



Government of India  
Ministry of Earth Sciences  
India Meteorological Department



Press Release

Date: 28<sup>th</sup> June, 2024

Time of Issue: 1400 hours IST

**Subject: 1) Heavy to very heavy rainfall very likely over Northwest India during next 4-5 days.  
2) Heavy to very heavy rainfall very likely over central and east India during next 2-4 days and over northeast India during next 5 days.**

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

- ❖ *Yesterday, the highest Maximum Temperature of 41.4°C was recorded at Jaisalmer (West Rajasthan).*
- ❖ **Heavy to very heavy rainfall with extremely heavy falls occurred** at isolated places over Delhi, Chhattisgarh; **Heavy to very heavy rainfall** at isolated places over West Madhya Pradesh, Odisha, Konkan & Goa, Vidarbha, Himachal Pradesh, Haryana; **Heavy rainfall** at isolated places over Uttarakhand, Uttar Pradesh, Punjab, Rajasthan, Arunachal Pradesh, Assam & Meghalaya, Manipur, Sub-Himalayan West Bengal & Sikkim, Madhya Maharashtra, Kerala, East Madhya Pradesh, Coastal Andhra Pradesh, Coastal Karnataka & South Interior Karnataka and Tamil Nadu.
- ❖ *Gusty winds/squally winds data reported over the country is attached in [Annexure II](#).*

**Advance of Southwest Monsoon:**

- ❖ Southwest Monsoon further advanced into some more parts of West Rajasthan, remaining parts of East Rajasthan, some parts of Haryana, entire Delhi, some more parts of West Uttar Pradesh; remaining parts of Madhya Pradesh, Chhattisgarh, West Bengal, Jharkhand, Bihar; some more parts of East Uttar Pradesh and remaining parts of Uttarakhand.
- ❖ The Northern Limit of Monsoon passes through 26°N/65°E, Jaisalmer, Churu, Bhiwani, Delhi, Aligarh, Kanpur, Ghazipur, Gonda, Kheri, Moradabad, Una, Pathankot, Jammu, 33°N/74°E.
- ❖ Conditions are likely to become favourable for further advance of southwest Monsoon into some more parts of West Rajasthan; remaining parts of Haryana, entire Chandigarh and remaining parts of Punjab, Himachal Pradesh and Jammu during next 2-3 days.

**Weather Systems and Forecast & Warnings:**

- ❖ A cyclonic circulation lies over south Gujarat and neighbourhood and extends upto middle tropospheric levels tilting southwards with height. The shear zone runs roughly along 20°N in middle tropospheric levels tilting southwards with height. The trough at mean sea level now runs off south Maharashtra-central Kerala coasts. Under their influence:
  - Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm & lightning very likely over Kerala & Mahe, Lakshadweep, Coastal Karnataka, Vidarbha, Chhattisgarh, Konkan & Goa, Gujarat State, Madhya Maharashtra; isolated to scattered light to moderate rainfall over Marathwada, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, North & South Interior Karnataka during next 5 days.
  - Isolated **heavy rainfall** very likely over Chhattisgarh on 29<sup>th</sup> & 30<sup>th</sup>, over Vidarbha, Saurashtra & Kutch, Kerala & Mahe on 28<sup>th</sup>, Gujarat Region on 29<sup>th</sup>, 30<sup>th</sup> June & 02<sup>nd</sup> July, over Coastal Karnataka during 28<sup>th</sup> June- 01<sup>st</sup> July.
  - **Isolated very heavy rainfall very likely over Konkan & Goa, Madhya Maharashtra during next 5 days, over Gujarat Region on 28<sup>th</sup> June & 01<sup>st</sup> July.**
- ❖ A Low Pressure Area has formed over Northwest Bay of Bengal off north Odisha coast. Associated cyclonic circulation extends up to middle tropospheric levels. It is likely to move northwestwards during next 2 days. A cyclonic circulation lies over northeast Rajasthan & neighbourhood in lower tropospheric levels. A trough runs from the cyclonic

circulation over northeast Rajasthan to Low Pressure Area over Northwest Bay of Bengal in lower tropospheric levels. Under their influence;

- Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm, lightning very likely over Uttarakhand, Himachal Pradesh, Haryana-Chandigarh-Delhi, East Rajasthan, Madhya Pradesh, East India; scattered to fairly widespread light to moderate rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Punjab, Uttar Pradesh during next 5 days.
  - **Isolated very heavy rainfall likely over Himachal Pradesh, Uttarakhand on 29th & 30th June, over Punjab on 30th June & 01st July, Haryana-Chandigarh-Delhi during 29th June – 01st July, Uttar Pradesh during 28th – 30th June, over East Rajasthan during 29th June – 02nd July, over Madhya Pradesh on 28th & 29th June, over Odisha on 28th – 30th June.**
  - **Isolated heavy rainfall very likely over Himachal Pradesh, Uttarakhand, Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Madhya Pradesh and East Rajasthan during 28th June to 02nd July, West Rajasthan on 28th June.**
- ❖ A cyclonic circulation lies over northeast Assam in lower tropospheric levels. Under its influence;
- Fairly widespread to widespread light to moderate rainfall accompanied with thunderstorm, lightning & **isolated heavy rainfall** likely over Sub-Himalayan West Bengal & Sikkim on 29<sup>th</sup>, Arunachal Pradesh on 29<sup>th</sup> June, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during next 5 days.
  - **Isolated very heavy rainfall likely over Sub-Himalayan West Bengal & Sikkim on 28<sup>th</sup> & 30<sup>th</sup> June, over Arunachal Pradesh during 30<sup>th</sup> June – 02<sup>nd</sup> July.**
  - **Isolated extremely heavy rainfall very likely over Arunachal Pradesh today.**

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

- ❖ No significant change in maximum temperatures very likely over most parts of the country.

**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)

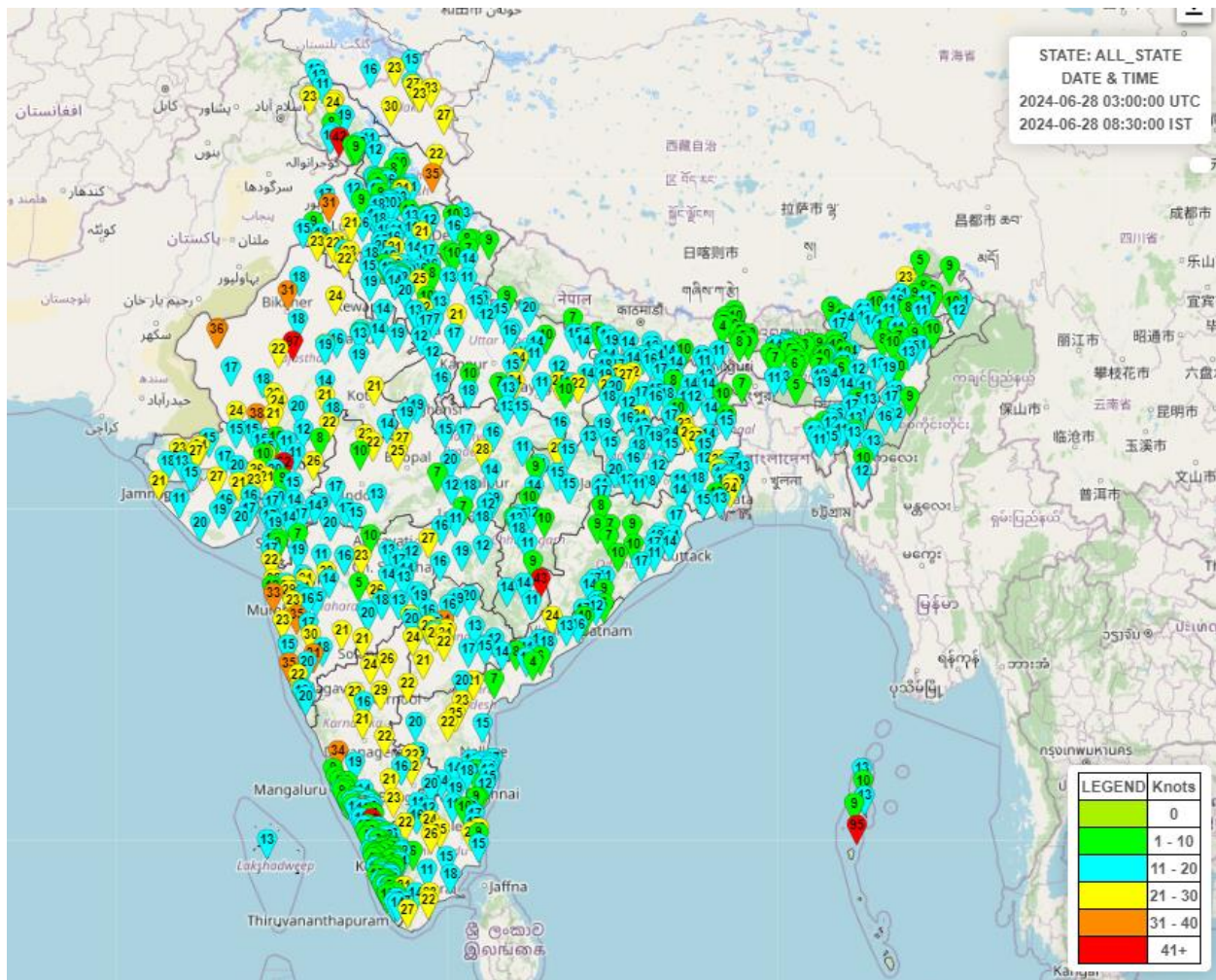
**Significant Rainfall during past 24 hours till 0830 hours IST of today (in cm):**

