



Friday, June 30, 2023  
Time of Issue: 0800 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features

#### **Advance of Southwest Monsoon:**

- ❖ Conditions are favourable for further advance of Southwest Monsoon into remaining parts of the country (i.e. remaining parts of Rajasthan and Haryana and Punjab) during next 2 days.

#### **Significant Weather features, Forecast and Warning during next 5 days:**

- ❖ The **Low Pressure Area** now lies over northwest Madhya Pradesh & neighbourhood.
- ❖ An **east-west trough** runs from northwest Rajasthan to Nagaland across the centre of above Low Pressure Area in lower tropospheric levels.
- ❖ The **off-shore trough** at mean sea level runs from Maharashtra coast to Kerala coast.
- ❖ A **cyclonic circulation** lies over south Gujarat & neighbourhood in middle tropospheric levels.

#### **Weather Forecast and Warning:**

**Northwest India:** Light/moderate fairly widespread to widespread rainfall very likely the region during next 2 days. Isolated **Heavy rainfall** very likely over East Rajasthan during 30<sup>th</sup> June -03<sup>rd</sup> July and Uttarakhand, West Rajasthan and West Uttar Pradesh on 30<sup>th</sup> June. Isolated **Heavy to very Heavy rainfall** is also likely over East Uttar Pradesh on 30<sup>th</sup> June,

**Central India:** Light/moderate fairly widespread to widespread rainfall with isolated **heavy rainfall** very likely over Madhya Pradesh on 30<sup>th</sup> June.

**West India:** Light/moderate fairly widespread to widespread rainfall with **isolated Heavy to very Heavy rainfall** is very likely over Konkan & Goa and Ghat areas of Madhya Maharashtra during next 5 days and Gujarat State on 30<sup>th</sup> June.

**East & adjoining Northeast India:** Fairly widespread to widespread light/moderate rainfall with isolated **Heavy to Very Heavy falls** very likely over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Arunachal Pradesh during next 5 days, Bihar on 30<sup>th</sup> June. Isolated **heavy rainfall** also likely over Gangetic West Bengal on 30<sup>th</sup> and Bihar 03<sup>rd</sup> & 04<sup>th</sup> July.

**South India:** Light/moderate fairly widespread to widespread rainfall very likely over Kerala & Mahe, Coastal & South Interior Karnataka during next 5days. **Isolated heavy rainfall** also likely over Coastal Karnataka & Kerala & Mahe during next 5 days; Coastal Andhra Pradesh on 02<sup>nd</sup>-04<sup>th</sup> July and South Interior Karnataka & Tamil Nadu, Puducherry & Karaikal on 03<sup>rd</sup> & 04<sup>th</sup> July. Isolated **very heavy rainfall** also likely over Coastal Karnataka & Kerala & Mahe on 03<sup>rd</sup> & 04<sup>th</sup> July.



## Main Weather Observations

- ❖ **Rainfall/thundershowers observed** (from 0830 hours IST to 1730 hours IST of yesterday): **at most places** over Gujarat Region, Madhya Maharashtra, Konkan & Goa, Bihar, Coastal Karnataka; **at many places** over Himachal Pradesh, Punjab, West Madhya Pradesh, Saurashtra & Kutch, Sub-Himalaya West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura, Jharkhand, Kerala & Mahe; **at a few places** over Uttarakhand, East Uttar Pradesh, East Rajasthan, South Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands, Assam & Meghalaya, Gangetic West Bengal, Odisha, Arunachal Pradesh and **at isolated places** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Haryana-Chandigarh-Delhi, West Uttar Pradesh, West Rajasthan, East Madhya Pradesh, Telangana, Marathwada, Vidarbha and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Heavy Rainfall observed**(from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over Meghalaya and Gujarat state.
- ❖ **Significant rainfall recorded (in cm)** (from 0830 hours IST to 1730 hours IST of yesterday): Cherrapunji-10, Ahmedabad and Veraval-7 each; Harnai, Panjim and Honavar-6 each; Diu, Shivpuri and Shirali-5 each; Kandla, Baroda, Khargone, Ratlam, Forbesganj, Mahabaleshwar and Karwar-4 each; Patiala, Orai, Nowgong, Patna, Darbhanga, Agartala and Shillong-3 each; Delhi (Ayanagar), Bhaunagar, Hoshangabad, Indore, Pachmarhi, Bhagalpur, Daltonganj, Midnapore and Matheran-2 each; Ludhiana, Rohtak, Delhi (Palam), Kota, Ajmer, Udaipur, Surat, Bulsar, Daman, Jhansi, Khajuraho, Amraoti, Nandurbar, Dhar, Ujjain, Betul, Gaya, Supaul, Muzaffarpur, Chapra, Gangtok, Guwahati, Kailashahar, Malda, Shanti Niketan, Canning, Sambalpur, Long Island, Mumbai (Santacruz), Ratnagiri, Bajpe, Cannur, Kozhikode, Chitradurga, Karipur and Kodaikanal-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, Himachal Pradesh, Punjab, Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Rajasthan, West Bengal & Sikkim, Saurashtra & Kutch and Tamil Nadu, Puducherry & Karaikal.
- ❖ **Minimum Temperature Departures (as on 29-06-2023):** Minimum temperatures were **above normal (1.6°C to 3.0°C)** at many places over Punjab; at a few places over Himachal Pradesh and Odisha and at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Coastal Andhra Pradesh & Yanam. They were **appreciably below normal (-3.1°C to -5.0°C)** at isolated places over Gangetic West Bengal and West Rajasthan **below normal (-1.6°C to -3.0°C)** at a few places over East Rajasthan, East Madhya Pradesh, Telangana, Saurashtra & Kutch and Konkan & Goa; at isolated places over West Madhya Pradesh, Gujarat Region and Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature of 17.6°C** was reported at **Narsinghpur (East Madhya Pradesh)** over the plains of the country.
- ❖ **Maximum Temperature Departures (as on 29-06-2023):** Maximum temperatures were **above normal (1.6°C to 3.0°C)** at many places over Coastal Andhra Pradesh & Yanam and at a few places over Nagaland, Manipur, Mizoram & Tripura, Odisha, Rayalaseema, North Interior Karnataka, Tamil Nadu, Puducherry & Karaikal. They were **markedly below normal (-5.1°C or less)** at many places over Bihar; at a few places over Madhya Pradesh, East Rajasthan, Gujarat Region; at isolated places over East Uttar Pradesh; **appreciably below normal (-3.1°C to -5.0°C)** at many places over Haryana-Chandigarh-Delhi; at few places over West Uttar Pradesh, Saurashtra & Kutch, Coastal Karnataka; at isolated places over Madhya Maharashtra; **below normal (-1.6°C to -3.0°C)** at many places over Punjab, West Rajasthan, Konkan & Goa and Marathawada; at a few places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Gangetic West Bengal, Assam & Meghalaya, Andaman & Nicobar Islands and **near normal** over rest parts of the country. Yesterday, **the highest maximum temperature of 40.0°C** was reported at **Jaisalmer (West Rajasthan)**.

