

Monday, September 23, 2024  
Time of Issue: 1345 hours IST  
(MID-DAY)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ✓ **Southwest monsoon** has withdrawn from some parts of West Rajasthan and Kachchh, today, the 23<sup>rd</sup> September, 2024 against the normal date of 17<sup>th</sup> September.
- ✓ The line of withdrawal of southwest monsoon passes through Anupgarh, Bikaner, Jodhpur, Bhuj, Dwarka. Conditions are favourable for further withdrawal of **Southwest Monsoon** from some more parts of West Rajasthan and adjoining areas of Punjab, Haryana and Gujarat during next 24 hours.
- ✓ Under the influence of a cyclonic circulation over **Central Bay of Bengal**, a **low-pressure area** is likely to form over Westcentral Bay of Bengal & neighbourhood during the next 24 hours.

#### Forecast & Warnings (upto 7 days):

#### South Peninsular India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Coastal Karnataka during the week and Karnataka, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana during next 3 days; Isolated to Scattered light to moderate rainfall very likely over Tamil Nadu, Puducherry & Karaikal during the week.
- ✓ **Isolated extremely heavy rainfall** very likely over Coastal Karnataka on 24<sup>th</sup> September.
- ✓ **Isolated heavy to very heavy rainfall** very likely over Coastal Karnataka on 23<sup>rd</sup> and North Interior Karnataka on 24<sup>th</sup> September.
- ✓ **Isolated heavy rainfall** very likely over Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, South Interior Karnataka on 23<sup>rd</sup> & 24<sup>th</sup>; North Interior Karnataka on 23<sup>rd</sup>; Coastal Karnataka, Kerala & Mahe on 25<sup>th</sup>; Telangana, Coastal Andhra Pradesh & Yanam during 22<sup>nd</sup>-25<sup>th</sup>; Rayalaseema, North Interior Karnataka during 22<sup>nd</sup>-24<sup>th</sup> September.

#### West India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Konkan & Goa during the week; Madhya Maharashtra Marathwada during next 5 days; Isolated to Scattered light to moderate rainfall during the next subsequent 2 days over the same region; Scattered to Fairly widespread light to moderate rainfall over Gujarat Region during the week; Isolated to Scattered light to moderate rainfall over Saurashtra & Kutch during the week.
- ✓ **Isolated extremely heavy rainfall** very likely over Konkan & Goa on 24<sup>th</sup> & 25<sup>th</sup> September.
- ✓ **Isolated heavy to very heavy rainfall** very likely over Konkan & Goa on 23<sup>rd</sup> & 26<sup>th</sup>; Madhya Maharashtra during 24<sup>rd</sup>-26<sup>th</sup>; Marathwada on 24<sup>th</sup>; Gujarat Region on 25<sup>th</sup> & 26<sup>th</sup> September.
- ✓ **Isolated heavy rainfall** very likely over Madhya Maharashtra on 23<sup>rd</sup>; Marathwada during 23<sup>rd</sup>-25<sup>th</sup>; Gujarat Region during 23<sup>th</sup>-28<sup>th</sup>; Saurashtra & Kutch during 26<sup>th</sup>-28<sup>th</sup> September.

#### Central India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Vidarbha, Chhattisgarh during next 5 days; Isolated to Scattered light to moderate rainfall over Madhya Pradesh during next 2 days; Scattered to Fairly widespread light to moderate rainfall during the next subsequent 4 days over the same region.
- ✓ **Isolated heavy rainfall** very likely over Vidarbha and Chhattisgarh during 23<sup>rd</sup>-26<sup>th</sup>; Madhya Pradesh during 24<sup>th</sup> -27<sup>th</sup> September.

#### East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Andaman & Nicobar Islands during next 4 days; Scattered to Fairly widespread light to moderate rainfall over West Bengal & Sikkim, Odisha during the week; Isolated to Scattered light to moderate rainfall over Bihar, Jharkhand during next 5 days; Scattered to Fairly widespread light to moderate rainfall over northeast India during the week.
- ✓ **Isolated heavy to very heavy rainfall** very likely over Assam & Meghalaya on 25<sup>th</sup> & 26<sup>th</sup>; Sub-Himalayan West Bengal & Sikkim & Arunachal Pradesh on 26<sup>th</sup> September.
- ✓ **Isolated heavy rainfall** very likely over Assam & Meghalaya during the week; Odisha during 23<sup>rd</sup>-26<sup>th</sup>; West Bengal & Sikkim, Bihar, Jharkhand during 25<sup>th</sup>-27<sup>th</sup>; over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura during 24<sup>th</sup>-29<sup>th</sup> September.
- ✓ **Hot and Humid Weather** very likely over Arunachal Pradesh, Assam & Meghalaya, Tripura on 23<sup>rd</sup> September.

#### Northwest India

- ✓ Isolated to Scattered light to moderate rainfall very likely over northwest India except West Rajasthan where mainly dry weather likely to prevail during the week;
- ✓ **Isolated heavy rainfall** very likely over Uttarakhand on 25<sup>th</sup> & 26<sup>th</sup>; East Uttar Pradesh 26<sup>th</sup> & 27<sup>th</sup> September.

