Government of India
Ministry of Earth Sciences
India Meteorological Department

Press Release
Date: 12th July, 2024
Time of Issue: 1315 hours IST

Subject: Heavy to very heavy rainfall spell likely over southwest Peninsular India and heavy rainfall over Northeast & adjoining east India during next 5 days.

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

- ✓ **Heavy to very heavy rainfall with extremely heavy falls** occurred at isolated places over Meghalaya; **Heavy to very heavy rainfall** at isolated places over Gujarat Region, Konkan & Goa, West Bengal & Sikkim, Bihar, East Uttar Pradesh; **Heavy rainfall** at isolated places over Rajasthan, Uttarakhand, West Uttar Pradesh, East Madhya Pradesh, Vidarbha, Chhattisgarh, Jharkhand, Odisha, Madhya Maharashtra, Coastal Andhra Pradesh, Coastal Karnataka, Assam and Andaman & Nicobar Islands.

Weather Systems

- ✓ The Monsoon trough is north of its normal position at mean sea level.
- ✓ The off-shore trough runs along south Gujarat-north Kerala coasts at mean sea level.
- ✓ A cyclonic circulation over East Bihar and another over northeast Assam & a trough runs from northeast Assam to northwest Bay of Bengal in lower tropospheric levels.

Forecast & Warnings (Annexure II)

❖ West and South Peninsular India

- ✓ Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Konkan & Goa, Madhya Maharashtra, Kerala & Mahe, Lakshadweep, Karnataka, Gujarat state; scattered to fairly widespread light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Telangana, Marathwada, Rayalaseema; isolated to scattered light to moderate rainfall over Tamil Nadu, Puducherry & Karaikal during next 5 days.
- ✓ **Heavy rainfall** very likely at some places over Konkan & Goa; at isolated places over Ghat regions of Madhya Maharashtra, Karnataka, Gujarat Region, Telangana during 12th-16th; Rayalaseema on 14th & 15th; Saurashtra & Kutch on 12th & 16th and over Lakshadweep on 12th July.
- ✓ **Isolated very heavy rainfall also likely over Konkan & Goa, Ghat regions of Madhya Maharashtra during 12th-16th; Kerala, Coastal & South Interior Karnataka during 13th-16th July, Gujarat region on 12th and Gujarat State on 16th July.**

❖ East & Northeast India

- ✓ Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm, lightning very likely over East and Northeast India during next 5 days.
- ✓ **Heavy rainfall** very likely at isolated places over Assam & Meghalaya, Odisha during 12th–16th; Sub-Himalayan West Bengal & Sikkim, Bihar, Arunachal Pradesh during 12th-14th; Gangetic West Bengal on 12th; Jharkhand on 12th & 13th; Andaman & Nicobar Islands on 13th & 14th; Nagaland and Manipur on 12th, 14th & 15th July.

- ✓ **Isolated very heavy rainfall also likely over Sub-Himalayan West Bengal & Sikkim, Bihar, Arunachal Pradesh on 12th; Nagaland on 14th and Odisha on 15th & 16th July.**
- ✓ **Isolated extremely heavy rainfall very likely over Meghalaya on 12th July.**

