

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, Coastal Karnataka, Sub-Himalayan West Bengal & Sikkim; **at many places** over Konkan & Goa, Vidarbha, Nagaland, Manipur, Mizoram & Tripura, Kerala & Mahe, Lakshadweep, Rayalaseema; **at a few places** over Madhya Maharashtra, Andaman & Nicobar Islands, Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka; **at isolated places** over Marathwada, Gujarat State, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Madhya Pradesh, Chhattisgarh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, East Rajasthan, Coastal Andhra Pradesh & Yanam, Telangana and North Interior Karnataka.
- ❖ Isolated **hailstorm** observed over Himachal Pradesh and Madhya Pradesh.

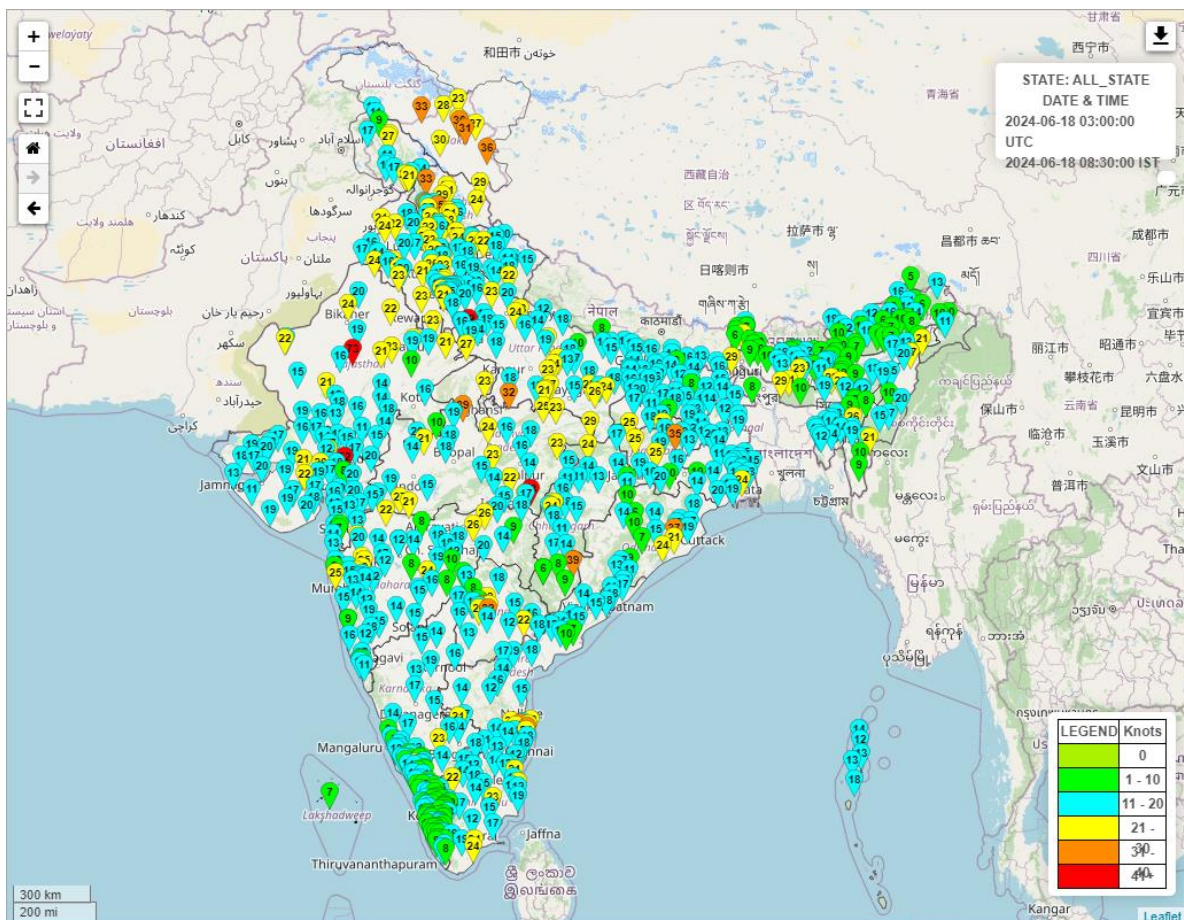
Significant amount of rainfall (in cm):

