



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release.

Date: 12th June, 2024.

Time of Issue: 1315 hours IST

Subject:

- i. **Heavy to very heavy rainfall very likely over Sub-Himalayan West Bengal, Sikkim and Northeast India during next 4-5 days.**
- ii. **Heat wave to severe heat wave conditions likely to continue over parts of Northwest & East India during next 4-5 days.**

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

- ❖ Yesterday, **Heat wave to severe conditions** prevailed over many parts of East Uttar Pradesh; in some parts of West Uttar Pradesh; in isolated pockets of south Bihar, Jharkhand, Gangetic West Bengal; **heat wave conditions** over some parts of Punjab, Haryana-Chandigarh-Delhi and in isolated pockets of Uttarakhand, north Rajasthan, Odisha and northeast Madhya Pradesh.
- ❖ Yesterday, Maximum temperatures were in the range of 42-46°C over many parts of Punjab, Haryana-Chandigarh-Delhi, West Rajasthan and Uttar Pradesh; in some parts of East Rajasthan and in isolated places over Bihar, Jharkhand, Gangetic West Bengal, Chhattisgarh & East Madhya Pradesh. These were above normal by 3-5°C over these areas.
- ❖ Yesterday, **the highest maximum temperature of 47.1°C** was reported at Prayagraj (East Uttar Pradesh) over the country.
- ❖ **Heavy to very heavy rainfall** observed at isolated places over Konkan & Goa, Coastal Karnataka, Tripura; **heavy rainfall** at isolated places over Madhya Maharashtra, North Interior Karnataka, Telangana, Odisha, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya.
- ❖ **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 Maharashtra, entire Telangana and some more parts of Chhattisgarh today, the 12th June, 2024.
- ❖ The Northern Limit of Monsoon now passes through 20.5°N/60°E, 20.5°N/63°E, 20.5°N/70°E, Navsari, Jalgaon, Amravati, Chandrapur, Bijapur, Sukma, Malkangiri, 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 Odisha, Coastal Andhra Pradesh & northwest Bay of Bengal during next 3-4 days.

Weather Systems and Forecast & Warnings: (Annexure IV)

- ❖ A cyclonic circulation lies over northeast Assam & neighbourhood and another over north Bangladesh & neighbourhood in lower tropospheric levels. A trough runs from East Uttar Pradesh to Nagaland and another north-south trough runs roughly along Long. 86°E to the north of Lat. 22°N in lower tropospheric levels. Strong southwesterly/southerly winds are prevailing from Bay of Bengal to northeastern States in lower tropospheric levels. Under their influence:
 - ✓ 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 Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Arunachal Pradesh during next 5 days and isolated **heavy rainfall** over Nagaland, Manipur, Mizoram & Tripura during 14th-16th June, 2024.
 - ✓ **Isolated extremely heavy rainfall also likely over Sub-Himalayan West Bengal & Sikkim on 12th & 13th and over Assam & Meghalaya on 15th June, 2024.**
 - ✓ Isolated to scattered light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Gangetic West Bengal, Bihar, Jharkhand, Odisha and with **thunderstorm, lightning & gusty winds (40-60 kmph)** very likely over Madhya Pradesh, Vidarbha, Chhattisgarh during next 5 days.
 - ✓ Isolated **heavy rainfall** very likely over Odisha on 12th, 13th & 16th June, 2024.
- ❖ A shear zone runs roughly along 17°N in lower & middle tropospheric levels. Under its influence:
- ✓ Scattered to fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (40-50 kmph)** likely over Konkan & Goa during next 5 days and over Madhya Maharashtra & Marathwada during next 2 days.
 - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over Karnataka, Kerala & Mahe, Lakshadweep, Andaman & Nicobar Islands; isolated to scattered light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Tamil Nadu, Puducherry & Karaikal during next 5 days.
 - ✓ Isolated **heavy rainfall** very likely over Kerala & Mahe on 12th & 16th; Interior Karnataka on 12th & 13th; Telangana, Konkan, Madhya Maharashtra, Marathwada on 12th and Coastal Karnataka during 12th-16th June, 2024.
 - ✓ Isolated **very heavy rainfall** also very likely over Coastal Karnataka on 12th June, 2024.

