



Maharashtra Pollution Control Board
महाराष्ट्र प्रदूषण नियंत्रण मंडळ



The Energy & Resources Institute

AIR QUALITY STATUS REPORT OF MAHARASHTRA 2022-23

Air Quality Status of Maharashtra 2022-23

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Foreword

In recent years, especially during the pandemic, people's perception of the personal health and state of the surrounding environment has changed to quite an extent. Towards this, an environmental consciousness has risen in almost every activity which has led to the promotion of active and voluntary disclosure of environmental information and sustainability. Moreover, to develop policies, create environmental awareness and ensure active participation of citizens/stakeholders; proper reporting of the status of environmental parameters has become one of the topmost priorities. It also helps in re-evaluating environmental conditions, identifying emerging issues and implementing concrete mitigation measures on the ground as and when required.



Maharashtra Pollution Control Board (MPCB) has always remained at the forefront to disseminate information and sensitize stakeholders regarding the state of the environment through effective means. It gives me pleasure to present the 2022-23 edition of the Air Quality Status Report for Maharashtra. The report entails information on the trend of concentration of air pollutants recorded by the network of air quality monitoring stations set up at strategic locations in the state. Moreover, to disseminate this information to citizens in qualitative terms; the complex real-time data recorded by the monitoring stations and associated health impacts have been presented in the form of an Air Quality Index (AQI).

I appreciate the efforts of Mr. Manish Asodekar, *Research Associate* and Mrs. Pranali Sarang *Research Associate* from The Energy and Resources Institute (TERI) and the entire team for preparing this report. I also acknowledge the respective monitoring agencies for their efforts in the field of monitoring work carried out to generate air quality data. The contribution of my team; Dr. V. M. Motghare, *Joint Director (Air Pollution Control)* and Mr. Prakash Jadhav, *Sub Regional Officer* towards finalizing the report is highly appreciated.

I am confident that this report will serve as a useful tool and will find favor as being informative by policy-makers, planners, academicians, civil society groups and all the stakeholders interested in becoming more familiar with the state of air quality.

(Dr. Avinash Dhakne, IAS)
Member Secretary, MPCB

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Definitions

1. **Ambient Air Quality Monitoring Stations (AAQMS):** AAQMS collect samples from the air that is then transferred to laboratories for sample analysis and data recording. This analysis provides the concentration of air pollutants present in the particular area at a particular time.
2. **Air Quality Index (AQI):** AQI is a real-time depiction of how polluted the air is in a particular region. It categorizes the air quality as 'Good', 'Satisfactory', 'Moderate', 'Poor', 'Very Poor' and 'Severe' on the basis of the concentration level of pollutants. The AQI also forecasts the health effects associated with each category.
3. **Continuous Ambient Air Quality Monitoring Station (CAAQMS):** CAAQMS is a sensor-based air quality monitoring system that enable the real-time on-site assessment of the concentration levels of air pollutants as soon as the sample is collected.
4. **Conference of Parties (COP):** COP is the supreme governing and decision making body of the United Nations Framework Convention on Climate Change (UNFCCC). It monitors, assesses and helps in promoting the necessary tasks and goals proposed under the Convention.
5. **Indian National Air Quality Standards (INAQS):** INAQS are health-based pollution concentration limits that indicate the status of air quality necessary with an adequate margin of safety to protect the public health, vegetation and property.
6. **National Air Quality Monitoring Programme (NAMP):** Central Pollution Control Board (CPCB) has executed NAMP that aims to continuously monitor the air quality across pan India. The network presently consists of 804 operating stations and covers 344 cities/towns in 28 states and 6 Union Territories of the country. Four air pollutants viz, Sulphur Dioxide (SO₂), Oxides of Nitrogen as NO₂, Respirable Suspended Particulate Matter (RSPM / PM₁₀) and Fine Particulate Matter (PM_{2.5}) as well as meteorological data such as wind speed, wind direction, relative humidity and temperature are regularly monitored across all the locations.
7. **National Clean Air Programme (NCAP):** NCAP is a long-term, time-bound, national level strategy to tackle the air pollution problem in 122 non-attainment cities as they did not meet the National Ambient Air Quality Standards for the period of 2011-2015 under the National Air Quality Monitoring Programme.
8. **Polycyclic Aromatic Hydrocarbons (PAHs):** PAHs are naturally occurring organic compounds that are present in coal, crude oil, wood and gasoline. The incomplete combustion of these substances releases PAHs into the atmosphere.
9. **Particulate Matter (PM):** PM is a mixture of small solids, liquid droplets and aerosols that are suspended in the air, most of which are hazardous to human health and if present in high quantity; can be seen with the naked eye. Particulate Matter includes dust, dirt, smoke, ash etc.
10. **Sustainable Development Goals (SDGs):** SDGs were adopted by the United Nations in 2015 as a call for action to eradicate poverty and hunger, to ensure a healthy planet for all and to bring global peace and prosperity by 2030.
11. **Volatile Organic Compounds (VOCs):** VOCs are a group of organic chemicals that have high vapor pressure, low water solubility and evaporate rapidly at room temperature. Many of the VOCs are anthropogenic compounds used in paints, adhesives, gasoline, etc.

Abbreviations

1. AAQM	Ambient Air Quality Monitoring
2. AQMS	Air Quality Monitoring Stations
3. AMR	Amravati
4. AQI	Air Quality Index
5. Ar	Argon
6. AUR	Aurangabad
7. CAAQMS	Continuous Ambient Air Quality Monitoring Station
8. CDP	Chandrapur
9. CEMS	Continuous Emission Monitoring System
10. CH ₄	Methane
11. CIDCO	City and Industrial Development Corporation
12. CO	Carbon monoxide
13. CO ₂	Carbon dioxide
14. COP	Conference of Parties
15. CPCB	Central Pollution Control Board
16. DIC	District Industries Centre
17. DMIETR	Datta Meghe Institute of Engineering Technology and Research
18. ETS	Emission Trading Schemes
19. GoM	Government of Maharashtra
20. HEI	Health Effects Institute
21. IIT	Indian Institute of Technology
22. I.G.M	Indira Gandhi Memorial Hospital
23. INAQs	Indian National Air Quality Standards
24. KOP	Kolhapur
25. LIT	Laxminarayan Institute of Technology
26. LDO	Light Diesel Oil
27. Max	Maximum
28. MIDC	Maharashtra Industrial Development Corporation
29. Min	Minimum
30. MPCB	Maharashtra Pollution Control Board
31. MIET	Manoharbai Patel Institute of Engineering and Technology
32. N ₂	Nitrogen
33. NAAQM	National Ambient Air Quality Monitoring
34. NAAQS	National Ambient Air Quality Standards
35. NAMP	National Air Quality Monitoring Programme
36. NCAP	National Clean Air Programme
37. NGP	Nagpur
38. NHK	Nashik
39. NMC	Nashik Municipal Corporation

40. Nagpur Visve	Nagpur-Visvesvaraya National Institute of Technology
41. NMD College	Natwarlal Maniklal Dalal College
42. NO ₂	Nitrogen dioxide
43. NO _x	Nitrogen Oxides
44. NVM	Navi Mumbai
45. O ₂	Oxygen
46. O ₃	Ozone
47. Pb	Lead
48. PM	Particulate Matter
49. PM ₁₀	Particulate Matter with a diameter of 10 microns or less
50. PM _{2.5}	Particulate Matter with a diameter of 2.5 microns or less
51. PUC	Pollution Under Control Certificate
52. PUN	Pune
53. RGD	Raigad
54. RO	Regional Office
55. SAMP	State Air Quality Monitoring Program
56. SO ₂	Sulphur dioxide
57. TERI	The Energy and Resources Institute
58. TNA	Thane
59. TTC	Trans Thane Creek
60. USEPA	United States Environmental Protection Agency
61. USD	United States Dollar
62. UT	Union Territory
63. VOCs	Volatile Organic Compounds
64. WHO	World Health Organization
65. µg/m ³	Micrograms per cubic meter
66. mg/m ³	Milligrams per cubic meter

Executive Summary

Executive Summary

The World Health Organization (WHO) defines air pollution as, contamination of indoor or outdoor air by any chemical, physical or biological agents that modifies or alters the natural characteristics of the atmosphere¹. The sources of air pollution include household combustion devices, industrial facilities and motor vehicles². Air pollution represents the biggest environmental risk to health. The WHO signifies particulate matter, oxides of nitrogen, sulphur dioxide as well as carbon monoxide are the most harmful to health³. Along with the short-term health risks such as breathing difficulties, asthma, increased risk of heart attack etc., long-term exposure shows irreversibility and can cause damage to the immune, neurological, reproductive and respiratory systems, and in extreme scenarios may cause death. Apart from potentially severe health risks, air pollution can also cause an adverse effect on environment. Some of these environmental effects are acid rain, eutrophication, haze, ozone depletion, global climate change etc⁴.

In 2019, ambient air pollution in both cities and rural areas was estimated to cause 4.2 million deaths worldwide. Combined effects of ambient air pollutants and indoor air pollutants are associated with 6.7 million premature deaths every year. All of the sectors like energy, transport, waste management, and urban planning need to have a policy on the local, regional and national levels as the control of the pollutants are beyond the reach of the individual⁵. The rise in the levels of ambient pollutants in the atmosphere already affects human health and sectors such as agriculture and has other impacts which are expected to become severe in coming decades. These levels of pollutants are also affecting the economy in terms of productivity and healthcare services. The cost of healthcare services is expected to increase from 21 billion USD in 2015 to approximately 176 billion USD in 2060. The impacts on the economy that includes impacts on labour productivity, health expenditure and agricultural crop yields will lead the global economic costs that will gradually increase to 1% of global GDP by 2060⁶.

Air pollution and climate change are very closely interrelated with each other. Overexploitation and usage of non-renewable energy sources and fossil fuels leads to the degradation of the air quality by releasing harmful pollutants like particulate matter, oxides of nitrogen, sulphur dioxide, carbon monoxide, carbon dioxide and other hazardous volatile compounds into the air which in turn traps the heat and aids global warming and seasonal changes thereby form one of the reasons for climate change⁷. In India, the electricity demand has increased multi folds in the last few years, making India use more fossil fuels for electricity production. The electricity production by thermal power plants, especially coal-based power plants will result in a 3.5% rise of SO₂ above the no-damage baseline level by the year 2060⁸.

¹ https://www.who.int/health-topics/air-pollution#tab=tab_1

² https://www.who.int/health-topics/air-pollution#tab=tab_1

³ https://cdn.who.int/media/docs/default-source/searo/wsh-och-searo/what-is-air-pollution-2019.pdf?sfvrsn=6dcc13ee_2

⁴ <https://www.mass.gov/doc/health-environmental-effects-of-air-pollution/download>

⁵ [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

⁶ <https://www.oecd.org/environment/indicators-modelling-outlooks/Policy-Highlights-Economic-consequences-of-outdoor-air-pollution-web.pdf>

⁷ https://www.cdc.gov/climateandhealth/pubs/air-quality-final_508.pdf

⁸ [https://one.oecd.org/document/ENV/WKP\(2019\)7/En/pdf](https://one.oecd.org/document/ENV/WKP(2019)7/En/pdf)

Thus, the issue of air pollution is receiving attention from all parts of society on global, national as well as regional and local levels. The following Sustainable Development Goals (SDGs) laid down by the United Nations (UN) involve the concerns regarding air pollutants.

- SDG 3 target 3.9 involves a reduction of the number of deaths and illnesses caused by hazardous chemicals and air, water and soil pollution and contamination substantially by 2030.
- SDG 11 target 11.6 signifies the reduction in the adverse per capita environmental impact of cities, especially paying attention to air quality, municipal and other waste management by the year 2030.
- SDG 7 which ensures access to clean, affordable, reliable, sustainable and modern energy for all, involves the adoption of renewable energy, investing in advanced cleaner technologies and achieving maximum energy efficiency which ultimately will aid and result in a better air quality of the surroundings.

The Maharashtra Pollution Control Board (MPCB) is the regulatory body for ensuring effective implementation of environmental laws and mitigative measures for the pollution control. MPCB's 12 Regional Offices (ROs) ensures regular monitoring and assessment of the concentration of air pollutants in the atmosphere through a network of installed AAQMS. In the year 2022-23, the state of Maharashtra witnessed growth in the total number of active air quality monitoring stations (from 126 to 175).

The brief summary of the concentration levels of air pollutants is provided below.

In 2022-23, the state of Maharashtra was found to be relatively clean as far as the concentration level of SO₂ is concerned. This is because, the annual average concentration levels recorded by all 175 monitoring stations were found to be within the annual standard limit (50 µg/m³) set by CPCB. The maximum concentration level which was found to be higher than the daily prescribed limit (80 µg/m³) was recorded by Nagpur Town Hall CAAQMS (100.11 µg/m³), Dombivali CAAQMS (94.70 µg/m³), Tarapur CAAQMS (91.02 µg/m³) and Ulhasnagar CAAQMS (89.06 µg/m³).

However, in the case of NO_x concentrations, about 74 monitoring stations out of 175 recorded annual average NO_x concentration levels higher than the prescribed limit for annual average set by CPCB. Most of these stations are installed in the areas coming under the jurisdiction of Mumbai, Navi Mumbai, Pune, Thane and Kalyan RO which are witnessing tremendous developmental activities. Besides this, these areas are also having well established industrial complexes which are also one of the most important sources of emissions. Moreover, the vehicular emissions are further aggravating the concentration levels of air pollutants in the atmosphere.

Prolonged Exposure to Particulate Matter (PM - PM₁₀ and PM_{2.5}) is associated with various adverse health effects. These tiny particles can cause respiratory and cardiovascular issues, worsen asthma and lung diseases, and are linked to higher morbidity and mortality rates, especially in vulnerable populations. India, like many other countries, faces elevated levels of Particulate Matter pollution due to factors such as industrial operations, urbanization, and fossil fuel combustion. This is evident because about 153 monitoring stations out of 175 stations installed in Maharashtra have recorded average concentration level of PM₁₀ which were found to be higher than the annual average standard limit (60 µg/m³) in 2022-23. It was

observed that these higher levels were not confined to a particular part of the state however, it was found throughout the state. This issue could be attributed to the ongoing development and extensive construction work of large scale infrastructural projects. Likewise, motor vehicle emissions, industrial emissions and road dust are further exacerbating the concentration levels in the atmosphere. Similar situation was recorded for the concentration levels of PM_{2.5}. Out of 69 CAAQMS, only 9 CAAQMS recorded average concentration levels within the annual average standard limit of 40 µg/m³. This suggests that serious measures need to be taken in order to control the Particulate Matter emissions/concentration levels present in the atmosphere.

As far as monthly average CO concentration levels are concerned, Airport CAAQMS recorded levels above the standard 8 hourly limit (2 mg/m³) consecutively from November 2022 to March 2023. Apart from this CAAQMS, Mahape CAAQMS (February 2023), Vasai CAAQMS (April and June 2022) and Nagpur CAAQMS (16-24 hrs, November 2022 to February 2023) recorded levels above the standard limit. Dombivali CAAQMS recorded higher concentration level of O₃ (than the prescribed 8 hourly limit of 100 µg/m³) during the month of April 2022 (8-16 hrs) followed by November 2022 (0-8 and 8-16 hrs), December 2022 (8-16 hrs), January 2023 (0-8, 8-16 and 16-24 hrs) and February 2023 (8-16 hrs). Apart from this, Nagpur CAAQMS recorded higher levels in the month of May 2022 (8-16 hrs, 105.22 µg/m³).

In the case of benzene, a pollutant that is associated with many acute and chronic effects with its long-term as well as short-term exposure to human health⁹, Dombivali CAAQMS in Kalyan RO has recorded the highest annual average concentration of benzene (16.46 µg/m³) in the year 2022-23 followed by Koprigaon CAAQMS (Navi Mumbai RO) which recorded the annual average concentration level of 11.11 µg/m³. The region predominantly coming under the jurisdiction of Kalyan and Navi Mumbai RO recorded comparatively higher concentration levels of benzene in 2022-23.

Figure No. 1 and Figure No. 2 provides an overview of the AQI observations in the state of Maharashtra. In the year 2022-23, a total of 30,128 observations were recorded by active 175 AQMS. The share of observations recorded under the 'Good' and 'Satisfactory' categories (Non-polluted) were found to be about 12.97% (3907 observations) and 43.12% (12992 observations) respectively. About 40.23% (12119 observations) were recorded under the 'Moderate' AQI category whereas 'Poor' and 'Very Poor' category observations were found to be about 3.28% (989 observations) and 0.16% (49 observations) respectively. Only about 0.24% or 72 observations were recorded as 'No Data'.

⁹ <https://www.epa.gov/sites/default/files/2016-09/documents/benzene.pdf>

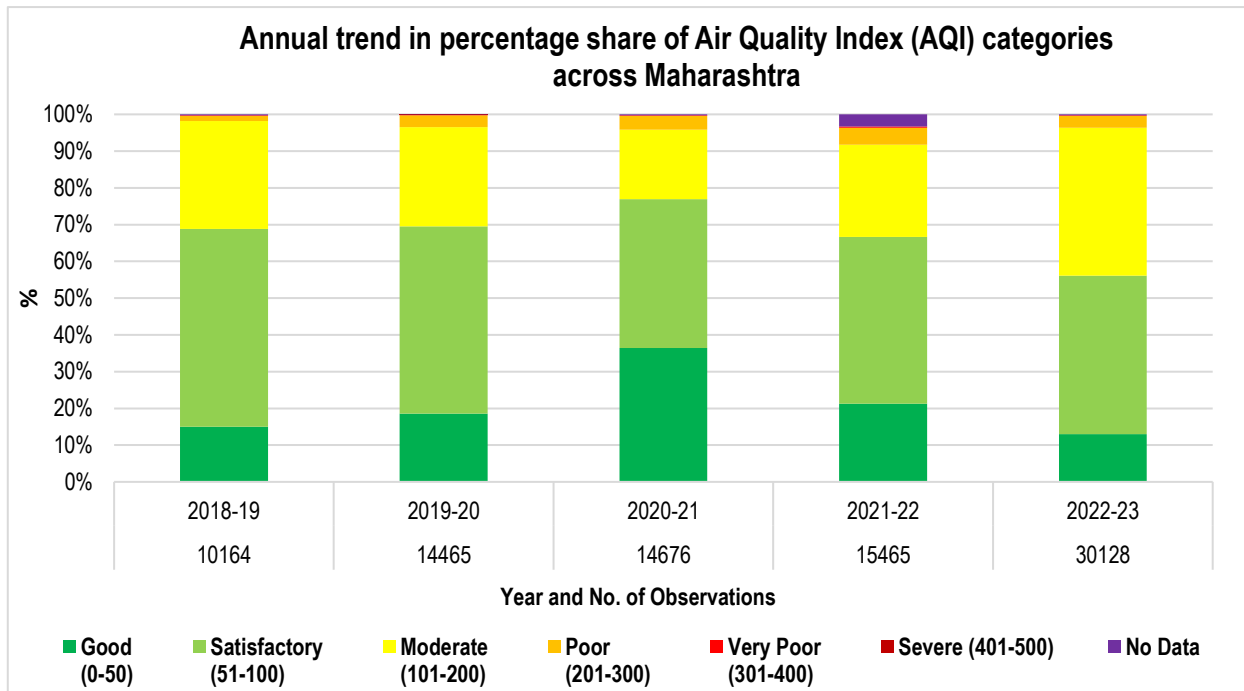


Figure No. 1: Annual trend in percentage share of Air Quality Index (AQI) categories across Maharashtra for the past 5 years

Note: Increase in the total number of air quality monitoring observations in 2022-23 is due to the increase in the total number of active AQMS (126 to 175) in the state of Maharashtra

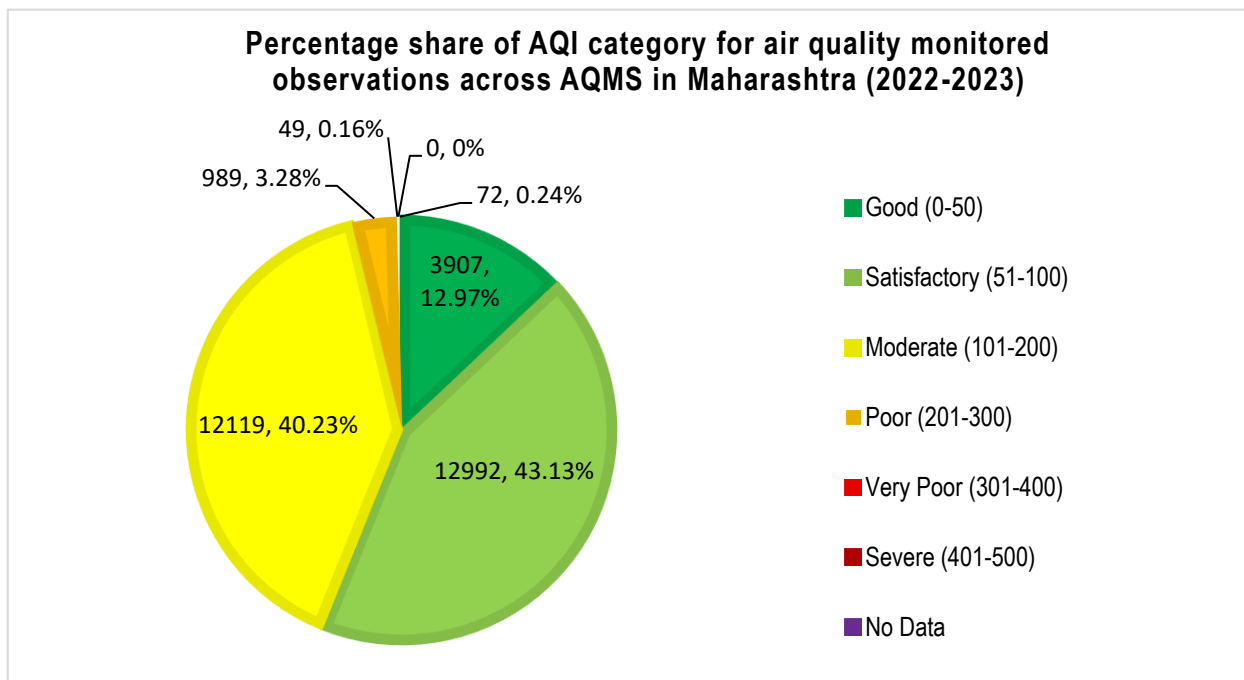


Figure No. 2: Percentage share of AQI category for air quality monitored observations across all AAQMS in Maharashtra 2022-23

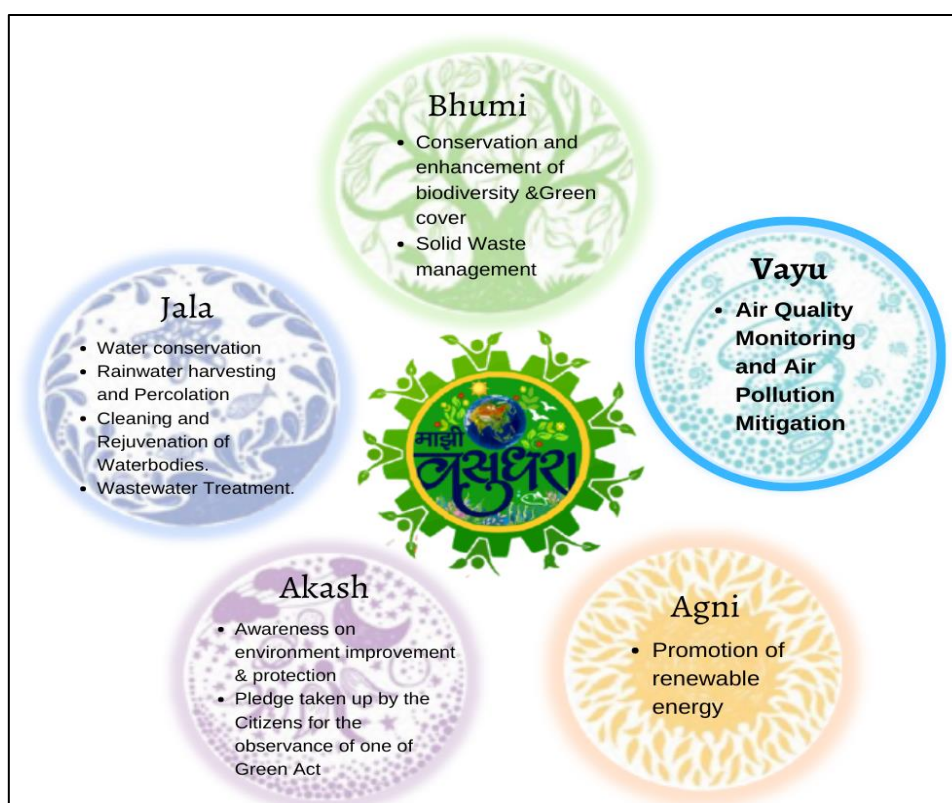
In order to address and minimize the air pollution at state level, MPCB has issued a set of guidelines considering the major sources of emissions (Road dust, Construction and Demolition activities, Biomass burning, Vehicular & Industrial air pollution) which is provided as Annex 2 in this report.

Introduction

Introduction

Air pollution, being a crucial factor, to keep in check the wellbeing of environment, is receiving a lot of attention on the national as well as international level such as Climate Conferences. Efforts are being made by stakeholders such as governments, private organizations to develop efficient mitigation measures to curb the air pollution. The initiative of Government of India in this context is the National Clean Air Programme (NCAP), which was launched in 2019, by the Ministry of Environment, Forest and Climate Change (MoEFCC). NCAP aims to achieve reductions up to 40% or more in concentration levels of Particulate Matter 10 (PM₁₀) by year 2025-26 in 131 non-attainment cities across the country¹⁰.

Addressing this concern, the Department of Environment and Climate Change, Government of Maharashtra, has taken an initiative of 'Majhi Vasundhara' which is a holistic approach to convey the environmental issues to every citizen efficiently and urge citizens to adopt the best and efficient practices to achieve the sustainability. Focusing on the restoration of five elements of nature named as 'Panchamahabhutas', this initiative aids state government to take timely decisions and implementation of strong climate actions¹¹.



Picture No. 1: The Five Elements of Nature and respective theme areas as mentioned in 'Majhi Vasundhara Abhiyan'.

Source: <https://majhivasundhara.in/en/majhi-vasundhara>

¹⁰ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909910>

¹¹ <https://majhivasundhara.in/en/majhi-vasundhara>

With respect to ambient air quality standards, ambient air quality monitoring assess the level of such pollutants which helps policymakers to take appropriate short and long term mitigation measures to curb their concentration level in the atmosphere.

National Air Quality Monitoring Program (NAMP)

NAMP is the nation-wide program executed by the CPCB in over 804 operating stations covering 344 cities/towns in 28 states and 6 Union Territories of the country.

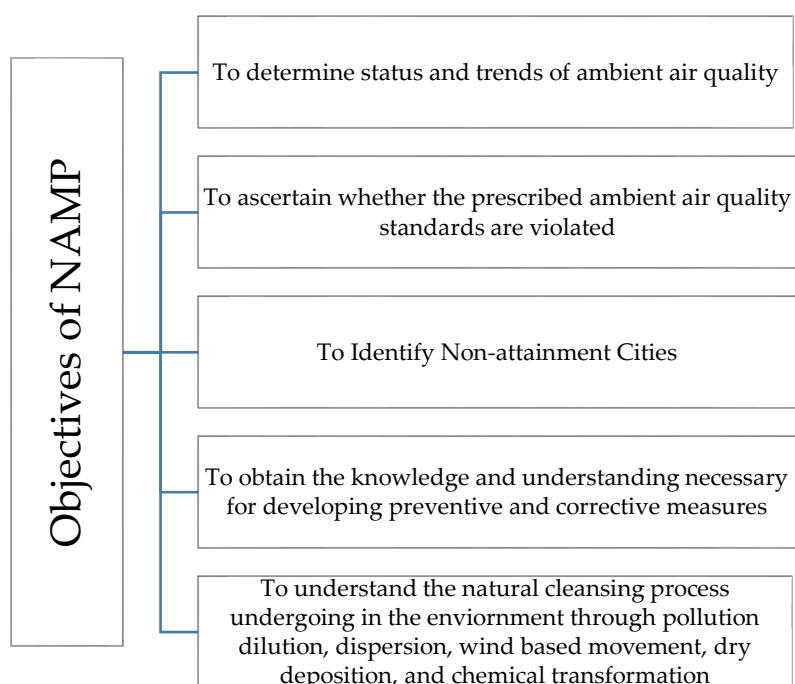


Figure No. 3: Objectives of National Air Monitoring Program¹²

Monitoring of the concentration level of four air pollutants namely Sulphur Dioxide (SO₂), Oxides of Nitrogen as NO_x, Respirable Suspended Particulate Matter (RSPM/PM₁₀) and Fine Particulate Matter (PM_{2.5}) is carried out regularly at all the targeted locations. Along with these pollutants, meteorological parameters such as wind speed, wind direction, relative humidity (RH) and temperature is also being recorded.

Air Quality Monitoring in Maharashtra

At the state level, MPCB monitors air quality across Maharashtra through a network of installed active AQMS. Recently, additional area of the state has been brought under the monitoring network by installing new AQMS (AAQMS + CAAQMS). With the newly installed AQMS, the total tally of the active AQMS in the state has reached to 175 in which 69 are CAAQMS whereas 69 AAQMS and 37 AAQMS stations are installed as part of the NAMP and SAMP respectively. The details of these stations have been represented in Annex -1

¹² <https://cpcb.nic.in/about-namp/>

How does the system of AAQMS and CAAQMS works?

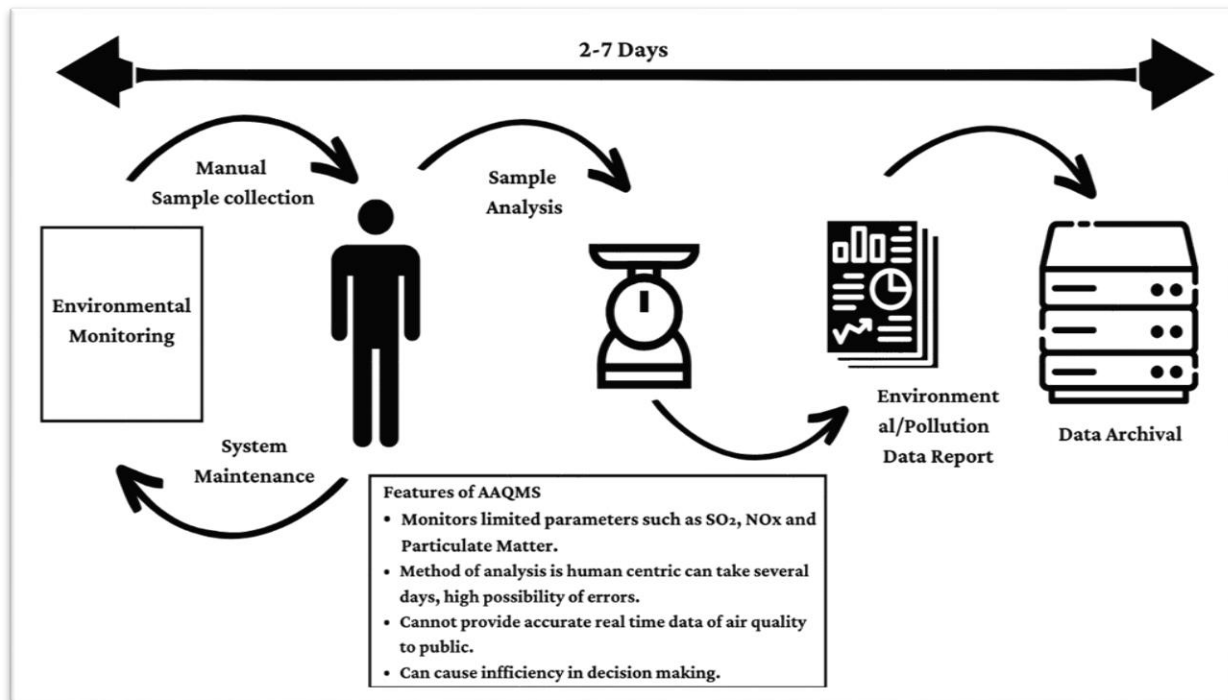


Figure No. 4: Schematic representation and features of Ambient Air Quality Monitoring Station

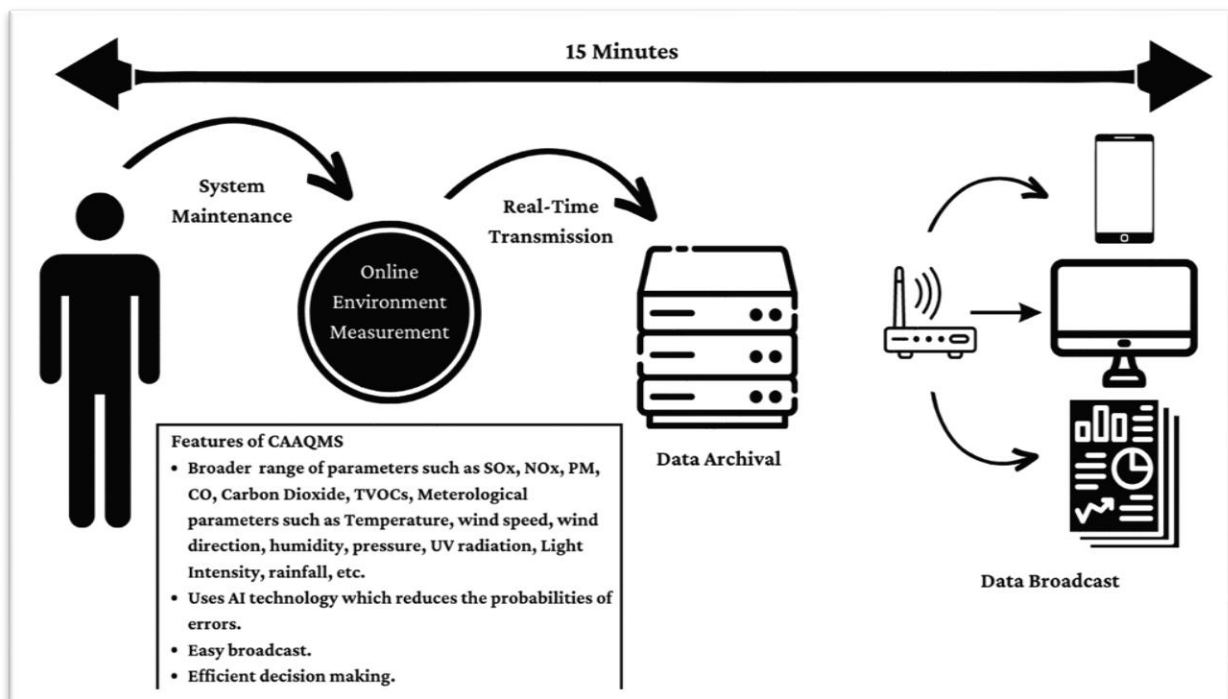


Figure No. 5: Schematic representation and features of Continuous Ambient Air Quality Monitoring Station

Criteria Air Pollutants

Six of the most common air pollutants namely particulate matter, nitrogen dioxide, sulfur dioxide, ground-level ozone, carbon monoxide, and lead are termed as the 'Criteria Air Pollutants'. There are diverse and widespread sources of emission of these pollutants into the ambient air. Long and short-term exposure to these pollutants could lead to a significant toxicological impact on humans which may include respiratory, cardiovascular diseases, eye irritation, skin diseases and so on. Further, the prolonged and high concentration of these pollutants also affects local ecosystems.

Particulate Matter (PM) is a mixture of small solid and liquid particles that are suspended in the air and mostly contain sulfates, nitrates, ammonia, sodium chloride, black carbon, and mineral dust that are hazardous to the human health as well as natural ecosystems¹³. PM, although consisting of various shapes and sizes of particles, is further categorized into three types on the basis of particle size. The first one is the Coarse (large particles) PM which includes particles between 2.5-10 μm in size range, then Fine PM covers particles with a size lesser than 2.5 μm ; the Ultrafine PM category consists of particles with a size lesser than 0.1 μm .

Nitrogen dioxide (NO_2) is used as an indicator for a group of highly reactive gases (oxides of nitrogen - NO_x) that are released into the atmosphere as a result of fuel burning. Emissions from transport vehicles, fuel-powered equipment, and power plants are primary sources of NO_2 . Gases from oxides of nitrogen react with other gases and form another criteria air pollutant i.e. ground-level Ozone (O_3).

Ground-level ozone (O_3) is a secondary air pollutant that is formed close to the earth's surface in the presence of other precursor chemicals and their reactions in the presence of sunlight. In addition to humans and animals, ground-level ozone negatively impacts vegetation and crops as it interferes with their photosynthesis process.




















Sulphur dioxide (SO_2) is a major air pollutant that is released into the atmosphere primarily as a result of burning coal, diesel, and oil. Electricity generation in coal-powered power plants remains the major source of sulphur emissions. Other major sources include industrial activities like running of boilers, metal smelting and operating diesel-powered off-road equipment.

Carbon Monoxide (CO) is formed due to the incomplete combustion of fuels, primarily in motor vehicle engines, stoves, furnaces, fireplaces etc. CO is also termed as a 'silent killer' due to its colorless, odorless, and tasteless nature which makes it difficult to detect it, leading to an estimated 137 poisoning cases and 4.6 deaths per million worldwide¹⁴.




















The brief information about these pollutants, sources, and effects on humans have provided in below.

¹³ [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

¹⁴ <https://journals.sagepub.com/doi/full/10.1177/0960327119891214>

Air Pollutants	Major source of emission	Health Impacts
<p>Particulate Matter PM 2.5 and PM 10</p> 	 <p>Motor engines</p>  <p>Industrial activities and smokes</p>	 <p>Respiratory and cardiovascular diseases</p>  <p>Central nervous system and reproductive dysfunctions</p>  <p>Cancer</p>
<p>Sulphur Dioxide</p>  $\text{O}=\text{S}=\text{O}$	 <p>Burning coal</p>  <p>Fuel combustion</p>	 <p>Respiratory dysfunctions</p>  <p>Central nervous system dysfunctions</p>  <p>Eye irritation</p>
<p>Nitrogen dioxide</p>  $\text{O}=\text{N}-\text{O}^-$	 <p>Vehicular exhaust</p>  <p>Fuel combustion</p>	 <p>Damage to liver, lung, spleen and blood</p>   

Picture No. 2: Air Pollutants, sources and health impacts – part 1

Air Pollutants	Major source of emission	Health Impacts
<p>Ground level ozone</p>  <chem>[O+]=[O]=[O-]</chem>	 <p>Vehicular exhaust</p>  <p>Industrial activities</p>	 <p>Respiratory and cardiovascular diseases</p>   <p>Eye irritation</p>
<p>Polycyclic aromatic hydrocarbons</p>  <chem>C1=CC=C(C=C1)C2=CC=CC=C2</chem>	 <p>Motor engines</p>  <p>Wood fires</p>  <p>fuel combustion</p>	 <p>Central nervous system and respiratory dysfunctions</p>   <p>cancer</p>
<p>Carbon Monoxide</p>  <chem>C#O</chem>	 <p>Motor engines</p>  <p>burning coal, oil and wood</p>  <p>industrial activities, smokes</p>	  <p>Central nervous system and cardiovascular damages</p>

Picture No. 3: Air Pollutants, sources and health impacts – part 2

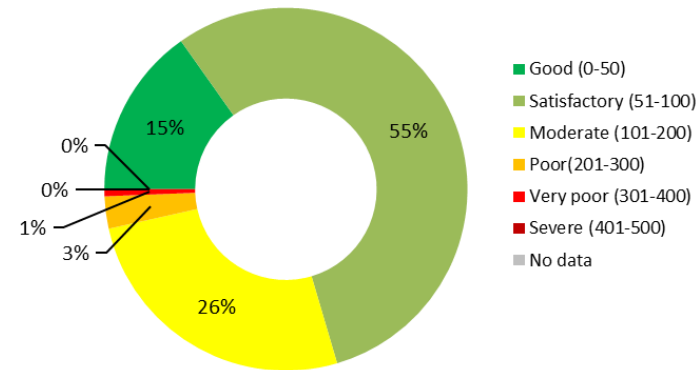
**Data Recorded by AQMS across Maharashtra
2022-23**

CITIES /AREAS UNDER AMRAVATI RO

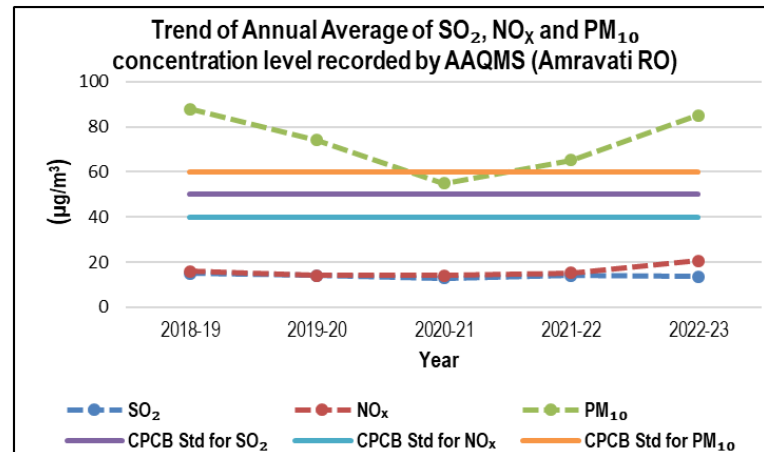
AMRAVATI RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Amravati RO)



Sr No.	Station Name
1	Akola CAAQMS
2	Amravati Shivaji College CAAQMS
3	College of Engineering and Technology
4	Godhadiwala Processing Private Limited
5	Govt. College of Engineering, Amravati
6	LRT Commerce College, Civil line, Akola
7	MIDC Water Work, Phase-II, MIDC Akola
8	MPCB Premises Amaravati CAAQMS
9	Rajkamal Square, Vanita Samaj Bldg. Amravati



Air Quality Status of Maharashtra, 2022-23



AKOLA CAAQMS



AMRAVATI SHIVAJI COLLEGE CAAQMS



MPCB PREMISES AMRAVATI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

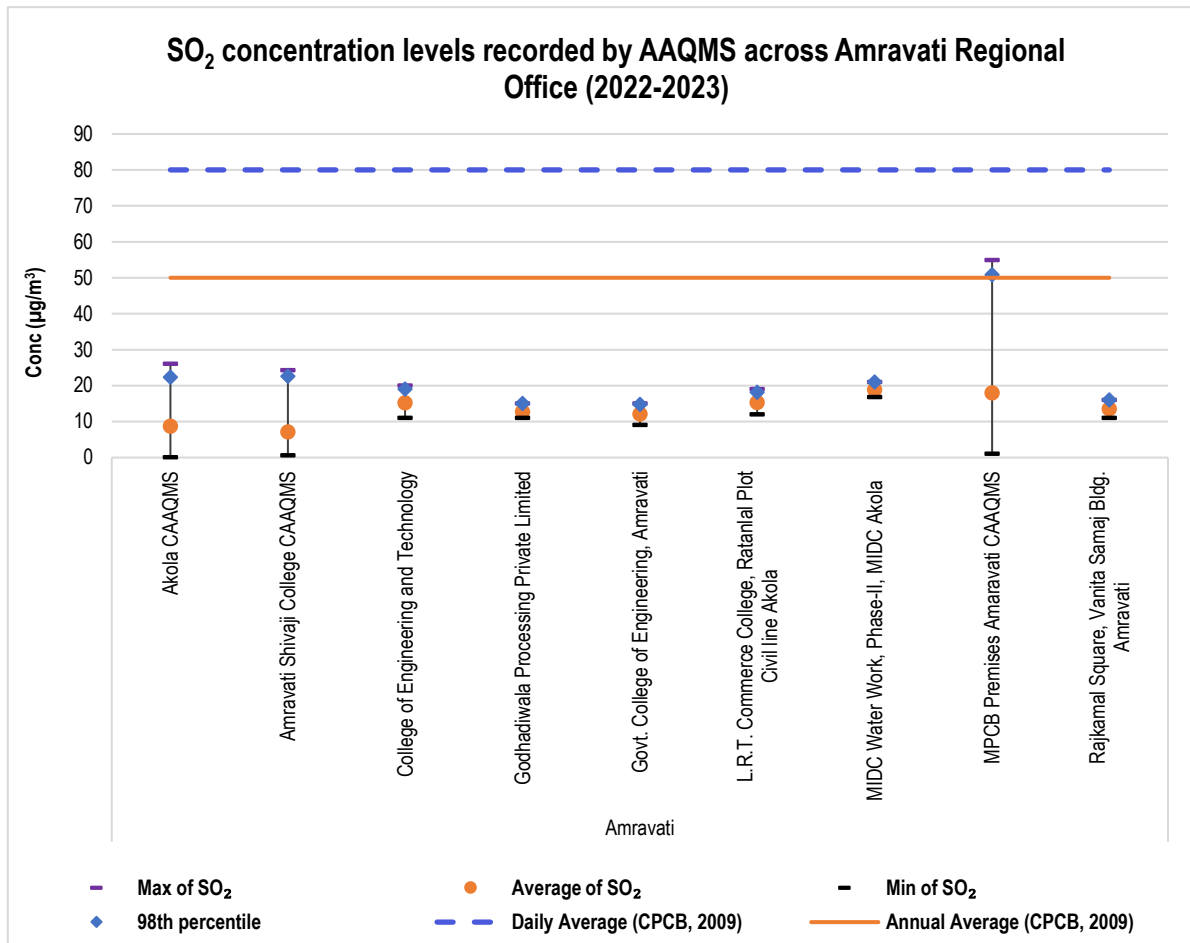


Figure No. 6: Parametric values of SO₂ concentrations recorded by AAQMS across Amravati RO (2022-2023)

A total of 9 ambient air quality monitoring stations are installed in the areas coming under the jurisdiction of Amravati RO. In 2022-23, the annual average SO₂ concentration level recorded by these monitoring stations were found to be within the prescribed limit of 50 µg/m³ (annual average) set by CPCB. Amongst these, the highest annual average concentration level was recorded by MIDC Water Work - Phase-II - MIDC Akola AAQMS (18.88 µg/m³) whereas the lowest level was recorded by Amravati Shivaji College CAAQMS (7.06 µg/m³).

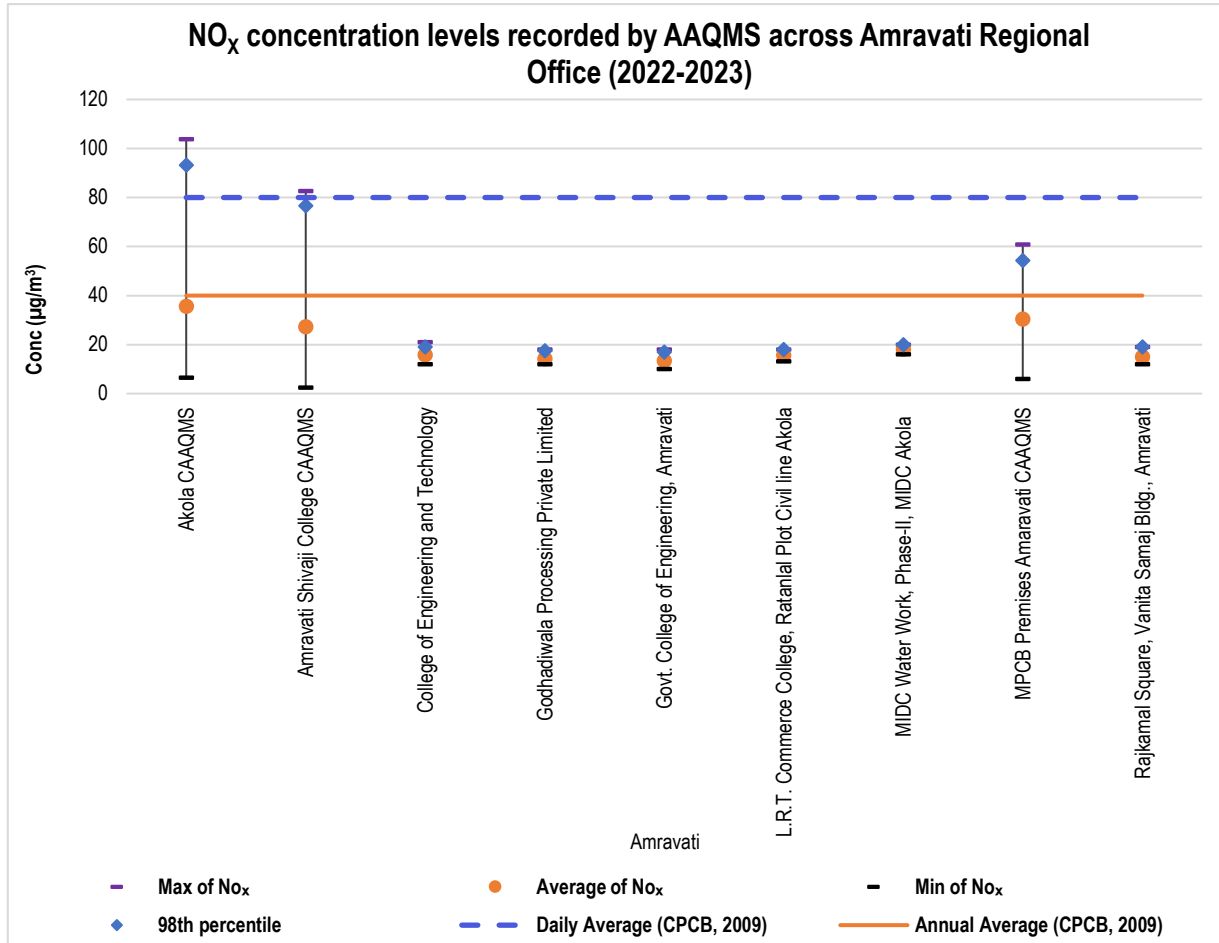
NO_x

Figure No. 7: Parametric values of NO_x concentrations recorded by AAQMS across Amravati RO (2022-2023)

Based on data recorded by the Air Quality Monitoring Stations installed in the areas under the jurisdiction of the Amravati RO, the annual average concentration level of NO_x remained within the standard limit of 40 µg/m³ (annual average). Out of 9 AAQMS, the highest annual average concentration level was recorded by Akola CAAQMS (35.61 µg/m³) followed by MPCB Premises Amravati CAAQMS (30.40 µg/m³) and Amravati Shivaji College CAAQMS (27.22 µg/m³). Rest all monitoring stations recorded levels between the ranges of 13.36 µg/m³ to 18.14 µg/m³.

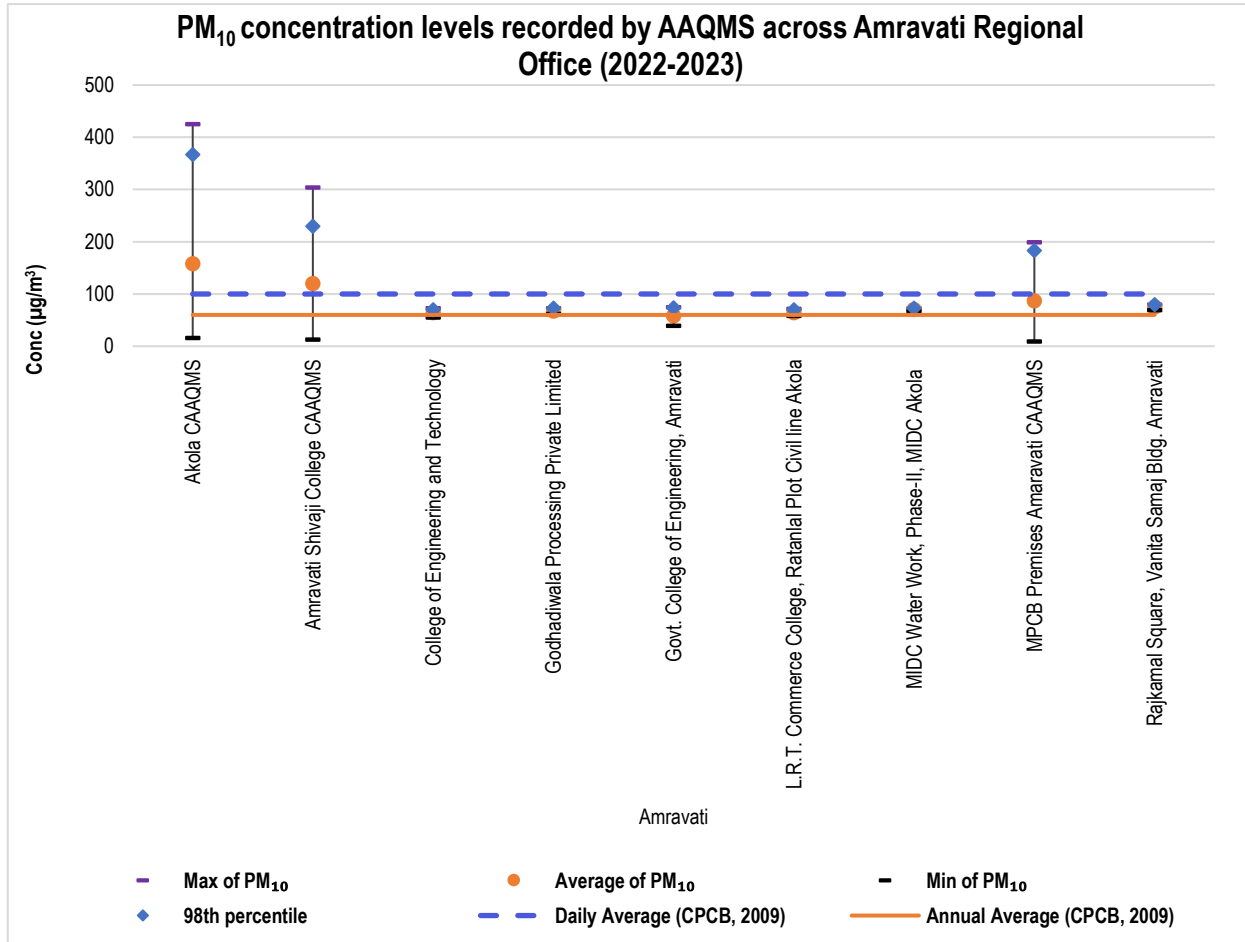
PM₁₀

Figure No. 8: Parametric values of PM₁₀ concentrations recorded by AAQMS across Amravati RO (2022-2023)

The areas coming under the jurisdiction of Amravati RO witnessed high concentration level of PM₁₀ due to the fact out of 9 monitoring stations, 8 stations recorded levels higher than the annual average standard (60 µg/m³). Amongst these, Akola CAAQMS (158.1 µg/m³) and Amravati Shivaji College CAAQMS (120.4 µg/m³) recorded concentration levels which were almost 2.5 and 2 times higher than the prescribed limit respectively. Rest of the stations recorded levels within the range of 64.35 µg/m³ to 86.90 µg/m³. The Govt. College of Engineering – Amravati AAQMS was the only station which recorded concentration level of 58.46 µg/m³ which was within the annual average standard limit.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Amravati RO

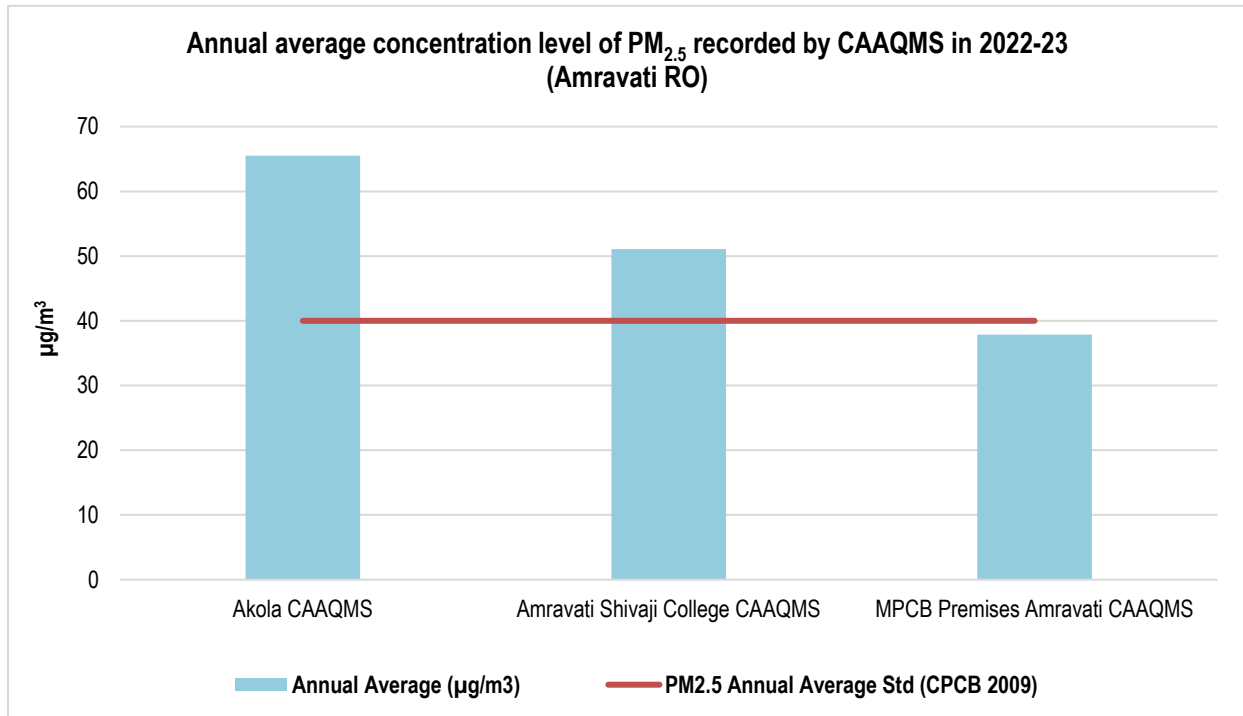


Figure No. 9: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Amravati RO (2022-23)

It was observed that, the annual average standard limit of 40 µg/m³ set by CPCB was exceeded at two locations namely Akola CAAQMS and Amravati Shivaji College CAAQMS. The annual average concentration level observed at these monitoring stations were 65.53 µg/m³ and 51.06 µg/m³, respectively. The 3rd CAAQMS namely MPCB Premises Amravati CAAQMS recorded annual average concentration level of about 37.86 µg/m³ which is also close to the permissible limit.

Ozone (O₃)

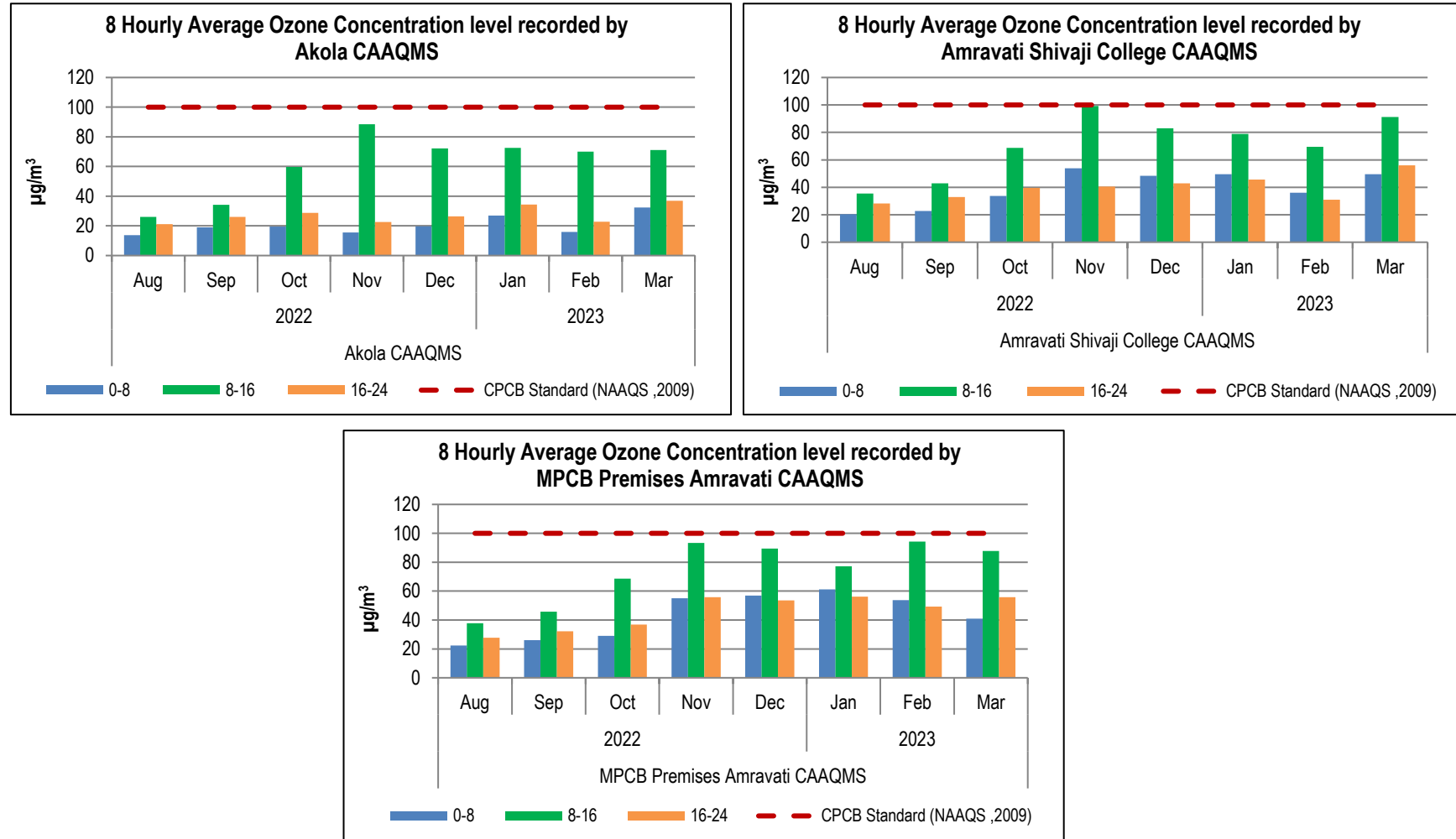


Figure No. 10 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Amravati RO

Carbon Monoxide (CO)

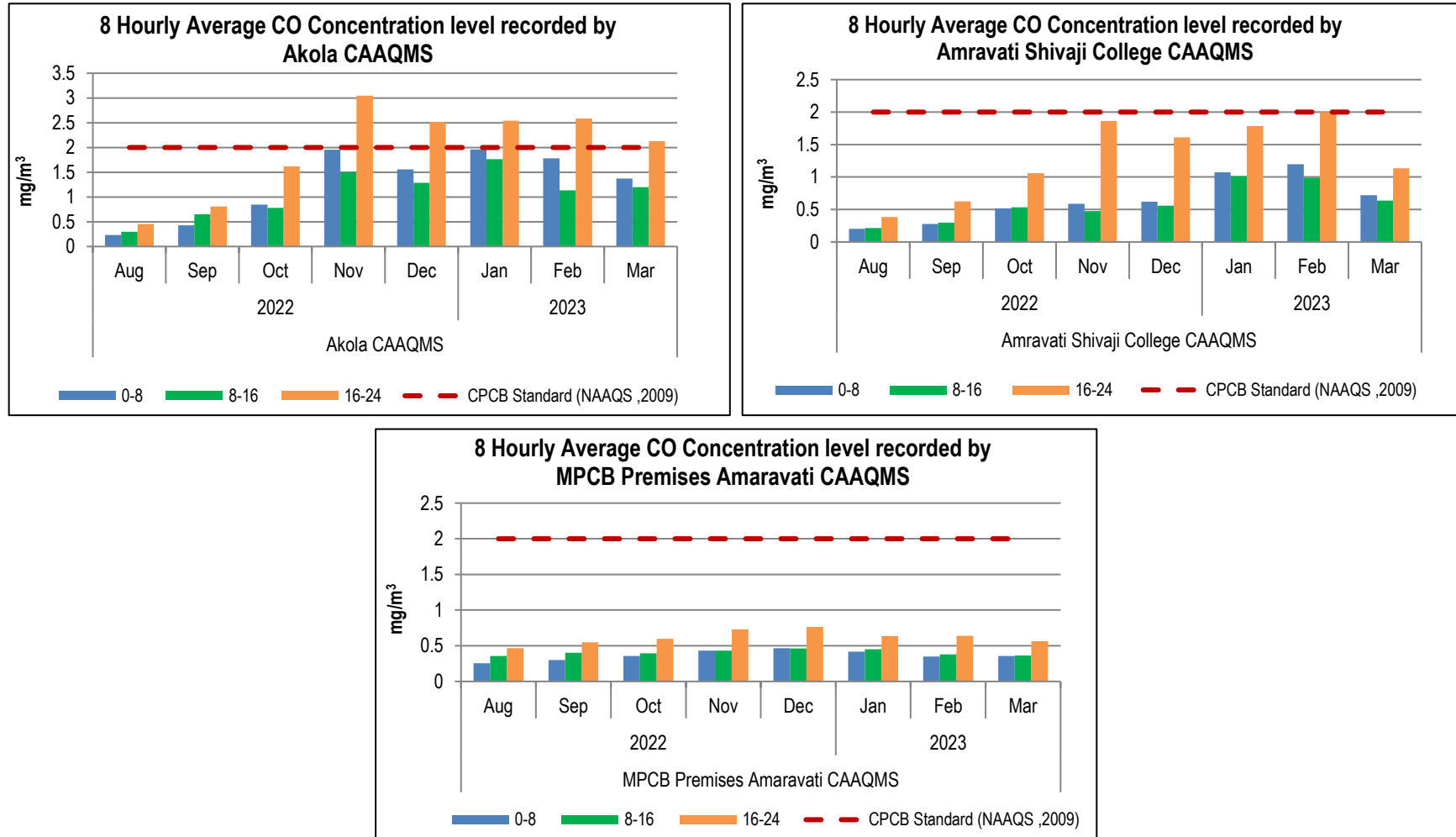


Figure No. 11 : Carbon monoxide concentration recorded by CAAQMS installed in the areas under the jurisdiction of Amravati RO

Benzene

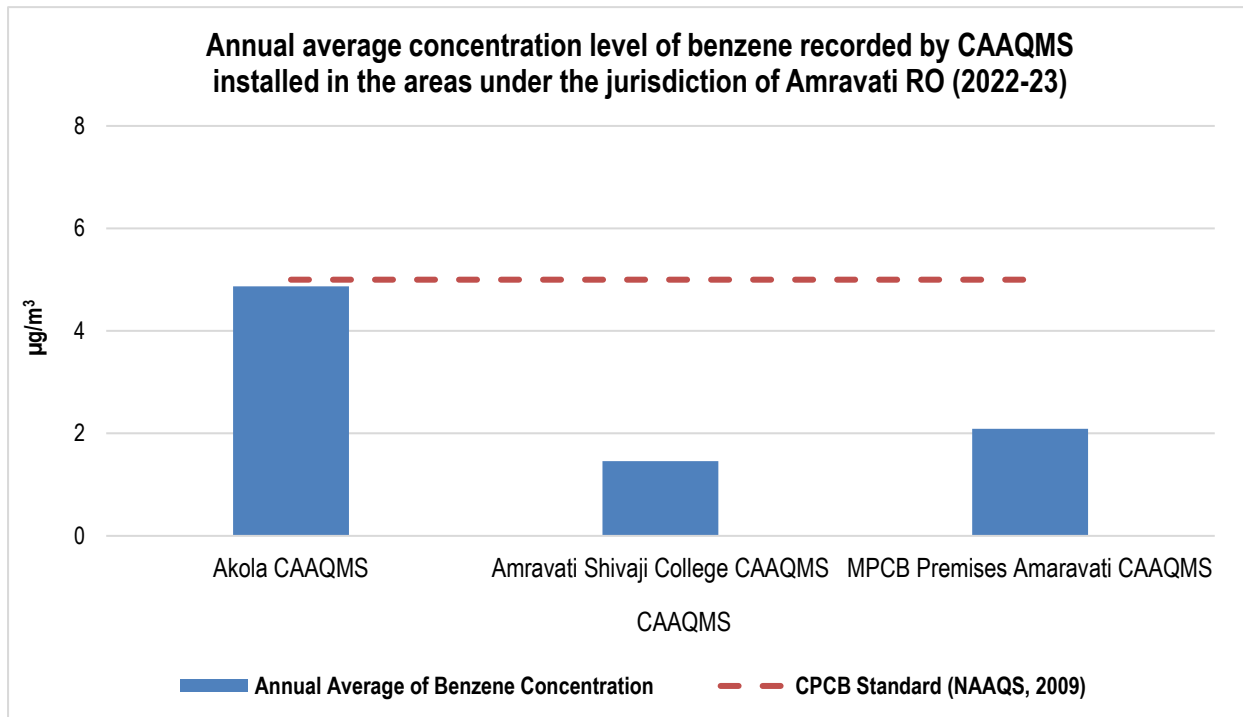


Figure No. 12: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Amravati RO (2022-23)

As per the CPCB, the standard limit for annual average concentration of Benzene is $5 \mu\text{g}/\text{m}^3$. In the year 2022-23, all 3 CAAQMS (Amravati RO) have recorded the annual average benzene concentration levels within the prescribed limit. However, the Akola CAAQMS ($4.87 \mu\text{g}/\text{m}^3$) recorded the levels which were close to the standard limit.

AQI Percentage Occurrence graphs - Amravati RO

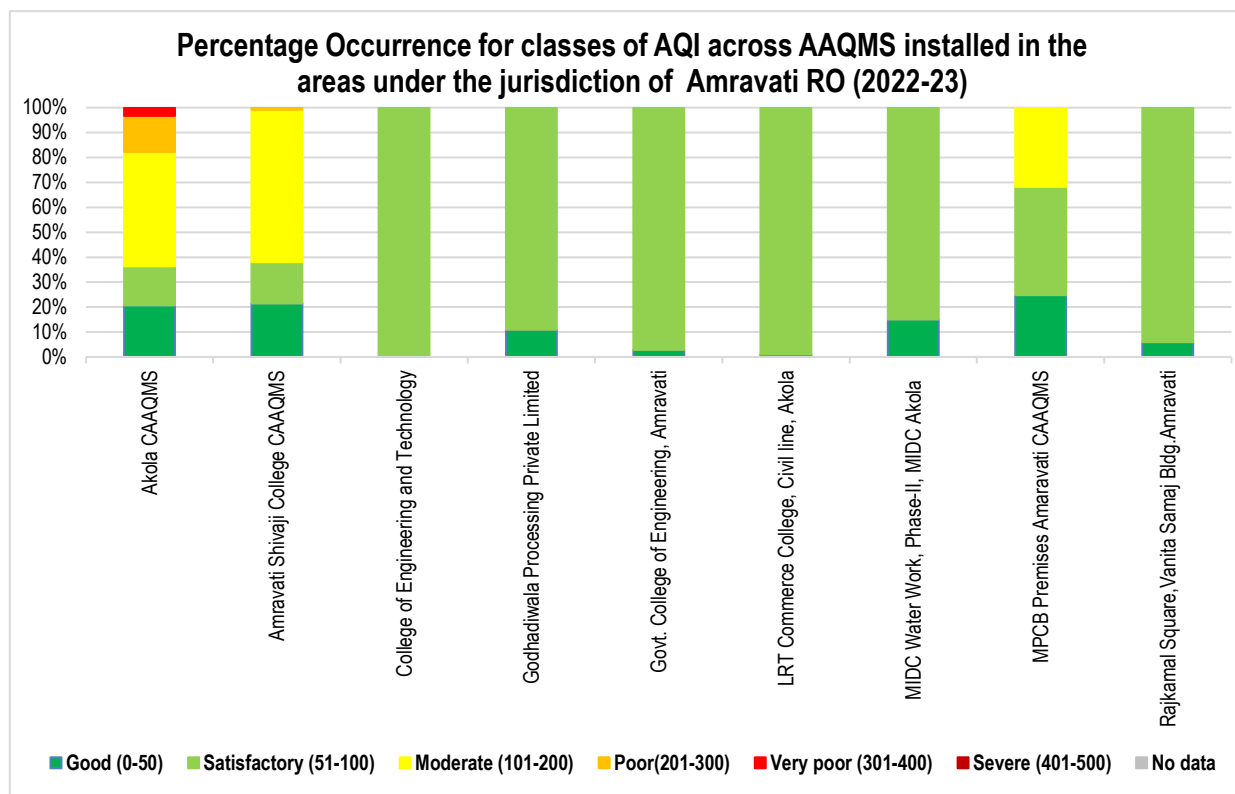


Figure No. 13: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Amravati RO (2022-23)

In the areas coming under the jurisdiction of Amravati RO, out of a 9 AAQMS stations, 6 monitoring stations installed at College of Engineering and Technology, Godhadiwala Processing Private Limited, Govt. College of Engineering - Amravati, LRT Commerce College, -Civil line-Akola, MIDC Water Work - Akola and Rajkamal Square Amravati recorded 100% observations in the 'Non-Polluted' ('Good' and 'Satisfactory') AQI category.

Out of remaining 3 monitoring stations, Akola CAAQMS recorded about 20.7% observations in the 'Good' category followed by 15.7% under the 'Satisfactory', 45.87% under the 'Moderate', 14.4% under the 'Poor' and 3.3% under the 'Very Poor' AQI category. On the other hand, AAQMS installed at Amravati Shivaji College CAAQMS recorded about 21.5% observations in the 'Good' category followed by 16.5% under the 'Satisfactory', 61.16% under the 'Moderate' and 0.83% under the 'Poor' category. Moreover, MPCB Premises Amravati CAAQMS recorded about 24.8%, 43.4% and 31.8% of the total observations under the 'Good', 'Satisfactory' and 'Moderate' categories respectively.

Monthly and Annual Graphs

Akola CAAQMS

Table No. 1: Data for Monthly average concentration recorded at Akola CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Akola CAAQMS	2022	Aug	2	5	45	27
		Sep	4	6	45	25
		Oct	5	14	113	46
		Nov	8	35	262	118
		Dec	9	28	200	94
	2023	Jan	14	23	188	99
		Feb	14	36	226	77
		Mar	15	23	190	60

Table No. 2: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Akola CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Akola CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	9	21	158	68

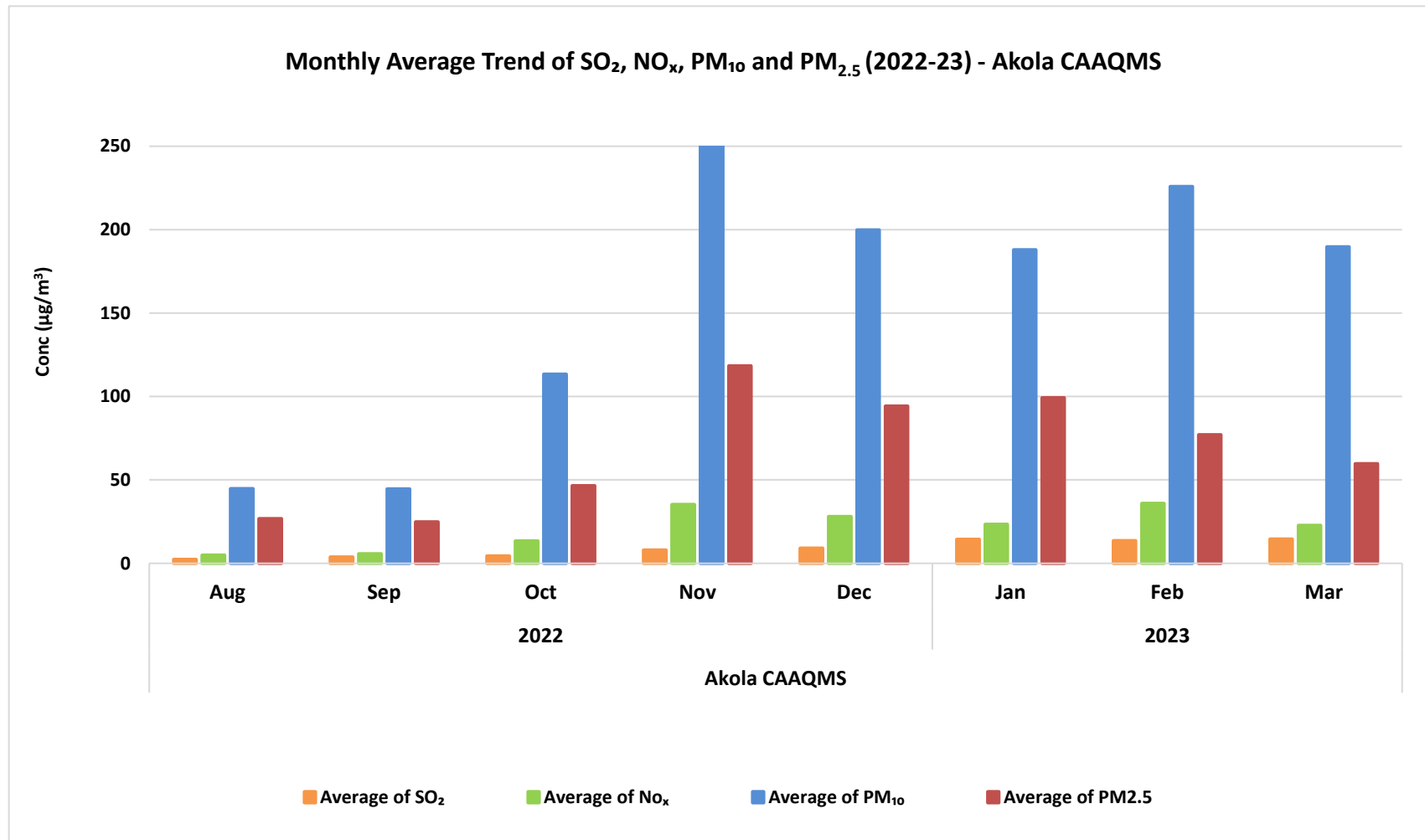


Figure No. 14: Monthly average concentration recorded at Akola CAAQMS

Amravati Shivaji College CAAQMS

Table No. 3: Data for Monthly average concentration recorded at Amravati Shivaji College CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Amravati Shivaji College CAAQMS	2022	Aug	2	9	41	18
		Sep	2	12	44	24
		Oct	6	19	101	45
		Nov	7	38	161	81
		Dec	8	31	166	90
	2023	Jan	9	26	170	83
		Feb	13	34	165	49
		Mar	12	19	117	52

Table No. 4: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Amravati Shivaji College CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Amravati Shivaji University CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	7	23	120	55

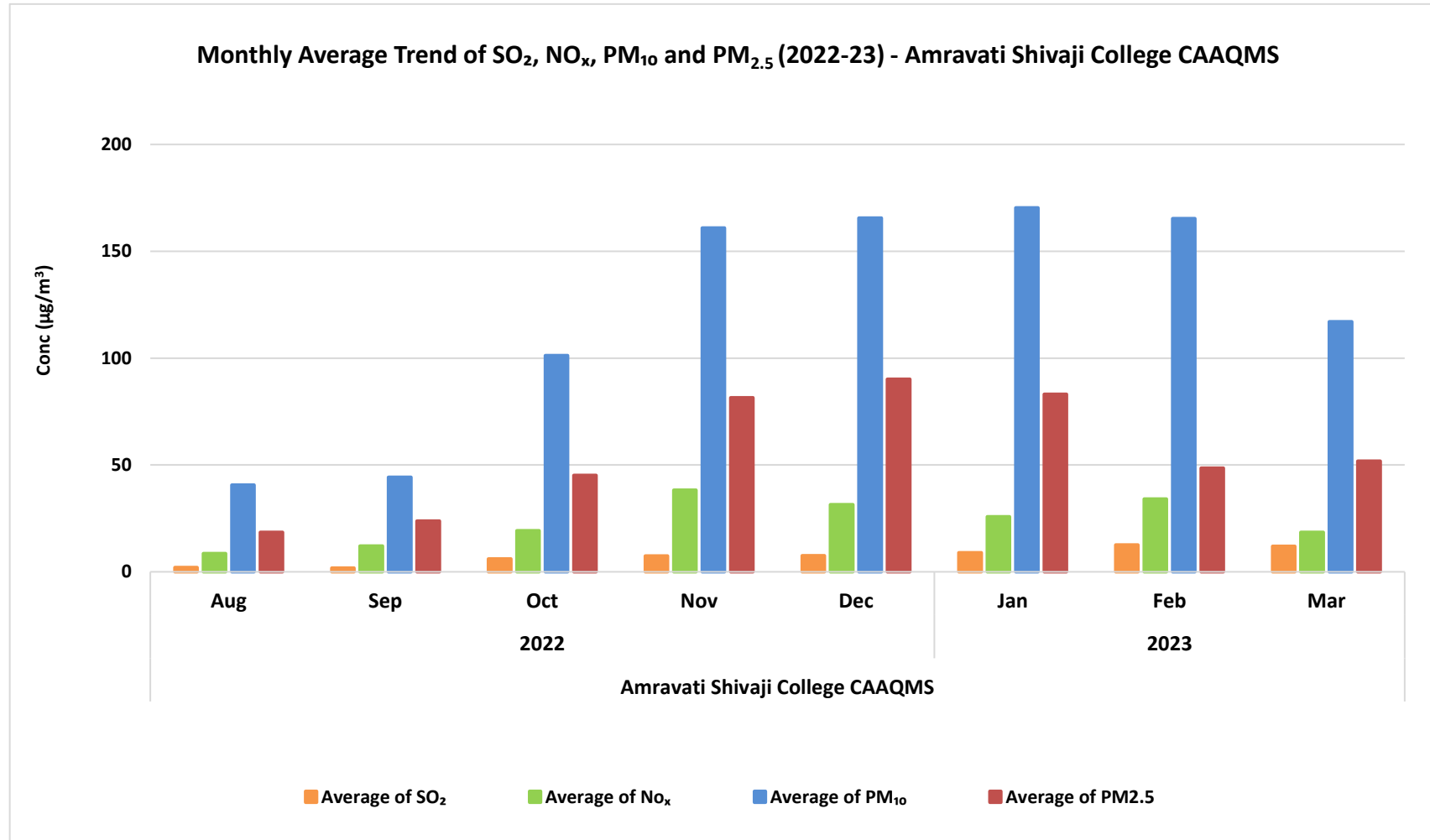


Figure No. 15: Monthly average concentration recorded at Amravati Shivaji College CAAQMS

College of Engineering and Technology

Table No. 5: Data for Monthly average concentration recorded at College of Engineering and Technology

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
College of Engineering and Technology	2022	Apr	13	14	61
		May	15	17	67
		Jun	13	13	62
		Jul	14	14	60
		Aug	15	15	61
		Sep	14	15	62
		Oct	16	16	65
		Nov	15	15	64
		Dec	16	17	66
	2023	Jan	18	15	68
		Feb	17	18	67
		Mar	17	18	68

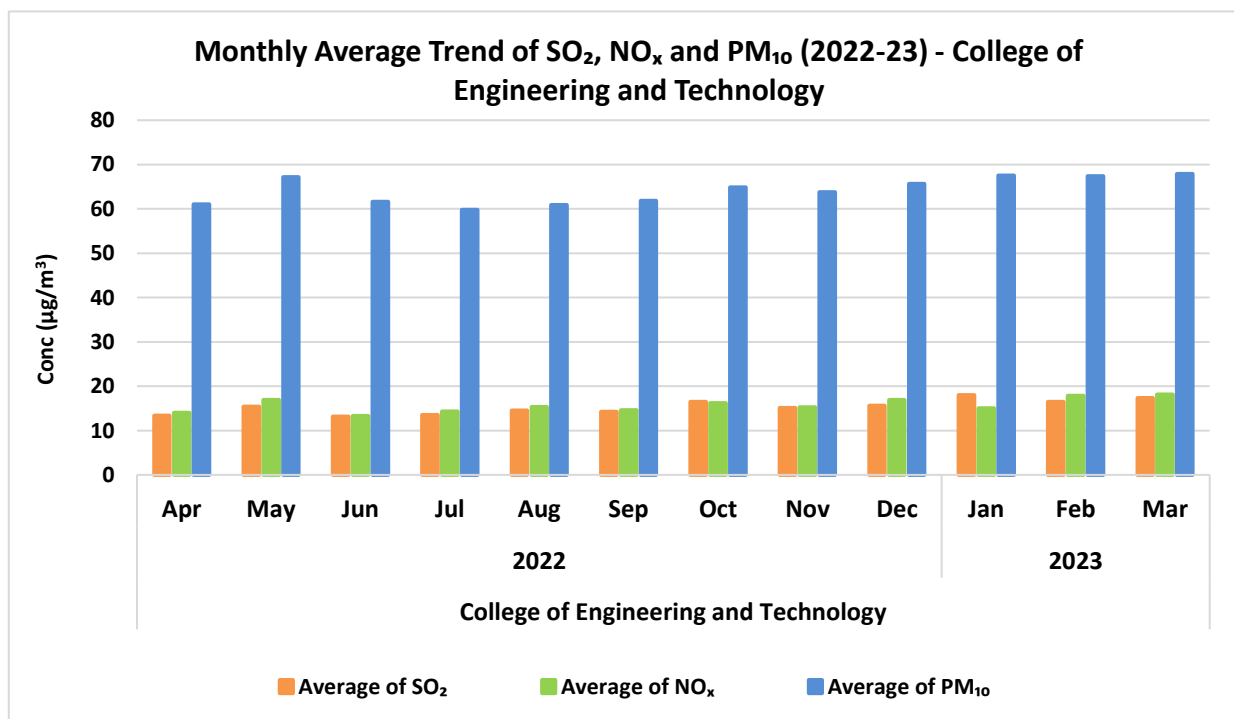
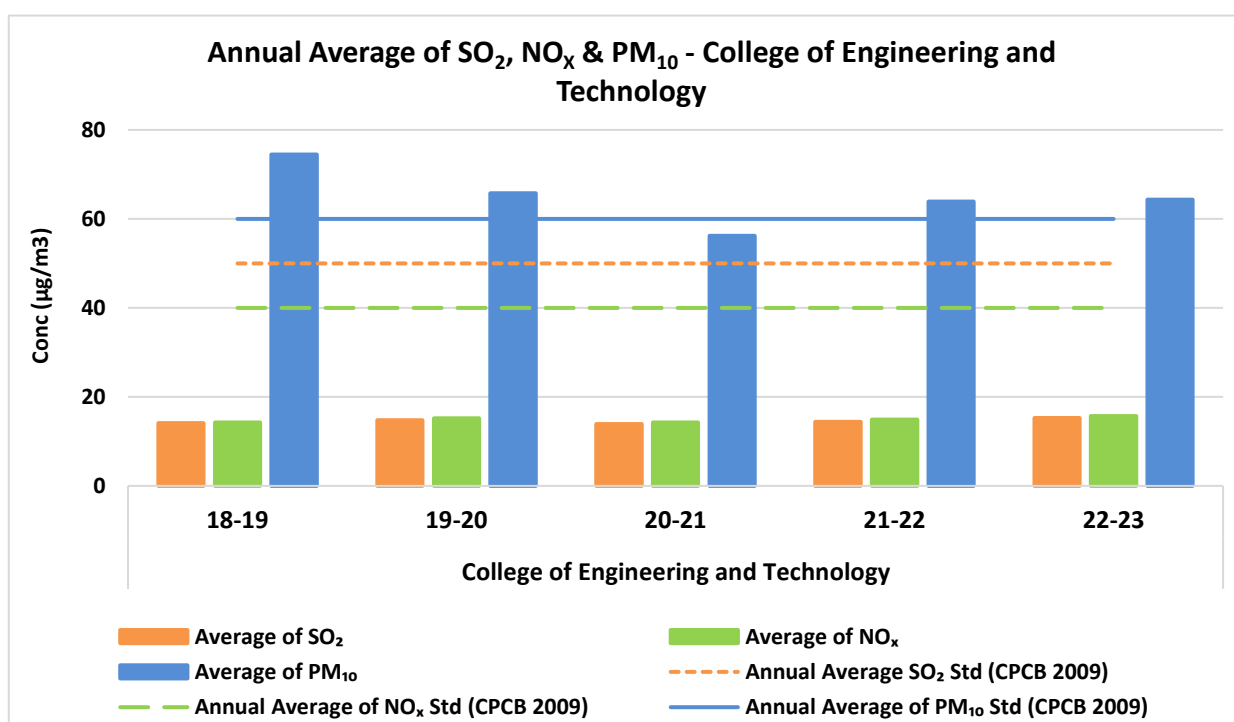


Figure No. 16: Monthly average concentration recorded at College of Engineering and Technology

Table No. 6: Data for Annual average trend of SO₂, NO_x and PM₁₀ at College of Engineering and Technology

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
College of Engineering and Technology	18-19	14	14	74
	19-20	15	15	66
	20-21	14	14	56
	21-22	14	15	64
	22-23	15	16	64

Figure No. 17: Annual average trend of SO₂, NO_x and PM₁₀ at College of Engineering and Technology

Godhadiwala Processing Private Limited

Table No. 7: Data for Monthly average concentration recorded at Godhadiwala Processing Private Limited

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Godhadiwala Processing Private Limited	2022	Apr	13	14	67
		May	13	15	67
		Jun	13	14	70
		Jul	13	14	66
		Aug	13	15	69
		Sep	11	13	68
		Oct	13	14	66
		Nov	13	14	69
		Dec	13	15	69
	2023	Jan	13	15	66
		Feb	12	14	70
		Mar	13	14	67

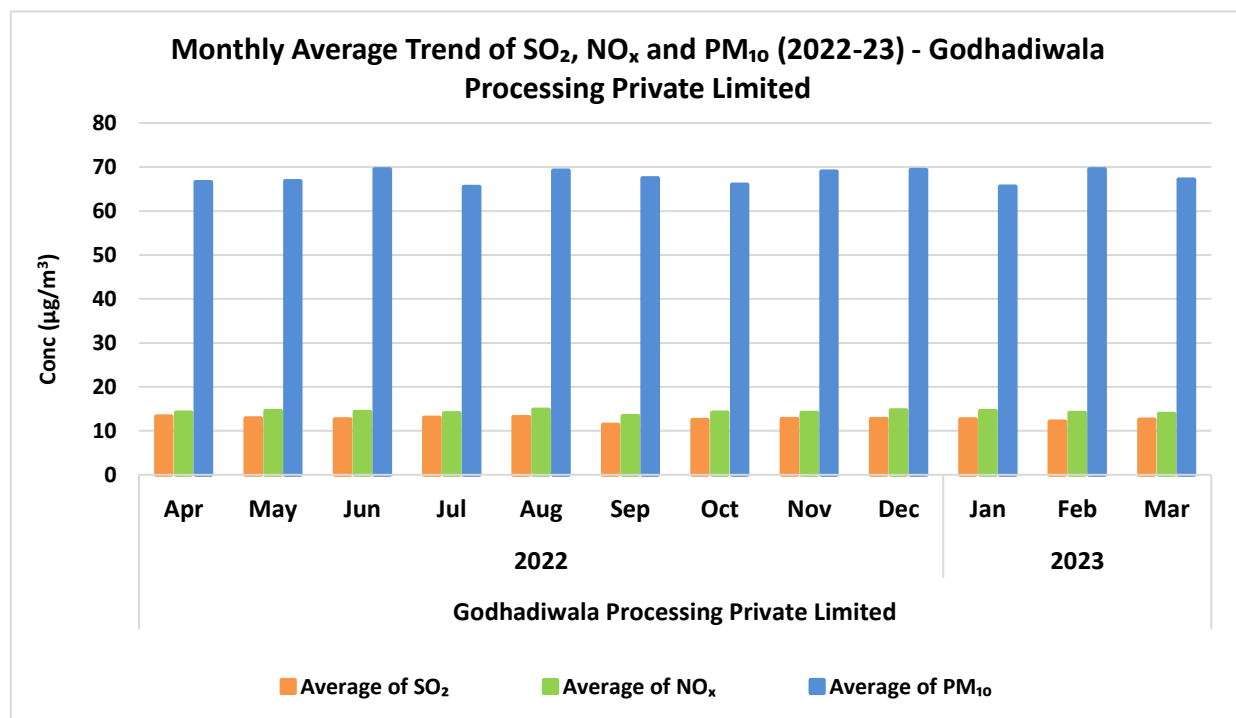
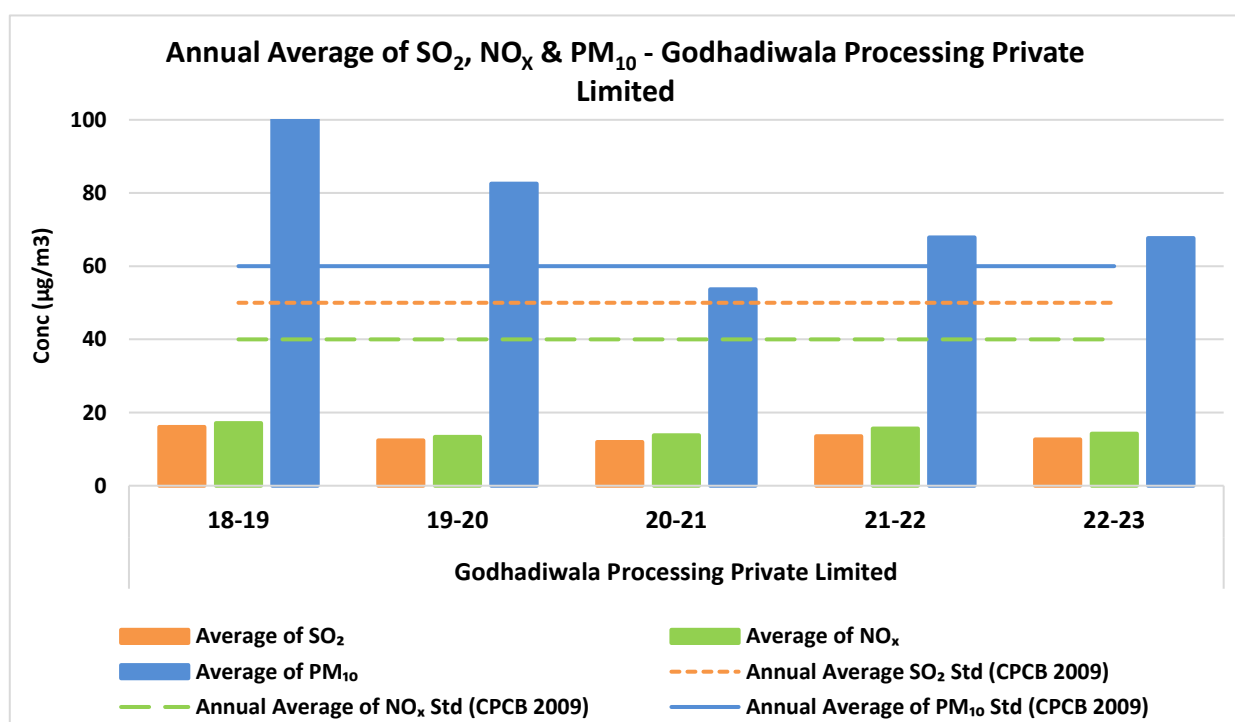


Figure No. 18: Monthly average concentration recorded at Godhadiwala Processing Private Limited

Table No. 8: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Godhadiwala Processing Private Limited

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Godhadiwala Processing Private Limited	18-19	16	17	109
	19-20	12	13	83
	20-21	12	14	54
	21-22	14	16	68
	22-23	13	14	68

Figure No. 19: Annual average trend of SO₂, NO_x and PM₁₀ at Godhadiwala Processing Private Limited

Govt. College of Engineering, Amravati

Table No. 9: Data for Monthly average concentration recorded at Govt. College of Engineering, Amravati

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Govt. College of Engg. Amravati	2022	Apr	13	14	69
		May	11	12	57
		Jun	12	13	55
		Jul	12	12	52
		Aug	12	13	52
		Sep	12	13	51
		Dec	12	12	55
	2023	Jan	12	13	57
		Feb	13	15	63
		Mar	12	14	64

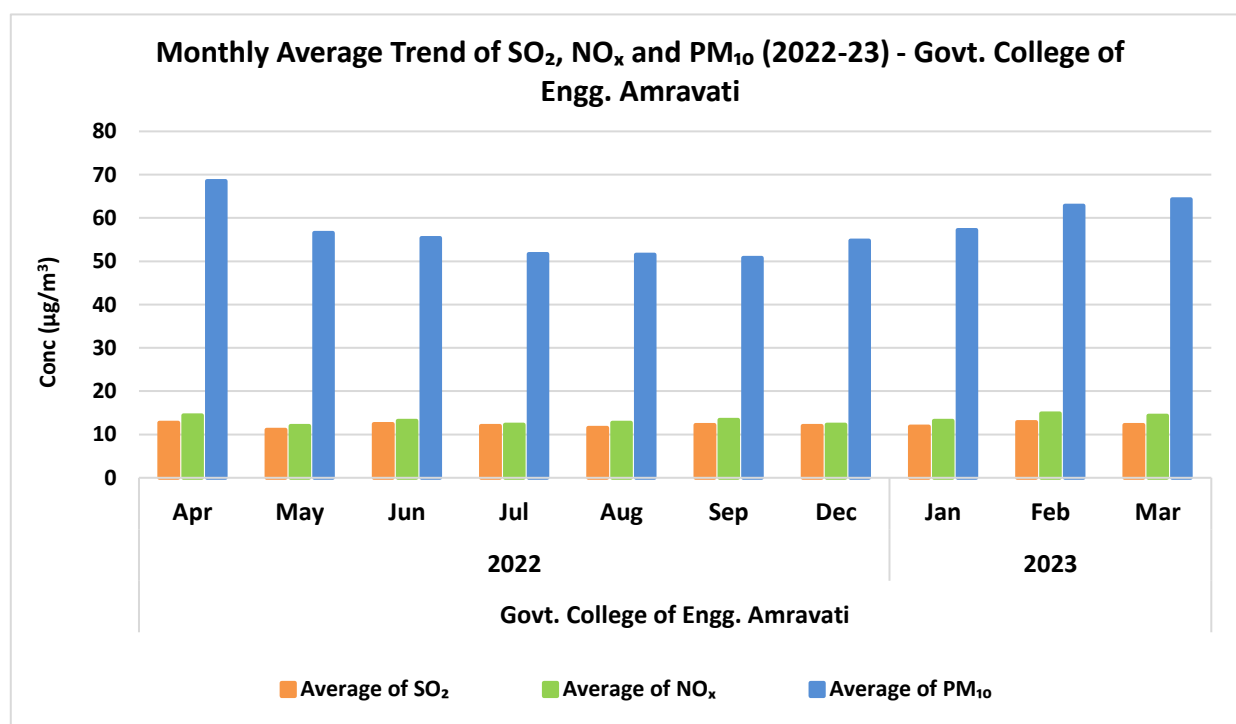
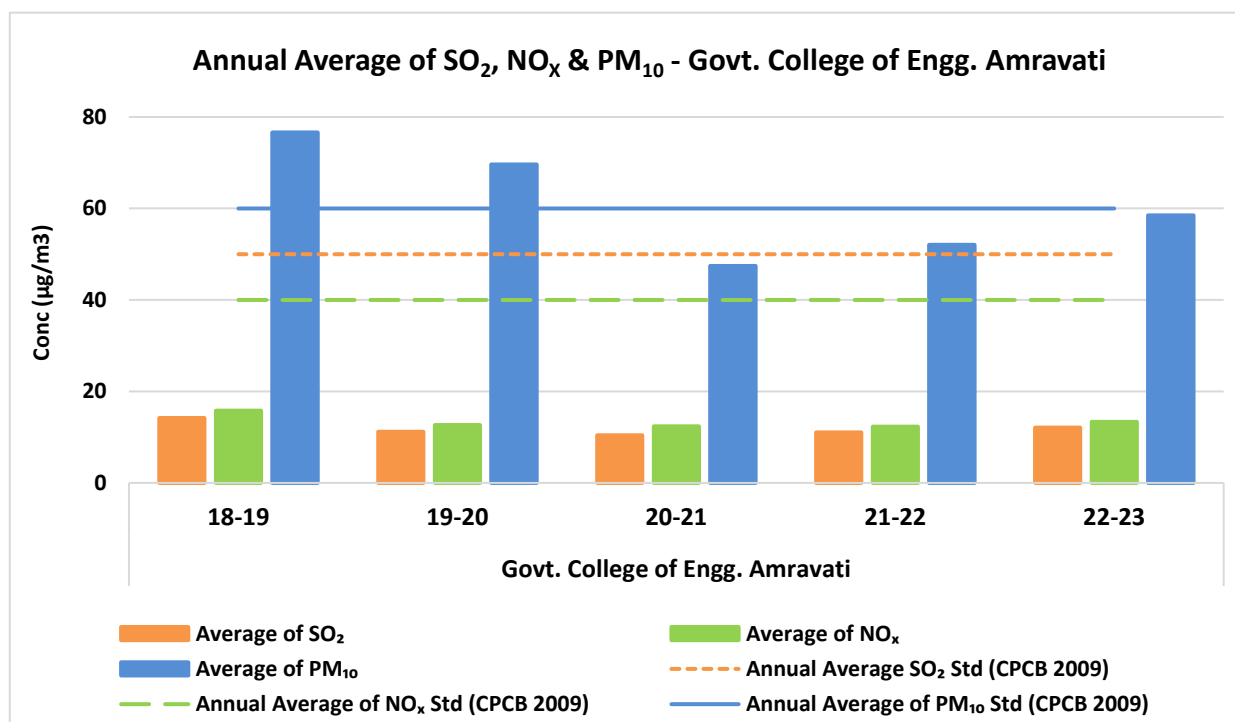


Figure No. 20: Monthly average concentration recorded at Govt. College of Engineering, Amravati

Table No. 10: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Govt. College of Engineering, Amravati

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Govt. College of Engg. Amravati	18-19	14	16	77
	19-20	11	13	70
	20-21	10	12	47
	21-22	11	12	52
	22-23	12	13	58

Figure No. 21: Annual average trend of SO₂, NO_x and PM₁₀ at Govt. College of Engineering, Amravati

L.R.T. Commerce College, Ratanlal Plot Civil line Akola

Table No. 11: Data for Monthly average concentration recorded at L.R.T. Commerce College, Ratanlal Plot Civil line Akola

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
L.R.T. Commerce College, Ratanlal Plot Civil Line Akola	2022	Apr	13	14	62
		May	16	18	68
		Jun	13	13	61
		Jul	15	16	64
		Aug	14	15	61
		Sep	15	16	61
		Oct	16	17	65
		Nov	16	15	65
		Dec	16	16	66
	2023	Jan	18	16	67
		Feb	16	16	68
		Mar	16	16	66

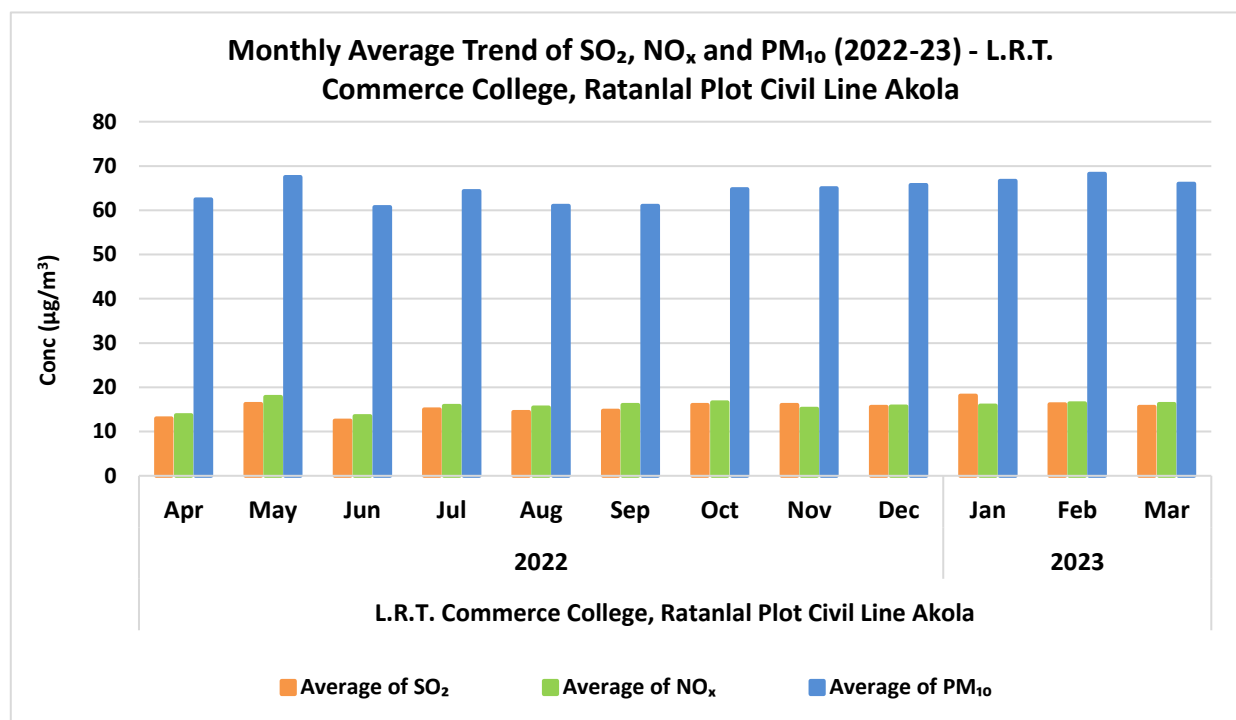
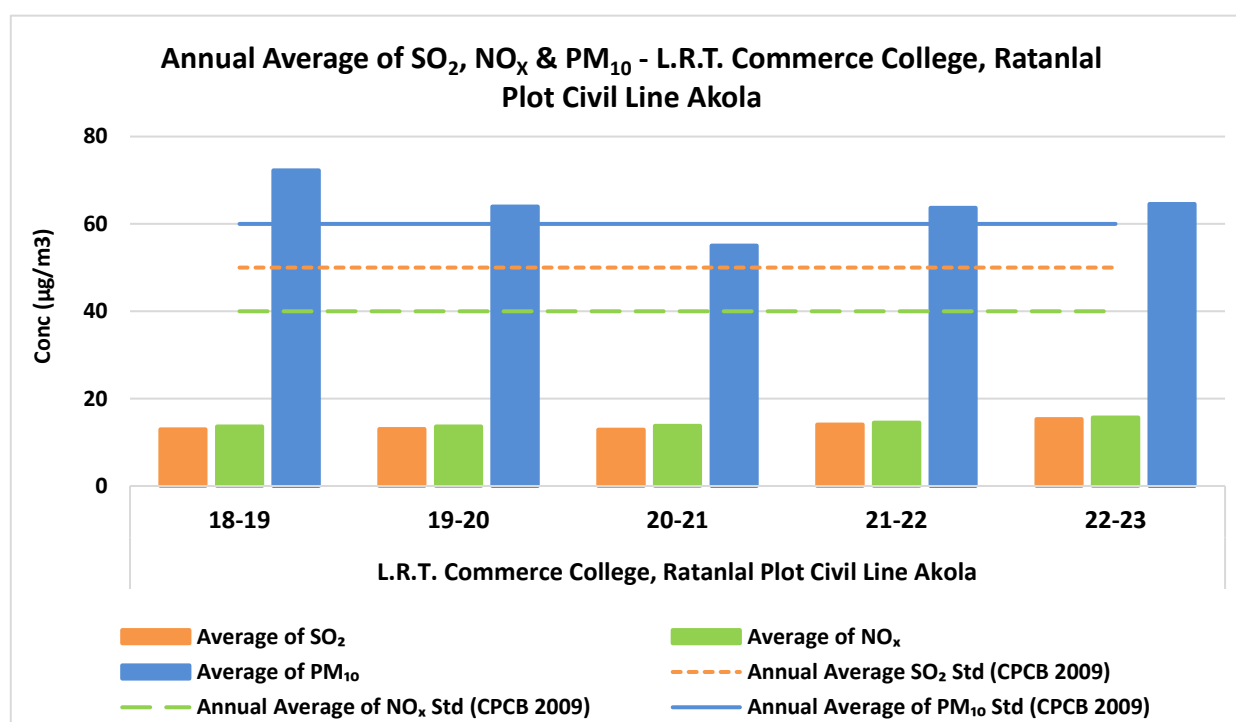


Figure No. 22: Monthly average concentration recorded at L.R.T. Commerce College, Ratanlal Plot Civil line Akola

Table No. 12: Data for Annual average trend of SO₂, NO_x and PM₁₀ at L.R.T. Commerce College, Ratanlal Plot Civil line Akola

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
L.R.T. Commerce College, Ratanlal Plot Civil Line Akola	18-19	13	14	72
	19-20	13	14	64
	20-21	13	14	55
	21-22	14	14	64
	22-23	15	16	65

Figure No. 23: Annual average trend of SO₂, NO_x and PM₁₀ at L.R.T. Commerce College, Ratanlal Plot Civil line Akola

MIDC Water Work, Phase-II, MIDC Akola

Table No. 13: Data for Monthly average concentration recorded at MIDC Water Work, Phase-II, MIDC Akola

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Water Work, Phase-II, MIDC Akola	2022	Apr	17	17	68
		May	21	18	72
		Jun	17	18	68
		Jul	19	19	71
		Aug	19	19	72
		Sep	19	17	71
		Oct	19	19	71
		Nov	20	18	70
		Dec	20	19	70
	2023	Jan	19	19	71
		Feb	19	18	71
		Mar	19	18	70

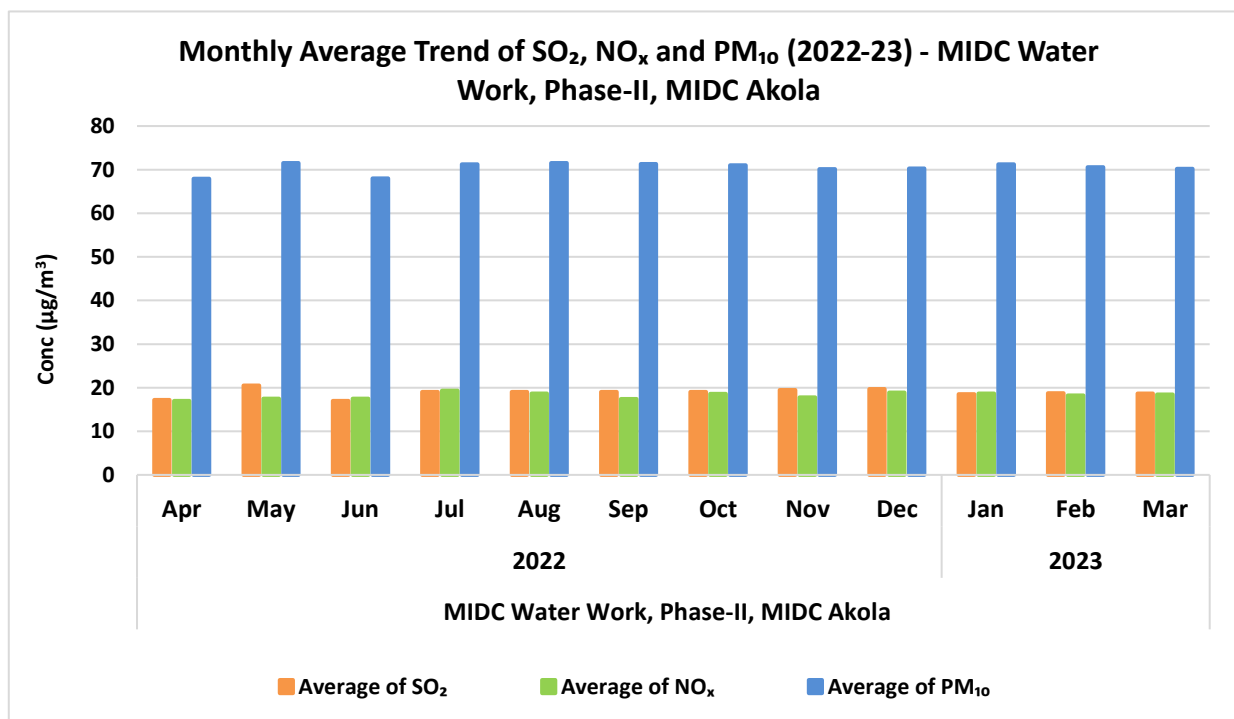
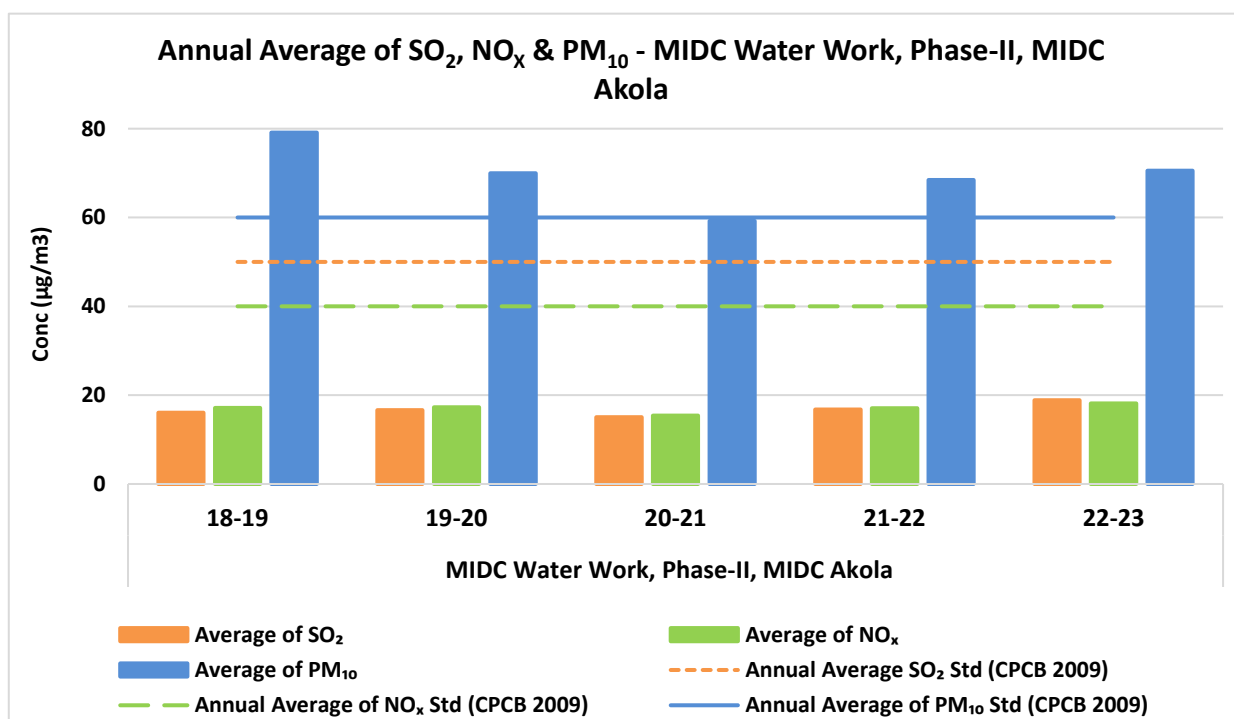


Figure No. 24: Monthly average concentration recorded at MIDC Water Work, Phase-II, MIDC Akola

Table No. 14: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Water Work, Phase-II, MIDC Akola

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Water Work, Phase-II, MIDC Akola	18-19	16	17	79
	19-20	17	17	70
	20-21	15	15	59
	21-22	17	17	68
	22-23	19	18	71

Figure No. 25: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Water Work, Phase-II, MIDC Akola

MPCB Premises Amravati CAAQMS

Table No. 15: Data for Monthly average concentration recorded at MPCB Premises Amravati CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
MPCB Premises Amravati CAAQMS	2022	Aug	9	4	34	15
		Sep	4	11	39	20
		Oct	13	13	61	29
		Nov	39	22	89	45
		Dec	40	22	96	51
	2023	Jan	13	20	111	58
		Feb	13	24	133	56
		Mar	12	17	140	49

Table No. 16: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at MPCB Premises Amravati CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
MPCB Premises Amravati CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	18	16	87	40

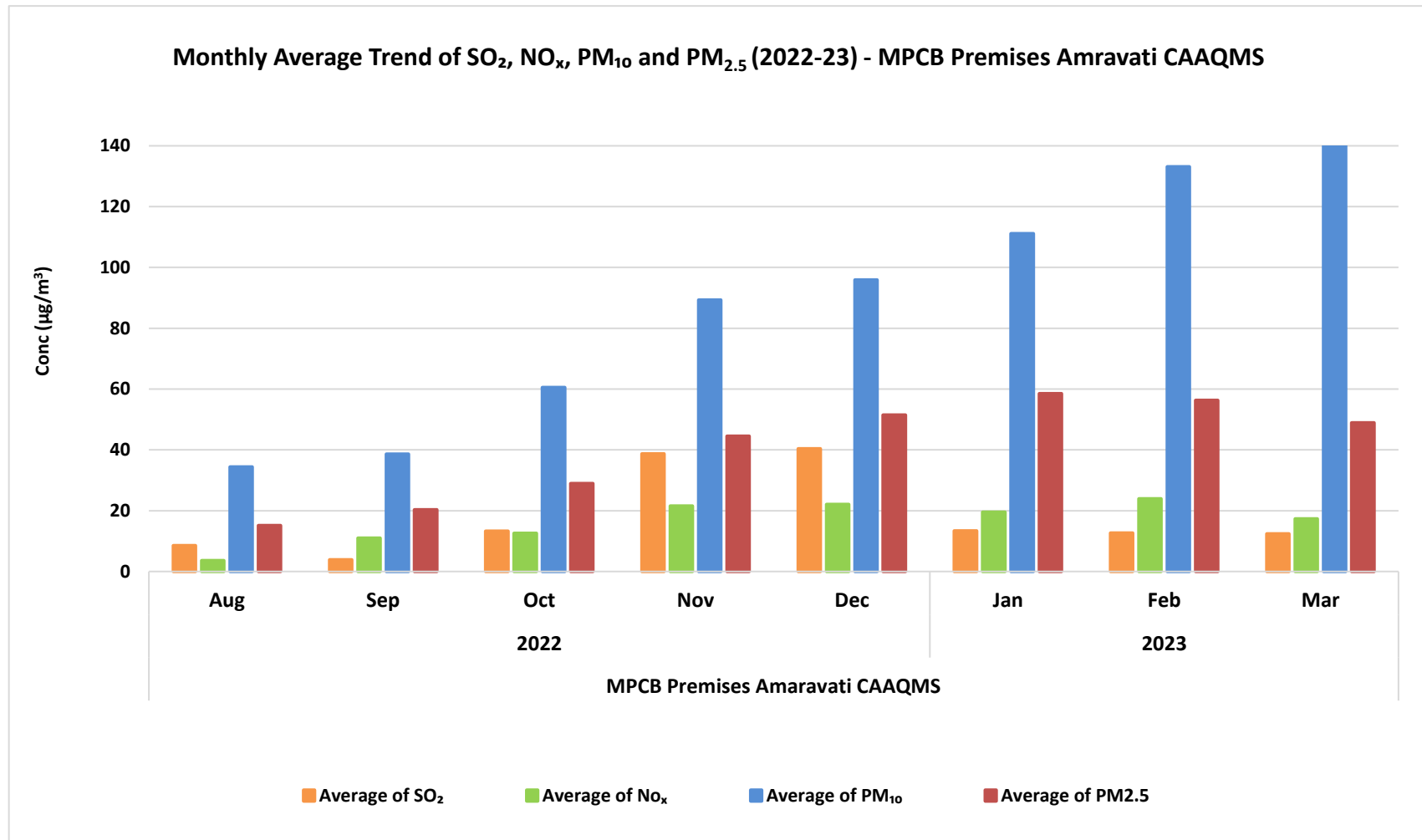


Figure No. 26: Monthly average concentration recorded at MPCB Premises Amravati CAAQMS

Rajkamal Square, Vanita Samaj Bldg. Amravati

Table No. 17: Data for Monthly average concentration recorded at Rajkamal Square, Vanita Samaj Bldg. Amravati

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Rajkamal Square, Vanita Samaj Bldg. Amravati	2022	Apr	13	16	76
		May	15	16	77
		Jun	14	15	73
		Jul	13	15	76
		Aug	13	12	77
		Sep	13	17	74
		Oct	13	14	74
		Nov	14	16	75
		Dec	13	16	75
	2023	Jan	14	15	74
		Feb	14	15	76
		Mar	13	13	-

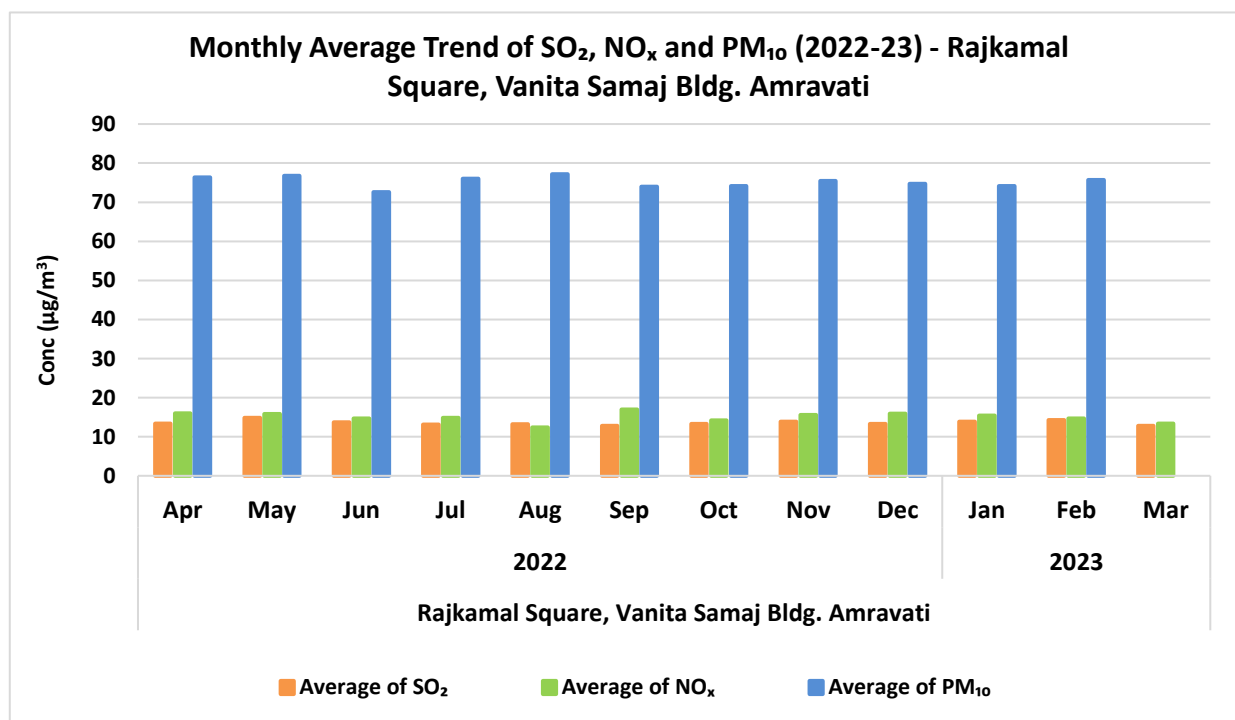


Figure No. 27: Monthly average concentration recorded at Rajkamal Square, Vanita Samaj Bldg. Amravati

Table No. 18: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Rajkamal Square, Vanita Samaj Bldg. Amravati

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Rajkamal Square, Vanita Samaj Bldg. Amravati	18-19	18	19	119
	19-20	14	15	90
	20-21	13	15	56
	21-22	14	17	75
	22-23	14	15	75

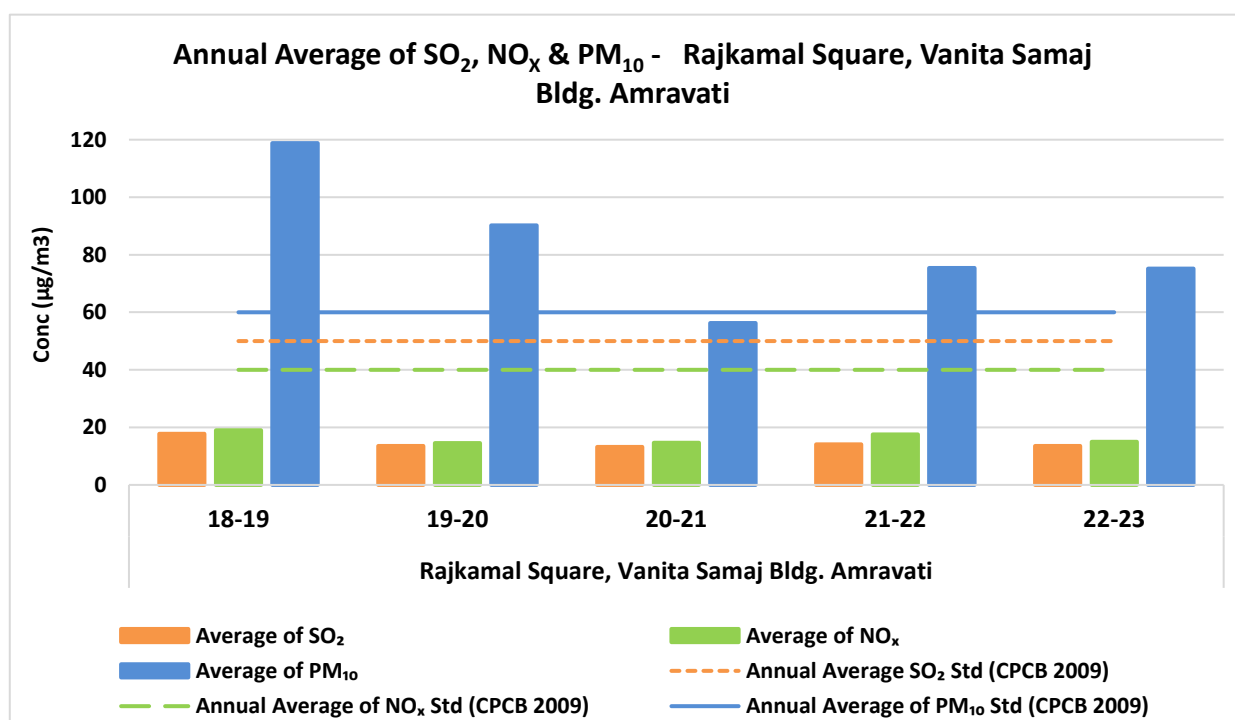
Figure No. 28: Annual average trend of SO₂, NO_x and PM₁₀ at Rajkamal Square, Vanita Samaj Bldg. Amravati

Table No. 19: Percentage exceedance of pollutants at Amravati RO

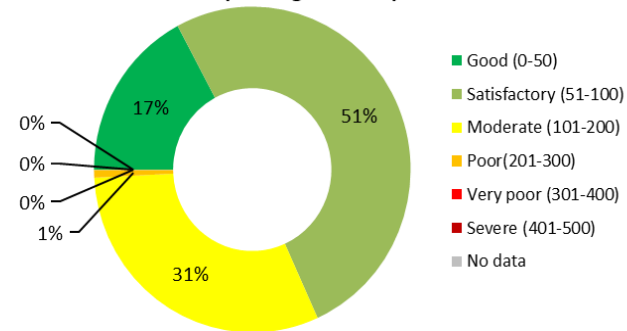
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Akola CAAQMS	239	242	239	239	0	17	153	122	0	7	64	51
Amravati Shivaji College CAAQMS	232	237	241	242	0	4	150	105	0	2	62	43
College of Engineering and Technology	94	94	98	0	0	0	0	0	0	0	0	0
Godhadiwala Processing Private Limited	77	77	54	0	0	0	0	0	0	0	0	0
Govt. College of Engineering, Amravati	63	67	69	0	0	0	0	0	0	0	0	0
L.R.T. Commerce College, Ratanlal Plot Civil line Akola	94	88	96	0	0	0	0	0	0	0	0	0
MIDC Water Work, Phase-II, MIDC Akola	79	88	73	0	0	0	0	0	0	0	0	0
MPCB Premises Amravati CAAQMS	242	242	240	240	0	0	77	39	0	0	32	16
Rajkamal Square, Vanita Samaj Bldg. Amravati	85	82	70	0	0	0	0	0	0	0	0	0

CITIES /AREAS UNDER AURANGABAD RO

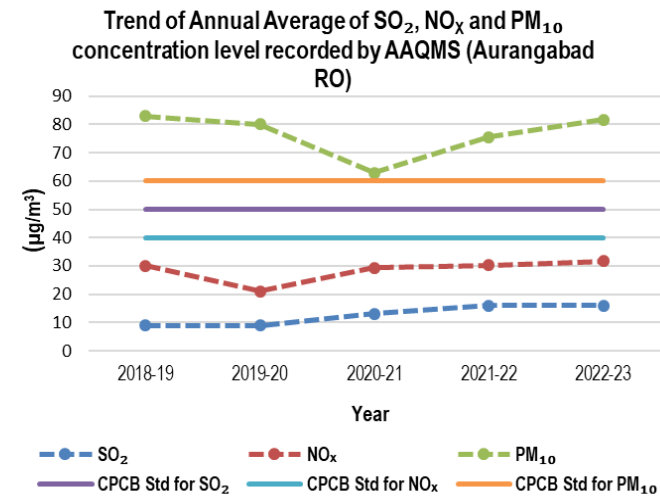
AURANGABAD RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Aurangabad RO)



Sr No.	Station Name	Sr No.	Station Name
1	Aurangabad CAAQMS	14	Municipal Council , Osmanabad
2	Aurangabad Devgiri College CAAQMS	15	Mutha Chowk, Vazirabad
3	C.A.D.A. Office, Aurangabad	16	Nanded CAAQMS
4	Collector office, Aurangabad	17	Parbhani CAAQMS
5	Ganesh Nagar	18	S P Office ,Jalna
6	Industrial Area, CIDCO	19	S.B. College, Aurangabad
7	Jalna CAAQMS	20	Shri Shivaji College Parbhani
8	Krishidhan Seeds Ltd, Jalna	21	Tashil Office Basmat
9	Latur CAAQMS	22	Tashil Office Parli
10	MIDC Office Osmanabad	23	Tashil Office Parbhani
11	MIDC Water Works, Latur	24	Terrace of Kshewraj Vidyalyaya Shyam nagar
12	MPCB Bhavan Aurangabad CAAQMS	25	Terrace of Sidhshwar Bank Ganjgolai
13	MPCB Office Parbhani	26	Woman Government Hospital





AURANGABAD CAAQMS



DEVGIRI COLLEGE CAAQMS



JALNA CAAQMS



Latur CAAQMS



NANDED CAAQMS



PARBHANI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

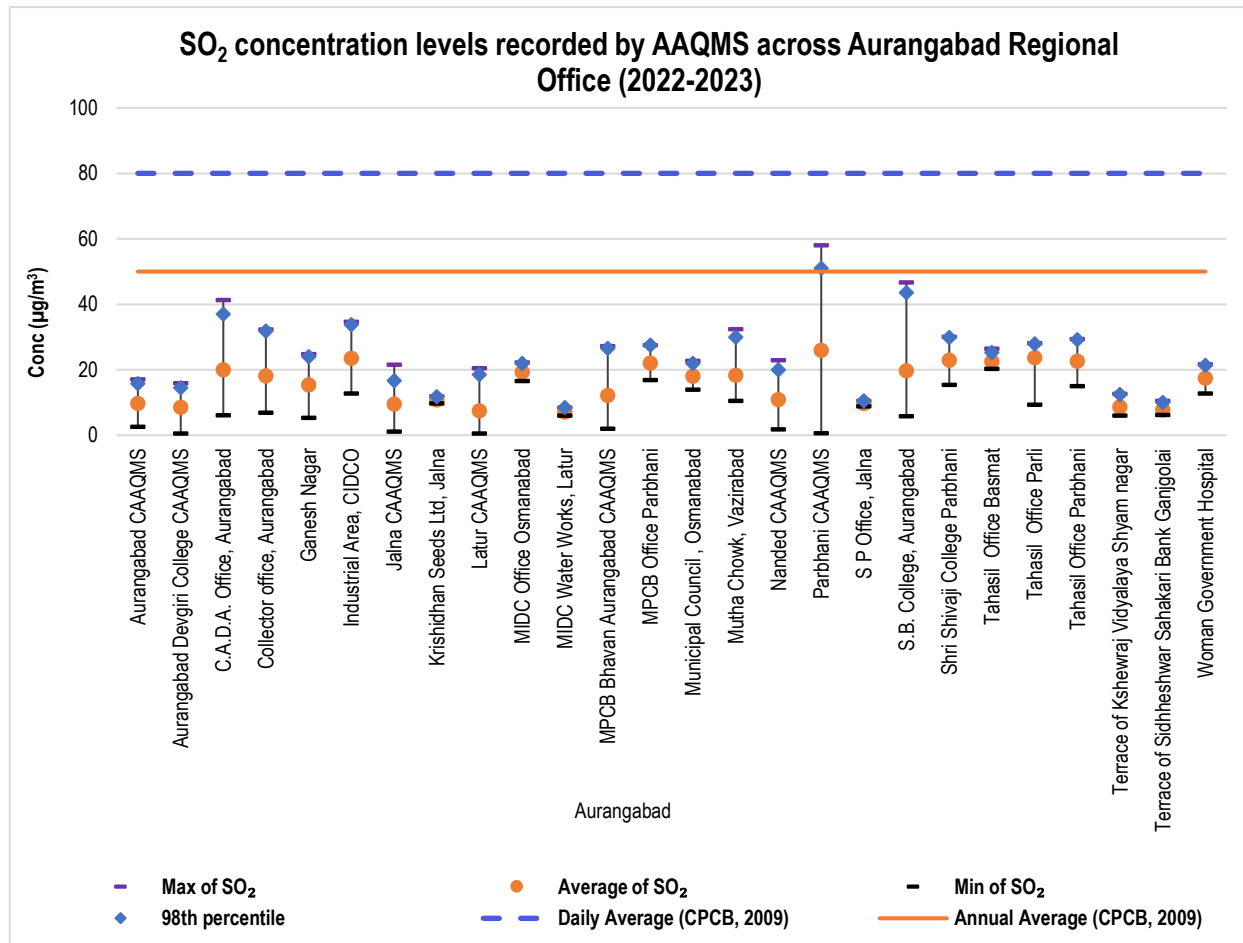


Figure No. 29: Parametric values of SO₂ concentrations recorded by AAQMS across Aurangabad RO (2022-2023)

According to the data recorded by the monitoring stations installed in the areas under the jurisdiction of the Aurangabad RO, the annual average concentration levels of SO₂ remained within the annual average limit specified by the CPCB (50 µg/m³).

Though within the prescribed limit, the highest annual average concentration level was recorded at Parbhani CAAQMS (25.96 µg/m³) followed by Tahasil Office Parli AAQMS (23.69 µg/m³), Industrial Area, CIDCO AAQMS (23.55 µg/m³), Shri Shivaji College Parbhani AAQMS (22.91 µg/m³), Tahasil Office Parbhani AAQMS (22.69 µg/m³), Tahasil Office Basmat AAQMS (22.59 µg/m³), and MPCB Office Parbhani AAQMS (22.03 µg/m³). The rest of AAQMS recorded the annual average levels within the range of about 7.0 µg/m³ to 20.0 µg/m³.

