

Weather in India

HOT WEATHER SEASON (March – May 2011)†

1. Chief features

(i) There has been no abnormal aberration noticed either in terms of the maximum temperature figures or in terms of the prevalence of the *severe heat wave conditions** during the hot weather season - 2011

(ii) No intense low pressure system formed over the Indian Seas during the pre-monsoon cyclone season, as in the recent past years *viz.*, 2005 & 1993.

(iii) Systems in mid-latitude westerlies gave rise to precipitation over the northern and northeastern parts of India and systems in easterlies and convective activity gave rise to thundershowers over central & peninsular parts of the country during April & May.

(iv) The southwest monsoon set in over Kerala on 29 May.

2. Seasonal rainfall

The sub-divisionwise rainfall and its departure from normal for each month and season as a whole are given in Table 1. The sub-divisional rainfall departures for the season March-May 2011 are also depicted in Fig. 1.

The seasonal rainfall was in general *normal/deficient* over north, northeast and Peninsular India except over Uttar Pradesh and south interior Karnataka where it was *excess*.

3. Significant features during various months

3.1. March

3.1.1. Weather and associated synoptic features

The details of the weather systems during the month are summarised in Table 2 and the resultant rainfall distribution in Table 3. The principal amounts of rainfall are given in Table 12.

Passage of active western disturbances gave rise to precipitation over northwest India during the first week of the month. Northeast India experienced thundershower activity all through the last fortnight of the month. Like last year, there was no exceptionally enhanced rainfall activity

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

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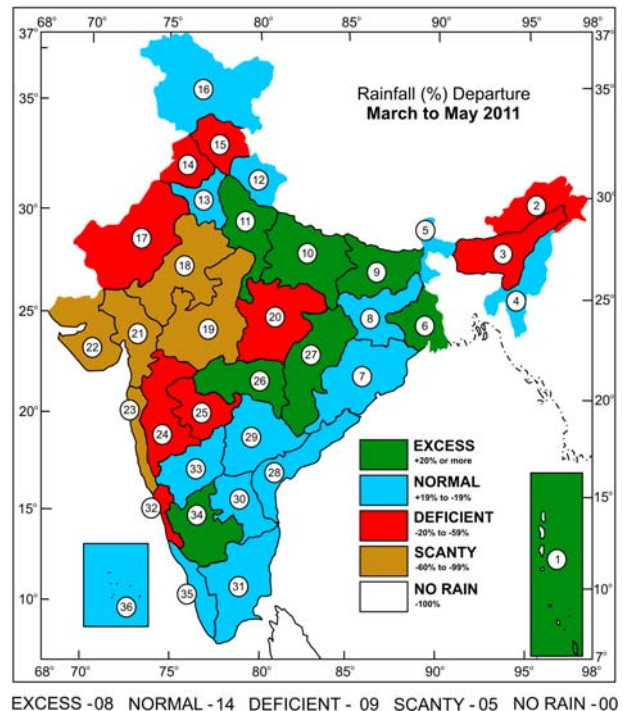


Fig. 1. Sub-divisionwise seasonal rainfall departure from normal (%) for winter season (March to May 2011). Sub-divisions are indicated by number on the map & bold letters in legend. The rainfall anomaly values for these 36 sub-divisions are indicated below :

| | | | | | | | | | | | |
|----------|-----|-----------|----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
| 1 | 49 | 7 | 10 | 13 | -6 | 19 | -75 | 25 | -27 | 31 | 11 |
| 2 | -47 | 8 | 3 | 14 | -37 | 20 | -30 | 26 | 52 | 32 | -37 |
| 3 | -28 | 9 | 80 | 15 | -32 | 21 | -99 | 27 | 35 | 33 | 12 |
| 4 | -5 | 10 | 33 | 16 | -8 | 22 | -99 | 28 | 0 | 34 | 27 |
| 5 | -13 | 11 | 23 | 17 | -35 | 23 | -86 | 29 | -2 | 35 | -18 |
| 6 | 49 | 12 | -8 | 18 | -61 | 24 | -43 | 30 | -4 | 36 | -15 |

over the south peninsula due to the subdued easterly wave activity.

3.1.2. Temperature distribution

(i) Minimum temperatures

The dates of occurrence of *cold wave* and dates on which the minimum temperatures remained *appreciably to markedly above/below normal* and *above/below normal* are

TABLE 1
Sub-division wise rainfall (mm) for each month and season as a whole (March - May 2011)

| 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. | A. & N. Islands | 305.5 | 25.0 | 1122% | 83.7 | 81.5 | 3% | 305.7 | 358.5 | -15% | 694.9 | 465.0 | 49% |
| 2. | Arunachal Pradesh | 121.5 | 179.7 | -32% | 114.7 | 278.8 | -59% | 157.8 | 291.9 | -46% | 394.0 | 750.4 | -47% |
| 3. | Assam & Meghalaya | 114.8 | 77.7 | 48% | 77.3 | 181.2 | -57% | 235.1 | 331.3 | -29% | 427.2 | 590.2 | -28% |
| 4. | Naga., Mani., Mizo. and Tri. | 50.2 | 76.8 | -35% | 58.3 | 149.4 | -61% | 360.1 | 267.9 | 34% | 468.6 | 494.1 | -5% |
| 5. | Sub-Himalayan West Bengal & Sikkim | 48.6 | 63.6 | -24% | 129.2 | 123.7 | 4% | 219.6 | 269.8 | -19% | 397.4 | 457.1 | -13% |
| 6. | Gangetic West Bengal | 40.9 | 28.0 | 46% | 89.9 | 42.1 | 114% | 114.4 | 94.7 | 21% | 245.2 | 164.8 | 49% |
| 7. | Orissa | 4.4 | 27.0 | -84% | 62.8 | 37.5 | 68% | 80.3 | 70.2 | 14% | 147.6 | 134.7 | 10% |
| 8. | Jharkhand | 10.8 | 17.1 | -37% | 24.9 | 18.4 | 35% | 46.3 | 43.9 | 6% | 82.0 | 79.4 | 3% |
| 9. | Bihar | 8.4 | 10.1 | -16% | 30.3 | 16.3 | 86% | 101.0 | 51.1 | 98% | 139.8 | 77.5 | 80% |
| 10. | East Uttar Pradesh | 4.8 | 9.1 | -48% | 3.9 | 5.6 | -31% | 33.6 | 17.0 | 97% | 42.2 | 31.7 | 33% |
| 11. | West Uttar Pradesh | 4.5 | 11.3 | -60% | 4.4 | 4.6 | -4% | 26.9 | 13.2 | 103% | 35.8 | 29.1 | 23% |
| 12. | Uttaranchal | 20.0 | 57.6 | -65% | 35.0 | 33.3 | 5% | 89.0 | 65.1 | 37% | 144.1 | 156.0 | -8% |
| 13. | Haryana, Chandigarh & Delhi | 3.9 | 12.7 | -69% | 5.3 | 7.5 | -29% | 23.0 | 14.0 | 64% | 32.3 | 34.2 | -6% |
| 14. | Punjab | 6.7 | 25.3 | -73% | 12.2 | 12.5 | -2% | 14.5 | 15.7 | -8% | 33.4 | 53.5 | -37% |
| 15. | Himachal Pradesh | 61.0 | 114.2 | -47% | 59.5 | 65.4 | -9% | 47.1 | 65.3 | -28% | 167.6 | 244.9 | -32% |
| 16. | Jammu & Kashmir | 130.0 | 151.9 | -14% | 121.9 | 97.5 | 25% | 47.8 | 76.6 | -38% | 299.7 | 326.0 | -8% |
| 17. | West Rajasthan | 1.4 | 3.8 | -63% | 2.4 | 4.2 | -44% | 8.7 | 11.1 | -22% | 12.4 | 19.1 | -35% |
| 18. | East Rajasthan | 0.5 | 3.7 | -88% | 0.9 | 2.9 | -68% | 5.4 | 10.8 | -50% | 6.8 | 17.4 | -61% |
| 19. | West Madhya Pradesh | 0.7 | 4.6 | -85% | 0.9 | 2.0 | -55% | 1.8 | 6.9 | -74% | 3.4 | 13.5 | -75% |
| 20. | East Madhya Pradesh | 0.9 | 12.5 | -93% | 8.9 | 5.5 | 62% | 7.7 | 7.1 | 9% | 17.5 | 25.1 | -30% |
| 21. | Gujarat region | 0.0 | 1.0 | -100% | 0.0 | 0.3 | -100% | 0.0 | 5.1 | -99% | 0.0 | 6.4 | -99% |
| 22. | Saurashtra & Kutch | 0.0 | 1.2 | -100% | 0.0 | 0.2 | -84% | 0.0 | 2.5 | -100% | 0.0 | 3.9 | -99% |
| 23. | Konkan & Goa | 0.0 | 0.0 | -100% | 4.4 | 2.7 | 65% | 0.7 | 34.3 | -98% | 5.2 | 37.0 | -86% |
| 24. | Madhya Maharashtra | 0.6 | 2.7 | -77% | 8.7 | 8.9 | -2% | 12.3 | 26.2 | -53% | 21.6 | 37.8 | -43% |
| 25. | Marathawada | 0.6 | 5.7 | -90% | 11.5 | 6.5 | 77% | 9.9 | 18.1 | -45% | 22.0 | 30.3 | -27% |
| 26. | Vidarbha | 1.8 | 12.0 | -85% | 28.3 | 7.7 | 267% | 17.0 | 11.2 | 52% | 47.1 | 30.9 | 52% |
| 27. | Chattisgarh | 1.8 | 13.3 | -86% | 42.5 | 13.8 | 208% | 16.6 | 18.1 | -8% | 60.9 | 45.2 | 35% |
| 28. | Coastal Andhra Pradesh | 0.8 | 11.1 | -93% | 44.3 | 21.8 | 103% | 52.0 | 64.1 | -19% | 97.1 | 97.0 | 0% |
| 29. | Telangana | 2.3 | 9.4 | -75% | 33.1 | 16.5 | 101% | 20.3 | 30.9 | -34% | 55.7 | 56.8 | -2% |
| 30. | Rayalaseema | 0.0 | 6.5 | -100% | 34.9 | 19.9 | 75% | 43.7 | 55.6 | -21% | 78.6 | 82.0 | -4% |
| 31. | Tamil Nadu | 8.7 | 18.3 | -52% | 94.8 | 42.3 | 124% | 39.3 | 67.5 | -42% | 142.2 | 128.1 | 11% |
| 32. | Coastal Karnataka | 0.8 | 4.1 | -80% | 65.2 | 28.1 | 132% | 45.8 | 146.6 | -69% | 111.8 | 178.8 | -37% |
| 33. | North interior Karnataka | 0.8 | 5.2 | -84% | 44.8 | 25.6 | 75% | 49.4 | 54.3 | -9% | 95.0 | 85.1 | 12% |
| 34. | South interior Karnataka | 7.6 | 8.5 | -10% | 87.3 | 43.8 | 99% | 88.9 | 92.9 | -4% | 183.8 | 145.2 | 27% |
| 35. | Kerala | 25.0 | 30.4 | -18% | 165.2 | 109.5 | 51% | 121.6 | 239.8 | -49% | 311.8 | 379.7 | -18% |
| 36. | Lakshadweep | 3.2 | 11.8 | -73% | 86.0 | 48.9 | 76% | 107.2 | 171.7 | -38% | 196.4 | 232.4 | -15% |

TABLE 2
Details of the weather systems during March 2011

| S. No. | System | Duration | Place of first location | Direction of movement | Place of final location | Remarks |
|---|---------------------------|----------|---|-----------------------|--|--|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| (A) Low pressure area | | | | | | |
| 1. | Low pressure area | 28-29 | South Andaman Sea and neighbourhood | East | Moved away eastwards | It formed under the influence of a cyclonic circulation extending up to mid-tropospheric levels from 24 to 27 and a trough of low at m .s .l. on 27 & 28 |
| (B) Western Disturbances and other eastward moving systems | | | | | | |
| <i>(i) As upper air cyclonic circulations</i> | | | | | | |
| 1. | Upper air system | 7-9 | Jammu & Kashmir and adjoining north Pakistan | East northeast | Eastern parts of Jammu & Kashmir | Moved away on 10 |
| 2. | Do | 16-20 | North Pakistan and neighbourhood | Northeast | Jammu & Kashmir | Moved away on 21 |
| 3. | Do | 26-29 | Do | Do | Jammu & Kashmir and neighbourhood | Moved away on 30 |
| <i>(ii) As induced cyclonic circulations</i> | | | | | | |
| 1. | Lower tropospheric levels | 2-4 | West Rajasthan and neighbourhood | Northeast | Haryana and neighbourhood | Moved away on 5 |
| 2. | Upto 0.9 km a.s.l | 4-5 | West Rajasthan and neighbourhood | Stationary | <i>In situ</i> | Less marked on 6 |
| 3. | Lower tropospheric levels | 22-24 | Central Pakistan and adjoining west Rajasthan | East | Haryana and neighbourhood | Less marked on 25 |
| (C) Other upper air cyclonic circulations | | | | | | |
| 1. | Lower tropospheric levels | 1-5 | Southwest Bay of Bengal off Sri Lanka coast | West | Lakshadweep area and adjoining southeast Arabian sea | Less marked on 6 |
| 2. | Do | 6-9 | Assam & Meghalaya and neighbourhood | Stationary | <i>in situ</i> | Became less marked on 10 |
| 3. | Do | 9-19 | South Andaman sea and adjoining Sumatra coast | West | Comorin area and neighbourhood | Less marked on 20 |
| 4. | Do | 23-29 | Kerala and neighbourhood | East | South Tamil Nadu and neighbourhood | It lay as an embedded cyclonic circulation in the Trough at 0.9 km a.s.l which ran from Bihar to south Tamil Nadu from 26 to 29 and became less marked on 30 |

TABLE 2 (Contd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|-----------------------------------|----------------|--|------------------|---|--------------------------|
| (D) Troughs in easterlies | | | | | | |
| 1. | Lower levels | 10-11 | Lakshadweep area to Telangana through Kerala and interior Karnataka | Quasi-Stationary | Kerala to south Chattisgarh across south interior Karnataka, Rayalaseema and Telangana | Less marked on 12 |
| 2. | Trough of Low (at mean sea level) | 10-18 | South Andaman Sea and adjoining southeast Bay of Bengal | West | Southwest Bay of Bengal and adjoining Sri Lanka | Less marked on 19 |
| 3. | Do | 14-15 | South Andaman Sea and neighbourhood | Stationary | <i>In situ</i> | Less marked on 16 |
| (E) Trough / wind discontinuity | | | | | | |
| 1. | Upto 0.9 km a.s.l. | 10-17 | Sub-Himalayan West Bengal & Sikkim to Vidarbha through Bihar, Jharkhand, and north Chattisgarh | Oscillatory | East Uttar Pradesh to south Chattisgarh across east Madhya Pradesh and Vidarbha | Became less marked on 18 |
| 2. | Upto 0.9 km a.s.l. | 21-29 | Bihar to south Tamil Nadu across Jharkhand, Chattisgarh, Telangana and Rayalaseema | Do | Haryana to south Tamil Nadu across west Uttar Pradesh, Madhya Pradesh, Chattisgarh, Telangana and Rayalaseema | Became less marked on 30 |
| 3. | Upto 0.9 km a.s.l. | 31 Mar – 8 Apr | Gangetic West Bengal to Kerala across Orissa, Coastal Andhra Pradesh, Rayalaseema and Tamil Nadu | Do | East Uttar Pradesh to Marathwada across west Madhya Pradesh, Vidarbha and north Madhya Maharashtra | Became less marked on 9 |
| (F) Other troughs | | | | | | |
| 1. | Upto lower tropospheric levels | 29-30 | Haryana to Jharkhand across west Uttar Pradesh, Madhya Pradesh and north Chattisgarh | East | Uttar Pradesh to northeast Madhya Pradesh and north Chattisgarh | Less marked on 31 |

given in Table 4. The same date appearing in two different columns of a sub-division may be reckoned as occurrence of that category over parts of the sub-division. The minimum temperatures were normal for the rest of the days.

Bengal and east Uttar Pradesh. Night temperatures were *above/appreciably above* normal over northeast, western, and central India except Vidarbha on many days during the month.

Cold wave conditions prevailed on one day each in Saurashtra & Kutch and at isolated parts of Gangetic West

The month's and the season's lowest minimum temperature over the plains was 4.6° C recorded at Amritsar (Punjab) on 24 February 2011.

