



**India Meteorological Department
(Ministry of Earth Sciences)**

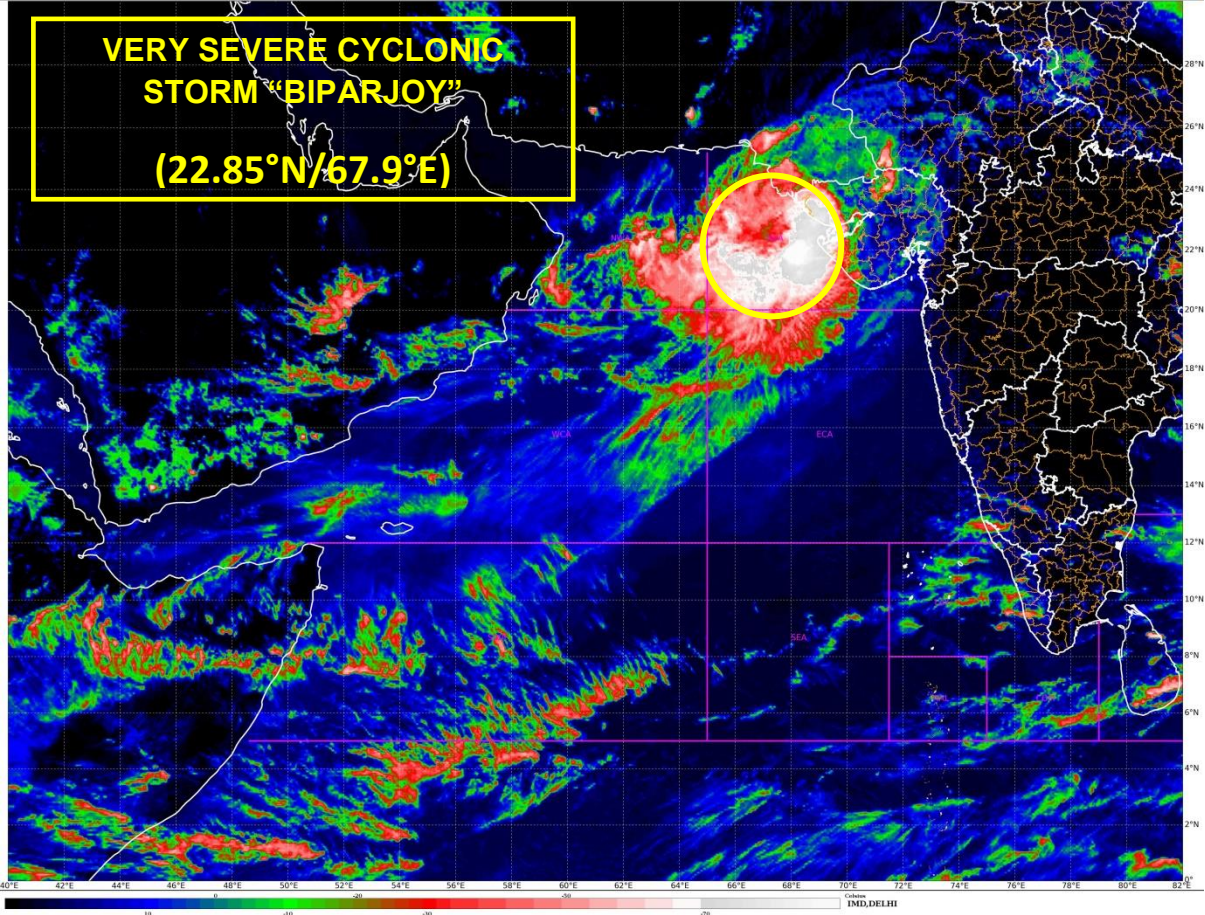
HOURLY UPDATE ON VERY SEVERE CYCLONIC STORM 'BIPARJOY'