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

- ❖ The Northern Limit of Monsoon (NLM) continues to pass through Lat. 29.4°N/ Long. 70.7°E, Bikaner, Narnaul, Firozpur and Lat. 32.5°N/ Long. 72.5°E.
- ❖ Conditions are favourable for further advance of Southwest Monsoon into remaining parts of the country (i.e. remaining parts of Rajasthan and Haryana and Punjab) during next 2 days.
- ❖ The **Low Pressure Area** over central parts of north Madhya Pradesh & neighbourhood now lies over Northwest Madhya Pradesh & neighbourhood with the associated cyclonic circulation extends upto 7.6 km above mean sea level.
- ❖ The east-west trough through northwest Rajasthan, East Rajasthan, **Low Pressure Area** over Northwest Madhya Pradesh, Bihar, Sub-Himalaya West Bengal and thence eastwards towards Nagaland and extends upto 1.5 km above mean sea level.
- ❖ The off-shore trough at mean sea level from Maharashtra coast to Kerala coast persists.
- ❖ The cyclonic circulation over south Gujarat coast & neighbourhood between 4.5 km & 5.8 km above mean sea level persists.
- ❖ The Western Disturbance as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level roughly along Long. 74°E to the north of 32°N persists.

### Weather Forecast for next 5 days (Upto 0830 hours IST of 05<sup>th</sup> July, 2023)

- ❖ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-1.
- ❖ **Maximum Temperatures Forecast:**
- ❖ **East India:** Rise in maximum temperatures by 2-4°C very likely during next 4-5 days.
- ❖ No significant change in maximum temperatures likely over rest parts of country during next 5 days.
- ❖ Thunderstorm accompanied with lightning very likely over Northwest India during next 24 hours.

### Weather Outlook for subsequent 2 days (During 05<sup>th</sup> July-07<sup>th</sup> July, 2023)

- ❖ Fairly widespread to widespread light/moderate rainfall with thunderstorm likely to continue over northeast India, central India, Western Himalayan Region along the west coast and islands.
- ❖ Isolated to scattered rainfall over remaining part of the country India.



Table-1

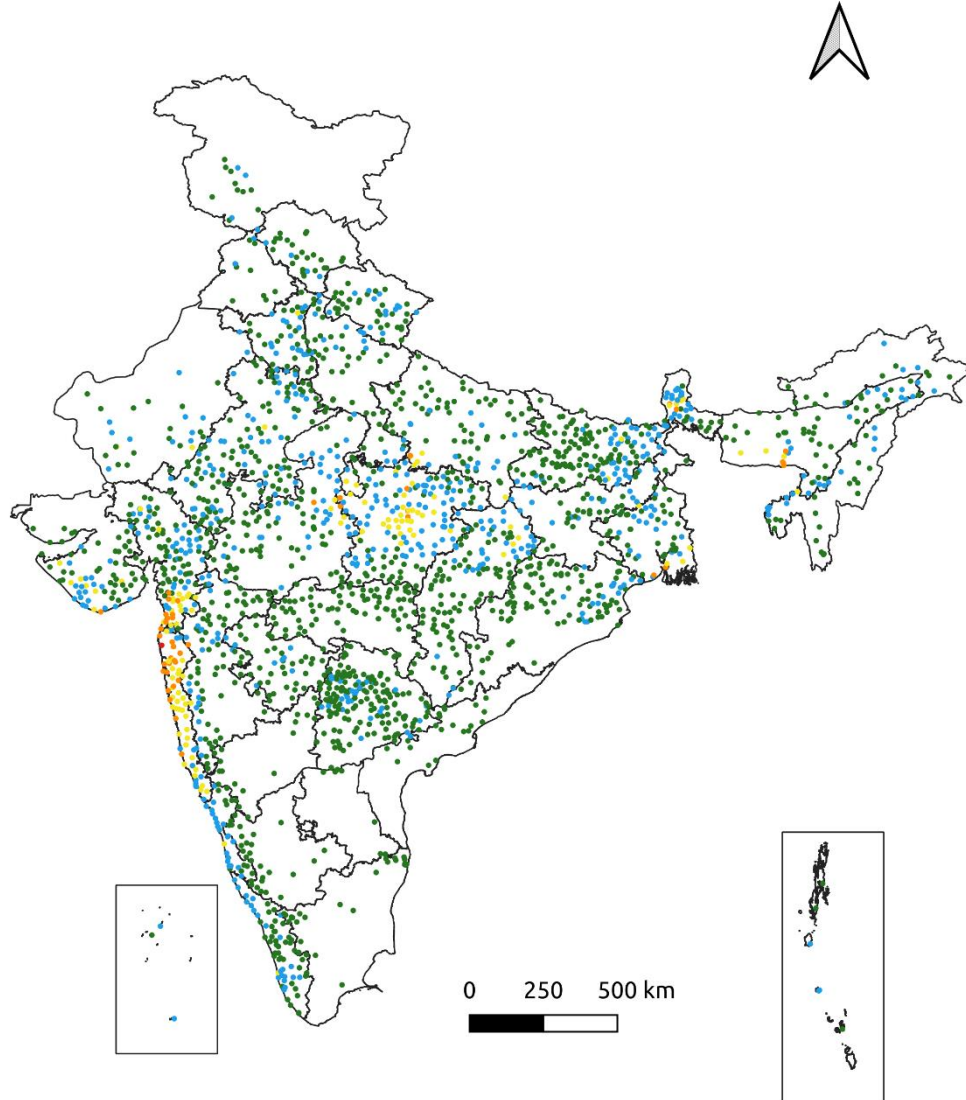
<b>5 Day Rainfall Forecast</b>						
S. No.	Subdivision	30-Jun	1-Jul	2-Jul	3-Jul	4-Jul
		Day 1	Day 2	Day 3	Day 4	Day 5
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	WS	WS	WS
2	ARUNACHAL PRADESH	WS	WS	WS	WS	WS
3	ASSAM & MEGHALAYA	WS	WS	WS	WS	WS
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	WS	WS	WS	WS	WS
5	SUB-HIMALAYAN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

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



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 28-6-2023 to 0830 IST of 29-6-2023



