



Monday 20 February 2023

MORNING

Time of Issue: 0800 hours IST

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features

**Weather Forecast and Warnings:**

◆ A Western Disturbance as a trough in middle tropospheric westerlies runs roughly along Long. 62°E and north of Lat. 32°N. It is likely to cause:

i) Light to moderate scattered to fairly widespread rainfall/snowfall very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and isolated to scattered rainfall/snowfall over Himachal Pradesh and Uttarakhand on 20th & 21st February, 2023. Isolated thunderstorm with lightning also likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh on 20th February, 2023.

ii) Light isolated rainfall/thundershowers very likely over Punjab on 20th & 21st and north Haryana on 21st February, 2023.

◆ Light scattered to fairly widespread rainfall very likely over Arunachal Pradesh and light isolated rainfall over east Assam, Nagaland, Manipur and Sub-Himalayan West Bengal & Sikkim during 20th-23rd February, 2023. Isolated heavy rainfall also very likely over Arunachal Pradesh on 22nd February, 2023.

◆ Isolated thunderstorm with lightning very likely over Arunachal Pradesh and east Assam, Nagaland & Manipur on 21st & 22nd February, 2023.

**Maximum Temperatures & Heat Wave Forecast:**

◆ No significant change in Maximum Temperatures very likely over Gujarat and Maharashtra during next 24 hours and gradual fall by 2-3°C during subsequent 3 days. No significant change in maximum Temperatures very likely over rest parts of the country during next 5 days.

◆ Isolated heat wave conditions are likely over Kutch during next 24 hours.

Main Weather Observations

◆ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): Nil.

◆ **Minimum Temperature Departures (as on 19-02-2023):** Minimum temperatures were **markedly above normal (5.1°C or more)** at most places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and Himachal Pradesh; **appreciably above normal (3.1°C to 5.0°C)** at most places over Punjab and West Rajasthan; at many places over Uttarakhand; at a few places over East Uttar Pradesh, Gujarat Region and Sub-Himalayan West Bengal & Sikkim; at isolated places over Haryana, Chandigarh & Delhi, West Uttar Pradesh, Saurashtra & Kutch, Gangetic West Bengal and Arunachal Pradesh; **above normal (1.6°C to 3.0°C)** at most places over Jharkhand; at many places over East Rajasthan, Nagaland, Manipur, Mizoram & Tripura, Bihar, Chhattisgarh and Coastal Karnataka; at a few places over Assam & Meghalaya, Odisha, Madhya Pradesh and Coastal Andhra Pradesh & Yanam; at isolated places over Tamil Nadu, Puducherry & Karaikal and Andaman & Nicobar Islands. They were **below normal (-1.6°C to -3.0°C)** at a few places over North Interior Karnataka; at isolated places over Madhya Maharashtra, Vidarbha and Telangana and **near normal** over rest parts of the country. Yesterday, the **lowest minimum temperature of 9.5°C** was reported at **Hissar (Haryana)** over plains of the country.

◆ **Maximum Temperature Departures (as on 19-02-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at most places over Himachal Pradesh, Rajasthan, Gujarat Region; at many places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Uttarakhand, Saurashtra & Kutch; at a few places over Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, West Madhya Pradesh; **appreciably above normal (3.1°C to 5.1°C)** at most places over Assam & Meghalaya, Konkan & Goa; at many places over East Madhya Pradesh, Jharkhand, Sub-Himalayan West Bengal & Sikkim; at a few places over East Uttar Pradesh, Vidarbha, Bihar, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura; **above normal (1.6°C to 3.0°C)** at many places over Chhattisgarh, Odisha, Madhya Maharashtra, Marathwada; at a few places over Gangetic West Bengal, Coastal Karnataka and at isolated places over Coastal Andhra Pradesh & Yanam. They were **below normal (-1.6°C to -3.0°C)** at a few places over South Interior Karnataka and at isolated places over Andaman & Nicobar Islands, North Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, the **highest maximum temperature of 39.8°C** was reported at **Rajkot (Saurashtra & Kutch)**.

