



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

#### **DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 22.10.2023**

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. 12 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1130 UTC OF 22.10.2023 BASED ON 0900 UTC OF 22.10.2023.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) OVER WESTCENTRAL & ADJOINING SOUTHWEST ARABIAN SEA AND (B) DEPRESSION OVER WESTCENTRAL BAY OF BENGAL.

(A) EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) OVER WESTCENTRAL & ADJOINING SOUTHWEST ARABIAN SEA

THE EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) OVER WESTCENTRAL & ADJOINING SOUTHWEST ARABIAN MOVED NORTHWESTWARDS WITH A SPEED OF 16 KMPH DURING PAST 6 HOURS, AND LAY CENTERED AT 0900 UTC OF TODAY, THE 22<sup>ND</sup> OCTOBER OVER THE SAME REGION, NEAR LATITUDE 12.9°N AND LONGITUDE 54.7°E ABOUT 90 KM EAST-NORTHEAST OF SOCOTRA (YEMEN, 41494), 460 KM SOUTH-SOUTHEAST OF SALALAH (OMAN, 41316) AND 450 KM SOUTHEAST OF AL GHAIDAH (YEMEN, 41398).

IT IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS YEMEN COAST CLOSE TO AL GHAIDAH (YEMEN, 41398) DURING 1800-2100 UTC OF  $23^{\rm RD}$  OCTOBER AS A VERY SEVERE CYCLONIC STORM WITH WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

#### FORECAST TRACK AND INTENSITY OF THE SYSTEM IS GIVEN BELOW:

DATE/TIME	POSITION	MAXIMUM SUSTAINED SURFACE	CATEGORY OF CYCLONIC
(UTC)	LAT. <sup>0</sup> N/ LONG. <sup>0</sup> E	WIND SPEED (KMPH)	DISTURBANCE
22.10.23/0900	12.9/54.7	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
22.10.23/1200	13.3/54.6	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
22.10.23/1800	14.0/54.0	170-180 GUSTING TO 200	EXTREMELY SEVERE CYCLONIC STORM
23.10.23/0000	14.5/53.5	165-175 GUSTING TO 195	EXTREMELY SEVERE CYCLONIC STORM
23.10.23/0600	15.0/53.0	150-160 GUSTING TO 175	VERY SEVERE CYCLONIC STORM
23.10.23/1800	15.7/52.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
24.10.23/0600	16.1/51.7	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
24.10.23/1800	16.5/51.1	50-60 GUSTING TO 70	DEEP DEPRESSION
25.10.23/0600	17.0/50.4	25-35 GUSTING TO 45	WELL MARKED LOW

AS PER INSAT 3D IMAGERY, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 5.0 AND RAGGED EYE IS SEEN IN VISIBLE IMAGERY. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER WESTCENTRAL & SOUTHWEST ARABIAN SEA BETWEEN LAT 9.0N TO 16.5N LONG 51.0E TO 60.0E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 85°C.

MULTISATELLITE WINDS INDICATE STRONGER WINDS IN THE EASTERN SECTOR. TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM MOIST AIR INCURSION INTO THE SYSTEM CORE. DRY AIR INCURSION IS EXPECTED FROM ARABIAN PENINSULA AS THE SYSTEM MOVES NEAR THE YEMEN-OMAN COASTS. ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 95 KNOTS GUSTING TO 105 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 964 HPA.

#### **SEA CONDITION:**

#### SOUTHWEST ARABIAN SEA:

PHENOMENAL SEA CONDITION IS PREVAILING AND WILL CONTINUE TILL 23<sup>RD</sup> OCTOBER. IT IS LIKELY TO IMPROVE GRADUALLY BECOMING **HIGH TO VERY HIGH** FROM 0000 UTC OF 24<sup>TH</sup> AND CONTINUE TILL 1200 UTC. THEREAFTER, IT WOULD IMPROVE GRADUALLY.

#### WESTCENTRAL ARABIAN SEA:

**PHENOMENAL** SEA CONDITION IS PREVAILING AND WILL CONTINUE TILL 1200 UTC OF  $24^{TH}$  OCTOBER. IT WOULD IMPROVE GRADUALLY THEREAFTER BECOMING **VERY HIGH TO HIGH** FROM 1200 UTC OF  $24^{TH}$  AND VERY ROUGH TO ROUGH BY 1200 UTC OF  $25^{TH}$  OCTOBER. THEREAFTER, IT WOULD IMPROVE GRADUALLY.

# • STORM SURGE GUIDANCE:

STORM SURGE ABOUT 2 METER HEIGHT ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREA NEAR THE LANDFALL POINT AT THE TIME OF LANDFALL.

