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**Special Weather Forecast Bulletin for Gujarat State and Diu, Daman, Dadra Nagar Haveli.
(Bulletin no.: 3)**

Time of Issue : 1630 Hrs. IST

Dated: 11-06-2023

Sub:Extremely Severe Cyclonic Storm “Biparjoy” (pronounced as “Biporjoy”)over eastcentral Arabian Sea: Cyclone Alert for Saurashtra & Kutch Coasts (Yellow Message)

The extremely severe cyclonic storm “Biparjoy” (pronounced as “Biporjoy”) over eastcentral Arabian Sea moved northeastwards with a speed of 8kmph during past 6-hours and lay centered at 1130 hours IST of today, the 11th June, 2023 over the same region near latitude 18.2°N and longitude 67.7°E, about 550 km west of Mumbai, 450 km south-southwest of Porbandar, 490 km south-southwest of Devbhumi Dwarka, 570 km south-southwest of Naliya and 750km south of Karachi (Pakistan).

It is very likely to move nearly northward till 14th morning, then move north-northeastwards and cross Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) around noon of 15th June as a very severe cyclonic storm with maximum sustained wind speed of 125-135 kmph gusting to 150 kmph

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
11.06.23/1130	18.2/67.7	160-170 Gusting To 190	Extremely Severe Cyclonic Storm
11.06.23/1730	18.5/67.8	165-175 Gusting To 195	Extremely Severe Cyclonic Storm
11.06.23/2330	18.8/67.8	155-165 Gusting To 185	Very Severe Cyclonic Storm
12.06.23/0530	19.1/67.7	155-165 Gusting To 185	Very Severe Cyclonic Storm
12.06.23/1130	19.4/67.6	150-160 Gusting To 180	Very Severe Cyclonic Storm
12.06.23/2330	20.1/67.4	145-155 Gusting To 175	Very Severe Cyclonic Storm
13.06.23/1130	20.8/67.3	140-150 Gusting To 165	Very Severe Cyclonic Storm
13.06.23/2330	21.5/67.3	135-145 Gusting To 160	Very Severe Cyclonic Storm
14.06.23/1130	22.0/67.5	130-140 Gusting To 155	Very Severe Cyclonic Storm
14.06.23/2330	22.7/68.0	125-135 Gusting To 150	Very Severe Cyclonic Storm
15.06.23/1130	23.4/68.6	115-125 Gusting To 140	Very Severe Cyclonic Storm
15.06.23/2330	24.0/69.3	55-65 Gusting To 75	Severe Cyclonic Storm
16.06.23/1130	24.6/70.1	40-50 Gusting to 60	Depression

i) Heavy Rainfall warning for Gujarat State: (Kutch, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi districts):

14th June 2023

Light to moderate rainfall at most places with **heavy to very heavy** rainfall at isolated places very likely over **Kutch, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi** districts of Saurashtra & Kutch.

15th June 2023

The intensity of rainfall would increase with **heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places** very likely over **Kutch, Devbhumi Dwarka & Jamnagar** and **heavy to very heavy rainfall at a few places over Porbandar, Rajkot, Morbi & Junagarh districts** of Saurashtra & Kutch.

Isolated heavy rainfall is very likely over remaining districts of Saurashtra and north Gujarat region on 15 June.

ii) Wind warning:

1) Wind warning along & off North Gujarat coast (Kutch, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi districts) including Gulf of Kutch:

- Squally wind speed reaching 40-50 kmph gusting to 60 kmph on 11th June, 45-55 kmph gusting to 65 kmph during 12th and becoming 50-60 kmph gusting to 70 kmph from 13th to evening of 14th June.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely to prevail from 14th June evening and becoming 120-130 kmph gusting to 145 kmph from 15th morning for subsequent 12 hours.
- Squally wind speed reaching 55-65 kmph gusting to 75 kmph very likely to prevail along & off remaining districts Saurashtra coast on 14th & 15th June.

