



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. 51 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2030 UTC OF 12.06.2023 BASED ON 1800 UTC OF 12.06.2023

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

THE EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER NORTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA MOVED NEARLY NORTH-NORTHWESTWARDS WITH A SPEED OF 04 KMPH DURING PAST 6-HOURS, WEAKENED INTO A **VERY SEVERE CYCLONIC STORM** AND LAY CENTERED AT 1800 UTC OF THE 12<sup>TH</sup> JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 20.1°N AND LONGITUDE 67.2°E, ABOUT 310 KM SOUTHWEST OF PORBANDAR(42830), 320 KM SOUTHWEST OF DEVBHUMI DWARKA(42731), 380 KM SOUTH-SOUTHWEST OF JAKHAU PORT, 400 KM SOUTH-SOUTHWEST OF NALIYA (42631) AND 530 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) AROUND 1200 UTC 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.

**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>
12.06.23/1800	20.1/67.2	155-165 GUSTING TO 185	VERY SEVERE CYCLONIC STORM
13.06.23/0000	20.4/67.0	150-160 GUSTING TO 180	VERY SEVERE CYCLONIC STORM
13.06.23/0600	20.8/67.1	145-155 GUSTING TO 170	VERY SEVERE CYCLONIC STORM
13.06.23/1200	21.2/67.2	140-150 GUSTING TO 165	VERY SEVERE CYCLONIC STORM
13.06.23/1800	21.5/67.3	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
14.06.23/0600	22.1/67.5	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
14.06.23/1800	22.7/67.9	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
15.06.23/0600	23.2/68.4	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
15.06.23/1800	23.7/69.0	70-80 GUSTING TO 90	CYCLONIC STORM
16.06.23/0600	24.2/69.8	30-40 GUSTING TO 50	DEPRESSION

AS PER INSAT 3D IMAGERY INTENSITY OF THE SYSTEM IS T 4.5. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL ARABIAN SEA BETWEEN LATITUDE 16.5°N & 21.5°N AND LONGITUDE 62.0°E & 70°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 85 KNOTS GUSTING TO 95 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 970 HPA. SEA CONDITION IS LIKELY TO BE PHENOMENAL OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA.

**REMARKS:**

SEA SURFACE TEMPERATURE IS AROUND 30-31°C OVER CENTRAL & ADJOINING SOUTH ARABIAN SEA AND DECREASE TO 28-30°C OVER NORTH ARABIAN SEA. ENVIROMENT.PARAMTERS ASSOCIATED WITH VERY SEVERE CYCLONIC STORM "BIPARJOY" SHOW POSITIVE LOW LEVEL VORTICITY OF AROUND  $300 \times 10^{-6} S^{-1}$  TO THE SOUTH-SOUTHWEST OF THE SYSTEM CENTRE, LOW LEVEL CONVERGENCE IS ABOUT  $30 \times 10^{-5} S^{-1}$  TO THE SOUTH OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE HAS REDUCED AND HAS SPLIT INTO TWO AREAS; WITH ONE ABOUT  $10 \times 10^{-5} S^{-1}$  TO THE WEST OF SYSTEM CENTRE AND OTHER OVER EAST OF SYSTEM CENTER. WIND SHEAR IS HIGH (20-25 KNOTS) OVER SYSTEM AREA AND IS DECREASING TO 05-15 KNOTS ALONG THE FORECAST TRACK. CURRENTLY, THE SYSTEM IS TRACKING NORTH-NORTHWESTWARD ALONG THE WESTERN PERIPHERY OF A SUB-TROPICAL RIDGE LOCATED ALONG 21 DEG N IN ASSOCIATION WITH AN ANTICYCLONIC CIRCULATION LOCATED OVER CENTRAL INDIA, AND IS BEING STEERED BY ITS MIDDLE AND UPPER LEVELS SOUTH SOUTHEASTERLY WINDS. AS THE SYSTEM WILL APPROACH COAST, IT IS LIKELY TO EXPERIENCE LOWER OCEAN THERMAL ENERGY (40-50 KJ/CM<sup>2</sup>), LOWER SST, 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 MMES) IS CONVERGING AND ALL OF THESE ARE INDICATING INTIAL NORTH-NORTHWESTWARDS MOVEMENT FOLLOWED BY GRADUAL NORTH-NORTHEASTWARDS MOVEMENT TOWARDS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS. ONLY IMD GFS AND NCEP GFS ARE INDICATING MOVEMENT TOWARDS ADJOINING PAKISTAN COAST. THE LANDFALL TIME IS VARYING BETWEEN 0600 UTC TO 1800 UTC OF 15<sup>TH</sup> JUNE AND LANDFALL POINT IS VARYING BETWEEN LONGITUDE 67.7E AND 68.6E.

