

Government of India
Ministry of Earth Sciences
India Meteorological Department



Press Release
Date: 15th July, 2024
Time of Issue: 1300 hours IST

**Subject: 1) Isolated extremely heavy rainfall very likely over Konkan & Goa, Ghat areas of Madhya Maharashtra, Gujrat region, Coastal Karnataka and South Interior Karnataka on 15th & 16th and Kerala & Mahe on 15th July.
2) Monsoon is likely to be active in Peninsular & adjoining central India during next 4-5 days.**

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

- ✓ **Heavy to very heavy rainfall** at many places with **isolated extremely heavy falls** over Konkan & Goa; **Heavy to very heavy rainfall** with **extremely heavy falls at isolated** places over Coastal Karnataka; **Heavy to very heavy rainfall** at isolated places over Uttarakhand, Gujarat Region, Chhattisgarh, Vidarbha, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Madhya Maharashtra, South Interior Karnataka, Telangana, Tamil Nadu; **Heavy rainfall** at isolated places over East Rajasthan, Odisha, West Uttar Pradesh, West Madhya Pradesh, Marathwada, North Interior Karnataka and Kerala.

Weather Systems

- ✓ A low-pressure area has formed over Northwest & adjoining Westcentral Bay of Bengal off south Odisha coast and extends upto 7.6 km above mean sea level tilting southwestwards with height.
- ✓ The Monsoon trough is south of its normal position and extends upto lower tropospheric levels. It is likely to be south of its normal position during next 4-5 days.
- ✓ A shear zone runs in lower & middle tropospheric levels roughly along 20°N tilting southwards with height.
- ✓ The off-shore trough runs along south Gujarat-north Kerala coasts at mean sea level.
- ✓ A fresh low-pressure area is likely to form over Westcentral & adjoining Northwest Bay of Bengal around 19th July.

Forecast & Warnings (Annexure II)

❖ West, Central 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, Gujarat state, Madhya Pradesh, Vidarbha, Chhattisgarh, Coastal Andhra Pradesh & Yanam, Telangana and Rayalaseema; isolated to scattered light to moderate rainfall over Tamil Nadu, Puducherry & Karaikal during next 5 days.
- ✓ **Heavy to very heavy rainfall very likely at isolated/some places over Konkan & Goa, Madhya Maharashtra, Gujarat State, Karnataka and Kerala & Mahe during next 5 days.**
- ✓ **Isolated extremely heavy rainfall very likely over Kerala & Mahe on 15th; Konkan & Goa, Madhya Maharashtra, Gujarat Region, Coastal Karnataka, South Interior Karnataka on 15th & 16th; Saurashtra & Kutch on 16th July.**
- ✓ Isolated **Heavy rainfall** over Telangana, Coastal Andhra Pradesh & Yanam, Chhattisgarh, North Interior Karnataka during 15th-19th; Madhya Pradesh, Vidarbha during 15th-18th; Marathwada, Tamil Nadu, Puducherry & Karaikal on 15th & 16th July.

- ✓ **Isolated very heavy rainfall likely over Tamil Nadu, North Interior Karnataka, Marathwada and Vidarbha, south Chhattisgarh on 15th; West Madhya Pradesh 15th & 16th; Coastal Andhra Pradesh & Yanam, Telangana on 15th, 18th & 19th July.**

❖ **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, Northeast India and Odisha; scattered to fairly widespread light to moderate rainfall over Gangetic West Bengal, Bihar, Jharkhand during next 5 days.
- ✓ **Heavy rainfall** very likely at isolated places over Odisha during 15th-19th; Arunachal Pradesh, Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim on 15th & 16th; Nagaland, on 15th; Andaman & Nicobar Islands on 16th & 17th July.
- ✓ **Isolated very heavy rainfall also likely over Odisha on 15th & 19th July.**

