



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI  
TROPICAL CYCLONE ADVISORY NO. 02**

**DEMS-RSMCSPECIAL TROPICAL CYCLONES NEW DELHI DATED 23.10.2024**

**FROM: RSMC –TROPICAL CYCLONES, NEW DELHI**

**TO:**

**STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)**

**STORM WARNING CENTRE, BANGKOK (THAILAND)**

**STORM WARNING CENTRE, COLOMBO (SRILANKA)**

**STORM WARNING CENTRE, DHAKA (BANGLADESH)**

**STORM WARNING CENTRE, KARACHI (PAKISTAN)**

**METEOROLOGICAL OFFICE, MALE (MALDIVES)**

**OMAN METEOROLOGICAL DEPARTMENT,**

**MUSCAT (THROUGH RTH JEDDAH)**

**YEMEN METEOROLOGICAL SERVICES,**

**REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)**

**NATIONAL CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)**

**PRESIDENCY OF METEOROLOGY AND ENVIRONMENT,**

**SAUDI ARABIA (THROUGH RTH JEDDAH)**

**IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)**

**QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY NO. 02 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0600 UTC OF 23.10.2024 BASED ON 0300 UTC OF 23.10.2024**

**SUB: CYCLONIC STORM “DANA” (PRONOUNCED AS DANA) OVER EASTCENTRAL BAY OF BENGAL**

THE CYCLONIC STORM “DANA” (PRONOUNCED AS DANA) OVER EASTCENTRAL BAY OF BENGAL MOVED NORTHWESTWARDS WITH A SPEED OF 15 KMPH DURING PAST 6 HOURS AND LAY CENTRED AT 0300 UTC OF TODAY, THE 23<sup>RD</sup> OCTOBER, OVER THE SAME REGION NEAR LATITUDE 16.5° N AND LONGITUDE 89.6°E, ABOUT 520 KM SOUTHEAST OF PARADIP (42976, ODISHA), 600 KM SOUTH-SOUTHEAST OF SAGAR ISLAND (42903, WEST BENGAL) AND 610 KM SOUTH OF KHEPUPARA (41984, BANGLADESH).

IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND INTENSIFY INTO A SEVERE CYCLONIC STORM OVER NORTHWEST BAY OF BENGAL BY 0000 UTC OF 24TH AND CROSS NORTH ODISHA AND WEST BENGAL COASTS BETWEEN PURI (ODISHA) AND SAGAR ISLAND (42903, WEST BENGAL) CLOSE TO BHITARKANIKA-

DHAMRA (ODISHA) DURING 1800 UTC OF 24TH TO 0000 UTC OF 25TH OCTOBER, 2024 AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING 120 KMPH.

Forecast track and intensity are given in the following table:

Date/Time (UTC)	Position (Lat. °N/ Long. °E)	Maximum Sustained Surface Wind Speed (Kmph)	Category Of Cyclonic Disturbance
23.10.24/0300	16.5/89.6	65-75 GUSTING TO 85	CYCLONIC STORM
23.10.24/0600	16.8/89.3	70-80 GUSTING TO 90	CYCLONIC STORM
23.10.24/1200	17.4/88.8	80-90 GUSTING TO 100	CYCLONIC STORM
23.10.24/1800	18.1/88.4	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
24.10.24/0000	18.8/88.1	100-110 GUSTING 120	SEVERE CYCLONIC STORM
24.10.24/1200	20.0/87.4	100-110 GUSTING 120	SEVERE CYCLONIC STORM
25.10.24/0000	20.9/86.8	100-110 GUSTING 120	SEVERE CYCLONIC STORM
25.10.24/1200	21.5/86.1	80-90 GUSTING TO 100	CYCLONIC STORM
26.10.24/0000	21.7/85.3	45-55 GUSTING TO 65	DEPRESSION