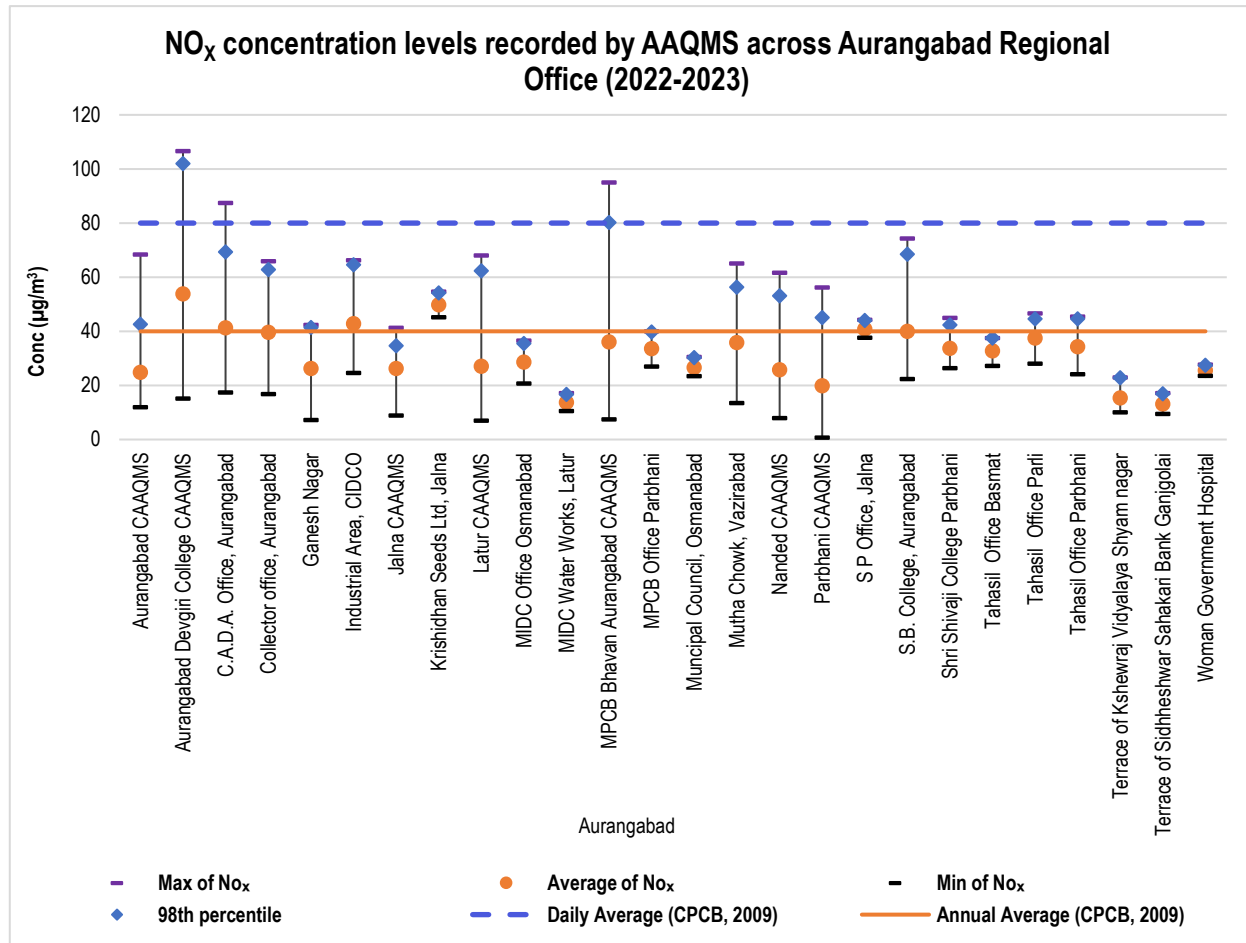
NO_x

Figure No. 30: Parametric values of NO_x concentrations recorded by AAQMS across Aurangabad RO (2022-2023)

Out of 26 monitoring stations installed in the Aurangabad RO's jurisdiction area, 6 stations namely Aurangabad Devgiri College CAAQMS (53.80 µg/m³), C.A.D.A. Office - Aurangabad AAQMS (41.23 µg/m³), Industrial Area, CIDCO AAQMS (42.86 µg/m³), Krishidhan Seeds Ltd - Jalna AAQMS (49.84 µg/m³), S P Office - Jalna AAQMS (40.87 µg/m³), S.B. College, Aurangabad AAQMS (40.04 µg/m³) recorded annual average NO_x levels beyond the limit (40.0 µg/m³). On the other hand, Collector office, Aurangabad AAQMS (39.68 µg/m³), and Tahasil Office Parli AAQMS (37.47 µg/m³) recorded annual average levels which were close to the permissible limit.

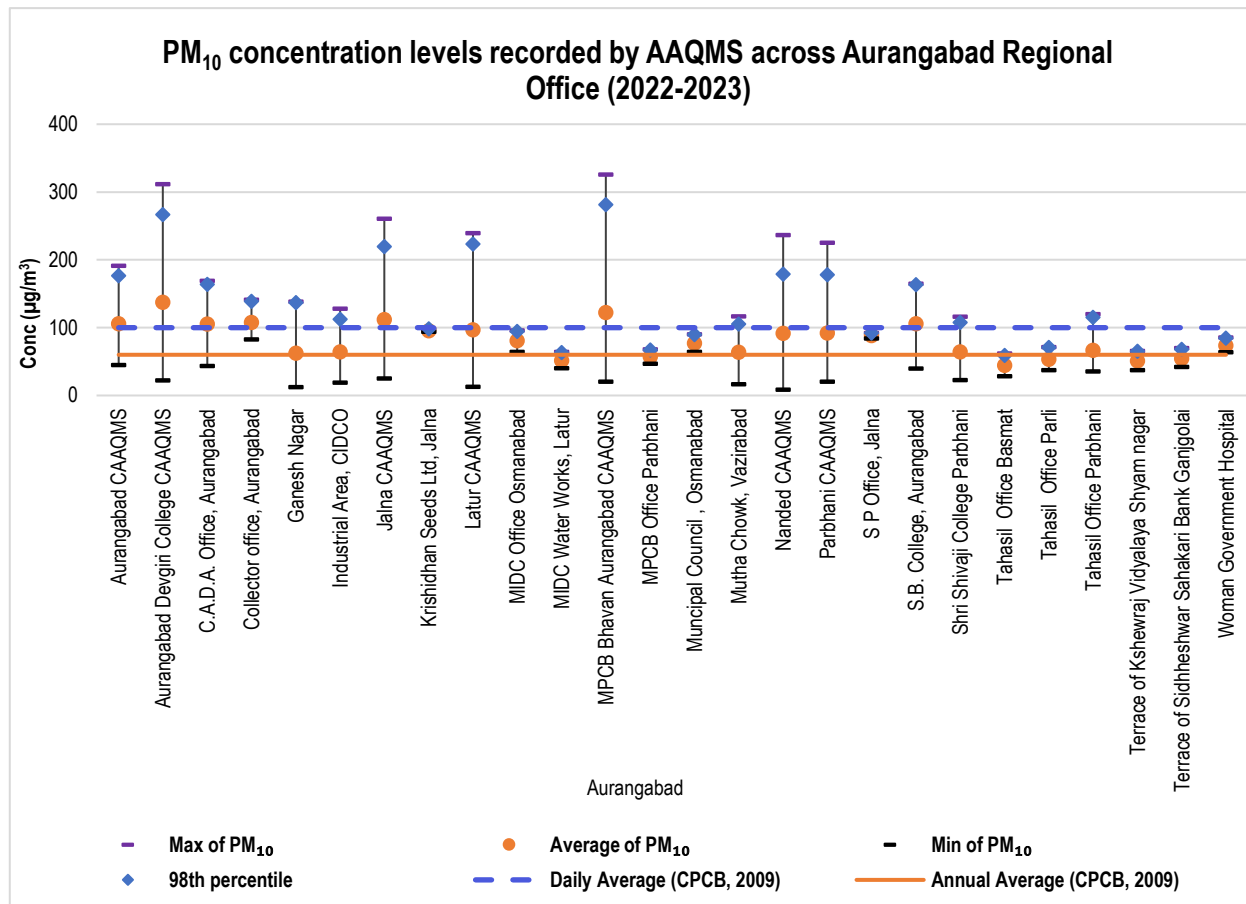
PM₁₀

Figure No. 31: Parametric values of PM₁₀ concentrations recorded by AAQMS across Aurangabad RO (2022-2023)

In the year 2022-23, only 6 monitoring stations out of total 26 installed, recorded an annual average PM₁₀ concentration level below the annual average permissible limit (60 µg/m³). These 6 stations are MPCB Office Parbhani AAQMS (57.0 µg/m³), Terrace of Sidheshwar Sahakari Bank Ganjgolai AAQMS (54.31 µg/m³), Tahasil Office Parli AAQMS (53.6 µg/m³), MIDC Water Works, Latur AAQMS (51.28 µg/m³), Terrace of Kshewraj Vidyalaya Shyam Nagar AAQMS (51.07 µg/m³) and Tahasil Office Basmat AAQMS (44.20 µg/m³).

The highest annual average PM₁₀ concentration level was recorded by Aurangabad Devgiri College CAAQMS (137.62 µg/m³) followed by MPCB Bhavan Aurangabad CAAQMS (122.30 µg/m³), Jalna CAAQMS (111.90 µg/m³), Collector office, Aurangabad AAQMS (107.74 µg/m³), S.B. College, Aurangabad AAQMS (105.85 µg/m³), Aurangabad CAAQMS (105.75 µg/m³), and C.A.D.A. Office, Aurangabad (105.24 µg/m³).

Trend in PM_{2.5} concentrations recorded by CAAQMS across Aurangabad RO

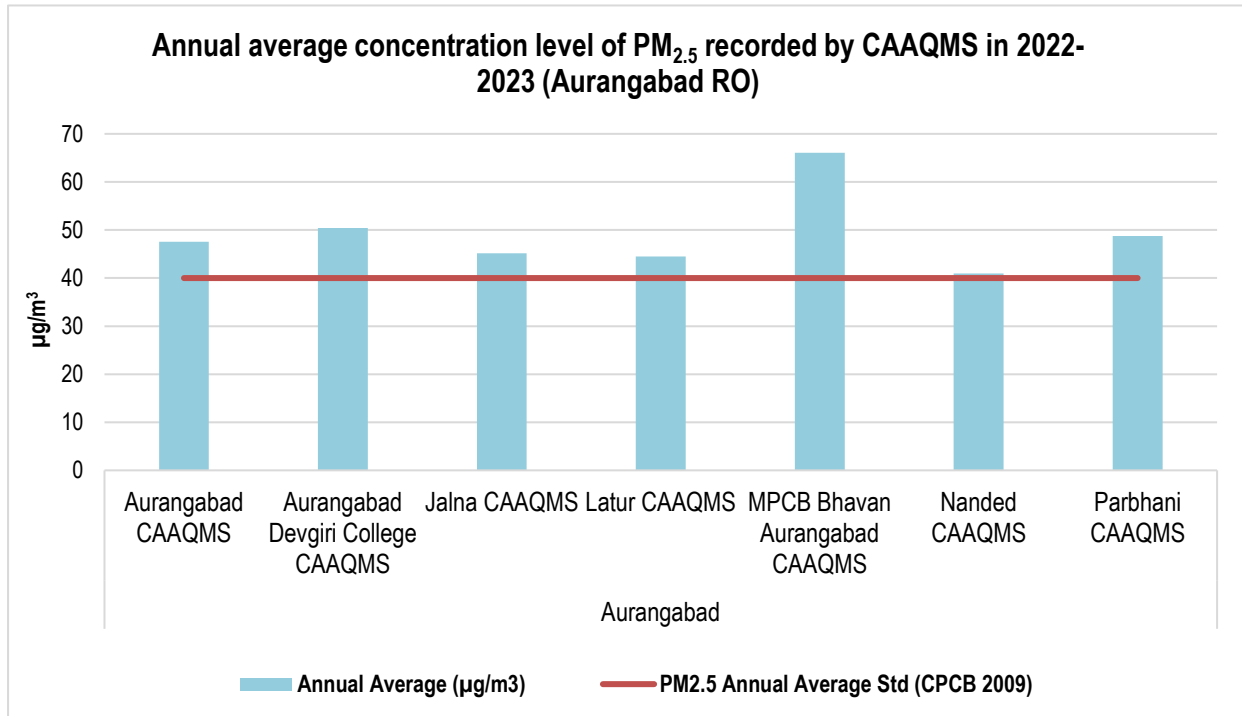


Figure No. 32: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Aurangabad RO (2022-23)

From the Figure No. 32, it was observed that all 7 CAAQMS installed in the Aurangabad RO's jurisdiction area were recorded annual average PM_{2.5} concentration levels above the permissible annual average limit (40 µg/m³). The highest concentration level was recorded by MPCB Bhavan Aurangabad CAAQMS (66.08 µg/m³), followed by Aurangabad Devgiri College CAAQMS (50.42 µg/m³), Parbhani CAAQMS (48.75 µg/m³), Aurangabad CAAQMS (47.53 µg/m³), Jalna CAAQMS (45.17 µg/m³), Latur CAAQMS (44.49 µg/m³) and Nanded CAAQMS (40.98 µg/m³).

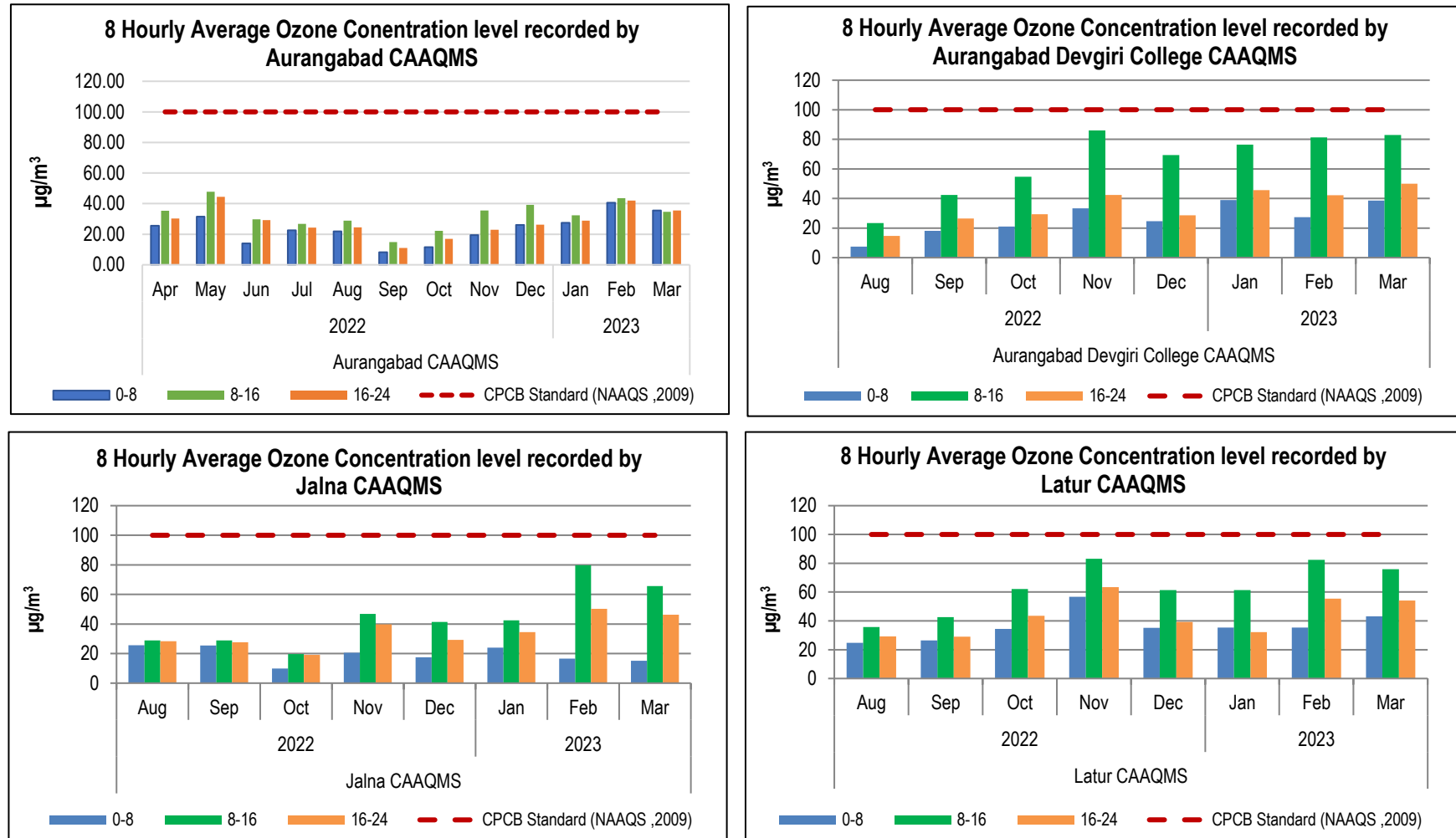
Ozone (O₃)

Figure No. 33 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Aurangabad RO (1)

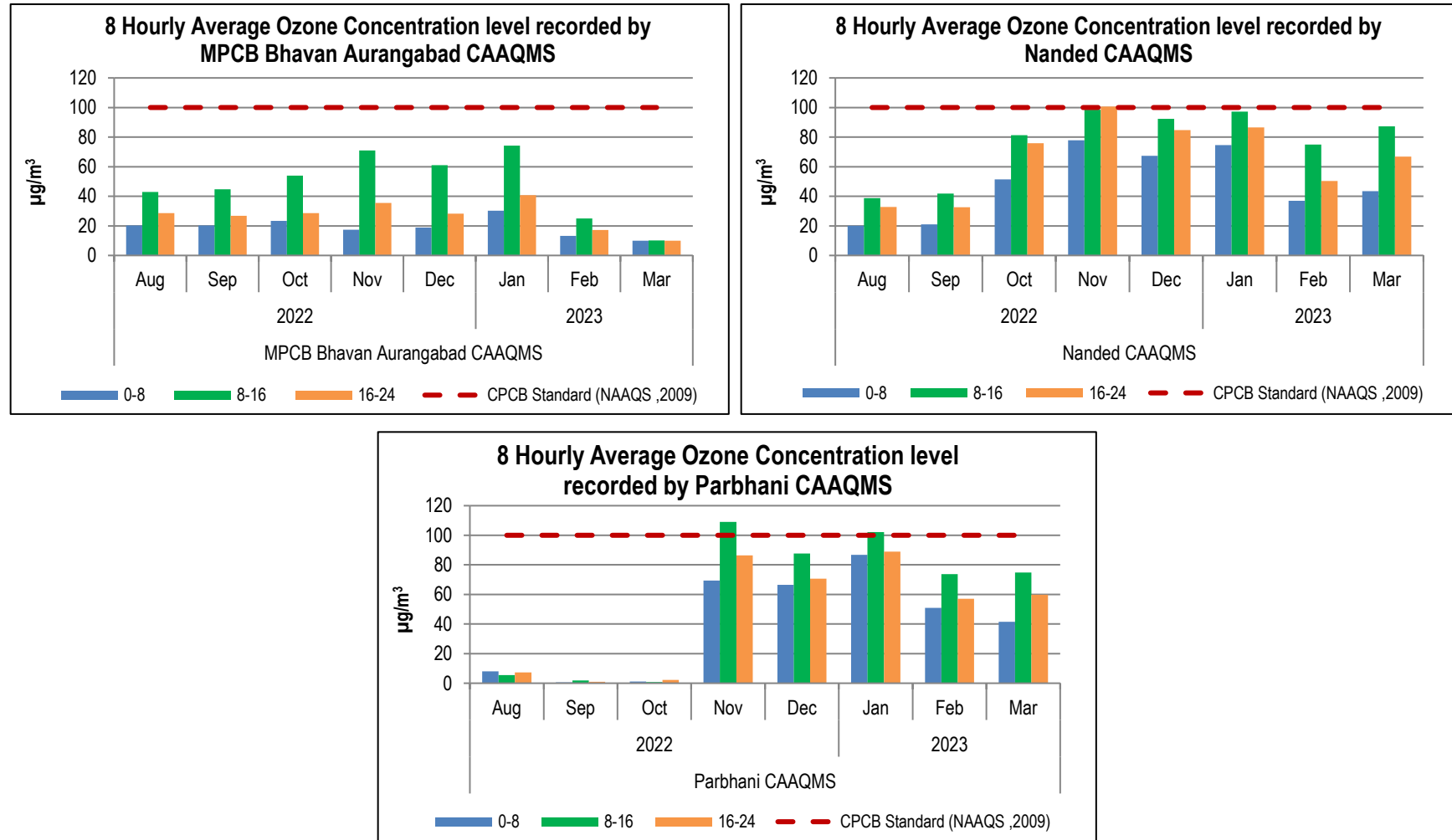


Figure No. 34: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Aurangabad RO (2)

Carbon Monoxide (CO)

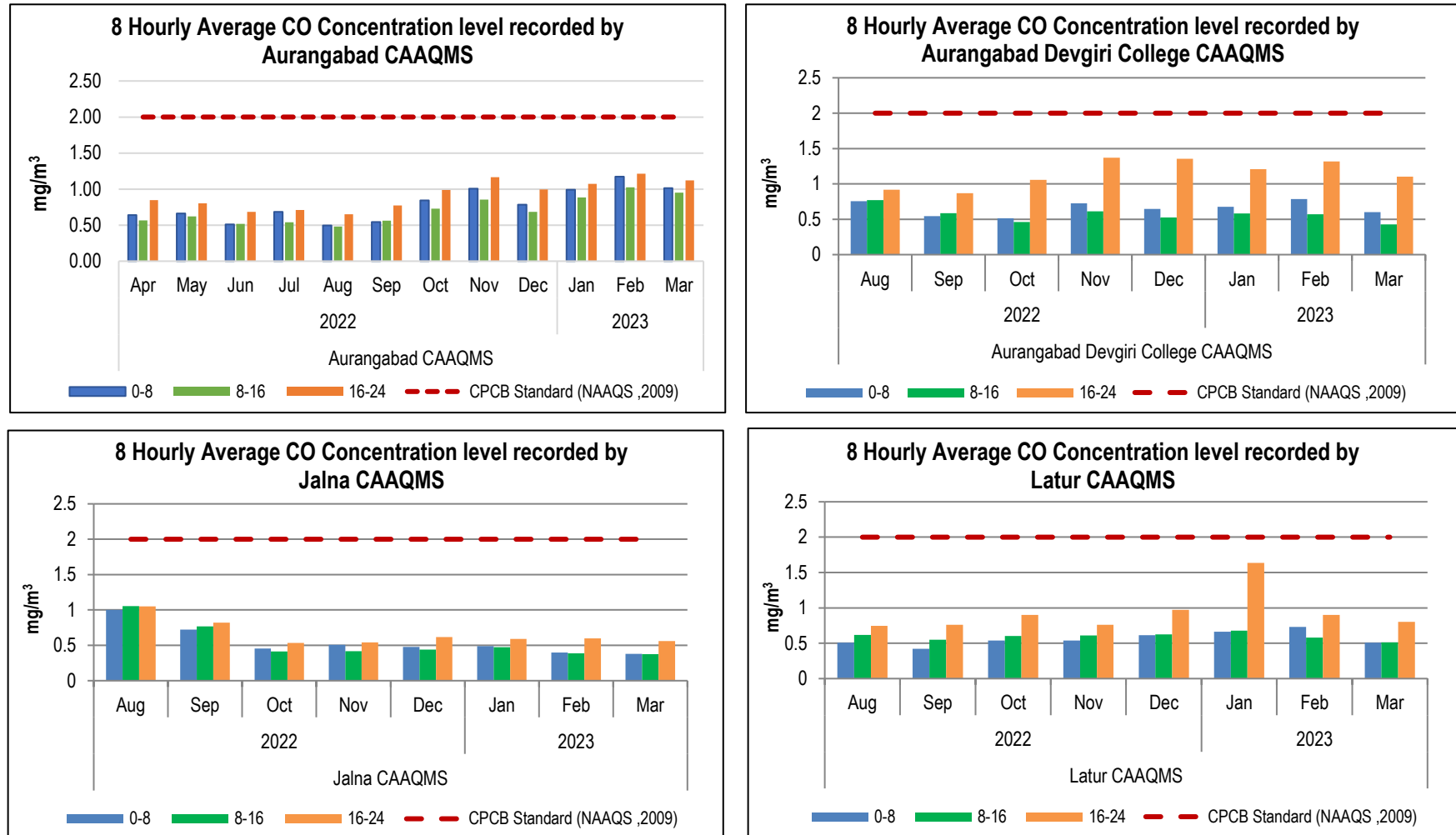


Figure No. 35 : Carbon monoxide concentration level recorded by CAAQMS installed in the areas under the jurisdiction of at Aurangabad RO (1)

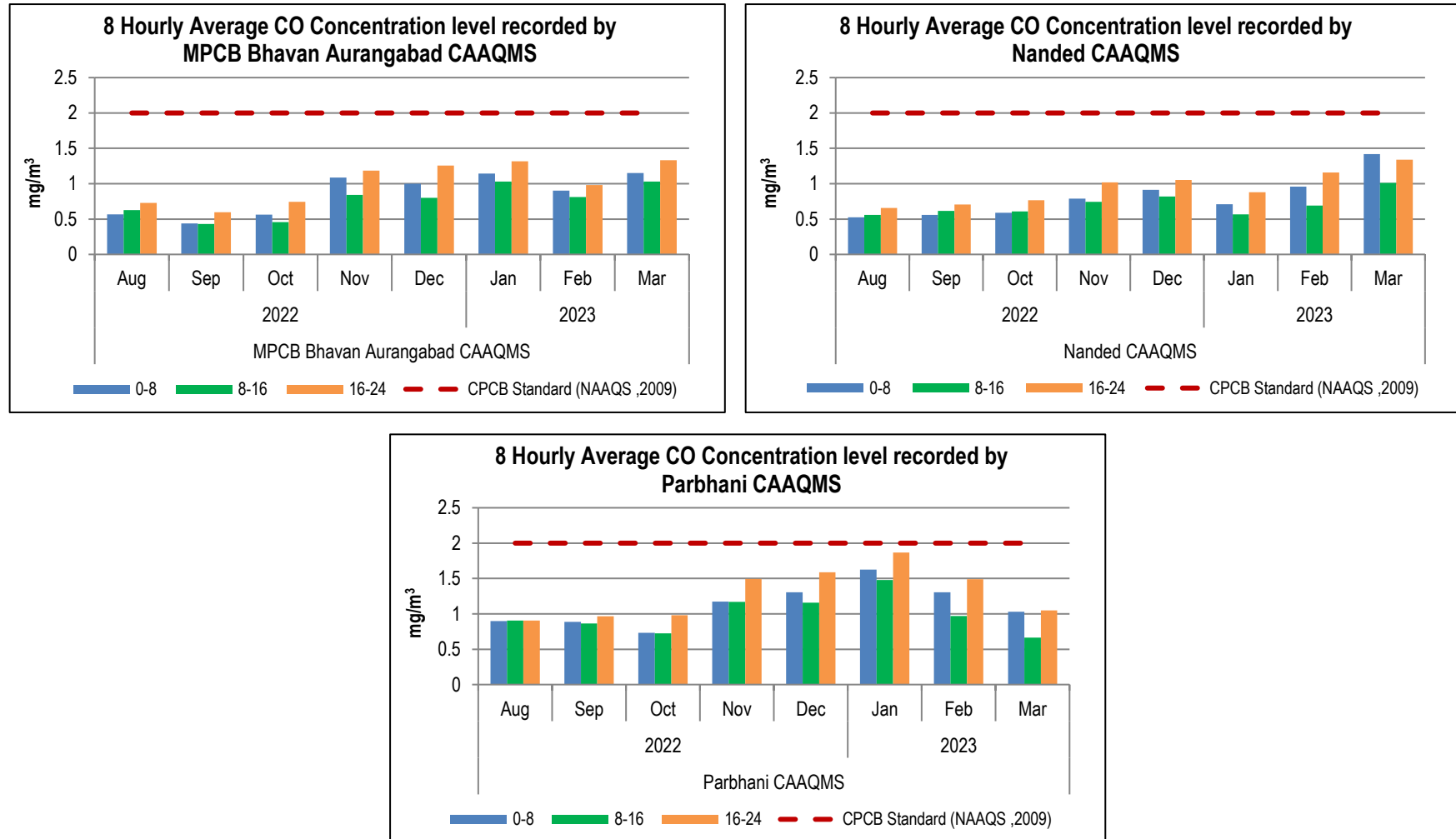


Figure No. 36 : Carbon monoxide concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Aurangabad RO (2)

Benzene

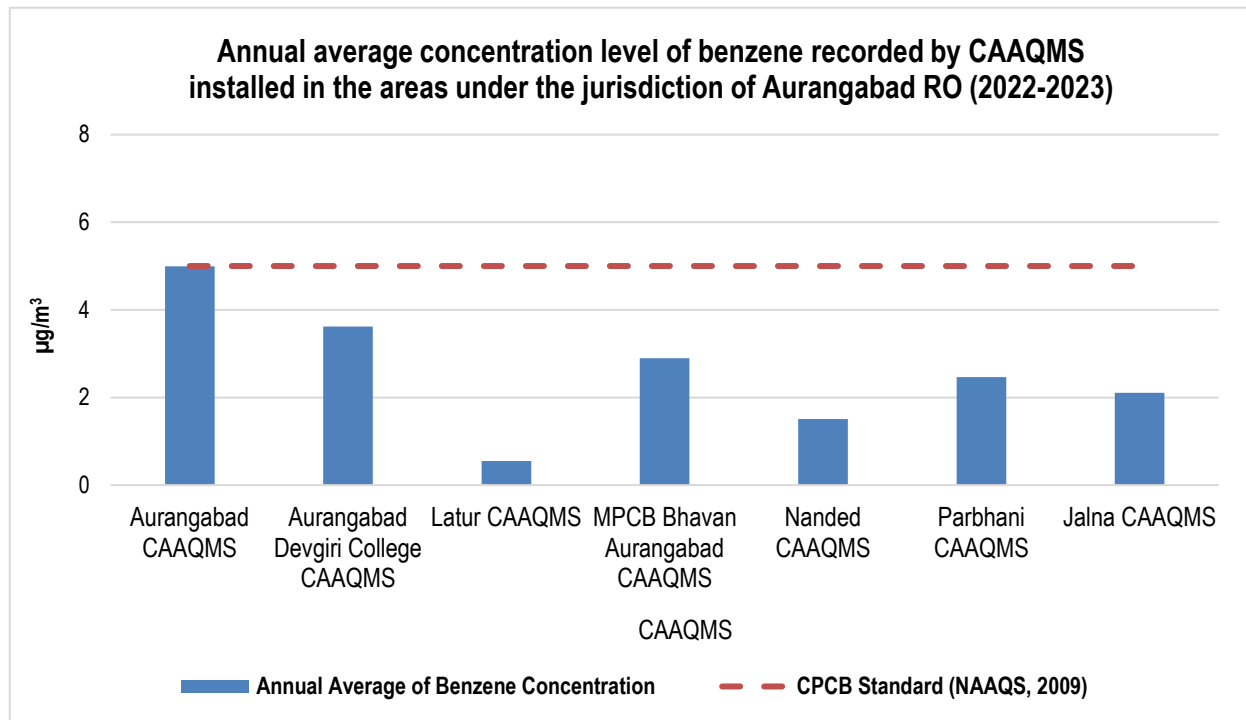


Figure No. 37: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Aurangabad RO (2022-23)

Out of 7 CAAQMS, Aurangabad CAAQMS recorded annual average benzene level of about $5.0 \mu\text{g}/\text{m}^3$ which is also the standard prescribed limit. It was followed by Aurangabad Devgiri College CAAQMS ($3.62 \mu\text{g}/\text{m}^3$), MPCB Bhavan Aurangabad CAAQMS ($2.89 \mu\text{g}/\text{m}^3$), Parbhani CAAQMS ($2.46 \mu\text{g}/\text{m}^3$), Jalna CAAQMS ($2.11 \mu\text{g}/\text{m}^3$), Nanded CAAQMS ($1.51 \mu\text{g}/\text{m}^3$) and Latur CAAQMS ($0.55 \mu\text{g}/\text{m}^3$).

AQI percentage occurrence graphs Aurangabad RO

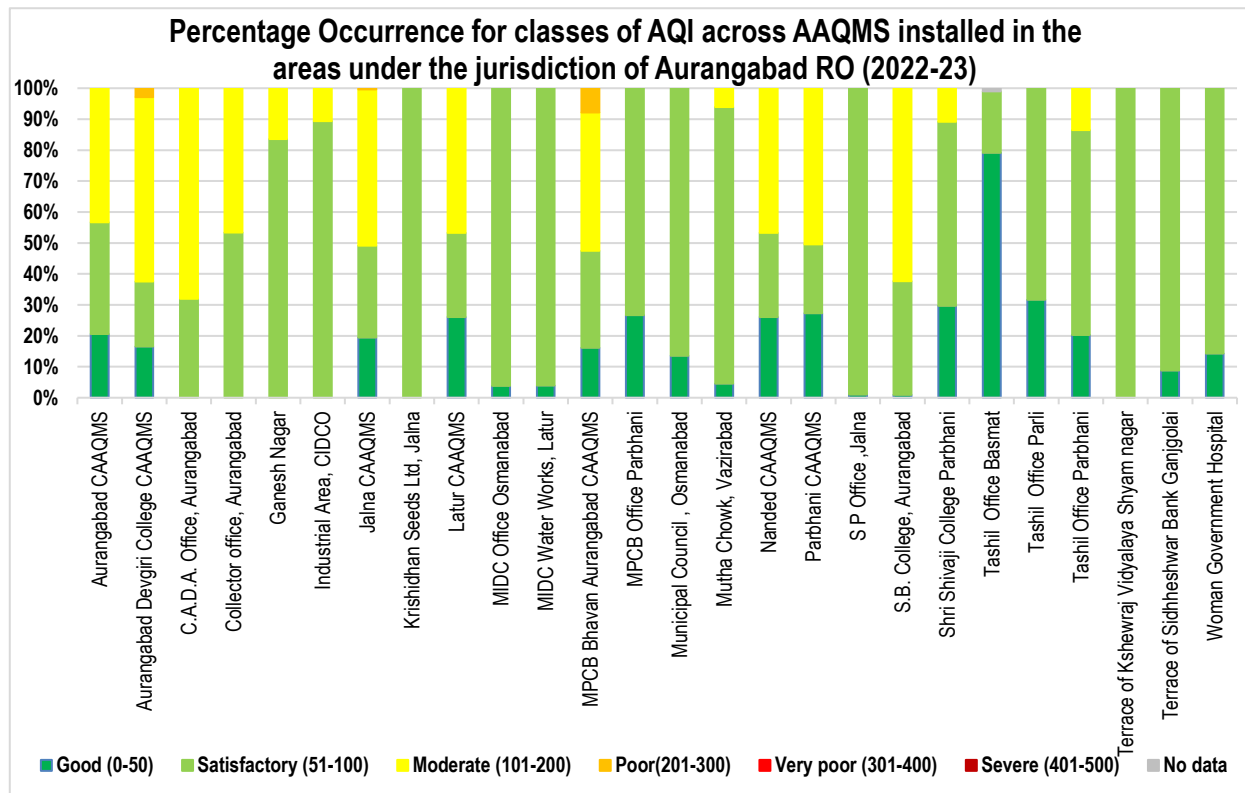


Figure No. 38: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Aurangabad RO (2022-23)

Out of 26 AAQMS installed in the areas under the jurisdiction of Aurangabad RO, 2 AAQMS installed at Krishidhan Seeds Ltd –Jalna and Terrace of Kshewraj Vidyalaya- Shyam Nagar recorded 100% observations under the 'Satisfactory' AQI category. On the other hand, 3 monitoring stations namely at Aurangabad Devgiri College CAAQMS, Jalna CAAQMS and MPCB Bhavan Aurangabad CAAQMS recorded about 2.9%, 0.4% and 7.9% of the total observations under the 'Poor' AQI category respectively. The highest percentage of 'Moderate' category observations were recorded at AAQMS installed at C.A.D.A. Office, Aurangabad (68%) followed by S.B. College, Aurangabad (62.4%) and Aurangabad Devgiri College CAAQMS (59.5%).

Monthly and Annual Graphs

Aurangabad CAAQMS

Table No. 20: Data for Monthly average concentration recorded at Aurangabad CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Aurangabad CAAQMS	2022	Apr	12	15	111	46
		May	10	13	104	57
		Jun	9	14	88	41
		Jul	9	15	50	19
		Aug	8	13	66	21
		Sep	8	14	88	31
		Oct	10	23	105	44
		Nov	11	31	115	58
		Dec	10	40	118	59
	2023	Jan	11	40	134	66
		Feb	11	41	130	60
		Mar	10	39	112	45

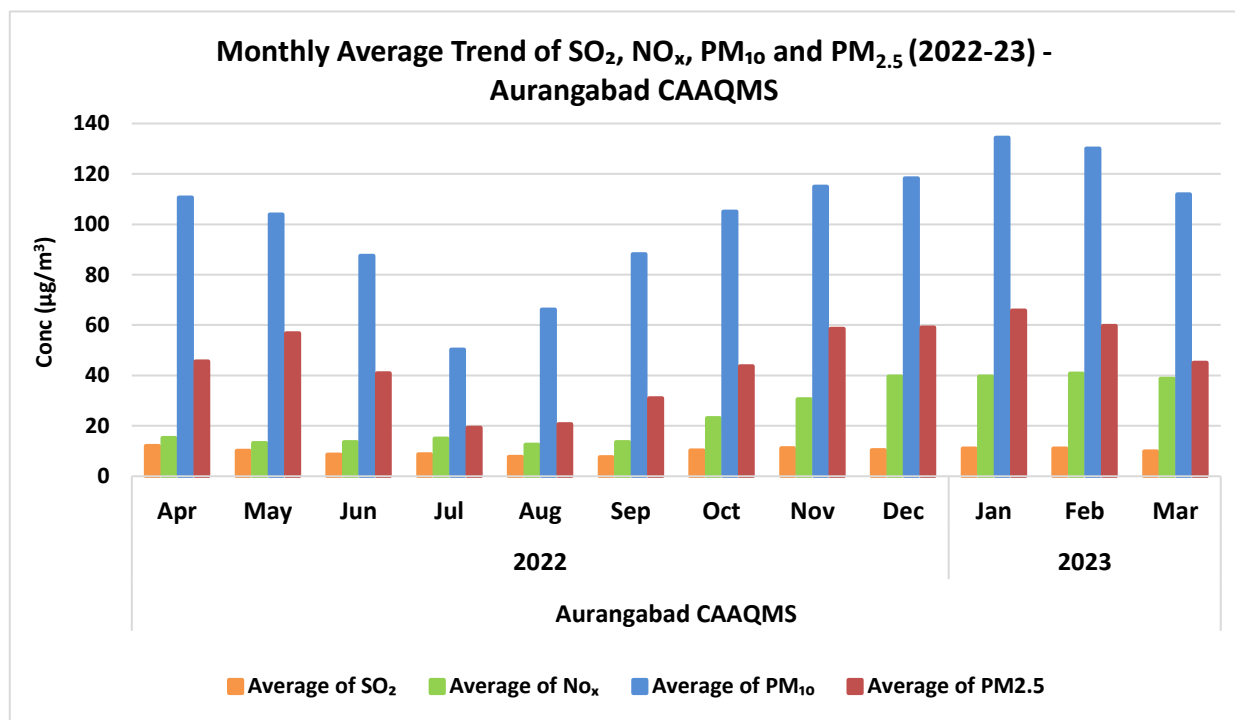
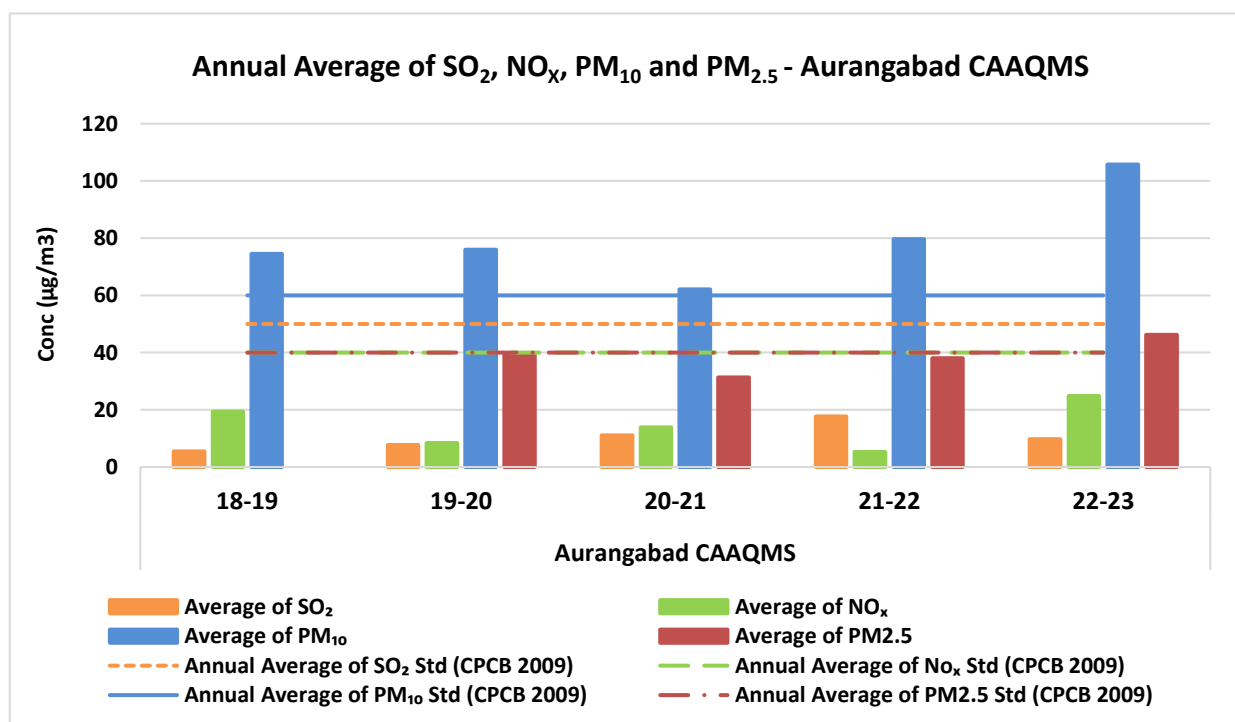


Figure No. 39: Monthly average concentration recorded at Aurangabad CAAQMS

Table No. 21: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Aurangabad CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Aurangabad CAAQMS	18-19	6	19	74	-
	19-20	8	8	76	39
	20-21	11	14	62	31
	21-22	18	5	80	38
	22-23	10	25	106	46

Figure No. 40: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Aurangabad CAAQMS

Aurangabad Devgiri College CAAQMS

Table No. 22: Data for Monthly average concentration recorded at Aurangabad Devgiri College CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Aurangabad Devgiri College CAAQMS	2022	Aug	-	31	57	20
		Sep	10	28	54	16
		Oct	12	40	93	29
		Nov	9	63	167	71
		Dec	8	70	186	67
	2023	Jan	9	57	198	83
		Feb	6	72	155	56
		Mar	4	53	122	46

Table No. 23: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Aurangabad Devgiri College CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Aurangabad Devgiri College CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	9	54	138	52

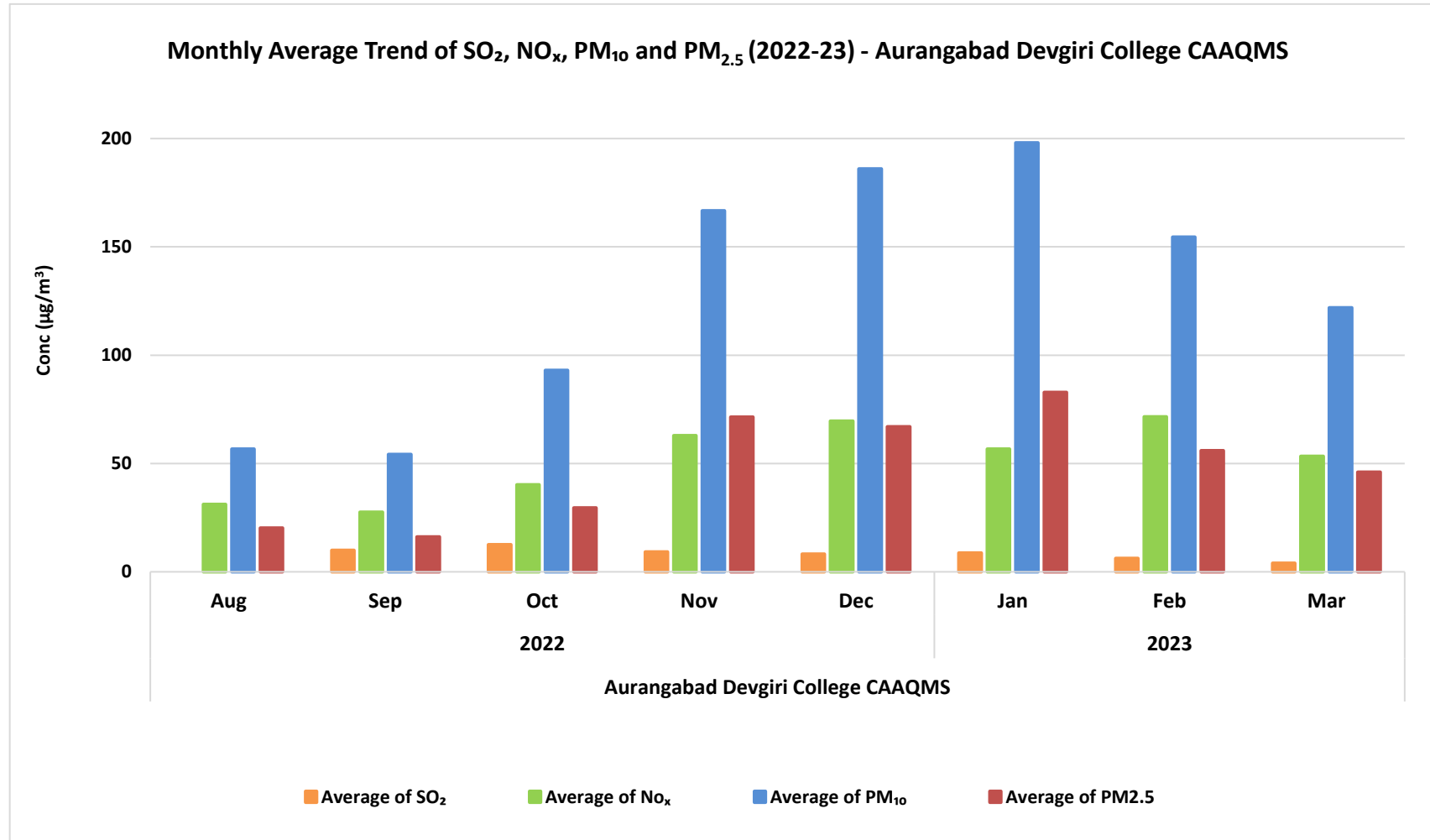


Figure No. 41: Monthly average concentration recorded at Aurangabad Devgiri College CAAQMS

C.A.D.A. Office, Aurangabad

Table No. 24: Data for Monthly average concentration recorded at C.A.D.A. Office, Aurangabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
C.A.D.A. Office, Aurangabad	2022	Apr	14	30	112
		May	16	29	120
		Jun	13	28	108
		Jul	11	25	79
		Aug	9	26	58
		Sep	12	28	48
		Oct	24	49	77
		Nov	23	38	129
		Dec	29	54	154
	2023	Jan	32	62	150
		Feb	28	57	119
		Mar	24	56	111

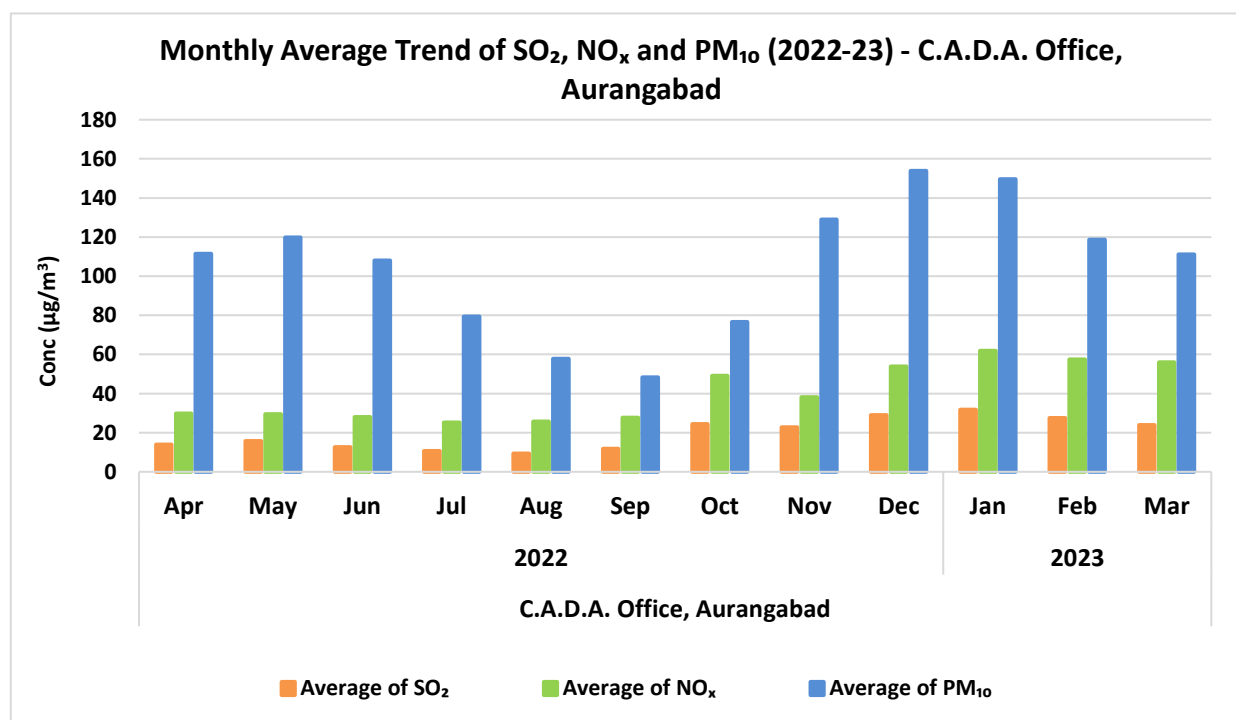
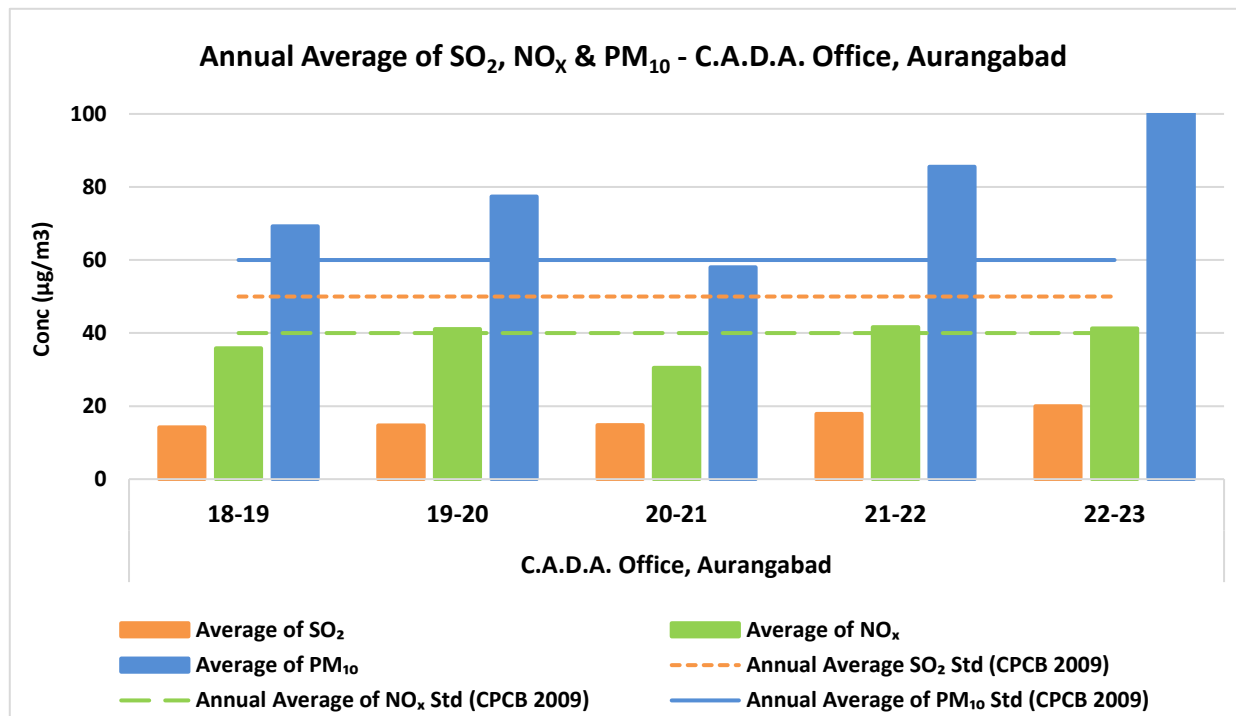


Figure No. 42: Monthly average concentration recorded at C.A.D.A. Office, Aurangabad

Table No. 25: Data for Annual average trend of SO₂, NO_x and PM₁₀ at C.A.D.A. Office, Aurangabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
C.A.D.A. Office, Aurangabad	18-19	14	36	69
	19-20	15	41	77
	20-21	15	31	58
	21-22	18	42	86
	22-23	20	41	105

Figure No. 43: Annual average trend of SO₂, NO_x and PM₁₀ at C.A.D.A. Office, Aurangabad

Collector office, Aurangabad

Table No. 26: Data for Monthly average concentration recorded at Collector office, Aurangabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Collector office, Aurangabad	2022	Apr	13	29	108
		May	14	30	118
		Jun	13	26	107
		Jul	11	27	101
		Aug	9	26	-
		Dec	30	56	-
	2023	Jan	30	59	131
		Feb	26	54	100
		Mar	23	55	93

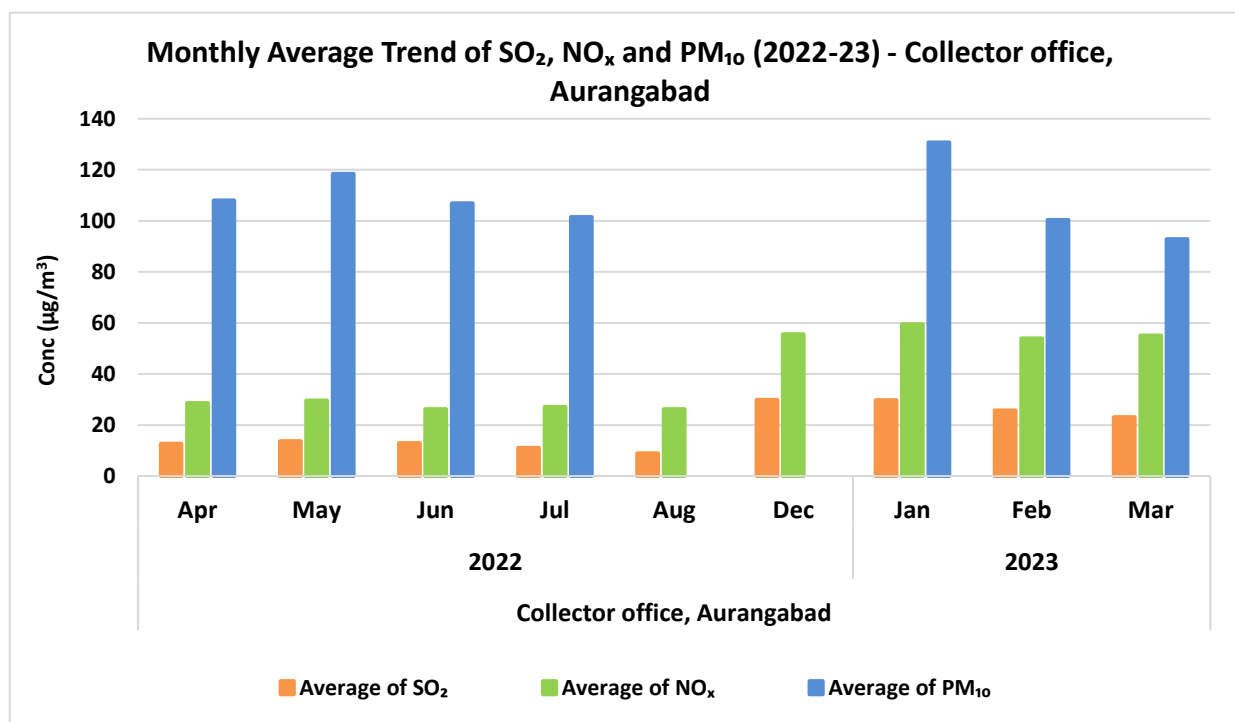
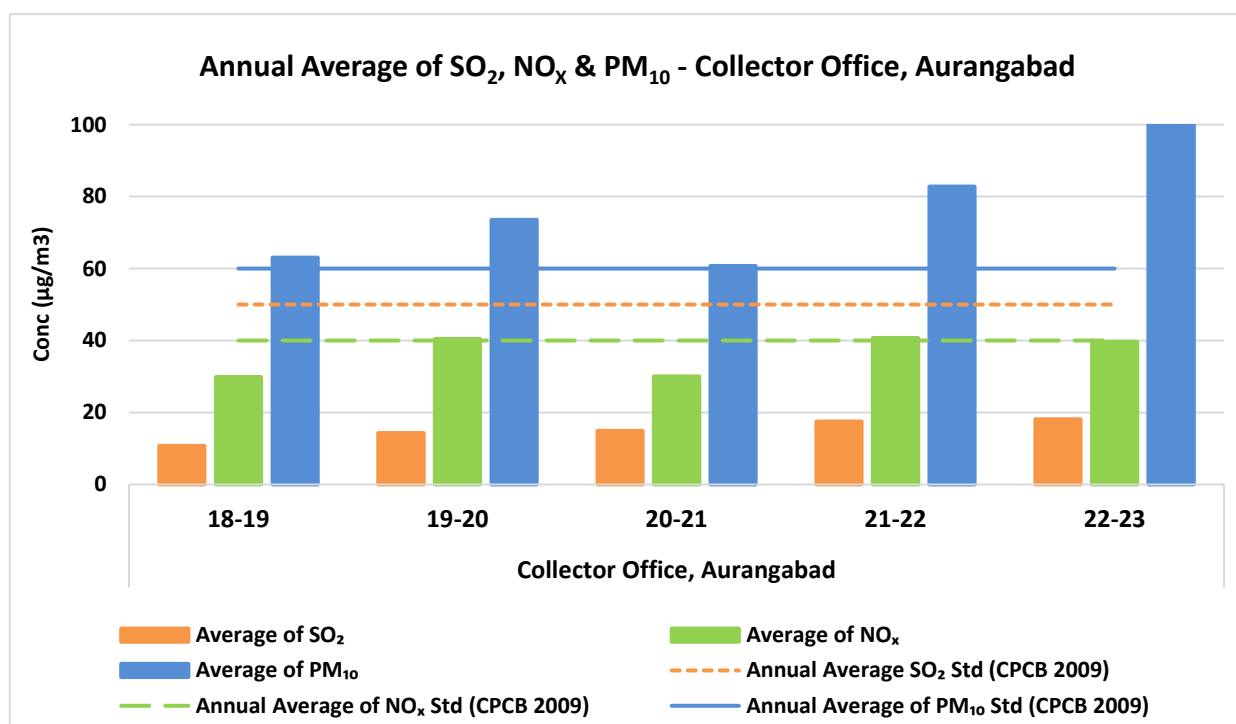


Figure No. 44: Monthly average concentration recorded at Collector office, Aurangabad

Table No. 27: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Collector office, Aurangabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Collector Office, Aurangabad	18-19	11	30	63
	19-20	14	40	74
	20-21	15	30	61
	21-22	18	41	83
	22-23	18	40	108

Figure No. 45: Annual average trend of SO₂, NO_x and PM₁₀ at Collector office, Aurangabad

Ganesh Nagar

Table No. 28: Data for Monthly average concentration recorded at Ganesh Nagar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Ganesh Nagar	2022	Jul	10	19	27
		Aug	11	15	29
		Sep	13	23	20
		Nov	22	-	114
		Dec	19	36	99
	2023	Jan	18	28	65
		Feb	14	32	59
		Mar	16	30	78

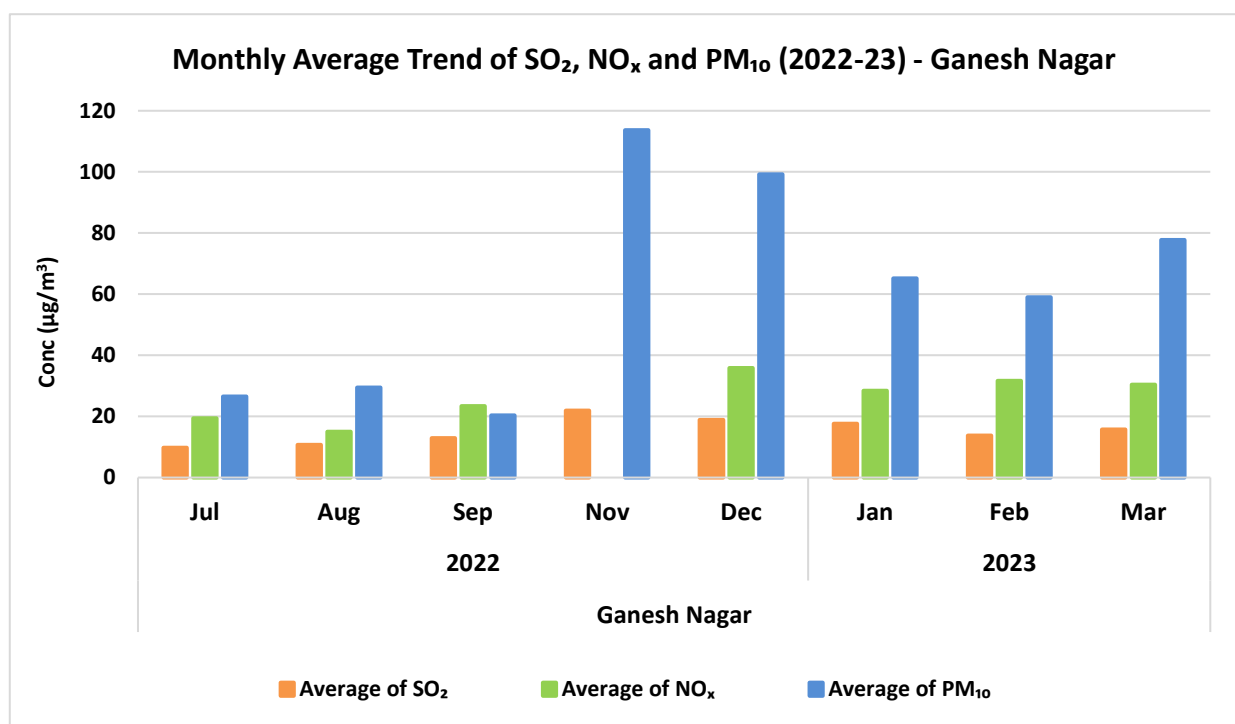
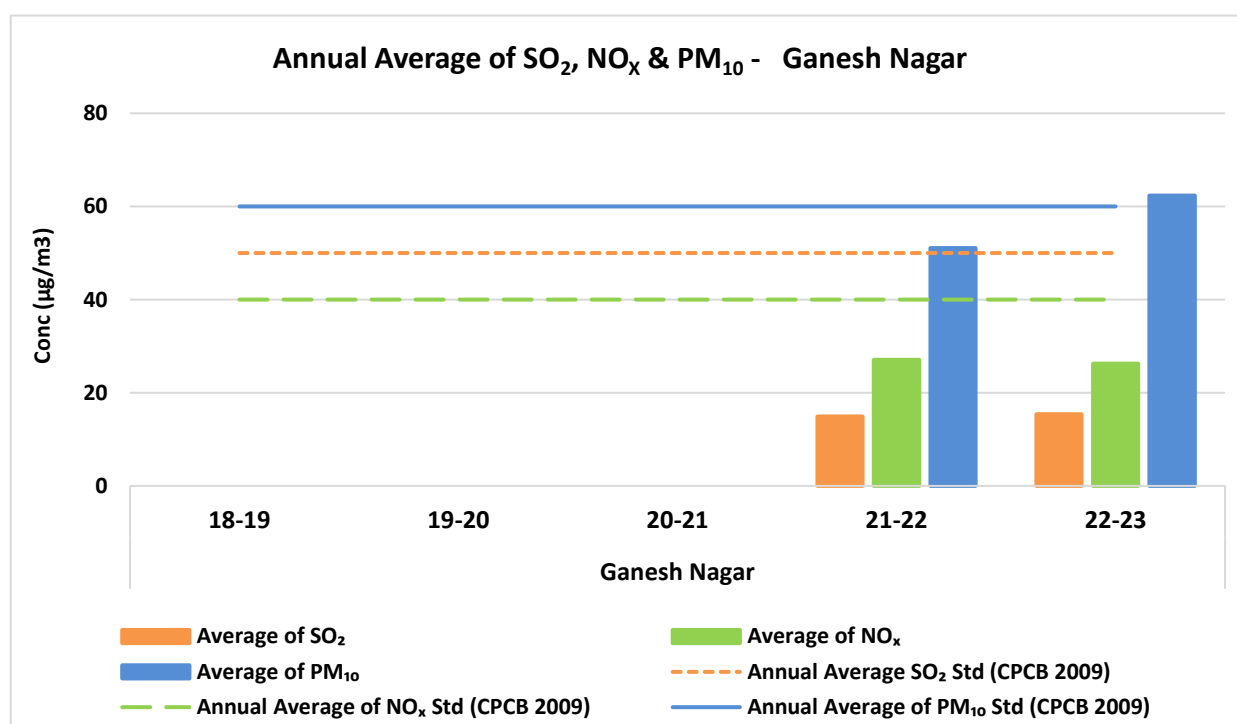


Figure No. 46: Monthly average concentration recorded at Ganesh Nagar

Table No. 29: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Ganesh Nagar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Ganesh Nagar	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	15	27	51
	22-23	15	26	62

Figure No. 47: Annual average trend of SO₂, NO_x and PM₁₀ at Ganesh Nagar

Industrial Area, CIDCO

Table No. 30: Data for Monthly average concentration recorded at Industrial Area, CIDCO

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Industrial Area, CIDCO	2022	Jul	21	43	41
		Aug	18	27	41
		Sep	23	32	32
		Nov	25	-	95
		Dec	27	47	87
	2023	Jan	27	50	67
		Feb	19	52	65
		Mar	27	47	75

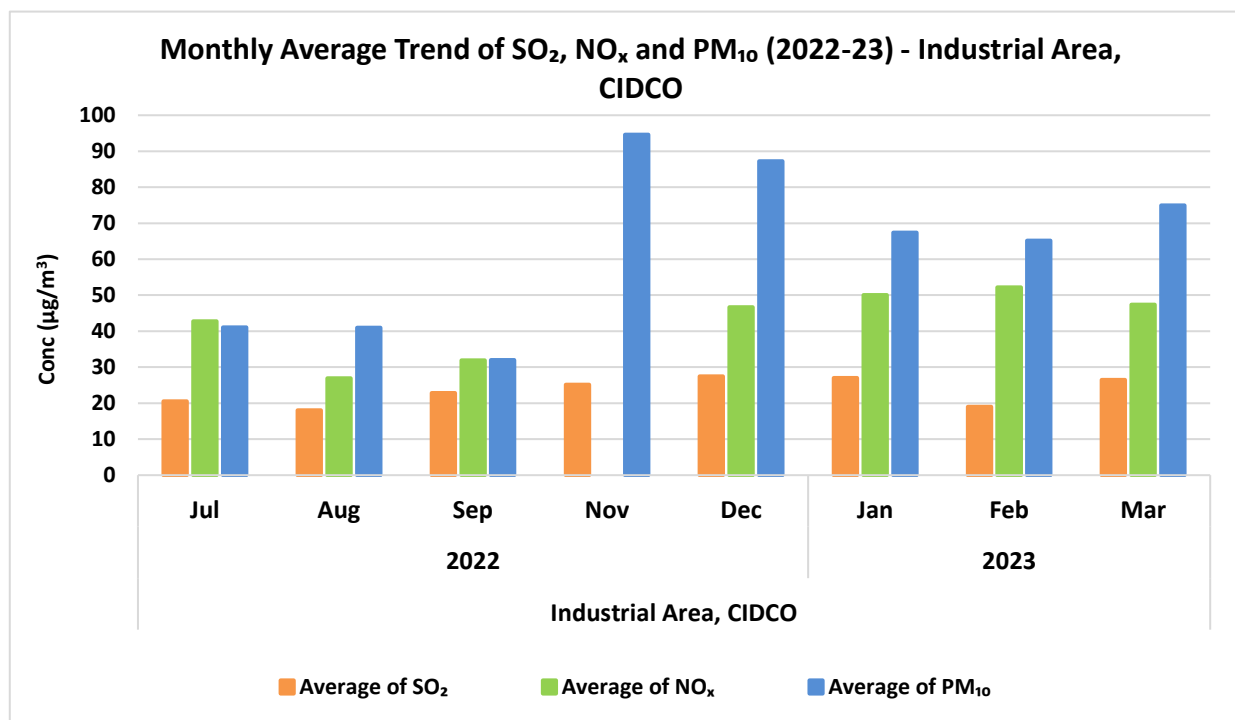
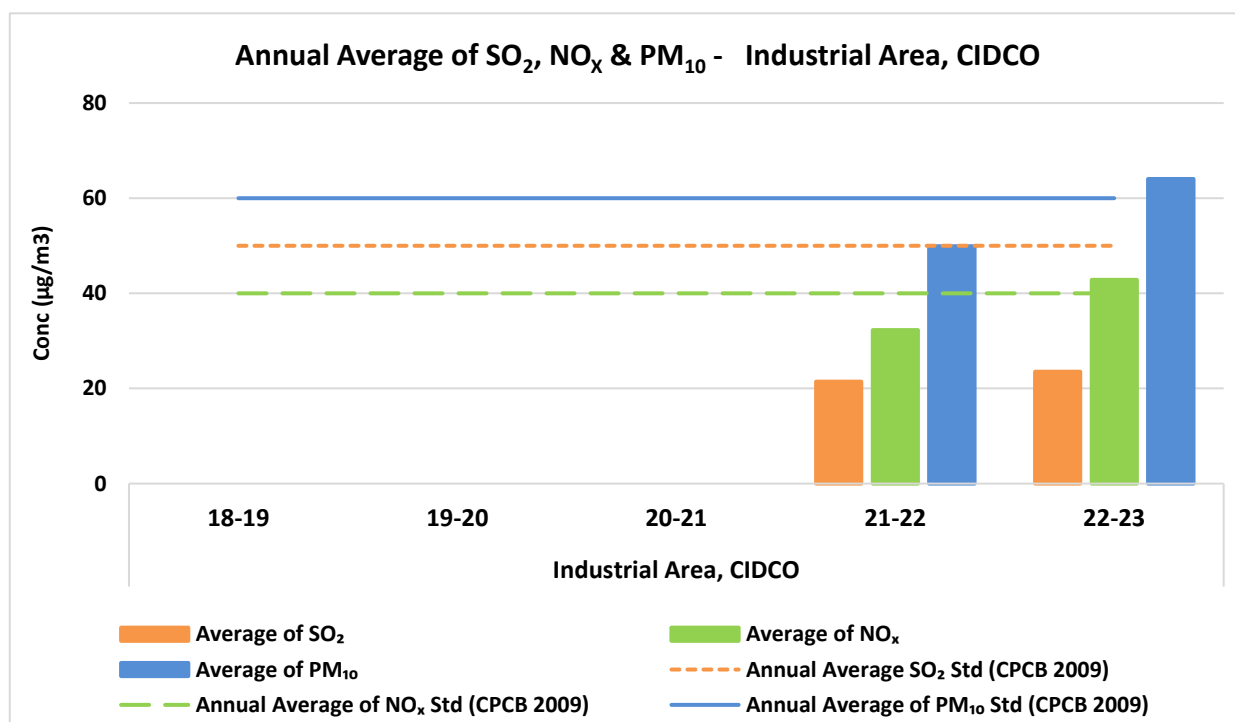


Figure No. 48: Monthly average concentration recorded at Industrial Area, CIDCO

Table No. 31: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Industrial Area, CIDCO

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Industrial Area, CIDCO	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	21	32	50
	22-23	24	43	64

Figure No. 49: Annual average trend of SO₂, NO_x and PM₁₀ at Industrial Area, CIDCO

Jalna CAAQMS

Table No. 32: Data for Monthly average concentration recorded at Jalna CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Jalna CAAQMS	2022	Aug	12	15	46	28
		Sep	13	15	65	36
		Oct	8	15	77	31
		Nov	8	15	148	55
		Dec	13	16	133	54
	2023	Jan	5	11	134	56
		Feb	10	13	150	52
		Mar	7	11	101	41

Table No. 33: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Jalna CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Jalna CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	10	14	112	45

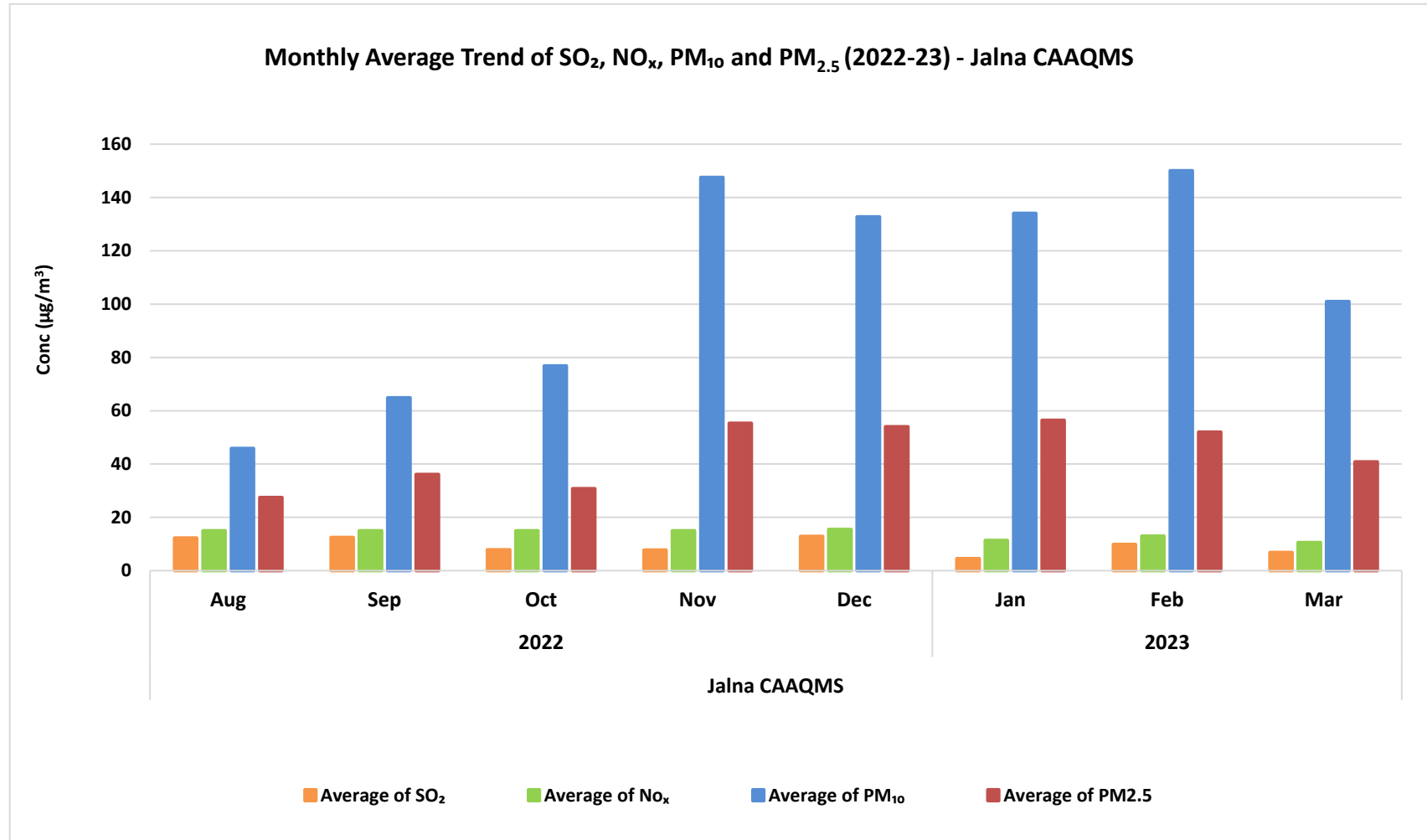


Figure No. 50: Monthly average concentration recorded at Jalna CAAQMS

Krishidhan Seeds Ltd., Jalna

Table No. 34: Data for Monthly average concentration recorded at Krishidhan Seeds Ltd., Jalna

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Krishidhan Seeds Ltd., Jalna	2022	Apr	10	48	96
		May	11	48	96
		Jun	11	48	95
		Jul	10	49	96
		Aug	11	48	95
		Sep	11	52	96
		Oct	11	50	95
		Nov	11	51	96
		Dec	11	50	96
	2023	Jan	11	52	95
		Feb	11	51	95
		Mar	11	50	96

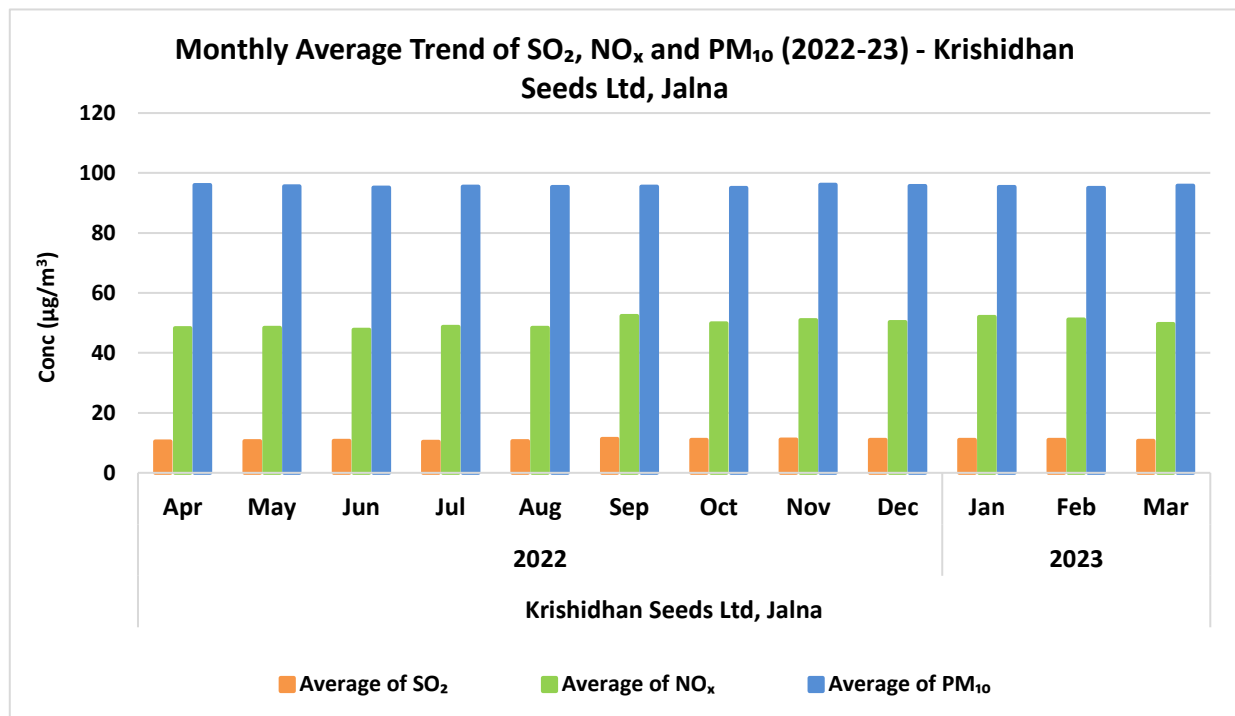
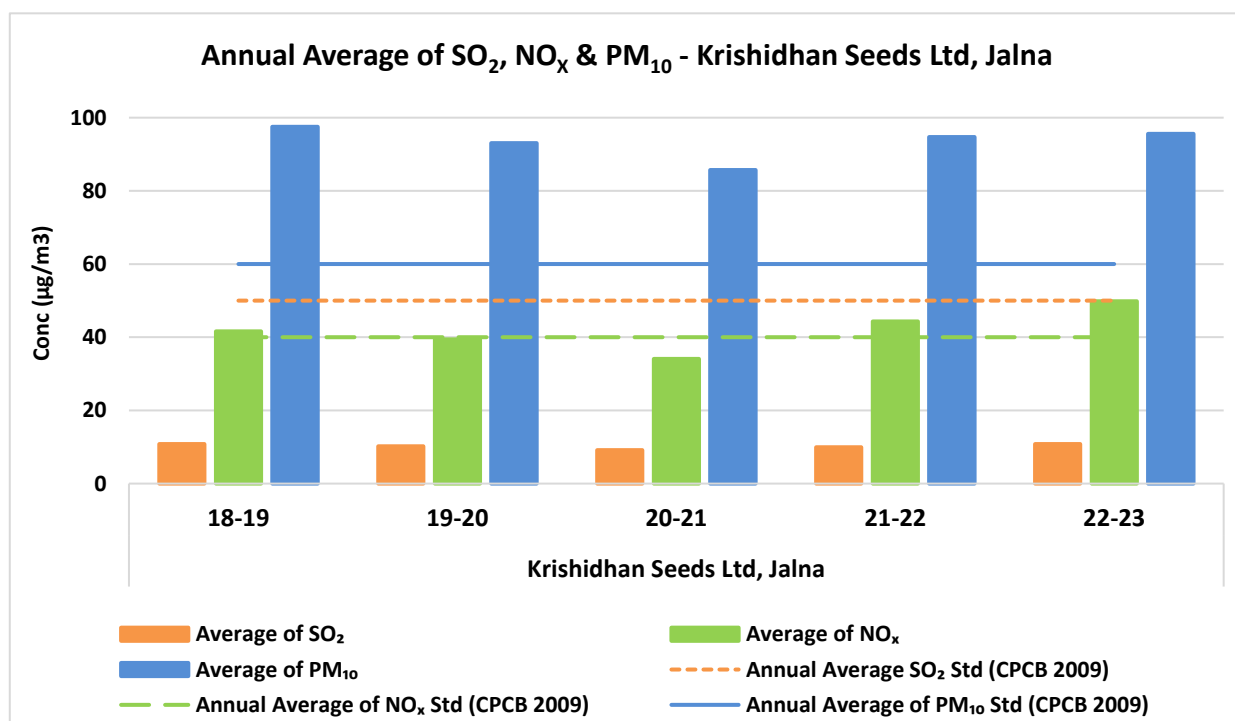


Figure No. 51: Monthly average concentration recorded at Krishidhan Seeds Ltd., Jalna

Table No. 35: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Krishidhan Seeds Ltd., Jalna

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Krishidhan Seeds Ltd, Jalna	18-19	11	42	97
	19-20	10	39	93
	20-21	9	34	86
	21-22	10	44	95
	22-23	11	50	96

Figure No. 52: Annual average trend of SO₂, NO_x and PM₁₀ at Krishidhan Seeds Ltd., Jalna

Latur CAAQMS

Table No. 36: Data for Monthly average concentration recorded at Latur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Latur CAAQMS	2022	Aug	3	9	41	19
		Sep	4	10	37	14
		Oct	7	12	64	33
		Nov	12	13	108	64
		Dec	8	25	127	60
	2023	Jan	7	37	166	79
		Feb	11	23	132	63
		Mar	7	18	106	52

Table No. 37: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Latur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Latur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	7	19	97	48

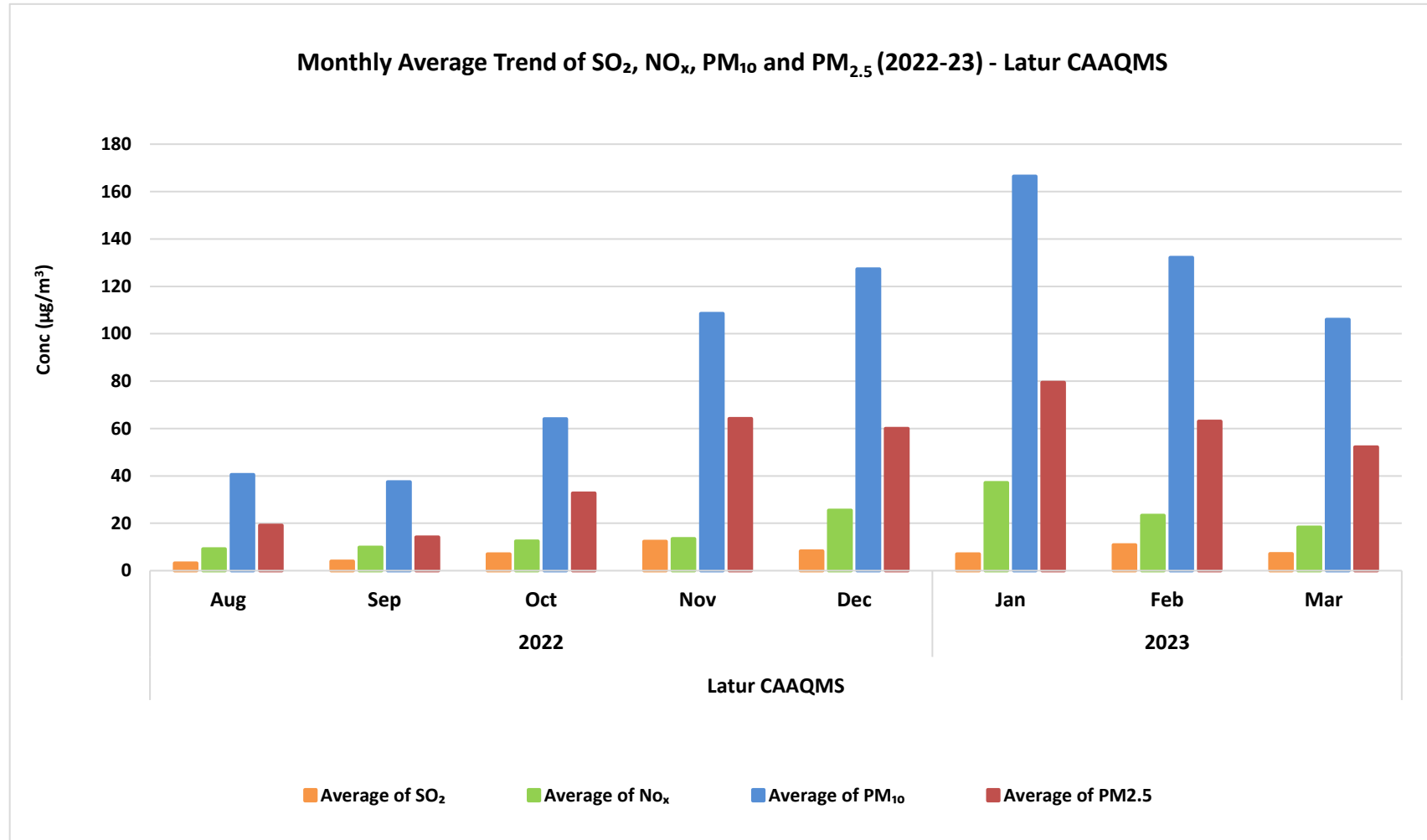


Figure No. 53: Monthly average concentration recorded at Latur CAAQMS

MIDC Office Osmanabad

Table No. 38: Data for Monthly average concentration recorded at MIDC Office Osmanabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Office Osmanabad	2022	Apr	21	31	82
		May	21	31	89
		Jun	18	29	83
		Jul	20	25	76
		Aug	20	27	85
		Sep	20	33	86
		Oct	20	30	82
		Nov	19	26	74
		Dec	19	30	85
	2023	Jan	18	28	67
		Feb	19	28	80
		Mar	17	27	77

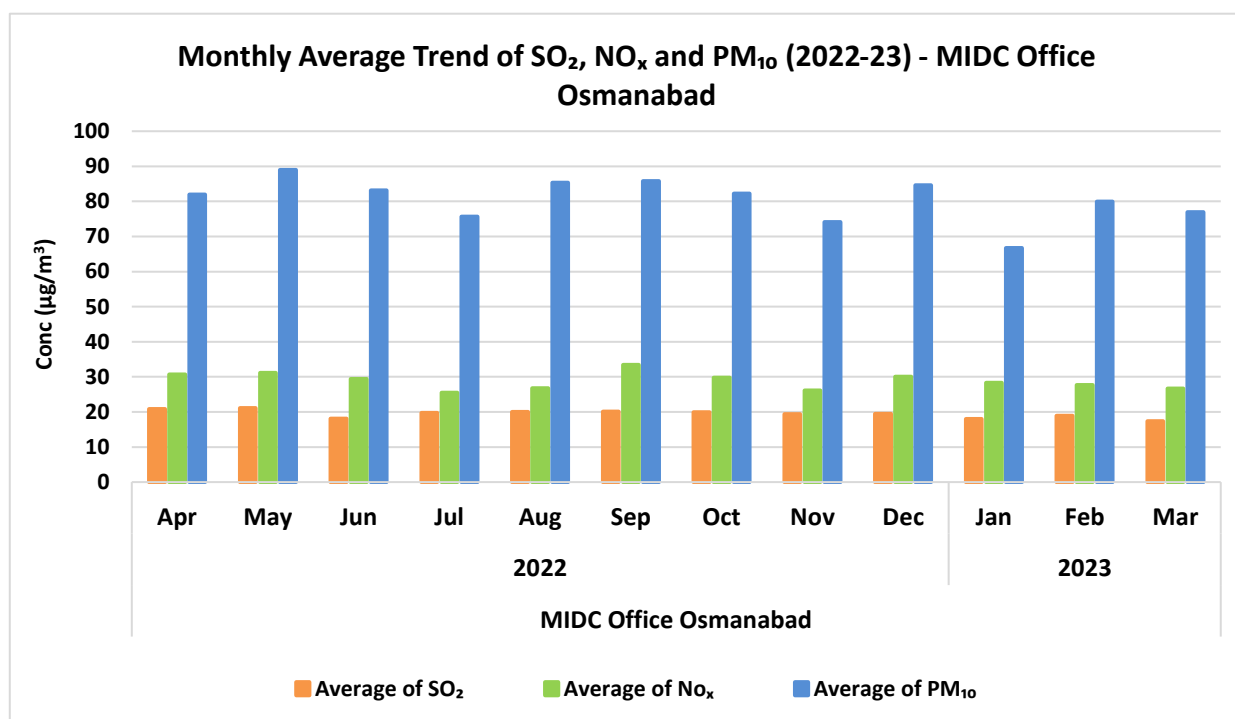
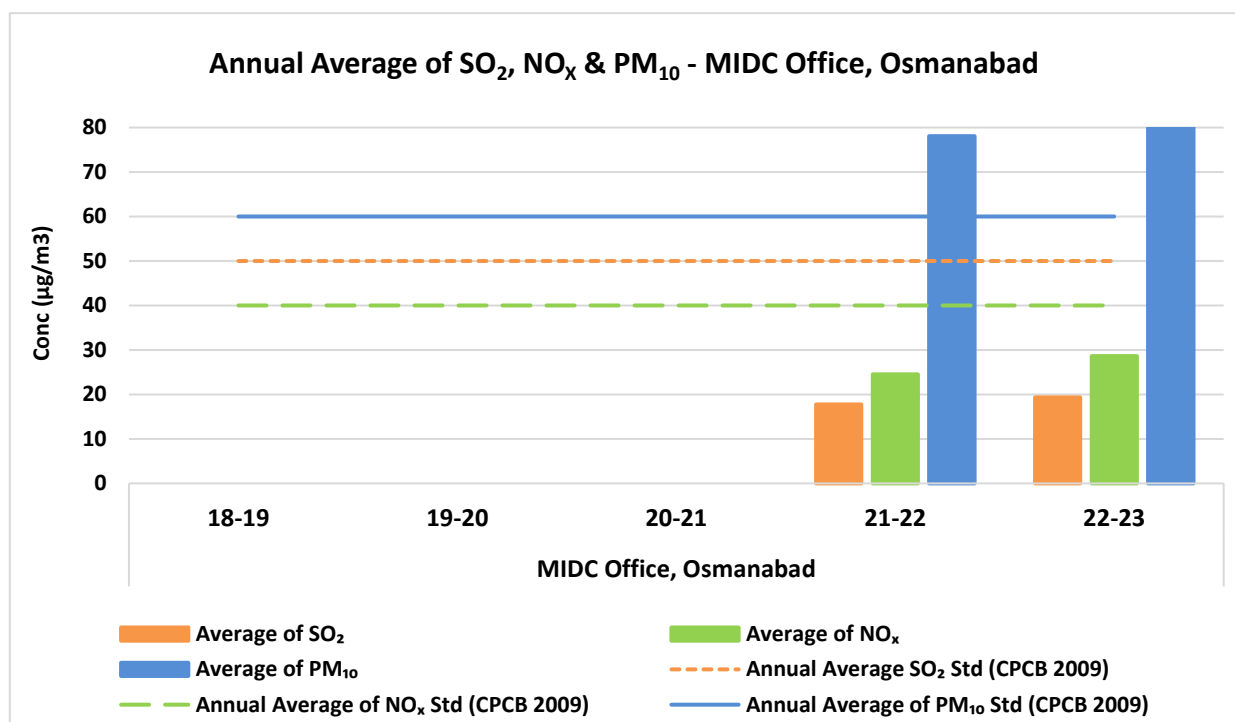


Figure No. 54: Monthly average concentration recorded at MIDC Office Osmanabad

Table No. 39: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office Osmanabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Office, Osmanabad	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	18	24	78
	22-23	19	29	81

Figure No. 55: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office Osmanabad

MIDC Water Works, Latur

Table No. 40: Data for Monthly average concentration recorded at MIDC Water Works, Latur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Water Works, Latur	2022	Apr	8	16	60
		May	7	16	60
		Jun	7	15	55
		Jul	7	12	49
		Aug	7	14	47
		Sep	7	13	46
		Oct	6	12	47
		Nov	7	13	47
		Dec	7	14	52
	2023	Jan	7	14	49
		Feb	7	12	50
		Mar	8	14	56

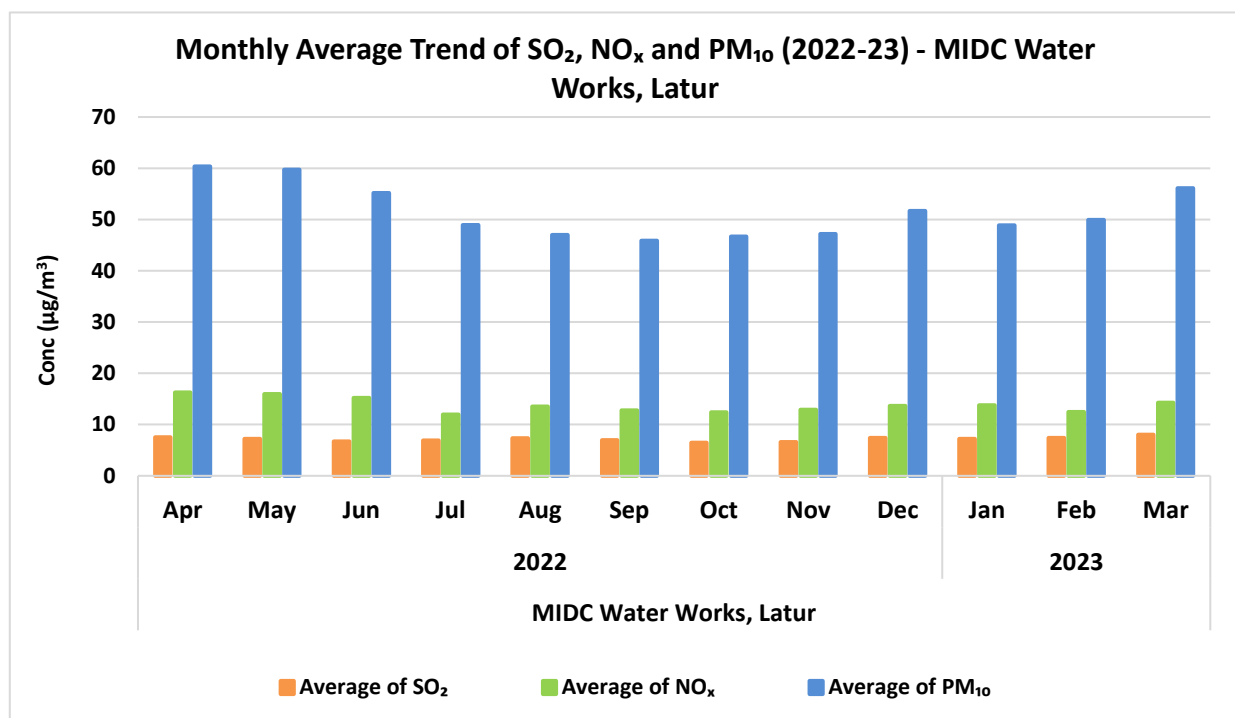
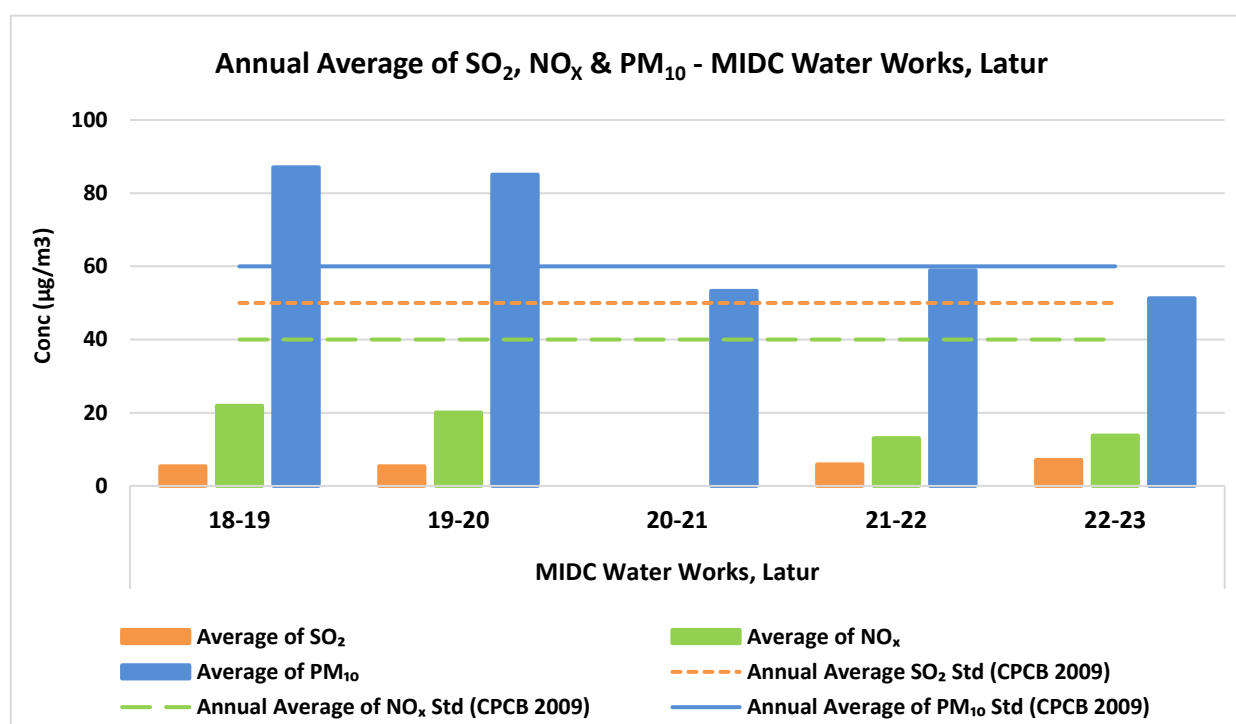


Figure No. 56: Monthly average concentration recorded at MIDC Water Works, Latur

Table No. 41: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Water Works, Latur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Water Works, Latur	18-19	5	22	87
	19-20	5	20	85
	20-21	-	-	53
	21-22	6	13	59
	22-23	7	14	51

Figure No. 57: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Water Works, Latur

MPCB Bhavan Aurangabad CAAQMS

Table No. 42: Data for Monthly average concentration recorded at MPCB Bhavan Aurangabad CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
MPCB Bhavan Aurangabad CAAQMS	2022	Aug	18	8	53	16
		Sep	9	10	52	27
		Oct	7	17	79	50
		Nov	14	31	123	75
		Dec	11	29	184	108
	2023	Jan	10	25	239	153
		Feb	18	30	141	81
		Mar	11	23	102	44

Table No. 43: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at MPCB Bhavan Aurangabad CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
MPCB Bhavan Aurangabad CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	12	22	122	69

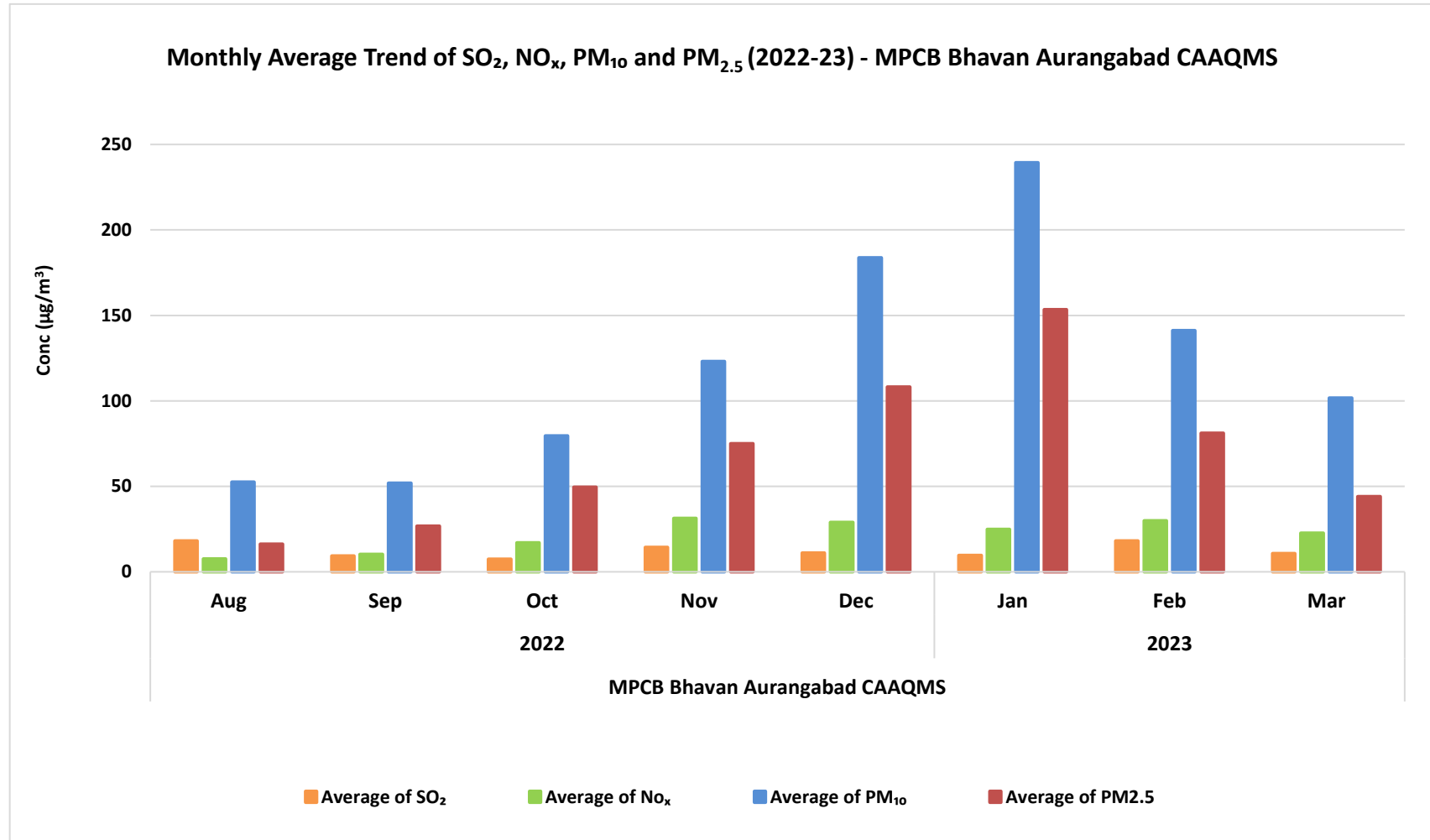


Figure No. 58: Monthly average concentration recorded at MPCB Bhavan Aurangabad CAAQMS

MPCB Office, Parbhani

Table No. 44: Data for Monthly average concentration recorded at MPCB Office, Parbhani

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MPCB Office Parbhani	2022	Apr	22	36	58
		Jul	18	35	59
		Aug	20	31	61
		Sep	25	35	52
		Oct	26	34	55
		Nov	20	37	60
		Dec	21	33	59
	2023	Jan	22	32	57
		Feb	20	29	54
		Mar	23	33	54

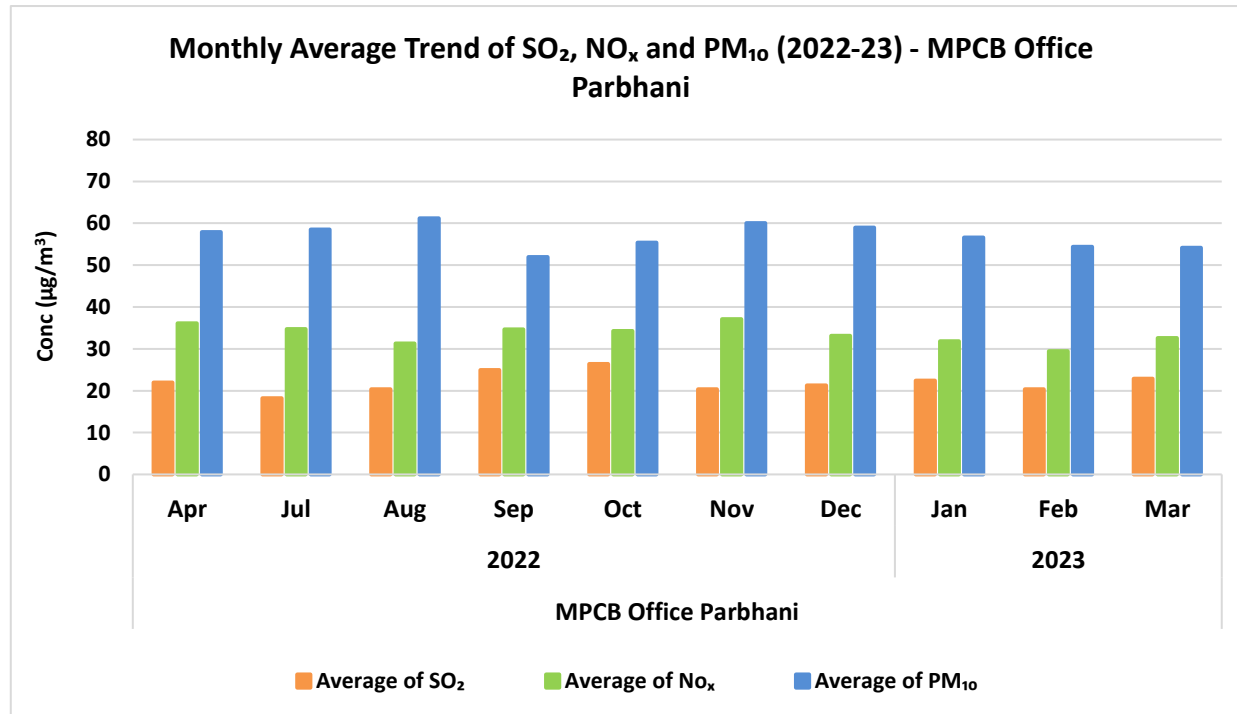
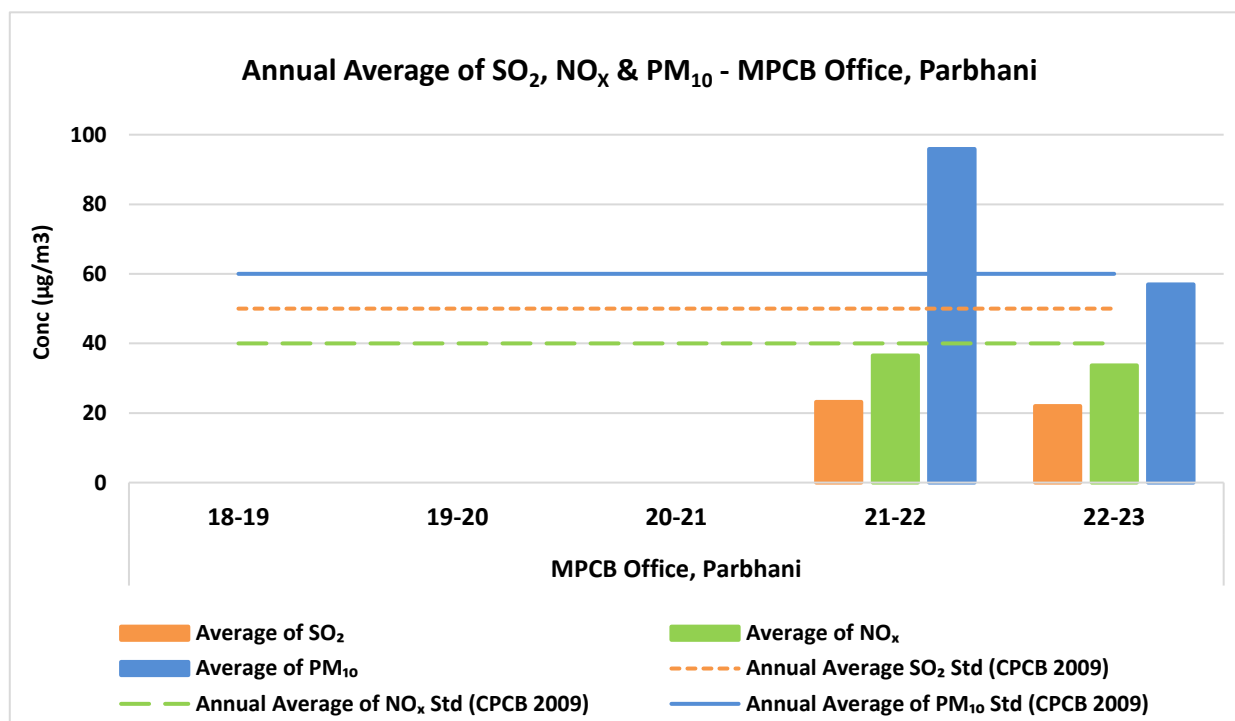


Figure No. 59: Monthly average concentration recorded at MPCB Office, Parbhani

Table No. 45: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office, Parbhani

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MPCB Office, Parbhani	18-19			
	19-20			
	20-21			
	21-22	23	37	96
	22-23	22	34	57

Figure No. 60: Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office, Parbhani

Municipal Council, Osmanabad

Table No. 46: Data for Monthly average concentration recorded at Municipal Council, Osmanabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Municipal Council, Osmanabad	2022	Apr	19	29	82
		May	21	28	79
		Jun	16	27	77
		Jul	15	25	71
		Aug	19	26	80
		Sep	19	28	78
		Oct	18	26	72
		Nov	18	24	67
		Dec	19	25	78
	2023	Jan	16	27	76
		Feb	18	26	72
		Mar	17	26	81

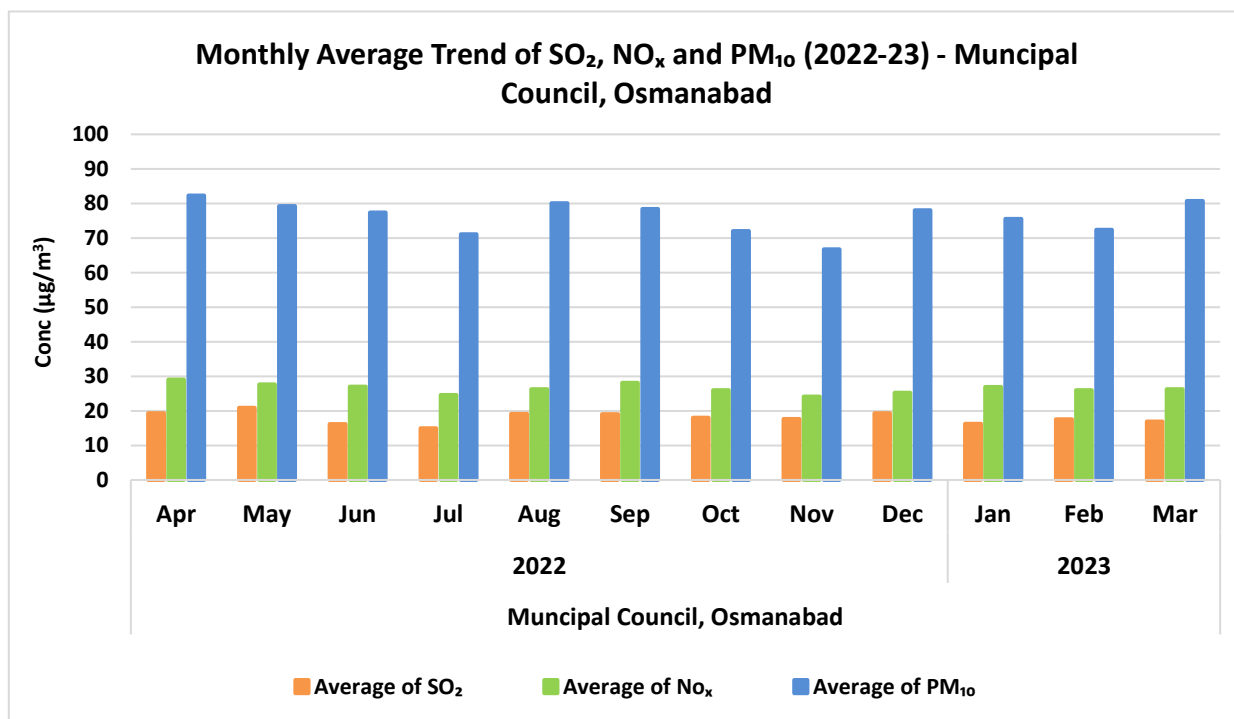
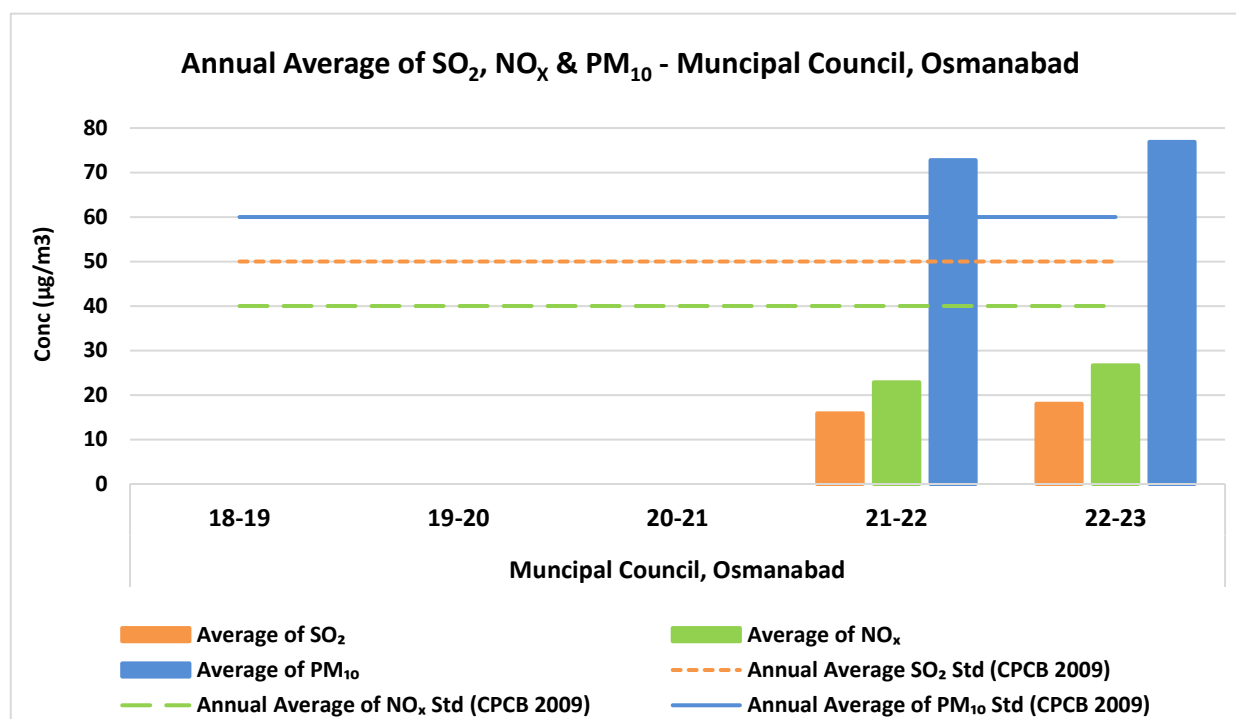


Figure No. 61: Monthly average concentration recorded at Municipal Council, Osmanabad

Table No. 47: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council, Osmanabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Municipal Council, Osmanabad	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	16	23	73
	22-23	18	27	77

Figure No. 62: Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council, Osmanabad

Mutha Chowk, Vazirabad

Table No. 48: Data for Monthly average concentration recorded at Mutha Chowk, Vazirabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Mutha Chowk, Vazirabad	2022	Jul	14	35	29
		Aug	13	18	27
		Sep	13	23	38
		Nov	-	-	61
		Dec	25	47	95
	2023	Jan	20	38	85
		Feb	22	38	87
		Mar	20	49	78

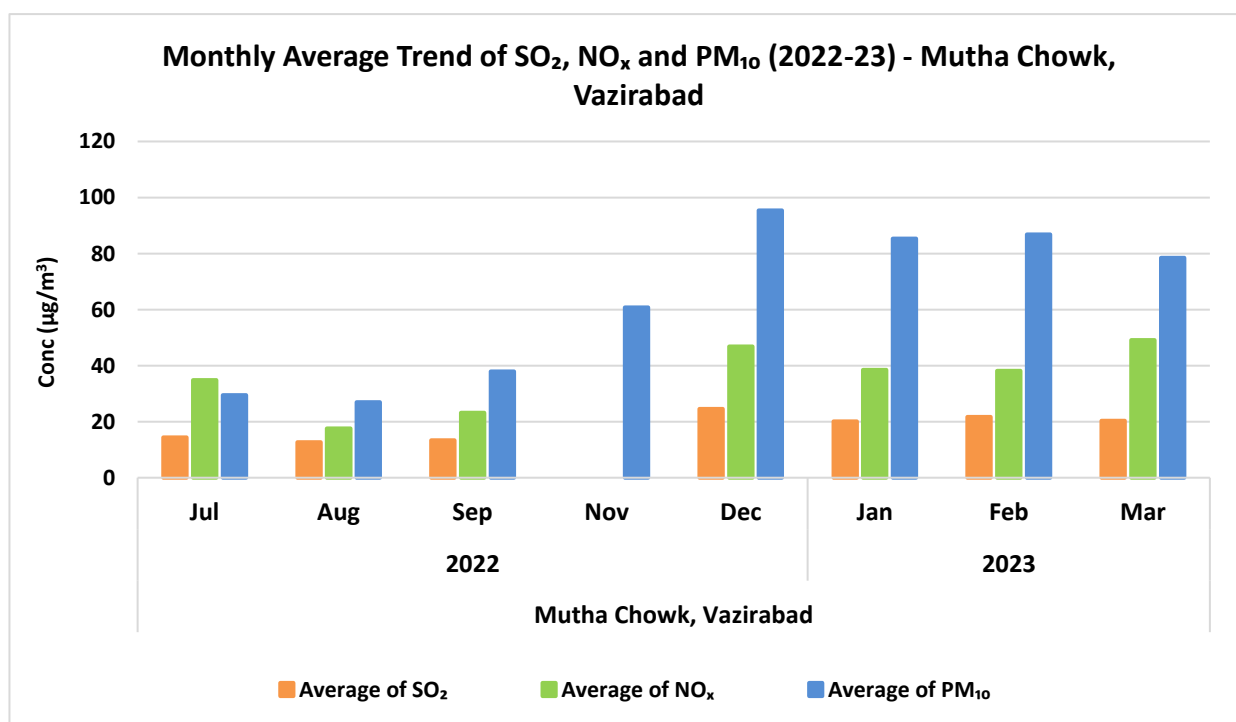
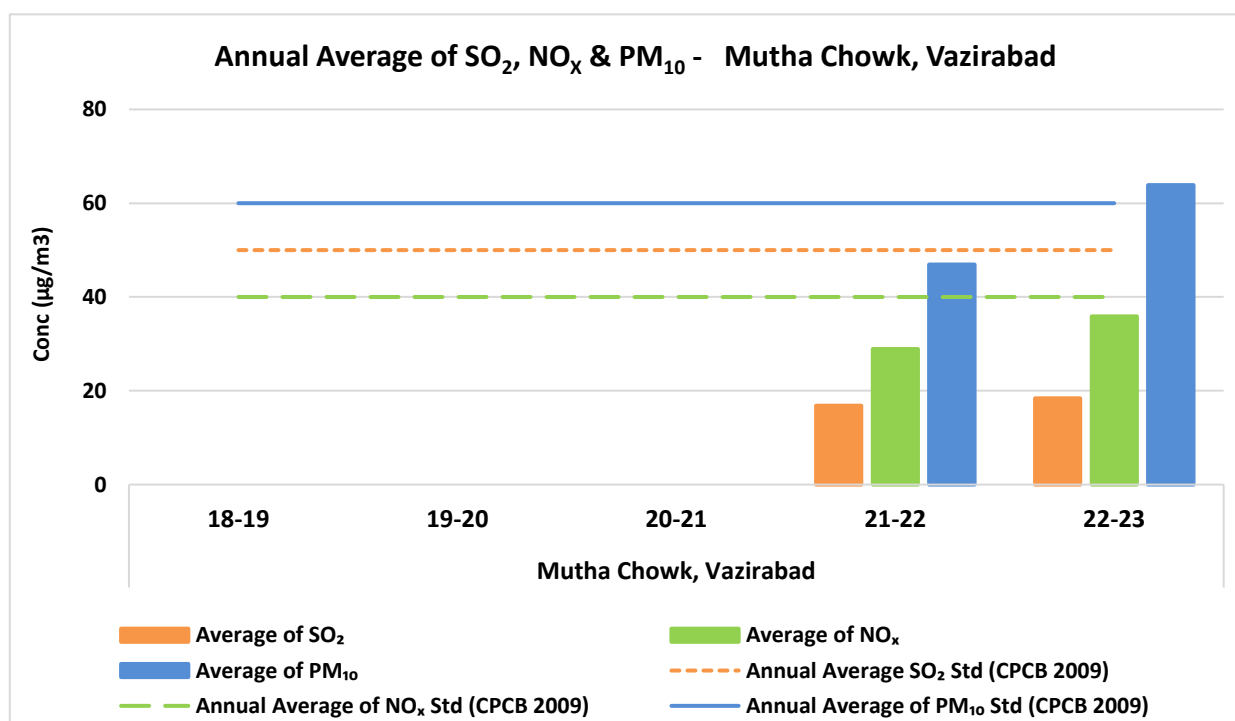


Figure No. 63: Monthly average concentration recorded at Mutha Chowk, Vazirabad

Table No. 49: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Mutha Chowk, Vazirabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Mutha Chowk, Vazirabad	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	17	29	47
	22-23	18	36	64

Figure No. 64: Annual average trend of SO₂, NO_x and PM₁₀ at Mutha Chowk, Vazirabad

Nanded CAAQMS

Table No. 50: Data for Monthly average concentration recorded at Nanded CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nanded CAAQMS	2022	Aug	8	10	35	11
		Sep	7	10	37	11
		Oct	8	13	74	34
		Nov	14	25	131	65
		Dec	11	28	109	62
	2023	Jan	12	18	118	64
		Feb	17	23	131	59
		Mar	10	16	103	51

Table No. 51: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nanded CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nanded CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	18	92	44

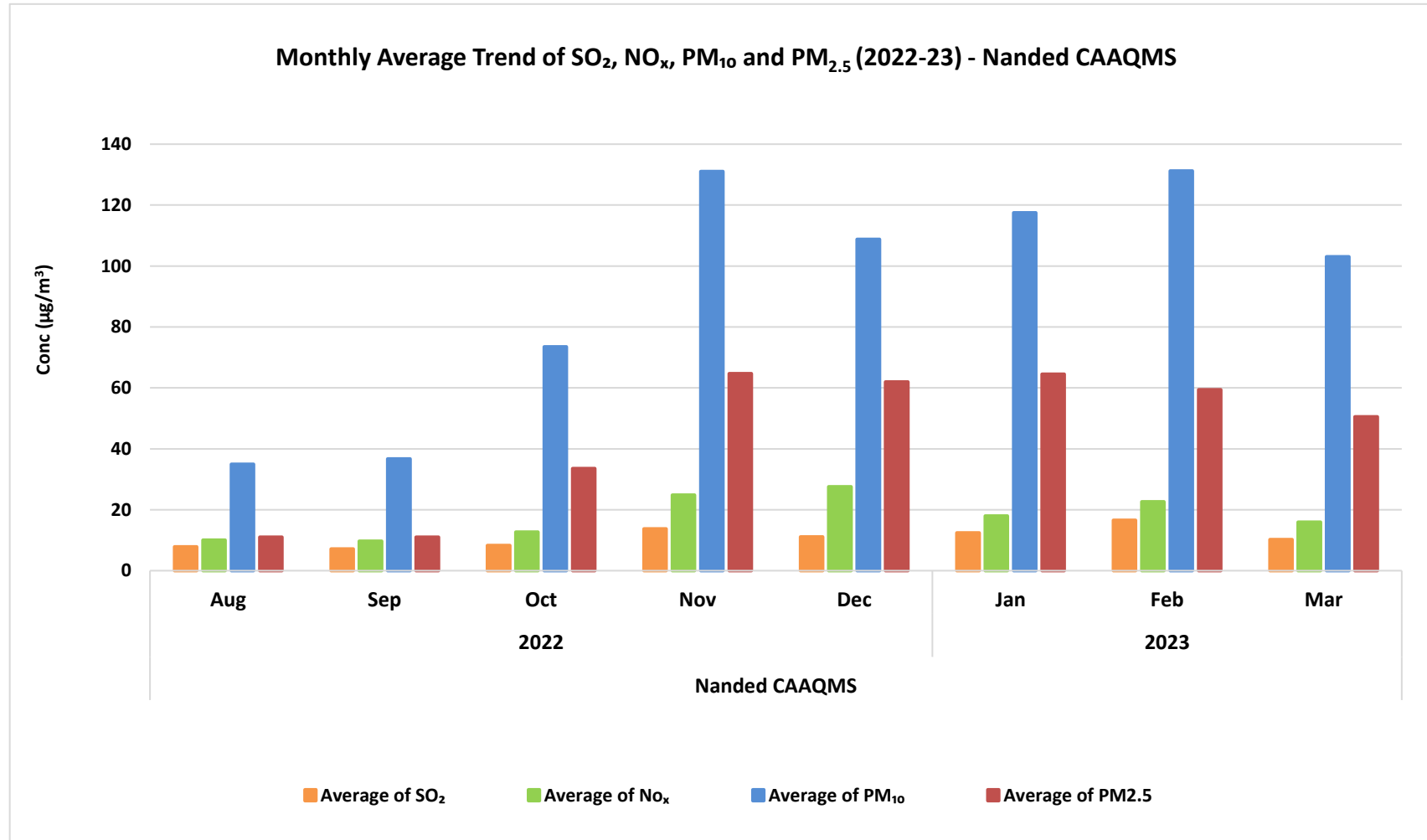


Figure No. 65: Monthly average concentration recorded at Nanded CAAQMS

Parbhani CAAQMS

Table No. 52: Data for Monthly average concentration recorded at Parbhani CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Parbhani CAAQMS	2022	Aug	26	2	39	29
		Sep	27	4	41	30
		Oct	19	11	66	31
		Nov	27	20	130	62
		Dec	34	17	135	70
	2023	Jan	22	16	113	59
		Feb	29	16	108	57
		Mar	25	12	108	47

Table No. 53: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} Parbhani CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Parbhani CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	26	12	92	47

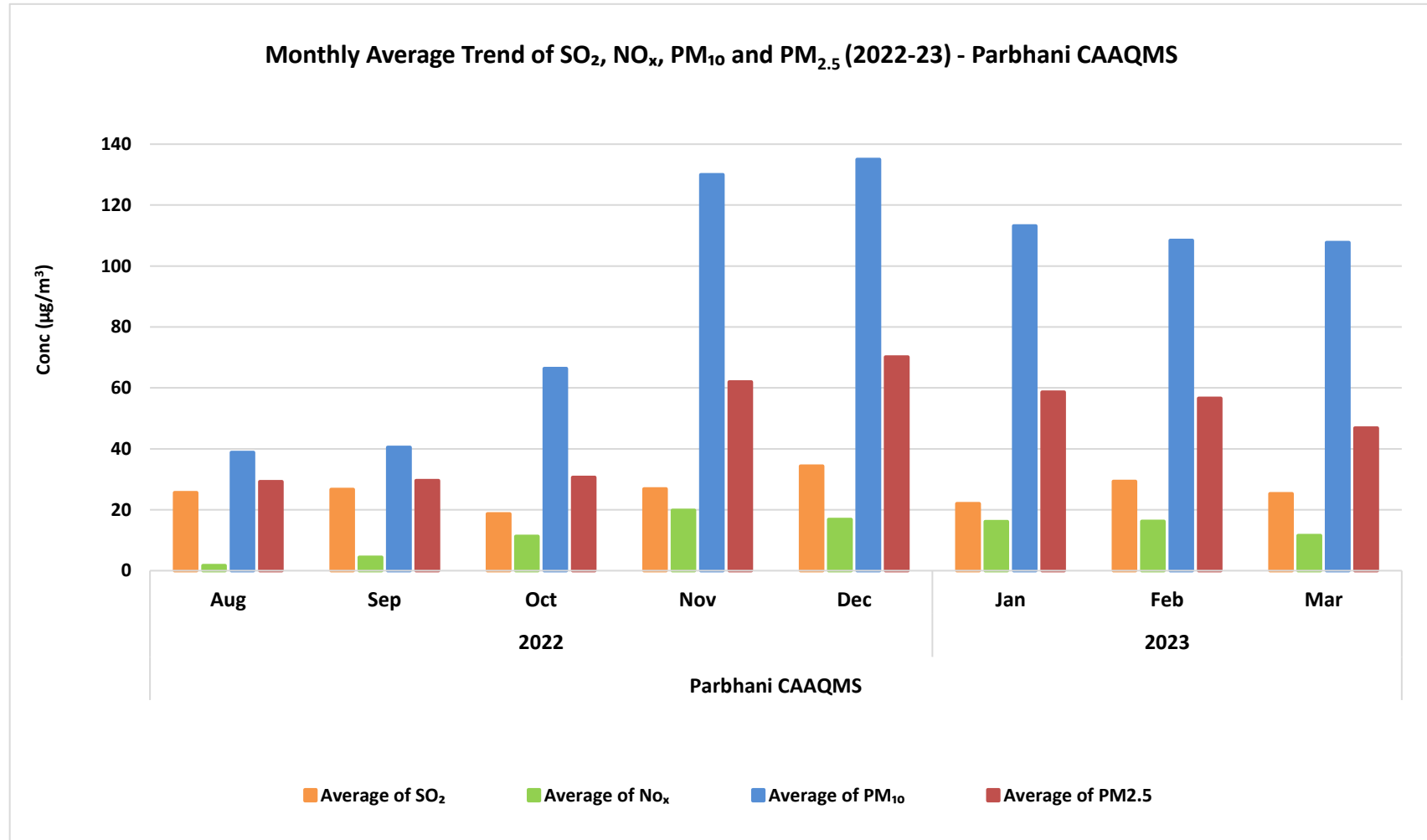


Figure No. 66: Monthly average concentration recorded at Parbhani CAAQMS

S P Office, Jalna

Table No. 54: Data for Monthly average concentration recorded at S P Office, Jalna

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
S P Office, Jalna	2022	Apr	10	40	90
		May	9	41	89
		Jun	9	40	89
		Aug	10	41	90
		Sep	10	41	89
		Oct	10	40	88
		Nov	10	42	87
		Dec	10	42	87
	2023	Jan	10	40	88
		Feb	10	41	87
		Mar	10	42	88

