



Air Quality Monthly Report

April, 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

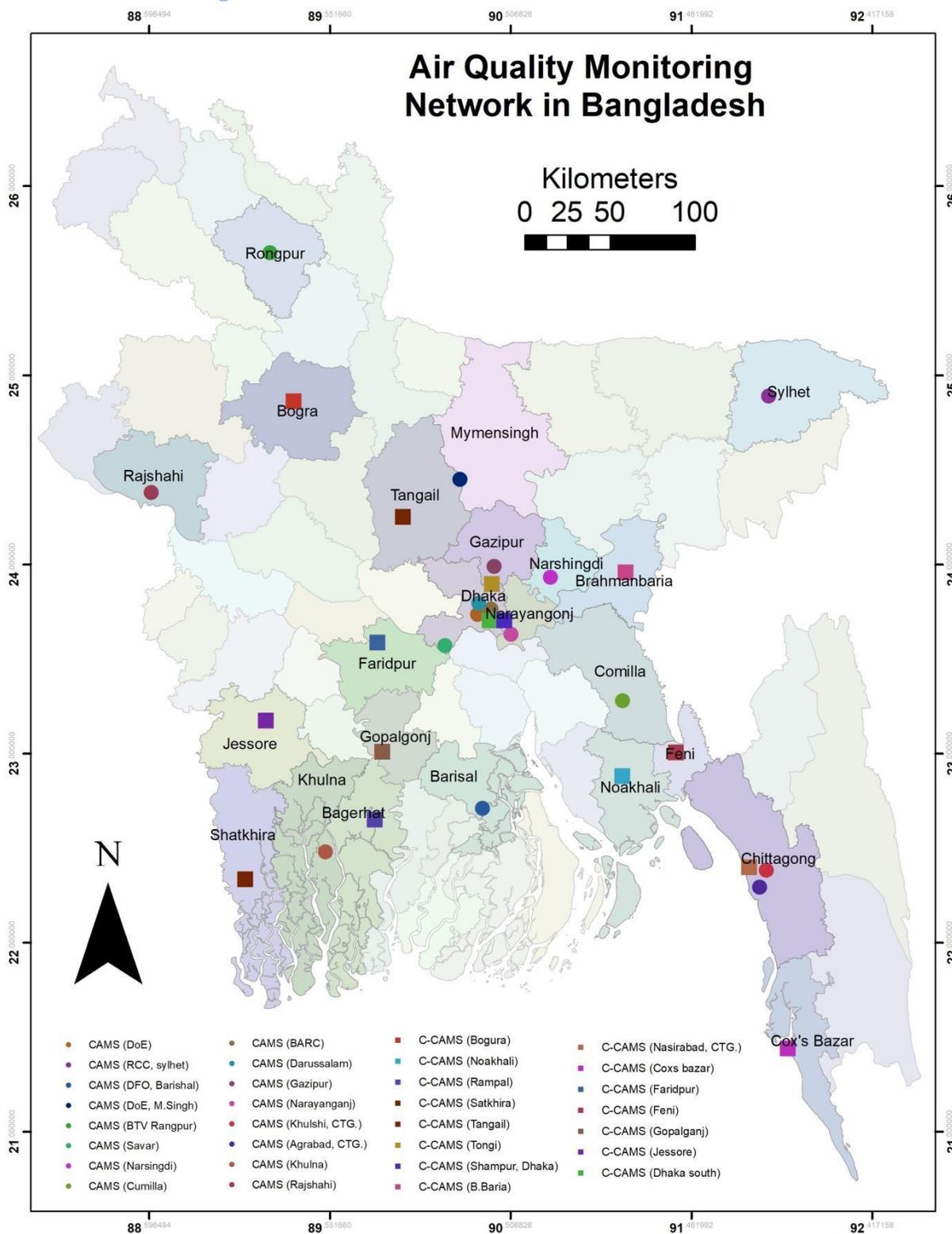
Pollutant	Limit Value	Averaging time
CO	5 mg/m ³	8 hours ^a
	20 mg/m ³	1 hour ^a
Pb	0.25 µg/m ³	Annual
	0.50 µg/m ³	24 hours
NO _x	40 µg/m ³	Annual
	80 µg/m ³	24 hours
PM ₁₀	50 µg/m ³	Annual ^b
	150 µg/m ³	24 hours ^c
PM _{2.5}	35 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	180 µg/m ³	1 hour ^d
	100 µg/m ³	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 & NO _x 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		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/Industrial		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/Industrial	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	2020	UB		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/Industrial		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/Com		13 & 15

