India Meteorological Department
(Ministry of Earth Sciences)

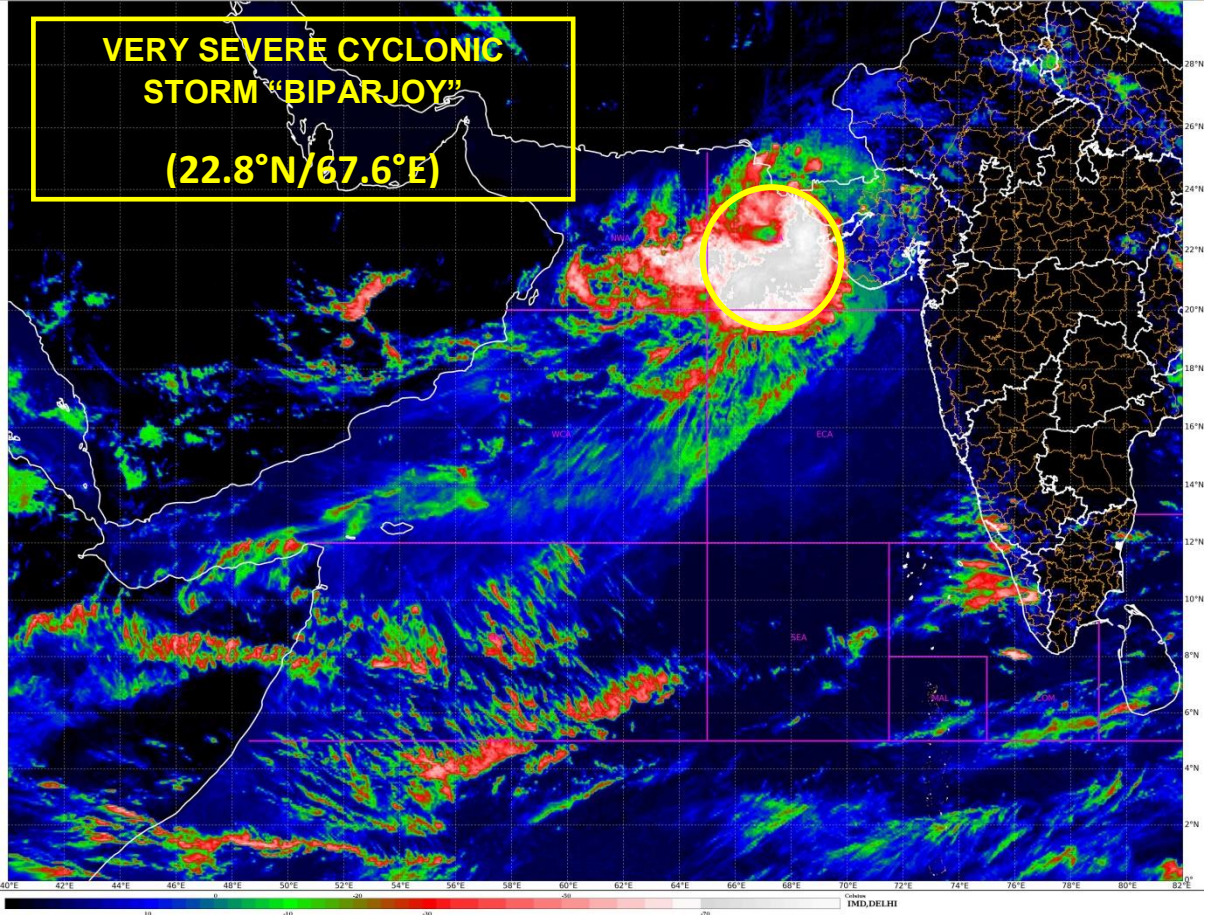HOURLY UPDATE ON VERY SEVERE CYCLONIC STORM '**BIPARJOY**'

