



India Meteorological Department  
(Ministry of Earth Sciences)

NATIONAL BULLETIN NO. 19 (BOB/06/2024)

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

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**Subject: Severe Cyclonic storm "DANA" over northwest Bay of Bengal (Post Landfall Outlook 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 15 kmph during past 6 hours and lay centred at 2030 hrs IST of today, the 24<sup>th</sup> October, over the same region, near latitude 20.1° N and longitude 87.3°E, about 70 km east-southeast of Paradip (Odisha), 90 km south-southeast of Dhamara (Odisha) and 190 km south-southwest 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 24<sup>th</sup> to morning of 25<sup>th</sup> 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 and Gopalpur.

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
24.10.24/2030	20.1/87.3	105-115 gusting to 125	Severe Cyclonic Storm
24.10.24/2330	20.4/87.1	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	21.1/86.4	85-95 gusting to 105	Cyclonic Storm
25.10.24/1730	21.2/85.9	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 ( $\geq 21$  cm)** at isolated places over **Baleswar, Mayurbhanj, Bhadrak, Kendrapara, Jagatsingpur Kendujhar, Jajpur, Cuttack and Dhenkanal, Khorda and Puri** districts of Odisha on 24<sup>th</sup> & 25<sup>th</sup> 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 24<sup>th</sup> & 25<sup>th</sup> October.
- ❖ Light to moderate rainfall at most places is likely over south Jharkhand with **heavy rainfall** at isolated places on 24<sup>th</sup> and **heavy to very heavy rainfall** at isolated places on 25<sup>th</sup> October.
- ❖ Light to moderate rainfall at most places is likely over South Bihar with **heavy rainfall** at isolated places on 24<sup>th</sup> and 25<sup>th</sup> October.

**(ii) Wind Warning:**

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

**Adjoining areas of central Bay of Bengal:** Gale wind speed reaching 80-90 kmph gusting to 110 kmph is prevailing and likely to continue till 24<sup>th</sup> Oct midnight. 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 24<sup>th</sup> afternoon till morning of 25<sup>th</sup> 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 24<sup>th</sup> evening till 25<sup>th</sup> 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 25<sup>th</sup> 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 25<sup>th</sup> till evening of 26<sup>th</sup> 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 25<sup>th</sup> morning and improve gradually thereafter.

**Adjoining areas of central Bay of Bengal:** Sea condition is likely to be **high** till 24<sup>th</sup> October **midnight**. 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 25<sup>th</sup> morning and improve gradually thereafter.

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

### **(v) Fishermen Warning:**

- Total suspension of fishing operations on 24<sup>th</sup> & 25<sup>th</sup> Oct over Central and North Bay of Bengal.
- Fishermen are advised not to venture into
  - Adjoining areas of central Bay of Bengal till 24<sup>th</sup> Oct.
  - Northwest & adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts till 25<sup>th</sup> 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)**

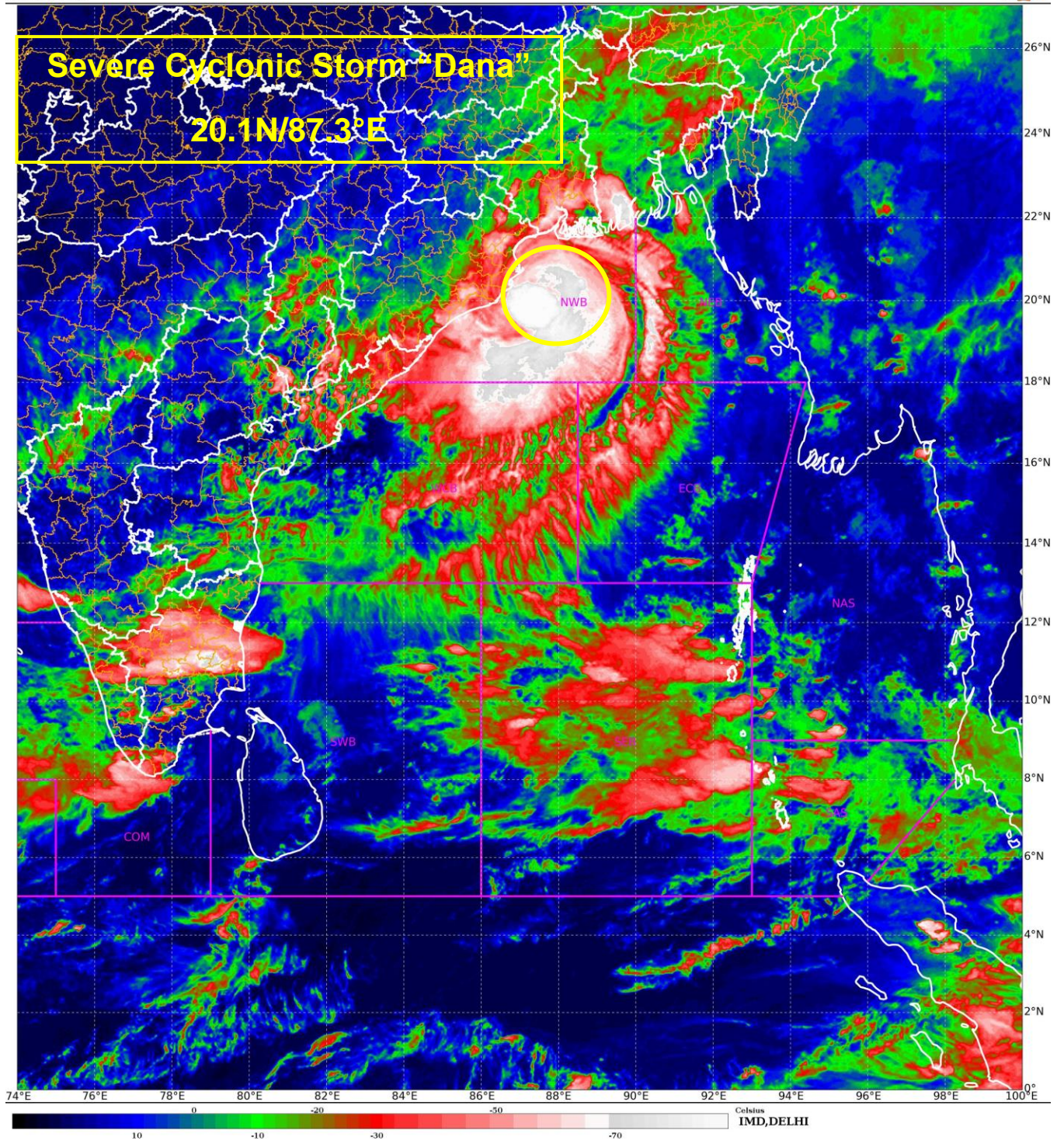
- Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.
- Breaking of tree branches and uprooting of trees. Large dead limbs blown from trees.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape 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 24<sup>th</sup> to 25<sup>th</sup> Oct over Central and North Bay of Bengal.
- Fishermen are advised not to venture into
  - ✓ **Adjoining areas of central Bay of Bengal** till 24<sup>th</sup> Oct.
  - ✓ **Northwest and adjoining northeast Bay of Bengal and along & off Odisha, West Bengal and Bangladesh coasts** on 24<sup>th</sup> & 25<sup>th</sup> 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.