- ❖ **Delhi:** Safdarjung 23, Lodi Road 22, Delhi Ridge 15, Pitampura 15, Delhi university 14, President House 12, Palam 11, Pusa 9, Mayur Vihar, Tughlakabad 7 each;
- ❖ **Chhattisgarh:** Bijapur (dist Bijapur) 23, Nagari (dist Dhamtari) 9, Bhatapara (dist Baloda Bazar) 8, Baloda Bazar (dist Baloda Bazar) 7, Jagdalpur (dist Bastar) 7, Patan (dist Durg) 7;
- ❖ **West Madhya Pradesh:** Depalpur (dist Indore) 15, Porsa (dist Morena) 9, Gormi (dist Bhind) 7, Barod (dist Agarmalwa) 7, Morena-aws (dist Morena);
- ❖ **Konkan & Goa:** Mhasla (dist Raigad) 14, Tala (dist Raigad) 14, Shriwardhan (dist Raigad) 11, Rameshwar\_agri (dist Sindhudurg) 11;
- ❖ **Himachal Pradesh:** Shimla Aero (dist Shimla) 14, Simla (dist Shimla) 8;
- ❖ **Haryana:** Mandkhola Aws (dist Nuh) 13, Dhauj (dist Faridabad) 12, Gurgaon Aws (dist Gurgaon) 10, Sohana (dist Gurgaon) 8, Loharu (dist Bhiwani) 7;
- ❖ **Odisha:** Jeypore (Koraput) 12, Nandapur (Koraput) 11, Bhuban (Dhenkanal) 11, Malkangiri (Malkangiri) 9, Bolagarh (Khurda) 8, Gunupur (Rayagada) 7, Jatni (Khurda) 7, Chitrakunda K Guma (Malkangiri) 7, Jenapur (Jajpur) 7;
- ❖ **East Madhya Pradesh:** Rajnagar (dist Chhatarpur) 11, Patera (dist Damoh) 8, Bichhua (dist Chindwara) 7, Batiyagarh (dist Damoh) 7;
- ❖ **Sub-Himalayan West Bengal & Sikkim:** Rongo (dist Kalimpong) 11, Gajoldoba (dist Jalpaiguri) 10, Sevoke (dist Darjeeling) 9, Jalpaiguri (dist Jalpaiguri) 9;
- ❖ **West Uttar Pradesh:** Sasani (dist Hathras) 11, Moradabad Cwc (dist Moradabad) 8, Hathras (dist Hathras) 8, Nawabganj (dist Bareilly) 7, Narora (dist Bulandshahar) 7;
- ❖ **Vidarbha:** Joiti (dist Chandrapur) 17, Bhamragad (dist Gadchiroli) 11, Mul (dist Chandrapur) 8, Ballarpur (dist Chandrapur) 8, Rajura (dist Chandrapur) 7, Chandrapur (dist Chandrapur) 7, Chimur (dist Chandrapur) 7, Saoli (dist Chandrapur) 7;
- ❖ **Punjab:** Khanna (dist Ludhiana) 9, Sunam (dist Sangrur) 8, Sangrur Aws (dist Sangrur) 7, Mahurana Arg (dist Kapurthala) 7;
- ❖ **East Rajasthan:** Masuda Sr (dist Ajmer) 9, Kaman (dist Bharatpur) 9, Deeg Sr (dist Bharatpur) 9, Kota- aero (dist Kota) 9, Dausa (dist Dausa) 8, Kumher Sr (dist Bharatpur) 8, Ramgarhshekhatan Sr (dist Sikar) 8, Bharatpur Tehsil Sr (dist Bharatpur) 8, Udaipur-wati (dist Jhunjhunu) 7, Bhinay Sr (dist Ajmer) 7, Dholpur Tehsil Sr (dist Dholpur) 7, Gangdhar Sr (dist Jhalawar) 7;
- ❖ **Arunachal Pradesh:** Anini\_aws (dist Dibang Valley) 10, Pasighat\_ Aero (dist East Siang) 10, Naharlagun Aws (dist Papumpara) 9, Tuting (dist Upper Siang) 7;
- ❖ **Assam & Meghalaya:** Nahar Katia (dist Dibrugarh) 10, Khowang (dist Dibrugarh) 8, Naharkatia Arg (dist Dibrugarh) 7, Cherrapunji(rkm) (dist East Khasi Hills) 7, D/mohanbari Aero (dist Dibrugarh) 7, Mawsynram (dist East Khasi Hills) 7;
- ❖ **Nagaland, Manipur, Mizoram & Tripura:** Chandel\_aws (dist Chandel) 7, Mokokchang (dist Mokokchung) 4;
- ❖ **Madhya Maharashtra:** Gaganbawada (dist Kolhapur) 7, Pachora (dist Jalgaon) 6;
- ❖ **West Rajasthan:** Marwar Junction (dist Pali) 7
- ❖ ; **East Uttar Pradesh:** Ghazipur Cwc (dist Ghazipur) 7, Kheri Lakhimpur (dist Kheri) 3;
- ❖ **Coastal Andhra Pradesh & Yanam:** Araku Valley (dist Alluri Sitharamaraju) 7.