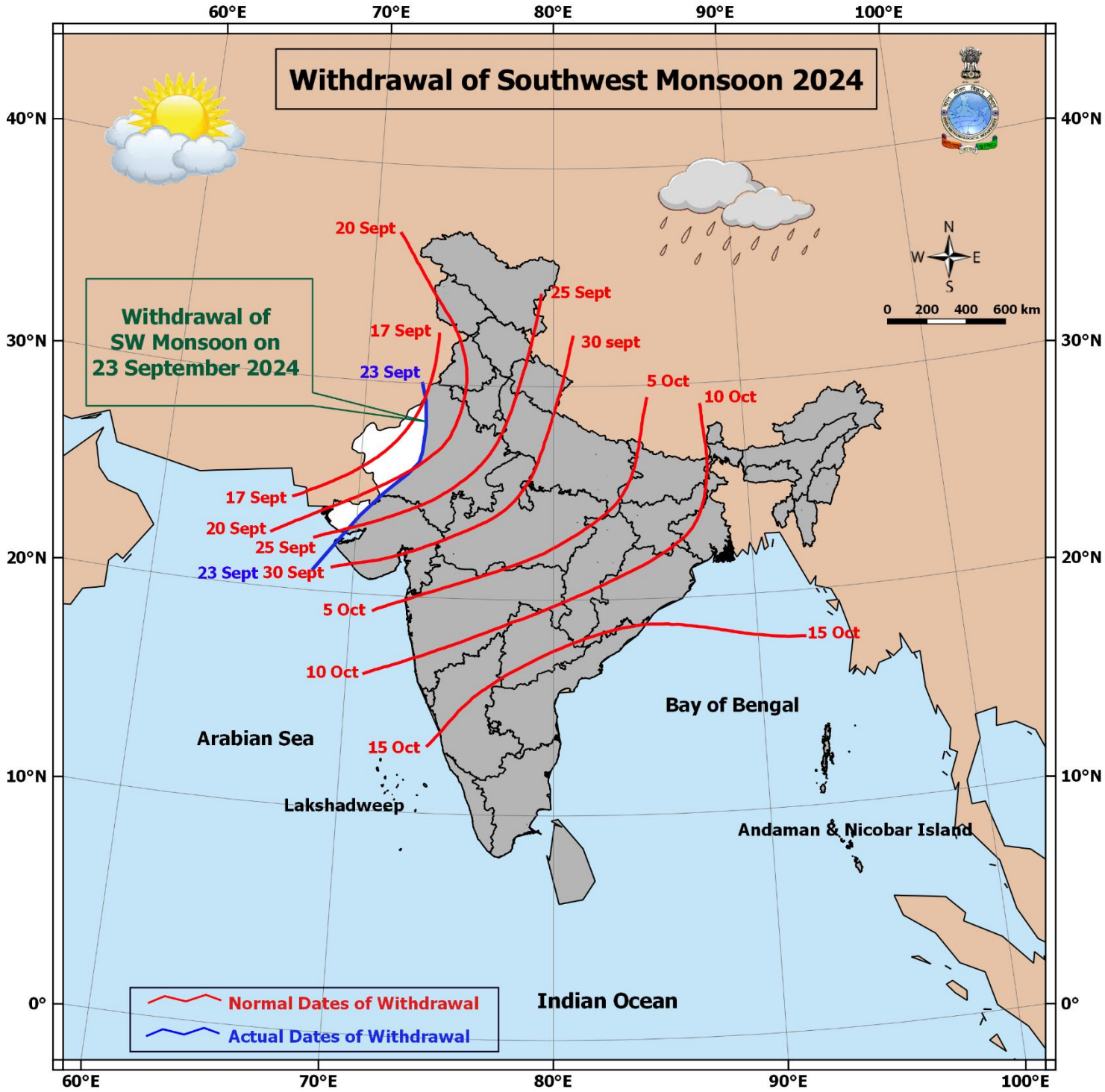
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST of yesterday to 0830 hours IST of today): **at most places** over Vidarbha, Coastal Karnataka; **at many places** over Chhattisgarh, Konkan & Goa, Kerala & Mahe, Interior Karnataka; **at a few places** over Odisha, Madhya Maharashtra, Marathwada, Lakshadweep, Rayalaseema, Telangana; **at isolated places** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Uttarakhand, East Rajasthan, Madhya Pradesh, Gangetic West Bengal, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Tamil Nadu, Puducherry & Karaikal.
- ❖ **Heavy rainfall** recorded (from 0830 hours IST of yesterday to 0830 hours IST of today): **Heavy rainfall** at isolated places over Konkan & Goa, Coastal Andhra Pradesh & Yanam, Coastal Karnataka, West Madhya Pradesh, Madhya Maharashtra, Marathwada, Gujarat Region, South Interior Karnataka.
- ❖ **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0830 hours IST of today) (in cm): **Konkan & Goa:** Mulde\_ Agri (dist Sindhudurg) 11, Canacona (dist South Goa) 7; **Coastal Andhra Pradesh & Yanam:** Srungavarapukota (dist Vizianagaram) 10; **Coastal Karnataka:** Karwar Obsy (dist Uttara Kannada) 9, Haliyal (dist Uttara Kannada) 7, Shirali Pto (dist Uttara Kannada) 6; **West Madhya Pradesh:** Mhow (dist Indore) 9, Pithampur (dist Dhar) 7, Nalchha (dist Dhar) 7; **Madhya Maharashtra:** Kasabedigranj\_agri (dist Sangli) 8, Karad (dist Satara) 7, Gaganbawada (dist Kolhapur) 7; **Marathwada:** Georai (dist Beed) 8; **Gujarat Region:** Daman (dist Daman) 7; **South Interior Karnataka:** Madhugiri (dist Tumakuru) 7;
- ❖ **Minimum Temperature Departures (as on 23-09-2024):** Minimum temperatures are **markedly above normal (5.1°C or more)** at isolated places over Punjab, Assam & Meghalaya; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Himachal Pradesh, Bihar ;isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Haryana-Chandigarh-Delhi, Uttarakhand, West Uttar Pradesh, Rajasthan, Madhya Pradesh, Gangetic West Bengal and Nagaland, Manipur, Mizoram & Tripura, Marathwada; **above normal (1.6°C to 3.0°C)** at a few places over East Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Gujarat state, Andaman & Nicobar Islands; at isolated places over Konkan & Goa, Madhya Maharashtra, Vidarbha, Chhattisgarh, Odisha, Tamil Nadu, Puducherry & Karaikal, Jharkhand. These are **below normal (-1.6°C to -3.0°C)** at isolated places over Telangana and **near normal** over rest parts of the country. Today, **the lowest minimum temperature** of 20.4°C is reported at **Bir (Madhya Maharashtra)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 22-09-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at a few places over Assam & Meghalaya; at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Jammu division; **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Himachal Pradesh, East Uttar Pradesh, Bihar, Gangetic West Bengal, Coastal Andhra Pradesh & Yanam; **above normal (1.6°C to 3.0°C)** at many places over Madhya Pradesh; at a few places over West Uttar Pradesh, Punjab, Haryana-Chandigarh-Delhi, Odisha, Kerala & Mahe; at isolated places over Rajasthan, Madhya Maharashtra, Marathwada, Chhattisgarh, Jharkhand, Saurashtra & Kutch. These were **below normal (-1.6°C to -3.0°C)** at isolated places over Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature** of 39.4°C was reported at **Jaisalmer (West Rajasthan)** over the country. **(Fig. 2)**

## Meteorological Analysis (Based on 0830 hours IST)

- ❖ **Southwest monsoon** has withdrawn from some parts of West Rajasthan and Kachchh, today, the 23<sup>rd</sup> September, 2024 against the normal date of 17<sup>th</sup> September.
- ❖ The southwest monsoon has withdrawn with the fulfillment of withdrawal criteria: 1. Development of an anti-cyclonic circulation over West Rajasthan at 1.5 km above mean sea level. 2. Nil rainfall over the region during last consecutive 5 days.
- ❖ The line of withdrawal of southwest monsoon passes through Anupgarh, Bikaner, Jodhpur, Bhuj, Dwarka. Conditions are favourable for further withdrawal of **Southwest Monsoon** from some more parts of West Rajasthan and adjoining areas of Punjab, Haryana and Gujarat during next 24 hours.
- ❖ The embedded upper air cyclonic circulations, one over **Westcentral Bay of Bengal** and another over **south Coastal Myanmar & neighbourhood** in the east-west trough has merged and seen as a cyclonic circulation **over Central Bay of Bengal extending** upto 5.8 Km above mean sea level tilting southwestwards with height. Under its influence, a **low-pressure area** is likely to form over Westcentral Bay of Bengal & neighbourhood during the next 24 hours.
- ❖ A **cyclonic circulation** lies over northeast Assam & neighbourhood at 1.5 km above mean sea level.

