



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 06<sup>th</sup> June, 2024

Time of Issue: 1400 hours IST

**Subject:**

- i. **Rainfall/thunderstorm likely at a few places likely to continue over Northwest India till 07<sup>th</sup> June, 2024.**
- ii. **Heat wave conditions likely in isolated pockets over parts of east India, Uttar Pradesh and north Madhya Pradesh during next 5 days.**
- iii. **Rainfall activity is likely to increase over Maharashtra & Coastal Karnataka with heavy to very heavy rainfall from 08<sup>th</sup> June, 2024.**

**Realised weather during past 24 hours till 0830 hours IST of today: (details in Annexure I)**

- ❖ Yesterday, **Heat wave conditions** prevailed in some parts of southern parts of Uttar Pradesh, Delhi and in isolated pockets of Haryana, north Madhya Pradesh and East Rajasthan. **Heat wave conditions** have been prevailing over Haryana since 17<sup>th</sup> and over Madhya Pradesh & Uttar Pradesh since 18<sup>th</sup> May, 2024.
- ❖ Yesterday, Maximum temperatures were in the range of 43-46°C over many parts of Haryana, Delhi and at isolated pockets of north Rajasthan, northwest Madhya Pradesh and southern parts of Uttar Pradesh. These were above normal by 2-4°C over these areas.
- ❖ Yesterday, **the highest maximum temperature** of 46.2°C was reported at Fatehpur (East Uttar Pradesh) over the country.
- ❖ **Heavy rainfall** at isolated places Rayalaseema, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Kerala & Mahe, North Interior Karnataka, Telangana, Andaman & Nicobar Islands, Sub-Himalayan West Bengal & Sikkim, Uttarakhand, Assam & Meghalaya.
- ❖ **Duststorm** observed at isolated places over West Rajasthan.
- ❖ **Hailstorm** observed at isolated places over Uttarakhand, Himachal Pradesh, Punjab, Haryana, East Uttar Pradesh and West Madhya Pradesh.
- ❖ **Squall** observed at isolated places over Punjab, Haryana-Chandigarh-Delhi, East Uttar Pradesh.
- ❖ **Gusty winds/squally winds** data reported over the country is attached in **Annexure II**.

**Advance of Southwest Monsoon:**

- ❖ Southwest Monsoon has further advanced into some more parts of central Arabian Sea; most parts of Karnataka; some more parts of Maharashtra, Telangana & Coastal Andhra Pradesh; most parts of Westcentral Bay of Bengal and some more parts of Northwest Bay of Bengal.
- ❖ The Northern Limit of Monsoon now passes through 17.0°N/60°E, 17.0°N/65°E, 16.5°N/70°E, Ratnagiri, Solapur, Medak, Bhadrachalam, Vizianagaram, 19.5°N/88°E, 21.5°N/89.5°E, 23°N/89.5°E and Islampur. **(Annexure III)**
- ❖ Conditions are favourable for further advance of Southwest Monsoon into some more parts of central Arabian Sea, remaining parts of Karnataka & Coastal Andhra Pradesh, some more parts of Maharashtra (including Mumbai), Telangana, some parts of south Chhattisgarh & South Odisha, remaining parts of Westcentral & more parts of Northwest Bay of Bengal during next 3-4 days.

