



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI  
TROPICAL CYCLONE ADVISORY**

**DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 12.06.2023**

**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. 48 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1240 UTC OF 12.06.2023 BASED ON 0900 UTC OF 12.06.2023**

**SUB: EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA**

THE EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA MOVED NORTH-NORTHWESTWARDS WITH A SPEED OF 07 KMPH DURING PAST 6-HOURS AND LAY CENTERED AT 0900 UTC OF TODAY, THE 12<sup>TH</sup> JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 19.7°N AND LONGITUDE 67.5°E, ABOUT 310 KM SOUTHWEST OF PORBANDAR (42830), 340 KM SOUTH-SOUTHWEST OF DEVBHUMI DWARKA (42731), 410 KM SOUTH-SOUTHWEST OF JAKHAU PORT (23.24°N, 68.60°E, INDIA), 420 KM SOUTH-SOUTHWEST OF NALIYA (42631) AND 580 KM SOUTH OF KARACHI (PAKISTAN, 41780).

IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS TILL 14<sup>TH</sup> MORNING, THEN MOVE NORTH-NORTHEASTWARDS AND CROSS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS BETWEEN MANDVI (GUJARAT, 42729) AND KARACHI (PAKISTAN, 41780) NEAR JAKHAU PORT (GUJARAT, 23.24°N, 68.60°E) AROUND NOON OF 15<sup>TH</sup> JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

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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**Forecast track and intensity are given below:**

<b>Date/Time(UTC)</b>	<b>Position (Lat. °N/ long. °E)</b>	<b>Maximum sustained surface wind speed (Kmph)</b>	<b>Category of cyclonic disturbance</b>
12.06.23/0900	19.7/67.5	165-175 Gusting To 190	Extremely Severe Cyclonic Storm
12.06.23/1200	19.9/67.5	155-165 Gusting To 185	Very Severe Cyclonic Storm
12.06.23/1800	20.3/67.4	145-155 Gusting To 175	Very Severe Cyclonic Storm
13.06.23/0000	20.7/67.3	145-155 Gusting To 175	Very Severe Cyclonic Storm
13.06.23/0600	21.1/67.3	140-150 Gusting To 165	Very Severe Cyclonic Storm
13.06.23/1800	21.6/67.4	135-145 Gusting To 160	Very Severe Cyclonic Storm
14.06.23/0600	22.1/67.6	130-140 Gusting To 155	Very Severe Cyclonic Storm
14.06.23/1800	22.7/68.0	125-135 Gusting To 150	Very Severe Cyclonic Storm
15.06.23/0600	23.2/68.6	125-135 Gusting To 150	Very Severe Cyclonic Storm
15.06.23/1800	23.7/69.3	80-90 Gusting To 100	Cyclonic Storm
16.06.23/0600	24.3/70.3	40-50 Gusting To 60	Depression
16.06.23/1800	24.9/71.3	25-35 Gusting To 45	Well Marked Low Pressure Area

AS PER INSAT 3D IMAGERY INTENSITY OF THE SYSTEM IS T 5.0/5.0. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL ARABIAN SEA BETWEEN LATITUDE 15°N & 22.0°N AND LONGITUDE 63.0°E & 70.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 90 KNOTS GUSTING TO 100 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 966 HPA. SEA CONDITION IS LIKELY TO BE PHENOMENAL OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA.

**REMARKS:**

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 4 WITH AMPLITUDE LESS THAN 1. THEREAFTER, IT WOULD MOVE ACROSS PHASES 5 AND 6 DURING NEXT 3 DAYS. HENCE, MJO IS LIKELY TO SUPPORT THE ENHANCEMENT OF CONVECTIVE ACTIVITY AND CYCLOGENESIS OVER THE ARABIAN SEA DURING THE SAME PERIOD.