BULLETIN NO. 04

DATE: 15-06-2023   TIME OF ISSUE: 1530 HRS IST

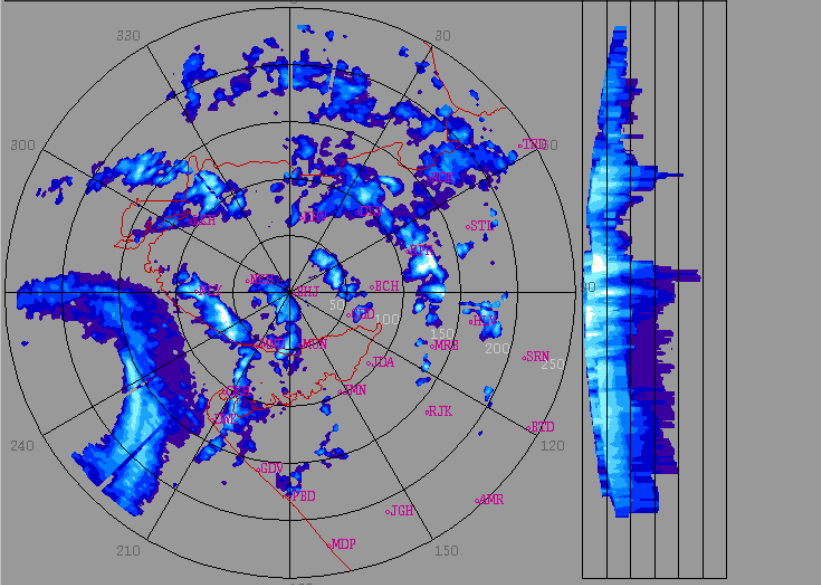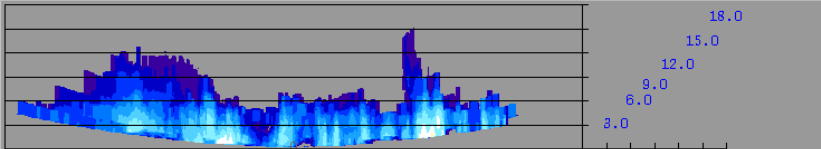| DATE/TIME (IST) OF OBSERVATION	BASED ON 15-06-2023 (1430 HRS IST)
CURRENT LOCATION (LATITUDE/LONGITUDE)	NORTHEAST ARABIAN SEA NEAR **LATITUDE 22.8°N AND LONGITUDE 67.6°E**, • 110 KM WEST-SOUTHWEST OF JAKHAU PORT (GUJARAT), • 160 KM WEST-NORTHWEST OF DEVBHUMI DWARKA, • 140 KM WEST-SOUTHWEST OF NALIYA, • 240 KM SOUTH-SOUTHEAST OF KARACHI (PAKISTAN)
CURRENT INTENSITY NEAR CENTRE	120-130 KMPH GUSTING TO 145 KMPH
REALIZED RAINFALL FROM 0830 HRS IST OF 15TH JUNE (MM)	PORBANDAR-17; NALIYA-17; BHUJ-12; KANDLA-12;
CURRENT WIND SPEED OBSERVED ALONG SAURASHTRA & KUTCH (KMPH)	• DWARAKA – 48; OKHA -32; DIU – 56; • NALIYA - 34; VERAVAL – 39; BHUJ - 24; • KANDLA - 33; PORBANDAR – 37;
PAST MOVEMENT	MOVED NORTH-NORTHEASTWARDS WITH A SPEED OF 06 KMPH DURING PAST 06 HOURS.
LANDFALL FORECAST	• LANDFALL AREA: SAURASHTRA & KUTCH AND ADJOINING PAKISTAN COASTS. • LANDFALL POINT: BETWEEN MANDVI AND KARACHI NEAR JAKHAU PORT • LANDFALL TIME: BY TONIGHT. LANDFALL PROCESS WILL COMMENCE FROM EVENING OF TODAY, THE 15TH JUNE AND WILL CONTINUE TILL MIDNIGHT. • WIND DURING LANDFALL: 115-125 KMPH GUSTING TO 140 KMPH
FORECAST STORM SURGE	• 2 -3 M ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE THE LOW LYING AREAS OF ABOVE DISTRICTS DURING THE TIME OF LANDFALL. • NOTE: ASTRONOMICAL TIDES ALONG THESE DISTRICTS COULD BE UPTO 3-6 METERS IN DIFFERENT PLACES

VERY SEVERE CYCLONIC STORM "BIPARJOY"

(22.8°N/67.6°E)

