

Friday, August 16, 2024  
Time of Issue: 0830 hours IST  
(MORNING)

## ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

### Significant Weather Features:

#### Weather Systems:

- ✓ The **Monsoon trough** is near its normal position at mean sea level. It is likely to be near its normal position during most days of the week.
- ✓ The **cyclonic circulation** over South Bangladesh & adjoining Gangetic West Bengal in the middle tropospheric level tilting southwestwards with height persists. Under the influence of the cyclonic circulation over South Bangladesh & adjoining Gangetic West Bengal, a **Low pressure** area has formed over Northwest Bay of Bengal and adjoining areas of West Bengal and Bangladesh in the morning (0530 hours IST) of today, the 16<sup>th</sup> August 2024. It is likely to become more marked and move west-northwestwards across Gangetic West Bengal and Jharkhand during next 2-3 days.
- ✓ A **cyclonic circulation** lies over northeast Rajasthan & neighbourhood extending upto mid tropospheric level.
- ✓ A **cyclonic circulation** lies over southeast Arabian sea & adjoining south Kerala coast extending upto mid tropospheric level. The **trough** runs from Konkan to above mentioned cyclonic circulation extending upto lower tropospheric level.

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

##### ❖ Northwest India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh & Uttarakhand; scattered to fairly widespread rainfall over Punjab, Haryana-Chandigarh-Delhi, Uttar Pradesh, Rajasthan during the next 4-5 days.
- ✓ Isolated **heavy rainfall** very likely over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad & West Rajasthan during 16<sup>th</sup> -17<sup>th</sup>; Uttarakhand & Uttar Pradesh during 16<sup>th</sup> -22<sup>nd</sup>; Himachal Pradesh during 16<sup>th</sup> -22<sup>nd</sup>; Haryana-Chandigarh-Delhi on 16<sup>th</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over East Rajasthan on 16<sup>th</sup> August.

##### ❖ West & Central India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Madhya Pradesh, Vidarbha & Chhattisgarh; scattered to fairly widespread rainfall over Konkan & Goa & Gujarat Region; isolated to scattered rainfall over Madhya Maharashtra, Marathwada and Saurashtra & Kutch during next 7 days.
- ✓ Isolated **Heavy rainfall** very likely over West Madhya Pradesh on 16<sup>th</sup> & during 19<sup>th</sup> -21<sup>st</sup>; East Madhya Pradesh during 18<sup>th</sup> -21<sup>st</sup>; Vidarbha during 18<sup>th</sup> -20<sup>th</sup>; Konkan & Goa during 18<sup>th</sup> -20<sup>th</sup>; Chhattisgarh during 16<sup>th</sup> -22<sup>nd</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over Chhattisgarh on 16<sup>th</sup> August.
- ✓ Isolated Extremely heavy rainfall also likely over Chhattisgarh on 17<sup>th</sup> August.

##### ❖ East & Northeast India

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over east India and scattered to fairly widespread rainfall over northeast during the week.
- ✓ Isolated **heavy rainfall** very likely over Sub-Himalayan West Bengal & Sikkim on 16<sup>th</sup>; Gangetic West Bengal during 16<sup>th</sup>-18<sup>th</sup>; Bihar & Nagaland, Manipur, Mizoram & Tripura during 16<sup>th</sup> -22<sup>nd</sup>; Jharkhand during 16<sup>th</sup> - 20<sup>th</sup>, Odisha during 16<sup>th</sup> -19<sup>th</sup>, during 19<sup>th</sup> -21<sup>st</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over Gangetic West Bengal on 16<sup>th</sup> & 17<sup>th</sup>; Odisha on 17<sup>th</sup>; Jharkhand on 17<sup>th</sup> & 18<sup>th</sup> August.
- ✓ Isolated Extremely heavy rainfall also likely over Odisha on 16<sup>th</sup> August.

##### ❖ South Peninsular India:

- ✓ Fairly widespread to widespread light/moderate rainfall very likely over Kerala & Mahe, Lakshadweep & Karnataka state; scattered to fairly widespread rainfall over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Rayalaseema and Telangana during the week.
- ✓ Isolated **heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal on 16<sup>th</sup> - 18<sup>th</sup> & 19<sup>th</sup>; Kerala & Mahe on 19<sup>th</sup>; Lakshadweep on 16<sup>th</sup> -19<sup>th</sup>; Rayalaseema during 16<sup>th</sup> - 17<sup>th</sup>; Coastal Karnataka on 16<sup>th</sup>; North Interior Karnataka on 16<sup>th</sup>; South Interior Karnataka during 16<sup>th</sup> - 17<sup>th</sup> August.
- ✓ Isolated **very heavy rainfall** also very likely over Tamil Nadu, Puducherry & Karaikal on 16<sup>th</sup> & 17<sup>th</sup>; Kerala & Mahe during 16<sup>th</sup> -17<sup>th</sup>; Rayalaseema on 16<sup>th</sup>; South Interior Karnataka on 16<sup>th</sup> August.

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Forecast and Warning for any day is valid from 0830 hours IST of day till 0830 hours IST of next day.