## Weather Systems and Forecast & Warnings: (Annexure IV)

- ❖ A cyclonic circulation lies over northeast Assam & neighbourhood in lower tropospheric levels. Strong southwesterly/southerly winds are prevailing from Bay of Bengal to northeastern States in lower tropospheric levels. Under their influence:
  - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Sub-Himalayan West Bengal & Sikkim during next 5 days.
  - ✓ Isolated **heavy rainfall** very likely over Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim during 06<sup>th</sup>-10<sup>th</sup>; Arunachal Pradesh during 08<sup>th</sup>-10<sup>th</sup>; Nagaland on 10<sup>th</sup> June, 2024.
- ❖ A cyclonic circulation lies over north Rayalaseema & neighbourhood in lower tropospheric levels and a shear zone runs roughly along 16°N in middle tropospheric levels. Under their influence:
  - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (40-50 kmph)** likely over Konkan & Goa, Madhya Maharashtra, Marathwada, Saurashtra & Kutch, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Karnataka during next 5 days; Tamil Nadu, Puducherry & Karaikal and Kerala & Mahe during 06<sup>th</sup>-08<sup>th</sup> June.
  - ✓ Isolated **heavy rainfall** very likely over Konkan & Goa, Madhya Maharashtra during 06<sup>th</sup>-10<sup>th</sup> and Marathwada during 06<sup>th</sup>-08<sup>th</sup> June.
  - ✓ Isolated **heavy rainfall** very likely over Interior Karnataka, Kerala & Mahe during 06<sup>th</sup>-09<sup>th</sup>; Coastal Karnataka on 08<sup>th</sup>, 09<sup>th</sup> & 10<sup>th</sup>; Tamil Nadu, Puducherry & Karaikal on 06<sup>th</sup> & 07<sup>th</sup>; Coastal Andhra Pradesh on 06<sup>th</sup>, 09<sup>th</sup> & 10<sup>th</sup>; Telangana on 06<sup>th</sup> & 10<sup>th</sup> and Rayalaseema on 06<sup>th</sup> & 07<sup>th</sup> June, 2024.
  - ✓ Isolated **very heavy rainfall** very likely over Konkan & Goa during 08<sup>th</sup>-10<sup>th</sup>; Madhya Maharashtra and Coastal Karnataka on 09<sup>th</sup> & 10<sup>th</sup> June.
- ❖ A cyclonic circulation lies over northwest Madhya Pradesh and a trough runs from this cyclonic circulation to West Bengal in lower tropospheric levels. Under their influence:
  - ✓ Isolated to scattered light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Bihar, Jharkhand, Gangetic West Bengal during next 2-3 days; Odisha, Madhya Pradesh, Vidarbha, Chhattisgarh during next 4-5 days.
  - ✓ Isolated **hailstorm and squally winds (50-60 kmph)** very likely over West Madhya Pradesh during 06<sup>th</sup>-08<sup>th</sup> June, 2024.
  - ✓ **Strong winds** (wind speed 25-35 kmph) very likely over Andaman & Nicobar Islands during next 5 days.
  - ✓ **Heavy rainfall** at isolated places likely over Odisha during 06<sup>th</sup>-08<sup>th</sup> June; Andaman & Nicobar Islands on 09<sup>th</sup> & 10<sup>th</sup> June, 2024.
- ❖ A Western Disturbance seen as a cyclonic circulation over north Pakistan in lower tropospheric levels with trough in middle tropospheric westerlies roughly along Long. 65°E to the north of Lat. 30°N. Prevailing southwesterly winds from Arabian Sea over the plains of Northwest India are likely to continue during next 2 days. Under their influence:
  - ✓ Scattered to fairly widespread light rainfall accompanied with **thunderstorm, lightning & gusty winds (40-50 kmph)** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 06<sup>th</sup> & 07<sup>th</sup> June, 2024.
  - ✓ Isolated **hailstorm** very likely over Himachal Pradesh and Uttarakhand on 06<sup>th</sup> June, 2024.
  - ✓ Isolated to scattered very light to light rainfall with **thunderstorm, lightning & gusty winds (40-50 kmph)** very likely over Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh and Rajasthan during 06<sup>th</sup>-07<sup>th</sup> June, 2024.

- ✓ **Duststorm** very likely over Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh on 06<sup>th</sup> and Rajasthan during 06<sup>th</sup>-07<sup>th</sup> June, 2024.
- ✓ Isolated **hailstorm** very likely over West Rajasthan on 07<sup>th</sup> June, 2024.

#### Maximum temperature observation and forecast for next 5 days:

- ❖ Rise in maximum temperatures by 2-3°C very likely over East India during next 3 days and no significant change thereafter.
- ❖ No significant change in maximum temperatures very likely over northwest India during next 3 days and rise by about 2-3°C thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

#### Heat Wave, Warm Night and Hot & Humid weather warning for next 5 days:

- ❖ **Heat wave conditions** very likely in isolated pockets of northeast Madhya Pradesh during 06<sup>th</sup>-10<sup>th</sup>, Jharkhand during 07<sup>th</sup>-10<sup>th</sup>; Punjab, Haryana, Bihar, Odisha during 08<sup>th</sup>-10<sup>th</sup> June, 2024.
- ❖ **Heat wave conditions** very likely in isolated pockets of Uttar Pradesh on 06<sup>th</sup> & 07<sup>th</sup> and **heat wave to severe heat wave conditions** in some parts over the region during 08<sup>th</sup>-10<sup>th</sup> June, 2024.
- ❖ **Hot and humid weather** very likely to prevail over isolated pockets of Bihar on 07<sup>th</sup>; Odisha on 06<sup>th</sup> & 07<sup>th</sup>; Jharkhand on 06<sup>th</sup>; Gangetic West Bengal during 06<sup>th</sup>-10<sup>th</sup> June, 2024.