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

Summary of Components

Month of April, 2023

Table 5: Summary of components_ Month of April, 2023

Parameter	Summary	DoE	BARC	Darusalam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Syhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi	
SO ₂ -24 hr (ppb)	Average	24.4	10.2	DNA	DNA	DNA	3.1	5.4	3.6	10.2	5.0	4.3	10.7	1.0	5.8	2.4	1.4	
	Max	43.6	19.2	DNA	DNA	DNA	5.8	6.6	9.7	43.3	5.0	5.3	21.2	1.1	14.2	6.2	3.2	
	Min	13.3	0.4	DNA	DNA	DNA	1.8	3.9	0.1	0.1	5.0	1.5	0.4	0.1	0.3	1.0	0.7	
	Excedance(Days)	3.0	0.0	DNA	DNA	DNA	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	77.4	58.1	DNA	DNA	DNA	64.5	96.8	96.8	87.1	87.1	41.9	74.2	93.5	83.9	90.3	96.8	
NO ₂ -24 hr (ppb)	Average	5.9	54.1	10.3	DNA	1.5	11.4	18.8	9.6	99.4	7.6	0.6	11.7	44.2	8.8	6.3	5.7	
	Max	21.2	97.4	18.6	DNA	1.6	43.6	34.6	18.8	99.9	11.1	0.8	110.0	98.8	17.6	10.9	6.4	
	Min	0.9	3.4	5.3	DNA	1.5	5.2	11.0	3.1	94.4	3.4	0.1	5.1	23.7	2.2	4.8	5.2	
	Excedance(Days)	0.0	14.0	0.0	DNA	0.0	1.0	0.0	0.0	27.0	0.0	0.0	1.0	13.0	0.0	0.0	0.0	
	Data capture(%)	93.5	64.5	96.8	DNA	19.4	48.4	96.8	90.3	87.1	96.8	35.5	96.8	93.5	71.0	90.3	96.8	
CO-8hr (ppm)	Average	2.9	2.1	1.1	0.9	DNA	1.1	2.5	1.7	4.0	2.0	DNA	4.6	1.3	4.1	0.9	2.6	
	Max	4.8	6.0	8.1	0.9	DNA	2.4	2.5	3.5	9.9	6.6	DNA	7.5	2.5	28.5	4.3	3.1	
	Min	0.7	0.5	0.0	0.9	DNA	0.0	2.5	1.6	0.3	0.5	DNA	1.0	1.0	0.2	0.5	2.3	
	Excedance(Hour)	79.0	29.0	35.0	0.0	DNA	0.0	0.0	0.0	296.0	38.0	DNA	510.0	0.0	125.0	2.0	0.0	
	Data capture(%)	88.2	62.9	94.1	0.1	DNA	65.1	0.1	2.6	93.1	96.8	DNA	85.1	90.6	75.3	84.0	96.8	
O ₃ -8hr (ppb)	Average	DNA	8.4	8.9	6.3	4.1	18.2	5.0	DNA	7.0	16.1	116.6	44.2	12.6	47.2	28.5	21.0	
	Max	DNA	20.4	9.4	6.3	5.5	52.5	5.1	DNA	76.7	33.9	117.0	110.8	27.0	118.2	108.5	65.7	
	Min	DNA	0.1	4.4	6.3	2.8	3.4	2.6	DNA	3.7	3.2	116.3	7.2	3.4	1.5	3.6	0.2	
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	2.0	0.0	DNA	1.0	0.0	16.0	173.0	0.0	177.0	77.0	31.0	
	Data capture(%)	DNA	64.1	30.5	0.1	4.7	67.5	96.9	DNA	81.9	96.8	2.2	87.5	90.6	67.7	81.3	95.0	
PM _{2.5} -24hr (ug/m3)	Average	79.5	82.3	104.1	102.8	94.0	67.6	61.1	80.0	55.1	99.5	42.1	101.7	182.6	136.7	116.5	81.7	
	Max	135.5	142.5	226.3	190.5	189.4	124.4	127.8	149.4	106.6	215.8	60.5	221.6	321.8	263.5	197.1	194.0	