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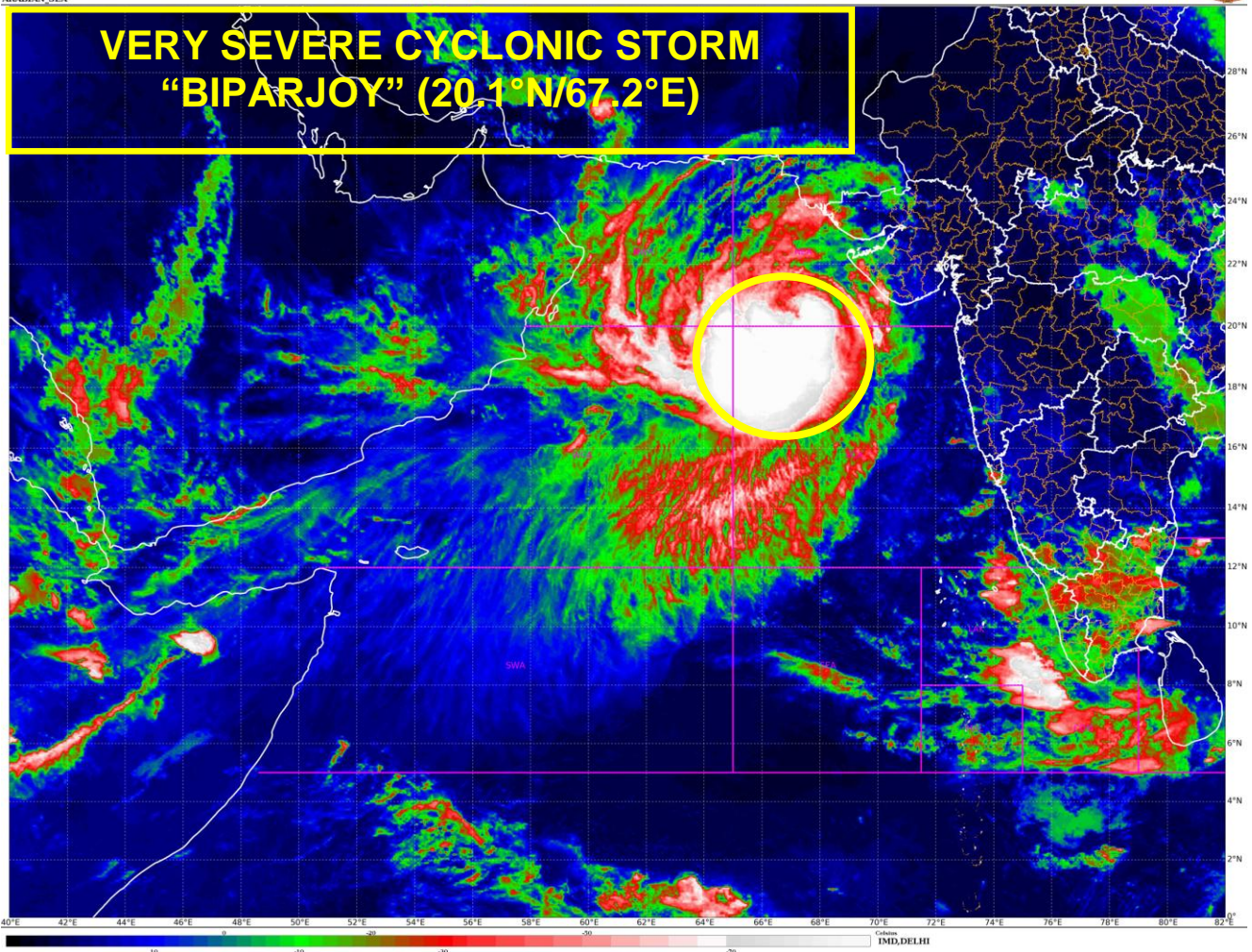
Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
**PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%**  
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CONSIDERING ALL THE ABOVE, TC BIPARJOY 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) AROUND 1200 UTC 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.

