



Friday, June 09, 2023  
Time of Issue: 0830 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. 13.5°N/ Long. 55°E, lat. 14.0°N/ Long. 60°E, lat. 13.5°N/ Long. 65°E, lat. 13°N/ Long. 70°E, Cannur, Kodaikanal, Adirampattinam, lat. 12.0°N/ Long. 83.0°E, 16.0°N/88.0°E, 18.5°N/90.0°E, 22.0°N/93.0°E.
- ❖ Conditions are favourable for further advance of Southwest monsoon into some more parts of central Arabian Sea, remaining parts of Kerala, some more parts of Tamil Nadu, some parts of Karnataka and some more parts of southwest, Central and northeast Bay of Bengal and some parts of northeastern states during next 24 hours.

#### **Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy") over eastcentral Arabian Sea:**

The **Very Severe Cyclonic Storm "Biparjoy" (pronounced as "Biporjoy")** over eastcentral Arabian Sea moved slowly north-northeastwards with a speed of 3 kmph during past 6-hours and lay centered at 0530 hours IST of today, the 09<sup>th</sup> June, 2023 over the same region near latitude 14.7°N and longitude 66.2°E, about 820 km west of Goa, 840 km west-southwest of Mumbai, 850 km south-southwest of Porbandar and 1140 km south of Karachi. It would intensify further gradually during next 48 hours and move nearly north-northeastwards during next 48 hour and north-northwestwards during subsequent 3 days.

#### **Fishermen Warning:**

- Total suspension of fishing operations over
  - eastcentral and adjoining westcentral & south Arabian Sea till 12<sup>th</sup> June.
  - north and adjoining central Arabian Sea during 12<sup>th</sup> -14<sup>th</sup> June.
- Fishermen are advised not to venture into:
  - Central Arabian Sea till 13<sup>th</sup> June.
  - Adjoining areas of north Arabian Sea during 12<sup>th</sup> -14<sup>th</sup> June.
- Those out at sea are advised to return to coast.

#### **Other Significant Meteorological features:**

- ❖ A Western Disturbance lies over Uttarakhand at middle tropospheric levels.
- ❖ A cyclonic circulation lies over north Coastal Andhra Pradesh & neighbourhood at middle tropospheric levels.

#### **Forecast and warning over the country during next 5 days:**

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

- ❖ Light/moderate fairly widespread rainfall with thunderstorm/lightning/gusty winds very likely over Kerala, Lakshadweep, Coastal & South Interior Karnataka; isolated to scattered activity over North Interior Karnataka, Tamil Nadu and Andhra Pradesh during next 5 days.
- ❖ **Heavy rainfall** very likely at isolated places over Andaman & Nicobar Islands on 09<sup>th</sup> & 10<sup>th</sup>; Kerala during 09<sup>th</sup>-13<sup>th</sup>; Lakshadweep during 09<sup>th</sup>-11<sup>th</sup>; and Coastal & South Interior Karnataka during 10<sup>th</sup>-13<sup>th</sup> June.

##### **Northeast India:**

- ❖ Light/moderate scattered to fairly widespread rainfall with thunderstorm/lightning very likely over the region during next 5 days. **Very Heavy rainfall** very likely at isolated places over Manipur, Mizoram & Tripura on 09<sup>th</sup> and Assam & Meghalaya on 12<sup>th</sup> & 13<sup>th</sup>; isolated **heavy rainfall** over Arunachal Pradesh and Assam & Meghalaya and Manipur & Mizoram during 09<sup>th</sup>-13<sup>th</sup> June.

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

#### **Heat Wave warning:**

- ❖ **Heat wave to severe heat wave conditions** very likely to continue in some pockets over Bihar during 09<sup>th</sup> to 11<sup>th</sup> June and heat wave in isolated pockets on 12<sup>th</sup> & 13<sup>th</sup> June.
- ❖ **Heat wave conditions** very likely to continue in isolated pockets over Uttar Pradesh, Jharkhand & Gangetic West Bengal during 09<sup>th</sup>-11<sup>th</sup> and over Sub-Himalayan West Bengal & Sikkim and Odisha on 09<sup>th</sup> & 10<sup>th</sup> June.

**\* 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**

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## Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): **at many places** over Kerala & Mahe; at a few places over Nagaland, Manipur, Mizoram & Tripura and Lakshadweep; **at isolated places** Himachal Pradesh, Uttarakhand, Punjab, West, Assam & Meghalaya, Madhya Maharashtra, Telangana and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Heavy Rainfall observed** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over Tripura.
- ❖ **Significant rainfall recorded (in cm)** (from 0830 hours IST to 1730 hours IST of yesterday): Agartala -9; Udhagamandalam-3; Aminidivi-2 and Kottayam-1.
- ❖ **Thunderstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Himachal Pradesh, Uttarakhand, Haryana, Rajasthan, Odisha, Sub-Himalayan West Bengal & Sikkim, Assam, Nagaland, Manipur, Mizoram & Tripura, West Madhya Pradesh, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam, Rayalaseema, Coastal Karnataka and Tamilnadu, Puducherry & Karaikal.
- ❖ **Hailstorm observed** (from 0830 hours IST of yesterday to 0530 hours IST of today): at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and West Madhya Pradesh.
- ❖ Yesterday, **Heat Wave to Severe Heat Wave conditions** prevailed in some parts of Bihar; **Heat Wave conditions** in some parts of Gangetic West Bengal. This was 8th day of Heat Wave conditions over the above areas. **Heat Wave conditions** also observed in isolated pockets over Odisha and Coastal Andhra Pradesh.
- ❖ **Minimum Temperature Departures (as on 08-06-2023)**: Minimum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Madhya Maharashtra; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Bihar, Sub-Himalayan West Bengal & Sikkim, Rayalaseema; at isolated places over Gangetic West Bengal, Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal; **above normal (1.6°C to 3.0°C)** at a few places over Marathwada, Telangana, Odisha, Assam & Meghalaya, North Interior Karnataka; at isolated places over Gujarat Region, Konkan & Goa. They were **markedly below normal (-5.1°C or less)** at isolated places over West Rajasthan, Haryana, Chandigarh & Delhi; **appreciably below normal (-3.1°C to -5.0°C)** at many places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, East Rajasthan; at a few places over Punjab, Madhya Pradesh; **below normal (-1.6°C to -3.0°C)** at many places over Himachal Pradesh, Uttarakhand; at a few places over Uttar Pradesh; at isolated places over Vidarbha, Andaman & Nicobar Islands and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 18.5°C** was reported at **Sikar (East Rajasthan)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 08-06-2023)**: Maximum temperatures were **markedly above normal (5.1°C or more)** at many places over Bihar and Assam & Meghalaya; at a few places over Arunachal Pradesh and at isolated places over Coastal Andhra Pradesh & Yanam; **appreciably above normal (3.1°C to 5.1°C)** at many places over Jharkhand, Odisha, Madhya Maharashtra; at a few places over Marathwada, Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal and at isolated places over Konkan & Goa; **above normal (1.6°C to 3.0°C)** at many places over Uttarakhand, East Uttar Pradesh, Vidarbha and Chhattisgarh; at a few places over East Madhya Pradesh and Rayalaseema and at isolated places over Saurashtra & Kutch. They were **below normal (-1.6°C to -3.0°C)** at many places over Andaman & Nicobar Islands; at a few places over Himachal Pradesh and Haryana, Chandigarh & Delhi; at isolated places over Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, West Rajasthan and West Madhya Pradesh and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 45.1°C** was reported at **Jhansi (West Uttar Pradesh)**.