THE CLOUD MASS SHOWS IRREGULAR CDO PATTERN. VISIBLE IMAGERY DEPICTS LOW LEVEL CYCLONIC CIRCULATION (LLCC) EMBEDDED IN NORTH-EAST SECTOR OF CDO. DIAMETER SIZE OF CDO IS ABOUT 160 KM YIELDS CF2 AND BF = 0.5 WHICH YIELDS DT = 2.5. MET = 2.5 WITH NORMAL INTENSIFICATION AND PT = 2.5. THE INTENSITY IS CHARACTERISED AS T 2.5. ASSOCIATED SCATTERED TO BROCKEN LOW/MEDIUM CLOUDS WITH EMBEDED INTENCE TO VERY INTENCE CONVECTION OVER CENTRAL & NORTH BAY OF BENGAL BETWEEN LAT 13.0N TO 21.5N AND LONGITUDE 84.0E TO 93.0E. MIMIMUM CLOUD TOP TEMPERATURE IS MINUS 80-93 DEG CEL. IRWV DIFFERENCE IMAGERY INDICATE INTENSE CONVECTION UPTO UPPER TROPOSPHERIC LEVELS. TOTAL PRECIPITABLE IMAGERY INDICATE WARM MOIST AIR INCURSION INTO THE CORE. MULTI-SATELLITE WINDS INDICATE STRONGER WINDS IN THE NORTHERN SECTOR.

ESTIMATED CENTRAL PRESSURE IS 998 HPA AND MAXIMUM SUSTAINED WIND SPEED IS 35 KNOTS GUSTING TO 45 KNOTS. SEA CONDITION IS HIGH OVER EASTCENTRAL BAY OF BENGAL.

**UNDER IT'S INFLUENCE:**

**(II) WIND WARNING:**

**EASTCENTRAL BAY OF BENGAL:** GALE WIND SPEED REACHING 65-75 KMPH GUSTING TO 85 KMPH IS PREVAILING AND LIKELY TO INCREASE BECOMING 70-90 KMPH GUSTING TO 100 KMPH FROM 1200 UTC OF 23RD TILL 0300 UTC OF 24TH OCTOBER. IT IS LIKELY TO DECREASE THEREAFTER.

**ADJOINING AREAS OF WESTCENTRAL BAY OF BENGAL:** GALE WIND SPEED REACHING 60-70 KMPH GUSTING TO 80 KMPH IS PREVAILING. IT IS LIKELY TO INCREASE GRADUALLY BECOMING 80-90 KMPH GUSTING TO 100 KMPH FROM 0900 UTC OF 23RD AND 90-100 KMPH GUSTING TO 110 KMPH FROM 0000 UTC OF 24TH TILL 1200 OF 24TH OCTOBER. IT IS LIKELY TO DECREASE THEREAFTER.

**NORTHWEST BAY OF BENGAL:** SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS PREVAILING. IT IS VERY LIKELY TO INCREASE GRADUALLY BECOMING GALE WIND SPEED REACHING 70-90 KMPH GUSTING TO 100 KMPH FROM

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):**NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
 This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins

1200 UTC OF 23RD TILL 1800 UTC 24TH AND THEREAFTER 100-110 KMPH GUSTING TO 120 KMPH TILL 0000 UTC OF 25TH OCTOBER. IT IS LIKELY TO DECREASE GRADUALLY THEREAFTER.

**ADJOINING AREAS OF NORTHEAST BAY OF BENGAL:** SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS VERY LIKELY TO COMMENCE FROM 1800 UTC OF 23RD, BECOMING 50-60 KMPH GUSTING TO 70 KMPH FROM 24TH TILL 0000 UTC OF 25TH AND DECREASE GRADUALLY THEREAFTER.

**ALONG & OFF ODISHA-WEST BENGAL COASTS:** SQUALLY WIND SPEED REACHING 40-50 GUSTING TO 60 KMPH IS VERY LIKELY TO COMMENCE FROM 1200 UTC OF 23RD OCT. IT WOULD GRADUALLY INCREASE BECOMING GALE WIND SPEED REACHING 60-70 KMPH GUSTING TO 80 KMPH FROM 0000 UTC OF 24TH AND REACHING 100-110 KMPH GUSTING TO 120 KMPH FROM 24<sup>TH</sup>/1800 UTC TILL 0000 UTC OF 25TH OCT AND DECREASE GRADUALLY THEREAFTER.

