



Air Quality Monthly Report

October, 2023



Department of Environment
Ministry of Environment, Forest and Climate Change
Bangladesh

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Introduction:

Department of Environment (DoE), Bangladesh has established a countrywide air quality monitoring (AQM) network. The continuous monitoring of 6 (six) criteria pollutants ($PM_{2.5}$, PM_{10} , SO_2 , CO, NO_x and O_3) is being done by 31(thirty one) Continuous Air Monitoring Stations (CAMS) and Compact Continuous Air Monitoring Stations (C-CAMS) located in the divisional and industrial districts of the country; The network encompasses all the regions of the country - Dhaka, Narayanganj Gazipur, Savar, Mymensing, Narsindi in the center, Chittagong in the south-east. Khulna Cumilla and Barisal in the south, Rajshahi in the west, and Sylhet in the north-east regions, Rangpur in the north west of the country. And C-CAMS are located in Faridpur, Jashore, Satkhira, Bagerhat, Gopalganj, Tangail, Bogura, Tongi, BUET campus, Brahmanbaria, Feni, Noakhali, BSRM (Chattogram), Cox's-Bazar, Nagor Bhaban, Dhaka. The data and information generated from those stations are automatically collected in the central server and are disseminated through DoE website. Air Quality Index (AQI) for each city is calculated and published online daily for notifying the public about the status of air quality in their respective city.

Quality Assurance/Quality Control (QA/QC) methods and procedures are implemented with full documentation and are validated through an international certified calibration reference laboratory. Forms and log sheets document every activity in the air monitoring stations and document all maintenance, calibration, operation and other activities such as all visits to the stations. This monthly report provides an overview and analysis of air quality monitoring data in Bangladesh for the month wise monitoring results.

The report summarizes the data of different CAMS located in different cities of Bangladesh.

Standards of Ambient Air Quality

The Government of Bangladesh has enacted Air Pollution (Control) Rules – 2022 with ambient air quality standards. This report establishes the Air Quality Index (AQI) followed by USEPA guideline to evaluate air pollution.