\* Red color warning does not mean "Red Alert" Red color warning means "Take Action".

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(Circle as the National Alert 1075)



### Meteorological Analysis (Based on 0530 hours IST)

- ◆ The **Western Disturbance** as a trough in lower & middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 62°E and north of Lat. 32°N.
- ◆ **Jet Stream Winds** of the order upto 110 knots are prevailing between Latitudes 30-35°N over the Indian Region.

### Weather Forecast for next 5 days \* upto 0830 hours IST of 25th February, 2023

- ◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table-1.
- ◆ Maximum temperatures are very likely to be in the range of 37-39°C over many parts of Gujarat state during next 24 hours.
- ◆ No significant change in Maximum Temperatures very likely over Gujarat and Maharashtra during next 24 hours and gradual fall by 2-3°C during subsequent 3 days.
- ◆ No significant change in maximum Temperatures very likely over rest parts of the country during next 5 days.

### Weather Outlook for subsequent 2 days during 25th-27th February, 2023

- ◆ Light/moderate scattered to fairly widespread rainfall/snowfall likely over Western Himalayan Region and light/moderate scattered to fairly widespread rainfall over Arunachal Pradesh, Sub-Himalayan West Bengal-Sikkim and Andaman & Nicobar Islands.
- ◆ Dry weather likely over rest parts of the country.



### Weather Warning during next 5 days \*

**20 Feb (Day 1): ♦ Thunderstorm accompanied with lightning** very likely at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and Himachal Pradesh.

♦ **Heat Wave conditions** very likely in isolated pockets over Kutch.

**21 Feb (Day 2): ♦ Thunderstorm accompanied with lightning** likely at isolated places over Arunachal Pradesh, East Assam, Nagaland & Manipur.

**22 Feb (Day 3): ♦ Thunderstorm accompanied with lightning** very likely at isolated places over Arunachal Pradesh, East Assam, Nagaland & Manipur.

♦ **Heavy rainfall** very likely at isolated places over Arunachal Pradesh.

**23 Feb (Day 4):** No weather warning.

**24 Feb (Day 5):** No weather warning.

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**Table-1**  
**5 Day Rainfall Forecast (MORNING)**  
**20-February-2023**

Met-Sub-Division	20-Feb Today	21Feb Tue	22Feb Wed	23Feb Thu	24Feb Fri
1. Andaman & Nicobar Islands	DRY	DRY	ISOL	ISOL	SCT
2. Arunachal Pradesh	SCT	FWS	FWS	SCT	SCT
3. Assam & Meghalaya	ISOL	ISOL	ISOL	ISOL	ISOL
4. N. M. M. & T.	ISOL	ISOL	ISOL	ISOL	ISOL
5. S.H. West Bengal & Sikkim	ISOL	ISOL	ISOL	ISOL	ISOL
6. Gangetic West Bengal	DRY	DRY	DRY	DRY	DRY
7. Odisha	DRY	DRY	DRY	DRY	DRY
8. Jharkhand	DRY	DRY	DRY	DRY	DRY
9. Bihar	DRY	DRY	DRY	DRY	DRY
10. East Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
11. West Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
12. Uttarakhand	ISOL	ISOL	DRY	DRY	DRY
13. Haryana, Chd & Delhi	DRY	ISOL	DRY	DRY	DRY
14. Punjab	ISOL	ISOL	DRY	DRY	DRY
15. Himachal Pradesh	SCT	SCT	DRY	DRY	DRY
16. J & K and Ladakh	FWS	ISOL	DRY	DRY	DRY
17. West Rajsthan	DRY	DRY	DRY	DRY	DRY
18. East Rajasthan	DRY	DRY	DRY	DRY	DRY
19. West Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
20. East Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
21. Gujarat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	DRY	DRY	DRY	DRY	DRY
24. Madhya Maharashtra	DRY	DRY	DRY	DRY	DRY
25. Marathawada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	DRY	DRY	DRY	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal A. P. & Yanam	DRY	DRY	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. T.N.,Puducherry & Karaikal	DRY	DRY	DRY	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala & Mahe	DRY	DRY	DRY	DRY	DRY
36. Lakshadweep	DRY	DRY	DRY	DRY	DRY

