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

DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 30.11.2023

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 30.11.2023 BASED ON 0300 UTC OF 30.11.2023.

BAY OF BENGAL:

SUB: WELL MARKED LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL

YESTERDAY'S WELL MARKED LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL & ADJOINING SOUTH ANDAMAN SEA MOVED WEST-NORTHWESTWARDS AND LAY OVER SOUTHEAST BAY OF BENGAL AT 0300 UTC OF TODAY, THE 30TH NOVEMBER, 2023.

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER SOUTHEAST BAY OF BENGAL DURING NEXT 24 HOURS. CONTINUING TO MOVE FURTHER WEST-NORTHWESTWARDS, IT WOULD INTENSIFY GRADUALLY INTO A CYCLONIC STORM OVER SOUTHWEST BAY OF BENGAL AROUND 3RD DECEMBER. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND REACH NEAR NORTH TAMIL NADU AND SOUTH ANDHRA PRADESH COASTS AROUND 0000 UTC OF 4TH DECEMBER AS A CYCLONIC STORM.

INSAT -3D IMAGERY AT 0300 UTC, INDICATED LOW LEVEL CYCLONIC CIRCULATION CENTERED NEAR 6.0N/90.5E. MULTISAT WINDS AT 0300 UTC OF 30TH NOVEMBER, INDICATE THE SYSTEM NEAR 7.7N/88.7E WITH ASSOCIATED MAXIMUM SUSTAINED WIND SPEEDS OF 20 KNOTS IN THE NORTHEAST SECTOR .

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 15 KNOTS GUSTING TO 25 KNOTS. ESTIMATED CENTRAL PRESSURE IS 1005 HPA. SEA CONDITION IS LIKELY TO BE MODERATE TO ROUGH OVER THE SOUTHEAST BAY OF BENGAL. A SHIP NEAR 6.8N/88.5E INDICATED MEAN SEA LEVEL PRESSURE OF 1009 HPA AND MAXIMUM SUSTAINED WIND SPEED AS 100^{O}/06 KT.

ASSOCIATED INTENSITY IS T1.0. CLOUDS HAVE INCREASED IN FORWARD SECTOR. AREA OF INTENSE CONVECTION IS INCREASING TOWARDS CENTRE. OUTFLOW OF CIRRUS CLOUDS IS ORIENTED WEST-SOUTHWEST TO EAST-NORTHEAST. SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTHEAST BAY OF BENGAL, SOUTH ANDAMAN SEA AND NEIGHBOURHOOD. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 90 DEG CELSIUS. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION LAY OVER CENTRAL BAY OF BENGAL AND NORTH ANDAMAN SEA.

PRE-GENESIS TRACK & INTENSITY FORECASTS:

Date/Time (UTC)	Position (Lat. ^{0}N/ long. ^{0}E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
30.11.23/0300	6.9/89.4	25-35 kmph gusting to 45 kmph	Well Marked Low Pressure Area
30.11.23/1200	7.4/88.5	30-40 kmph gusting to 50 kmph	Well Marked Low Pressure Area
01.12.23/0000	8.2/87.0	40-50 kmph gusting to 60 kmph	Depression
01.12.23/1200	9.0/85.8	45-55 kmph gusting to 65 kmph	Depression
02.12.23/0000	9.8/84.4	50-60 kmph gusting to 70 kmph	Deep Depression
02.12.23/1200	10.7/83.1	55-65 kmph gusting to 75 kmph	Deep Depression
03.12.23/0000	11.5/81.9	60-70 kmph gusting to 80 kmph	Cyclonic Storm

ARABIAN SEA:

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER SOUTH ARABIAN SEA AND COMORIN AREA. SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED ISOLTAED MODERATE TO INTENSE CONVECTION LAY CENTRAL ARABIAN SEA AND LAKSHADWEEP ISLANDS AREA.

