



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release.

Date: 29th May, 2024

Time of Issue: 1400 hours IST

Subject:

- i. **Prevailing heat wave to severe heat wave** conditions over Northwest & Central India likely to reduce gradually from 30th May, 2024.
- ii. The conditions continue to become favourable for **Monsoon onset over Kerala** during next 24 hours and advance of monsoon over some parts of Northeastern States during the same period.

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

- ❖ **Heat wave to severe heat wave conditions** prevailed over most parts of Haryana, Chandigarh-Delhi, Punjab; in many parts of West Uttar Pradesh, East Madhya Pradesh, Himachal Pradesh; in some parts of West Madhya Pradesh, East Uttar Pradesh, Rajasthan. Heat wave conditions prevailed in isolated pockets of Jammu, Vidarbha and Chhattisgarh. **Heat wave conditions** have been prevailing over Haryana, Chandigarh & Delhi, Rajasthan since 17th and over Madhya Pradesh & Uttar Pradesh since 18th May, 2024.
- ❖ **Warm night conditions** observed in isolated pockets of Haryana, Delhi, Rajasthan, Uttar Pradesh and East Madhya Pradesh.
- ❖ Yesterday, **the highest maximum temperature of 50.5°C** was reported at **Churu (West Rajasthan)** over the country.
- ❖ **Heavy to very heavy rainfall with extremely heavy falls** observed at isolated places over Meghalaya; **Heavy to very heavy rainfall** at isolated places over Sub-Himalayan West Bengal & Sikkim, Kerala and Arunachal Pradesh.
- ❖ **Gusty winds/squally winds** data reported over the country is attached in **Annexure II**.

Weather Systems and Forecast & Warnings: (Annexure III)

Advance of Southwest Monsoon:

- ❖ The Northern Limit of Monsoon now passes through 08°N/60°E, 07°N/75°E, 08°N/80°E, 13°N/84.5°E, 16°N/87.5°E, 18.5°N/90°E, 21°N/92.5°E. (**Annexure IV**).
- ❖ The conditions continue to become favourable for Monsoon onset over Kerala during next 24 hours.
- ❖ The conditions also continue to become favourable for further advance of Southwest Monsoon into some more parts of South Arabian Sea, remaining parts of Maldives and Comorin area; some parts of Lakshadweep area; some more parts Southwest & Central Bay of Bengal, Northeast Bay of Bengal and some parts of Northeastern states during the same period.
- ❖ A cyclonic circulation lies over northeast Assam & neighbourhood in lower & middle tropospheric levels. Under its 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/very heavy rainfall** very likely over Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim during next 5 days and isolated **heavy rainfall** over Nagaland, Manipur, Mizoram & Tripura on 29th & 30th May, 2024.
- ✓ Isolated **extremely heavy falls** also likely over Meghalaya today.
- ❖ Isolated to scattered light/moderate rainfall over Bihar, Jharkhand, Gangetic West Bengal, Odisha during next 5 days and accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over the above region during 31st May-02nd June.
- ❖ A shear zone near zone runs roughly along Lat. 8°N over south peninsular India in middle 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; isolated to scattered light to moderate rainfall over Tamil Nadu, Puducherry & Karaikal, Karnataka during next 7 days and Coastal Andhra Pradesh, Telangana, Rayalaseema during 01st-04th June, 2024.
 - ✓ **Isolated heavy rainfall very likely over Kerala & Mahe during next 5 days; over Andaman & Nicobar Islands during 31st May- 02nd June; Tamil Nadu and South Interior Karnataka on 01st & 02nd June, 2024.**
 - ✓ **Isolated very heavy rainfall also likely over Kerala & Mahe and Lakshadweep on 29th May.**
 - ✓ **Strong surface winds (speed reaching 30-40 kmph) likely over Andaman & Nicobar Islands during 29th-31st; over Coastal Andhra Pradesh & Yanam, Rayalaseema and Karnataka during 31st May-02nd June.**
- ❖ A fresh western disturbance seen as a trough in lower & middle tropospheric westerlies runs roughly along Long. 68°E to the north of Lat. 27°N. Under its influence;
 - ✓ Isolated to scattered light rainfall accompanied with **thunderstorm, lightning** very likely over Uttarakhand, Himachal Pradesh during 29th May-02nd June and Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 29th-31st May, 2024.
 - ✓ Isolated very light/light rainfall likely over plains of Northwest India during 30th May-02nd June.
 - ✓ **Duststorm** very likely over Rajasthan during 31st May-02nd June.
- ❖ **Strong surface winds (speed reaching 30-40 kmph) likely over Gujarat State during 29th-31st May.**

