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Weather in India

HOT WEATHER SEASON (March-May 2022)†

1. Chief features

(*i*) Four intense low-pressure systems, one severe cyclonic storm, two deep depressions and one depression formed over the Bay of Bengal in the hot weather season 2022 (March to May). The first intense low-pressure system of this year was the deep depression over southwest Bay of Bengal and adjoining Equatorial Indian Ocean during 3-6 March, followed by another deep depression (20-23 March), severe cyclonic storm (SCS) "ASANI" (7-12 May) and a depression (20-21 May).

(*ii*) The hot weather season 2022 with reference to severe *heat wave/heat wave* conditions was intense and arrived early in the beginning of March and persisted through April unto mid-May.

(*iii*) Rainfall in the month of March for the country was subdued; in April it was normal and above normal in the month of May.

(*iv*) Thunderstorms/hailstorms were infrequent in March and April over the country and were observed over the Peninsular India, Northeastern states and adjoining Eastern India in the month of May.

(*v*) Southwest Monsoon advanced into some parts of south Bay of Bengal, Nicobar Islands and Andaman sea on 16 May, 2022. It reached Kerala on 29 May, three days earlier than its normal date, *i.e*., 1 June.

2. Seasonal rainfall

The sub-division wise rainfall and its departure from normal for each month and season as a whole are given in Table 1. The sub-divisional rainfall departures for the season March-May 2022 are also depicted in Fig. 1.

The seasonal rainfall for the country was exactly as the normal [100% of long period average (LPA)], while the rainfall in the months of March (30% of LPA) was less than normal, April (97% of LPA) was normal and May wetter than normal at 135% of LPA.

The seasonal rainfall over 7 sub-divisions recorded *large excess* rainfall, 3 sub-divisions *excess* rainfall, 9 *normal* and *deficient* rainfall each, 8 sub-divisions observed *large deficient* precipitation and no subdivision observed zero *rainfall.*

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

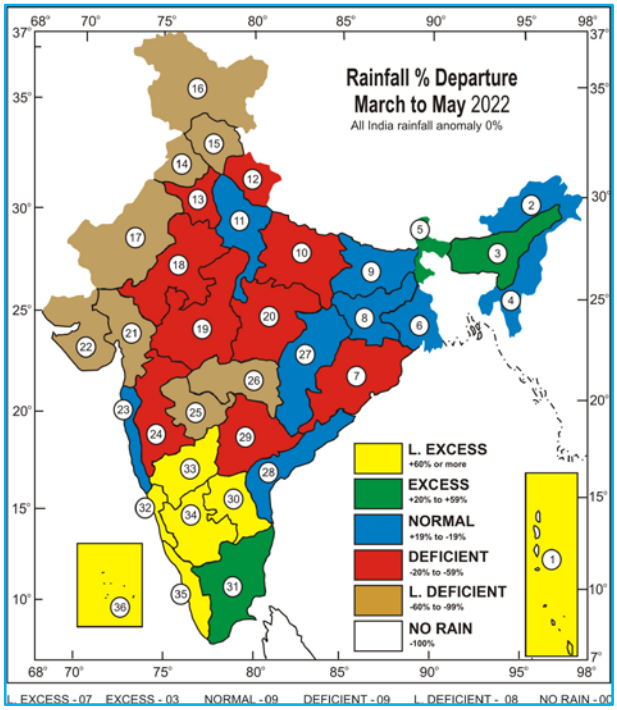

Fig. 1. Sub-divisional rainfall percentage departures (based on Operational data) for the season Mar-May, 2022. Sub-divisions are indicated by number on the map & bold letters in legend. The rainfall anomaly values for these 36 sub-divisions are indicated below :

1	72	**7**	-29	**13**	-20	**19**	-52	**25**	-84	**31**	33
2	11	**8**	-13	**14**	-62	**20**	-46	**26**	-85	**32**	113
3	55	**9**	4	**15**	-72	**21**	-99	**27**	-9	**33**	105
4	-12	**10**	-29	**16**	-70	**22**	-97	**28**	19	**34**	124
5	34	**11**	-15	**17**	-78	**23**	-10	**29**	-33	**35**	86
6	-18	**12**	-32	**18**	-47	**24**	-36	**30**	60	**36**	95

†*Compiled by* : A. Kashyapi, P. R. Abhang, V. K. Shripad and J. G. Sonar, Weather Forecasting Division, Pune – 411 005, India

TABLE 1

Sub-division rainfall (mm) for each month and season as a whole (March-May, 2022)

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	132.7	38.2	247%	44.1	79.3	-44%	606.5	338.4	79%	783.3	455.9	72%
2.	Arunachal Pradesh	77.4	171.3	-55%	432.9	301.0	44%	327.9	285.0	15%	838.2	757.3	11%
3.	Assam & Meghalaya	47.2	74.2	-36%	341.8	193.0	77%	516.4	315.4	64%	905.4	582.6	55%
4.	Naga., Mani., Mizo. and Tri.	29.6	59.5	-50%	100.0	141.3	-29%	289.6	276.2	5%	419.2	477.0	-12%
5.	S.H.W.B. & Sikkim	42.4	56.7	-25%	232.7	124.2	87%	314.2	257.5	22%	589.3	438.4	34%
6.	Gangetic West Bengal	0.4	25.5	-98%	4.8	48.8	-90%	148.3	113.6	31%	153.5	187.9	-18%
7.	Orissa	0.7	20.1	-96%	12.9	36.2	-64%	77.1	72.3	7%	90.8	128.6	-29%
8.	Jharkhand	1.5	14.7	-90%	1.6	19.8	-92%	69.1	48.8	42%	72.2	83.3	-13%
9.	Bihar	0.1	8.2	-99%	10.8	18.0	-40%	78.0	59.1	32%	88.9	85.3	4%
10.	East Uttar Pradesh	0.0	7.5	-100%	0.0	6.1	-100%	23.7	20.0	19%	23.7	33.6	-29%
11.	West Uttar Pradesh	0.0	10.5	-99%	0.0	6.2	-100%	27.8	16.0	74%	27.9	32.7	-15%
12.	Uttarakhand	2.2	54.3	-96%	7.7	39.3	-80%	97.6	64.6	51%	107.5	158.2	-32%
13.	Haryana, Chandigarh & Delhi	0.2	15.1	-99%	0.5	9.5	-95%	35.2	20.4	73%	35.9	45.0	-20%
14.	Punjab	0.4	22.5	-98%	0.4	14.4	-97%	20.1	17.3	16%	20.9	54.2	-62%
15.	Himachal Pradesh	5.7	113.4	-95%	8.5	64.0	-87%	53.9	63.3	-15%	68.1	240.7	-72%
16.	Jammu & Kashmir and Ladakh	18.3	152.9	-88%	21.5	99.6	-78%	59.7	77.5	-23%	99.5	330.0	-70%
17.	West Rajasthan	1.3	4.3	-70%	0.3	5.9	-96%	3.9	14.5	-73%	5.4	24.7	-78%
18.	East Rajasthan	3.2	4.2	-24%	0.0	4.6	-99%	8.0	12.4	-36%	11.2	21.2	-47%
19.	West Madhya Pradesh	2.7	4.7	-43%	0.0	2.4	-99%	3.8	6.4	-40%	6.5	13.5	-52%
20.	East Madhya Pradesh	0.7	10.8	-93%	0.2	5.2	-96%	11.9	7.7	55%	12.8	23.7	-46%
21.	Gujarat Region	0.0	0.3	-95%	0.0	0.9	-97%	0.0	4.3	-99%	0.0	5.5	-99%
22.	Saurashtra & Kutch & Diu	0.0	0.2	-100%	0.0	0.5	-95%	0.1	2.4	-97%	0.1	3.1	-97%
23.	Konkan & Goa	1.3	2.2	-43%	7.8	1.8	333%	17.3	25.4	-32%	26.4	29.4	-10%
24.	Madhya Maharashtra	2.8	3.3	-15%	6.3	6.0	6%	7.9	17.1	-54%	17.0	26.4	-36%
25.	Marathawada	1.0	6.8	-86%	0.5	5.4	-91%	2.7	13.4	-80%	4.2	25.6	-84%
26.	Vidarbha	0.0	10.5	-99%	0.6	6.7	-91%	3.5	9.8	-64%	4.1	27.0	-85%
27.	Chhattisgarh	0.9	9.1	-91%	9.3	11.5	-19%	23.5	16.4	43%	33.6	37.0	-9%
28.	Coastal A.P. & Yanan	3.5	13.9	-75%	5.5	23.9	-77%	105.6	58.4	81%	114.7	96.2	19%
29.	Telangana	1.7	15.8	-89%	5.9	18.5	-68%	35.3	29.5	20%	42.9	63.8	-33%
30.	Rayalaseema	3.3	9.7	-65%	8.2	19.0	-57%	115.4	50.8	127%	126.9	79.5	60%
31.	Tamil Nadu, Pudcherry & Karaikal	12.1	19.9	-39%	65.1	38.7	68%	89.3	66.3	35%	166.6	124.9	33%
32.	Coastal Karnataka	19.6	9.3	111%	58.2	29.1	100%	253.1	116.8	117%	330.9	155.2	113%
33.	North Interior Karnataka	7.5	8.4	-11%	41.8	23.3	80%	113.6	47.9	137%	162.9	79.6	105%
34.	South Interior Karnataka	18.6	12.6	48%	72.5	43.1	68%	228.4	87.1	162%	319.5	142.8	124%
35.	Kerala & Mahe	47.5	34.4	38%	195.7	105.5	85%	426.2	219.1	95%	669.3	359.0	86%
36.	Lakshadweep	10.6	16.7	-37%	100.6	29.4	242%	273.0	150.9	81%	384.2	197.0	95%

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

TABLE 2

Details of the weather systems during March 2022

S. No.	System	Duration	Place of initial location	Direction of movement	Place of final location	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
(**A**)	*Low Pressure area / Depression*					
1.	Deep Depression	3(0530 hours IST) - 6(0830 hours IST)-	Southwest Bay of Bengal and adjoining equatorial Indian ocean	North	Southwest Bay of Bengal	A cyclonic circulation lay over Strait of Malacca and neighbourhood from 26 Feb. under its influence, a low pressure area formed over southeast Bay of Bengal and adjoining area of south Andaman sea and equatorial Indian ocean on 28 February evening. Details are given in the article on 'Storms and depression over north Indian ocean 2022
2.	Do	20(0530 hours IST) - 23(0830 hours IST)	Southeast Bay of Bengal and adjoining south Andaman Sea	Do	Coastal Myanmar and adjoining eastcentral Bay of Bengal	Under the influence of cyclonic circulation over southeast, adjoining southwest Bay of Bengal and equatorial Indian ocean which extended up to 5.8 km above m.s.l. on 10. Equatorial Indian Ocean & adjoining southeast Arabian Sea LPA formed. Details are given in the article on 'Storms and depression over north Indian ocean 2022
(**B**)	*Western disturbances/eastward moving systems*					
(*i*)	*Upper air cyclonic circulation*					
1.	Between 3.1 and 4.5 km above m.s.l.	3-5	North Pakistan and neighbourhood	East	Jammu-Kashmir and Ladakh	Initially it lay as a trough in middle tropospheric westerlies with its axis at 5.8 km above m.s.l. ran roughly along Long. 64° E to the north of Lat. 26° N on 2 March. Became less marked on 5. The trough moved away east northeastwards on 6
2.	Do	6-7 morning	West Afghanistan and neighbourhood	Do	East Afghanistan and neighbourhood	Initially it lay as a trough in middle and upper tropospheric westerlies on 5. It lay as a trough in middle and upper tropospheric westerliesand moved away east-northeastwards on 8
3.	Between 3.1 and 4.5 kms above m.s.l.	10	North Haryana and neighbourhood	Do		Initially it lay as a trough in middle and upper tropospheric westerlies with its axis at 5.8 km above m.s.l. on 8th. The cycir became less marked on 11. The trough aloft became less marked on 15
4.	At 5.8 kms above m.s.l.	24	North west Rajasthan and neighbourhood	Do	Along Long. 75° E to the north of Lat. 30° N	Initially it lay as a trough in mid-tropospheric westerlies with its axis at 5.8 km above m.s.l. ran roughly along Long. 63° E to the north of Lat. 30° N on 23. It became less marked on 25. The trough aloft moved away northeastwards on 26
(*ii*)	*As a trough*					
1.	At 5.8 kms Above m.s.l.	18-19	Long. 60° E and to the north of Lat. 28° N	East	Along Long. 91° E to the north of Lat. 26° N	It lay as cyclonic circulation over central Pakistan and neighbourhood between 3.1 km and 4.5 km above m.s.l. to the north of Lat. 25° N on 20. It lay as a trough in lower and middle tropospheric westerlies with its axis at 3.1 km above m.s.l. ran roughly along Long. 77° E to the north of Lat. 26° N on 21. It moved away east-northeastwards on 24

