MAUSAM, **77**, 2 (April 2026), 679-712

MAUSAM

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# Weather in India

## HOT WEATHER SEASON (March-May 2025)†

### 1. Chief features

(*i*) In the Hot weather season of 2025, one low-pressure area formed over south Andaman & neighbourhood in April; one depression over eastcentral Arabian sea and one deep depression over northwest Bay of Bengal off West Bengal & adjoining Bangladesh coasts during the last week of May.

(*ii*) The hot weather season 2025 with reference to severe heat wave/heat wave conditions was mild, but began from the second week of March over Western India and East-Central India continued to month of April and again appeared during third week of May. In March 2025, heat wave conditions were observed in western India mainly during 10- 15 March 2025 & East Central India during 15-18 March 2025. Above-normal heatwave days were observed in Gujarat and Odisha; 3-6 days of heat waves were observed in different parts of the sub-divisions of these states. In April 2025, Rajasthan and Gujarat states observed 6-11 heat wave days and East Madhya Pradesh and Vidarbha observed 4-6 heat wave days. Over East-Central India, Maharashtra and adjoining northern Peninsular India,1-3 days of heat wave were observed. Rajasthan, Jammu & Kashmir & and Ladakh observed 6-11 heat wave days in May 2025. East Uttar Pradesh, Haryana, Chandigarh & Delhi, Punjab and East Madhya Pradesh observed 1-3 heat wave days.

(*iii*) The seasonal rainfall over homogenous regions of central India and south peninsula was large, excess while the country as a whole was excess, and remaining two regions recorded normal rainfall. Rainfall for the months (April to May) for the country was normal to above normal except some sub-divisions from northeast and northwest India where it was deficient. For the month of March, rainfall was deficient for country and also for four homogeneous region. Thus during the season, most subdivisions received large excess/excess/normal rainfall, except some sub-divisions, viz. Arunachal Pradesh, Jammu & Kashmir & Ladakh and Himachal Pradesh. During the season, Konkan & Goa, Madhya Maharashtra, Vidarbha, Coastal Karnataka and North Interior Karnataka 5r received the highest rainfall since 1901.

(** Definitions of terms in italics (other than subtitles) are given in Appendix*).

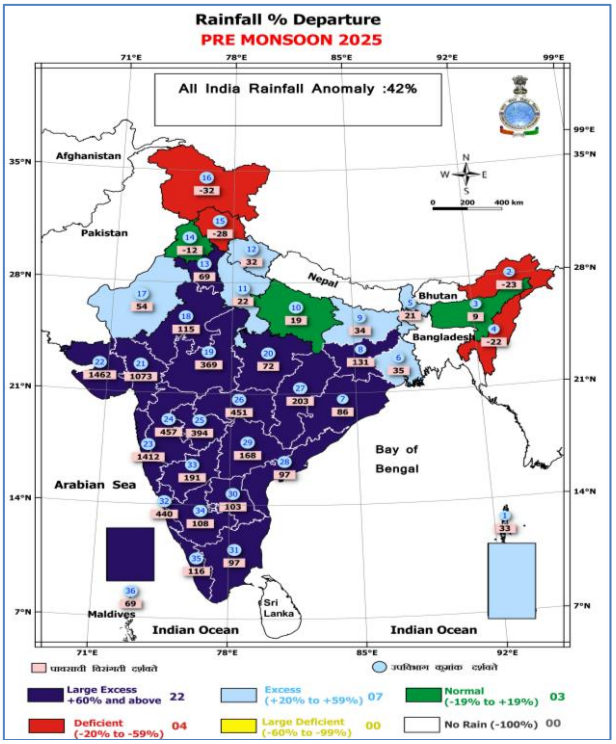


**Fig. 1.** Sub-divisional rainfall percentage departures (based on Operational data) for the season Mar-May, 2025. Sub-divisions are indicated by number on the map & bold letters in legend. The rainfall anomaly values for these 36 sub-divisions are indicated

(*iv*) Thunderstorms/hailstorms were frequent throughout the season over the country and aided in keeping the heat waves at bay.

(*v*) Monsoon onset over Kerala was on 24th May, against 1st June (8 days before the normal onset date). Over Mumbai, it advanced on 26th May against the normal date of advancement, 11th June, with a record of 16 days earlier than usual.

### 2. Seasonal rainfall

The sub-division wise rainfall and its departure from normal for each month and season as a whole are given in Table-1 and the principal amounts of rainfall are given in Table-5. The sub-divisional rainfall departures for the season March-May 2025 are also depicted in Fig. 1.

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**TABLE 1**

**Sub-division rainfall (mm) for each month and season as a whole (March-May, 2025)**

| S. No. | Meteorological Sub-divisions | March | | | April | | | May | | | Season | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Actual (mm) | Normal (mm) | Dep. (%) | Actual (mm) | Normal (mm) | Dep. (%) | Actual (mm) | Normal (mm) | Dep. (%) | Actual (mm) | Normal (mm) | Dep. (%) |
| 1. | Andaman & Nicobar Islands | 15.1 | 38.2 | -61% | 218.1 | 79.3 | 175% | 373.8 | 338.4 | 10% | 606.9 | 455.9 | 33% |
| 2. | Arunachal Pradesh | 113.6 | 171.3 | -34% | 165.7 | 301.0 | -45% | 303.3 | 285.0 | 6% | 582.6 | 757.3 | -23% |
| 3. | Assam & Meghalaya | 44.0 | 74.2 | -41% | 156.1 | 193.0 | -19% | 439.1 | 315.4 | 39% | 637.2 | 582.6 | 9% |
| 4. | Nagaland, Manipur, Mizoram & Tripura | 9.8 | 59.5 | -84% | 75.5 | 141.3 | -47% | 287.5 | 276.2 | 4% | 371.9 | 477.0 | -22% |
| 5. | S.H.W.B.& Sikkim | 30.2 | 56.7 | -47% | 141.8 | 124.2 | 14% | 359.7 | 257.5 | 40% | 531.7 | 438.4 | 21% |
| 6. | Gangetic West Bengal. | 20.5 | 25.5 | -20% | 65.2 | 48.8 | 34% | 168.7 | 113.6 | 48% | 254.3 | 187.9 | 35% |
| 7. | Odisha | 21.4 | 20.1 | 6% | 64.8 | 36.2 | 79% | 152.4 | 72.3 | 111% | 238.6 | 128.6 | 86% |
| 8. | Jharkhand | 32.4 | 14.7 | 120% | 43.6 | 19.8 | 120% | 116.5 | 48.8 | 139% | 192.5 | 83.3 | 131% |
| 9. | Bihar | 3.7 | 8.2 | -54% | 48.6 | 18.0 | 170% | 62.3 | 59.1 | 5% | 114.6 | 85.3 | 34% |
| 10. | East Uttar Pradesh | 0.9 | 7.5 | -88% | 14.2 | 6.1 | 133% | 24.9 | 20.0 | 24% | 39.9 | 33.6 | 19% |
| 11. | West Uttar Pradesh | 3.4 | 10.5 | -67% | 6.7 | 6.2 | 8% | 29.6 | 16.0 | 85% | 39.7 | 32.7 | 22% |
| 12. | Uttarakhand | 57.9 | 54.3 | 7% | 33.7 | 39.3 | -14% | 116.6 | 64.6 | 81% | 208.2 | 158.2 | 32% |
| 13. | Haryana, Chandigarh & Delhi | 8.7 | 15.1 | -42% | 6.4 | 9.5 | -33% | 61.1 | 20.4 | 199% | 76.2 | 45.0 | 69% |
| 14. | Punjab | 7.6 | 22.5 | -66% | 5.3 | 14.4 | -63% | 35.0 | 17.3 | 102% | 47.8 | 54.2 | -12% |
| 15. | Himachal Pradesh | 72.0 | 113.4 | -36% | 40.5 | 64.0 | -37% | 61.9 | 63.3 | -2% | 174.4 | 240.7 | -28% |
| 16. | Jammu - Kashmir & Ladakh | 87.1 | 152.9 | -43% | 69.6 | 99.6 | -30% | 68.3 | 77.5 | -12% | 225.0 | 330.0 | -32% |
| 17. | West Rajasthan | 2.3 | 4.3 | -48% | 1.5 | 5.9 | -75% | 34.3 | 14.5 | 136% | 38.0 | 24.7 | 54% |
| 18. | East Rajasthan | 1.3 | 4.2 | -69% | 2.3 | 4.6 | -49% | 42.0 | 12.4 | 239% | 45.6 | 21.2 | 115% |
| 19. | West Madhya Pradesh | 0.1 | 4.7 | -98% | 2.1 | 2.4 | -12% | 61.1 | 6.4 | 854% | 63.3 | 13.5 | 369% |
| 20. | East Madhya Pradesh. | 4.0 | 10.8 | -63% | 5.6 | 5.2 | 8% | 31.1 | 7.7 | 304% | 40.7 | 23.7 | 72% |
| 21. | Gujarat Region | 0.0 | 0.3 | -100% | 0.0 | 0.9 | -99% | 64.5 | 4.3 | 1401% | 64.5 | 5.5 | 1073% |
| 22. | Saurashtra - Kutch & Diu | 0.0 | 0.2 | -100% | 0.0 | 0.5 | -96% | 48.4 | 2.4 | 1916% | 48.4 | 3.1 | 1462% |
| 23. | Konkan & Goa | 0.6 | 2.2 | -71% | 5.9 | 1.8 | 226% | 437.9 | 25.4 | 1624% | 444.4 | 29.4 | 1412% |
| 24. | Madhya Maharashtra | 1.2 | 3.3 | -65% | 4.4 | 6.0 | -27% | 141.4 | 17.1 | 727% | 146.9 | 26.4 | 457% |
| 25. | Marathwada | 1.0 | 6.8 | -85% | 5.7 | 5.4 | 6% | 119.8 | 13.4 | 794% | 126.5 | 25.6 | 394% |
| 26. | Vidarbha | 1.8 | 10.5 | -83% | 22.2 | 6.7 | 232% | 130.5 | 9.8 | 1232% | 148.8 | 27.0 | 451% |
| 27. | Chhattisgarh | 7.1 | 9.1 | -22% | 24.1 | 11.5 | 109% | 80.9 | 16.4 | 393% | 112.0 | 37.0 | 203% |
| 28. | Coastal A.P. & Yanam | 2.6 | 13.9 | -82% | 38.1 | 23.9 | 59% | 148.9 | 58.4 | 155% | 189.5 | 96.2 | 97% |
| 29. | Telangana | 6.8 | 15.8 | -57% | 28.5 | 18.5 | 54% | 135.9 | 29.5 | 361% | 171.2 | 63.8 | 168% |
| 30. | Rayalaseema | 2.6 | 9.7 | -73% | 38.4 | 19.0 | 102% | 120.5 | 50.8 | 137% | 161.5 | 79.5 | 103% |
| 31. | Tamil Nadu, Pudcherry & Karaikal | 46.7 | 19.9 | 135% | 59.1 | 38.7 | 53% | 139.9 | 66.3 | 111% | 245.7 | 124.9 | 97% |
| 32. | Coastal Karnataka | 13.7 | 9.3 | 48% | 56.9 | 29.1 | 96% | 766.7 | 116.8 | 556% | 837.4 | 155.2 | 440% |
| 33. | North Interior Karnataka | 10.5 | 8.4 | 25% | 48.8 | 23.3 | 109% | 172.7 | 47.9 | 261% | 232.0 | 79.6 | 191% |
| 34. | South Interior Karnataka | 25.0 | 12.6 | 98% | 66.7 | 43.1 | 55% | 205.1 | 87.1 | 136% | 296.8 | 142.8 | 108% |
| 35. | Kerala & Mahe | 65.6 | 34.4 | 91% | 126.3 | 105.5 | 20% | 584.8 | 219.1 | 167% | 776.8 | 359.0 | 116% |
| 36. | Lakshadweep | 50.8 | 16.7 | 204% | 31.4 | 29.4 | 7% | 251.2 | 150.9 | 66% | 333.4 | 197.0 | 69% |

*Note :* Amounts less than 0.1 mm are rounded off to zero

**TABLE 2**

**Details of the weather systems during March 2024**

| S. No. | System | Duration | Place of initial location | Direction of movement | Place of final location | Remarks |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| (**A**) | *Western disturbances / Eastward moving systems* | | | | | |
| (*i*) | *Upper air cyclonic circulation* | | | | | |
| 1. | Between 3.1 & 7.6 km above m.s.l. | 8-17 | Iraq | North-east | North Haryana & adjoining northwest Uttar Pradesh with the trough aloft roughly along Long.75° E to the north of Lat.27° N | Moved away north-eastwards on 18th morning. |
| 2. | Between 3.1 & 9.6 km above m.s.l. | 18-24 | Southeast Iran and neighbourhood | East-northeast | Roughly along Long. 87° E to the north of Lat.22° N | It lay as a trough in lower & middle tropospheric levels from 20th onwards and moved away east-northeastwards on 25th. |
| (*ii*) | *As a trough* | | | | | |
| 1. | At 5.8 km above m. s. l. | 2nd morning - 4 | Roughly along Long. 50° E and to the north of Lat. 30° N | East-northeast | Roughly along Long. 70° E to the north of Lat. 30° N | Moved away east-northeastwards on 5th. |
| 2. | At 3.1 kms above m.s.l. | 23-28 | Roughly along Long. 45° E to the north of Lat. 25° N | East-northeast | Roughly along Long.70° E to the north of Lat. 30° N | Moved away east-northeastwards on 29th. |
| (*iii*) | *As an Induced cyclonic circulation* | | | | | |
| 1. | - | - | - | - | - | - |
| (**B**) | *Other upper air cyclonic circulations* | | | | | |
| 1. | Upto 1.5 km above m. s. l. | 1 | Southeast Uttar Pradesh & neighbourhood | Stationary | In situ | Became less marked on 2nd. |
| 2. | At 5.8 km above m. s. l. | 1-3 | East Equatorial Indian Ocean & adjoining southwest Bay of Bengal | West | West Equatorial Indian Ocean & adjoining Comorin-Maldives area | Became less marked on 4th. |
| 3. | Upto 1.5 kms above m.s.l. | 2-6 | Northeast Assam & neighbourhood | Stationary | In situ | Became less marked on 7th. |
| 4. | At 0.9 km Above m.s.l. | 3 | Gulf of Mannar & neighbourhood | Stationary | In situ | Became less marked on 4th. |
| 5. | At 1.5 km above m.s.l. | 8 | Central Assam & neighbourhood with a trough aloft roughly along Long.90° E to the north of Lat.23° N | Stationary | In situ | Became less marked on 9th. |
| 6. | At 0.9 km above m.s.l. | 8 | Interior Tamil Nadu & neighbourhood | Stationary | In situ | Became less marked on 9th. |
| 7. | At 1.5 km above m.s.l. | 8 | Northeast Assam & neighbourhood | Stationary | In situ | Became less marked on the same day. |
| 8. | Upto 1.5 km above m.s.l. | 9 | Northeast Bangladesh & neighbourhood | Stationary | In situ | Became less marked on 10th. |
| 9. | Upto 5.8 km above m. s. l. | 9-10 | Northeast Equatorial Indian Ocean & adjoining southeast Bay of Bengal | West | Equatorial Indian Ocean & adjoining southwest Bay of Bengal | Became less marked on 11th. |
| 10. | At 3.1 km above m.s.l. | 10 | Central Assam & neighbourhood | Stationary | In situ | Became less marked on 11th. |
| 11. | At 1.5 km above m. s. l. | 10 | Northwest Rajasthan & neighbourhood | Stationary | In situ | Became less marked on 11th. |
| 12. | Upto 1.5 km above m. s. l. | 11 | Southwest Rajasthan & neighbourhood | Northeast | Haryana | Became less marked on 18th morning. |
| 13. | At 5.8 km above m. s. l. | 12 | Comorin area | Stationary | In situ | Became less marked on 13th. |

*Table 2 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 14. | At 0.9 km above m. s. l. | 12-13 | East Bangladesh & neighbourhood | Stationary | In situ | Became less marked on 14th. |
| 15. | At 0.9 km above m.s.l. | 12-13 | West Equatorial Indian Ocean & adjoining Maldives area | Stationary | In situ and extended upto 5.8 km | Became less marked on 14th. |
| 16. | At 0.9 km above m. s. l. | 14-23 | East Assam | In situ | Northeast Assam & neighbourhood | Became less marked on 24th. |
| 17. | At 0.9 km above m. s. l. | 16 | Northwest Madhya Pradesh & neighbourhood | Stationary | In situ | Became less marked on 17th. |
| 18. | At 0.9 km above m. s. l. | 19th morning-19 | South Tamil Nadu & neighbourhood | Stationary | In situ | Became less marked on 20th. |
| 19. | Upto 1.5 km above m. s. l. | 19-20 | Southwest Rajasthan & neighbourhood | Stationary | In situ | Became less marked on 21st. |
| 20. | Upto 1.5 km above m. s. l. | 20-22 | Southwest Madhya Pradesh and neighbourhood | East | Central Chhattisgarh & neighbourhood | Became less marked on 23rd. |
| 21. | At 1.5 km above m. s. l. | 23 | Central Uttar Pradesh | Stationary | In situ | Became less marked on the same day. |
| 22. | Upto 1.5 km above m. s. l.. | 23-24 | Equatorial Indian Ocean and adjoining southeast Bay of Bengal | Stationary | In situ | Became less marked on 25th. |
| 23. | Upto 1.5 km above m. s. l. | 25-27 | Central Pakistan and neighbourhood | Stationary | In situ | Became less marked on 28th. |
| 24. | At 1.5 km above m. s. l. | 26 | Gulf of Mannar & neighbourhood | Stationary | In situ | Became less marked on 27th. |
| 25. | Between 1.5 & 3.1 km above m.s.l. | 27 | Northeast Assam & neighbourhood | Stationary | In situ | Became less marked on 28th. |
| 26. | At 1.5 km above m. s. l. | 29 | Central Chhattisgarh & neighbourhood | Stationary | In situ | Became less marked on 30th March. |
| 27. | At 1.5 km above m.s.l. | 29-30 | Northeast Assam & neighbourhood | South | Nagaland & neighbourhood | Became less marked on 31st March. |
| 28. | At 0.9 km above m.s.l. | 30 | South Tamil Nadu & neighbourhood | Stationary | In situ | Became less marked on 31st March. |
| 29. | Between 1.5 to 5.8 km above m.s.l. | 29 March- 1 April | Andaman Sea and neighbourhood | West | Southwest Bay of Bengal & adjoining north Tamil Nadu | Became less marked on 2nd April. |
| 30. | Upto 1.5 km above m. s. l. | 31st March. - 1st April | Marathwada and neighbourhood | | Madhya Maharashtra and neighbourhood | Became less marked on 2nd April. |
| 31. | At 3.1 km above m. s. l. | 31st March - 5th May | Northeast Assam & Neighbourhood | Stationary | In situ | Became less marked on 6th. |
| (**C**) | *Other Trough* | | | | | |
| 1. | At 0.9 km above m.s.l. | 1 | Ran from the cyclonic circulation over southeast Uttar Pradesh & neighbourhood to central parts of Madhya Maharashtra | - | - | Became less marked on 2nd. |
| 2. | At 1.5 km above m. s. l. | 6 | Ran roughly along Long.86° E to the north of Lat.23° N | East | Ran roughly along Long.90° E to the north of Lat.25° N | Became less marked on 8th. |
| 3. | At 5.8 km above m. s. l. | 11 | Ran roughly along Long.82° E to the north of Lat.23° N | Stationary | In situ | Became less marked on 12th. |

