



Air Quality Monthly Report

September, 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

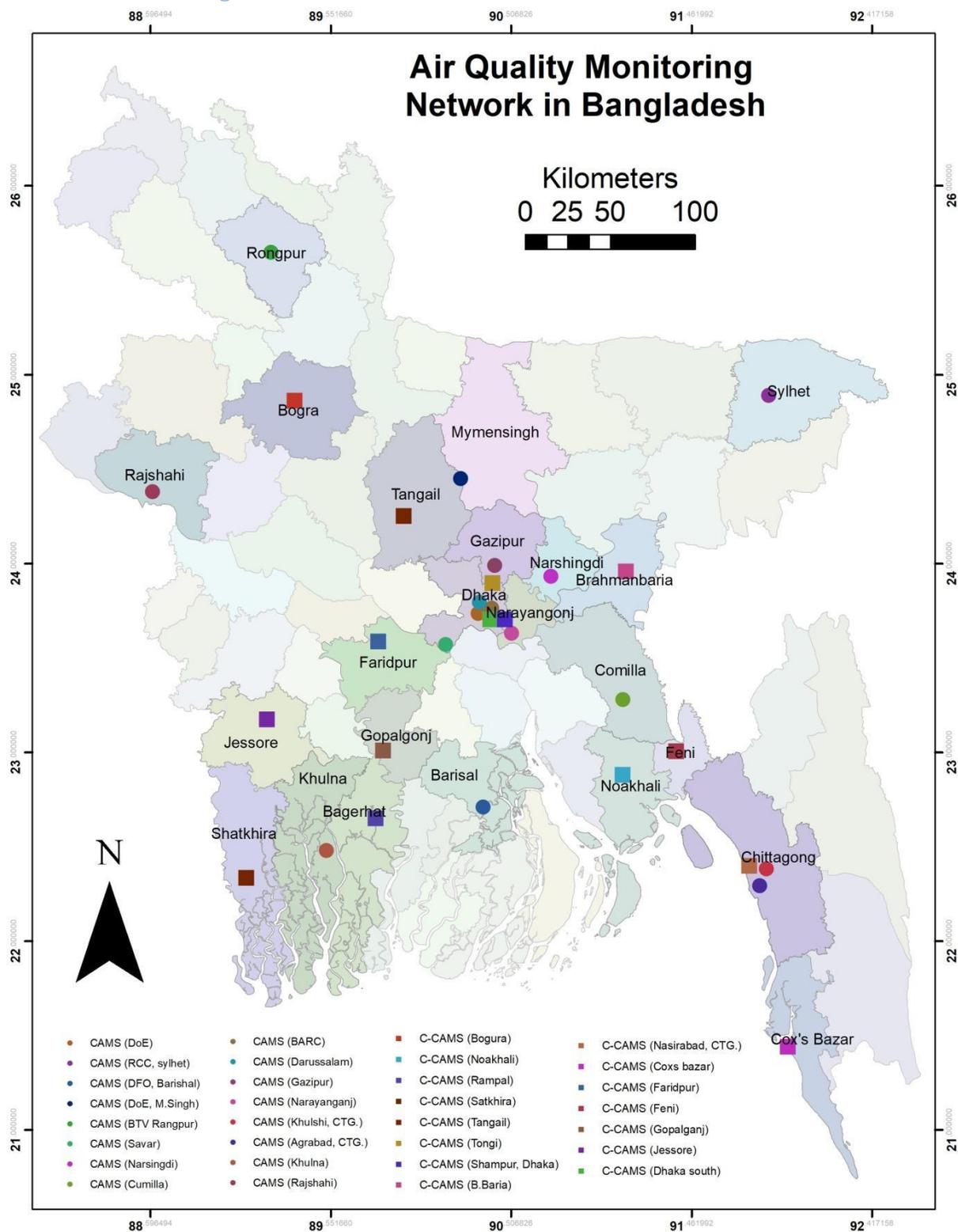
Pollutant	Limit Value	Averaging time
CO	5 mg/m ³	8 hours ^a
	20 mg/m ³	1 hour ^a
Pb	0.25 µg/m ³	Annual
	0.50 µg/m ³	24 hours
NO _x	40 µg/m ³	Annual
	80 µg/m ³	24 hours
PM ₁₀	50 µg/m ³	Annual ^b
	150 µg/m ³	24 hours ^c
PM _{2.5}	35 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	180 µg/m ³	1 hour ^d
	100 µg/m ³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