**(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.
- ❖ 0.5 TO 1.0 M HEIGHT ABOVE ASTRONOMICAL TIDE IS VERY LIKELY TO INUNDATE LOW LYING AREAS OF SOUTH 24-PARGANAS OF WEST BENGAL AND JAGATSINGHPUR DISTRICT OF ODISHA DURING THE TIME OF LANDFALL.

**(III) SEA CONDITION:**

**EASTCENTRAL BAY OF BENGAL:** SEA CONDITION IS LIKELY TO BE HIGH TILL 24TH OCTOBER/1200 UTC AND IMPROVE GRADUALLY THEREAFTER.

**ADJOINING AREAS OF WESTCENTRAL BAY OF BENGAL:** SEA CONDITION IS LIKELY TO BE VERY ROUGH TO HIGH ON 23RD AND HIGH TILL 1200 UTC OF 24TH OCTOBER. IT IS LIKELY TO IMPROVE GRADUALLY THEREAFTER.

**NORTHWEST BAY OF BENGAL:** SEA CONDITION IS LIKELY TO BE VERY ROUGH TILL 23<sup>RD</sup>/1200 UTC AND WOULD BECOME HIGH TO VERY HIGH FROM 23<sup>RD</sup>/1800 UTC TILL 0000 UTC OF 25TH OCTOBER AND IMPROVE GRADUALLY THEREAFTER.

**ADJOINING AREAS OF NORTHEAST BAY OF BENGAL:** SEA CONDITION IS LIKELY TO BE ROUGH TO VERY ROUGH FROM 23<sup>RD</sup>/1800 UTC TILL 25<sup>TH</sup>/0000 UTC AND IMPROVE GRADUALLY THEREAFTER.

**ALONG & OFF ODISHA-WEST BENGAL COASTS:** SEA CONDITION IS LIKELY TO BE ROUGH TO VERY ROUGH FROM 23<sup>RD</sup>/1200 UTC AND WOULD BECOME HIGH TO VERY HIGH FROM 24TH OCTOBER/0000 UTC TO 25TH OCT/0900 UTC AND IMPROVE GRADUALLY THEREAFTER.

**(IV) FISHERMEN WARNING:**

- ❖ **TOTAL SUSPENSION OF FISHING OPERATION IS ADVISED TILL 25<sup>TH</sup> OCTOBER**
- ❖ **FISHERMEN ARE ADVISED NOT TO VENTURE INTO:**
  - EASTCENTRAL BAY OF BENGAL TILL 24<sup>TH</sup> OCTOBER.

- ADJOINING AREAS OF WESTCENTRAL BAY OF BENGAL TILL 24<sup>TH</sup> OCT.
- NORTH BAY OF BENGAL AND ALONG & OFF ODISHA, WEST BENGAL AND BANGLADESH COASTS TILL 25<sup>TH</sup> OCTOBER.

**REMARKS:**

THE MADDEN-JULIAN OSCILLATION (MJO) IS CURRENTLY IN PHASE 5, WITH AMPLITUDE MORE THAN 1, AND IS EXPECTED TO MOVE ACROSS PHASE 5 DURING NEXT 7 DAYS WITH FURTHER INCREASING AMPLITUDE. THUS, MJO WOULD SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER CENTRAL AND NORTH BAY OF BENGAL DURING NEXT 5 DAYS.

THE GUIDANCE FROM NCICS BASED FORECAST OVER BOB INDICATES EASTWARD MOVING MJO & KELVIN WAVES ALONG WITH EQUATORIAL ROSSBY WAVES OVER THE CENTRAL BAY OF BENGAL DURING NEXT 5 DAYS. THESE FEATURES INDICATE HIGHLY FAVOURABLE ENVIRONMENT FOR INTENSIFICATION OF SYSTEM OVER THE CENTRAL & NORTH PARTS OF THE BAY OF BENGAL.