- ❖ **Assam & Meghalaya:** Mawsynram (dist East Khasi Hills) 78, Cherrapunji(rkm) (dist East Khasi Hills) 43, Cherrapunji (dist East Khasi Hills) 39, Mawkyrwat (dist South West Khasi Hills) 30, Mawkyrwat_arg (dist South West Khasi Hills) 28, Manash Nh Xing (dist Barpeta) 15, Kokrajhar (dist Kokrajhar) 15, Dhubri_ Cwc (dist Dhubri) 14, Karimganj (dist Karimganj) 13, Williamnagar (dist East Garo Hills) 13, B P Ghat (dist Karimganj) 13, Tikrikilla (dist West Garo Hills) 13, Goibargaon (dist Baksa) 13, Barpeta (dist Barpeta) 12, Srijangram Arg (dist Bongaigaon) 12, Hailakandi_ Aws (dist Hailakandi) 12, Dhubri_imd (dist Dhubri) 12, Tamulpur Arg (dist Baksa) 12, Bhaghmara (dist South Garo Hills) 12, Halflong (dist N. C. Hills) 12, Beky Rly.bridge (dist Barpeta) 12, Tamulpur (dist Baksa) 11, Goalpara_pto (dist Goalpara) 11, Nongstein (dist West Khasi Hills) 11, Drf (dist Baksa) 11, Bahalpur (dist Dhubri) 10, Badarpur Arg (dist Karimganj) 10, Gossaigaon (dist Kokrajhar) 10, Dhemaji (dist Dhemaji) 9, Baksa Kvk Aws (dist Baksa) 9, N.lakhimpur/lilabari (dist Lakhimpur) 9, Mawphlang (dist East Khasi Hills) 9, Melabazar/matunga (dist Nalbari) 8, Gharmura (dist Hailakandi) 8, Resubelpara (dist North Garo Hills) 8, Goalpara_aws (dist Goalpara) 8, Panbari (dist Chirang) 7, Aie Nh Xing (dist Bongaigaon) 7,
- ❖ **Bihar:** Thakurganj (dist Kishanganj) 26, Pothia (dist Kishanganj) 22, Dighalbank (dist Kishanganj) 12, Galgalia (dist Kishanganj) 9, Taibpur (dist Kishanganj) 8, Kishanganj (dist Kishanganj) 7,
- ❖ **Sub-Himalayan West Bengal:** Mathabhanga (dist Cooch Behar) 21, Kumargram (dist Alipurduar) 15, Cooch Behar (dist Cooch Behar) 13, Sevoke (dist Darjeeling) 13, Bhutanghat (dist Alipurduar) 11, Alipurduar (pto) (dist Alipurduar) 10, Bagrakote (dist Jalpaiguri) 9, Chepan (dist Alipurduar) 9, Barobhisha (dist Alipurduar) 8, Gajoldoba (dist Jalpaiguri) 8, Hasimara (dist Alipurduar) 7, Nagarkata (dist Jalpaiguri) 7
- ❖ **Arunachal Pradesh:** Itanagar (dist Papumpara) 18, Naharlagun (dist Papumpara) 15, Nachu Arg (dist Upper Subansiri) 11.
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Kadamtala Arg (dist North Tripura) 15, Dharmanagar/ Panisagar (dist North Tripura) 7,
- ❖ **Tamil Nadu:** Zone 15 Sholinganallur (dist Chennai) 12, Poonamalle ARG (dist Tiruvallur) 11, Poonamallee (dist Tiruvallur) 10, Sholingur (dist Ranipet) 9, Chembarambakkam ARG (dist Kancheepuram), NIOT_Pallikaranai ARG (dist Chennai), Chembarambakkam (dist Kancheepuram), R.K.Pet (dist Tiruvallur), Kolapakkam ARG (dist Kancheepuram), Meenambakkam AWS (dist Chennai), Chennai (AP) (dist Chennai), Alandur (dist Chennai), Avadi (dist Tiruvallur), ACS Medical College ARG (dist Kancheepuram), Sholinganallur (dist Chennai) 7 each, Zone
- ❖ **Rayalaseema:** Allagadda (dist Nandyal) 10, Rudravaram (dist Nandyal) 10, Cuddapah (dist Ysr District) 10, Madanapalle (dist Annamayya District) 9, Raju Palem (dist Ysr District) 9, Proddutur (dist Ysr District) 9, Chinnamandem (dist Annamayya District) 8, Duvvur (dist Ysr District) 8, Nambulipulikunta (dist Sri Sathyasai District) 7,
- ❖ **Konkan & Goa:** Khed (dist Ratnagiri) 7.
- ❖ **Madhya Maharashtra:** Harsul - Fmo (dist Nashik) 8.
- ❖ **South Interior Karnataka:** Kottigehara (dist Chikkamagaluru) 8, Hosadurga (dist Chitradurga) 4,
- ❖ **Telangana:** Talamadugu (dist Adilabad) 8, Utnoor(arg) (dist Adilabad) 6, Tamsi (dist Adilabad) 6, Boath (dist Adilabad) 5,

