



Saturday, June 17, 2023  
Time of Issue: 0900 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 18<sup>th</sup> -21<sup>st</sup> June.

#### **Deep Depression (Remnant of Cyclonic Storm 'Biparjoy') over Southwest Rajasthan adjoining Gujarat and Southeast Pakistan:**

- ❖ The Deep Depression (Remnant of Cyclonic Storm 'Biparjoy') over Southeast Pakistan adjoining Southwest Rajasthan and Kutch moved east-northeastwards with a speed of 05 kmph during past 6-hours and lay centered at 0530 hours IST of today, the 17th June, 2023 over Southwest Rajasthan adjoining Gujarat and Southeast Pakistan near latitude 24.7°N and longitude 71.2°E, about 130 km northeast of Dholavira, 120 km west-northwest of Deesa and 110 km south-southwest of Barmer. It is very likely to move east-northeastwards and weaken into a Depression during next 06 hours. Thereafter, it is very likely to continue to move east-northeastwards and maintain the intensity of Depression during subsequent 18 hours.

#### **Weather forecast and warning over the rest parts of the country during next 5 days:**

##### **Northeast & adjoining East India:**

- ❖ Widespread light/moderate rainfall at most places with isolated **Heavy to Very Heavy falls** very likely over Northeast India and Sub-Himalayan West Bengal & Sikkim during next 5 days. Isolated **extremely heavy rainfall** also likely over Assam & Meghalaya on 17<sup>th</sup> & 18<sup>th</sup> June.

##### **Northwest & adjoining Central 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 (60-70 kmph) and hailstorm** very likely at isolated places over Uttarakhand on 18<sup>th</sup> & 19<sup>th</sup> 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 17<sup>th</sup> and southeast Rajasthan on 17<sup>th</sup> & 18<sup>th</sup> June.
- ❖ **Isolated Heavy to very heavy rainfall** also likely over southwest Rajasthan on 18<sup>th</sup>; east Rajasthan on 19<sup>th</sup> and **heavy rainfall** over southeast Rajasthan on 20<sup>th</sup>; Uttarakhand on 18<sup>th</sup> & 19<sup>th</sup>; northwest Madhya Pradesh and West Uttar Pradesh on 19<sup>th</sup> & 20<sup>th</sup> and East Uttar Pradesh and northeast Madhya Pradesh on 21<sup>st</sup> June.

##### **South India:**

- ❖ Light/moderate scattered to fairly widespread rainfall with thunderstorm & lightning very likely over the region during next 5 days. **Isolated Heavy rainfall** also likely over Kerala & Tamilnadu during 18<sup>th</sup>-21<sup>st</sup>; South Interior Karnataka & Rayalaseema during 19<sup>th</sup>-21<sup>st</sup> June.

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

#### **Maximum Temperatures and Heat Wave warning:**

- ❖ **Heat Wave/Severe heat wave conditions** very likely to continue in isolated pockets over Odisha, Vidarbha during next 4 days; Gangetic West Bengal, Jharkhand during next 3 days, Coastal Andhra Pradesh & Yanam, East Madhya Pradesh, East Uttar Pradesh, Bihar during next 2 days; West Madhya Pradesh, Telangana, Rayalaseema and Tamil Nadu during next 24 hours.
- ❖ **Warm night conditions** likely to prevail in isolated pockets over Vidarbha, East Uttar Pradesh on 17<sup>th</sup>; East Madhya Pradesh, Chhattisgarh on 17<sup>th</sup> & 18<sup>th</sup> June.

## Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): at most places over Arunachal Pradesh and Nagaland, Manipur, Mizoram & Tripura; at many places over Assam & Meghalaya and Gujarat State; at a few places over Andaman & Nicobar Islands and West Rajasthan and at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, West Bengal & Sikkim, Haryana, Chandigarh & Delhi, Madhya Maharashtra, Konkan & Goa and Kerala & Mahe.
- ❖ **Rainfall observed** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy to very heavy rainfall with extremely heavy falls** at isolated places over Saurashtra & Kutch.
- ❖ **Significant rainfall recorded** (in cm) (from 0830 hours IST to 1730 hours IST of yesterday): Okha-22; New Kandla - 15; Bhuj-10; Kandla -9; Majbat and Dwarka -5 each; Half long, Rajkot, Naliya and Silchar -3 each; Imphal, Jodhpur, Ahmadabad, Surender Nagar and Pasighat - 2each; Golaghat, Tezpur, Lingpui, Cherrapunji, Kailashahar, Udaipur, Deesa, Gandhinagar, Keshod, Thrissur and long Island -1 each.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, West Rajasthan, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Odisha, Saurashtra & Kutch, Coastal Andhra Pradesh & Yanam and Kerala & Mahe.
- ❖ Yesterday, **Heat Wave to Severe Heat Wave conditions** prevailed over many parts of Odisha, Gangetic West Bengal, Coastal Andhra Pradesh & Yanam, Telangana, Chhattisgarh, Jharkhand and Bihar and in isolated pockets over Tamilnadu. **Heat Wave conditions** prevailed over many parts of East Madhya Pradesh and Vidarbha; in some parts of East Uttar Pradesh and in isolated pockets over Rayalaseema.
- ❖ **Minimum Temperature Departures (as on 16-06-2023):** Minimum temperatures were **markedly above normal (5.1°C or more)** at a few places over East Madhya Pradesh; at isolated places over Bihar; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Gangetic West Bengal, Vidarbha, Jharkhand, Rayalaseema; at isolated places over Odisha, Coastal Andhra Pradesh & Yanam, Telangana; **above normal (1.6°C to 3.0°C)** at most places over East Uttar Pradesh, Kerala & Mahe; at many places over West Madhya Pradesh, Konkan & Goa, Madhya Maharashtra, Chhattisgarh; at a few places over Marathwada, Tamil Nadu, Puducherry & Karaikal, Coastal Karnataka. They were **appreciably below normal (-3.1°C to -5.0°C)** at many places over Assam & Meghalaya; **below normal (-1.6°C to -3.0°C)** at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Gujarat state and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 21.3°C** was reported at **Tezpur (Assam)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 16-06-2023):** Maximum temperatures were **markedly above normal (5.1°C or more)** at most places over Jharkhand, Chhattisgarh, Coastal Andhra Pradesh & Yanam and Telangana; at many places over Vidarbha, Bihar, Odisha and Gangetic West Bengal and at isolated places over East Madhya Pradesh and East Uttar Pradesh; **appreciably above normal (3.1°C to 5.0°C)** at most places over Coastal & North Interior Karnataka and Rayalaseema; at many places over Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal; at a few places over West Madhya Pradesh and at isolated places over West Uttar Pradesh; **above normal (1.6°C to 3.0°C)** at most places over Lakshadweep. They were **markedly below normal (-5.1°C or less)** at many places over Assam & Meghalaya and Saurashtra & Kutch; at a few places over Arunachal Pradesh, Gujarat Region and West Rajasthan; **appreciably below normal (-3.1°C to -5.0°C)** at a few places over Haryana, Chandigarh & Delhi and East Rajasthan; ; **below normal (-1.6°C to -3.0°C)** at many places over Andaman & Nicobar Islands and at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 45.4°C** was reported at **Jharsuguda (Odisha)**.