SEA SURFACE TEMPERATURE IS AROUND 30-31°C OVER CENTRAL & ADJOINING SOUTH ARABIAN SEA AND DECREASE TO 28-30°C OVER NORTH ARABIAN SEA. THE CYCLONIC STORM "BIPARJOY" IS CURRENTLY IN A VERY FAVOURABLE ENVIROMENT.POSITIVE LOW LEVEL VORTICITY IS AROUND  $300 \times 10^{-6} \text{S}^{-1}$  TO THE SOUTH-SOUTHWEST OF THE SYSTEM CENTRE, LOW LEVEL CONVERGENCE IS ABOUT ABOUT  $20 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTH OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE IS ABOUT  $10 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTH-SOUTHWESTOF SYSTEM CENTRE. WIND SHEAR IS MODERATE (15-20 KNOTS) OVER SYSTEM AREA AND IS REDUCED TO 05-15 KNOTS ALONG THE FORECAST TRACK. CURRENTLY, THE SYSTEM IS TRACKING NORTH-NORTHWESTWARD ALONG THE WESTERN SIDE OF THE SUBTROPICAL RIDGE OVER INDIA. WHEN THE SYSTEM WILL APPROACH COAST, IT IS LIKELY TO EXPERIENCE LESSER OCEAN THERMAL ENERGY (40-50 KJ/CM<sup>2</sup>) AND DECREASE IN MIDDLE LEVEL HUMIDITY DUE TO DRY COLD AIR INTRUSION.

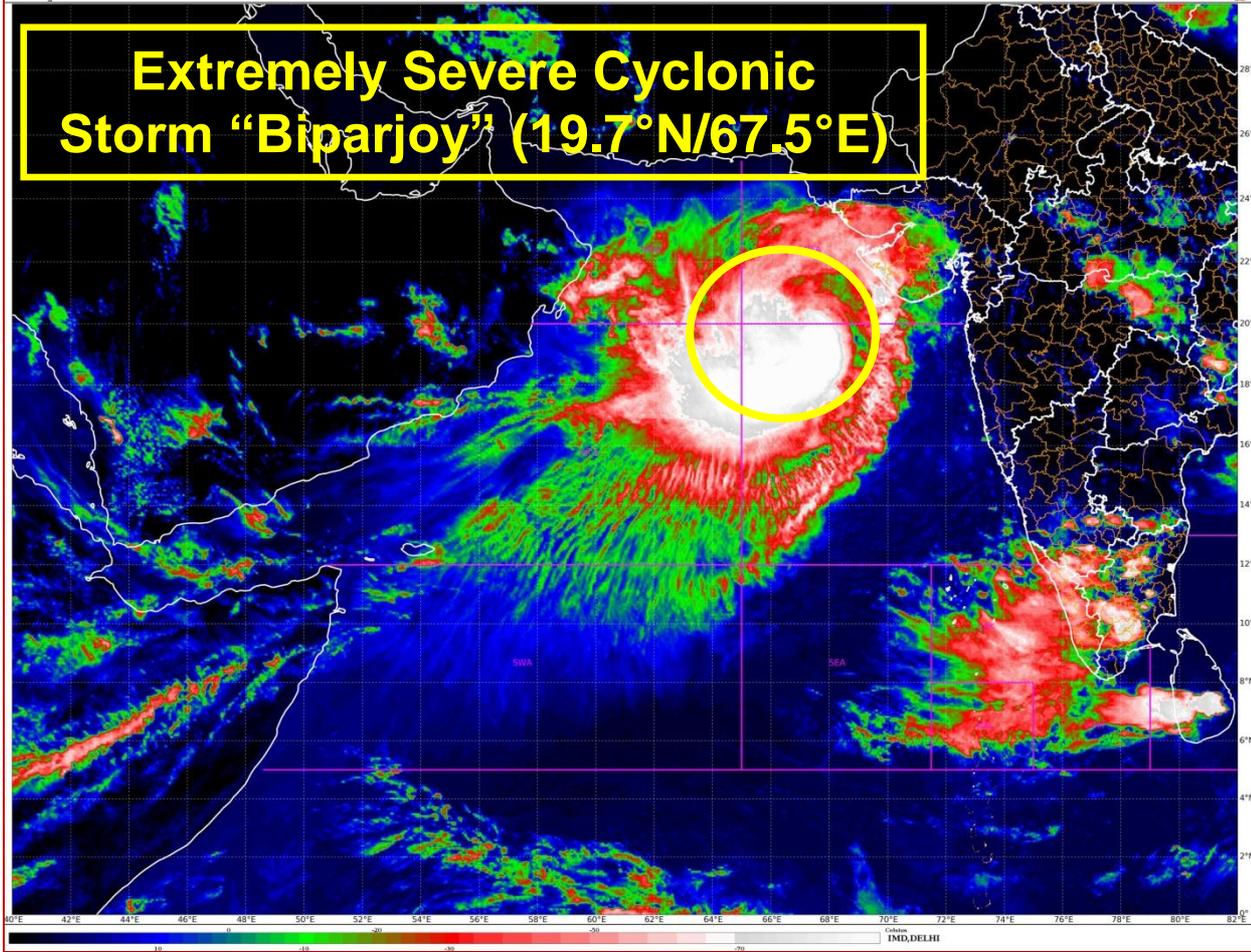
LATEST GUIDANCE FROM VARIOUS MODELS (NCUM-G, NCUM-R, ECMWF, IMD HWRF, IMD MME, IMD MMME) HAS NOW CONVERGED AND ALL OF THESE ARE INDICATING INTIAL NORTH-NORTHWESTWARDS MOVEMENT FOLLOWED BY GRADUAL NORTH-NORTHEASTWARDS MOVEMENT TOWARDS SAURASHTRA & KUTCH COASTS. ONLY IMD GFS AND NCEP GFS ARE INDICATING MOVEMENT TOWARDS PAKISTAN CLOSE TO KARACHI. A CONCENSUS HAS EMERGED AMONG VARIOUS MODELS WITH LANDFALL OVER SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS AND THEIR LANDFALL POINT VARRYING BETWEEN 67.7°E-68.6°E. THE TIMING OF LANDFALL FORECASTS BY THESE MODELS IS VARYING BETWEEN 0600 UTC TO 1800 UTC OF 15<sup>TH</sup> JUNE.

