

Recent Extreme Weather and Necessity of OSM

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Extreme 14 (Fourteen) Weather Events in the last
18(Eighteen) months



Photo Credit: The Financial Express



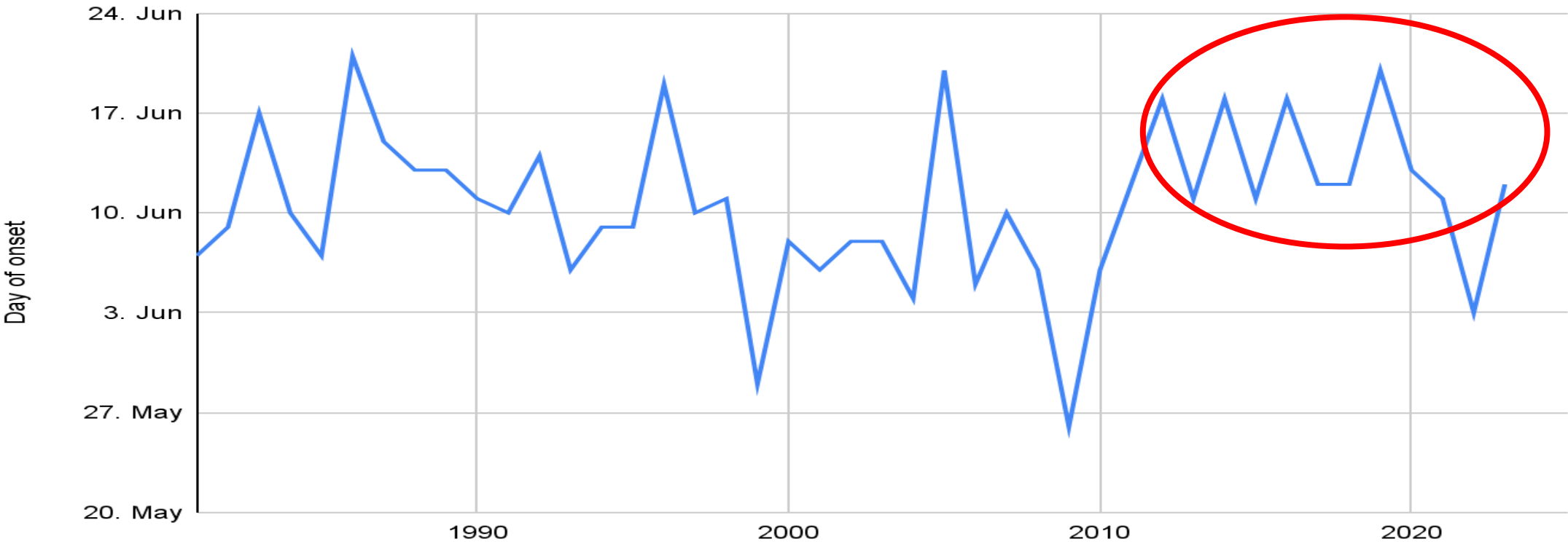
Photo Credit: Mohammad Mazed

June Heatwave 2023: First two weeks

41.5 (07 June Rajshahi)
41.1 (04 June Dinajpur)
41.0 (05 June Rajshahi)
40.7 (14 June Rajshahi)
40.7 (05 June Rajshahi)

Shifts of Monsoon

Onset of monsoon in Bangladesh



Onset of Monsoon over Bangladesh

July Rainfall 2023

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	1724	2210	287	368	-22.0
Mymensingh	775	854	388	427	-9.3
Chattogram	3497	8640	291	720	-59.5
Sylhet	1271	1159	636	579	9.7
Rajshahi	949	1808	190	362	-47.5
Rangpur	2034	2563	339	427	-20.7
Khulna	1548	2037	258	339	-24.0
Barisal	1314	2075	329	519	-36.7
Country	13112	21347	305	496	-38.6

August Rainfall 2023

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	3193	1875	319.3	312	2.2
Mymensingh	897	680	448.5	340	31.9
Chattogram	13134	6677	875.6	556	57.4
Sylhet	1306	912	653.0	456	43.2
Rajshahi	2070	1395	345.0	279	23.6
Rangpur	3050	2278	508.3	380	33.9
Khulna	2274	1748	324.9	291	11.5
Barisal	3503	1732	583.8	433	34.9
Country	29427	17296	555.2	402	38.0

Extreme Rainfall August 2023


322 (06 Aug Chattogram)

316 (06 Aug Khepupara)

286 (06 Aug Bandarban)



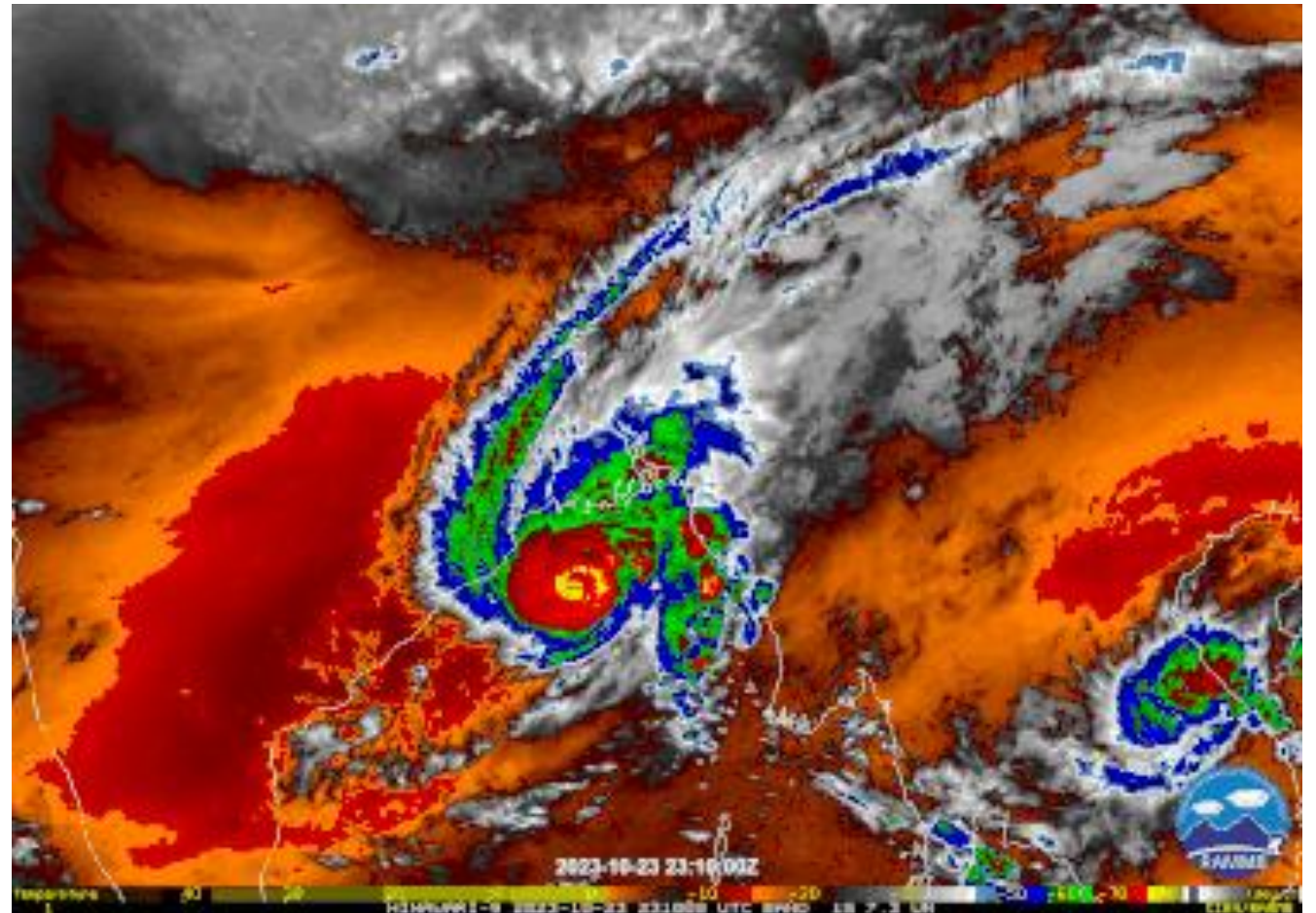
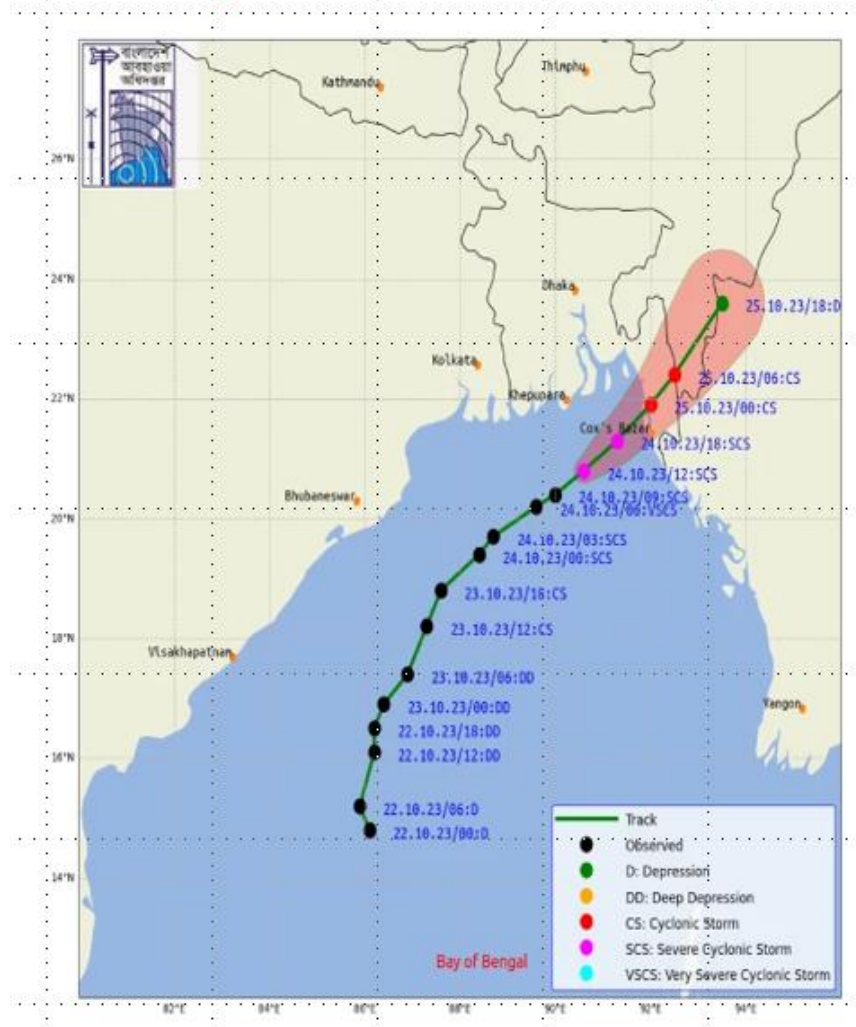
Chattogram 06 August (Photo Source: BBS)



