



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

DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 16.06.2023

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. 77 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 24 HOURS ISSUED AT 0350 UTC OF 16.06.2023 BASED ON 0000 UTC OF 16.06.2023

SUB: SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER SAURASHTRA & KUTCH (LAND AREA OF INDIA)

THE SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER SAURASHTRA & KUTCH MOVED EAST-NORTHEASTWARDS WITH A SPEED OF 12 KMPH DURING PAST 6-HOURS AND LAY CENTERED AT 0000 UTC OF TODAY, THE 16<sup>TH</sup> JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 23.6°N AND LONGITUDE 69.2°E, ABOUT 70 KM EAST-NORTHEAST OF JAKHAU PORT (GUJARAT) AND 50 KM NORTHEAST OF NALIYA(42631).

IT IS VERY LIKELY TO MOVE NEARLY NORTHEASTWARDS AND WEAKEN GRADUALLY INTO A CYCLONIC STORM OVER SAURASHTRA & KUTCH AROUND NOON (0600-0900UTC) AND SUBSEQUENTLY INTO A DEEP DEPRESSION AROUND 1200 UTC OF TODAY, THE 16<sup>TH</sup> JUNE.

Forecast track and intensity are given below:

Date/Time(UTC)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
16.06.23/0000	23.6/69.2	85-95 Gusting To 105	Severe Cyclonic Storm
16.06.23/0600	23.9/69.8	65-75 Gusting To 85	Cyclonic Storm
16.06.23/1200	24.3/70.6	50-60 Gusting To 70	Deep Depression
16.06.23/1800	24.8/71.4	40-50 Gusting To 60	Depression

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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AS PER INSAT 3D IMAGERY, VORTEX (BIPARJOY) OVER KUTCH REGION & NEIGHBOURHOOD NOW LAY CENTERED NEAR 23.7°N / 69.29°E OVER LAND. CENTER IS POORLY DEFINED IN IR IMAGERY. ASSOICATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER NORTH ARSEA BET LAT 21.5N TO 24.5N LONG 66.5E TO 70.0E WEST GUJARAT GULF OF KUTCH & MODERATE CONVECTION OVER SOUTHEAST PAKISTAN. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 90°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IS 50 KNOTS GUSTING TO 60 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 978HPA. SEA CONDITION IS LIKELY TO BE HIGH TO VERY ROUGH OVER NORTHEAST ARABIAN SEA LIKELY TO BECOMING ROUGH TO VERY ROUGH AT EVENING OF TODAY.

AT 0000 UTC, NALIYA(42631) REPORTED MEAN SEA LEVEL PRESSURE (MSLP) OF 978.0 HPA, PRESSURE FALL DURING PAST 24 HOURS (P24) OF -16.2 HPA AND MAXIMUM SUSTAINED WIND SPEED (MSW) OF 290°/13KT. BHUJ (42634) REPORTED MSLP OF 984.5 HPA, P24 OF -12.6HPA AND MSW OF 160°/23KT. OKHA (42730) REPORTED MSLP OF 990.5 HPA, P24 OF -5.0HPA AND MSW OF 180°/19KT.

