



Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release

Date: 12th August, 2024

Time of Issue: 1335 hours IST

Subject: (i) Isolated heavy rainfall likely to continue over Rajasthan, Uttar Pradesh, east & northeast India during next 7 days.

(ii) isolated heavy to very heavy rainfall very likely over Kerala, Tamil Nadu, South Interior Karnataka & Rayalaseema during next 5 days.

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

Heavy to very heavy rainfall with extremely heavy rainfall at isolated places over East Rajasthan; **Heavy to very heavy rainfall** at isolated places over Arunachal Pradesh, Rayalaseema, Tamil Nadu, Haryana; **Heavy rainfall** at isolated places over Himachal Pradesh, Uttarakhand, Punjab, Delhi, Meghalaya, Chhattisgarh, Andaman & Nicobar Islands, Tripura, Jharkhand, Bihar, Uttar Pradesh, Madhya Pradesh, Odisha, Sub-Himalayan West Bengal & Sikkim, South Interior Karnataka.

Weather Systems

- ✓ A cyclonic circulation lies over northwest Madhya Pradesh & neighbourhood extending upto middle tropospheric levels. A trough runs from this cyclonic circulation to Bangladesh in lower tropospheric levels.
- ✓ A cyclonic circulation lies over southeast Pakistan & adjoining Rajasthan at lower tropospheric levels.
- ✓ The **Monsoon trough** is near its normal position at mean sea level. It is likely to oscillate near its normal position during most days of the week.
- ✓ A trough runs from northeast Arabian sea to above cyclonic circulation over northwest Madhya Pradesh & neighbourhood in lower tropospheric levels.
- ✓ Another trough runs from Rayalaseema to Comorin area in lower tropospheric levels.
- ✓ Another **cyclonic circulation** over northeast Assam extending upto middle tropospheric levels.

Forecast & Warnings: (upto 7 days):

(Rainfall distribution and Graphics for warning are given in Annexure II & III respectively)

❖ **Northwest India**

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Western Himalayan Region and Scattered to Fairly widespread over plains of northwest India during the week.
- ✓ Isolated **heavy rainfall** very likely over Himachal Pradesh, Uttarakhand, Uttar Pradesh, West Rajasthan during 12th–18th; East Rajasthan, Haryana during 12th–16th; Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad during 14th–16th; Punjab on 14th August.
- ✓ Isolated **very heavy rainfall** also very likely over Uttarakhand, East Rajasthan on 13th August.
- ✓ **Extremely heavy rainfall also** very likely at isolated places over East Rajasthan on 12th August.

❖ **West & Central India**

- ✓ Scattered to Fairly widespread light/moderate rainfall very likely over West & Central India during most days of the week.

- ✓ Isolated **Heavy rainfall** very likely over West Madhya Pradesh, Chhattisgarh on 12th & 13th; East Madhya Pradesh during 12th – 14th August.
- ✓ Isolated **very heavy rainfall** also very likely over West Madhya Pradesh on 12th August.

❖ **East & Northeast India**

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over east & northeast India during the week.
- ✓ Isolated **heavy rainfall** very likely over Arunachal Pradesh during 12th–15th; Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during 12th–17th; Sub-Himalayan West Bengal & Sikkim during 12th–14th; Gangetic West Bengal during 14th–18th; Jharkhand, Odisha during 12th–16th; Bihar during 12th–18th August.
- ✓ **Very heavy rainfall** also very likely at isolated places over Assam & Meghalaya on 12th; Arunachal Pradesh on 12th & 14th August.

❖ **South Peninsular India:**

- ✓ Scattered to Fairly widespread light/moderate rainfall very likely over South Peninsular India during the week.
- ✓ Isolated **heavy rainfall** very likely over Rayalaseema, Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Kerala & Mahe, Lakshadweep during 12th – 16th August.
- ✓ Isolated **very heavy rainfall** also very likely over Rayalaseema on 12th; Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe during 12th – 14th August.

