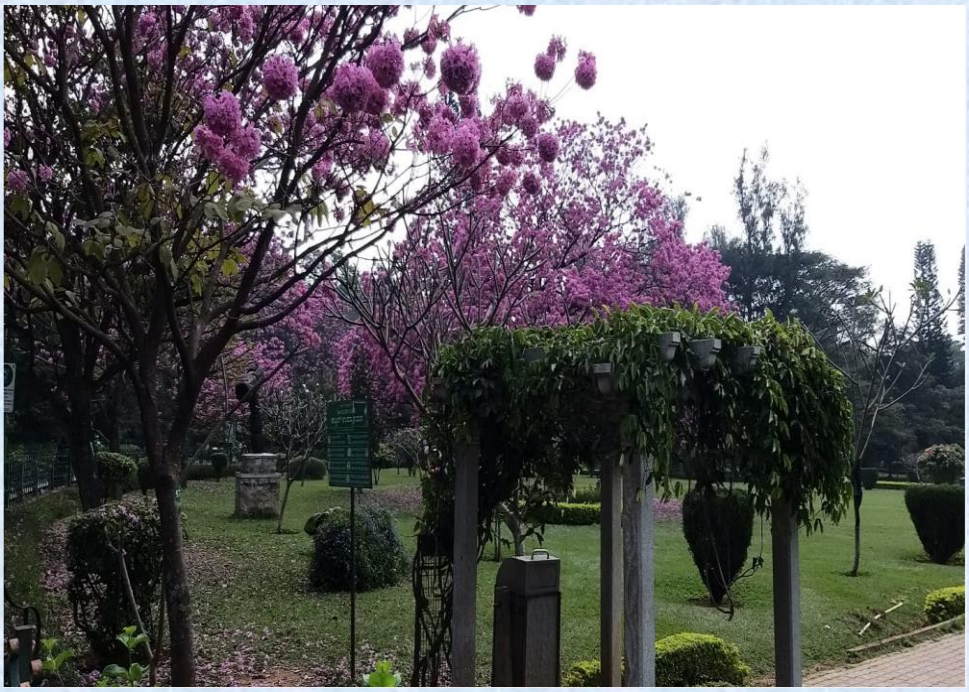
Ambient Air Quality Data of Bengaluru CAAQM Stations

For the month of December, 2021

Winter AQI Bulletin



ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

#೪೯, ಪರಿಸರ ಭವನ, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು-ಖಿಟಿ೦ ೦೦೧

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I N D E X

Introduction:

Air pollutants are added in the atmosphere from variety of sources that change the composition of atmosphere and affect the biotic environment. The concentration of air pollutants depend not only on the quantities that are emitted from air pollution sources but also on the ability of the atmosphere to either absorb or disperse these emissions. The air pollution concentration vary spatially and temporarily causing the air pollution pattern to change with different locations and time due to changes in meteorological and topographical condition. The sources of air pollutants include vehicles, industries, domestic sources and natural sources. Because of the presence of high amount of air pollutants in the ambient air, the health of the population and property is getting adversely affected. In order to arrest the deterioration in air quality, Govt. of India has enacted Air (Prevention and Control of Pollution) Act in 1981. The responsibility has been further emphasized under Environment (Protection) Act, 1986. It is necessary to assess the present and anticipated air pollution through continuous air quality survey/monitoring programs. Therefore, Central Pollution Control Board had started National Ambient Air Quality Monitoring (NAAQM) Network during 1984 - 85 at national level. The programme was later renamed as National Air Quality Monitoring Programme (NAMP).

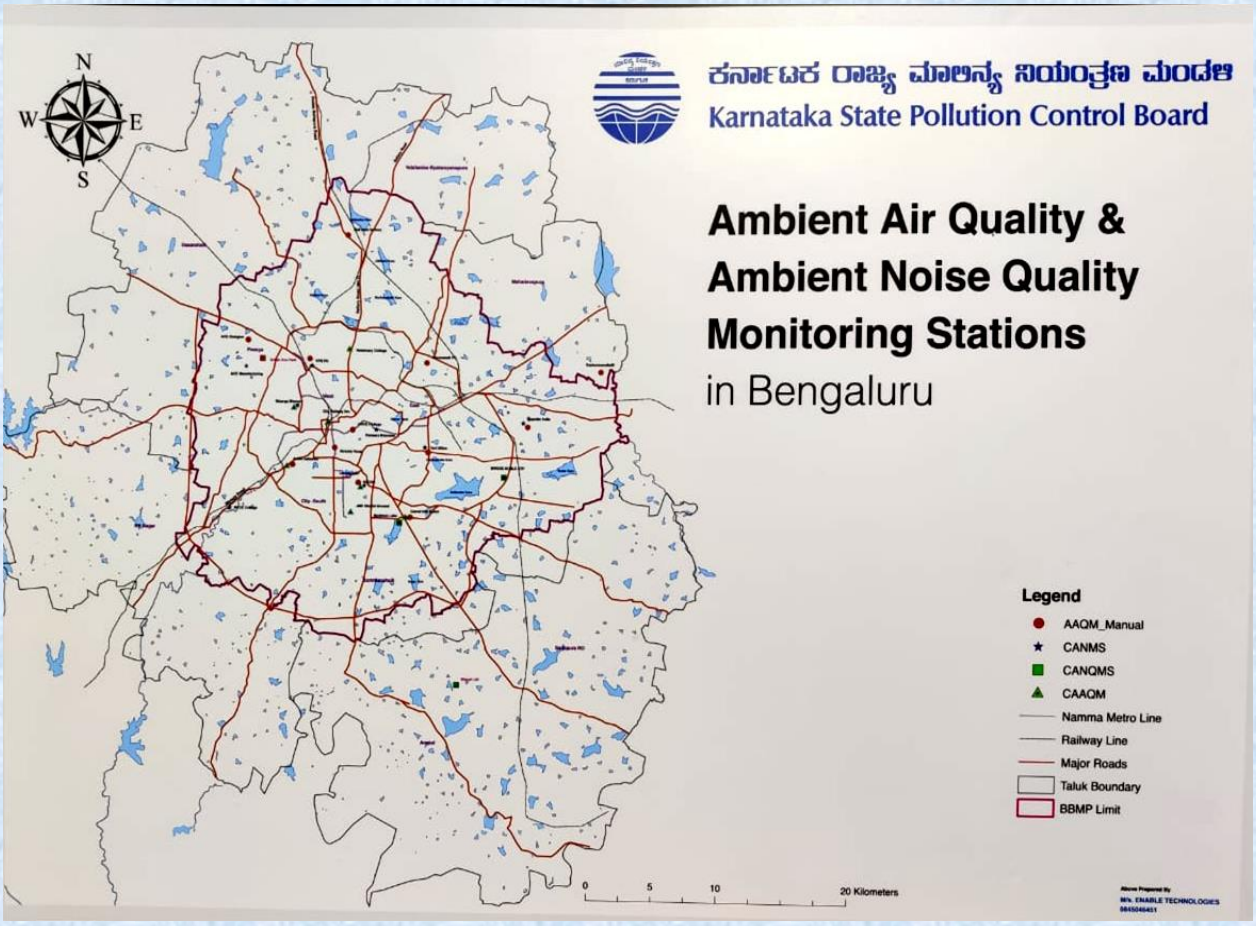
Air pollutants show short term, seasonal and long term variations. Atmospheric conditions determine the fate of the air pollutants after their release into the atmosphere. The mean transport wind velocity, turbulance and mass diffusion are three important and dominant mechanisms in the air pollutant dispersal. Meteorology plays a major role in study of air pollution. The wind speed and direction play a major role in dispersion of air pollutants. The wind direction is the measurement of direction from which the wind is blowing, measured in points of compass viz. North, South, East, West or in Azimuth degrees. Wind direction has an important role in distributing and dispersing pollutants from stationary and mobile sources in horizontally long downwind areas. The wind speed is the measure of horizontal motion of wind relative to the surface of earth per unit time. The effect of wind speed on air pollution is two-fold. It determines the travel time from a source to a given receptor while on the other causes dilution of pollutants in downwind direction. The stronger the wind, the greater will be the dissipation and dilution of pollutants emitted. Hence, the frequency distribution of wind direction as well as wind speed is essential for accurate estimation of the dispersion of pollutants in the atmosphere. The frequency distribution of wind speed and direction varies considerably from month to month.

