



Thursday, June 15, 2023
Time of Issue: 0915 hours IST
(MORNING)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features

Advance of Southwest Monsoon

- ❖ The Northern Limit of Monsoon (NLM) continues to pass through lat. 16.5°N/ Long. 55°E, lat. 17.0°N/ Long. 60°E, lat. 17°N/ Long. 65°E, lat. 17°N/ Long. 70°E, Ratnagiri, Koppal, Puttaparthi, Shriharikota, lat. 15.0°N/ Long. 83.0°E, 18.0°N/87.0°E, 22°N/89.0°E, Malda and Forbesganj, 28°N/86°E.
- ❖ Conditions are becoming favourable for further advance of Southwest Monsoon over some more parts of south Peninsular & East India and adjoining areas during 18th -21st June.

Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy") over Northeast Arabian Sea

- ❖ The **Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy")** over Northeast Arabian Sea moved north-northeastward with a speed of 6 kmph during past 6-hours and lay centered at 0530 hours IST of 15th June, 2023 over the same region near latitude 22.5°N and longitude 67.0°E, about 180 km west-southwest of Jakhau Port (Gujarat), 210 km west of Devbhumi Dwarka, 210 km west-southwest of Naliya, 290 km west-northwest of Porbandar, and 270 km south-southwest of Karachi (Pakistan). It is very likely to move northeastwards and cross Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) near Jakhau Port (Gujarat) by evening of 15th June as a **very severe cyclonic storm** with maximum sustained wind speed of 115-125 kmph gusting to 140 kmph.

Weather forecast and warning over the country during next 5 days:

Northeast India:

- ❖ Widespread light/moderate rainfall at most places with isolated **Heavy to Very Heavy falls** very likely over the region during next 5 days. Isolated **extremely heavy rainfall** also likely over Meghalaya on 15th & 16th June.

East India:

- ❖ Light/moderate fairly widespread to widespread rainfall with thunderstorm/lightning/gusty winds very likely Sub-Himalayan West Bengal & Sikkim and Andaman & Nicobar Islands during next 4 days.
- ❖ **Heavy to very heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim during next 4 days.

Northwest India:

- ❖ Light/moderate isolated to scattered rainfall with **hailstorm**, thunderstorm & lightning very likely in isolated places over Himachal Pradesh & Uttarakhand on 15th June. Light to moderate rainfall at many places with **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over southwest Rajasthan on 16th & 17th June and over southeast Rajasthan on 17th June.

No significant weather likely over rest parts of the country during next 5 days.

Maximum Temperatures and Heat Wave warning:

- ❖ No significant change in maximum temperatures very likely over most parts of the country during next 5 days except over Gujarat state, where temperatures are likely to fall by 5-6°C during next 5 days and by 2-4°C over Northwest India (except Uttar Pradesh) on 16th to 18th June.
- ❖ **Heat Wave conditions** very likely to continue in isolated pockets over Odisha, Gangetic West Bengal, Bihar, Jharkhand, Vidarbha, Chhattisgarh, Coastal Andhra Pradesh & Yanam during next 4-5 days; southeast Uttar Pradesh, Madhya Pradesh, Telangana during next 24 hours.
- ❖ **Warm night** likely to prevail over East Uttar Pradesh, East Madhya Pradesh, Odisha and Chhattisgarh on 15th June.
- ❖ **Hot and humid conditions** very likely over Tamil Nadu and Rayalaseema during next 3 days.

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Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830-1730 hours IST of yesterday): at many places over Punjab, Nagaland, Manipur, Mizoram & Tripura, Chhattisgarh, Saurashtra & Kutch, Saurashtra & Kutch, Andaman & Nicobar Islands; at a few places over Arunachal Pradesh, Assam & Meghalaya, Kerala & Mahe; at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Sub-Himalayan West Bengal & Sikkim, Jharkhand, East Madhya Pradesh, Gujarat Region, Konkan & Goa, Coastal Karnataka, Lakshadweep.
- ❖ **Significant rainfall recorded** (in cm) (from 0830-1730 hours IST of yesterday): Haflong-4; Valprai, Car Nicobar, Lengpui-3 each and Silchar-2.
- ❖ **Thunderstorm observed** (from 0830 IST of yesterday-0530 hours IST of today): at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Marathwada, Vidarbha, Chhattisgarh, Odisha, Sub-Himalayan West Bengal & Sikkim, Mizoram and Assam & Meghalaya.
- ❖ Yesterday, **Heat Wave to Severe Heat Wave conditions** prevailed over some parts of Coastal Andhra Pradesh & Yanam, Bihar and Gangetic West Bengal and in isolated parts of Telangana and Chhattisgarh. **Heat Wave conditions** also observed over some parts of interior Odisha.
- ❖ **Minimum Temperature Departures (as on 14-06-2023):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at many places over Odisha and East Uttar Pradesh; at a few places over East Madhya Pradesh, Vidarbha, Chhattisgarh, Telangana, Coastal Andhra Pradesh & Yanam, Rayalaseema; **above normal (1.6°C to 3.0°C)** at many places over Jharkhand, Madhya Maharashtra and Lakshadweep; at a few places over West Madhya Pradesh and Gangetic West Bengal and at isolated places over Haryana, Chandigarh & Delhi, Rajasthan and Tamil Nadu, Puducherry & Karaikal. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and Saurashtra & Kutch; **below normal (-1.6°C to -3.0°C)** at a few places over Assam & Meghalaya and Sub-Himalayan West Bengal & Sikkim and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 20.5°C** was reported at **Koraput (Odisha)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 14-06-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at many places over Coastal Andhra Pradesh & Yanam; at a few places over Bihar, Odisha, Gangetic West Bengal; at isolated places over Jharkhand, Chhattisgarh, Telangana, Tamil Nadu, Puducherry & Karaikal; **appreciably above normal (3.1°C to 5.0°C)** at many places over Vidarbha, Karnataka; at a few places over East Uttar Pradesh, Rayalaseema; **above normal (1.6°C to 3.0°C)** at many places over Madhya Pradesh, West Uttar Pradesh, Uttarakhand, Konkan & Goa, Madhya Maharashtra, Marathwada, Lakshadweep. They were **appreciably below normal (-3.1°C to -5.0°C)** at many places over Assam & Meghalaya; at a few places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Saurashtra & Kutch; **below normal (-1.6°C to -3.0°C)** at many places over Andaman & Nicobar Islands, Rajasthan, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad; at a few places over Gujarat Region and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 45.1°C** was reported at **Tuni (Coastal Andhra Pradesh)**.



Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy")** over Northeast Arabian Sea moved north-northeastward with a speed of 6 kmph during past 6-hours and lay centered at 0530 hours IST of 15th June, 2023 over the same region near latitude 22.5°N and longitude 67.0°E, about 180 km west-southwest of Jakhau Port (Gujarat), 210 km west of Devbhumi Dwarka, 210 km west-southwest of Naliya, 290 km west-northwest of Porbandar, and 270 km south-southwest of Karachi (Pakistan). It is very likely to move northeastwards and cross Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) near Jakhau Port (Gujarat) by evening of 15th June as a **very severe cyclonic storm** with maximum sustained wind speed of 115-125 kmph gusting to 140 kmph.
- ❖ The Northern Limit of Monsoon (NLM) continues to pass through lat. 16.5°N/ long. 55°E, lat. 17.0°N/ long. 60°E, lat. 17°N/ long. 65°E, lat. 17°N/ long. 70°E, Ratnagiri, Koppal, Puttaparthi, Shriharikota, lat. 15.0°N/ long. 83.0°E, 18.0°N/87.0°E, 22°N/89.5°E, Malda and Forbesganj, 28°N/86°E.
- ❖ Conditions are becoming favourable for further advance of Southwest Monsoon over some more parts of south Peninsular & East India and adjoining areas during 18th-21st June.
- ❖ The trough at mean sea level over Southeast & adjoining Eastcentral Arabian Sea off south Maharashtra to Kerala coasts persists.
- ❖ The Western Disturbance as a trough in middle tropospheric levels with its axis at 5.8 km above mean sea level now runs roughly along Lat. 72°E to the north of 32°N.

