

Friday, November 29, 2024
Time of Issue: 2100 hours IST
(NIGHT)

ALL INDIA WEATHER SUMMARY AND FORECAST BULLETIN

Significant Weather Features:

Weather Systems:

- ❖ The **Cyclonic Storm "FENGAL" [pronounced as FEINJAL]** over Southwest Bay of Bengal moved northwestwards with a speed of 15 kmph during past 6 hours and lay centred at 1730 hours IST of today, the 29th November 2024 over the same region near latitude 11.5°N and longitude 81.9°E, about 330 km north-northeast of Trincomalee, 240 km east-northeast of Nagappattinam, 230 km east-southeast of Puducherry and 250 km southeast of Chennai. It is likely to move west-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram close to Puducherry as a **cyclonic storm** with a wind speed of 70-80 kmph gusting to 90 kmph during afternoon of 30th November.
- ❖ A **Western disturbance** seen as a trough in middle tropospheric westerlies runs roughly along Long. 54°E to the north of Lat. 32°N.
- ❖ A **Cyclonic circulation** lies over southeast Bangladesh in lower tropospheric levels.

Forecast & Warnings (upto 7 days):

- ✓ Light to moderate rainfall at a few places accompanied with isolated thunderstorm & lightning very likely over Tamil Nadu & Puducherry, Andhra Pradesh & Yanam during 29th November- 03rd December, Kerala & Mahe, South Interior Karnataka & Telangana during 30th November-03rd December, Coastal Andhra Pradesh & Yanam & Rayalaseema on 29th & 30th November, Coastal Karnataka during 01st -03rd, Lakshadweep on 02nd & 03rd December.
- ✓ Light to moderate rainfall at many places over Andaman & Nicobar Islands during the week.
- ✓ **Heavy to very heavy rainfall with extremely heavy falls** at isolated places very likely over north Tamil Nadu & Rayalaseema on 29th & 30th, south Coastal Andhra Pradesh & Yanam on 30th November. **Heavy to very heavy rainfall** at isolated places very likely over Interior Tamil Nadu on 01st December, **Heavy rainfall** at isolated places very likely over Tamil Nadu & Lakshadweep on 02nd & 03rd, Coastal Andhra Pradesh & Yanam & Rayalaseema on 01st December.
- ✓ **Heavy rainfall** at isolated places very likely over Kerala & Mahe on 30th November & 03rd December & South Interior Karnataka on 30th November. **Heavy to very heavy rainfall** at isolated places very likely over Kerala & Mahe & South Interior Karnataka on 01st & 02nd December.
- ✓ **Heavy rainfall** at isolated places very likely over Andaman & Nicobar Islands on 30th November.
- ✓ **Dense fog conditions** very likely to prevail during late night/early morning hours in isolated pockets of Uttar Pradesh till 02nd December morning hours.
- ✓ **Cold wave** conditions very likely in isolated pockets over Madhya Maharashtra on 29th November.

Weather forecast over Delhi/NCR during 29th Nov. to 02nd Dec. 2024

Weather Forecast:

29.11.2024: Mainly clear sky. The predominant surface wind is likely to be variable direction with wind speed less than 04 kmph till evening. It would decrease thereafter becoming calm during night. Smog/mist is likely in the evening/night.

30.11.2024: Mainly clear sky. The predominant surface wind is likely to be from variable direction with speed less than 04 kmph during morning hours. Smog/ shallow fog is likely in the morning. The wind speed will increase thereafter becoming less than 06 kmph from variable direction during afternoon. It will decrease thereafter becoming less than 04 kmph from variable direction during evening and night. Smog/Mist is likely in the evening/night.

01.12.2024: Mainly clear sky. The predominant surface wind is likely to be from variable direction with speed less than 04 kmph during morning hours. Smog/shallow to moderate fog is likely in the morning. The wind speed will gradually increase becoming 06-08 kmph from northwest direction during afternoon. It will decrease thereafter becoming less than 04 kmph from northwest direction during evening and night. Smog/ shallow fog is likely in the evening/night.

02.12.2024: Mainly clear sky. The predominant surface wind is likely to be from variable direction with wind speed less than 04 kmph during morning hours. Smog/shallow to moderate fog in the morning. The wind speed will increase thereafter becoming 06-08 kmph from north/northwest direction during afternoon. It will gradually decrease becoming less than 04 kmph from north direction during evening and night. Smog/ shallow fog is likely in the evening/night.

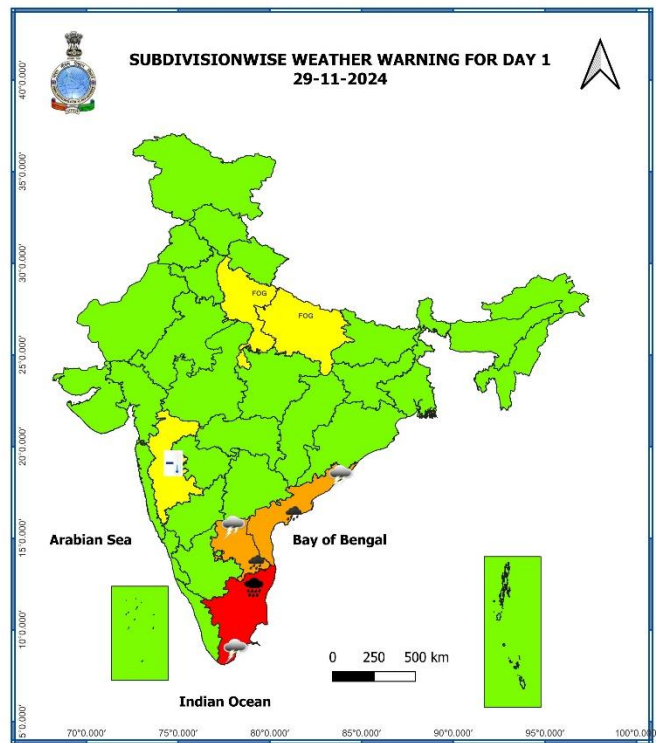
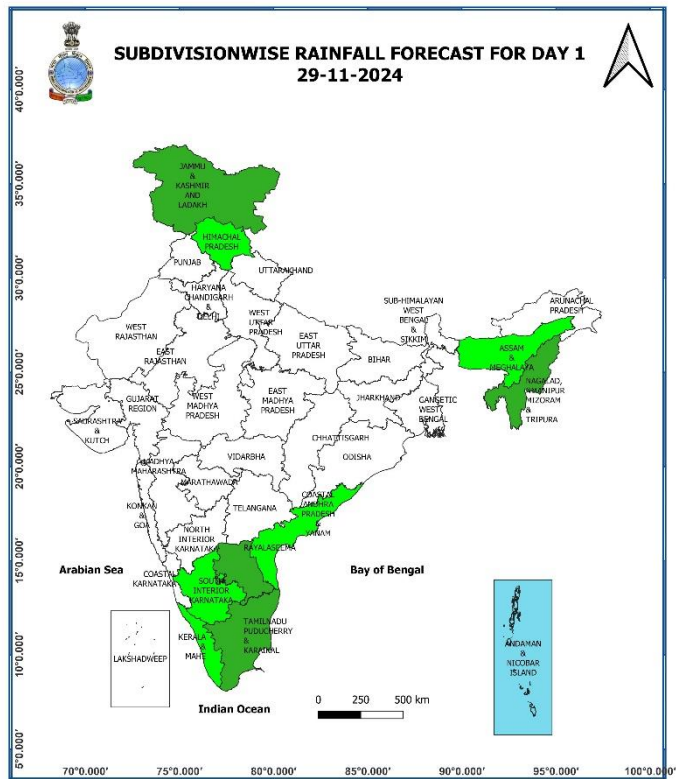
Main Weather Observations:

- ❖ **Rainfall distribution** (from 0830 hours IST to 1730 hours IST of today): **at a few places** over Lakshadweep, Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam; **at isolated places** over Odisha, Gangetic West Bengal, Andaman & Nicobar Islands.
- ❖ **Heavy rainfall observed** (from 0830 hours IST to 1730 hours IST of today): **NIL**
- ❖ **Cold wave conditions** observed in isolated pockets of Madhya Maharashtra.
- ❖ **Significant amount of rainfall** (from 0830 hours IST of yesterday to 0830 hours IST of today) (in cm): **Tamil Nadu, Puducherry & Karaikal:** Kodaikanal & Numgambakkam-1 each; **Odisha:** Gopalpur-1; **Andaman & Nicobar Islands:** Long Island-1.
- ❖ **Fog conditions observed** (at 1730 hours IST of today): **Shallow to moderate fog (visibility 201-500 m)** reported in isolated pockets of Tamil Nadu, Puducherry & Karaikal, Bihar, Tripura.
- ❖ **Visibility reported** (in m): **Tamil Nadu, Puducherry & Karaikal:** Kodaikanal 500; **Bihar:** Muzaffarpur; **Tripura:** Haflong 500.
- ❖ **Minimum Temperature Departures (as on 29-11-2024):** Minimum temperatures are **appreciably above normal (3.1°C to 5.0°C)** at a few places over Odisha; at isolated places over West Rajasthan, Gujarat Region, Bihar, Gangetic West Bengal, Nagaland, Manipur, Mizoram & Tripura, Telangana and Coastal Andhra Pradesh & Yanam; **above normal (1.6°C to 3.0°C)** at isolated places over Uttar Pradesh, Saurashtra & Kutch, Kerala & Mahe and Tamil Nadu, Puducherry & Karaikal. These are **markedly below normal (-5.1°C or less)** at isolated places over Madhya Maharashtra; **appreciably below normal (-5.0°C to -3.1°C)** at isolated places over East Madhya Pradesh, Konkan & Goa, Marathwada and Vidarbha; **below normal (-3.0°C to -1.6°C)** at a few places over West Madhya Pradesh; at isolated places over East Rajasthan and Assam & Meghalaya and near normal over rest parts of the country. Today, **the lowest minimum temperature of 6.0°C** is reported at **Adampur IAF (Punjab)** over the plains of the country. **(Fig.4)**
- ❖ **Maximum Temperature Departures (as on 29-11-2024):** Maximum temperatures are **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad and Assam & Meghalaya; **above normal (1.6°C to 3.0°C)** at a few places over Kerala & Mahe; at isolated places over West Rajasthan, Himachal Pradesh, Haryana, Uttar Pradesh and Tripura. These are **markedly below normal (-5.1°C or less)** at isolated places over Odisha; **appreciably below normal (-5.0°C to -3.1°C)** at isolated places over Tamil Nadu, Puducherry & Karaikal, West Madhya Pradesh, Gujarat state and East Rajasthan; **below normal (-1.6°C to -3.0°C)** at a few places over Madhya Maharashtra; at isolated places over Coastal Andhra Pradesh & Yanam, Marathwada, Vidarbha, Coastal Andhra Pradesh & Yanam, Gangetic West Bengal and East Madhya Pradesh. Today, **the highest maximum temperature of 36.2°C** was reported at **Kannur Airport (Kerala)** over the country. **(Fig. 2)**

Meteorological Analysis (Based on 1730 hours IST)

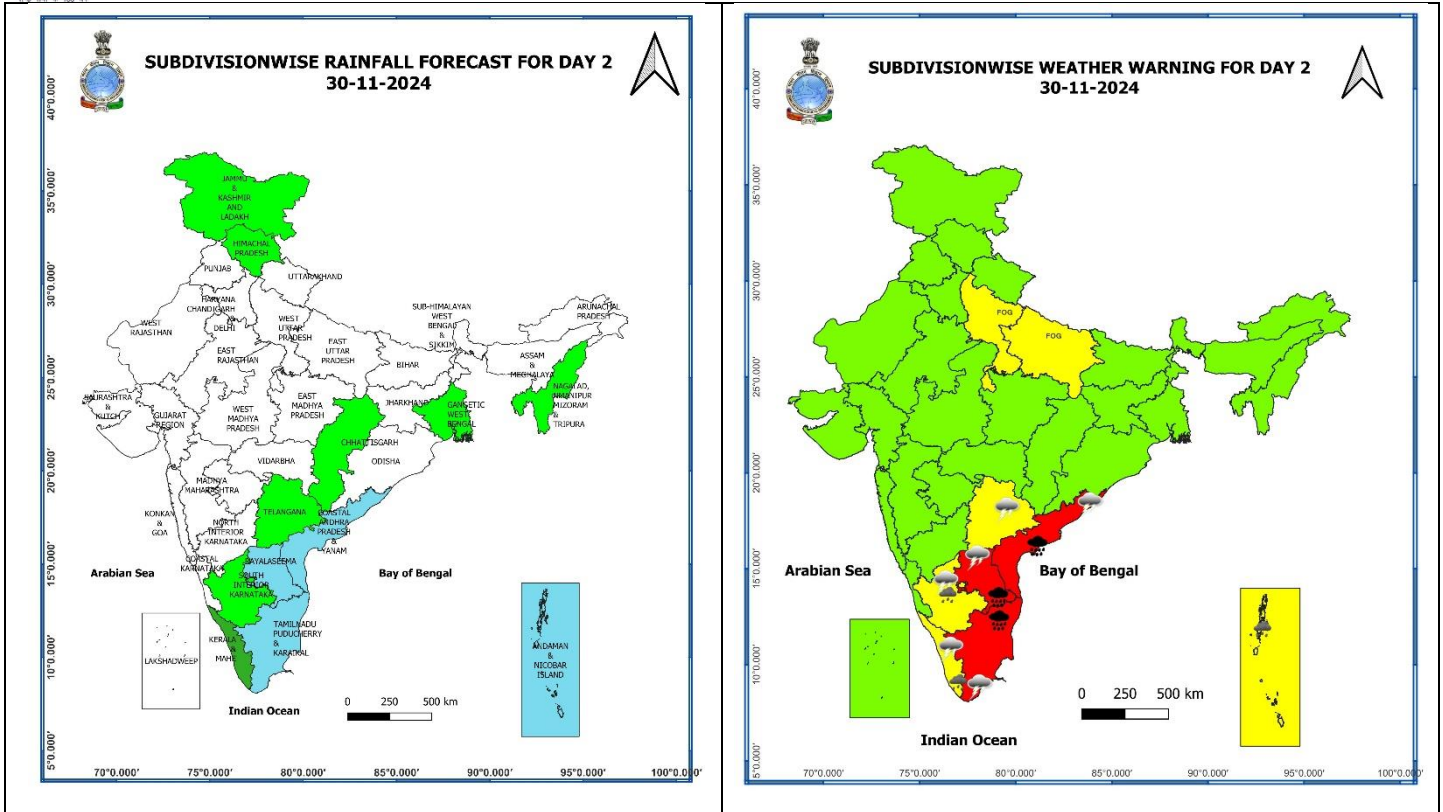
- ❖ The **Cyclonic Storm "FENGAL" [pronounced as FEINJAL]** over Southwest Bay of Bengal moved northwestwards with a speed of 15 kmph during past 6 hours and lay centred at 1730 hours IST of today, the 29th November 2024 over the same region near latitude 11.5°N and longitude 81.9°E, about 330 km north-northeast of Trincomalee, 240 km east-northeast of Nagappattinam, 230 km east-southeast of Puducherry and 250 km southeast of Chennai. It is likely to move west-northwestwards and cross north Tamil Nadu-Puducherry coasts between Karaikal and Mahabalipuram close to Puducherry as a **cyclonic storm** with a wind speed of 70-80 kmph gusting to 90 kmph during afternoon of 30th November.
- ❖ The **Western disturbance** as a trough in middle tropospheric westerlies with its axis at 5.8 km above mean sea level now runs roughly along Long. 58°E to the north of Lat. 32°N.
- ❖ The **Cyclonic circulation** over southeast Bangladesh at 1.5 km above mean sea level persists.
- ❖ **Jet Stream** Winds of the order upto 130 knots at 12.6 km above mean sea level are prevailing over Northwest India.