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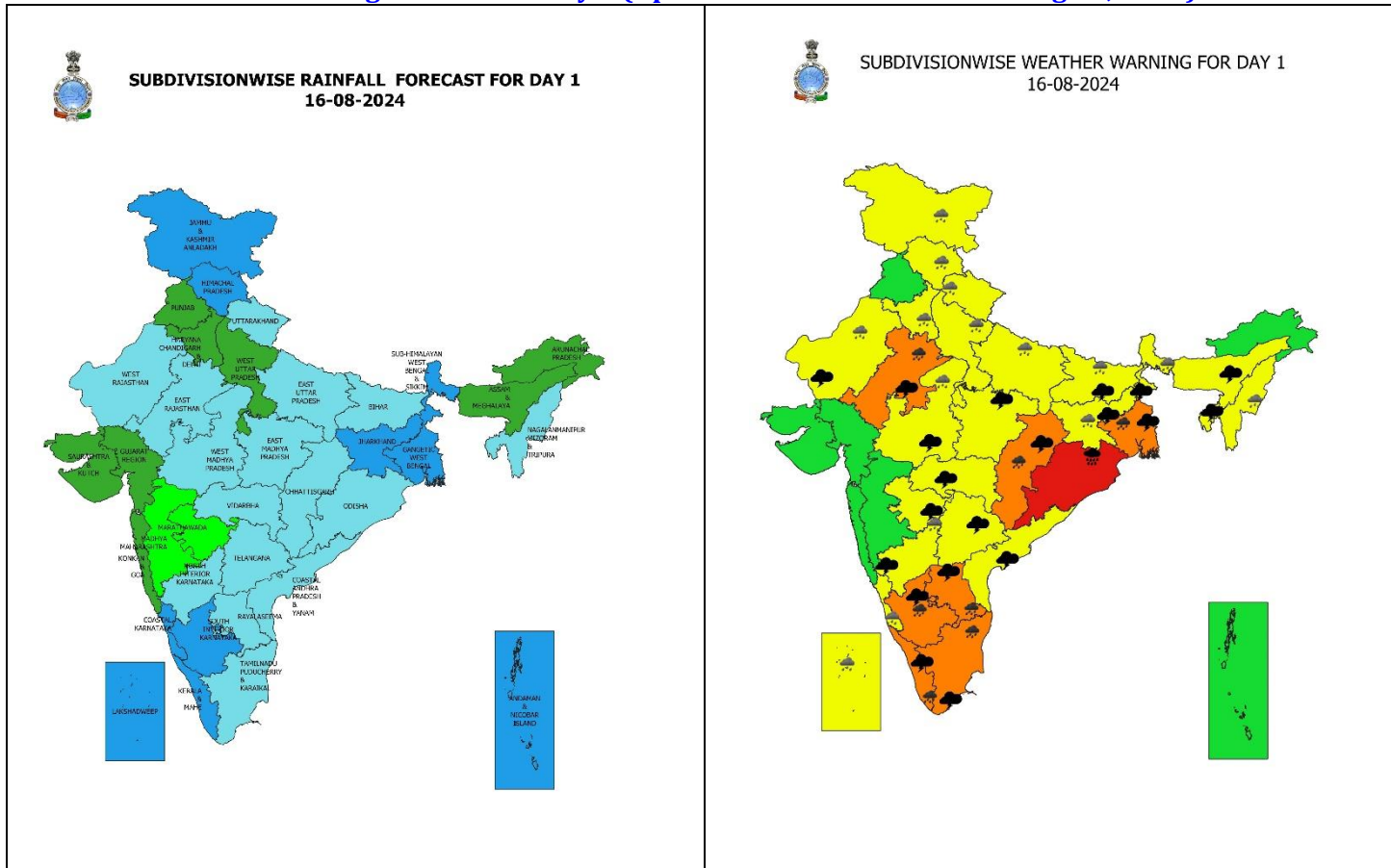
## Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of yesterday): **at most places** over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad; **at many places** over Himachal Pradesh and East Madhya Pradesh; **at a few places** over Assam & Meghalaya, Kerala & Mahe and Lakshadweep; **at isolated places** over Haryana-Chandigarh-Delhi, Rajasthan, Uttar Pradesh, West Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Odisha, West Bengal & Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Vidarbha, Telangana, Marathwada, Madhya Maharashtra, Konkan & Goa, Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and Andaman & Nicobar Islands.
- ❖ **Heavy rainfall recorded** (from 0830 hours IST to 1730 hours IST of yesterday): **Heavy rainfall** at isolated places over West Madhya Pradesh.
- ❖ **Significant amount of rainfall** (from 0830 hours IST to 1730 hours IST of yesterday) (in cm): **West Madhya Pradesh:** Guna 10, Panchmarhi 7, Piparsama\_kv (Shivpuri) 4; **Assam:** Guwahati 5, Majbat 4; **Tamil Nadu:** Kodaikanal 5; **East Madhya Pradesh:** Amarwada (Chhindwara) 4, Sidhi 2; **Bihar:** Supaul 4; **Gangetic West Bengal:** Sagar Island 3, **East Uttar Pradesh:** Sultanpur 3; **Vidarbha:** Chandrapur 3, Nagpur 2; **Himachal Pradesh:** Dharamshala 2; **Haryana:** Rohtak & Bhiwani 2 each; **West Rajasthan:** Jodhpur 2; **Odisha:** Dhenkanal 2; **Sub-Himalayan West Bengal:** Darjeeling 2; **Lakshadweep:** Agathi 2.
- ❖ **Minimum Temperature Departures (as on 15-08-2024):** Minimum temperatures were **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Marathwada; **above normal (1.6°C to 3.0°C)** at most places over Rayalaseema; at many places over Konkan & Goa, Madhya Maharashtra, North Interior Karnataka; at a few places over Bihar, Sub-Himalayan West Bengal & Sikkim, Vidarbha, Telangana, Coastal Andhra Pradesh & Yanam; at isolated places over Punjab, Uttarakhand, Rajasthan, Madhya Pradesh, Odisha, Gangetic West Bengal, Assam & Meghalaya, South Interior Karnataka, Tamil Nadu, Puducherry & Karaikal and **near normal** over rest parts of the country. Yesterday, **the lowest minimum temperature** of **21.2°C** was reported at **Narsinghpur (East Madhya Pradesh)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 15-08-2024):** Maximum temperatures were **markedly above normal (5.1°C or more)** at isolated places over Madhya Maharashtra and Rayalaseema; **appreciably above normal (3.1°C to 5.0°C)** at a few places over Telangana and North Interior Karnataka; at isolated places over Bihar, Sub-Himalayan West Bengal & Sikkim, Odisha, Vidarbha and Marathwada; **above normal (1.6°C to 3.0°C)** at most places over Konkan & Goa and Coastal Karnataka; at many places over Jharkhand, Coastal Andhra Pradesh & Yanam; at a few places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and South Interior Karnataka; at isolated places over Uttarakhand, Uttar Pradesh, Gangetic West Bengal, Chhattisgarh, Gujarat state and Kerala & Mahe. These were **markedly below normal (-5.1°C or less)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Himachal Pradesh; **below normal (-1.6°C to -3.0°C)** at isolated places over Haryana-Chandigarh-Delhi, Rajasthan and Madhya Pradesh and **near normal** over rest parts of the country. Yesterday, **the highest Maximum Temperature** of **37.9°C** was reported at **Anantapur (Rayalaseema)** over the country. **(Fig. 2)**

## Meteorological Analysis (Based on 0530 hours IST)

- ❖ The **Monsoon trough** at mean sea level now passes through Ganganagar, Delhi, Lucknow, Sultanpur, Gaya, Bankura, Digha and thence east-southeastwards to eastcentral Bay of Bengal.
- ❖ The **cyclonic circulation** over South Bangladesh & adjoining Gangetic West Bengal extending upto 4.5 km above mean sea level tilting southwestwards with height persists. Under the influence of the cyclonic circulation over South Bangladesh & adjoining Gangetic West Bengal, a **Low pressure** area has formed over Northwest Bay of Bengal and adjoining areas of West Bengal and Bangladesh in the morning (0530 hours IST) of today, the 16<sup>th</sup> August 2024. It is likely to become more marked and move west-northwestwards across Gangetic West Bengal and Jharkhand during next 2-3 days.
- ❖ The **cyclonic circulation** over northeast Rajasthan & neighbourhood extending upto 4.5 km above mean sea level persists.
- ❖ A **cyclonic circulation** lies over north Gujarat & adjoining south Rajasthan between 3.1 & 5.8 km above mean sea level.
- ❖ The **cyclonic circulation** over southeast Arabian sea & adjoining south Kerala coast extending upto 4.5 km above mean sea level tilting southwards with height persists.
- ❖ The **trough** from Konkan to above mentioned cyclonic circulation extending upto 1.5 km above mean sea level persists.
- ❖ The **cyclonic circulation** over Jharkhand & neighbourhood between 3.1 & 4.5 km above mean sea level persists.

