



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 20th June, 2024

Time of Issue: 1330 hours IST

Subject:

- i. **A fresh spell of heavy to very heavy rainfall very likely over Kerala, Karnataka, Tamil Nadu & Maharashtra during next 5 days.**
- ii. **Heavy to very heavy rainfall very likely to continue over Sub-Himalayan West Bengal & Assam-Meghalaya during next 2 days and isolated heavy rainfall thereafter.**
- iii. **No Heat wave conditions likely over most parts of the country during next 4-5 days.**

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

- ❖ **Heatwave to severe heat wave conditions** prevailed in some parts of Himachal Pradesh, Haryana, Chandigarh and in isolated pockets of Uttarakhand and East Uttar Pradesh. **Heatwave conditions** over most parts of Delhi; in many parts of West Uttar Pradesh; in some parts of Punjab and in isolated pockets of Jammu division, Odisha, Jharkhand and Bihar.
- ❖ **Maximum temperatures** were in the range of 43-45°C in many parts of Punjab, Delhi; in some parts of Haryana, Chandigarh, north Rajasthan and in isolated pockets of Uttar Pradesh. These were above normal by 4-7°C over many parts of Northwest & East India and north Madhya Pradesh.
- ❖ **Warm night conditions** observed in isolated pockets of East Madhya Pradesh and north Rajasthan.
- ❖ **The highest Maximum Temperature** of 45.1°C was reported at **Kanpur (East Uttar Pradesh)** over the country.
- ❖ **Heavy to very heavy rainfall** occurred at isolated places over Tamil Nadu, Konkan & Goa, Assam & Meghalaya, Uttarakhand; **heavy rainfall** at isolated places over Kerala, Telangana, Gujarat region, Bihar, East Madhya 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 Vidarbha, Chhattisgarh, Odisha, Northwest Bay of Bengal, Sub-Himalayan West Bengal and some parts of Bihar.
- ❖ The Northern Limit of Monsoon now passes through 20.5°N/60°E, 20.5°N/63°E, 20.5°N/70°E, Amravati, Gondia, Durg, Rampur (Kalahandi), 19.5°N/86.5°E, 23°N/89.5°E, Malda, Bhagalpur and Raxaul.
- ❖ Conditions are favourable for further advance of Southwest Monsoon into some more parts of North Arabian Sea, Gujarat State, Maharashtra, Madhya Pradesh, Odisha, Northwest Bay of Bengal, some parts of Gangetic West Bengal, remaining parts of Sub-Himalayan West Bengal, some parts of Jharkhand, some more parts of Bihar and some parts of East Uttar Pradesh during next 3-4 days.

Weather Systems and Forecast & Warnings:

- ❖ A cyclonic circulation lies over Assam & neighbourhood and another over Bihar & neighbourhood in lower tropospheric levels. Strong southwesterly/southerly winds are prevailing from Bay of Bengal to northeast India 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 during next 5 days.
 - Isolated **heavy to very heavy rainfall** very likely over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Arunachal Pradesh next 5 days and isolated heavy rainfall over Nagaland, Manipur, Mizoram & Tripura on 22nd & 23rd June.

- Fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Gangetic West Bengal, Bihar, Jharkhand, Odisha, Andaman & Nicobar Islands during next 5 days.
- Isolated **heavy rainfall** very likely over Bihar during 20th-24th, Jharkhand on 20th & 21st and Andaman & Nicobar Islands on 23rd & 24th June. Isolated **very heavy rainfall** likely over Bihar today.
- ❖ A trough at mean sea level runs off Karnataka and Kerala coasts. Under its influence:
 - Scattered to fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning** likely over Gujarat state, Konkan & Goa, Madhya Maharashtra & Marathwada during next 5 days.
 - Isolated **heavy to very heavy rainfall** very likely over Konkan & Goa and ghat areas of Madhya Maharashtra during 20th-24th and isolated **heavy rainfall** over Gujarat region on 20th & 23rd June, 2024.
 - Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** likely over Karnataka, Kerala & Mahe, Lakshadweep; isolated to scattered light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Tamil Nadu, Puducherry & Karaikal during next 5 days.
 - Isolated **heavy to very heavy rainfall** very likely over Kerala & Mahe, Coastal & South Interior Karnataka, Tamil Nadu during 20th-24th; North Interior Karnataka during 22nd-24th; Lakshadweep on 22nd & 23rd June.
 - Isolated **extremely heavy rainfall** also likely over Coastal Karnataka on 22nd & 23rd and Konkan & Goa, Kerala & Mahe & South Interior Karnataka on 23rd June, 2024.
- ❖ Scattered to fairly widespread rainfall 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 Vidarbha, Chhattisgarh on 20th & 21st and West Madhya Pradesh on 22nd June.
- ❖ A Western Disturbance seen as a cyclonic circulation over Jammu-Kashmir & neighbourhood in lower & middle tropospheric levels and an induced cyclonic circulation lies over north Haryana in lower tropospheric levels. Under its influence; Scattered light to moderate rainfall with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, over Punjab, Haryana-Chandigarh-Delhi, West Uttar Pradesh and Rajasthan today.
- ❖ Scattered to fairly widespread rainfall over Uttarakhand and East Uttar Pradesh during next 7 days. Isolated **heavy rainfall** very likely over Uttarakhand on 23rd & 24th and East Uttar Pradesh on 24th June.
- ❖ **Strong surface winds** (speed reaching 25-35 kmph) very likely over plains of Northwest India during next 24 hours.

Maximum temperature forecast for next 5 days:

- ❖ No significant change in maximum temperatures very likely over many parts of Northwest India (except East Uttar Pradesh) during next 2 days and rise by about 2-3°C thereafter.
- ❖ Fall by about 2-3°C in maximum temperatures very likely over East India during next 2 days and no significant change thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

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

- ❖ **Heat wave conditions** very likely in isolated/some pockets of West Uttar Pradesh during 20th-23rd; East Uttar Pradesh on 20th and **abate thereafter**.
- ❖ **Warm night conditions** very likely in isolated pockets of north Rajasthan during 20th-22nd June, 2024.
- ❖ **Hot & Humid weather** very likely over Odisha on 20th & 21st June, 2024.

For more details, kindly refer: https://mausam.imd.gov.in/responsive/all_india_forcast_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 Sub-Himalayan West Bengal & Sikkim, Uttarakhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Vidarbha; **at many places** over Andaman & Nicobar Islands, Kerala & Mahe, Lakshadweep, Coastal Karnataka, Bihar, Odisha, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Punjab, Uttar Pradesh, **at a few places** over Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Telangana, Madhya Maharashtra, Haryana-Chandigarh-Delhi, Chhattisgarh; **at isolated places** over Marathwada, Gujarat State, Madhya Pradesh, Gangetic West Bengal, Rajasthan, Jharkhand, Rayalaseema and Gujarat State.
- ❖ Isolated **hailstorm** observed over East Madhya Pradesh, Himachal Pradesh, Uttarakhand and Punjab.