## 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 29.06.2023

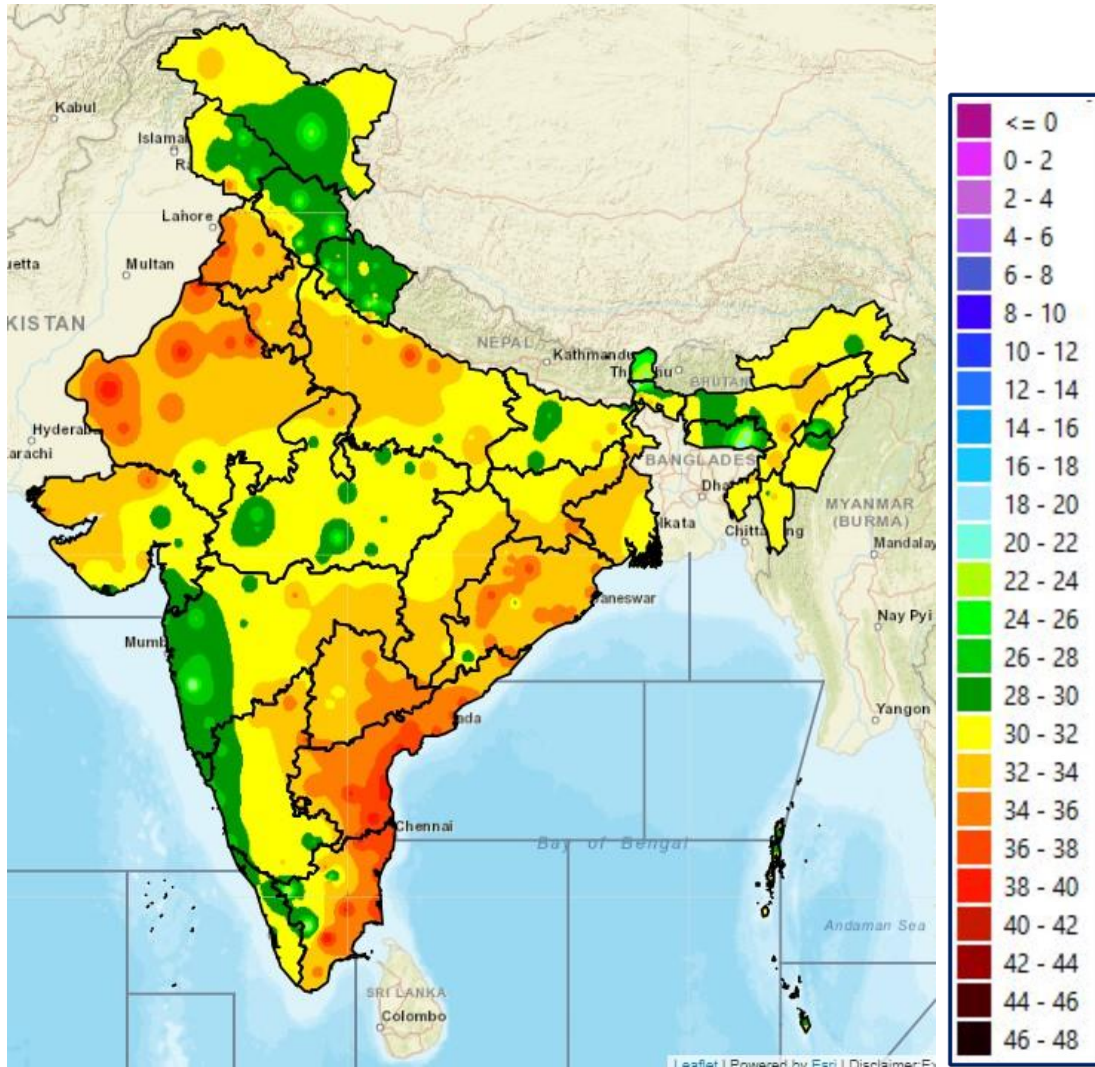