TABLE 4

Dates of occurrence of cold wave/severe cold wave and various categories of minimum temperatures - March 2011

| No. | Sub-division Name | Dates (Number of days) | | | | | | |
|-----|-----------------------------|------------------------|-----------|----------|--------------------------------------|-------------------------|---|---------------------------------------|
| | | Severe cold wave | Cold wave | Cold Day | Appreciably to markedly below normal | Below normal | Appreciably to markedly above normal | Above normal |
| 2. | Arunachal Pradesh | | | | 26 (1) | 16, 20 (2) | 3, 5, 19, 21-22, 27 (6) | 4, 8 (2) |
| 3. | Assam & Meghalaya | | | | 2, 16, 29 (3) | 1, 5, 8, 17 (4) | 3-4, 6, 9-10, 12, 18, 21-25, 31 (13) | 4, 6, 8, 11, 13, 22, 26, 28-29 (9) |
| 4. | Naga., Mani, Mizo and Tri. | | | | 1-2, 31 (3) | 5, 14, 17, 24, 28 (5) | 7, 12, 19-20, 22-27, 30 (11) | 10-11, 13-14, 29 (5) |
| 5. | S. H. W. B. & Sikkim | | | | 13-17 (5) | 13 (1) | 2-8, 10-11, 18-19, 21-26, 30-31 (19) | 8, 14-15, 20-21, 27 (6) |
| 6. | Gangetic West Bengal | | 2 (1) | | 1-2, 15, 29 (4) | 3, 31 (2) | 6-7, 9-10, 14, 19-25, 30 (13) | 5, 8-9, 13, 15, 18, 21, 26-28 (10) |
| 7. | Orissa | | | | 2, 16 (2) | 1-3, 8-9, 17-18, 25 (8) | 7, 10, 20, 23, 29-30 (6) | 5-6, 11, 14, 20-22, 24, 28, 31 (10) |
| 8. | Jharkhand | | | | 2, 14, 29 (3) | 1, 13, 15, 31 (4) | 4, 6, 11, 19-21, 24-25, 30 (9) | 5, 7, 10, 28 (4) |
| 9. | Bihar | | 1 (1) | | 1-2, 15, 17 (4) | 12, 16, 23, 27, 31 (5) | 4, 11, 17-19, 21, 25 (7) | 3, 6, 8-9, 16, 20, 23-24, 26, 30 (10) |
| 10. | East Uttar Pradesh | | 11 (1) | | 11-13, 15 (4) | 2, 14 (2) | 3, 17-20, 24-26, 30 (9) | 4-5, 9, 11, 16, 18, 27-28, 31 (9) |
| 11. | West Uttar Pradesh | | | | 12-13 (2) | 1 (1) | 15-20, 25-26, 30 (9) | 3, 5, 7, 9, 18, 27, 29, 31 (8) |
| 12. | Uttarakhand | | | | | 4, 10-11, 21, 30-31 (6) | 14-20, 29 (8) | 3, 5, 7, 22-23, 26-29 (9) |
| 13. | Haryana, Chandigarh & Delhi | | | | 5, 11, 22 (3) | 7, 12-14, 22 (5) | 18-20, 25-29 (8) | 3, 17, 30-31 (4) |
| 14. | Punjab | | | | | 2, 5, 8, 10 (4) | 16-20, 27-29 (8) | 1, 3, 26, 29 (4) |
| 15. | Himachal Pradesh | | | | 11, 22 (2) | 9-10, 21 (3) | 7, 14-18, 24-25, 28-29 (10) | 20, 23, 26 (3) |
| 16. | Jammu & Kashmir | | | | 7, 20 (2) | 2-3, 5, 6, 9-10, 31 (7) | 15-19, 25, 27-28 (8) | 26 (1) |
| 17. | West Rajasthan | | | | 12 (1) | 10, 13 (2) | 1, 3-4, 7-8, 14-20, 23, 25-31 (20) | 2, 5-6, 13, 20-24 (9) |
| 18. | East Rajasthan | | | | 12 (1) | 10, 13 (2) | 3-4, 8-9, 15-20, 23, 28-31 (15) | 5, 7, 13, 20-24, 27 (9) |
| 19. | West Madhya Pradesh | | | | 12-13, 15, 17, 22, 27-28 (8) | 14, 23, 25 (3) | 1, 3-4, 6, 8, 15, 18-21, 24, 29-31 (14) | 5, 7, 9-10, 16, 26, 29 (8) |
| 20. | East Madhya Pradesh | | | | 12, 15, 17, 22, 27 (5) | 13-14 (2) | 2-7, 9-10, 15, 18-21, 24-26, 29-30 (18) | 16, 23, 28-29, 31 (5) |
| 21. | Gujarat Region | | | | 10 (1) | 6 (1) | 1-4, 7, 14, 16-20, 25-27, 30-31 (16) | 4, 6, 8-9, 11, 15, 21-22, 24, 29 (10) |
| 22. | Saurashtra & Kutch | | 11 (1) | | 3, 10-12 (4) | 6, 31 (2) | 2, 4, 14-19, 25-26 (10) | 1, 4, 6-9, 22, 24, 27-30 (12) |

TABLE 4 (Contd.)

| Sub-division | | Dates (Number of days) | | | | | | |
|--------------|--------------------------|------------------------|-----------|----------|--------------------------------------|---------------------------------|--------------------------------------|--|
| No. | Name | Severe cold wave | Cold wave | Cold Day | Appreciably to markedly below normal | Below normal | Appreciably to markedly above normal | Above normal |
| 23. | Konkan & Goa | | | | 11 (1) | 10, 12, 25 (3) | 8 (1) | 3, 5-7 (4) |
| 24. | Madhya Maharashtra | | | | 10-11, 13-15, 17-18, 25-28(11) | 1, 7, 15-16, 19-22, 31 (9) | 1-5, 8 (6) | 2, 4-8, 13-14, 16, 18, 20, 24-26, 28-31 (18) |
| 25. | Marathawada | | | | 11, 13-15, 17-18, 28 (8) | 16, 29, 31 (3) | 1-8, 23-24, 30 (11) | 9, 16, 20 (3) |
| 26. | Vidarbha | | | | 1, 10-15, 17, 22, 25-29, 31 (15) | 8-9, 16, 18-21, 30 (8) | 3-7, 11, 24 (7) | 2, 8-9, 22 (4) |
| 27. | Chattisgarh | | | | 17, 28 (2) | 15-16, 27 (3) | 4-5, 7, 10-12, 19, 24-26, 30 (11) | 3, 6, 20, 23 (4) |
| 28. | Coastal Andhra Pradesh | | | | 1, 4 (2) | 5-7 (3) | 30-31 (2) | 1, 8-10, 13-14, 23, 29 (8) |
| 29. | Telangana | | | | 15, 19, 28-29 (4) | 14, 17-18, 27 (4) | 10, 24 (20) | 1, 3, 8, 11, 23, 25 (6) |
| 30. | Rayalaseema | | | | 4-7, 18-19, 25 (7) | 3, 17, 20 (3) | | 8, 22-23, 26 (4) |
| 31. | Tamil Nadu | | | | 3, 7-8, 10-11 (5) | 4-5, 8-9, 11-12, 18-20, 27 (10) | 25 (1) | 6, 13, 22-26, 28-29 (9) |
| 32. | Coastal Karnataka | | | | 5 (1) | 3-4, 8, 11-12 (5) | 31 (1) | 29-30 (2) |
| 33. | North Interior Karnataka | | | | 1, 3-4, 7, 16-17, 19-20, 28, 30(10) | 6, 8, 12, 14, 27, 31 (6) | 24 (1) | 9, 13, 26 (3) |
| 34. | South Interior Karnataka | | | | 1, 3-7, 9, 11, 15, 17-20 (13) | 8, 12, 14, 16, 22, 25 (6) | | 23-24, 26-28, 31 (6) |
| 35. | Kerala | | | | 3 (1) | | | 7, 22-26, 29, 31 (8) |

(ii) *Maximum temperatures*

Heat wave conditions started manifesting over the northwest and western parts of the country from the second fortnight of the month. It extended to the central and eastern parts towards the end of the month. With the development of a north-south wind discontinuity, the severity and spatial extent of *heat wave* decreased and was restricted to the western parts of the country.

The dates of occurrence of *heat wave* and dates on which the maximum temperatures remained *appreciably to markedly above normal* are given in Table 5. *Heat wave/severe heat wave* conditions prevailed on a few days in West Bengal, Jharkhand, Rajasthan, Madhya Pradesh and Gujarat State.

Day temperatures were generally *above/appreciably above normal* almost in all sub-divisions on most of the days of the month.

The month's highest maximum temperature over the plains was 41.0° C recorded at Bhira (Konkan & Goa) on 7 March 2011.

3.1.3. *Disastrous weather events and damage*

According to media and other disaster reports, hailstorm claimed 6 lives in Odisha. One person died due to landslide triggered by heavy rain in Jammu & Kashmir. Lightning claimed 3 lives in Bihar and 1 in Uttar Pradesh. Thunderstorm claimed 3 lives in Assam and damaged houses and standing crops and disrupted communication

TABLE 5

Dates of occurrence of heat wave/severe heat wave and various categories of maximum temperatures - March 2011

| Sub-division | | Dates (Number of days) | | | | | | |
|--------------|-----------------------------|------------------------|------------------|---------|---|---|--------------------------------------|----------------------------|
| No. | Name | Severe heat wave | Heat wave | Hot Day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
| 2. | Arunachal Pradesh | | | | 1-2, 5, 16-18 (6) | | 19-21 (3) | |
| 3. | Assam & Meghalaya | | | | 1-12, 16-18, 22-24 (18) | 6, 14-15, 25-26, 28 (6) | 19-21, 27, 29-31 (7) | 22 (1) |
| 4. | Naga., Mani, Mizo and Tri. | | | | 3, 5, 7, 10-12, 14-17, 24-27 (14) | 9, 13-15, 23, 29 (6) | 19-20, 30-31 (4) | 21, 28 (2) |
| 5. | S. H. W. B. & Sikkim | | 22 (1) | | 2, 4, 7, 10-12, 16-17, 21-24 (12) | 1, 3, 13, 15, 18, 25-27 (8) | 19-20, 28-31 (6) | 9, 19 (2) |
| 6. | Gangetic West Bengal | | 21-22 (2) | | 11, 21-22, 27 (3) | 7, 17 (2) | 3, 25-26, 29-31 (6) | 15-16, 18-19, 28 (5) |
| 7. | Orissa | | 21 (1) | | 5-12, 20-24, 31 (14) | 2-4, 8-10, 17, 19, 27-28, 30 (11) | 26 (1) | 16, 24-25 (3) |
| 8. | Jharkhand | 20 (1) | 20-22, 29-30 (5) | | 4-7, 9, 10-11, 18-19, 21-24, 27, 30-31 (16) | 3, 8, 12, 17, 29 (5) | | |
| 9. | Bihar | | | | 17, 20-22, 26 (5) | 4, 7, 10-12, 18, 23-24, 27 (9) | 29-31 (3) | 1, 29 (2) |
| 10. | East Uttar Pradesh | | | | 20-21, 25, 27-28 (5) | 4, 17-18, 21-26 (9) | 31 (1) | 1, 5, 10, 12-14, 29-30 (8) |
| 11. | West Uttar Pradesh | | 19 (1) | | 17, 20-21, 25, 27-28, 30 (7) | 18, 21-26 (7) | 2-4, 31 (4) | 5-6, 10, 12-13, 29 (6) |
| 12. | Uttarakhand | | | | 7-8, 14-20, 22-31 (19) | 1, 6, 9, 12, 21, 29 (6) | 4-5 (2) | 4-5, 11 (3) |
| 13. | Haryana, Chandigarh & Delhi | | | | 15-20, 24, 28-29 (9) | 21, 23, 27 (3) | 1-6, 10-11 (8) | 1, 3, 8, 13-14, 22, 31 (7) |
| 14. | Punjab | | | | 15-18, 21, 28 (6) | 14, 20, 23-24, 27 (5) | 1-6 (6) | 1, 10-11, 31(4) |
| 15. | Himachal Pradesh | | 24 (1) | | 7-8, 12, 17-18, 20-21, 23-28, 30 (14) | 6, 9, 13, 22, 31 (5) | 2 (1) | 5 (1) |
| 16. | Jammu & Kashmir | | | | 7, 11-19, 24-28 (15) | 9, 23, 30 (3) | 2-3, 20-21, 29 (5) | 1, 4-5 (3) |
| 17. | West Rajasthan | 16-19, 29 (5) | 14-15, 27-28 (4) | | 13-20, 22-30 (17) | 8, 12, 21-22, 25, 30-31 (7) | 2-4, 6, 10 (5) | 1, 5, 11 (3) |
| 18. | East Rajasthan | 19 (1) | 20 (1) | | 14-20, 23-24, 26-30 (14) | 8, 21-22, 26, 31 (5) | 2-5, 10-11, 13 (7) | 1 (1) |
| 19. | West Madhya Pradesh | | 18 (1) | | 4-7, 9, 15-24, 27-30 (19) | 2-3, 6, 9-11, 12, 15, 21-23, 25-26, 29, 31 (15) | 2, 12-13 (3) | 1, 12 (2) |
| 20. | East Madhya Pradesh | | 19, 21, 30 (3) | | 4-6, 9, 15, 17-24, 27-30 (17) | 3, 6-7, 9-11, 14-15, 21-23, 25-26, 29, 31 (15) | 12-13 (2) | 1, 12 (2) |
| 21. | Gujarat Region | 17 (1) | 16-19, 28 (5) | | 15-16, 18-19, 27, 29 (6) | 2, 4, 7-9, 14, 20-21, 25-26, 28-30 (13) | | 10-11, 24 (3) |

TABLE 5 (Contd.)

| Sub-division | | Dates (Number of days) | | | | | | |
|--------------|--------------------------|------------------------|----------------|---------------|--|---|--------------------------------------|---------------|
| No. | Name | Severe heat wave | Heat wave | Hot Day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
| 22. | Saurashtra & Kutch | 16-18 (3) | 17, 20, 27 (3) | 19, 28-29 (3) | 1-4, 6-8, 11-16, 18-19, 27-29 (18) | 6, 9, 21, 25-26, 30 (6) | | 24 (1) |
| 23. | Konkan & Goa | 17 (1) | | 18 (1) | 1-3, 5, 7-8, 13-14, 16, 18-19, 28, 30 (13) | 4, 8-9, 12, 15, 19-20, 29, 31 (9) | 11, 21 (2) | |
| 24. | Madhya Maharashtra | | | | 7-8, 10, 12, 18-19, 21, 30 (8) | 4, 6-9, 11, 16-20, 22-24, 29, 31 (16) | | 2, 5 (2) |
| 25. | Marathwada | | | | 19, 22 (2) | 6-9, 11, 16-22, 25, 28-31 (17) | | 1-2 (2) |
| 26. | Vidarbha | | | | 6-10, 19-22, 29-30 (11) | 4-6, 8-9, 11, 16-17, 19, 21-24, 29, 31 (15) | 13, 26 (2) | 3, 25 (2) |
| 27. | Chattisgarh | | | | 6-11, 17-18, 20-24, 29-31 (16) | 4-5, 8, 16-17, 19, 22, 28 (8) | 25 (1) | 26 (1) |
| 28. | Coastal Andhra Pradesh | | | | 5-6, 8-11, 31 (7) | 1, 3-4, 6, 12-14, 17, 23, 28-30 (12) | 19 (1) | 18, 20-22 (4) |
| 29. | Telangana | | | | 7, 10-11, 20, 24, 31 (6) | 5-6, 8-9, 12, 16-17, 21-23, 25, 29-30 (14) | 27 (1) | 1-3 (3) |
| 30. | Rayalaseema | | | | 10, 24-25, 31 (3) | 7-9, 11-12, 17, 21-23, 29-30 (11) | | |
| 31. | Tamil Nadu | | | | 7, 9-11, 22, 24, 29, 31 (8) | 2, 6, 9, 11-16, 21-30 (19) | | 18 (1) |
| 32. | Coastal Karnataka | | | 24 (1) | 1-5, 9, 11-12, 16-18, 20-21, 23-26, 29-31 (20) | 8, 13, 15, 19, 21-22, 28 (7) | | |
| 33. | North Interior Karnataka | | | | 21, 23-24 (3) | 5, 8, 11, 17, 20-22, 30 (8) | | 3 (1) |
| 34. | South Interior Karnataka | | | | 21 (1) | 3, 5, 8, 11, 12, 21-24 (9) | | 3-4, 27 (3) |
| 35. | Kerala | | | | | 7, 10-12, 14, 16, 19, 23-24, 28, 30-31 (12) | | |

system. Heavy snowfall in the higher reaches of Himachal Pradesh disrupted normal life as power, telephone, water and traffic had been badly affected.