	Min	42.5	11.9	49.5	44.8	47.6	27.7	25.9	31.2	8.2	8.1	22.2	46.0	59.0	41.3	39.2	33.8	
	Excedance(Days)	15.0	14.0	22.0	22.0	22.0	9.0	10.0	20.0	11.0	24.0	0.0	25.0	28.0	11.0	14.0	14.0	
	Data capture(%)	87.1	64.5	96.8	96.8	96.8	71.0	90.3	96.8	96.8	96.8	41.9	96.8	93.5	51.6	58.1	96.8	
PM ₁₀ -24hr (ug/m3)	Average	159.1	132.8	128.8	189.5	181.0	121.2	154.2	152.4	120.8	112.5	83.3	156.6	314.3	189.9	151.5	136.4	
	Max	279.8	179.2	240.3	360.2	339.0	195.6	291.9	409.2	302.9	318.5	138.7	339.9	539.3	395.2	422.6	418.9	
	Min	68.6	102.2	78.7	72.3	101.3	53.6	67.4	55.5	51.0	46.7	50.6	81.9	118.3	66.0	68.4	51.9	
	Excedance(Days)	11.0	5.0	5.0	16.0	11.0	8.0	12.0	15.0	8.0	9.0	0.0	12.0	25.0	13.0	11.0	5.0	
	Data capture(%)	71.0	64.5	58.1	96.8	67.7	71.0	77.4	83.9	96.8	96.8	12.9	96.8	93.5	83.9	90.3	96.8	
Solar rad. 1hr (W/m2)	Average	DNA	502.45	216.5	7.1	DNA	724.9	198.1	DNA	318.2	DNA	173.9	373.9	309.1	451.1	313.6	352.2	
	Max	DNA	693.4	1018.9	21.3	DNA	960.9	802.7	DNA	808.6	DNA	668.6	983.5	918.3	960.2	858.2	1006.6	
	Min	DNA	0.5	984.2	3.7	DNA	475.2	9.2	DNA	0.4	DNA	8.5	0.0	0.0	0.2	0.0	0.0	
	Data capture(%)	DNA	11	94	95	DNA	45	95	DNA	47	DNA	38	45.6	42.9	26.2	49.3	63.7	
Relative Humidity 1hr (%)	Average	DNA	53.5	55.9	DNA	DNA	63.9	64.8	DNA	64.0	75.3	84.2	71.3	73.9	62.8	79.4	47.8	
	Max	DNA	98.7	93.8	DNA	DNA	99.1	96.8	DNA	71.9	89.2	87.1	100.0	99.3	99.7	99.7	79.8	
	Min	DNA	18.7	16.8	DNA	DNA	57.1	15.2	DNA	58.2	47.4	81.4	19.3	23.6	20.9	22.6	20.0	
	Data capture(%)	DNA	15.2	93.7	DNA	DNA	61	94	DNA	88	91	38	83.2	69.2	41.5	78.4	96.8	
Ambient Temp. 1hr (degreeC)	Average	DNA	28.5	29.2	DNA	DNA	29.3	26.4	DNA	31.2	32.9	32.3	28.6	27.9	27.7	28.7	28.3	
	Max	DNA	36.4	36.4	DNA	DNA	38.8	43.0	DNA	42.3	38.5	43.0	37.9	37.8	37.3	37.5	38.8	
	Min	DNA	18.0	21.5	DNA	DNA	20.7	7.1	DNA	21.5	22.3	19.0	19.3	19.8	19.4	20.2	18.8	
	Data capture(%)	DNA	16.4	94	DNA	DNA	63	54	DNA	88	91	35	82.5	69.0	40.7	77.0	96.5	
Rainfall 1hr (mm)	Average	DNA	DNA	0.67	0.07	DNA	DNA	DNA	DNA	DNA	1.03	0.64	0.03	0.59	0.03	0.01	4.77	
	Max	DNA	DNA	0.80	0.32	DNA	DNA	DNA	DNA	DNA	1.62	1.26	0.05	4.55	0.05	0.01	74.71	
	Min	DNA	DNA	0.07	0.01	DNA	DNA	DNA	DNA	DNA	0.01	0.06	0.01	0.01	0.01	0.01	0.01	
	Data capture(%)	DNA	DNA	37.23	56.18	DNA	DNA	DNA	DNA	DNA	6.85	37.50	0.40	59.81	0.27	0.27	2.15	