TABLE 2 (*Contd*.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
2.	At 3.1 kms Above m.s.l.	30	Roughly along Long. 89° E to the north of Lat. 26° N	Eastnortheast		Moved away east-northeastwards on 31
(*ii*)	*As an Induced/Low/cyclonic circulation*					
1.	Up to 1.5 km above m.s.l.	2-4	Southwest Rajasthan and adjoining Pakistan	Northeast	Northeast Rajasthan and neighbourhood	Became less marked on 5
2.	Do	6-7	South Pakistan and adjoining southwest Rajasthan	Stationary	*In situ*	Became less marked on 8
3.	Up to 2.1 kms above m.s.l.	9	Southwest Rajasthan and neighbourhood	East	Southeast Rajasthan and neighbourhood	Became less marked on 10
4.	Upto 1.5 km a.s.l.	18-21	Central Pakistan and adjoining west Rajasthan	Northeast	Haryana and neighbourhood	Became less marked on 22
(**C**)	*Other upper air cyclonic circulations*					
1.	At 0.9 kms above m.s.l.	1	North Odisha and neighbourhood	Stationary	*In situ*	Became less marked on 2
2.	At 1.5 km above m.s.l.	1	Marathwada and neighbourhood on 1	Do	Do	Became less marked on 2
3.	Do	4	North Bangladesh and neighbourhood	Do	Do	Became less marked on 5
4.	At 3.1 km above m.s.l.	8	Southeast Arabian Sea, off Kerala coast	Do	Do	Became less marked on 9
5.	Between 3.1 and 4.5 km above m.s.l.	7-8	South Bangladesh and neighbourhood	Northeast	East Bangladesh and neighbourhood	Became less marked on 9
6.	Between 2.1 and 3.1 km above m.s.l.	8	North Gujarat and neighbourhood	Stationary	*In situ*	Became less marked on 9
7.	Between 3.1 and 3.6 km above m.s.l.	9	South Tamil Nadu and neighbourhood	Do	Do	Became less marked on 10
8.	Upto 0.9 kms above m.s.l.	13	South Chhattisgarh and neighbourhood	Do	Do	Became less marked on 14
9.	Between 3.1 and 5.8 km above m.s.l.	12-13	North Bihar and neighbourhood	East	Sub Himalayan West Bengal and Sikkim	Became less marked on 14
10.	Between 1.5 and 2.1 km above m.s.l.	12	East Bangladesh and neighbourhood between 1.5 and 2.1	Stationary	*In situ*	Became less marked on 16
11.	Between 3.1 and 5.8 km above m.s.l.	15	Southeast Uttar Pradesh and adjoining Bihar	Do	Do	Became less marked on 16
12.	Do	15	Southeast Uttar Pradesh and adjoining Bihar	Do	Do	Became less marked on 16
13.	up to 0.9 km above m.s.l.	18-21	East Vidarbha and neighbourhood	East	South Chhattisgarh and neighbourhood	Became less marked on 22
14.	At 1.5 kms above m.s.l.	22-24	Central parts of Madhya Maharashtra and neighbourhood	Stationary	*In situ*	Became less marked on 25

TABLE 2 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
15.	Upto 5.8 km above m.s.l.	24-26	Southeast Arabian Sea and adjoining Lakshadweep area	West	Southeast Arabian Sea and adjoining southwest Arabian Sea	Became less marked on 27
16.	At 0.9 km above m.s.l.	24-31	North Pakistan and adjoining Punjab	West	Haryana and neighbourhood	Became less marked on 1 April
17.	Up to 0.9 kms above m.s.l.	30 Mar - 2 Apr	Uttar Pradesh & neighbourhood	Southeast	Jharkhand & neighbourhood	Became less marked on 3 April
18.	Do	31 Mar - 1 Apr	Gulf of Mannar and neighbourhood	Stationary	*In situ*	Became less marked on 2 April
(D)	*East west trough*					
1.	Upto 1.5 km above m.s.l.	17	From low pressure area over southeast Bay of Bengal and east equatorial Indian ocean to south Tamil Nadu	Stationary	*In situ*	Became less marked on 18
(E)	*Trough in easterlies/Trough of low*					
1.	Between 3.1 and 3.6 km above m.s.l.	8-9	From southeast Arabian Sea off Kerala coast to Konkan coast	East	From Kerala to north Madhya Maharashtra	Itbecame less marked on 10
2.	At 0.9 km above m.s.l.	18	From the cyclonic circulation over east Vidarbha and neighbourhood to south Tamil Nadu	Stationary	*In situ*	Became less marked on 19
(F)	*North-South troughs/Wind Discontinuity/other troughs*					
1.	Up to 1.5 km above m.s.l.	8	From south Konkan and Goa to the cyclonic circulation over south Rajasthan and neighbourhood	Stationary	*In situ*	Became less marked on same day
2.	At 0.9 km above m.s.l.	11-12	From north Kerala to south Chhattisgarh	Oscillatory	From north interior Karnataka to south Chhattisgarh	Became less marked on 13
3.	At 1.5 kms above m.s.l.	16-17	From east Bihar to north Odisha	Do	From Gangetic West Bengal to Telangana	Became less marked on 18
4.	Do	19	From central parts of Uttar Pradesh to north interior Karnataka	Stationary	*In situ*	Became less marked on 20
5.	At 0.9 km above m.s.l.	20	From the cyclonic circulation over southeast Madhya Pradesh and neighbourhood to north interior Karnataka	Do	Do	Became less marked on 21
6.	Upto 1.5 km above m.s.l.	22	From north Chhattisgarh to Telangana	Do	Do	Became less marked on 23
7.	At 0.9 kms a.s.l.	25 Mar - 10 Apr	From west Vidarbha to Comorin area	Oscillatory	From west Vidarbha to south interior Karnataka	Became less marked on 11 April
8.	At 1.5 kms above m.s.l.	31 Mar - 2 Apr	From east Bihar to northwest Bay of Bengal	Do	From east Bihar to north Odisha	Became less marked on 3 April

TABLE 3

Details of the weather systems during April 2022

S. No.	System	Duration	Place of initial location	Direction of movement	Place of final location	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
(**A**) *Western Disturbances / Eastward moving systems*						
(*i*) *Upper air cyclonic circulation*						
1.	At 3.1 kms above m.s.l.	12-14	Afghanistan and neighbourhood	East	Jammu- Kashmir & Ladakh and neighbourhood	Initially it lay as a trough with its axis at 5.8 km above m.s.l. ran roughly along Long. 50° E to the north of Lat. 25° N on 10. Became less marked on 15. However, trough aloft became lee marked on 16
2.	Between 3.1 and 5.8 kms above m.s.l.	17-21	Iran	Do	Roughly along Long. 67° E to the north of Lat. 18° N	It then lay as trough in mid and upper tropospheric westerlies with its axis at 5.8 km above m.s.l. ran roughly along Lat. 68° E to the north of 20° N. Moved away east-northeastwards on 25
(*ii*) *As a trough*						
1.	Between 1.5& 3.1 km above m.s.l.	3	Roughly along Long. of 89° E to Lat. of 20° N	Stationary	*In situ*	Moved away east northeastwards on 4
2.	At 5.8 kms above m.s.l.	1	Roughly along Long. 52° E to the north of Lat. 30° N	East	Roughly along Long. 70° E to the north of Lat. 32° N	Moved away east northeastwards on 4
3.	At 3.1 kms above m.s.l.	6-10	Roughly along Long. 88° E to the north of Lat. 22° N	Stationary	*In situ*	Moved away northeastwards on 11
4.	At 5.8 km above m.s.l.	24-27	Roughly along Long. 52° E to the north of Lat. 22° N	East northeast	Long. 88° E to the north of Lat. 26° N	It then lay as a cyclonic circulation over Meghalaya and neighbourhood at 5.8 km above m.s.l. which became less marked on 29th
5.	Do	28-30	Roughly along Long. 58° E to the north of Lat. 22° N	Northeast	Roughly along Long. 71° E to the north of Lat. 28° N	Moved away east northeastwards on 1 May
(*iii*) *As an Induced cyclonic circulation*						
1.	Up to 1.5 km above m.s.l.	2-3	West Rajasthan and adjoining central Pakistan	Northeast	Punjab and neighbourhood	Became less marked on 4
(**B**) *Other upper air cyclonic circulations*						
1.	Upto 0.9 km above m.s.l.	1-2	Northeast Bangladesh and neighbourhood	Stationary	*In situ*	Became less marked on 3
2.	Upto 1.5 km above m.s.l.	3	South Tamil Nadu and neighbourhood	Do	Do	Became less marked on 4
3.	Do	3	Southeast Madhya Pradesh and neighbourhood	Do	Do	Became less marked on 4
4.	Upto 0.9 km above m.s.l.	5-7	North Chhattisgarh and neighbourhood	East	Southeast Madhya Pradesh and neighbourhood	Became less marked on 8
5.	Upto mid tropospheric level	6-18	South Andaman sea and neighbourhood	Do	South Arabian Sea	Became less marked on 19
6.	Upto 0.9 km above m.s.l.	6	Gulf of Mannar and neighbourhood	Stationary	*In situ*	Became less marked on 7

TABLE 3 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
7.	Upto 1.5 km above m.s.l.	7	Jharkhand and adjoining Gangetic West Bengal	Stationary	*In situ*	Became less marked on 8
8.	Between 1.5 and 3.1 km	7-8	Sri Lanka and neighbourhood	East		Merged with the cyclonic circulation over southwest Bay of Bengal on 9
9.	At 0.9 kms above m.s.l.	11	West Assam and neighbourhood	Stationary	*In situ*	Became less marked on 12
10.	Upto 0.9 km above m.s.l.	11-14	East Uttar Pradesh and neighbourhood	North	Northeast Uttar Pradesh and neighbourhood	Became less marked on 15
11.	At 0.9 km above m.s.l.	16	West Assam and neighbourhood	Stationary	*In situ*	Became less marked on 17
12.	Upto 0.9 km above m.s.l.	15-19	Northwest Rajasthan and adjoining Pakistan	Northeast	North Haryana and neighbourhood	Became less marked on 20
13.	Upto 1.5 kms above m.s.l.	19	Jharkhand and neighbourhood	East	Jharkhand and adjoining of Gangetic West Bengal and north Odisha	Became less marked on 20
14.	Between 1.5 and 3.6 kms above m.s.l.	17-20	Westcentral and adjoining areas of southwest Bay of Bengal off south Andhra Pradesh-north Tamil Nadu coasts	Stationary	South Tamil Nadu coast and neighbourhood	Became less marked on 21
15.	At 0.9 kms above m.s.l.	19-24	East Uttar Pradesh and neighbourhood	South	Southeast Madhya Pradesh and adjoining Chhattisgarh	Became less marked on 25
16.	At 1.5 kms above m.s.l.	21	Meghalaya and neighbourhood	Stationary	*In situ*	Became less marked on 22
17.	Upto 1.5 kms above m.s.l.	21	North Pakistan and adjoining Punjab	Do	Do	Became less marked on 22
18.	Between 0.9 and 1.5 kms above m.s.l.	22	Southwest Rajasthan and adjoining Pakistan	Do	Do	Became less marked on 23
19.	At 1.5 kms above m.s.l.	23	Sri Lanka and neighbourhood	Do	Do	Became less marked on 24
20.	At 0.9 km above m.s.l.	25	Sri Lanka and neighbourhood	Do	Do	Became less marked on 26
21.	Between 1.5 and 3.6 kms above m.s.l.	26	Equatorial Indian Ocean and adjoining southeast Bay of Bengal	Do	Do	Became les marked on 27
22.	At 0.9 km above m.s.l.	26	North Bangladesh and neighbourhood	Do	Do	Became less marked on 27
23.	Upto 0.9 kms above m.s.l.	27	Bihar and neighbourhood	Do	Do	Became less marked on 28
24.	Do	28	East Uttar Pradesh and neighbourhood	Do	Do	Became less marked on 29
(C)	*North-South troughs / Wind Discontinuity / other troughs*					
1.	At 0.9 km above m.s.l.	10-11	From west Uttar Pradesh to central parts of Madhya Pradesh	Oscillatory	From the cyclonic circulation over east Uttar Pradesh to west Vidarbha	Became less marked on 12
2.	At 0.9 km above m.s.l.	12	From west Vidarbha to North interior Karnataka	Do	From Vidarbha to north interior Karnataka	Became less marked on 18

TABLE 3 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	Between 1.5 and 2.1 km above m.s.l.	13-16	From Long. 88° E to the north of Lat. 25° N	Oscillatory	From Long. 90° E to the north of Lat. 22° N	Became less marked on 17
4.	Upto 0.9 km above m.s.l.	17	From the cyclonic circulation over northwest Rajasthan and neighbourhood to northwest Madhya Pradesh	Stationary	*In situ*	Became less marked on 18
5.	At 0.9 km above m.s.l.	19	From the cyclonic circulation over Jharkhand to west Assam	Do	Do	Became less marked on 20
6.	Do	19-22	From Telangana to south Tamil Nadu across Rayalaseema	Oscillatory	From north interior Karnataka to Gulf of Mannar	Became less marked on 23
7.	Upto 1.5 km above m.s.l.	21	From the cyclonic circulation over northeast Madhya Pradesh to Telangana	Stationary	*In situ*	Became less marked on 22
8.	Do	23-26	Along Long. 86° E to the north of Lat. 20° N	Oscillatory	Along Long. 89° E to the north of Lat. 22° N	Became les marked on 27
9.	At 0.9 km above m.s.l.	24 Apr - 7 May	From the cyclonic circulation over southeast Madhya Pradesh and adjoining Chhattisgarh to north interior Karnataka	Do	From the cyclonic circulation over Vidarbha to south interior Karnatakaa	Became less marked on 8 May
(**D**)	*Trough in easterlies*					
1.	At 0.9 km above m.s.l.	13	From the central parts of south Uttar Pradesh to south Assam	Stationary	*In situ*	Became less marked on 14
2.	Do	20	From the cyclonic circulation over east Uttar Pradesh to central Bangladesh	Do	Do	Became less marked on 21
3.	Do	20	From Gangetic West Bengal to south Chhattisgarh	Do	Do	Became less marked on 21
4.	Do	28-30 Apr	From the cyclonic circulation over east Uttar Pradesh to south Assam	Oscillatory	From west Uttar Pradesh to Gangetic West Bengal	Became less marked on 1 May

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 chief amounts of rainfall are given in Table 5.

