



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 09<sup>th</sup> July, 2024

Time of Issue: 1300 hours IST

**Subject: (1) Heavy to very heavy rainfall with isolated extremely heavy falls likely over Northeast & adjoining east India during next 2-3 days and decrease in intensity thereafter.**  
**(2) Heavy to very heavy rainfall likely over Konkan & Goa, Madhya Maharashtra, Coastal Karnataka during next 5 days with possibility of extremely heavy falls over Goa today.**  
**(3) Heavy rainfall spell likely over many parts of Central India, Bihar and Uttar Pradesh 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 at a few places with extremely heavy falls** at isolated places over Konkan & Goa (including Mumbai); **Heavy to very heavy rainfall** at isolated places over Marathwada, Arunachal Pradesh, Sub-Himalayan West Bengal & Sikkim; **Heavy rainfall** at isolated places over Jammu division, East Rajasthan, Madhya Pradesh, Uttar Pradesh, Gujarat Region, Vidarbha, Madhya Maharashtra, Coastal Andhra Pradesh, Rayalaseema, Telangana, Coastal Karnataka, Assam & Meghalaya and Bihar.

**Weather Systems**

- ✓ The Monsoon trough is active and south of its normal position in lower tropospheric levels.
- ✓ A shear zone runs over north peninsular India in middle tropospheric levels tilting southwards with height.
- ✓ The off-shore trough at mean sea level runs along Maharashtra- north Kerala coasts.
- ✓ A cyclonic circulation over south Gujarat 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, Marathwada, Kerala & Mahe, Lakshadweep, Karnataka; scattered to fairly widespread light to moderate rainfall over Gujarat Region, Coastal Andhra Pradesh & Yanam, Telangana; isolated to scattered light to moderate rainfall over Tamil Nadu, Puducherry & Karaikal and Rayalaseema during next 5 days.
- ✓ **Isolated heavy to very heavy rainfall very likely over Konkan & Goa, Madhya Maharashtra and Coastal Karnataka during 09<sup>th</sup>-13<sup>th</sup>**; isolated **heavy rainfall** over Marathwada, Coastal Andhra Pradesh & Yanam on 09<sup>th</sup>; Gujarat Region, North Interior Karnataka during 09<sup>th</sup>-13<sup>th</sup>; Saurashtra & Kutch, Telangana on 09<sup>th</sup> & 10<sup>th</sup>; Kerala & Mahe and South Interior Karnataka on 09<sup>th</sup>, 12<sup>th</sup> & 13<sup>th</sup> July.
- ✓ **Isolated very heavy rainfall also very likely over Gujarat state and Coastal Karnataka on 09<sup>th</sup> July.**
- ✓ **Isolated extremely heavy rainfall also very likely over Goa today.**

#### ❖ East & Northeast India

- ✓ Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm, lightning very likely over Andaman & Nicobar Islands, Sub-Himalayan West Bengal & Sikkim, Bihar and Northeast India; scattered to fairly widespread light to moderate rainfall over Gangetic West Bengal, Jharkhand, Odisha during next 5 days.
- ✓ **Heavy to very heavy rainfall** very likely at some places over Sub-Himalayan West Bengal & Sikkim during 09<sup>th</sup>-11<sup>th</sup>; at isolated places over Bihar, Arunachal Pradesh, Assam & Meghalaya during 09<sup>th</sup> – 13<sup>th</sup>; isolated **heavy rainfall** over Jharkhand on 12<sup>th</sup> & 13<sup>th</sup>; Odisha on 13<sup>th</sup> and Nagaland, Manipur, Mizoram & Tripura on 09<sup>th</sup>, 10<sup>th</sup> & 13<sup>th</sup> July.
- ✓ **Isolated extremely heavy rainfall very likely over Sub-Himalayan West Bengal & Sikkim during 09<sup>th</sup>-11<sup>th</sup>; Arunachal Pradesh on 09<sup>th</sup> & 10<sup>th</sup> and Assam & Meghalaya on 10<sup>th</sup> July.**