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The Northern Limit of Monsoon (NLM) continues to pass through lat. 13.5°N/ Long. 55°E, lat. 14.0°N/ Long. 60°E, lat. 13.5°N/ Long. 65°E, lat. 13°N/ Long. 70°E, Cannur, Kodaikanal, Adirampattinam, lat. 12.0°N/ Long. 83.0°E, 16.0°N/88.0°E, 18.5°N/90.0°E, 22.0°N/93.0°E.
- ❖ Conditions are favourable for further advance of Southwest monsoon into some more parts of central Arabian Sea, remaining parts of Kerala, some more parts of Tamil Nadu, some parts of Karnataka and some more parts of southwest, Central and northeast Bay of Bengal and some parts of northeastern states during next 24 hours.
- ❖ The **Very Severe Cyclonic Storm “Biparjoy” (pronounced as “Biporjoy”)** over eastcentral Arabian Sea moved slowly north-northeastwards with a speed of 3 kmph during past 6-hours and lay centered at 0530 hours IST of today, the 09<sup>th</sup> June, 2023 over the same region near latitude 14.7°N and longitude 66.2°E, about 820 km west of Goa, 840 km west-southwest of Mumbai, 850 km south-southwest of Porbandar and 1140 km south of Karachi. It would intensify further gradually during next 48 hours and move nearly north-northeastwards during next 48 hour and north-northwestwards during subsequent 3 days.
- ❖ The Western Disturbance as a cyclonic circulation over Uttarakhand at 5.8 km above mean sea level persists.
- ❖ The cyclonic circulation over north Coastal Andhra Pradesh & neighbourhood at 1.5 km above mean sea level persists.
- ❖ The cyclonic circulation over eastcentral Bay of Bengal off Myanmar coast extending upto 5.8 km above mean sea level persists.

## Weather Forecast for next 5 days (Upto 0830 hours IST of 14<sup>th</sup> June, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ Maximum Temperatures Forecast:
  - **Northwest India:** Rise in maximum temperatures by about 2°C very likely over plains of Northwest India (except Rajasthan) during next 2 days and no significant change thereafter.
  - No significant change in maximum temperature very likely over rest parts of the country during next 5 days.

## Weather Outlook for subsequent 2 days (During 14<sup>th</sup> -16<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

**09 June (Day 1): ♦ Heavy to very heavy rainfall** very likely at isolated places over Manipur, Mizoram, Tripura and **heavy rainfall** at isolated places over Kerala & Mahe, Lakshadweep, Andaman & Nicobar Islands, Arunachal Pradesh and Assam & Meghalaya.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Rajasthan, West Madhya Pradesh, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Telangana, Karnataka, Lakshadweep and Kerala & Mahe; **with lightning** at isolated places over Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in some parts of Bihar and **heat wave conditions** in isolated pockets over Uttar Pradesh, Odisha, Jharkhand, West Bengal and Telangana.

♦ **Gale wind speed reaching 145-155 kmph gusting to 170 kmph** is likely to prevail over central Arabian Sea. **Squally wind speed reaching 50-60 kmph gusting to 70 kmph** is likely over adjoining areas of South Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Goa-Maharashtra-Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph over Kerala-Karnataka coasts and Lakshadweep area.**

**10 June (Day 2): ♦ Heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Manipur, Mizoram, Tripura, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Rajasthan, East Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Telangana, Karnataka, Lakshadweep and Kerala & Mahe; **with lightning** at isolated places over Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in some parts of Bihar and **heat wave conditions** in isolated pockets over Uttar Pradesh, Odisha, Jharkhand and West Bengal & Sikkim.

♦ **Gale wind speed reaching 145-155 kmph gusting to 170 kmph** is likely to prevail over central Arabian Sea. Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely over adjoining areas of north & south Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Goa-Maharashtra-Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph over Kerala-Karnataka coasts and Lakshadweep area.**

**11 June (Day 3): ♦ Heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** very likely at isolated places over Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

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

♦ **Gale wind speed reaching 135-145 kmph gusting to 160 kmph** is likely to prevail over central & adjoining north Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph over Kerala-Karnataka-Goa-Maharashtra coasts and Lakshadweep area.**

**12 June (Day 4): ♦ Heavy to very heavy rainfall** likely at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** likely at isolated places over Madhya Pradesh, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** likely in isolated pockets of Bihar.

♦ **Gale wind speed reaching 130-140 kmph gusting to 155 kmph** is likely to prevail over central & adjoining north Arabian Sea and become 125-135 kmph gusting to 150 kmph from evening of 12<sup>th</sup> June. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Kerala-Karnataka-Maharashtra-Gujarat coasts and Lakshadweep area.

**13 June (Day 5): ♦ Heavy to very heavy rainfall** likely at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** likely at isolated places over Madhya Pradesh, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** likely in isolated pockets of Bihar.

♦ **Gale wind speed reaching 130-140 kmph gusting to 155 kmph** is likely to prevail over central & adjoining north Arabian Sea and become 125-135 kmph gusting to 150 kmph from evening of 12<sup>th</sup> June. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Kerala-Karnataka-Maharashtra-Gujarat coasts and Lakshadweep area.

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Table-1

5 Day Rainfall Forecast						
S. No.	Subdivision	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
		Day 1	Day 2	Day 3	Day 4	Day 5
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	WS	WS	WS
2	ARUNACHAL PRADESH	FWS	WS	WS	WS	WS
3	ASSAM & MEGHALAYA	FWS	WS	WS	WS	WS
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	WS	WS	WS	WS	WS
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	SCT	FWS	WS	WS	WS
6	GANGETIC WEST BENGAL	ISOL	ISOL	SCT	SCT	SCT
7	ODISHA	ISOL	ISOL	ISOL	ISOL	ISOL
8	JHARKHAND	DRY	DRY	ISOL	ISOL	ISOL
9	BIHAR	DRY	DRY	ISOL	ISOL	ISOL
10	EAST UTTAR PRADESH	DRY	ISOL	ISOL	ISOL	ISOL
11	WEST UTTAR PRADESH	DRY	DRY	ISOL	ISOL	ISOL
12	UTTARAKHAND	ISOL	ISOL	ISOL	SCT	SCT
13	HARYANA CHANDIGARH & DELHI	DRY	DRY	ISOL	ISOL	ISOL
14	PUNJAB	ISOL	ISOL	ISOL	ISOL	ISOL
15	HIMACHAL PRADESH	ISOL	ISOL	ISOL	SCT	SCT
16	JAMMU & KASHMIR AND LADAKH	ISOL	ISOL	ISOL	ISOL	ISOL
17	WEST RAJASTHAN	ISOL	ISOL	ISOL	DRY	DRY
18	EAST RAJASTHAN	ISOL	ISOL	ISOL	DRY	DRY
19	WEST MADHYA PRADESH	ISOL	ISOL	ISOL	ISOL	ISOL
20	EAST MADHYA PRADESH	DRY	ISOL	ISOL	ISOL	ISOL
21	GUJARAT REGION	ISOL	ISOL	ISOL	ISOL	ISOL
22	SAURASHTRA & KUTCH	ISOL	ISOL	ISOL	ISOL	ISOL
23	KONKAN & GOA	SCT	SCT	SCT	ISOL	SCT
24	MADHYA MAHARASHTRA	SCT	SCT	SCT	ISOL	ISOL
25	MARATHAWADA	ISOL	SCT	ISOL	ISOL	ISOL
26	VIDARBHA	ISOL	ISOL	ISOL	ISOL	ISOL
27	CHHATTISGARH	DRY	ISOL	ISOL	ISOL	ISOL
28	COASTAL ANDHRA PRADESH & YANAM	ISOL	SCT	SCT	SCT	SCT
29	TELANGANA	ISOL	SCT	SCT	SCT	SCT
30	RAYALASEEMA	SCT	SCT	SCT	SCT	SCT
31	TAMILNADU PUDUCHERRY & KARAIKAL	ISOL	SCT	SCT	SCT	SCT
32	COASTAL KARNATAKA	FWS	FWS	FWS	WS	WS
33	NORTH INTERIOR KARNATAKA	SCT	SCT	SCT	SCT	SCT
34	SOUTH INTERIOR KARNATAKA	SCT	FWS	FWS	FWS	FWS
35	KERALA & MAHE	WS	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