The month of March 2022 was unusual with respect to cyclonic activity, the formation of two deep depressions in the month of March 2022 over Bay of Bengal was a rare phenomenon and landfall of one over Myanmar occurred for the first time. Climatologically, cyclogenesis of a cyclonic disturbance over north Indian ocean (NIO) in the month of March is an uncommon phenomenon, and the probability of landfall is very less. During March of 1891-2021, eight cyclonic disturbances had developed

over NIO, two over Arabian Sea and six over Bay of Bengal. Out of these one crossed north Tamil Nadu as a cyclonic storm, another crossed Sri Lanka as a severe cyclonic storm while the remaining six weakened over the sea.

The first intense cyclonic disturbance for the year 2022 was a deep depression over southwest Bay of Bengal and adjoining Equatorial Indian Ocean which gradually weakened into a well-marked low-pressure area over southwest Bay of Bengal on 6 March 2022. Under the influence of this system, light to moderate rainfall occurred over Tamil Nadu and Puducherry on 4 and 5 March. Another deep depression formed over the Bay of Bengal during 20-23 March 2022. This system moved northwards and crossed Myanmar coast on 22 March. The rainfall due to this system occurred mainly over the sea area throughout its life period, however widespread rainfall occurred over Long Island and Port Blair on 21st March.

The rainfall over the country was the third lowest since 1901 in the month of March which was 30% of LPA, *i.e.*, deficient by 70% when all the homogenous regions too recorded deficient rainfall. Absence of active western disturbances, lack of any major system in easterly over south India and absence of lower level southwesterly or southerly wind convergence to northeast India from Bay of Bengal caused subdued rainfall and very less thunderstorm activities in the month over most parts of India. Absence of rain-bearing western disturbances and subsidence because of anticyclones over western parts of Rajasthan resulted in early, persistent and intense heat waves in northwest and central India in this month.

3.1.2. *Temperature distribution*

(a) *Minimum temperatures*

No *Cold day* or *Cold wave* conditions were observed in this month.

The minimum temperatures over the northern parts of the country were *appreciably above normal* over Jammu - Kashmir & Ladakh, Punjab, Haryana, Chandigarh & Delhi, west Rajasthan and Chhattisgarh. The night temperatures were generally *above normal* over north Maharashtra, south Gujarat, Uttar Pradesh and Meghalaya sub-divisions, while they were generally normal over south peninsular region and the rest of the country.

The months and the season's lowest minimum temperature over the plains was 6.8 °C on 1 March 2022, reported at Nowgong (east Madhya Pradesh).

(b) *Maximum temperatures*

The average maximum temperature recorded in March 2022 were the highest in past 122 years (1901-2022*). Severe heat wave/heat wave* conditions were experienced from the second week of the month over the Northwest, Central India and more frequently over west Rajasthan, Himachal Pradesh, Saurashtra and Kutch subdivisions. The sub-divisions like Himachal Pradesh, Jammu- Kashmir & Ladakh and Uttarakhand in the Himalayan region in experienced an unusual event of intense severe heat waves / heat waves in the second fortnight of the month.

The maximum temperatures were generally *above normal* over the country outside the south Peninsular region. They were appreciably above normal over Uttarakhand, Rajasthan, north Gujarat, Chhattisgarh and all the northeast subdivisions. Jammu and Kashmir& Ladakh, Punjab, Haryana, Chandigarh and Delhi experienced markedly above normal temperatures.

The month's highest maximum temperature over the plains was 44.2°C, reported at Chandrapur (Vidarbha) on 30 March 2022.

3.1.3. *Disastrous weather events and damage*

As per media reports, one person died due to heat wave at Jalgaon district of Maharashtra. Unseasonal rains with thunder and lightning caused damage to *rabi* crops *viz.* wheat, gram, maize and banana plantations over 5,500 hectares of land in Jalgaon, Dhule, Nasik districts of north Maharashtra.

3.2. *April*

3.2.1. *Weather and associated synoptic features*

The details of the weather systems during the month are given in Table 3 and the principal amounts of rainfall are given in Table 5.

The monthly rainfall over the country was 97% of LPA with 18 sub-divisions (59% area of the country) recording *large deficient* rainfall, 4 sub-divisions recorded deficient, 2 sub-divisions recorded *normal*, 1 *excess* rainfall, 9 sub-divisions observed *large excess* rainfall while 2 sub-divisions received no rainfall.

The homogenous regions of northwest (18% of LPA) and central India (43% of LPA) recorded remarkably below normal rainfall, east and northeast India (133% of LPA) rainfall and south peninsular region (134% of LPA) experienced *above normal* rainfall.

TABLE 4

Details of the weather systems during May 2022

S. No.	System	Duration	Place of initial location	Direction of movement	Place of final location	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
(**A**) *Cyclonic storm / Depression*						
1.	Severe Cyclonic Storm 'Asani'	7 (1130 hours IST) - 12 (0830 hours IST)	Southeast Bay of Bengal and adjoining south Andaman sea	Northwest	Westcentral Bay of Bengal close to Andhra Pradesh coast	Under the influence of cyclonic circulation over south Andaman sea and neighbourhood, a low pressure area formed on 6, morning. Details are given in the article on 'Storms and depression over north Indian ocean 2022'
2.	Depression	20 (0830 IST) - 21 (0530 IST)	Gulf of Martaban and adjoining Myanmar	North-northeast	South coastal Myanmar and adjoining Thailand	Under the influence of cyclonic circulation over Gulf of Martaban and adjoining Myanmar a low pressure formed over the same region. Became insignificant for the Indian region on 21. Details are given in the article on 'Storms and depression over north Indian ocean 2022'
(**B**) *Western Disturbances/Eastward moving Systems*						
(*i*) *Upper air cyclonic circulation*						
1.	At 5.8 kms above m.s.l.	16-18	Central Pakistan	East	South Rajasthan	Initially it lay as a trough roughly along Long. 55ºE and Lat. 30ºN on 14. The cycir became less marked on 19
2.	At 3.1 kms above m.s.l	19-22	Afghanistan and neighbourhood	Northeast	North Pakistan, adjoining Jammu-Kashmir and Ladakh	Initially it lay as a trough roughly along Long. 55ºE and Lat. 32ºN on 18. The cyclonic circulation lay as a trough which moved away northeastwards on 24
3.	Do	23-26	Iran and neighbourhood	East	Roughly along Long. 63° E to the north of Lat. 32° N	It then lay as a trough in mid and upper tropospheric westerlies. It lay as a cyclonic circulation over north Pakistan and neighbourhood on 30 and then it lay as a trough which moved away northeastward on 1 June
(*ii*) *As a trough*						
1.	At 5.8 kms above m.s.l.	1-3	Along Long. 55° E to the north of Lat. 20° N	Northeast	Along Long.65° E to the north of Lat. 25° N	It lay as a cyclonic circulation over north Pakistan and neighbourhood on 4. It lay as a trough in mid and upper tropospheric westerlies with its axis at 5.8 km above m.s.l. roughly along Long. 75° E to the north of Lat. 32° N on 5. which moved away northeastward on 9
2.	Do	5-6	Roughly along Long. 62° E to the north of Lat. 30° N	East northeast	Roughly along Long. 78° E to the north of Lat. 32° N	Moved away northeastward on 7
3.	Do	9-12	Along Long. 52° E to the north of Lat. 30° N	East	Roughly along Long. 67° E to the north of Lat. 32° N	Became less marked on 13
4.	Between 1.5 & 3.1 kms above m.s.l.	19	Roughly along Long. 87° E to the north of Lat. 22	Northeast		It became less marked on 20

TABLE 4 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
5.	At 5.8 kms above m.s.l.	25-29	Roughly along Long. 84° E to the north of Lat. 22° N	Eastnortheast	Roughly along Long. 89° E to the north of Lat. 28° N	Initially it lay as a trough in mid and upper tropospheric levels with its axis at 5.8 km above m.s.l. ran roughly along Long. 63° E to the north of Lat. 35° N on 22. It then lay as a cyclonic circulation over north Pakistan and neighbourhood on 23. It moved away northeastwards on 30
6.	Do	30	Roughly along Long. 85° E to north of Lat. 25° N	Northeast		It moved away northeastwards on 31
7.	Do	31 May - 3 June	Along Long. 65° E to the north of Lat. 32° N	East	Roughly along Long. 73° E to the north of Lat. 32° N	It became less marked on 16
(*iii*)	*As an Induced/Low/cyclonic circulation*					
1.	Induced low pressure area	23	Northwest Rajasthan and neighbourhood	Stationary	*In situ*	Initially it lay as a cyclonic circulation over Punjab and neighbourhood which extended up to 0.9 km above m. s. l. on 22 the induced low became less marked on 24. The associated cycir became less marked on 25
2.	At 1.5 kms above m.s.l.	30-31	Northwest Rajasthan and adjoining Pakistan	Northeast	Haryana and neighbourhood	It became less marked on 1 June
(**C**)	*Other upper air cyclonic circulations*					
1.	Upto 1.5 kms above m.s.l.	1-4	Southeast Uttar Pradesh and neighbourhood	Stationary	*In situ*	It became less marked on 5
2.	At 0.9 kms above m.s.l.	5	Northwest Madhya Pradesh and neighbourhood	Do	Do	It became less marked on 6
3.	Do	6	South Haryana and neighbourhood	Do	Do	It became less marked on 7
4.	Between 3.1 km and 3.6 km above m. s. l.	6-7	Northeast Bangladesh and neighbourhood	Do	Do	Initially it lay as a trough along Long. 90° E to the north of Lat. 20° N on 5. The cycir became less marked on 8
5.	At 0.9 kms above m.s.l.	6-7	Southeast Madhya Pradesh and neighbourhood	South	Vidarbha and neighbourhood	It became less marked on 8
6.	Do	8	South coastal Andhra Pradesh and neighbourhood	Stationary	*In situ*	It became less marked on 9
7.	Upto 1.5 kms above m.s.l.	8	Northwest Madhya Pradesh and neighbourhood	Do	Do	It became less marked on 9
8.	Between 1.5 km and 2.1 km above m. s. l.	12-13	West Madhya Pradesh and neighbourhood	Do	Do	It became less marked on 14
9.	Between 3.6 km and 5.8 km above m.s.l.	16	Lakshadweep area and adjoining southeast Arabian Sea	Do	Do	It became less marked on 17
10.	At 1.5 kms above m.s.l.	16	Punjab and neighborhood	Do	Do	It became less marked on 17
11.	Between 1.5 & 3.1 kms Above m.s.l.	16-21	Southwest Bay of Bengal off north Tamil Nadu coast	West	Rayalaseema and neighbourhood	It became less marked on 22

TABLE 4 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
12.	At 3.1 kms above m.s.l.	21	Southeast Rajasthan and neighbourhood	Stationary	*In situ*	It became less marked on 22
13.	Upto 3.1 kms above m.s.l.	22	Coastal Odisha and neighbourhood	Do	Do	It became less marked on 23
14.	Upto 1.5 kms above m.s.l.	21	Northwest Rajasthan and neighbourhood	Southeast	Southwest Uttar Pradesh and neighbourhood	Merged with the trough from the cyclonic circulation over northwest Rajasthan to Gangetic West Bengal on 23rd morning
15.	Upto 3.1 kms above m.s.l.	24	North Jharkhand and neighbourhood	Stationary	*In situ*	Became less marked on 25
16.	At 3.1 kms above m.s.l.	25	Nagaland and neighbourhood	Do	Do	Became less marked on 26
17.	Upto 2.1 kms above m.s.l.	25	Haryana and neighbourhood	Southeast	northeast Rajasthan and neighbourhood	Became less marked on 26
18.	At 1.5 kms above m.s.l.	26	North Bihar and neighbourhood	Stationary	*In situ*	Became less marked on 27
19.	At 3.1 kms above m.s.l.	28	North Interior Karnataka and neighbourhood	Do	Do	Became less marked on 29
20.	At 0.9 kms above m.s.l.	28	North Odisha and neighbourhood	Do	Do	Became less marked on 29
21.	At 1.5 kms above m.s.l.	30	Jharkhand and neighbourhood	Stationary	Do	It became less marked on 31
22.	At 5.8 km above m.s.l	29-30	Kerala and neighbourhood	West	Southeast Arabian Sea off north Kerala-Karnataka coast	It became less marked on 31
(**D**)	*East-West trough/shear zone*					
1.	At 1.5 kms above m.s.l.	12-13	From the cyclonic circulation over west Madhya Pradesh to Bihar	Oscillatory	From the cyclonic circulation over west Madhya Pradesh to northeast Jharkhand	It became less marked on 14
2.	At 0.9 kms above m.s.l.	14	From Bihar to central Assam and Meghalaya	Stationary	*In situ*	It became less marked on 15
3.	Do	16-18	From west Uttar Pradesh to Jharkhand	Oscillatory	From northwest Rajasthan to west Assam	It became less marked on 19
4.	Do	21-23	From northwest Rajasthan to east Assam	Do	From an induced low pressure area over northwest Rajasthan and neighbourhood to north Bangladesh	It became less marked on 24
5.	At 0.9 km above m.s.l.	26 May - 4 Jun	From northwest Rajasthan to interior Odisha	Do	From the cyclonic circulation over southeast Uttar Pradesh to east Bangladesh	It became less marked on 5 June
(**E**)	*Other troughs / Wind Discontinuity*					
1.	At 0.9 km above m.s.l.	1-5	From northwest Rajasthan to north Chhattisgarh	Oscillatory	From the cyclonic circulation over northwest Madhya Pradesh to Meghalaya	It became less marked on 6
2.	Upto 1.5 kms above m.s.l.	9-12	From Punjab to northwest Madhya Pradesh	Do	From northwest Rajasthan to southeast Madhya Pradesh	Became less marked on 13