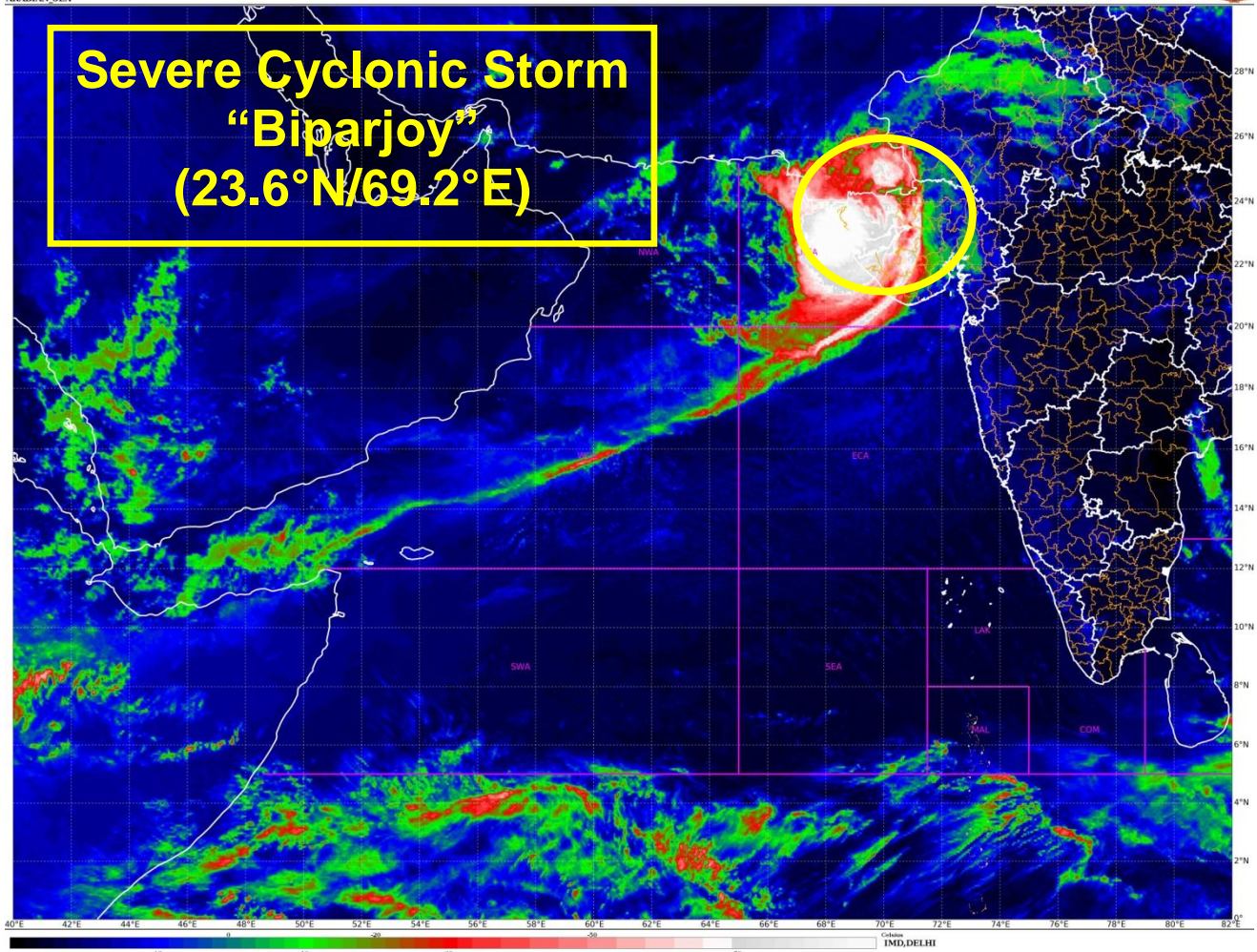
#### REMARKS:

THE LOW LEVEL VORTICITY REMAINS SAME AND IS AROUND  $200 \times 10^{-6} \text{S}^{-1}$  LOCATED TO THE SOUTHWEST OF THE SYSTEM CENTRE. LOW LEVEL CONVERGENCE IS ABOUT  $20 \times 10^{-5} \text{S}^{-1}$  LOCATED TO THE SOUTHWEST OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE IS ABOUT  $30 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTH OF SYSTEM CENTRE. VERTICAL WIND SHEAR HAS FURTHER DECREASED AND IS WEAK (10-15 KNOTS) OVER THE SYSTEM AREA. THE RIDGE RUNS ALONG 24.5°N. THE DEEP LAYER MEAN WINDS, INDICATE A WESTERLY TROUGH ALONG 66.5E TO THE WEST OF SYSTEM CENTRE. THE SYSTEM IS TRACKING NORTHEASTWARDS UNDER THE INFLUENCE OF SOUTHWESTERLY WINDS PREVAILING TO THE NORTH OF THE RIDGE AND THE WESTERLY TROUGH. THEREFORE THE SYSTEM WILL BE STEARED MOSTLY BY THE DEEP LAYER MEAN WESTERLY WINDS.

THE SYSTEM IS LIKELY TO EXPERINCE REDUCTION OF ITS INTENSITY DUE TO LAND INTERACTION AND DECREASE IN MIDDLE LEVEL HUMIDITY DUE TO DRY COLD AIR INTRUSION AND LAND INTERACTIONS. THEREFORE THE INTENSITY OF THE SYSTEM WEAKENED GRADUALLY AND IT WOULD BECOME A CYCLONIC STORM BY 0900 UTC OF 16<sup>TH</sup> JUNE.