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

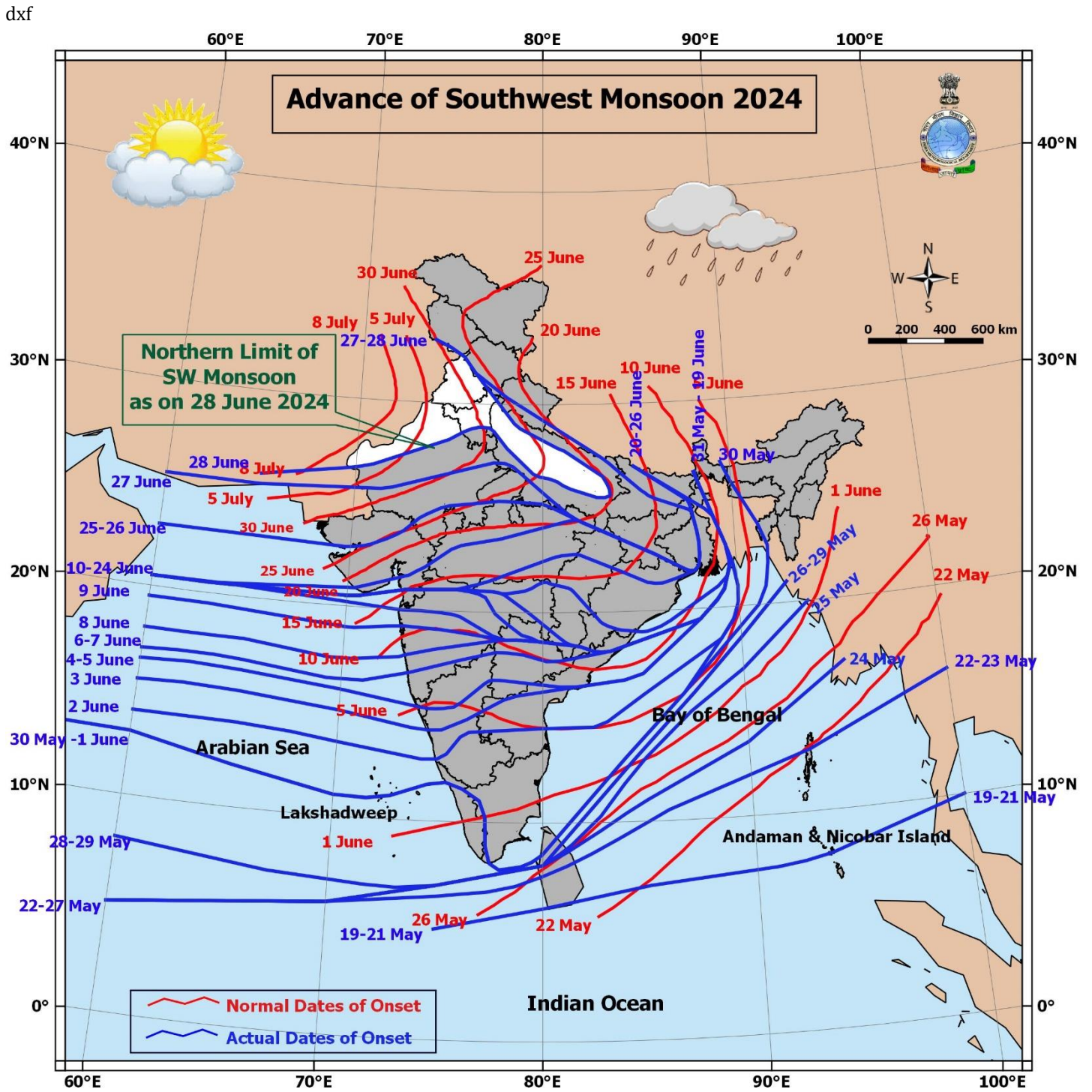
- ❖ **Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad:** Samba 78, Kargil 56, Leh 50;
- ❖ **Kerala & Mahe:** Waynad 72;
- ❖ **Gujarat:** Banaskantha 70, Kachchh, Rajkot 50 each, Ahmedabad, Dahod 48 each;
- ❖ **Rajasthan:** Jaisalmer 66, Bikaner 57, Shirohi 44, Sikar 40;
- ❖ **Himachal Pradesh:** Kinnaur 65;
- ❖ **Madhya Maharashtra:** Satara, Sindhudurg 64, Raigad, Sangli 57 each, Satara 55;
- ❖ **Karnataka:** Shivamogga 63, Koppal 53, Yadgir 48, Chamarajanagar 42;
- ❖ **Punjab:** Faridkot 57;
- ❖ **Telangana:** Siddipet 57, Ranga\_Reddy 48, Hyderabad 46, Vikarabad 44;
- ❖ **Madhya Pradesh:** Jabalpur 52, Sehore 50;
- ❖ **Bihar:** Patna 50, Bhojpur 44;
- ❖ **Gangetic West Bengal:** Durgapr 50, South\_Twenty\_Four\_Pargans 44, Hooghly 42;
- ❖ **Tamil Nadu:** Karur 48, Tiruchirappalli 46, Namakkal 44, Karaikal 42;
- ❖ **Haryana:** Mewat 48, Hisar 42;
- ❖ **Uttar Pradesh:** Bhadohi, Bulandshahar 46 each, Jalaun, Chitrakoot 44 each;
- ❖ **Andhra Pradesh:** Kadapa 46, Alluri\_Sitharama\_Raju 44, Prakasam 42;