3.2. April

3.2.1. Weather and associated synoptic features

The details of the weather systems during the month are given in Table 6 and the resultant rainfall distribution in Table 7. The principal amounts of rainfall are given in Table 12.

During first three weeks of the month, systems in westerlies caused *isolated* to *widespread* rainfall over parts of northeastern and northwestern parts of the country. With a lull in the western disturbance activity during the last week, *heat wave* started manifesting over the western and northwestern parts of the country. The north-south wind discontinuity and systems in easterlies caused *isolated* to *scattered* rainfall over Peninsular India and central parts of the country throughout the month which resulted in the *excess* rainfall activity in the Peninsular India and parts of Central India. The rainfall activity enhanced with favourable alignment of the seasonal wind discontinuity

TABLE 6
Details of the weather systems during April 2011

| S. No. | System | Duration | Place of first location | Direction of movement | Place of final location | Remarks |
|---|---------------------------|----------------|--|-----------------------|---|---------------------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| (A) Western Disturbances and other eastward moving systems | | | | | | |
| <i>(i) As upper air cyclonic circulations</i> | | | | | | |
| 1. | Mid tropospheric levels | 1-6 | North Pakistan and adjoining Jammu & Kashmir | Northeast | Jammu & Kashmir and neighbourhood | Moved away on 7 |
| 2. | Do | 7-12 | North Pakistan and neighbourhood | Do | Jammu & Kashmir | Moved away on 13 |
| 3. | Do | 14-19 | Do | Do | Eastern parts of Jammu & Kashmir | Moved away on 20 |
| 4. | Upper air system | 28 Apr - 2 May | Do | Do | Jammu & Kashmir | Moved away on 3 May |
| <i>(ii) As induced cyclonic circulation</i> | | | | | | |
| 1. | Lower tropospheric levels | 3-6 | East Rajasthan and neighbourhood | East | South Orissa and adjoining north Coastal Andhra Pradesh | Less marked on 7 |
| 2. | Do | 6 Apr | Haryana and neighbourhood | Northeast | | Moved away on 7 |
| 3. | Do | 7-8 | East Rajasthan and neighbourhood | East | West Madhya Pradesh and neighbourhood | Less marked on 9 |
| 4. | Do | 9-13 | South Rajasthan and neighbourhood | East | East Madhya Pradesh and neighbourhood | Less marked on 14 |
| 5. | Do | 10-14 | West Rajasthan and neighbourhood | Do | Uttarakhand and neighbourhood | Moved away on 15 |
| 6. | Do | 17-18 | Rajasthan and neighbourhood | East | East Uttar Pradesh and adjoining northeast Madhya Pradesh | Less marked on 19 |
| <i>(iii) Troughs in westerlies</i> | | | | | | |
| 1. | Mid & upper troposphere | 17-24 | Long. 70° E, to the north of Lat. 25° N | East | Lat. 38° N/ Long. 97° E to Lat. 28° N/ Long. 77° E through Lat. 33° N/ Long. 88° E | Moved away on 25 |
| (B) Other upper air cyclonic circulations | | | | | | |
| 1. | Lower tropospheric levels | 3-6 | East Rajasthan and neighbourhood | East | South Orissa and adjoining north Coastal Andhra Pradesh | Less marked on 7 |

TABLE 6 (Contd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|------------------------------|----------------|--|-------------|---|--|
| 2. | Lower tropospheric levels | 9-10 | Gangetic West Bengal and adjoining Bangladesh | West | Jharkhand and neighbourhood | Less marked on 11 |
| 3. | Do | 12-13 | South Madhya Maharashtra | East | North interior Karnataka and neighbourhood | Less marked on 14 |
| 4. | Lower levels | 12-20 | Bihar and neighbourhood | Do | Assam & Meghalaya and neighbourhood | Less marked on 21 |
| 5. | Lower levels | 14-16 | West Madhya Pradesh and neighbourhood | East | Central parts of Madhya Pradesh | Less marked on 17 |
| 6. | Mid tropospheric levels | 21-23 | Lakshadweep area and neighbourhood | Stationary | <i>In situ</i> | Less marked on 24 |
| 7. | Between 1.5 & 4.5 kms a.s.l. | 23-24 | Telangana and neighbourhood | Do | Do | It was seen as an embedded cyclonic circulation in the trough over West Madhya Pradesh and neighbourhood from 21 to 22 and then as a cyclonic circulation on 23. Less marked on 25 |
| 8. | Mid tropospheric levels | 25 Apr - 8 May | South Tamil Nadu and neighbourhood | East | Southwest and adjoining southeast Bay of Bengal | Less marked on 9 |
| 9. | Lower tropospheric levels | 23-24 | Bihar and adjoining Gangetic West Bengal & Sikkim | East | Gangetic west Bengal and neighbourhood | Less marked on 25 |
| 10. | Up to 3.6 kms a.s.l. | 22-30 | Assam & Meghalaya and neighbourhood | East | Nagaland-Manipur-Mizoram-Tripura and neighbourhood | Less marked on 1 May |
| (C) Troughs in easterlies | | | | | | |
| 1. | Lower levels | 7-12 | South Tamil Nadu to south interior Karnataka | Oscillatory | Lakshadweep to south interior Karnataka across Kerala | Became less marked on 13 |
| (D) Troughs /Wind discontinuity | | | | | | |
| 1. | Upto 0.9 km a.s.l. | 21 | Assam & Meghalaya to coastal Orissa across Bangladesh and Gangetic West Bengal | West | Assam & Meghalaya to Jharkhand across Bangladesh and Gangetic West Bengal | It was seen as a cyclonic circulation over Assam & Meghalaya and neighbourhood on 20. Less marked on 22 |
| 2. | Upto 0.9 km a.s.l. | 12 Apr - 2 May | West Madhya Pradesh to South Madhya Maharashtra across Vidarbha and Marathwada | Oscillatory | East Uttar Pradesh to South Tamil Nadu across East Madhya Pradesh, Chattisgarh and Coastal Andhra Pradesh | Many embedded cyclonic circulations were seen over Madhya Pradesh, Uttar Pradesh, Rajasthan and Andhra Pradesh. Became less marked on 3 May |

TABLE 7

Rainfall distribution for the month in terms of number of days - April 2011

| S. No. | Sub-division | Extremely heavy rain | Very heavy rain | Heavy rain | Widespread | Fairly widespread | Scattered | Isolated | Dry |
|--------|----------------------------|----------------------|-----------------|------------|------------|-------------------|-----------|----------|-----|
| 1 | Andaman & Nicobar Islands | — | — | 1 | 1 | 1 | 10 | 13 | 5 |
| 2 | Arunachal Pradesh | — | — | 2 | — | 3 | 6 | 5 | 16 |
| 3 | Assam & Meghalaya | — | — | 2 | 1 | 4 | 6 | 12 | 7 |
| 4 | Naga, Mani, Mizo, & Trip. | — | — | — | 1 | 3 | 4 | 5 | 17 |
| 5 | Sub-Himalayan W.B. & Sikk. | — | — | 2 | 3 | 3 | 6 | 13 | 5 |
| 6 | Gangetic West Bengal | — | — | 3 | 1 | 3 | 1 | 12 | 13 |
| 7 | Orissa | — | — | 3 | 1 | — | 6 | 16 | 7 |
| 8 | Jharkhand | — | — | — | — | — | 2 | 11 | 17 |
| 9 | Bihar | — | — | — | — | — | 3 | 17 | 10 |
| 10 | East Uttar Pradesh | — | — | — | — | — | 4 | — | 26 |
| 11 | West Uttar Pradesh | — | — | — | — | — | 1 | 2 | 27 |
| 12 | Uttarakhand | — | — | — | 2 | — | 2 | 3 | 23 |
| 13 | Haryana Chnd. & Delhi | — | — | — | — | 1 | — | 9 | 20 |
| 14 | Punjab | — | — | — | — | 2 | 2 | 7 | 19 |
| 15 | Himachal Pradesh | — | — | — | 3 | 3 | 4 | 11 | 9 |
| 16 | Jammu & Kashmir | — | — | 1 | 2 | 5 | 4 | 4 | 15 |
| 17 | West Rajasthan | — | — | — | — | — | — | 6 | 24 |
| 18 | East Rajasthan | — | — | — | — | — | — | 4 | 26 |
| 19 | West Madhya Pradesh | — | — | — | — | — | — | 5 | 25 |
| 20 | East Madhya Pradesh | — | — | — | — | — | — | 11 | 19 |
| 21 | Gujarat Region # | — | — | — | — | — | — | — | 30 |
| 22 | Saurashtra & Kutch | — | — | — | — | — | — | — | 30 |
| 23 | Konkan & Goa | — | — | 1 | — | — | — | 2 | 28 |
| 24 | Madhya Maharashtra | — | — | — | — | — | — | 10 | 20 |
| 25 | Marathwada | — | — | — | — | — | 3 | 7 | 20 |
| 26 | Vidarbha | — | — | — | 1 | — | 3 | 8 | 18 |
| 27 | Chattisgarh | — | — | 1 | 1 | 3 | 3 | 7 | 16 |
| 28 | Coastal Andhra Pradesh | — | — | 2 | 1 | — | 2 | 12 | 15 |
| 29 | Telangana | — | — | 2 | — | 1 | 1 | 10 | 18 |
| 30 | Rayalaseema | — | — | 2 | — | 1 | 4 | 9 | 16 |
| 31 | Tamil Nadu & Puduchery | — | 2 | 4 | 2 | 2 | 1 | 19 | 6 |
| 32 | Coastal Karnataka | — | — | 3 | — | 2 | 4 | 12 | 12 |
| 33 | North interior Karnataka | — | — | 3 | — | 1 | 5 | 13 | 11 |
| 34 | South interior Karnataka | — | — | 5 | 1 | 2 | 5 | 15 | 7 |
| 35 | Kerala | — | 1 | 7 | 2 | 3 | 8 | 14 | 3 |
| 36 | Lakshadweep | — | — | — | — | 2 | 5 | 5 | 18 |

TABLE 8

Dates of occurrence of heat wave/severe heat wave and various categories of maximum temperatures - April 2011

| No. | Sub-division Name | Dates (Number of days) | | | | | | |
|-----|-----------------------------|------------------------|--------------|------------|--|--|--|----------------------------------|
| | | Severe heat wave | Heat wave | Hot Day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
| 2. | Arunachal Pradesh | | | | 12, 30 (2) | 11, 13, 15 (3) | 8, 22-23 (3) | 24, 29 (2) |
| 3. | Assam & Meghalaya | | | | 7, 12-14, 18-19, 22, 30 (8) | 6, 8, 11, 14, 27-28 (6) | 1-3, 6, 9, 15-16, 20-21, 25-26 (11) | 4, 8-9, 17, 22-23 (6) |
| 4. | Naga, Mani, Mizo and Tri. | | | | 10, 12-14, 19 (5) | 5, 9, 17 (3) | 1-2, 28 (3) | 3-5, 7, 24-25, 29-30 (8) |
| 5. | S. H. W. B. & Sikkim | | | | 8-9, 22 (3) | 7, 11, 22, 24 (4) | 1-6, 8, 15-16, 19, 25-26, 28 (13) | 9-10, 15-19, 25, 30 (9) |
| 6. | Gangetic West Bengal | | | | 8-9, 22 (3) | 19, 22 (2) | 1, 4-11, 14, 16-17, 20, 23, 25-30 (15) | 2-3, 7, 14, 16, 19, 24-25 (8) |
| 7. | Orissa | | | | | 1, 4, 9, 13-14, 16-19, 21, 24, 30 (12) | 5-7, 15, 20, 23-29 (12) | 2-3, 7, 10-12, 16-17, 29-30 (10) |
| 8. | Jharkhand | | | 13, 18 (2) | | 2, 4, 13, 19 (4) | 5, 14-15, 23-24, 26-29 (9) | 6-7, 10-11, 16-17, 22 (7) |
| 9. | Bihar | | | | | | 5, 10, 14-15, 23, 27-28, 30 (8) | 2-3, 6, 16, 29 (5) |
| 10. | East Uttar Pradesh | | | | 12, 18 (2) | 3, 8-9, 11 (4) | 4, 14, 20, 27-28, 30 (6) | 1-2, 5-6, 14-15, 19-20 (8) |
| 11. | West Uttar Pradesh | | | | 12 (1) | 13, 25-26 (3) | 11, 14, 19, 27-28 (5) | 2, 4-5, 11, 14-15 (6) |
| 12. | Uttarakhand | | | | 1-2, 9, 12, 25, 30 (6) | 3, 17 (2) | 5, 11, 13-14, 18 (5) | 4-5 (2) |
| 13. | Haryana, Chandigarh & Delhi | | | 30 (1) | 30 (1) | 6, 16, 25, 29 (4) | 4-5, 11-13, 18-20, 27 (9) | 5, 8-9, 11, 14, 19, 21-23 (9) |
| 14. | Punjab | | 26, 29 (2) | | 25, 29-30 (3) | 25 (1) | 5, 8, 11, 14, 18-20, 27 (8) | 4-5, 10, 12-13, 16, 21, 23 (8) |
| 15. | Himachal Pradesh | | | | 1-2, 10, 16-17, 24-27, 29-30 (11) | 9, 23, 28 (3) | 8, 11, 19 (3) | 9 (1) |
| 16. | Jammu & Kashmir | | | | 1, 15-16, 23-30 (11) | 14, 22, 25 (3) | 3-8, 11-13, 18-20 (12) | 2, 21 (2) |
| 17. | West Rajasthan | 27 (1) | 26-29 (4) | 25 (1) | 11, 16, 24-25, 27-29 (7) | 1, 6, 10-11, 15-17, 25 (8) | 8, 12-13, 18, 20 (5) | 4, 14, 19, 21 (4) |
| 18. | East Rajasthan | | 29-30 (2) | | 11-12, 17, 25-30 (9) | 1, 6, 11, 16, 25 (5) | 13, 18 (2) | 4, 19, 21 (3) |
| 19. | West Madhya Pradesh | | | | 8, 18, 25, 27, 29-30 (6) | 1, 8, 11-13, 15-17, 29 (9) | 6 (1) | 2, 5-6, 14, 20, 23, 27 (7) |

TABLE 8 (Contd.)

| Sub-division | | Dates (Number of days) | | | | | | |
|--------------|--------------------------|------------------------|--------------|-------------|--|---|--------------------------------------|--------------------------------|
| No. | Name | Severe heat wave | Heat wave | Hot Day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
| 20. | East Madhya Pradesh | | 18 (1) | 17-18 (2) | 8, 17-18, 27 (4) | 1-4, 8-9, 13 (7) | 6, 15, 22-23, 25 (5) | 5-6, 14, 22-23, 25, 27-28 (8) |
| 21. | Gujarat Region | | 27-28 (2) | 15, 18 (2) | 15-16, 24-26, 28-29 (7) | 8, 11, 13, 16, 23, 25, 27, 30 (8) | 9 (1) | 2-4 (3) |
| 22. | Saurashtra & Kutch | | 8, 23-25 (4) | 5-8, 28 (5) | 5-7, 10, 14, 16, 20, 22, 25-26, 28-29 (12) | 3-4, 8-9, 11, 13-14, 16-19, 21, 23, 25, 30 (15) | | 2 (1) |
| 23. | Konkan & Goa | | | | 19, 23 (2) | 1, 2, 4, 9, 16-19, 21, 26-30 (14) | | |
| 24. | Madhya Maharashtra | | 28 (1) | | 15 (1) | 1-2, 7, 9, 14, 18, 21, 27-30 (11) | | 2-5, 16, 25, 27 (8) |
| 25. | Marathwada | | | 29 (1) | 28 (1) | 16, 29-30 (3) | 23-25 (3) | 5, 7, 11, 23, 25 (5) |
| 26. | Vidarbha | | | | 28 (1) | 1, 13, 27, 29-30 (5) | 7-9, 21-25 (8) | 6, 9-12, 15-18, 24-27, 29 (14) |
| 27. | Chattisgarh | | | | 3-4 (2) | 1, 13, 18 (3) | 6, 10, 15-16, 18, 20-28, 30 (15) | 6-7, 10-12, 17, 25, 27, 29 (9) |
| 28. | Coastal Andhra Pradesh | | | | 1-2, 5, 22 (4) | 3, 4, 10, 13, 16, 19-20 (7) | 23-27 (5) | 6, 23, 29 (3) |
| 29. | Telangana | | | | 1, 5 (2) | 2-4, 20, 29-30 (6) | 7-8, 10-11, 15, 21, 23-25, 27 (10) | 9, 18, 22, 25 (4) |
| 30. | Rayalaseema | | | | 1, 2, 15 (3) | 3, 13, 20 (3) | 17, 23-24 (3) | 17, 23, 25 (3) |
| 31. | Tamil Nadu | | | | 1-6, 12, 30 (8) | 5, 7-17, 19-23 (17) | 23-28 (6) | 22-23, 25 (3) |
| 32. | Coastal Karnataka | | | 17 (1) | 3, 5, 7, 9, 12, 14, 16, 19, 23, 30 (10) | 1, 2, 6, 8, 13, 15, 17, 25, 28-29 (10) | | 22 (1) |
| 33. | North Interior Karnataka | | | | 2-3 (2) | 6, 29 (2) | 11, 16, 21, 24-25 (5) | 9-10, 17, 22, 24-25 (6) |
| 34. | South Interior Karnataka | | | | | | 16, 21, 24-25, 30 (5) | 17, 22, 25-26 (4) |
| 35. | Kerala | | | | | 1-2, 9-10, 15-17, 21, 28 (9) | 25 (1) | 25 (1) |