Weather Forecast & Warnings for next 7 days (Upto 0830 hours IST of 06th December, 2024)



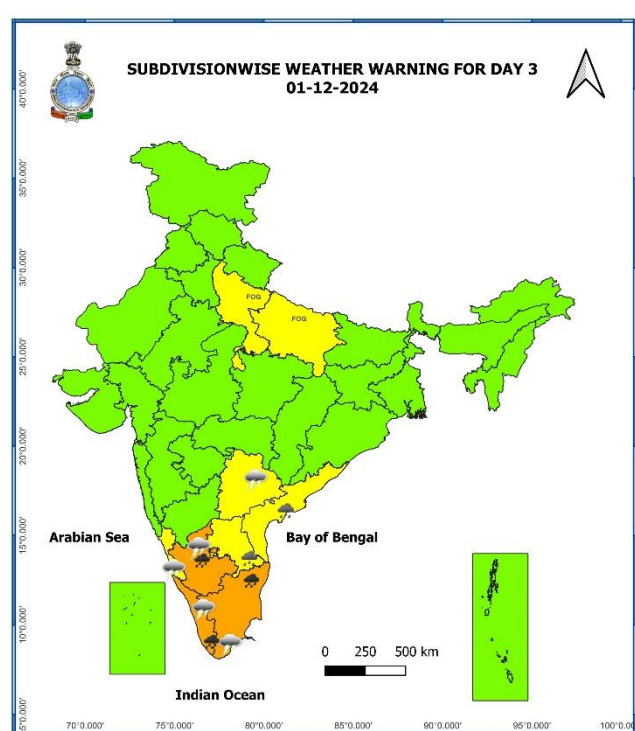
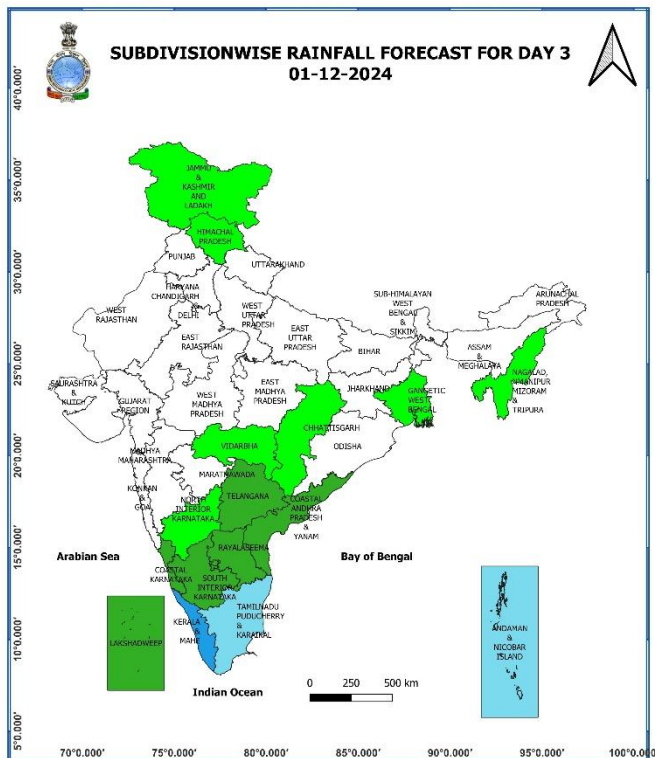
29 November (Day 1):

- ❖ **Heavy to very heavy rainfall with extremely heavy falls (≥ 20 cm)** very likely at isolated places over north Tamil Nadu; **Heavy to very Heavy rainfall (≥ 12 cm)** at isolated places over remaining parts of Tamil Nadu, Puducherry & Karaikal, south Coastal Andhra Pradesh and Rayalaseema.
- ❖ **Dense fog** very likely in isolated pockets of Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam and Rayalaseema.
- ❖ **Cold wave conditions** very likely in isolated pockets of Madhya Maharashtra.
- ❖ **Squally wind speed reaching 45-55 kmph gusting to 65 kmph** is likely to prevail along & off South Tamil Nadu coast and Gulf of Mannar; **Squally wind speed reaching 50-60 kmph gusting to 70 kmph** is likely to prevail over adjoining areas of westcentral Bay of Bengal; **Squally wind speed reaching 55-65 kmph gusting to 75 kmph** along & off East Sri Lanka coasts; **Gale wind speed reaching 60-70 kmph gusting to 80 kmph** is prevailing over southwest Bay of Bengal, along & off North Tamil Nadu - Puducherry and adjoining South Andhra Pradesh coasts. Fishermen are advised not to venture into these areas.



