



**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. 79 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 24 HOURS ISSUED AT 0900 UTC OF 16.06.2023 BASED ON 0600 UTC OF 16.06.2023**

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

THE 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 0600 UTC OF TODAY, THE 16TH JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 23.6°N AND LONGITUDE 69.8°E, ABOUT 40 KM NORTH OF BHUJ (42634) AND 250 KM WEST-SOUTHWEST OF DEESA (42539).

IT IS VERY LIKELY TO MOVE NEARLY EAST-NORTHEASTWARDS AND WEAKEN FURTHER INTO A DEEP DEPRESSION OVER SAURASHTRA & KUTCH AROUND 1800 UTC OF TODAY, THE 16TH JUNE AND FURTHER INTO A DEPRESSION AROUND 0000 UTC OF 17<sup>TH</sup> JUNE.

**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>
16.06.23/0600	23.6/69.8	75-85 Gusting To 95	Cyclonic Storm
16.06.23/1200	23.9/70.4	60-70 Gusting To 80	Cyclonic Storm
16.06.23/1800	24.3/71.2	50-60 Gusting To 70	Deep Depression
17.06.23/0000	24.8/72.2	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, ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER NORTHEAST ARABIAN SEA BETWEEN LAT 21.0N TO 25.5N LONG 66.5E TO 71.0E, SAURASHTRA, GULF OF KUTCH, WEST GUJARAT AND ADJOINING SOUTHEAST PAKISTAN. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C. MICROWAVE IMAGERY AT 0430 UTC OF 16<sup>TH</sup> INDICATES INTENSE CLOUD MASS TO THE SOUTHWEST OF SYSTEM CENTRE. WATER VAPOUR IMAGERY INDICATES STILL MOISTURE IS MORE THAN 50% IN THE MIDDLE TROPOSPHERIC LEVELS IN THE SOUTHWEST SECTOR.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IS 45 KNOTS GUSTING TO 55 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 984HPA. SEA CONDITION IS LIKELY TO BE HIGH TO VERY ROUGH OVER NORTHEAST ARABIAN SEA LIKELY TO BECOMING ROUGH TO VERY ROUGH AROUND 1200 UTC OF TODAY.

AT 0600 UTC, NALIYA(42631) REPORTED MEAN SEA LEVEL PRESSURE (MSLP) OF 992 HPA, AND MAXIMUM SUSTAINED WIND SPEED (MSW) OF 340°/17KT WITH DEPARTURE FROM NORMAL OF -8.9 HPA. BHUJ (42634) REPORTED MSLP OF 984 HPA AND MSW OF 250°/14KT WITH DEPARTURE FROM NORMAL OF -16.1 HPA. OKHA (42730) REPORTED MSLP OF 996 HPA AND MSW OF 230°/22KT WITH DEPARTURE FROM NORMAL OF -5.7 HPA.

