



Air Quality Monthly Report

March, 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

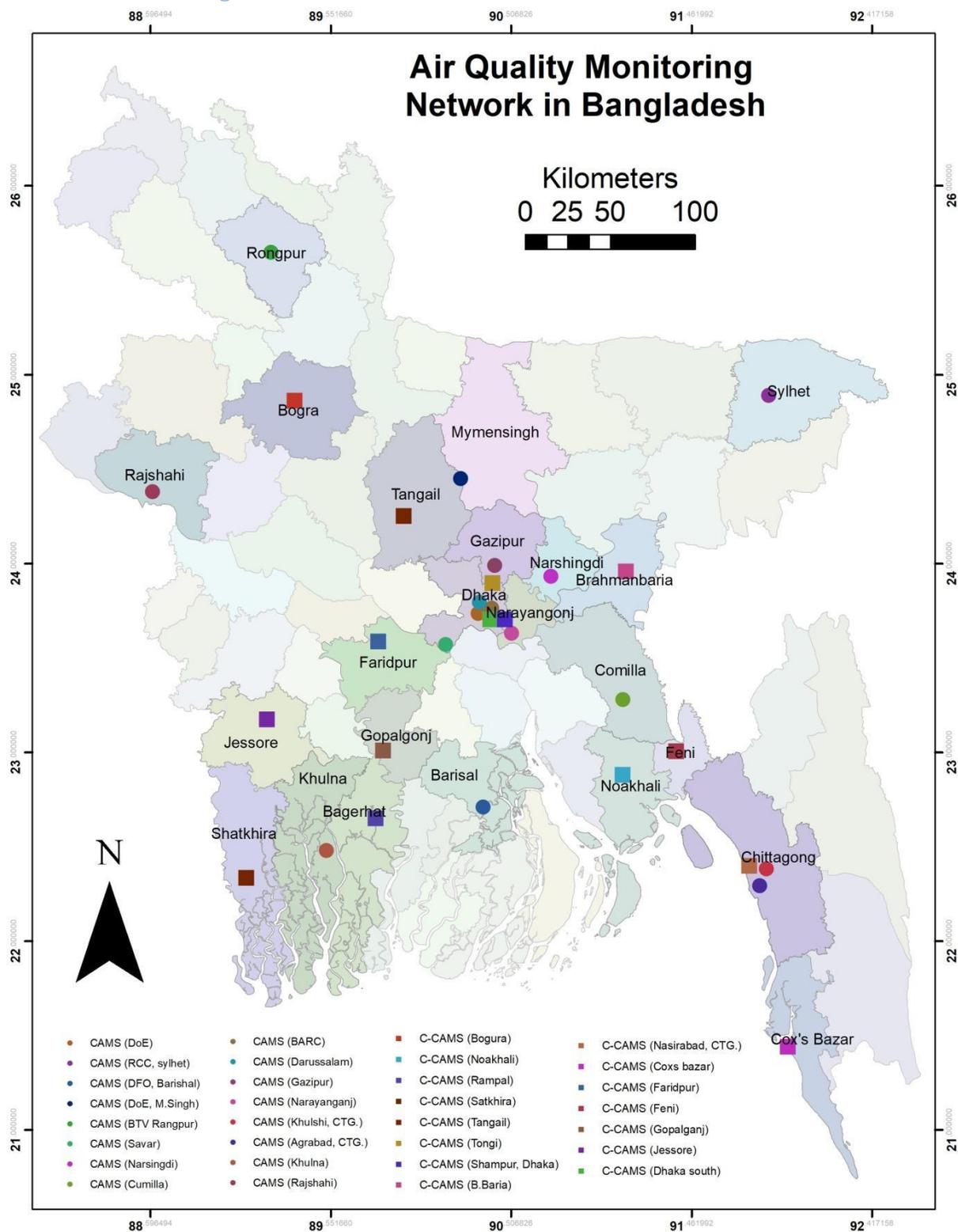
Pollutant	Limit Value	Averaging time
CO	5 mg/m ³	8 hours ^a
	20 mg/m ³	1 hour ^a
Pb	0.25 µg/m ³	Annual
	0.50 µg/m ³	24 hours
NO _x	40 µg/m ³	Annual
	80 µg/m ³	24 hours
PM ₁₀	50 µg/m ³	Annual ^b
	150 µg/m ³	24 hours ^c
PM _{2.5}	35 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	180 µg/m ³	1 hour ^d
	100 µg/m ³	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 March, 2023