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

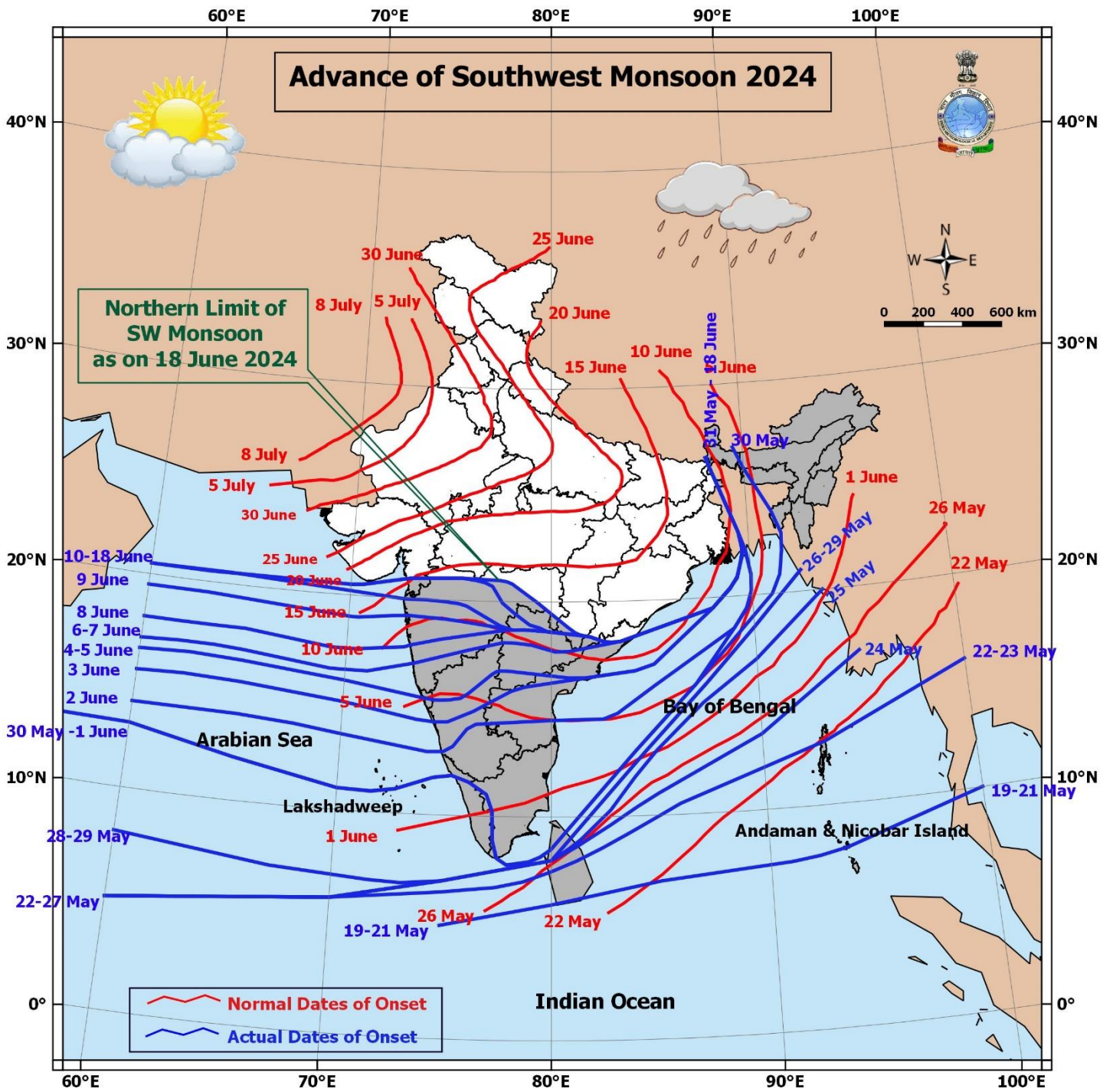
- ❖ **Madhya Pradesh:** Balaghat-80, Ashoknagar-72, Chhatarpur-59, Singrauli-54, Satna-46, Sagar-44
- ❖ **Uttar Pradesh:** Hathras-78, Chitrakoot-50, Lucknow-48, Mirzapur-48, Kannauj-44, Chandauli-44, Sambhal-42
- ❖ **Chhattisgarh:** Bastar-72, Durg-54, Rajnandgaon-44, Koriya-44
- ❖ **Odisha:** Khurdha-68, Puri-44
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Leh-67, Kargil-61, Shopian-50, Kulgam-42, Kathua-42
- ❖ **Jharkhand:** Bokaro-65, Gumla-46, Palamu-46, Khunti-46, Hazaribagh-39
- ❖ **Himachal Pradesh:** Bilaspur-65, Hamirpur-63, Kangra-61, Lahaul & Spiti-54, Mandi-54, Solan-52, Kullu-50
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Chennai-61, Tiruvallur-57, Ranipet-55, Tiruvallur-52, Thoothukudi-44, Chengalpattu-44, Pudukkottai-42
- ❖ **Telangana:** Hyderabad-59, Ranga Reddy-59, Siddipet-41, NTR-41
- ❖ **Haryana:** Fatehabad-55, Kaithal-48, Karnal-48, Mahendragarh-42, Panipat-42, Ambala-42
- ❖ **Rajasthan:** Dholpur-50, Bikaner-44, Alwar-42, Ajmer-42, Jaisalmer-41, Sikar-41
- ❖ **Maharashtra:** Jalgaon-50, Wardha-48, Yavatmal-48, pune-46, Raigad-46
- ❖ **Gujarat State:** Ahmedabad-48, Botad-41, Surendranagar-39
- ❖ **Uttarakhand:** Dehradun-46, Tehri Garhwal-41, Udham Singh Nagar-41
- ❖ **Punjab:** Patiala-44, Faridkot-44