Bengaluru is known for its cool and pleasant climate, because of its high elevation of around 800-900 meters above sea level. The annual average temperate ranges from 23 to 26 throughout the year. However, in view of rapid urbanization, Industrialisation and increase of vehicles, the air quality is getting disturbed compared to past years. Hence, in order to determine the pollutants, its nature, quality and quantity in the Ambient Air and source of emission generated, the KSPCB has installed 7 CAAQM (Continuous Ambient Air quality monitoring Stations) in Bengaluru and the monitoring is done on 24 hours basis for PM_{10}, $PM_{2.5}$, SO_2, NO_2, Ammonia, O3, CO and Benzene and the compiled statistical Data is sent to CPCB, New Delhi electronically and also the data is published in the Board Web Site regularly.

Further, in order to analyse the trend and concentration of air pollutants in the atmosphere over a period of time and thus enabling the stakeholders to take up mitigative measures, AQI Bulletin serves as a reference guide in understanding the air quality of Bengaluru city in 3 different seasons. The ambient air quality data of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) operated by KSPCB for the period December 01, 2021 to December 31, 2021 are compiled and presented in this report.

Site map of CAAQM stations operated by KSPCB in Bengaluru

CAAQM Stations: Hebbal, Jayanagar, KAVIKA, NIMHANS, Silkboard, Nisarga Bhavan (Basaveshwaranagar), City Railway Station(CRS)



Parameter-wise data tables of CAAQM Stations

I) Hebbal

Continuous Ambient Air Quality Monitoring Station of Hebbal, Monthly Report of Ambient Air Quality, December - 2021

Date	CO (mg/m³)	Ozone (µg/m³)	NO2 (µg/m³)	NH3 (µg/m³)	SO2 (µg/m³)	PM2.5 (µg/m³)	PM10 (µg/m³)	BEN. (µg/m³)	AT (°C)	RH (%)	WS (m/s)	WD (deg)	BP (mmHg)	AQI	Prominent Pollutant
01-12-2021	0.6	19.1	30.2	4.5	6.0	48.0	96.2	0.1	21.7	80	1.0	111	714	96	PM_{10}
02-12-2021	0.6	19.5	27.7	5.0	5.7	58.8	112.6	0.1	22.2	79	0.8	118	714	108	PM_{10}
03-12-2021	0.6	20.2	17.4	4.8	5.2	50.2	93.9	0.1	25.2	70	0.7	130	714	94	PM_{10}
04-12-2021	0.6	20.0	19.3	5.6	6.1	58.6	104.8	0.1	23.7	72	0.6	118	714	103	PM_{10}
05-12-2021	0.6	20.4	13.5	4.7	11.0	34.0	64.9	0.1	23.9	72	0.7	160	715	65	PM_{10}
06-12-2021	0.6	20.3	1.8	1.4	6.8	85.4	152.8	0.1	22.7	75	0.7	101	714	185	$PM_{2.5}$
07-12-2021	0.6	19.5	1.9	1.4	6.7	54.3	104.4	0.1	22.9	70	0.9	101	714	103	PM_{10}
08-12-2021	0.6	19.2	1.8	1.4	7.1	35.6	78.5	0.1	23.2	70	1.0	103	715	79	PM_{10}
09-12-2021	0.6	19.0	19.9	7.9	6.4	31.3	72.7	0.1	23.6	74	0.9	103	716	73	PM_{10}
10-12-2021	0.6	19.0	32.6	26.9	5.9	30.2	73.7	0.1	23.4	68	1.0	109	716	74	PM_{10}
11-12-2021	0.6	19.1	19.4	18.2	5.1	27.3	59.0	0.1	21.1	78	1.3	107	717	59	PM_{10}
12-12-2021	0.6	19.0	24.4	11.8	5.8	27.8	56.3	0.1	21.8	77	1.1	102	716	56	PM_{10}
13-12-2021	0.6	18.9	25.9	10.1	6.7	28.9	60.8	0.1	22.0	78	1.1	107	715	61	PM_{10}
14-12-2021	0.3	30.9	31.2	8.0	6.4	28.3	70.7	0.1	21.1	79	1.0	102	722	71	PM_{10}
15-12-2021	0.3	23.1	25.0	7.1	6.4	46.8	100.5	0.1	20.5	79	0.9	95	732	100	PM_{10}
16-12-2021	0.3	23.9	21.7	7.8	6.0	53.8	106.8	0.1	21.2	71	0.9	98	733	105	PM_{10}
17-12-2021	0.3	24.0	24.5	7.7	6.8	62.9	118.2	0.1	21.6	68	0.8	96	733	112	PM_{10}
18-12-2021	0.3	24.4	21.4	7.4	6.6	67.0	124.7	0.1	21.5	72	1.0	106	732	123	$PM_{2.5}$
19-12-2021	0.3	24.0	21.3	6.5	6.3	46.3	97.0	0.1	19.9	64	1.0	100	733	97	PM_{10}
20-12-2021	0.3	24.3	28.8	7.0	6.1	56.1	117.3	0.2	20.2	69	1.0	108	733	112	PM_{10}
21-12-2021	0.5	25.3	36.1	7.3	6.0	74.1	161.5	0.2	19.9	68	0.6	99	733	147	$PM_{2.5}$
22-12-2021	0.5	24.7	28.5	7.8	5.7	61.9	134.9	0.2	21.1	66	0.7	117	732	123	PM_{10}
23-12-2021	0.5	25.6	29.1	8.5	5.4	66.0	134.3	0.2	21.3	63	0.7	118	732	123	PM_{10}
24-12-2021	0.5	24.1	28.7	8.1	6.2	50.5	118.8	0.2	21.6	58	0.6	115	732	113	PM_{10}
25-12-2021	0.4	23.8	27.1	9.0	6.3	45.6	109.7	0.2	20.4	65	0.7	108	733	106	PM_{10}
26-12-2021	0.8	24.9	27.4	10.0	6.6	59.3	112.3	0.2	23.1	61	0.8	101	734	108	PM_{10}
27-12-2021	0.3	23.6	32.9	15.6	6.1	42.8	99.5	0.2	20.2	73	1.1	118	733	100	PM_{10}
28-12-2021	0.3	23.8	24.0	13.5	6.2	30.4	85.7	0.1	23.4	61	1.3	123	733	86	PM_{10}
29-12-2021	0.4	23.4	26.9	10.9	6.6	34.3	88.0	-	21.6	68	1.1	107	732	88	PM_{10}
30-12-2021	0.4	23.0	21.5	8.7	6.4	23.2	63.0	0.1	21.7	71	1.3	107	733	63	PM_{10}
31-12-2021	0.5	23.0	18.4	7.6	6.9	20	56	0.1	20.4	80	1.3	106	734	56	PM_{10}
Average	**0.5**	**22.3**	**22.9**	**8.5**	**6.4**	**46.4**	**97.7**	**0.1**	**21.9**	**71**	**0.9**	**110**	**725**		
Minimum	0.3	18.9	1.8	1.4	5.1	19.8	55.9	0.1	19.9	58	0.6	95	714		
Maximum	0.8	30.9	36.1	26.9	11.0	85.4	161.5	0.2	25.2	80	1.3	160	734		

II) Jayanagar

Continuous Ambient Air Quality Monitoring Station of Jayanagar, Monthly Report of Ambient Air Quality, December - 2021