Bandarban 08 August
➡ (Photo Source: ISPR)

Cyclone Hamoon October 2023

Observed & forecast track along with Cone of Uncertainty of Severe Cyclonic storm "Hamoon" as on 24 Oct 23, 09 UTC

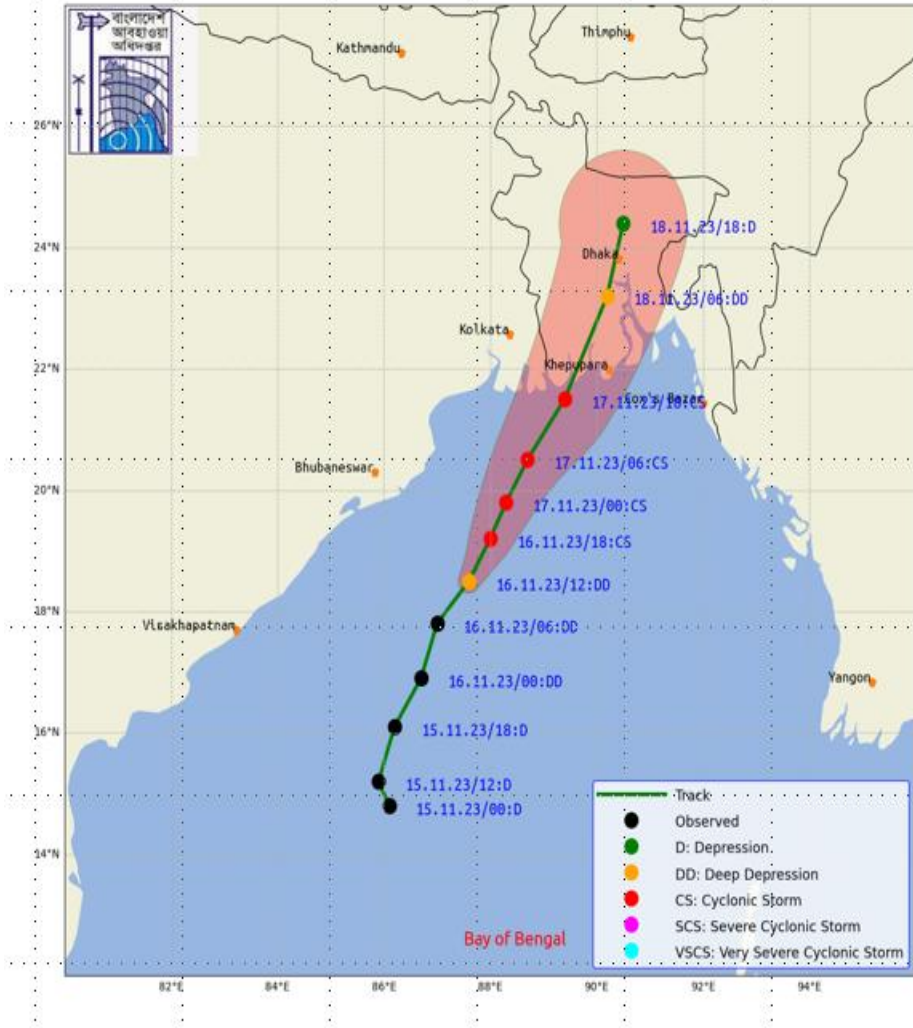


October Rainfall 2023

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	2196	956	366.0	159	129.8
Mymensingh	1001	383	500.5	191	161.5
Chattogram	2416	2235	201.3	186	8.1
Sylhet	911	374	455.5	187	143.6
Rajshahi	1092	563	218.4	113	93.8
Rangpur	971	803	161.8	134	20.9
Khulna	1022	718	170.3	120	42.3
Barisal	1628	706	407.0	176	130.7
Country	11237	6738	261.3	157	66.8

Cyclone Midhili November 2023

Observed & forecast track along with Cone of Uncertainty of Deep Depression as on 06 UTC, 16 Nov 2023



Station	Wind Speed (Km/h)	Rainfall (mm)
Patuakhali	102	148
Hatiya	94	105



Photo: Observer

November Rainfall 2023

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	345	193	57.5	32	78.7
Mymensingh	12	38	6	19	-68.0
Chattogram	1538	754	128.2	63	103.9
Sylhet	181	71	90.5	35	156.0
Rajshahi	12	77	2.4	15	-84.4
Rangpur	9	58	1.5	10	-84.5
Khulna	214	183	35.7	31	16.8
Barisal	916	234	229.0	59	290.7
Country	3227	1608	75.0	37	100.6

December Rainfall 2023 (Michaung)

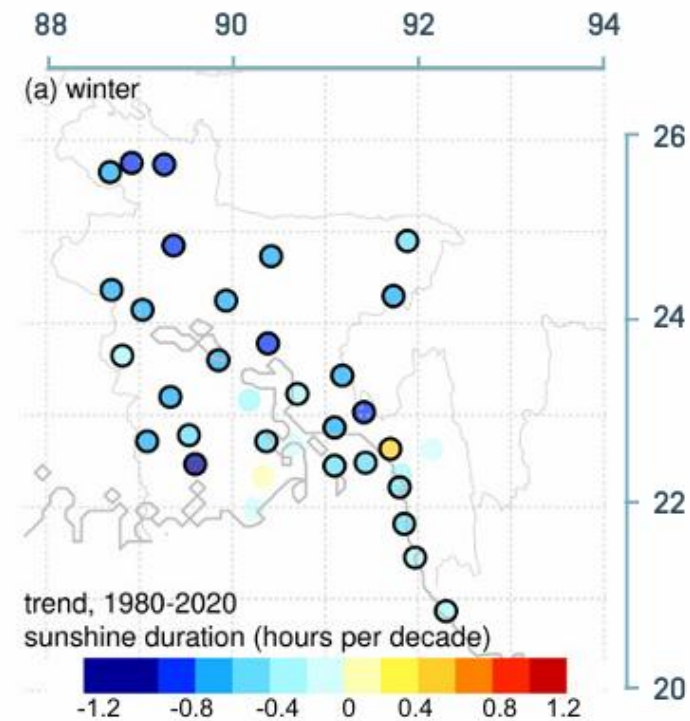
	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	450	60	75.0	10	655.4
Mymensingh	52	20	26.0	10	163.6
Chattogram	211	113	17.6	9	86.3
Sylhet	76	21	38.0	10	269.2
Rajshahi	195	55	39.0	11	256.6
Rangpur	47	49	7.8	8	-3.7
Khulna	246	60	41.0	10	306.8
Barisal	21	38	5.3	9	-44.3
Country	1298	415	30.2	10	212.9

Warm December 2023

- Maximum temperature was above normal at 0.7°C
- Minimum temperature was above normal at 2.2°C
- Country average temperature was above normal at 1.6°C