# (B) DEPRESSION OVER WESTCENTRAL BAY OF BENGAL.

THE DEPRESSION OVER WESTCENTRAL BAY OF BENGAL MOVED NEARLY NORTHWARDS WITH A SPEED OF 11 KMPH DURING PAST 6 HOURS AND LAY CENTERED AT 0900 UTC OF TODAY, THE 22<sup>ND</sup> OCTOBER OVER THE SAME REGION, NEAR LATITUDE 15.6°N AND LONGITUDE 86.2°E ABOUT 520 KM SOUTH-SOUTHEAST OF PARADIP (ODISHA, 42976), 680 KM SOUTH-SOUTHWEST OF DIGHA (WEST BENGAL, 42901), AND 820 KM SOUTH-SOUTHWEST OF KHEPUPARA (BANGLADESH, 41984).

IT IS LIKELY TO MOVE NEARLY NORTHWARDS AND INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 6 HOURS. THEREAFTER, IT IS LIKELY TO CONTINUE TO MOVE NORTHWARDS TILL 0000 UTC OF 23<sup>RD</sup> AND THEN NORTH-NORTHEASTWARDS DURING SUBSEQUENT 2 DAYS TOWARDS BANGLADESH COAST.

AS PER INSAT 3D IMAGERY, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 1.5. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL AND ADJOINING NORTH BAY OF BENGAL BETWEEN LAT 14.0°N TO 20.0N LONG 84.0°E TO 91.0°E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 84°C. MULTISATELLITE WINDS INDICATE STRONGER WINDS IN EASTERN SECTOR. TOTAL PRECIPITABLE WATER IMAGERY INDICATES WARM MOIST AIR INCURSION INTO THE SYSTEM CORE.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 25 KNOTS GUSTING TO 35 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1006 HPA. FORECAST TRACK AND INTENSITY OF THE SYSTEM IS GIVEN BELOW:

DATE/TIME(UTC)	POSITION LAT. ºN/ LONG. ºE	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.10.23/0900	15.6/86.2	40-50 GUSTING TO 60	DEPRESSION
22.10.23/1200	15.7/86.2	50-60 GUSTING TO 70	DEEP DEPRESSION
22.10.23/1800	16.1/86.2	50-60 GUSTING TO 70	DEEP DEPRESSION
23.10.23/0000	16.6/86.3	50-60 GUSTING TO 70	DEEP DEPRESSION
23.10.23/0600	17.3/86.4	50-60 GUSTING TO 70	DEEP DEPRESSION
23.10.23/1800	18.3/86.9	60-70 GUSTING TO 80	CYCLONIC STORM
24.10.23/0600	19.3/87.7	60-70 GUSTING TO 80	CYCLONIC STORM
24.10.23/1800	20.1/88.7	60-70 GUSTING TO 80	CYCLONIC STORM
25.10.23/0600	21.0/89.7	50-60 GUSTING TO 70	DEEP DEPRESSION

# **REMARKS:**

### **ARABIAN SEA:**

MADDEN JULIAN OSCILLATION INDEX IS IN PHASE 8 WITH AMPLITUDE LESS THAN 1. IT WOULD CONTINUE IN SAME PHASE DURING NEXT 4 DAYS. SEA SURFACE TEMPERATURE IS 28-30°C OVER WESTCENTRAL ARABIAN SEA. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 75 KJ/CM2 OVER WESTCENTRAL ARABIAN SEA NEAR THE SYSTEM LOCATION. IT WOULD DECREASE GRADUALLY BECOMING 30-40 KJ/CM<sup>2</sup> OVER WESTCENTRAL ARABIAN SEA AND ALONG & OFF OMAN-YEMEN COASTS. THE LOW LEVEL POSITIVE VORTICITY IS AROUND 250 X10-6S-1 TO THE SOUTH-SOUTHEAST OF THE SYSTEM CENTER WITH VERTICAL EXTENSION UPTO 200 HPA LEVEL. THE POSITIVE LOW LEVEL CONVERGENCE IS ABOUT 30X10<sup>-5</sup>S<sup>-1</sup> TO SOUTH-SOUTHWEST OF SYSTEM CENTER. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT 50 X10<sup>-5</sup> S<sup>-1</sup> AROUND THE SYSTEM CENTER. STRONG OUTFLOW IS SEEN IN UPPER LEVELS. WIND SHEAR IS MODERATE (10-15 KNOTS) OVER SYSTEM AREA AND ALONG THE EXPECTED TRACK AND IT IS MODERATE TO HIGH OVER WSTERN PARTS OF WESTCENTRAL ARABIAN SEA. TROPOSPHERIC RIDGE RUNS NEAR 15<sup>0</sup>N IN ASSOCIATION WITH ANTICYCLONIC CIRCULATION OVER SOUTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA. THE HIGHER SST, HIGHER OCEAN THERMAL ENERGY, LOW VERTICAL WIND SHEAR. WARM AIR ADVECTION FROM SOUTHEAST SECTOR, POLEWARD OUTFLOW IN UPPER LEVELS, THERE HAS BEEN RAPID INTNSIFICATION DURING 0300 UTC OF  $21^{\rm ST}$  TO 0300 UTC OF  $22^{\rm ND}$ . DURING THIS PERIOD THE WIND SPEED INCREASED BY 50 KNOTS IN 24 HOURS FROM (45 KNOT AT 0300 UTC OF  $21^{\rm ST}$  TO 0300 UTC OF  $22^{\rm ND}$ ). THE CI NUMBER INCREASED FROM T3.0 TO T5.0.