For more details, kindly refer: [https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

**Realised Rainfall during past 24 hours till 0830 hours IST of today:**

- ❖ Light to moderate rainfall accompanied with thunderstorm & lightning observed at most **places** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Sub-Himalayan West Bengal & Sikkim; at many places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Coastal Andhra Pradesh & Yanam, Rayalaseema; at a few places over Interior Karnataka, Telangana, Konkan & Goa, Madhya Maharashtra, Marathwada, West Madhya Pradesh, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Vidarbha, Haryana-Chandigarh-Delhi, East Uttar Pradesh and at isolated places over Gujarat Region, East Madhya Pradesh, Chhattisgarh, West Rajasthan, Bihar, Jharkhand, Odisha and Gangetic West Bengal.

**Significant amount of rainfall (in cm):**

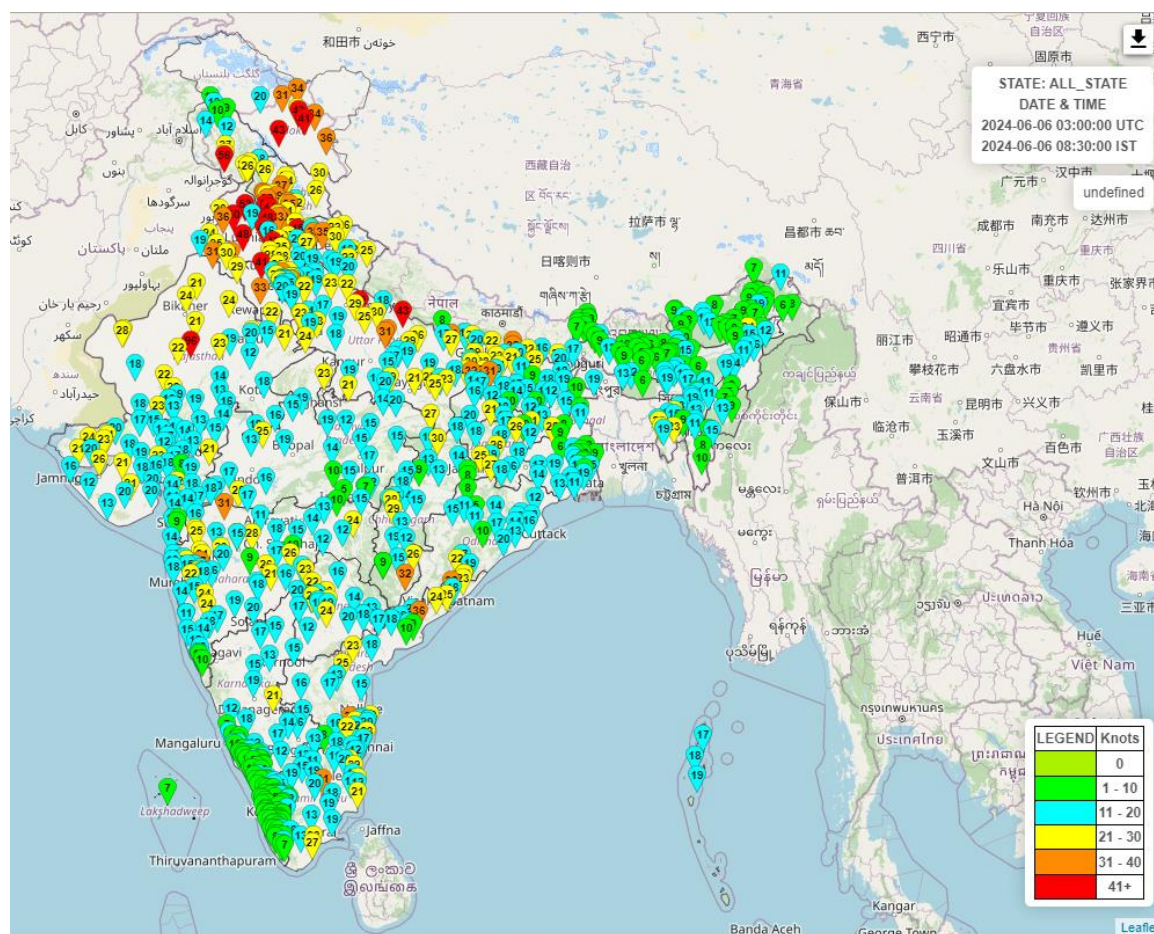
- ❖ **Rayalaseema:** Kondapuram (dist Ysr) 11, Simhadripuram (dist Ysr) 8, Tadpatrin (dist Anantapuramu) 7, Orvakal (dist Kurnool) 7, Bathalapalle (dist Sri Sathyasai) 6, Sullurpeta (dist Tirupati) 5, Dhone (dist Nandyal) 5;
- ❖ **Andaman & Nicobar Islands:** Maya Bandar (dist North & Middle Andaman) 11, Long Island (dist North & Middle Andaman) 5;
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Gajoldoba (dist Jalpaiguri) 10, Amfu Majhian (dist South Dinajpur) 8, Samsing (dist Darjeeling) 7, Siliguri Pto (dist Darjeeling) 5;