*Table 2 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 4. | At 1.5 km above m. s. l. | 11-12 | Roughly along Long.93° E to the north of Lat.23° N | In-situ | East Assam & neighbourhood at 3.1 km above m.s.l. with a trough aloft roughly along Long.93° E to the north of Lat. 25° N | It lay as a cyclonic circulation over east Assam on 12th and became less marked on 13th . |
| 5. | Upto 1.5 km above m. s. l. | 11-13 | Trough of low lay over southwest Bay of Bengal off Tamil Nadu coast | - | West Equatorial Indian Ocean & adjoining Maldives area to southwest Bay of Bengal off Tamil Nadu coast ran from the cyclonic circulation over west Equatorial Indian Ocean & adjoining Maldives to south Kerala | Seen as a trough in easterlies from 12th and became less marked on 14th. |
| 6. | At 1.5 Km above m.s.l. | 14-15 | Ran from Punjab to southwest Rajasthan | Oscillatory | Ran from southwest Uttar Pradesh to southwest Rajasthan across the cyclonic circulation over northeast Rajasthan adjoining south Haryana | Became less marked on 16th. |
| 7. | At 0.9 km above m. s. l. | 16-19 | Ran from the cyclonic circulation over northwest Madhya Pradesh to Marathwada | Oscillatory | From central parts of Odisha to south Vidarbha across south Chhattisgarh | Became less marked on 20th. |
| 8. | At 0.9 km above m.s.l. | 20 | Ran from the cyclonic circulation over southwest Madhya Pradesh & neighbourhood to north Odisha across Chhattisgarh | Stationary | In situ | Became less marked on 21st. |
| 9. | At 0.9 km above m. s. l. | 29 March -1st April | Ran from interior Odisha to Comorin area across central Chhattisgarh, interior Maharashtra, interior Karnataka, interior Tamil Nadu | Oscillatory | Ran from south Chhattisgarh to cyclonic circulation over Madhya Maharashtra & neighbourhood across Vidarbha & Marathwada | Became less marked on 2nd April. |
| *Trough in easterlies* | | | | | | |
| 1. | At 0.9 km above m.s.l. | 1 -2 | Ran from the cyclonic circulation over east Equatorial Indian Ocean & adjoining southwest BoB to north Maldives &adjoining Lakshadweep area | | Ran from the cyclonic circulation over west Equatorial Indian Ocean & adjoining Comorin-Maldives area to Lakshadweep area at the same level | Became less marked on 3rd. |
| 2. | At 0.9 km above m. s. l. | 10 | Ran from southwest Madhya Pradesh to south Haryana | Stationary | In situ | Became less marked on 11th. |
| 3. | At 0.9 km above m. s. l. | 16 | Gulf of Mannar to south interior Karnataka across interior Tamil Nadu | Stationary | In situ | Became less marked on 17th. |
| 4. | At 0.9 km above m. s. l. | 21 | Ran from Comorin area to south Tamil Nadu | Stationary | In situ | Became less marked on 22nd. |
| *Trough in westerlies* | | | | | | |
| 1. | At 1.5 km above m. s. l. | 13 | Roughly along Long. 88° E to the north of Lat. 21° N. | Stationary | In situ | Became less marked on 14th. |
| 2. | At 0.9 km above m. s. l. | 17-21 | Ran from north interior Karnataka to Gulf of Mannar across Tamil Nadu | Oscillatory | From south Chhattisgarh to south interior Karnataka across Telangana and north interior Karnataka | Became less marked on 22nd. |

*Table 2 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| *East-West trough* | | | | | | |
| 1. | At 0.9 km above m. s. l. | 28 | Ran from Bihar to northeast Assam across Sub-Himalayan West Bengal & Sikkim | Stationary | In situ | Became less marked on 29th. |
| *North-South trough* | | | | | | |
| 1. | At 3.1 km above m. s l. | 1 Mar. | Ran roughly along Long.93° E to the north of Lat.26° N | Stationary | In situ | Became less marked on 2nd. |
| 2. | At 1.5 km above m.s.l. | 22-27 | Ran from north interior Karnataka to south Tamil Nadu | Oscillatory | Ran from north Madhya Maharashtra to north Kerala across interior Karnataka | Became less marked on 28th. |
| 3. | At 0.9 km above m.s.l. | 28 | Ran from north interior Karnataka to south Tamil Nadu | Stationary | In situ | Became less marked on 29th. |
| 4. | Between 0.9 & 1.5 km above m.s.l. | 31st March - 1st April | Ran from the cyclonic circulation over Marathwada to north Tamil Nadu | Oscillatory | Ran from the cyclonic circulation over Madhya Maharashtra and neighbourhood to Comorin area across Karnataka and Tamil Nadu | Became less marked on 2nd April. |
| *Trough/Wind Discontinuity* | | | | | | |
| 1. | At 1.5 km above m.s.l. | 22 | ran from southeast Uttar Pradesh to south Madhya Maharashtra across the cyclonic circulation over central Chhattisgarh & neighbourhood, interior Maharashtra | Stationary | In situ | Became less marked on 23rd. |

Rainfall realized during the Pre-monsoon season was 142% of its LPA over the country. It was 68% of its LPA, 99% of its LPA, and 206% of its LPA during March, April, and May, respectively over the country. During the Pre monsoon season, out of 36 meteorological subdivisions, 22 received large excess, 7 received excess, three received normal and four received deficient rainfall.

During the pre-monsoon season, the mean temperature was 28.08 °C over the country with an anomaly of 0.29 °C (17th highest since 1901). Among the four homogeneous regions, over Northwest India, the maximum temperature was the 10th highest (33.50 ºC with an anomaly of 0.97 ºC) and the minimum temperature was the 11th highest (18.78 ºC with an anomaly of 0.70 ºC) since 1901. Over East & Northeast India, the minimum temperature was the 3rd highest (20.81 ºC with an anomaly of 0.76 ºC) after the years 2022(21.10 ºC) and 2024 (21.02 ºC) since 1901.

Seasonal rainfall realized over all India was 142 % of its LPA. Rainfall over All India (185.5 mm) was the 3rd highest since 1901, after the years 1990 (202.2 mm) and 2015 (185.9 mm). Rainfall over the homogeneous region of Central India (121.7 mm) and South Peninsular India (274.8 mm) was the highest since 1901.

## 3. Significant features during various months

### 3.1. *March*

#### 3.1.1. *Storms and Depressions*

No intense low-pressure system formed during the month.

#### 3.1.2. *Weather and associated synoptic features*

As given in Table 2, 4 western disturbances, 31 upper air cyclonic circulations and 21 troughs which affected the weather over the country during March.

In association with the two Western Disturbances (27 Feb-2 Mar and 2-5 Mar) which moved across northern

parts of India, longer wet spell was observed over Western Himalayan Region and adjoining plains with an extremely heavy rainfall/snowfall on 28th February which caused fairly widespread/widespread rainfall/snowfall with heavy rainfall/snowfall spells over Jammu & Kashmir, Himachal Pradesh Uttarakhand from 27th February to 1st March and fairly widespread to widespread rainfall over Punjab and Haryana on 28th February & 1st March, it was mainly due to slow movement of first intense Western Disturbance and formation of an induced low pressure area over west Rajasthan & adjoining parts of Pakistan during first half of the week. Fairly widespread to widespread rainfall/snowfall over Thunderstorms, lightning, gusty winds and hailstorms were also observed at isolated places over Western Himalayan Region and adjoining plains during the same period. At the beginning of the 1st week, second Western Disturbance caused only light rainfall/snowfall over the same region and light to moderate rainfall at isolated places over adjoining plains. The movement of a trough in easterly towards south Tamil Nadu coasts caused heavy to very heavy rainfall along with gusty winds over south Tamil Nadu and Kerala towards the mid of week. Heat Wave conditions were observed at isolated places over central west coasts of India towards the beginning of the 1st week which abated thereafter.

During second half of the 2nd week, a Western Disturbance moved across extreme northern parts of India and caused light to moderate rainfall/snowfall over Western Himalayan Region. The movement of a trough in easterly towards south Tamil Nadu coasts caused heavy to very heavy rainfall along with gusty winds over south Tamil Nadu at the end of week. Thunderstorms with lightning were observed at isolated places over northeast India at the beginning of the week and over Tamil Nadu Puducherry & Karaikal, Uttarakhand, Lakshadweep around mid of the week. It was also observed at isolated places over Western Himalayan Region & adjoining plains and south peninsular India including Lakshadweep Islands towards the end of week. Heat Wave conditions prevailed at isolated places over Saurashtra & Kutch at the mid of 2nd week which became severe heat have over the same region and further spread into western India towards the end of week.

During the 3rd week, a Western Disturbance moved across northern parts of India which caused light to moderate rainfall/snowfall over Western Himalayan Region along with light to moderate rain over adjoining northern plains. Thunderstorms with hailstorm & lightning were observed across North India during the same period. Heavy to very heavy rainfall/snowfall was also observed over Himachal Pradesh at the mid of the week. A cyclonic circulation was observed over northeast India in the lower tropospheric levels which caused isolated heavy rainfall over the same area during the week. Heavy rainfall at isolated places was also observed over south peninsular India due to passage of trough in easterlies at the beginning of the week and the presence of trough in westerlies in the lower levels over the region during the week. A major wet spell accompanied with moderate to severe thunderstorm activities and heavy to very heavy rainfall observed over east central India due to north-south lower level wind convergence over the region during the end of the week.

Thunderstorms also caused lightning and isolated hailstorms over Jammu-Kashmir-Ladakh, Kerala & Mahe, Madhya Maharashtra, Coastal Andhra Pradesh & Yanam and Coastal Karnatak, North Interior Karnataka on most of the days during the 4th week. Heavy rainfall at isolated places was also observed over south peninsular India during second half of the week mainly due to north-south trough and trough/wind discontinuity over the region. During the 4th week, two western disturbances (20-25 & 23-26 March) moved across northern parts of India. In association with the passage of these western disturbances, Western Himalayan Region received light to moderate rainfall/snowfall during first half of the week and at the end of week respectively.

In March 2025, equatorial SSTs were in the neutral range across most of the central Indian Ocean. Positive SSTs were observed in the Northern Arabian Sea. Negative SSTs were observed over parts of western Indian Ocean. During the month, sea surface temperatures (SSTs) were positive in the eastern and far western Pacific Ocean. Negative SSTs were evident in the central Pacific Ocean. Neutral El Nino-Southern Oscillation (ENSO) conditions prevailed over the equatorial Pacific region. However, the atmospheric Circulation features were similar to La Niña conditions.

3.1.3. *Monthly rainfall*

During March 2025, rainfall realized over the country as a whole was 68% of its LPA. Most of the sub divisions received large deficient/deficient rainfall except some sub divisions from south peninsular India, Lakshadweep, Odisha, Jharkhand and Uttarakhand which received large excess/excess/normal rainfall. Out of 36 meteorological subdivisions, 5 received large excess rainfall, 2 received excess, 2 received normal, 11 received deficient, 14 received large deficient and 2 sub divisions did not receive any rainfall.

Rainfall over All India (20.1 mm) was 30th lowest since 1901 and 10th lowest since 2001.

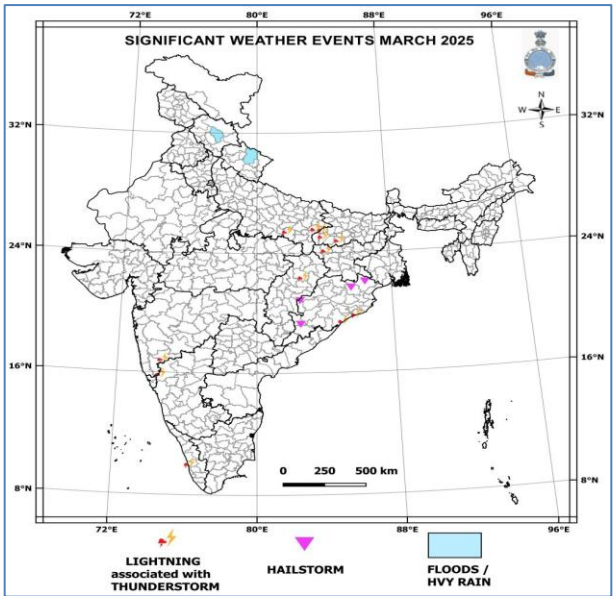


**Fig. 2.** Significant weather events during march 2025
*(Source: IMD Climate Summary for the month of Mar 2025)*

3.1.4. *Temperature distribution*

In March 2025, the mean temperature for the month this year over the country as a whole was 25.52 °C with an anomaly of 0.82 °C and the 11$^{th}$ highest since 1901. For four homogeneous regions, over Central India the maximum temperature was the 10$^{th}$ highest (36.08 °C with an anomaly of 1.34 °C), and the minimum temperature was the 8$^{th}$ highest (20.0 °C with an anomaly of 0.89 °C) since 1901. Over South Peninsular India the maximum temperature was the 10$^{th}$ highest (35.03 °C with an anomaly of 0.43 °C), and the minimum temperature was the 9$^{th}$ highest (22.78 °C with an anomaly of 0.51 ºC) since 1901. The minimum temperature over East & Northeast India was the 7$^{th}$ highest (17.79 °C with an anomaly of 0.85 °C) since 1901.

The maximum temperature during March 2025 was above normal over most parts of the country, except some parts of East & Northeast India and South Peninsular India. Maximum temperature anomaly was more than 2 °C over parts of Uttarakhand, Saurashtra & Kutch, West Madhya Pradesh, Jharkhand, Chhattisgarh, Odisha, and Vidarbha. The highest maximum temperature of 43.6 °C was recorded at Boudh (Odisha) over the plains of the country on 16$^{th}$ March 2025

The minimum temperature was above normal over most parts of the country, except some parts of northwest India, Central India, northeast India and south peninsular India. The minimum temperature anomaly was more than 2 °C over parts of Bihar, West Madhya Pradesh, northern Madhya Maharashtra and Vidarbha. Minimum temperature anomaly was less than -1 °C over parts of Haryana, Chandigarh & Delhi, East Rajasthan, East Uttar Pradesh, Gangatic West Bengal, Chhattisgarh, East Madhya Pradesh and Coastal Andhra Pradesh & Yanam. The lowest minimum temperature of 4.0 °C was recorded at Fatehpur (west Rajasthan) over the plains of the country on 5$^{th}$ March 2025.

3.1.5. *Disastrous weather events and damage*

Fig. 2 shows significant weather events during March 2025 (Based on real-time media reports).

During March, total 22 persons reportedly claimed dead and 78 persons injured. Lightning associated with thunderstorm and heavy Rains & Landslide claimed 15 and 7 persons death respectively.

3.2. *April*

3.2.1. *Storms and depressions*

No intense low pressure system formed during the month.

3.2.2. *Weather and associated synoptic features*

As given in Table 3, 1 low pressure area, 4 western disturbances, 49 upper air cyclonic circulations and 31 troughs which affected the weather over the country during the month of April.

During 1$^{st}$ week of the month, low pressure area formed over central parts of south Bay of Bengal on 7$^{th}$.

**TABLE 3**

**Details of the weather systems during April 2025**

| Sr. No | System | Duration | Place of initial location | Direction of Movement | Place of final location | Remarks |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *I Low Pressure Area* | | | | | | |
| 1 | Upto 3.1 km above m. s. l. | 4-11 | South Andaman & neighbourhood | Stationary | In situ | Initially it lay as a cyclonic circulation over south Andaman & neighbourhood on 4th. Under its influence, a low pressure area formed over central parts of south Bay of Bengal on 7th and concentrated into a well marked low pressure area over southwest and adjoining westcentral Bay of Bengal on 8th and became less marked on 12th. |
| *II Western Disturbances /Eastward moving Systems* | | | | | | |
| *(a) Upper air cyclonic circulation* | | | | | | |
| 1 | Between 3.1 & 9.6 km above m. s. l. | 16 | Iran | East-northeast | Roughly along Long.75° E to the north of Lat.33° N | It lay as a trough from19th and moved away east-northeastwards on 24th. |
| *(b) As a trough* | | | | | | |
| 1 | At 5.8 kms above m. s. l. | 2 - 5 | Ran roughly along Long.68° E to north of Lat. 26° N | East-northeast | Ran roughly along Long.85° E to the north of Lat.25° N | It lay as a cyclonic circulation on 3rd evening & again as a trough in westerlies on 4th and moved away east-northeastwards on 6th. |
| 2 | At 5.8 km above m.s.l. | 8 - 16 | Roughly along Long.50° E to the north of Lat.28° N | East | Ran from Sikkim to north Odisha across West Bengal, Jharkhand | Became less marked on 17th. |
| 3 | At 5.8 kms above m. s. l. | 24 -30 April | Ran roughly along Long.69° E to the north of Lat.31° N | East | Ran roughly along Long.85° E to the north of Lat.21° N between 7.6 & 9.4 km | Became less marked on 1st May. |
| (c) As an Induced cyclonic circulation | | | | | | |
| | | | | - | | |
| *III Other Upper air cyclonic circulation* | | | | | | |
| 1 | At 1.5 km above m. s. l. | 2 | South Chhattisgarh & neighbourhood | Stationary | In situ | Became less marked on 3rd. |
| 2 | At 1.5 km above m. s. l. | 2 | Southwest Madhya Pradesh & neighbourhood | Stationary | In situ | Became less marked on 3rd. |
| 3 | At 3.1 km above m.s.l. | 2 | Comorin area & neighbourhood | Stationary | In situ | Became less marked on 3rd. |
| 4 | At 0.9 km above m.s.l. | 2-3 | Sub-Himalayan West Bengal & neighbourhood | Southeast | Sub-Himalayan West Bengal and adjoining Bangladesh | Became less marked on 4th. |
| 5 | At 0.9 kms above m. s. l. | 3 | Marathwada and adjoining Madhya Maharashtra | Stationary | *In situ* | Became less marked on 4th. |
| 6 | At 0.9 kms above m. s. l. | 3 | North coastal Andhra Pradesh & adjoining south Odisha | Stationary | *In situ* | Became less marked on 4th. |
| 7 | At 3.1 km above m. s. l. | 3 | Southeast Arabian Sea & neighborhood | Stationary | *In situ* | Became less marked on 4th. |
| 8 | Upto 1.5 km above m. s. l. | 4 | Tamil Nadu & neighbourhood | Stationary | *In situ* | Became less marked on 5th. |
| 9 | At 0.9 km above m. s. l. | 4 | Southwest Rajasthan & neighbourhood | Stationary | *In situ* | Became less marked on 5th. |