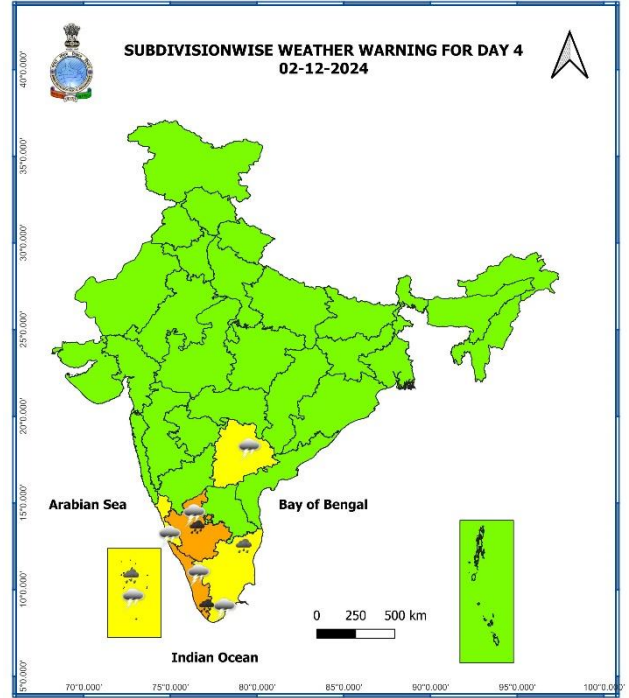
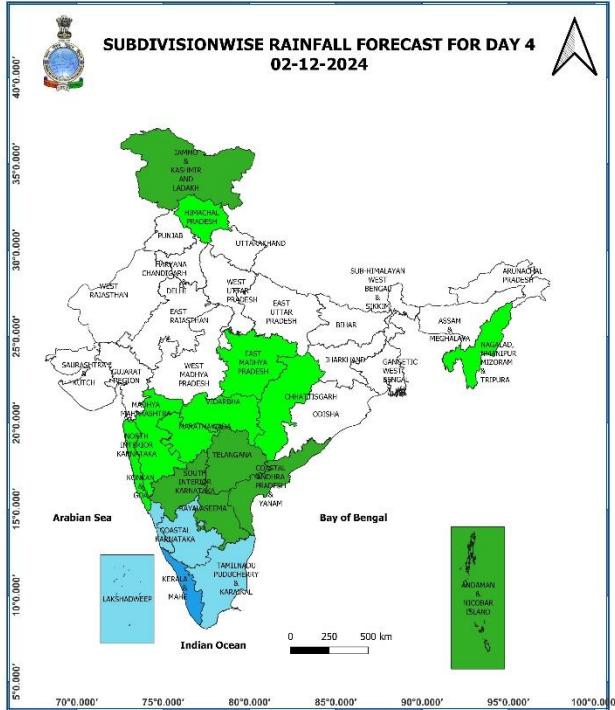
30 November (Day 2):

- ❖ **Heavy to very Heavy rainfall** at a few places with **extremely heavy falls (≥ 20 cm)** very likely at isolated places over north Tamil Nadu; **Heavy to very Heavy with extremely heavy falls (≥ 20 cm)** at isolated places over Rayalaseema and south Coastal Andhra Pradesh; **Heavy rainfall (≥ 7 cm)** at isolated places over Kerala & Mahe, South Interior Karnataka and Andaman & Nicobar Islands.
- ❖ **Dense fog** very likely in isolated pockets of Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam, Kerala & Mahe, South Interior Karnataka, Telangana and Rayalaseema.
- ❖ **Squally wind speed reaching 45-55 kmph gusting to 65 kmph** is likely to prevail along & off South Tamil Nadu coast and Gulf of Mannar; **Squally wind speed reaching 50-60 kmph gusting to 70 kmph** is likely to prevail over adjoining areas of westcentral Bay of Bengal; **Squally wind speed reaching 55-65 kmph gusting to 75 kmph** is very likely to prevail Along & off East Sri Lanka coasts; **Gale wind speed reaching 70-80 kmph gusting to 90 kmph** is likely to prevail over southwest Bay of Bengal, along & off North Tamil Nadu - Puducherry and adjoining South Andhra Pradesh coasts. Fishermen are advised not to venture into these areas.



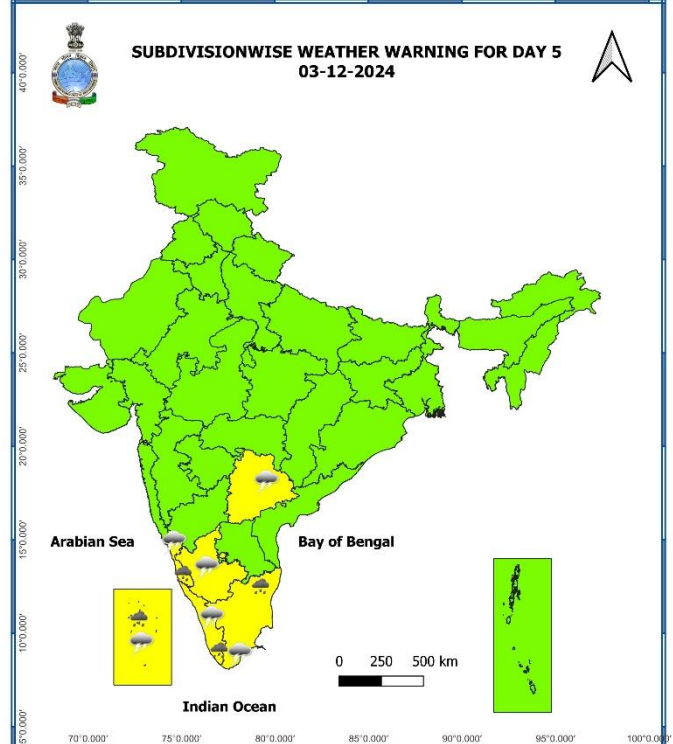
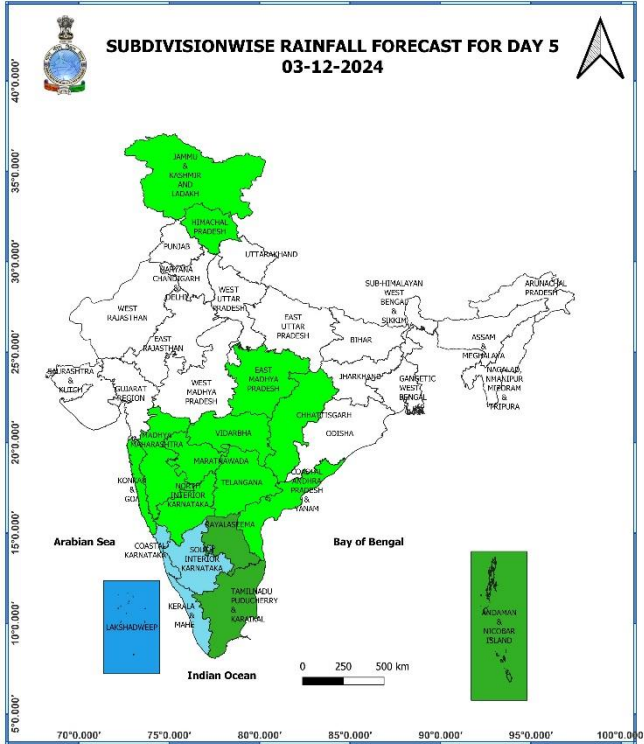
01 December (Day 3):

- ❖ **Heavy to very Heavy rainfall (≥ 12 cm)** at isolated places over Interior Tamil Nadu, Kerala & Mahe and South Interior Karnataka; **Heavy rainfall (≥ 7 cm)** at isolated places over remaining parts of Tamil Nadu, Puducherry & Karaikal, Coastal Andhra Pradesh & Yanam and Rayalaseema.
- ❖ **Dense fog** very likely in isolated pockets of Uttar Pradesh in night/morning hours.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal & South Interior Karnataka and Telangana.
- ❖ **Squally wind speed reaching 45-55 kmph gusting to 65 kmph** likely to prevail along & off South Tamil Nadu coast and Gulf of Mannar, Along & off East Sri Lanka coasts, along & off North Tamil Nadu – Puducherry and adjoining South Andhra Pradesh coasts & adjoining areas of westcentral Bay of Bengal. Fishermen are advised not to venture into these areas.