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

Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 12.08.2024 (in cm):

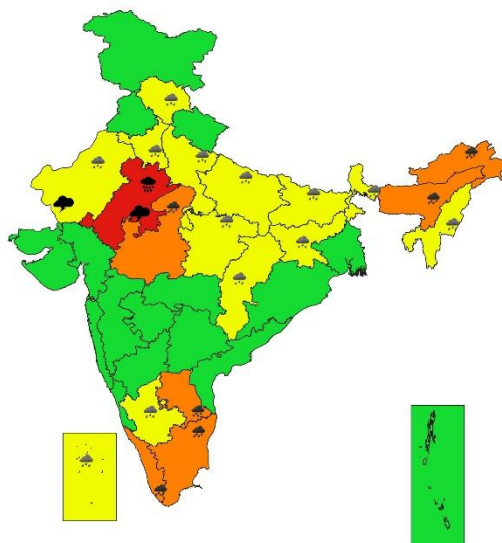
- ❖ **East Rajasthan:** Sapotra (dist Karauli) 21, Sawaimadhopur Tesil Sr (dist Sawai Madhopur) 17, Lalsot (dist Dausa) 17, Khandar Sr (dist Sawai Madhopur) 15, Malerainadunger Sr (dist Sawai Madhopur) 14, Bonli (dist Sawai Madhopur) 14, Jaipur Tehsil Sr (dist Jaipur) 13, Jaipur Aero (dist Jaipur) 12, Gangapur (dist Sawai Madhopur) 11, Bamanwas Sr (dist Sawai Madhopur) 9, Nadoti (dist Karauli) 9, Dausa (dist Dausa) 8, Sanganer Tehsil Sr (dist Jaipur) 8, Chaksu (dist Jaipur) 8, Bharatpur Tehsil Sr (dist Bharatpur) 7, Bassi (dist Jaipur) 7, Bansur (dist Alwar) 7, Chomu (dist Jaipur) 7, Kotkasim Sr (dist Alwar) 7,
- ❖ **Arunachal Pradesh:** Bhalukpong (Dist.West Kameng) 17, Longding (Dist.Longding) 16, Bomdila (Dist.West Kameng) 8,
- ❖ **Tamil Nadu:** Palacode (dist Dharmapuri), Katpadi (dist Vellore) 14 each,Villupuram (dist Villupuram) 13,Nedungal (dist Krishnagiri) 12,Panapakkam (dist Ranipet), Palacode ARG (dist Dharmapuri), Kalavai PWD (dist Ranipet) 11each,Tiruttani (dist Tiruvallur), Paiyur AWS (dist Krishnagiri), Jambukuttapatti (dist Krishnagiri),Vembakkam (dist Tiruvannamalai) 10 each,Penucondapuram (dist Krishnagiri), Maduranthagam (dist Chengalpattu), Arcot (dist Ranipet),Pochampalli ARG (dist Krishnagiri), Panchapatti (dist Karur), Chengam (dist Tiruvannamalai),Sothuparai (dist Theni), Arakonam (dist Ranipet), Vadipatti (dist Madurai) 9 each,Poondi (dist Tiruvallur), Palar Anicut (dist Ranipet), Tambaram (dist Chengalpattu), Vellore(dist Vellore), Yercaud (dist Salem), Minnal (dist Ranipet), Krishnagiri (dist Krishnagiri) 8 each,Oddanchatram (dist Dindigul), Barur (dist Krishnagiri), Tiruppur IB PWD (dist Tiruppur),Ranipet (dist Ranipet), KRP Dam (dist Krishnagiri), Kariyakovil Dam (dist Salem), R.K.Pet (distTiruvallur), Tirupathur PTO (dist Tirupathur), Andipatti (dist Madurai), Uthiramerur (distKancheepuram), Ponnai Dam (dist Vellore), Salem (dist Salem), Walajabad (distKancheepuram), Marakkanam (dist Villupuram), Yercaud AWS (dist Salem), Usilampatti (distMadurai) 7,
- ❖ **Royalaseema:** Nagari (dist Chittoor) 14, Arogyavaram (dist Annamayya District) 11,