*Table 3 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 10 | At 0.9 km above m.s.l. | 4-5 | West Madhya Pradesh & neighbourhood | Stationary | *In situ* | Became less marked on 6th. |
| 11 | At 0.9 kms above m. s. l. | 6 | East Bihar & neighbourhood | South | northeast Jharkhand & neighbourhood | Became less marked on 8th. |
| 12 | At 1.5 km above m. s. l. | 6 | South interior Karnataka & neighbourhood | Stationary | *In situ* | Became less marked on 7th. |
| 13 | At 1.5 km above m. s. l. | 6 | Chhattisgarh & neighbourhood | - | - | Merged with the trough which ran from northeast Bihar to Vidarbha on 6th. |
| 14 | At 1.5 km above m. s. l. | 7-12 | West Rajasthan and adjoining Pakistan & neighbourhood | Northeast and then south | Northeast Rajasthan and neighbourhood | Merged with the cyclonic circulation over south Assam on 13th. |
| 15 | At 0.9 km above m. s. l. | 8 | Madhya Maharashtra & neighbourhood | Stationary | *In situ* | Became less marked on 9th. |
| 16 | At 1.5 km above m. s. l. | 9 | West Rajasthan & neighbourhood | Stationary | *In situ* | Became less marked on 10th. |
| 17 | At 1.5 km above m. s. l. | 9-13 | Northwest Madhya Pradesh & neighbourhood | East then south | Southeast Madhya Pradesh and neighbourhood | Became less marked on 14th. |
| 18 | At 0.9 km above m. s. l. | 10 | South Pakistan and adjoining southwest Rajasthan | East | Northwest Rajasthan and neighbourhood | Became less marked on 12th. |
| 19 | Upto 1.5 km above m. s. l. | 10 | South Pakistan and adjoining southwest Rajasthan | East | Northwest Rajasthan and neighbourhood | Became less marked on 12th. |
| 20 | At 1.5 km above m. s. l. | 10-11 | South Pakistan and adjoining southwest Rajasthan | East | Northwest Rajasthan and neighbourhood | Became less marked on 12th. |
| 21 | At 1.5 km above m. s. l. | 11th morning | Northwest Rajasthan & neighbourhood | Stationary | *In situ* | Became less marked on 12th. |
| 22 | At 1.5 km above m. s. l. | 12-13 | North Bangladesh & neighbourhood | East | South Assam | Became less marked on 14th. |
| 23 | At 0.9 km above m. s. l. | 13 | Coastal Andhra Pradesh & Yanam and neighbourhood | Stationary | *In situ* | Became less marked on 14th. |
| 24 | At 0.9 km above m. s. l. | 14 | Bangladesh & neighbourhood | Stationary | *In situ* | Became less marked on 15th. |
| 25 | At 1.5 kms above m. s. l. | 14-15 | Northeast Madhya Pradesh & neighbourhood | In situ and surrounding | Central part of south Madhya Pradesh & neighbourhood | Became less marked on 16th. |
| 26 | Between 1.5 km & 3.1 km above m.s.l. | 14-15 | Gulf of Mannar & neighbourhood | Stationary | *In situ* | Merged with the trough which ran from the cyclonic circulation over southwest Rajasthan & neighbourhood to Gulf of Mannar on 16th. |
| 27 | At 1.5 km above m. s. l. | 15 | Southwest Bay of Bengal & adjoining Tamil Nadu | Stationary | *In situ* | Became less marked on 16th. |
| 28 | Upto 1.5 km above m.s.l. | 15-20th morning | West Rajasthan & neighbourhood | East then north | north Haryana & neighbourhood | Became less marked on 20th. |
| 29 | At 1.5 km above m. s. l. | 15-18 | West Assam & neighbourhood | Northeast | Northeast Assam | Became less marked on 19th. |

*Table 3 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 30 | At 1.5 km above m. s. l. | 16 | East Madhya Pradesh and neighbourhood | Stationary | *In situ* | Became less marked on 17th. |
| 31 | At 1.5 km above m.s.l. | 17 | South Rayalaseema & neighbourhood | Stationary | *In situ* | Became less marked on 18th. |
| 32 | At 1.5 km above m. s. l. | 17 | Bihar & neighbourhood | East | north Bangladesh & neighbourhood | Became less marked on 21st. |
| 33 | At 1.5 km above m.s.l. | 17 | South Rayalaseema & neighbourhood | Stationary | *In situ* | Became less marked on 18th. |
| 34 | At 1.5 km above m. s. l. | 18-19 | Northwest Jharkhand | Stationary | *In situ* | Became less marked on 20th. |
| 35 | Uptot 1.5 km above m. s. l | 19April - 3May | Central Assam | Northeast and then southwest | north Bangladesh | Became less marked on 4th May. |
| 36 | Upto 1.5 km above m. s. l. | 20th morning -21 | Madhya Maharashtra and neighbourhood | *Northwest* | Central Pakistan & neighbourhood | Became less marked on 22nd. |
| 37 | At 1.5 km above m. s. l. | 22-23 | South coastal Tamil Nadu | Stationary | *In situ* | Became less marked on 24th April. |
| 38 | At 0.9 km above m. s. l | 22-24 | Northwest Bihar & neighbourhood | East | North Bangladesh & neighbourhood | Became less marked on 25th. |
| 39 | At 0.9 km above m. s. l. | 23 | South Pakistan and adjoining southwest Rajasthan | East | Northwest Rajasthan and neighbourhood | Became less marked on 24th. |
| 40 | At 1.5 km above m.s.l. | 24 | Central Pakistan | Stationary | *In situ* | Became less marked on 25th. |
| 41 | At 3.1 km above m.s.l. | 25 | Jammu-Kashmir & neighbourhood | Stationary | *In situ* | Became less marked on 26th. |
| 42 | At 1.5 km above m.s.l. | 25 | Punjab & neighbourhood | Stationary | *In situ* | Became less marked on 26th. |
| 43 | Upto 1.5 km above m.s.l. | 26 | East Bihar and adjoining Sub-Himalayan West Bengal & Sikkim | Stationary | *In situ* | Became less marked on 27th. |
| 44 | Upto 1.5 km above m. s. l. | 26th April morning -3 May | Southwest Rajasthan and adjoining central parts of Pakistan | East | Southeast Rajasthan & neighbourhood | Became less marked on 4th May. |
| 45 | At 1.5 km above m. s. l. | 28 | Northeast Assam & neighbourhood | Stationary | *In situ* | Became less marked on 29th. |
| 46 | At 1.5 km above m.s.l. | 28th evening | Comorin area & neighbourhood | Stationary | *In situ* | Became less marked on 29th. |
| 47 | At 0.9 km above m. s. l. | 29 | Northwest Madhya Pradesh & neighbourhood | Stationary | *In situ* | Became less marked on 30th April. |
| 48 | At 1.5 km above m. s. l. | 29 | Lakshadweep & neighbourhood | Stationary | *In situ* | Became less marked on 30th April. |
| 49 | At 0.9 km above m. s. l. | 30 | North coastal Andhra Pradesh & Yanam | Stationary | *In situ* | Became less marked on 1st May. |
| *IV Other troughs* | | | | | | |
| 1 | At 0.9 km above m. s. l | 2 | Ran from the cyclonic circulation over Sub-Himalayan West Bengal & neighbourhood to southeast Madhya Pradesh across Bihar and Chhattisgarh | Stationary | In situ | Became less marked on 3rd. |

*Table 3 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 2 | At 3.1 km above m.s.l. | 3 | Ran from the cyclonic circulation over southeast Arabian Sea to south Kerala | Stationary | In situ | Became less marked on 4th. |
| 3 | Upto 1.5 km above m.s.l. | 6th morning -7 | Ran from northeast Bihar to Vidarbha across the cyclonic circulation over Chhattisgarh | Oscillatory | Ran from east Bihar to north Telangana embedded with the cyclonic circulation over northeast Jharkhand across Chhattisgarh | Became less marked on 8th. |
| 4 | At 0.9 km above m. s. l. | 7-8 | Ran from north Madhya Maharashtra to south interior Karnataka across north interior Karnataka | In-situ | Ran from the cyclonic circulation over Madhya Maharashtra to south interior Karnataka across north interior Karnataka | Became less marked on 9th. |
| 5 | Upto 1.5 km above m.s.l. | 7-9 | Ran from the cyclonic circulation over southeast Bay of Bengal to south Tamil Nadu across southwest Bay of Bengal | North | From the cyclonic circulation associated with low pressure area over westcentral Bay of Bengal to south Tamil Nadu | Became less marked on 10th. |
| 6 | At 0.9 km above m. s. l. | 8 | Ran from southeast Uttar Pradesh to north Bangladesh across Bihar | Stationary | In situ | Became less marked on 9th. |
| 7 | Upto 1.5 km above m. s. l. | 8-11 | West Rajasthan to west Vidarbha | Oscillatory | West Rajasthan to coastal Andhra Pradesh across east Rajasthan, the cyclonic circulation over northwest Madhya Pradesh and Vidarbha | Became less marked on 12th. |
| 8 | At 0.9 km above m.s.l. | 9 | Ran from southeast Madhya Pradesh to east Gangetic West Bengal across Chhattisgarh & Jharkhand | Stationary | In situ | Became less marked on 10th April. |
| 9 | Upto 1.5 km above m.s.l. | 11-12 | Ran from northeast Madhya Pradesh to Bangladesh across Jharkhand | Oscillatory | Ran from the cyclonic circulation over northeast Madhya Pradesh and neighbourhood to Gangetic West Bengal across Jharkhand | Became less marked on 13th. |
| 10 | At 3.1 km above m.s.l. | 11-12 | Ran from the cyclonic circulation over Sub-Himalayan West Bengal, Sikkim & neighbourhood to westcentral BoB | Northeast | Ran from central Assam to westcentral Bay of Bengal | Became less marked on 13th. |

*Table 3 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 11 | At 0.9 km above m.s.l. | 12-13 | Ran from the cyclonic circulation over northeast Madhya Pradesh and neighbourhood to northeast Telangana across Chhattisgarh | In situ | Ran from the cyclonic circulation over southeast Madhya Pradesh and neighbourhood to central parts over Telangana across Vidarbha | Merged with the trough from west Rajasthan to Gulf of Mannar on 14th. |
| 12 | At 3.1 km above m.s.l. | 13 | Trough ran from central parts of Bihar to north coastal Odisha across Jharkhand | Stationary | In situ | Became less marked on 14th. |
| 13 | At 0.9 km above m.s.l. | 13 | Ran from the central parts of west Rajasthan to cyclonic circulation southeast Madhya Pradesh across northeast Rajasthan, northeast Madhya Pradesh | Stationary | In situ | Merged with the trough ran from west Rajasthan to Gulf of Mannar on 14th. |
| 14 | At 0.9 km above m.s.l. | 14 | Ran from west Madhya Pradesh to the cyclonic circulation over Bangladesh across east Madhya Pradesh, Jharkhand and Gangetic West Bengal | Stationary | In situ | Became less marked on 15th. |
| 15 | At 0.9 km above m.s.l. | 14-16 | Ran from west Rajasthan to Gulf of Mannar across east Rajasthan, west Madhya Pradesh, Vidarbha, Marathwada, interior Karnataka, Tamil Nadu | Oscillatory | Ran from the cyclonic circulation over east Madhya Pradesh and neighbourhood to south interior Karnataka across Marathwada and north interior Karnataka | Became less marked on 17th. |
| 16 | At 1.5 km above m.s.l. | 14-18 | Ran from the cyclonic circulation over northeast Madhya Pradesh to south coastal Odisha across Chhattisgarh | Oscillatory | Ran from Jharkhand to central Assam across Gangetic West Bengal and the cyclonic circulation over north Bangladesh | Merged with the trough which ran from the cyclonic circulation over south Haryana & neighbourhood to north Bangladesh on 19th. |
| 17 | At 0.9 km above m.s.l. | 16 - 17 | Ran from the cyclonic circulation over southwest Rajasthan & neighbourhood to Gulf of Mannar across east Rajasthan, west Madhya Pradesh, Marathwada, interior Karnataka, Rayalaseema & Tamil Nadu | In situ and surrounding | Ran from the cyclonic circulation over northwest Rajasthan to Gulf of Mannar across east Rajasthan, Madhya Maharashtra, interior Karnataka and Tamil Nadu | Became less marked on 18th. |

*Table 3 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 18 | At 0.9 km above m.s.l. | 18-22 | Ran from Marathwada to Gulf of Mannar across interior Karnataka, Rayalaseema, Tamil Nadu | Oscillatory | Ran from the cyclonic circulation over northwest Bihar & neighbourhood to Gulf of Mannar across Chhattisgarh, east Vidarbha, Telangana, interior Karnataka and T.N | Became less marked on 23rd. |
| 19 | At 1.5 km above m.s.l. | 22 | Ran from central Pakistan to northwest Uttar Pradesh across Punjab & Haryana | Stationary | In situ | Became less marked on 23rd. |
| 20 | At 0.9 km above m.s.l. | 22 | Ran from the cyclonic circulation over northwest Bihar & neighbourhood to Manipur across Sub-Himalayan West Bengal, Bangladesh and south Assam | Stationary | In situ | Became less marked on 23rd. |
| 21 | At 0.9 km above m.s.l. | 24 | Trough ran from the cyclonic circulation over north Bangladesh & neighbourhood to north Odisha across Gangetic West Bengal | - | Ran from Sikkim to southwest Bangladesh coast across Sub Himalayan West Bengal | Became less marked on 26th. |
| 22 | Trough of low at mean sea level | 27 | Ran from central parts of Uttar Pradesh to north Bangladesh across central part of Bihar | Stationary | In situ | Became less marked on 28th. |
| 23 | At 0.9 km above m.s.l. | 28 | Ran from the cyclonic circulation over southwest Rajasthan & neighbourhood to north Madhya Maharashtra | Stationary | In situ | Became less marked on 29th morning. |
| *Trough in easterlies* | | | | | | |
| 1 | At 0.9 km above m. s. l. | 2 | Lakshadweep to Konkan | Stationary | In situ | Became less marked on 3rd. |
| 2 | At 0.9 km above m. s. l. | 3 | Ran from south interior Karnataka to southwest Madhya Pradesh across the cyclonic circulation over Marathwada | Stationary | In situ | Became less marked on 4th. |
| *Trough in westerlies* | | | | | | |
| 1 | At 5.8 km above m.s.l. | 10 | Ran roughly along Long.77°E and to the north of Lat.21°N | Northeast | Ran roughly along Long.86°E and to the north of Lat.23°N | Moved away northeastwards on 12th. |
| 2 | Between 3.1 & 4.5 km above m.s.l. | 29 | Ran roughly along Long.90°E to the north of Lat.21°N | - | - | Merged with the cyclonic circulation over north Bangladesh & neighbourhood on 30th April. |

*Table 3 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| *East- west trough* | | | | | | |
| 1 | At 1.5 km above m.s.l. | 18 | Trough ran from the cyclonic circulation over south Punjab & neighbourhood to Jharkhand across Haryana, cyclonic circulation over central parts of south Uttar Pradesh | Oscillatory | Ran from northwest Rajasthan to east Bangladesh across Haryana, west Uttar Pradesh, northeast Madhya Pradesh, Jharkhand & Gangetic West Bengal | Became less marked on 22nd. |
| *North-South troughs* | | | | | | |
| 1 | At 0.9 km above m.s.l. | 5-6 | Ran from north Madhya Maharashtra to north Tamil Nadu across interior Karnataka | East | Ran from Marathwada to south Tamil Nadu across interior Karnataka | Became less marked on 7th. |
| 2 | At 3.1 km above m.s.l. | 20 | Ran from west Assam to Tripura across east Bangladesh | Stationary | *In situ* | Became less marked on 21st. |
| 3 | At 0.9 km above m.s.l. | 23 Apr.- 11 May | Ran from north Chhattisgarh & neighbourhood to Gulf of Mannar across Vidarbha, Telangana, interior Karnataka and Tamil Nadu | Oscillatory | Ran from Marathwada to Gulf of Mannar across interior Karnataka, Tamil Nadu | Became less marked on 12th May. |

Thunderstorms with lightning, squally/gusty winds were observed over various parts of the country. Hailstorms were reported at isolated places over central and adjoining west & peninsular India during first half of the week, and over parts of northeast India during second half of the week. Heavy rainfall at isolated was observed over peninsular India during the week in addition to heavy to very heavy rain over Telangana and Tamil Nadu, caused mainly due to presence of trough in easterlies and north-south trough over the region.

Heat wave spell over Northwest India and Gujarat was abated during the beginning of the 2nd week due to movement of an active western disturbance which caused rain and convective activities over these areas. After the passage of this western disturbance, a fresh spell of heat wave to severe heat wave conditions developed and prevailed at isolated places over west Rajasthan and adjoining areas of east Rajasthan towards the end of week. Wet spell accompanied with thunderstorm activities observed over many parts of north, eastern India and south peninsular India on most of the days during the week with peak activities during first half of the week over north and eastern India. Under the influence of movement of two active western disturbances, jet core, favourable lower level winds and moisture incursions, light to moderate rainfall occurred over north and adjoining parts of central and eastern India with isolated heavy rainfall over Uttar Pradesh, Bihar and Odisha accompanied with moderate to severe thunderstorm/ lighting and gusty/squally winds and hailstorm which severely impacted places over Uttar Pradesh, Bihar, Odisha and Gangetic West Bengal. Hailstorms were also reported at isolated places over western Himalayan Region, north/northeast, central and adjoining west & peninsular India during the week. Moderate to severe dust storms were recorded at isolated places over northwest and north India.

