



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

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Sub: Severe Cyclonic Storm “MICHAUNG” (pronounced as MIGJAUM) over Westcentral Bay of Bengal along and 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 10 kmph during past 06 hours and lay centered at 1130 hours IST of 5th December, 2023 over the same region near latitude 15.45°N and longitude 80.25°E, about 20 km east of Ongole, 50 km south-southwest of Bapatla, 70 km north-northeast of Kavali, 110 km north-northeast of Nellore and 120 km southwest of Machilipatnam.

The system is likely to move nearly northwards and cross south Andhra Pradesh coast close to Bapatla during next 2 hours as a Severe Cyclonic Storm with a maximum sustained wind speed of 90-100 kmph gusting to 110 kmph.

Landfall process is continuing and likely to continue for next 3 hours.

Track and Intensity Forecasts:

Date/Time (IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
05.12.23/1130	15.45/80.25	90-100 kmph gusting to 110 kmph	Severe Cyclonic Storm
05.12.23/1730	16.10/80.40	70-80 kmph gusting to 90 kmph	Cyclonic Storm
05.12.23/2330	16.60/80.80	55-65 kmph gusting to 75 kmph	Deep Depression
06.12.23/0530	17.20/81.40	40-50 kmph gusting to 60 kmph	Depression
06.12.23/1130	17.70/82.10	20-30 kmph gusting to 40 kmph	Low Pressure Area

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 5th December. **Exceptionally heavy rainfall** at one or two places is also likely over central districts of coastal Andhra Pradesh on 5th December. Isolated **heavy rainfall** is likely over north coastal Andhra Pradesh on 6th December.
- **Telangana:** Light to moderate rainfall at most places with isolated **heavy to extremely heavy rainfall** on 5th December and **heavy rainfall** is likely on 06th December.
- **Odisha** 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 5th and isolated **heavy rainfall** over the same region on 6th December.
- **Chhattisgarh:** Light to moderate rainfall at most places with isolated **heavy rainfall** is likely over Chhattisgarh on 05th & 6th December.
- **Vidarbha:** Light to moderate rainfall at many places with isolated **heavy rainfall** is likely over Vidarbha on 6th December.
- **Rayalaseema:** Light to moderate rainfall at many places with isolated **heavy rainfall** on 5th December and decrease thereafter.
- **North Coastal Tamil Nadu:** Light to moderate rainfall at many places with isolated **heavy rainfall** on 5th December and decrease thereafter.

(ii) Wind warning:

- **Westcentral Bay of Bengal and along & off south Andhra Pradesh Coast:**
Gale wind speed reaching **90-100 kmph gusting to 110 kmph** prevailing over westcentral Bay of Bengal around system centre and would continue during next 6 hours and gradually decreases thereafter.

Gale wind speed reaching **60-70 kmph gusting to 80 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 5th December during next 3 hours 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.
- **Northwest Bay of Bengal and along & off Odisha Coast:**
Squally wind speed reaching **35-45 kmph gusting to 55 kmph** is likely to prevail till afternoon of 5th and it is 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:

- **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 afternoon. It is likely to improve thereafter gradually becoming very rough by 5th evening and rough by 6th morning for subsequent 12 hours.

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

Rough to Very Rough to sea condition is likely till 6th December morning and further improve thereafter.

• **Northwest Bay of Bengal and along & off Odisha Coast:**

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

(iv) Storm Surge (Graphics enclosed):

Storm surge of about 1-1.5 meter above astronomical tide likely to inundate south Coastal Andhra Pradesh districts during next 3 hours and decrease thereafter.

(v) Fishermen Warning (graphics attached):

Fishermen are advised not to venture into:

- Westcentral Bay of Bengal and along & off Andhra Pradesh Coast till 6th December evening.
- Northwest Bay of Bengal and along & off Odisha coast till 6th December morning.

(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 5th December and further gradually decrease becoming 55-65 kmph gusting to 75 kmph by 05th 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)