**% Station Reporting Rainfall**

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

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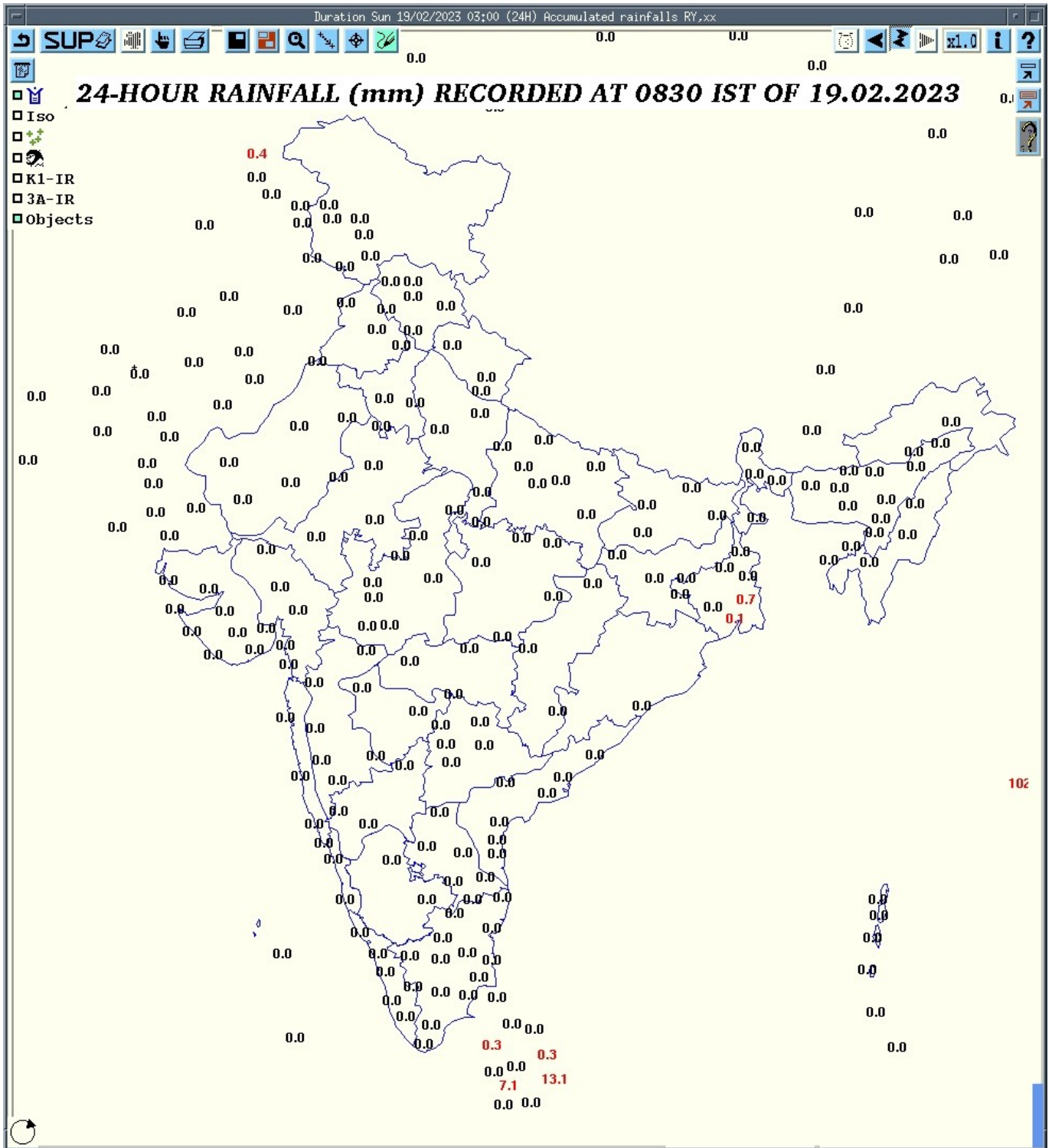
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(Copies to the Meteorologist (R))