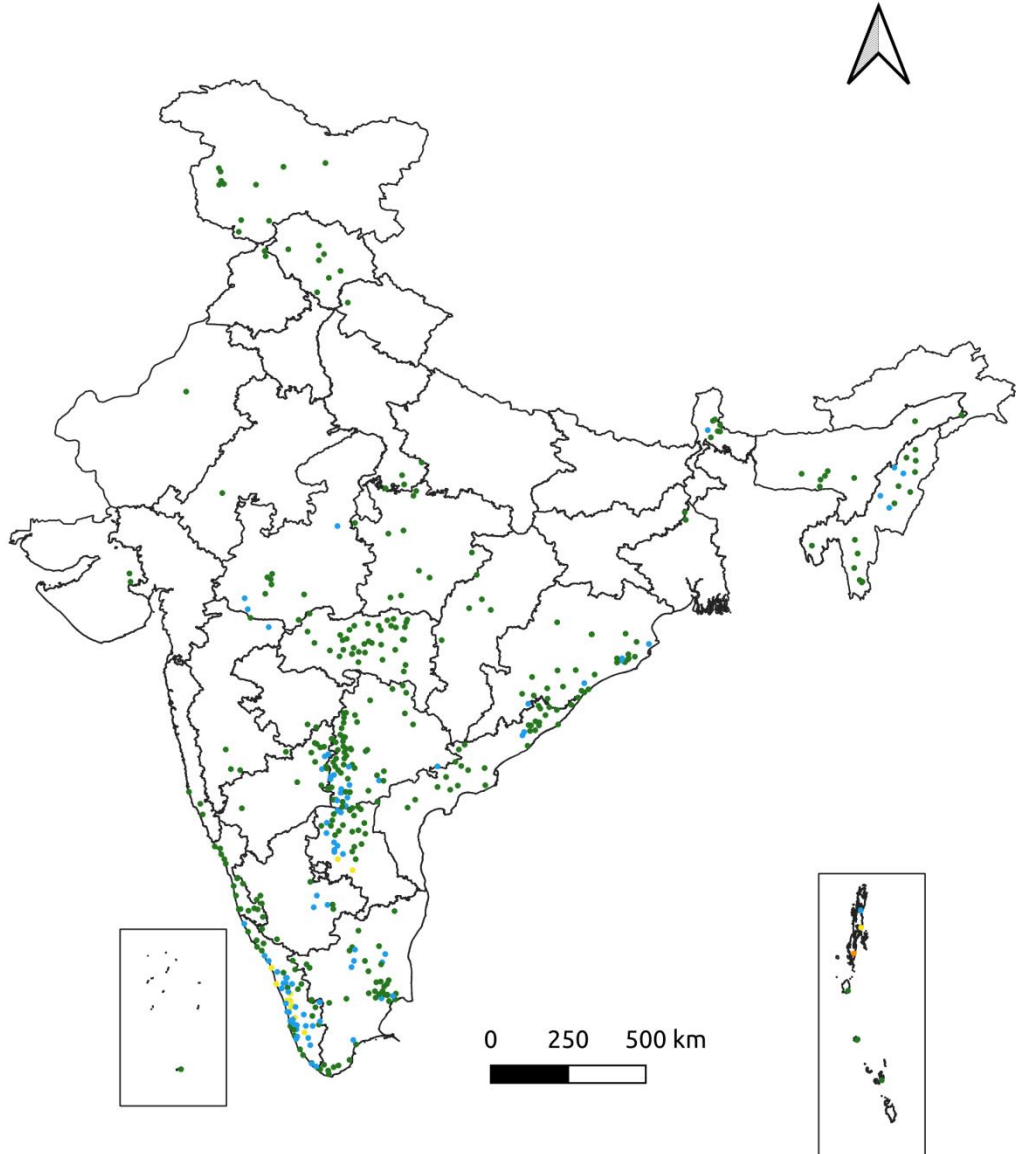
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Fig. 1: Accumulated Rainfall (mm) during past 24 hours



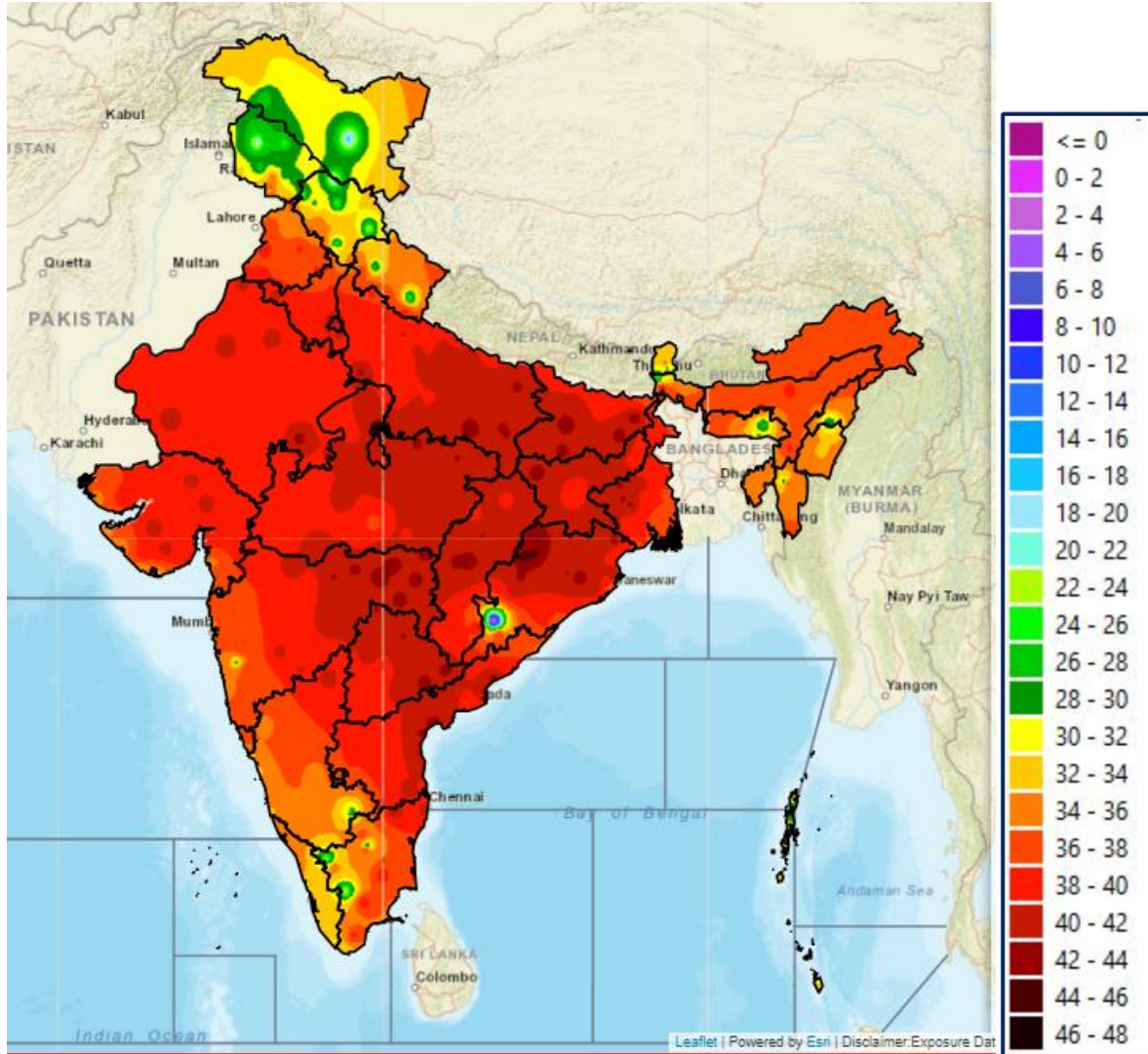
24 Hr cumulative rainfall recorded over different stations  
during 0830 IST of 7-6-2023 to 0830 IST of 8-6-2023



## 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 08.06.2023



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Fig. 3: Minimum Temperatures Dated 08.06.2023