During 3rd week, heavy to very heavy rainfall activities observed over northeast India due to lower level circulations and a trough in westerlies over the region. Heavy rainfall at isolated places was also observed over parts of eastern India and peninsular India during first half of the week while over northeast India during second half of the week. Thunderstorms with lightning, squally/gusty winds were observed over various parts of the country during the week. Hailstorms were also reported at isolated places over western Himalayan Region and most of the Indo Gangetic plains and adjoining parts of central, west & peninsular India. It was mainly due to the presence of

**TABLE 4**

**Details of the weather systems during May 2025**

| Sr. No | System | Duration | Place of initial location | Direction of Movement | Place of final location | Remarks |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| *I Depression / Deep Depression* | | | | | | |
| 1 | Depression | 0530 IST – of 24th – 24 th night | Eastcentral Arabian sea and adjoining south Konkan coast and lay centered near Lat.17.2° N / Long.73.0° E | East | Madhya Maharashtra | Initially it lay as an upper air cy-cir extending upto MTL over on eastcentral Arabian Sea off north Karnataka-Goa coasts on 21st. Under its influence, a **LOPAR** formed over eastcentral Arabian Sea off south Konkan-Goa coasts on 22nd and concentrated into **well marked LOPAR** over eastcentral Arabian Sea off south Konkan coast on 23rd; into a **Depression** at 0530 IST of 24th; crossed the south Konkan coast near Ratnagiri between 1130 to 1230 IST. It further weakened into a **well marked LOPAR** on 25th morning and into **LOPAR** over Marathwada and adjoining Madhya Maharashtra on 25th evening and became less marked on 27th morning. *Details are given in the article on 'Storms and depression over north Indian ocean 2025.'* |
| 2 | **Deep Depression** | 0530 IST of 29th - 0530 IST of 30th | Lat.20.8° N / Long.88.4° E over northwest Bay of Bengal off West Bengal and adjoining Bangladesh coasts at | Northward and then north-northeastwards | Lat.24.1° N / Long.89.4° E over Bangladesh | Initially it lay as an upper air cy-cir extending upto MTL over northwest and adjoining westcentral Bay of Bengal on 27th morning. Under its influence, a **LOPAR** formed over northwest Bay of Bengal off Odisha coast on 27th and became well marked **LOPAR** over the same region on 28th. It concentrated into a **Depression** at 0530 IST of 29th and into a **Deep Depression** near Lat.21.3°N / Long.88.5°E and weakened into a **Depression** near Lat.24.1°N / Long.89.4°E over Bangladesh at 0530 IST of 30th and further weakened into a well marked **LOPAR** over Meghalaya and neighbourhood on 30th evening; lay as a **LOPAR** over northeast Assam & neighbourhood and became less marked on 31st May. |
| *II Western Disturbances /Eastward moving Systems* | | | | | | |
| *(a) Upper air cyclonic circulation* | | | | | | |
| 1 | Between 5.8 & 7.6 km above m.s.l. | 2 | South Punjab & adjoining north Rajasthan and west Haryana | Stationary | In situ | Moved away east-northeastwards on 3rd. |
| 2 | Between 3.1 & 7.6 km above m. s. l. | 3-8 | North Pakistan & neighbourhood | East | Southwest Madhya Pradesh & neighbourhood | Became less marked on 9th. |
| 3 | At 3.1 km above m.s.l | 8-14 | Iran with a trough aloft in middle & upper tropospheric westerlies with its axis at 5.8 km above m.s.l. ran roughly along Long.56° E to the north of Lat.27° N | East-northeast | As a trough aloft in middle tropospheric westerlies roughly along Long.73° E to the north of Lat.32° N | Moved away wards on 15th May. |
| *(b) As a trough* | | | | | | |
| 1 | At 5.8 km above m.s.l. | 9-10 | Ran roughly along Long. 55° E to the north of Lat. 27° N | eastward | - | Merged with the western disturbance which ran roughly along Long.71° E to the north of Lat.28° N on 11th |

*Table 4 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 2 | At 3.1 km above m.s.l. | 17-21 | Ran roughly along Long.55° E to the north of Lat.32° N | Northeast | roughly along Long.85° E to the north of Lat.25° N | Moved away northeastwards on 22nd. |
| 3 | At 3.1 kms above m. s. l. | 25-26 | North Punjab and adjoining Jammu & Kashmir. with a trough aloft ran roughly along Long.75° E to the north of Lat.26° N | Northeast | ran roughly along Long.78° E to the north of Lat.25° N | Moved away northeastwards on 27th. |
| 4 | At 5.8 km above m.s.l. | 27 May-8 June | Ran roughly along Long. 60° E to north of Lat.30° N | East | ran roughly along Long.87° E to the north of Lat.22° N on 7th; ran roughly along Long.89° E to the north of Lat. 22° N | Became less marked on 9th June. |
| 5 | At 5.8 km above m.s.l. | 28-29 | Ran roughly along Long.55° E to the north of Lat.32° N | Northeast | Ran roughly along Long.75° E to the north of Lat.32° N | Moved away northeastwards on 30th May. |
| *(c) As an Induced cyclonic circulation* | | | | | | |
| | | | | - | | |
| *III Other Upper air cyclonic circulation* | | | | | | |
| 1 | Upto 1.5 km above m. s. l. | 1-2 | Central parts of southeast Rajasthan & neighbourhood | North | Northeast Rajasthan and adjoining northwest Madhya Pradesh | Became less marked on 3rd. |
| 2 | At 0.9 kms above m. s. l. | 3 | Northern parts of Marathwada | Stationary | *In situ* | Became less marked on 5th |
| 3 | At 1.5 km above m. s. l. | 3 | Northwest Rajasthan & neighbourhood | Stationary | *In situ* | Became less marked on 4th. |
| 4 | At 1.5 km above m.s.l. | 3-5 | West Uttar Pradesh & neighbourhood | - | Northwest Madhya Pradesh | Merged with the east-west trough which ran from east Rajasthan to north Bangladesh on the same day (5th ). |
| 5 | At 1.5 km above m. s. l. | 3-15 | Northeast Assam & neighbourhood | Stationary | In situ | Became less marked on 16th |
| 6 | At 3.1 km above m. s. l. | 4 | North coastal Odisha | Stationary | *In situ* | Became less marked on 5th morning. |
| 7 | At 0.9 km above m. s. l. | 4-5th morning | Northeast Arabian sea & adjoining Gujarat coasts | East | north Gujarat and neighbourhood | Became less marked on 5th. |
| 8 | Upto 1.5 km above m.s.l. | 4-5th morning | Northern parts of Gangetic West Bengal & neighbourhood | Stationary | Northeast Jharkhand & neighbourhood | Became less marked on 5th. |
| 9 | At 0.9 km above m. s. l. | 5 | South Tamil Nadu & neighbourhood | Stationary | *In situ* | Became less marked on 6th. |
| 10 | Upto 1.5 km above m.s.l. | 5-6 | South Pakistan & adjoining southwest Rajasthan | *In situ* & surrounding | Southwest Rajasthan & neighbourhood | Became less marked on 7th. |
| 11 | At 1.5 km above m. s. l. | 5-10 | Northeast Rajasthan & neighbourhood | East and again west | Northeast Rajasthan & neighbourhood | Became less marked on 11th. |
| 12 | At 0.9 kms above m. s. l. | 6 | South Telangana and neighbourhood | Stationary | *In situ* | Became less marked on 7th. |
| 13 | At 0.9 kms above m. s. l. | 6 | South Assam and neighbourhood | Stationary | *In situ* | Became less marked on 6th evening. |
| 14 | between 3.1 & 5.8 km above m.s.l. | 7-10 | Southeast Bay of Bengal and adjoining south Andaman Sea | Stationary | In situ | Became less marked on 11th. |

*Table 4 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 15 | At 3.1 km above m. s. l. | 9 | Kerala and adjoining Tamil Nadu | Stationary | *In situ* | Became less marked on 10th. |
| 16 | At 0.9 km above m.s.l. | 9th evening-10 | Central Bangladesh & neighbourhood | North | North Bangladesh & neighbourhood | Became less marked on 11th. |
| 17 | At 0.9 km above m. s. l. | 10 | Saurashtra & Kutch | Stationary | *In situ* | Became less marked on 11th. |
| 18 | At 3.1 kms above m. s. l. | 10 | Saurashtra and neighbourhood | Stationary | *In situ* | Became less marked on 11th. |
| 19 | At 1.5 km above m.s.l. | 10th morning | Southwest Madhya Pradesh & neighbourhood | Stationary | *In situ* | Became less marked on 10th. |
| 20 | At 1.5 km above m. s. l. | 11th morning | South Andhra Pradesh | Stationary | *In situ* | Became less marked on 11th. |
| 21 | At 1.5 km above m. s. l. | 12 | Central Pakistan & adjoining west Rajasthan | Stationary | *In situ* | Became less marked on 13th. |
| 22 | At 1.5 km above m. s. l. | 12-14 | Northwest Uttar Pradesh & neighbourhood | North | Uttarakhand & neighbourhood | Became less marked on 15th morning. |
| 23 | - | 13th morning | Southern parts of Marathwada & neighbourhood | - | - | Merged with the trough which ran from west Vidarbha to north Kerala on 13th. |
| 24 | At 0.9 km above m. s. l. | 13-14 | East Uttar Pradesh & adjoining Bihar | East | East Bihar & adjoining Sub-Himalayan West Bengal | Became less marked on 15th morning. |
| 25 | Between 1.5 & 7.6 km above m.s.l. | 13- 21st morning | Andaman Sea | West then north | Central parts of Andhra Pradesh & adjoining south Telangana | Became less marked on 21st. |
| 26 | Between 3.1 and 5.8 km above m.s.l. | 14-15 | Gujarat State | South | South Gujarat & neighbourhood | Became less marked on 16th morning. |
| 27 | At 1.5 km above m. s. l. | 14-16th morning | Konkan and neighbourhood | East | Telangana & neighbourhood | Became less marked on the same day. |
| 28 | At 1.5 km above m. s. l. | 14-15 | Southwest Bay of Bengal adjoining Tamil Nadu coast | north | North coastal Tamil Nadu & neighbourhood | Became less marked on 16th. |
| 29 | At 0.9 km above m.s.l. | 16 | Haryana | Stationary | *In situ* | Became less marked on 17th morning. |
| 30 | Upto 1.5 km above m. s. l. | 16th morning | Coastal Andhra Pradesh | - | - | Merged with the trough ran from the cyclonic circulation over southeast BoB to central coastal Andhra Pradesh & Yanam on 17th. |
| 31 | At 1.5 km above m. s. l. | 16-18 | Eastcentral & adjoining northeast Arabian Sea off south Gujarat-north Konkan coasts | Surrounding | Northeast Arabian Sea off south Gujarat | Became less marked on 19th. |
| 32 | At 0.9 km above m. s. l. | 16-23 | Central Assam | Northeast | Northeast Assam | Became less marked on 24th. |
| 33 | Upto 1.5 km above m.s.l. | 16-19 | West Uttar Pradesh & neighbourhood | Stationary | *In situ* | Merged with the trough which ran from the cyclonic circulation over central Pakistan to north Bangladesh on 20th morning. |
| 34 | At 0.9 km above m.s.l. | 17-19 | South Telangana | Northwest | Madhya Maharashtra | Became less marked on 20th morning. |
| 35 | Upto 1.5 km above m.s.l. | 17-18 | South Punjab | Southeast | Central parts of Haryana & neighbourhood | Became less marked on 18th evening. |

*Table 4 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 36 | At 0.9 km above m.s.l. | 19-20 | South Haryana & adjoining northeast Rajasthan | Surroundings | Northeast Rajasthan & adjoining south Haryana | Became less marked on 21st morning. |
| 37 | At 1.5 km above m. s. l. | 20 | Haryana & neighbourhood | Stationary | *In situ* | Became less marked on 21st morning. |
| 38 | Between 1.5 & 5.8 km above m.s.l. | 20 | Over south interior Karnataka & neighbourhood | Stationary | *In situ* | Became less marked on 21st morning. |
| 39 | At 1.5 km above m. s. l. | 20 | Central Pakistan & adjoining Punjab | Stationary | *In situ* | Became less marked on 21st. |
| 40 | At 1.5 km above m. s. l. | 20 | North Bangladesh & neighbourhood | Stationary | *In situ* | Became less marked on 21st. |
| 41 | At 1.5 km above m.s.l. | 20th morning | Vidarbha & neighbourhood | Stationary | *In situ* | Became less marked 20th. |
| 42 | At 0.9 km above m.s.l. | 20 | Southeast Rajasthan & adjoining north Gujarat | Stationary | *In situ* | Became less marked on the same day. |
| 43 | At 1.5 km above m. s. l. | 21-26th morning | Punjab & neighbourhood | Southeast | Haryana & neighbourhood | Become less marked 26th. |
| 44 | At 1.5 km above m.s.l. | 22 | Northeast Madhya Pradesh & adjoining southeast Uttar Pradesh | Stationary | *In situ* | Became less marked on 23rd. |
| 45 | Upto 1.5 km above m.s.l. | 23-26 | Central Pakistan & neighbourhood | Surrounding | Southwest Rajasthan | Became less marked on 27th. |
| 46 | At 3.1 km above m.s.l. | 24 | North coastal Odisha & neighbourhood | Stationary | *In situ* | Became less marked on 25th. |
| 47 | At 3.1 km above m.s.l. | 24 | Manipur & neighbourhood | Stationary | *In situ* | Became less marked on 25th. |
| 48 | Between 1.5 & 3.1 km above m.s.l. | 25 | North Gujarat & neighbourhood | Stationary | *In situ* | Became less marked on 26th. |
| 49 | Between 3.1 and 5.8 km above m.s.l. | 26 | East central Arabian Sea | Stationary | *In situ* | Became less marked on 27th. |
| 50 | At 3.1 km above m.s.l. | 26 | Northeast Assam & neighbourhood | Stationary | *In situ* | Became less marked on 28th. |
| 51 | At 3.1 km above m.s.l. | 27 | West Assam & neighbourhood | Stationary | *In situ* | Became less marked on 28th. |
| 52 | At 1.5 km above m. s. l. | 27 | North Konkan & adjoining eastcentral Arabian Sea | Stationary | *In situ* | Became less marked on 28th. |
| 53 | Upto 1.5 km above m.s.l. | 27-28 | Central parts of west Madhya Pradesh | Northeast | Northeast Madhya Pradesh | Became less marked on 29th. |
| 54 | Upto 1.5 km above m.s.l. | 28-30 May | South Punjab and neighbourhood | Surrounding | Punjab | Became less marked on 31st May. |
| 55 | At 0.9 km above m.s.l. | 28th morning-30 May | Central parts of Rajasthan | Surrounding | West Rajasthan | Became less marked on 31st May. |
| 56 | At 1.5 km above m.s.l. | 29-30 May | Northern parts of central Uttar Pradesh | South | Central parts of Uttar Pradesh | Became less marked on 31st May. |
| 57 | At 1.5 km above m.s.l. | 30 May | Northwest Uttar Pradesh | - | - | Merged with the trough from the cyclonic circulation over central Pakistan to northwest Uttar Pradesh on 31st May. |
| 58 | At 1.5 km above m.s.l. | 30 May-1 June | Central Pakistan | Stationary | *In situ* | Became less marked on 2nd June. |

*Table 4 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| *IV Other troughs* | | | | | | |
| 1 | At 7.6 km above m.s.l. | 2 | ran roughly along Long.90° E to the north of Lat.22° N | Stationary | In situ | Moved away eastwards on 3rd. |
| 2 | At 3.1 km above m.s.l. | 7 | ran roughly along Long. 93°E to the north of Lat. 23°N | Stationary | In situ | Became less marked on 8th. |
| 3 | Between 3.1 & 5.8 km above m.s.l. | 7-10 | ran from northeast Arabian Sea to the cyclonic circulation of western disturbance over west Rajasthan and neighbourhood across Saurashtra | Oscillatory | eastcentral Arabian Sea to northwest Madhya Pradesh across north Konkan and north Madhya Maharashtra | Became less marked on 11th. |
| 4 | At 0.9 km above m.s.l. | 11 | ran from the cyclonic circulation over Northeast Assam & neighbourhood to Jharkhand across north Bangladesh, Gangetic West Bengal | Stationary | In situ | Became less marked on 12th. |
| 5 | Upto 3.1 km above m.s.l. | 11-13 | ran from Saurashtra to eastcentral Arabian Sea across northeast Arabian Sea | Stationary | In situ | Became less marked on 14th. |
| 6 | Upto 1.5 km above m. s. l. | 12 | ran from central parts of Bihar to south Jharkhand | Stationary | In situ | Became less marked on 13th. |
| 7 | At 1.5 km above m. s. l. | 13 | ran from west Vidarbha to north Kerala across Marathwada & interior Karnataka | Stationary | In situ | Became less marked on 14th. |
| 8 | At 0.9 km above m. s. l. | 13-15 | ran from the cyclonic circulation over east Uttar Pradesh & adjoining Bihar to south Odisha across Chhattisgarh | - | ran from Sub-Himalayan West Bengal & Sikkim to southeast Madhya Pradesh across north Chhattisgarh | Became less marked on 16th morning. |
| 9 | At 0.9 km above m.s.l. | 16th morning-19 | ran from east Uttar Pradesh to the cyclonic circulation over central Assam across Bihar, north West Bengal | Southwest | ran from central parts of Punjab to central parts of Madhya Pradesh across the cyclonic circulation over south Haryana & adjoining northeast Rajasthan | Became less marked on 20th morning. |
| 10 | At 1.5 km above m.s.l. | 16th morning | ran from the cyclonic circulation over Telangana to north Tamil Nadu across Rayalaseema | Stationary | In situ | Became less marked 16th. |

*Table 4 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 11 | Between 1.5 & 5.8 km above m.s.l. | 17-19 | Ran from the cyclonic circulation over southeast Bay of Bengal to central coastal Andhra Pradesh & Yanam | Oscillatory | Ran from southeast Bay of Bengal to north interior Karnataka across the cyclonic circulation over westcentral Bay & adjoining southwest Bay of Bengal, south coastal Andhra Pradesh, Rayalaseema | Became less marked on 20th. |
| 12 | At 1.5 km above m.s.l. | 18-19 | Ran from the cyclonic circulation over west Vidarbha to Rayalaseema across north interior Karnataka | West | Ran from the cyclonic circulation over Madhya Maharashtra to Rayalaseema across north interior Karnataka | Became less marked on 20th morning. |
| 13 | At 3.1 km above m.s.l. | 21- 26 | Ran from the cyclonic circulation over eastcentral Arabian Sea off north Karnataka-Goa coasts to coastal Andhra Pradesh w | Oscillatory | Iran from the cyclonic circulation associated with the low pressure area over Marathwada & neighbourhood to northwest Bay of Bengal across Chhattisgarh and Odisha | Became less marked on 27th. |
| 14 | At 0.9 km above m.s.l. | 23-25 | Ran from the cyclonic circulation over central Pakistan to northeast Madhya Pradesh across north Rajasthan, north Madhya Pradesh | Southwest | Ran from southwest Rajasthan to central parts of Madhya Pradesh across the cyclonic circulation over north Gujarat & neighbourhood | Became less marked on 25th evening. |
| 15 | Between 3.1 and 5.8 km above m.s.l. | 26 | Ran from the cyclonic circulation over east central Arabian Sea to coastal Andhra Pradesh across south Konkan, the cyclonic circulation associated with low pressure area over Marathwada & neighbourhood and Telangana | Stationary | In situ | Became less marked on 27th. |
| 16 | At 0.9 km above m.s.l. | 27-28 | Ran from southeast Rajasthan to north Chhattisgarh across the cyclonic circulation over central parts of west Madhya Pradesh | Surrounding | Ran from the cyclonic circulation over west Rajasthan to north Chhattisgarh across east Rajasthan and Madhya Pradesh | Became less marked on 29th. |

