



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

#### **DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 23.10.2023**

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. 18 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 0630 UTC OF 23.10.2023 BASED ON 0300 UTC OF 23.10.2023.

SUB: (A) EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) WEAKENED INTO VERY SEVERE CYCLONIC STORM OVER WESTCENTRAL ARABIAN SEA AND (B) DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL

#### (A) EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) WEAKENED INTO VERY SEVERE CYCLONIC STORM OVER WESTCENTRAL ARABIAN SEA

THE EXTREMELY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) OVER WESTCENTRAL ARABIAN SEA CONTINUED TO MOVE NORTHWESTWARDS WITH A SPEED OF 12 KMPH DURING PAST 6 HOURS, WEAKENED INTO A VERY SEVERE CYCLONIC STORM AND LAY CENTERED AT 0300 UTC OF TODAY, THE 23<sup>RD</sup> OCTOBER OVER WESTCENTRAL ARABIAN SEA, NEAR LATITUDE 14.6°N AND LONGITUDE 53.2°E, ABOUT 230 KM NORTH-NORTHWEST OF SOCOTRA (YEMEN, 41494), 280 KM SOUTH-SOUTHWEST OF SALALAH (OMAN, 41316) AND 200 KM SOUTH-SOUTHEAST OF AL GHAIDAH (YEMEN, 41398).

IT IS VERY LIKELY TO CONTINUE TO MOVE NORTHWESTWARDS AND CROSS YEMEN COAST CLOSE TO AL- GHAIDAH DURING 1800 – 2100 UTC OF 23RD OCTOBER AS A **VERY SEVERE CYCLONIC STORM** WITH WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

#### FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)	POSITION (LAT. <sup>0</sup> N/ LONG. <sup>0</sup> E)	MAXIMUM SUSTAINED SURFACE	CATEGORY OF CYCLONIC DISTURBANCE
	,	WIND SPEED (KMPH)	
23.10.23/0300	14.6/53.2	155-165 GUSTING TO 180	VERY SEVERE CYCLONIC
			STORM
23.10.23/0600	15.0/52.9	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC
			STORM
23.10.23/1200	15.3/52.6	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC
			STORM
23.10.23/1800	15.6/52.3	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC
			STORM
24.10.23/0000	15.9/51.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
24.10.23/1200	16.2/51.5	45-55 GUSTING TO 65	DEPRESSION

AS PER INSAT 3D IMAGERY, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 4.0/4.5. SYSTEM SHOWS CENTRAL DENSE OVERCAST PATTERN WITH WELL DEFINED SPIRAL BANDS. THE OUTER SPIRAL BANDS HAVE ENTERED INTO LAND AND HENCE THE LAND INTERACTION HAS COMMENCED. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER WESTCENTRAL ARABIAN SEA BETWEEN LATITUDE 13.0°N TO 17.0°N AND LONGITUDE 50.5°E TO 55.5°E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 82°C. THE SATELLITE IMAGERY SHOWS GRADUAL WEAKENING OF SYSTEM. MULTISATELLITE WINDS INDICATE STRONGER WINDS IN THE NORTHEASTERN SECTOR. TOTAL PRECIPITABLE WATER IMAGERY SHOWS DRY AIR INCURSION IS TAKING PLACE REACHING UPTO THE CORE FROM WESTERN SECTOR.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 85 KNOTS GUSTING TO 95 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 972 HPA.

## STORM SURGE GUIDANCE FOR YEMEN COAST:

STORM SURGE OF ABOUT 2 METER HEIGHT ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS BETWEEN AL GHAYDAH AND AL FAYDAMI NEAR THE LANDFALL POINT AT THE TIME OF LANDFALL.