CONSIDERING ALL THE ABOVE, IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS TILL 14<sup>TH</sup> MORNING, THEN MOVE NORTH-NORTHEASTWARDS AND CROSS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS BETWEEN MANDVI (GUJARAT, 42729) AND KARACHI (PAKISTAN, 41780) NEAR JAKHAU PORT (GUJARAT, 23.24°N,68.60°E) AROUND NOON OF 15<sup>TH</sup> JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

**DR RK JENAMANI  
SCIENTIST G  
RSMC NEW DELHI**



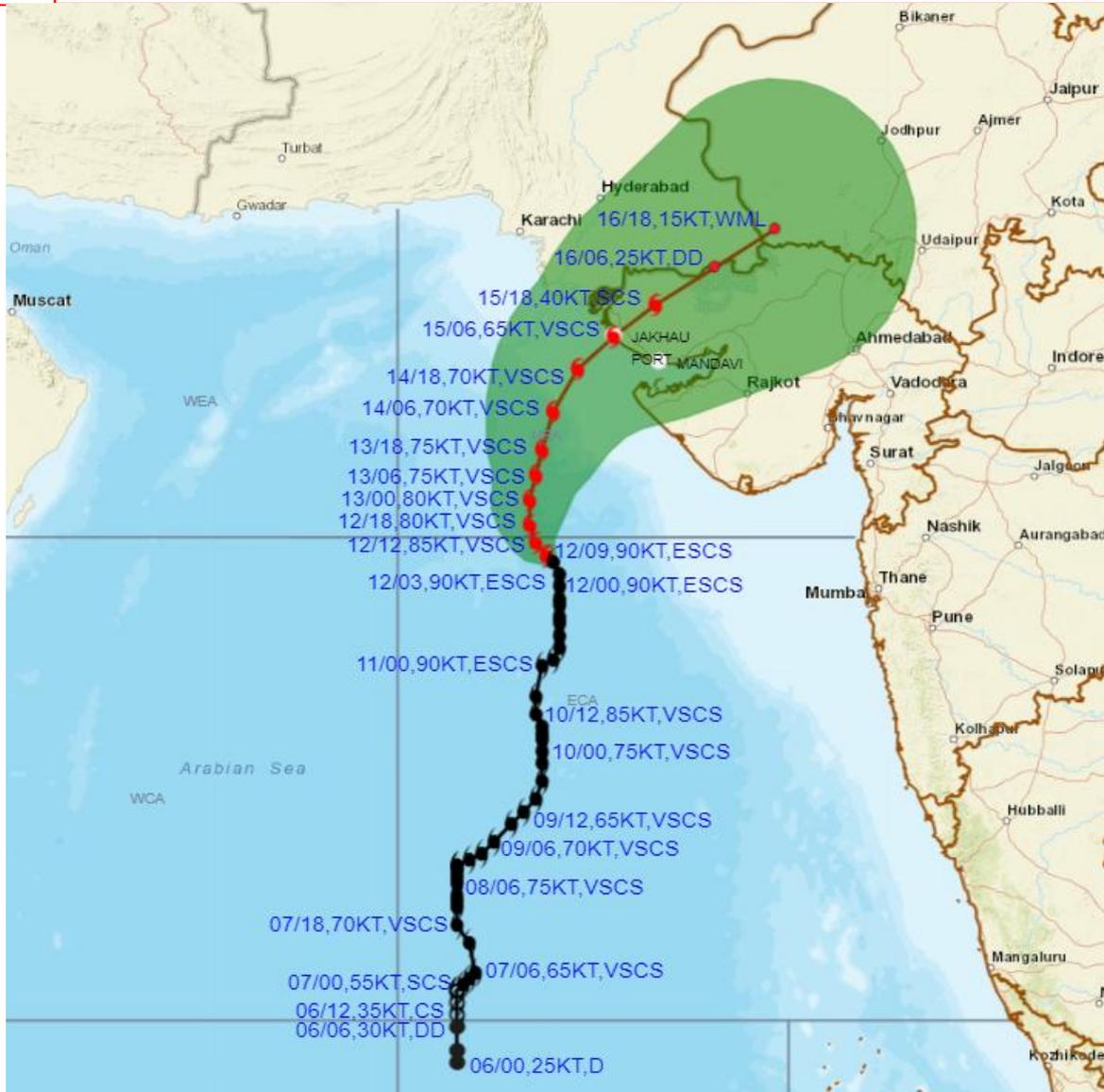
# Extremely Severe Cyclonic Storm "Biparjoy" (19.7°N/67.5°E)



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**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF EXTREMELY SEVERE CYCLONIC STORM "BIPARJOY" OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA BASED ON 0900 UTC (1430 IST) OF 12<sup>TH</sup> JUNE 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 ( $\geq$  120 KT)