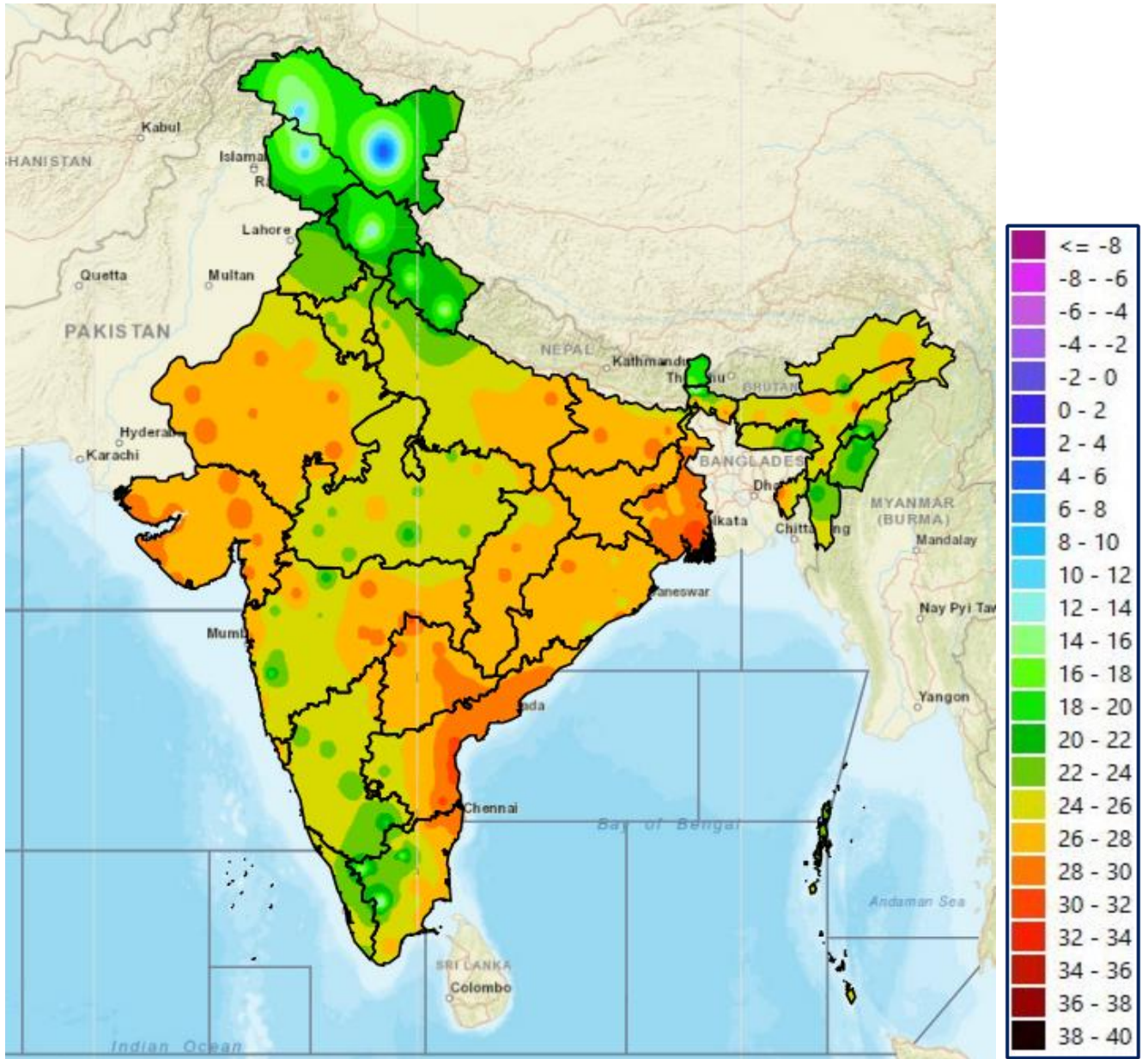




Fig. 4: Departure from Normal of Maximum Temperatures Dated 08.06.2023

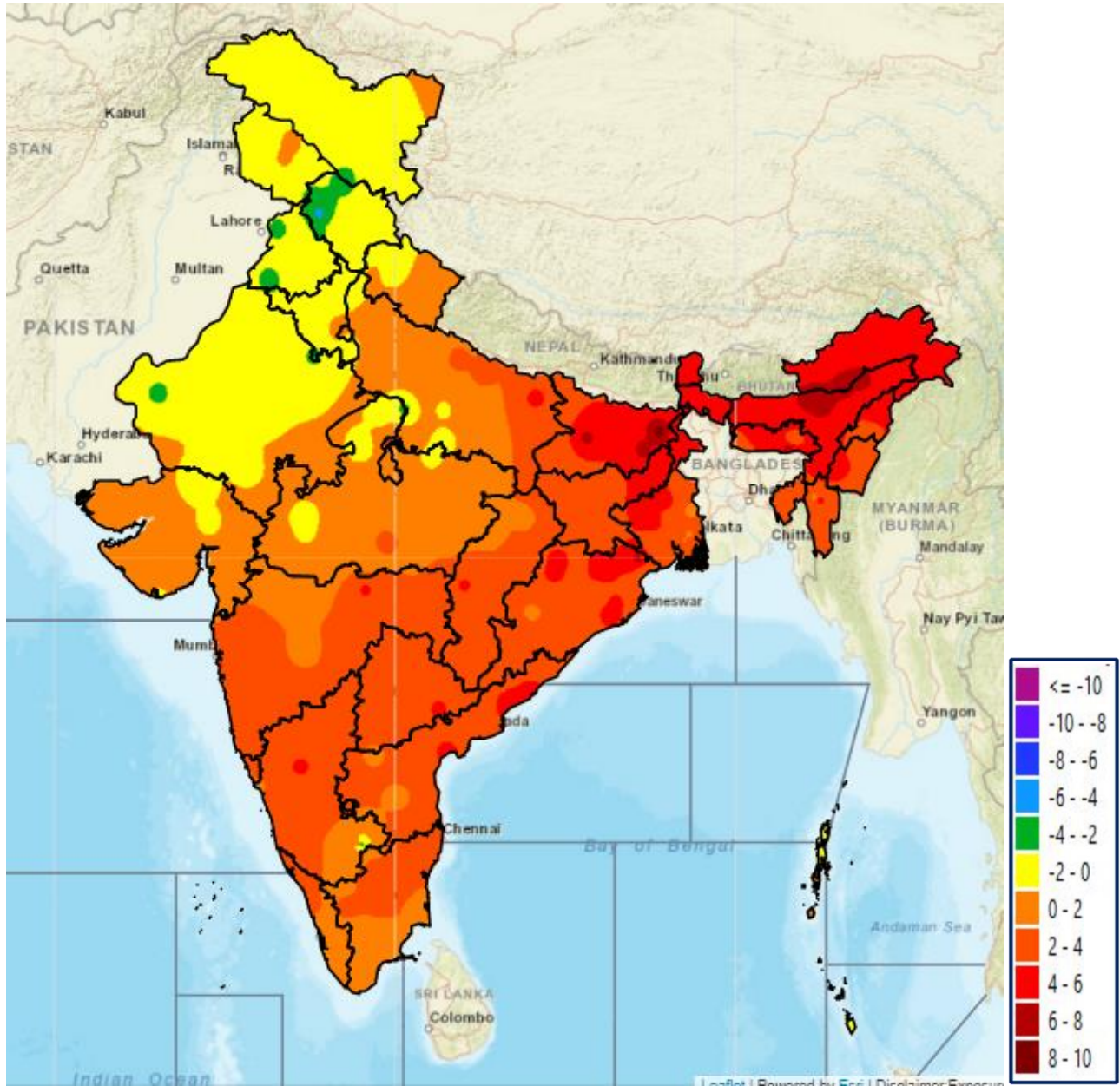