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The Deep Depression (Remnant of Cyclonic Storm 'Biparjoy') over Southeast Pakistan adjoining Southwest Rajasthan and Kutch moved east-northeastwards with a speed of 05 kmph during past 6-hours and lay centered at 0530 hours IST of today, the 17th June, 2023 over Southwest Rajasthan adjoining Gujarat and Southeast Pakistan near latitude 24.7°N and longitude 71.2°E, about 130 km northeast of Dholavira, 120 km west-northwest of Deesa and 110 km south-southwest of Barmer. It is very likely to move east-northeastwards and weaken into a Depression during next 06 hours. Thereafter, it is very likely to continue to move east-northeastwards and maintain the intensity of Depression during subsequent 18 hours.
- ❖ 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 18<sup>th</sup>-21<sup>st</sup> June.
- ❖ The Western Disturbance as a cyclonic circulation over Jammu & Kashmir and neighbourhood between 3.1 & 5.8 km above mean sea level persists.
- ❖ The trough from Sub-Himalayan West Bengal & Sikkim to Northwest Bay of Bengal across Gangetic West Bengal and Odisha at 0.9 km above mean sea level persists.
- ❖ The cyclonic circulation over Southeast Bay of Bengal at 5.8 km above mean sea level persists.

## Weather Forecast for next 5 days (Upto 0830 hours IST of 22<sup>nd</sup> June, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.  
**Maximum Temperatures Forecast:**
- ❖ **Central India:** No significant change in maximum temperatures very likely during next 24 hours and fall by 2-4 °C thereafter.
- ❖ **Northwest India:** Fall by 2-4°C in maximum temperatures very likely during next 2 days and no significant change thereafter.

## Weather Outlook for subsequent 2 days (During 22<sup>nd</sup> -24<sup>th</sup> 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

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

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

♦ **Heat Wave to severe heat wave conditions** very likely in many pockets over Vidarbha; in a few pockets over Coastal Andhra Pradesh & Yanam, Bihar, Odisha; in isolated pockets over Gangetic West Bengal, Jharkhand, Chhattisgarh and **heat wave conditions** in isolated pockets of **Sub-Himalayan West Bengal & Sikkim**, Telangana, East Uttar Pradesh, Madhya Pradesh, Rayalaseema, Tamil Nadu, Puducherry & Karaikal.

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

- Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over northeast Arabian Sea during next 06 hours.
- Squally wind speed reaching 50-60 kmph gusting to 70 kmph is prevailing over Kutch and northern districts of Saurashtra. It is likely to further decrease becoming 40-50 kmph gusting to 60 kmph from the forenoon.

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

**18 June (Day 2):** ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Assam & Meghalaya, East Rajasthan; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, West Rajasthan and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, Uttarakhand, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.

♦ **Thundersquall and hail (speed 60-70 kmph)** at isolated places over Uttarakhand.

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

♦ **Heat Wave to severe heat wave conditions** very likely in a few pockets over Odisha; in isolated pockets over Jharkhand, Chhattisgarh and **heat wave conditions** in many pockets over Vidarbha; in isolated pockets of West Bengal & Sikkim, Coastal Andhra Pradesh & Yanam, Bihar, East Uttar Pradesh, East Madhya Pradesh.

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



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

♦ **Thundersquall and hail (speed 60-70 kmph)** at isolated places over Uttarakhand.

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

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

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

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

♦ **Heat Wave conditions** very likely in a few pockets over Vidarbha and in isolated pockets over Odisha.

**21 June (Day 5):** ♦ **Heavy to very heavy rainfall likely** at isolated places over West Bengal & Sikkim, Assam & Meghalaya, northeast Madhya Pradesh and **heavy rainfall** at isolated places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, East Uttar Pradesh, Bihar, north Chhattisgarh, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Rayalaseema, Kerala & Mahe.

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



Table-1

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

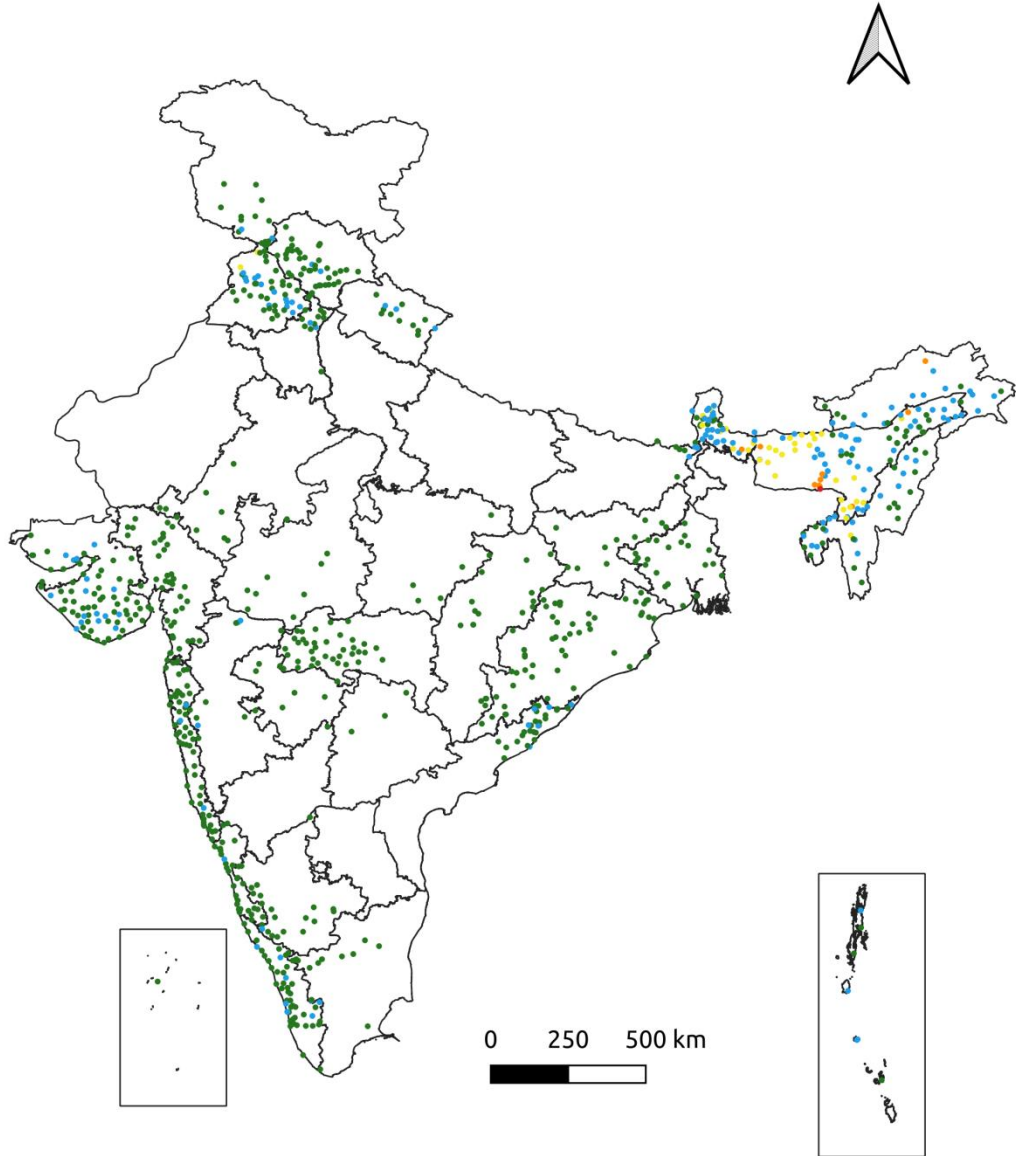
Legend	Category	% Stations
WS	Widespread/Most Places	76-100
FWS	Fairly Widespread/Many Places	51-75
SCT	Scattered/ A Few Places	26-50
ISOL	Isolated Places	1-25
DRY	No Rain	0