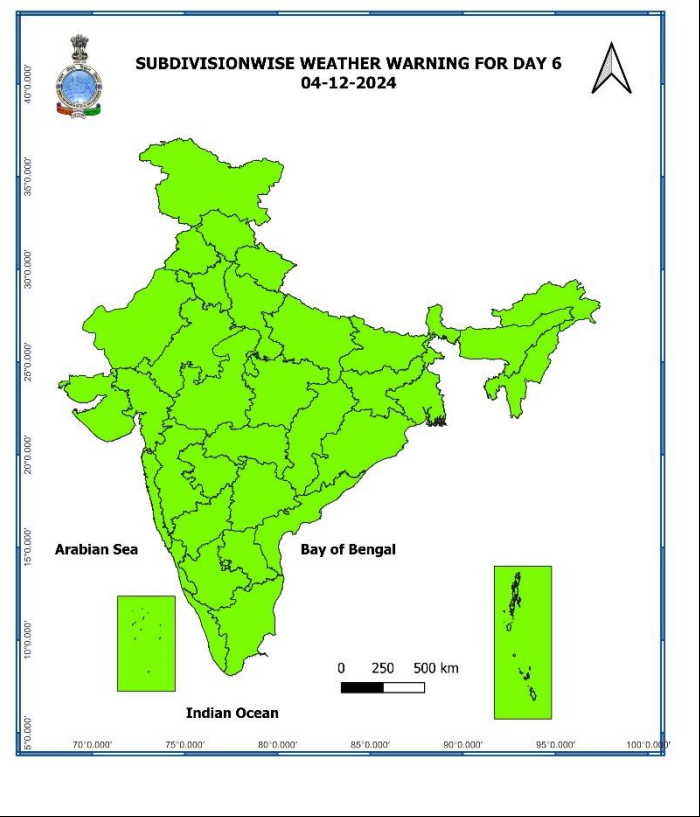
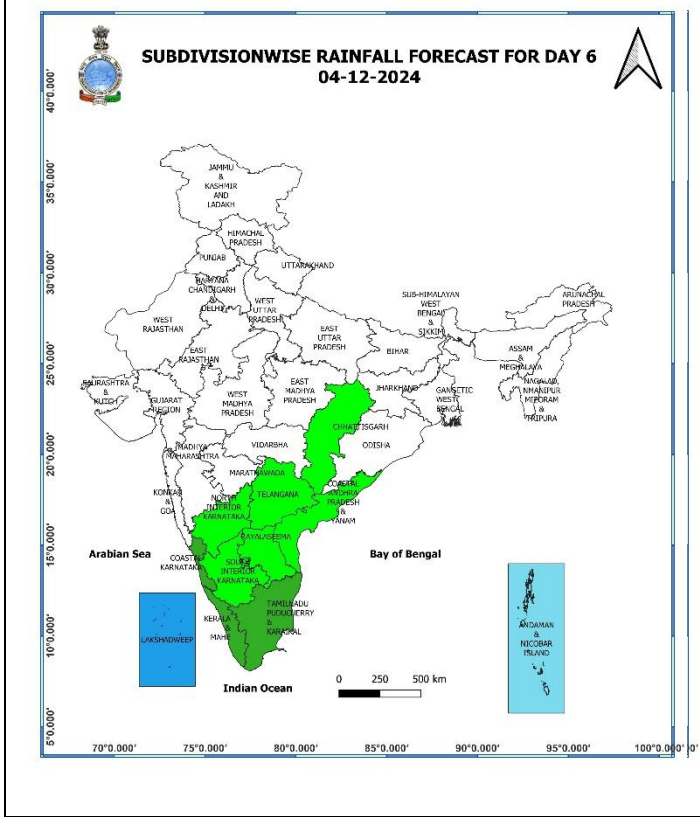
02 December (Day 4):

- ❖ **Heavy to very Heavy rainfall (≥ 12 cm)** at isolated places over Kerala & Mahe and South Interior Karnataka. **Heavy rainfall (≥ 7 cm)** at isolated places over Tamil Nadu, Puducherry & Karaikal and Lakshadweep.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Coastal & South Interior Karnataka and Telangana.
- ❖ **Squally wind speed reaching 45-55 kmph gusting to 65 kmph** likely to prevail along & off South Tamil Nadu coast and Gulf of Mannar, Along & off East Sri Lanka coasts, along & off North Tamil Nadu – Puducherry and adjoining South Andhra Pradesh coasts & adjoining areas of westcentral Bay of Bengal. Fishermen are advised not to venture into these areas.



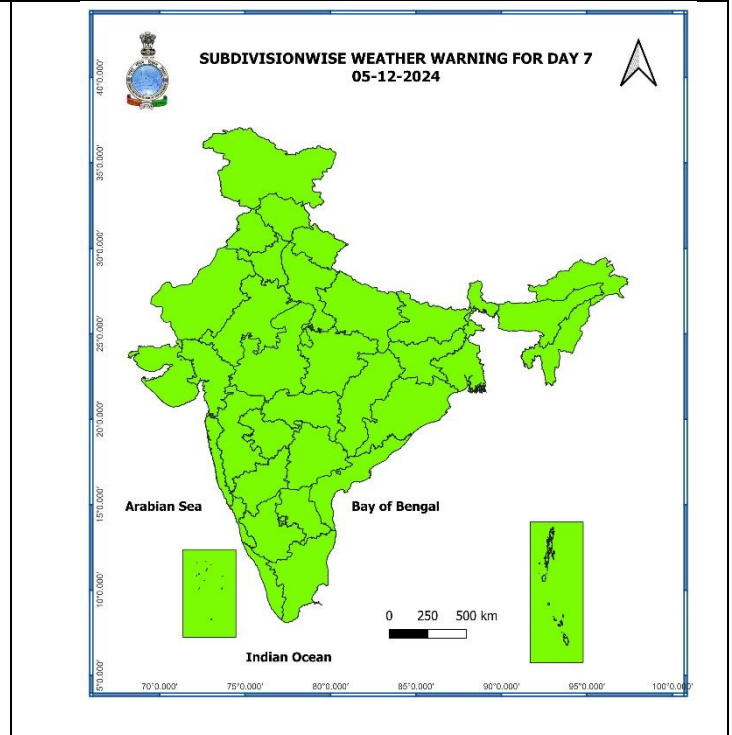
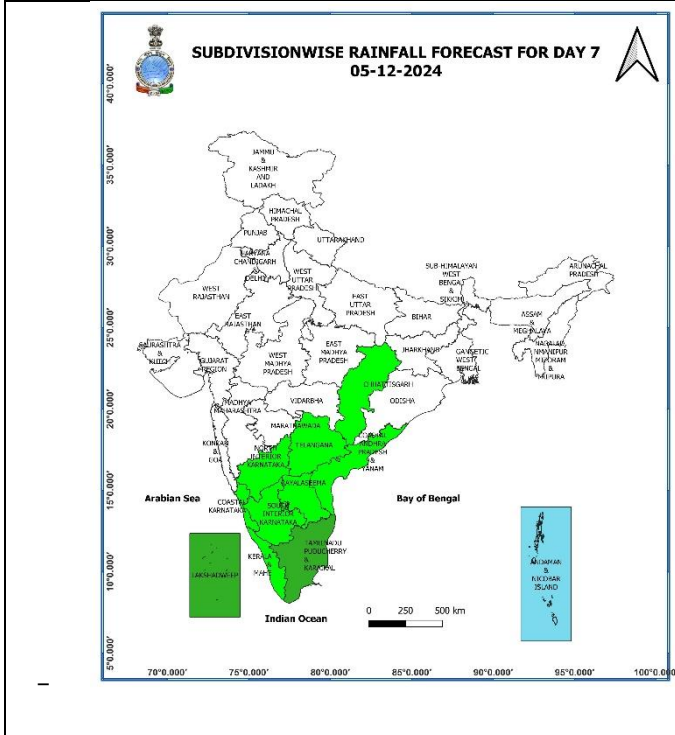
03 December (Day 5):

