



**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. 49 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1600 UTC OF 12.06.2023 BASED ON 1200 UTC OF 12.06.2023

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

THE EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” (PRONOUNCED AS “BIPORJOY”) OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA MOVED NEARLY NORTHWESTWARDS WITH A SPEED OF 08 KMPH DURING PAST 6-HOURS AND LAY CENTERED AT 1200 UTC OF TODAY, THE 12TH JUNE, 2023 OVER THE SAME REGION NEAR LATITUDE 19.9°N AND LONGITUDE 67.3°E, ABOUT 310 KM SOUTHWEST OF PORBANDAR (42830), 330 KM SOUTH-SOUTHWEST OF DEVBHUMI DWARKA (42731), 400 KM SOUTH-SOUTHWEST OF JAKHAU PORT (GUJARAT), 410 KM SOUTH-SOUTHWEST OF NALIYA (42631) AND 560 KM SOUTH OF KARACHI (PAKISTAN, 41780).

IT IS VERY LIKELY TO MOVE NEARLY NORTHWARDS TILL 14TH 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 15TH JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

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

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
12.06.23/1200	19.9/67.3	160-170 GUSTING TO 190	EXTREMELY SEVERE CYCLONIC STORM
12.06.23/1800	20.1/67.1	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	24.8/67.1	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
14.06.23/0000	21.8/67.4	135-145 GUSTING TO 160	VERY SEVERE CYCLONIC STORM
14.06.23/1200	22.4/67.7	130-140 GUSTING TO 155	VERY SEVERE CYCLONIC STORM
15.06.23/0000	23.0/68.1	125-135 GUSTING TO 150	VERY SEVERE CYCLONIC STORM
15.06.23/1200	23.5/68.7	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
16.06.23/0000	24.0/69.4	50-60 GUSTING TO 70	DEEP DEPRESSION
16.06.23/1200	24.5/70.3	30-40 GUSTING TO 50	WELL MARKED LOW PRESSURE AREA

AS PER INSAT 3D IMAGERY INTENSITY OF THE SYSTEM IS T 5.0/5.0. ASSOCIATED BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL ARABIAN SEA BETWEEN LATITUDE 15°N & 22.0°N AND LONGITUDE 62.0°E & 68.0°E. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 93°C.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 90 KNOTS GUSTING TO 100 KNOTS. THE ESTIMATED CENTRAL PRESSURE IS 966 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 EXTREMELY SEVERE CYCLONIC STORM "BIPARJOY" SHOW POSITIVE LOW LEVEL VORTICITY OF AROUND $300 \times 10^{-6} \text{S}^{-1}$ TO THE SOUTH-SOUTHWEST OF THE SYSTEM CENTRE, LOW LEVEL CONVERGENCE IS REDUCED TO ABOUT $20 \times 10^{-5} \text{S}^{-1}$ TO THE SOUTH OF THE SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE HAS REDUCED AND HAS SPLIT INTO TWO AREAS; WITH ONE ABOUT $10 \times 10^{-5} \text{S}^{-1}$ 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/CM²), 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 15TH JUNE AND LANDFALL POINT IS VARYING BETWEEN LONGITUDE 67.7E AND 68.6E.