BASED ON ENVIRONMENTATL CONDITIONS AND NWP MULTI-MODEL FORECASTS THE SYSTEM IS VERY LIKELY TO MOVE NEARLY NORTHEASTWARDS ACROSS NORTH GUJARAT AND WEAKEN GRADUALLY INTO A CYCLONIC STORM OVER SAURASHTRA & KUTCH DURING 0600-0900UTC OF TODAY, THE 16<sup>TH</sup> JUNE AND SUBSEQUENTLY INTO A DEPRESSION AROUND 1200UTC OF TODAY, 16<sup>TH</sup> JUNE.

**ARULALAN T  
SCIENTIST C  
RSMC NEW DELHI**

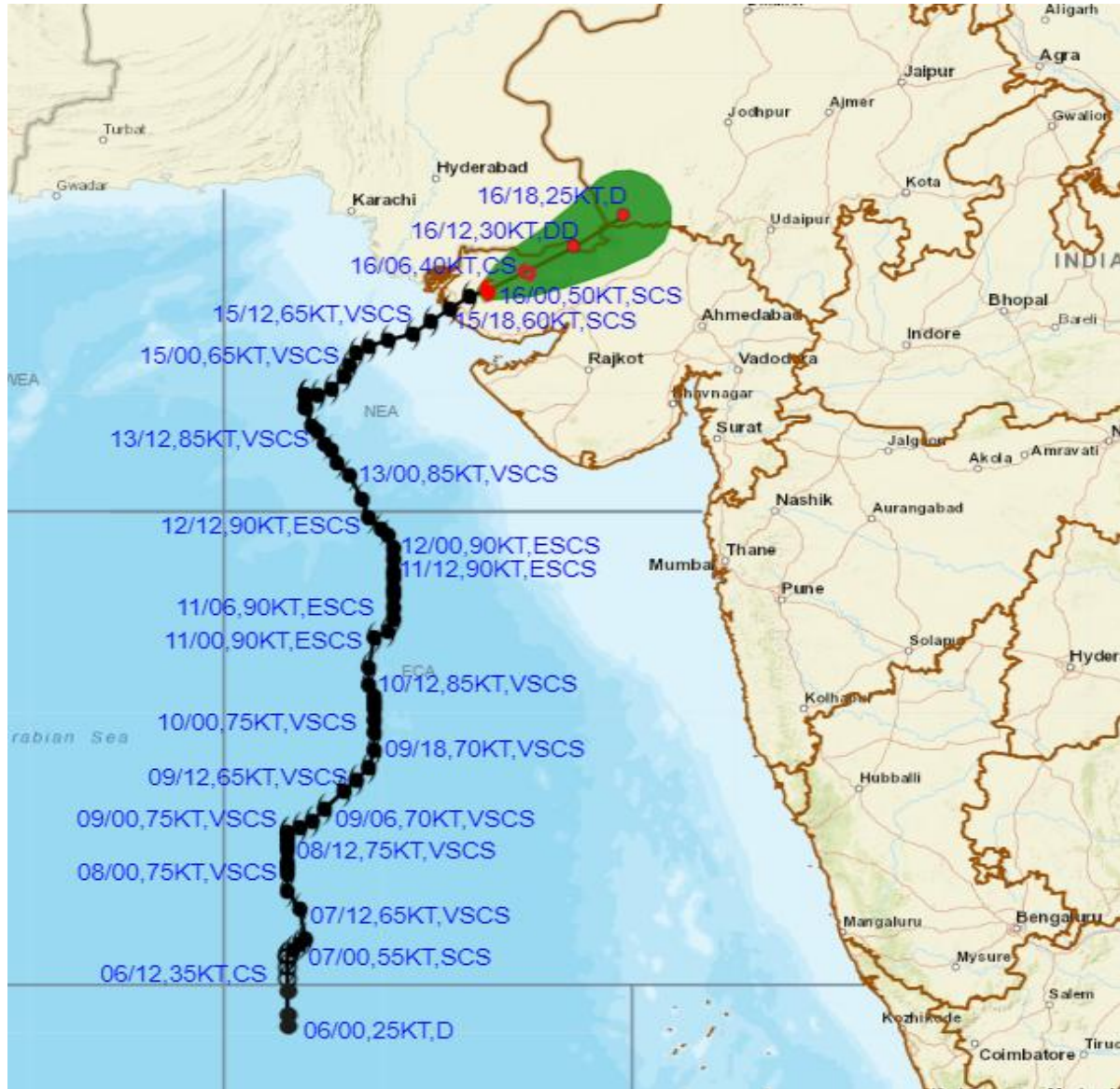


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**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0000 UTC (0530 IST) OF 16<sup>TH</sup> JUNE 2023.**