Cold Day January 2024

- Maximum temperature was below normal at 2.0°C
- Country average temperature was above normal at 1.0°C



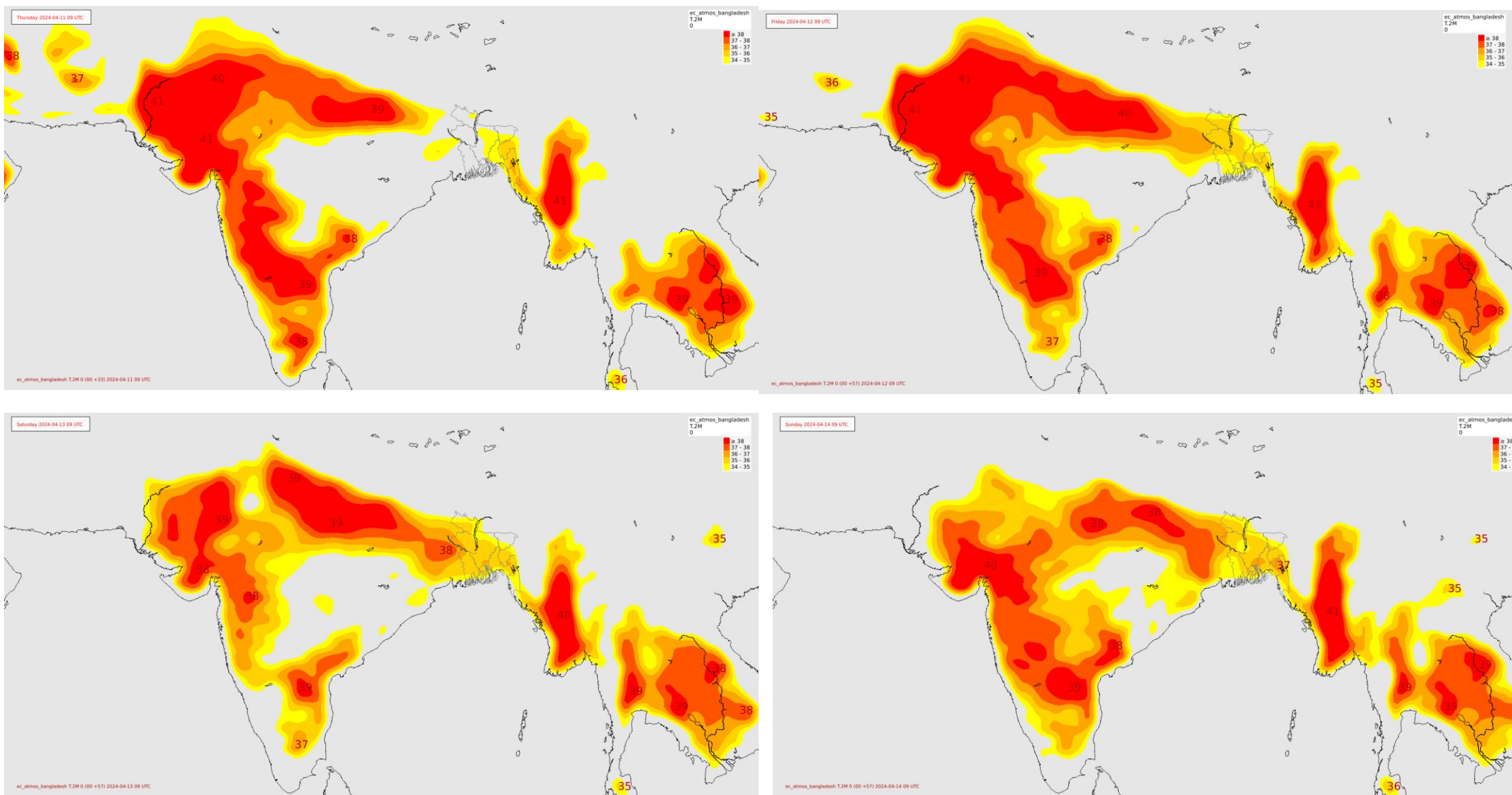
Stations with significant trends ($p < 0.05$) are marked with black outlines.

Source: (<https://www.bmd.gov.bd/p/Publications>)

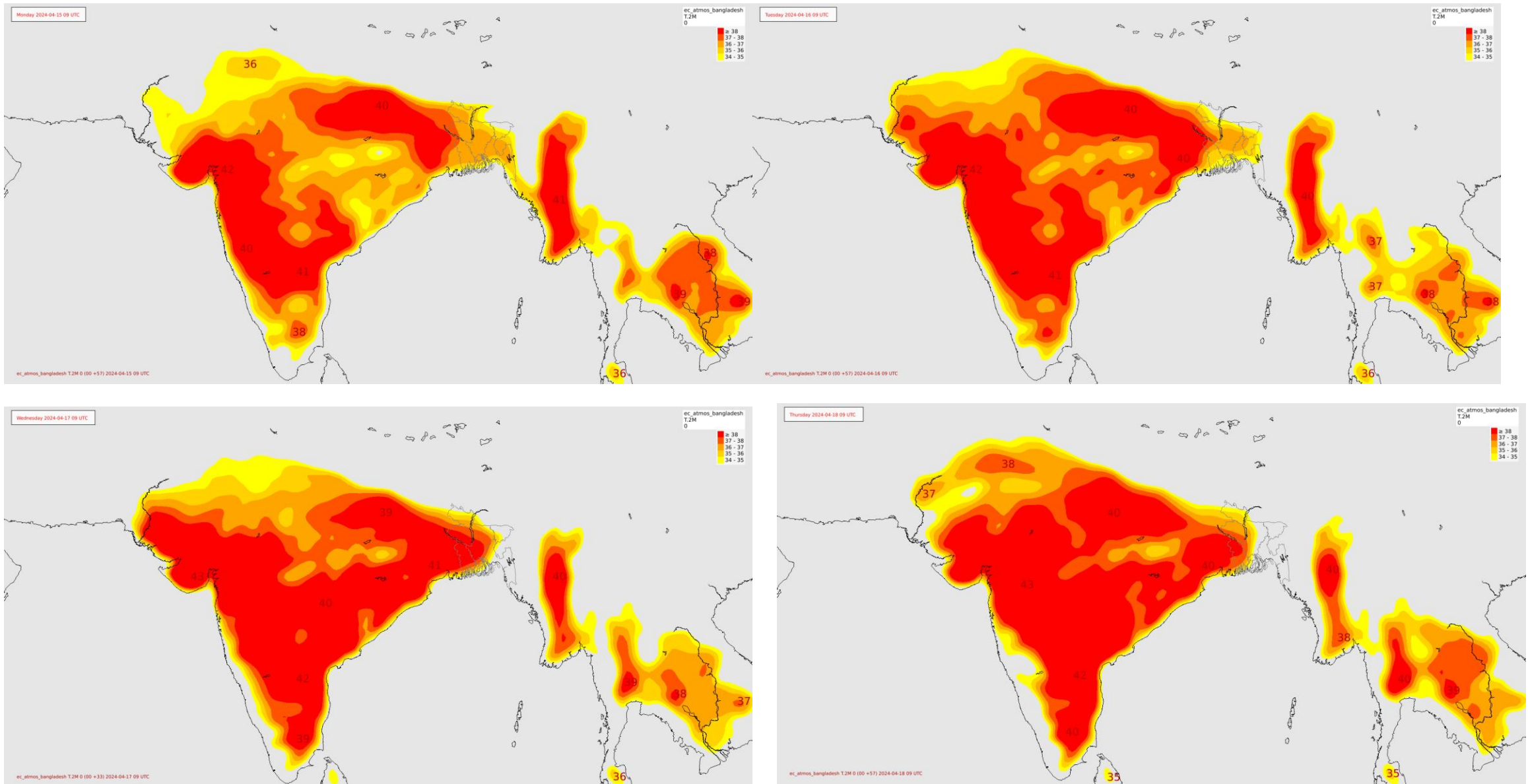
March Rainfall 2024

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	492	332	82.0	55	48.3
Mymensingh	627	95	313.5	47	561.6
Chattogram	795	719	66.3	60	10.5
Sylhet	225	239	112.5	120	-6.0
Rajshahi	134	121	22.3	20	11.0
Rangpur	340	136	56.7	23	149.2
Khulna	229	245	38.2	41	-6.4
Barisal	163	213	40.8	53	-23.4
Country	3005	2100	732.2	419	74.7