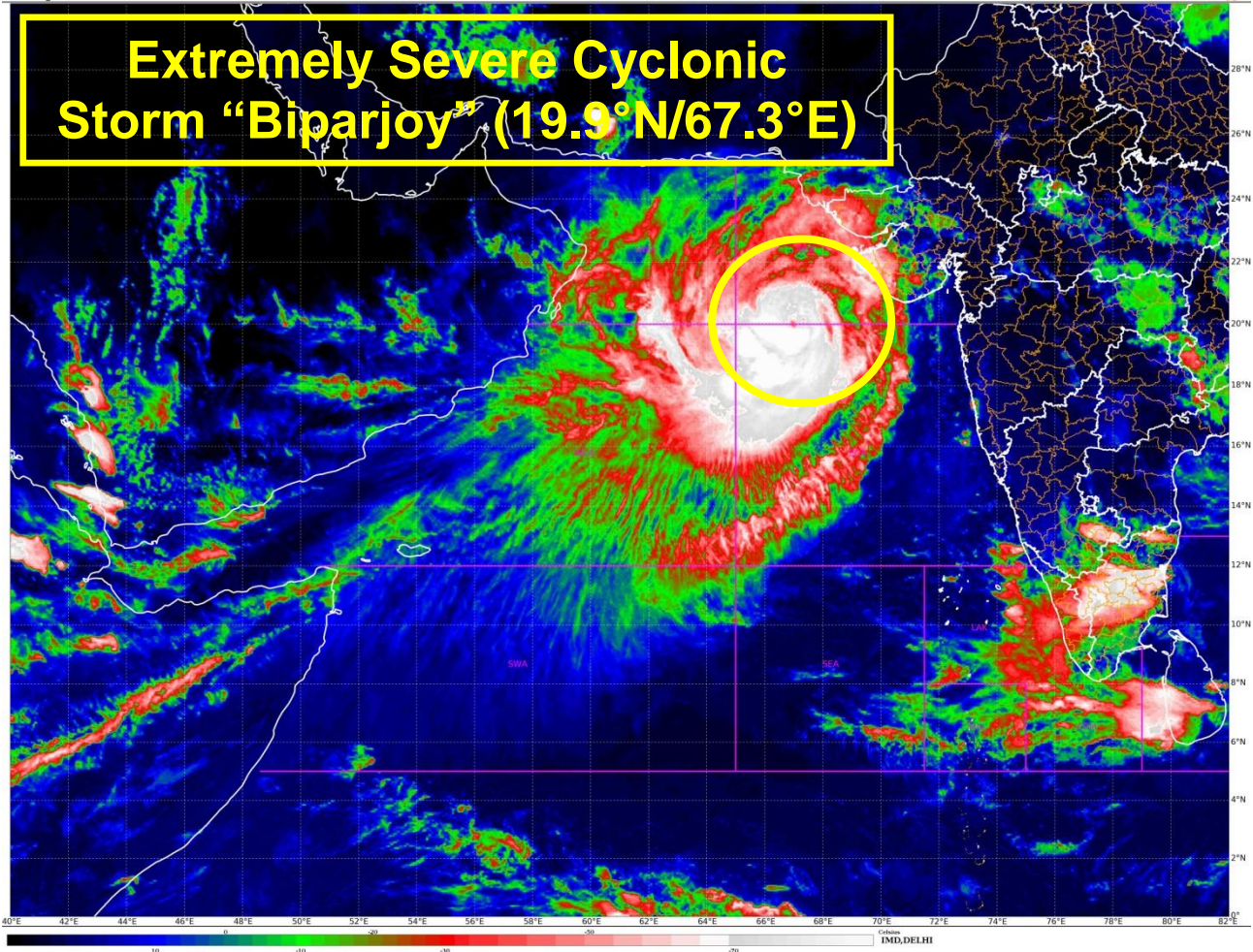
CONSIDERING ALL THE ABOVE, TC BIPARJOY IS VERY LIKELY TO MOVE NEARLY NORTHWARDS TILL 14TH MORNING, THEN MOVE NORTH-NORTHEASTWARDS AND CROSS SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS BETWEEN

MANDVI (GUJARAT, 42729) AND KARACHI (PAKISTAN, 41780) NEAR JAKHAU PORT (GUJARAT) AROUND 1200 UTC OF 15TH JUNE AS A VERY SEVERE CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 125-135 KMPH GUSTING TO 150 KMPH.