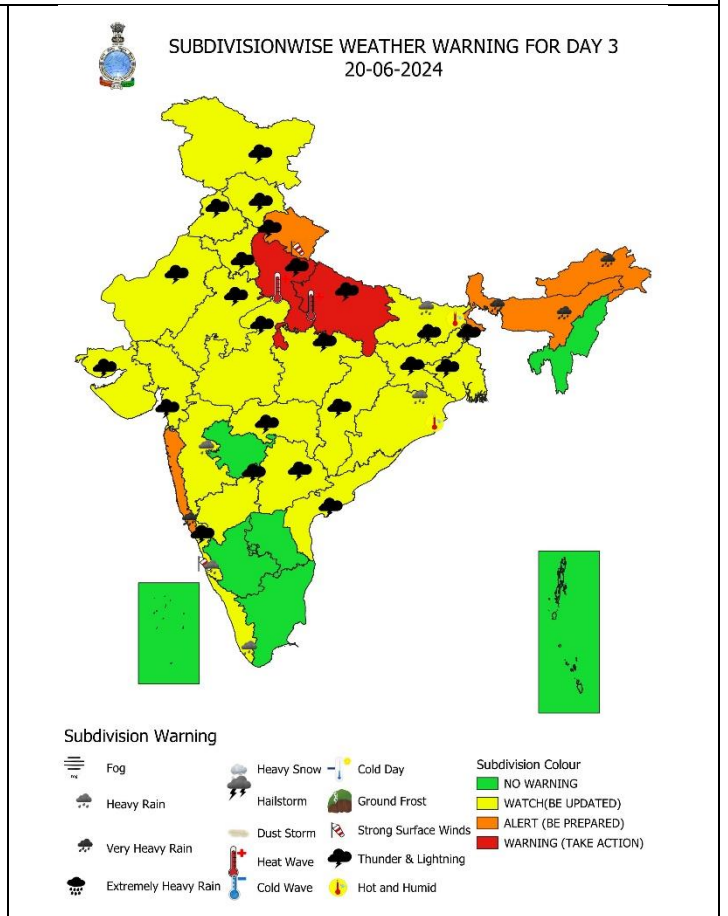
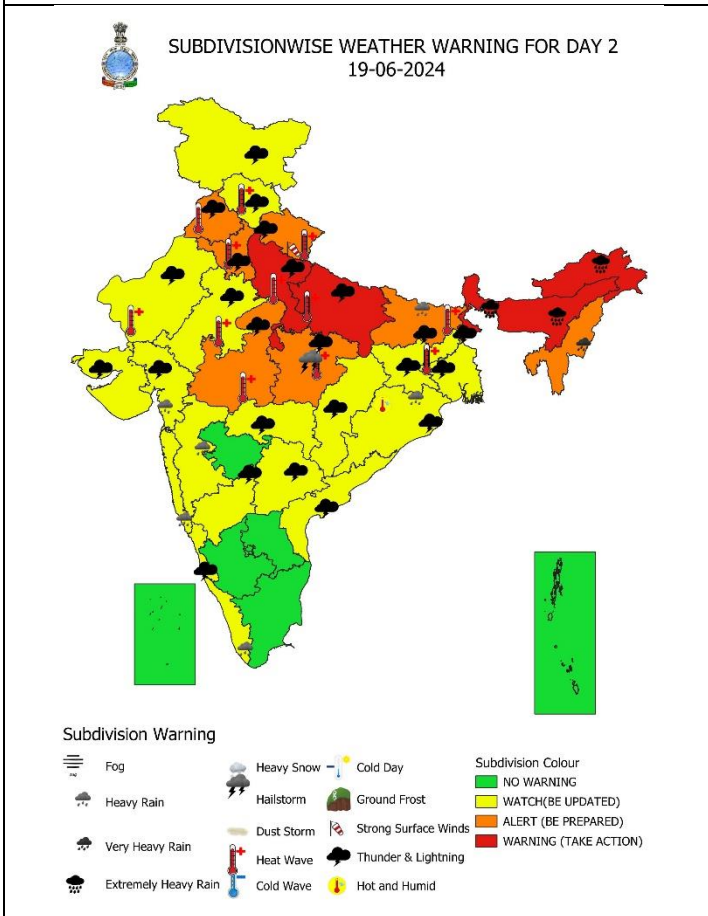
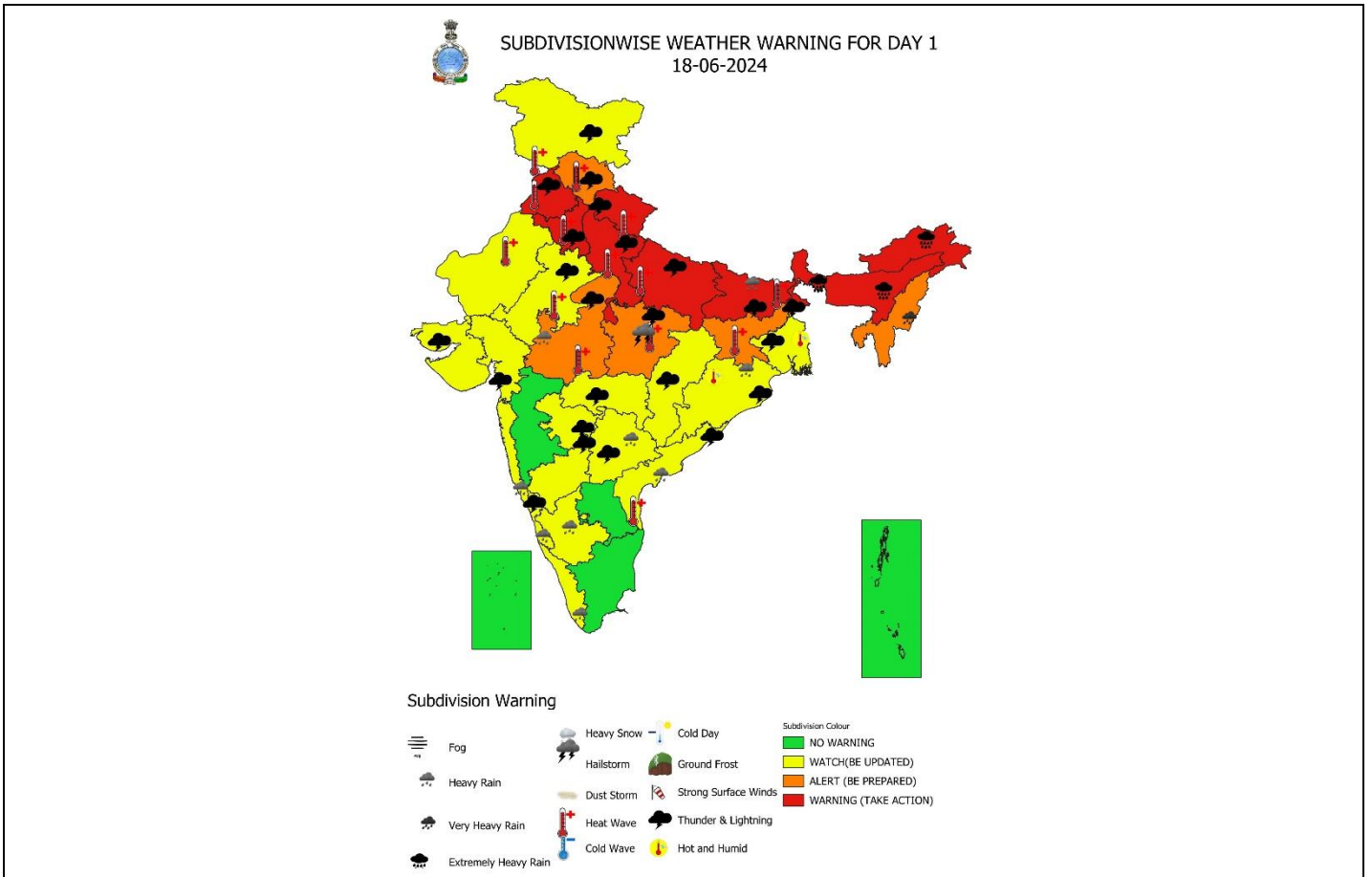
Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 17.06.2024 to 0830 hrs IST of 18.06.2024