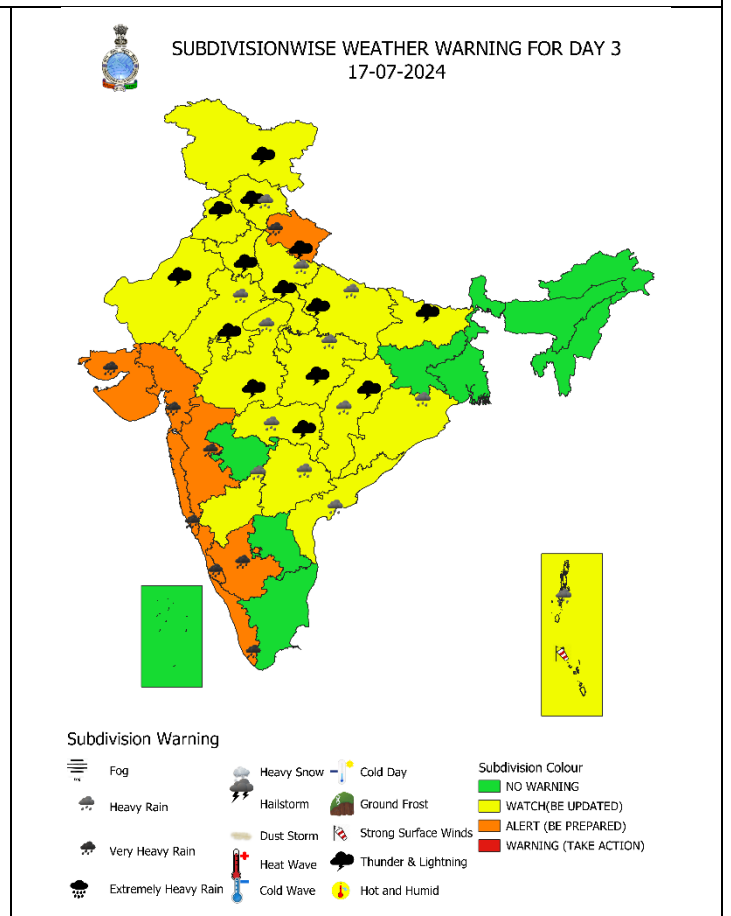
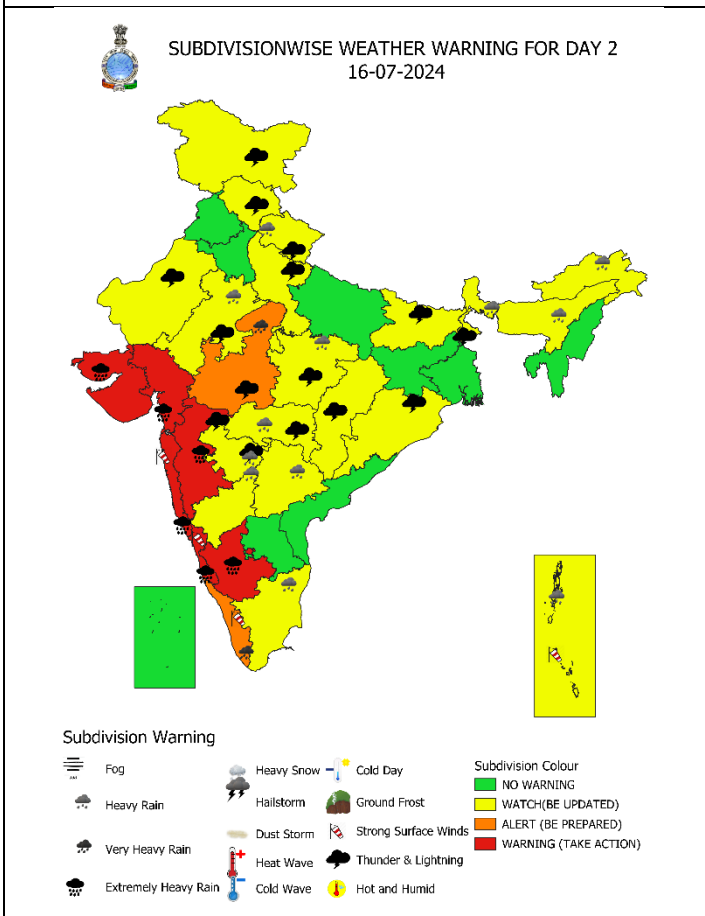