❖ **Northwest & Central India**

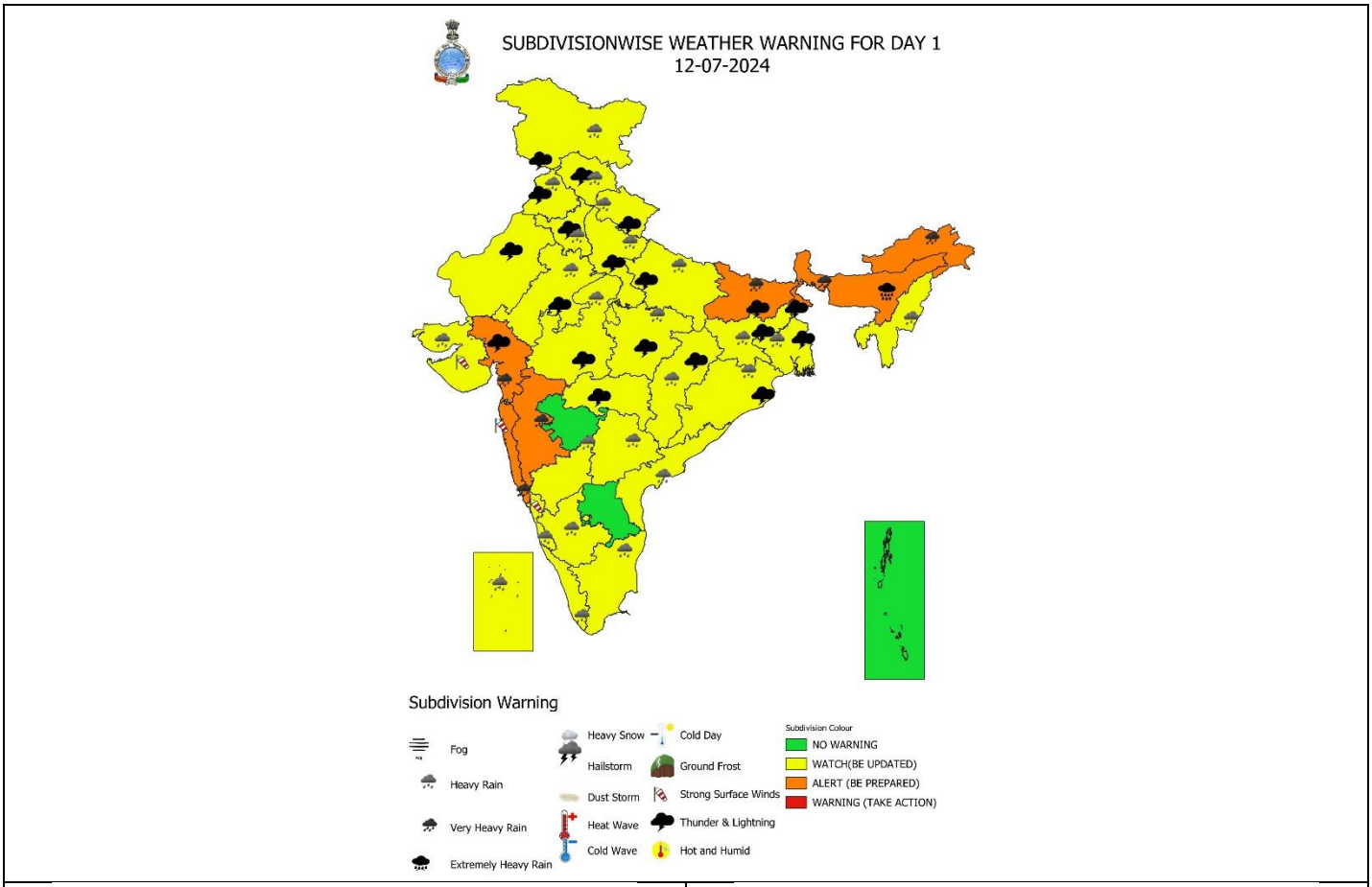
- ✓ Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Uttarakhand, Madhya Pradesh, Vidarbha, Chhattisgarh; scattered to fairly widespread light to moderate rainfall over Himachal Pradesh, Uttar Pradesh, East Rajasthan during next 5 days and over Punjab and Haryana-Chandigarh-Delhi on 12th & 13th July. Isolated to scattered rainfall likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and West Rajasthan during next 5 days.
- ✓ Isolated **heavy rainfall** very likely over Uttarakhand, East Uttar Pradesh during 12th-16th; Chhattisgarh during 12th-15th; West Uttar Pradesh and Madhya Pradesh during 12th-14th; Punjab, Haryana and Jammu on 12th; Himachal Pradesh on 12th & 13th; East Rajasthan on 12th & 16th and Vidarbha during 14th-16th July.

