



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

NATIONAL BULLETIN NO. 16 (BOB/06/2024)

TIME OF ISSUE: 1445 HOURS IST

DATED: 24.10.2024

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

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CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029)
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2334145)**

Subject: Severe Cyclonic storm "DANA" over northwest Bay of Bengal (Cyclone Warning for Odisha and West Bengal coasts: **Red Message)**

The severe cyclonic storm "DANA" (pronounced as Dana) over northwest Bay of Bengal moved north-northwestwards with a speed of 13 kmph during past 6 hours and lay centred at 1130 hrs IST of today, the 24th October, over the same region, near latitude 19.2° N and longitude 87.9°E, about 180 km southeast of Paradip (Odisha), 210 km south-southeast of Dhamara (Odisha) and 270 km south of Sagar Island (West Bengal).

It is very likely to move north-northwestwards and cross north Odisha and West Bengal coasts between Puri and Sagar Island close to Bhitarkanika and Dhamara (Odisha) during mid-night of 24th to morning of 25th October, 2024 as a severe Cyclonic Storm with a wind speed of 100-110 kmph gusting 120 kmph.

The system is under continuous surveillance of the Doppler Weather Radar at Paradip.

Forecast track and intensity are given in the following table:

Date/Time (IST)	Position (Lat. °N/ Long. °E)	Maximum Sustained Surface Wind Speed (Kmph)	Category Of Cyclonic Disturbance
24.10.24/1130	19.2/87.9	100-110 gusting to 120	Severe Cyclonic Storm
24.10.24/1730	19.8/87.6	105-115 gusting to 125	Severe Cyclonic Storm
24.10.24/2330	20.4/87.2	100-110 gusting to 120	Severe Cyclonic Storm
25.10.24/0530	20.8/86.8	100-110 gusting to 120	Severe Cyclonic Storm
25.10.24/1130	21.1/86.3	85-95 gusting to 105	Cyclonic Storm
25.10.24/2330	21.2/85.7	50-60 gusting to 70	Deep Depression

(i) Rainfall Warning:

- ❖ Light to moderate rainfall at most places with **heavy to very heavy rainfall** at a few places and **extremely heavy rainfall (≥ 21 cm)** at isolated places over **Baleswar, Mayurbhanj, Bhadrak, Kendrapara, Jagatsingpur Kendujhar, Jajpur, Cuttack and Dhenkanal, Khorda and Puri** districts of Odisha on 24th & 25th October.
- ❖ **Light to moderate rainfall at most places with heavy to very heavy rainfall** at a few places with **extremely heavy rainfall** at isolated places over **South & North 24 Parganas, East & West Medinipur, Jhargram, Howrah, Hooghly, Kolkata and Bankura** districts of Gangetic West Bengal on 24th & 25th October.
- ❖ Light to moderate rainfall at most places is likely over south Jharkhand with **heavy rainfall** at isolated places on 24th and **heavy to very heavy rainfall** at isolated places on 25th October.

(ii) Wind Warning:

Northwest Bay of Bengal: Gale wind speed reaching 100-110 kmph gusting to 120 kmph is prevailing. It is likely to increase gradually becoming 105-115 kmph gusting to 125 kmph from 24th Oct evening to mid-night and 100--110 kmph gusting to 120 kmph till morning of 25th October.

Adjoining areas of central Bay of Bengal: Gale wind speed reaching 95-105 kmph gusting to 115 kmph is prevailing and likely to continue till 24th Oct afternoon. It is likely to decrease gradually thereafter.

Along & off Odisha-west Bengal coasts: Gale wind speed reaching 60-70 kmph gusting to 80 kmph is prevailing. It would gradually increase becoming 100-110 kmph gusting to 120 kmph along & off north Odisha and east Medinipur district of West Bengal from 24th afternoon till morning of 25th October and decrease gradually thereafter.

Gale wind speed reaching 60-80 kmph gusting to 90 kmph is likely along & off south Odisha and remaining districts of coastal West Bengal from 24th evening till 25th Oct morning and decrease gradually thereafter.

Adjoining areas of northeast Bay of Bengal: Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail till 25th morning and decrease gradually thereafter.

South Jharkhand: Squally wind speed reaching 40-50 gusting to 60 kmph is very likely to prevail from morning of 25th till evening of 26th October.

(iii) Storm surge warning:

Storm surge of 1.0 to 2.0 m height above astronomical tide is very likely to inundate low lying areas of Kendrapara, Bhadrak & Balasore districts of Odisha and East Medinipur districts of West Bengal during the time of landfall.

Storm surge of 0.5 to 1.0 m height above astronomical tide is very likely to inundate low lying areas of South 24-Parganas district of West Bengal and Jagatsinghpur district of Odisha during the time of landfall.

(iv) Sea Condition:

Northwest Bay of Bengal: Sea condition is likely to be **Very High** till 25th morning and improve gradually thereafter.

Adjoining areas of central Bay of Bengal: Sea condition is likely to be **very high to high** till 24th October **evening**. It is likely to improve gradually thereafter.

Adjoining areas of northeast Bay of Bengal: Sea condition is likely to be **Rough to Very Rough** till 25th morning and improve gradually thereafter.

Along & off Odisha-west Bengal coasts: **High to Very High** till 25th Oct forenoon and improve gradually thereafter.

(v) Fishermen Warning:

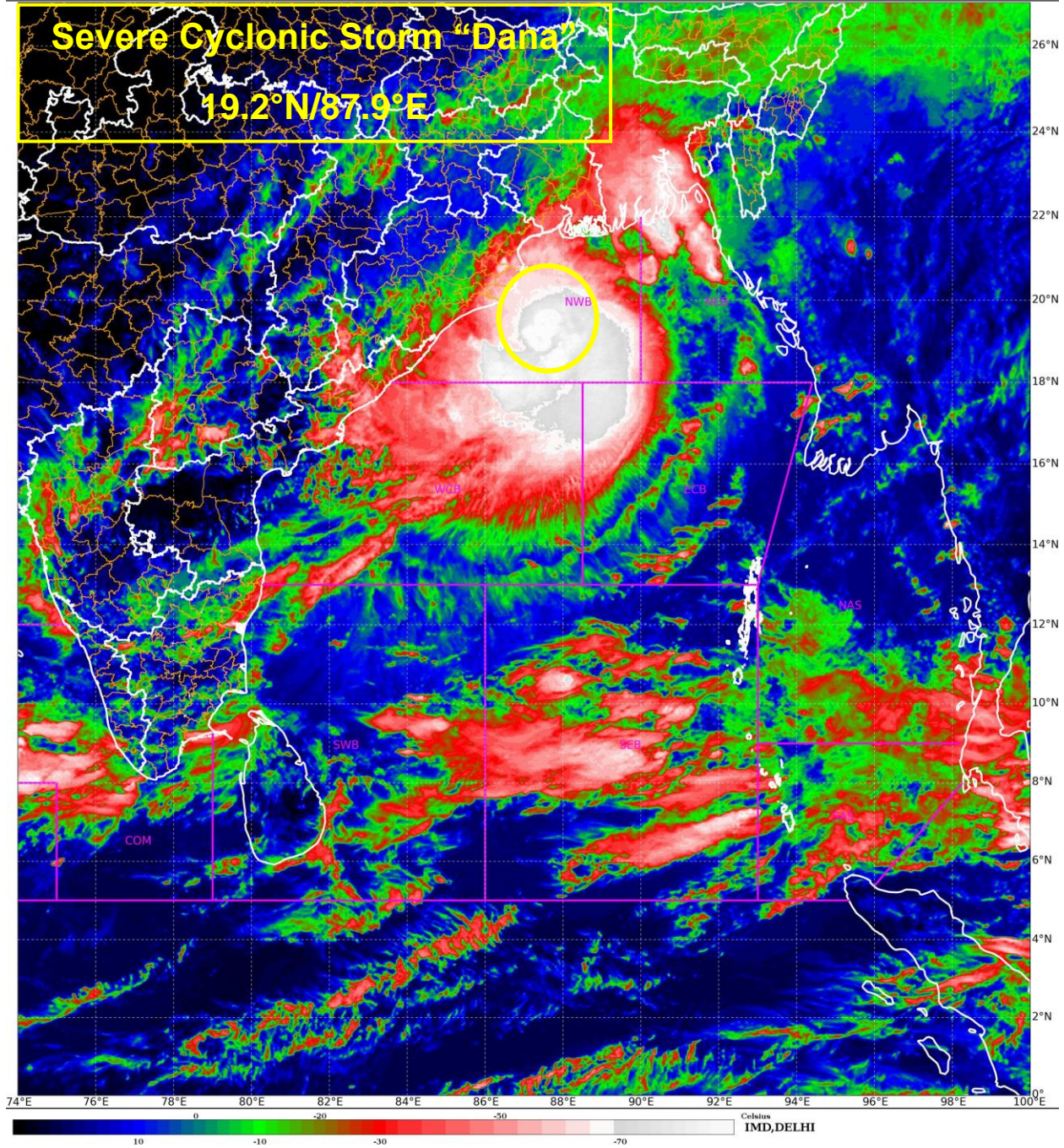
- Total suspension of fishing operations on 24th & 25th Oct over Central and North Bay of Bengal.
- Fishermen are advised not to venture into
 - **Adjoining areas of central Bay of Bengal till 24th Oct.**
 - **Northwest & adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts till 25th October.**
- ❖ **Impact Expected over districts of Odisha (Baleswar, Bhadrak, Kendrapara, Jajpur, Jagatsinghpur, Puri, Khorda, Mayurbhanj, Kendujhar, Cuttack, Dhenkanal) and West Bengal (East & West Medinipur, South & North 24 Parganas, Jhargram, Howrah, Hooghly, Kolkata, & Bankura)**
- Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.
- Breaking of tree branches and uprooting of trees. Large dead limbs blown from trees.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Damage to vulnerable structure.
- Major damage to standing crops including banana, papaya, horticultural and vegetable crops due to inundation and wind.
- Damage to embankments/ salt pans.
- Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- Occasional reduction in visibility due to heavy rainfall.
- Disruption of traffic in major cities and roadways due to water logging in roads and poor visibility due to heavy rain leading to increased travel time and incidents
- Localized Landslides/Mudslides/landslips/mud slips/land sinks/mud sinks.
- Likely disruption of marine and inland water transportation like small boats and trawlers.

- It may lead to riverine flooding in some river catchments (for riverine flooding please visit Webpage of Central Water Commission)
- ❖ **Action Suggested for districts of Odisha (Baleswar, Bhadrak, Kendrapara, Jajpur, Jagatsinghpur, Puri, Khorda, Mayurbhanj, Kendujhar, Cuttack, Dhenkanal) and West Bengal (East & West Medinipur, South & North 24 Parganas, Jhargram, Howrah, Hooghly, Kolkata & Bankura)**
- Total suspension of fishing operations during 24th to 25th Oct over Central and North Bay of Bengal.
- Fishermen are advised not to venture into
 - ✓ **Adjoining areas of central Bay of Bengal** till 24th Oct.
 - ✓ **Northwest and adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts** on 24th & 25th October morning.
- Movement in motor boats unsafe
- Coastal hutment dwellers to be moved to safer places.
- People in affected areas to remain indoors.
- Judicious regulation of onshore/offshore, Port and maritime activities including shipping.
- Judicious regulation of tourism activities in coastal areas.
- Judicious regulation of surface transports including railways and roadways.
- Check for traffic congestion on your route before leaving for your destination.
- Follow any traffic advisories that are issued in this regard.
- Avoid going to areas that face the water logging problems often.
- Avoid staying in vulnerable structure.

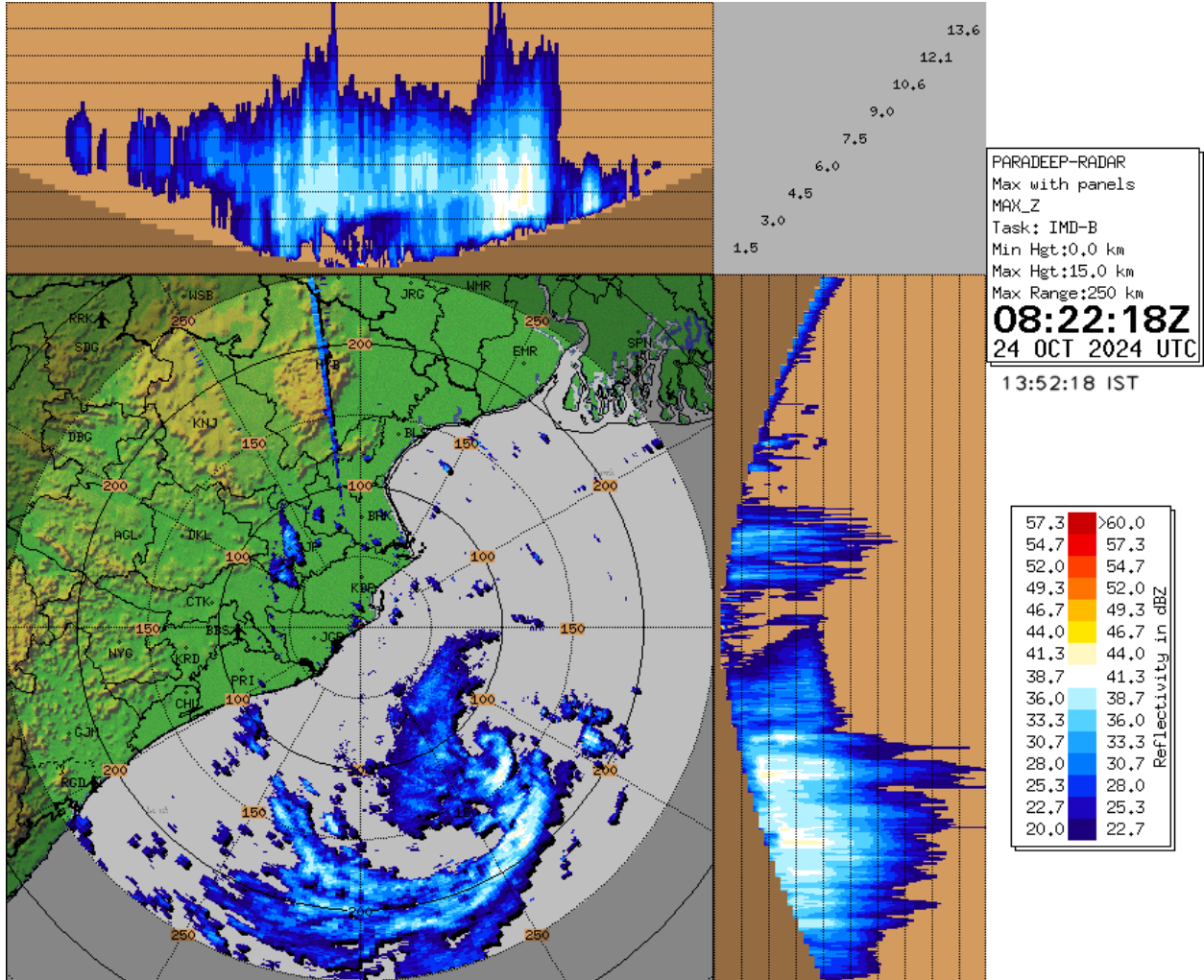
Next bulletin will be issued at 1730 hours IST of today, the 24th October, 2024.