Maximum temperature observation and forecast for next 5 days:

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

Heat Wave and Warm Night warning for next 5 days:

- ❖ **Heat wave to severe heat wave conditions** very likely in some/many parts of Uttar Pradesh during 12th-16th; over Gangetic West Bengal, Bihar, Jharkhand during 12th-14th and isolated heat wave on 15th June, 2024.
- ❖ **Heat wave conditions** very likely in isolated to some pockets of Uttarakhand, Punjab, Haryana-Chandigarh-Delhi, during next 5 days; northeast Madhya Pradesh, northwest Rajasthan during 12th-14th; northeast Rajasthan, Himachal Pradesh, Jammu Division and Odisha on 12th & 13th June, 2024.

For more details, kindly refer: 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 Vidarbha, Sub-Himalayan West Bengal & Sikkim, Andaman & Nicobar Islands, Coastal Karnataka, Kerala & Mahe; **at many places** over Konkan & Goa, Arunachal Pradesh, Rayalaseema, interior Karnataka; **at a few places** over Madhya Maharashtra, Marathwada, Chhattisgarh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Telangana, Lakshadweep and **at isolated places** over Gujarat Region, Madhya Pradesh, Himachal Pradesh, Himachal Pradesh, Rajasthan, Gangetic West Bengal, Odisha, Jharkhand, Bihar, Coastal Andhra Pradesh & Yanam and Tamil Nadu, Puducherry & Karaikal.

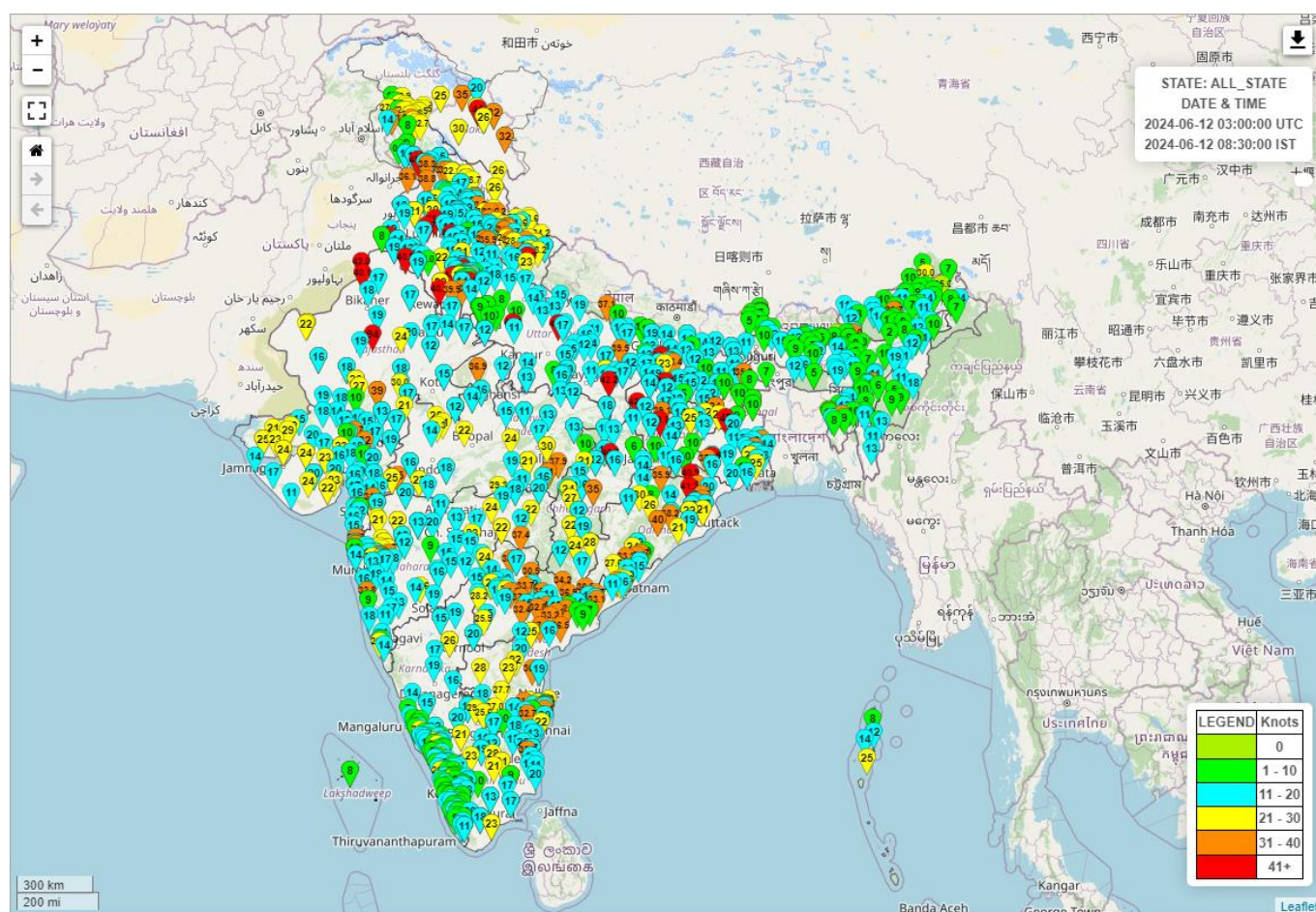
Significant amount of rainfall (in cm):