TABLE 9

Details of the weather systems during May 2011

| S. No. (1) | System (2) | Duration (3) | Place of first location (4) | Direction of movement (5) | Place of final location (6) | Remarks (7) |
|---|---|--|---|------------------------------|---|---|
| (A) Western Disturbances and other eastward moving systems | | | | | | |
| <i>(i) As upper air cyclonic circulations</i> | | | | | | |
| 1. | Mid-tropospheric levels | 2-3 | North Pakistan and neighbourhood | Northeast | Jammu & Kashmir | Moved away on 4 |
| 2. | Mid-tropospheric levels | 5-11 | Do | Eastnortheast | Extreme eastern parts of Jammu & Kashmir | Moved away on 12 |
| 3. | Upto 4.5 kms a.s.l. | 13 | Do | Northeast | Jammu & Kashmir and neighbourhood | Moved away on 14 |
| 4. | Upper air system | 21-22 | Do | Do | Do | Moved away on 23 |
| 5. | Upper air system | 26-27 | North Pakistan and neighbourhood | Do | Jammu & Kashmir | Moved away on 28 |
| <i>(ii) As induced cyclonic circulations</i> | | | | | | |
| 1. | Lower tropospheric levels | 6-8 | West Rajasthan and neighbourhood | East | East Rajasthan and neighbourhood | Less marked on 9 |
| 2. | Upto 3.1 kms a.s.l. | 12-13 | Punjab and adjoining area | Stationary | <i>In situ</i> | Less marked on 14 |
| 3. | Upto 0.9 km a.s.l. | 20 | Punjab and neighbourhood | Do | Do | Less marked on 21 |
| 4. | Upto 0.9 km a.s.l. | 29 th May - 1 st Jun | West Rajasthan and neighbourhood | Northeast | North Rajasthan and neighbourhood | Less marked on 2 |
| <i>(iii) Troughs in westerlies</i> | | | | | | |
| 1. | Mid and upper troposphere (upto 9.6 kms a.s.l.) | 13-15 | Lat. 38° N / Long. 76° E to Lat. 25° N / Long. 72° E through Lat. 32° N / Long. 74° E | East northeast | Lat. 38° N / Long. 90° E to Lat. 19° N / Long. 82° E through Lat. 28° N / Long. 85° E | Moved away on 16 |
| (B) Other cyclonic circulations | | | | | | |
| 1. | Upto Lower tropospheric levels | 2-6 | Nagaland-Manipur-Mizoram-Tripura and neighbourhood. | Stationary | <i>In situ</i> | Less marked on 7 |
| 2. | Do | 3-4 | East Uttar Pradesh and neighbourhood | East southeast | Gangetic West Bengal and adjoining Jharkhand | Less marked on 5 |
| 3. | Do | 7-8 | Bihar and neighbourhood | East | Jharkhand and neighbourhood | Less marked on 9 |
| 4. | Between 2.1 & 4.5 kms a.s.l. | 10-17 | Southwest Bay of Bengal off Tamil Nadu coast | West | Tamil Nadu and neighbourhood | Less marked on 18 |
| 5. | Between 2.1 & 3.6 kms a.s.l. | 10-14 | Southeast and adjoining east central Arabian sea off Karnataka – Kerala coast | Do | Lakshadweep area and neighbourhood | Less marked on 15 |
| 6. | Upto 2.1 kms a.s.l. | 11-19 | East Uttar Pradesh and adjoining Bihar | Quasi-stationary | East Uttar Pradesh and neighbourhood | It was seen embedded in the east-west trough on 11 and from 12 the trough was seen extending from this cyclonic circulation. Less marked on 20 |

TABLE 9 (Contd.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|--|-------------------------------|-----------------|--|------------------|--|--|
| 7. | Upto 0.9 km a.s.l. | 15-26 | Assam & Meghalaya and neighbourhood | Stationary | <i>In situ</i> | Less marked on 27 |
| 8. | Upto 1.5 kms a.s.l. | 17-19 | Uttarakhand and neighbourhood | Do | Do | Less marked on 20 |
| 9. | Upto 3.1 kms a.s.l. | 18-20 | Southeast Arabian sea and adjoining area | Do | Do | Less marked on 21 |
| 10. | Between 2.1 and 5.8 kms a.s.l | 21 | Lakshadweep area and neighbourhood | Do | do | Less marked on 22 |
| 11. | Upto 1.5 kms a.s.l. | 23 | Sub-Himalayan West Bengal & Sikkim and neighbourhood | Do | Do | Less marked on 24 |
| 12. | Upto 0.9 km a.s.l | 23 | Jharkhand and neighbourhood | Do | Do | Less marked on 24 |
| 13. | Upto 5.8 kms a.s.l. | 25-29 | Lakshadweep area and neighbourhood | Quasi-stationary | Lakshadweep area and adjoining Maldives area | Over Lakshadweep and adjoining Maldives areas from 26-28; Lakshadweep area and neighbourhood on 29. It became less marked on 30 |
| 14. | Up to Mid-Tropospheric levels | 27-30 | Orissa and adjoining northwest Bay of Bengal | East | North Bay of Bengal | Over north Bay of Bengal from 28-30 and became less marked on 31 |
| (C) Trough / Wind discontinuity | | | | | | |
| 1. | At 0.9 km a.s.l | 4-5 | Gangetic West Bengal to south Tamil Nadu | Oscillatory | East Uttar Pradesh to south Tamil Nadu | Became less marked on 6 |
| 2. | Do | 6-7 | West Rajasthan to Gangetic West Bengal | Stationary | <i>In situ</i> | Less marked on 8 |
| 3. | Do | 7-8 | Bihar to Telangana | Quasi-stationary | Jharkhand to Chattisgarh | Less marked on 9 |
| 4. | Do | 9-10 | East Uttar Pradesh to south Tamil Nadu | Do | East Uttar Pradesh to north interior Karnataka | Less marked on 11 |
| 5. | Do | 12-14 | South Chattisgarh to south Tamil Nadu | West | West Madhya Pradesh to south Tamil Nadu | Less marked on 15 |
| 6. | Do | 20-22 | Punjab to Gangetic West Bengal | Do | West central Rajasthan to north west Bay of Bengal | Less marked on 23 |
| 7. | Do | 24-27 | East Uttar Pradesh to south Tamil Nadu | Do | West Uttar Pradesh to south Tamil Nadu | Less marked on 28 |
| 8. | Do | 25 May | Rajasthan to Gangetic West Bengal | Stationary | <i>In situ</i> | Less marked on 26 |
| 9. | Do | 26 May - 8 June | Punjab to Orissa. | Oscillatory | Punjab to Gangetic West Bengal. | Less marked on 9. A Cyclonic circulation lay embedded in this trough for several days |
| 10. | Do | 31 May - 1 June | Chattisgarh to coastal Andhra Pradesh | Stationary | <i>In situ</i> | Less marked on 2 |
| (D) East-west trough | | | | | | |
| 1. | At 0.9 km a.s.l | 11-18 | East Uttar Pradesh to northwest Bay | Stationary | <i>In situ</i> | Two cyclonic circulations lay embedded in the system; one over east Uttar Pradesh and other over Jharkhand & neighbourhood. Less marked on 19 |

TABLE 10
Rainfall distribution for the month in terms of number of days - May 2011

| S. No. | Sub-division | Extremely heavy rain | Very heavy rain | Heavy rain | Widespread | Fairly widespread | Scattered | Isolated | Dry |
|--------|---------------------------|----------------------|-----------------|------------|------------|-------------------|-----------|----------|-----|
| 1 | Andaman & Nicobar Islands | – | 1 | 3 | 6 | 6 | 5 | 7 | 7 |
| 2 | Arunachal Pradesh | – | – | 5 | 5 | 4 | 6 | 5 | 11 |
| 3 | Assam & Meghalaya | – | 2 | 13 | 6 | 8 | 8 | 7 | 2 |
| 4 | Naga, Mani, Mizo. & Trip. | – | 1 | 6 | 8 | 8 | 10 | 4 | 1 |
| 5 | Sub-Himalayan W B & Sikk. | – | 1 | 7 | 2 | 11 | 10 | 7 | 1 |
| 6 | Gangetic West Bengal | – | – | 5 | 1 | 4 | 6 | 14 | 6 |
| 7 | Orissa | – | 1 | – | 2 | – | 6 | 19 | 4 |
| 8 | Jharkhand | – | – | – | – | 1 | 7 | 15 | 8 |
| 9 | Bihar | – | 1 | 3 | 1 | 1 | 5 | 16 | 8 |
| 10 | East Uttar Pradesh | – | – | – | – | 2 | 4 | 8 | 17 |
| 11 | West Uttar Pradesh | – | – | – | 1 | – | 4 | 10 | 16 |
| 12 | Uttarakhand | – | – | – | 3 | 5 | 3 | 8 | 12 |
| 13 | Haryana Chnd. & Delhi | – | – | – | – | 1 | 1 | 15 | 14 |
| 14 | Punjab | – | 1 | – | – | 1 | 2 | 11 | 17 |
| 15 | Himachal Pradesh | – | – | 2 | 3 | 5 | 4 | 13 | 6 |
| 16 | Jammu & Kashmir | – | – | – | – | 2 | 5 | 6 | 18 |
| 17 | West Rajasthan | – | – | – | – | – | – | 11 | 20 |
| 18 | East Rajasthan | – | – | – | – | – | 1 | 13 | 17 |
| 19 | West Madhya Pradesh | – | – | – | – | – | – | 7 | 24 |
| 20 | East Madhya Pradesh | – | – | – | – | – | 2 | 8 | 21 |
| 21 | Gujarat Region # | – | – | – | – | – | – | – | 31 |
| 22 | Saurashtra & Kutch | – | – | – | – | – | – | – | 31 |
| 23 | Konkan & Goa | – | – | – | – | – | – | 8 | 23 |
| 24 | Madhya Maharashtra | – | – | – | – | – | 1 | 11 | 19 |
| 25 | Marathwada | – | – | – | – | 1 | 2 | 5 | 23 |
| 26 | Vidarbha | – | – | – | – | – | 2 | 5 | 24 |
| 27 | Chattisgarh | – | – | – | – | – | 4 | 11 | 16 |
| 28 | Coastal Andhra Pradesh | – | – | 4 | – | – | 5 | 20 | 6 |
| 29 | Telangana | – | – | – | – | – | 3 | 15 | 13 |
| 30 | Rayalaseema | – | – | 1 | – | 1 | 1 | 19 | 10 |
| 31 | Tamil Nadu & Puduchery | – | – | 7 | – | – | 2 | 18 | 11 |
| 32 | Coastal Karnataka | – | – | 5 | – | 1 | 2 | 16 | 12 |
| 33 | North interior Karnataka | – | – | 2 | – | 1 | 4 | 15 | 11 |
| 34 | South interior Karnataka | – | 3 | 4 | – | 2 | 9 | 14 | 6 |
| 35 | Kerala | – | 3 | 4 | 2 | 3 | 2 | 23 | 1 |
| 36 | Lakshadweep | – | – | – | 1 | 3 | 2 | 8 | 17 |

TABLE 11

Dates of occurrence of heat wave/severe heat wave and various categories of maximum temperatures - May 2011

| No | Name | Severe heat wave | Heat wave | Hot day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
|-----|-----------------------------|------------------|-----------------------|----------------|---|--|--------------------------------------|--|
| 2. | Arunachal Pradesh | | | | 1, 9, 11-15, 17, 19, 26-30 (14) | 16, 22, 31 (3) | | |
| 3. | Assam & Meghalaya | | | | 1, 6-11, 13-20, 26-30 (15) | 11, 15, 17, 23 (4) | 2, 4, 21, 31 (4) | 3, 22, 25, 31 (4) |
| 4. | Naga., Mani, Mizo and Tri. | | | | 18, 27-28 (3) | 8-10, 13-14, 17 (6) | 2, 20, 22, 31 (4) | 6, 19, 21-23, 25, 31 (7) |
| 5. | S. H. W. B. & Sikkim | | | | 7, 27-28 (3) | 1, 8-9, 11, 17-19, 26, 28-31 (12) | 3-4, 13, 20, 22 (5) | 6, 21, 23-25 (5) |
| 6. | Gangetic West Bengal | | | | | 17 (1) | 3-6, 9, 12-13, 20-21, 25, 28 (11) | 8, 11, 14-16, 22, 24-25, 28-29, 31 (11) |
| 7. | Orissa | | 12-13 (2) | | 11, 13 (2) | 10, 12, 14, 30-31 (5) | 2, 3, 5-9, 20-22, 28-29 (12) | 1, 4, 9, 30-31 (5) |
| 8. | Jharkhand | | | 15, 18, 26 (3) | | 4, 13 (2) | 6-7, 20-21, 23, 28, 31 (7) | 1, 8-10, 16, 19, 24, 27, 29-31 (11) |
| 9. | Bihar | | | | | 11, 16 (2) | 3, 5-6, 19-20, 22-24, 26-29, 31 (13) | 1, 2, 4, 7-9, 11, 13, 21, 24, 28, 30-31 (13) |
| 10. | East Uttar Pradesh | | 11-12 (2) | | | 1, 3, 4, 11, 16-17, 29 (7) | 5-6, 8-9, 14, 20-24, 26-31 (16) | 4, 7, 9, 12-14, 19, 23, 25, 29-30 (11) |
| 11. | West Uttar Pradesh | | 11, 13, 17-21, 26 (8) | | 13 (1) | 11-12, 16-19 (6) | 6-9, 14, 20, 22-24, 26-31 (15) | 9, 14, 29-30 (4) |
| 12. | Uttarakhand | | | | 1, 2, 4-5, 11-13, 15-18, 26 (12) | 3, 6, 14, 16, 27 (5) | 7-8, 22-23, 28, 31 (6) | 9, 20, 30-31 (4) |
| 13. | Haryana, Chandigarh & Delhi | | 13, 17-20 (5) | 5 (1) | 5, 12, 16, 18-19 (5) | 1, 2, 4-6, 12-13 (7) | 8, 21-24, 28-29 (7) | 7, 9, 27 (3) |
| 14. | Punjab | | 4-5, 12-13, 16-20 (9) | 1 (1) | 1, 5, 10-12, 15-16, 18-19, 26, 30 (11) | 2, 4, 13, 15, 20, 25-26 (7) | 7-8, 21-24, 28-29, 31 (12) | 6, 25 (2) |
| 15. | Himachal Pradesh | | | | 2, 4-6, 10-13, 15-17, 19, 21-22, 25-26 (16) | 1, 3, 9, 14, 27 (5) | 27, 30 (2) | 23-24 (2) |
| 16. | Jammu & Kashmir | | 18-19, 21 (3) | | 3-6, 9-10, 15-18, 24-26, 29-31 (16) | 1, 2, 12, 30 (4) | 7-8, 23, 28 (4) | 27, 29, 31 (3) |
| 17. | West Rajasthan | 17, 20 (2) | 4, 10-21, 31 (14) | 5 (1) | 1, 3-5, 9-10, 13-16, 18 (11) | 2, 6, 11-12, 14, 19, 21-22, 30-31 (10) | 23, 28 (2) | 7, 22, 27 (3) |
| 18. | East Rajasthan | | 13, 17-18, 21 (4) | 9 (1) | 1, 11, 13-14, 18-20 (7) | 4, 9, 12, 14-17, 21, 30-31 (10) | 23-24, 28 (3) | 24, 27 (2) |
| 19. | West Madhya Pradesh | | 13, 17-20 (5) | | 1, 14, 17-18 (4) | 2, 10-12, 14-16, 19-21, 26-31 (16) | 5 (1) | 4, 7-8, 23-24 (5) |

TABLE 11 (Contd.)