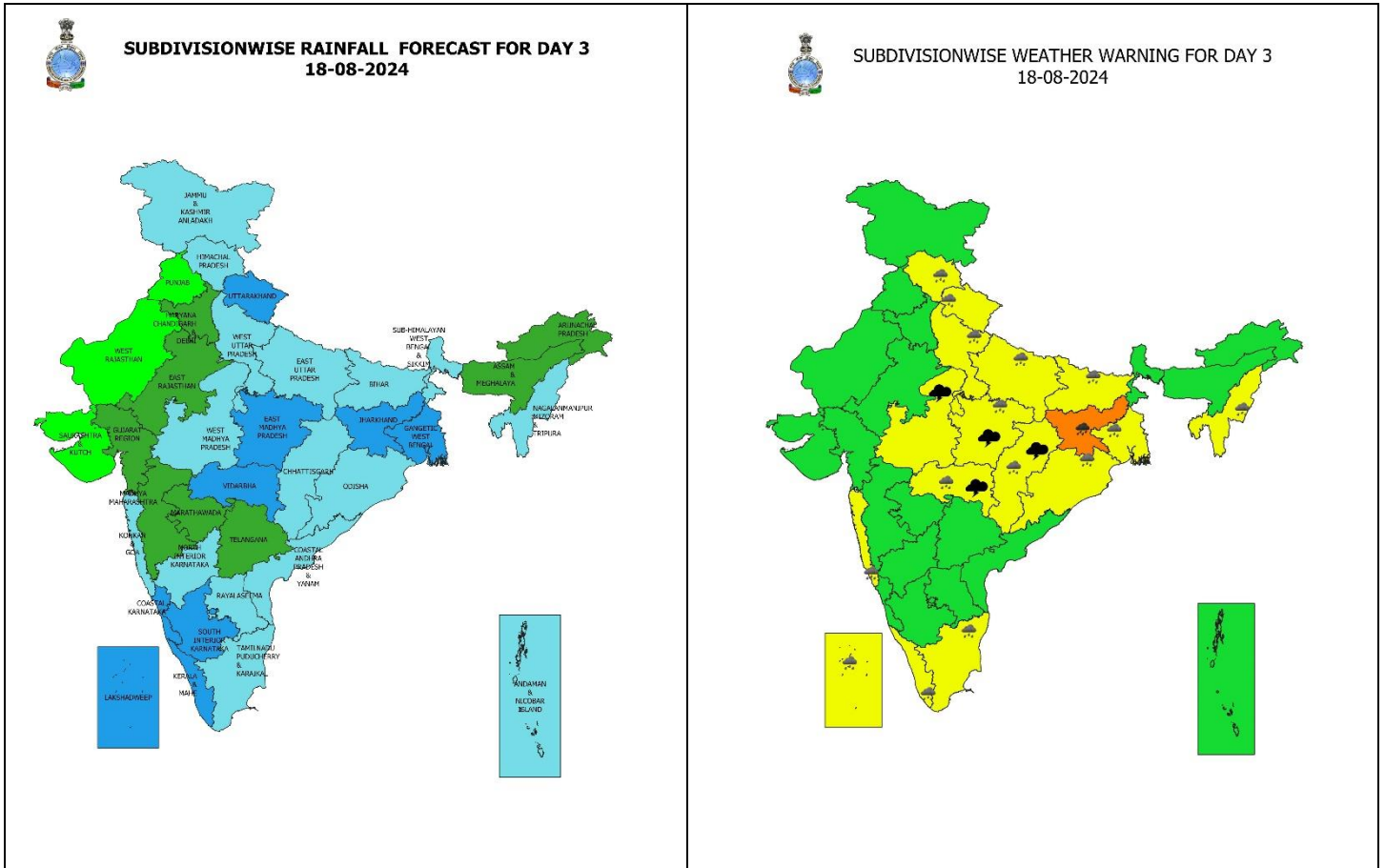
Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 23<sup>rd</sup> August, 2024)



16 August (Day 1):

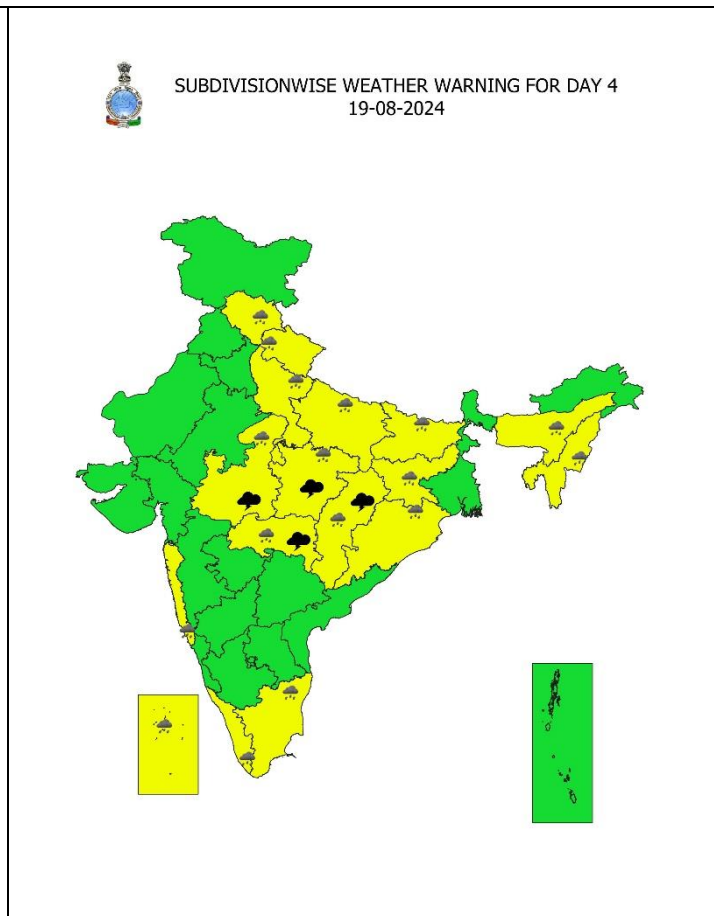
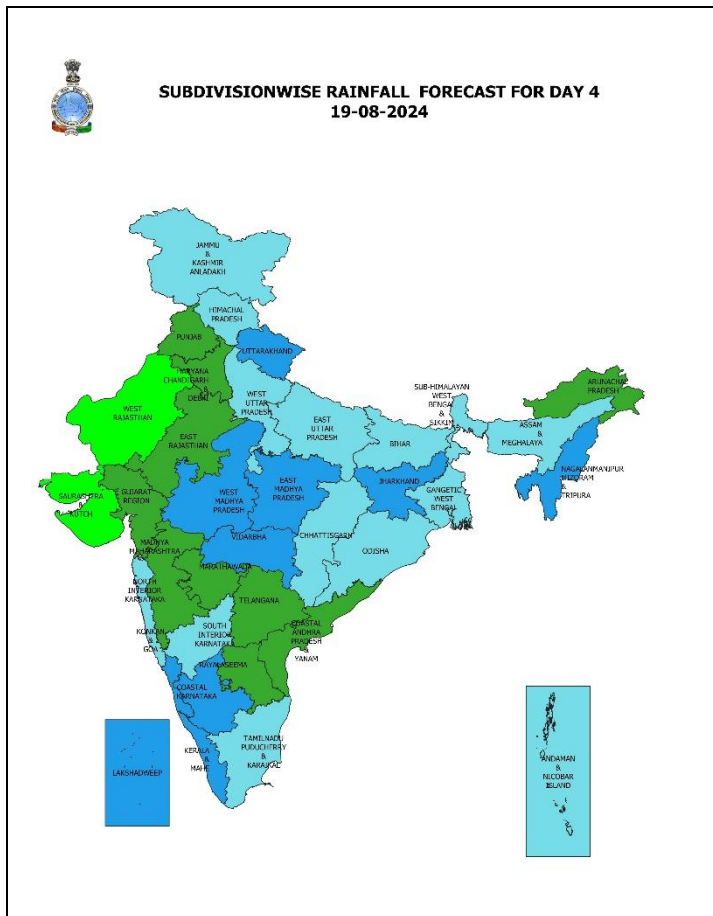
- ❖ **Heavy to very heavy rainfall with extremely heavy falls (> 20 cm)** very likely at isolated places over Odisha; **Heavy to very heavy rainfall ( $\geq 12$  cm)** very likely at isolated places over East Rajasthan, Gangetic West Bengal, Chhattisgarh, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Rayalaseema and South Interior Karnataka; **Heavy rainfall ( $\geq 7$  cm)** very likely at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad, Himachal Pradesh, Uttarakhand, Haryana-Chandigarh, Uttar Pradesh, West Rajasthan, West Madhya Pradesh, Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand, Nagaland, Manipur, Mizoram & Tripura, Lakshadweep, North Interior Karnataka, and Coastal Karnataka.
- ❖ **Thunderstorm accompanied with lighting** very likely over Rajasthan, Madhya Pradesh, Vidarbha, Chhattisgarh, West Bengal & Sikkim, Bihar, Jharkhand, Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Marathwada, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Telangana, Coastal Andhra Pradesh & Yanam, Rayalaseema, Interior Karnataka.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over southern parts of northwest Arabian sea, southern parts of northwest and adjoining northeast Arabian sea, many parts of westcentral Arabian sea, along and off Karnataka, Kerala coasts, over Lakshadweep, Maldives and adjoining southeast Arabian sea, Comorin area, Gulf of Mannar, off Sri Lanka coast, many parts of southwest Bay of Bengal, few parts of southeast Bay of Bengal, southcentral parts of central Bay of Bengal, north bay along and off Gangetic West Bengal coast. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over westcentral & adjoining eastcentral Arabian sea, western parts of southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.