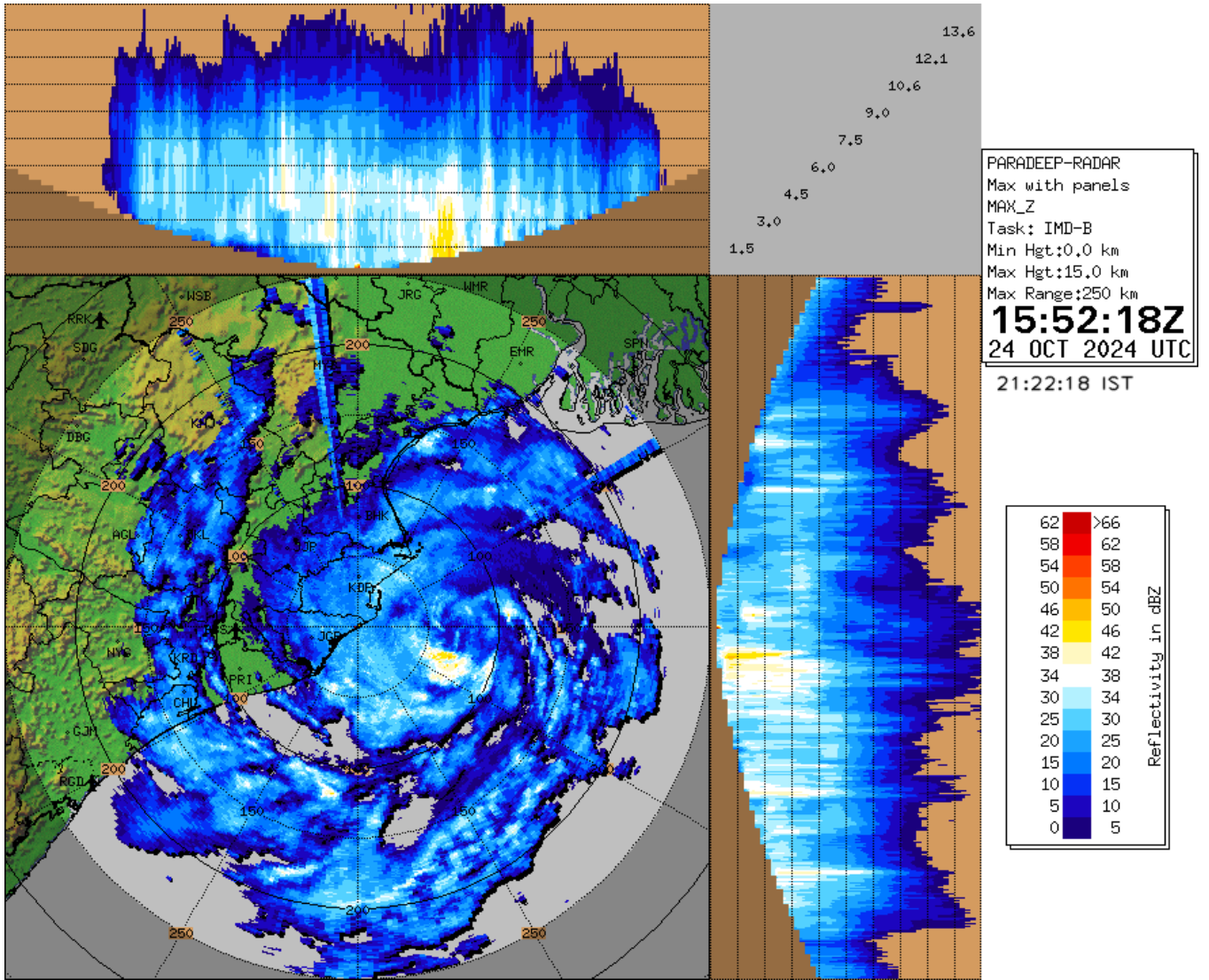
**Next bulletin will be issued at 0230 hours IST of tomorrow, the 25<sup>th</sup> October, 2024.**

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

*Copy to: ACWC Kolkata/ACWC Chennai/CWC Bhubaneswar/CWC Vishakhapatnam/Meteorological Centre Port Blair/MC Ranchi/MC, Patna*