(Dr. Ananda Kumar Das)
Scientist-F, RSMC & IMD, New Delhi

Copy to: ACWC Kolkata/ACWC Chennai/CWC Bhubaneswar/CWC Vishakhapatnam/Meteorological Centre Port Blair

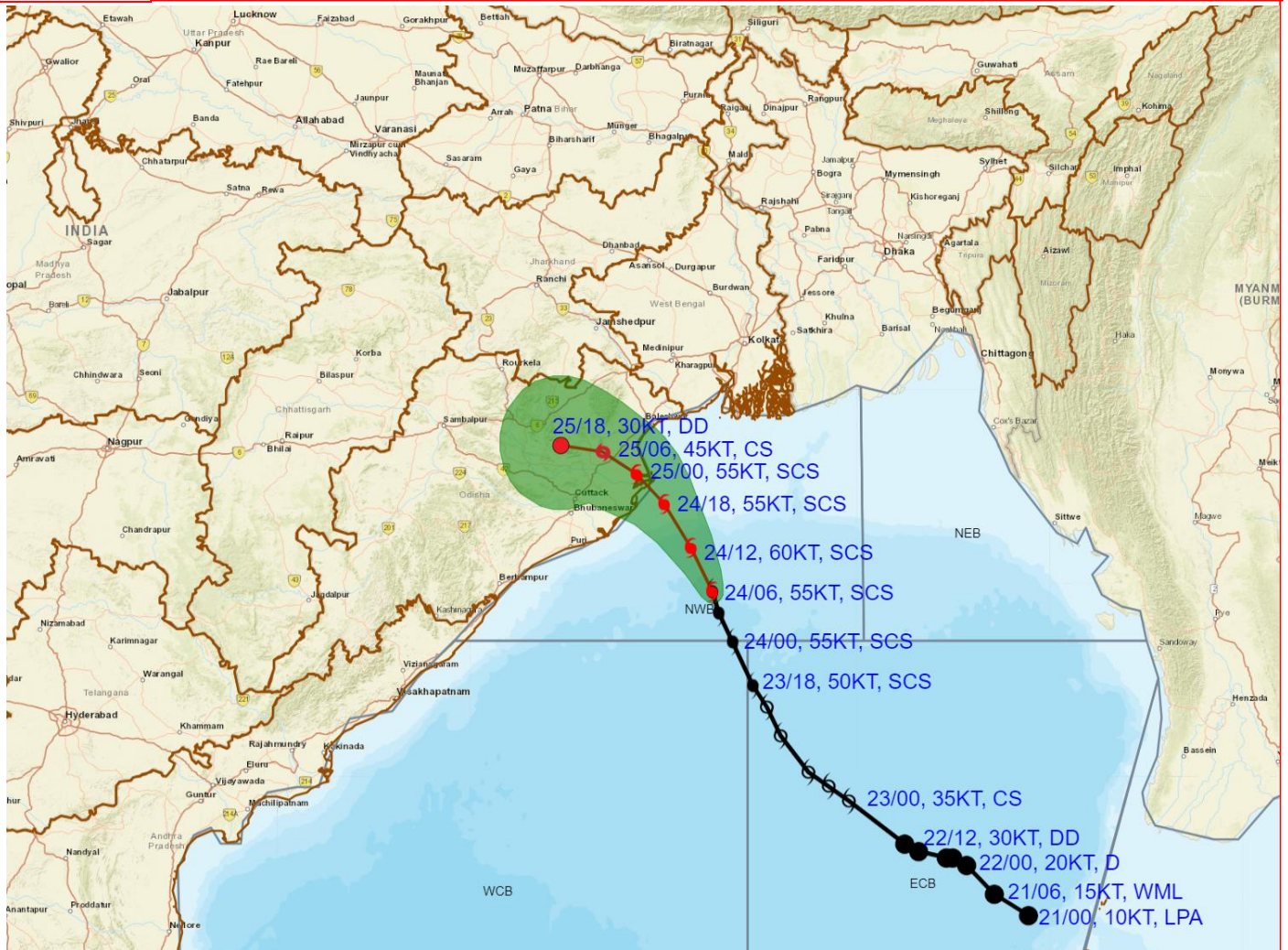


Radar Image of Paradip at 1352 hrs IST 24th Oct 2024





OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM 'DANA' OVER NORTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 Hrs. IST) OF 24th OCTOBER 2024



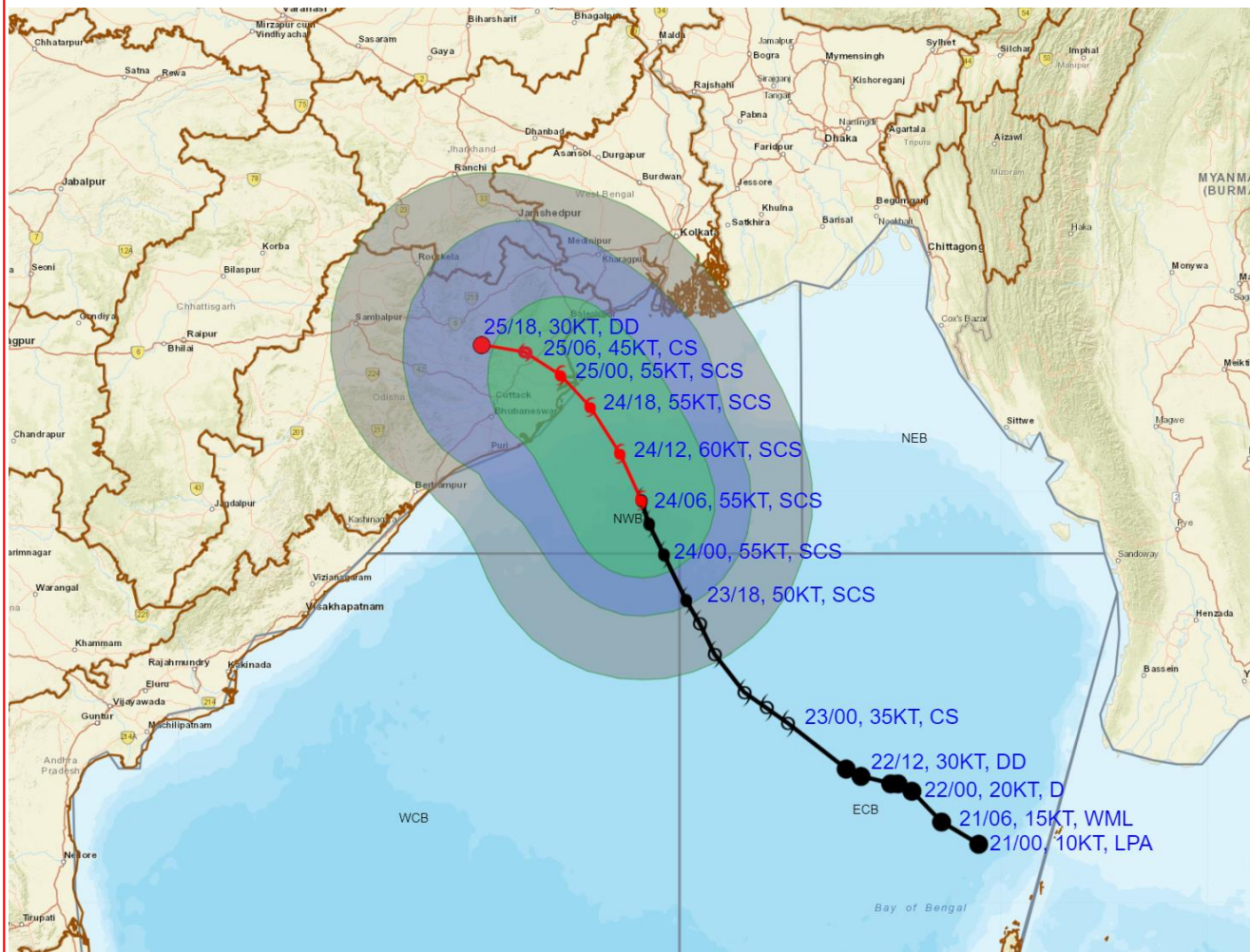
DATE/TIME : IN UTC
IST : UTC + 0530
KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
LPA : LOW PRESSURE AREA
WML : WELL MARKED LOW PRESSURE AREA
D : DEPRESSION (17-27 KT)
DD : DEEP DEPRESSION (28-33 KT)
CS : CYCLONIC STORM (34-47 KT)
SCS : SEVERE CYCLONIC STORM (48-63 KT)
VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)
ECS : 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			
	Date and Time (UTC)	PARADIP (CWR)	DHAMARA	SAGAR ISLAND
	24.10.24/0600	180, SE	210, SSE	270, S
	25.10.24/0600	100, NNW	70, WNW	190, WSW