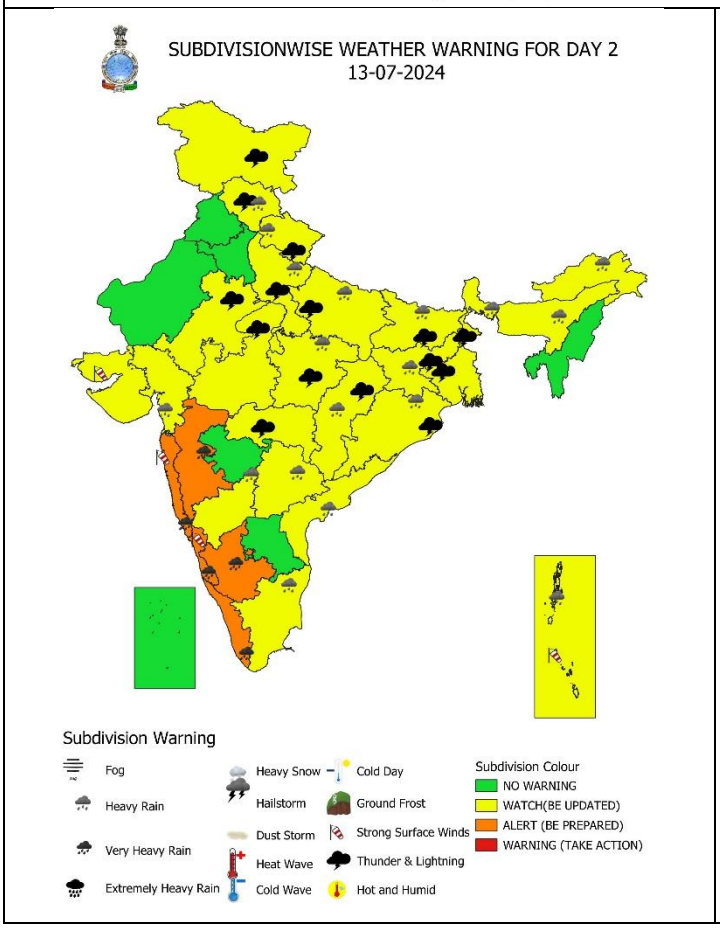
For more details, kindly refer: https://mausam.imd.gov.in/responsive/all_india_forcast_bulletin.php