Fig. 5: Departure from Normal of Minimum Temperatures Dated 08.06.2023

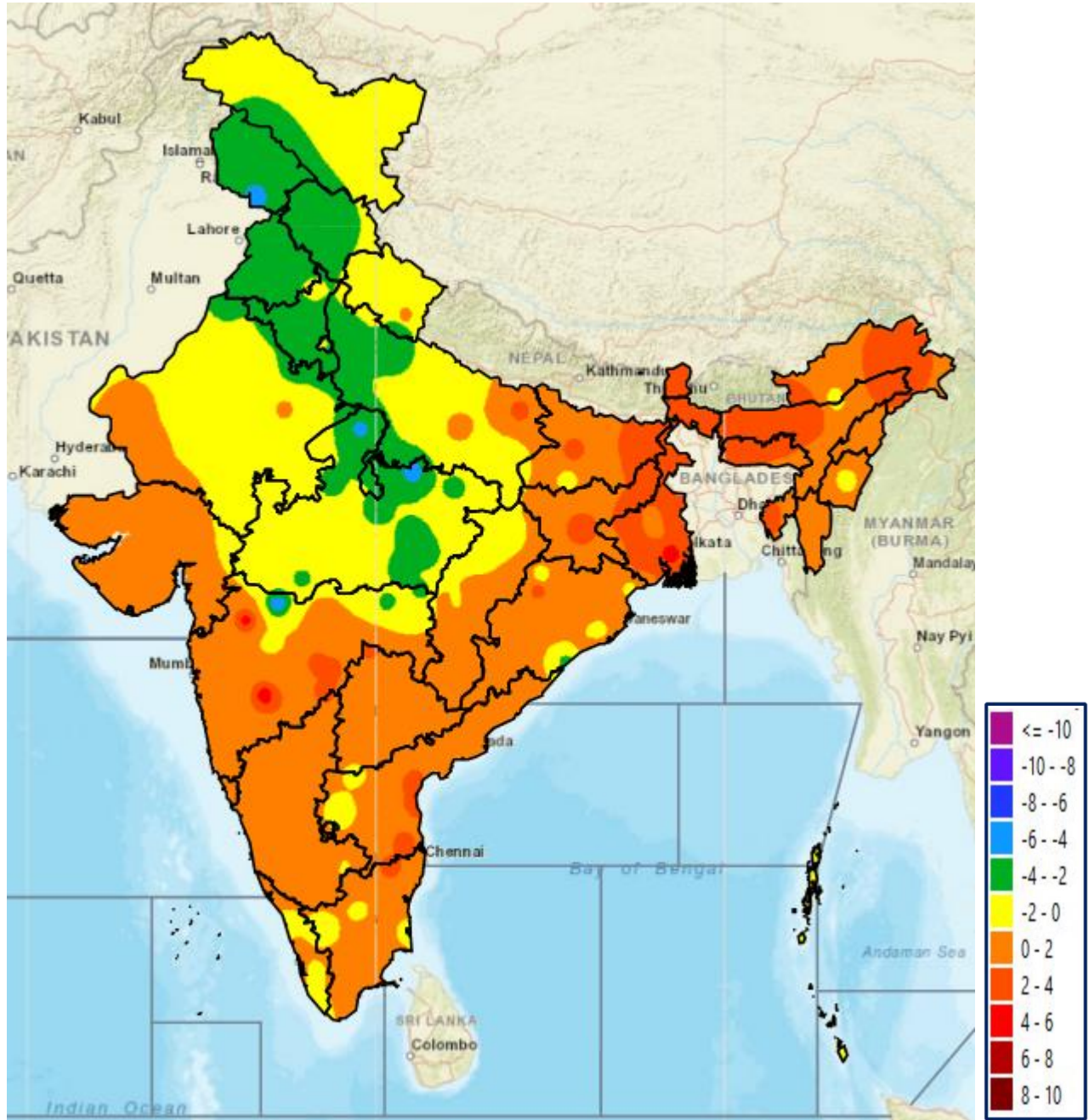
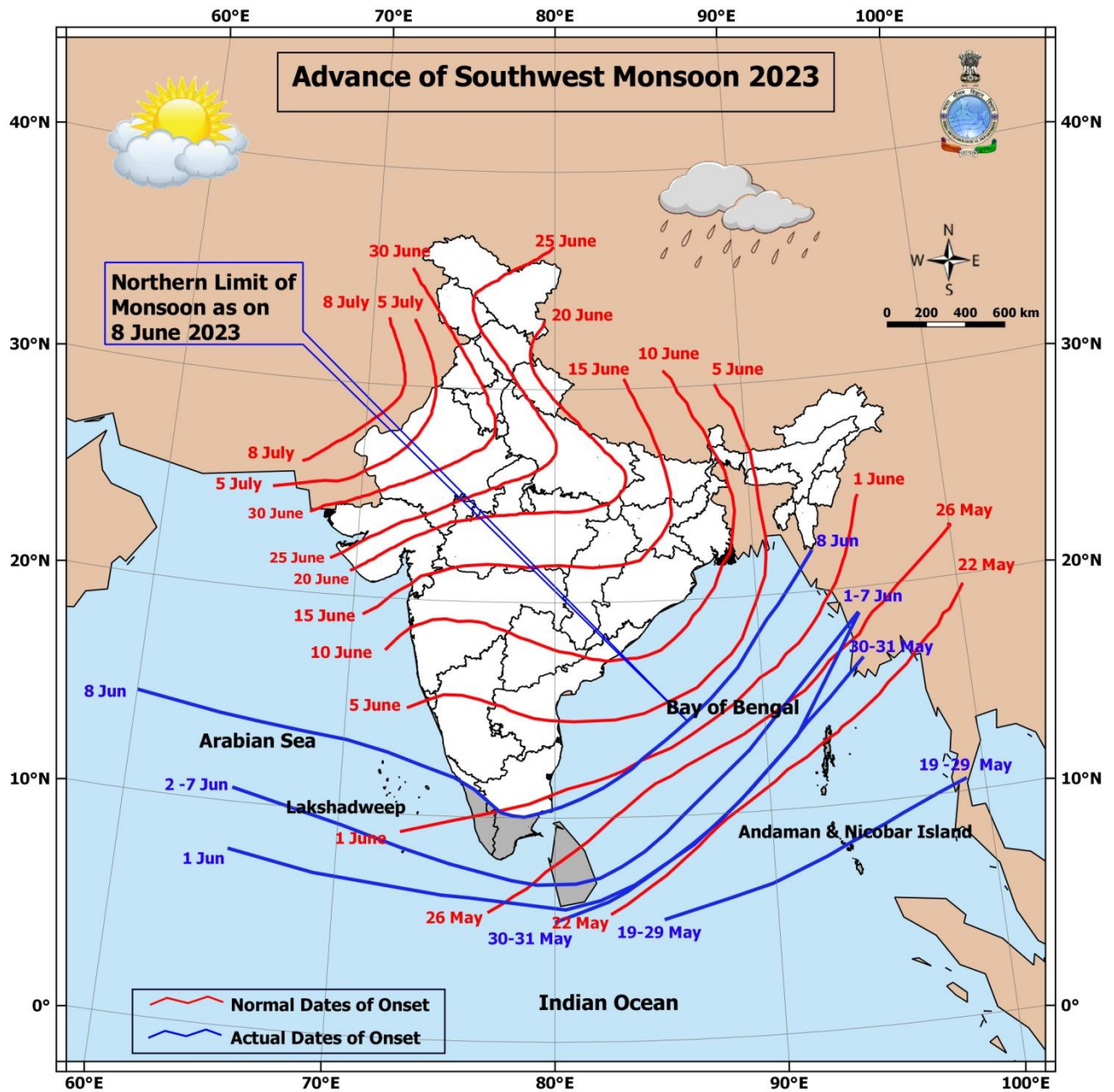


