



**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. 78 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 24 HOURS ISSUED AT 0600 UTC OF 16.06.2023 BASED ON 0300 UTC OF 16.06.2023

SUB: 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 10 KMPH DURING PAST 6-HOURS, WEAKENED INTO A CYCLONIC STORM AND LAY CENTERED AT 0300 UTC OF TODAY, THE 16TH JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 23.4°N AND LONGITUDE 69.5°E, ABOUT 30 KM WEST-NORTHWEST OF BHUJ (42634).

IT IS VERY LIKELY TO MOVE NEARLY EAST-NORTHEASTWARDS AND WEAKEN FURTHER INTO A DEEP DEPRESSION OVER SAURASHTRA & KUTCH AROUND 1200 UTC OF TODAY, THE 16TH 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
16.06.23/0300	23.4/69.5	80-90 GUSTING TO 100	CYCLONIC STORM
16.06.23/0600	23.5/69.9	65-75 GUSTING TO 85	CYCLONIC STORM
16.06.23/1200	23.7/70.6	50-60 GUSTING TO 70	DEEP DEPRESSION
16.06.23/1800	24.1/71.5	40-50 GUSTING TO 60	DEPRESSION

AS PER INSAT 3D IMAGERY, VORTEX (BIPARJOY) OVER KUTCH REGION & NEIGHBOURHOOD NOW LAY CENTERED NEAR 23.8°N / 69.3°E (OVER LAND). ASSOCIATED BROKEN LOW TO MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER NORTH ARABIAN SEA BETWEEN LAT 21.0N TO 25.5N LONG 66.5E TO 71.0E WEST GUJARAT GULF OF

Cloud discrimination (a) Low: CTT: - 25°C to -40°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

KUTCH & MODERATE CONVECTION OVER SOUTHEAST PAKISTAN. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IS 45 KNOTS GUSTING TO 55 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 0300 UTC, NALIYA(42631) REPORTED MEAN SEA LEVEL PRESSURE (MSLP) OF 988.7 HPA, PRESSURE FALL DURING PAST 24 HOURS (P24) OF -11.5 HPA AND MAXIMUM SUSTAINED WIND SPEED (MSW) OF 340°/33KT. BHUJ (42634) REPORTED MSLP OF 979.8 HPA, P24 OF -17.6HPA AND MSW OF 230°/3KT. OKHA (42730) REPORTED MSLP OF 994.1 HPA, P24 OF -7.2HPA AND MSW OF 230°/22KT.

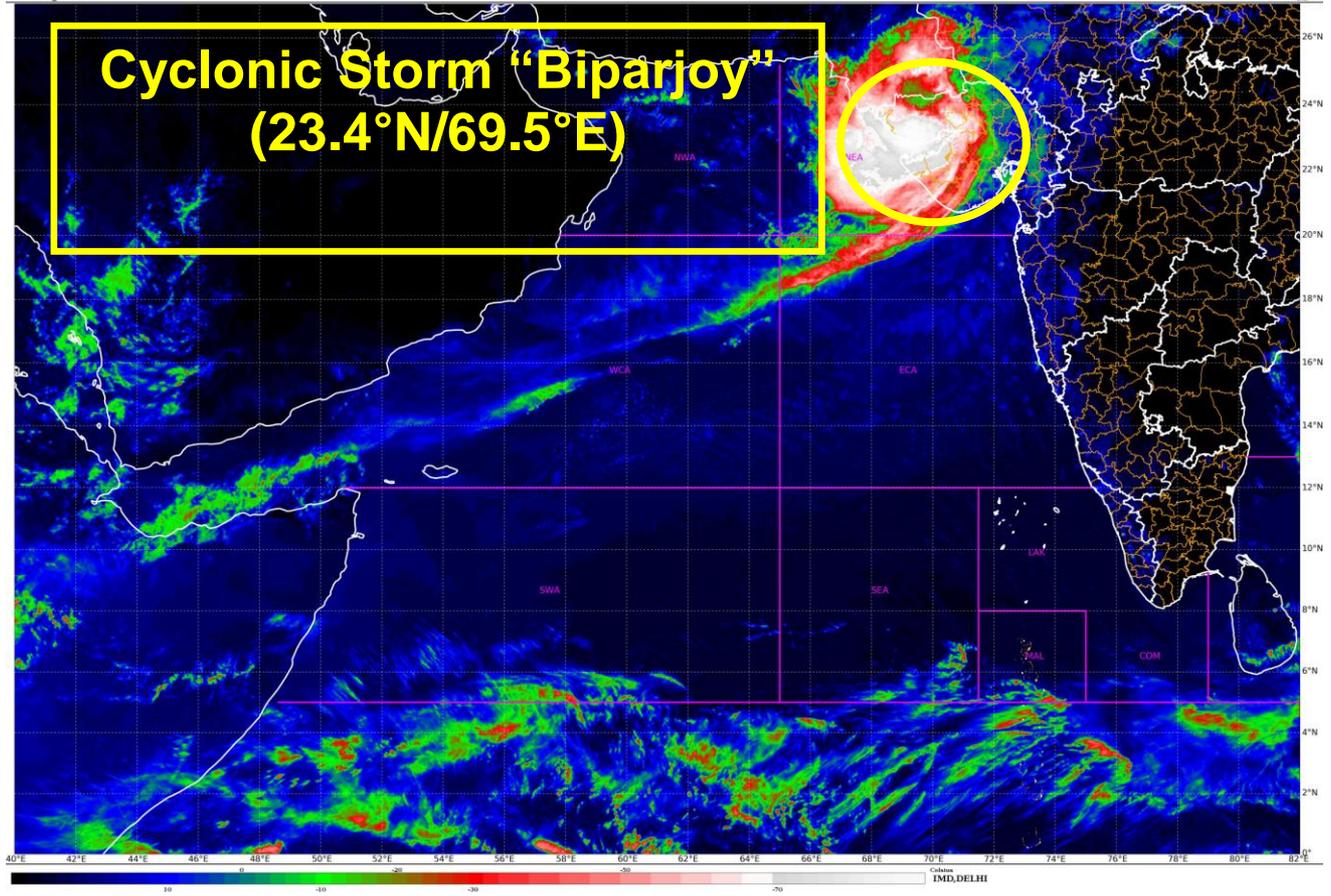
REMARKS:

NOW THE SYSTEM IS OVER THE LAND. THE LOW LEVEL VORTICITY IS AROUND $250 \times 10^{-6} \text{S}^{-1}$ 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 REMAINS SAME 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 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 EXPERINCE 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 16TH JUNE.

BASED ON ENVIRONMENTATL 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 DURING 1200UTC OF TODAY, THE 16TH JUNE AND SUBSEQUENTLY INTO A DEPRESSION AROUND 1800UTC OF TODAY, 16TH JUNE.

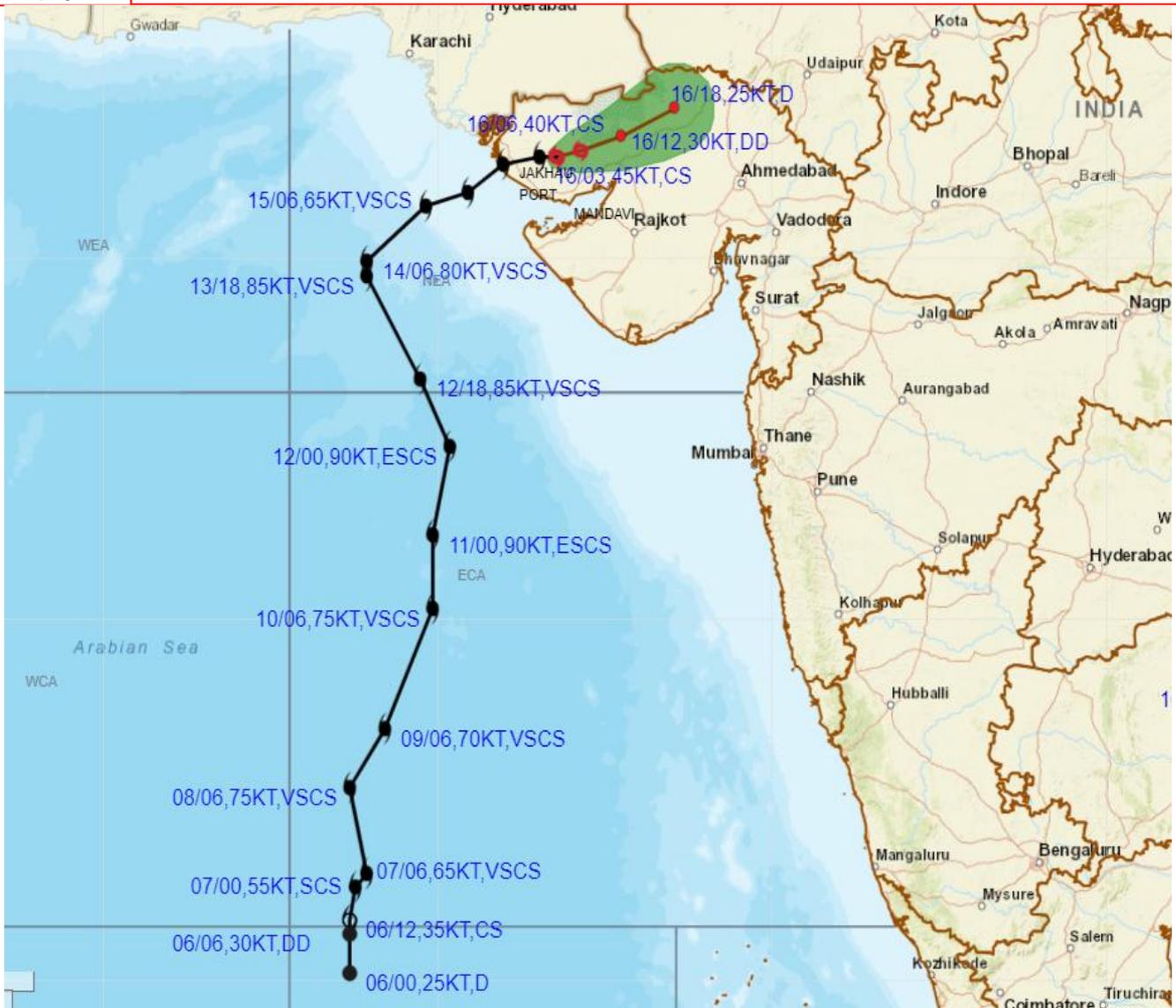
**M. SHARMA
SCIENTIST D
RSMC NEW DELHI**