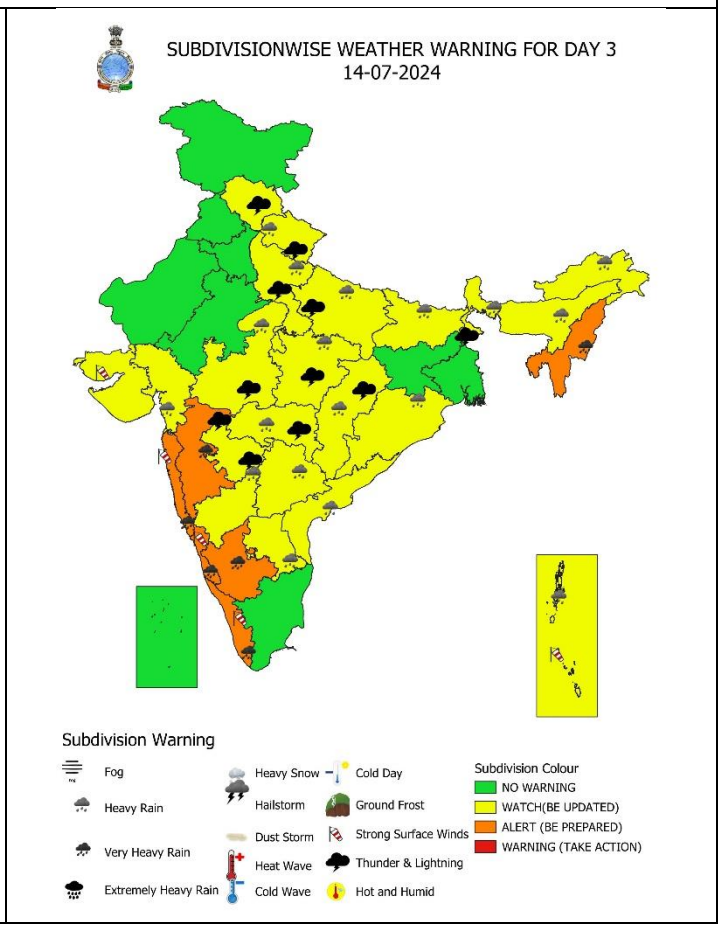
ANNEXURE I

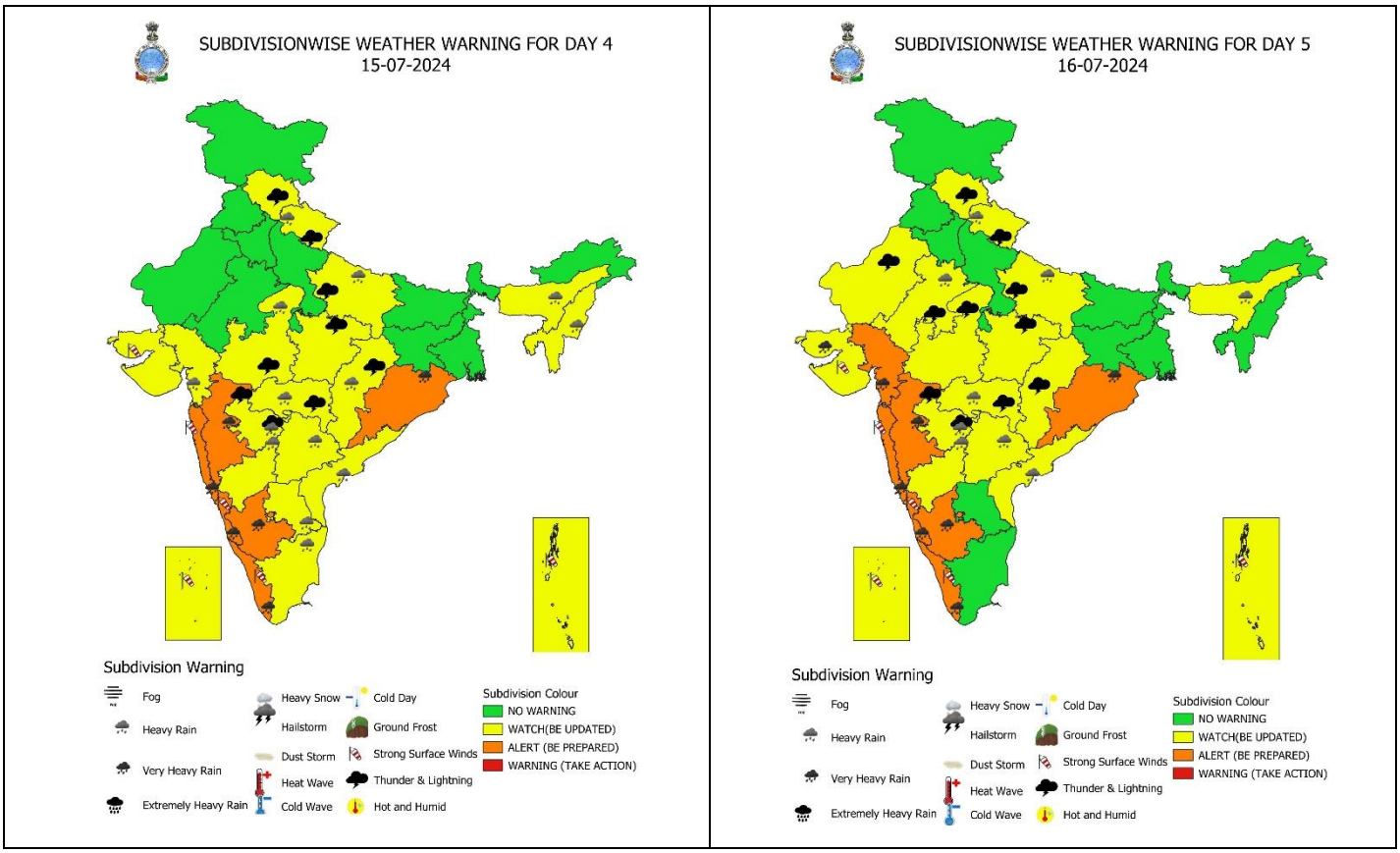
Significant Rainfall during past 24 hours till 0830 hours IST of today (in cm):