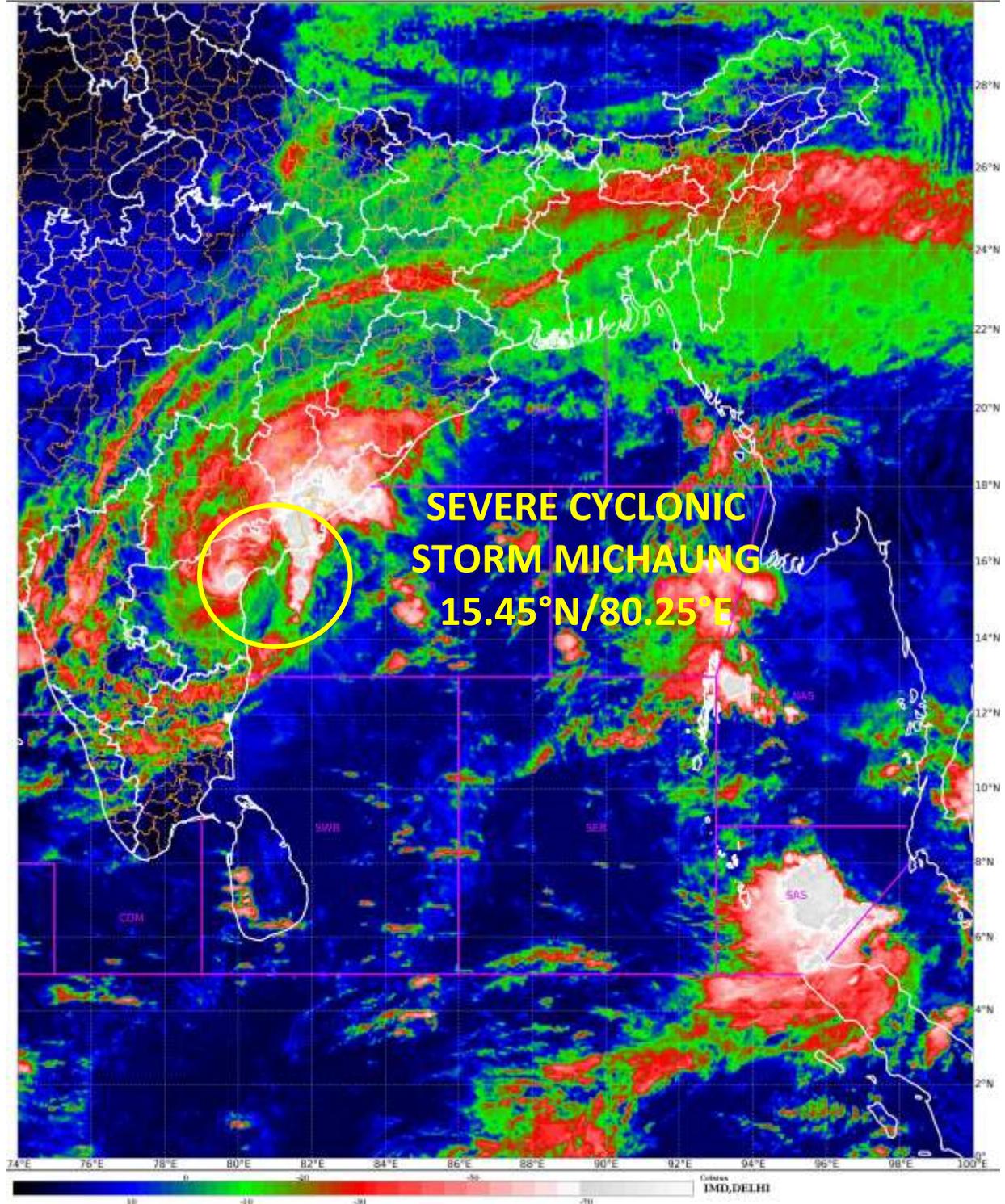
(viii) Action Suggested for coastal districts of South Andhra Pradesh and adjoining coastal districts of North Tamil Nadu-Puducherry:

- 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.

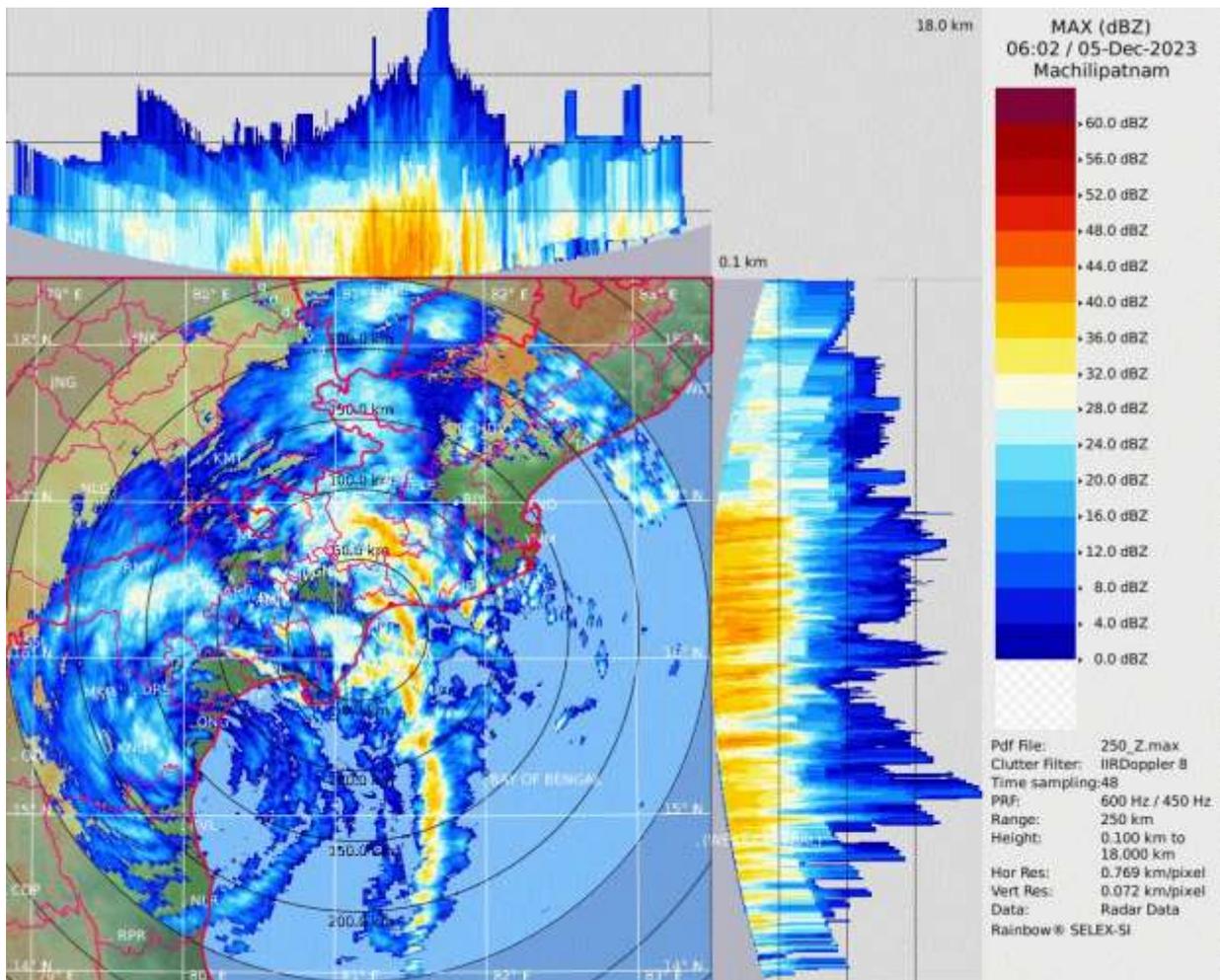
The system is under continuous surveillance and the next message will be issued at 1600 hours IST of today, the 05th December, 2023.