Maximum temperature observation and forecast for next 5 days:

- ❖ **Areas having maximum temperatures greater than 42°C:** Yesterday, maximum temperatures were in the range of 46-50°C in many parts of Northwest India; 42-46°C in many parts of West, Central & East India. These were above normal by 3- 6°C over many parts of Northwest India and in some parts of Central & West India.
- ❖ **Gradual fall in maximum temperatures by 3-4°C very likely over Northwest & Central India during next 3-4 days.**
- ❖ Rise in maximum temperatures by 2-3°C very likely over East India during next 3 days and gradual fall by 3-4°C thereafter.
- ❖ Rise in maximum temperatures by 2-3°C very likely over Maharashtra and south peninsular India during next 3-4 days and no significant change 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 to severe heat wave conditions** very likely in most/many parts of Punjab, Haryana-Chandigarh-Delhi, Rajasthan, Uttar Pradesh, Madhya Pradesh on 29th and gradual reduction thereafter with heat wave conditions in isolated/some parts till 01st June, 2024.
- ❖ **Heat wave to severe heat wave conditions likely to reduce gradually over Northwest & Central India from 30th May.**
- ❖ **Heat wave to severe heat wave conditions** very likely in isolated pockets of Bihar, Jharkhand, Odisha on 29th & 30th and isolated heat wave conditions on 31st May & 01st June.
- ❖ **Heat wave conditions** very likely in isolated pockets of Vidarbha, Chhattisgarh, Jammu division, Himachal Pradesh on 29th & 30th May, 2024.
- ❖ **Hot and humid weather** very likely to prevail over isolated pockets of Konkan & Goa on 30th & 31st May, 2024.
- ❖ **Warm night conditions** in isolated pockets very likely to prevail over Uttar Pradesh, Bihar, Jharkhand, Odisha, Madhya Pradesh and Chhattisgarh on 29th & 30th May, 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 Kerala & Mahe, Lakshadweep, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Andaman & Nicobar Islands, Sub-Himalayan West Bengal & Sikkim; **at a few places** over Coastal Karnataka and **at isolated places** over Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Vidarbha, Jammu-Kashmir, Himachal Pradesh, East Rajasthan, Uttarakhand, Gangetic West Bengal, Bihar, Jharkhand and Odisha.