Fig. 3: Minimum Temperatures Dated 29.06.2023

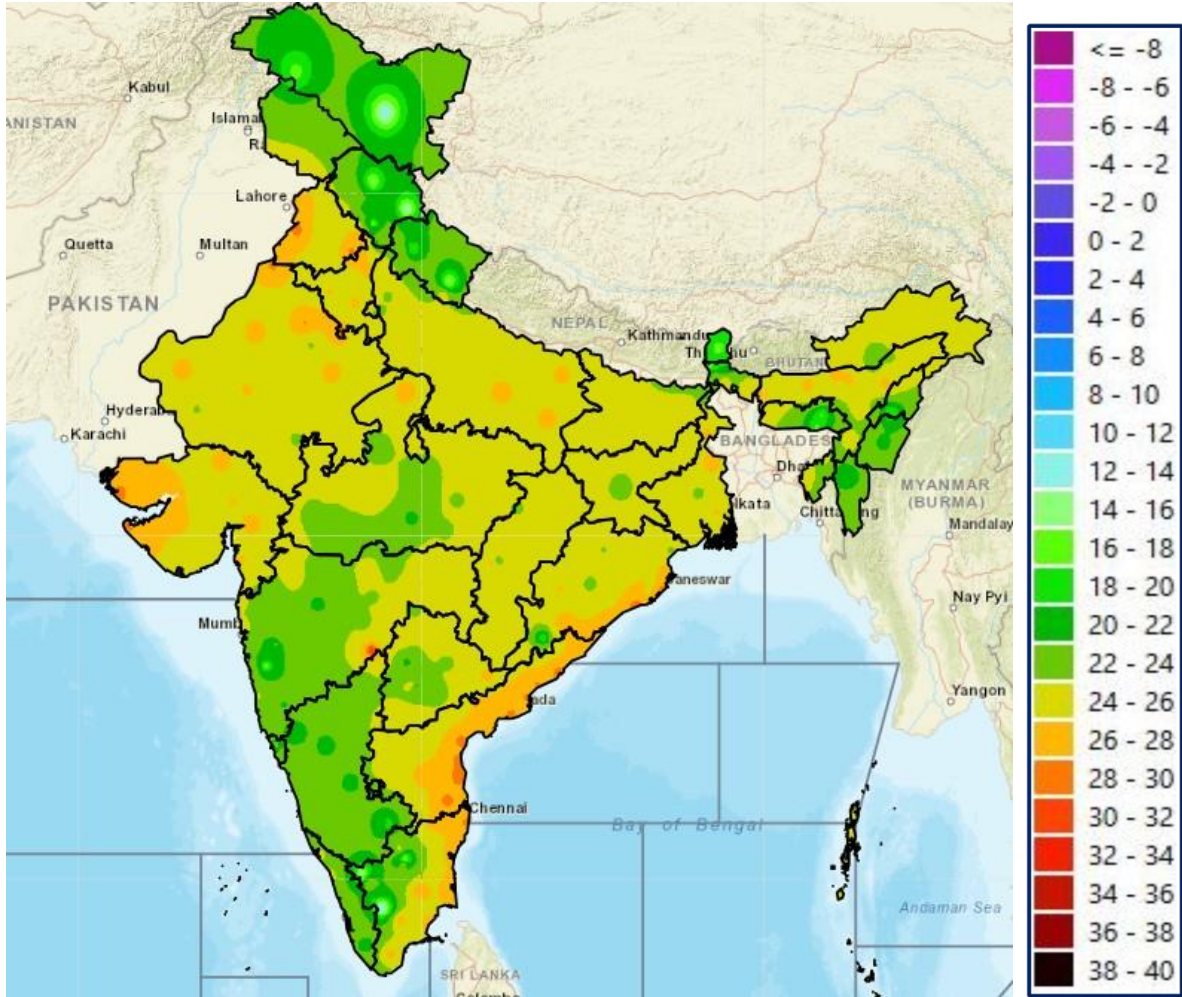
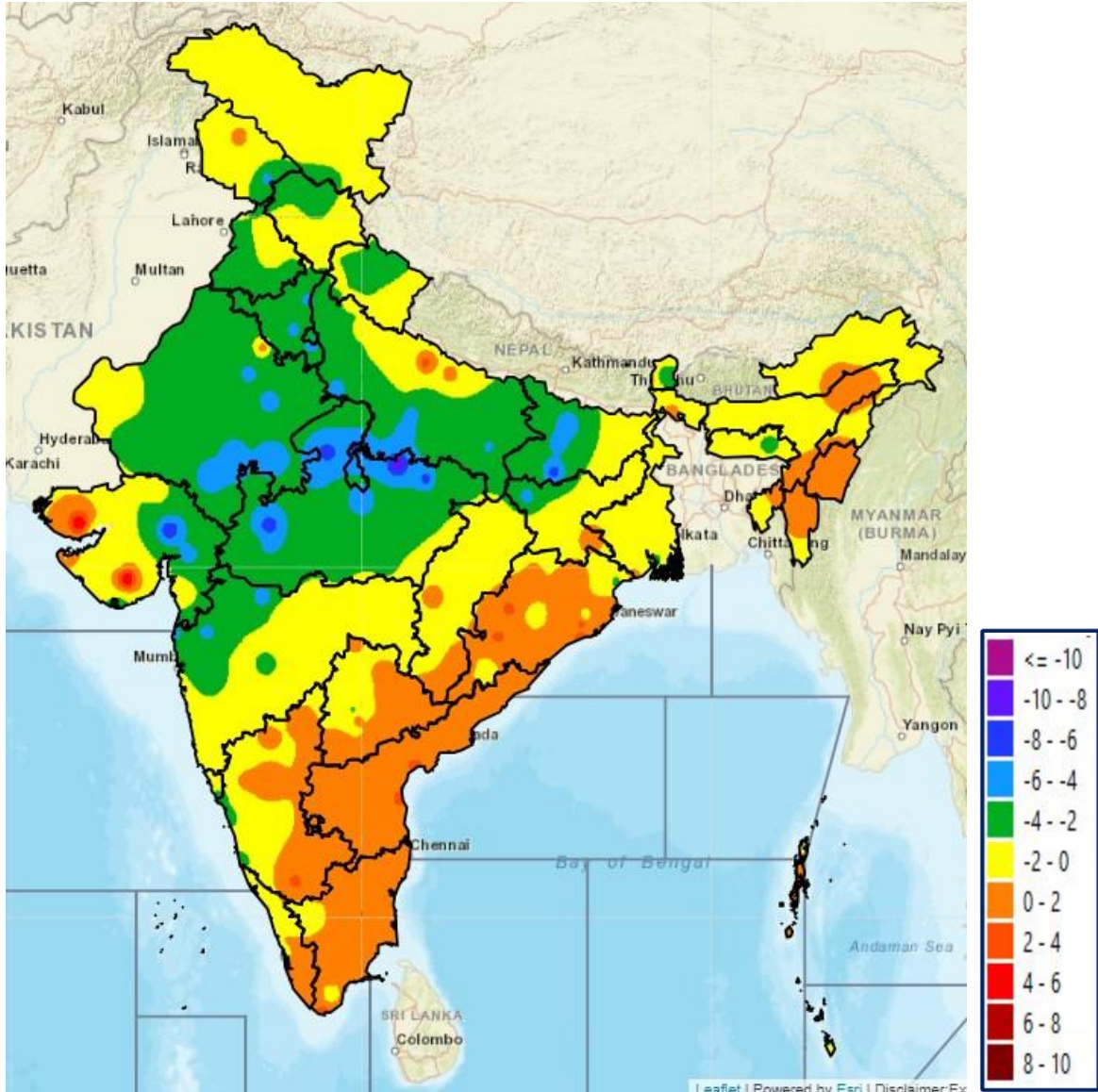