Weather Forecast for next 5 days (Upto 0830 hours IST of 20th June, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ **Maximum Temperatures Forecast:** No significant change in maximum temperatures very likely over most parts of the country during next 5 days except over Gujarat state, where temperatures are likely to fall by 5-6°C during next 5 days and by 2-4°C over Northwest India (except Uttar Pradesh) on 16th to 18th June.

Weather Outlook for subsequent 2 days (During 20th –22nd June, 2023)

- ❖ Fairly widespread to widespread light/moderate rainfall with thunderstorm likely to continue over northeast India, Kerala & Mahe and Coastal Karnataka. Isolated to scattered rainfall over Tamil Nadu, Puducherry & Karaikal, Interior Karnataka and Islands.
- ❖ Isolated rainfall over Western Himalayan Region and adjoining plains of Northwest India.
- ❖ Dry weather over rest parts of the country.



Weather Warning during next 5 days

15 June (Day 1): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Saurashtra & Kutch and Meghalaya; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, Gujarat Region.

♦ **Hailstorm with thunderstorm, lightning and gusty winds (wind speed 30-40 kmph)** very likely at isolated places over Uttarakhand and Himachal Pradesh.

♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Rajasthan; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Gangetic West Bengal, North Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Jharkhand, Kerala & Mahe, Coastal Karnataka, South Interior Karnataka, Rayalaseema, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim, Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Madhya Maharashtra, Gujarat State and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha, Gangetic West Bengal and **heat wave conditions** in some parts of Vidarbha and in isolated pockets of East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam and Telangana.

♦ **Warm night conditions** very likely in isolated pockets of Odisha, East Madhya Pradesh, East Uttar Pradesh, Chhattisgarh and Vidarbha.

♦ **Gale wind speed reaching 125-135 kmph gusting 150** is likely to prevail over northeast Arabian Sea. **Gale wind 125-135 kmph gusting to 150 kmph** over Saurashtra & Kutch coasts. **Squally wind 50-60 kmph gusting to 70 kmph** over Eastcentral Arabian Sea. Fishermen are advised not to venture into these areas.

16 June (Day 2): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Gujarat state, south Rajasthan and Meghalaya; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Assam, Arunachal Pradesh and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura.

♦ **Thunderstorm with lightning & squall (speed 60-70 kmph)** very likely at isolated places over Rajasthan; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Gangetic West Bengal, Jharkhand, Himachal Pradesh, Kerala & Mahe, Karnataka, Rayalaseema, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, West Madhya Pradesh, Gujarat State and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Chhattisgarh, Gangetic West Bengal, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam and Telangana.

♦ **Squally wind 50-60 kmph gusting to 70 kmph** over north Gujarat and **speed reaching 40-50 kmph gusting to 60 kmph** is likely over Northeast and south Rajasthan. Fishermen are advised not to venture into these areas.

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17 June (Day 3): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over south Rajasthan and north Gujarat; **Heavy to very heavy rainfall** at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Andaman & Nicobar Islands, Punjab, West Uttar Pradesh, Haryana, Chandigarh & Delhi, Rajasthan, South Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Jharkhand, Himachal Pradesh, Chhattisgarh, Coastal Karnataka, North Interior Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema and Kerala & Mahe; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Uttarakhand, East Uttar Pradesh, West Madhya Pradesh, Marathwada, Gujarat state, Telangana and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam.

18 June (Day 4): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Assam & Meghalaya and East Rajasthan and **heavy rainfall** at isolated places over West Rajasthan, West Madhya Pradesh, south Haryana, Uttarakhand, southwest Madhya Pradesh, Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim.

♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Uttarakhand; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Andaman & Nicobar Islands, West Uttar Pradesh, Rajasthan, Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Jharkhand, Himachal Pradesh, Chhattisgarh, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Chandigarh & Delhi, East Uttar Pradesh, Madhya Pradesh, Vidarbha, Madhya Maharashtra, Marathwada, Telangana and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand.

19 June (Day 5): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya and Sub-Himalayan West Bengal & Sikkim and **heavy rainfall** at isolated places over north West Madhya Pradesh, West Uttar Pradesh, East Rajasthan, Uttarakhand, Tamil Nadu, Puducherry & Karaikal, Rayalaseema, South Interior Karnataka and Kerala & Mahe.

♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Uttarakhand; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Andaman & Nicobar Islands, West Uttar Pradesh, Rajasthan, Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Himachal Pradesh, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Haryana, Chandigarh & Delhi, East Uttar Pradesh, Telangana and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand.

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Table-1

5 Day Rainfall Forecast						
S. No.	Subdivision	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
		Day 1	Day 2	Day 3	Day 4	Day 5
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	WS	WS	WS
2	ARUNACHAL PRADESH	WS	WS	WS	WS	WS
3	ASSAM & MEGHALAYA	WS	WS	WS	WS	WS
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	WS	WS	WS	WS	WS
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	WS	WS	WS	WS	WS
6	GANGETIC WEST BENGAL	ISOL	ISOL	ISOL	SCT	SCT
7	ODISHA	ISOL	ISOL	ISOL	ISOL	ISOL
8	JHARKHAND	ISOL	ISOL	ISOL	ISOL	ISOL
9	BIHAR	ISOL	ISOL	ISOL	SCT	SCT
10	EAST UTTAR PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL
11	WEST UTTAR PRADESH	ISOL	ISOL	SCT	SCT	SCT
12	UTTARAKHAND	SCT	SCT	SCT	FWS	FWS
13	HARYANA CHANDIGARH & DELHI	ISOL	ISOL	SCT	SCT	SCT
14	PUNJAB	SCT	SCT	SCT	SCT	SCT
15	HIMACHAL PRADESH	FWS	SCT	SCT	FWS	FWS
16	JAMMU & KASHMIR AND LADAKH	SCT	SCT	SCT	SCT	SCT
17	WEST RAJASTHAN	ISOL	FWS	WS	FWS	FWS
18	EAST RAJASTHAN	ISOL	SCT	FWS	FWS	FWS
19	WEST MADHYA PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL
20	EAST MADHYA PRADESH	DRY	DRY	DRY	ISOL	ISOL
21	GUJARAT REGION	FWS	FWS	SCT	ISOL	ISOL
22	SAURASHTRA & KUTCH	WS	WS	SCT	ISOL	ISOL
23	KONKAN & GOA	WS	FWS	SCT	SCT	SCT
24	MADHYA MAHARASHTRA	ISOL	ISOL	ISOL	ISOL	ISOL
25	MARATHAWADA	ISOL	ISOL	ISOL	ISOL	ISOL
26	VIDARBHA	ISOL	DRY	DRY	ISOL	ISOL
27	CHHATTISGARH	ISOL	ISOL	ISOL	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	ISOL	ISOL	ISOL	SCT	SCT
29	TELANGANA	ISOL	ISOL	ISOL	ISOL	ISOL
30	RAYALASEEMA	ISOL	ISOL	ISOL	FWS	FWS
31	TAMILNADU PUDUCHERRY & KARAİKAL	ISOL	ISOL	SCT	FWS	FWS
32	COASTAL KARNATAKA	FWS	FWS	FWS	WS	WS
33	NORTH INTERIOR KARNATAKA	ISOL	ISOL	ISOL	SCT	SCT
34	SOUTH INTERIOR KARNATAKA	ISOL	ISOL	SCT	FWS	FWS
35	KERALA & MAHE	SCT	SCT	FWS	WS	WS
36	LAKSHADWEEP	SCT	SCT	WS	WS	WS

