



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 22<sup>nd</sup> June, 2024

Time of Issue: 1325 hours IST

**Subject: Heavy to very heavy rainfall with extremely heavy falls very likely over Kerala, Coastal & South Interior Karnataka, Konkan, Goa & Madhya Maharashtra during next 4-5 days.**

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

- ❖ *Heatwave conditions prevailed in isolated pockets of southwest Uttar Pradesh.*
- ❖ *Maximum temperatures were in the range of 40-42°C in some parts of West Rajasthan, Uttar Pradesh; in isolated pockets of Haryana-Delhi and Gujarat state and Maximum temperatures departures were below normal by 2-4°C over some parts of Northwest India.*
- ❖ *Yesterday, the highest Maximum Temperature of 44.6°C was reported at Orai (West Uttar Pradesh) over the country.*
- ❖ *Heavy to very heavy rainfall with extremely heavy falls occurred at isolated places over Konkan; Heavy to very heavy rainfall at isolated places over Goa, Lakshadweep, Andaman & Nicobar Islands, East Rajasthan; heavy rainfall at isolated places over Coastal Andhra Pradesh, Madhya Maharashtra, Kerala, Sub-Himalayan West Bengal & Sikkim, Jharkhand, Odisha, Assam & Meghalaya, Mizoram, Madhya Pradesh, Chhattisgarh, Coastal Karnataka and Telangana.*
- ❖ *Gusty winds/squally winds data reported over the country is attached in Annexure II.*

**Advance of Southwest Monsoon:**

- ❖ Northern Limit of Monsoon continues to pass through 20.5°N/60°E, 20.5°N/63°E, 20.5°N/70°E, Navsari, Jalgaon, Mandla, Pendra Road, Jharsuguda, Balasore, Haldia, Pakur, Sahibganj and Raxaul.
- ❖ Conditions are favourable for further advance of Southwest Monsoon into some more parts of North Arabian Sea, Gujarat State, remaining parts of Maharashtra, some more parts of Madhya Pradesh, Chhattisgarh, Odisha, Gangetic West Bengal, Jharkhand, Bihar and some parts of East Uttar Pradesh during next 3-4 days.

**Weather Systems and Forecast & Warnings:**

- ❖ A trough at mean sea level runs off south Maharashtra-north Kerala coasts and lower-level winds are likely to strengthen along the west coast during next 3 days. A cyclonic circulation lies over interior Odisha & adjoining Chhattisgarh in lower & middle tropospheric levels. Another cyclonic circulation lies over northeast and adjoining eastcentral Bay of Bengal in lower & middle tropospheric levels. Under their influence:
  - Fairly widespread to widespread light to moderate rainfall accompanied with **thunderstorm, lightning** likely over Gujarat state, Konkan & Goa, Madhya Maharashtra & Marathwada, Karnataka, Kerala & Mahe, Lakshadweep; scattered to fairly widespread light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Tamil Nadu, Puducherry & Karaikal during next 5 days.
  - Isolated **heavy to very heavy rainfall** very likely over Konkan & Goa, Ghat regions of Madhya Maharashtra, Kerala & Mahe, Coastal & South Interior Karnataka, Tamil Nadu during 22<sup>nd</sup>-26<sup>th</sup>; Lakshadweep on 22<sup>nd</sup> & 23<sup>rd</sup>; Gujarat region during 22<sup>nd</sup>-24<sup>th</sup>; Saurashtra & Kutch on 23<sup>rd</sup> & 24<sup>th</sup> and isolated **heavy rainfall** over Marathwada on 22<sup>nd</sup> & 23<sup>rd</sup>, Telangana on 22<sup>nd</sup>; Coastal Andhra Pradesh & Yanam on 26<sup>th</sup> and southeast Rajasthan on 24<sup>th</sup> & 25<sup>th</sup> June 2024.
  - **Isolated extremely heavy rainfall also likely over Konkan & Goa during 23<sup>rd</sup>-26<sup>th</sup>; Coastal & South Interior Karnataka during 22<sup>nd</sup>-24<sup>th</sup> and Kerala & Mahe on 22<sup>nd</sup> & 23<sup>rd</sup> June, 2024.**

