

# Government of India Ministry of Earth Sciences India Meteorological Department



Press Release Date: 09<sup>th</sup> June, 2024

Time of Issue: 1330 hours IST

# **Subject:**

- i. Heavy to very heavy rainfall with isolated extremely heavy falls likely over south Konkan & Goa, south Madhya Maharashtra and Coastal & North Interior Karnataka on 09th & 10th June, 2024.
- ii. A fresh spell of heat wave conditions likely to commence over Northwest India from 09th June.
- iii. Heat wave conditions likely to continue over parts of East India & Uttar Pradesh during next 5 days.

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

- **Yesterday, Heat wave conditions** prevailed in isolated pockets of East Uttar Pradesh and Bihar.
- ❖ Yesterday, **Maximum temperatures** were in the range of 42-45°C in Many parts of East Uttar Pradesh; in some parts of north Madhya Pradesh and West Uttar Pradesh; in isolated pockets of Haryana, Delhi, Bihar and Gujarat state. These were above normal by 2-4°C over these areas.
- ❖ Yesterday, **the highest maximum temperature** of **45.2°C** was reported at Prayagraj (East Uttar Pradesh) over the country.
- Heavy to very heavy rainfall with extremely heavy falls at isolated places recorded over Konkan & Goa; heavy to very heavy rainfall at isolated places over Assam & Meghalaya, Sub-Himalayan West Bengal & Sikkim, Madhya Maharashtra and Coastal Karnataka; heavy rainfall at isolated places over Chhattisgarh, Marathwada, Coastal Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal, Interior Karnataka and Kerala & Mahe.
- ❖ Gusty winds/squally winds data reported over the country is attached in Annexure II.

#### **Advance of Southwest Monsoon:**

- Southwest Monsoon has further advanced into remaining parts of central Arabian Sea, some parts of north Arabian Sea, some more parts of Maharashtra (including Mumbai) today, the 09th June 2024.
- ❖ The Northern Limit of Monsoon now passes through 19.5°N/60°E, 19.5°N/65°E, 19.0°N/70°E, Thane, Ahmednagar, Beed, Nizamabad, Sukma, Malkangiri, Vizianagaram, 19.5°N/88°E, 21.5°N/89.5°E, 23°N/89.5°E and Islampur. (Annexure III)

# Weather Systems and Forecast & Warnings: (Annexure IV)

- ❖ A cyclonic circulation lies over northeast Assam in lower tropospheric levels. Strong southwesterly/southerly winds are prevailing from Bay of Bengal to northeastern States in lower tropospheric levels. Under their influence:
  - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm**, **lightning & gusty winds (30-40 kmph)** likely over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Sub-Himalayan West Bengal & Sikkim during next 7 days.

- ✓ Isolated **heavy rainfall** very likely over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Arunachal Pradesh during 09<sup>th</sup>-13<sup>th</sup>; Nagaland on 09<sup>th</sup>, 12<sup>th</sup> & 13<sup>th</sup> June, 2024. Isolated **very heavy rainfall** also likely over Assam & Meghalaya during 11<sup>th</sup>-13<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim during 09<sup>th</sup>-12<sup>th</sup> and Arunachal Pradesh on 12<sup>th</sup> & 13<sup>th</sup> June, 2024.
- ❖ A shear zone runs roughly along 18°N in lower & middle tropospheric levels. A cyclonic circulation lies over Marathwada in lower tropospheric levels. Under their influence:
  - ✓ Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm**, **lightning & gusty winds (40-50 kmph)** likely over Konkan & Goa, Madhya Maharashtra, Marathwada, Karnataka, and Kerala & Mahe, Lakshadweep; isolated light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Tamil Nadu, Puducherry & Karaikal during next 4-5 days.
  - ✓ Isolated **heavy rainfall** very likely over Konkan & Goa, Madhya Maharashtra, South Interior Karnataka and Kerala & Mahe during 09<sup>th</sup>-12<sup>th</sup>; Interior Karnataka during 09<sup>th</sup>-13<sup>th</sup>; Marathwada on 09<sup>th</sup> & 10<sup>th</sup> and Tamil Nadu, Puducherry & Karaikal on 09<sup>th</sup> June, 2024.
  - ✓ Isolated **very heavy rainfall** also very likely over Kerala & Mahe on 09th; South Interior Karnataka during 09th-11th; north Konkan and north Madhya Maharashtra on 09th & 10th and North Interior Karnataka on 12th & 13th June, 2024.
  - ✓ Isolated extremely heavy falls also very likely over south Konkan & Goa, south Madhya Maharashtra and Coastal Karnataka on 09<sup>th</sup> & 10<sup>th</sup> and North Interior Karnataka during 09<sup>th</sup>-11<sup>th</sup> June, 2024.
- ❖ A cyclonic circulation lies over east Bihar in lower tropospheric levels. Under its influence:
  - ✓ Isolated to scattered light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Bihar, Jharkhand during 11<sup>th</sup>-13<sup>th</sup>; Gangetic West Bengal, Odisha, Madhya Pradesh, Vidarbha, Chhattisgarh during next 5 days.
  - ✓ Isolated **hailstorm and squally winds (50-60 kmph)** very likely over southern parts of East Madhya Pradesh on 09<sup>th</sup> & 10<sup>th</sup> June, 2024.
- ❖ A Western Disturbance seen as a trough in middle tropospheric westerlies roughly along Long. 70°E to the north of Lat. 28°N. A cyclonic circulation lies over northwest Uttar Pradesh in lower tropospheric levels. Under their influence:
  - ✓ Isolated to scattered light to moderate rainfall accompanied with **thunderstorm & lightning** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh and Uttarakhand on 09<sup>th</sup> June, 2024.
  - ✓ Isolated very light rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over West Rajasthan on 09<sup>th</sup> & 10<sup>th</sup> and East Rajasthan during next 5 days.