| No | Name | Severe heat wave | Heat wave | Hot Day | Appreciably to markedly above normal | Above normal | Appreciably to markedly below normal | Below normal |
|-----|--------------------------|------------------|--------------------------------|---------------|--------------------------------------|--|--------------------------------------|--------------------------------|
| 20. | East Madhya Pradesh | | 13, 15, 17-21, 26, 31 (9) | 1-2, 4-10 (9) | 1, 17-18, 31 (4) | 2, 5, 12-13, 16, 19-21, 29-30 (10) | | 3-4, 8, 23-25, 27 (7) |
| 21. | Gujarat Region | | | | 1 (1) | 15, 18-20, 23, 28, 30-31 (8) | 5-6, 8, 11, 21-22 (6) | 4-5, 7, 10, 13, 17, 23, 26 (8) |
| 22. | Saurashtra & Kutch | | | | | 8-9, 16-20, 22-25, 27-29, 31 (15) | 5, 7, 21 (3) | 4-6, 13, 22-23, 25-26 (8) |
| 23. | Konkan & Goa | | | | 17, 22 (2) | 8, 10, 20-21, 23-31 (13) | | 17 (1) |
| 24. | Madhya Maharashtra | | 2, 18 (2) | | 1, 15, 18 (3) | 1, 2, 4, 12-16, 20, 26-27, 30-31 (13) | 5, 8, 11, 17 (4) | 2, 4, 6-11, 21-22, 27 (11) |
| 25. | Marathwada | | 10 (1) | 1 (1) | 1 (1) | 18, 30-31 (3) | 1, 27 (2) | 2, 5-9, 11-12, 22-23 (10) |
| 26. | Vidarbha | | 15, 17-20, 26, 31 (7) | | 18, 26, 30-31 (4) | 14-15, 17, 20, 25, 28-30 (8) | 1, 2 (2) | 3, 5, 7-8, 27 (5) |
| 27. | Chattisgarh | | | 19 (1) | 23-24 (2) | 4-5, 13-14, 16-17, 20, 28-29 (9) | 2, 18-19, 21 (4) | 1, 3, 8-9, 22-24 (7) |
| 28. | Coastal Andhra Pradesh | | 4-8, 10-11, 13, 24-26, 31 (12) | | 5-6, 9-13, 23-24, 28, 30 (11) | 4, 9, 15-17, 22-23, 25, 27-28, 30 (11) | 21 (1) | 2, 18, 29 (3) |
| 29. | Telangana | | | | 14, 28 (2) | 4, 7, 9, 13, 15-17, 21, 23, 25, 30-31 (12) | 2, 11, 27 (3) | 1, 3, 29 (3) |
| 30. | Rayalaseema | | | | 14, 28 (2) | 6, 15, 17, 25-26 (5) | 2, 27, 29 (3) | 1, 19 (2) |
| 31. | Tamil Nadu | | 7-8, 10, 24, 28, 30 (6) | 27, 29 (2) | 4-7, 9, 11-14, 24-25, 27-30 (15) | 2, 3, 8-9, 11-12, 14-21, 24-26, 29 (18) | | 17, 22 (2) |
| 32. | Coastal Karnataka | | | | 2, 3, 7-9, 13-14, 17, 22, 26-28 (12) | 6, 12, 14-16, 18-20, 24-26, 29-31 (14) | | |
| 33. | North Interior Karnataka | | | | 14 (1) | 6, 13-15, 25-27 (7) | 1, 16, 19 (3) | 2, 3, 8-9, 20, 22, 29-30 (8) |
| 34. | South Interior Karnataka | | | | | 6, 25 (2) | 5, 19, 21 (3) | 3-4, 16, 18, 28 (5) |
| 35. | Kerala | | | | 24, 26, 28 (3) | 4, 6, 8, 13-14, 16-17, 19, 21-27, 29 (16) | | 1 (1) |

and perturbations in the easterlies and caused *widespread* rainfall with *heavy rainfall* at *isolated places* over south peninsular India during the last week of the month.

3.2.2. Temperature distribution

From Table 8, it may be seen that no *heat wave* condition occurred during first three weeks of the month.

Heat wave conditions started manifesting only during last week of the month when there was lull in the western disturbance activity. *Severe heat wave/heat conditions* prevailed on very few days over Punjab, Rajasthan, Madhya Pradesh and Gujarat State in the last week. Day temperatures were generally *above/appreciably above normal* in parts of east, central and peninsular India and generally *below/appreciably below normal* in northeast and north India during many days of the month.

TABLE 12

Principal amounts of rainfall (in cms) (March, April and May 2011) (3 cm and above)

| Date | March | April | May |
|------|--|--|---|
| 1. | Dhundhi & Motala 4 each, Manali, Mangrulpir & Solangnala 3 each | Nancowry 10, Belonia, Chepan, Neora, Silchar & Sonamura 4 each, Amarapur, Badatighat, Barobhisha, Cooch Behar, Dhubri, Gossaigaon, Hasimara, Kokrajhar, Lakhipur, Mathabhanga & Sabroom 3 each | Alipurduar (CWC) 11, Dindigul 10, Forbesganj & Gossaigaon 9 each, Jowai, Kokrajhar & Subramanya 7 each, Irinjalakuda & Mathabhanga 6 each, Aizwal, Channagiri, Cooch Behar, Darjeeling, Falakata, Jia Bharali N T Xing, Palani & Panbari 5 each, Arsikere R, Badatighat, Dhubri, Gobichettipalayam, Imphal, Kamatchipuram, Ranebennur HOS & Turuvekere 4 each, Beki Road. Bridge, Bhavanisagar, Chittur, Damthang, Gundlapet, Hosanagar, Jashpurnagar, Kovilpatti, Krishnagiri, Kumargram, Lakkavalli, Manash Nh Xing, Perundurai, Polavaram, Taibpur & Venkatagirikota 3 each |
| 2. | NIL | Cherrapunji 4, Dharmanagar, Panisagar, Gangtok, Gossaigaon, Kailashahar, Lakhipur, Mangaon, Nancowry, Silchar & Tuting 3 each | Cherrapunji 13, Jia Bharali N T Xing 8, Chepan, Katwa & Tribeni / Balmiki 7 each, Alipurduar (State), Dhenkanal, Haldibari, Jath & Uluberia (State) 6 each, Ghatagaon, Karandighi, Khowai, Mominabad & Subramanya 5 each, Beki Road Bridge, Chaparmukh, Chinsura, Cooch Behar, Durgachack, Galgalia, Mahendragarh, Mandi, Margherita, Mathabhanga, Maya Bandar, Naharlagun, Panbari, Soro, Tuting & Williamnagar 4 each, Badatighat, Balasore, Barapani, Basar, Belgaum Airport, Bhalukpong, Bhavanisagar, Birpur, Buxaduar, Chandanpur, Dhekiajuli, Dimapur, Domohani, Falakata, Gangtok, Goalpara, Gossaigaon, Itanagar, Jorhat, Kampur, Kirwati, Krishnarajpet, Kumargram, Mavelikara, Nilgiri, North Lakhimpur, Numaligarh, Pedong, Poonampet PWD, Raiganj, Ramnagaram, Shillong, Tezpur & Udala 3 each |
| 3. | Solangnala 10, Batote & Manali 5 each, Banihal, Barthin, Bhuntar Aero, Dhundhi, Saloni, Seobagh & Tissa 4 each, Badarwah, Bhang, Bharwain, Gulmarg R.S., Gund, Joshimath & Katra 3 each | Chamrajanagara PTO 4, Kanjirappally, Konni, Ooty, Poonch, Sevoke & Vadakkancherry 3 each | Tawang 11, Tiruchengodu 7, Cherrapunji, Itanagar, Jagdalpur & Melabazar / Motunga 6 each, Dharmanagar / Panisagar, Jia Bharali N T Xing, Kailashahar, Mohana & Naharlagun 5 each, Amraghat, Badatighat, Halli Mysore, Hunsagi, Katwa, Lengpui, Manthala & Mohanbari 4 each, Alamatty Hms, Bagewadi, Basar, Chinsura, Dholai, Dholla Bazar, Numaligarh, Penukonda, Ramnagaram, Ranaghat, Tezu, Trivandrum Aero & Varkala 3 each |
| 4. | Batote 8, Solangnala 7, Gohar & Kasol 6 each, Banihal, Bhuntar Aero, Dhundhi & Seobagh 5 each, Banjar, Jogindarnagar, Manali, Mandi & Nawanshahr 4 each, Baldwara, Barthin, Bhang, Ghumarwin, Gulmarg R.S., Gund, Kahu, Katra, Kumarsain, Kupwara, Mehre (Barsar), Nangal, Pandoh, Qazi Gund, Rampur, Saloni, Sundarnagar & Tissa 3 each | Kottayam & Mehgaon 5 each, Birpur, Galgalia, Piravam & Tilpara Barrage 4 each, Berhampore, Chorgharia, Hasimara, Ketti, Kuzithurai, Moharo & Rampurhat (DRMS) 3 each | Chakia 18, Mahedi / Mehshi 17, Thrissur 11, Aruppukottai 10, Palacode, Tiruchengodu 8, Marandahalli, Melabazar / Motunga & Pollachi 7 each, Erode, Kailashahar, Kochi C.I.A.L., Majbat, Mettur Dam, Periyar Dam & Piravam 6 each, Barapani, Barpeta, Baur, Beki Road Bridge, Dharmapuri, Enamakal, Kunnankulam, Namakkal, Panbari, Passighat, Perumpavur, Sankarapuram, Saulighat, Suler & Yercaud 5 each, Basua, Denkanikottai, Diamond Harbour, Hogenakal, Kampur, Kamtaul, Kanjirappally, Karur, Khowai, Kodumudi, Lakhipur, Manash Nh Xing, Numaligarh, Quilandi, Rayakottah, Samayapuram, Thally & Vaniyambadi 4 each, Aie Nh Xing, Alwaye PWD, Anchetty, Anekal, Badatighat, Bagati, Balan, Bankura, Bhavanisagar, Canning, Chalakudi, Cherthala, Chittur, Chodavaram, Coimbatore AP, Dharmatal, Dhekiajuli, Dholai, Dindigul, Durgachack, Gobichettipalayam, Golaghat, Honakere, Jia Bharali N T Xing, Jorhat, K.Paramathi, Kamatchipuram, Kolar PWD, Koodalur, Kottayam, Madhipura, Madurai AP, Magadi, Mettupatti, Mulanur, Musiri, Narsipatnam, Nelamangala, Nilakottai, P. N. Palayam, Palani, Pappireddipatti, Paramathi, Penukonda, Phek, Silchar, Tangla, Tezpur, Thalavadi, Vaikom, Vazapadi & Williamnagar 3 each |

TABLE 12 (Contd.)

| Date | March | April | May |
|------|---|--|--|
| 5. | Gund 3 | Tuting 12, Balurghat 11, Karanjia 10, Puttur 7, Tikabali 6, Aska, Baripada & Sorada 5 each, Cherrapunji, Kalaikunda (IAF), Kharidwar, Midnapore, Mohanpur, Phulberia, Purihansa, Rairangpur & Tiring 4 each, Basua, Champua, Dharmatal, Jashpurnagar, Kansabati Dam, Kharagpur (I.I.T), Kupwara, Kursela, Muzaffarpur, Nilgiri, Pahalgam, Paikmal, Paralakhemundi, Rajghat, Srinagar Aero, Tangi & Tensa 3 each | Bankura (CWC) & Maya Bandar 6 each, Contai (State), Islampur & Kharidwar 5 each, Bhograi, Bonth, Chandbali, Chinsura, Digha, Jiaganj, Rampur Bushar & Ranaghat 4 each, Agartala (Aero), Alipingal, Bangiriposi, Baripada, Basirhat (State), Jaleswar, Kakatpur, Kaliaganj, Mahinagar, Nimpara, Pochampalli, Raiganj & Tapan 3 each |
| 6. | NIL | Lanjigarh 7, Anakapalli, Gopalpur & Kosagumda 5 each, Chodavaram, Dhundhi, Kukernag, Nawana, Rajkanika, Tuting & Vijayanagaram 4 each, Araku Valley, Gunupur, Joshipur, Pandharpur, Qazi Gund, R.Udaigiri, Sukinda, Tensa & Udala 3 each | Aizwal 6, Altuma CWC & Kamakshyanagar 5 each, Bajjnath, Marandahalli, Ranchi Aero & Rasipuram 4 each, Jamshedpur Aero, Kamatchipuram, Karnal, Karur, Kotkhai, Krishnaprasad, Landsdown, Maya Bandar, Nancowary, Polur, Rajkishorenagar & Uttar Kashi 3 each |
| 7. | NIL | Dhundhi 5, Khowang 4, Gangtok, Manali, Paikmal & Tuting 3 each | Hut Bay 8, Buxaduar & Jhumpura 5 each, Champawat & Silchar 4 each, Bhimnagar, Karanjia, Paralakhemundi, Pathapatnam & Rohtak 3 each |
| 8. | NIL | Sindewahi, Solangnala & Tuting 4 each, Chimur, Gadchiroli, Nagpur Aerodrome, Port Blair & Saoli 3 each | Maya Bandar 15, Port Blair 8, Akhuapada, Balimundali, Champasari, Falakata, Kashipur & Khagadia 5 each, Bankura, Indus, Kalaikunda (IAF), Khowang, Komarada & Rajghat 4 each, Balagarh, Bolpur, Bomdila, Carnicobar IAF, Chanchal, Chungthang, Dinjata, Jaipur, Jamtara, Jenapur, Jhumpura, Kampur, Kanksa (BSF), Khalilabad, Nalbari, Nh5 Gobindpur, Salbari, Sevoke & Sri Niketan 3 each |
| 9. | NIL | Nancowary & Tuting 4 each, Akalkot & Armoor 3 each | Long Island 10, Nancowry 9, Bobbili 7, Salur 5, Bagdogra IAF, Cheepurupalli, Port Blair & Puthimari 4 each, Contai (State), Haldibari & Rangia 3 each |
| 10. | Tuting 5, Hut Bay 3 | Tiptur 7, Kirwati 5, Ambasamudram & Thyagarathi 4 each, Bolangir, Koppa, Mancompu, Mudigere, Napoklu & Tuting 3 each | Gangtok, Jorhat, Numaligarh & Tadong 5 each, Hut Bay, Port Blair & Rangia 4 each, Beki Road.Bridge, Chepan, Cooch Behar, Gangarampur & Jalpaiguri 3 each |
| 11. | Maya Bandar & Nancowary 8 each, Carnicobar IAF & Mohanpur 5 each, Long Island, Midnapore (CWC) & Port Blair 3 each | Kumta & Marmugao 7 each, Sringeri Hms 6, Hirekerur, Honavar, Kollur & Poonch 5 each, Agumbe Emo, Batote, Haveri APMC, Jayapura, Kupwara, Manchikere, Margao, Napoklu, Tarikere, Turuvekere & Tuting 4 each, Badarwah, Bydgi, Champasari, Dharmasthala, Gulmarg R.S., Gund, Kagal, Mudigere, Nargund, Saklespura & Thalaguppa 3 each | Cherrapunji, Mathabhanga & Williamnagar 4 each, Alipurduar (CWC), Hessarghatta, Kokrajhar, Sabroom & Taibpur 3 each |
| 12. | Barrackpur (IAF) 5, Amraghat, Carnicobar IAF, Kharidwar & Mohanpur 4 each, Midnapore (CWC), Port Blair, Suri (CWC), Tilpara Barrage & Tusuma 3 each | Kochi I.A.F. 7, Banihal & Qazi Gund 5 each, Anantnag, Badarwah, Konni, Krishnarajpet, Kukernag, Manali, Minicoy, Pahalgam, Sankarankoil & Shillong 4 each, Batote, Bodinayakanur & Majitar 3 each | Subramanya 9, Napoklu 8, Majitar 6, Alur, Galgalia, Gangtok, Khanitar, Mohitnagar & Udaipur 5 each, Dum Dum, Jalpaiguri, Kaliaganj, Mudigere & NH 31 Bridge 4 each, Bhagamandala, Bishalgarh, Domohani, Islampur, Kamalpur, Karandighi, Mangan, Namthang, Raiganj, Somwarpet T.O., Sonamura & Tapan 3 each |
| 13. | Basar 13, Maya Bandar 5, Daporijo & Long Island 4 each, Ottapalam, Port Blair & Vadakkancherry 3 each | Purola 5, Barkot, Tuting, Udaipur & Uttar Kashi 4 each, Bhatwari, Dharmasala, Dunda, Pechiparai, Shirala & Varkala 3 each | Shivani 5, Doddaballapura, Kakinada, Kharidwar, Phulberia & Shillong, Ziro 3 each |
| 14. | Sivagiri 9, Ayikudi 8, Kayamkulam, Kottayam, Port Blair & Tenkasi 6 each, | Itanagar 4, Belgaum Airport, Bidar, Bilaspur, Bisauli, Chendipada, Gondia, Khariar, Kirwati, Kochi I.A.F., Lahunipara, Londa, | Alapuzha 7, Belthangady 5, Chanchal, Harangi, Hunsur Tb, Kuppady, Kursela, Mudigere & Williamnagar 4 each, Agartala (Aero), Bangalore CO, Chakia, Chikmagalur |