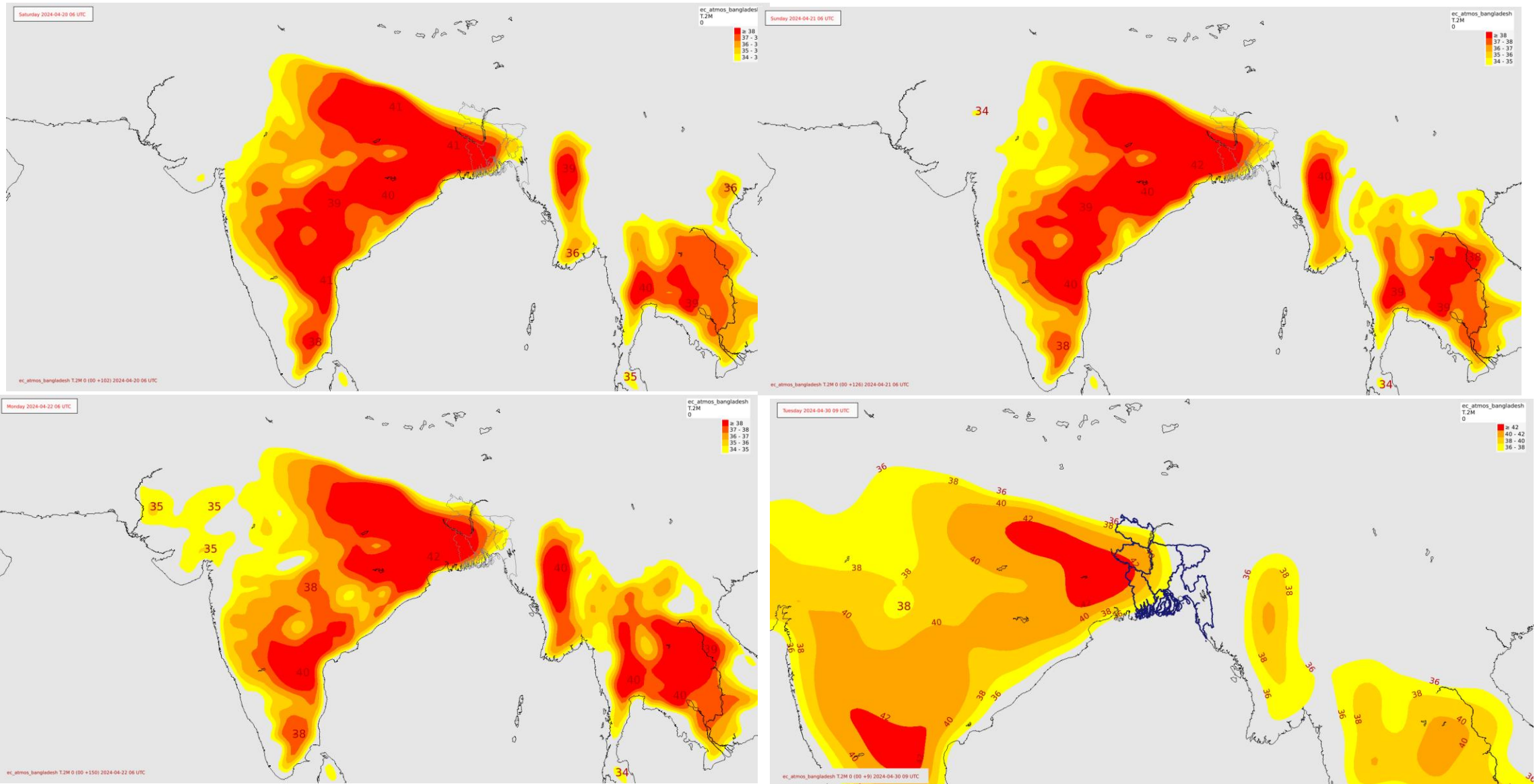
Tmax 11-14 April 2024



Tmax 15-18 April 2024



Tmax 20-22,30 April 2024

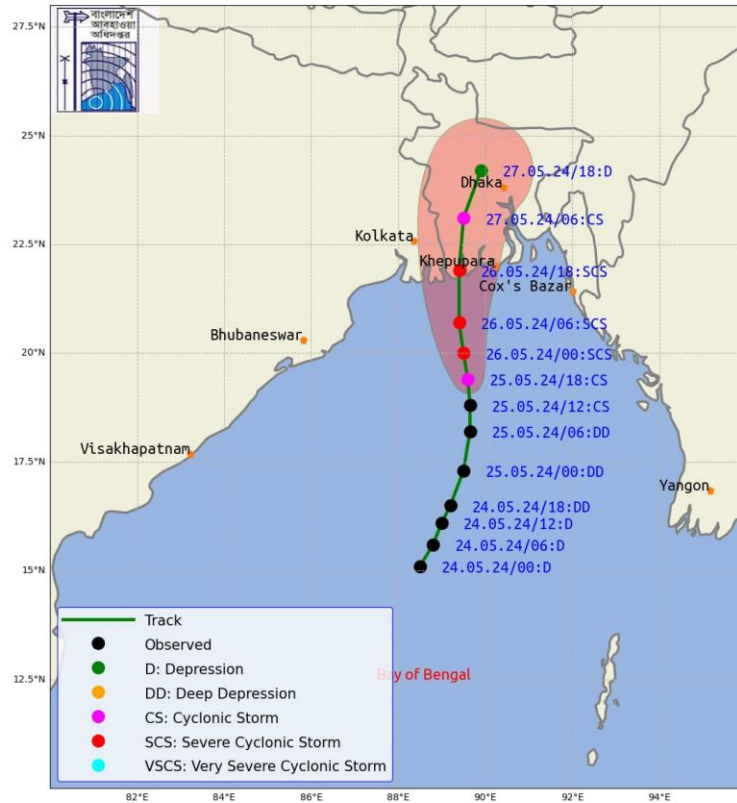


Warmest April 2024

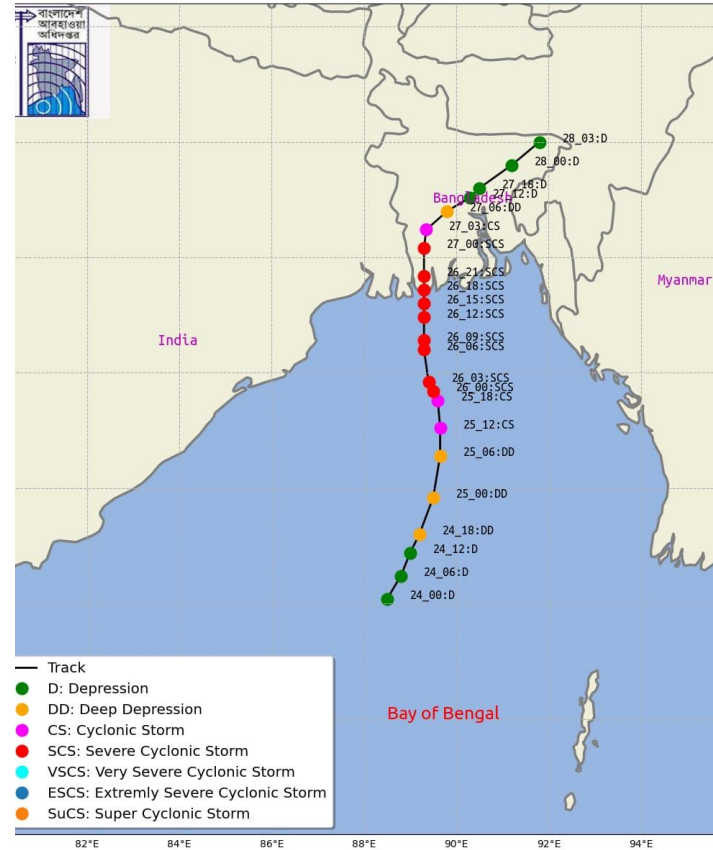
- Maximum temperature was above normal at 3.2°C
- Minimum temperature was above normal at 2.8°C
- Country average temperature was above normal at 3.0°C
- The highest recorded temperature was Jashore at 43.8°C (30 April)

May 2024

Observed & forecast track along with Cone of Uncertainty of Cyclonic storm "REMAL" as on 12 UTC, 25 May 2024



Observed track of Severe Cyclonic Storm "REMAL"



Rainfall

Chandpur 257 mm

Chattogram 249 mm

Sylhet 249 mm

Dhaka 224 mm

Monpura 219 mm

Madaripur 208

Wind

Patuakhali 111 kph

Khepupara 111 kph

Chattogram 92 kph

Koyra 83 kph

Satkhira 78 kph

June Rainfall 2024

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	1686	2138	187.3	356	-47.4
Mymensingh	1270	864	635.0	432	46.9
Chattogram	5661	7070	377.4	589	-35.9
Sylhet	2809	1268	1404.5	634	121.5
Rajshahi	851	1525	141.8	305	-53.5
Rangpur	4301	2336	716.8	389	84.1
Khulna	1044	1776	149.1	296	-49.6
Barisal	1267	1931	181.0	483	-62.5
Country	18889	18908	349.8	440	-20.4

August Rainfall 2024

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	2245	1875	380	302	25.8
Mymensingh	855	780	298	419	-29.0
Chattogram	15461	3805	1288	554	132.6
Sylhet	1167	912	584	456	28.0
Rajshahi	1160	1325	232	275	-15.6
Rangpur	1541	2723	257	410	-37.4
Khulna	3381	1588	564	359	57.0
Barisal	3469	1263	867	433	100.3
Country	29279	14271	617	412	49.7