**\* Red color warning does not mean "Red Alert" Red color warning means "Take Action".**  
Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day  
For more details kindly visit <https://mausam.imd.gov.in> or contact : 011-2434-4599  
(Service to the Nation since 1875)

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



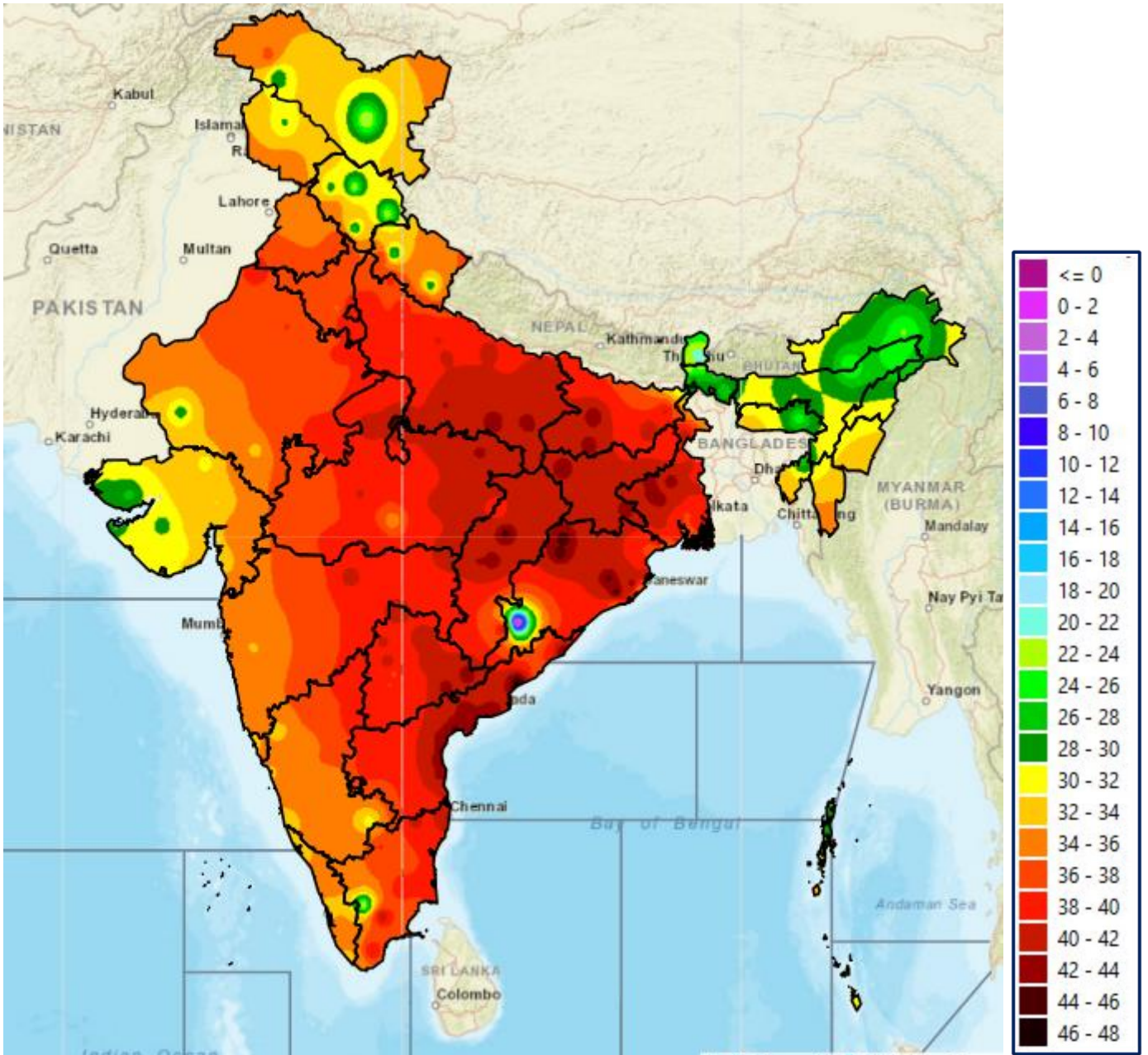
24 Hr cumulative rainfall recorded over different stations during 0830 IST of 14-6-2023 to 0830 IST of 15-6-2023



## Legends

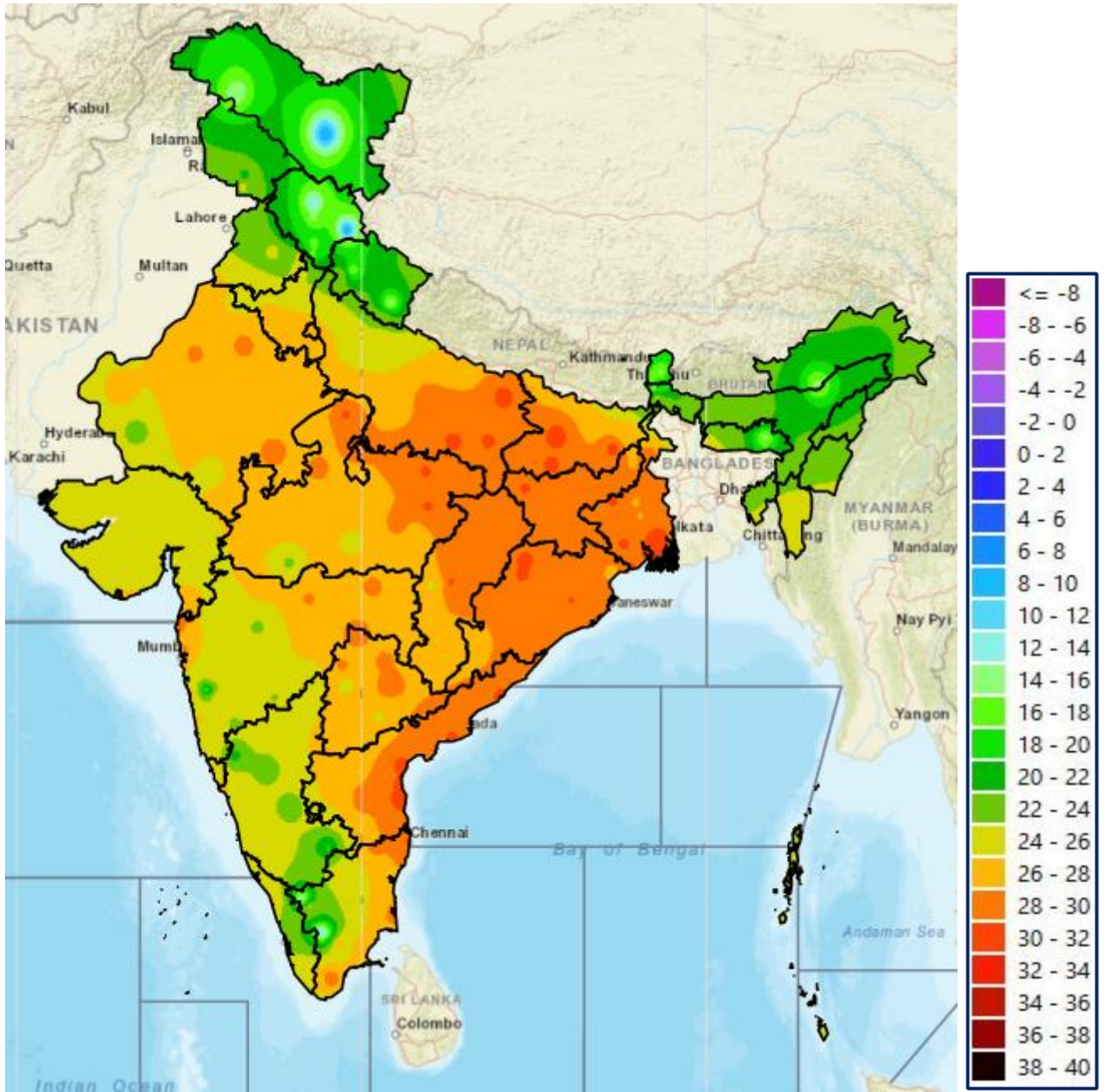
- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall ( $\geq 204.5$  mm)

