



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

DEMS-RSMC SPECIAL TROPICAL CYCLONES NEW DELHI DATED 15.06.2023

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. 70 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 48 HOURS ISSUED AT 0600 UTC OF 15.06.2023 BASED ON 0300 UTC OF 15.06.2023

SUB: VERY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER NORTHEAST ARABIAN SEA (CYCLONE WARNING FOR SAURASHTRA & KUTCH COASTS (**RED MESSAGE**))

THE VERY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER NORTHEAST ARABIAN SEA MOVED NORTH-NORTHEASTWARD WITH A SPEED OF 7 KMPH DURING PAST 6-HOURS AND LAY CENTERED AT 0300 UTC OF 15TH JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 22.6°N AND LONGITUDE 67.1°E, ABOUT 170 KM WEST-SOUTHWEST OF JAKHAU PORT (GUJARAT), 210 KM WEST OF DEVBHUMI DWARKA (42731), 190 KM WEST-SOUTHWEST OF NALIYA (42631), 290 KM WEST-NORTHWEST OF PORBANDAR (42830), AND 260 KM SOUTH OF KARACHI (PAKISTAN, 41780).

IT IS VERY LIKELY TO MOVE NORTHEASTWARDS AND CROSS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS BETWEEN MANDVI (GUJARAT) AND KARACHI (PAKISTAN) NEAR JAKHAU PORT (GUJARAT) AROUND 1200 UTC OF 15TH JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 115-125 KMPH GUSTING TO 140 KMPH.

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 |
|-----------------|------------------------------|---|----------------------------------|
| 15.06.23/0300 | 22.6/67.1 | 125-135 Gusting To 150 | Very Severe Cyclonic Storm |
| 15.06.23/0600 | 22.8/67.3 | 120-130 Gusting To 145 | Very Severe Cyclonic Storm |
| 15.06.23/1200 | 23.2/67.8 | 115-125 Gusting To 140 | Very Severe Cyclonic Storm |
| 15.06.23/1800 | 23.7/68.7 | 105-115 Gusting To 125 | Severe Cyclonic Storm |
| 16.06.23/0000 | 24.2/69.4 | 70-80 Gusting To 90 | Cyclonic Storm |
| 16.06.23/1200 | 24.7/70.2 | 45-55 Gusting To 65 | 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, INTENSITY OF THE SYSTEM IS T4.0/C.I.4.0. CLOUDS ARE ORGANISED IN SHEAR PATTERN. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY MAINLY OVER NORTH AND ADJOINING CENTRAL ARABIAN SEA BETWEEN LATITUDE 18.0°N & 24.0°N AND LONGITUDE 61.0°E & 70°E AND WEAK TO MODERATE CONVECTION LAY OVER SOUTH PAKISTAN, KUTCH & SAURASHTRA, ADJACENT GULF OF KUTCH, MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C. MAJOR CONVECTION AREA IS SEEN IN SOUTHWEST SECTOR. MULTISAT WINDS INDICATE STRONGER WINDS ARE SEEN IN THE SOUTHEAST SECTOR.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED (MSW) IS 70 KNOTS GUSTING TO 80 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 976 HPA. SEA CONDITION IS LIKELY TO BE PHENOMENAL OVER NORTHEAST ARABIAN SEA AND ROUGH TO VERY ROUGH OVER ADJOINING EASTCENTRAL ARABIAN SEA.

AT 0300 UTC, NALIYA(42631) MEAN SEA LEVEL PRESSURE (MSLP) OF 995 HPA, PRESSURE FALL DURING PAST 24 HOURS (P24) OF -2.5 HPA AND MAXIMUM SUSTAINED WIND SPEED (MSW) OF 140°/10KT. BHUJ (42634) REPORTED MSLP OF 998 HPA, P24 OF -1.5 HPA AND MSW OF 140°/09KT. OKHA (42730) REPORTED MSLP OF 995.7 HPA, P24 OF -2.5 HPA AND MSW OF 160°/12KT. KARACHI (41780) REPORTED MSLP OF 997.6 HPA, P24 OF -0.4 HPA AND MSW OF 50°/10KT.