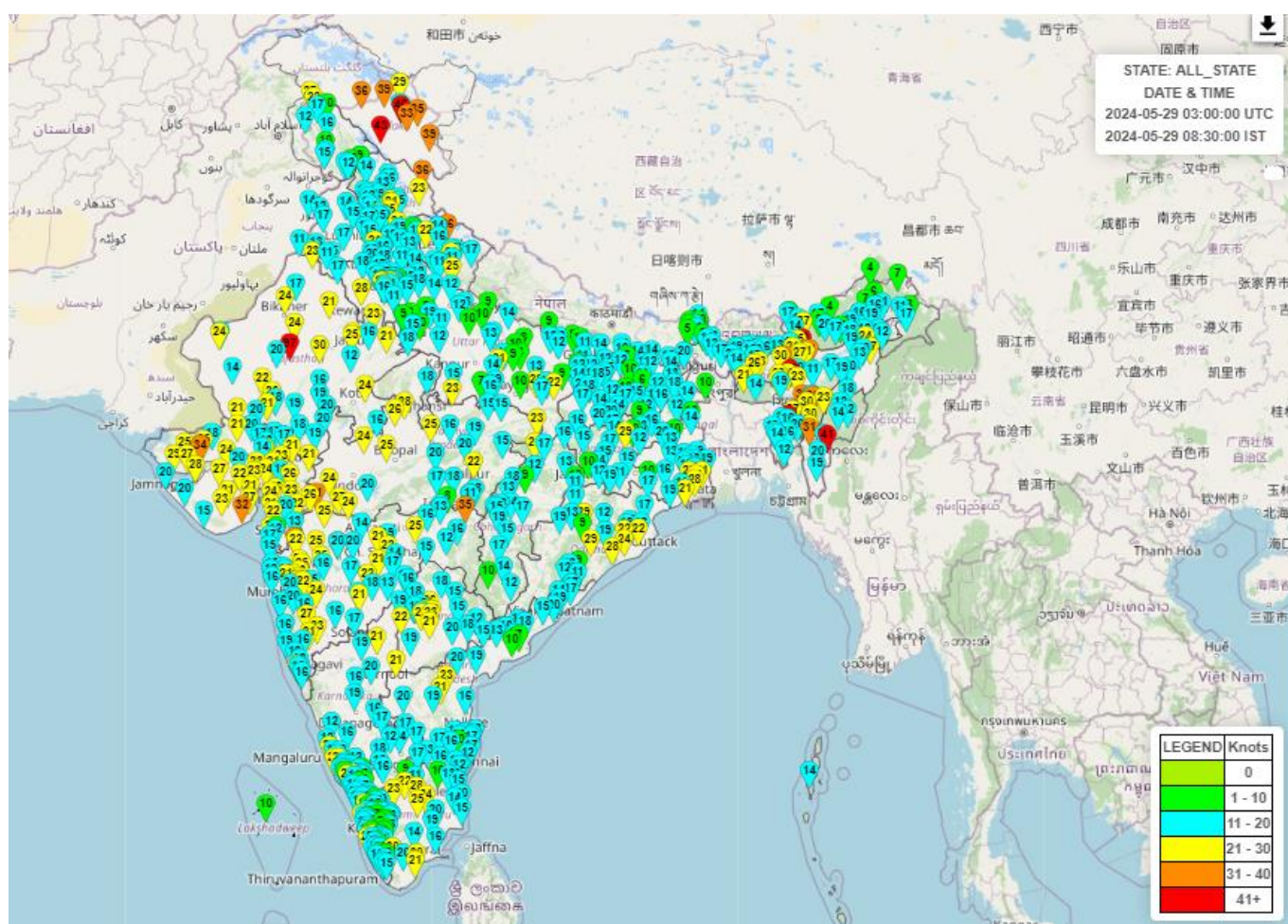
Significant amount of rainfall (in cm):

