



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release.

Date: 03<sup>rd</sup> June, 2024

Time of Issue: 1330 hours IST

**Subject:**

- i. **In association with approaching Western Disturbance, rainfall/thunderstorm likely at a few places over plains of Northwest India during 05<sup>th</sup>-07<sup>th</sup> June.**
- ii. **Heat wave conditions with reduced intensity likely to continue in isolated pockets over parts of northwest & east India during next 4-5 days.**
- iii. **Southwest Monsoon advanced into some more parts of south Peninsular India, today the 03<sup>rd</sup> June.**

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

- ❖ **Heat wave conditions** prevailed in isolated pockets over central part of Uttar Pradesh, Punjab, Haryana, West Rajasthan, Himachal Pradesh and East Madhya Pradesh. **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 witnessed a fall by 3-4°C over some parts of East Madhya Pradesh; by 2-3 in some parts of Interior Odisha, Vidarbha, Punjab and by 1-2°C over some parts of Haryana, West Uttar Pradesh, West Madhya Pradesh & adjoining East Rajasthan. Maximum Temperature were in the range 43-45°C over some parts of north Rajasthan, south Haryana, Delhi, north Madhya Pradesh & south east Madhya Pradesh; in the range 41-43°C over many parts of Punjab, remaining parts of Haryana, Delhi south Rajasthan, Madhya Pradesh; over some parts of west Uttar Pradesh, Chhattisgarh, Vidarbha, Telangana, south Interior Odisha.
- ❖ Yesterday, **the highest maximum temperature of 45.4°C** was reported at **Sri Ganganagar (West Rajasthan)** over the country.
- ❖ **Heavy to very heavy rainfall** observed at isolated places over North Interior Karnataka, Coastal Andhra Pradesh, Rayalaseema, Telangana, Odisha, Assam & Meghalaya; **heavy rainfall** at isolated places over Chhattisgarh, Tamil Nadu and South Interior Karnataka.
- ❖ **Gusty winds/squally winds** data reported over the country is attached in **Annexure II**.

**Advance of Southwest Monsoon:**

- ❖ Southwest Monsoon advanced into some more parts of central Arabian Sea, some more parts of Karnataka, Rayalaseema, Coastal Andhra Pradesh, some parts of Telangana and some more parts of Westcentral and Northwest Bay of Bengal, today the 3<sup>rd</sup> June.
- ❖ The Northern Limit of Monsoon passes through 15.5°N/60°E, 15.5°N/65°E, 15°N/70°E, Honnavar, Ballari, Kurnool, Narsapur 17°N/85°E, 19.5°N/88°E 21.5°N/90°E, 23°N/89.5°E and Islampur. **(Annexure III)**
- ❖ Conditions are favourable for further advance of Southwest Monsoon into remaining parts of central Arabian Sea, remaining parts of Karnataka, some parts of south Maharashtra, goa, remaining parts Rayalaseema, Telangana & Coastal Andhra Pradesh, some parts of south Chhattisgarh and south Odisha, some more parts of Westcentral and Northwest Bay of Bengal during next 4-5 days.