STORM SURGE GUIDANCE:

STROM SURGE HEIGHT OF ABOUT 2-3 METER ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS OF KACHCHH, DEVBHUMI DWARKA, PORBANDAR, JAMNAGAR AND MORBI DISTRICTS OF SUARASHTRA & KUTCH DURING THE TIME OF LANDFALL.

STROM SURGE HEIGHT OF ABOUT 1-2 METER ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE LOW LYING AREAS OF COASTAL PAKISTAN NEAR LANDFALL POINT DURING THE TIME OF LANDFALL.

REMARKS:

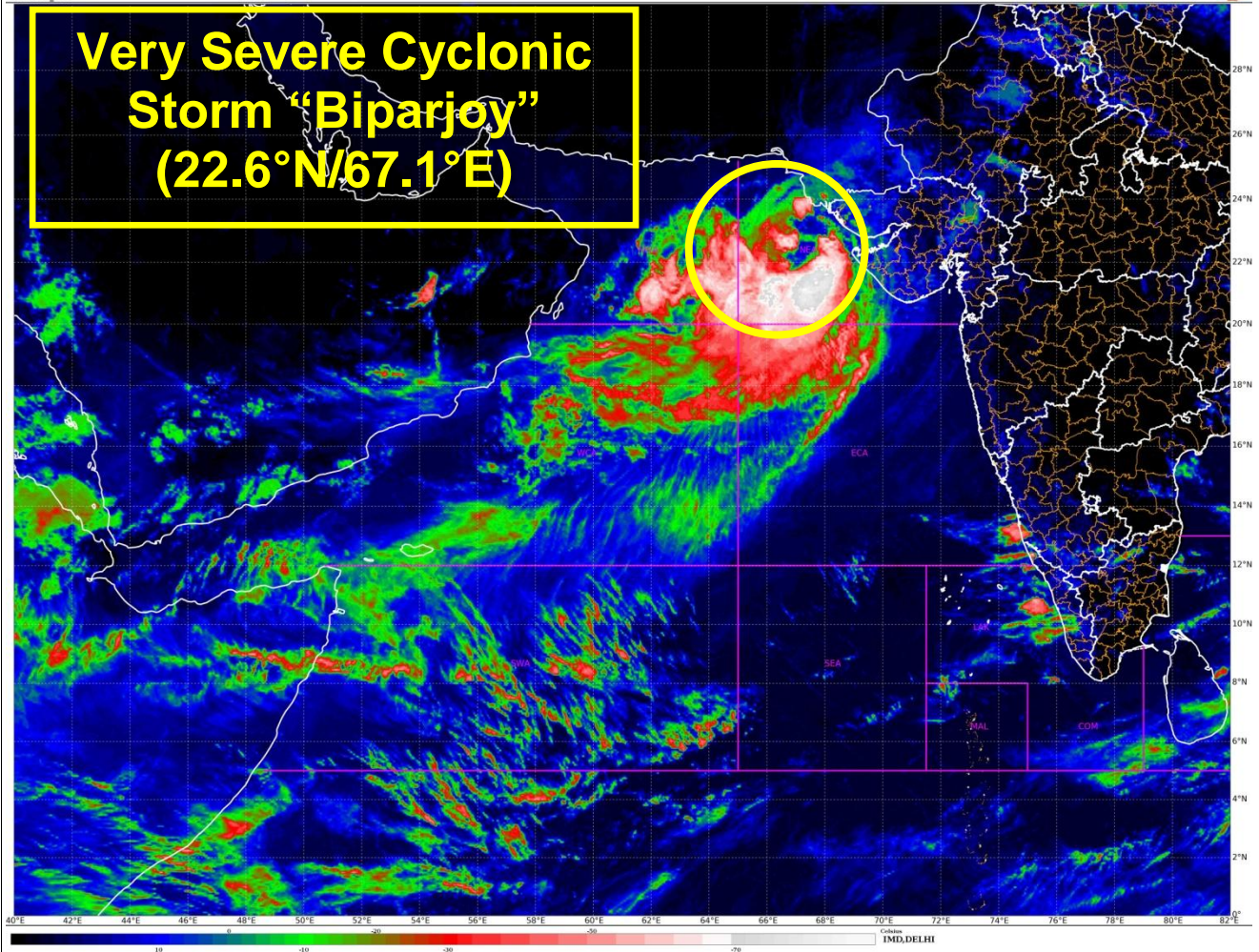
SEA SURFACE TEMPERATURE IS AROUND 29-30°C OVER NORTHEAST ARABIAN SEA. OCEAN HEAT CONTENT IS 60-70KJ/CM² AND IS EXPECTED TO DECREASE GRADUALLY ALONG THE FORECAST TRACK BECOMING 30-40 KJ/CM² OFF SAURASHTRA & KUTCH COASTS. TOTAL PRECIPITABLE WATER IMAGERY INDICATES CONTINUED COLD AIR INCURSION INTO THE CORE OF SYSTEM. THE GRADIENT WIND ANALYSIS INDICATES THAT DURING PAST 24 HOURS, RADIUS OF GRADIENT WIND HAS INCREASED AND TEMPERATURE ANOMALY AT 300 HPA HAS DECREASED. FURTHER, AS THE SYSTEM MOVED VERY SLOWLY DURING PAST 12 HOURS, THE SURFACE AIR NEAR THE CORE COOLED DOWN, DUE TO UPWELLING IN THE SEA TO THE SOUTHEAST OF SYSTEM CENTRE. ALL THESE FEATURES ARE INDICATING VERY GRADUAL WEAKENING OF THE SYSTEM ALONG ITS PATH.