#### ❖ Northwest & Central India

- ✓ Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Uttarakhand and Central India; scattered to fairly widespread light to moderate rainfall over Himachal Pradesh, Uttar Pradesh; isolated to scattered light to moderate rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab, Haryana-Chandigarh-Delhi and Rajasthan during next 5 days.
- ✓ Isolated **heavy rainfall** very likely over Madhya Pradesh during 09<sup>th</sup>-13<sup>th</sup>; East Uttar Pradesh during 10<sup>th</sup>-13<sup>th</sup>; Uttarakhand during 10<sup>th</sup>-12<sup>th</sup>; Himachal Pradesh, West Uttar Pradesh during 11<sup>th</sup> & 12<sup>th</sup>; Jammu, north Haryana, north Punjab on 12<sup>th</sup>; East Rajasthan during 09<sup>th</sup>-11<sup>th</sup>; Vidarbha on 09<sup>th</sup> & 10<sup>th</sup>; West Rajasthan on 09<sup>th</sup> and Chhattisgarh during 11<sup>th</sup>-13<sup>th</sup> July.
- ✓ **Isolated very heavy rainfall also likely over East Uttar Pradesh during 10<sup>th</sup>-12<sup>th</sup> July.**

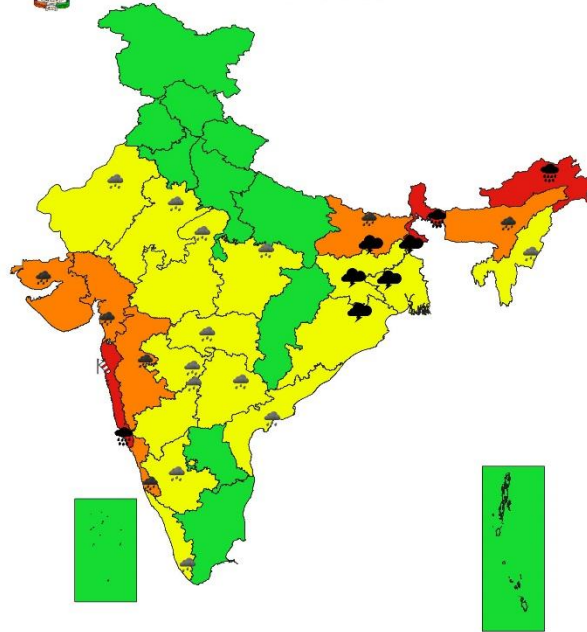
For more details, kindly refer: [https://mausam.imd.gov.in/responsive/all\\_india\\_forecast\\_bulletin.php](https://mausam.imd.gov.in/responsive/all_india_forecast_bulletin.php)