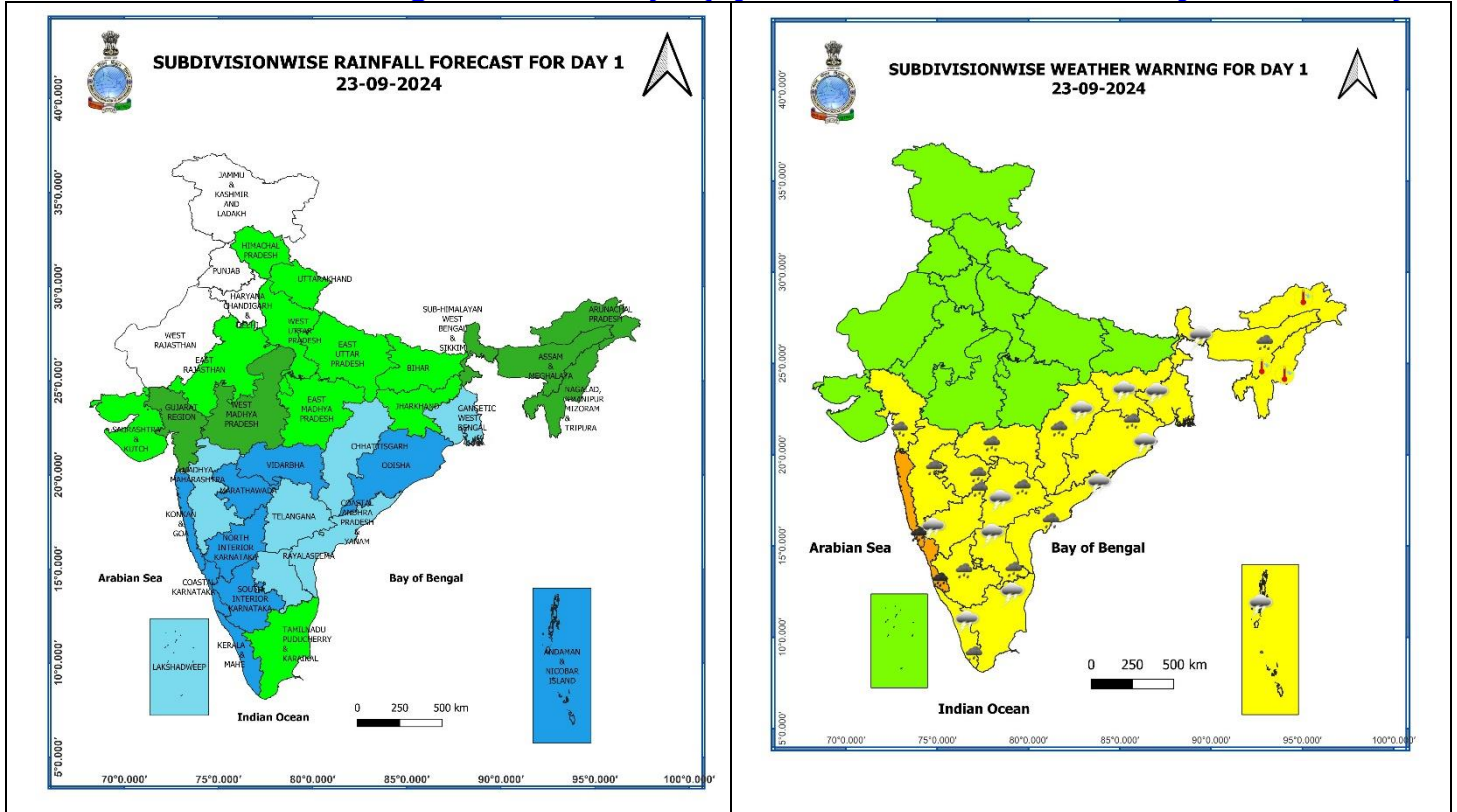
### Withdrawal of Southwest Monsoon 2024



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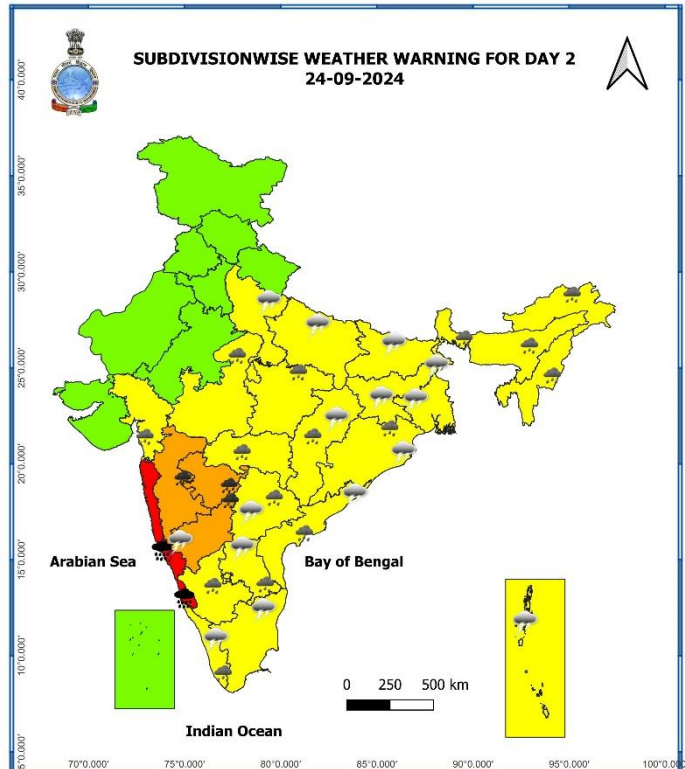
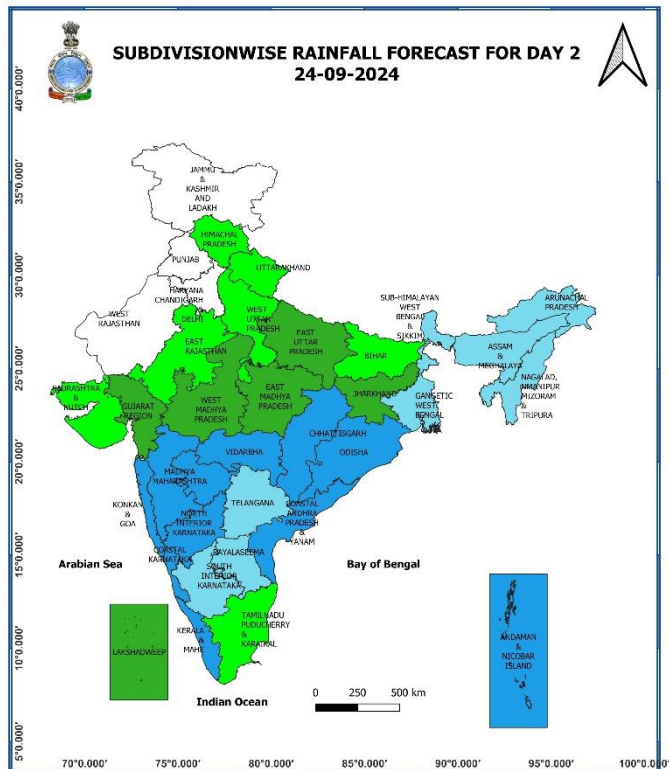


**Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 30<sup>th</sup> September, 2024)**



**23 September (Day 1):**

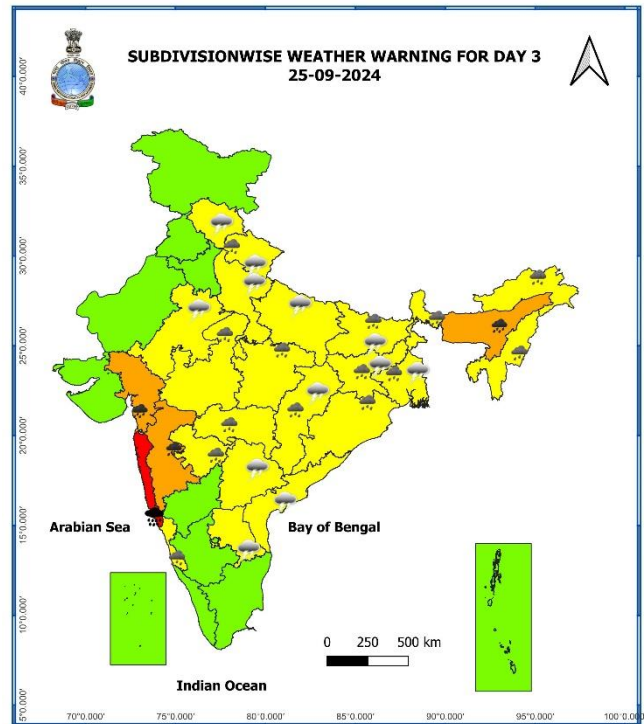
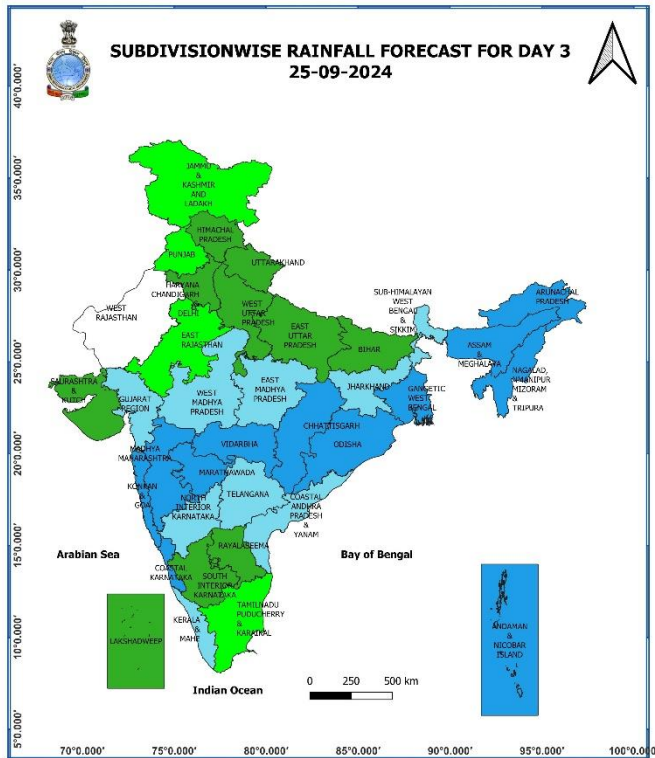
- ❖ **Heavy to very Heavy rainfall ( $\geq 12$  cm)** very likely at isolated places over Konkan & Goa, Coastal Karnataka; **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Vidarbha, Chhattisgarh, Odisha, Assam & Meghalaya, Madhya Maharashtra, Marathwada, Gujarat Region, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, Interior Karnataka
- ❖ **Thunderstorm accompanied gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Andaman & Nicobar Islands, Gangetic West Bengal, Kerala & Mahe; **with lightning** very likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Jharkhand, Odisha, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, North Interior Karnataka.
- ❖ **Hot & humid weather** very likely at isolated places over Assam & Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail over, along and off Kerala, Karnataka Konkan, goa, Maharashtra, south Gujrat coasts, over gulf of manner, off Sri Lanka costs, many parts of south and adjoining parts of east central Bay of Bengal, some parts of west central Bay of Bengal and adjoining north Andhra Pradesh costs, many parts of north east Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian sea adjoining Westcentral Arabian sea along and off Somalia coast. Fishermen are advised not to venture into these areas.



**24 September (Day 2):**

- ❖ **Heavy to very heavy rainfall with extremely heavy falls (> 20 cm)** very likely at isolated places over Konkan & Goa, Coastal Karnataka; **Heavy to very Heavy rainfall (≥12 cm)** very likely at isolated places over Madhya Maharashtra, Marathwada, North Interior Karnataka; **Heavy rainfall (≥7 cm)** very likely at isolated places over Madhya Pradesh, Vidarbha, Chhattisgarh, Sub-Himalayan West Bengal & Sikkim, Odisha, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat Region, Kerala & Mahe, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, South Interior Karnataka.
- ❖ **Thunderstorm accompanied gusty winds (speed reaching 30-40 kmph)** very likely at isolated places over Kerala & Mahe; **with lightning** very likely at isolated places over Uttar Pradesh, Andaman & Nicobar Islands, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana, North Interior Karnataka.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail along and off Kerala, Karnataka Konkan, goa, Maharashtra coasts, over gulf of manner, off Sri Lanka coast, many parts of south, many parts of west central Bay of Bengal and adjoining north Andhra Pradesh coasts and adjoining parts of central Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian sea adjoining Westcentral Arabian sea along and off Somalia coast. Fishermen are advised not to venture into these areas

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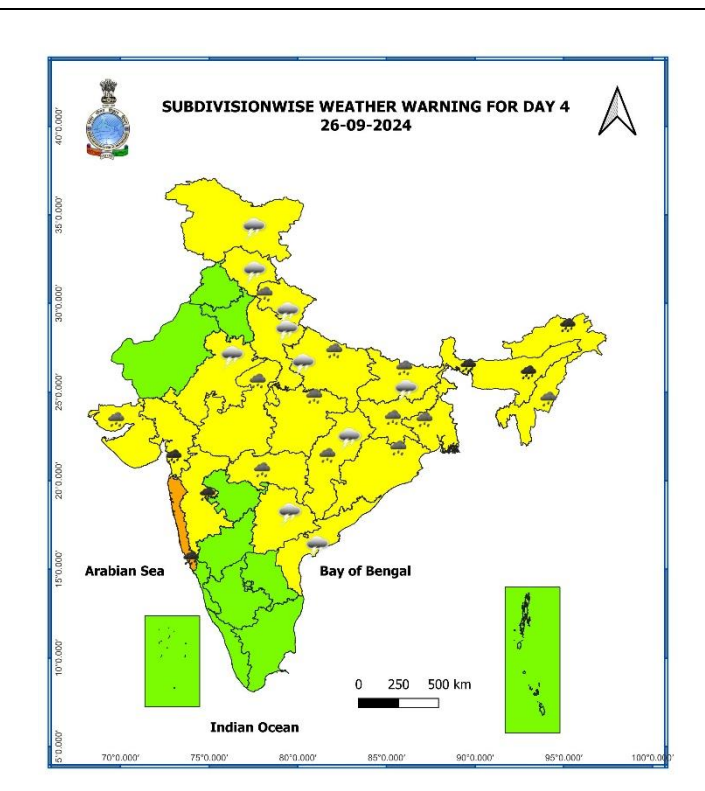
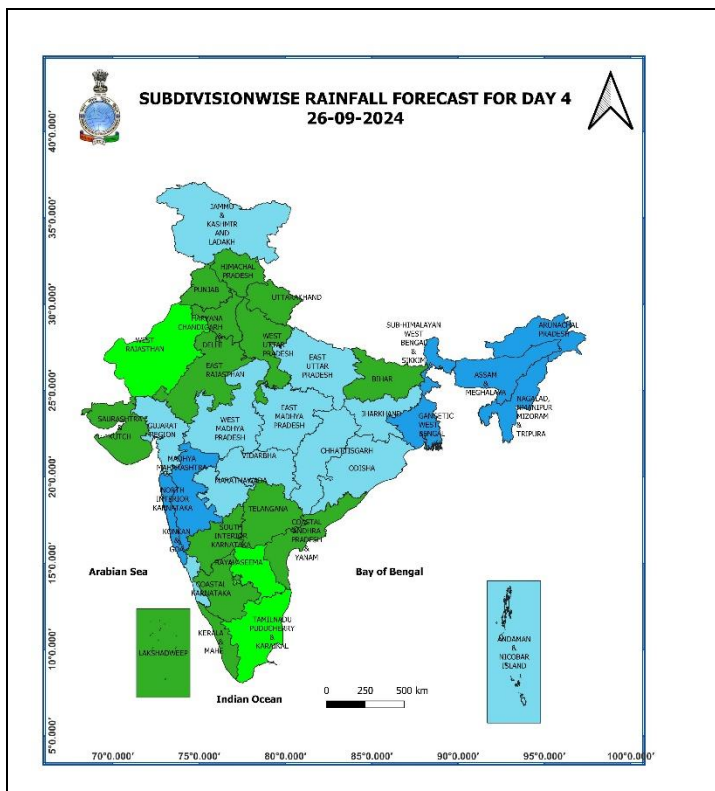