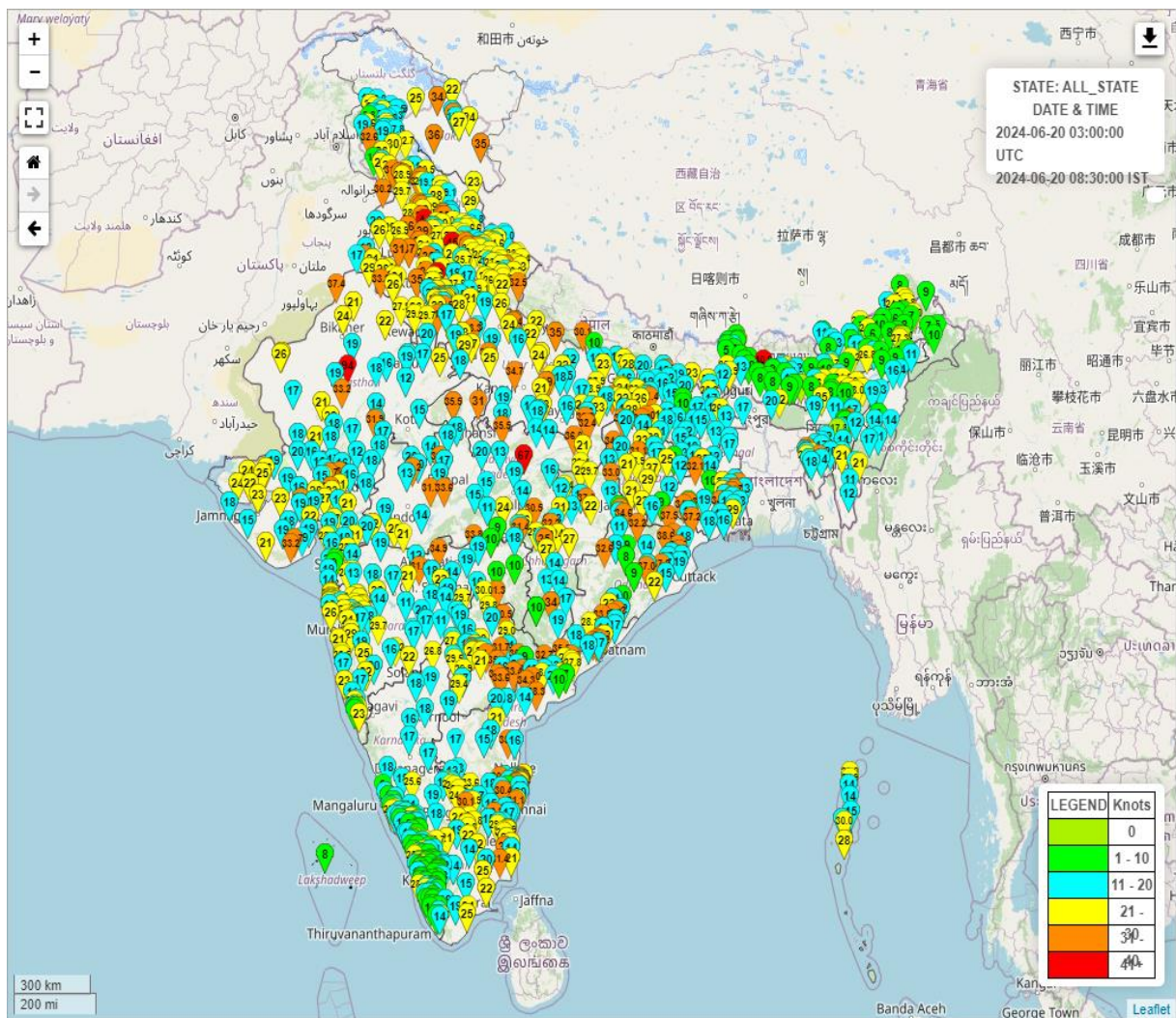
Significant amount of rainfall (in cm):