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

- ❖ **Konkan & Goa:** Dapoli\_agri (dist Ratnagiri) 23, Malvan (dist Sindhudurg) 23, Mhasla (dist Raigad) 23, Murud (dist Raigad) 21, Dodamarg (dist Sindhudurg) 20, Pernem (dist North Goa) 19, Wakwali\_agri (dist Ratnagiri) 18, Vengurla Arg (dist Sindhudurg) 17, Vasai (dist Palghar) 16, Colaba - Imd Obsy (dist Mumbai City) 16, Harnai Imd Obsy (dist Ratnagiri) 16, Santacruz - Imd Obsy (dist Mumbai Suburban) 15, Uran (dist Raigad) 15, Kudal (dist Sindhudurg) 14, Murbad (dist Thane) 13, Rameshwar\_agri (dist Sindhudurg) 13, Guhagarh (dist Ratnagiri) 13, Ratnagiri - Imd Obsy (dist Ratnagiri) 13, Devgad (dist Sindhudurg) 12, Shriwardhan (dist Raigad) 12, Mulde\_Agri (dist Sindhudurg) 12, Mapusa (dist North Goa) 11, Roha (dist Raigad) 11, Thane (dist Thane) 11,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Gajoldoba (dist Jalpaiguri) 18, Sevoke (dist Darjeeling) 17, Buxaduar (dist Alipurduar) 15, Nagarkata (dist Jalpaiguri) 14, Jalpaiguri (dist Jalpaiguri) 13, Bhutanghat (dist Alipurduar) 12, Domohani (dist Jalpaiguri) 11, Neora (dist Jalpaiguri) 10, Chengmari/diana (dist Jalpaiguri) 10,
- ❖ **Marathwada:** Mantha (dist Jalna) 12, AUSA (dist Latur) 7, Khultabad (dist Chh. Sambhajinagar) 5,
- ❖ **Coastal Karnataka:** Udupi (dist Udupi) 11, Mangaluru Ap Obsy (dist Dakshina Kannada) 10, Karkala (dist Udupi) 9, Mulki (dist Dakshina Kannada) 9, Mani (dist Dakshina Kannada) 8, Panambur Obsy (dist Dakshina Kannada) 8,
- ❖ **Madhya Pradesh:** Ichhawar (dist Sehore) 11, Kannod (dist Dewas) 9, Chicholi (dist Betul) 7, Nainpur (dist Mandla) 7,
- ❖ **Jammu:** jammu-10;
- ❖ **Madhya Maharashtra:** Jamkhed (dist Ahmednagar) 10, Nevasa (dist Ahmednagar) 7, Pathardi (dist Ahmednagar) 7,
- ❖ **Rayalaseema:** Atmakur (dist Nandyal) 9, Peapally (dist Nandyal) 5,
- ❖ **Bihar:** Taibpur (dist Kishanganj) 8, Jokihat (dist Araria) 8, Kochadhaman (dist Kishanganj) 8, Baisa (dist Purnea) 7, Mairwa (dist Siwan) 7, Chargharia (dist Kishanganj) 7, Kishanganj (dist Kishanganj) 7,
- ❖ **Telangana:** Asifabad (dist Kumaram Bheem) 9, Asifabad(arg) (dist Kumaram Bheem) 8, Kerameri (dist Kumaram Bheem) 8
- ❖ **East Rajasthan:** Malerainadunger Sr (dist Sawai Madhopur) 9, Sambhar Sr (dist Jaipur) 8, Chothkabarwara Sr (dist Sawai Madhopur) 7, Pirawa (dist Jhalawar) 6, Dausa (dist Dausa) 6,
- ❖ **Gujarat Region:** Prantij (dist Sabarkantha) 8, Talod (dist Sabarkantha) 5,
- ❖ **Coastal Andhra Pradesh:** Kandukur (dist Spsr Nellore) 8, Avanigada (dist Krishna) 6,
- ❖ **East Uttar Pradesh:** Ghorawal (dist Sonbhadra) 7,
- ❖ **West Uttar Pradesh:** Bilaspur (dist Rampur) 7, Nawabganj (dist Bareilly) 5,
- ❖ **Vidarbha:** Shegaon (arg) (dist Buldhana) 7,
- ❖ **Arunachal Pradesh:** Pasighat\_Aero (dist East Siang) 9, Basar (dist West Siang) 7, Roing (dist Lower Dibang Valley) 7,
- ❖ **Assam & Meghalaya:** Gossaigaon (dist Kokrajhar) 7, Dhekiajuli (dist Shonitpur) 7,



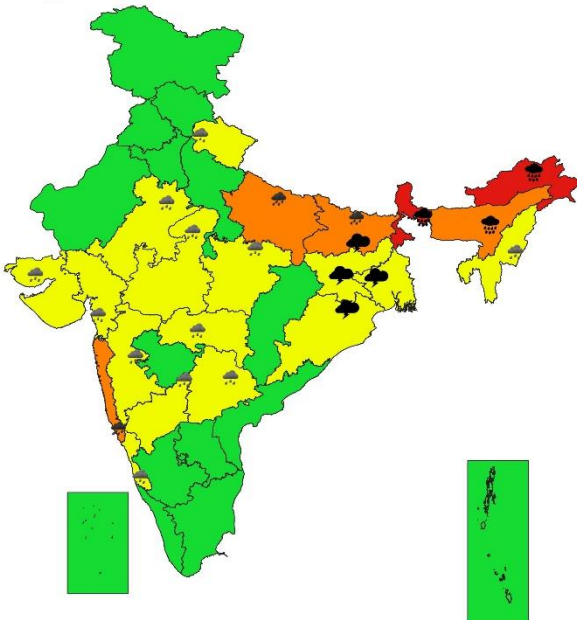
### SUBDIVISIONWISE WEATHER WARNING FOR DAY 1 09-07-2024



