

# Government of India Ministry of Earth Sciences India Meteorological Department



Date: 13th October, 2024 Time of Issue: 1230 hours IST

Subject:(i) Northeast Monsoon rainfall activity is like to commence over south eastern peninsular India around 15-16<sup>th</sup> October.

- (ii) The Well marked low pressure area over eastcentral Arabian sea is likely to move westnorthwestwards and intensify into a Depression over central Arabian Sea during next 12 hours.
- (iii) A low pressure area is likely to form over central parts of south Bay of Bengal around  $14^{th}$  October.
- (iv) Isolated very heavy to extremely heavy rainfall likely over Tamil Nadu and Andhra Pradesh during 15-17<sup>th</sup> October.

# Realised weather during past 24 hours till 0830 hours IST of today (Annexure I)

**Heavy to very Heavy rainfall** at isolated places over Tamil Nadu, Puducherry & Karaikal; **Heavy rainfall** at isolated places over East Rajasthan, West Madhya Pradesh, Gujarat State, Odisha.

#### On further Withdrawal of Southwest Monsoon and Onset of Northeast Monsoon

- ❖ Southwest Monsoon has further withdrawn from remaining parts of Bihar, Jharkhand, entire West Bengal & Sikkim; some more parts of Chhattisgarh, Madhya Pradesh; many parts of Odisha and some parts of Assam & Meghalaya, northwest Bay of Bengal. The **line of withdrawal of Southwest Monsoon** now passes through 28.5°N/89.5°E, 27.0°N/90.0°E Dhubri, Tura, 22°N/89°E, 20°N/87°E, Gopalpur, Raipur, 22.5°N/79.5°E, Khargone, Nandurbar, Navsari and 20°N/70°E.
- Conditions are favourable for further **withdrawal of Southwest Monsoon** from remaining parts of Gujarat, Madhya Pradesh, Chhattisgarh, Odisha & some more parts of Maharashtra and north Bay of Bengal during next 2 days.
- Thereafter **Southwest Monsoon** likely to withdraw remaining parts of the country during subsequent 2 days. Simultaneously with the setting in of easterly & northeasterly winds over southern peninsular India, south & adjoining central Bay of Bengal, the **Northeast Monsoon** rainfall activity is like to commence over south eastern peninsular region during the same period.

# **Weather Systems:**

- ✓ The **Well Marked Low pressure area** over eastcentral & adjoining westcentral Arabian sea persisted over the same region at 0830 hours IST of today, the 13<sup>th</sup> October 2024. It is likely to move west-northwestwards and intensify into **a Depression** over central Arabian Sea during next 12 hours.
- ✓ The upper air **cyclonic circulation** over southwest Bay of Bengal now lies over north interior Tamil Nadu in lower tropospheric levels tilting southwestward with height.
- ✓ A **trough runs** from centre of the Well Marked Low pressure area over eastcentral & adjoining westcentral Arabian sea to Comorin area across south Kerala and the cyclonic circulation over Tamil Nadu in low to mid tropospheric levels.
- ✓ The **cyclonic circulation** over southeast Bay of Bengal & adjoining equatorial Indian Ocean moved west-northwestwards & lay over southeast Bay of Bengal and extending upto 5.8 km above mean sea level at 0830 hours IST of today, the 13<sup>th</sup> October 2024. Under its influence, a **low pressure area** is likely to form over central parts of south Bay of Bengal around 14<sup>th</sup> October. It is likely to become **Well marked low pressure area** and move west-northwestwards towards north Tamil Nadu, Puducherry and adjoining south Andhra Pradesh coasts during subsequent 48 hours.
- ✓ The upper air **cyclonic circulation** over east Assam & neighbourhood persists in lower tropospheric levels.

