



Friday, June 16, 2023
Time of Issue: 0930 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.

Severe Cyclonic Storm "Biparjoy" over Northeast Arabian Sea

- ❖ Yesterday's, Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy") over Northeast Arabian Sea moved northeastwards and crossed Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) close to Jakhau Port (Gujarat) between 2230 to 2330 Hrs IST of 15 June as a very severe cyclonic storm and weakened into a severe cyclonic storm over Saurashtra & Kutch at 2330 Hrs IST. Continuing to move northeastwards, the Severe Cyclonic Storm lay centered at 0530 hours IST of today, the 16th June, 2023 over Saurashtra & Kutch 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.

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 Arunachal Pradesh on 16th and Assam & Meghalaya during 16th-17th 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 5 days.
- ❖ **Heavy to very heavy rainfall** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim during next 5 days.

Northwest India:

- ❖ Light/moderate scattered to fairly widespread rainfall with thunderstorm & lightning very likely in isolated places over Himachal Pradesh & Uttarakhand during next 5 days. **Thundersquall and hailstorm** very likely at isolated places over Uttarakhand on 18th & 19th 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; southeast Rajasthan on 17th & 18th June.
- ❖ **Isolated Heavy to very heavy rainfall** also likely over southwest Rajasthan on 18th and **heavy rainfall** over southeast Rajasthan on 16th & 19th June.

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

Maximum Temperatures and Heat Wave warning:

- ❖ **Heat Wave conditions** very likely to continue in isolated pockets over Odisha, Jharkhand, Chhattisgarh during next 5 days; Gangetic West Bengal, Bihar during next 3 days, Coastal Andhra Pradesh & Yanam, Telangana during next 2 days; southeast Uttar Pradesh, East Madhya Pradesh, during next 24 hours.
- ❖ **Warm night conditions** likely to prevail in isolated pockets over East Uttar Pradesh, East Madhya Pradesh on 16th June.
- ❖ Hot and humid conditions very likely over Tamil Nadu and Rayalaseema during next 24 hours.



Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): at most places over Saurashtra & Kutch and Arunachal Pradesh; at many places over Himachal Pradesh, Assam & Meghalaya and Coastal Karnataka; at a few places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Gujarat Region and Nagaland, Manipur, Mizoram & Tripura; at isolated places over Rajasthan, Sub-Himalayan West Bengal & Sikkim, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and Andaman & Nicobar Islands.
- ❖ **Heavy rainfall observed:** Heavy rainfall at isolated places over Meghalaya.
- ❖ **Significant rainfall recorded** (in cm) (from 0830 hours IST to 1730 hours IST of yesterday): **Assam & Meghalaya:** Cherrapunji-10, Silchar-3, Tezpur-2, Guwahati, Luming & Goalpara-1 each; **Arunachal Pradesh:** Pasighat-4; **Saurashtra & Kutch:** Bhuj-4, Naliya, Dwarka, Porbandar & Amreli-2 each, Okha, Bhaunagar, Kandla & Mahuva-1 each; **Sub-Himalayan West Bengal & Sikkim:** Tadong & Gangtok-1 each; **Tripura:** Kailashahar-1; **Tamilnadu:** Valprai-1.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Punjab, Coastal Karnataka, East Madhya Pradesh, Chhattisgarh, Odisha and Assam & Meghalaya.
- ❖ Yesterday, **Heat Wave to Severe Heat Wave conditions** prevailed over many parts of Jharkhand, Vidarbha, Chhattisgarh, Odisha, Gangetic West Bengal and Coastal Andhra Pradesh & Yanam; in some parts of Bihar; in isolated pockets of Sub-Himalayan West Bengal and East Madhya Pradesh.
- ❖ **Minimum Temperature Departures (as on 15-06-2023):** Minimum temperatures were **markedly above normal (5.1°C or more)** at isolated places over East Uttar Pradesh, East Madhya Pradesh; **appreciably above normal (3.1°C to 5.0°C)** at most places over Jharkhand; at a few places over Vidarbha, Telangana, Coastal Andhra Pradesh & Yanam, Rayalaseema; at isolated places over Gangetic West Bengal, Madhya Maharashtra; **above normal (1.6°C to 3.0°C)** a few places over West Madhya Pradesh, Bihar, Marathwada, Konkan & Goa; at isolated places over Haryana, Chandigarh & Delhi, West Rajasthan, Tamil Nadu, Puducherry & Karaikal. They were **appreciably below normal (-3.1°C to -5.0°C)** at many places over Punjab; **below normal (-1.6°C to -3.0°C)** at a few places over Assam & Meghalaya and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 17.0°C** was reported at **Chaparmukh (Assam)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 15-06-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at most places over Jharkhand, Chhattisgarh and Vidarbha; at many places over Bihar, Odisha, Gangetic West Bengal and Coastal Andhra Pradesh & Yanam; at a few places over Telangana and Interior Karnataka; at isolated places over East Uttar Pradesh, East Madhya Pradesh and Tamil Nadu, Puducherry & Karaikal; **appreciably above normal (3.1°C to 5.0°C)** at many places over Madhya Maharashtra, Marathwada, Coastal Karnataka and Rayalaseema; at a few places over Sub-Himalayan West Bengal & Sikkim, West Madhya Pradesh, Konkan & Goa and Kerala & Mahe; at isolated places over West Uttar Pradesh; **above normal (1.6°C to 3.0°C)** at many places over Uttarakhand and Lakshadweep. They were **markedly below normal (-5.1°C or less)** at a few places over Himachal Pradesh, Saurashtra & Kutch, Assam & Meghalaya and Arunachal Pradesh; **appreciably below normal (-3.1°C to -5.0°C)** at most places over Punjab; at a few places over West Rajasthan and Gujarat Region; at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad; **below normal (-1.6°C to -3.0°C)** at many places over Haryana, Chandigarh & Delhi and East Rajasthan; at a few places over Nagaland, Manipur, Mizoram & Tripura and Andaman & Nicobar Islands and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 44.8°C** was reported at **Jharsuguda (Odisha)**.



Meteorological Analysis (Based on 0530 hours IST)

- ❖ Yesterday's, Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy") over Northeast Arabian Sea moved northeastwards and crossed Saurashtra & Kutch and adjoining Pakistan coasts between Mandvi (Gujarat) and Karachi (Pakistan) close to Jakhau Port (Gujarat) between 2230 to 2330 Hrs IST of 15 June as a very severe cyclonic storm and **weakened into a severe cyclonic storm** over Saurashtra & Kutch at 2330 Hrs IST. Continuing to move northeastwards, the Severe Cyclonic Storm lay centered at 0530 hours IST of today, the 16th June, 2023 over Saurashtra & Kutch 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.
- ❖ 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 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. 77°E to the north of 32°N.
- ❖ The trough from east Bihar to northwest Bay of Bengal across Jharkhand and Gangetic West Bengal at 0.9 km above mean sea level persists.

