flash flood risk** likely over few watersheds & neighbourhoods of following coastal districts of **Andhra Pradesh**

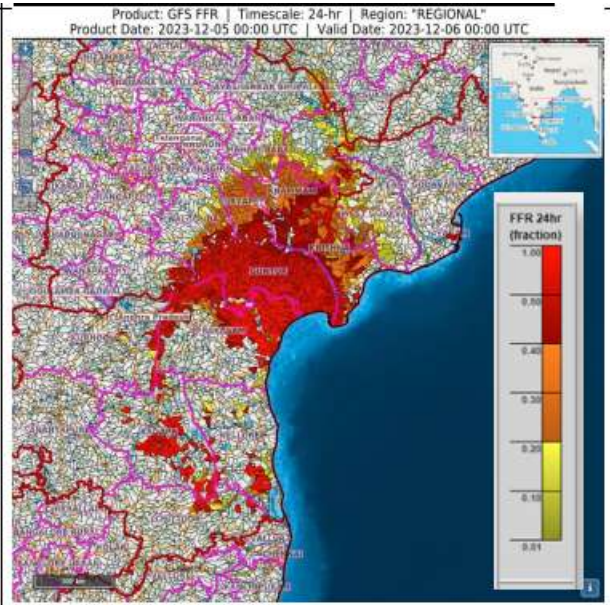
Guntur, Prakasam and Krishna (>50%) districts of **Andhra Pradesh**;

**Moderate flash flood risk** likely over few watersheds & neighbourhoods of following coastal districts (>20% - <50%) of **Andhra Pradesh and Telangana** during next 24 hours.

Vizianagarm, West Godavari, Krishna, Guntur, Kadapa, Kurnool, Chittoor, Prakasam and Nellore (>20% - <50%) districts of **Andhra Pradesh**;

Suryapet, Khammam and Nagarkurnool districts of **Telangana**.

Surface runoff/ Inundation may occur at some fully saturated watersheds & low-lying areas over AoC as depicted in map due to Severe Cyclonic Storm 'Michaung' during next 24 hours.