- ❖ **Assam & Meghalaya:** Bahalpur (dist Dhubri) 17, Kokrajhar (dist Kokrajhar) 13, Goalpara_cwc (dist Goalpara) 13, Goalpara_aws (dist Goalpara) 13, Dhemaji (dist Dhemaji) 10, Nongstein (dist West Khasi Hills) 10, Gossaigaon (dist Kokrajhar) 9, Goalpara_pto (dist Goalpara) 9, Williamnagar (dist East Garo Hills) 9, Dhubri_Cwc (dist Dhubri) 8, Nalbari(Barkhetri_aws) (dist Nalbari) 7, Manash Nh Xing (dist Barpeta) 7, Khanapara (dist Kamrup Metropolitan) 7,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Amfu Pundibari (dist Cooch Behar) 16, Cooch Behar (dist Cooch Behar) 14, Barobhisha (dist Alipurduar) 12, Mathabhanga (dist Cooch Behar) 12, Alipurduar (pto) (dist Alipurduar) 9, Falakata (dist Alipurduar) 9, Amfu Majhian (dist South Dinajpur) 8, Chepan (dist Alipurduar) 7, Yuksom (dist Gyalshing) 7, Hasimara (dist Alipurduar) 7, Jalpaiguri (dist Jalpaiguri) 7,
- ❖ **Tamil Nadu:** Maduranthagam (dist Chengalpattu) 15, Devala (dist The Nilgiris) 11, Tirupattur (dist Tirupathur) 9, Gudalur Bazar (dist The Nilgiris), Arani ARG (Tiruvannamalai), Sholinganallur (dist Chennai), Upper Gudalur (dist The Nilgiris) 7 each,
- ❖ **Konkan & Goa:** Palghar_agri (dist Palghar) 13, Karjat_agri (dist Raigad) 11, Dahanu - Imd Obsy (dist Palghar) 9, Wakwali_agri (dist Ratnagiri) 9, Vikramgad (dist Palghar) 8, Guhagarh (dist Ratnagiri) 8, Pen (dist Raigad) 7, Dapoli_agri (dist Ratnagiri) 7, Khed (dist Ratnagiri) 7, Shriwardhan (dist Raigad) 7, Tala (dist Raigad) 7..
- ❖ **Bihar:** Dhenraghat (dist Purnea) 13, Birpur (dist Supaul) 9, Bahadurganj (dist Kishanganj) 8, Ahirwalia (dist East Champaran) 7, Lalbegiaghat (dist East Champaran) 7, Kishanganj (dist Kishanganj) 7, Narpatganj (dist Araria) 7, Chorgharia (dist Kishanganj) 7, Adapur (dist East Champaran) 7, Nautan (dist Siwan) 7, Forbesganj (dist Araria) 7, Andar (dist Siwan) 7,
- ❖ **Uttarakhand:** Mussoorie-12, Haripur-10
- ❖ **Telangana:** Bheemadepalle (dist Hanumakonda) 9, Varni (dist Nizamabad) 7, Mortad (dist Nizamabad) 6, Dharmasagar (dist Hanumakonda) 6, Kammar Palle (dist Nizamabad) 5,
- ❖ **Kerala:** Airport Chakka Arg (dist Thiruvananthapuram) 8, Kollam Rly (dist Kollam) 7,
- ❖ **East Madhya Pradesh:** Tirodi (dist Balaghat) 8, Budhar (dist Shahdol) 5,
- ❖ **Gujarat Region:** Daman (dist Daman) 8, Umergam (dist Valsad) 7,
- ❖ **Himachal Pradesh:** Bilaspur-5, Shimla, Solan, Sirmaur-4 each
- ❖ **Vidarbha:** Bhamragad (dist Gadchiroli) 3, Deori (dist Gondia) 3, Bhandara (dist Bhandara) 3, Armori (dist Gadchiroli) 2, Bramhapuri (dist Chandrapur) 2, Chandrapur (dist Chandrapur) 2, Arjuni Morgaon (dist Gondia) 2, Tiroda (arg) (dist Gondia) 2, Bhandara (aws) (dist Bhandara) 2