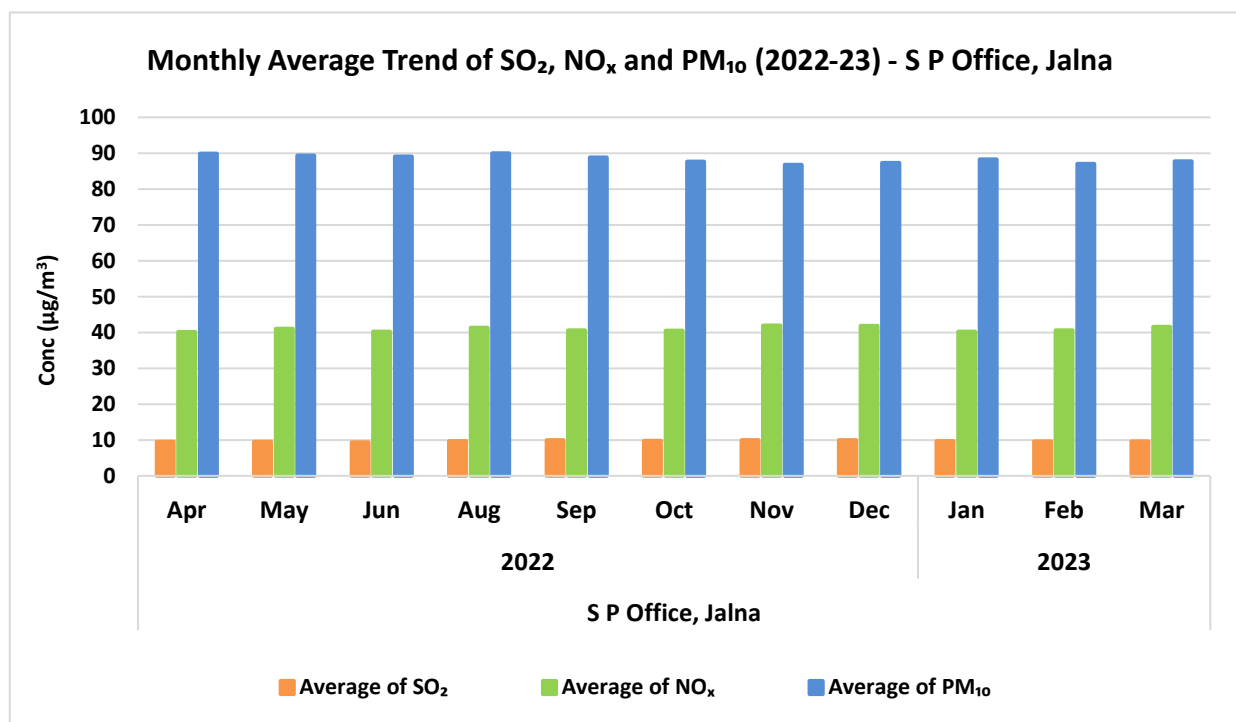
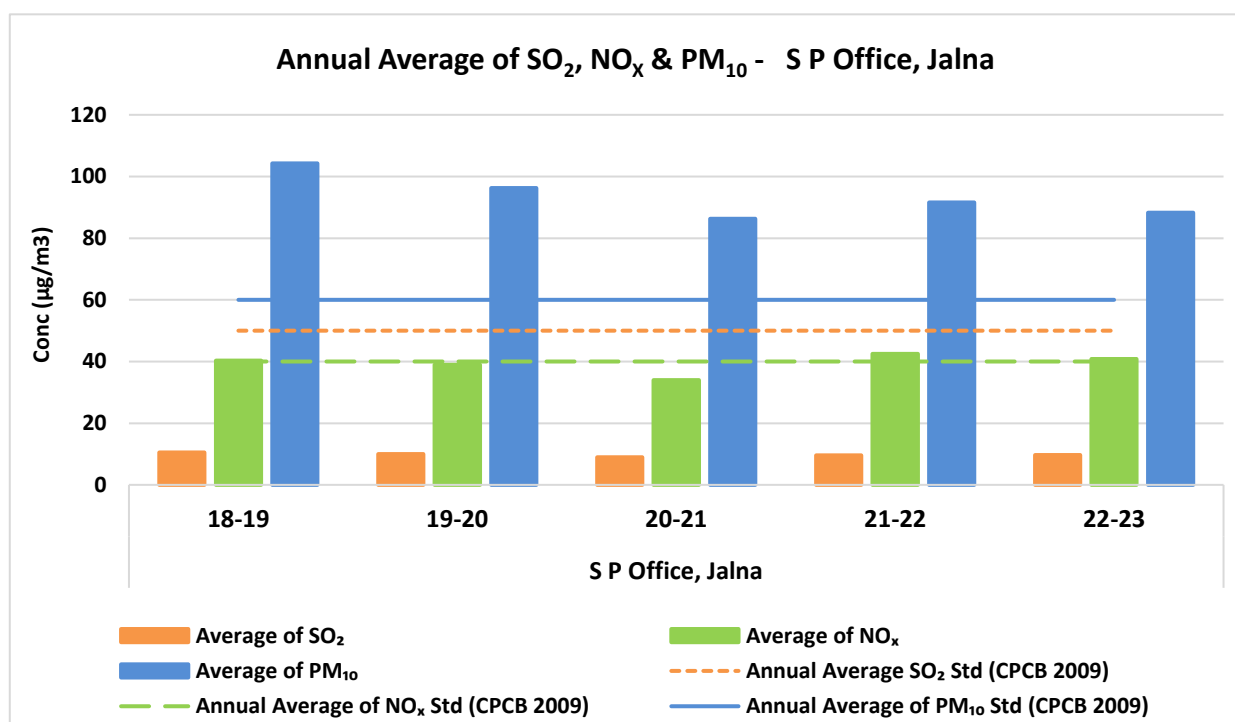


Figure No. 67: Monthly average concentration recorded at S P Office, Jalna

Table No. 55: Data for Annual average trend of SO₂, NO_x and PM₁₀ at S P Office, Jalna

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
S P Office, Jalna	18-19	10	40	104
	19-20	10	39	96
	20-21	9	34	86
	21-22	10	42	92
	22-23	10	41	88

Figure No. 68: Annual average trend of SO₂, NO_x and PM₁₀ at S P Office, Jalna

S.B. College, Aurangabad

Table No. 56: Data for Monthly average concentration recorded at S.B. College, Aurangabad

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
S.B. College, Aurangabad	2022	Apr	15	31	114
		May	13	28	112
		Jun	13	28	109
		Jul	11	26	75
		Aug	8	25	61
		Sep	9	26	45
		Oct	26	47	77
		Nov	22	38	131
		Dec	29	52	154
	2023	Jan	32	61	149
		Feb	28	58	120
		Mar	25	54	96

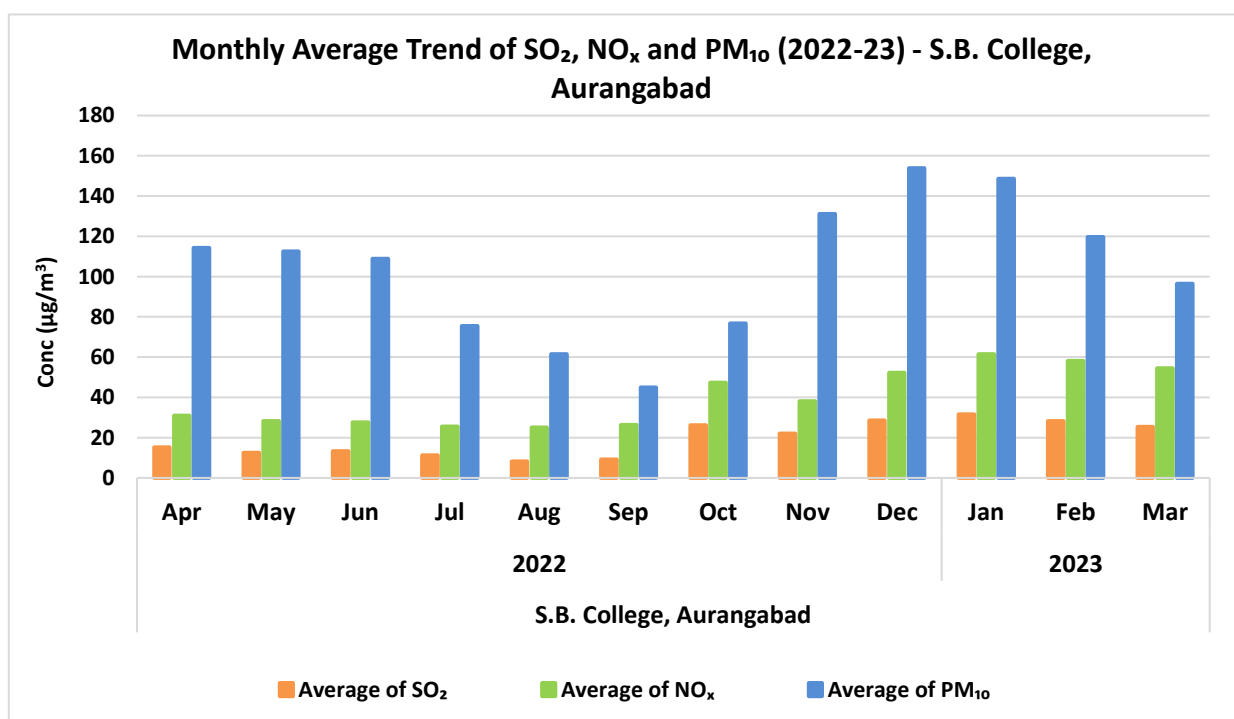
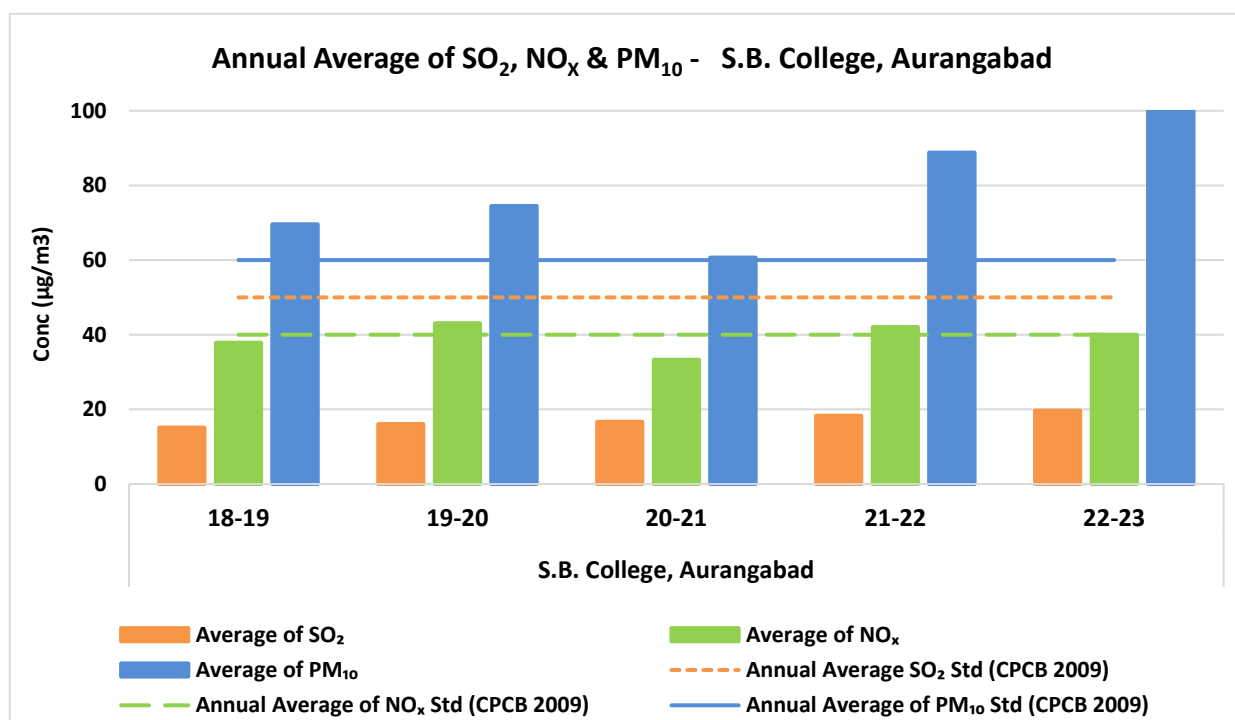


Figure No. 69: Monthly average concentration recorded at S.B. College, Aurangabad

Table No. 57: Data for Annual average trend of SO₂, NO_x and PM₁₀ at S.B. College, Aurangabad

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
S.B. College, Aurangabad	18-19	15	38	70
	19-20	16	43	74
	20-21	17	33	61
	21-22	18	42	89
	22-23	20	40	106

Figure No. 70: Annual average trend of SO₂, NO_x and PM₁₀ at S.B. College, Aurangabad

Shri Shivaji College, Parbhani

Table No. 58: Data for Monthly average concentration recorded at Shri Shivaji College, Parbhani

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Shri Shivaji College Parbhani	2022	Apr	25	34	100	56
		Jul	18	28	77	-
		Aug	20	33	88	50
		Sep	26	34	81	29
		Oct	26	37	43	30
		Nov	22	38	53	17
		Dec	22	35	53	21
	2023	Jan	20	31	51	22
		Feb	21	31	49	23
		Mar	23	31	49	20

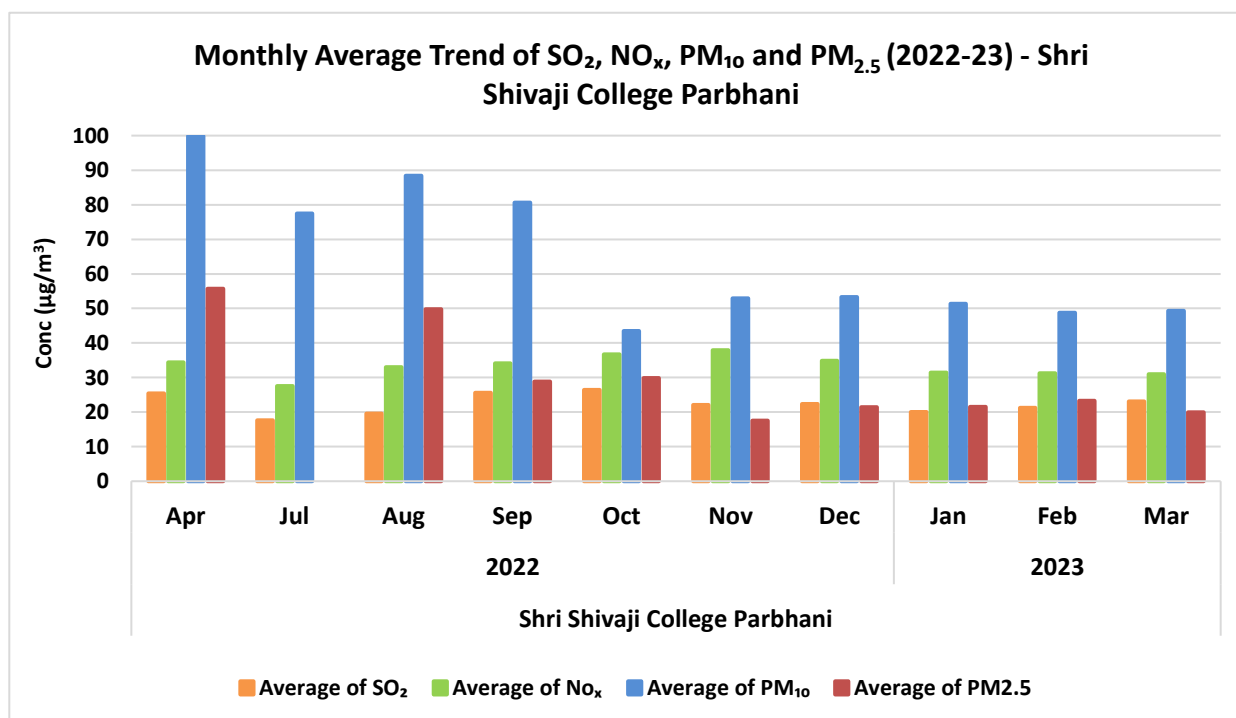
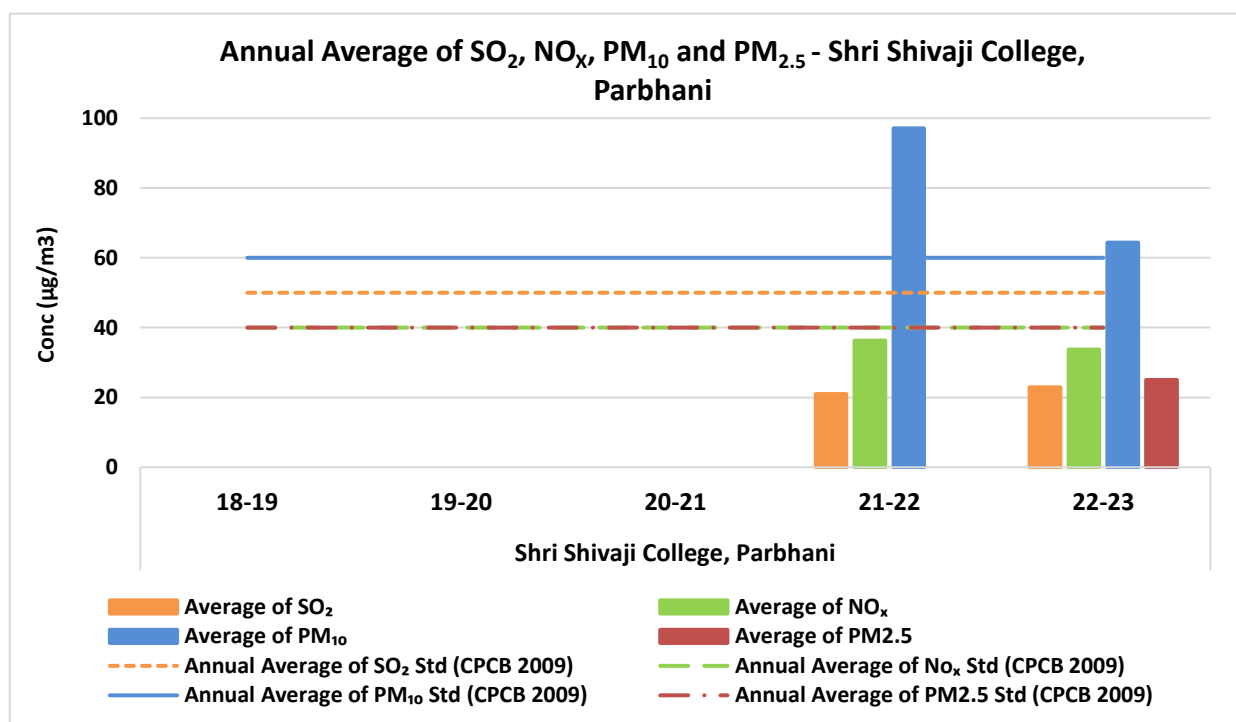


Figure No. 71: Monthly average concentration recorded at Shri Shivaji College, Parbhani

Table No. 59: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Shri Shivaji College, Parbhani

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Shri Shivaji College, Parbhani	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	21	36	97	-
	22-23	23	34	64	25

Figure No. 72: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Shri Shivaji College, Parbhani

Tahasil Office, Basmat

Table No. 60: Data for Monthly average concentration recorded at Tahasil Office, Basmat

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Tahasil Office Basmat	2022	Apr	23	33	49	-
		May	23	31	48	-
		Jun	22	35	49	25
		Jul	-	30	36	28
		Aug	20	32	47	25
		Sep	23	35	45	25
		Oct	24	32	43	25
		Nov	23	36	40	23
		Dec	23	34	43	24
	2023	Jan	23	32	40	25
		Feb	22	31	41	25
		Mar	21	30	46	24

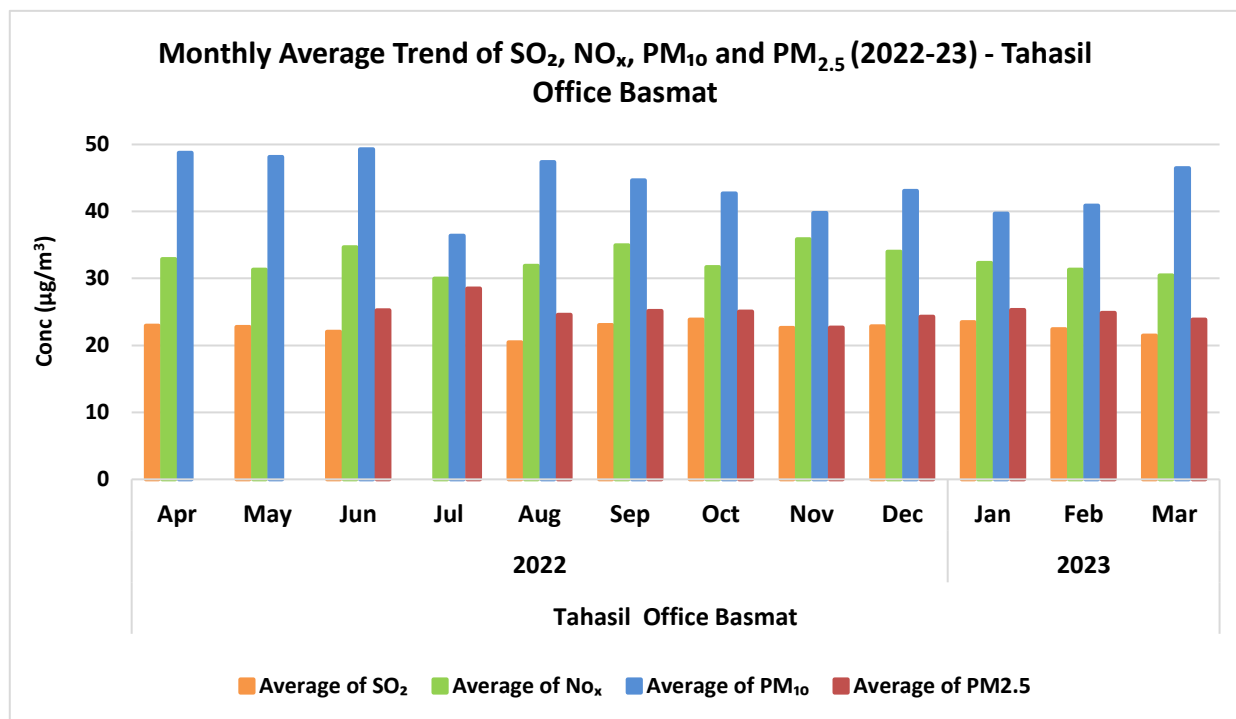
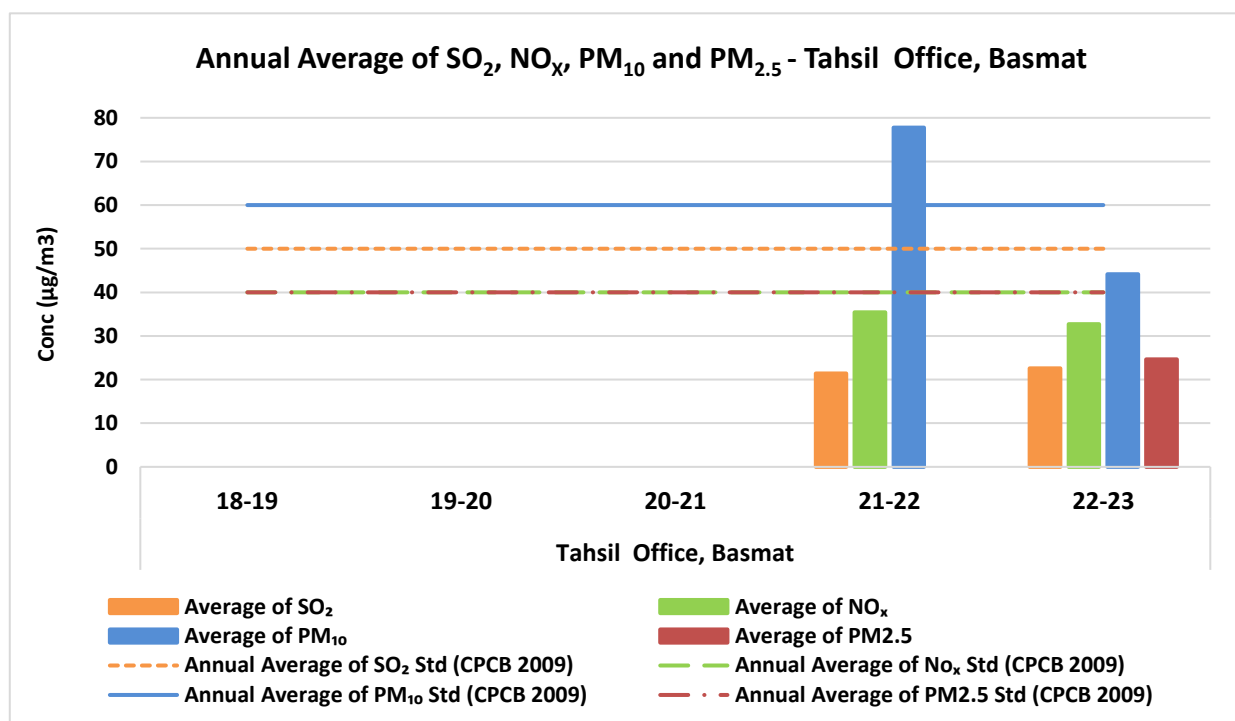


Figure No. 73: Monthly average concentration recorded at Tahasil Office, Basmat

Table No. 61: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Tahasil Office, Basmat

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Tahasil Office, Basmat	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	21	35	78	-
	22-23	23	33	44	25

Figure No. 74: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Tahasil Office, Basmat

Tahasil Office, Parli

Table No. 62: Data for Monthly average concentration recorded at Tahasil Office, Parli

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Tahasil Office Parli	2022	Apr	23	37	68	22
		Jul	16	35	43	25
		Aug	19	34	45	24
		Sep	25	39	45	23
		Oct	25	41	52	34
		Nov	26	41	53	45
		Dec	27	41	57	42
	2023	Jan	24	35	55	37
		Feb	26	36	57	38
		Mar	25	36	58	41

Table No. 63: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Tahasil Office, Parli

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Tahasil Office Parli	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	24	37	54	34

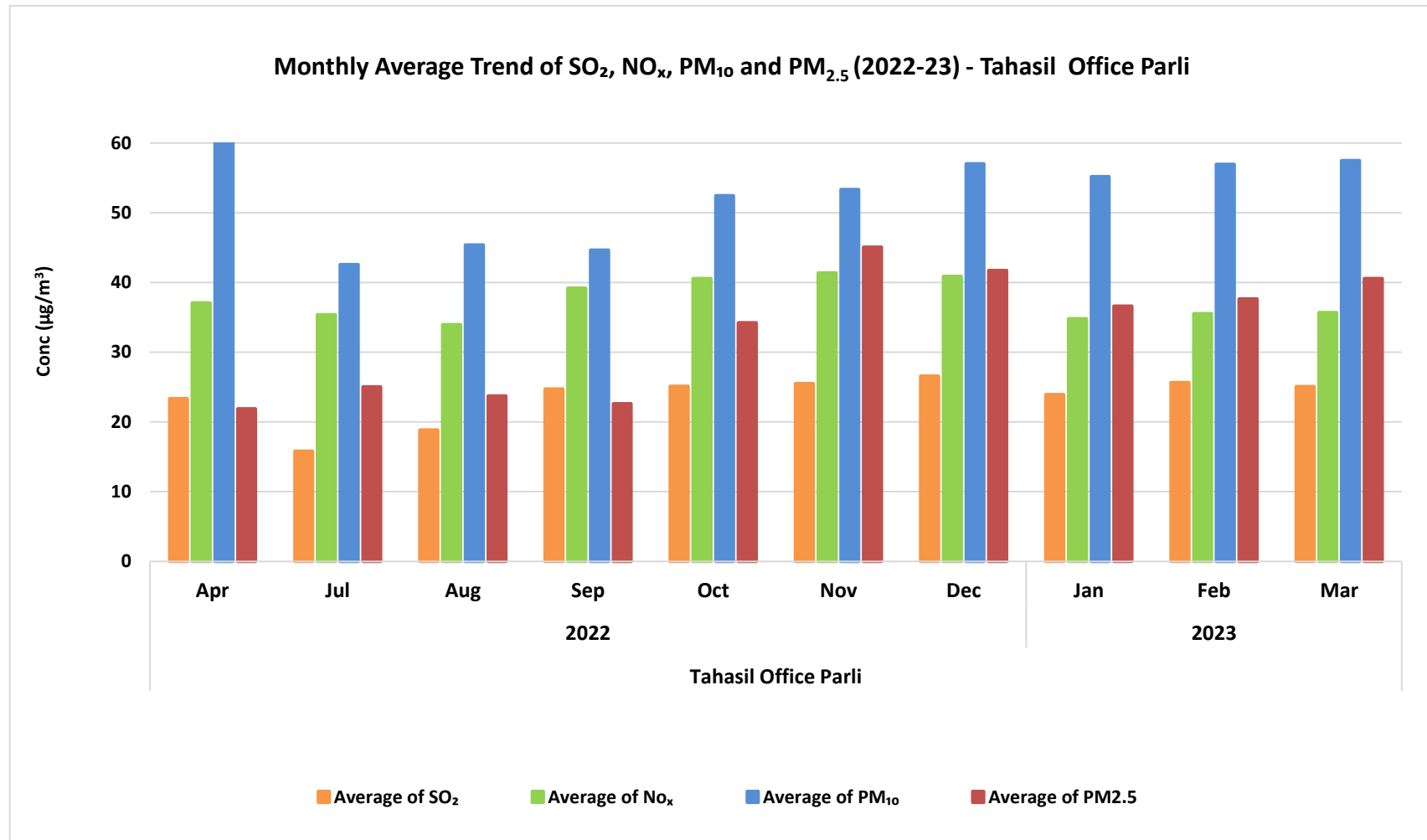


Figure No. 75: Monthly average concentration recorded at Tahasil Office, Parli

Tahasil Office, Parbhani

Table No. 64: Data for Monthly average concentration recorded at Tahasil Office, Parbhani

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Tahasil Office Parbhani	2022	Apr	25	34	99
		Jul	19	34	81
		Aug	19	36	101
		Sep	26	36	86
		Oct	25	39	49
		Nov	23	38	55
		Dec	23	35	54
	2023	Jan	20	31	50
		Feb	22	30	49
		Mar	24	31	50

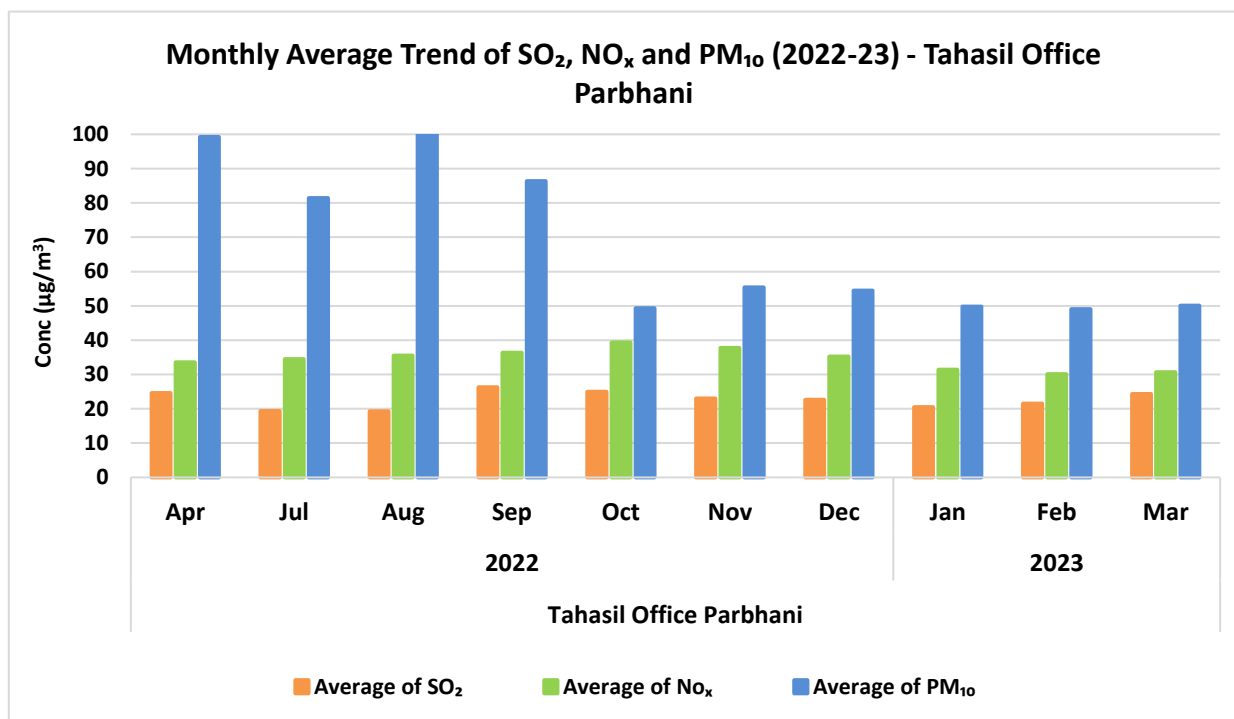
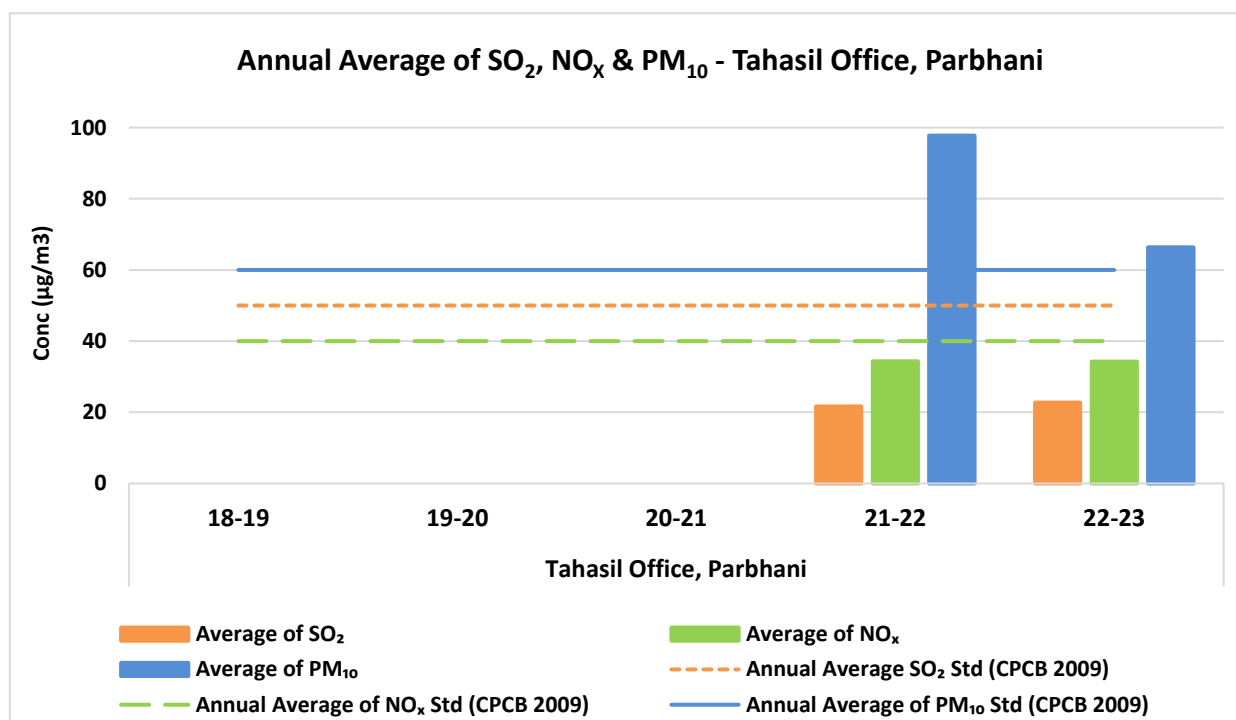


Figure No. 76: Monthly average concentration recorded at Tahasil Office, Parbhani

Table No. 65: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Tahasil Office, Parbhani

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Tahasil Office, Parbhani	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	22	34	98
	22-23	23	34	66

Figure No. 77: Annual average trend of SO₂, NO_x and PM₁₀ at Tahasil Office, Parbhani

Terrace of Kshewraj Vidyalaya Shyam Nagar

Table No. 66: Data for Monthly average concentration recorded at Terrace of Kshewraj Vidyalaya Shyam Nagar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Kshewraj Vidyalaya Shyam Nagar	2022	Apr	10	22	64
		May	12	22	66
		Jun	8	16	65
		Jul	7	12	48
		Aug	7	13	47
		Sep	7	13	46
		Oct	7	12	49
		Nov	8	20	51
		Dec	8	13	52
	2023	Jan	9	14	46
		Feb	10	14	50
		Mar	10	14	52

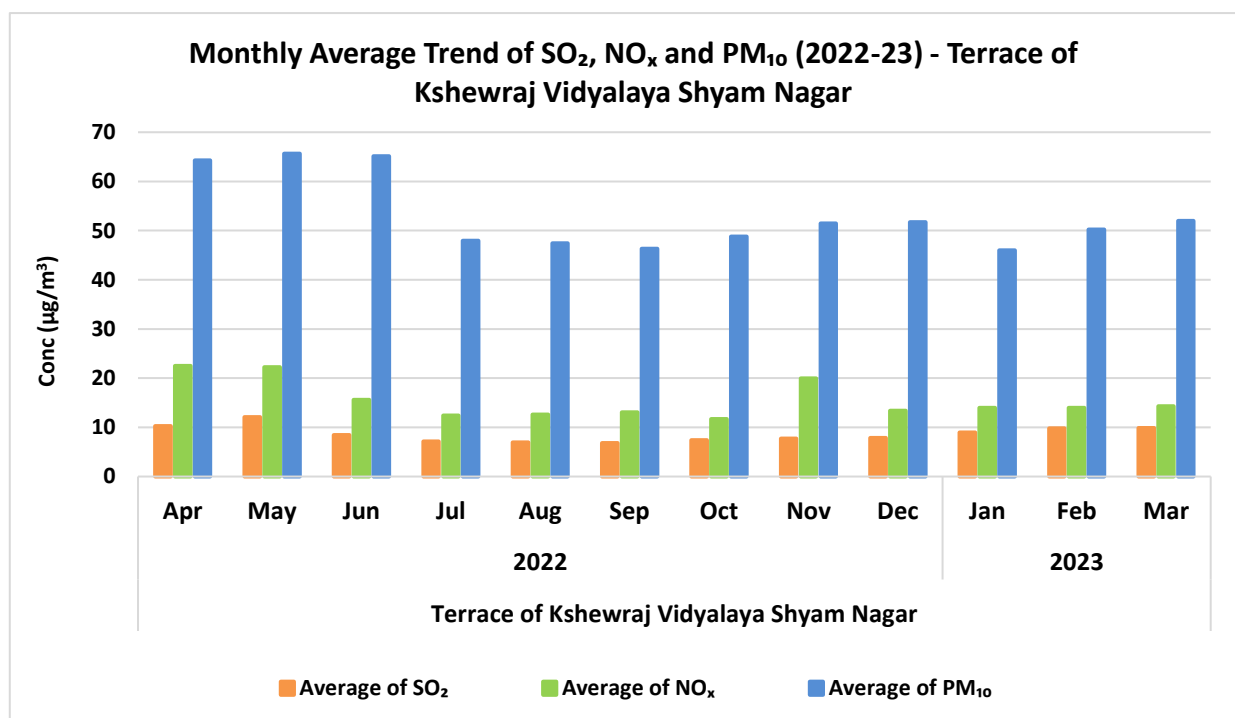


Figure No. 78: Monthly average concentration recorded at Terrace of Kshewraj Vidyalaya Shyam Nagar

Table No. 67: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Kshewraj Vidyalaya Shyam Nagar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Kshewraj Vidyalaya Shyam Nagar	18-19	5	21	89
	19-20	5	20	84
	20-21	-	-	51
	21-22	8	22	53
	22-23	9	15	51

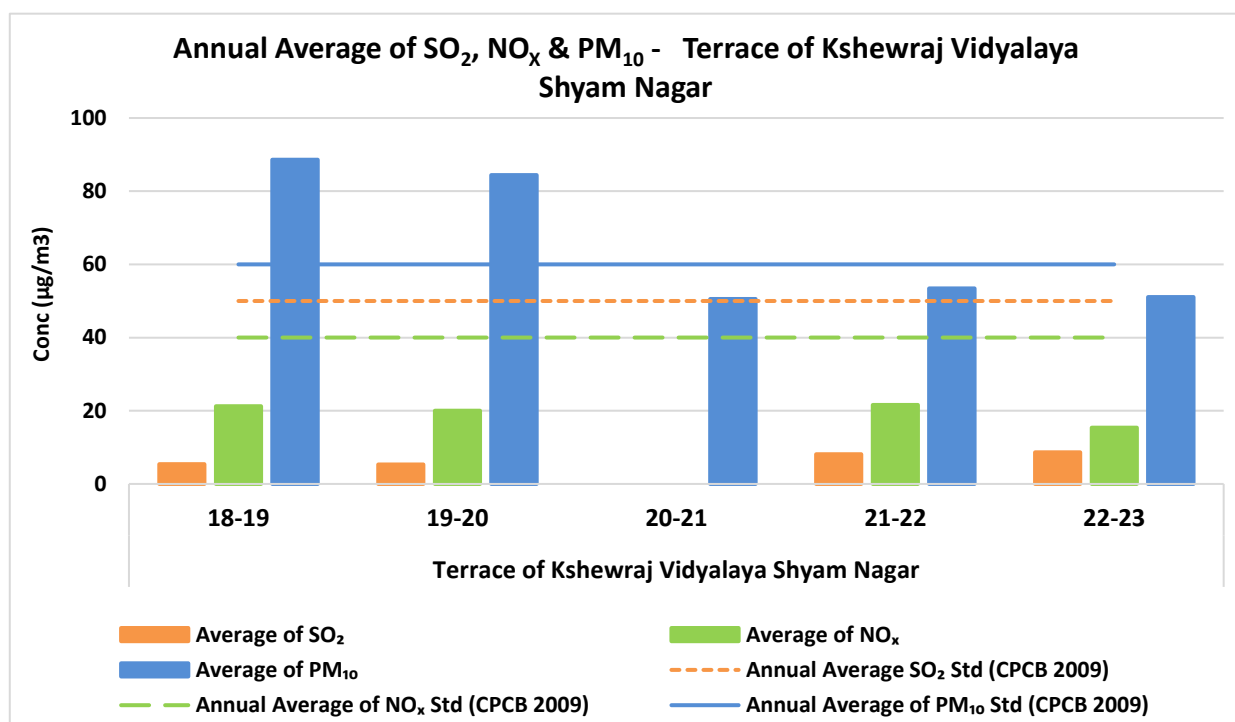


Figure No. 79: Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Kshewraj Vidyalaya Shyam Nagar

Terrace of Sidhreshwar Sahakari Bank Ganjgolai

Table No. 68: Data for Monthly average concentration recorded at Terrace of Sidhreshwar Sahakari Bank Ganjgolai

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Sidhreshwar Sahakari Bank Ganjgolai	2022	Apr	11	-	68
		May	-	-	68
		Jun	8	17	59
		Jul	7	12	49
		Aug	7	13	49
		Sep	7	13	48
		Oct	7	11	50
		Nov	7	12	53
		Dec	8	14	57
	2023	Jan	8	13	53
		Feb	9	13	56
		Mar	8	14	57

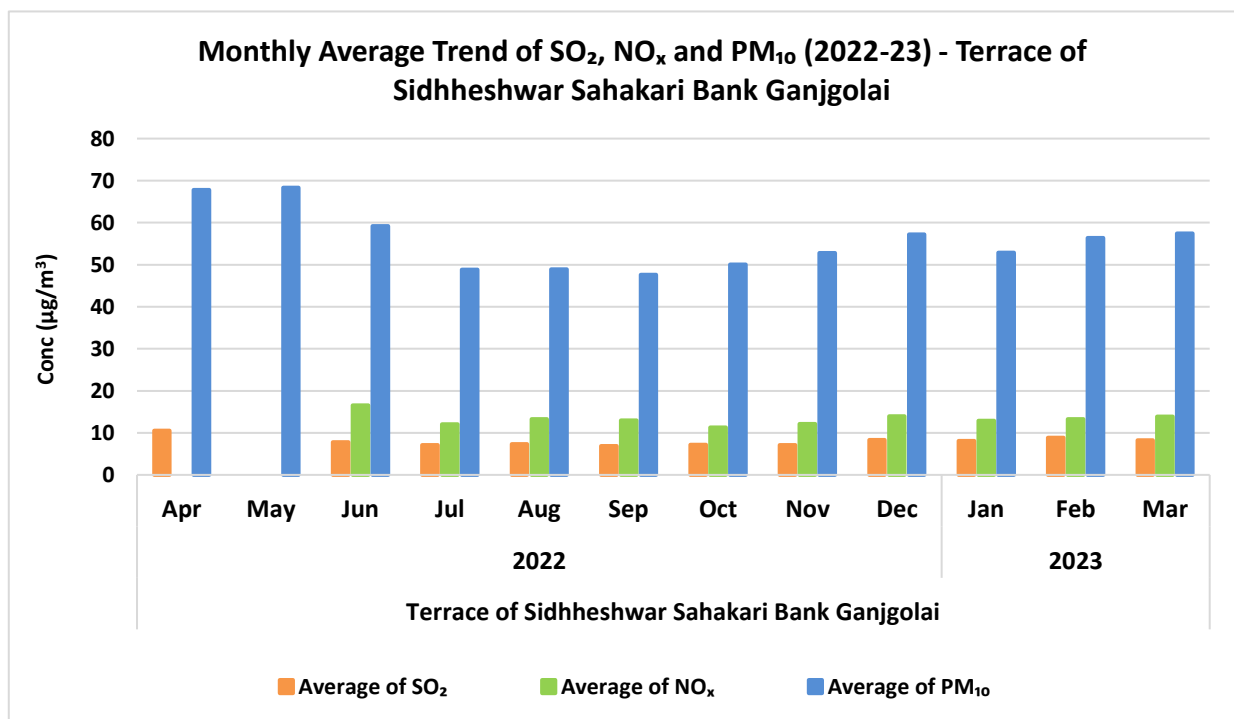
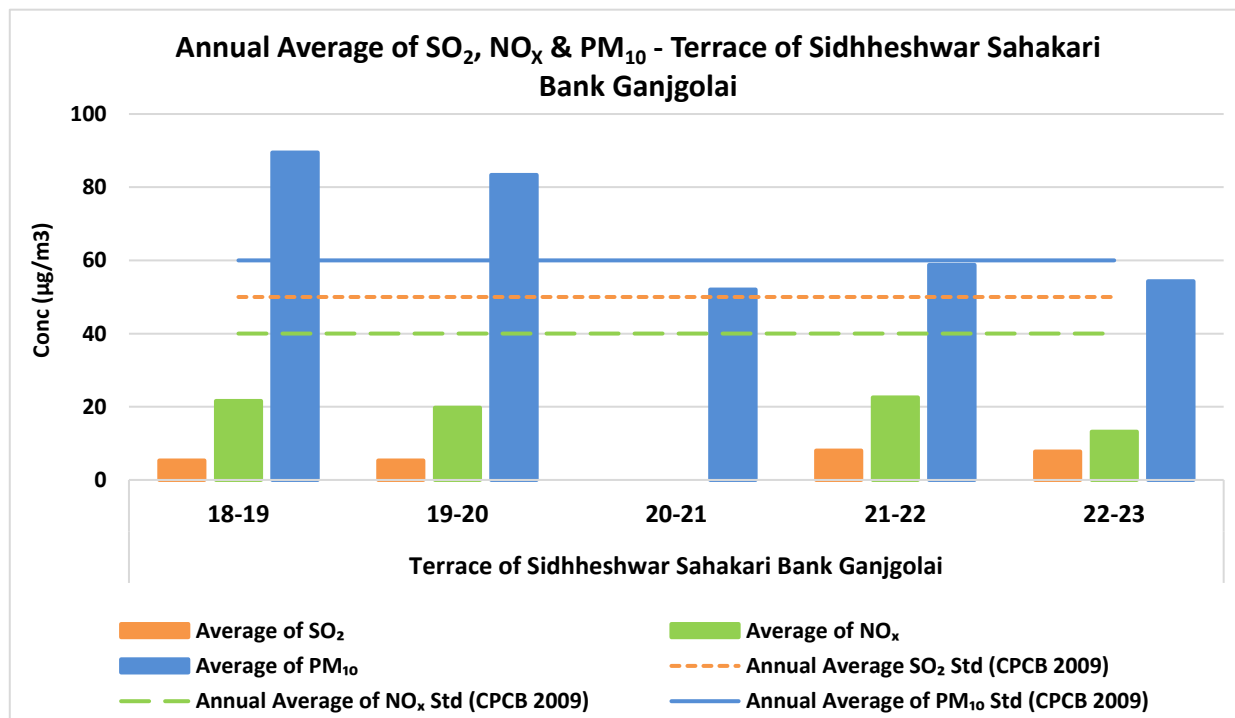


Figure No. 80: Monthly average concentration recorded at Terrace of Sidhreshwar Sahakari Bank Ganjgolai

Table No. 69: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Sidhreshwar Sahakari Bank Ganjgolai

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Sidhreshwar Sahakari Bank Ganjgolai	18-19	5	22	89
	19-20	5	20	83
	20-21	-	-	52
	21-22	8	23	59
	22-23	8	13	54

Figure No. 81: Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Sidhreshwar Sahakari Bank Ganjgolai

Woman Government Hospital

Table No. 70: Data for Monthly average concentration recorded at Woman Government Hospital

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Woman Government Hospital	2022	Apr	19	27	78	20
		May	19	26	74	18
		Jun	16	25	72	21
		Jul	13	24	67	16
		Aug	18	25	78	20
		Sep	17	25	72	17
		Oct	19	26	76	21
		Nov	18	24	74	16
		Dec	19	26	73	20
	2023	Jan	16	25	71	21
		Feb	18	25	72	17
		Mar	16	26	79	17

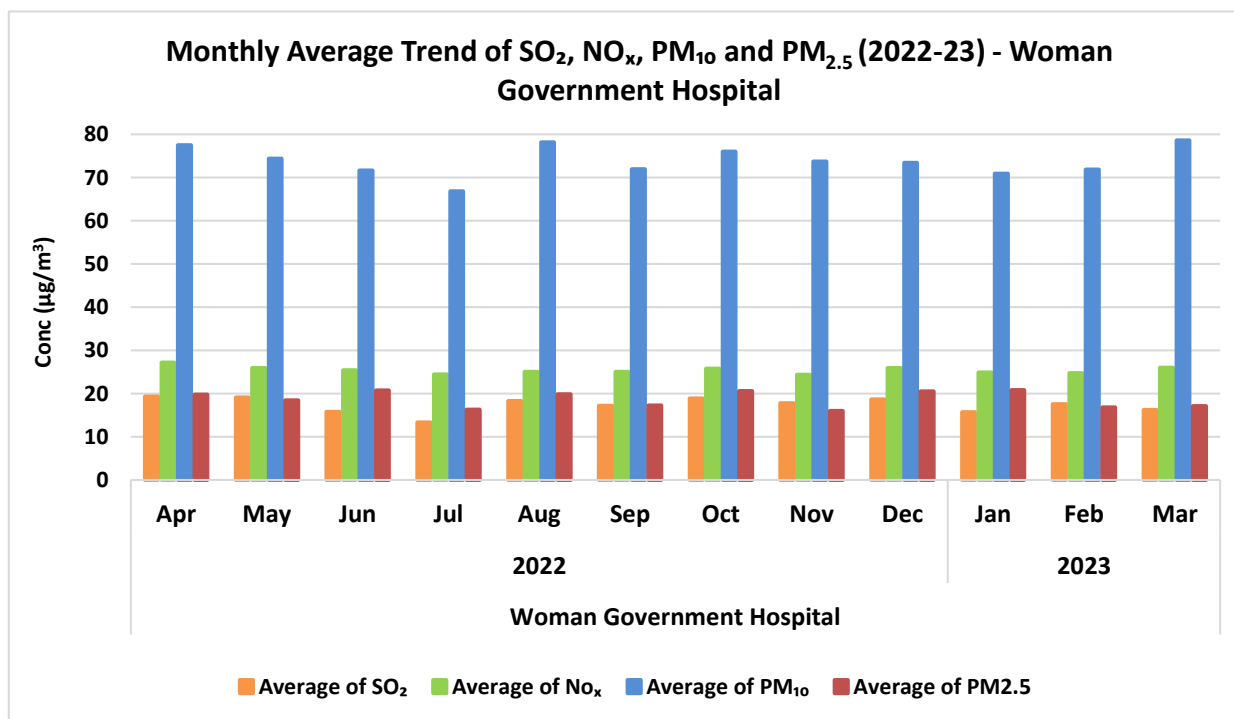


Figure No. 82: Monthly average concentration recorded at Woman Government Hospital

Table No. 71: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Woman Government Hospital

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Woman Government Hospital	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	16	23	73	-
	22-23	17	26	74	19

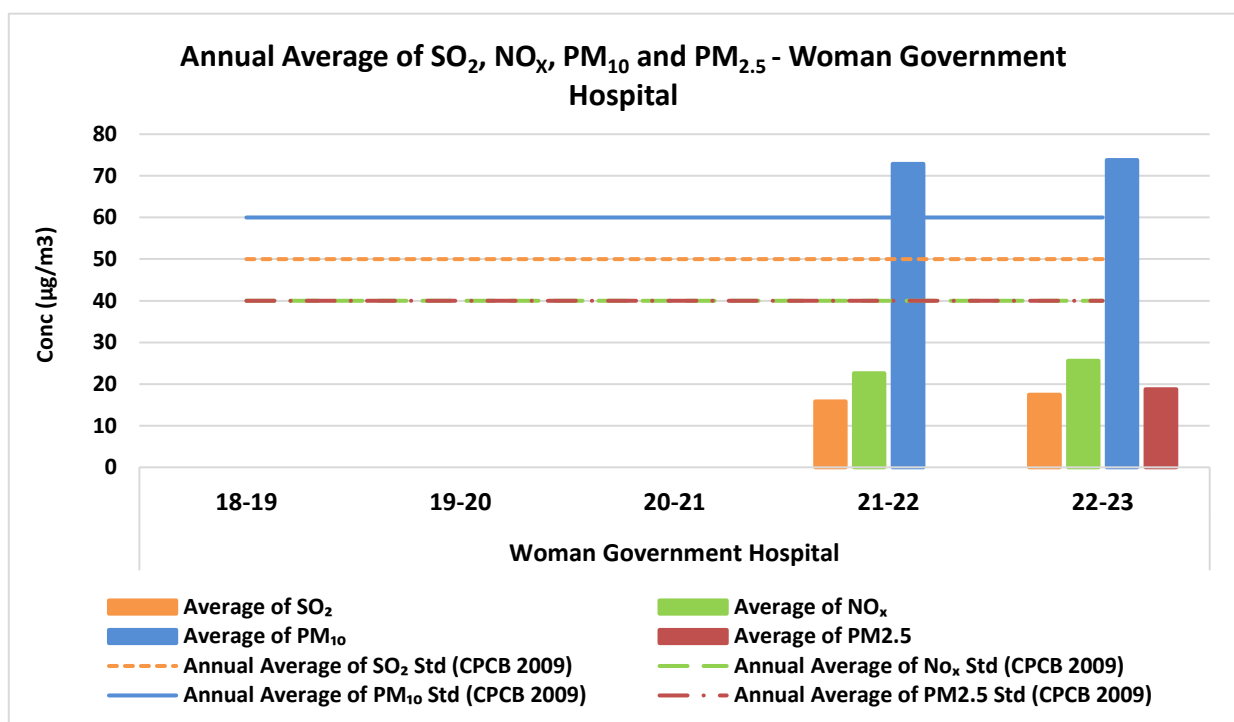
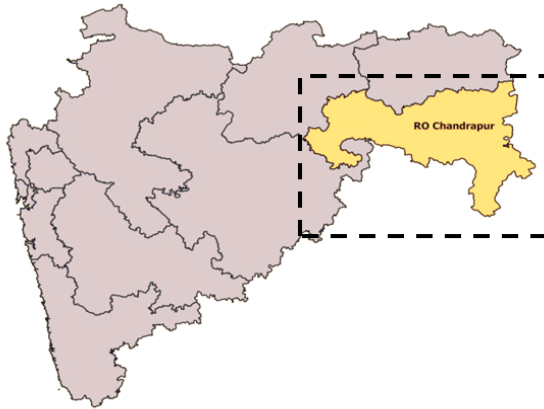
Figure No. 83: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Woman Government Hospital

Table No. 72: Percentage exceedance of pollutants at Aurangabad RO

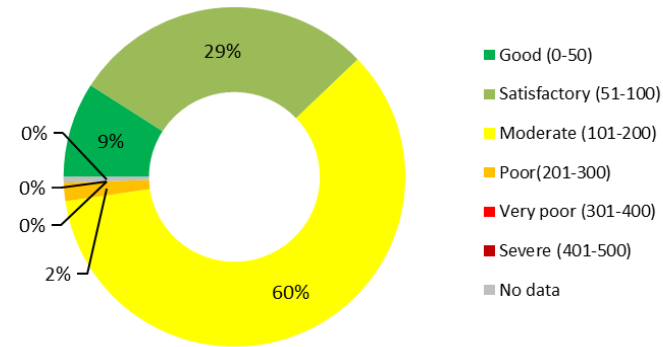
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Aurangabad CAAQMS	324	351	305	321	0	0	158	87	0	0	52	27
Aurangabad Davgiri College CAAQMS	203	215	215	215	0	31	151	88	0	14	70	41
C.A.D.A. Office, Aurangabad	99	100	99	0	0	1	67	0	0	1	68	0
Collector office, Aurangabad	73	73	52	0	0	0	34	0	0	0	65	0
Ganesh Nagar	67	58	67	0	0	0	11	0	0	0	16	0
Industrial Area, CIDCO	66	57	66	0	0	0	7	0	0	0	11	0
Jalna CAAQMS	216	236	219	228	0	0	123	46	0	0	56	20
Krishidhan Seeds Ltd, Jalna	99	97	70	0	0	0	0	0	0	0	0	0
Latur CAAQMS	239	223	239	242	0	0	113	93	0	0	47	38
MIDC Office Osmanabad	91	98	100	0	0	0	53	0	0	0	53	0
MIDC Water Works, Latur	91	91	101	0	0	0	0	0	0	0	0	0
MPCB Bhavan Aurangabad CAAQMS	238	235	240	232	0	5	127	117	0	2	53	50
MPCB Office Parbhani	63	65	61	0	0	0	0	0	0	0	0	0
Municipal Council, Osmanabad	95	65	89	0	0	0	29	0	0	0	33	0
Mutha Chowk, Vazirabad	57	57	66	0	0	0	4	0	0	0	6	0
Nanded CAAQMS	240	242	241	242	0	0	113	82	0	0	47	34
Parbhani CAAQMS	228	241	241	232	0	0	122	59	0	0	51	25
S P Office, Jalna	76	76	88	0	0	0	0	0	0	0	0	0
S.B. College, Aurangabad	100	100	94	0	0	0	62	0	0	0	66	0
Shri Shivaji College Parbhani	69	68	73	0	0	0	21	0	0	0	29	0
Tahasil Office Basmat	55	78	90	0	0	0	0	0	0	0	0	0
Tahasil Office Parli	75	74	71	0	0	0	0	0	0	0	0	0
Tahasil Office Parbhani	70	68	74	0	0	0	13	0	0	0	26	0
Terrace of Kshewraj Vidyalaya Shyam nagar	104	101	90	0	0	0	0	0	0	0	0	0
Terrace of Sidhreshwar Sahakari Bank Ganjgolai	87	81	93	0	0	0	0	0	0	0	0	0
Woman Government Hospital	97	54	90	0	0	0	12	0	0	0	0	13

CITIES /AREAS UNDER CHANDRAPUR RO

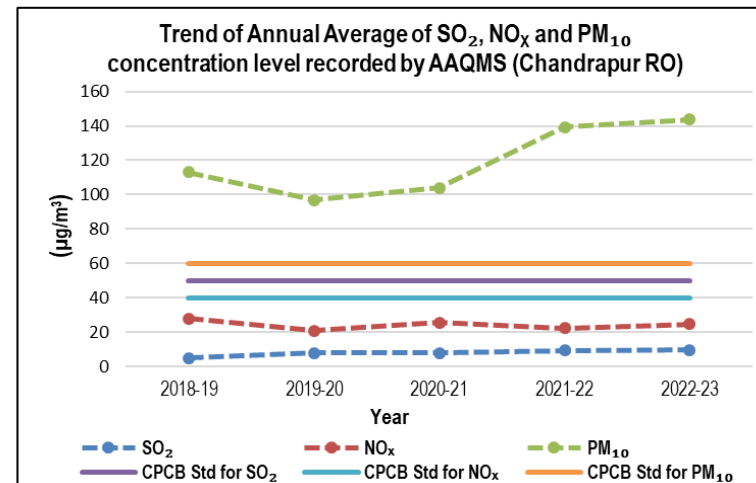
CHANDRAPUR RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Chandrapur RO)



Sr No.	Station Name
1	Bhadravati
2	Dal Mill
3	Gadchandur Gram Panchayat
4	Gadchiroli
5	GP Chikhalgaon
6	Grampanchat Ghuggus
7	M.I.D.C Chandrapur
8	MIDC Khutala CAAQMS, Chandrapur
9	M.I.D.C Tadali
10	Municipal Council Ballarshah
11	Nagar parishad Chandrapur
12	Tahasil Office
13	Udyog Bhavan CAAQMS, Chandrapur





UDYOG BHAVAN, CHANDRAPUR CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

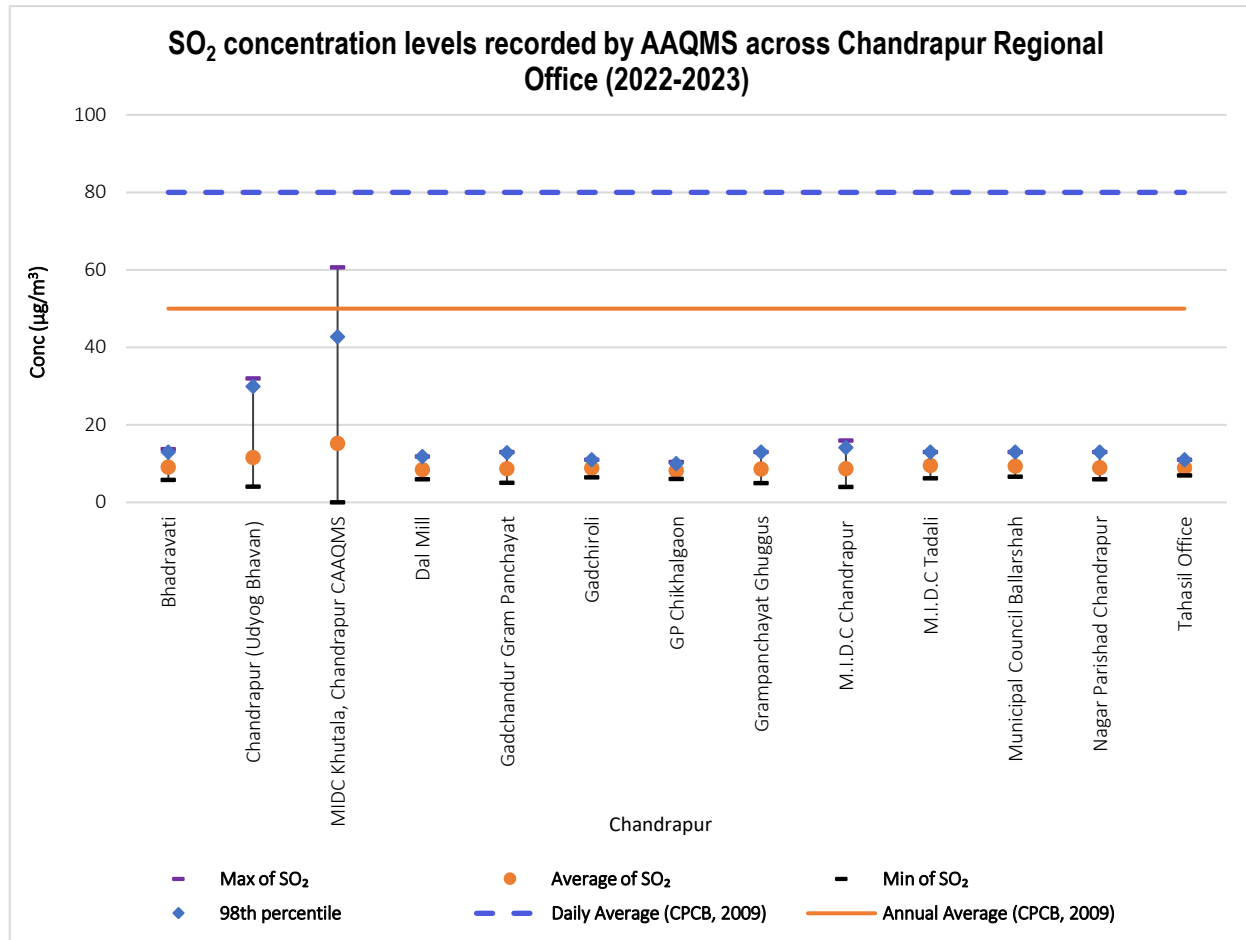


Figure No. 84: Parametric values of SO₂ concentrations recorded by AAQMS across Chandrapur RO (2022-2023)

According to the data recorded by the monitoring stations installed in the areas under the jurisdiction of the Chandrapur RO, the annual and daily average concentration levels of SO₂ in year 2022-2023 remained within the prescribed limit specified by the CPCB, which is 50 µg/m³ and 80 µg/m³ respectively.

Among the AAQMS locations, the highest average concentration level of SO₂ was recorded by the monitoring station installed at MIDC Khutala - Chandrapur CAAQMS (15.26 µg/m³), followed by and Udyog Bhavan - Chandrapur CAAQMS (11.56 µg/m³) and MIDC Tadali (9.48 µg/m³).

In contrast, the lowest annual average SO₂ concentration level of about 8.23 µg/m³ was recorded at the Gram Panchayat, Chikhalgaon monitoring station.

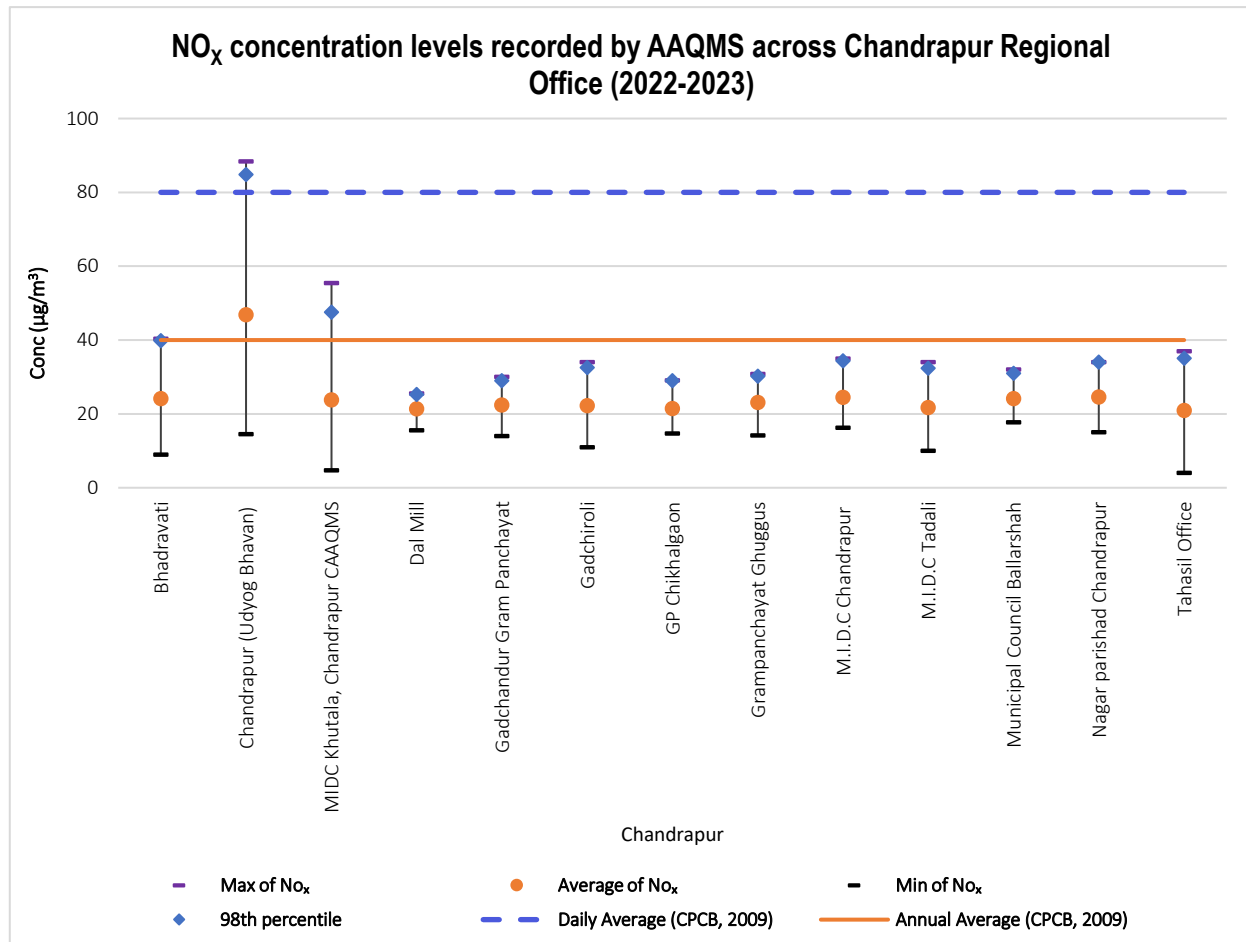
NO_x

Figure No. 85: Parametric values of NO_x concentrations recorded by AAQMS across Chandrapur RO (2022-2023)

As far as the annual average NO_x concentration levels are concerned, Udyog Bhavan Chandrapur CAAQMS (46.85 µg/m³) have recorded annual average levels exceeding the prescribed standard limit of 40 µg/m³. The levels recorded by the rest of the monitoring stations were found to be within the prescribed limit set by CPCB. These stations recorded the levels with the range of 20.96 µg/m³ (Tahsil office AAQMS) to 24.55 µg/m³ (Nagar parishad Chandrapur AAQMS).

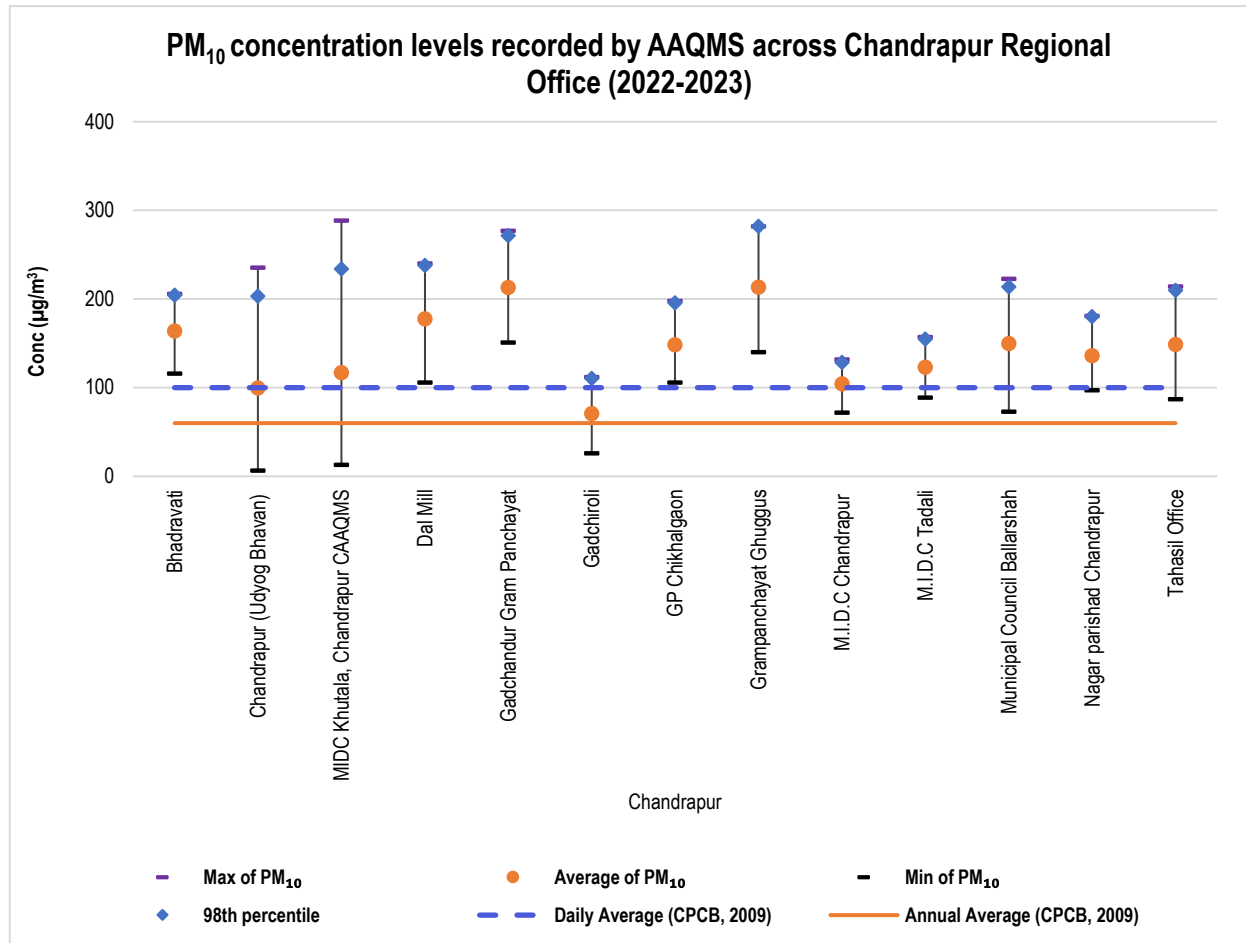
PM₁₀

Figure No. 86: Parametric values of PM₁₀ concentrations recorded by AAQMS across Chandrapur RO (2022-2023)

The intensity of PM₁₀ pollution level was very high in the areas of Chandrapur RO. This is due to the fact that, all 13 monitoring stations installed in the RO region areas have exceeded the annual average concentration level recorded in the year 2022-23.

Amongst these stations, AAQMS installed at the Grampanchayat Ghuggus recorded the highest annual average PM₁₀ concentration, followed by the Gadchandur Gram Panchayat AAQMS and Dal Mill AAQMS. The annual average PM₁₀ concentration levels recorded by these stations were found to be about 213.44 µg/m³, 213.09 µg/m³, and 177.70 µg/m³, respectively, all exceeding the annual average limit of 60 µg/m³. Conversely, the Gadchiroli AAQMS recorded the lowest annual average PM₁₀ concentration of about 70.80 µg/m³ which was still higher than the annual average limit of 60 µg/m³.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Chandrapur RO

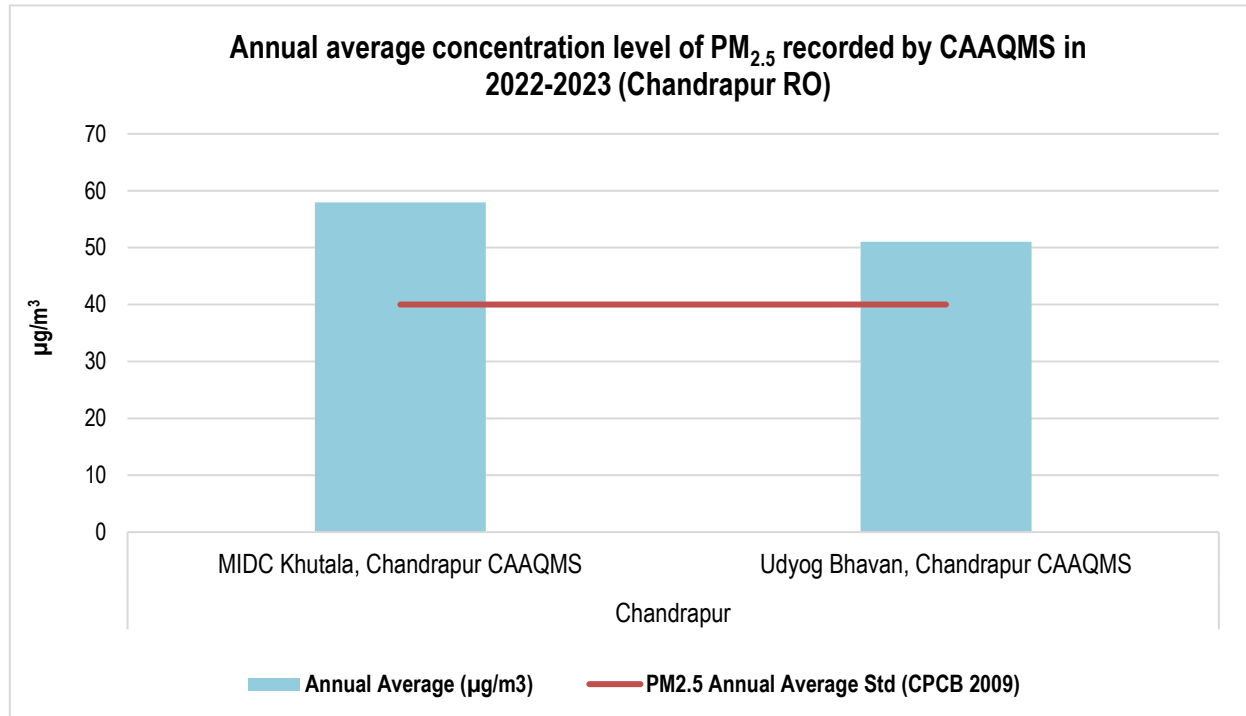


Figure No. 87: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Chandrapur RO 2022-23

Both CAAQMS namely MIDC Khutala - Chandrapur CAAQMS (57.94 µg/m³) and Udyog Bhavan - Chandrapur CAAQMS (51.02 µg/m³) recorded the annual average concentration level of PM_{2.5} higher than the permissible limit (40 µg/m³).

Ozone (O₃)

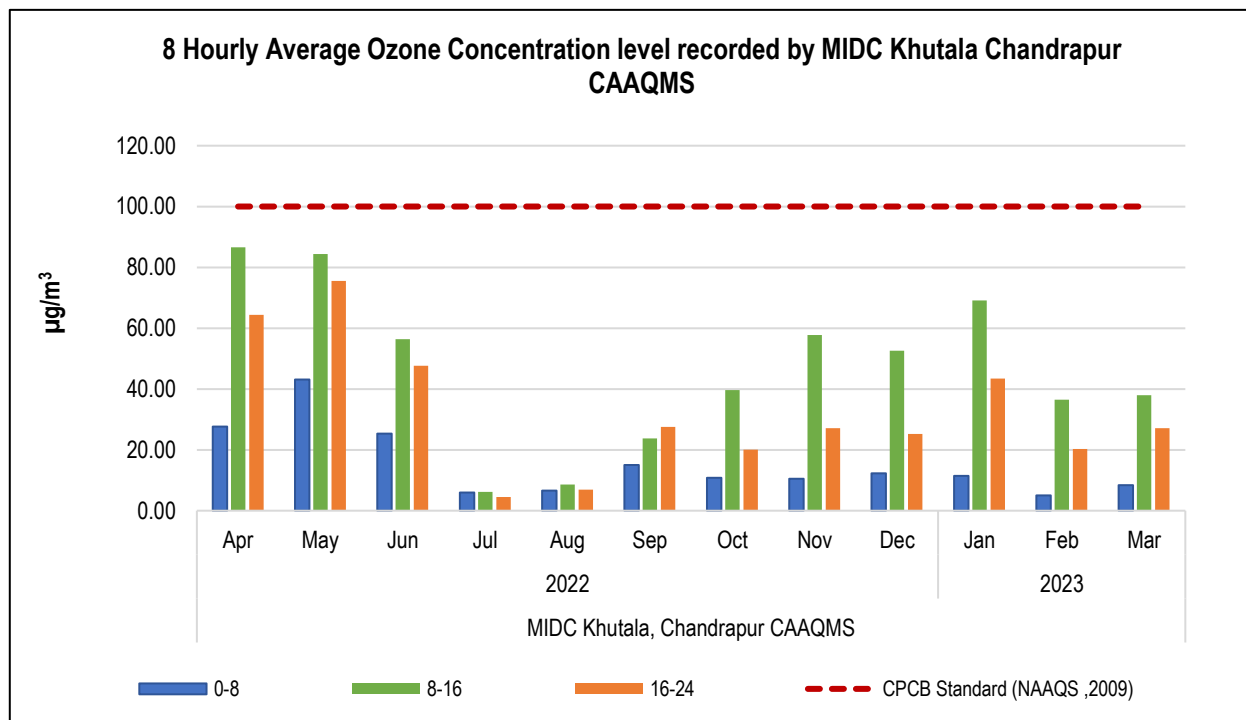
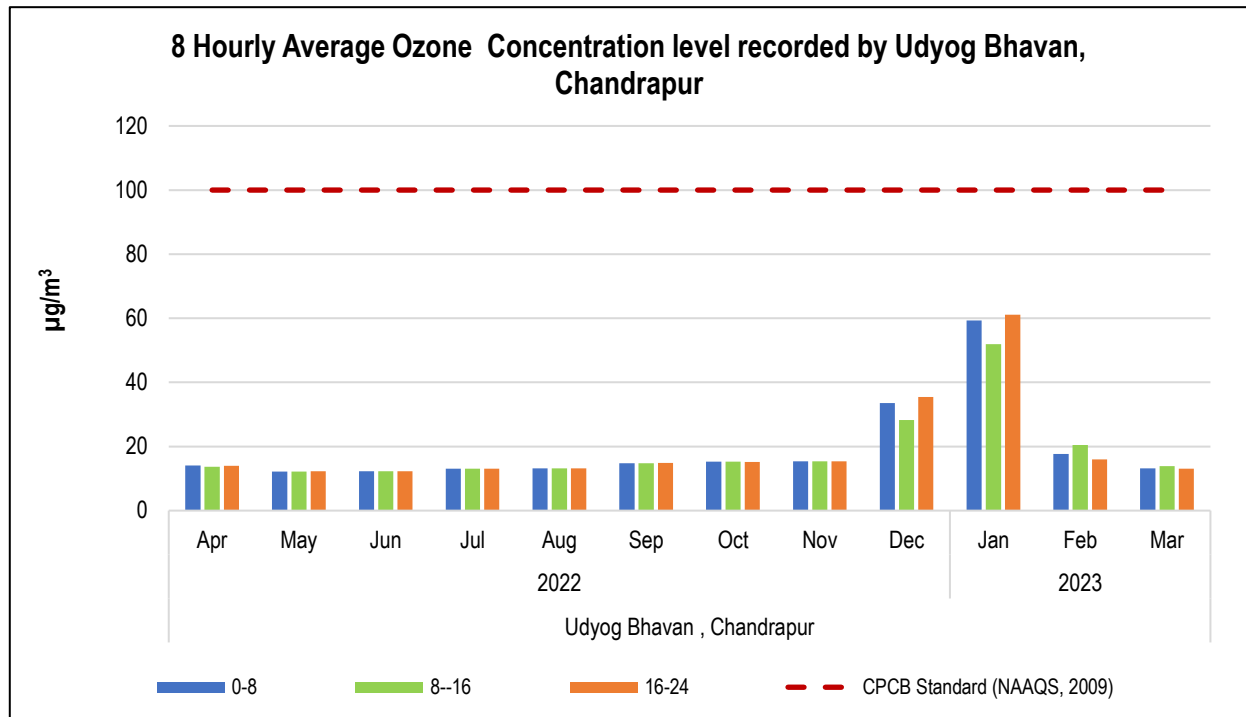


Figure No. 88 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Chandrapur RO

Carbon Monoxide (CO)

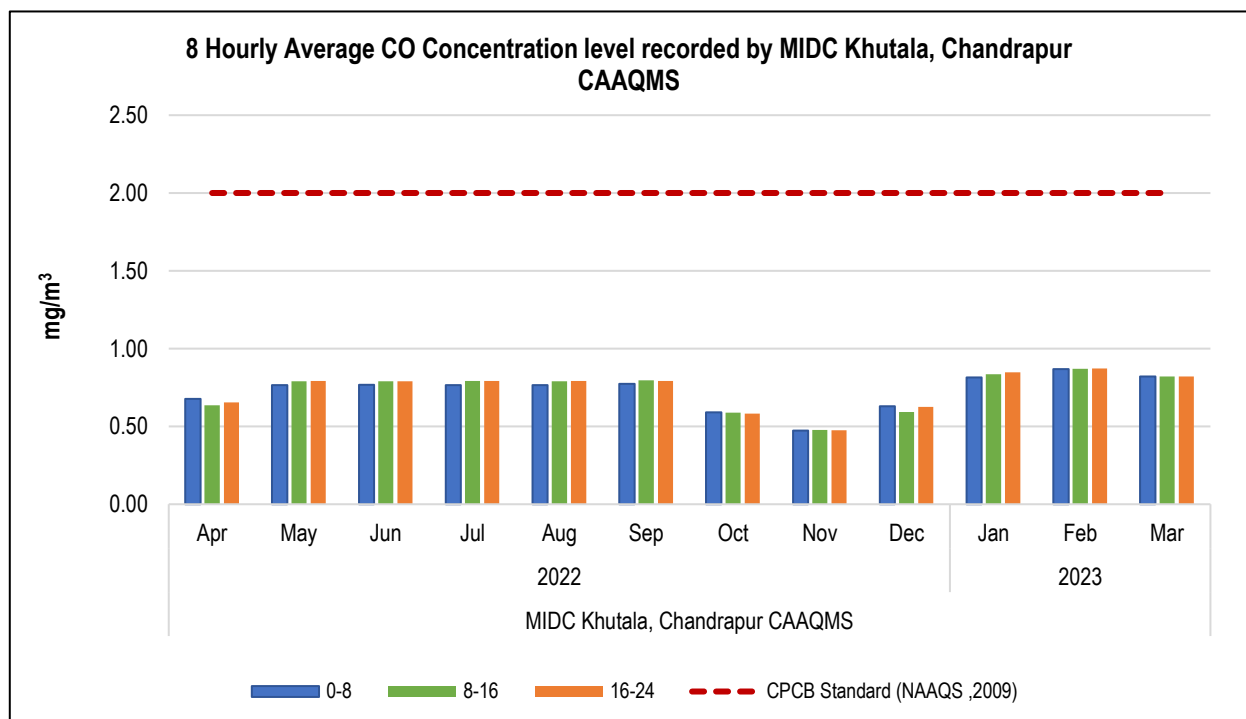
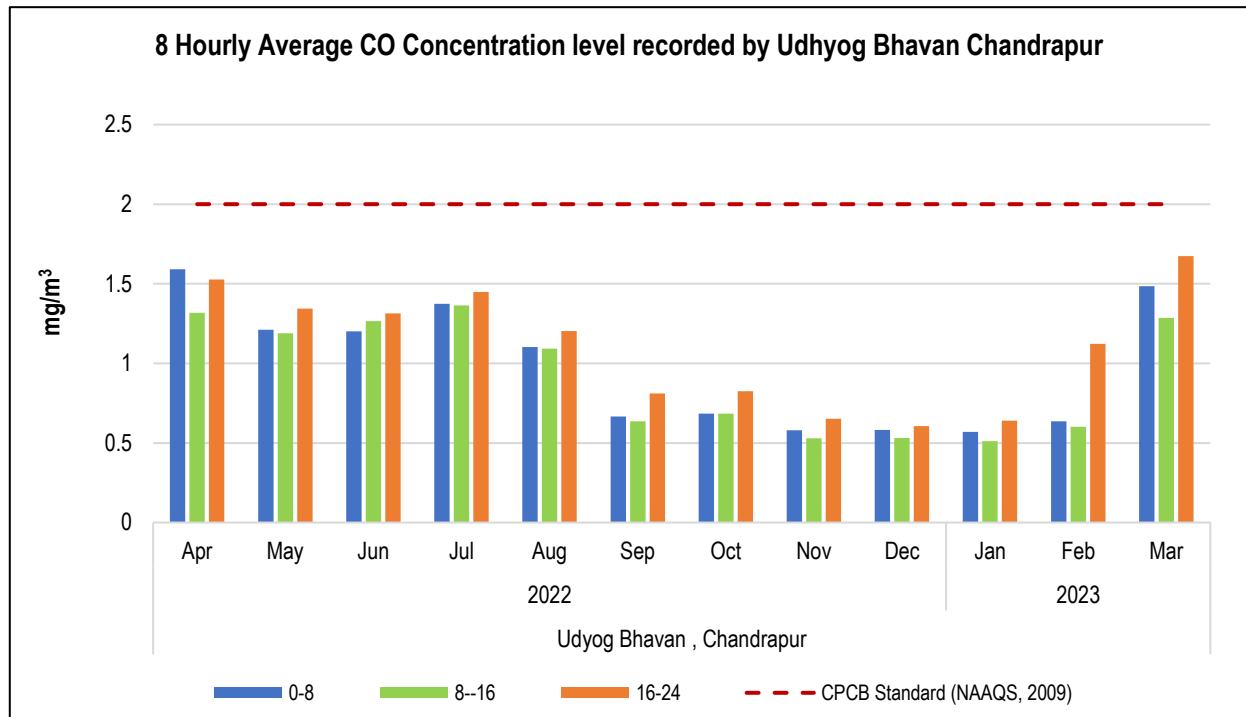


Figure No. 89 : Carbon monoxide concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Chandrapur RO

Benzene

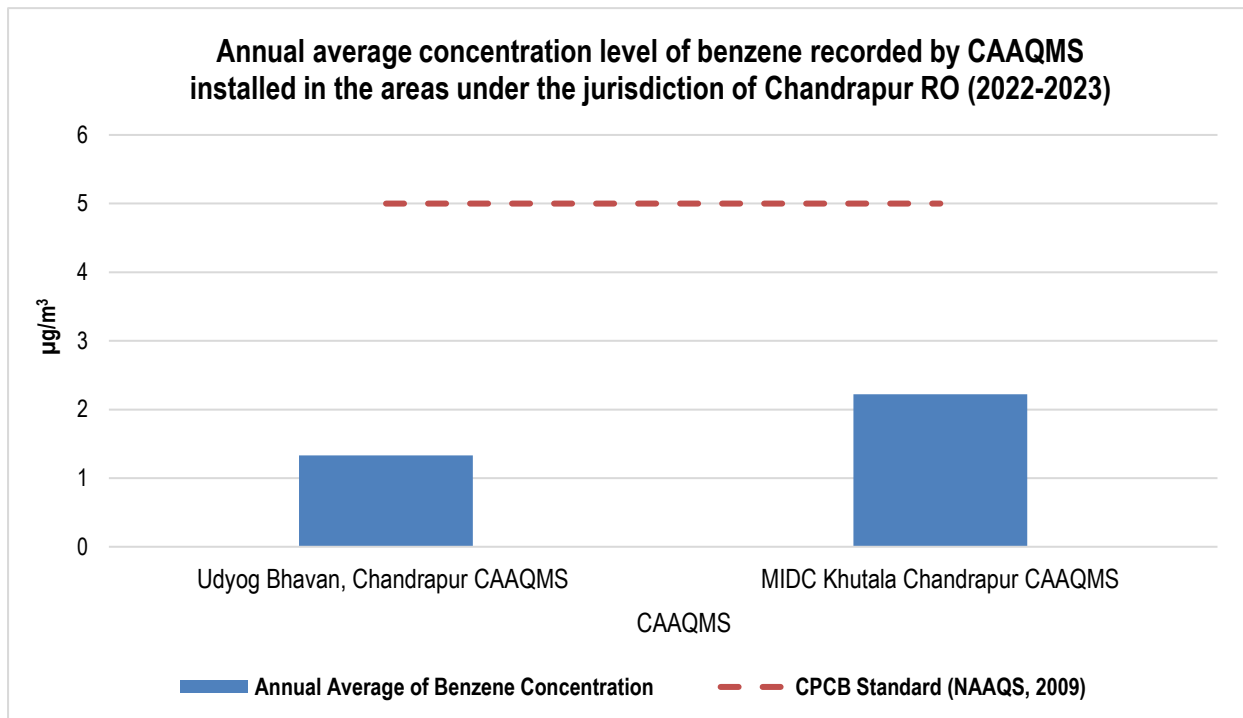


Figure No. 90: Annual average of benzene concentration recorded by CAAQMS installed in the areas under the jurisdiction of Chandrapur RO (2022-23)

With an annual average concentration level of about $1.33 \mu\text{g}/\text{m}^3$ and $2.22 \mu\text{g}/\text{m}^3$, both CAAQMS i.e. Udyog Bhavan – Chandrapur CAAQMS and MIDC Khutala – Chandrapur CAAQMS respectively have recorded benzene concentration level within the permissible limit set by CPCB.

AQI percentage occurrence graphs Chandrapur RO

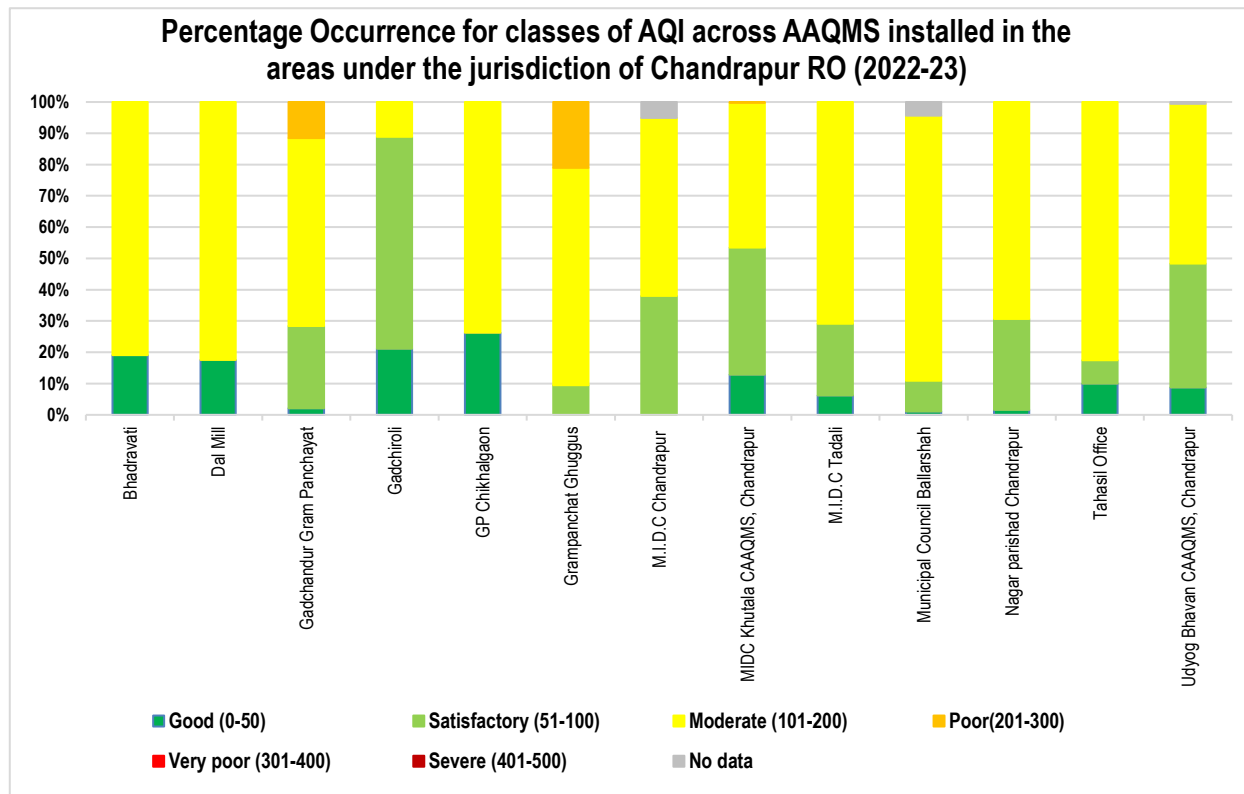


Figure No. 91: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Chandrapur RO (2022-23)

In the areas coming under the jurisdiction of Chandrapur RO, Gadchiroli AAQMS recorded a maximum percentage of observations (67.78%) under the 'Satisfactory' category followed by 21.11% and 11.11% observations under 'Good' and 'Moderate' categories respectively. AAQMS installed in the areas of Gadchandur Gram Panchayat, Gram Panchayat Ghuggus, and MIDC Khutala Chandrapur has recorded 11.58%, 21.05%, and 0.27% of the observations in the 'Poor' category respectively.

The highest percentage of 'Moderate' category observations were recorded by the Municipal Council Ballarshah (84.78%) followed by Tahasil Office (82.50%), Dal Mill (82.46%), Bhadravati (80.90%), GP Chikhalgaon (73.75%) and M.I.D.C Tadali (70.83%).

No single AAQMS recorded observations under the 'Very Poor' and 'Severe' category whereas about 5.06%, 4.35% and 0.55% of the total observations recorded at M.I.D.C Chandrapur AAQMS, Municipal Council Ballarshah AAQMS and Udyog Bhavan CAAQMS – Chandrapur respectively categorized as 'No Data'.

Monthly and Annual Graphs

Bhadravati

Table No. 73: Data for Monthly average concentration recorded at Bhadravati

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Bhadravati	2022	Apr	9	24	162	-
		May	9	18	173	-
		Jun	7	20	169	-
		Jul	10	29	138	-
		Aug	7	17	134	-
		Sep	9	22	129	-
		Oct	10	37	168	-
		Nov	11	34	174	-
		Dec	8	23	166	-
	2023	Jan	10	26	166	-
		Feb	10	29	170	49
		Mar	11	21	197	44

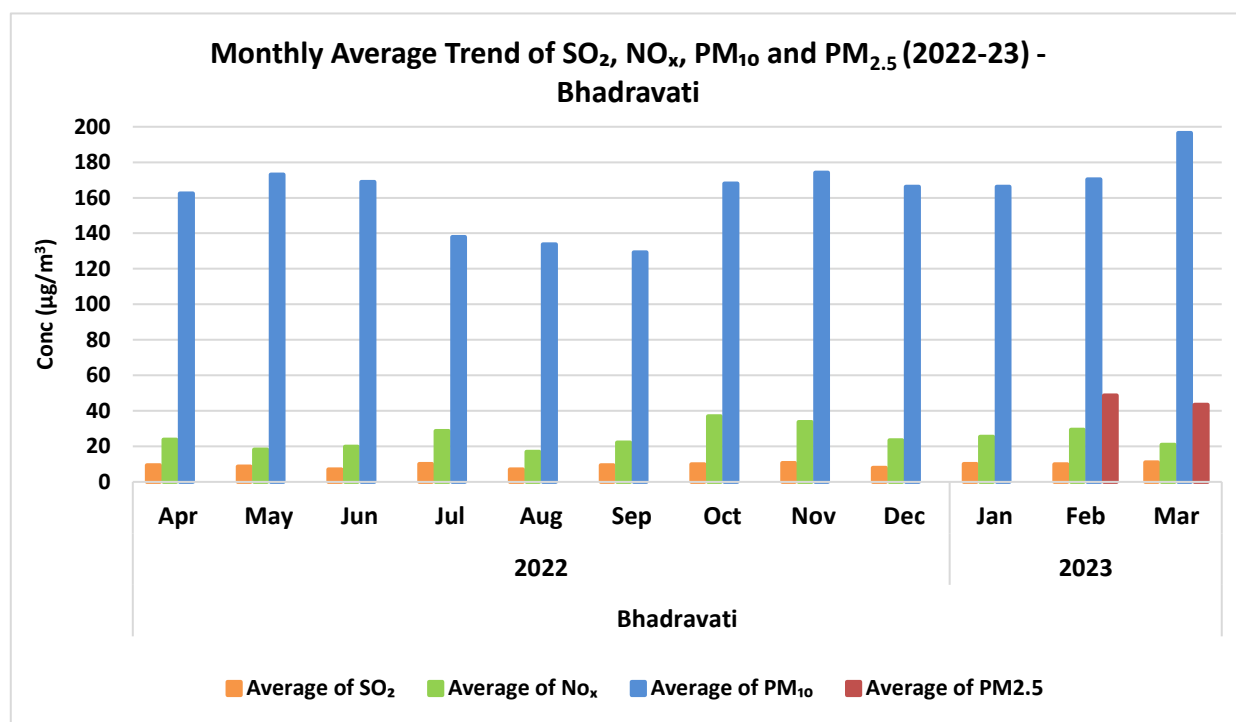
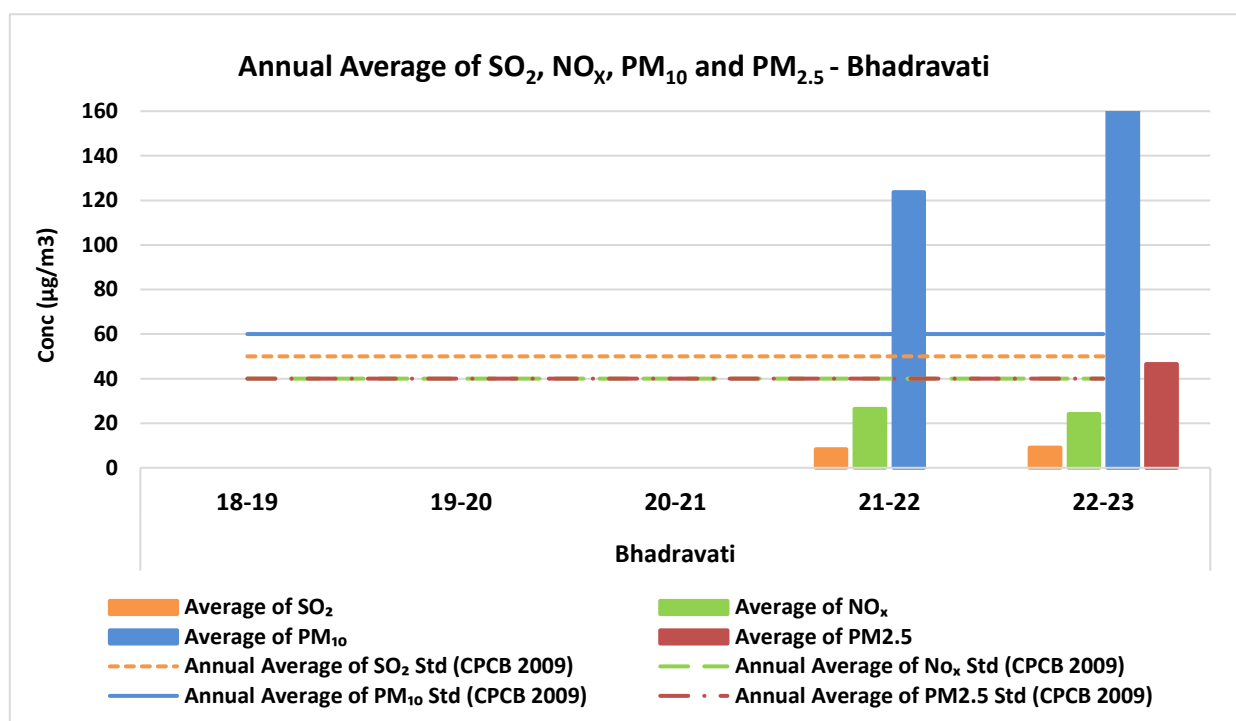


Figure No. 92: Monthly average concentration recorded at Bhadravati

Table No. 74: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Bhadravati

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Bhadravati	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	8	26	124	-
	22-23	9	24	164	47

Figure No. 93: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Bhadravati

Udyog Bhavan, Chandrapur CAAQMS

Table No. 75: Data for Monthly average concentration recorded at Chandrapur (Udyog Bhavan)

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Udyog Bhavan, Chandrapur CAAQMS	2022	Apr	29	50	131	48
		May	16	38	127	35
		Jun	12	39	79	38
		Jul	9	67	27	68
		Aug	9	58	42	59
		Sep	7	55	44	56
		Oct	8	49	87	50
		Nov	7	60	151	60
		Dec	7	46	127	46
	2023	Jan	11	33	135	33
		Feb	18	47	144	47
		Mar	20	26	108	26

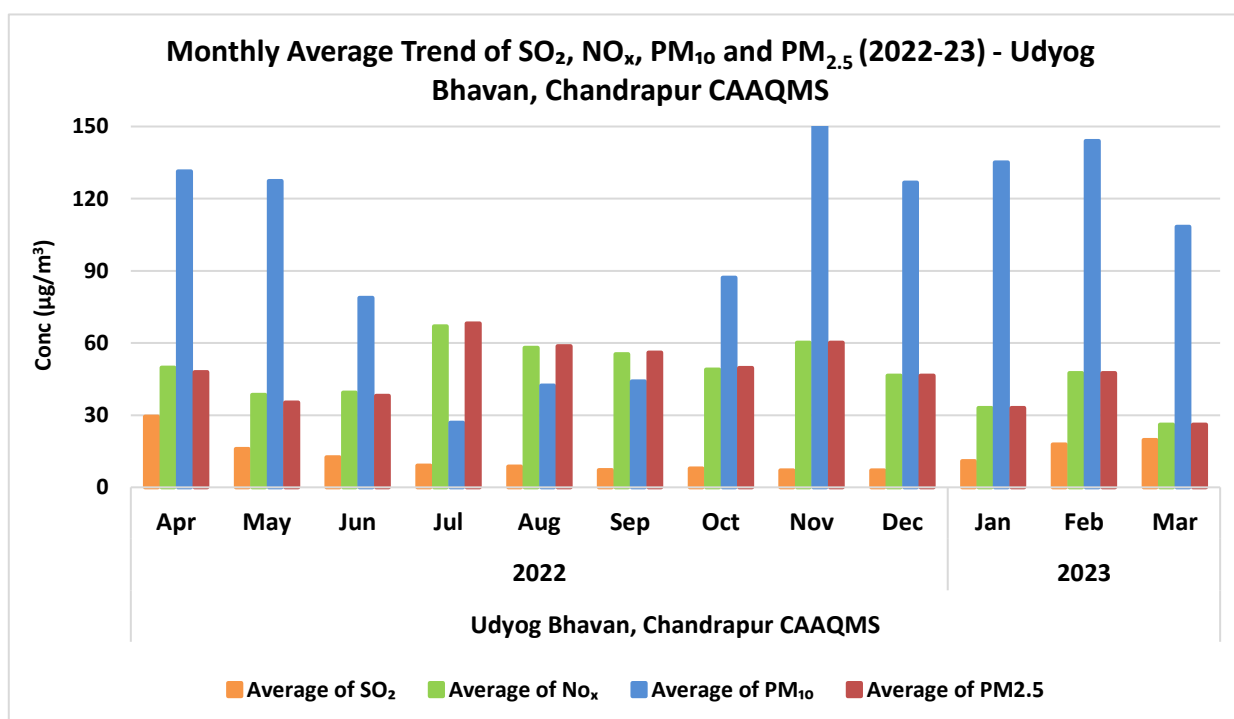
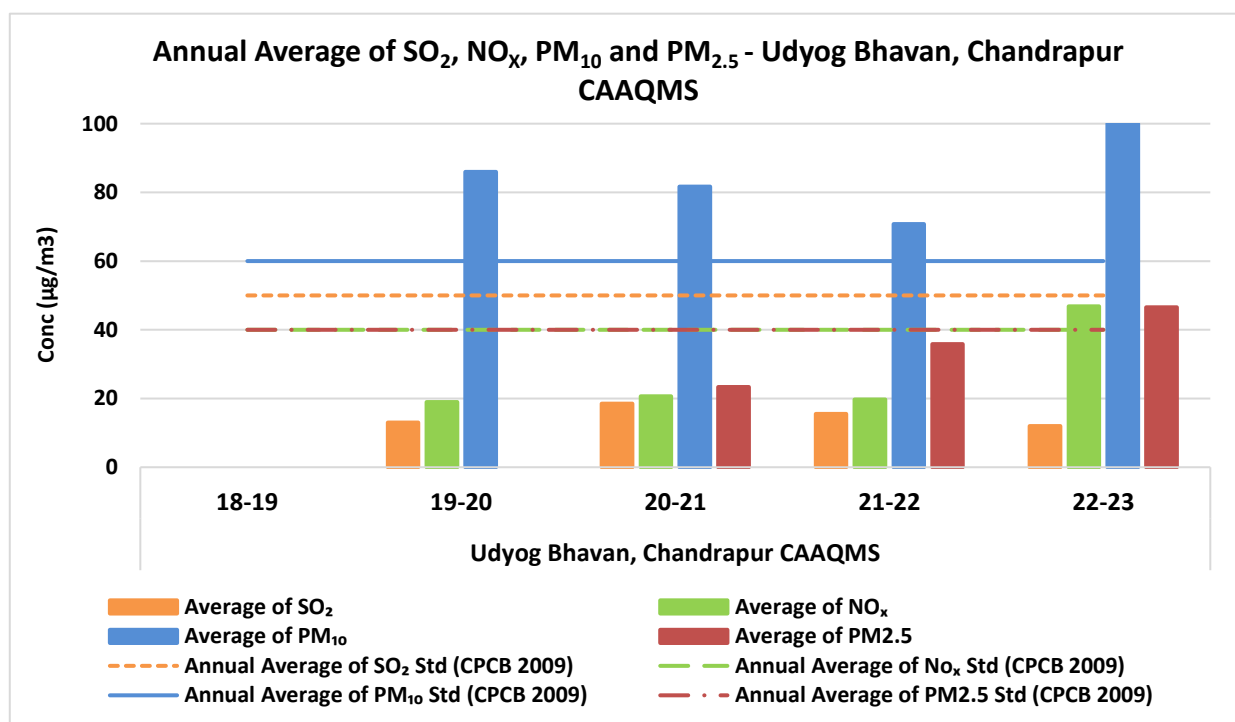


Figure No. 94: Monthly average concentration recorded at Chandrapur (Udyog Bhavan)

Table No. 76: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Chandrapur (Udyog Bhavan)

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Udyog Bhavan, Chandrapur CAAQMS	18-19	-	-	-	-
	19-20	13	19	86	-
	20-21	18	21	82	23
	21-22	16	20	71	36
	22-23	12	47	100	47

Figure No. 95: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Chandrapur (Udyog Bhavan)

MIDC Khutala, Chandrapur CAAQMS

Table No. 77: Data for Monthly average concentration recorded at MIDC Khutala, Chandrapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
MIDC Khutala, Chandrapur CAAQMS	2022	Apr	21	31	107	55
		May	17	-	111	31
		Jun	10	-	90	51
		Jul	2	-	71	51
		Aug	2	-	57	30
		Sep	4	-	57	30
		Oct	9	26	79	55
		Nov	26	24	171	79
		Dec	24	19	156	79
	2023	Jan	12	11	131	50
		Feb	29	32	185	79
		Mar	23	30	169	74

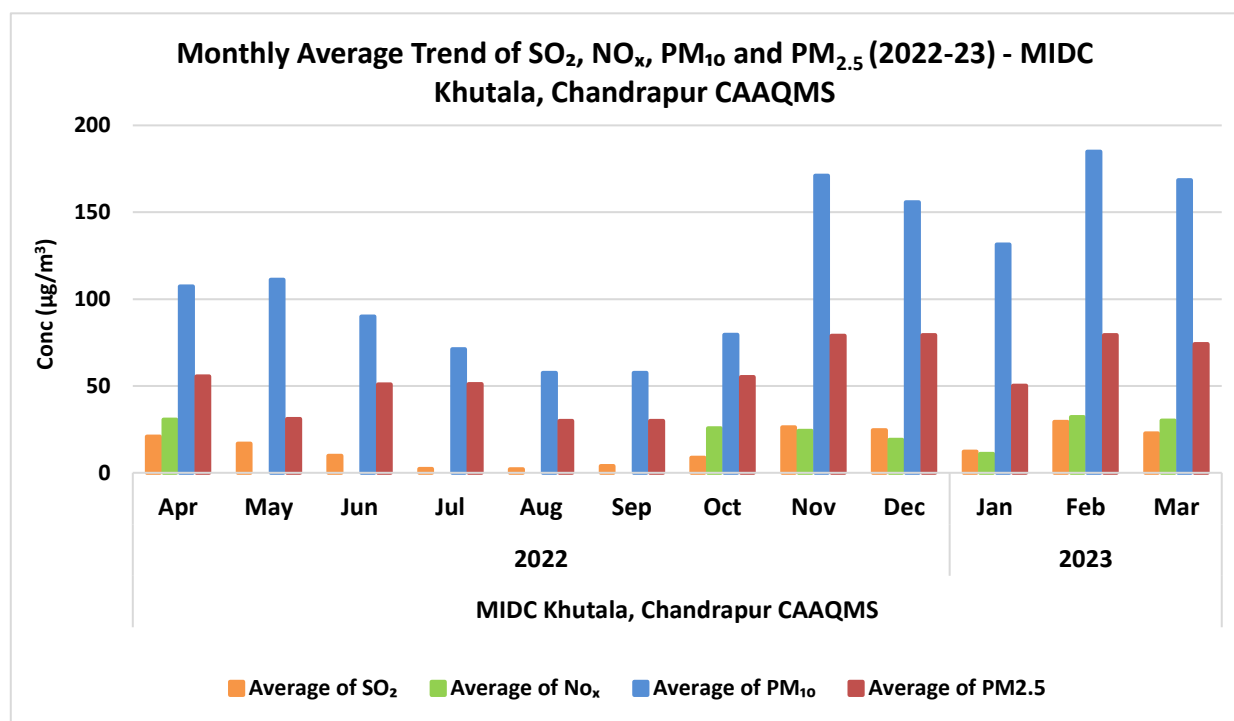
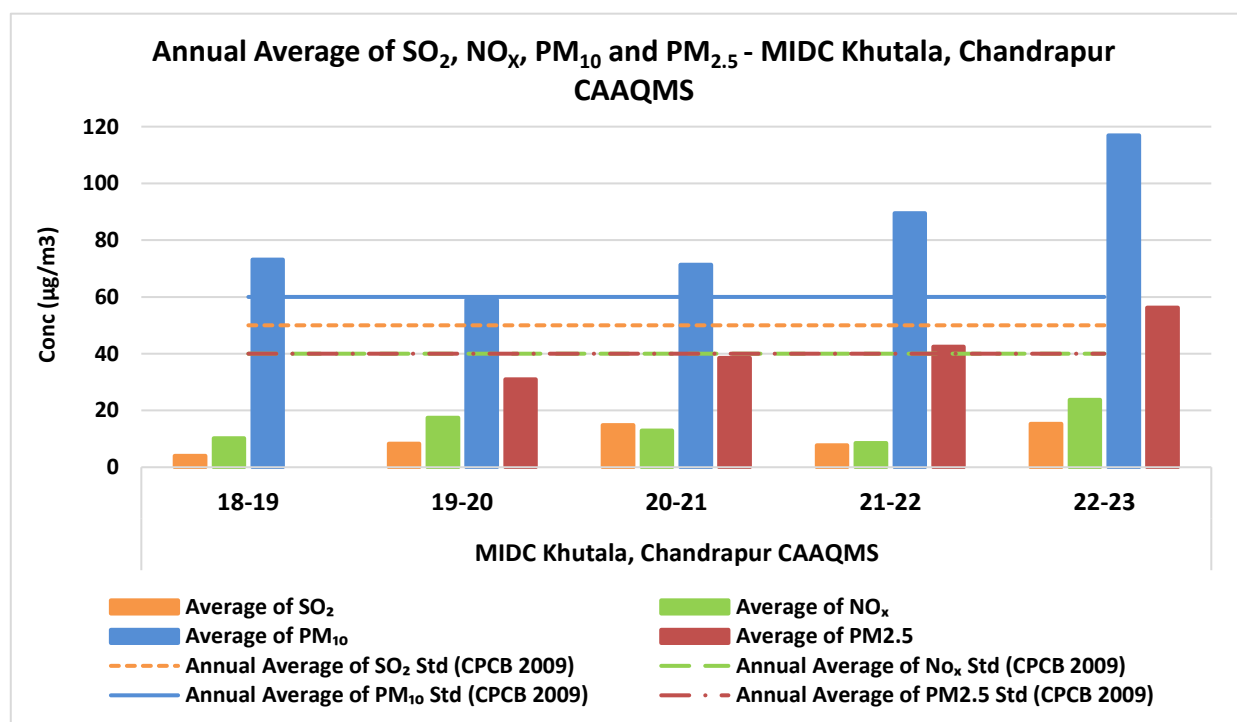


Figure No. 96: Monthly average concentration recorded at MIDC Khutala, Chandrapur CAAQMS

Table No. 78: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at MIDC Khutala, Chandrapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
MIDC Khutala, Chandrapur CAAQMS	18-19	4	10	73	-
	19-20	8	17	59	31
	20-21	15	13	71	39
	21-22	8	9	90	42
	22-23	15	24	117	56

Figure No. 97: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at MIDC Khutala, Chandrapur CAAQMS

Dal Mill

Table No. 79: Data for Monthly average concentration recorded at Dal Mill

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Dal Mill	2022	May	8	-	211
		Jul	8	20	148
		Aug	7	19	155
		Oct	8	21	189
		Nov	9	23	202
		Dec	9	23	178
	2023	Jan	9	22	194
		Feb	8	23	163
		Mar	11	18	143

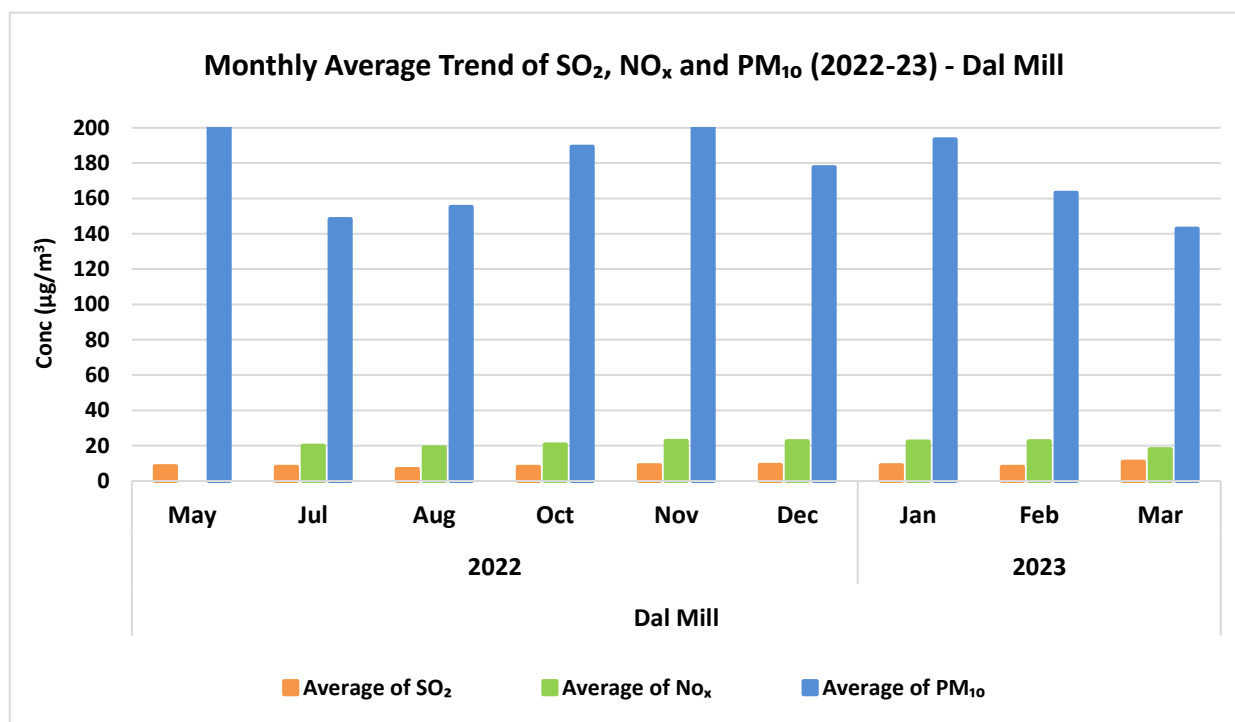
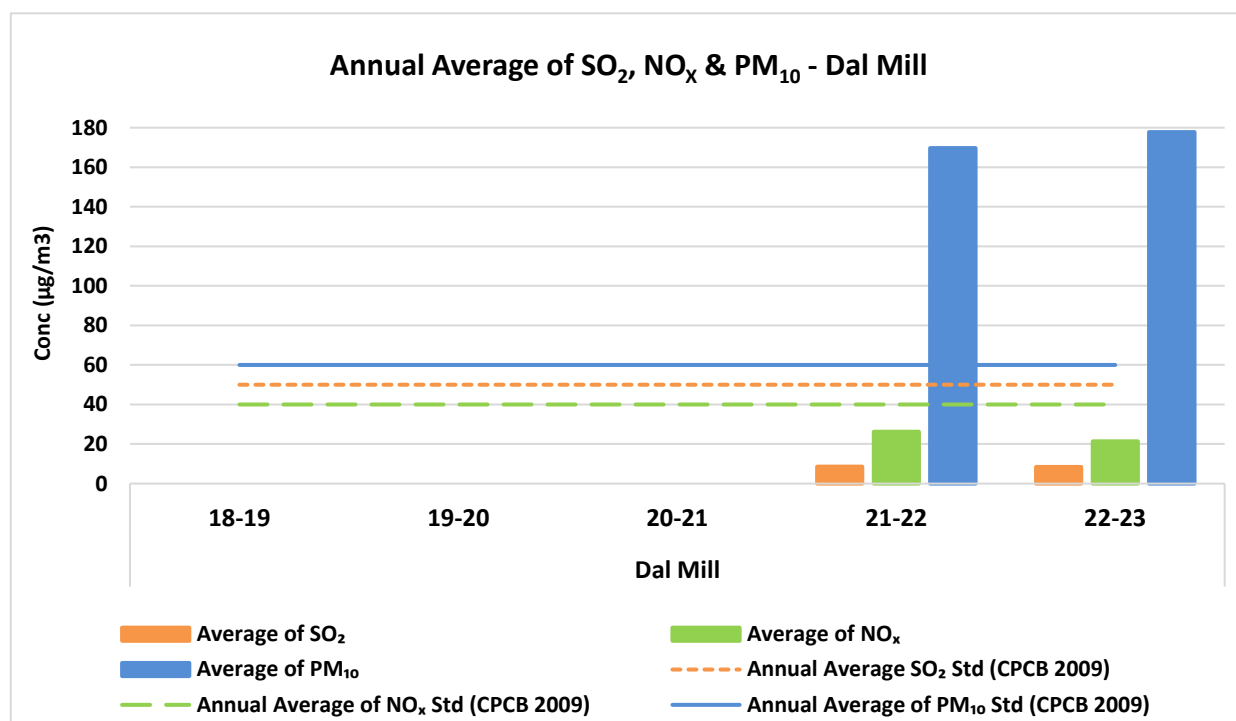


Figure No. 98: Monthly average concentration recorded at Dal Mill

Table No. 80: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Dal Mill

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Dal Mill	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	26	170
	22-23	8	21	178

Figure No. 99: Annual average trend of SO₂, NO_x and PM₁₀ at Dal Mill

Gadchandur Gram Panchayat

Table No. 81: Data for Monthly average concentration recorded at Gadchandur Gram Panchayat

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Gadchandur Gram Panchayat	2022	Apr	9	23	260
		May	8	22	235
		Jun	7	24	245
		Jul	8	19	227
		Aug	7	17	161
		Sep	8	21	198
		Oct	10	22	199
		Nov	10	26	211
		Dec	9	21	223
	2023	Jan	11	24	244
		Feb	8	27	193
		Mar	11	25	210

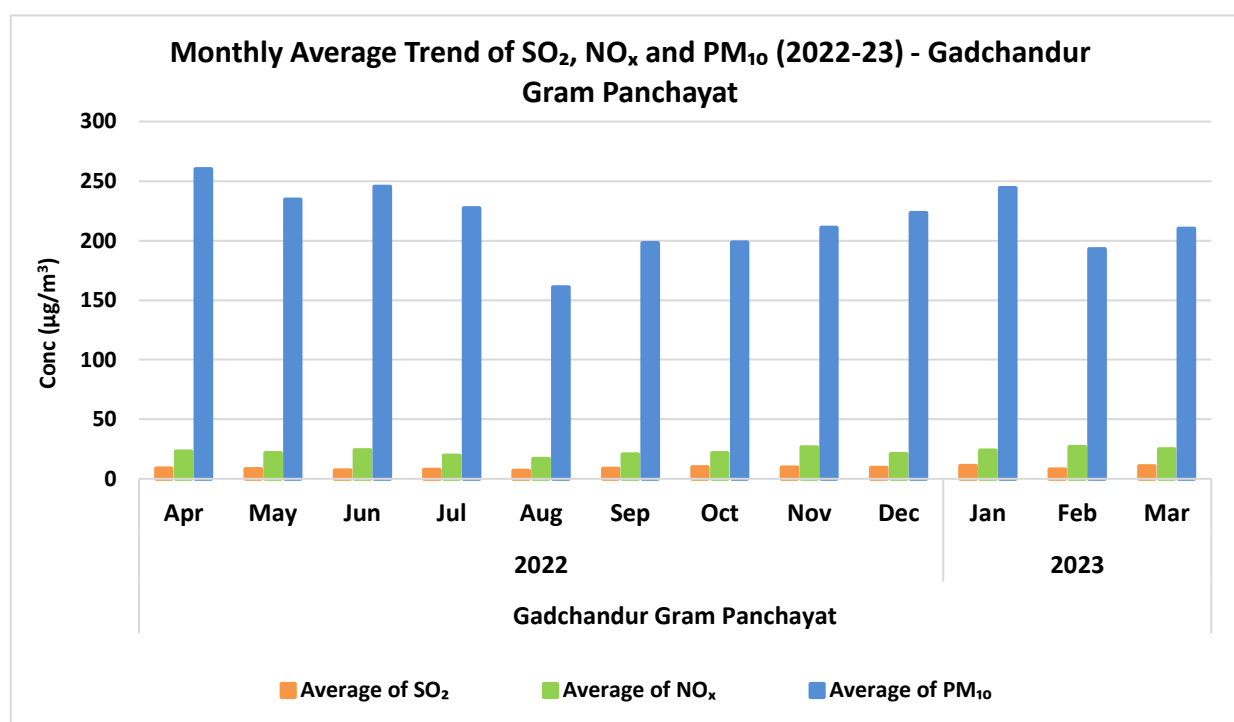
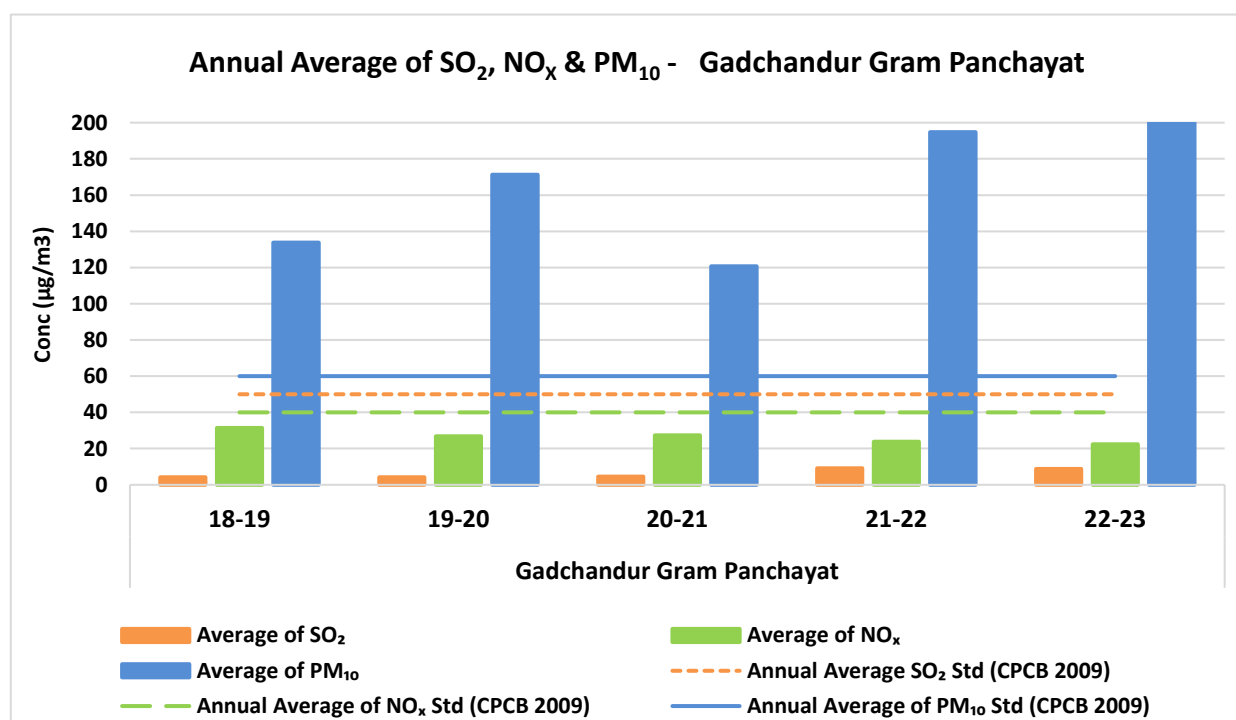


Figure No. 100: Monthly average concentration recorded at Gadchandur Gram Panchayat

Table No. 82: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Gadchandur Gram Panchayat

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Gadchandur Gram Panchayat	18-19	4	31	134
	19-20	4	27	171
	20-21	4	27	121
	21-22	9	24	195
	22-23	9	22	213

Figure No. 101: Annual average trend of SO₂, NO_x and PM₁₀ at Gadchandur Gram Panchayat

Gadchiroli

Table No. 83: Data for Monthly average concentration recorded at Gadchiroli

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Gadchiroli	2022	Apr	9	21	59
		May	9	18	91
		Jun	7	25	99
		Jul	9	21	62
		Aug	-	20	49
		Sep	8	19	75
		Oct	9	33	85
		Nov	9	24	72
		Dec	8	23	92
	2023	Jan	10	26	74
		Feb	10	25	43
		Mar	9	23	55

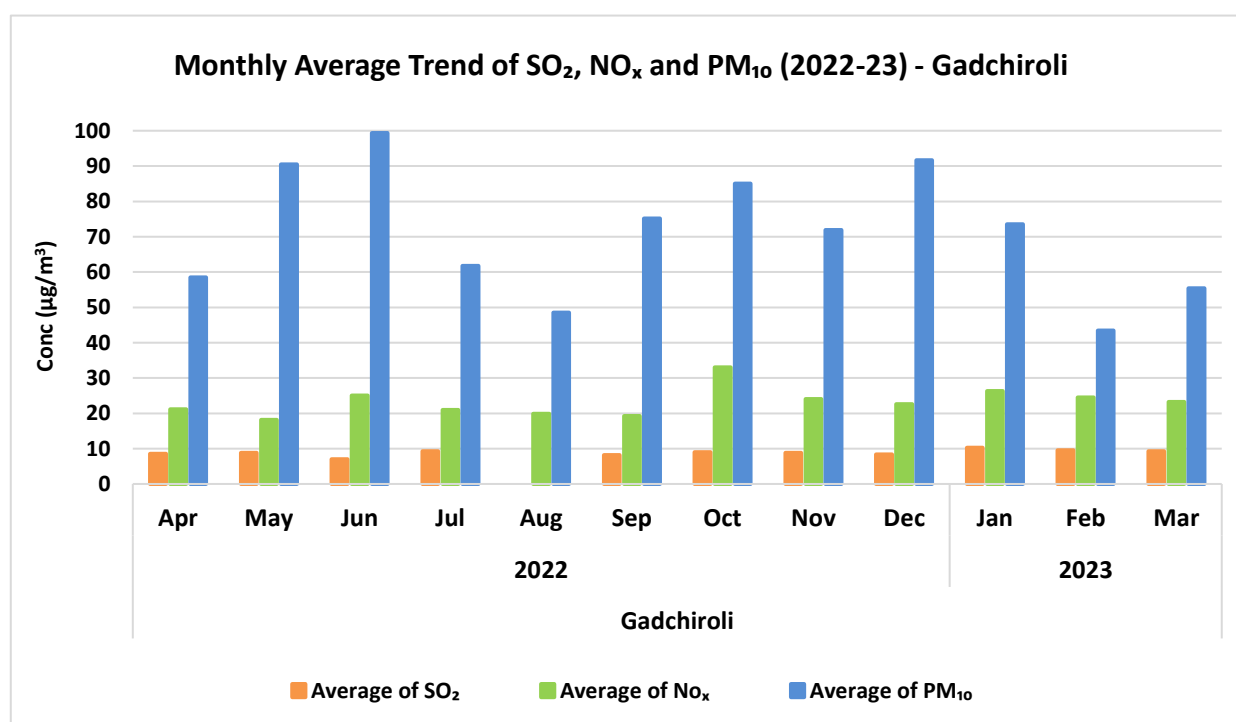
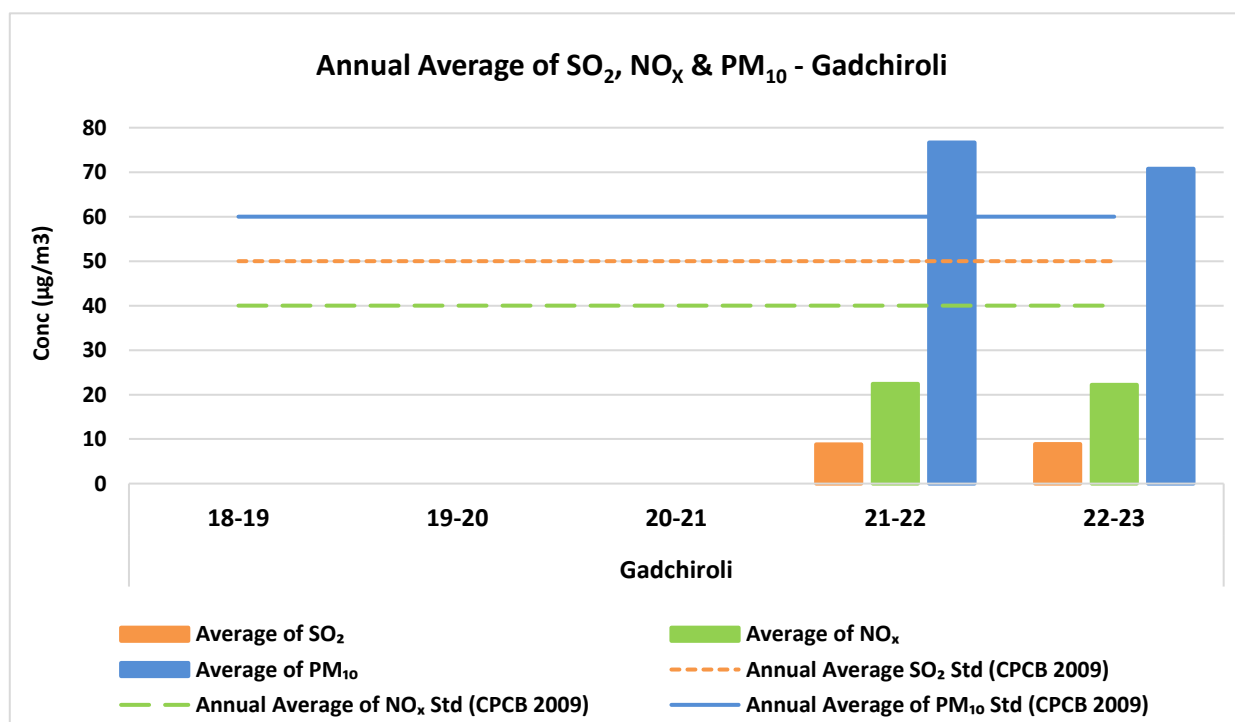


Figure No. 102: Monthly average concentration recorded at Gadchiroli

Table No. 84: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Gadchiroli

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Gadchiroli	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	22	77
	22-23	9	22	71