*Table 4 Continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 17 | At 0.9 km above m.s.l. | 29-30th morning | Ran from southeast Rajasthan to centre of Deep Depression over northwest Bay of Bengal off West Bengal-Bangladesh coasts across north Madhya Pradesh, Chhattisgarh, Jharkhand, Gangetic West Bengal | North | Ran from the cyclonic circulation over Punjab to the centre of Depression over Bangladesh across Haryana, cyclonic circulation over central parts of Uttar Pradesh, north Jharkhand | Became less marked on 30th May. |
| 18 | At 0.9 km above m.s.l. | 31st May | Ran from northeast Uttar Pradesh to east Vidarbha | Stationary | In situ | Became less marked on 1st June. |
| 19 | At 1.5 km above m.s.l. | 31st May- 1 June | Ran from the cyclonic circulation over central Pakistan to northwest Uttar Pradesh across Punjab & Haryana | east | Ran from central Pakistan to the cyclonic circulation over Haryana across north Rajasthan | Became less marked on 2nd June. |
| *Trough in westerlies* | | | | | | |
| 1 | Between 9.4 & 12.6 km above m.s.l. | 9-10 | Ran from east Uttar Pradesh to north interior Karnataka | East | Ran from east Uttar Pradesh to southeast Telangana across east Madhya Pradesh and Vidarbha | Became less marked on 11th. |
| 2 | At 3.1 km above m.s.l. | 17 | Roughly along Long.89°E to the north of Lat.23°N | East | - Ran roughly along Long.91°E to the north of Lat.23°N | Became less marked on 19th. |
| *East- west trough* | | | | | | |
| 1 | Up to 1.5 km above m.s.l. | 2-3 | Ran from the cyclonic circulation over northeast Rajasthan and adjoining northwest Madhya Pradesh to Bangladesh across north Madhya Pradesh, north Chhattisgarh, Jharkhand, Gangetic W.B | South | Ran from the cyclonic circulation over southeast Rajasthan & neighbourhood to north Odisha across Madhya Pradesh, Chhattisgarh, Jharkhand | Became less marked on 3rd evening. |
| 2 | At 1.5 km above m.s.l. | 5-8 | Ran from east Rajasthan to north Bangladesh across Madhya Pradesh, southeast Uttar Pradesh and Jharkhand | south | Ran from the cyclonic circulation over northwest Madhya Pradesh & neighbourhood to north Chhattisgarh across east Madhya Pradesh | Became less marked on 9th. |
| 3 | At 0.9 km above m.s.l. | 11 | Ran from northeast Bihar to Manipur across Sub-Himalayan West Bengal, Meghalaya and southeast Assam | Stationary | In situ | Became less marked on 12th. |

*Table 4 continued*

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| 4 | At 1.5 km above m.s.l. | 19-22 | Ran from Punjab to north Bangladesh across Haryana, south Uttar Pradesh, south Bihar & north Gangetic West Bengal | East to southeast | Ran from the cyclonic circulation over Punjab & neighbourhood to central Madhya Pradesh across south Haryana, upper air cyclonic circulation over northeast Madhya Pradesh & adjoining southeast Uttar Pradesh | Became less marked on 23rd. |
| *North-South troughs* | | | | | | |
| 1 | At 0.9 km above m.s.l. | 3rd evening - 4 | Ran from central parts of Gangetic West Bengal to east Vidarbha across Odisha & south Chhattisgarh | East | Ran from the cyclonic circulation over northern parts of Gangetic West Bengal to north coastal Andhra Pradesh across coastal Odisha | Became less marked on 5th morning. |
| *Shear zone* | | | | | | |
| 1 | Between 3.1 and 7.6 km above m.s.l. | 27 | Ran roughly along the Lat.17° N over the Indian Region | Stationary | In situ | Became less marked on 29th May. |

**TABLE 5**

**Some representative amounts of rainfall in cm for the months March, April and May 2024 (5 cm and above)**

| | |
|---|---|
| **1 Mar** | 12 - Khadrala; 11 - Bhuntar AP, Seo Bagh and Jogindarnagar; 9 - Tehri (CWC), Dharmsala and Banjar; 8 - Dhanaulti, Baijnath, Palampur, Manali, Oothu and Joshimath; 7 - Chamoli, Purola, HMO Kasol, Karsog, Rameswaram, Kakkachi, Nalumukku, Tehri and Munsiyari. |
| **2 Mar** | 11 - Srivaikuntam; 10 - Rameswaram; 9 - Thangachimadam;<br>8 - Oothu; 7 - Margherita, Kakkachi and Nalumukku. |
| **3 Mar** | 15 - Kozhiporvilai; 13 - Gadana Dam; 12 - Oothu; 11 -Thuckalay; 10 - Nalumukku; 9 - Anaikedanku and Kakkachi; 8 - Mambzhathuraiyaru and Manjolai; 7 - Karipur Ap., Airport Chakka ARG, Thiruvananthapuram, Trivandrum AP, Adayamadai, Mullanginavillai, Suralacode, Ramanadhi Dam and Kovilpatti. |
| **4 Mar** | Nil. |
| **5 Mar** | Nil. |
| **6 Mar** | Nil. |
| **7 Mar** | Nil. |
| **8 Mar** | Nil. |
| **9 Mar** | Nil. |
| **10 Mar** | Nil. |
| **11 Mar** | Nil. |
| **12 Mar** | 16 - Dscl Thiyagadurgam; 15 - Kallakurichi; 12 - Kallakurichi ARG and Gomugi Dam PWD; 11 - Dscl Kalayanallur and Ramnadu Kvk AWS; 9 - Dscl Virugavoor, Oothu and Tiruvarur; 8 - Dscl Eraiyur, Manimutharu Dam PWD, Ramanathapuram and Muthupet; 7 - Kattumayilur, Kothavacherry, Kuppanatham, Vepur, Virudachalam, Karaikal, Coonoor PTO, Avudayarkoil, Thalaivasal, Kakkachi, Nalumukku, Mannargudi, Needamangalam and Coonoor. |
| **13 Mar** | 9 - Kallakurichi; 7 - Ambalavayal and Dscl Thiyagadurgam. |
| **14 Mar** | 9 - Neamatighat, Dhubri, Barapani/Umro Ae, Halflong, Kailashahar AP, Cooch Behar AP, Malda, Shanti Niketan, Uluberia, Rourkela and Angul; 8 - Sundergarh, Bhawanipatna, Daltonganj, Banda, Varanasi BHU, Meerut, Shahjahanpur, Karnal, Pilani, Guna, Hoshangabad, Khajuraho AP, Sagar, Chindwara, Washim, Yeotmal, Jagdalpur, Tuni, Rentachintala, Narsapur, Kavali, Adilabad, Medak, Khammam, Mahbubnagar, Arogyavaram, Tirupati AP, Porto Novo, Nungambakkam, Chitradurga and Kannur; 7 - Itanagar, Dhemaji, Lala ARG, Sriganganagar, Churu, Erinpura/Jawai, Bhilwara, Ratlam, Dhar, Naliya, Kandla New, Dwarka, Surendranagar, Amreli, Diu, Dahanu, Matheran, Mormugao, Beed, Waltair (vizagpbo and Belgaum/Sambra A. |

*Table 5 Continued*

| | |
|---|---|
| **15 Mar** | 7 - Majuli. |
| **16 Mar** | 15 - Shella; 7 - Majuli, Manali and Kumarsain. |
| **17 Mar** | 8 - Udaipur; 7 - Ottapalam. |
| **18 Mar** | Nil. |
| **19 Mar** | 8 - Thiruvananthapuram; 7 - Airport Chakka ARG and Trivandrum AP. |
| **20 Mar** | Nil. |
| **21 Mar** | 9 - Beohari. |
| **22 Mar** | 12 - Baripada; 9 - Joda; 8 - Kottayam; 7 - Rajgangpur and Kurdeg. |
| **23 Mar** | 17 - Berhampur; 8 - Rangeilunda and Cherthala; 7 - Chhatrapur and Udumbannoor AWS. |
| **24 Mar** | 7 - Palakonda. |
| **25 Mar** | 7 - K Bridge. |
| **26 Mar** | Nil. |
| **27 Mar** | 8 - Worth Estate Cher. |
| **28 Mar** | Nil. |
| **29 Mar** | Nil. |
| **30 Mar** | Nil. |
| **31 Mar** | Nil. |
| **1 Apr** | 20 - Shella; 16 - B P Ghat. |
| **2 Apr** | 7 - Watrap. |
| **3 Apr** | 11 - Sivagiri; 9 - Tirumangalam and Tondi; 7 - Airport Madurai and Devgad. |
| **4 Apr** | 17-Tekulapalle; 11-Bayyaram; 10-Pwd Makkinampatti, Kayalpattinam & Yellandu; 9-N R Pura, Palawancha and Saroornagar; 8 - Alangudi, Thangachimadam, Moolaikaraipatti, Kalugumalai, Mulakalapalle, Himayatnagar and Shekpet; 7 - Chittapur, Yerragondapalem, Singanamala, Sendurai, Vadakuthu, Kayathar, Ottapadiram, Charminar, Amberpet and Domakonda. |
| **5 Apr** | 19 - Kozhiporvilai; 15 - Gobichettipalayam and Pwd Tiruppur; 13 - Adayamadai, Pechiparai and Dc Office Tiruppur; 12 - Uthukuli; 11 - Tiruppur North; 10 - Elanthakuttai Medu, Colachel and Tiruppur South; 9 - Begur, Kavundapadi, Kil Kotagiri Estate and Sothuparai; 8 - Krishnarajasagara, Ap Peelamedu, Nambiyur and Sulur; 7 - Gundlupet, Konni ARG, Annur, Tnau Coimbatore, Eraniel, Rameswaram, Ramanadhi Dam, Oothu, Avinasi and Tuting. |
| **6 Apr** | 7 - Punalur and Thirparappu. |
| **7 Apr** | 9-Jowai; 8-Perunchani Dam, Puthan Dam, Elumalai, Khliehriat and Mawsynram; 7-Kunnamkulam, Aravakurichi and Kallikudi. |
| **8 Apr** | Nil. |
| **9 Apr** | 8 - Taluk Office Pandalur. |
| **10 Apr** | 12 - Tribeniganj; 10 - Jalpaiguri; 8 - Chargharia, Singheshwar and Saraigarh Bhaptiyahi; 7 - Madhipura, Babubarhi, Sattar Kataiya and Mathabhanga. |
| **11 Apr** | 10 - Alipurduar PTO; 8 - Williamnagar; 7 - Hilsa, Rajauli, Bhawanipur and Karanjia. |
| **12 Apr** | 9 - Aravakurichi; 8 - Madukkur and Thiruthuraipoondi; 7 - Mancompu, Karaikudi, Orthanad, Neivasal Thenpathi and Mannargudi. |
| **13 Apr** | 7 - Hasimara. |
| **14 Apr** | 7 - Perunchani Dam and Puthan Dam. |
| **15 Apr** | 9 - Putki Dvc; 8 - Putki; 7 - Ponnani. |
| **16 Apr** | 9 - Madanpur Rampur; 8 - Cuttack; 7 - Garadapur and Harichandanpur. |
| **17 Apr** | 13 - Neora; 10 - Gummidipoondi; 9 - Ponneri and Champasari; 8 - Domohani; 7 - Anna Uty ARG, Anna University, Siliguri PTO and Nagarkata. |
| **18 Apr** | 10 - Muruda; 8 - Khagadia and Sarasakana; 7 - Hayaghat, Chandbali, Baripada and Gandecherra. |
| **19 Apr** | 9 - Thodupuzha; 8 - Anaikedanku; 7 – Mambzhathuraiyaru and Vaikom. |
| **20 Apr** | 11 - Kokrajhar; 9 - Govindpura AWS; 8 - Tuting; 7 - Banihal and Moranhat. |
| **21 Apr** | 14 - Hasimara; 11 - Arundhutinagar and Dm Office ARG; 9 - Khumluwang ARG; 7 - Atmakur, Guntakal and Bagafa. |
| **22 Apr** | 9 - Rongli and Khumluwang ARG; 8 - Tadang; 7 - Puthimari, Nalbari/Pagladia and Gangtok. |
| **23 Apr** | 15 - Shella; 11 - Cherrapunji; 10 - Beki Mathungari, Moranhat and Mawsynram; 9 - Nahar Katia, Mawkyrwat and Kokrajhar; 8 - Anaikedanku, Mambzhathuraiyaru, Drf, Mushalpur AWS, Cherrapunji (rkm) and Neamatighat; 7 - Pasighat AP, Namsai, Goibargaon, Sonari ARG, Margherita and Sibsagar. |

*Table 5 Continued*

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| **24 Apr** | 19 - D/Mohanbari AP; 17 - Khowang and Mohanbari AWS; 16 - Dholla Bazar; 13 - Nahar Katia and Tezu AWS; 10 - Kurudamannil, Namsai and Cherrapunji (rkm); 9 - Ranganadi Nt Xing; 8 - Roing, Khliehriat, Moranhat and Pasighat AP; 7 - Passighat AWS, Drf, Goibargaon, Dhemaji and Majuli. |
| **25 Apr** | 35 - Cherrapunji; 31 - Cherrapunji (rkm) and Mawsynram; 16 - Nahar Katia; 14 - Beky Rly.bridge; 13 - Dholla Bazar; 12-Barpeta; 11 - Tezu AWS; 7 - Namsai, Khliehriat, Manash Nh Xing and Panbari. |
| **26 Apr** | 17 - Mawsynram; 15 - Sohra (cher) ; 14 - Cherrapunji (rkm) ; 8 - Palode AWS. |
| **27 Apr** | 8 - Jaipatna; 7 - Bijapur and Nawapara. |
| **28 Apr** | 9 - Gurumitkal; 8 - Lokapur and Shirahatti; 7 - Hayaghat, Pandaul, Chepan and Sulya. |
| **29 Apr** | 10 - Avudayarkoil; 8 - Parvathipuram and Binjharpur; 7 - Budalur. |
| **30 Apr** | 10 - Mohakalapada; 8 - Talcher; 7 - Harabhanga and Bargaon. |
| **1 May** | 10 - Krishnarajpet. |
| **2 May** | 11 - Gunupur; 9 - Zrs Dumka; 8 - Lodi Road, Safdarjung, Dhansa, Kaman and Nongstein; 7 - Jhargram PTO, Pragati Maidan, Delhi University Obs, Pitampura AWS, Jafarpur AWS, Bahadurgarh, Beri, Jhajjar AWS, Kalanaur, Kataram and Dabugan. |
| **3 May** | 10 - Vellayani AWS; 9 - Honnali, Trivandrum AP and Joshimath; 7 - Airport Chakka ARG and Champai AWS. |
| **4 May** | 8 - Tura AWS and Udala; 7 - Ramnagar, Tihidi, Bhuban and Kaptipada. |
| **5 May** | 13 - Ghughumari; 9 - Amalapuram, Me Mathur, Virudachalam, Sirkali and Rameswaram; 8 - Gudur and Vannamada AWS; 7 - Kakinada, Kuppanatham, Parangipettai, Sethiathope, Vepur, Thangachimadam, Uppar Dam, Pullambadi, Kahu, Poonjar AWS and Indore. |
| **6 May** | 10 - Ekangersarai; 8 - Islampur and Gogawan; 7 - Patna Aerodrome and Williamnagar. |
| **7 May** | 15 - Meghnagar; 14 - Mahuva (b); 12 - Sagwara; 11 - Thammampatty; 9 - V.vidyanagar SR and Dhemaji; 7 - Chinnakalar, Tirupuvanam, Pallipattu, Rscl-3 Semmedu,<br>Sattur, Virudhunagar and Anand. |
| **8 May** | 11 - Sandhiyur Kvk AWS; 8 - Pechiparai and Sivakasi; 7 - Omalur, Palghar ARG, Vasai and Pirappancode AWS. |
| **9 May** | 11 - Sevoke; 10 - Indong T.e.; 8 - Nagarkata and Tonk; 7 - Bhopalpatnam, Sailana and Hasimara. |
| **10 May** | 9 - Sinnar; 7 - Kuppam. |
| **11 May** | 100 - Jaigad - ARG, Malgund - ARG and Savarde-arg; 10 - Kutiana; 8 - Jamkandorna; 7 - Pachhad, Dhoraji and Drf. |
| **12 May** | 100 - Malgund - ARG; 10 - Khowai; 8 - Khowai AWS and Ghughumari; 7 - Car Nicobar, Mathabhanga, Kalyanpur, Sitamau, Williamnagar, Williamnagar AWS, Barpathar and Teliamura ARG. |
| **13 May** | 15 - Jagalur; 12 - Nagarkata, Ghatia T.e. and Indong T.e.; 11 - Gangtok, Mangan, Kurti T.e. and Tra Nagrakata; 10 – Hilla T.e. and Sankalan; 9 - Kottigehara, Aibheel Tea Estate and Car Nicobar IAF; 8 - Car Nicobar, Neora, Singhik, Trimbakshwar, Ghasipura, Goalpara CWC and Zurrantee T.e; 7 - Raptadu, Nandavaram, Chenne Kothapalle, Sholayar, Tuting, Dhubri IMD, Banspal, Dhubri CWC and Gurjongjhora Tea Estate. |
| **14 May** | 100 - Savarde-arg; 20 - Majuli; 19 - Mawsynram; 17 - Gokak and Shella; 16 - Williamnagar; 14 - Dhubri CWC; 13 - B P Ghat and Dharwar S.f.; 12 - Mangan and Cherrapunji; 11 - Cooch Behar, Goalpara CWC and Dhubri; 10 - Dhemaji, Williamnagar AWS, Cherrapunji (rkm) , Mawkyrwat and Sankalan; 9 - Singhik, Chikodi, Sultanabad, Mohanbari AWS, Resubelpara and D/Mohanbariaero; 8 - Hatkanangale, Nilambur, Kanjirapuzha ARG, Jonai ARG, Goalpara AWS, Nongstein and Shipgyar; 7 - Barobhisha, Chepan, Mathabhanga, Lokapur, Hidkal Dam, Hukkeri, Dharwad HOS, Kundgol, Anavatti, Sangamner, Khowang, Ranganadi Nt Xing, Tikrikilla and Muragoda. |
| **15 May** | 17 - Anantpur and Ranganadi Nt Xing; 15 – Hatsingimari ARG; 14 - Raptadu; 13 - Chauldhowaghat; 12 - Naharlagun; 11 - Nh31 Bridge, Jagalur and Harapanahalli; 10 - Drf, Goibargaon, Goalpara PTO and N.lakhimpur/Lilabari; 9 - Hogenekal, Tiruchengode, Kohir and Chouldhuwaghat ARG; 8 - Mathabhanga, Chevella, Laha AWS and Ghughumari; 7 - Falakata, Munsong, Dhupguri, Dharmavaram, Harur, Annavasal, Dindigul, Alladurg, Kalwakurthy, Dhemaji, Goalpara AWS, Kokrajhar, Gossaigaon AWS, Ampati, Gossaigaon, Newlands Tea Garden, Maynaguri College and Hazo ARG. |
| **16 May** | 100 - Koregaon; 11 - Tura AWS; 10 - Guntur; 9 - Bapatla and Sivaganga; 8 - Amalapuram and Gudivada; 7 - Lam AP, Airport Madurai, Rameshwar ARG, Sondwa, Bhalukpong, Kokrajhar, Dhekiajuli and Bhatkawa Tea Estate. |
| **17 May** | 13 - Melabazar/Matunga; 10 - Chengam; 9 - Drf, Goibargaon, Kailashahar AP and Bahalpur; 8 - Pimpalgaonbaswant ARG, Tuting, Belonia, Khajuripada, Kurti T.e. and Kailashahar AWS; 7 - Port Blair, Balaganur, Pelandurai, Hogenekal, Krishnagiri, Pambar Dam, Jamunamarathur, Chargharia, Belonia ARG, Arundhutinagar, Beki Mathungari, Beech Tea Garden, Hilla T.e., Jiti T.e. and Washabari Tea Estate. |
| **18 May** | 19 - Sevoke; 13 - Kakkeri; 12 - Hogenekal; 10 - Gorantla, Panchapatti and Shorapur; 9 - Uravakonda, Maski, Puduchatram, Vaniyambadi and Ghish; 8 - Kurnool, Hunsagi, Taluk Office Pandalur, Washabari Tea Estate and Haveri E.e.o.; 7 - Bankura (CWC) , Amadagur, Rameswaram, Edapadi, Salem, Sankaridurg, Tnau Cri Yethapur, Orthanad, Vettikadu, Needamangalam, Deoni, Selu, Kolasib ARG, Indong T.e., Kailashpur Tea Estate and Saraswatipur Tea Estate. |