# Maximum temperature observation and forecast for next 5 days:

- \* Rise in maximum temperatures by 2-3°C very likely over Northwest & Central India during next 5 days.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

# Heat Wave, Warm Night and Hot & Humid weather warning for next 5 days:

- ❖ Heat wave conditions very likely in isolated pockets of Punjab, Haryana, Bihar, Jharkhand & Gangetic West Bengal during 09th-13th; Jammu division, Himachal Pradesh, Uttarakhand, Delhi, West Rajasthan and Madhya Pradesh during 11th-13th and Odisha on 11th & 12th June, 2024.
- **♦ Heat wave conditions** very likely in isolated pockets of Uttar Pradesh on 09<sup>th</sup> & 10<sup>th</sup> and **heat wave to severe heat wave conditions** in some parts over the region during 11<sup>th</sup>-13<sup>th</sup> June, 2024.
- ❖ Hot and humid weather very likely to prevail over isolated pockets of Odisha on 09th, 10th & 13th June, 2024.

For more details, kindly refer: https://mausam.imd.gov.in/responsive/all\_india\_forcast\_bulletin.php

### 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 Sub-Himalayan West Bengal & Sikkim, Interior Karnataka, Kerala & Mahe and Lakshadweep; at many places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa and Coastal Karnataka; at a few places over Andaman & Nicobar Islands, Arunachal Pradesh, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Rayalaseema and Tamil Nadu, Puducherry & Karaikal and at isolated places over Odisha, Uttarakhand, Himachal Pradesh, Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Rajasthan, Madhya Pradesh, Gujarat State, Coastal Andhra Pradesh & Yanam and Telangana.

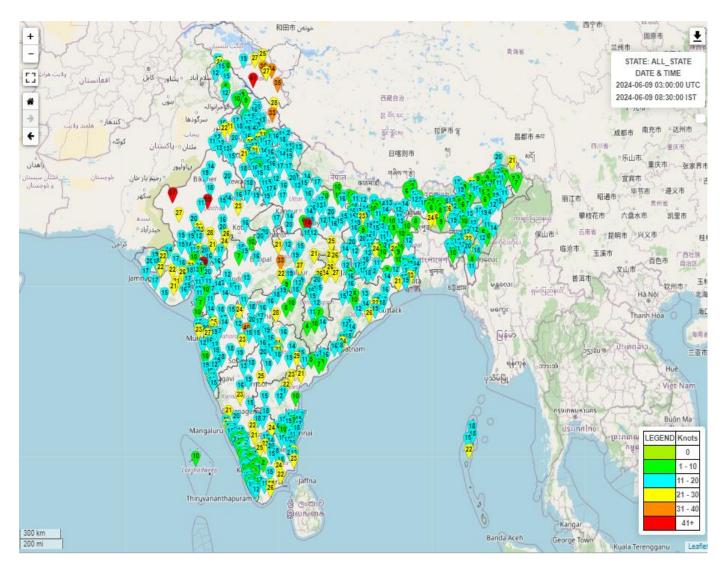
# Significant amount of rainfall (in cm):