Figure No. 103: Annual average trend of SO₂, NO_x and PM₁₀ at Gadchiroli

GP Chikhalgaon

Table No. 85: Data for Monthly average concentration recorded at GP Chikhalgaon

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
GP Chikhalgaon	2022	Apr	8	22	159
		May	9	20	155
		Jul	8	22	121
		Aug	8	18	142
		Oct	9	20	163
		Nov	9	22	145
		Dec	8	21	146
	2023	Jan	7	22	145
		Feb	8	24	158
		Mar	9	23	148

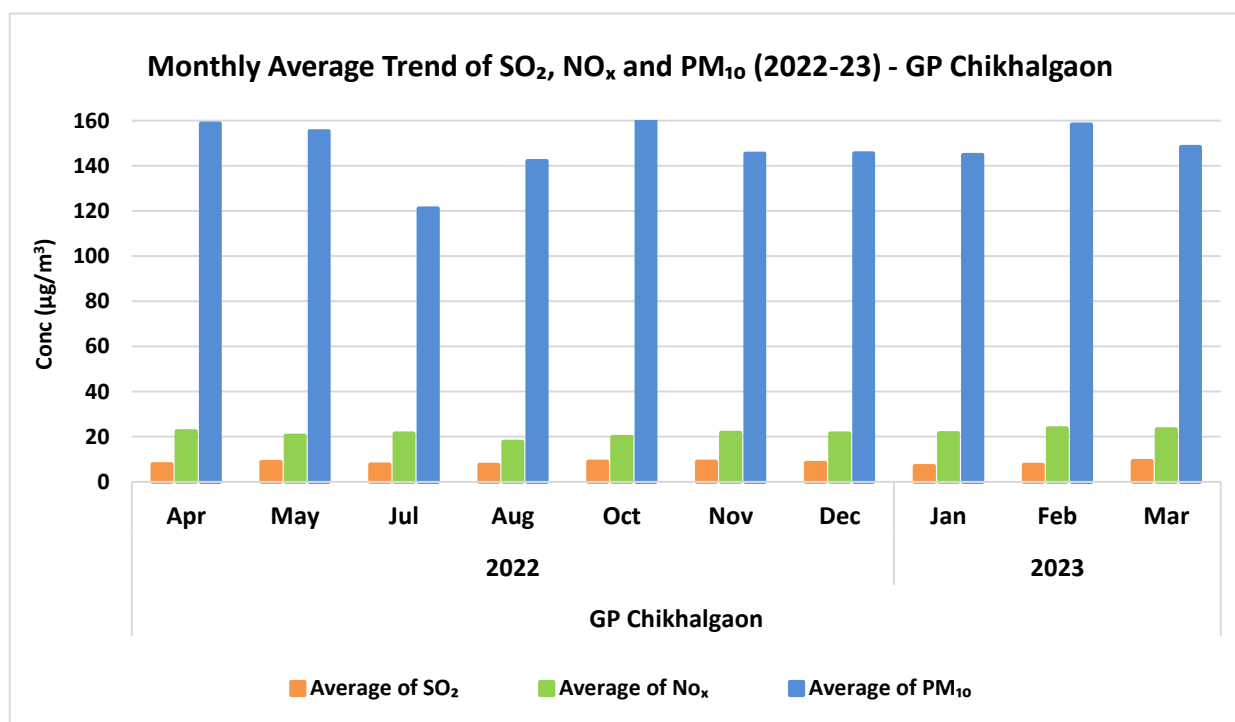
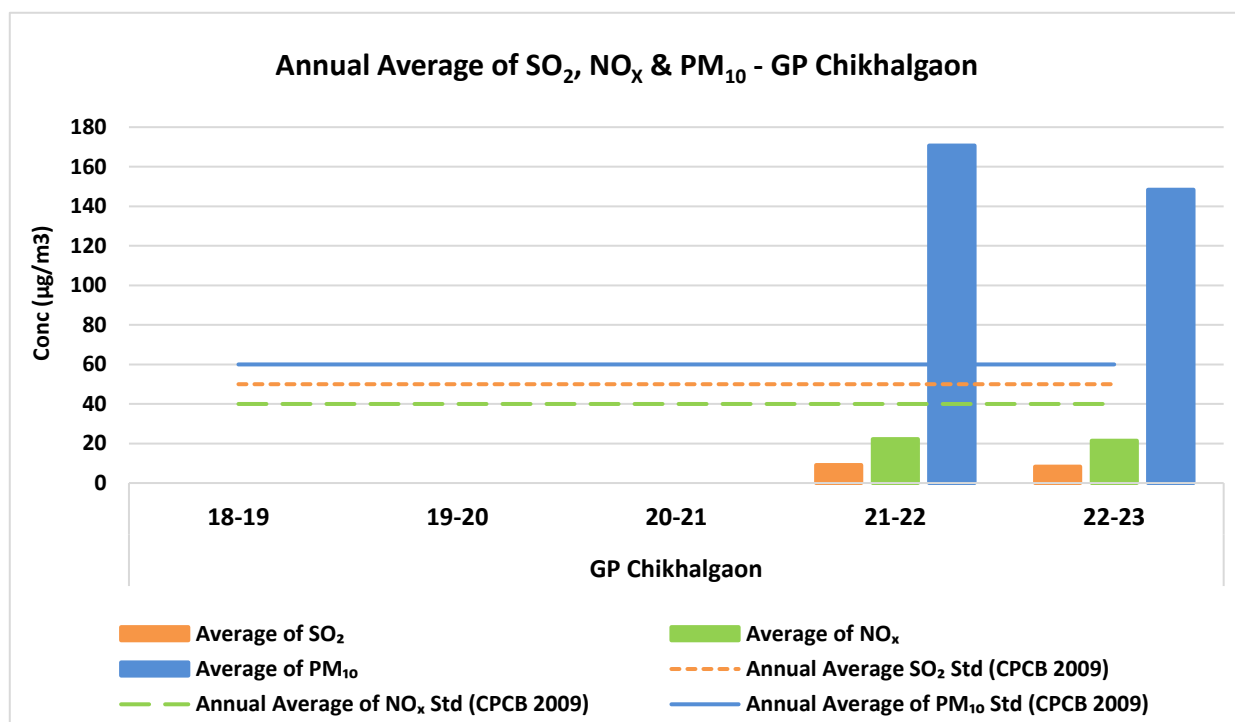


Figure No. 104: Monthly average concentration recorded at GP Chikhalgaon

Table No. 86: Data for Annual average trend of SO₂, NO_x and PM₁₀ at GP Chikhalgaon

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
GP Chikhalgaon	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	22	171
	22-23	8	21	148

Figure No. 105: Annual average trend of SO₂, NO_x and PM₁₀ at GP Chikhalgaon

Grampanchayat Ghughus

Table No. 87: Data for Monthly average concentration recorded at Grampanchayat Ghughus

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Grampanchayat Ghughus	2022	Apr	8	24	226
		May	10	18	216
		Jun	7	25	245
		Jul	8	20	188
		Aug	7	15	191
		Sep	10	21	194
		Oct	8	22	215
		Nov	9	28	223
		Dec	10	23	246
	2023	Jan	11	23	210
		Feb	9	27	184
		Mar	9	25	209

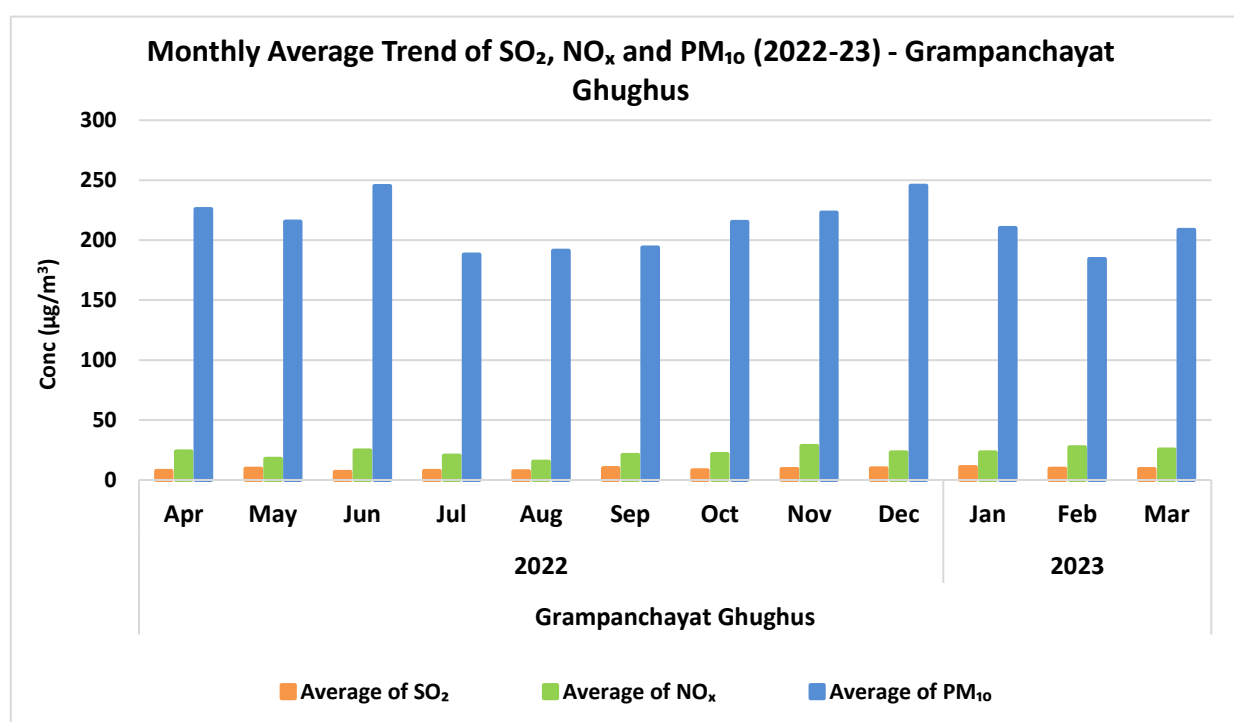
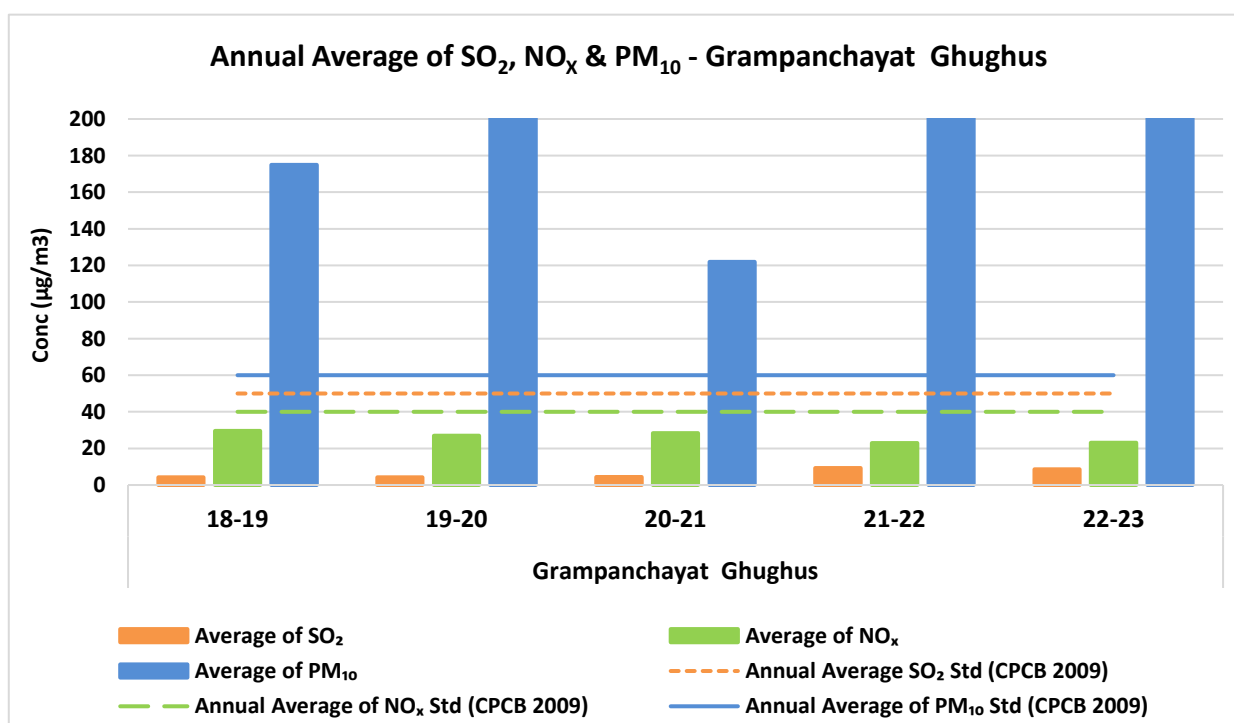


Figure No. 106: Monthly average concentration recorded at Grampanchayat Ghughus

Table No. 88: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Grampanchayat Ghughus

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Grampanchayat Ghughus	18-19	4	29	175
	19-20	4	27	204
	20-21	4	28	122
	21-22	9	23	222
	22-23	9	23	213

Figure No. 107: Annual average trend of SO₂, NO_x and PM₁₀ at Grampanchayat Ghughus

M.I.D.C., Chandrapur

Table No. 89: Data for Monthly average concentration recorded at M.I.D.C., Chandrapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
M.I.D.C., Chandrapur	2022	Apr	8	22	121
		May	8	24	89
		Jun	7	25	118
		Jul	8	27	111
		Aug	5	18	103
		Sep	11	20	94
		Oct	7	30	107
		Nov	12	33	101
		Dec	9	29	111
	2023	Jan	11	23	119
		Feb	9	27	94
		Mar	12	23	87

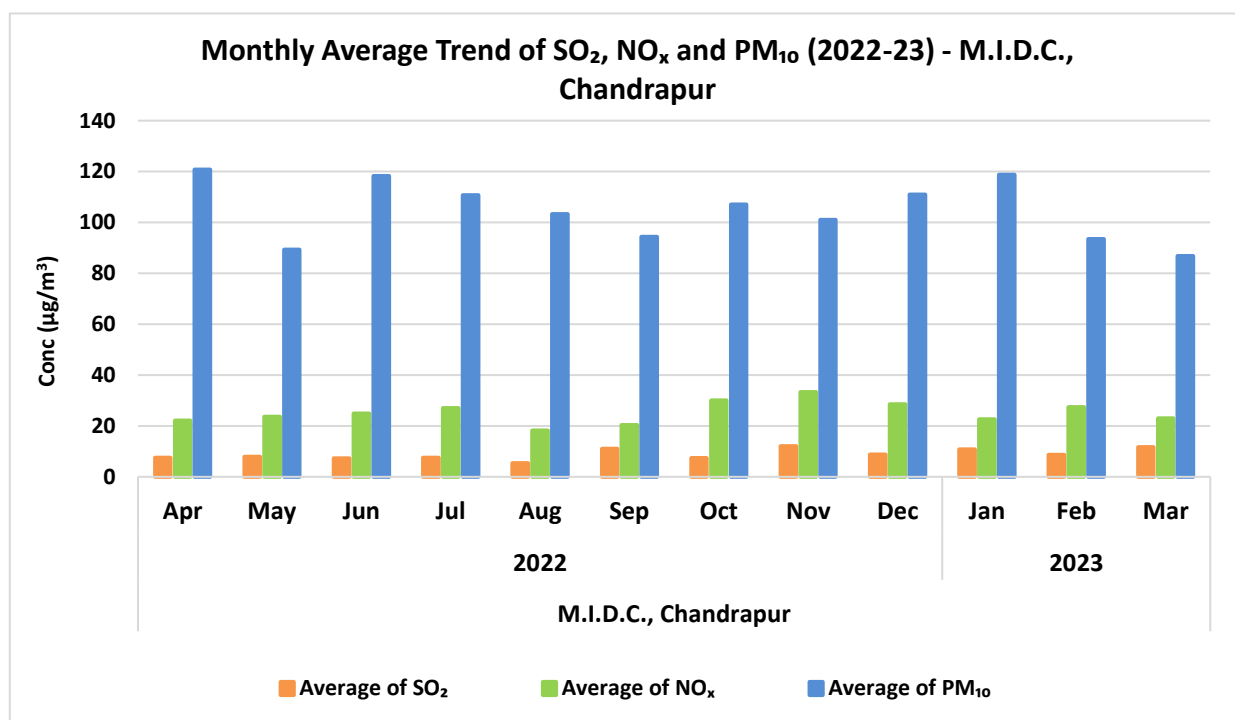
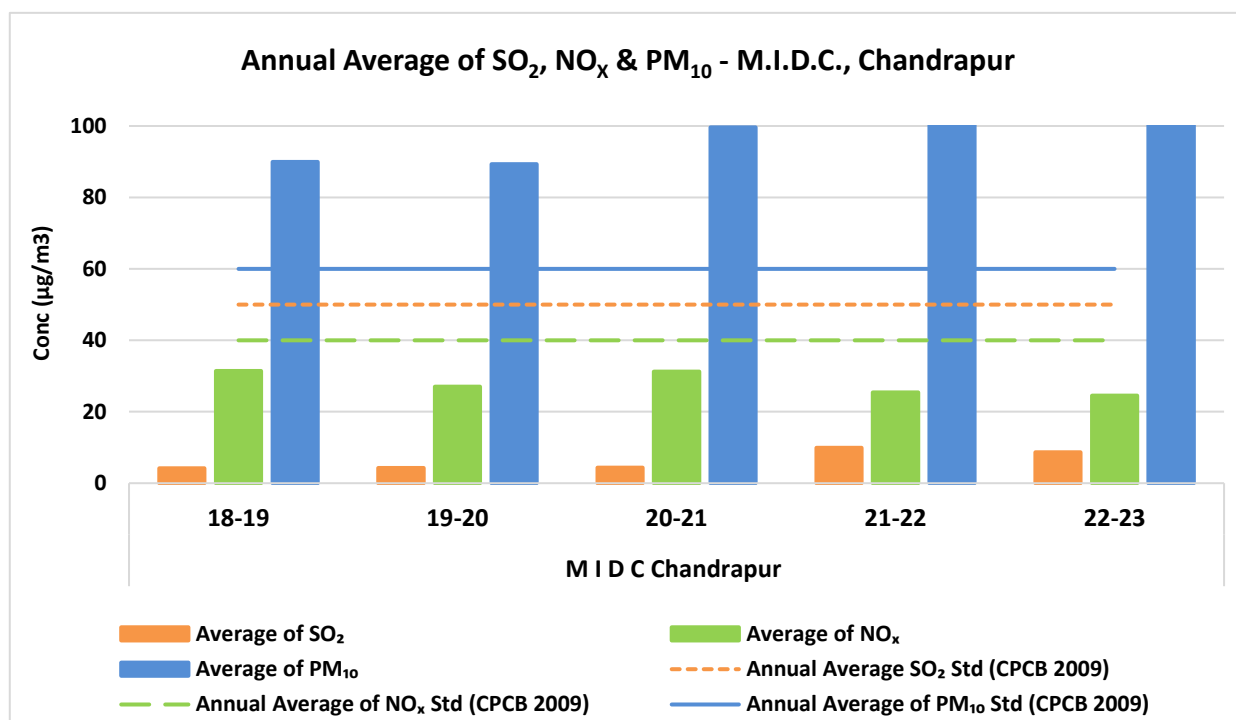


Figure No. 108: Monthly average concentration recorded at M.I.D.C., Chandrapur

Table No. 90: Data for Annual average trend of SO₂, NO_x and PM₁₀ at M.I.D.C., Chandrapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
M I D C Chandrapur	18-19	4	31	90
	19-20	4	27	89
	20-21	4	31	100
	21-22	10	25	102
	22-23	9	25	105

Figure No. 109: Annual average trend of SO₂, NO_x and PM₁₀ at M.I.D.C., Chandrapur

M.I.D.C., Tadali

Table No. 91: Data for Monthly average concentration recorded at M.I.D.C., Tadali

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
M.I.D.C., Tadali	2022	Apr	9	22	135
		May	9	16	134
		Jun	8	23	150
		Jul	10	20	119
		Aug	7	13	117
		Sep	10	20	120
		Oct	10	21	116
		Nov	9	29	117
		Dec	10	21	129
	2023	Jan	10	25	117
		Feb	10	26	122
		Mar	12	25	120

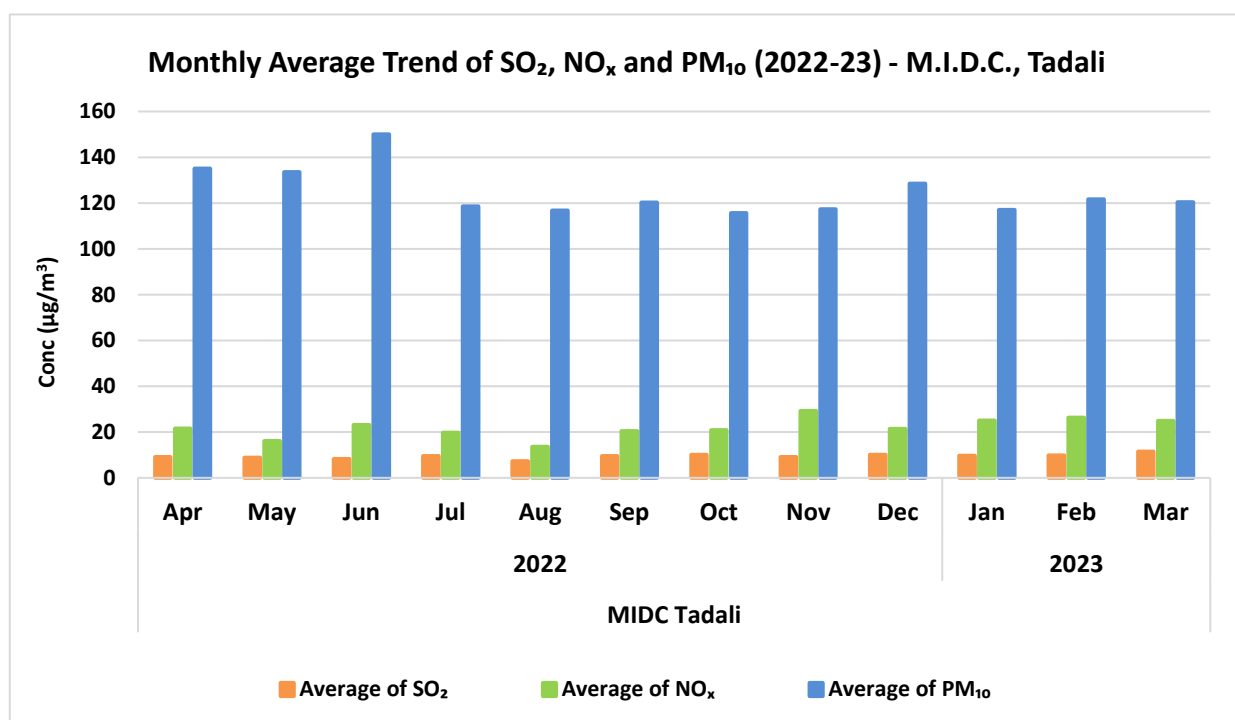
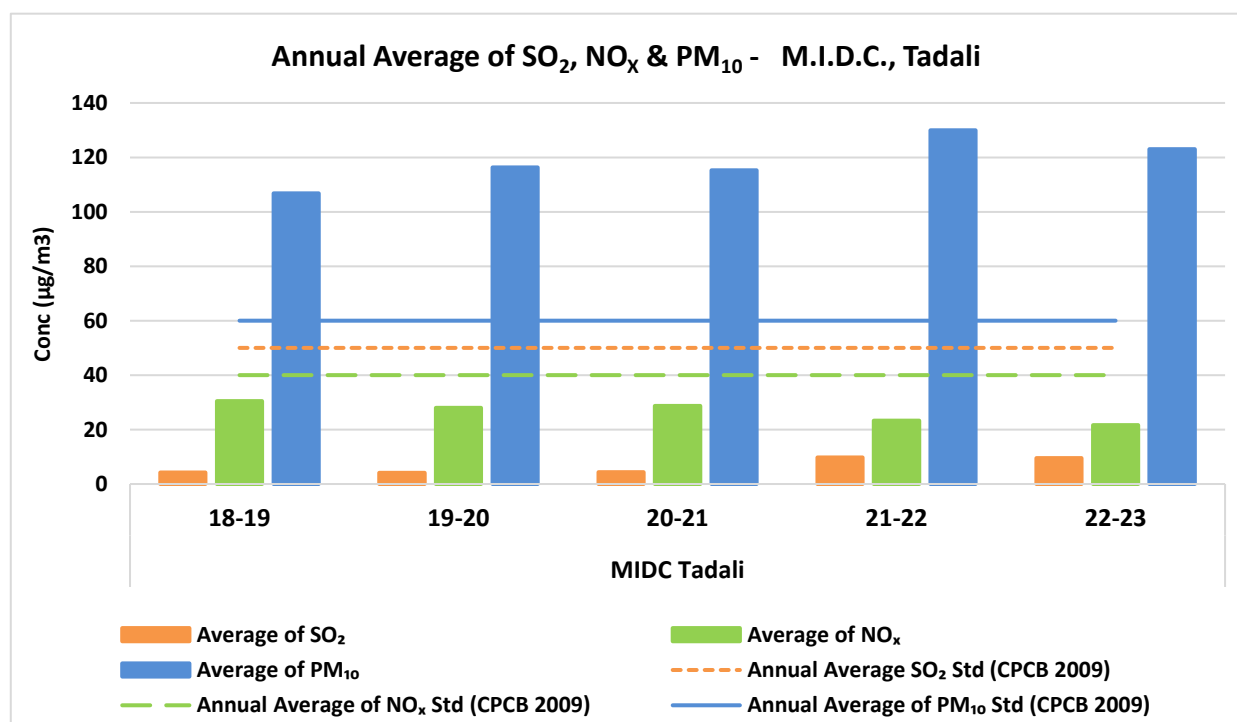


Figure No. 110: Monthly average concentration recorded at M.I.D.C., Tadali

Table No. 92: Data for Annual average trend of SO₂, NO_x and PM₁₀ at M.I.D.C., Tadali

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Tadali	18-19	4	30	107
	19-20	4	28	116
	20-21	4	29	115
	21-22	10	23	130
	22-23	9	22	123

Figure No. 111: Annual average trend of SO₂, NO_x and PM₁₀ at M.I.D.C., Tadali

Municipal Council, Ballarshah

Table No. 93: Data for Monthly average concentration recorded at Municipal Council, Ballarshah

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Municipal Council Ballarshah	2022	Apr	9	23	169
		May	8	21	176
		Jun	8	24	163
		Jul	9	25	132
		Aug	8	18	129
		Sep	11	23	115
		Oct	8	23	166
		Nov	10	27	192
		Dec	10	24	136
	2023	Jan	11	23	133
		Feb	10	28	138
		Mar	12	27	127

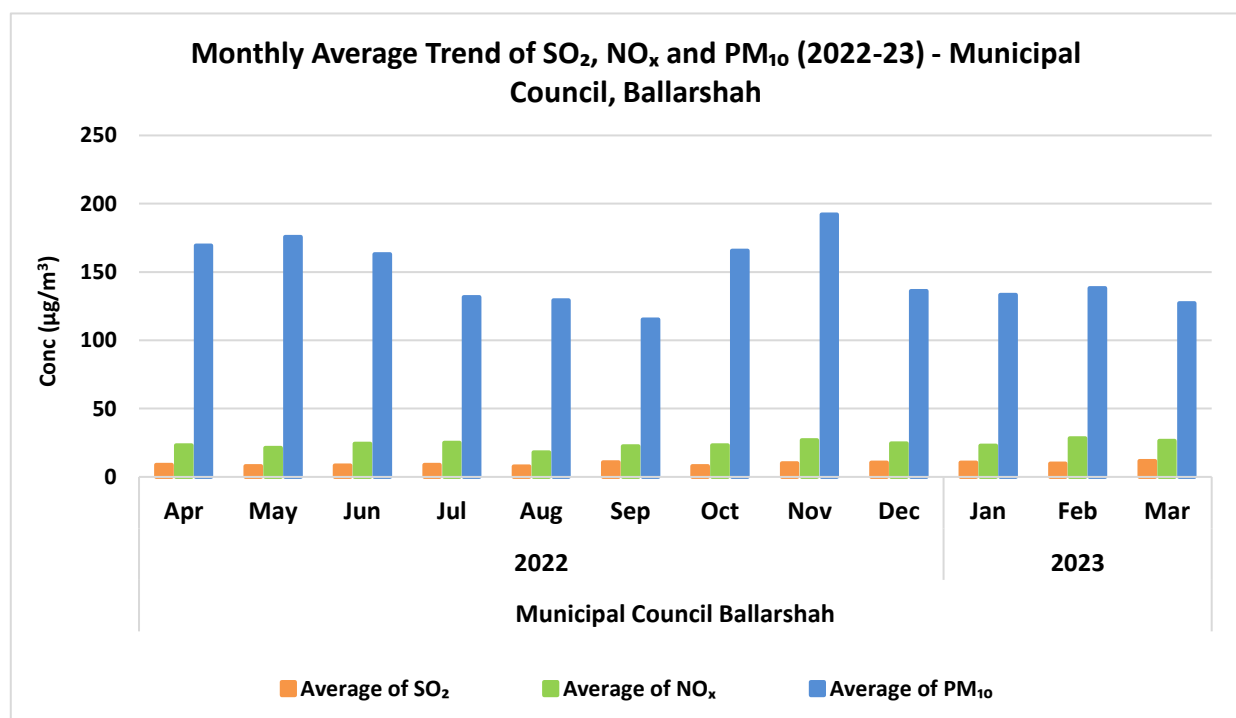
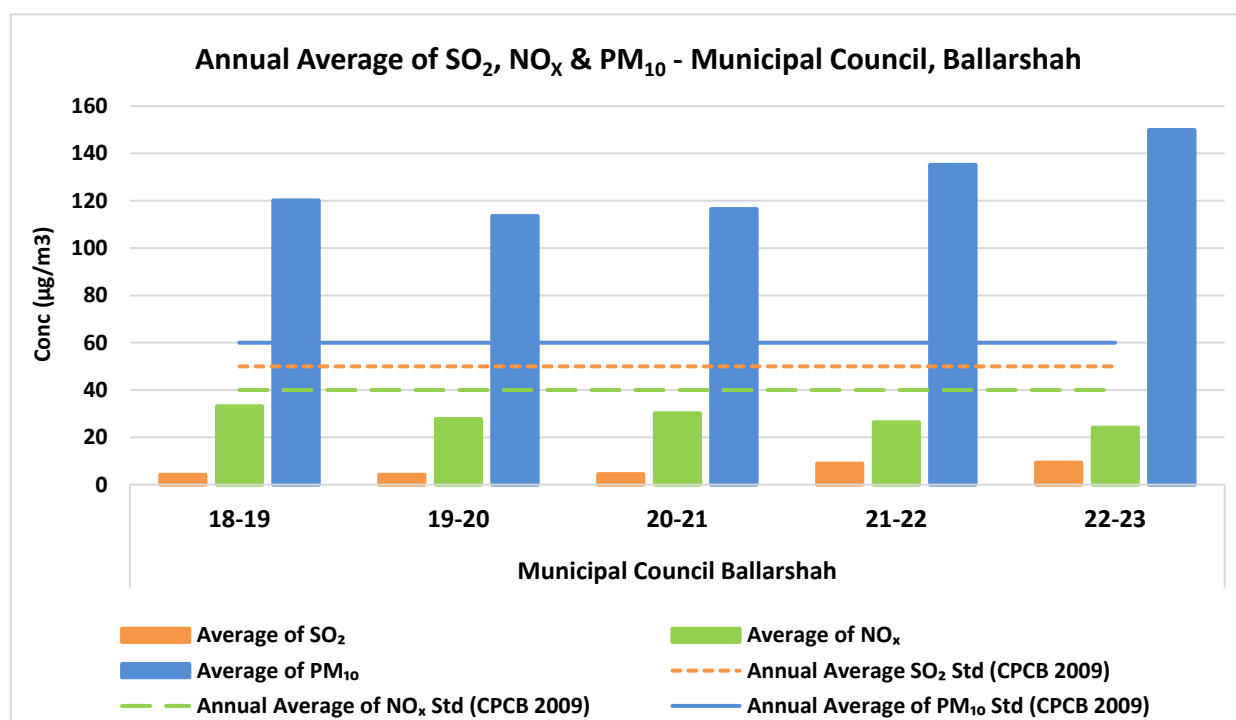


Figure No. 112: Monthly average concentration recorded at Municipal Council, Ballarshah

Table No. 94: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council, Ballarshah

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Municipal Council Ballarshah	18-19	4	33	120
	19-20	4	28	114
	20-21	4	30	117
	21-22	9	26	135
	22-23	9	24	150

Figure No. 113: Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council, Ballarshah

Nagar Parishad, Chandrapur

Table No. 95: Data for Monthly average concentration recorded at Nagar Parishad, Chandrapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Nagar parishad Chandrapur	2022	May	9	20	131
		Jun	8	24	152
		Aug	9	18	135
		Sep	9	23	115
		Oct	10	22	136
		Nov	8	29	137
		Dec	11	26	161
	2023	Jan	9	27	142
		Feb	8	27	136
		Mar	9	25	118

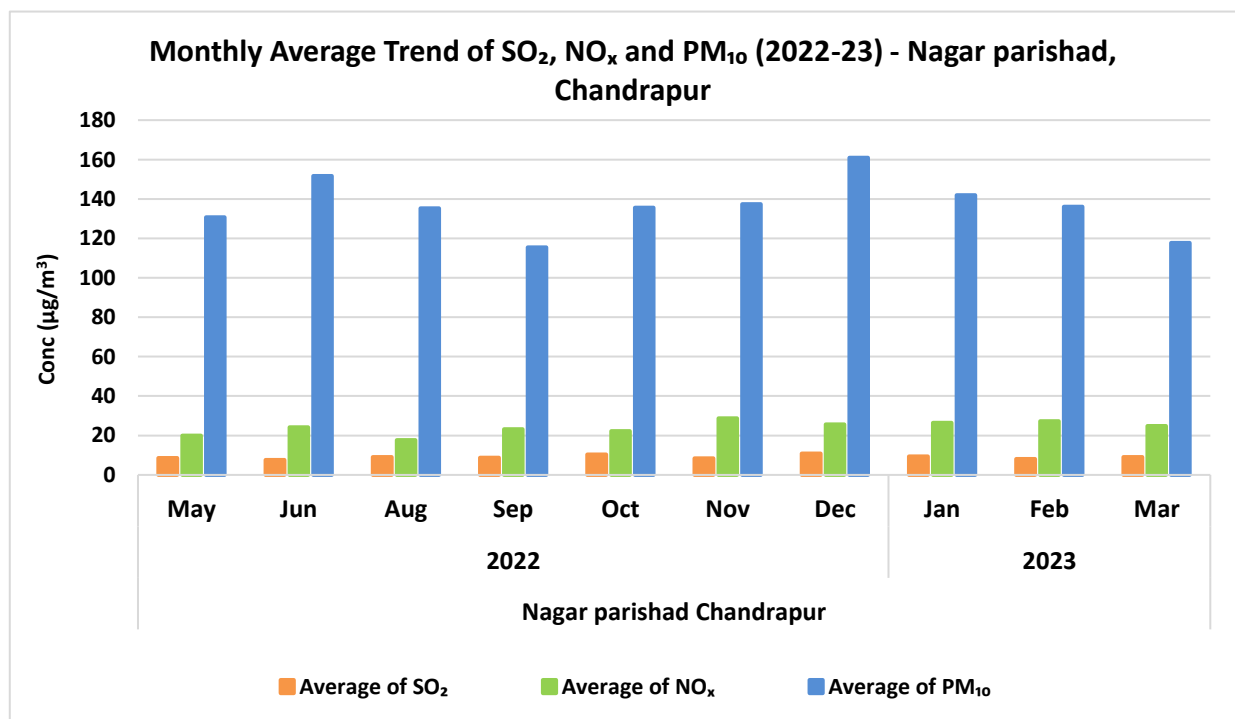
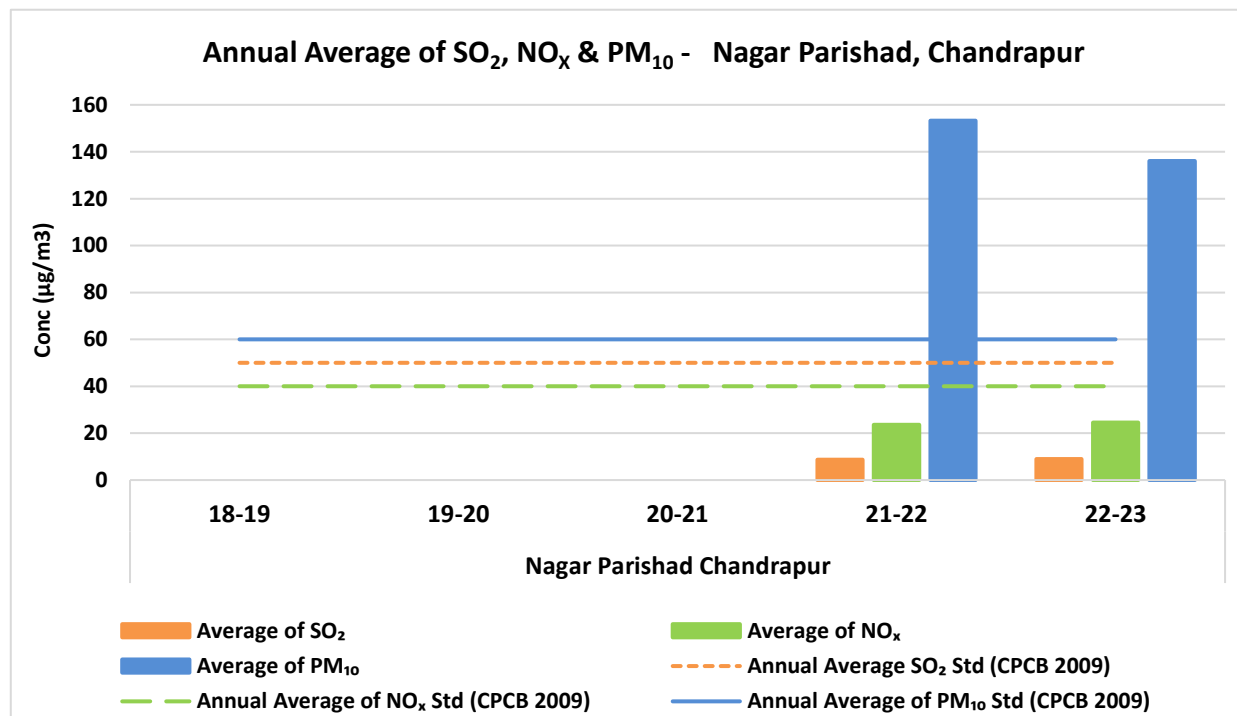


Figure No. 114: Monthly average concentration recorded at Nagar Parishad, Chandrapur

Table No. 96: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Nagar Parishad, Chandrapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Nagar Parishad Chandrapur	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	24	153
	22-23	9	25	136

Figure No. 115: Annual average trend of SO₂, NO_x and PM₁₀ at Nagar Parishad, Chandrapur

Tahasil Office

Table No. 97: Data for Monthly average concentration recorded at Tahasil Office

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Tahasil Office	2022	Apr	9	22	167
		May	9	14	170
		Jul	9	22	140
		Aug	9	14	136
		Oct	9	18	138
		Nov	7	25	164
		Dec	9	25	162
	2023	Jan	10	16	127
		Feb	9	29	113
		Mar	10	25	168

Table No. 98: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Tahasil Office

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Tahasil Office	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	-	-	-
	22-23	9	21	149

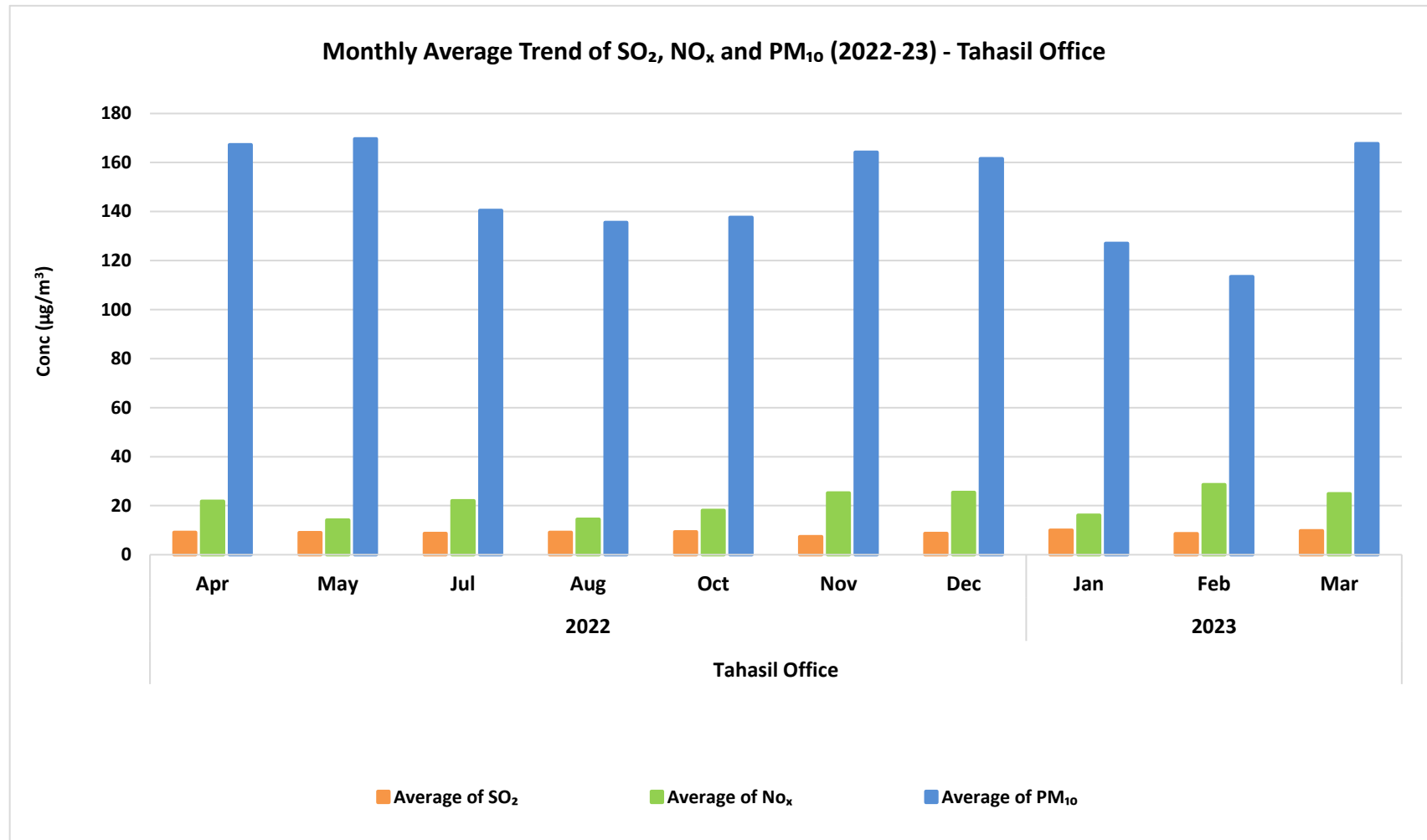


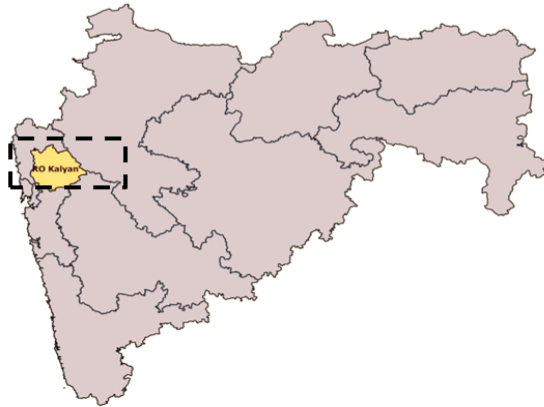
Figure No. 116: Monthly average concentration recorded at Tahasil Office

Table No. 99: Percentage exceedance of pollutants at Chandrapur RO

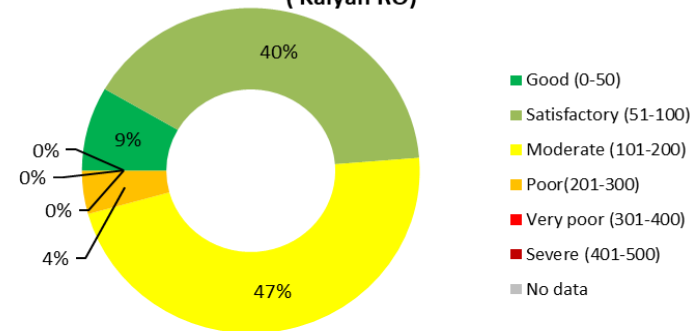
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Bhadravati	82	85	72	0	0	0	72	0	0	0	100	0
Udyog Bhavan, Chandrapur CAAQMS	332	342	364	0	0	11	176	0	0	3	48	0
MIDC Khutala, Chandrapur CAAQMS	313	185	328	318	0	0	170	108	0	0	52	34
Dal Mill	51	22	47	0	0	0	47	0	0	0	100	0
Gadchandur Gram Panchayat	89	71	68	0	0	0	68	0	0	0	100	0
Gadchiroli	65	75	89	0	0	0	35	0	0	0	39	0
GP Chikhalgaon	54	62	59	0	0	0	59	0	0	0	100	0
Grampanchayat Ghuggus	88	72	86	0	0	0	86	0	0	0	100	0
M.I.D.C Chandrapur	78	67	73	0	0	0	49	0	0	0	67	0
M.I.D.C Tadali	83	82	75	0	0	0	68	0	0	0	91	0
Municipal Council Ballarshah	73	74	87	0	0	0	82	0	0	0	94	0
Nagar Parishad Chandrapur	224	221	186	0	0	0	179	0	0	0	96	0
Tahasil Office	59	78	72	0	0	0	72	0	0	0	100	0

CITIES /AREAS UNDER KALYAN RO

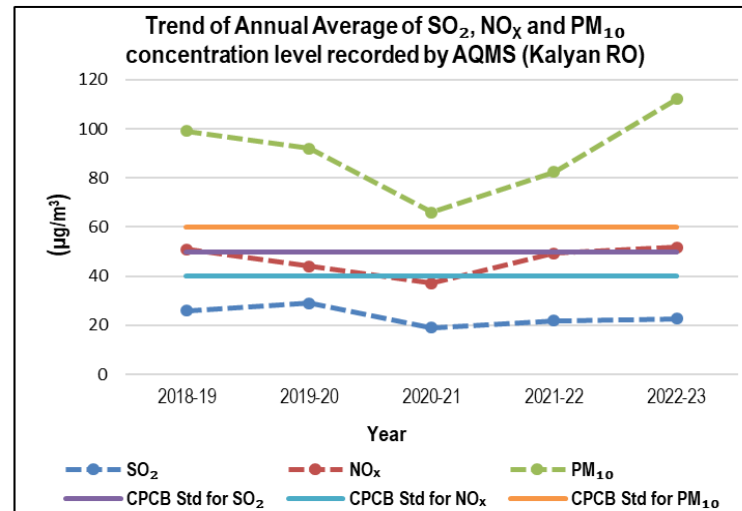
KALYAN RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Kalyan RO)



Sr No.	Station Name
1	M.P.C.Board
2	Prematai Hall
3	Ambernath Municipal corporation Bldg
4	Badlapur CAAQMS
5	Bhiwandi CAAQMS
6	BIWA House, Badlapur
7	CETP, Dombivali
8	Dombivali CAAQMS
9	I.G.M. Hospital Premises
10	Kalyan CAAQMS
11	MIDC Office, Dombivali
12	Octroi Naka, Ulhasnagar
13	Smt.C.H.M.College, Ulhasnagar
14	Ulhasnagar CAAQMS
15	Terrace of Sampada Hall





BADLAPUR CAAQMS



BHIWANDI CAAQMS



KALYAN CAAQMS



ULHASNAGAR CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

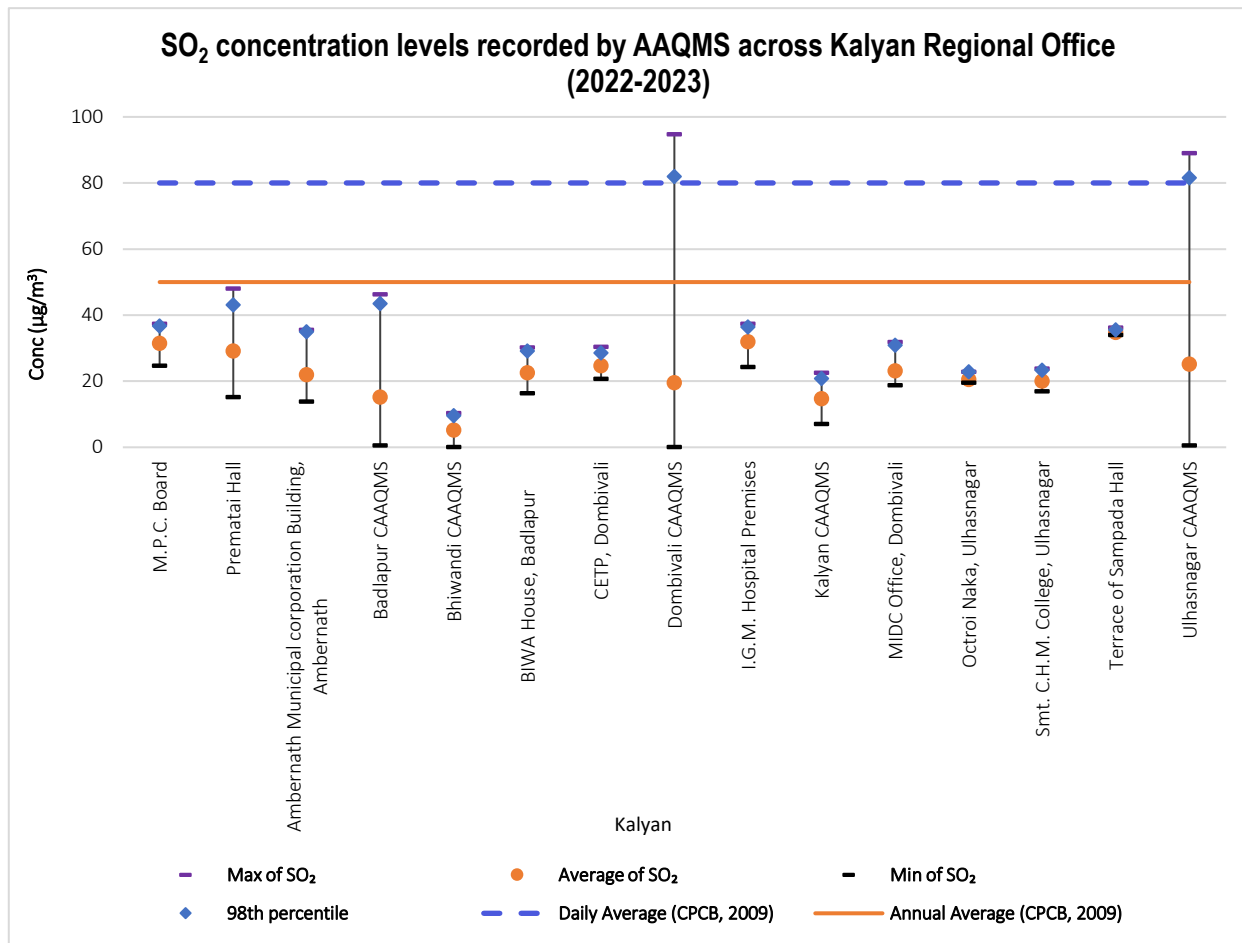


Figure No. 117: Parametric values of SO₂ concentrations recorded by AAQMS across Kalyan RO (2022-2023)

According to the data collected by the monitoring stations installed in the areas under the jurisdiction of the Kalyan RO, the average concentration levels of SO₂ in year 2022-23 remained within the annual average limit specified by the CPCB, which is 50 µg/m³. Among the AAQMS locations, the highest annual average concentration level of SO₂ was recorded at the AAQMS installed in Terrace of Sampada Hall location, followed by I.G.M. Hospital Premises and M.P.C. Board. The recorded annual average SO₂ concentrations at these locations were 34.75 µg/m³, 31.99 µg/m³, and 31.50 µg/m³, respectively.

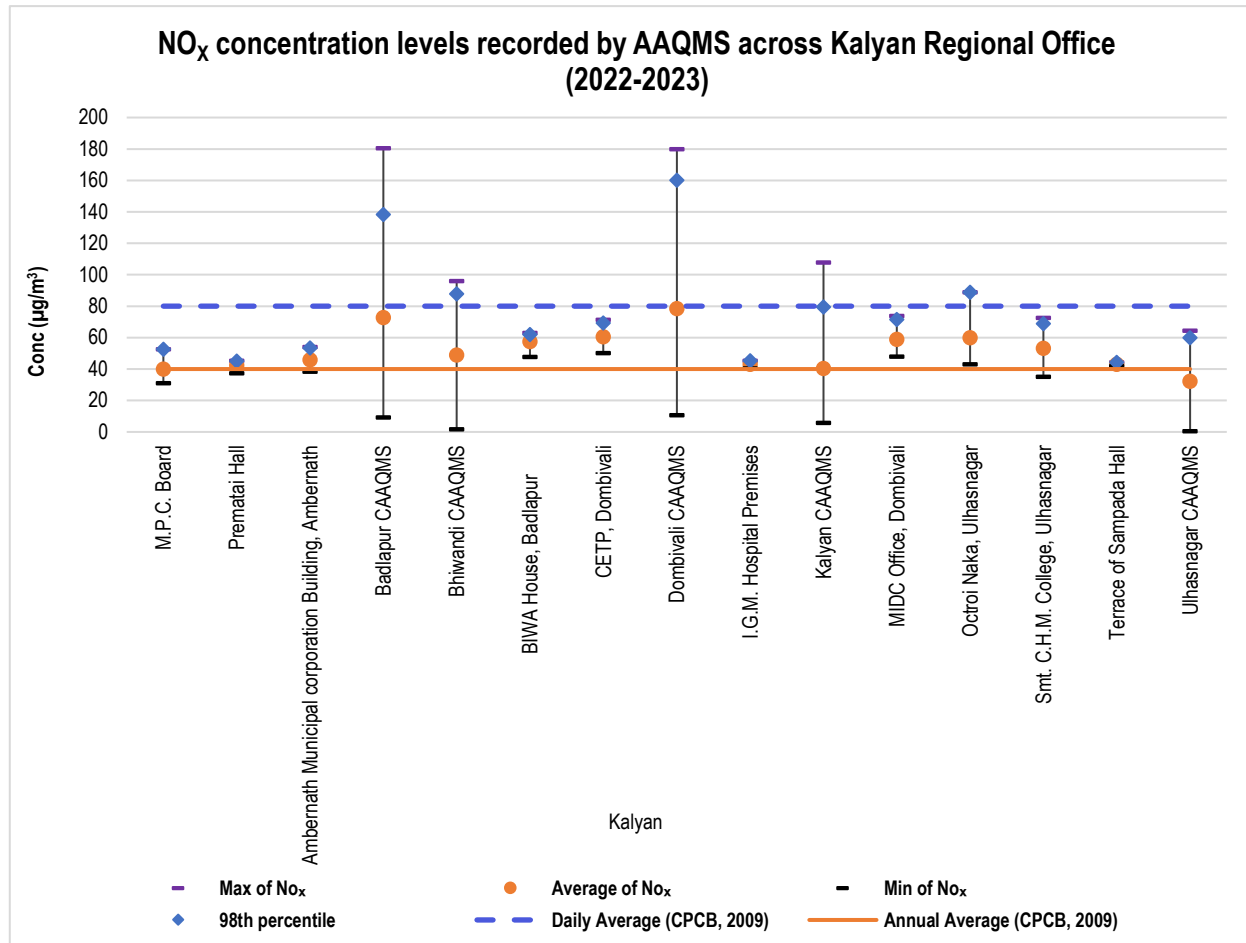
NO_x

Figure No. 118: Parametric values of NO_x concentrations recorded by AAQMS across Kalyan RO (2022-2023)

Except the M.P.C. Board AAQMS (39.93 µg/m³) and Ulhasnagar CAAQMS (32.21 µg/m³), all other remaining monitoring stations installed in the areas coming under the jurisdiction of Kalyan RO have recorded the annual average NO_x concentration levels higher than the annual average limit (40 µg/m³) set by CPCB. The Dombivali CAAQMS has recorded the highest annual average concentration level (78.42 µg/m³) followed by Badlapur CAAQMS (72.76 µg/m³). These shows the high intensity of NO_x pollution in the Kalyan RO region.

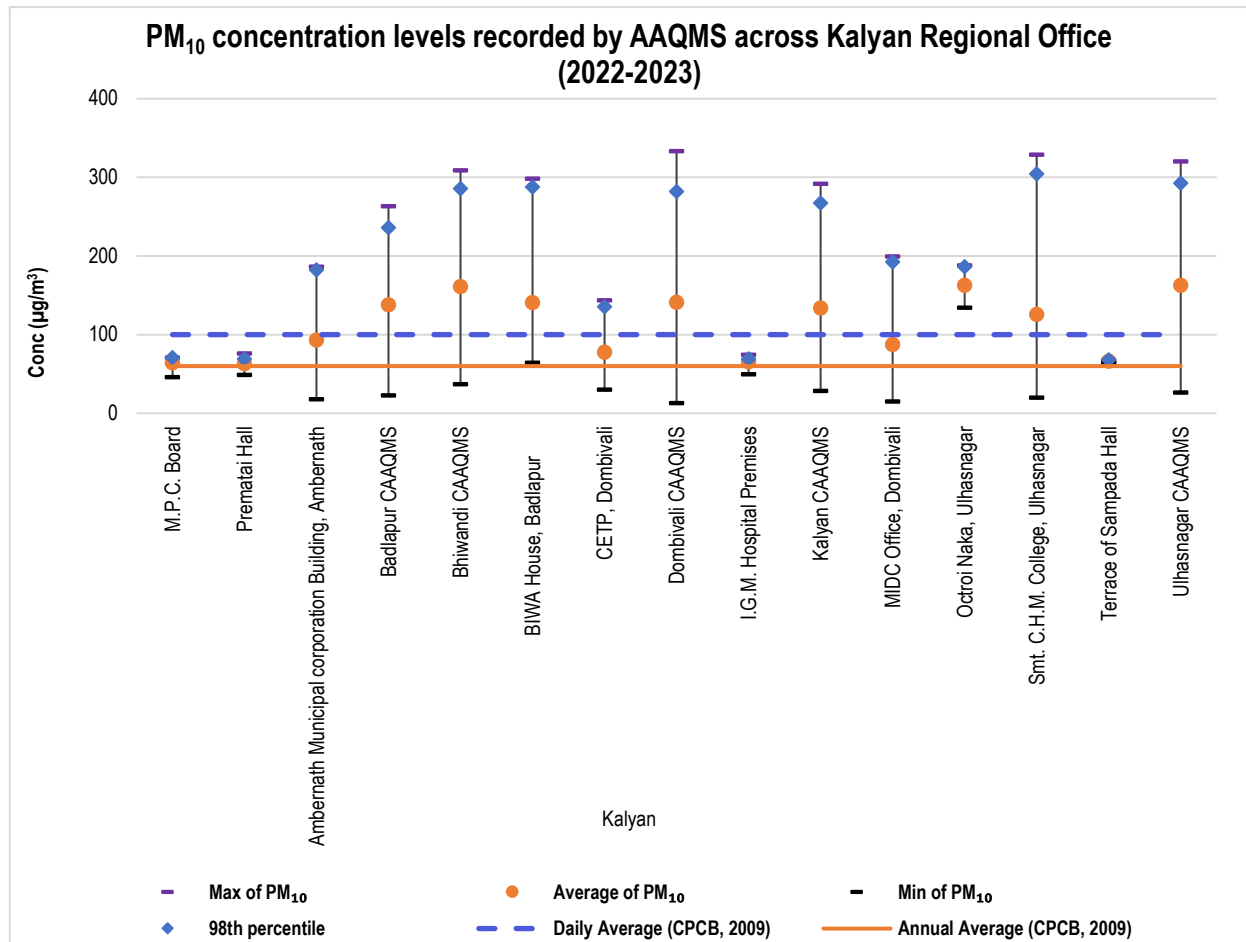
PM₁₀

Figure No. 119: Parametric values of PM₁₀ concentrations recorded by AAQMS across Kalyan RO (2022-2023)

The intensity of PM₁₀ pollution level was very high in the areas of Kalyan RO. This is due to the fact that, all 15 monitoring stations installed in the RO region areas have exceeded the annual average concentration level recorded in the year 2022-23.

Amongst these stations, AAQMS installed at the Octroi Naka (Ulhasnagar) recorded the highest annual average PM₁₀ concentration, followed by the Ulhasnagar CAAQMS and Bhiwandi CAAQMS. The annual average PM₁₀ concentration levels recorded by these stations were found to be around 162.63 µg/m³, 162.40 µg/m³, and 160.80 µg/m³ respectively, all exceeding the annual average limit of 60 µg/m³. Dombivali CAAQMS (141.11 µg/m³) and BIWA House, Badlapur AAQMS (140.71 µg/m³) too recorded levels which were more than twice the standard limit. Conversely, the Prematai Hall AAQMS recorded the lowest average PM₁₀ concentration of 62.97 µg/m³ which was still higher than the annual average limit of 60 µg/m³.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Kalyan RO

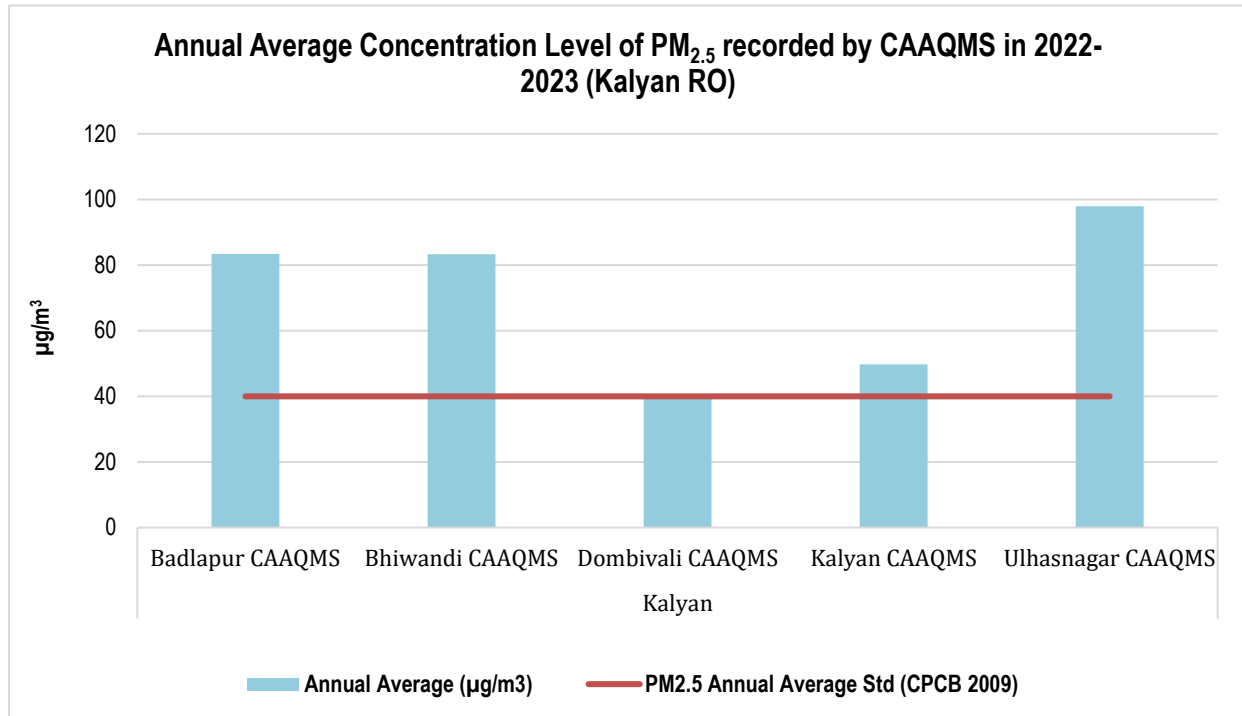


Figure No. 120: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Kalyan RO (2022-23)

In 2022-23, a total of 5 CAAQMS installed in the areas (Kalyan RO's jurisdiction area) recorded concentration levels of PM_{2.5}. All 5 stations recorded annual average levels higher than the permissible limit (40 µg/m³). The highest levels were recorded at Ulhasnagar CAAQMS (97.93 µg/m³) followed by Badlapur CAAQMS (83.37 µg/m³), Bhiwandi CAAQMS (83.29 µg/m³), Kalyan CAAQMS (49.78 µg/m³) and Dombivali CAAQMS (40.56 µg/m³).

Ozone (O₃)

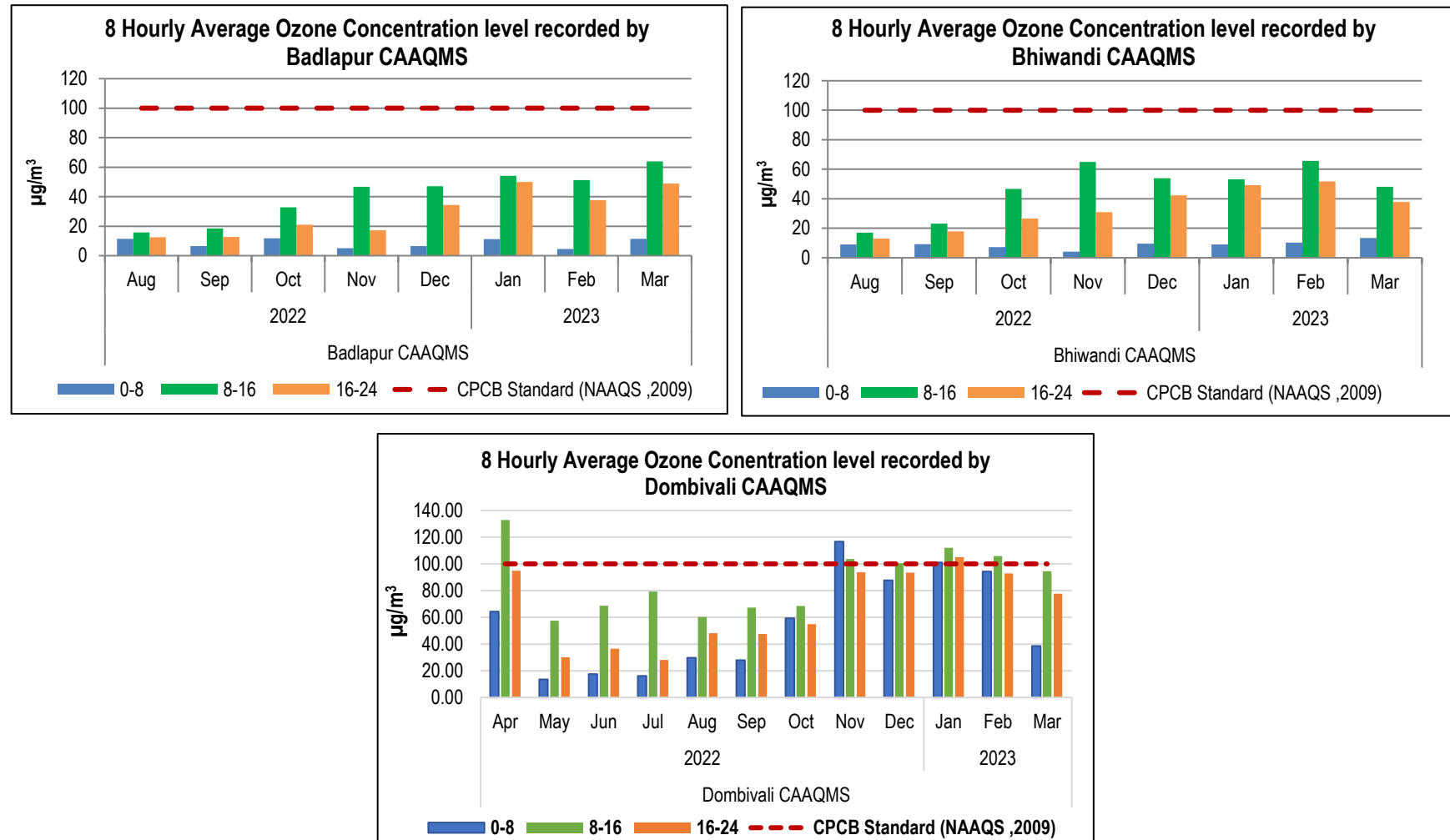


Figure No. 121 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Kalyan RO (1)

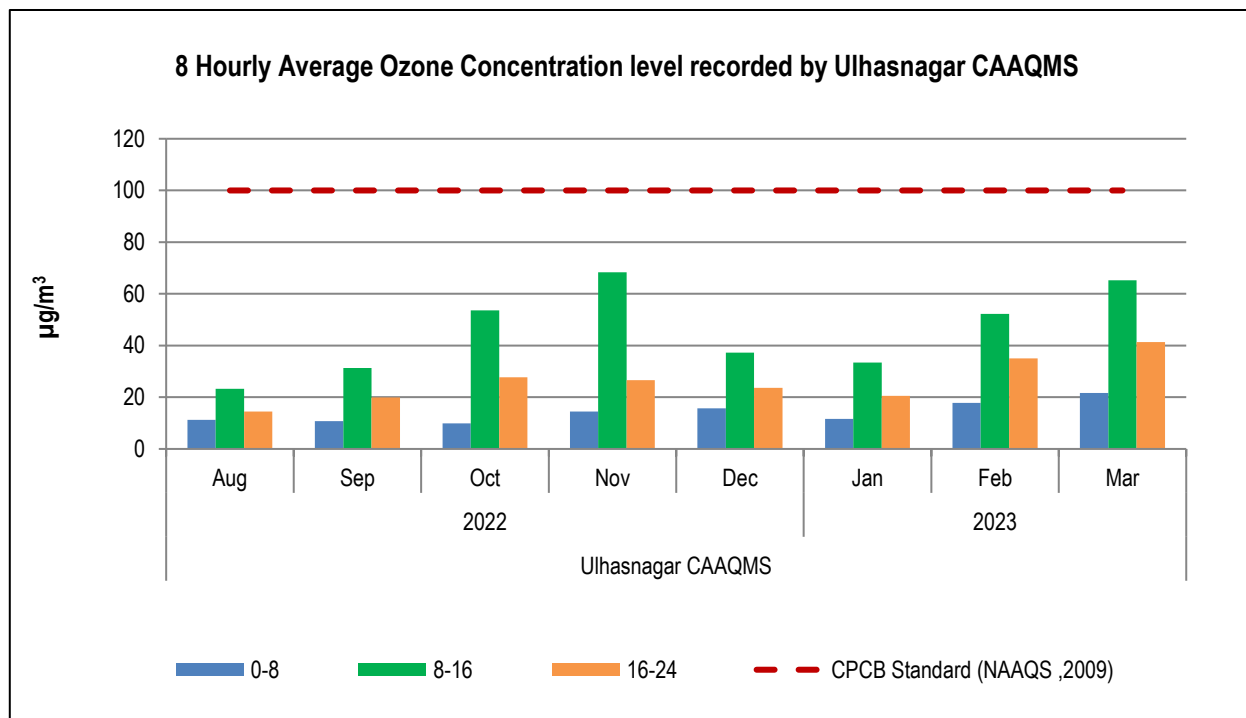
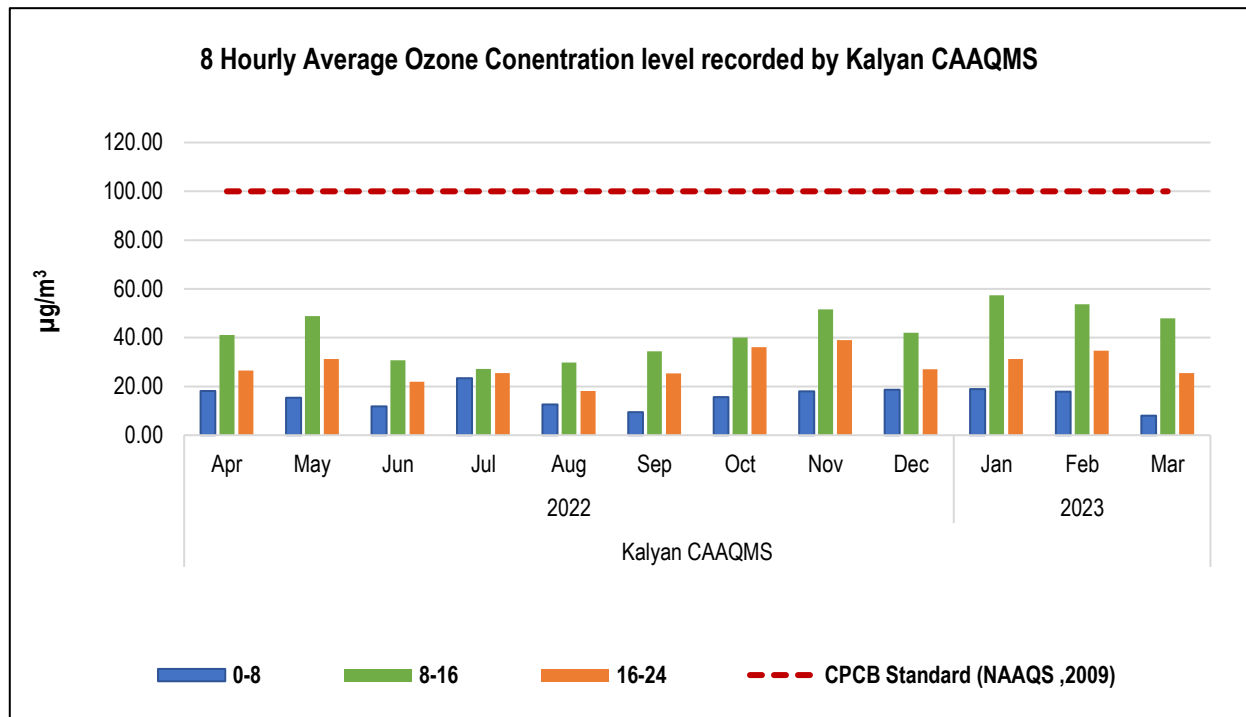


Figure No. 122 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Kalyan RO (2)

Carbon Monoxide (CO)

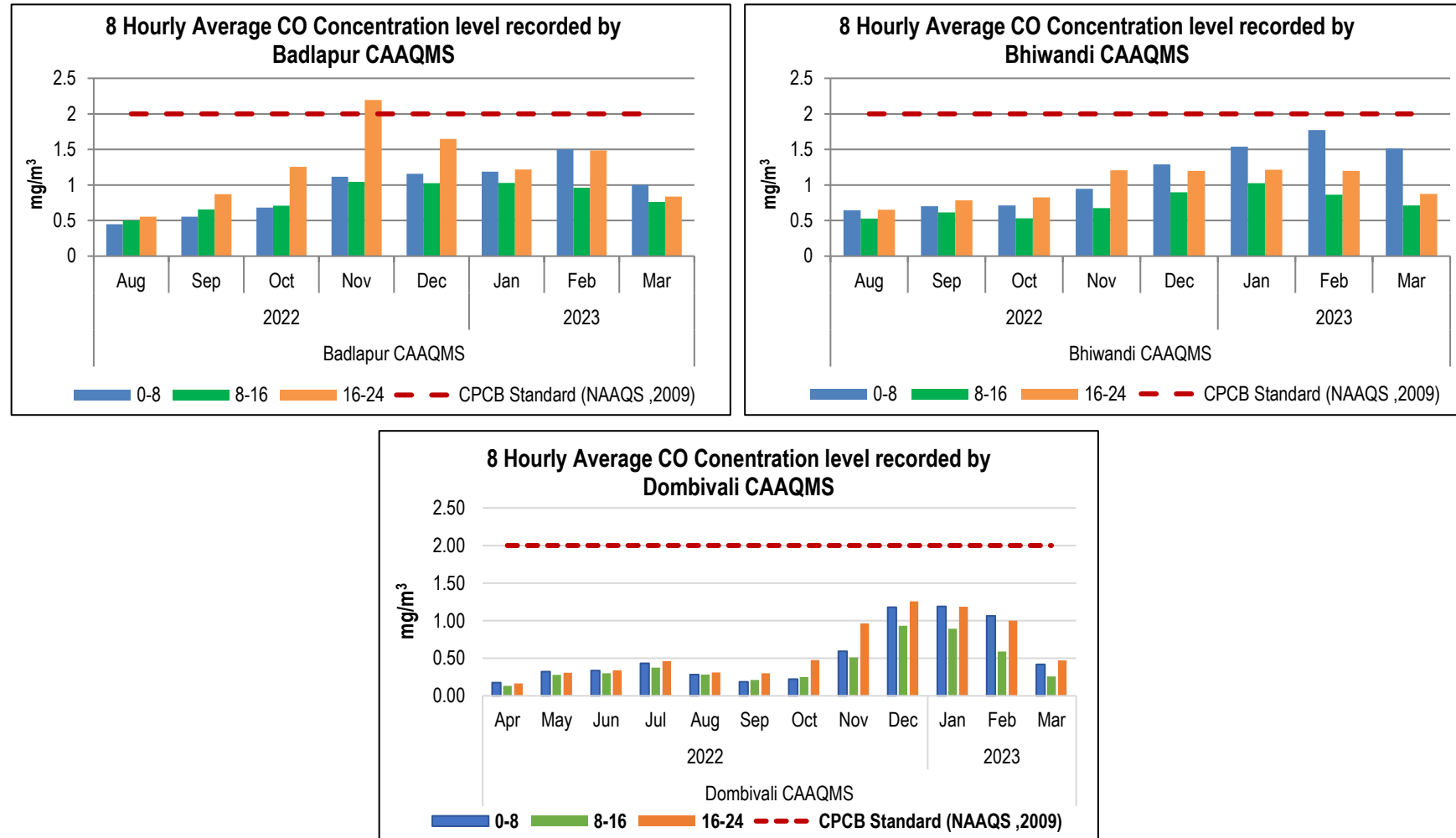


Figure No. 123 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Kalyan RO (1)

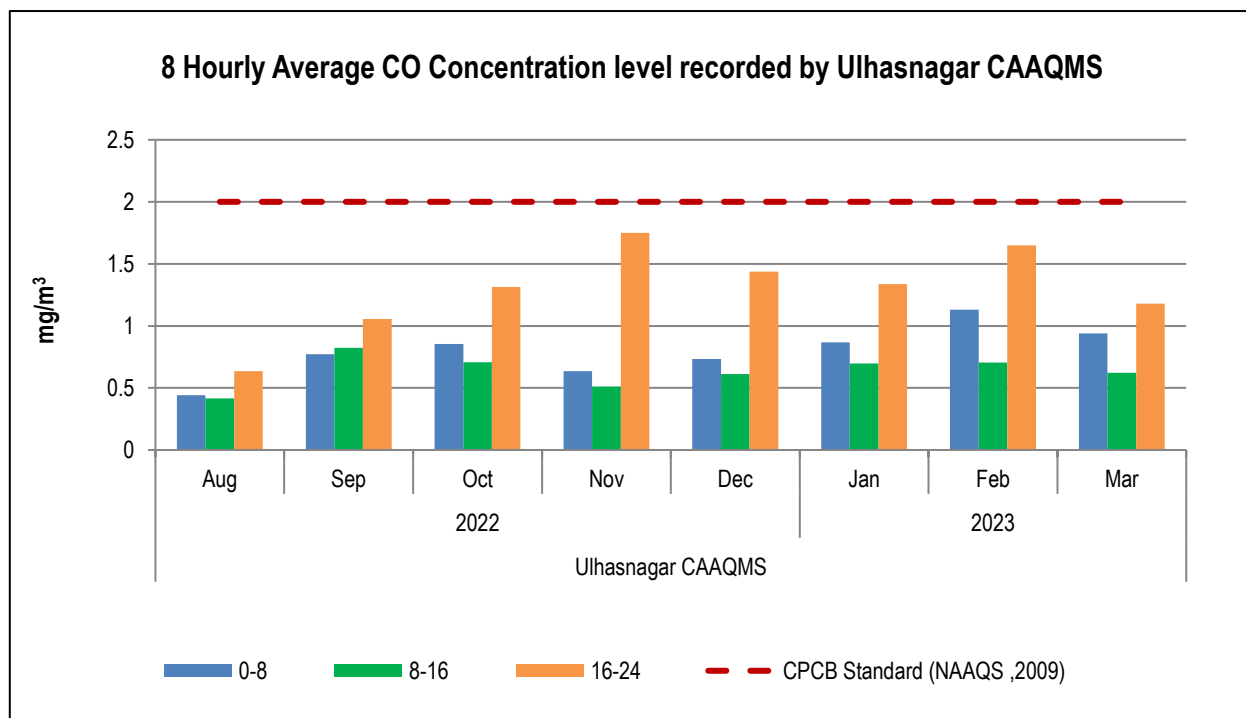
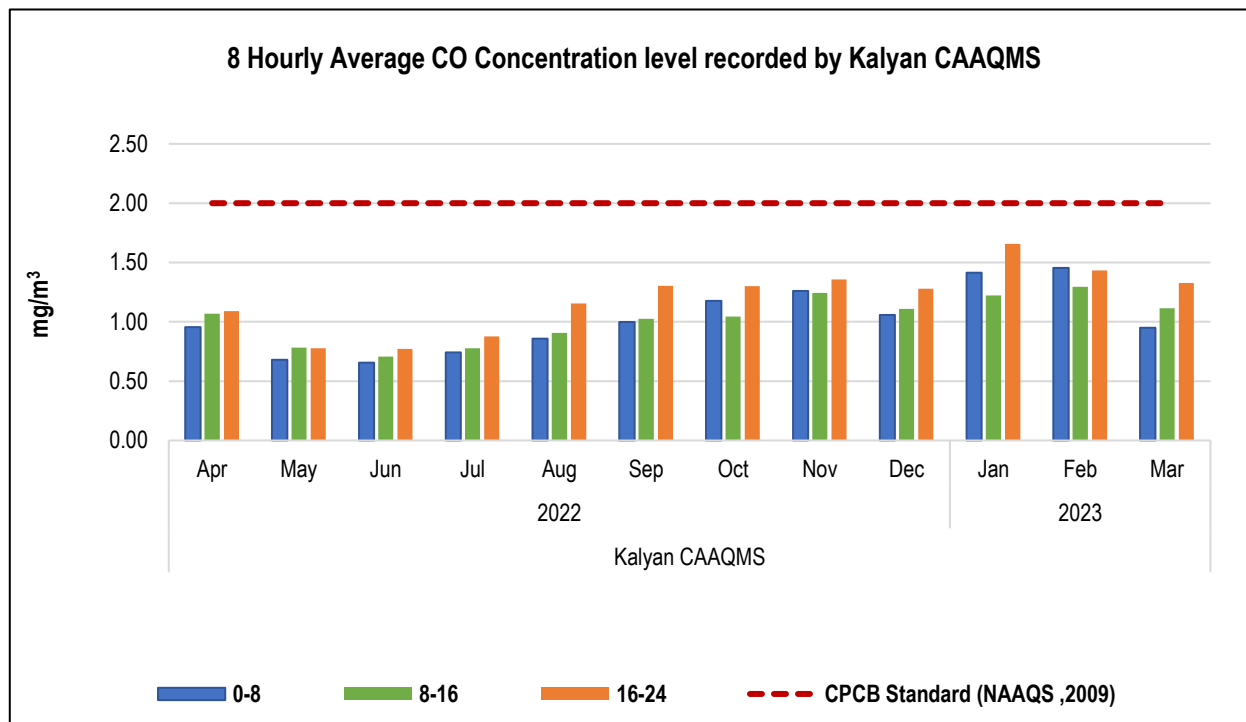


Figure No. 124: CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Kalyan RO (2)

Benzene

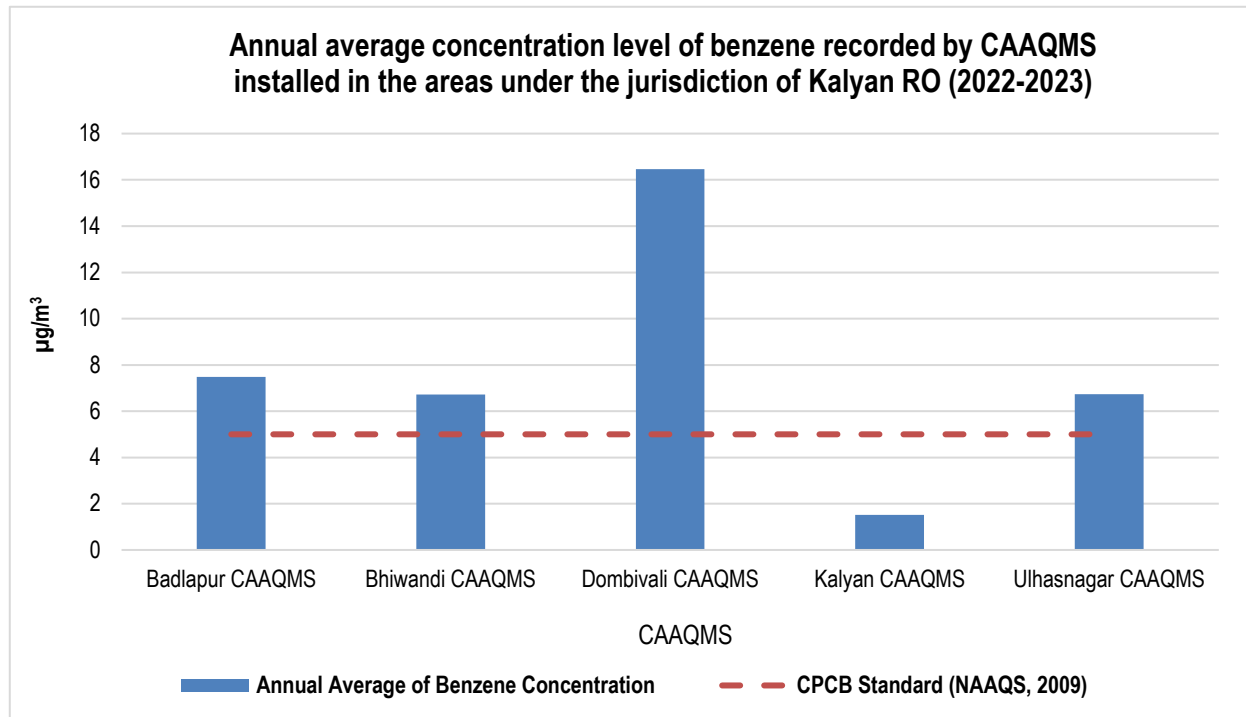


Figure No. 125: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Kalyan RO (2022-23)

Out of 5 CAAQMS, Dombivali CAAQMS recorded highest annual average concentration level of benzene ($16.46 \mu\text{g}/\text{m}^3$) which is about 3 times more than that of the standard limit ($5.0 \mu\text{g}/\text{m}^3$). It was followed by Badlapur CAAQMS ($7.48 \mu\text{g}/\text{m}^3$), Ulhasnagar CAAQMS ($6.73 \mu\text{g}/\text{m}^3$) and Bhiwandi CAAQMS ($6.72 \mu\text{g}/\text{m}^3$). Only Kalyan CAAQMS ($1.52 \mu\text{g}/\text{m}^3$) recorded levels which were below the annual average limit prescribed by CPCB.

AQI percentage occurrence graphs Kalyan RO

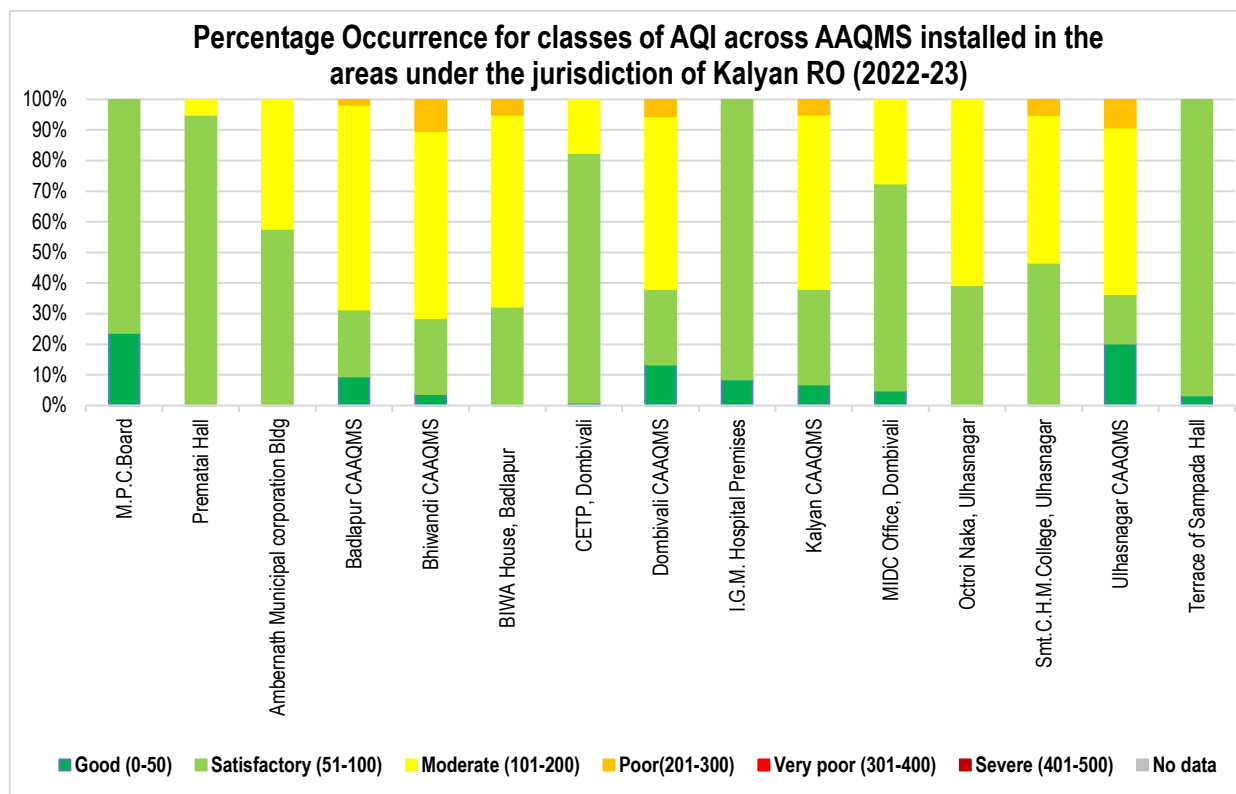


Figure No. 126: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Kalyan RO (2022-23)

In the areas under the jurisdiction of Kalyan RO, AAQMS stations installed at Prematai Hall, I.G.M. Hospital Premises and Terrace of Sampada Hall have recorded maximum observations (95%, 91.46% and 96.67% respectively) in the 'Satisfactory' AQI category.

More than 60% of the observations recorded at Badlapur CAAQMS (66.94%), Bhiwandi CAAQMS (61.16%), BIWA House – Badlapur (62.75%) and Octroi Naka –Ulhasnagar (60.71%) were found under the 'Moderate' category. On the other hand, about 10.33% of the total observations recorded by Bhiwandi CAAQMS were found under the 'Poor' category followed by 9.09% observation recorded by Ulhasnagar CAAQMS. No single observation recorded from any of the monitoring station was found under the 'Very Poor' and 'Severe' AQI category.

Monthly and Annual Graphs

M.P.C. Board

Table No. 100: Data for Monthly average concentration recorded at M.P.C. Board

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
M.P.C. Board	2022	Apr	33	37	69
		May	-	35	48
		Jun	28	40	68
		Jul	33	44	49
		Aug	30	45	67
		Sep	33	39	69
		Oct	33	39	69
		Nov	30	43	68
		Dec	36	39	69
	2023	Jan	30	43	64
		Feb	-	-	-
		Mar	26	36	49

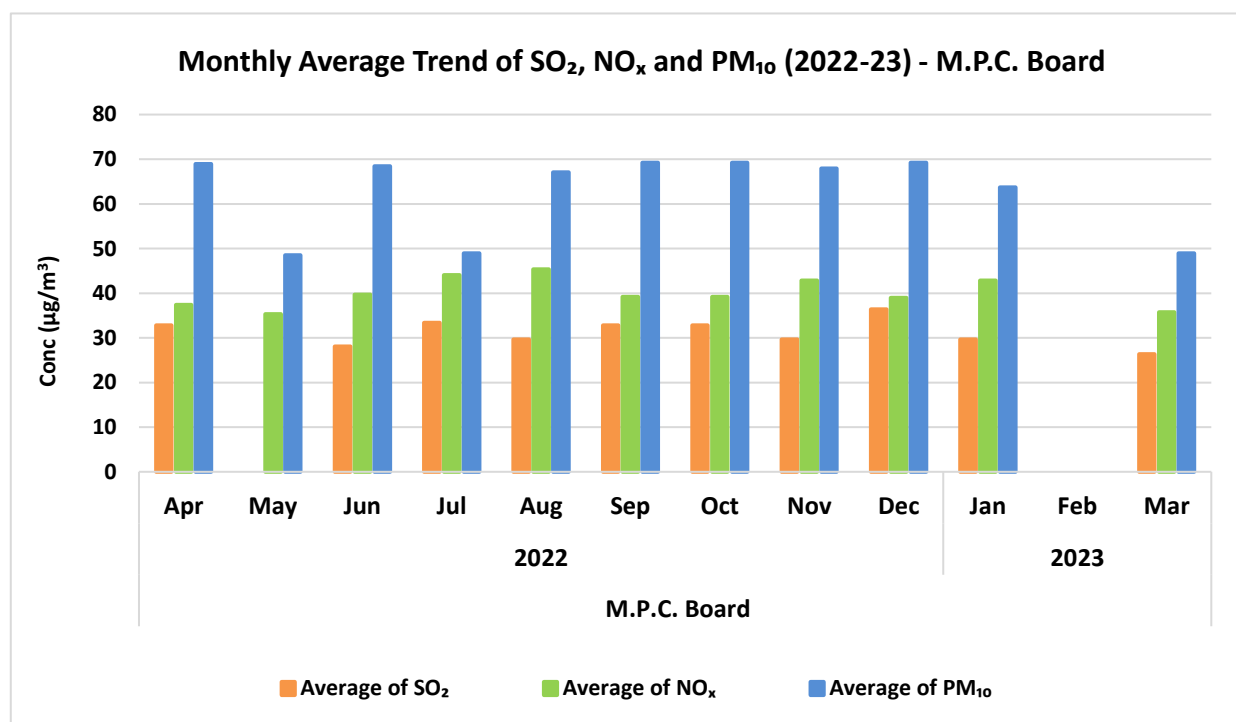
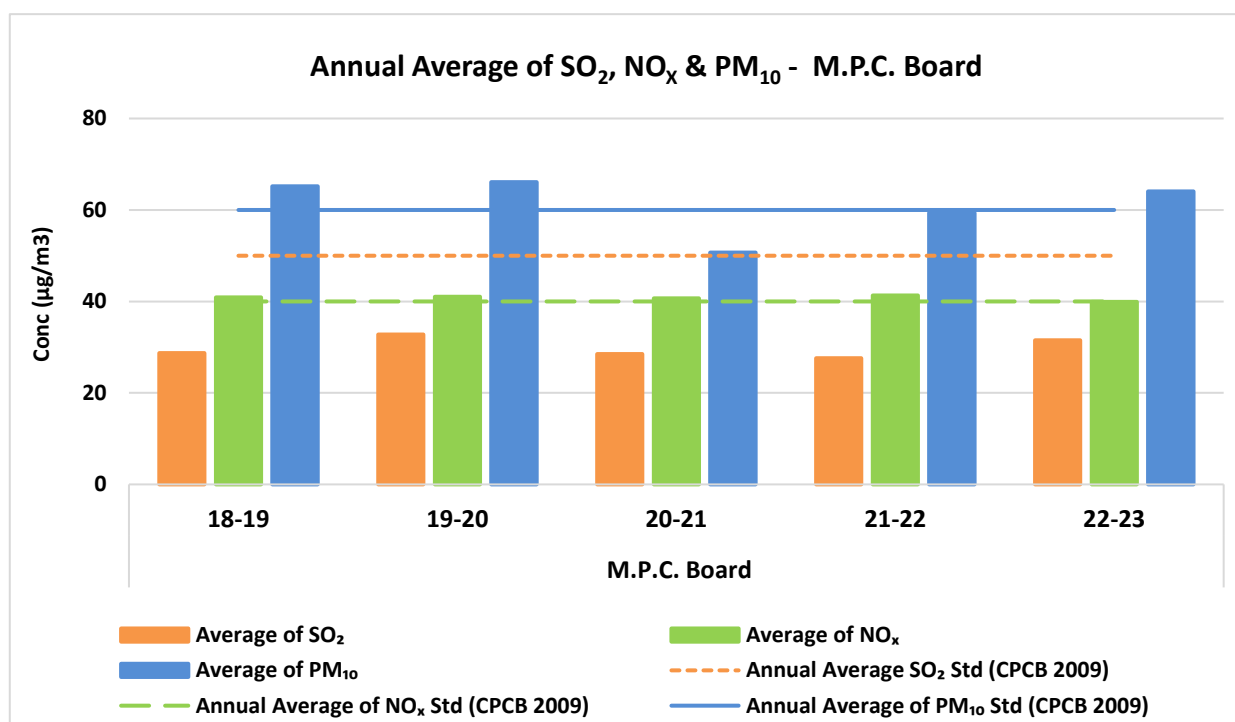


Figure No. 127: Monthly average concentration recorded at M.P.C. Board

Table No. 101: Data for Annual average trend of SO₂, NO_x and PM₁₀ at M.P.C. Board

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
M.P.C. Board	18-19	29	41	65
	19-20	33	41	66
	20-21	28	41	51
	21-22	28	41	59
	22-23	32	40	64

Figure No. 128: Annual average trend of SO₂, NO_x and PM₁₀ at M.P.C. Board

Prematai Hall

Table No. 102: Data for Monthly average concentration recorded at Prematai Hall

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Prematai Hall	2022	Apr	35	43	65
		May	22	38	50
		Jun	30	42	63
		Jul	22	42	63
		Aug	22	-	49
		Sep	35	43	66
		Oct	39	43	67
		Nov	30	43	66
		Dec	30	43	65
	2023	Jan	29	42	-
		Feb	35	43	-
		Mar	22	37	50

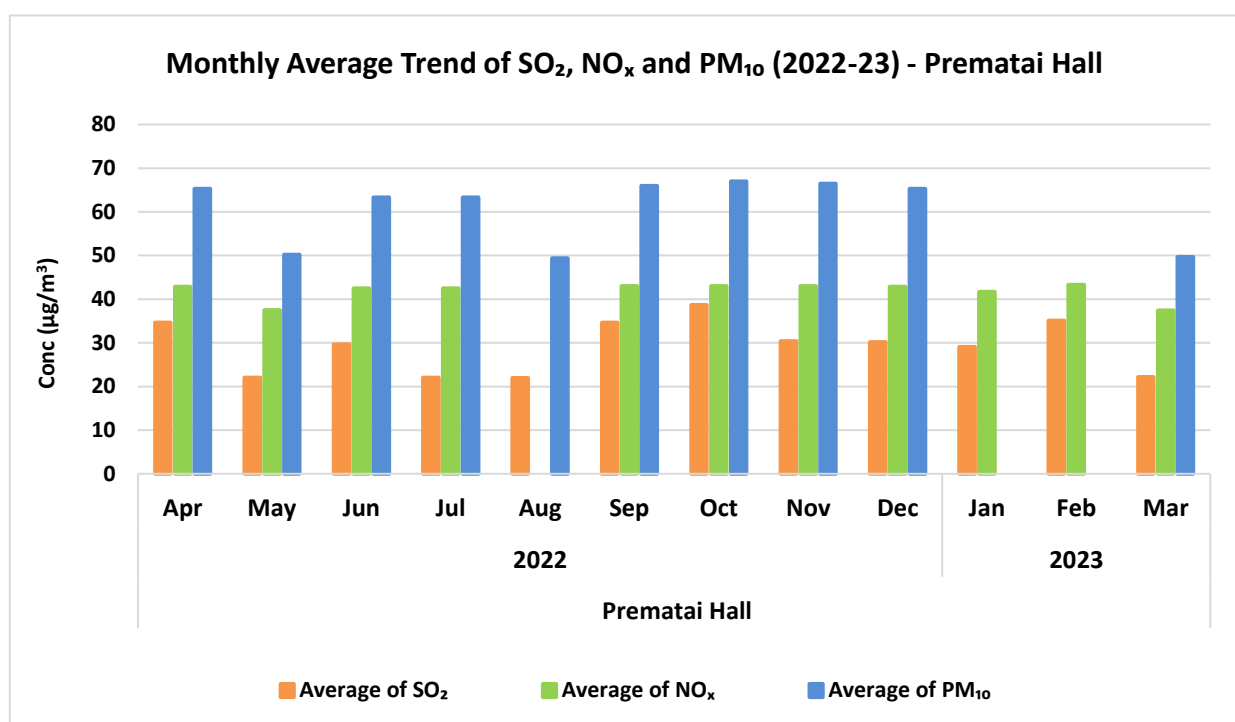
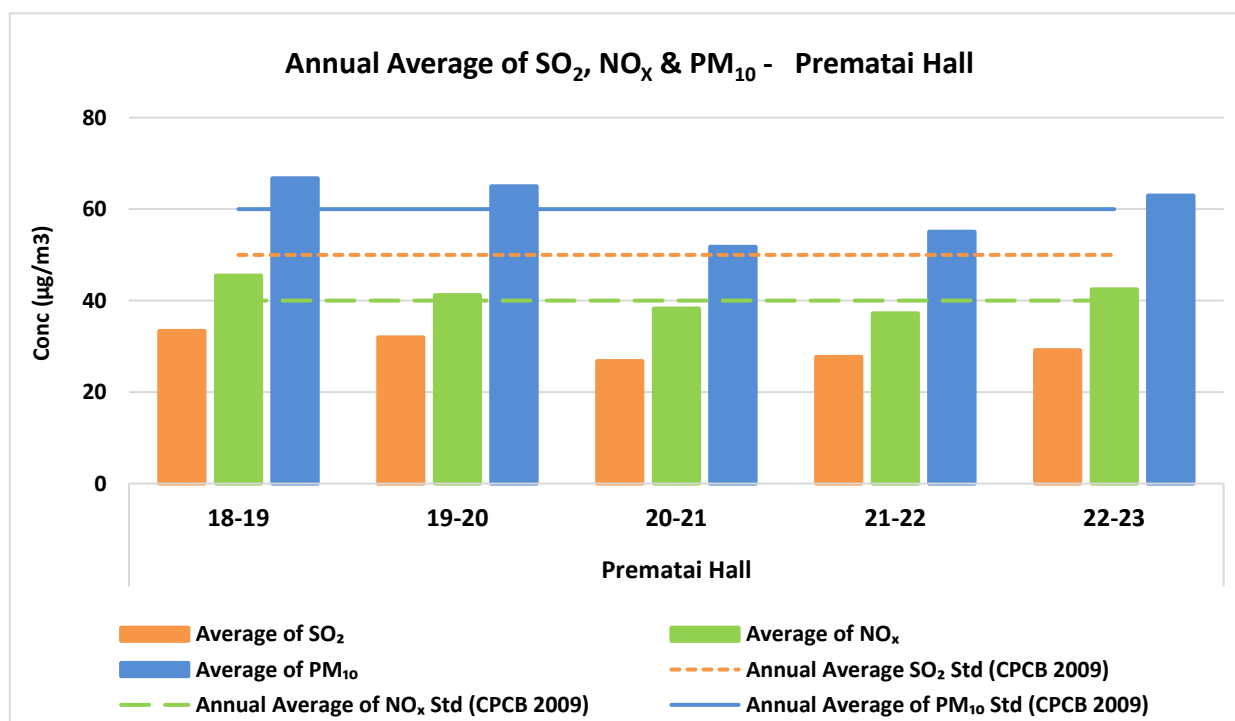


Figure No. 129: Monthly average concentration recorded at Prematai Hall

Table No. 103: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Prematai Hall

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Prematai Hall	18-19	33	45	67
	19-20	32	41	65
	20-21	27	38	52
	21-22	28	37	55
	22-23	29	42	63

Figure No. 130: Annual average trend of SO₂, NO_x and PM₁₀ at Prematai Hall

Ambernath Municipal Corporation Building, Ambernath

Table No. 104: Data for Monthly average concentration recorded at Ambernath Municipal Corporation Building, Ambernath

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Ambernath Municipal Corporation Building, Ambernath	2022	Apr	19	47	68
		May	19	44	71
		Jun	18	49	58
		Jul	21	51	50
		Aug	16	43	42
		Sep	17	44	62
		Oct	28	49	97
		Nov	29	46	127
		Dec	20	43	135
	2023	Jan	23	44	156
		Feb	28	46	133
		Mar	26	45	122

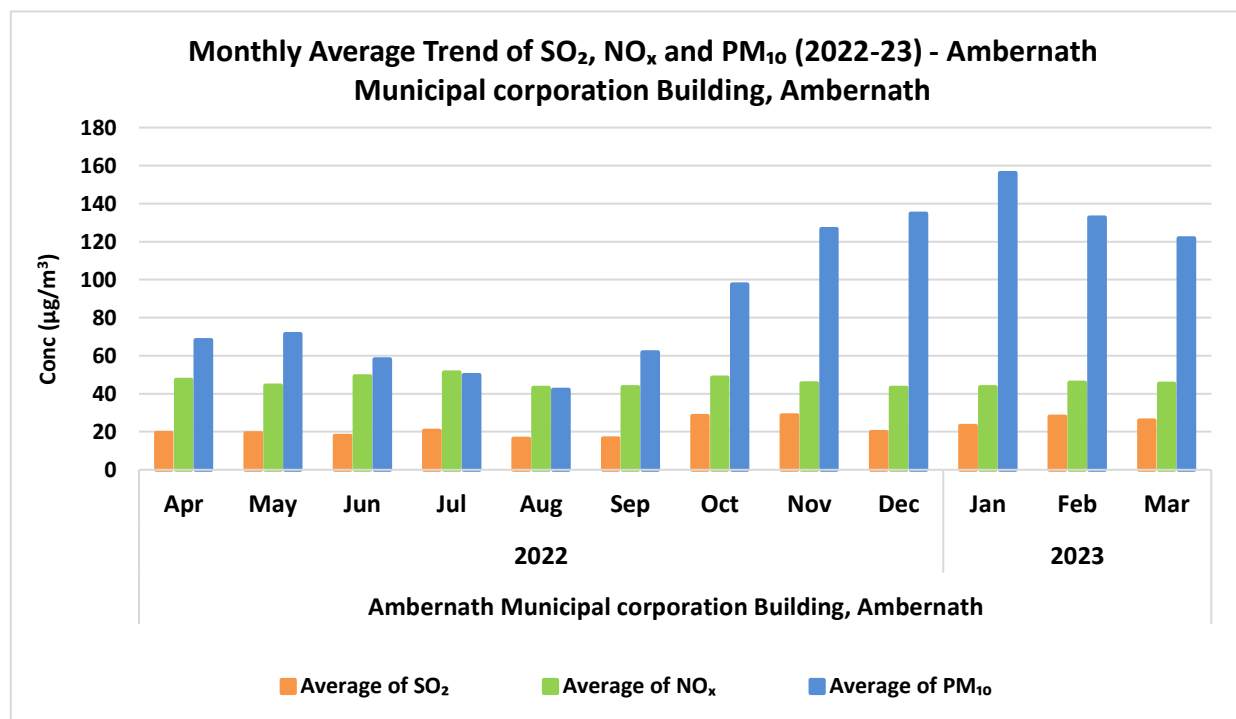
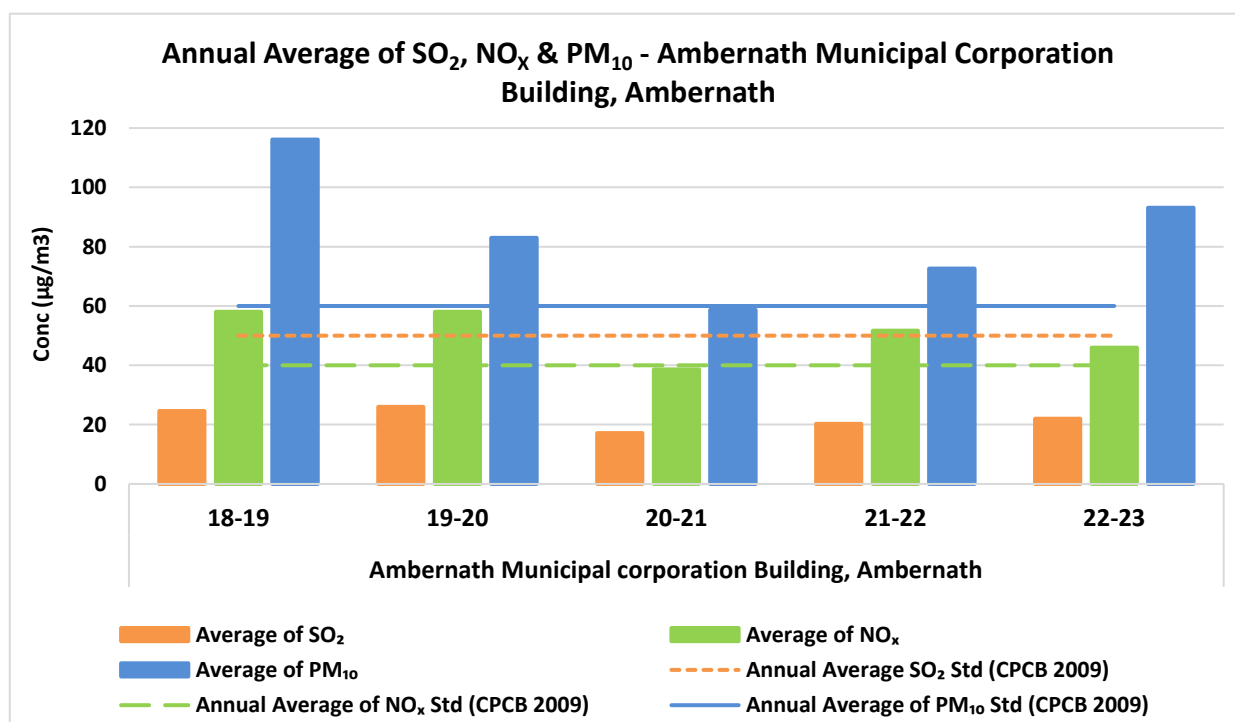


Figure No. 131: Monthly average concentration recorded at Ambernath Municipal corporation Building, Ambernath

Table No. 105: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Ambernath Municipal Corporation Building, Ambernath

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Ambernath Municipal Corporation Building, Ambernath	18-19	25	58	116
	19-20	26	58	83
	20-21	17	39	59
	21-22	20	52	73
	22-23	22	46	93

Figure No. 132: Annual average trend of SO₂, NO_x and PM₁₀ at Ambernath Municipal Corporation Building, Ambernath

Badlapur CAAQMS

Table No. 106: Data for Monthly average concentration recorded at Badlapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Badlapur CAAQMS	2022	Aug	9	18	62	27
		Sep	11	25	71	39
		Oct	3	38	120	68
		Nov	9	69	202	136
		Dec	13	63	172	135
	2023	Jan	24	38	162	115
		Feb	35	49	170	112
		Mar	20	32	131	83

Table No. 107: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Badlapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Badlapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	15	41	138	91

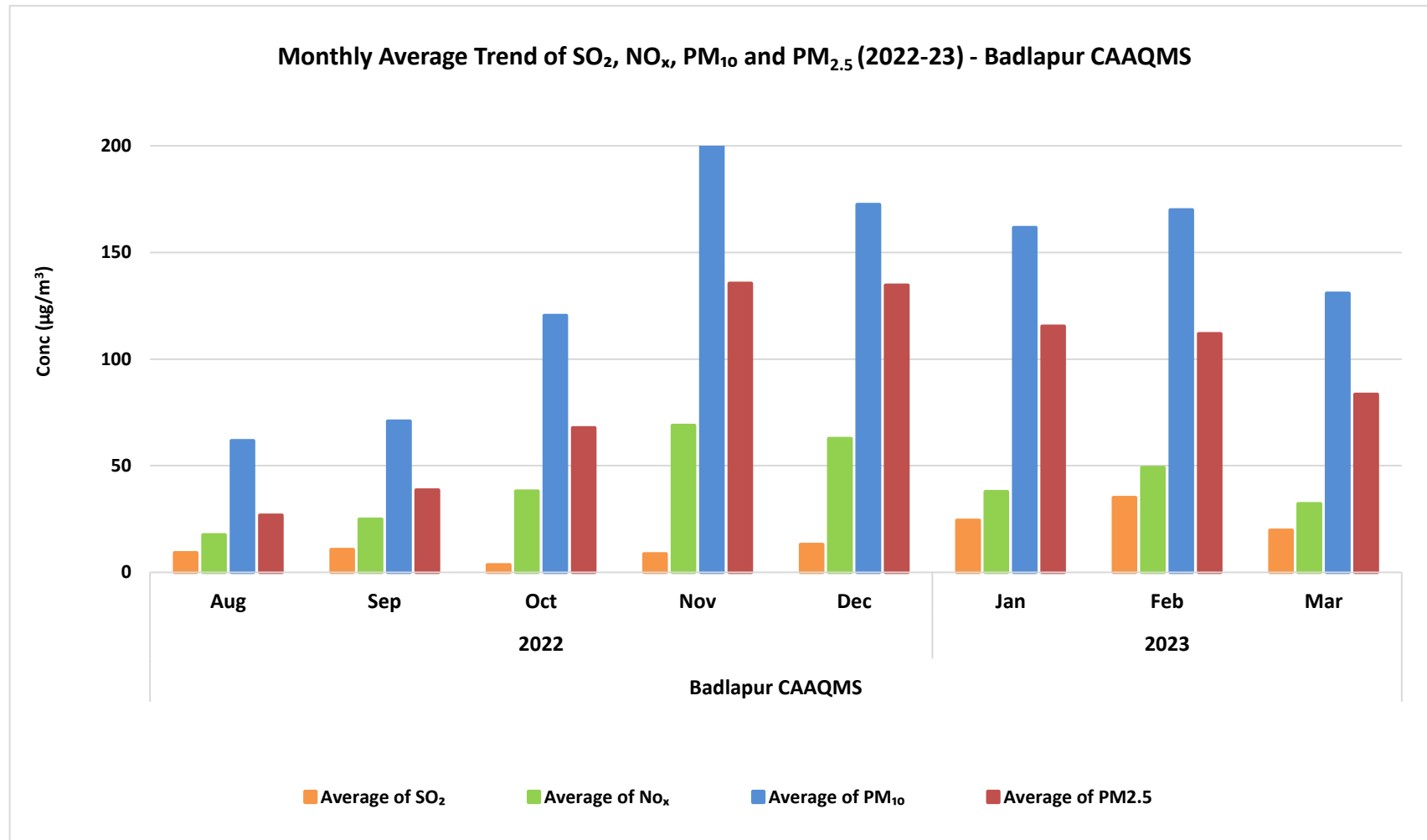


Figure No. 133: Monthly average concentration recorded at Badlapur CAAQMS

Bhiwandi CAAQMS

Table No. 108: Data for Monthly average concentration recorded at Bhiwandi CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Bhiwandi CAAQMS	2022	Aug	3	16	68	35
		Sep	2	9	77	44
		Oct	5	5	133	79
		Nov	5	27	228	78
		Dec	6	36	193	139
	2023	Jan	6	34	209	134
		Feb	8	37	224	122
		Mar	6	33	160	90

Table No. 109: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Bhiwandi CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Bhiwandi CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	5	25	161	90

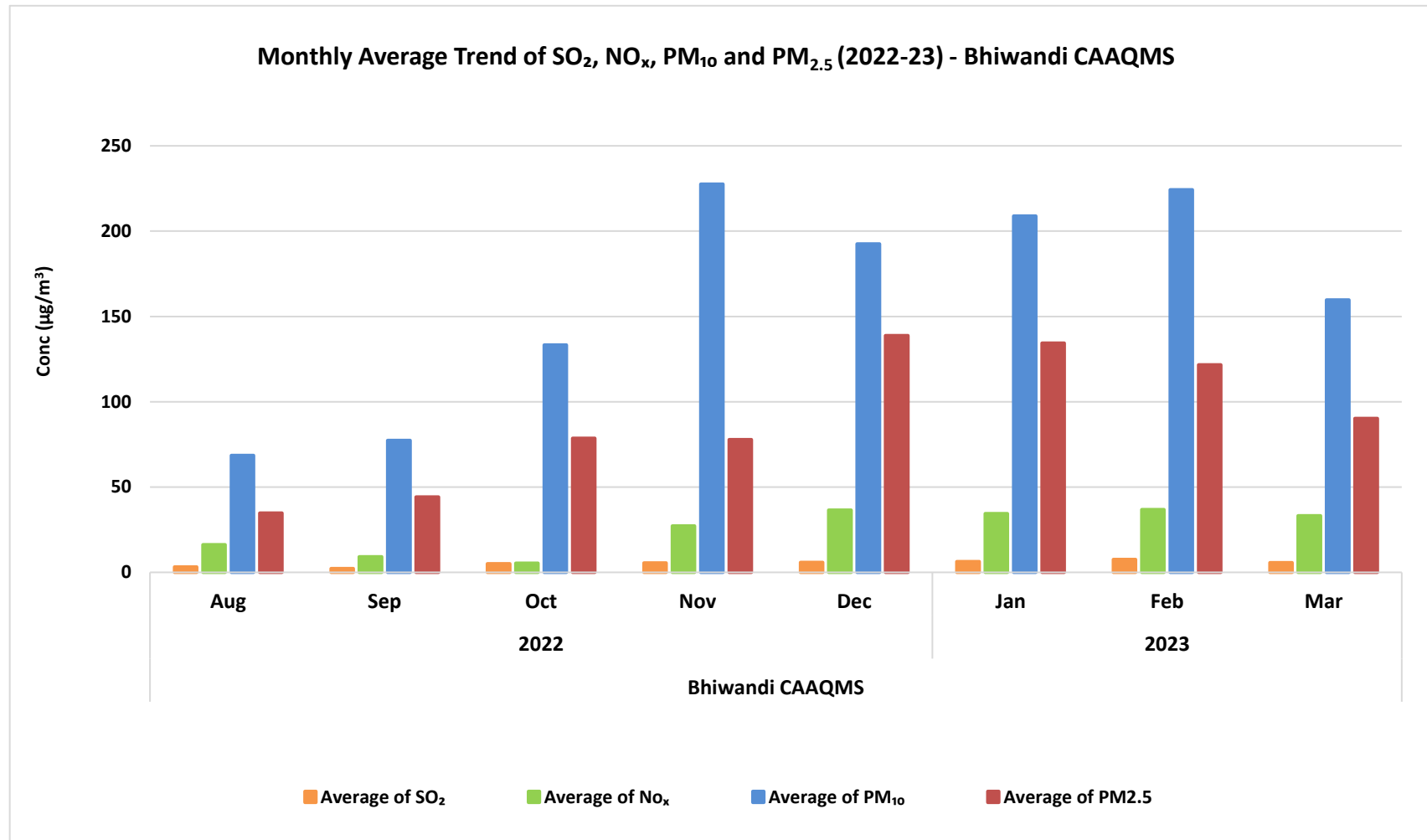


Figure No. 134: Monthly average concentration recorded at Bhiwandi CAAQMS

BIWA House, Badlapur

Table No. 110: Data for Monthly average concentration recorded at BIWA House, Badlapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
BIWA House, Badlapur	2022	Apr	22	60	100
		May	23	60	97
		Jun	21	60	117
		Jul	23	58	89
		Aug	21	55	113
		Sep	21	55	112
		Oct	24	59	137
		Nov	24	55	168
		Dec	21	53	185
	2023	Jan	23	62	213
		Feb	23	62	180
		Mar	26	-	186

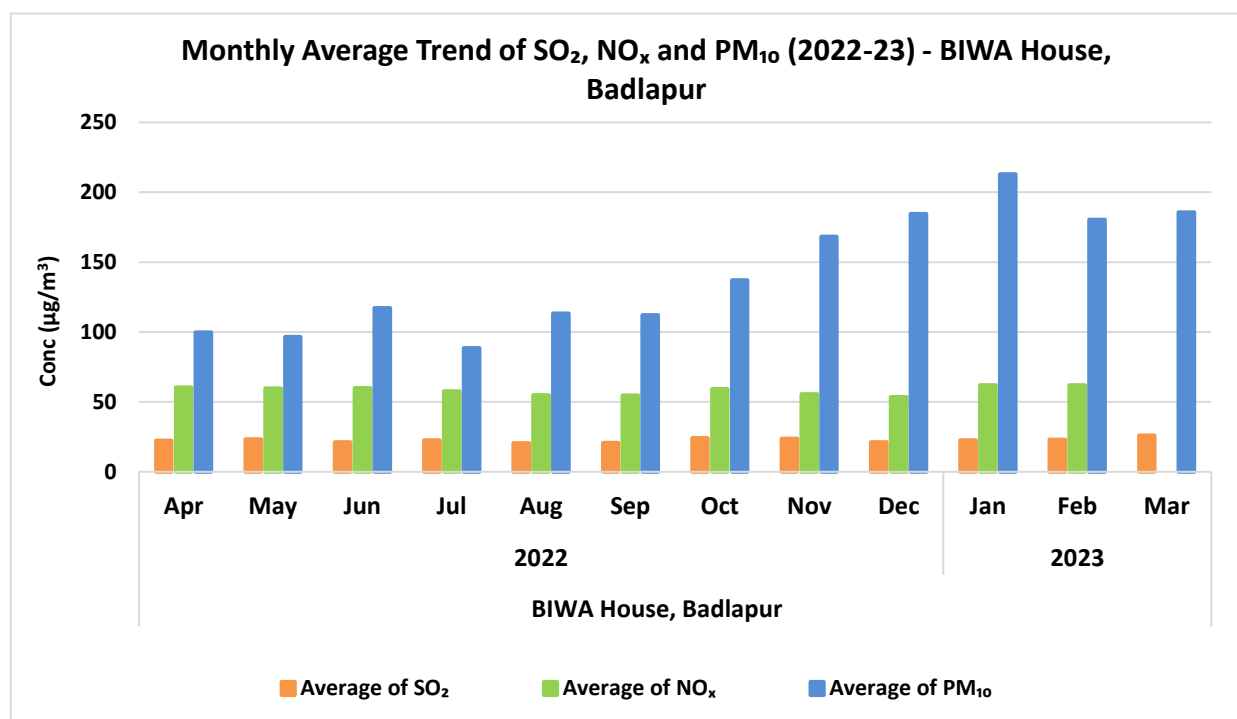
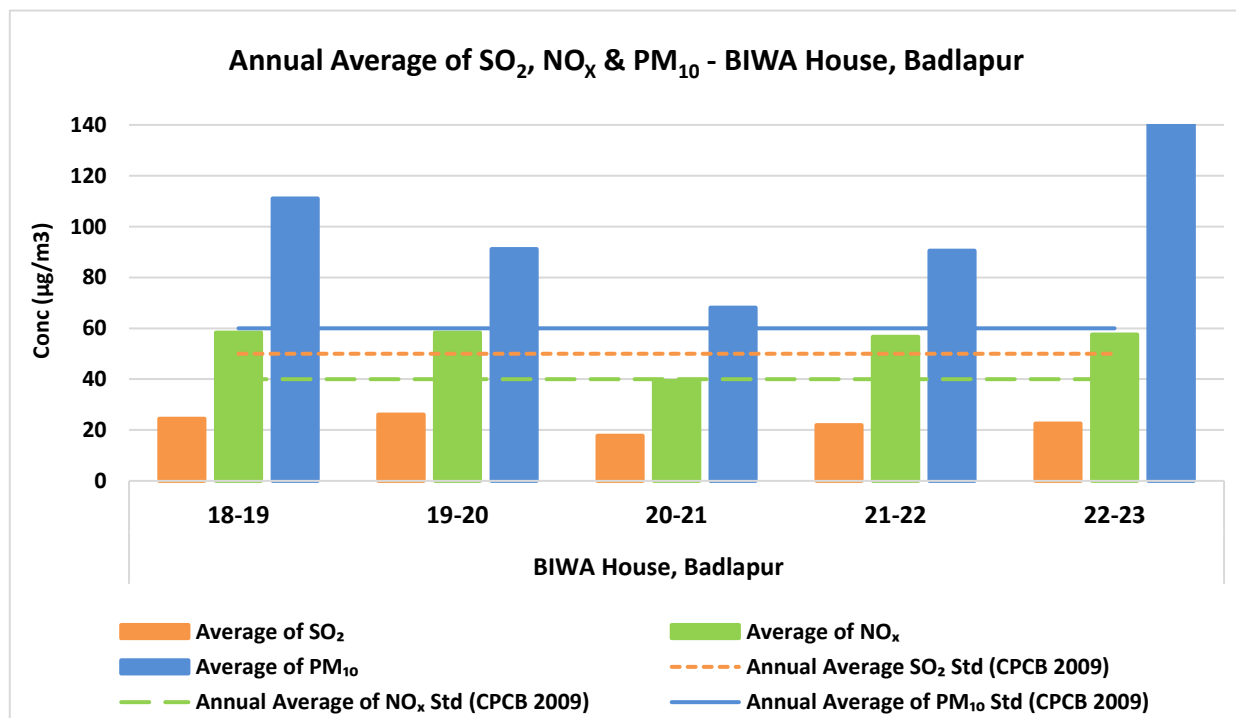


Figure No. 135: Monthly average concentration recorded at BIWA House, Badlapur

Table No. 111: Data for Annual average trend of SO₂, NO_x and PM₁₀ at BIWA House, Badlapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
BIWA House, Badlapur	18-19	24	58	111
	19-20	26	58	91
	20-21	18	39	68
	21-22	22	57	91
	22-23	23	58	141

Figure No. 136: Annual average trend of SO₂, NO_x and PM₁₀ at BIWA House, Badlapur

CETP, Dombivali

Table No. 112: Data for Monthly average concentration recorded at CETP, Dombivali

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
CETP, Dombivali	2022	Apr	25	67	71
		May	26	64	85
		Jun	26	65	68
		Jul	23	54	59
		Aug	23	58	81
		Sep	23	58	52
		Oct	27	60	69
		Nov	25	58	81
		Dec	24	61	86
	2023	Jan	24	61	109
		Feb	24	61	120
		Mar	28	52	79

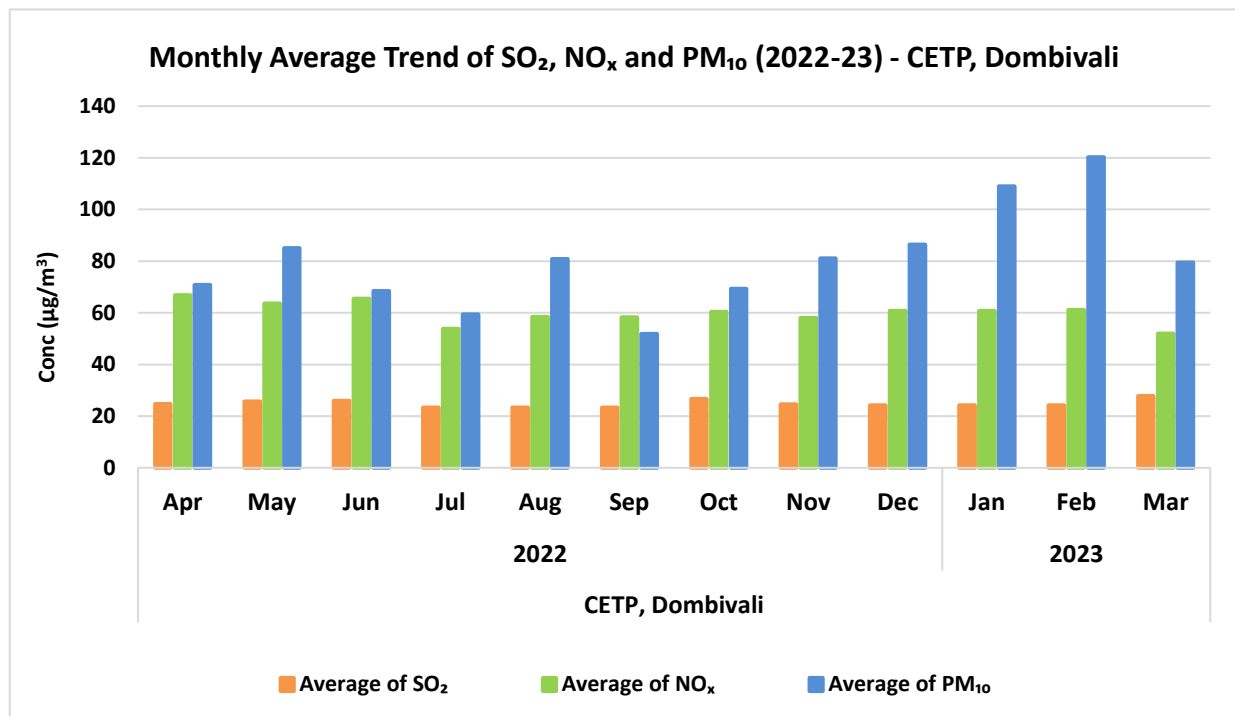
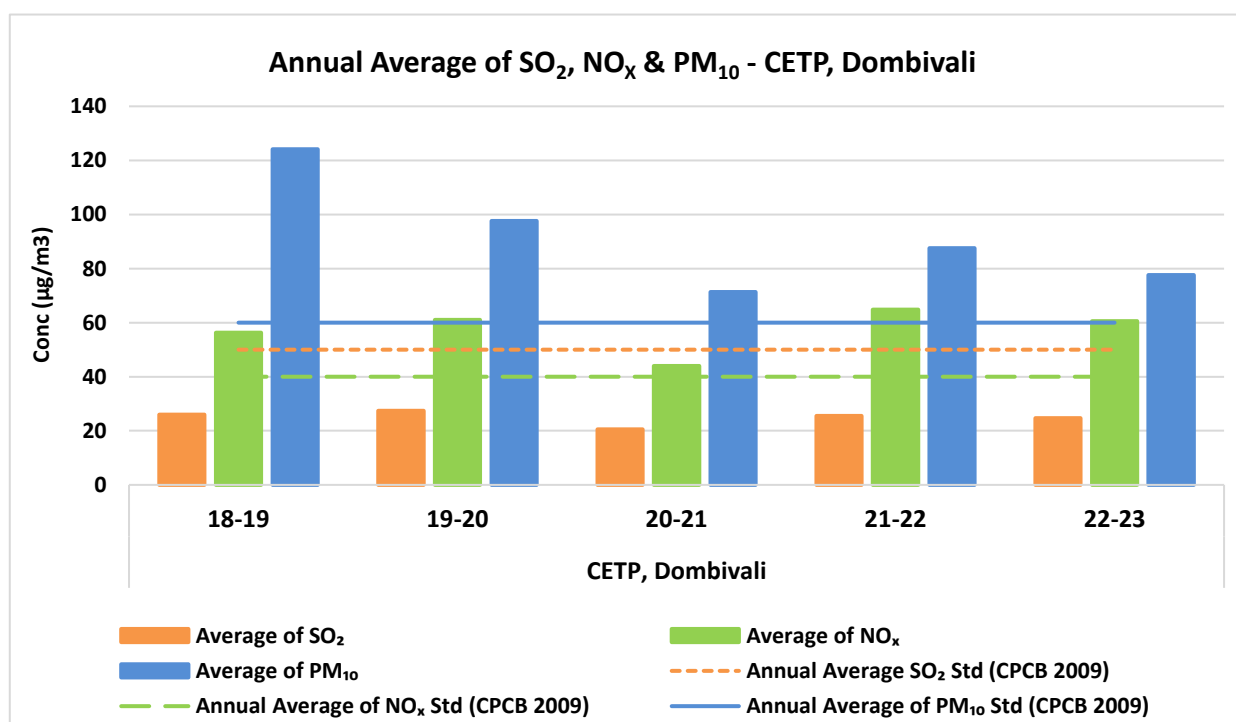


Figure No. 137: Monthly average concentration recorded at CETP, Dombivali

Table No. 113: Data for Annual average trend of SO₂, NO_x and PM₁₀ at CETP, Dombivali

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
CETP, Dombivali	18-19	26	56	124
	19-20	27	61	98
	20-21	20	44	71
	21-22	26	65	88
	22-23	25	61	78

Figure No. 138: Annual average trend of SO₂, NO_x and PM₁₀ at CETP, Dombivali

Dombivali CAAQMS

Table No. 114: Data for Monthly average concentration recorded at Dombivali CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Dombivali CAAQMS	2022	Apr	4	87	174	55
		May	3	74	173	37
		Jun	5	101	79	21
		Jul	5	42	57	25
		Aug	2	37	65	22
		Sep	3	48	57	22
		Oct	14	66	97	38
		Nov	45	100	171	53
		Dec	41	98	186	53
	2023	Jan	38	110	196	52
		Feb	49	103	243	50
		Mar	31	42	162	33