#### Subdivision Warning



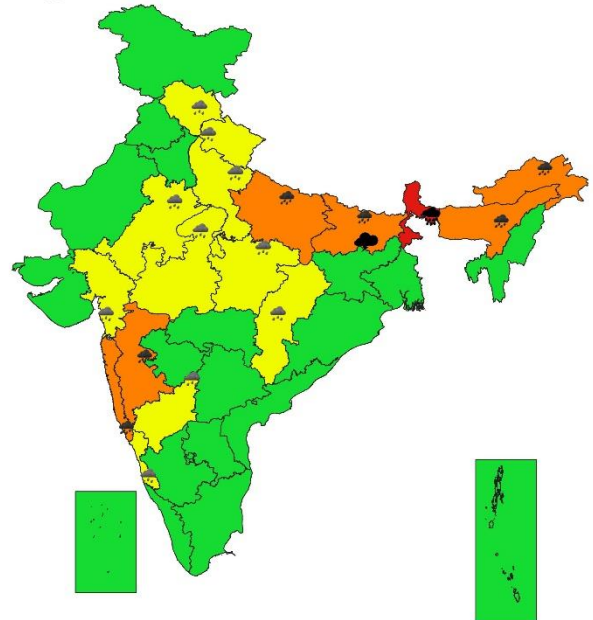
### SUBDIVISIONWISE WEATHER WARNING FOR DAY 2 10-07-2024