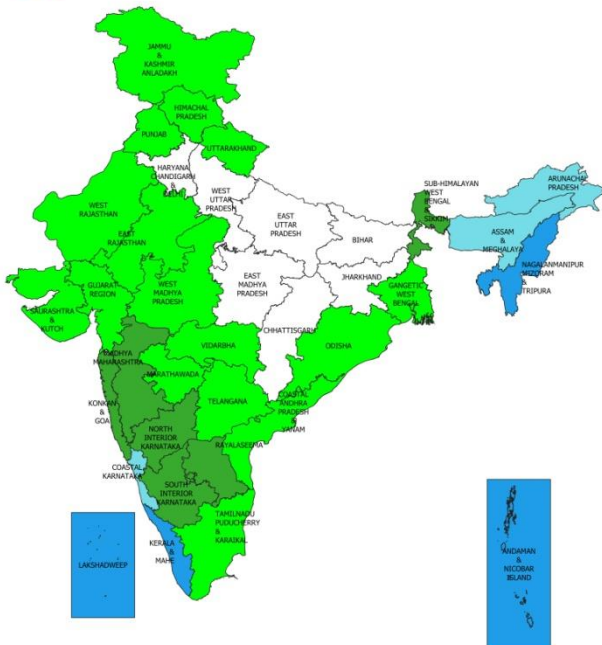


Fig. 6: Advance of Southwest Monsoon





**SUBDIVISIONWISE RAINFALL FORECAST FOR DAY 1  
( 9-6-2023 )**

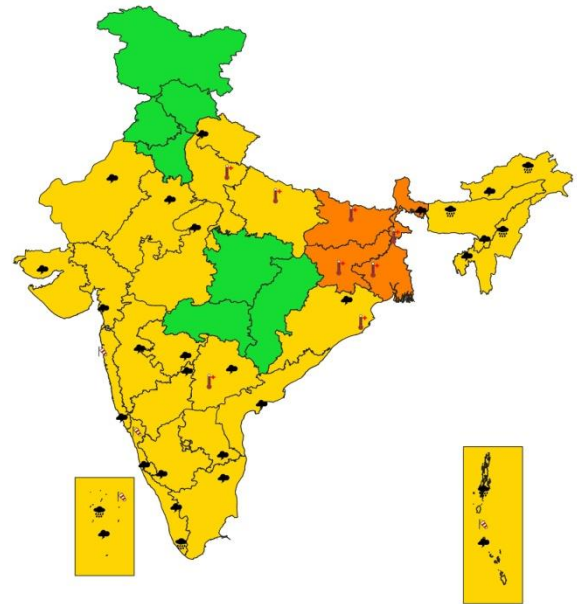


**Legends**

□ DRY : No station reported rainfall  $\geq 0.1$  mm  
 ■ ISOLATED : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 1-25% of total no. of reporting stations on the day  
 ■ SCATTERED : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 26-50% of total no. of reporting stations on the day  
 ■ FAIRLY WIDE SPREAD : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 51-75% of total no. of reporting stations on the day  
 ■ WIDE SPREAD : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 75-100% of total no. of reporting stations on the day



**SUBDIVISIONWISE WEATHER WARNING FOR DAY 1  
( 9-6-2023 )**



**Subdivision Warning**

■ Heavy Rain  
 ■ Heavy Snow  
 ■ Thunderstorms & Lightning  
 ■ Hailstorm

**Dust Storm**

■ Strong Surface Winds  
 ■ Heat Wave  
 ■ Cold wave  
 ■ Fog

**Subdivision color**

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

**09 June (Day 1): ♦ Heavy to very heavy rainfall** very likely at isolated places over Manipur, Mizoram, Tripura and **heavy rainfall** at isolated places over Kerala & Mahe, Lakshadweep, Andaman & Nicobar Islands, Arunachal Pradesh and Assam & Meghalaya.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Rajasthan, West Madhya Pradesh, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Telangana, Karnataka, Lakshadweep and Kerala & Mahe; **with lightning** at isolated places over Uttarakhnad, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in some parts of Bihar and **heat wave conditions** in isolated pockets over Uttar Pradesh, Odisha, Jharkhand, West Bengal and Telangana.

♦ **Gale wind speed reaching 145-155 kmph gusting to 170 kmph** is likely to prevail over central Arabian Sea. **Squally wind speed reaching 50-60 kmph gusting to 70 kmph** is likely over adjoining areas of South Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Goa-Maharashtra-Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph** over Kerala-Karnataka coasts and Lakshadweep area.

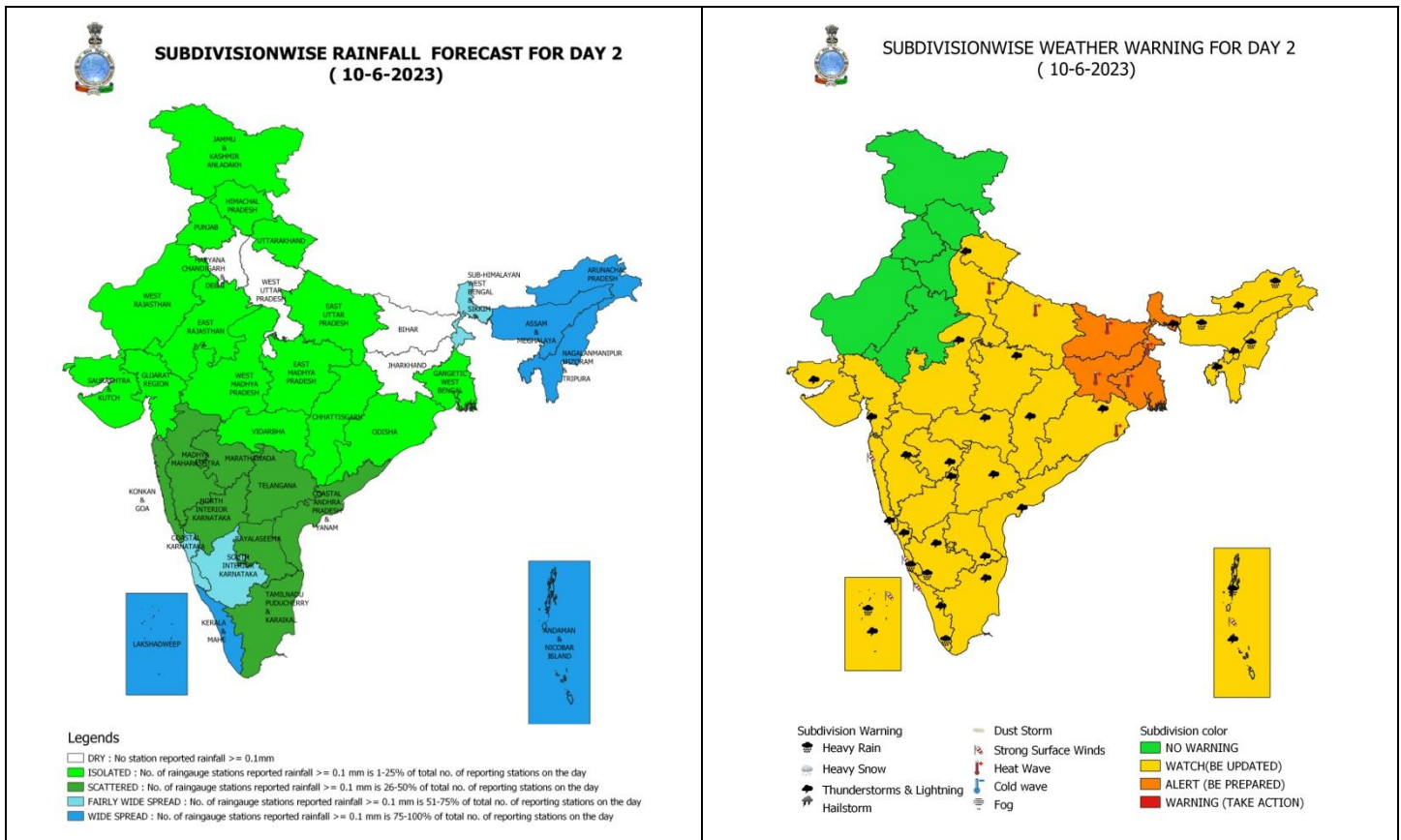
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**10 June (Day 2): ♦ Heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Manipur, Mizoram, Tripura, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Thunderstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand, Coastal Andhra Pradesh & Yanam, Rayalaseema; **with lightning & gusty winds (speed 30-40 kmph)** at isolated places over Andaman & Nicobar Islands, Rajasthan, East Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Telangana, Karnataka, Lakshadweep and Kerala & Mahe; **with lightning** at isolated places over Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Tamil Nadu, Puducherry & Karaikal.