Fig. 4: Departure from Normal of Maximum Temperatures Dated 29.06.2023



\* Red color warning does not mean "Red Alert" Red color warning means "Take Action".  
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Fig. 5: Departure from Normal of Minimum Temperatures Dated 29.06.2023

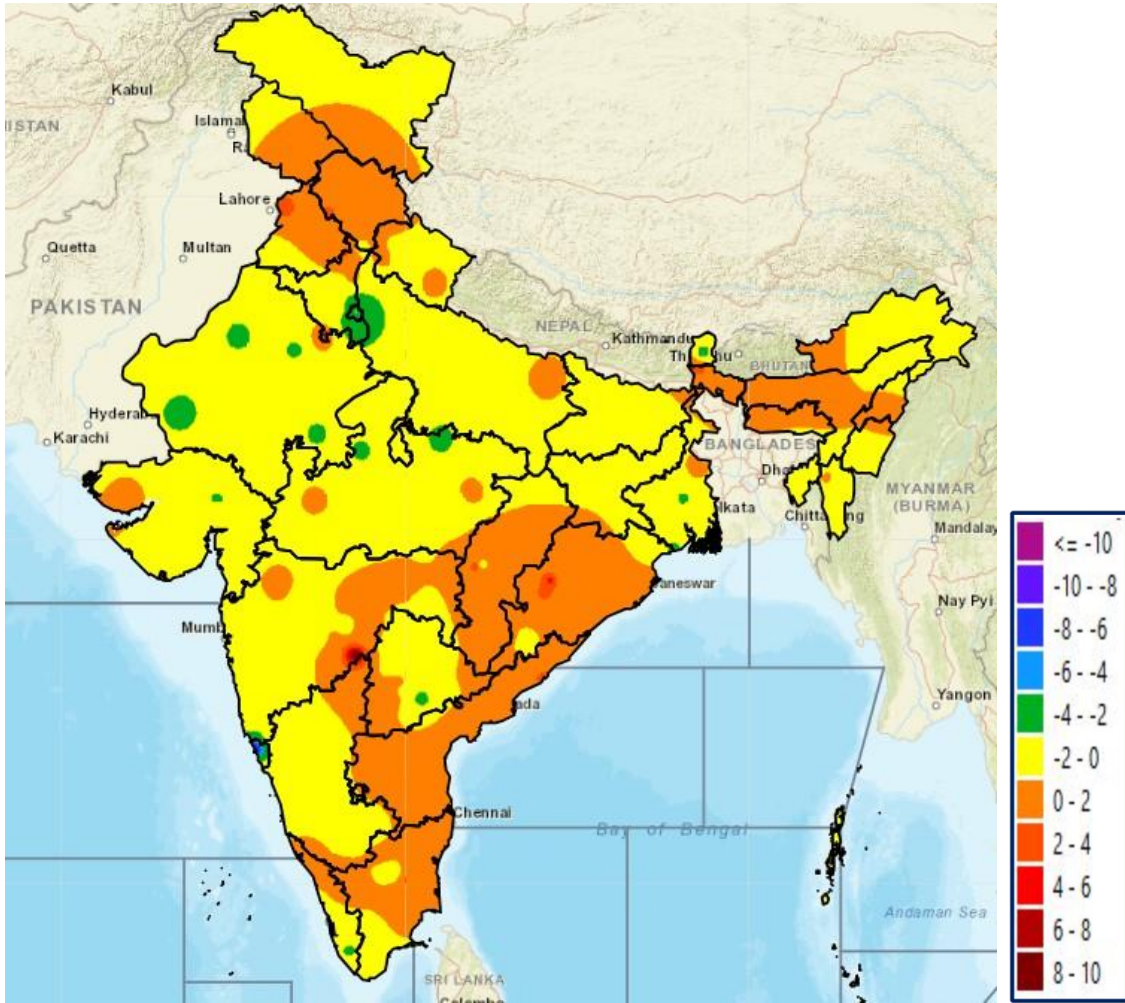
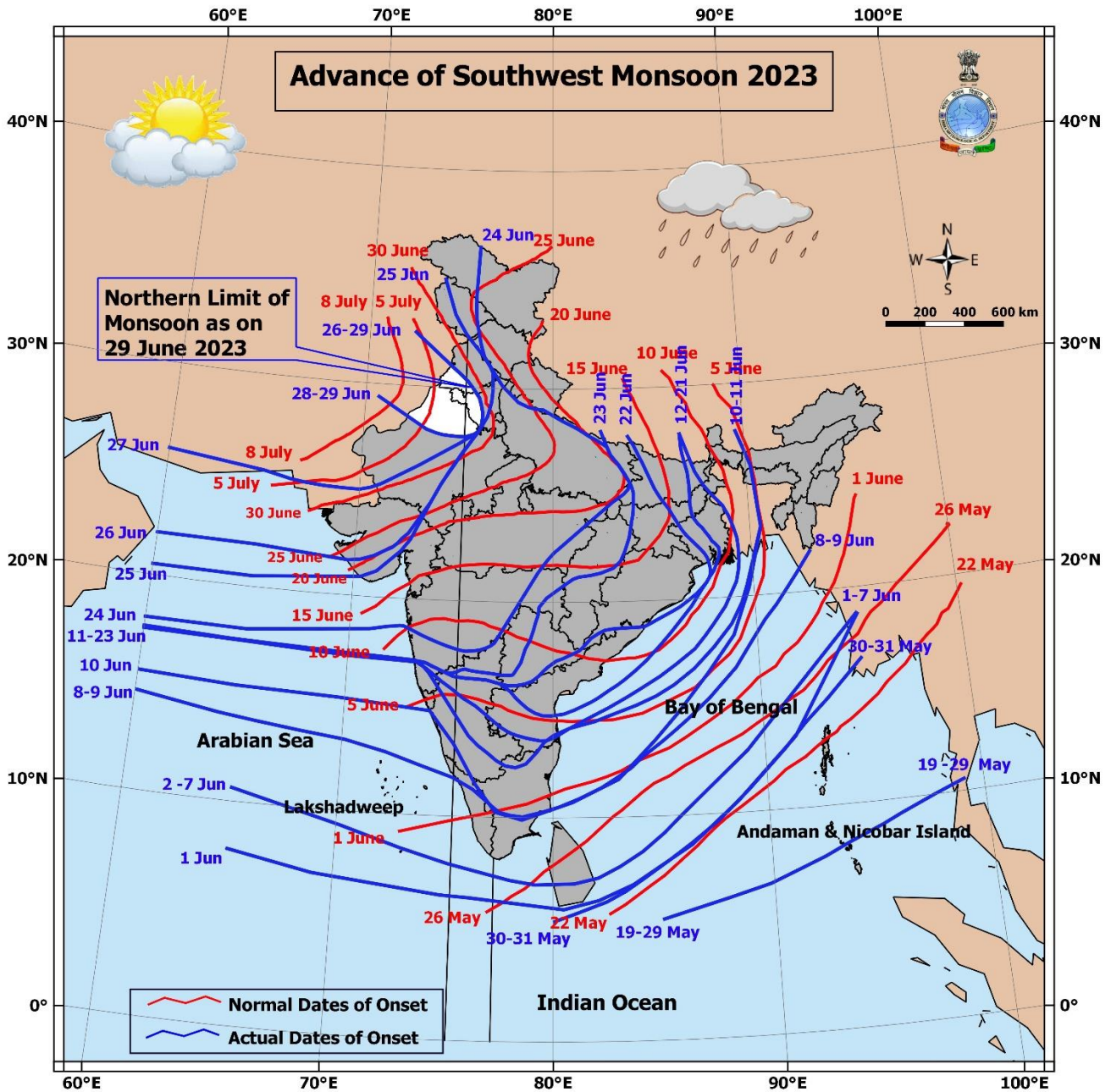
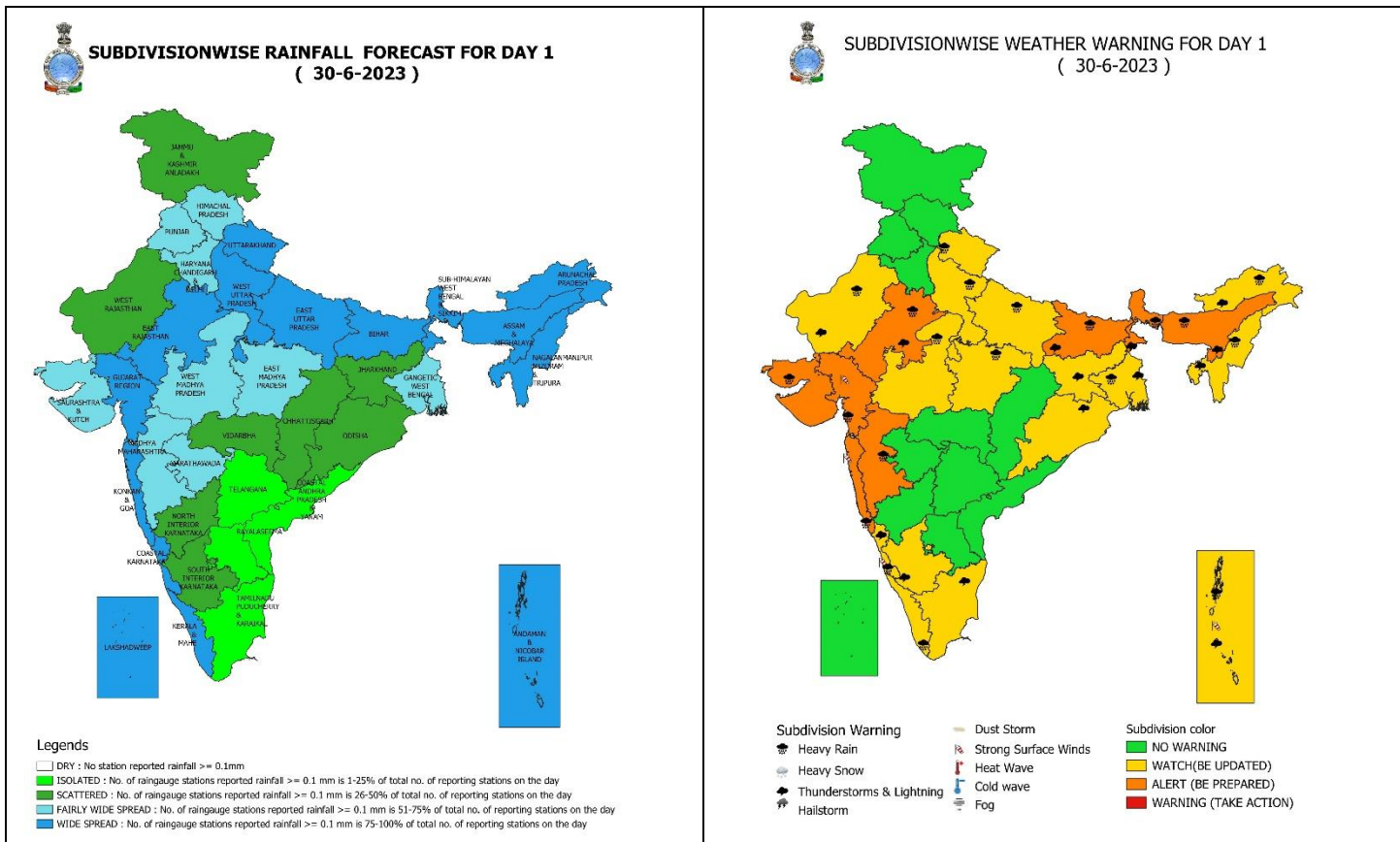