2) 11th June: Gale wind speed reaching 160-175 kmph gusting to 195 kmph is prevailing over eastcentral and adjoining westcentral & northeast Arabian Sea.

12th June: Gale wind speed reaching 150-165 kmph gusting to 185 kmph is likely to prevail over northeast and adjoining central Arabian Sea.

13th June: Gale wind speed reaching 145-155 kmph gusting to 170 kmph is likely to prevail over northeast and adjoining central Arabian Sea. Gale wind speed reaching 80-90 kmph gusting to 100 kmph over adjoining areas of northwest Arabian Sea.

14th June: Gale wind speed reaching 135-145 kmph gusting to 160 kmph is likely to prevail over northeast Arabian Sea. Gale wind speed reaching 70-80 kmph gusting to 90 kmph over adjoining areas of central & northwest Arabian Sea.

15th June: Gale wind speed reaching 125-135 kmph gusting to 150 kmph is likely to prevail over northeast Arabian Sea and likely to decrease becoming 100-110 kmph gusting

to 125 kmph from evening over the region. Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely over adjoining areas of central Arabian Sea.

(iii) Sea condition

1) Along & off Saurashtra & Kutch coasts:

Sea conditions likely to be rough to very rough till 14th evening and high to phenomenal thereafter till 15th June noon and improve thereafter.

2) 11th June: Sea condition is likely to be phenomenal over eastcentral and adjoining westcentral & northeast Arabian Sea.

12th June: Sea condition is likely to be phenomenal over northeast and adjoining central Arabian Sea.

13th June: Sea condition is likely to be phenomenal over northeast and adjoining northwest & central Arabian Sea

14th June: Sea condition is likely to be phenomenal to very high over northeast and adjoining northwest Arabian Sea and high to very rough sea condition is likely over adjoining areas of central Arabian Sea.

15th June: Sea condition is likely to be very high to phenomenal over northeast and very rough to high over adjoining northwest Arabian Sea and very rough to rough sea condition over adjoining areas of central Arabian Sea.

(iv) Storm Surge Warning (Kutch, Devbhumi Dwarka, Porbandar, Jamnagar and Morbi districts)

Storm surge of about 2 -3 m above the astronomical tide is likely to inundate the low-lying areas of above districts during the time of landfall.

(v) Damage expected over Kutch, Devbhumi Dwarka, Porbandar, Jamnagar, Morbi & Junagarh & Rajkot districts of Gujarat on 15th June:

- Total destruction of thatched houses/ extensive damage to kutcha houses. Some damage to Pucca houses. Potential threat from flying objects.
- Bending/ uprooting of power and communication poles.
- Major damage to Kutcha and Pucca roads. Flooding of escape routes. Minor disruption of railways, overhead power lines and signalling systems.
- Widespread damage to standing crops, plantations, orchards, falling of green coconuts and tearing of palm fronds. Blowing down of bushy trees like mango.
- Small boats, country crafts may get detached from moorings.
- Visibility severely affected.

(vi) Fishermen Warning & Action Suggested (Kutch, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi districts) and for Offshore & Onshore Industries (Graphics Attached):

- Total suspension of fishing operations over eastcentral and adjoining westcentral Arabian Sea till 15th June. north and adjoining central Arabian Sea during 12th -15th June
- Fishermen are advised not to venture into:
 - Central Arabian Sea till 15th June.
 - North and adjoining central Arabian Sea during 12th -15th June.

- Those out at sea are advised to return to coast.
- Judicious regulation of offshore and onshore activities.
- Mobilise evacuation from coastal areas.
- Judicious regulation of rail and road traffic.
- People in affected areas to remain indoors.
- Movement in motor boats and small ships all & off these coasts to be avoided.