#### Subdivision Warning

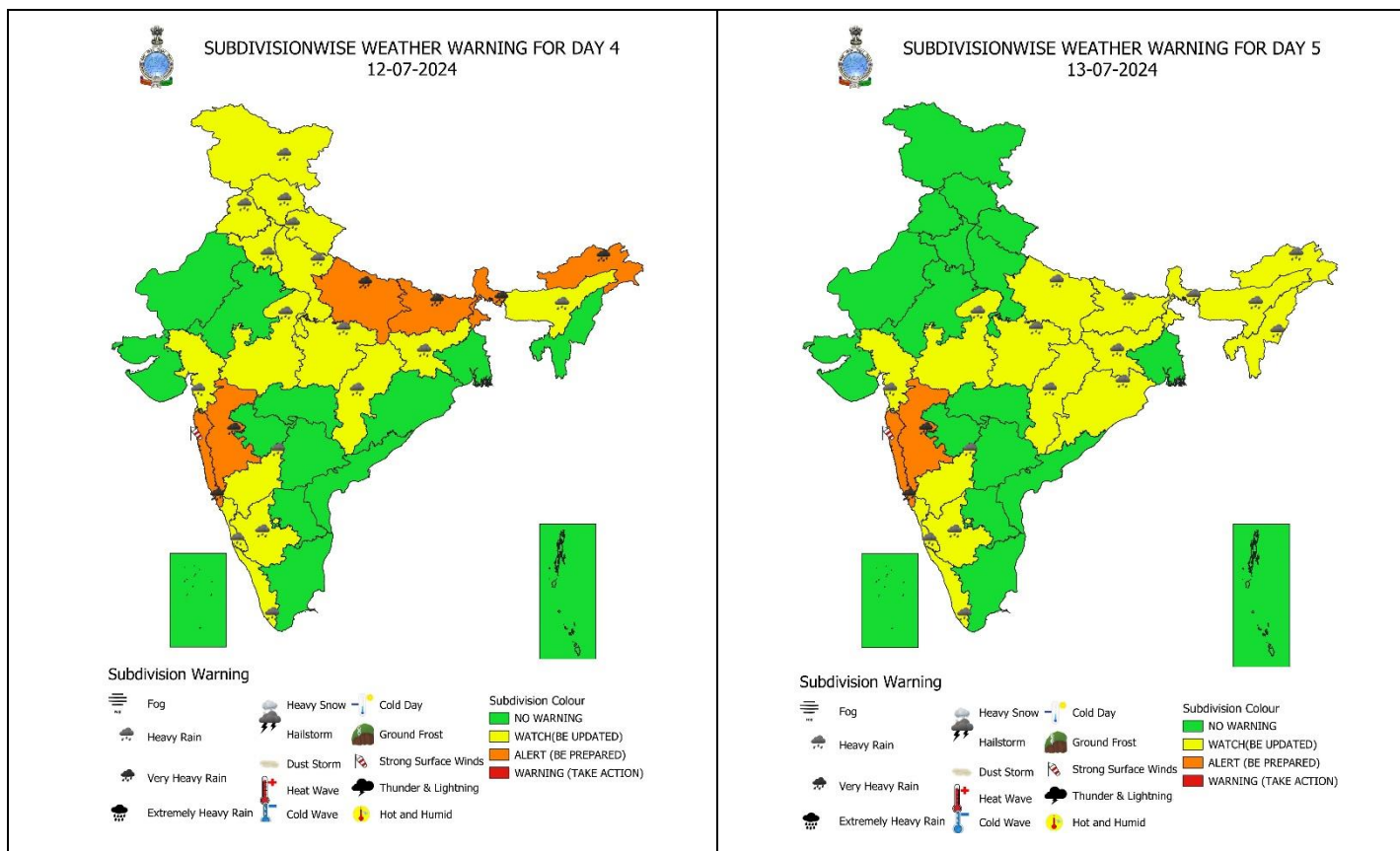


### SUBDIVISIONWISE WEATHER WARNING FOR DAY 3 11-07-2024



#### Subdivision Warning





### IMPACT & ACTION SUGGESTED due to

- ✓ **Isolated extremely heavy rainfall very likely over Goa on 09<sup>th</sup>; Arunachal Pradesh on 09<sup>th</sup> & 10<sup>th</sup>; Assam & Meghalaya on 10<sup>th</sup> and Sub-Himalayan West Bengal & Sikkim during 09<sup>th</sup>-11<sup>th</sup> July.**
- ✓ **Isolated very heavy rainfall very likely over Gujarat state, Coastal Karnataka on 09<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim on 12<sup>th</sup>, Bihar during 09<sup>th</sup> – 12<sup>th</sup>; Arunachal Pradesh on 11<sup>th</sup> & 12<sup>th</sup>; Assam & Meghalaya on 09<sup>th</sup>, 11<sup>th</sup> & 12<sup>th</sup>; Konkan & Goa, Madhya Maharashtra on 09<sup>th</sup>, during 11<sup>th</sup>-13<sup>th</sup>; East Uttar Pradesh during 10<sup>th</sup>-12<sup>th</sup> 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/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 likely over various parts of the country

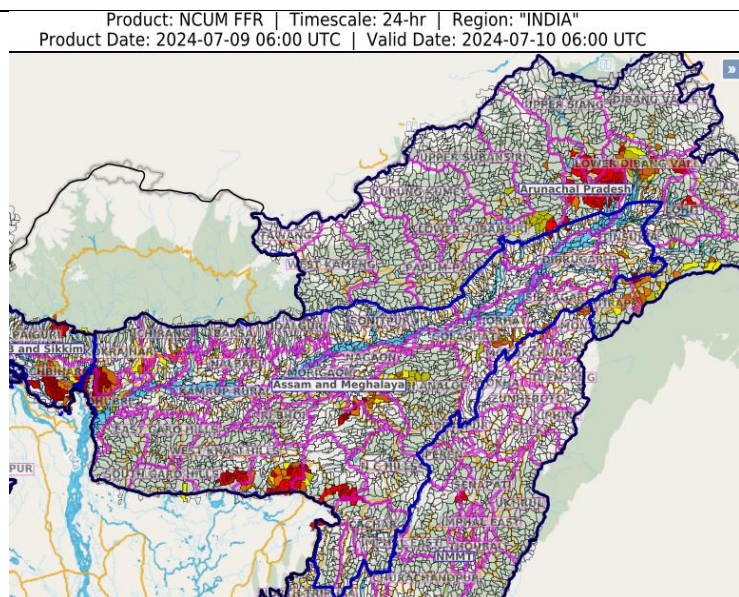
- Make provision for draining out excess water from crop fields to avoid water stagnation in North Eastern States, Sub-Himalayan West Bengal & Sikkim, Bihar, East Rajasthan, Madhya Pradesh, Maharashtra, Gujarat State, Kerala, Karnataka, Coastal Andhra Pradesh and Telangana.
- Postpone transplanting of rice and finger millet in Konkan & Goa.
- 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 10-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of southern parts of Arunachal Pradesh, western parts of Assam & Meghalaya and extreme south eastern parts of SHWB & Sikkim Met Sub-divisions during next 24 hours.