- ❖ **Konkan & Goa:** Dahanu - Imd Obsy (dist Palghar) 13, Dabolim N.a.s.- Navy (dist South Goa) 9, Mormugao - Pmo Imd (dist South Goa) 6, Khalapur (dist Raigad) 5, Margao (dist South Goa) 5, Thane (dist Thane) 5
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Ashapara Aws (dist North Tripura) 13, Dharmanagar/ Panisagar (dist North Tripura) 9, Kailashahar Aws (dist Unakoti) 9, Kailashahar Aero (dist Unakoti) 7, Kamalpur (dist Dhalai) 4,
- ❖ **Madhya Maharashtra:** Lonavala_agri (dist Pune) 11, Mahabaleshwar- Imd Obsy (dist Satara) 7, Indapur (dist Pune) 7, Baramati (dist Pune) 7, Sholapur - Imd Obsy (dist Sholapur) 6
- ❖ **Odisha:** Baliguda (Kandhamal) 10, Kosagumda (Nawarangpur) 7, Tentulikhunti (Nawarangpur) 5,
- ❖ **Assam & Meghalaya:** Sonari_arg (dist Sibsagar) 9, Mawsynram (dist East Khasi Hills) 8, Dhekiajuli (dist Shonitpur) 7, Kokrajhar (dist Kokrajhar) 7, Dharamtul (dist Morigaon) 6, N.lakhimpur/lilabari (dist Lakhimpur) 5, Barpeta/sarbhog_aws (dist Barpeta) 5, Silchar (dist Cachar) 5, Barpeta (dist Barpeta) 5,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Jalpaiguri (dist Jalpaiguri) 9, Samsing (dist Darjeeling) 8, Domohani (dist Jalpaiguri) 8, Cooch Behar (dist Cooch Behar) 7, Gyalsing (pto) (dist Gyalshing) 7, Gangtok (dist Gangtok) 6, Mathabhanga (dist Cooch Behar) 5,
- ❖ **West Madhya Pradesh:** Nalchha (dist Dhar) 8, Raoti (dist Ratlam) 8, Meghnagar (dist Jhabua) 7, Betul (dist Betul) 6, Bhainsdehi (dist Betul) 5
- ❖ **Arunachal Pradesh:** Wakro-7