- Fairly widespread to widespread rainfall with **thunderstorm, lightning & gusty winds (40-50 kmph)** very likely over Madhya Pradesh, Vidarbha, Chhattisgarh during next 5 days.
  - Isolated **heavy rainfall** very likely over West Madhya Pradesh on 22<sup>nd</sup> & 23<sup>rd</sup>, Vidarbha on 22<sup>nd</sup>, 23<sup>rd</sup> & 26<sup>th</sup>; Chhattisgarh and East Madhya Pradesh on 22<sup>nd</sup> & 26<sup>th</sup> June.
- ❖ Strong southwesterly winds prevail in the lower levels from the Bay of Bengal into east and northeast India. In the lower tropospheric levels, an east-west trough runs from northwest Uttar Pradesh to northeast Bay of Bengal.
- 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 during next 5 days.
  - Isolated **heavy rainfall** very likely over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya during next 5 days with possibility of very heavy rainfall over Sub-Himalayan West Bengal & Sikkim on 25<sup>th</sup> & 26<sup>th</sup> and isolated **heavy rainfall** over Arunachal Pradesh on 25<sup>th</sup> & 26<sup>th</sup>; Nagaland, Manipur, Mizoram & Tripura during 22<sup>nd</sup>-24<sup>th</sup> June.
  - Fairly widespread light to moderate rainfall accompanied with **thunderstorm, lightning & gusty winds (30-40 kmph)** very likely over Gangetic West Bengal, Bihar, Jharkhand, Odisha, Andaman & Nicobar Islands during next 5 days.
  - Isolated **heavy rainfall** very likely over Bihar during 24<sup>th</sup>-26<sup>th</sup>, Odisha on 22<sup>nd</sup> & 26<sup>th</sup>; Jharkhand on 25<sup>th</sup> & 26<sup>th</sup> and Andaman & Nicobar Islands during 22<sup>nd</sup>-26<sup>th</sup> June.
  - Scattered to fairly widespread rainfall very likely over Uttarakhand and East Uttar Pradesh during next 7 days. Isolated **heavy rainfall** very likely over Uttarakhand and East Uttar Pradesh during 24<sup>th</sup>-26<sup>th</sup> June.

#### Maximum temperature forecast for next 5 days:

- ❖ No significant change in maximum temperatures very likely over Northwest India during next 2 days and rise by 3-4°C thereafter.
- ❖ No significant change in maximum temperatures very likely over rest parts of the country.

#### Heat Wave warning for next 5 days:

- ❖ **Heat wave conditions** very likely in isolated pockets of West Uttar Pradesh during 22<sup>nd</sup>-25<sup>th</sup>; over Punjab, Haryana-Chandigarh-Delhi on 24<sup>th</sup> & 25<sup>th</sup> June and **abate thereafter**.