### Forecast & Warnings (upto 7 days) (Annexure II & III):

#### **South Peninsular India**

- ✓ Fairly widespread to widespread light to moderate rainfall very likely over Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Lakshadweep, Karnataka; Scattered to Fairly widespread light to moderate rainfall over Coastal Andhra Pradesh & Yanam, Rayalaseema; Isolated to Scattered light to moderate rainfall very likely over Telangana during the week.
- ✓ **Isolated extremely heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal, Rayalaseema on 16<sup>th</sup> October.
- ✓ **Isolated very heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal during 13<sup>th</sup>-17<sup>th</sup>; km on 17<sup>th</sup> & 18<sup>th</sup>; Coastal Andhra Pradesh & Yanam on 15<sup>th</sup> & 16<sup>th</sup>; Rayalaseema during 15<sup>th</sup> -17<sup>th</sup>; Coastal & South Interior Karnataka on 17<sup>th</sup> October.
- ✓ **Isolated heavy rainfall** very likely over Kerala & Mahe during the week; Coastal Andhra Pradesh & Yanam, Rayalaseema during 13<sup>th</sup>-17<sup>th</sup>; Rayalaseema during 14<sup>th</sup>-17<sup>th</sup> Coastal & South Interior Karnataka during 15<sup>th</sup>-18<sup>th</sup>; North Interior Karnataka on 17<sup>th</sup> & 18<sup>th</sup> October.

#### **West & Central India**

- ✓ Scattered to Fairly widespread light to moderate rainfall very likely over Gujarat State during 2 days; Isolated to Scattered light to moderate rainfall over same region during subsequent 5 days; Isolated to Scattered light to moderate rainfall over Konkan & Goa, Madhya Maharashtra, Marathwada, Madhya Pradesh, Vidarbha, Chhattisgarh during the week.
- ✓ **Isolated heavy rainfall** very likely over Madhya Maharashtra, Gujarat State, West Madhya Pradesh on 13<sup>th</sup>; Konkan & Goa on 17<sup>th</sup> October.

#### **Northwest India:**

- ✓ Isolated light to moderate rainfall very likely over Rajasthan on 13<sup>th</sup> & 14<sup>th</sup> October.
- ✓ **Isolated heavy rainfall** very likely over East Rajasthan on 13<sup>th</sup> October.

#### **Northeast & East India:**

✓ No significant rainfall likely over these regions during the week.

# **Fishermen warning**

Squally weather with wind speed 35 kmph to 45 kmph gusting to 55 kmph is likely to prevail central parts of Arabian sea southern parts of north Arabian sea, along and off Somalia coast, many parts of southwest Arabian sea and adjoining parts of southeast Arabian sea, along and off Kerala, Karnataka coasts and adjoining Lakshadweep area, over Comorin area, Gulf of Mannar, along and off Sri Lanka coast, Tamil Nadu coast, south Bay of Bengal.

Southwest Monsoon withdrawal Map (ANNEXURE IV)

For more details, kindly refer: https://mausam.imd.gov.in/responsive/all\_india\_forcast\_bulletin.php For District wise warnings refer: <a href="https://mausam.imd.gov.in/responsive/districtWiseWarningGIS.php">https://mausam.imd.gov.in/responsive/districtWiseWarningGIS.php</a> For Fishermen warnings, kindly refer:

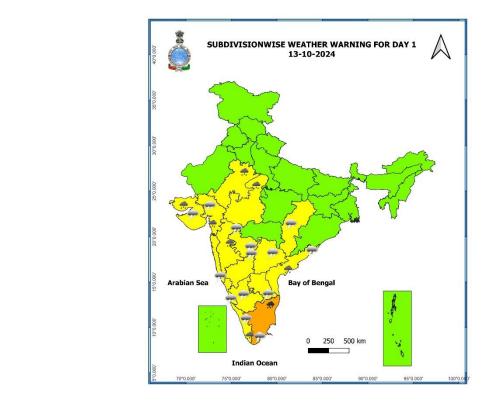
https://rsmcnewdelhi.imd.gov.in/uploads/archive/51/51\_bdf575\_GRAPHIC.png