Fig. 6: Advance of Southwest Monsoon

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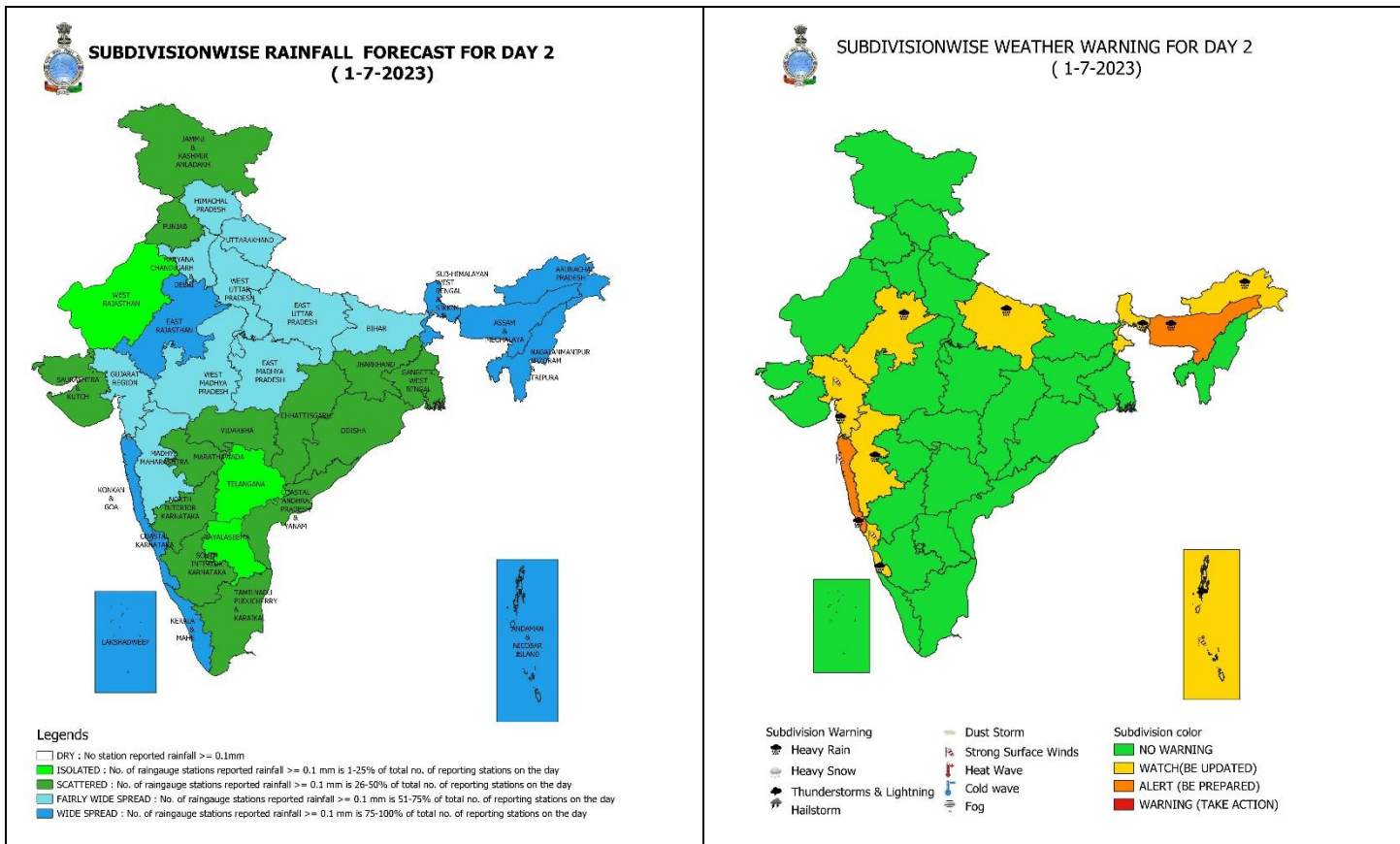




**30 June (Day 1):** ♦ **Heavy to very heavy rainfall** very likely at a few places over Konkan & Goa; at isolated places over East Uttar Pradesh, Bihar, Sub-Himalaya West Bengal & Sikkim, East Rajasthan, Gujarat State, Madhya Maharashtra, Assam & Meghalaya and **heavy rainfall** at isolated places over Andaman & Nicobar Islands, Arunachal Pradesh, Gangetic West Bengal, West Uttar Pradesh, Uttarakhand, West Rajasthan, Madhya Pradesh, Coastal Karnataka and Kerala & Mahe.

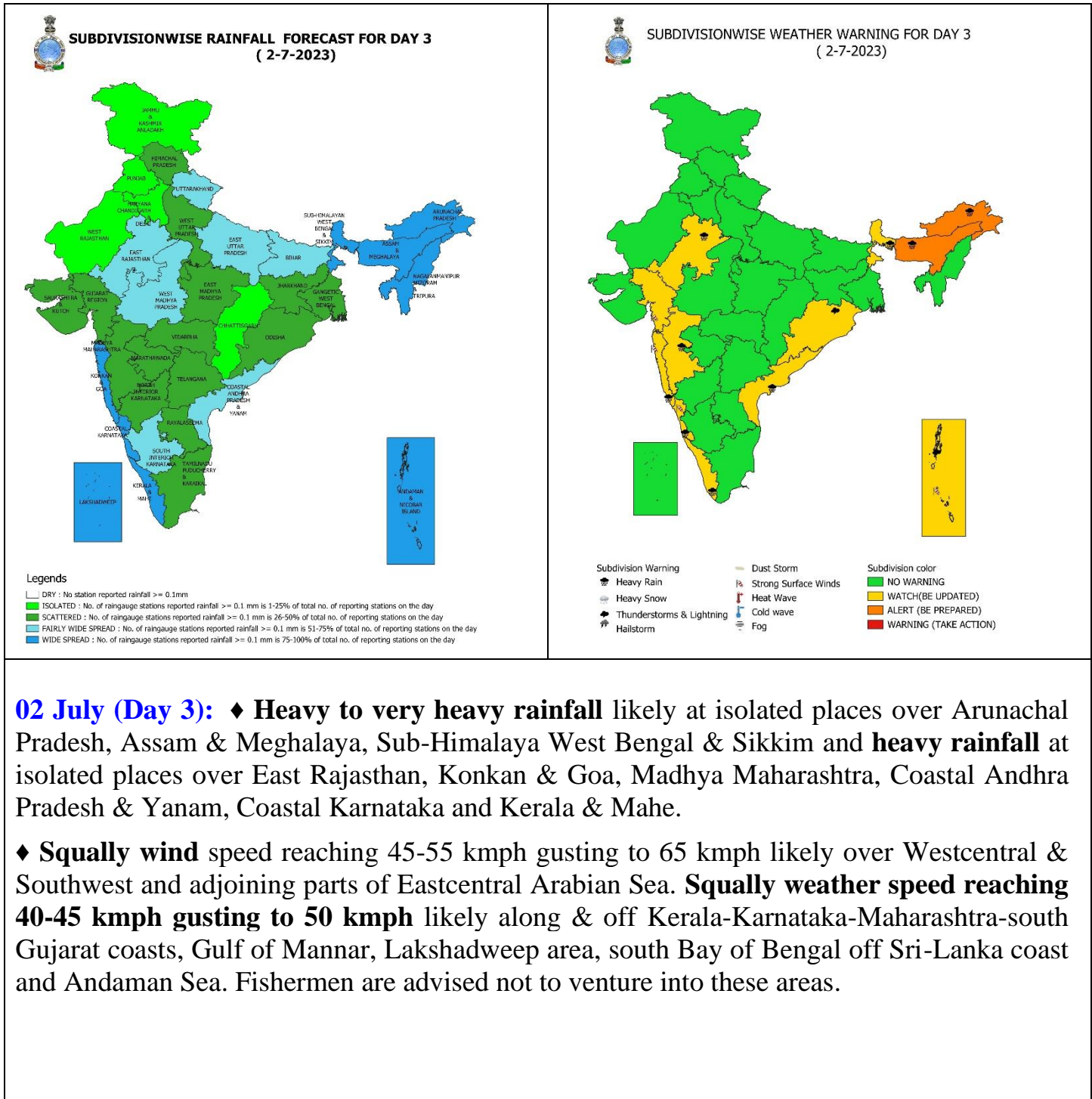
♦ **Thunderstorm with lightning** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, West Bengal & Sikkim, Jharkhand, Bihar, Odisha, Rajasthan, Tamil Nadu, Puducherry & Karaikal, Coastal & South Interior Karnataka.