Date	CO mg/m³	Ozone µg/m³	NO2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM2.5 µg/m³	PM10 µg/m³	BEN µg/m³	AT °C	RH %	WS m/s	WD deg.	BP mmHg	AQI	Prominent Pollutant
01-12-2021	0.5	31.5	32.0	6.9	5.8	42.5	70.5	0.11	22.2	80	0.6	125	710	71	PM_{10} & $PM_{2.5}$
02-12-2021	0.5	39.4	30.9	7.1	6.0	57.7	96.3	0.14	22.5	78	0.5	125	710	96	PM_{10} & $PM_{2.5}$
03-12-2021	0.7	30.8	39.5	7.0	8.4	55.6	93.6	0.21	23.0	77	0.5	186	710	96	PM_{10}
04-12-2021	0.6	43.1	35.8	7.0	5.6	56.6	93.0	0.20	23.8	72	0.6	199	710	94	$PM_{2.5}$
05-12-2021	0.4	34.8	31.4	6.9	4.9	38.4	67.8	0.14	23.3	73	0.6	152	710	68	PM_{10}
06-12-2021	0.7	42.3	33.1	7.0	6.2	86.6	128.5	0.19	23.5	73	0.4	157	710	189	$PM_{2.5}$
07-12-2021	0.6	37.0	40.2	7.0	5.6	57.0	95.0	0.16	23.2	70	0.5	126	710	95	PM_{10} & $PM_{2.5}$
08-12-2021	0.6	28.9	51.8	7.0	7.0	36.1	70.4	0.15	22.9	71	0.6	122	711	70	PM_{10}
09-12-2021	0.5	25.6	45.6	4.4	5.4	30.2	60.1	0.12	23.4	74	0.6	127	712	60	PM_{10}
10-12-2021	0.5	28.4	40.1	3.6	4.9	25.8	57.8	0.12	23.5	67	0.7	128	712	58	PM_{10}
11-12-2021	0.6	22.4	36.1	3.4	5.9	23.7	55.4	0.14	22.4	75	0.6	123	712	55	PM_{10}
12-12-2021	0.5	22.2	33.0	3.6	8.4	24.4	45.6	0.10	21.9	76	0.6	127	712	46	PM_{10}
13-12-2021	0.6	20.6	33.6	3.6	6.4	26.5	44.0	0.11	20.4	84	0.5	119	711	44	PM_{10} & $PM_{2.5}$
14-12-2021	0.6	21.7	32.4	3.6	5.7	41.0	71.0	0.15	21.5	79	0.5	123	711	71	PM_{10}
15-12-2021	0.8	25.0	32.9	3.3	5.9	66.4	118.4	0.18	21.4	76	0.5	122	711	121	$PM_{2.5}$
16-12-2021	0.7	34.2	29.4	3.3	5.8	78.0	132.3	0.20	22.1	68	0.5	112	712	160	$PM_{2.5}$
17-12-2021	0.6	35.3	28.9	3.4	5.3	83.5	134.6	0.20	22.2	65	0.5	114	712	178	$PM_{2.5}$
18-12-2021	0.8	44.0	19.1	3.6	5.6	92.4	139.8	0.25	21.6	69	0.5	126	712	208	$PM_{2.5}$
19-12-2021	0.4	46.4	17.6	3.6	4.9	65.8	103.7	0.15	20.9	62	0.6	120	713	119	$PM_{2.5}$
20-12-2021	0.5	48.1	19.3	3.6	6.6	61.8	98.0	0.16	21.0	67	0.6	118	712	106	$PM_{2.5}$
21-12-2021	0.8	48.1	25.9	3.8	7.6	80.5	135.5	0.28	20.7	65	0.5	130	712	168	$PM_{2.5}$
22-12-2021	0.5	53.4	20.7	3.9	5.8	75.0	117.7	0.21	21.7	66	0.5	128	711	150	$PM_{2.5}$
23-12-2021	0.7	55.5	30.4	3.6	5.8	78.8	132.0	0.24	21.9	63	0.5	148	711	163	$PM_{2.5}$
24-12-2021	0.5	40.0	30.5	3.5	5.4	61.1	110.4	0.22	22.4	57	0.5	112	711	107	PM_{10}
25-12-2021	0.6	37.1	29.2	3.8	6.3	48.7	135.5	0.18	22.1	59	0.5	129	711	124	PM_{10}
26-12-2021	0.4	54.7	24.3	3.7	5.3	52.9	90.4	0.14	23.0	61	0.6	117	712	90	PM_{10}
27-12-2021	0.4	41.0	23.2	3.6	5.6	49.8	87.5	0.13	22.1	65	0.7	124	712	88	PM_{10}
28-12-2021	0.4	25.5	26.1	3.5	6.0	35.0	69.7	0.14	22.0	68	0.7	119	712	70	PM_{10}
29-12-2021	0.5	21.3	28.0	3.6	5.6	32.0	67.2	0.13	21.7	68	0.6	116	712	67	PM_{10}
30-12-2021	0.5	17.5	29.9	3.5	5.1	22.5	54.6	0.14	22.0	70	0.7	126	713	55	PM_{10}
31-12-2021	0.5	16.3	29.2	3.4	5.4	21.9	48.5	0.15	21.1	79	0.7	126	713	49	PM_{10}
Average	**0.6**	**34.6**	**31.0**	**4.5**	**5.9**	**51.9**	**91.1**	**0.17**	**22.2**	**70**	**0.6**	**130**	**711**		
Maximum	0.8	55.5	51.8	7.1	8.4	92.4	139.8	0.28	23.8	84	0.7	199	713		
Minimum	0.4	16.3	17.6	3.3	4.9	21.9	44.0	0.10	20.4	57	0.4	112	710		

III) KAVIKA, Mysore Road

Continuous Ambient Air Quality Monitoring Station of KAVIKA, Monthly Report of Ambient Air Quality, December - 2021															
Date	CO mg/m³	Ozone µg/m³	NO_2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM2.5 µg/m³	PM10 µg/m³	BEN µg/m³	AT °C	RH %	WS m/s	WD deg.	BP mmHg	AQI	Prominent Pollutant
01-12-2021	1.1	16.3	15.3	58.1	6.1	50.6	97.4	0.24	22.3	72	1.3	66	717	97	PM_{10}
02-12-2021	1.1	16.4	17.6	54.4	5.6	67.3	114.8	0.17	22.8	70	1.1	73	717	124	$PM_{2.5}$
03-12-2021	1.5	16.4	16.2	58.6	5.3	71.4	115.0	0.24	23.4	70	0.9	115	717	138	$PM_{2.5}$
04-12-2021	1.4	16.4	18.9	63.0	5.4	71.3	110.2	0.25	24.3	64	1.0	163	717	138	$PM_{2.5}$
05-12-2021	0.7	16.6	9.9	37.4	5.0	32.9	43.7	0.07	22.8	72	1.1	154	718	55	$PM_{2.5}$
06-12-2021	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
07-12-2021	1.1	16.7	21.2	66.3	5.4	73.4	115.7	0.20	23.9	-	-	-	717	145	$PM_{2.5}$
08-12-2021	1.1	16.6	19.0	63.8	5.3	56.5	96.4	0.25	23.8	-	-	-	718	96	PM_{10}
09-12-2021	1.1	16.7	14.3	64.9	4.6	42.4	83.6	0.28	23.5	-	-	-	719	84	PM_{10}
10-12-2021	0.9	16.6	14.9	55.6	4.7	44.4	74.0	0.22	23.6	-	-	-	719	74	PM_{10} & $PM_{2.5}$
11-12-2021	1.0	16.6	13.3	61.0	4.8	34.0	69.6	0.28	22.3	-	-	-	719	70	PM_{10}
12-12-2021	0.9	16.5	11.5	60.3	4.6	33.3	66.9	0.22	22.0	-	-	-	719	67	PM_{10}
13-12-2021	1.2	16.5	13.7	70.3	4.7	39.2	79.0	0.32	21.3	-	-	-	718	79	PM_{10}
14-12-2021	1.4	16.3	17.5	82.8	4.8	54.0	111.5	0.37	22.7	-	-	-	718	108	PM_{10}
15-12-2021	2.0	16.2	16.4	84.4	5.8	70.7	137.3	0.37	22.1	-	-	-	719	136	$PM_{2.5}$
16-12-2021	1.2	6.5	21.2	90.1	4.8	76.3	134.3	0.14	21.4	64	0.5	52	723	154	$PM_{2.5}$
17-12-2021	1.3	6.2	18.9	71.8	4.7	98.2	148.5	0.14	23.6	-	-	-	-	227	$PM_{2.5}$
18-12-2021	1.3	6.9	18.8	71.9	4.9	93.5	149.0	0.15	23.0	-	-	-	-	212	$PM_{2.5}$
19-12-2021	1.0	7.0	4.1	21.6	4.6	82.2	122.7	0.11	22.1	-	-	-	-	174	$PM_{2.5}$
20-12-2021	1.1	7.3	10.3	46.1	4.7	80.1	116.3	0.12	22.0	65	0.6	65	722	167	$PM_{2.5}$
21-12-2021	1.7	8.2	5.5	28.4	5.0	108.1	158.8	0.11	22.7	59	0.7	83	723	260	$PM_{2.5}$
22-12-2021	1.2	7.9	6.9	26.6	4.3	96.5	129.8	0.13	23.2	61	0.6	77	721	222	$PM_{2.5}$
23-12-2021	1.5	7.9	22.8	72.2	4.5	105.0	146.9	0.17	23.6	58	0.6	79	721	250	$PM_{2.5}$
24-12-2021	1.4	7.4	17.0	60.0	4.5	96.9	135.3	0.15	24.1	51	0.6	77	721	223	$PM_{2.5}$
25-12-2021	1.3	7.2	21.1	86.6	4.6	87.0	120.5	0.14	24.5	52	0.8	117	722	190	$PM_{2.5}$
26-12-2021	0.9	7.8	17.9	71.3	4.8	79.0	103.5	0.10	24.2	57	0.6	80	723	163	$PM_{2.5}$
27-12-2021	0.9	8.2	12.4	56.6	4.5	67.5	88.5	0.10	23.1	61	0.8	119	723	125	$PM_{2.5}$
28-12-2021	0.8	6.2	7.8	35.9	4.6	50.5	74.5	0.09	22.7	65	0.9	125	722	84	$PM_{2.5}$
29-12-2021	0.9	5.7	10.4	57.9	4.6	55.6	75.0	0.10	22.7	65	0.9	124	722	93	$PM_{2.5}$
30-12-2021	1.0	5.8	4.7	30.1	5.0	30.8	71.5	0.11	23.1	65	0.8	119	723	72	$PM_{2.5}$
31-12-2021	1.2	6.1	4.7	24.5	5.2	35.5	71.7	0.13	22.2	75	0.8	113	724	72	$PM_{2.5}$
Average	**1.2**	**11.4**	**14.2**	**57.8**	**4.9**	**66.1**	**105.4**	**0.18**	**23.0**	**64**	**0.8**	**100**	**720**		
Maximum	2.0	16.7	22.8	90.1	6.1	108.1	158.8	0.37	24.5	75	1.3	163	724		
Minimum	0.7	5.7	4.1	21.6	4.3	30.8	43.7	0.07	21.3	51	0.5	52	717		