THE LOW LEVEL VORTICITY HAS DECREASED AND IS AROUND $250 \times 10^{-6} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE. LOW LEVEL CONVERGENCE IS SAME AND IS ABOUT $30 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTHWEST OF THE SYSTEM CENTRE AND UPPER LEVEL SAME AND IS ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF SYSTEM CENTRE. VERTICAL WIND SHEAR HAS SLIGHTLY DECREASED AND IS MODERATE TO HIGH (20-25 KNOTS) OVER THE SYSTEM AREA. THE RIDGE RUNS ALONG 21.5°N. THE DEEP LAYER MEAN WINDS, INDICATE A WESTERLY TROUGH ALONG 65.0E 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.

AS THE SYSTEM WILL APPROACH COAST, IT IS LIKELY TO EXPERIENCE LOWER OCEAN THERMAL ENERGY (40-50 KJ/CM²) AND DECREASE IN MIDDLE LEVEL HUMIDITY DUE TO DRY COLD AIR INTRUSION.

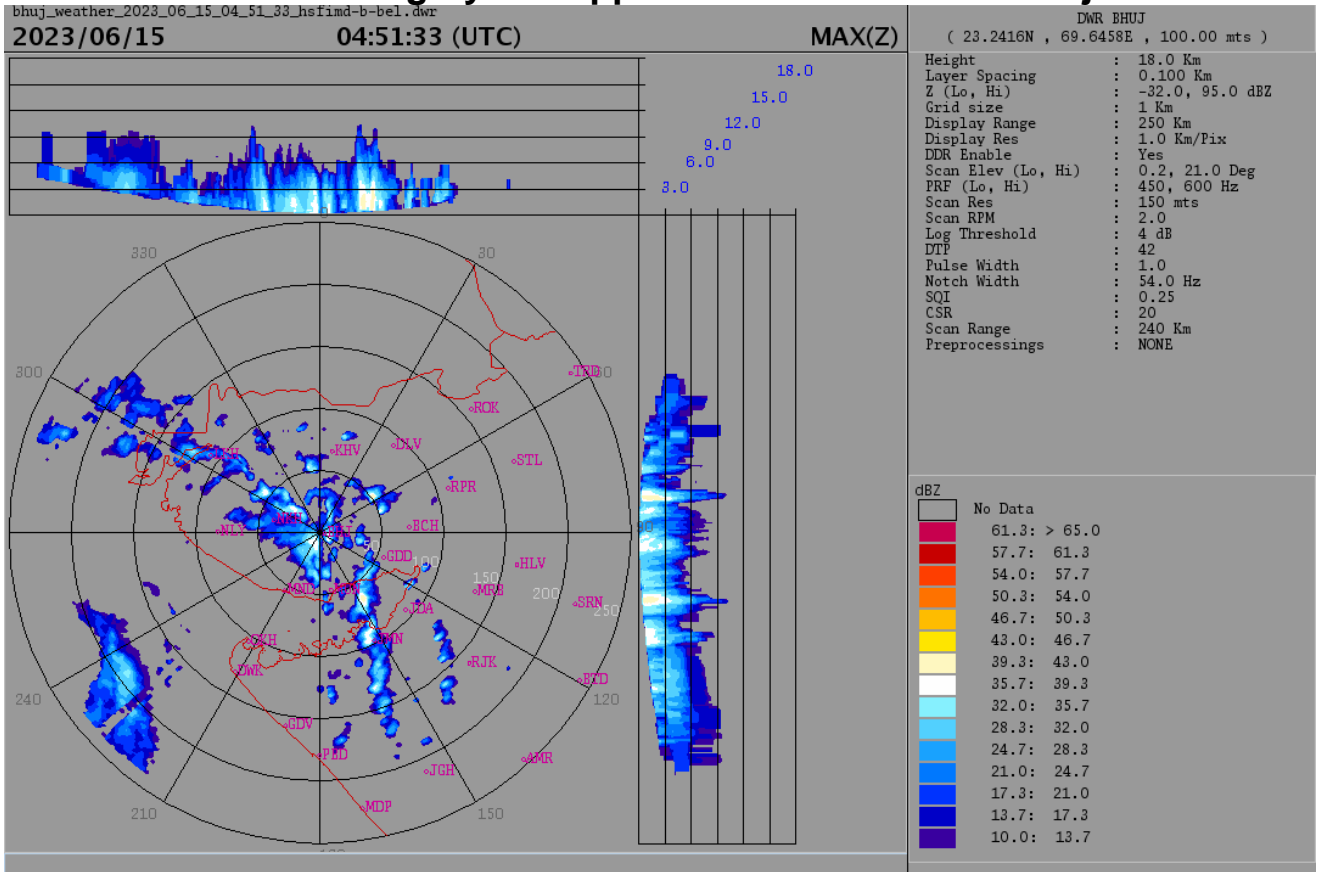
CONSIDERING ALL THE ABOVE, TC BIPARJOY IS VERY LIKELY TO MOVE NORTHEASTWARDS AND CROSS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS BETWEEN MANDVI (GUJARAT) AND KARACHI (PAKISTAN) NEAR JAKHAU PORT (GUJARAT) AROUND 1200 UTC OF 15TH JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 115-125 KMPH GUSTING TO 140 KMPH.

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



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Radar Imagery of Doppler Weather Radar at Bhuj



Cloud distribution: (a)
 Temperature: >-2
 PROBABILITY: 50%
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OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST ARABIAN SEA BASED ON 0300 UTC (0830 IST) OF 15TH JUNE 2023.

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OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST ARABIAN SEA BASED ON 0300 UTC (0830 IST) OF 15TH JUNE 2023.