TABLE 4 (*Contd.*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	Upto 3.1 kms above m.s.l.	10-11	From the cyclonic circulation associated with Cyclonic Storm to north interior Karnataka	Stationary	*In situ*	It became less marked on 12
4.	At 3.1 km above m.s.l.	12	From east Bihar to north Odisha	Do	Do	It became less marked on 13
5.	Do	13-14	Roughly along Long. 88° E to the north of Lat. 22° N	Do	Do	Moved away northwards on 15
6.	At 0.9 kms above m.s.l.	15	From west Uttar Pradesh to southwest Madhya Pradesh	Do	Do	Became less marked on 16
7.	At 1.5 kms above m.s.l.	15-20	From Bihar to south Tamil Nadu	Oscillatory	From south Chhattisgarh to the cyclonic circulation over south interior Karnataka	Became less marked on 21
8.	At 0.9 kms above m.s.l.	20	From northwest Rajasthan to Vidarbha	Stationary	*In situ*	Became less marked on 21
9.	Upto 1.5 kms above m.s.l.	23-24	From an induced low-pressure area over northwest Rajasthan to northeast Arabian Sea	Oscillatory	From the cyclonic circulation over southwest Rajasthan and neighbourhood to northeast Arabian Sea	Became less marked on 25
10.	At 0.9 kms above m.s.l.	25-26	From north interior Karnataka to south Tamil Nadu	Do	From north interior Karnataka to Comorin area	Became less marked on 27
11.	Between 1.5 and 2.1 kms above m.s.l.	25	From east Bihar to north coastal Andhra Pradesh	Stationary	*In situ*	Became less marked on 26
12.	At 3.1 kms above m.s.l.	30	From the cyclonic circulation over southeast Arabian Sea off north Kerala-Karnataka coast to southwest Bay of Bengal	Do	Do	Became less marked on 31
13.	At 3.1 kms above m.s.l.	31 May - 3 Jun	Bangladesh	Southwest	North coastal Odisha, adjoining Gangetic West Bengal and northwest Bay of Bengal	Became less marked on 4 June

Under the influence of north-south troughs / wind discontinuities/cyclonic circulations in the lower tropospheric levels, enhanced moisture incursion due to strong south westerlies/southerlies, fairly widespread to widespread rainfall/thunderstorms occurred over southern parts of peninsular India. Troughs in lower tropospheric levels supported by moisture incursion from the Bay of Bengal caused isolated rainfall/thunderstorms over parts of northeast India and over Sub Himalayan West Bengal and Sikkim. Movement of western disturbances caused isolated to scattered rainfall/thunderstorms over western Himalayan Region during second fortnight of April, while there were reports of dust storms over Rajasthan and other plains of northwest India.

3.2.2. *Temperature distribution*

(a) *Minimum temperatures*

The minimum temperatures over India were generally *above normal* over the country outside south peninsular region. The night temperatures were appreciably above normal over sub-divisions of Punjab, Haryana, Chandigarh, Delhi, West Rajasthan and

TABLE 5

Some representative amounts of rainfall in cm for the months March, April and May 2022 (5 cm and above)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
1 Mar	IAF Carnicobar 8
2 Mar	Sabour 7
3 Mar	Nil
4 Mar	Nil
5 Mar	Nil
6 Mar	Nil
7 Mar	Mayiladuthurai and Sirkali 5 each
8 Mar	Tuticorin 10, Thoothukudi Port AWS 9
9 Mar	Kayalpattinam 7, Pratapgarh 6, Kumbhalgarh SR and Palluruthy ARG 5 each
10 Mar	Dhundhadaka 8
11 Mar	Nil
12 Mar	Nil
13 Mar	Nil
14 Mar	Nil
15 Mar	Nil
16 Mar	Cherthala 8
17 Mar	Punalur 7, Suralacode 5
18 Mar	Nil
19 Mar	Iaf Carnicobar 9, Car Nicobar and Konni ARG 7 each, Konni and Seethathode AWS 5 each
20 Mar	Hosdurg 5
21 Mar	Long Island 13, Tuting 7, Port Blair 5
22 Mar	Tuting, Mohanur and Vathalai Anaicut 6 each, Channapatna 5
23 Mar	Nil
24 Mar	Kammardi 9, Kodaikanal 8, Kothagudem, Pilavakkal, Rajapalayam and Palakkad 6 each
25 Mar	Mawsynram 10, Neryamangalam ARG 8, Silchar and Silchar AWS 7 each, Mani and Singhik 6 each, A P Ghat, Lakhipur, Karimganj, B P Ghat, Vellarikkundu AWS and Haflong AWS 5 each
26 Mar	Cherrapunji (rkm) 41, Mawsynram 40, Cherrapunji 18, Halflong 10, Haflong AWS 9, Drf, Majbat and Tamenglongi 8 each, Khliehriat 7, Goibargaon, Moranhat and Senapati 6 each, Tuting, Matijuri, Melabazar/Matunga and Majuli 5 each
27 Mar	Cherrapunji 15, Cherrapunji (rkm) 13, Shella 11, Pasighat AP 6, Mawsynram 5
28 Mar	Kamalpur, Kanjirappally, Kelvarkop and Neryamangalam ARG 5 each
29 Mar	Nil
30 Mar	Murnadu 6
31 Mar	Tikrikilla 8, Gyalsing PTO and Karimganj 7 each
1 Apr	Mawsynram 33, Cherrapunji 19, Cherrapunji (rkm) 14, Anini 12, Khliehriat and Jowai AWS 11 each, Mawkyrwat 10, Beki Mathungari, Jowai, Shella and Majbat 9 each, Goibargaon 8, Dhubri CWC, Williamnagar, Naharlagun AWS, Drf and Chengmari/Diana 7 each, Tura Kvk, Dhubri IMD, Yingkiong, Tuting, Mawphlang, Basar and Bhalukpong 6 each, Koloriang, Chauldhowaghat, N. lakhimpur/Lilabari, Pasighat AP, Hazuah, Itanagar and Gajoldoba 5 each
2 Apr	Mawsynram 39, Cherrapunji (rkm) 37, Cherrapunji 36, Shella 14, Alipurduar (CWC) and Alipurduar PTO 11 each, Tikrikilla and Barobhisha 7 each, Alwaye PWD, Gossaigaon and Chepan 6 each, Hawai and Amfu Pundibari 5 each
3 Apr	Gossaigaon 9, Devakottai 8, Ambasamudram, Koloriang, Cooch Behar and Singhik 6 each, Amfu Pundibari and Sankalan 5 each

TABLE 5 (*Contd.*)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
4 Apr	Mawsynram 40, Cherrapunji (rkm) 38, Mawkyrwat 24, Mawkyrwat ARG 21, Jowai and Mawphlang 19 each, Aie Nh Xing 16, Manash Nh Xing, Pasighat AP and Cherrapunji 15 each, Naharlagun and Khliehriat 13 each, Beky Rly.bridge, Barpeta, Naharlagun AWS and Roing 11 each, Itanagar 10, Ranganandi Nt Xing, Drf and N.lakhimpur/Lilabari 9 each, Cooch Behar, Dholla Bazar, Hawai, Kibithu, Goibargaon and Dhemaji 8 each, Majuli, Sankalan, Barpeta/Sarbhog AWS, Gohpur ARG, Majbat, Kokrajhar and Singhik 7 each, Anini, D/Mohanbari AP, Amfu Pundibari and Mangan 6 each, Nongstein, Panbari, Melabazar/Matunga, Chauldhowaghat, Gossaigaon and Kabi 5 each
5 Apr	Cherrapunji 43, Cherrapunji (rkm) 26, Mawsynram 15, Chepan, Dholla Bazar and Khliehriat 12 each, Alipurduar (CWC) and Alipurduar PTO 11 each, Itanagar 10, Kibithu, Barobhisha and Sankalan 9 each, Shella, Naharlagun AWS, Naharlagun, Roing and Tinsukia 8 each, Manash Nh Xing, Beky Rly.bridge, D/Mohanbari AP, Khowang, Singhik, Hawai, Anini, Badatighat and Amfu Pundibari 7 each, Mangan, Majbat, Pechiparai, Gohpur ARG, Melabazar/Matunga, N.lakhimpur/Lilabari, Aie Nh Xing, Hazuah, Barpeta and Tamulpur 6 each, Tura AWS, Gossaigaon, Drf, Shipgyar, Koloriang and Kabi 5 each
6 Apr	Alipurduar PTO and Alipurduar (CWC) 17 each, Amfu Pundibari 9, Goibargaon, Cherrapunji and Drf 7 each, Tamulpur, Khowang, Hawai, Melabazar/Matunga, Majbat, Roing and Itanagar 6 each, Hazuah, Majuli, Jorhat, Udalguri AWS and Mavelikara 5 each
7 Apr	Ranipool 12, Cooch Behar 11, Barpeta and Kurudamannil 9 each, Hasimara, Beky Rly.bridge and Ernakulam South 8 each, Tamulpur, Kochi IAF, Kotpad, Tadong and Hazuah 7 each, Melabazar/Matunga, Kottayam and Munnar Kseb 6 each, Badatighat and Chandgad 5 each
8 Apr	Gangtok 8, Shipgyar and Singhik 7 each, Basar, Sankalan and Kabi 6 each, Koloriang and Mangan 5 each
9 Apr	Kurudamannil 15, Thenmala ARG 9, Piravam and Kottayam 8 each, Kodaikanal, Peermade To, Kozha, Mancompu and Vaikom 7 each, Alapuzha, Karipur Ap., Kumarakam, Chandgad and Mavelikara 6 each, Mahe, Myladumpara ARG, Varkala, Cheranmahadevi and Sattur 5 each
10 Apr	Hazuah 13, Watrap and Mokokchang 12 each, Mokokchung AWS 11, Gudalur and Pakyong 10 each, Mavelikara, Ranipool and Kurudamannil 9 each, Goibargaon 8, Rongli, Kottayam, Neora, Hosdurg, Thodupuzha, Kochi IAF and Perumkadavila ARG 7 each, Bhaghmara, Melabazar/Matunga, Drf, Vellarikkundu AWS, Vaigai Dam, Kayamkulam ARG, Mimisal, Peraiyur, Konni ARG, Kozha and Ernakulam South 6 each, Pilavakkal, Beki Mathungari, Kurinjipadi, Vaikom, Kanjirappally, Palluruthy ARG and Kayamkulam 5 each
11 Apr	Bokajan 10, Bokakhat ARG 9, Wokha, Konni ARG, Vakkad AWS, Dholai and Zunheboto AWS 7 each, Konni, Mylaudy, Rameswaram, Jalpaiguri, Srivaikuntam, Aie Nh Xing and Dimapur AWS 6 each, Kottarakkara AWS, Amraghat, Matijuri, Kayalpattinam and Dimapur Nsdma AWS 5 each
12 Apr	Dhansiri 10, Kayathar, Kurudamannil, Periyakulam, Gudalur and Kadambur 9 each, Kayathar ARG 8, Mudukulatur 7, Diphu, Tamenglongi, Dimapur AWS, Palluruthy ARG, Srivaikuntam and Palayamkottai 6 each, Thiruchuzhi, Kumarakam, Ettayapuram, Jharnapani and Perumpavur 5 each
13 Apr	Dharapuram 15, Ayikudi 12, Sankarankoil 11, Thenkasi 10, Aryankavu 9, Sivagiri 8, Cherthala AWS, Kottayam and Pamban 7 each, Jowai, Nanguneri and Tiruvarur 6 each, Alipurduar PTO, Alipurduar (CWC), Tamenglongi, Tikrikilla, Veerapandi, Khliehriat, Radhapuram, Keerampara ARG, Sholavandan, Perunchani Dam and Seethathode AWS 5 each
14 Apr	Cherrapunji 17, Margherita 12, Khliehriat, Thiruthuraipoondi, Tiruvarur and Moranhat 10 each, Gohpur ARG, G Bazar, Cherrapunji (rkm) and Nahar Katia 9 each, Hosdurg, Itanagar, Udaipur, Mawsynram, Dhemaji, Tizit Nsdma AWS, Vakkad AWS and Koloriang 8 each, Pechiparai, Tinsukia, Sankalan, Quilandi, Vadakara, Majuli, Miao, Chittar, Namsai and Naharlagun AWS 7 each, Mani, Veerapandi, Manamadurai, Khowang, D/Mohanbari AP, Kudulu, Longleng Nsdma AWS, Hawai, Naharlagun and Puttur HMS 6 each, Barpeta/Sarbhog AWS, Virudhunagar, Dharmasthala, Kibithu, Kovilpatti, Sonari ARG, N.lakhimpur/Lilabari and Dhubri IMD 5 each
15 Apr	Mawsynram and Halflong 20 each, Cherrapunji (rkm) 19, Haflong AWS 13, Cherrapunji, Yercaud, Khliehriat and Jowai 12 each, Barobhisha 11, Tamenglongi and Padinjarathara Dam AWS 9 each, Tuting, Bhagamandala and Gossaigaon 8 each, Manantoddy and Upper Bhavani 7 each, Roing, Kokrajhar, Hirekerur, Omalur, Tiruppur, Hawai, Kibithu, Silchar and Aie Nh Xing 6 each, Parumbikulam, Bishnupur, Ketti, Anini, Empri, Itc Jala, Magadi, Turuvekere and Palakkad 5 each
16 Apr	Khliehriat 12, Cherrapunji, Dhemaji, Melabazar/Matunga, Halflong, Yingkiong, Jowai and Cherrapunji (rkm) 9 each, Itc Jala and Drf 8 each Uttamapalayam, Goibargaon, Kibithu and Hesaraghatta 7 each, Tamulpur and Tamenglongi 6 each, Uthukuli and Chittur 5 each
17 Apr	Halflong 18, Manamelkudi and Yingkiong 10 each, Mawsynram 9, Hirekerur 8, Hassan PTO, Kibithu, Cherrapunji, Cherrapunji (rkm) and Khliehriat 7 each, Jagdalpur, Hunchadakatte, Sorada, C R Patna, K.m.koil, Tuting, Hawai, Peravurani and Penucondapuram 6 each, Gossaigaon, Jagannath Prasad, Bengaluru City, Harapanahalli, Tyagarthi, Punganur, Mundgod and Kokrajhar 5 each
18 Apr	Cherrapunji 8, Idukki and Aryankavu 7 each, Bhavani, Puduchatram, Rameswaram, Cherrapunji (rkm), Mawsynram and Gangtok 6 each, Kamudhi, Edapadi, Ettayapuram, Nongstein and Tadong 5 each
19 Apr	Radhapuram and Seethathode AWS 6 each, 5 Ernakulam South, Neryamangalam ARG, Aryankavu, Perinthalamanna, Enamakkal and Chitradurga.

