



Status of Ambient Air Quality of Aurangabad City (M.S.)

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ABSTRACT :-

The present study deals with the monitoring ambient air quality of Aurangabad city (M.S.) at three different stations with reference to four parameters such as SO₂, NO_x, RSPM & SPM for a period of year January, 2009 to December, 2009. Three residential & commercial stations are selected for monitoring & has been observed that the mean value & peak value of SO₂, NO_x, RSPM & SPM. The comparison of ambient air quality of Aurangabad city at three different stations and focused on variation in the concentration of SO₂, NO_x, RSPM & SPM.

KEY WORDS :

SO₂, NO_x, RSPM, SPM & AQI.

INTRODUCTION :

Aurangabad city is located in northern part of the state of Maharashtra in the western region of India. It is 403 KM from Mumbai (Bombay). Surrounded by hills, the city is on the banks of the Kham river. The city boasts of Bibi-ka-Maqbara a tomb that has some resemblance to the Taj Mahal. The importance of Aurangabad is great, owing to its proximity with world heritage sites of Ajanta and Ellora. These sites have Buddhist, Jain & Hindu temples. The climate of Aurangabad is temperate with moderate winters in the month of November-February and hot summers from April through to June. Most of the rainfall occurs in the monsoon season from June to September. Annual average rainfall is 710 mm. Annual mean temperatures in



Aurangabad range from 17^o to 33^oC. Aurangabad city is one of the highly industrialized towns & several small scale industries having air pollution potential. The environment of Aurangabad has degraded a lot during the last few years due to rapid urbanization. Four pollutants SO₂, NO_x, RSPM & SPM have been identified for regular monitoring at all the locations.

MATERIALS & METHODS :

Before starting sampling at study area are as follows (CPCB 2003)

- a) Selection of procedures for sampling and analysis.
- b) Sampling locations. (i.e. Residential area)
- c) Period of sampling, frequency and duration of sampling :- Twice in a week, the samples were collected by using High Volume Sampler (HVS) at a flow rate 1.1 to 1.4 m³/min on 8 hourly basis for 24 hours.
- d) Processing of data.

The relative change may also be with respect to the concentration of pollutants and respective stipulated standards (Chelani et.al. 2002) using standard method suggested by CPCB. The pollutants are (i) SO₂ (Improved West & Geake method) (ii) NO_x (Jacob & Hochheiser modified method) (iii) RSPM & SPM (Gravimetric method)

RESULTS & DISCUSSION :

Monthly mean value & peak value of pollutants SO₂, NO_x, RSPM & SPM at three different locations in residential area of Aurangabad city and data for the study period year 2009 is given in tables and comparative study of four parameters also shown in graphs.

The data on four parameters i.e. SO₂, NO_x, RSPM & SPM given in below tables & plotted a graph for comparison of concentration of peak values (SO₂, NO_x, RSPM & SPM) in residential area of CADA Office, SBES College campus & Collector Office. It was observed that the monthly mean value for concentration of SO₂, NO_x, were well below the prescribed limits, RSPM was slightly increased in three or four months & SPM shows in increasing order above the National Ambient Air Quality Standards (NAAQS).



All the three sites were analysed stationwise variation & concentration of SPM found to be exceed the prescribed limits that was shown in tables.

From the above three stations the status of ambient air quality at SBES College campus was maximum than Collector Office & CADA Office due to dense & heavy traffic (vehicular) area.

Table - 1

**Concentration of SO₂, NO_x, RSPM & SPM in residential area of
CADA Office, Garkheda, Aurangabad.**

Year	Residential Area - CADA Office, Garkheda							
	Parameters SO ₂		NO _x		RSPM		SPM	
	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value
2009								
Jan.	12.55	15	27.88	34	83.77	94	240.44	306
Feb.	8.12	09	28.00	34	71.37	81	255.62	307
Mar.	7.50	09	28.87	31	83.12	111	278.62	309
Apr.	5.12	06	23.25	25	57.75	80	211.50	254
May	5.12	06	24.62	28	54.37	73	262.87	437
Jun.	4.87	05	22.37	24	42.75	73	183.00	263
Jul.	5.62	06	21.75	24	54.62	78	156.00	185
Aug.	4.87	05	20.12	21	47.75	79	179.37	501
Sep.	5.00	05	20.00	21	56.00	99	131.00	214
Oct.	5.88	07	22.66	24	66.88	86	172.22	204
Nov.	7.00	08	23.00	24	75.00	93	186.00	260
Dec.	7.50	08	21.66	28	101.10	162	247.40	305