Table 5: Summary of components_ Month of March, 2023

Parameter	Summary	DoE	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi	
SO ₂ -24 hr (ppb)	Average	17.8	13.6	DNA	12.6	16.7	3.2	5.5	8.4	5.8	5.1	1.1	3.7	1.1	8.5	2.6	5.4	
	Max	21.6	30.2	DNA	15.2	19.9	21.5	6.3	17.5	13.8	7.2	2.6	7.7	1.6	18.8	5.9	16.1	
	Min	14.2	1.6	DNA	9.4	13.5	0.9	4.2	1.6	0.9	2.8	0.4	0.3	0.9	3.3	1.5	0.6	
	Excedance(Days)	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	80.6	71.0	DNA	16.1	6.5	96.8	35.5	100.0	100.0	100.0	90.3	80.6	100.0	100.0	80.6	74.2	
NO ₂ -24 hr (ppb)	Average	5.4	43.8	14.4	0.7	1.2	10.0	14.6	8.5	2.1	16.9	2.3	16.8	46.6	4.4	5.1	5.3	
	Max	13.8	81.2	42.9	1.7	1.2	57.5	25.8	18.5	4.2	130.2	4.5	69.5	84.0	13.6	5.2	7.5	
	Min	1.7	18.6	6.4	0.3	1.1	4.4	2.3	3.2	1.7	1.6	0.1	9.3	8.4	1.3	5.0	3.7	
	Excedance(Days)	0.0	16.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	1.0	21.0	0.0	0.0	0.0	
	Data capture(%)	93.5	100.0	100.0	16.1	22.6	64.5	100.0	100.0	100.0	87.1	90.3	80.6	100.0	100.0	96.8	93.5	
CO-8hr (ppm)	Average	3.1	1.2	1.1	DNA	1.5	1.8	DNA	3.5	1.3	1.5	DNA	4.0	1.4	2.4	1.2	2.8	
	Max	6.3	3.6	4.7	DNA	1.6	3.5	DNA	3.5	3.5	5.8	DNA	10.8	2.9	12.1	2.4	3.7	
	Min	0.2	0.1	0.0	DNA	1.4	0.5	DNA	3.5	0.1	0.5	DNA	1.9	0.2	0.2	0.0	1.4	
	Excedance(Hour)	96.0	0.0	13.0	DNA	0.0	0.0	DNA	0.0	0.0	22.0	DNA	229.0	0.0	13.0	0.0	0.0	
	Data capture(%)	38.3	96.2	98.5	DNA	3.1	99.1	DNA	0.3	92.7	99.1	DNA	75.1	97.0	99.9	87.1	80.4	
O ₃ -8hr (ppb)	Average	DNA	9.0	8.2	3.2	DNA	4.8	25.3	DNA	9.3	15.6	119.8	16.2	10.3	23.2	14.8	19.9	
	Max	DNA	28.9	15.5	13.4	DNA	9.0	34.5	DNA	25.7	25.2	119.9	32.9	36.5	56.6	64.1	77.5	
	Min	DNA	0.1	1.1	0.5	DNA	1.8	3.3	DNA	1.4	7.2	119.6	5.7	0.4	2.3	0.1	0.5	
	Excedance(Hour)	DNA	0.0	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	17.0	0.0	0.0	19.0	23.0	25.0	
	Data capture(%)	DNA	94.8	42.6	11.3	DNA	99.1	95.4	DNA	98.9	99.1	2.3	75.1	95.7	98.7	72.4	78.4	
PM _{2.5} -24hr (ug/m3)	Average	106.0	99.8	138.4	143.6	146.4	125.5	75.5	87.7	146.2	172.5	62.6	55.4	88.0	136.6	83.4	109.5	
	Max	244.4	232.4	286.7	314.0	276.5	474.2	139.1	162.0	284.6	313.1	93.6	147.7	189.4	267.4	129.8	203.9	
	Min	33.6	22.6	50.6	56.9	35.7	12.8	36.0	27.8	75.7	29.9	20.8	27.2	17.2	41.8	25.7	29.9	
	Excedance(Days)	21.0	19.0	29.0	29.0	25.0	10.0	20.0	17.0	31.0	30.0	15.0	7.0	21.0	28.0	19.0	21.0	
	Data capture(%)	93.5	100.0	100.0	100.0	100.0	100.0	96.8	90.3	100.0	100.0	90.3	80.6	100.0	100.0	96.8	90.3	