TABLE 5 (*Contd.*)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
20 Apr	Sabroom 10, Williamnagar 8, Tura Kvk, Tura AWS and Uravakonda 7 each, Imphal AP 6, Forbesganj and Barobhisha 5 each
21 Apr	Nil
22 Apr	Pakhanjur, Amraghat and Santhebennur 7 each, Chauldhowaghat and Haliyal 6 each, Dhekiajuli and Tensa 5 each
23 Apr	Tizit Nsdma AWS 10, Nagercoil, Thuckalay, Nazira ARG, Sonari ARG, Tura Kvk and Tura AWS 7 each, Kuzhithurai, Mahabaleshwar and Ranganandi Nt Xing 6 each, Ernakulam South, Kothagiri and Tirupuvanam 5 each
24 Apr	Itanagar 17, Naharlagun and Roing 12 each, Kodumudi and Naharlagun AWS 11 each, Piravam and Valparai Taluk Office 9 each, Mohanur and Ranganandi Nt Xing 8 each, Koloriang, Kabu Basti, Majuli and N.lakhimpur/Lilabari 7 each, Bhavani, Chinnakalar and Moranhat 6 each, Namakkal and Vaikom 5 each,
25 Apr	Tizit Nsdma AWS 10, Anini 6, Yingkiong and Karimganj 5 each
26 Apr	Shipgyar and Pernem 7 each, Gundala 6, Tuting 5
27 Apr	Kabi 6
28 Apr	Nil
29 Apr	7 - Lakshmeswar and Kerur; 5 - Beki Mathungari.
30 Apr	Tizit Nsdma AWS 7, Thakurganj, Panbari, Panagarh (IAF), Kakkayam AWS and Asansol 6 each, Srirangapatna 5
1 May	Kalyandrug 6
2 May	Amraghat 17, Perundurai 13, Mawsynram 9, Karimganj, Matijuri and Silchar AWS 8 each, Shidlaghatta, Silchar and Cherrapunji 7 each, Dholai, Mawkyrwat ARG, A P Ghat, Mawkyrwat, Chinnamandem, Atmakur and Sholavandan 6 each, Car Nicobar, Hailakandi AWS, Bengaluru City, Mawphlang and Empri 5 each
3 May	Basua 9, Supaul, Neryamangalam ARG, Rajmahal and Miao 7 each, Hasanpur and Chauldhowaghat 6 each, Bhagalpur, Khagadia and Udhampur (IAF) 5 each
4 May	Banki and Luxettipet 9 each, Dharmapuri, Wokha, Kotpad and Yadagirigutta 8 each, Satyabadi, Bachhanpet, Bejjur, Bijjur (ARG), Medchal, Tezu and Jangamaheswarapuram 7 each, Hyderabad AP, Atmakur M, Ramannapeta, Hakimpet IAF, Velagatoor, Sarangapur and Karimganj 6 each, Hyathnagar (ARG), Simla, Uppal (ARG), Chandbali, Thimmapur, Lamphet ARG, Mokokchang and Mokokchung AWS 5 each
5 May	Palavidithi and Kamatchipuram 9 each, Denkanikottai 8, Manki, Haveri Apmc, T Narasipur and Belur 7 each, Holenarasipura, Seethathode AWS, Ranebennur HOS, Gangtok, Honavar, Jhansa Irr, Chettikulam and Halebeedu 6 each, Muzaffarnagar, Padalur, Meenkara ARG and Empri 5 each
6 May	Canning 9, Nayagarh 8, Darbhanga, Parvathipuram, Ganjam, Begunia and Lalgarh 7 each, Burdwan PTO, Jaleswar and Hassan PTO 6 each, Chodavaram, Jagatsinghpur, Kendrapara and Bolagarh 5 each
7 May	Long Island 15, Maya Bandar 11, Cooch Behar 9, Udayagiri 8, Jayamkondam and Manamelkudi 7 each, Kadwa, Adirampatnam and Bellur 6 each, Karamchedu 5
8 May	Long Island 9, Maya Bandar 6, Palladam and K R Nagara 5 each
9 May	Kvk South 12, Muzaffarpur and Narsipatnam 9 each, Basua and Zunhoboto 8 each, Mushari and Thodupuzha ARG 7 each, Long Island, Jhanjharpur, Silchar, Silchar AWS and Hassan PTO 6 each, Hut Bay, Perundurai and A P Ghat 5 each
10 May	Mundali and Bishnupur 10 each, B P Ghat and Naraj 9 each, Baijnath, Poonjar AWS, Bhadrak, Bhandaripokhari, Barkote and Sonari ARG 7 each, Moranhat, Mo Saltlake, Tizit Nsdma AWS, Karipur Ap. and Alipore 6 each, Karimganj, Uthangarai, Zunhoboto, Anakayam ARG, Thodupuzha, Idukki and Sabroom 5 each
11 May	Champasari 19, Poonjar AWS 15, Panchet 13, Gajoldoba and Mawsynram 12 each, Thodupuzha, Duvvur, Thodupuzha ARG and Idukki 11 each, Kanjirappally, Murti, Neryamangalam ARG and Perumpavur 9 each, Vadakara, Neora, Peermade To, Chalakudi, Karimganj, Piravam, Chapad, Muvattupuzha ARG and Quilandi 8 each, Bapatla, Ghasipura, Kozha, Peringalkuthu AWS, Nagarkata, Proddutur, Vallur, Cuddapah, Kandukur, Chimoni ARG, Palluruthy ARG, Kavali, Pusapatirega, Mentada, Narsipatnam, Gantyada and Visakhapatnam 7 each, Seethathode AWS, Mawkyrwat, Anandpur, Palasa, Cherrapunji (rkm), Cherrapunji, Raju Palem, Gangtok, Bondapalle, Konni ARG and Neeleswaram ARG 6 each, Lakkireddipalle, Srungavarapukota, Vizianagaram, Alwaye PWD, Mahendragarh, Kochi C.i.a.l., Thekkadi, Ongole, Tadong, Ballupet, Alipore and Yelamanchili 5 each
12 May	Kandukur 26, Mawsynram 23, Atmakur 20, Bhalukpong 19, Cherrapunji and Khliehriat 18 each, Halflong, Shella and B P Ghat 15 each, Bestavaripeta and Cherrapunji (rkm) 13 each, Mawkyrwat, Kavali, Mawkyrwat ARG and Ongole 12 each, Cumbum and Racherla 11 each, Majuli, Gangtok and Mawphlang 10 each, Kundapur and Honavar 9 each, Bikram, Zunhebotoi Nsdma AWS, Badvel and Tadong 8 each, Kolasib ARG, Kvk South, Karimganj, Atlur, Hasimara, Bhatkal and Messenjor 7 each, Tamenglongi, Kota, Nongstein, Berinag, Parvathipuram, Udayagiri and Shillong CSO 6 each, Jowai, Silchar AWS, Chottabekra, Cuddapah, Williamnagar, Addanki, Balajipeta, Umiam AWS, Zunhoboto, Baripada, Senapati, Mamit ARG and Chotila ARG 5 each

TABLE 5 (*Contd.*)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
13 May	Mawsynram 44, Pithoragarh 35, Cherrapunji (rkm) 32, Cherrapunji 21, Khliehriat 19, Nongstein and Mawkyrwat 16 each, Taibpur 15, Mawkyrwat ARG 14, Shella, Kokrajhar and Mawphlang 13 each, Karimganj and Baithalangso 12 each, Gossaigaon, Thakurganj and Barobhisha 11 each, Udalguri AWS, Alipurduar PTO, Alipurduar (CWC), Williamnagar, Mathabhanga and Dhubri CWC 10 each, Aie Nh Xing, Dhubri IMD and Cooch Behar 9 each, Bhalukpong, Yercaud, Vyanthala ARG, Amfu Pundibari, Chamarajanagar, Thalavadi, Drf, Melabazar/Matunga, Chalakudi, Irinjalakuda and Long Island 8 each, Dhengraghat, Tamulpur, Naharlagun, B P Ghat, Jowai, Chinnakalar, Vepur, Kakkayam AWS, Chepan, Haflong AWS, Puducherry, Ranganandi Nt Xing, Danishpet and Chotila ARG 7 each, Dhekiajuli, Bagalkote PTO, Itanagar, Badatighat, Silchar AWS and Goalpara CWC 6 each, Suttur AWS, Falakata, Kundapur, A P Ghat and Mettur 5 each,
14 May	Jowai 29, Mawkyrwat 25, Halflong 23, Mawkyrwat ARG and Cherrapunji (rkm) 21 each, Cherrapunji 20, Mawsynram 19, Mawphlang and Mangan 17 each, Sankalan 15, Lembuchhera, Agartala AP and Karimganj 14 each, Khliehriat 13, Udalguri AWS and Singhik 12 each, Shillong CSO, Hazuah and Kvk South 11 each, Matijuri, Jowai AWS, Dhemaji, Chotila ARG, Tamulpur, Kamalpur and Khowai 10 each, Kailashahar AP, B P Ghat and Tamenglongi 9 each, Roing, Pasighat AP, A P Ghat, Alipurduar (CWC) and Alipurduar PTO 8 each, Kolasib ARG, Nongstein, Bargur, Dharmanagar/Panisagar, Shella, Hailakandi AWS, Silchar, Shillong AWS, Tezu, Kochi IAF, Hawai and Palluruthy ARG 7 each, Tangla ARG, Williamnagar, Bagati, Barrackpur (Iaf) , Dum Dum, Kozhikode, Gonegandla, Lakhipur, Enamakkal and Tikrikilla 6 each, Guwahati City IMD, Dholai, Kumargram, Poonjar AWS, Jashpurnagar, Kvk Dhalai, Kibithu, Panbari, Guwahati AP, Sabroom, Nirmali, Chepan and Nalbari/Pagladia 5 each
15 May	Jowai 29, Mawkyrwat 26, Mawsynram and Cherrapunji (rkm) 25 each, Mawkyrwat ARG 23, Cherrapunji 22, Khliehriat 21, Kodungallur 20, Alwaye PWD and Melabazar/Matunga 19 each, Drf, Tamulpur and Mawphlang 18 each, Kochi C.i.a.l., Kottarakkara AWS and Irinjalakuda 17 each, Alapuzha and Bahalpur 16 each, Kochi IAF, Neeleswaram ARG, North Paravur AWS, Ernakulam South, Cooch Behar, Kokrajhar and Vyanthala ARG 15 each, Thiruvananthapuram, Varkala, West Kallada AWS and Amfu Pundibari 13 each, Majbat, Perumpavur, Punalur and Goibargaon 12 each, Kollam Rly, Trivandrum AP, Kumarakam, Vellayani AWS, Mancompu, Mavelikara, Udalguri AWS, Palluruthy ARG, Cherthala AWS and Airport Chakka ARG 11 each, Itanagar, Barpeta, Panbari, Chalakudi, Bhaghmara, Dhemaji, Tamenglongi, Tangla ARG, Cherthala and Konni 10 each, Thenmala ARG, Aie Nh Xing, Konni ARG, Nongstein, Karimganj, Goalpara CWC, Beki Mathungari, Peringamala ARG, Neyyattinkara, Poonjar AWS and Seethathode AWS 9 each, Chauldhowaghat, Hazuah, Thodupuzha, Manash Nh Xing, Nalbari/Pagladia, Kanjirappally, Naharlagun AWS, Roing, Gossaigaon, Thanjavur PTO and Kolar PWD 8 each, Arani, Kharagpur (I.i.t), Kurudamannil, N.lakhimpur/Lilabari, Thanjavur, Dhekiajuli, Barur, Tenig Nsdma AWS, Kayamkulam ARG, Mathabhanga, Jia Bharali N T Xing, Thirumanur, Kayamkulam, Kozha, Piravam, Kuppam, Agathi, Tuting and Pasighat AP 7 each, Pechiparai, Venkatagiri Kota, Kottayam, Peringalkuthu AWS, Hogenekal, Marandahalli, Peren, Tezu, Pullambadi, Ranganandi Nt Xing, Natrampalli, Beky Rly.bridge, Peermade To and Naharlagun 6 each, Uthiramerur, Amini, Yazali, Williamnagar, Denkanikottai, Thodupuzha ARG, Aryankavu, Tizit Nsdma AWS, Wallajah, Penucondapuram, Mangaldai AWS, Mongaldoi, Shella and Tangla 5 each
16 May	Mawsynram 55, Cherrapunji 42, Cherrapunji (rkm) 41, Khliehriat 37, Mawkyrwat 26, Mawkyrwat ARG 25, Tangla ARG 20, Kokrajhar 19, Chotila ARG, Bahalpur, Jowai and Williamnagar 17 each, Majbat and Udalguri AWS 15 each, Itanagar and Shella 13 each, Panbari and Bagrakote 12 each, Iaf Carnicobar and Majuli 11 each, Tadwai, Naharlagun AWS, Tamulpur, Barpeta, Cooch Behar, Tura AWS, Badatighat, Dhekiajuli, Roing and Gohpur ARG 10 each, Jia Bharali N T Xing, Tura Kvk, Nalbari/Pagladia, Beky Rly.bridge, Goibargaon, Drf, Bhaghmara, Aie Nh Xing, Thakurganj and Amfu Pundibari 9 each, Manash Nh Xing, Navipet, Melabazar/Matunga, Kodumudi, Tezpur, Sivasagar, Lingampet, Natrampalli, Hazuah, Tiruvallur, Vanur and Kotpad 8 each, Gandhari, Ranganandi Nt Xing, Tangla, Erode, Sonari ARG, Nongstein, Taibpur, Tenig Nsdma AWS, Sadasivanagar, Barpeta/Sarbhog AWS, Tezu, Car Nicobar, Nahar Katia, Naharlagun, Polur, Dhemaji and Tirupuvanam 7 each, Srirangapatna, Kumargram, Galgalia, Makloor, Bhalukpong, Metpalle, Jamshedpur AP, Panruti, Kalavai AWS, Tamenglongi, Neora, Goalpara CWC, Sankalan, Tirupathur PTO, Virudachalam and Bhumuraguri 6 each, Miao, Mangan, Pakyong, Bhiknur, Peren, Cheyyar, Chepan, Domakonda, Margherita, Khowang, Moranhat, Mawphlang, Sirsilla, Mustabad and Neamatighat 5 each
17 May	Cherrapunji (rkm) and Cherrapunji 37 each, Mawsynram 32, Mawkyrwat ARG 22, Nongstein 18, Williamnagar 16, A P Ghat, Kadwa and Mawkyrwat 14 each, Chotila ARG, B P Ghat, Khliehriat, Jowai and Gossaigaon 13 each, Silchar, Goalpara CWC and T Narasipur 12 each, Mudubidre, Kodungallur, Bantwal, Aie Nh Xing, Barobhisha, Naganahalli, Naharlagun, Shella and Dhengraghat 11 each, G Bazar 10, Drf, Mysuru PTO, Tamenglongi, Manash Nh Xing, Haflong AWS, Bahalpur, Ranganandi Nt Xing, Lakhipur, Hailakandi AWS, Mangaluru AP, Puthimari, Cooch Behar, Majbat, Melabazar/Matunga, Purnea, Badvel, Gowribidanur and Kakkayam AWS 9 each, Tura AWS, Krishnagiri, Dhemaji, Katikere, Pandavapura, Chepan, Tura Kvk, Kelvarkop, Goibargaon, North Paravur AWS, N.lakhimpur/Lilabari, Bengaluru Kial, Minicoy, Itanagar, Matijuri, Nalbari (Barkhetri Aws), Srirangapatna, Karkala and Krishnarajasagara 8 each, Piravam, Chauldhowaghat, Malavalli ARG, Tangla, Hole Honnur, Madhugiri, Jia Bharali N T Xing, Kokrajhar, Tikrikilla, Devanahalli, Mundgod, Yagati, Malavalli, Ponnampet PWD, Hudakere, Kuppam, Alipurduar (CWC), Madhugiri ARG, Manki, Pasighat AP, Amini, Naharlagun AWS, Vyanthala ARG, Tenig Nsdma AWS, Vadakkancherry, Alipurduar PTO, Mawphlang, Shoolagiri, Duvvur and Dhubri CWC 7 each, Shidlaghatta, C N Halli, Tyagarthi, Bhadravathi, Goalpara PTO, Itc Jala, Anavatti, Kollur, Thondebhavi, Agarahara Konanduru, Kumta, Basaralu, Amraghat, Vellarikkundu AWS, Madurai South, Beky Rly.bridge, Guwahati City IMD, Tamulpur, Mani, Barpeta, Rayalpadu, Vyttiri, Enamakkal, Dhubri IMD, Singhik, Shillong CSO, Vaikom, Roing, Mangan, Sakleshpura, Tallakulam, Peren, Arakonam, Sankalan, Taliparamba and Gohpur ARG 6 each, Chalakudi, Puttur, Panniyoor ARG, Mettur, Vilangankunnu ARG, Dharmasthala, Varkala, Panambur, Kumarakam, Madanapalle, Mandya PTO, Honavar, Buxaduar, Hosadurga, Balrampur, Linganamakki HMS, Turuvekere, Badatighat, Nanjanagud, Haveri PTO, Mangaluru, Srirampura, Pappireddipatti, D/Mohanbari AP, Panbari, Hazuah, Kamalpur, Kudulu and Tangla ARG 5 each