## **SEA CONDITION:**

- SOUTHWEST ARABIAN SEA: VERY ROUGH TO ROUGH SEA CONDITIONS, PREVAILING OVER THE REGION IS LIKELY TO IMPROVE FURTHER FROM 1200 UTC OF 23<sup>RD</sup> OCTOBER.
- WESTCENTRAL ARABIAN SEA: PHENOMENAL SEA CONDITION IS PREVAILING AND WILL CONTINUE TILL 1800 UTC OF 23<sup>RD</sup> OCTOBER. IT WOULD IMPROVE GRADUALLY THEREAFTER BECOMING HIGH TO VERY ROUGH BY 0000 UTC OF 24<sup>TH</sup> AND ROUGH TO VERY ROUGH BY 1200 UTC OF 24<sup>TH</sup> OCTOBER. THEREAFTER, IT WOULD IMPROVE GRADUALLY.

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

## (B) DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL

THE DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL MOVED NORTHEASTWARDS WITH A SPEED OF 13 KMPH DURING PAST 6 HOURS AND LAY CENTERED AT 0300 UTC OF TODAY, THE 23<sup>RD</sup> OCTOBER OVER THE SAME REGION, NEAR LATITUDE 17.0°N AND LONGITUDE 86.8°E, ABOUT 360 KM SOUTH OF PARADIP (ODISHA, 42976), 510 KM SOUTH-SOUTHWEST OF DIGHA (WEST BENGAL, 42901) AND 660 KM SOUTH-SOUTHWEST OF KHEPUPARA (BANGLADESH, 41984).

IT IS LIKELY TO INTENSIFY INTO A **CYCLONIC STORM** DURING NEXT 6 HOURS. IT IS VERY LIKELY TO MOVE NEARLY NORTH-NORTHEASTWARDS AND CROSS BANGLADESH COAST BETWEEN KHEPUPARA AND CHITTAGONG AROUND 1200 UTC OF 25<sup>TH</sup> OCTOBER AS A **DEEP DEPRESSION**.

#### FORECAST TRACK AND INTENSITY ARE GIVEN BELOW:

DATE/TIME(UTC)		MAXIMUM SUSTAINED	CATEGORY OF CYCLONIC
	LAT. <sup>0</sup> N/ LONG. <sup>0</sup> E SURFACE		DISTURBANCE
		WIND SPEED (KMPH)	
23.10.23/0300	17.0/86.8	55-65 gusting to 75	Deep Depression
23.10.23/0600	17.5/87.0	55-65 gusting to 75	Deep Depression
23.10.23/1200	18.2/87.3	60-70 gusting to 80	Cyclonic Storm
23.10.23/1800	18.8/87.7	70-80 gusting to 90	Cyclonic Storm
24.10.23/0000	19.3/88.2	80-90 gusting to 100	Cyclonic Storm
24.10.23/1200	20.2/89.1	70-80 gusting to 90	Cyclonic Storm
25.10.23/0000	21.1/89.8	55-65 gusting to 75	Deep Depression
25.10.23/1200	21.9/90.3	50-60 gusting to 70	Deep Depression
26.10.23/0000	22.8/90.7	25-35 gusting to 45	Well Marked Low

AS PER INSAT 3D IMAGERY, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 2.0. SHEAR PATTERN IS SEEN IN CLOUD IMAGERY.

CLOUDS ARE SHEARED IN NORTHEAST SECTOR. BANDING FEATURES ARE APPEARING IN CLOUD IMAGERY ALONGWITH FURTHER INCREASE IN CONVECTIVE CLOUDS IN CORE AREA, INDICATING FURTHER INTENSIFICATION OF THE SYSTEM.

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 LATITUDE 15.0<sup>o</sup>N TO 21.0N AND LONGITUDE 84.5<sup>o</sup>E TO 92.0<sup>o</sup>E. MINIMUM CLOUD TOP TEMPRATURE IS MINUS 88<sup>o</sup>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 30 KNOTS GUSTING TO 40 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 1002 HPA.