***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

***NOTE: EVERY 24HR FORECAST IS VALID UPTO 0300 UTC (0830 IST) OF NEXT DAY**

Remarks:

MADDEN JULIAN OSCILLATION (MJO) IS CURRENTLY IN PHASE 3 WITH AMPLITUDE GREATER THAN 1. IT WOULD MOVE ACROSS PHASES 3 AND 4 WITH AMPLITUDE GREATER THAN 1 DURING 30TH NOVEMBER TO 6TH DECEMBER. THUS, MJO WOULD SUPPORT CYCLOGENESIS OVER THE BAY OF BENGAL (BOB) REGION TILL 6TH DECEMBER. SEA SURFACE TEMPERATURE IS 28-30^{0}C OVER MAJOR PARTS OF BOB. TROPICAL CYCLONE HEAT POTENTIAL IS 60-70 KJ/CM^2 OVER SOUTHEAST BOB. THE NCICS BASED FORECASTS FOR EQUATORIAL WAVES INDICATE STRENGTHENING OF WESTERLY WINDS ALONGWITH PRESENCE OF EQUATORIAL ROSSBY WAVES & MJO OVER SOUTH BOB AND EASTERLY WINDS OVER CENTRAL BOB DURING 30TH NOVEMBER – 4TH DECEMBER. ALL THESE LARGE SCALE FEATURES ARE FAVOURABLE FOR CYCLOGENESIS (FORMATION OF DEPRESSION) OVER SOUTHEAST BOB.

CURRENT ENVIRONMENTAL FEATURES INDICATE, POSITIVE LOW LEVEL VORTICITY OF 50-60X10^{-6}S^{-1} TO THE EAST OF SYSTEM CENTRE WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. POSITIVE LOW LEVEL CONVERGENCE IS THE SAME AND IS ABOUT 20 X 10^{-5} S^{-1} TO THE EAST OF SYSTEM CENTRE. TWO ZONES OF POSITIVE UPPER LEVEL DIVERGENCE OF ABOUT 20 X 10^{-5} S^{-1} TO THE EAST OF THE SYSTEM CENTRE AND ANOTHER OF 10 X 10^{-5} S^{-1} TO THE WEST OF SYSTEM AREA. WIND SHEAR HAS DECREASED AND IS ABOUT 05-10 KNOTS OVER SOUTH BOB. LOW TO MODERATE CLOCKWISE DEEP LAYER WIND SHEAR IS SUPPORTING INTENSIFICATION OF THE SYSTEM. THE DEEP LAYER MEAN WIND IS INDICATING INITIAL NORTHWESTWARDS MOVEMENT TILL 12^{O}N, FOLLOWED BY NORTHEASTWARDS RECURVATURE THEREAFTER EITHER OVER LAND OR OVER THE SEA.