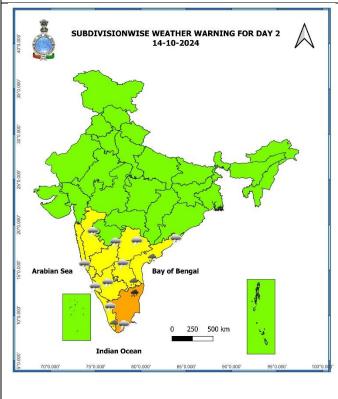
# Significant Rainfall recorded during past 24 hours till 0830 hours IST of today 13.10.2024 (in cm):

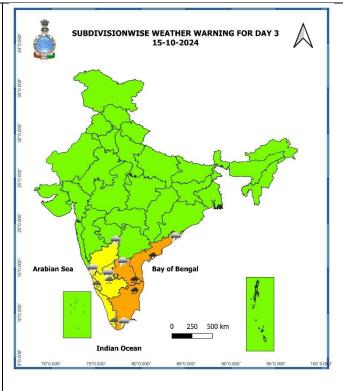
- ❖ Tamil Nadu, Puducherry & Karaikal: Madurai AWS (dist Madurai) 16, Tirupuvanam (dist Sivagangai) 14, Sivakasi (dist Virudhunagar), Tallakulam (dist Madurai), Rameswaram (dist Ramanathapuram), Periyapatti (dist Madurai), Vettikadu (dist Thanjavur) 12 each, Madurai North (dist Madurai) 11, Kovilankulam (dist Virudhunagar), Aruppukottai KVK AWS (dist Virudhunagar), Thaniamangalam (dist Madurai), Ponnaniyar Dam (dist Thiruchirappalli), Mettupatti (dist Madurai) 10 each, Devakottai (dist Sivagangai), Pulipatti (dist Madurai), Melur (dist Madurai), Avudayarkoil (dist Pudukkottai) 9 each, Viraganur Dam (dist Madurai), Tiruchengode (dist Namakkal), Kodaikanal (dist Dindigul), Harur (dist Dharmapuri) 8 each, Singampunari (dist Sivagangai), Ariyalur Taluk Office (dist Ariyalur), Ariyalur PTO (dist Ariyalur), Idayapatti (dist Madurai), Mayanur (dist Karur), Padalur (dist Perambalur), Thirukoilur ARG (dist Kallakurichi), Krishnarayapuram (dist Karur), Palani (dist Dindigul), Pullambadi (dist Thiruchirappalli), Ariyalur AWS (dist Ariyalur), Kallikudi (dist Madurai), Eraiyur (dist Perambalur), Usilampatti (dist Madurai), Mannargudi (dist Thiruvarur) 7 each,
- ❖ East Rajasthan: Udaipur/d-aero (dist Udaipur) 9, Girva Sr (dist Udaipur) 8, Jhadol Sr (dist Udaipur) 7,
- West Madhya Pradesh: Neemuch (dist Jawad) 8,
- ❖ Saurashtra & Kutch: Malia (dist Junagadh) 8,
- Gujarat Region: Surat\_kvk Aws (dist Surat) 7,
- Odisha: Chandua Kuliana (dist Mayurbhanj) 7,

