



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. 11 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1000 UTC OF 22.10.2023 BASED ON 0600 UTC OF 22.10.2023.

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

(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 19 KMPH DURING PAST 6 HOURS, AND LAY CENTERED AT 0600 UTC OF TODAY, THE 22ND OCTOBER OVER THE SAME REGION, NEAR LATITUDE 12.6°N AND LONGITUDE 55.1°E ABOUT 160 KM EAST-SOUTHEAST OF SOCOTRA (YEMEN, 41494), 540 KM SOUTH-SOUTHEAST OF SALALAH (OMAN, 41316) AND 550 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 24TH 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 (UTC)	POSITION LAT. ⁰ N/ LONG. ⁰ E	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
22.10.23/0600	12.6/55.1	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 16.0N LONG 51.0E TO 60.0E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 93⁰C.

MULTISATELLITE WINDS INDICATE STRONGER WINDS IN NORTHEAST AND ADJOINING EASTERN & NORTHEN 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 23RD OCTOBER. IT IS LIKELY TO IMPROVE GRADUALLY BECOMING **HIGH TO VERY HIGH** FROM 0000 UTC OF 24TH 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 24TH OCTOBER. IT WOULD IMPROVE GRADUALLY THEREAFTER BECOMING **VERY HIGH TO HIGH** FROM 1200 UTC OF 24TH AND VERY ROUGH TO ROUGH BY 1200 UTC OF 25TH 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 07 KMPH DURING PAST 6 HOURS AND LAY CENTERED AT 0600 UTC OF TODAY, THE 22ND OCTOBER OVER THE SAME REGION, NEAR LATITUDE 15.3°N AND LONGITUDE 86.2°E ABOUT 550 KM SOUTH OF PARADIP (INDIA, 42976), 710 KM SOUTH OF DIGHA ((INDIA, 42901), AND 850 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 23RD 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 90.0[°]E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 85[°]C. MULTISATELLITE WINDS INDICATE STRONGER WINDS IN NORTHEAST AND ADJOINING NORTHERN & 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	CATEGORY OF CYCLONIC DISTURBANCE
		WIND SPEED (KMPH)	
22.10.23/0600	15.3/86.2	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 5 DAYS. SEA SURFACE TEMPERATURE IS 28-30°C OVER SOUTH & WESTCENTRAL ARABIAN SEA. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 75 KJ/CM² OVER SOUTHWEST ARABIAN SEA NEAR THE SYSTEM LOCATION. IT WOULD DECREASE GRADUALLY BECOMING 15-35 KJ/CM² 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 30X10⁻⁵S⁻¹ TO THE SOUTH-SOUTHWEST OF SYSTEM CENTER. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT 50 X10⁻⁵ S⁻¹ 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. UPPER TROPOSPHERIC RIDGE RUNS NEAR 15⁰N IN ASSOCIATION WITH ANTICYCLONIC CIRCULATION OVER SOUTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA.

AS INDICATED, IN ASSOCIATION WITH 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 21ST TO 0300 UTC OF 22ND. DURING THIS PERIOD THE WIND SPEED INCREASED BY 50 KNOTS IN 24 HOURS FROM (45 KNOT AT 0300 UTC OF 21ST TO 0300 UTC OF 22ND). THE CI NUMBER INCREASED FROM T3.0 TO T5.0. HOWEVER CURRENTLY THE SYSTEM IS MOVING FASTER WITH AVERAGE SPEED OF 20 KMPH AND AS A RESULT IT WOULD ENTER INTO COLDER SEA AREA. THUS FURTHER INTENSIFICATION WOULD NOT OCCUR.

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.

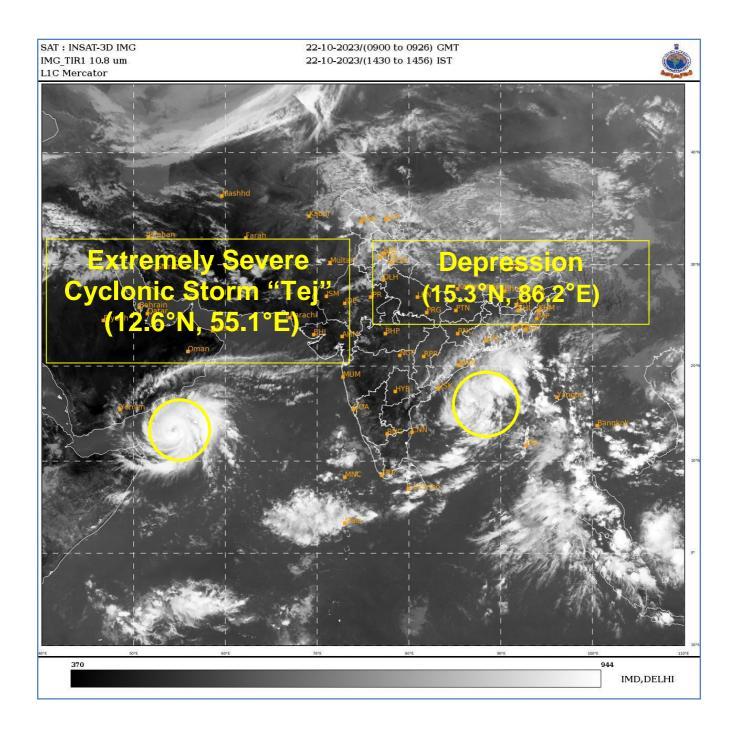
IN VIEW OF ABOVE, THE VERY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS YEMEN COAST CLOSE TO AL GHAIDAH (YEMEN, 41398) DURING 1800-2100 UTC OF 24TH OCTOBER AS A VERY SEVERE CYCLONIC STORM WITH WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