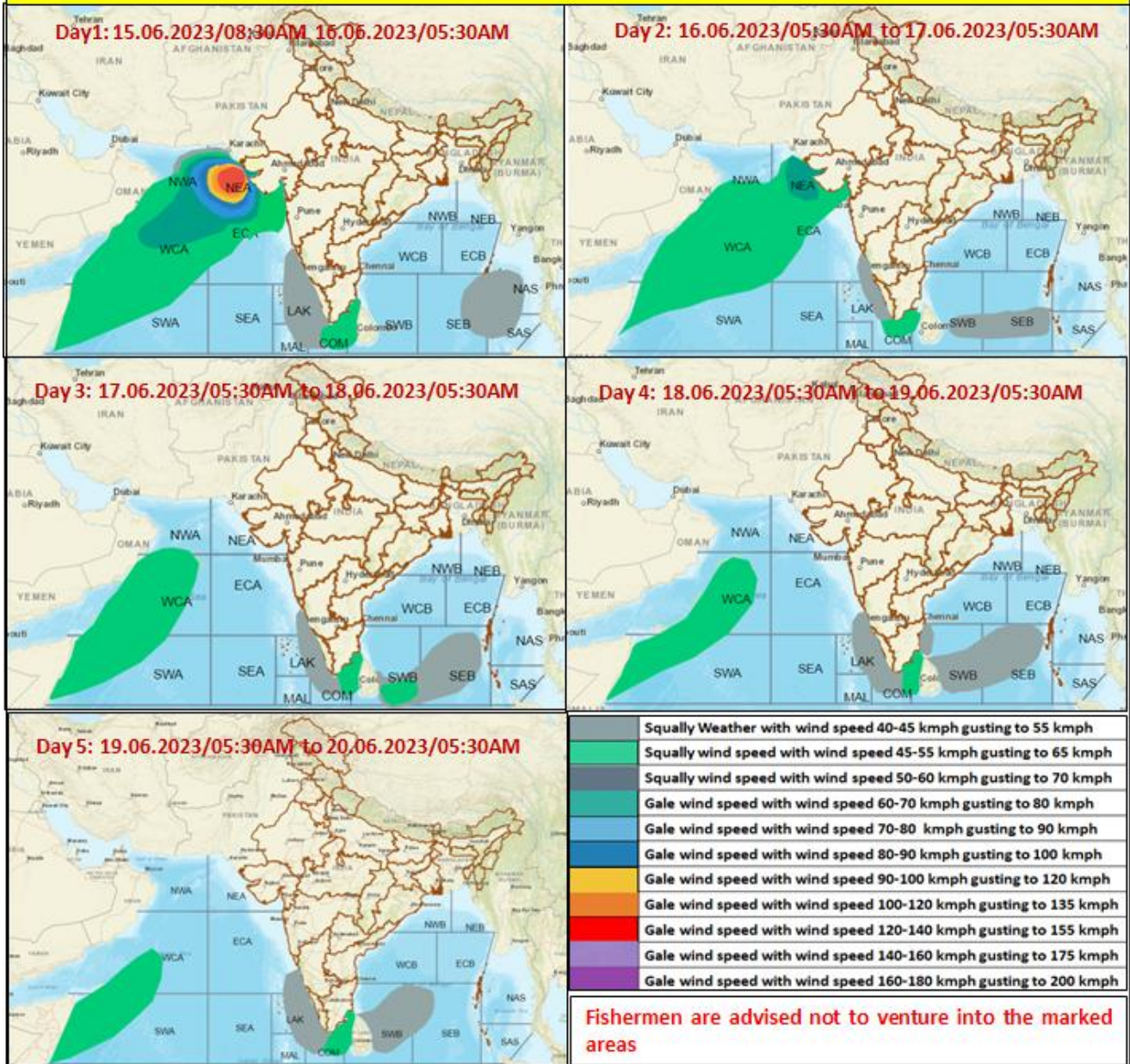


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Fishermen warning graphics



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