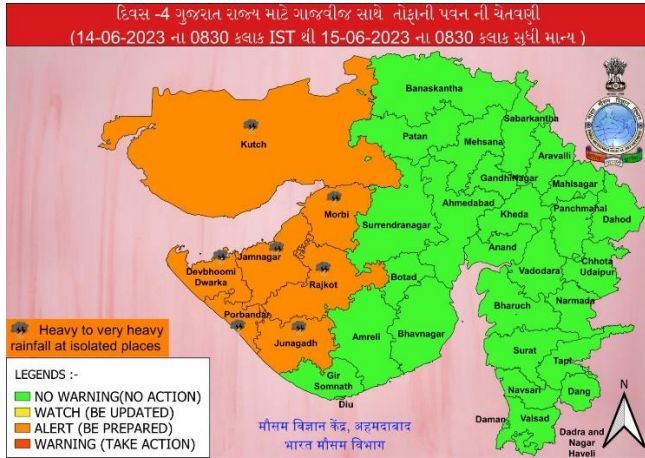
vii) Port Warning: issued

- Signal: Keep Hoisted Signal LW 4 at the North Gujarat ports(PORBANDAR, OKHA, BEDI GROUP OF PORTS, NAVLAKHI, MANDVI, MUNDRA, JAKHAU) and Keep hoisted Distant Warning signal II- (DW- II) at all ports of South Gujarat in all South Gujarat Ports (VERA VAL, JAFRABAD, ALANG, BHA VNAGAR, DAHEJ AND MAGDALLA)

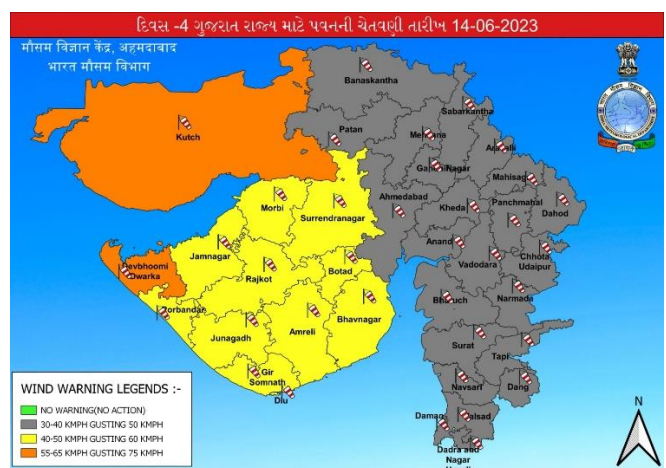
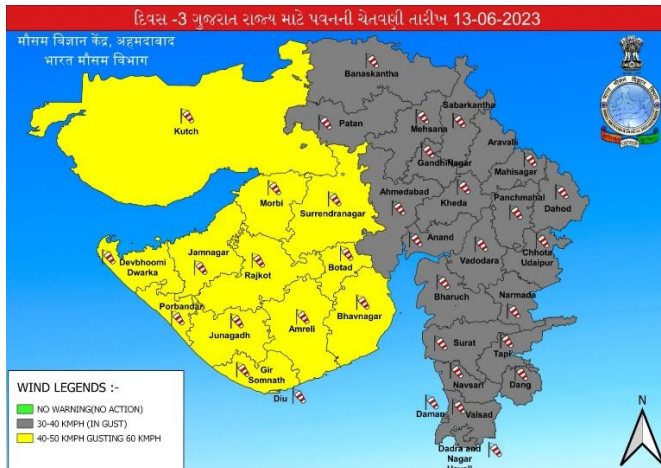
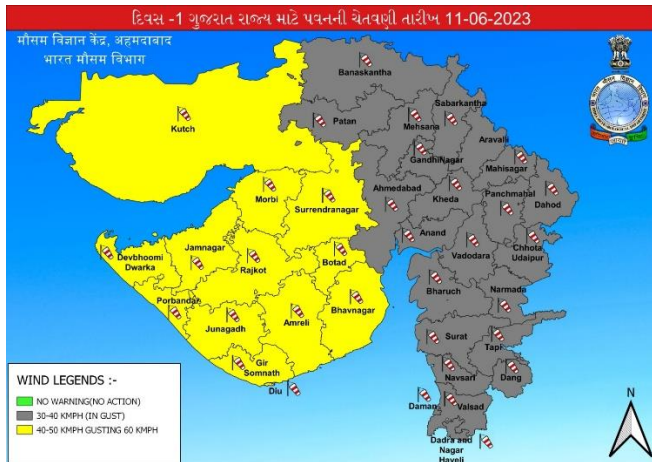
The systems are under continuous surveillance and the next message will be issued at 1430 hours IST of 11th June, 2023.