PM ₁₀ -24hr (ug/m3)	Average	182.0	203.8	222.5	240.0	245.4	34.5	167.9	176.9	166.7	115.5	143.8	170.5	285.4	192.5	154.8	118.9	
	Max	415.4	410.3	389.5	605.1	423.6	100.5	311.5	324.7	251.2	202.4	226.0	323.2	558.6	270.9	275.2	374.1	
	Min	62.2	10.5	87.7	74.5	84.6	12.5	84.7	62.3	53.3	51.6	53.3	50.4	71.4	125.9	43.6	10.6	
	Excedance(Days)	16.0	24.0	20.0	22.0	21.0	0.0	9.0	18.0	22.0	1.0	15.0	13.0	27.0	3.0	12.0	7.0	
	Data capture(%)	93.5	100.0	100.0	100.0	100.0	41.9	67.7	96.8	100.0	9.7	90.3	80.6	100.0	16.1	80.6	93.5	
Solar rad. 1hr (W/m2)	Average	DNA	700.43	154.2	10.6	DNA	832.8	141.9	DNA	674.8	DNA	126.3	310.1	230.0	371.1	253.9	320.2	
	Max	DNA	737.2	1019.9	21.3	DNA	980.7	747.9	DNA	989.1	DNA	642.4	826.2	829.5	954.8	825.0	907.8	
	Min	DNA	41.2	999.5	0.1	DNA	795.3	9.2	DNA	40.2	DNA	8.5	0.0	0.0	0.1	0.0	0.0	
	Excedance(Days)	DNA	25	81	97	DNA	68	94	DNA	73	DNA	83	42.7	44.9	52.7	50.1	37.5	
	Data capture(%)	DNA	25	81	97	DNA	68	94	DNA	73	DNA	83	42.7	44.9	52.7	50.1	37.5	
Relative Humidity 1hr (%)	Average	DNA	54.9	60.2	DNA	DNA	61.2	62.6	DNA	69.8	71.0	85.5	66.8	78.3	75.0	79.3	49.4	
	Max	DNA	99.8	93.2	DNA	DNA	99.0	96.8	DNA	89.8	82.1	87.6	100.0	99.4	99.7	99.8	84.5	
	Min	DNA	21.4	22.2	DNA	DNA	57.1	15.3	DNA	59.1	18.3	82.7	22.0	26.6	28.2	24.1	22.8	
	Excedance(Days)	DNA	60.9	100.0	DNA	DNA	99	92	DNA	97	99	83	73.5	78.4	98.9	83.5	73.9	
	Data capture(%)	DNA	60.9	100.0	DNA	DNA	99	92	DNA	97	99	83	73.5	78.4	98.9	83.5	73.9	
Ambient Temp. 1hr (degreeC)	Average	DNA	23.0	25.8	DNA	DNA	26.4	27.4	DNA	18.1	32.2	27.6	24.9	23.9	23.6	24.9	24.8	
	Max	DNA	30.7	32.1	DNA	DNA	37.0	43.0	DNA	27.2	35.7	39.1	33.0	32.4	31.6	32.9	34.0	
	Min	DNA	10.1	19.6	DNA	DNA	19.1	7.1	DNA	11.4	14.3	17.2	17.7	18.5	16.6	18.6	17.9	
	Excedance(Days)	DNA	60.9	100	DNA	DNA	100	44	DNA	97	99	83	73.3	78.1	98.4	82.7	72.0	
	Data capture(%)	DNA	60.9	100	DNA	DNA	100	44	DNA	97	99	83	73.3	78.1	98.4	82.7	72.0	
Rainfall 1hr (mm)	Average	DNA	DNA	0.62	0.32	DNA	20.18	DNA	DNA	DNA	3.42	0.71	0.08	0.26	0.07	0.03	0.16	
	Max	DNA	DNA	0.80	0.61	DNA	21.84	DNA	DNA	DNA	25.05	1.19	0.57	3.02	0.24	0.07	0.47	
	Min	DNA	DNA	0.45	0.02	DNA	2.89	DNA	DNA	DNA	0.01	0.23	0.01	0.01	0.01	0.01	0.03	
	Excedance(Days)	DNA	DNA	67.74	68.82	DNA	26.21	DNA	DNA	DNA	66.53	83.06	2.28	77.42	1.48	0.54	0.81	
	Data capture(%)	DNA	DNA	67.74	68.82	DNA	26.21	DNA	DNA	DNA	66.53	83.06	2.28	77.42	1.48	0.54	0.81	