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM 'DANA' OVER NORTHWEST BAY OF BENGAL BASED ON 0600 UTC (1130 Hrs. IST) OF 24th OCTOBER 2024

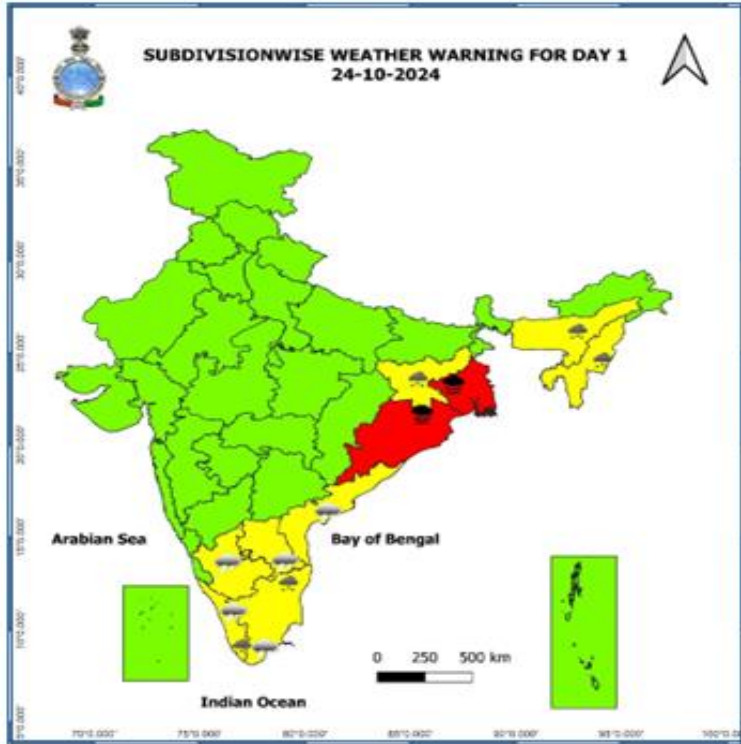


DATE/TIME : IN UTC
IST : UTC + 0530
KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR
LPA : LOW PRESSURE AREA
WML : WELL MARKED LOW PRESSURE AREA
D : DEPRESSION (17-27 KT)
DD : DEEP DEPRESSION (28-33 KT)
CS : CYCLONIC STORM (34-47 KT)
SCS : SEVERE CYCLONIC STORM (48-63 KT)
VSCS : VERY SEVERE CYCLONIC STORM (64-89 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



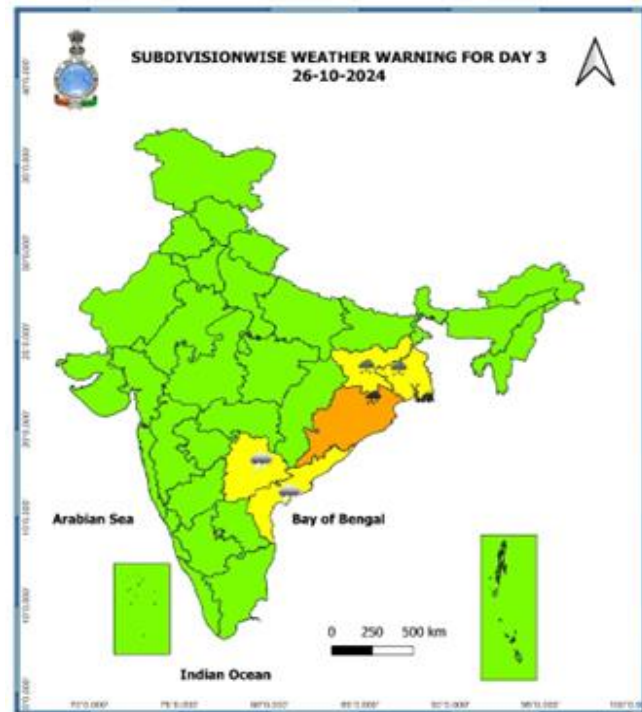
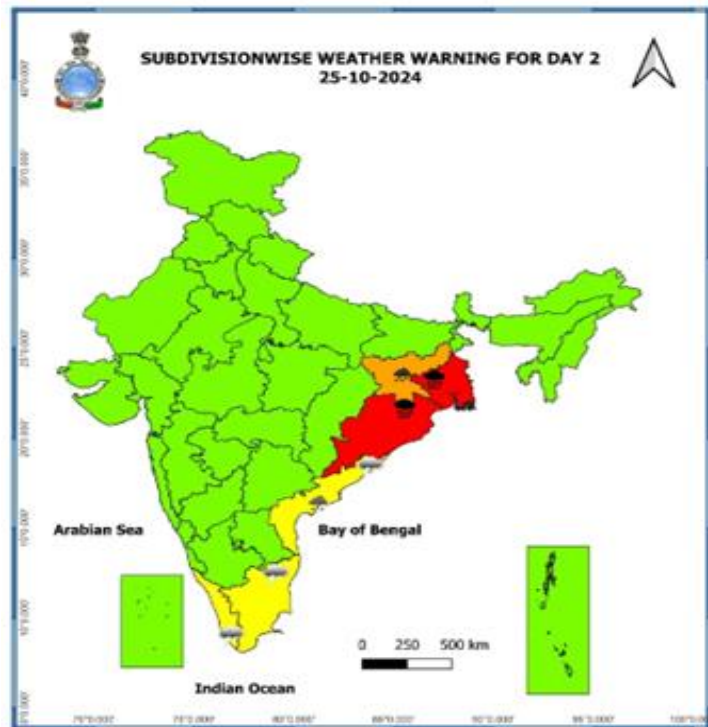
- Heavy Rain
- Very Heavy Rain
- Extremely Heavy Rain