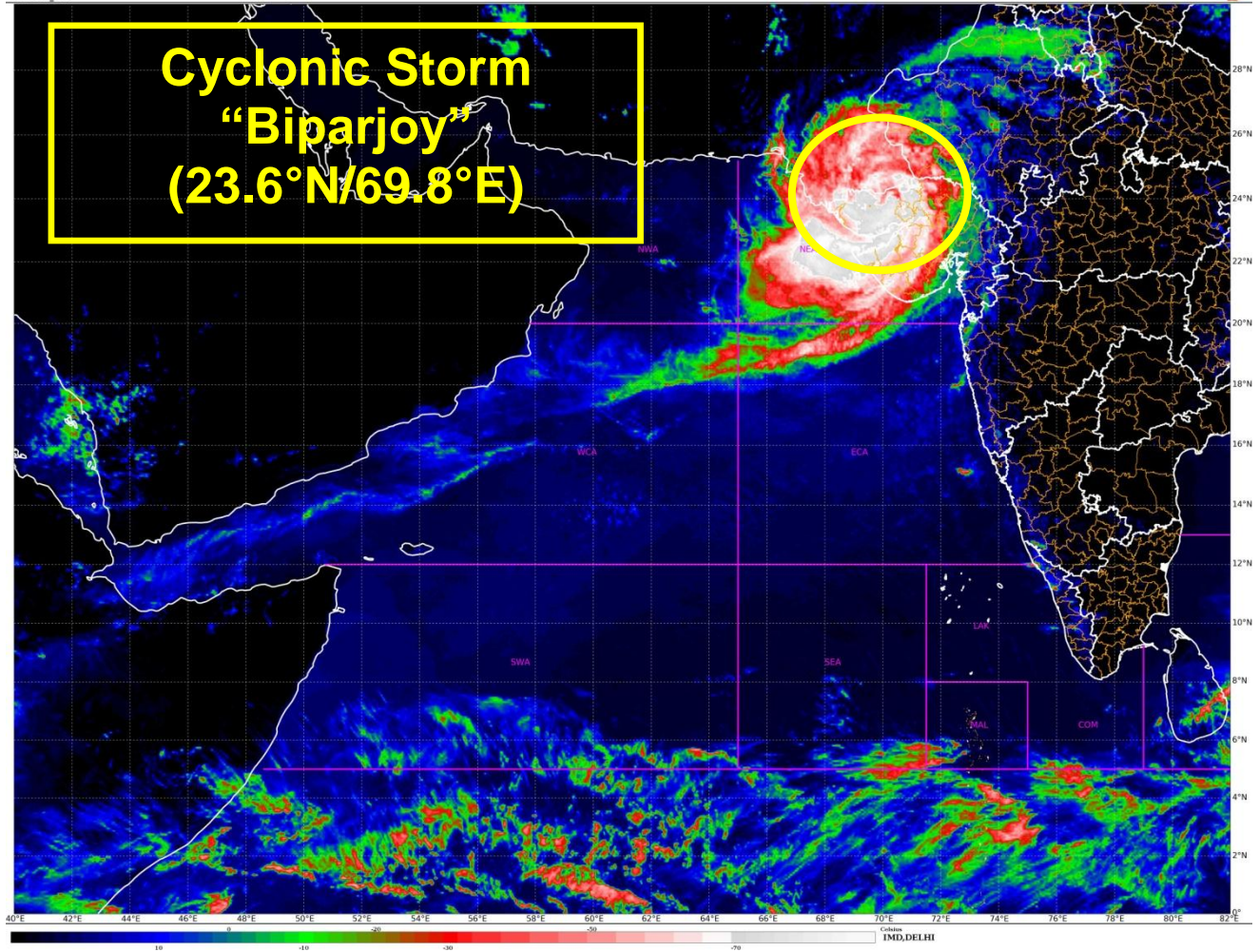
**REMARKS:**

TOTAL PRECIPITABLE WATER IMAGERY INDICATE WARM MOIST AIR FEEDBACK FROM NORTHEAST ARABIAN SEA INTO THE CORE FROM SOUTHEAST SECTOR. THE LOW LEVEL VORTICITY IS THE SAME AND IS AROUND  $250 \times 10^{-6} \text{S}^{-1}$  LOCATED TO THE SOUTHWEST OF THE SYSTEM CENTRE. LOW LEVEL CONVERGENCE HAS DECREASED AND IS ABOUT  $10 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTHWEST OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE IS THE SAME AND IS ABOUT  $30 \times 10^{-5} \text{S}^{-1}$  TO THE SOUTHWEST OF SYSTEM CENTRE. VERTICAL WIND SHEAR IS MODERATE (15-20 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 MOVING EAST-NORTHEASTWARDS UNDER THE INFLUENCE OF WEST-SOUTHWESTERLY WINDS PREVAILING TO THE NORTH OF THE RIDGE AND THE WESTERLY TROUGH.

THE SYSTEM IS LIKELY TO EXPERIENCE REDUCTION OF ITS INTENSITY DUE TO LAND INTERACTION AND DECREASE IN MIDDLE LEVEL HUMIDITY DUE TO DRY COLD AIR INTRUSION. THEREFORE THE INTENSITY OF THE SYSTEM WILL WEAKEN GRADUALLY AND IT WOULD BECOME A DEEP DEPRESSION BY 1200 UTC OF 16<sup>TH</sup> JUNE.