- **Assam & Meghalaya:** Mawkyrwat (dist South West Khasi Hills) 35, Mawkyrwat_arg (dist South West Khasi Hills) 31, Cherrapunji(rkm) (dist East Khasi Hills) 17, Cherrapunji (dist East Khasi Hills) 16, Mawphlang (dist East Khasi Hills) 14, Nongstein (dist West Khasi Hills) 14, Tihu Arg (dist Nalbari) 10, Gossaigaon (dist Kokrajhar) 10, Hazuah (dist Barpeta) 8, Williamnagar (dist East Garo Hills) 7, Beki Mathungari (dist Barpeta) 7, Shella (dist East Khasi Hills) 7, Shillong_ Aws (dist East Khasi Hills) 7, Shillong C.s.o. (dist East Khasi Hills) 7,
- **Gujarat Region**: Daman_aws (dist Daman) 18, Umergam (dist Valsad) 8, Kamrej (dist Surat) 8, Valsad_ Kvk Aws (dist Valsad) 8, Navasari_aws (dist Navsari) 8, Borsad (dist Anand) 8, Vapi (dist Valsad) 7,
- **Sub-Himalayan West Bengal & Sikkim:** Sevoke (dist Darjeeling) 18, Siliguri Pto (dist Darjeeling) 15, Alipurduar (pto) (dist Alipurduar) 14, Falakata (dist Alipurduar) 12, Kumargram (dist Alipurduar) 11, Dhupguri (dist Jalpaiguri) 10, Gyalsing (pto) (dist Gyalshing) 8, Mekhliganj (dist Cooch Behar) 8, Bhutanghat (dist Alipurduar) 7, Lava (dist Kalimpong) 7,
- **Gangetic West Bengal:** Harinkhola (dist Hooghly) 17, Labpur (dist Birbhum) 13, Nalhati (dist Birbhum) 7, Uluberia (dist Howrah) 7, Berhampore (dist Murshidabad) 7, Durgachack (dist East Midnapore) 7, Kharidwar (dist Purulia) 7,
- **East Uttar Pradesh:** Notanwa (dist Maharajganj) 13, Maharajganj (dist Maharajganj) 9, Mahsi (dist Bahraich) 7,
- **Bihar:** Dhengbridge (dist Sitamarhi) 12, Kutumba (dist Aurangabad) 12, Dhaka (dist East Champaran) 12, Gaya Aero (dist Gaya) 11, Nabinagar (dist Aurangabad) 11, Khagadia (dist Khagaria) 11, Bodh Gaya (dist Gaya) 11, Paraiya (dist Gaya) 11, Chakia (dist East Champaran) 10, Sahebganj (dist Muzaffarpur) 10, Patahi (dist East Champaran) 9, Dehri (dist Rohtas) 9, Madanpur (dist Aurangabad) 9, Chautham (dist Khagaria) 9, Sahar (dist Bhojpur) 9, Paliganj (dist Patna) 9, Mahedi/mehshi (dist East Champaran) 9, Motihari (dist East Champaran) 9, Babubarhi (dist Madhubani) 9, Pipariya (dist Lakhisarai) 9, Baltara (dist Khagaria) 9, Obra (dist Aurangabad) 8, Deo (dist Aurangabad) 8, Bokhara (dist Sitamarhi) 8, Pirpaiti (dist Bhagalpur) 8,
- **Konkan & Goa:** Santacruz - Imd Obsy (dist Mumbai Suburban) 12, Matheran (dist Raigad) 9, Colaba - Imd Obsy (dist Mumbai City) 9, Panvel_agri (dist Raigad) 8
- **West Uttar Pradesh:** Bilari (dist Moradabad) 11,
- **Jharkhand:** Godda-11, Jamtara-8, Dumka-7;
- **East Madhya Pradesh:** Patera (dist Damoh) 10, Pawai (dist Panna) 10, Pandhurna (dist Chindwara) 10, Amanganj (dist Panna) 9, Hatta (dist Damoh) 9, Damoh-aws (dist Damoh) 8, Devser (dist Singrauli) 8, Gonour (dist Panna) 8, Simariya (dist Panna) 7, Kotma (dist Anuppur) 7, Katni(mudwara) (dist Katni) 7, Buxwaha (dist Chhatarpur) 7,
- **Rajasthan**: Parbatsar (dist Nagaur) 9, Sapau Sr (dist Dholpur) 7,
- **Uttarakhand:** Kapkot (Bageshwar) : 9, Loharkhet (Bageshwar) : 7,
- **Chhattisgarh:** Pasaan (dist Korba) 9, Ambikapur (dist Surguja) 8, Chando (dist Balrampur) 7,
- **Vidarbha:** Desaiganj (dist Gadchiroli) 8,
- **Coastal Karnataka:** Kundapur (dist Udupi) 8,
- **Odisha:** Paradeep-7


SUBDIVISIONWISE WEATHER WARNING FOR DAY 1
12-07-2024
Subdivision Warning
Fog
Heavy Rain
Very Heavy Rain
Extremely Heavy Rain
Heavy Snow
Hailstorm
Dust Storm
Heat Wave
Cold Wave
Cold Day
Ground Frost
Strong Surface Winds
Thunder & Lightning
Hot and Humid
Subdivision Colour
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY 2
13-07-2024
Subdivision Warning
Fog
Heavy Rain
Very Heavy Rain
Extremely Heavy Rain
Heavy Snow
Hailstorm
Dust Storm
Heat Wave
Cold Wave
Cold Day
Ground Frost
Strong Surface Winds
Thunder & Lightning
Hot and Humid
Subdivision Colour
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)