IV) NIMHANS

Continuous Ambient Air Quality Monitoring Station of NIMHANS, Monthly Report of Ambient Air Quality, December - 2021															
Date	CO mg/m³	Ozone µg/m³	NO2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM2.5 µg/m³	PM10 µg/m³	BEN µg/m³	AT °C	RH %	WS m/s	WD deg.	BP mmHg	AQI	Prominent Pollutant
01-12-2021	0.8	20.7	26.9	11.4	6.3	29.6	69.2	0.41	21.6	65	0.7	132	709	69	PM_{10}
02-12-2021	0.9	25.8	28.8	12.6	6.5	39.3	93.9	0.42	22.1	64	0.8	136	709	94	PM_{10}
03-12-2021	1.2	19.9	29.1	12.4	6.5	39.8	95.3	0.53	22.9	64	0.9	171	709	95	PM_{10}
04-12-2021	1.0	20.2	28.2	12.4	6.3	39.0	93.3	0.59	23.7	60	1.1	191	710	93	PM_{10}
05-12-2021	0.8	13.2	25.7	11.4	5.7	27.5	64.2	0.58	23.0	61	1.0	188	709	64	PM_{10}
06-12-2021	1.1	10.8	31.2	15.4	5.3	57.4	139.8	0.50	23.2	60	0.9	160	709	127	PM_{10}
07-12-2021	0.9	2.7	29.2	13.1	6.5	39.8	95.2	0.41	22.7	60	0.7	132	710	95	PM_{10}
08-12-2021	0.7	10.5	23.9	11.6	5.9	25.8	60.4	0.41	22.9	60	0.7	132	710	60	PM_{10}
09-12-2021	0.6	23.1	19.9	11.1	6.5	21.8	50.0	0.39	22.7	62	0.7	125	711	50	PM_{10}
10-12-2021	0.6	17.5	21.3	10.3	6.7	21.6	49.7	0.41	22.7	56	0.7	130	711	50	PM_{10}
11-12-2021	0.6	17.5	19.0	9.9	6.4	16.3	36.0	0.38	21.5	63	0.7	122	711	36	PM_{10}
12-12-2021	0.6	17.5	17.5	10.1	6.7	16.6	36.3	0.39	21.4	63	0.7	126	711	36	PM_{10}
13-12-2021	0.7	17.6	22.1	10.2	6.4	16.5	36.7	0.38	20.7	63	0.7	123	710	37	PM_{10}
14-12-2021	0.7	17.5	24.5	11.7	6.2	25.1	58.1	0.39	21.1	59	0.7	126	710	58	PM_{10}
15-12-2021	0.8	17.5	27.3	13.6	6.1	39.2	93.4	0.39	20.7	59	0.7	125	711	93	PM_{10}
16-12-2021	0.8	17.5	25.2	14.6	6.0	44.4	106.8	0.36	21.5	55	0.7	117	711	105	PM_{10}
17-12-2021	0.8	17.5	29.1	15.1	5.8	49.0	118.5	0.37	21.5	55	0.7	122	711	112	PM_{10}
18-12-2021	0.7	17.5	26.9	16.1	5.6	52.8	127.6	0.36	21.0	57	0.6	116	711	118	PM_{10}
19-12-2021	0.7	17.5	22.8	13.8	6.1	39.3	94.0	0.39	19.9	53	0.7	127	712	94	PM_{10}
20-12-2021	0.8	31.9	25.0	14.8	5.1	43.1	103.6	0.41	20.0	57	0.7	130	712	102	PM_{10}
21-12-2021	1.2	40.9	39.6	15.4	5.8	60.4	140.8	0.46	19.9	56	0.8	147	711	127	PM_{10}
22-12-2021	0.9	38.1	34.2	15.6	6.0	54.5	122.5	0.45	20.8	56	0.8	143	710	115	PM_{10}
23-12-2021	1.0	38.9	37.5	15.8	6.3	60.4	136.5	0.47	21.0	54	0.9	153	710	124	PM_{10}
24-12-2021	0.8	26.1	38.6	14.4	6.0	48.4	106.8	0.46	21.2	47	0.8	147	710	105	PM_{10}
25-12-2021	0.9	34.6	32.5	14.2	5.8	41.8	90.3	0.41	21.8	47	0.7	134	711	90	PM_{10}
26-12-2021	0.6	49.3	22.7	14.7	6.7	41.9	90.5	0.41	22.1	50	0.7	133	712	91	PM_{10}
27-12-2021	0.7	42.5	22.3	14.0	6.3	38.3	81.2	0.42	21.1	56	0.8	135	712	81	PM_{10}
28-12-2021	0.7	25.4	22.9	12.5	6.1	31.5	64.3	0.42	20.8	59	0.7	135	711	64	PM_{10}
29-12-2021	0.7	23.1	23.6	12.2	6.2	30.6	62.0	0.41	20.6	62	0.7	131	711	62	PM_{10}
30-12-2021	0.7	17.8	21.2	11.2	6.7	24.7	47.8	0.39	21.3	64	0.7	126	712	48	PM_{10}
31-12-2021	0.7	23.6	17.7	11.0	5.9	20.2	35.9	0.38	20.7	65	0.7	123	713	36	PM_{10}
Average	**0.8**	**23.0**	**26.3**	**13.0**	**6.1**	**36.7**	**83.9**	**0.42**	**21.6**	**59**	**0.8**	**137**	**711**		
Maximum	1.2	49.3	39.6	16.1	6.7	60.4	140.8	0.59	23.7	65	1.1	191	713		
Minimum	0.6	2.7	17.5	9.9	5.1	16.3	35.9	0.36	19.9	47	0.6	116	709		