Legend	Category	% Stations
WS	Widespread/Most Places	76-100
FWS	Fairly Widespread/Many Places	51-75
SCT	Scattered/ A Few Places	26-50
ISOL	Isolated Places	1-25
DRY	No Rain	0

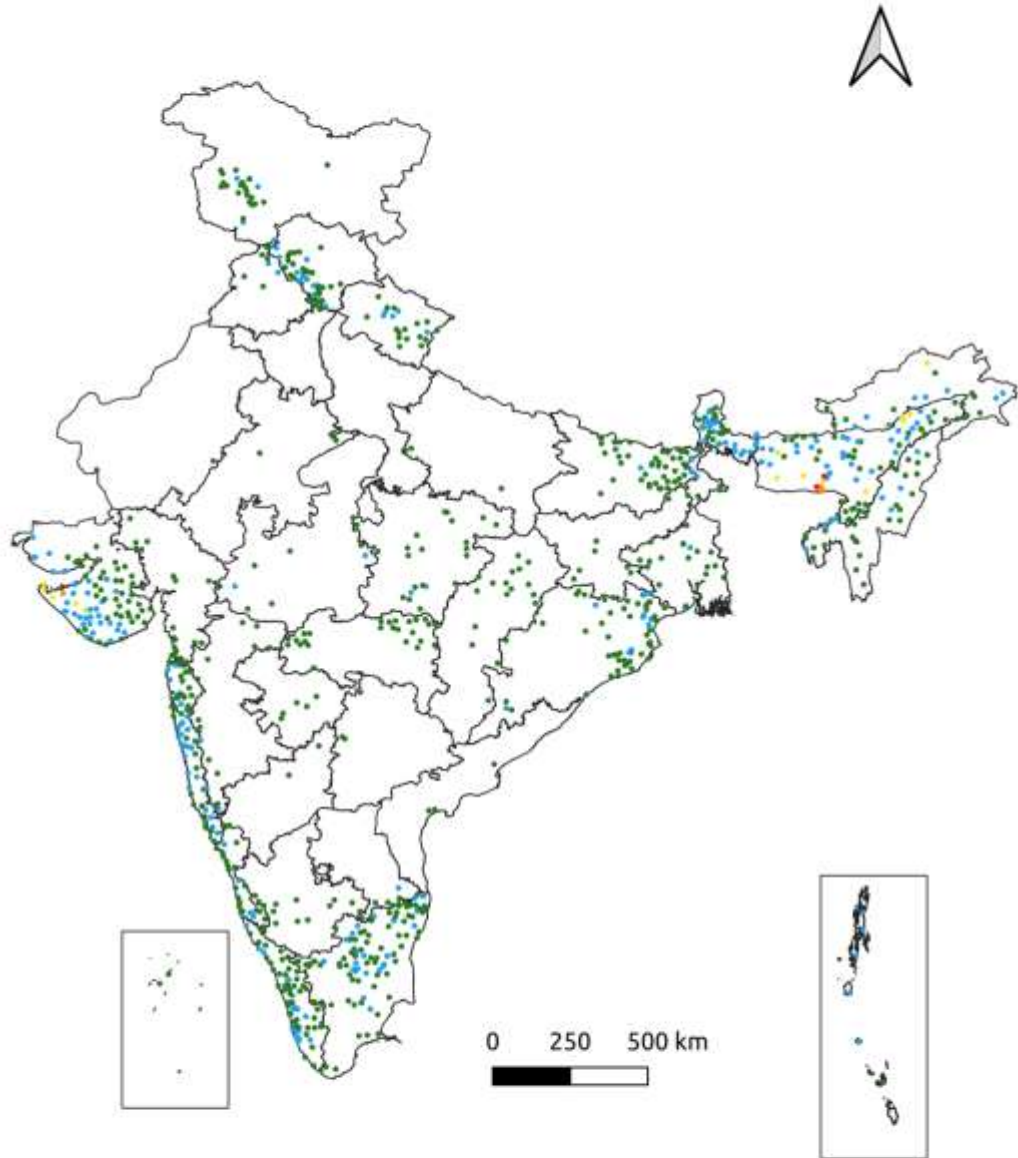
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Fig. 1: Accumulated Rainfall (mm) during past 24 hours



24 Hr cumulative rainfall recorded over different stations
during 0830 IST of 13-6-2023 to 0830 IST of 14-6-2023

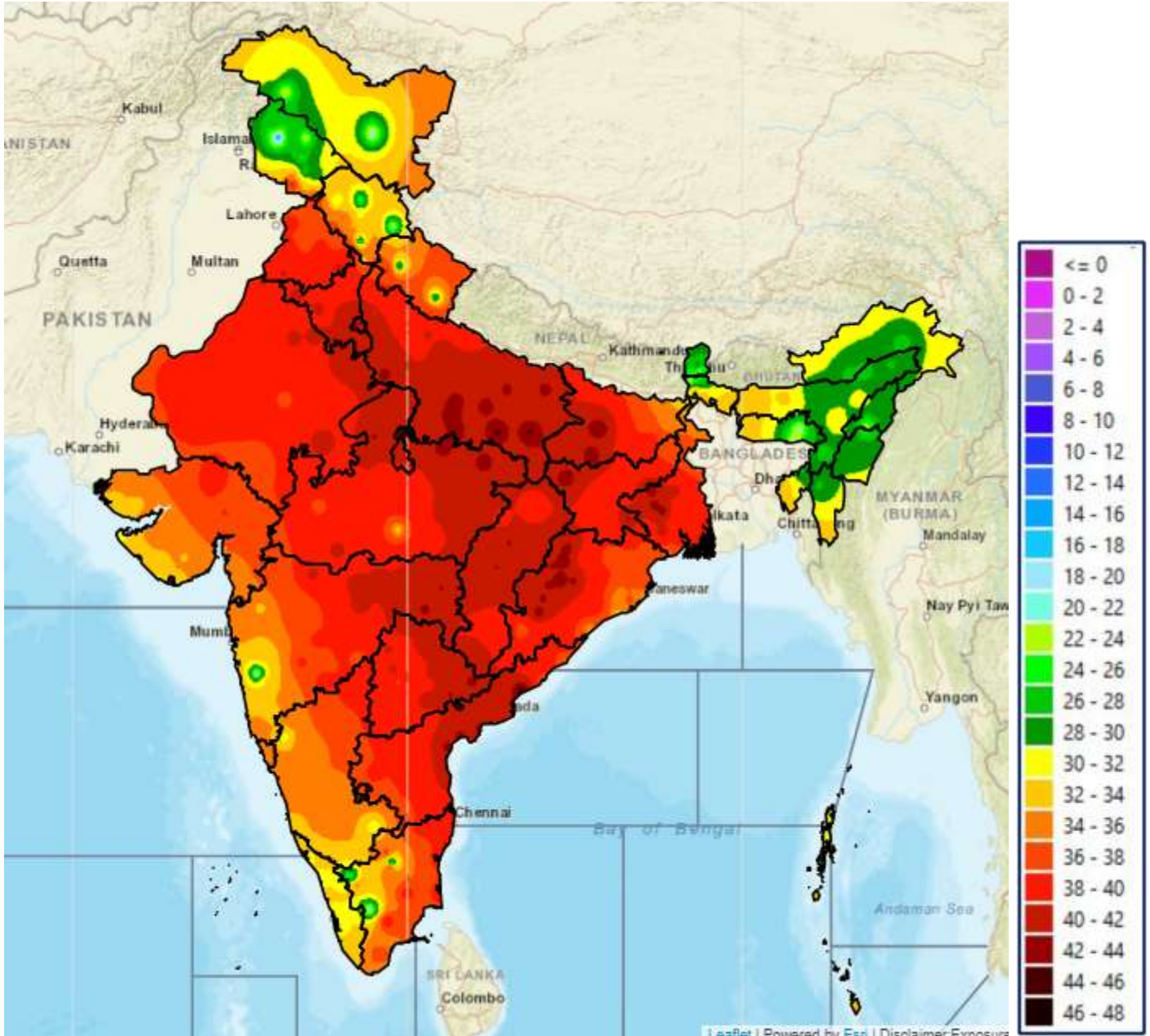


Legends

- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall (≥ 204.5 mm)