- ❖ **Haryana:** Chandigarh (dist Chandigarh) 13, Chandigarh Aws (dist Chandigarh) 12, Ambala Rev (dist Ambala) 11, Chandigarh Iaf (dist Chandigarh) 8, Ambala (dist Ambala) 8, Gurgaon Kvk Aws (dist Gurgaon) 8, Sohana (dist Gurgaon) 7, Manesar Rev (dist Gurgaon) 7, Gurgaon Rev (dist Gurgaon) 7, Panchkula (dist Panchkula) 7, Nilokheri (dist Karnal) 7, Kalka (dist Panchkula) 7,
- ❖ **Punjab:** Nangal (dist Rupnagar) 11, Nabha (dist Patiala) 11, Bhadson Irr (dist Patiala) 9, Nawanshahr (dist Sbs Nagar) 8, Ballowal Saunkri (dist Sbs Nagar) 8, Anandpur Sahib (dist Rupnagar) 7, Ropar (dist Rupnagar) 7, Adampur Arg (dist Jalandhar) 7, Halwara Iaf (dist Ludhiana) 7, Ludhiana Irr (dist Ludhiana) 7, Nabha Arg (dist Patiala) 7, Fatehgarh Sahib Arg (dist Fatehgarh Sahib) 7, Mahurana Arg (dist Kapurthala) 7, Balachaur (dist Sbs Nagar) 7,
- ❖ **Uttarakhand:** Roorkee(Haridwar) 10, Bhagwanpur(Haridwar) 9, Devprayag(Tehri Garhwal) 7, Ranikhet(Almora) 7,
- ❖ **West Uttar Pradesh:** Agra (cwc) (dist Agra) 10, Mainpuri (dist Mainpuri) 9, Muzaffarnagar(t) (dist Muzaffarnagar) 7, Meerut (dist Meerut) 7, Rampur Maniharan (dist Saharanpur) 7,
- ❖ **Himachal Pradesh:** Kasauli (dist Solan) 9, Una (dist Una) 9, Naina Davi (dist Bilaspur) 8, Jatton Barrage (dist Sirmaur) 7, Pachhad (dist Sirmaur) 7, Nadaun (dist Hamirpur) 7,
- ❖ **Bihar:** Kursela (dist Katihar) 9, Amdabad (dist Katihar) 8, Runnisaidpur (dist Sitamarhi) 8, Rajauli (dist Nawada) 7,
- ❖ **East Uttar Pradesh:** Mankapur (dist Gonda) 9, Chanderdeepghat (dist Gorakhpur) 8, Mirzapur Cwc (dist Mirzapur) 7,
- ❖ **Meghalaya:** Shella (dist. East Khasi Hills) 8, Ratachera (dist. East Jaintia Hills) 8,
- ❖ **Andaman & Nicobar Islands:** Car Nicobar (dist Nicobar) 8,
- ❖ **Chhattisgarh:** Rajpur (dist Balrampur) 7,
- ❖ **Odisha:** Derabis (Kendrapara) 7,
- ❖ **Jharkhand:** Gobindpur (dist Dhanbad) 7, Daltonganj (dist Palamu) 7, Jamshedpur (dist East Singhbhum) 7, Balumath (dist Latehar) 7,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Buxaduar (dist Alipurduar) 7,
- ❖ **South Interior Karnataka:** Bengaluru City Obsy (dist Bengaluru Urban) 7, Rayalpadu (dist Kolar) 7, Hesaraghatta(dist Bengaluru Urban) 7,
- ❖ **Tripura:** Sabroom (dist South Tripura) 7,
- ❖ **Delhi:** Sps Mayur Vihar Obs 7.