IV) Silk Board

Continuous Ambient Air Quality Monitoring Station of Central Silkboard, Monthly Report of Ambient Air Quality, December - 2021															
Date	CO mg/m³	Ozone µg/m³	NO2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM2.5 µg/m³	PM10 µg/m³	BEN µg/m³	AT °C	RH %	WS m/s	WD deg.	BP mmHg	AQI	Prominent Pollutant
01-12-2021	0.46	28.2	21.6	5.9	5.8	26.1	60.5	0.10	21.5	80	1.1	90	713	60	PM_{10}
02-12-2021	0.56	30.8	19.9	7.0	5.9	36.3	82.0	0.13	21.9	79	1.0	95	713	82	PM_{10}
03-12-2021	1.25	34.6	17.3	26.9	5.9	44.8	115.0	0.26	23.0	76	0.6	146	713	110	PM_{10}
04-12-2021	1.10	32.2	22.6	23.9	5.9	43.3	117.0	0.24	24.0	70	0.7	161	714	111	PM_{10}
05-12-2021	0.88	31.4	14.0	27.2	6.0	32.2	90.7	0.19	22.9	75	0.6	174	714	91	PM_{10}
06-12-2021	1.07	36.7	20.9	26.2	6.1	67.6	148.4	0.24	23.4	73	0.6	127	714	132	PM_{10}
07-12-2021	0.86	28.9	28.0	19.0	6.0	40.7	97.7	0.17	22.8	69	0.9	95	714	98	PM_{10}
08-12-2021	0.76	30.9	34.1	21.2	5.9	20.1	67.8	0.17	22.8	70	1.1	91	714	68	PM_{10}
09-12-2021	0.55	34.3	30.1	21.6	5.9	15.3	52.9	0.12	22.6	75	1.2	90	715	53	PM_{10}
10-12-2021	0.54	33.9	29.2	22.4	5.9	12.0	48.1	0.12	22.6	67	1.3	89	715	48	PM_{10}
11-12-2021	0.82	26.2	27.6	23.7	5.9	8.0	39.6	0.13	21.3	77	1.1	100	715	41	CO
12-12-2021	0.47	26.4	30.4	23.6	5.9	11.1	36.2	0.09	21.2	77	1.1	91	715	38	NO_2
13-12-2021	0.43	29.8	30.8	22.8	5.8	12.2	36.8	0.10	20.3	82	0.9	99	714	39	NO_2
14-12-2021	0.53	34.4	31.4	23.2	5.6	22.8	53.7	0.12	20.7	79	1.0	90	714	54	PM_{10}
15-12-2021	0.73	32.8	29.4	26.0	5.3	47.7	107.1	0.16	20.5	78	0.9	96	714	105	PM_{10}
16-12-2021	0.66	32.2	28.9	27.3	5.7	55.4	117.7	0.14	21.5	68	0.9	106	715	112	PM_{10}
17-12-2021	0.74	35.9	26.9	30.6	5.7	63.7	141.3	0.16	21.3	66	0.8	114	715	127	PM_{10}
18-12-2021	0.62	34.7	29.7	29.3	5.8	67.7	141.9	0.10	20.9	70	0.9	108	715	128	PM_{10}
19-12-2021	0.49	28.2	29.2	27.9	5.7	48.8	106.9	0.11	19.9	63	1.0	98	715	105	PM_{10}
20-12-2021	0.51	32.0	32.1	25.4	5.8	51.8	109.0	0.11	20.0	68	1.1	93	715	106	PM_{10}
21-12-2021	1.39	28.8	38.8	54.4	5.8	83.0	229.5	0.31	19.7	67	0.6	124	715	187	PM_{10}
22-12-2021	0.68	32.0	26.8	30.5	5.7	65.2	146.4	0.15	21.0	66	0.8	94	714	131	PM_{10}
23-12-2021	0.77	22.4	34.4	18.0	5.9	74.2	180.7	0.26	21.2	63	0.7	104	714	154	PM_{10}
24-12-2021	0.62	24.6	45.0	12.8	5.9	58.2	155.6	0.18	21.5	57	0.7	96	714	137	PM_{10}
25-12-2021	0.66	25.4	59.7	16.6	5.7	46.5	128.8	0.16	21.9	58	0.8	97	714	119	PM_{10}
26-12-2021	0.56	28.3	46.3	16.7	5.7	49.1	97.0	0.13	22.1	62	1.0	96	715	97	PM_{10}
27-12-2021	0.36	32.0	32.1	13.4	5.8	42.8	87.0	0.08	20.9	66	1.2	95	715	87	PM_{10}
28-12-2021	0.40	29.6	31.2	11.4	5.7	30.9	68.3	0.09	20.9	69	1.2	92	715	68	PM_{10}
29-12-2021	0.39	21.7	33.6	10.1	5.6	29.1	70.5	0.09	20.9	69	1.1	100	715	71	PM_{10}
30-12-2021	0.39	27.2	32.1	10.0	5.7	18.1	56.8	0.09	21.2	71	1.4	90	715	57	PM_{10}
31-12-2021	0.46	31.1	33.3	10.1	5.8	17.2	51.0	0.10	20.5	79	1.2	90	716	51	PM_{10}
Average	**0.67**	**30.2**	**30.6**	**21.5**	**5.8**	**40.1**	**98.1**	**0.15**	**21.5**	**71**	**0.9**	**104**	**715**		
Maximum	1.39	36.7	59.7	54.4	6.1	83.0	229.5	0.31	24.0	82	1.4	174	716		
Minimum	0.36	21.7	14.0	5.9	5.3	8.0	36.2	0.08	19.7	57	0.6	89	713		

VI) Nisarga Bhavan, Basaveshwarnagar,

Continuous Ambient Air Quality Monitoring Station of Saneguruvanahalli, Monthly Report of Ambient Air Quality, December - 2021											
Date	NO2 ug/m3	SO2 ug/m3	CO mg/m3	PM10 ug/m3	Temp degree C	HR %	WS m/s	WD degre	SR W/m2	AQI	Prominent Pollutant
01-12-2021	17.4	26.7	0.4	40.9	19.7	38.1	0.9	123.4	178.0	41	PM_{10}
02-12-2021	17.3	10.4	0.4	47.1	20.3	38.0	0.7	131.5	192.0	47	PM_{10}
03-12-2021	17.5	9.4	0.7	53.8	21.3	38.0	0.3	280.6	191.2	54	PM_{10}
04-12-2021	17.1	7.7	0.3	52.7	19.7	38.0	1.0	327.7	189.2	53	PM_{10}
05-12-2021	17.9	15.0	0.5	52.7	20.7	38.0	0.5	106.5	188.8	53	PM_{10}
06-12-2021	16.7	11.2	0.5	46.7	21.0	38.0	0.4	110.3	183.9	47	PM_{10}
07-12-2021	17.4	14.7	0.4	52.6	19.3	38.0	0.8	116.4	177.1	53	PM_{10}
08-12-2021	17.3	12.9	0.3	62.5	20.6	38.0	0.4	49.5	182.2	63	PM_{10}
09-12-2021	17.0	13.4	0.3	42.7	19.4	38.0	0.6	111.2	360.0	43	PM_{10}
10-12-2021	17.7	8.6	0.3	51.8	20.4	38.0	0.3	65.7	184.3	52	PM_{10}
11-12-2021	17.0	13.7	0.5	51.9	18.6	38.0	0.2	49.3	182.4	52	PM_{10}
12-12-2021	17.2	8.8	0.4	51.8	19.4	38.0	0.4	137.3	184.8	52	PM_{10}
13-12-2021	17.5	8.4	0.4	4.2	17.9	89.8	0.6	99.7	176.0	22	NO_2
14-12-2021	17.6	8.6	0.4	6.9	18.7	91.6	0.7	113.6	177.0	22	NO_2
15-12-2021	17.6	13.2	0.4	10.9	16.8	87.8	0.1	131.9	175.1	22	NO_2
16-12-2021	17.7	12.8	0.7	15.2	16.4	86.4	0.6	111.2	176.0	35	CO
17-12-2021	17.0	11.9	0.4	17.6	16.4	86.7	0.3	25.0	174.6	21	NO_2
18-12-2021	17.1	12.0	0.5	13.5	15.6	84.3	0.2	58.5	174.1	25	CO
19-12-2021	17.6	8.4	0.2	12.1	14.3	80.7	0.3	48.3	173.8	22	NO_2
20-12-2021	17.1	13.8	0.2	12.1	15.2	82.7	0.2	54.6	171.6	21	NO_2
21-12-2021	16.9	16.0	0.0	10.1	15.0	84.7	0.7	33.1	173.7	21	NO_2
22-12-2021	17.0	16.0	0.0	19.0	16.6	90.9	0.3	78.4	171.7	21	NO_2
23-12-2021	17.7	11.1	0.0	13.1	15.8	87.9	0.7	17.1	173.6	22	NO_2
24-12-2021	17.5	9.3	0.4	11.8	16.5	89.3	0.4	63.3	170.3	22	NO_2
25-12-2021	18.1	34.9	0.4	27.2	16.1	91.2	0.8	49.6	174.4	44	SO_2
26-12-2021	17.8	30.3	0.5	12.5	16.9	91.9	0.7	127.6	173.2	38	SO_2
27-12-2021	16.7	9.5	0.9	9.9	16.6	87.2	0.5	119.4	183.5	45	CO
28-12-2021	17.6	19.4	0.4	13.2	16.2	88.6	0.8	123.2	175.0	24	SO_2
29-12-2021	16.8	11.2	0.3	14.8	16.8	90.6	0.5	103.0	174.9	21	NO_2
30-12-2021	17.1	13.1	0.4	27.2	18.3	92.4	0.7	108.4	172.8	27	PM_{10}
31-12-2021	17.5	21.2	0.5	14.0	18.6	90.3	0.6	112.0	173.0	27	SO_2
Min	16.7	7.7	0.0	4.2	14.3	38.0	0.1	17.1	170.3		
Max	18.1	34.9	0.9	62.5	21.3	92.4	1.0	327.7	360.0		
Avg	17.3	14.0	0.4	28.1	17.9	68.7	0.5	102.8	184.1		

VII) City Railway Station.