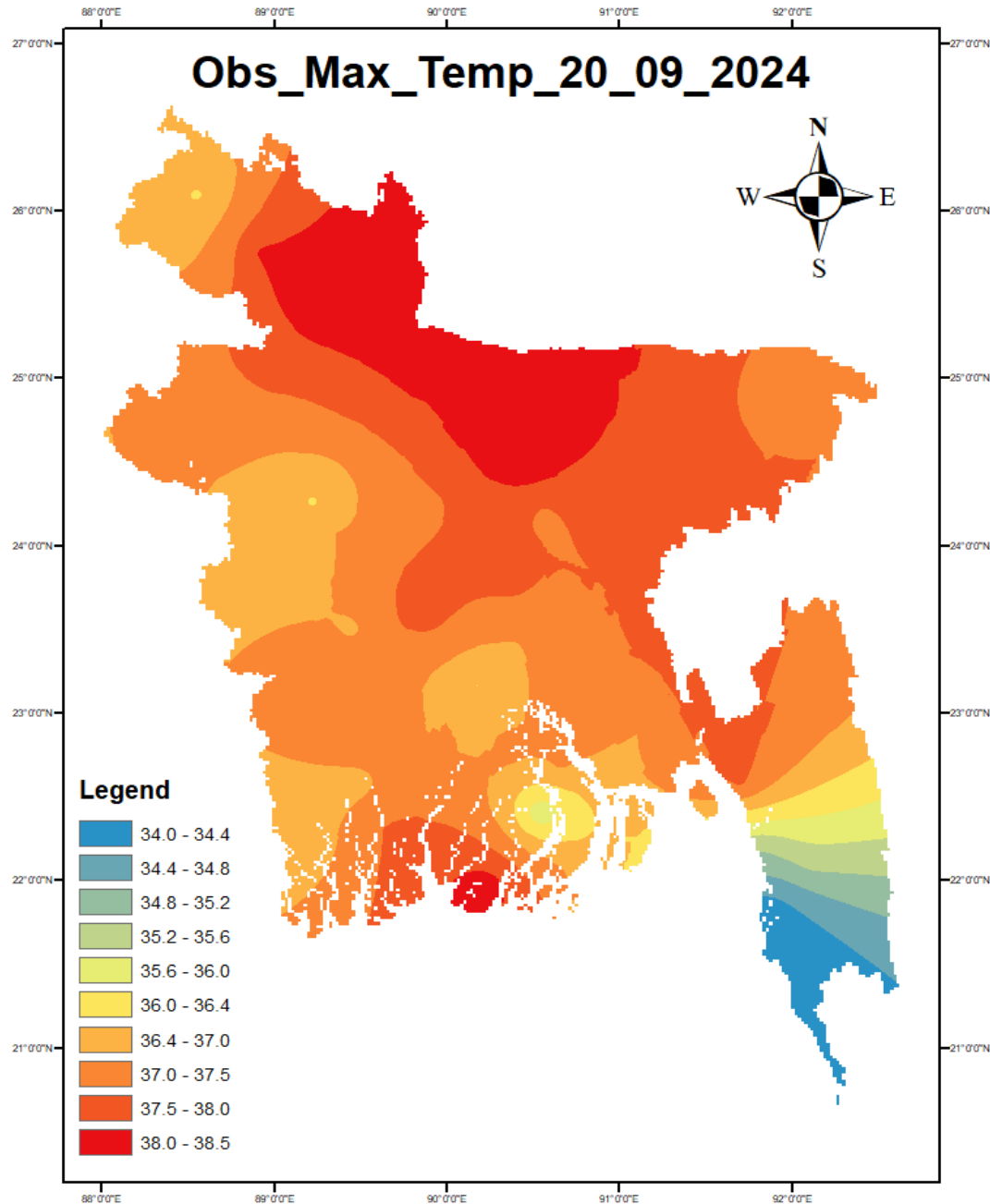
Total death 23 (Source:Dhaka Tribune)

Extreme Rainfall (Cox'sbazar) September 2024

- 12 Sep & 13 Sep total rainfall (378+225)= 603 mm



12 Sep 6 death due to
landslides
(Source: The South
Asian Times)

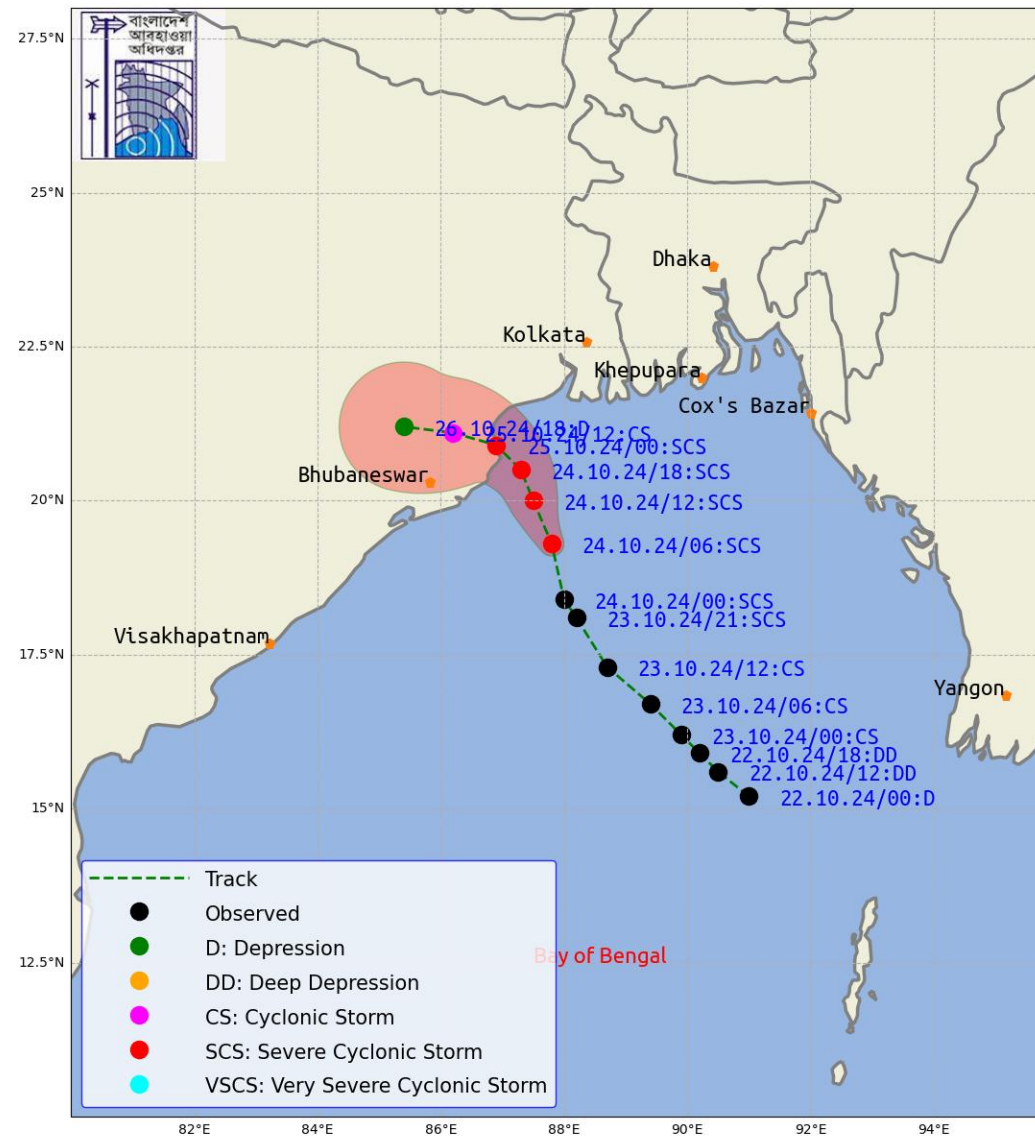


Heat Wave

20 September 2024

(Highest temp Netrokona 38.5 DegC)