♦ **Heat Wave to severe heat wave conditions** very likely in some parts of Bihar and **heat wave conditions** in isolated pockets over Uttar Pradesh, Odisha, Jharkhand and West Bengal & Sikkim.

♦ **Gale wind speed reaching 145-155 kmph gusting to 170 kmph** is likely to prevail over central Arabian Sea. Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely over adjoining areas of north & south Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Goa-Maharashtra-Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph** over Kerala-Karnataka coasts and Lakshadweep area.

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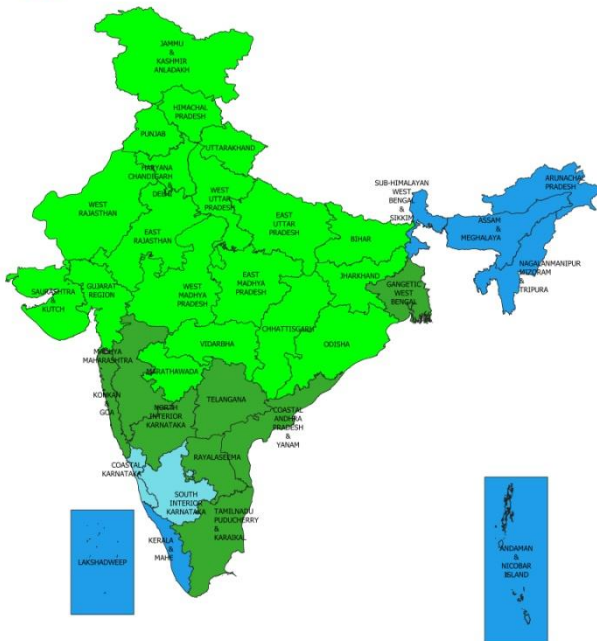
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**SUBDIVISIONWISE RAINFALL FORECAST FOR DAY 3  
( 11-6-2023 )**

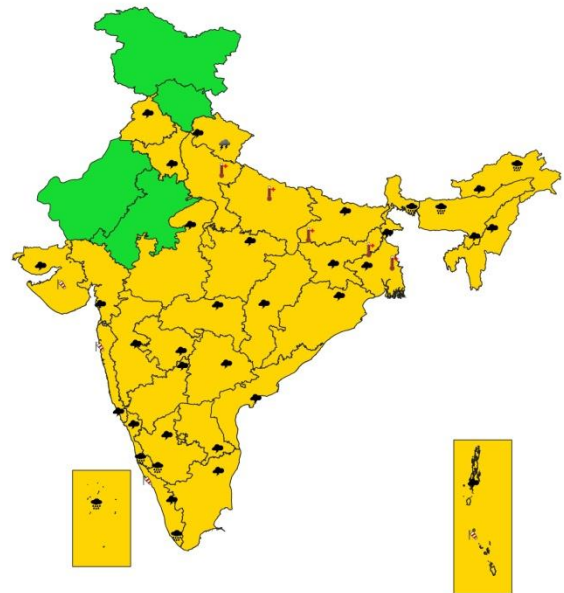


**Legends**

□ DRY : No station reported rainfall  $\geq 0.1$  mm  
 ■ ISOLATED : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 1-25% of total no. of reporting stations on the day  
 ■ SCATTERED : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 26-50% of total no. of reporting stations on the day  
 ■ FAIRLY WIDE SPREAD : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 51-75% of total no. of reporting stations on the day  
 ■ WIDE SPREAD : No. of raingauge stations reported rainfall  $\geq 0.1$  mm is 75-100% of total no. of reporting stations on the day



**SUBDIVISIONWISE WEATHER WARNING FOR DAY 3  
( 11-6-2023 )**



**Subdivision Warning**

☁ Heavy Rain  
 ☁ Heavy Snow  
 ⚡ Thunderstorms & Lightning  
 ⚡ Hailstorm

**Dust Storm**

☁ Strong Surface Winds  
 ☁ Heat Wave  
 ☁ Cold wave  
 ☁ Fog

**Subdivision color**

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

**11 June (Day 3): ♦ Heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** very likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** very likely at isolated places over Madhya Pradesh, Vidarbha, Chhattisgarh, Gujarat state, Konkan & Goa, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

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

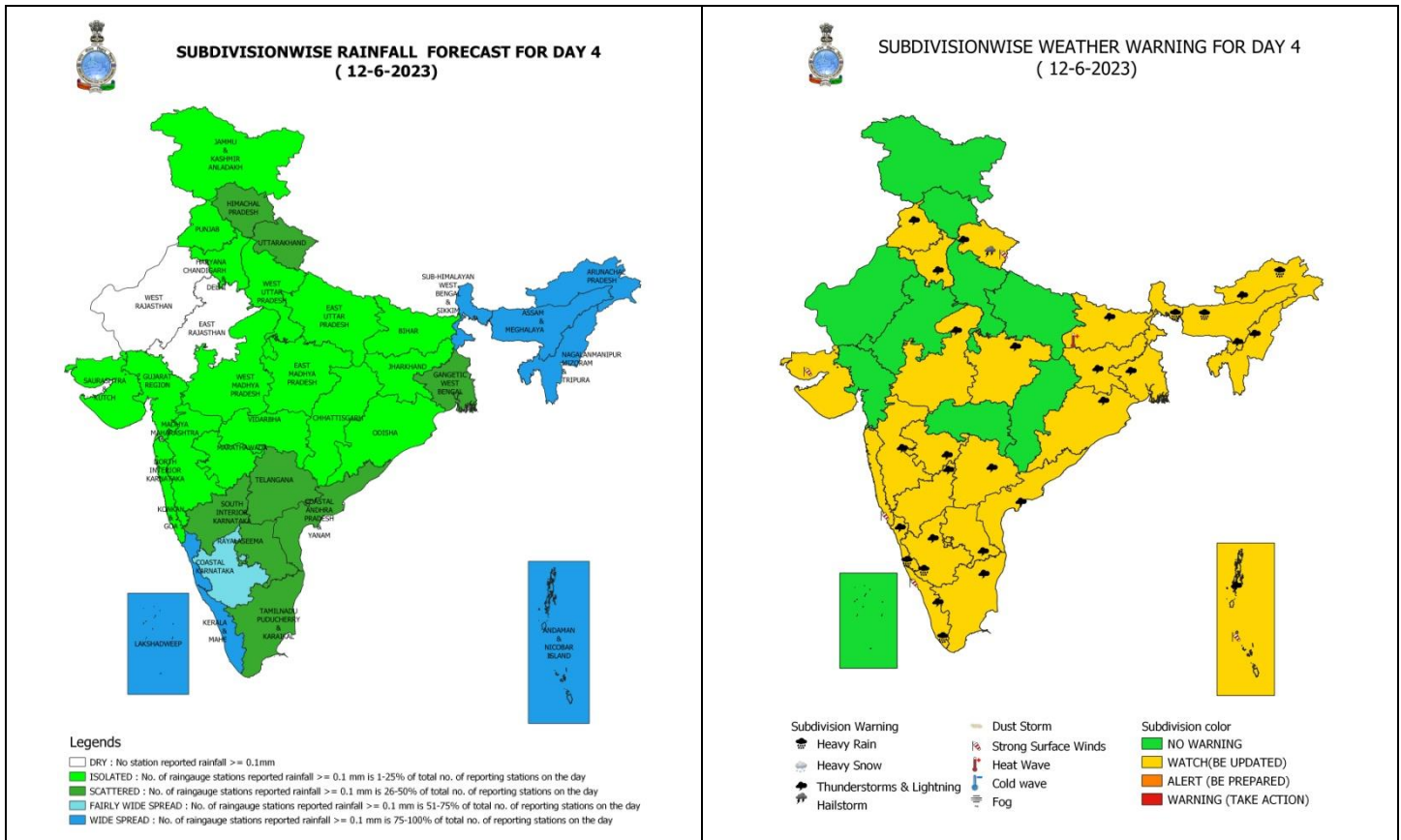
♦ **Gale wind speed reaching 135-145 kmph gusting to 160 kmph** is likely to prevail over central & adjoining north Arabian Sea. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Gujarat coasts; **with wind speed reaching 35-45 kmph gusting to 55 kmph** over Kerala-Karnataka- Goa-Maharashtra coasts and Lakshadweep area.