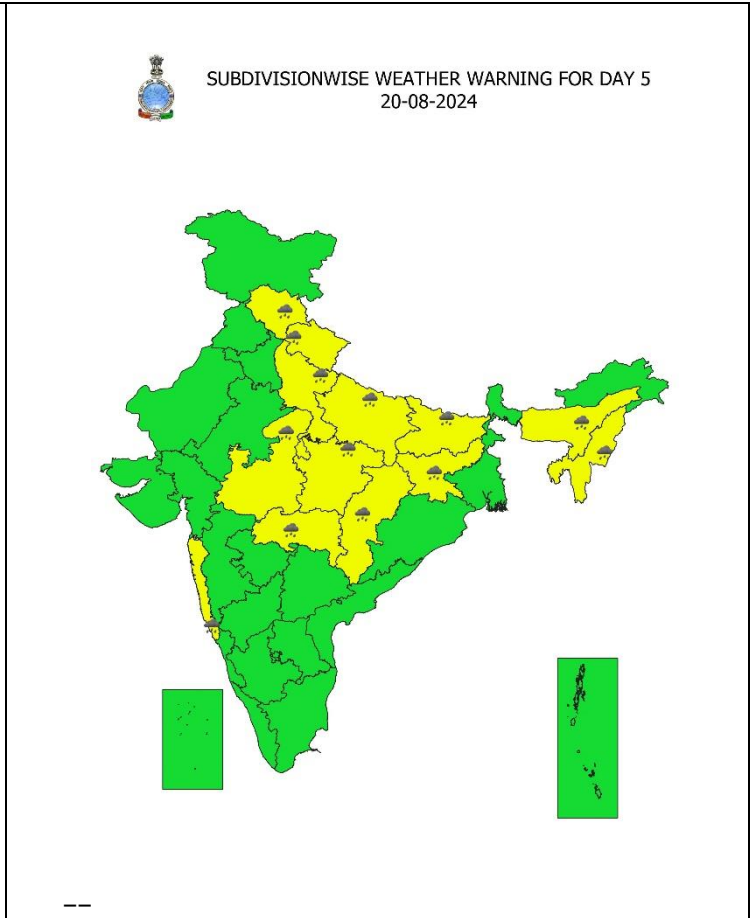
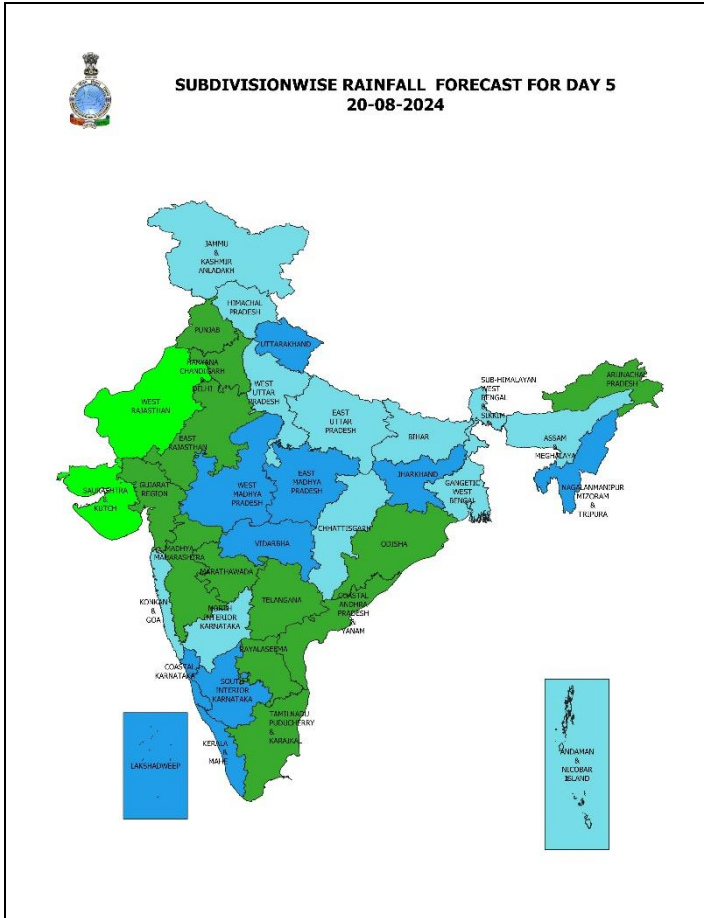
**18 August (Day 3):**

- ❖ **Heavy to very heavy rainfall (≥ 12 cm)** likely at isolated places over Jharkhand; **Heavy rainfall (≥ 7 cm)** at isolated places over Himachal Pradesh, Uttarakhand, Uttar Pradesh, East Madhya Pradesh, Vidarbha, Chhattisgarh, Gangetic West Bengal, Bihar, Odisha, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep.
- ❖ **Thunderstorm accompanied with lighting** likely over Madhya Pradesh, Vidarbha, Chhattisgarh.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over many parts of westcentral Arabian sea, few parts of southwest Arabian sea, along and off Kerala coast, over Lakshadweep, Maldives and adjoining southeast Arabian sea, Comorin area, Gulf of Mannar, off Sri Lanka coast, southwest and adjoining southeast Bay of Bengal and adjoining areas. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over many parts of westcentral & southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.



