



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI
TROPICAL WEATHER OUTLOOK**

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 14.11.2023

TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 168 HOURS ISSUED AT 0800 UTC OF 14.11.2023 BASED ON 0300 UTC OF 14.11.2023.

BAY OF BENGAL:

(A) UNDER THE INFLUENCE OF YESTERDAY'S UPPER AIR CYCLONIC CIRCULATION OVER SOUTH ANDAMAN SEA, A LOW PRESSURE AREA FORMED OVER SOUTHEAST BAY OF BENGAL AND ADJOINING ANDAMAN & NICOBAR ISLANDS WITH ASSOCIATED CYCLONIC CIRCULATION EXTENDING UPTO UPPER TROPOSPHERIC LEVELS AT 0000 UTC AND IT PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 14TH NOVEMBER. IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER WESTCENTRAL BAY OF BENGAL ON 15TH NOVEMBER, 2023. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND MAY INTENSIFY INTO A DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL OFF ANDHRA PRADESH COAST ON 16TH NOVEMBER. SUBSEQUENTLY, IT WOULD RECURVE NORTH-NORTHEASTWARDS AND REACH NORTHWEST BAY OF BENGAL OFF ODISHA COAST ON 17TH NOVEMBER.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
LOW	MODERATE	HIGH	-	-	-	-

PRE-GENESIS FORECAST TRACK & INTENSITY IS GIVEN BELOW:

Date/Time (UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
14.11.23/0300	12.8/90.4	30-40 kmph gusting to 50 kmph	Low Pressure Area
14.11.23/1200	13.4/88.6	35-45 kmph gusting to 55 kmph	Well Marked Low Pressure Area
15.11.23/0000	14.1/86.5	40-50 kmph gusting to 60 kmph	Depression
15.11.23/1200	15.1/85.2	45-55 kmph gusting to 65 kmph	Depression
16.11.23/0000	16.1/84.7	50-60 kmph gusting to 70 kmph	Deep Depression
16.11.23/1200	17.1/85.3	50-60 kmph gusting to 70 kmph	Deep Depression
17.11.23/0000	18.2/86.2	50-60 kmph gusting to 70 kmph	Deep Depression
17.11.23/1200	19.0/87.0	45-55 kmph gusting to 65 kmph	Depression
18.11.23/0000	19.8/87.8	40-50 kmph gusting to 60 kmph	Depression

THE ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 10 KT GUSTING TO 20 KNOTS. THE WINDS ARE RELATIVELY STRONGER IN NORTHEAST SECTOR DUE TO

NORTHEAST MONSOON CONDITIONS. THE ESTIMATED CENTRAL PRESSURE IS 1010 HPA. SEA CONDITION IS LIKELY TO BE ROUGH OVER SOUTHEAST AND ADJOINING ANDAMAN & NICOBAR ISLANDS ON 14TH NOVEMBER.

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHEAST AND ADJOINING EAST CENTRAL BAY OF BENGAL BETWEEN 10.0N & 15.0N AND LONGITUDE 88.0 & 93.0 AND ADJOINING AREAS OF ANDAMAN ISLANDS & ANDAMAN SEA. MINIMUM CLOUD TOP TEMPERATURE IS -90°C. IN ASSOCIATION WITH THIS LOW PRESSURE AREA, THE CONVECTIVE CLOUDS ARE GETTING ORGANISED OVER SOUTHEAST AND ADJOINING EASTCENTRAL BAY OF BENGAL AND THE CONVECTION IS HIGHER OVER NORTHEAST SECTOR. THE CONVECTION IS BANDING TOWARDS NORTH.

- (B) YESTERDAY'S UPPER AIR CYCLONIC CIRCULATION OVER SOUTHWEST BAY OF BENGAL LAY OVER SOUTHWEST BAY OF BENGAL & ADJOINING SRI LANKA COAST EXTENDING UPTO MIDDLE TROPOSPHERIC LEVELS AT 0300 UTC OF TODAY, THE 14TH NOVEMBER 2023. THIS SYSTEM IS NOT LIKELY TO INTENSIFY FURTHER AND PROBABILITY OF CYCLOGENESIS IS NIL IN ITS ASSOCIATION.

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER COMORIN AREA AND ADJOINING SOUTHEAST ARABIAN SEA OFF SOUTH KERALA COAST AND MODERATE TO INTENSE CONVECTION LAY OVER SOUTH ARABIAN SEA.

PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
NIL	NIL	NIL	NIL	NIL	NIL	NIL

Remarks:

MADDEN JULIAN OSCILLATION INDEX IS IN PHASE 8 WITH AMPLITUDE CLOSE TO 1. IT WOULD CONTINUE IN SAME PHASE DURING NEXT 24 HOURS AND WOULD MOVE TO PHASE 1 THEREFATER WITH AMPLITUDE BECOMING MORE THAN 1. SEA SURFACE TEMPERATURE IS 30°C AROUND THE SYSTEM AREA OVER SOUTHEAST BAY OF BENGAL (BOB). IT IS SLIGHTLY LESS OVER SOUTH & WESTCENTRAL BOB AROUND 29°C AND FURTHER LESS AROUND 27-28°C OVER SEA AREAS OF NORTH BOB AND ALONG & OFF ANDHRA PRADESH –ODISHA COASTS. THE TROPICAL CYCLONE HEAT POTENTIAL IS 120 KJ/CM² OVER SOUTHEAST BOB AROUND SYSTEM AREA. IT WOULD DECREASE BECOMING 60-80 KJ/CM² OVER SEA AREAS OF WESTCENTRAL BOB & NORTH BOB AND ALONG & OFF ANDHRA PRADESH – ODISHA COASTS. THE EQUATORIAL WAVES FORECAST INDICATE, STRONG WESTERLY WINDS (5-7 MPS) OVER SOUTH BOB AND STRONG EASTERLY WINDS (5-7 MPS) OVER CENTRAL BOB. THIS WOULD SUPPORT FORMATION OF DEPRESSION OVER CENTRAL BOB. IN ADDITION KELVIN WAVES ARE LIKELY OVER CENTRAL BOB DURING 16TH-18TH. KELVIN WAVES ARE LIKELY TO ENHANCE DRY MID-LATITUDE WESTERLIES OVER THE REGION. THE ENHANCED WESTERLIES WOULD LEAD TO UPWELLING OVER ANDHRA PRADESH & ADJOINING ODISHA COASTS LEADING TO LOWERING OF SEA SURFACE TEMPERATURE OVER THE REGION AND ALSO WEAKENING OF THE SYSTEM WHEN IT REACHES NORTHWEST BOB AREA. ALSO IT

WILL LEAD TO DRY AIR INCURSION FROM CENTRAL INDIA TO THE SYSTEM. THUS, KELVIN WAVE WILL PLAY A DETRIMENTAL ROLE IN WEAKENING OF THE SYSTEM.