Fig. 2: Maximum Temperatures Dated 16.06.2023



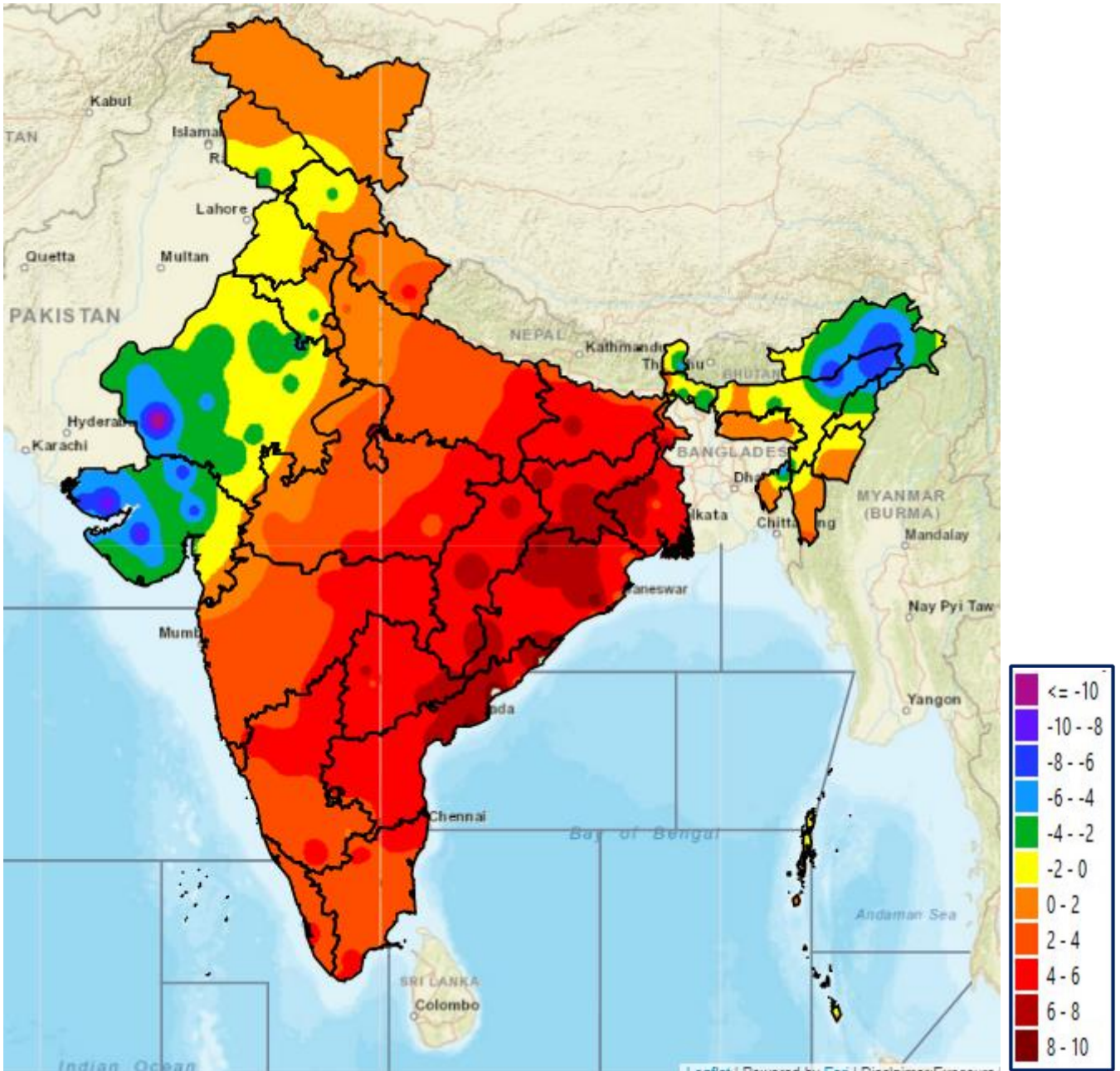
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Fig. 3: Minimum Temperatures Dated 16.06.2023



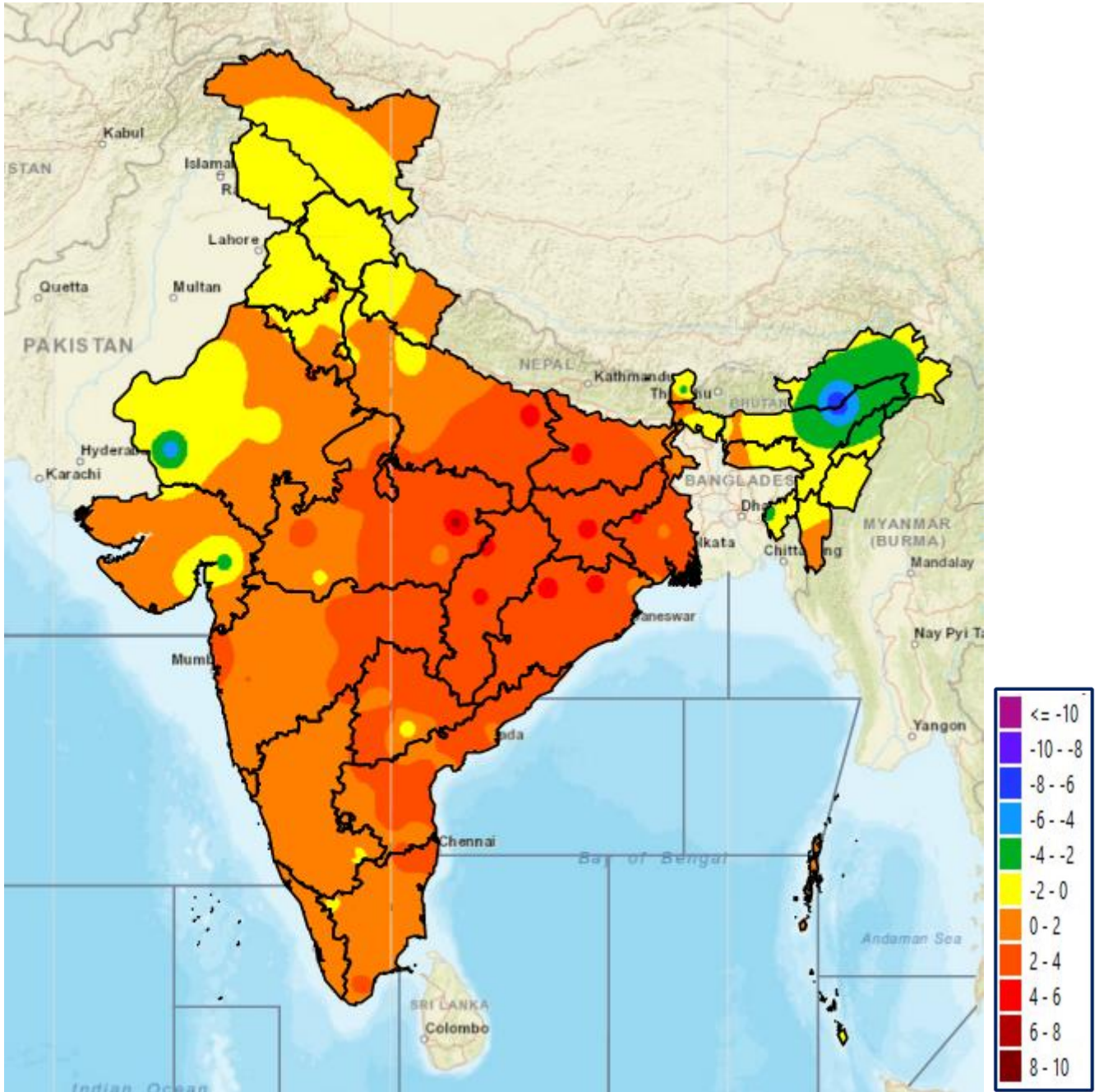
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Fig. 4: Departure from Normal of Maximum Temperatures Dated 16.06.2023