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

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



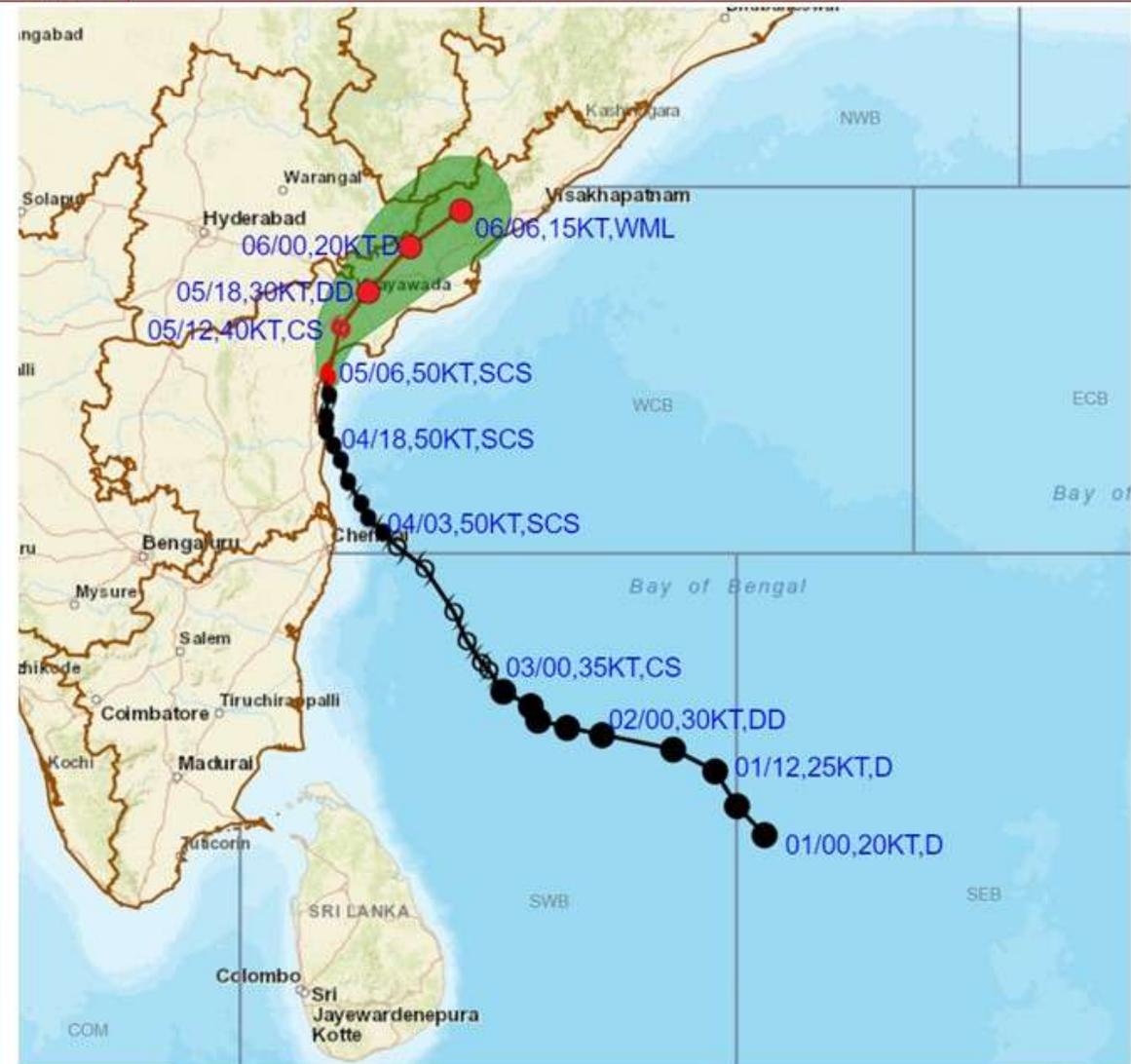
INSAT 3D Image based on 0600 UTC (1130 hrs IST) of 05th Dec 2023



Maximum Reflectivity from DWR Machilipatnam based on 0602 UTC (1132 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 0600 UTC (1130 IST) OF 5TH DECEMBER 2023.