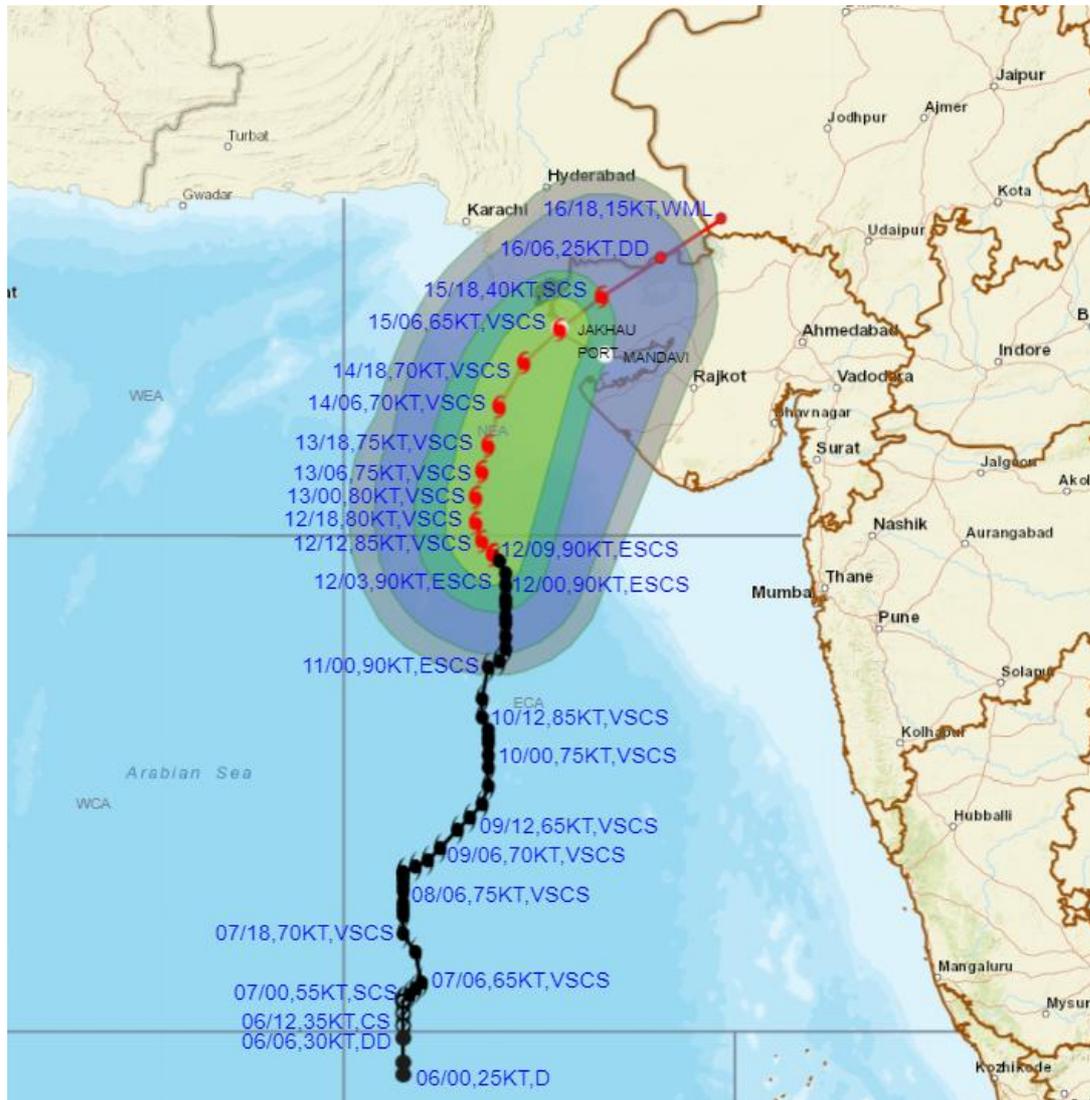
● LESS THAN 34 KT  
 ⚡ 34-47 KT  
 ⚡ ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Forecast	DISTANCE(KM) AND DIRECTION FROM STATIONS				
	PORBANDAR	DWARKA	JAKHAU PORT	NALIYA	KARACHI AIRPORT
13.06.23/0600	250, WSW	230, SW	280, SSW	290, SSW	430, S
14.06.23/0600	210, W	150, WSW	170, SW	180, SW	320, S
15.06.23/0600	210, NNW	110, NNW	10, S	30, WSW	250, SE
16.06.23/0600	300, NNE	250, NNE	210, NE	190, NE	330, E

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**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF EXTREMELY SEVERE CYCLONIC STORM "BIPARJOY" OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA BASED ON 0900 UTC (1430 IST) OF 12<sup>TH</sup> JUNE 2023.**