**SHIBIN BALAKRISHNAN  
SCIENTIST C  
RSMC NEW DELHI**



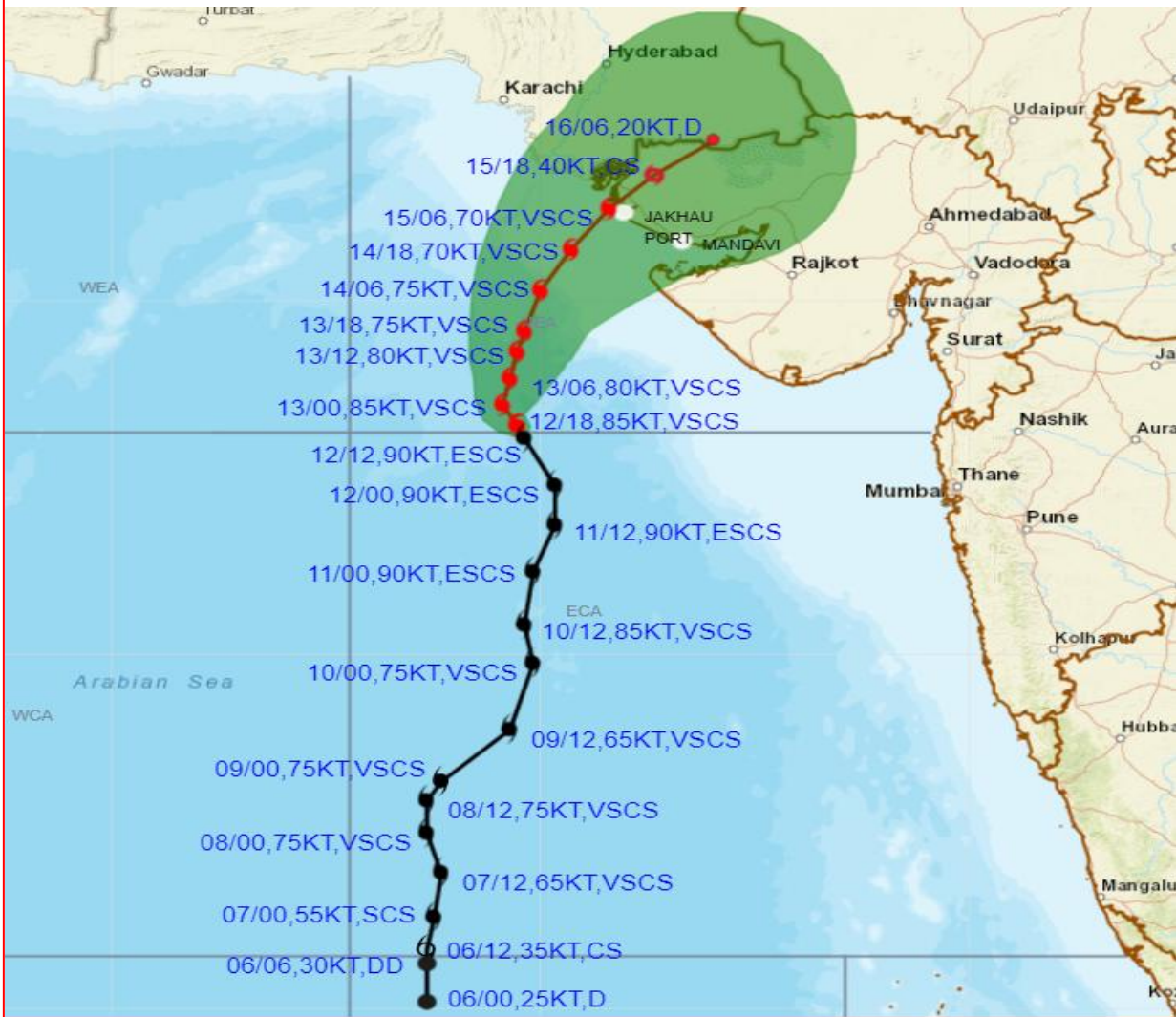
# VERY SEVERE CYCLONIC STORM "BIPARJOY" (20,1°N/67.2°E)