Fig. 1: Accumulated Rainfall (mm) during past 24 hours

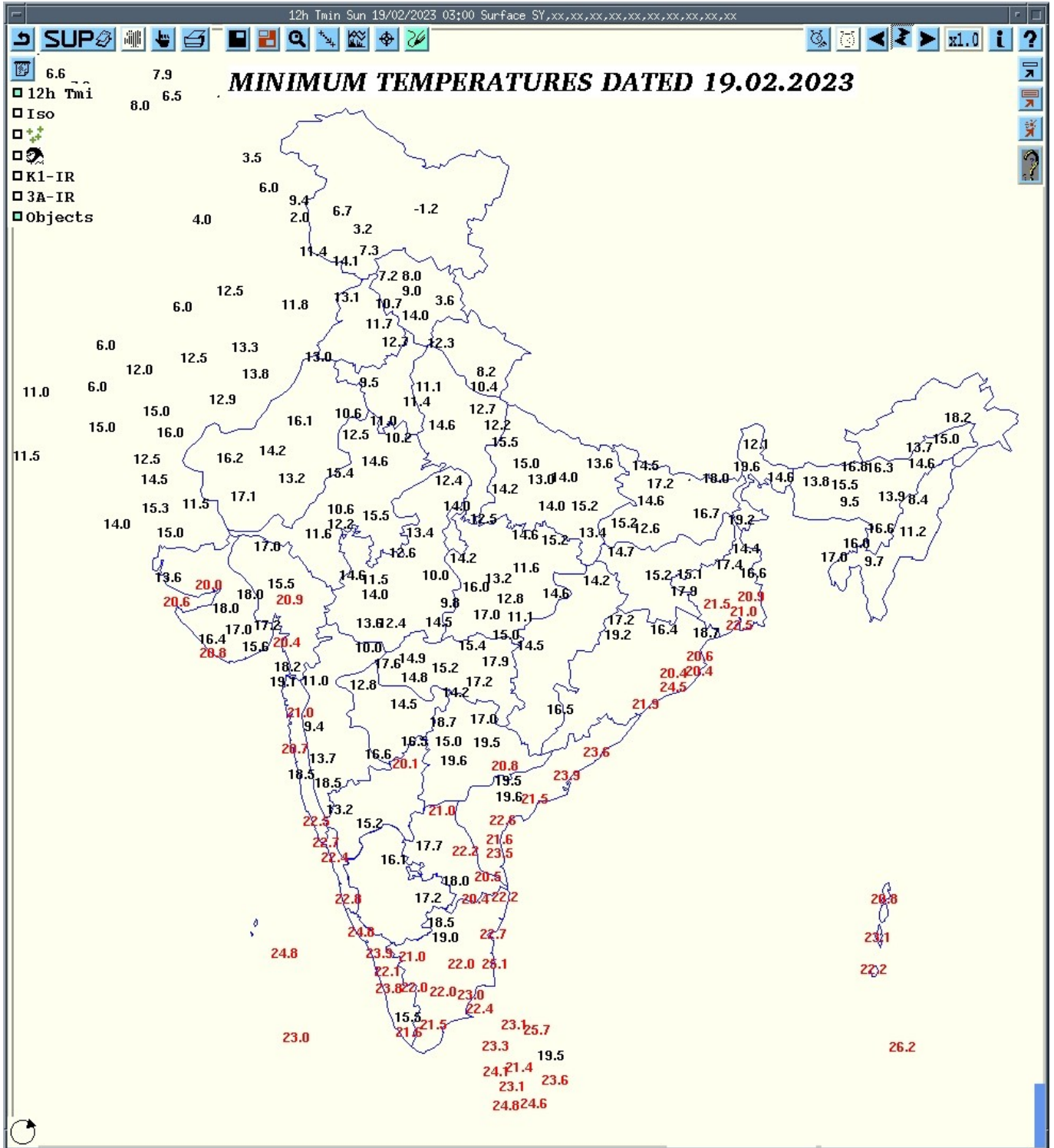


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Fig. 3: Minimum Temperature during past 24 hours