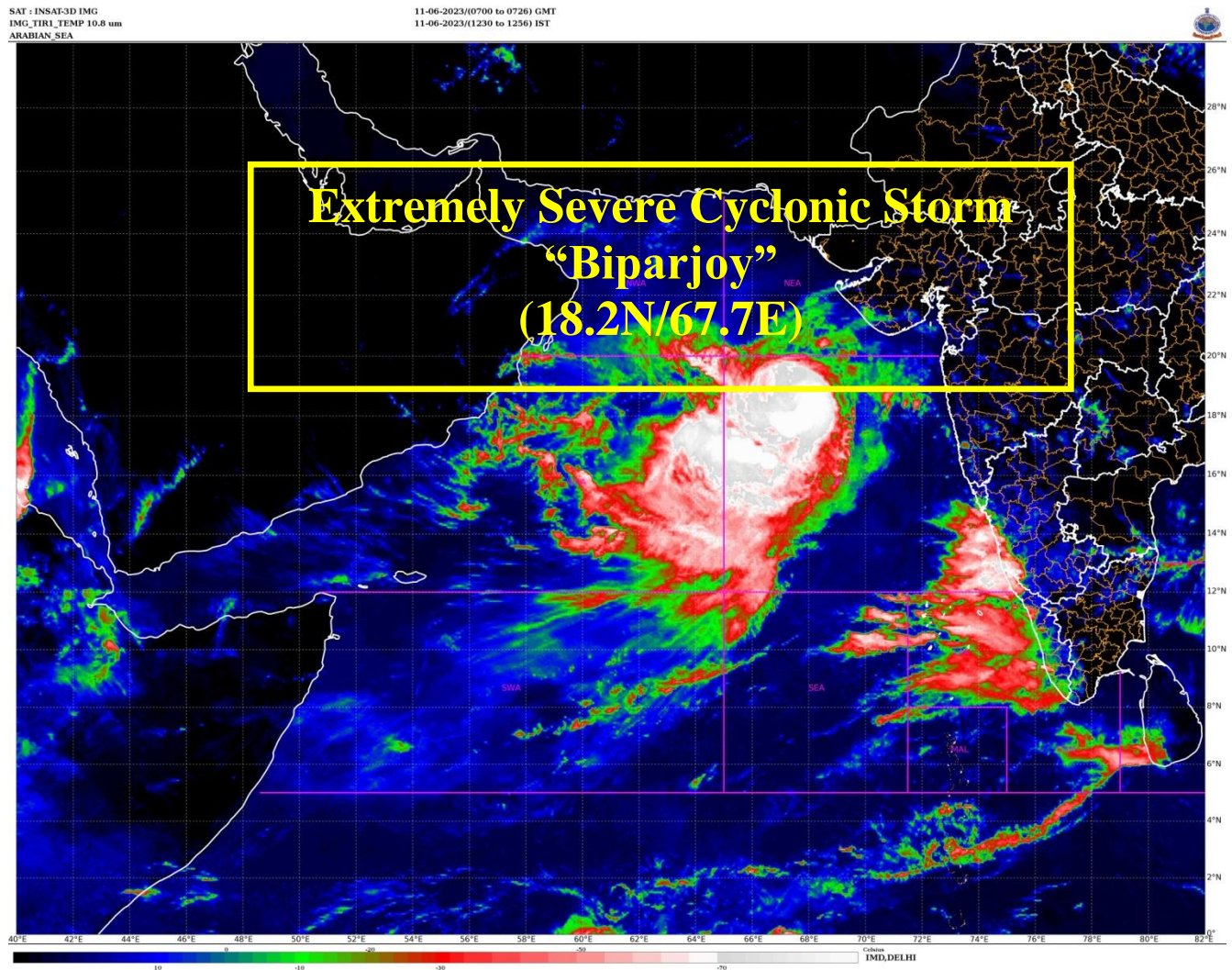
(Manorama Mohanty)
Scientist-E & Head
India Meteorological department
Ahmedabad