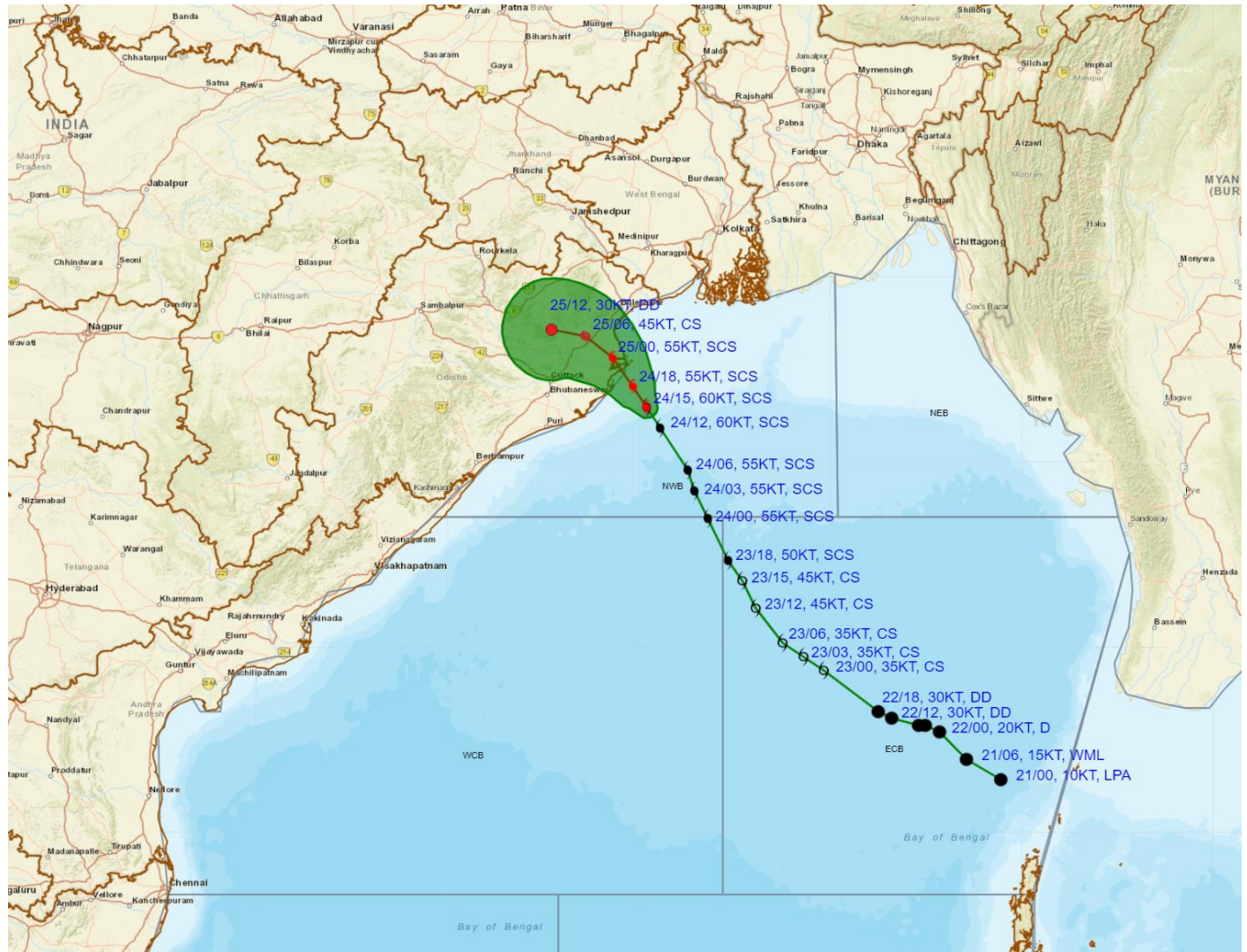


# Paradip Doppler Weather Radar (MAX\_Z)





**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM 'DANA' OVER NORTHWEST BAY OF BENGAL BASED ON 1500 UTC (2030 Hrs. IST) OF 24<sup>th</sup> OCTOBER 2024**



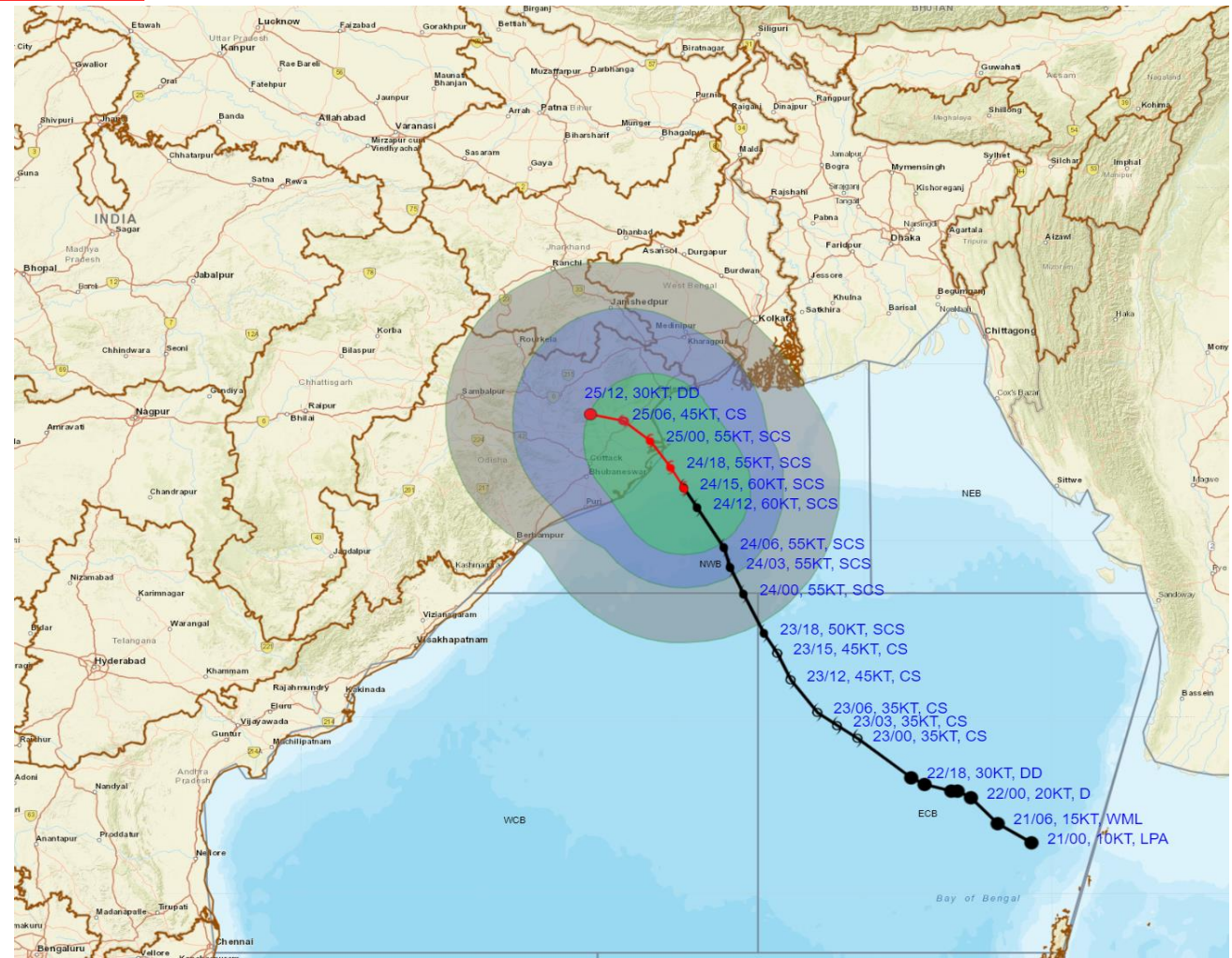
- DATE/TIME : IN UTC  
 IST : UTC + 0530  
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR  
 LPA : LOW PRESSURE AREA  
 WML : WELL MARKED LOW PRESSURE AREA  
 D : DEPRESSION (17-27 KT)  
 DD : DEEP DEPRESSION (28-33 KT)  
 CS : CYCLONIC STORM (34-47 KT)  
 SCS : SEVERE CYCLONIC STORM (48-63 KT)  
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

- LESS THAN 34 KT  
 ○ 34-47 KT  
 ○  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS		
Date and Time (UTC)	PARADIP (CWR)	DHAMARA	SAGAR ISLAND
24.10.24/1500	70, ESE	90, SSE	190, SSW
25.10.24/1200	130, NW	110, WNW	230, WSW