TABLE 12 (Contd.)

| Date | March | April | May |
|------|--|--|---|
| | Chengannur & Nagarkoil 4 each, Car Nicobar, Cherthala, Kozha, Manimuthar, Punalur, Trivandrum Aero & Vaikom 3 each | Mahalingapur, NH31 Bridge, Patnagarh, Saulighat, Tehri, Tensa & Yadwad 3 each | PTO, Hindupur, Krishnanagar, Srinivaspur, Teliamura & Turuvekere 3 each |
| 15. | Car Nicobar & Hut Bay 3 each | Ranebennur HOS 10, Ramdurga 7, Sankeshwar 6, Barapani, Gadhinglaj, Konni, Nainital & Sagar IB 5 each, Ambalavayal, Daporijo, Gerusoppa, Hidkal Dam, Malanjkhanda, Manki & Mundargi 4 each, Aie Nh Xing, Ajjampura R, Chengannur, Davangere PTO, Gokak, Haveri PTO, Holalur, Kanjirappally, Kozha, Lakhnadon, Lakkavalli, Phulparas, Ramagiri, Seoni & Tarikere 3 each | Pedong 12, Chengmari / Diana & Khanitar 7 each, Majitar 6, Bagrakote, Buxaduar & Hasimara 5 each, Allagadda & Arsikere R 4 each, Chaibasa, Chanchal, Channagiri, Itanagar, Kurugodu, Madhugiri, Mysore PTO, Nagarkata, Nawarangpur, Paderu, Proddatur, Rairangpur & Wai 3 each |
| 16. | Kendrapara, Long Island, Maya Bandar, Port Blair & Sukinda 3 each | Gokarna 11, Thodupuzha 8, Honavar 6, Banavasi, Haveri APMC, Salur, Sulur & Y N Hoskote 5 each, Ammathy, Arkalgud, Chandrapur, Deoli, Gunupur, Hadagalii, Jammalamadugu, Kashinagar, Manki, Peermade & Siddapur 4 each, Anantpur, Bangarpet, Bobbili, C. R.Patna, Dharapuram, Gerusoppa, Kanjirappally, Karanjia, Mahendragarh & Poonch 3 each | Barpeta 10, Thakurmunda 6, Beki Road.Bridge & Chikmagalur PTO 5 each, Dumohani, Ghatagaon, Gossaigaon, Manash NH Xing, Mudigere & Patan 4 each, Aie Nh Xing, Alur, C N Halli, Chaibasa, Champua, Dhekiajuli, Gangarampur, Goalpara, Hunsur Tb, Jayapura, Kamakshyanagar, Khowai, Kokrajhar, Kumargram, Lengpui, Nh 31 Bridge & Puthimari 3 each |
| 17. | Port Blair 16, Maya Bandar 6, Long Island 3 | Chengannur & Poonch 7 each, Barkot 6, Baijnath, Banihal, Bhang, Manali, Palampur, Seobagh, Seoni & Udaipur 4 each, Batote, Bhuntar Aero, Dhundhi, Hingoli, K. R. Nagara, Kalimpong, Kanjirappally, Karanjia, Kupwara, Mancompu, Nh31 Bridge, Qazi Gund, Rajouri, Sevoke, Tiptur, Tissa & Virajpet 3 each | Miao 7, Murliganj 6, Madhipura, Piravam, Rayalpadu & Y N Hoskote 4 each, Bansgaon, Damthang, Daspalla, Gangtok, Gossaigaon, Lakkavalli, Maya Bandar, N R Pura, Penukonda, R. Udaigiri, Raiganj, Tadong & Thyagarathi 3 each |
| 18. | Gossaigaon 13, Bahalpur 10, Alipurduar (CWC) & Kokrajhar 8 each, Chepan 7, Manash Nh Xing, Mathabhanga & NH31 Bridge 3 each | Car Nicobar, Gohar, Manali & Thodupuzha 6 each, Bhang, Dhundhi, Hatkanangale, Khairi, Mudigere, Poonch, Purola, Shahuwadi & Solangnala 5 each, Angadipuram, Baldwara, Dharmasala, Haliyal, Kolhapur, Konni, Kukumsheri AWS, Mehre (Barsar), Moga, Nadaun, R S Dam Site, Seobagh, Sundarnagar, Tissa, Trivandrum Aero & Udampur (IAF) 4 each, Aland, Aryankavu, Badarwah, Baijnath, Batote, Bharwain, Bhatwari, Bilaspur AWS, Dharwad PTO, Gaganbawada, Gohana, Hubli R, Illayankudi, Jayapura, Kirwati, Kuppady, Kupwara, Nangal, Narnaul, Neyyattinkara, Palampur, Perinthalamanna, Punalur, Qazi Gund, Rajouri, Ropar, Saloni, Sivaganga, Thuckalay & Uttar Kashi 3 each | Madhipura 10, Khowai, Puttur Hms & Sulya 9 each, Chhamonu 8, Balehonur 7, Birpur, Kamalpur, Kittur & Koondapur 6 each, Bhagalpur, Dharmanagar / Panisagar, Kudulu, Lengpui, Sabroom & Somwarpet T.O. 5 each, Forbesganj, Hassan PTO, Hosdurg, Jamkhandi, Madikeri PTO, Mudigere, Subramanya, Uppinagadi & Uttoor 4 each, Alur, Arkalgud, Bajpe Obsy, Baltara, Belonia, C N Halli, Chikkanahalli PTO, Darjeeling, Dudda, Gangarampur, Haliyal, Hangal, Kailashahar, Kota, Lingadahalli, Londa, Madapur, Mahedi / Mehshi, Mani, Pedong, Rampurhat (Drms), Sabour, Sira, Tiptur & Y N Hoskote 3 each |
| 19. | Cherrapunji 32, Badatighat 9, Beki Road.Bridge, Cooch Behar, Manash NH Xing & Nalbari 7 each, Bahalpur, Barobhisha, Basar, Chepan, Goalpara, Kokrajhar & Passighat 6 each, Aie NH Xing & Panbari 5 each, Barpeta, Gossaigaon, Lumding, Puthimari, Rangia & Williamnagar 4 each, Daporijo, Dholla Bazar, Dhubri, Guwahati, Itanagar, Katra, Kheronighat, Khowang, Mohanbari, Naharlagun, Poonch, Tezu & Tuting 3 each | Berhampore & Dindigul 11 each, Gundlapet, Kumarapalayam & Williamnagar 7 each, Gohar, Kendrapara & Vadakara 6 each, Ammathy, Karipur AP, Kochi C.I.A.L., Namthang, Tezpur & Thodupuzha 5 each, Alwaye PWD, Basar, Chandbali, Galgalia, Hosdurg, Jia Bharali N T Xing, Kokrajhar, Krishnanagar, Kupwara, Mayanur, Rajkanika, Solangnala, Taliparamba, Talassery & Uthamapalayam 4 each, Agathi, Ambalavayal, Badatighat, Bandipura, Bhang, Bhimnagar, Canning, Cherrapunji, Chittur, Cooch Behar, Daporijo, Deomali, H Dkote, Hangal, Itanagar, Kadavur, Khanitar, Khowang, Kozha, Kuppady, Majitar, Manali, Manantoddy, | Bankura (CWC) & Gajoldoba 8 each, Nh31 Bridge & Shillong 7 each, Domohani, Jalpaiguri, Joypur (State), Katwa & Passighat 6 each, Agartala (Aero), Arambagh, Aroyavaram, Cherrapunji, Cooch Behar, Forbesganj, Garhi, Hisua, Islampur, Jiaganj & Khowai 5 each, Amta-I, Bagati, Banka, Barbigha, Barrackpur (IAF), Berhampore, Bhimnagar, Chanpatia, Chengannur, Chinsura, Gossaigaon, Harinkhola, Kalna, Kashipur, Kodawanpur / C.BII, Mahedi / Mehshi, Malda, Manihari, Margherita & Teliamura 4 each, Alipore, Balasore, Benibad, Birpur, Bolpur, Chatia, Chenari, Chhamonu, Dharmanagar / Panisagar, Dum Dum, Galgalia, Hatwara, Hayaghat, Kandi, Karur, Kokrajhar, Kottayam, Lalbegiaghat, Mankapur, Manmothnagar, Maya Bandar, Messenjore, Monghyr, Muzaffarpur, Palani, Purnea, Rampurhat (Drms), |

TABLE 12 (Contd.)

| Date | March | April | May |
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| | | Mandi, Manjeri, Margherita, Mathabhanga, Minicoy, Mylaudy, Naharlagun, Nh31 Bridge, Numaligarh, Panchapatti, Puttur Hms, Quilandi, Seobagh, Sevoke, Trivandrum Aero, Usilampatti, Vadipatti, Virajpet & Watrap 3 each | Samastipur, Sheohar, Singla Bazar, Sri Niketan, Thakurganj & Uluberia (State) 3 each |
| 20. | Cherrapunji 46, Tezu 8, Rangia 7, Barpeta & Naharkatia 6 each, Margherita, Mohanbari, Pahalgam & Passighat 5 each, Dholla Bazar, Gulmarg R.S., Jia Bharali N T Xing, Kathua, Katra, Khonsa, Khowang, Kupwara, Naharlagun, Nalbari, Numaligarh, Qazi Gund, Srinagar & Tezpur 4 each, Aie Nh Xing, Anantnag, Awantipur IAF, Badatighat, Banihal, Basar, Batote, Gund, Itanagar, Konibal, Kukernag, Madhopur, Manash Nh Xing, Munsiyari, North Lakhimpur & Udhampur (IAF) 3 each | Asifabad 9, Holalkere 8, Bhavanisagar, Hunsagi & Sirpur 7 each, Ahiri, Basaralu, Domohani, Hadagalli, Haveri APMC, Kakkeri, Khandapara & Sabour 6 each, B.Durga, Banka, Champasari, Raipur, Tumkur & Tuting 5 each, Agumbe Emo, Ambasamudram, Chamorshi, Cherrapunji, Etapalli, Gondpipri, Jalahalli, Janjgir, Kanker, Kuppady, Lengpui, Lingasuguru, Madakasira, Madhugiri, Rangia, Saoli & Sarguru 4 each, Agartala (Aero), Belur, Car Nicobar, Cherrapunji, Deomali, Doddaballapura, Gund, H Dkote, Jeypore, Kashinagar, Khowai, Kota, Kotraguda, Kushtagi, Lakkavalli, Manantoddy, Manaraipur-Ap, Mangan, Margherita, Marhaura / Amnar, Mettupalayam, Minicoy, Mundargi, Nayagarh, Panposh, Ramnagar, Rayalpadu, Rewaghat, Savanur, Sindhanoor, Srirampura, Srungavarapukota, Thodupuzha, Uthamapalayam & Yegati 3 each | Kendrapara 16, Nimpara 15, Pipili 14, Bhubaneswar Aero 12, Alipingal 11, Athmalik & Veeragattam 10 each, Boudhgarh, Chhatrapur, Narsinghpur, Puri, Rairangpur & Rajkishorenagar 9 each, Berhampur, Kakatpur, Kalingapatnam, Kamakshyanagar, Lakhipur, Pattamundai, Ranpur, Tangi & Tikarpara 8 each, Akhuapada, Altuma CWC, Athgarh, Banpur, Chandanpur, Chaparmukh, Daspalla, Dharmatal, Gopalpur, Hindol, Khandapara, NH5 Gobindpur, Purushottampur & Tikabali 7 each, Chintamani, Dhenkanal, Goalpara, Gudari, Phulbani, Rairakhol & Rajghat 6 each, Bahalpur, Balasore, Balimundali, Baripada, Cheepurupalli, Cherrapunji, Denkanikottai, Jajpur, Jia Bharali N T Xing, Mahendragarh, Naraj, Palakonda, Patnagarh, R. Udaigiri, Rajkanika, Ranasthalam, Srirangpatnam & Udala 5 each, Anandpur, Aska, Balan, Baliguda, Bargarh, Chandbali, Chendipada, Chinsura, Digha, Gunupur, Jenapur, Josphip, K.R.Nagara, Kalyandrug, Kampur, Krishnarajsagara, Miao, Nawana, Nilgiri, Pandavapura, Paralakhemundi, Rengali, Silchar, Soro, Sukinda, Swam-Patna, Turuvekere & Uttar Kashi 4 each, Ambabhona, Amraghat, Anantpur, Angul, Bangiriposi, Bargaon, Bhograi, Bissem-Cuttack, Cherrapunji, Dharmapuri, Dholai, H Dkote, Itchapuram, Jaipur, Jamsolaghat, Jhumpura, Karanjia, Kashinagar, Kohima, Madhabarida, Mandasa, Mysore PTO, Naktideul, Nayagarh, Palasa, Parvatipuram, Reamal, Sagar (State), Sorada, Sravanabelagola, T. Narsipur, Talcher, Telkoi, Tezpur, Thakurmunda, Thirumangalam, Tiptur & Tumkur 3 each |
| 21. | Cherrapunji 6, Tezu 8, Dhekiajuli, Passighat & Williamnagar 6 each, Nalbari 5, Dholla Bazar, Jia Bharali N T Xing & North Lakhimpur 4 each, Badatighat, Rangia & Udaipur 3 each | Marandahalli 10, Karipur AP & Sivakasi 9 each, Kudulu & Rayakottah 8 each, Kazhugumalai 7, Amini & Coonoor 6 each, Karur, Manjeri, Pattukottai, Sherkottah, Tenkasi & Vadakkancherry 5 each, Ayikudi, Bajpe Obsy, Beki Road, Bridge, H Dkote, Hosdurg, Kundha, Mandya PTO, Panambur Obsy, Passighat, Pendra Road, Peraiyur, Punalur, Taliparamba, Telkoi, Thirumangalam & Tuting 4 each, Ammathy, Aravakurichi, Aryankavu, Bangarpet, Bhagamandala, Chidambaram, Chittur, Gondia, Mannarkkad, Margherita, Marungapuri, Mayanur, Murnadu, Nedumangad, Neyyattinkara, Palacode, Pudukkottai, Samayapuram, Sarguru, Srirangpatnam, Subramanya, Sulya, Thiruvalla, Uppinagadi, Vadakara & Watrap 3 each | Lakhipur 15, Halflong 14, Amraghat 11, Anakapalli, Chodavaram, Dholai, Matijuri & Silchar 10 each, Cherrapunji 9, Visakhapatnam AP & Williamnagar 8 each, Imphal, Kaliaganj & Karimganj 7 each, Balurghat, Cherrapunji, Kollam Rly, Parangipettai, Tondi & Visakhapatnam 6 each, Arakkonam, Bagdogra IAF, Bahalpur, Bhimunipatnam, Birpur, Kohima, Poonamallee, Sriperumbudur, Tiruvallur, Tozudur & Usilampatti 5 each, Bagrakote, Champasari, Dharmanagar / Panisagar, Gangarampur, Karaikudi, Karandighi, Maduranthagam, Mylaudy, Nagapattinam, Perungalur, Poondi, Srungavarapukota, Tapan & Vijayanagar 4 each, Amalapuram, Ambala, Ariyalur, Barapani, Beki Mathanguri, Bhimnagar, Bisalpur, Budaun, Chengmari / Diana, Cheyyur, Cholavaram, Deoband, Eranial, Fatehgarh Sahib AWS, Fatehpur, Gajoldoba, Gharmura, Jalpaiguri, Kairana, Kaiserganj, Kakinada, Kandarvakottai, Madurai AP, Mahinagar, Manash Nh Xing, Margherita, Minicoy, Murti, Nagarkata, Nagarkoil, Naharkatia, Narsipatnam, Nilokheri, Prathipadu, Pudukkottai, Rasipuram, Sirkali, Thirumangalam, Thiruvallangadu, Tiruttani, Tiruvaiyaru, Tuni & Yellamanchili 3 each |
| 22. | Cherrapunji 26, Tezu 6, Dholla Bazar 5, Mohanbari & Passighat 3 each | Atchempet 11, Canning & Thally 10 each, Mysore PTO & Sravanabelagola 9 each, Bhadrachalam, Gobichettipalayam, Konni & Sukma 8 each, Anekal, Balehonur, Coonoor, Doddaballapura, Jangaon, Koratagere, Kumbakonam, Lakkavalli, Metpalli, Mulug, | Jalpaiguri 15, Khowai 11, Deganga 10, Kailashahar 8, Bhalukpong, Manash Nh Xing & Teliamura 7 each, Agartala (Aero), Mandi, Purihansa & Sivaganga 6 each, Baghpat, Barapani, Delhi Ridge, Gajoldoba, Galgalia, Golaghat & Lengpui 5 each, Aie Nh Xing, Aizwal, Chapra, Cherrapunji, Dehra Gopipur, Domohani, Gangtok, Gohar, |