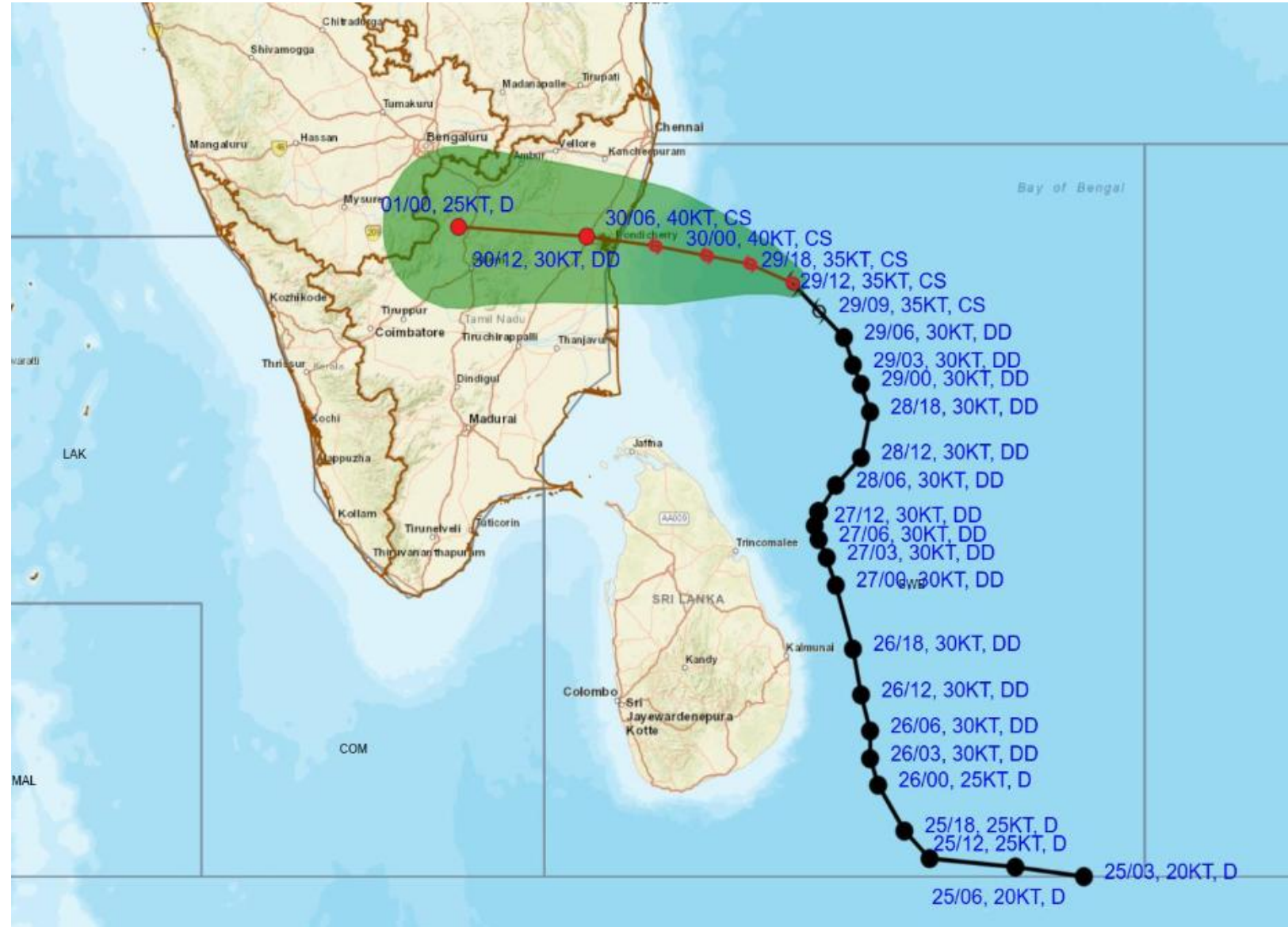
Observed & forecast track along with Cone of Uncertainty of Severe Cyclonic Storm "Dana" as on 00 UTC, 24 Oct 2024



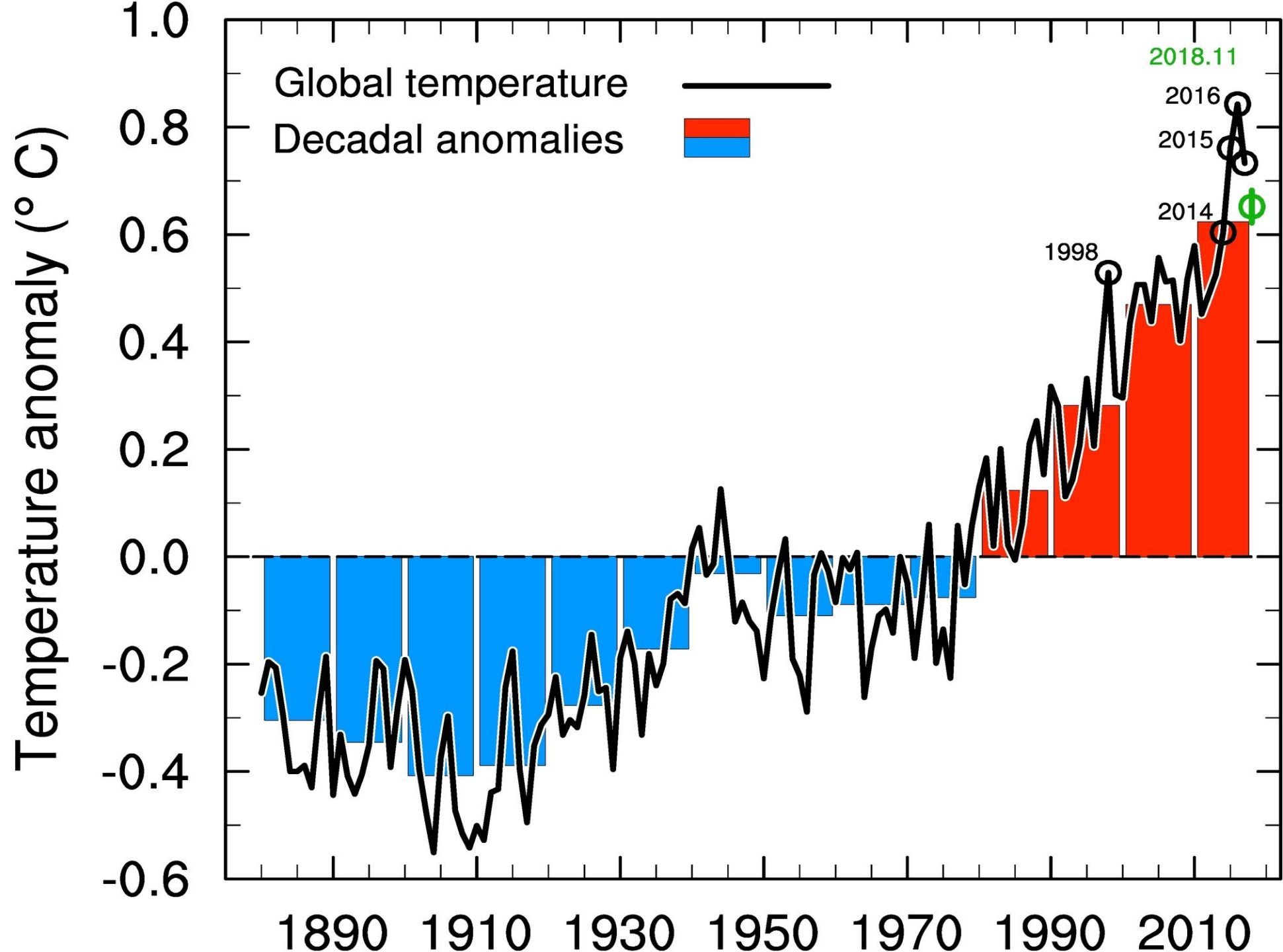
October Rainfall 2024

	Total (Actual)	Total (Normal)	Ave_actual	Ave_Normal	Deviation
Dhaka	1343	956	224	167	34.0
Mymensingh	569	383	285	172	65.4
Chattogram	2493	2235	192	186	3.1
Sylhet	404	374	202	187	8.0
Rajshahi	960	563	160	122	31.1
Rangpur	753	803	126	149	-15.8
Khulna	1581	778	264	120	119.6
Barisal	1144	706	286	186	53.8
Country	9247	6798	217	161	34.8

Cyclone Fengal (November 2024)