Weather Forecast for next 5 days (Upto 0830 hours IST of 21st June, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
Maximum Temperatures Forecast:
- ❖ Gujarat State: Fall by 4-6°C in maximum temperatures very likely during next 4 days.
- ❖ Northwest India: Fall by 3-5°C in maximum temperatures very likely during next 4 days.
- ❖ East India: No significant change in maximum temperatures very likely during next 3 days and fall by 2-4 °C thereafter.

Weather Outlook for subsequent 2 days (During 21st -23rd 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

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

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand, South Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Haryana, Chandigarh & Delhi, Punjab, Rajasthan, West Uttar Pradesh, Coastal Andhra Pradesh & Yanam, Kerala & Mahe, Coastal Karnataka; **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Bihar, West Madhya Pradesh.

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

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

♦ **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 over northeast Arabian Sea. **Squally wind speed reaching 40-50 kmph gusting to 60 kmph** is likely to prevail over eastcentral Arabian sea. **Gale wind speed reaching 85-95 kmph gusting to 105 kmph** is prevailing over Kachchh and adjoining districts of Saurashtra & Kutch. **Squally wind speed reaching 45-55 kmph** gusting to 65 kmph is prevailing along & off remaining districts of Saurashtra coast. **Squally wind speed reaching 40-50 kmph gusting to 60 kmph** is likely over South Rajasthan. Fishermen are advised not to venture into these areas.

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

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

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

♦ **Squally wind speed reaching 35-45 kmph gusting to 55 kmph** is likely over South Rajasthan.

18 June (Day 3): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over southeast Rajasthan; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, West Rajasthan and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, West Uttar Pradesh, Uttarakhand, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

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

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

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19 June (Day 4): ♦ **Heavy to very heavy rainfall likely** at isolated places over East Rajasthan, West Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya and **heavy rainfall** at isolated places over Uttarakhand, Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

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

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Chhattisgarh.

20 June (Day 5): ♦ **Heavy to very heavy rainfall likely** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya and **heavy rainfall** at isolated places over Uttarakhand, Uttar Pradesh, East Rajasthan, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

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

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Chhattisgarh.



Table-1

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

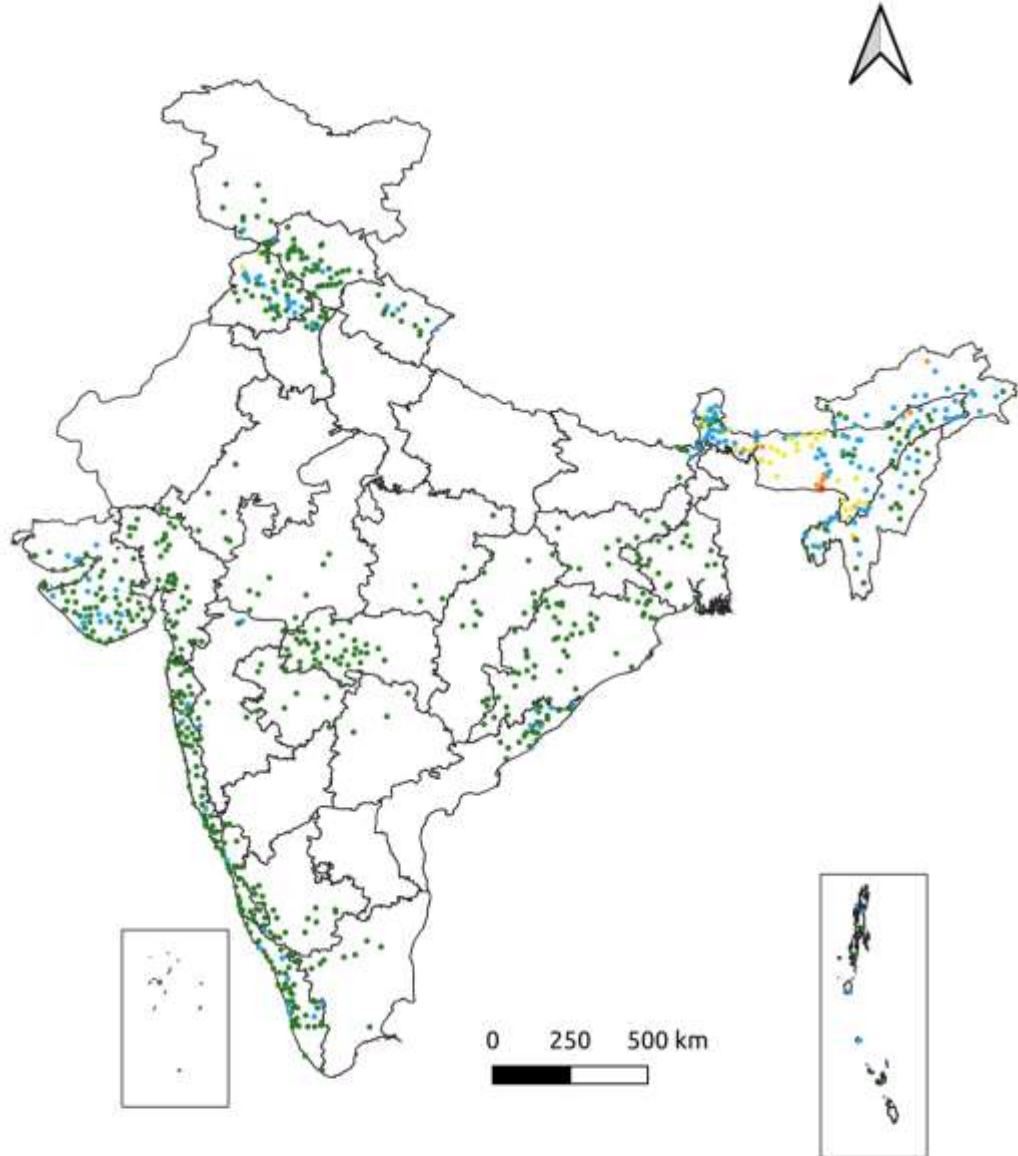
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Fig. 1: Accumulated Rainfall (mm) during past 24 hours