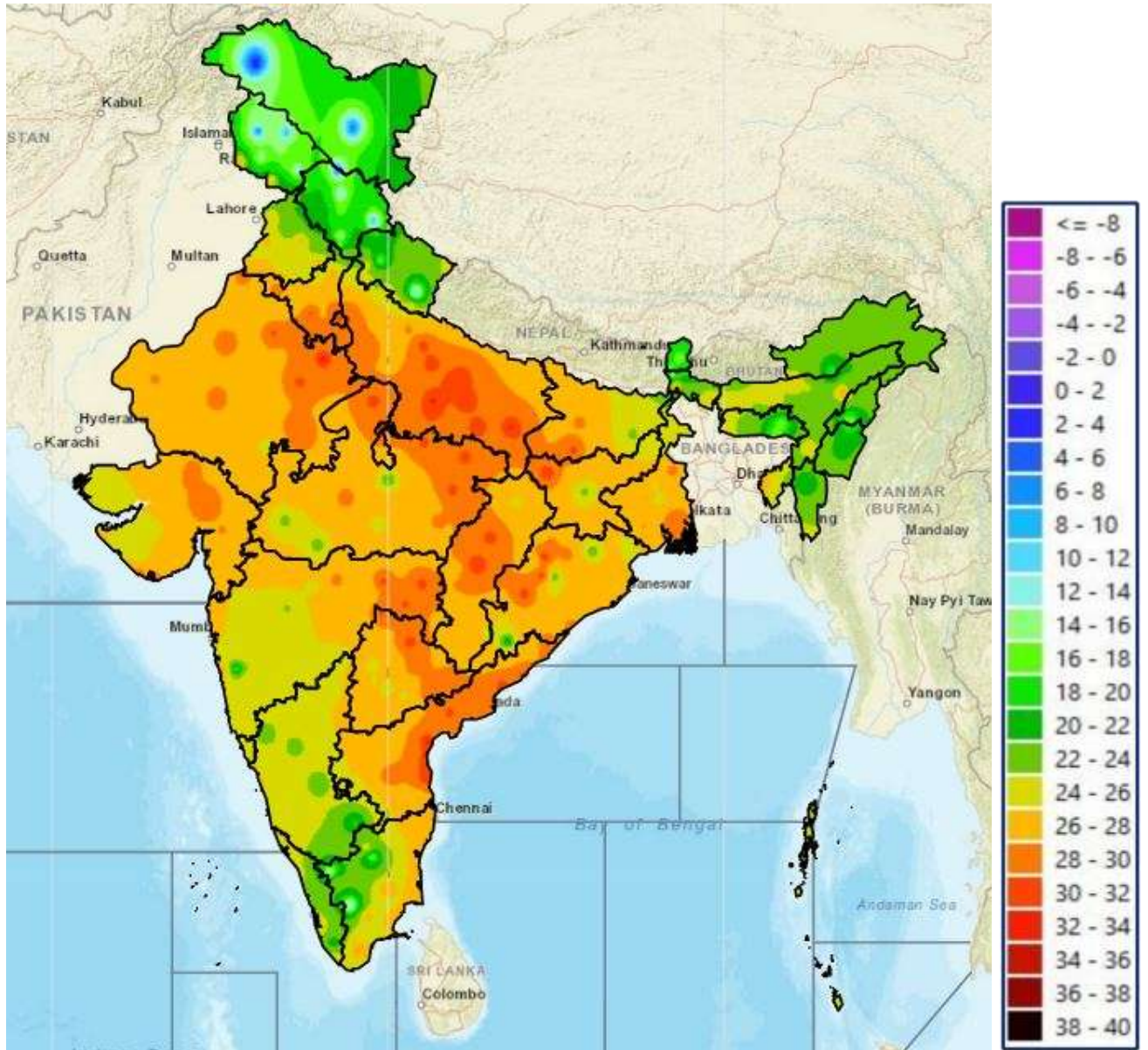
Fig. 2: Maximum Temperatures Dated 14.06.2023



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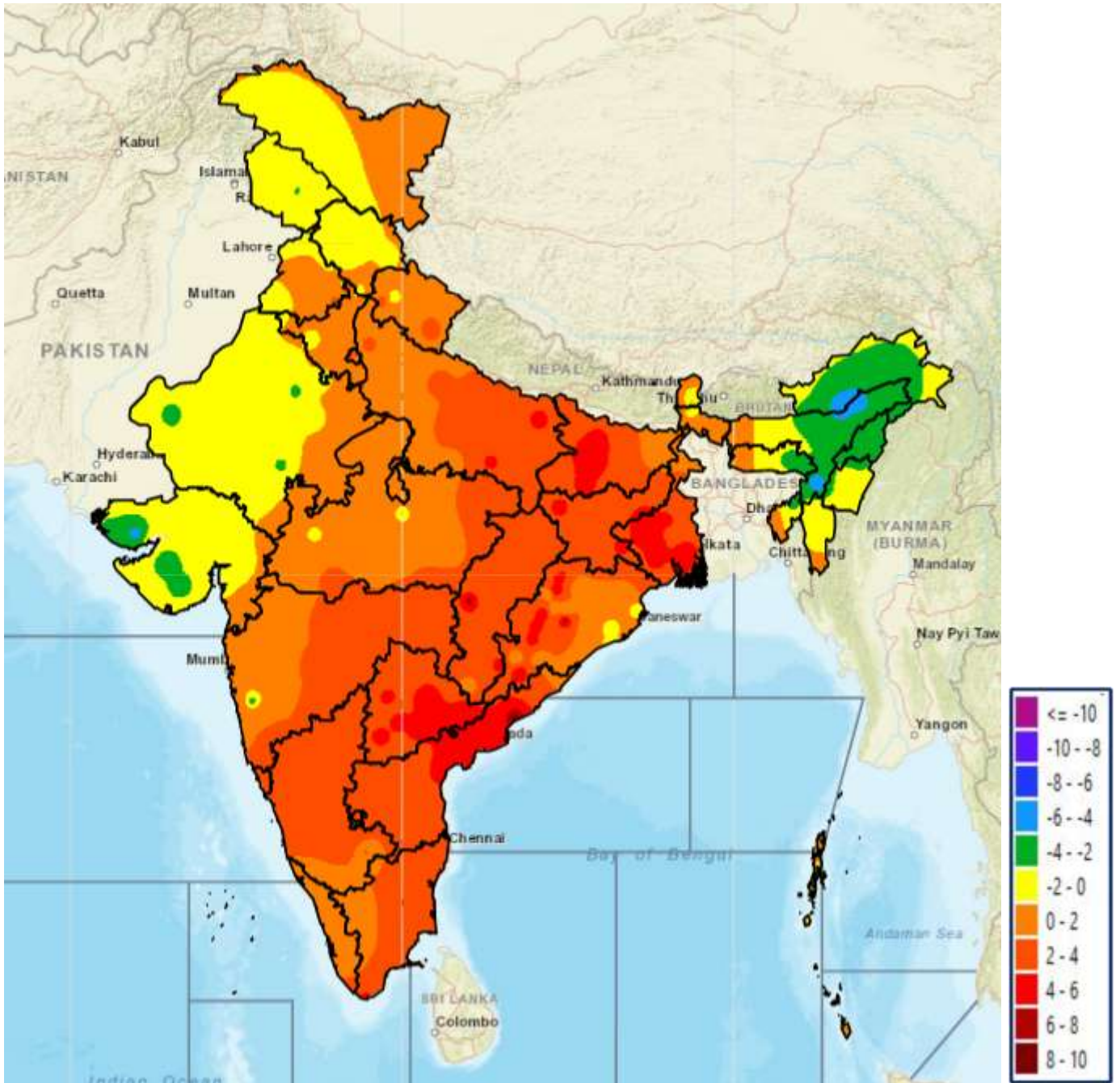
Fig. 3: Minimum Temperatures Dated 14.06.2023