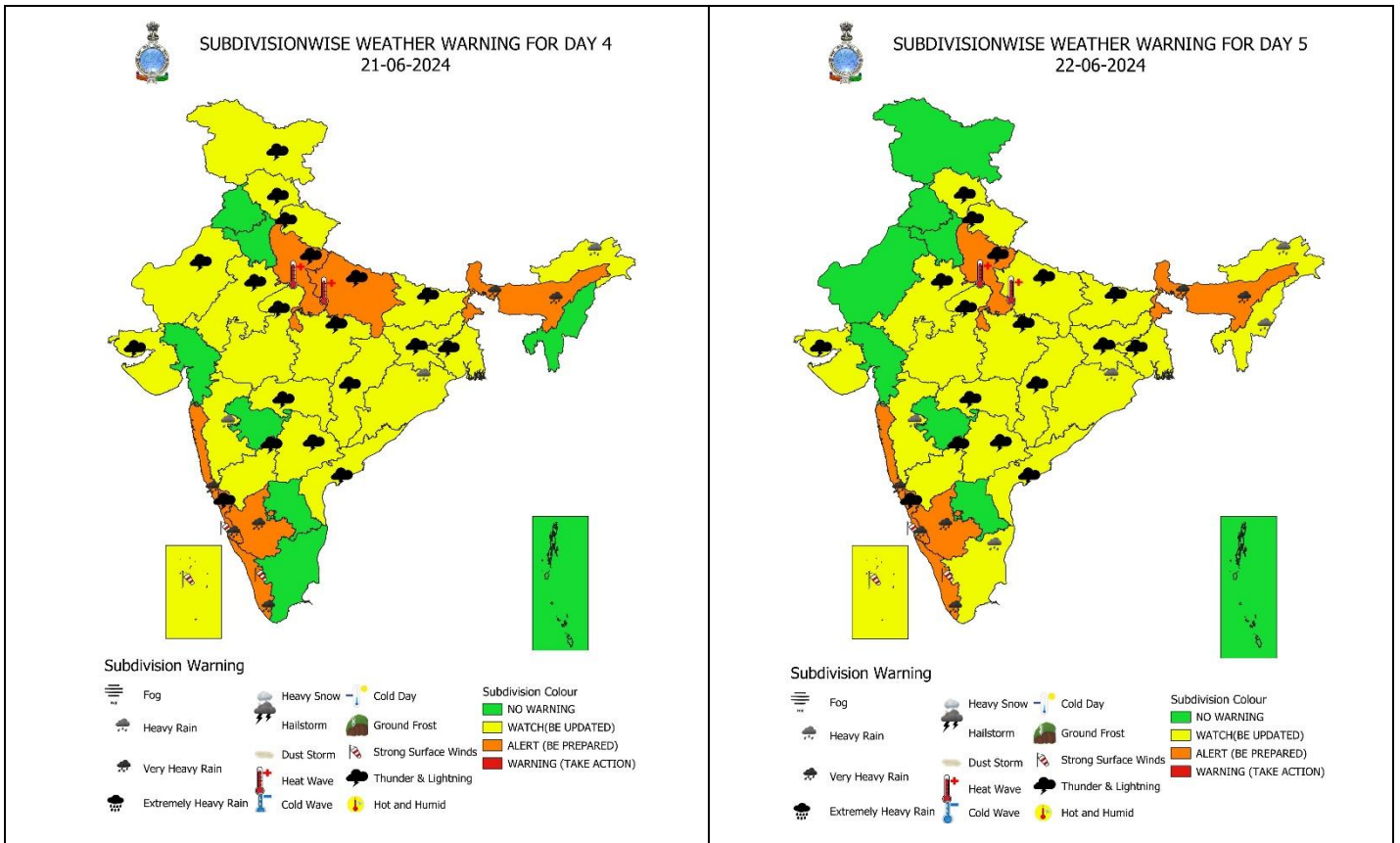


For more details, kindly refer: <http://aws.imd.gov.in:8091/>

Advance of Southwest Monsoon 2024







IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:

Red alert Areas: Punjab, Haryana-Chandigarh-Delhi, Uttarakhand, Bihar on 18th; Uttar Pradesh during 18th - 20th June.

Orange alert Areas: Himachal Pradesh on 18th; north Madhya Pradesh on 18th & 19th; Uttar Pradesh on 21st & 22nd; and Jharkhand on 18th June;

Yellow alert Areas: Jammu division, north Coastal Andhra Pradesh on 18th; north Rajasthan on 18th & 19th; Himachal Pradesh and Jharkhand on 19th 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, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura during next 5 days; over Konkan & Goa, Kerala & Mahe and Coastal Karnataka on 21st & 22nd 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 North Eastern States, Sub Himalayan West Bengal & Sikkim, Konkan, Ghat regions of Madhya Maharashtra, Kerala, Coastal Karnataka and Coastal Andhra Pradesh.
- 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 Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, Bihar, Jharkhand and North Coastal Andhra Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables.