24 Hr cumulative rainfall recorded over different stations
during 0830 IST of 14-6-2023 to 0830 IST of 15-6-2023

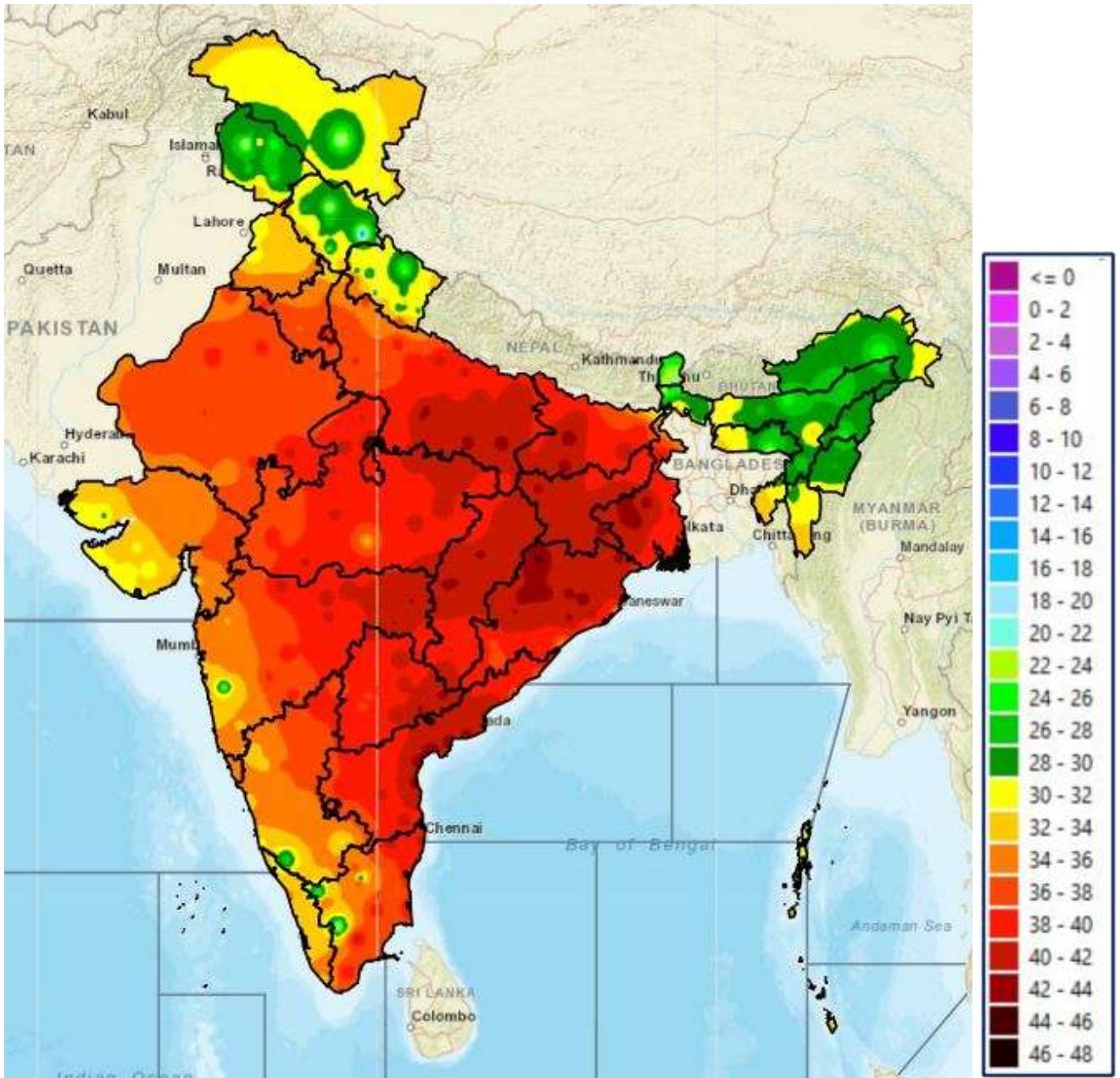


Legends

- 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)