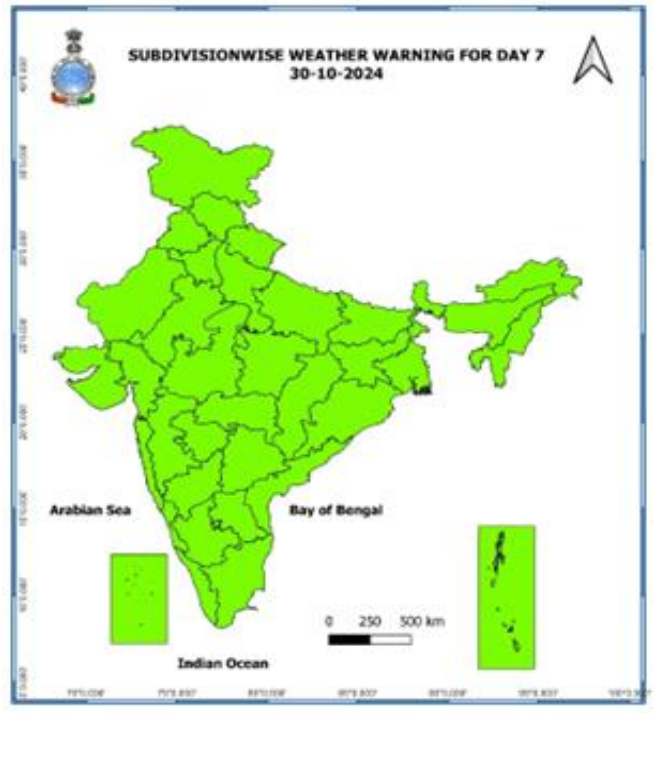
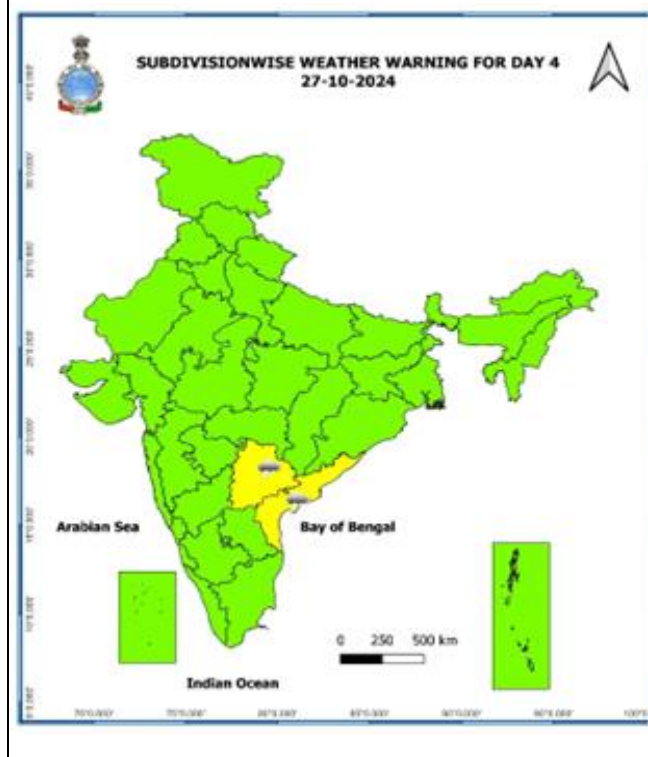
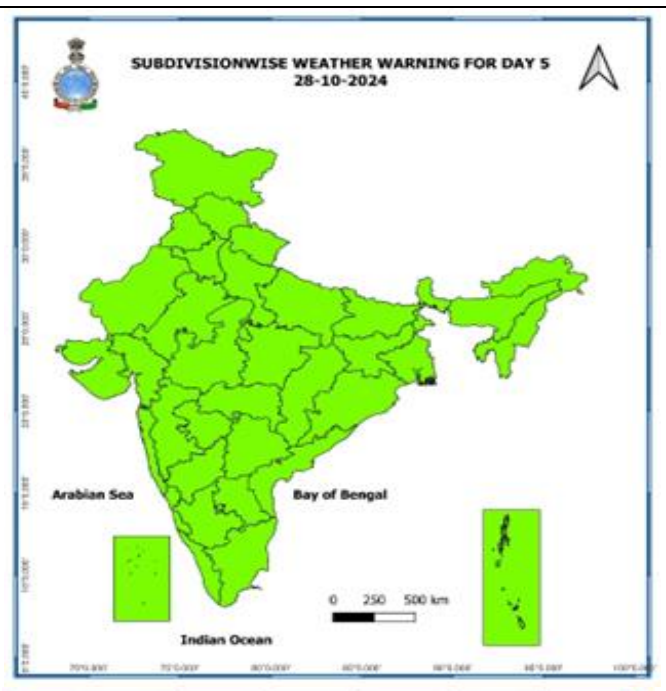
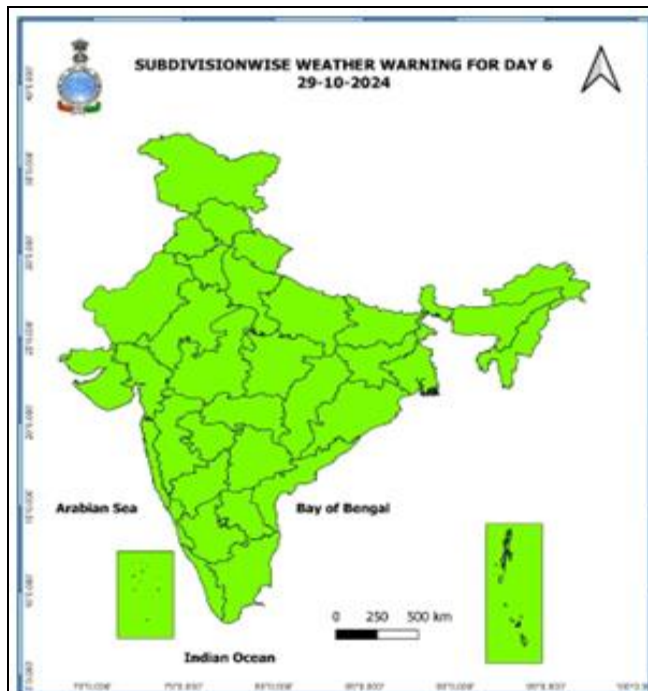
COLOUR CODED WARNING

- No Warning (No Action)**
- Watch (Be Aware)**
- Alert (Be Prepared To Take Action)**
- Warning (Take Action)**