MOST OF THE MODELS ARE INDICATING THE SYSTEM TO CROSS YEMEN (EXCEPT IMD GEFS). IMD MULTI MODEL GUIDANCE IS ALSO INDICATING LANDFALL OVER YEMEN. MOST OF THE MODELS ARE INDICATING WEAKENING PRIOR TO LANDFALL. THIS IS SUPPORTED BY DECREASING OCEAN THERMAL ENERGY AND INCREASING WIND SHEAR AND COLD DRY AIR ENTRAINMENT WHEN SYSTEM WILL APPROACH COAST.

IN VIEW OF ABOVE, THE VERY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS YEMEN COAST CLOSE TO AL GHAIDAH (YEMEN, 41398) DURING 1800-2100 UTC OF 23<sup>RD</sup> OCTOBER AS A VERY SEVERE CYCLONIC STORM WITH WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

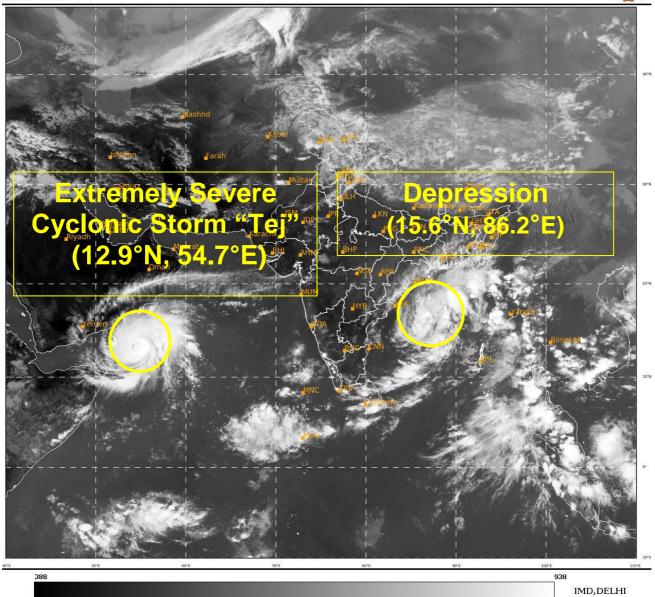
#### **BAY OF BENGAL:**

MJO IS NOT SUPPORTIVE FOR CYCLOGENESIS OVER BOB. HOWEVER, WARM SST AND LOW TO MODERATE VERTICAL WIND SHEAR OVER SOUTH & CENTRAL BOB ARE LIKELY TO SUPPORT THE DEVELOPMENT OF DEEP DEPRESSION OVER BOB. THE GLOBAL MODELS ARE IN AGREEMENT THAT THE DEPRESSION OVER WESTCENTRAL BAY OF BENGAL IS LIKELY TO INTENSIFY FURTHER INTO A DEEP DEPRESSION DURING NEXT 06 HOURS AND FURTHER INTENSIFY INTO A CYCLONIC STORM AROUND 1800 UTC OF 23<sup>RD</sup> OCTOBER 2023. THERE IS CONSENSUS AMONG VARIOUS MODELS WRT MOVEMENT TOWARDS BANGLADESH. MOST OF THE MODELS ARE INDICATING INTENSIFICATION UPTO DEEP DEPRESSION STAGE, HOWEVER CMC AND IMDGEFS ARE INDICATING HIGHER INTENSITY.