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



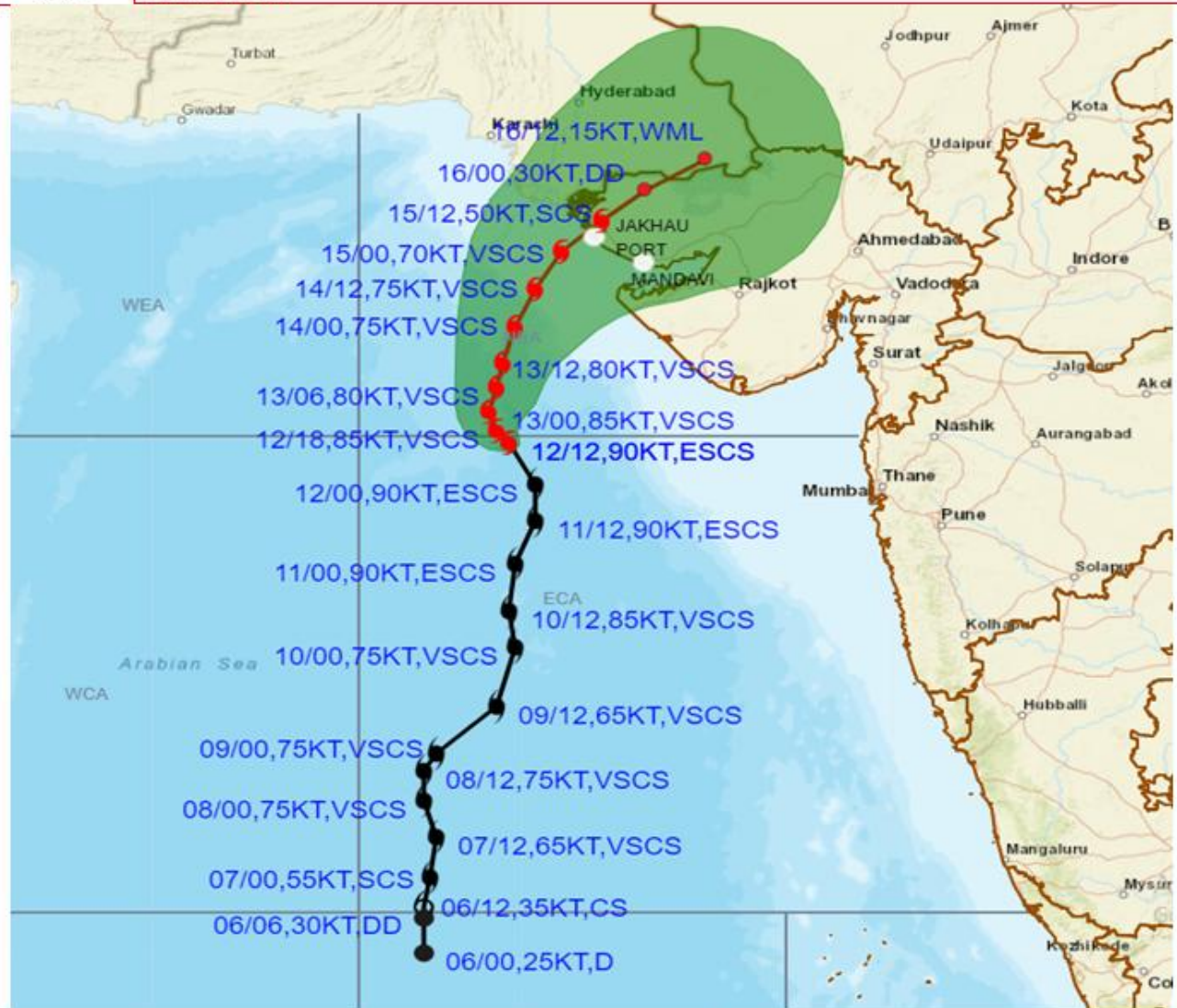
Extremely Severe Cyclonic Storm "Biparjoy" (19.9°N/67.3°E)



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 EXTREMELY SEVERE CYCLONIC STORM "BIPARJOY" OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA BASED ON 1200 UTC (1730 IST) OF 12TH JUNE 2023.