- ❖ Konkan & Goa: Mulde\_ Agri (dist Sindhudurg) 22, Kudal (dist Sindhudurg) 19, Devgad (dist Sindhudurg) 16, Malvan (dist Sindhudurg) 15, Sawantwadi (dist Sindhudurg) 14, Rajapur (dist Ratnagiri) 13, Vengurla Imd Pt (dist Sindhudurg) 11, Alibag Imd Part Time (dist Raigad) 11, Ratnagiri Imd Obsy (dist Ratnagiri) 11, Poladpur (dist Raigad) 10, Kankavli (dist Sindhudurg) 10,
- ❖ Coastal Karnataka: Gersoppa (dist Uttara Kannada) 18, Karwar Obsy (dist Uttara Kannada) 17, Kota (distUdupi) 16, Castle Rock (dist Uttara Kannada) 16, Ankola (dist Uttara Kannada) 12, Gokarna (distUttara Kannada) 11, Kadra (dist Uttara Kannada) 11, Shirali Pto (dist Uttara Kannada) 11, Siddapura (dist Udupi) 10,
- **♦ Madhya Maharashtra:** Pune City Imd Obsy (dist Pune) 12, Kagal (dist Kolhapur) 8, Khandala Bavda (dist Satara) 7, Pandharpur (dist Sholapur) 7, Shahuwadi (dist Kolhapur) 7,
- ❖ Assam & Meghalaya: Barpeta/sarbhog\_aws (dist Barpeta) 12, Shella (dist East Khasi Hills) 11, Barpeta (dist Barpeta) 9, Hazuah (dist Barpeta) 8,
- ❖ Sub-Himalayan West Bengal & Sikkim: Pundibari (dist Cooch Behar) 11, Neora (dist Jalpaiguri) 9, Sevoke (dist Darjeeling) 7,
- ❖ Kerala & Mahe: Vellanikkara (Thrissur district) 11, Muliyar AWS (Kasargod district) 9, Vadakara (Kozhikode district) 8, Peerumedu (Idukki district), Enamakkal (Thrissur district), Kudulu (Kasaragod district), Palode AWS (Thiruvananthapuram district) & Peechi AWS (Thrissur district) 7 each
- ❖ North Interior Karnataka: Alamatti Hms (dist Vijayapura) 11, Belagavi Pto (dist Belagavi) 8, Nippani (distBelagavi) 7,
- South Interior Karnataka: Agumbe Emo (dist Shivamogga) 11, Linganamakki Hms (dist Shivamogga) 9, Kottigehara (dist Chikkamagaluru) 8, Thalaguppa (dist Shivamogga) 7,
- ❖ Tamil Nadu, Puducherry & Karaikal: Nalumukku (dist Tirunelveli), Sholayar (dist Coimbatore) 11 each, Valparai PAP (dist Coimbatore), Oothu (dist Tirunelveli), Valparai Taluk Office (dist Coimbatore) 9 each, Lower Anaicut (dist Thanjavur), Manalmedu (dist Mayiladuthurai), Manalmedu ARG (dist Mayiladuthurai), Kakkachi (dist Tirunelveli) 7 each,
- ❖ Chhattisgarh: Pendra Road (dist Gaurela Pendra Marwahi) 9, Bilha (dist Bilaspur) 3, Masturi (dist Bilaspur) 3, Bagicha (dist Jashpur) 3,
- ❖ Coastal Andhra Pradesh & Yanam: Kavali (dist Spsr Nellore) 8, Chimakurthi (dist Prakasam) 4,
- Marathwada: Renapur (dist Latur) 7, Ambejogai / Mominabad (dist Beed) 6, Dharashiv Imd Parttime (dist Dharashiv) 6,
- Nagaland, Manipur, Mizoram & Tripura: Kamalpur\_aws (dist Dhalai) 6, Kailashahar Aws (dist Unakoti) 6, Kailashahar Aero (dist Unakoti) 6, Lengpui (dist Aizawl) 5,
- ❖ Gujarat Region: Quant (dist Chhota Udepur) 6, Chikhli (dist Navsari) 3,
- ❖ Odisha: Daringibadi (dist Kandhmal) 4,
- **East Madhya Pradesh:** Mehadwani (dist Dindori) 4, Mandla (dist Mandla) 3,
- ❖ West Madhya Pradesh: Sardarpur (dist Dhar) 4, Jawad (dist Neemuch) 3,
- ❖ Telangana: Palawancha (dist B. Kothagudem) 4, Konijerla (dist Khammam) 4,
- ❖ Andaman & Nicobar Islands: Mayabandar (dist North Andaman) 4,
- \* Rayalaseema: Pattikanda (dist Kurnool) 3.