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

- ❖ A cyclonic circulation lies over northeast Assam 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 7 days.
  - ✓ Isolated **heavy to very heavy rainfall** very likely over Assam & Meghalaya during 03<sup>rd</sup>-05<sup>th</sup> with heavy rainfall on 06<sup>th</sup> & 07<sup>th</sup>; isolated **heavy rainfall** over Sub-Himalayan West Bengal & Sikkim during 03<sup>rd</sup>-06<sup>th</sup>; Arunachal Pradesh on 03<sup>rd</sup> & 04<sup>th</sup> and Nagaland, Manipur, Mizoram & Tripura on 05<sup>th</sup> & 06<sup>th</sup> June.
- ❖ A cyclonic circulation lies over Kerala & neighbourhood and another cyclonic circulation lies over westcentral Bay of Bengal adjoining southwest Bay of Bengal off south Coastal Andhra Pradesh-north Tamil Nadu in lower tropospheric levels. Strong westerly winds are prevailing along Kerala Coast. Under its influence:
  - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over Kerala & Mahe, Lakshadweep, Andaman & Nicobar Islands, Karnataka; scattered to fairly widespread light to moderate rainfall over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh, Telangana, Rayalaseema during next 5 days.
  - ✓ *Isolated **heavy rainfall** very likely over Kerala & Mahe, South Interior Karnataka during 03<sup>rd</sup>-07<sup>th</sup>; Tamil Nadu on 03<sup>rd</sup> & 05<sup>th</sup>; Telangana during 04<sup>th</sup>-06<sup>th</sup>; North Interior Karnataka during 03<sup>rd</sup>-06<sup>th</sup>; Coastal Karnataka on 03<sup>rd</sup> & 04<sup>th</sup>; Coastal Andhra Pradesh, Rayalaseema on 03<sup>rd</sup> & 06<sup>th</sup> June, 2024.*
  - ✓ **Isolated very heavy rainfall very likely over Kerala & Mahe and Coastal Andhra Pradesh on 03<sup>rd</sup> June.**
- ❖ A cyclonic circulation lies over East Uttar Pradesh and a trough runs this cyclonic circulation over East Uttar Pradesh to North Interior Karnataka in lower tropospheric levels. Under its influence:
  - ✓ Isolated to scattered light/moderate Scattered to fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Bihar, Jharkhand, Gangetic West Bengal, on 03<sup>rd</sup> & 04<sup>th</sup>; over Chhattisgarh, Odisha, Vidarbha, Madhya Pradesh, Madhya Maharashtra, Marathwada during next 5 days; Konkan & Goa during 03<sup>rd</sup>-05<sup>th</sup> June.
  - ✓ Fairly widespread light to moderate rainfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Konkan & Goa during 06<sup>th</sup>-08<sup>th</sup> June, 2024.
  - ✓ Isolated **heavy rainfall** very likely over Madhya Maharashtra on 04<sup>th</sup> June.
- ❖ A cyclonic circulation lies over northwest Uttar Pradesh and another over northwest Madhya Pradesh in lower tropospheric levels. A fresh western disturbance is likely to affect Western Himalayan Region and adjoining plains from 04<sup>th</sup> June, 2024. Prevailing southwesterly Arabian Sea winds over the plains of Northwest India are likely to continue during next 7 days. Under their influence;
  - ✓ Isolated to scattered light rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand during next 5 days.
  - ✓ Isolated very light to light rainfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Punjab, Haryana during 03<sup>rd</sup>-06<sup>th</sup>; Uttar Pradesh during 03<sup>rd</sup>-05<sup>th</sup> and Rajasthan during 05<sup>th</sup>-08<sup>th</sup> June.
  - ✓ **Duststorm** very likely over Uttar Pradesh on 03<sup>rd</sup> & 04<sup>th</sup>; Punjab, Haryana-Chandigarh-Delhi on 04<sup>th</sup> & 05<sup>th</sup> and East Rajasthan on 07<sup>th</sup> June, 2024.

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

- ❖ No significant change in maximum temperatures very likely over East India during next 24 hours and rise by 2-4°C thereafter.
- ❖ No significant change in maximum temperatures very likely over Uttar Pradesh during next 3 days and rise by 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 some parts of Punjab, Haryana-Chandigarh-Delhi on 03<sup>rd</sup> & 04<sup>th</sup>; Uttar Pradesh, West Rajasthan during 03<sup>rd</sup>-07<sup>th</sup>; in isolated pockets of Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, East Madhya Pradesh on 03<sup>rd</sup>; Odisha on 04<sup>th</sup> & 05<sup>th</sup>; Jharkhand during 04<sup>th</sup>-07<sup>th</sup>; Punjab, Haryana-Chandigarh-Delhi on 05<sup>th</sup>; Bihar on 06<sup>th</sup> & 07<sup>th</sup> June, 2024.
- ❖ **Hot and humid weather** very likely to prevail over isolated pockets of Odisha during 04<sup>th</sup>-07<sup>th</sup>; Bihar during 03<sup>rd</sup>-05<sup>th</sup>; Konkan & Goa on 03<sup>rd</sup>; Gangetic West Bengal on 06<sup>th</sup> & 07<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 Arunachal Pradesh, Assam & Meghalaya, Odisha, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, South Interior Karnataka, Telangana; **at many places** over Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal & Sikkim, Andaman & Nicobar Islands, Vidarbha, Tamil Nadu, Puducherry & Karaikal, North Interior Karnataka; **at a few places** over Chhattisgarh, Marathwada, Coastal Karnataka, Lakshadweep; **at isolated places** over Gangetic West Bengal, Jharkhand, Bihar, Rajasthan, Jammu-Kashmir, Uttarakhand, Haryana, East Uttar Pradesh, Madhya Pradesh, Konkan & Goa and Madhya Maharashtra.