Probabilistic Forecast

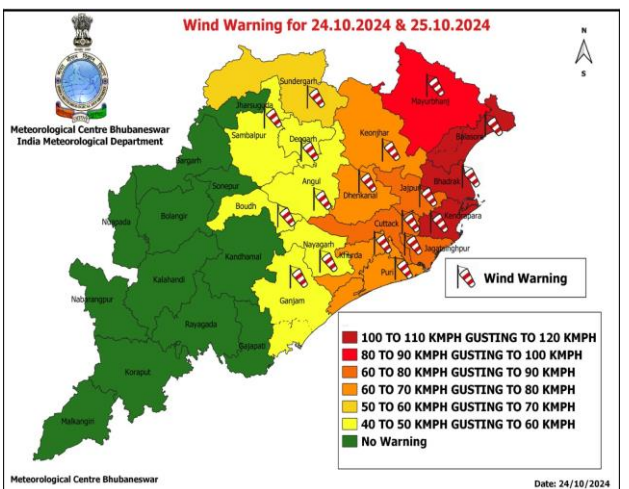
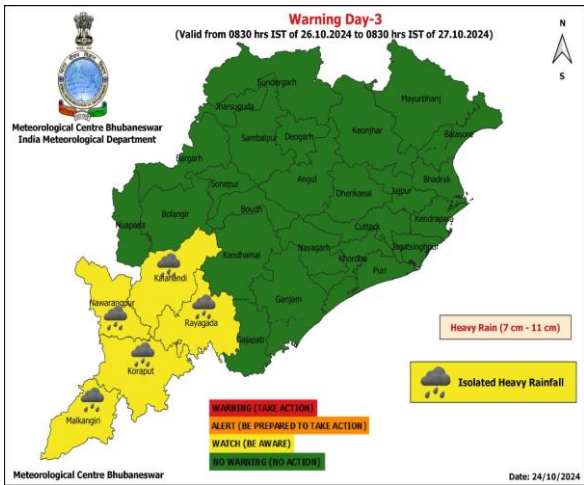
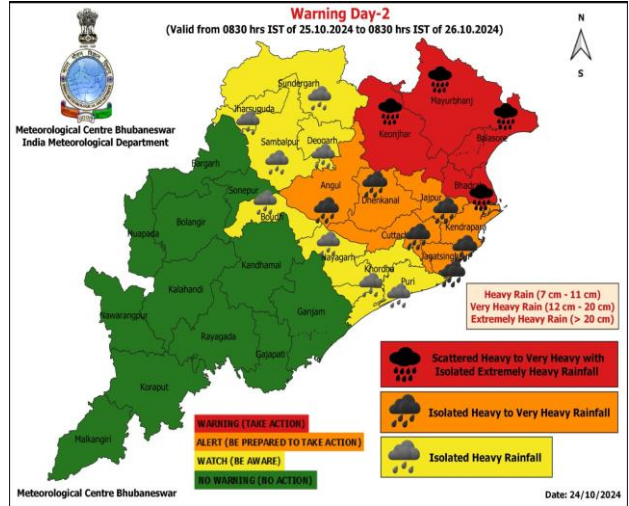
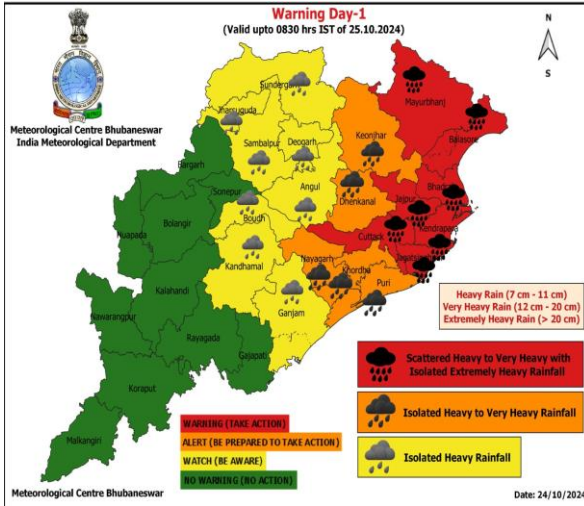
Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



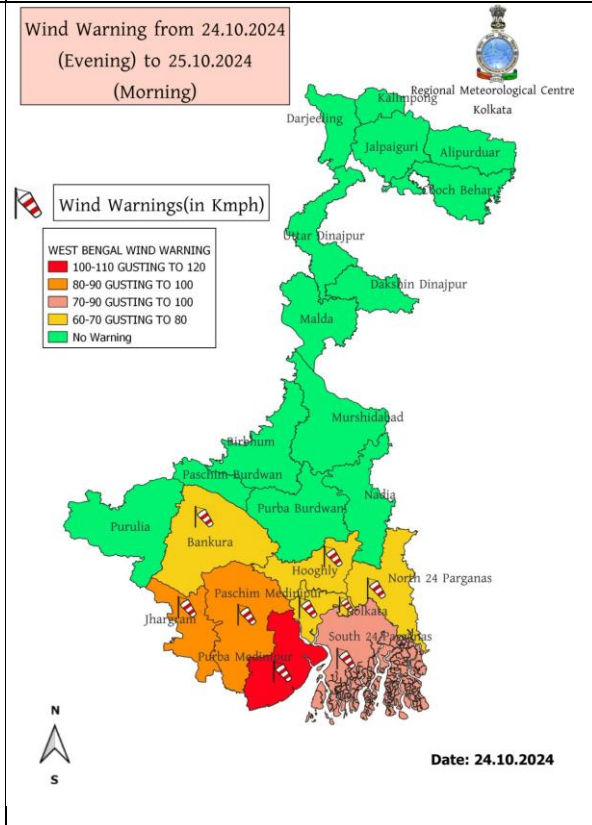
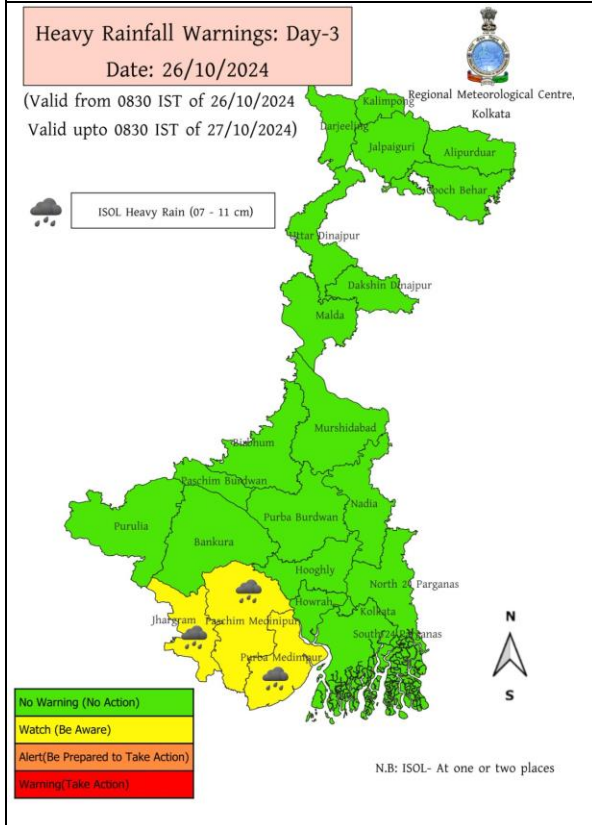
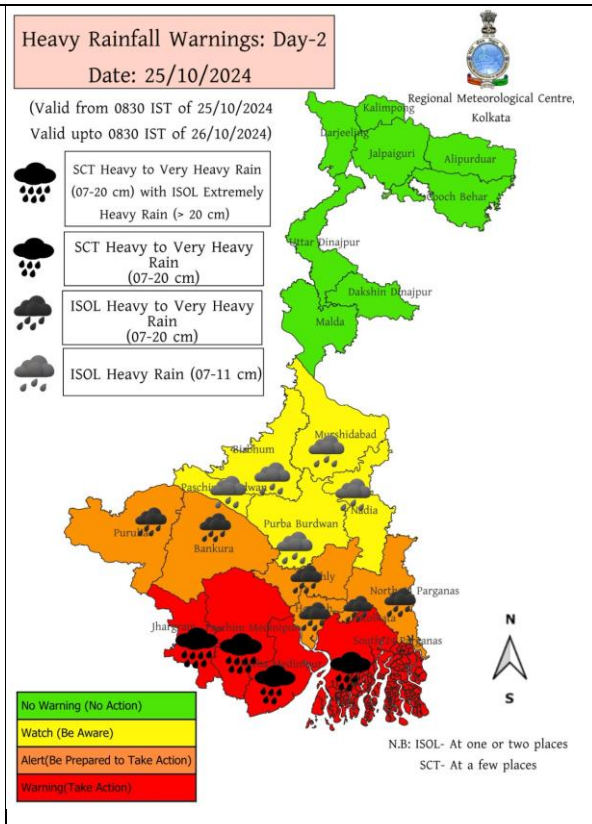
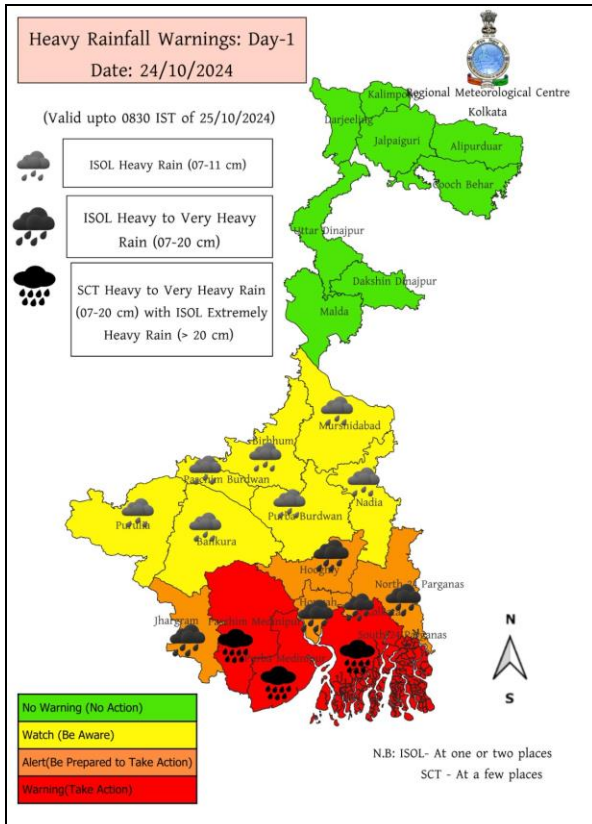