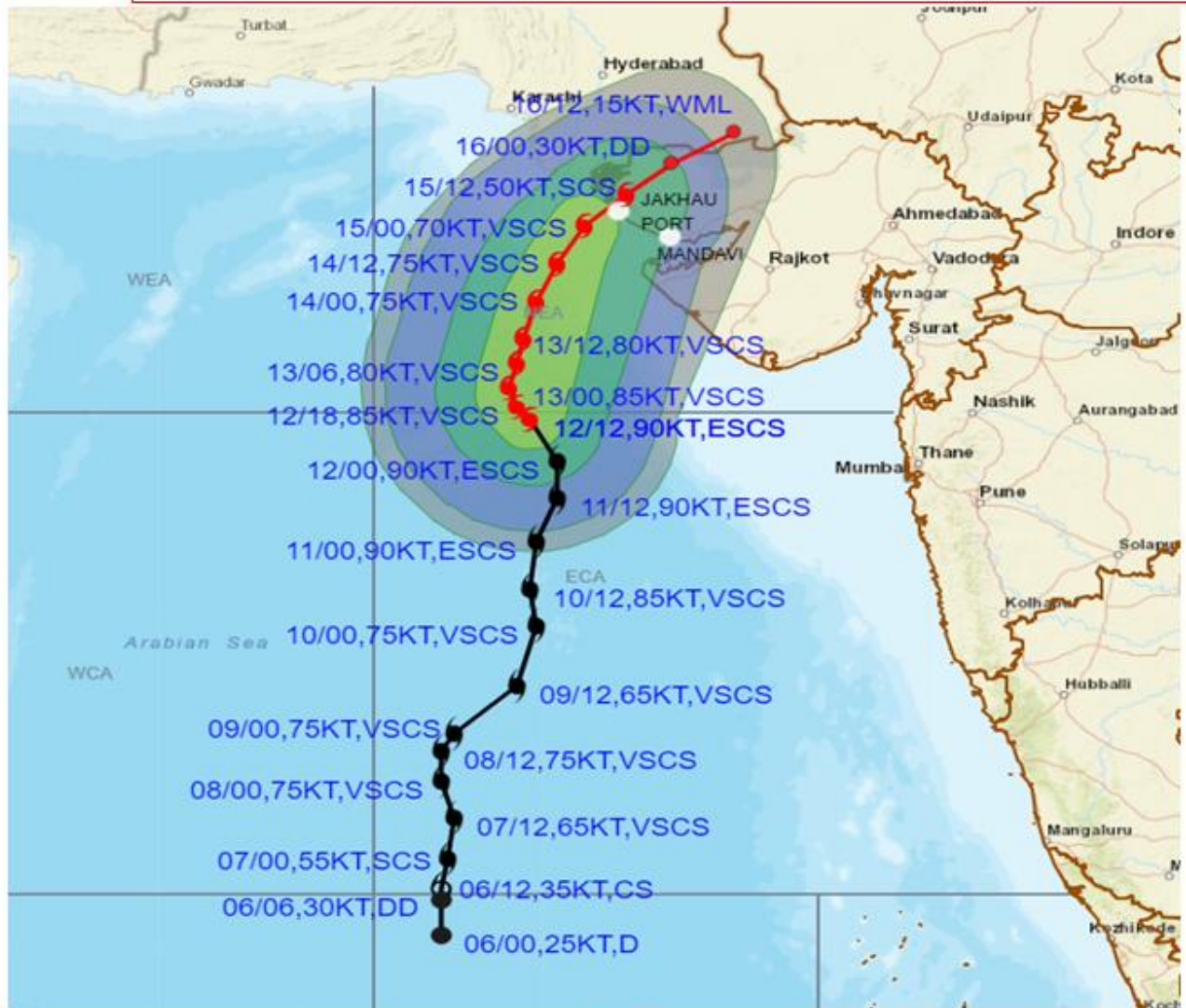
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM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