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 April, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-04-23	143	151	114	191	117	114	DNA	74	DNA	DNA	156	DNA	97
02-04-23	161	101	170	133	125	69	173	DNA	163	DNA	172	90	138
03-04-23	158	79	162	104	114	136	178	DNA	175	167	DNA	129	151
04-04-23	155	115	163	152	101	86	173	72	167	178	DNA	120	157
05-04-23	141	105	155	131	108	131	164	74	130	171	DNA	122	164
06-04-23	138	150	161	154	150	157	184	90	DNA	167	DNA	122	174
07-04-23	166	159	193	170	146	148	189	115	DNA	194	DNA	156	168
08-04-23	198	158	244	188	155	177	184	123	DNA	189	DNA	DNA	218
09-04-23	184	160	206	192	169	172	182	153	DNA	260	227	205	244
10-04-23	223	176	214	201	173	176	191	153	DNA	274	210	212	191
11-04-23	201	174	209	205	178	160	174	144	DNA	278	200	247	196
12-04-23	201	173	186	229	162	163	191	151	203	333	247	176	204
13-04-23	189	171	187	188	196	161	220	121	214	345	240	194	167
14-04-23	174	174	203	171	186	165	186	125	227	328	248	181	181
15-04-23	177	167	240	176	168	152	237	116	271	299	225	185	192
16-04-23	189	164	225	181	178	164	187	DNA	259	327	280	192	179
17-04-23	166	151	172	163	179	152	179	DNA	189	348	302	184	155
18-04-23	171	156	182	171	182	155	187	DNA	189	260	193	194	169
19-04-23	158	148	165	157	168	152	174	DNA	180	286	DNA	186	164
20-04-23	162	112	159	154	164	122	168	DNA	174	196	DNA	199	161
21-04-23	147	102	153	151	167	150	159	DNA	171	152	DNA	178	153
22-04-23	152	84	154	155	181	135	151	DNA	162	164	DNA	154	139
23-04-23	154	98	152	154	DNA	DNA	139	DNA	169	166	DNA	DNA	169
24-04-23	135	89	116	154	DNA	DNA	127	DNA	151	174	DNA	DNA	DNA
25-04-23	156	104	153	160	DNA	109	120	DNA	161	180	165	DNA	DNA
26-04-23	162	139	174	177	DNA	109	120	DNA	161	180	165	DNA	DNA
27-04-23	174	138	172	175	146	137	157	DNA	194	202	188	DNA	DNA
28-04-23	138	98	153	164	86	92	161	DNA	160	178	172	DNA	153
29-04-23	158	116	162	161	151	87	158	DNA	170	229	185	DNA	158
30-04-23	156	141	151	166	163	106	152	DNA	161	174	163	DNA	172

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