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

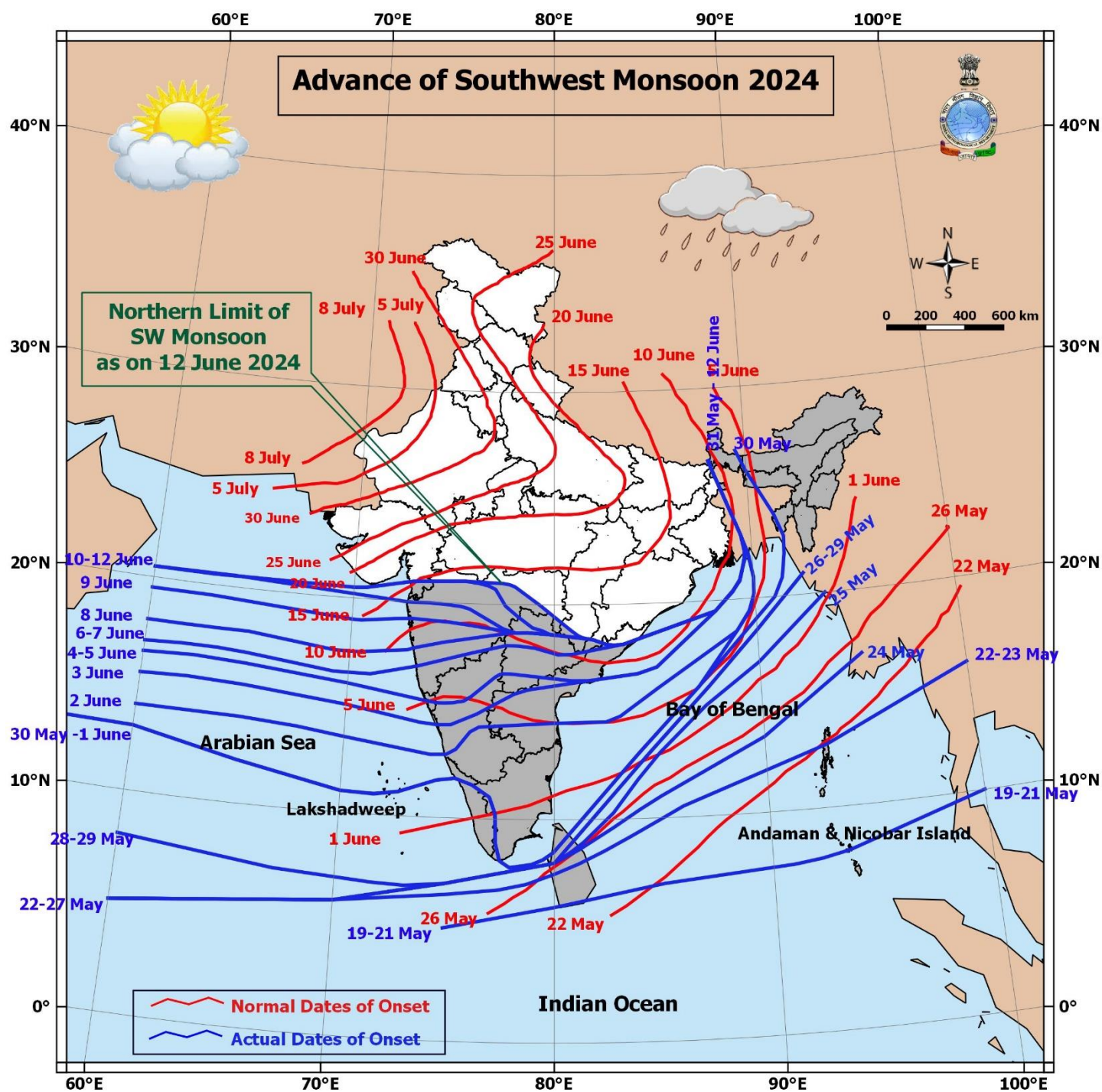
- ❖ **Gangetic West Bengal:** Durgapur 78, South_24_Parganas 46;
- ❖ **Odisha:** Ganjam 74, Sonepur 55, Kandhamal 48, Khurdha 41;
- ❖ **Rajasthan:** Udaipur 72, Shirohi 50, Ajmer 44, Jaisalmer 41;
- ❖ **Chhattisgarh:** Mahasamund 65, Bastar 52, Balod 50, Rajnandgaon, Dantewada 44;
- ❖ **Gujarat State:** Panchmahal 60, Kachchh 54, Jamnagar, Rajkot, Amreli 44, Bhavnagar, Botad, Ahmednagar 42 each;
- ❖ **Jharkhand:** Jamtara 57, Bokaro 46, Dhanbad 41;
- ❖ **Madhya Pradesh:** Balaghat 57, Mandla 55, Agar 46, Chhindwara 44, Sehore 41, Seoni, Shajapur 39 each;
- ❖ **Punjab:** Ludhiana 55, Moga 39;
- ❖ **Maharashtra:** Pune 52, Nandurbar 46, Yavatmal 44, Hingoli 42, Chandrapur 41, Jalgaon. Nashik 38;
- ❖ **Coastal Andhra Pradesh & Yanam:** Anantapur 52, Prakasam 46, Kadapa 41;
- ❖ **Tamil Nadu:** Namakkal 52, Tiruppur, Thoothukudi, Tiruvallur 42, Chennai 41;
- ❖ **Telangana:** Ranga_Reddy 48, Nizamabad 44, Sangareddy, Adilabad 41;
- ❖ **Karnataka:** Koppal 44, Chamarajanagar 39;
- ❖ **Bihar:** Patna 42;
- ❖ **Haryana:** Mahendragarh, Jind 41, Panipat 39;
- ❖ **Delhi:** Central_Delhi 41, South_West_Delhi 39;
- ❖ **Uttar Pradesh:** Bhadohi 41;