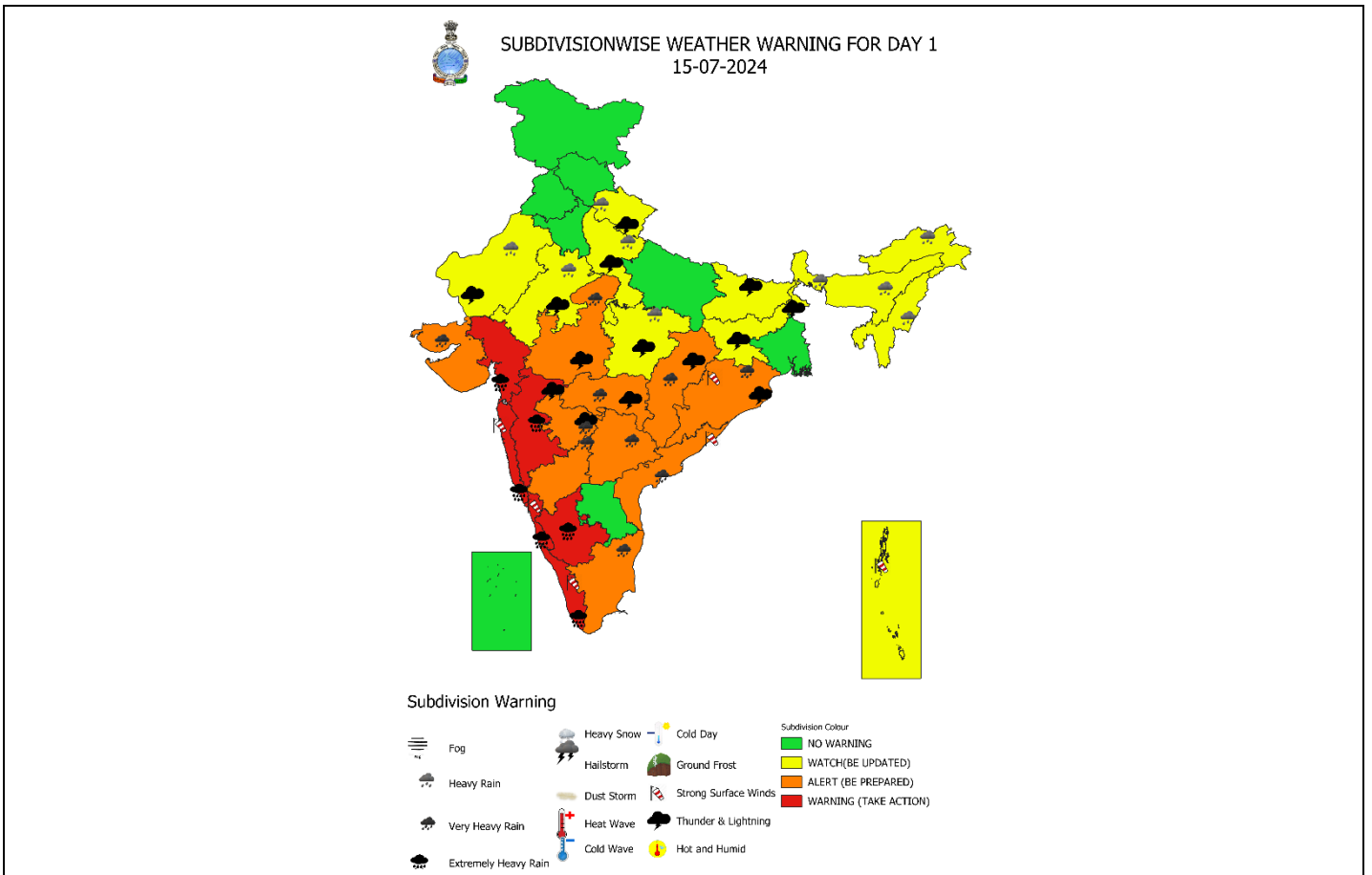
❖ **Northwest India**