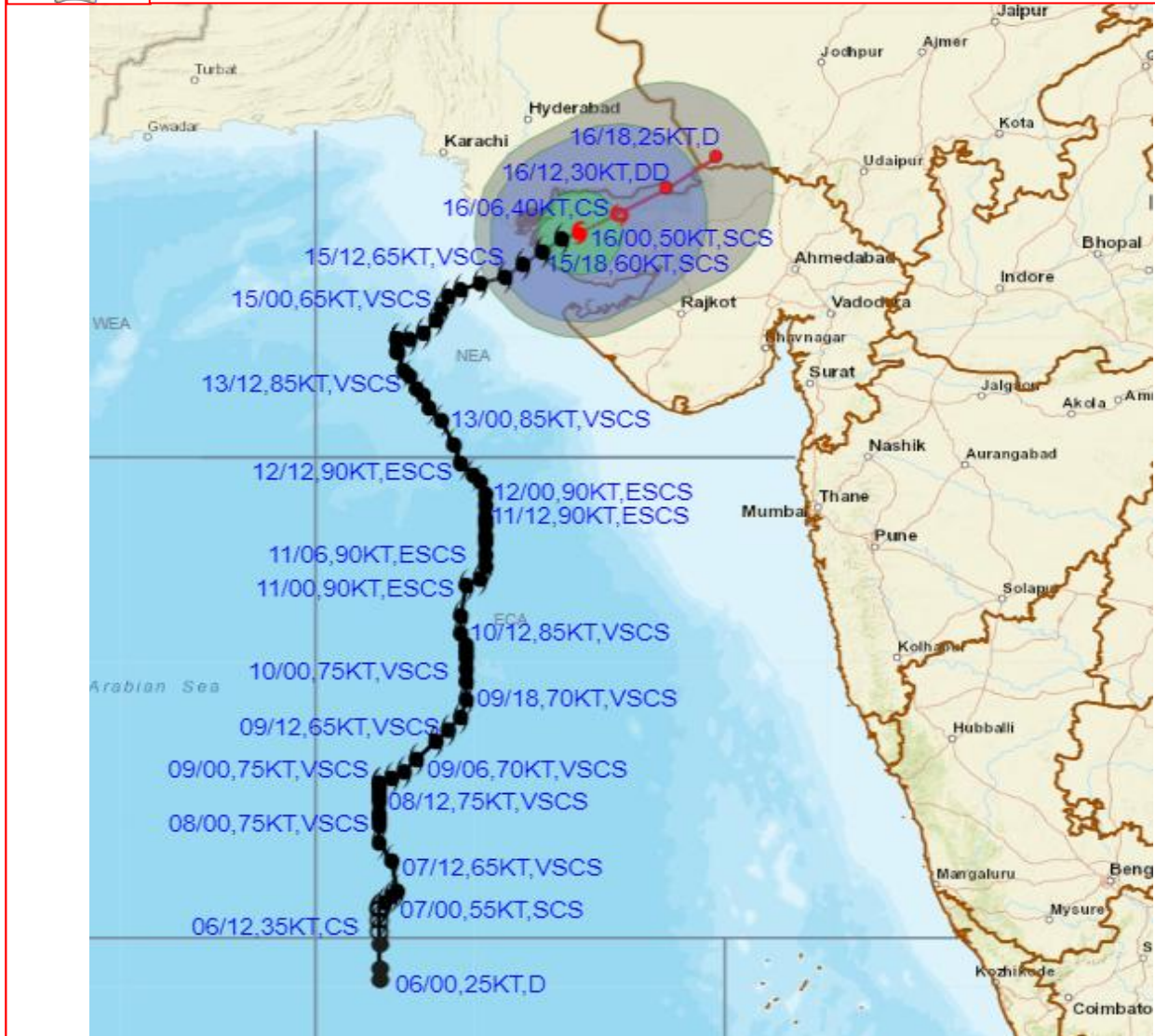


DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

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



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0000 UTC (0530 IST) OF 16<sup>TH</sup> JUNE 2023.**