- ❖ **Telangana:** Alampur (dist Jogulamba Gadwal) 10, Devarakonda (dist Nalgonda) 7, Nagarjuna Sagar (dist Nalgonda) 7, Kalwakurthy (dist Nagarkurnool) 7, Chandur (dist Nalgonda) 6, Kollapur (dist Nagarkurnool) 6, Burgampadu (dist B. Kothagudem) 6;
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Pudukottai (dist Pudukkottai), Chembarambakka ARG (dist Kancheepuram) 9 each, Chembarambakkam (dist Kancheepuram), Taluk Office Pandalur (dist The Nilgiris) 8 each, Perungalur (dist Pudukkottai), Palacode ARG (dist Dharmapuri), Palacode (dist Dharmapuri), Mimisal (dist Pudukkottai), Ponneri (dist Tiruvallur), Parangipettai (dist Cuddalore), KRP Dam (dist Krishnagiri), Tirumangalam (dist Madurai), Singampunari (dist Sivagangai) 7 each;
- ❖ **Coastal Andhra Pradesh & Yanam:** Kaikalur (dist Eluru) 8, Narsapuram (dist West Godavari) 7, Nuzvid (dist Eluru) 7, Macherla (dist Palnadu) 7, Yerragondapalem (dist Prakasam) 6, Eluru (dist Eluru) 6, Merakamudidam (dist Vizianagaram) 5, Gudivada (dist Krishna) 5, Tanuku (dist West Godavari) 5;
- ❖ **Kerala & Mahe:** Cherthala (District: Alapuzha) 9, Kodungallur (Thrissur district) 5;
- ❖ **North Interior Karnataka:** Kalaburgi Obsy (dist Kalaburgi) 7, Manthala (dist Bidar) 5;
- ❖ **South Interior Karnataka:** Magadi (dist Ramanagara) 6, Rayalpadu (dist Kolar) 5;
- ❖ **Assam & Meghalaya:** Cherrapunji(rkm) (dist East Khasi Hills) 7, Shella (dist East Khasi Hills) 7;
- ❖ **Madhya Maharashtra:** Nda Pune (dist Pune) 6, Dhule (dist Dhule) 5