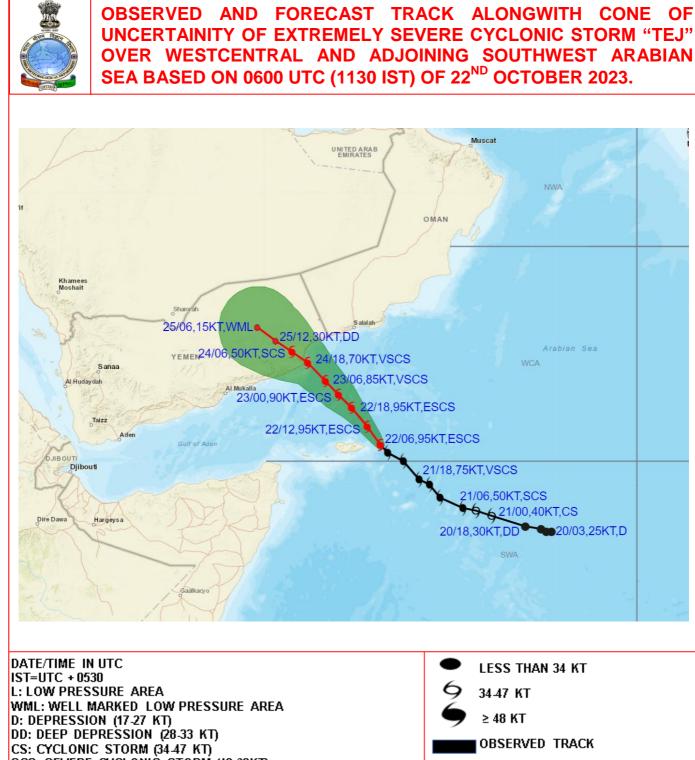
BAY OF BENGAL:

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 23RD 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 IS INDICATING HIGHER INTENSITY.

CONSIDERING ALL THESE, THE DEPRESSION OVER WESTCENTRAL BAY OF BENGAL 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 23RD AND THEN NORTH-NORTHEASTWARDS DURING SUBSEQUENT 2 DAYS TOWARDS BANGLADESH COAST.

> (SHOBHIT KATIYAR) SCIENTIST-D RSMC, NEW DELHI



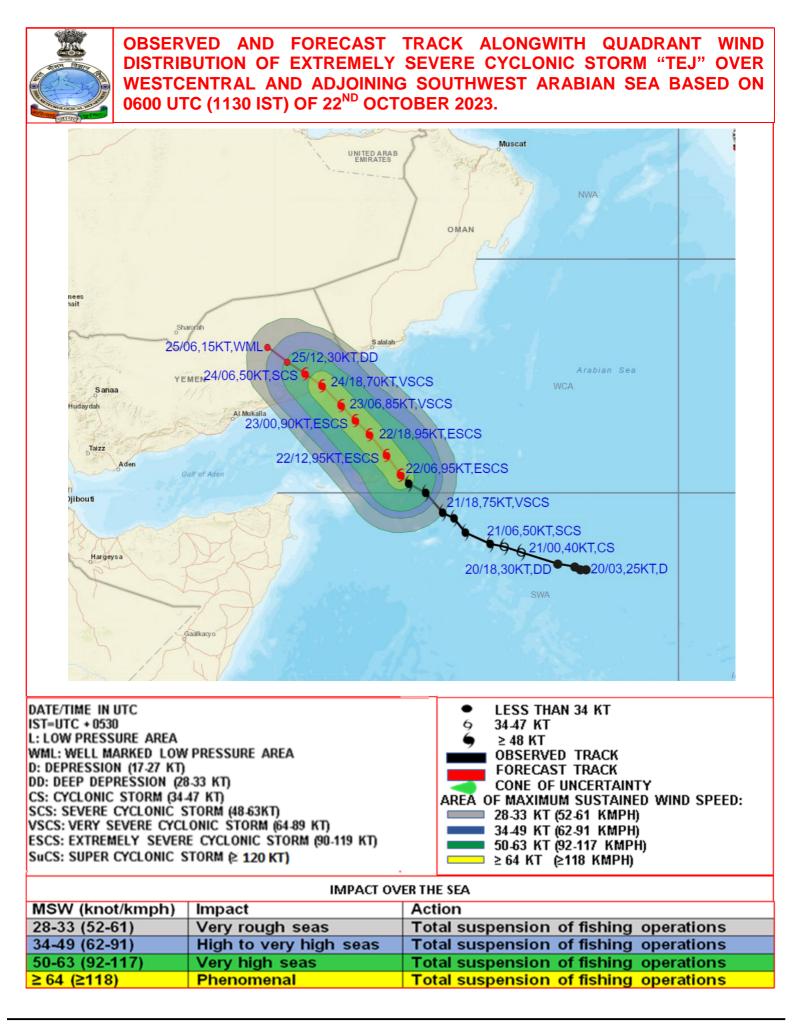


SCS: SEVERE CYCLONIC STORM (48-63KT) VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT) ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT) SuCS: SUPER CYCLONIC STORM № 120 KT)