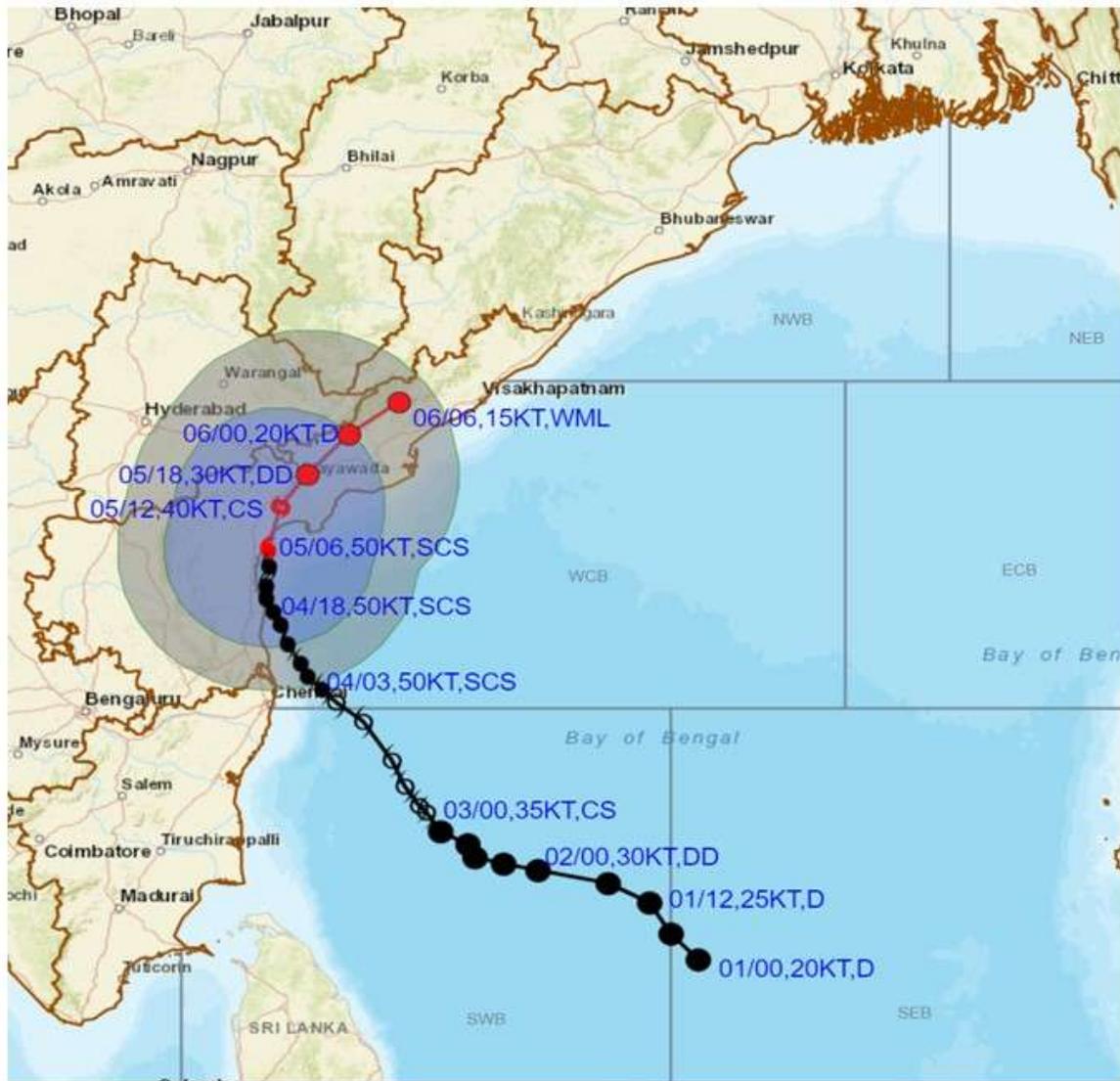
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (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			
	BAPATLA	NELLORE	MACHILIPATNAM/ FRANCHPET	MO PONDICHER RY
05.12.23/0600	60, SSW	120, NNE	130, SW	400, N
06.12.23/0600	270, NE	430, NNE	200, NNE	690, 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 0600 UTC (1130 IST) OF 5TH 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)

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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)