Continuous Ambient Air Quality Monitoring Station of City Railway Station, Monthly Report of Ambient Air Quality, December - 2021						
Date	**NO_2 ug/m3**	**SO_2 ug/m3**	**CO mg/m3**	**PM_{10} ug/m3**	**AQI**	**Prominent Pollutant**
01-12-2021	22.95	13.7	0.9	92.3	92	PM_{10}
02-12-2021	22.97	13.7	0.9	107.0	105	PM_{10}
03-12-2021	23.01	15.0	0.9	105.3	104	PM_{10}
04-12-2021	23.03	12.4	0.9	95.8	96	PM_{10}
05-12-2021	22.99	14.0	0.9	65.9	66	PM_{10}
06-12-2021	23.00	11.9	0.9	106.7	104	PM_{10}
07-12-2021	23.03	14.7	0.9	110.6	107	PM_{10}
08-12-2021	22.97	14.1	0.9	94.7	95	PM_{10}
09-12-2021	22.97	11.9	0.9	79.0	79	PM_{10}
10-12-2021	22.98	12.4	0.9	98.6	99	PM_{10}
11-12-2021	23.02	13.3	0.9	71.9	72	PM_{10}
12-12-2021	23.03	15.3	0.9	81.6	82	PM_{10}
13-12-2021	23.03	12.2	0.9	64.6	65	PM_{10}
14-12-2021	23.04	13.0	0.9	77.2	77	PM_{10}
15-12-2021	22.97	14.8	0.9	110.6	107	PM_{10}
16-12-2021	23.02	12.7	0.9	110.3	107	PM_{10}
17-12-2021	22.99	14.8	1.2	106.0	104	PM_{10}
18-12-2021	22.98	13.7	1.3	113.2	109	PM_{10}
19-12-2021	23.00	13.3	1.3	102.6	102	PM_{10}
20-12-2021	23.01	14.3	1.3	98.5	99	PM_{10}
21-12-2021	22.99	15.6	1.3	124.5	116	PM_{10}
22-12-2021	23.04	12.0	1.3	117.9	112	PM_{10}
23-12-2021	23.00	13.9	1.3	115.1	110	PM_{10}
24-12-2021	22.99	13.0	1.3	114.8	110	PM_{10}
25-12-2021	23.04	13.3	1.3	98.3	98	PM_{10}
26-12-2021	23.00	14.3	1.3	97.8	98	PM_{10}
27-12-2021	23.03	14.5	1.3	85.2	85	PM_{10}
28-12-2021	23.01	15.2	1.3	80.2	80	PM_{10}
29-12-2021	22.99	14.2	1.3	77.5	78	PM_{10}
30-12-2021	22.98	12.9	1.3	114.8	110	PM_{10}
31-12-2021	22.99	11.6	1.3	93.7	94	PM_{10}
Min	22.95	11.6	0.9	64.6		
Max	23.04	15.6	1.3	124.5		
Avg	23.00	13.6	1.1	97.2		

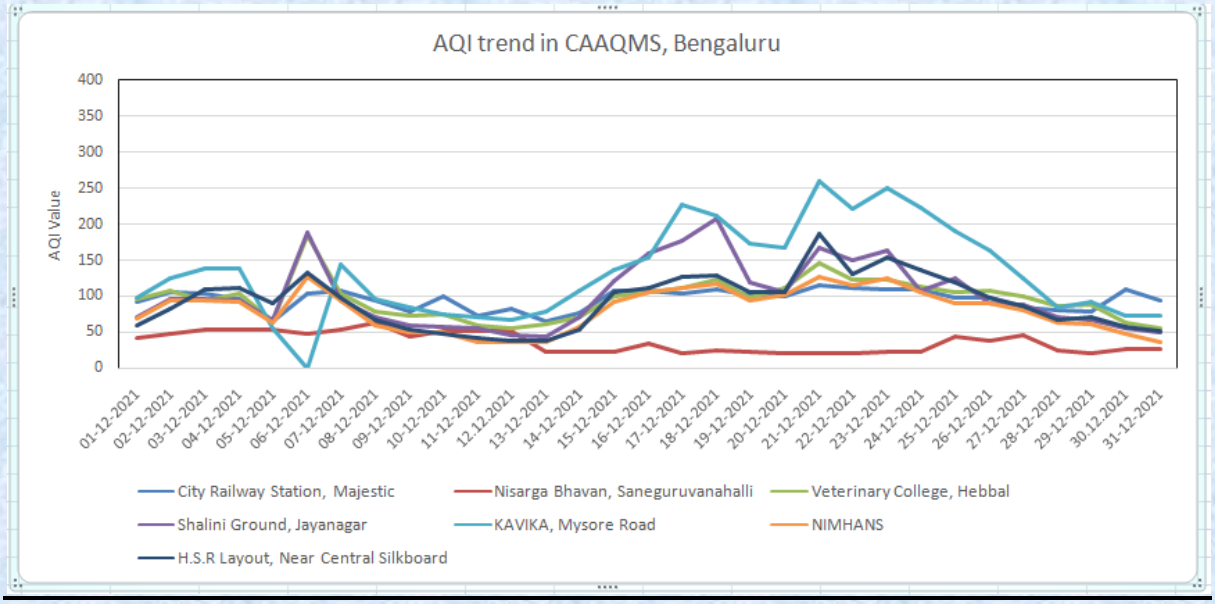
Range	Category	Possible Health Impacts
0-50	Good	Minimal Impact
51-100	Satisfactory	Minor breathing discomfort to sensitive people
101-200	Moderate	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease Children and older adults
201-300	Poor	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease
301-400	Very Poor	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
> 401	Severe	May cause respiratory effects even on healthy people and serious health effect on people with lung/heart diseases

Daily AQI values of CAAQM Stations in Bengaluru during December-2021

Daily AQI Values of CAAQM Stations in Bengaluru (December-2021)							
Date/ CAAQM Stations	City Railway Station, Majestic	Nisarga Bhavan, Saneguruvanahalli	Veterinary College, Hebbal	Shalini Ground, Jayanagar	KAVIKA, Mysore Road	NIMHANS	H.S.R Layout, Near Central Silkboard
01-12-2021	92	41	96	71	97	69	60
02-12-2021	105	47	108	96	124	94	82
03-12-2021	104	54	94	96	138	95	110
04-12-2021	96	53	103	94	138	93	111
05-12-2021	66	53	65	68	55	64	91
06-12-2021	104	47	185	189	*	127	132
07-12-2021	107	53	103	95	145	95	98
08-12-2021	95	63	79	70	96	60	68
09-12-2021	79	43	73	60	84	50	53
10-12-2021	99	52	74	58	74	50	48
11-12-2021	72	52	59	55	70	36	41
12.12.2021	82	52	56	46	67	36	38
13-12-2021	65	22	61	44	79	37	39
14-12-2021	77	22	71	71	108	58	54
15-12-2021	107	22	100	121	136	93	105
16-12-2021	107	35	105	160	154	105	112
17-12-2021	104	21	112	178	227	112	127
18-12-2021	109	25	123	208	212	118	128
19-12-2021	102	22	97	119	174	94	105
20-12-2021	99	21	112	106	167	102	106
21-12-2021	116	21	147	168	260	127	187
22-12-2021	112	21	123	150	222	115	131
23-12-2021	110	22	123	163	250	124	154
24-12-2021	110	22	113	107	223	105	137
25-12-2021	98	44	106	124	190	90	119
26-12-2021	98	38	108	90	163	91	97
27-12-2021	85	45	100	88	125	81	87
28-12-2021	80	24	86	70	84	64	68
29-12-2021	78	21	88	67	93	62	71
30.12.2021	110	27	63	55	72	48	57
31-12-2021	94	27	56	49	72	36	51
Min	**65**	**21**	**56**	**44**	**55**	**36**	**38**
Max	**116**	**63**	**185**	**208**	**260**	**127**	**187**
* Data Not available							

Good	Satisfactory	Moderate	Poor	Very Poor	Severe
(0-50)	(51-100)	(101-200)	(201-300)	(301-400)	(>401)

AQI Trend in Bengaluru, December 2021



Hebbal, Jayanagar, KAVIKA, NIMHANS, Silkboard, Nisarga Bhavan (Basaveshwaranagar), City Railway Station(CRS)

Good	Satisfactory	Moderate	Poor	Very Poor	Severe
(0–50)	(51–100)	(101–200)	(201–300)	(301–400)	(>401)

Data Analysis of Ambient Air Quality:

- Particulate Matter (PM_{10}): There is a exceedence in PM_{10} pollutant in almost all stations except Nisarga Bhavan and that maybe due to high vehicular movement and human activity.(KAVIKA-17 days, Hebbal-15 days, CRS & Silkboard-14 days each, Jayanagara-11 days and NIMHANS-9 days)

- Particulate Matter ($PM_{2.5}$): There is also increase in $PM_{2.5}$ pollutant in the 4 stations monitored with maximum of 17 and 11 days in KAVIKA and Jayanagar and 6 days each at Hebbal and Silk Board. This is attributed due to traffic movement.