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM 'DANA' OVER NORTHWEST BAY OF BENGAL BASED ON 1500 UTC (2030 Hrs. IST) OF 24<sup>th</sup> OCTOBER 2024**



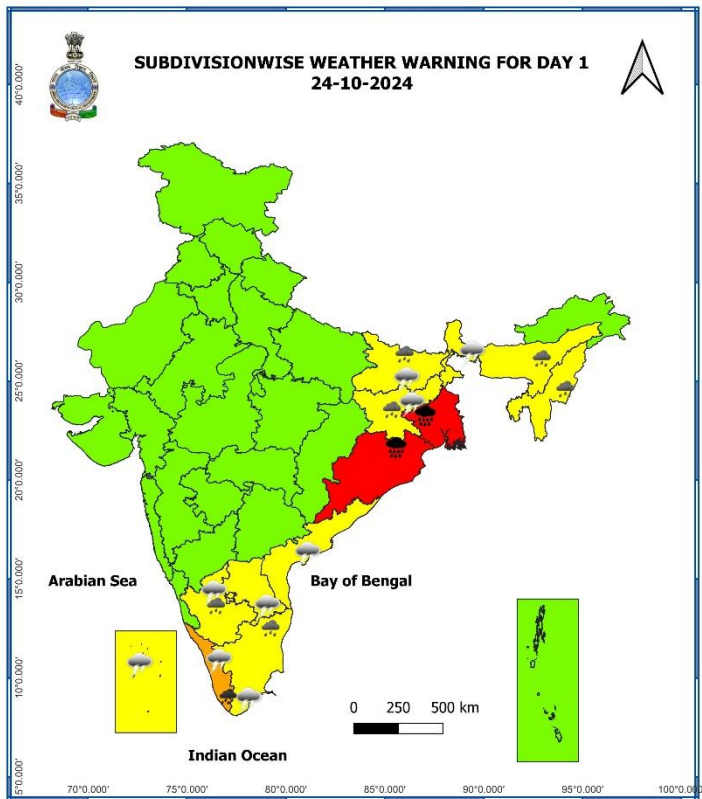
DATE/TIME : IN UTC  
 IST : UTC + 0530  
 KT : NAUTICAL MILE S/HOUR = 1.85 KM/HOUR  
 LPA : LOW PRESSURE AREA  
 WML : WELL MARKED LOW PRESSURE AREA  
 D : DEPRESSION (17-27 KT)  
 DD : DEEP DEPRESSION (28-33 KT)  
 CS : CYCLONIC STORM (34-47 KT)  
 SCS : SEVERE CYCLONIC STORM (48-63 KT)  
 VSCS : VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS : EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS : SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT  
 ○ 34-47 KT  
 ⊙  $\geq 48$  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)  
 ■  $\geq 64$  KT ( $\geq 118$  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
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations





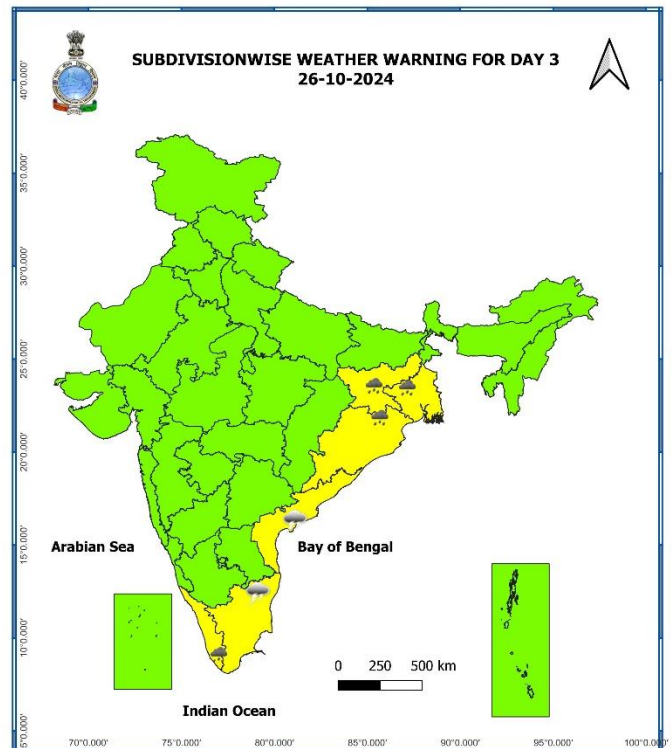
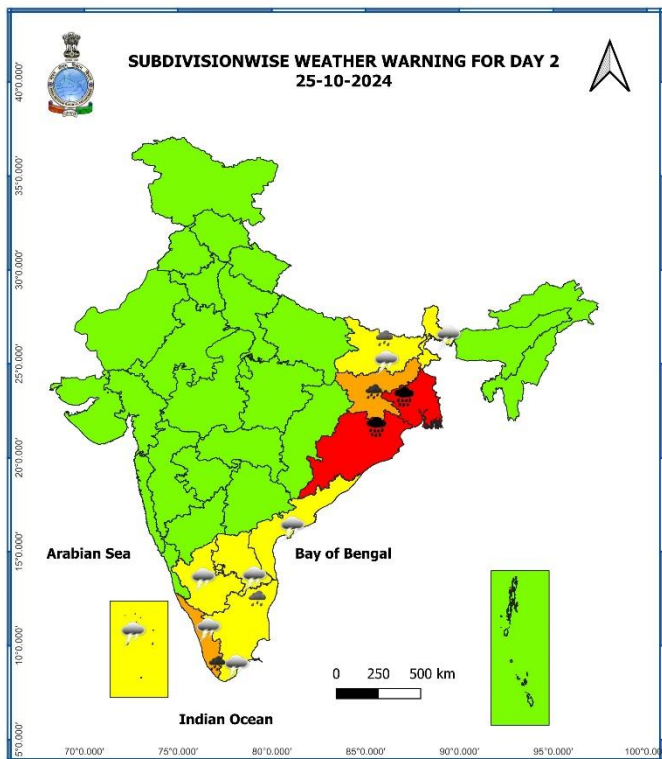
- Heavy Rain
- Very Heavy Rain
- Extremely Heavy Rain