Table 1: National Ambient Air Quality Standards (NAAQS) for Bangladesh

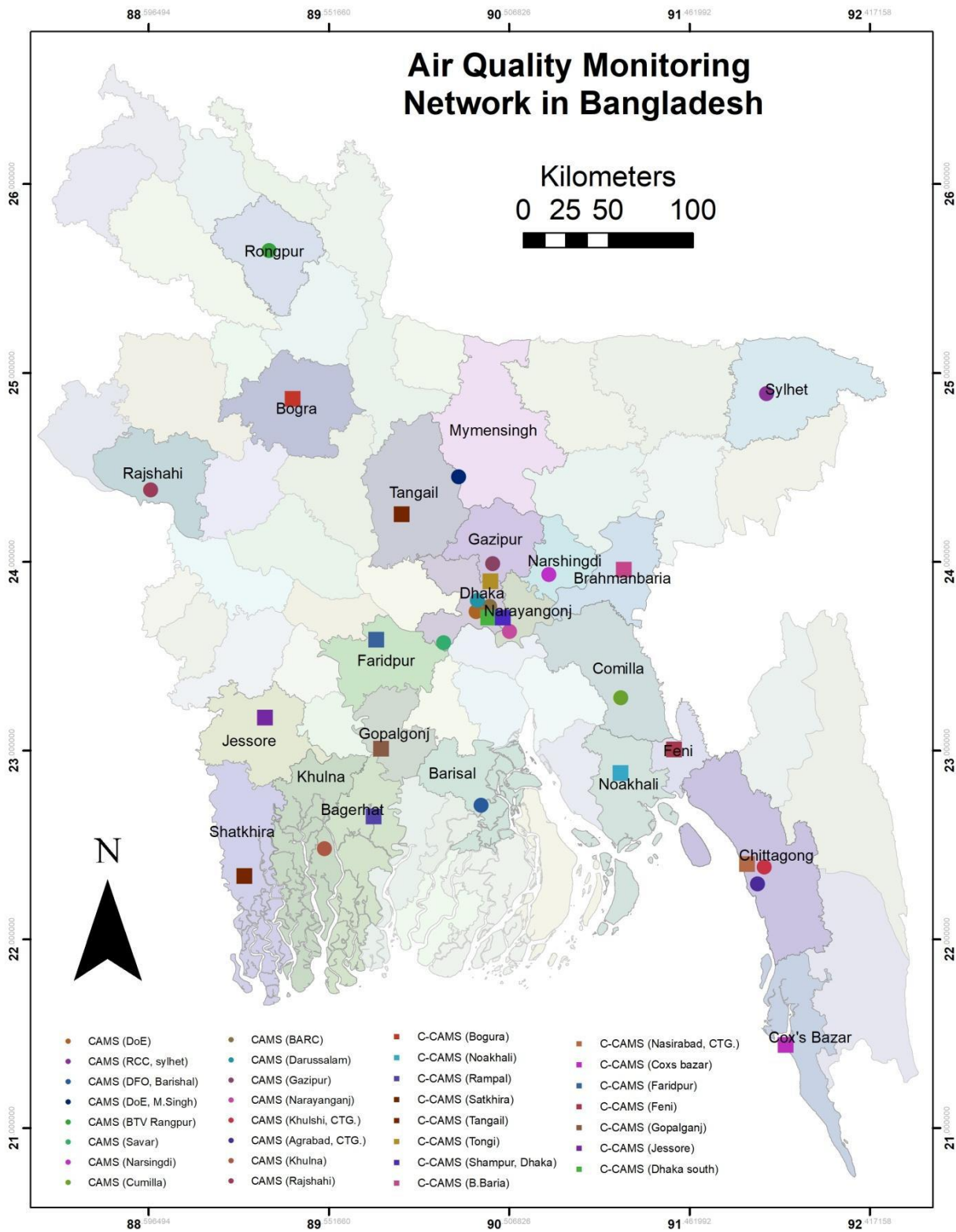
Pollutant	Limit Value	Averaging time
CO	5 mg/m ³	8 hours ^a
	20 mg/m ³	1 hour ^a
Pb	0.25 µg/m ³	Annual
	0.50 µg/m ³	24 hours
NO _x	40 µg/m ³	Annual
	80 µg/m ³	24 hours
PM ₁₀	50 µg/m ³	Annual ^b
	150 µg/m ³	24 hours ^c
PM _{2.5}	35 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	180 µg/m ³	1 hour ^d
	100 µg/m ³	8 hours
SO ₂		Annual
	80 µg/m ³	24 hours ^a

Table 2: Air quality index (AQI) in Bangladesh

Air quality index (AQI)	Category		Colour
	In English	In Bangla	
0-50	Good	ভাল	Green
51-100	Moderate	মধ্যম	Yellow Green
101-150	Caution	সাবধানতা/সতর্কীকরণ	Yellow
151-200	Unhealthy	অস্বাস্থ্যকর	Orange
201-300	Very Unhealthy	খুব অস্বাস্থ্যকর	Red
301-500	Extremely Unhealthy/Hazardous	অত্যন্ত অস্বাস্থ্যকর	Purple

Location Map of Air Monitoring Stations

Figure 1: Locations Map of Continuous Air Monitoring Stations (CAMS) under Department of Environment in Bangladesh.