FLASH FLOOD GUIDANCE:

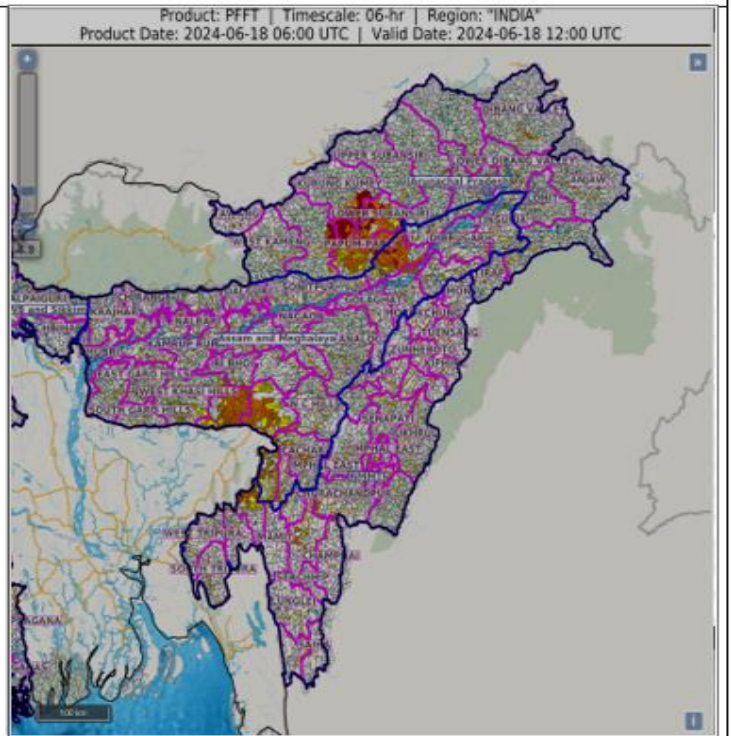
Persistent Flash Flood Threat (PFFT) till 1730 IST of 18-06-2024 :

Moderate flash flood threat likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 6 hours.

Arunachal Pradesh - East Kameng, Lower Subansiri, Papum-Pare and Kurung Kumey districts.

Assam & Meghalaya - Baksa, Barpeta, Cachar, Chirang, Darrang, Dhemaji, Goalpara, Jorhat, Kamrup Metro, Kamrup Rural, Kokrajhar, Lakhimpur, N.C Hills, Nalbari, East Garo Hills, East Khasi Hills, Ri Bhoi, South Garo Hills, West Garo Hills, West Khasi Hills, Dhubri and Jaintia Hills districts.
NMMT - Tamenglong district.
SHWB & Sikkim - Darjeeling, Jalpaiguri, Kochbihar and Uttar_Dinajpur districts.

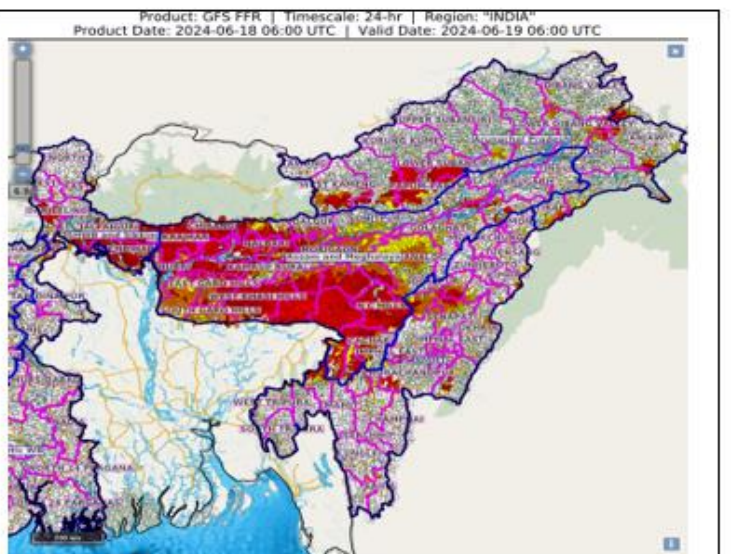
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 6 hours.



24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 19-06-2024 :

Moderate to High flash flood risk likely over few watersheds & neighbourhoods of **Arunachal Pradesh, Assam & Meghalaya, NMMT and SHWB & Sikkim** Met Sub-divisions during next 24 hours.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



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 $\leq -6.5^{\circ}\text{C}$



Phenomenon of small droplets suspended in air and the horizontal visibility < 1km

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



Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)



An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.



Ice deposits on ground

Air temperature $\leq 4^{\circ}\text{C}$ (over Plains)



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



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



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)