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**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF VERY SEVERE CYCLONIC STORM “BIPARJOY” OVER NORTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC 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

⊙  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

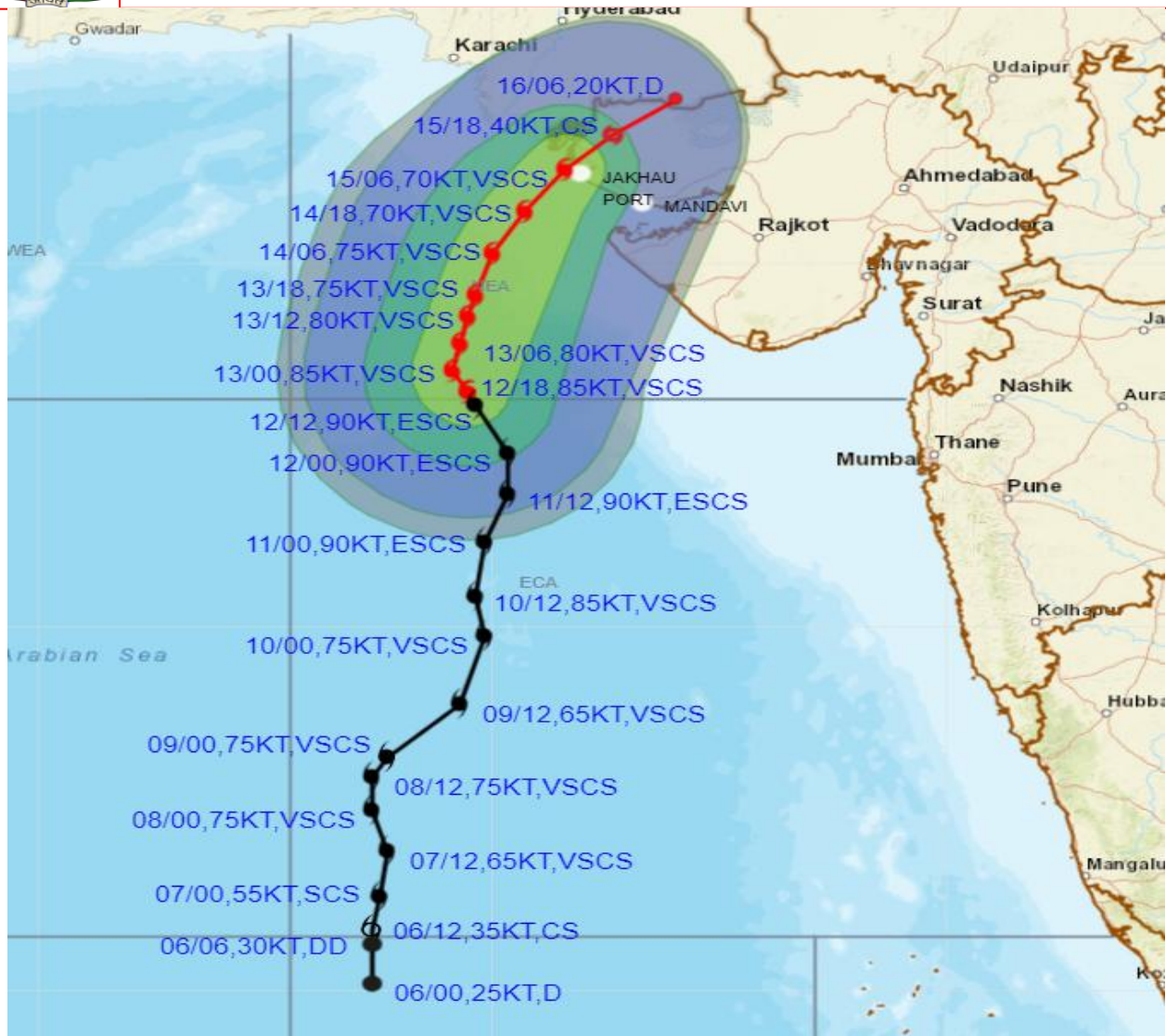
▲ CONE OF UNCERTAINTY

STATIONS	DISTANCE(KM) AND DIRECTION FROM STATIONS		
	13.06.23/1800	14.06.23/1800	15.06.23/1800
PORBANDAR	240, W	220, WNW	250, NNW
DWARKA	200, WSW	130, WNW	160, N
JAKHAU PORT	230, SW	90, SW	70, NNE
NALIYA	250, SW	110, WSW	60, NNE
KARACHI AIRPORT	370, S	250, SSE	230, ESE