THE SEA SURFACE TEMPERATURE (SST) IS 30°C OVER CENTRAL & NORTH BOB. THE TROPICAL CYCLONE HEAT POTENTIAL (TCHP) IS >100 KJ/CM<sup>2</sup> OVER WESTCENTRAL BOB, AROUND 80 KJ/CM<sup>2</sup> OVER NORTHWEST BOB. VORTICITY AT LOW LEVEL IS THE SAME IN PAST 3 HOURS AND IS 150X 10<sup>5</sup>S<sup>-1</sup> AROUND SYSTEM CENTRE OVER EASTCENTRAL BAY OF BENGAL WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. POSITIVE LOW-LEVEL CONVERGENCE IS SAME IN PAST 3 HOURS AND IS 30 X10<sup>-5</sup>S<sup>-1</sup> TO THE NORTHWEST OF SYSTEM AREA. POSITIVE UPPER-LEVEL DIVERGENCE IS ALSO SAME AND IS 30X10<sup>-5</sup>S<sup>-1</sup> TO THE NORTHEAST OF SYSTEM AREA. VERTICAL WIND SHEAR (VWS) IS MODERATE (10-20 KT) OVER CENTRAL BOB. ENHANCED POLEWARD OUTFLOW IS SEEN IN MID-LATITUDE WESTERLIES. HIGH SST, POLEWARD OUTFLOW, MODERATE WIND SHEAR WOULD SUPPORT FURTHER INTENSIFICATION OF THE SYSTEM.

MOST OF THE NWP MODELS ARE INDICATING FURTHER INTENSIFICATION OF CYCLONIC STORM INTO A SEVERE CYCLONIC STORM OVER NORTHWEST BAY OF BENGAL AROUND 0000 UTC OF 24<sup>TH</sup> OCTOBER. IMD-GFS, NCEP-GFS, ECMWF AND NCMRWF UM MODELS INDICATING LANDFALL OVER NORTH ODISHA-WEST BENGAL COASTS BETWEEN 1800 UTC OF 24<sup>TH</sup> AND 0600 UTC OF 25<sup>TH</sup> OCTOBER 2024. ALL THE MODELS ARE INDICATING THE INTENSITY OF SEVERE CYCLONIC STORM DURING THE LAND TIME.

CONSIDERING ALL THE ABOVE, THE CYCLONIC STORM OVER EASTCENTRAL BAY OF BENGAL IS VERY LIKELY TO MOVE NORTHWESTWARDS AND INTENSIFY INTO A SEVERE CYCLONIC STORM OVER NORTHWEST BAY OF BENGAL BY 1800-2100 UTC OF 23RD OCTOBER. IT IS VERY LIKELY TO CROSS NORTH ODISHA AND WEST BENGAL COASTS BETWEEN PURI AND SAGAR ISLAND DURING 1800 UTC OF 24TH TO 0000 UTC TO 25TH OCTOBER, 2024 AS A SEVERE CYCLONIC STORM WITH A WIND SPEED OF 100-110 KMPH GUSTING 120 KMPH.