**Reported maximum wind speed (kmph) during past 24 hours till 0830 hours IST of today:**

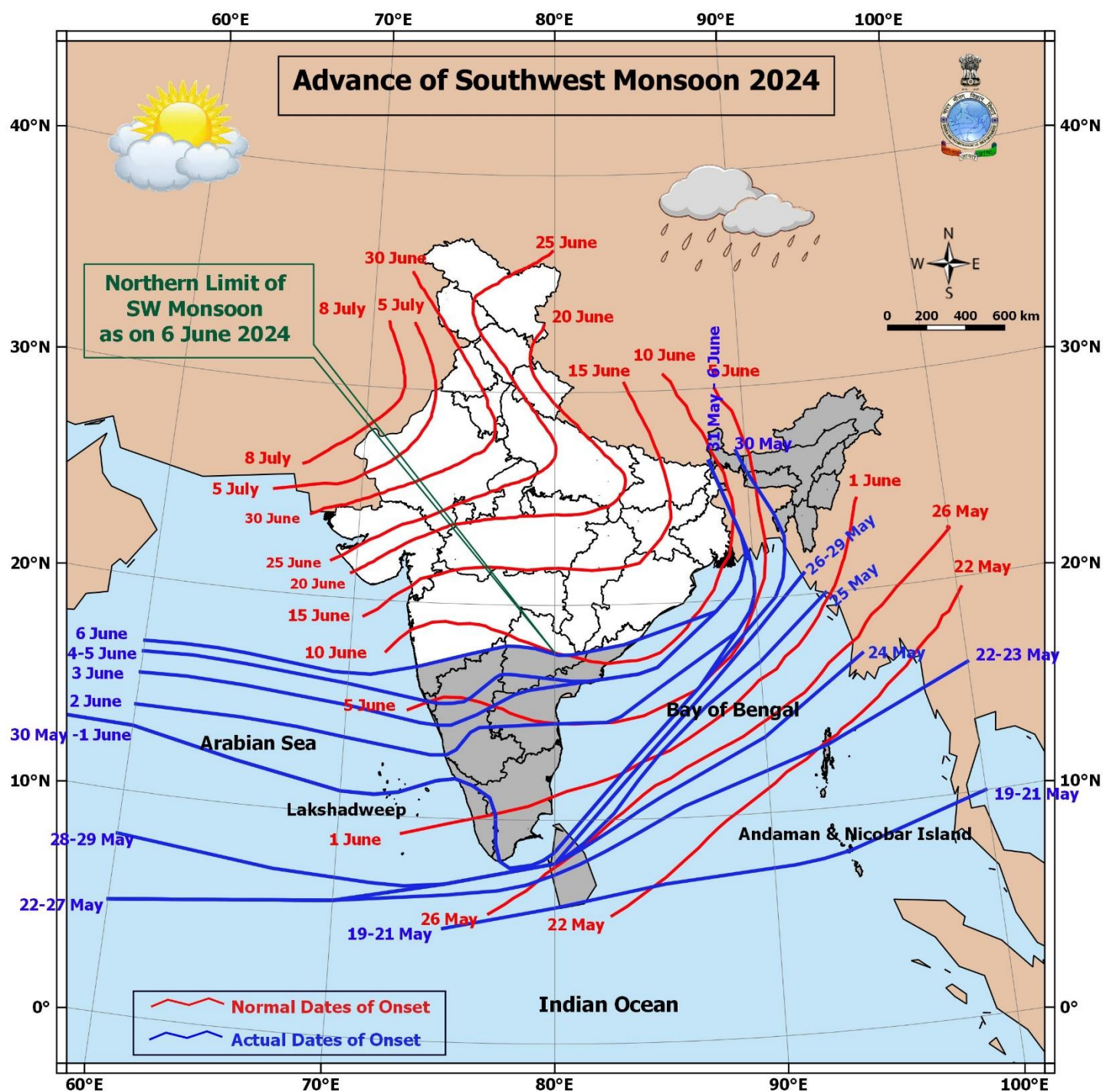
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Chatha-56, Padum-43, Chuchot\_yokma-43, Upshi-41, Nyoma-36, Tangtse\_Dubruk-34, Nubra\_hunder-34, Khaltse-31;
- ❖ **Punjab:** Nurmahal-53, Balachar-51, Moga-50, Fatehgarh sahib-48, Barnala-48, Ropar-44, Rauni-41, Sri Anandpur sahib-39, Mohali-39, Faridkot-36;
- ❖ **Haryana-Chandigarh-Delhi:** Hathinkundberaj-45, Panchkula-40, Kaul-43, Pandu-41, East delhi-34, Chandigarh-33, Mahendragarh-33, Uchani-32, Nuh-31, Sirsa-31;
- ❖ **Uttar Pradesh:** Bahraich-43, Niyamatpur-42, Lucknow-40, Gorakhpur-36;
- ❖ **Himachal Pradesh:** Bilaspur-39, Mandi-37, Una-36, Hamirpur-36, mashobra-35, Kufri-35;
- ❖ **Madhya Maharashtra:** Rajgurunagar-37, Dhule-31;
- ❖ **Coastal Andhra Pradesh and Yanam:** Peddapuram-36, Vizianagaram-32;
- ❖ **Bihar:** Sitamarhi-33, Darbhanga-32, Dumraon-32, Patna-31
- ❖ **Chhattisgarh:** sukma-32;
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Sirugamani-31, Tiruttani-31;
- ❖ **Rajasthan:** Hanumangarh-31;
- ❖ **West Madhya Pradesh:** Gwalior - 48, Indore - 46, Shajapur - 46, Bhind - 44, Datia - 43, Agar - 35, Sehore - 35, Ashoknagar - 35, Badwani - 31, Rajgarh - 30;
- ❖ **East Madhya Pradesh:** Singrauli - 50, Chhatarpur - 39, Chitrakoot - 37, Rewa - 37, Mandla - 31

**Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 05.06.2024 to 0830 hrs IST of 06.06.2024**

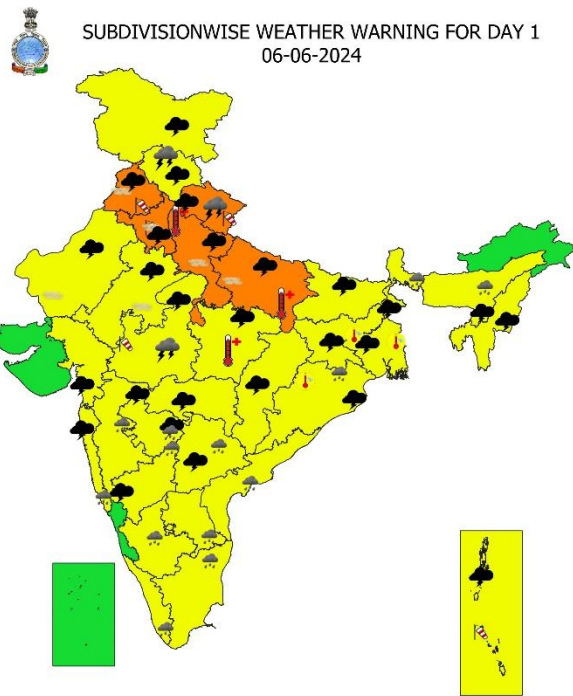


For more details, kindly refer: <http://aws.imd.gov.in:8091/>

## Advance of Southwest Monsoon 2024



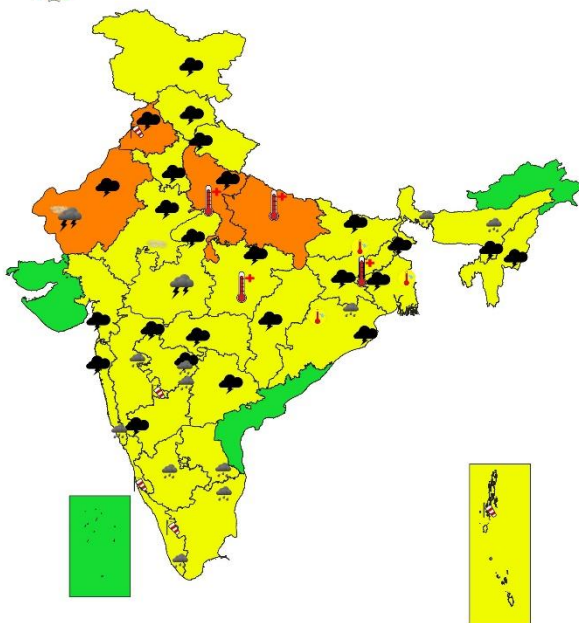




## Subdivision Warning



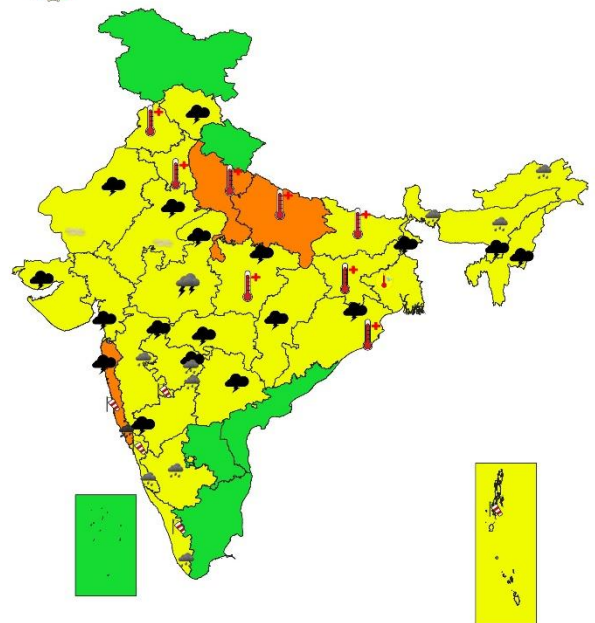
**SUBDIVISIONWISE WEATHER WARNING FOR DAY 2**  
07-06-2024