BASED ON ENVIRONMENTAL CONDITIONS AND NWP MULTI-MODEL FORECASTS THE SYSTEM IS VERY LIKELY TO MOVE NEARLY EAST-NORTHEASTWARDS ACROSS NORTH GUJARAT AND WEAKEN GRADUALLY INTO A DEEP DEPRESSION OVER SAURASHTRA & KUTCH AROUND 1800 UTC OF TODAY, THE 16<sup>TH</sup> JUNE AND SUBSEQUENTLY INTO A DEPRESSION AROUND 0000 UTC OF TOMORROW, 17<sup>TH</sup> JUNE.

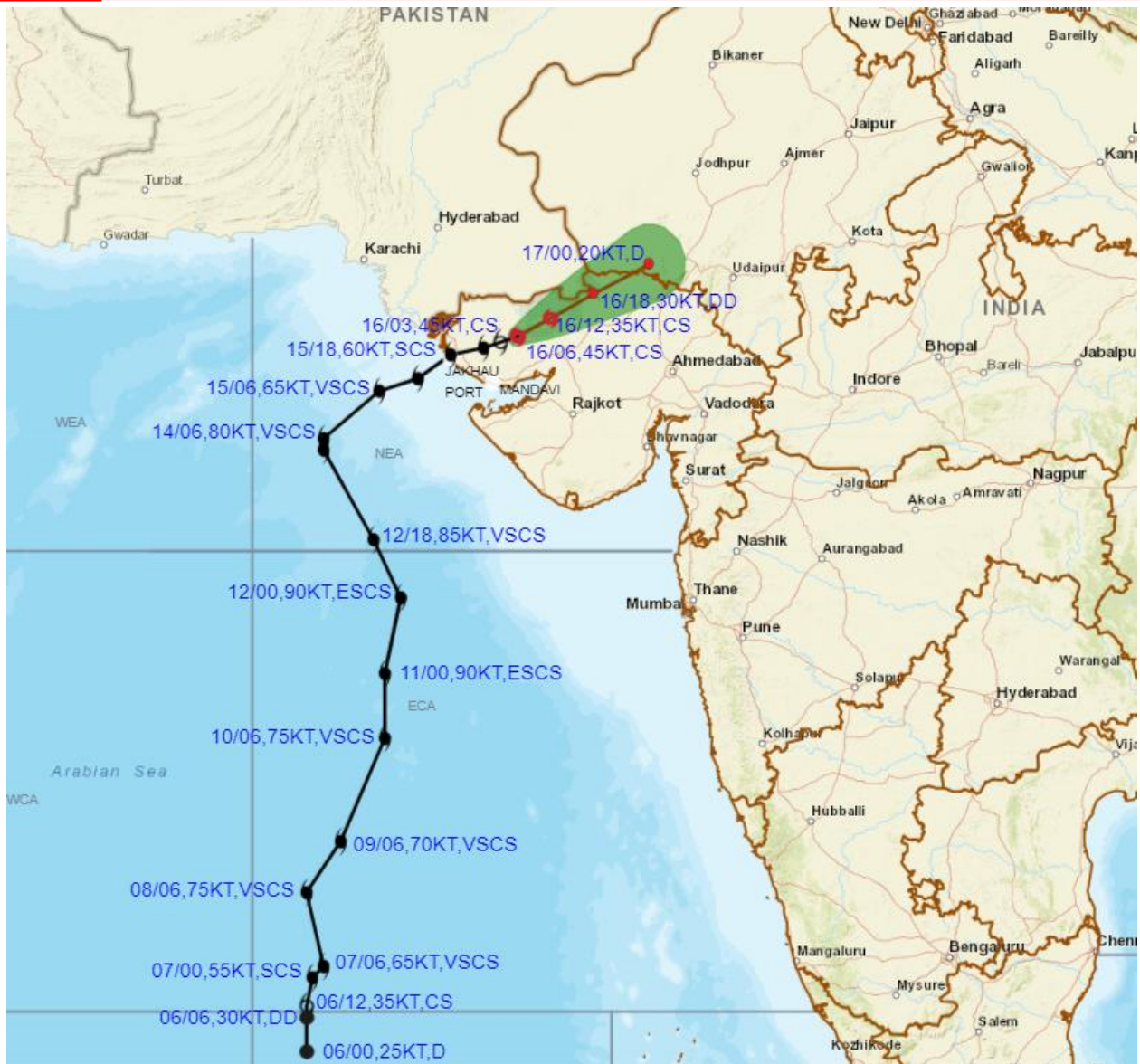
**M. SHARMA  
SCIENTIST D  
RSMC NEW DELHI**