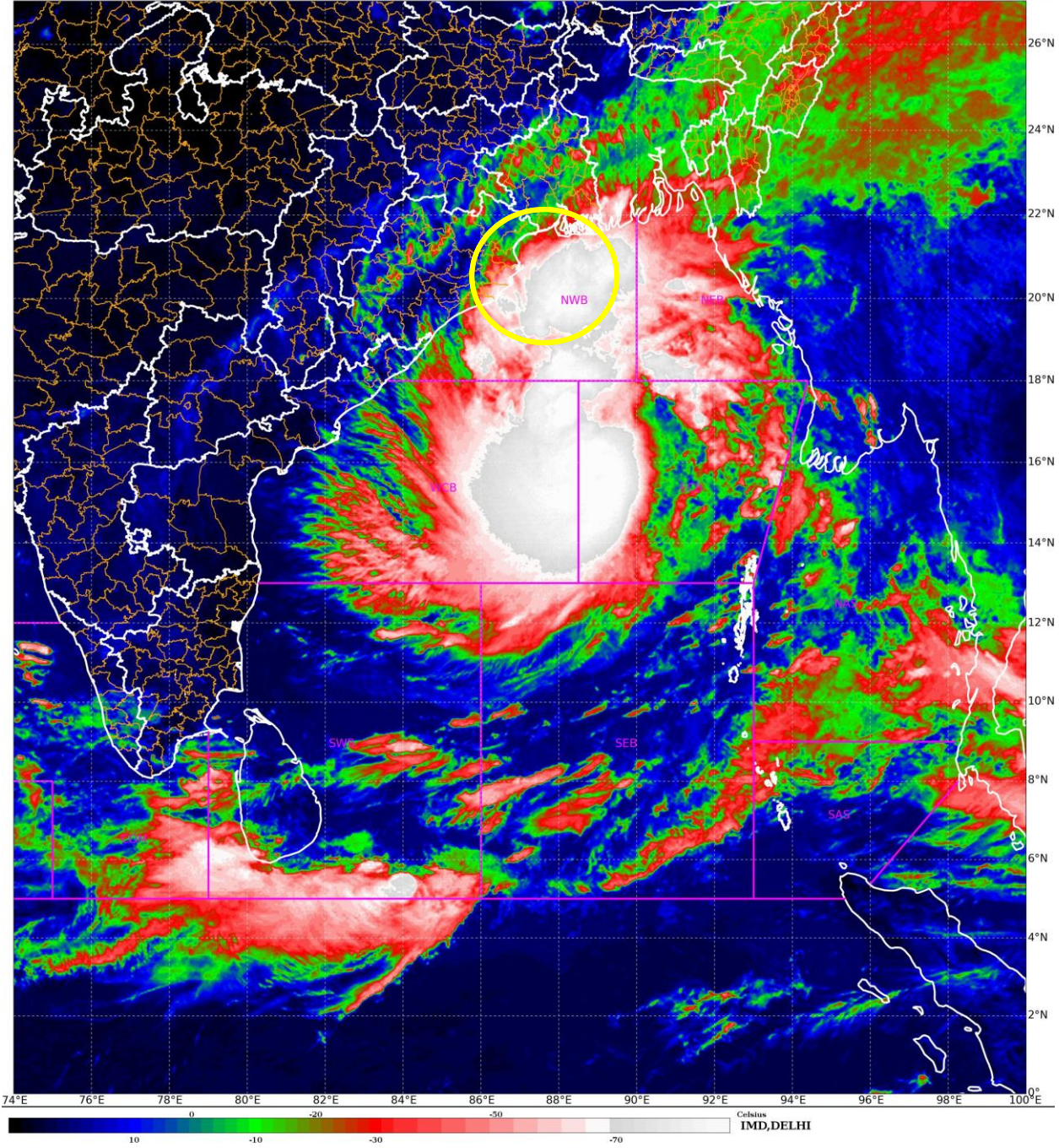
(M. SHARMA)  
SCIENTIST-D  
RSMC NEW DELHI