- Sulphur Dioxide(SO_2): Recorded within permissible limit in all stations across Bengaluru as per NAAQS 2009 standards.

- Nitrogen Dioxide(NO_2): Recorded within permissible limit in all stations across Bengaluru as per NAAQS 2009 standards.

- Ammonia(NH_3): Observed within permissible limit in all the five monitored stations viz., Hebbal, Jayanagar, KAVIKA, NIMHANS & Silk board as per NAAQS 2009 standards.

- Carbon Monoxide(CO): Observed 8-hourly concentration values within the permissible limit in all stations across Bengaluru as per NAAQS 2009 Standard.

- Ozone(O_3): Observed within permissible limit in all the five monitored stations viz., Hebbal, Jayanagar, KAVIKA, NIMHANS & Silk board as per NAAQS 2009 standards.

Concentration ranges of Ambient Air Quality Parameters of Bengaluru Stations

The concentration ranges for pollutants of CAAQM stations having 24 hourly standard limits are presented in below table based on detailed tabulated date.

Table-1 Range of 24-hourly Averages for Notified Parameters monitored in December 2021, Bengaluru

Parameters	Hebbal		Jayanagar		KAVIKA		NIMHANS		Silk board		Nisarga Bhavan		City Railway station	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
$PM_{10}(\mu g/m^3)$	56	162	44.0	139.8	43.7	158.8	35.9	140.8	36.2	229.5	4.2	62.5	64.6	124.5
$PM_{2.5}(\mu g/m^3)$	20	85	21.9	92.4	30.8	108.1	16.3	60.4	8.0	83.0	*	*	*	*
$SO_2(\mu g/m^3)$	5.1	11.0	4.9	8.4	4.3	6.1	5.1	6.7	5.3	6.1	7.7	34.9	11.6	15.6
$NO_2(\mu g/m^3)$	1.8	36.1	17.6	51.8	4.1	22.8	17.5	39.6	14.0	59.7	16.7	18.1	22.95	23.04
$NH_3(\mu g/m^3)$	26.9	1.4	3.3	7.1	21.6	90.1	9.9	16.1	5.9	34.4	*	*	*	*
Note: *- Not Monitored														
CO, Ozone and Benzene not included as there is no 24 hourly permissible limits in NAAQM														

Air Quality Index(AQI)

AQI of Bengaluru was found equally distributed to Good, Satisfactory and Moderate days at all locations of Bengaluru. There is also a slight shift from Moderate to Poor in AQI days at KAVIKA, Mysore Road and this may be due to high vehicular movement in that particular period and construction activity may have also contributed for deteriorating the air quality.

Table-2 AQI Values of CAAQM stations in Bengaluru for the month of December 2021

AQI Categories	Range	Hebbal	Jayanagar	KAVIKA	NIMHANS	Silkboard	Nisarga Bhavan	City Railway station
Good	**(0-50)**	-	3	0	7	4	23	-
Satisfactory	**(51-100)**	17	16	12	15	13	8	17
Moderate	**(101-200)**	14	12	12	9	14	-	14
Poor	**201-300**	-	-	6	-	-	-	-
Very Poor	**301-400**	-	-	-	-	-	-	-
Severe	(> 401)	-	-	-	-	-	-	-

Meteorological Parameters

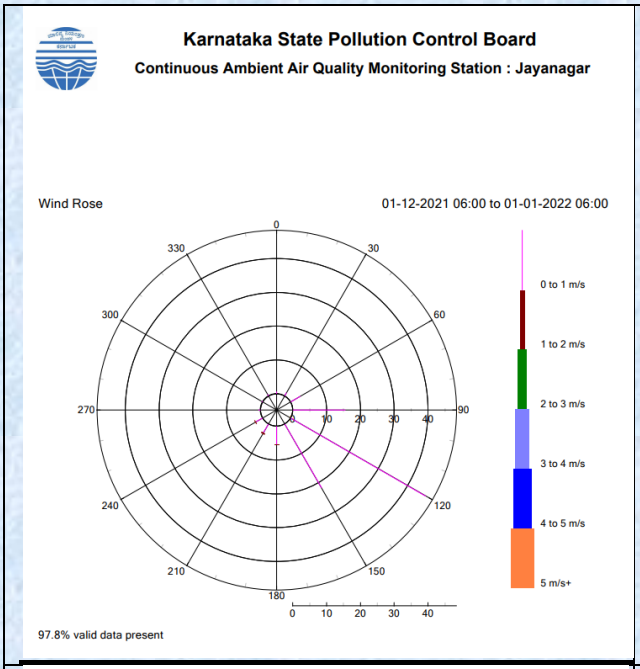
Daily average wind speed was observed in the range 0.1 m/s – 1.4 m/s. Monthly average temperature was 21.35˚C with minimum daily average as 17.9˚C and maximum as 23˚C recorded. Monthly average relative humidity was 67.28% with maximum daily average as 92.4 % and minimum as 38% recorded. Low wind speed and calm weather has contributed for the low dispersion of pollutants in the atmosphere resulting in deteriorating AQI during winter season.

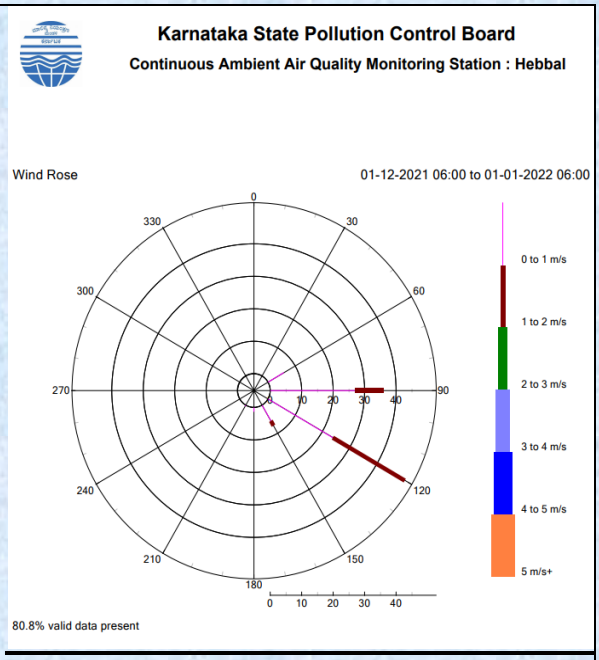
Table-3 Monthly Range and Average for Metrological Parameters in Bengaluru, December-2021

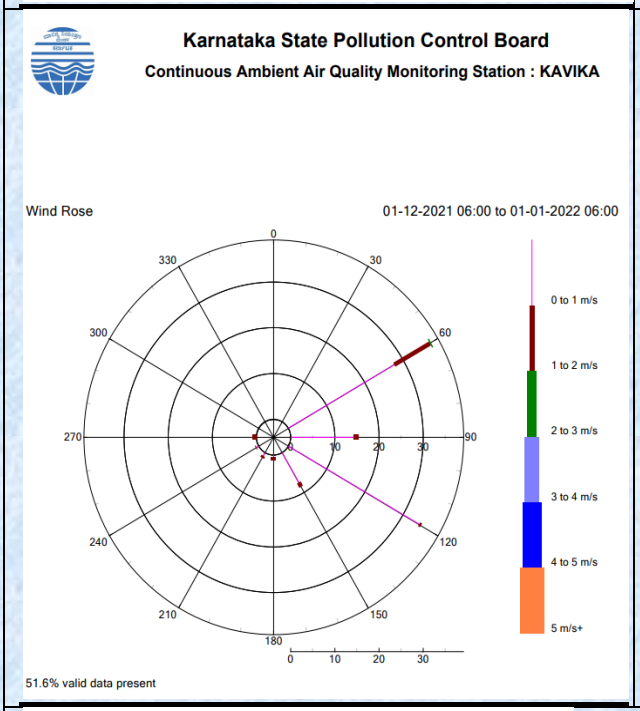
Parameters(Unit)*	Average	Maximum	Minimum
Wind Speed(m/s)	0.75	1.4	0.1
Temperature(°C)	21.35	23	17.9
Relative Humidity(%)	67.28	92.4	38