TABLE 5 (*Contd.*)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
18 May	Cheruthazham ARG 25, Cherrapunji (rkm) and Cherrapunji 21 each, Long Island 17, Mahe, Mawsynram and Virinjipuram AWS 15 each, Shella and Port Blair 14 each, Sankaridurg, Ksndmc Campus and Tellichery 13 each, Holenarasipura, Bherya and Kannur 12 each, Bellur, Hunsur, Bengaluru City, Atmakur, Itc Jala and Kozhikode 11 each, Puthimari, Doddaballapura, Pavagada, Karimganj, Hesaraghatta, Vadakara and Madakasira 10 each, Tamenglongi, K R Nagara, Bengaluru HAL AP, Hosur, Nalbari/Pagladia, Thondebhavi, Gowribidanur, Tezu, Saligrama and Vaikom 9 each, Penu Konda, Malavalli, Malavalli ARG, Kotpad, Arkalgud, Bilikere, Taliparamba, Honakere, Kanakapura, Nagamangala, Turuvekere, Basaralu, Lakhipur, Shidlaghatta and Kushalnagar 8 each, Suntikoppa, Chikballapura, Hassan PTO, Bhagamandala, Periyapatna, Krishnarajpet, Dholai, Kunigal ARG, Empri, Kanchanpur, Kunigal, Rampura, Chottabekra, Bengaluru Kial, Maya Bandar, Aizawl, Chungthang, Edapadi, Panniyoor ARG, Bahalpur and Kakkayam AWS 7 each, Somwarpet, Ramagiri, Karipur Ap., Amraghat, Devanahalli, Goalpara PTO, Khliehriat, Jamtara, Uravakonda, Mattannur ARG, Padinjarathara Dam AWS, Kannur Airport AWS, Irikkur, Channapatna, Nuggehalli, Sanivarsante, Murnadu, Hogenekal, Kuppady, Barpeta/Sarbhog AWS, Vyttiri, Arasikere, Bhumuraguri, Lengpui, Silchar, Tiptur, Barpeta, Beky Rly.bridge, Lohandiguda and Alur 6 each, Sivasagar, Peringalkuthu AWS, Melabazar/Matunga, Mamit ARG, Kolasib ARG, Dharwad HOS, Omalur, Gudibande, Thammampatty, Yercaud, Jnanabharathi Bu Campus, Tirupathur PTO, Vilangankunnu ARG, Chenne Kothapalle, Hindupur, Hebburu, Srirampura, Konanur, Panchanahalli, Virajpet, Harangi, Sravanabelagola, Venkatagiri Kota, Dharmanagar/Panisagar, Y N Hoskote, Namsai and Gharmura 5 each
19 May	Hosanagar 24, Cherrapunji 20, Kelvarkop 17, Subramanya and Kodungallur 16 each, Alwaye PWD and Cherrapunji (rkm) 15 each, Peringalkuthu AWS, Perumpavur, Palluruthy ARG, Neeleswaram ARG and Long Island 14 each, Kochi C.i.a.l., North Paravur AWS, Mawsynram, Chalakudi and Chimoni ARG 13 each, Holagunda, Nidige, Ernakulam South and Uchangidurga 12 each, Kollur, Vaikom, Quilandi, Hut Bay, Harangi, Kochi IAF, Karimganj, Mandya PTO, Suntikoppa and Piravam 11 each, Bevoor, Sulya, Pasighat AP, Munirabad, Dhubri IMD, Vyanthala ARG and Yelburga 10 each, Vellarikkundu AWS, Sampaje, Valparai PTO, Shella, Kurugodu, Bhadravathi, Sanivarsante, Somwarpet, Madakasira, Hosdurg, Davanagere PTO, Dhekiajuli, Muvattupuzha ARG, Tavaragera, Dhubri CWC, Maski, Chitradurga and Thondebhavi 9 each, Bhagamandala, Tikrikilla, Jayapura, Badatighat, Linganamakki HMS, Tura AWS, Kailashahar AP, Kushtagi, Bargur, Koppal PTO, Kakkeri, Dhemaji, Pakyong, Madhugiri, Kvk Dhalai, Lakhipur, Uravakonda, Sholayar, Neryamangalam ARG, Gowribidanur and Sindhanur 8 each, Peren, Balehonnur, Koppal R, Bherya, Madhugiri ARG, Mandagadde, Kudathini, Munirabad ARG, Tamenglongi, Dharmanagar/Panisagar, Mangaluru, Kanchanpur, Williamnagar, Sakleshpura, Midigeshi, Mudgal, Bellur, Konanur, Shivamogga PTO, Sandur, Rongo, Davanagere, K R Nagara, Tura Kvk, Hailakandi AWS, Hindupur, Kunurpi, Kozha, Drf, Kumarakam, Perunchani Dam, Majbat, Poonjar AWS, Dhone, Haveri PTO, Gonegandla, Rolla and Karkala 7 each, Settur, Devala, Panambur, Kampli, Manvi, Karatagi, Mani, Parumbikulam, Malanur ARG, Irinjalakuda, B P Ghat, Beki Mathungari, Karipur Ap., Kamalpur, Vadakara, Khowai, Thodupuzha, Virajpet, Goibargaon, Y N Hoskote, Rampura, Haveri Apmc, Hunsagi, Tangla ARG, Mawkyrwat, Jhorigam, Haunsbhavi ARG, Chikkamagaluru PTO, Tezpur, Koppa, Cherthala, Hiriyur HMS, Hirekerur, Thodupuzha ARG, Saligrama, Anavatti, Tyagarthi, Silchar, Valparai Taluk Office, Maddur, Malavalli, Malavalli ARG, Halebeedu and Gadag PBO 6 each, Amarapuram, Vilangankunnu ARG, Port Blair, Sankalan, Suralacode, Gummagatta, Kambadur, Penucondapuram, Akkialur, Labbaikudikadu, Kanjirappally, Krishnarajpet, Umarkote, Mawkyrwat ARG, Bhaghmara, B Durga, Jia Bharali N T Xing, Bhumuraguri, Belur, Napoklu, Shirahatti, Holenarasipura, Ron, Hosapete, Siruguppa Ars, Vellanikkara, Mangan, A P Ghat, Pulivendla, Alur, Kurdi and Rajim 5 each
20 May	Hosanagar 20, A D Nagar AWS 19, Arundhutinagar, Kollur and Agarahara Konanduru 18 each, Mundargi 15, Shivamogga PTO and Hukkeri 12 each, Sadalga, Kawadimatti ARG, Shorapur, Hunchadakatte, Kundapur, Shirali PTO, Hadagali, Honnali, Long Island, Bellatti and Sedbal 11 each, Annigere Ars, Gersoppa, Rabkavi, Maya Bandar and Sirsi PWD 10 each, Tyagarthi, Kittur, Jayapura, Raibagh, Hidkal Dam, Lokapur, Dhengraghat, Gossaigaon, Katikere, Kundgol and Cherrapunji 9 each, Kembhavi, Guttal, Hunsagi, Kumta, Davanagere PTO, Uchangidurga, Castle Rock, Belagavi PTO, Basagod, Hole Honnur, Udupi, Kaladgi, Yargatti, Barpeta, Gokarna, Cherrapunji (rkm), Mahalingapur, Yedwad, Kota, Nippani and Ankola 8 each, Malanur ARG, Sanguem, Gokak, Ajra, Chikodi, Nidige, Savanur, Belagavi AP, Siddapura, Athni, Valpoi, Siddapura ARG, Muragoda, Dharwad HOS, Kelvarkop, Beky Rly.bridge, Williamnagar, Kadra, Kudachi, Pernem, Sorada, Lakshmeswar, Shirahatti, Honavar, Haveri PTO, Ranebennur HOS, Manash Nh Xing, Kokrajhar, Kushtagi, Dambal, Manthala, Hubballi, Lembuchhera, Tikkota and Siddapur 7 each, Jagalur, Mahendragarh, Bidi, Sutagatti Mattikoppa, Mundgod, Margao, Barpeta/Sarbhog AWS, Jagdalpur, Sangli, Vijayapura PTO, Haliyal, Sringeri HMS, Mawkyrwat, Mawsynram, Uppinangadi, Mamit ARG, Agartala AP, Haveri Apmc, Koppa, Kalghatgi, Harapanahalli, Bailhongal, Bagalkote PTO, Manki, Miao, Karwar and Tavaragera 6 each, Barobhisha, Kalyandrug, Khanapur, Belwadi, Dhone, Nandikotkur, Soundatti (s.f) , Londa, Shiggaon, Canacona, Mawkyrwat ARG, Mudgal, Sankeshwar, Udaipur, Chandgad, Karkala, Balehonnur, Linganamakki HMS, Kvk Dhalai and Karimganj 5 each
21 May	Williamnagar 16, Thodupuzha ARG 13, Guttal 12, Thodupuzha 11, Bhaghmara, Dhubri IMD and Bomraspeta 10 each, Peddemul, Kozhikode, Piravam, Tandur, Dhubri CWC and Gangtok 9 each, Kodangal, Chalakudi, Parumbikulam, Valparai Taluk Office, Kodangal (ARG), Ernakulam South, Damaragidda and Kosgi 8 each, Tura AWS, Tikrikilla, Nongstein, Chinnakalar, Valparai PTO, Peringalkuthu AWS, Umarga and Kochi IAF 7 each, Tura Kvk, Kvk Dhalai, Kelvarkop, Matijuri, Cooch Behar, Manash Nh Xing, Athni, Peermade To, Munnar Kseb, Palluruthy ARG, Neryamangalam ARG, Purnea, Sholayar and Buhama 6 each, Khajuri, Muvattupuzha ARG, Kondurg, Vyanthala ARG and Mudhole 5 each
22 May	Chinnakalar 10, Valparai PTO and Valparai Taluk Office 8 each, Silchar 7, Sholayar, Poonjar AWS, Korei, Ghasipura, Lakhipur, Chottabekra and Rongli 6 each, Contai, Koloriang, Akhuapada, Danagadi and Daitari 5 each
23 May	Faridabad and Harabhanga 9 each, Mangaluru and Hapur 8 each, Gurgaon, Dadri Toye Edu Fmo and Bolangir 7 each, Ponnani, Siddapura ARG, Cherrapunji, Milak, Kollur, Siddapura, Mani and Amini 6 each, Karkala, Jafarpur AWS, Dhansa, Aya Nagar and Vitla ARG 5 each