# CYCLONIC STORM "DANA" 16.5N/89.6E

SAT : INSAT-3DR IMG  
IMG\_TIR1\_TEMP 10.8 um  
L1C Mercator

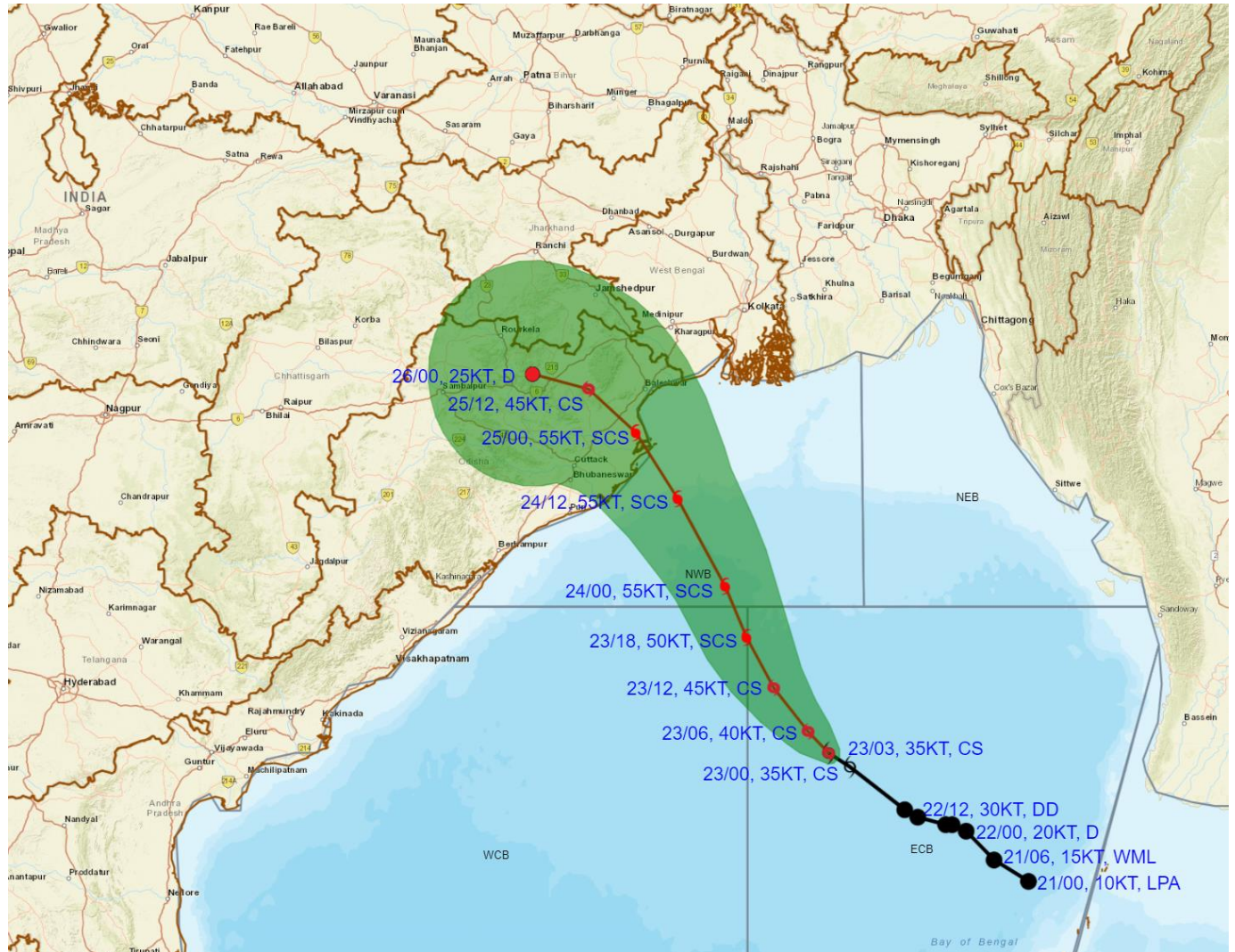
23-10-2024/(0445 to 0512) GMT  
23-10-2024/(1015 to 1042) IST



Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
 PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
 This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM 'DANA' OVER EASTCENTRAL BAY OF BENGAL BASED ON 0300 UTC (0830 Hrs. IST) OF 23<sup>RD</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)