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

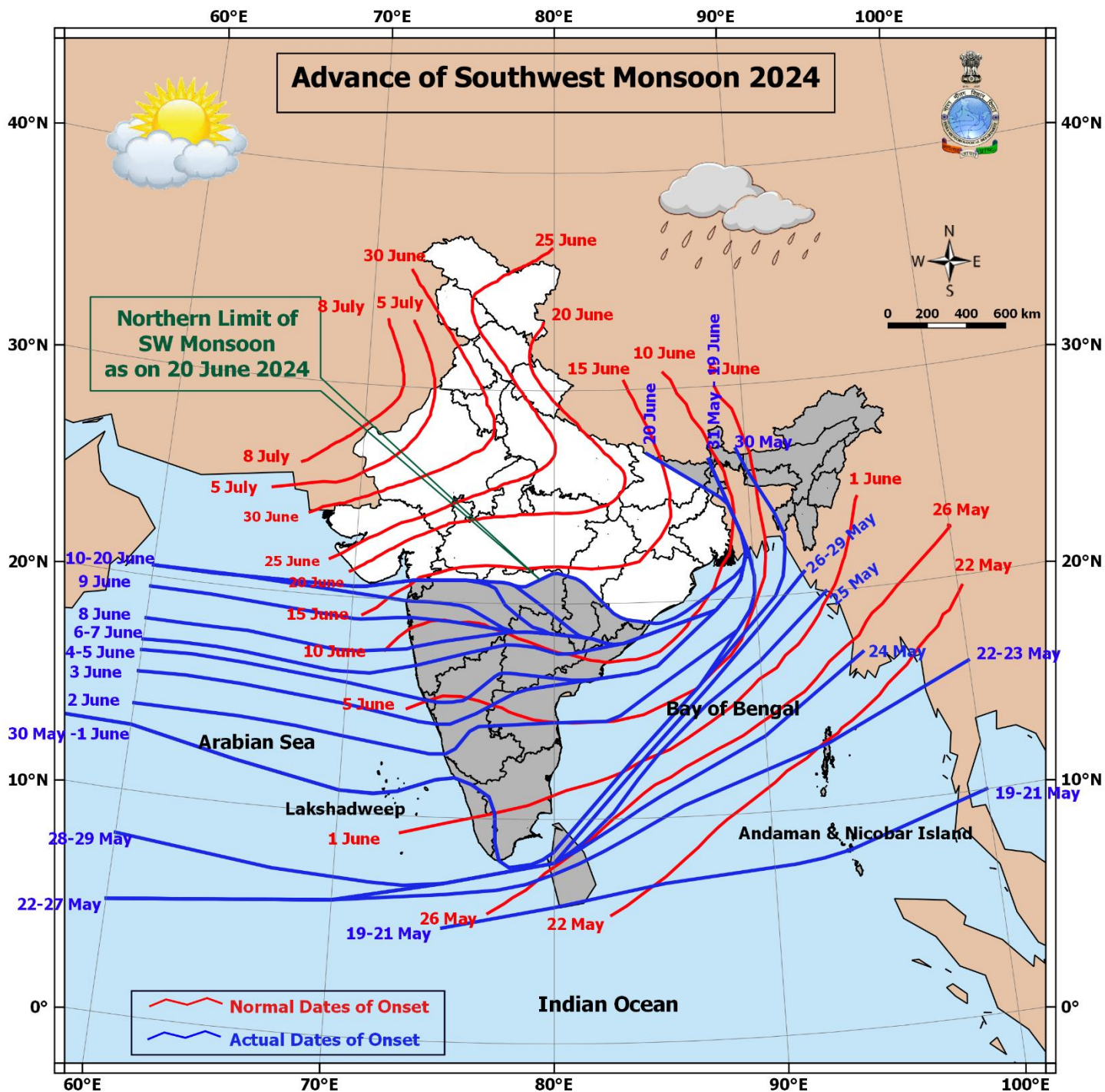
- ❖ **Haryana:** Yamunanagar-83, Panipat-78, Kaithal-67, Jind-65, Karnal-57, Sirsa-52, Kurukshetra-50, Hisar-48, Mahendragarh-48
- ❖ **Punjab:** Ropar-81, Fatehgarh Sahib-72, Patiala-70, Sangrur-68, Ludhiana-67, Pathankot-65, Barnala-57
- ❖ **Uttarakhand:** Dehradun-74, Tehri Garhwal-65, Almora-57, Chamoli-50
- ❖ **Uttar Pradesh:** Jalaun-72, Bahraich-65, Shahjahanpur-65, Jhansi-57, Agra-54, Chitrakoot-52, Bulandshahar-52
- ❖ **Himachal Pradesh:** Shimla-68, Kangra-61, Rupnagar-57, Hamirpur-57, Bilaspur-53
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Kargil-67, Leh-65, Kathua-65
- ❖ **Chhattisgarh:** Rajnandgaon-65, Dantewada-63, Durg-52, Koriya-52, Balod-50, Mahasamund-50
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Tiruvarur-65, Cuddalore-61, Karaikal-52, Salem-48
- ❖ **Delhi:** South West Delhi-52, East Delhi-52
- ❖ **Gujarat State:** Ahmedabad-52, Anand-50, Bharuch-50, Kachchh-48