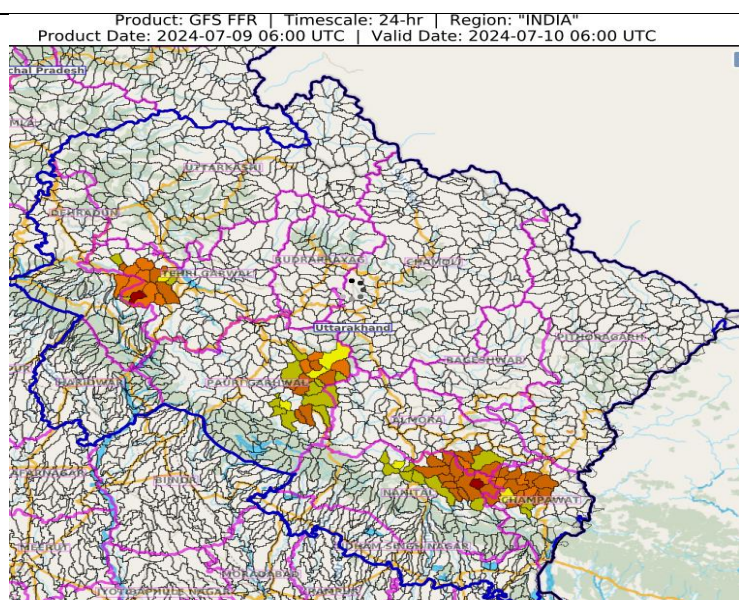
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



#### 24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 10-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Uttarakhand Met Sub-divisions during next 24 hours.

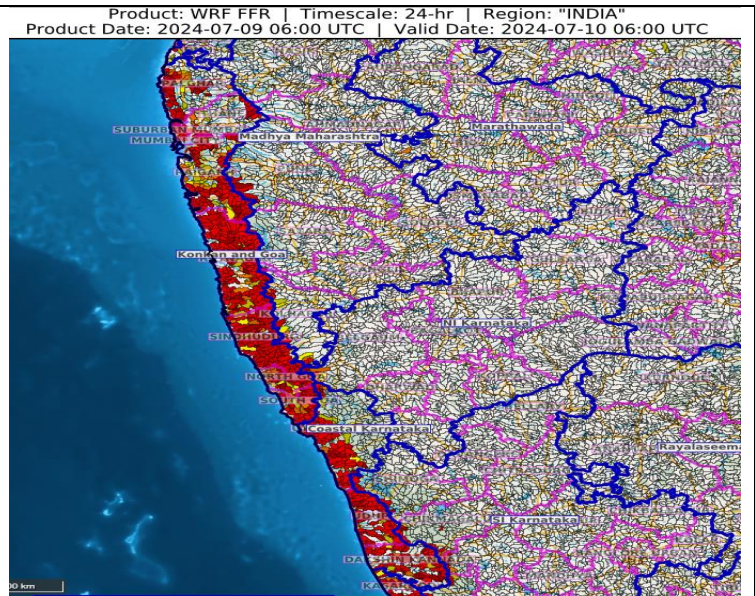
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.



24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 10-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Coastal Karnataka and Konkan & Goa 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 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