♦ **Squally wind** speed reaching 45-55 kmph gusting to 65 kmph very likely over Westcentral & Southwest and adjoining parts of Eastcentral Arabian Sea. **Squally weather speed reaching 40-45 kmph gusting to 50 kmph** likely along & off Kerala-Karnataka-Maharashtra-south Gujarat coasts, Gulf of Mannar, Lakshadweep area, southwest & adjoining southeast Bay of Bengal off Sri-Lanka coast. Fishermen are advised not to venture into these areas.



**01 July (Day 2):** ♦ **Heavy to very heavy rainfall** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Konkan & Goa and **heavy rainfall** at isolated places over Sub-Himalaya West Bengal & Sikkim, East Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Gujarat Region, Madhya Maharashtra and Coastal Karnataka.

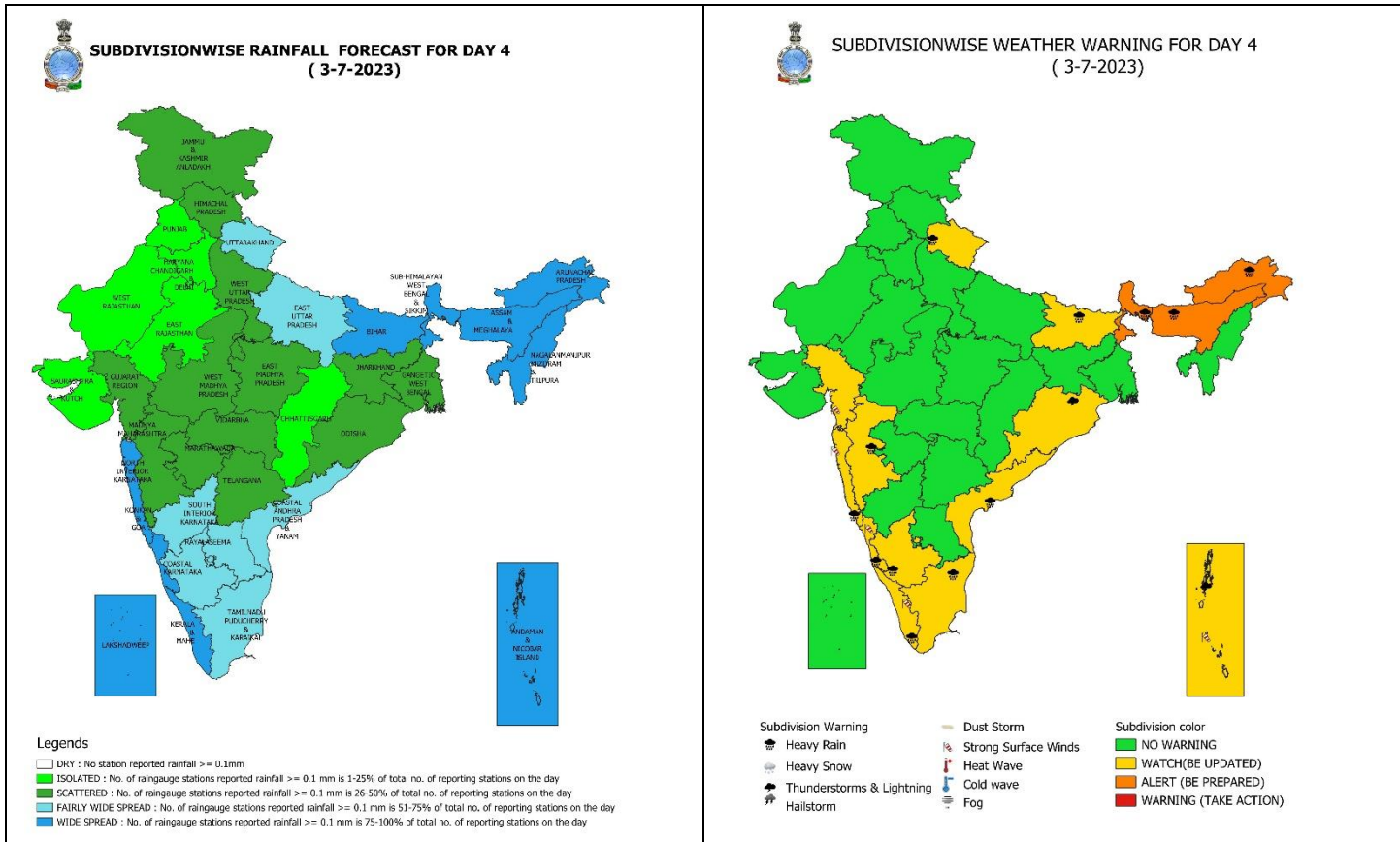
♦ **Squally wind** speed reaching 45-55 kmph gusting to 65 kmph very likely over Westcentral & Southwest and adjoining parts of Eastcentral Arabian Sea. **Squally weather speed reaching 40-45 kmph gusting to 50 kmph** likely along & off Kerala-Karnataka-Maharashtra-south Gujarat coasts, Gulf of Mannar, Lakshadweep area, south Bay of Bengal off Sri-Lanka coast and Andaman Sea. Fishermen are advised not to venture into these areas.