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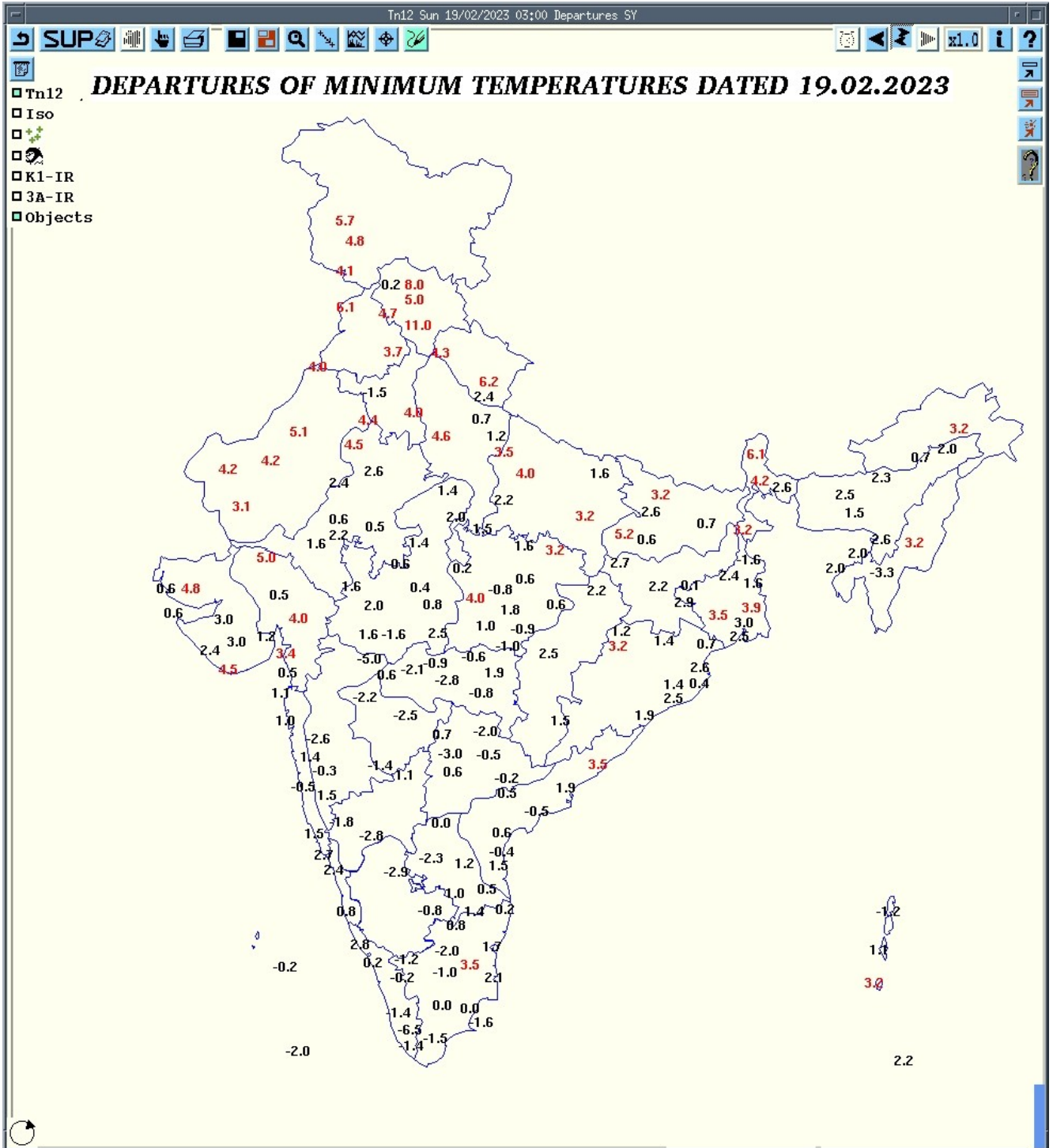
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(Created by the MetInfo team 19/02/2023)



