

Supplementary Table

Supplementary Table S1

Rainfall characteristics during the investigation period of 2018 (monsoon season :June to September).

Event	Sampling date	Rainfall amount (mm)	Rainfall duration (hours)	Maximum rainfall intensity in 5 min (mm hour ⁻¹)	Maximum rainfall intensity in 10 min (mm hour ⁻¹)	Maximum rainfall intensity in 15 min (mm hour ⁻¹)	Maximum rainfall intensity in 30 min (mm hour ⁻¹)	Mean rainfall intensity (mm hour ⁻¹)	Cumulative precipitation during the previous 3 days (mm)	Cumulative precipitation during the previous 5 days (mm)	Cumulative precipitation during the previous 7 days (mm)
1	2.6.2018	15.20	4.56	98.84	55.55	42.89	28.58	3.34	15.20	15.20	15.20
2	6.6.2018	52.00	6.48	61.18	30.92	21.80	14.77	8.02	52.00	67.20	67.20
3	16.6.2018	8.50	2.70	9.44	5.76	4.43	2.89	3.15	14.50	14.50	19.64
4	17.6.2018	10.00	6.98	29.92	28.15	23.18	16.48	1.43	24.50	24.50	29.64
5	29.6.2018	24.90	8.71	38.85	28.58	20.45	19.78	2.86	24.90	28.17	28.17
6	1.7.2018	21.90	5.03	59.79	40.22	37.66	27.32	4.35	46.80	46.80	50.07
7	2.07.2018	10.40	5.55	44.40	33.22	26.97	18.49	1.87	32.30	57.20	60.47
8	3.7.2018	33.20	3.91	82.91	50.54	35.05	24.31	8.49	65.50	90.40	93.67
9	4.7.2018	15.40	6.16	28.30	28.30	21.12	12.99	2.50	59.00	80.90	105.80
10	11.7.2018	110.40	5.82	120.77	57.60	46.26	34.16	18.97	110.40	115.59	130.99
11	12.7.2018	38.00	4.67	72.88	44.95	30.96	18.46	8.14	148.40	153.59	168.99
12	17.7.2018	45.30	11.76	119.64	57.71	51.19	45.47	3.85	45.30	83.30	193.70
13	19.7.2018	13.70	7.05	14.46	13.97	11.10	9.49	1.94	59.00	59.00	97.00
14	23.7.2018	15.30	0.60	75.02	36.02	33.41	28.69	25.50	21.70	35.40	80.70
15	26.7.2018	21.30	2.90	30.36	19.41	17.27	16.01	7.34	36.60	43.00	56.70
16	27.7.2018	61.60	8.31	135.28	57.83	39.58	39.32	7.41	82.90	104.60	104.60
17	28.7.2018	71.50	23.62	19.07	12.12	9.82	8.59	3.03	154.40	169.70	176.10
18	29.7.2018	21.50	9.57	12.26	7.06	5.59	3.97	2.25	154.60	175.90	197.60
19	2.8.2018	22.20	1.81	48.92	39.56	28.42	15.39	12.27	34.00	57.80	190.90
20	3.8.2018	14.00	6.16	14.85	6.85	5.01	2.49	2.27	44.50	50.30	143.30
21	5.8.2018	48.80	22.03	121.71	57.80	41.52	36.48	2.22	67.10	97.60	103.40

Continue

22	6.8.2018	131.30	20.61	41.04	29.52	28.22	19.69	6.37	184.40	220.60	232.40
23	12.8.2018	27.30	12.12	39.43	39.43	32.70	22.28	2.25	39.40	57.80	237.90
24	13.8.2018	145.50	23.60	42.30	20.28	14.98	9.47	6.17	184.90	192.30	334.60
25	25.8.2018	27.80	5.57	36.03	22.43	20.52	15.15	4.99	27.80	27.80	31.80
26	26.8.2018	22.70	5.29	21.28	13.90	11.03	6.33	4.29	50.50	50.50	54.50
27	29.8.2018	30.60	10.33	33.72	26.46	21.45	17.49	2.96	53.30	81.10	81.10
28	30.8.2018	36.90	6.88	29.99	24.26	16.66	13.21	5.36	67.50	92.20	118.00
29	31.8.2018	23.20	13.99	53.00	46.37	29.22	26.06	1.66	90.70	90.70	141.20
30	1.9.2018	54.60	4.12	54.47	41.46	32.15	21.16	13.25	114.70	145.30	195.80
31	2.9.2018	27.60	2.27	48.41	31.78	29.49	18.46	12.16	105.40	172.90	195.60
32	11.9.2018	25.00	7.57	32.78	32.78	25.49	13.99	3.30	26.60	26.60	37.20
33	14.9.2018	33.80	4.36	29.78	25.46	21.15	16.45	7.75	44.20	70.80	70.80
34	24.9.2018	20.50	21.54	15.22	11.94	9.08	6.23	0.95	54.30	54.30	54.30
35	25.9.2018	35.70	11.01	14.03	14.03	11.01	7.45	3.24	73.30	90.00	90.00