BULLETIN NO. 06

DATE: 15-06-2023

TIME OF ISSUE: 1715 HRS IST

DATE/TIME (IST) OF OBSERVATION	BASED ON 15-06-2023 (1630 HRS IST)
CURRENT LOCATION (LATITUDE/LONGITUDE)	NORTHEAST ARABIAN SEA NEAR LATITUDE 22.85°N AND LONGITUDE 67.9°E , <ul style="list-style-type: none">• 80 KM WEST-SOUTHWEST OF JAKHAU PORT (GUJARAT),• 130 KM WEST-NORTHWEST OF DEVBHUMI DWARKA,• 110 KM WEST-SOUTHWEST OF NALIYA,• 240 KM SOUTH-SOUTHEAST OF KARACHI (PAKISTAN)• WALL CLOUD REGION OF THE CYCLONE IS TOUCHING THE SAURASHTRA COAST.
CURRENT INTENSITY NEAR CENTRE	120-130 KMPH GUSTING TO 145 KMPH
REALIZED RAINFALL FROM 0830 HRS IST OF 15 TH JUNE (MM)	DWARKA-23;OKHA-19; NALIYA-32; BHUJ-61; PORBANDAR-28; KANDLA-30;
CURRENT WIND SPEED OBSERVED ALONG SAURASHTRA & KUTCH (KMPH)	<ul style="list-style-type: none">• DWARAKA – 48; OKHA -39; DIU – 52;• NALIYA - 30; VERAVAL – 45; BHUJ - 34;• PORBANDAR – 47; KANDLA - 34;
PAST MOVEMENT	MOVED EAST-NORTHEASTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS.
LANDFALL FORECAST	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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



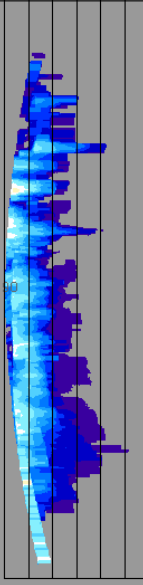
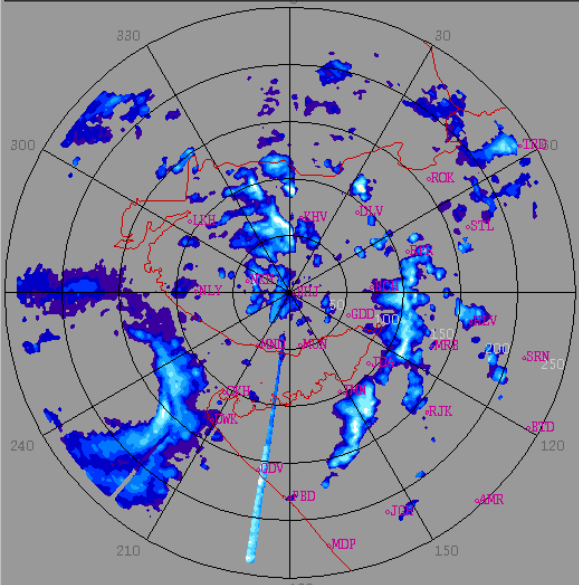
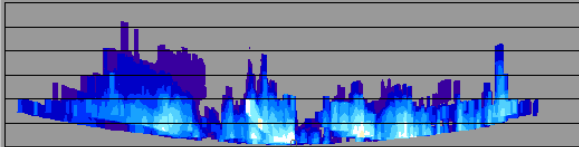
bhuj_weather_2023_06_15_10_51_33_hsfimd-b-bel.dwr

2023/06/15

10:51:33 (UTC)

MAX(Z)

DWR BHUJ
 (23.2416N , 69.6458E , 100.00 mts)



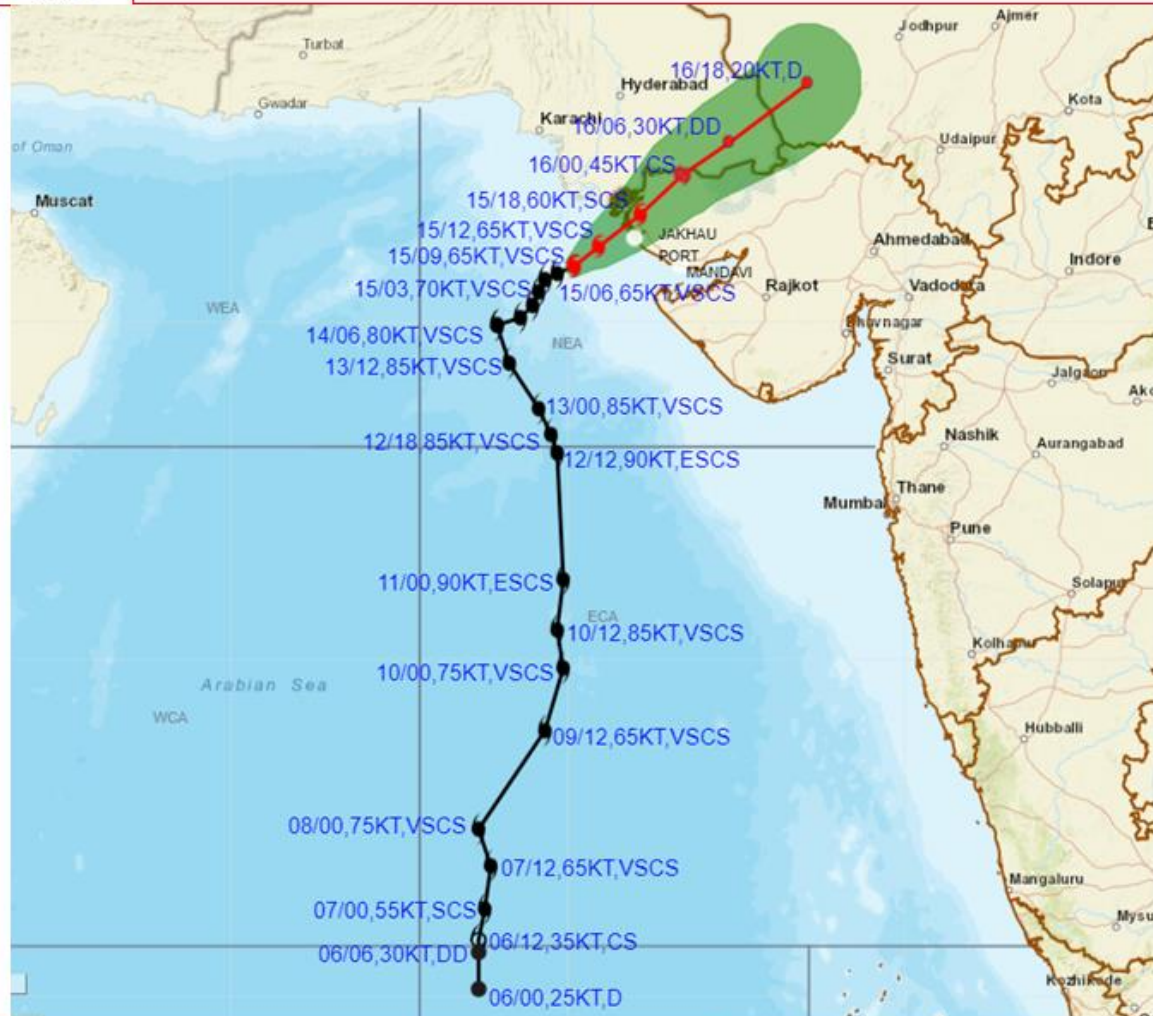
Height	: 18.0 Km
Layer Spacing	: 0.100 Km
Z (Lo, Hi)	: -32.0, 95.0 dBZ
Grid size	: 1 Km
Display Range	: 250 Km
Display Res	: 1.0 Km/Pix
DDR Enable	: Yes
Scan Elev (Lo, Hi)	: 0.2, 21.0 Deg
PRF (Lo, Hi)	: 450, 600 Hz
Scan Res	: 150 mts
Scan RPM	: 2.0
Log Threshold	: 4 dB
DTP	: 42
Pulse Width	: 1.0
Notch 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 1620 hrs IST of 15th June 2023.



OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST ARABIAN SEA BASED ON 0900 UTC (1430 IST) OF 15TH JUNE 2023.



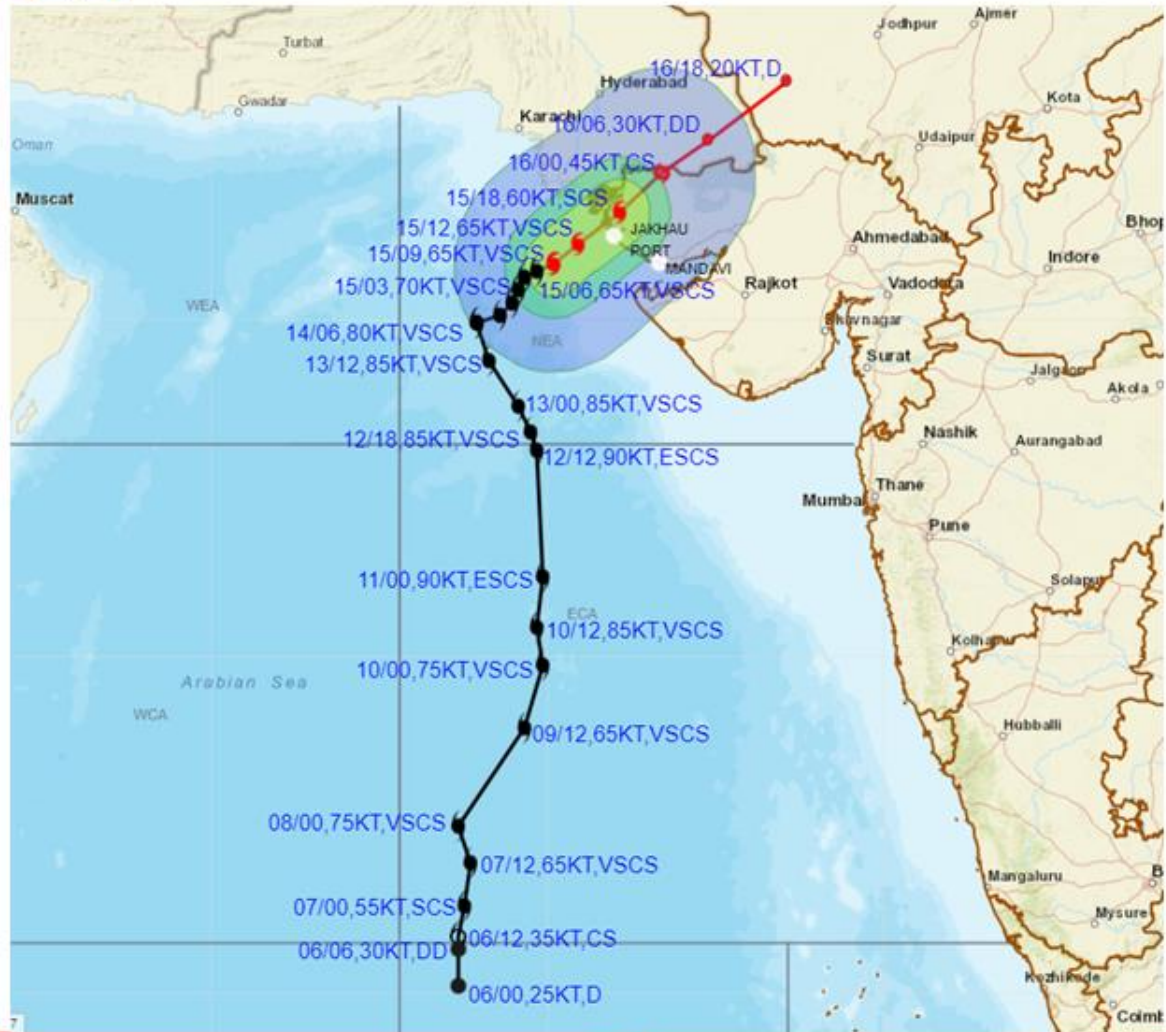
DATE/TIME IN UTC
 IST=UTC + 0530
 L: LOW PRESSURE AREA
 WML: WELL MARKED LOW PRESSURE AREA
 D: DEPRESSION (17-27 KT)
 DD: DEEP DEPRESSION (28-33 KT)
 CS: CYCLONIC STORM (34-47 KT)
 SCS: SEVERE CYCLONIC STORM (48-63KT)
 VSXS: VERY SEVERE CYCLONIC STORM (64-89 KT)
 ESXS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)
 SuXS: 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
16.06.23/0600	210, NE	230, NE	280, NNE	310, E



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM "BIPARJOY" OVER NORTHEAST ARABIAN SEA BASED ON 0900 UTC (1430 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

AREA OF MAXIMUM SUSTAINED WIND SPEED:

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

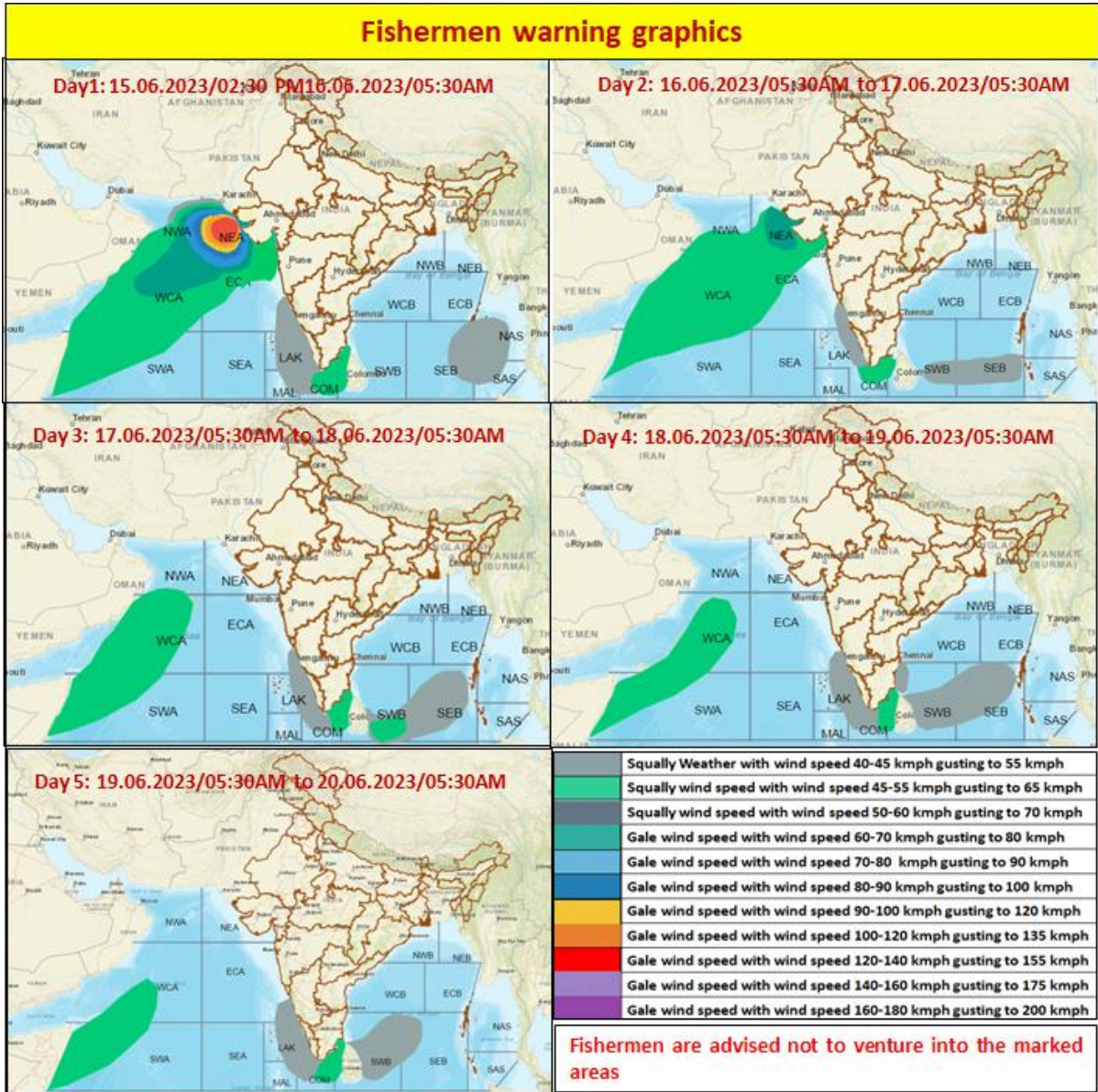
■ 50-63 KT (92-117 KMPH)

■ ≥ 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

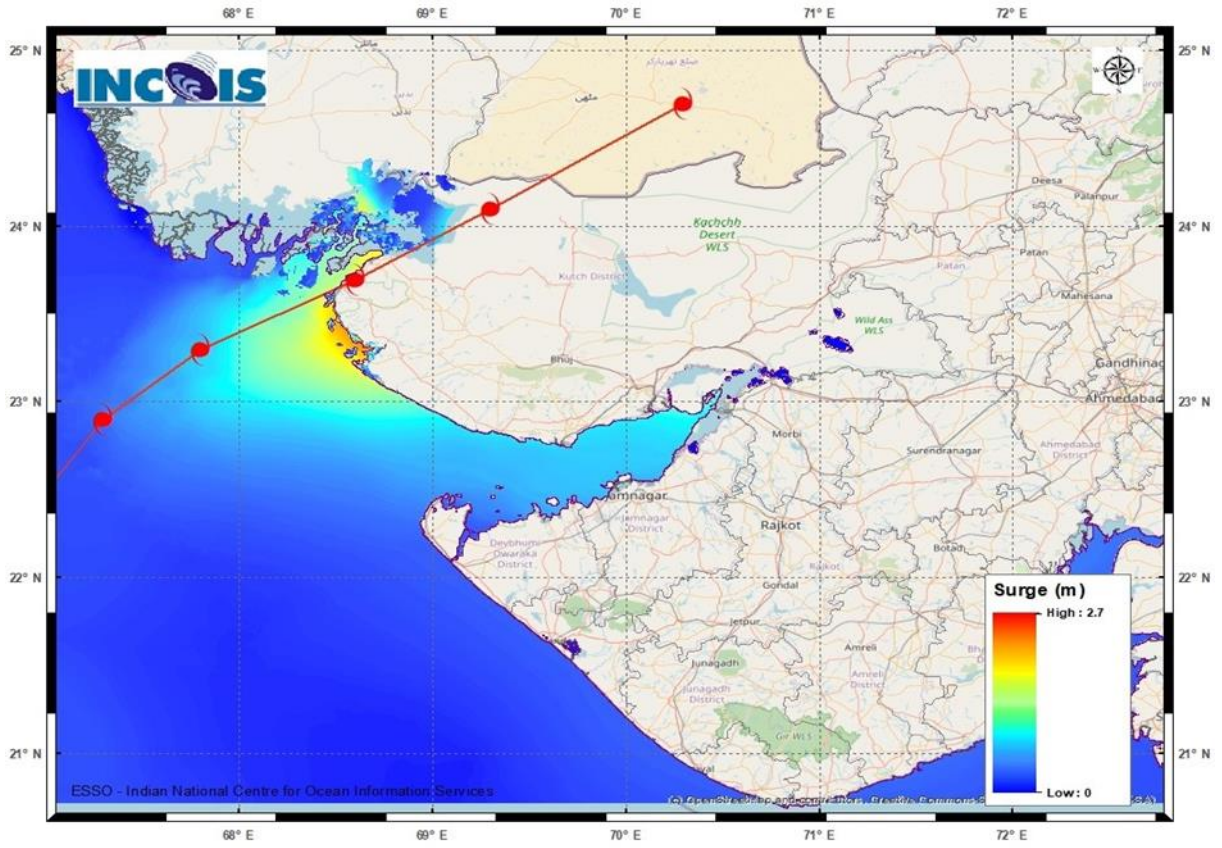
FISHERMEN WARNING GRAPHICS



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