IMD,DELHI

bhuj_weather_2023_06_15_08_51_33_hsfimd-b-bel.dwr

2023/06/15   08:51:33 (UTC)   MAX(Z)
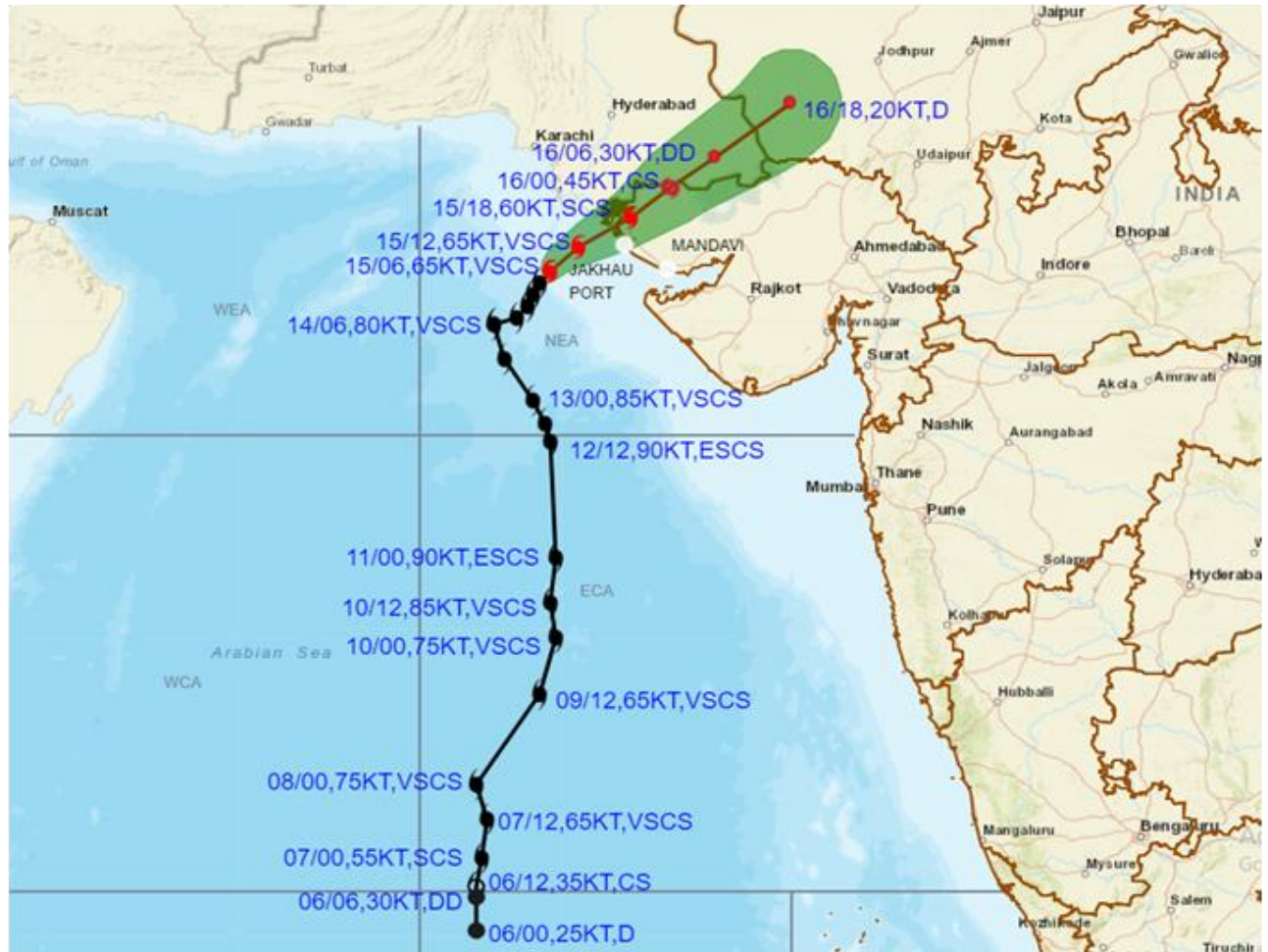
DWR BHUJ
(23.2416N , 69.6458E , 100.00 mts)

Height	:	18.0 Km
Layer Spacing	:	0.100 Km
Z (Lo, Hi)	:	-32.0, 95.0 dBZ
Grid size	:	1 Km
Display Range	:	250 Km
Display Res	:	1.0 Km/Pix
DDR Enable	:	Yes
Scan Elev (Lo, Hi)	:	0.2, 21.0 Deg
PRF (Lo, Hi)	:	450, 600 Hz
Scan Res	:	150 mts
Scan RPM	:	2.0
Log Threshold	:	4 dB
DTP	:	42
Pulse Width	:	1.0
Notch Width	:	54.0 Hz
SQI	:	0.25
CSR	:	20
Scan Range	:	240 Km
Preprocessings	:	NONE

dBZ
No Data
61.3: > 65.0
57.7: 61.3
54.0: 57.7
50.3: 54.0
46.7: 50.3
43.0: 46.7
39.3: 43.0
35.7: 39.3
32.0: 35.7
28.3: 32.0
24.7: 28.3
21.0: 24.7
17.3: 21.0
13.7: 17.3
10.0: 13.7

Reflectivity imagery from Doppler weather Radar -Bhuj based on 1420 hrs IST of 15[th]June 2023.

OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINITY OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST ARABIAN SEA BASED ON 0600 UTC (1130 IST) OF 15TH 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)
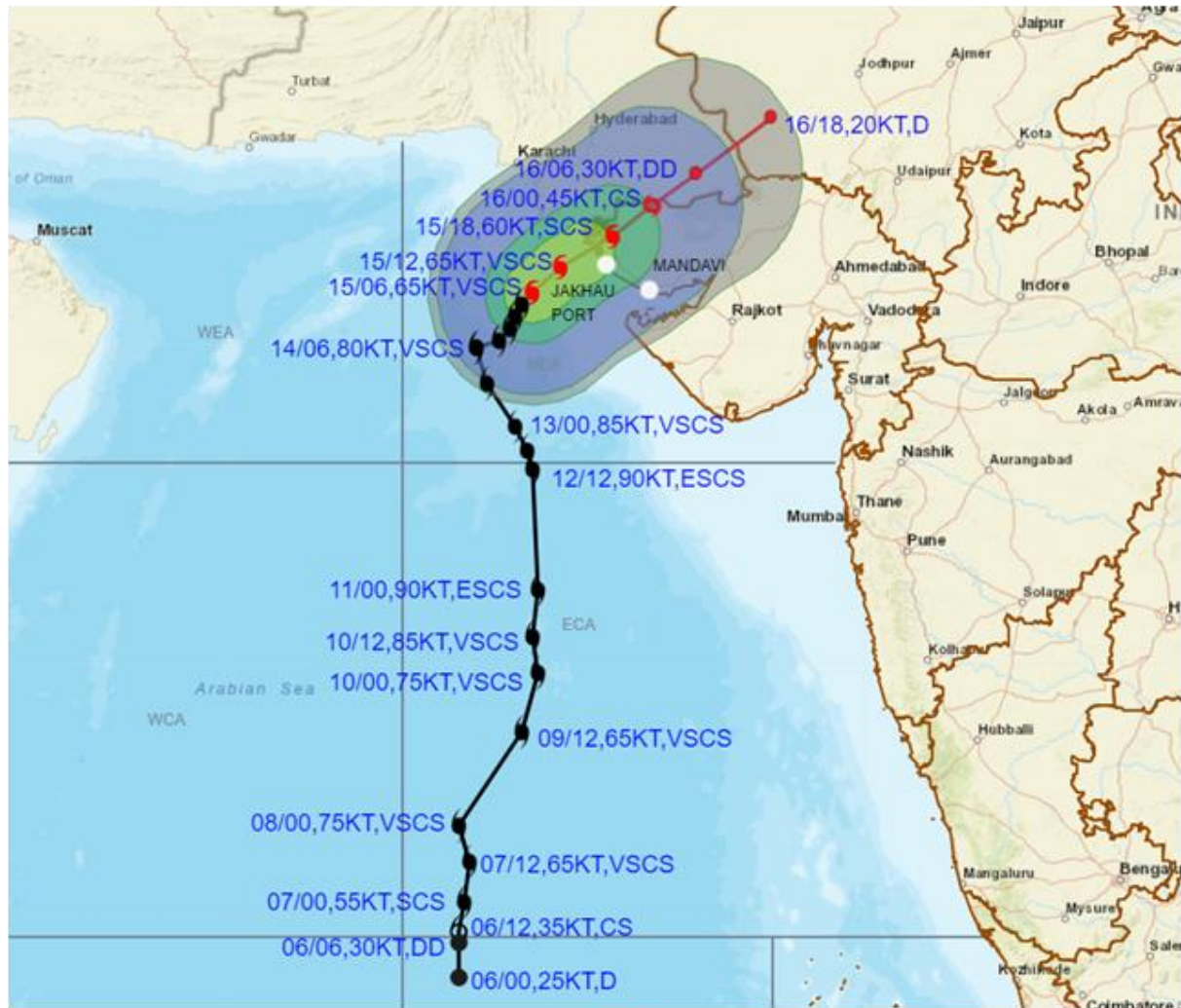
LESS THAN 34 KT
34-47 KT
≥ 48 KT
OBSERVED TRACK
FORECAST TRACK
CONE OF UNCERTAINTY