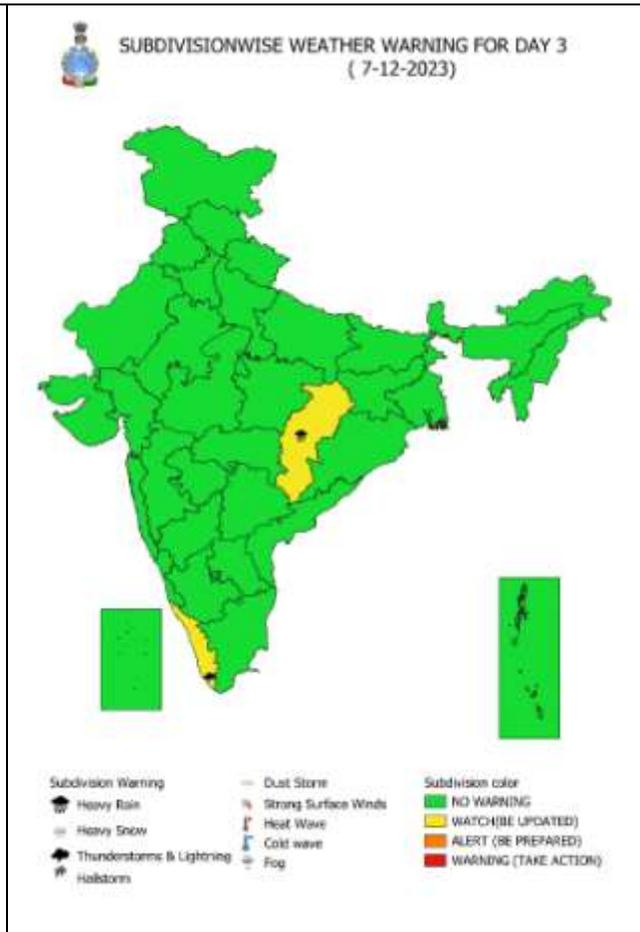
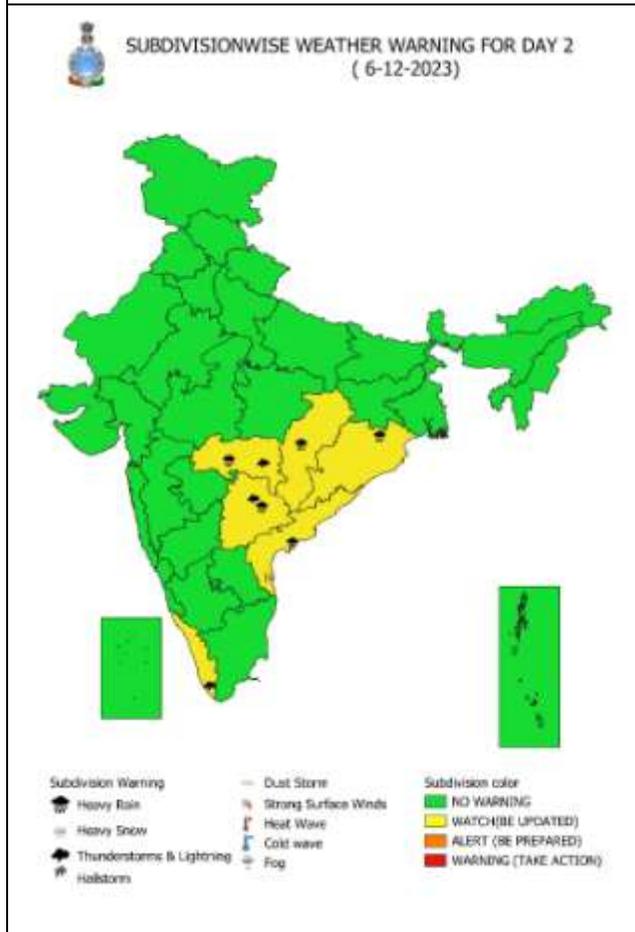
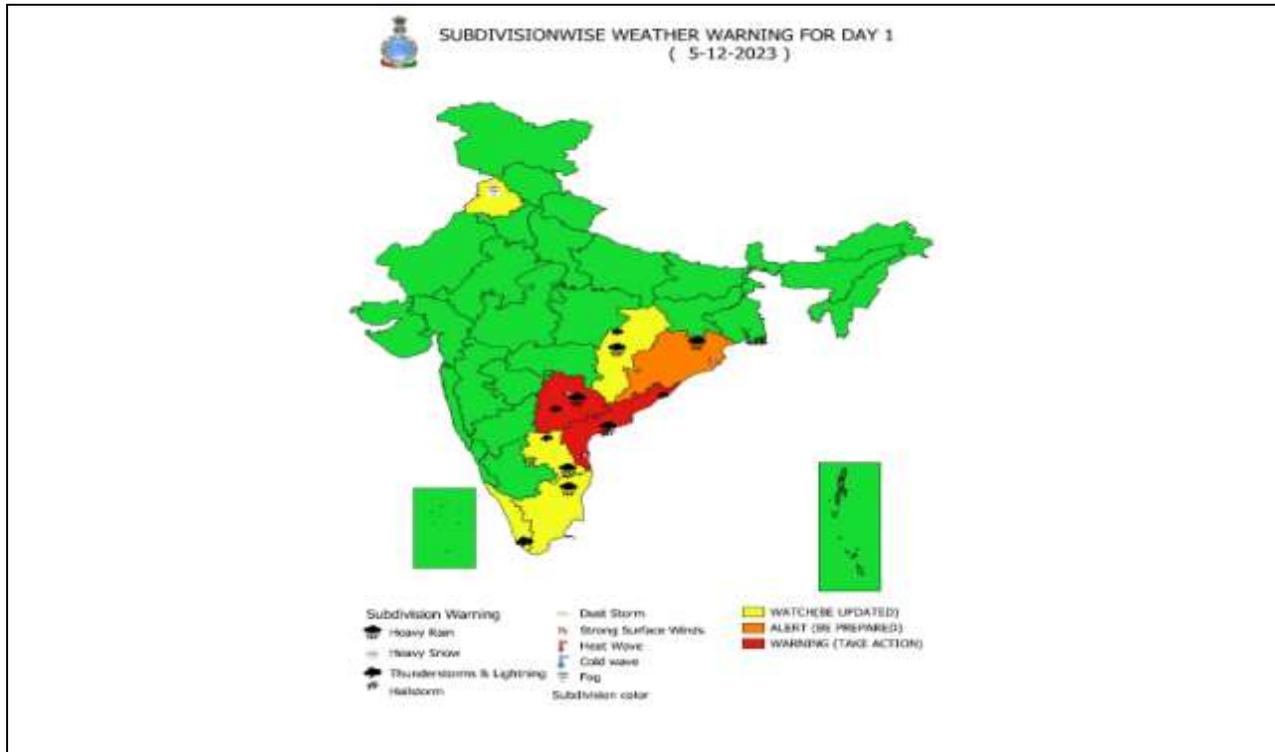
■ 50-63 KT (92-117 KMPH)