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**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST AND ADJOINING EASTCENTRAL ARABIAN SEA BASED ON 1800 UTC OF 12<sup>TH</sup> JUNE 2023.**



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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)

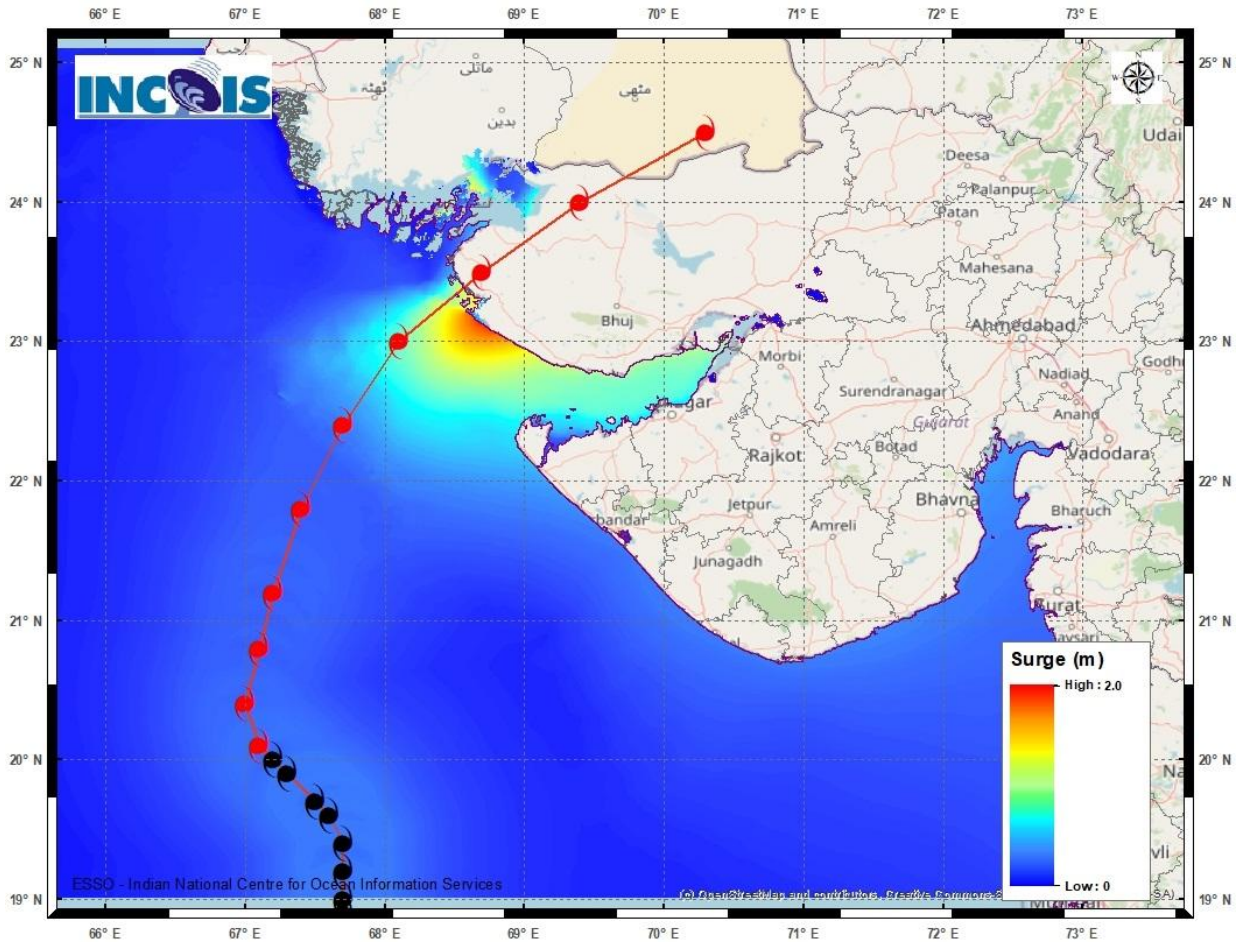
■ ≥ 64 KT (≥118 KMPH)