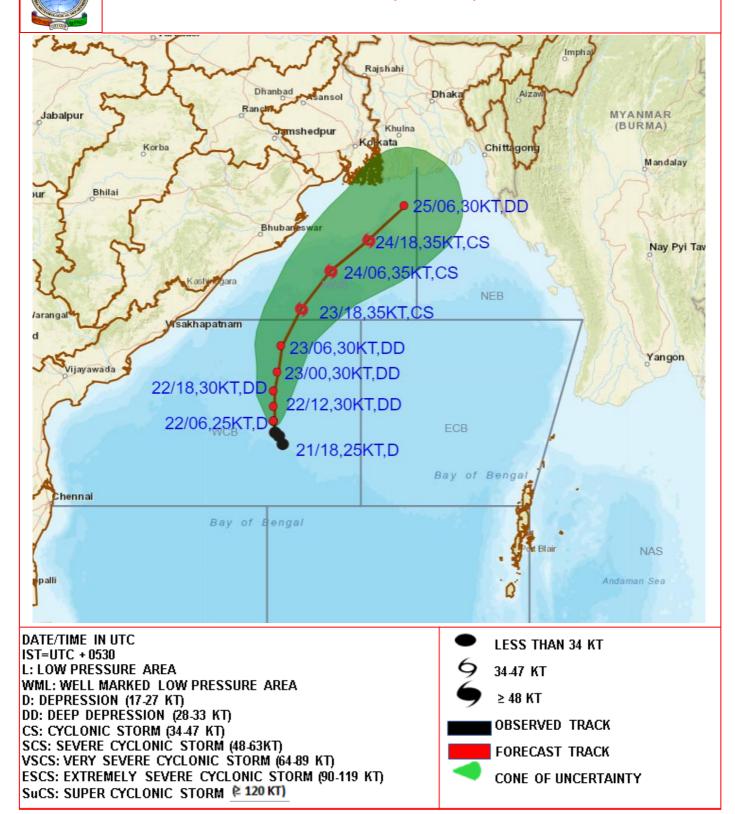
FORECAST TRACK

CONE OF UNCERTAINTY

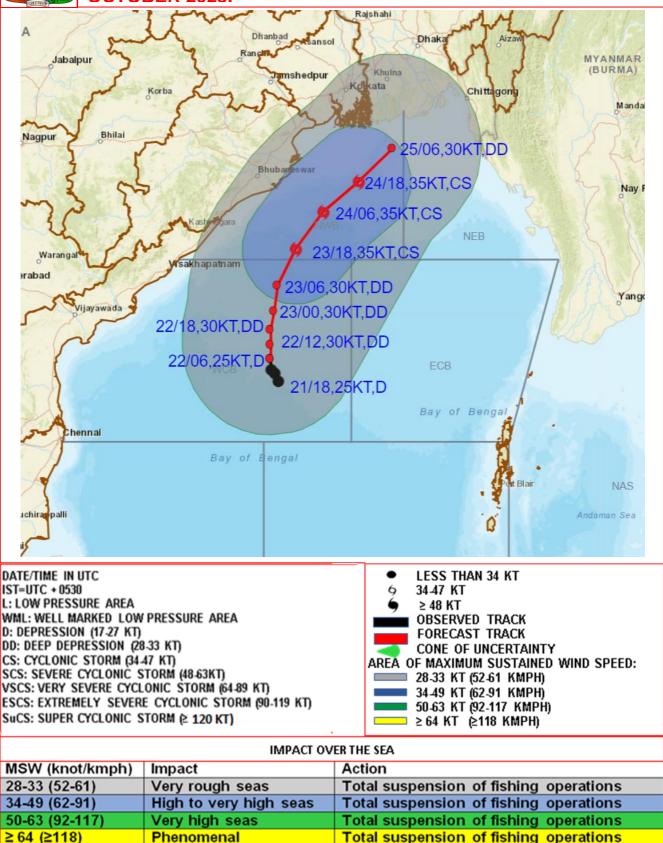
STATIONS	DISTANCE(KM) AND DIRECTION FROM STATIONS				
STATIONS	23.10.23/0600	24.10.23/0600	25.10.23/0600		
SOCOTRA	210, NNW	410, NNW	610, NNW		
SALALAH	290, SSW	210, SW	270, WNW		
AL-GHAIDAH	240, SE	50, ESE	180, NNW		



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



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.



WEATHER WARNING GRAPHICS