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| **19 May** | 19 - Raiganj PTO; 16 - Dhengraghat; 14 – Dscl Rishivandhiyam and Narpatganj; 13 - Dscl Kalayanallur; 12 - Annamalai Nagar, Dscl Thiyagadurgam, Namakkal, Rasipuram, Tiruvaiyaru, Pullambadi and Forbesganj; 11 - Bengaluru City, Lalpet, Vepur, Basl Manalurpet, Rameswaram, Kallakudi, Kasba, Makthal and Ksndmc Campus; 10 - Thirumanur, Suthamalli Dam, Lower Anaicut, Trp AP, Renapur, Dhubri CWC and Mettur Dam; 9 - Chamarajanagar, Chidambaram, Kattumayilur, Me Mathur, Srimushnam, Dscl Madampoondi, Dscl Thirupalapandal, Dscl Virugavoor, Manimutharu Dam PWD, Kelavarapalli Dam, Adirampatnam, Dhule, Sankh, Kishanganj, Dagarua, Jalalgarh and Bajali AWS; 8 - Bengaluru HAL AP, Kanakapura, Jayamkondam, Virudachalam, Vanamadevi, Ariyalur Camp Area, Puduchatram, Padalur, Orthanad, Thanjai Papanasam, Ponmalai, Araria, Raniganj, Baisa, Narva, Tikrikilla, Manash Nh Xing and Sandur; 7 - Kavali, Palamaner, Hungund, Narayanpur HMS, T G Halli HMS, Chengalpattu, Ap Peelamedu, K.m.koil, Dscl Eraiyur, Kcs Mill-1 Moongilthura, Kollidam, Sembanarkoil PWD, Perambalur, Mandapam, Thangachimadam, Neivasal Thenpathi, Pattukottai, Nandhiyar Head, Tiruchirappalli Junctio, Basl Mugaiyur, Mormugao - Pmo IMD, Barsoi, Amaur, Srinagar, Konni, Ampati, Nongstein, Barpeta and Hatsingimari ARG. |
| **20 May** | 28 - Williamnagar AWS; 23 - Williamnagar; 22 - Kunnamkulam; 19 - Mawsynram; 18 - Ams Kannur; 17 - Kannur Airport AWS and Tellichery; 16 - Enamakkal and Irinjalakuda; 15 - Karkala and Munakkal AWS; 14 - Cherrapunji, Cherrapunji (rkm) and Hatsingimari ARG; 13 - Yellapur, Kannur and Shella; 12 - Mangaluru AP, Ponnani, Mawkyrwat, Jowai and Peringalkuthu AWS; 11 - Guttal, Quilandi, Urumi AWS, Kodungallur, Khliehriat and Guwahati AWS; 10 - Empri, Kalasa, Choondy AWS, Peermade To, Padannakkad AWS, Muliyar AWS, Kunnamangalam AWS, Vadakara, Thennala AWS, Thritla, Vilangankunnu ARG, Guwahati AP, Iasst Kamrup ARG and Mangalore/P.bur; 9 - Repalle, Jokihat, Ayyankunnu AWS, Kannur Icar AWS, Kudulu, Kozhikode, Ambalavayal, Shillong CSO, Shillong AWS, Mawphlang and Nongstein; 8 - Peringome AWS, Konni, Kalakshetra ARG and Kolar G.f.; 7 - Gheropara, Mulki, Sulya, T G Halli HMS, Hosur, Sanguem, Aryankavu, Thenmala ARG, Athirappalli AWS, Ampati, Kailashahar AP, Vadakara AWS, Singimari and Chavara AWS. |
| **21 May** | 29 - Udupi; 24 - Kota; 22 - Khliehriat; 21 - Pernem; 20 - Mapusa; 19 - Kumta and Dabolim N.a.s.; 17 - Quepem; 16 - Gersoppa, Kundapur and Mangalore/P.bur; 15 - Arcot and Taliparamba; 14 - Mangan and Dodamarg; 13 - Manki, Sawantwadi and Hosdurg; 12 - Ankola, Gokarna, Arakonam, Rameshwar ARG and Kannur; 11 - Malvan, Sanguem, Kannur Icar AWS and Williamnagar; 10 - Singhik, Mulki, Mangaluru AP, Kadra, Mundgod, Palar Anicut, Keelpennathur, Vembakkam, Chinchwad - ARG, Padannakkad AWS, Mahe and Siddapura; 9 - Mangaluru, Karwar, Ratnagiri , Sangameshwar Devrukh, Mulde ARG, Canacona, Renapur, Sadasivanagar, Teliamura ARG, Belonia, Belonia ARG, Ashapara AWS and Tadang; 8 - Karkala, Ranipet, Red Hills, Roha, Peringome AWS, Vadakara, Cherrapunji, Cherrapunji (rkm) and Rongo; 7 - Gangtok, Belthangadi, Joida, Kalghatgi, Wallajah, Ponda, Khalapur, Mangaon, Murud, Shriwardhan, Kudal, Ambegaon Ghodegaon, Nda Pune - ARG, Chakur, Mahbubnagar, Dhar Palle, Mawkyrwat, Chalouni Tea Estate, Maynaguri College, Hosapete and Mawsynram. |
| **22 May** | 14 - Kumargram, Margao, Kumargram Tea Estate, Washabari Tea Estate and Dabolim N.a.s.; 13 - Anandpur Tea Estate; 12 - Gajoldoba, Kadra, Mormugao - Pmo IMD, Medak and Majherdabri Tea Garden; 11 - Sevoke, Nda Pune - ARG, Medak (ARG) and Patkapara Tea Estate; 10 - Sadar Chaibasa, Durgachack, Honavar, Karwar, Mapusa, Quepem, Chegunta and Laxmanchanda; 9 - Alipurduar PTO, Domohani, Nh31 Bridge, Diamond Harbour, Amaravati, Gersoppa, Panjim , Roha, Kudal, Mulde ARG, Satara , Saroornagar, Chilkur, Huzur Nagar, Bhatkawa Tea Estate and Saraswatipur Tea Estate; 8 - Maheshpur, Bhutanghat, Siliguri PTO, Ankola, Manki, Naga Reddipet, Balkonda, Doultabad, Dubbak, Kodada, Suryapet, Karimganj, Kailashahar AP, Mukhlispur, Manash Nh Xing, Bahalpur, Newlands Tea Garden, Baradighi T.e., Denguajhar Tea Garden, Gairkata Tea Estate, Ghatia T.e. and Kailashahar AWS; 7 - Hazaribagh Dvc, Barobhisha, Chepan, Castle Rock, Kumta, Pernem, Sawantwadi, Canacona, Sanguem, Ahmedpur, Latur, Mallapur, Kothaguda, Chennur, Dandepalle, Kaveri Siddipet AP, Wargal, Mattampally, Chennaraopet, Panbari, Dhubri IMD, B P Ghat, Tiring, Gorakhpur, Aie Nh Xing, Oodlabari Tea Estate, Akola, Dima Tea Estate, Chincholi, Hazo ARG and Panna. |
| **23 May** | 28 - Guhagarh; 16 - Ponda, Lanja, Sangameshwar Devrukh and Wakwali ARG; 13 - Castle Rock and Gumma; 12 - Palakonda (ARG) , Kadra, Mulde ARG and Margao; 11 - Chiplun, Dapoli ARG, Ratnagiri , Kankavli, Kudal, Asarganj, Champua, Similiguda and Devgad; 10 - Sawantwadi, Mahabaleshwar and Komna; 9 - Bhairamgarh, Odagi, Karkala, Gokarna, Karwar, Vaibhavwadi, Canacona, Ausa, Deoni, Shambhuganj, Bakhari, Dharhara, Jagtial, Kathlapur, Bandhugaon, Nandapur and Kashipur; 8 - Tokapal, Bijapur, Ankola, Kumta, Mapusa, Khed, Wai, Latur, Renapur, Bariarpur, Banswada, Armur, Narayankhed, Digapahandi and Telkoi; 7 - Kutaru, Kottigehara, Panjim , Pernem, Poladpur, Rajapur, Chandgad, Gaganbawada, Radhanagari, Satara , Shirur Anantpal, Sahebpur Kanal, Talamadugu, Bhupalpalle, Yellareddy, Shankarapatnam, Dhar Palle, Navipet, Deogaon, Deogarh, Raikia, Banpur, Mathili, Gunupur and Kotraguda. |
| **24 May** | 18 - Raghunathpur; 16 - Castle Rock and Kottigehara; 13 - Kankavli; 12 - Patrapur; 11 - Avalanche, Taluk Office Pandalur, Choondy AWS and Lakhipur ARG; 10 - Bhagamandala, Gaganbawada, Kalamassery AWS, Peermade To, Trivandrum AP, Chalakudi and Devgad; 9 - Belthangadi, Manki, Chinnakalar, Rajapur, Ratnagiri , Sangameshwar Devrukh, Radhanagari, Piravam, Idukki, Munnar Kseb, Thodupuzha, Vaikkom AWS, Mahe, Angadipuram, Thennala AWS, Thiruvananthapuram, Kodungallur, Vyttiri and Tensa; 8 - Mangaluru AP, Gersoppa, Kadra, Devala, Ponda, Lanja, Vaibhavwadi, Phaltan, Karipur Ap., Urumi AWS, Ponnani, Irinjalakuda, Kunnamkulam, Sankheimundi, Agumbe and Cochi IAF; 7 - Ganganagar, Dharmasthala, Mani, Gokarna, Kumta, Kalasa, Nagapattinam, Nalumukku, Oothu, Rameshwar ARG, Gargoti/Bhudargad, Shahuwadi, Cherthala, Mattanchery AWS, Palluruthy ARG, Myladumpara ARG, Quilandi, Vadakara, Chittur, Alathur, Ottapalam, Thritla, Athirappalli AWS, Lower Sholayar AWS, Vadakkancherry, Peechi AWS, Bhuban, Kundapur, Ottapalam AWS, Pattembi, Vadakara AWS, Chavara AWS, Idamalayar Dam AWS and Amreli. |

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| **25 May** | 21 - Kottigehara and Avalanche; 19 - Agumbe; 17 - Bhagamandala; 16 - Daund and Nilambur; 15 - Vyttiri; 14 - Chinnakalar and Udupi; 13 - Puttur HMS, Baramati, Ams Kannur, Chemberi AWS, Kannur Airport AWS, Karipur Ap., Urumi AWS and Mannarkkad; 12 - Jagadhari, Kanjirapuzha ARG and Karnal; 11 - Pachhad, Ayyankunnu AWS, Irikkur, Siddapura, Sagar Island PTO and Sagar Island; 10 - Belthangadi, Sringeri HMS, Bhadra REV, Valparai PTO, Kandaghat, Alwaye PWD, Quilandi and Kundapur; 9 - Dharmasthala, Uppinangadi, Karkala, Ponnampet PWD, Delhi University Obs, Kurukshetra, Pehowa, Thanesar, Cincona, Devala, Emeralad, Taluk Office Pandalur, Worth Estate Cher, Cheruvanchery AWS, Taliparamba, Munnar Kseb, Angadipuram, Alathur and Saharanpur; 8 - Gersoppa, Safdarjung, Kaul AWS, Kannur, Peringome AWS, Muliyar AWS, Kozhikode, Palemad AWS, Malampuzha Dam AWS, Palakkad, Thritla, Kunnamkulam, Vadakkancherry, Peechi AWS, Mohakalapada, Lamataput, Baheri, Kota, Ottapalam AWS and Karnal AWS; 7 - Repalle, Loharkhet, Mani, Kalasa, Koppa, Napoklu, Hunchadakatte, Pusa AWS, Lodi Road, Pragati Maidan, Palam, Pataudi, Hissar, Jind, Sahlawas, Nilokheri, Ismailabad, Samalkha, Madluda REV, Panipat, Sirsa, Sholayar, Siruvani Adivaram, G Bazar, Kil Kotagiri Estate, Upper Bhavani, Upper Gudalur, Phaltan, Tellichery, Kochi C.i.a.l., Perumpavur, Piravam, Vaikkom AWS, Vadakara, Mahe, Chittur, Enamakkal, Lower Sholayar AWS, Vellanikkara, Vilangankunnu ARG, Dimapur AWS, Bhuban, Jhumpura, Pattembi, Kurukshetra AWS, Varkala, Gurgaon and Delhi Ridge. |
| **26 May** | 37 - Murud; 35 - Avalanche; 31 - Shriwardhan and Harnai IMD; 30 - Upper Bhavani and Mhasla; 24 - Lonavala ARG; 23 - Bhagamandala; 22 - Kottigehara; 21 - Chinnakalar, |
| **27 May** | 28-Mhasla; 26-Avalanche; 25-Panvel ARG & Murud; 24 Dapoli ARG; 19 - Mulki; 18 - Mani and Devgad; 17 - Uppinangadi, Shriwardhan, Tala, Rameshwar ARG, Ayyankunnu AWS, Tellichery and Mangalore/P.bur; 16 - Afzalpur HMS, Colaba , Pen, Guhagarh, Peermade To, Vyttiri and Alibag; 15 - Karkala, Matheran, Wakwali ARG, Chemberi AWS, Vellathooval AWS and Vadakara; 14 - Manki, Santacruz and Mangaon; 13 - Puttur HMS, Emeralad, Roha, Mandangad, Kankavli, Ams Kannur, Kannur, Peringome AWS and Kota; 12 Belthangadi, Mangaluru AP, Chinnakalar, Upper Bhavani, Khalapur, Poladpur, Harnai IMD, Ratnagiri , Irikkur, Kannur Airport AWS, Taliparamba, Idukki, Mahe and Venkurinji AWS; 11 - Mangaluru, Bhagamandala, K Bridge, Thekkadi, Katihar, Munnar Kseb, Hosdurg, Padannakkad AWS, Kozhikode, Vaikkom AWS, Angadipuram, Palakkad and Agumbe; 10 - Napoklu, Worth Estate Cher, Periyar, Karjat ARG, Sudhagad Pali, Chiplun, Uran, Mulde ARG, Vadgaon Maval, Washi, Kudulu and Malampuzha Dam AWS; 9 - Kottigehara, Ponnampet PWD, Somwarpet, Siruvani Adivaram, Valparai PTO, Rajapur, Malvan, Kudal, Rajgir, Cheruvanchery AWS, Ernakulam South, Muliyar AWS, Vaikom, Quilandi, Sabroom, Burla, Kundapur and Udupi; 8 - Dharmasthala, Kalasa, Adayamadai, Chamraj Estate, Harisan Malayalam Ltd., Taluk Office Pandalur, Dahanu , Mahad, Karjat, Lohara, Hansot, Kadwa, Cherthala, Mattanchery AWS, Piravam, Kanjirappally, Mannarkkad, Neyyattinkara, Chalakudi, Athirappalli AWS, Siddapura, Shahpur, Mannarkkad AWS and Ganagapura ARG; 7 - Koner, Koner Dvc, Dum Dum, Panagarh (IAF) , Canning, Cincona, Balamore, Suralacode, Naduvattam, Wood Braiyar Estate, Nalumukku, Oothu, Mapusa, Pernem, Sawantwadi, Vaibhavwadi, Ambernath, Lonavala ARG, Paud Mulshi, Barshi, Umarga, Silao, Kosgi, Palluruthy ARG, Myladumpara ARG, Pampadumpara AWS, Kollam Rly, Kumarakam, Karipur Ap., Manjeri, Nilambur, Thennala AWS, Kollamkode, Ottapalam, Thritla, Parumbikulam, Konni, Ulanad AWS, Vellanikkara, Manantoddy, Kuppady, Bhabhra, Cherrapunji, Derabis, Nawapara, Pattembi, Tehri and Cochi IAF. |
| **29 May** | 19-Avalanche; 15-Cheruvanchery AWS; 14-Manki; 13-Uppinangadi, Bhagamandala, Upper Bhavani, Sanguem and Peermade To; 12- Karwar, Chinnakalar, Canacona, Peringome AWS, Vyttiri, Agumbe and Kannur; 11-Gersoppa, Pwd Makkinampatti, Valparai PTO, Periyar, Ayyankunnu AWS, Irikkur, Idukki, Munnar Kseb & Vadakara 10-Mani, Puttur HMS, Ankola, Honavar, Margao, Pinarayi AWS, Lanjigarh and Bantwal; 9 - Kumta, Cincona, Pollachi, Sholayar, Panjim , Ams Kannur, Chemberi AWS, Kannur Airport AWS, Hosdurg, Vellathooval AWS, Quilandi, Chalakudi, Manantoddy, Chilika, Kota, Kundapur, Siddapura, Udupi, Mudubidre and Mangalore/P.bur; 8-Napoklu, Valparai Pap, Chamraj Estate, Kalamassery AWS, Piravam, Thodupuzha, Vaikkom AWS, Angadipuram, Urumi AWS, Lower Sholayar AWS, Kokrajhar, Chandel AWS and Dhupdhara ARG; 7-Lava, Mangaluru AP, Sulya, Karkala, Gokarna, Kadra, Kammardi, Kottigehara, Somwarpet, Valparai Taluk Office, G Bazar, K Bridge, Upper Gudalur, Kodumudiyaru Dam, Nalumukku, Oothu, Mapusa, Mahabaleshwar, Utkoor, Tellichery, Alwaye PWD, Choondy AWS, Myladumpara ARG, Kudulu, Muliyar AWS, Chittur, Malampuzha Dam AWS, Vannamada AWS, Athirappalli AWS, Sausar, Gharmura, Amgaon, Angul, Ganjam, Begunia, Krishnaprasad, Bahalpur & Kamptee. |
| **30 May** | 38 - Cherrapunji (rkm) ; 26 - Mangaluru and Mawsynram; 25 - Mawphlang; 22 - Cherrapunji; 20 - Kudulu; 19 - Mulki, Vadakara and Kota; 18 - Mangalore/P.bur; 17 - Hosdurg, Bayar AWS, Williamnagar, Sonamura, Kundapur and Udupi; 16 - Uppinangadi, Manki and Jirania ARG; 15 - Peringome AWS, Padannakkad AWS, Muliyar AWS, Umrangso, Resubelpara and Mawkyrwat; 14 - Kannur, Taliparamba, Peermade To, Bhaghmara, Jowai, Sonamura ARG and Arundhutinagar; 13 - Honavar, Chinnakalar, Shillong CSO and Shillong AWS; 12 - Kumta, Valparai PTO, Nalumukku, Oothu, Lohara, Ernakulam South, Lower Sholayar AWS, Williamnagar AWS, Khliehriat, Khowai, Khowai AWS, Teliamura ARG, Agartala AP, Met Agartala AWS and Vadakara AWS; 11 - Karkala, Valparai Pap, Valparai Taluk Office, Avalanche, Ayyankunnu AWS, Pinarayi AWS, Mattanchery AWS, Munnar Kseb, Kunnathanam AWS, Kurudamannil, Sabroom, Budhjongnagar ARG and Cochi IAF; 10 - Lava, Mangaluru AP, Sulya, Cincona, Upper Bhavani, Kakkachi, Quepem, Choondy AWS, Kalamassery AWS, Piravam, Vaikom, Vaikkom AWS, Angadipuram, Venkurinji AWS, Chalakudi, Bomdila AWS, Khetri ARG and Majuli; 9 - Mani, Puttur HMS, Kadra, Sholayar, Canacona, Ams Kannur, Cheruvanchery AWS, Kannur Airport AWS, Tellichery, Palluruthy ARG, Thodupuzha, Vellathooval AWS, Kanjirappally, Thennala AWS, Parumbikulam, Athirappalli AWS, Kunnamkulam, Shella, Barapani, Nongstein, Belonia, Bishalgarh, Belonia ARG, Sabroom AWS, Kailashahar AP, Bagafa, Gandachara AWS, Amarpur, Bantwal and Mudubidre; 8 - Amfu Kalimpong, Bhagamandala, Periyar, Manjolai, Mavelikara, Alwaye PWD, Perumpavur, Idukki, Kumarakam, Manjeri, Chittur, Mannarkkad, Enamakkal, Vellanikkara, Amini, Barpathar, Chottabekra, Ukhrul, Dm Office ARG, Beky Rly.bridge, Hawai, Mannarkkad AWS, Daporizo AWS, Kailashahar AWS and Daparijo; 7 - Belthangadi, Ankola, Gokarna, Karwar, Ponnampet PWD, Somwarpet, Taluk Office Pandalur, Gundar Dam, Sanguem, Bhum, Rajgarh, Adilabad, Cherthala, Kayamkulam ARG, Mancompu, Madikkai AWS, Punalur, Mahe, Ponnani, Ottapalam, Thritla, Konni, Irinjalakuda, Vyttiri, Agathi, Udaipura, Chandrapur ARG, Sonapur ARG, Tikrikilla, Kamalpur, Dharmanagar/Panisagar, Siddapura, Lakhipur, Dhubri CWC, Kadamtala ARG, Ashapara AWS, Kampur and Dhupdhara ARG. |