## Subdivision Warning

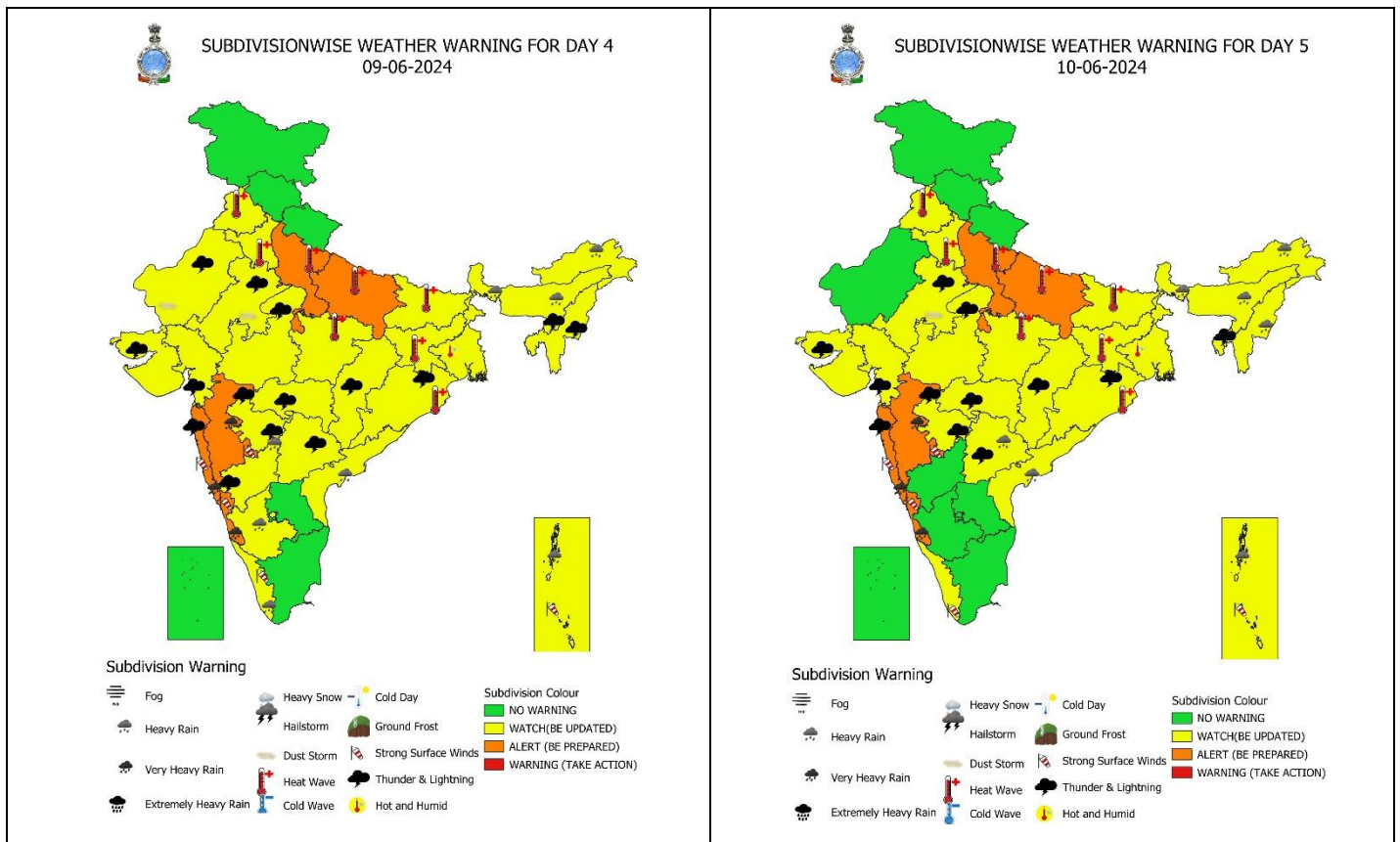


**SUBDIVISIONWISE WEATHER WARNING FOR DAY 3**  
08-06-2024



## Subdivision Warning





**IMPACT & ACTION SUGGESTED** due to **very heavy rainfall** over Konkan & Goa during 08<sup>th</sup>-10<sup>th</sup>; Madhya Maharashtra and Coastal Karnataka on 09<sup>th</sup> & 10<sup>th</sup> June, 2024.