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

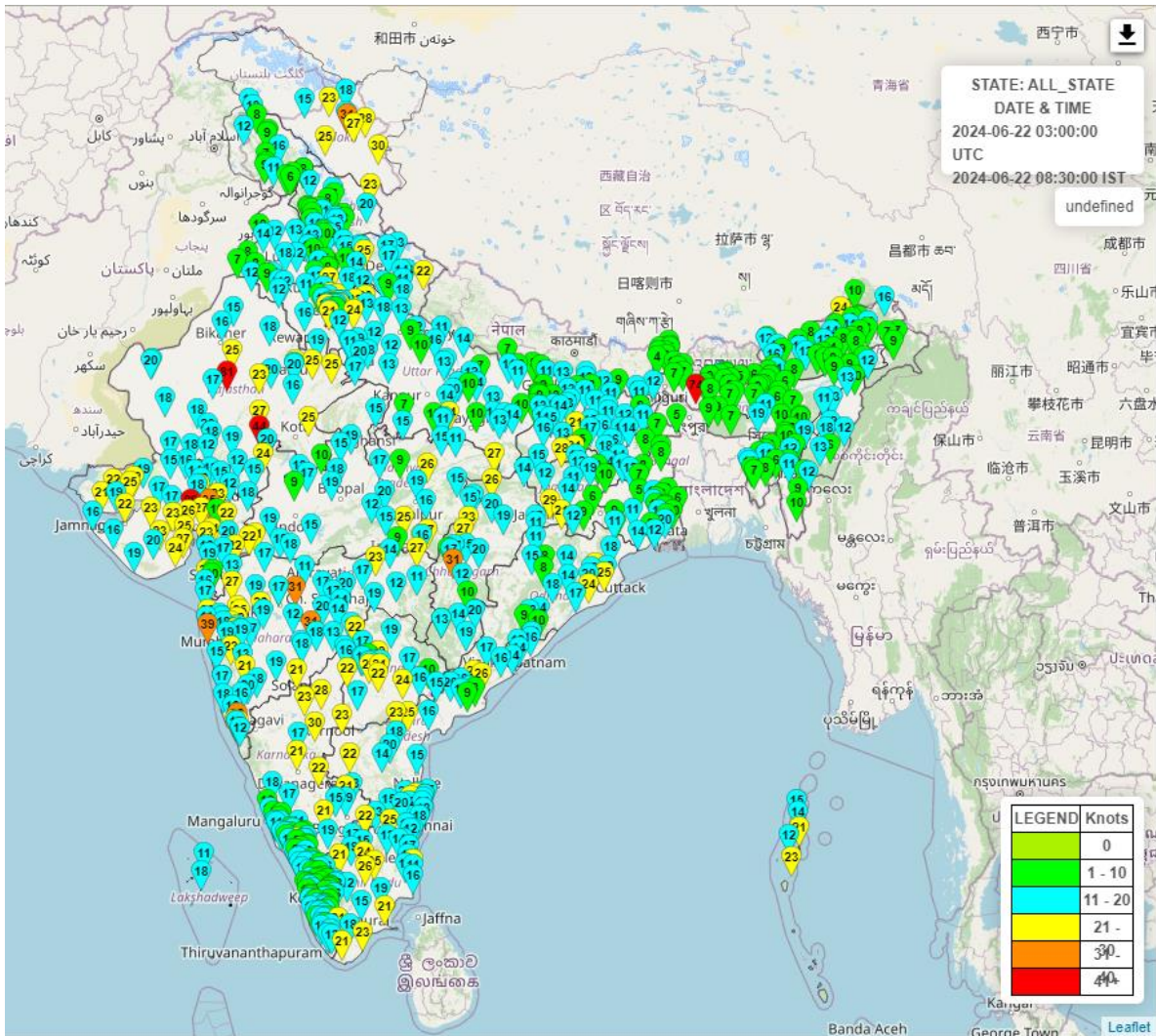
**Realised Rainfall during past 24 hours till 0830 hours IST of today (in cm):**

- ❖ **Konkan & Goa:** Mandangad (dist Ratnagiri) 21, Chiplun (dist Ratnagiri) 16, Wakwali\_agri (dist Ratnagiri) 15, Savarde-arg (dist Ratnagiri) 15, Sanguem (dist South Goa) 14, Tala (dist Raigad) 12, Sudhagad Pali (dist Raigad) 12, Mhasla (dist Raigad) 11, Roha (dist Raigad) 9, Khed (dist Ratnagiri) 9, Sangameshwar Devrukh (dist Ratnagiri) 8, Poladpur (dist Raigad) 8, Thane (dist Thane) 7, Mahad (dist Raigad) 7,
- ❖ **Lakshadweep:** Amini (dist Lakshadweep) 12, Minicoy (dist Lakshadweep) 5, Agathi (dist Lakshadweep) 5
- ❖ **Andaman & Nicobar Islands:** Maya Bandar (dist North & Middle Andaman) 12, Hut Bay (dist South Andaman) 5,
- ❖ **East Rajasthan:** Khanpur (dist Jhalawar) 12, Gangdhar Sr (dist Jhalawar) 8, Phagi (dist Jaipur) 8,
- ❖ **Chhattisgarh:** Patan (dist Durg) 10, Dondilohara (dist Balod) 9, Bhatapara (dist Baloda Bazar) 8, Balod (dist Balod) 7, Usoor (dist Bijapur) 7,
- ❖ **Mizoram:** Lengpui (dist Aizawl) 10, Kolasib Agri (dist Kolasib) 9, Kolasib\_aws (dist Kolasib) 8, Aizwal (dist Aizawl) 7,
- ❖ **Coastal Andhra Pradesh:** Kakinada (dist Kakinada) 9, Kunavaram (dist Alluri Sitharamaraju) 6,
- ❖ **Kerala & Mahe:** Angadipuram (dist Malappuram) 8, Perinthalamanna (dist Malappuram) 7, Vadakara (dist Kozhikode) 6,
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Jhallong (dist Kalimpong) 8, Samsing (dist Darjeeling) 8, Rongli (dist Pakyong) 5,
- ❖ **Coastal Karnataka:** Gersoppa (dist Uttara Kannada) 8, Kadra (dist Uttara Kannada) 7,
- ❖ **Madhya Maharashtra:** Shahuwadi (dist Kolhapur) 7, Mahabaleshwar- Imd Obsy (dist Satara) 7,
- ❖ **Telangana:** Mudhole (dist Nirmal) 9, Laxmanchanda (dist Nirmal) 7, Mudholebasar (dist Nirmal) 7, Gundala (dist B. Kothagudem) 7, Dilawarpur (dist Nirmal) 7,
- ❖ **Assam & Meghalaya:** Amraghat (dist Cachar) 7, Mangaldai\_aws (dist Darrang) 7, Matijuri Arg (dist Hailakandi) 7,
- ❖ **Jharkhand:** Simdega-8