■ ≥ 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)



- | | | |
|-----------------------------|------------------------|-------------------------|
| 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 RAINFALL FORECAST FOR DAY 5 (9-12-2023)



- | | | |
|-----------------------------|------------------------|-------------------------|
| 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



- | | | | |
|----------------|--------------|----------------|----------------|
| ☁ 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: 05.12.2023/11:30AM 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

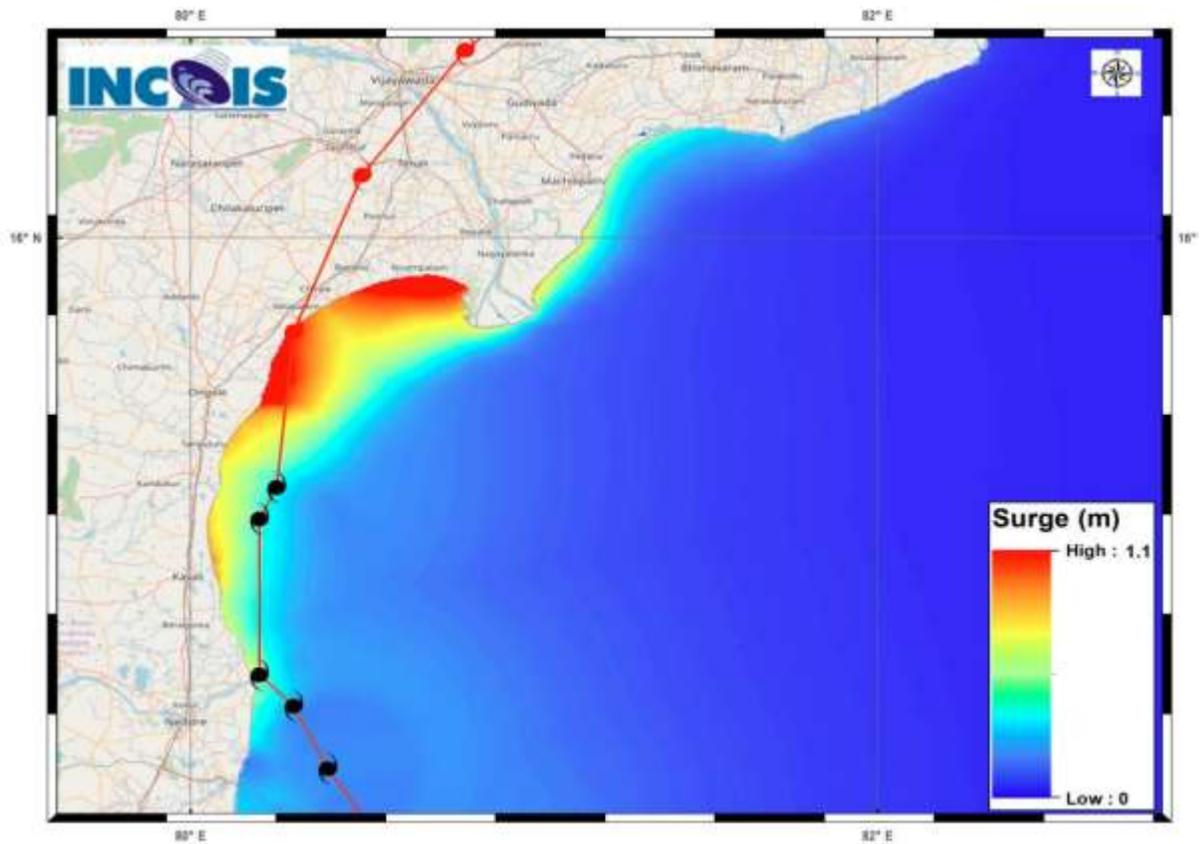
Fishermen are advised not to venture into the marked areas.

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



Storm Surge Map

Flash Flood Guidance

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 06-12-2023 :

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

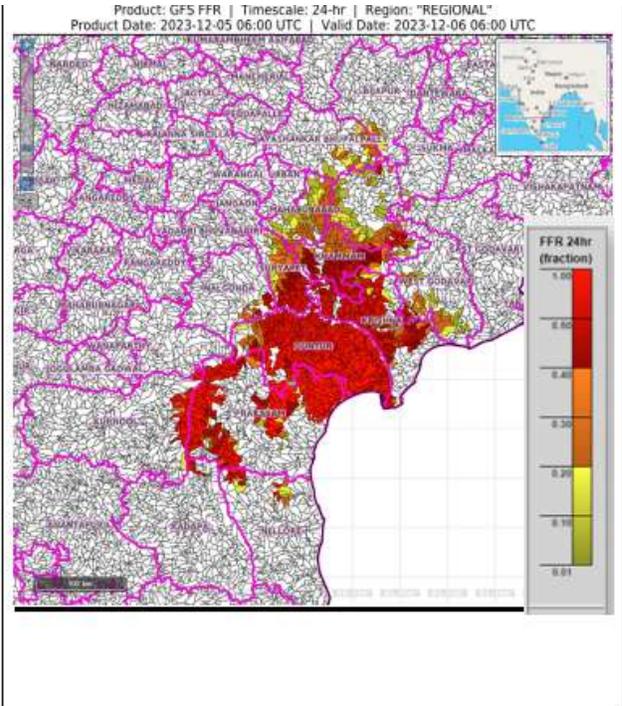
Guntur, Prakasam and Krishna (>50%) districts of **Andhra Pradesh**;

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

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

Nalgonda, Suryapet, Khammam, Bharadri kothagudem and Mahabubabad (>20% - <50%) 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.