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 March, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-03-23	230	230	335	324	194	211	311	168	156	161	193	181	186
02-03-23	296	198	263	261	199	184	359	167	DNA	161	220	177	199
03-03-23	234	165	254	257	185	212	339	158	223	186	242	179	221
04-03-23	294	178	273	249	164	182	311	159	156	162	220	181	196
05-03-23	301	179	287	264	197	186	305	160	162	169	264	178	200
06-03-23	216	197	253	273	143	194	269	160	190	185	199	183	196
07-03-23	199	166	224	250	169	186	257	161	188	172	195	182	228
08-03-23	189	162	194	199	170	182	299	159	192	198	247	179	196
09-03-23	193	165	196	241	176	183	299	165	190	196	215	180	196
10-03-23	191	163	216	222	199	229	275	169	192	217	218	DNA	196
11-03-23	218	163	250	DNA	185	216	232	197	190	239	199	DNA	196
12-03-23	180	162	192	DNA	189	DNA	211	170	194	187	198	170	182
13-03-23	178	152	198	218	194	176	245	170	188	178	242	176	177
14-03-23	196	177	232	285	192	188	230	167	190	207	257	182	205
15-03-23	168	158	207	198	187	156	258	150	176	195	259	160	204
16-03-23	181	156	190	187	168	156	245	152	172	177	154	158	176
17-03-23	181	154	179	198	160	158	189	156	170	173	167	158	169
18-03-23	175	169	182	252	171	DNA	194	165	DNA	179	189	DNA	171
19-03-23	163	136	168	258	163	DNA	174	150	131	166	156	162	DNA
20-03-23	121	121	135	100	87	DNA	179	DNA	104	111	108	89	DNA
21-03-23	143	114	159	123	89	97	171	DNA	142	120	141	80	DNA
22-03-23	132	118	169	154	96	110	179	82	163	155	188	95	158
23-03-23	129	101	180	DNA	146	92	189	79	170	165	163	116	150
24-03-23	147	116	170	DNA	151	150	175	97	173	162	171	130	117
25-03-23	142	147	173	DNA	155	101	179	86	DNA	168	156	154	DNA
26-03-23	142	104	167	DNA	157	79	181	78	DNA	171	180	154	DNA
27-03-23	157	156	174	164	139	93	166	DNA	DNA	171	165	123	152
28-03-23	159	158	180	173	159	149	180	137	199	171	191	152	158
29-03-23	162	137	170	161	130	111	184	87	177	160	187	127	152
30-03-23	163	138	165	159	130	88	158	73	166	154	159	129	147
31-03-23	144	102	129	131	99	87	97	67	152	142	169	143	88

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