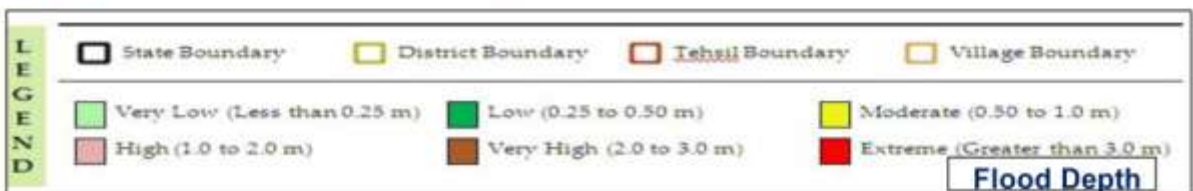
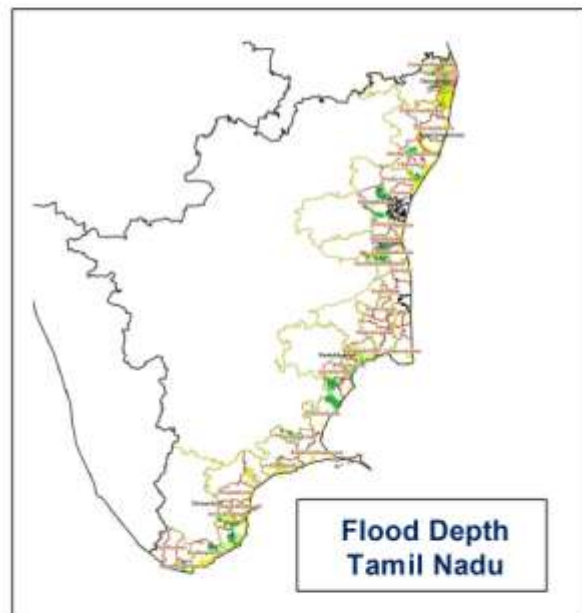
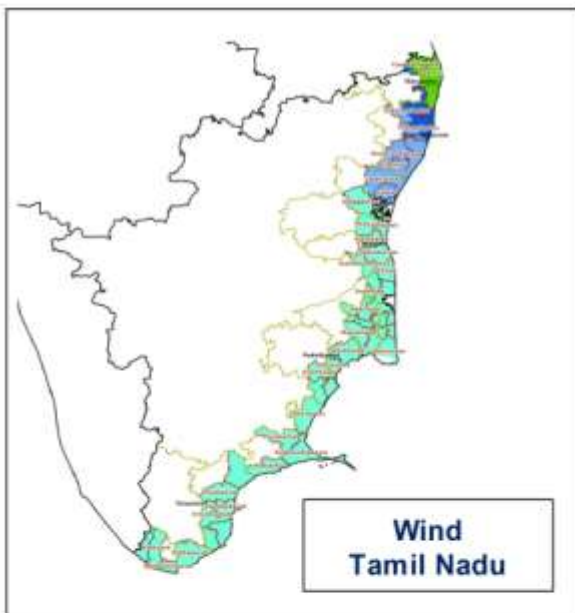
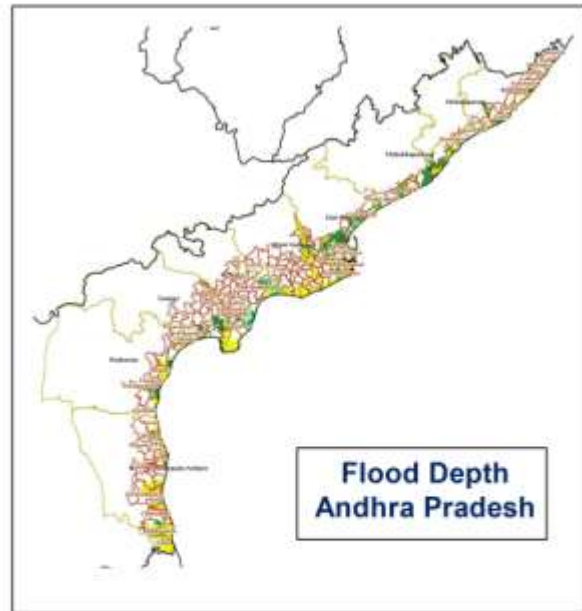
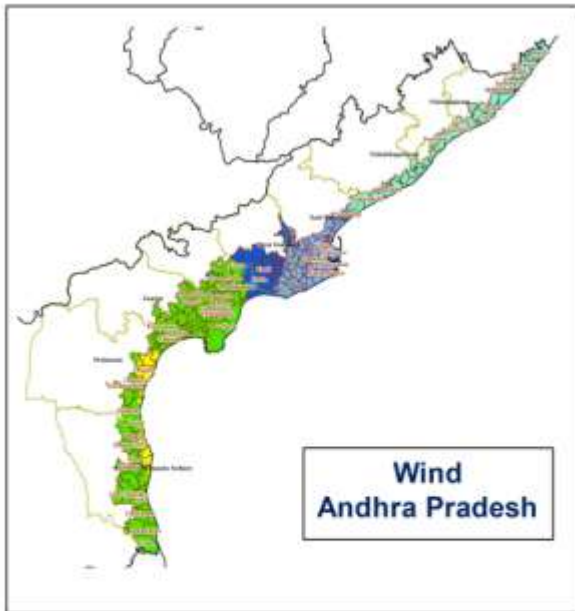
## **Flash Flood Risk**

**High Risk (Take Action)**

**Moderate Risk (Be Prepared)**

**Low Risk (Be Updated)**

**Hazard Map with Severe Cyclonic Storm MICHAUNG over Westcentral & adjoining off south Andhra Pradesh coast**





**MICHAUNG CYCLONE- RAINFALL (IN MM) RECORDED  
OVER ANDHRA PRADESH FROM 08:30 IST 04/12/2023 TO  
07:30 IST 05/12/2023**

**IMD OBSERVATORIES**

BAPATLA - 215.3; NELLORE - 215.1;MACHILIPATNAM - 151.7;  
KAVALI - 143.6; ONGOLE – 117;KAKINADA - 77.6;NARSAPUR  
- 60.7

**AWS/ARG**

PODALAKUR - 212.5; REPALLE - 117.5;CHINNA\_GANJAM -  
72.5;KAKINADA - 72.5;UTKURU\_KVK – 66;DARSI\_KVK - 64.5;  
LAM\_AMFU – 57;MEHADRIGADDA\_DAM – 53;KAILASHGIRI -  
35.5; ANKAPALLI\_AMFU – 34;KALAVACHARLA\_KVK – 34;  
VENKATARAMANNAGUDEM\_KVK - 33.5; VIJAYARAI - 21.5;  
AROGYAVARAM - 20.5; PANDIRIMAMIDI\_HRS - 16.5;  
GARIKAPADU\_KVK - 13.5;CHITTOOR – 13; NARASARAOPET  
– 12; GOTTABARRIEGE - 10.5; PALAKONDA - 7.5

**IMD: India Meteorological Department**

**AWS: Automatic Weather Station**

**ARG: Automatic Rain Guage**

**KVK: Krishi Vigyan Kendra**

**AMFU: Agriculture Field Meteorological Unit**