#### WIND GUIDANCE (WARNING MAP ENCLOSED):

• WESTCENTRAL BAY OF BENGAL: SQUALLY WIND SPEED REACHING 50-60 KMPH GUSTING TO 70 KMPH IS PREVAILING AND LIKELY TO INCREASE BECOMING 55-65 KMPH GUSTING TO 75 KMPH FROM 1200 UTC OF 23<sup>RD</sup> TILL 0000 UTC OF 24<sup>TH</sup> OCTOBER. IT IS

LIKELY TO DECREASE GRADUALLY FROM 0600 UTC OF 24<sup>TH</sup> BECOMING **SQUALLY WIND** SPEED REACHING **40-50 KMPH GUSTING 60 KMPH** BY 1200 UTC OF 24<sup>TH</sup>.

- ADJOINING EASTCENTRAL BAY OF BENGAL: SQUALLY WIND SPEED REACHING 45-55 KMPH GUSTING TO 65 KMPH IS LIKELY TO INCREASE GRADUALLY BECOMING 50-60 KMPH GUSTING TO 70 KMPH ON 24<sup>TH</sup> AND DECREASE FROM 25<sup>TH</sup> ONWARDS.
- NORTH BAY OF BENGAL: SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS PREVAILING AND LIKELY TO BECOME 50-60 KMPH GUSTING TO 70 KMPH FROM 1200 UTC OF TODAY. IT WOULD BECOME GALE WIND SPEED REACHING 60-70 KMPH GUSTING TO 80 KMPH FROM 0000 UTC OF 24<sup>TH</sup> OCTOBER AND 80-90 KMPH GUSTING 100 KMPH DURING 0000 – 0600 UTC OF 24<sup>TH</sup>. IT WOULD DECREASE GRADUALLY THEREAFTER.
- ALONG & OFF ODISHA, WEST BENGAL, BANGLADESH AND NORTH MYANMAR COASTS: SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS LIKELY FROM 1200 UTC OF 23<sup>RD</sup> TO 24<sup>TH</sup> ALONG & OFF ODISHA COAST. SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS LIKELY TO COMMENCE ALONG & OFF WEST BENGAL, BANGLADESH AND NORTH MYANMAR COASTS FROM 0000 UTC OF 24<sup>TH</sup>. IT WOULD GRADUALLY INCREASE BECOMING 55-65 KMPH GUSTING TO 75 KMPH ALONG & OFF BANGLADESH COAST, 50-60 KMPH GUSTING TO 70 KMPH ALONG & OFF NORTH MYANMAR COAST AND 45-55 KMPH GUSTING TO 65 ALONG & OFF WEST BENGAL COAST ON 25<sup>TH</sup> OCTOBER.
- MIZORAM, TRIPURA, SOUTH ASSAM AND MANIPUR: SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS LIKELY TO PREVAIL OVER MIZORAM AND TRIPURA AND STRONG WIND SPEED REACHING 30-40 KMPH GUSTING TO 50 KMPH OVER SOUTH ASSAM & MANIPUR ON 25<sup>TH</sup> OCTOBER.

## STORM SURGE GUIDANCE FOR BANGLADESH COAST:

STORM SURGE OF ABOUT 1.0-1.5 METRE HEIGHT ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS BETWEEN KHEPUPARA AND CHITTAGONG AROUND THE TIME OF LANDFALL.

#### SEA CONDITION:

- WESTCENTRAL BAY OF BENGAL: ROUGH TO VERY ROUGH SEA CONDITION IS PREVAILING AND WILL CONTINUE TILL 25<sup>TH</sup> OCTOBER. IT IS LIKELY TO IMPROVE GRADUALLY THEREAFTER.
- ADJOINING EASTCENTRAL BAY OF BENGAL: MODERATE TO ROUGH SEA CONDITION IS PREVAILING AND LIKELY TILL 24<sup>TH</sup> OCTOBER AND ROUGH TO VERY ROUGH ON 25<sup>TH</sup> OCTOBER. IT IS LIKELY TO IMPROVE GRADUALLY THEREAFTER.
- NORTH BAY OF BENGAL: ROUGH SEA CONDITION IS LIKELY ON 23<sup>RD</sup> AND VERY ROUGH TO HIGH ON 24<sup>TH</sup> AND VERY ROUGH ON 25<sup>TH</sup> OCTOBER.
- ALONG & OFF ODISHA, WEST BENGAL, BANGLADESH AND NORTH MYANMAR COASTS: ROUGH SEA CONDITION IS LIKELY ON 23<sup>RD</sup> AND ROUGH TO VERY ROUGH ON 24<sup>TH</sup> AND 25<sup>TH</sup> OCTOBER.