- Action may be taken based on **ORANGE AND RED** COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

District-wise Warning of Odisha



District-wise Warning of West Bengal



Storm Surge warning graphics

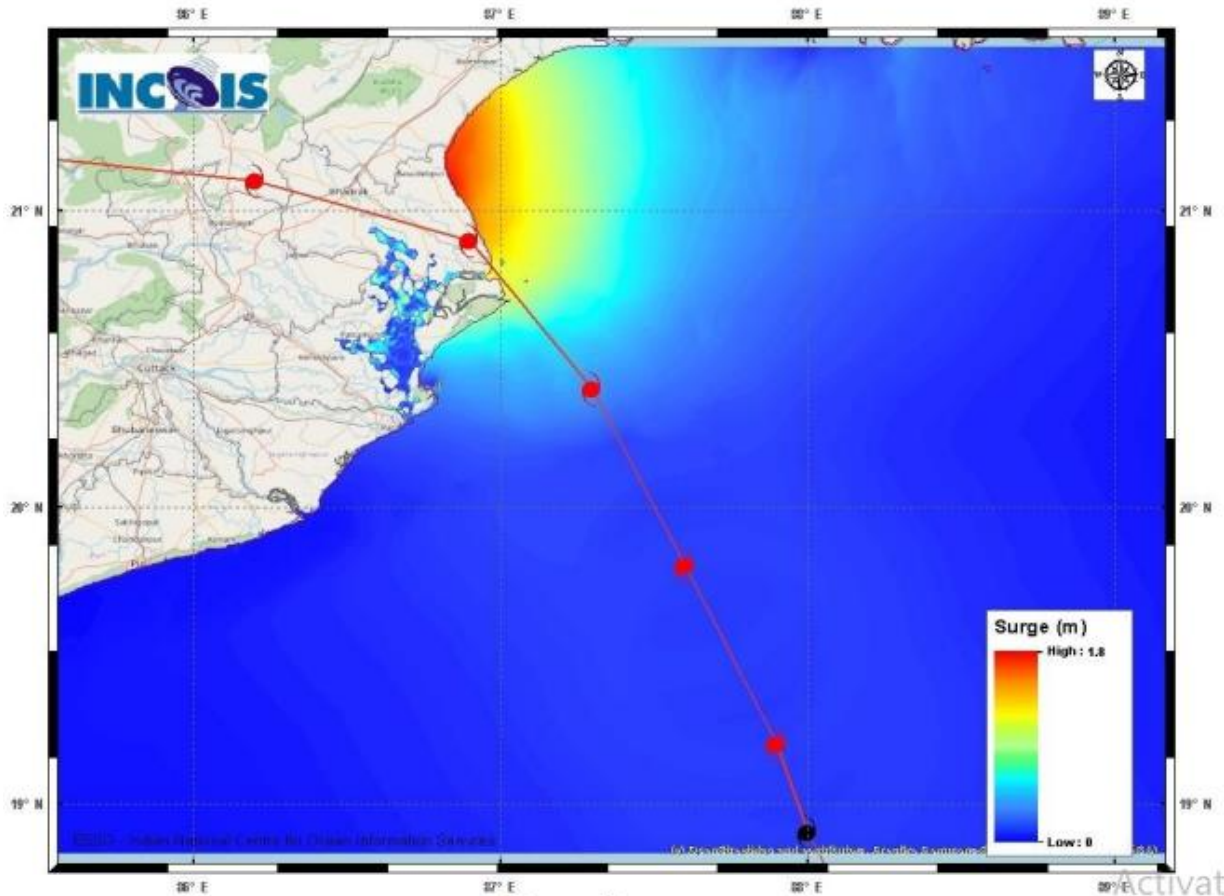
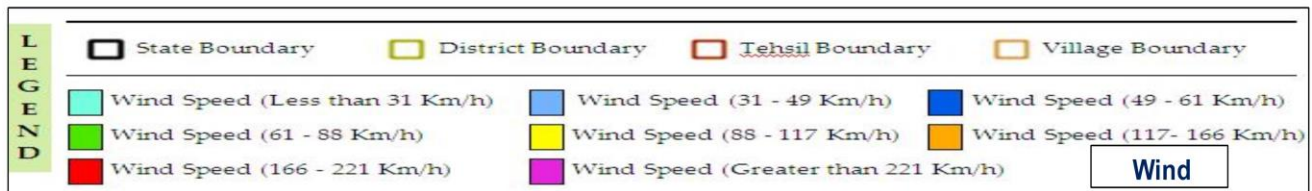
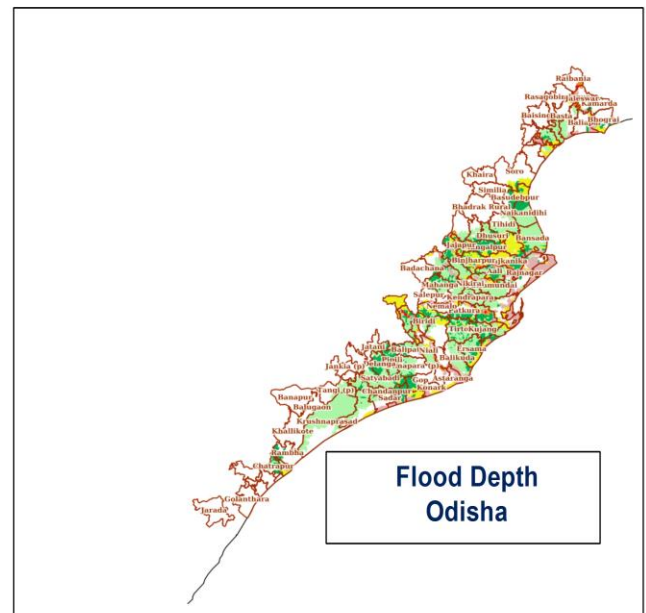
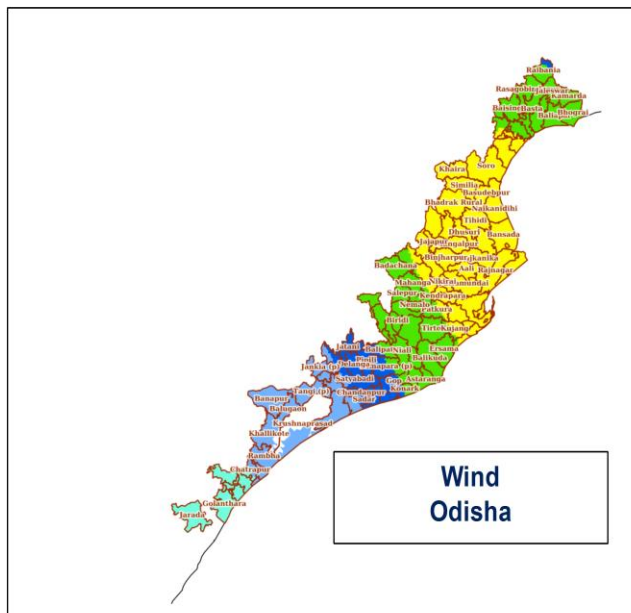