Station Information

Table 3: Overview of the locations and capacity of the CAMS

City	ID	Location	Latitude/ Longitude	Monitoring Capacity	Year of Est.	Type	Inlet & Met tower Height(m)
Dhaka	CAMS-1	Dept of Environment	23°.77'73.94"N 90°.37'26.03"E	PM ₁₀ , PM _{2.5} , SO ₂ , CO, O ₃ & NOx with Meteorological Parameters	2012	UB/Res	4.8 & 8
	CAMS-2	Farmgate	23°.75'94.10"N 90°.38'86.79"E		2008	Rd/Com	8.8 & 11
	CAMS-3	Darussalam	23°.78'07.75"N 90°.35'54.10"E		2012	UB/Com	8.8 & 11
Gazipur	CAMS-4	Gazipur	23°.99'41.28"N 90°.42'23.15"E		2012	SUB	8.8 & 11
Narayanganj	CAMS-5	Narayanganj	23°.62'60.79"N 90°.50'72.00"E		2012	UB industry	8.8 & 11
Chattogram	CAMS-6	TV Station, Khulshi	22°.36'04.87"N 91°.80'04.54"E		2006	UB1	4.8 & 7
	CAMS-7	Agrabad	22°.32'30.20"N 91°.80'23.36"E		2012	UB/Res	8.8 & 11
Khulna	CAMS-8	Boyra	22°.83'57.75"N 89°.52'90.56"E		2008	UB	6.8 & 10
Rajshahi	CAMS-9	Sapura	24°.38'33.20"N 88°.60'80.07"E		2008	Rd/Res	6.8 & 10
Sylhet	CAMS-10	Red Crecent Campus	24°.88'83.34"N 91°.86'73.47"E		2012	Rd/UB/Res	13.8 & 15
Barishal	CAMS-11	DFO Office Campus	22°.71'02.87"N 90°.36'25.98"E		2012	UB/Res	6.8 & 10
Mymensingh	CAMS-12	DoE Office, Divisional Headquarter	24°.76'24.58"N 90°.40'21.02"E		2019	UB	8.8 & 11
Rangpur	CAMS-13	BTV Rangpur Station	25°.74'73.71"N 89°.22'89.31"E		2019	UB	8.8 & 11
Savar	CAMS-14	Atomic Energy Research Institute	23°.95'37.04"N 90°.27'97.94"E		2019	SUB	10.8 & 14
Narsingdi	CAMS-15	Sadar Upazila Complex	23°.93'24.56"N 90°.71'65.98"E		2019	SUB	8.8 & 11
Cumilla	CAMS-16	Court Area	23°.47'29.88"N 91°.18'06.71"E		2019	UB	8.8 & 11
UB: Urban; Rd: Road; Res: residential; Com: Commercial; SUB: Suburban; Rural: Rural							

Table 4: Overview of the locations and capacity of the C-CAMS

City	ID	Location	Lat/Lon	Year of Est.	Type	Monitoring Capacity	Inlet & Met tower Height(m)
Faridpur	C-CAMS-17	Sadar, Faridpur (Municipal Office)	23°.60'64.11"N 89°.83'88.19"E	2020	SUB		9 & 11
Jashore	C-CAMS-18	Sadar, Jashore (circuit house)	23°.16'22.16"N 89°.20'63.70"E		SUB		12 & 14
Satkhira	C-CAMS-19	Shyamnagar, Satkhira	22°.31'59.96"N 89°.04'31.70"E		Rural		5.2 & 7.2
Bagerhat	C-CAMS-20	Rampal, Bagerhat (Maytree Super Thermal Power Project)	22°.59'60.86"N 89°.55'37.20"E		Rural/I ndustri al		5.7 & 7.7
Gopalganj	C-CAMS-21	Sadar, Gopalganj	23°.00'88.53"N 89°.82'91.60"E		SUB		22 & 24
Tangail	C-CAMS-22	Sadar, Tangail (DoE office)	24°.24'97.96"N 89°.92'93.57"E		SUB		15 & 17
Bogura	C-CAMS-23	Sadar, Bogura (DoE Office)	24°.86'17.79"N 89°.36'11.46"E		SUB		9 & 11
Tongi	C-CAMS-24	BSCIC, Tongi, Gazipur	23°.89'41.74"N 90°.41'12.10"E		Com/ Industri al UB	PM ₁₀ , PM _{2.5} , SO ₂ , CO, O ₃ & NO _x with Meteorological Parameters	18 & 20
BUET	C-CAMS-25	Department of Chemical Engineering, BUET, Dhaka	23°.72'75.91"N 90°.39'27.97"E				10 & 12
Brahmanbaria	C-CAMS-26	Sadar, B.Baria (municipal Office)	23°.97'43.71"N 91°.10'97.69"E		SUB		18 & 20
Feni	C-CAMS-27	Sadar, Feni (DoE Office)	23°.00'62.97"N 91°.38'13.05"E		SUB		18 & 20
Noakhali	C-CAMS-28	Maijdi Bazar, Noakhali (DoE Office)	22°.88'11.48"N 91°.09'69.66"E		SUB		15 & 17
Chattogram BSRM	C-CAMS-29	BSRM, Nasirabad, Chattogram	22°.37'28.38"N 91°.81'80.54"E		UB/Ind ustrial		12 & 14
Cox's-Bazar	C-CAMS-30	Saymon Road, Sadar, Cox's-Bazar (DoE Office)	21°.44'22.08"N 91°.97'10.83"E		SUB		9 & 11
Nagor Bhaban, Dhaka	C-CAMS-31	Nagar Bhaban, DSCC, Dhaka	23°.72'40.75"N 90°.40'91.42"E		UB/Co m		13 & 15