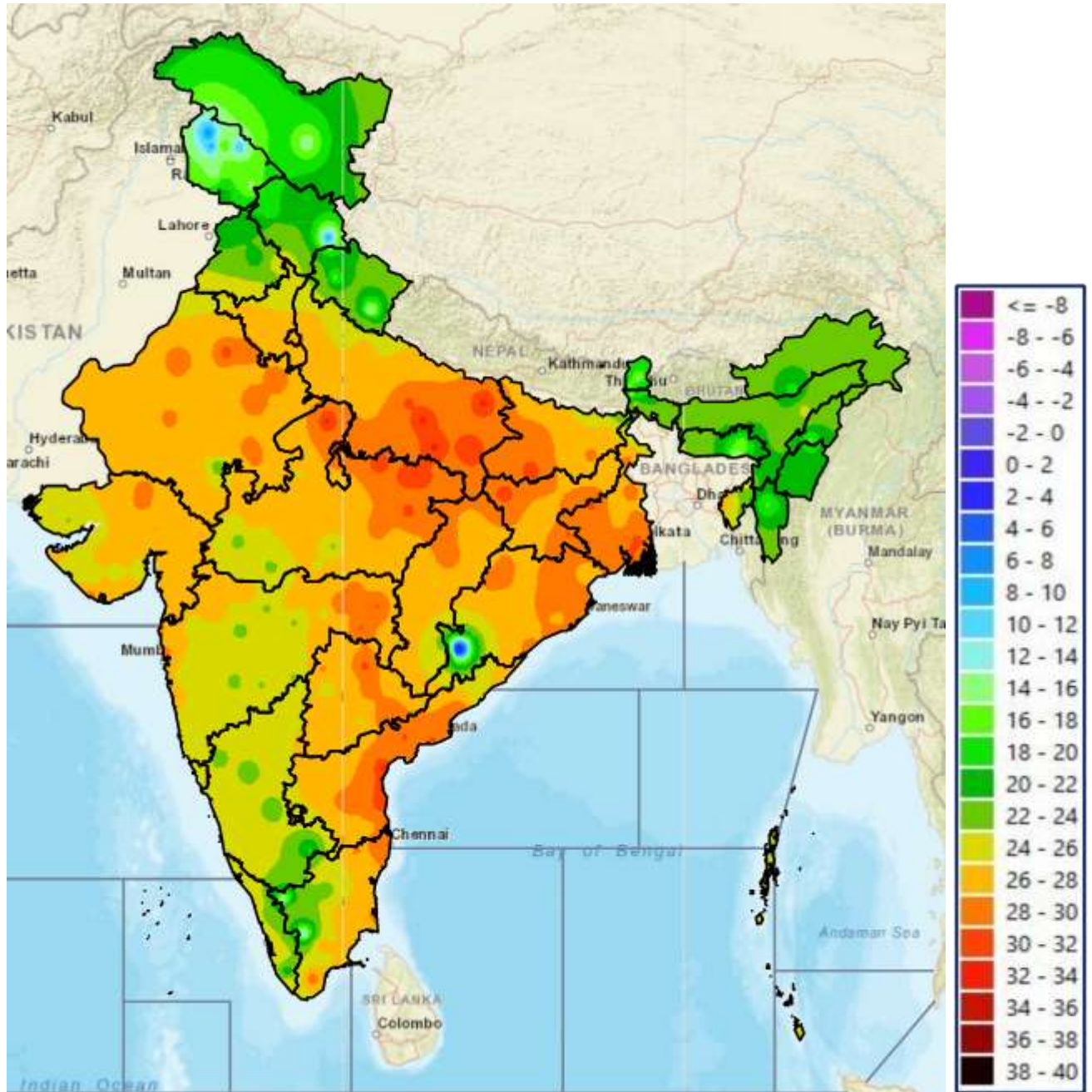


Fig. 2: Maximum Temperatures Dated 15.06.2023



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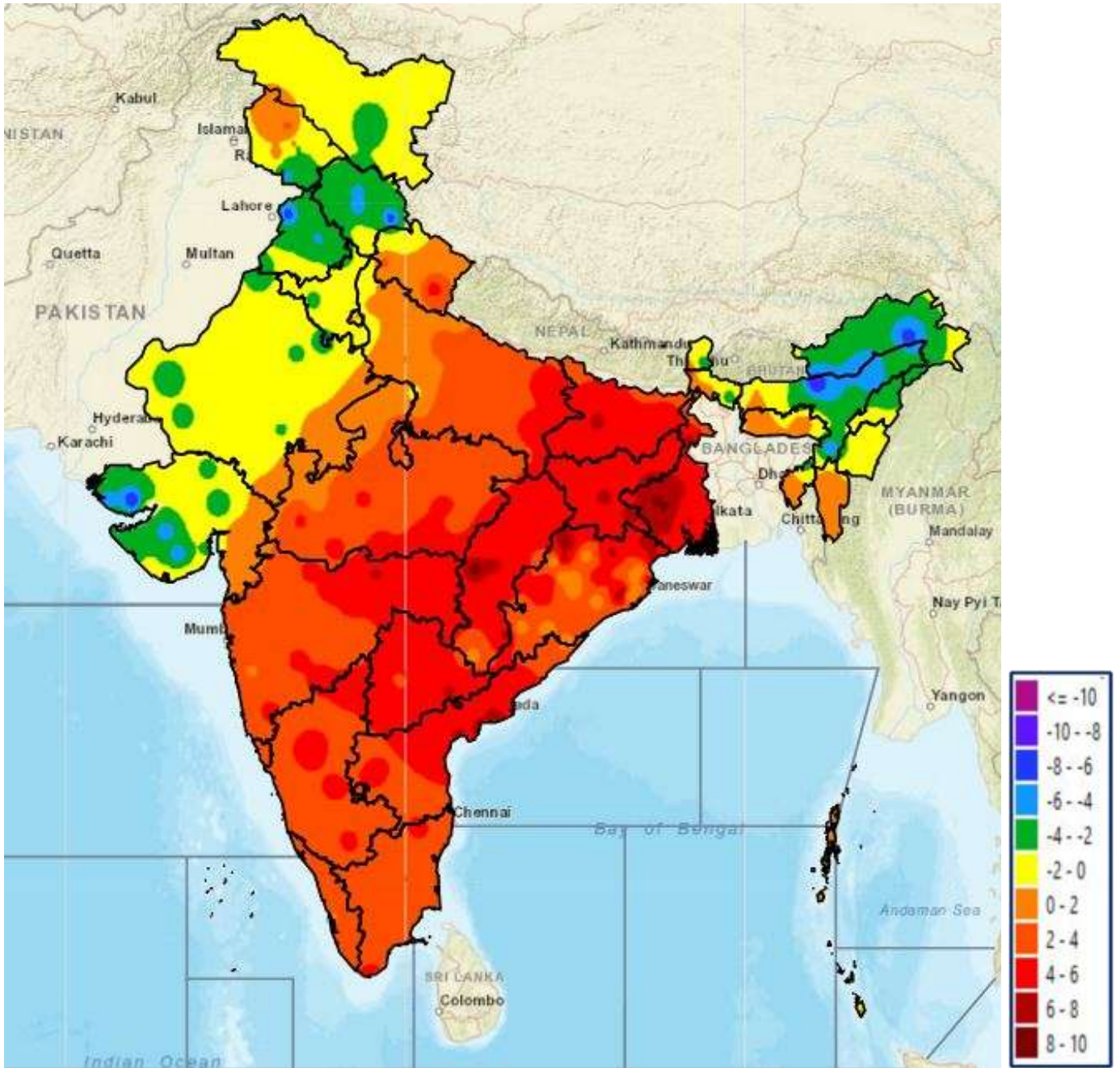
Fig. 3: Minimum Temperatures Dated 15.06.2023



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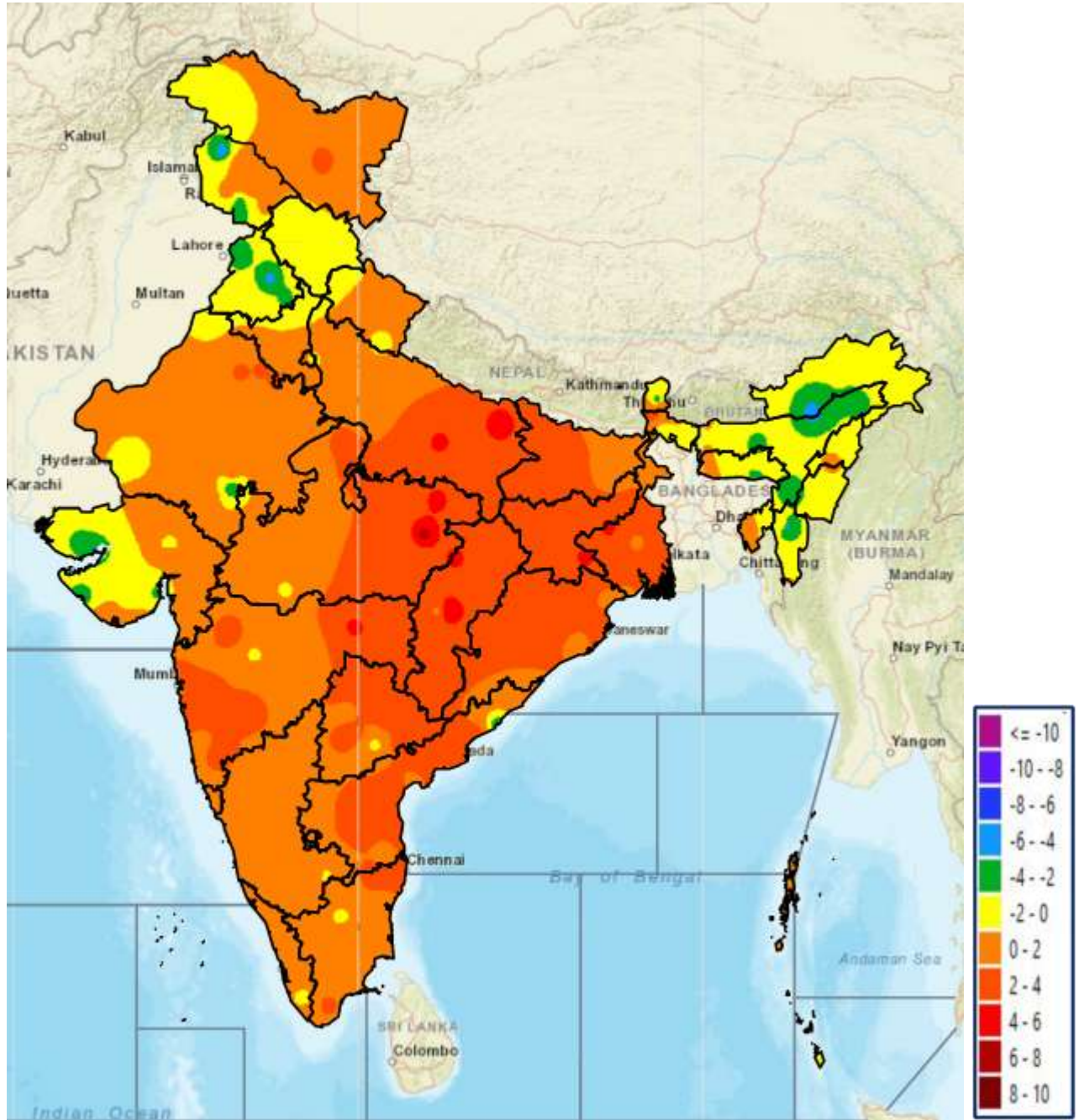