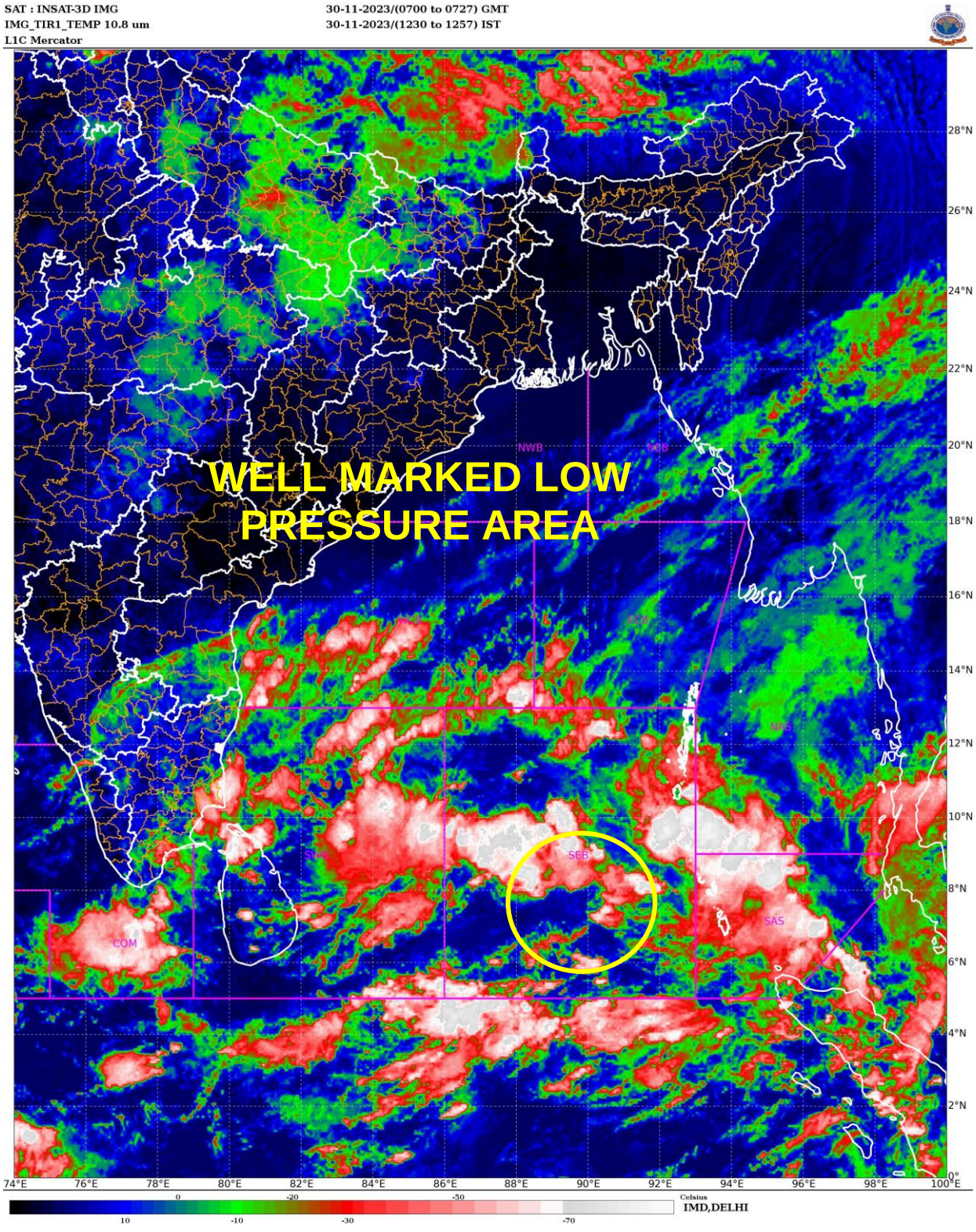
AS PER TODAY'S GUIDANCE, MODELS ARE INDICATING DELAYED FORMATION OF DEPRESSION. THERE IS LARGE VARIATION AMONG VARIOUS MODELS W.R.T. DATE OF FORMATION OF DEPRESSION WITH DATE VARYING BETWEEN 1ST DECEMBER - 3RD DECEMBER. HOWEVER, MOST OF THE MODELS ARE INDICATING INITIAL WEST-NORTHWESTWARDS MOVEMENT, FOLLOWED BY NORTHWESTWARDS MOVEMENT. MODELS ARE ALSO INDICATING GRADUAL NORTH-NORTHEASTWARDS TO NORTHEASTWARDS RECURVATURE OF THE SYSTEM AFTER 4TH DECEMBER AND

MOVEMENT ALONG THE EAST COAST OF INDIA. THERE IS ALSO VARIATION AMONG VARIOUS MODELS W.RT. POINT & TIME OF RECURVATURE AND ALSO PEAK INTENSIFICATION.

IMD GFS IS INDICATING LOW PRESSURE AREA OVER SOUTHEAST BOB ON 30TH, DEPRESSION OVER SOUTHWEST BOB ON 2ND DECEMBER/0000 UTC. IT IS INDICATING INTENSIFICATION UPTO MARGINAL CYCLONIC STORM. IT IS SHOWING NORTHEAST WARDS RECURVATURE AND MOVEMENT ALONG THE EAST COAST OF INDIA TILL 6TH DECEMBER AS A WEAK SYSTEM. ECMWF IS INDICATING FORMATION OF DEPRESSION ON 2ND DECEMBER/0000 UTC OVER SOUTHWEST BOB AND CYCLONIC STORM ON 4TH DECEMBER OVER SOUTHWEST BOB. IT IS INDICATING CROSSING OVER SOUTH ANDHRA PRADESH-NORTH TAMILNADU COAST ON 4TH DECEMBER/0600 UTC AS A DEPRESSION. SIMILARLY, NCUM IS INDICATING FORMATION OF DEPRESSION ON 3RD DECEMBER OVER SOUTHWEST BOB. IT IS INDICATING VERY SLOW MOVEMENT OF THE SYSTEM NEAR NOTH TAMILNADU COAST DURING 3RD TO 5TH WITH INTENSIFICATION AND THEREAFTER NORTHEASTWARDS RECURVATURE IS INDICATED. IMD MULTI MODEL ENSEMBLE (MME) IS INDICATING FORMATION OF DEPRESSION AROUND 1ST DECEMBER OVER SOUTHWEST BOB & ADJOINING SOUTHEAST BOB. THEREAFTER, THE SYSTEM IS INDICATED TO INTENSIFY INTO A CYCLONIC STORM ON 3RD DECEMBER OVER SOUTHWEST BOB. IT IS INDICATING NEARLY NORTH-NORTHWESTWARDS MOVEMENT TOWARDS ANDHRA PRADESH COAST AND CROSSING OVER ANDHRA PRADESH AROUND 6TH DECEMBER/0000 UTC AS A DEEP DEPRESSION.