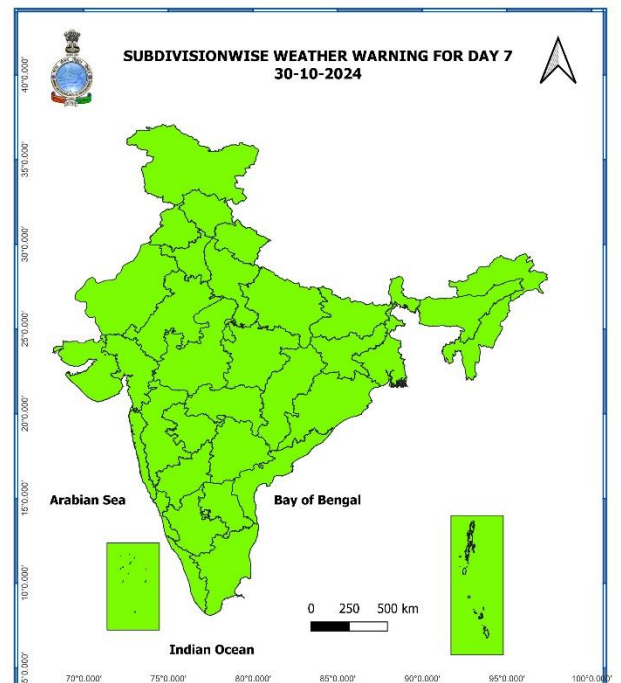
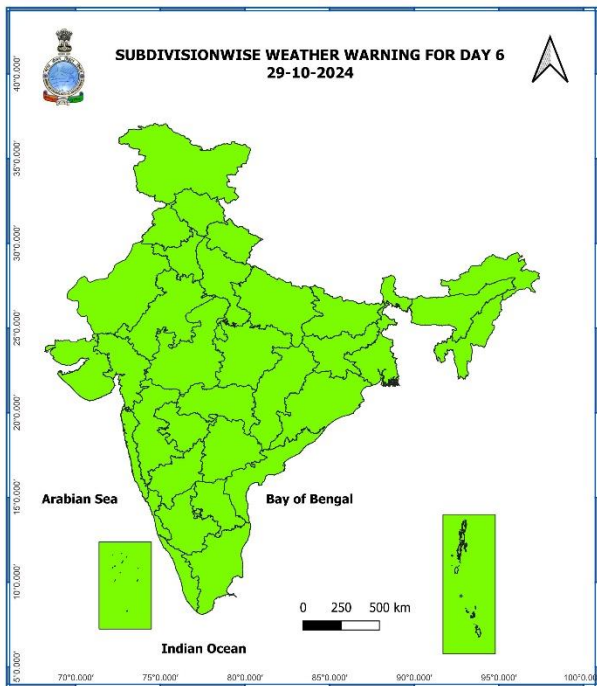
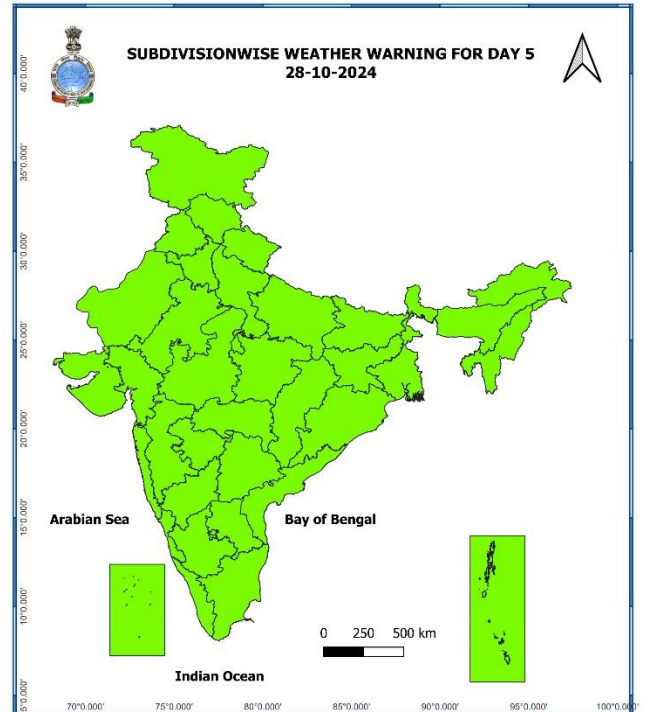
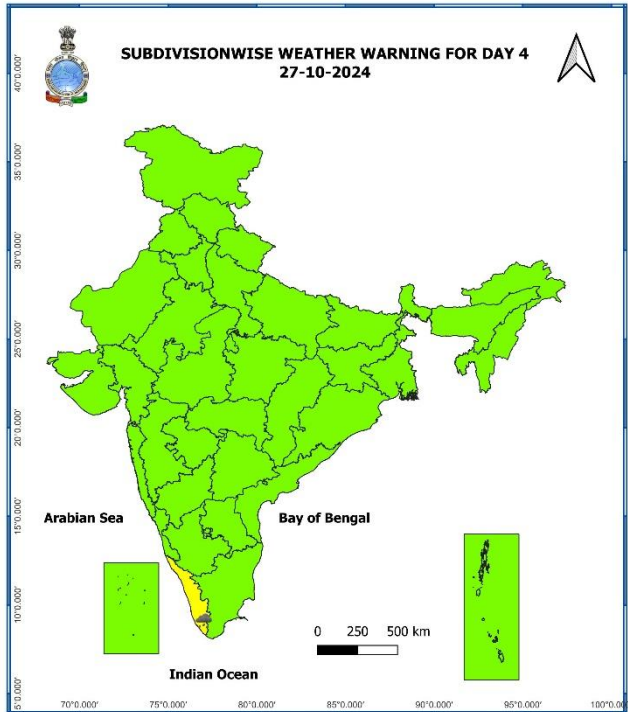
**COLOUR CODED WARNING**