- ❖ **Heavy rainfall (≥ 7 cm)** likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Coastal Karnataka and Lakshadweep.
- ❖ **Thunderstorm accompanied with lightning** very likely at isolated places over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Coastal & South Interior Karnataka and Telangana.



04 December (Day 6):

❖ **No Warning.**



05 December (Day 7):

❖ **No Warning.**

Weather Outlook for subsequent 3 days (During 06th December – 08th December, 2024)

- ❖ Isolated to Scattered to light to moderate rainfall likely over some parts of south peninsular India and light rainfall over Jammu-Kashmir-Ladakh-Gilgit-Baltistan-Muzaffarabad.
- ❖ Mainly dry weather will prevail over rest parts of country.

- 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".
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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Impact & Action Suggested due to

- ✓ **Heavy to very Heavy rainfall with extremely heavy falls** at isolated places over north Tamil Nadu on 29th – 30th; Rayalaseema on 30th; south Coastal Andhra Pradesh on 30th November.
- ✓ **Isolated heavy to very heavy rainfall** over south Coastal Andhra Pradesh & Rayalaseema on 29th November; **Interior Tamil Nadu** on 01st December; Kerala & Mahe and South Interior Karnataka on 01st & 02nd December
- ✓ **Moderate to high flash flood risk** likely over Tamil Nadu, Puducherry & Karaikal, Rayalaseema and Coastal Andhra Pradesh & Yanam on 29th & 30th November. **(ANNEXURE I)**

A. 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 kutch roads.
- ❖ Possibilities of damage to vulnerable structure.
- ❖ Localized Landslides/Mudslides
- ❖ 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).

B. Action Suggested

- ❖ Check for traffic congestion on your route before leaving for your destination.
- ❖ Follow any traffic advisories that are issued in this regard.
- ❖ Avoid going to areas that face the water logging problems often.
- ❖ Avoid staying in vulnerable structure.

Impact expected due to dense/ very dense fog in the late night /morning hours

- ❖ Transport and Aviation:
 - May affect some airports, highways and railway routes in the areas of met- sub-division.
 - Difficult driving conditions with slower journey times.
 - Unless taken precautionary measures, it may lead to some road traffic collisions.
- ❖ Power Sector:
 - Chances of Tripping of Power lines in the very dense fog routes.
- ❖ Human Health:
 - Lung related health impacts: Dense fog contains particulate matter and other pollutants and in case exposed it gets lodged in the lungs, clogging them and decreasing their functional capacity which increases episodes of wheezing, coughing and shortness of breath.
 - Impact on people having asthma bronchitis: Long time exposure to dense fog may cause respiratory problem for people having asthma bronchitis and other lung related health problems.
 - Eye Irritation: Dense fog contains pollutions of various types and these Pollutants in the air if exposed may tend to irritate the membranes of the eye causing various infections leading to redness or swelling of the eye.

Action suggested:

- ❖ Transport and Aviation:
 - Be careful while driving or outing through any transport.
 - Use fog lights during driving.
 - Be in touch with airlines, railways and state transport for schedule of your journey.
- ❖ Power Sector:
 - To keep ready Maintenance Team
- Human Health: To avoid outing until unless emergency and to cover the face.

Agromet advisories for Heavy Rainfall likely over Tamil Nadu, Kerala and Coastal Andhra Pradesh:

- In **Tamil Nadu**, drain out excess water from rice, sugarcane, cotton, turmeric, vegetables and other standing crop fields; coconut and banana orchards. Undertake propping in sugarcane. Provide mechanical support to banana plants to prevent lodging.
- Undertake picking of matured cotton bolls and harvesting of matured rice, maize, groundnut, finger millet, pigeon pea, areca nut, fruits and vegetables in **South Interior Karnataka** and harvesting of matured rice in **Andhra Pradesh** immediately. Keep the harvested produce in safer places or cover the produce with tarpaulin sheets in the fields.
- Provide adequate drainage facilities for removal of excess water from standing crop fields and fruit orchards in Andhra Pradesh and South Interior Karnataka.
- Provide mechanical support to horticultural crops and staking to vegetables.

Livestock and Fishery

- Keep the animals inside the shed during heavy rainfall and provide balanced feed.
- Store the feed and fodder at safer place to avoid spoilage from rainfall.
- Hang gunny bags all around poultry sheds.
- Construct an outlet with proper netting around the pond to drain out excess rain water, thereby preventing fishes/fingerlings from escaping in case of overflowing.
- Check and repair dykes around the ponds to avoid entry of runoff water from catchment area.