CONSIDERING ALL THESE, THE DEPRESSION OVER WESTCENTRAL BAY OF BENGAL IS VERY LIKELY TO MOVE NEARLY NORTHWARDS AND INTENSIFY INTO A DEEP DEPRESSION DURING NEXT 6 HOURS. THEREAFTER, IT IS LIKELY TO CONTINUE TO MOVE NORTHWARDS TILL 0000 UTC OF 23<sup>RD</sup> AND THEN NORTH-NORTHEASTWARDS DURING SUBSEQUENT 2 DAYS TOWARDS BANGLADESH COAST.

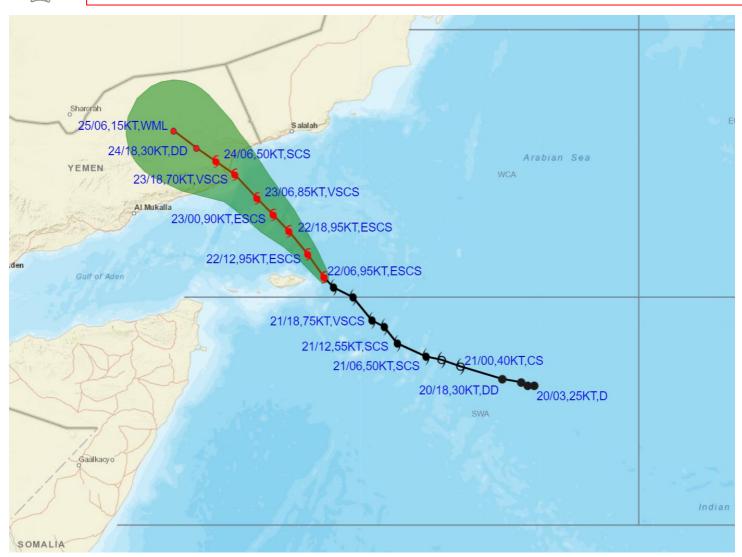
(M SHARMA) SCIENTIST-D RSMC, NEW DELHI SAT : INSAT-3D IMG IMG\_TIR1 10.8 um L1C Mercator 22-10-2023/(1000 to 1026) GMT 22-10-2023/(1530 to 1556) IST







FORECAST TRACK ALONGWITH OBSERVED AND **UNCERTAINITY OF EXTREMELY SEVERE CYCLONIC STORM "TEJ" OVER** WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA BASED ON 0600 UTC (1130 IST) OF 22<sup>ND</sup> OCTOBER 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)

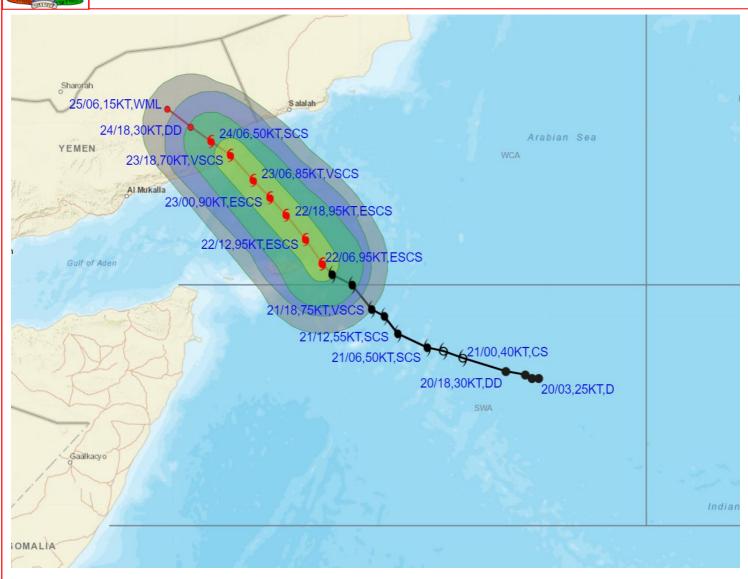
SuCS: SUPER CYCLONIC STORM € 120 KT)

	LESS THAN 34 KT
6	
2	34-47 KT
•	≥ 48 KT
	OBSERVED TRACK
	FORECAST TRACK
	CONE OF UNCERTAINTY

STATIONS	DISTANCE(KM) AND DIRECTION FROM STATIONS		
STATIONS	23.10.23/0600	24.10.23/0600	25.10.23/0600
SOCOTRA	210, NNW	410, NNW	610, NNW
SALALAH	290, SSW	210, SW	270, WNW
AL-GHAIDAH	240, SE	50, ESE	180, NNW



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF EXTREMELY SEVERE CYCLONIC STORM "TEJ" OVER WESTCENTRAL AND ADJOINING SOUTHWEST ARABIAN SEA BASED ON 0600 UTC (1130 IST) OF 22<sup>ND</sup> OCTOBER 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)