SUBDIVISIONWISE WEATHER WARNING FOR DAY 3
14-07-2024
Subdivision Warning
Fog
Heavy Rain
Very Heavy Rain
Extremely Heavy Rain
Heavy Snow
Hailstorm
Dust Storm
Heat Wave
Cold Wave
Cold Day
Ground Frost
Strong Surface Winds
Thunder & Lightning
Hot and Humid
Subdivision Colour
NO WARNING
WATCH(BE UPDATED)
ALERT (BE PREPARED)
WARNING (TAKE ACTION)



IMPACT & ACTION SUGGESTED due to

- ✓ **Isolated extremely heavy rainfall very likely over Meghalaya on 12th July.**
- ✓ **Isolated very heavy rainfall very likely over Konkan & Goa, Madhya Maharashtra during 12th-16th; Coastal & South Interior Karnataka, Kerala during 13th-16th; Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Gujarat Region on 12th; Odisha on 15th & 16th and Gujarat State on 16th July.**

- ➢ 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/mud slips/land sinks/mud sinks.
- ➢ 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)

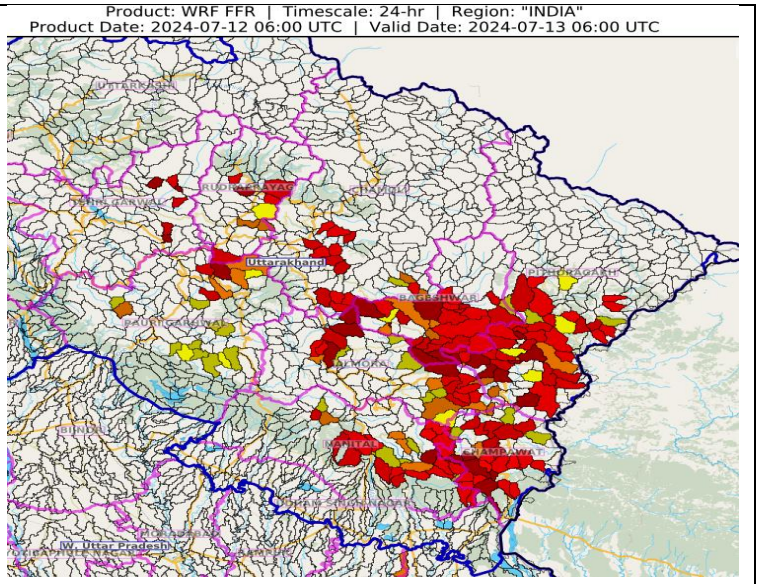
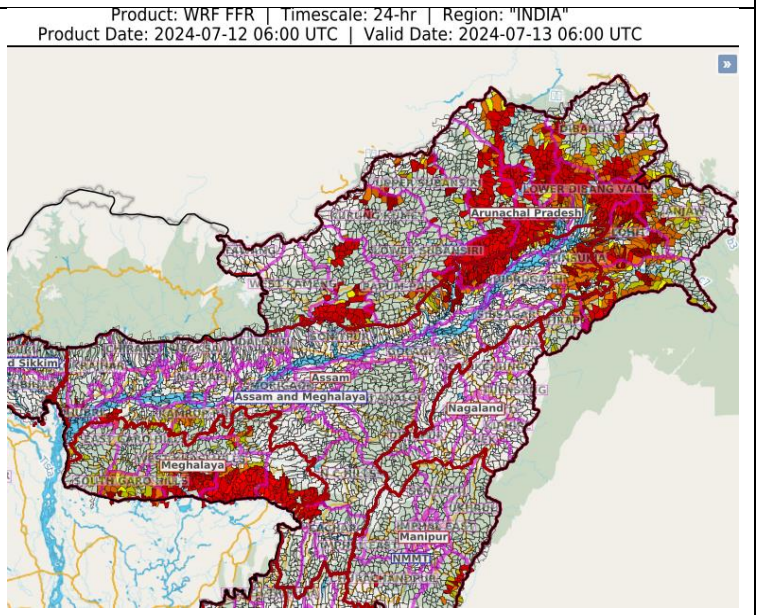
Action Suggested