Flash Flood Guidance:

ANNEXURE I

24 hours Outlook for the Flash Flood Risk (FFR) till 1730 IST of 30-11-2024:

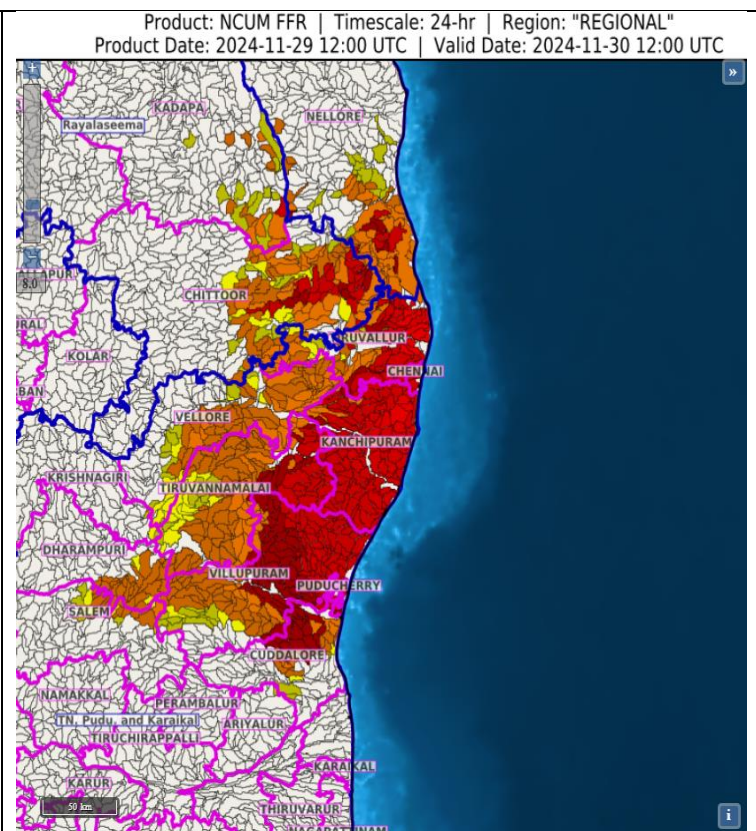
Moderate to High flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

Coastal Andhra Pradesh & Yanam - Nellore district.

Rayalaseema - Chittoor and Kadapa districts.

Tamil Nadu - Puducherry & Karaikal - Puduchery, Chennai, Cuddalore, Dharampuri, Kanchipuram, Krishnagiri, Salem, Tiruvallur, Tiruvannamalai, Vellore and Villupuram districts.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over Area of Concern (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

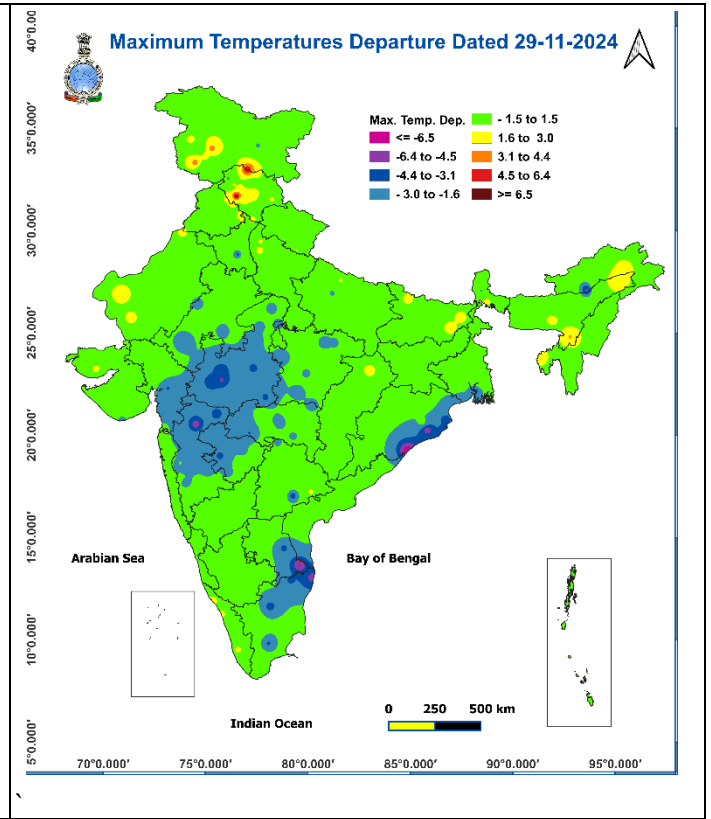
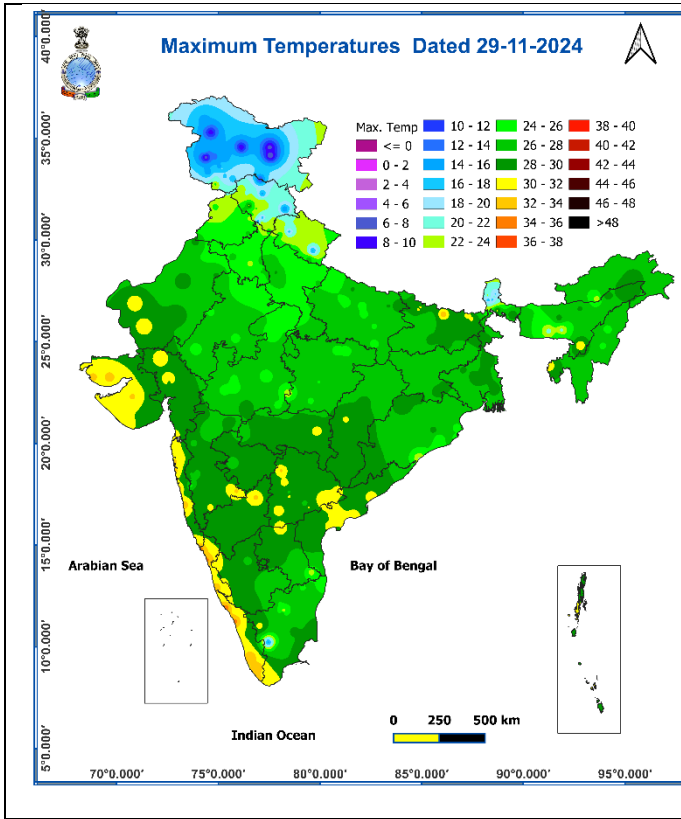