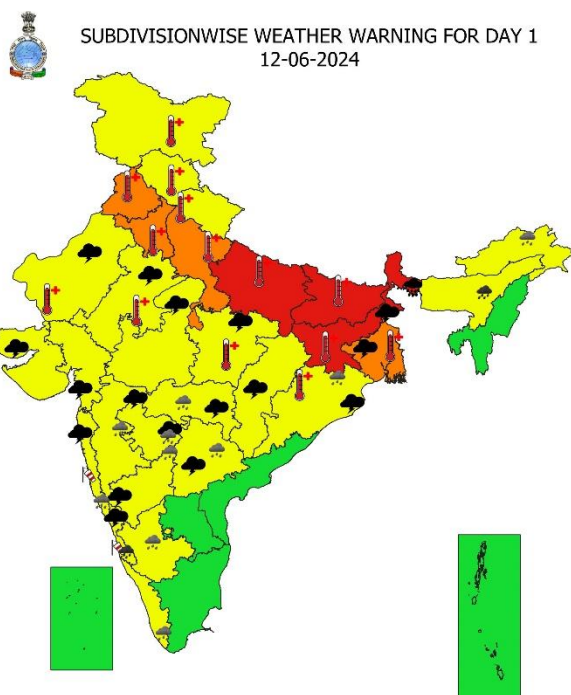
Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 11.06.2024 to 0830 hrs IST of 12.06.2024