**25 September (Day 3):**

- ❖ **Heavy to very heavy rainfall with extremely heavy falls (> 20 cm)** very likely at isolated places over Konkan & Goa; **Heavy to very Heavy rainfall (≥12 cm)** very likely at isolated places over Assam & Meghalaya, Madhya Maharashtra, Gujarat Region, **Heavy rainfall (≥7 cm)** very likely at isolated places over Uttarakhand, Madhya Pradesh, Vidarbha, Chhattisgarh, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Marathwada, Coastal Karnataka.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Himachal Pradesh, Uttarakhand, Uttar Pradesh, East Rajasthan, Gangetic West Bengal, Bihar, Jharkhand, Coastal Andhra Pradesh & Yanam, Rayalaseema, Telangana.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** very likely to prevail along and off Maharashtra, Konkan, goa coasts, over gulf of manner, off Sri Lanka coast, many parts of south and central Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian sea adjoining few parts of west central Arabian sea along and off Somalia coast. Fishermen are advised not to venture into these areas.

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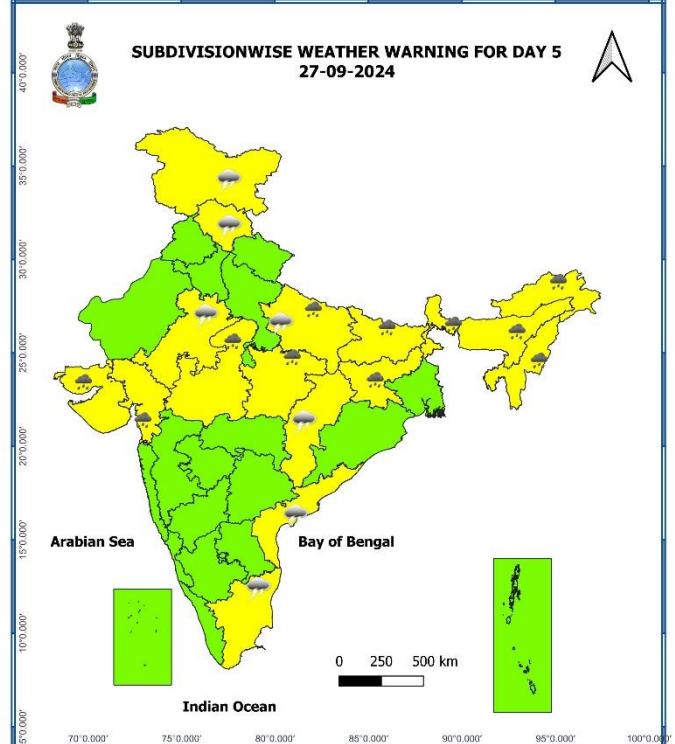
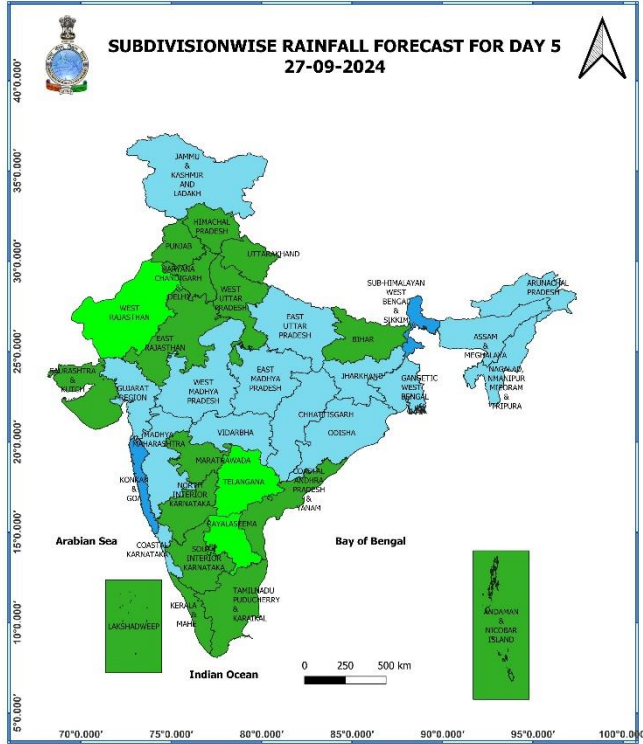




### 26 September (Day 4):

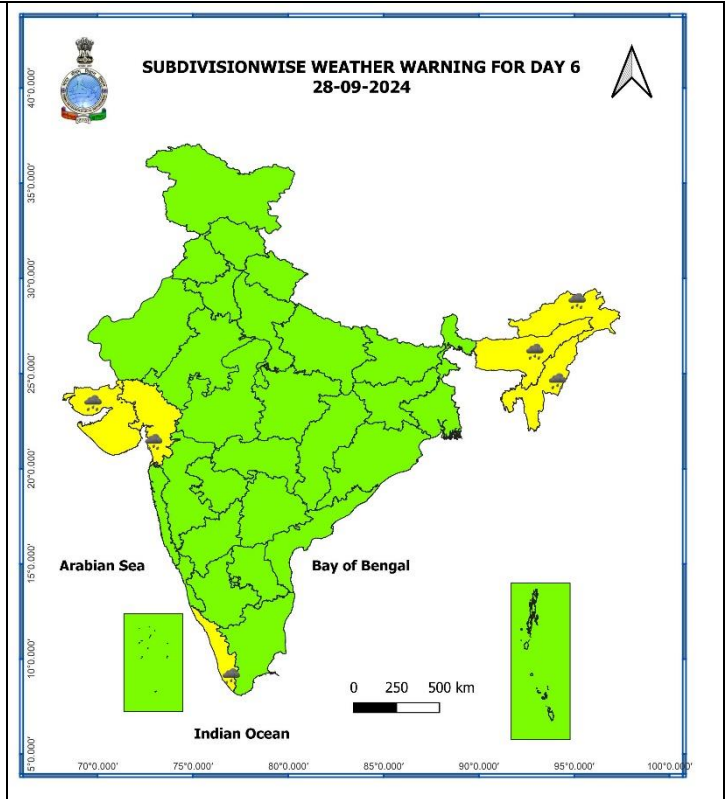
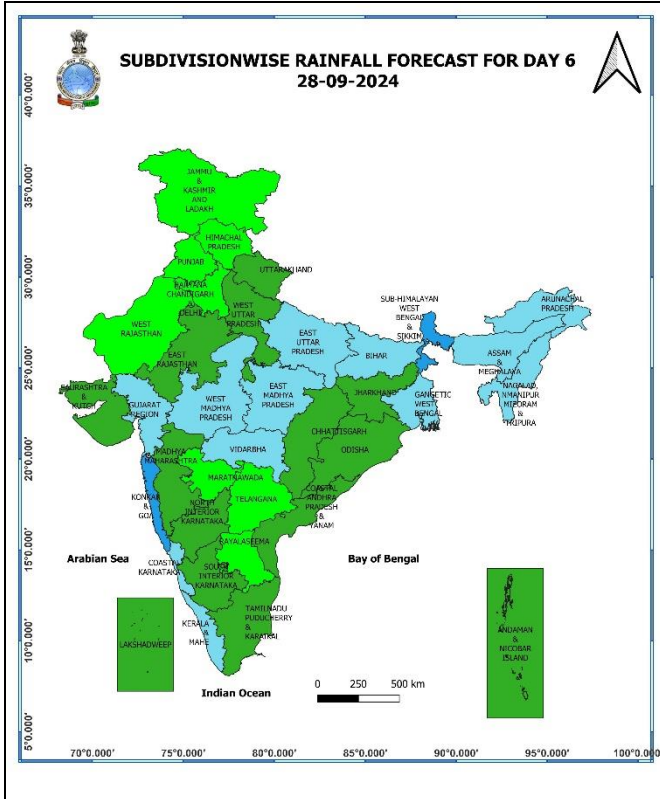
- ❖ **Heavy to very Heavy rainfall ( $\geq 12$  cm)** likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Konkan & Goa, Madhya Maharashtra, Gujarat Region, **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Uttarakhand, East Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Gangetic West Bengal, Bihar, Jharkhand, Odisha, Nagaland, Manipur, Mizoram & Tripura, Saurashtra & Kutch.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Uttar Pradesh, East Rajasthan, Bihar, Coastal Andhra Pradesh & Yanam, Telangana.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over north Maharashtra, gulf of manner, coasts along and off Sri Lanka coast, few parts of south and Westcentral Bay of Bengal. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian sea adjoining few parts of Westcentral Arabian sea along and off Somalia coast. Fishermen are advised not to venture into these areas.