District wise heavy rainfall warning Map for 14th and 15th June 2023



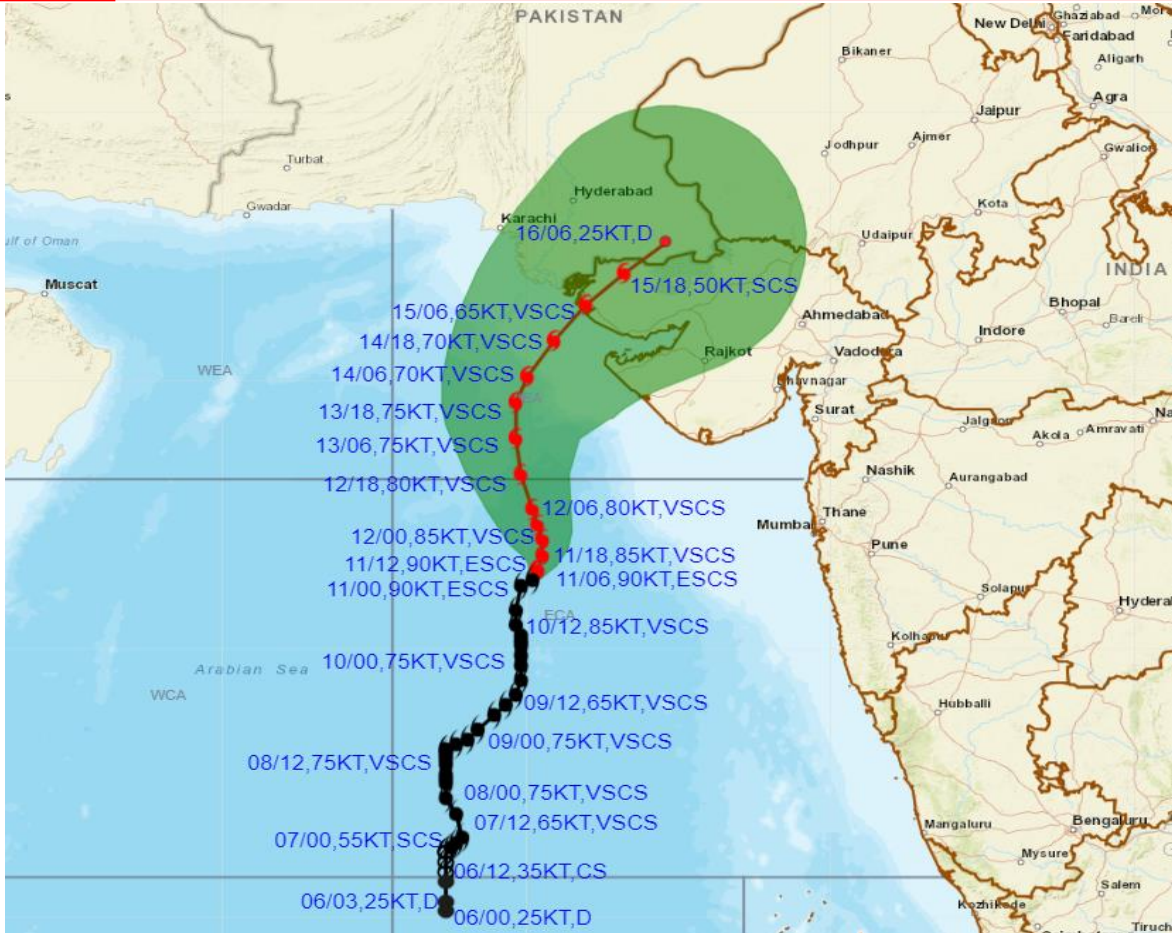
Wind Warning Map from 11th to 15th June







OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC (1130 IST) OF 11TH JUNE 2023



