



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

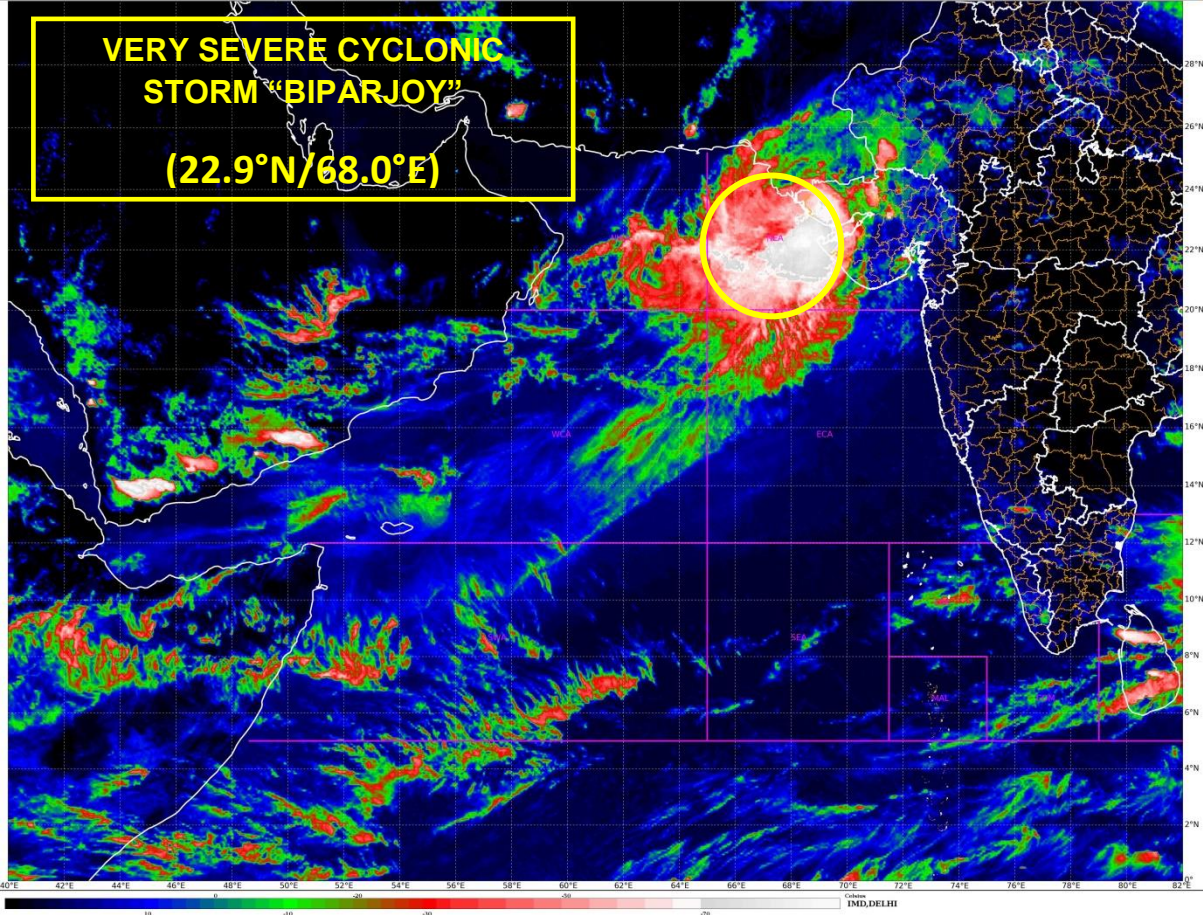
HOURLY UPDATE ON VERY SEVERE CYCLONIC STORM 'BIPARJOY'

**BULLETIN NO. 07**

DATE: 15-06-2023

TIME OF ISSUE: 1830 HRS IST

<b>DATE/TIME (IST) OF OBSERVATION</b>	<b>BASED ON 15-06-2023 (1730 HRS IST)</b>
CURRENT LOCATION (LATITUDE/LONGITUDE)	NORTHEAST ARABIAN SEA NEAR <b>LATITUDE 22.9°N AND LONGITUDE 68.0°E</b> , <ul style="list-style-type: none"><li>• 70 KM WEST-SOUTHWEST OF JAKHAU PORT (GUJARAT),</li><li>• 130 KM WEST-NORTHWEST OF DEVBHUMI DWARKA,</li><li>• 100 KM WEST-SOUTHWEST OF NALIYA,</li><li>• 240 KM SOUTH-SOUTHEAST OF KARACHI (PAKISTAN)</li><li>• <b>LANDFALL PROCESS HAS COMMENCED.</b></li></ul>
CURRENT INTENSITY NEAR CENTRE	115-125 KMPH GUSTING TO 140 KMPH
REALIZED RAINFALL FROM 0830 HRS IST OF 15 <sup>TH</sup> JUNE (MM)	DWARKA-28;OKHA-20; NALIYA-32; BHUJ-62; PORBANDAR-28; KANDLA-30;
CURRENT WIND SPEED OBSERVED ALONG SAURASHTRA & KUTCH (KMPH)	<ul style="list-style-type: none"><li>• DWARAKA – 45; OKHA -39; DIU – 50;</li><li>• NALIYA - 43; VERAVAL – 39; BHUJ - 30;</li><li>• PORBANDAR – 37; KANDLA - 30;</li></ul>
PAST MOVEMENT	MOVED EAST-NORTHEASTWARDS WITH A SPEED OF 12 KMPH DURING PAST 06 HOURS.
LANDFALL FORECAST	<ul style="list-style-type: none"><li>• LANDFALL AREA: SAURASHTRA &amp; KUTCH AND ADJOINING PAKISTAN COASTS.</li><li>• LANDFALL POINT: BETWEEN MANDVI AND KARACHI NEAR JAKHAU PORT</li><li>• LANDFALL TIME: LANDFALL PROCESS HAS COMMENCED AND BY MIDNIGHT IT WILL BE COMPLETELY OVER THE LAND.</li><li>• WIND DURING LANDFALL: 115-125 KMPH GUSTING TO 140 KMPH</li></ul>
FORECAST STORM SURGE	<ul style="list-style-type: none"><li>• 2 -3 M ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE THE LOW LYING AREAS OF ABOVE DISTRICTS DURING THE TIME OF LANDFALL.</li><li>• NOTE: ASTRONOMICAL TIDES ALONG THESE DISTRICTS COULD BE UPTO 3-6 METERS IN DIFFERENT PLACES</li></ul>



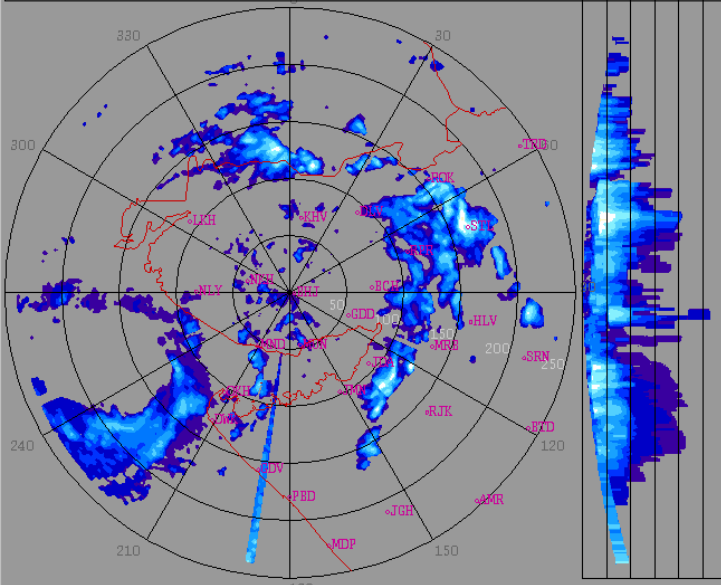
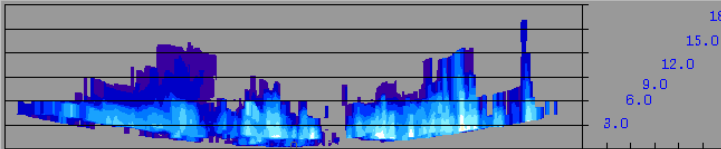
bhuj\_weather\_2023\_06\_15\_11\_51\_34\_hsfimd-b-bel.dwr

2023/06/15

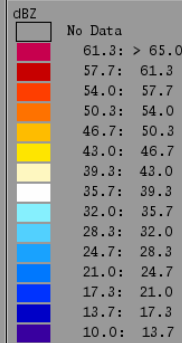
11:51:34 (UTC)

MAX(Z)

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



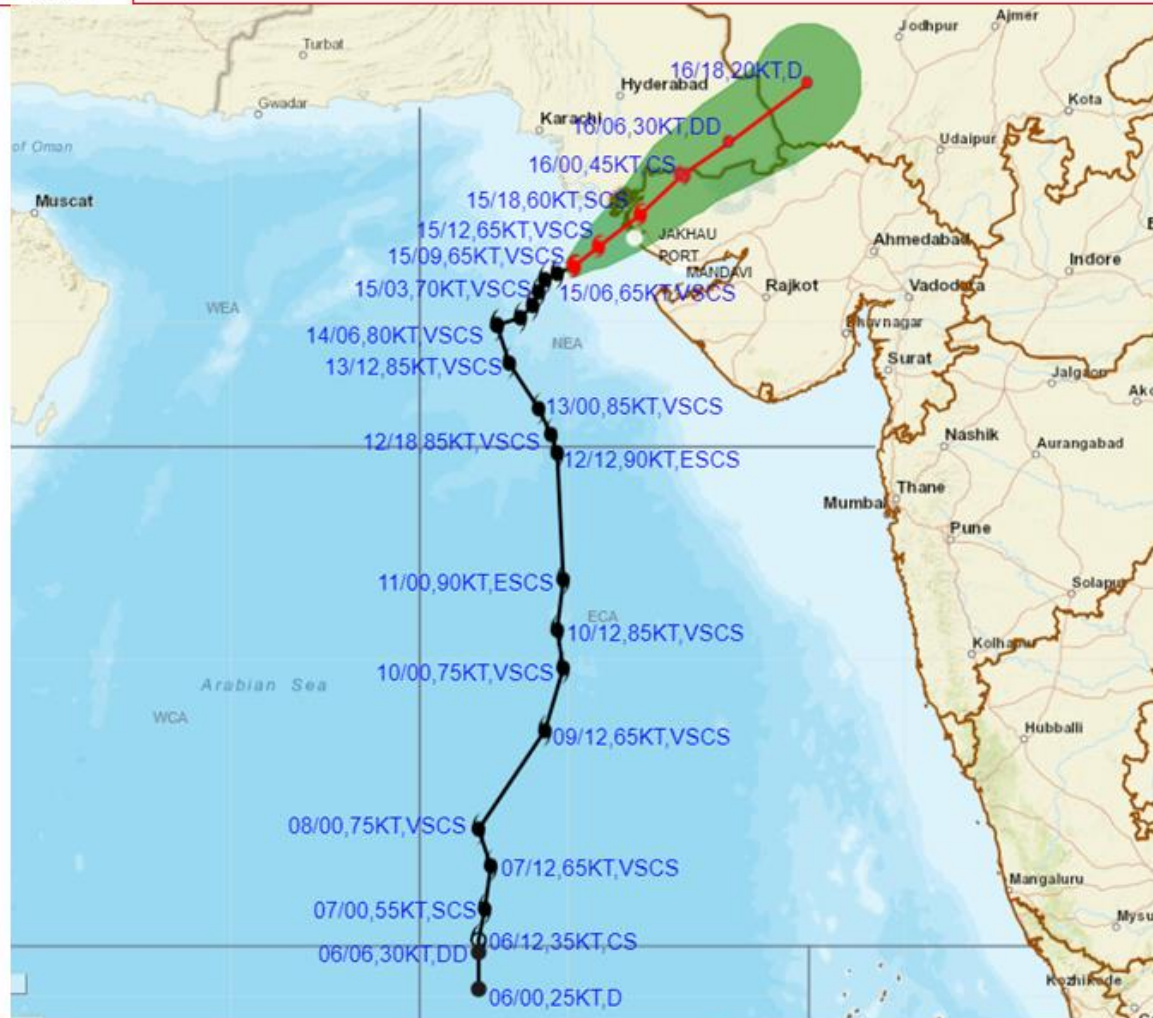
Height : 18.0 Km  
 Layer Spacing : 0.100 Km  
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 Grid size : 1 Km  
 Display Range : 250 Km  
 Display Res : 1.0 Km/Pix  
 DDR Enable : Yes  
 Scan Elev (Lo, Hi) : 0.2, 21.0 Deg  
 PRF (Lo, Hi) : 450, 600 Hz  
 Scan Res : 150 mts  
 Scan RPM : 2.0  
 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



Reflectivity imagery from Doppler weather Radar -Bhuj based on 1720 hrs IST of 15<sup>th</sup> 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 15<sup>TH</sup> 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

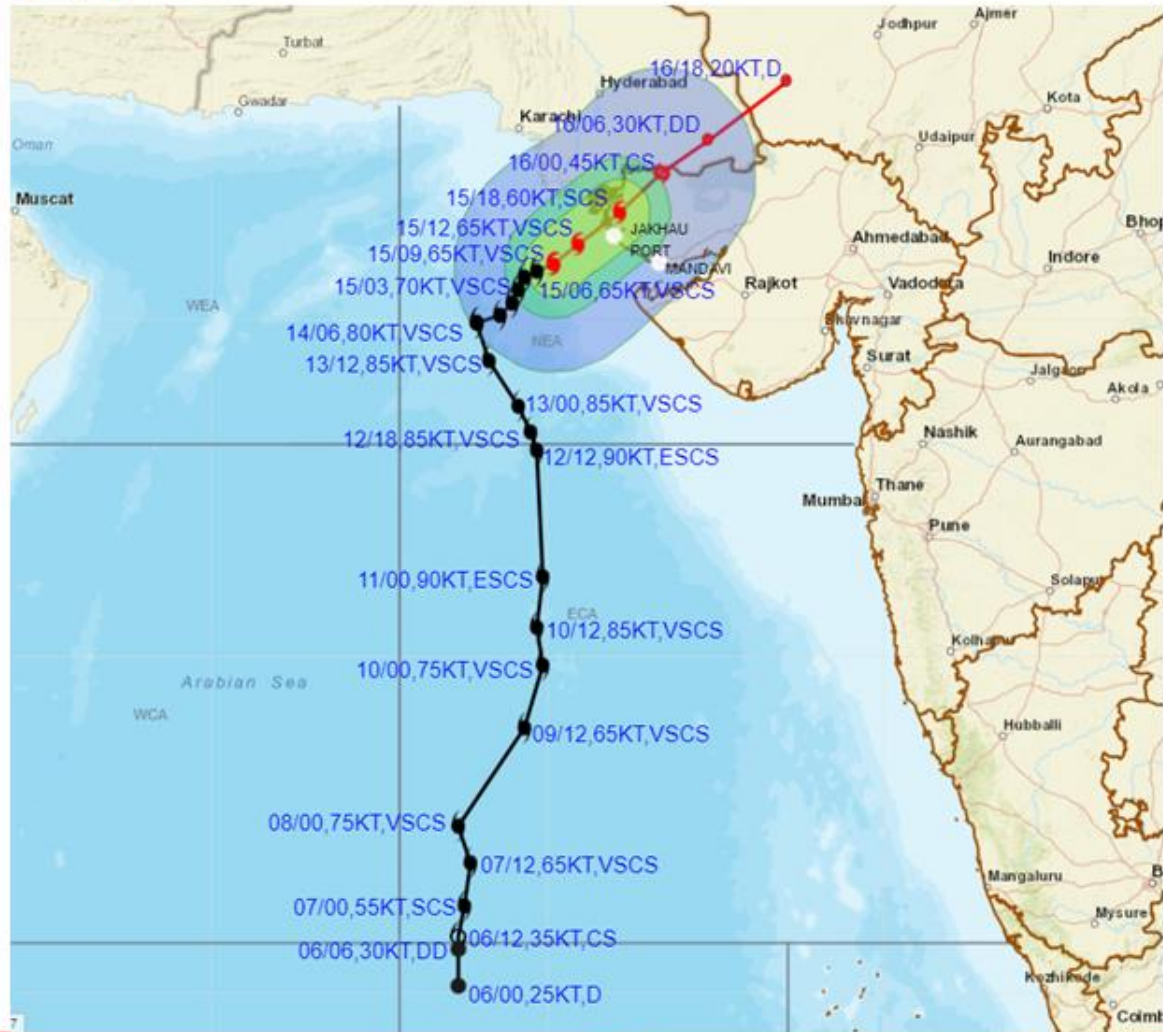
— FORECAST TRACK

▲ CONE OF UNCERTAINTY

Forecast	DISTANCE(KM) AND DIRECTION FROM STATIONS			
Date and Time	NALIYA	JAKHAU PORT	DWARKA	KARACHI AIRPORT
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 15<sup>TH</sup> JUNE 2023.**



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— 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)

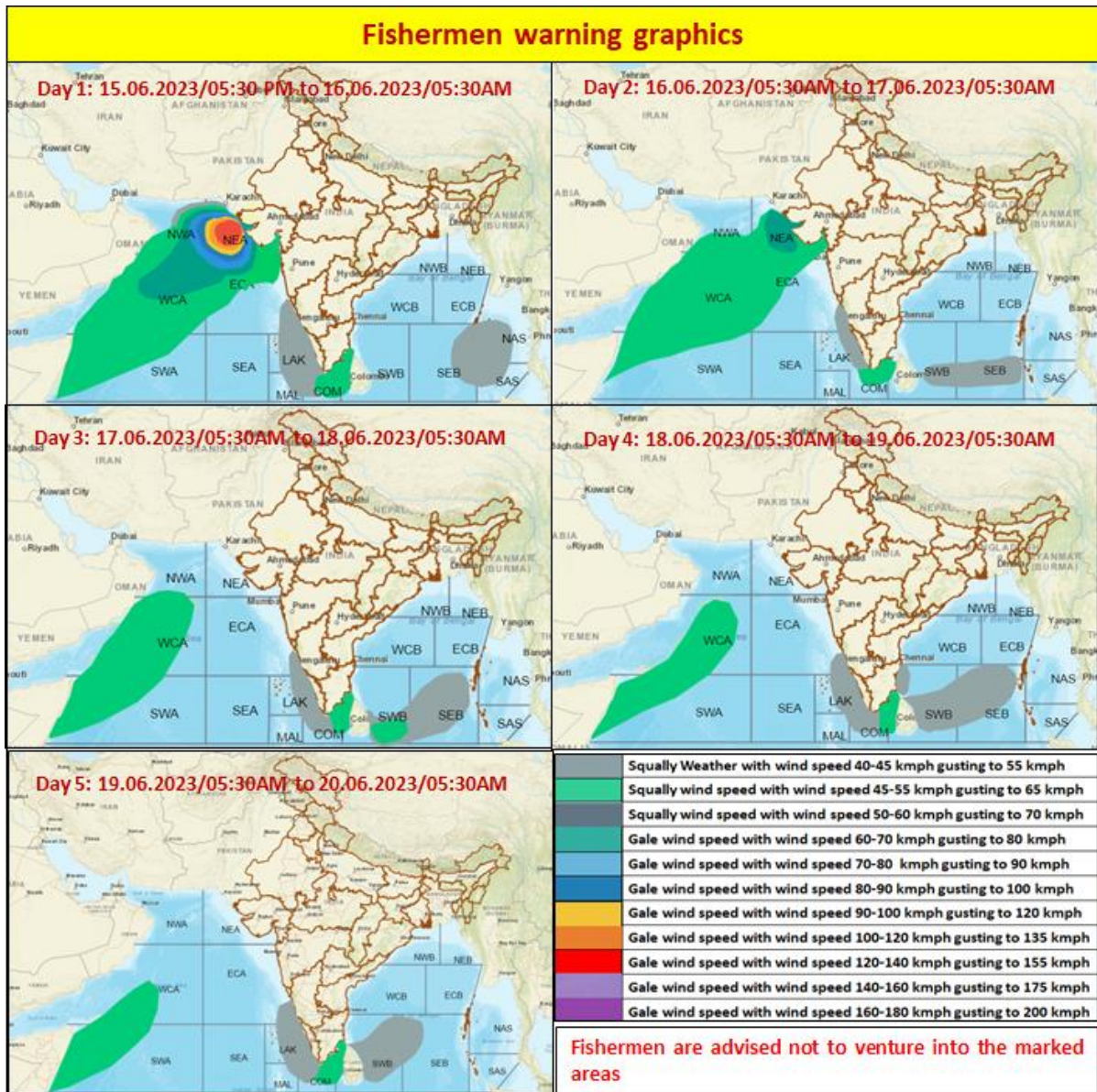
■ 50-63 KT (92-117 KMPH)

■ ≥ 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

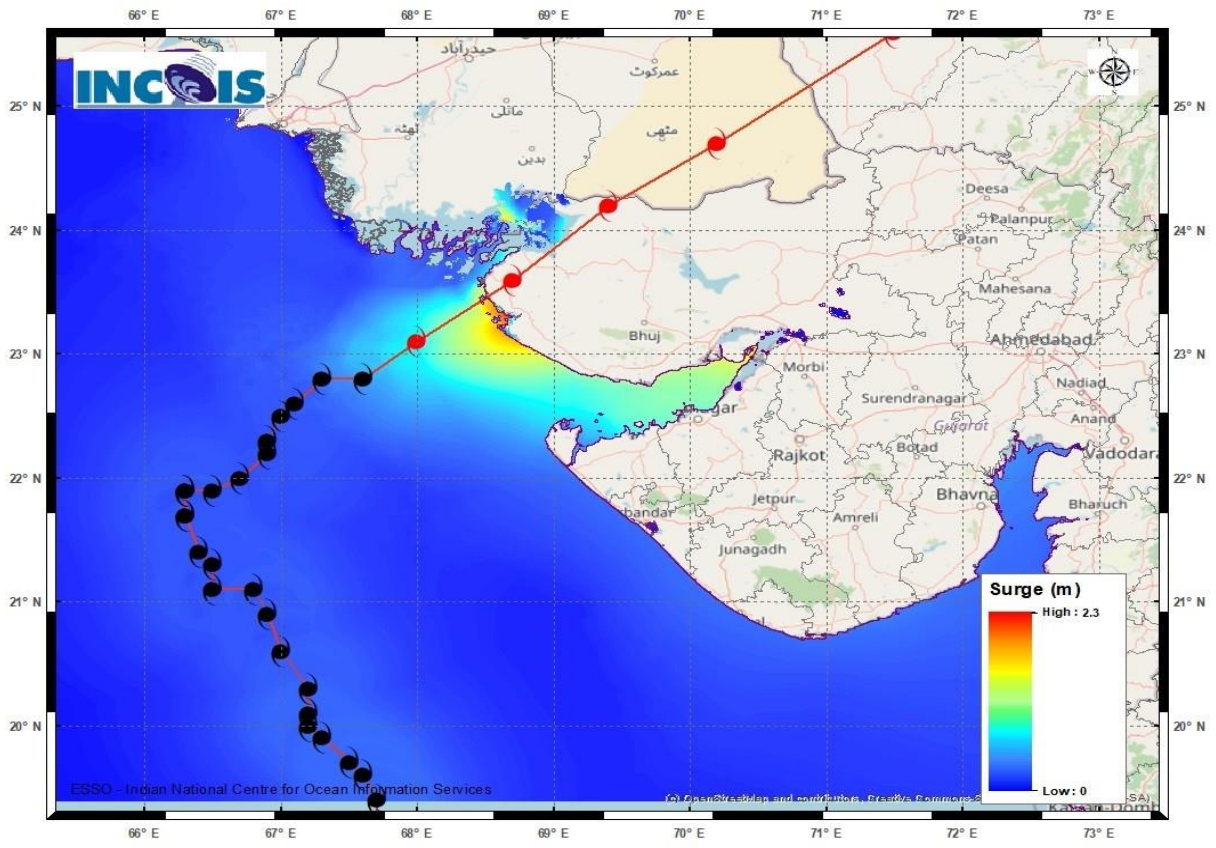
# FISHERMEN WARNING GRAPHICS



## STORM SURGE HEIGHT INFORMATION:

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

<b>Astronomical Tide On 15<sup>th</sup> June 2023</b>		
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