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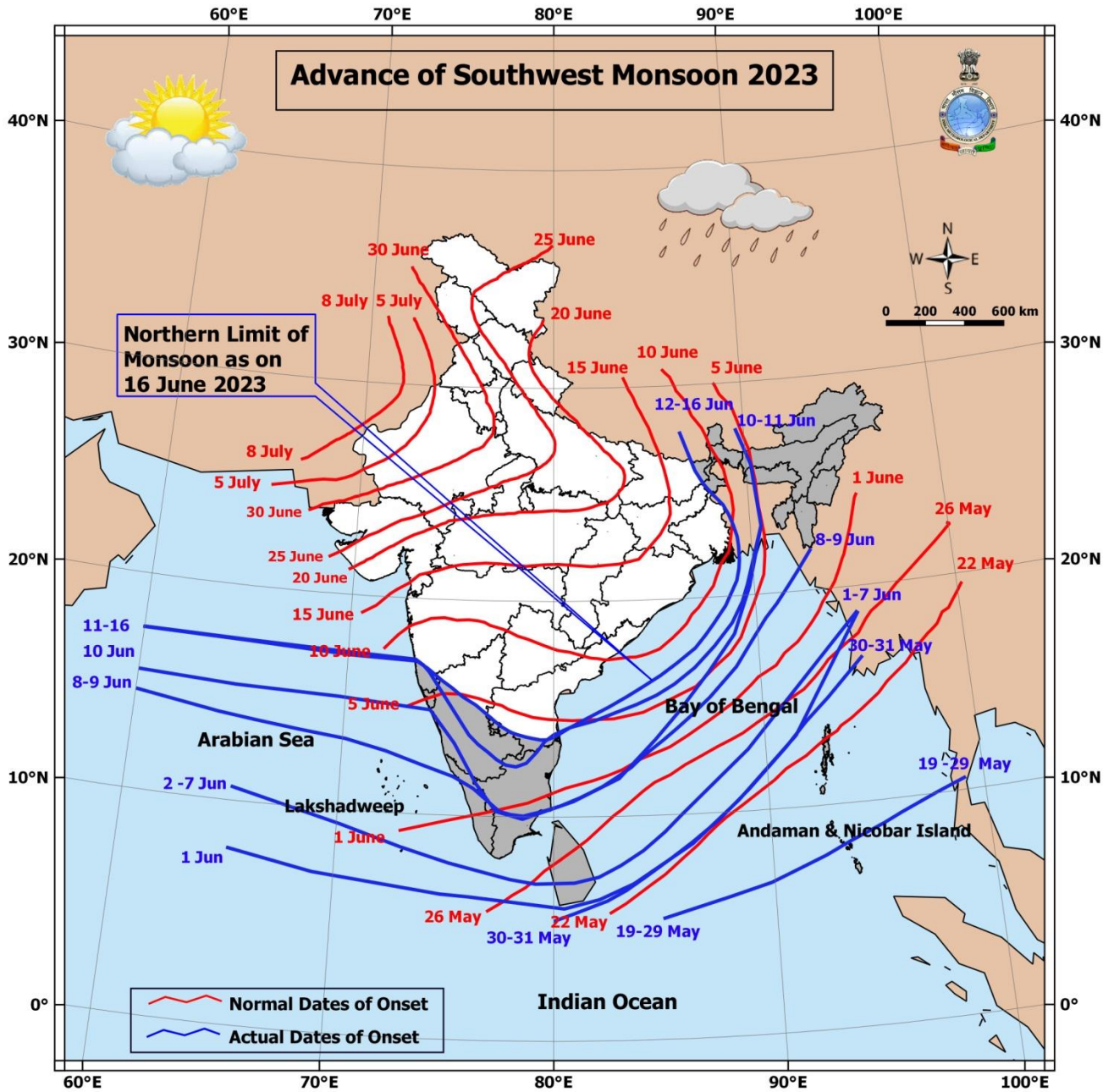
Fig. 5: Departure from Normal of Minimum Temperatures Dated 16.06.2023