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

- ❖ **Maharashtra:** Raigad-72, Goa-61, Beed, Jalna-57 each
- ❖ **Gujarat:** Ananad-65, Bhavnagar-50, Kandla-47
- ❖ **Chhattisgarh:** Balod-57
- ❖ **Karnataka:** Koppal-55, Yadgir-51;
- ❖ **Rajasthan:** Jaipur-53, Bhilwara-50, Dausa, Karauli, Baran, Nagaur-47 each
- ❖ **Tamil Nadu:** Ranipet-52, karur-48
- ❖ **Haryana-Chandigarh-Delhi:** Ujwa-55, Panipat-50, Pitampura-48, Sonipat-44, Gurgaon-38
- ❖ **Uttarakhand:** Dehradun-46
- ❖ **Kerala & Mahe:** Kozhikode 44, Kottayam, Trivandrum 39
- ❖ **Himachal Pradesh:** Lahaul & Spiti-43
- ❖ **West Madhya Pradesh:** Neemuch - 37, Sehore - 35, Guna/ Khandwa - 28,
- ❖ **East Madhya Pradesh:** Balaghat/ Singrauli - 50, Katni - 48, Seoni - 46, Chhindwada - 37, Jabalpur - 35, Sagar - 31, Mandla - 30

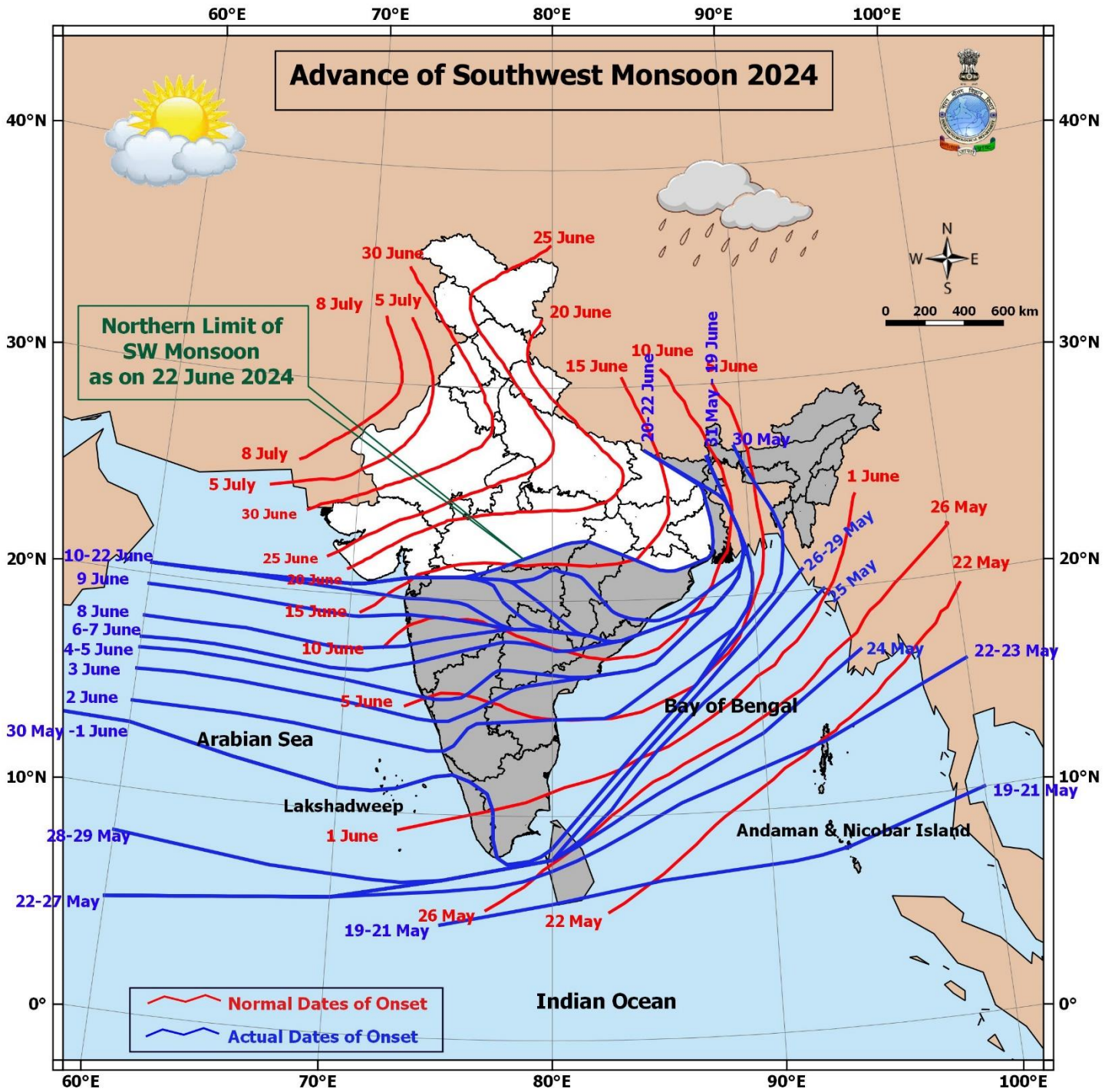
**Fig: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 21.06.2024 to 0830 hrs IST of 22.06.2024**