TABLE 12 (Contd.)

| Date | March | April | May |
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| | | Nayagarh & Rayakottah 7 each, Coimbatore, Gundlapet, Illupur, Kodaikanal, Kodavasal, Kothagiri, Kuppady, Pattembi, Pendra Road & Tondebhavi 6 each, Avinashi, Bagewadi, Bukkapatna, C. R. Patna, Chikkanahalli PTO, Coimbatore AP, Devara Hippargi, Dharmapuri, Hogenakal, Hunsur Tb, K.R.Nagara, Keeranur, Ketti, Khanapur, Kosagumda, Kundha, M M Hills, Mana-Raipur-Ap, Murnadu, Nagamangala, Nagarkurnool, Nannilam, Pattukottai, Pollachi, Sira, Srirampura, Sulur, Suryapet, Tarikere, Tiruvaiyaru, Turuvekere, Vadipatti & Wanaparathi 5 each, Angadipuram, Arogyavaram, Baikunthpur, Basaralu, Bijepur, Bramhapuri, C N Halli, Dum Dum, Gauribidanur, H Dkote, Honakere, Kadavur, Kalasa, Kanakapura, Kangeyam, Keonjhargarh, Kudathini, Mahbubabad, Manjeri, Melabazar / Motunga, Mettur Dam, Mohana, Mulanur, Nanjangud, Narasaraopet, Nilgiri, Nuzvidu, Pennagaram, Piravam, Poonampet PWD, Purihansa, Ramanathapuram, Samudrapur, Sankarankoil, Sathenapalli, Sethiyathope, Srirangpatnam, Swam-Patna, T.Narsipur, Thakurmunda, Thalavadi, Thuckalay, Tiptur, Tirupur, Tuting, Veeragattam, Vijayawada A.P., Vikarabad, Wardha & Yelandur 4 each, Adilabad, Alangayam, Araku Valley, Bangalore Airport, Begur, Bidar, Chalakudi, Chamarajnar, Channapatana, Diamond Harbour, Gadag PBO, Guntur, Gunupur, Hanamkonda, Hessarghatta, Hosur, Jayapura, Kakinada, Kalwakurthi, Kanjirappally, Kashinagar, Khammam, Kharangha, Kunigal, Mahendragarh, Manamadurai, Mancompu, Mandla, Mandya PTO, Mangalgiri, Medak, Nalgonda, Napoklu, Narsampet, Nelamangala, North Lakhimpur, P. N. Palayam, Pandavapura, Papanasam, Parumbikulam, Patnagarh, Peermade TO, Perambalur, Perinthalamanna, Periyakulam, Periyapatna, Ramannapet, Redhiils, Sangareddi, Savanur, Selu, Shirhatti, Sholagiri, Sholavandan, Sironcha, Sivaganga, Sringeri Hms, Talikote, Thiruvalla, Thiruvaidaimarudhur, Thritla, Tirupuvanam, Tumkur, Vembavur, Venkatapuram & Virajpet 3 each | Hasimara, Hatwara, Hissar, Joshimath, Lakhipur, Nagarkata, Numaligarh, Palampur, Patna Aerodrome, Rangia & Tadong 4 each, Amarpur, Ambala IAF, Basirhat (PT), Belonia, Car Nicobar, Champasari, Chengmari / Diana, Cherrapunji, Chouldhowaghat, Daporijo, Dharmanagar / Panisagar, Garotha, Ilayankudi, Imphal, Jashpurnagar, Jind, Keeranur, Khanapara, Kokrajhar, Meerut, Murti, Nalbari, Nohar SR, Pattembi, Pendra Road, Pusa, Radaur, Rath, Sabroom, Sevoke, Silchar, Sonamura, Sports Complex, Thiruthuraiipoondi, Tuting & Williamnagar 3 each |
| 23. | Cherrapunji 7, Punalur, Seppa & Tezu 3 each | Yercaud 14, Kanchipuram 12, Bangalore Airport & Kavali 11 each, Bargur, Malur, Marandahalli, Namakkal, Omalur, Polur, Thathaiyangarpet, Thirumangalam, Tozudur & Tuni 10 each, Gingee, Idukki, Pochampalli, Ponneri, Srirangpatnam, Tuting & Viluppuram 9 each, Hosdurg, Kaveripakkam, Nagarkoil & Perambalur 8 each, Angadipuram, Ariyalur, Kolar PWD, M M Hills, Rayadurg, Sankarapuram, Trivandrum Aero, Uthamapalayam & Walajapet 7 each, Arakkonam, Cheyyar, Cuddalore, Gobichettipalayam, K. R. Nagara, Lakkireddipalam, Mangalore, Mettupatti, Narsapuram, Pandavapura, Pappireddipatti, Perundurai, Polavaram, Sankarapuram, each, Sathyamangalam, Sholigur, Sulya, Tadepalligudem, Tiruchy Town & | North Lakhimpur 11, Dholla Bazar & Naharlagun 7 each, Passighat & Patti 6 each, Cherrapunji, Chouldhowaghat, Goalpara, Kotkasim SR, Mahul Pnulpur, Manash Nh Xing, Mangan & Melabazar / Motunga 5 each, Aie NH Xing, Balan, Beberu, Buxar, Cherrapunji, Hodal, Mathabhanga, Narnaul, Padampur & Poonch 4 each, Aizwal, Bawal, Bhatwari, Bihubar, Buxaduar, Chapra, Forbesganj, Galgalia, Hayaghat, Jajpur, Kamtaul, Malda, Nawalgarh, Ramnagar, Rampurhat (Drms), Rath, Sardarshahar, Solangnala, Sports Complex, Telkoi & Tezu 3 each |

TABLE 12 (Contd.)

| Date | March | April | May |
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| | | Tiruvannamalai 6 each, Alangayam, Bhavani, Bhimavaram, Halli Mysore, K. Paramathi, Kaikalur, Kalyandrug, Kanakapura, Kodumudi, Kollam Rly, Kollegal, Koppa, Krishnagiri, Kudulu, Maduranthagam, Mettur Dam, Mudigere, Mylaudy, Narasaraopet, Nilakottai, Pamban, Peermade To, Pondicherry, Rasipuram, Tirukoilur & Vellore 5 each, Anchetty, Arani, Bangarpet, Belur, Bhagamandala, Bhopalpatnam, Dharmapuri, Eluru, Erode, Gooty, Hirekerur, Hogenakal, Honnali, Hoskote, Jayamkondan, Kakinada, Kumarapalayam, Kuppady, Madapur, Mulbagal, Munnar Kseb, Nellore, Nuzvidu, Pallipattu, Pamidi, Pechiparai, Penugondapuram, Perinthalamanna, Periyakulam, Periyar Dam, Saidapur, Salem, Sira, Srikalahasthi, Tada, Tanuku, Thally, Thammanpatti, Thiruthuraiipoondi, Thiruvallangadu, Tiruchengodu, Tiruttani, Ulundurpet, Vedaranyam, Venkatagirikota, Vridhachalam, Vytiri & Y N Hoskote 4Amalapuram, Arogyavaram, Ayikudi, Chittoor, Hagaribommanahalli, Kanjirappally, Karaikal, Karur, Koderu, Krishnarajsagara, Kundha, Lalgudi, Madukur, Madurai AP, Mayanur, Nagamangala, Nagapattinam, Nannilam, Napoklu, Palacode, Palamner, Panambur Obsy, Pattukottai, Peddapuram, Pennagaram, Peraiyur, Poonamallee, Poonampet PWD, Puttur, R. K. Pet, Ramagiri, Rayalpadu, Sendamangalam, Sivagiri, Srimushnam, Srinivasapur, Sullurpet, Tenkasi, Thuckalay, Tikabali, Tindivanam, Tirumanur, Vandavasi, Vaniyambadi & Vembavur 3 each | |
| 24. | Kochi I.A.F., Konni, Sravanabelagola & Tuting 3 each | Mangalapuram 14, Thodupuzha & Tozudur 11 each, Chepan, Sankarankoil & Theni 10 each, Devala, Kumarapalayam, Perambalur, Sulur & Vembavur 8 each, Kallakurichi, Kangeyam, P. N. Palayam, Palacode & Sivagiri 7 each, Bangalore CO, Bhavani, Kuppady, Maduranthagam & Sankarapuram 6 each, Ambalavayal, Andipatti, Annur, Aryankavu, Coimbatore AP, Cooch Behar, Dharmapuri, Gingee, Irikkur, Kunnamkulam, NH31 Bridge, Omalur, Pappireddipatti, Parumbikulam, Patthmbi, Peermade To, Pondicherry, Sarguru, Vadakkancherry, Virudhunagar & Yercaud 5 each, Alipurduar (CWC), Devanhalli, Dharwad Hos, H Dkote, Karipur AP, Mahalingapur, Mettupalayam, Munnar Kseb, Ooty, Sathanur Dam, Srivilliputhur, Thammanpatti, Thrilta, Uppinagadi & Vanur 4 each, Afzalpur Hms, Alangayam, Attur, Cheyyur, Chittur, Coimbatore, Daporijo, Dharapuram, Doddaballapura, Domohani, Jalpaiguri, Kochi C.I.A.L., Kollegal, Koodalur, M M Hills, Maniyatchi, Mannarkkad, Marandahalli, Mettur Dam, Minicoy, Mylaudy, Mysore PTO, Naduvattam, Nanguneri, Natham, Ottapalam, Pallipattu, Pamban, Perinthalamanna, Periyakulam, Perumpavur, Puttur Hms, Salem, Sankarapuram, Sironcha, Tikabali, Tiruchy Town, Tiruvannamalai, Viluppuram, Vytiri & Yadwad 3 each | Dharmapuri, Gangtok & Tadong 8 each, Cherrapunji & Silchar 7 each, Basar & Uthangarai 6 each, Agartala (Aero), Anekal, Beki Mathanguri, Belonia, Lakhipur & Sonamura 5 each, Amarpur, Arundhutinagar, Cooch Behar, Falakata, Imphal, Jabalpur-New & Passighat 4 each, Bailhongal, Cherrapunji, Cherthala, Dharmanagar / Panisagar, Hassan PTO, Kamalpur, Kanjirappally, Lengpui, Matijuri, Munnar Kseb, North Lakhimpur, Teliamura & Tuting 3 each |

TABLE 12 (Contd.)

| Date | March | April | May |
|------|---|---|--|
| 25. | Cherrapunji 6, Bagati, H Dkote & Kalaikunda (IAF) 4 each, Bangiriposi, Halflong, Hunsur Tb, Jamsolaghat, Nancowary & Tiring 3 each | Pollachi 11, Keeranur & Tozudur 9 each, Kumbakonam, Musiri, Namakkal, Thanjavur & Tiruvaiyaru 8 each, Palani, Paramathi, Pudukkottai, Tiruchy Town, Vilathikulam & Vridhachalam 7 each, Dharapuram, Muthupet, Natham, Needamangalam, Padalur, Sivaganga, Thathaiyangarpet & Thogaimalai 6 each, Chettikulam, Cooch Behar, Erode, Hogenakal, Kandarvakottai, Karur, Marandahalli, Messenjore, Palacode, Perungalur, Puducherry, Pullambadi, Telkoi, Thirupattur & Tirumanur 5 each, Ambur, Gossaigaon, Ilayankudi, Illupur, Karaikudi, Kulithalai, Mettupatti, Nh31 Bridge, Rameswaram, Sedam, Silchar, Sirkali, Tirukattupalli, Tirupuvanam & Valangaiman 4 each, Adiramapatinam, Alangudi, Aravakurichi, Bahalpur, Barpeta, Chargharia, Grand Anicut, Gudari, Haliyal, Kadavur, Kashinagar, Kozha, Kozhikode, Krishnagiri, Mayanur, Mettur Dam, Mohana, Nannilam, Orathanadu, Pamban, Panchapatti, Panhala, Papanasam, Paralakhemundi, Periyapatna, Pune City, Ranasthalam, Rasipuram, Rayakottah, Sevoke, Shillong, Thiruvudaimarudhur, Tiruchengodu, Tirupur, Udumalpet, Vallam, Vazapadi, Vedaranyam & Walajapet 3 each | Dharmanagar / Panisagar 13, Kailashahar 11, Bagrakote, Pechiparai & Sevoke 10 each, Erode & Pandavapura 8 each, Cherrapunji, Kollegal & Port Blair 7 each, Gajoldoba & Krishnarajsagara 6 each, Barobhisha, Chamrajanagara PTO, Dharmapuri, H Dkote, Thammanpatti, Udala & Yelandur 5 each, Channapatana, Chodavaram, Halli Mysore, Kolar PWD, Krishnagiri, Ramnagaram, Sabroom, Silchar, Sonamura, T.Narsipur & Talikote 4 each, Alipurduar (CWC), Alur, Amarpur, Anchetty, Anekal, Athgarh, Barapani, Basar, Bhalukpong, Chepan, Cherrapunji, Gossaigaon, Jaipur, Kalgai, Kamalpur, Khowai, Kumarapalayam, Kuppady, Marandahalli, Nanjangud, Nilgiri, Pargi, Rayakottah, Srirangpatnam, Teliamura & Williamnagar 3 each |
| 26. | Avinashi, Chamrajanagara PTO & Maya Bandar 6 each, Barpeta, Mettur Dam & T. Narsipur 5 each, Badatighat, Beki Road, Bridge, Hosur, Illupur, Mandya PTO, Sankarapuram & Yercaud 4 each, Annur, Aravakurichi, Armoor, Begur, Bhavani, Car Nicobar, Erode, Jia Bharali N T Xing, Naharkatia, Pandavapura, Tirumayam, Tutting, Vedasandur & Watrap 3 each | Jamsolaghat 9, Canning 8, Alapuzha & Bankura 7 each, Kansabati Dam & Kharagpur (I.I.T) 6 each, Digha, Jenapur, Piravam & Vadakara 5 each, Ammathy, Bonth, Mancompu, Mohanpur, Palamner & Tilpara Barrage 4 each, Akhuapada, Bhograi, Burdwan (PTO), Kharidwar, Krishnanagar, Kunnamkulam, Palacode, Panagarh (IAF), Pattembi, Salem, Samastipur, Sri Niketan, Sukinda, Swam-Patna, Taliparamba, Thakurganj, Thiruthuraipoondi, Tusuma & Venkatapuram 3 each | Anantpur, Bishalgarh & Hagaribommanahalli 8 each, Tadpatri 7, Port Blair & Sira 6 each, Maddanur, Maya Bandar, Neyyattinkara, Rajouri, Sabroom, Salimpur, Varkala & Yerragondapalem 5 each, Badami, Chickballapur, Chikkanahalli PTO, Gobichettipalayam, Hindupur, Khammam, Kollam Rly, Landsdown, Madhugiri, Malihabad, Piduguralla, Purna & Sunibhaji 4 each, Atmakur, Bahraich, Bara Banki, Bhatwari, Chittoor, Colachel, Cumbam, Dharampur, Erode, Gohar, Gudiyatham, Guledgund, Gundlapet, Kaiserganj, Kamalapuram, Ketti, Kurnool, Mankapur, Nedumangad, Pauri, Sadhaura & Vempalli 3 each |
| 27. | Hut Bay 13, Car Nicobar 8, Nancowry, Sankarankoil & Srivilliputhur 7 each, Ammathy, Hunsur Tb, Port Blair & Virudhunagar 5 each, Silchar 4, Alipurduar (CWC), Ayikudi, Berhampore, Lakhipur, Magadi, Namthang, Rajapalayam, Sattur, Sevoke, Tenkasi & Vazapadi 3 each | Namakkal 5, Aizwal, Bijepur, Junagarh, Komarada, Tarangambadi, Thiruvudaimarudhur & Veeragattam 4 each, Dholai, Kazhugumalai, Lengpui, Mudubidre, P. N. Palayam, Sirkali, Sundargarh, Thiruthuraipoondi & Vanur 3 each | Jhandutta 10, Midnapore (CWC) 9, Haripad, Mancompu, Mohanpur & Shedbal 7 each, Alur, Bangana, Honnali, Jath, Kalaikunda (IAF), Nilgiri & Swam-Patna 6 each, Arwal, Aurangabad, Barkote, Ghatagaon, Holalur, Kayamkulam, Komna, Lalsot, Nahan & Rairangpur 5 each, Arki, Bageshwar (Thmo), Belur, Bijepur, Dehra Dun, Digha, Haliyal, Haveri PTO, Hindol, Kalasa, Kasol & Mehre (Barsar) 4 each, Arkalgud, Baikunthpur, Balasore, Bareilly PBO, Barhiya, Barthin, Bawal, Bharwain, Chelsea School AWS, Diamond Harbour, Hattin, Jamshedpur Aero, Jatusana, Kahu, Khanapur, Kharagpur (I.I.T), Kittur, Kolhapur, Kufri AWS, Mahedi / Mehshi, Manali, Nawanshahr, Palasa, Parumbikulam, Pechiparai, Phek, Pune (Pashan), Radhanagari, Rongo, Salern AWS, Sundarnagar & Sunibhaji 3 each |
| 28. | Pechiparai 4, Forbesganj, Gheropara, Monghyr, Motihari, Sivagiri & Sri Niketan 3 each | Margherita 7, Kashinagar & Salur 5 each, Berhampur, Chhatrapur, Gajapathinagaram, Gunupur, Itchapuram, Komarada, Kosagumda, Mahendragarh, Ranasthalam, Therlam & Visakhapatnam 4 each, Aska, Bhimunipatnam, Bissem-Cuttack, Cheepurupalli, Gopalpur, Janjgir, Kalingapatnam, Kheronighat, Mandasa, Mohanbari, Naharkatia, Nawarangpur, Pathapatnam, Purushottampur, | Nuzvidu 12, Tanuku 10, Devala, Illupur, Kayamkulam, Kozha & Ramdurga 9 each, Bhimavaram & Narsapuram 8 each, Amarpur, Gudivada & Nalbari 7 each, Amraoti, Bisalpur, Eluru, Muhammdi, Muzaffarpur, Phek & Vijayawada A.P. 6 each, Basar, Batagaon, Chalakudi, Chintalapudi, Hagaribommanahalli, Haripad, Hospet, Kochi C.I.A.L., Majbat, Nagarkurnool & Thiruvalla 5 each, Amalapuram, Chouldhowaghat, Coimbatore AP, Jagdalpur, Jalpaiguri, Kaladgi, Konni, Kurnool, |