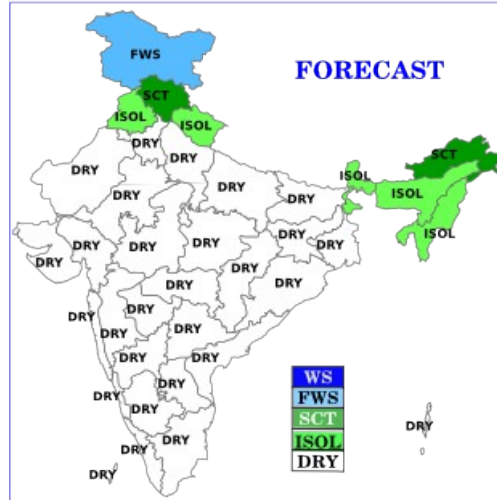


Fig. 5: Departure from Normal of Minimum Temperatures



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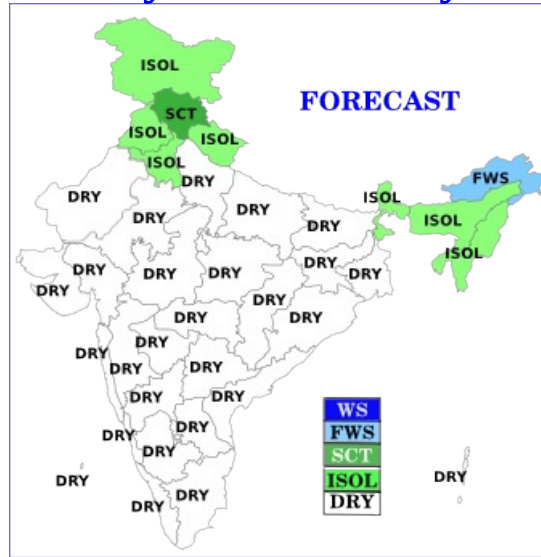
## Monday 20 February 2023



**20 Feb (Day 1): ♦ Thunderstorm accompanied with lightning** very likely at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and Himachal Pradesh.

♦ **Heat Wave conditions** very likely in isolated pockets over Kutch.

## Tuesday 21 February 2023



**21 Feb (Day 2): ♦ Thunderstorm accompanied with lightning** likely at isolated places over Arunachal Pradesh, East Assam, Nagaland & Manipur.

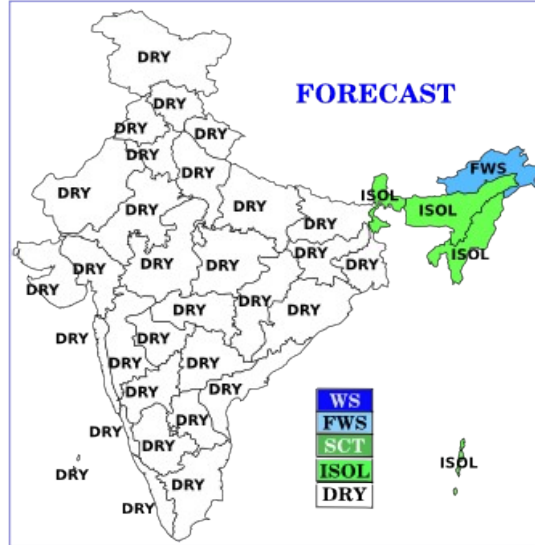
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## Wednesday 22 February 2023



**22 Feb (Day 3): ♦ Thunderstorm accompanied with lightning** very likely at isolated places over Arunachal Pradesh, East Assam, Nagaland & Manipur.