Fig. 4: Departure from Normal of Maximum Temperatures Dated 15.06.2023



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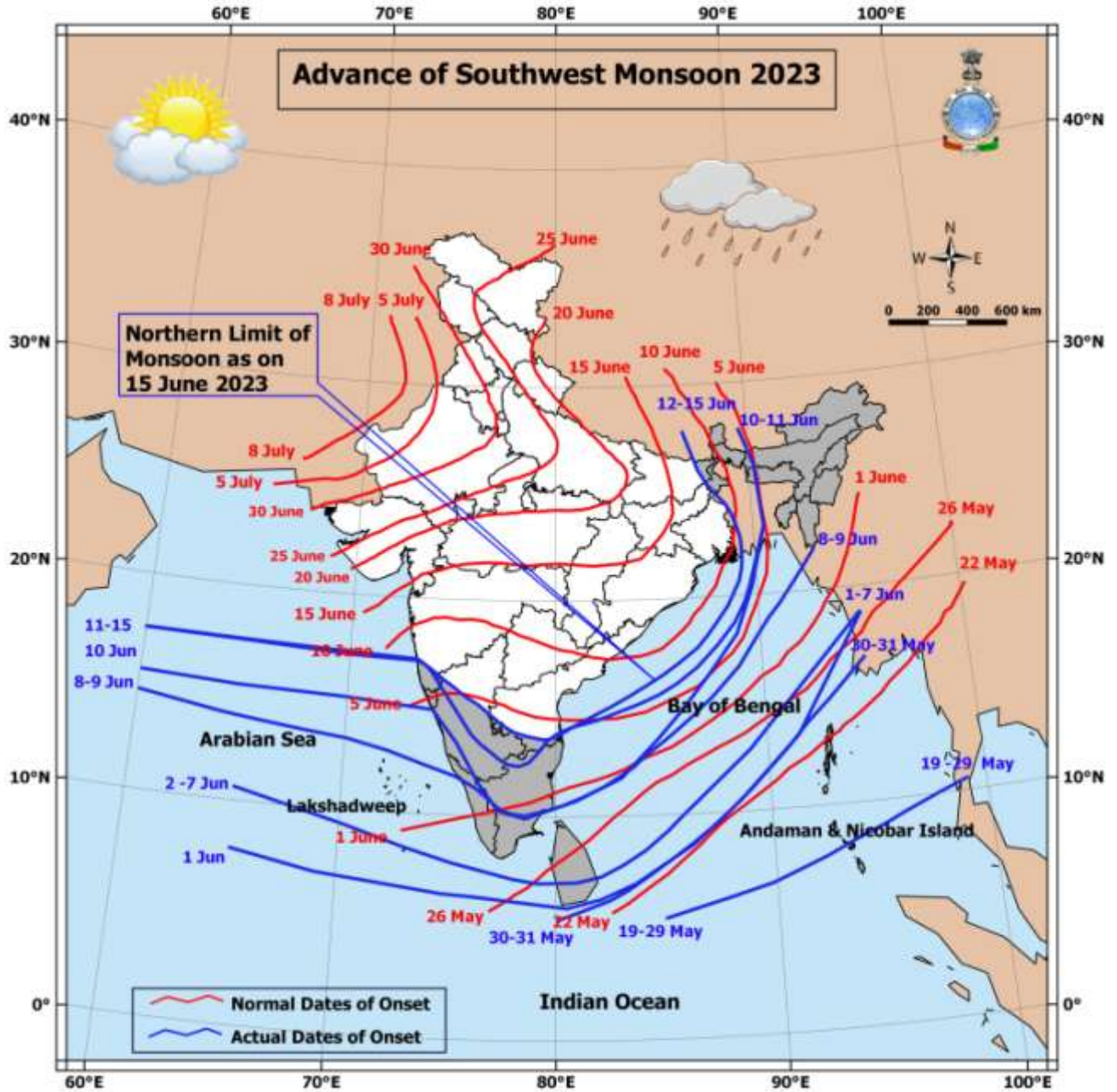
Fig. 5: Departure from Normal of Minimum Temperatures Dated 15.06.2023



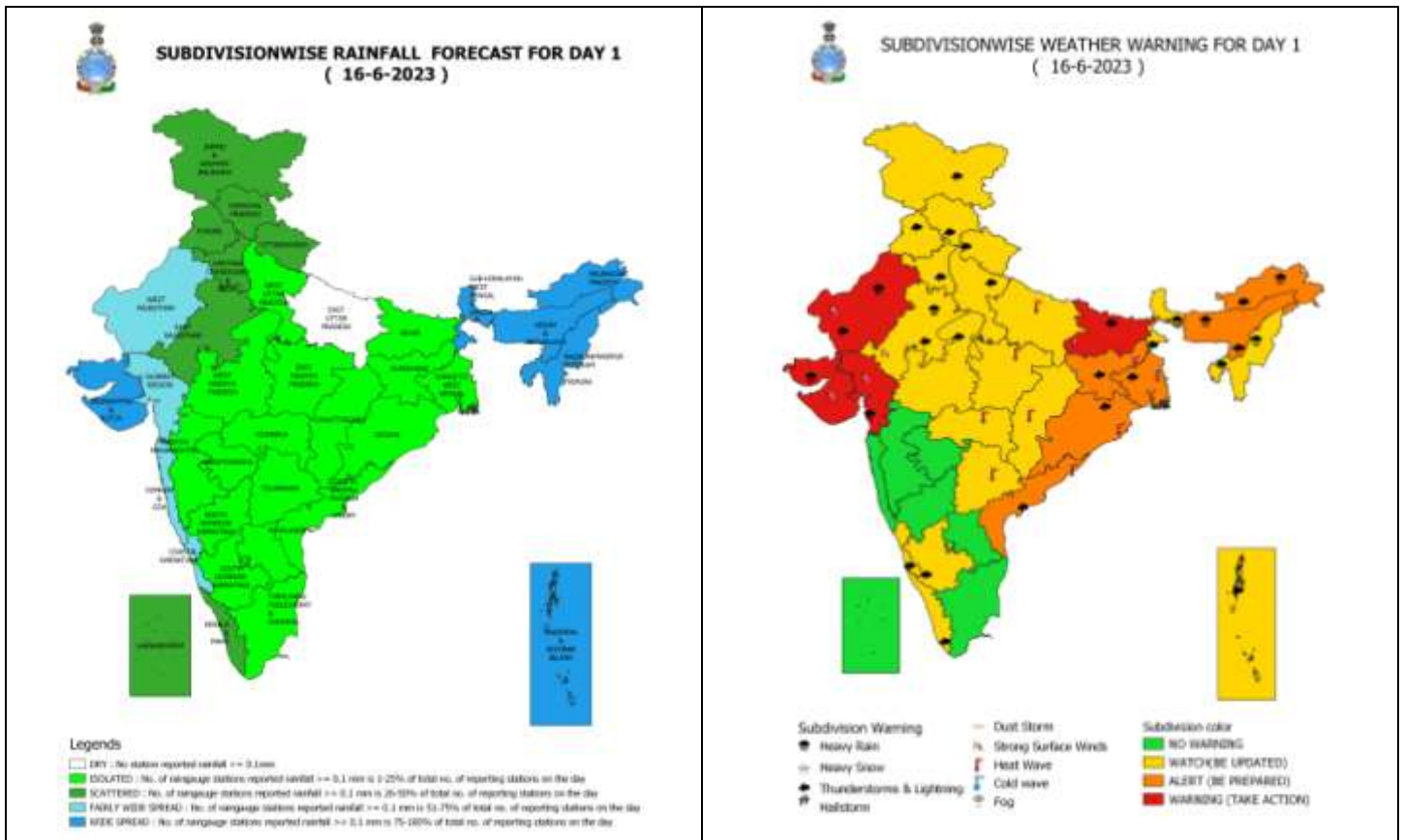
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Fig. 6: Advance of Southwest Monsoon