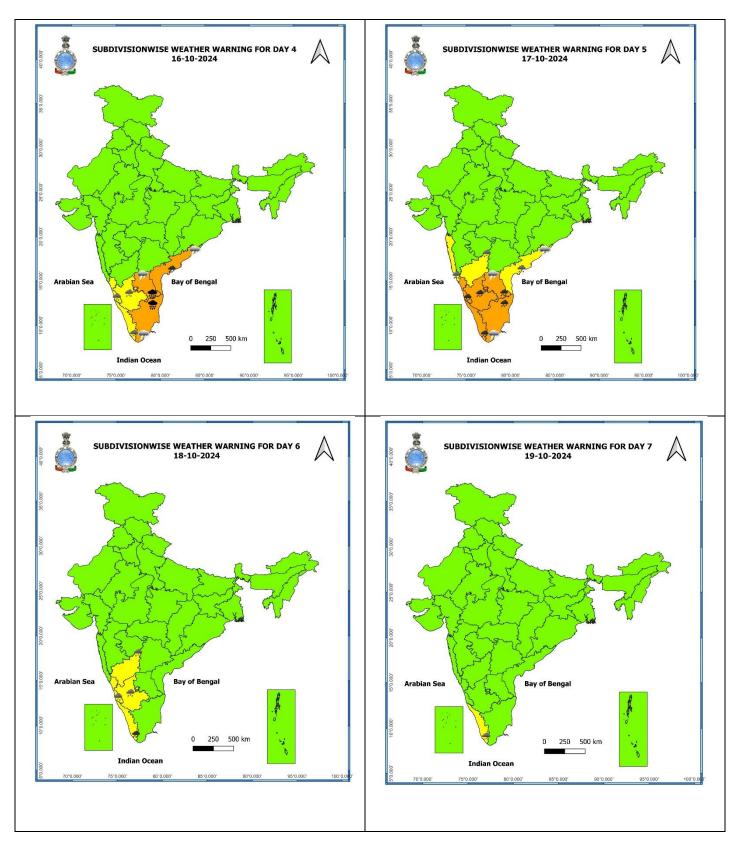
7 Days Rainfall Forecast									
S. No.	Subdivision	13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
1	ANDAMAN & NICOBAR ISLANDS	WS	WS	WS	FWS	FWS	FWS	WS	
2	ARUNACHAL PRADESH	FWS	SCT	SCT	SCT	ISOL	ISOL	ISOL	
3	ASSAM & MEGHALAYA	SCT	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	
4	NAGALAND, MANIPUR, MIZORAM & TRIPURA	SCT	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	
5	SUB-HIMALAYAN WEST BENGAL & SIKKIM	ISOL							
6	GANGETIC WEST BENGAL	ISOL	DRY	ISOL	ISOL	ISOL	SCT	SCT	
7	ODISHA	ISOL							
8	JHARKHAND	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	DRY	
9	BIHAR	DRY	DRY	DRY	DRY	DRY	ISOL	ISOL	
10	EAST UTTAR PRADESH	DRY							
11	WEST UTTAR PRADESH	DRY							
12	UTTARAKHAND	ISOL	DRY	DRY	DRY	DRY	DRY	DRY	
13	HARYANA CHANDIGARH & DELHI	DRY							
14	PUNJAB	DRY							
15	HIMACHAL PRADESH	DRY	DRY	DRY	DRY	DRY	DRY	ISOL	
16	JAMMU & KASHMIR AND LADAKH	DRY	DRY	DRY	ISOL	ISOL	ISOL	DRY	
17	WEST RAJASTHAN	ISOL	ISOL	DRY	DRY	DRY	DRY	DRY	
18	EAST RAJASTHAN	ISOL	ISOL	ISOL	DRY	DRY	DRY	DRY	
19	WEST MADHYA PRADESH	SCT	SCT	ISOL	ISOL	DRY	DRY	ISOL	
20	EAST MADHYA PRADESH	ISOL							
21	GUJARAT REGION	FWS	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	
22	SAURASHTRA & KUTCH	FWS	SCT	ISOL	ISOL	ISOL	DRY	DRY	
23	KONKAN & GOA	SCT	SCT	ISOL	ISOL	SCT	SCT	SCT	
24	MADHYA MAHARASHTRA	SCT	ISOL	ISOL	ISOL	SCT	ISOL	ISOL	
25	MARATHAWADA	ISOL	ISOL	ISOL	ISOL	SCT	ISOL	ISOL	
26	VIDARBHA	SCT	ISOL	ISOL	ISOL	ISOL	ISOL	ISOL	
27	CHHATTISGARH	ISOL							
28	COASTAL ANDHRA PRADESH & YANAM	SCT	SCT	FWS	FWS	FWS	SCT	SCT	
29	TELANGANA	ISOL							
30	RAYALASEEMA	SCT	FWS	FWS	WS	FWS	SCT	SCT	
31	TAMILNADU PUDUCHERRY & KARAIKAL	FWS	FWS	SCT	FWS	SCT	ISOL	ISOL	
32	COASTAL KARNATAKA	SCT	WS	WS	WS	WS	FWS	SCT	
33	NORTH INTERIOR KARNATAKA	FWS	FWS	FWS	FWS	FWS	SCT	SCT	
34	SOUTH INTERIOR KARNATAKA	WS	WS	WS	WS	WS	FWS	SCT	
35	KERALA & MAHE	WS	WS	WS	WS	WS	WS	FWS	
36	LAKSHADWEEP	WS	FWS	FWS	FWS	FWS	FWS	FWS	