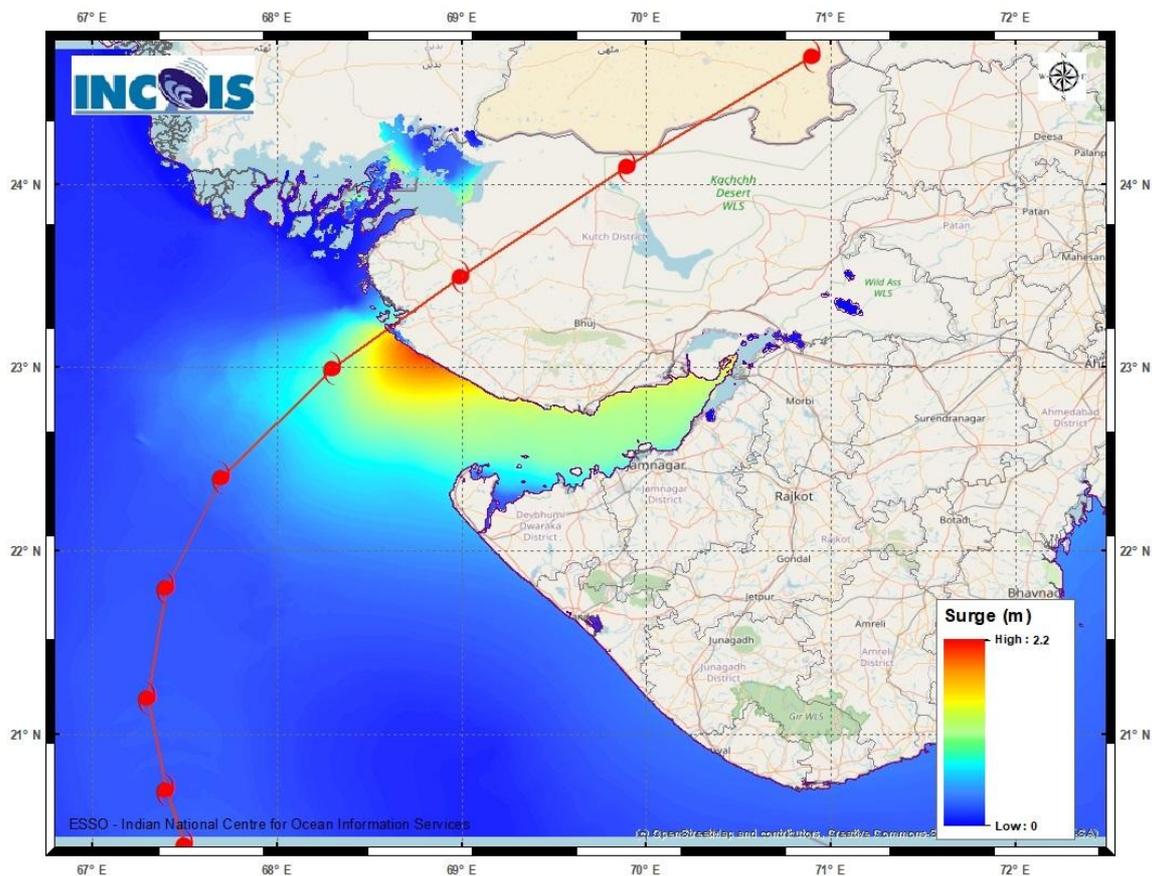
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 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT  
 ○ 34-47 KT  
 ● ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ● CONE OF UNCERTAINTY  
 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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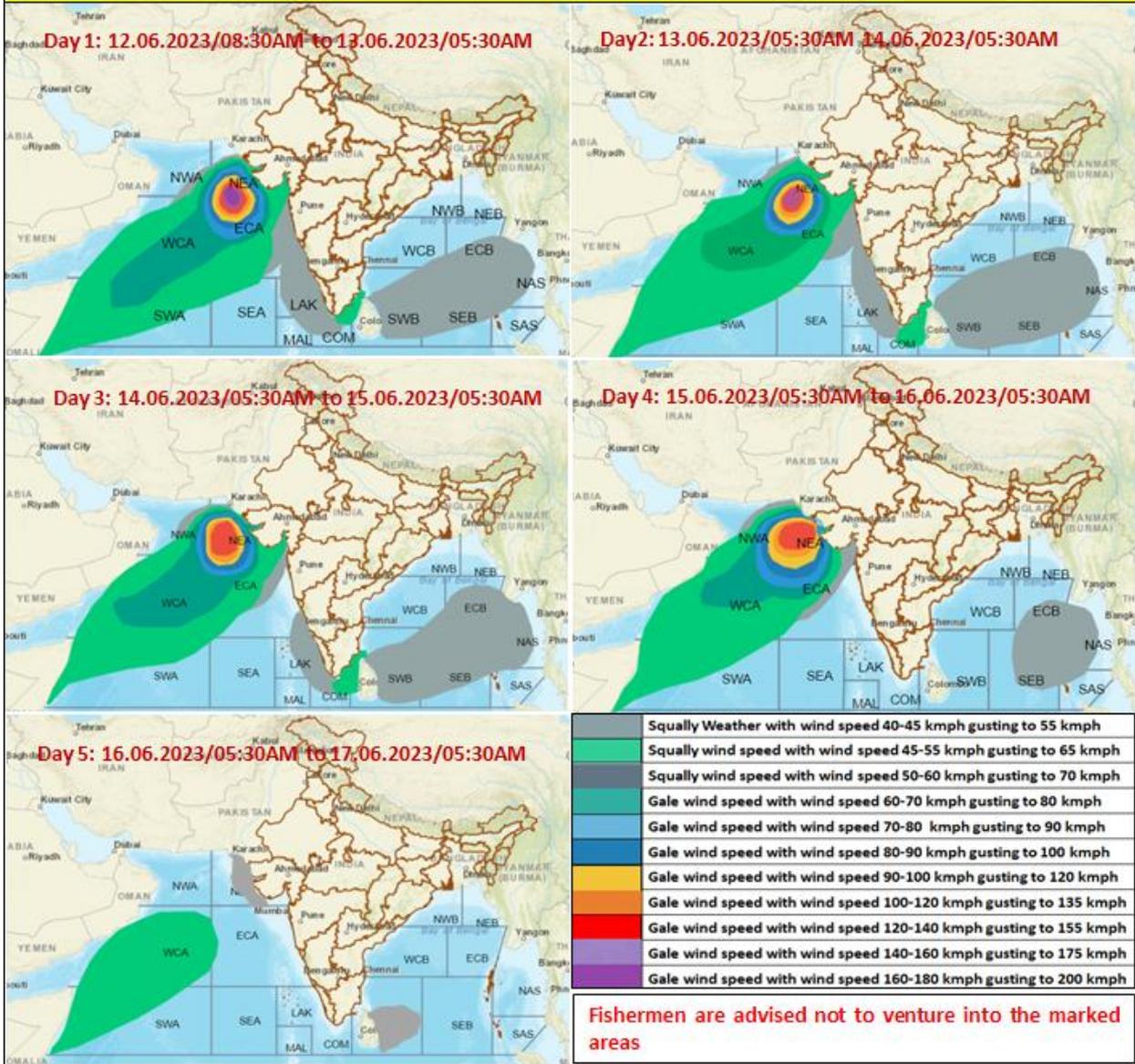


### Astronomical Tide on 15<sup>th</sup> June 2023

Station	Time (IST)	Height (m)
Porbandar	09:37	2.61
Navlakhi	13:38	7.54
OKHA	11:36	3.74
DEENDAYAL PORT (KANDLA)	13:02	6.79

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## Fishermen warning graphics



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