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

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand, South Interior Karnataka; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Haryana, Chandigarh & Delhi, Punjab, Rajasthan, West Uttar Pradesh, Coastal Andhra Pradesh & Yanam, Kerala & Mahe, Coastal Karnataka; **with lightning** at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Odisha, Bihar, West Madhya Pradesh.

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

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

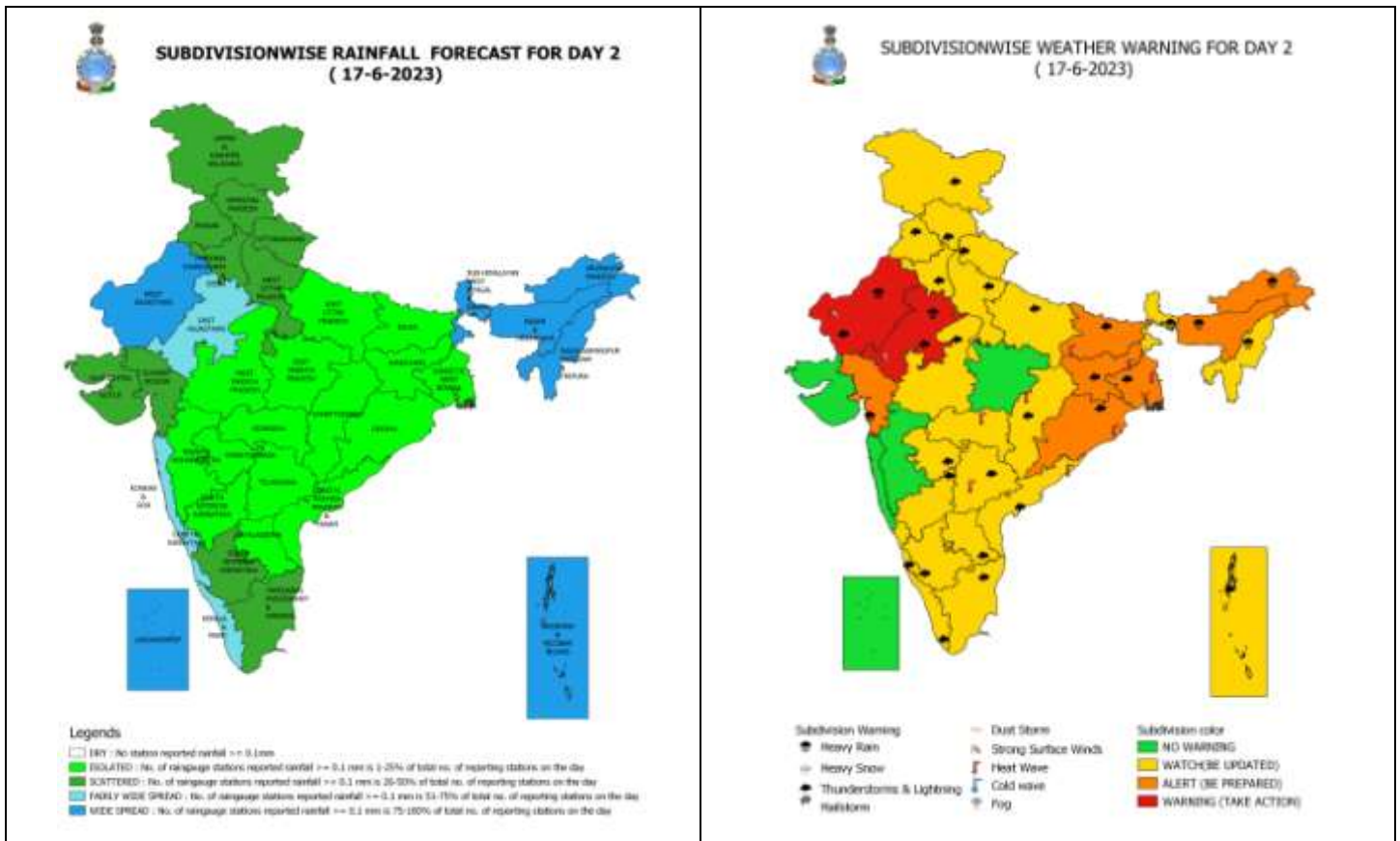
♦ **Gale wind speed reaching 55-65 kmph gusting to 75 kmph** is prevailing and likely to become squally wind speed reaching 40-50 kmph gusting to 60 kmph over northeast Arabian Sea. **Squally wind speed reaching 40-50 kmph gusting to 60 kmph** is likely to prevail over eastcentral Arabian sea. **Gale wind speed reaching 85-95 kmph gusting to 105 kmph** is prevailing over Kachchh and adjoining districts of Saurashtra & Kutch. **Squally wind speed reaching 45-55 kmph** gusting to 65 kmph is prevailing along & off remaining districts of Saurashtra coast. **Squally wind speed reaching 40-50 kmph gusting to 60 kmph** is likely over South Rajasthan. Fishermen are advised not to venture into these areas.