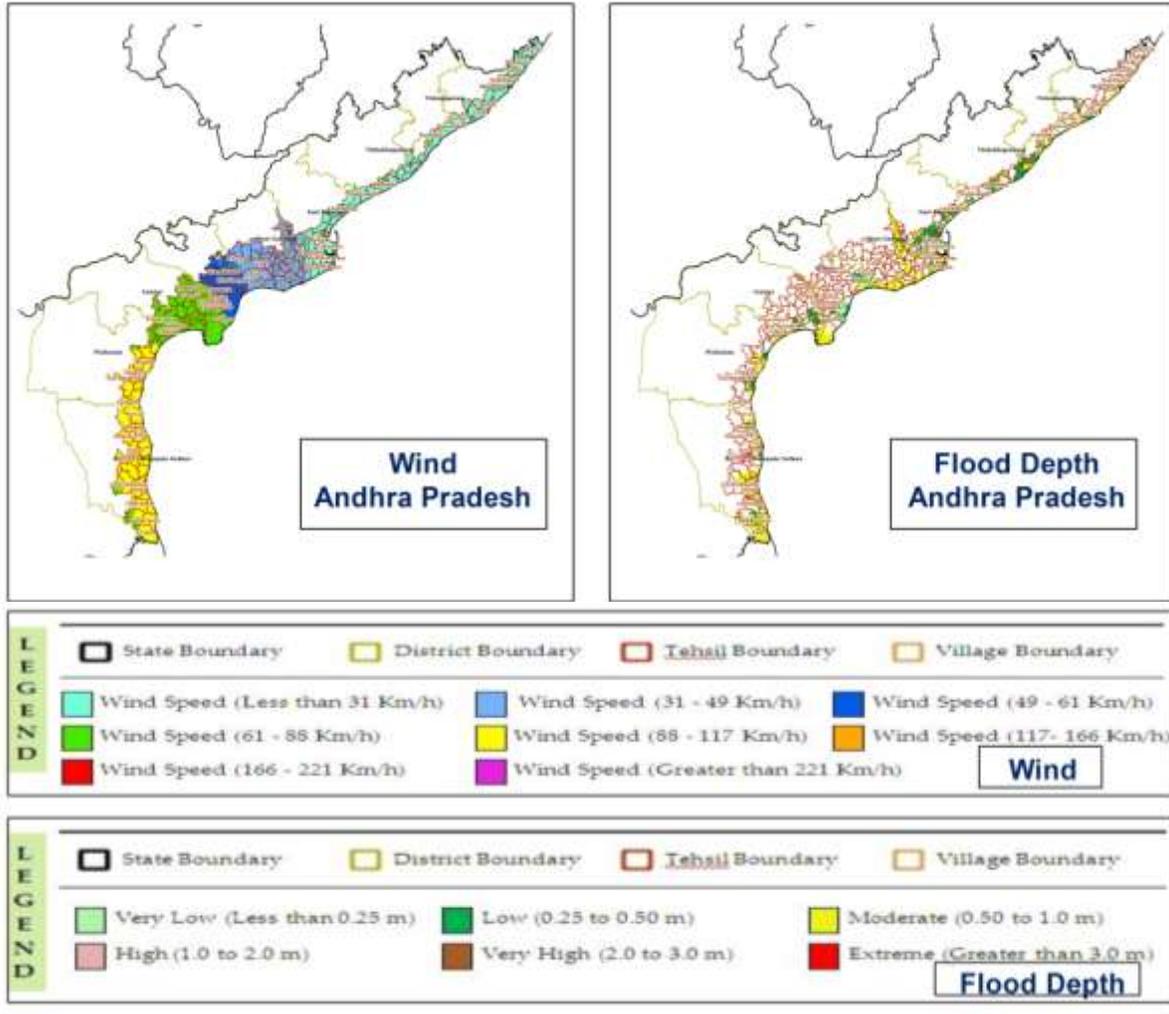
Flash Flood Risk

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



REALISED RAINFALL (IN CM) RECORDED DURING PAST 24 HOURS FROM 08:30 IST 04/12/2023 TO 08:30 IST 05/12/2023

Heavy to very heavy rainfall recorded at a few places with isolated extremely heavy falls at isolated places over North Tamil Nadu, coastal Andhra Pradesh and Rayalaseema.