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

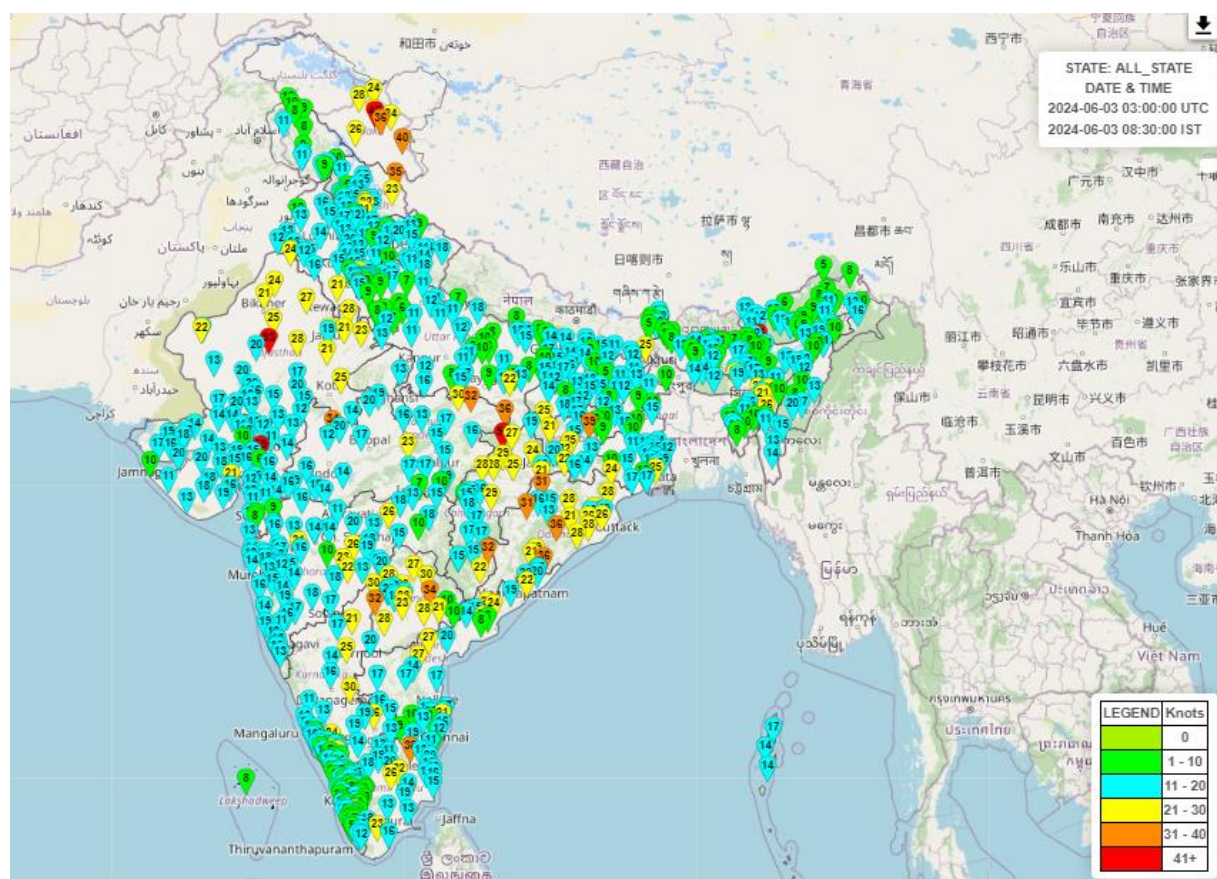
- ❖ **Royalaseema:** Banaganapalle (dist Nandyal) 18, Atmakur (dist Nandyal) 8, Nandikotkur (dist Nandyal) 8, Kanekal (dist Anantapuramu) 8, Jupadu Bungalow (dist Nandyal) 8, Yemmiganur (dist Kurnool) 7, Owk (dist Nandyal) 7,
- ❖ **Assam & Meghalaya:** Shella (dist East Khasi Hills) 18, Goalpara\_pto (dist Goalpara) 17, Goalpara\_aws (dist Goalpara) 16, Cherrapunji(rkm) (dist East Khasi Hills) 15, Mawkyrwat (dist South West Khasi Hills) 15, Williamnagar (dist East Garo Hills) 14, Mawkyrwat\_arg (dist South West Khasi Hills) 13, Mawsynram (dist East Khasi Hills) 13, Cherrapunji (dist East Khasi Hills) 12, Resubelpara (dist North Garo Hills) 12, Karimganj\_aws (dist Karimganj) 10, Dhupdhara Arg (dist Goalpara) 8, Bahalpur (dist Dhubri) 8, Dhekiajuli Arg (dist Shonitpur) 7, Matijuri Arg (dist Hailakandi) 7, Bilasipara Arg (dist Dhubri) 7, Mawphlang (dist East Khasi Hills) 7,
- ❖ **Odisha:** Mahanga (dist Cuttack) 14, Kantapada (dist Cuttack) 13, Kujanga (dist Jagatsinghpur) 12, Marsaghai (dist Kendrapara) 12, Tirtol (dist Jagatsinghpur) 10, Khajuripada (dist Kandhamal) 9, Cuttack (dist Cuttack) 9, Garadapur (dist Kendrapara) 9, Alipingal (dist Jagatsinghpur) 9, Derabis (dist Kendrapara) 8, Kendrapara (dist Kendrapara) 8, Jujumura (dist Sambalpur) 7, Biridi (dist Jagatsinghpur) 7, Athgarh (dist Cuttack) 7, Balipatna (dist Khurda) 7, Bari (dist Jajpur) 7, Talcher (dist Angul) 7, Jagatsinghpur (dist Jagatsinghpur) 7, Banki (dist Cuttack) 7,
- ❖ **Kerala:** Lower Sholayar AWS (Thrissur district) 13, Athirappalli AWS (Thrissur district) 12, Thodupuzha (Idukki district) 11, Idamalayar Dam AWS (Ernakulam district) 10, Neryamangalam ARG (Ernakulam district) 9, Vilangankunnu ARG (Thrissur district) 8, Pattambi (Palakkad district), Urumi AWS (Kozhikode district) & Keerampara ARG (Ernakulam district) 7 each