CONSIDERING ALL THE ABOVE, THE WELL MARKED LOW-PRESSURE AREA OVER SOUTHEAST BOB IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER SOUTHEAST BAY OF BENGAL DURING NEXT 24 HOURS. CONTINUING TO MOVE FURTHER WEST-NORTHWESTWARDS, IT WOULD INTENSIFY GRADUALLY INTO A CYCLONIC STORM OVER SOUTHWEST BAY OF BENGAL AROUND 3RD DECEMBER. THEREAFTER, IT WOULD MOVE NORTHWESTWARDS AND REACH NEAR NORTH TAMIL NADU AND SOUTH ANDHRA PRADESH COASTS AROUND 0000 UTC OF 4TH DECEMBER AS A CYCLONIC STORM.

(M. SHARMA)
SCIENTIST-D
RSMC NEW DELHI



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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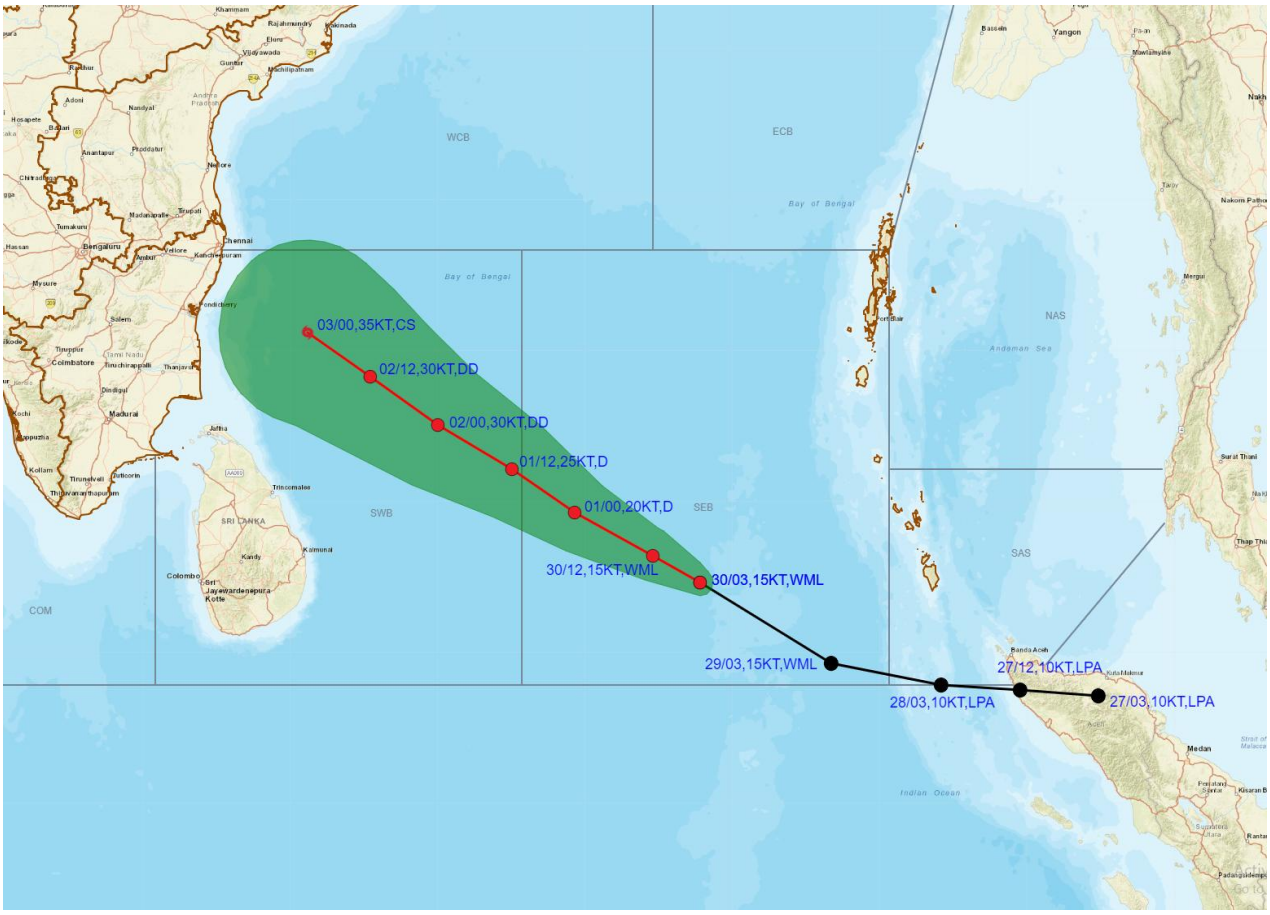
PREGENESIS TRACK FORECAST ALONGWITH CONE OF UNCERTAINITY IN ASSOCIATION WITH WELL MARKED LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL BASED ON 0300 UTC (0830 IST) OF 30TH NOVEMBER 2023.