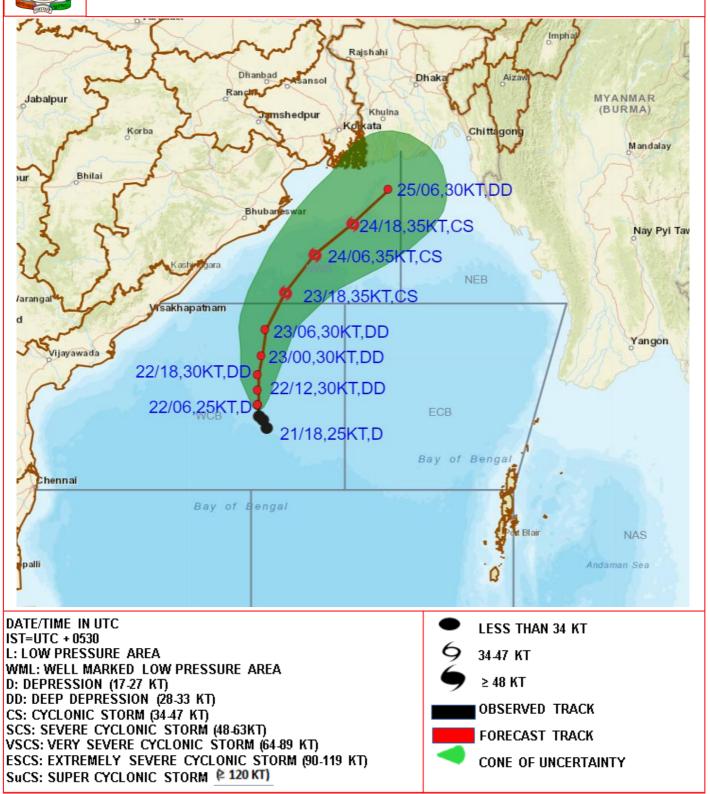
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

•	LESS THAN 34 KT
6	34.47 KT
6	≥ 48 KT
	OBSERVED TRACK
	FORECAST TRACK
	CONE OF UNCERTAINTY
AREA C	F 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	



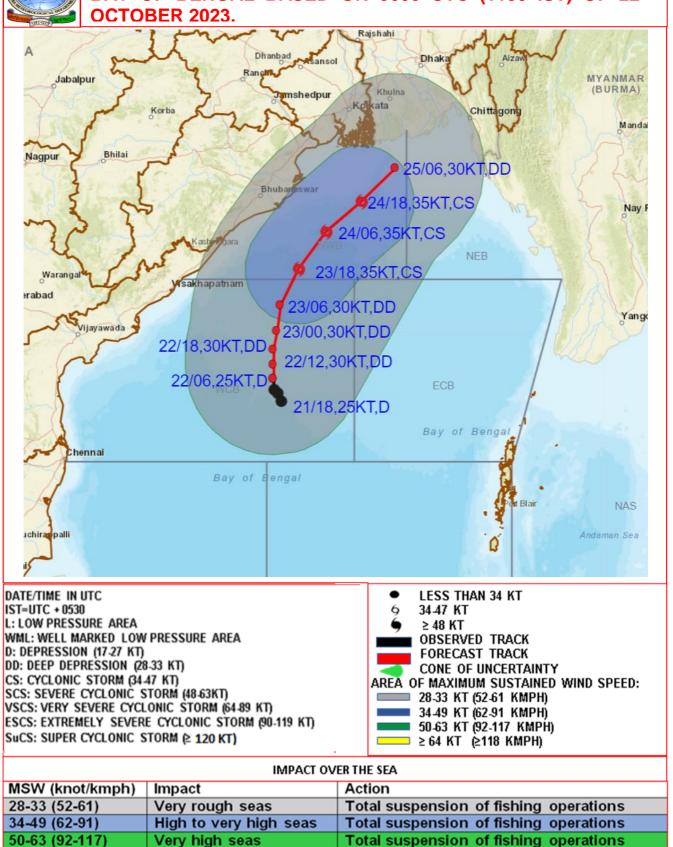
OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF DEPRESSION OVER WESTCENTRAL BAY OF BENGAL BASED ON 0600 UTC (1130 IST) OF 22<sup>ND</sup> OCTOBER 2023.





≥ 64 (≥118)

OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEPRESSION OVER WESTCENTRAL BAY OF BENGAL BASED ON 0600 UTC (1130 IST) OF 22ND OCTOBER 2023



Total suspension of fishing operations

**Phenomenal** 

#### WEATHER WARNING GRAPHICS