- ❖ **North Interior Karnataka:** Devarhippargi (dist Vijayapura) 13, Munirabad (dist Koppal) 9, Narayanpur Hms (dist Yadgir) 9, Vijayapura Pto (dist Vijayapura) 9, Sindhanur (dist Raichur) 8, Chittapur (dist Kalaburgi) 7, Tavaragera (dist Koppal) 7
- ❖ **Coastal Andhra Pradesh:** Narsipatnam (dist Anakapalli) 12, Atchampet (dist Palnadu) 9, Udayagiri (dist Spsr Nellore) 9, Seetharamapuram (dist Spsr Nellore) 9, Karamchedu (dist Bapatla) 9, Nandigama (dist Ntr District) 9, Balajipeta (dist Parvathipuram Manyam) 8, Tuni (dist Kakinada) 8, Nandigama(arg) (dist Ntr District) 7, Yelamanchili (dist Anakapalli) 7, Palakonda (dist Parvathipuram Manyam) 7, Ranastalam (dist Srikakulam) 7,
- ❖ **Telangana:** Alampur (dist Jogulamba Gadwal) 11, Waddepalli (dist Jogulamba Gadwal) 10, Devarakonda (dist Nalgonda) 9, Maddur (dist Narayanpet) 9, Kodada (dist Suryapet) 9, NagaReddipet (dist Kamareddy) 9, Chandur (dist Nalgonda) 9, Pedda\_adiserlapalle (dist Nalgonda) 8, Chinna Chinta Kunt (dist Mahabubnagar) 8, Bonakal (dist Khammam) 8, Chilkur (dist Suryapet) 7, Devarakonda(arg) (dist Nalgonda) 7, Miryalaguda (dist Nalgonda) 7, Papannapet (dist Medak) 7, Narva (dist Narayanpet) 7, Tekulapalle (dist B. Kothagudem) 7, Narayanpet (dist Narayanpet) 7,
- ❖ **South Interior Karnataka:** Bengaluru City Obsy (dist Bengaluru Urban) 11, Kudathini (dist Ballari) 9
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Kallakurichi (dist Kallakurichi) 10, Periyakulam (dist Theni) 9, Kallakurichi ARG (dist Kallakurichi) 8, Kariyakovil Dam (dist Salem), Gobichettipalayam (dist Erode), Periyakulam AWS (dist Theni), Kamudhi (dist Ramanathapuram) 7 each, Marandahalli (dist Dharmapuri), Avinasi (dist Tiruppur), Gangavalli (dist Salem), Nambiyur (dist Erode) 6 each
- ❖ **Chhattisgarh:** Bhairamgarh (dist Bijapur) 7, Pusaur (dist Raigarh) 3, Ramanujganj (dist Balrampur) 3,