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

**Probabilistic Forecast**

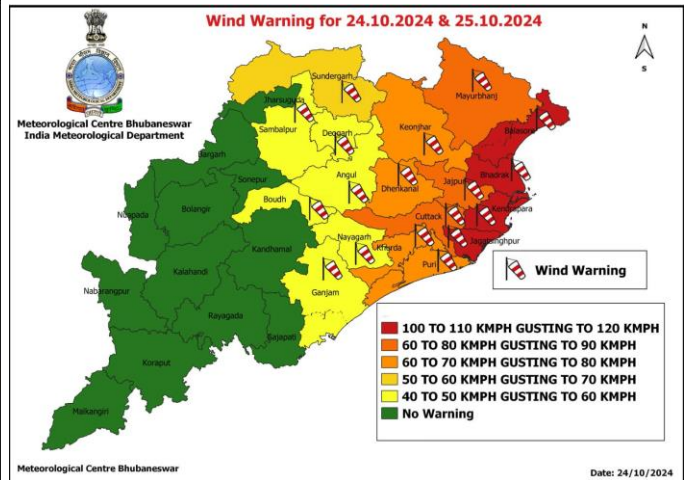
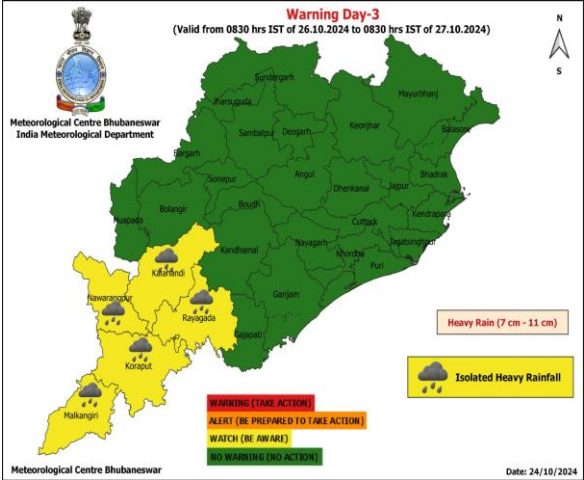
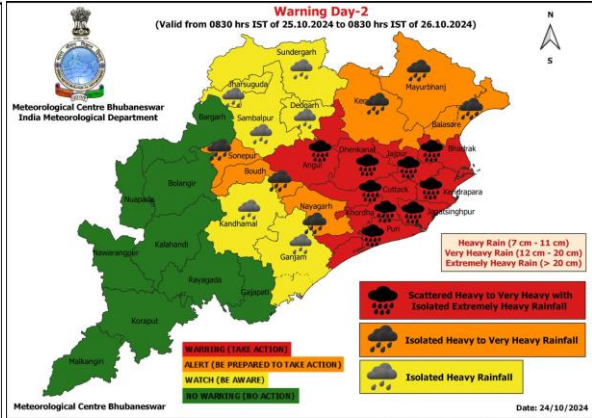
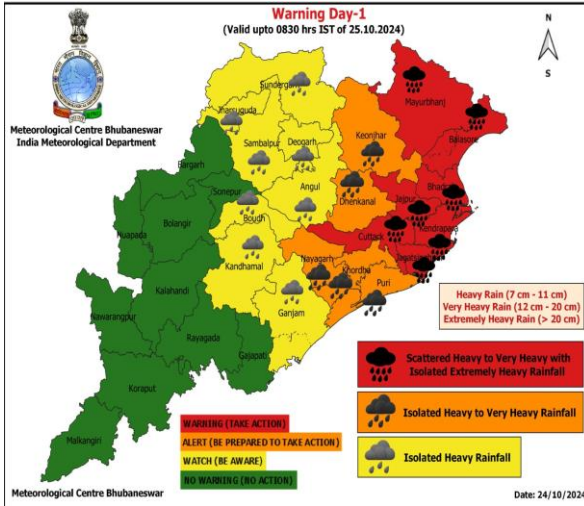
Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



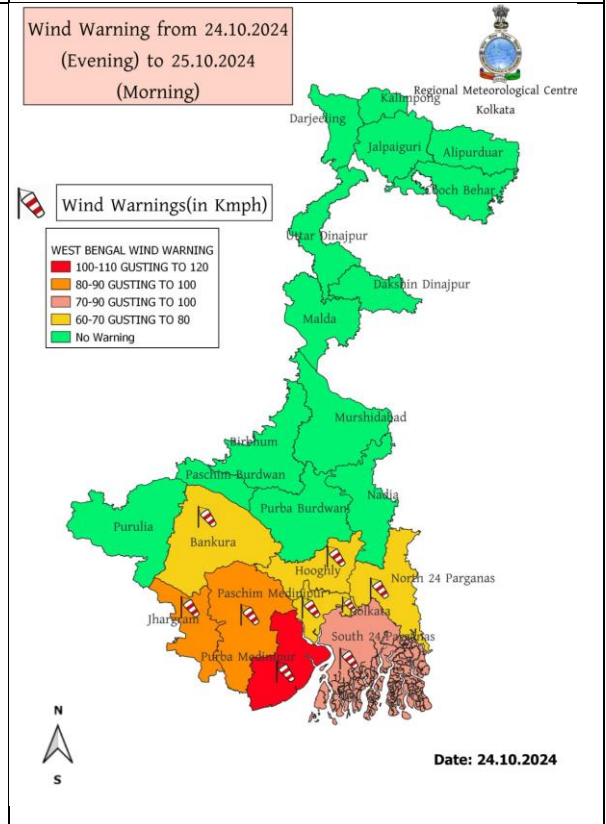
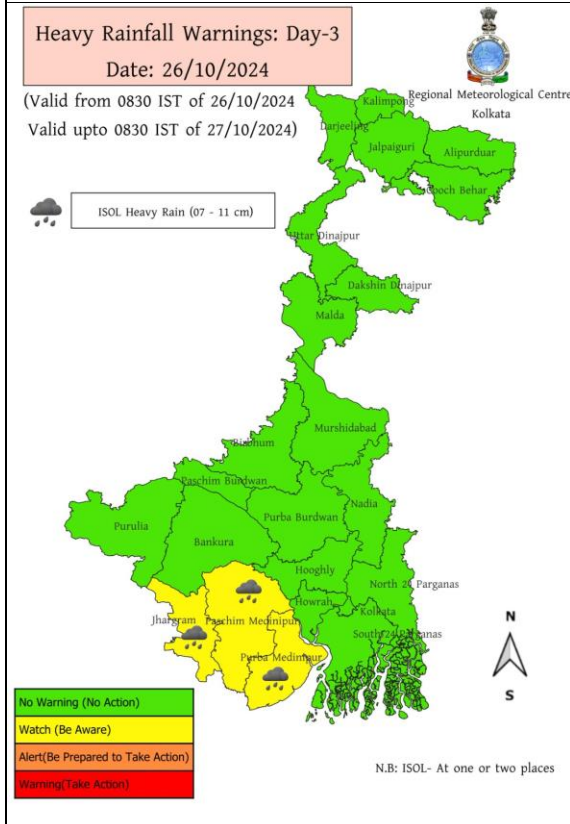
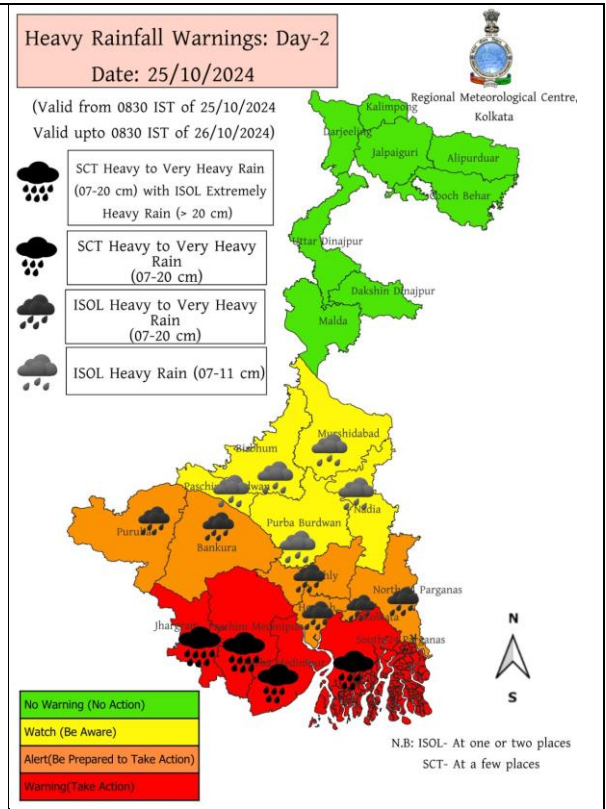
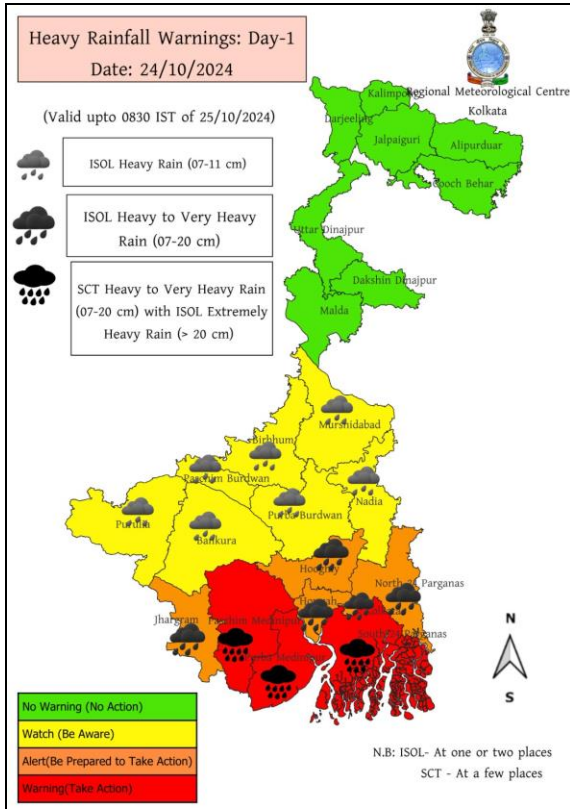