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**12 June (Day 4): ♦ Heavy to very heavy rainfall** likely at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** likely at isolated places over Madhya Pradesh, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** likely in isolated pockets of Bihar.

♦ **Gale wind speed reaching 130-140 kmph gusting to 155 kmph** is likely to prevail over central & adjoining north Arabian Sea and become 125-135 kmph gusting to 150 kmph from evening of 12<sup>th</sup> June. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Kerala-Karnataka-Maharashtra-Gujarat coasts and Lakshadweep area.

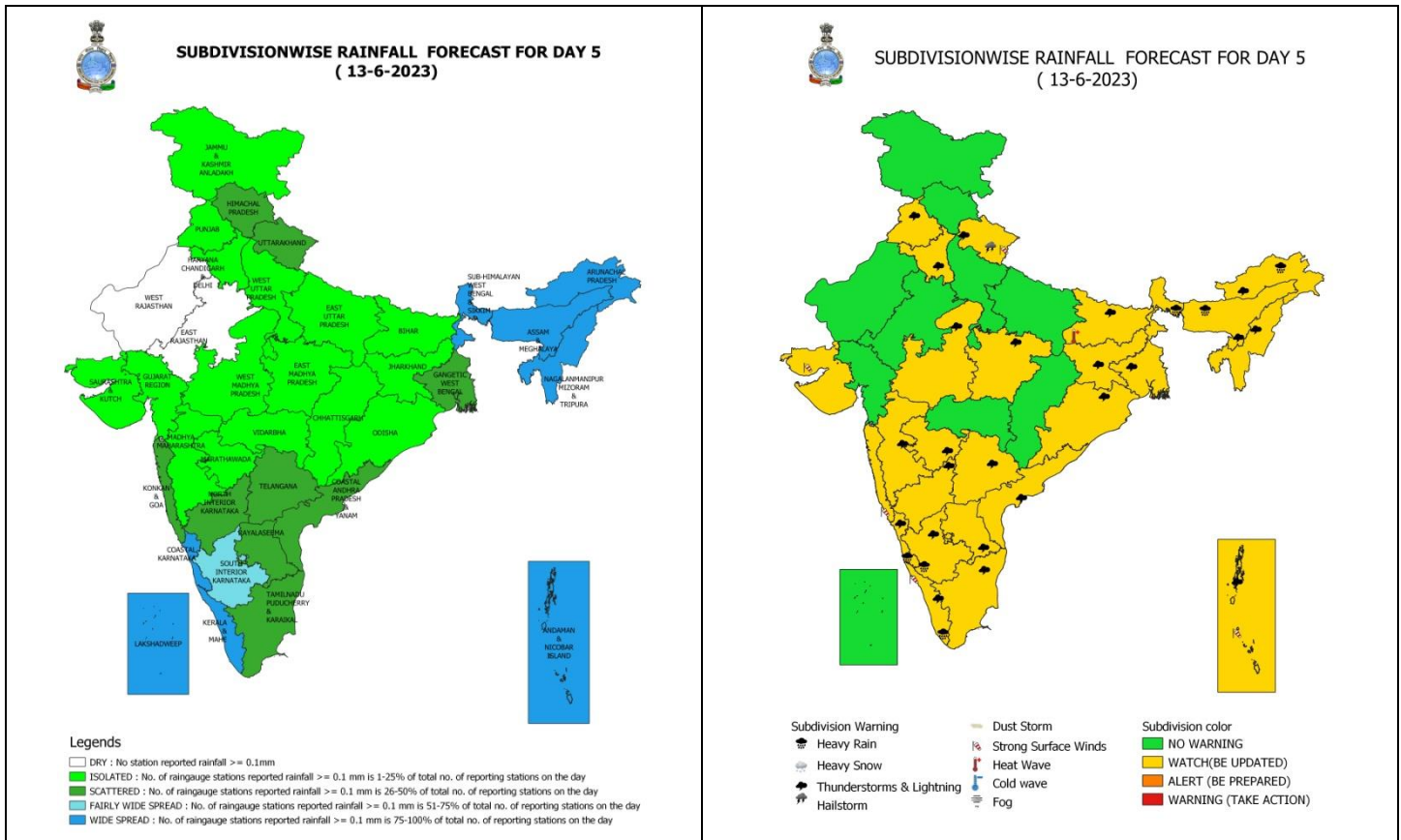
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**13 June (Day 5): ♦ Heavy to very heavy rainfall** likely at isolated places over Assam & Meghalaya and **heavy rainfall** at isolated places over Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim, Coastal & South Interior Karnataka, Lakshadweep and Kerala & Mahe.

♦ **Hailstorm with lightning & gusty winds (speed 40-50 kmph)** likely at isolated places over Uttarakhand.

♦ **Thunderstorm with lightning & gusty winds (speed 30-40 kmph)** likely at isolated places over Madhya Pradesh, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands; **with lightning** at isolated places over Punjab, Haryana, Chandigarh & Delhi, Madhya Pradesh, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Karnataka and Kerala & Mahe.

♦ **Heat Wave conditions** likely in isolated pockets of Bihar.

♦ **Gale wind speed reaching 130-140 kmph gusting to 155 kmph** is likely to prevail over central & adjoining north Arabian Sea and become 125-135 kmph gusting to 150 kmph from evening of 12<sup>th</sup> June. **Squally weather with wind speed reaching 35-45 kmph gusting to 55 kmph** is likely along & off Kerala-Karnataka-Maharashtra-Gujarat coasts and Lakshadweep area.

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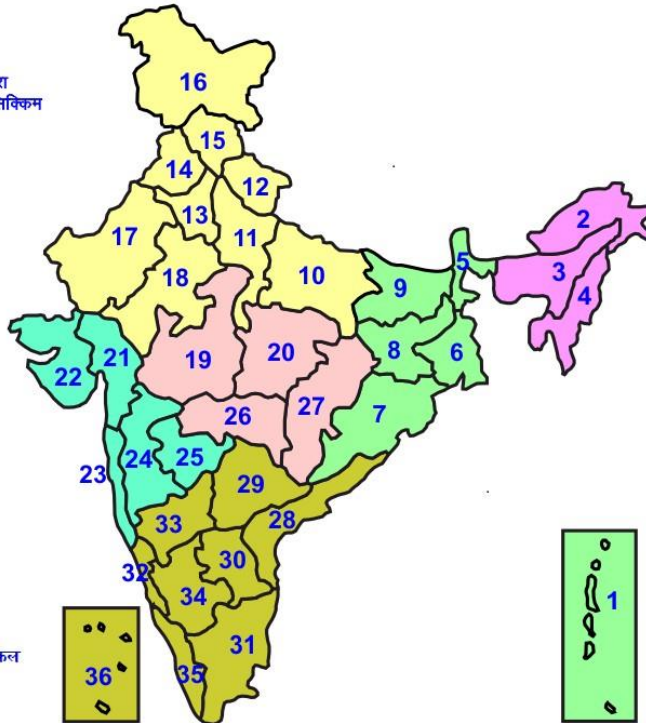
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## LEGENDS

- 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 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 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

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