*Table 5 Continued*

| | |
|---|---|
| **31 May** | 47 - Cherrapunji (rkm) ; 41 - Cherrapunji; 40 - Mawsynram; 30 - Khliehriat; 29 - Mawkyrwat; 23 - Buxaduar, Sevoke, Puttur HMS and Hasimara; 22 - Uppinangadi and Saiha; 21 - Mawphlang and Beech Tea Garden; 20 - Belthangadi; 19 - Sulya and Chauldhowaghat; 18 - Bomdila AWS, Chouldhuwaghat ARG and Tezu; 17 - Muliyar AWS, N.lakhimpur/Lilabari, Tezpur and Hilla T.e.; 16 - Chengmari/Diana, Mani, Mazbat ARG, Basar AWS, Khanapara, Basar and Majbat; 15 - Yazali, Amraghat, Shella, Senapati, Nandahandi, Banarhat High School and Kurti T.e.; 14 - Neora, Kudulu, Tezu AWS, Naharlagun, Champai AWS, Ghatia T.e., Gurjongjhora Tea Estate, Soongachi T.e., Tra Nagrakata, Dima Tea Estate, Bantwal and Mudubidre; 13 - Bhutanghat, Bhagamandala, Miao, Chandrapur ARG, Khetri ARG, Sonapur ARG, Badatighat, Jowai, Jamda, Hawai, Good Hope Tea Estate, Indong T.e., Jiti T.e., Ghish and Zero; 12 - Nagarkata, Dharmasthala, Panathur AWS, Pasighat AP, Panbari, Numaligarh, Barpathar, Guwahati ARG, Bihpuria AWS, Lawngtlai and Zurrantee T.e; 11 - Deobhog, Gajoldoba, Cherthala, Hosdurg, Passighat AWS, Dhemaji, Neamatighat, Guwahati AP, Guwahati City AWS, Laharighat ARG, Bhanjnagar, Aibheel Tea Estate, Bhatkawa Tea Estate, Diana Tea Estate, Gandrapara Tea Garden, Leesh River Tea Garden, Daporizo AWS, Sualkuchi ARG and Byrnihat ARG; 10 - Arki, Haripad, Seppa, Roing, Goibargaon, Shillong CSO, Guwahati AWS, Kalakshetra ARG, Barapani, Bhumuraguri, Jia Bharali N T Xing, Udaipur, Nongstein, Tensa, Oodlabari Tea Estate, Chel and Majuli; 9 - Noamundi, Mangan, Singhik, Vepada, Kayamkulam ARG, Mavelikara, Peermade To, Kozhikode, Mahe, Kibithu, Tuting, Khowang, Shillong AWS, Dhekiajuli, Wokha AWS, Bargarh, Nawarangpur PTO, Odagaon, Lahunipara, Tangarpali, Dholai, Baithalangso, Dalgaon Tea Estate, Baradighi T.e., Damdim Tea Estate, Fagu Tea Estate, Kumlai T.e., Washabari Tea Estate, Tangla ARG, Hazo ARG, Hangrabari ARG, Dhupdhara ARG, Zunheboto AWS, Daparijo and Aizawl; 8 - Koyyalagudem, Napoklu, Kannur, Kollam Rly, Kumarakam, Ponnani, Enamakkal, Kunnamkulam, Tamulpur ARG, Silchar, Ukhrul, Hemgiri, Lakhipur, Jiagaon, Newlands Tea Garden, Chalouni Tea Estate, Gairkata Tea Estate, Dharamtul and Bomdila; 7 - Simdega, Manoharpur, Bagdogra IAF, Murti, Narsipatnam, Allagadda, Kayamkulam, Mancompu, Peringome AWS, Taliparamba, Ernakulam South, Kalamassery AWS, Vaikom, Vadakara, Munakkal AWS, Namsai, Tuting AWS, Bhalukpong, Tamulpur, Golaghat CWC, Matijuri, Diphu AWS, B P Ghat, Ranganadi Nt Xing, Margherita, Chottabekra, Kolasib ARG, Kiphire AWS, Atabira, Batli, Reamal, Komna, Nawarangpur, Beky Rly.bridge, A P Ghat, Kheronighat, Baintgoorie T.e., Kailashpur Tea Estate, Chavara AWS and Mangalore/P.bur. Saraswatipur Tea Estate, Batabari T.e., Bajali AWS, Shipgyar, |

north-south trough which ran from central India to Gulf of Mannar in the lower levels and its eastward movement during the week and also due to the presence of an east-west trough over Indo-Gangetic plains in the lower levels along with the cyclonic circulations embedded in it during 18th to 22nd April.

During 4th week, a fresh western disturbance as a trough in middle tropospheric westerlies moved across north, central, east and northeast India. Eventually, it intensified and deepened upto Lat.18º N between 3.1 and 9.6 km above m.s.l. over central and eastern India during second half of the week; a Jet core winds of 90-110 knots prevailed across north / northeast India in the upper tropospheric levels and a north-south trough was observed in the lower tropospheric levels which ran from central India to Gulf of Mannar throughout the week. Due to these synoptic situations, rain / thunderstorm activities occurred over northeast India, south peninsular and adjoining central India on most of the days during the week, while eastern parts of India experienced moderate / severe thunderstorms with squally/gusty winds and hailstorms during second half of the week.

Heavy to very heavy rainfall with extremely heavy rainfall was also recorded at isolated places over Assam & Meghalaya towards the beginning of week mainly due to convergence of moist southerly / southeasterly winds over the region superimposed by upper level Jet core and trough in westerlies.

3.2.3. *Monthly rainfall*

During April 2025, the rainfall realized during the month was 175% of its LPA over central India, 160% of its LPA over south peninsular India, 79% of its LPA over east & northeast India, 72% of its LPA over northwest India and 99% of its LPA over country as a whole.

Most sub-divisions received large excess/excess /normal rainfall, except sub-divisions from northwest India, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Madhya Maharashtra which received deficient/large deficient rainfall. Out of 36 meteorological sub-divisions, 11 received large excess, 6 received excess, 8 received normal, 7 received deficient and 4 received largely deficient rainfall.

Rainfall over All India (38.8 mm) was 47th highest since 1901 and 12th highest since 2001. Rainfall over homogeneous region of central India (16.1 mm) was 21st highest since 1901 and 5th highest since 2001. Rainfall over homogeneous region of south peninsular India (54.3 mm) was 12th highest since 1901 and 5th highest since 2001.

3.2.4. *Temperature distribution*

In April 2025, the mean temperature over the country was 29.16 ºC with an anomaly of 0.86 ºC, the 7th highest since 1901. The maximum temperature was the 8th highest (35.97 ºC with an anomaly of 0.95 ºC), and the minimum temperature was the 9th highest (22.35 ºC with an anomaly of 0.78 ºC) since 1901. In April 2025, both the maximum and minimum temperatures were above normal over the country as a whole and all the homogeneous regions except South Peninsular India. Among the four homogeneous regions, over Northwest India the maximum temperature was the 3rd highest (35.55 ºC with an anomaly of 2.10 ºC) after the years 2022 (37.03 ºC), 2010 (36.13 ºC), and the minimum temperature was the 12th highest (19.56 ºC with an

anomaly of 1.02 ºC) since 1901. Over Central India the maximum temperature was the 9th highest (38.83 ºC with an anomaly of 0.93 ºC), and the minimum temperature was the 10th highest (23.98 ºC with an anomaly of 0.81 ºC) since 1901. The minimum temperature over East & Northeast India was the 8th highest (21.46 ºC with an anomaly of 1.05 ºC) since 1901. Over the country as a whole, the maximum temperature during April 2025 was the 8th highest (35.97 ºC with an anomaly of 0.95 ºC), and the minimum temperature was the 9th highest (22.35 ºC with an anomaly of 0.78 ºC) since 1901.

The maximum temperature was above normal over most parts of the country, except some parts of east India, south peninsular India, eastern central India and Andaman & Nicobar Islands. Maximum temperature anomaly was more than 3 ºC over parts of Jammu, Kashmir, Punjab and West Rajasthan. Maximum temperature anomaly was more than 2 ºC over parts of Jammu, Kashmir & Ladakh, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, Rajasthan state, West Uttar Pradesh, West Madhya Pradesh and Gujarat state. Maximum temperature anomaly was less than -1 ºC over parts of Bihar, East Uttar Pradesh, Gangatic West Bengal, Odisha, South Interior Karnataka, North Interior Karnataka, Telangana and Andaman & Nicobar Islands. The highest maximum temperature of 46.8 °C was recorded at Barmer (west Rajasthan) over the plains of the country on 30th April 2025 during the month.

The minimum temperature was above normal over most parts of the country, except some parts of central India, south peninsular India and Lakshadweep. The minimum temperature anomaly was more than 2 ºC over parts of Punjab, West Rajasthan, Nagaland, Manipur, Mizoram, northern Madhya Maharashtra and West Madhya Pradesh. Minimum temperature anomaly was less than -1 ºC over parts of East Uttar Pradesh, East Madhya Pradesh and Vidarbha.

In the month of April, Rajasthan and Gujarat observed 6-11 numbers of heat wave days and east Madhya Pradesh and Vidarbha observed 4-6 numbers of heat wave days. Over east central India, Maharashtra and adjoining northern Peninsular India, 1-3 days of heat wave were observed. Heat wave conditions continued to prevail over Rajasthan till 19th April and abated thereafter due to impact of an active WD which caused wet spell and thunderstorm activities and windy conditions over the region during 18th-21st April. During 2nd fortnight, eastern & adjoining central parts of India experienced heat wave conditions. After that, heat wave conditions abated from most parts of the country due to wet spell and thunderstorm activities during end of the month. However, after the passage of western disturbance from western

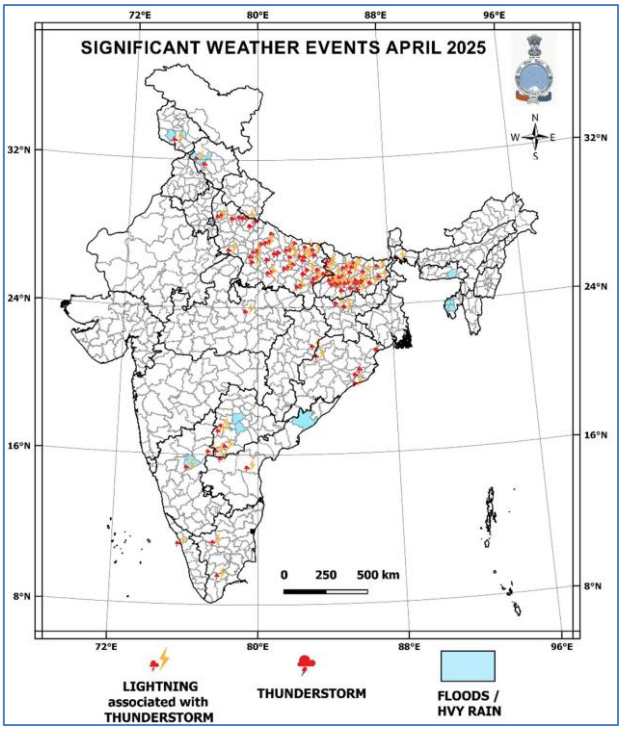


**Fig. 3**. Significant weather events during April 2025
*Source: IMD Climate Summary for the month of April 2025*

Himalayan Region, it again observed at isolated places over Jammu Division and west Rajasthan.

3.2.5. *Disastrous weather events and damage*

Fig. 3 shows significant weather events during April 2025 (Based on real-time media reports).

During April 2025, total 195 persons reportedly claimed dead, more than 35 persons injured and more than 320 livestock perished. Lightning associated with Thunderstorm caused 110 persons death 15 persons injured and more than 270 livestock perished. Thunderstorm claimed 72 persons death 15 persons injured and 50 livestock perished. Heavy Rains & Landslide caused 13 persons death and 7 persons injury.

3.3. *May*

3.3.1. *Storms and depressions*

(i) *Depression over eastcentral Arabian sea and adjoining south Konkan coast (24 – 25 May 2025)*

Under the influence of the upper air cyclonic circulation over eastcentral Arabian Sea off north Karnataka-Goa coasts, a Low Pressure Area formed over eastcentral Arabian Sea off south Konkan-Goa coasts at 0000 hrs. UTC of 22nd May 2025. It lay as a well marked

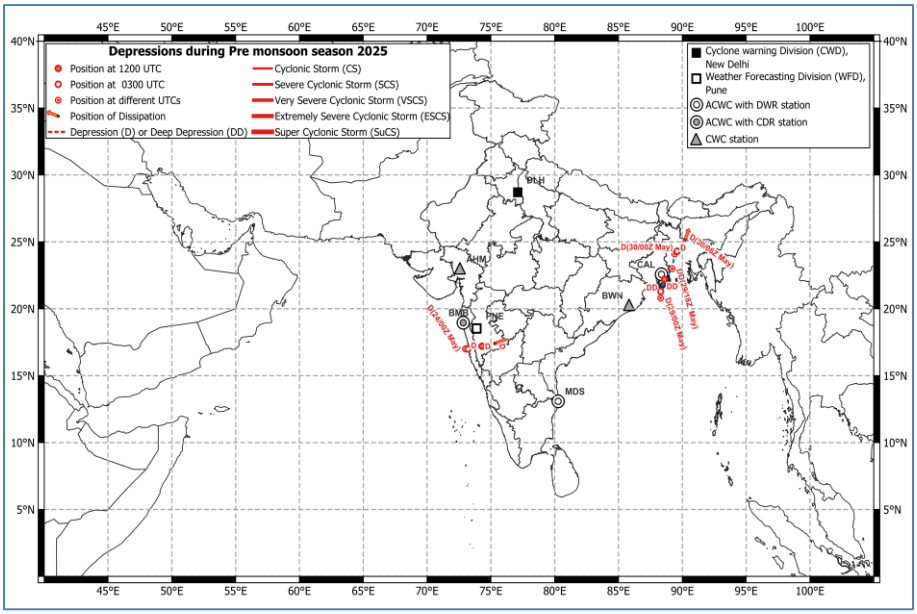


**Fig. 4.** Depressions during pre-monsoon season 2025

low-pressure area over eastcentral Arabian Sea off south Konkan coast at 0000 hrs UTC of 23rd and persisted over the same area at 0300 hrs. UTC of 23rd. It concentrated into a depression and lay centered over eastcentral Arabian sea and adjoining south Konkan coast near latitude 17.2° N & longitude 73.0° E, about 40 km northwest of Ratnagiri at 0000 hrs. UTC of 24th. It then moved slowly eastward and lay centred over the same region at 0300 hrs. UTC of 24th and crossed the south Konkan coast near Ratnagiri between 0600-0700 hrs. UTC and lay centered over Madhya Maharashtra near latitude 17.1° N & longitude 74.3° E at 1200 hrs UTC of 24th. It further moved nearly eastwards and weakened into a Well Marked Low Pressure Area and lay over south Madhya Maharashtra and adjoining areas of Marathwada & north interior Karnataka at 0000 hrs. UTC of 25th and further weakened into low-pressure area over Marathwada adjoining Madhya Maharashtra at 1200 hrs UTC of 25th. It became less marked at 0000 hrs. UTC of 27th.