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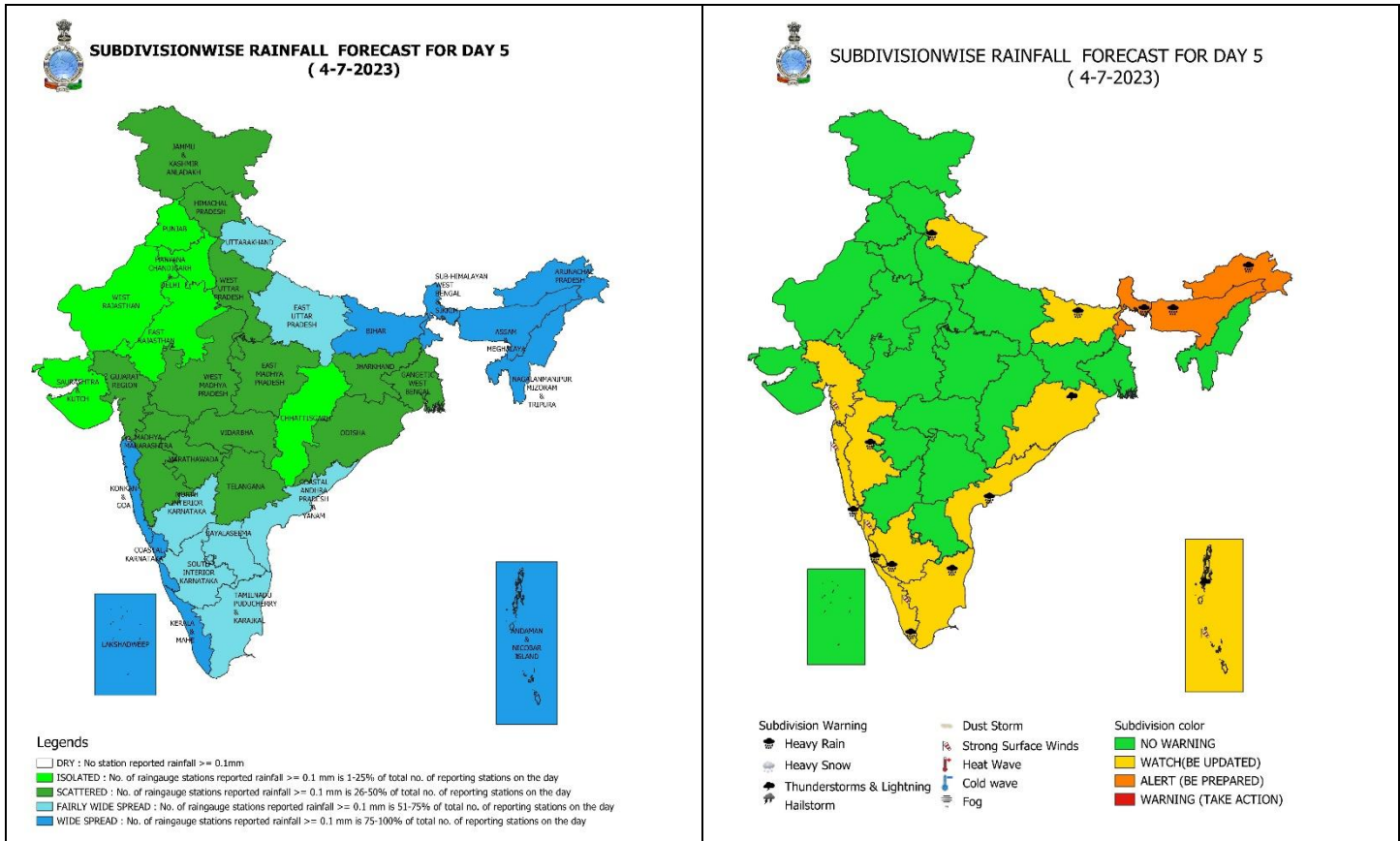
**03 July (Day 4): ♦ Heavy to very heavy rainfall** likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalaya West Bengal & Sikkim, Coastal Karnataka and Kerala & Mahe and **heavy rainfall** at isolated places over Bihar, Uttarakhand, Konkan & Goa, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam, South Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.

♦ **Squally wind** speed reaching 45-55 kmph gusting to 65 kmph likely over Westcentral & Southwest and adjoining parts of Eastcentral Arabian Sea. **Squally weather speed reaching 40-45 kmph gusting to 50 kmph** likely along & off Kerala-Karnataka-Maharashtra-south Gujarat coasts, Gulf of Mannar, Lakshadweep area, south & central Bay of Bengal off Sri-Lanka coast and Andaman Sea. Fishermen are advised not to venture into these areas.

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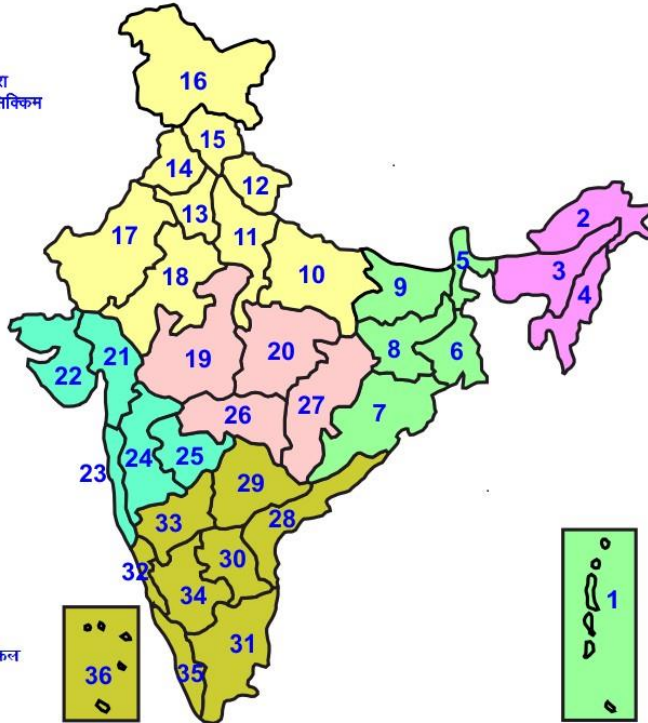


**04 July (Day 5): ♦ Heavy to very heavy rainfall** likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalaya West Bengal & Sikkim, Coastal Karnataka and Kerala & Mahe and **heavy rainfall** at isolated places over Bihar, Uttarakhand, Konkan & Goa, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam, South Interior Karnataka and Tamil Nadu, Puducherry & Karaikal.

♦ **Squally wind** speed reaching 45-55 kmph gusting to 65 kmph likely over Westcentral & Southwest and adjoining parts of Eastcentral Arabian Sea. **Squally weather speed reaching 40-45 kmph gusting to 50 kmph** likely along & off Kerala-Karnataka-Maharashtra-south Gujarat coasts, Gulf of Mannar, Lakshadweep area, south & central Bay of Bengal off Sri-Lanka coast and Andaman Sea. Fishermen are advised not to venture into these areas.

## 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. Marathawada
26. Vidharbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

## SPATIAL DISTRIBUTION (% of Stations reporting)

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

## WARNING

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

## Probabilistic Forecast

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



Heavy Rain



Heavy Snow



Thunderstorm



Dust Storm



Strong Winds



Visibility



Cyclone



Squall/ Hail



Frost



Cold Wave



Heat Wave



Sea State

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## LEGENDS

### WARNING

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)

\* 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

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