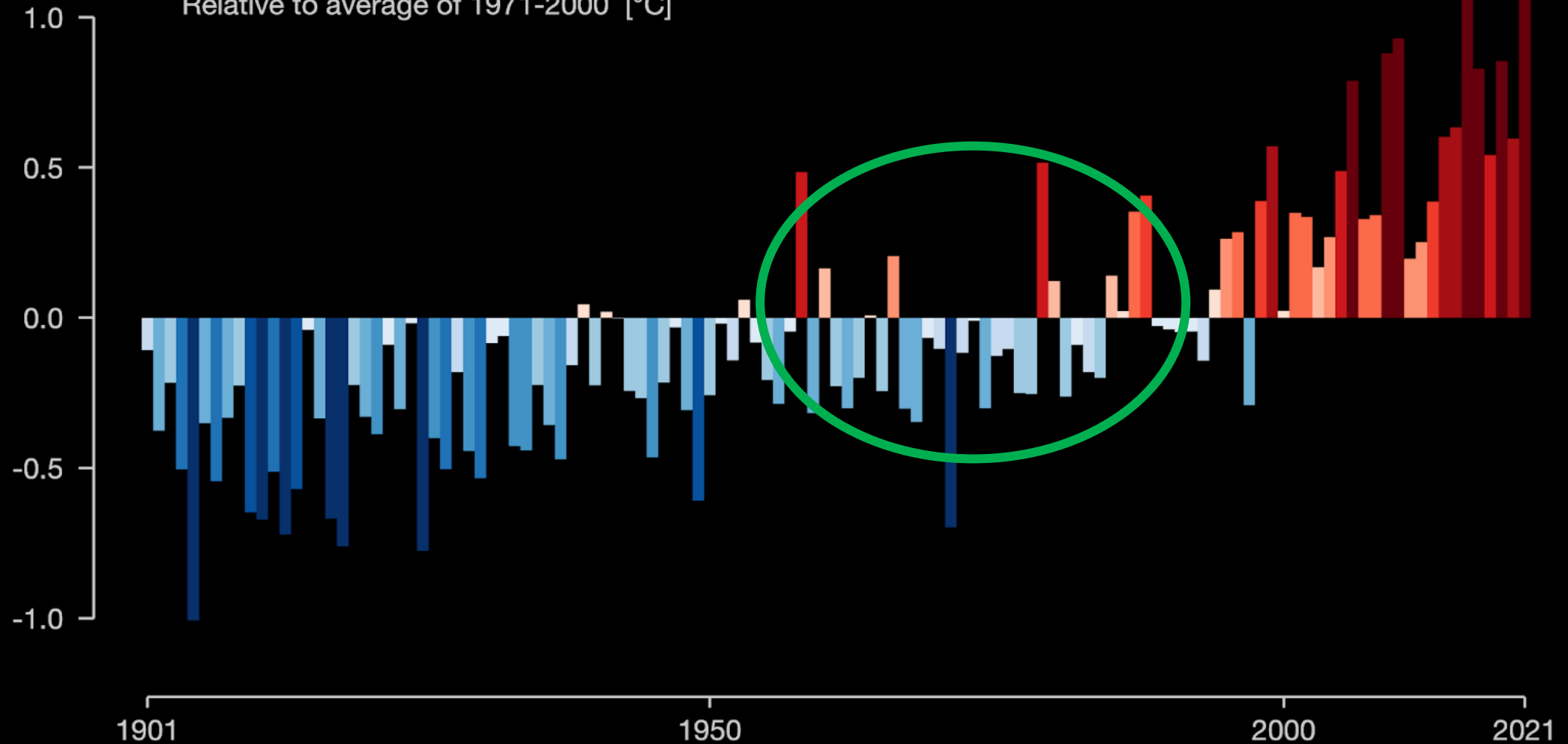


Source: 31 December 2023, The Business Standard

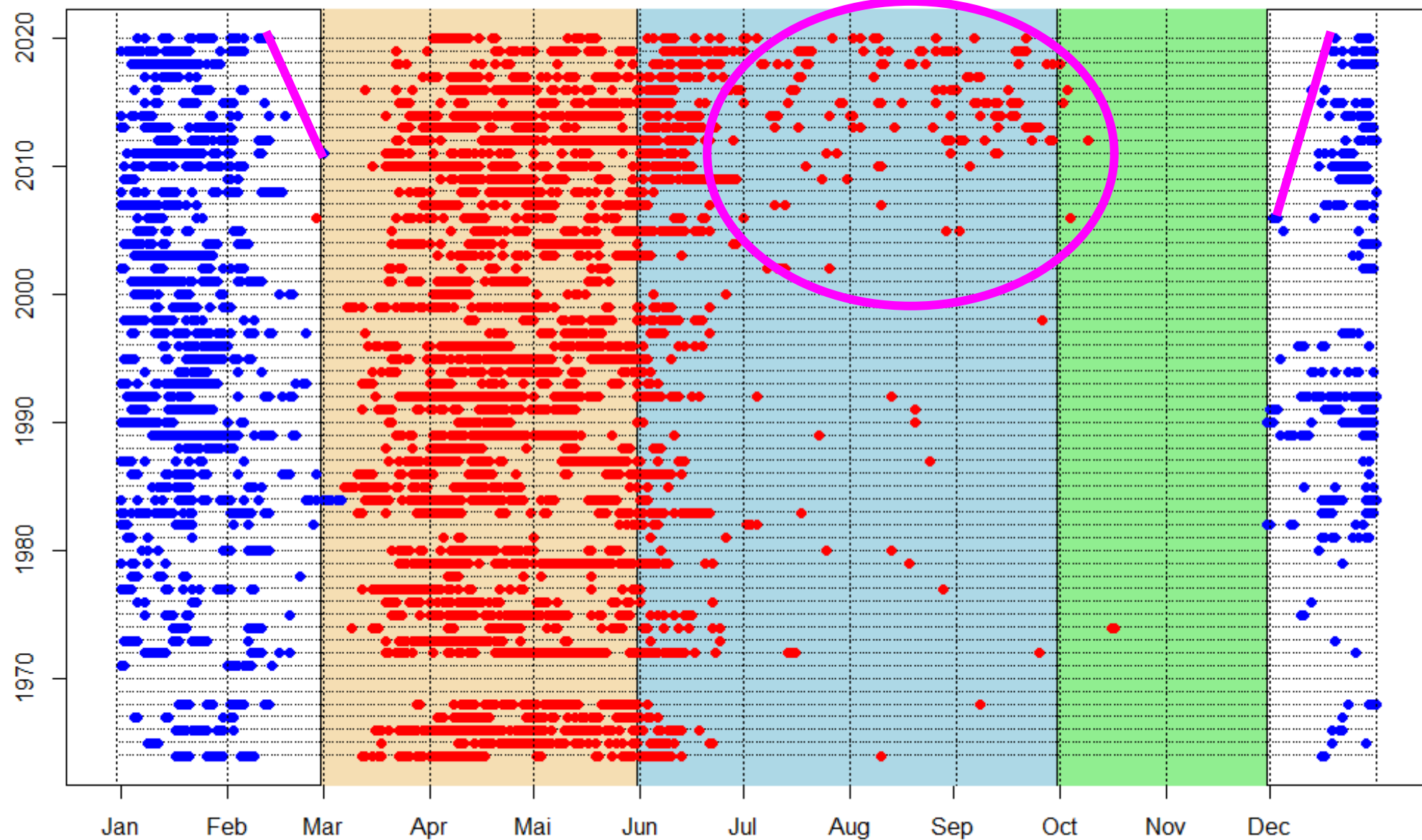


Temperature change in Bangladesh

Relative to average of 1971-2000 [°C]