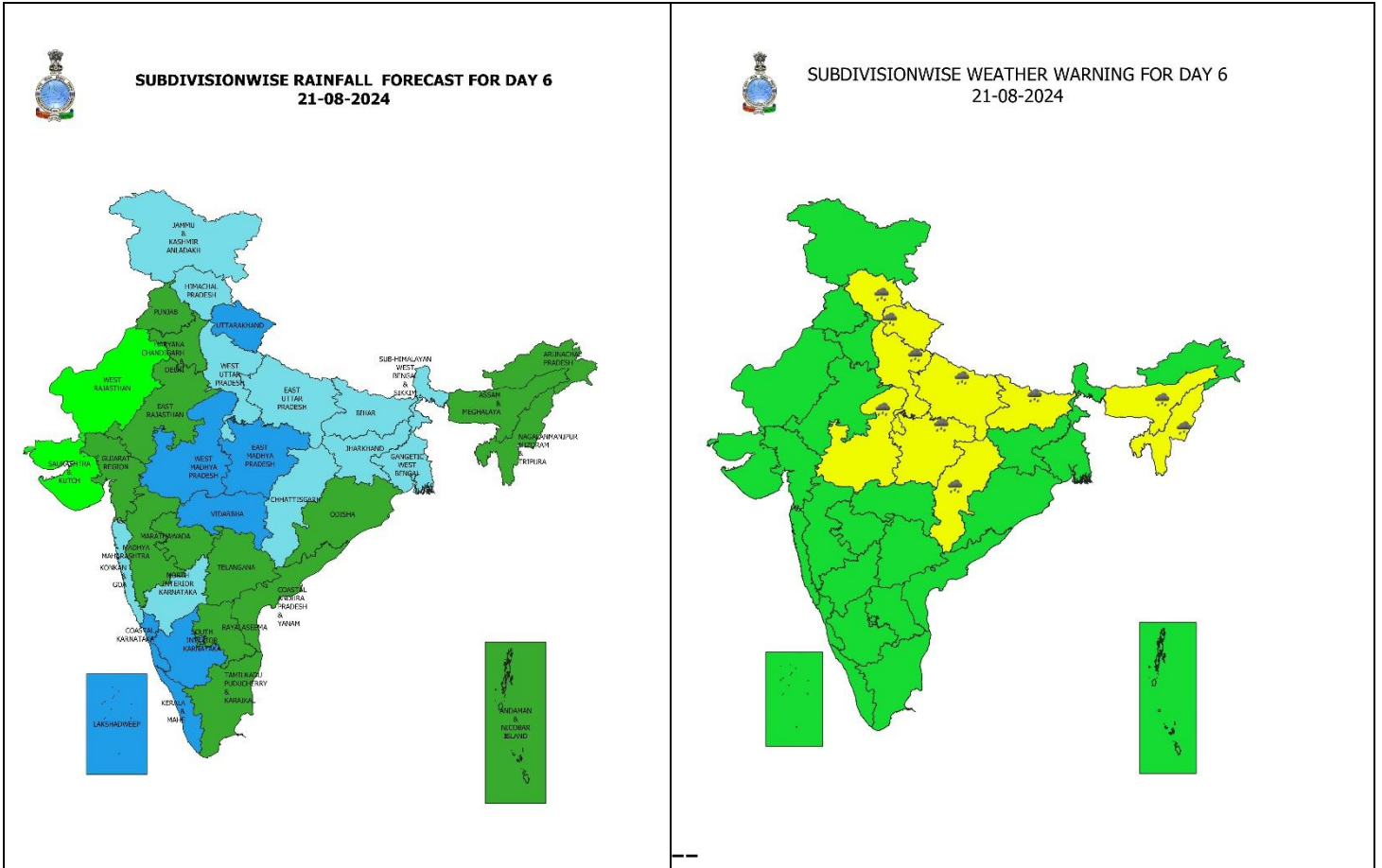
**19 August (Day 4):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Himachal Pradesh, Uttarakhand, Uttar Pradesh, Madhya Pradesh, Vidarbha, Chhattisgarh, Bihar, Jharkhand, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Tamil Nadu, Puducherry & Karaikal, Lakshadweep and Kerala & Mahe.
- ❖ **Thunderstorm accompanied with lighting** likely over Madhya Pradesh, Vidarbha, Chhattisgarh.
- ❖ **Squally weather with wind speed reaching 35 kmph to 45 kmph gusting to 55 kmph** is likely to prevail over along and off Kerala coast, over Lakshadweep, Maldives and adjoining southeast Arabian sea, Comorin area, Gulf of Mannar, off Sri Lanka coast. **Squally winds with speed reaching 45 kmph to 55 kmph gusting to 65 kmph** likely to prevail over many parts of westcentral & southwest Arabian sea, along & off Somalia, Oman coasts. Fishermen are advised not to venture into these areas.



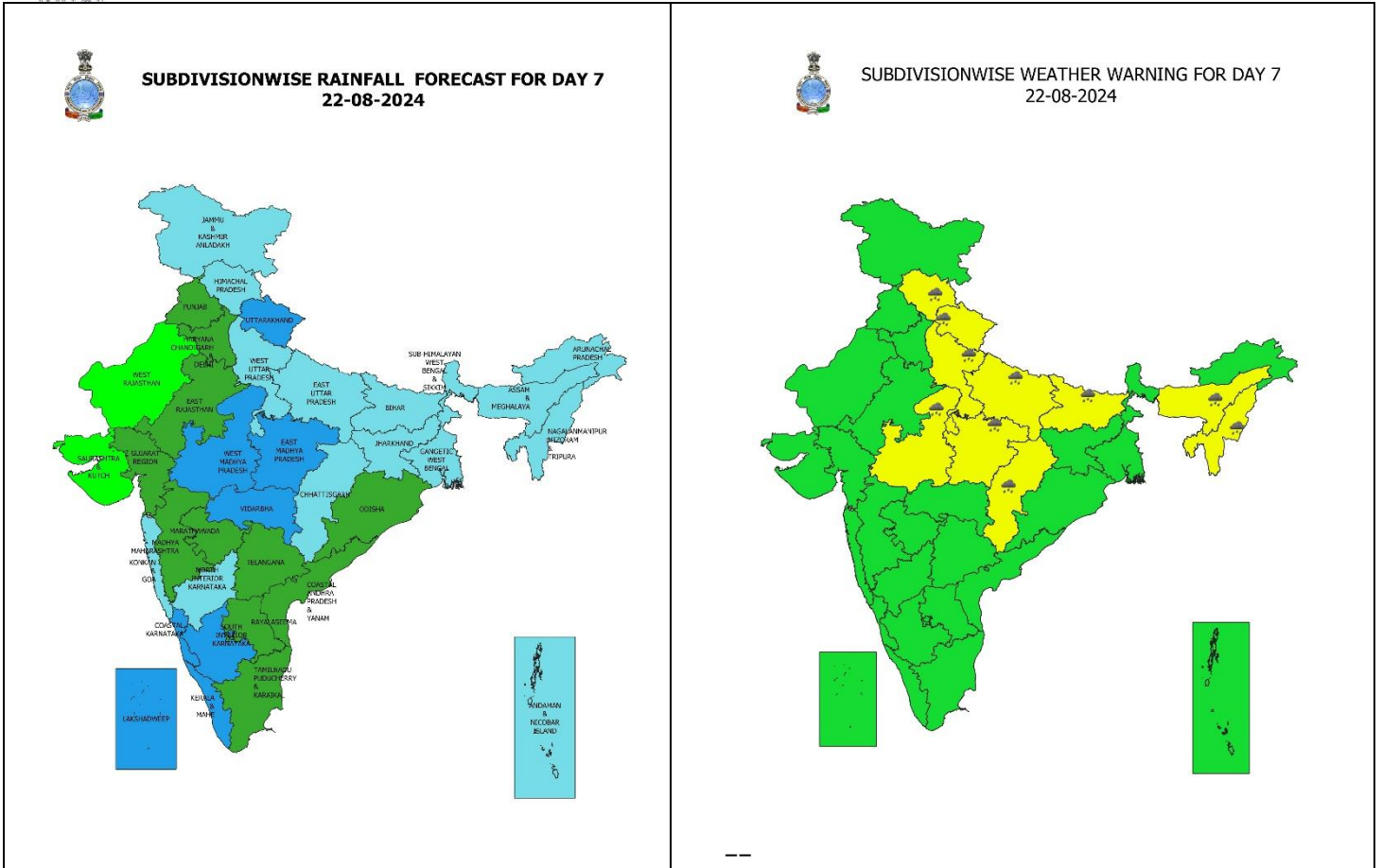
**20 August (Day 5):**

❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Uttarakhand, Uttar Pradesh, Chhattisgarh, Bihar, Jharkhand, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.