STATIONS	DISTANCE(KM) AND DIRECTION FROM STATIONS			
	13.06.23/1200	14.06.23/1200	15.06.23/1200	16.06.23/1200
PORBANDAR	260, W	220, WNW	230, NNW	320, NNE
DWARKA	230, SW	140, W	140, NNW	270, NNE
JAKHAU PORT	260, SSW	130, SW	40, NNE	220, NE
NALIYA	280, SW	150, SW	40, NNW	200, NE
KARACHI AIRPORT	410, S	280, SSE	230, SE	320, E

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 EXTREMELY SEVERE CYCLONIC STORM "BIPARJOY" OVER EASTCENTRAL AND ADJOINING NORTHEAST ARABIAN SEA BASED ON 1200 UTC (1730 IST) OF 12TH 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 (48-63 KT)

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)

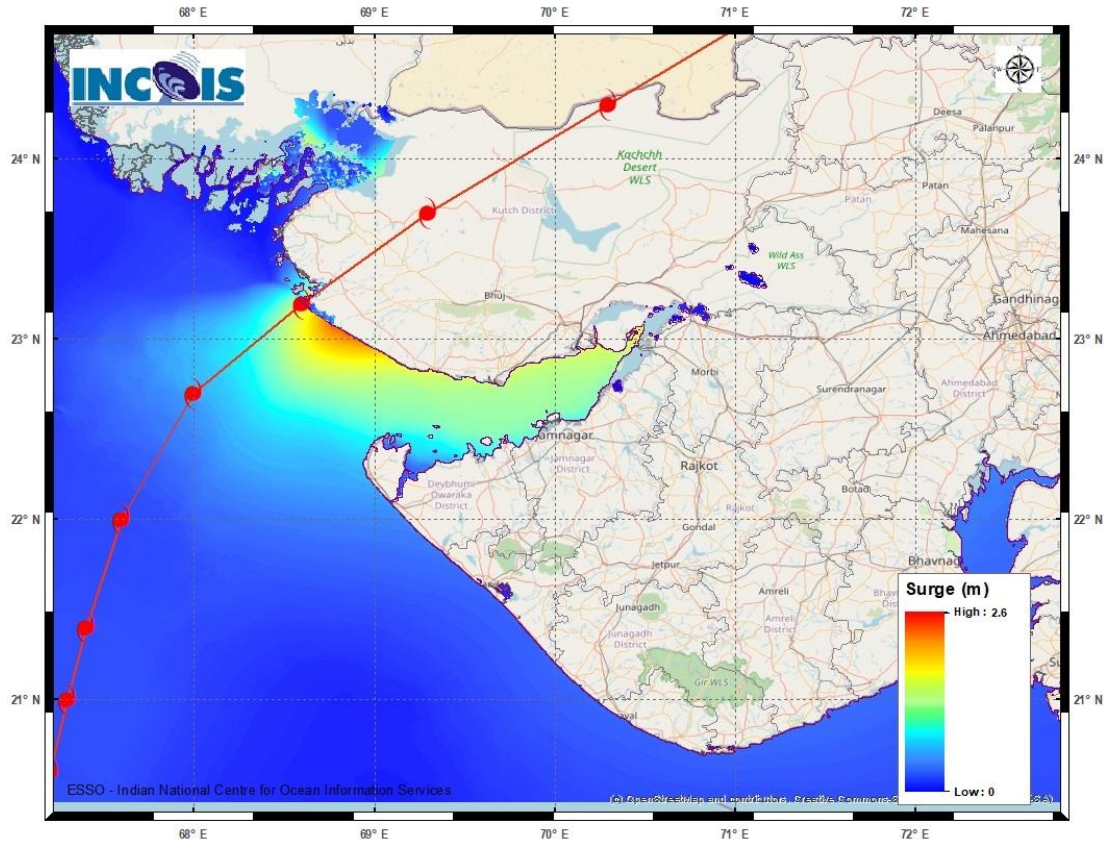
≥ 64 KT (≥ 118 KMPH)