Forecast	DISTANCE(KM) AND DIRECTION FROM STATIONS				
Date and Time	NALIYA	JAKHAU PORT	DWARKA	KARACHI AIRPORT	PORBANDAR
16.06.23/0600	210, NE	230, NE	280, NNE	310, E	340, N

16/18,20KT,D
16/06,30KT,DD
16/00,45KT,CS
15/18,60KT,SCS
15/12,65KT,VSCS
15/06,65KT,VSCS
14/06,80KT,VSCS
13/00,85KT,VSCS
12/12,90KT,ESCS
11/00,90KT,ESCS
10/12,85KT,VSCS
10/00,75KT,VSCS
09/12,65KT,VSCS
08/00,75KT,VSCS
07/12,65KT,VSCS
07/00,55KT,SCS
06/12,35KT,CS
06/06,30KT,DD
06/00,25KT,D

DATE/TIME IN UTC
IST=UTC + 0530
L: LOW PRESSURE AREA
WML: WELL MARKED LOW PRESSURE AREA
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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:
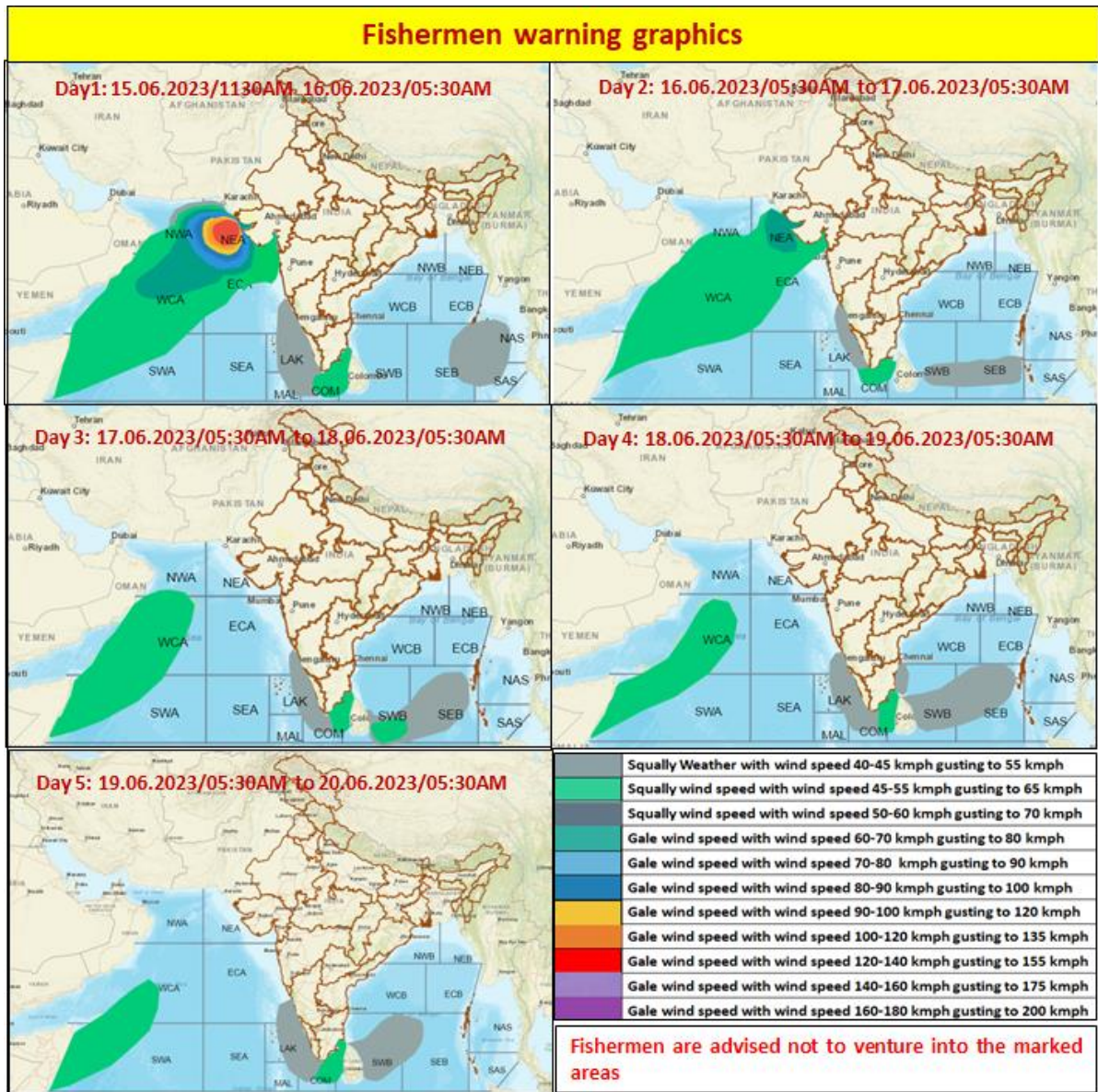28-33 KT (52-61 KMPH)
34-49 KT (62-91 KMPH)
50-63 KT (92-117 KMPH)
≥ 64 KT (≥118 KMPH)