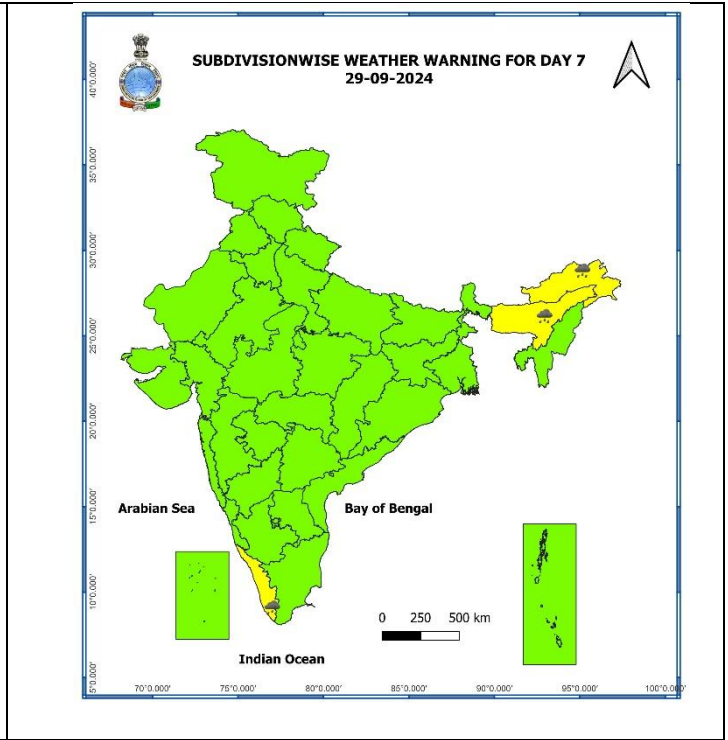
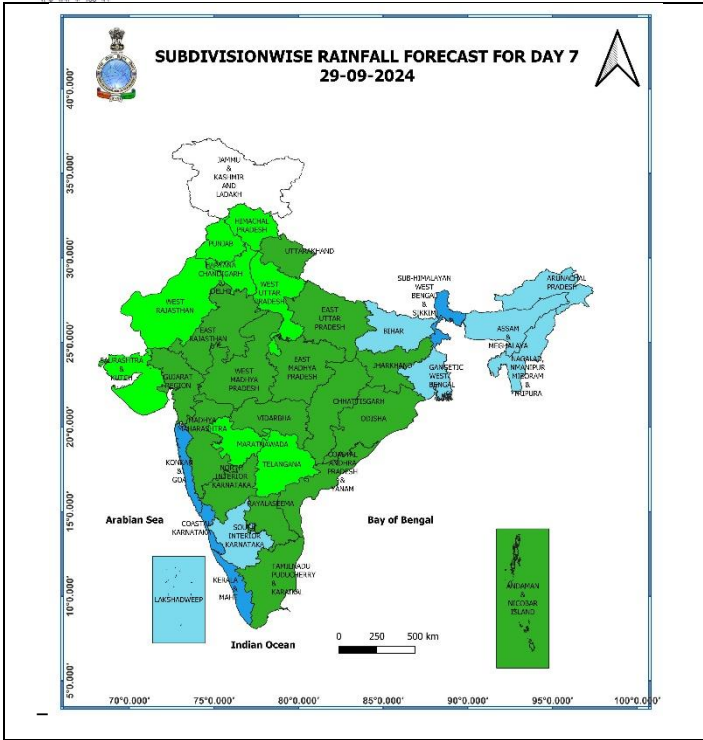
### 27 September (Day 5):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over East Uttar Pradesh, Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat state.
- ❖ **Thunderstorm accompanied with lightning** likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, East Uttar Pradesh, Rajasthan, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** likely to prevail over Gulf of Mannar. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over western parts of southwest Arabian sea adjoining few parts of Westcentral Arabian sea along and off Somalia coast. Fishermen are advised not to venture into these areas.



### 28 September (Day 6):

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Gujarat state, Kerala & Mahe.



### 29 September (Day 7):

- ❖ Heavy rainfall ( $\geq 7$  cm) likely at isolated places over Arunachal Pradesh, Assam & Meghalaya, Kerala & Mahe.

### Weather Outlook for subsequent 3 days (During 30<sup>th</sup> September- 02<sup>nd</sup> October, 2024)

- ❖ Dry weather likely to prevail over West Rajasthan, north Gujarat, Punjab, Haryana-Chandigarh-Delhi, and Isolated rainfall activity likely over Himachal Pradesh, Uttarakhand, East Rajasthan and Uttar Pradesh.
- ❖ Isolated to Scattered rainfall likely over Central, Eastern, North Eastern and Peninsular India.

- 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.

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## Impact due to

- ✓ **Isolated extremely heavy rainfall** very likely over Coastal Karnataka on 24<sup>th</sup>; Konkan & Goa on 24<sup>th</sup> & 25<sup>th</sup> September.
- ✓ **Isolated heavy to very heavy rainfall** very likely over Coastal Karnataka on 23<sup>rd</sup> and North Interior Karnataka on 24<sup>th</sup>

## 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 and roadways 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 and wind.
- ✓ It may lead to riverine flooding in some river catchments (for riverine flooding please visit Web page of CWC)

## Action Suggested

- ✓ Judicious regulation of surface transports including railways and roadways.
- ✓ 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 and Gusty Winds likely over various parts of the country

- Make provision for draining out excess water from standing crop fields and fruit orchards to avoid water stagnation in Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Madhya Pradesh, Gujarat region, Maharashtra and North Eastern States.
- Keep the harvested produce at safer places.
- Provide mechanical support to horticultural crops & staking to vegetables.