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

Storm Surge Warning Map based on Forecast Track

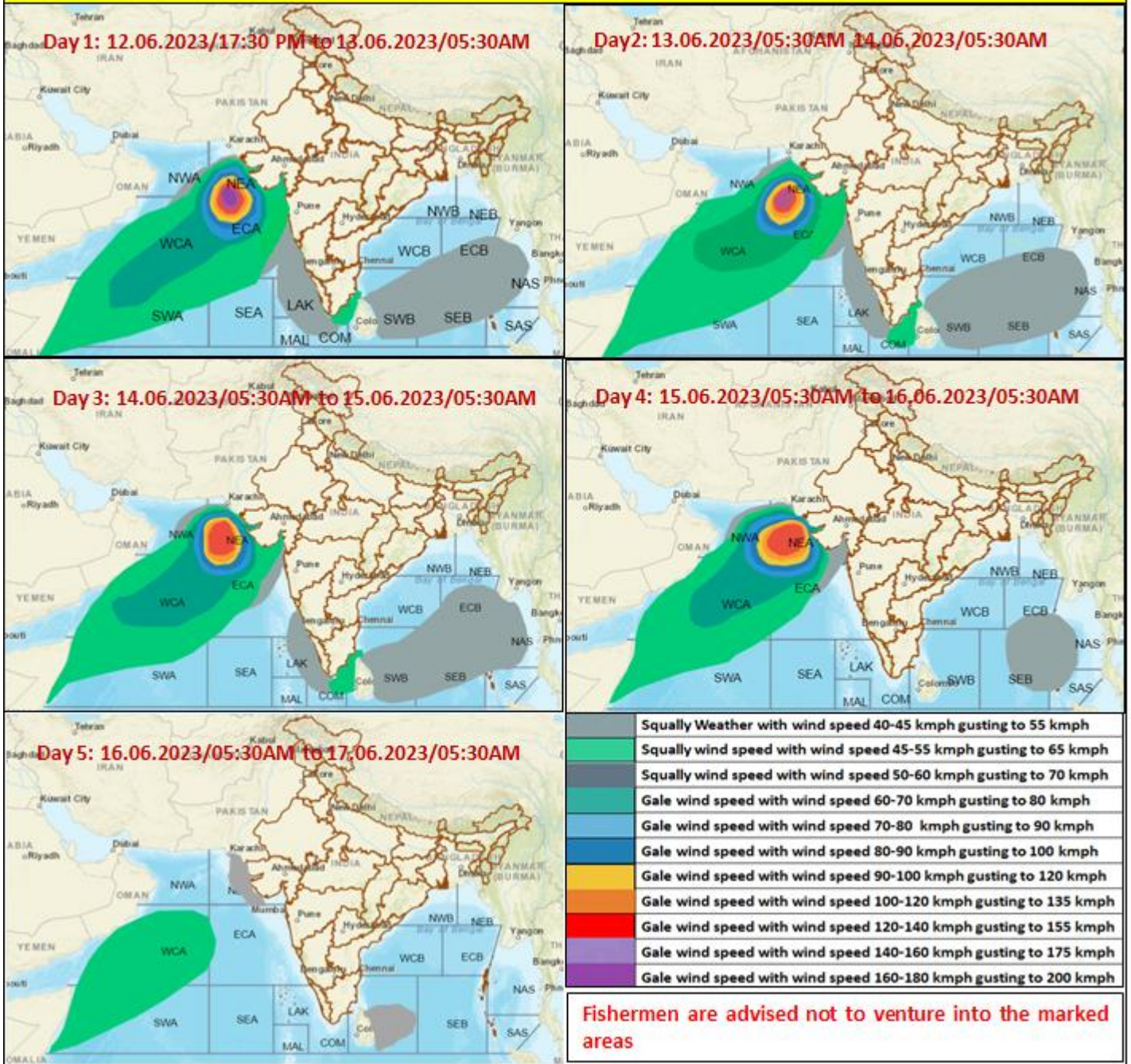


Astronomical Tide on 15th June 2023

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

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