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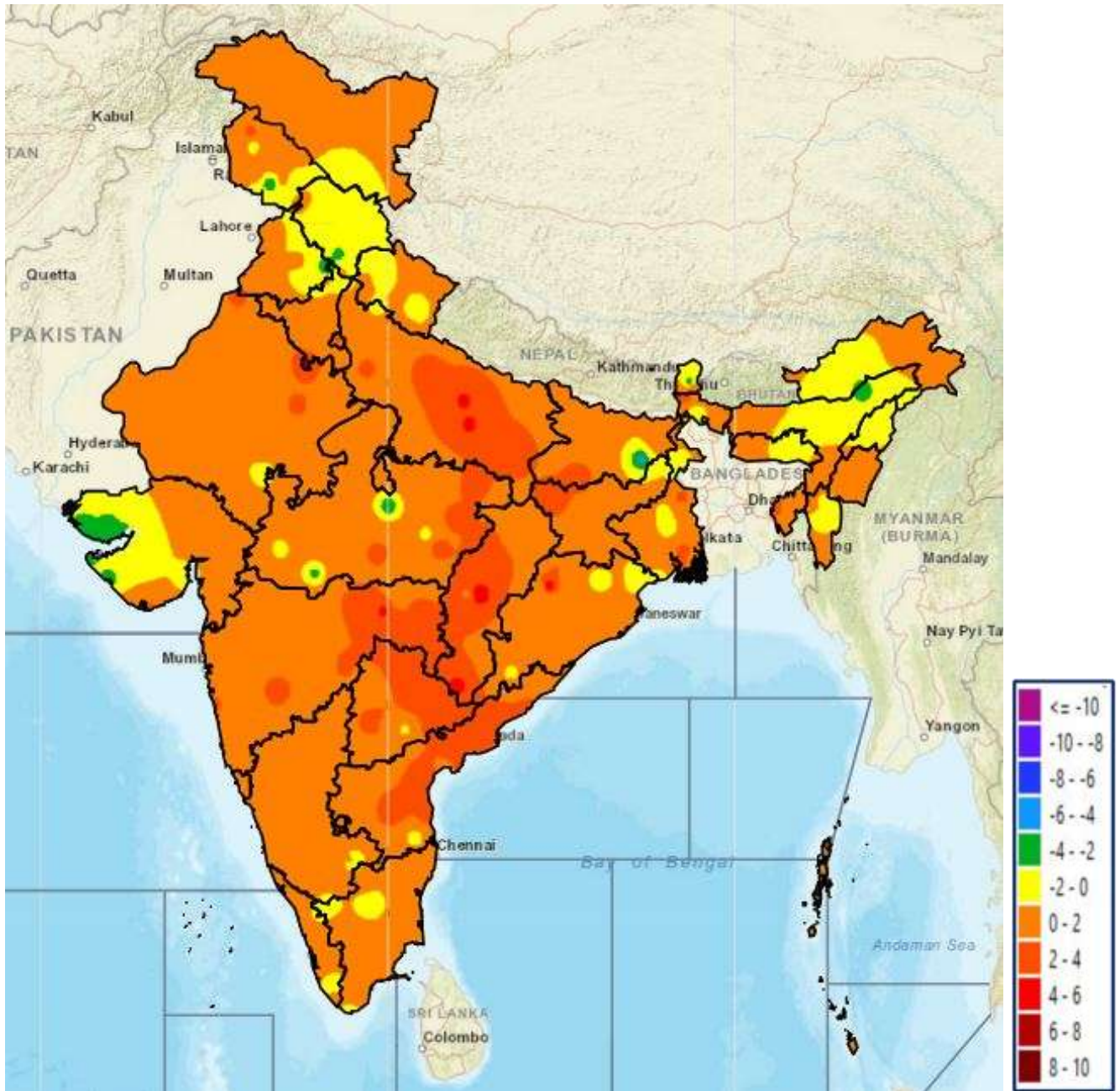
Fig. 4: Departure from Normal of Maximum Temperatures Dated 14.06.2023



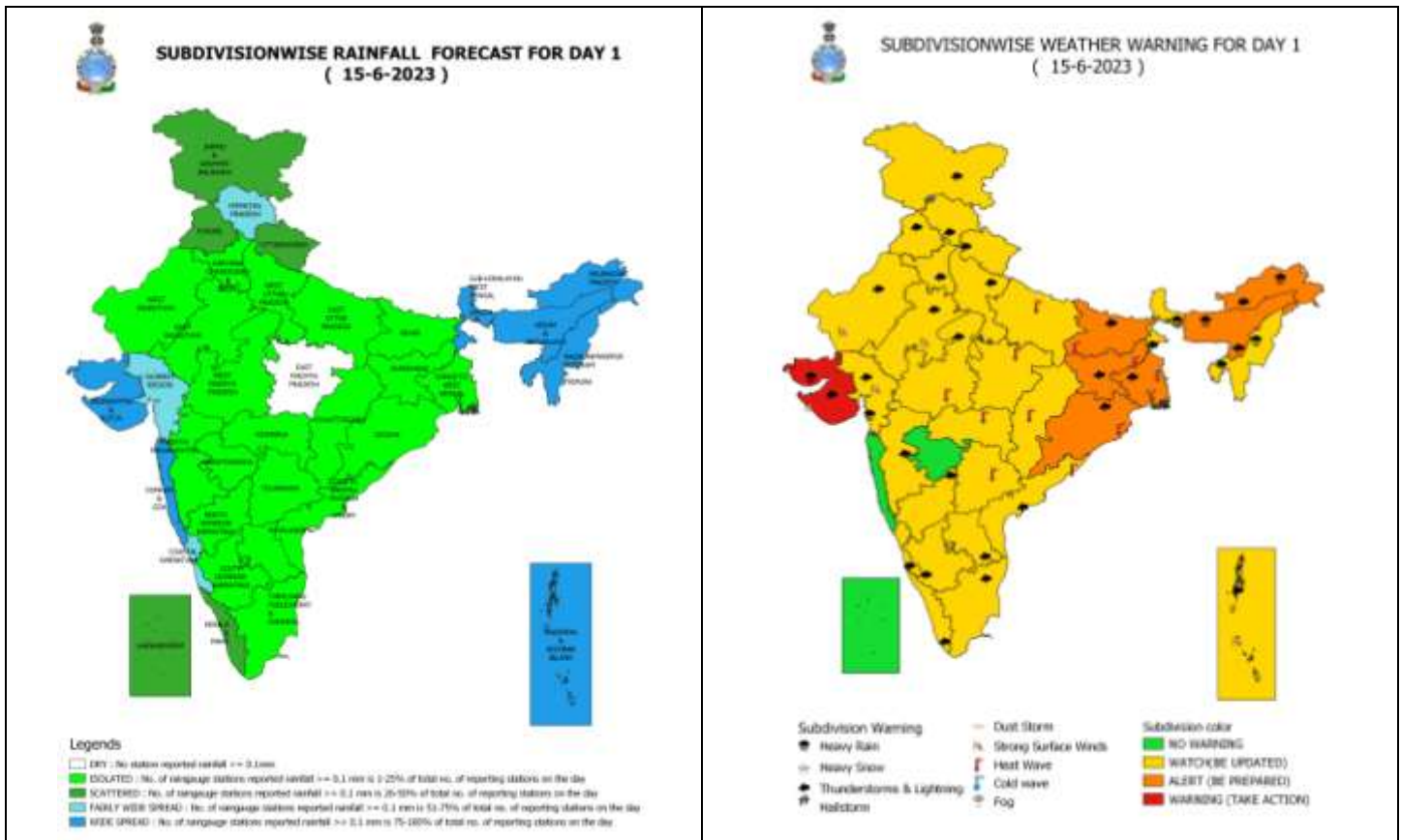
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Fig. 5: Departure from Normal of Minimum Temperatures Dated 14.06.2023