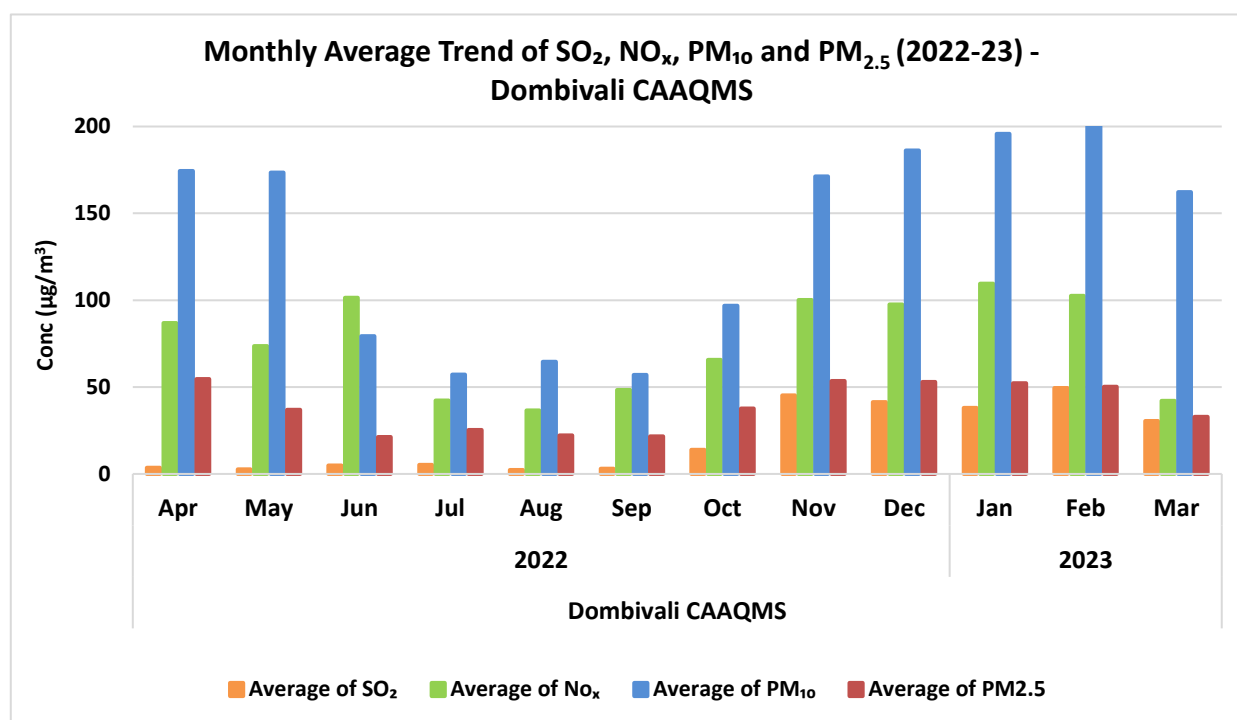
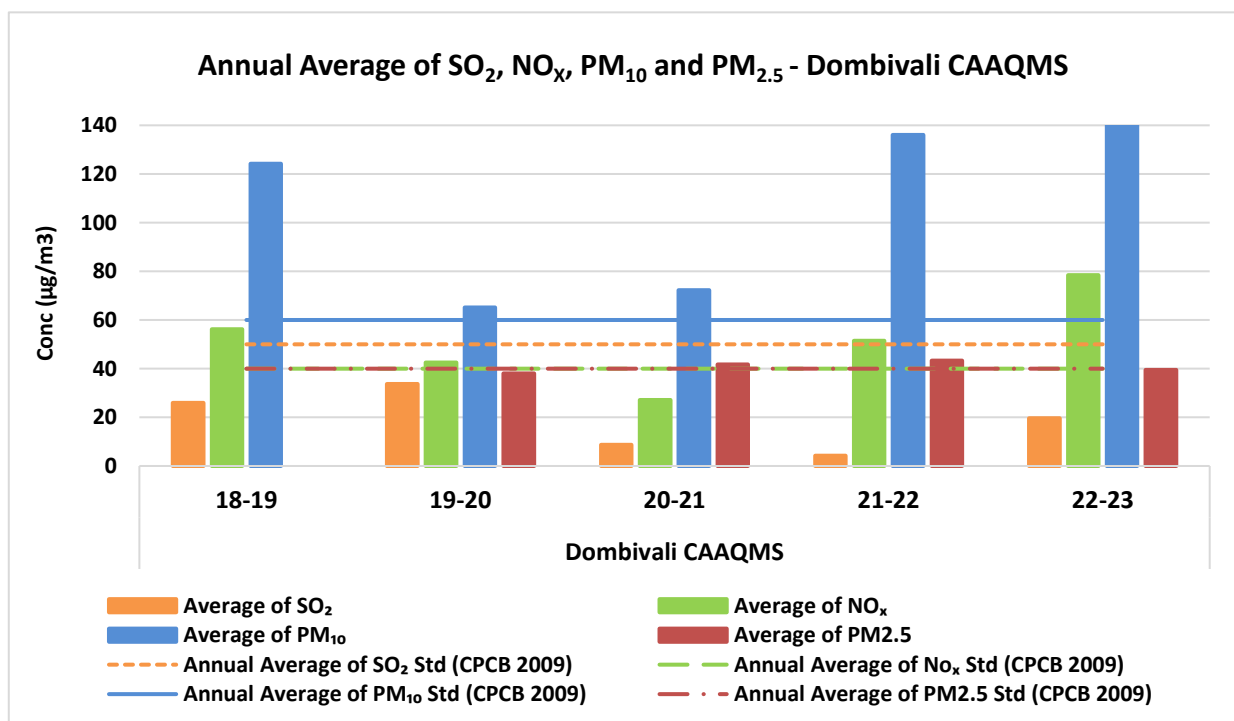


Figure No. 139: Monthly average concentration recorded at Dombivali CAAQMS

Table No. 115: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Dombivali CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Dombivali CAAQMS	18-19	26	56	124	-
	19-20	34	43	65	38
	20-21	9	27	72	42
	21-22	4	51	136	43
	22-23	20	78	141	40

Figure No. 140: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Dombivali CAAQMS

I.G.M. Hospital Premises

Table No. 116: Data for Monthly average concentration recorded at I.G.M. Hospital Premises

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
I.G.M. Hospital Premises	2022	Apr	34	44	67
		May	28	43	52
		Jun	33	42	67
		Jul	30	42	49
		Aug	30	42	66
		Sep	34	44	67
		Oct	34	44	67
		Nov	34	44	67
		Dec	32	43	66
	2023	Jan	29	42	64
		Feb	34	-	-
		Mar	24	-	51

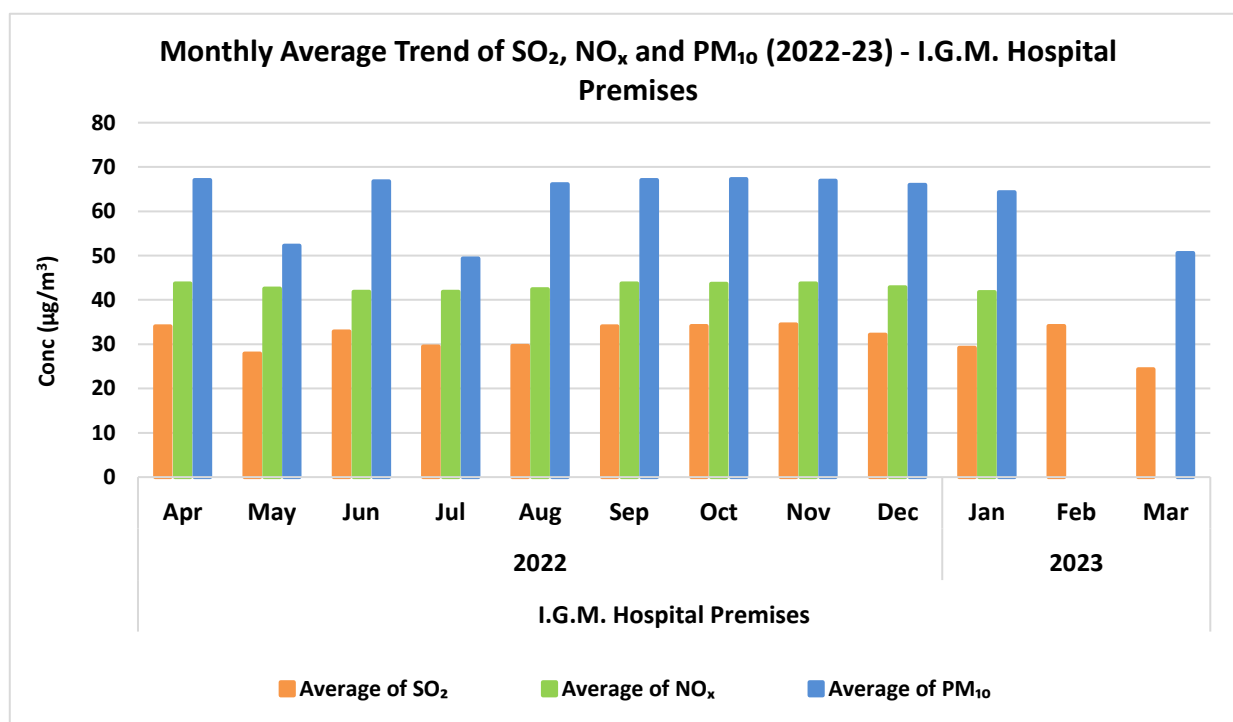
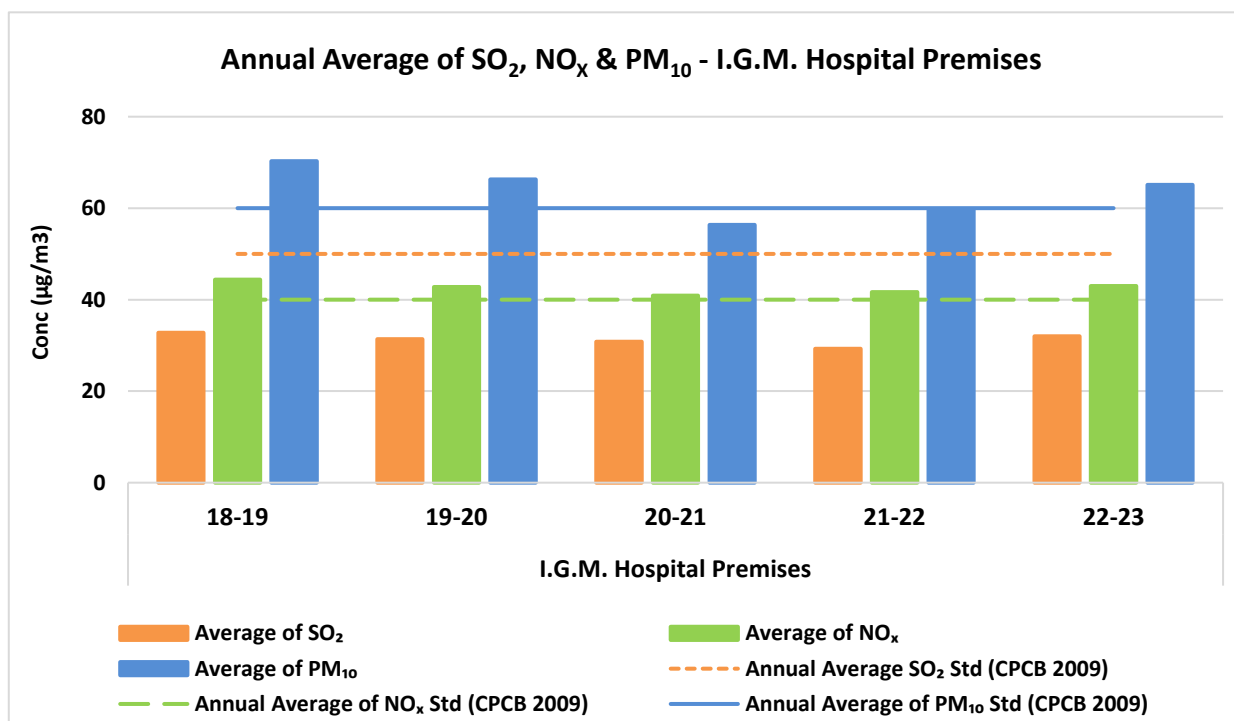


Figure No. 141: Monthly average concentration recorded at I.G.M. Hospital Premises

Table No. 117: Data for Annual average trend of SO₂, NO_x and PM₁₀ at I.G.M. Hospital Premises

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
I.G.M. Hospital Premises	18-19	33	44	70
	19-20	31	43	66
	20-21	31	41	56
	21-22	29	42	60
	22-23	32	43	65

Figure No. 142: Annual average trend of SO₂, NO_x and PM₁₀ at I.G.M. Hospital Premises

Kalyan CAAQMS

Table No. 118: Data for Monthly average concentration recorded at Kalyan CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Kalyan CAAQMS	2022	Apr	16	32	149	60
		May	16	21	140	43
		Jun	16	15	69	29
		Jul	12	21	55	24
		Aug	13	57	62	25
		Sep	14	43	57	25
		Oct	16	61	122	46
		Nov	14	51	169	75
		Dec	15	43	197	67
	2023	Jan	15	41	226	72
		Feb	15	45	203	71
		Mar	15	56	162	64

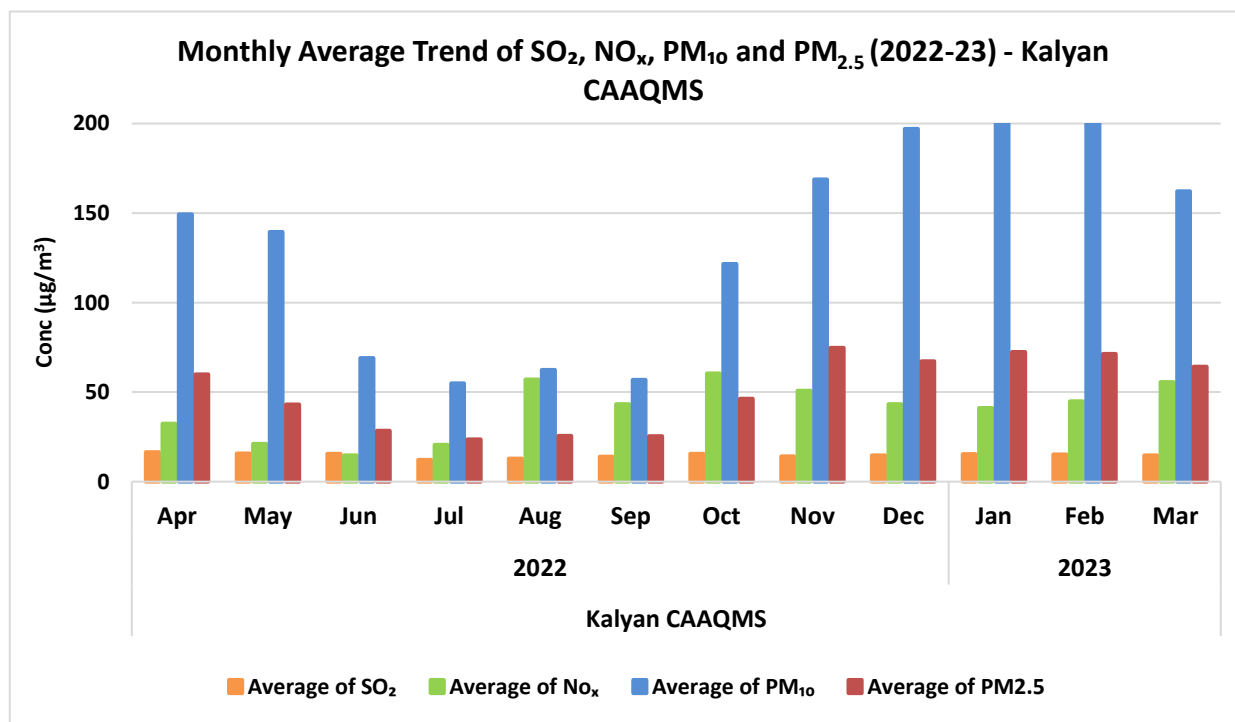
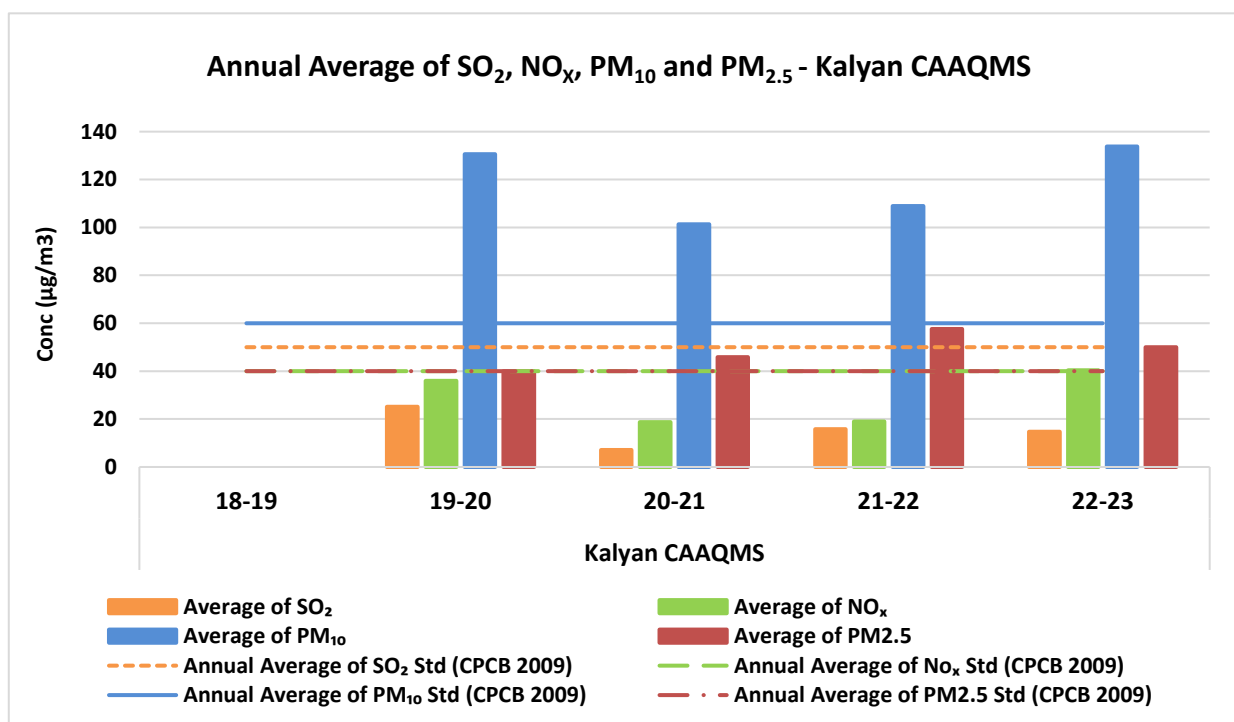


Figure No. 143: Monthly average concentration recorded at Kalyan CAAQMS

Table No. 119: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kalyan CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Kalyan CAAQMS	18-19	-	-	-	-
	19-20	25	36	131	40
	20-21	7	19	101	46
	21-22	16	19	109	58
	22-23	15	40	134	50

Figure No. 144: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kalyan CAAQMS

MIDC Office, Dombivali

Table No. 120: Data for Monthly average concentration recorded at MIDC Office, Dombivali

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Office, Dombivali	2022	Apr	23	63	90
		May	25	61	90
		Jun	24	61	81
		Jul	23	58	50
		Aug	21	55	73
		Sep	21	56	44
		Oct	22	48	56
		Nov	25	59	119
		Dec	23	58	117
	2023	Jan	22	61	123
		Feb	22	59	107
		Mar	26	62	107

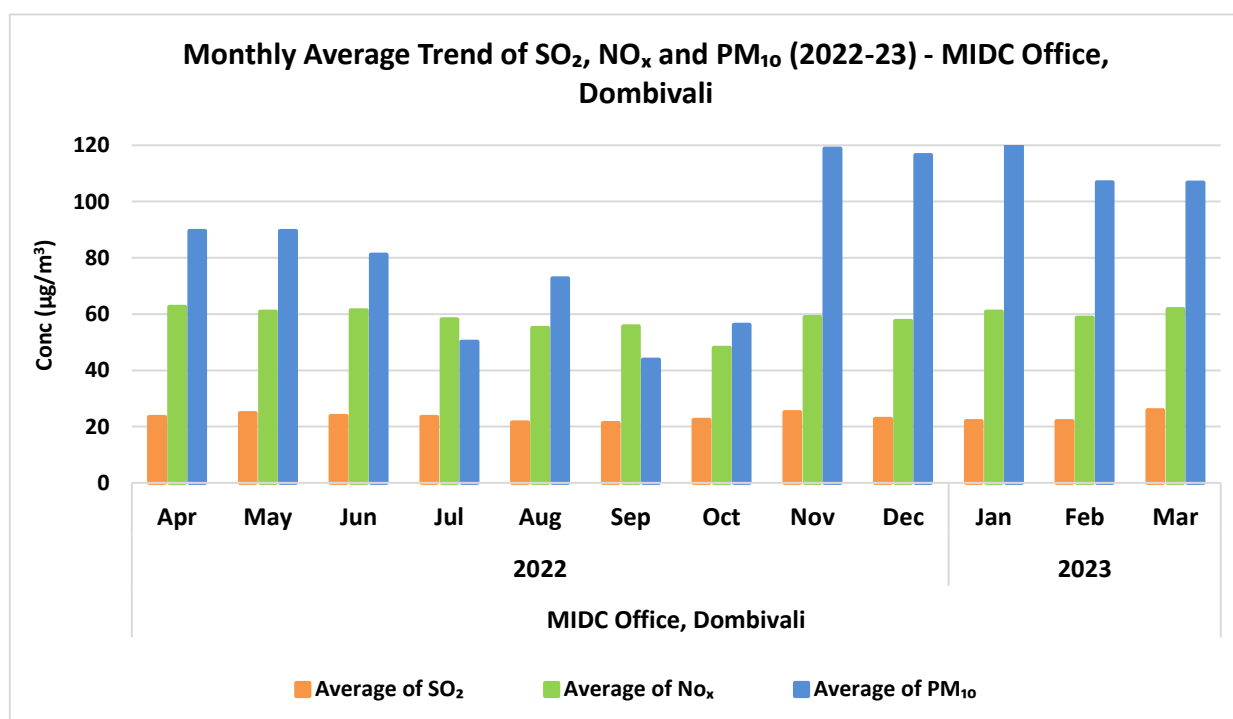
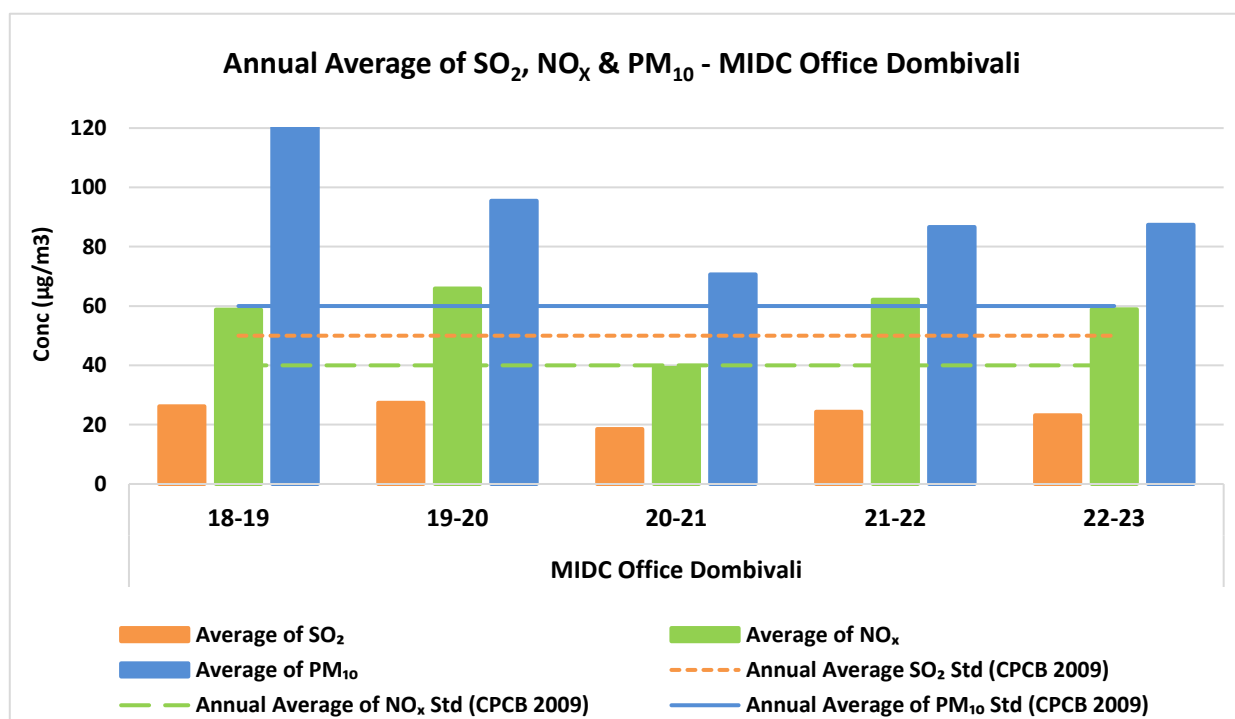


Figure No. 145: Monthly average concentration recorded at MIDC Office, Dombivali

Table No. 121: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office, Dombivali

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Office Dombivali	18-19	26	59	120
	19-20	27	66	96
	20-21	19	39	71
	21-22	24	62	87
	22-23	23	59	87

Figure No. 146: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office, Dombivali

Octroi Naka, Ulhasnagar

Table No. 122: Data for Monthly average concentration recorded at Octroi Naka, Ulhasnagar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Octroi Naka, Ulhasnagar	2022	Dec	20	61	177
	2023	Jan	21	60	155
		Feb	21	60	161
		Mar	21	60	163

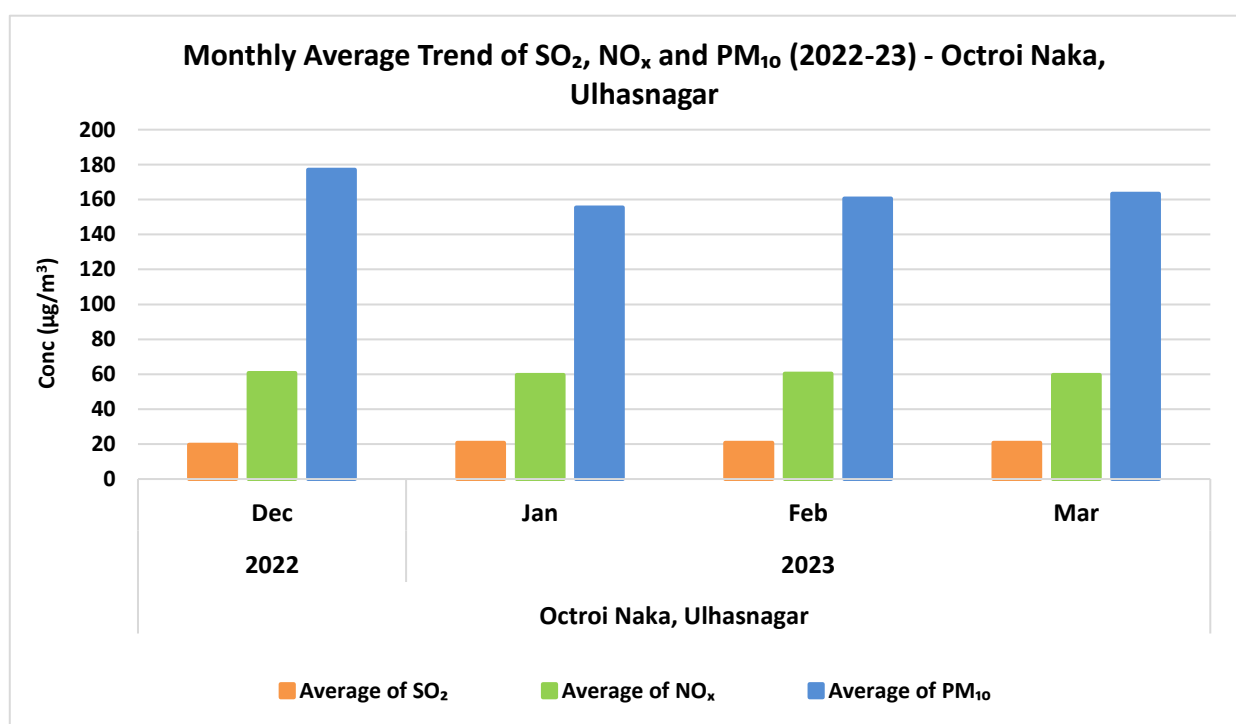
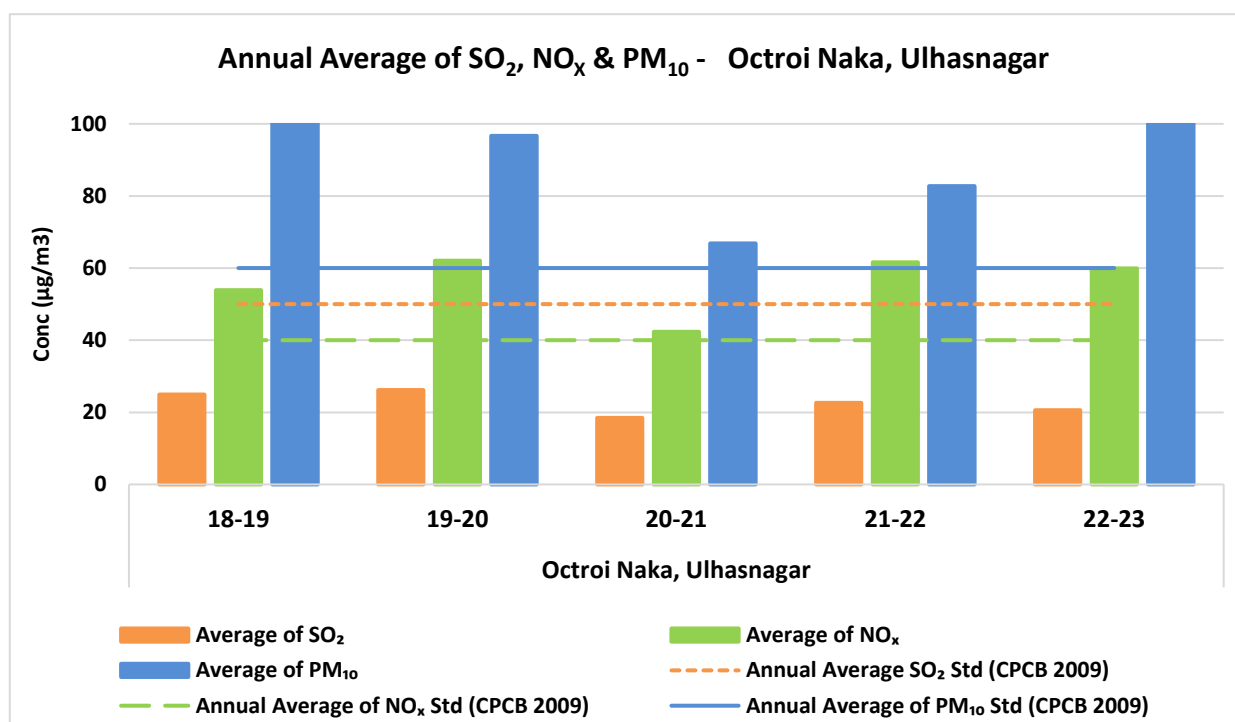


Figure No. 147: Monthly average concentration recorded at Octroi Naka, Ulhasnagar

Table No. 123: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Octroi Naka, Ulhasnagar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Octroi Naka, Ulhasnagar	18-19	25	54	114
	19-20	26	62	97
	20-21	18	42	67
	21-22	23	62	83
	22-23	21	60	163

Figure No. 148: Annual average trend of SO₂, NO_x and PM₁₀ at Octroi Naka, Ulhasnagar

Smt. C.H.M. College, Ulhasnagar

Table No. 124: Data for Monthly average concentration recorded at Smt. C.H.M. College, Ulhasnagar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Smt. C.H.M. College, Ulhasnagar	2022	Apr	18	46	54
		May	21	55	46
		Jun	21	53	75
		Dec	-	48	138
	2023	Jan	20	62	203
		Feb	21	59	174
		Mar	20	50	179

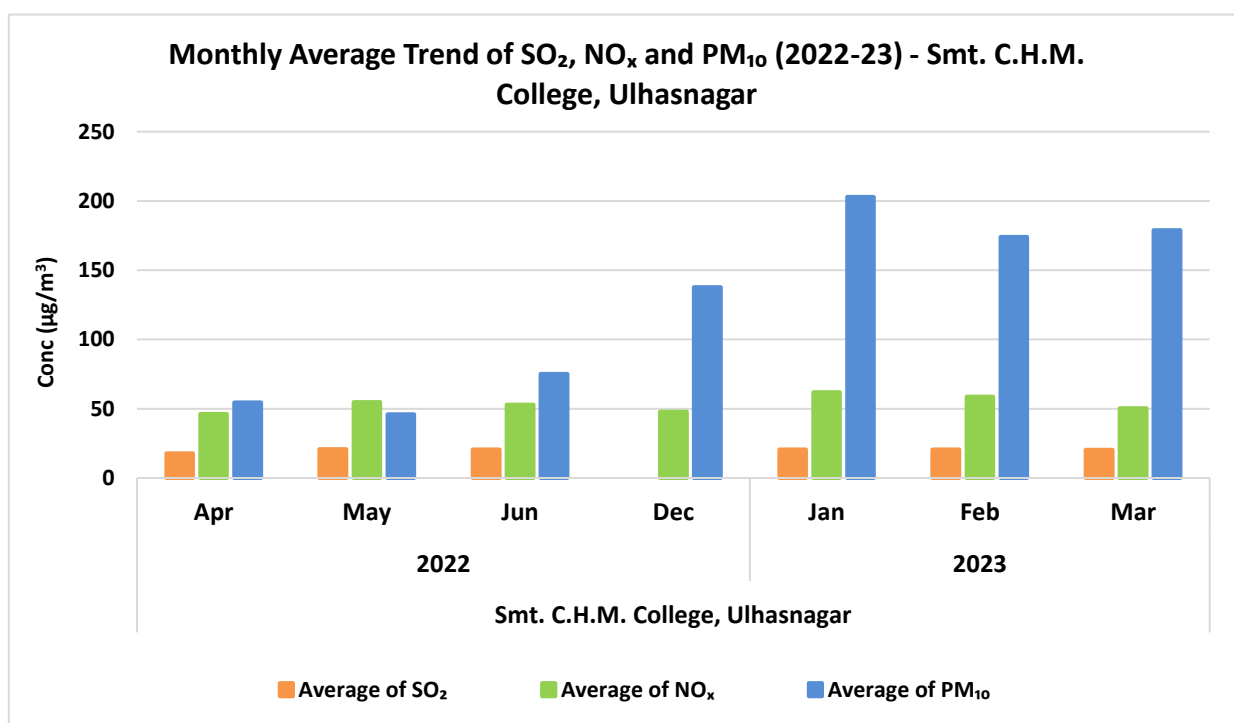
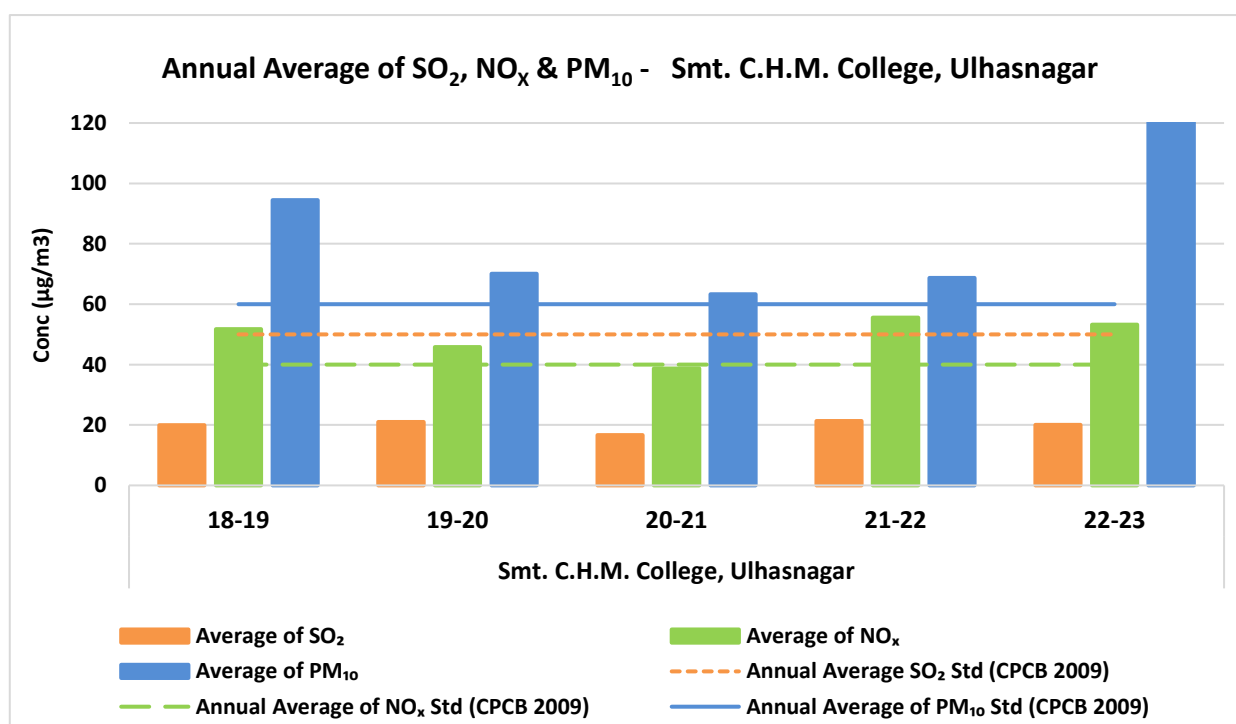


Figure No. 149: Monthly average concentration recorded at Smt. C.H.M. College, Ulhasnagar

Table No. 125: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Smt. C.H.M. College, Ulhasnagar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Smt. C.H.M. College, Ulhasnagar	18-19	20	52	95
	19-20	21	46	70
	20-21	17	39	63
	21-22	21	56	69
	22-23	20	53	125

Figure No. 150: Annual average trend of SO₂, NO_x and PM₁₀ at Smt. C.H.M. College, Ulhasnagar

Terrace of Sampada Hall

Table No. 126: Data for Monthly average concentration recorded at Terrace of Sampada Hall

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Sampada Hall	2022	May	35	43	66
		Jun	35	43	66
		Jul	-	43	66
		Aug	-	44	67
		Sep	35	43	66
		Oct	35	43	66
		Nov	-	43	66
		Dec	35	43	66
	2023	Jan	35	43	66
		Feb	35	-	66

Table No. 127: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Sampada Hall

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Sampada Hall	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	-	-	-
	22-23	35	43	66

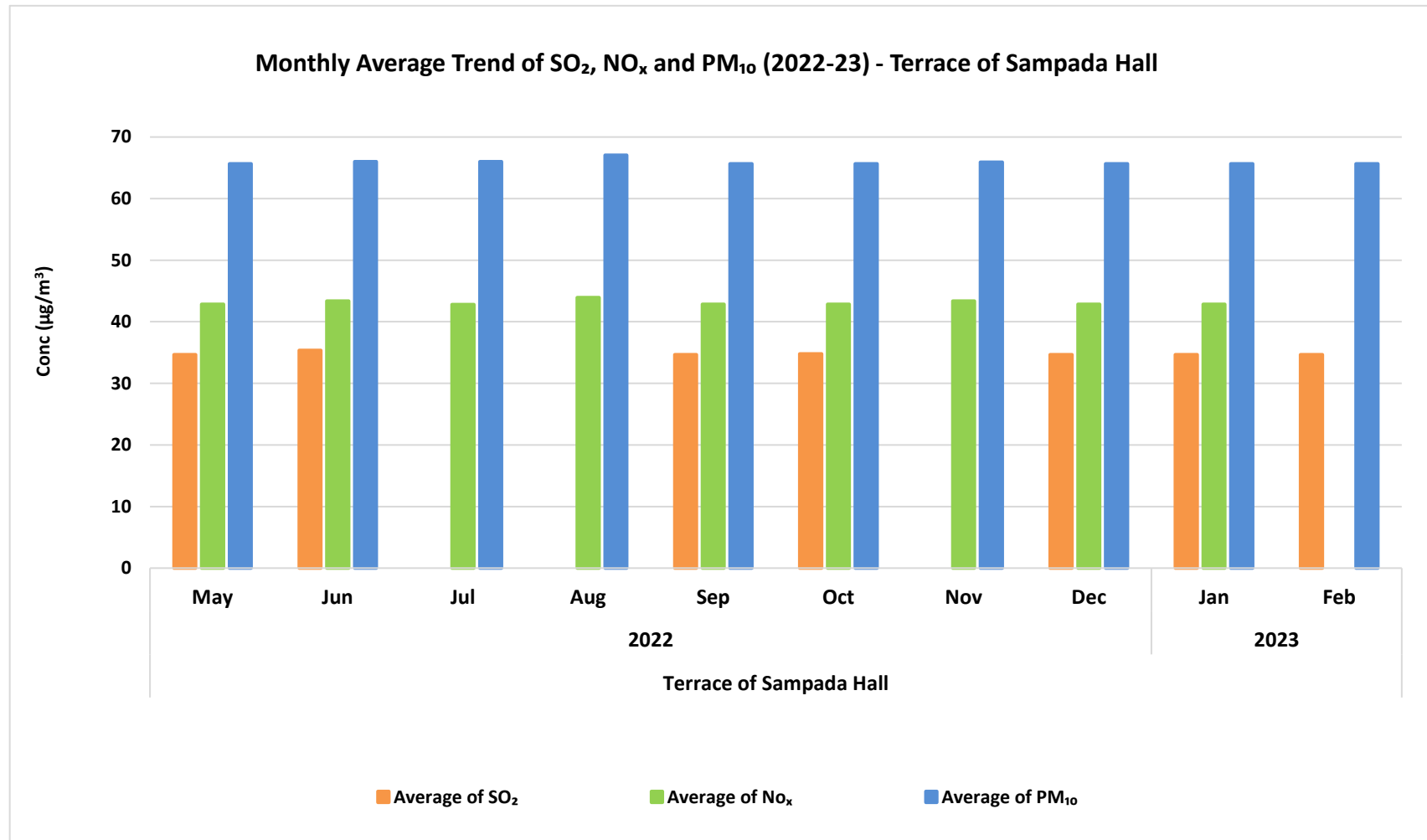


Figure No. 151: Monthly average concentration recorded at Terrace of Sampada Hall

Ulhasnagar CAAQMS

Table No. 128: Data for Monthly average concentration recorded at Ulhasnagar CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Ulhasnagar CAAQMS	2022	Aug	6	11	61	35
		Sep	4	12	59	41
		Oct	12	14	123	81
		Nov	53	23	241	141
		Dec	46	19	184	129
	2023	Jan	36	20	181	128
		Feb	28	25	201	110
		Mar	19	20	153	81

Table No. 129: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ulhasnagar CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Ulhasnagar CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	25	18	162	101

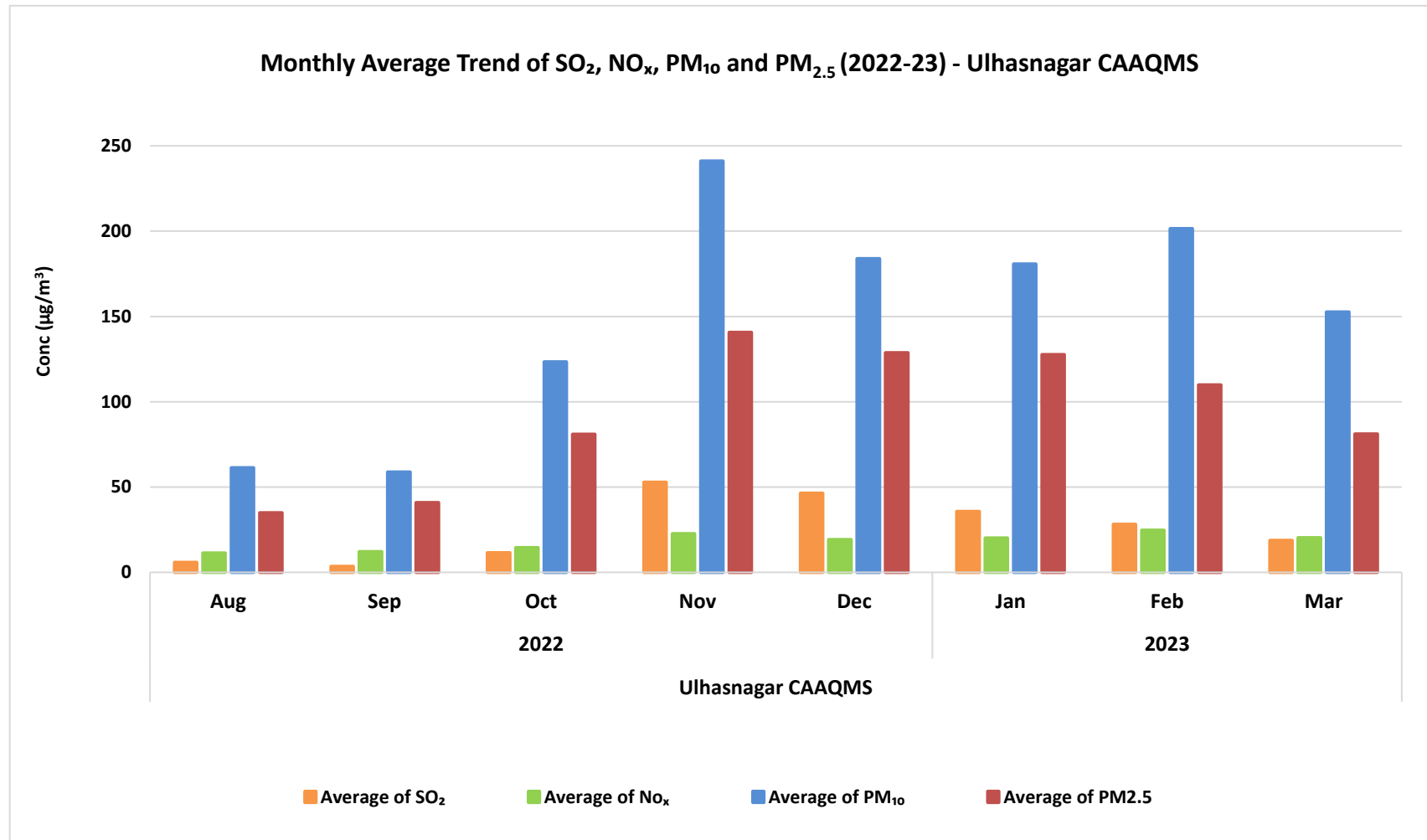


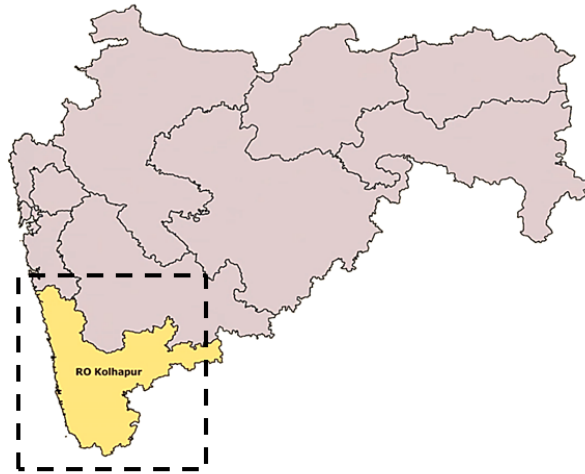
Figure No. 152: Monthly average concentration recorded at Ulhasnagar CAAQMS

Table No. 130: Percentage exceedance of pollutants at Kalyan RO

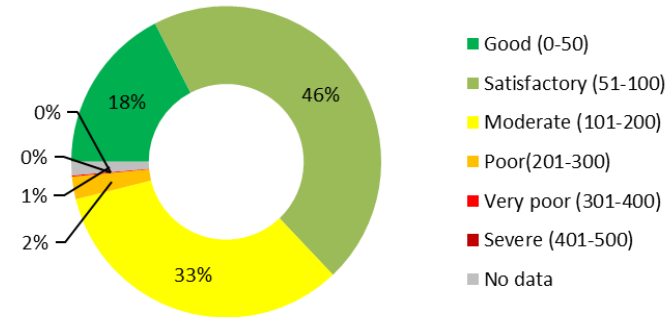
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
M.P.C. Board	49	67	63	0	0	0	0	0	0	0	0	0
Prematai Hall	79	61	54	0	0	0	0	0	0	0	0	0
Ambernath Municipal corporation Building, Ambernath	104	86	104	0	0	0	44	0	0	0	42	0
Badlapur CAAQMS	237	239	233	233	0	104	166	153	0	44	71	66
Bhiwandi CAAQMS	239	231	242	242	0	10	173	163	0	4	71	67
BIWA House, Badlapur	93	64	99	0	0	0	69	0	0	0	70	0
CETP, Dombivali	88	86	89	0	0	0	18	0	0	0	20	0
Dombivali CAAQMS	319	306	329	324	7	132	211	48	2	43	64	15
I.G.M. Hospital Premises	72	51	59	0	0	0	0	0	0	0	0	0
Kalyan CAAQMS	361	364	365	363	0	7	226	128	0	2	62	35
MIDC Office, Dombivali	87	83	97	0	0	0	48	0	0	0	49	0
Octroi Naka, Ulhasnagar	17	28	15	0	0	3	15	0	0	11	100	0
Smt. C.H.M. College, Ulhasnagar	43	57	60	0	0	0	32	0	0	0	53	0
Terrace of Sampada Hall	39	49	46	0	0	0	0	0	0	0	0	0
Ulhasnagar CAAQMS	239	237	206	206	6	0	154	156	3	0	75	76

CITIES /AREAS UNDER KOLHAPUR RO

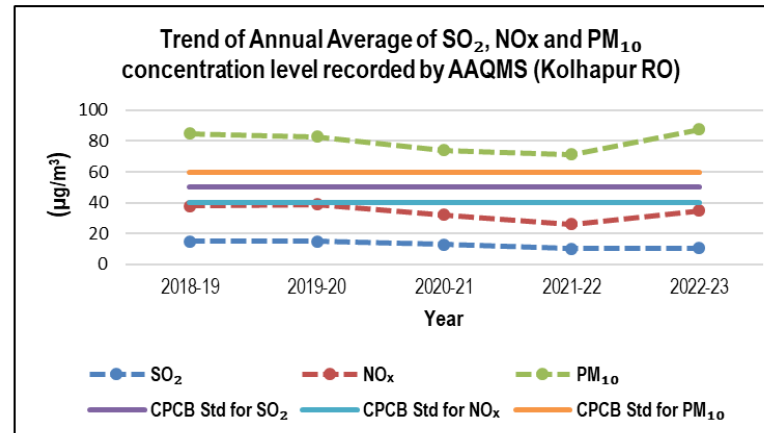
KOLHAPUR RO



Kolhapur



Sr No.	Station Name
1	Central Co-op Bank
2	Kupwad, Sangli
3	Mahadwar Road, Kolhapur
4	Ratnagiri - Sub Campus
5	Ruikar Trust, S.T. Stand, Kolhapur
6	Sangli CAAQMS
7	University Campus, Kolhapur
8	Shivaji University Kolhapur CAAQMS
9	Sinchan Bhavan Kolhapur CAAQMS
10	Terrace of Municipal School, Sangli
11	Udyog Bhavan, Sangli





SHIVAJI UNIVERSITY KOLHAPUR CAAQMS



SINCHAN BHAVAN KOLHAPUR CAAQMS



SANGLI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

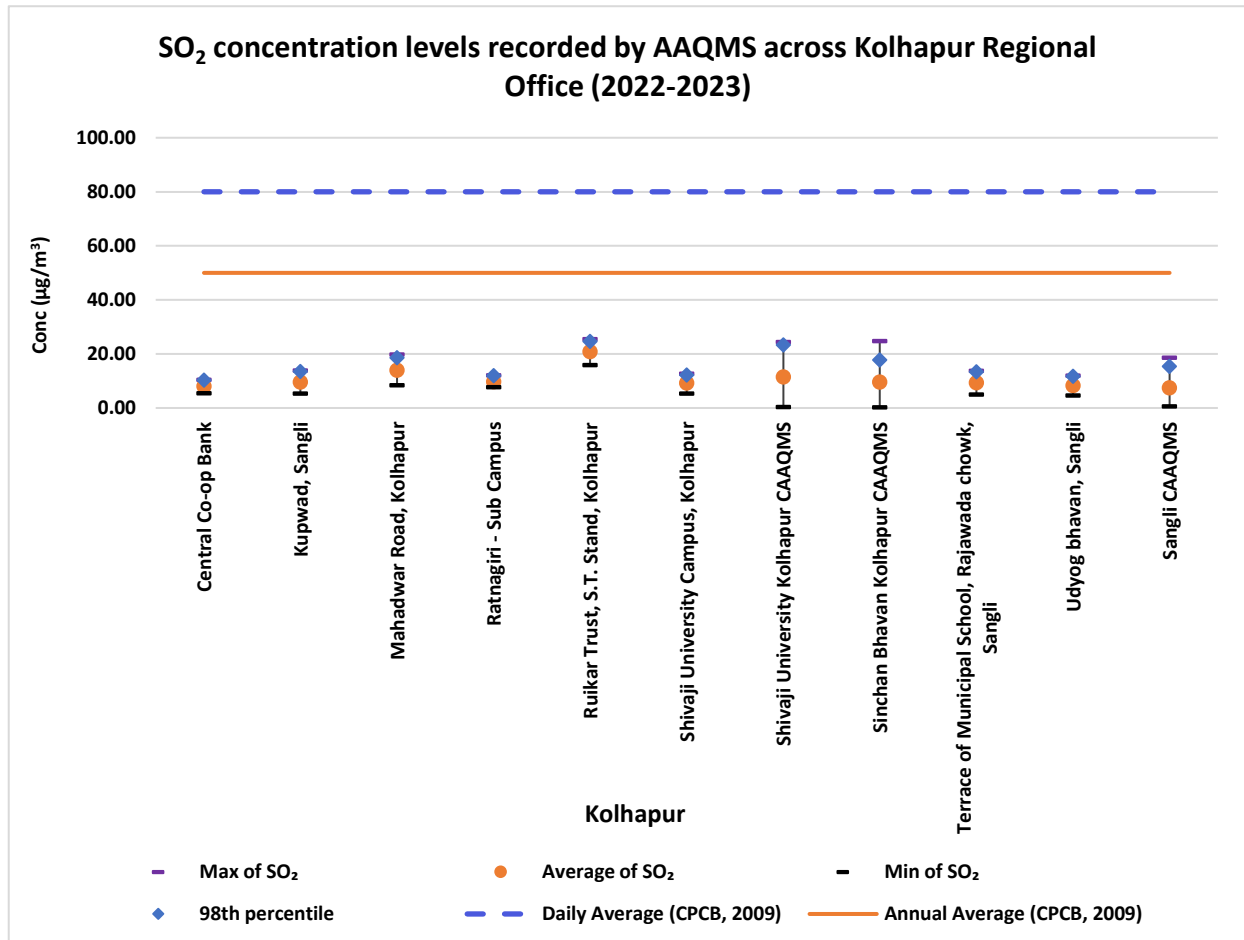


Figure No. 153: Parametric values of SO₂ concentrations recorded by AAQMS across Kolhapur RO (2022-2023)

As represented in above Figure No.154, the daily and annual average of SO₂ in year 2022-23 recorded by AAQMS installed within the Kolhapur RO's jurisdiction area were found to be within the daily average limit (80 µg/m³) and annual average limit (50 µg/m³) specified by the CPCB. The annual average of SO₂ concentration level recorded by these stations were found to be in the range of 8 µg/m³-21 µg/m³.

Among the AAQMS locations, the highest annual average concentration level was recorded by the AAQMS installed at Ruikar Trust - S.T. Stand - Kolhapur (20.78 µg/m³), followed by Mahadwar Road - Kolhapur (14.01 µg/m³). In contrast, the lowest annual average concentration level of about 7.43 µg/m³ was recorded by Sangli CAAQMS.

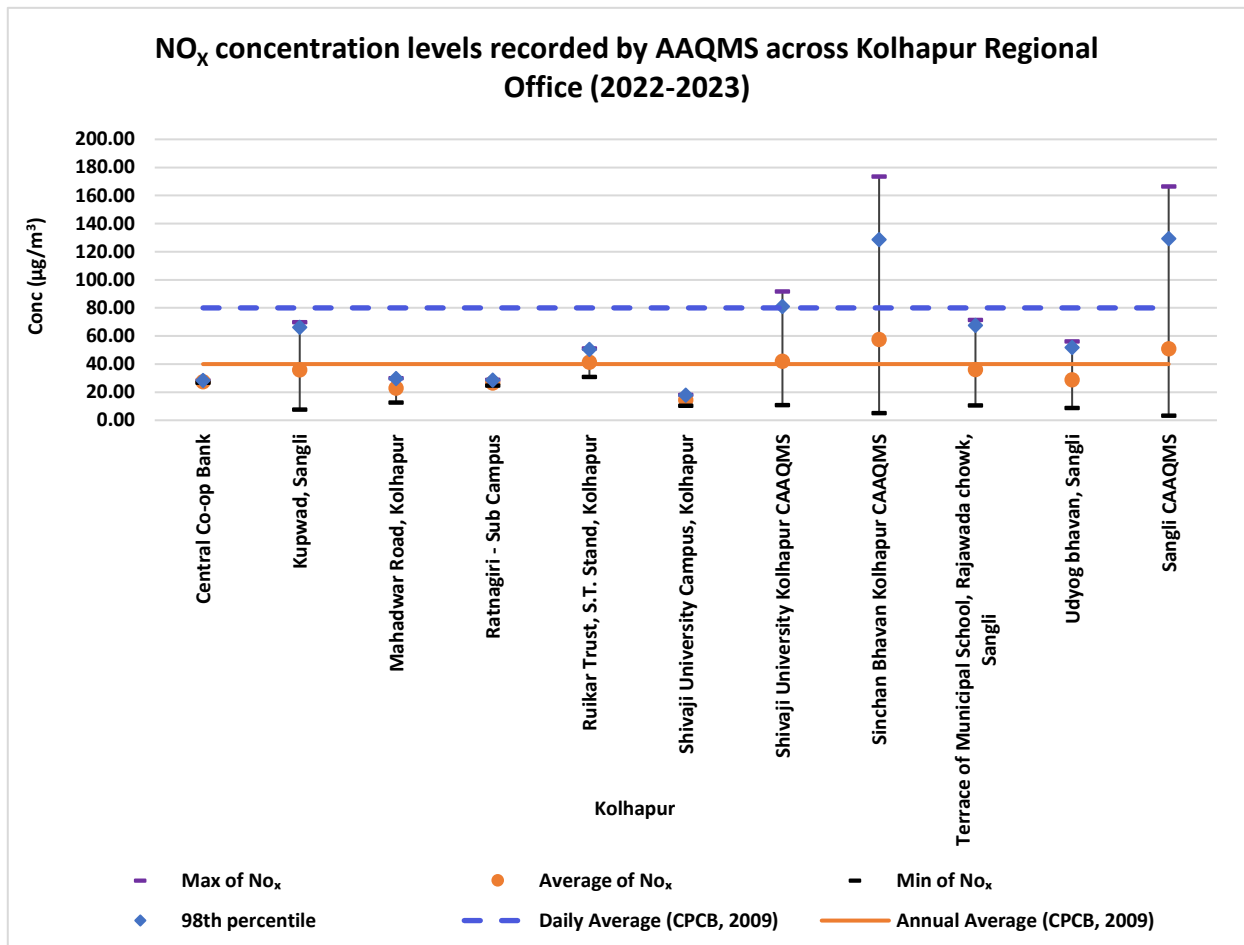
NO_x

Figure No. 154: Parametric values of NO_x concentration recorded by AAQMS across Kolhapur RO (2022-2023)

As per the data recorded by AAQMS installed in the areas under the jurisdiction of Kolhapur RO, it was found that the annual average concentration level recorded by Sinchan Bhavan Kolhapur CAAQMS (57.57 µg/m³), Sangli CAAQMS (50.95 µg/m³), Shivaji University Kolhapur CAAQMS (41.93 µg/m³) and Ruikar trust AAQMS (41.33 µg/m³) exceeded the standard limit of annual average (40 µg/m³). Amongst the remaining monitoring stations who have recorded the levels within the limit, the lowest concentration level of about 14.42 µg/m³ was recorded by the Shivaji University Campus (Kolhapur) AAQMS.

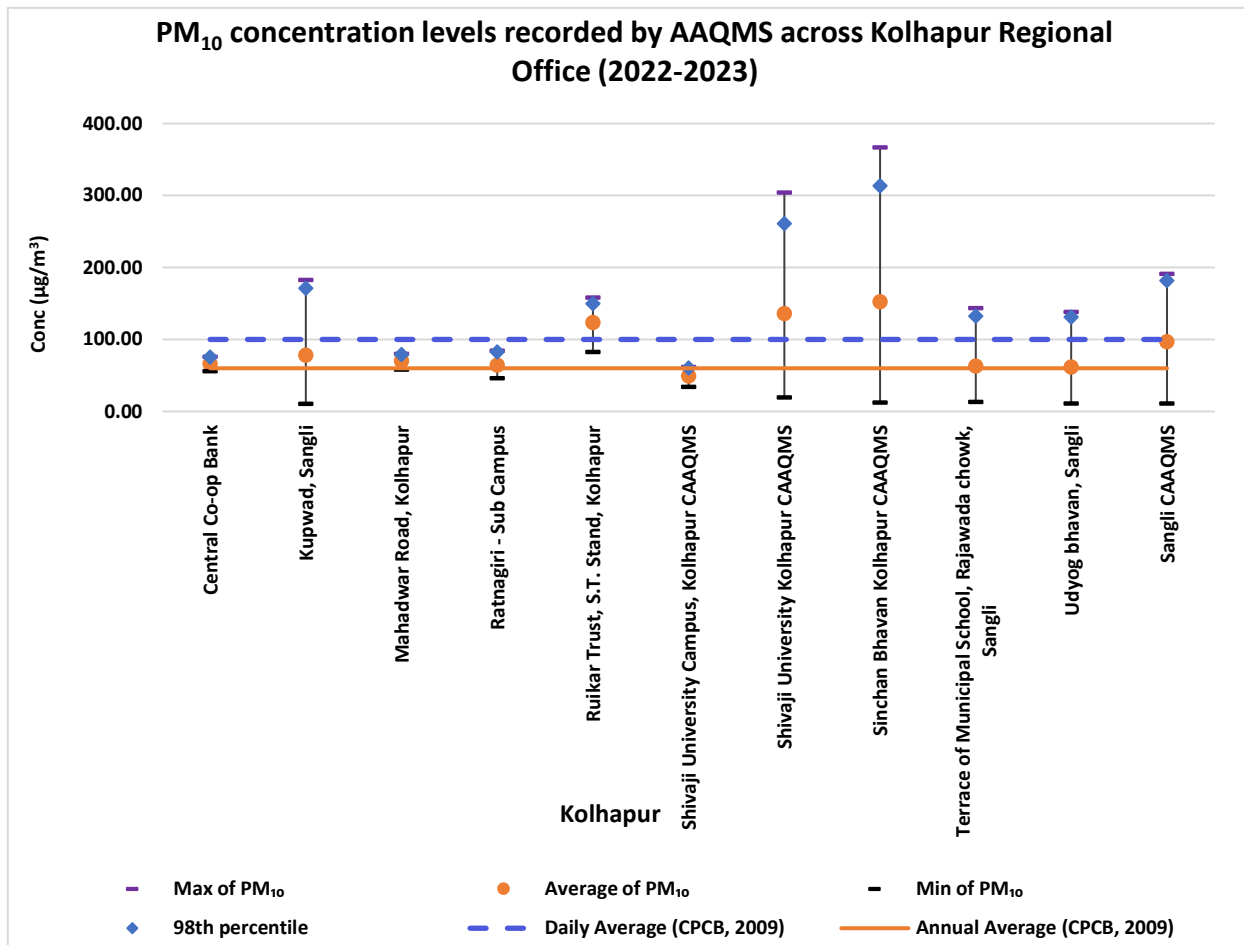
PM₁₀

Figure No. 155: Parametric values of PM₁₀ concentrations recorded by AAQMS across Kolhapur RO (2022-2023)

Out of the 11 monitoring stations installed in the areas under the jurisdiction of Kolhapur RO, 3 AAQMS - Sinchan Bhavan Kolhapur CAAQMS (152.40 µg/m³), Shivaji University Kolhapur CAAQMS (135.90 µg/m³) and Ruikar Trust, S.T. Stand, Kolhapur (123.73 µg/m³) recorded concentration levels which were more than twice that of the annual average permissible limit (60 µg/m³). Only 1 monitoring stations namely Shivaji University Campus - Kolhapur CAAQMS recorded annual average concentration level of about 49.11 µg/m³ which was within the standard limit. The levels recorded by all other monitoring stations have exceeded the standard limit.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Kolhapur RO

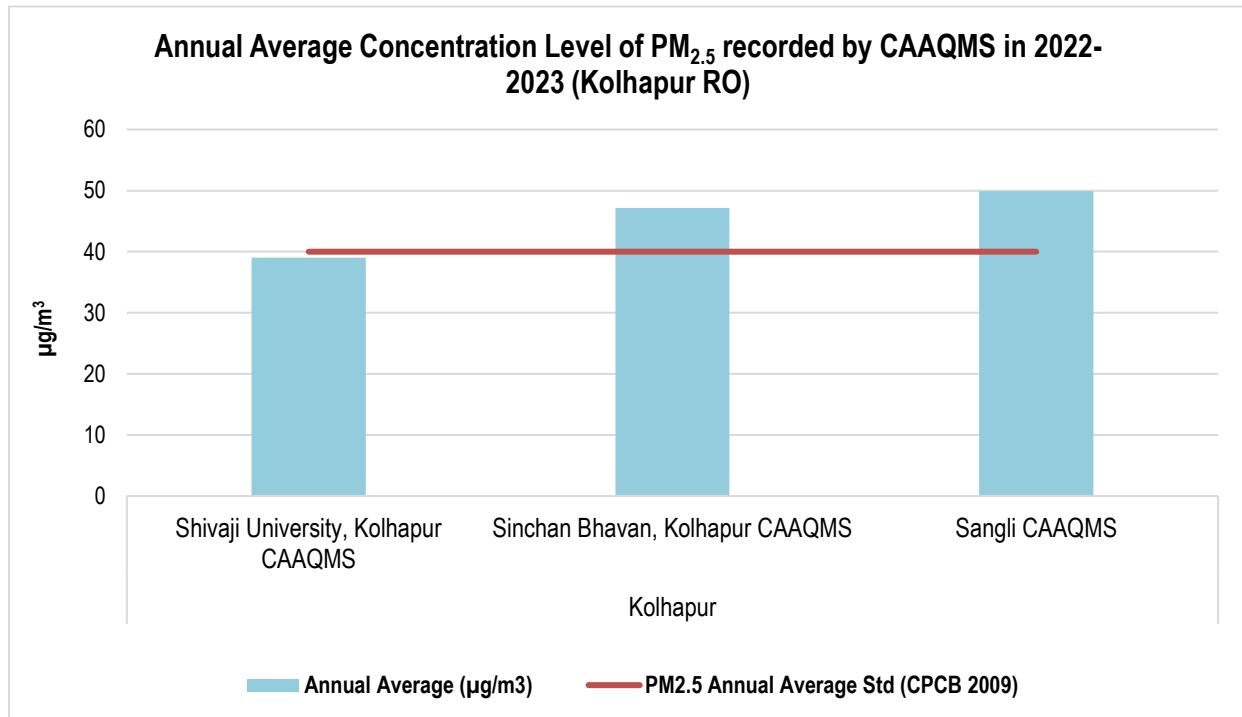


Figure No. 156: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (ug/m³) installed in the areas under the jurisdiction of Kolhapur RO (2022-23)

Out of 3 CAAQMS, Sangli CAAQMS (49.91 µg/m³) and Sinchan Bhavan - Kolhapur CAAQMS (47.12 µg/m³) recorded the annual average concentration levels higher than the permissible limit whereas Shivaji University - Kolhapur CAAQMS recorded level of 39.05 µg/m³ which was very close to the limit.

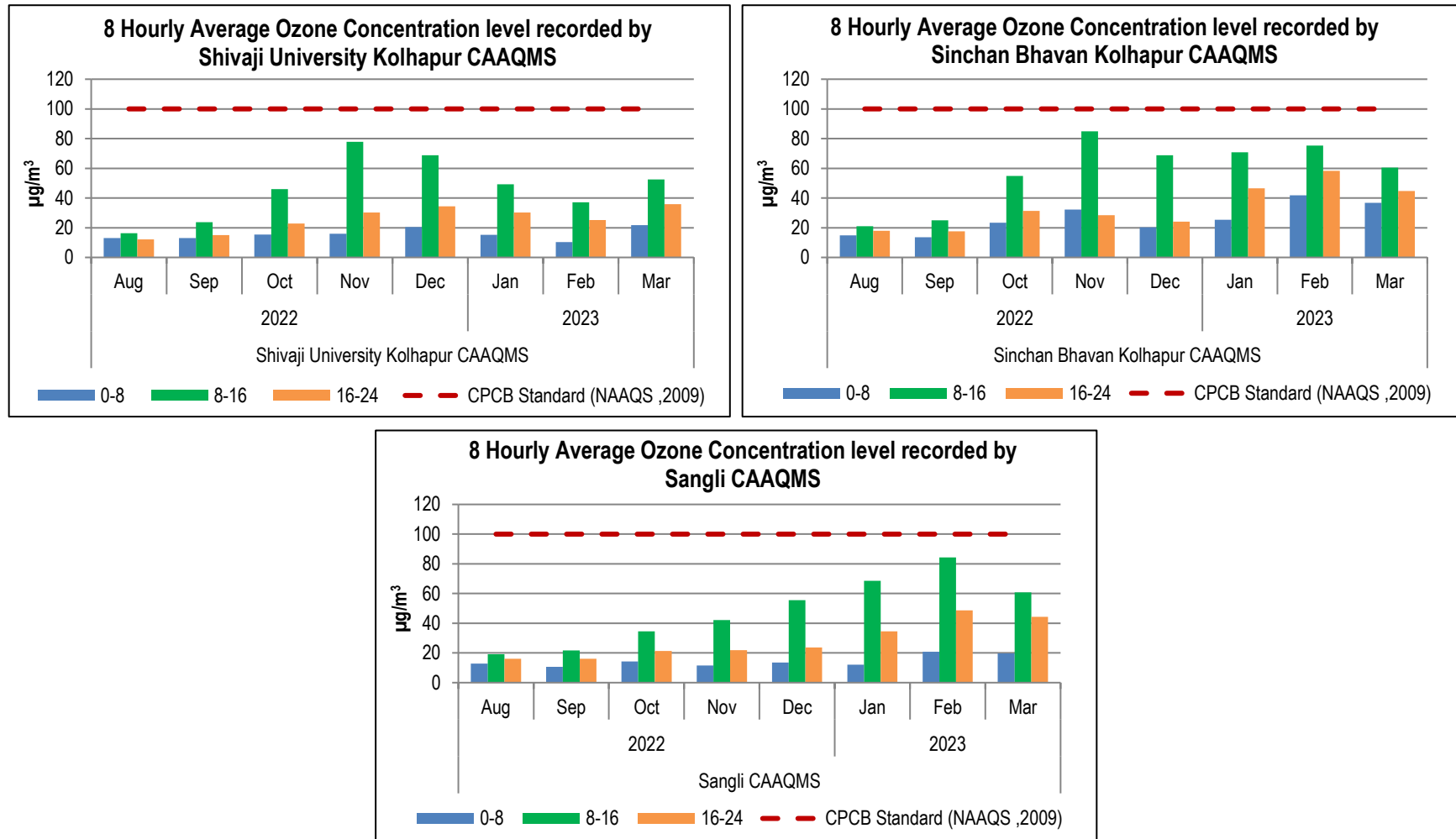
Ozone (O_3)

Figure No. 157 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Kolhapur RO

Carbon Monoxide (CO)

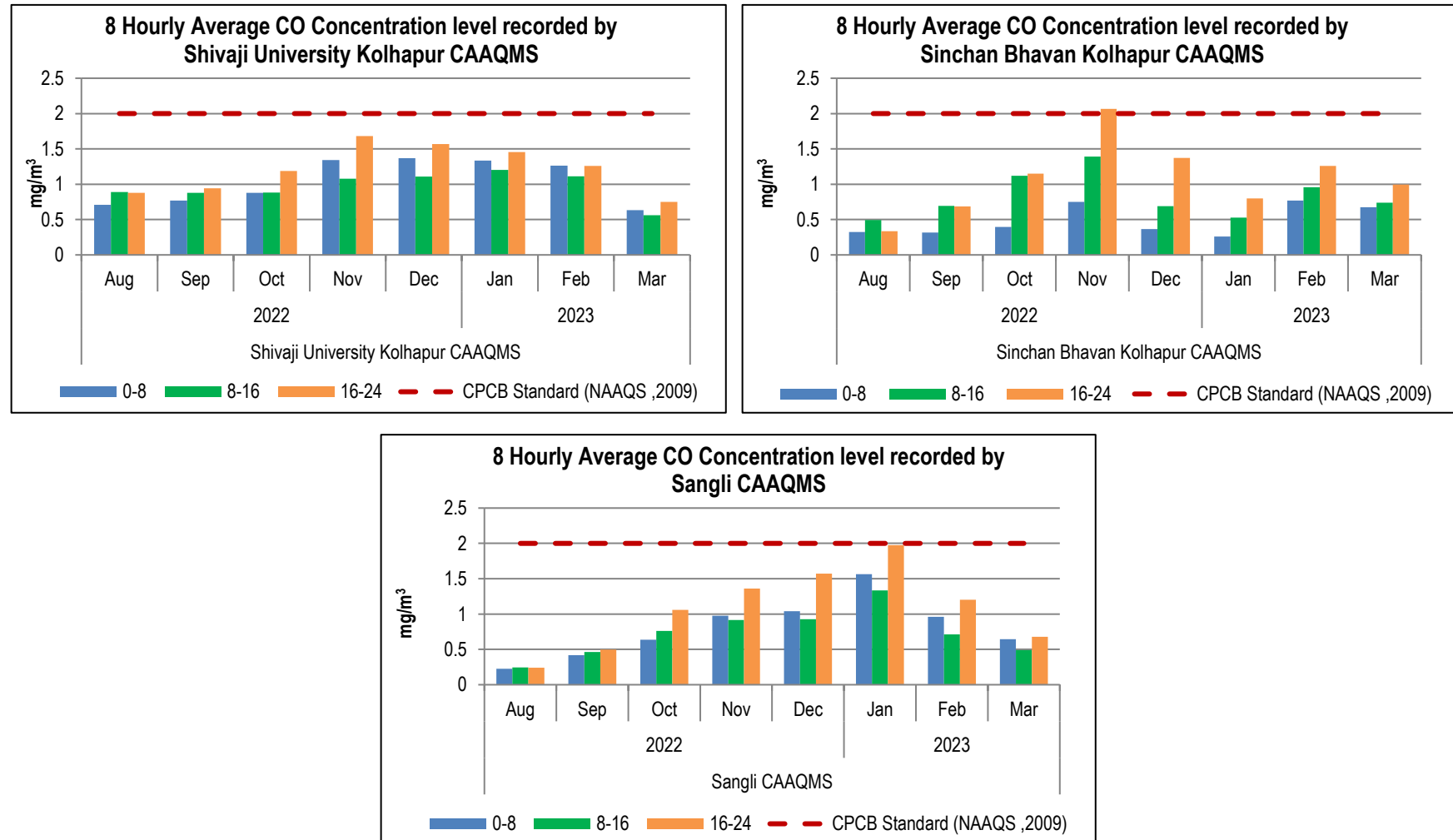


Figure No. 158 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Kolhapur RO

Benzene

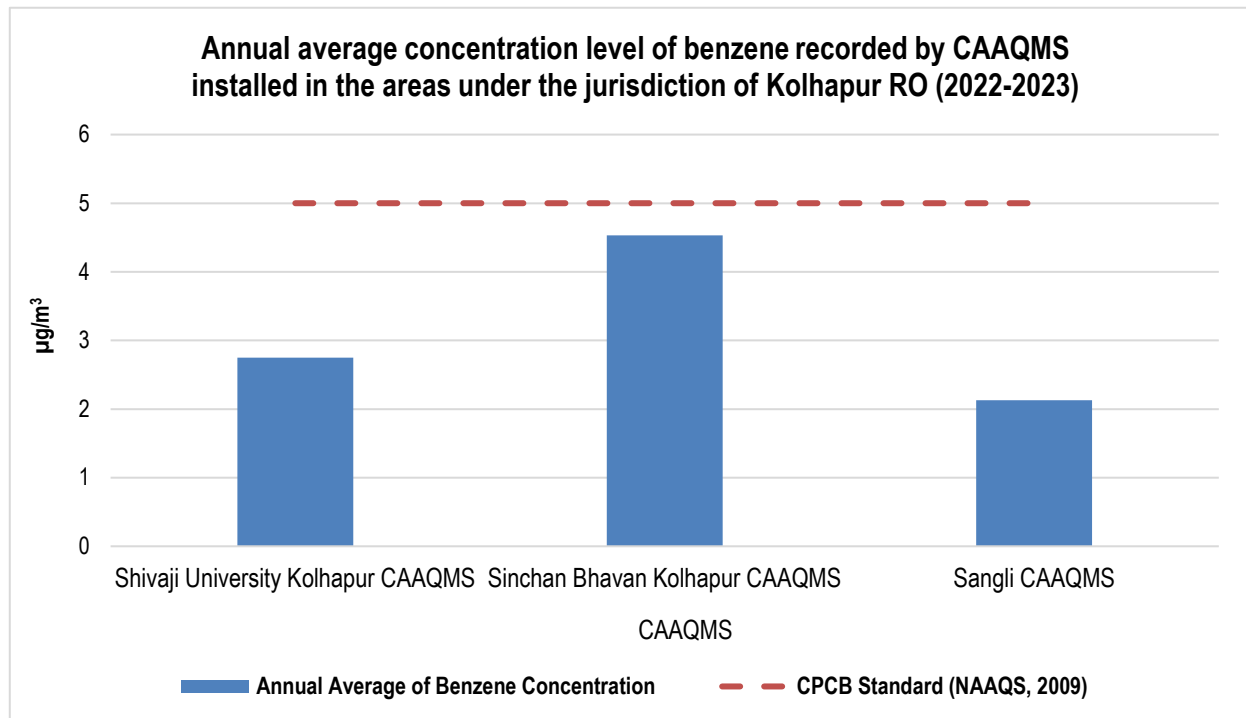


Figure No. 159: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Kolhapur RO (2022-23)

All 3 CAAQMS installed in the areas under the jurisdiction of Kolhapur RO recorded the annual average concentration of Benzene within the permissible limit ($5 \mu\text{g}/\text{m}^3$). The highest concentration (within the limit) was recorded by Sinchan Bhavan Kolhapur CAAQMS ($4.53 \mu\text{g}/\text{m}^3$) followed by Shivaji University Kolhapur CAAQMS ($2.75 \mu\text{g}/\text{m}^3$) and Sangli CAAQMS ($2.13 \mu\text{g}/\text{m}^3$).

AQI percentage occurrence graphs Kolhapur RO

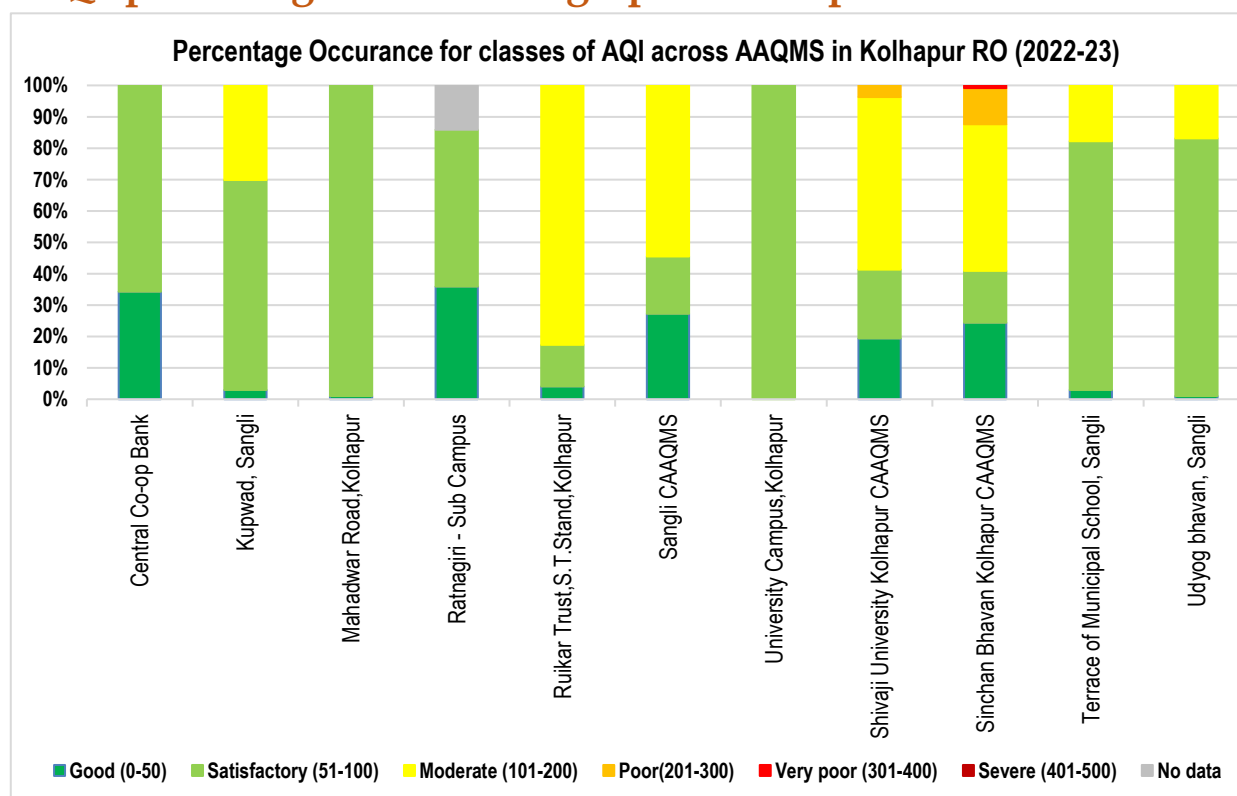


Figure No. 160: Percentage Occurance for classes of AQI across AAQMS installed in the areas under the jurisdiction of Kolhapur RO (2022-23)

Under the Kolhapur RO's jurisdiction area, out of 11 monitoring stations, monitoring stations installed at Central Co-op Bank, Mahadwar Road-Kolhapur, Ratnagiri - Sub Campus and University Campus-Kolhapur recorded all observations under the 'Non-Polluted' ('Good' and 'Satisfactory') category. About 82.65% of the observations recorded by Ruikar Trust-S.T.Stand-Kolhapur AAQMS found under the 'Moderate' category followed by 54.96% at Shivaji University Kolhapur CAAQMS and 54.55% at Sangli CAAQMS.

Sinchan Bhavan Kolhapur CAAQMS recorded about 24.38% of the total observations in the 'Good' category followed by 16.53% under the 'Satisfactory', 46.69% (Moderate), 11.57% (Poor) and about 0.83% observations under the 'Very Poor' AQI category. About 14.10% observations from the Ratnagiri - Sub Campus AAQMS were considered as 'No Data'.

Monthly and Annual Graphs

Central Co-op Bank

Table No. 131: Data for Monthly average concentration recorded at Central Co-op Bank

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Central Co-op Bank	2022	Apr	8	28	69
		May	7	28	63
		Jun	7	27	70
		Jul	7	28	-
		Aug	7	-	62
		Sep	8	27	66
		Oct	9	28	65
		Nov	9	27	63
		Dec	8	28	70
	2023	Jan	8	28	67
		Feb	9	28	65
		Mar	9	28	67

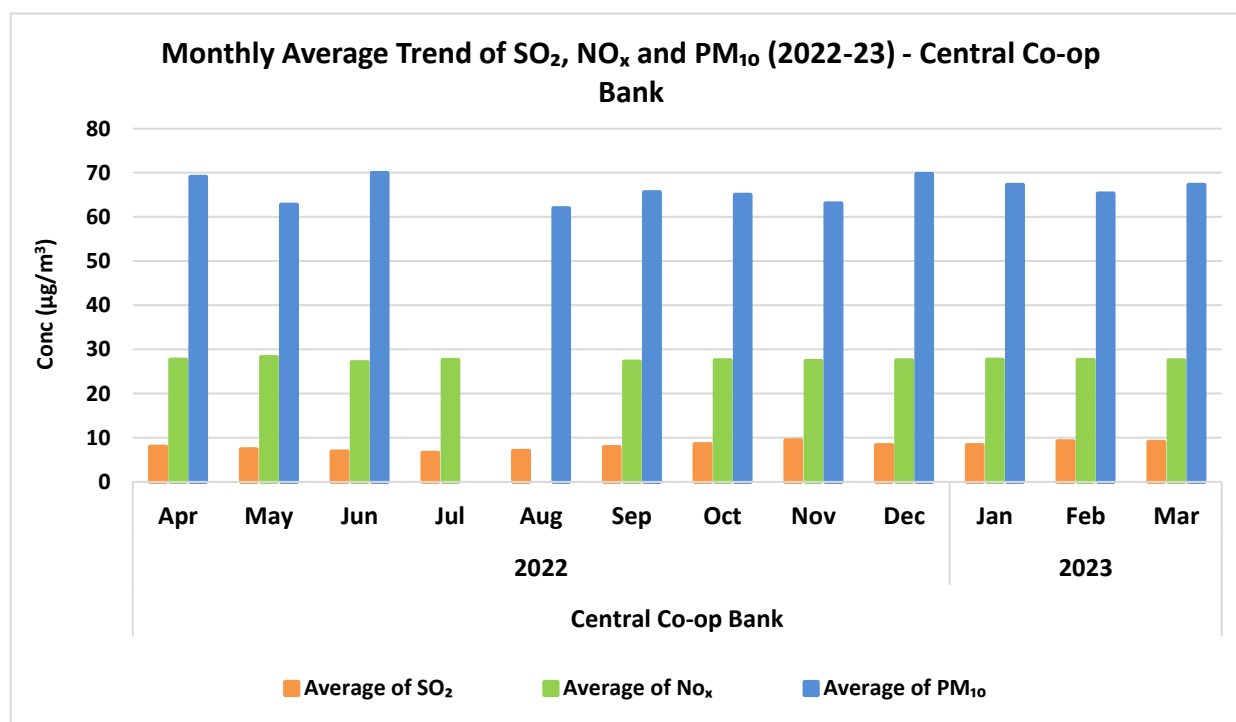
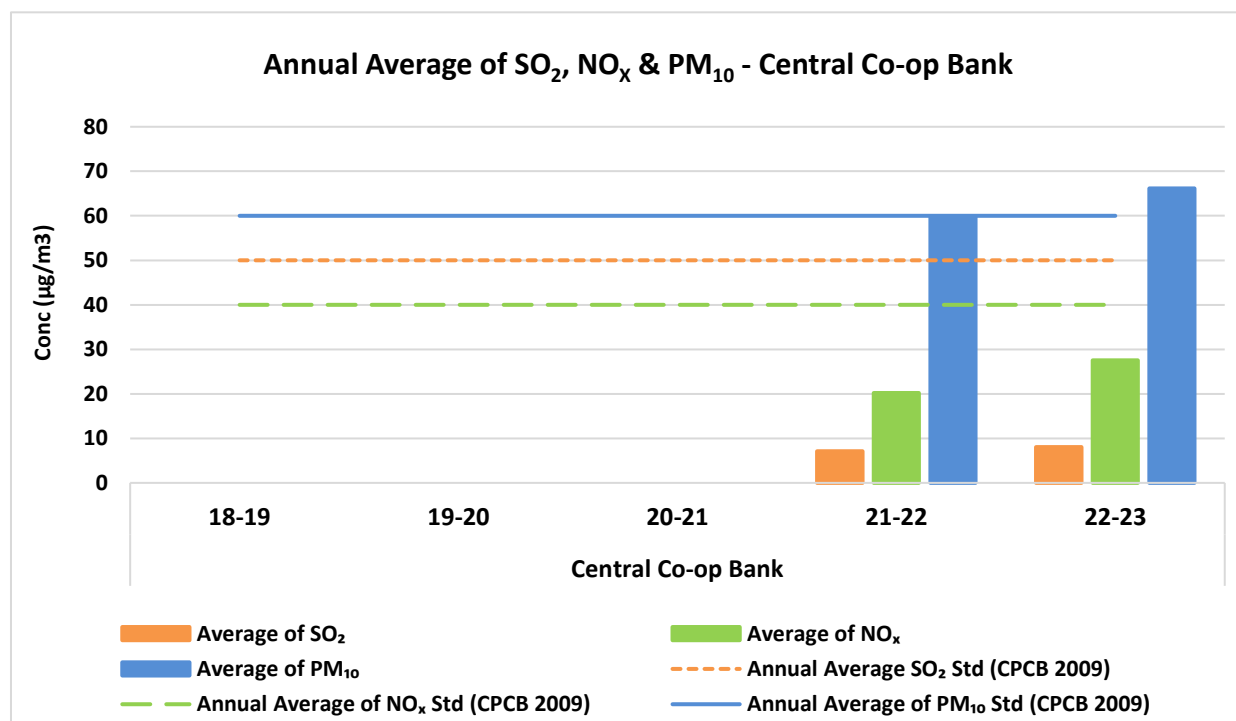


Figure No. 161: Monthly average concentration recorded at Central Co-op Bank

Table No. 132: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Central Co-op Bank

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Central Co-op Bank	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	7	20	60
	22-23	8	28	66

Figure No. 162: Annual average trend of SO₂, NO_x and PM₁₀ at Central Co-op Bank

Kupwad, Sangli

Table No. 133: Data for Monthly average concentration recorded at Kupwad, Sangli

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Kupwad, Sangli	2022	Apr	10	32	89
		May	9	34	66
		Jun	9	29	45
		Jul	8	15	43
		Aug	7	21	40
		Sep	9	24	33
		Oct	8	23	53
		Nov	11	45	105
		Dec	12	50	80
	2023	Jan	12	61	128
		Feb	10	52	157
		Mar	11	38	99

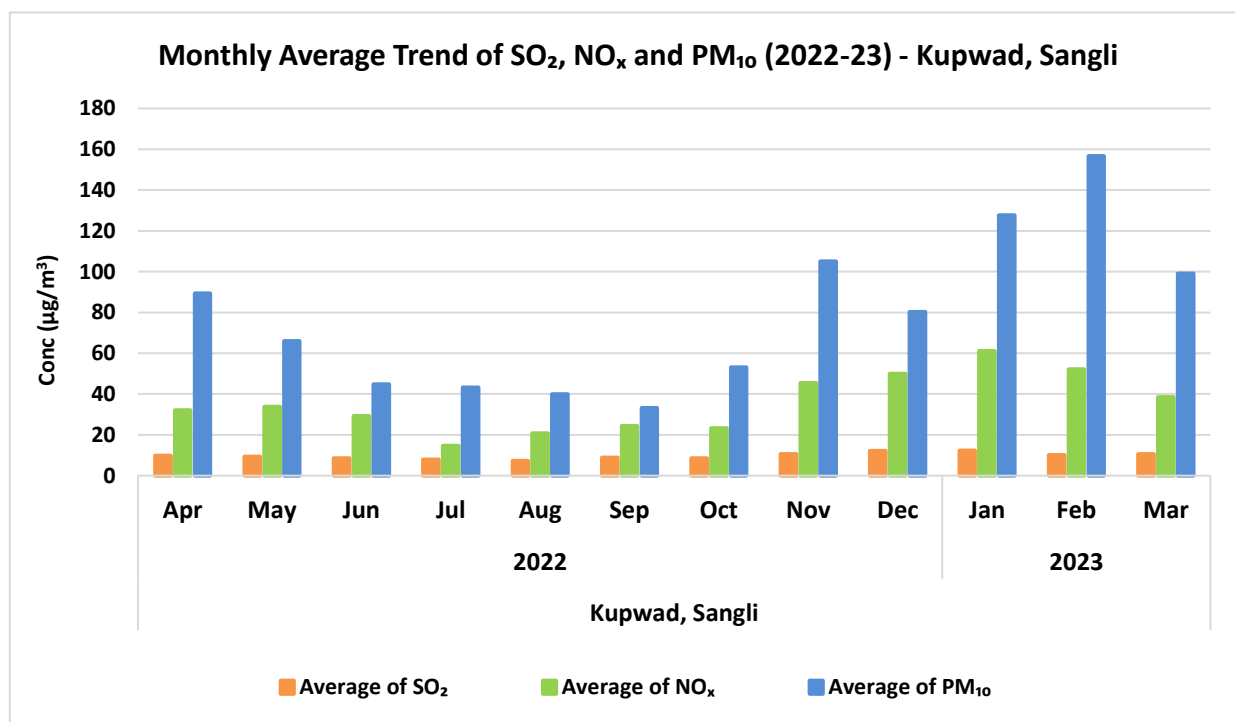
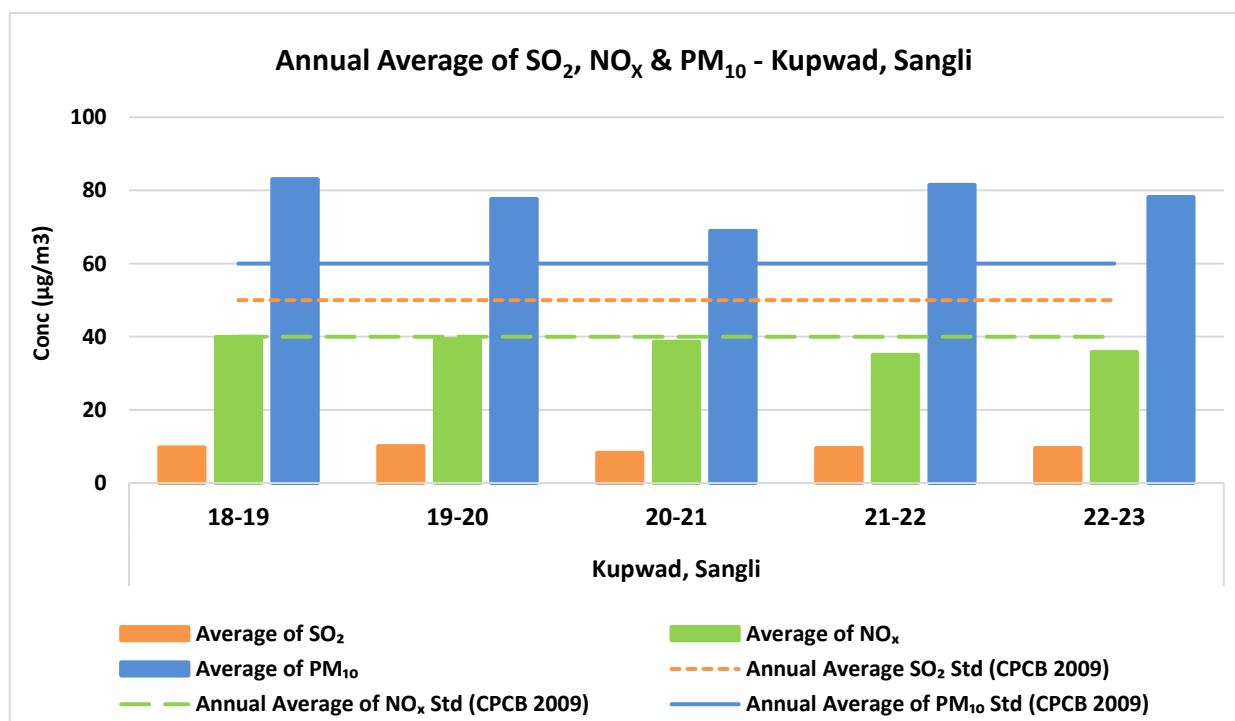


Figure No. 163: Monthly average concentration recorded at Kupwad, Sangli

Table No. 134: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Kupwad, Sangli

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Kupwad, Sangli	18-19	10	40	83
	19-20	10	39	78
	20-21	8	39	69
	21-22	10	35	82
	22-23	10	36	78

Figure No. 164: Annual average trend of SO₂, NO_x and PM₁₀ at Kupwad, Sangli

Mahadwar Road, Kolhapur

Table No. 135: Data for Monthly average concentration recorded at Mahadwar Road, Kolhapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Mahadwar Road, Kolhapur	2022	Apr	14	25	68
		May	15	23	72
		Jun	14	20	64
		Jul	9	17	-
		Aug	12	20	67
		Sep	13	23	69
		Oct	11	19	68
		Nov	14	21	70
		Dec	15	26	71
	2023	Jan	17	27	73
		Feb	16	26	74
		Mar	16	25	73

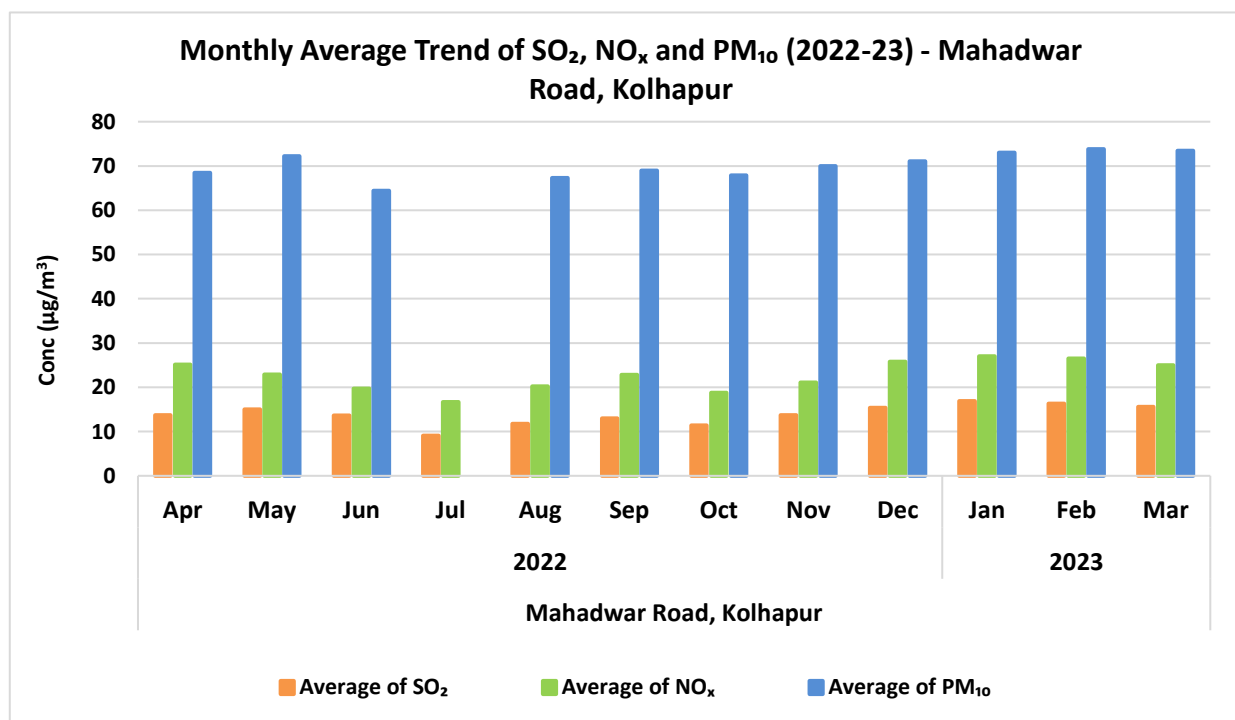
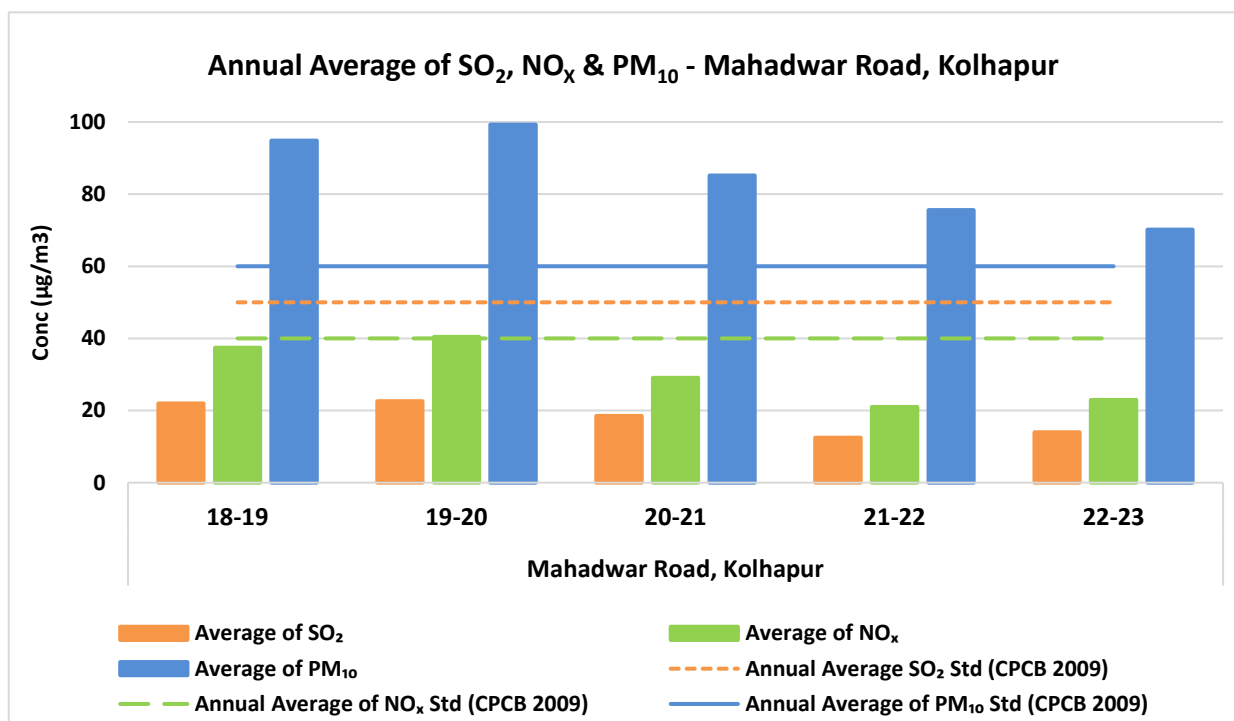


Figure No. 165: Monthly average concentration recorded at Mahadwar Road, Kolhapur

Table No. 136: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Mahadwar Road, Kolhapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Mahadwar Road, Kolhapur	18-19	22	37	95
	19-20	23	40	99
	20-21	19	29	85
	21-22	12	21	76
	22-23	14	23	70

Figure No. 166: Annual average trend of SO₂, NO_x and PM₁₀ at Mahadwar Road, Kolhapur

Ratnagiri - Sub Campus

Table No. 137: Data for Monthly average concentration recorded at Ratnagiri - Sub Campus

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Ratnagiri - Sub Campus	2022	Apr	10	26	63	58
		May	9	27	72	54
		Jun	9	26	55	56
		Jul	8	26	65	52
		Aug	9	26	55	55
		Sep	10	27	68	54
		Oct	10	26	60	57
		Nov	9	26	68	58
		Dec	11	27	67	57
	2023	Jan	10	26	66	56
		Feb	10	27	68	55
		Mar	10	27	69	-

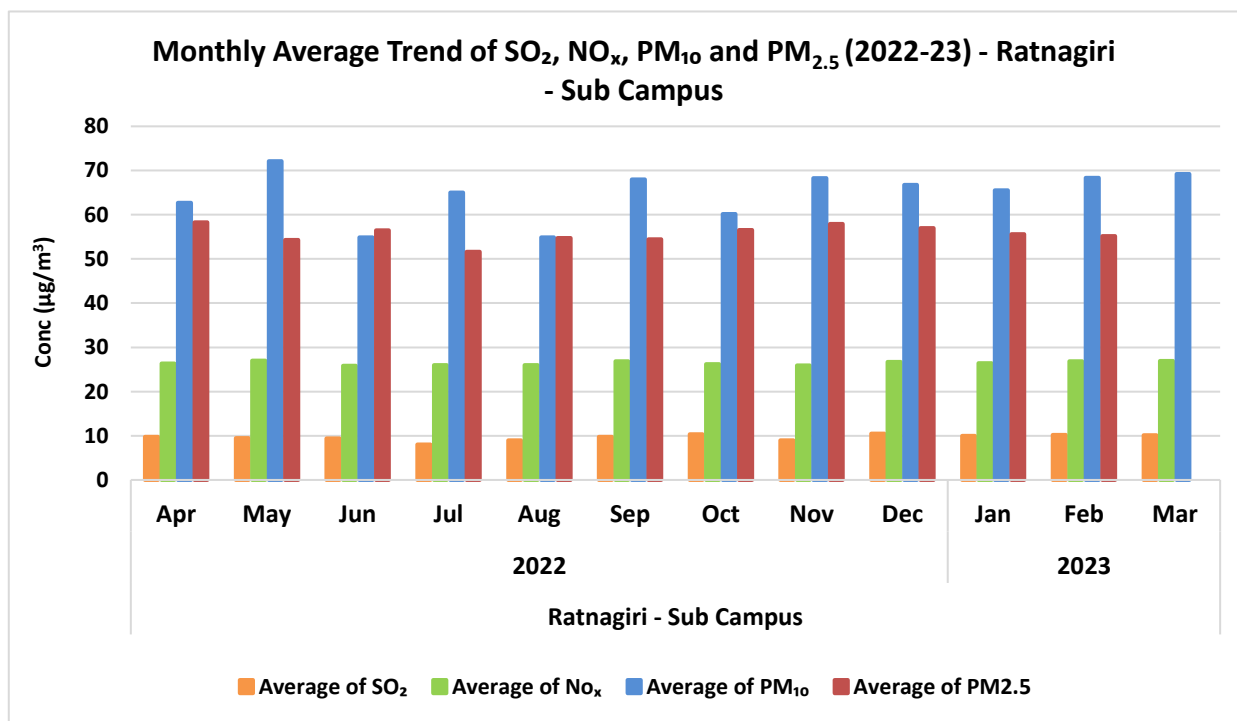
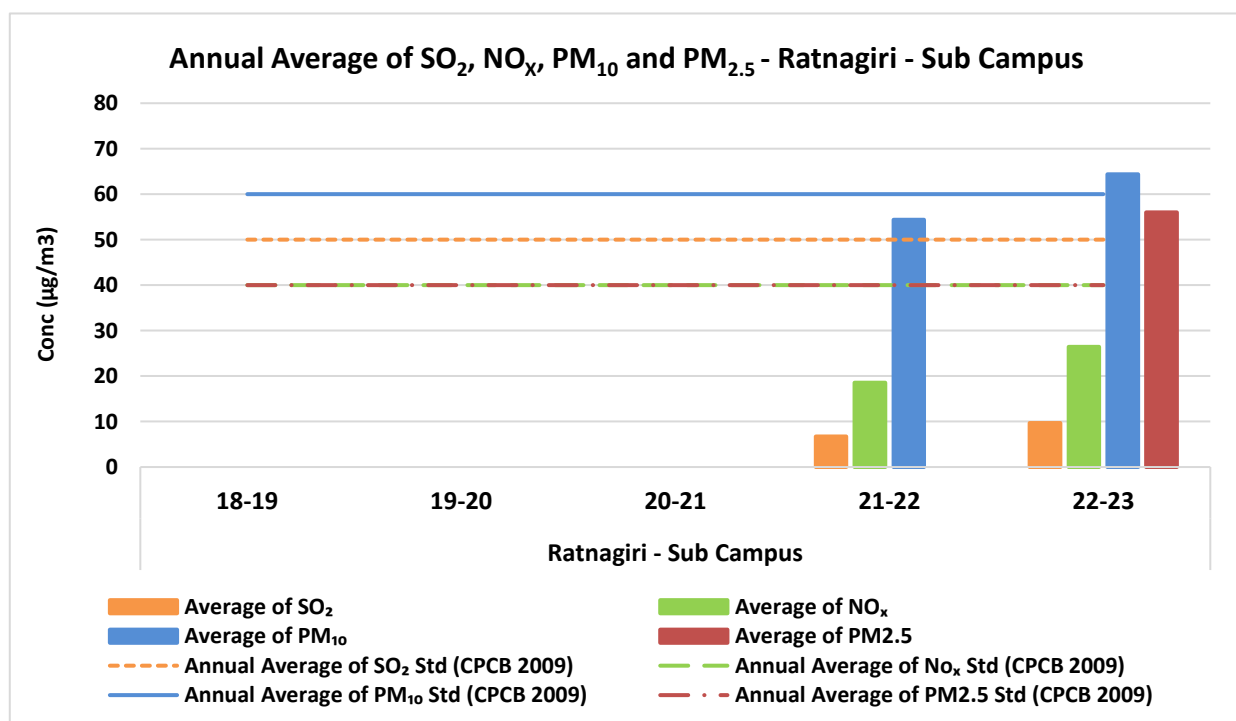


Figure No. 167: Monthly average concentration recorded at Ratnagiri - Sub Campus

Table No. 138: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ratnagiri - Sub Campus

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Ratnagiri - Sub Campus	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	7	19	54	-
	22-23	10	26	64	56

Figure No. 168: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ratnagiri - Sub Campus

Ruikar Trust, S.T. Stand, Kolhapur

Table No. 139: Data for Monthly average concentration recorded at Ruikar Trust, S.T. Stand, Kolhapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Ruikar trust, S.T. Stand, Kolhapur	2022	Apr	22	44	134
		May	22	41	130
		Jun	19	36	119
		Jul	17	-	-
		Aug	19	33	90
		Sep	20	38	104
		Oct	19	38	121
		Nov	20	40	126
		Dec	23	44	132
	2023	Jan	23	47	133
		Feb	22	44	129
		Mar	22	44	133

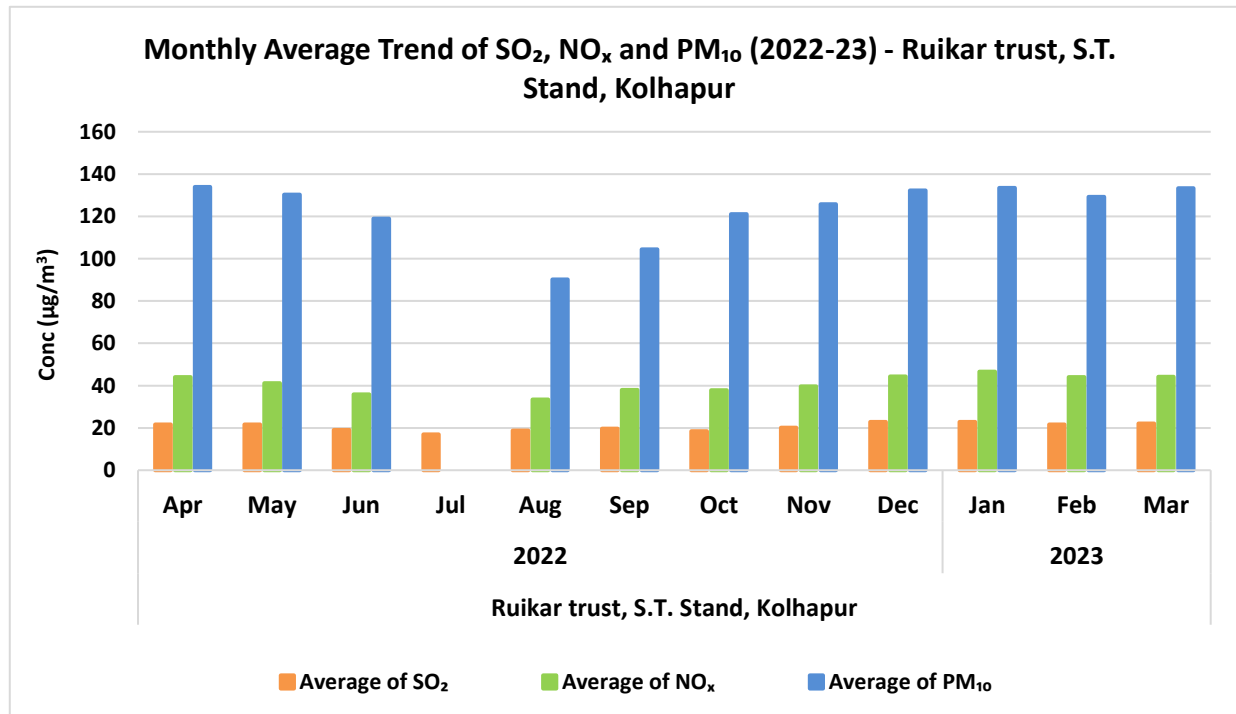
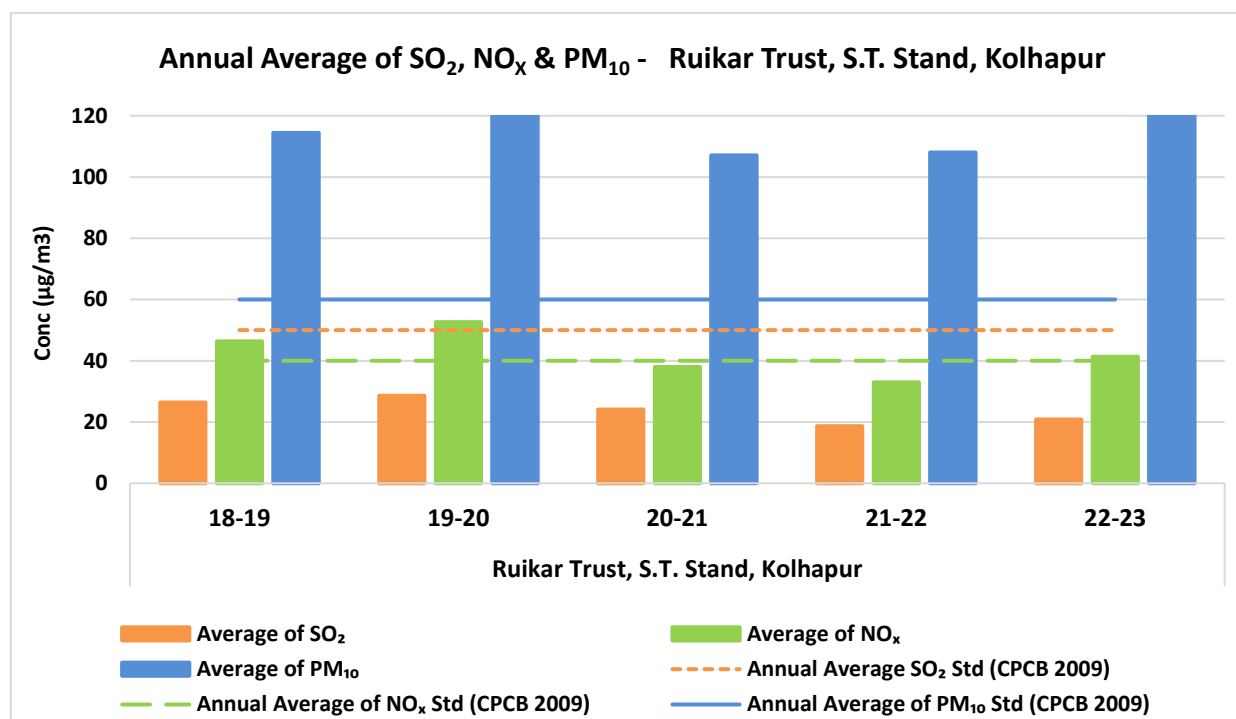


Figure No. 169: Monthly average concentration recorded at Ruikar Trust, S.T. Stand, Kolhapur

Table No. 140: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Ruikar Trust, S.T. Stand, Kolhapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Ruikar Trust, S.T. Stand, Kolhapur	18-19	26	46	114
	19-20	29	53	125
	20-21	24	38	107
	21-22	19	33	108
	22-23	21	41	124

Figure No. 170: Annual average trend of SO₂, NO_x and PM₁₀ at Ruikar Trust, S.T. Stand, Kolhapur

Shivaji University Campus, Kolhapur

Table No. 141: Data for Monthly average concentration recorded at Shivaji University Campus, Kolhapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Shivaji University Campus, Kolhapur	2022	Apr	9	17	54
		May	11	16	50
		Jun	8	14	47
		Jul	6	11	40
		Aug	8	13	43
		Sep	8	13	45
		Oct	7	13	46
		Nov	9	14	46
		Dec	11	15	50
	2023	Jan	10	15	54
		Feb	10	14	53
		Mar	10	15	54

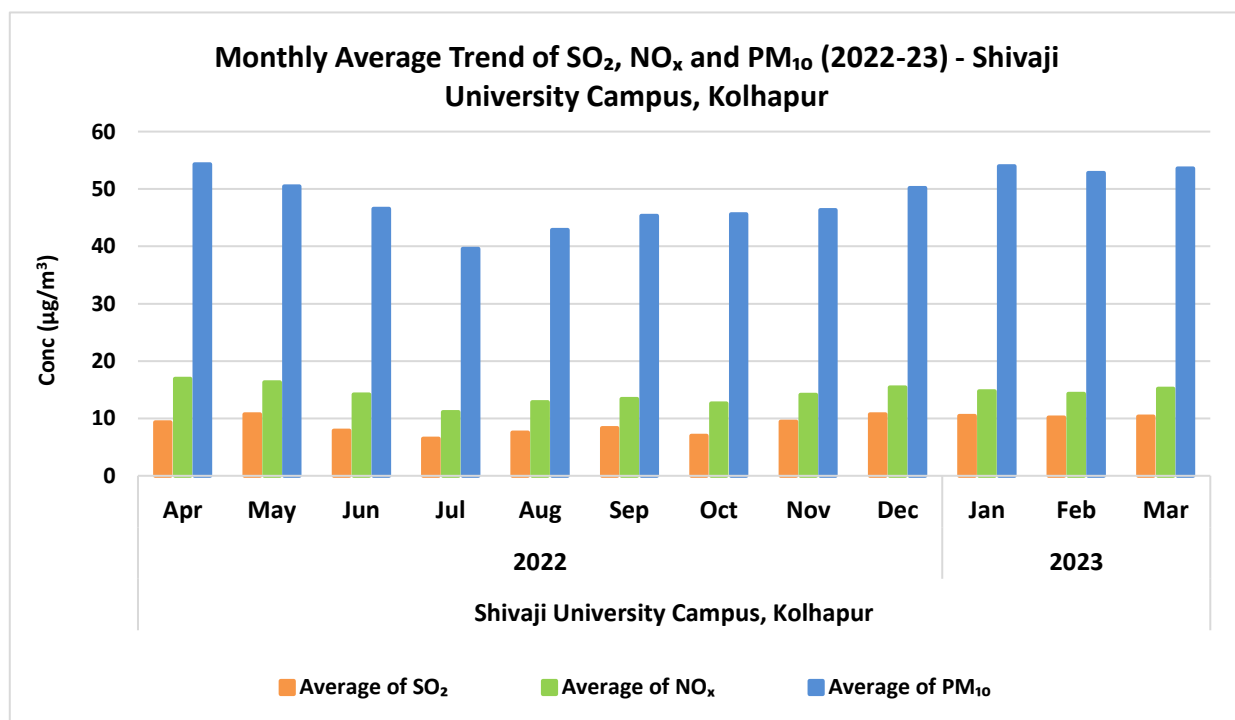
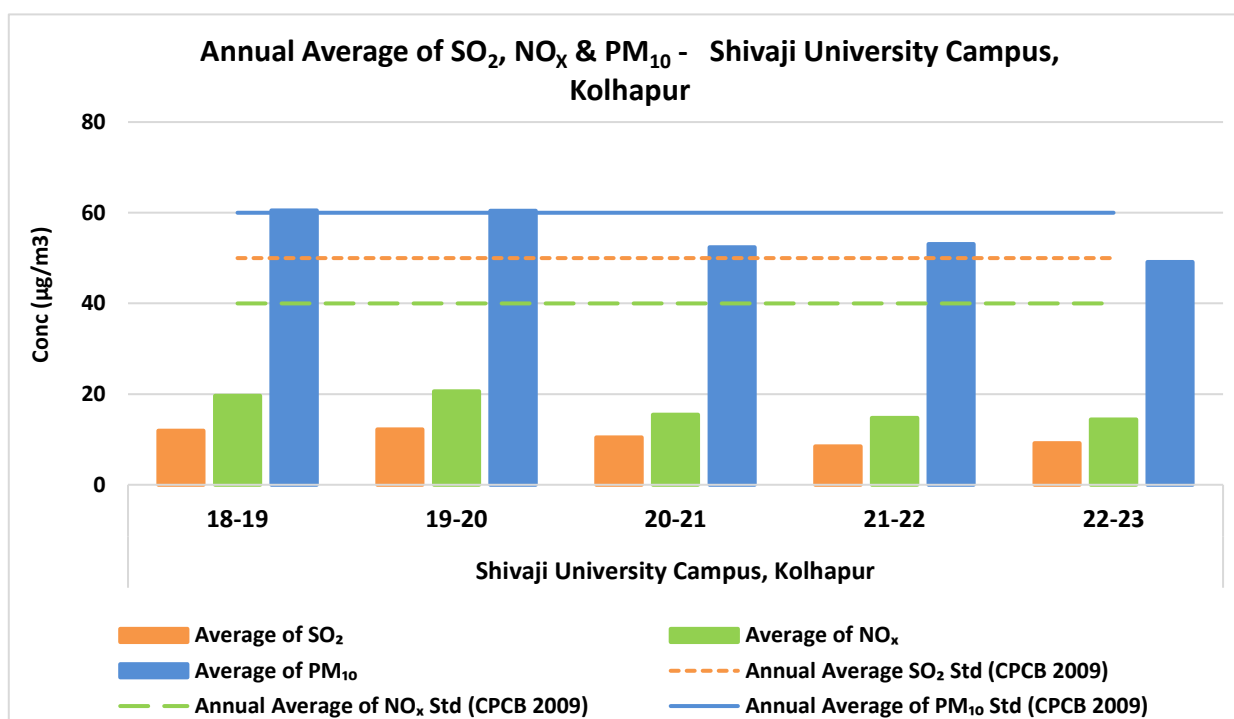


Figure No. 171: Monthly average concentration recorded at Shivaji University Campus, Kolhapur

Table No. 142: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Shivaji University Campus, Kolhapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Shivaji University Campus, Kolhapur	18-19	12	20	60
	19-20	12	21	60
	20-21	10	15	52
	21-22	9	15	53
	22-23	9	14	49

Figure No. 172: Annual average trend of SO₂, NO_x and PM₁₀ at Shivaji University Campus, Kolhapur

Shivaji University Kolhapur CAAQMS

Table No. 143: Data for Monthly average concentration recorded at Shivaji University Kolhapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Shivaji University Kolhapur CAAQMS	2022	Aug	20	12	69	16
		Sep	22	12	58	16
		Oct	10	15	80	28
		Nov	11	29	181	48
		Dec	8	29	177	43
	2023	Jan	7	29	206	63
		Feb	9	36	157	60
		Mar	6	24	158	61

Table No. 144: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Shivaji University Kolhapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Shivaji University Kolhapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	23	136	42

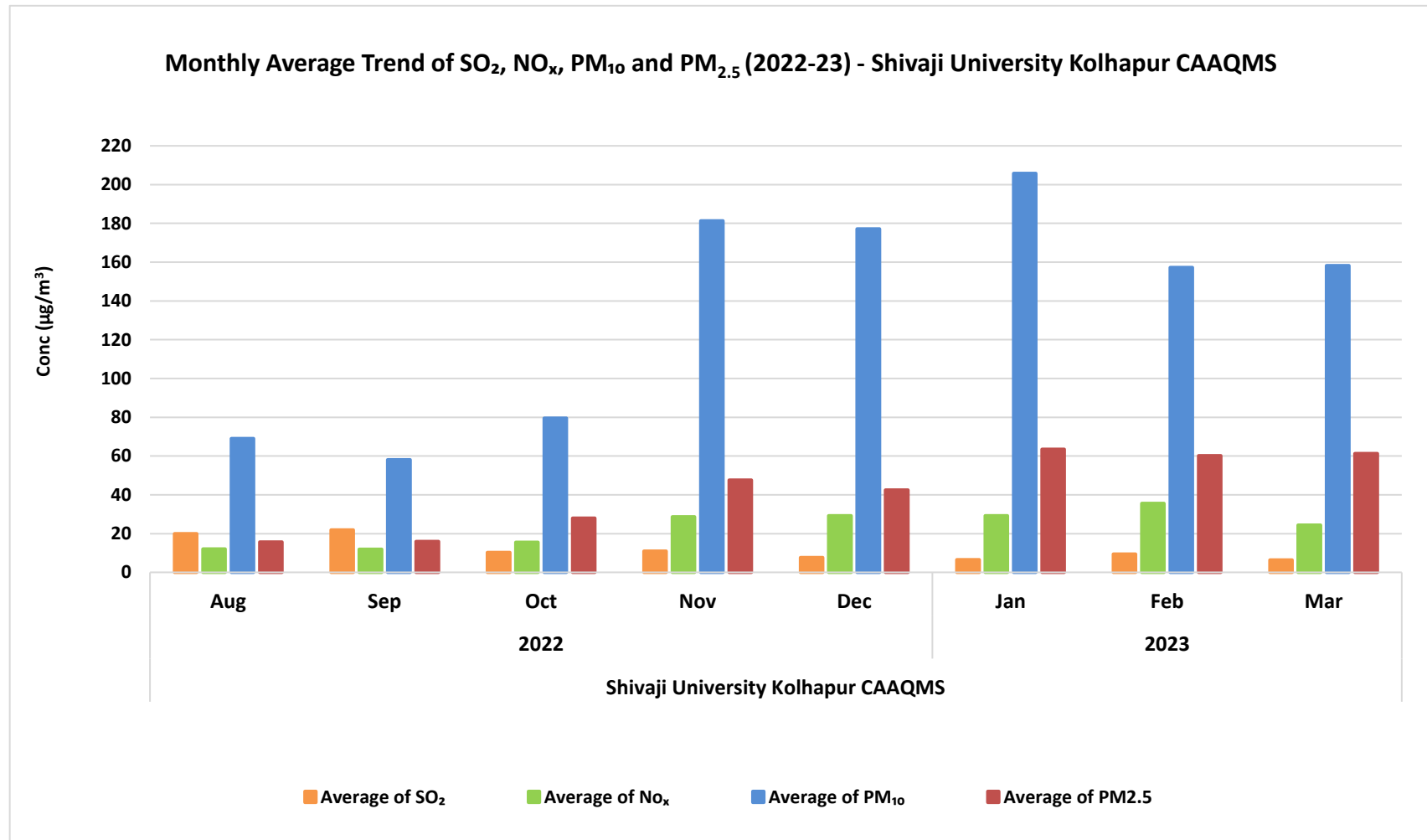


Figure No. 173: Monthly average concentration recorded at Shivaji University Kolhapur CAAQMS

Sinchan Bhavan Kolhapur CAAQMS

Table No. 145: Data for Monthly average concentration recorded at Sinchan Bhavan Kolhapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Sinchan Bhavan Kolhapur CAAQMS	2022	Aug	5	7	50	19
		Sep	5	13	42	14
		Oct	12	21	111	33
		Nov	14	49	238	77
		Dec	14	54	187	75
	2023	Jan	8	43	247	72
		Feb	10	48	200	64
		Mar	7	33	103	49

Table No. 146: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Sinchan Bhavan Kolhapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Sinchan Bhavan Kolhapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	10	34	152	50

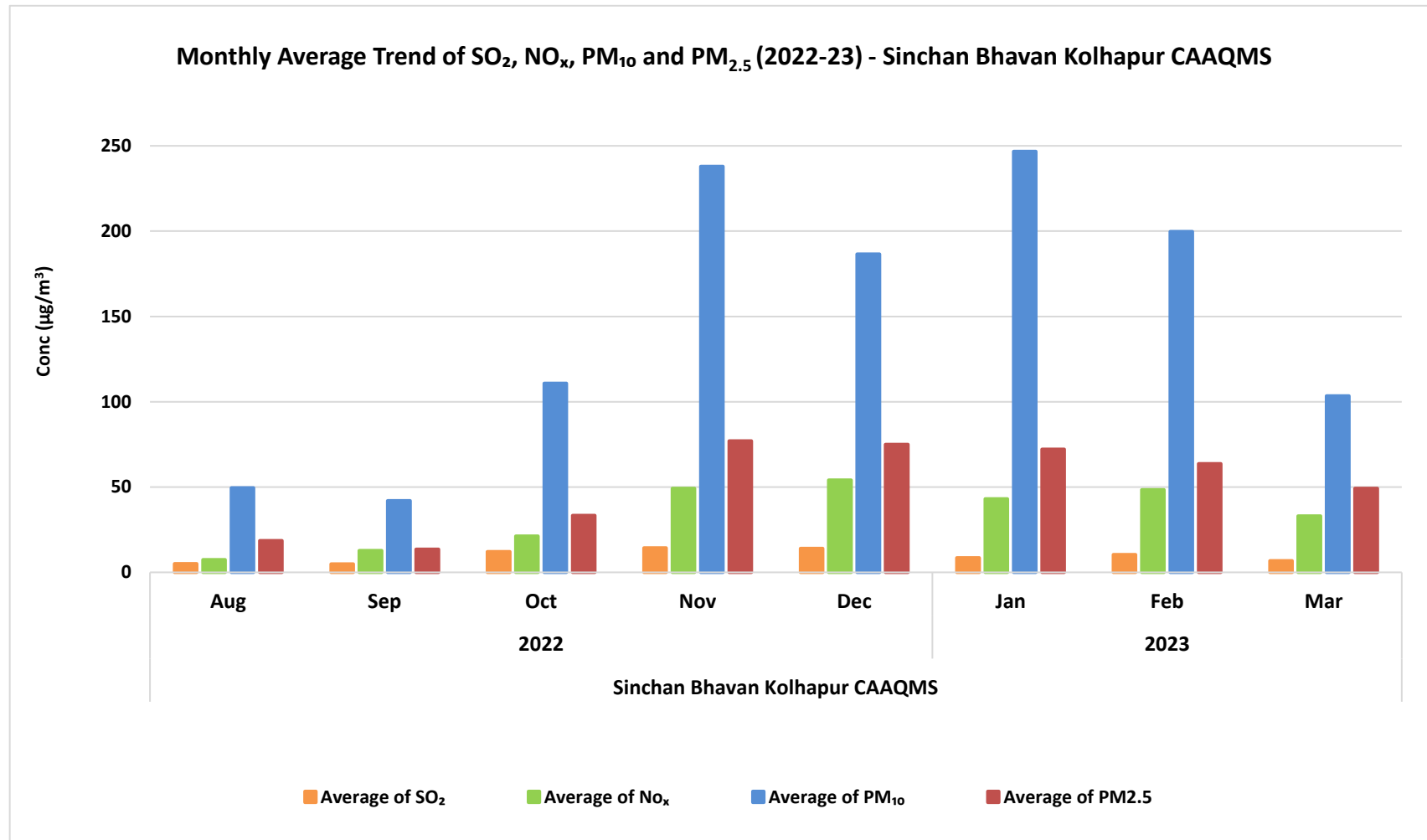


Figure No. 174: Monthly average concentration recorded at Sinchan Bhavan Kolhapur CAAQMS

Terrace of Municipal School, Rajawada Chowk, Sangli

Table No. 147: Data for Monthly average concentration recorded at Terrace of Municipal School, Rajawada Chowk, Sangli

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Municipal School, Rajawada Chowk, Sangli	2022	Apr	9	32	57
		May	10	35	51
		Jun	8	27	36
		Jul	8	16	36
		Aug	7	19	29
		Sep	8	18	24
		Oct	9	25	43
		Nov	12	52	88
		Dec	11	44	87
	2023	Jan	13	64	117
		Feb	10	57	98
		Mar	10	39	89

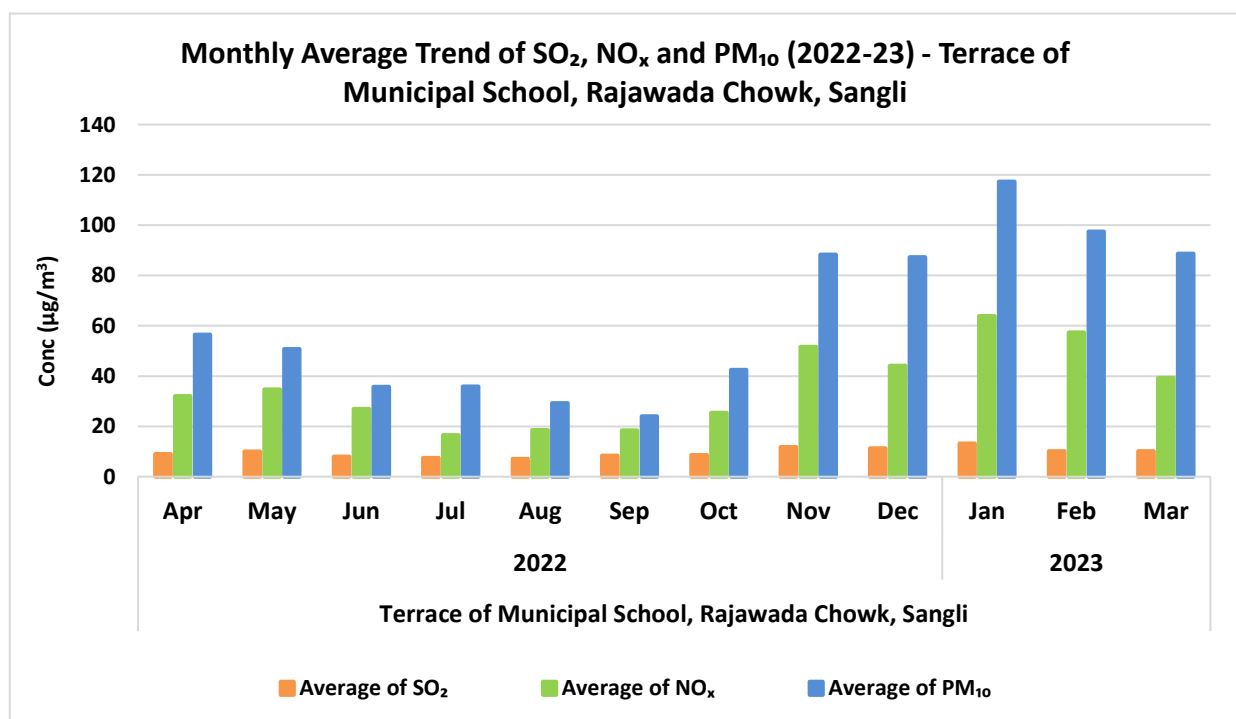
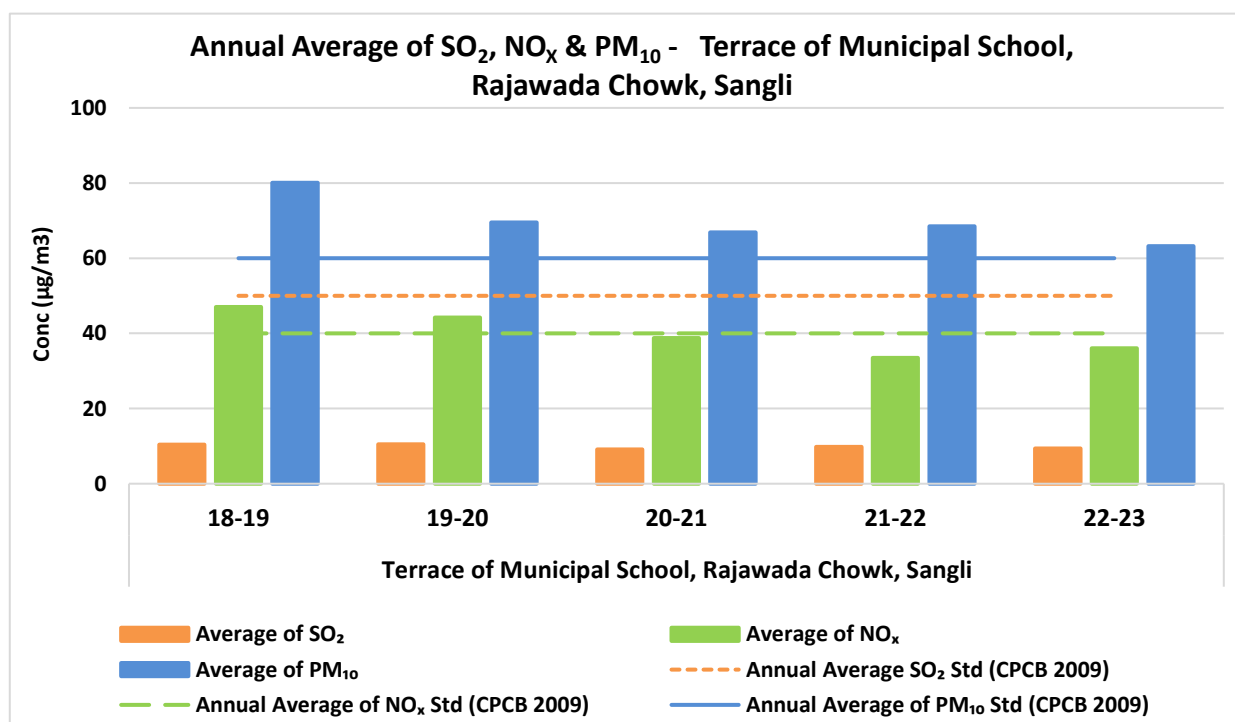