TABLE 5 (*Contd.*)

Date	Some representative amounts of rainfall in cm for March 2021 (5cm and above)
24 May	Dhaurahara 21, Long Island 15, Kochi IAF 14, Ernakulam South and Baheri 11 each, Laharpur 9, Trivandrum AP 8, Cherthala, Maya Bandar and Dhenkanal 7 each, Palluruthy ARG, Airport Chakka ARG, Vellayani AWS, Chalakudi, Karanjia and Jenapur 6 each, Reamal, Tilaiya, Sambhar SR, Rajkishorenagar, Hapur, Garividi, Bilhari, Tekkali and Baltal AWS 5 each
25 May	Visakhapatnam AP 11, Narsapuram 10, Chodavaram, Tadepalligudem and Natham 9 each, Kasauli, N.lakhimpur/Lilabari, Visakhapatnam, Palakoderu, Bheemunipatnam, Anakapalle, Amalapuram, R Guda, Sabroom and Tanuku 7 each, Ranganandi Nt Xing, Hassan PTO, Hendigir, Ariyalur, Siswan and Ballia 6 each, Yanam, Haripur, Koyyalagudem, Bheemavaram, Koraput, Darauli, Kotapalle, Sahebganj and Subramanya 5 each
26 May	Neryamangalam ARG and Enamakkal 10 each, Kodungallur and Quilandi 9 each, Chengmari/Diana, Seethathode AWS and Perinthalamanna 8 each, Kvk South, Mannarkkad, Kanjirapuzha ARG, Anakayam ARG, Mavelikara, Sonamura and Udaipur 7 each, Tamenglongi, Angadipuram, Jalpaiguri, Cherthala, Alapuzha, Thamaraipakkam, Naduvattam, Sholavandan, Namsai and Aie Nh Xing 6 each, Manjeri, Miao, Kayamkulam, Veppanthattai and Kayamkulam ARG 5 each
27 May	Amfu Pundibari 12, Mannarkkad 9, Kanjirapuzha ARG and Meenangadi ARG 7 each, Katekalyan and Anini 6 each, Valparai Taluk Office, Peruvannamuzhi ARG and Ambalavayal 5 each
28 May	Nagarkata 12, Bagrakote 9, Murti and Neora 8 each, Kanchanpur and Belonia 7 each, Falakata and Sabroom 6 each, Tinsukia 5
29 May	Tribeni/Balmikinagar 8, Malda, Tallakulam, Thodupuzha and Poonjar AWS 7 each, Kallikudi, Madurai South, Ramnagar, Shillong CSO and Buxaduar 6 each, Suralacode, Gaunaha and Aryankavu 5 each
30 May	Forbesganj 11, Champasari 8, Birpur 7, Bagdogra IAF, Gajoldoba, Perungalur and Kotpad 6 each, Kothagudem, Alapuzha, Trp AP and Kozha 5 each
31 May	Irikkur 10, Kannur Airport AWS 9, Devala, Gharmura, Mattannur ARG and Raiganj PTO 8 each, Chamarajanagar and Periyapatna 7 each, Long Island, Ballupet, Bherya, Kota, Panambur, Peruvannamuzhi ARG and Pullambadi 6 each, Napoklu, Minicoy, Basavakalyan and Kathua 5 each

Chhattisgarh. The subdivisions surrounding these areas too, experienced *above normal* temperatures.

(b) *Maximum temperatures*

In April the *heat waves* were more intense and prolonged than March, they were rampant over homogenous regions of northwest India and adjoining sub-divisions of east and central India. Himachal Pradesh recorded total 14 *severe heat wave* days of which *eleven* days were experienced in a single spell in the beginning of the month.

The day temperatures were markedly above normal over subdivisions of Punjab, Haryana, Chandigarh, Delhi and northern parts of Rajasthan and were appreciably above normal over Jammu, - Kashmir & Ladakh, Himachal Pradesh, Uttarakhand, Uttar Pradesh and Chhattisgarh. The maximum temperatures remained normal over the south peninsular region and northeast region of the country. The absence of active western disturbances in the month over north India caused highly subdued rainfall and very less thunderstorm activities over northwest and central parts of India. The highest maximum temperature recorded during the month was of 47.4°C was reported at Banda (east Uttar Pradesh) on 29th April over the plains of the country.

Some of the stations recorded maximum temperature equal to or greater than the previous record, a list of stations is furnished below with their previous record and date.

S. No.	Station name	Previous record (^{o}C)	Date	New record (^{o}C)	Date April 2022
1.	Gopalpur	37.8	12.04.1994	37.8	22
2.	Daltonganj	45.6	30.04.2009	45.7	30
3.	Motihari	41.4	16.04.1973	41.5	6
4.	Allahabad AP	46.6	30.04.1999	46.8	29
5.	Jhansi	46.2	17.04.2010	46.2	29
6.	Lucknow AP	45	30.04.1999	45.1	29
7.	Ferozepur	43.4	27.04.1970	43.7	28
8.	Dharamsala	35.6	18.04.2010	36.2	30
9.	Alwar	45.1	28.04.1979	45.8	8
10.	Jaisalmer	45.8	29.04.2009	45.9	30
11.	Pachmarhi	38.9	27.04.1970	39.8	21
12.	Ratlam	44.9	29.04.2009	45.0	28
13.	Madikeri	34.2	07.04.1998	34.8	20
14.	Minicoy	35.0	21.04.1993	35.0	28

Source : IMD Climate Diagnostics Bulletin of India April 2022

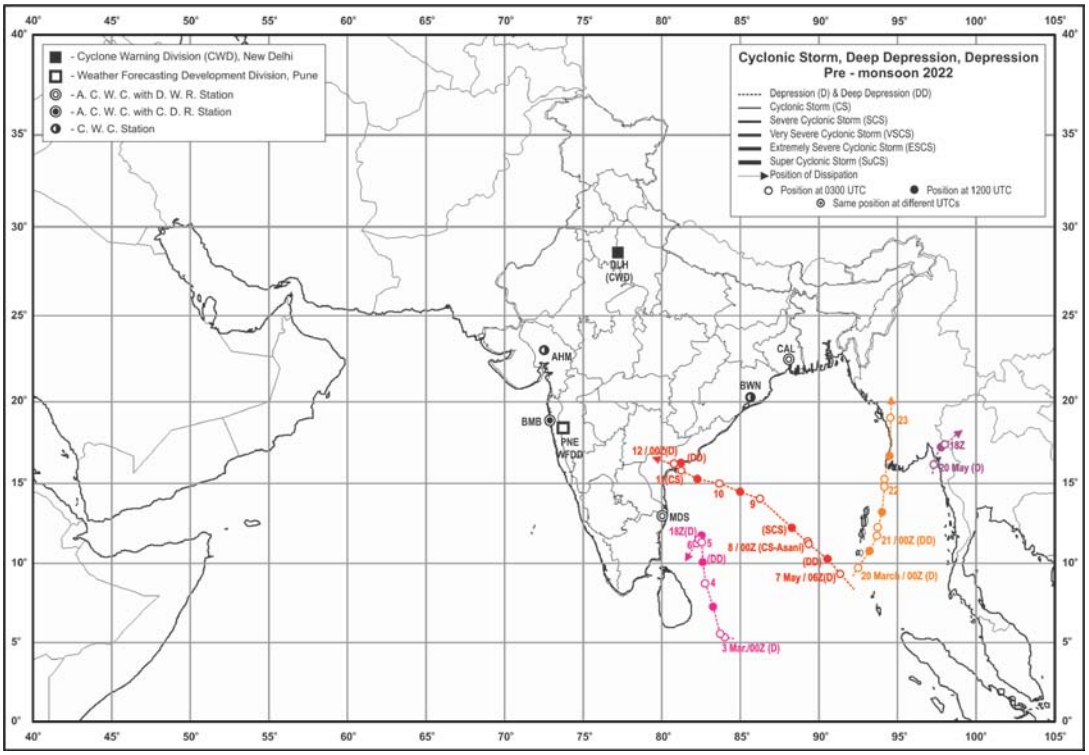

Fig. 2. Track of cyclonic storm, deep depression and depression during pre-monsoon season 2022

3.2.3. *Disastrous weather events*

As per media reports, heat stroke took a toll of 10 persons in Maharashtra, 3 in Jalgaon, 2 in Nagpur, 3 in Nashik, one each in Akola and Osmanabad districts. Lightning strike killed a couple in Igatpuri taluka, Nashik. In several incidents of severe thunderstorms lightning strikes, 19 persons in 22 districts of Assam were killed and 3011 houses were fully damaged due to thunderstorms in mid-April. Thunderstorms associated with gusty winds caused heavy damage to many electric poles and 4 Anganwadi centers in Assam, killing one person in Jorhat, Assam. Due to heavy rain and strong winds, two persons died and another was injured in Purandar Tehsil, Maharashtra. Thunderstorms with hail caused damage to fruit crops *viz.* mango and cashew in Konkan and Goa. The soaring heat in north and central India adversely affected farming.

3.3. *May*

3.3.1. *Weather and associated synoptic features*

(a) *Advance of southwest monsoon*

In view of strengthening of south westerlies in the lower tropospheric levels, fairly widespread to widespread rainfall activity and persistent cloudiness over the area, Southwest Monsoon advanced into some parts of south Bay of Bengal, most parts of Andaman, Nicobar Islands and Andaman Sea on 16 May, 2022, it further advanced into some more parts of south Bay of Bengal, entire Andaman, Nicobar Islands, Andaman Sea and some parts of eastcentral Bay of Bengal on 18 May. It reached Kerala on 29 May, three days early than its normal date, *i.e.*, 1 June.

(b) *Other synoptic features and rainfall*

The details of weather systems and its track during the month are given in Table 4 and Fig. 2. The principal amounts of rainfall are given in Table 5.

Under the influence of a low-pressure area over south Andaman sea and adjoining southeast Bay of Bengal gradually a depression formed and under favourable environmental conditions, further intensified into the cyclonic storm “ASANI” in the early morning (0530 hours IST) of 8 May and into a severe cyclonic storm in the same evening (1730 hours IST) over southeast Bay of Bengal. Continuing to move northwestwards, encountering unfavorable conditions, it weakened before landfall and crossed Andhra Pradesh coast between Machilipatnam and Narsapur as a deep

TABLE 6

Dates of occurrence of Heat wave/Severe Heat wave and various categories of maximum temperatures - March 2022

