Sub: Severe Cyclonic Storm “MICHAUNG” (pronounced as MIGJAUM) crossed south Andhra Pradesh coast close to south of Baptla (Cyclone Warning for Andhra Pradesh Coast: Red Message)

The Severe Cyclonic Storm “Michaung” (pronounced as Migjaum) over westcentral Bay of Bengal near south Andhra Pradesh coast moved northwards with a speed of 11 kmph during past 06 hours and crossed south Andhra Pradesh coast close to south of Baptla during 1230 to 1430 hours IST of today, the 5th December 2023 as a Severe Cyclonic Storm with maximum sustained wind speed of 90-100 kmph. It lay centered at 1430 hours IST of today, the 5th December, 2023 over south coastal Andhra Pradesh near latitude 15.8°N and longitude 80.3°E, about 15 km southwest of Baptla and 40 km northeast of Ongole.

The system is likely to move nearly northwards and weaken into a cyclonic storm during next 2 hours.

Track and Intensity Forecasts:

<table>
<thead>
<tr>
<th>Date/Time (IST)</th>
<th>Position (Lat. °N/ long. °E)</th>
<th>Maximum sustained surface wind speed (Kmph)</th>
<th>Category of cyclonic disturbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>05.12.23/1430</td>
<td>15.8/80.3</td>
<td>85-95 kmph gisting to 105 kmph</td>
<td>Severe Cyclonic Storm</td>
</tr>
<tr>
<td>05.12.23/1730</td>
<td>16.10/80.40</td>
<td>65-75 kmph gisting to 85 kmph</td>
<td>Cyclonic Storm</td>
</tr>
<tr>
<td>05.12.23/2330</td>
<td>16.60/80.80</td>
<td>55-65 kmph gisting to 75 kmph</td>
<td>Deep Depression</td>
</tr>
<tr>
<td>06.12.23/0530</td>
<td>17.20/81.40</td>
<td>40-50 kmph gisting to 60 kmph</td>
<td>Depression</td>
</tr>
</tbody>
</table>
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 2000 hours IST of today, the 05th December, 2023.

(Shobhit Katiyar)
Scientist D, Cyclone Warning Division, New Delhi
Maximum Reflectivity from DWR Machilipatnam based on 0952 UTC of 05th December 2023
OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY IN ASSOCIATION WITH SEVERE CYCLONIC STORM “MICHANG” OVER SOUTH COASTAL ANDHRA PRADESH BASED ON 0900 UTC (1430 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 (64-88 KT)
ECS: EXTREMELY SEVERE CYCLONIC STORM (89-119 KT)
SU CS: SUPER CYCLONIC STORM (≥120 KT)

LESS THAN 34 KT
34.47 KT
≥ 48 KT

OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY
SUBDIVISIONWISE WEATHER WARNING FOR DAY 4
(8-12-2023)

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

WARNING

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

Heavy Rain
Heavy Snow
Thunderstorm
Dust Storm
Strong Surface Winds
Heat Stroke
Cold Wave
Fog

Cyclone
Squall/Hail
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

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.

<table>
<thead>
<tr>
<th>MANDAL/TALUK</th>
<th>DISTRICT</th>
<th>STATE / UNION TERRITORY</th>
<th>NEAREST PLACE OF HABITATION</th>
<th>STORM SURGE (m) *</th>
<th>EXPECTED INUNDATION EXTENT (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repalle</td>
<td>Guntur</td>
<td>Andhra Pradesh</td>
<td>Forest</td>
<td>0.5-1.1</td>
<td>Up to 0.23</td>
</tr>
<tr>
<td>Sullurpetta</td>
<td>Nellore</td>
<td>Andhra Pradesh</td>
<td>Daggaraja Pattani</td>
<td>0.5-0.8</td>
<td>Up to 0.24</td>
</tr>
<tr>
<td>Bapatla</td>
<td>Guntur</td>
<td>Andhra Pradesh</td>
<td>Forest</td>
<td>0.5-0.8</td>
<td>Up to 0.19</td>
</tr>
<tr>
<td>Ongole</td>
<td>Prakasam</td>
<td>Andhra Pradesh</td>
<td>Kauparathi</td>
<td>0.4-0.8</td>
<td>Up to 0.16</td>
</tr>
<tr>
<td>Chirala</td>
<td>Prakasam</td>
<td>Andhra Pradesh</td>
<td>Kothu Peta (Rural)</td>
<td>0.5-0.7</td>
<td>Up to 0.17</td>
</tr>
<tr>
<td>Kovur</td>
<td>Nellore</td>
<td>Andhra Pradesh</td>
<td>Isakapalle</td>
<td>0.4-0.5</td>
<td>Up to 0.13</td>
</tr>
</tbody>
</table>

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**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**

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk</td>
<td>Take Action</td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>Be Prepared</td>
</tr>
<tr>
<td>Low Risk</td>
<td>Be Updated</td>
</tr>
</tbody>
</table>
Hazard Map with Severe Cyclonic Storm MICHAUNG over Westcentral & adjoining off south Andhra Pradesh coast
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), Thamaraipakkam (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), NIO T Pallikaranai ARG (dist Chennai), Ponneri (dist Tiruvallur), Sriperumbudur (dist Kancheepuram), Koratur (dist Tiruvallur) 17 each, Kelambakkam (dist Chengalpattu) 16, Cholavaram (dist Tiruvallur) 15, Thiruvangadu (dist Tiruvallur), Poondi (dist Tiruvallur), Alandur (dist Chengalpattu), Thiruppuror (dist Chengalpattu) 14 each, Red Hills (dist Tiruvallur) 13, Zone Alandur (dist Chennai), Tiruttani (dist Tiruvallur), Gummipoonodi (dist Tiruvallur), Chembarabakkam CMWSSB (dist Kancheepuram) 12 each, Thirukalukundram (dist Chengalpattu), Pechiparai (dist Kanniyakumari), Zone 05 Royapuram (dist Chennai) 11 each, Minnal (dist Ranipt), Zone 04 Tondiarpet (dist Chennai) 10 each, Chengalpattu (dist Chengalpattu), Zone 12 D156 Mugalivakkam (dist Chennai), Wallajah (dist Ranipt), Perunchani Dam (dist Kanniyakumari), Tiruttani PTO (dist Tiruvallur) 9 each, Zone 03 Puzhal (dist Chennai), Puthan Dam (dist Kanniyakumari), Panapakkam (dist Ranipt), Zone 09 Teynampet (dist Chennai) 8 each, R.K.Pet (dist Tiruvallur), Walajabad (dist Kancheepuram), Pallippatu (dist Tiruvallur), Vembakkam (dist Tiruvannamalai), Sholingur (dist Ranipt), 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, Veliganda (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 Gauge
KVK: Krishi Vigyan Kendra
AMFU: Agriculture Field Meteorological Unit