Figure No. 175: Monthly average concentration recorded at Terrace of Municipal School, Rajawada Chowk, Sangli

Table No. 148: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Municipal School, Rajawada Chowk, Sangli

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Municipal School, Rajawada Chowk, Sangli	18-19	10	47	80
	19-20	11	44	70
	20-21	9	39	67
	21-22	10	33	69
	22-23	9	36	63

Figure No. 176: Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Municipal School, Rajawada Chowk, Sangli

Udyog Bhavan, Sangli

Table No. 149: Data for Monthly average concentration recorded at Udyog Bhavan, Sangli

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Udyog Bhavan, Sangli	2022	Apr	9	25	67
		May	9	30	61
		Jun	7	22	38
		Jul	6	12	33
		Aug	6	13	26
		Sep	8	16	23
		Oct	7	20	40
		Nov	10	37	90
		Dec	10	42	72
	2023	Jan	11	47	115
		Feb	9	39	110
		Mar	8	35	76

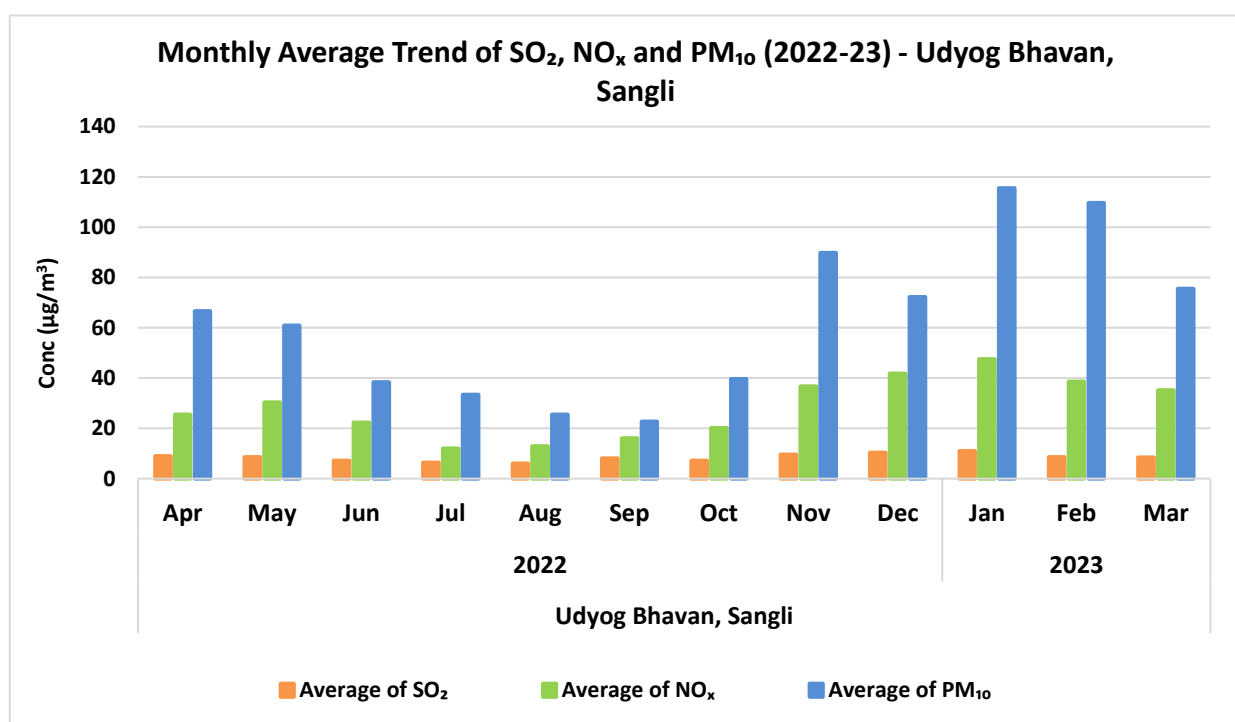
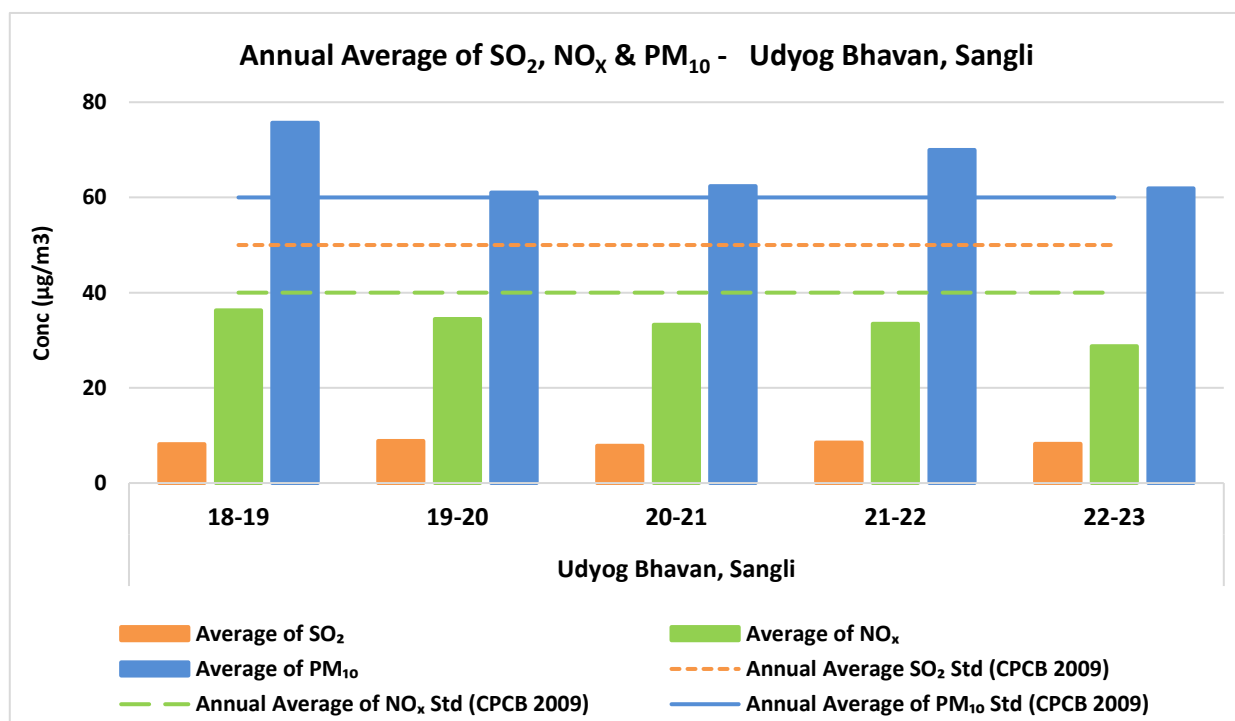


Figure No. 177: Monthly average concentration recorded at Udyog Bhavan, Sangli

Table No. 150: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Udyog Bhavan, Sangli

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Udyog Bhavan, Sangli	18-19	8	36	76
	19-20	9	34	61
	20-21	8	33	62
	21-22	8	33	70
	22-23	8	29	62

Figure No. 178: Annual average trend of SO₂, NO_x and PM₁₀ at Udyog Bhavan, Sangli

Sangli CAAQMS

Table No. 151: Data for Monthly average concentration recorded at Sangli CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Sangli CAAQMS	2022	Aug	7	5	37	16
		Sep	8	5	37	18
		Oct	4	24	67	34
		Nov	10	58	125	68
		Dec	6	45	126	66
	2023	Jan	9	34	141	86
		Feb	10	43	140	86
		Mar	5	24	101	57

Table No. 152: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Sangli CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Sangli CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	7	30	97	54

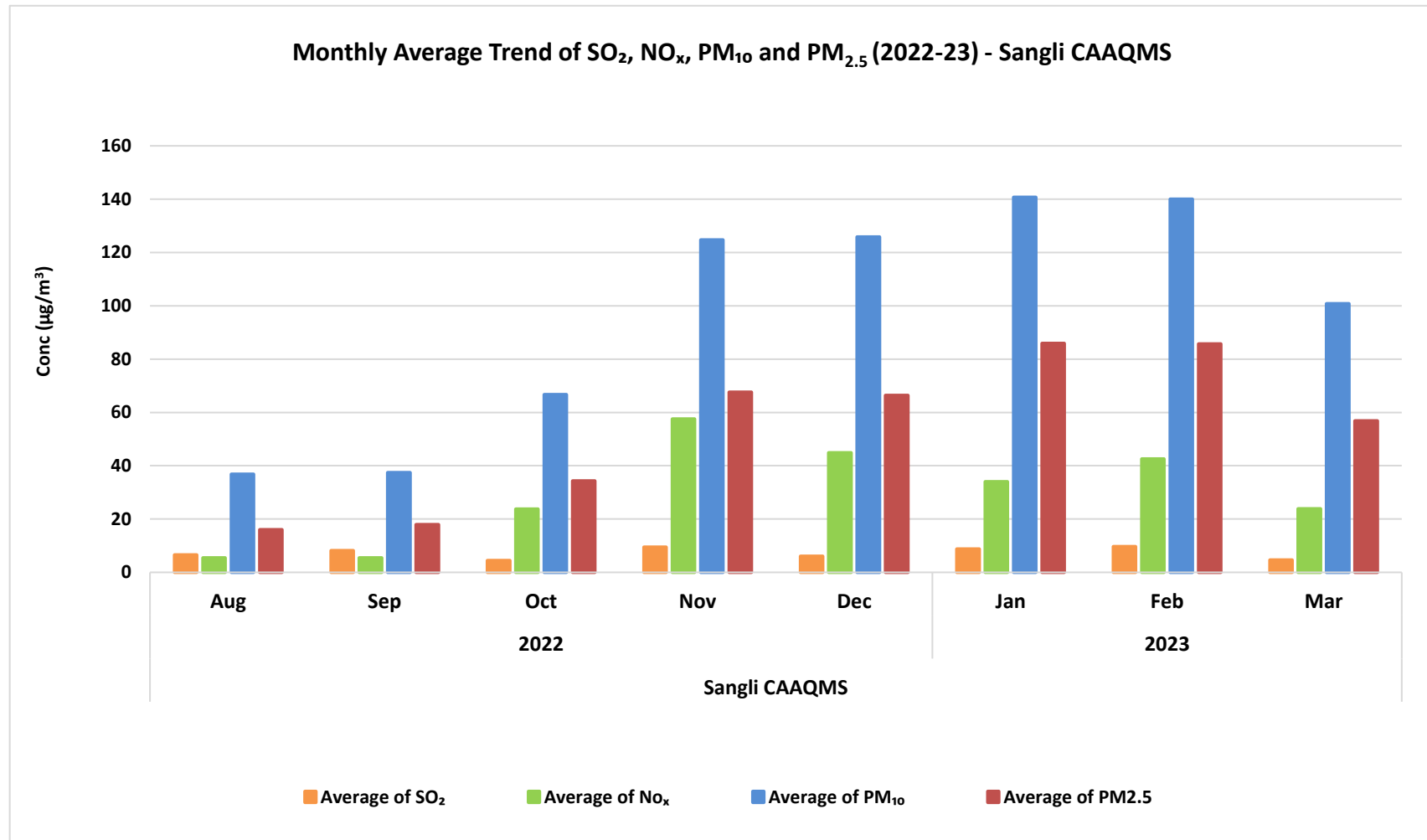


Figure No. 179: Monthly average concentration recorded at Sangli CAAQMS

Table No. 153: Percentage exceedance of pollutants at Kolhapur RO

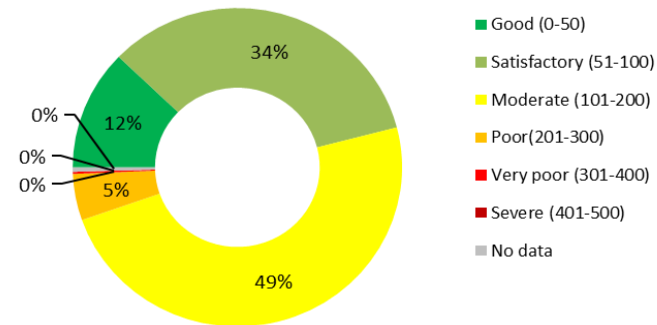
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Central Co-op Bank	100	29	67	0	0	0	0	0	0	0	0	0
Kupwad, Sangli	89	103	103	0	0	0	31	0	0	0	30	0
Mahadwar Road, Kolhapur	96	97	81	0	0	0	0	0	0	0	0	0
Ratnagiri - Sub Campus	113	91	106	0	0	0	8	0	0	0	8	0
Ruikar Trust, S.T. Stand, Kolhapur	86	87	92	0	0	0	81	0	0	0	88	0
Sangli CAAQMS	199	239	239	239	0	55	128	115	0	23	54	48
Shivaji University Campus, Kolhapur	96	91	94	0	0	0	0	0	0	0	0	0
Shivaji University Kolhapur CAAQMS	219	219	220	221	0	8	142	55	0	4	65	25
Sinchan Bhavan Kolhapur CAAQMS	241	240	216	240	0	77	138	109	0	32	64	45
Terrace of Municipal School, Rajawada chowk, Sangli	86	101	101	0	0	0	18	0	0	0	18	0
Udyog Bhavan, Sangli	93	101	99	0	0	0	17	0	0	0	17	0

CITIES /AREAS UNDER MUMBAI RO

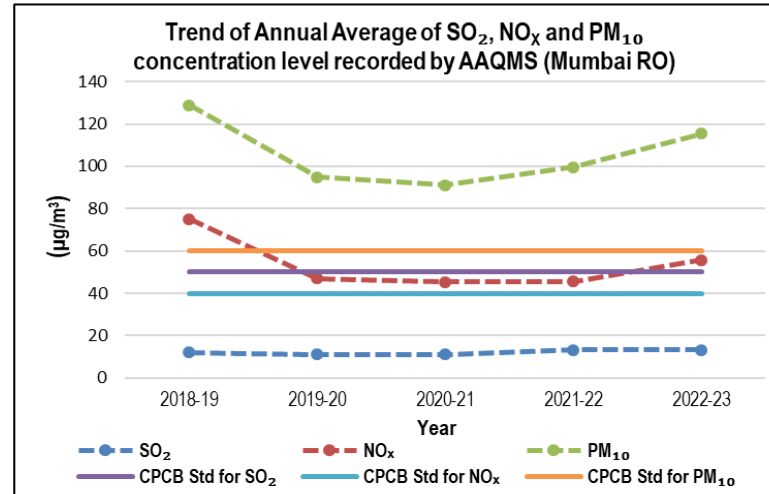
MUMBAI RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Mumbai RO)



Sr No.	Station Name
1	Airport CAAQMS
2	Bandra CAAQMS
3	BKC CAAQMS
4	Borivali CAAQMS
5	Chembur CAAQMS
6	Colaba CAAQMS
7	Kandiwali East CAAQMS
8	Kurla East CAAQMS
9	Malad CAAQMS
10	Manual Sion
11	Mulund East CAAQMS
12	Powai IIT CAAQMS
13	Sion East CAAQMS
14	Vile-Parle CAAQMS
15	Worli CAAQMS





AIRPORT CAAQMS



BANDRA CAAQMS



BORIVALI CAAQMS



CHEMBUR CAAQMS



COLABA CAAQMS



KANDIVALI CAAQMS



KURLA CAAQMS



MALAD CAAQMS



MULUND CAAQMS



POWAI CAAQMS



SION CAAQMS



VILE-PARLE CAAQMS



WORLI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

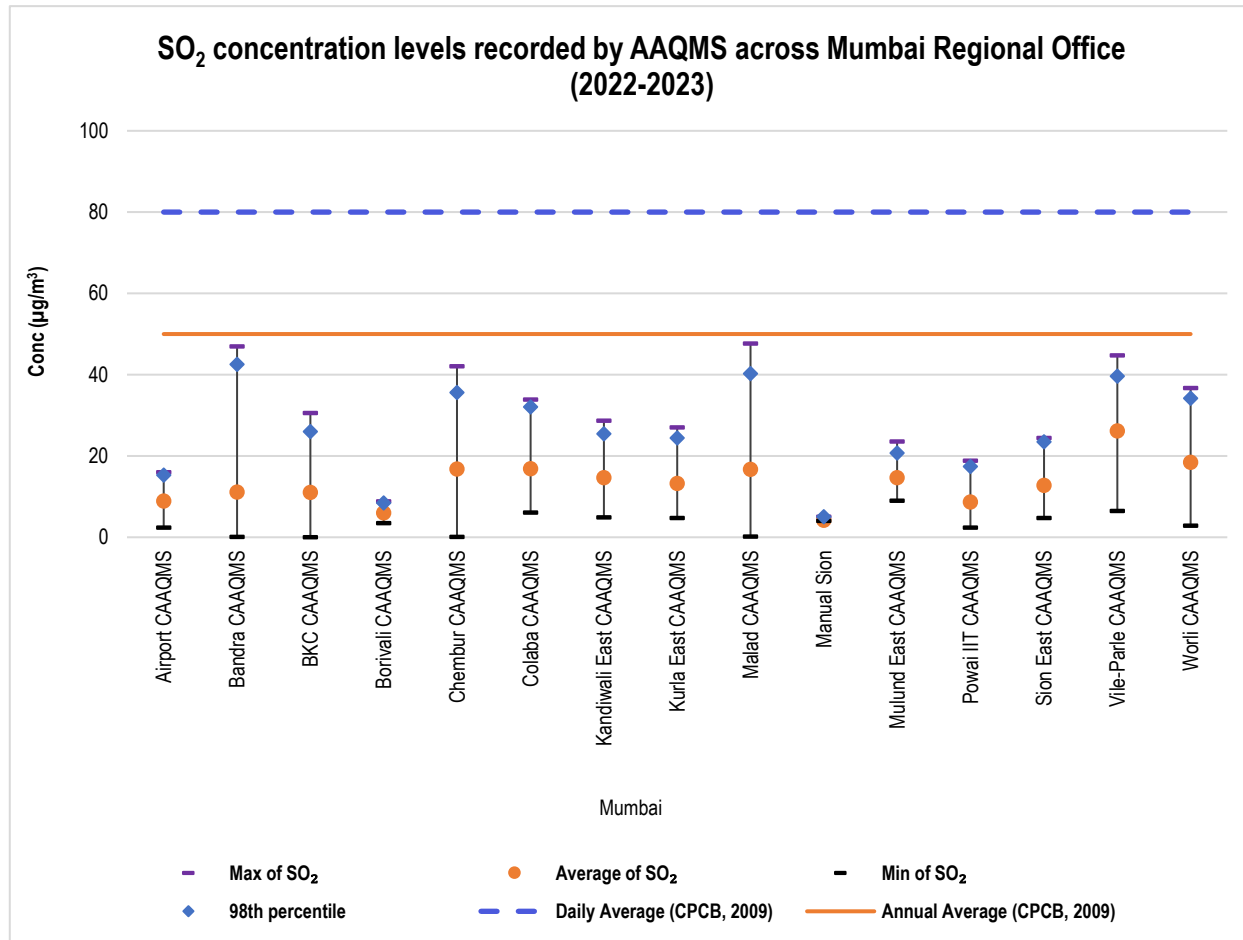


Figure No. 180: Parametric values of SO₂ concentrations recorded by AAQMS across Mumbai RO (2022-2023)

In the year 2022-23, the daily and annual average concentration level of SO₂ recorded by all monitoring stations (Mumbai RO) remained within the daily average limit (80 µg/m³) and annual average limit (50 µg/m³) as set by CPCB.

The range of annual average concentration level of SO₂ was observed in range of 4.14 - 26.17 µg/m³. Amongst these monitoring stations, the Vile-Parle CAAQMS recorded the highest annual average concentration level of about 26.17 µg/m³ followed by Worli CAAQMS (18.39 µg/m³), Colaba CAAQMS (16.82 µg/m³) and Chembur CAAQMS (16.75 µg/m³). In contrast, the lowest annual average SO₂ concentration level of about 4.14 µg/m³ was recorded by Manual Sion AAQMS.

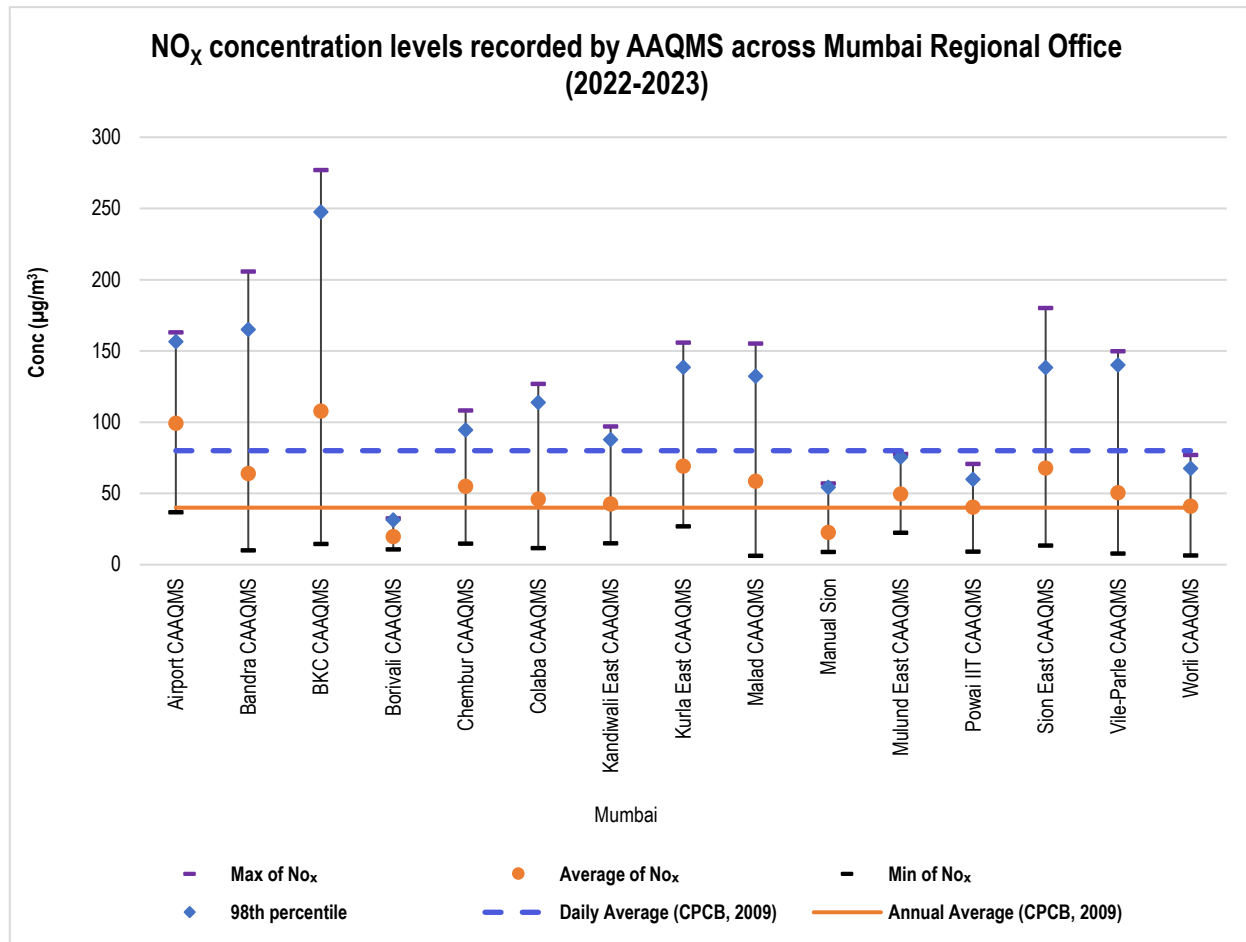
NO_x

Figure No. 181: Parametric values of NO_x concentrations recorded by AAQMS across Mumbai RO (2022-2023)

It was found that some of the monitoring stations which recorded the highest annual average NO_x concentration levels in the state of Maharashtra are located in the Mumbai RO region. These stations include BKC CAAQMS (107.78 µg/m³) and Airport CAAQMS (99.21 µg/m³). These recorded levels are more than twice the prescribed standard limit (40 µg/m³). Apart from these stations, majority of the monitoring stations (except Borivali CAAQMS and Manual Sion AAQMS) have recorded annual average concentration levels exceeding the standard limit. Amongst these, Powai IIT CAAQMS (40.48 µg/m³) and Worli CAAQMS (41.02 µg/m³) have recorded concentration levels exceeding slightly than the permissible limit (40 µg/m³).

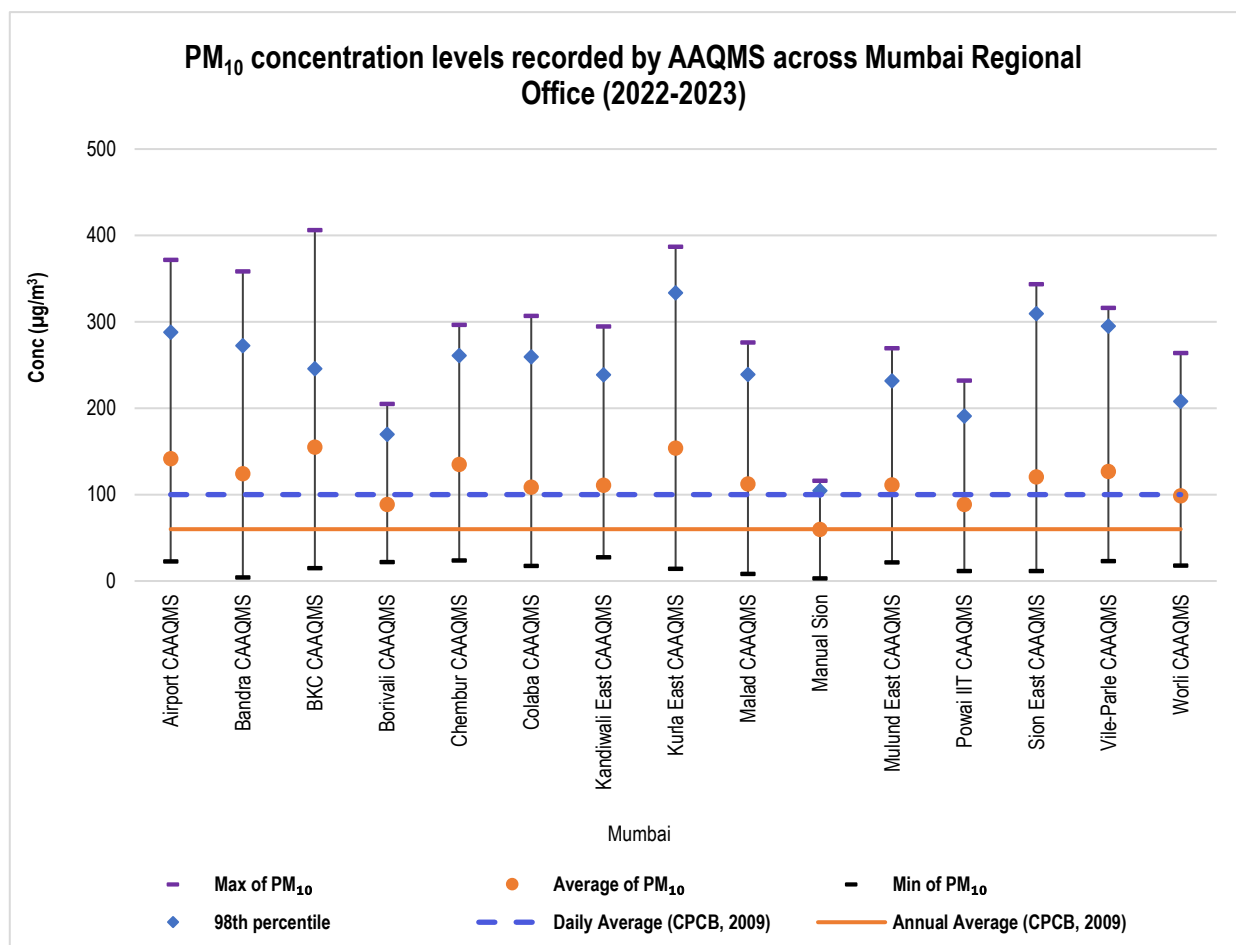
PM₁₀

Figure No. 182: Parametric values of PM₁₀ concentrations recorded by AAQMS across Mumbai RO (2022-2023)

The intensity of PM₁₀ pollution level was very high in the areas of Mumbai RO. This is due to the fact that, except Manual Sion AAQMS, all monitoring stations installed in the RO region areas have exceeded the annual average concentration level recorded in the year 2022-23. Manual Sion AAQMS recorded level of 59.45 µg/m³ which is very close to the standard limit (60 µg/m³).

Amongst other stations, BKC CAAQMS ranks highest as the concentration level recorded (154.90 µg/m³) was more than 2.58 times the annual average standard of 60 µg/m³. This was closely followed by Kurla CAAQMS recording level of about 153.66 µg/m³, Airport CAAQMS (141.34 µg/m³) and Chembur CAAQMS (134.70 µg/m³).

Trend in PM_{2.5} concentrations recorded by CAAQMS across Mumbai RO

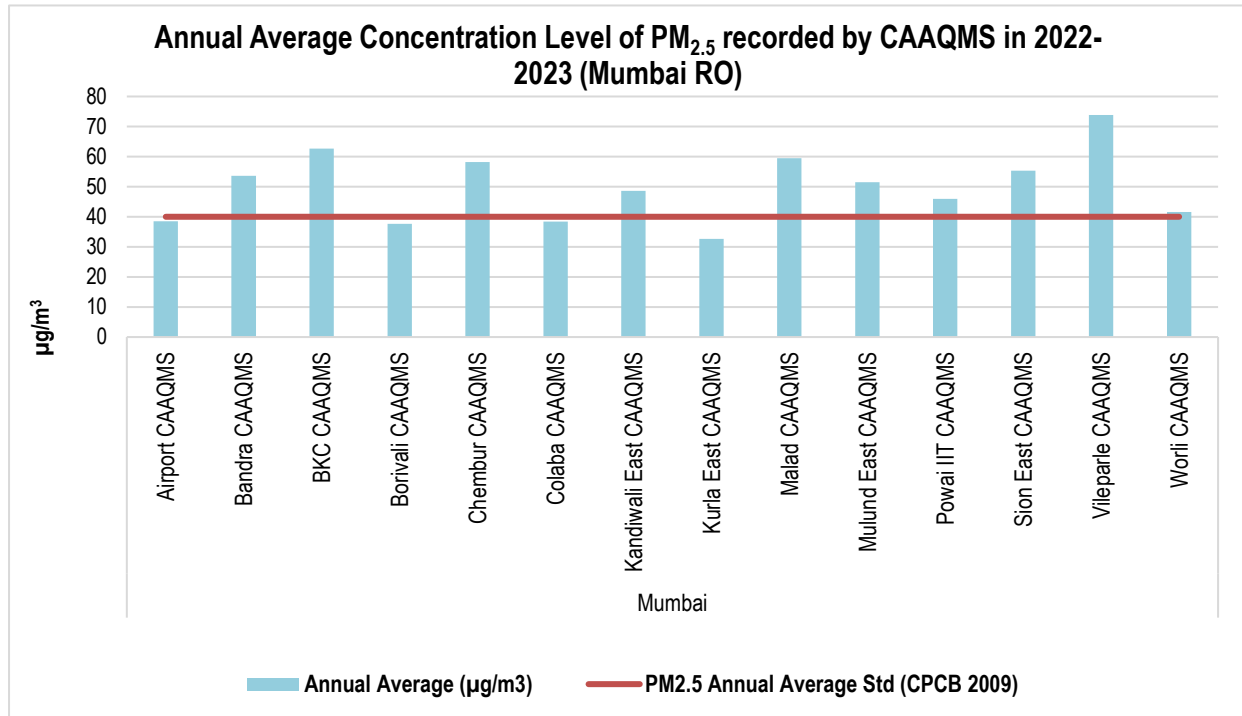


Figure No. 183: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Mumbai RO (2022-23)

From the Figure No. 183, it is evident that, out of 14 CAAQMS installed in the areas under Mumbai RO, 10 CAAQMS recorded the annual average PM_{2.5} concentration levels above the permissible limit (40 µg/m³). The remaining 4 CAAQMS namely Airport CAAQMS (38.54 µg/m³), Borivali CAAQMS (37.6 µg/m³), Colaba CAAQMS (38.37 µg/m³) and Kurla East CAAQMS (32.65 µg/m³) recorded levels within the limit. The highest annual average concentration level was recorded by Vileparle CAAQMS (73.83 µg/m³) followed by BKC CAAQMS (62.67 µg/m³) and Malad CAAQMS (59.44 µg/m³).

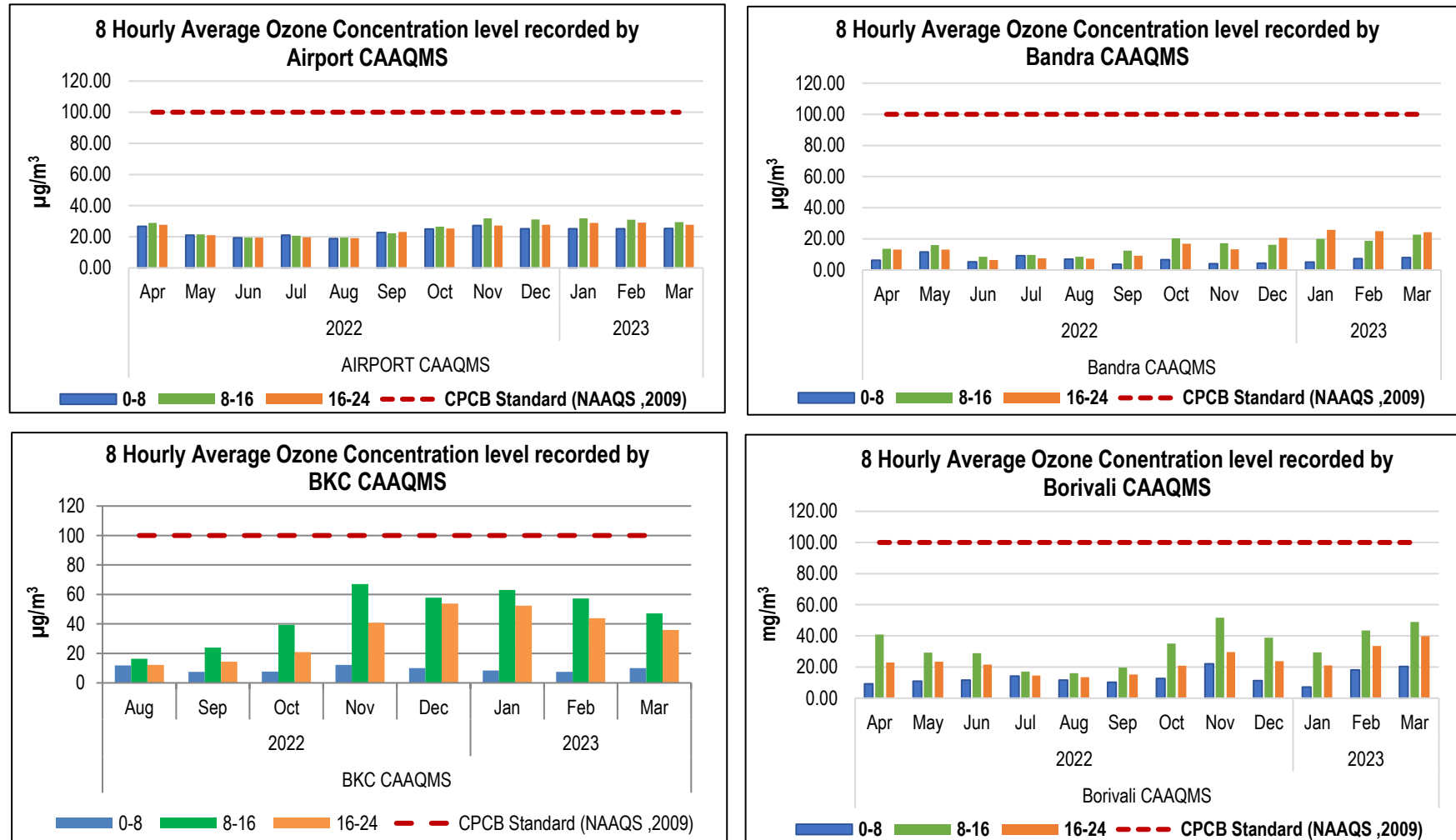
Ozone (O₃)

Figure No. 184 : Ozone concentrations recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (1)

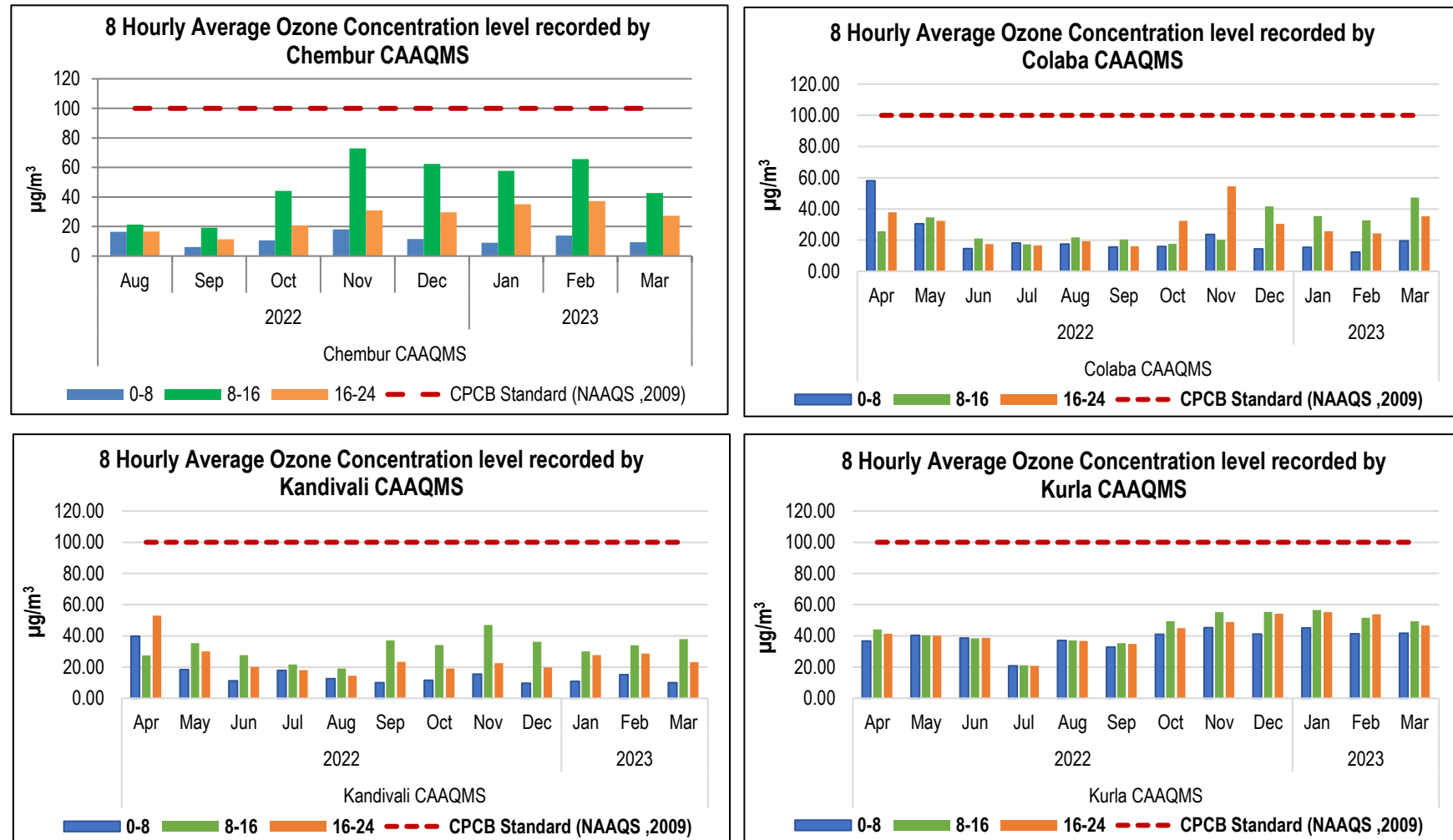


Figure No. 185 : Ozone concentrations recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (2)

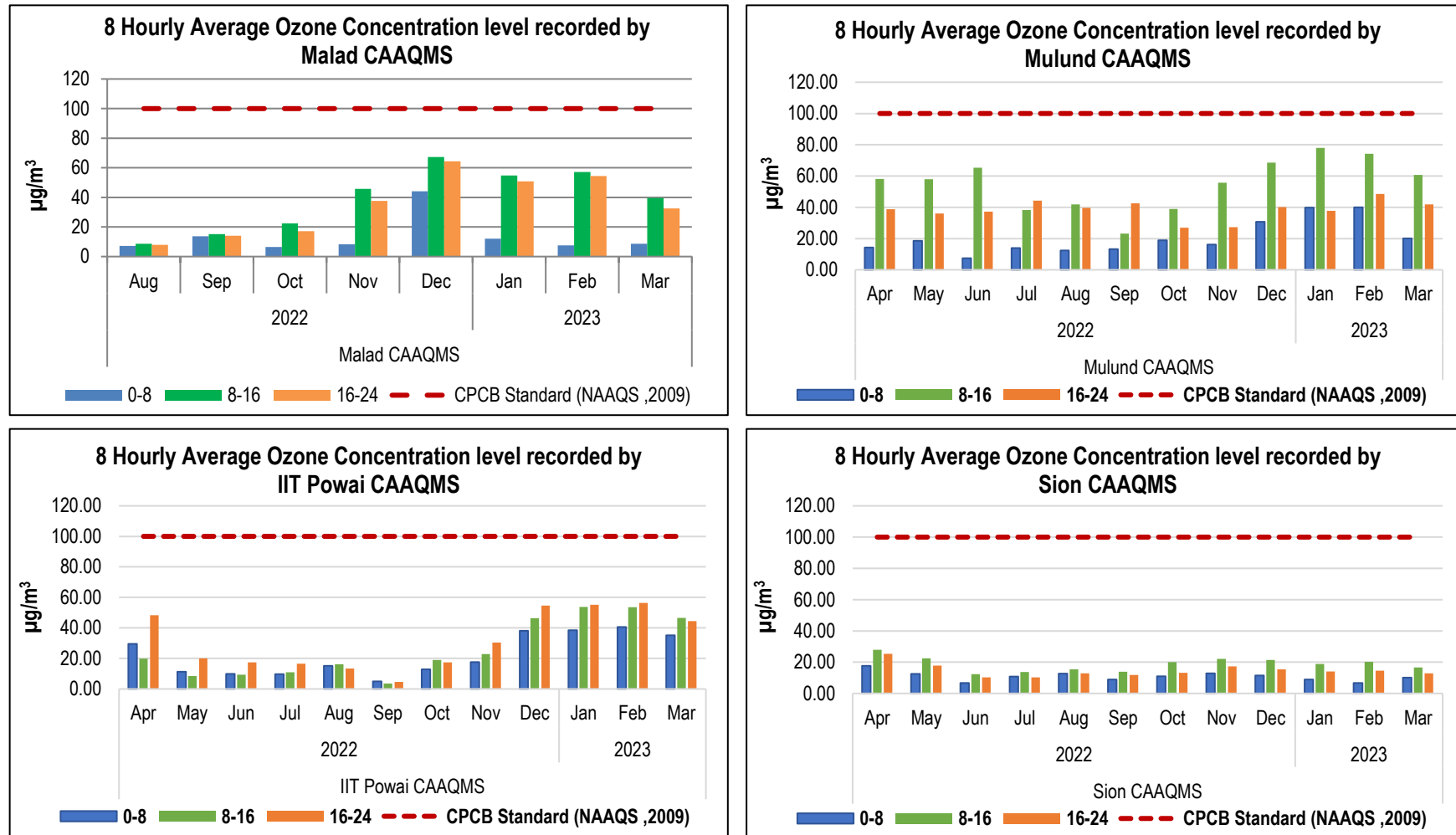


Figure No. 186 Ozone concentrations recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (3)

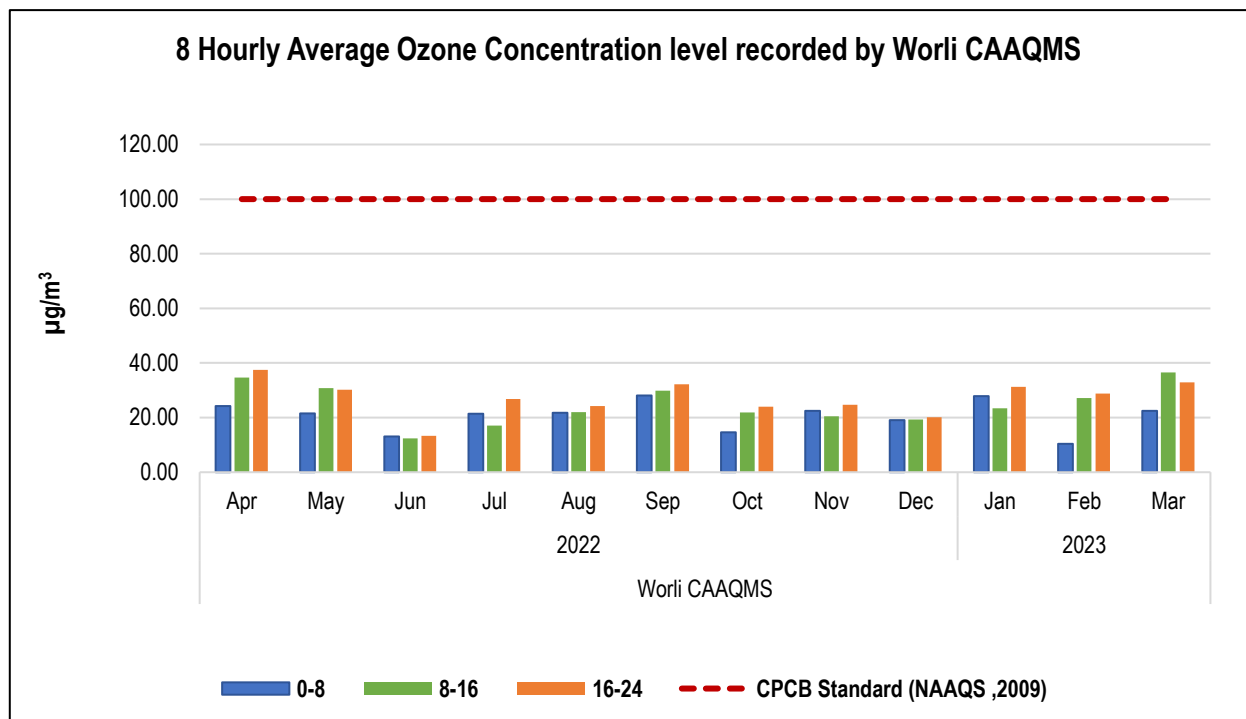
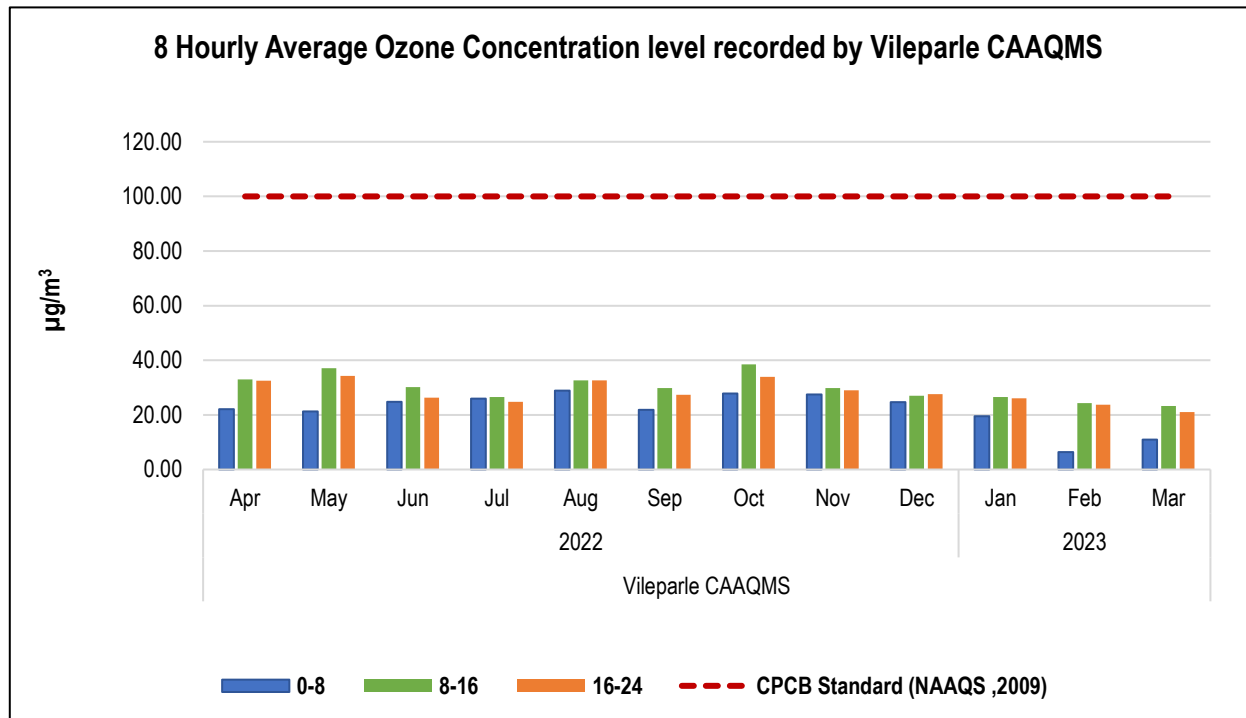


Figure No. 187 Ozone concentrations recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (4)

Carbon Monoxide (CO)

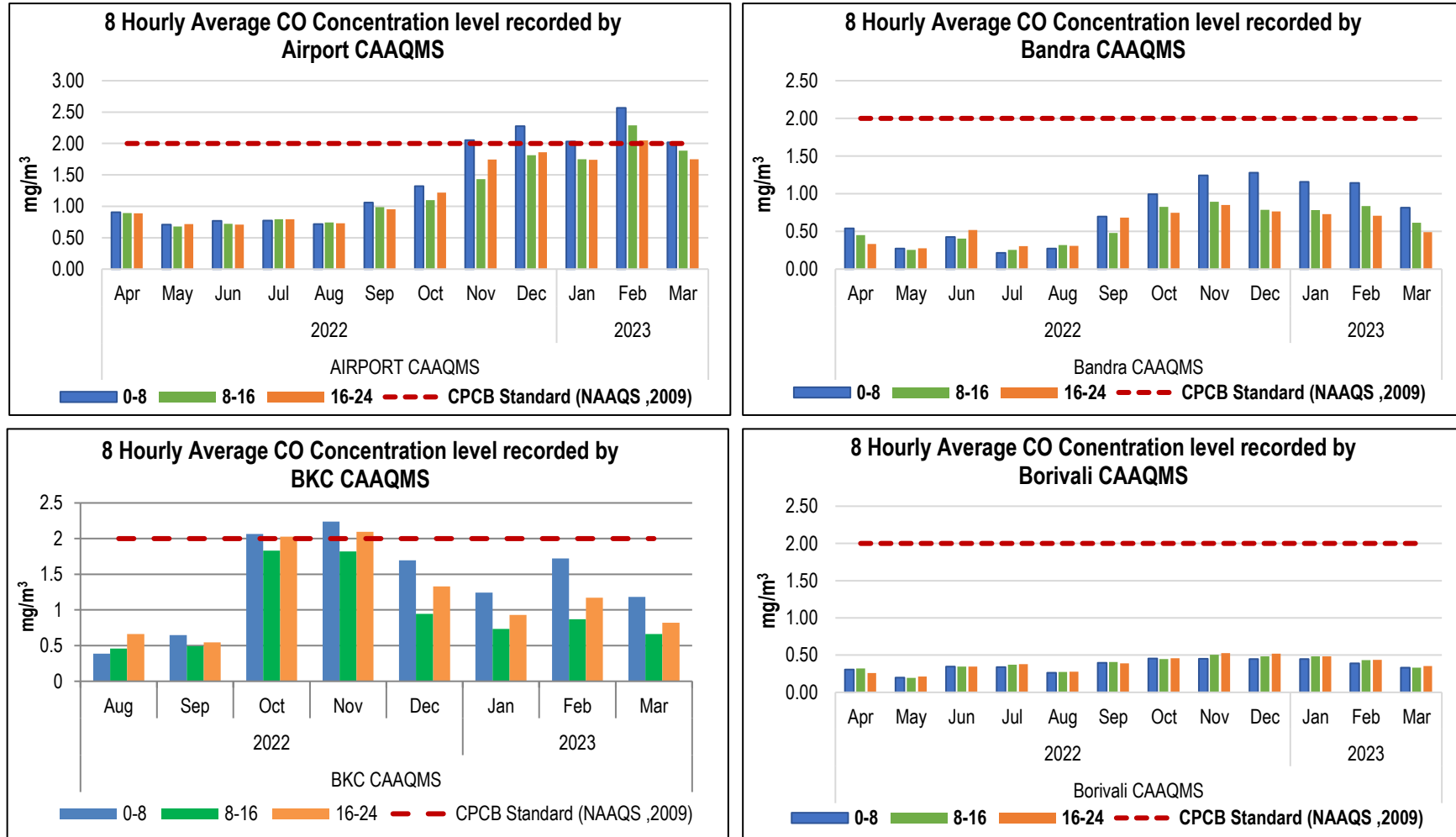


Figure No. 188 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (1)

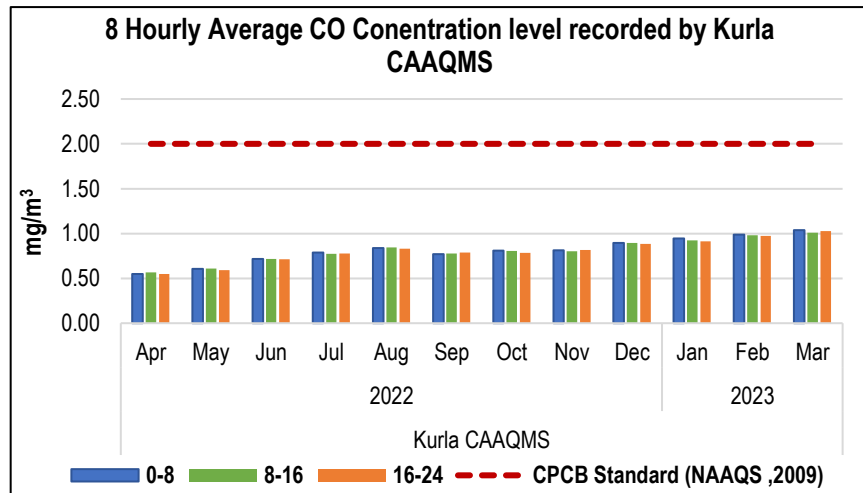
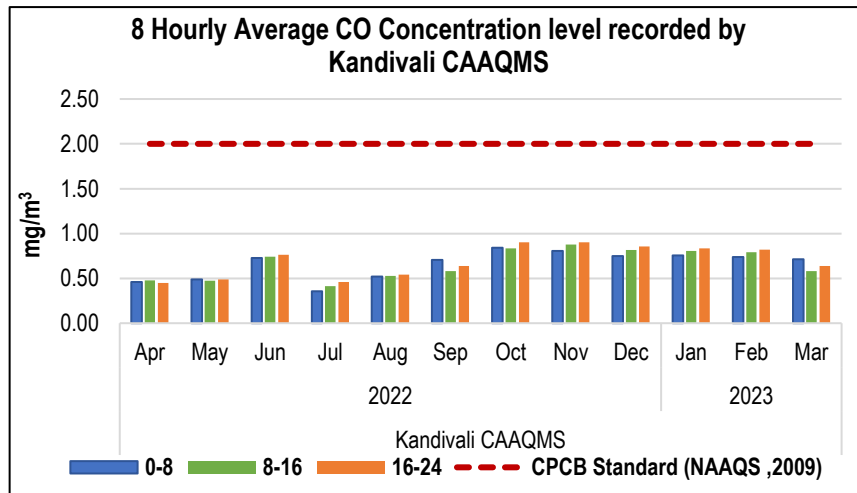
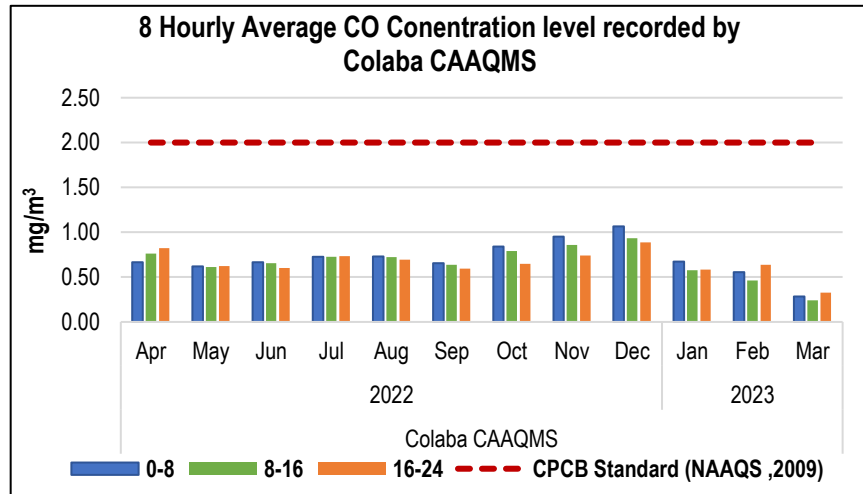
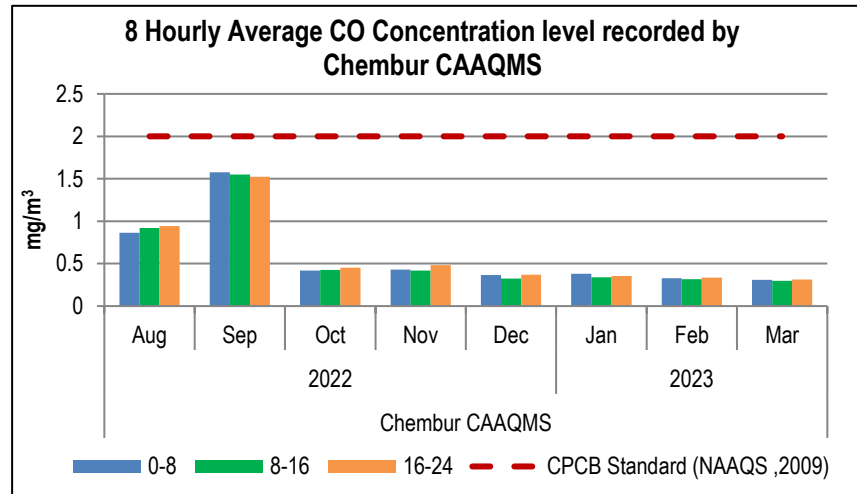


Figure No. 189: CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (2)

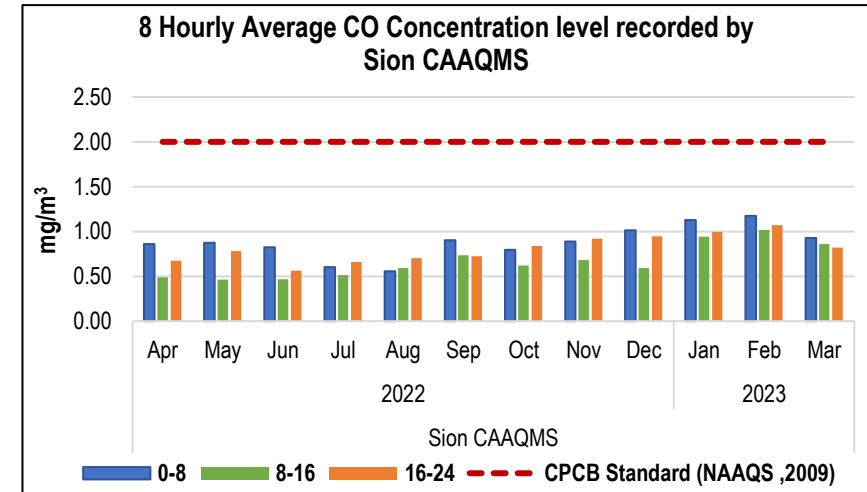
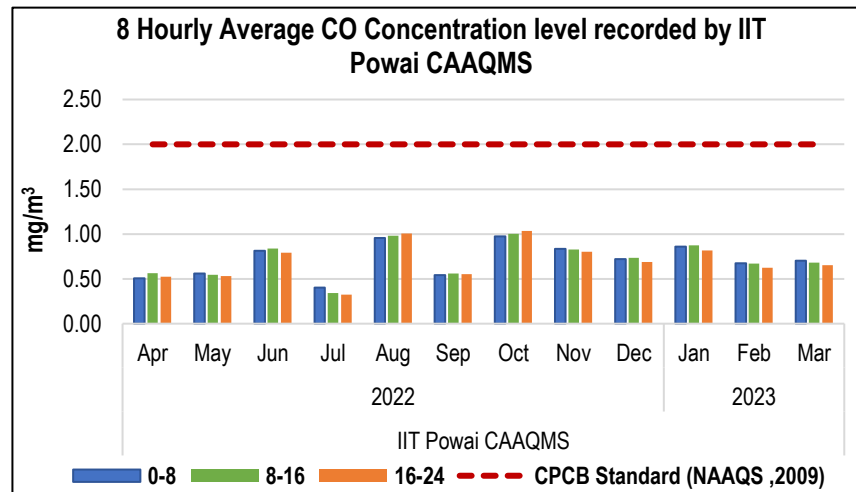
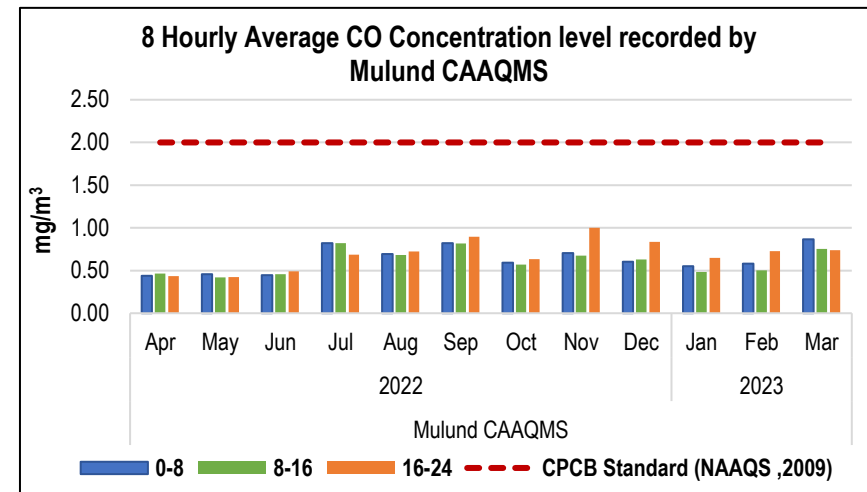
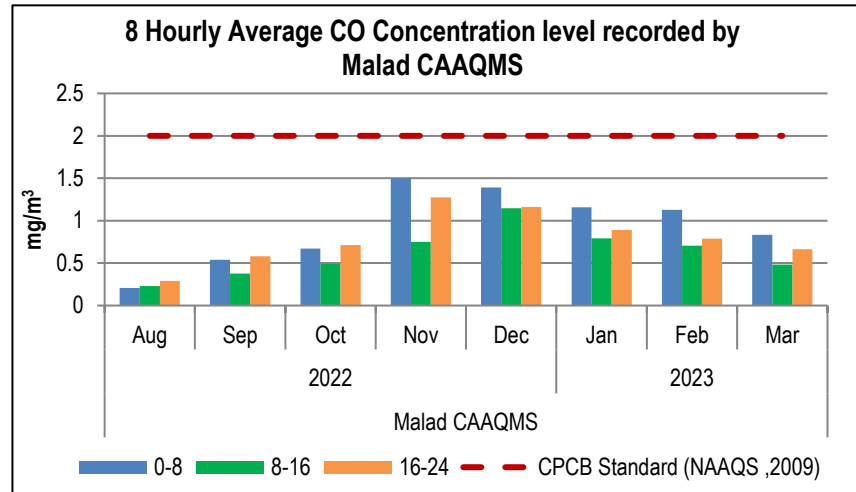


Figure No. 190 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (3)

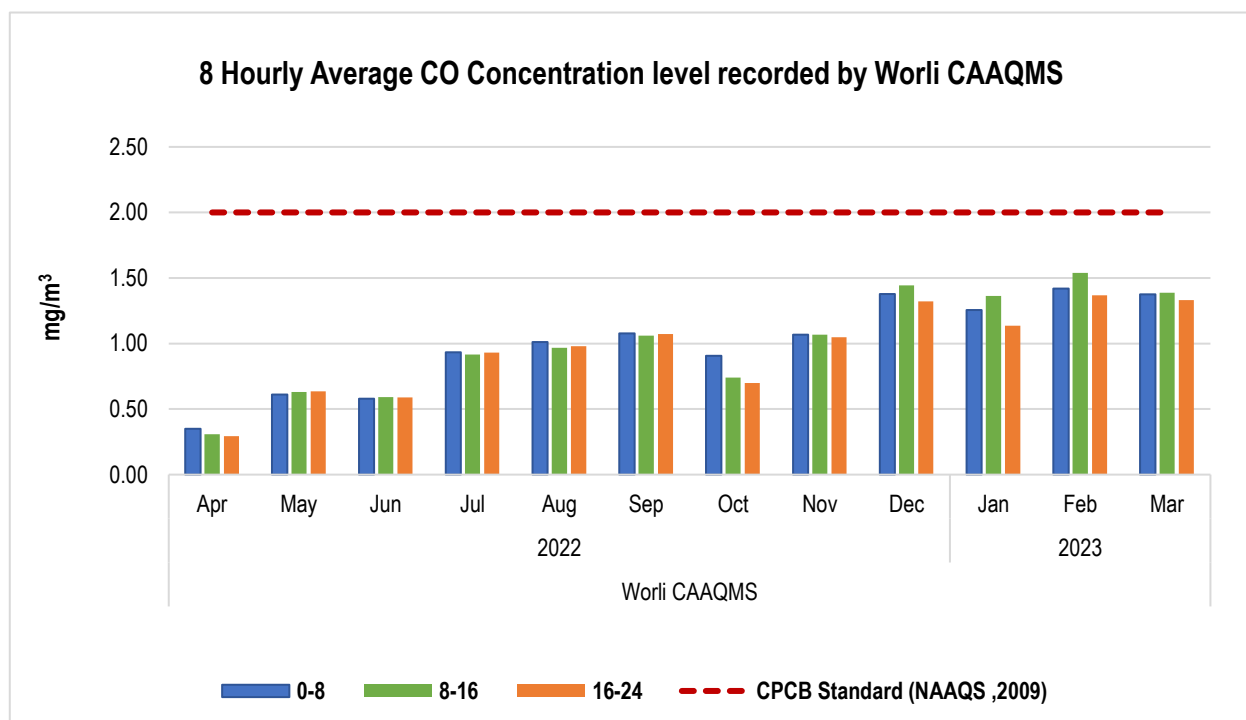
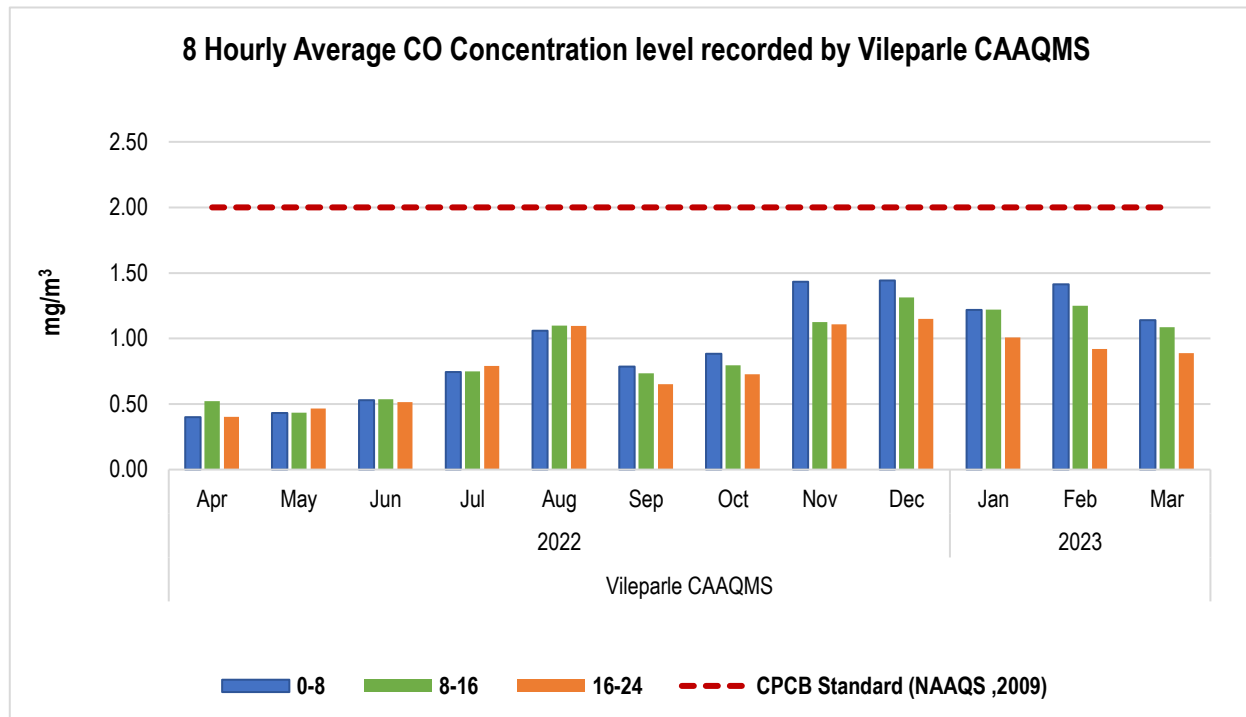


Figure No. 191: CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of at Mumbai RO (4)

Benzene

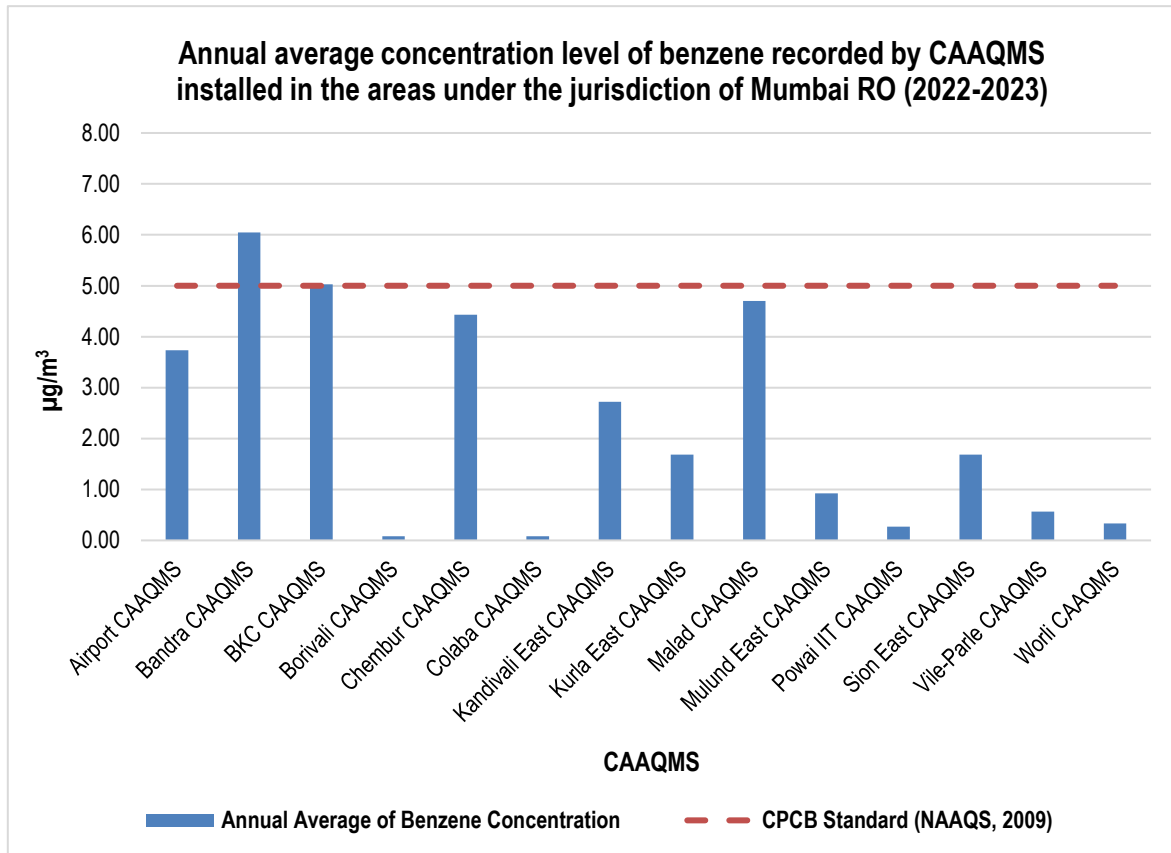


Figure No. 192: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Mumbai RO (2022-23)

In case of Benzene, Bandra CAAQMS ($6.05 \mu\text{g}/\text{m}^3$) and BKC CAAQMS ($5.03 \mu\text{g}/\text{m}^3$) recorded the annual average concentration level slightly higher than the prescribed limit. The rest of the CAAQMS recorded levels well within the standard limit ($5 \mu\text{g}/\text{m}^3$).

AQI percentage occurrence graphs - Mumbai RO

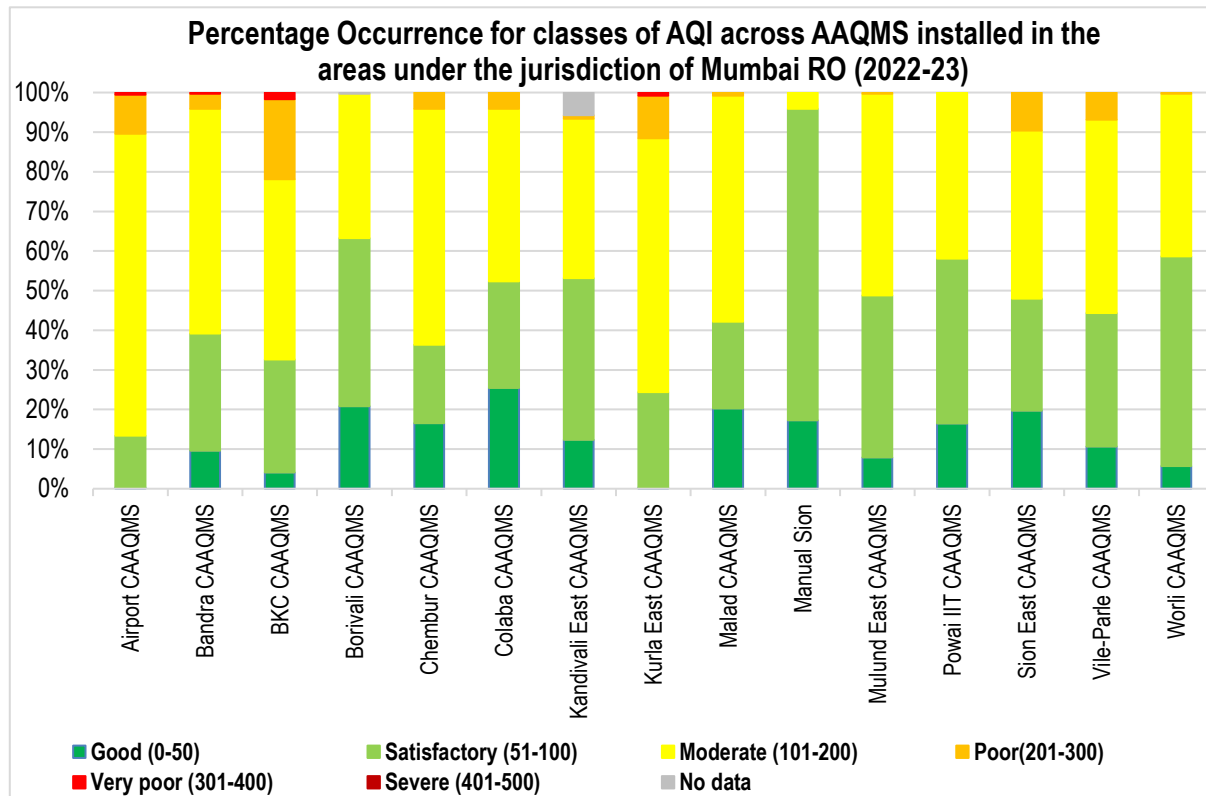


Figure No. 193: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Mumbai RO (2022-23)

There are about 15 CAAQMS installed in the areas under the jurisdiction of The Mumbai RO for checking the air quality within the RO region. Amongst these monitoring stations, the highest share of observations under the 'Moderate' category was recorded by Airport CAAQMS (76.16%) followed by Kurla East CAAQMS (64.11%) and Chembur CAAQMS (59.50%).

Similarly, the highest share of observations under the 'Poor' category was recorded by BKC CAAQMS (20.25%) followed by Kurla East CAAQMS (10.68%), Airport CAAQMS (9.86%) and Sion East CAAQMS (9.59%). Airport CAAQMS, Bandra CAAQMS, BKC CAAQMS and Kurla East CAAQMS recorded about 0.55%, 0.27%, 1.65% and 0.82% of the total observations under the 'Very Poor' AQI category respectively.

About 0.27% and 5.75% of the total observations recorded at Borivali CAAQMS and Kandivali East CAAQMS respectively were considered as 'No Data'.

Monthly and Annual Graphs

Airport CAAQMS

Table No. 154: Data for Monthly average concentration recorded at Airport CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Airport CAAQMS	2022	Apr	10	87	136	41
		May	9	79	124	34
		Jun	9	85	59	16
		Jul	10	85	59	17
		Aug	7	80	58	16
		Sep	8	105	66	19
		Oct	8	100	183	45
		Nov	8	124	214	59
		Dec	8	125	219	63
	2023	Jan	11	124	220	61
		Feb	10	92	206	59
		Mar	10	111	156	51

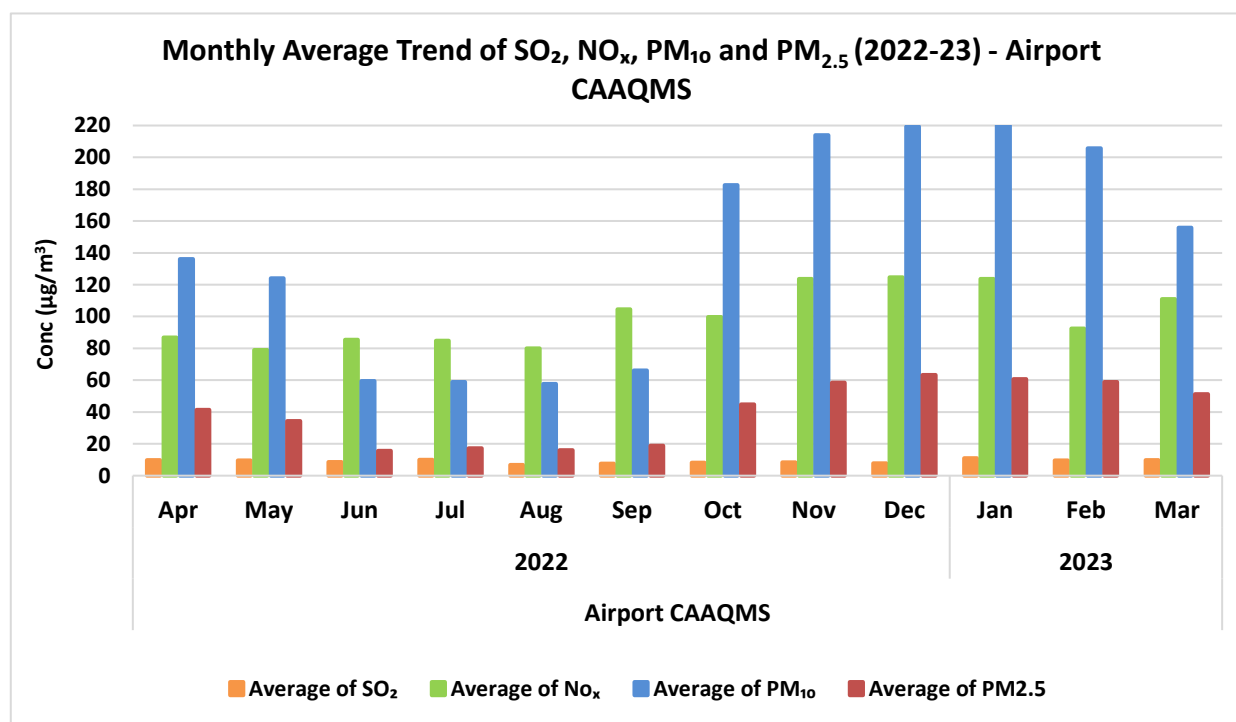
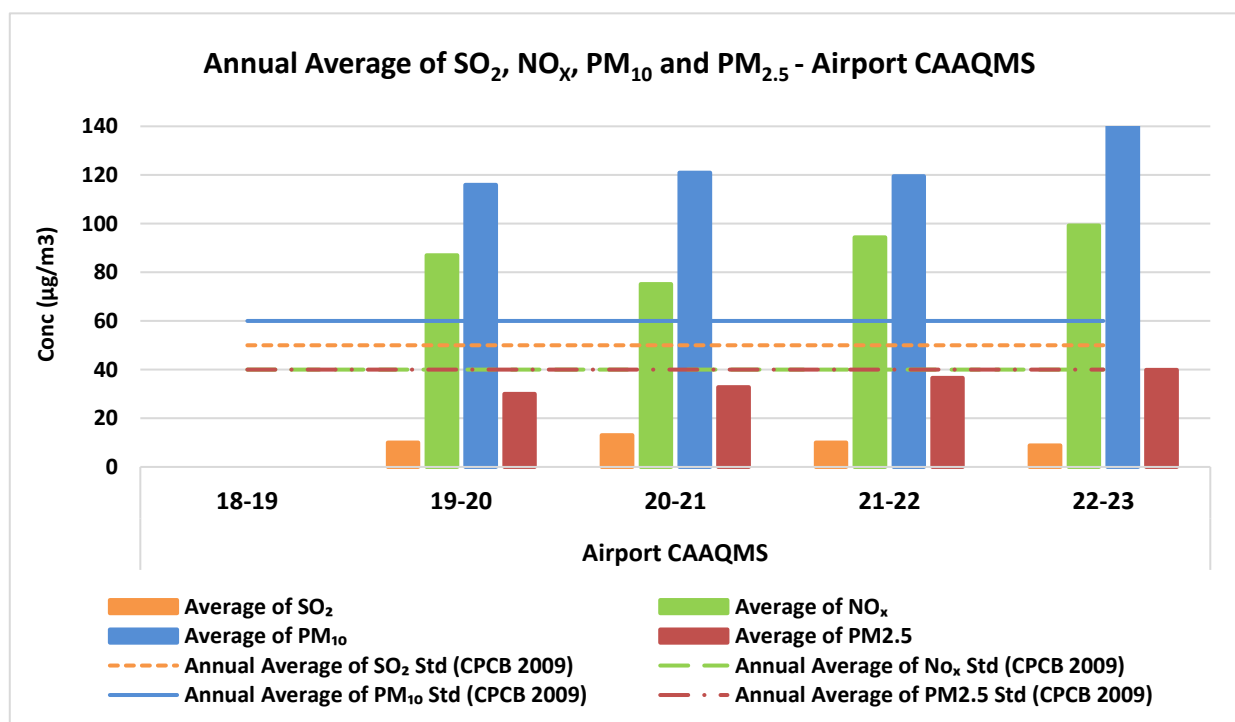


Figure No. 194: Monthly average concentration recorded at Airport CAAQMS

Table No. 155: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Airport CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Airport CAAQMS	18-19	-	-	-	-
	19-20	10	87	116	30
	20-21	13	75	121	33
	21-22	10	94	120	37
	22-23	9	99	141	40

Figure No. 195: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Airport CAAQMS

Bandra CAAQMS

Table No. 156: Data for Monthly average concentration recorded at Bandra CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Bandra CAAQMS	2022	Apr	2	54	129	47
		May	1	18	128	38
		Jun	1	51	61	20
		Jul	1	26	51	19
		Aug	1	32	64	14
		Sep	2	71	57	21
		Oct	5	46	101	51
		Nov	23	106	188	86
		Dec	20	94	185	92
	2023	Jan	25	90	192	104
		Feb	33	105	198	87
		Mar	18	80	137	60

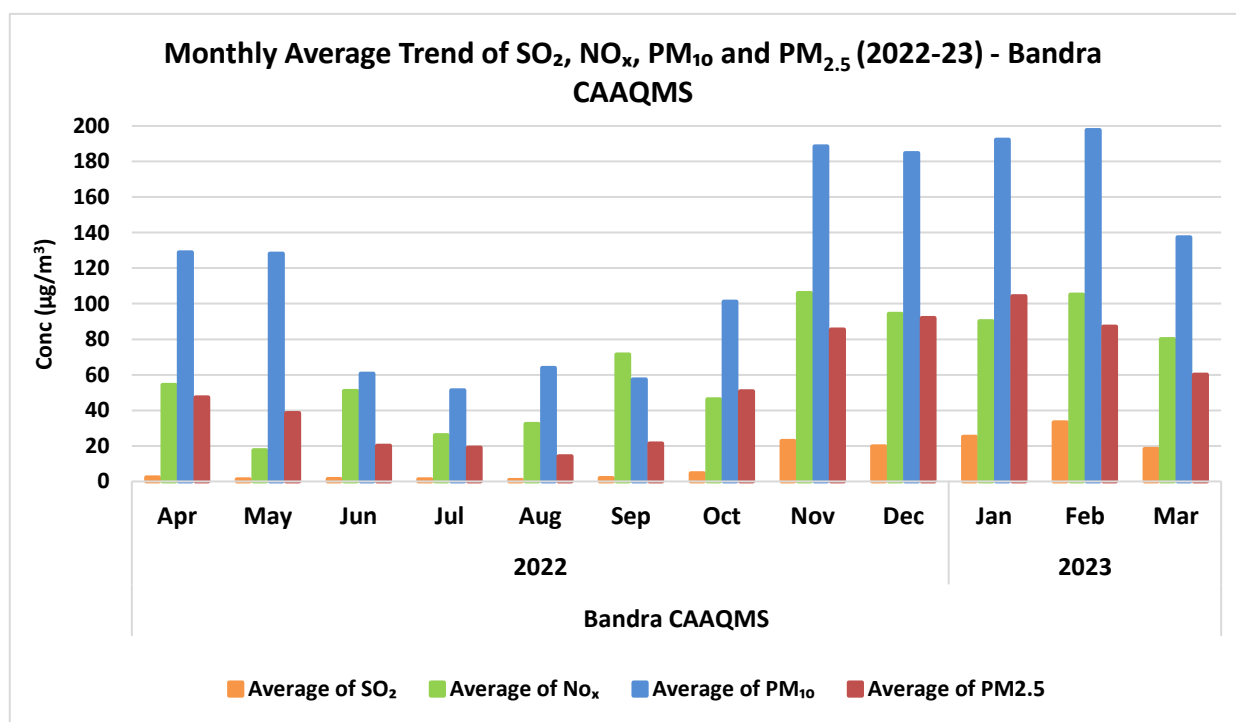
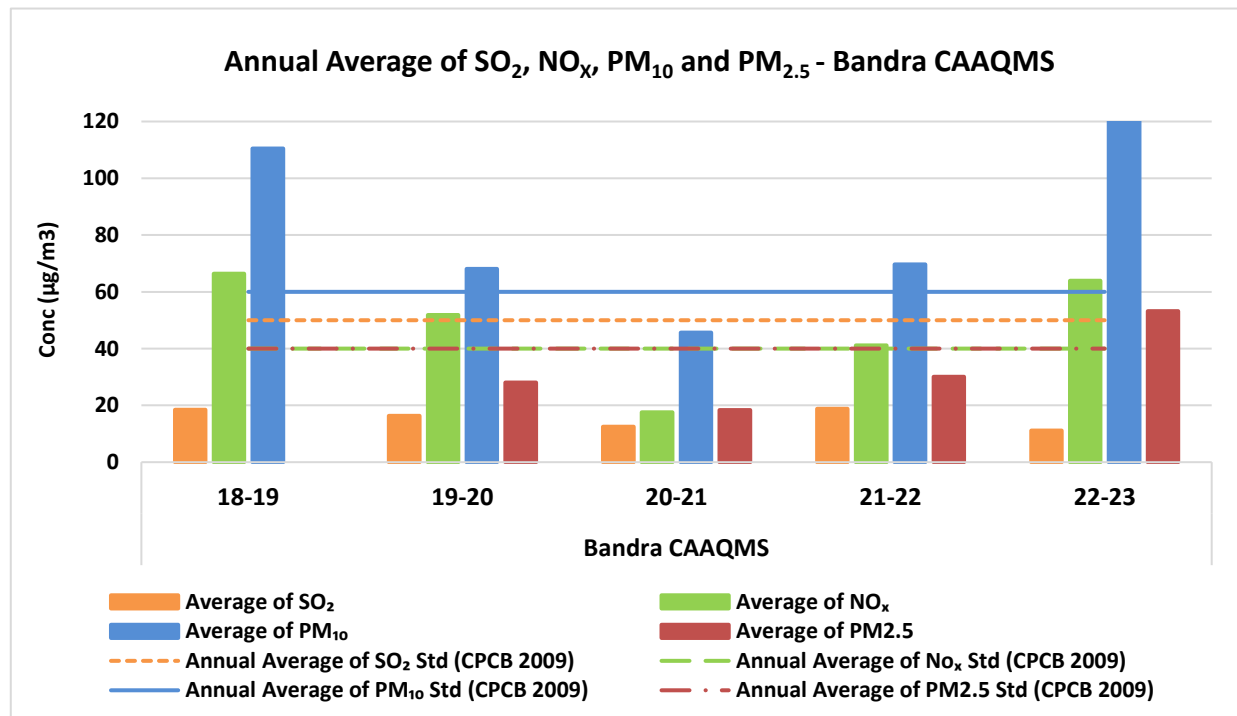


Figure No. 196: Monthly average concentration recorded at Bandra CAAQMS

Table No. 157: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Bandra CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Bandra CAAQMS	18-19	19	66	111	-
	19-20	16	52	68	28
	20-21	12	18	46	18
	21-22	19	41	70	30
	22-23	11	64	124	53

Figure No. 197: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Bandra CAAQMS

BKC CAAQMS

Table No. 158: Data for Monthly average concentration recorded at BKC CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
BKC CAAQMS	2022	Aug	2	23	53	19
		Sep	4	40	61	21
		Oct	5	74	118	51
		Nov	16	88	197	90
		Dec	18	96	211	120
	2023	Jan	16	69	212	96
		Feb	19	107	242	85
		Mar	9	65	153	62

Table No. 159: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at BKC CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
BKC CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	70	155	68

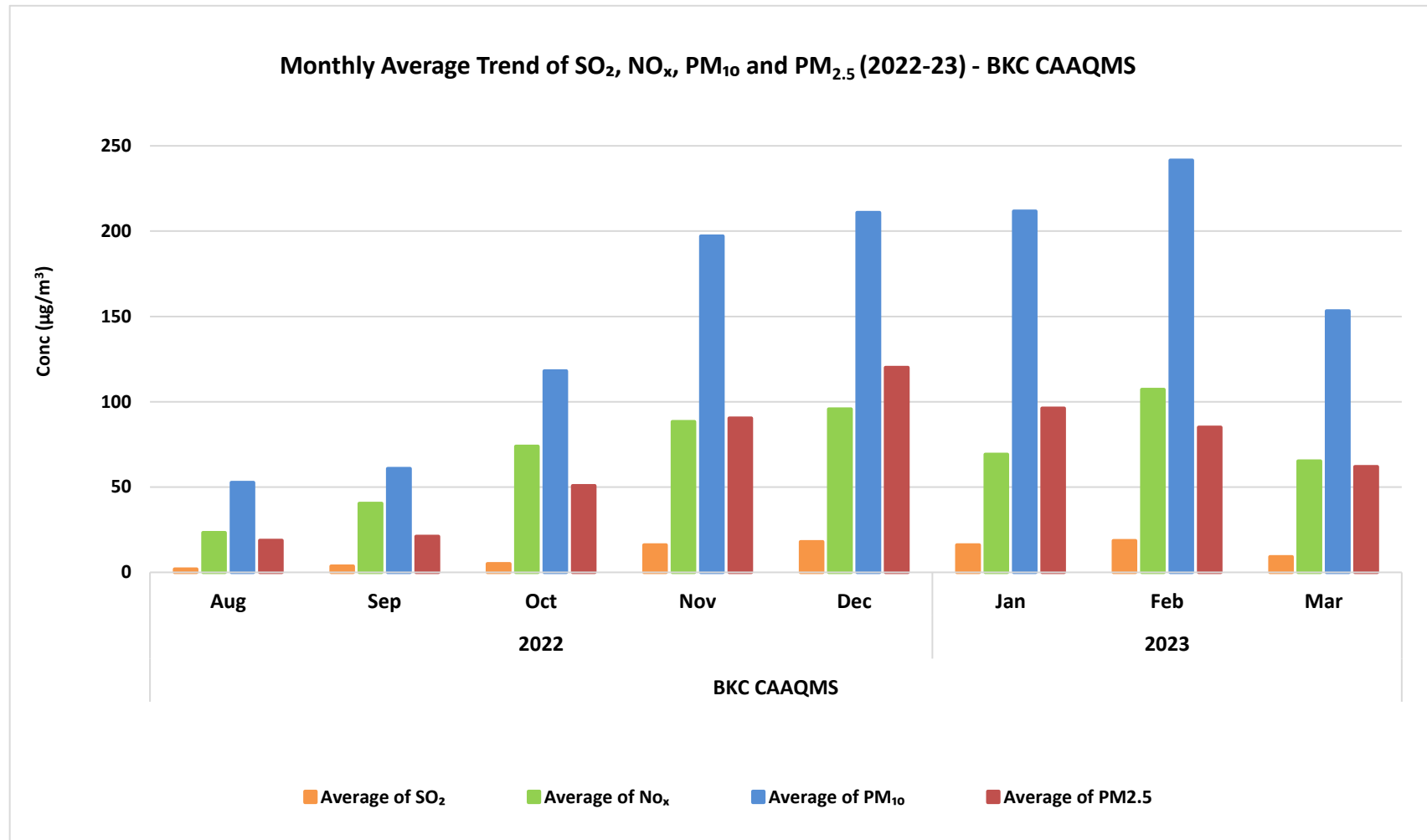


Figure No. 198: Monthly average concentration recorded at BKC CAAQMS

Borivali CAAQMS

Table No. 160: Data for Monthly average concentration recorded at Borivali CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Borivali CAAQMS	2022	Apr	6	14	104	41
		May	6	17	107	35
		Jun	5	19	48	17
		Jul	6	18	42	15
		Aug	6	22	42	18
		Sep	5	25	68	20
		Oct	6	24	68	28
		Nov	6	21	102	46
		Dec	6	20	125	57
	2023	Jan	7	18	136	60
		Feb	8	19	125	57
		Mar	6	19	103	46

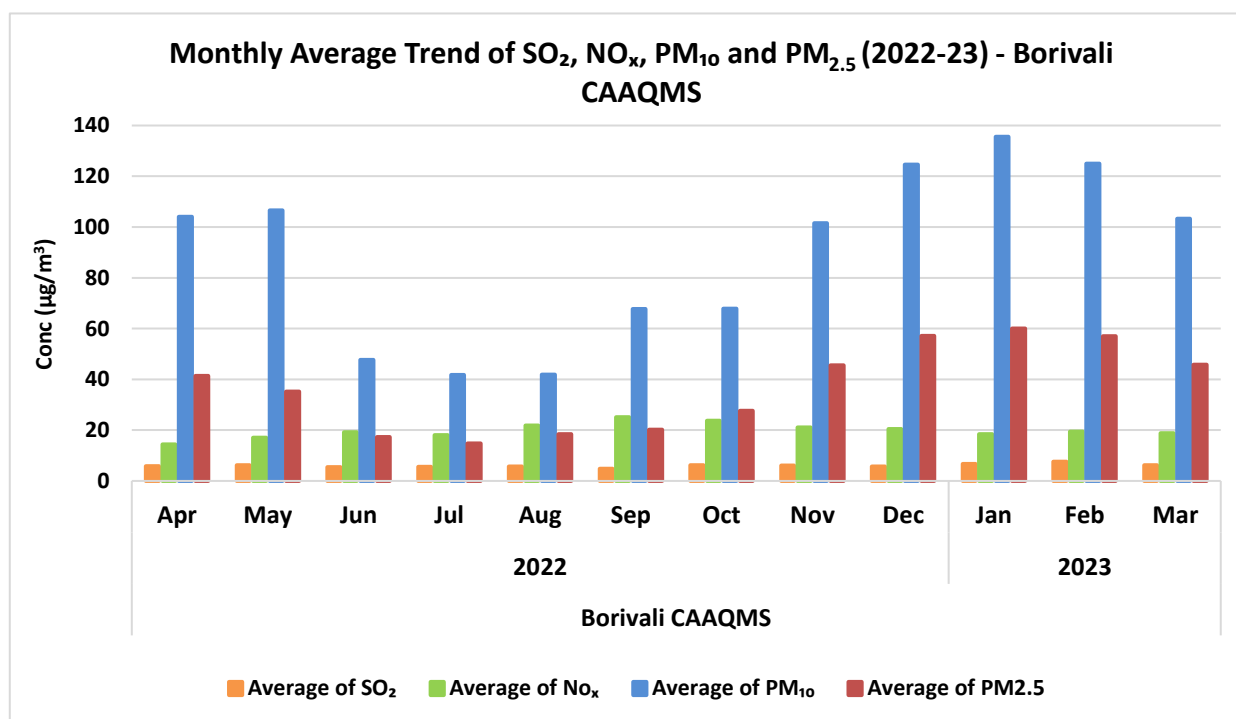
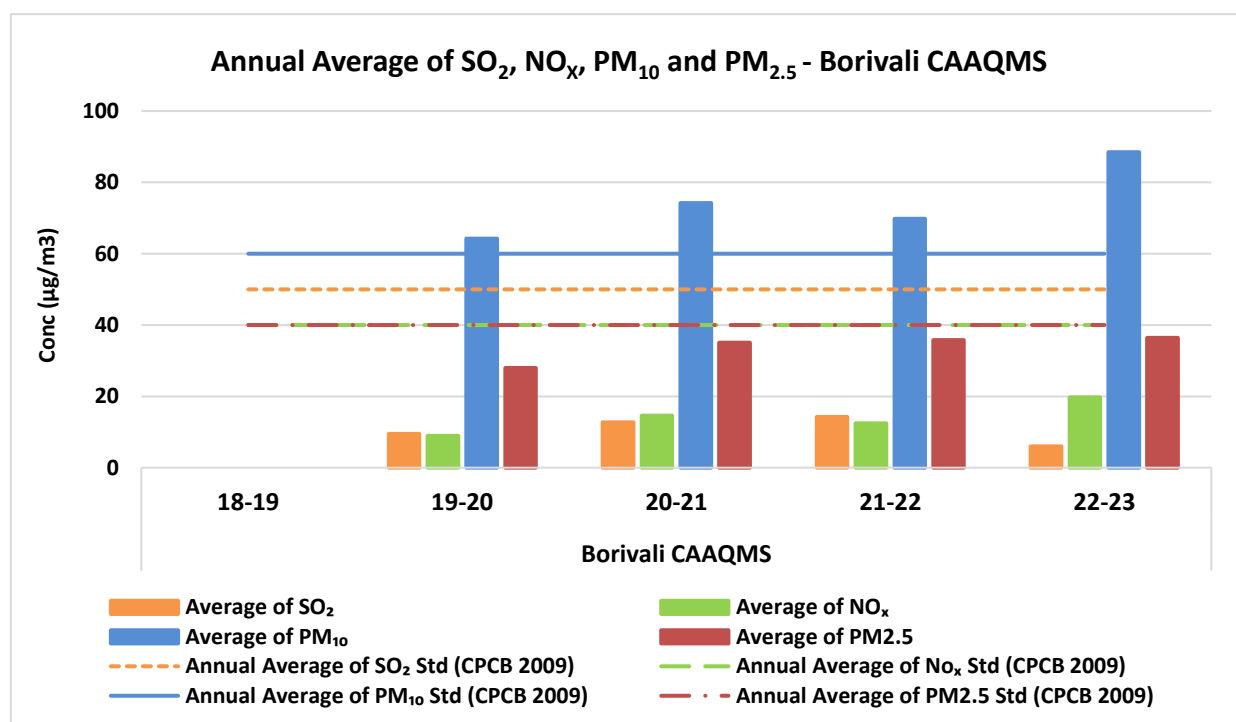


Figure No. 199: Monthly average concentration recorded at Borivali CAAQMS

Table No. 161: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Borivali CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Borivali CAAQMS	18-19	-	-	-	-
	19-20	9	9	64	28
	20-21	13	15	74	35
	21-22	14	12	70	36
	22-23	6	20	88	36

Figure No. 200: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Borivali CAAQMS

Chembur CAAQMS

Table No. 162: Data for Monthly average concentration recorded at Chembur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Chembur CAAQMS	2022	Aug	4	16	51	17
		Sep	4	21	52	23
		Oct	12	25	105	50
		Nov	22	39	170	97
		Dec	25	43	201	94
	2023	Jan	17	40	196	92
		Feb	26	46	177	76
		Mar	24	36	129	58

Table No. 163: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Chembur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Chembur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	17	33	135	63

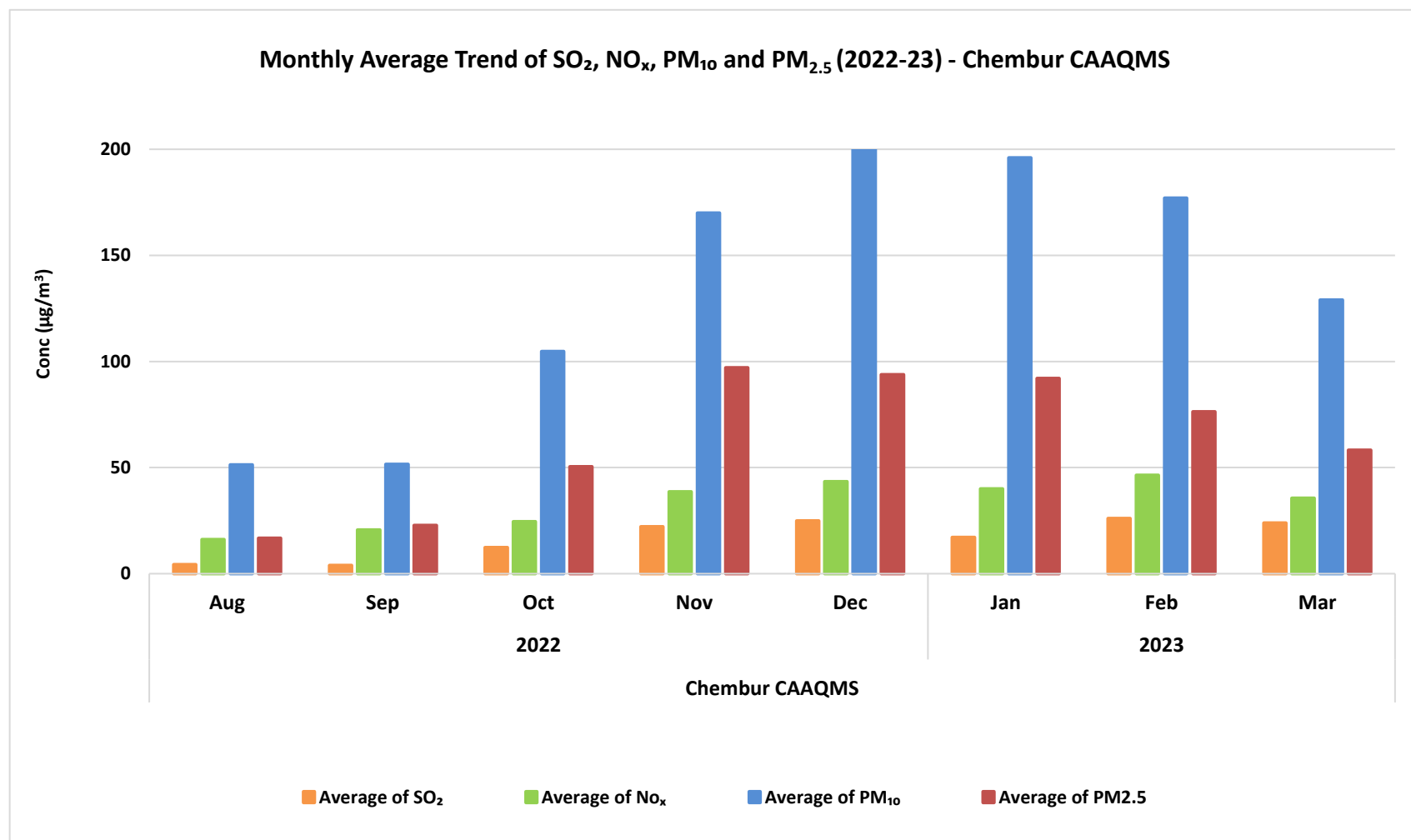


Figure No. 201: Monthly average concentration recorded at Chembur CAAQMS

Colaba CAAQMS

Table No. 164: Data for Monthly average concentration recorded at Colaba CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Colaba CAAQMS	2022	Apr	21	19	102	42
		May	17	29	118	50
		Jun	10	31	43	13
		Jul	18	25	54	20
		Aug	16	23	38	14
		Sep	18	31	38	15
		Oct	15	76	92	44
		Nov	26	97	204	84
		Dec	20	83	199	92
	2023	Jan	12	69	146	59
		Feb	16	35	155	62
		Mar	15	38	116	46

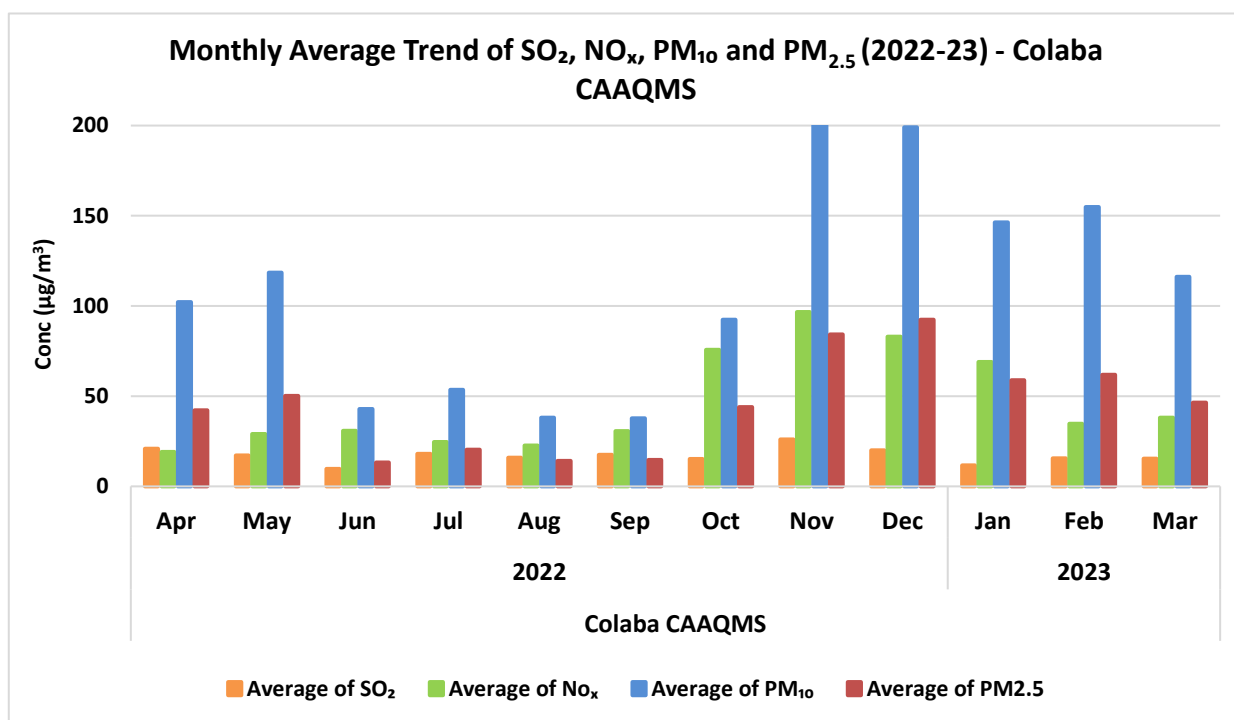
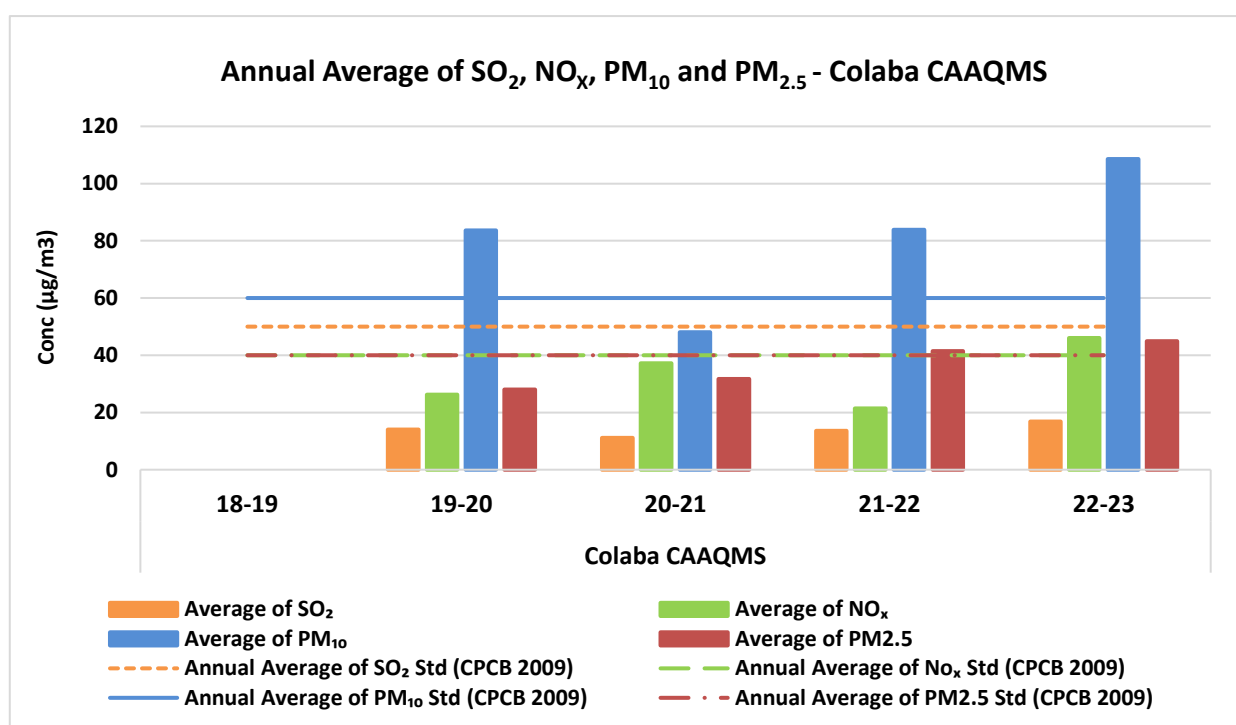


Figure No. 202: Monthly average concentration recorded at Colaba CAAQMS

Table No. 165: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Colaba CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Colaba CAAQMS	18-19	-	-	-	-
	19-20	14	26	84	28
	20-21	11	37	48	32
	21-22	14	21	84	41
	22-23	17	46	109	45

Figure No. 203: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Colaba CAAQMS

Kandivali East CAAQMS

Table No. 166: Data for Monthly average concentration recorded at Kandivali East CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Kandivali East CAAQMS	2022	Apr	8	21	87	40
		May	10	22	71	25
		Jun	12	34	53	20
		Jul	11	32	60	21
		Aug	12	28	53	18
		Sep	15	53	62	20
		Oct	15	50	102	36
		Nov	17	52	173	70
		Dec	19	60	180	69
	2023	Jan	21	73	195	81
		Feb	25	71	174	75
		Mar	22	39	158	50

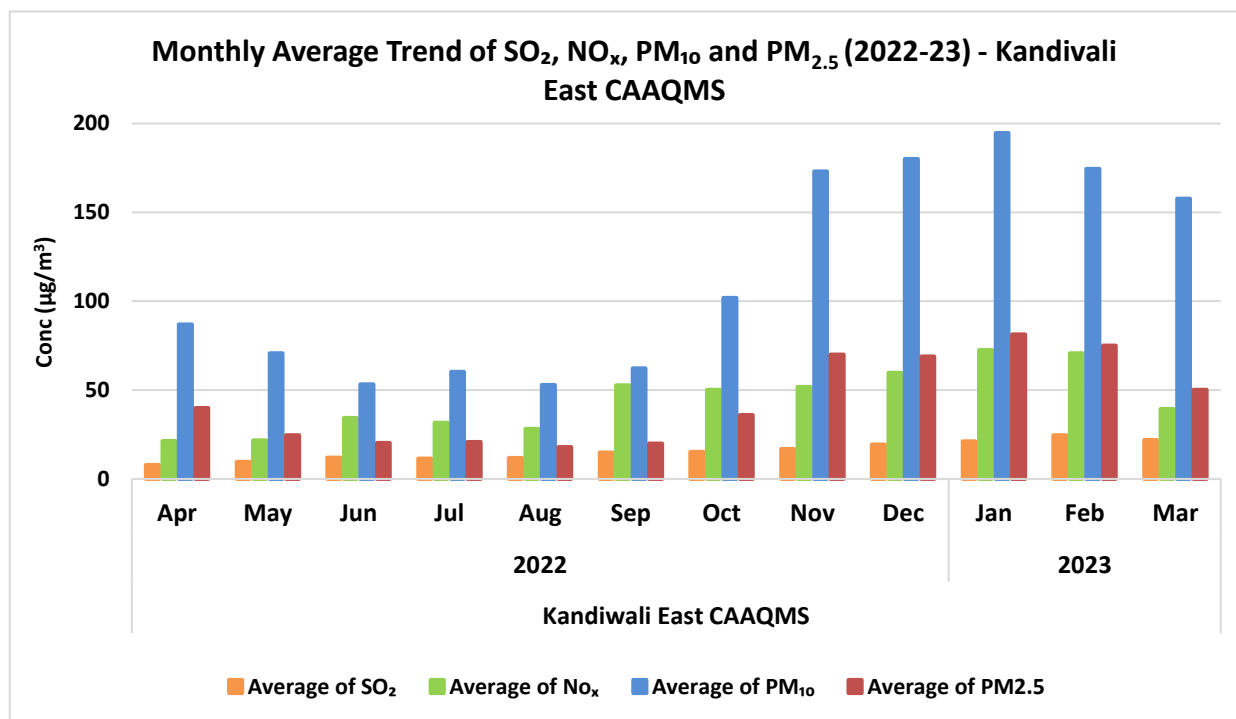
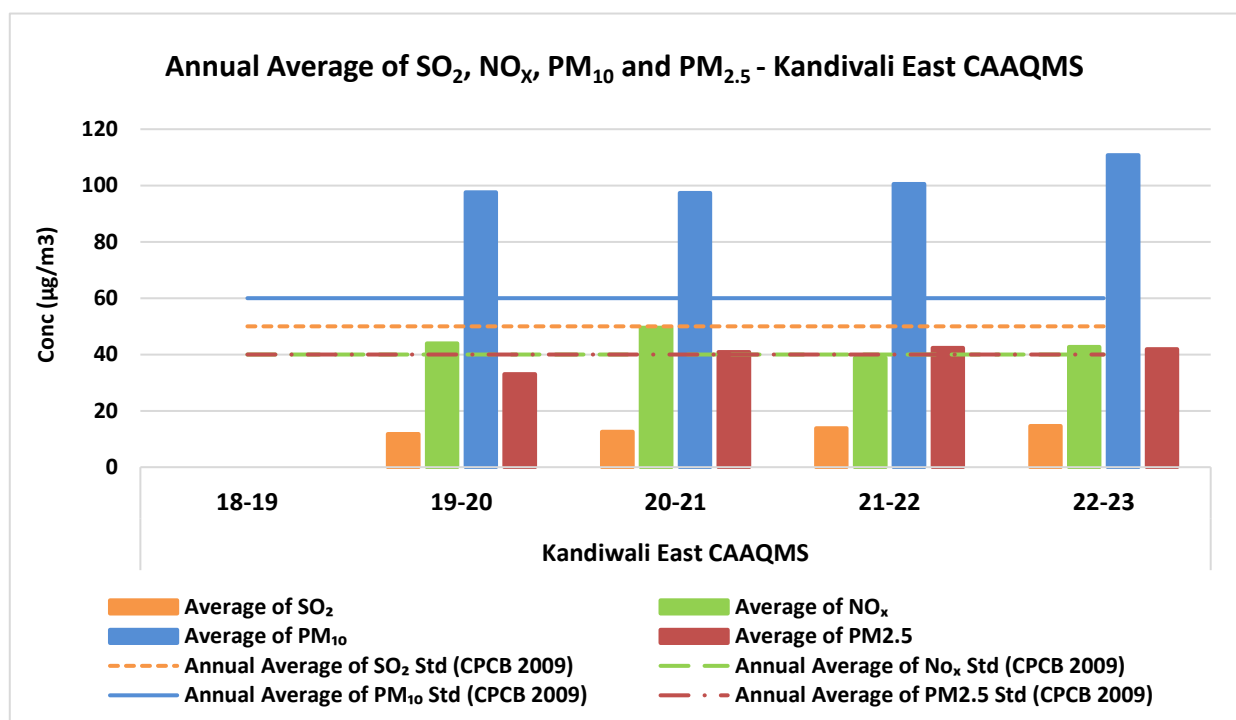


Figure No. 204: Monthly average concentration recorded at Kandivali East CAAQMS

Table No. 167: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kandivali East CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Kandivali East CAAQMS	18-19	-	-	-	-
	19-20	12	44	98	33
	20-21	13	50	97	41
	21-22	14	39	101	42
	22-23	15	43	111	42

Figure No. 205: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kandivali East CAAQMS

Kurla East CAAQMS

Table No. 168: Data for Monthly average concentration recorded at Kurla East CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Kurla East CAAQMS	2022	Apr	18	71	132	35
		May	14	96	116	29
		Jun	18	104	129	39
		Jul	11	62	71	20
		Aug	11	46	86	22
		Sep	18	51	67	17
		Oct	10	44	142	50
		Nov	15	63	238	44
		Dec	9	109	244	51
	2023	Jan	12	75	224	72
		Feb	11	62	218	71
		Mar	9	53	182	61

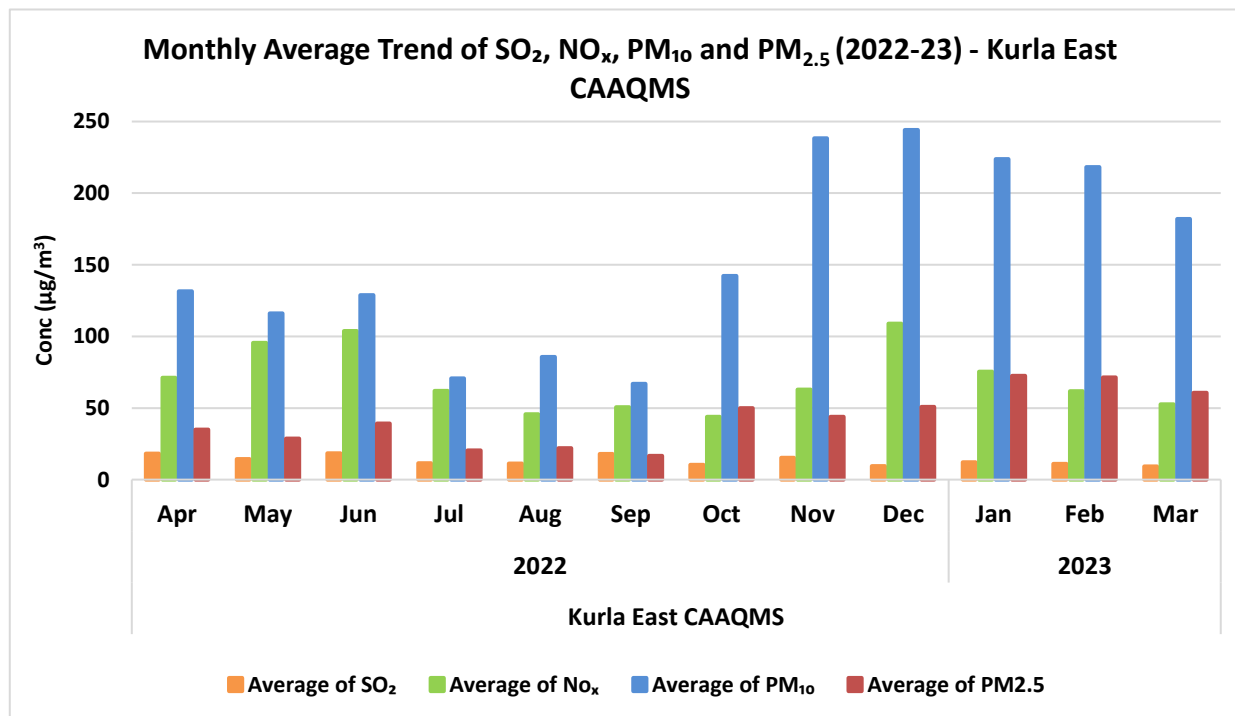
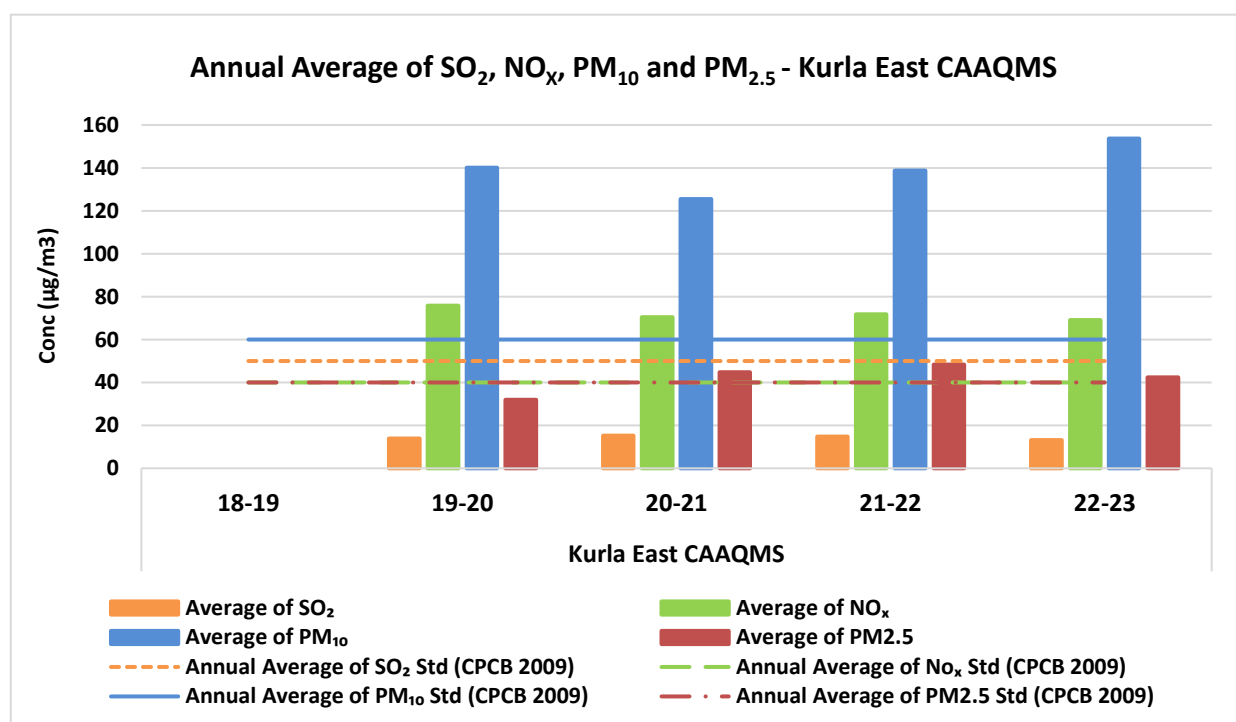


Figure No. 206: Monthly average concentration recorded at Kurla East CAAQMS

Table No. 169: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kurla East CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Kurla East CAAQMS	18-19	-	-	-	-
	19-20	14	76	140	32
	20-21	15	70	126	45
	21-22	15	72	139	48
	22-23	13	69	154	42

Figure No. 207: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Kurla East CAAQMS

Malad CAAQMS

Table No. 170: Data for Monthly average concentration recorded at Malad CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Malad CAAQMS	2022	Aug	5	12	39	21
		Sep	5	25	41	28
		Oct	10	35	83	50
		Nov	21	61	142	83
		Dec	17	37	131	74
	2023	Jan	26	39	171	96
		Feb	32	47	166	86
		Mar	19	37	130	61

Table No. 171: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Malad CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Malad CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	17	37	112	63

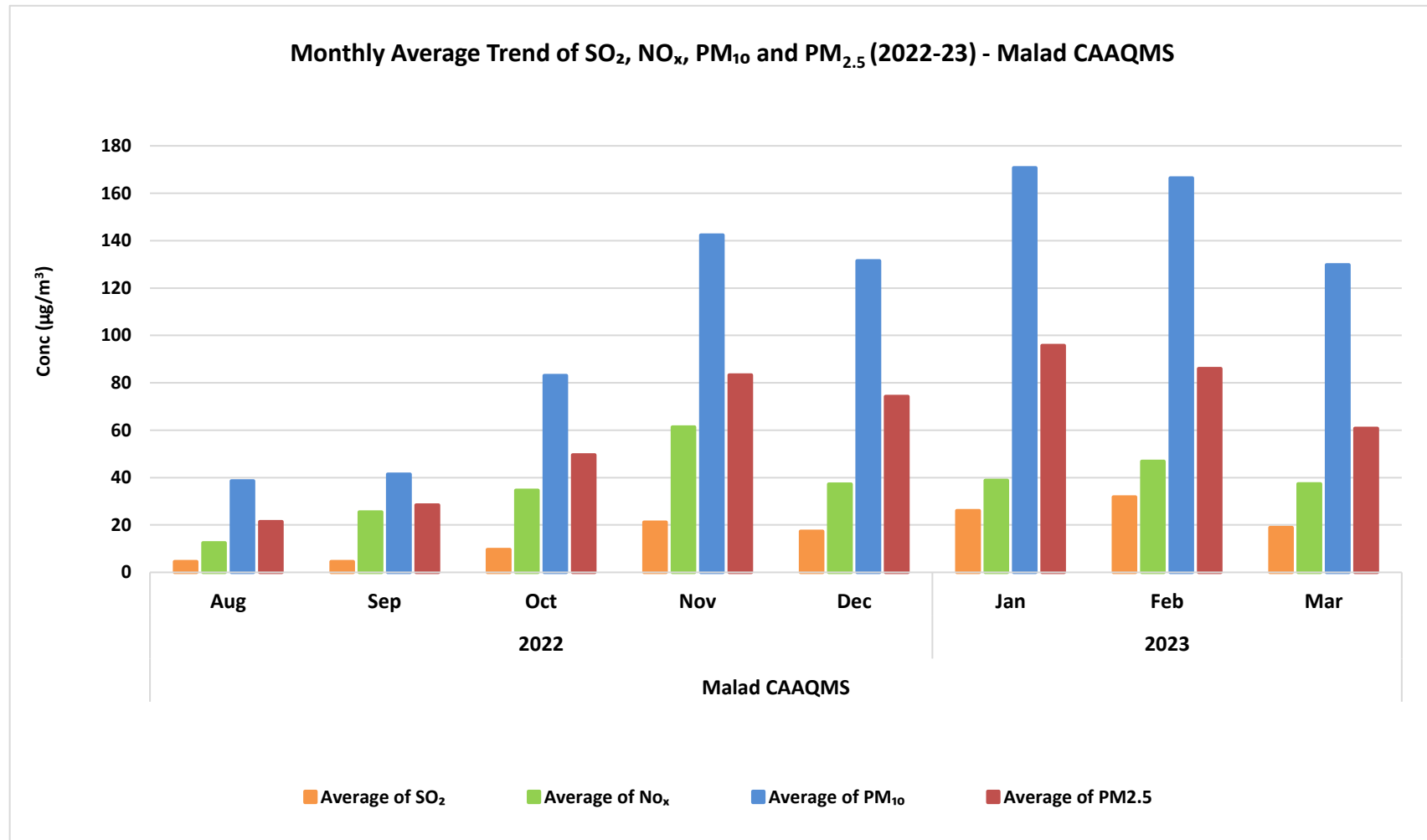


Figure No. 208: Monthly average concentration recorded at Malad CAAQMS

Manual Sion

Table No. 172: Data for Monthly average concentration recorded at Manual Sion

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Manual Sion	2022	Apr	-	-	58
		May	4	23	78
		Jun	4	17	75
		Jul	4	16	61
		Aug	5	15	44
		Sep	4	21	40
		Oct	4	30	38
		Nov	4	49	73

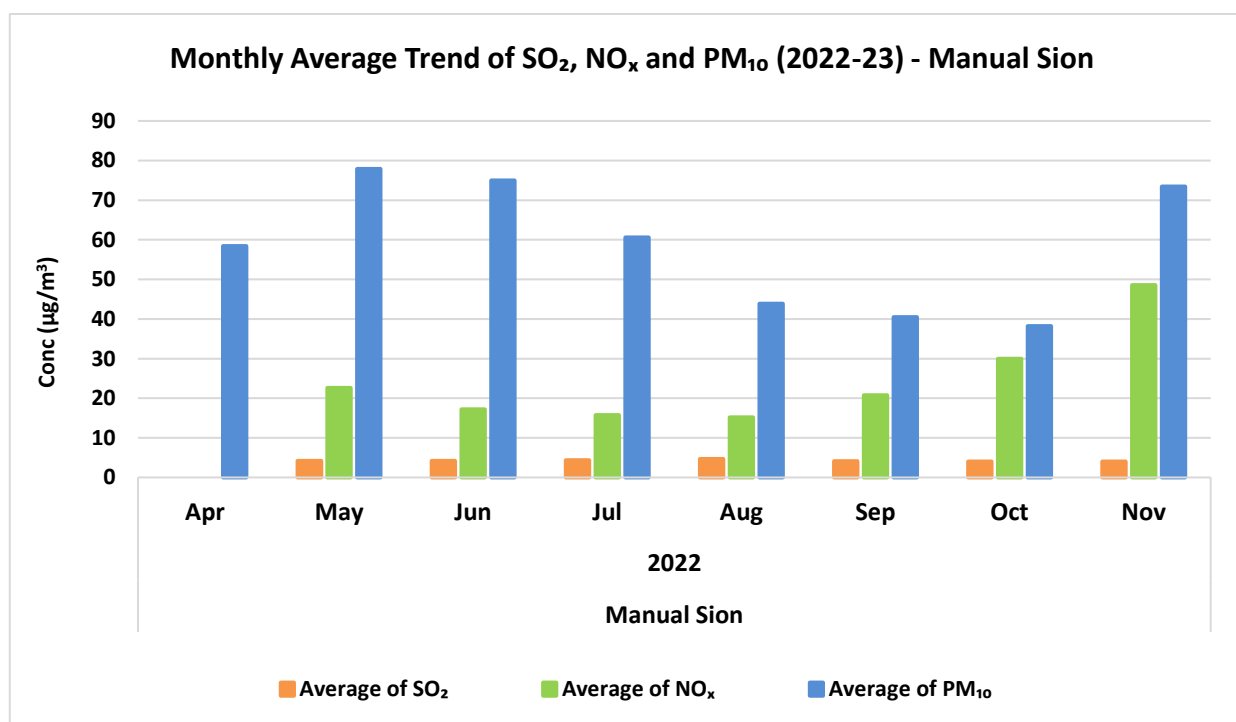
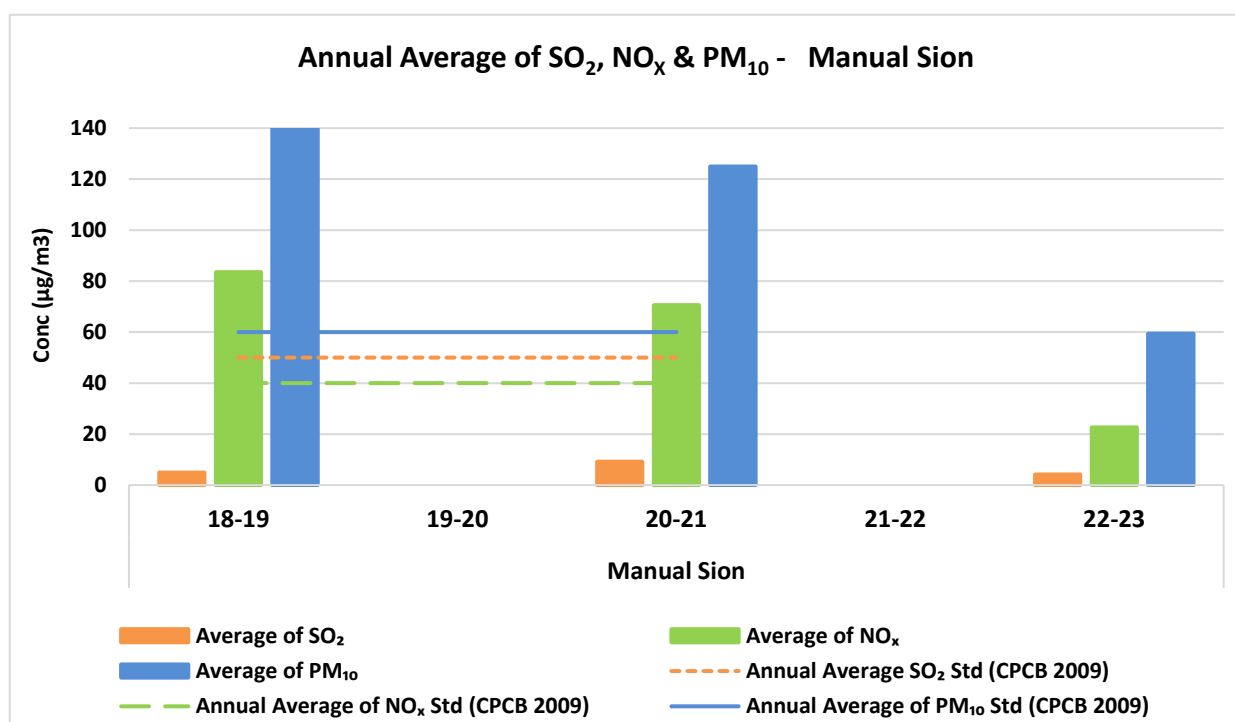