#### **REMARKS:**

#### ARABIAN SEA:

MADDEN JULIAN OSCILLATION INDEX IS IN PHASE 8 WITH AMPLITUDE LESS THAN 1. IT WOULD CONTINUE IN SAME PHASE DURING NEXT 3 DAYS. SEA SURFACE TEMPERATURE IS 27-28°C OVER WESTCENTRAL ARABIAN SEA. THE TROPICAL CYCLONE HEAT POTENTIAL IS AROUND 20-30 KJ/CM<sup>2</sup> OVER WESTCENTRAL ARABIAN SEA NEAR THE SYSTEM LOCATION AND ALSO ALONG & OFF OMAN-YEMEN COASTS. THE LOW LEVEL POSITIVE VORTICITY IS AROUND 200 X10<sup>-6</sup>S<sup>-1</sup> TO THE SOUTH 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 THE SOUTHWEST OF SYSTEM CENTER. POSITIVE UPPER LEVEL DIVERGENCE IS ABOUT 30 X10<sup>-5</sup> S<sup>-1</sup> TO THE SOUTHWEST OF SYSTEM CENTRE. WIND SHEAR IS LOW TO MODERATE (10-15 KNOTS) OVER SYSTEM AREA AND ALONG THE EXPECTED TRACK.

EXISTING FEATURES INDICATE THAT THE SYSTEM HAS ENTERED OVER COLDER SEA, AN AREA OF LOWER OCEAN THERMAL ENERGY AND IS EXPERIENCING DRY COLD AIR INCURSION INTO THE CORE FROM ARABIAN PENINSULAR REGION. UNDER SUCH ENVIRONMENTAL CONDTIONS, THE SYSTEM HAS WEAKENED GRADUALLY AND IS LIKELY TO WEAKEN FURTHER BEFORE LANDFALL.

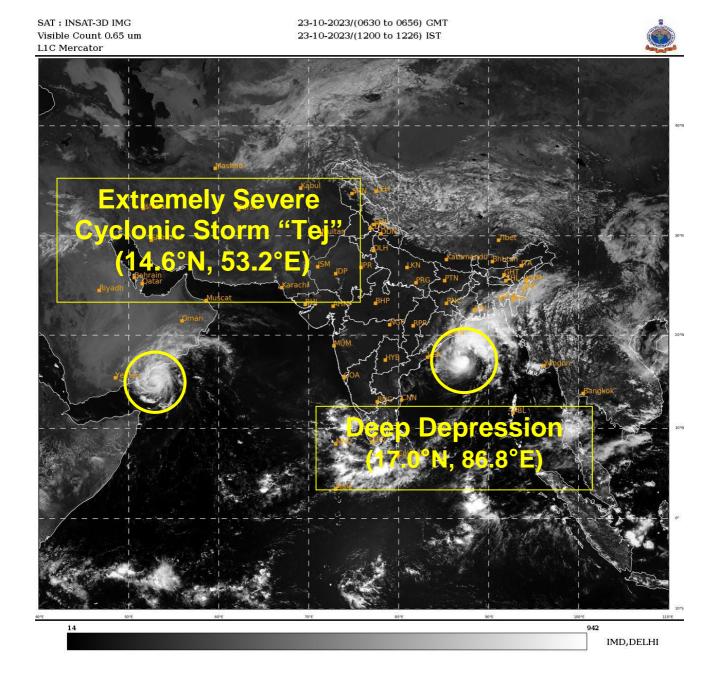
IN VIEW OF ABOVE, THE VERY SEVERE CYCLONIC STORM "TEJ" (PRONOUNCED AS TEJ) IS VERY LIKELY TO MOVE NORTHWESTWARDS AND CROSS YEMEN COAST CLOSE TO AL GHAIDAH (YEMEN) DURING 1800 – 2100 UTC OF 23RD OCTOBER AS A VERY SEVERE CYCLONIC STORM WITH WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH (70 KNOTS GUSTING 80 KNOTS).