Supplementary Table S2

Rainfall characteristics during the investigation period of 2019 (monsoon season :June to September).

Event	Sampling date	Rainfall amount (mm)	Rainfall duration (hours)	Maximum rainfall intensity in 5 min (mm hour ⁻¹)	Maximum rainfall intensity in 10 min (mm hour ⁻¹)	Maximum rainfall intensity in 15 min (mm hour ⁻¹)	Maximum rainfall intensity in 30 min (mm hour ⁻¹)	Mean rainfall intensity (mm hour ⁻¹)	Cumulative precipitation during the previous 3 days (mm)	Cumulative precipitation during the previous 5 days (mm)	Cumulative precipitation during the previous 7 days (mm)
1	18.06.2019	17.80	6.23	38.64	27.05	19.32	9.93	2.86	17.80	25.30	25.30
2	23.06.2019	15.70	0.90	83.09	53.24	37.82	19.70	17.44	15.70	33.50	33.50
3	02.07.2019	32.80	2.83	91.77	47.40	36.58	29.18	11.59	32.80	32.80	32.80
4	04.07.2019	13.80	2.04	42.18	25.88	19.51	12.16	6.76	46.60	46.60	46.60
5	05.07.2019	17.40	6.43	56.43	41.51	30.15	16.65	2.71	31.20	64.00	64.00
6	08.07.2019	79.30	5.20	90.41	57.77	52.02	32.16	15.25	79.30	110.50	143.40
7	09.07.2019	36.40	8.95	91.59	43.52	29.88	22.08	4.07	115.70	133.10	146.90
8	10.07.2019	58.40	2.50	218.65	142.32	78.76	23.24	23.36	174.10	174.10	205.30
9	15.07.2019	20.20	8.40	37.22	23.08	15.29	11.19	2.40	33.50	41.80	215.90
10	18.07.2019	27.20	7.36	63.22	33.23	27.07	26.56	3.70	45.60	69.10	87.40
11	25.07.2019	52.20	23.18	46.40	36.28	25.03	23.91	2.25	52.20	57.80	85.00
12	27.7.2019	37.10	17.18	70.66	48.98	34.24	17.55	2.16	89.30	89.30	94.90
13	28.7.2019	40.50	13.34	56.77	24.64	18.73	10.52	3.04	77.60	129.80	129.80
14	3.8.2019	68.60	11.28	88.12	43.19	29.16	24.30	6.08	68.60	68.60	146.20
15	5.8.2019	55.20	6.29	38.13	38.13	15.44	12.90	8.78	123.80	123.80	123.80
16	6.8.2019	29.70	6.29	41.27	28.47	19.45	14.16	4.72	84.90	153.50	153.50
17	7.8.2019	58.40	3.54	58.79	37.12	36.48	20.30	16.50	143.30	211.90	211.90
18	14.8.2019	14.50	2.91	22.84	21.73	17.01	10.37	4.98	26.50	26.50	96.20
19	15.8.2019	24.00	1.31	29.84	23.73	15.01	11.37	18.32	38.50	50.50	61.80
20	17.8.2019	18.80	11.80	35.05	28.15	26.48	23.51	1.59	42.80	57.30	69.30
21	18.8.2019	63.60	22.98	64.15	43.45	28.45	22.19	2.77	82.40	120.90	132.90