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

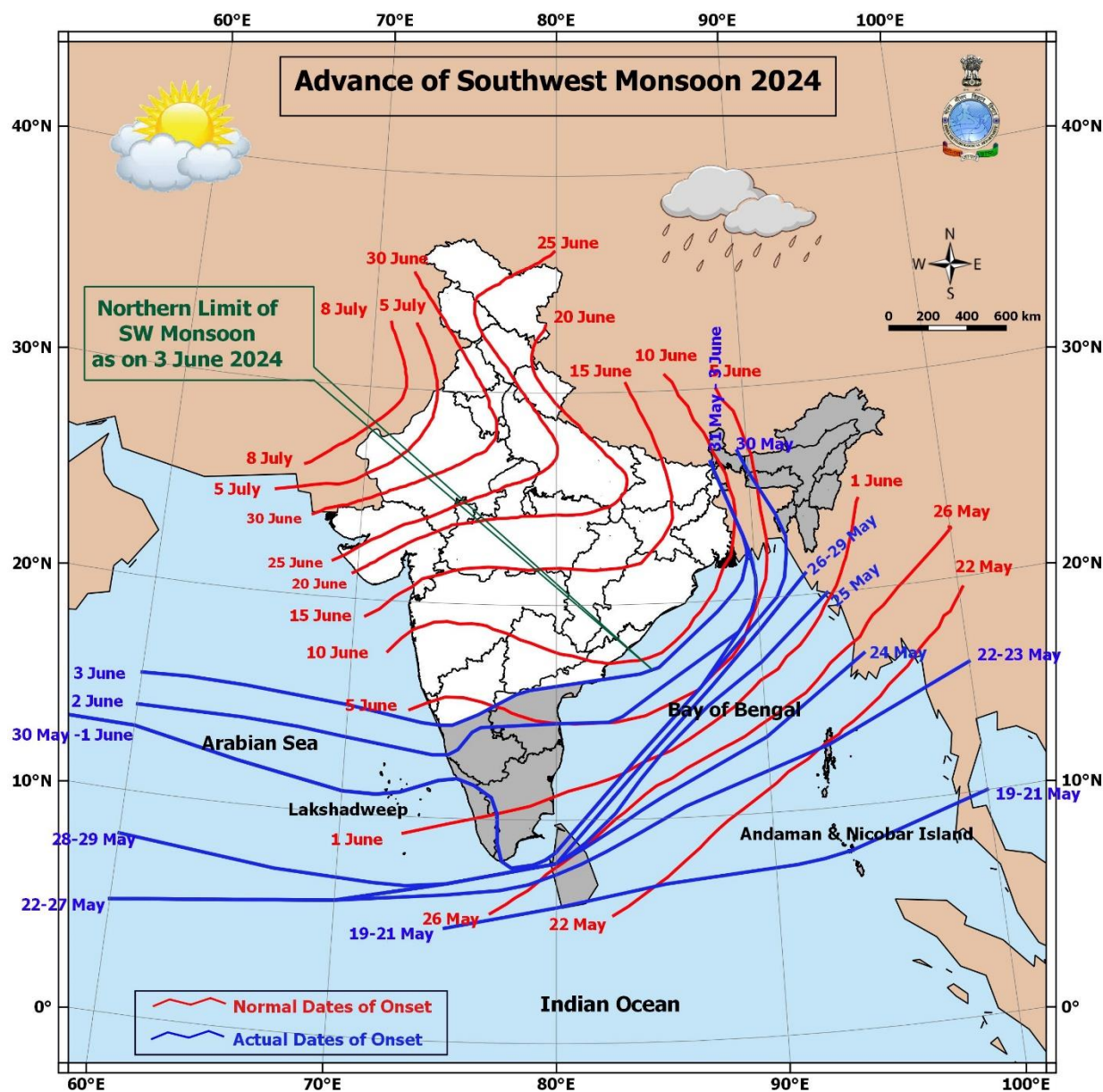
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Leh 78, Kargil 48;
- ❖ **Jharkhand:** Bokaro 72;
- ❖ **Tamil Nadu:** Kallakurichi 70, Karur 48;
- ❖ **Madhya Pradesh:** Singrauli 67, Agra 63, Rewa 59;
- ❖ **Odisha:** Ganjam 67, Balangir, Sambalpur 57 each, Bhadrak, Angul 52;
- ❖ **Himachal Pradesh:** Lahual\_And\_Spiti 65, Kinnaur 42, Shimla 40;
- ❖ **Telangana:** Mahabubabad 63, Vikarabad 59;
- ❖ **Haryana:** Gurgaon 59, Mewat 42, Mahendragarh 39;
- ❖ **Karnataka:** Chitradurga 55, Bangalore\_Urban 48, Koppal 46;
- ❖ **Chhattisgarh:** Kobra, Mahasamund 54 each, Bilaspur, Mungeli 52 each, Jashpur 44;
- ❖ **Rajasthan:** Alwar 52, Ajmer 51, Sikar 50, Baran 46;
- ❖ **Coastal Andhra Pradesh & Yanam:** Prakasam 50, Kakinda 44;
- ❖ **Kerala:** Wayanad 48, Palakkad 46, Pathanamthitta 44;