Tamil Nadu:

Zone 14 Perungudi (dist Chennai) 45, Poonamallee (dist Tiruvallur) 34, Avadi (dist Tiruvallur) 28, KVK Kattukuppam AWS (dist Kancheepuram) 27, Chennai (N) (dist Chennai), Chennai(N) AWS (dist Chennai), Tambaram (dist Chengalpattu) 24 each, Mahabalipuram (dist Chengalpattu), Zone 09 Ice House (dist Chennai) 22 each, Royapuram (dist Chennai), Zone 13 Adyar (dist Chennai), Thiru-Vi-Ka Nagar (dist Chennai), Zone 05 GCC (dist Chennai), Zone 10 Kodambakkam (dist Chennai), Chembarapakkam_Rev (dist Kancheepuram) 21 each, Zone 15 Sholinganallur (dist Chennai), Taramani ARG (dist Chennai), Meenambakkam AWS (dist Chennai), Chennai (AP) (dist Chennai), Kundrathur (dist Kancheepuram), Thamarapakkam (dist Tiruvallur), Kodambakkam (dist Chennai), Tirur KVK AWS (dist Tiruvallur) 19 each, Teynampet (dist Chennai), Valasaravakkam (dist Chennai), Tiruvallur (dist Tiruvallur), Anna University ARG (dist Chennai), Zone 11 Valasaravakkam (dist Chennai) 18 each, Uthukottai (dist Tiruvallur), NIOT_Pallikaranai ARG (dist Chennai), Ponneri (dist Tiruvallur), Sriperumbudur (dist Kancheepuram), Koratur (dist Tiruvallur) 17 each, Kelambakkam (dist Chengalpattu) 16, Cholavaram (dist Tiruvallur) 15, Thiruvalangadu (dist Tiruvallur), Poondi (dist Tiruvallur), Alandur (dist Chengalpattu), Thirupporur (dist Chengalpattu) 14 each, Red Hills (dist Tiruvallur) 13, Zone Alandhur (dist Chennai), Tiruttani (dist Tiruvallur), Gummidipoondi (dist Tiruvallur), Chembarabakkam_CMWSSB (dist Kancheepuram) 12 each, Thirukalukundram (dist Chengalpattu), Pechiparai (dist Kanniyakumari), Zone 05 Royapuram (dist Chennai) 11 each, Minnal (dist Ranipet), Zone 04 Tondiarpet (dist Chennai) 10 each, Chengalpattu (dist Chengalpattu), Zone 12 D156 Mugalivakkam (dist Chennai), Wallajah (dist Ranipet),

Perunchani Dam (dist Kanniyakumari), Tiruttani PTO (dist Tiruvallur) 9 each, Zone 03 Puzhal (dist Chennai), Puthan Dam (dist Kanniyakumari), Panapakkam (dist Ranipet), Zone 09 Teynampet (dist Chennai) 8 each, R.K.Pet (dist Tiruvallur), Walajabad (dist Kancheepuram), Pallipattu (dist Tiruvallur), Vembakkam (dist Tiruvannamalai), Sholingur (dist Ranipet), Kuzhithurai (dist Kanniyakumari) 7 each.

Coastal Andhra Pradesh & Yanam:

Bapatla (dist Bapatla) 22, Nellore (dist Spsr Nellore) 22, Rapur (dist Spsr Nellore) 21, Atmakur (dist Spsr Nellore) 19, Amalapuram (dist B R Ambedkar Konaseema) 17, Addanki (dist Bapatla) 17, Karamchedu (dist Bapatla) 17, Masulipatnam Cdr (dist Krishna) 16, Kavali (dist Spsr Nellore) 15, Avanigada (dist Krishna) 14, Vinjamur (dist Spsr Nellore) 14, Udayagiri (dist Spsr Nellore) 13, Ongole (dist Prakasam) 12, Repalle (dist Bapatla) 11, Kandukur (dist Spsr Nellore) 11, Konakanamitla (dist Prakasam) 9, Gudivada (dist Krishna) 9, Santhamaguluru (dist Bapatla) 9, Tenali (dist Guntur) 8, Kakinada (dist Kakinada) 8, Yanam (dist Yanam) 8, Marripudi (dist Prakasam) 7, Veligandla (dist Prakasam) 7, Mundlamuru (dist Prakasam) 7, Guntur (dist Guntur) 7, Seetharamapuram (dist Spsr Nellore) 7, Tanuku (dist West Godavari) 7, Vijayawada (dist Ntr District) 7, Peddapuram (dist Kakinada) 7.

Rayalaseema:

Gudur (dist Tirupati) 28, Srikalahasti (dist Tirupati) 24, Kodur (dist Ysr District) 24, Thottambedu (dist Tirupati) 23, Sullurpeta (dist Tirupati) 23, Penagaluru (dist Annamayya District) 23, Tada (dist Tirupati) 20, Venkatagiri (dist Tirupati) 18, Satyavedu (dist Tirupati) 14, Nagari (dist Chittoor) 13, Tirupati Aero (dist Tirupati) 13, Rajampet (dist Annamayya District) 12, Atlur (dist Ysr District) 9, Badvel (dist Ysr District) 8, Gurramkonda (dist Annamayya District) 7, Kalakada (dist Annamayya District) 7, Sambepalle (dist Annamayya District) 7, Royachoti (dist Annamayya District) 7, Pakala (dist Tirupati) 7, Pullampeta (dist Annamayya District) 7, Chinnamandem (dist Annamayya District) 7, Cuddapah (dist Ysr District) 7.

IMD: India Meteorological Department

AWS: Automatic Weather Station

ARG: Automatic Rain Guage

KVK: Krishi Vigyan Kendra

AMFU: Agriculture Field Meteorological Unit