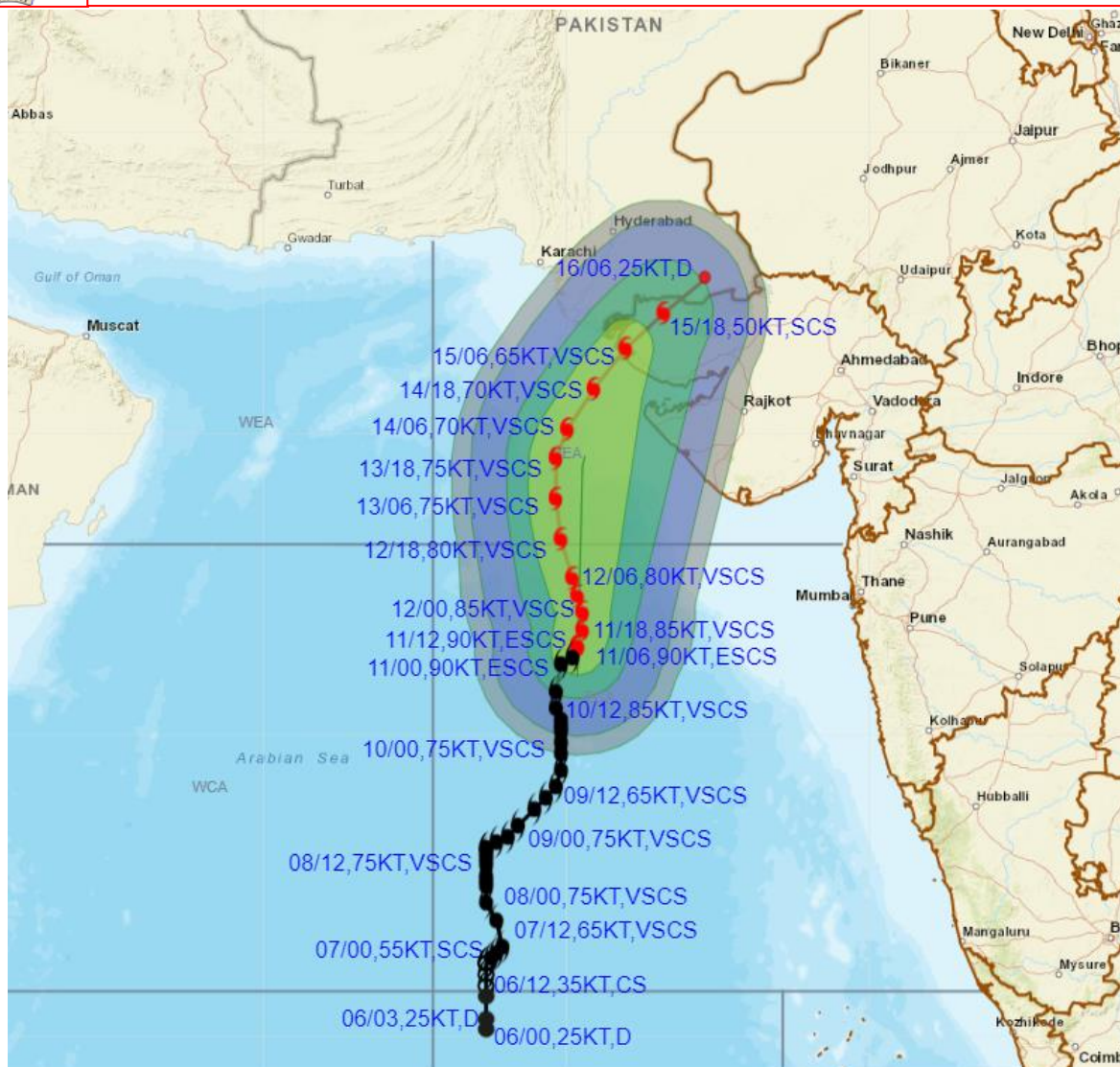
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSXS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESCS: EXTREMELY SEVERE CYCLONIC STORM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