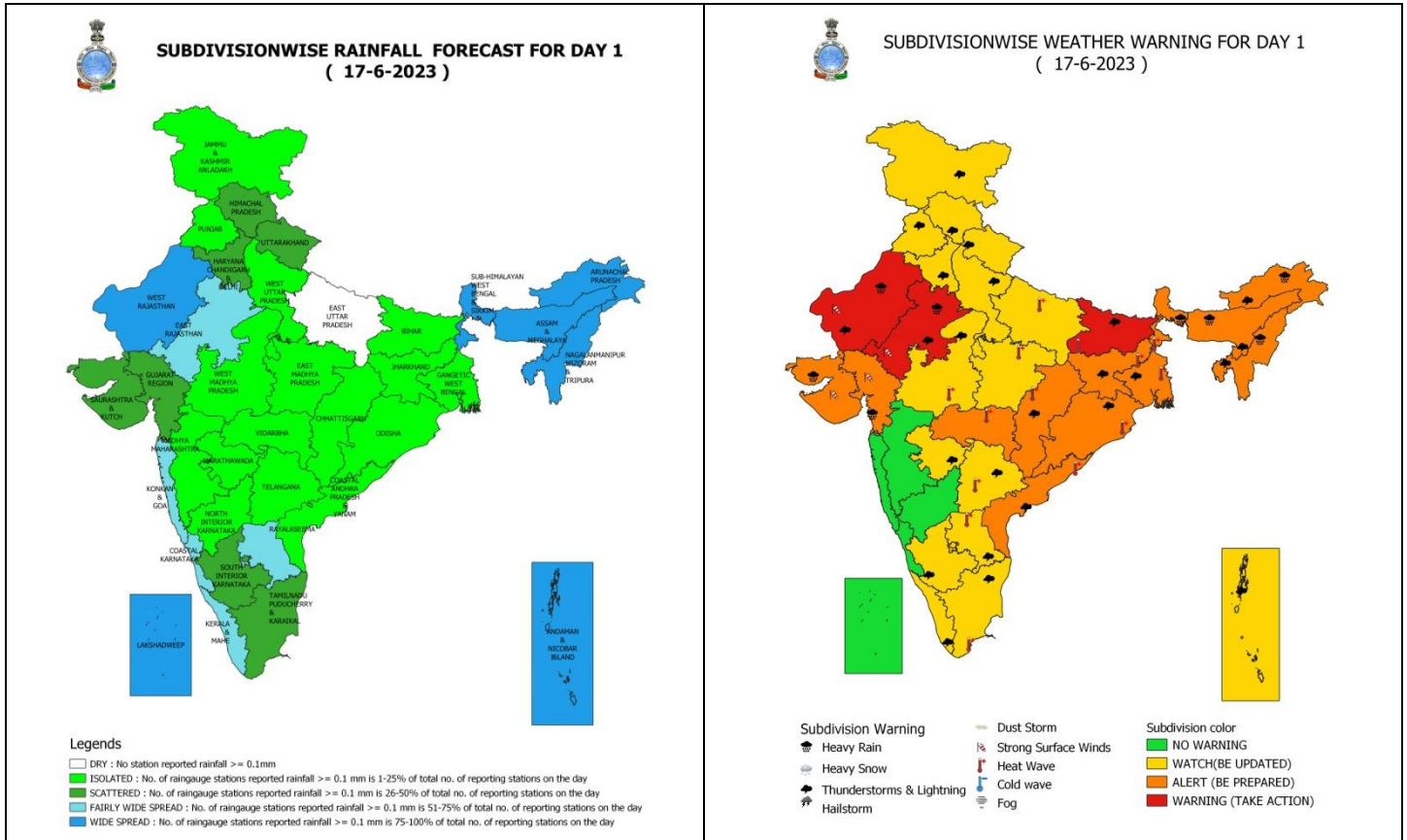
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Fig. 6: Advance of Southwest Monsoon



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

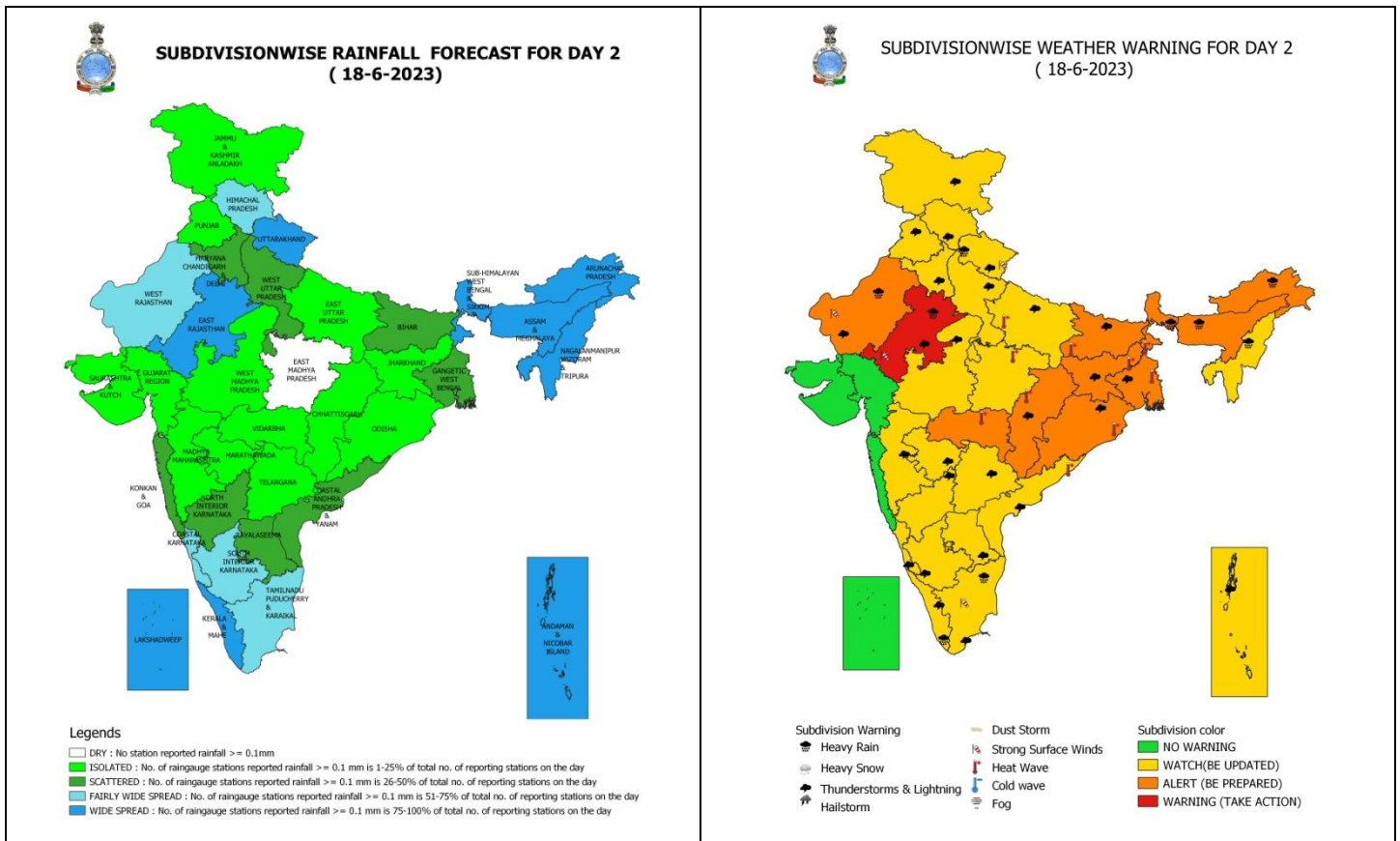
♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand, Punjab, Telangana, Rayalaseema, Haryana, Chandigarh & Delhi; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Coastal Andhra Pradesh & Yanam, Jharkhand, West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

♦ **Heat Wave to severe heat wave conditions** very likely in many pockets over Vidarbha; in a few pockets over Coastal Andhra Pradesh & Yanam, Bihar, Odisha; in isolated pockets over Gangetic West Bengal, Jharkhand, Chhattisgarh and **heat wave conditions** in isolated pockets of **Sub-Himalayan West Bengal & Sikkim**, Telangana, East Uttar Pradesh, Madhya Pradesh, Rayalaseema, Tamil Nadu, Puducherry & Karaikal.

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

- Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over northeast Arabian Sea during next 06 hours.
- Squally wind speed reaching 50-60 kmph gusting to 70 kmph is prevailing over Kutch and northern districts of Saurashtra. It is likely to further decrease becoming 40-50 kmph gusting to 60 kmph from the forenoon.

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



**18 June (Day 2):** ♦ **Heavy to very heavy rainfall with extremely heavy falls** very likely at isolated places over Assam & Meghalaya, East Rajasthan; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, West Rajasthan and **heavy rainfall** at isolated places over Nagaland, Manipur, Mizoram & Tripura, Uttarakhand, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe.

♦ **Thundersquall and hail (speed 60-70 kmph)** at isolated places over Uttarakhand.