TABLE 12 (Contd.)

| Date | March | April | May |
|------|---|---|---|
| | | Strungavarapukota, Thodupuzha, Veeragattam & Vijayanagaram 3 each | Mahalingapur, Masulipatnam Cdr, Nighasan, Nuggehalli, Pechiparai, Perungalur, Pilibhit, Piravam, Rongo, Tikarpara, Tiruvuru & Vaikom 4 each, Alwaye PWD, Baikunthpur, Barhiya, Belgaum Airport, C. R.Patna, Fatehpur, Guttal, Hosanagar, Hunsur Tb, Itanagar, Kampur, Kudulu, Mahbubnagar, Mavelikara, Palamner, Polavaram, Ponnani, Pudukkottai, Thrissur, Tirumayam, Varkala & Wanaparathi 3 each |
| 29. | Kupwara 5, Badarwah, Cherrapunji, Kanjirappally, Nedumangad & Thiruvalla 4 each, Basirhat (PT), Canning, Chengannur, Cherrapunji, Digha & Khowai 3 each | Haripad 13, Kumarakam 11, Mancompu 10, Mavelikara 8, Cherthala 7, Chengmari / Diana, Dunda & Kunigal 6 each, Hasimara, Hut Bay, Kalyandrug & Kanjirappally 5 each, Arundhutinagar, Domohani, Gajoldoba, Kayamkulam, Kollam Rly, Mandya PTO, Salur & Thiruvananthapuram 4 each, Anekal, Carnicobar IAF, Cheepurupalli, Chodavaram, Colachel, Hiriyur Hms, Jalpaiguri, Kailashahar, Kottayam, Maya Bandar, Passighat, Thiruvalla, Vaikom, Vijayanagaram & Visakhapatnam AP 3 each | Kumarakam 14, Cherthala 12, Irinjalakuda 11, Kottayam & Mancompu 10 each, Haripad 9, Aluva PWD, Kayamkulam, Kochi I.A.F., Kozha, Mudubidre & Vaikom 8 each, Bhalukpong, Bhoranj, Digha, Hamirpur, Jorhat, Kozhikode & Thiruvalla 7 each, Karipur AP, Mannarkkad & Neamatighat 6 each, Chengannur, Kanjirappally, Kokrajhar, Krishnanagar & Sevoke 5 each, Aizwal, Barapani, Gohar, Konni, Kunnamkulam, Lumding, Periyapatna, Perumpavur & Pithoragarh 4 each, Amini, Aryankavu, Belur, Chalakudi, Halflong, Kavaratti, Mavelikara, Pattermbi, Pauri, Pedong, Piravam, Pudukkottai, Sabroom & Thrithla 3 each |
| 30. | Kheri Lakhimpur & Namthang 6 each, Kanjirappally, Khanitar, Ropar & Udampur (IAF) 5 each, Anandpur Sahib, Katra, Konni, Majitar, Naraingarh & Punalur 4 each, Banihal, Batote, Bodinayakanur, Jammu, Kochi I.A.F., Mehre (Barsar), Sitapur & Udaipur 3 each | Vridhachalam 6, Kayamkulam, Padalur & Pullambadi 4 each, Ariyalur, Bhagalpur, Chettikulam, Digra, Erode, Jashpurnagar, Pusad, Rairangpur, Sankarapuram & Tezu 3 each | Cherthala 13, Belonia 11, Kollam Rly & Lumding 9 each, Kayamkulam, Mancompu & Sirsi PWD 7 each, Alwaye PWD, Arundhutinagar, Bangiriposi, Dharmanagar / Panisagar, Jorhat, Piravam, Sundarnagar, Vaikom, Williamnagar & Yadwad 6 each, Alamatty Hms, Badami, Bhimunipatnam, Bijapur PTO, Chandigarh IAF, Jamkhandi, Jhandutta, Jia Bharali N T Xing, Kailashahar, Kanjirappally, Mahalingapur, Mudhol R, Punalur & Ranasthalam 5 each, Bagalkote PTO, Bagewadi, Bilgi (Irri.), Cheepurupalli, Itanagar, Kandukur, Khanapur, Kota, Lengpui, North Lakhimpur, Pantnagar, Phoolbagh, Rabkavi, Salur, Sibsagar, Sonamura, Thiruvalla, Uttar Kashi & Vijayanagaram 4 each, Agathi, Aizwal, Alapuzha, Badatighat, Bahraich, Bambasa, Bhingra, Bisalpur, Bishalgarh, Chandanpur, Chengannur, Cherrapunji, Chhamonu, Damla AWS, Dehra Dun, Ghatagaon, Gohar, Gokak, Gunupur, Hatkanangale, Hut Bay, Kaiserganj, Kamalpur, Karkala, Kendrapara, Kochi I.A.F., Kohima, Konanur, Kumarakam, Manamadurai, Mankapur, Mustfabad, Naharlagun, Nakur, Narayanpur Hms, Pathapatnam, Sabroom, Saharanpur, Shiggaon, Taliparamba, Tikkota, Utarala & Veeragattam 3 each |
| 31. | Khowai 8, Agartala (Aero), Nil Teliamura & Udaipur 5 each, Amarapur, Bishalgarh, Dharmanagar / Panisagar, Lengpui & Sonamura 4 each, Arundhutinagar, Badatighat, Belonia, Kailashahar, Tikrikilla & Williamnagar 3 each | | Kochi I.A.F. 13, Dholai 12, Jorhat 11, Matijuri 10, Gauribidanur 9, Hagaribommanahalli, Hosur, Lakhipur, Peermade To, Thally & Uchangidurga 8 each, Angadipuram & Enamakka 7 each, Amraghat, Bangalore Airport, Hadagalli, Itanagar, Kottayam, Kozha, Kuknoor, Lengpui, Naharlagun & Port Blair 6 each, Agathi, Bagrakote, Barobhisha, Bihubar, Bomdila, Carnicobar IAF, Champasari, Gharmura, K.R.Nagara, Kanchipuram, Kanekal, Kodawanpur / C.BII, Madapur, Margherita, Nilakottai, Perinthalamanna, Sevoke, Shirhatti, Silchar & Tirupattur 5 each, Balehonur, Baripada, Baur, Chengmari / Diana, Devanhalli, Jagdalpur, Khowai, Koratagere, Krishnagiri, Kumarakam, Manihari, Murti, Nalwatwad, Piravam, Pochampalli, Sholigur, Tavaregere, Tezu, Tirukoilur & Tuting 4 each, Arundhutinagar, Bagdogra IAF, Belur, Bevoor, Channapatana, Cherthala, Daporijo, Deomali, Dillighat, Dum Dum, Haidargarh, Hessarghatta, Hirekerur, Karimganj, Kavaratti, Kembhav, Kundgol, Kuppam, Kushtagi, Laikera, Lakshmeswar, Manki, Mettupatti, Mysore PTO, Neamatighat, North Lakhimpur, Numaligarh, Quilandi, Rabkavi, Ramnagar, Ranebennur HOS, Savanur, Sholagiri, Suar, Tawang, Umarkote & Venkatagirikota 3 each |

The month's highest maximum temperature over the plains was 45.2° C recorded at Ganganagar (west Rajasthan) on 1 April 2011.

3.2.3. *Disastrous weather events*

According to media and other disaster reports, thunderstorm/hailstorm/lightning wreaked havoc in some parts of the country during the month. Karnataka and Jharkhand were the worst affected states. Heavy thunderstorm inundated houses and offices in low lying areas of the states claiming 33 lives in Karnataka, 24 in Jharkhand and 16 in Chattisgarh. Thunderstorm/hailstorm/lightning also claimed 6 lives in Tamil Nadu, 4 each in Assam, Uttar Pradesh & Kerala and 1 in Vidarbha. The upper reaches of Jammu & Kashmir and Himachal Pradesh received snowfall which caused landslides resulting in the destruction of more than 12 houses and took a toll of 6 human lives in Kashmir valley and the closing down of the National Highway. The ski resort of Gulmarg in Kashmir valley reported night temperature of minus 7.4° C on 4 April.

Heat wave conditions killed 3 persons in Kerala and 1 in Vidarbha.

Extensive damage to houses, standing crops was reported from Assam, Tamil Nadu and Kerala. Communication and transport system was also disrupted.

3.3. *May*

3.3.1. *Weather and associated synoptic features*

(i) *Advance of southwest monsoon:*

Southwest monsoon set in over most parts of south Arabian Sea and Kerala and some parts of Tamil Nadu, south Bay of Bengal and south Andaman Sea on 29 May. On 30 May, the monsoon advanced into some more parts of south Bay of Bengal, some parts of east central Bay of Bengal and remaining parts of Andaman Sea.

(ii) *Other synoptic features and rainfall*

The details of weather systems during the month are given in Table 9 and the resultant rainfall distribution in Table 10. The principal amounts of rainfall are given in Table 12.

A major part of the country (except Gujarat state) witnessed thundershower activities throughout the month. *Excess* rainfall activity occurred over east and northwest India. Systems in westerlies gave rise to precipitation over northwest India and northeast India during second and third weeks of the month. A trough of low at mean sea level, generally extended from Gangetic West Bengal to Tamil Nadu across Chattisgarh, Telangana and interior Karnataka caused *isolated* rainfall over the many parts of east and south peninsular India on many days during the month. The spatial rainfall activity increased over eastern India got enhanced with the formation a cyclonic circulation over Orissa and adjoining northwest Bay of Bengal towards the end of the month.

3.3.2. *Temperature distribution*

From Table 11, it is seen that *heat wave* conditions prevailed over some parts of north, west, central India and eastern parts of south peninsula on a few days during the month. *Severe heat wave* conditions prevailed on two days in west Rajasthan.

The month's as well as the season's highest maximum temperature of 48.6° C was recorded at Churu (west Rajasthan) on 17 May 2011.

3.3.3. *Disastrous weather events and damage*

According to media and other disaster reports, hailstorm / thunderstorm / lightning / duststorm activities increased during the month and continued to make havoc in many parts of the country; Uttar Pradesh was the worst affected state claiming 131 lives. It also claimed 26 lives in Bihar, 15 in Jharkhand, 13 in Odisha, 7 each in Karnataka & West Bengal, 6 in Kerala, 4 in Jammu & Kashmir, 3 in Uttarakhand and 2 each in Assam, Vidarbha & Chattisgarh. Heat wave claimed one life in Chandigarh.

Appendix

Definitions of the terms given in '*Italics*'

Rainfall

| | |
|------------------|--|
| <i>Excess</i> | - percentage departure from normal is + 20 % or more. |
| <i>Normal</i> | - percentage departure from normal is -19 % to + 19 %. |
| <i>Deficient</i> | - percentage departure from normal is -20 % to -59 %. |

| | | | |
|-----------------------------|--|---------------------------------|--|
| <i>Scanty</i> | - percentage departure from normal is -60 % to -99 %. | | maximum temperature is 40° C or less. |
| <i>At most places</i> | - 76 % or more stations of a meteorological sub-division reporting at least 2.5 mm rainfall. | <i>Hot day conditions</i> | - Whenever the maximum temperature remains 40° C or more and minimum remains 5° C or more above normal, provided, it is not satisfying the heat wave criteria. |
| <i>At many places</i> | - 51% to 75 % stations of a meteorological sub-division reporting at least 2.5 mm rainfall. | | |
| <i>At a few places</i> | - 26 % to 50% stations of a meteorological sub-division reporting at least 2.5 mm rainfall. | <i>Markedly above normal</i> | - departure of maximum temperature from normal is between +5° C to +6° C for the regions where the normal maximum temperature is 40° C or less. |
| <i>At isolated places</i> | - 25% or less stations of a meteorological sub-division reporting at least 2.5 mm rainfall. | <i>Appreciably above normal</i> | - departure of maximum temperature from normal is between +3° C to +4° C for the regions where the normal maximum temperature is 40° C or less. |
| <i>Extremely Heavy rain</i> | - rainfall amount 24.5 cm or more | | |
| <i>Very heavy rainfall</i> | - rainfall amount 12.5 cm to 24.4 cm. | <i>Above normal</i> | - departure of maximum temperature from normal is + 2° C. |
| <i>Heavy rain</i> | - rainfall amount from 6.5 cm to 12.4 cm. | <i>Appreciably below normal</i> | - departure of maximum temperature from normal is from -3 to -4° C where the normal maximum temperature is 40° C or less. |

Temperatures

(a) Maximum/ day temperatures

According to the criteria being followed since 1st March 2002, Heat Wave will be declared only when the maximum temperature of a station reaches at least 40° C for plains and at least 30° C for Hilly regions.

Severe heat wave - departure of maximum temperature from normal is + 6° C or more for the regions where the normal maximum temperature is more than 40° C and departure of maximum temperature from normal is + 7° C or more for the regions where the normal maximum temperature is 40° C or less.

Heat wave conditions - departure of maximum temperature from normal is between + 4° C to + 5° C or more for the regions where the normal maximum temperature is more than 40° C and departure of maximum temperature from normal is +5° to + 6° C for the regions where the normal

Markedly below normal

- departure of maximum temperature from normal is -5 to -6° C where the normal maximum temperature is 40° C or less.

Below normal

- departure of maximum temperature from normal is -2° C.

(b) Minimum/night temperatures

Cold wave conditions

- departure of WCTn from normal minimum temperature is from -5° C to -6° C where normal minimum temperature is $\geq 10^{\circ}$ C and from -4° C to -5° C elsewhere.

Also cold wave is declared when WCTn is $\leq 0^{\circ}$ C irrespective of the normal minimum temperature for those stations.

Appreciably below normal

- departure of minimum temperature from normal is from -3° C to -4° C for the region where the normal minimum temperature is 10° C or more.

| | | | |
|------------------------------|--|---------------------------------|--|
| <i>Markedly below normal</i> | - departure of minimum temperature from normal is -5 to -6° C where the normal minimum temperature is 10° C or more. | <i>Markedly above normal</i> | - departure of minimum temperature from normal is from $+ 5^{\circ}$ C to $+ 6^{\circ}$ C. |
| <i>Below normal</i> | - departure of minimum temperature from normal is $- 2^{\circ}$ C. | <i>Appreciably above normal</i> | - departure of minimum temperature from normal is from $+ 3^{\circ}$ C to $+ 4^{\circ}$ C. |