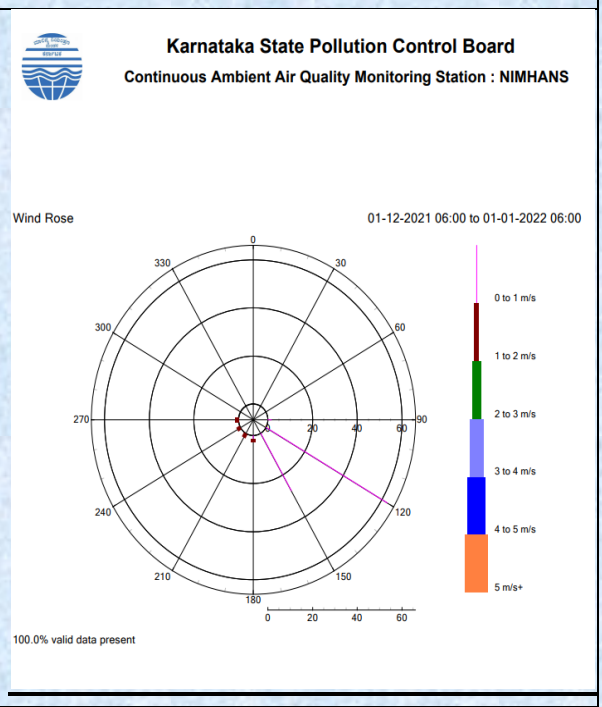
* Data of 6 Stations

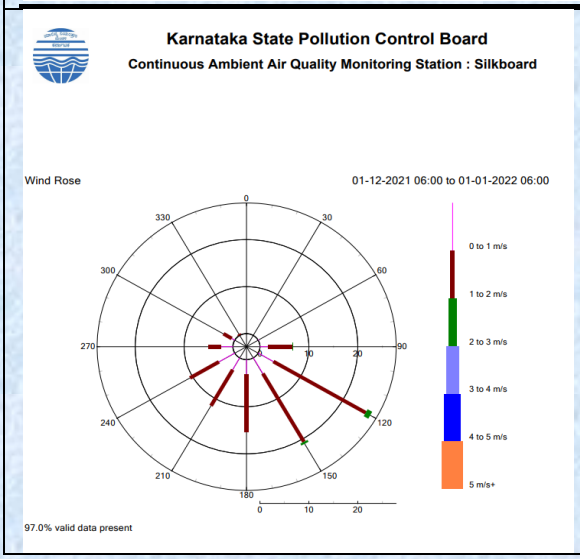
Windrose diagrams: The graphical charts that characterise the speed and direction of wind at the CAAQM Stations.

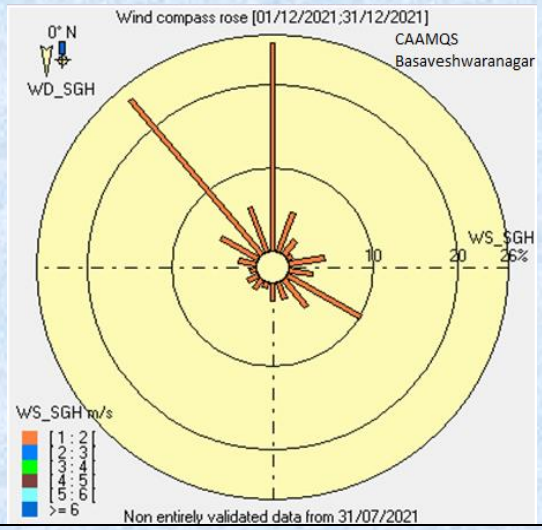












INFERENCE: The AQI of CAAQMS in Bengaluru ranges from Good to Moderate. It is observed that there is a slight increase in AQI level during winter as compared to previous monsoon months report. The observed AQI reveals that the exceedence is in PM_{10} and $PM_{2.5}$ pollutants which clearly indicated it might be due to heavy movements of vehicles and also due to environment factor known as **Winter inversion effect**.

Broad guidelines for Public:

AQI is an initiative intended to enhance public awareness and involvement in efforts to improve air quality. People can contribute by maintaining their vehicles properly (e.g. get PUC checks, replace car air filter, maintain right tyres pressure), following lane discipline & speed limits, avoiding prolong idling and turning off engines at red traffic signals. The following are some of the best practices that are to be followed to maintain/ improve the Air Quality.

1) *Avoid using private vehicles viz., cars, bikes and instead use public transports viz., Public Buses and Metro services.*

2) *Encourage carpool and use smaller vehicles (e.g. avoid SUVs).*

3) *Construction projects shall compulsorily put up enclosures and barricades around their project and carry out regular water sprinkling to suppress dust. Air purifier can also be installed to mitigate dust pollution.*

4) *Road dust management by using mechanized road sweeping and water sprinkling system, etc., The Civic Bodies shall regularly remove the silt and muck dumped on the roadside and pavements, besides levelling & Asphalting of Roads and filling up of potholes should be taken up on top priority.*

5) *Unnecessary parking of vehicles on roadside junctions and circles should be avoided of around 50 to 100 meters.*

6) *Avoid open burning of garbage wastes, tree leaves, branches, trash, tyres etc., especially near roadsides, lakes & water bodies, open ground, vacant land & Parks.*

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NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
			Industrial, Residential Rural and other Areas	Ecologically Sensitive Area (Notified by Central Government)	
1	Sulphur Dioxide (SO_2) µg/m^3	Annual *	50	20	-Improved west and Gaeke Method – Ultraviolet Fluorescence
		24 Hours**	80	80	
2	Nitrogen Dioxide (NO_2) µg/m^3	Annual *	40	30	-Jacob & Hochheiser Modified (NaOH-NaAsO2) Method -Gas phase Chemiluminescence
		24 Hours**	80	80	
3	Particulate Mater (Size less than 10 µm) or PM10 µg/m^3	Annual *	60	60	-Gravimetric -TECOM -Beta attenuation
		24 Hours**	100	100	
4	Particulate Mater (Size less than 10 µm) or $PM_{2.5}$ µg/m^3	Annual *	40	40	-Gravimetric -TECOM -Beta attenuation
		24 Hours**	60	60	
5	Ozone (O_3) µg/m^3	8 Hours *	100	100	-UV Photometric -Chemical Method
		1 Hours**	180	180	
6	Lead (Pb) µg/m^3	Annual *	0.5	0.5	-AAs/ICP Method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
		24 Hours**	1	1	
7	Carbon Monoxide (CO) µg/m^3	8 Hours *	02	02	-Non dispersive Infrared (NDIR) -Spectroscopy
		1 Hours**	04	04	
8	Ammonia (NH_3) µg/m^3	Annual *	100	100	-Chemiluminescence -Indophenol Blue Method
		24 Hours**	400	400	
9	Benzene (C6H6) µg/m^3	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
10	Benzo (a) Pyrene (BaP) µg/m^3	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As) µg/m^3	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni) ng/m^3	Annual *	20	20	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper

CAAQM STATIONS

Sl. No.	Stations	Types of activities around location (Residential/ Commercial/ Traffic/Industrial)	Parameters Monitored
1	Hebbal	Sensitive	SO_2, NO_2, PM_{10}, $PM_{2.5}$, NH_3, CO, O_3, Benzene& Meteorological parameters
2	Jayanagar	Commercial	SO_2, NO_2, PM_{10}, $PM_{2.5}$, NH_3, CO, O_3, Benzene& Meteorological parameters
3	KAVIKA	Commercial	SO_2, NO_2, PM_{10}, $PM_{2.5}$, NH_3, CO, O_3, Benzene& Meteorological parameters
4	NIMHANS	Sensitive	SO_2, NO_2, PM_{10}, $PM_{2.5}$, NH_3, CO, O_3, Benzene& Meteorological parameters
5	Silkboard	Residential cum Commercial	SO_2, NO_2, PM_{10}, $PM_{2.5}$, NH_3, CO, O_3, Benzene& Meteorological parameters
6	Nisarga Bhavan	Residential	SO_2, NO_2, PM_{10}, CO
7	City Railway Station	Commercial	SO_2, NO_2, PM_{10}, CO & Meteorological parameters

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Plant Trees, Save Environment.