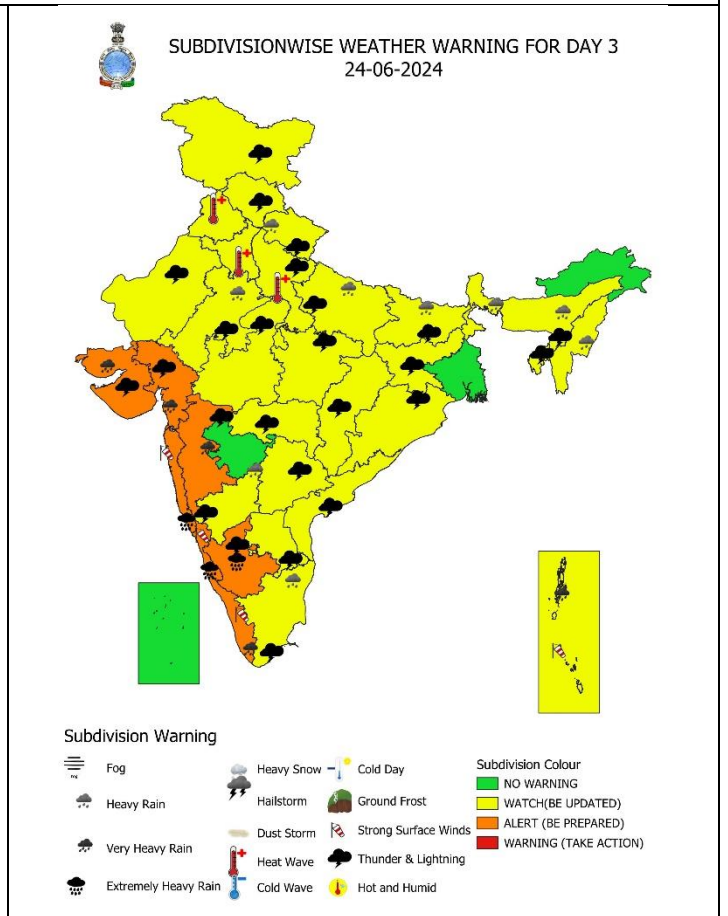
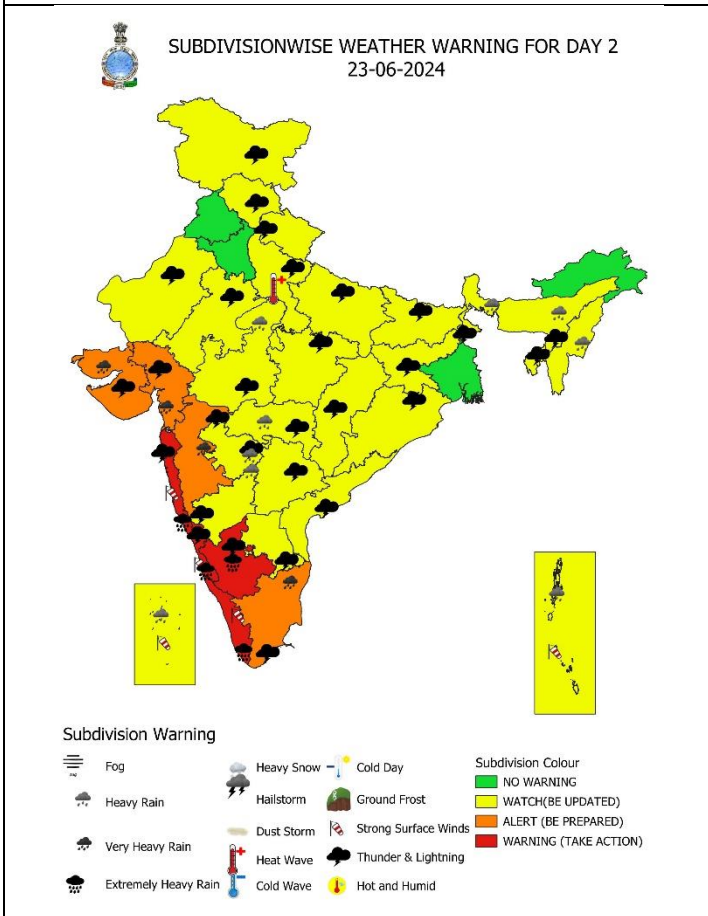