7 Days Rainfall Forecast								
S. No.	Subdivision	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
1	ANDAMAN & NICOBAR ISLANDS	FWS	FWS	FWS	FWS	SCT	SCT	FWS
2	ARUNACHAL PRADESH	FWS	FWS	WS	WS	FWS	FWS	FWS
3	ASSAM & MEGHALAYA	WS	WS	FWS	FWS	FWS	FWS	FWS
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	WS	FWS	FWS	WS	WS	WS	FWS
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	SCT	SCT	SCT	SCT	SCT	FWS	FWS
6	GANGETIC WEST BENGAL	FWS	WS	WS	WS	WS	WS	FWS
7	ODISHA	FWS	FWS	FWS	FWS	FWS	FWS	SCT
8	JHARKHAND	FWS	WS	WS	WS	WS	WS	FWS
9	BIHAR	FWS	WS	WS	WS	WS	WS	FWS
10	EAST UTTAR PRADESH	FWS	FWS	FWS	FWS	FWS	FWS	FWS
11	WEST UTTAR PRADESH	FWS	FWS	FWS	FWS	FWS	FWS	FWS
12	UTTARAKHAND	FWS	WS	WS	WS	WS	WS	WS
13	HARYANA CHANDIGARH & DELHI	SCT	SCT	FWS	FWS	FWS	SCT	SCT
14	PUNJAB	ISOL	ISOL	SCT	SCT	SCT	SCT	SCT
15	HIMACHAL PRADESH	FWS	FWS	WS	WS	WS	WS	WS
16	JAMMU & KASHMIR AND LADAKH	ISOL	ISOL	SCT	SCT	SCT	SCT	SCT
17	WEST RAJASTHAN	SCT	FWS	FWS	FWS	FWS	FWS	FWS
18	EAST RAJASTHAN	FWS	FWS	FWS	FWS	FWS	FWS	SCT
19	WEST MADHYA PRADESH	WS	FWS	FWS	FWS	SCT	SCT	SCT
20	EAST MADHYA PRADESH	FWS	FWS	FWS	FWS	FWS	FWS	FWS
21	GUJARAT REGION	WS	WS	FWS	SCT	SCT	FWS	FWS
22	SAURASHTRA & KUTCH	SCT	SCT	ISOL	ISOL	ISOL	SCT	SCT
23	KONKAN & GOA	WS	WS	WS	WS	WS	WS	WS
24	MADHYA MAHARASHTRA	SCT	SCT	ISOL	ISOL	ISOL	SCT	SCT
25	MARATHAWADA	ISOL	ISOL	ISOL	ISOL	SCT	SCT	SCT
26	VIDARBHA	FWS	FWS	SCT	SCT	SCT	SCT	SCT
27	CHHATTISGARH	FWS	FWS	FWS	FWS	FWS	FWS	FWS
28	COASTAL ANDHRA PRADESH & YANAM	SCT	SCT	FWS	FWS	FWS	SCT	SCT
29	TELANGANA	SCT	SCT	SCT	SCT	SCT	SCT	SCT
30	RAYALASEEMA	ISOL	SCT	FWS	FWS	FWS	SCT	ISOL
31	TAMILNADU PUDUCHERRY & KARAIKAL	FWS	SCT	SCT	SCT	FWS	FWS	SCT
32	COASTAL KARNATAKA	SCT	SCT	SCT	FWS	FWS	FWS	FWS
33	NORTH INTERIOR KARNATAKA	ISOL	ISOL	ISOL	ISOL	ISOL	SCT	SCT
34	SOUTH INTERIOR KARNATAKA	SCT	FWS	WS	FWS	FWS	SCT	SCT
35	KERALA & MAHE	WS	WS	WS	WS	WS	WS	WS
36	LAKSHADWEEP	FWS	FWS	WS	WS	WS	WS	WS