**21 August (Day 6):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Uttarakhand, Uttar Pradesh, Chhattisgarh, Bihar, Jharkhand, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.



**22 August (Day 7):**

- ❖ **Heavy rainfall ( $\geq 7$  cm)** likely at isolated places over Uttarakhand, Uttar Pradesh, Chhattisgarh, Bihar, Jharkhand, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.

**Weather Outlook for subsequent 3 days (During 23<sup>rd</sup> August – 25<sup>th</sup> August, 2024)**

- ❖ Fairly widespread to widespread rainfall likely over most parts of the country except southwest Rajasthan, interior Maharashtra, Coastal & North Interior Karnataka where isolated to scattered rainfall likely.

- 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.

\* Red colour warning does not mean "Red Alert", Red colour warning means "Take Action".  
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## Impact due to

- **Extremely heavy rainfall** very likely at isolated places over Odisha on 16<sup>th</sup> & Chhattisgarh on 17<sup>th</sup> August;
  - **Very heavy rainfall** at isolated places East Rajasthan, Chhattisgarh, Rayalaseema & South Interior Karnataka on 16<sup>th</sup>; Odisha on 17<sup>th</sup>; Gangetic West Bengal, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe on 16<sup>th</sup> & 17<sup>th</sup>; Jharkhand on 17<sup>th</sup> & 18<sup>th</sup> August.
  - **Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of** Himachal Pradesh, Jammu-Kashmir-Ladak, Uttarakhand, Rajasthan, north Chhattisgarh, Odisha and Gangetic West Bengal on 16<sup>th</sup> & 17<sup>th</sup> August. **(ANNEXURE I)**
- ✓ 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

- ✓ Drain out excess water from field crops and horticultural crops in Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, West Bengal, Odisha, Jharkhand, Bihar, Punjab, Haryana, Tamil Nadu, Kerala, Lakshadweep, Karnataka and Rayalaseema.
- ✓ In **Himachal Pradesh** and **Uttarakhand**, harvest the matured apples and vegetable crops immediately during the clear weather and store them at safe places.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables.

**Flash Flood Guidance:**

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-08-2024 :**

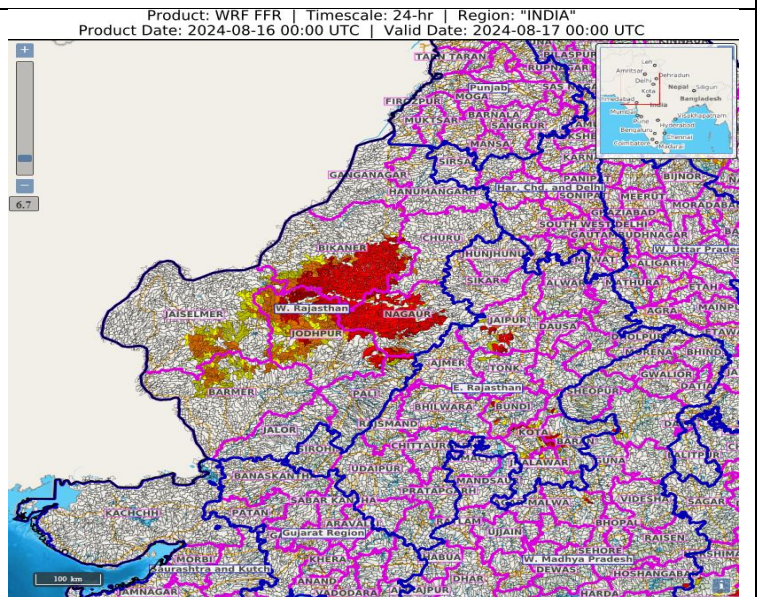
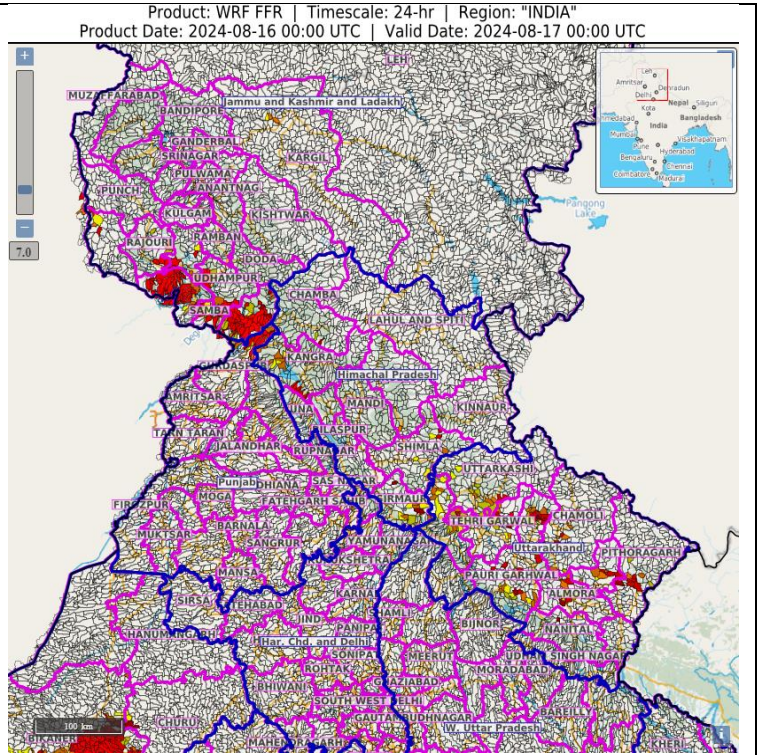
**Low flash flood risk** likely over few watersheds & neighbourhoods of **Himachal Pradesh** - Chamba, Kangra, Shimla and Sirmaur districts. **Jammu & Kashmir & Ladakh** - Jammu, Kathua, Rajouri, Riasi, Samba. Mirpur and Udhampur districts. **Uttarakhand** - Almora, Bageshwar, Chamoli, Champawat, Dehradun, Haridwar, Nanital, Pauri Garhwal, Pithoragarh, Rudraprayag, Tehri Garwal and Uttarkashi districts.

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.

**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-08-2024 :**

**Moderate flash flood risk** likely over few watersheds & neighbourhoods of **East Rajasthan** - Jaipur and Tonk districts. **West Rajasthan** - Barmer, Bikaner, Jaisalmer, Jodhpur and Nagaur districts.

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.