Forecast	DISTANCE(KM) AND DIRECTION FROM STATIONS				
	PORBANDAR	BOMBAY / COLABA	GOA/PANJIM	KARACHI AIRPORT	MASIRAH
12.06.23/0600	330, SW	560, W	800, NW	610, S	920, E
13.06.23/0600	260, WSW	620, WNW	910, NW	450, S	880, E
14.06.23/0600	220, W	660, WNW	990, NW	320, S	910, E
15.06.23/0600	230, NNW	670, NW	1040, NNW	230, SE	1050, ENE
16.06.23/0600	330, N	690, NNW	1080, NNW	300, E	1230, ENE



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF EXTREMELY SEVERE CYCLONIC STORM “BIPARJOY” OVER EASTCENTRAL ARABIAN SEA BASED ON 0600 UTC (1130 IST) OF 11TH 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)

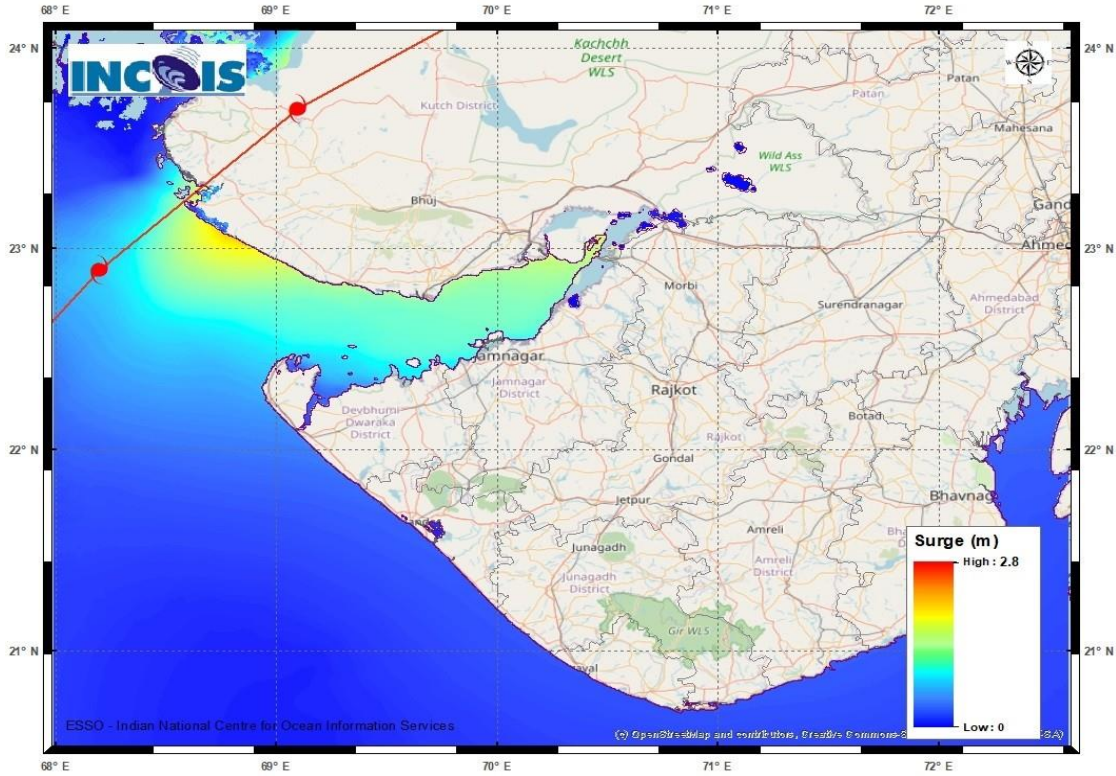
■ 50-63 KT (92-117 KMPH)

■ ≥ 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

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

Fishermen warning graphics