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

- Himachal Pradesh: Kinnaur-61, Lahaul and Spiti-52
- Punjab: Faridkot-41, Moga-39
- ❖ Haryana: Kaithal-46, Yamunanagar-41, Panipat & Jind-39 each
- \* Rajasthan: Jaisalmer-89, Udaipur-52, Barmer-50, Pratapgarh-44
- Gujarat: Panchmahal-109, Botad-48, Kachchh, Jamnagar & Rajkot-41
- **East Madhya Pradesh:** Chhindwara- 61, Mandla-50, Singrauli-46
- Chhattisgarh: Koriya-52, Janjgir Champa-50, Mungeli, Korba & Surajpur-48 each
- ❖ Maharashtra: Beed-74, Pune-61, Jalna-44, Raigad & Osmanabad-43 each
- Telangana: Rangareddy-42, Siddipet-39, Nizamabad-35

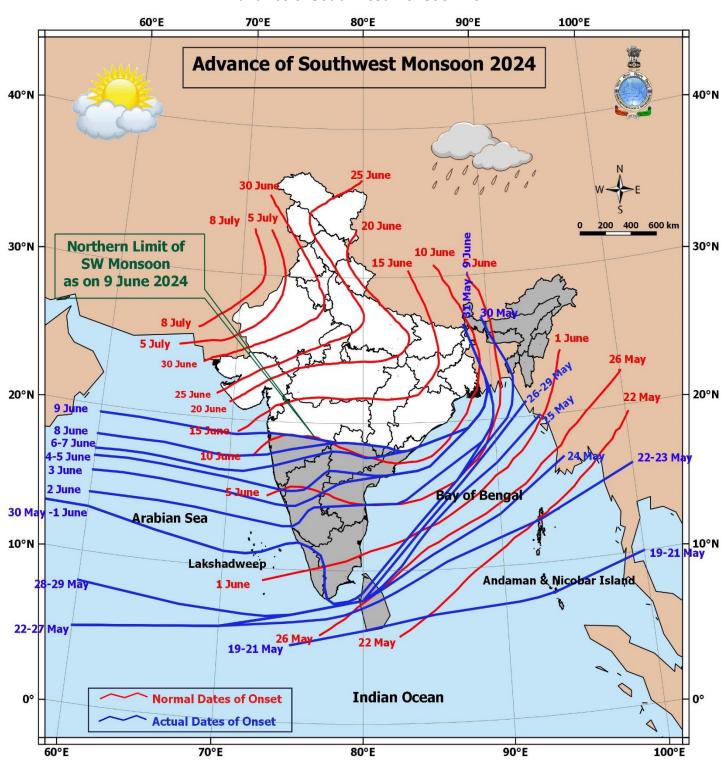
Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 08.06.2024 to 0830 hrs IST of 09.06.2024