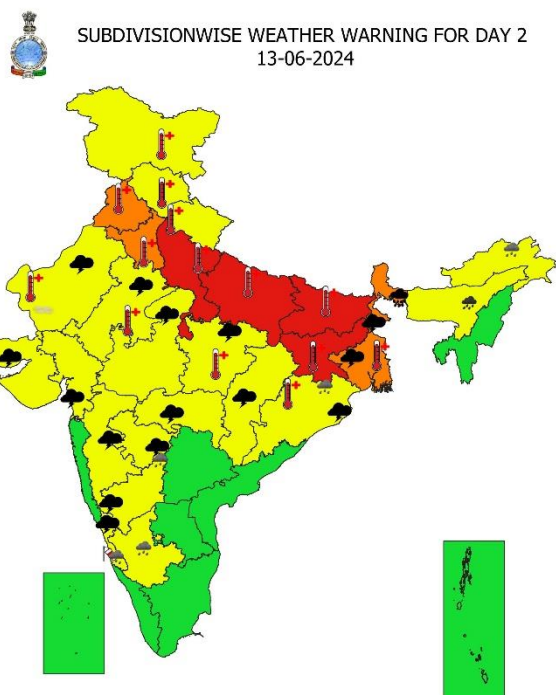
For more details, kindly refer: <http://aws.imd.gov.in:8091/>