- ❖ **Assam & Meghalaya:** Cherrapunji(rkm) (dist East Khasi Hills) 28, Mawsynram (dist East Khasi Hills) 20, Khliehriat (dist East Jaintia Hills) 18, Cachar Kvk Aws (dist Cachar) 18, Cherrapunji (dist East Khasi Hills) 18, Lala Arg (dist Hailakandi) 18, Matijuri (dist Hailakandi) 17, Hailakandi_ Aws (dist Hailakandi) 15, Amraghat (dist Cachar) 15, Halflong (dist N. C. Hills) 15, Silchar (dist Cachar) 15, Dholai (dist Cachar) 14, Amraghat Arg (dist Cachar) 13, Kokrajhar (dist Kokrajhar) 11, Lakhipur (dist Cachar) 11, A P Ghat (dist Cachar) 11, Silchar_aws (dist Cachar) 10, Gossaigaon (dist Kokrajhar) 10, Harinagar Arg (dist Karimganj) 10, Goalpara_pto (dist Goalpara) 9, Lakhipur Arg (dist Cachar) 9, Gossaigaon_ Aws (dist Kokrajhar) 9, Fakiragram Arg (dist Kokrajhar) 9, Karimganj (dist Karimganj) 9, Goalpara_aws (dist Goalpara) 9, Bilasipara Arg (dist Dhubri) 8, Karimganj_aws (dist Karimganj) 8, Badarpur Arg (dist Karimganj) 8, B P Ghat (dist Karimganj) 7, Dhemaji (dist Dhemaji) 7, Hazuah (dist Barpeta) 7, Beki Mathungari (dist Barpeta) 7.
- ❖ **Kerala & Mahe:** Piravam (dist Ernakulam) 20, Poonjar (dist Kottayam) 18, Kayamkulam(dist Alapuzha) 15, Kayamkulam (dist Alapuzha) 14, Vaikom (dist Kottayam) 13, Nooranad(dist Alapuzha) 12, Enamakal (dist Thrissur) 11, Vaikkom (dist Kottayam) 11, Palluruthy (dist Ernakulam) 11, Mavelikara (dist Alapuzha) 11, Vadavathur (dist Kottayam) 11,Thycaulttussery (dist Alapuzha) 10, Haripad (dist Alapuzha) 10, Kottayam (dist Kottayam)10, Karumadi (dist Alapuzha) 9, Cherthala (dist Alapuzha) 9, Kochi (dist Ernakulam) 9, Athirappalli (dist Thrissur) 8, Kanjirappally (dist Kottayam) 8, Thennala (dist Malappuram) 8, Mattanchery (dist Ernakulam) 7, Kunnamkulam (dist Thrissur) 7, Kunnamkulam (dist Thrissur) 7, Kumarakam (dist Kottayam) 7, Peermade (dist Idukki)7, Ernakulam South (dist Ernakulam) 7,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Kumargram (dist Jalpaiguri) 19, Hasimara (dist Jalpaiguri) 19, Buxaduar (dist Jalpaiguri) 16, Chepan (dist Jalpaiguri) 12, Barobhisha (dist Jalpaiguri) 11, Champasari (dist Darjeeling) 11, Chengmari/diana (dist Jalpaiguri) 10, Mangan (dist North Sikkim) 5, Rongo (dist Darjeeling) 5, Jalpaiguri (dist Jalpaiguri) 5,
- ❖ **Arunachal Pradesh:** BOMDILA (dist WEST KAMENG) 19; MIAO (dist CHANGLANG) 12; NAMSAI AGRO (dist NAMSAI) 7;
- ❖ **Tamil Nadu:** Chinnakalar (dist Coimbatore) 5, Valparai Taluk Office (dist Coimbatore), Sholayar (dist Coimbatore) , Cincona (distCoimbatore) 4 each.
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Mangkolemba (dist Mokokchung) 4, Mon Sadar Nsdma_aws (dist Mon) 3, Kiphire Nsdma_aws (dist Kiphire) 3, Sabroom Aws (dist South Tripura) 3, Kanchanpur (dist North Tripura) 3, Lawngtlai (dist Lawngtlai) 3, Kiphire (dist Kiphire) 3, Bhandari Nsdma_aws (dist Wokha) 3, Zunheboto (dist Zunheboto) 3, Kamalpur (dist Dhalai) 3, Ashapara Aws (dist North Tripura) 3, Saiha (dist Saiha) 3, Pongkhuri Nsdma_aws (dist Phek) 3, Serchip(hydro) (dist Serchhip) 3, Imphal T-aero (dist Imphal East) 3.