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15 June (Day 1): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Saurashtra & Kutch and Meghalaya; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, Gujarat Region.

♦ **Hailstorm with thunderstorm, lightning and gusty winds (wind speed 30-40 kmph)** very likely at isolated places over Uttarakhand and Himachal Pradesh.

♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Rajasthan; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Gangetic West Bengal, North Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Jharkhand, Kerala & Mahe, Coastal Karnataka, South Interior Karnataka, Rayalaseema, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim, Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Madhya Maharashtra, Gujarat State and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha, Gangetic West Bengal and **heat wave conditions** in some parts of Vidarbha and in isolated pockets of East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam and Telangana.

♦ **Warm night conditions** very likely in isolated pockets of Odisha, East Madhya Pradesh, East Uttar Pradesh, Chhattisgarh and Vidarbha.

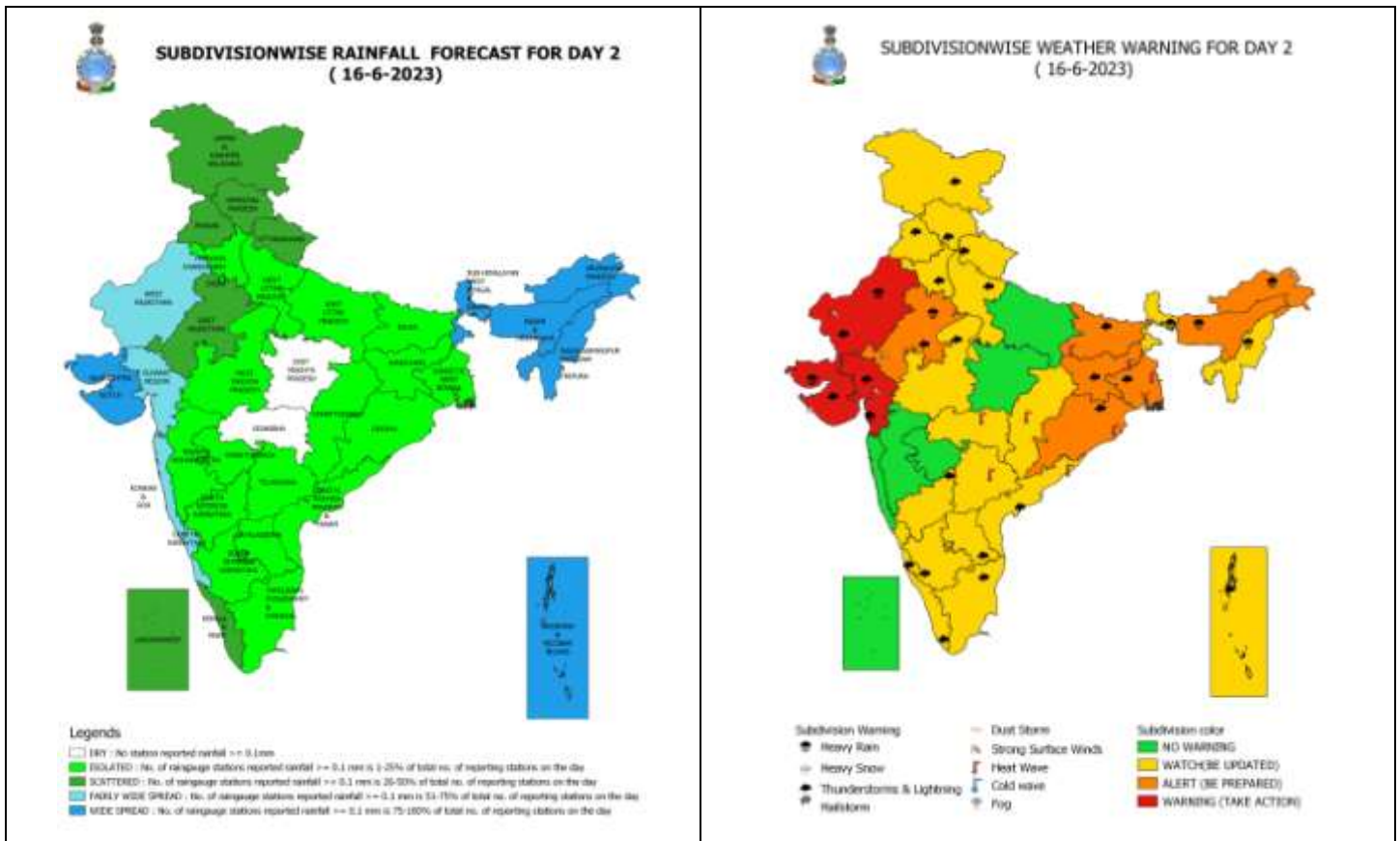
♦ **Gale wind speed reaching 125-135 kmph gusting 150** is likely to prevail over northeast Arabian Sea. **Gale wind 125-135 kmph gusting to 150 kmph** over Saurashtra & Kutch coasts. **Squally wind 50-60 kmph gusting to 70 kmph** over Eastcentral Arabian Sea. Fishermen are advised not to venture into these areas.