• As the lead period increases forecast accuracy decreases.

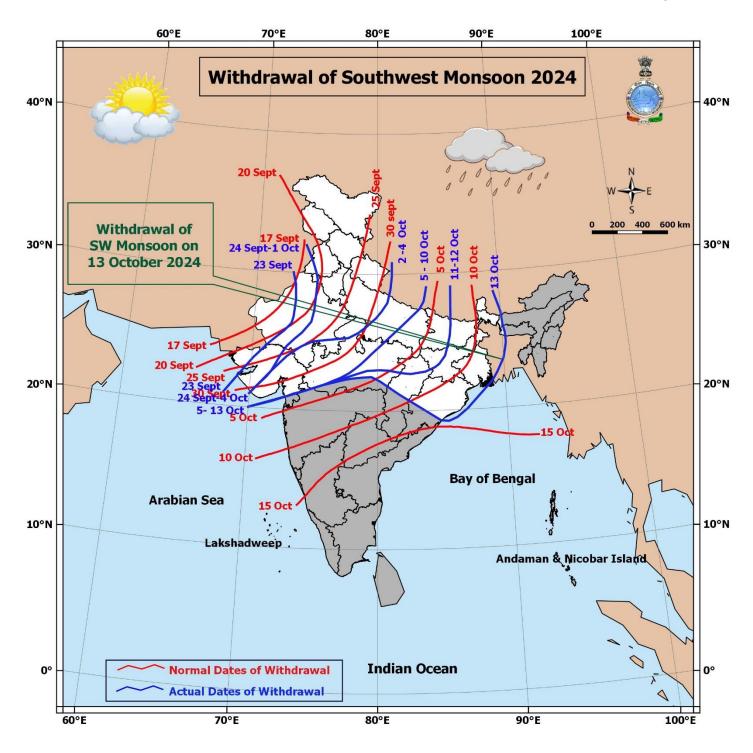








- Action may be taken based on ORANGE AND RED COLOUR warnings.
- Vulnerable regions likely urban and hilly areas action may be initiated for heavy rainfall warning.
- As the lead period increases forecast accuracy decreases.



# Impact due to

- ✓ **Isolated extremely heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal, Rayalaseema on 16<sup>th</sup> October.
- ✓ **Isolated very heavy rainfall** very likely over Tamil Nadu, Puducherry & Karaikal during 13<sup>th</sup>-17<sup>th</sup>; Kerala & Mahe on 17<sup>th</sup> & 18<sup>th</sup>; Coastal Andhra Pradesh & Yanam on 15<sup>th</sup> & 16<sup>th</sup>; Rayalaseema during 15<sup>th</sup> -17<sup>th</sup>; Coastal & South Interior Karnataka on 17<sup>th</sup> October.