 <b>Rain/ Snow *</b>	<b>Heavy:</b> 64.5 to 115.5 mm/cm * <b>Very Heavy:</b> 115.6 to 204.4 mm/cm* <b>Extremely Heavy:</b> > 204.4 mm/cm *
 <b>Heat Wave</b>	<p>When maximum temperature of a station reaches <math>\geq 40^{\circ}\text{C}</math> for plains and <math>\geq 30^{\circ}\text{C}</math> for hilly regions</p> <p><b>(a) Based on Departure from normal</b></p> <p><b>Heat Wave:</b> Maximum Temperature Departure from normal <math>4.5^{\circ}\text{C}</math> to <math>6.4^{\circ}\text{C}</math>.  <b>Severe Heat Wave:</b> Maximum Temperature Departure from normal <math>\geq 6.5^{\circ}\text{C}</math></p> <p><b>(b). Based on Actual maximum temperature</b></p> <p><b>Heat Wave:</b> When actual maximum temperature <math>\geq 45^{\circ}\text{C}</math>.  <b>Severe Heat Wave:</b> When actual maximum temperature <math>\geq 47^{\circ}\text{C}</math></p> <p><b>(c). Criteria for heat wave for coastal stations</b>            When maximum temperature departure is <math>&gt; 4.5^{\circ}\text{C}</math> from normal. Heat Wave may be described provided maximum temperature <math>\geq 37^{\circ}\text{C}</math></p>
 <b>Warm Night</b>	<p><b>When maximum temperature remains <math>40^{\circ}\text{C}</math></b></p> <p><b>Warm Night:</b> When minimum temperature departure <math>4.5^{\circ}\text{C}</math> to <math>6.4^{\circ}\text{C}</math>.  <b>Severe Warm Night:</b> When minimum temperature departure <math>&gt; 6.4^{\circ}\text{C}</math>.</p>
 <b>Cold Wave</b>	<p>When minimum temperature of a station <math>\leq 10^{\circ}\text{C}</math> for plains and <math>\leq 0^{\circ}\text{C}</math> for hilly regions.</p> <p><b>(a). Based on departure</b></p> <p><b>Cold Wave:</b> Minimum Temperature Departure from normal <math>-4.5^{\circ}\text{C}</math> to <math>-6.4^{\circ}\text{C}</math>.  <b>Severe Cold Wave:</b> Minimum Temperature Departure from normal <math>\leq -6.5^{\circ}\text{C}</math></p> <p><b>(b) Based on actual Minimum Temperature (for Plains only)</b></p> <p><b>Cold Wave :</b> When Minimum Temperature is <math>\leq 4.0^{\circ}\text{C}</math>  <b>Severe Cold Wave:</b> When Minimum Temperature is <math>\leq 2.0^{\circ}\text{C}</math></p> <p><b>(c) For Coastal Stations</b>            When Minimum Temperature departure is <math>\leq -4.5^{\circ}\text{C}</math> &amp; actual Minimum Temperature is <math>\leq 15^{\circ}\text{C}</math></p>
 <b>Cold Day</b>	<p>When minimum temperature of a station <math>\leq 10^{\circ}\text{C}</math> for plains and <math>\leq 0^{\circ}\text{C}</math> for hilly regions</p> <p><b>Based on departure</b></p> <p><b>Cold Day:</b> Maximum Temperature Departure from normal <math>-4.5^{\circ}\text{C}</math> to <math>-6.4^{\circ}\text{C}</math>.  <b>Severe Cold Day:</b> Maximum Temperature Departure from normal <math>\leq -6.5^{\circ}\text{C}</math></p>
 <b>Fog</b>	<p><b>Phenomenon of small droplets suspended in air and the horizontal visibility &lt; 1km</b></p> <p><b>Moderate Fog:</b> When the visibility between 500-200 metres  <b>Dense Fog:</b> when the visibility between 50- 200 metres  <b>Very Dense Fog:</b> when the visibility &lt; 50 metres</p>
 <b>Thunderstorm</b>	<p>Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)</p>
 <b>Dust/Sand Storm</b>	<p>An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.</p>
 <b>Frost</b>	<p><b>Ice deposits on ground</b></p> <p>Air temperature <math>\leq 4^{\circ}\text{C}</math> ( over Plains)</p>
 <b>Squall</b>	<p><b>A strong wind that rises suddenly, lasts for atleast 1 minute.</b></p> <p><b>Moderate:</b> Wind speed 52-61 kmph  <b>Severe:</b> Wind speed 62-87 kmph  <b>Very Severe:</b> Wind speed <math>&gt; 87</math> kmph</p>
 <b>Sea State</b>	<p><b>Effect of various waves in the sea over specific area</b></p> <p><b>Rough to very rough:</b> Wind speed 41-62 kmph (22-33 knots) &amp; Wave height 2.5-6 metre  <b>High to very high:</b> Wind speed 63-117 kmph ( 34-63 knots) &amp; Wave height 6-14 metre  <b>Phenomenal:</b> Wind speed <math>&gt; 117</math> kmph (<math>&gt; 63</math> knots) &amp; Wave height <math>&gt; 14</math> metre</p>
 <b>Cyclone</b>	<p><b>Cyclonic Storm:</b> Wind speed 62-87 kmph (34-47 knots)  <b>Severe Cyclonic Storm:</b> Wind speed 88-117 kmph (48-63 knots)  <b>Very Severe Cyclonic Storm:</b> Wind speed 118-165 kmph (64 - 89 knots)  <b>Extremely Severe Cyclonic Storm:</b> Wind speed 166-220 kmph (90 -119 knots)  <b>Super Cyclone Strom:</b> Wind speed <math>&gt; 220</math> kmph (<math>&gt; 119</math> knots)</p>