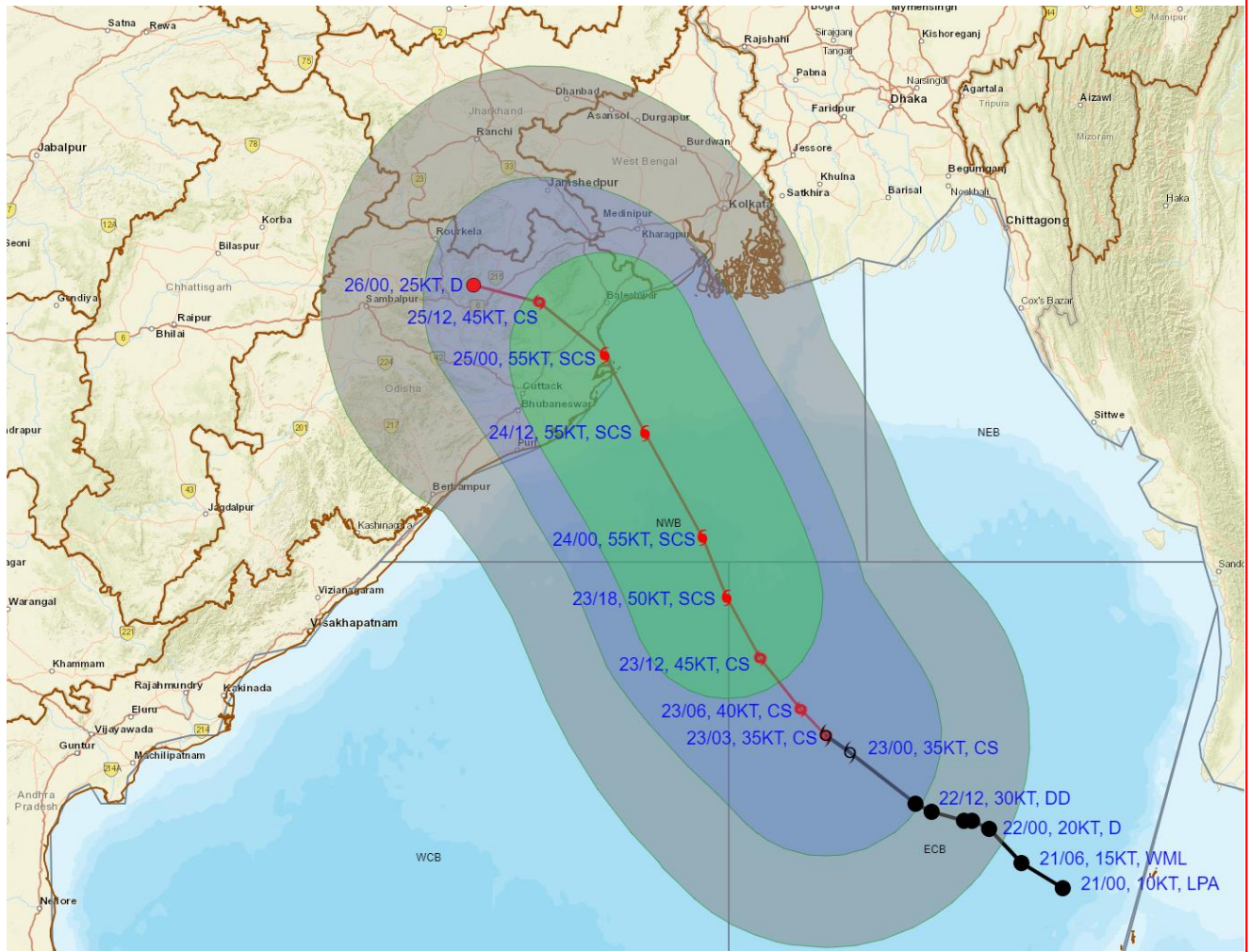
LESS THAN 34 KT  
 34-47 KT  
 $\geq 48$  KT  
 OBSERVED TRACK  
 FORECAST TRACK  
 CONE OF UNCERTAINTY

Forecast	DISTANCE (KM) AND DIRECTION FROM STATIONS		
Date and Time (UTC)	PARADIP (CWR)	SAGAR ISLAND	KHEPUPARA
<b>23.10.24/0300</b>	<b>520, SE</b>	<b>600, SSE</b>	<b>610, S</b>
<b>24.10.24/0000</b>	<b>220, SE</b>	<b>310, S</b>	<b>410, SSW</b>
<b>25.10.24/0000</b>	<b>70, N</b>	<b>160, WSW</b>	<b>380, WSW</b>
<b>26.10.24/0000</b>	<b>220, NW</b>	<b>290, W</b>	<b>520, W</b>

Cloud distribution: (a) Isolated: <25%, Scattered: 25-50%, Broken: 51-75%, Solid: >75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):** NIL: 0%, LOW: 1-33%, MODERATE: 34-66% AND HIGH: 67-100%  
 This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins



## OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM 'DANA' OVER EASTCENTRAL BAY OF BENGAL BASED ON 0300 UTC (0830 Hrs. IST) OF 23<sup>RD</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 (≥120 KT)