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PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
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**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0600 UTC (1130 IST) OF 16<sup>TH</sup> JUNE 2023.**



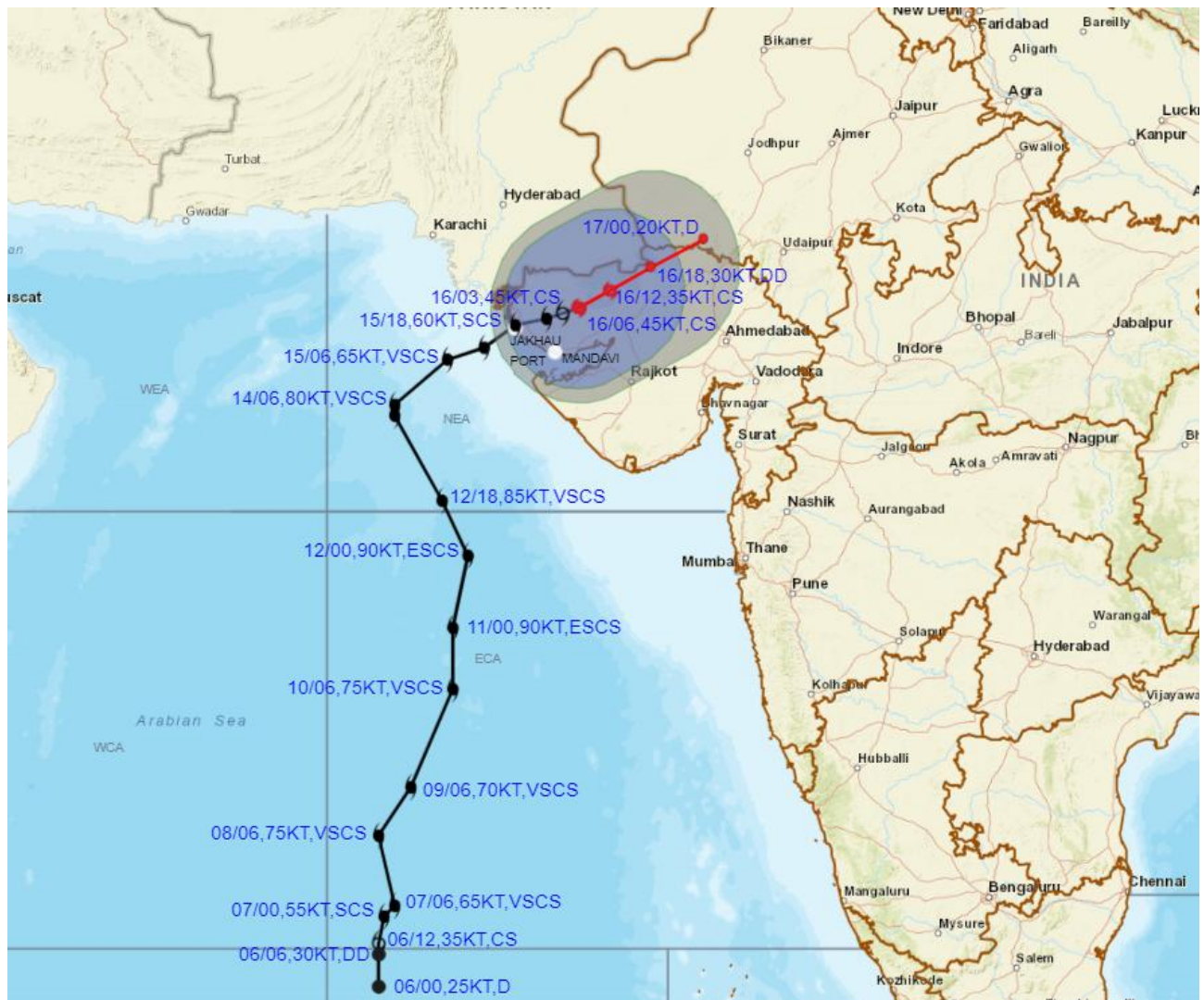
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE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

- LESS THAN 34 KT
- 34-47 KT
- $\geq$  48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

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# OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0600 UTC (1130 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 ( $\geq 120$  KT)