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

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
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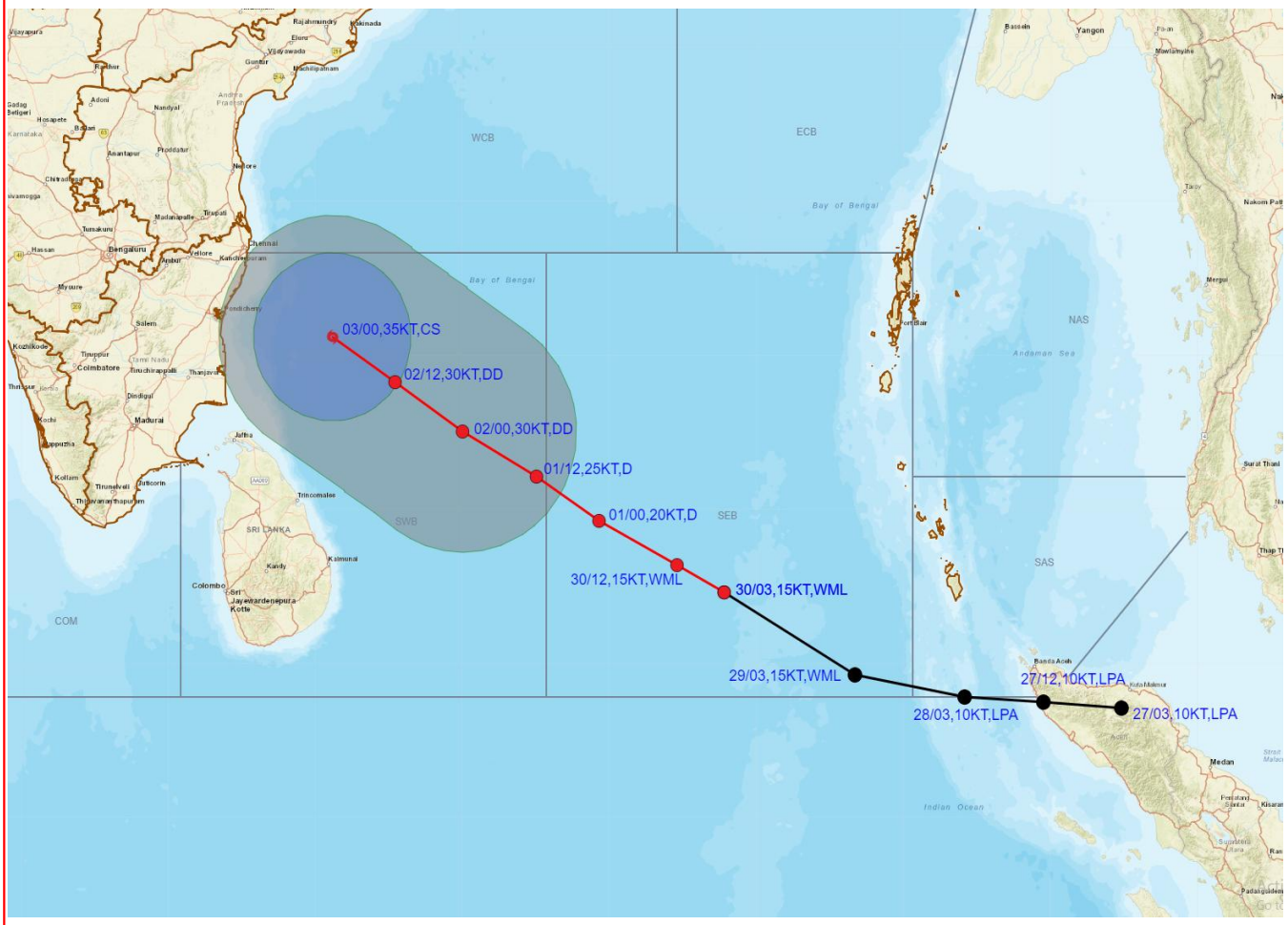
PREGENESIS TRACK FORECAST ALONG WITH QUADRANT WIND DISTRIBUTION IN ASSOCIATION WITH WELL MARKED LOW PRESSURE AREA OVER SOUTHEAST BAY OF BENGAL BASED ON 0300 UTC (0830 IST) OF 30TH NOVEMBER 2023.