♦ **Heavy rainfall** very likely at isolated places over Arunachal Pradesh.

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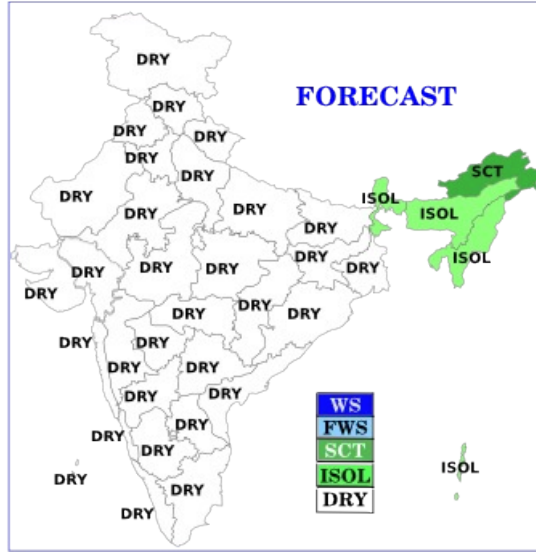
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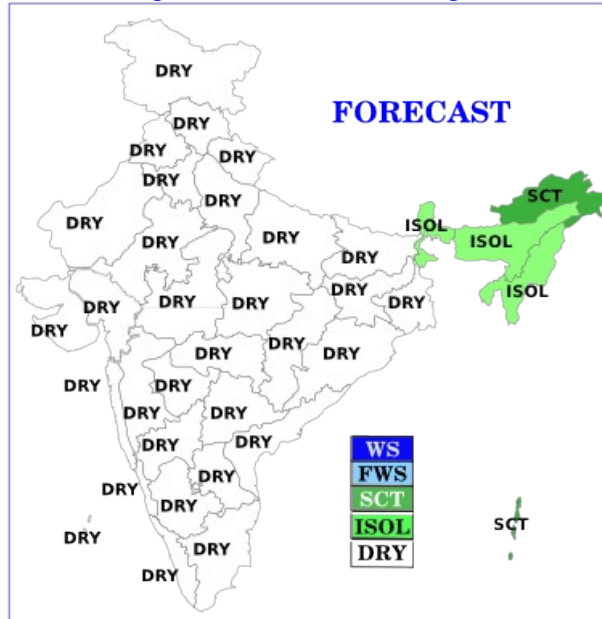
## Thursday 23 February 2023



**23 Feb (Day 4):** No weather warning.



## Friday 24 February 2023



24 Feb (Day 5): No weather warning.

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## LEGENDS

- 1 अंडमान और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर मीजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 पश्चिम गंगोय बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडिगढ़ एवं दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवं लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात क्षेत्र
- 22 सौराष्ट्र एवं कच्छ
- 23 कोंकण एवं गोवा
- 24 मध्य महाराष्ट्र
- 25 मराठावाडा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 तटीय आंध्र प्रदेश एवं यनम
- 29 तेलंगाना
- 30 रायलसीमा
- 31 तमिलनाडु, पुदुचेरी एवं कराईकल
- 32 तटिय कर्नाटक
- 33 आंतरिक उत्तरी कर्नाटक
- 34 आंतरिक दक्षिणी कर्नाटक
- 35 केरल एवं माहे
- 36 लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Orissa
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chd & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathawada
26. Vidharbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

## SPATIAL DISTRIBUTION (% of Stations reporting)

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)