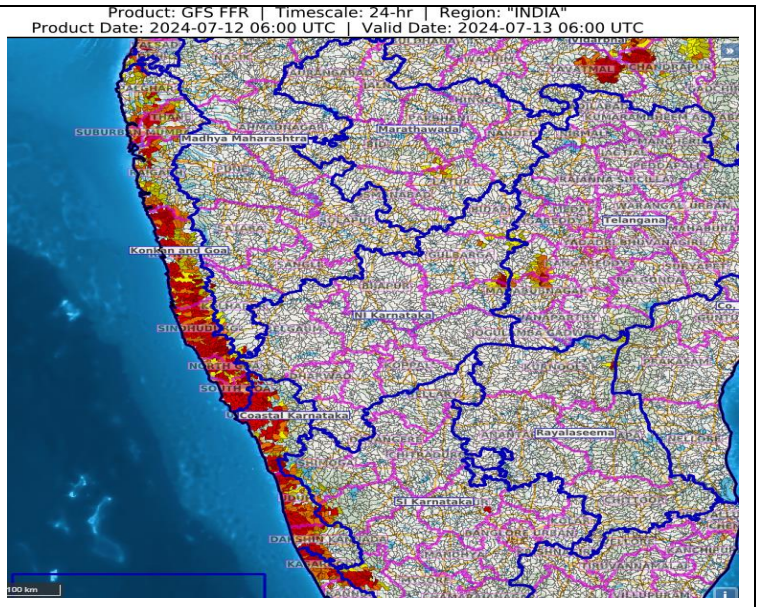
- ➢ Check for traffic congestion on your route before leaving for your destination.
- ➢ Follow any traffic advisories that are issued in this regard.
- ➢ Avoid going to areas that face the water logging problems often.
- ➢ Avoid staying in vulnerable structure.

Agromet advisories for Heavy Rainfall likely over various parts of the country

- Make provision for draining out excess water from crop fields to avoid water stagnation in Arunachal Pradesh, Assam & Meghalaya, West Bengal, Sikkim, Bihar, Uttarakhand, East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Konkan & Goa, Ghat areas of Madhya Maharashtra, Gujarat State, Karnataka, Coastal Andhra Pradesh and Telangana.
- Provide mechanical support to horticultural crops & staking to vegetables.

FLASH FLOOD GUIDANCE:

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-07-2024 : Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Uttarakhand 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.	
24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-07-2024 : Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Arunachal Pradesh and southern parts of Meghalaya state of Assam & Meghalaya 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.	

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-07-2024 : Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Konkan & Goa , Coastal Karnataka adjoining SI Karnataka 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, **Aero:** Aerodrome, **IAF:** Indian Air Force.
- **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 Widespred (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 ≥40º C for plains and ≥30º C for hilly regions

(a) Based on Departure from normal

- **Heat Wave:** Maximum Temperature Departure from normal 4.5º C to 6.4º C.
- **Severe Heat Wave:** Maximum Temperature Departure from normal ≥6.5º C

(b). Based on Actual maximum temperature

- **Heat Wave:** When actual maximum temperature ≥45ºC.
- **Severe Heat Wave:** When actual maximum temperature ≥47ºC

(c). Criteria for heat wave for coastal stations

When maximum temperature departure is >4.5ºC from normal. Heat Wave may be described provided maximum temperature ≥37ºC

Warm Night

When maximum temperature remains 40ºC

- **Warm Night:** When minimum temperature departure 4.5 ºC to 6.4 ºC.
- **Severe Warm Night:** When minimum temperature departure >6.4 ºC.

Cold Wave

When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions.

(a). Based on departure

- **Cold Wave:** Minimum Temperature Departure from normal -4.5 ºC to -6.4 ºC.
- **Severe Cold Wave:** Minimum Temperature Departure from normal ≤ -6.5 ºC

(b) Based on actual Minimum Temperature (for Plains only)

- **Cold Wave :** When Minimum Temperature is ≤ 4.0 ºC
- **Severe Cold Wave:** When Minimum Temperature is ≤ 2.0 ºC

(c) For Coastal Stations

When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C

Cold Day

When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions

Based on departure

- **Cold Day:** Maximum Temperature Departure from normal -4.5 ºC to -6.4 ºC.
- **Severe Cold Day:** Maximum Temperature Departure from normal ≤ -6.5 ºC

Fog

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

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 ≤4°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)