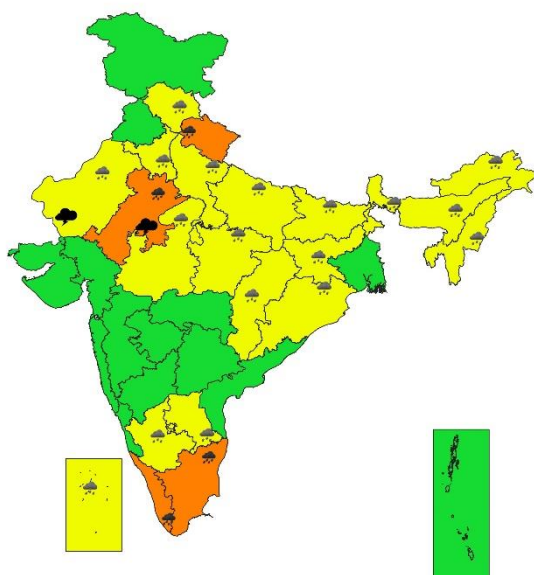
- As the lead period increases forecast accuracy decreases.



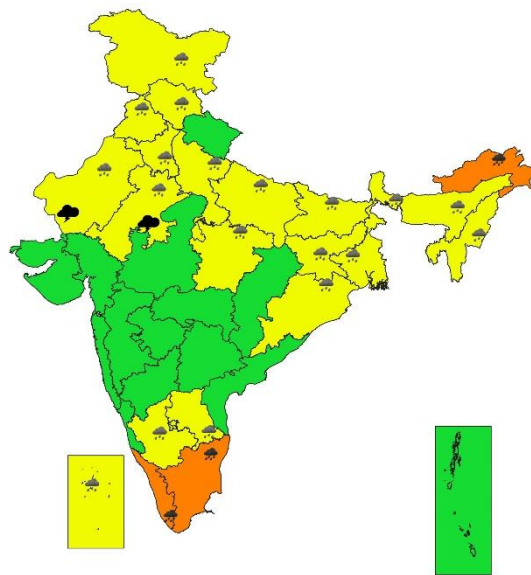
SUBDIVISIONWISE WEATHER WARNING FOR DAY 1
12-08-2024