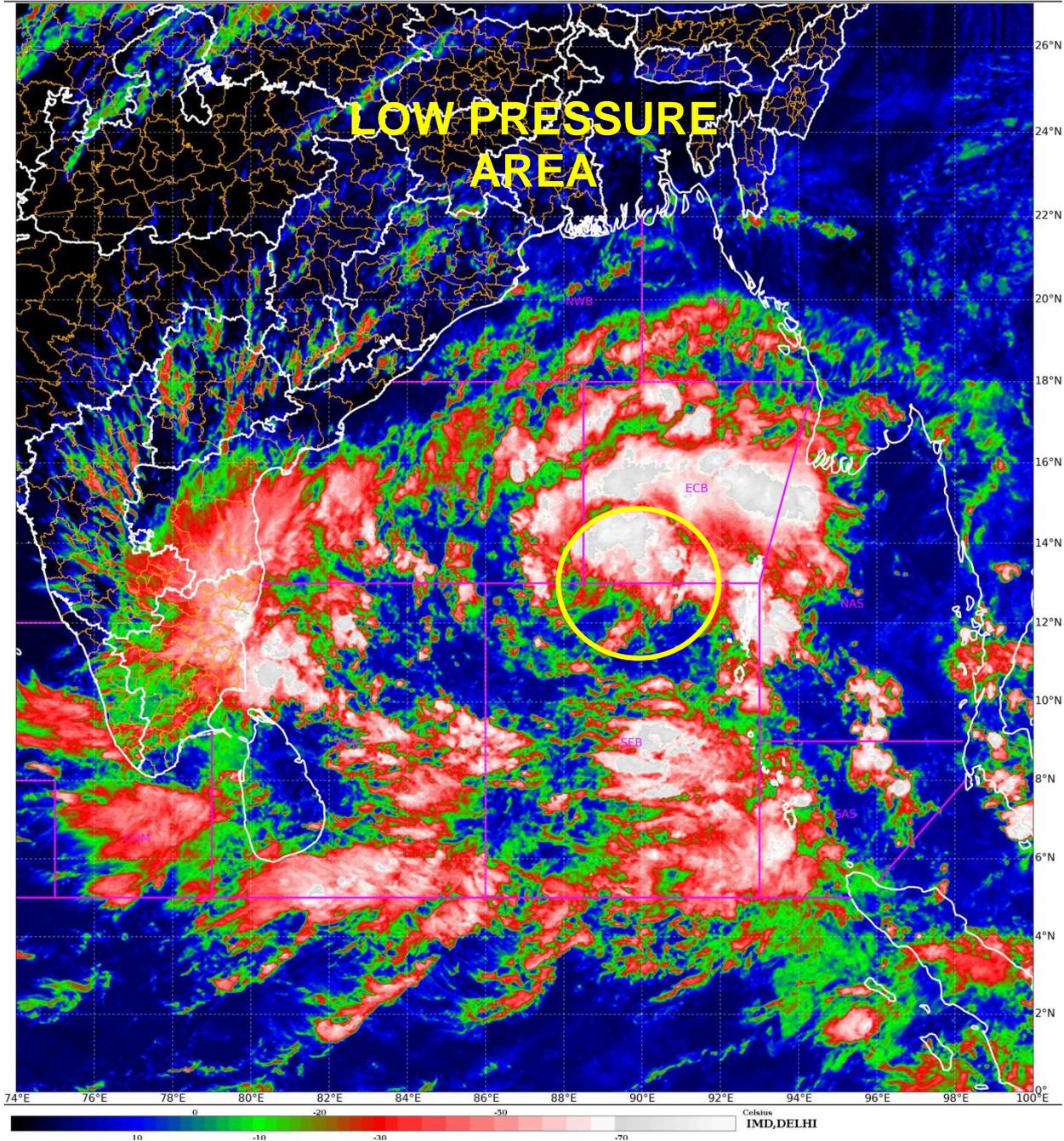
THE LOW LEVEL RELATIVE POSITIVE VORTICITY IS AROUND $50 \times 10^{-6} \text{S}^{-1}$ AROUND SYSTEM AREA OVER SOUTHEAST BOB WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. THE POSITIVE LOW LEVEL CONVERGENCE IS ABOUT $05 \times 10^{-5} \text{S}^{-1}$ AROUND SYSTEM AREA. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT $10 \times 10^{-5} \text{S}^{-1}$ AROUND SYSTEM AREA. WIND SHEAR IS LOW TO MODERATE (05-15) OVER SYSTEM AREA. UPPER TROPOSPHERIC RIDGE RUNS ALONG 13°N . MID LEVEL SHEAR IS < 20 KNOTS (LOW-MODERATE) OVER SOUTHEAST BOB. ALL THESE FEATURES WOULD SUPPORT THE INTENSIFICATION OF THE SYSTEM TILL 17TH NOVEMBER.

THERE IS ANOTHER LOW LEVEL RELATIVE POSITIVE VORTICITY ZONE OF $30-40 \times 10^{-6} \text{S}^{-1}$ OVER SOUTHWEST BOB OFF TAMILNADU & ADJOINING SRI LANKA COASTS WITH VERTICAL EXTENSION UPTO 500 HPA ONLY. CURRENTLY, THIS SYSTEM IS ASSOCIATED WITH VORTICITY $30-40 \times 10^{-6} \text{S}^{-1}$ AROUND SYSTEM AREA WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. THE POSITIVE LOW LEVEL CONVERGENCE IS ABOUT $15 \times 10^{-5} \text{S}^{-1}$ AROUND SYSTEM AREA. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ AROUND SYSTEM AREA. WIND SHEAR IS MODERATE TO HIGH (10-20) OVER SYSTEM AREA. MID LEVEL SHEAR IS > 20 KNOTS (HIGH) OVER SOUTHWEST BOB. HENCE THIS SYSTEM WOULD NOT INTENSIFY FURTHER DUE TO HIGH WIND SHEAR, LESS VERTICAL EXTENSION AND INTERACTION WITH THE LAND SURFACE.

THE GUIDANCE FROM VARIOUS NUMERICAL MODELS (IMD GFS, NCEP GFS & ECMWF AND IMD MME) ARE INDICATING FORMATION OF DEPRESSION AROUND 15TH. PEAK INTENSIFICATION IS SUGGESTED UPTO DEEP DEPRESSION STAGE. THESE MODELS ARE ALSO INDICATING GRADUAL NORTHEASTWARDS RECURVATURE OF THE SYSTEM ON 17TH AND WEAKENING WHILE MOVING OVER NORTHWEST BOB ON 18TH NOVEMBER. NCUM IS NOT INDICATING ANY SIGNIFICANT SYSTEM OVER BAY OF BENGAL DURING THE FORECAST PERIOD.