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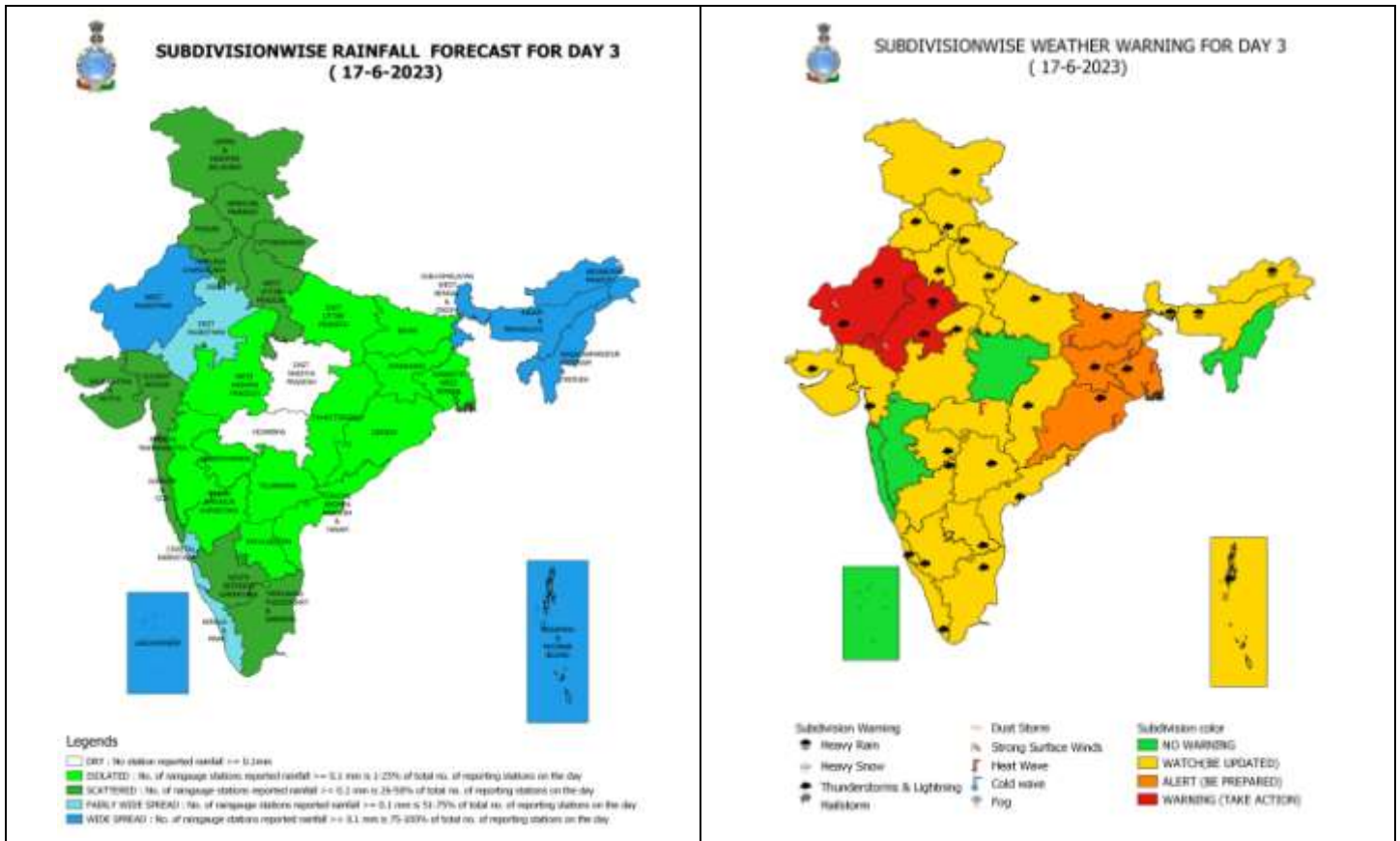


16 June (Day 2): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Gujarat state, south Rajasthan and Meghalaya; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Assam, Arunachal Pradesh and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura.

♦ **Thunderstorm with lightning & squall (speed 60-70 kmph)** very likely at isolated places over Rajasthan; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Gangetic West Bengal, Jharkhand, Himachal Pradesh, Kerala & Mahe, Karnataka, Rayalaseema, Coastal Andhra Pradesh & Yanam; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, West Madhya Pradesh, Gujarat State and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Chhattisgarh, Gangetic West Bengal, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam and Telangana.

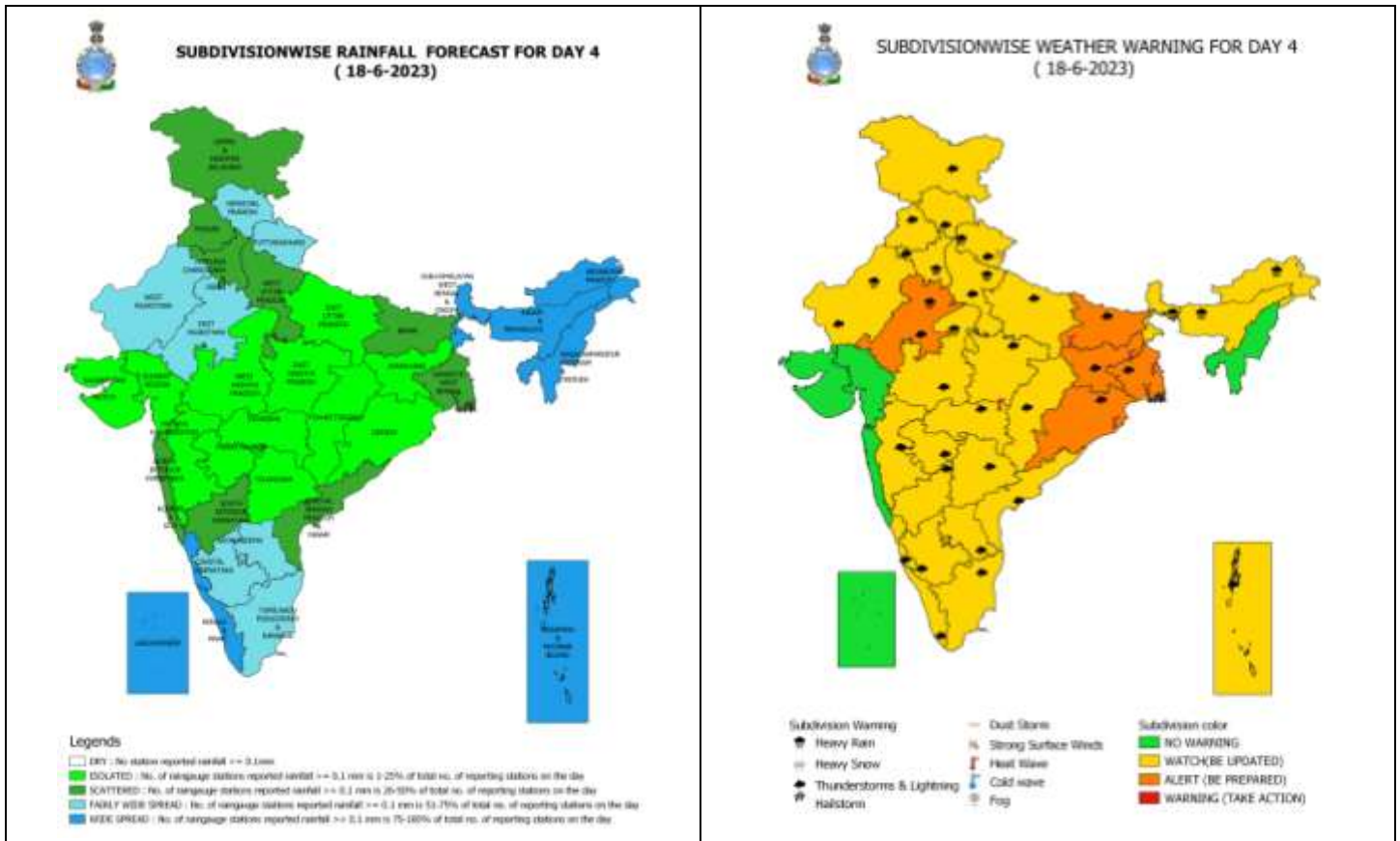
♦ **Squally wind 50-60 kmph gusting to 70 kmph** over north Gujarat and **speed reaching 40-50 kmph gusting to 60 kmph** is likely over Northeast and south Rajasthan. Fishermen are advised not to venture into these areas.



17 June (Day 3): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over south Rajasthan and north Gujarat; **Heavy to very heavy rainfall** at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Andaman & Nicobar Islands, Punjab, West Uttar Pradesh, Haryana, Chandigarh & Delhi, Rajasthan, South Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Jharkhand, Himachal Pradesh, Chhattisgarh, Coastal Karnataka, North Interior Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema and Kerala & Mahe; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Uttarakhand, East Uttar Pradesh, West Madhya Pradesh, Marathwada, Gujarat state, Telangana and Tamil Nadu, Puducherry & Karaikal.