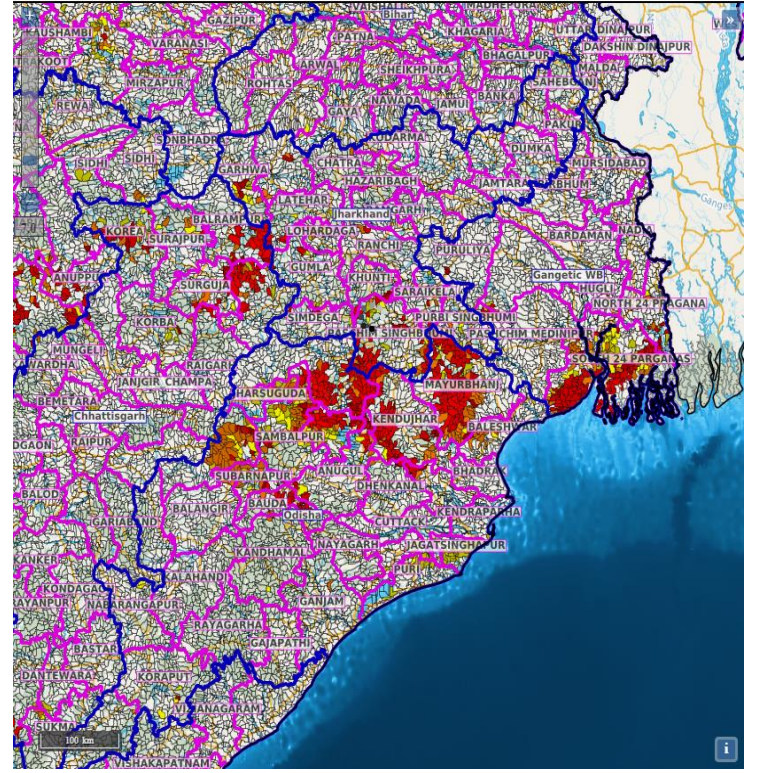
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**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 17-08-2024 :**

**Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of North Chhattisgarh** - Balarampur, Bemetara, Jashpur, Korba, Korea and Surguja districts. **Odisha** - Anugul, Baragarh, Bauda, Deogarh, Dhenkanal, Jagatsinghapur, Jharsuguda, Kendujhar, Khordha, Mayurbhanj, Puri, Sambalpur, Subarnapur and Sundargarh districts. **Gangetic West Bengal** - Eastmednipur, Haora, North 24 Pragana and South 24 Parganas districts.

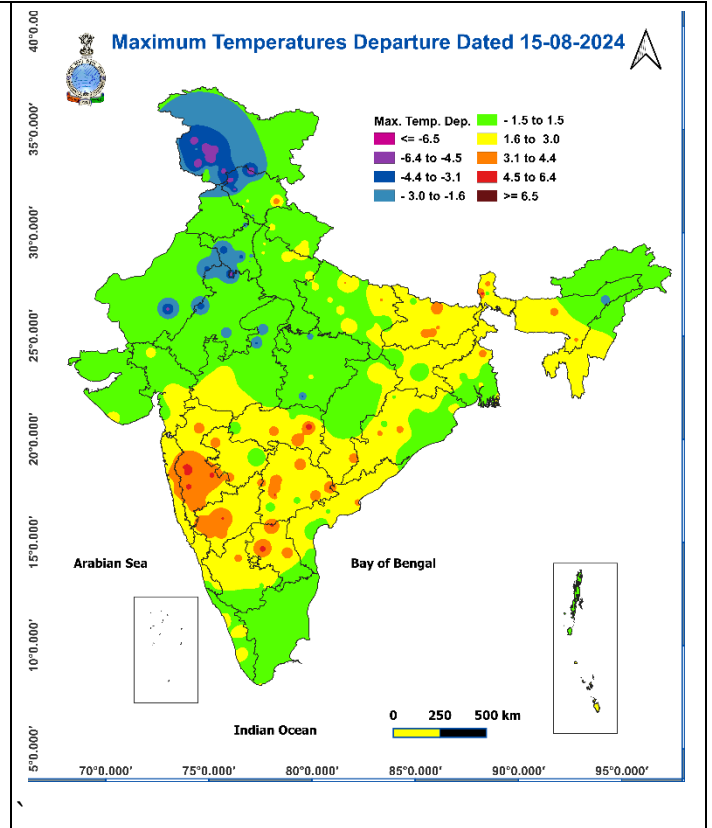
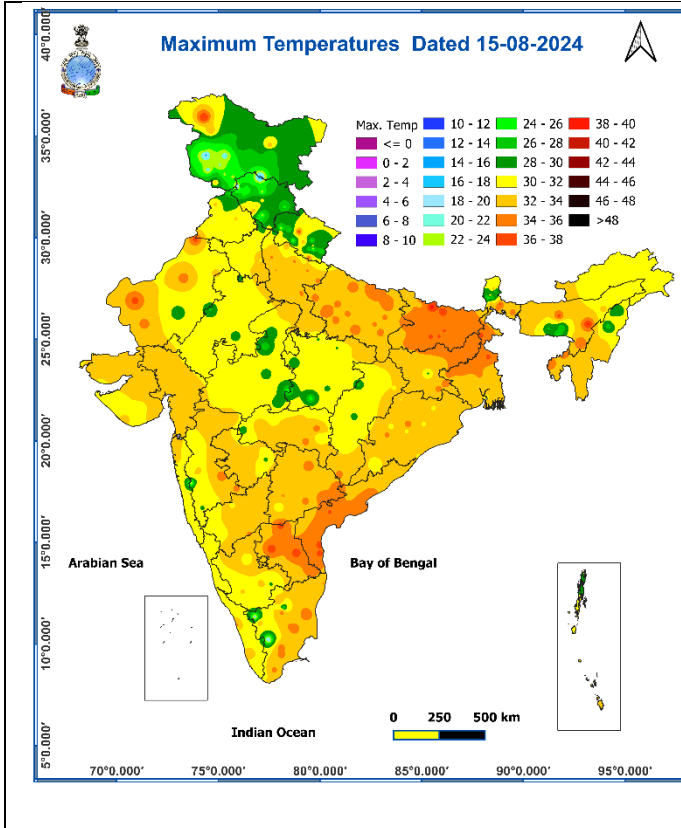
Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over AoC as shown in map due to expected rainfall occurrence in next 24 hours.

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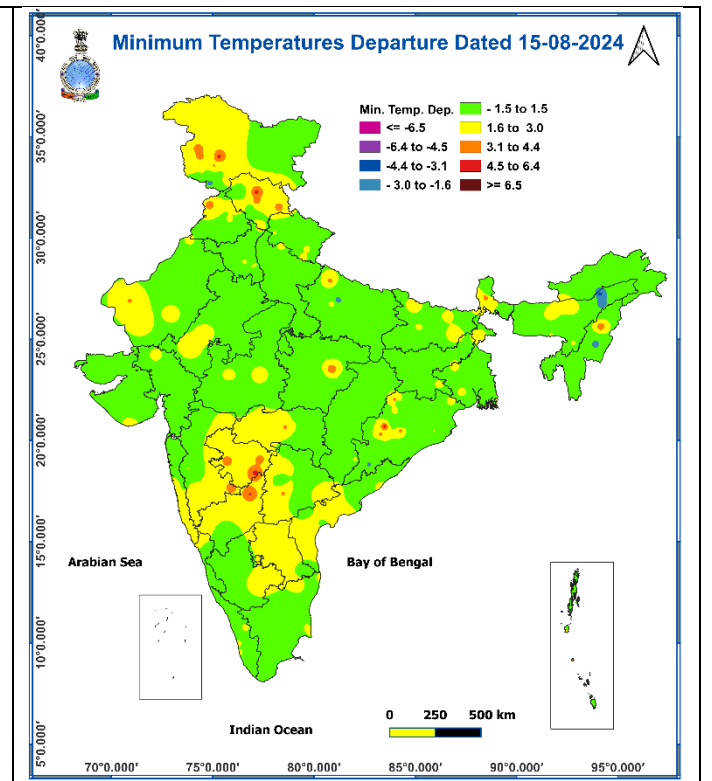
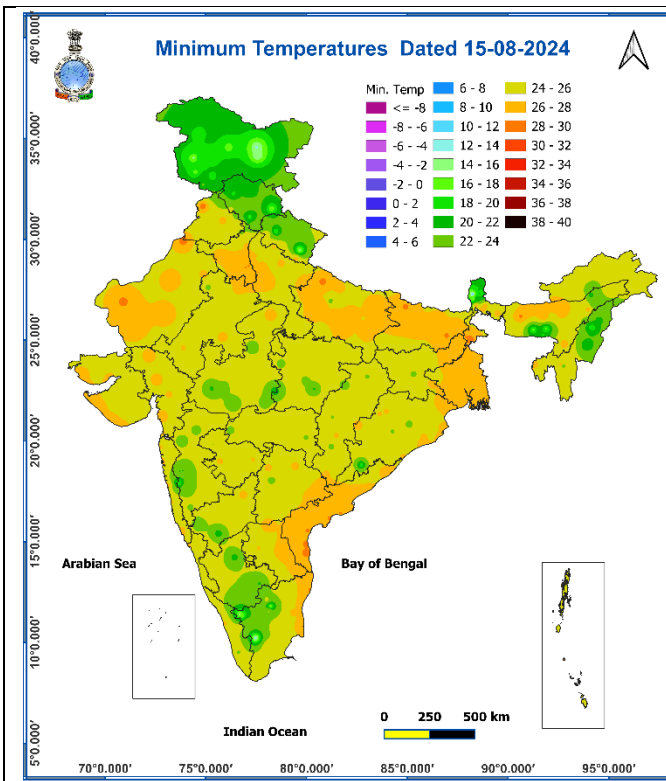
**Fig. 1: Maximum Temperatures**