Table 5: Summary of components_ Month of September, 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	15.8	3.8	13.9	6.1	20.3	4.2	1.7	7.1	10.9	2.0	9.3	2.9	17.1	2.7	14.1	2.2
	Max	33.9	6.7	15.1	11.7	30.2	13.0	4.2	10.4	22.5	2.0	10.9	18.5	38.6	3.1	26.8	6.3
	Min	0.5	0.6	13.1	0.1	13.5	1.8	0.2	5.0	0.9	1.8	8.7	0.7	0.1	2.0	4.0	1.6
	Excedance(Days)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0
	Data capture(%)	93.5	96.8	96.8	67.7	19.4	80.6	71.0	96.8	96.8	12.9	80.6	93.5	74.2	96.8	96.8	87.1
NO ₂ -24 hr (ppb)	Average	15.7	45.6	4.6	0.2	DNA	4.5	7.0	DNA	4.2	2.1	1.4	4.0	5.5	10.7	7.4	8.1
	Max	82.9	74.3	7.1	0.2	DNA	22.0	22.1	DNA	4.8	2.8	4.0	4.1	5.9	28.6	9.2	8.8
	Min	0.3	26.9	2.8	0.2	DNA	0.1	2.8	DNA	3.9	1.4	0.1	3.8	5.2	8.4	6.1	7.6
	Excedance(Days)	3.0	17.0	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(%)	83.9	96.8	96.8	90.3	DNA	77.4	96.8	DNA	80.6	96.8	83.9	96.8	96.8	64.5	96.8	87.1
CO-8hr (ppm)	Average	2.1	4.6	2.9	DNA	0.7	0.6	5.5	2.6	3.2	5.0	DNA	0.8	1.2	2.3	0.7	0.6
	Max	2.9	10.3	5.0	DNA	0.7	1.9	8.9	3.0	7.5	12.6	DNA	2.1	2.1	3.2	1.2	1.2
	Min	1.4	1.1	2.3	DNA	0.7	0.0	4.9	2.2	0.3	0.4	DNA	0.1	0.8	1.5	0.0	0.1
	Excedance(Hour)	0.0	346.0	18.0	DNA	0.0	0.0	154.0	0.0	257.0	472.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	72.2	95.8	95.8	DNA	95.8	70.2	20.7	87.0	94.8	95.6	DNA	92.5	95.7	95.8	93.7	85.6
O ₃ -8hr (ppb)	Average	DNA	5.7	2.2	21.0	4.0	14.0	4.9	3.8	12.9	19.5	114.8	13.3	19.5	77.4	5.8	6.9
	Max	DNA	23.6	13.1	42.8	7.1	50.7	5.2	14.7	40.6	29.6	120.0	65.3	115.3	119.7	16.8	18.3
	Min	DNA	0.8	0.1	4.8	3.4	4.8	4.7	0.3	6.4	14.0	88.9	2.3	2.7	10.8	0.6	0.3
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	105.0	6.0	11.0	369.0	0.0	0.0
	Data capture(%)	DNA	95.8	20.3	78.9	52.2	71.6	53.2	51.5	94.8	95.8	14.1	92.3	49.7	61.4	95.8	95.8
PM _{2.5} -24hr (ug/m3)	Average	33.4	54.7	45.3	45.6	33.2	16.0	21.7	42.3	97.8	45.7	19.2	51.7	58.0	55.8	26.8	27.5
	Max	77.3	97.0	100.1	96.0	103.7	37.8	75.7	114.5	306.8	108.4	46.6	112.0	153.4	116.4	64.7	80.4
	Min	14.8	36.5	23.5	14.6	7.8	7.5	8.5	10.8	6.9	19.1	9.0	23.0	24.4	12.4	8.2	10.0
	Excedance(Days)	2.0	3.0	4.0	5.0	4.0	0.0	1.0	4.0	14.0	4.0	0.0	6.0	8.0	12.0	0.0	2.0
	Data capture(%)	90.3	87.1	96.8	87.1	96.8	80.6	74.2	64.5	96.8	96.8	96.8	93.5	96.8	96.8	96.8	96.8
PM ₁₀ -24hr (ug/m3)	Average	67.8	132.5	79.1	81.9	110.8	35.7	57.6	114.3	33.1	51.4	50.5	82.6	144.0	102.4	42.2	58.4
	Max	133.3	236.9	163.4	195.4	236.4	108.1	167.0	323.4	76.7	119.2	133.0	166.3	318.7	264.3	99.2	169.2
	Min	33.0	14.9	34.1	20.7	28.2	10.0	23.2	33.1	13.7	22.5	19.5	41.1	47.2	20.5	12.3	19.7
	Excedance(Days)	0.0	15.0	1.0	3.0	6.0	0.0	1.0	5.0	0.0	0.0	0.0	2.0	10.0	8.0	0.0	1.0
	Data capture(%)	93.5	96.8	71.0	93.5	64.5	58.1	96.8	58.1	96.8	90.3	83.9	93.5	96.8	96.8	96.8	96.8
Solar rad. 1hr (W/m2)	Average	103.25	144.98	133.8	9.6	DNA	419.7	160.3	DNA	172.5	818.3	97.6	207.1	217.0	279.7	208.0	264.0
	Max	652.22	794.0	1008.6	21.3	DNA	503.3	786.0	DNA	778.7	874.7	666.4	941.2	958.4	977.1	932.7	1056.6
	Min	19.95	0.1	983.4	0.7	DNA	3.4	9.3	DNA	1.2	776.6	8.2	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	87.37	59	96	89	DNA	43	94	DNA	91	91	93	72.6	55.6	61.8	69.9	70.2
	Average	52.22	87.5	77.5	DNA	DNA	58.0	81.4	DNA	62.4	91.3	56.2	79.6	93.9	87.4	97.4	41.7
Relative Humidity 1hr (%)	Max	59.42	100.0	93.6	DNA	DNA	76.7	99.6	DNA	74.7	94.7	67.0	100.0	99.4	99.6	99.9	70.6
	Min	47.08	60.7	49.2	DNA	DNA	57.1	55.5	DNA	58.2	89.8	51.0	49.2	22.3	54.1	66.1	15.6
	Data capture(%)	87.37	18.8	96.0	DNA	DNA	68	93	DNA	92	91	93	28.8	78.5	96.6	94.5	96.6
	Average	DNA	26.3	28.7	DNA	DNA	29.4	31.0	DNA	30.1	31.7	30.1	DNA	28.8	28.7	28.3	28.6
	Max	DNA	33.1	33.3	DNA	DNA	35.5	42.9	DNA	35.7	38.8	41.0	DNA	35.7	36.0	35.6	35.0
Ambient Temp. 1hr (degreeC)	Min	DNA	21.4	24.9	DNA	DNA	24.8	12.5	DNA	26.2	26.8	24.0	DNA	7.8	23.0	21.1	23.7
	Data capture(%)	DNA	59.8	96	DNA	DNA	68	54	DNA	92	91	93	DNA	76.7	96.4	89.9	96.8
	Average	132.92	DNA	0.15	0.30	DNA	16.49	DNA	DNA	DNA	DNA	1.94	0.08	0.24	0.09	0.02	0.06
	Max	132.92	DNA	0.80	0.80	DNA	20.31	DNA	DNA	DNA	DNA	151.46	0.57	4.78	0.77	0.08	0.56
	Min	132.92	DNA	0.08	0.03	DNA	6.09	DNA	DNA	DNA	DNA	0.01	0.01	0.01	0.01	0.01	0.01
Rainfall 1hr (mm)	Data capture(%)	0.13	DNA	74.06	48.79	DNA	9.41	DNA	DNA	DNA	DNA	74.73	5.24	31.45	7.26	2.55	5.65