Figure: Storm surge map

MANDAL/TALUK	DISTRICT	STATE/UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Baleswar	Baleswar	Odisha	Kumbhigari	0.5-1.8	Upto 1.08
Bhadrak	Bhadrak	Odisha	Mohanpur	1.1-1.8	Upto 1.00
Jagatsinghpur	Jagatsinghpur	Odisha	Musadia	0.2-0.5	Upto 2.54
Kanthi	Purba Medinipur	West Bengal	Dakshin Purushottampur	0.3-1.0	Upto 0.98
Kendraparha	Kendrapara	Odisha	Tikayat Nagar	0.2-1.2	Upto 3.01

Impact Based Forecast by Web-Based Dynamic Composite Risk Atlas & Decision Support System (Web-DCRA & DSS)



24 HOURS OUTLOOK FOR THE FLASH FLOOD RISK

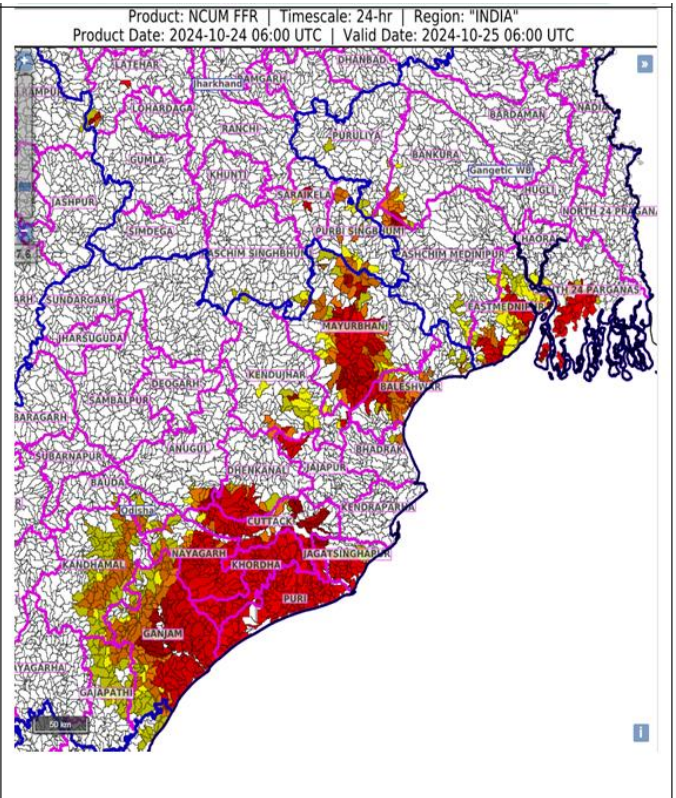
24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 25-10-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

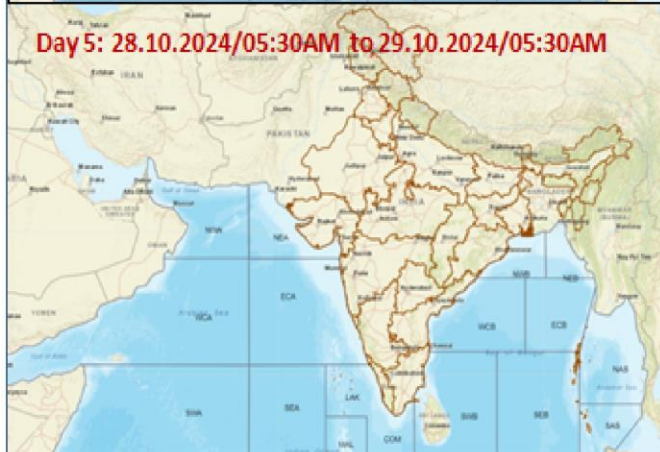
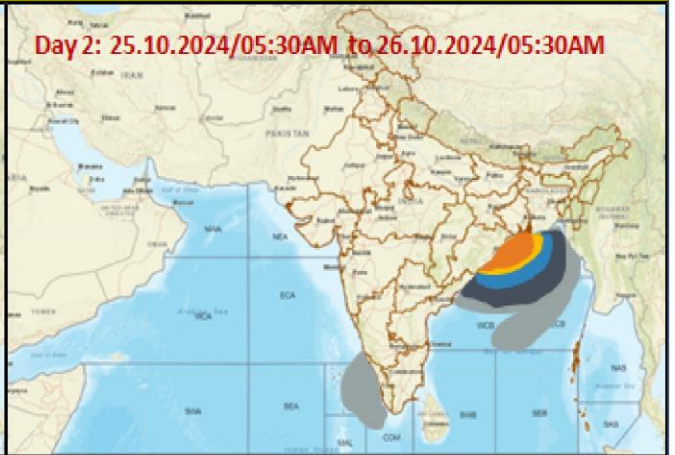
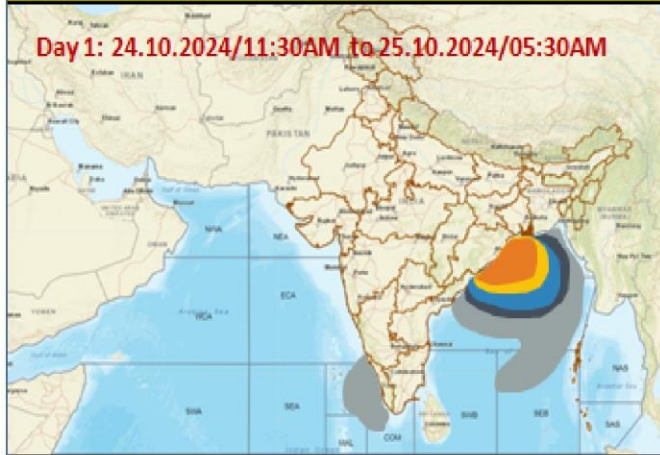
Odisha - Anugul, Baleshwar, Bauda, Bhadrak, Cuttack, Dhenkanal, Gajapathi, Ganjam, Jagatsinghapur, Jajapur, Kandhamal, Kendujhar, Khordha, Mayurbhanj, Nayagarh and Puri districts.

Gangetic West Bengal - Bankura, Eastmednipur, Pashchim Medinipur and South 24 Parganas districts.

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.



Fishermen Warning Graphics



	Squally Weather with wind speed 35-45 kmph gusting to 55 kmph
	Squally wind with speed 45-55 kmph gusting to 65 kmph
	Squally winds with speed 50-60 kmph gusting to 75 kmph
	CS with Gale winds with 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.