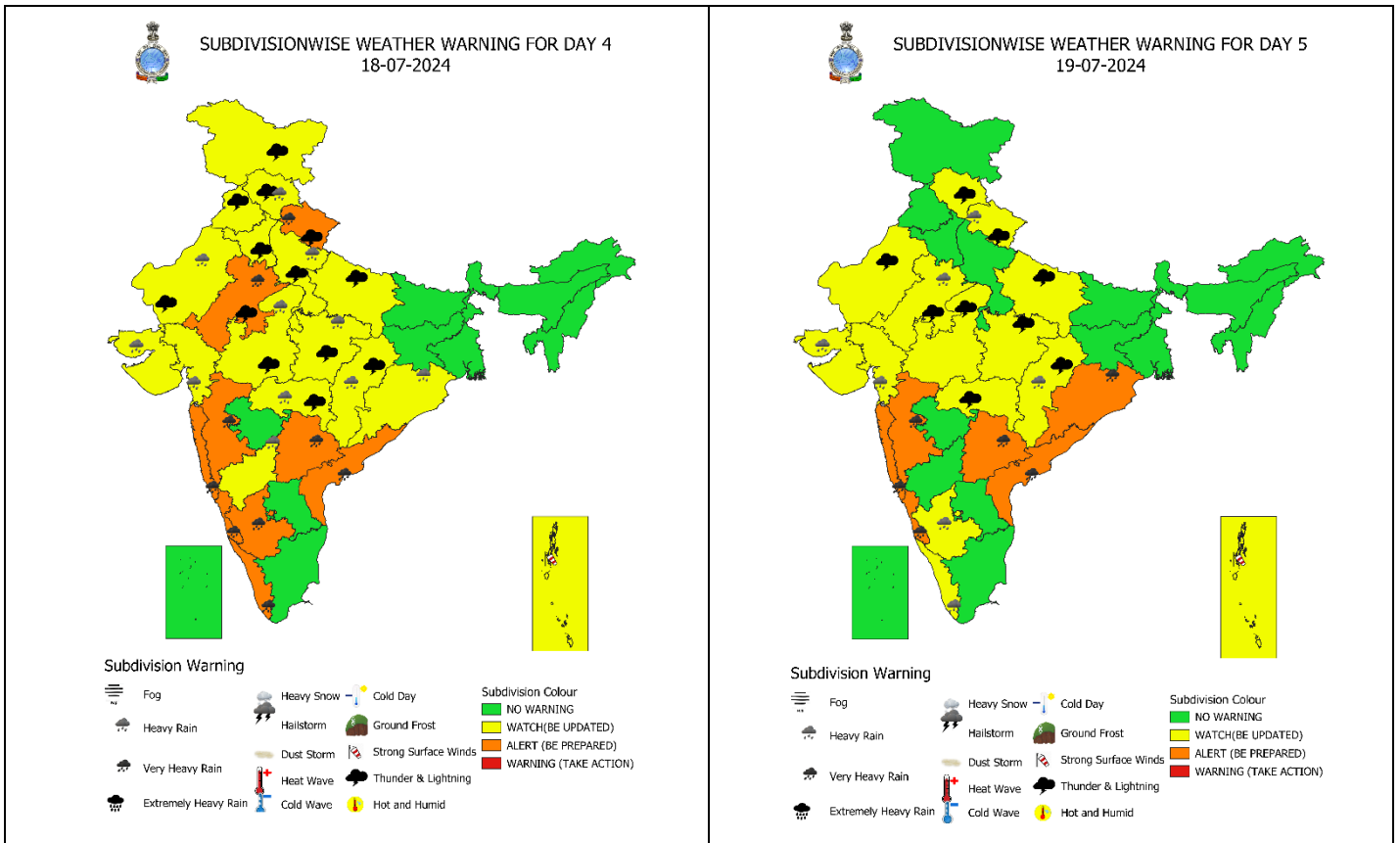
- ✓ Scattered to fairly widespread light to moderate rainfall **accompanied with thunderstorm & lightning** very likely over Himachal Pradesh, Uttarakhand, Uttar Pradesh and East Rajasthan; isolated to scattered rainfall likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab, Haryana-Chandigarh-Delhi and West Rajasthan during next 5 days.
- ✓ Isolated **heavy rainfall** very likely over Uttarakhand, East Rajasthan during 15th-19th; West Uttar Pradesh on 15th, 17th & 18th; East Uttar Pradesh on 17th; West Rajasthan on 15th & 18th and Himachal Pradesh on 17th & 18th July.
- ✓ **Isolated very heavy rainfall also likely over Uttarakhand on 17th & 18th and East Rajasthan on 18th July.**