## WARNING

<b>WARNING (TAKE ACTION)</b>
<b>ALERT ( BE PREPARED)</b>
<b>WATCH (BE UPDATED)</b>
<b>NO WARNING ( NO ACTION)</b>

## Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



Heavy Rain



Heavy Snow



Thunderstorm



Dust Storm



Strong Winds



Visibility



Cyclone



Squall/ Hail



Frost



Cold Wave



Heat Wave



Sea State

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## LEGENDS

### WARNING

<b>WARNING (TAKE ACTION)</b>
<b>ALERT ( BE PREPARED)</b>
<b>WATCH (BE UPDATED)</b>
<b>NO WARNING ( NO ACTION)</b>

### Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



Rain/ Snow \*

Heavy: 64.5 to 115.5 mm/cm \*  
Very Heavy: 115.6 to 204.4 mm/cm \*  
Extremely Heavy: > 204.4 mm/cm \*



Heat Wave

When maximum temperature of a station reaches  $\geq 40^{\circ}\text{C}$  for plains and  $\geq 30^{\circ}\text{C}$  for hilly regions

(a) Based on Departure from normal

Heat Wave: Maximum Temperature Departure from normal  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

Severe Heat Wave: Maximum Temperature Departure from normal  $\geq 6.5^{\circ}\text{C}$

(b). Based on Actual maximum temperature

Heat Wave: When actual maximum temperature  $\geq 45^{\circ}\text{C}$ .

Severe Heat Wave: When actual maximum temperature  $\geq 47^{\circ}\text{C}$

(c) Criteria for heat wave for coastal stations

When maximum temperature departure is  $> 4.5^{\circ}\text{C}$  from normal. Heat Wave may be described provided maximum temperature  $\geq 37^{\circ}\text{C}$



Warm Night

When maximum temperature remains  $40^{\circ}\text{C}$

Warm Night: When minimum temperature departure  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

Severe Warm Night: When minimum temperature departure  $> 6.4^{\circ}\text{C}$ .



Cold Wave

When minimum temperature of a station  $\leq 10^{\circ}\text{C}$  for plains and  $\leq 0^{\circ}\text{C}$  for hilly regions.

(a). Based on departure

Cold Wave: Minimum Temperature Departure from normal  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

Severe Cold Wave: Minimum Temperature Departure from normal  $\leq -6.5^{\circ}\text{C}$

(b) Based on actual Minimum Temperature (for Plains only)

Cold Wave : When Minimum Temperature is  $\leq 4.0^{\circ}\text{C}$

Severe Cold Wave: When Minimum Temperature is  $\leq 2.0^{\circ}\text{C}$

(c) For Coastal Stations

When Minimum Temperature departure is  $\leq -4.5^{\circ}\text{C}$  & actual Minimum Temperature is  $\leq 15^{\circ}\text{C}$



Cold Day

When minimum temperature of a station  $\leq 10^{\circ}\text{C}$  for plains and  $\leq 0^{\circ}\text{C}$  for hilly regions

Based on departure

Cold Day: Maximum Temperature Departure from normal  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

Severe Cold Day: Maximum Temperature Departure from normal  $\leq -6.5^{\circ}\text{C}$



Fog

Phenomenon of small droplets suspended in air and the horizontal visibility  $< 1\text{km}$

Moderate Fog: When the visibility between 500-200 metres

Dense Fog: when the visibility between 50- 200 metres

Very Dense Fog: when the visibility  $< 50$  metres



Thunderstorm

Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)



Dust/Sand Storm

An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.



Frost

Ice deposits on ground

Air temperature  $\leq 4^{\circ}\text{C}$  ( over Plains)



Squall

A strong wind that rises suddenly, lasts for atleast 1 minute.

Moderate: Wind speed 52-61 kmph

Severe: Wind speed 62-87 kmph

Very Severe: Wind speed  $> 87$  kmph



Sea State

Effect of various waves in the sea over specific area

Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre

High to very high: Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre

Phenomenal: Wind speed  $> 117$  kmph ( $> 63$  knots) & Wave height  $> 14$  metre



Cyclone

Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)

Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)

Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)

Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)

Super Cyclone Storm: Wind speed  $> 220$  kmph ( $> 119$  knots)

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