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

♦ **Heat Wave to severe heat wave conditions** very likely in a few pockets over Odisha; in isolated pockets over Jharkhand, Chhattisgarh and **heat wave conditions** in many pockets over Vidarbha; in isolated pockets of West Bengal & Sikkim, Coastal Andhra Pradesh & Yanam, Bihar, East Uttar Pradesh, East Madhya Pradesh.

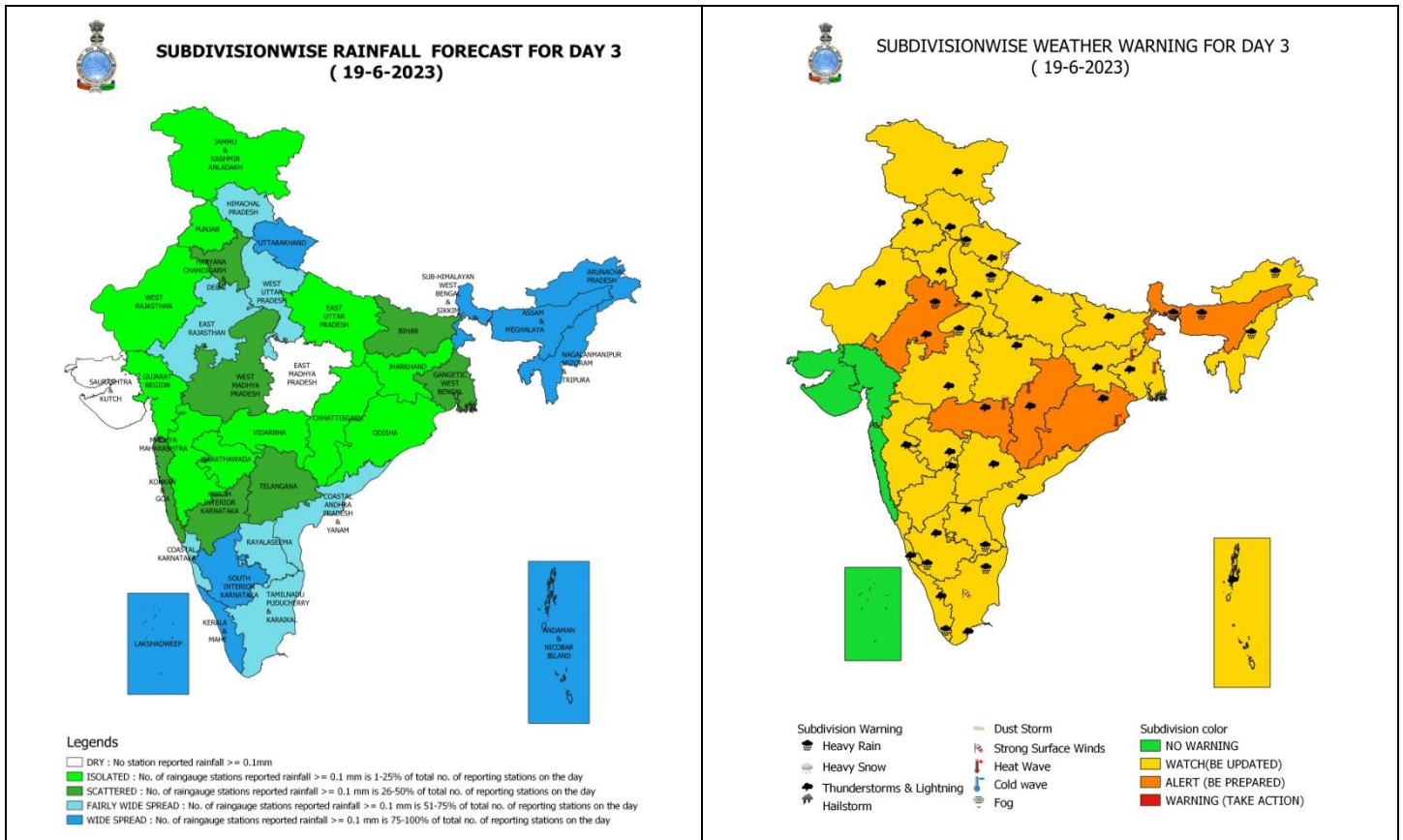
♦ **Warm night conditions** very likely in isolated pockets of Chhattisgarh, East Madhya Pradesh.

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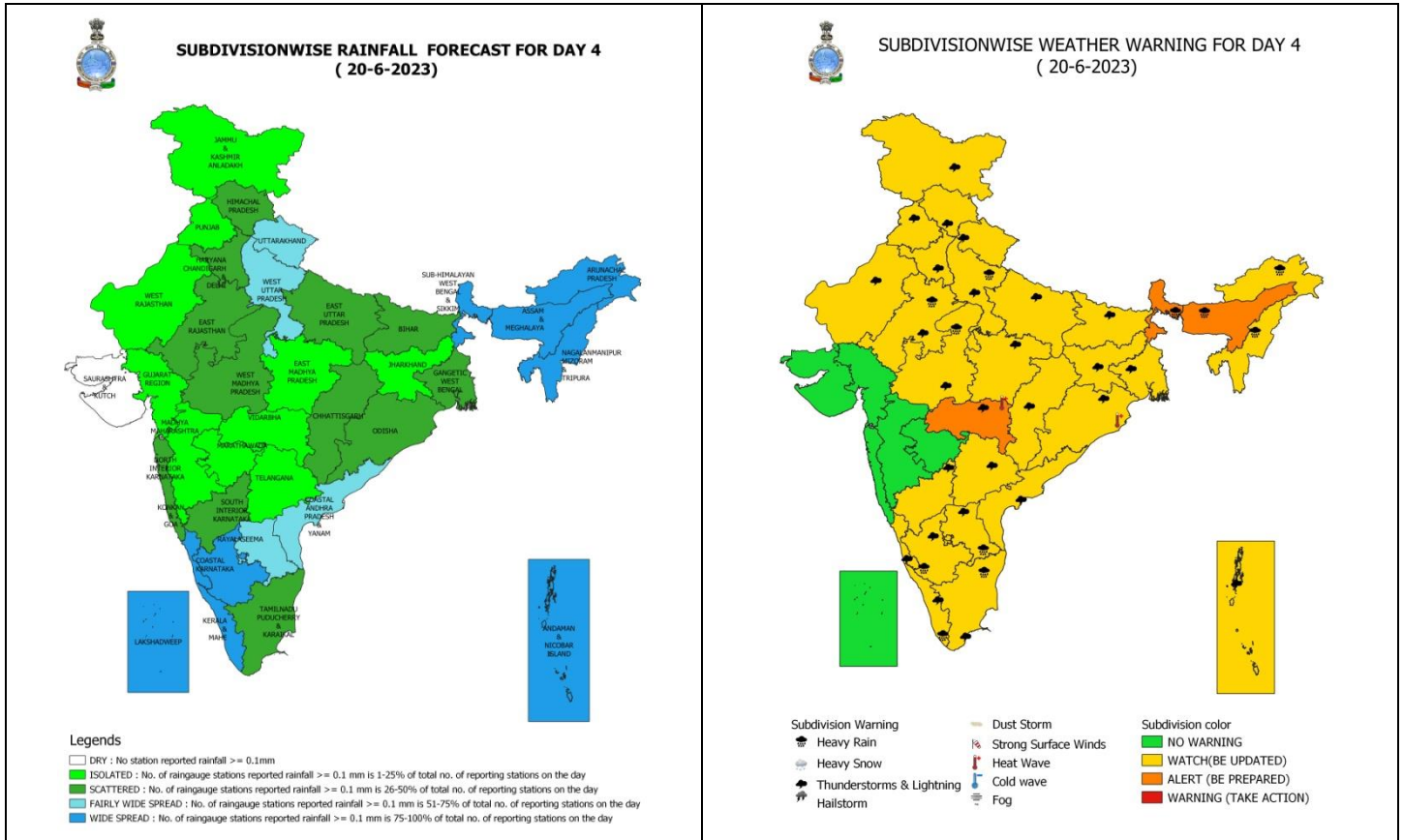


**19 June (Day 3):** ♦ **Heavy to very heavy rainfall likely** at isolated places over East Rajasthan, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Kerala & Mahe and **heavy rainfall** at isolated places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Uttarakhand, West Uttar Pradesh,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

♦ **Thundersquall and hail (speed 60-70 kmph)** at isolated places over Uttarakhand.