### **BAY OF BENGAL:**

MODELS ARE IN AGREEMENT THAT THE DEEP DEPRESSION WOULD CROSS BANGLADESH COAST. MOST OF THE MODELS ARE INDICATING FURTHER INTENSIFICATION OF SYSTEM INTO CYCLONIC STORM AROUND 1200 UTC OF 23<sup>RD</sup> OCTOBER 2023.

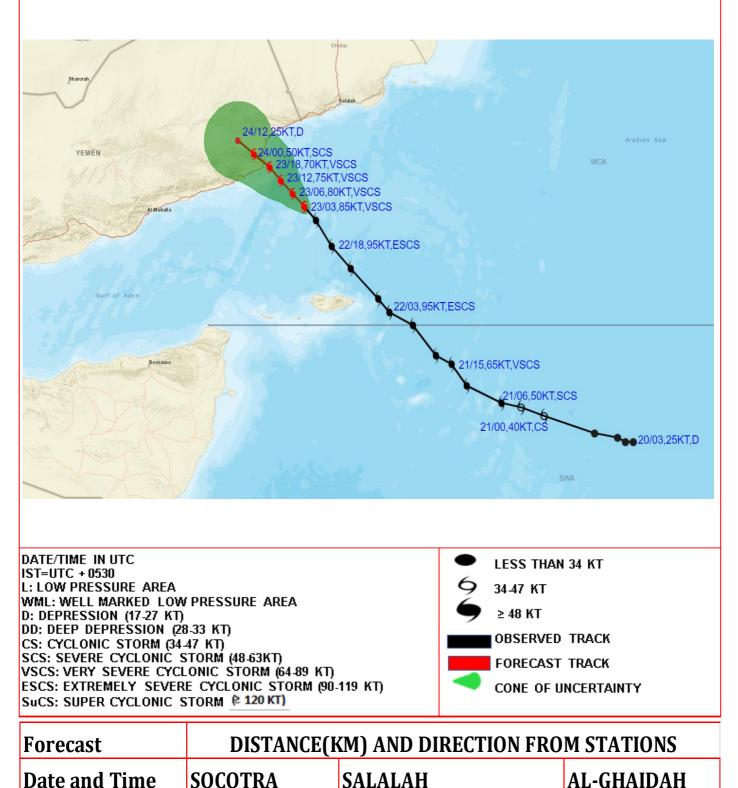
CONSIDERING ALL THESE, THE DEEP DEPRESSION OVER WESTCENTRAL BAY OF BENGAL IS VERY LIKELY TO INTENSIFY INTO A **CYCLONIC STORM** DURING NEXT 6 HOURS. IT WILL INTENSIFY FURTHER AND PEAK INTENSITY (45 KNOTS GUSTING TO 55 KNOTS) WILL OCCUR AROUND 0000 UTC OF  $24^{\text{TH}}$ . THEREAFTER, IT IS EXPECTED TO WEAKEN SLIGHTLY WHILE MOVING TOWARDS BANGLADESH COAST. IT IS LIKELY TO WEAKEN UNDER THE INFLUENCE OF HIGH VERTICAL WIND SHEAR IN ASSOCIATION WITH THE UPPER AIR TROUGH IN WESTERLY WITH EMBEDDED JET STREAM OVER THE REGION. IT IS VERY LIKELY TO MOVE NEARLY NORTH-NORTHEASTWARDS AND CROSS BANGLADESH COAST BETWEEN KHEPUPARA AND CHITTAGONG AROUND 1200 UTC OF  $25^{\text{TH}}$  OCTOBER AS A **DEEP DEPRESSION** WITH WIND SPEED OF 55-65 GUSTING TO 75 KMPH (30 GUSTING TO 40 KNOTS).