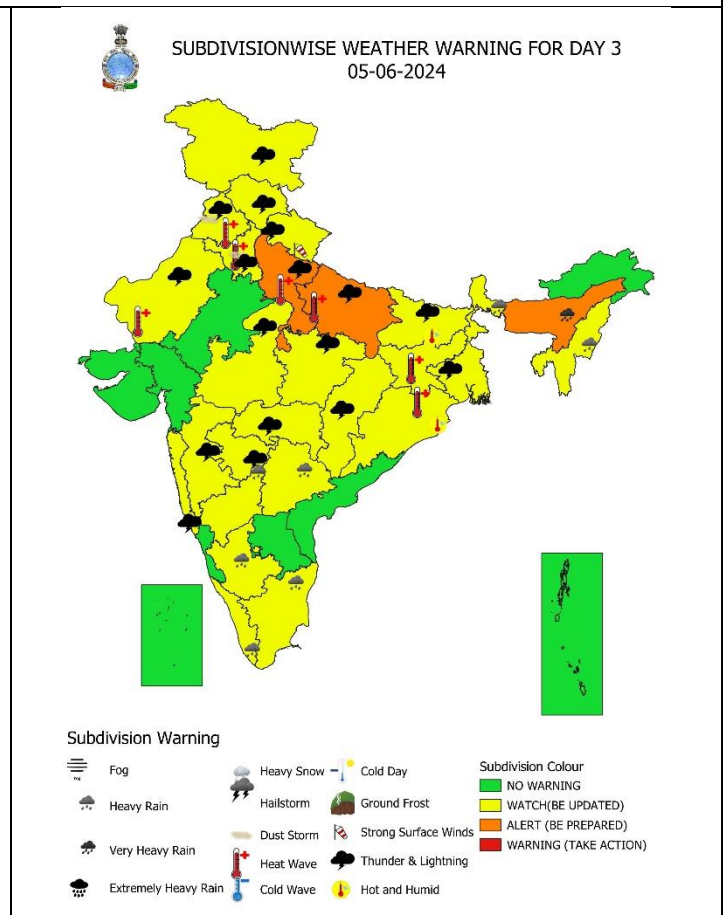
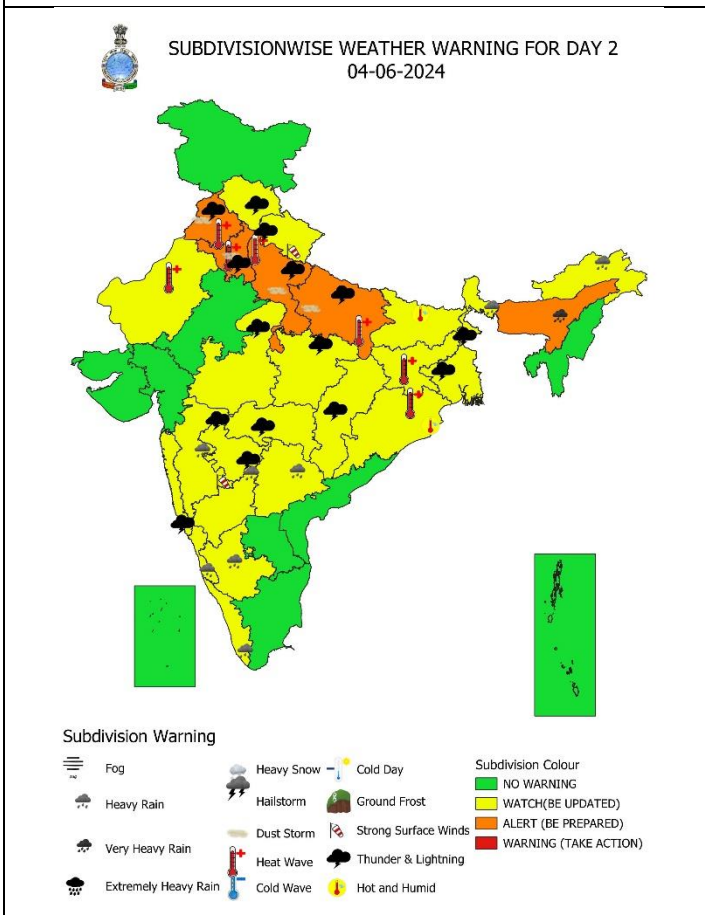
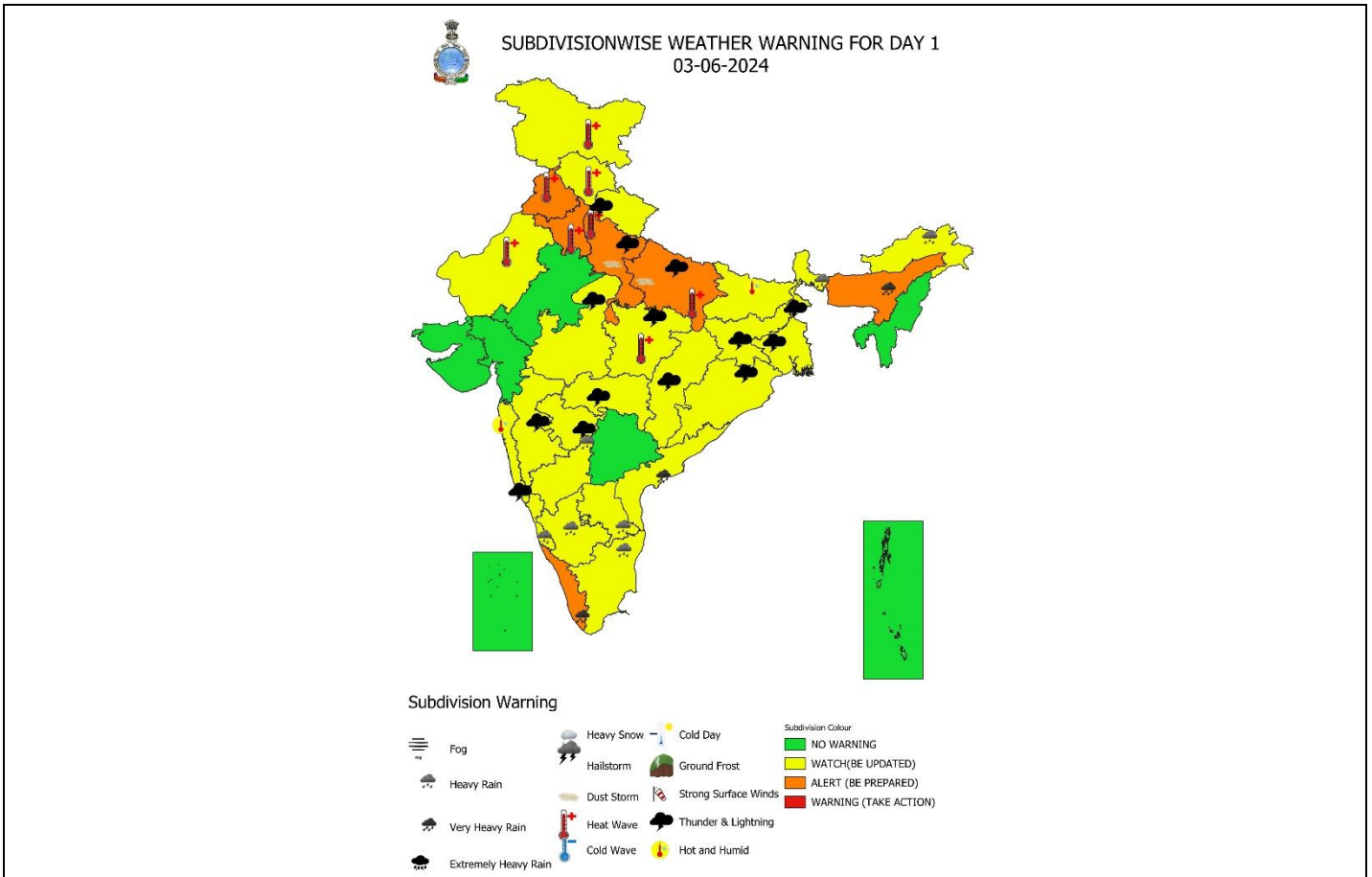
**Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 02.06.2024 to 0830 hrs IST of 03.06.2024**