Figure No. 209: Monthly average concentration recorded at Manual Sion

Table No. 173: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Manual Sion

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Manual Sion	18-19	5	83	147
	19-20	-	-	-
	20-21	9	71	125
	21-22	-	-	-
	22-23	4	23	59

Figure No. 210: Annual average trend of SO₂, NO_x and PM₁₀ at Manual Sion

Mulund East CAAQMS

Table No. 174: Data for Monthly average concentration recorded at Mulund East CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Mulund East CAAQMS	2022	Apr	16	50	130	42
		May	16	46	111	29
		Jun	15	52	65	18
		Jul	13	48	47	16
		Aug	13	43	52	18
		Sep	16	42	52	24
		Oct	14	51	94	42
		Nov	13	52	159	78
		Dec	15	55	178	93
	2023	Jan	14	52	149	59
		Feb	15	46	157	57
		Mar	15	61	142	63

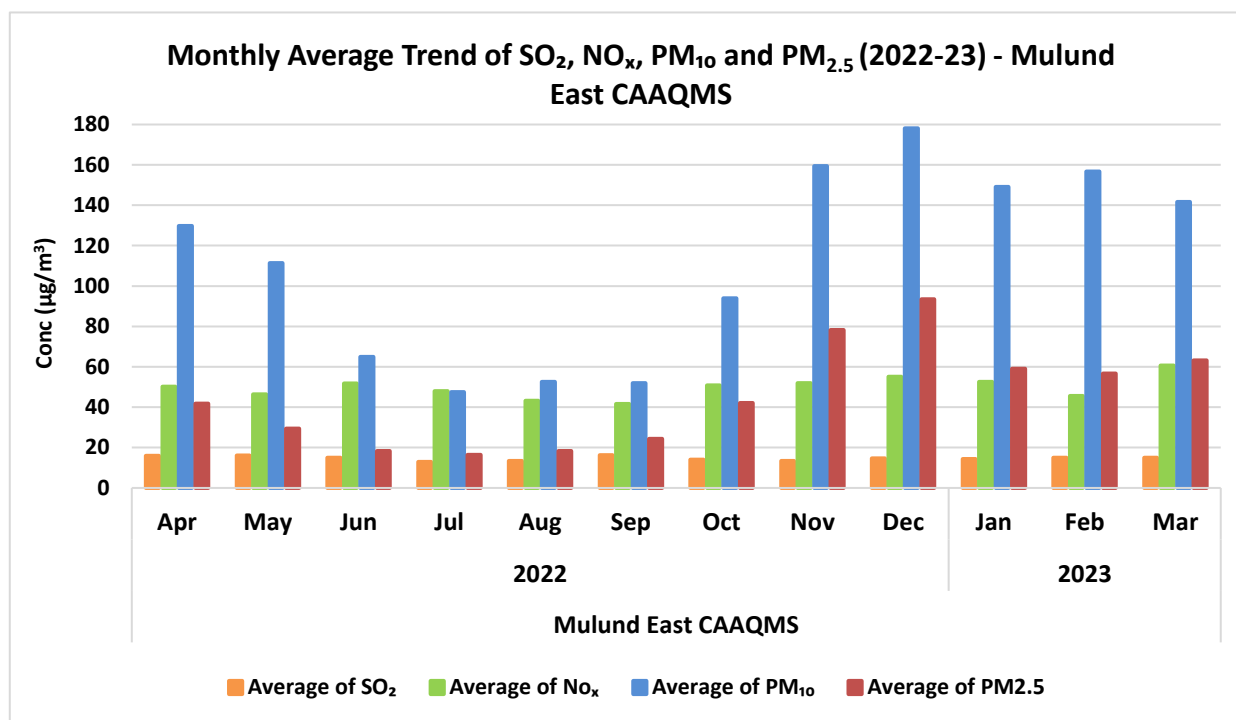
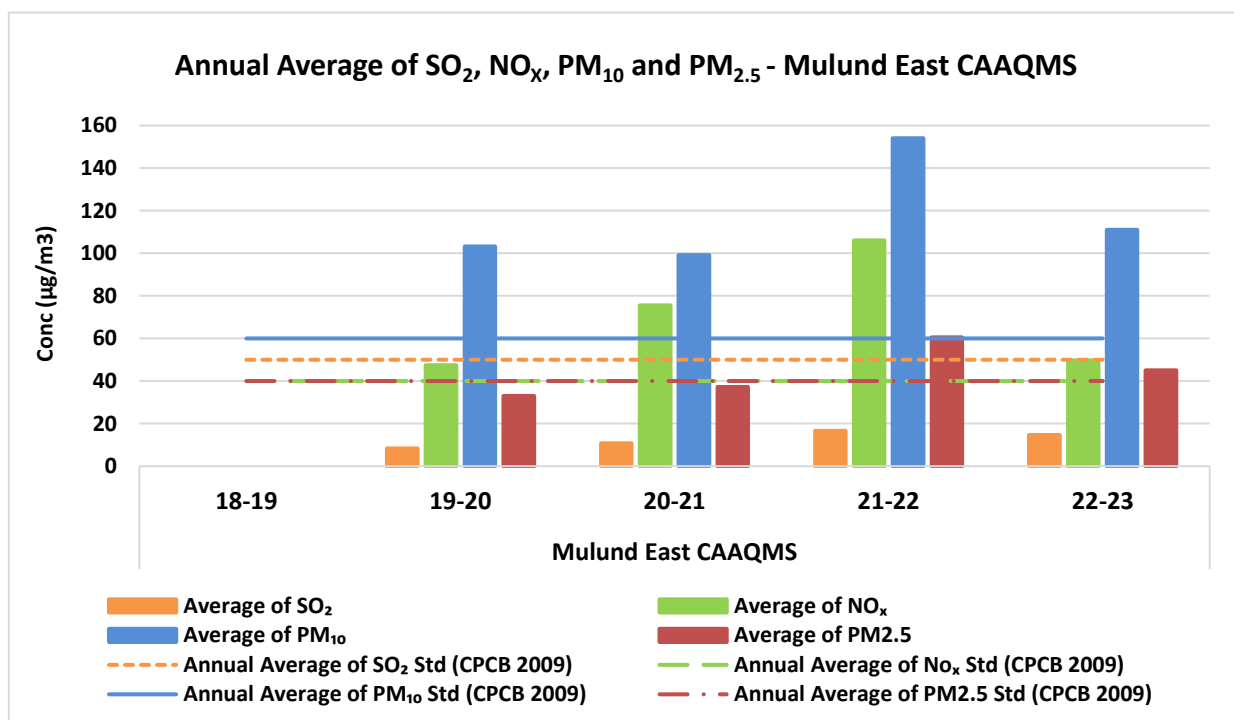


Figure No. 211: Monthly average concentration recorded at Mulund East CAAQMS

Table No. 175: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mulund East CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Mulund East CAAQMS	18-19	-	-	-	-
	19-20	8	47	103	33
	20-21	11	76	99	37
	21-22	17	106	154	61
	22-23	15	50	111	45

Figure No. 212: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mulund East CAAQMS

Powai IIT CAAQMS

Table No. 176: Data for Monthly average concentration recorded at Powai IIT CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Powai IIT CAAQMS	2022	Apr	9	28	102	35
		May	16	25	98	36
		Jun	5	40	42	17
		Jul	12	28	42	15
		Aug	12	41	35	14
		Sep	9	47	37	20
		Oct	9	43	65	38
		Nov	7	46	118	74
		Dec	6	47	131	83
	2023	Jan	7	47	144	86
		Feb	8	47	131	68
		Mar	10	46	119	62

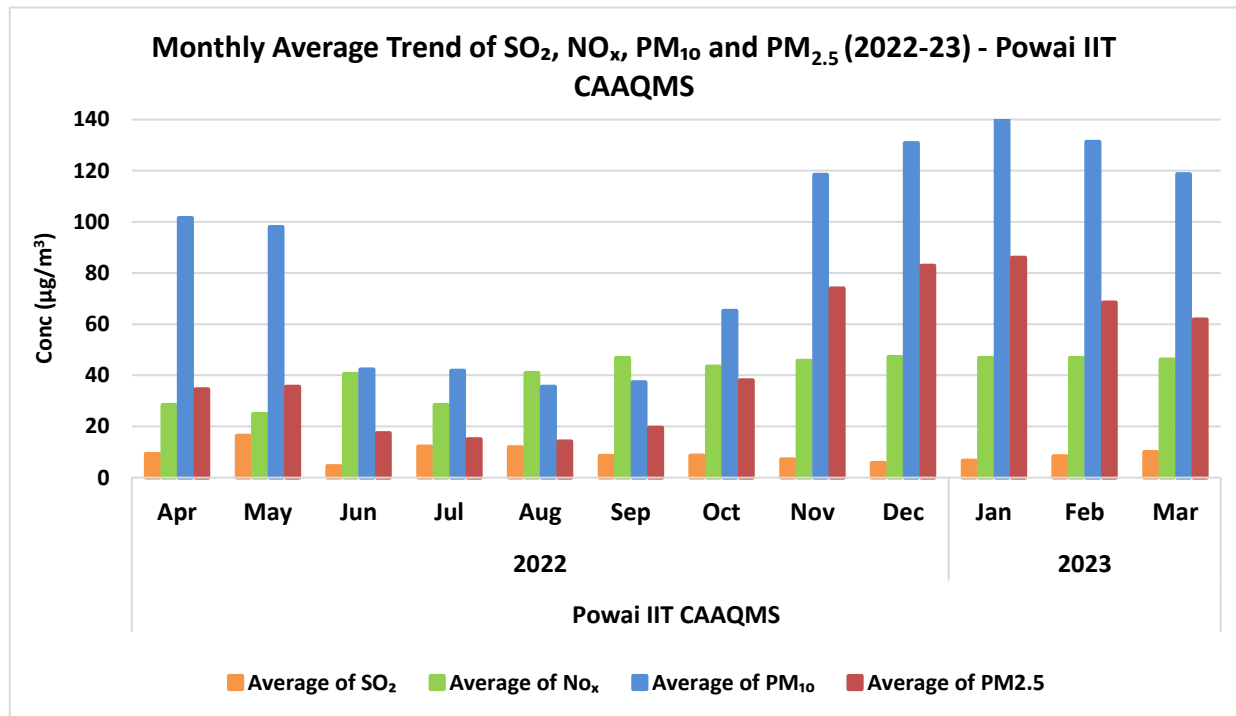
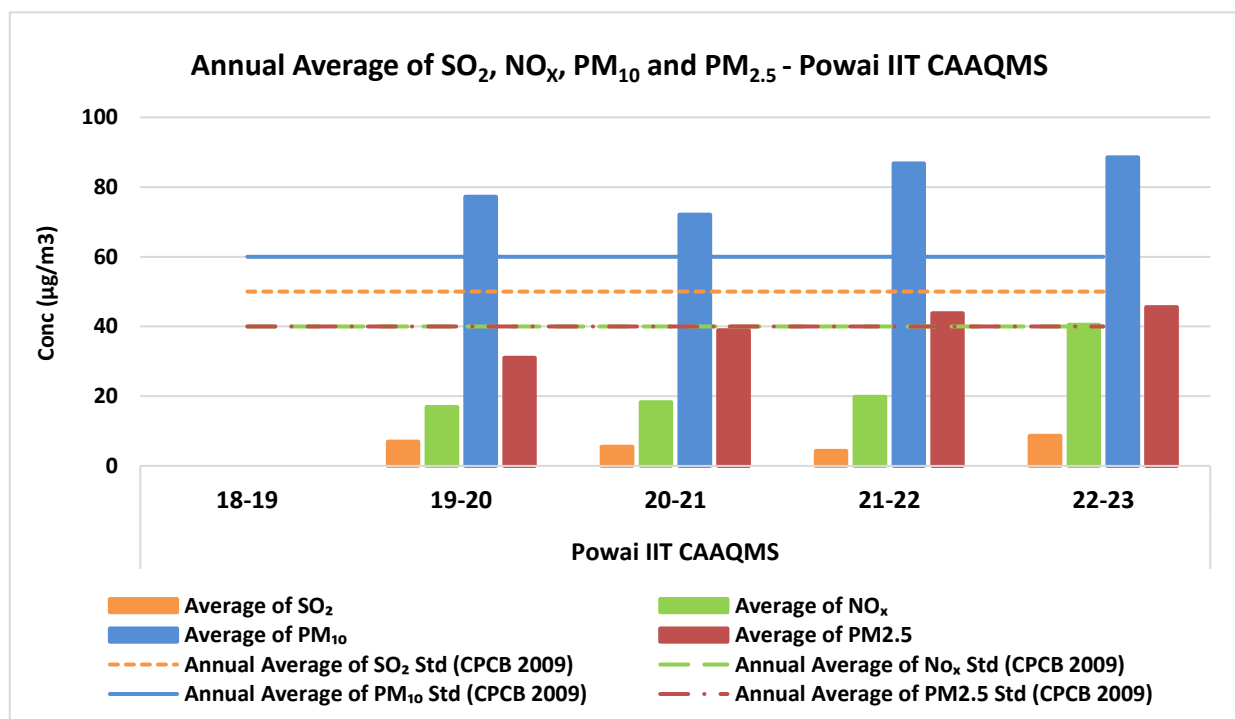


Figure No. 213: Monthly average concentration recorded at Powai IIT CAAQMS

Table No. 177: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Powai IIT CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Powai IIT CAAQMS	18-19	-	-	-	-
	19-20	7	17	77	31
	20-21	5	18	72	39
	21-22	4	20	87	44
	22-23	9	40	89	46

Figure No. 214: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Powai IIT CAAQMS

Sion East CAAQMS

Table No. 178: Data for Monthly average concentration recorded at Sion East CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Sion East CAAQMS	2022	Apr	11	59	83	43
		May	11	31	84	33
		Jun	12	32	35	17
		Jul	12	35	35	15
		Aug	11	30	37	16
		Sep	12	61	44	17
		Oct	12	84	96	41
		Nov	18	102	211	90
		Dec	19	105	242	101
	2023	Jan	20	97	212	89
		Feb	14	86	200	85
		Mar	10	94	171	65

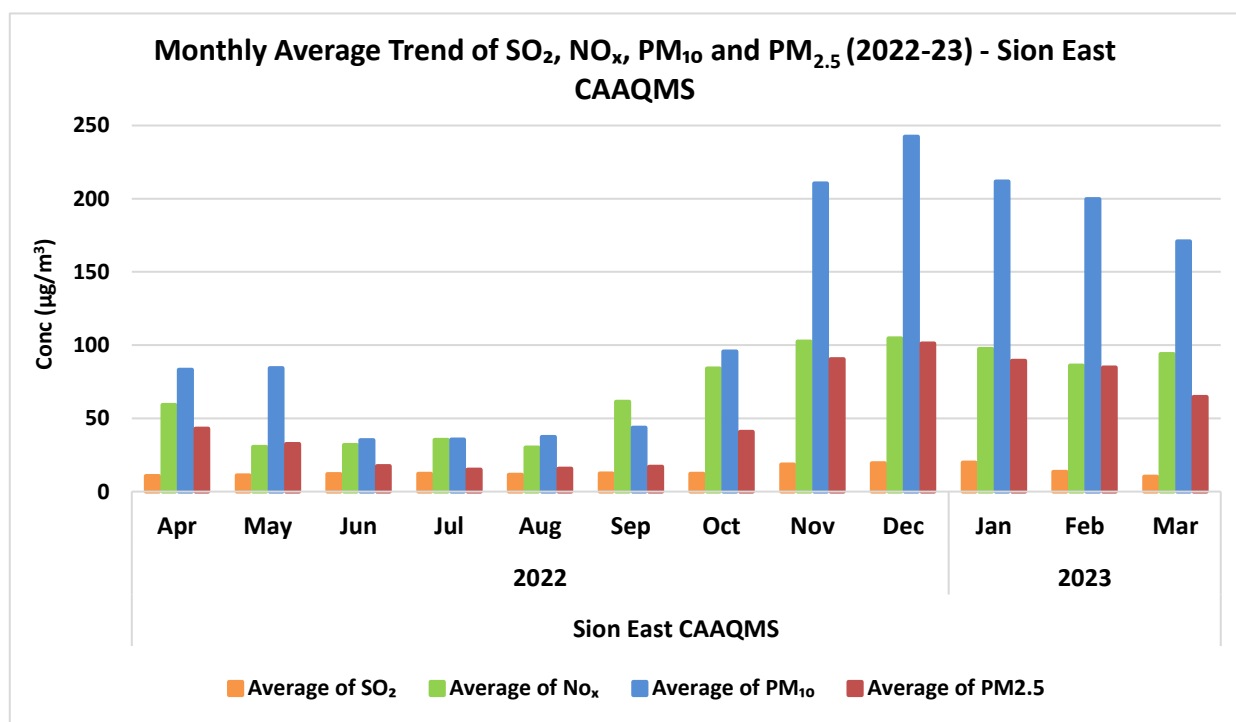
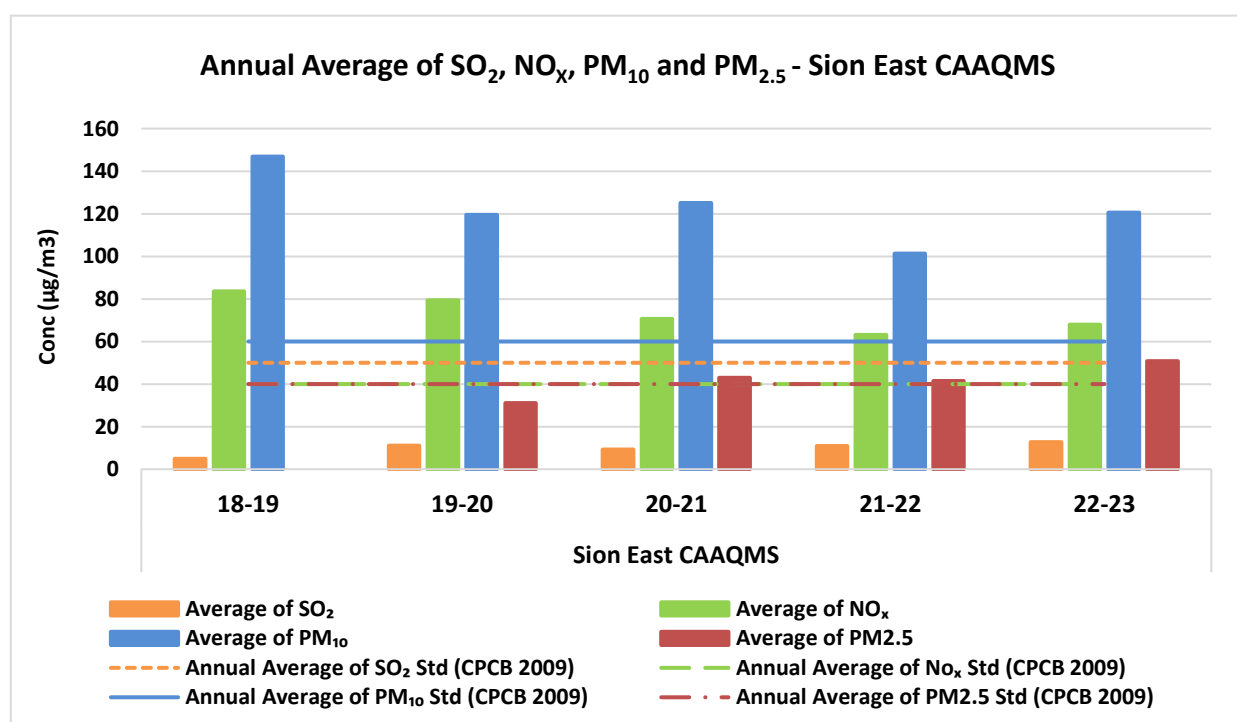


Figure No. 215: Monthly average concentration recorded at Sion East CAAQMS

Table No. 179: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Sion East CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Sion East CAAQMS	18-19	5	83	147	-
	19-20	11	79	120	31
	20-21	9	71	125	43
	21-22	11	63	101	41
	22-23	13	68	120	51

Figure No. 216: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Sion East CAAQMS

Vile-Parle CAAQMS

Table No. 180: Data for Monthly average concentration recorded at Vile-Parle CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Vile Parle CAAQMS	2022	Apr	17	38	114	41
		May	12	33	130	39
		Jun	8	19	63	20
		Jul	22	20	62	19
		Aug	21	23	56	16
		Sep	24	36	52	18
		Oct	30	53	116	53
		Nov	32	92	178	82
		Dec	38	105	215	99
	2023	Jan	37	81	192	97
		Feb	36	71	204	92
		Mar	36	55	144	63

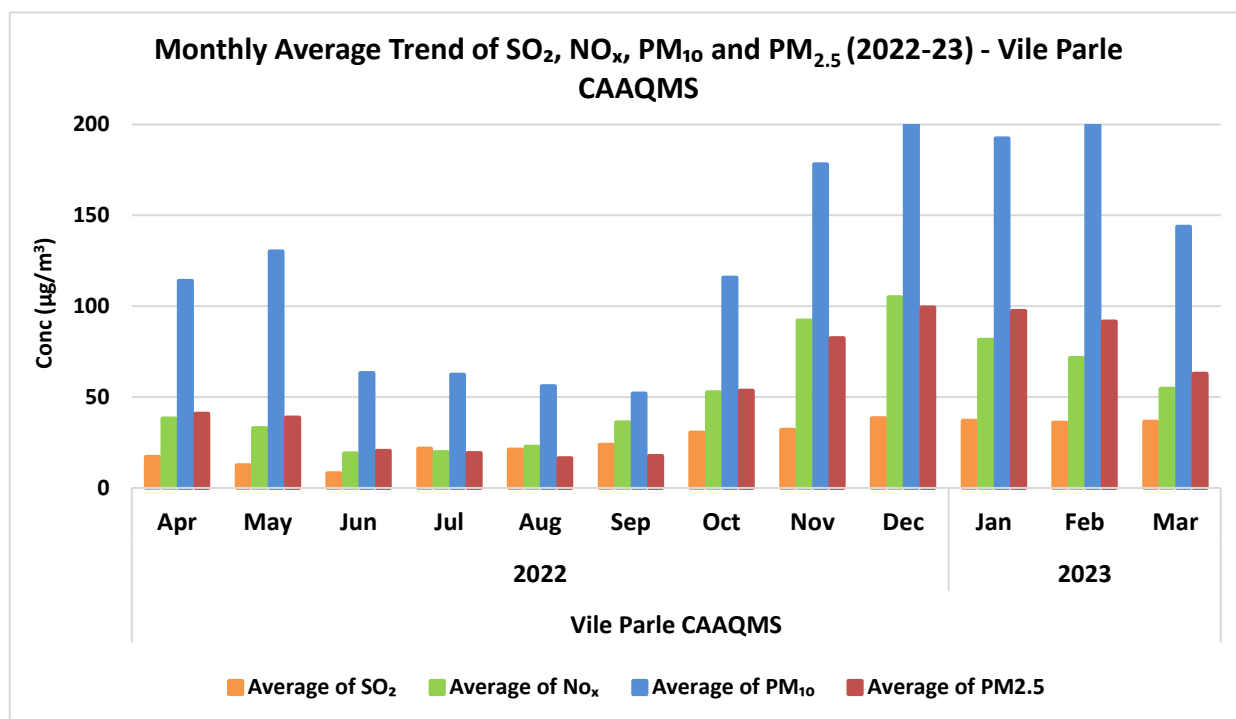
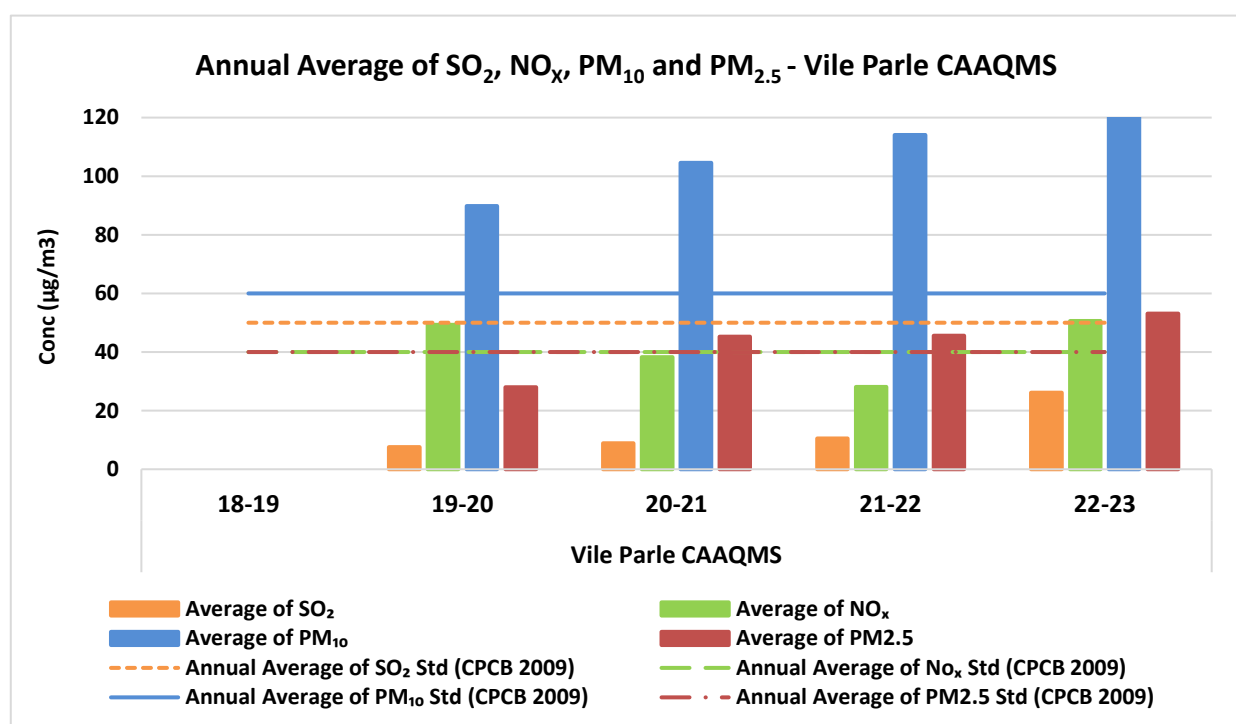


Figure No. 217: Monthly average concentration recorded at Vile-Parle CAAQMS

Table No. 181: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Vile-Parle CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Vile Parle CAAQMS	18-19	-	-	-	-
	19-20	8	49	90	28
	20-21	9	38	105	45
	21-22	10	28	114	46
	22-23	26	51	127	53

Figure No. 218: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Vile-Parle CAAQMS

Worli CAAQMS

Table No. 182: Data for Monthly average concentration recorded at Worli CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Worli CAAQMS	2022	Apr	17	21	94	45
		May	26	38	128	51
		Jun	23	48	48	13
		Jul	12	35	54	16
		Aug	22	47	44	11
		Sep	14	55	43	14
		Oct	11	45	99	48
		Nov	18	49	153	66
		Dec	20	35	168	67
	2023	Jan	15	44	151	60
		Feb	17	35	111	74
		Mar	26	41	88	53

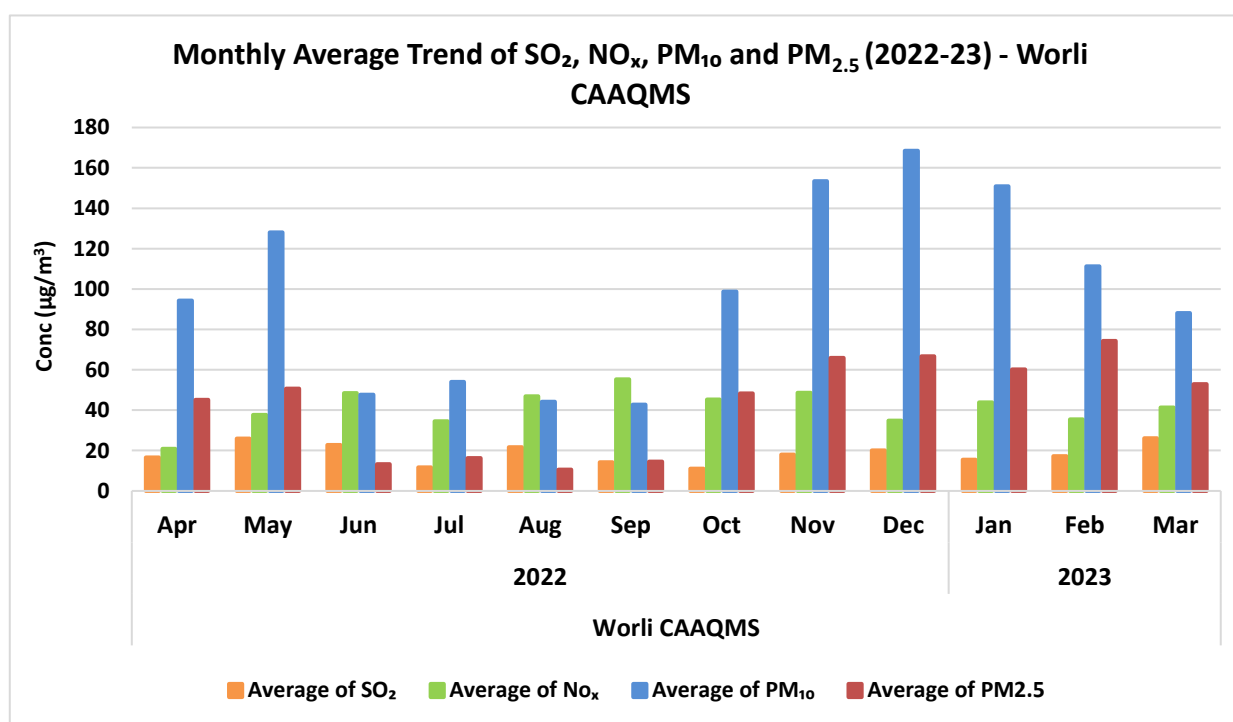


Figure No. 219: Monthly average concentration recorded at Worli CAAQMS

Table No. 183: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Worli CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Worli CAAQMS	18-19	-	-	-	-
	19-20	7	35	90	26
	20-21	14	31	84	43
	21-22	20	30	95	42
	22-23	18	41	99	43

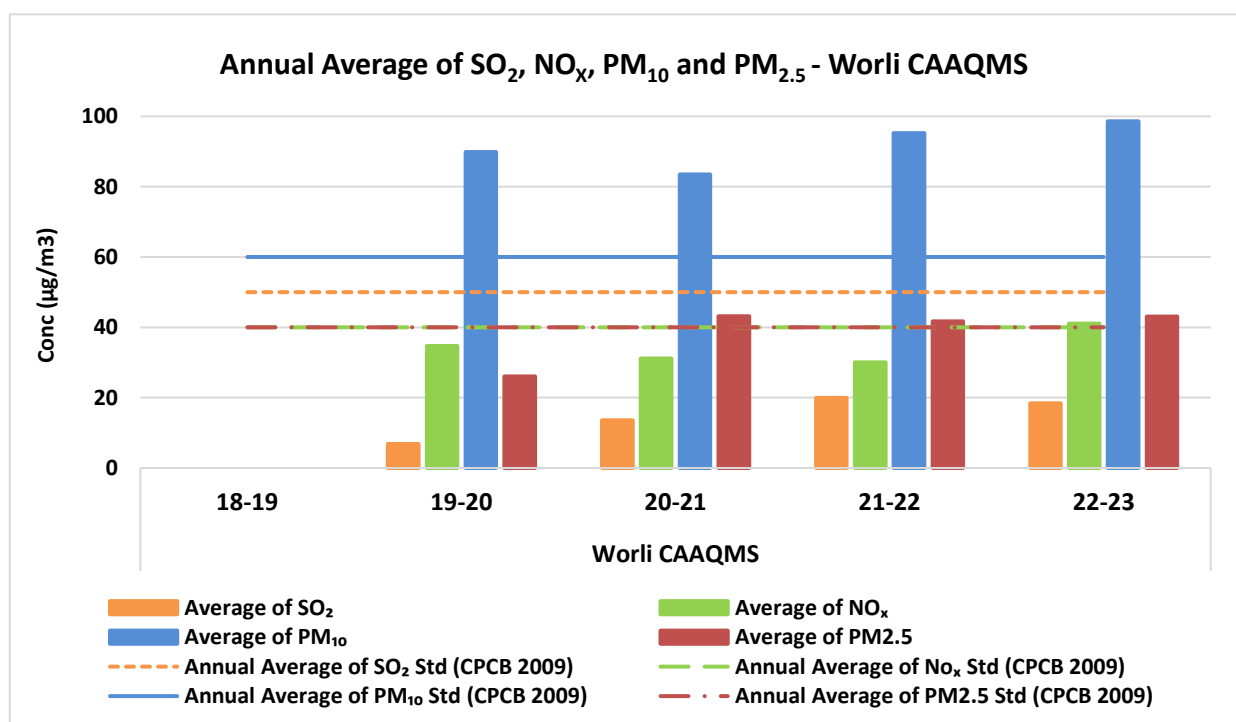
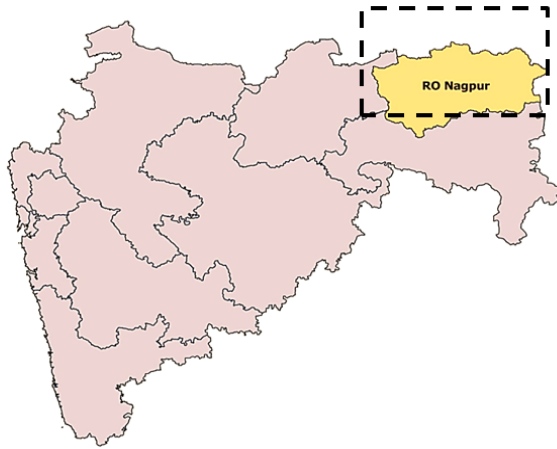
Figure No. 220: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Worli CAAQMS

Table No. 184: Percentage exceedance of pollutants at Mumbai RO

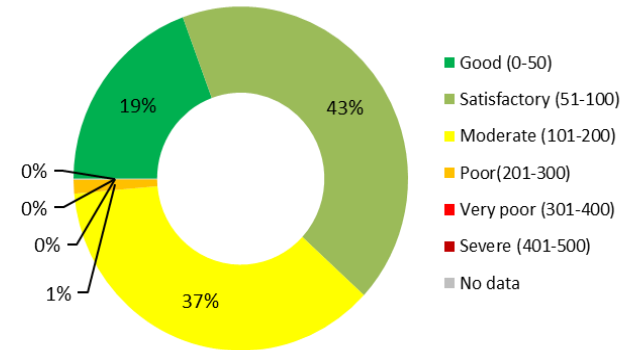
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Airport CAAQMS	347	355	365	363	0	284	238	83	0	80	65	23
Bandra CAAQMS	360	358	365	364	0	119	198	137	0	33	54	38
BKC CAAQMS	240	241	242	242	0	143	158	133	0	59	65	55
Borivali CAAQMS	359	353	361	362	0	0	133	54	0	0	37	15
Chembur CAAQMS	239	242	242	242	0	42	154	137	0	17	64	57
Colaba CAAQMS	359	362	365	363	0	54	172	115	0	15	47	32
Kandivali East CAAQMS	345	357	365	359	0	20	151	110	0	6	41	31
Kurla East CAAQMS	364	360	364	364	0	120	251	102	0	33	69	28
Malad CAAQMS	235	230	237	228	0	61	139	120	0	27	59	53
Manual Sion	86	120	140	0	0	0	6	0	0	0	4	0
Mulund East CAAQMS	365	348	364	364	0	0	187	106	0	0	51	29
Powai IIT CAAQMS	333	360	364	365	0	0	153	122	0	0	42	33
Sion East CAAQMS	316	364	365	363	0	144	171	135	0	40	47	37
Vile-Parle CAAQMS	365	353	365	365	0	74	201	144	0	21	55	39
Worli CAAQMS	358	351	363	364	0	0	151	117	0	0	42	32

CITIES /AREAS UNDER NAGPUR RO

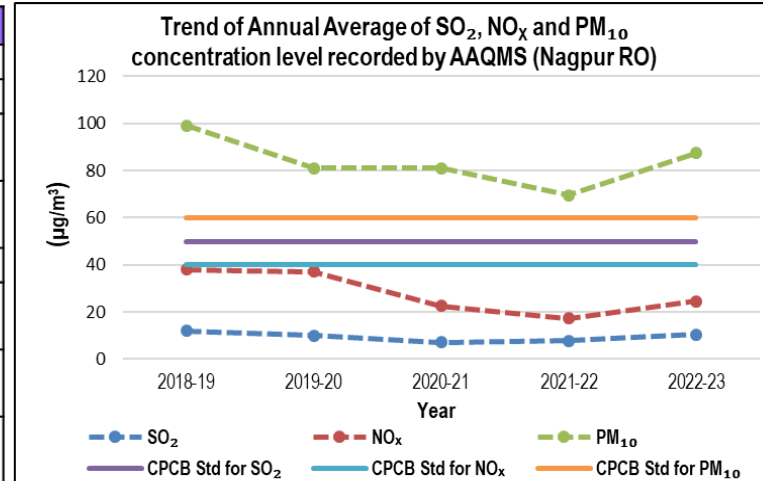
NAGPUR RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Nagpur RO)



Sr No.	Station Name	Sr No.	Station Name
1	DIC	9	Nagpur CAAQMS
2	DMIETR	10	Nagpur LIT
3	Govt. Polytechnic, Sadar, Nagpur	11	Nagpur Town Hall
4	Institution of Engineers Nagpur	12	Nagpur Visve
5	MIDC	13	NMD College, Gondia
6	MIDC Office Hingana Road Nagpur	14	Shri Sant Gajanan Seva Samiti
7	MIET Gondia	15	SS Girls College, Gondia
8	MPCB Office Premises, Civil Lines	16	Water Treatment Facility, Kamptee





NAGPUR CAAQMS



NAGPUR LIT CAAQMS



NAGPUR TOWN HALL CAAQMS



VNIT NAGPUR CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

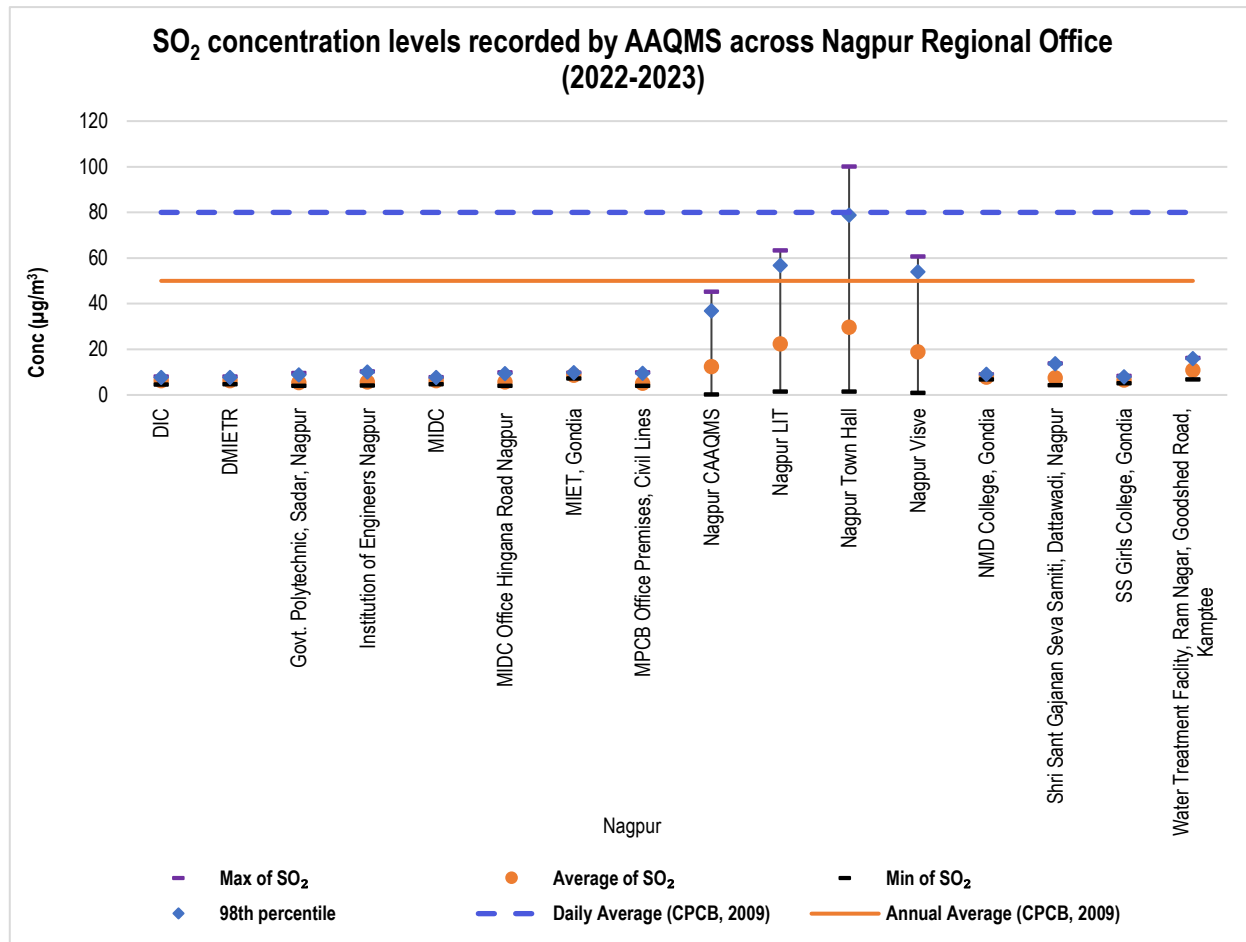


Figure No. 221: Parametric values of SO₂ concentrations recorded by AAQMS across Nagpur RO (2022-2023)

During the year 2022-23, all air quality monitoring stations installed in the areas under the jurisdiction of the Nagpur RO have recorded annual average SO₂ concentration level within the permissible limit (50 µg/m³). The annual average range of this level was found to be in between 5.05 µg/m³ -29.62 µg/m³. The highest annual average concentration level was recorded at Nagpur Town Hall AAQMS location (29.6 µg/m³) followed by Nagpur LIT AAQMS (22.40 µg/m³).

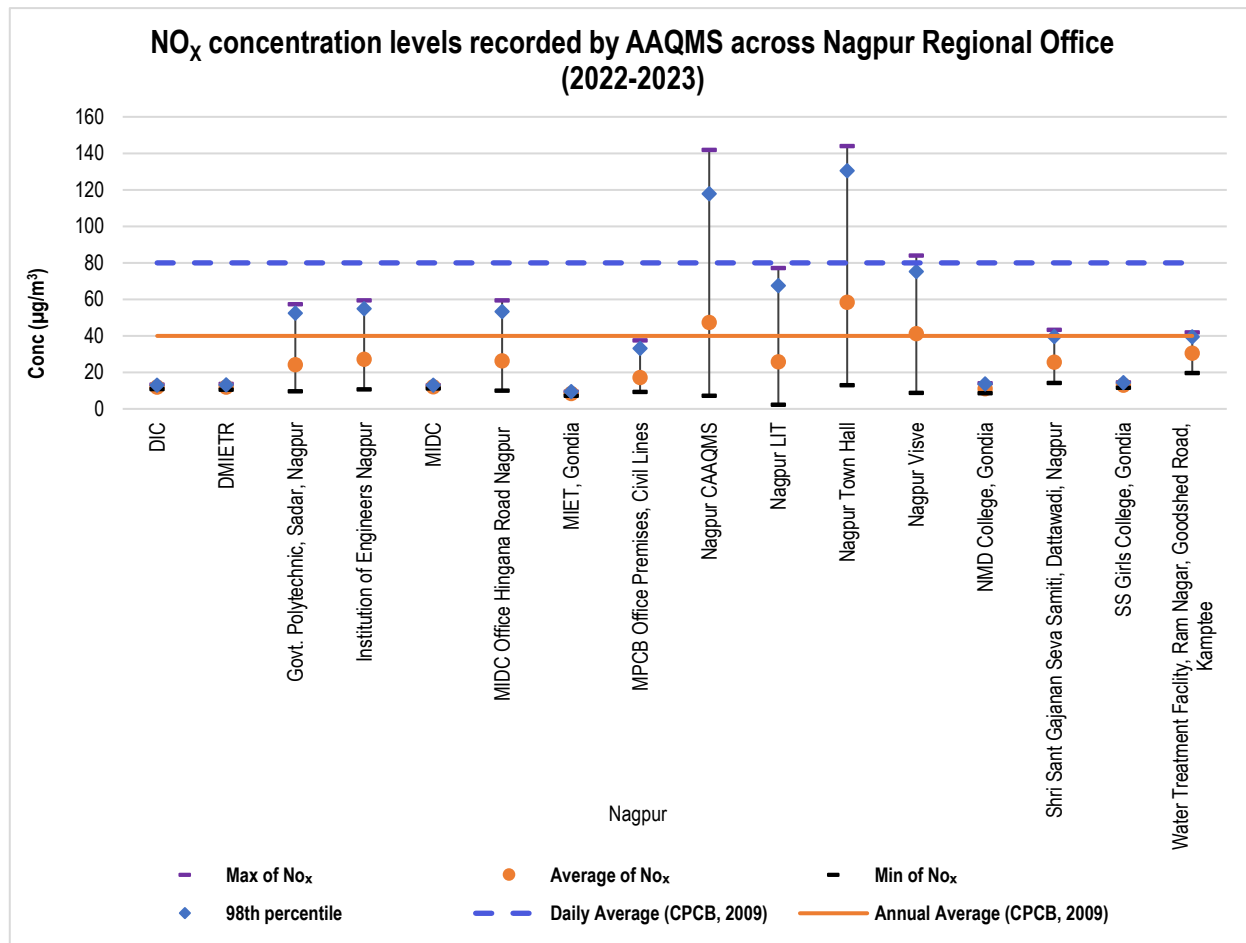
NO_x

Figure No. 222: Parametric values of NO_x concentrations recorded by AAQMS across Nagpur RO (2022-2023)

Out of 16 monitoring stations installed in the areas under the jurisdiction of Nagpur RO, 3 stations namely Nagpur Town Hall CAAQMS (58.39 µg/m³), Nagpur CAAQMS (47.29 µg/m³) and Nagpur Visve CAAQMS (41.19 µg/m³) have recorded the annual average NO_x concentration levels which were found to be higher than the standard limit for the annual average concentration (40 µg/m³). The levels recorded by the rest of the stations were found to be within the prescribed limit. Amongst these stations, the lowest annual average concentration level was recorded by MIET Gondia AAQMS (8.50 µg/m³).

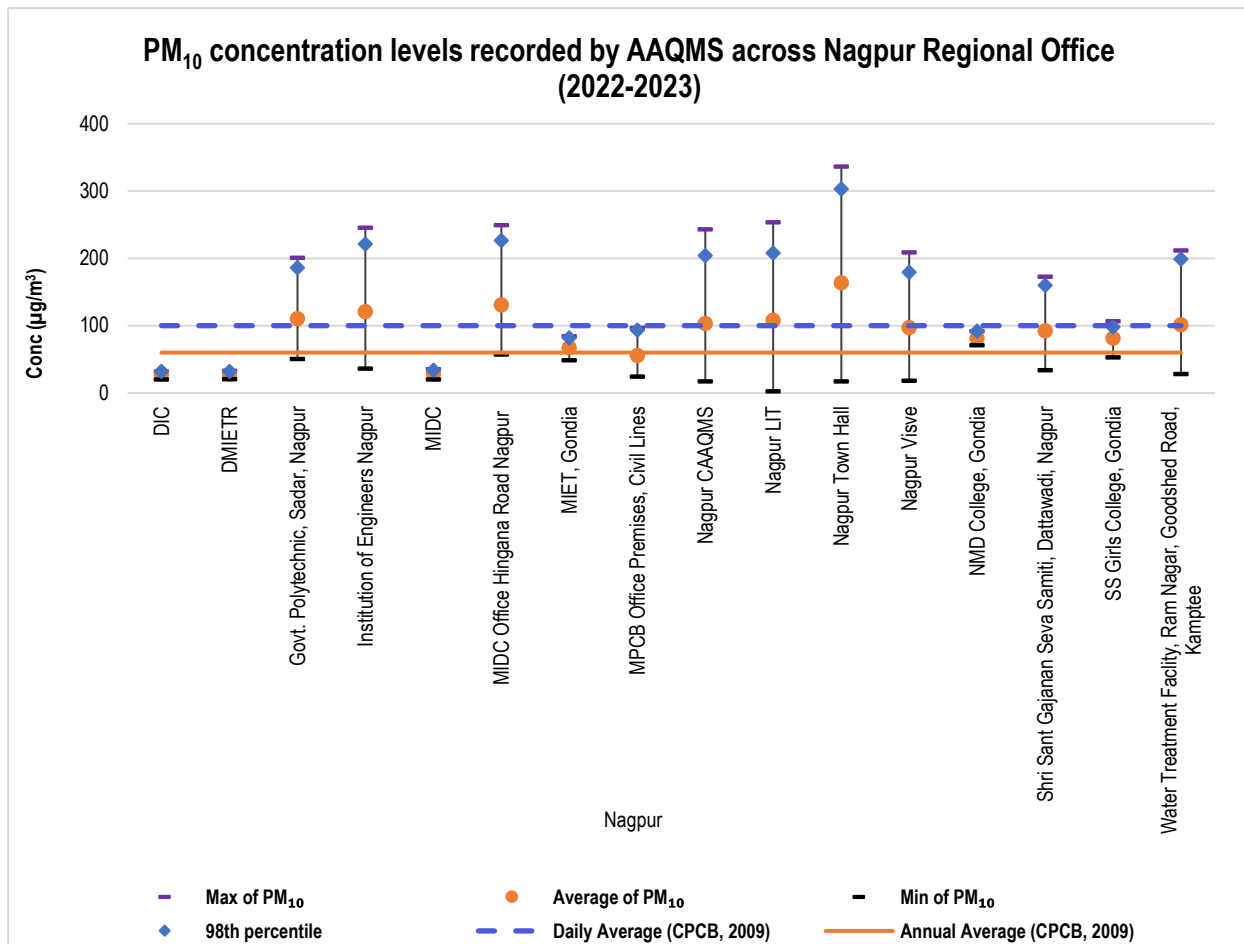
PM₁₀

Figure No. 223: Parametric values of PM₁₀ concentrations recorded by AAQMS across Nagpur RO (2022-2023)

During the year 2022-23, the monitoring stations installed in the areas under the jurisdiction of the Nagpur RO recorded data of PM₁₀ levels. Among these monitoring stations, Nagpur Town Hall CAAQMS (163.60 µg/m³) recorded the highest annual average PM₁₀ concentration level followed by levels recorded by the AAQMS installed at the MIDC Office Hingana Road Nagpur (131.05 µg/m³) and Institution of Engineers Nagpur (120.98 µg/m³) location.

Out of 16 monitoring stations, only 4 stations namely installed at DIC (28.10 µg/m³), DMIETR (27.60 µg/m³), MIDC (28.50 µg/m³) and MPCB Office Premises - Civil Lines (55.90 µg/m³) have recorded annual average concentration levels which were within the prescribed limit set by CPCB.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Nagpur RO

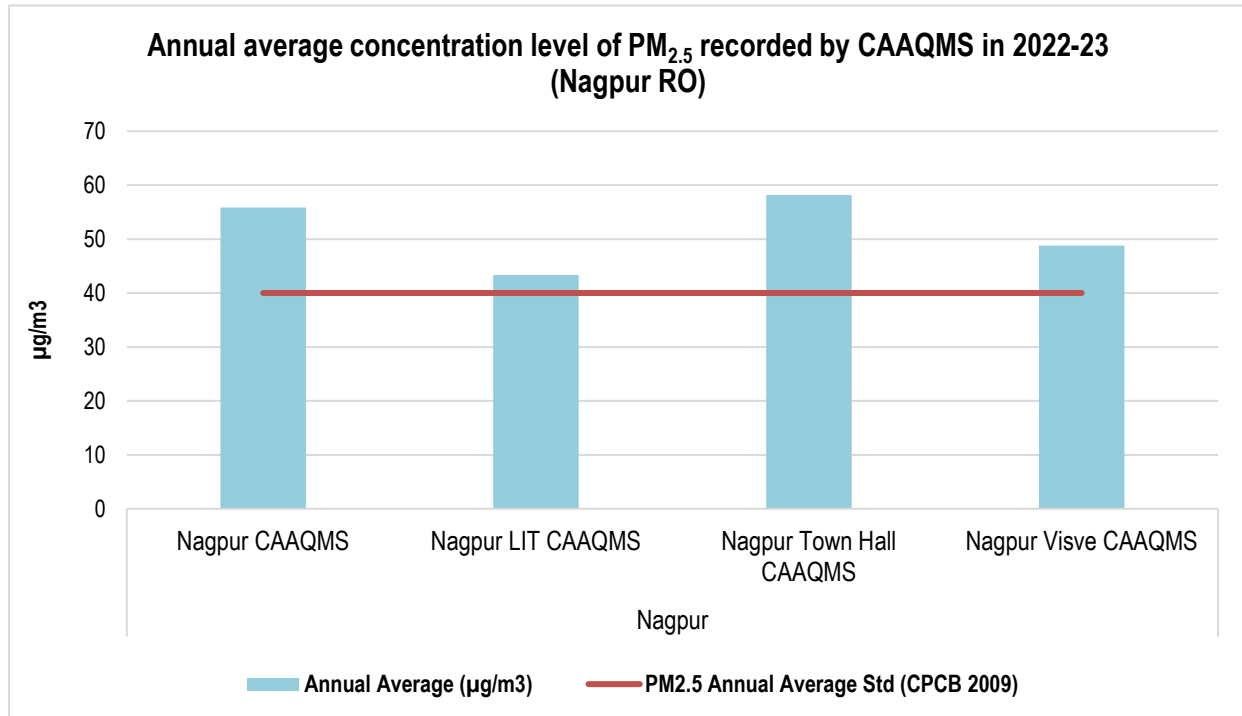


Figure No. 224: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (ug/m³) installed in the areas under the jurisdiction of Nagpur RO 2022-23

In the year 2022-23, all 4 CAAQMS installed in the areas under the jurisdiction of Nagpur RO has witnessed annual average PM_{2.5} concentration levels higher than the annual permissible limit (40 ug/m³). Out of these 4 CAAQMS, the highest annual average concentration level was recorded by Nagpur Town Hall CAAQMS (58.14 ug/m³), followed by Nagpur CAAQMS (55.86 ug/m³), Nagpur Visve CAAQMS (48.81 ug/m³) and Nagpur LIT CAAQMS (43.33 ug/m³).

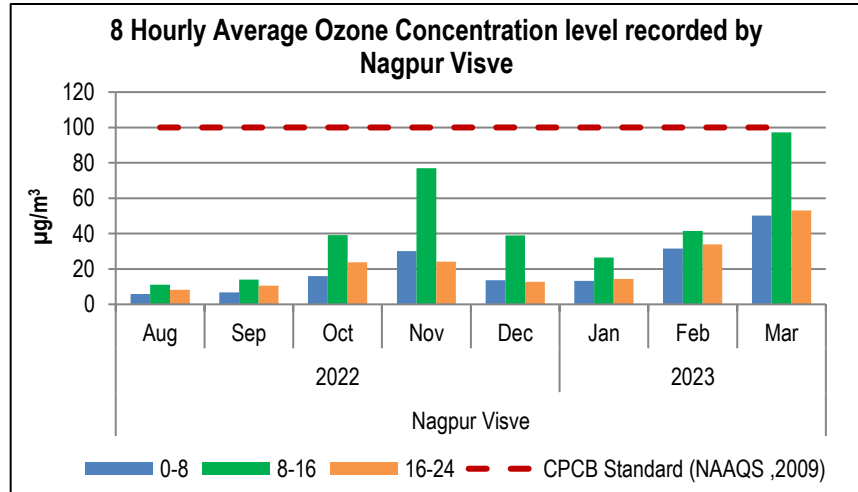
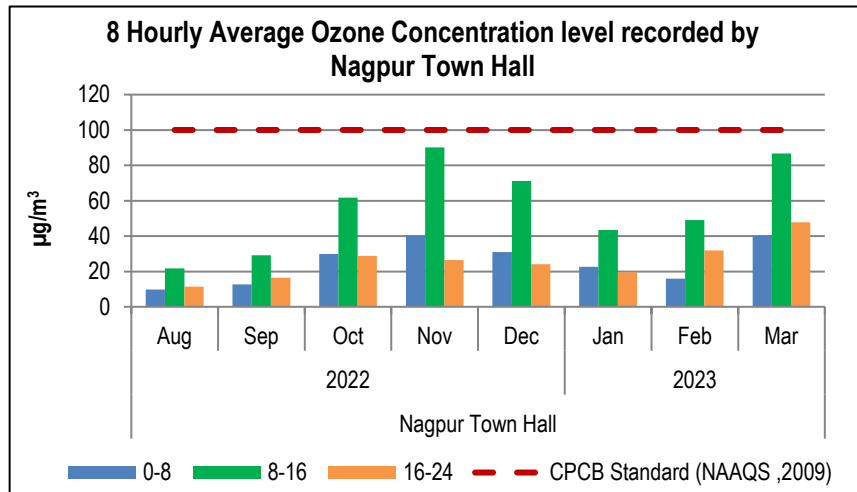
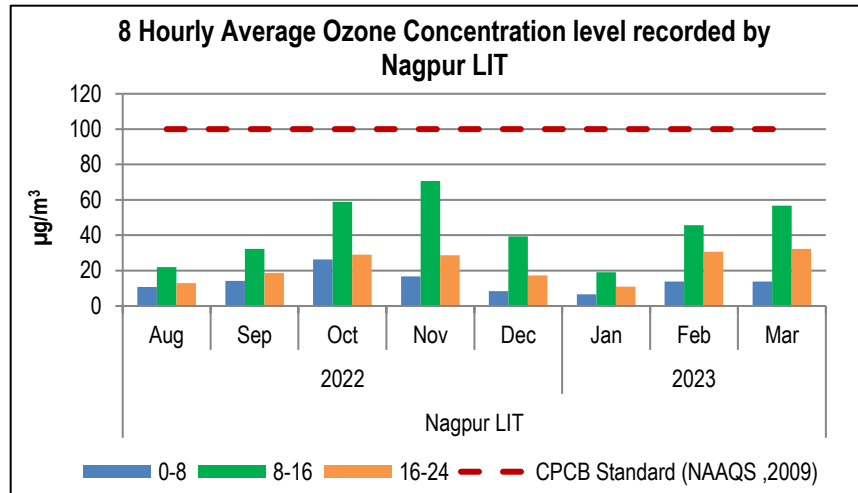
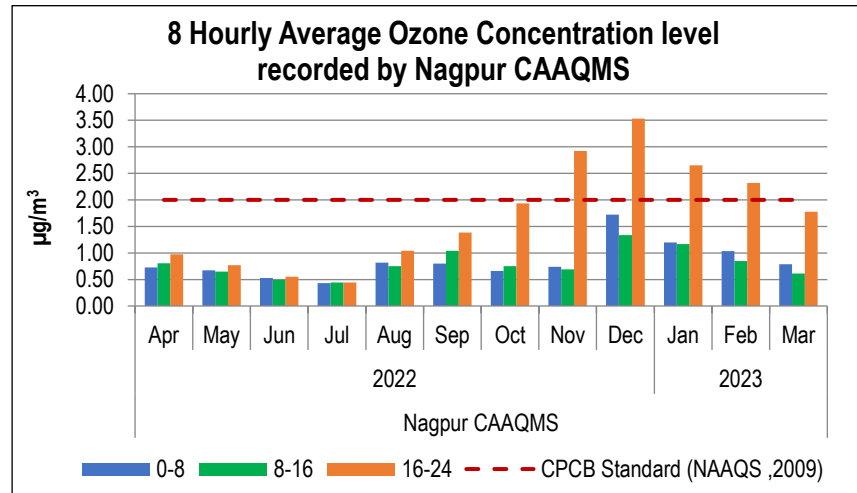
Ozone (O_3)

Figure No. 225 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Nagpur RO

Carbon Monoxide (CO)

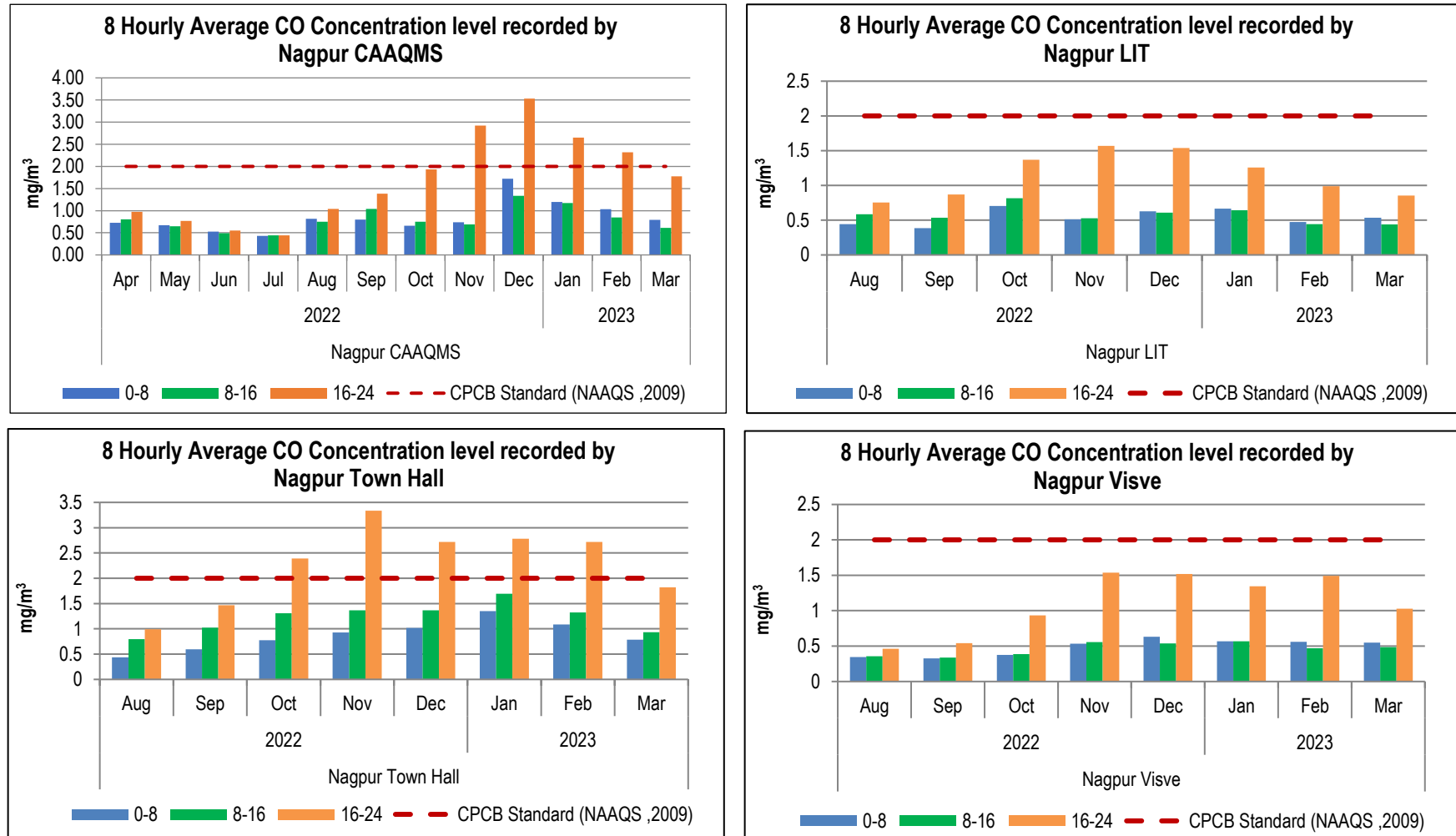


Figure No. 226 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Nagpur RO

Benzene

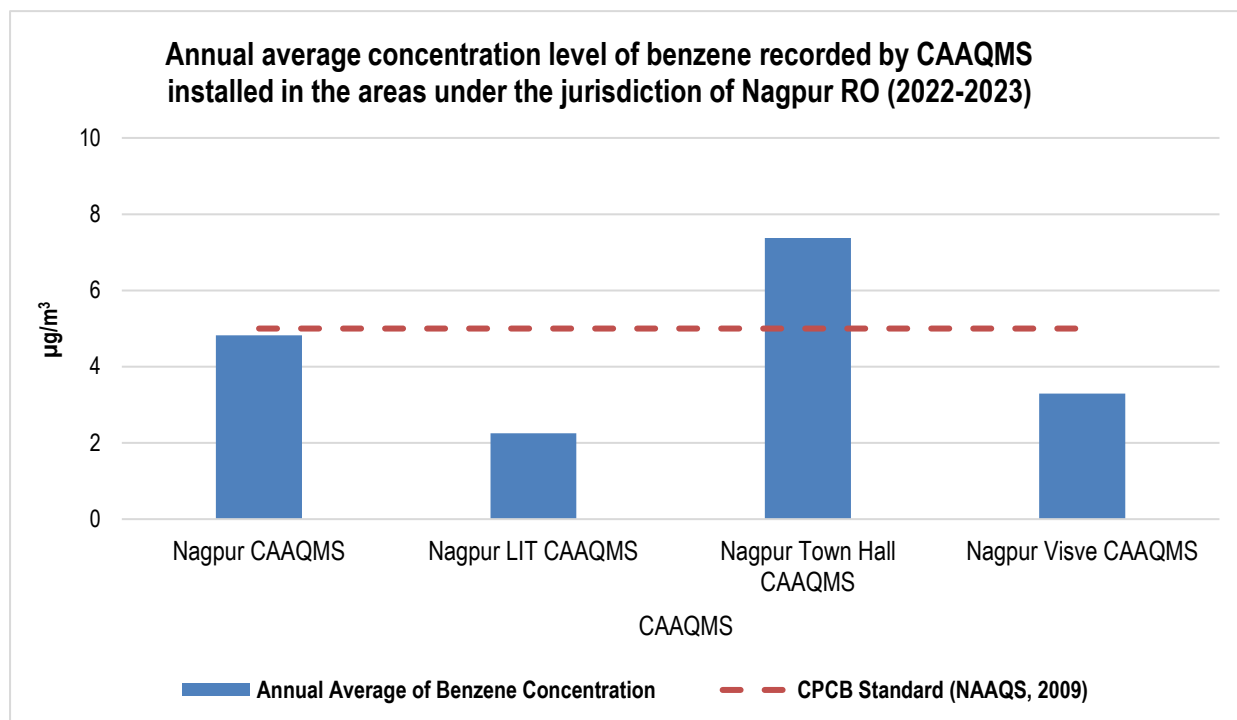


Figure No. 227: Annual average of benzene concentration recorded by CAAQMS installed in the areas under the jurisdiction of Nagpur RO (2022-23)

The highest annual average benzene concentration level was recorded by Nagpur Town Hall CAAQMS ($7.37 \mu\text{g}/\text{m}^3$) which is higher than the standard limit. The other 3 CAAQMS namely Nagpur CAAQMS ($4.82 \mu\text{g}/\text{m}^3$), Nagpur Visve CAAQMS ($3.29 \mu\text{g}/\text{m}^3$) and Nagpur LIT CAAQMS ($2.25 \mu\text{g}/\text{m}^3$) recorded levels within the limit.

AQI percentage occurrence graphs - Nagpur RO

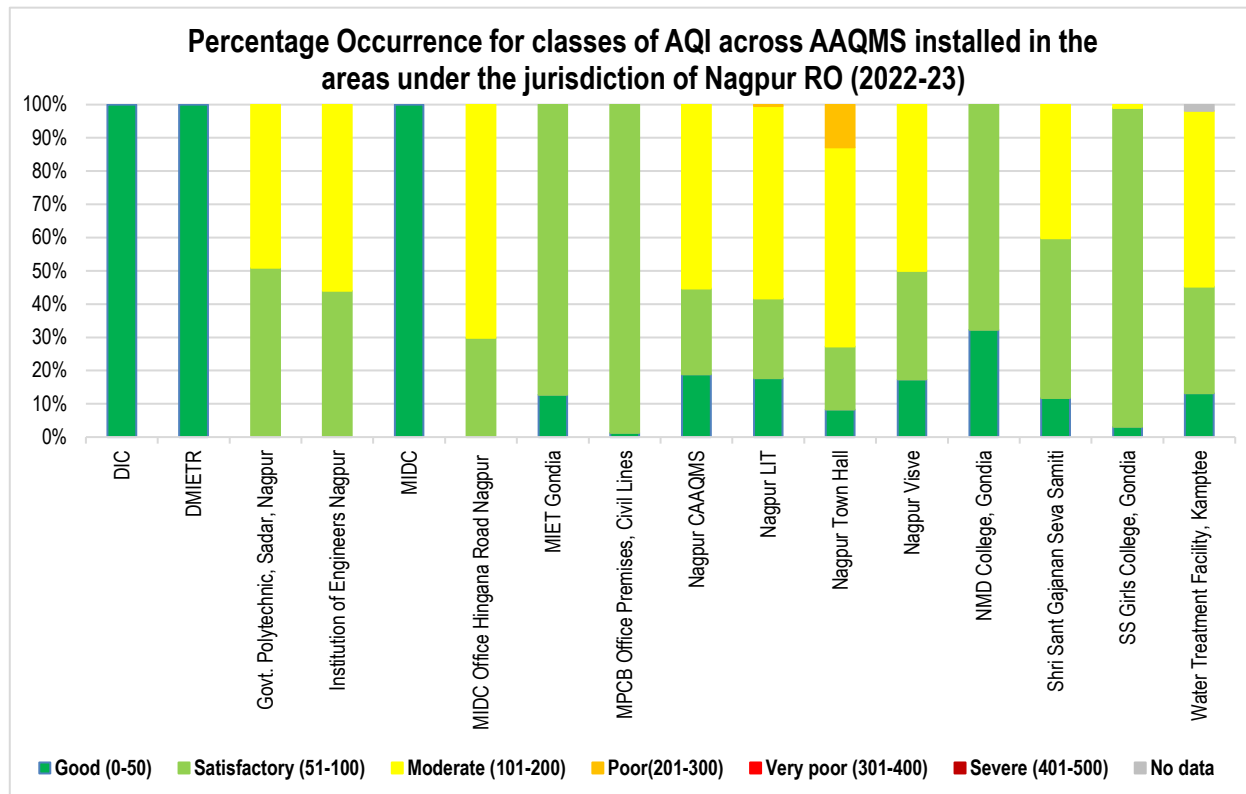


Figure No. 228: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Nagpur RO (2022-23)

Out of 16 AAQMS installed in the areas coming under the jurisdiction of Nagpur RO, 6 AAQMS are observed to be coming under the 'Non-Polluted' category as the majority of the AQI observations recorded by these monitoring stations were recorded either under the 'Good' or 'Satisfactory' AQI categories. Amongst these, AAQMS installed at DIC, DMIETR and MIDC noted 100% observations under in the 'Good' AQI category. The highest share of 'Moderate' AQI category observations were recorded by MIDC Office Hingana Road Nagpur (70.09%) followed by Nagpur Town Hall CAAQMS (59.92%) and Nagpur LIT CAAQMS (57.85%). The 'Poor' category observations were recorded by Nagpur Town Hall CAAQMS (12.81%) and Nagpur LIT CAAQMS (0.41%).

Monthly and Annual Graphs

DIC

Table No. 185: Data for Monthly average concentration recorded at DIC

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
DIC	2022	Apr	6	12	28
		May	6	12	31
		Jun	5	11	26
		Jul	5	11	23
		Aug	6	12	27
		Sep	6	12	26
		Oct	6	12	27
		Nov	7	12	30
		Dec	7	12	31
	2023	Jan	7	13	32
		Feb	7	13	32
		Mar	7	13	31

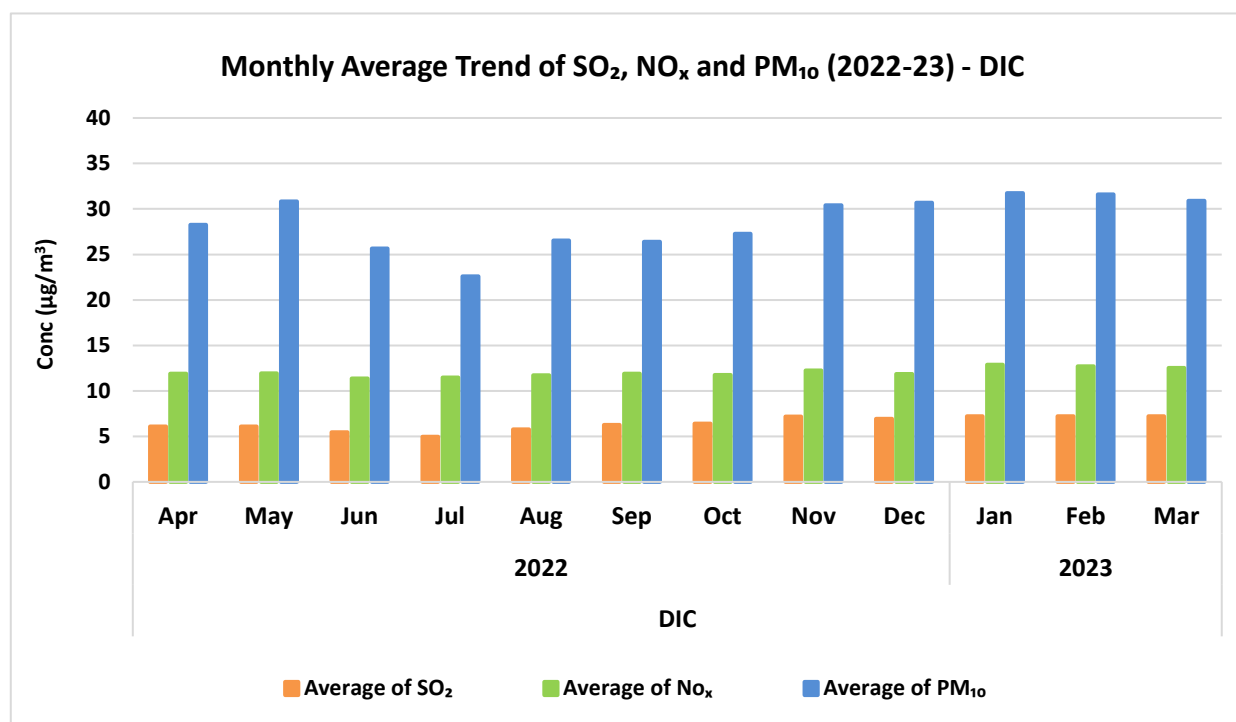
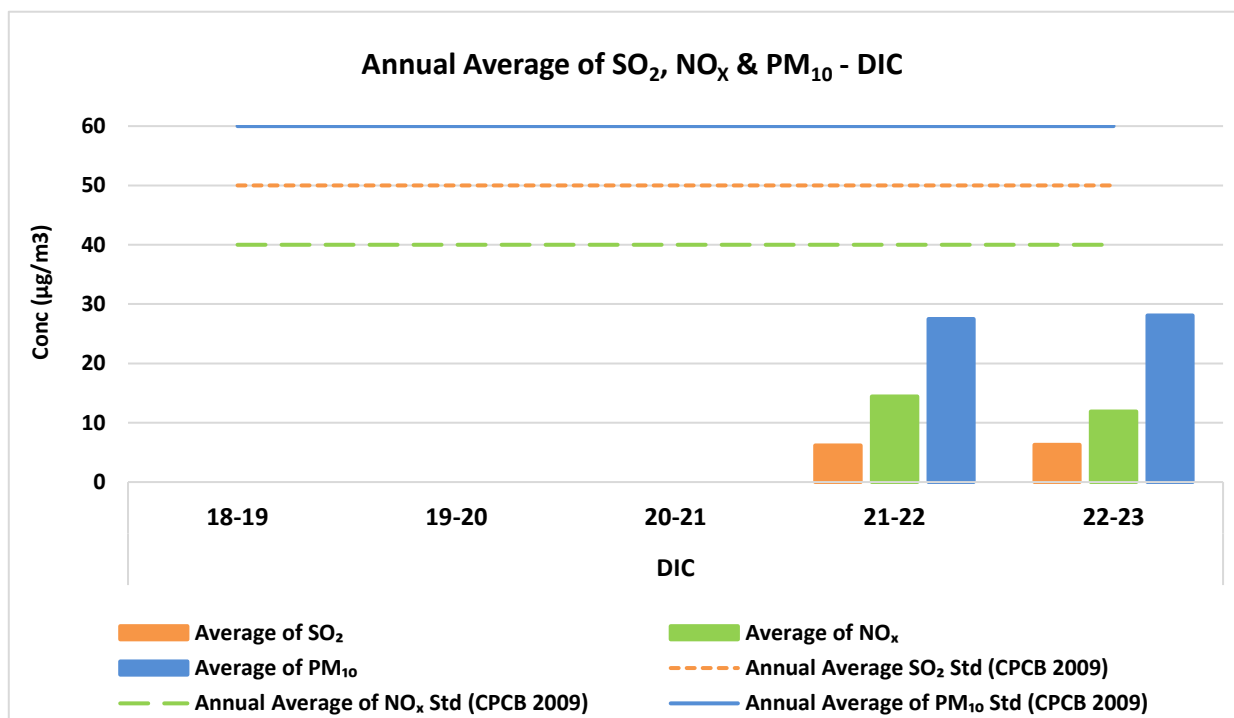


Figure No. 229: Monthly average concentration recorded at DIC

Table No. 186: Data for Annual average trend of SO₂, NO_x and PM₁₀ at DIC

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
DIC	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	6	14	27
	22-23	6	12	28

Figure No. 230: Annual average trend of SO₂, NO_x and PM₁₀ at DIC

DMIETR

Table No. 187: Data for Monthly average concentration recorded at DMIETR

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
DMIETR	2022	Apr	6	12	27	-
		May	6	12	27	-
		Jun	5	12	25	-
		Jul	5	11	23	-
		Aug	6	12	26	25
		Sep	6	12	26	-
		Oct	6	12	28	-
		Nov	7	12	30	-
		Dec	7	12	31	38
	2023	Jan	7	13	31	44
		Feb	7	13	31	-
		Mar	7	13	30	33

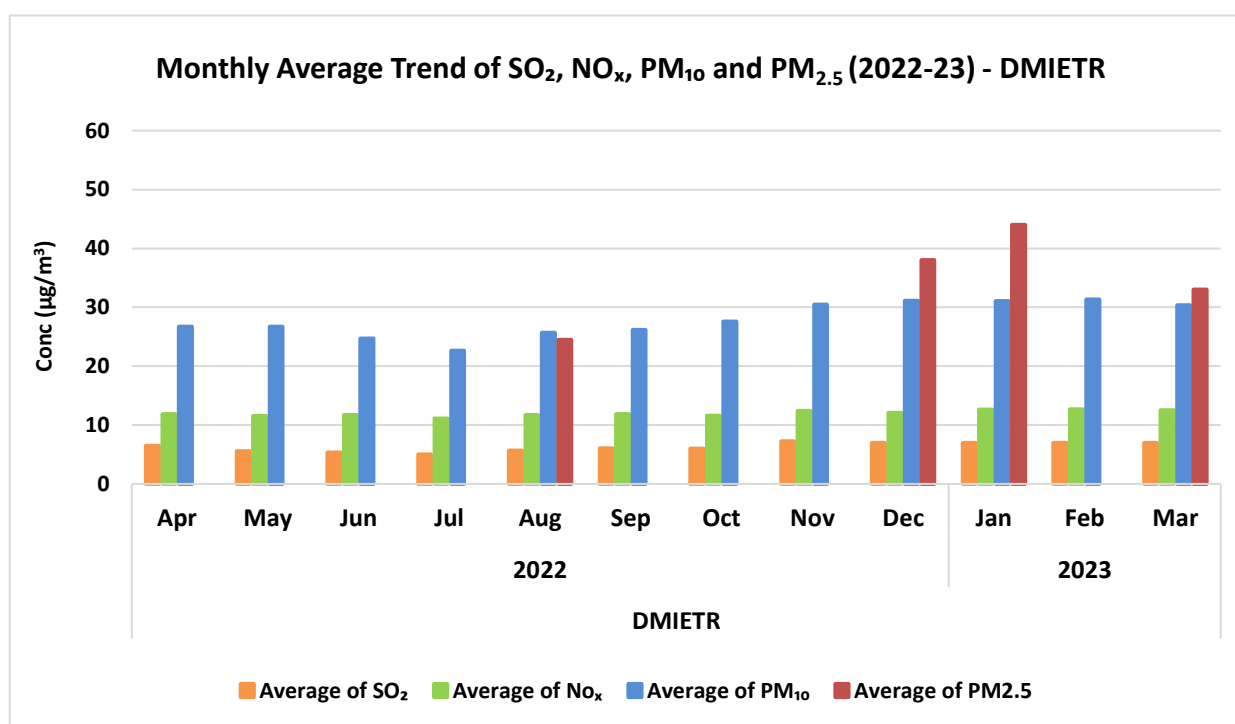
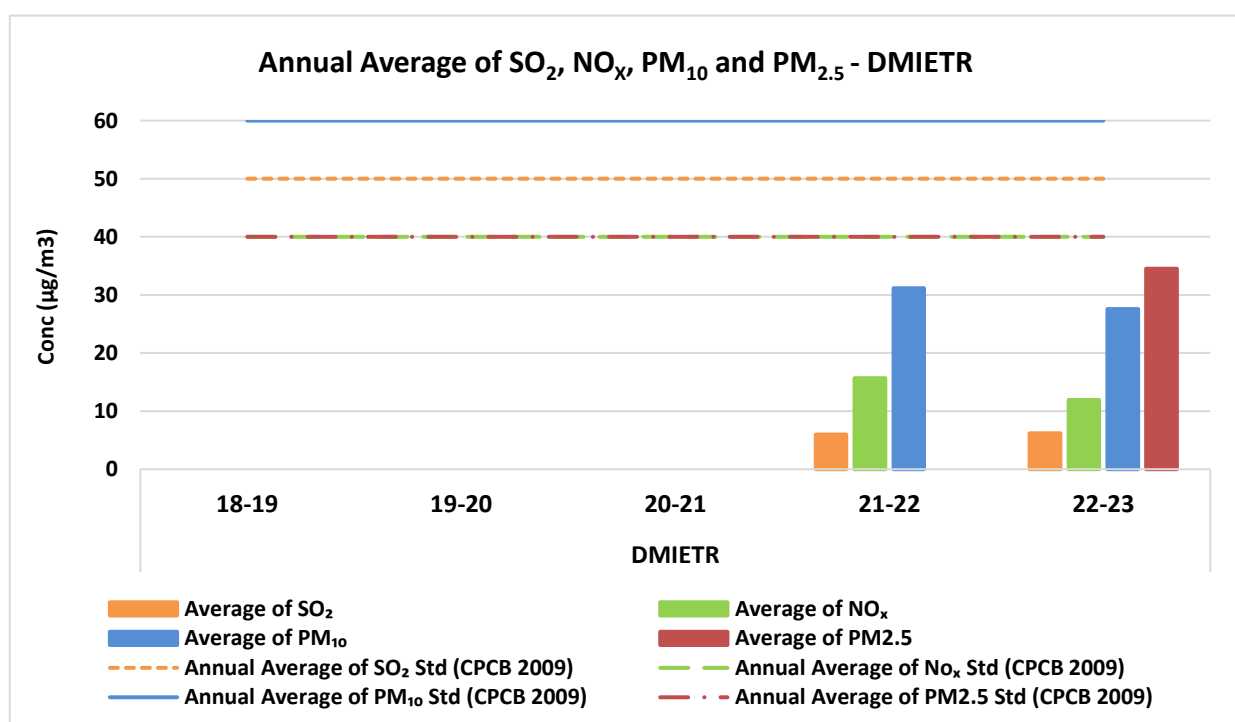


Figure No. 231: Monthly average concentration recorded at DMIETR

Table No. 188: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at DMIETR

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
DMIETR	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	6	16	31	-
	22-23	6	12	28	35

Figure No. 232: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at DMIETR

Govt. Polytechnic, Sadar, Nagpur

Table No. 189: Data for Monthly average concentration recorded at Govt. Polytechnic, Sadar, Nagpur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Govt. Polytechnic, Sadar, Nagpur	2022	Apr	5	13	85
		May	5	15	86
		Jun	5	13	81
		Jul	5	16	70
		Aug	5	13	95
		Sep	5	16	95
		Oct	6	37	137
		Nov	7	31	143
		Dec	7	34	133
	2023	Jan	6	29	145
		Feb	6	36	127
		Mar	6	27	112

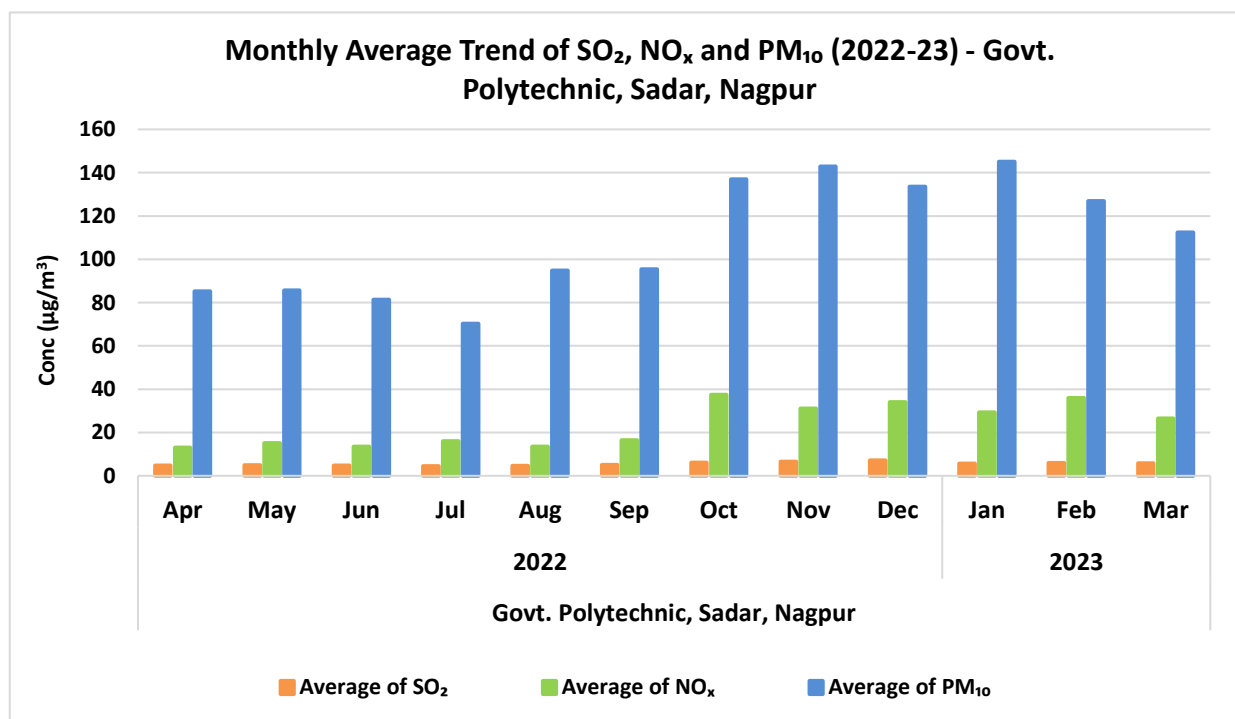
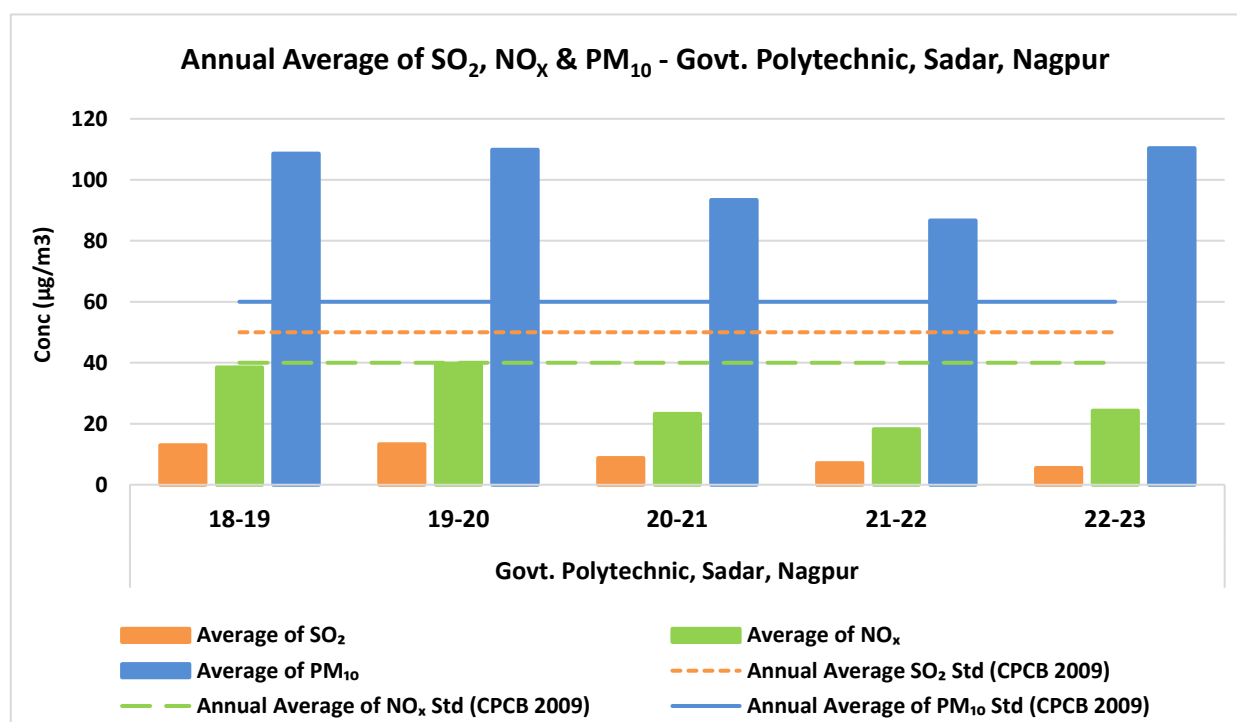


Figure No. 233: Monthly average concentration recorded at Govt. Polytechnic, Sadar, Nagpur

Table No. 190: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Govt. Polytechnic, Sadar, Nagpur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Govt. Polytechnic, Sadar, Nagpur	18-19	13	38	109
	19-20	13	40	110
	20-21	9	23	93
	21-22	7	18	87
	22-23	5	24	110

Figure No. 234: Annual average trend of SO₂, NO_x and PM₁₀ at Govt. Polytechnic, Sadar, Nagpur

Institution of Engineers Nagpur

Table No. 191: Data for Monthly average concentration recorded at Institution of Engineers Nagpur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Institution of Engineers Nagpur	2022	Apr	5	15	88
		May	5	16	84
		Jun	5	14	84
		Jul	4	17	62
		Aug	5	15	114
		Sep	5	19	117
		Oct	6	39	148
		Nov	6	37	152
		Dec	8	37	162
	2023	Jan	6	35	171
		Feb	7	37	145
		Mar	6	33	110

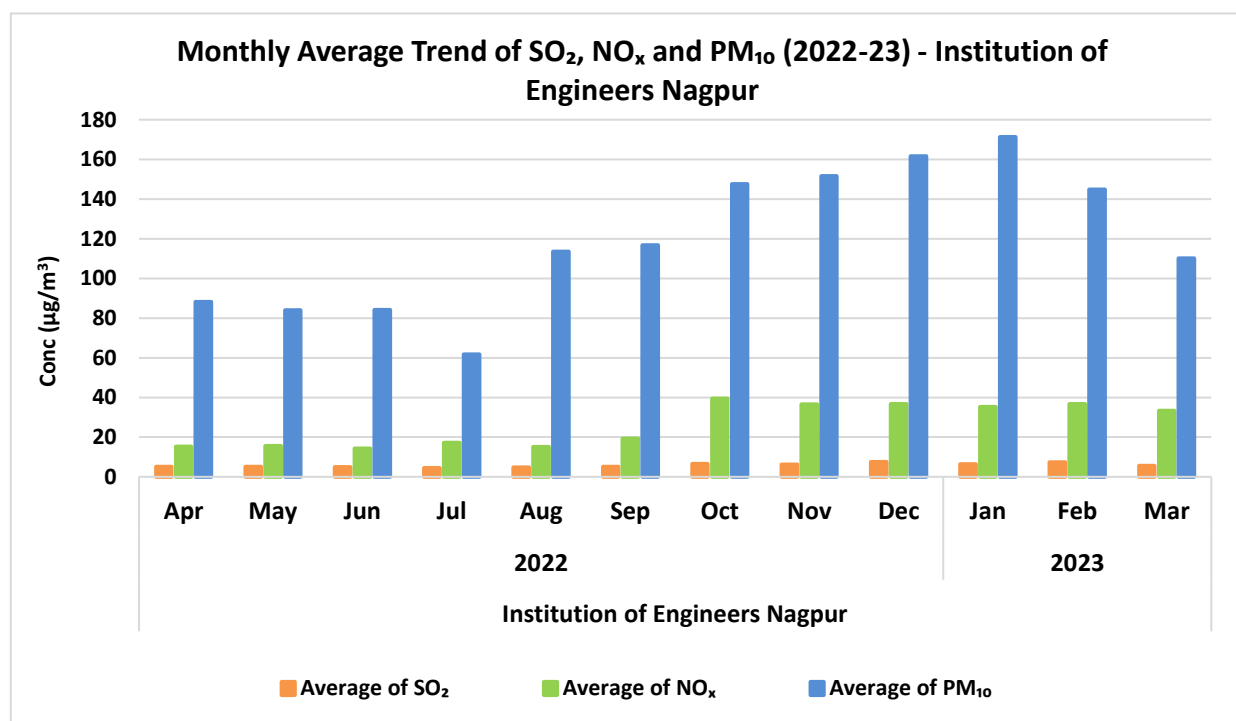
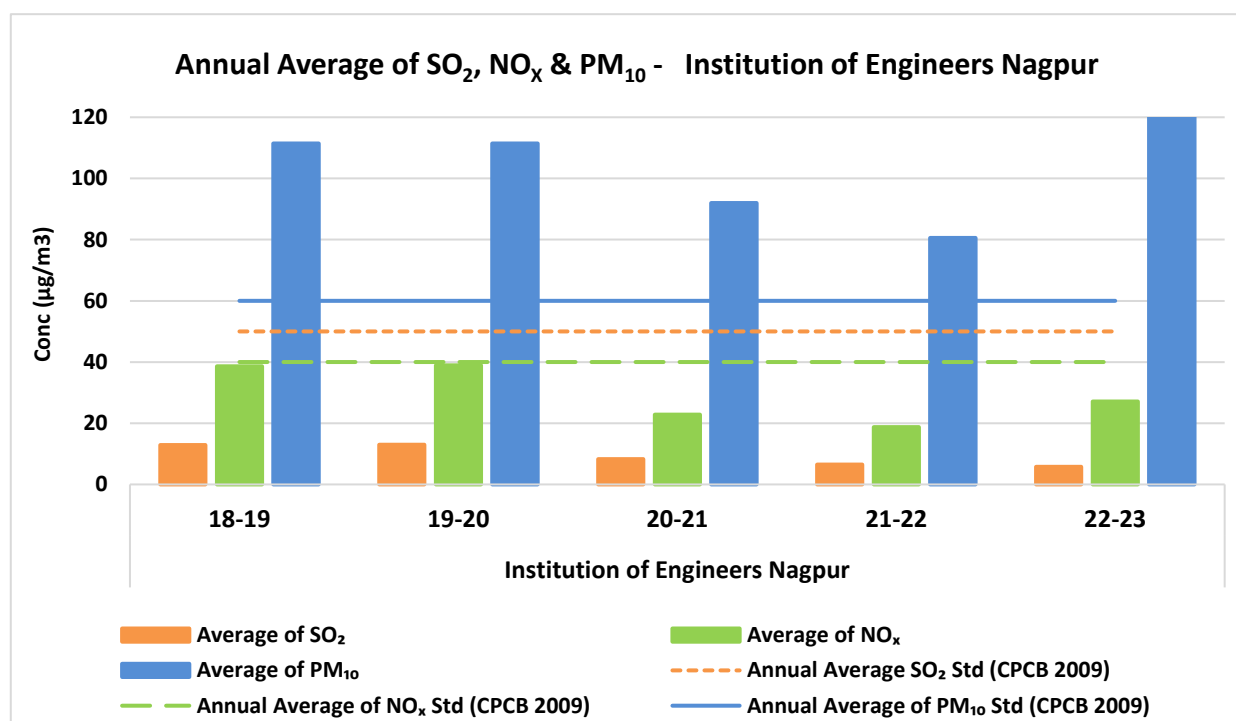


Figure No. 235: Monthly average concentration recorded at Institution of Engineers Nagpur

Table No. 192: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Institution of Engineers Nagpur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Institution of Engineers Nagpur	18-19	13	39	111
	19-20	13	39	111
	20-21	8	23	92
	21-22	6	19	81
	22-23	6	27	121

Figure No. 236: Annual average trend of SO₂, NO_x and PM₁₀ at Institution of Engineers Nagpur

MIDC

Table No. 193: Data for Monthly average concentration recorded at MIDC

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC	2022	Apr	6	12	31
		May	6	12	29
		Jun	5	12	24
		Jul	5	11	21
		Aug	6	12	25
		Sep	6	12	26
		Nov	7	12	31
		Dec	7	12	31
	2023	Jan	7	13	31
		Feb	7	12	31
		Mar	7	13	30

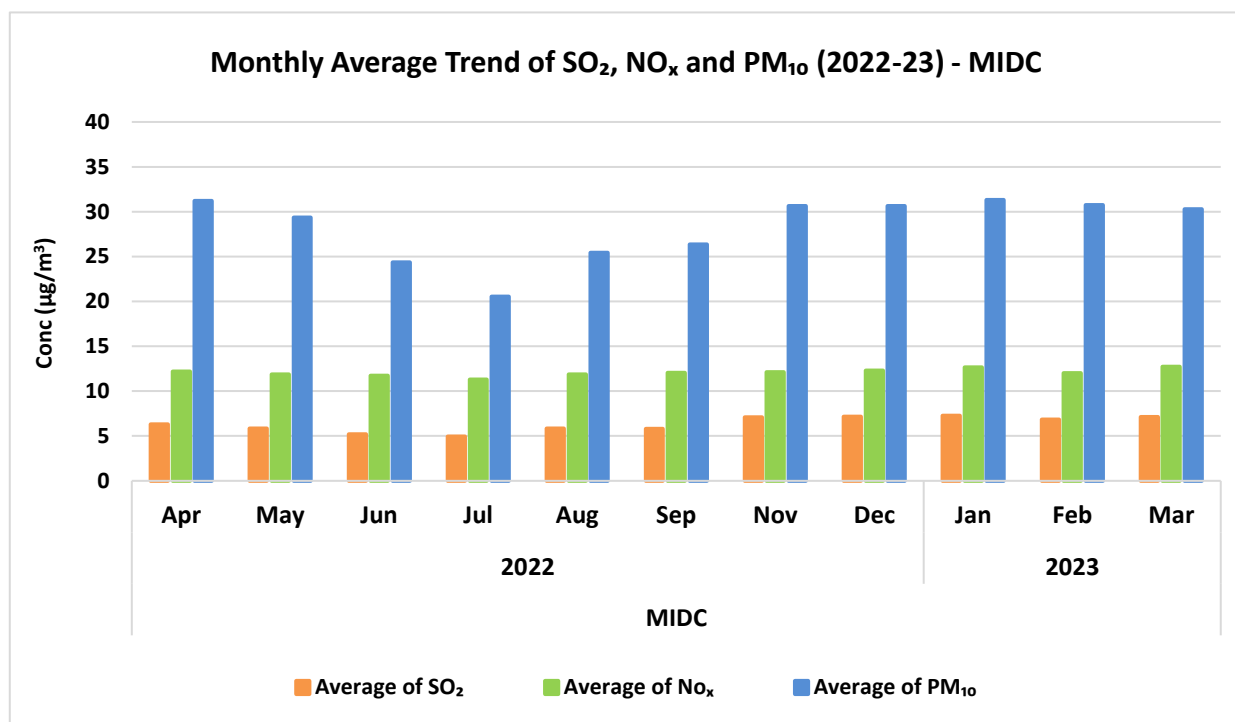
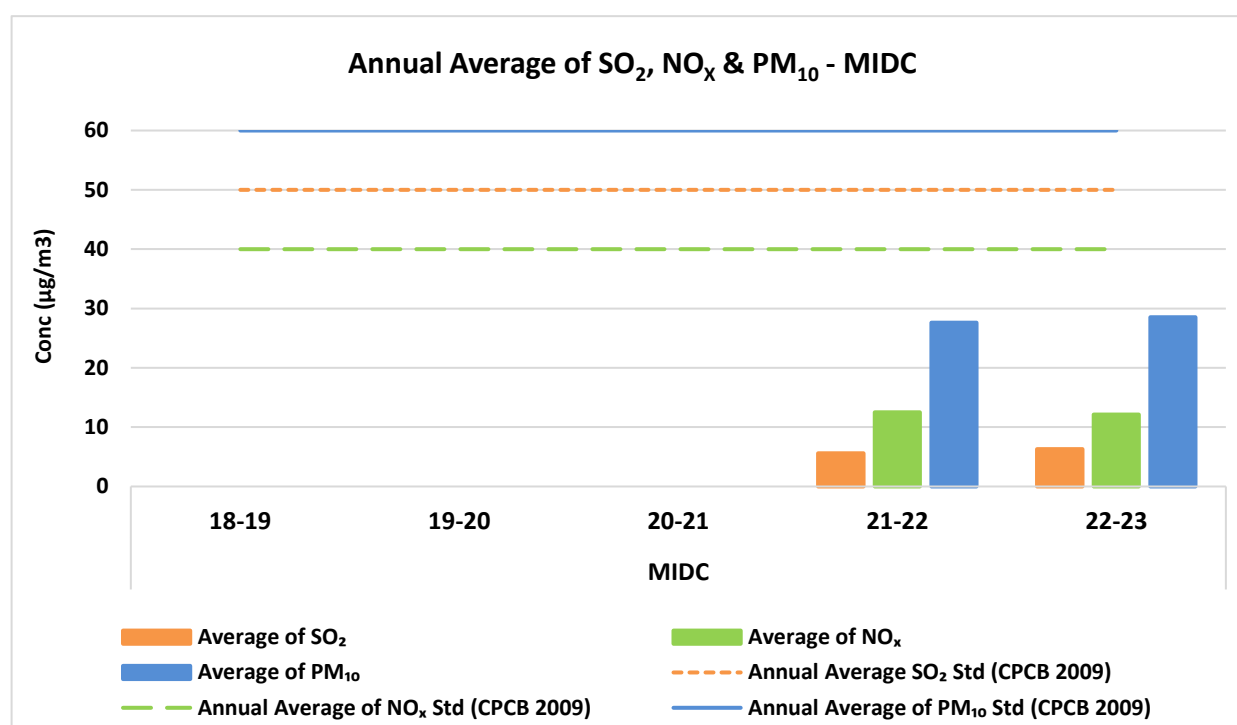


Figure No. 237: Monthly average concentration recorded at MIDC

Table No. 194: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	6	13	28
	22-23	6	12	29

Figure No. 238: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC

MIDC Office Hingana Road, Nagpur

Table No. 195: Data for Monthly average concentration recorded at MIDC Office Hingana Road, Nagpur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Office Hingana Road Nagpur	2022	Apr	5	16	93
		May	5	17	102
		Jun	5	18	91
		Jul	4	16	74
		Aug	5	15	109
		Sep	5	21	116
		Oct	7	38	159
		Nov	7	35	171
		Dec	7	32	149
	2023	Jan	6	35	179
		Feb	7	34	162
		Mar	5	26	131

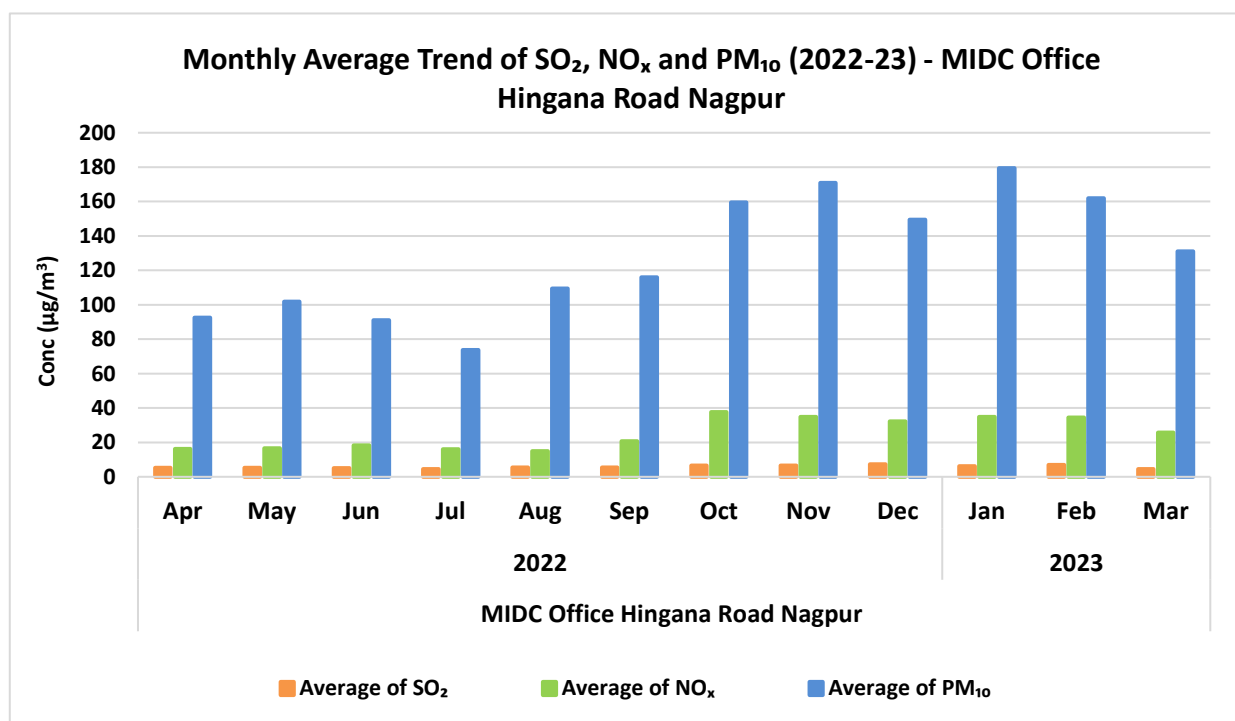
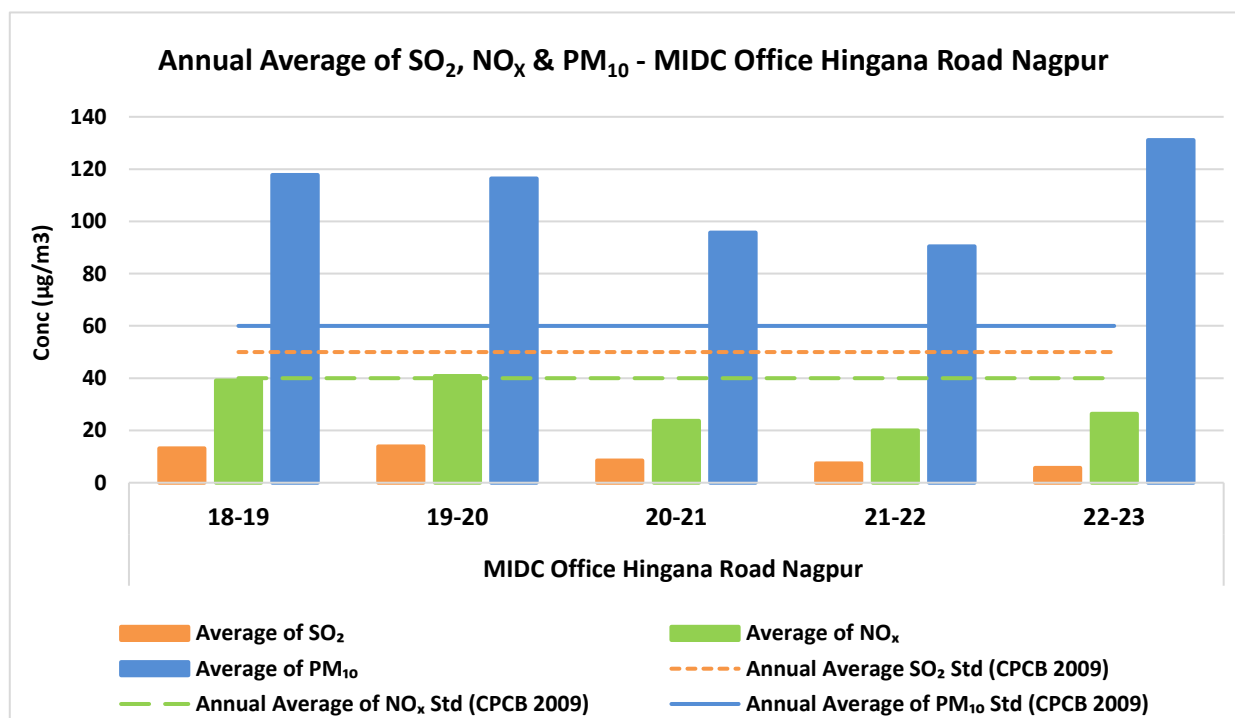


Figure No. 239: Monthly average concentration recorded at MIDC Office Hingana Road, Nagpur

Table No. 196: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office Hingana Road, Nagpur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Office Hingana Road Nagpur	18-19	13	39	118
	19-20	14	41	116
	20-21	9	24	96
	21-22	7	20	90
	22-23	6	26	131

Figure No. 240: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office Hingana Road, Nagpur

MIET, Gondia

Table No. 197: Data for Monthly average concentration recorded at MIET, Gondia

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIET, Gondia	2022	Apr	9	9	78
		May	8	9	63
		Jun	9	9	60
		Jul	9	9	60
		Aug	8	8	66
		Sep	9	9	70
		Oct	8	8	73
		Nov	9	8	73
	2023	Feb	8	8	76
		Mar	-	9	71

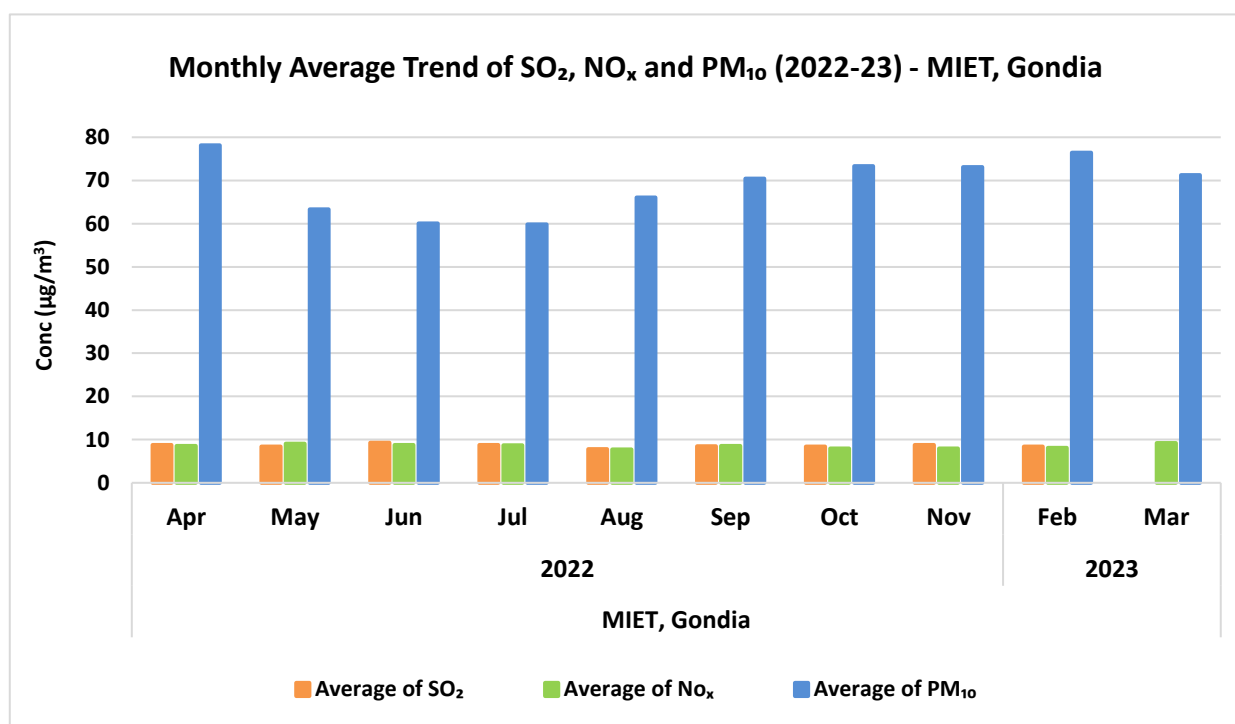
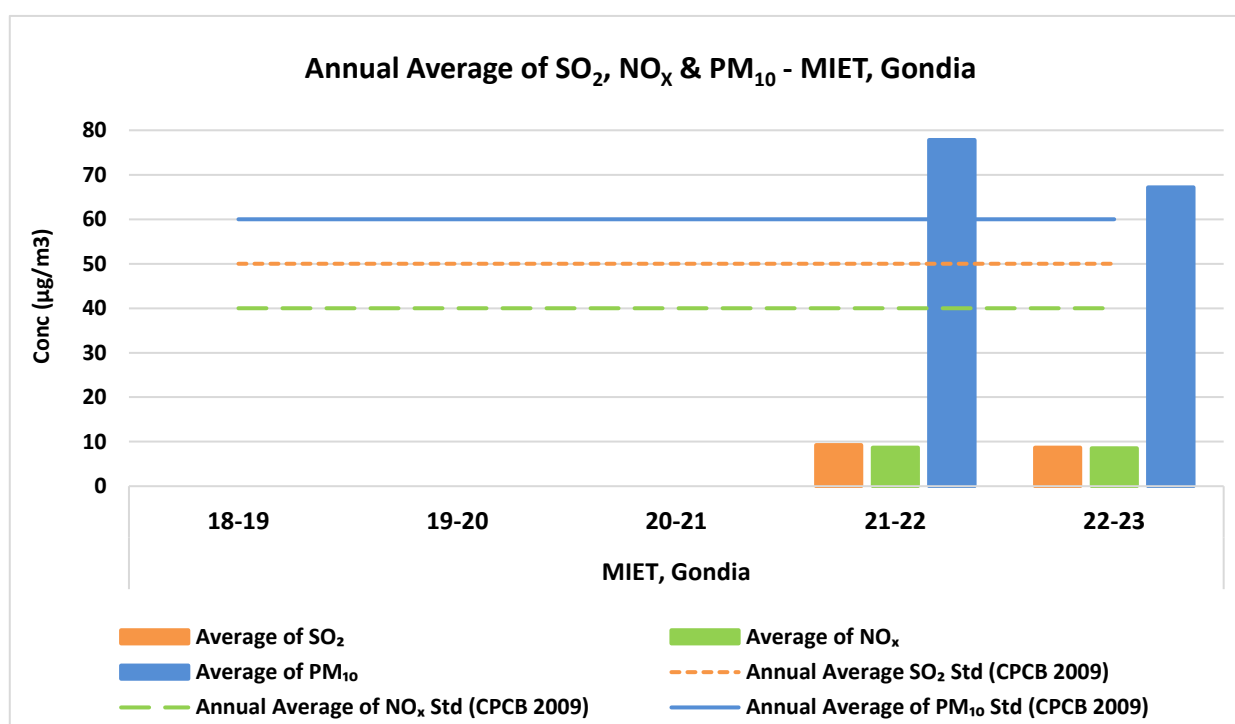


Figure No. 241: Monthly average concentration recorded at MIET, Gondia

Table No. 198: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIET, Gondia

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIET, Gondia	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	9	78
	22-23	9	8	67

Figure No. 242: Annual average trend of SO₂, NO_x and PM₁₀ at MIET, Gondia

MPCB Office Premises, Civil Lines

Table No. 199: Data for Monthly average concentration recorded at MPCB Office Premises, Civil Lines

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MPCB Office Premises, Civil Lines	2022	Apr	4	12	53
		May	5	13	50
		Jun	5	12	50
		Jul	4	11	42
		Aug	4	12	51
		Sep	4	14	53
		Oct	5	22	55
		Nov	7	25	67
		Dec	8	28	69
	2023	Jan	6	23	77
		Feb	5	18	65
		Mar	4	17	51

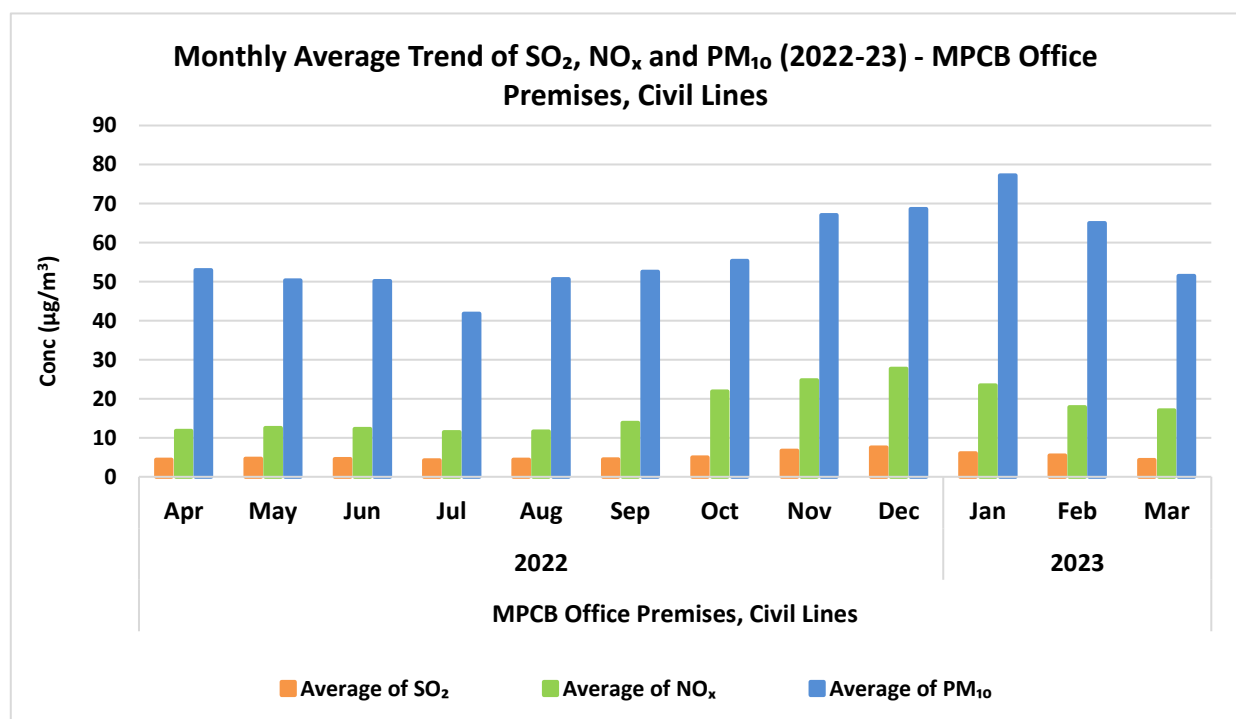
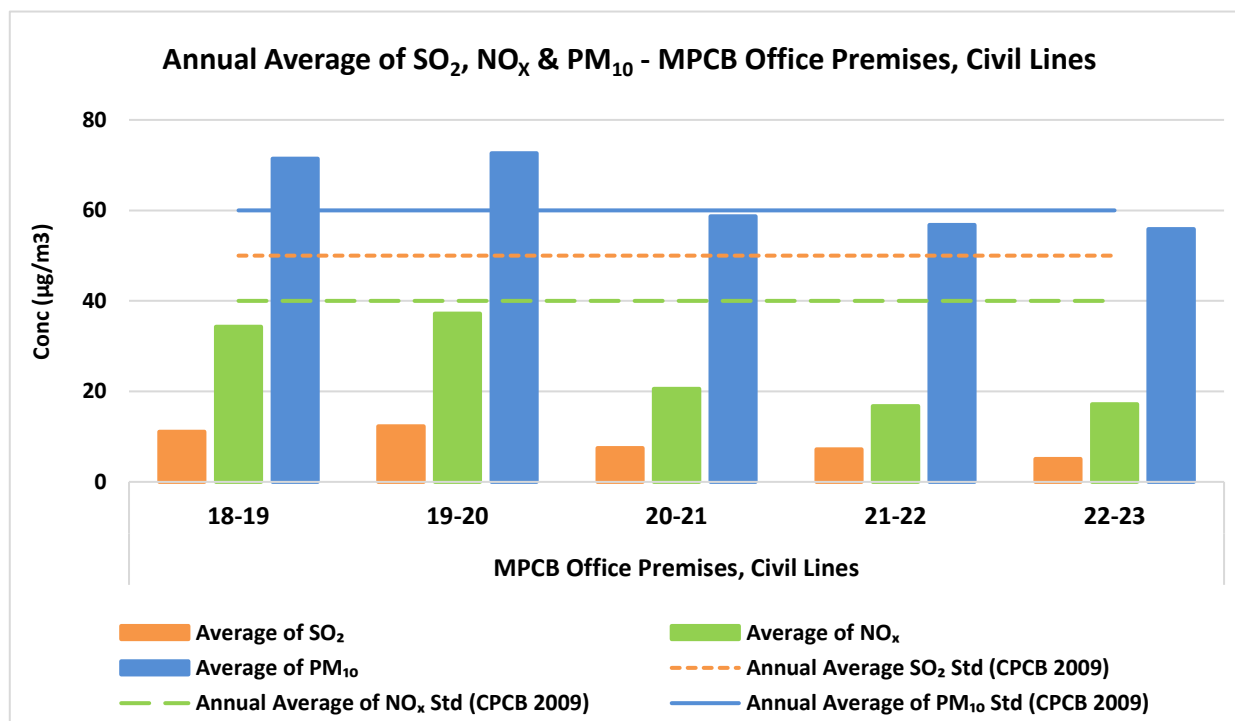


Figure No. 243: Monthly average concentration recorded at MPCB Office Premises, Civil Lines

Table No. 200: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office Premises, Civil Lines

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MPCB Office Premises, Civil Lines	18-19	11	34	71
	19-20	12	37	73
	20-21	7	21	59
	21-22	7	17	57
	22-23	5	17	56

Figure No. 244: Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office Premises, Civil Lines

Nagpur CAAQMS

Table No. 201: Data for Monthly average concentration recorded at Nagpur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nagpur CAAQMS	2022	Apr	12	40	114	63
		May	9	49	139	55
		Jun	7	28	84	30
		Jul	2	16	38	18
		Aug	4	19	45	18
		Sep	5	24	50	28
		Oct	10	30	79	48
		Nov	19	77	146	90
		Dec	21	83	159	96
	2023	Jan	20	67	149	93
		Feb	25	70	126	60
		Mar	18	64	108	62

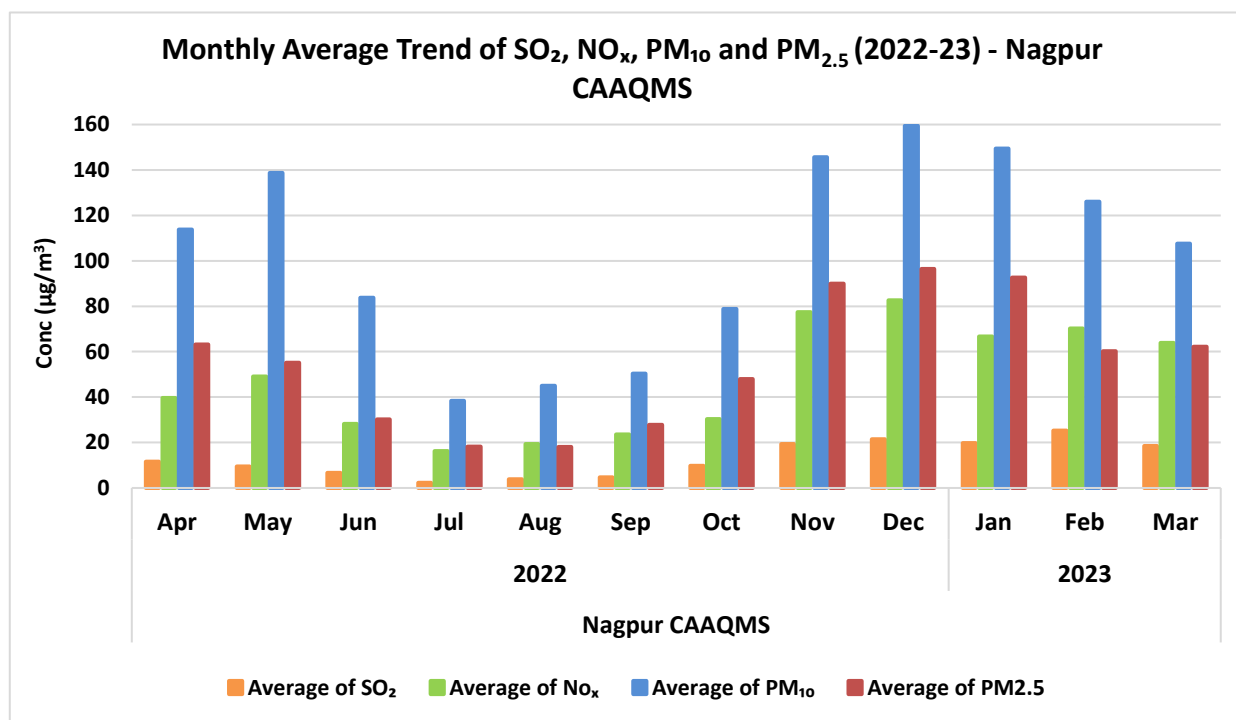
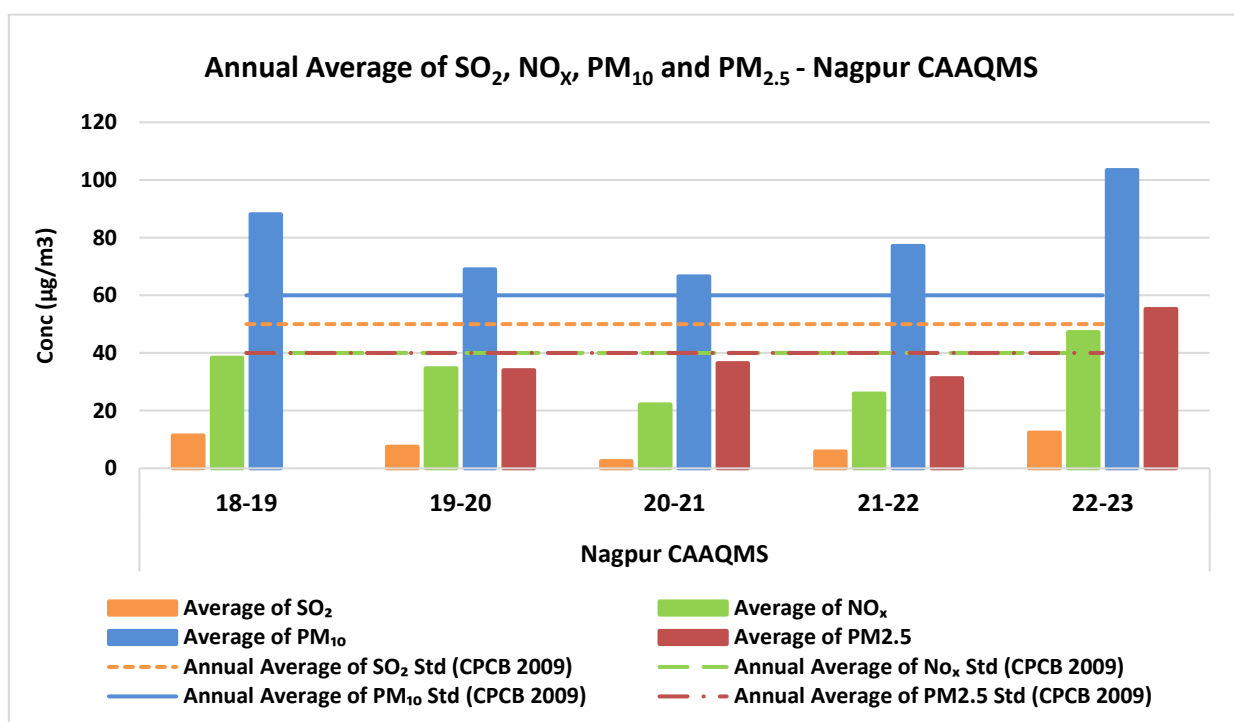


Figure No. 245: Monthly average concentration recorded at Nagpur CAAQMS

Table No. 202: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nagpur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nagpur CAAQMS	18-19	11	38	88	-
	19-20	8	35	69	34
	20-21	3	22	67	36
	21-22	6	26	77	31
	22-23	12	47	103	55

Figure No. 246: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nagpur CAAQMS

Nagpur LIT CAAQMS

Table No. 203: Data for Monthly average concentration recorded at Nagpur LIT CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nagpur LIT CAAQMS	2022	Aug	7	9	46	16
		Sep	9	13	50	19
		Oct	14	16	81	38
		Nov	23	27	142	67
		Dec	26	32	162	69
	2023	Jan	33	39	157	72
		Feb	37	30	126	48
		Mar	35	21	104	47

Table No. 204: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nagpur LIT CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nagpur LIT CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	22	23	108	47

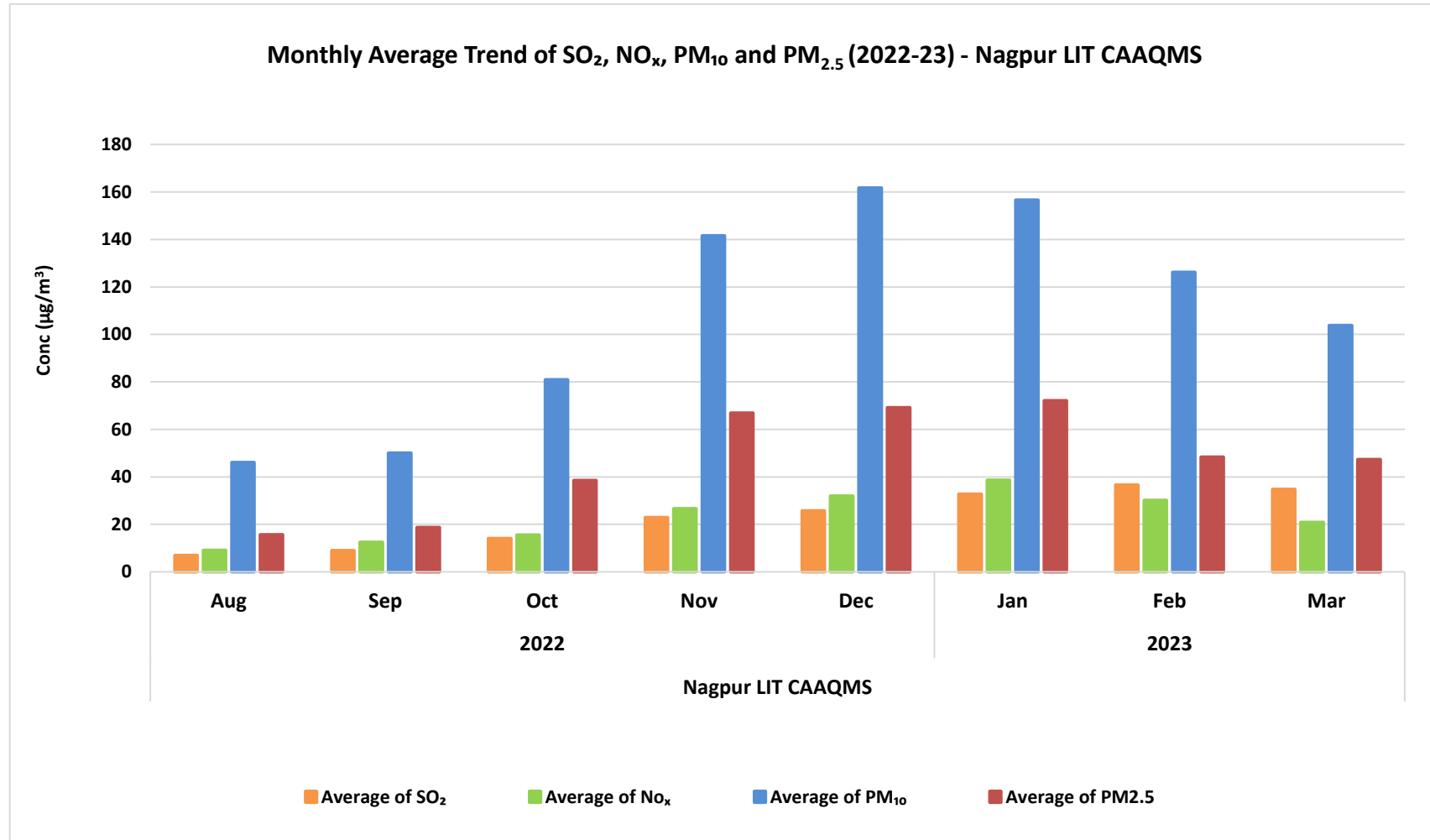


Figure No. 247: Monthly average concentration recorded at Nagpur LIT CAAQMS

Nagpur Town Hall CAAQMS

Table No. 205: Data for Monthly average concentration recorded at Nagpur Town Hall CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nagpur Town Hall CAAQMS	2022	Aug	7	14	66	22
		Sep	7	19	75	27
		Oct	16	23	123	52
		Nov	32	57	205	86
		Dec	25	53	224	89
	2023	Jan	52	44	230	92
		Feb	60	38	221	70
		Mar	45	27	170	66