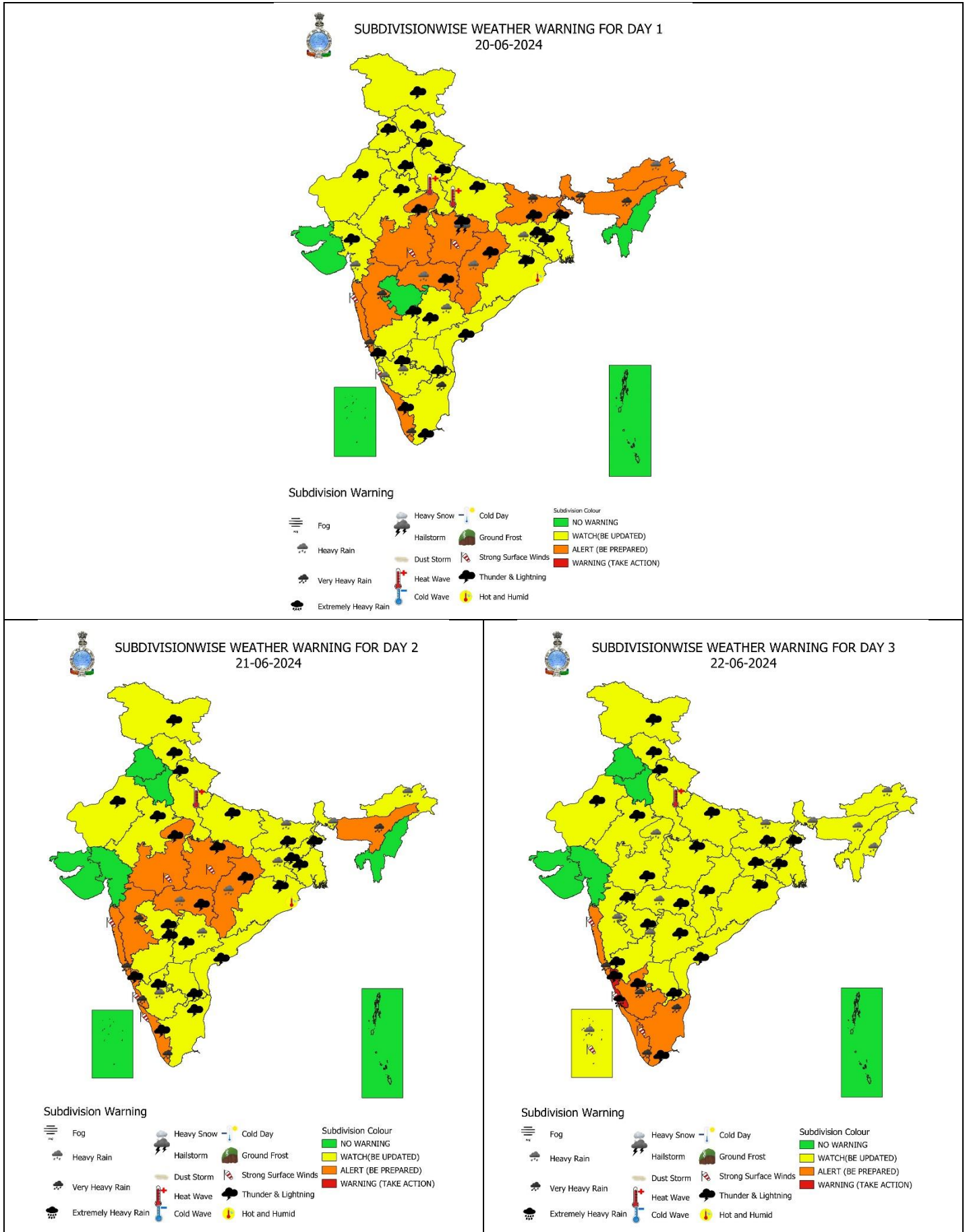
Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 19.06.2024 to 0830 hrs IST of 20.06.2024