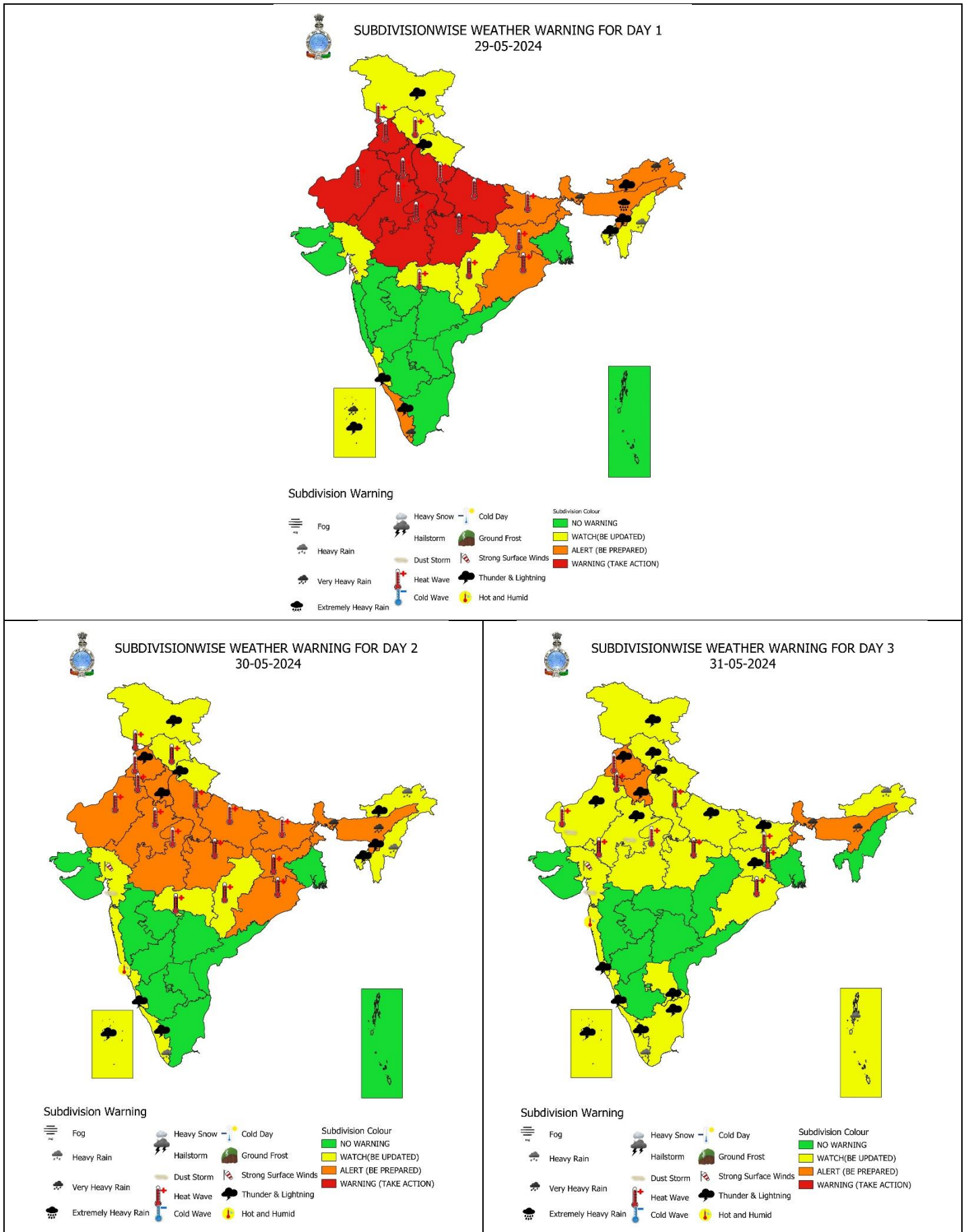
Reported maximum wind speed (kmph) during past 24 hours till 0830 hours IST of today:

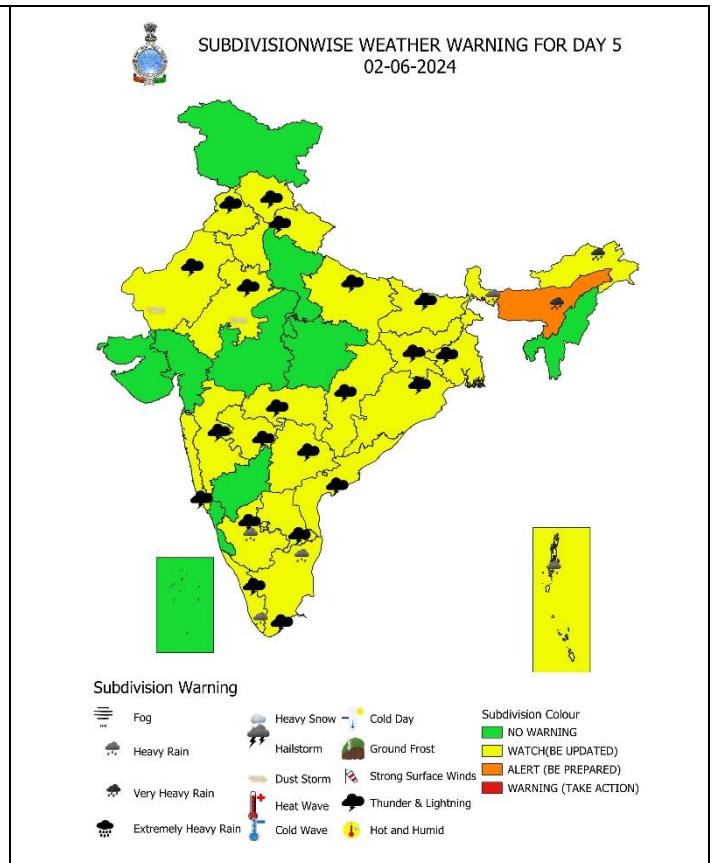
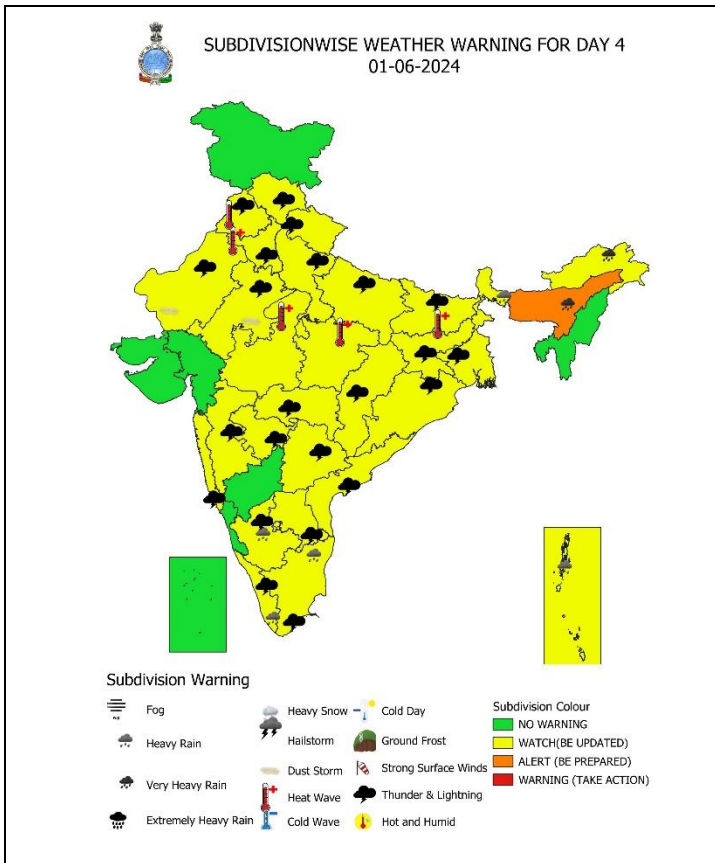
- ❖ **Mizoram:** Champhai-76, Aizawl-57, Kolasib-55
- ❖ **Assam:** Karimganj-72, Cachar-65, Kamrup Metropolitan-63, Nagaon-57, Golpara-52, Marigaon-50
- ❖ **Himachal Pradesh:** Lahaul & Spiti-67, Solan-46, Shimla-39, Kinnaur-42
- ❖ **Uttarakhand:** Chamoli-67, Udham Singh Nagar-46, Tehri Garhwal-41, Nainital-39
- ❖ **Maharashtra:** Bhandara-65, Nashik-57, Pune-53, Satara-50, Dhule-46
- ❖ **Gujarat State:** Kachchh-63, Bhavnagar-59, Rajkot-50, Bharuch-48, Morbi-44
- ❖ **Rajasthan:** Ajmer-55, Sirohi, Jaipur-46 each, Baran, Nagaur, Jaisalmer, Bikaner-44 each
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Tenkasi, Thoothukudi-55 each, Namakkal-52
- ❖ **Jharkhand:** Bokaro-54
- ❖ **Odisha:** Ganjam, Boudh-54 each, Puri-52
- ❖ **Haryana:** Mahendragarh-52, Kaithal, Gurgaon-39 each
- ❖ **Gangetic West Bengal:** South Twenty Four Parganas-52
- ❖ **Madhya Pradesh:** Ashoknagar-51, Jalgaon-50, Guna-48, Sehore, Sagar-46 each
- ❖ **Nagaland:** Kiphire-50
- ❖ **Telangana:** Siddipet-48, Ranga Reddy-43
- ❖ **Delhi:** South West Delhi-44, New Delhi-41

Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 28.05.2024 to 0830 hrs IST of 29.05.2024



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

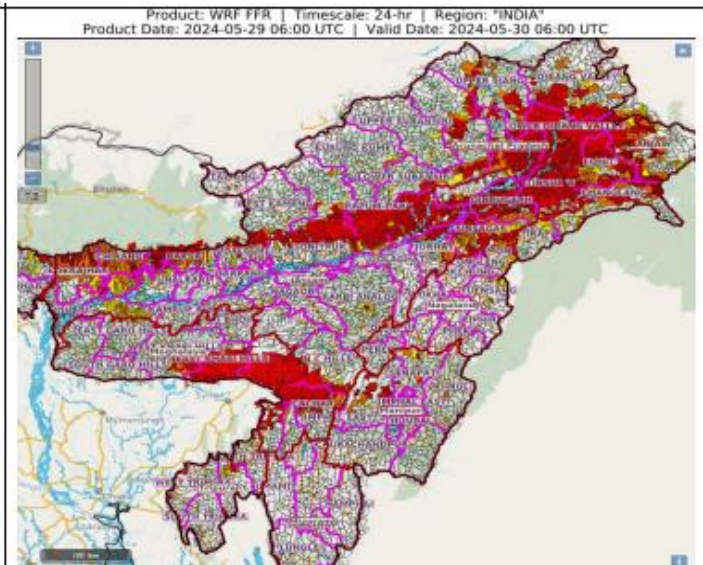




24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 30-05-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Arunachal Pradesh and Assam & Meghalaya Met Sub-divisions during next 24 hours.

Surface runoff/ Inundation may occur on low lying areas due to persistent rainfall under the influence of remnants of Cyclonic Storm “Remal” in next 24 hours.



IMPACT & ACTION SUGGESTED due to very heavy rainfall/extremely falls over Arunachal Pradesh, Kerala & Mahe, Lakshadweep on 29th; Assam, Meghalaya during 29th May-02nd 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)

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:

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:

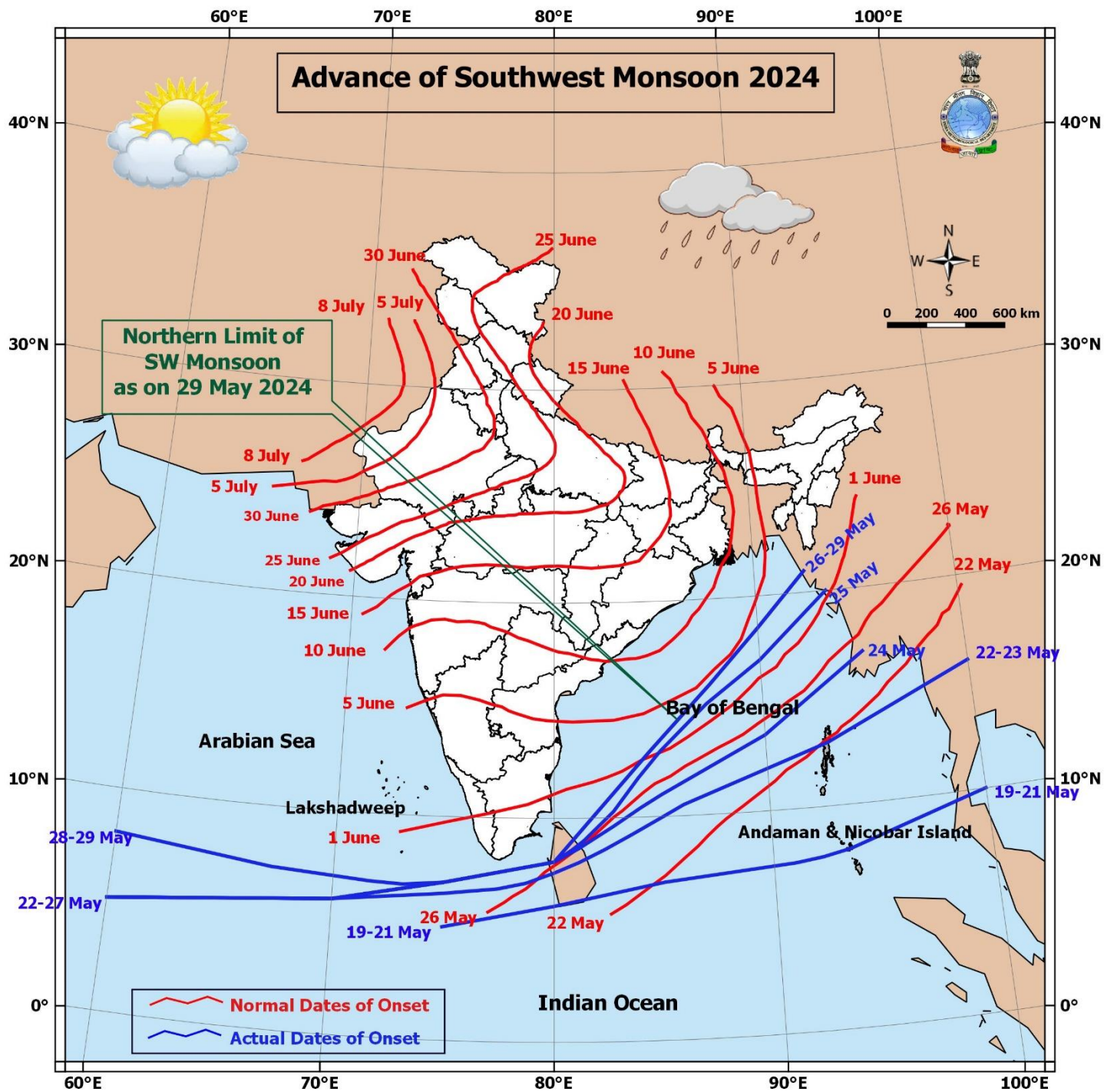
- Moderate temperature & heat is tolerable for general public but moderate health concern likely for vulnerable people e.g. infants, elderly, people with chronic diseases.
- Avoid heat exposure.
- Wear lightweight, light colour, loose, cotton clothes.
- Cover your head, use a cloth, hat or umbrella.

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

(Based on the IBF and advisories issued by different AMFUs)

- Drain out excess water from crop fields to avoid water stagnation in Kerala, Sub Himalayan West Bengal and North-Eastern States.
- 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, Bihar, Jharkhand, Odisha, Madhya Pradesh, Vidarbha and Chhattisgarh.
- Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

Advance of Southwest Monsoon 2024



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 *



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 $\geq 37^{\circ}\text{C}$



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 $> 6.4^{\circ}\text{C}$.



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 $\leq 15^{\circ}\text{C}$



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 Storm: Wind speed > 220 kmph (> 119 knots)