UB: Urban; Rd: Road; Res: residential; Com: Commercial; SUB: Suburban; Rural: Rural

Summary of Components

Month of October, 2023

Table 5: Summary of components_ October, 2023

Parameter	Summary	DoE	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi
SO ₂ -24 hr (ppb)	Average	7.3	3.3	16.0	10.7	DNA	2.6	6.7	5.4	14.3	9.2	9.4	1.9	21.9	2.2	8.9	0.8
	Max	19.8	4.9	21.4	14.7	DNA	9.4	9.6	5.6	28.1	19.1	10.7	5.3	47.4	3.0	24.7	2.4
	Min	1.6	1.9	14.4	9.9	DNA	1.8	3.4	5.2	2.2	4.0	9.1	0.9	5.2	0.9	0.7	0.1
	Excedance(Days)	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0
	Data capture(%)	83.9	96.8	67.7	100.0	DNA	83.9	100.0	100.0	100.0	77.4	87.1	100.0	32.3	100.0	100.0	100.0
NO ₂ -24 hr (ppb)	Average	8.6	84.3	7.9	0.2	DNA	4.3	5.4	DNA	3.8	2.6	2.1	4.1	5.5	8.7	5.4	7.8
	Max	25.4	128.7	13.2	0.2	DNA	9.9	16.0	DNA	4.4	4.0	8.2	4.2	6.0	19.5	9.8	9.0
	Min	1.8	43.4	3.3	0.2	DNA	3.0	0.7	DNA	3.5	0.9	0.3	4.0	5.1	0.2	4.5	7.5
	Excedance(Days)	0.0	30.0	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	80.6	96.8	100.0	100.0	DNA	83.9	96.8	DNA	74.2	100.0	100.0	100.0	100.0	71.0	100.0	100.0
CO-8hr (ppm)	Average	2.2	3.0	5.9	DNA	0.7	0.6	4.6	2.6	1.3	5.1	DNA	0.9	1.2	3.1	0.9	0.5
	Max	3.1	13.3	19.5	DNA	0.7	1.6	10.9	3.0	5.1	14.1	DNA	1.9	3.2	110.2	2.3	1.2
	Min	0.3	0.6	2.7	DNA	0.7	0.0	0.5	2.3	0.1	1.4	DNA	0.2	0.7	2.0	0.4	0.2
	Excedance(Hour)	0.0	75.0	457.0	DNA	0.0	0.0	611.0	0.0	11.0	514.0	DNA	0.0	0.0	8.0	0.0	0.0
	Data capture(%)	70.8	93.5	98.8	DNA	99.1	78.6	94.0	94.9	98.0	99.1	DNA	63.3	99.1	99.7	99.1	97.6
O ₃ -8hr (ppb)	Average	DNA	8.2	4.0	6.2	4.2	13.9	1.9	4.7	9.2	15.3	112.0	12.9	103.5	62.0	10.7	7.1
	Max	DNA	28.0	4.7	11.6	6.6	45.7	5.0	18.4	19.0	30.2	119.9	59.4	119.8	119.7	37.4	29.6
	Min	DNA	0.9	2.5	5.0	3.5	4.4	0.4	0.2	5.6	7.1	102.8	0.8	2.1	5.1	0.5	0.1
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.0	7.0	598.0	337.0	0.0	0.0
	Data capture(%)	DNA	93.7	2.3	97.6	77.8	78.5	92.3	59.7	98.5	99.1	7.7	99.1	84.7	84.3	99.1	95.3
PM _{2.5} -24hr (ug/m3)	Average	66.6	57.4	78.5	74.7	82.2	36.8	55.1	134.1	59.8	89.9	49.3	84.3	80.6	77.2	41.6	49.6
	Max	159.0	178.8	126.4	127.5	173.6	106.0	169.7	463.1	168.7	191.0	92.3	148.4	157.9	131.5	77.2	91.2
	Min	15.0	32.2	28.1	21.1	9.1	6.5	10.9	13.5	8.9	25.7	12.0	33.4	15.9	12.6	10.4	10.9
	Excedance(Days)	11.0	6.0	20.0	21.0	20.0	4.0	9.0	3.0	16.0	20.0	9.0	21.0	24.0	20.0	5.0	10.0