- Action may be taken based on **ORANGE AND RED** COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

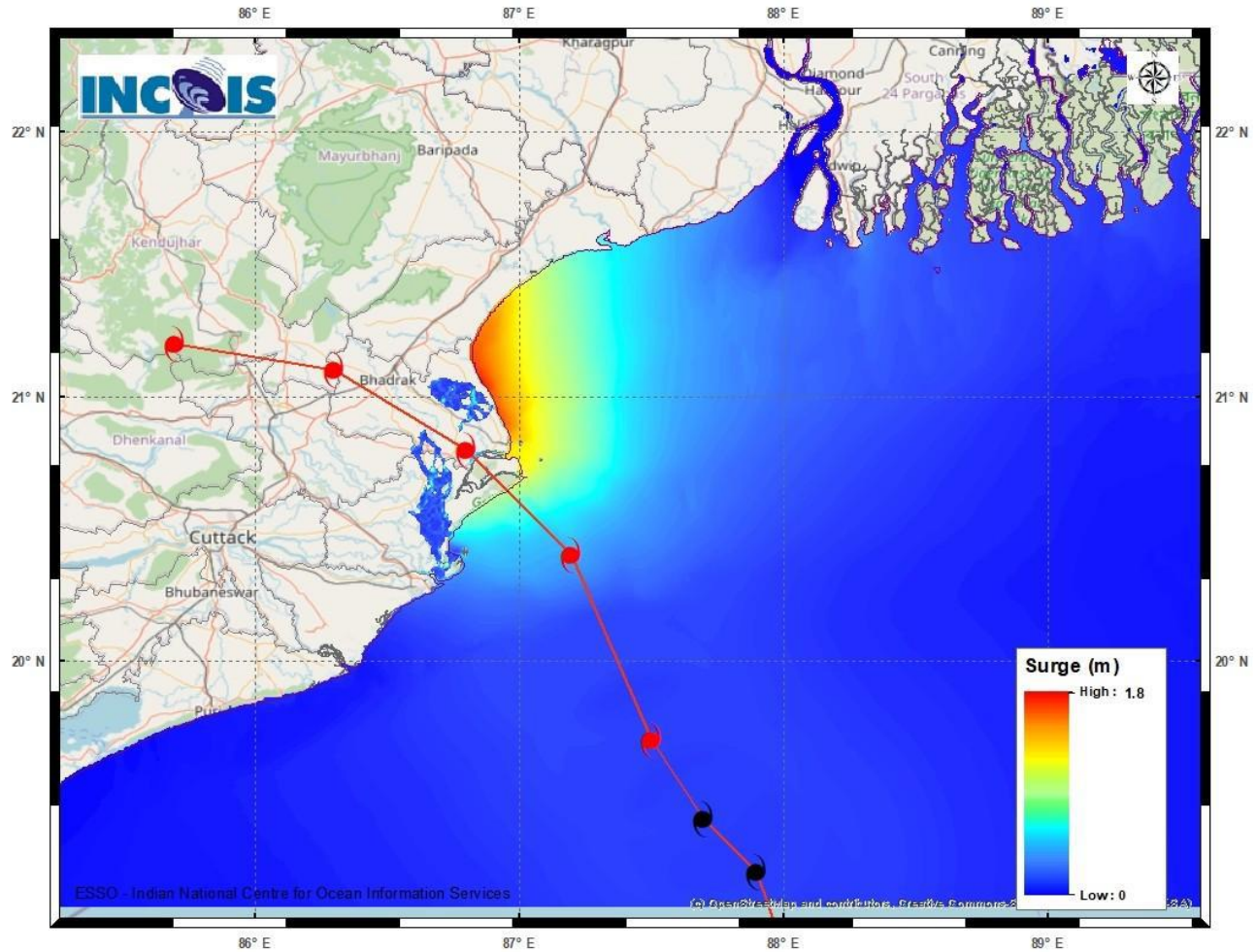
## District-wise Warning of Odisha



## District-wise Warning of West Bengal

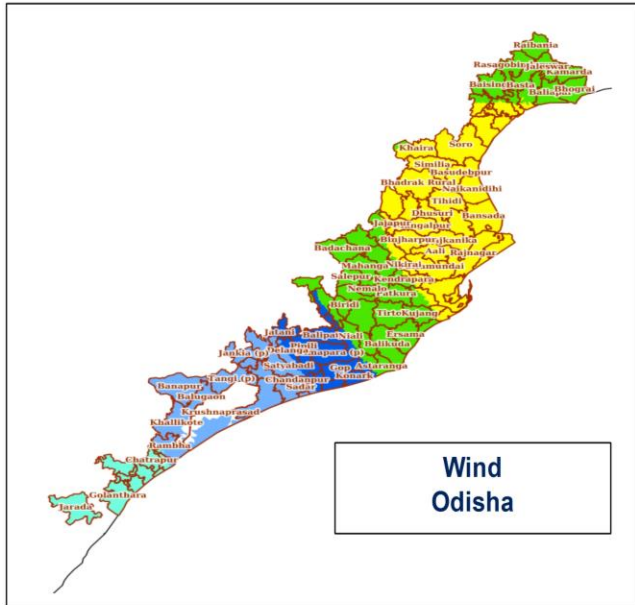


## Storm Surge warning graphics

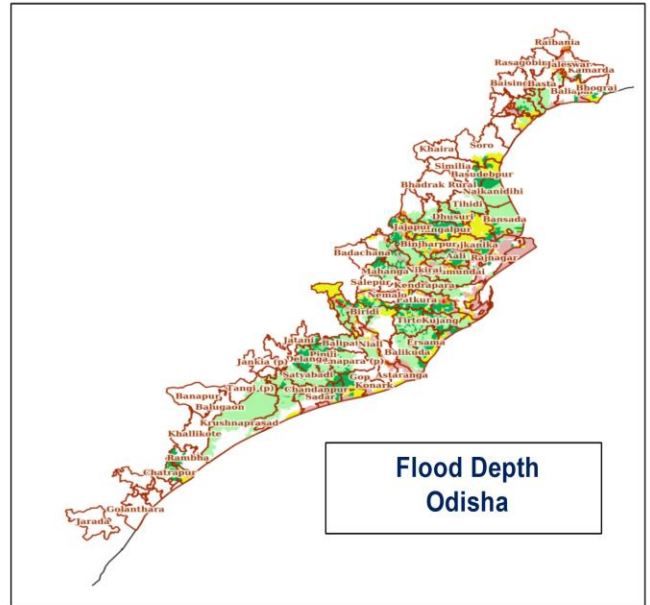


DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Baleswar	Odisha	Kumbhargari	0.5-1.7	Upto 1.08
Bhadrak	Odisha	Mohanpur	1.3-1.8	Upto 1.15
Jagatsinghpur	Odisha	Musadia	0.2-0.6	Upto 2.91
Kendrapara	Odisha	Tikayat Nagar	0.3-1.3	Upto 3.01
Purba Medinipur	West Bengal	Dakshin Purushottampur	0.3-0.5	Upto 0.98

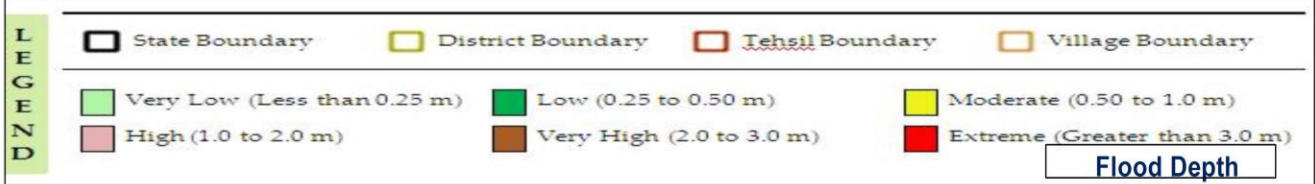
# Impact Based Forecast by Web-Based Dynamic Composite Risk Atlas & Decision Support System (Web-DCRA & DSS)



**Wind  
Odisha**



**Flood Depth  
Odisha**



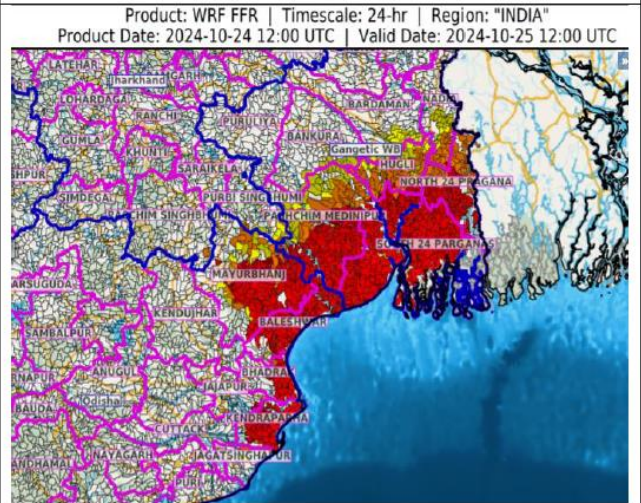