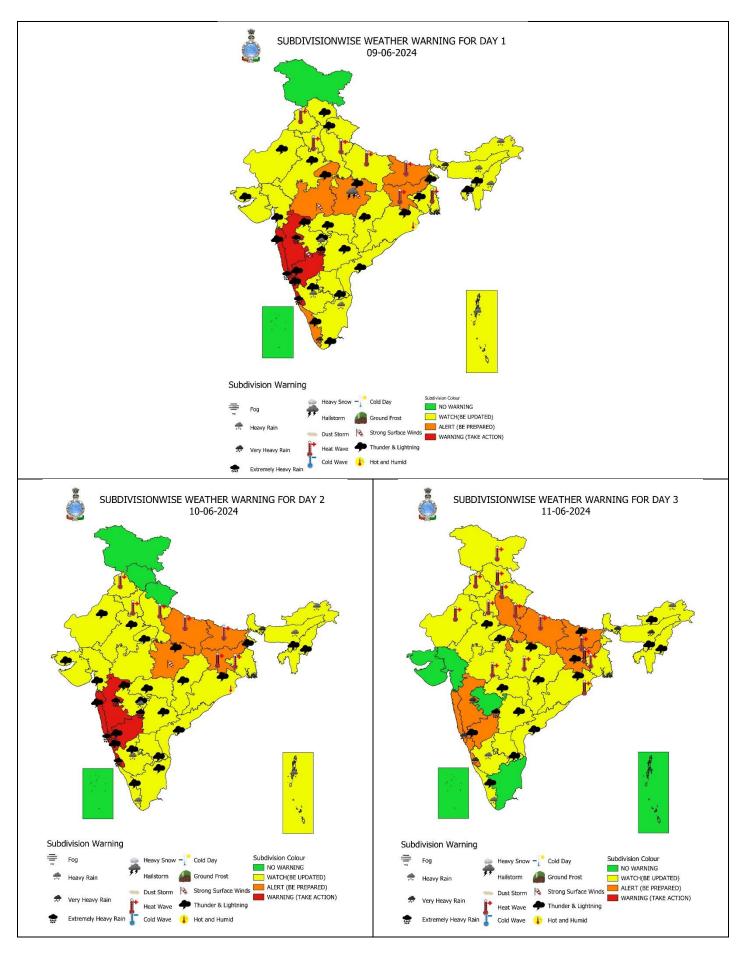
For more details, kindly refer: <a href="http://aws.imd.gov.in:8091/">http://aws.imd.gov.in:8091/</a>

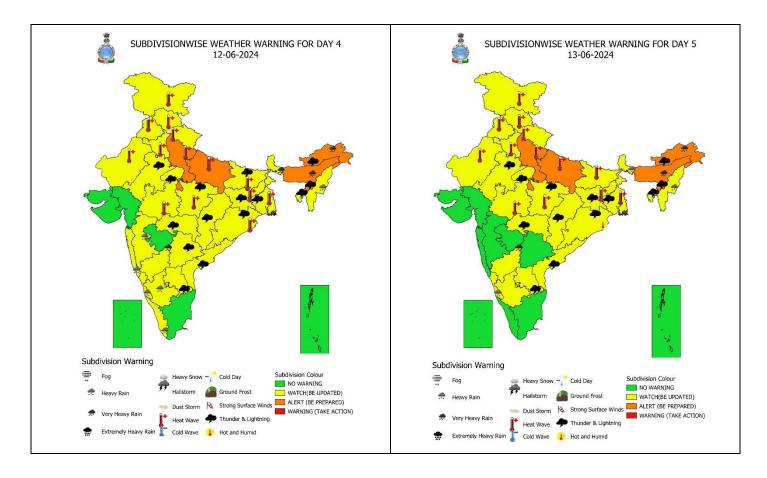
#### **ANNEXURE III**

# **Advance of Southwest Monsoon 2024**



#### **ANNEXURE IV**





IMPACT & ACTION SUGGESTED due to very heavy rainfall/extremely heavy falls over Kerala & Mahe on 09th; South Interior Karnataka during 09th-11th; north Konkan and north Madhya Maharashtra on 09th & 10th; Arunachal Pradesh & North Interior Karnataka on 12th & 13th; Assam & Meghalaya during 11th-13th; Sub-Himalayan West Bengal & Sikkim during 09th-12th June, 2024.

#### **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 kutcha 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.

# **IMPACT & ACTION SUGGESTED due to Heat Wave Conditions:**

#### **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 expected and action suggested due to thunderstorms, lightning/squall/gusty winds/Hailstorm over southern parts of East Madhya Pradesh 09th & 10th June, 2024.

#### Impact expected:

- > Strong wind/hail may damage plantation, horticulture and standing crops.
- ➤ Hail may injure people and cattle at open places.
- Partial damage to vulnerable structures due to strong winds.
- Minor damage to kutcha houses/walls and huts.
- Loose objects may fly.

#### **Action suggested:**

- Stay indoors, close windows & doors and avoid travel if possible.
- Take safe shelters; do not take shelter under trees.
- ▶ Do not lie on concrete floors and do not lean against concrete walls.
- Unplug electrical/ electronic appliances.
- Immediately get out of water bodies.
- Keep away from all the objects that conduct electricity.