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)
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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

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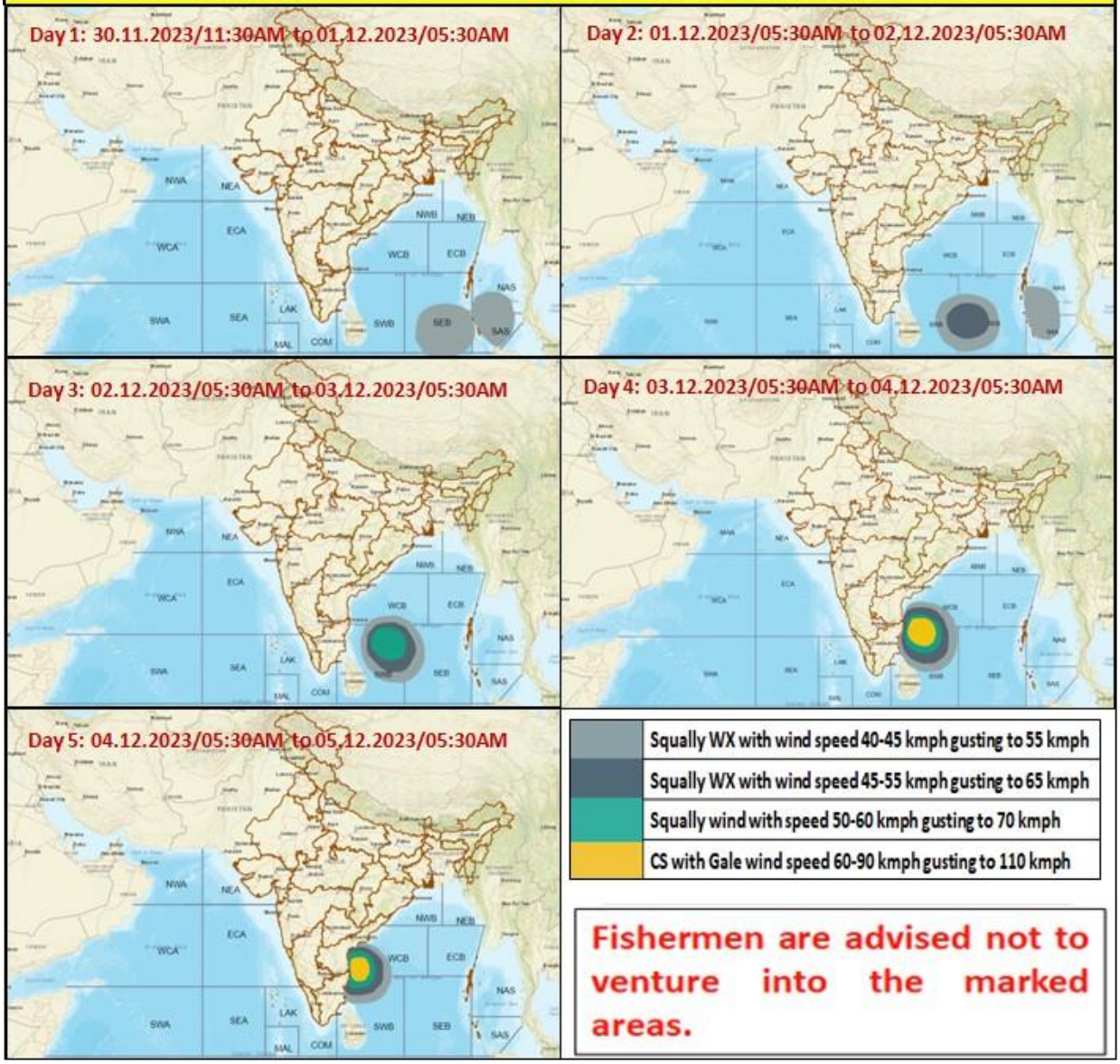
Fishermen warning graphics



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