**Fig. 2: Departure of Maximum Temperatures**



**Fig. 3: Minimum Temperatures**

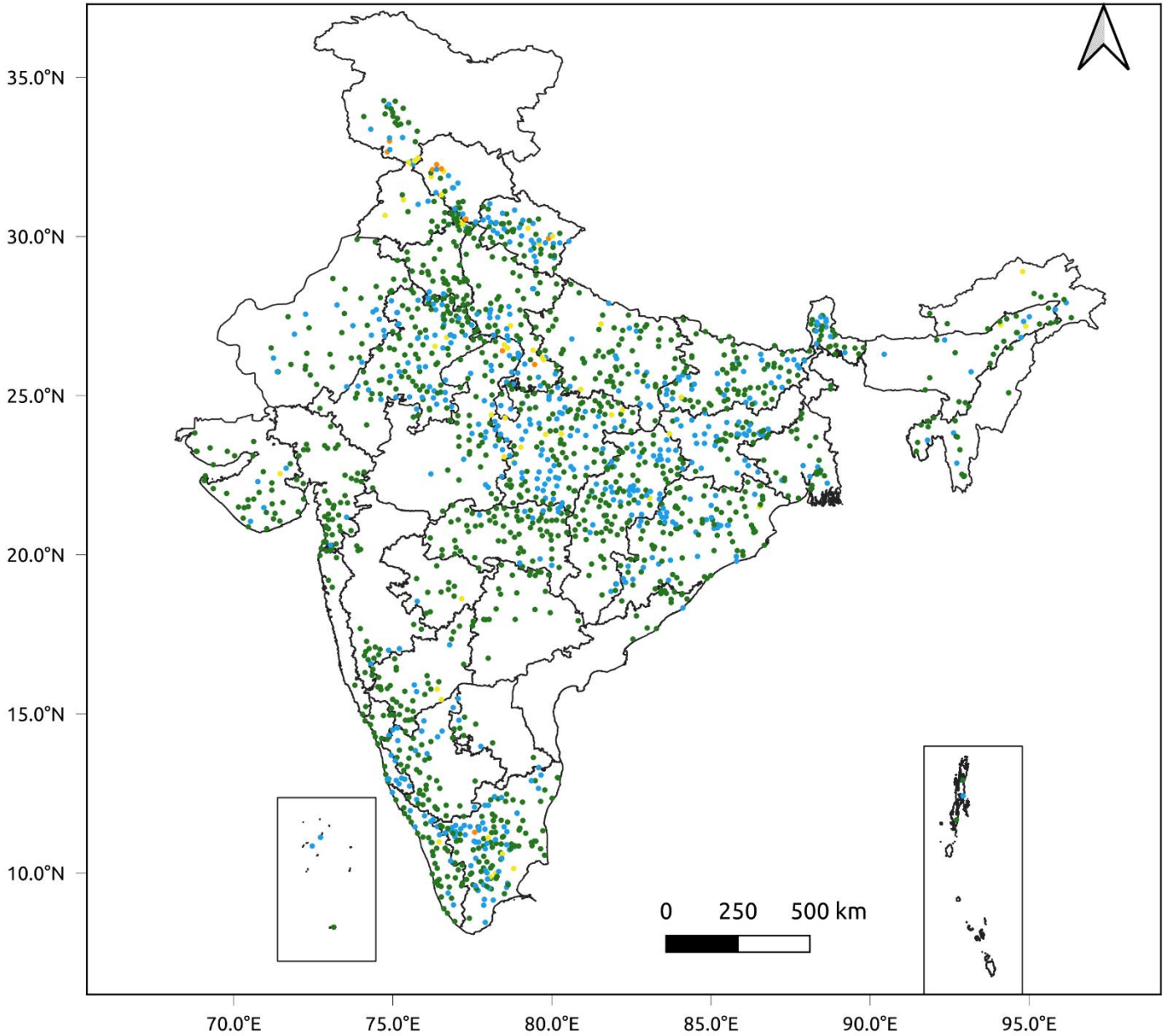
**Fig. 4: Departure of Minimum Temperatures**



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



24 Hr cumulative rainfall recorded over different stations during 0830 IST of 14-8-2024 to 0830 IST of 15-8-2024

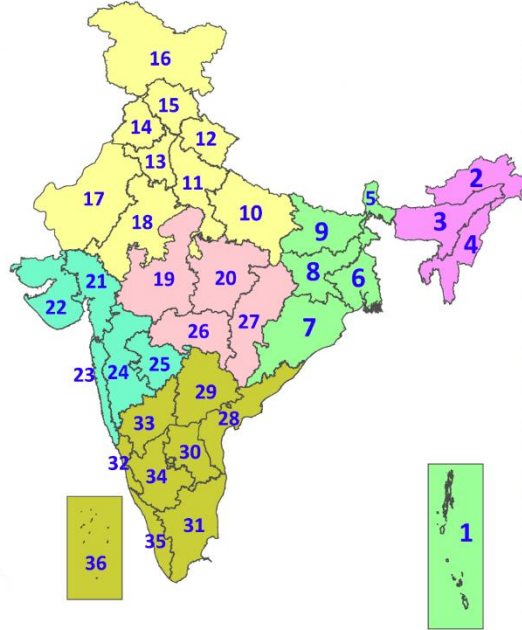


## Legends

- Very Light to Light Rainfall (0.1 - 15.5 mm)
- Moderate Rainfall (15.6 - 64.4 mm)
- Heavy Rainfall (64.5 - 115.5 mm)
- Very Heavy Rainfall (115.6 - 204.4 mm)
- Extremely Heavy Rainfall ( $\geq 204.5$  mm)

## 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

### COLOUR CODED WARNING

No Warning (No Action)

Watch (Be Aware)

Alert (Be Prepared To Take Action)

Warning (Take Action)



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

### 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)