



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

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

**BULLETIN NO. 06**

DATE: 15-06-2023

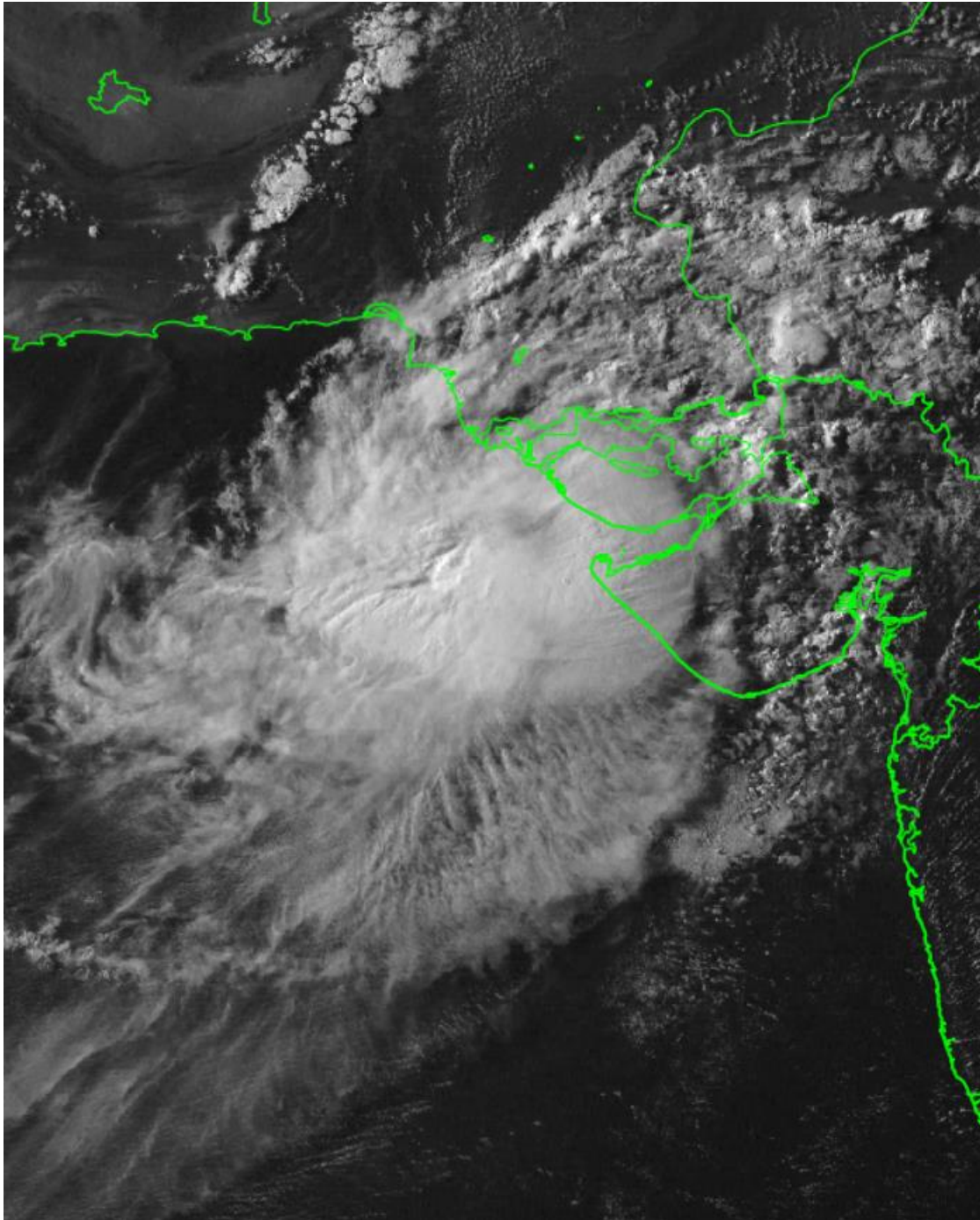
TIME OF ISSUE: 1715 HRS IST

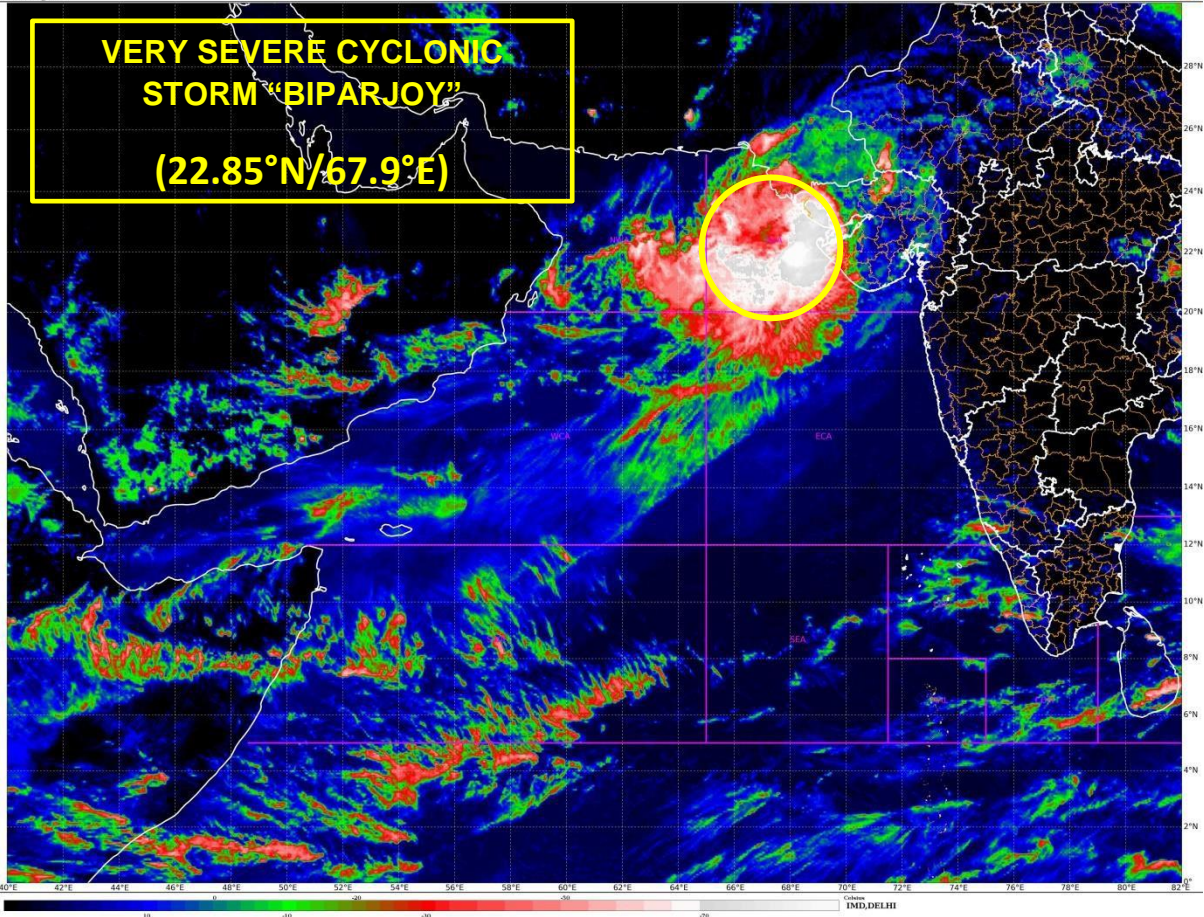
<b>DATE/TIME (IST) OF OBSERVATION</b>	<b>BASED ON 15-06-2023 (1630 HRS IST)</b>
CURRENT LOCATION (LATITUDE/LONGITUDE)	NORTHEAST ARABIAN SEA NEAR <b>LATITUDE 22.85°N AND LONGITUDE 67.9°E</b> , <ul style="list-style-type: none"><li>• 80 KM WEST-SOUTHWEST OF JAKHAU PORT (GUJARAT),</li><li>• 130 KM WEST-NORTHWEST OF DEVBHUMI DWARKA,</li><li>• 110 KM WEST-SOUTHWEST OF NALIYA,</li><li>• 240 KM SOUTH-SOUTHEAST OF KARACHI (PAKISTAN)</li><li>• <b>WALL CLOUD REGION OF THE CYCLONE IS TOUCHING THE SAURASHTRA COAST.</b></li></ul>
CURRENT INTENSITY NEAR CENTRE	120-130 KMPH GUSTING TO 145 KMPH
REALIZED RAINFALL FROM 0830 HRS IST OF 15 <sup>TH</sup> JUNE (MM)	DWARAKA-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"><li>• DWARAKA – 48; OKHA -39; DIU – 52;</li><li>• NALIYA - 30; VERAVAL – 45; BHUJ - 34;</li><li>• PORBANDAR – 47; KANDLA -</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: BY TONIGHT. LANDFALL PROCESS WILL COMMENCE FROM EVENING OF TODAY, THE 15TH JUNE AND WILL CONTINUE TILL MIDNIGHT.</li><li>• <b>WIND DURING LANDFALL: 115-125 KMPH GUSTING TO 140 KMPH</b></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>

## Nowcast issued:-

Heavy rain/thundershower(15-20mm/h) accompanied with maximum surface wind speed 90-110 kmph (In gusts) very likely in the district of Gujarat State namely **Kutch, Devbhoomi Dwarka** , during next 1 hours.

Moderate rain/thundershower ( 05-15 mm/hour) accompanied with maximum surface wind speed between 65-75 kmph (In gusts) very likely in the district of Gujarat State namely **Junagadh, Rajkot, Jamnagar, Porbandar** during next 1 hours.





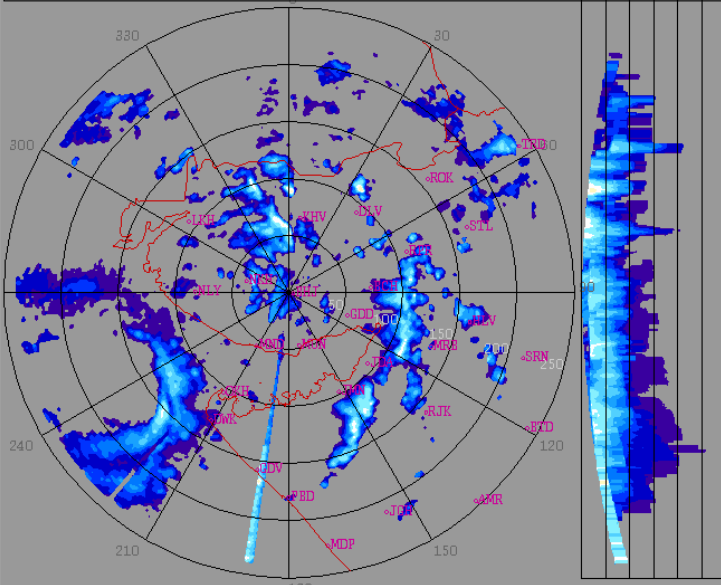
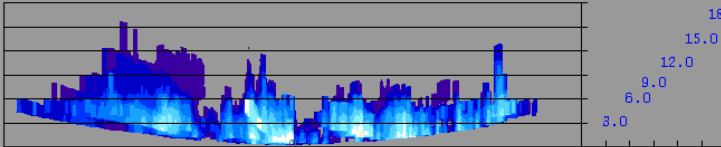
bhuj\_weather\_2023\_06\_15\_10\_51\_33\_hsfimd-b-bel.dwr

2023/06/15

10:51:33 (UTC)

MAX(Z)

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



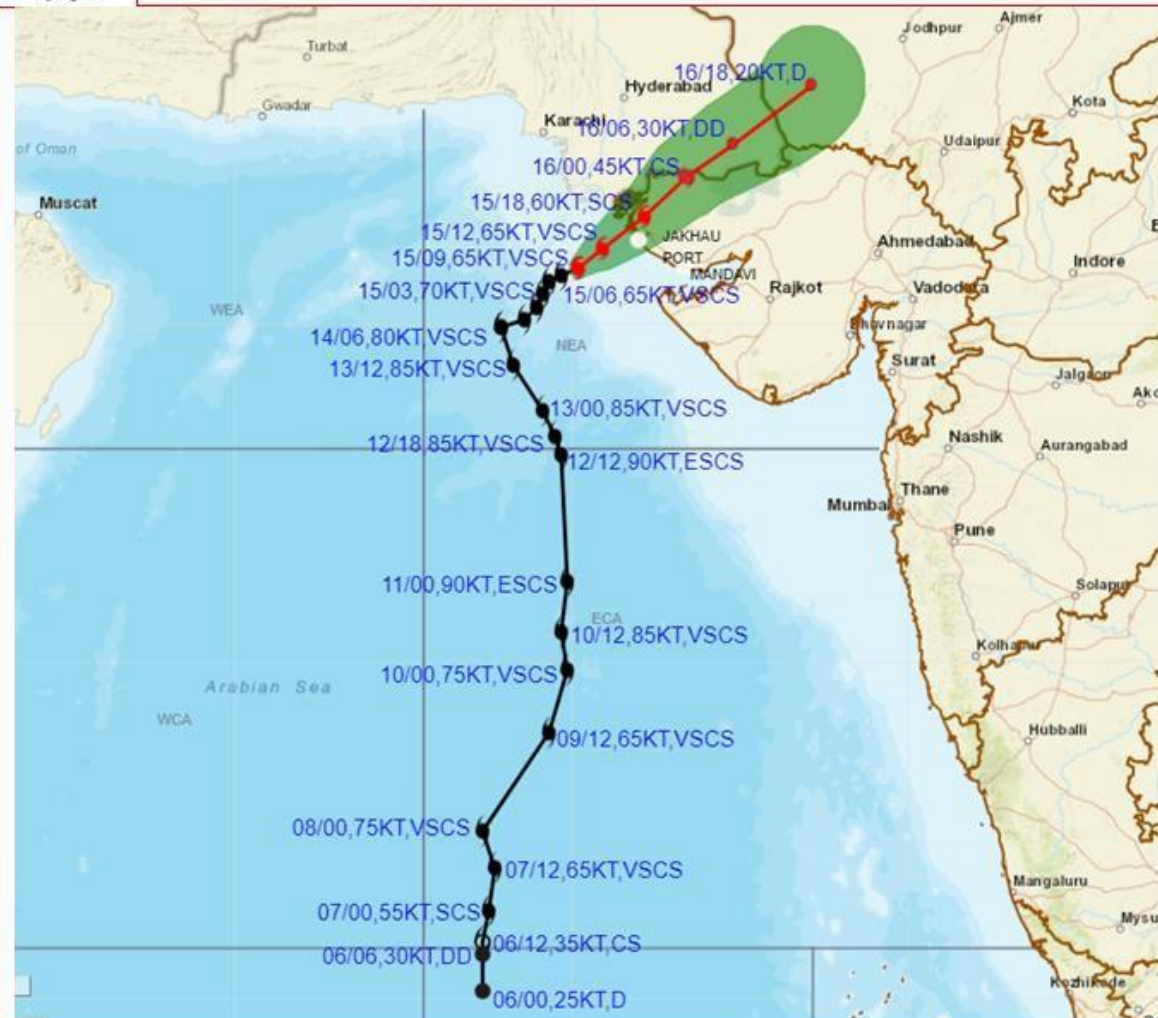
Height	: 18.0 Km
Layer Spacing	: 0.100 Km
Z (Lo, Hi)	: -32.0, 95.0 dBZ
Grid size	: 1 Km
Display Range	: 250 Km
Display Res	: 1.0 Km/Pix
DDR Enable	: Yes
Scan Elev (Lo, Hi)	: 0.2, 21.0 Deg
PRF (Lo, Hi)	: 450, 600 Hz
Scan Res	: 150 mts
Scan RPM	: 2.0
Log Threshold	: 4 dB
DTP	: 42
Pulse Width	: 1.0
Notch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

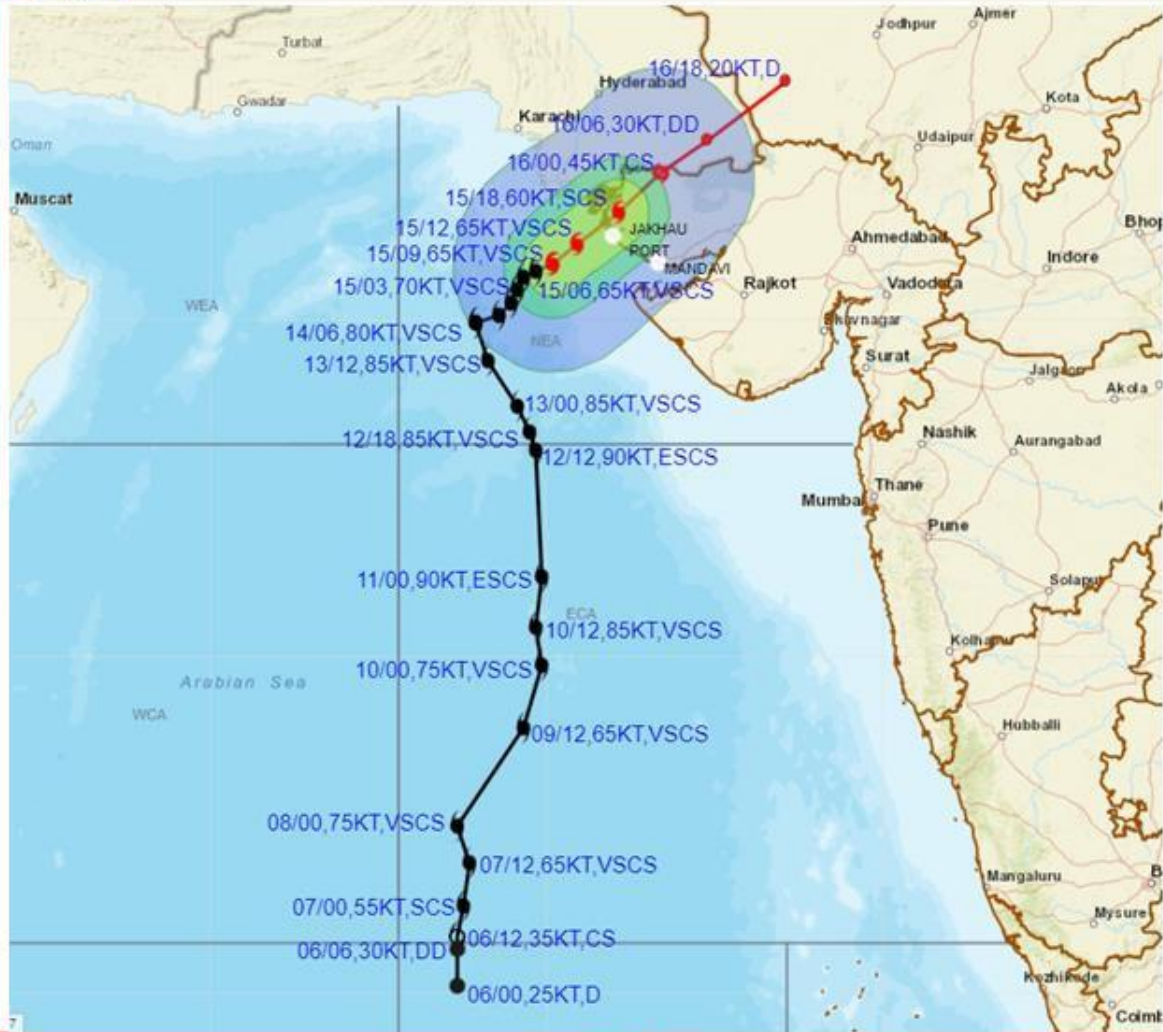
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER 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.**



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 ( $\geq$  120 KT)

● LESS THAN 34 KT

○ 34-47 KT

●  $\geq$  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)

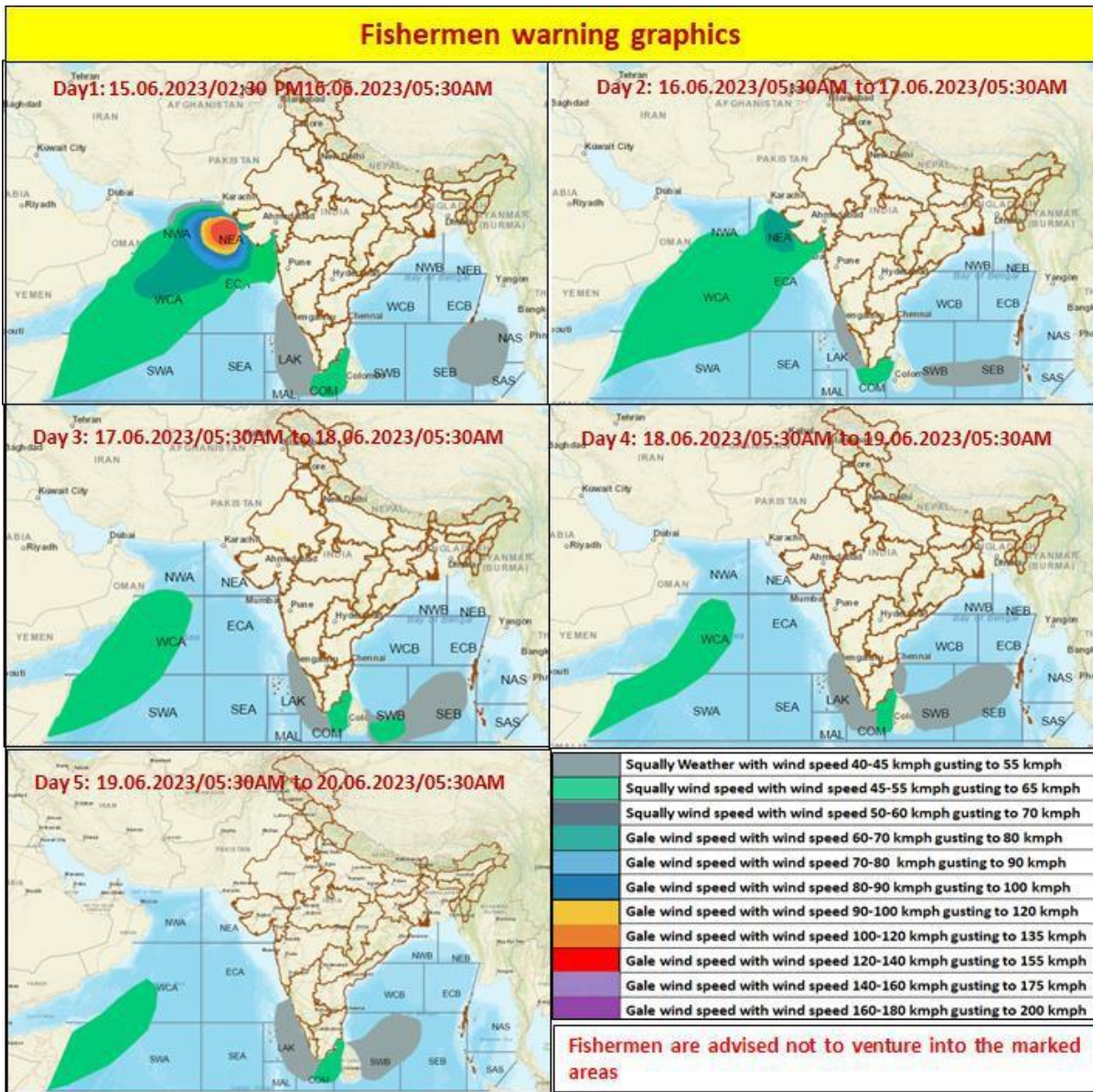
■ 50-63 KT (92-117 KMPH)

■  $\geq$  64 KT ( $\geq$ 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
$\geq$ 64 ( $\geq$ 118)	Phenomenal	Total suspension of fishing operations

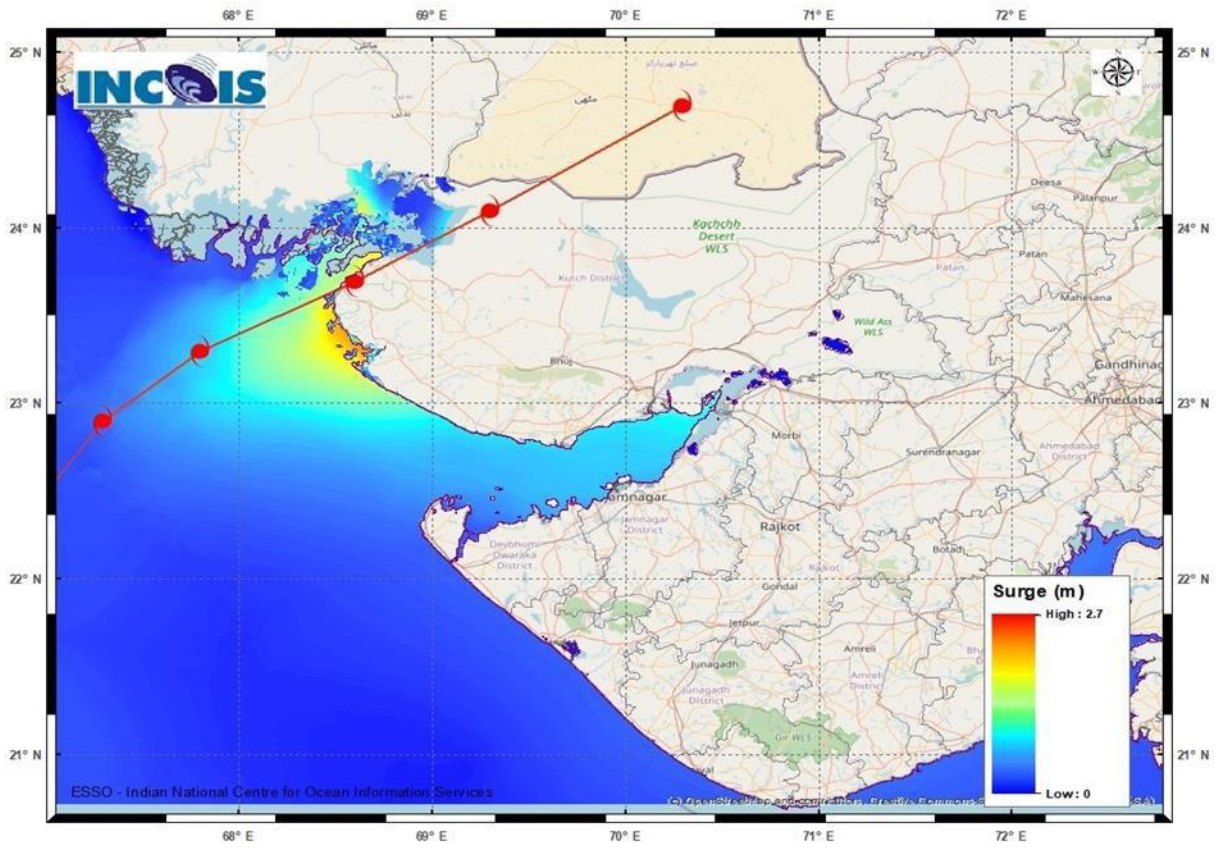
# FISHERMEN WARNING GRAPHICS



## 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