No	Sub-Division Name	Dates (Number of Days)	
		Severe Heat Wave	Heat Wave
2.	Arunachal Pradesh	-	-
3.	Assam & Meghalaya	-	-
4.	Naga, Mani, Mizo and Tri.	-	-
5.	S. H. W. B. & Sikkim	-	-
6.	Gangetic West Bengal	-	-
7.	Odisha	-	16 (1)
8.	Jharkhand	-	-
9.	Bihar	-	-
10.	East Uttar Pradesh	-	29, 30, 31 (3)
11.	West Uttar Pradesh	-	29, 30, 31 (3)
12.	Uttarakhand	16, 21 (2)	20, 27, 28 (3)
13.	Haryana, Chandigarh & Delhi	29, 30, 31 (3)	-
14.	Punjab	-	-
15.	Himachal Pradesh	16, 17, 18, 19, 21, 30, 31 (7)	27, 28, 29 (3)
16.	Jammu - Kashmir and Ladakh	16, 17, 18, 19 (4)	27, 28, 29, 30 (4)
17.	West Rajasthan	14, 15, 16, 17, 18, 19, 27, 28, 29, 30 (10)	20, 21, 31 (3)
18.	East Rajasthan	28, 29 (2)	30, 31 (2)
19.	West Madhya Pradesh	-	16, 17, 18, 19, 20, 21, 22, 23, 27, 28, 29, 30, 31 (13)
20.	East Madhya Pradesh	-	30, 31 (2)
21.	Gujarat Region	15, 16 (2)	14, 15, 18, 19 (2)
22.	Saurashtra & Kutch	11, 12, 13, 14, 15, 16 (6)	17, 18, 27, 28 (2)
23.	Konkan & Goa	14 (1)	13, 15 (2)
24.	Madhya Maharashtra	-	31 (1)
25.	Marathwada	-	-
26.	Vidarbha	-	16, 17, 18, 31 (4)
27.	Chhattisgarh	-	-
28.	Coastal Andhra Pradesh & Yanam	-	-
29.	Telangana	-	-
30.	Rayalaseema	-	-
31.	Tamil Nadu, Puducherry & Karaikal	-	-
32.	Coastal Karnataka	-	-
33.	North Interior Karnataka	-	-
34.	South Interior Karnataka	-	-
35.	Kerala	-	-

depression. The system moved slowly and remained practically stationary near the coast followed with slow west-southwestward movement till its weakening into a well-marked low-pressure area in the morning of 12 May over the region. Under the influence of formation and movement of this system, fairly widespread to widespread rainfall/thunderstorms occurred over Andaman and Nicobar Islands along with isolated heavy/very heavy rainfall on one or two days, fairly widespread to widespread rainfall/thunderstorms occurred over Coastal Andhra Pradesh, Yanam and Rayalaseema along with isolated heavy rainfall over these areas. Remnant of this system caused widespread rainfall over coastal Andhra Pradesh, Yanam, fairly widespread to widespread rainfall/thunderstorms over Kerala, Mahe, coastal and south interior Karnataka, Rayalaseema and isolated to scattered rainfall/thunderstorms occurred over adjoining areas of north interior Karnataka and Tamil Nadu. The second intense low-pressure system that formed in this month was a short-lived depression that formed over the Bay of Bengal between 20-21 May, 2022. Under the influence of this system, widespread rainfall occurred mainly over the sea area, Myanmar and adjoining Thailand and thus this system did not cause any adverse weather over Indian region. However, in its formative stage, widespread rainfall/ thunderstorms occurred over Andaman and Nicobar Islands for one or two days along with isolated heavy rainfall/thunder squalls on a single day. Under the influence of trough / wind discontinuity in the lower tropospheric peninsular India supported by convergence of strong southerlies/south westerlies from Bay of Bengal caused enhanced moisture incursion which caused fairly widespread to widespread rainfall/ thunderstorms over northeast India and adjoining areas of east India. East-west troughs in lower tropospheric levels caused scattered to fairly widespread light/moderate rainfall with isolated thunderstorm/lightning/gusty winds over East India. Western disturbances in mid and upper tropospheric levels caused scattered to fairly widespread rainfall/thunderstorm activity over western Himalayan region and isolated to scattered rainfall over adjoining plains of India mainly during 1-10 May and 21-31 May resulted in substantially reducing the heat wave conditions.

Some of the stations recorded highest rainfall, a list of stations is furnished below with their previous record and date.

S. No.	Station name	Previous record (mm)	Date	New record (mm)	Date May 2022
1.	Itanagar	74.4	23/5/2015	131.8	16
2.	Orai	37.0	31/5/1959	39.0	24
3.	Gurgaon	58.0	2/5/1987	73.4	23
4.	Pathankot	4.4	20/5/2017	11.0	24
5.	Jaipur Tehsil Sr	1.2	9/5/1981	8.0	24
6.	Kavali	98.0	20/5/2010	124.2	12
7.	Hakimpet	60.4	4/5/2015	61.2	4
8.	Chamarajanagar	54.8	25/5/2011	82.2	13
9.	Davangere	60.5	26/5/2008	87.6	19
10.	Shivamogga	93.8	31/5/1973	118.4	20
11.	Kochi SIAL	119.0	13/5/2017	165.4	15

Source : IMD Climate Diagnostics Bulletin of India May 2022

TABLE 7

Dates of occurrence of Heat wave/Severe Heat wave and various categories of maximum temperatures - April 2022

Sub-division		Dates (Number of Days)	
No	Name	Severe Heat Wave	Heat Wave
2.	Arunachal Pradesh	-	-
3.	Assam & Meghalaya	-	-
4.	Naga, Mani, Mizo and Tri.	-	-
5.	S. H. W. B. & Sikkim	-	18, 25 (2)
6.	Gangetic West Bengal	-	15, 16, 25, 26, 27, 28, 29 (7)
7.	Odisha	-	25, 27, 28, 30 (4)
8.	Jharkhand	10, 11 (2)	2, 4, 5, 9, 12, 13, 16, 17, 18, 19, 20, 27, 29, 30 (14)
9.	Bihar	-	4, 5, 15, 16, 18, 25, 26, 27, 28 (9)
10.	East Uttar Pradesh	10, 11, 29 (2)	1, 4, 5, 6, 7, 9, 18, 28, 30 (9)
11.	West Uttar Pradesh	9, 10, 11 (2)	4, 5, 6, 7, 18, 19, 28, 29, 30 (9)
12.	Uttarakhand	-	-
13.	Haryana, Chandigarh & Delhi	2, 3, 5, 7, 8, 10, 30 (7)	3, 4, 6, 7, 11, 14, 17, 18, 19, 20, 28, 29, 30 (13)
14.	Punjab	8, 9, 10, 11 (4)	18, 19, 28, 29, 30 (5)
15.	Himachal Pradesh	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 18, 19, 30 (14)	13, 15, 17, 28, 29 (5)
16.	Jammu - Kashmir and Ladakh	9, 10, 11 (3)	3, 5, 7, 8, 29 (5)
17.	West Rajasthan	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 18, 19 (12)	1, 12, 13, 14, 15, 16, 17, 27, 28, 29, 30 (11)
18.	East Rajasthan	8, 9, 10, 11, 19 (5)	2, 3, 4, 5, 6, 7, 28 (7)
19.	West Madhya Pradesh	8, 9, 10, 11 (4)	3, 5, 6, 7, 18, 19, 20, 28, 29, 30 (10)
20.	East Madhya Pradesh	-	4, 7, 8, 23, 25, 28 (6)
21.	Gujarat Region	8, 9 (2)	4, 6, 7, 19, 23, 24, 25, 27, 28, 29, 30 (11)
22.	Saurashtra & Kutch	-	-
23.	Konkan & Goa	-	29 (1)
24.	Madhya Maharashtra	-	-
25.	Marathwada	-	27, 28, 30 (3)
26.	Vidarbha	-	-
27.	Chhattisgarh	-	-
28.	Coastal Andhra Pradesh & Yanam	-	-
29.	Telangana	-	-
30.	Rayalaseema	-	-
31.	Tamil Nadu, Puducherry & Karaikal	-	-
32.	Coastal Karnataka	-	-
33.	North Interior Karnataka	-	-
34.	South Interior Karnataka	-	-
35.	Kerala	-	-

TABLE 8

Dates of occurrence of Heat wave/Severe Heat wave and various categories of maximum temperatures - May 2022

No	Sub-Division Name	Dates (Number of Days) Severe Heat Wave	Heat Wave
2.	Arunachal Pradesh	-	-
3.	Assam & Meghalaya	-	-
4.	Naga, Mani, Mizo and Tri.	-	-
5.	S. H. W. B. & Sikkim	-	-
6.	Gangetic West Bengal	-	-
7.	Odisha	-	-
8.	Jharkhand	-	15 (1)
9.	Bihar	-	15 (1)
10.	East Uttar Pradesh	14, 15 (2)	14, 19, 20 (3)
11.	West Uttar Pradesh	15, 20 (2)	13, 14 (2)
12.	Uttarakhand	-	-
13.	Haryana, Chandigarh & Delhi	14, 15, 20 (3)	12, 13, 19, 20 (4)
14.	Punjab	14, 15, 20 (3)	13, 19, 20 (3)
15.	Himachal Pradesh	1, 15, 20 (3)	20 (1)
16.	Jammu - Kashmir and Ladakh	15 (1)	13 (1)
17.	West Rajasthan	1, 12, 13, 14, 15 (5)	7, 8, 9, 10, 19, 20 (6)
18.	East Rajasthan	13, 14, 15 (3)	12, 19, 20 (3)
19.	West Madhya Pradesh	13, 15 (2)	7, 9, 10, 12, 13, 14, 19, 20 (8)
20.	East Madhya Pradesh	14, 15 (2)	1, 13, 14 (3)
21.	Gujarat Region	-	-
22.	Saurashtra & Kutch	-	-
23.	Konkan & Goa	-	-
24.	Madhya Maharashtra	-	-
25.	Marathwada	-	-
26.	Vidarbha	-	1, 7, 9, 15 (4)
27.	Chhattisgarh	-	-
28.	Coastal Andhra Pradesh	-	-
29.	Telangana	-	-
30.	Rayalaseema	-	-
31.	Tamil Nadu, Pudcherry & Karaikal	-	-
32.	Coastal Karnataka	-	-
33.	North Interior Karnataka	-	-
34.	South Interior Karnataka	-	-
35.	Kerala	-	-

3.3.2. *Temperature distribution*

Severe *heat wave to heat wave* conditions occurred mostly in the first fortnight during this month over the northwest subdivisions of India. The day temperatures were generally *normal* over the country with *above normal* temperatures over western parts of northwest India and below normal temperatures over peninsular India. The night temperatures in May were above normal over northwest and adjoining central India and below normal over parts of northeast India and south Peninsular region.

The month's as well as the season's highest maximum temperature was 49.0°C reported at Banda (east Uttar Pradesh) over the country on 14 May over the plains of the country. Some of the stations recorded highest maximum temperatures. A list of stations is furnished below with their previous record and date.

S. No.	Station name	Previous record (°C)	Date	Year	New record (°C)	Date May 2022
1.	Ratlam	45.5	13	1970	46.0	9
2.	Naliya	44.2	23	2018	46.1	14
3.	Karwar	37.4	10	2010	37.6	3&4

Disastrous weather events and damage

As per media reports, lightning strike caused 3 causalties, in different parts of Karnataka further injuring 6 and killing 2 bullocks, a cow, 19 goats and 11 sheep. Four people were killed and seven injured in two separate incidents of lightning strike in Uttar Pradesh. In Bihar, 37 people were killed in lightning and rain related incidents. A farmer died and another was injured due to lightning strike in Hyderabad. Lightning strike took toll of 27 sheep in Sangli and of 3 lives tocks in Buldhana, Maharashtra. Heavy rain along with strong winds caused damage to electric poles, roofs of houses, shops in Pandavapura district, Karnataka. Continuous heavy rain led to floods and landslides, playing havoc in Assam state, first in the second week of May and then again in the last week of the month. According to the Assam State Disaster Management Authority (ASDMA) bulletin around 1,900 houses were either partially or fully damaged in 1,089 villages under 26 districts and more than 39,558 people had to take shelter in 89 relief camps, 12 people died and few others were missing in different landslide incidents and flood related incidents due to heavy rain across the districts of Cachar, Dhemaji, Hojai, Karbi Anglong West, Nagaon, Kamrup and the worst-hit Dima Hasao districts in Assam. floods and landslide incidents caused the transport facility to come to a standstill, flash floods and landslides, eroded sections of roads and railway tracks

isolating the region and hampering in the relief process. Two empty trains stranded due to landslides between Dima Hasao and Cachar district and the other train standing at New Halflong station were swept away by flood waters. Five persons died and six others injured in landslides at Itanagar, Arunachal Pradesh. Floods in Meghalaya State caused three fatalities. Communication lines snapped in several parts of the north-east region. One rickshaw driver died in Sitabardi area, Nagpur due to heat strokes. In the last week of the month Thirty-nine people lost their lives and three were injured in various rain-related incidents in Uttar Pradesh, most of these casualties were due to dust storms, lightning and thundershowers. Four people were killed and seven injured in two separate incidents of lightning strike in Uttar Pradesh. 37 people were killed in lightning and rain related incidents in different parts of Bihar State. Many trees were uprooted, electric poles were damaged due to strong wind which led to interruption in traffic movement and power supply. Pre-monsoon heavy rain with squally winds caused damage to fruit crops, *viz*., Banana, Grapes, Papaya, Pomegranate, Lemon and vegetables in different parts of Maharashtra.

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Appendix

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

Temperatures

Heat Wave		Heat wave is considered if maximum temperature of a station reaches at least 40 °C or more for Plains and at least 30 °C or more for Hilly regions.
(a) *Based on Departure from Normal*		
Heat Wave	-	Departure from normal is 4.5 °C to 6.4 °C
Severe Heat Wave	-	Departure from normal is >6.4 °C
(b) *Based on Actual Maximum Temperature*		
Heat Wave	-	When actual maximum temperature ≥ 45 °C
Severe Heat Wave	-	When actual maximum temperature ≥ 47 °C
(c) *Criteria for describing Heat Wave for coastal stations*		
When maximum temperature departure is 4.5 °C or more from normal, Heat Wave may be described provided actual maximum temperature is 37 °C or more.		
Temperature		
(a) *Maximum/day temperatures*		
Markedly above normal	-	5.0 °C or more
Appreciably above normal	-	3.1 °C to 5.0 °C
Above normal	-	1.6 °C to 3.0 °C
Normal	-	1.5 °C to –1.5 °C
(b) Minimum / Night temperature		
Markedly below normal	-	when the departure from normal is –5 °C to or less
Appreciably below normal	-	when the departure from normal is between –3.1 °C to –5.0 °C
Normal	-	departure from normal is –1.5 °C to +1.5 °C.
Rainfall		
Heavy	-	64.5 to 115.5 mm
Very Heavy	-	115.6 to 204.4 mm
Large Excess	-	Percentage departure from normal rainfall is + 60% or more
Excess	-	Percentage departure from normal rainfall is + 20% to +59%
Normal	-	Percentage departure from normal rainfall is +19% to –19%
Deficient	-	Percentage departure from normal rainfall is –20% to –59%
Large Deficient	-	Percentage departure from normal rainfall is –60% or less
No rain	-	–100%