SUBDIVISIONWISE WEATHER WARNING FOR DAY 2
13-08-2024

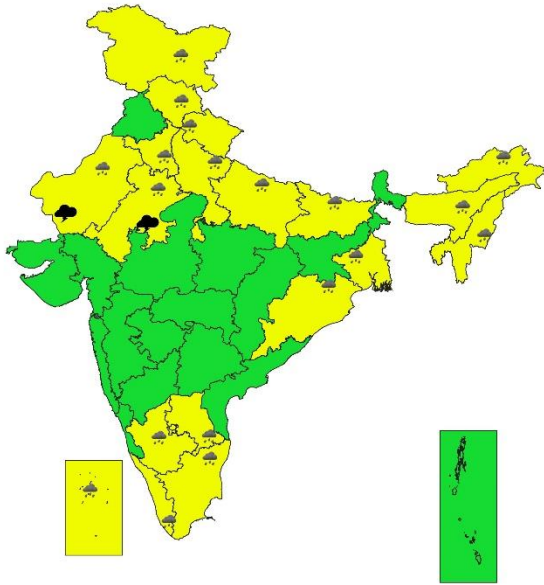


SUBDIVISIONWISE WEATHER WARNING FOR DAY 3
14-08-2024

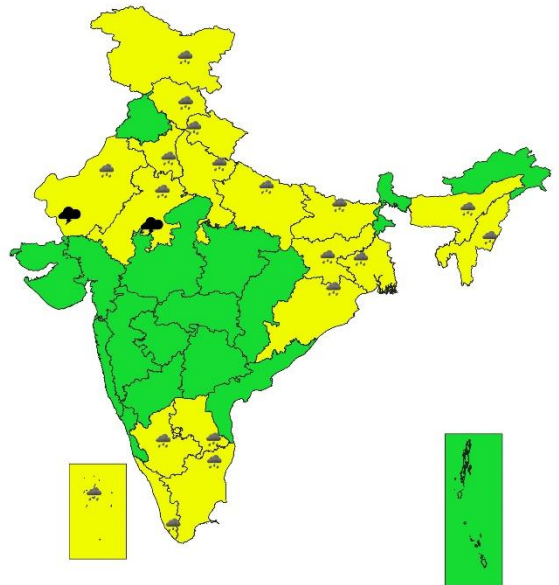




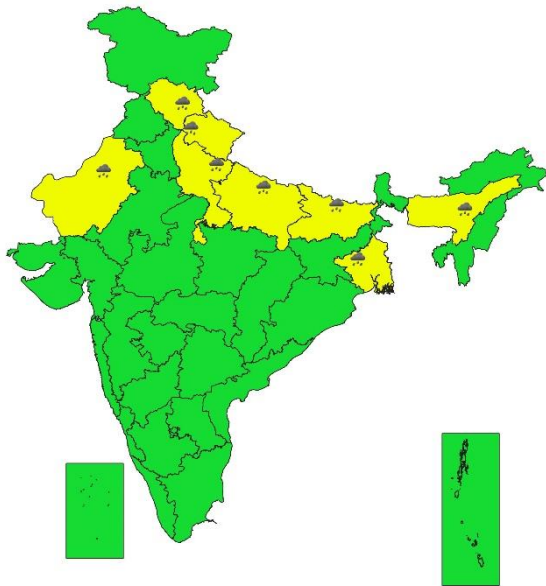
SUBDIVISIONWISE WEATHER WARNING FOR DAY 4
15-08-2024



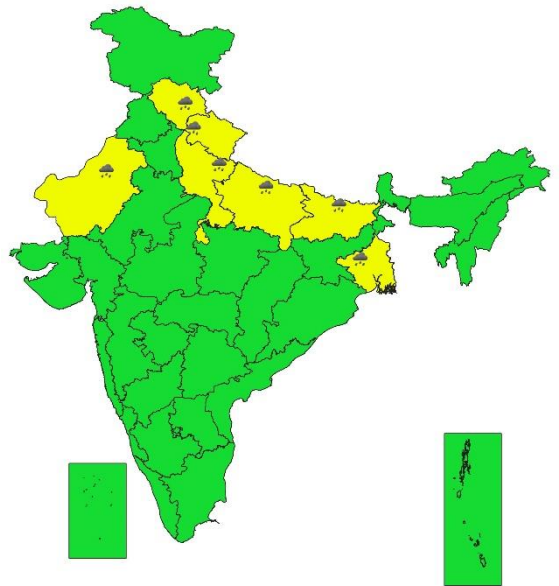
SUBDIVISIONWISE WEATHER WARNING FOR DAY 5
16-08-2024



SUBDIVISIONWISE WEATHER WARNING FOR DAY 6
17-08-2024



SUBDIVISIONWISE WEATHER WARNING FOR DAY 7
18-08-2024



- Action may be taken based on ORANGE AND RED COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.

Impact due to

- **Extremely heavy rainfall** at isolated places over East Rajasthan on 12th August.
- **Very heavy rainfall** at isolated places over West Madhya Pradesh, Rayalaseema, Assam & Meghalaya on 12th; Uttarakhand, East Rajasthan on 13th; Arunachal Pradesh on 12th & 14th; Tamil Nadu, Puducherry & Karaikal, South Interior Karnataka, Kerala & Mahe during 12th – 14th August.
- **Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of Himachal Pradesh, Uttarakhand, East Rajasthan, West Madhya Pradesh, Coastal Karnataka, Kerala & Mahe and South Interior Karnataka Met Sub-divisions on 12th & 13th August. (ANNEXURE IV)**
 - ✓ 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

- Drain out excess water from field crops and horticultural crops in Arunachal Pradesh, Assam & Meghalaya, Bihar, Himachal Pradesh, Uttarakhand, Punjab, Haryana, East Rajasthan, Madhya Pradesh, Tamil Nadu, Rayalaseema and South Interior Karnataka.
- Make provision for draining out excess water from standing crop fields and fruit orchards to avoid water stagnation in Uttar Pradesh, Chhattisgarh and Kerala.
- Provide mechanical support to horticultural crops & staking to vegetables.
- In Arunachal Pradesh, make proper arrangements for runoff management in Jhum rice fields by putting obstacles across the slopes.
- In Assam, postpone sowing of sesame, green gram and black gram.