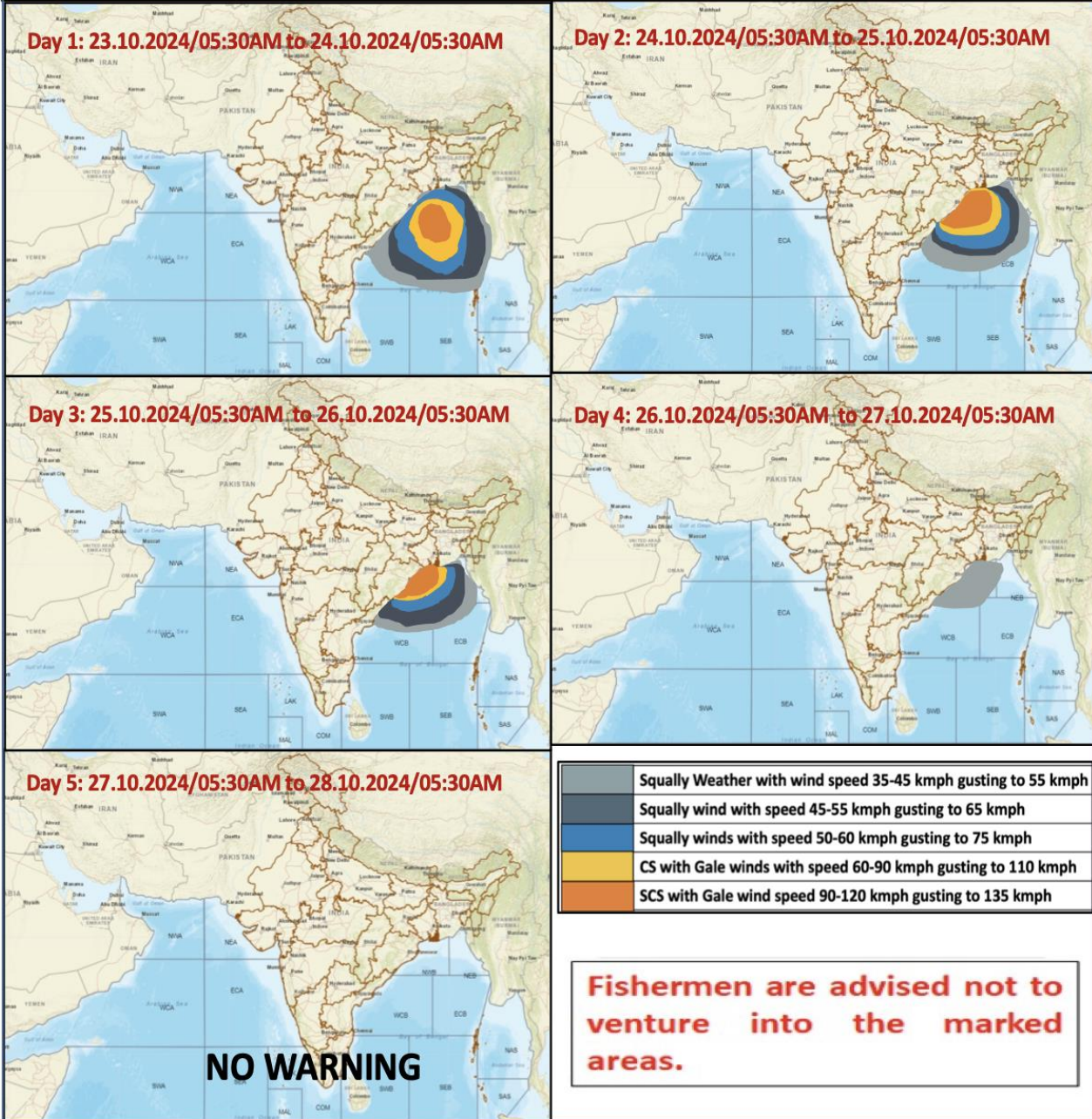
● LESS THAN 34 KT  
 ○ 34-47 KT  
 ○ ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 — CONE OF UNCERTAINTY  
**AREA OF MAXIMUM SUSTAINED WIND SPEED:**  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

### 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

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):**NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
 This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins

## Fishermen Warning Graphics



Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
 PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
 This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins