



India Meteorological Department
(Ministry of Earth Sciences)

BULLETIN NO. 80 (ARB/01/2023)

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DATED: 16.06.2023

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

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Sub: Severe Cyclonic Storm “Biparjoy” (pronounced as “Biporjoy”) over Saurashtra & Kutch

The Severe Cyclonic Storm “Biparjoy” (pronounced as “Biporjoy”) over Saurashtra & Kutch moved east-northeastwards with a speed of 12 kmph during past 6-hours and lay centered at 0530 hours IST of today, the 16th June, 2023 over the same region near latitude 23.6°N and longitude 69.2°E, about 70 km east-northeast of Jakhau Port (Gujarat) and 50 km northeast of Naliya.

It is very likely to move nearly northeastwards and weaken gradually into a cyclonic storm over Saurashtra & Kutch around noon and subsequently into a deep depression around evening of today, the 16th June.

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
16.06.23/0530	23.6/69.2	85-95 Gusting To 105	Severe Cyclonic Storm
16.06.23/1130	23.9/69.8	65-75 Gusting To 85	Cyclonic Storm
16.06.23/1730	24.3/70.6	50-60 Gusting To 70	Deep Depression
16.06.23/2330	24.8/71.4	40-50 Gusting To 60	Depression

(i) Heavy Rainfall warning:

- Light to moderate rainfall at most places with heavy to extremely heavy rainfall at isolated places very likely over Saurashtra & Kutch, north Gujarat region and south Rajasthan on 16th and over south Rajasthan & adjoining north Gujarat region on 17th June.

(ii) Wind warning:

Northeast Arabian Sea: Gale wind speed reaching 55-65 kmph gusting to 75 kmph is prevailing and likely to become squally wind speed reaching 40-50 kmph gusting to 60 kmph by 16th June afternoon.

Eastcentral Arabian Sea: Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail till afternoon of 16th June.

Wind warning along & off Saurashtra & Kutch coasts (Kachchh, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi districts) including Gulf of Kutch:

- Gale wind speed reaching 85-95 kmph gusting to 105 kmph is prevailing over Kachchh and adjoining districts of Saurashtra & Kutch and likely to become squally wind speed reaching 45-55 kmph gusting to 65 kmph by 16th June evening.
- Squally wind speed reaching 45-55 kmph gusting to 65 kmph is prevailing along & off remaining districts of Saurashtra coast and likely to become 35-45 kmph gusting to 55 kmph by 16th June evening.

Wind Warning for South Rajasthan

- Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely over South Rajasthan during 16th noon to evening and 35-45 kmph gusting to 55 kmph on 17th June.

(iii) Sea condition

Prevailing high to very rough sea condition over northeast Arabian Sea is likely to become rough by 16th June evening and improve thereafter.

Along & off Saurashtra & Kutch coasts:

High to very rough Sea condition prevailing over the region is likely to become rough by 16th June evening and improve thereafter.

(iv) Damage expected over Kachchh, Devbhumi Dwarka, Porbandar, Jamnagar, Morbi & Junagarh & Rajkot districts of Gujarat during next 3 hours:

- Major damage to thatched houses/ huts. Roof tops may blow off. Unattached metal sheets may fly.
- Minor damage to power and communication lines.
- Major damage to Kutch and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Moderate damage to banana and papaya trees. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

(v) Fishermen Warning & Action Suggested (Kachchh, Devbhumi Dwarka, Porbandar, Jamnagar, Rajkot, Junagarh and Morbi districts) and for Offshore & Onshore Industries till 16th June afternoon: (Graphics Attached)

- Total suspension of fishing operations over northeast and adjoining eastcentral Arabian Sea.
- Judicious regulation of offshore and onshore activities.
- Ports along the west coast of India may take necessary precautions.
- Naval base operations may maintain necessary precautions.
- Movement in motor boats unsafe.
- Judicious regulation of rail and road traffic.
- Tourism activities may be regulated over these areas.
- People in affected areas to remain indoors.

(vi) Post Landfall Outlook for interior districts of Saurashtra and north Gujarat region (Districts apart from those mentioned under warning above):

After the landfall the system moved northeastwards weakened gradually into a severe cyclonic storm and likely to maintain the intensity of Cyclonic Storm till afternoon of today, the 16th June and thereafter it will weaken gradually into a Deep Depression around evening.

Light to moderate rainfall at most places with heavy to extremely heavy rainfall at isolated places very likely over Banaskantha and Patan; heavy to very heavy at isolated places over Kachchh, Morbi, Mehsana and Sabarkantha of north Gujarat and isolated heavy rainfall over remaining districts on 16th June.

Light to moderate rainfall at most places with heavy to very heavy rainfall at isolated places likely over Banaskantha and Sabarkantha on 17th June.

Damage expected over interior districts of Saurashtra and north Gujarat region (Districts apart from those mentioned under warning):

- (i) Damage to Kutcha and minor damage to Pucca roads.
- (ii) Water logging and flooding in low lying areas
- (iii) Breaking of tree branches, uprooting of small tree and damage to orchards.

People in affected areas are advised to remain indoors.

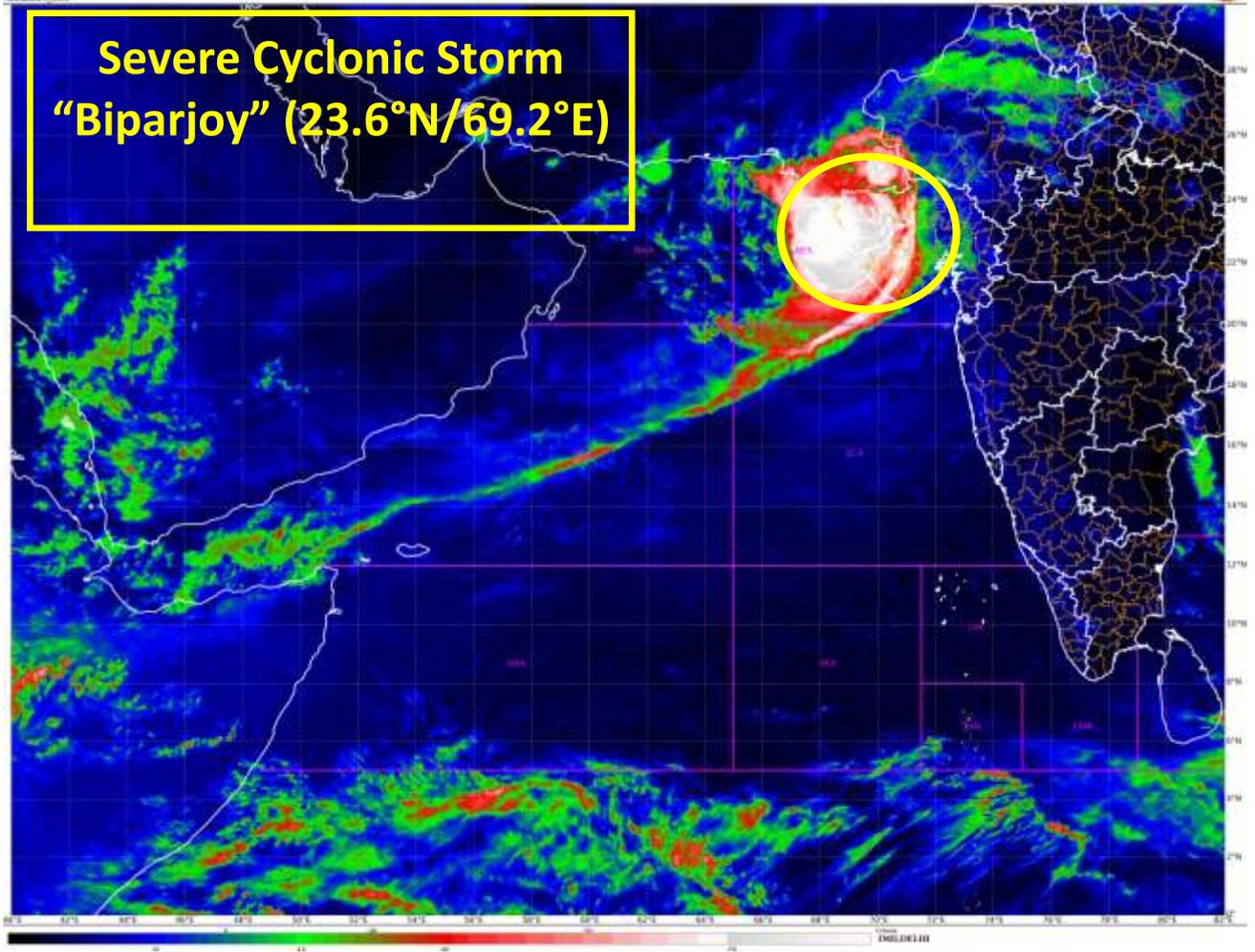
The system is under continuous surveillance and the next message will be issued at 1130 hours IST of today, the 16th June, 2023.

(Shashi Kant)
Scientist C, Cyclone Warning Division, New Delhi

Copy to: ACWC Kolkata/ ACWC Chennai/ CWC Bhubaneswar/CWC Visakhapatnam/CWC Ahmedabad/ MO Port Blair/MC Raipur/MC Bhopal/MC Hyderabad/RMC Nagpur
LEGEND: Heavy Rainfall: 64.5 to 115.5mm, **Very Heavy Rainfall:** 115.6 to 204.4mm **Most Places:** more than 76% of total stations, **Isolated Places:** Less than 25% of total

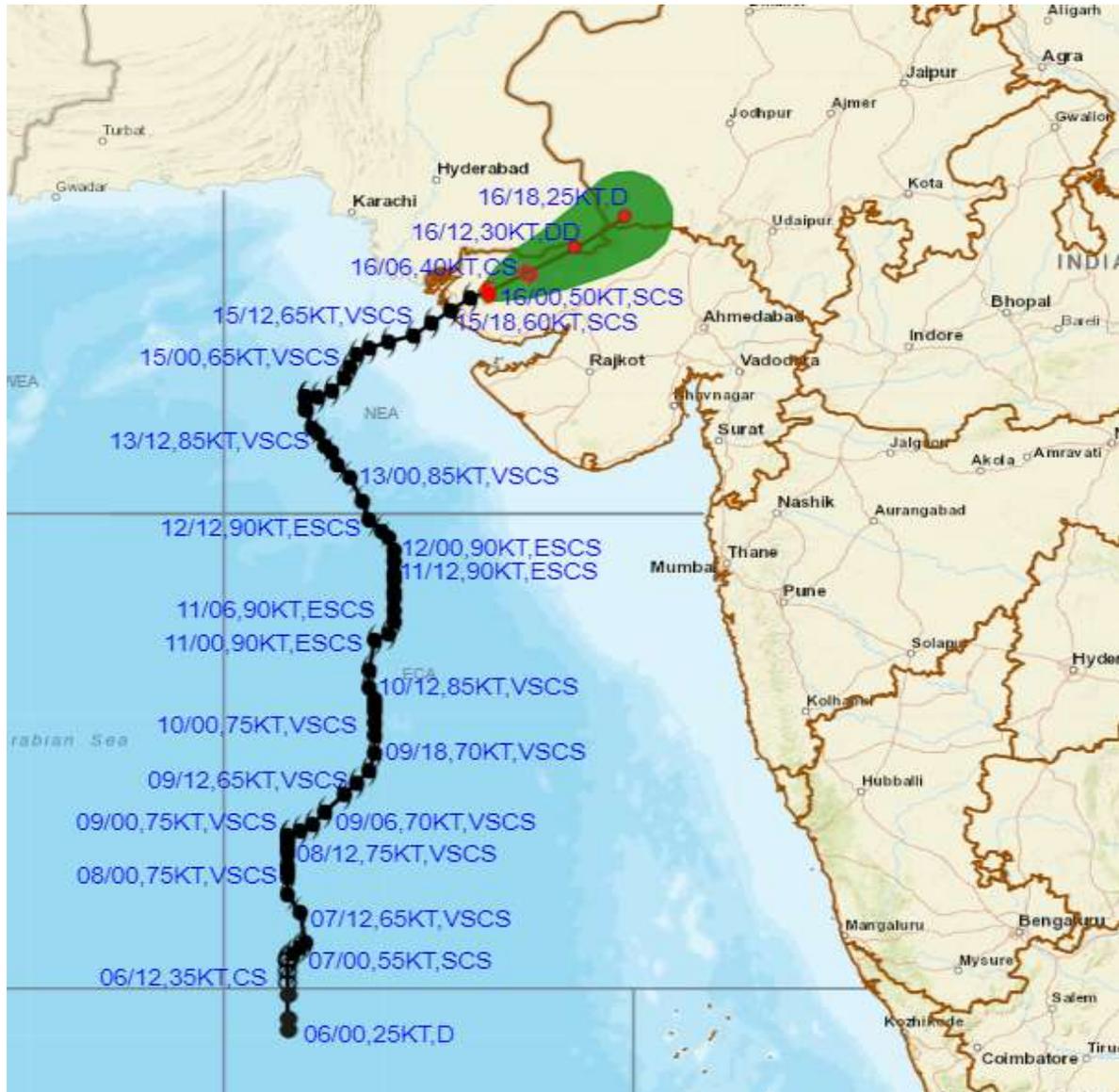


**Severe Cyclonic Storm
"Biparjoy" (23.6°N/69.2°E)**





OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0000 UTC (0530 IST) OF 16TH 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

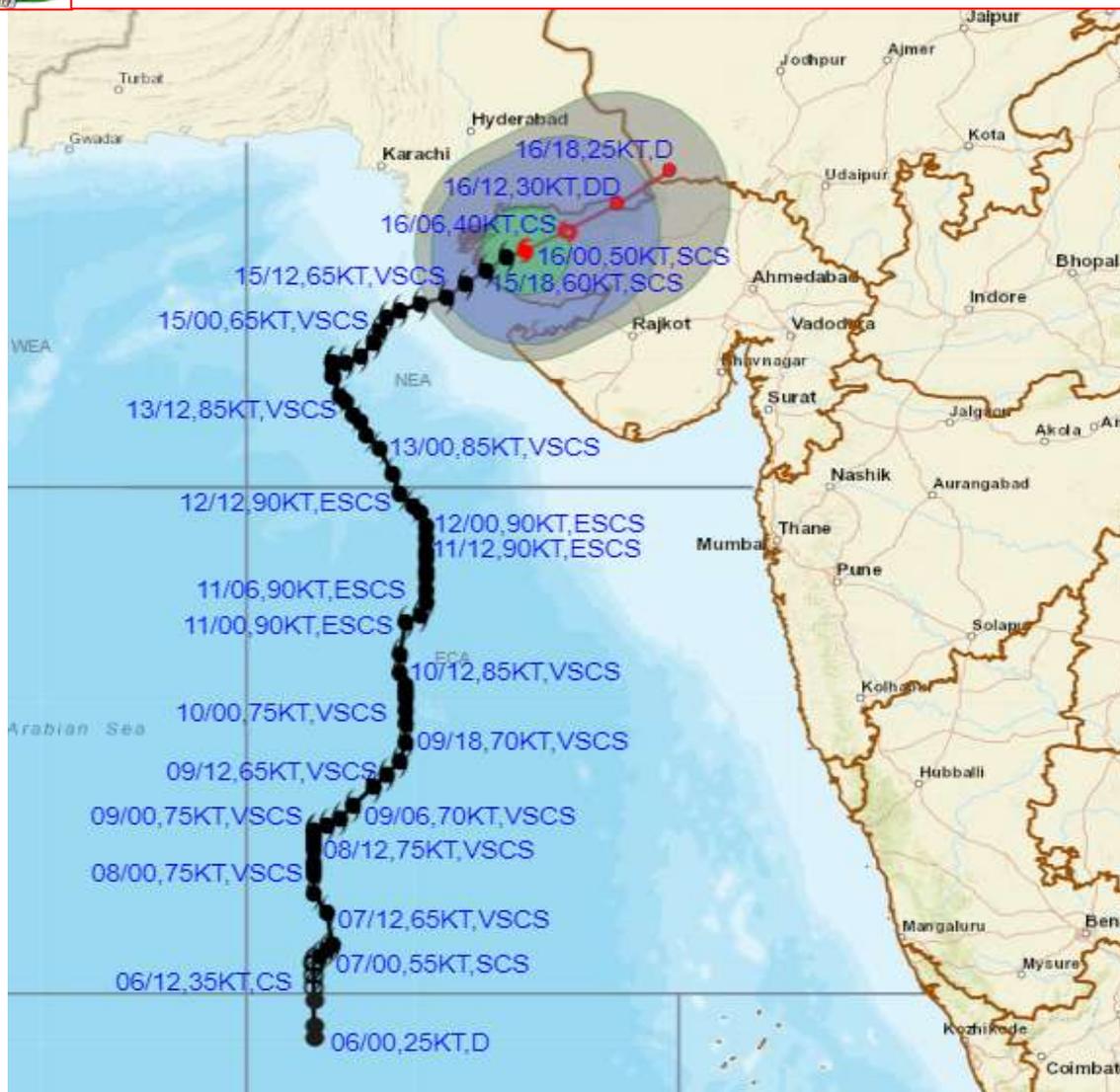
— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM "BIPARJOY" OVER SAURASHTRA & KUTCH BASED ON 0000 UTC (0530 IST) OF 16TH JUNE 2023.



DATE/TIME IN UTC

IST=UTC + 0530

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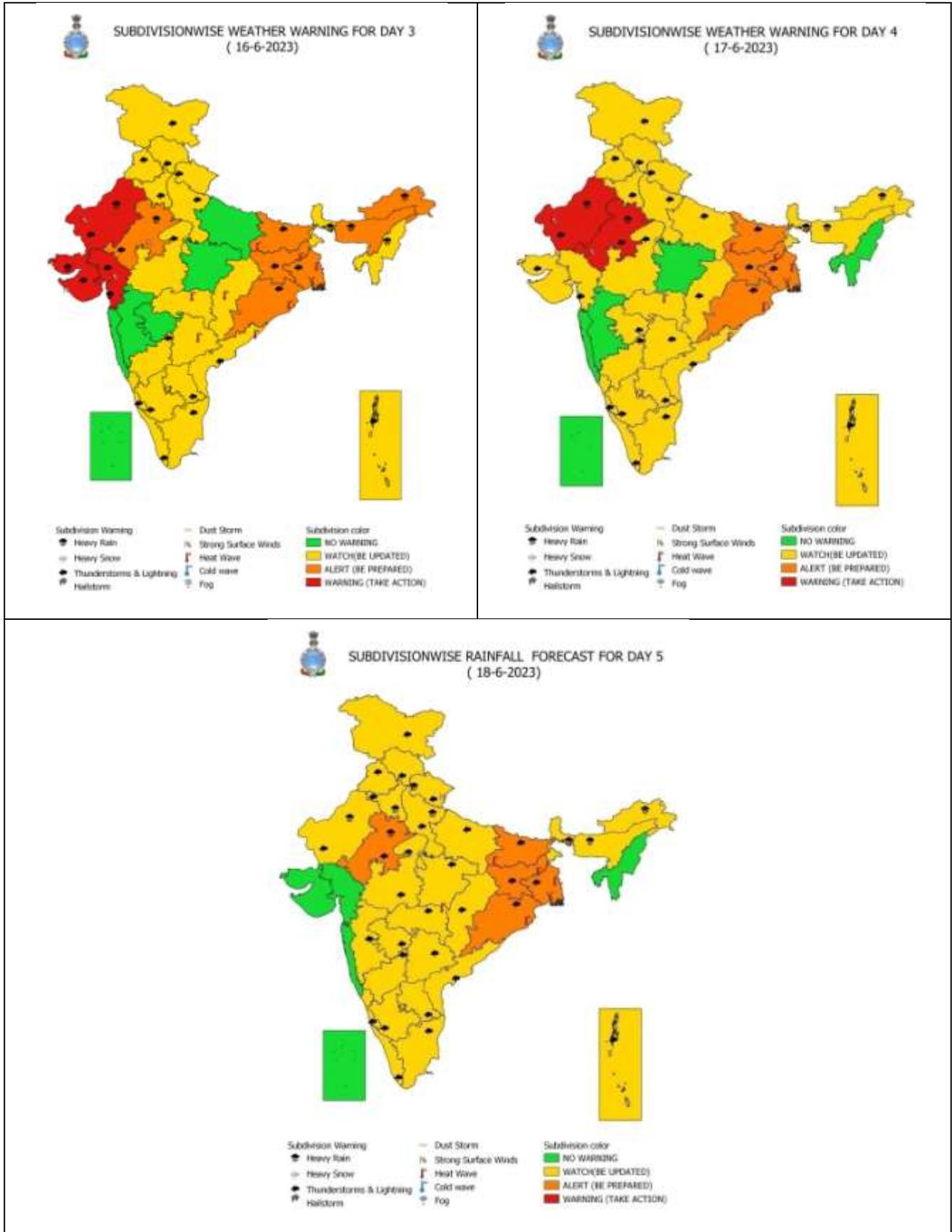
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

- 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

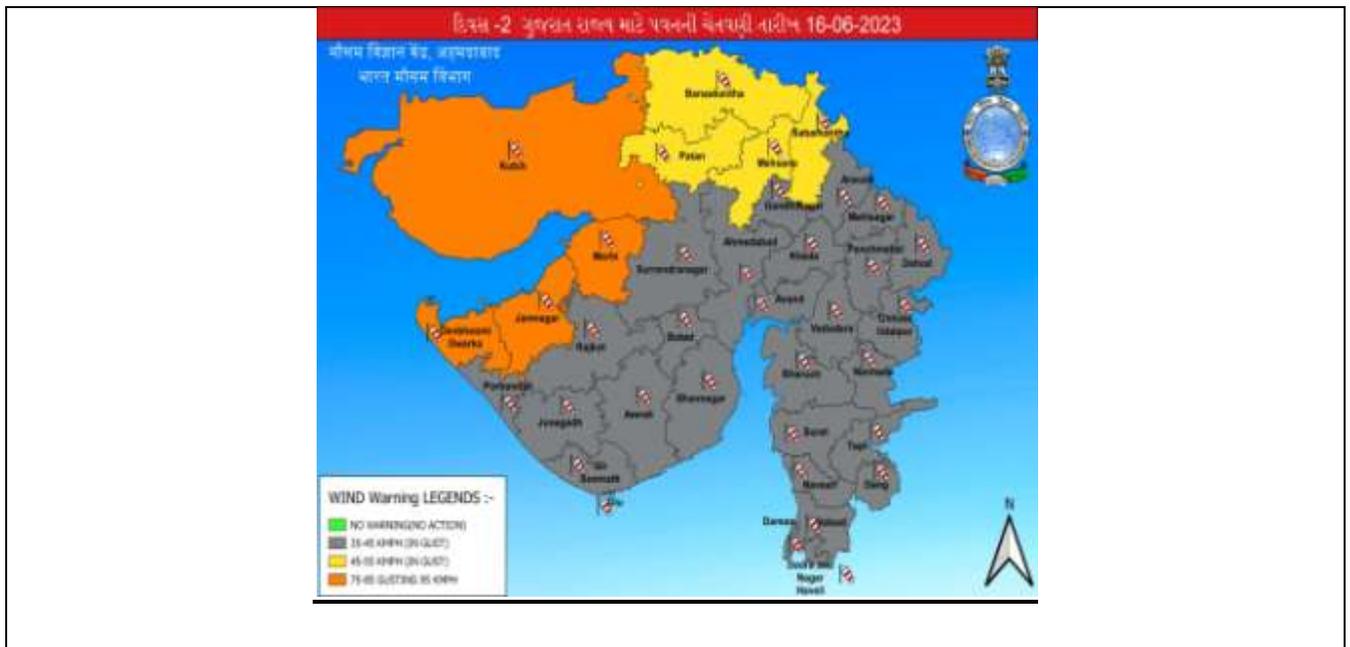
All India Heavy Rainfall Warning for 16th to 18th June 2023



District-wise Heavy Rainfall Warning Maps for 16th to 17th June



District-wise Wind Warning Maps for 16th June



District-wise Heavy Rainfall Warning Maps for 16th, 17th and 18th June for Rajasthan



Fishermen warning graphics