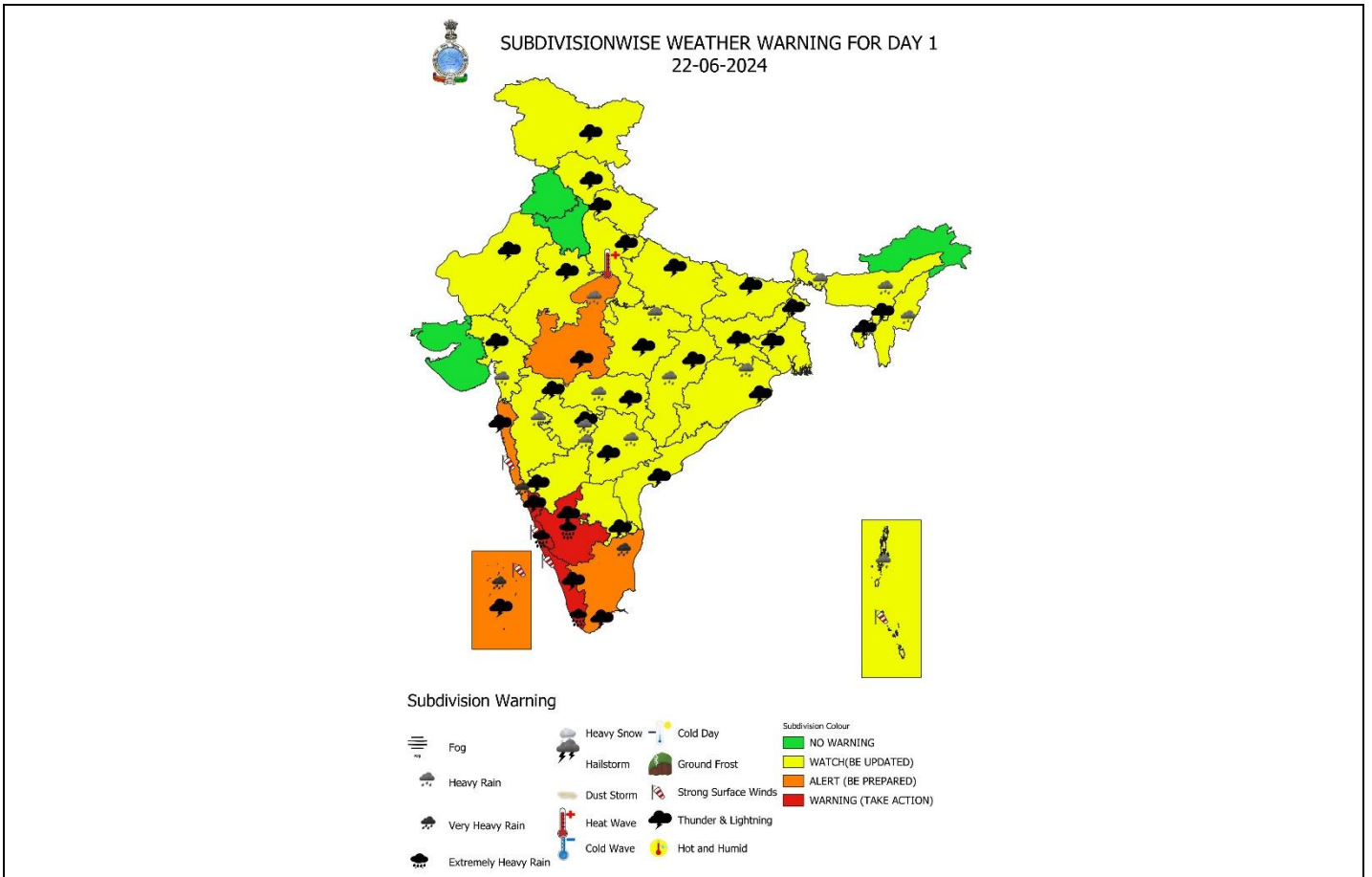