Fig. 1: Maximum Temperatures

Fig. 2: Departure of Maximum Temperatures

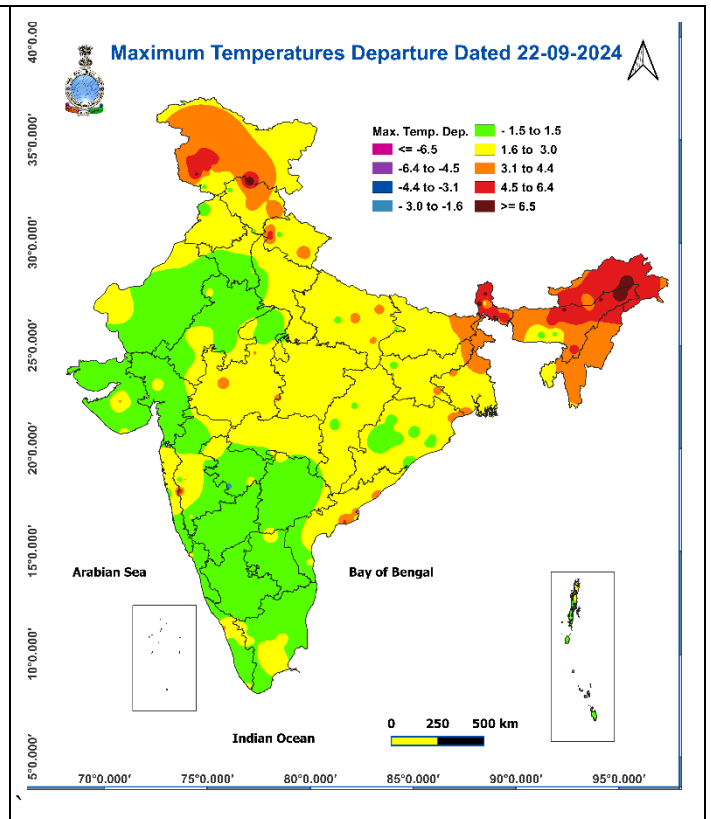
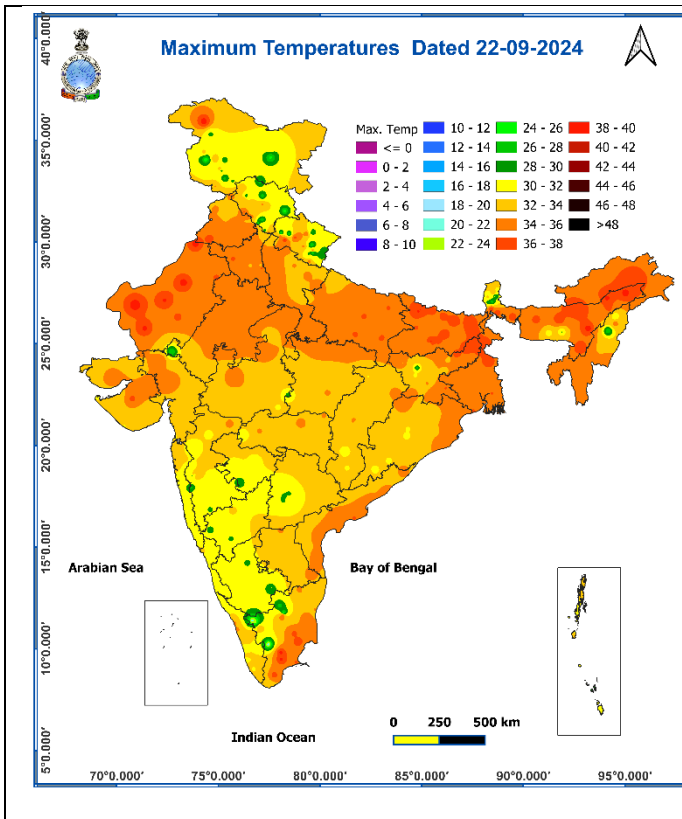
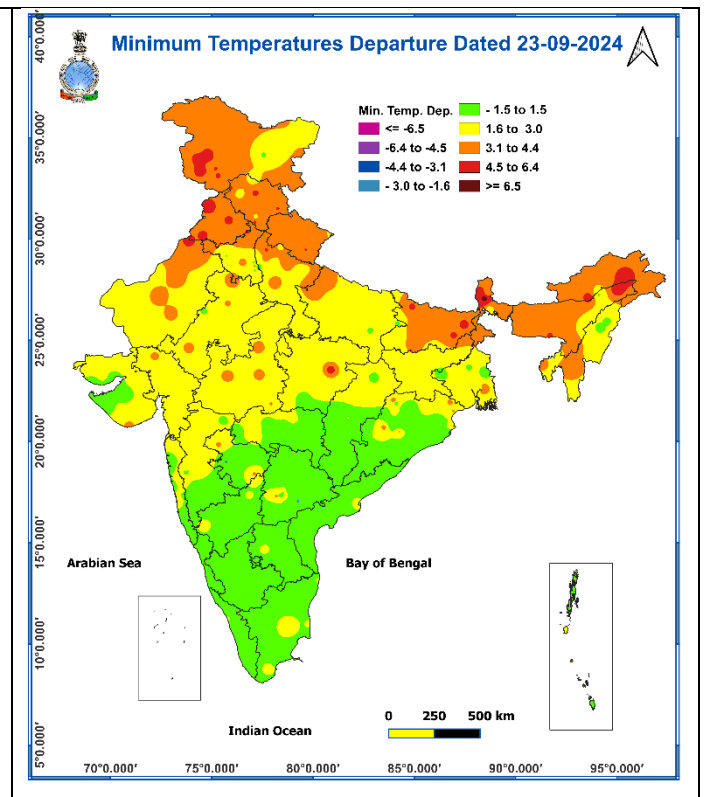
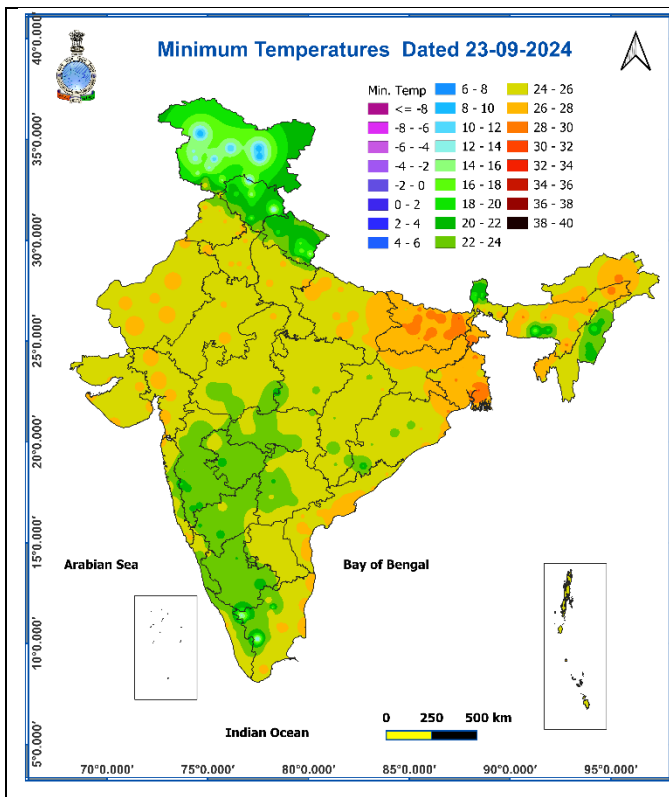