## 24 HOURS OUTLOOK FOR THE FLASH FLOOD RISK

**24 hours Outlook for the Flash Flood Risk (FFR) till 1730 IST of 25-10-2024 :**

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

**Odisha** - Baleshwar, Bhadrak, Jagatsinghapur, Kendraparha and Mayurbhanj districts.  
**Gangetic West Bengal** - Bankura, Bardaman, Eastmednipur, Haora, Hugli, Nadia, North 24 Pragana, 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.



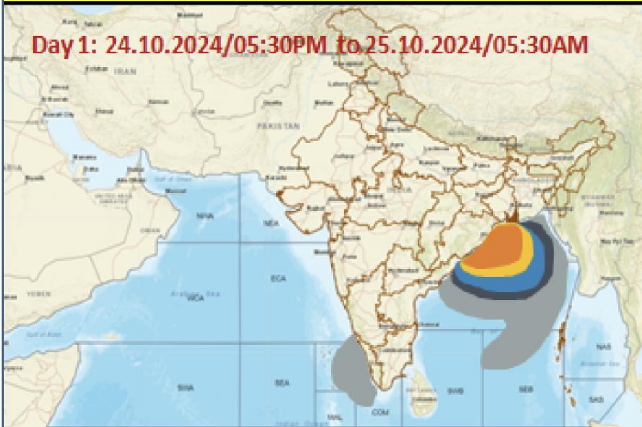
**Flash Flood Risk**

**High Risk (Take Action)**

**Moderate Risk (Be Prepared)**

**Low Risk (Be Updated)**

## Fishermen Warning Graphics



	SCS with Gale wind speed 90-110 kmph gusting to 120 kmph
	CS with Gale winds with speed 60-90 kmph gusting to 110 kmph
	Squally winds with speed 50-60 kmph gusting to 75 kmph
	Squally wind with speed 45-55 kmph gusting to 65 kmph
	Squally Weather with wind speed 35-45 kmph gusting to 55 kmph

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