CONSIDERING ALL THESE, THE LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER WESTCENTRAL BAY OF BENGAL ON 15TH NOVEMBER, 2023. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND MAY INTENSIFY INTO A DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL OFF ANDHRA PRADESH COAST ON 16TH NOVEMBER. SUBSEQUENTLY, IT WOULD RECURVE NORTH-NORTHEASTWARDS AND REACH NORTHWEST BAY OF BENGAL OFF ODISHA COAST ON 17TH NOVEMBER.

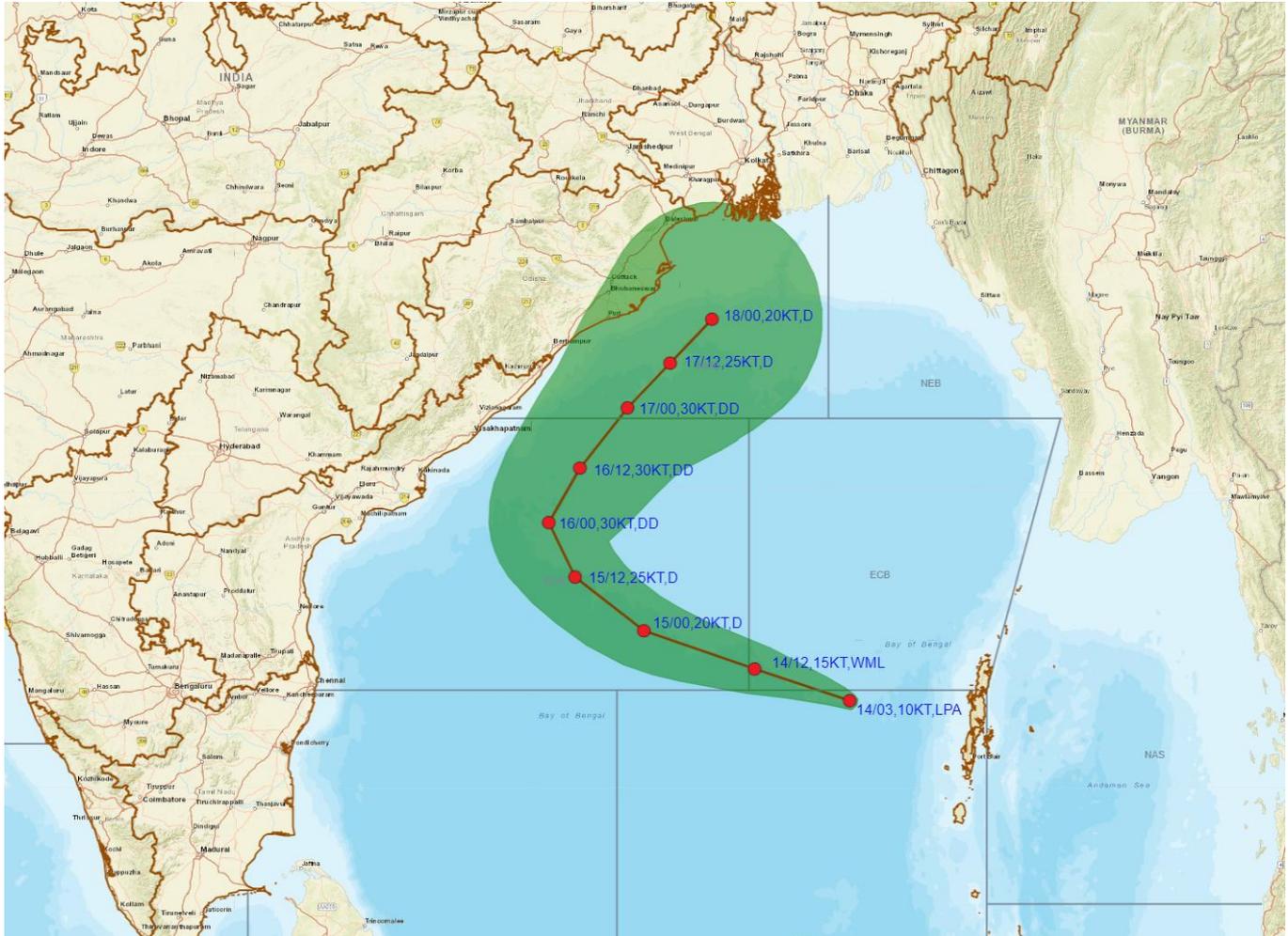
(M SHARMA)
SCIENTIST-D



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%
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PREGENESIS TRACK FORECAST IN ASSOCIATION WITH LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL AND ADJOINING ANDAMAN & NICOBAR ISLANDS BASED ON 0300 UTC (0830 IST) OF 14TH NOVEMBER 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

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● 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

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Fishermen warning graphics