Continue

22	19.8.2019	13.30	13.26	11.43	10.15	7.14	5.12	1.00	95.70	119.70	134.20
23	26.8.2019	64.80	7.78	76.15	54.15	46.45	28.49	8.33	64.80	64.80	78.10
24	01.09.2019	126.00	4.41	181.41	79.24	58.35	41.09	28.57	136.10	136.10	200.90
25	05.09.2019	26.30	4.82	27.51	25.88	21.04	12.24	5.46	36.00	162.00	162.00
26	27.09.2019	36.00	6.05	57.01	39.47	27.28	20.22	5.95	47.40	55.50	63.62
27	29.09.2019	90.10	15.43	95.16	43.82	33.80	18.80	5.84	126.10	145.60	153.72
28	30.09.2019	68.20	23.68	103.47	58.00	39.64	29.16	2.88	159.30	194.30	194.30
29	02.10.2019	59.40	3.04	113.14	58.53	46.78	29.42	19.54	127.60	217.70	253.70

Supplementary Table S3

Rainfall characteristics during the investigation period of 2020 (monsoon season :June to September).

Event	Sampling date	Rainfall amount (mm)	Rainfall duration (hours)	Maximum rainfall intensity in 5 min (mm hour ⁻¹)	Maximum rainfall intensity in 10 min (mm hour ⁻¹)	Maximum rainfall intensity in 15 min (mm hour ⁻¹)	Maximum rainfall intensity in 30 min (mm hour ⁻¹)	Mean rainfall intensity (mm hour ⁻¹)	Cumulative precipitation during the previous 3 days (mm)	Cumulative precipitation during the previous 5 days (mm)	Cumulative precipitation during the previous 7 days (mm)
1	1.6.2020	9.60	9.99	14.09	8.41	8.08	7.00	0.95	17.10	25.10	25.10
2	5.6.2020	17.10	8.77	22.15	12.12	8.92	7.54	1.96	25.80	35.27	35.27
3	16.6.2020	50.00	3.08	125.41	68.06	43.51	28.46	16.23	57.50	62.80	67.20
4	17.6.2020	15.50	3.75	89.58	53.76	36.92	24.28	4.12	65.40	78.25	82.65
5	21.6.2020	12.90	6.09	68.05	46.45	29.45	18.01	2.11	18.30	33.75	78.30
6	8.7.2020	18.70	7.56	66.46	51.08	27.15	11.15	2.47	25.68	33.67	42.17
7	11.7.2020	49.90	5.12	49.06	29.07	25.52	19.76	9.75	49.90	75.59	83.57
8	15.7.2020	16.80	1.97	34.72	31.47	28.16	19.48	8.53	24.62	74.52	100.20
9	21.7.2020	21.30	5.67	70.85	58.00	42.72	28.14	3.76	26.10	30.60	47.40
10	25.7.2020	30.00	2.91	56.37	48.12	21.16	16.13	10.31	36.90	67.20	67.20
11	26.7.2020	25.80	8.31	64.59	39.41	33.24	18.34	3.10	62.70	71.70	93.03
12	27.7.2020	27.80	3.90	59.36	43.12	31.12	22.14	7.13	83.60	90.57	120.80
13	31.7.2020	48.60	10.71	88.33	47.94	32.72	17.06	4.54	63.20	115.80	153.70
14	10.8.2020	23.00	8.40	69.03	39.15	28.20	20.52	2.74	32.72	32.72	32.72
15	11.8.2020	74.20	14.29	128.69	58.18	39.88	32.31	5.19	97.20	110.40	122.10
16	16.8.2020	143.10	11.37	151.76	110.11	68.01	45.85	12.59	150.08	150.08	247.20
17	21.8.2020	20.00	1.87	20.65	16.38	13.77	12.16	10.70	37.70	44.40	194.56
18	29.8.2020	18.30	2.58	28.71	19.55	16.47	10.37	7.09	25.50	48.76	48.76
19	4.9.2020	21.70	4.15	20.20	14.36	10.75	8.16	5.23	28.32	38.32	66.62
20	6.9.2020	21.10	2.77	74.46	43.96	23.58	15.12	7.62	42.80	52.80	71.60
21	15.9.2020	30.00	2.51	122.13	57.71	39.36	26.31	11.95	46.20	58.30	68.49

Supplementary Table S4

Rainfall events classification as per Indian Metrologic Department (IMD)* –

Sl. No.	Classification	Rainfall (R) (mm/day)
1	Light rain	$0.0 < R \leq 10.0$
2	Moderate rain	$10.0 < R \leq 35.5$
3	Rather heavy rain	$35.5 < R \leq 64.4$
4	Heavy rain	$64.4 < R \leq 124.4$
5	Very heavy rain	$R > 124.4$

*IMD, 2018. Classification of Indian rainfall.