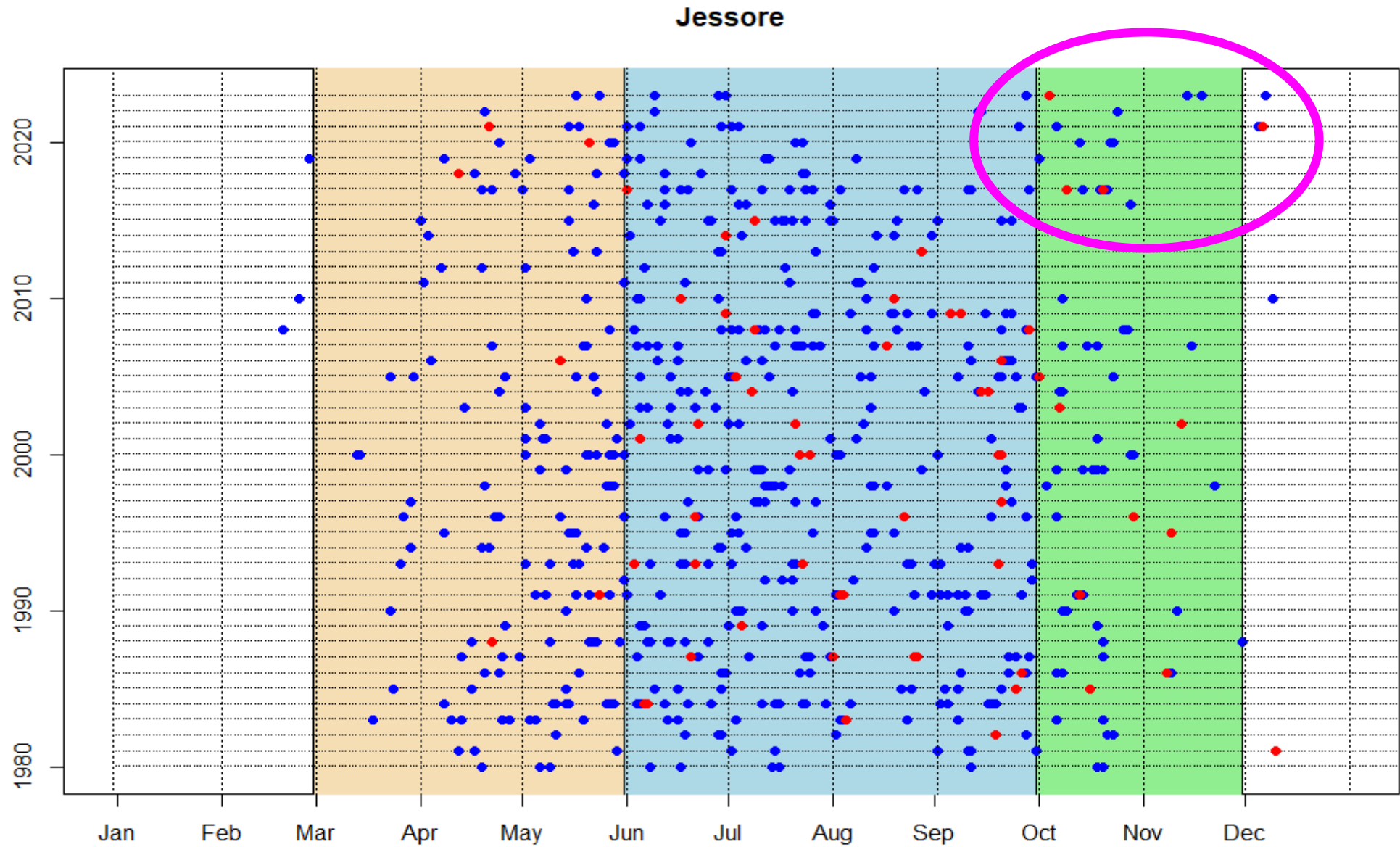


Cold Wave and Heat Wave pattern at Rajshahi



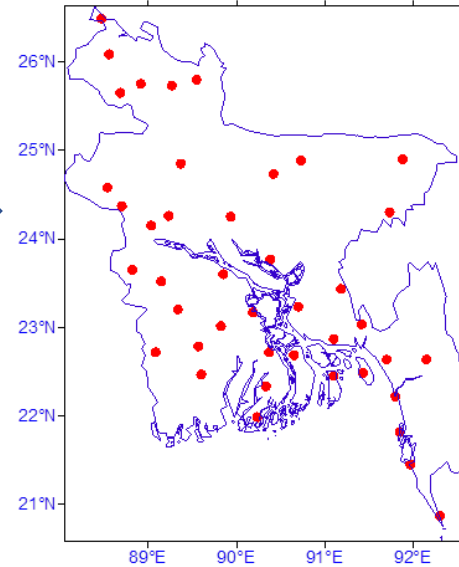
Observation of number of cold and heat waves

Heavy (blue=44-88mm) to Very Heavy (red=89 & above) Rainfall pattern

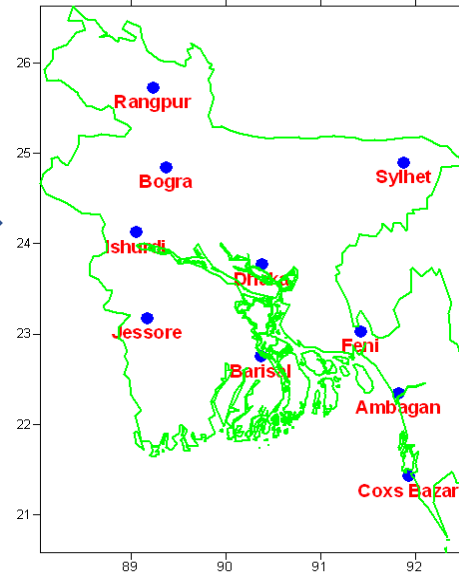


Observational Facilities

1. Synoptic Observatories: 61

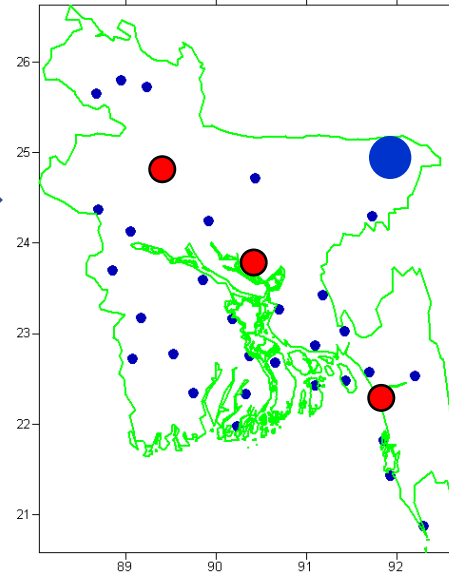


2. Pilot Balloon Observatories: 10

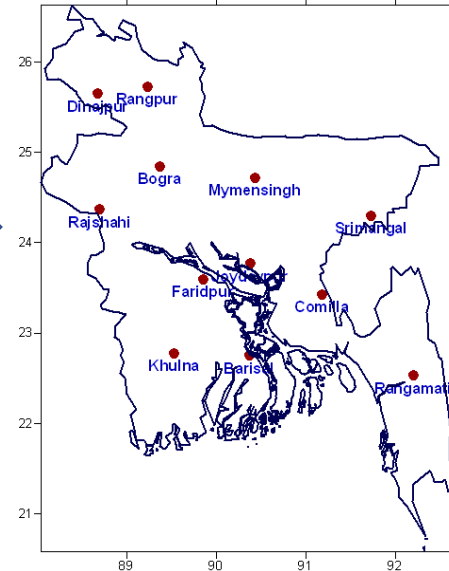


Observational Facilities (cont.)

3. Rawinsonde Observatories: 4




4. Agromet observatories: 19

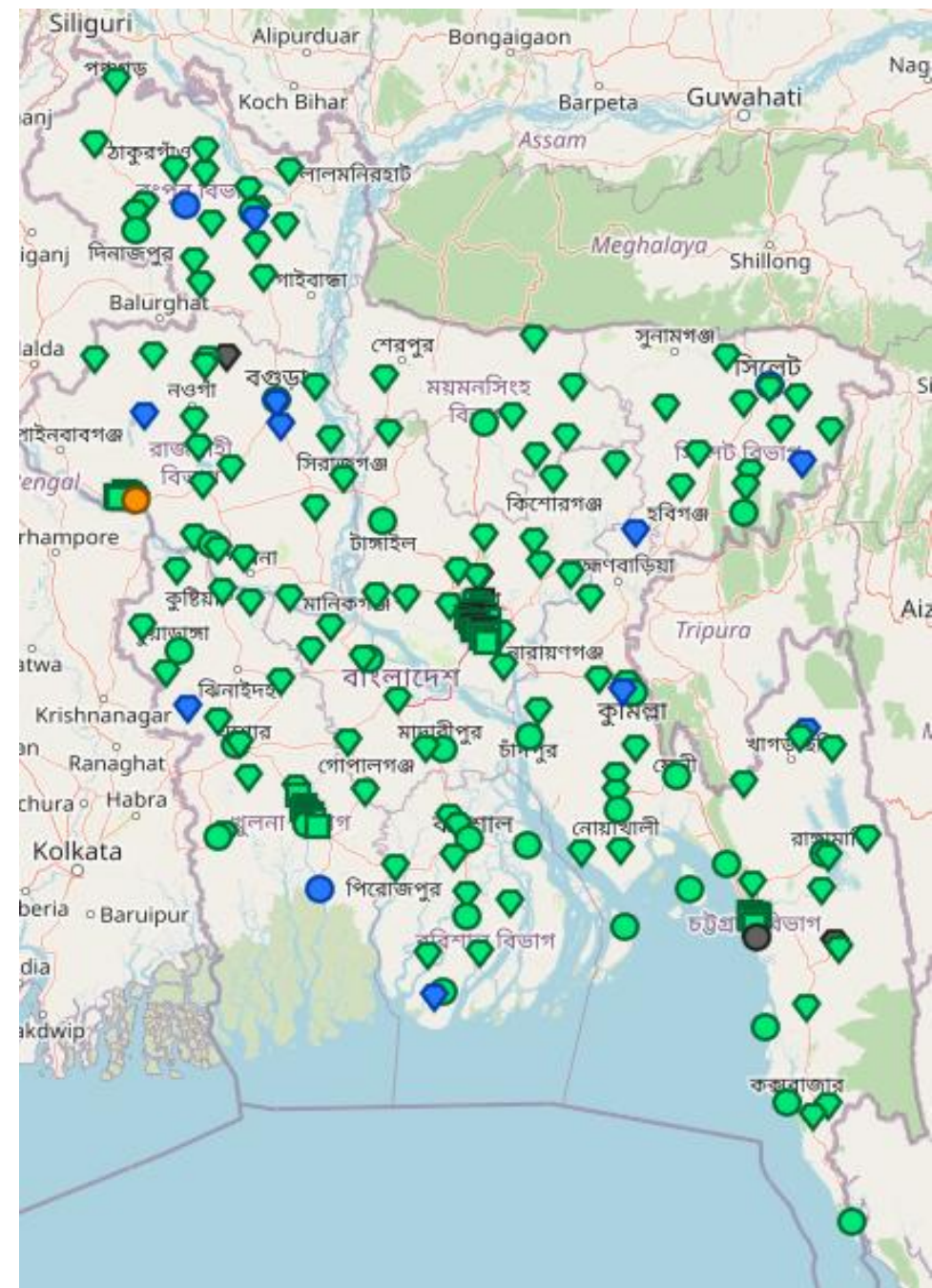


The Bangladesh Weather and Climate Services Regional Project (BWCSR)-Component A was funded by the World Bank

7. Under WB project



Ordinary AWS	= 35
AgAWS	= 125
AWS (rain gage)	= 65
Total AWS	= 225



Thank you!