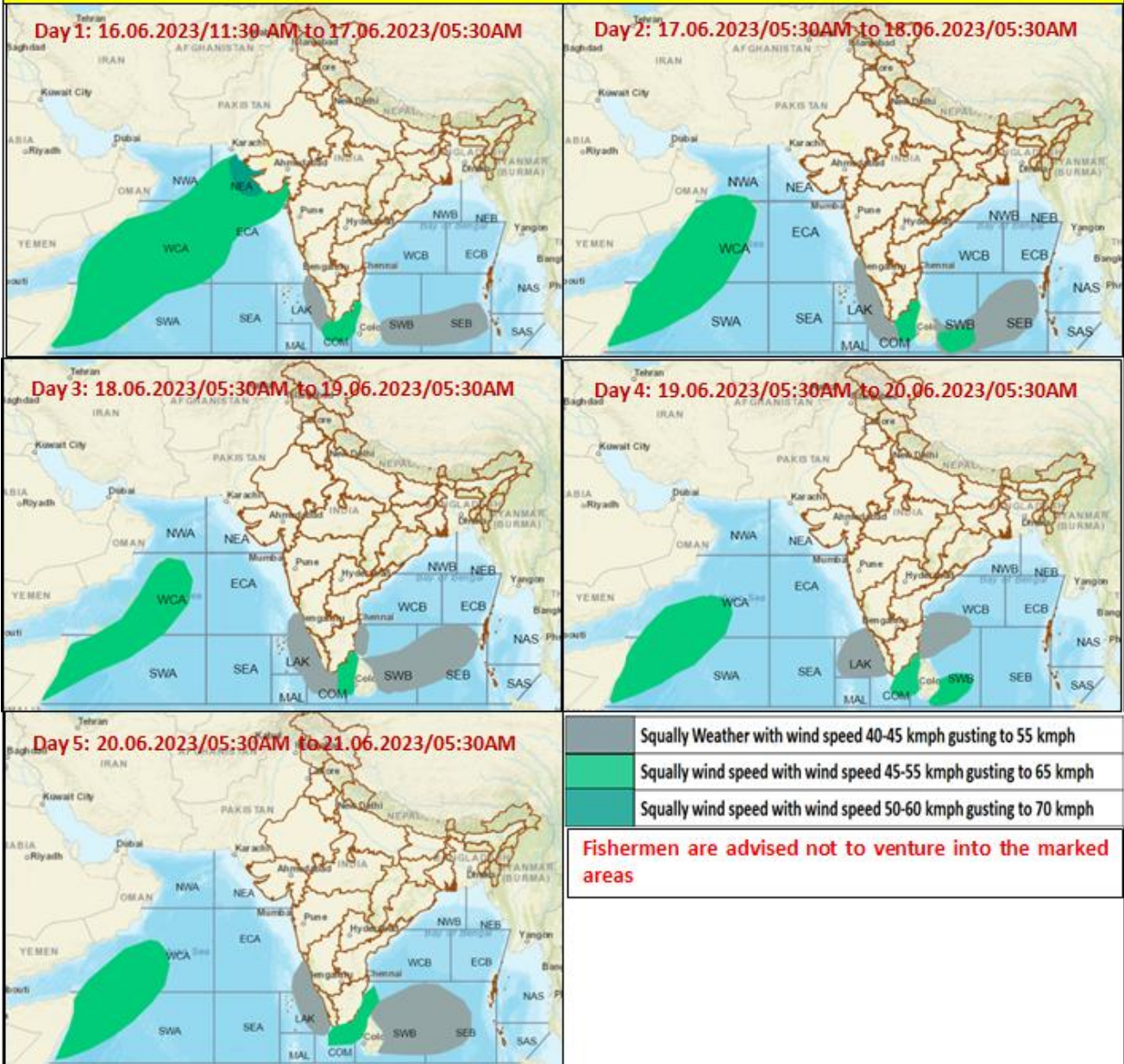
- LESS THAN 34 KT
- 34.47 KT
- $\geq 48$  KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY
- AREA OF MAXIMUM SUSTAINED WIND SPEED:
- 28-33 KT (52-61 KMPH)
- 34.49 KT (62-91 KMPH)
- 50-63 KT (92-117 KMPH)
- $\geq 64$  KT ( $\geq 118$  KMPH)

### 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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