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 (in cm):

- ❖ **Coastal Karnataka:** Jagalbet (dist Uttara Kannada) 25, Kumta (dist Uttara Kannada) 11, Ankola (dist Uttara Kannada) 11, Karwar Obsy (dist Uttara Kannada) 11, Gokarna (dist Uttara Kannada) 10, Shirali Pto (dist Uttara Kannada) 9, Haliyal (dist Uttara Kannada) 9, Udupi (dist Udupi) 9, Mangaluru Ap Obsy (dist Dakshina Kannada) 8, Gersoppa (dist Uttara Kannada) 8, Siddapur (dist Uttara Kannada) 8, Dharmasthala (dist Dakshina Kannada) 8, Yellapur (dist Uttara Kannada) 8,
- ❖ **Konkan & Goa:** Chiplun (dist Ratnagiri) 24, Wakwali_agri (dist Ratnagiri) 22, Khed (dist Ratnagiri) 21, Mandangad (dist Ratnagiri) 21, Mahad (dist Raigad) 19, Mulde_Agri (dist Sindhudurg) 19, Wada (dist Palghar) 19, Devgad (dist Sindhudurg) 17, Kudal (dist Sindhudurg) 17, Kankavli (dist Sindhudurg) 16, Khalapur (dist Raigad) 15, Dodamarg (dist Sindhudurg) 15, Poladpur (dist Raigad) 15, Sudhagad Pali (dist Raigad) 15, Panjim - Imd Obsy (dist North Goa) 14, Mangaon (dist Raigad) 14, Malvan (dist Sindhudurg) 13, Dapoli_agri (dist Ratnagiri) 13, Shriwardhan (dist Raigad) 12, Ratnagiri - Imd Obsy (dist Ratnagiri) 12, Matheran (dist Raigad) 12, Sawantwadi (dist Sindhudurg) 12, Panvel_agri (dist Raigad) 11, Karjat_agri (dist Raigad) 11, Mormugao - Pmo Imd (dist South Goa) 11, Sangameshwar Devrukh (dist Ratnagiri) 11, Rameshwar_agri (dist Sindhudurg) 10, Roha (dist Raigad) 10, Lanja (dist Ratnagiri) 10, Ambernath (dist Thane) 9, Bhiwandi (dist Thane) 9, Pen (dist Raigad) 9, Tala (dist Raigad) 9, Mhasla (dist Raigad) 9, Rajapur (dist Ratnagiri) 8, Uran (dist Raigad) 8, Vaibhavwadi (dist Sindhudurg) 7, Shahapur (dist Thane) 7, Harnai Imd Obsy (dist Ratnagiri) 7,
- ❖ **Gujarat Region:** Garudeshwar (dist Narmada) 16, Daman_aws (dist Daman) 15, Surat_kvks Aws (dist Surat) 13, Modasa (dist Aravalli) 9, Dahod_aws (dist Dahod) 7;
- ❖ **Chhattisgarh:** Rajim (dist Gariaband) 15, Gobra Nawapara (dist Raipur) 9, Mainpur (dist Gariaband) 7,
- ❖ **Madhya Maharashtra:** Patan (dist Satara) 13, Gaganbawada (dist Kolhapur) 13, Chandgad (dist Kolhapur) 13, Mahabaleshwar- Imd Obsy (dist Satara) 12, Shahuwadi (dist Kolhapur) 8, Trimbakshwar (dist Nashik) 8, Ajra (dist Kolhapur) 7,