Fig. 3: Minimum Temperatures

Fig. 4: Departure of Minimum Temperatures

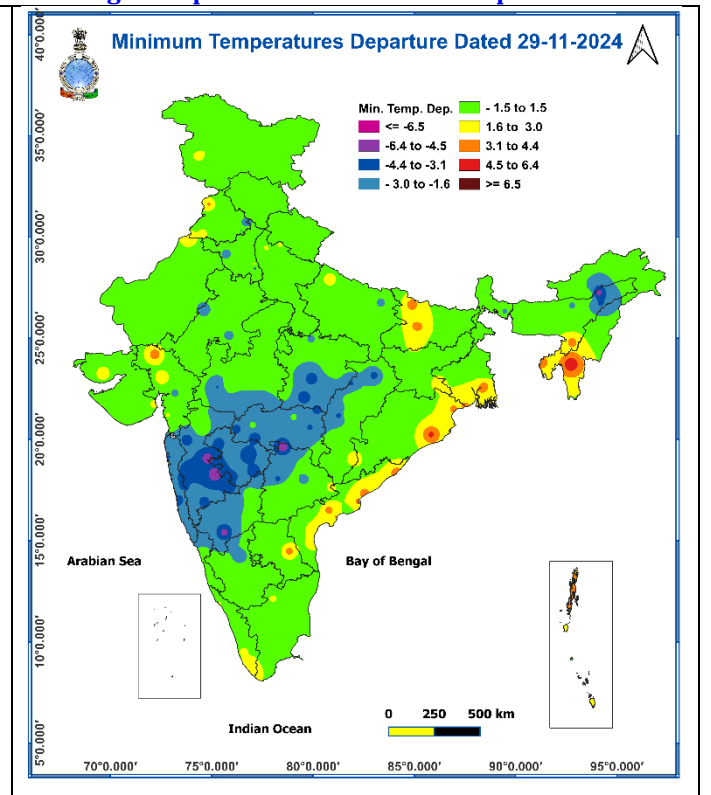
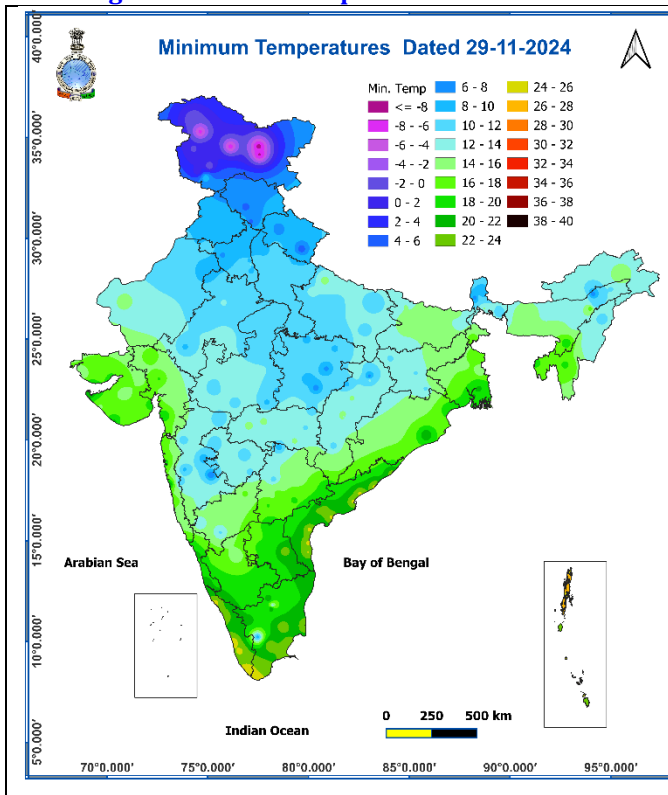
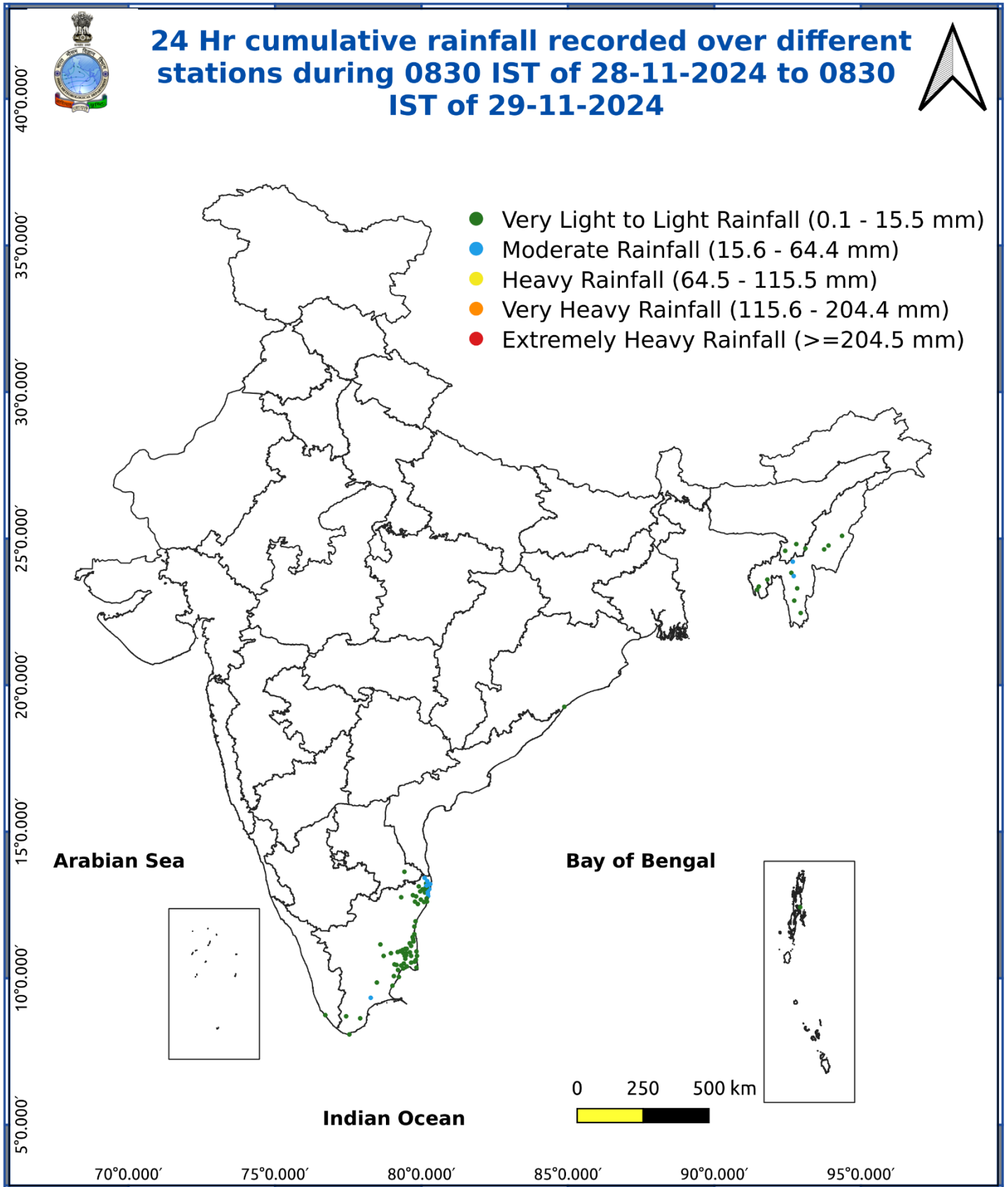


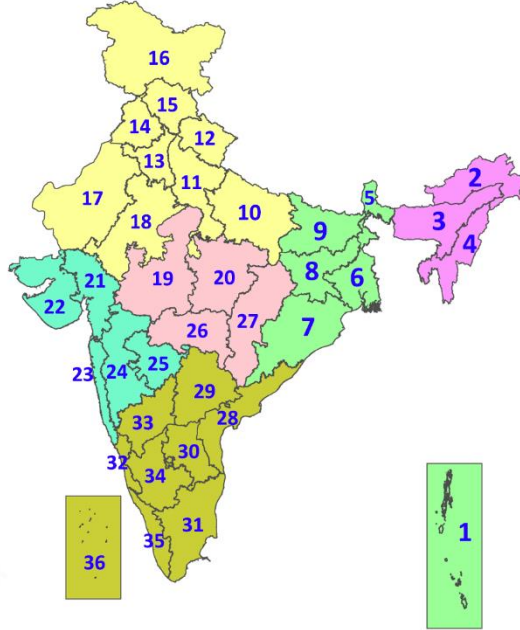
Fig. 5: Accumulated Rainfall (mm) during past 24 hours



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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°C to 6.4°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°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°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°C to -6.4°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°C to -6.4°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)