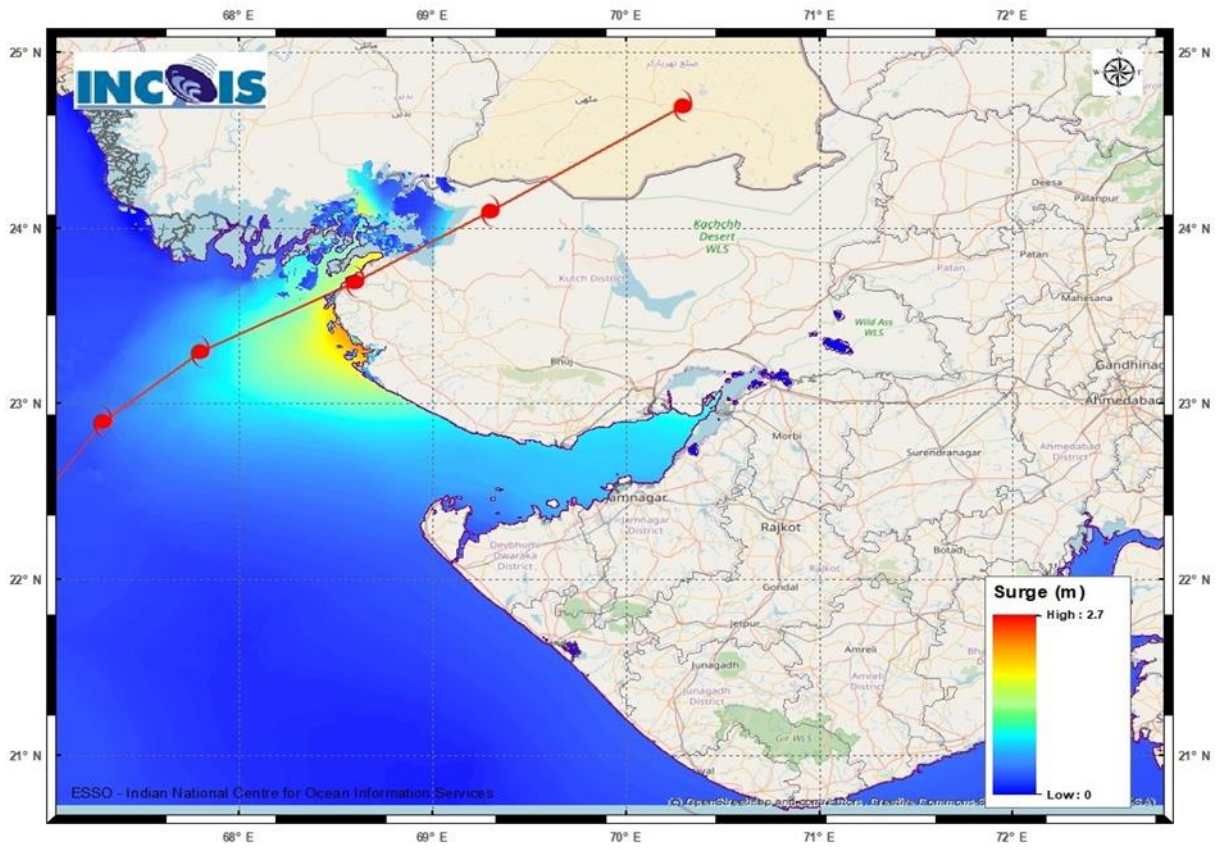| IMPACT OVER THE SEA		
MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

FISHERMEN WARNING GRAPHICS

STORM SURGE HEIGHT INFORMATION:

* The below listed surge heights are over and above astronomical tide.

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

Storm surge graphics from INCOIS for VSCS-Biparjoy