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

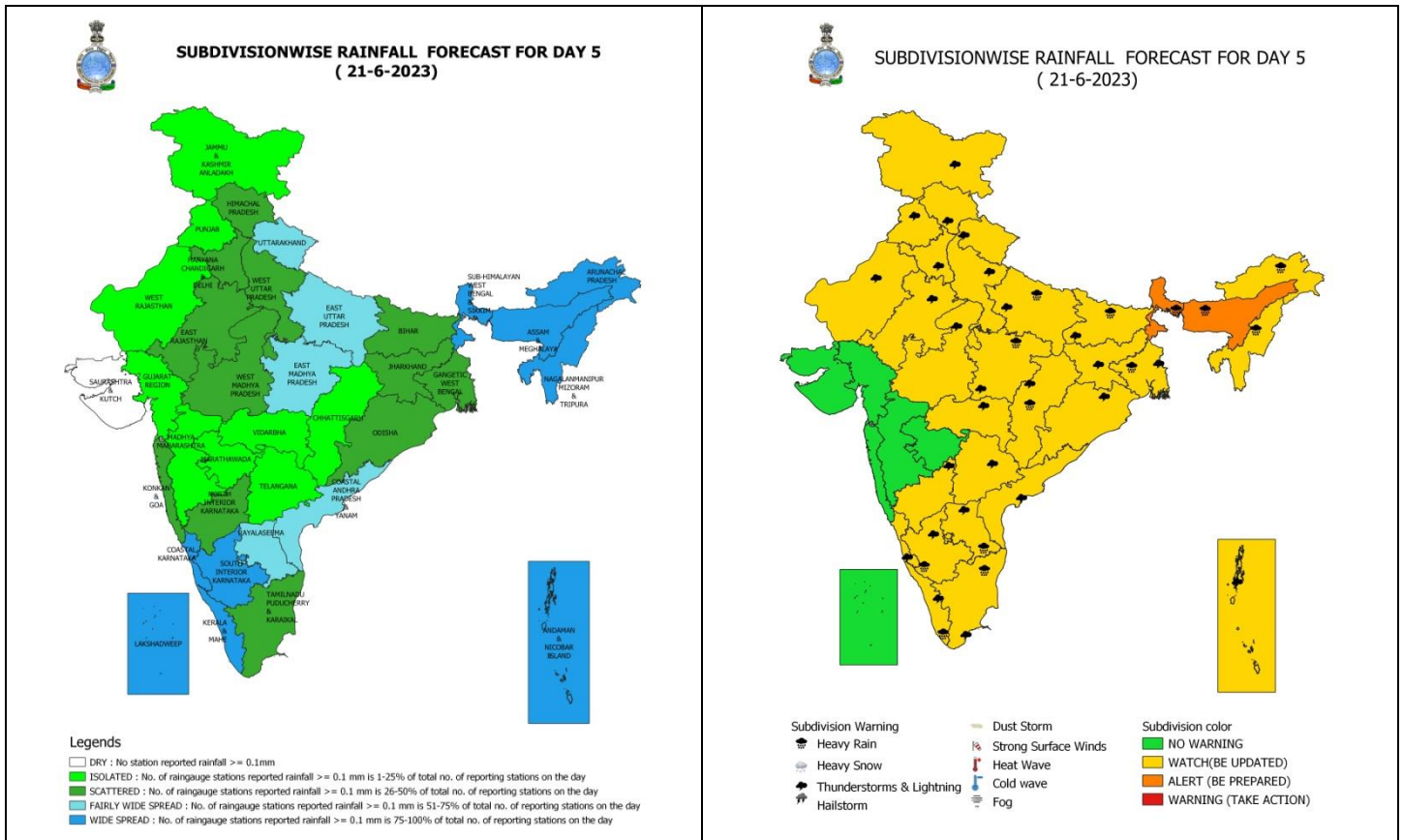
♦ **Heat Wave to severe heat wave conditions** very likely in a few pockets over Odisha and **heat wave conditions** in a few pockets over Vidarbha; in isolated pockets of **Gangetic West Bengal, Jharkhand, Chhattisgarh.**



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

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

♦ **Heat Wave conditions** very likely in a few pockets over Vidarbha and in isolated pockets over Odisha.



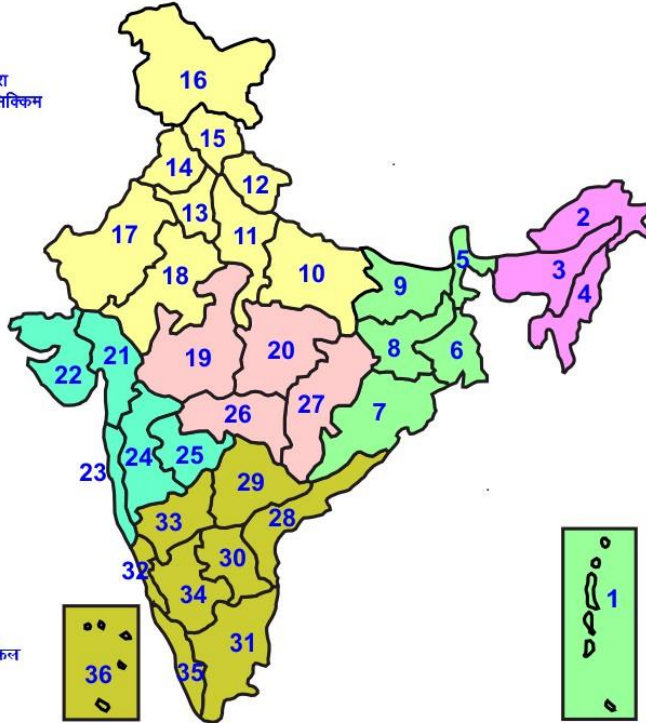
**21 June (Day 5):** ♦ **Heavy to very heavy rainfall likely** at isolated places over West Bengal & Sikkim, Assam & Meghalaya, northeast Madhya Pradesh and **heavy rainfall** at isolated places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, East Uttar Pradesh, Bihar, north Chhattisgarh, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal, Rayalaseema, Kerala & Mahe.

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



## LEGENDS

- 1 अंडमान और निकोबार द्वीप समुह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागालैंड मनीपुर मीजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 पश्चिम गंगेय बंगाल
- 7 ओडिसा
- 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. 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

<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

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  $4.5^{\circ}\text{C}$  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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