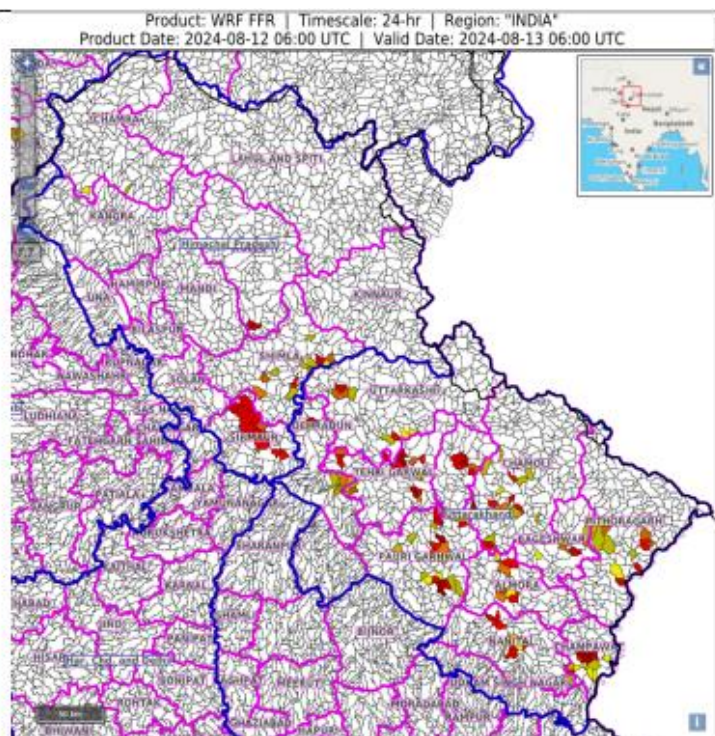
Flash Flood Guidance:**24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-08-2024 :**

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

Himachal Pradesh - Kullu, Shimla and Sirmaur districts.

Uttarakhand - Bageshwar, Chamoli, Champawat, Dehradun, Nanital, Pauri Garhwal, Pithoragarh, Tehri Garwal and Uttarkashi 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 24 hours.

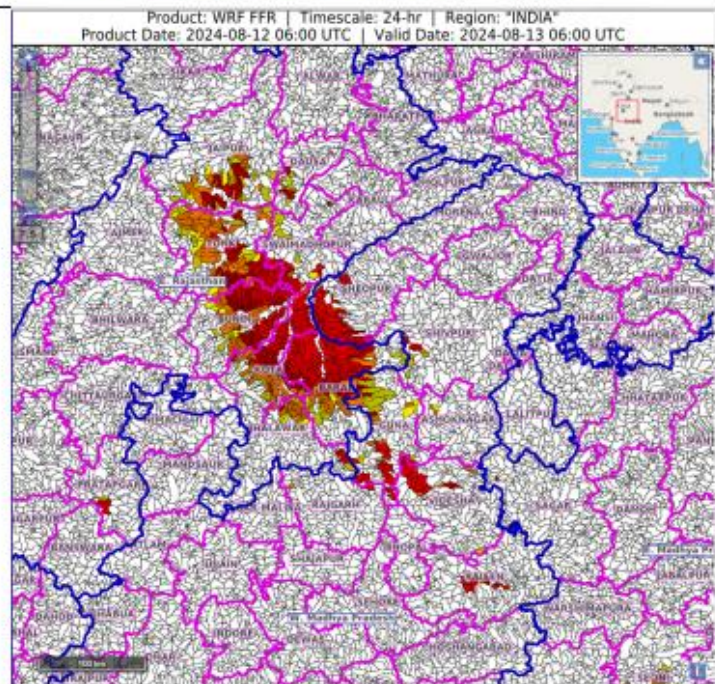
**24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-08-2024 :**

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

East Rajasthan - Baran, Bundi, Dausa, Jaipur, Jhalawar, Swaimadhopur and Tonk districts.