	Data capture(%)	87.1	80.6	100.0	100.0	100.0	83.9	83.9	16.1	100.0	100.0	96.8	100.0	100.0	100.0	100.0	100.0
PM ₁₀ -24hr (ug/m3)	Average	117.1	73.0	121.8	131.8	163.8	78.4	97.7	106.0	92.5	100.8	101.3	118.8	198.5	118.5	82.9	101.9
	Max	262.1	162.7	301.4	241.9	339.9	185.2	175.1	217.7	188.3	236.1	173.3	217.7	350.7	191.7	173.0	194.2
	Min	31.6	18.3	39.6	22.4	30.1	9.7	20.6	27.2	19.0	11.1	18.5	48.4	34.8	19.0	12.8	26.8
	Excedance(Days)	9.0	1.0	10.0	15.0	18.0	2.0	4.0	4.0	6.0	7.0	4.0	7.0	24.0	11.0	3.0	5.0
	Data capture(%)	87.1	32.3	100.0	100.0	100.0	58.1	100.0	67.7	96.8	96.8	100.0	83.9	100.0	100.0	87.1	100.0
Solar rad. 1hr (W/m2)	Average	97.70	170.28	92.6	12.4	DNA	480.8	138.5	DNA	162.6	803.9	96.5	233.5	187.2	286.5	225.4	246.8
	Max	589.21	662.9	1019.9	41.3	DNA	531.1	741.7	DNA	700.8	853.3	561.8	899.1	768.4	903.6	772.0	912.0
	Min	17.88	0.1	989.8	9.2	DNA	64.6	9.4	DNA	0.1	771.4	8.2	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	78.09	42	97	95	DNA	77	94	DNA	65	97	98	66.4	65.5	60.8	61.6	63.8
Relative Humidity 1hr (%)	Average	53.39	82.7	73.0	DNA	DNA	57.3	78.0	DNA	65.7	90.6	66.6	70.2	93.8	85.9	94.0	44.9
	Max	61.74	100.0	94.0	DNA	DNA	72.2	99.8	DNA	79.4	94.7	85.3	100.0	99.4	99.6	99.9	88.1
	Min	46.92	16.7	32.9	DNA	DNA	57.1	28.4	DNA	58.3	89.8	53.9	32.9	36.7	40.5	35.4	15.9
	Data capture(%)	78.09	36.4	98.1	DNA	DNA	77	93	DNA	98	97	98	41.9	100.0	99.5	99.6	97.4
Ambient Temp. 1hr (degreeC)	Average	DNA	25.1	27.8	DNA	DNA	27.7	27.0	DNA	29.3	29.6	29.0	DNA	26.3	25.9	26.9	26.8
	Max	DNA	30.3	32.1	DNA	DNA	35.4	43.0	DNA	36.4	36.8	40.2	DNA	31.9	31.7	33.0	32.8
	Min	DNA	18.2	23.7	DNA	DNA	21.6	7.2	DNA	9.4	8.2	20.4	DNA	20.8	19.0	21.0	21.0
	Data capture(%)	DNA	57.9	98	DNA	DNA	77	48	DNA	98	97	98	DNA	98.8	99.3	96.4	97.4
Rainfall 1hr (mm)	Average	134.64	DNA	0.80	DNA	DNA	DNA	DNA	DNA	0.29	DNA	0.41	0.11	0.46	0.05	0.02	0.09
	Max	160.75	DNA	0.80	DNA	DNA	DNA	DNA	DNA	0.29	DNA	1.04	1.14	10.80	0.42	0.04	0.46
	Min	114.34	DNA	0.80	DNA	DNA	DNA	DNA	DNA	0.29	DNA	0.01	0.01	0.01	0.01	0.01	0.01
	Data capture(%)	0.54	DNA	6.05	DNA	DNA	DNA	DNA	DNA	0.13	DNA	80.51	5.78	82.66	6.45	1.61	6.32
CAMS= Continuous Air Monitoring Station, NAAQS=National Ambient Air Quality Standard, a=Refurbishment CAMS, PM= Particulate Matter																	
DNA= Data Not Available																	