Graph - 1

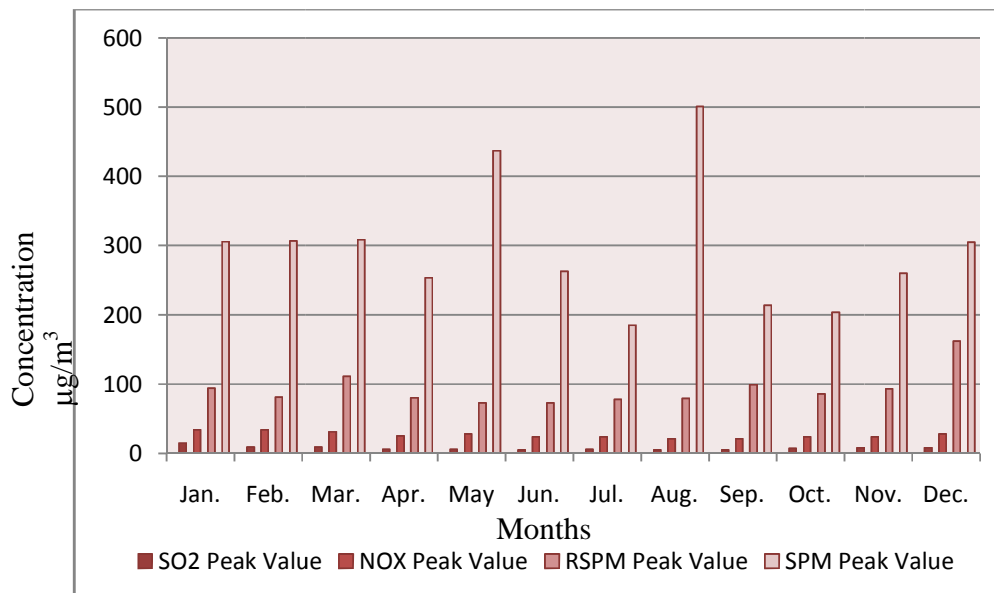


Table - 2

Concentration of SO₂, NO_x, RSPM & SPM in residential area of SBES College, Aurangabad.

Year	Residential Area - SBES College, Aurangabad							
	Parameters SO ₂		NO _x		RSPM		SPM	
	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value
2009								
Jan.	12.40	15	31.80	34	139.80	179	483.30	645
Feb.	10.50	13	34.75	40	128.37	194	414.37	504
Mar.	8.50	09	31.87	35	126.75	212	454.25	537
Apr.	6.37	09	31.50	40	96.00	114	411.12	482
May	5.40	06	25.20	29	107.50	175	422.80	561
Jun.	5.87	06	22.87	25	78.37	148	255.00	379



Jul.	6.44	07	23.77	27	69.11	105	225.77	371
Aug.	7.22	23	23.22	26	70.33	102	231.66	393
Sep.	5.00	06	19.87	22	82.87	100	228.00	415
Oct.	6.57	08	25.00	27	125.42	204	281.00	324
Nov.	7.87	09	25.75	29	96.62	132	283.75	427
Dec.	8.00	09	26.50	29	129.37	160	342.25	404