(M . SHARMA ) SCIENTIST-D RSMC, NEW DELHI





OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF VERY SEVERE CYCLONIC STORM "TEJ" OVER WESTCENTRAL ARABIAN SEA BASED ON 0300 UTC (0830 IST) OF 23<sup>RD</sup> OCTOBER 2023.



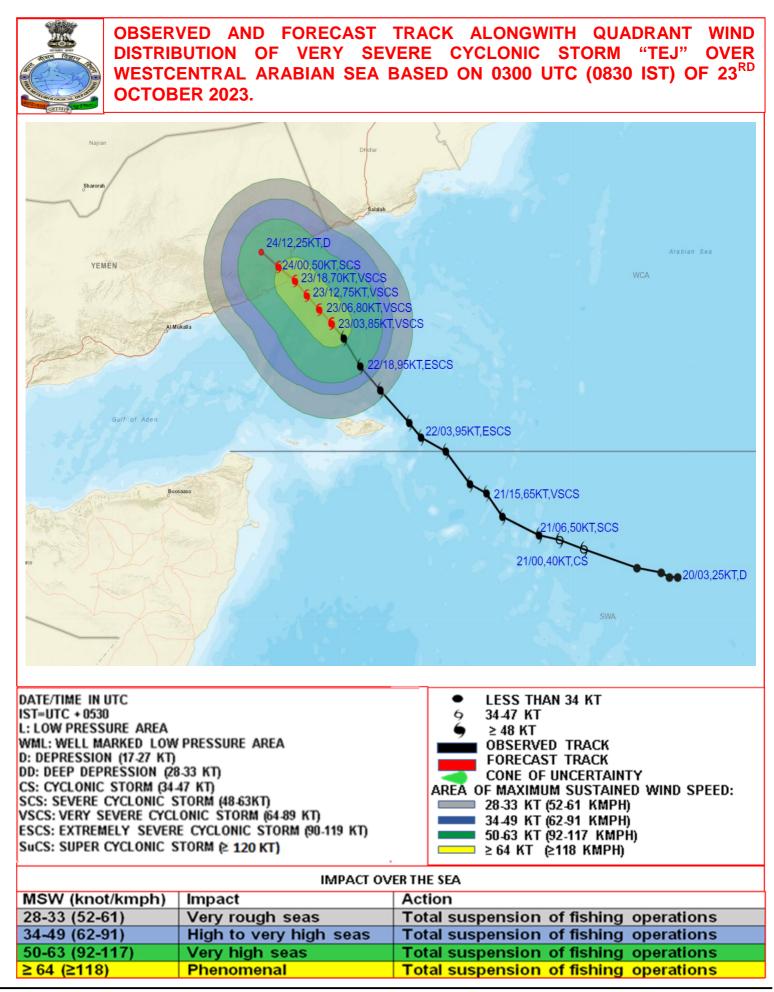
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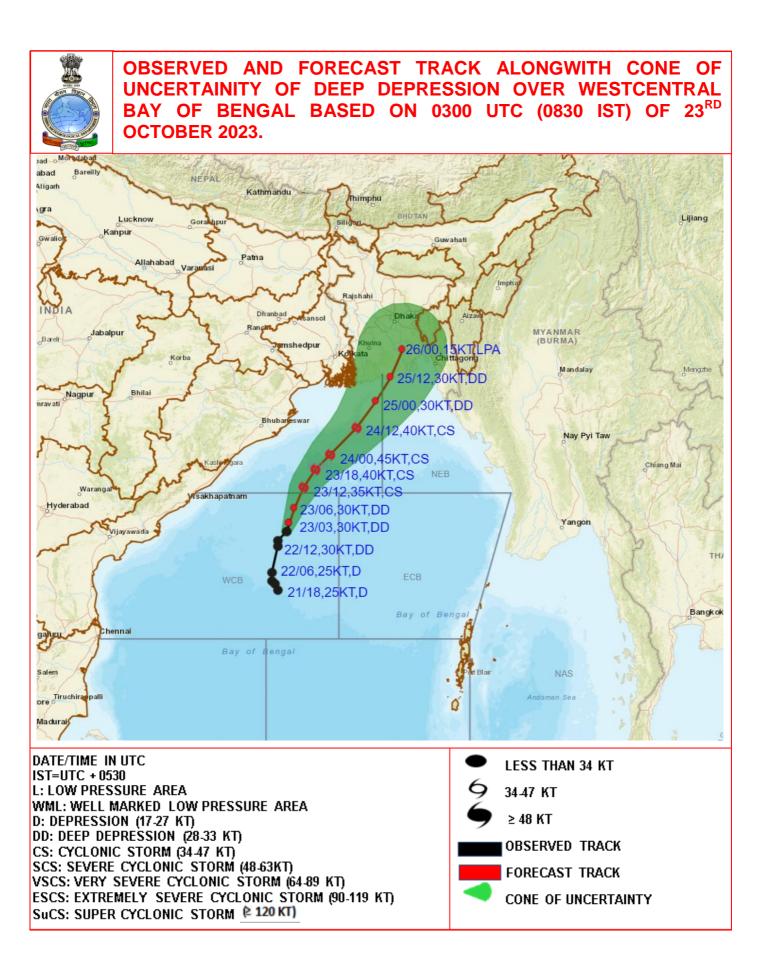
270, WSW