Table 6: Air Quality Index (AQI), Month of October, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-10-23	87	35	84	63	91	47	92	56	107	90	72	55	47
02-10-23	105	48	99	63	88	59	98	63	125	90	84	54	63
03-10-23	88	47	79	46	50	48	DNA	53	95	87	86	42	45
04-10-23	84	48	69	36	58	28	99	45	104	70	61	50	78
05-10-23	114	57	69	55	DNA	75	DNA	59	106	75	50	58	53
06-10-23	117	90	98	82	DNA	67	DNA	69	114	58	62	63	62
07-10-23	121	134	151	101	76	89	DNA	52	136	87	64	81	85
08-10-23	115	110	130	106	46	70	153	91	144	162	108	85	94
09-10-23	159	111	156	149	96	141	196	128	159	164	158	DNA	143
10-10-23	175	159	165	170	DNA	155	192	156	166	163	151	DNA	155
11-10-23	182	162	174	167	95	154	190	152	196	207	171	DNA	161
12-10-23	163	72	167	161	DNA	125	190	136	177	196	170	DNA	169
13-10-23	158	94	165	158	DNA	DNA	187	121	173	177	172	DNA	153
14-10-23	198	162	173	175	DNA	160	218	152	190	186	175	DNA	162
15-10-23	177	167	182	172	131	166	192	154	190	191	177	DNA	160
16-10-23	188	157	175	173	DNA	176	206	160	191	181	184	DNA	160
17-10-23	181	151	180	223	DNA	171	191	166	187	173	173	159	160
18-10-23	165	152	173	210	DNA	171	182	162	176	174	177	151	161
19-10-23	153	138	166	181	82	158	173	159	169	167	165	118	152
20-10-23	142	134	156	171	88	141	166	131	158	165	180	135	140
21-10-23	144	135	157	180	78	135	160	147	163	109	169	131	150
22-10-23	152	153	164	172	DNA	60	156	136	167	148	159	129	152
23-10-23	158	99	152	161	DNA	116	128	86	165	167	146	88	117
24-10-23	106	48	86	109	59	41	123	66	99	DNA	145	66	59
25-10-23	109	82	150	151	60	DNA	137	92	115	DNA	162	57	83
26-10-23	142	114	164	158	DNA	136	173	95	164	DNA	193	120	100
27-10-23	159	131	163	190	DNA	162	193	154	168	164	190	94	127
28-10-23	164	106	186	194	DNA	60	181	159	177	DNA	116	102	145
29-10-23	161	143	177	192	DNA	160	176	159	DNA	DNA	175	145	153
30-10-23	173	197	144	191	DNA	166	169	158	156	141	106	157	160
31-10-23	173	146	180	195	63	150	186	151	179	149	153	123	155

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