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

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

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

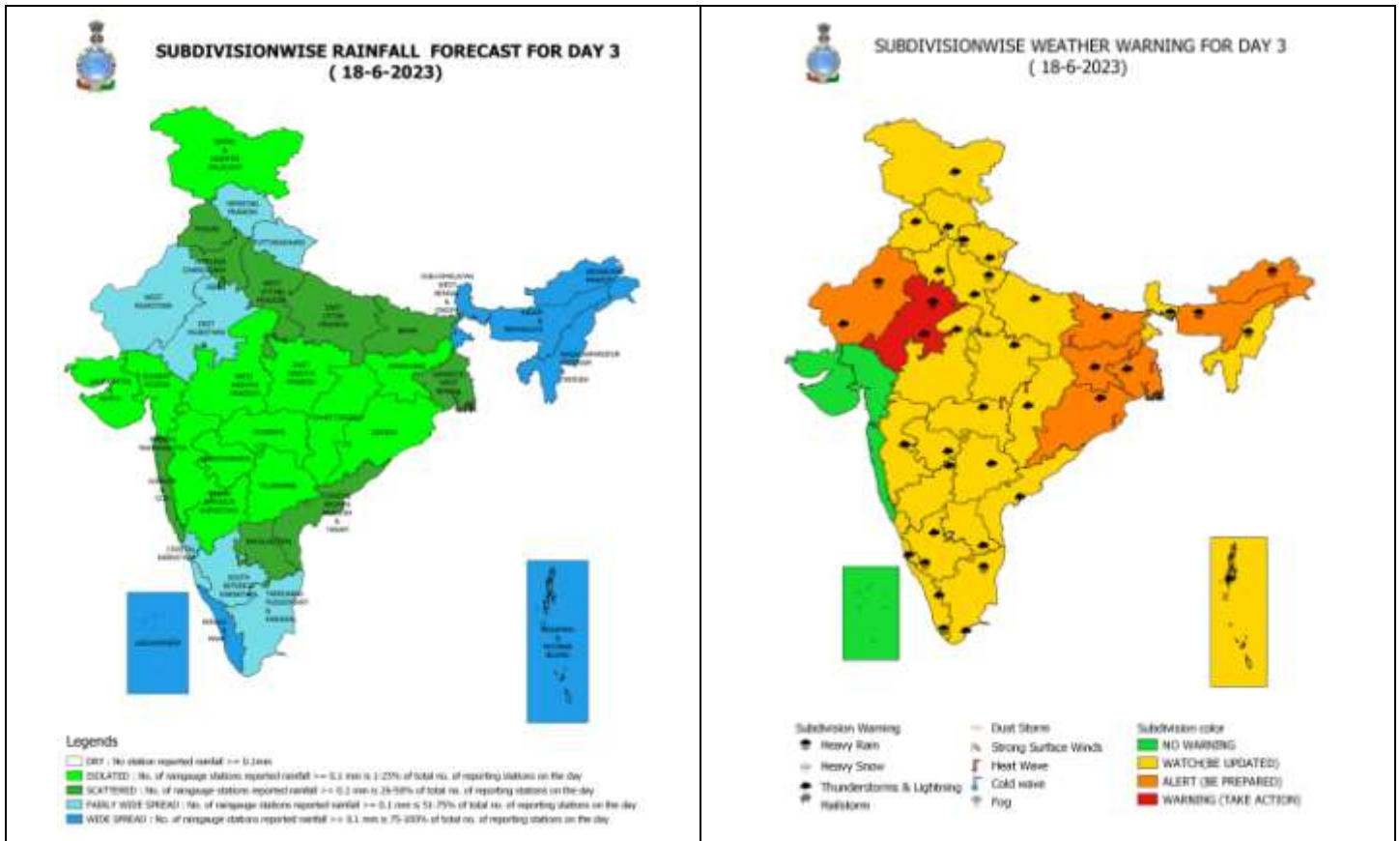
♦ **Squally wind speed reaching 35-45 kmph gusting to 55 kmph** is likely over South Rajasthan.

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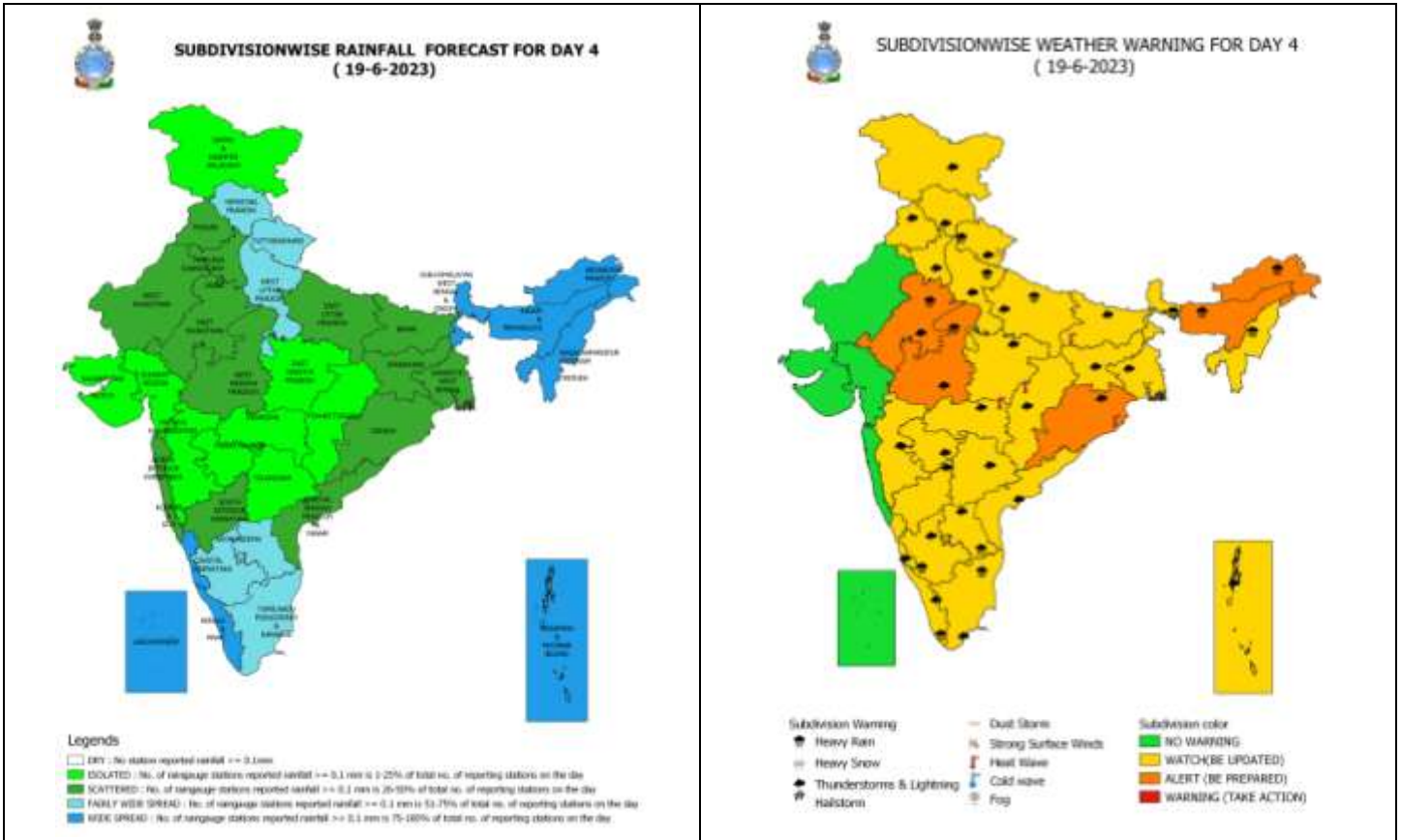