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



OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0300 UTC (0830 IST) OF 16TH JUNE 2023.



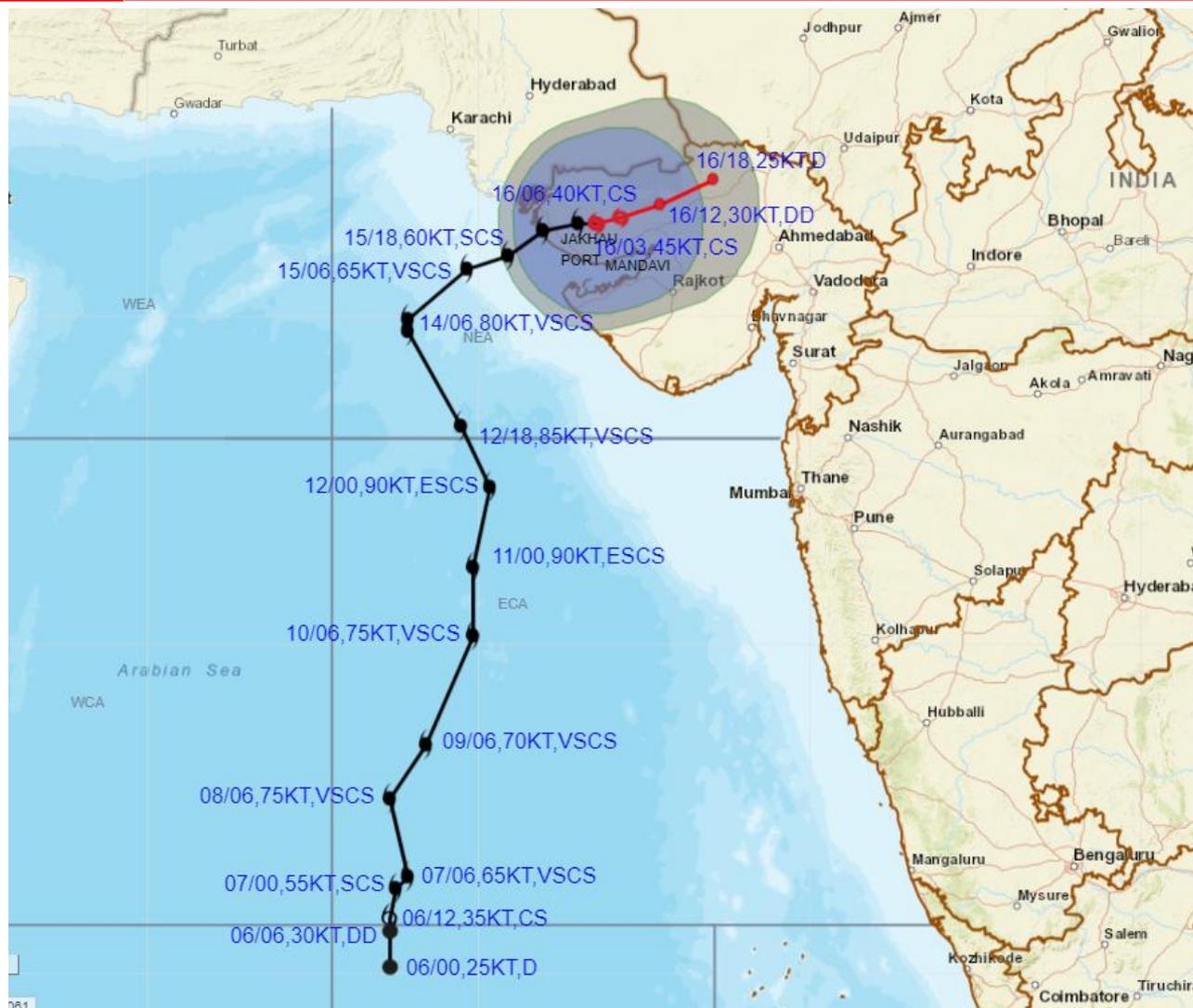
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM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