West Madhya Pradesh - Guna, Rajgarh, Sheopur, Shivpuri and Videsha 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 24 hours.



24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-08-2024 :

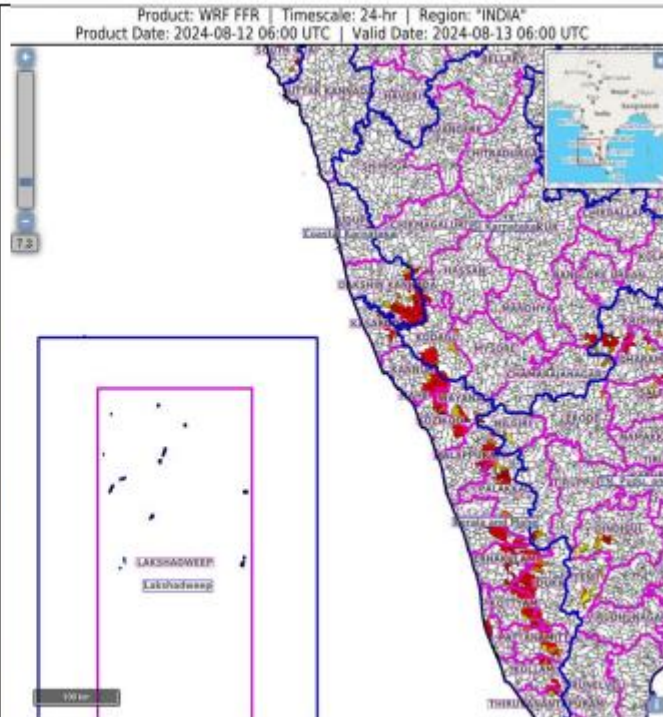
Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

Coastal Karnataka - Dakshin Kannada district.

Kerala & Mahe - Ernakulam, Idukki, Kannur, Kottayam, Kozikod, Mahe, Palakkad, Pattanamittia, Thiruvananthpuram and Wayanad districts.

SI Karnataka - Hassan and Kodagu 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 24 hours.

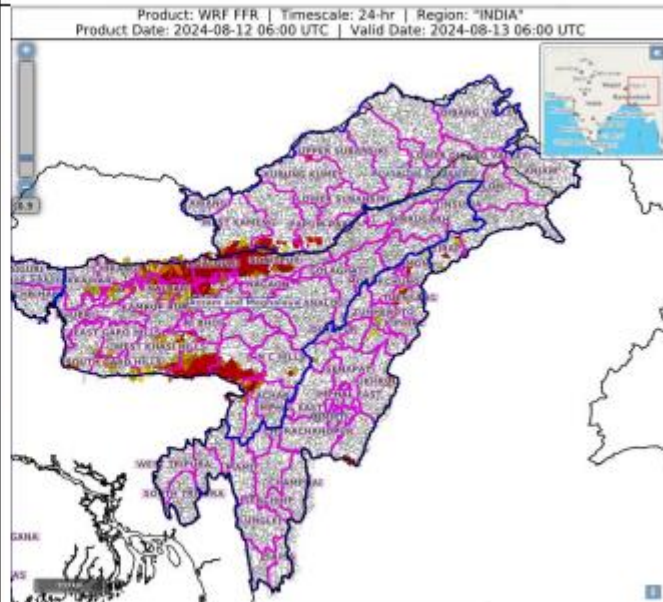


24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 13-08-2024 :

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

Assam & Meghalaya - Baksa, Cachar, Chirang, Darrang, Kamrup Metro, Nalbari, Sonitpur, Udalguri, South Garo Hills, West Jaintia Hills and West Khasi Hills 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 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; **ARG:** Automatic Rain Gauge; **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



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 < 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 $\leq 4^{\circ}\text{C}$ (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 Strom: Wind speed > 220 kmph (> 119 knots)