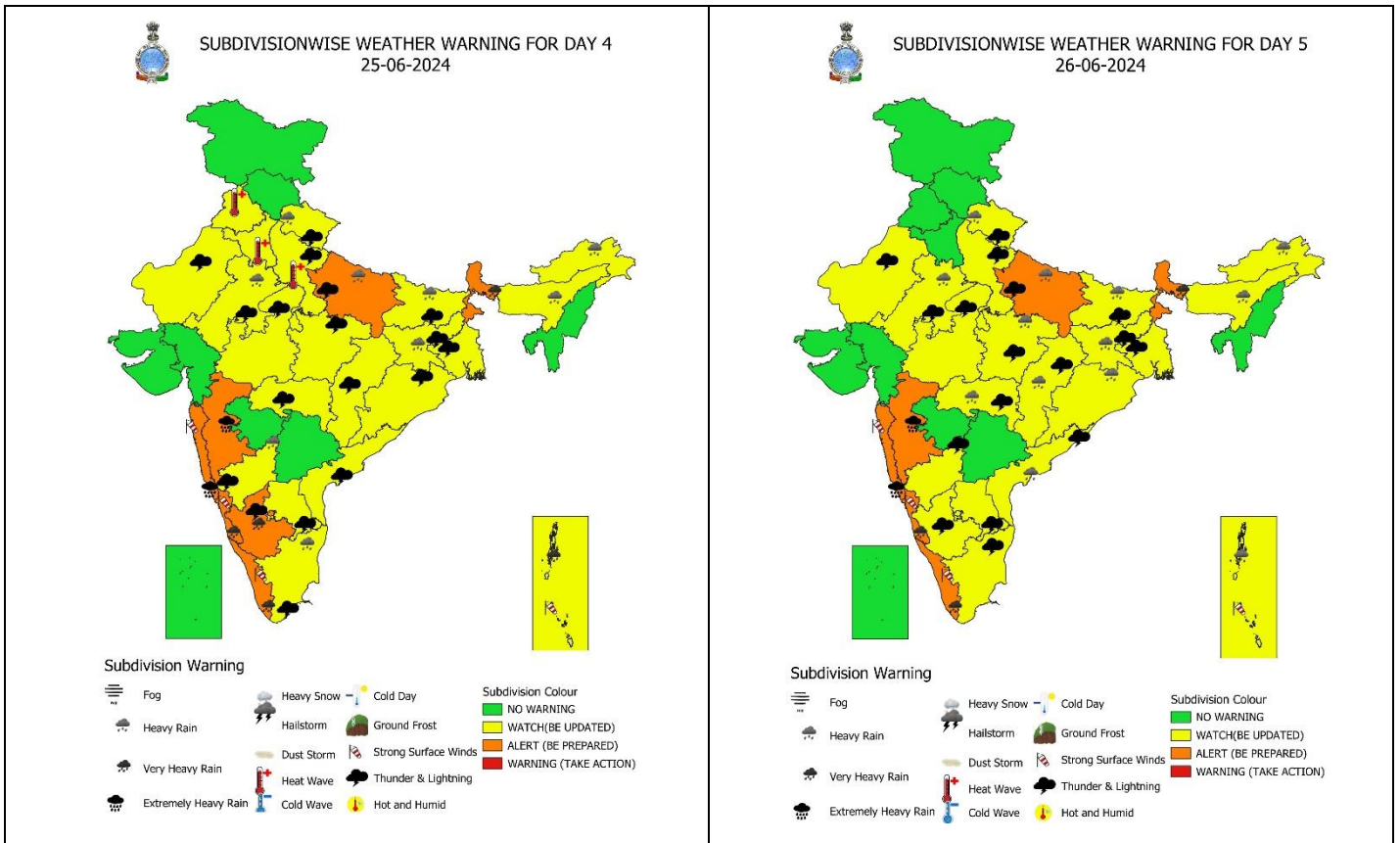
For more details, kindly refer: <http://aws.imd.gov.in:8091/>