Advance of Southwest Monsoon 2024

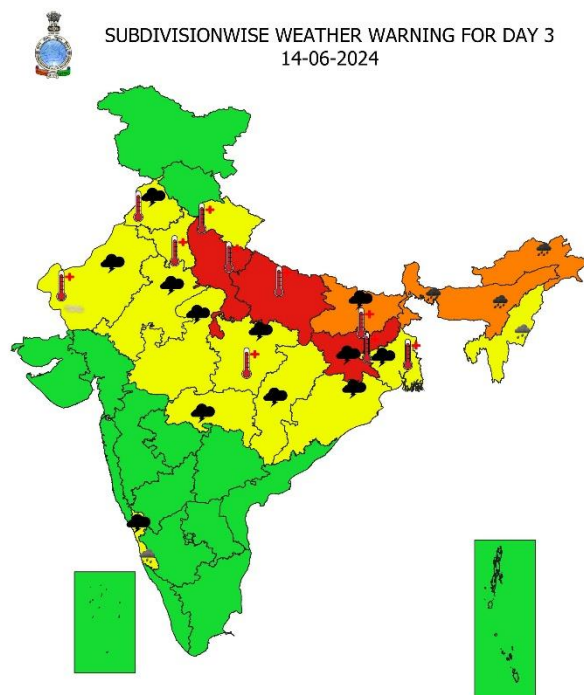




Subdivision Warning

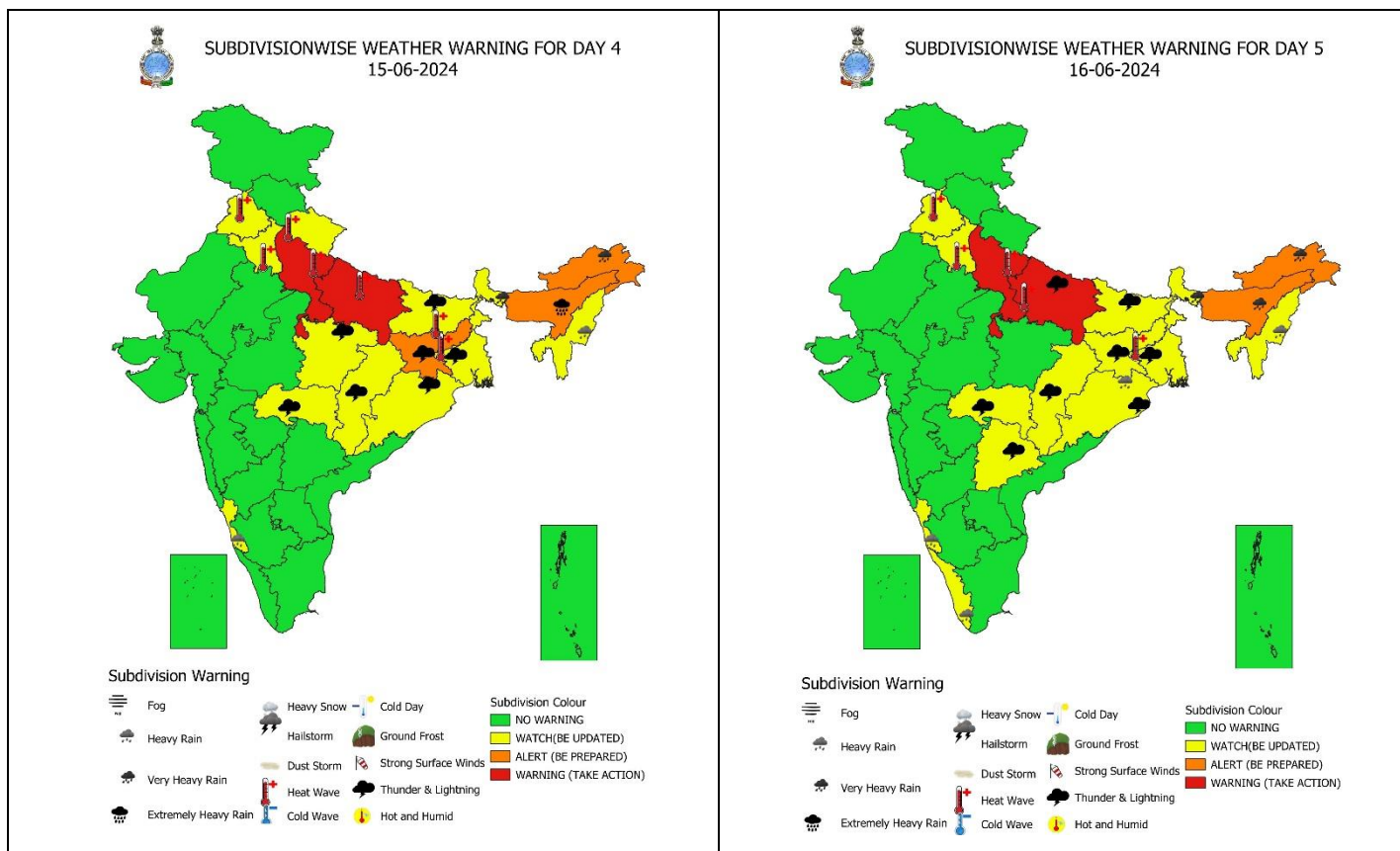


Subdivision Warning



Subdivision Warning





IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Red Alert Areas: Bihar on 12th & 13th; Jharkhand during 12th-14th; East Uttar Pradesh during 12th-16th; West Uttar Pradesh during 13th-16th;

Orange Alert Areas: Bihar on 14th; Jharkhand on 15th; West Uttar Pradesh on 12th; Haryana-Chandigarh-Delhi, Punjab, Gangetic West Bengal on 12th & 13th June

Yellow Alert Areas: Uttarakhand 12th-15th; northeast Madhya Pradesh during 12th-14th; Punjab, Haryana-Chandigarh-Delhi during 14th-16th; north Rajasthan, Himachal Pradesh, Jammu-Division on 12th & 13th June, 2024.

Red alert Areas

- Very high likelihood of developing heat illness and heat stroke in all ages.
- Extreme care needed for vulnerable people.

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 & ACTION SUGGESTED due to very heavy/extremely heavy rainfall over Sub-Himalayan West Bengal & Sikkim during 12th-16th and Assam & Meghalaya, Arunachal Pradesh during 14th-16th 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 kutchha 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)

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.

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

- Make provision for draining out excess water from crop fields to avoid water stagnation in Kerala, Karnataka, Telangana, Konkan, Madhya Maharashtra, Marathwada, 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, Uttarakhand, Punjab, Haryana, Uttar Pradesh, Rajasthan, Bihar, Jharkhand, Odisha and Gangetic West Bengal.
- 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

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°C to 6.4°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°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°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°C to -6.4°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°C to -6.4°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)