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 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  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■  $\geq 64$  KT ( $\geq 118$  KMPH)

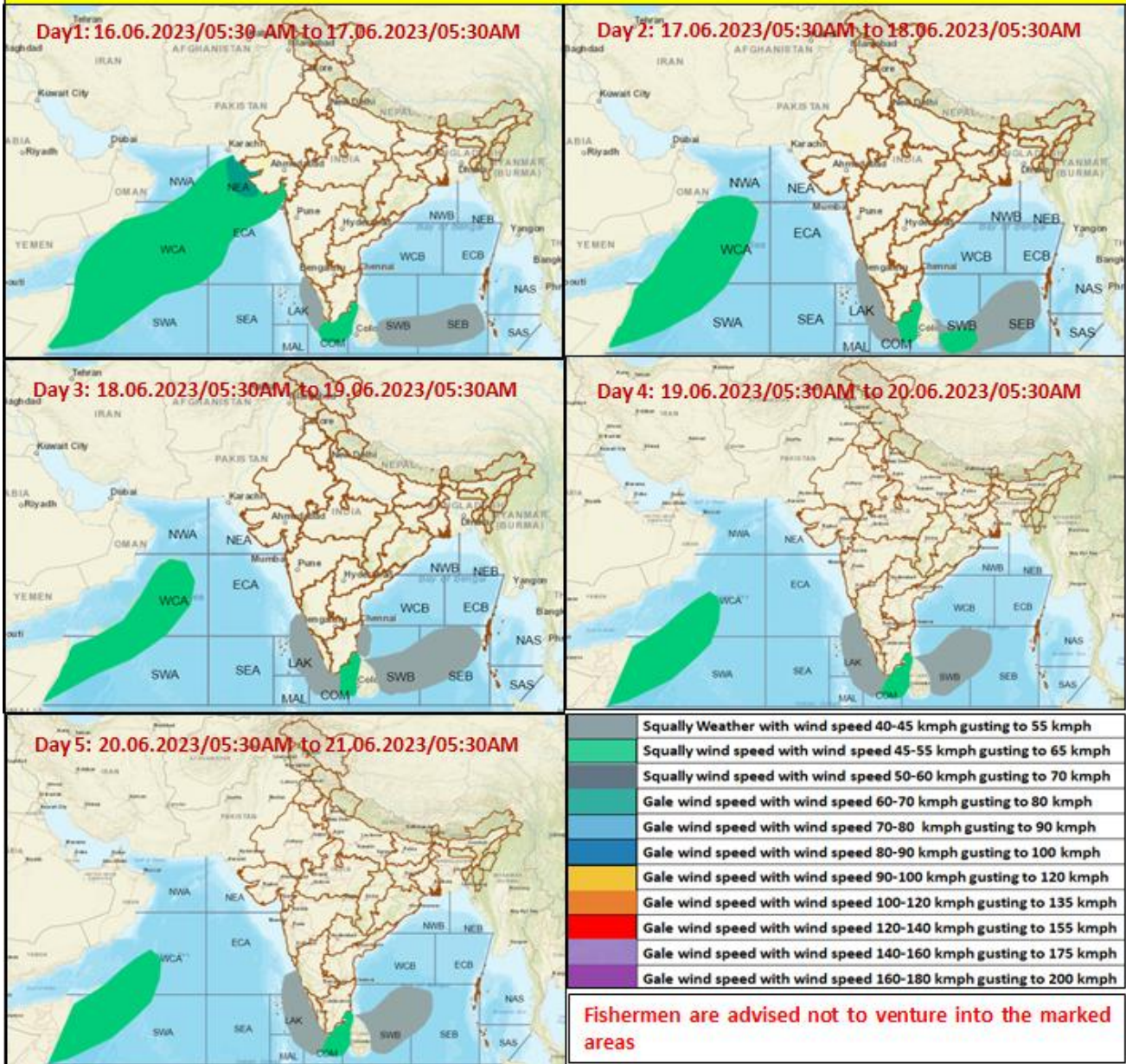
**IMPACT OVER THE SEA**

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
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

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## Fishermen warning graphics



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