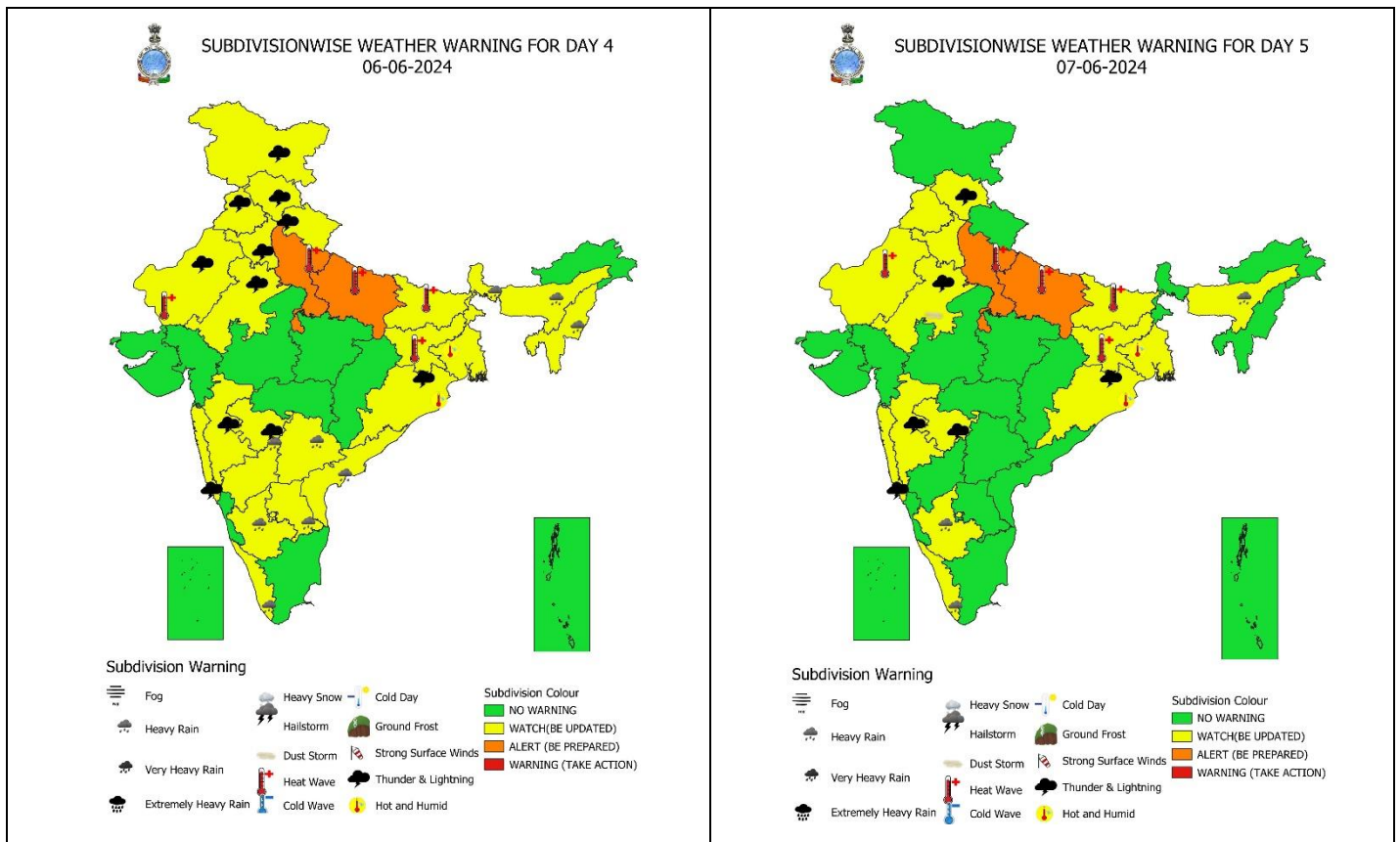
For more details, kindly refer: <http://aws.imd.gov.in:8091/>

## Advance of Southwest Monsoon 2024









**IMPACT & ACTION SUGGESTED due to very heavy rainfall over Assam & Meghalaya during 03<sup>rd</sup>-05<sup>th</sup>; Kerala & Mahe, Coastal Andhra Pradesh on 03<sup>rd</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.

## **Agromet advisories for Heavy Rainfall, Gusty winds 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, Coastal Andhra Pradesh, Sub Himalayan West Bengal, Arunachal Pradesh and Assam & Meghalaya.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Rajasthan, Jharkhand, Odisha and East 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)