- ❖ **Telangana:** Kotapalle (dist Mancherial) 12, Vemanapalle (dist Mancherial) 12, Kataram (dist J. Bhupalpally) 10, Chennur (dist Mancherial) 9, Nawabpetmbn (dist Mahabubnagar) 9, Nawabpet (dist Vikarabad) 9, Shekpet (dist Hyderabad) 7
- ❖ **Uttarakhand:** Dharchula (Pithoragarh) 13, Pauri (Pauri) 6, Jollygrant (Dehradun) 6, PAURI_AWS (PauriGarhwal) 6,
- ❖ **Tamil Nadu, Puducherry & Karaikal:** Chinnakalar (dist Coimbatore) 13, Valparai PAP (dist Coimbatore), Valparai Taluk Office (dist Coimbatore) 9 each, Sholayar (dist Coimbatore) 8, Devala (dist The Nilgiris) 7,
- ❖ **South Interior Karnataka:** Bhagamandala (dist Kodagu) 12, Agumbe Emo (dist Shivamogga) 10, Somwarpet (dist Kodagu) 9, Linganamakki Hms (dist Shivamogga) 8, Jayapura (dist Chikkamagaluru) 8, Kalasa (dist Chikkamagaluru) 8;
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Jhallong (dist Kalimpong) 12, Rongo (dist Kalimpong) 7,
- ❖ **West Madhya Pradesh:** Bhikangaon (dist Khargone) 11, Sehore-aws (dist Sehore) 8, Kathiwada (dist Alirajpur) 7, Nisarpur (dist Dhar) 7,
- ❖ **Odisha:** Nimpara (Puri) 10, Atabira (Bargarh) 8, Puri (Puri) 7, Krishnaprasad (Puri) 7, Lamataput (Koraput) 7, Hinjili (Ganjam) 7,
- ❖ **East Rajasthan:** Tonk Tehsil Sr (dist Tonk) 9;
- ❖ **Kerala & Mahe:** Kannur, Kumarakom (Kottayam district), Pinarayi AWS & Kannur Icar AWS (both in Kannur district), Panathur AWS & Muliya AWS (both in Kasargod district) 9 each, Munnar (Idukki district) & Cheruvanchery AWS (Kannur district) 8 each, Kottayam, Cherthala (Alappuzha district), Vaikom (Kottayam district), Peerumedu (Idukki district), Thalassery (Kannur district), Hosdurg (Kasaragod district), Vadavathur AWS (Kottayam district), Malampuzha Dam AWS (Palakkad district), Munderi AWS (Malappuram district), Peringome AWS (Kannur district) & Padannakkad AWS (Kasaragod district) 7 each.
- ❖ **Assam & Meghalaya:** Gossaigaon_Aws (dist Kokrajhar) 9, Manash Nh Xing (dist Barpeta) 9, Mohanbari_aws (dist Dibrugarh) 8, D/mohanbari Aero (dist Dibrugarh) 8,
- ❖ **West Uttar Pradesh:** Muzaffarnagar (dist Muzaffarnagar) 8, Deoband (dist Saharanpur) 7,
- ❖ **Vidarbha:** Ballarpur (dist Chandrapur) 8, Rajura (dist Chandrapur) 7,
- ❖ **Marathwada:** Gangapur (dist Chh. Sambhajinagar) 7, Patoda (dist Beed) 6, Khultabad (dist Chh. Sambhajinagar) 5