# **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 likely over various parts of the country

- ✓ In **Tamil Nadu**, drain out excess water from rice nurseries and fields of rice, maize, pepper and newly planted turmeric. Provide support to banana plantations.
- ✓ Make necessary arrangements for draining out excess water from standing crop fields and fruit orchards to avoid water stagnation in East Rajasthan, West Madhya Pradesh, Vidarbha, Madhya Maharashtra, Gujarat, Kerala, Coastal Karnataka, South Interior Karnataka and Andhra Pradesh.
- ✓ Keep the harvested produce at safer places.
- ✓ Provide mechanical support to horticultural crops & staking to vegetables

# **Legends & abbreviations:**

- **❖** Heavy Rain:64.5-115.5mm; Very Heavy Rain:115.6-204.4mm; Extremely Heavy Rain: >204.4mm.
- Obsy: Observatory; AWS: Automatic Weather Station; ARG: Automatic Rain Gauge; dist: District: NH: National Highway; KVK: Krishi Vigyan Kendra; DVC: Damodar Valley Corporation; PTO: Part Time Office, Aero: Aerodrome, IAF: Indian Air Force
- **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.



35. केरल और माहे

36. लक्षद्वीप

#### राष्ट्रीय मौसम पूर्वानुमान केन्द्र भारत मौसम विज्ञान विभाग पृथ्वी विज्ञान मंत्रालय

#### National Weather Forecasting Centre India Meteorological Department Ministry of Earth Sciences

35. Kerala & Mahe

36. Lakshadweep

# **LEGENDS**



# **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)





Sea State

Cyclone



#### **DEFINITION/CRITERIA** Heavy: 64.5 to 115.5 mm/cm \* Very Heavy: 115.6 to 204.4 mm/cm Rain/ Snow \* Extremely Heavy: > 204.4 mm/cm When maximum temperature of a station reaches ≥40° C for plains and ≥30° 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 ≥6.5° C (b). Based on Actual maximum temperature **Heat Wave** Heat Wave: When actual maximum temperature ≥45°C Severe Heat Wave: When actual maximum temperature ≥47°C (c). Criteria for heat wave for coastal stations When maximum temperature departure is >4.5°C from normal. Heat Wave may be described provided maximum temperature ≥37°C When maximum temperature remains 40°C Warm Night: When minimum temperature departure 4.5 °C to 6.4 °C Warm Night Severe Warm Night: When minimum temperature departure >6.4 °C When minimum temperature of a station ≤10°C for plains and ≤0°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 °C **Cold Wave** (b) Based on actual Minimum Temperature (for Plains only) Cold Wave : When Minimum Temperature is ≤ 4.0 °C Severe Cold Wave: When Minimum Temperature is ≤ 2.0 °C (c) For Coastal Stations When Minimum Temperature departure is ≤-4.5 °C & actual Minimum Temperature is ≤ 15 °C When minimum temperature of a station ≤10°C for plains and ≤0°C for hilly regions Based on departure **Cold Day** 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 °C Phenomenon of small droplets suspended in air and the horizontal visibility < 1km Moderate Fog: When the visibility between 500-200 metres Fog when the visibility between 50- 200 metres Dense Fog: v Very Dense Fog: when the visibility < 50 metres Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder) Thunderstorm Dust/Sand An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind. Ice deposits on ground Frost Air temperature ≤4°C ( over Plains) A strong wind that rises suddenly, lasts for atleast 1 minute. Moderate: Wind speed 52-61 kmph Squall Severe: Wind speed 62-87 kmph Very Severe: Wind speed >87 kmph

Effect of various waves in the sea over specific area

Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre

High to very high: Wind speed 63-117 kmph ( 34-63 knots) & Wave height 6-14 metre Phenomenal: Wind speed >117 kmph (>63 knots) & Wave height >14 metre

Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)

Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)

Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)
Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)

Super Cyclone Strom: Wind speed >220 kmph (>119 knots)