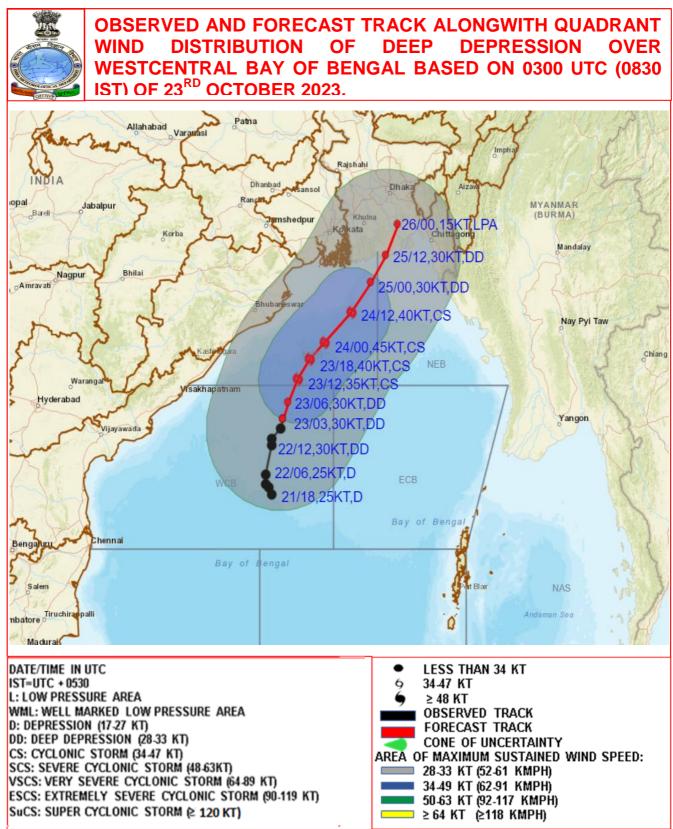
30, SW

420, NNW

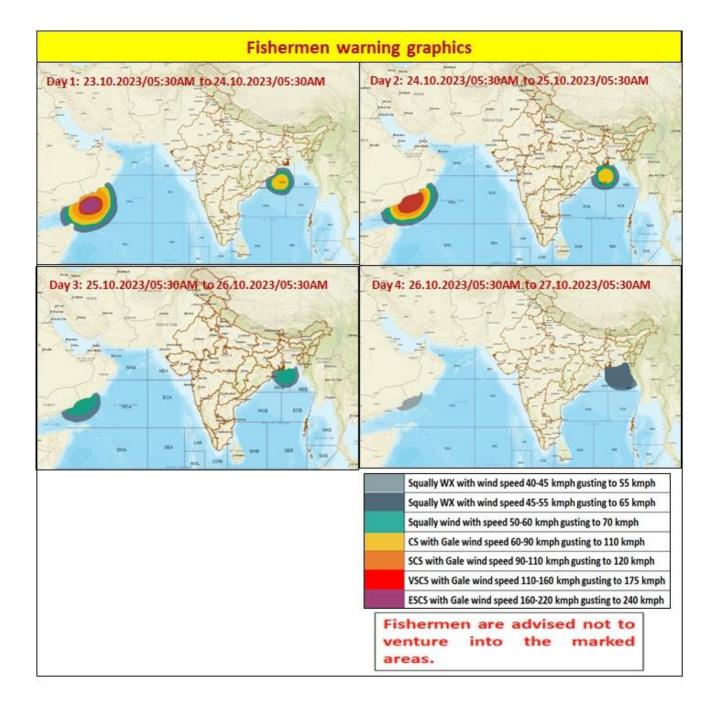
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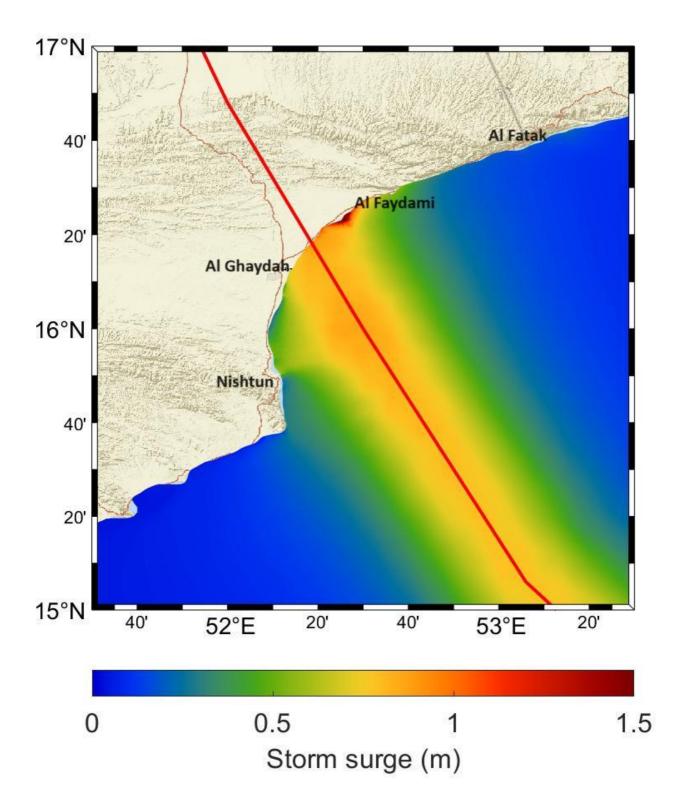


IMPACT OVER THE SEA				
MSW (knot/kmph)	Impact	Action		
28-33 (52-61)	Very rough seas	Total suspension of fishing operations		
34-49 (62-91)	High to very high seas	Total suspension of fishing operations		
50-63 (92-117)	Very high seas	Total suspension of fishing operations		
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations		



## STORM SURGE GUIDANCE FOR YEMEN:

STORM SURGE OF ABOUT 2 METER HEIGHT ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS BETWEEN AL GHAYDAH AND AL FAYDAMI NEAR THE LANDFALL POINT AT THE TIME OF LANDFALL.



## STORM SURGE GUIDANCE FOR BANGLADESH:

STORM SURGE OF ABOUT 1.0-1.5 METRE HEIGHT ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS BETWEEN KHEPUPARA AND CHITTAGONG AROUND THE TIME OF LANDFALL.