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



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0300 UTC (0830 IST) OF 16TH 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)

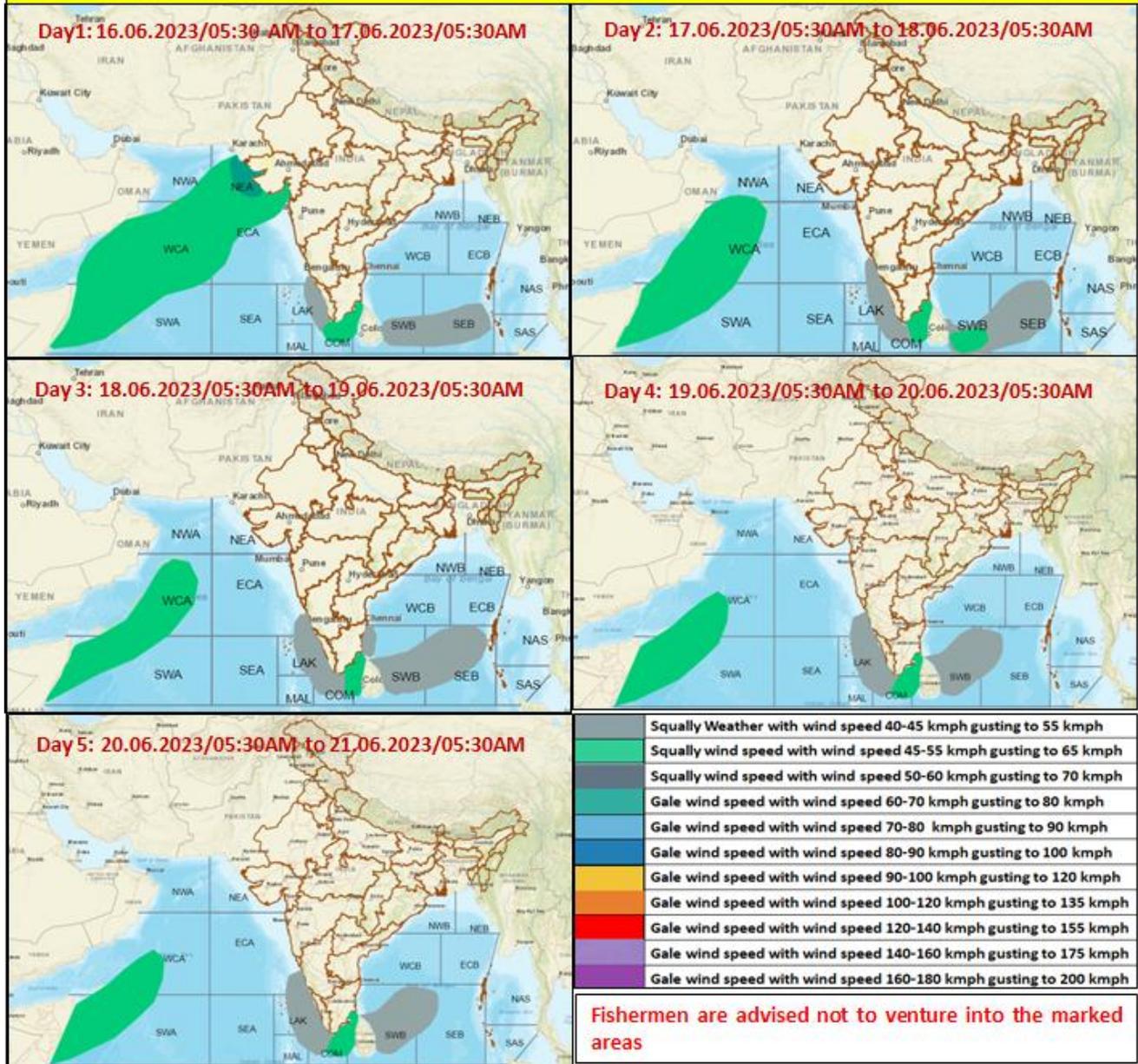
● LESS THAN 34 KT
 ○ 34-47 KT
 ● ≥ 48 KT
 — OBSERVED TRACK
 — FORECAST TRACK
 ● CONE OF UNCERTAINTY
AREA OF MAXIMUM SUSTAINED WIND SPEED:
 ■ 28-33 KT (52-61 KMPH)
 ■ 34-49 KT (62-91 KMPH)
 ■ 50-63 KT (92-117 KMPH)
 ■ ≥ 64 KT (≥118 KMPH)

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

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

Fishermen warning graphics



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