**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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## Storm Surge Warning Map based on Forecast Track

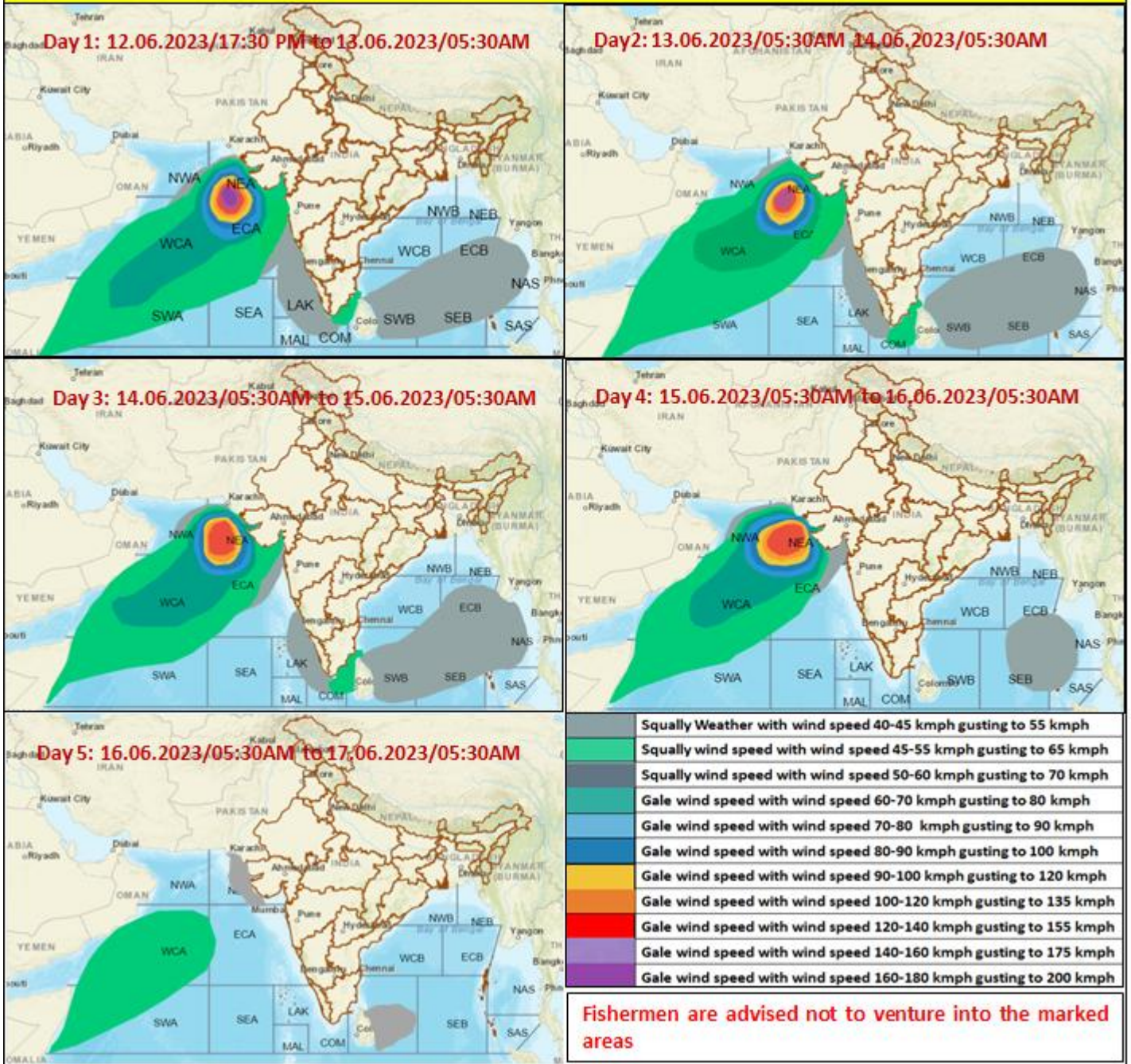


### Astronomical Tide on 15<sup>th</sup> June 2023

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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