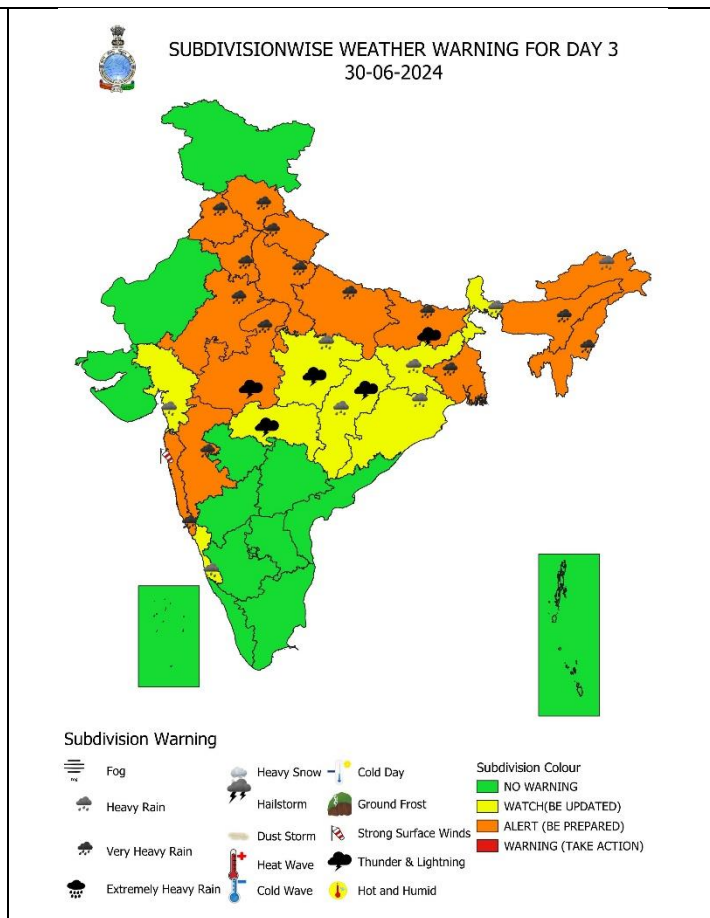
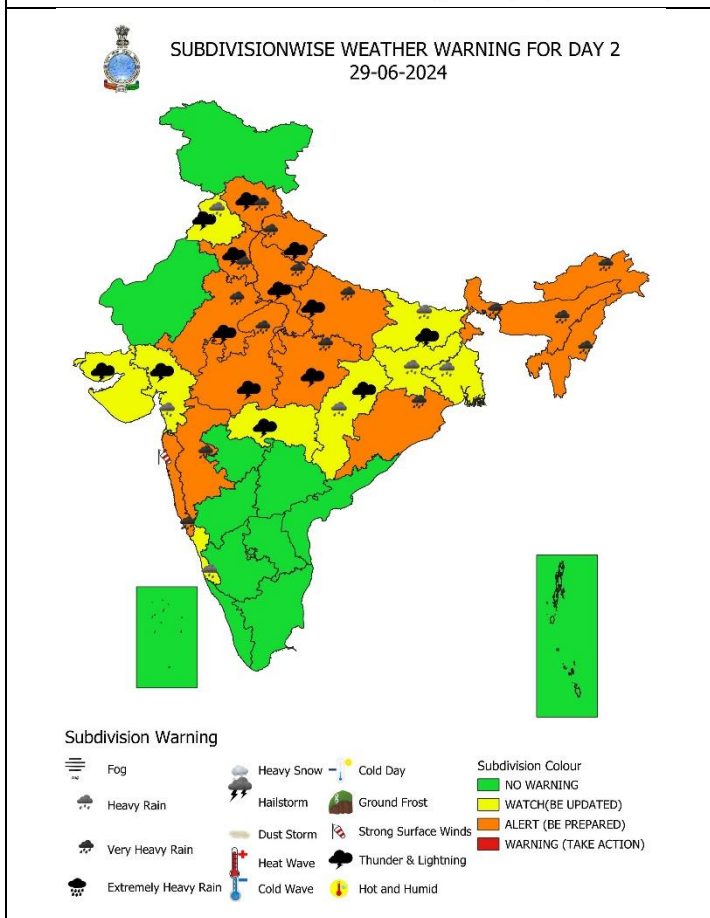
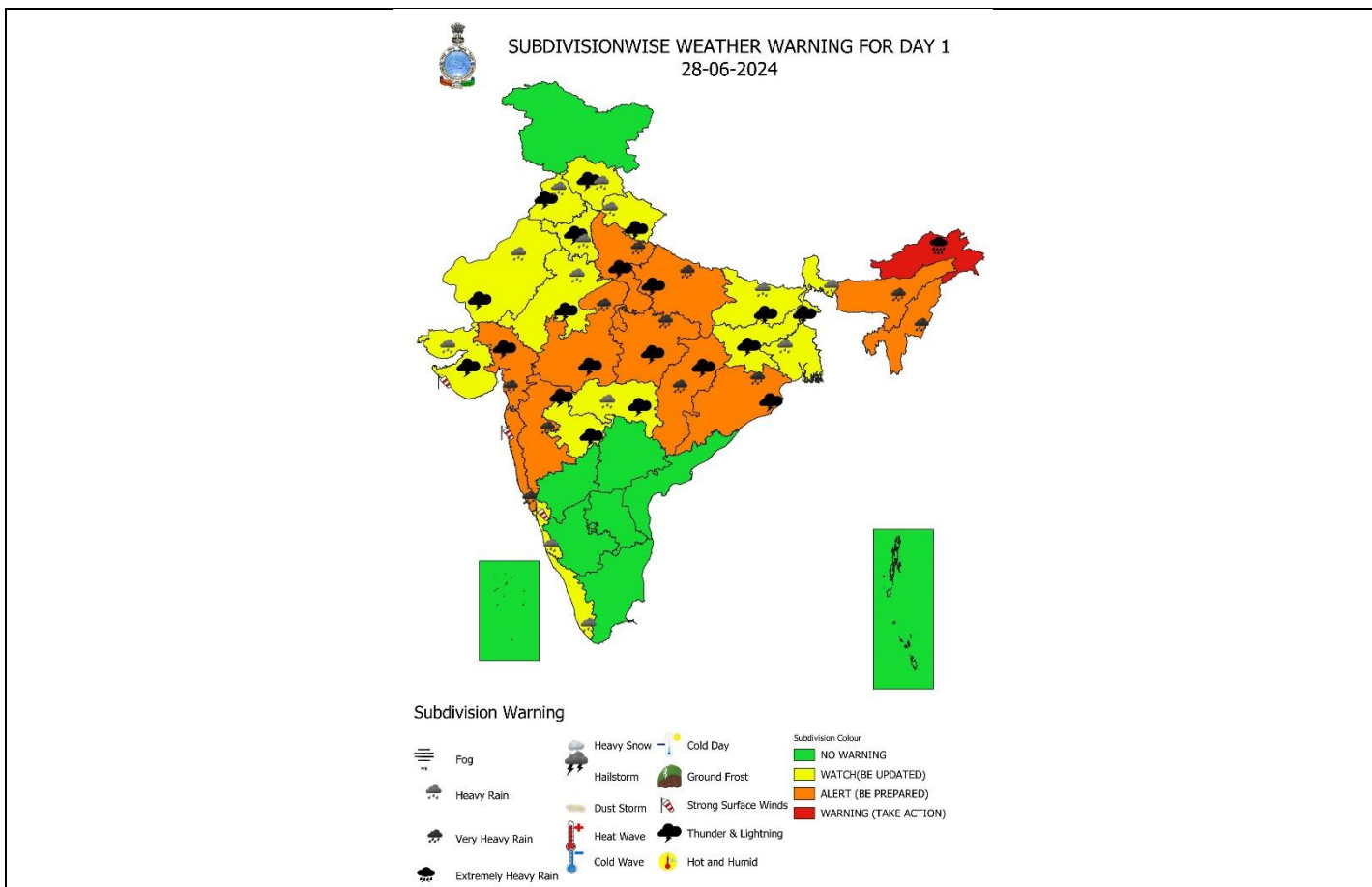
**Fig.: Gusty winds reported over the country (in knots, 1 Knot = 1.85 kmph) from 0830 hrs IST of 27.06.2024 to 0830 hrs IST of 28.06.2024**