### Impact Expected

- Localized Flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- Occasional reduction in visibility due to heavy rainfall.
- Disruption of traffic in major cities due to water logging in roads leading to increased travel time.
- Minor damage to kutcha roads.
- Possibilities of damage to vulnerable structure.
- Localized Landslides/Mudslides/landslips/mudslips/landsinks/mudsinks.
- Damage to horticulture and standing crops in some areas due to inundation.
- It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC)

### A. Action Suggested

- Check for traffic congestion on your route before leaving for your destination.
- Follow any traffic advisories that are issued in this regard.
- Avoid going to areas that face the water logging problems often.
- Avoid staying in vulnerable structure.



## **IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:**

### **Orange alert Areas:**

- High temperature & increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work.
- High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.
- Avoid heat exposure– keep cool. Avoid dehydration.
- Drink sufficient water- even if not thirsty.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated.

### **Yellow alert Areas:**

- Moderate temperature & heat is tolerable for general public but moderate health concern likely for vulnerable people e.g. infants, elderly, people with chronic diseases.
- Avoid heat exposure.
- Wear lightweight, light colour, loose, cotton clothes.
- Cover your head, use a cloth, hat or umbrella.

## **Impact expected and action suggested due to thunderstorms, lightning/squall/gusty winds/Hailstorm over Himachal Pradesh, Uttarakhand on 06<sup>th</sup>; West Madhya Pradesh, Punjab, Rajasthan, Haryana-Chandigarh-Delhi on 06<sup>th</sup> & 07<sup>th</sup> June, 2024.**

### **Impact expected:**

- Strong wind/hail may damage plantation, horticulture and standing crops.
- Hail may injure people and cattle at open places.
- Partial damage to vulnerable structures due to strong winds.
- Minor damage to kutcha houses/walls and huts.
- Loose objects may fly.

### **Action suggested:**

- Stay indoors, close windows & doors and avoid travel if possible.
- Take safe shelters; do not take shelter under trees.
- Do not lie on concrete floors and do not lean against concrete walls.
- Unplug electrical/ electronic appliances.
- Immediately get out of water bodies.
- Keep away from all the objects that conduct electricity.

## **Agromet advisories for Heavy Rainfall, Gusty winds, Hail Storms and Heat Wave likely over various parts of the country:**

- Drain out excess water from crop fields to avoid water stagnation in Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana, Andaman & Nicobar Islands and Sub Himalayan West Bengal.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Uttar Pradesh, Jharkhand and East Madhya Pradesh.
- Use hail nets or hail caps in fruit orchards to prevent mechanical damage and provide mechanical support to horticultural crops & staking to vegetables in Himachal Pradesh, Uttarakhand, West Rajasthan and West Madhya Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

## Legends & abbreviations:

- ❖ **Heavy Rain:**64.5-115.5mm; **Very Heavy Rain:**115.6-204.4mm; **Extremely Heavy Rain:** >204.4mm.
- ❖ **Obsy:** Observatory; **AWS:** Automatic Weather Station; **dist:** District; **NH:** National Highway; **KVK:** Krishi Vigyan Kendra; **DVC:** Damodar Valley Corporation; **PTO:** Part Time Office.
- ❖ **Region wise classification of meteorological Sub-Divisions:**
  - **Northwest India:** Western Himalayan Region (Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand); Punjab, Haryana-Chandigarh-Delhi; West Uttar Pradesh, East Uttar Pradesh, West Rajasthan and East Rajasthan.
  - **Central India:** West Madhya Pradesh, East Madhya Pradesh, Vidarbha and Chhattisgarh.
  - **East India:** Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim; Gangetic West Bengal, Odisha and Andaman & Nicobar Islands.
  - **Northeast India:** Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
  - **West India:** Gujarat Region, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra and Marathawada.
  - **South India:** Coastal Andhra Pradesh & Yanam, Telangana, Rayalaseema, Coastal Karnataka, North Interior Karnataka, South Interior Karnataka, Kerala & Mahe, Tamil Nadu, Puducherry & Karaikal and 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)



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

## LEGENDS

### 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



**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 Strom: Wind speed  $>220$  kmph ( $>119$  knots)