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 September, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-09-23	173	130	166	151	DNA	108	180	115	172	194	196	125	171
02-09-23	164	142	171	166	DNA	112	169	128	DNA	197	177	155	163
03-09-23	122	54	150	80	DNA	156	153	68	180	139	172	109	103
04-09-23	108	59	121	72	DNA	DNA	154	53	DNA	134	148	96	75
05-09-23	127	73	114	155	DNA	136	89	68	97	111	156	116	79
06-09-23	127	73	114	155	DNA	136	92	68	97	111	156	116	79
07-09-23	81	44	63	55	DNA	26	70	51	76	88	86	68	54
08-09-23	92	47	70	55	DNA	60	110	59	81	65	63	75	54
09-09-23	149	54	120	85	DNA	60	113	64	154	147	127	86	75
10-09-23	148	59	153	99	DNA	64	130	65	153	166	159	74	135
11-09-23	132	47	159	94	DNA	57	152	70	160	165	158	85	DNA
12-09-23	130	45	152	85	104	172	78	56	146	161	159	69	DNA
13-09-23	97	34	DNA	53	102	DNA	121	43	116	145	165	55	54
14-09-23	88	42	DNA	65	57	62	89	53	81	92	134	33	46
15-09-23	82	50	DNA	68	73	78	88	59	112	99	132	55	59
16-09-23	121	49	131	DNA	79	78	138	63	156	143	142	89	69
17-09-23	131	70	151	147	134	86	155	74	152	167	168	88	142
18-09-23	129	30	76	89	61	72	162	49	108	125	157	53	58
19-09-23	79	35	56	89	50	72	88	39	77	84	82	46	51
20-09-23	81	38	57	65	39	41	55	52	75	79	63	64	38
21-09-23	82	44	71	35	43	52	82	58	109	99	51	59	54
22-09-23	110	49	78	43	44	44	89	51	96	93	82	50	54
23-09-23	74	52	78	52	76	47	65	57	96	88	81	52	51
24-09-23	76	76	83	48	71	39	77	52	142	147	75	82	52
25-09-23	97	52	128	65	108	49	141	60	112	142	104	88	60
26-09-23	141	105	176	132	103	51	107	70	153	DNA	165	77	94
27-09-23	142	105	161	156	121	60	DNA	73	156	DNA	151	110	126
28-09-23	154	113	155	174	87	95	DNA	94	156	DNA	156	116	97
29-09-23	127	54	105	131	DNA	97	DNA	78	125	DNA	157	71	70
30-09-23	114	49	101	57	DNA	46	DNA	46	119	DNA	DNA	40	52

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