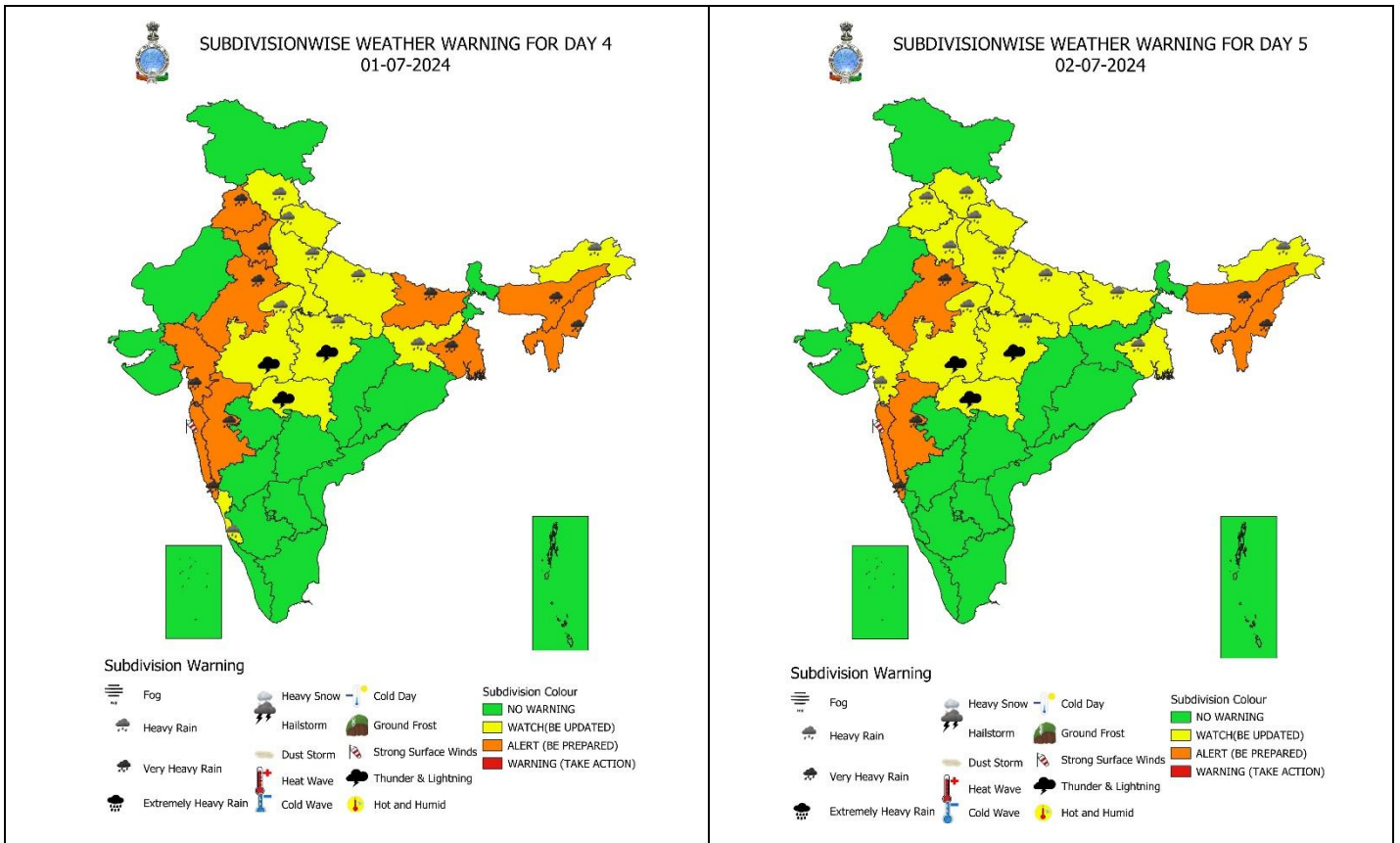


For more details, kindly refer: <http://aws.imd.gov.in:8091/>

Advance of Southwest Monsoon 2024







**IMPACT & ACTION SUGGESTED due to very heavy rainfall over Konkan & Goa, ghat areas of Madhya Maharashtra, East Rajasthan, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during next 5 days; Himachal Pradesh, Uttarakhand on 29<sup>th</sup> & 30<sup>th</sup>; Punjab, Haryana-Chandigarh-Delhi during 29<sup>th</sup> June-01<sup>st</sup> July; Arunachal Pradesh, Uttar Pradesh and Madhya Pradesh during 28<sup>th</sup>-30<sup>th</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/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.

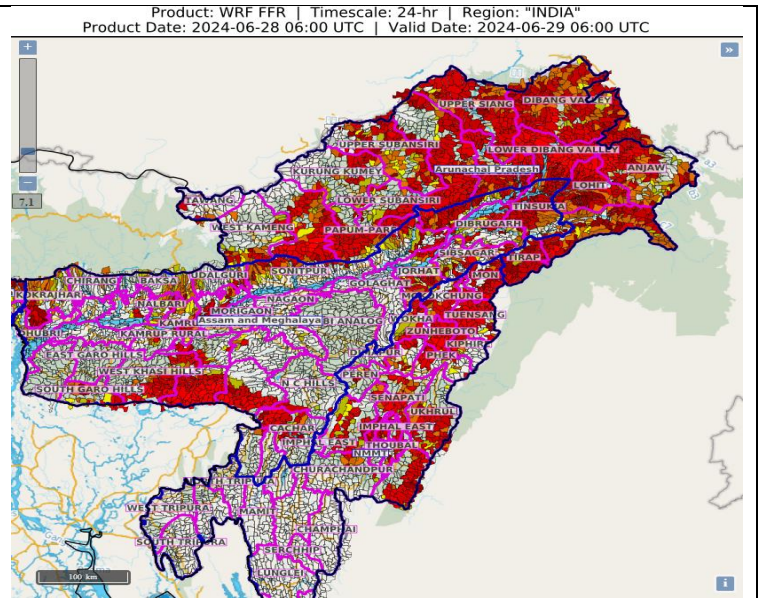
**Agromet advisories for Heavy Rainfall, Gusty winds and Heat Wave likely over various parts of the country:**

- Make provision for draining out excess water from crop fields to avoid water stagnation in North Eastern States, West Bengal & Sikkim, Odisha, Bihar, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Vidarbha, Gujarat, Kerala and Coastal Karnataka.
- Postpone land preparation, nursery preparation and transplantation of WRC rice in Arunachal Pradesh.
- Provide mechanical support to horticultural crops & staking to vegetables.

24 hours Outlook for the Flash Flood Risk (FFR) till 1130 IST of 29-06-2024 :

High flash flood risk likely over few watersheds & neighbourhoods of Arunachal Pradesh, Assam & Meghalaya and NMMT 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.

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

<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 *



**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 $4.5^\circ\text{C}$ 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  $\geq 37^\circ\text{C}$



**Warm Night**

**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 $> 6.4^\circ\text{C}$ .



**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 $-4.5^\circ\text{C}$ 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  $\leq 15^\circ\text{C}$



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