# Agromet advisories for Heavy Rainfall, Gusty winds, Hail Storms and Heat Wave likely over various parts of the country:

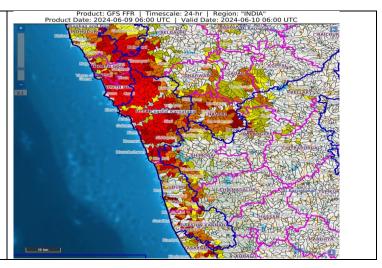
- Make provision for draining out excess water from crop fields to avoid water stagnation in Tamil Nadu, Kerala, Karnataka, Maharashtra, Sub Himalayan West Bengal, Arunachal Pradesh, Assam & Meghalaya, Mizoram and Tripura.
- > Postpone sowing of red gram, black gram, cotton, pigeon pea and sorghum in Karnataka.
- > Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal.
- > Use hail nets or hail caps in fruit orchards to prevent mechanical damage and provide mechanical support to horticultural crops & staking to vegetables in East Madhya Pradesh.
- > Provide mechanical support to horticultural crops & staking to vegetables to prevent damage from gusty winds.

#### FLASH FLOOD GUIDANCE:

# 24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 10-06-2024:

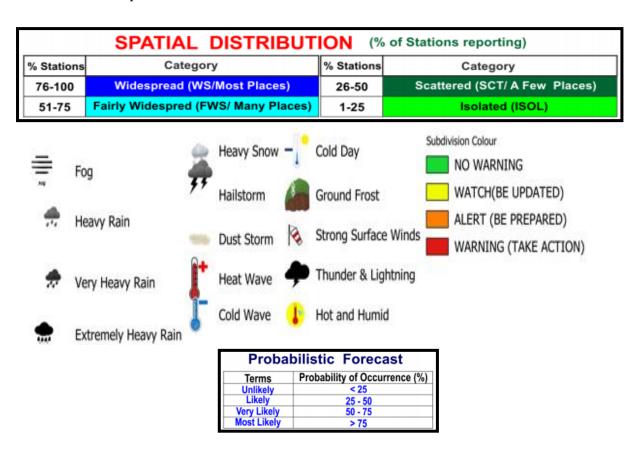
**Low to Moderate flash flood risk** likely over few watersheds & neighbourhoods of **Coastal Karnataka** and adjoining **Konkan & Goa** Met Sub-divisions during next 24 hours.

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.
- **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.



#### **LEGENDS Probabilistic Forecast** WARNING WARNING (TAKE ACTION) Probability of Occurrence (%) Terms ALERT ( BE PREPARED) Likely Very Likely 25 - 50 50 - 75 WATCH (BE UPDATED) Most Likely > 75 Heavy: 64.5 to 115.5 mm/cm \* Very Heavy: 115.6 to 204.4 mm/cm\* Rain/ Snow Extremely Heavy: > 204.4 mm/cm When maximum temperature of a station reaches ≥40° C for plains and ≥30° 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 ≥6.5° C 1+ (b), Based on Actual maximum temperature **Heat Wave** Heat Wave: When actual maximum temperature ≥45°C. Severe Heat Wave: When actual maximum temperature ≥47°C (c). Criteria for heat wave for coastal stations When maximum temperature departure is >4.5°C from normal. Heat Wave may be described provided maximum temperature ≥37°C When maximum temperature remains 40°C Warm Night Warm Night: When minimum temperature departure 4.5 °C to 6.4 °C. Severe Warm Night: When minimum temperature departure >6.4 °C. 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 °C to -6.4 °C. Severe Cold Wave: Minimum Temperature Departure from normal ≤ -6.5 °C 1-(b) Based on actual Minimum Temperature (for Plains only) **Cold Wave** Cold Wave : When Minimum Temperature is ≤ 4.0 °C Severe Cold Wave: When Minimum Temperature is ≤ 2.0 °C (c) For Coastal Stations When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C 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 °C to -6.4 °C. Cold Day Severe Cold Day: Maximum Temperature Departure from normal ≤ -6.5 °C Phenomenon of small droplets suspended in air and the horizontal visibility < 1km Moderate Fog: When the visibility between 500-200 metres 0 Dense Fog: when the visibility between 50- 200 metres Foa Very Dense Fog: when the visibility < 50 metres 44 Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder) Thunderstorm An ensemble of particles of dust or sand energetically lifted to great heights by a strong and **Dust/Sand** turbulent wind. Storm Ice deposits on ground Air temperature ≤4°C ( over Plains) **Frost** A strong wind that rises suddenly, lasts for atleast 1 minute. Moderate: Wind speed 52-61 kmph 4 Severe: Wind speed 62-87 kmph Squall 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 Sea State 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) 6 Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots) Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots) Cyclone Super Cyclone Strom: Wind speed >220 kmph (>119 knots)