18 June (Day 3): ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over southeast Rajasthan; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, West Rajasthan and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, West Uttar Pradesh, Uttarakhand, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

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

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



19 June (Day 4): ♦ **Heavy to very heavy rainfall likely** at isolated places over East Rajasthan, West Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya and **heavy rainfall** at isolated places over Uttarakhand, Uttar Pradesh, Nagaland, Manipur, Mizoram & Tripura, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

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

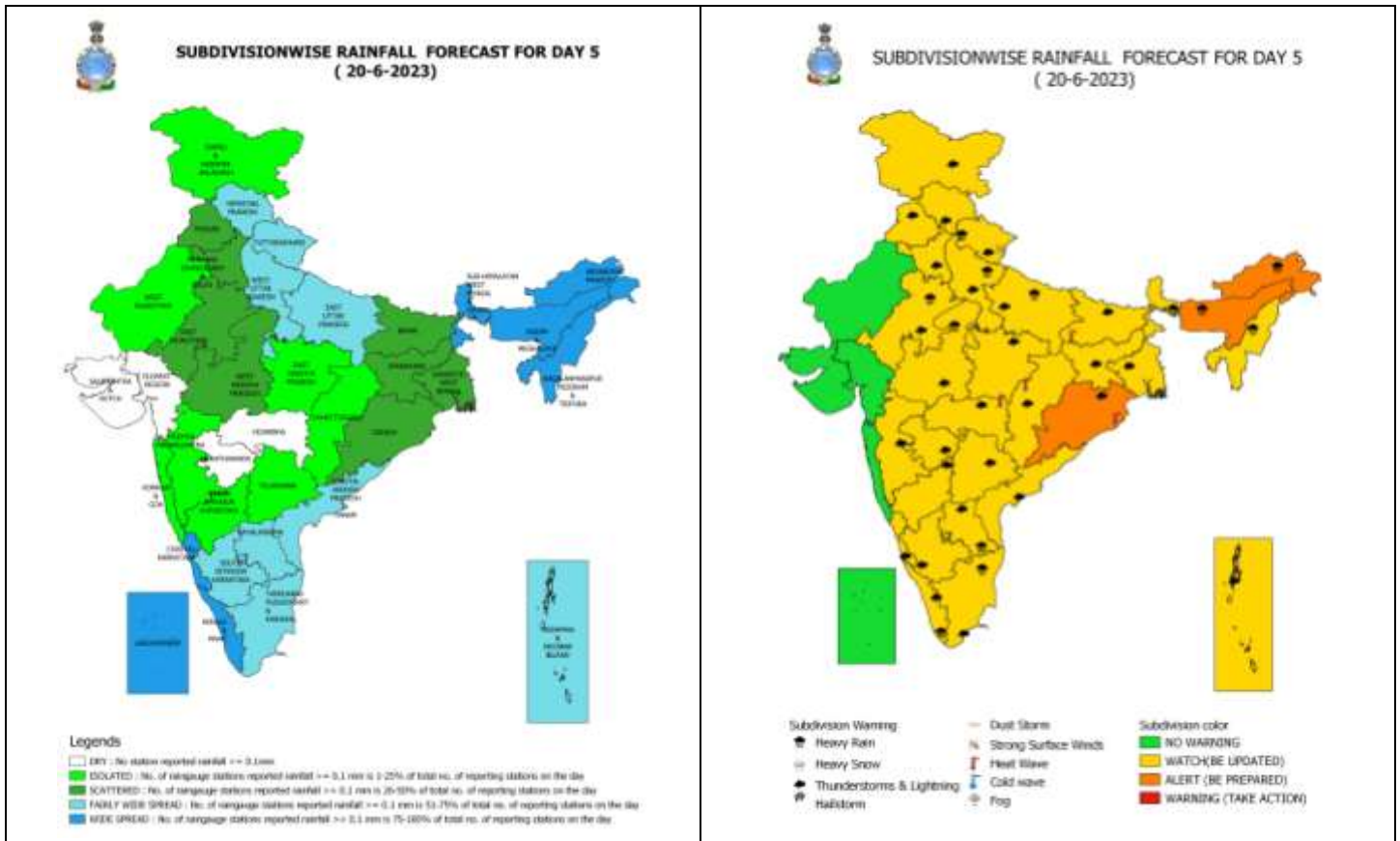
♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Chhattisgarh.

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20 June (Day 5): ♦ **Heavy to very heavy rainfall likely** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya and **heavy rainfall** at isolated places over Uttarakhand, Uttar Pradesh, East Rajasthan, Nagaland, Manipur, Mizoram & Tripura, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema.

♦ **Thundersquall and hail (speed 50-60 kmph)** at isolated places over Uttarakhand.

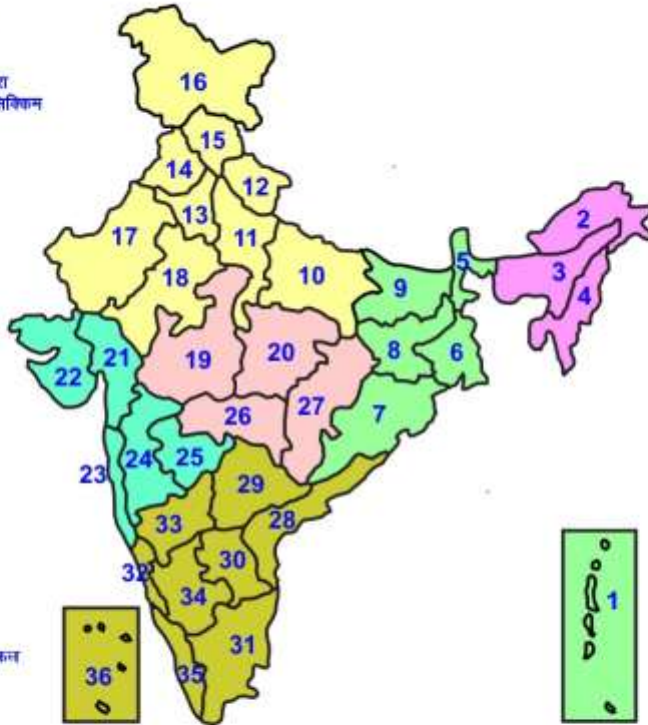
♦ **Thunderstorm lightning & gusty winds (speed 30-40 kmph) likely** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh, Haryana, Chandigarh & Delhi, Punjab, Rajasthan, West Madhya Pradesh, Uttar Pradesh, Vidarbha, Coastal Andhra Pradesh & Yanam, Kerala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

♦ **Heat Wave to severe heat wave conditions** very likely in isolated pockets of Odisha and **heat wave conditions** in isolated pockets of Chhattisgarh.



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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