The depression caused rainfall at most places with heavy to very heavy/ extremely heavy rainfall at a few places over Konkan & Goa, Madhya Maharashtra, coastal Karnataka and south Interior Karnataka during 22nd – 26th May and over Kerala & Mahe during 25th & 26th May. No damage recorded due to this system.

*(ii) Deep Depression over northwest Bay of Bengal off West Bengal and adjoining Bangladesh coasts (29-30 May 2025)*

Under the influence of upper air cyclonic circulation over northwest and adjoining westcentral Bay of Bengal, a Low Pressure Area formed over northwest Bay of Bengal off Odisha coast at 0300 hrs. UTC of 27th. It became well marked over the same region at 0000 hrs. UTC of 28th. It concentrated into a Depression and lay centred near latitude 20.8° N and longitude 88.4° E over northwest Bay of Bengal off West Bengal and adjoining Bangladesh coasts at 0000 hrs. UTC 29th. It moved nearly northwards & intensified into a Deep Depression and lay centred at 0300 hrs. UTC of 29th over the same region near latitude 21.3° N and longitude 88.5° E, about 60 km southeast of Sagar Island. It moved north-northeastwards and weakened into a depression and lay centred at 0000 hrs. UTC of 30th over Bangladesh near latitude 24.1° N and longitude 89.4° E, about 60 km west-southwest of Tangail (Bangladesh) and weakened into a well-marked low pressure at 30th evening. It then lay as a low pressure area over northeast Assam & neighbourhood at 0000 hrs. UTC of 31st & then became less marked.

Light to moderate rainfall at most places with heavy to very heavy rainfall at isolated places over southeast & adjoining southwest Arabian sea, Lakshadweep, Comorin and Maldives area and coastal Kerala & Karnataka on 23rd Oct. On 24th and 25th Oct, the rainfall was mainly confined to the eastcentral & adjoining southeast Arabian sea, South Kerala & Comorin area. On 26th & 27th Oct, heavy to very heavy rainfall over eastcentral Arabian sea was observed both to the east & west of system area. Heavy rainfall also occurred over North Maharashtra on 26th and over North Maharashtra & adjoining areas of South Gujarat on 27th Oct. On 28th Oct., heavy rainfall

occurred over South Gujarat, north Maharashtra & west Madhya Pradesh. On 29th Oct., as the system indicated slight weakening, the rainfall zone was mainly confined to eastcentral & adjoining northeast Arabian Sea & coastal areas of South Gujarat.

The deep depression over the Bay of Bengal and its remnant led to catastrophic flooding and landslides across northeast India, causing at least 32 deaths and widespread destruction. Guwahati experienced record-breaking rainfall, resulting in fatal mudslides and urban flooding. Arunachal Pradesh reported multiple fatalities due to vehicles being swept away and drowning incidents. Mizoram faced unprecedented rainfall leading to landslides and infrastructure damage. Manipur, Tripura, and Meghalaya also suffered significant disruptions and fatalities. Emergency services were mobilized and authorities assessed damage to seek central assistance for relief and reconstruction efforts.

3.3.2. *Weather and associated synoptic features*

*(i) Advance of southwest monsoon:*

In view of strengthening of south westerlies in the lower tropospheric levels, fairly widespread to widespread rainfall activity and persistent cloudiness over the area, Southwest Monsoon has advanced into some parts of south Bay of Bengal, south Andaman Sea, Nicobar Islands and some parts of north Andaman Sea on 13th May, 2025. It further advanced into some parts of southeast Arabian Sea, Maldives & Comorin area and some more parts of south Bay of Bengal, Andaman Islands and Andaman Sea on 15th May; some more parts of south Arabian Sea, Maldives & Comorin area; South Bay of Bengal, remaining parts of Andaman Islands and Andaman Sea; and some parts of eastcentral Bay of Bengal on 17th may; some more parts of south Arabian sea, Maldives & Comorin area, south Bay of Bengal, some more parts of central Bay of Bengal and some parts of northeast Bay of Bengal on 19th May; some more parts of south Arabian sea, Maldives & Comorin area; south Bay of Bengal on 20th May; some more parts of central Bay of Bengal and some parts of northeast Bay of Bengal on 21st May; remaining parts of south Arabian Sea, some parts of westcentral & eastcentral Arabian Sea, entire Lakshadweep area, Kerala, Mahe, some parts of Karnataka, remaining parts of Maldives and Comorin area, many parts of Tamil Nadu, remaining parts of southwest and eastcentral Bay of Bengal, some parts of westcentral and north Bay of Bengal and some parts of Mizoram on 24th May. Thus, the Southwest Monsoon was set in over Kerala on the 24th of May, 8 days prior to its normal date i.e. 1 June.

*(ii) Other synoptic features and rainfall*

As given in Table 4, 1 depression, 1 deep depression, 8 western disturbances, 58 upper air cyclonic circulations, 26 troughs and 1 shear zone affected the weather over the country during the month of May.

During the 1st week, two western disturbances moved across northwest and adjoining central India. In association with the movement of these western disturbances, prolonged wet spell accompanied with moderate to severe thunderstorms, squally/gusty winds were observed over northwest, central and eastern India. In addition, heavy to very heavy rainfall also recorded at isolated places over east Rajasthan, west Madhya Pradesh, Saurashtra & Kutch at the end of week. The first western disturbance was formed in-situ as a cyclonic circulation over south Punjab & adjoining north Rajasthan and west Haryana on 2nd May and became less marked on the next day. Under its influence, thunderstorm accompanied with squally/gusty winds and isolated heavy rainfall observed over east Rajasthan, Haryana and Delhi on 2nd May. While, the second one was seen as a cyclonic circulation over north Pakistan & neighbourhood on 3rd May and moved across Punjab, northwest Rajasthan and west Madhya Pradesh by the end of week. It was intense but very slow moving system observed between 3.1 to 9.4 km above m.s.l. along with north-south extended trough upto northeast Arabian Sea towards the end of week. Under its influence, prolonged wet spell of light to moderate rainfall with isolated thunderstorm accompanied with lightning and gusty winds was observed over north, northwest and central India during 3rd to 7th May.

During 2nd week around 12th and 13th May, widespread moderate rainfall with heavy rainfall at a few places continued over Nicobar Islands and depth of westerly wind strengthened and increased continuously upto 4.5 km above m.s.l. with wind speed above 20 knots during over parts of south Bay of Bengal, Nicobar Islands and Andaman Sea. At the same time, outgoing Longwave Radiation over the area continued to decrease and became less than 200 watts/meter$^2$. Considering these criteria, southwest Monsoon advanced into some parts of south Bay of Bengal, south Andaman Sea, Nicobar Islands and some parts of north Andaman Sea on 13th May, 2025.

Last week's prolonged wet spell continued over west, northwest and adjoining central India during the week mainly due to an active western disturbance and its interaction with north-south trough over peninsular India. Heavy rain observed over south peninsular India was mainly due to presence of north-south trough in the lower tropospheric levels over the region during the week. The wet spell also observed over northeast India on most of

the days during the week with heavy to very heavy rainfall towards the end of week mainly due to persistence of a cyclonic circulation in the lower tropospheric levels over northeast Assam & neighbourhood and southerly / southwesterly winds towards the region throughout the week.

During 3rd week, wet spell accompanied with thunderstorms, lightning and gusty winds continued over south peninsular India, mainly due to formations of successive upper air cyclonic circulations and presence of east-west trough over central peninsular India in the lower and middle tropospheric levels. Heavy to very heavy rain with isolated extremely heavy rainfall was observed over west coast of India during the week. The wet spell along with heavy to very heavy rain at a few places accompanied by thunderstorms lightning and gusty winds also continued over northeast India mainly due to persistence of a cyclonic circulation over Assam & neighbourhood in the lower tropospheric levels and an east-west trough over Indo-Gangetic plains during the week.

During 4th week, the Southwest Monsoon set in over Kerala on 24th May 2025 and advanced rapidly over the west coast, peninsular India, eastern parts of India and the entire Northeast India by 28th May. This rapid advancement accompanied with vigorous / active monsoon was observed over west coast, south peninsular India and northeast India. A Depression formed over the east-central Arabian Sea and adjoining south Konkan coast, which crossed south Konkan coast and further moved eastwards as a low pressure area over Marathwada and adjoining Madhya Maharashtra during the week. An east-west shear zone developed along Lat.17° N in the middle tropospheric levels, towards the end of week enhancing convective activity. Due to this systems, first very heavy to extremely heavy rainfall spell observed over Konkan & Goa, Madhya Maharashtra, coastal and Ghat areas of Karnataka during the week and over Kerala and Ghat areas of Tamil Nadu during second half of the week. During the month, Hailstorms were observed over various parts of the country mainly due to presence of north-south trough from northern plains to peninsular India as well as an east-west trough from northwest India to Bangladesh in the lower levels. Dust Storms were also observed at isolated places over Madhya Pradesh, Uttar Pradesh and Rajasthan.

3.3.3. *Monthly rainfall*

Most of the sub-divisions received large excess rainfall. Out of 36 meteorological subdivisions, 26 received large excess, 4 received excess and 6 received normal rainfall. The rainfall realized during the month was 533% of its LPA over Central India, 278% of its LPA over South Peninsular India, 139 % of its LPA over Northwest India and 127 % of its LPA over East & Northeast India and 206% of its LPA over country as a whole. Rainfall over All India (126.7 mm) was highest since 1901. Rainfall over Central India (101.3 mm) was highest since 1901. While, rainfall over homogeneous region South peninsular India (199.8 mm) was second highest since 1901 after the year 1990 (201.4 mm). Rainfall over Central India (101.3 mm) was highest since 1901. While, rainfall over homogeneous region South peninsular India (199.8 mm) was second highest since 1901 after the year 1990 (201.6 mm). Rainfall over homogeneous region Northwest India (48.0 mm) was 13th highest since 1901 and 4th highest since 2001. Rainfall over homogeneous region of East & Northeast India (241.7 mm) was 29th highest since 1901 and 4th highest since 2001.

3.3.4. *Temperature distribution*

In May 2025, the mean temperature over the country was 29.57 ºC with an anomaly of -0.81 ºC, the 19th lowest since 1901. The maximum temperature was the 7th lowest (35.08 ºC with an anomaly of -1.52 ºC) and the minimum temperature was the 59th lowest (24.07 ºC with an anomaly of -0.10 ºC) since 1901. Among the four homogeneous regions, over Central India the maximum temperature was the 3rd lowest (36.63 ºC with an anomaly of -2.63 ºC) after the years 1917 (34.92 ºC), 1933 (36.47 ºC), and the minimum temperature was the 12th lowest (25.14 ºC with an anomaly of -0.74 ºC) since 1901. Over South Peninsular India the maximum temperature was the 5th lowest (34.13 ºC with an anomaly of -2.25 ºC) after the years 1918 (33.69 ºC), 1933 (33.78 ºC), 1943 (33.82 ºC), 1955 (33.89 ºC) and the minimum temperature was also the 5th lowest (24.53 ºC with an anomaly of -0.88 ºC) after the years 1917 (23.59 ºC), 1990 (24.21 ºC), 1918 (24.24 ºC), 1955 (24.49 ºC) since 1901. Southwest Monsoon set in over Kerala on 24th May 2025. Rainfall realized over the country as a whole was 206% of its LPA during the month. Rainfall over All India (126.7 mm) was highest since 1901. Rainfall over Central India (100.9 mm) was highest since 1901. While, rainfall over homogeneous region South peninsular India (199.7 mm) was second highest since 1901 after the year 1990 (201.4 mm).

The maximum temperature was below normal over most parts of the country, except some parts of north India, northeast India and both the Islands. Maximum temperature anomaly was more than 2 ºC over parts of Jammu, Kashmir. Maximum temperature anomaly was less than -4 ºC over parts of southern Madhya Pradesh state, Madhya Maharashtra, Vidarbha, Marathawada, Chhattisgarh, North Interior Karnataka and Telangana.

The highest maximum temperature of 48.0 °C was recorded at Jaisalmer (west Rajasthan) over the plains of the country on 23rd May 2025 during the month.

The minimum temperature was below normal over most parts of the country, except some parts of northwest India, central India (Gujarat state and Odisha), east & northeast India and Andaman & Nicobar Islands The minimum temperature anomaly was more than 2 ºC over parts of Jammu, Kashmir & Ladakh, Punjab and extreme North-West Rajasthan. Minimum temperature anomaly was less than -2 ºC over parts of Madhya Pradesh state, northern Madhya Maharashtra, Vidarbha, Marathawada and Telangana.

Heat wave to severe heat wave conditions prevailed at isolated pockets of northwest and adjoining Western Himalayan Region. Rajasthan and Jammu & Kashmir & Ladakh observed 6-11 no. of heat wave days. East Uttar Pradesh, Haryana, Chandigarh & Delhi, Punjab and East Madhya Pradesh observed 1-3 no. of heat wave days. No Heat wave conditions observed due to wet spell across the country during 2nd week. Towards the end of the month, heat wave conditions abated from the country due to prevailing and persistence easterly winds and light to moderate rainfall activities over north and adjoining central India accompanied with isolated thunderstorms and gusty winds.

3.3.5. *Disastrous weather events and damage*

Fig. 5 shows significant weather events during May 2025 (based on real-time media reports).

During May, total 357 persons reportedly claimed dead, more than 145 persons injured, about 10 persons missing and more than 1710 livestock perished. Details are given below:

Lightning associated with thunderstorm: Total 140 persons reportedly claimed dead, 69 persons injured and about 290 livestock perished.

Thunderstorm: Total 107 persons reportedly claimed dead, 30 persons injured and more than 75 livestock perished.

Heavy Rains, Floods and Landslides: Total 102 persons reportedly claimed dead, 48 persons injured, 10 persons missing and more than 1350 livestock perished.

Gale: Total 5 persons reportedly claimed dead, one person injured and 3 livestock perished. Also, damage to about 100 areca palms on 26 May reported in Kasaragod (Kerala) district.

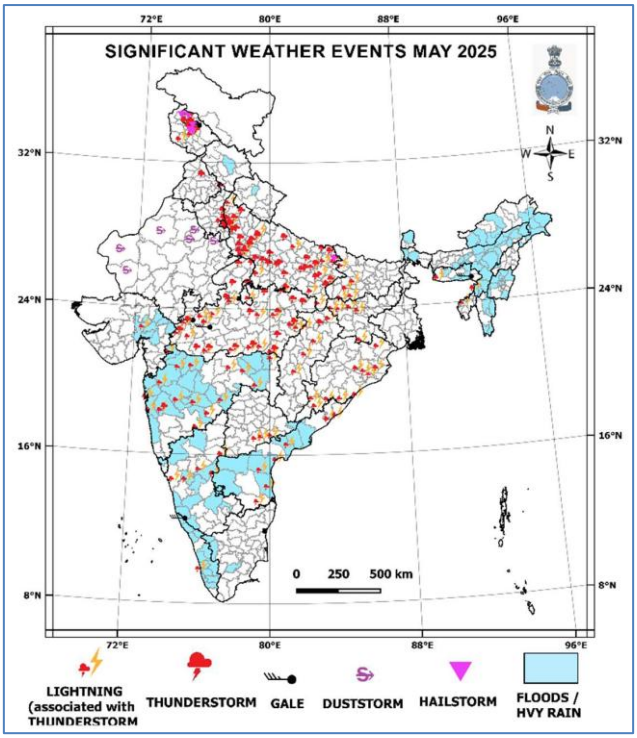


**Fig. 5.** Significant weather events during may 2025
*(Source: IMD Climate Summary for the month of May 2025)*

Dust Storm: Total 2 persons reportedly claimed dead and one person injured.

Hailstorm: Total one person reportedly claimed dead in Kushinagar (Uttar Pradesh) district.

*Acknowledgments*

The inputs from the Offices of India Meteorological Department *viz*., (1) Director General of Meteorology (Hydromet), New Delhi and (2) Climate Research and Services, Pune are gratefully acknowledged. Thanks to Abhinav Arora S.A. for his help in bringing out this summary.

**Appendix**

**Definitions of the terms given in '*Italics*'**

| | | |
|---|---|---|
| | ***Temperatures*** | |
| *Heat Wave* | | Heat wave is considered if maximum temperature of a station reaches at least 40 °C or more for Plains and at least 30 °C or more for Hilly regions. |
| (a) *Based on Departure from Normal* | | |
| *Heat Wave* | - | Departure from normal is 4.5 °C to 6.4 °C |
| *Severe Heat Wave* | - | Departure from normal is >6.4 °C |
| (b) *Based on Actual Maximum Temperature (for plain stations only)* | | |

| | | |
|---|---|---|
| *Heat Wave* | - | When actual maximum temperature ≥ 45 °C |
| *Severe Heat Wave* | - | When actual maximum temperature ≥47 °C |
| (c) *Criteria for describing Heat Wave for coastal stations* | | |
| When maximum temperature departure is 4.5 °C or more from normal, Heat Wave may be described provided actual maximum temperature is 37 °C or more. | | |
| **Temperature** | | |
| (a) *Maximum/day temperatures* | | |
| *Markedly above normal* | - | when the departure from normal is +5 °C or more |
| *Appreciably above normal* | - | when the departure from normal is +3.1 °C to 5.0 °C |
| *Above normal* | - | when the departure from normal is 1.6 °C to 3.0 °C |
| *Normal* | - | departure from normal is +1.5 °C to –1.5 °C |
| (b) Minimum / Night temperature | | |
| *Markedly below normal* | - | when the departure from normal is –5 °C to or less |
| *Appreciably below normal* | - | when the departure from normal is between –3.1 °C to –5.0 °C |
| *Below normal* | - | when the departure from normal is –1.6 °C to +3.0 °C |
| *Normal* | - | departure from normal is –1.5°C to +1.5 °C. |
| ***Rainfall*** | | |
| *Very light* | - | 0.1 to 2.4 mm |
| *Light* | - | 2.5 to 15.5 mm |
| *Moderate* | - | 15.6 to 64.4 mm |
| *Heavy* | - | 64.5 to 115.5 mm |
| *Very heavy* | - | 115.6 to 204.4 mm |
| *Extremely Heavy* | - | ≥ 204.5 mm |
| *Large Excess* | - | Percentage departure from normal rainfall is + 60% or more |
| *Excess* | - | Percentage departure from normal rainfall is + 20% to +59% |
| *Normal* | - | Percentage departure from normal rainfall is +19% to –19% |
| *Deficient* | - | Percentage departure from normal rainfall is –20% to –59% |
| *Large Deficient* | - | Percentage departure from normal rainfall is –60% or less |
| *No rain* | - | –100% |