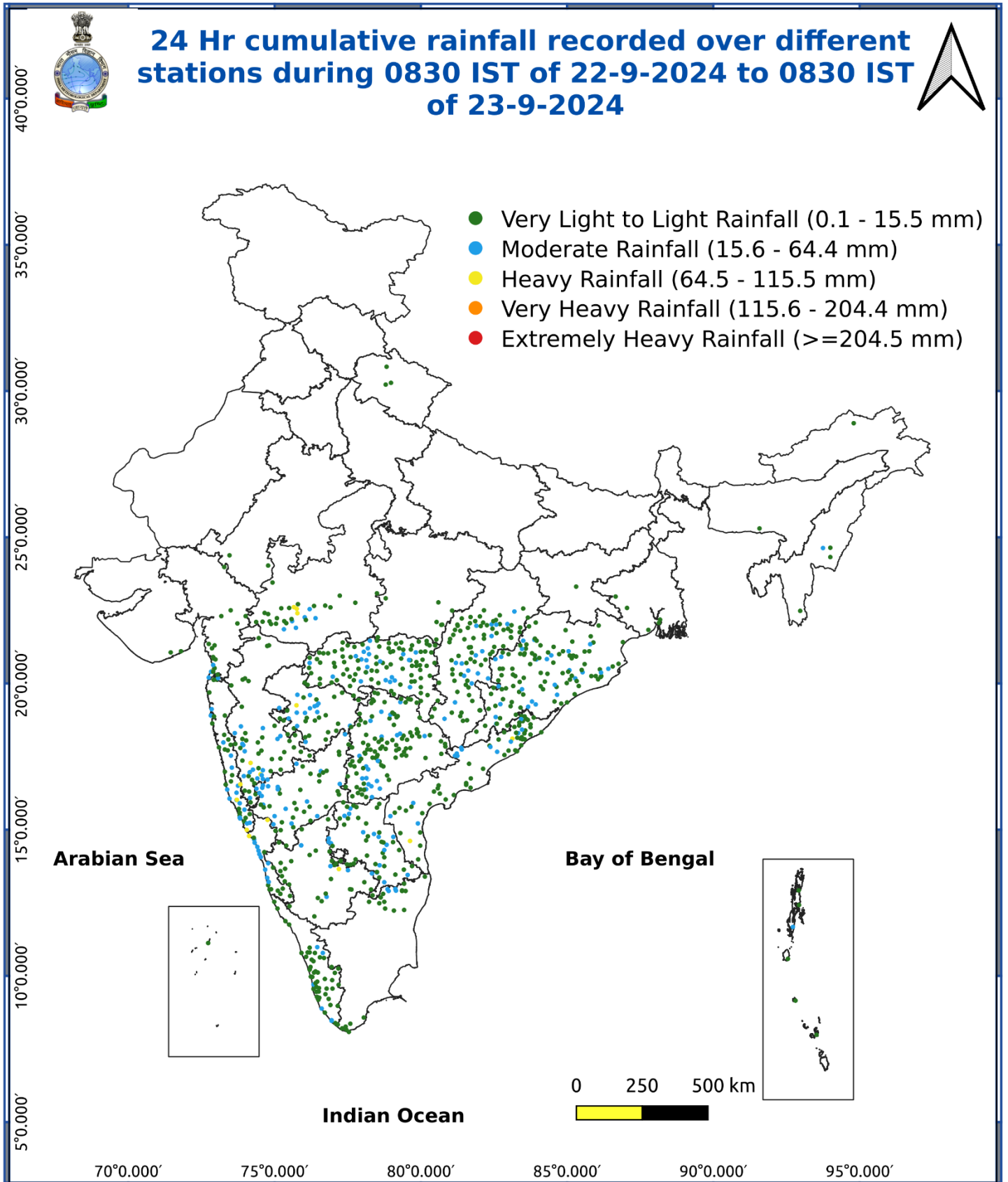
Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures



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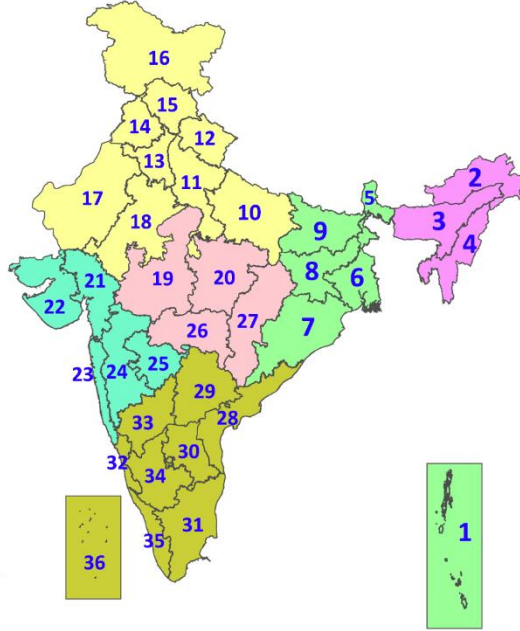
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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## LEGENDS

1. अंडमान और निकोबार द्वीपसमूह
2. अरुणाचल प्रदेश
3. असम और मेघालय
4. नागालैंड, मणिपुर, मिजोरम और त्रिपुरा
5. उप-हिमालयी पश्चिम बंगाल और सिक्किम
6. गंगीय पश्चिम बंगाल
7. ओडिशा
8. झारखंड
9. बिहार
10. पूर्वी उत्तर प्रदेश
11. पश्चिम उत्तर प्रदेश
12. उत्तराखंड
13. हरियाणा, चंडीगढ़ और दिल्ली
14. पंजाब
15. हिमाचल प्रदेश
16. जम्मू और कश्मीर और लद्दाख
17. पश्चिम राजस्थान
18. पूर्वी राजस्थान
19. पश्चिम मध्य प्रदेश
20. पूर्वी मध्य प्रदेश
21. गुजरात
22. सौराष्ट्र
23. कोंकण और गोवा
24. मध्य महाराष्ट्र
25. मराठवाड़ा
26. विदर्भ
27. छत्तीसगढ़
28. तटीय आंध्र प्रदेश और यनम
29. तेलंगाना
30. रायलसीमा
31. तमिलनाडु, पुडुचेरी और कराईकल
32. तटीय कर्नाटक
33. आंतरिक उत्तरी कर्नाटक
34. आंतरिक दक्षिणी कर्नाटक
35. केरल और माहे
36. लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Odisha
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chandigarh & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidarbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnadu, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. 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 Snow



Cold Wave



Heavy Rain



Dust Storm



Cold Day



Very Heavy Rain



Heat Wave



Ground Frost



Extremely Heavy Rain



Warm Night



Thunder & Lightning



Hot Day



Hailstorm



Hot & Humid



Dust Raising Winds



Strong Surface Winds

### COLOUR CODED WARNING

No Warning (No Action)

Watch (Be Aware)

Alert (Be Prepared To Take Action)

Warning (Take Action)

### Probabilistic Forecast

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



## DEFINITION/CRITERIA

### 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)

### 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)