### Advance of Southwest Monsoon 2024







**IMPACT & ACTION SUGGESTED due to very heavy/extremely heavy rainfall over, Konkan & Goa, Coastal & South Interior Karnataka and Kerala & Mahe during 22<sup>nd</sup>-26<sup>th</sup>; Tamil Nadu on 22<sup>nd</sup> & 23<sup>rd</sup>; Ghat areas of Madhya Maharashtra during 23<sup>rd</sup>-26<sup>th</sup>; over Gujarat State on 22<sup>nd</sup> & 23<sup>rd</sup> June.**

**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.

**Agromet advisories for Heavy Rainfall, Gusty winds 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 Assam & Meghalaya, Nagaland, Manipur, Andaman & Nicobar Islands, Sub Himalayan West Bengal & Sikkim, Odisha, Chhattisgarh, Madhya Pradesh, Vidarbha, Konkan & Goa, Madhya Maharashtra, Marathwada, Gujrat, Tamil Nadu, Kerala, Lakshadweep, Karnataka and Telangana.
- Apply light and frequent irrigation to standing crops to avoid heat stress; provide mulching to conserve soil moisture and minimise evaporation in West Uttar Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables.



## 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.

<b>SPATIAL DISTRIBUTION</b> (% 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 Snow	 Cold Day	<b>Subdivision Colour</b>  NO WARNING  WATCH(BE UPDATED)  ALERT (BE PREPARED)  WARNING (TAKE ACTION)
 Heavy Rain	 Hailstorm	 Ground Frost	
 Very Heavy Rain	 Dust Storm	 Strong Surface Winds	
 Extremely Heavy Rain	 Heat Wave	 Thunder & Lightning	
	 Cold Wave	 Hot and Humid	

<b>Probabilistic Forecast</b>	
Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



## LEGENDS

### WARNING

<b>WARNING (TAKE ACTION)</b>
<b>ALERT ( BE PREPARED)</b>
<b>WATCH (BE UPDATED)</b>
<b>NO WARNING ( NO ACTION)</b>

### 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 \*



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  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

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  $\geq 37^{\circ}\text{C}$



When maximum temperature remains  $40^{\circ}\text{C}$

Warm Night: When minimum temperature departure  $4.5^{\circ}\text{C}$  to  $6.4^{\circ}\text{C}$ .

Severe Warm Night: When minimum temperature departure  $> 6.4^{\circ}\text{C}$ .



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  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

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  $\leq 15^{\circ}\text{C}$



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  $-4.5^{\circ}\text{C}$  to  $-6.4^{\circ}\text{C}$ .

Severe Cold Day: Maximum Temperature Departure from normal  $\leq -6.5^{\circ}\text{C}$



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



Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)



An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.



Ice deposits on ground

Air temperature  $\leq 4^{\circ}\text{C}$  ( over Plains)



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



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



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)