IMPACT & ACTION SUGGESTED due to

- ✓ **Isolated extremely heavy rainfall very likely over Kerala & Mahe on 15th; Konkan & Goa, Madhya Maharashtra, Gujarat Region, Coastal Karnataka, South Interior Karnataka on 15th & 16th; Saurashtra & Kutch on 16th July.**
- ✓ **Isolated very heavy rainfall likely over Tamil Nadu, North Interior Karnataka, Marathwada and Vidarbha, south Chhattisgarh on 15th; West Madhya Pradesh 15th & 16th; Coastal Andhra Pradesh & Yanam, Telangana on 15th, 18th & 19th July, Odisha on 15th & 19th; Uttarakhand on 17th & 18th and East Rajasthan on 18th 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

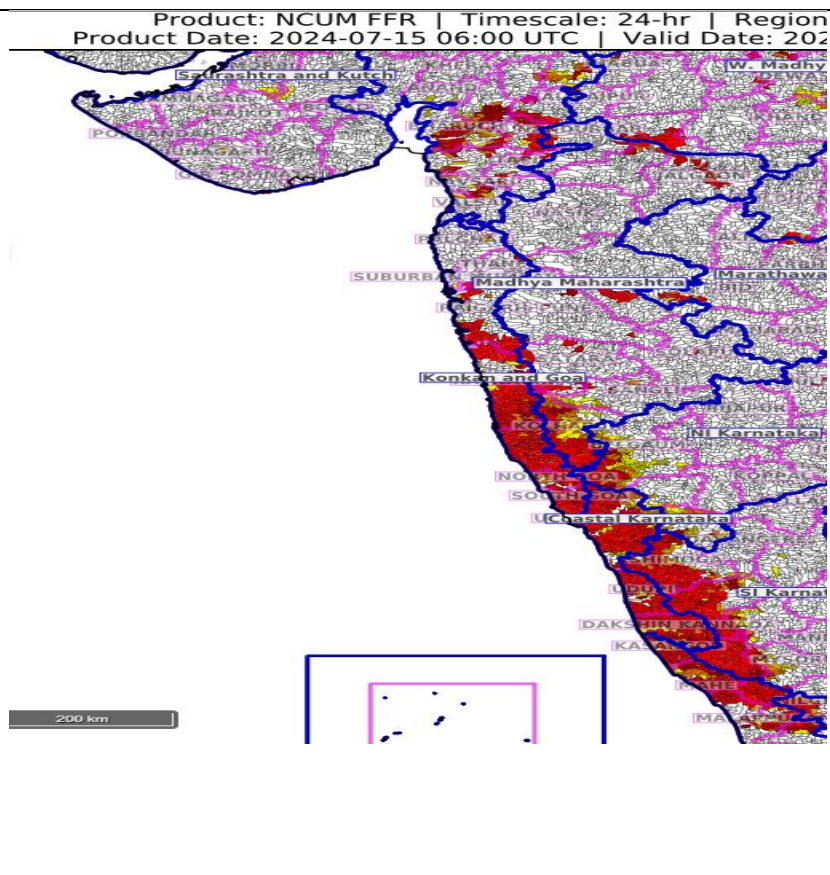
- Make provision for draining out excess water from crop fields to avoid water stagnation in Sub Himalayan West Bengal & Sikkim, Odisha, Uttarakhand, East Rajasthan, Madhya Pradesh, Chhattisgarh, Vidarbha, Konkan & Goa, Ghat areas of Madhya Maharashtra, Gujarat State, Tamil Nadu, Kerala, Karnataka, Coastal Andhra Pradesh and Telangana.
- Postpone transplanting of rice, finger millet and vegetables in Konkan.
- 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 16-07-2024 :

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of southern parts of Gujarat Region, Konkan & Goa, Coastal Karnataka adjoining SI Karnataka and northern parts of Kerala & Mahe 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; **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)

 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)

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)	
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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)	