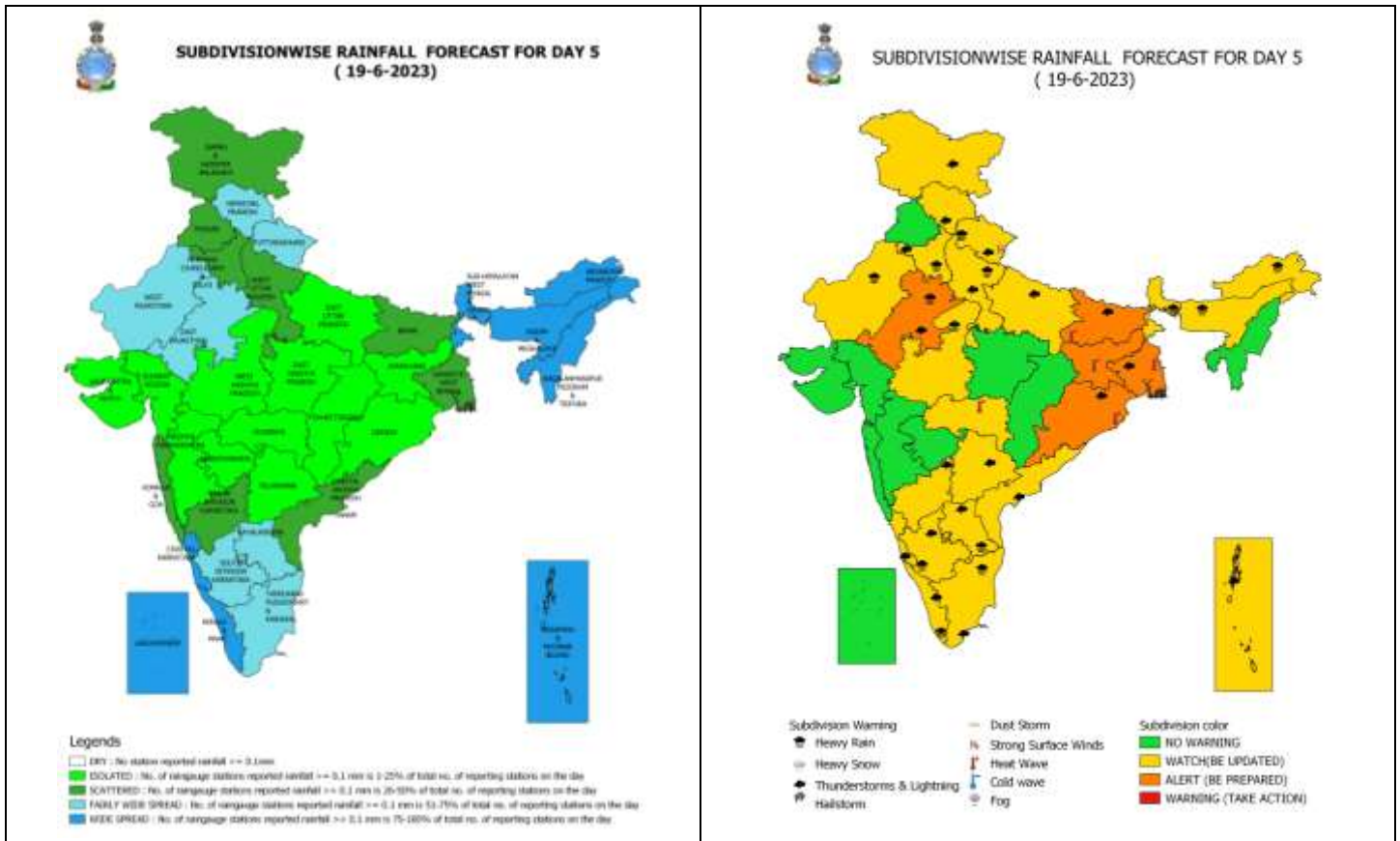
♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam.



18 June (Day 4): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Assam & Meghalaya and East Rajasthan and **heavy rainfall** at isolated places over West Rajasthan, West Madhya Pradesh, south Haryana, Uttarakhand, southwest Madhya Pradesh, Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim.

♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Uttarakhand; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Andaman & Nicobar Islands, West Uttar Pradesh, Rajasthan, Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Jharkhand, Himachal Pradesh, Chhattisgarh, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Haryana, Chandigarh & Delhi, East Uttar Pradesh, Madhya Pradesh, Vidarbha, Madhya Maharashtra, Marathwada, Telangana and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand.



19 June (Day 5): ♦ **Heavy to very heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya and Sub-Himalayan West Bengal & Sikkim and **heavy rainfall** at isolated places over north West Madhya Pradesh, West Uttar Pradesh, East Rajasthan, Uttarakhand, Tamil Nadu, Puducherry & Karaikal, Rayalaseema, South Interior Karnataka and Kerala & Mahe.

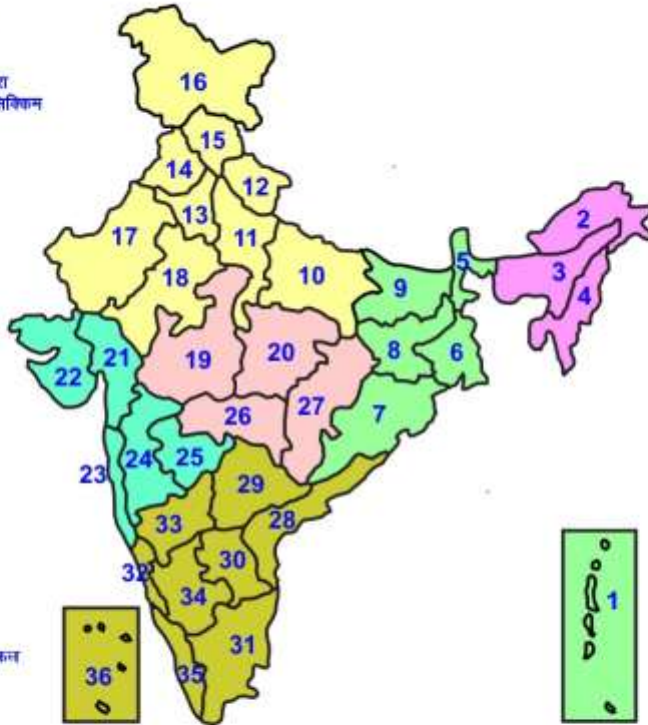
♦ **Thunderstorm with lightning & squall (speed 50-60 kmph)** very likely at isolated places over Uttarakhand; **with lightning & gusty winds (speed 40-50 kmph)** at isolated places over Andaman & Nicobar Islands, West Uttar Pradesh, Rajasthan, Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Gangetic West Bengal, Himachal Pradesh, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning** at isolated places over Odisha, Bihar, Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Haryana, Chandigarh & Delhi, East Uttar Pradesh, Telangana and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Vidarbha, Gangetic West Bengal, Bihar, Jharkhand.



LEGENDS

- 1 अंडमान और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर मीज़ोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 पश्चिम गंगेय बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखंड
- 13 हरियाणा चंडीगढ़ 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 कोकण एवं गोवा
- 24 मध्य महाराष्ट्र
- 25 मराठवाड़ा
- 26 विदर्भ
- 27 छत्तीसगढ़
- 28 वटीय आंध्र प्रदेश एवं थलम
- 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. Marathwada
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

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO ACTION)

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

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO ACTION)

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°C to 6.4°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°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°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°C to -6.4°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°C to -6.4°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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