Graph - 2

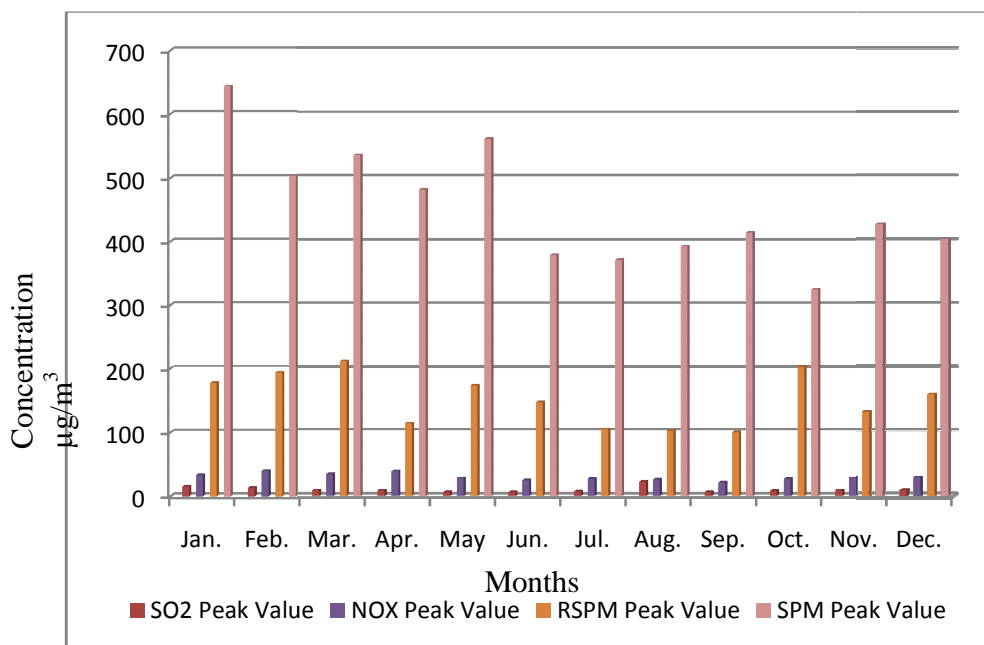




Table - 3

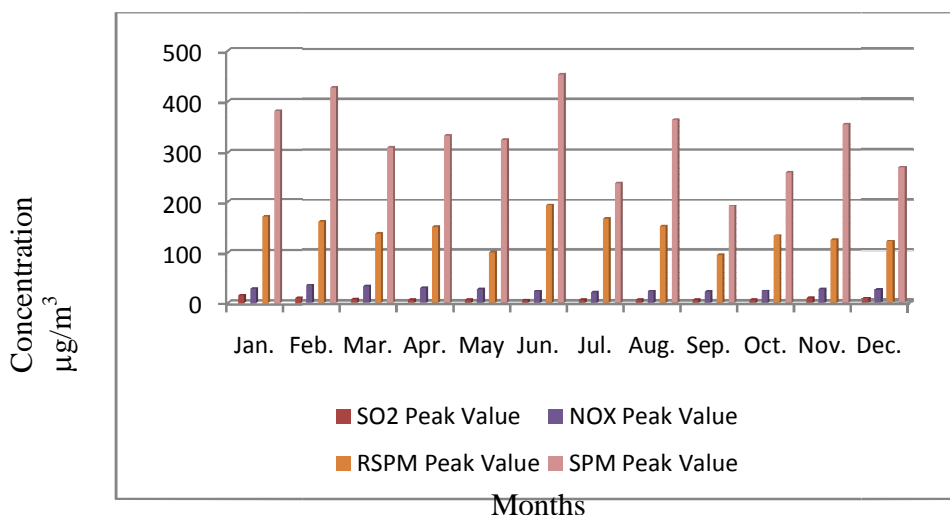
**Concentration of SO₂, NO_x, RSPM & SPM in residential area of
Collector Office, Aurangabad.**

Year	Residential Area - Collector Office, Aurangabad							
	Parameters SO ₂		NO _x		RSPM		SPM	
	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value	Mean Value	Peak Value
2009								
Jan.	12.75	15	25.37	28	114.12	172	315.00	382
Feb.	8.75	10	30.37	35	122.50	162	329.87	428
Mar.	5.30	07	29.00	33	90.00	138	254.50	309
Apr.	4.75	06	25.00	30	105.37	151	284.87	333
May	5.12	06	23.12	28	76.37	100	259.50	324
Jun.	4.90	05	20.50	23	74.90	195	225.80	454
Jul.	5.50	06	19.66	21	90.83	167	211.83	237
Aug.	5.11	06	20.77	23	87.66	152	225.22	365
Sep.	5.00	06	19.33	22	65.22	94	162.22	193
Oct.	5.28	06	21.57	24	91.00	134	198.85	259
Nov.	7.88	09	24.22	28	85.77	125	220.44	356
Dec.	7.22	08	23.11	25	97.11	121	226.11	268

Source : <http://mpcb.gov.in/envtdata/demopage1.php>.



Graph - 3



CONCLUSION :

Air pollution has increased rapidly because of intensive population growth, increase in number of vehicles, use of fuels with poor environmental performance, badly mentioned transportation system, very-very poor condition of roads, industrialization and above all, ineffective environmental regulations. There is urgent need for air quality board strategy to design & implement proper plans in Aurangabad city. Such awareness could surely help controlling the level of air pollution in Aurangabad city.

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