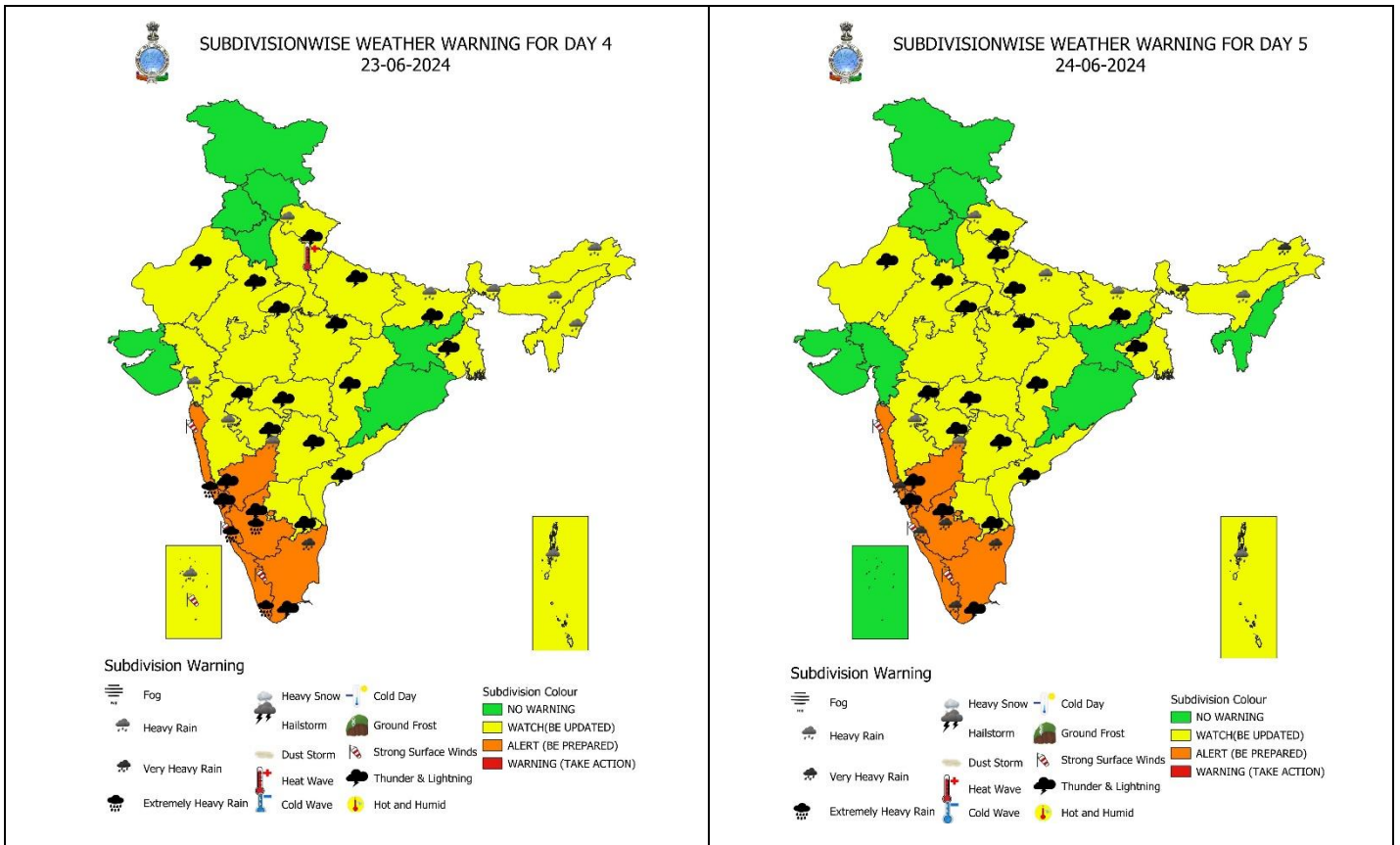


For more details, kindly refer: <http://aws.imd.gov.in:8091/>

Advance of Southwest Monsoon 2024







IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Yellow alert Areas: West Uttar Pradesh during 20th-23rd and East Uttar Pradesh on 20th June.

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, Assam & Meghalaya, ghat areas of Madhya Maharashtra during 20th-21st; Konkan & Goa during 20th-24th; Kerala & Mahe, Tamil Nadu South Interior Karnataka and Coastal Karnataka during 22nd-24th June.

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 and Heat Wave likely over various parts of the country:

- Drain out excess water from crop fields to avoid water stagnation in Arunachal Pradesh, Assam; Meghalaya, Sub Himalayan West Bengal; Sikkim, Konkan, Ghat regions of Madhya Maharashtra, Kerala, Coastal and South Interior Karnataka and Telangana.
- Postpone sowing of Soybean in Sub Himalayan West Bengal.
- Postpone land preparation, nursery preparation and transplanting of WRC rice in Arunachal Pradesh.
- Postpone nursery sowing of Sali rice and planting of papaya seedlings in Assam.
- Postpone fresh planting of ginger, turmeric and sowing of pumpkin, bottle gourd, cucumber and bitter gourd in Meghalaya.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Uttar Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables.

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