Table No. 206: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nagpur Town Hall CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nagpur Town Hall CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	30	34	164	63

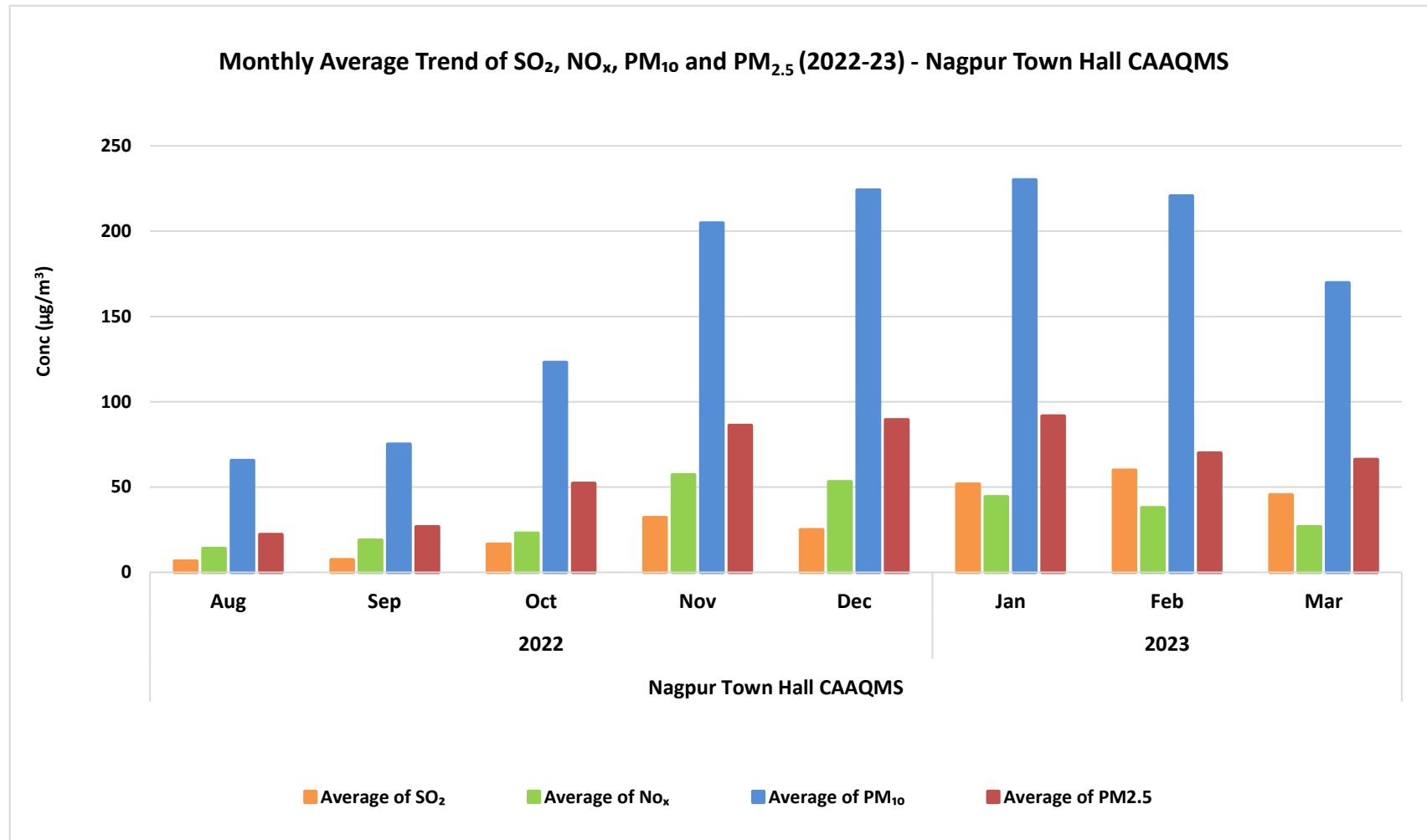


Figure No. 248: Monthly average concentration recorded at Nagpur Town Hall CAAQMS

Nagpur Visve CAAQMS

Table No. 207: Data for Monthly average concentration recorded at Nagpur Visve CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nagpur Visve CAAQMS	2022	Aug	5	12	57	21
		Sep	6	13	49	24
		Oct	14	16	70	39
		Nov	29	41	118	71
		Dec	25	32	134	75
	2023	Jan	31	30	138	79
		Feb	24	31	115	62
		Mar	18	25	94	51

Table No. 208: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nagpur Visve CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nagpur Visve CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	19	25	97	52

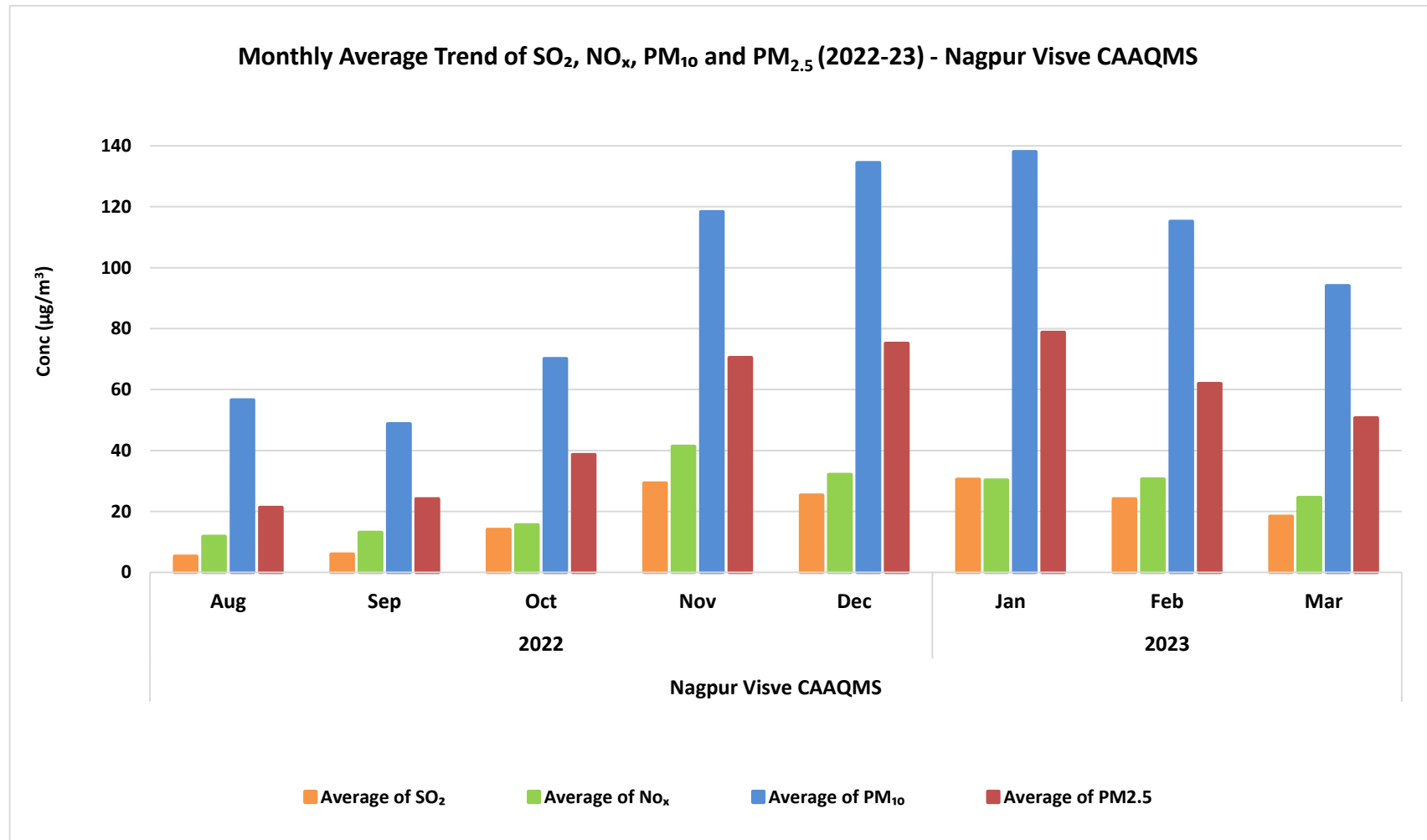


Figure No. 249: Monthly average concentration recorded at Nagpur Visve CAAQMS

NMD College, Gondia

Table No. 209: Data for Monthly average concentration recorded at NMD College, Gondia

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
NMD College, Gondia	2022	Apr	8	10	86
		May	8	11	79
		Jun	7	10	81
		Jul	7	13	80
		Aug	8	10	78
		Sep	-	11	82
		Oct	8	11	84
		Nov	8	11	82
	2023	Feb	7	12	83
		Mar	8	12	85

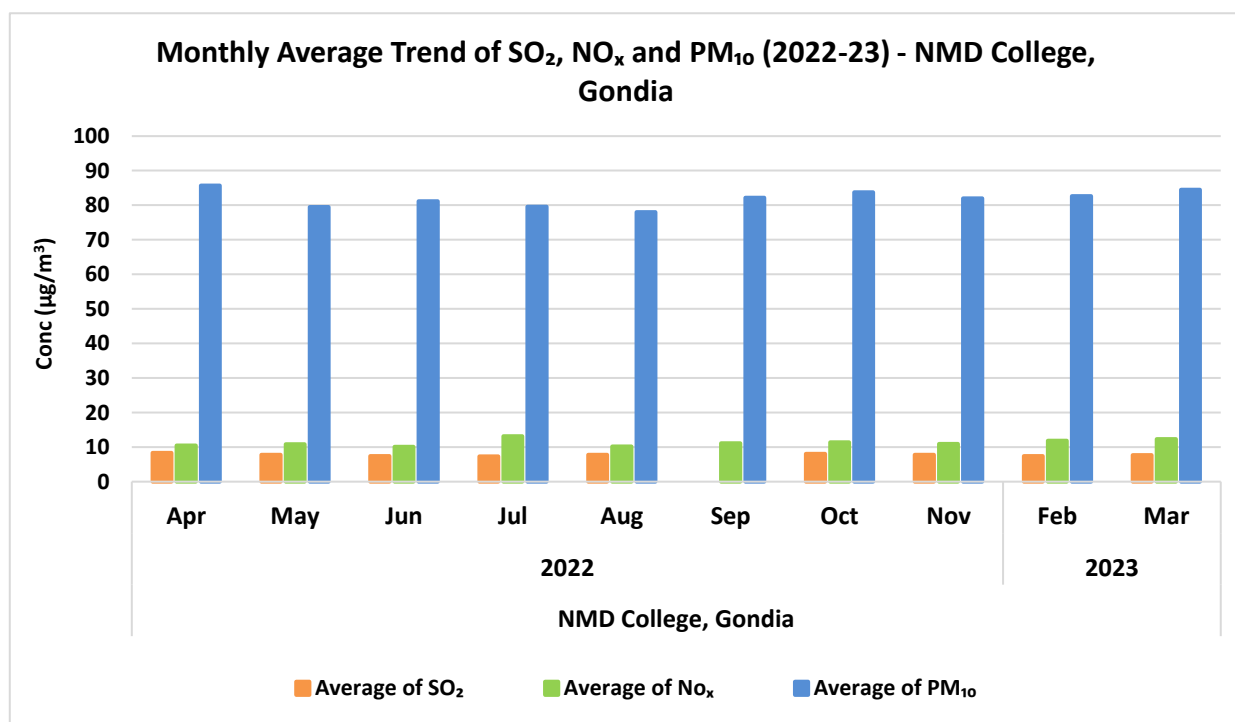
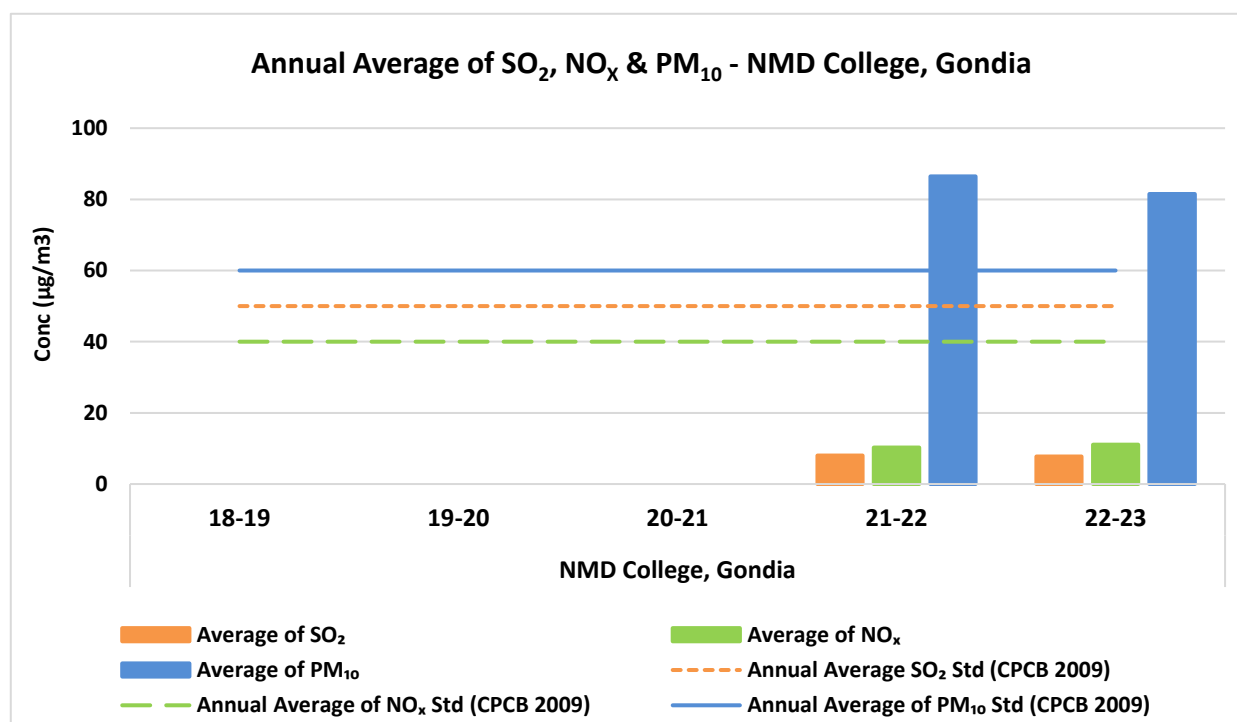


Figure No. 250: Monthly average concentration recorded at NMD College, Gondia

Table No. 210: Data for Annual average trend of SO₂, NO_x and PM₁₀ at NMD College, Gondia

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
NMD College, Gondia	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	8	10	86
	22-23	8	11	81

Figure No. 251: Annual average trend of SO₂, NO_x and PM₁₀ at NMD College, Gondia

Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur

Table No. 211: Data for Monthly average concentration recorded at Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur	2022	Apr	7	22	116	57
		May	7	19	107	52
		Jun	6	22	77	46
		Jul	5	19	53	56
		Aug	6	17	62	62
		Sep	6	20	61	65
		Oct	7	24	80	65
		Nov	10	31	123	69
		Dec	11	37	117	58
	2023	Jan	10	36	123	54
		Feb	7	27	102	57
		Mar	7	29	99	51

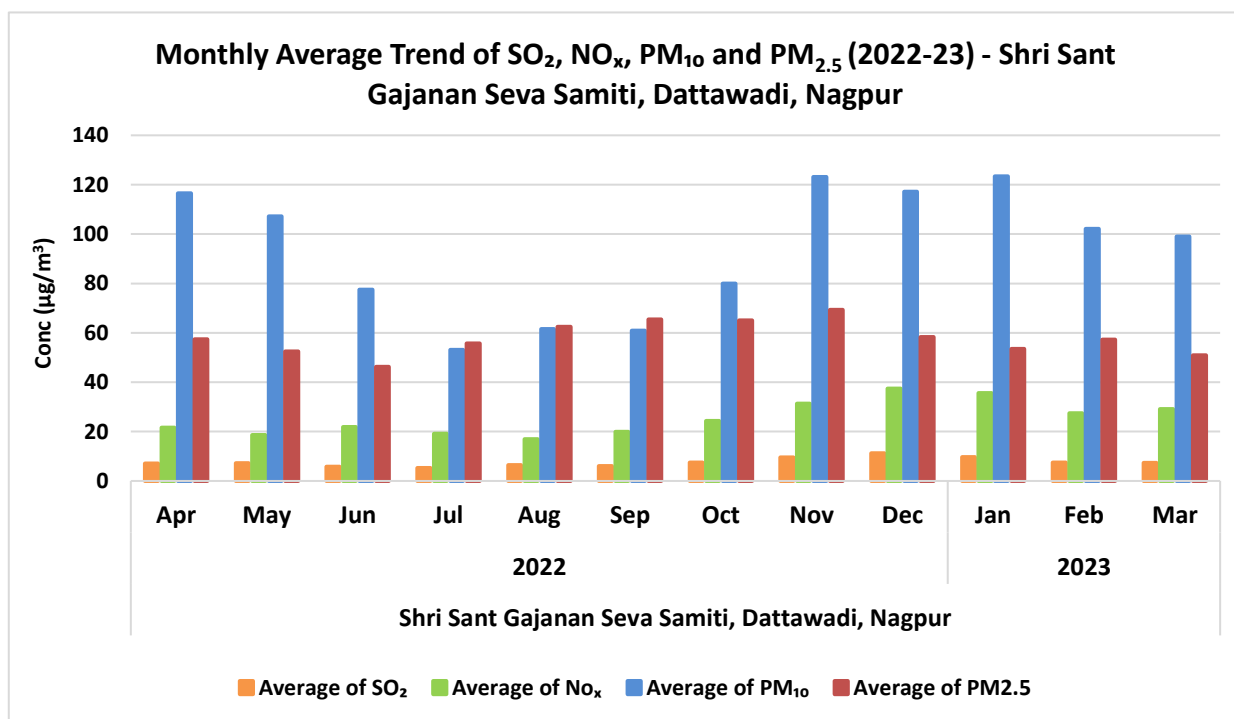
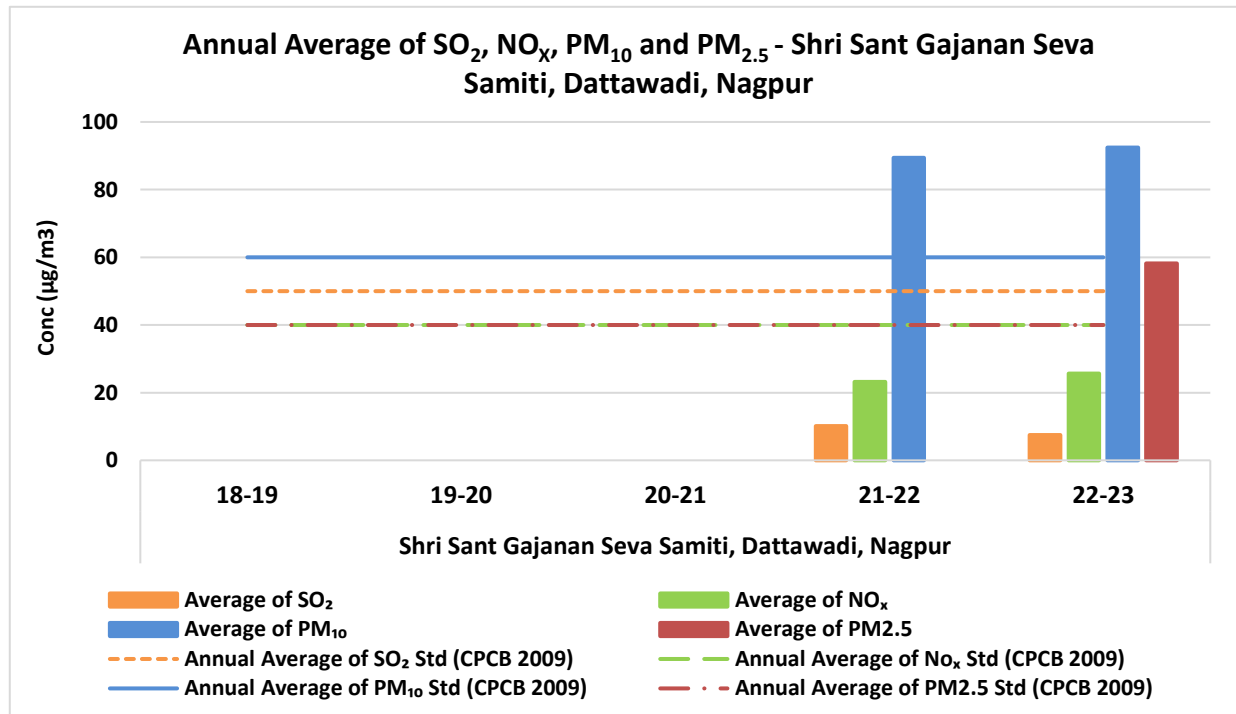


Figure No. 252: Monthly average concentration recorded at Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur

Table No. 212: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	10	23	89	-
	22-23	7	26	92	58

Figure No. 253: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur

SS Girls College, Gondia

Table No. 213: Data for Monthly average concentration recorded at SS Girls College, Gondia

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
SS Girls College, Gondia	2022	Apr	6	13	89
		May	6	13	85
		Jun	7	12	71
		Jul	8	13	66
		Aug	6	12	74
		Sep	6	13	82
		Oct	7	13	91
		Nov	6	13	86
	2023	Feb	7	13	80
		Mar	6	13	87

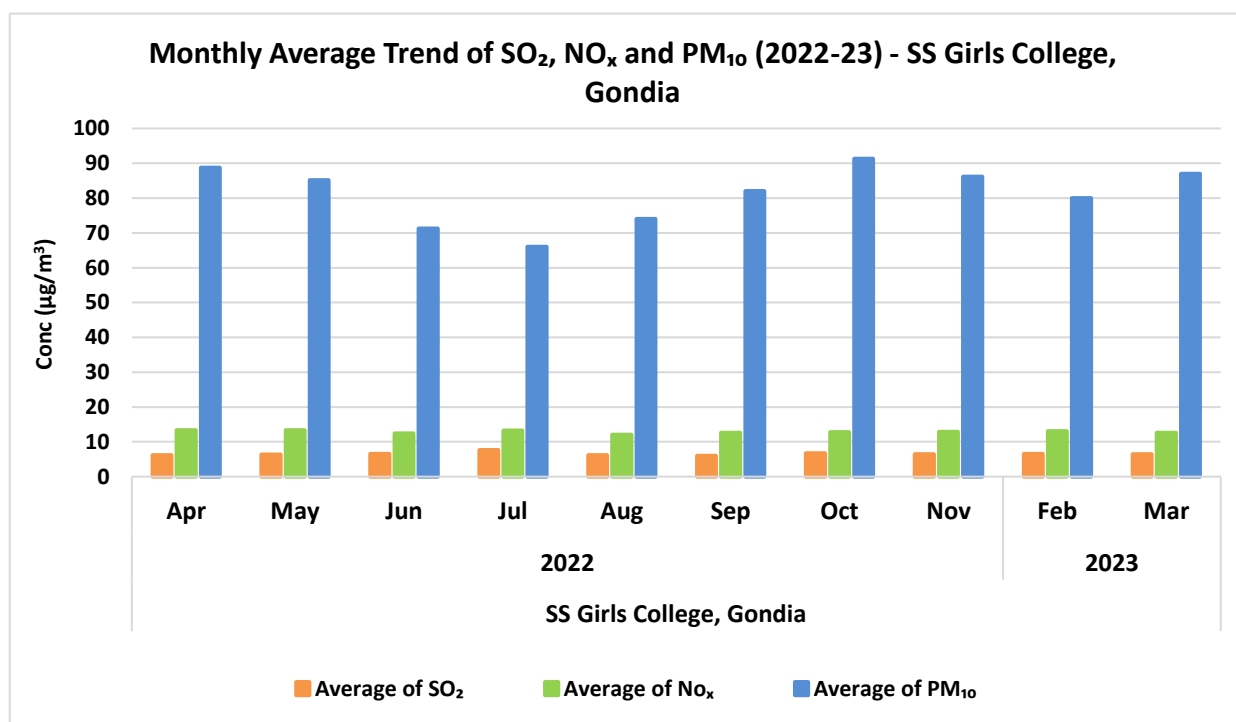
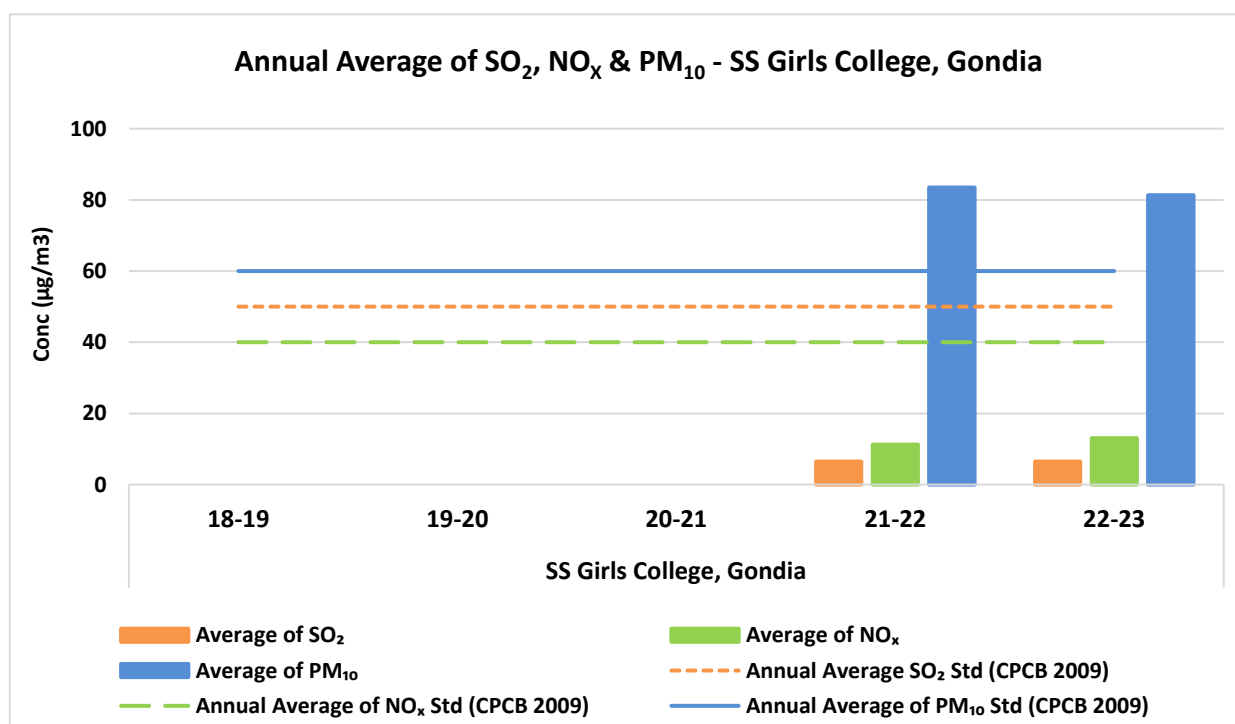


Figure No. 254: Monthly average concentration recorded at SS Girls College, Gondia

Table No. 214: Data for Annual average trend of SO₂, NO_x and PM₁₀ at SS Girls College, Gondia

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
SS Girls College, Gondia	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	7	11	84
	22-23	6	13	81

Figure No. 255: Annual average trend of SO₂, NO_x and PM₁₀ at SS Girls College, Gondia

Water Treatment Facility, Ram Nagar, Good shed Road, Kamptee

Table No. 215: Data for Monthly average concentration recorded at Water Treatment Facility, Ram Nagar, Good shed Road, Kamptee

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Water Treatment Facility, Ram Nagar, Good Shed Road Kamptee	2022	Apr	15	34	125	56
		May	10	28	103	60
		Jun	12	30	70	60
		Jul	13	30	61	60
		Aug	10	25	68	66
		Sep	8	28	51	49
		Oct	9	27	93	62
		Nov	12	34	128	83
		Dec	11	38	129	75
	2023	Jan	14	36	167	73
		Feb	12	34	131	47
		Mar	12	32	118	62

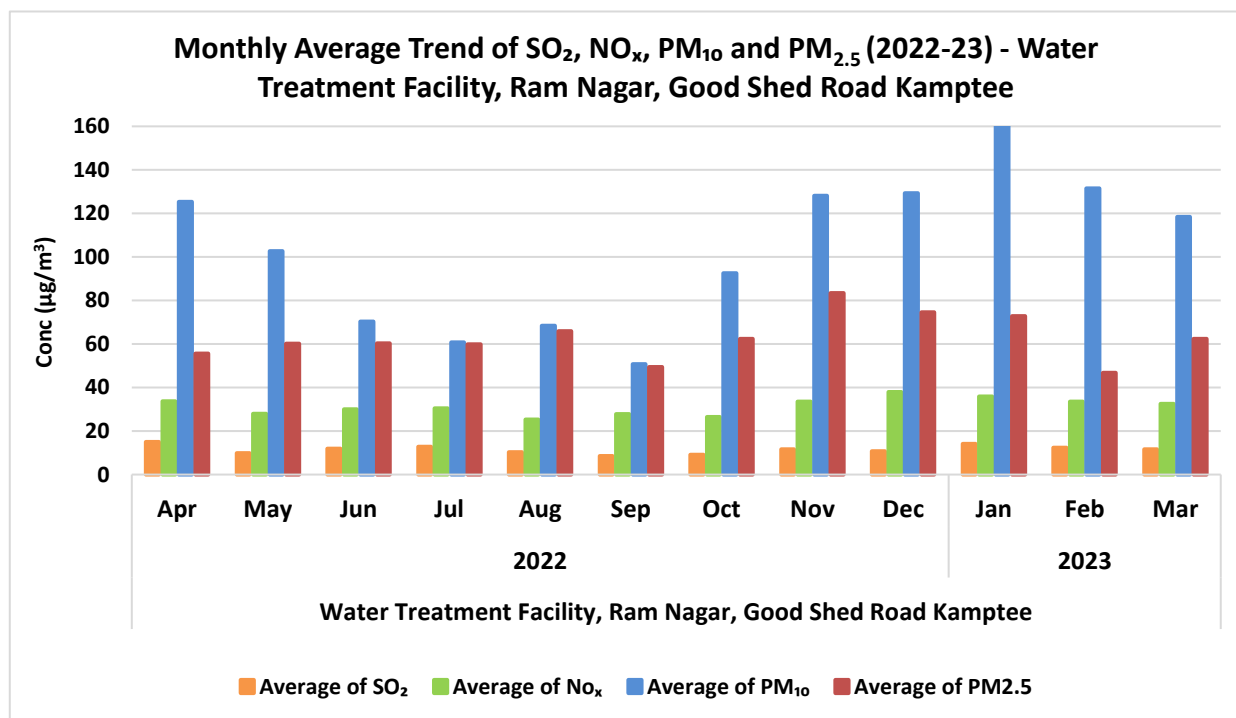


Figure No. 256: Monthly average concentration recorded at Water Treatment Facility, Ram Nagar, Good shed Road, Kamptee

Table No. 216: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Water Treatment Facility, Ram Nagar, Good shed Road, Kamptee

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Water Treatment Facility, Ram Nagar, Good Shed Road Kamptee	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	16	30	89	-
	22-23	11	30	102	63

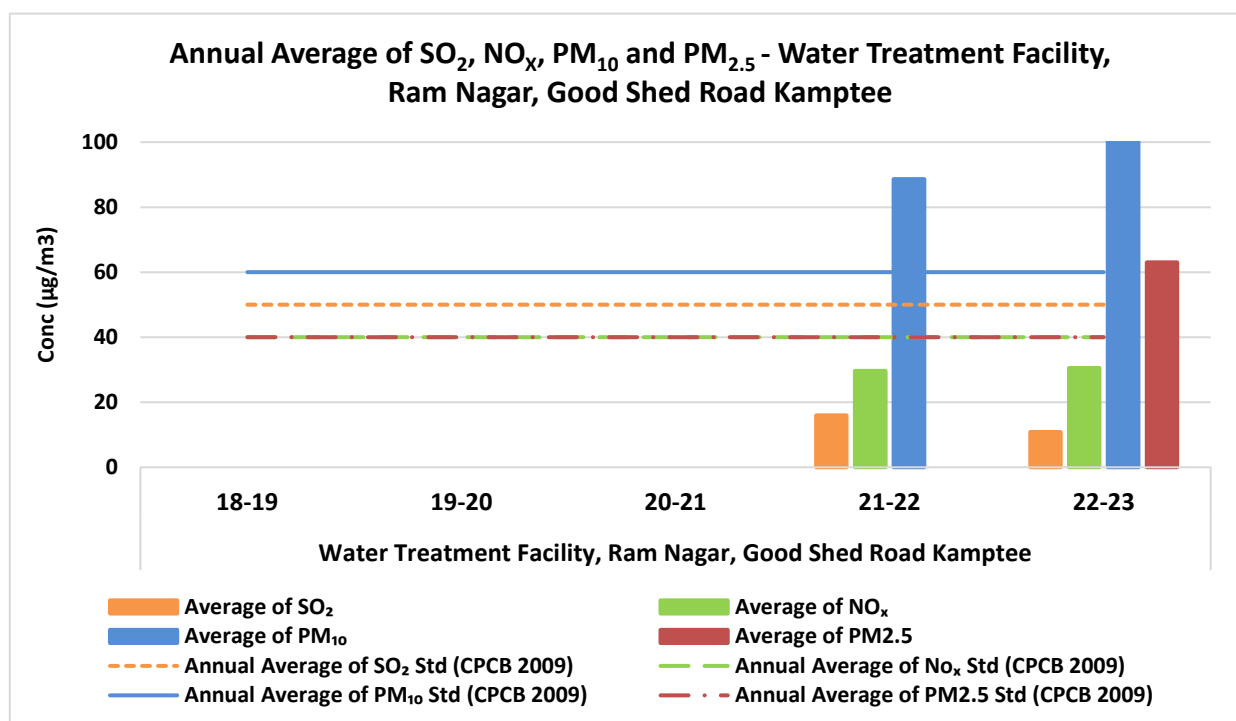


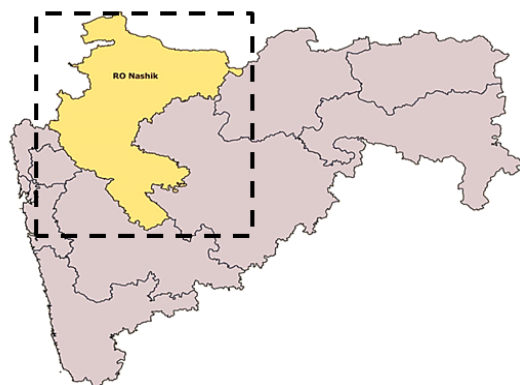
Figure No. 257: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Water Treatment Facility, Ram Nagar, Good shed Road, Kamptee

Table No. 217: Percentage exceedance of pollutants at Nagpur RO

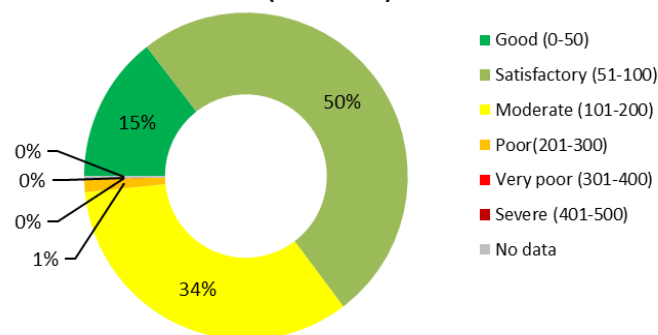
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
DIC	80	76	80	0	0	0	0	0	0	0	0	0
DMIETR	78	74	78	0	0	0	0	0	0	0	0	0
Govt. Polytechnic, Sadar, Nagpur	100	109	108	0	0	0	54	0	0	0	50	0
Institution of Engineers Nagpur	102	109	107	0	0	0	61	0	0	0	57	0
MIDC	95	100	103	0	0	0	0	0	0	0	0	0
MIDC Office Hingana Road Nagpur	99	107	106	0	0	0	75	0	0	0	71	0
MIET Gondia	59	64	84	0	0	0	6	0	0	0	7	0
MPCB Office Premises, Civil Lines	288	300	278	0	0	0	0	0	0	0	0	0
Nagpur CAAQMS	351	354	362	360	0	62	201	148	0	18	56	41
Nagpur LIT	237	241	242	241	0	0	141	82	0	0	58	34
Nagpur Town Hall	237	239	242	236	4	50	176	120	2	21	73	51
Nagpur Visve	232	242	242	241	0	2	121	95	0	1	50	39
NMD College, Gondia	51	77	63	0	0	0	39	0	0	0	62	0
Shri Sant Gajanan Seva Samiti, Dattawadi, Nagpur	95	102	101	0	0	0	63	0	0	0	62	0
SS Girls College, Gondia	88	67	93	0	0	0	61	0	0	0	66	0
Water Treatment Facility, Ram Nagar, Goodshed Road, Kamptee	85	97	105	0	0	0	72	0	0	0	69	0

CITIES /AREAS UNDER NASHIK RO

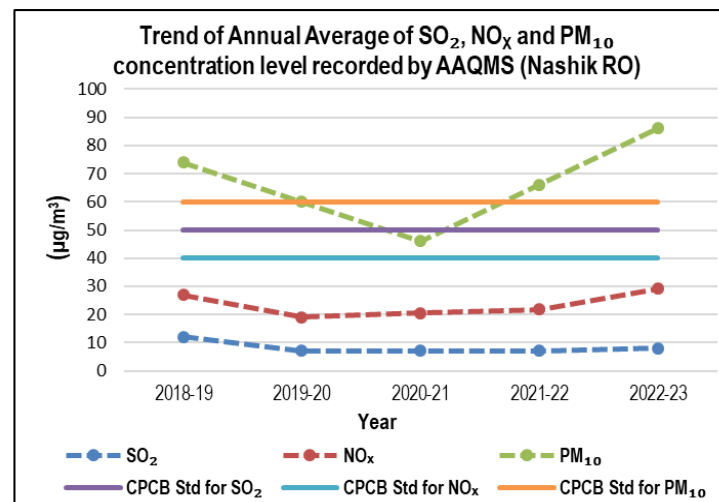
NASHIK RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Nashik RO)



Sr No.	Station Name	Sr No.	Station Name
1	B.J. Market	10	MPCB Sub RO Udyog Bhawan, Nashik
2	Ahmednagar CAAQMS	11	Municipal Council Office
3	Aima Ambad Nashik CAAQMS	12	Municipal Council Water Supply
4	Dhule CAAQMS	13	Municipal High School
5	Girna Water Tank	14	Nashik CAAQMS
6	Guru Gobind Singh Nashik CAAQMS	15	Nashik Municipal Council Bldg. Nashik
7	Jalgaon CAAQMS	16	Panchavati CAAQMS
8	Malegaon CAAQMS	17	R.T.O. Colony Tank Nashik
9	MIDC Office	18	V.I.P. Industrial Area MIDC Satpur





AHMEDNAGAR CAAQMS



AIMA AMBAD NASHIK CAAQMS



DHULE CAAQMS



GURU GOBIND SINGH NASHIK CAAQMS



JALGAON CAAQMS



MALEGAON CAAQMS



NASHIK CAAQMS



PANCHAVATI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

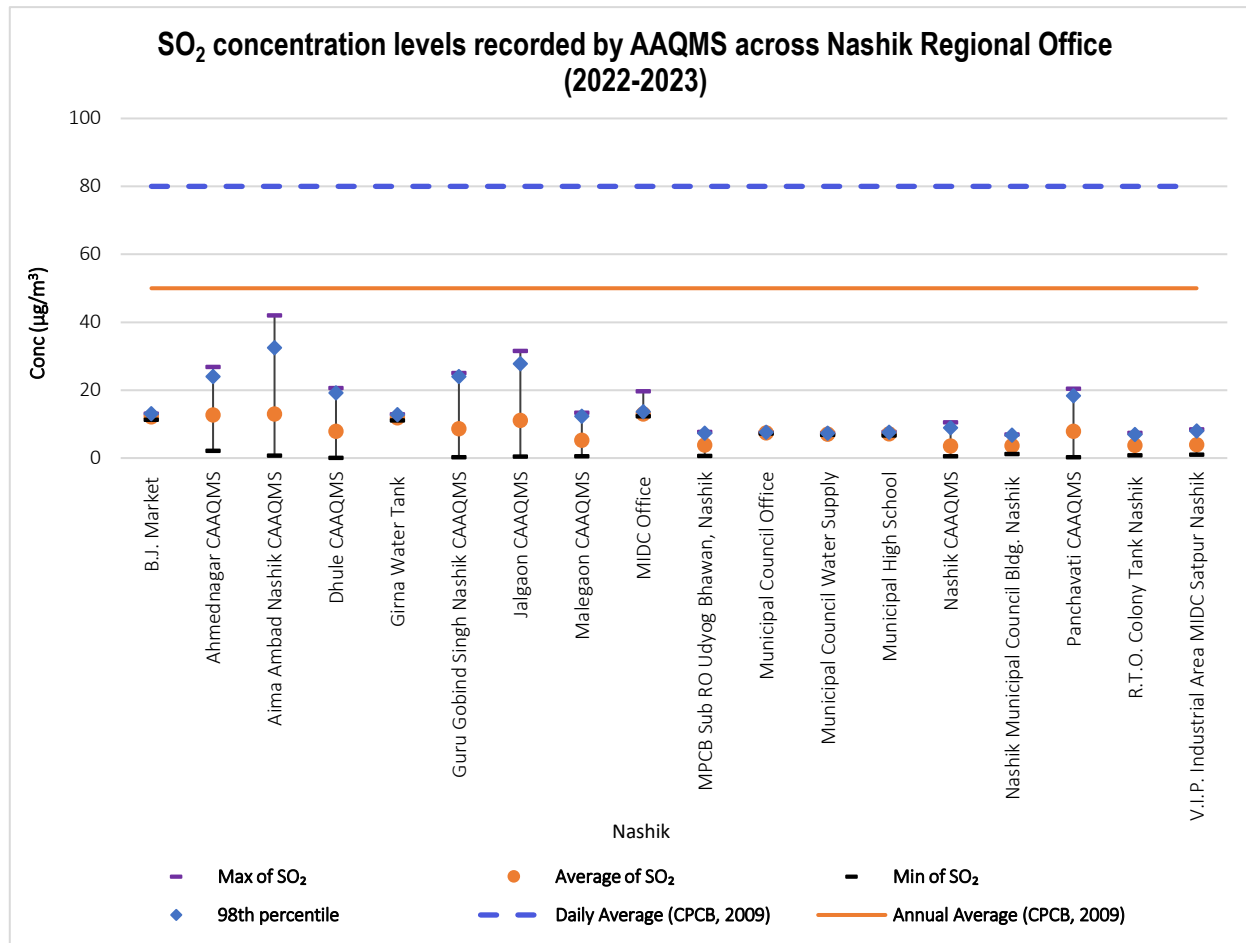


Figure No. 258: Parametric values of SO₂ concentrations recorded by AAQMS across Nashik RO (2022-2023)

The monitoring stations installed in the areas under the jurisdiction of Nashik RO have recorded SO₂ concentration levels within permissible limit in terms of both annual average (50 µg/m³) and daily average limit (80 µg/m³). The highest annual average concentration level was recorded at MIDC Office AAQMS location (12.99 µg/m³) followed by Aima Ambad Nashik CAAQMS (12.97 µg/m³), Ahmednagar CAAQMS (12.68 µg/m³), B.J. Market AAQMS (12.18 µg/m³), Girna Water Tank (11.89 µg/m³) and Jalgaon CAAQMS (11.10 µg/m³). Rest of the stations recorded the annual average concentration levels within the range of 3.6 µg/m³ to 8.63 µg/m³.

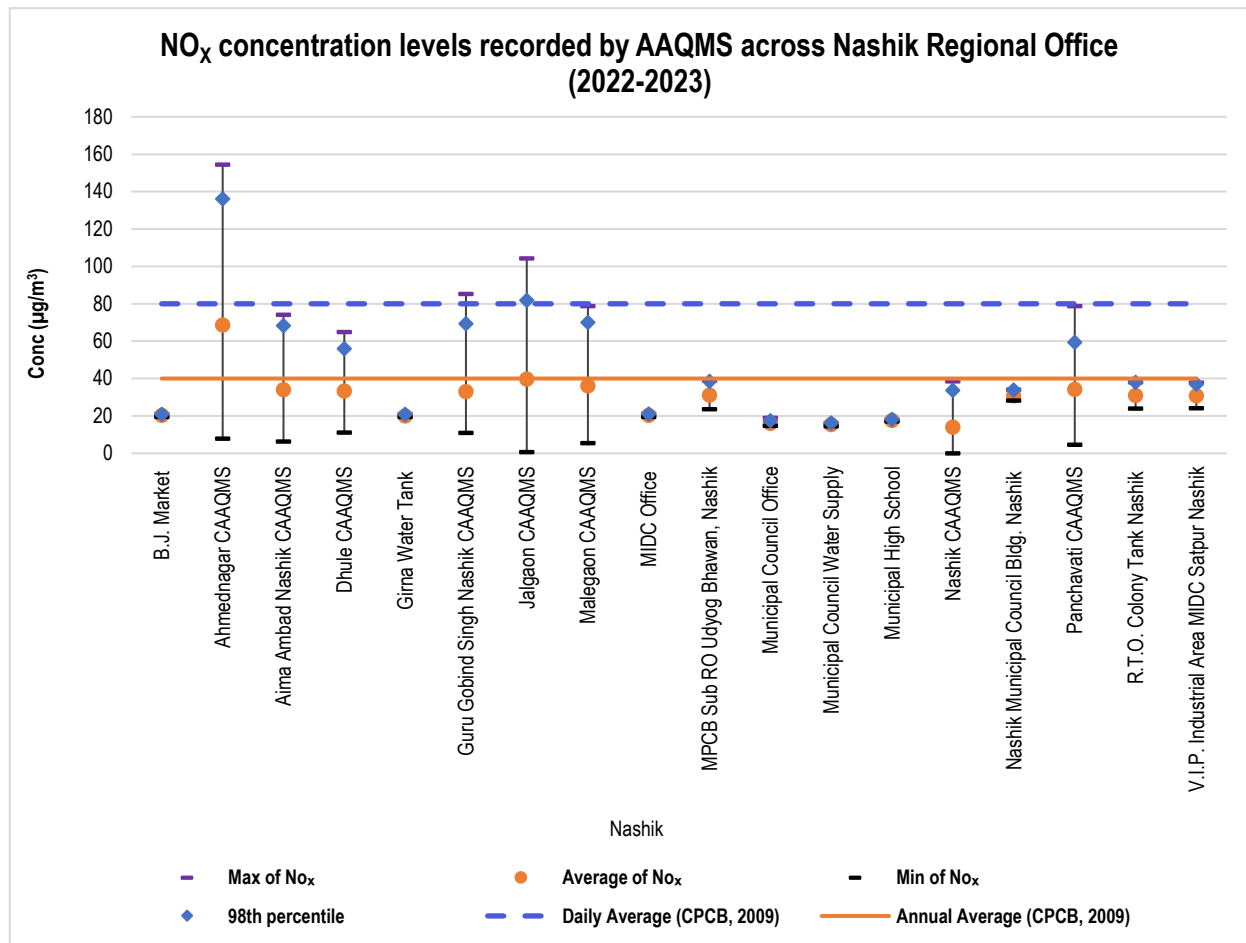
NO_x

Figure No. 259: Parametric values of NO_x concentrations recorded by AAQMS across Nashik RO (2022-2023)

In terms of annual average concentration level of NO_x, all monitoring stations installed within the Nashik RO's jurisdiction areas were recorded concentration levels within the permissible limit (40 µg/m³) except for Ahmednagar CAAQMS (68.62 µg/m³). The level recorded by the Ahmednagar CAAQMS was approximately 1.7 times higher than the standard limit. Besides this, Jalgaon CAAQMS (39.72 µg/m³) and Malegaon CAAQMS (36.03 µg/m³) recorded concentration levels which were close to the permissible limit. The lowest annual average concentration level was recorded at Nashik CAAQMS (13.96 µg/m³).

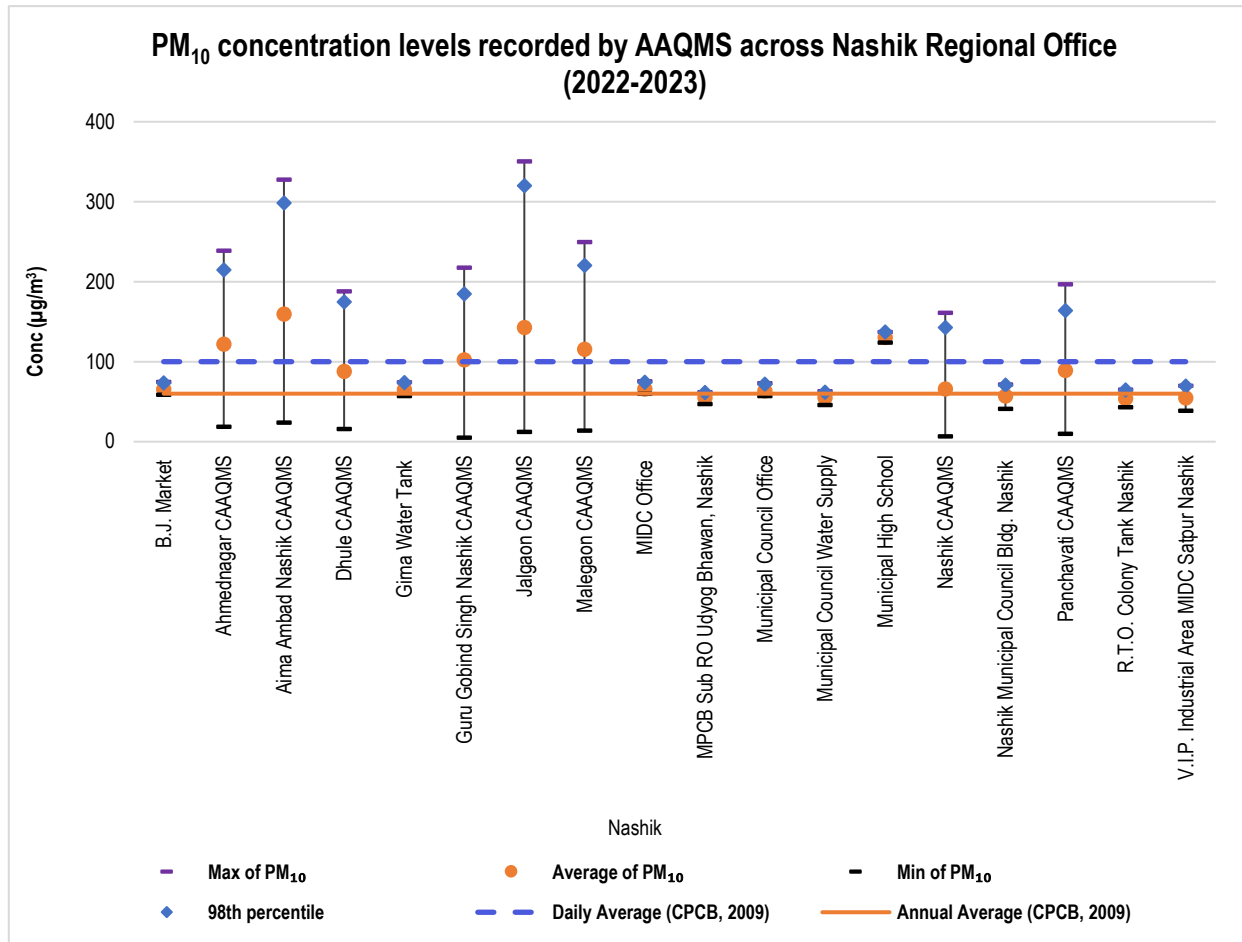
PM₁₀

Figure No. 260: Parametric values of PM₁₀ concentrations recorded by AAQMS across Nashik RO (2022-2023)

Out of the total 18 monitoring stations, 13 monitoring stations have recorded annual average concentration level which was surpassed the annual average limit of 60 µg/m³. The Aima Ambad Nashik CAAQMS recorded the annual average of 159.7 µg/m³ followed by Jalgaon CAAQMS (142.8 µg/m³), Municipal High School AAQMS (130.20 µg/m³) and Ahmednagar CAAQMS (121.80 µg/m³). These recorded levels were more than twice the level of prescribed limit. The lowest annual average concentration level was recorded by AAQMS installed at R.T.O Colony Tank, Nashik (53.78 µg/m³).

Trend in PM_{2.5} concentrations recorded by CAAQMS across Nashik RO

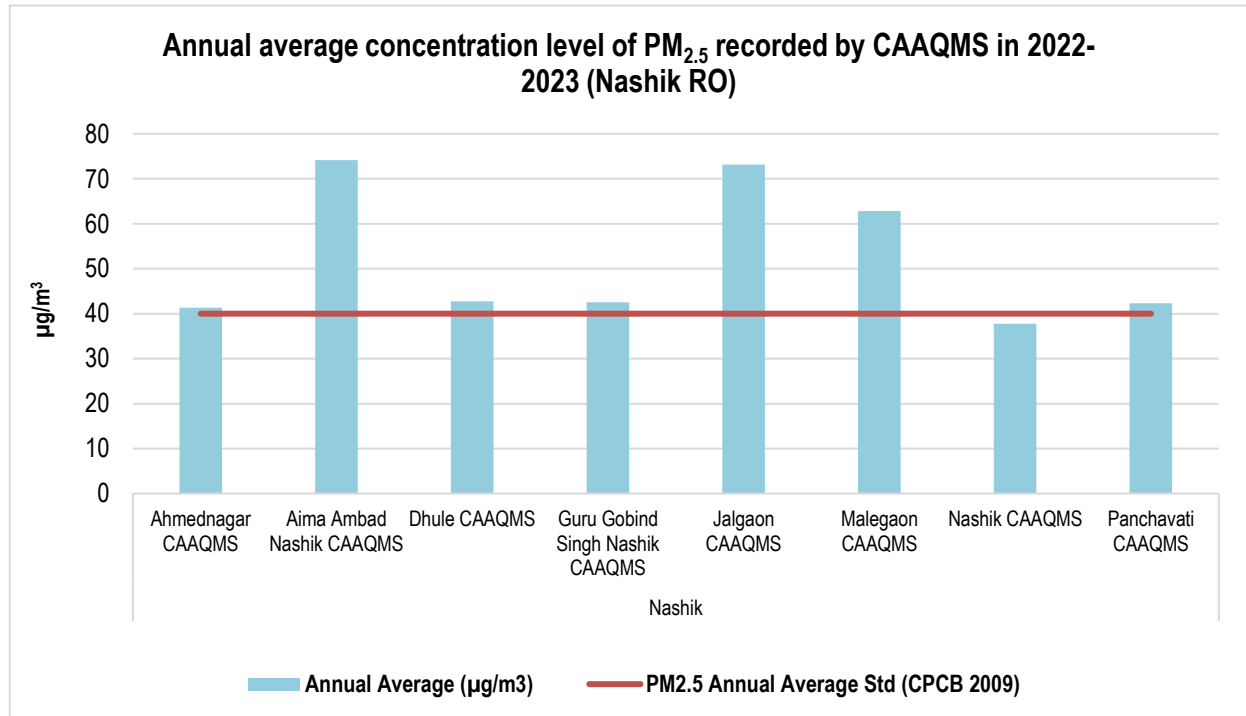


Figure No. 261: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Nashik RO (2022-23)

In the year 2022-23, only 1 CAAQMS i.e Nashik CAAQMS (37.78 µg/m³) out of 8 monitoring stations (installed in Nashik RO's jurisdiction area) have recorded an annual average PM_{2.5} concentration level within the prescribed limit (40 µg/m³). The levels were seen exceeding the annual average standard limit of 40 µg/m³ at rest of the seven locations namely Aima Ambad Nashik CAAQMS (74.16 µg/m³), Jalgaon CAAQMS (73.17 µg/m³), Malegaon CAAQMS (62.84 µg/m³), Dhule CAAQMS (42.76 µg/m³), Guru Gobind Singh Nashik CAAQMS (42.51 µg/m³), Panchavati CAAQMS (42.32 µg/m³) and Ahmednagar CAAQMS (41.36 µg/m³).

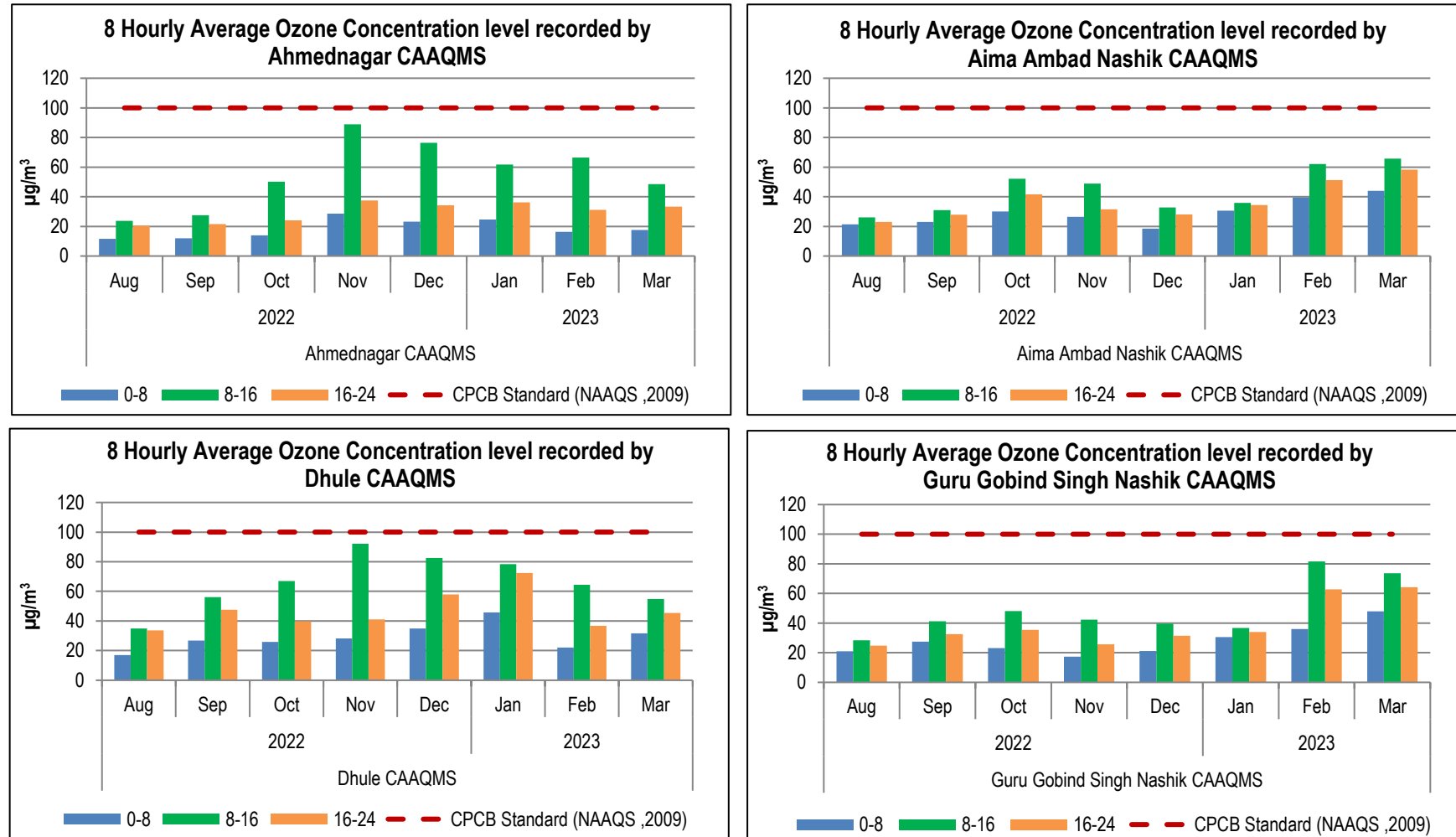
Ozone (O_3)

Figure No. 262: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Nashik RO (1)

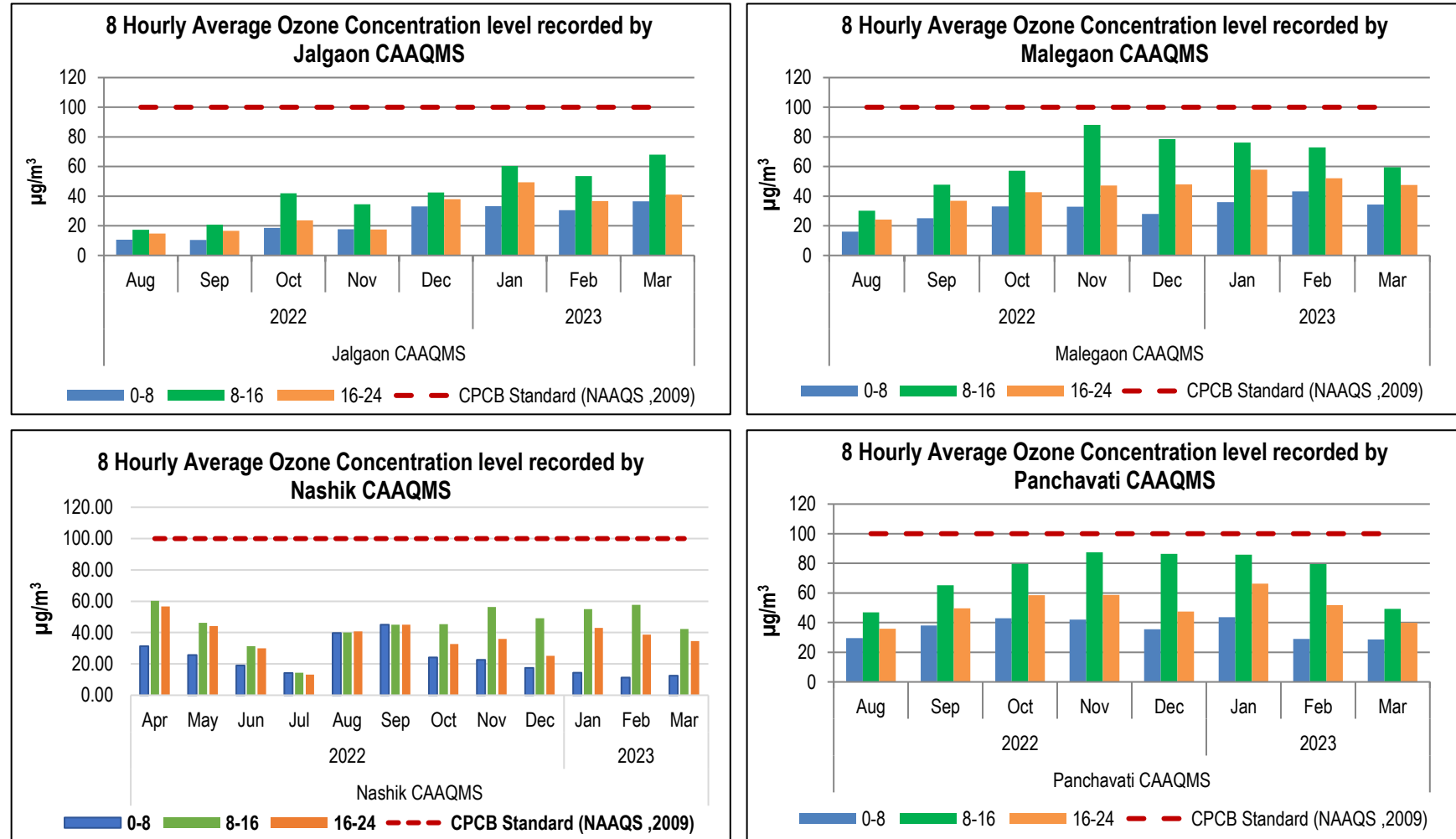


Figure No. 263 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Nashik RO (2)

Carbon Monoxide (CO)

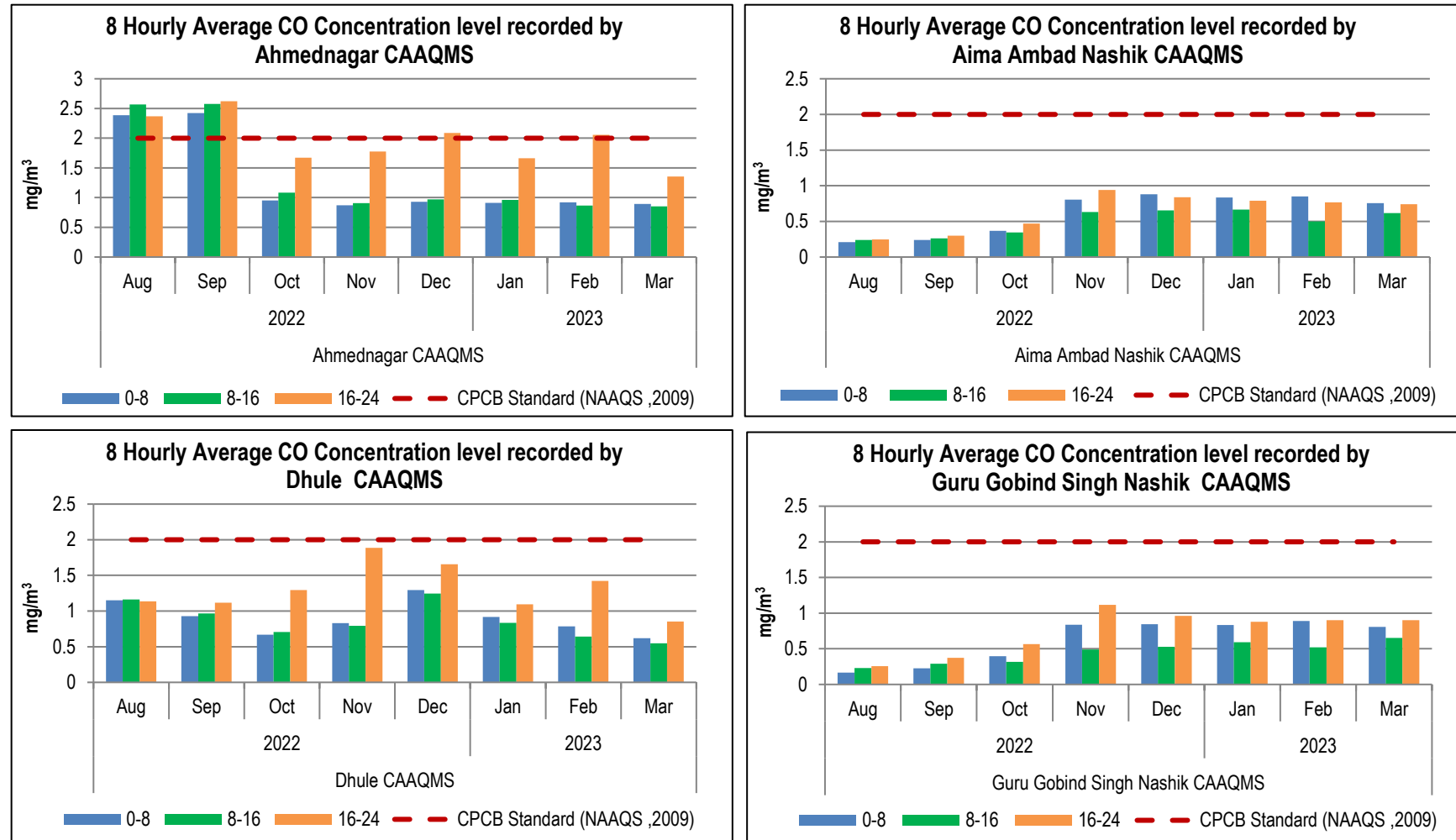


Figure No. 264: CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Nashik RO (1)

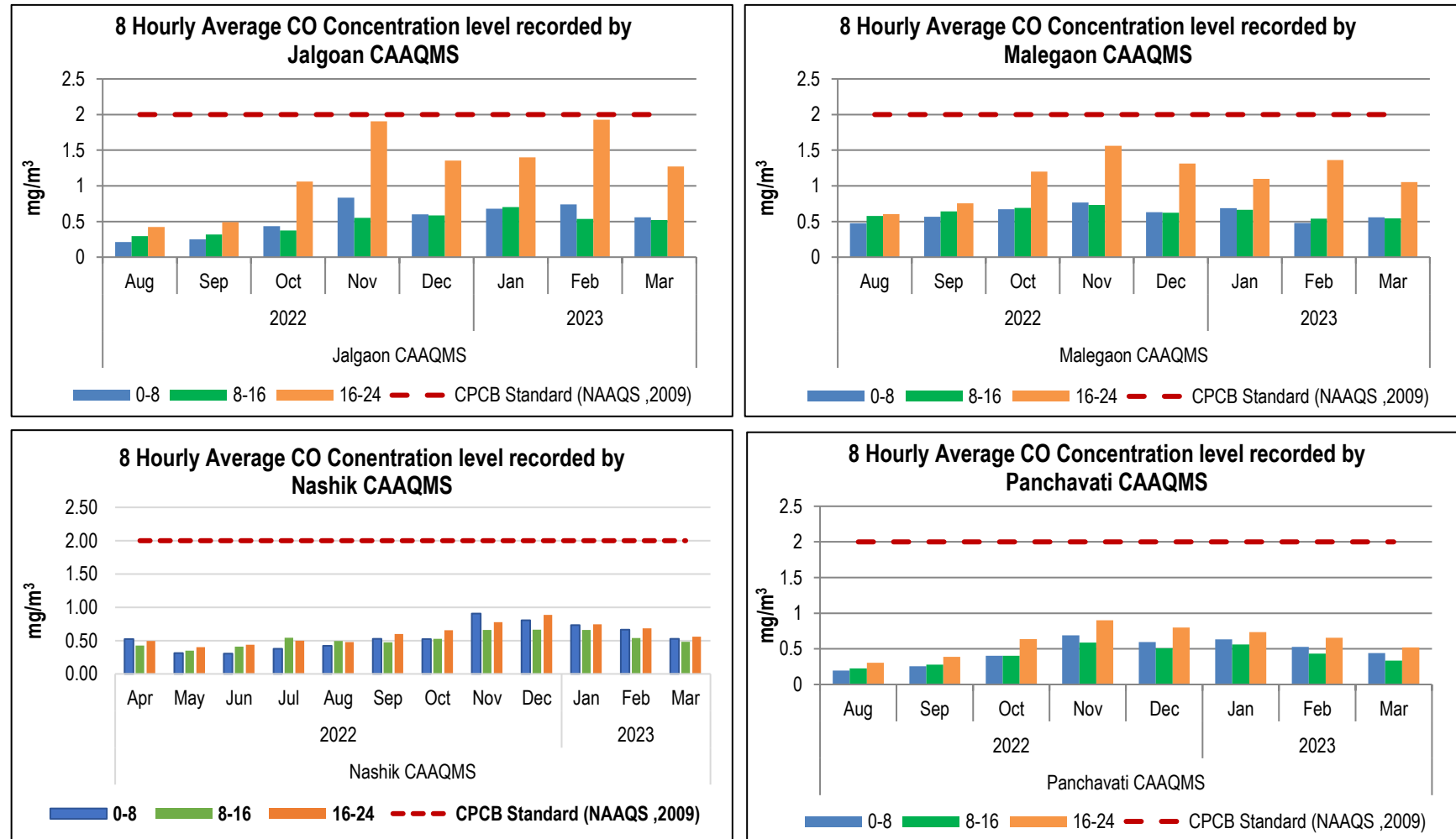


Figure No. 265 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Nashik RO (2)

Benzene

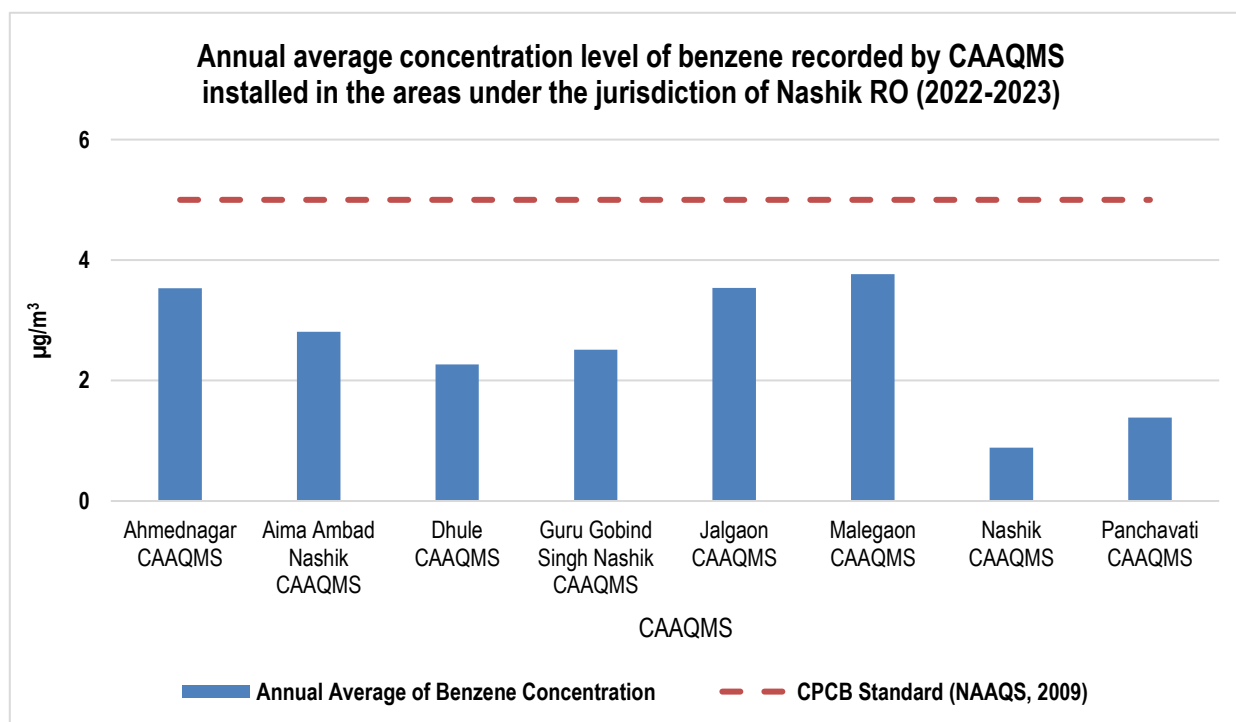


Figure No. 266: Annual average of benzene concentration recorded by CAAQMS installed in the areas under the jurisdiction of Nashik RO (2022-23)

The annual average concentration level recorded by the CAAQMS installed in the areas under the jurisdiction of Nashik RO were found to be well within the prescribed limits set by CPCB for benzene ($5 \mu\text{g}/\text{m}^3$). Amongst these, Malegaon CAAQMS recorded the highest concentration level of about $3.77 \mu\text{g}/\text{m}^3$ followed by Jalgaon CAAQMS ($3.54 \mu\text{g}/\text{m}^3$) and Ahmednagar CAAQMS ($3.53 \mu\text{g}/\text{m}^3$) whereas Nashik CAAQMS recorded the lowest benzene annual concentration level of about $0.89 \mu\text{g}/\text{m}^3$.

AQI percentage occurrence graphs - Nashik RO

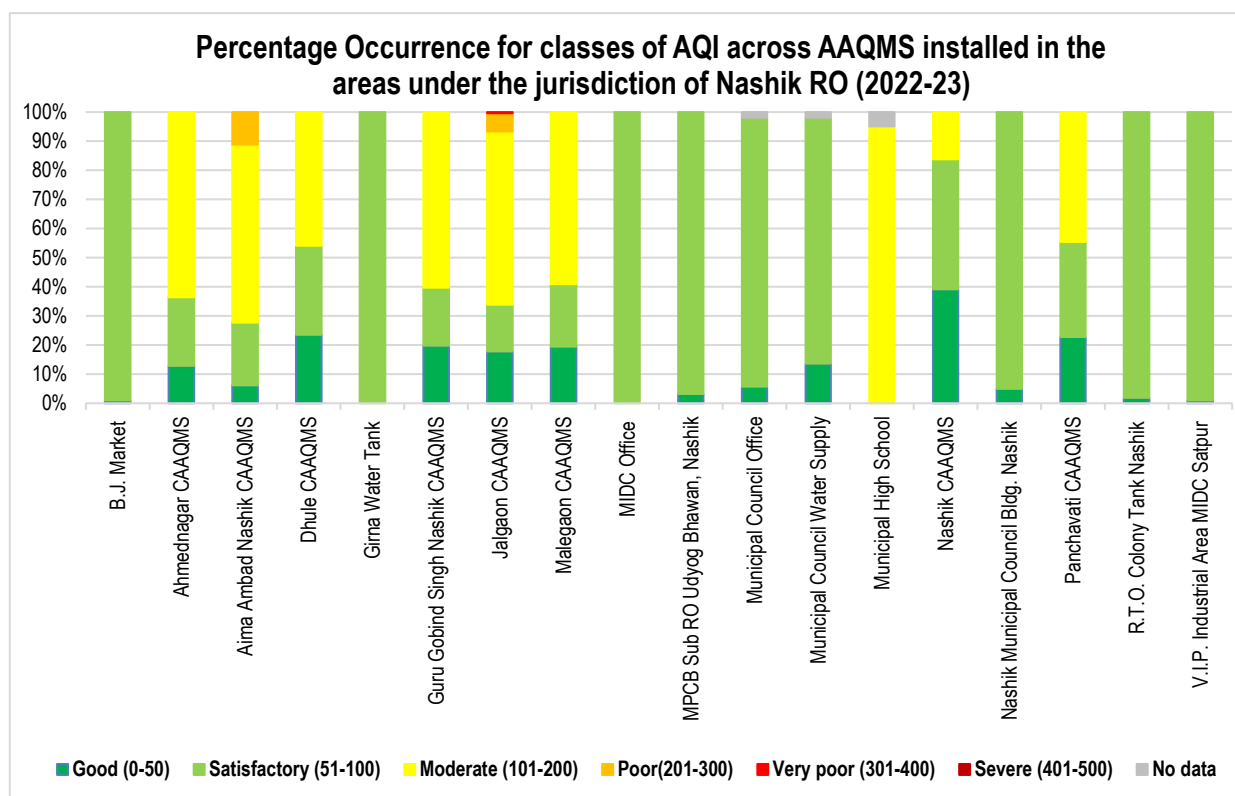


Figure No. 267: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Nashik RO (2022-23)

In the year 2022-23, a total of 9 AAQMS out of the total 18 AAQMS installed in the areas under the jurisdiction of Nashik RO recorded the observations coming under the 'Non-Polluted' category, with 100% of the observation recorded by AAQMS at Girna Water Tank and MIDC Office recorded under the 'Satisfactory' AQI category. Jalgaon CAAQMS recorded about 59.50% observations under the 'Moderate' category followed by 6.20% ('Poor') and 0.41% under the 'Very poor' category.

The 'Poor' category observations were recorded only by Aima Ambad Nashik CAAQMS (11.16%) and Jalgaon CAAQMS (6.20%). About 1.92%, 1.94%, and 4.85% observations considered as 'No Data' for Municipal Council Office AAQMS, Municipal Council Water Supply AAQMS and Municipal High School AAQMS respectively.

Monthly and Annual Graphs

B.J. Market

Table No. 218: Data for Monthly average concentration recorded at B.J. Market

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
B.J. Market	2022	Apr	12	20	61
		May	12	20	63
		Jun	12	20	62
		Jul	12	20	61
		Aug	12	20	63
		Sep	12	20	64
		Oct	12	20	64
		Nov	12	20	65
		Dec	12	20	68
	2023	Jan	13	21	69
		Feb	13	21	71
		Mar	13	21	73

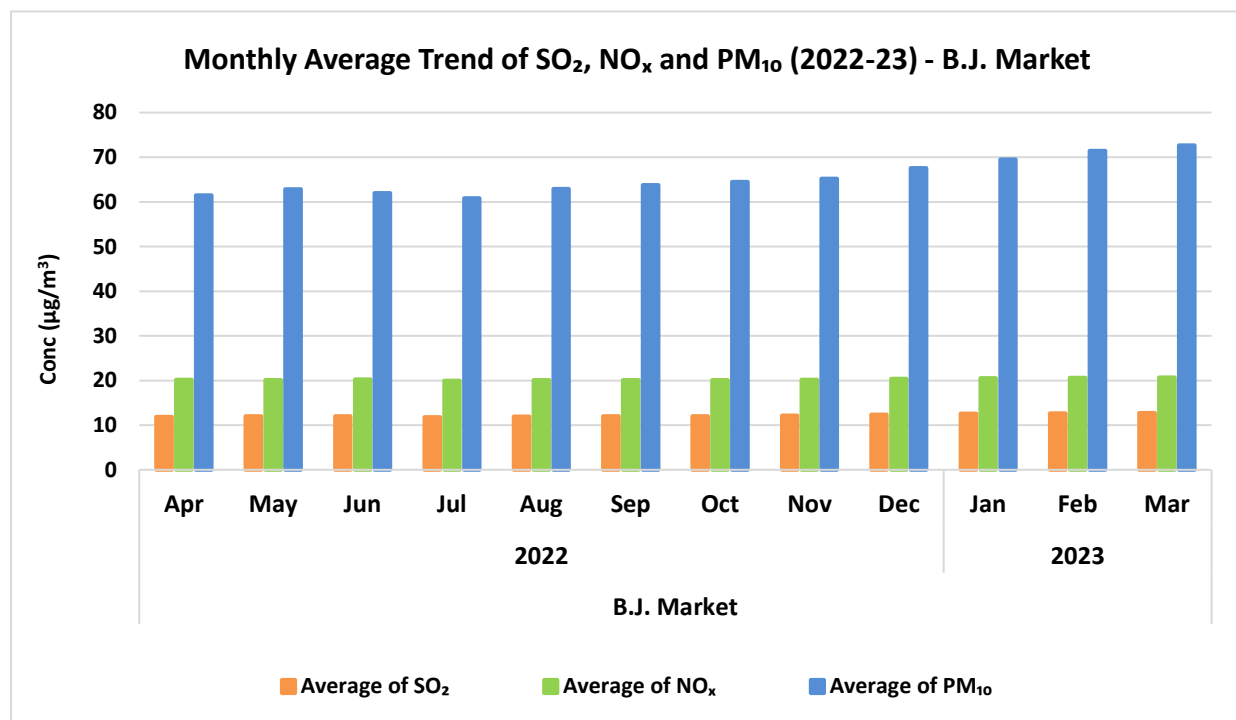
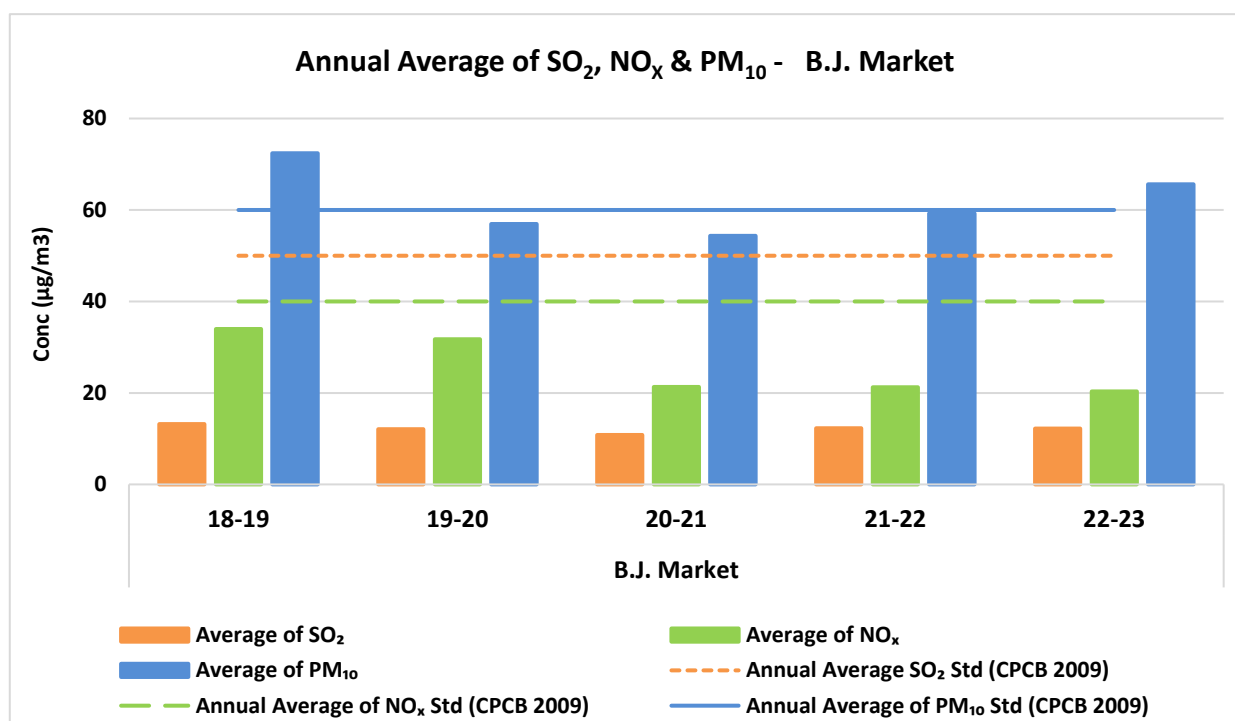


Figure No. 268: Monthly average concentration recorded at B.J. Market

Table No. 219: Data for Annual average trend of SO₂, NO_x and PM₁₀ at B.J. Market

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
B.J. Market	18-19	13	34	72
	19-20	12	32	57
	20-21	11	21	54
	21-22	12	21	59
	22-23	12	20	66

Figure No. 269: Annual average trend of SO₂, NO_x and PM₁₀ at B.J. Market

Ahmednagar CAAQMS

Table No. 220: Data for Monthly average concentration recorded at Ahmednagar CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Ahmednagar CAAQMS	2022	Aug	4	13	56	15
		Sep	6	13	60	15
		Oct	17	34	97	32
		Nov	13	49	160	61
		Dec	19	68	152	48
	2023	Jan	14	39	158	56
		Feb	14	63	163	67
		Mar	16	54	126	59

Table No. 221: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ahmednagar CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Ahmednagar CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	13	41	122	44

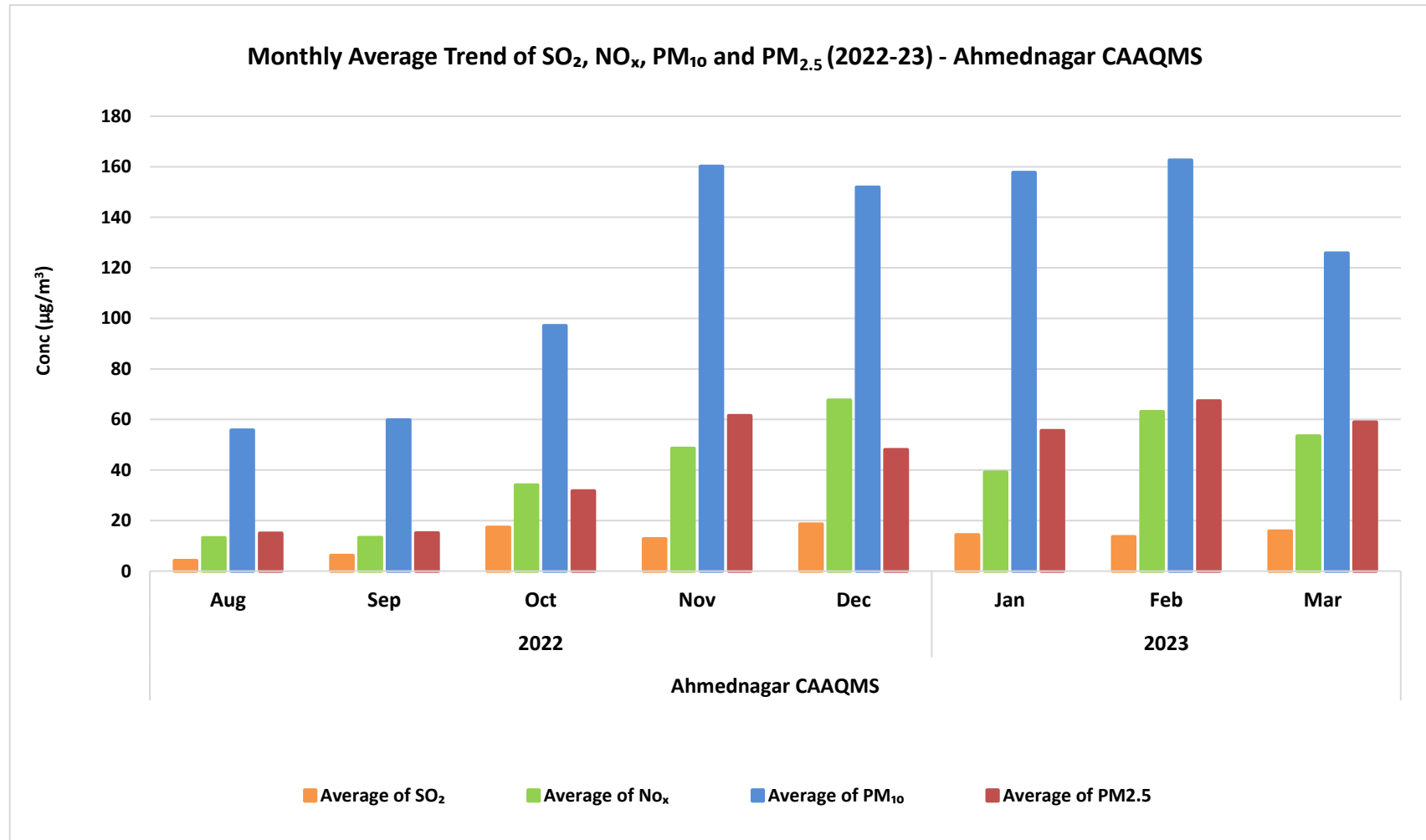


Figure No. 270: Monthly average concentration recorded at Ahmednagar CAAQMS

Aima Ambad Nashik CAAQMS

Table No. 222: Data for Monthly average concentration recorded at Aima Ambad Nashik CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Aima Ambad Nashik CAAQMS	2022	Aug	2	12	65	53
		Sep	3	11	77	60
		Oct	7	11	123	55
		Nov	16	25	232	109
		Dec	14	23	196	106
	2023	Jan	16	21	224	90
		Feb	24	29	203	82
		Mar	23	22	162	62

Table No. 223: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Aima Ambad Nashik CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Aima Ambad Nashik CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	13	19	160	77

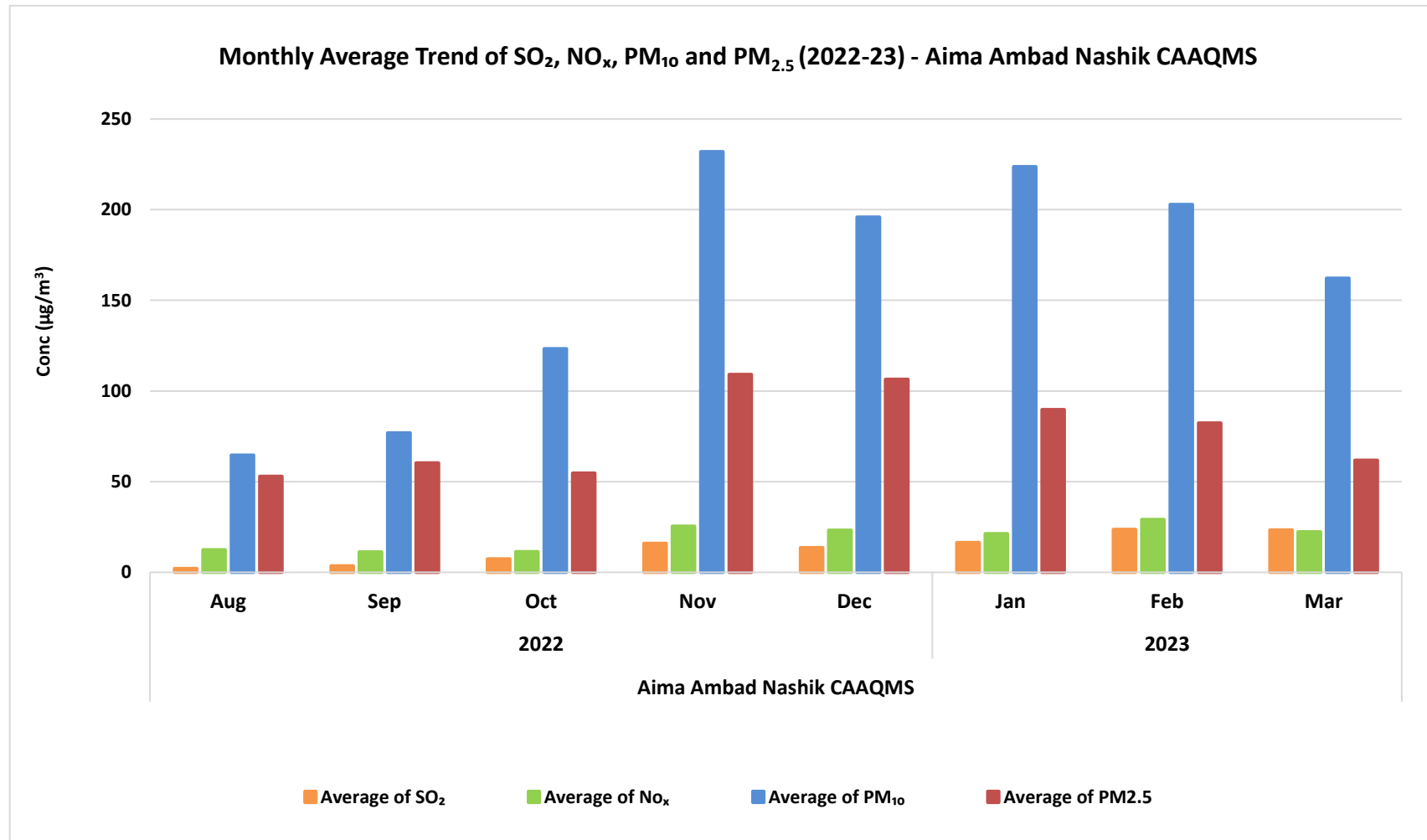


Figure No. 271: Monthly average concentration recorded at Aima Ambad Nashik CAAQMS

Dhule CAAQMS

Table No. 224: Data for Monthly average concentration recorded at Dhule CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Dhule CAAQMS	2022	Aug	18	21	36	18
		Sep	19	18	44	22
		Oct	19	14	73	26
		Nov	2	24	130	65
		Dec	3	20	115	61
	2023	Jan	3	19	116	61
		Feb	2	22	101	50
		Mar	3	18	90	46

Table No. 225: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Dhule CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Dhule CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	8	19	88	44

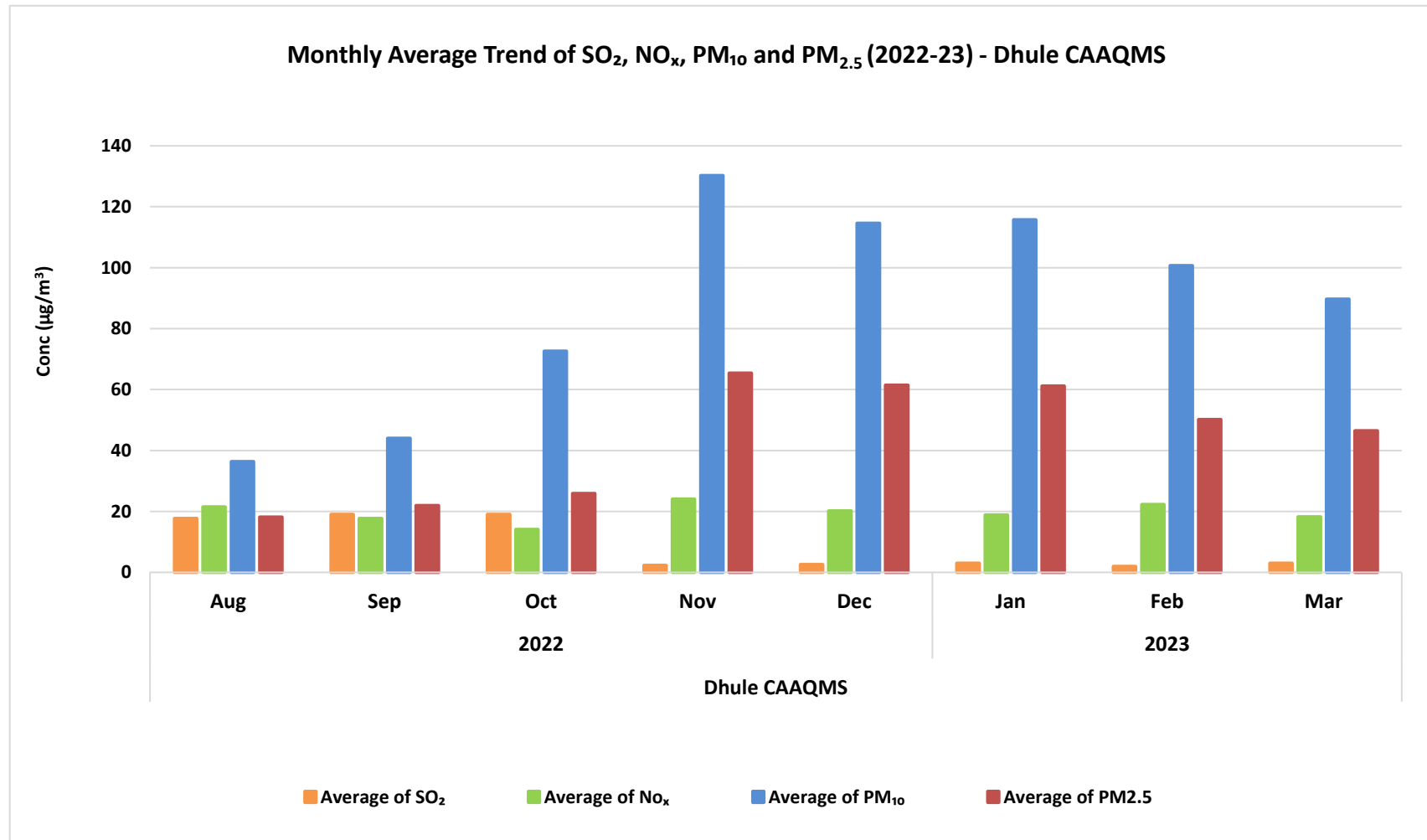


Figure No. 272: Monthly average concentration recorded at Dhule CAAQMS

Girna Water Tank

Table No. 226: Data for Monthly average concentration recorded at Girna Water Tank

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Girna Water Tank	2022	Apr	12	20	59
		May	12	20	60
		Jun	12	20	60
		Jul	12	20	61
		Aug	12	20	62
		Sep	12	20	64
		Oct	12	20	66
		Nov	12	20	66
		Dec	12	20	68
	2023	Jan	12	20	70
		Feb	12	21	71
		Mar	12	21	73

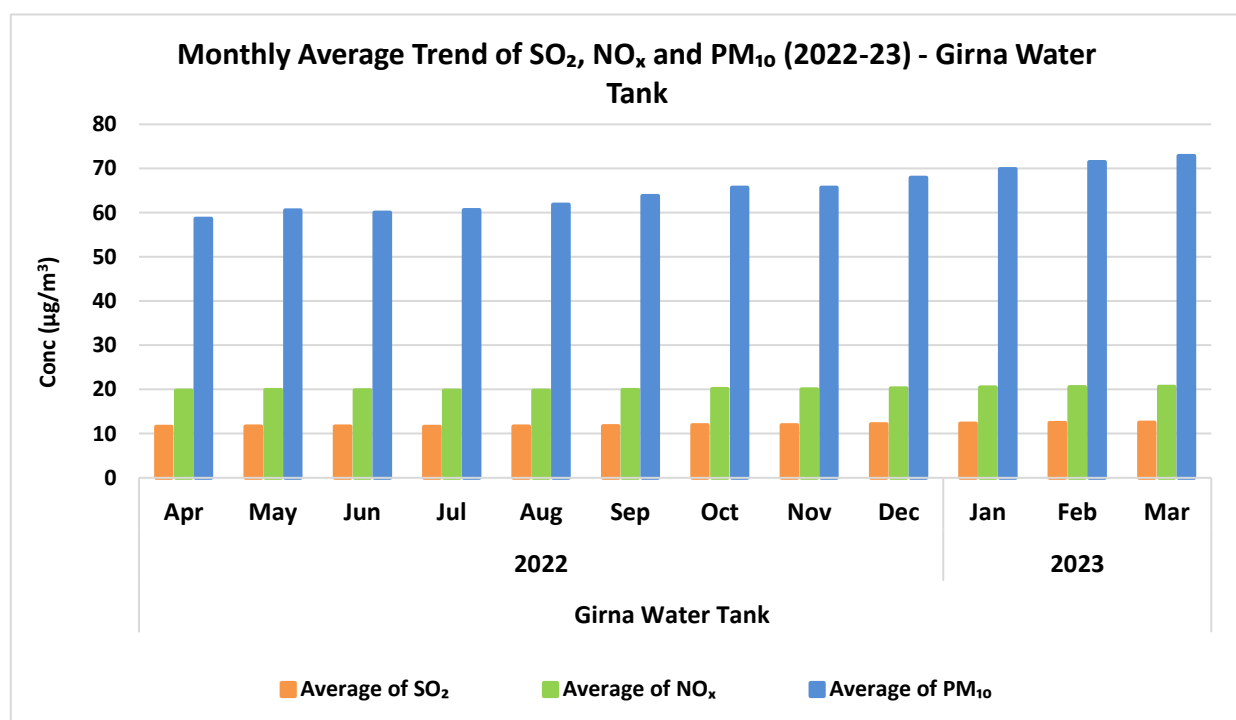
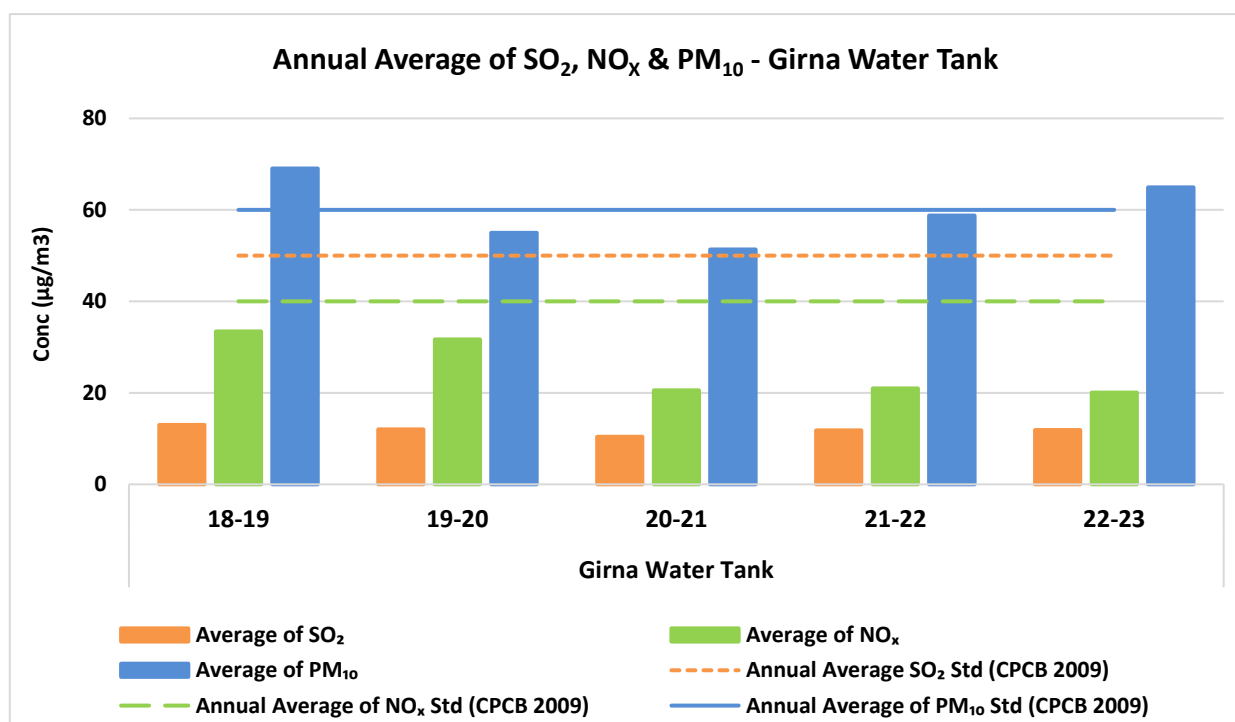


Figure No. 273: Monthly average concentration recorded at Girna Water Tank

Table No. 227: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Girna Water Tank

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Girna Water Tank	18-19	13	33	69
	19-20	12	32	55
	20-21	10	21	51
	21-22	12	21	59
	22-23	12	20	65

Figure No. 274: Annual average trend of SO₂, NO_x and PM₁₀ at Girna Water Tank

Guru Gobind Singh Nashik CAAQMS

Table No. 228: Data for Monthly average concentration recorded at Guru Gobind Singh Nashik CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Guru Gobind Singh Nashik CAAQMS	2022	Aug	1	9	35	12
		Sep	5	10	64	16
		Oct	7	13	112	34
		Nov	11	24	126	58
		Dec	9	24	119	62
	2023	Jan	12	24	142	81
		Feb	16	32	130	59
		Mar	9	17	93	46

Table No. 229: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Guru Gobind Singh Nashik CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Guru Gobind Singh Nashik CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	9	19	102	46

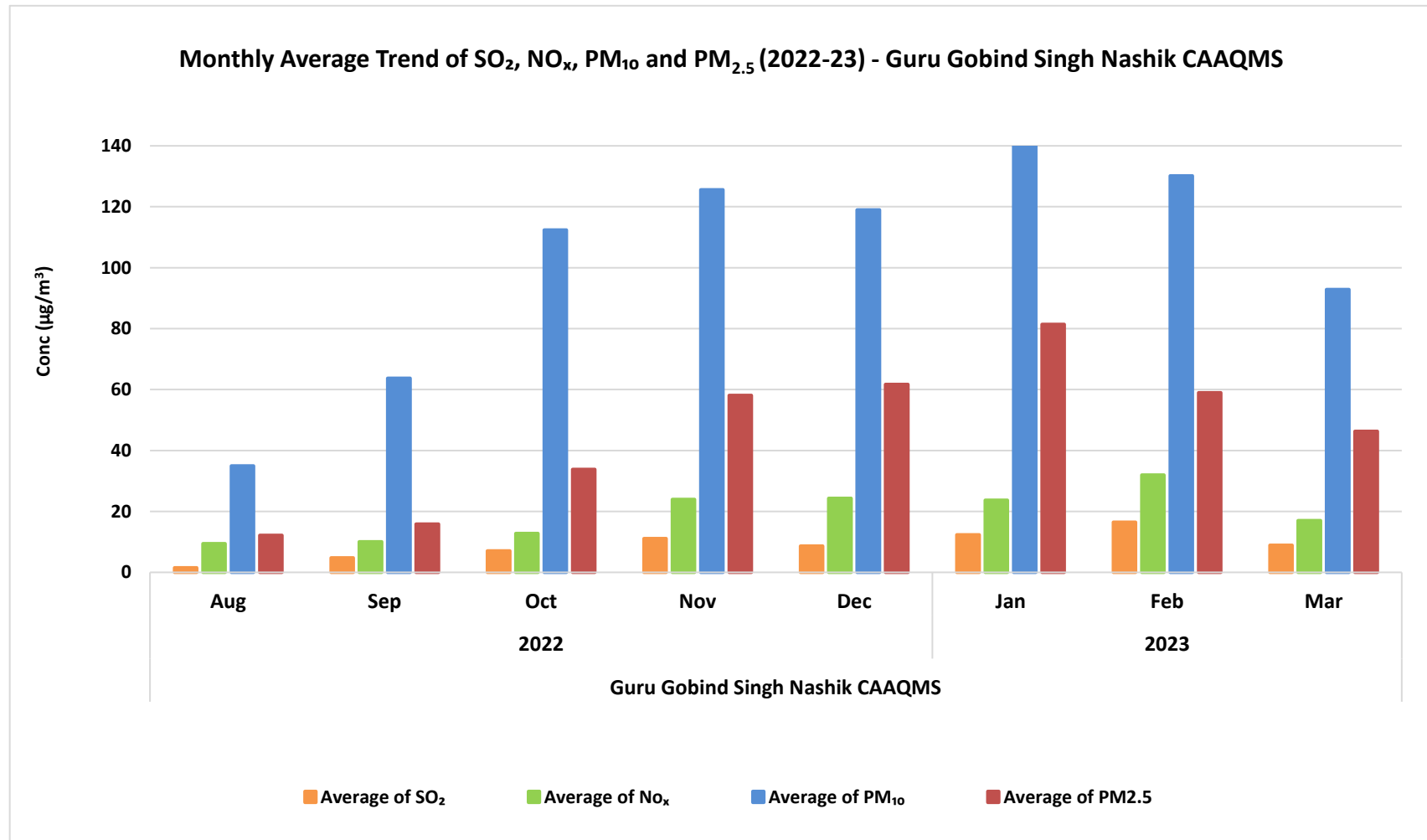


Figure No. 275: Monthly average concentration recorded at Guru Gobind Singh Nashik CAAQMS

Jalgaon CAAQMS

Table No. 230: Data for Monthly average concentration recorded at Jalgaon CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Jalgaon CAAQMS	2022	Aug	8	9	43	26
		Sep	5	10	48	31
		Oct	7	16	110	67
		Nov	10	27	202	126
		Dec	11	26	178	114
	2023	Jan	9	25	170	97
		Feb	23	40	228	96
		Mar	18	20	173	75

Table No. 231: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Jalgaon CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Jalgaon CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	21	143	78

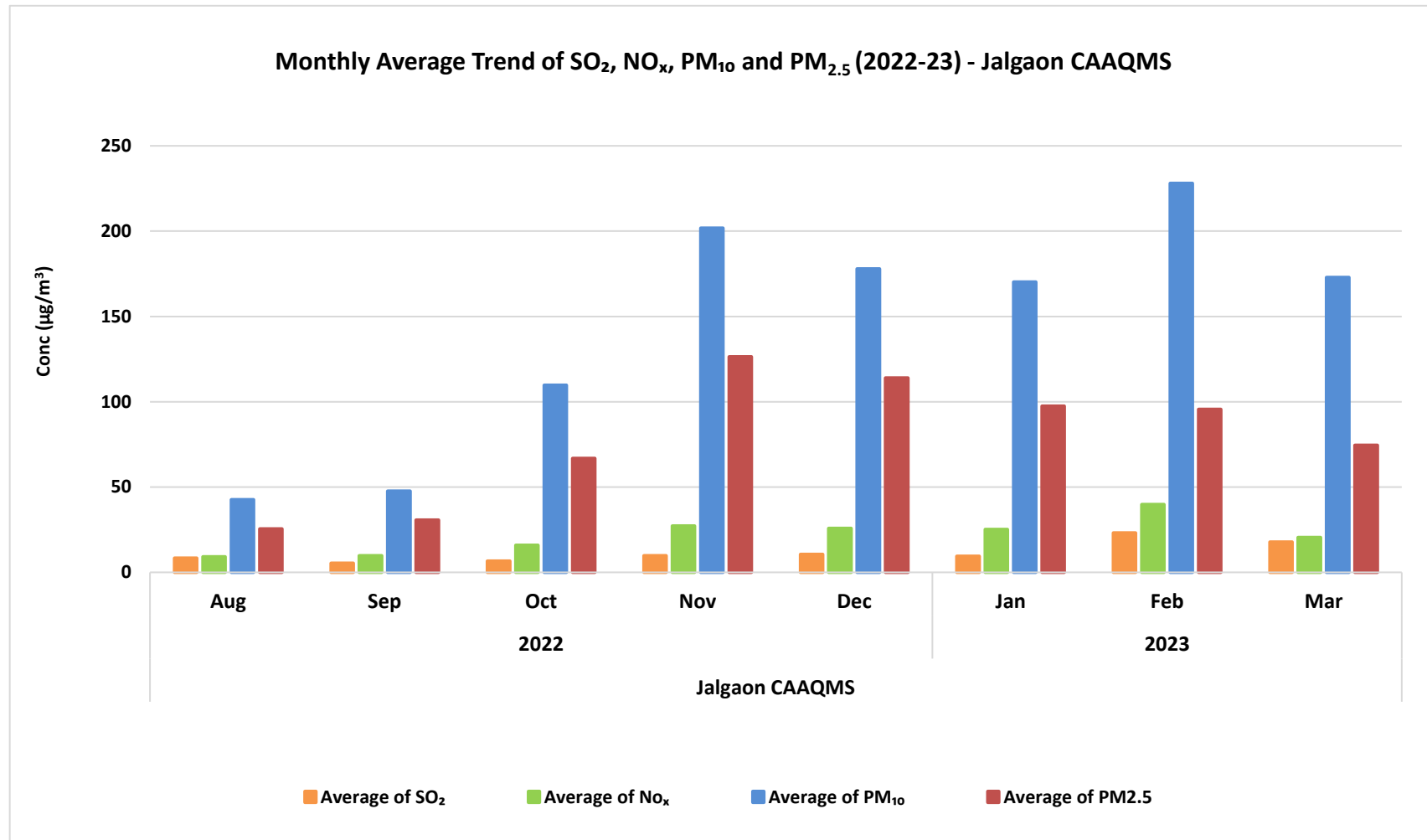


Figure No. 276: Monthly average concentration recorded at Jalgaon CAAQMS

Malegaon CAAQMS

Table No. 232: Data for Monthly average concentration recorded at Malegaon CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Malegaon CAAQMS	2022	Aug	3	12	47	21
		Sep	5	11	43	24
		Oct	5	17	81	36
		Nov	5	28	148	75
		Dec	8	27	144	93
	2023	Jan	9	28	162	107
		Feb	5	28	157	87
		Mar	3	23	126	55

Table No. 233: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Malegaon CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Malegaon CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	5	22	116	65

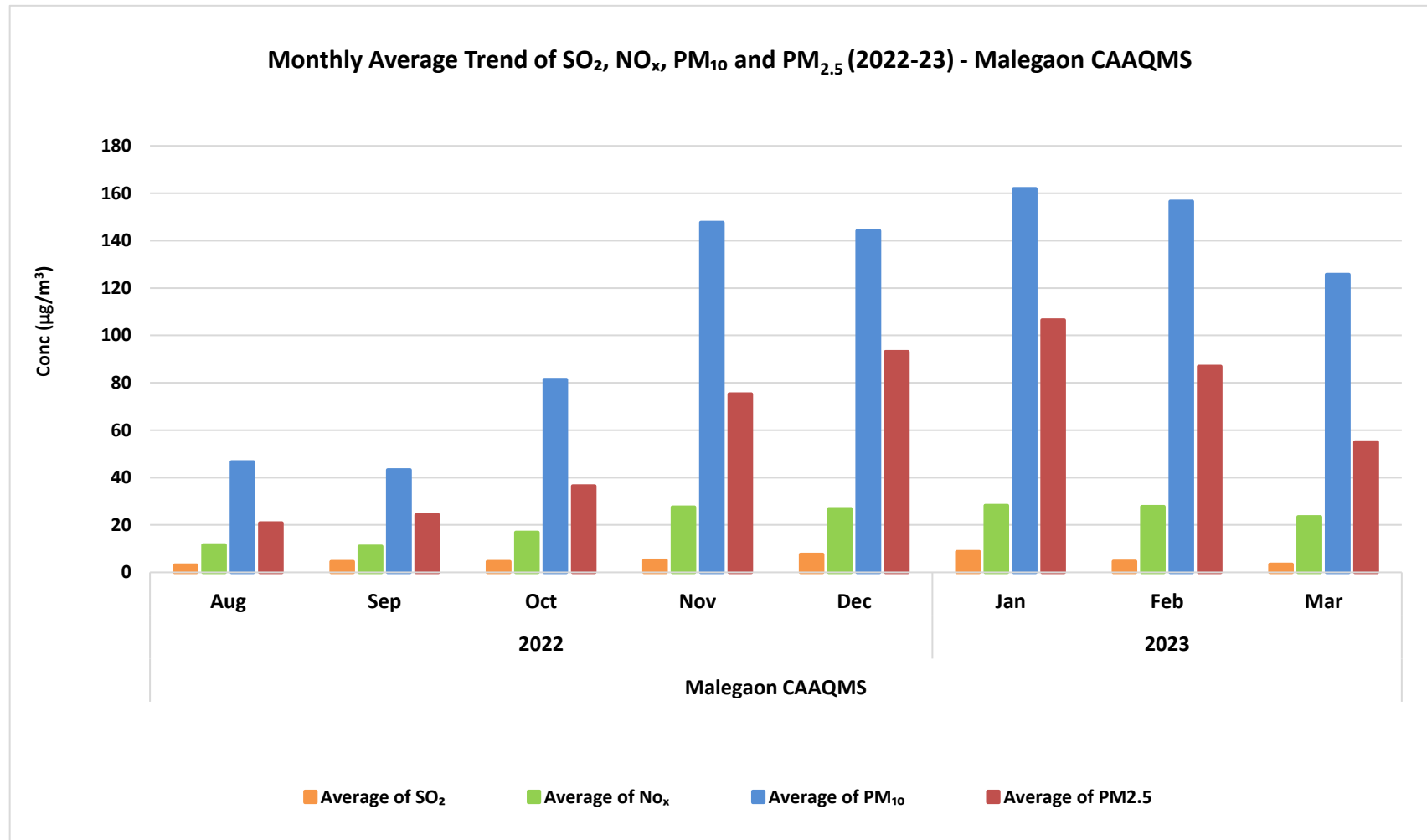


Figure No. 277: Monthly average concentration recorded at Malegaon CAAQMS

MIDC Office

Table No. 234: Data for Monthly average concentration recorded at MIDC Office

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Office	2022	Apr	13	20	62
		May	13	20	63
		Jun	13	20	63
		Jul	13	20	62
		Aug	13	20	63
		Sep	13	20	65
		Oct	13	20	65
		Nov	13	20	66
		Dec	13	20	68
	2023	Jan	13	21	70
		Feb	14	21	72
		Mar	14	21	73

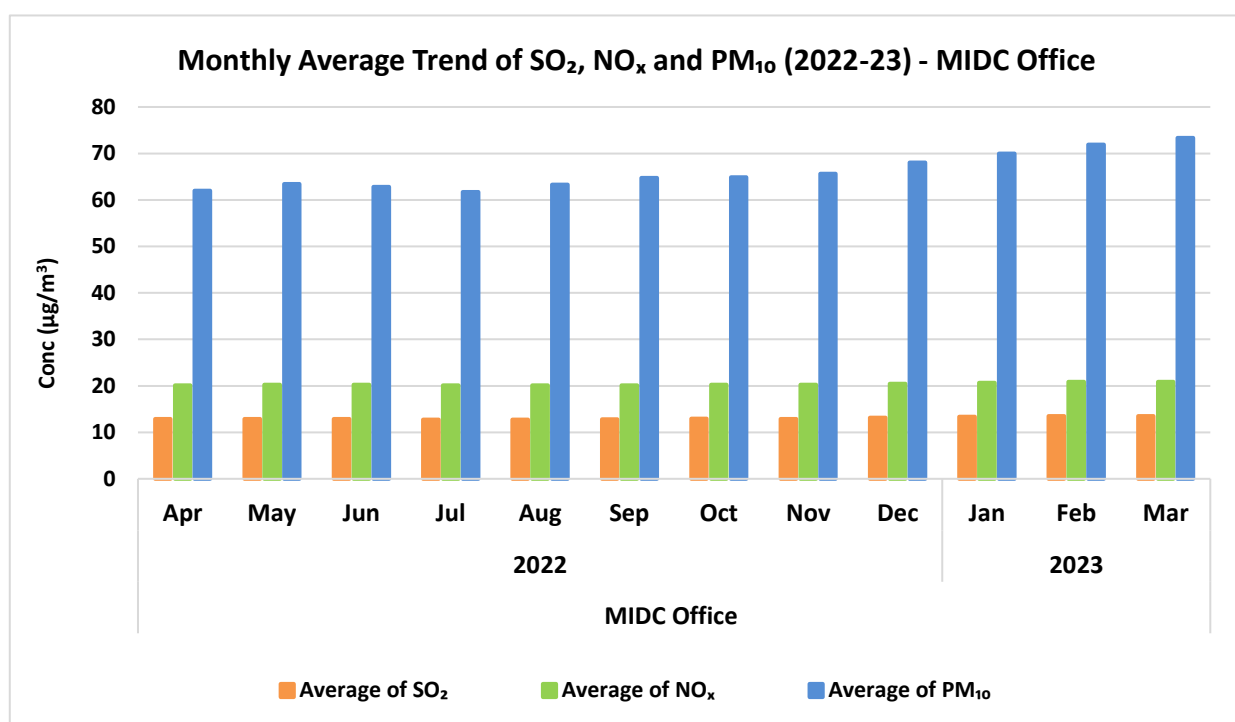
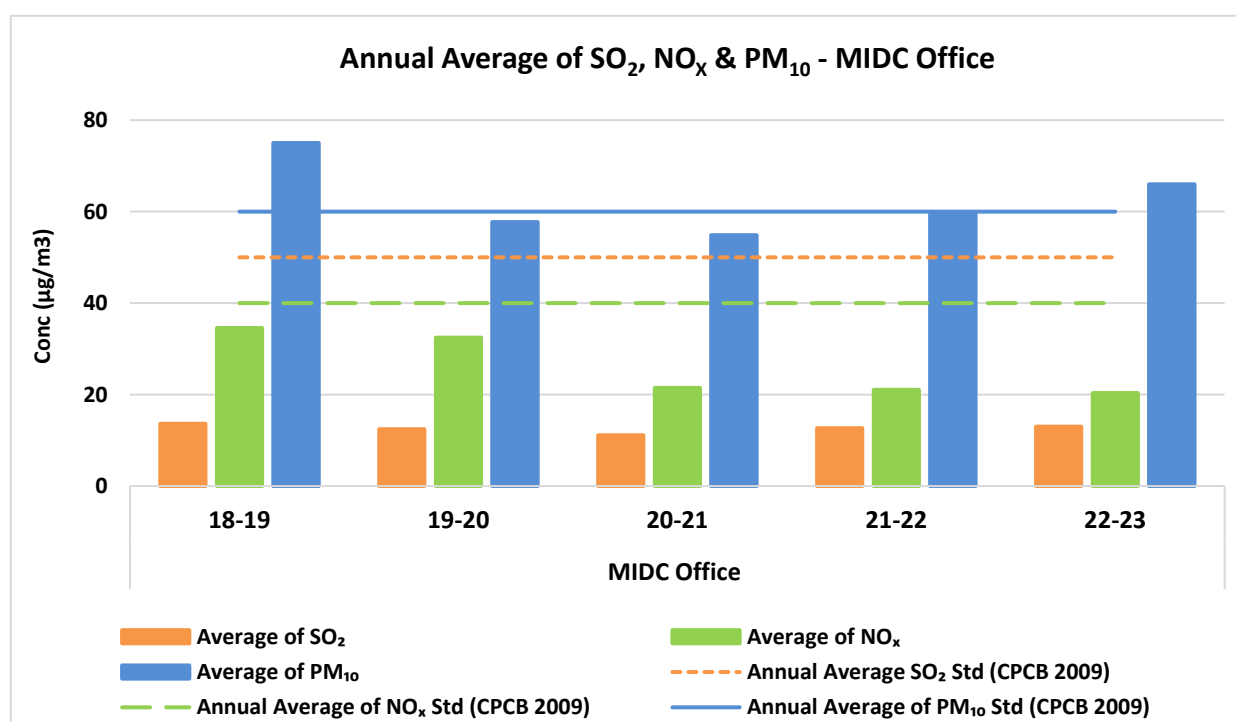


Figure No. 278: Monthly average concentration recorded at MIDC Office

Table No. 235: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Office	18-19	14	35	75
	19-20	12	32	58
	20-21	11	21	55
	21-22	13	21	60
	22-23	13	20	66

Figure No. 279: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office

MPCB Sub RO Udyog Bhawan, Nashik

Table No. 236: Data for Monthly average concentration recorded at MPCB Sub RO Udyog Bhawan, Nashik

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MPCB Sub RO Udyog Bhawan, Nashik	2022	Apr	3	32	55
		May	5	31	54
		Jun	3	32	54
		Jul	2	29	52
		Aug	3	30	55
		Sep	4	33	55
		Oct	4	31	56
		Nov	5	32	57
		Dec	5	31	55
	2023	Jan	4	32	56
		Feb	4	32	55
		Mar	4	29	55

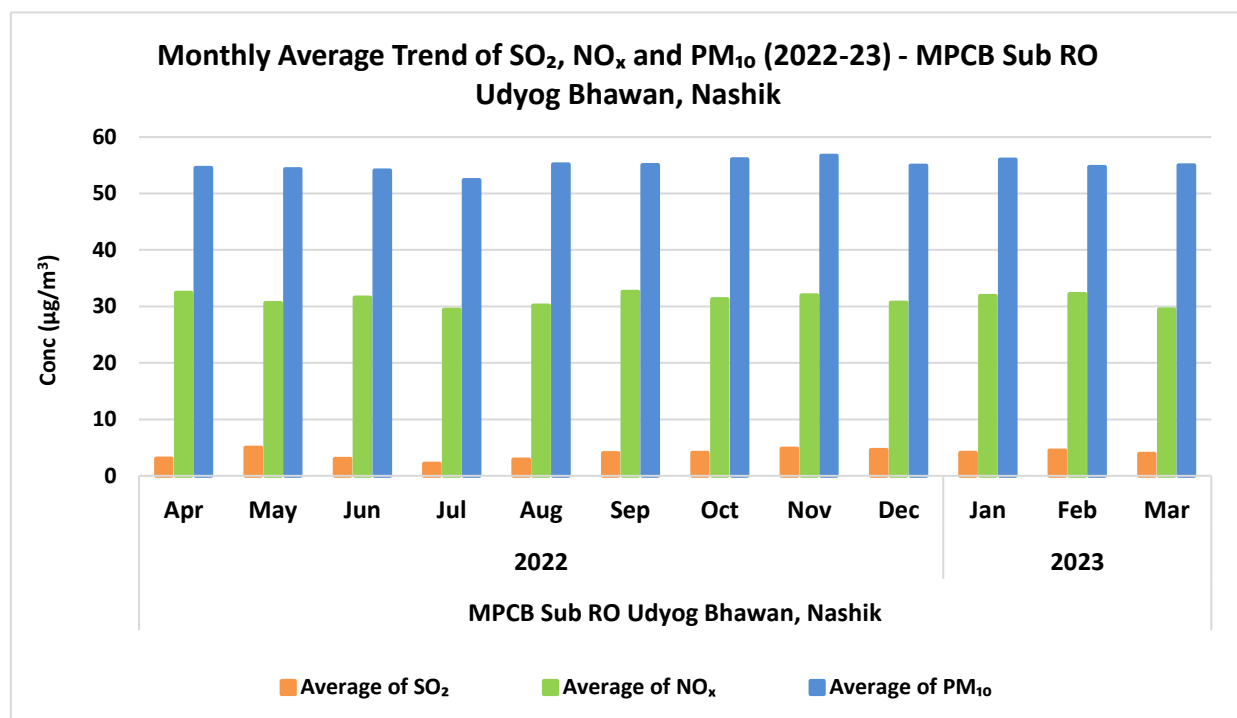
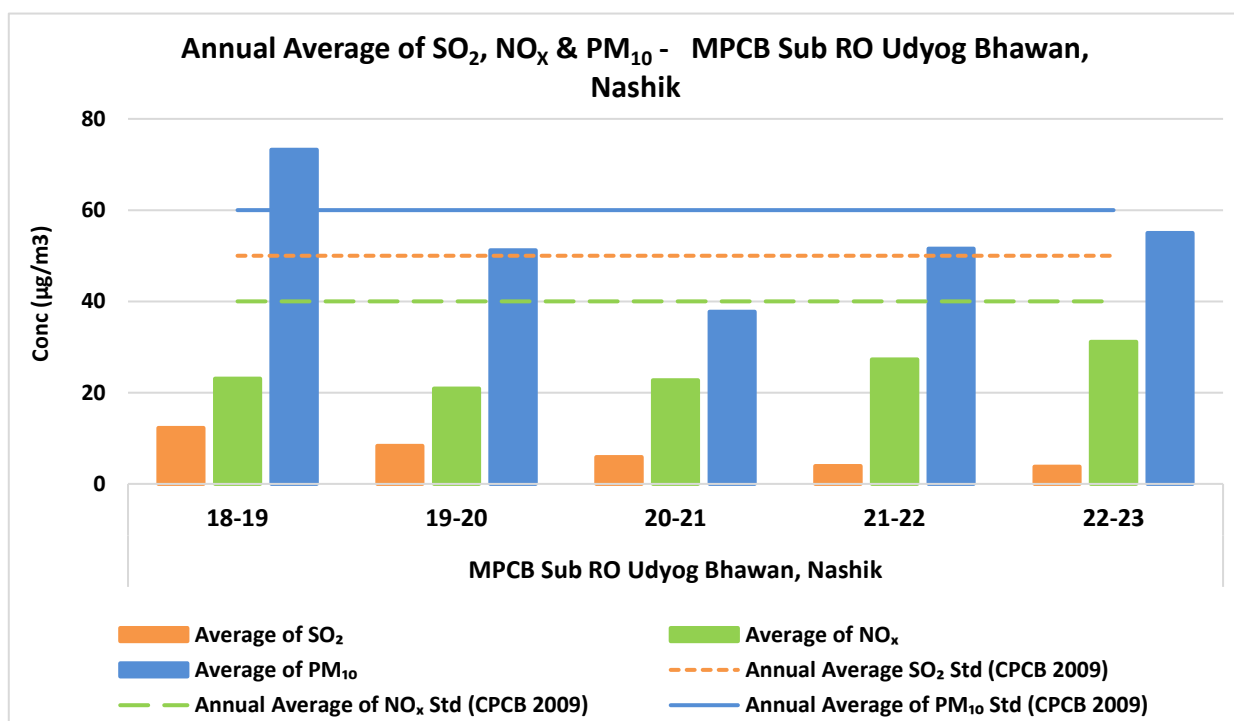


Figure No. 280: Monthly average concentration recorded at MPCB Sub RO Udyog Bhawan, Nashik

Table No. 237: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Sub RO Udyog Bhawan, Nashik

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MPCB Sub RO Udyog Bhawan, Nashik	18-19	12	23	73
	19-20	8	21	51
	20-21	6	23	38
	21-22	4	27	52
	22-23	4	31	55

Figure No. 281: Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Sub RO Udyog Bhawan, Nashik

Municipal Council Office

Table No. 238: Data for Monthly average concentration recorded at Municipal Council Office

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Municipal Council Office	2022	Apr	8	16	65
		May	8	16	62
		Jun	7	16	61
		Jul	-	17	-
		Aug	7	16	61
		Sep	7	15	59
		Oct	7	16	61
		Nov	7	16	62
		Dec	7	16	64
	2023	Jan	7	16	66
		Feb	8	16	68
		Mar	8	17	71

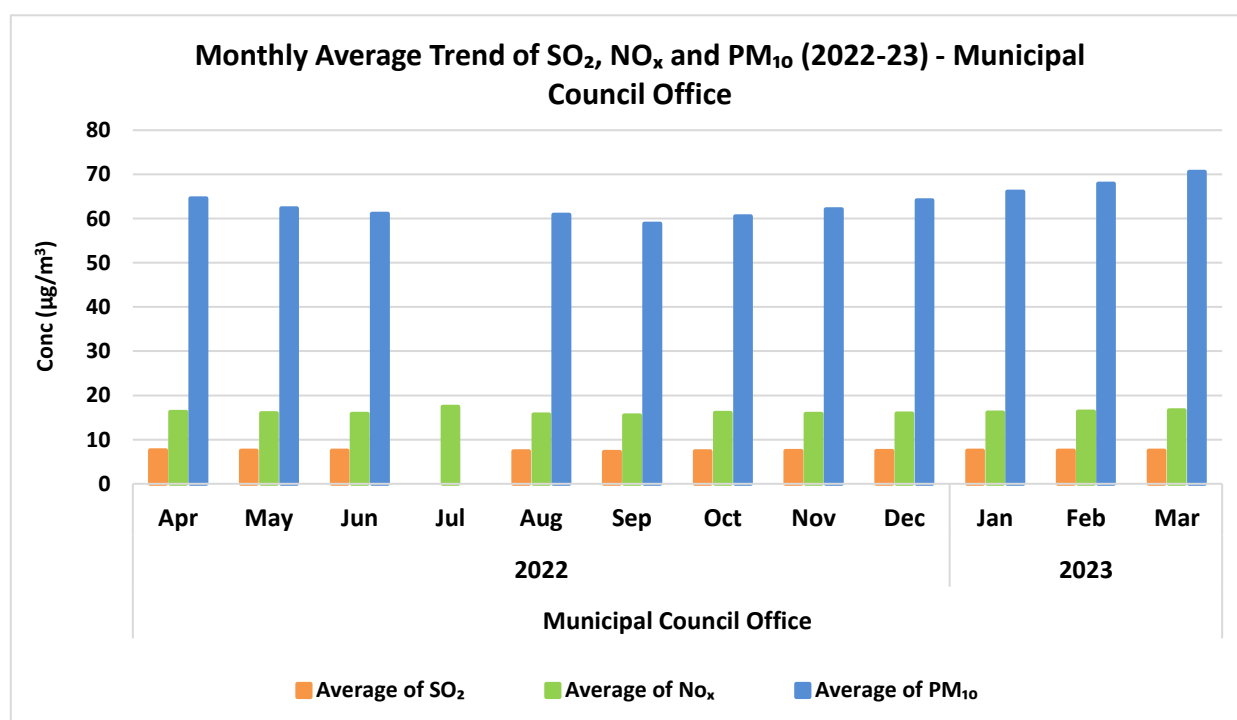
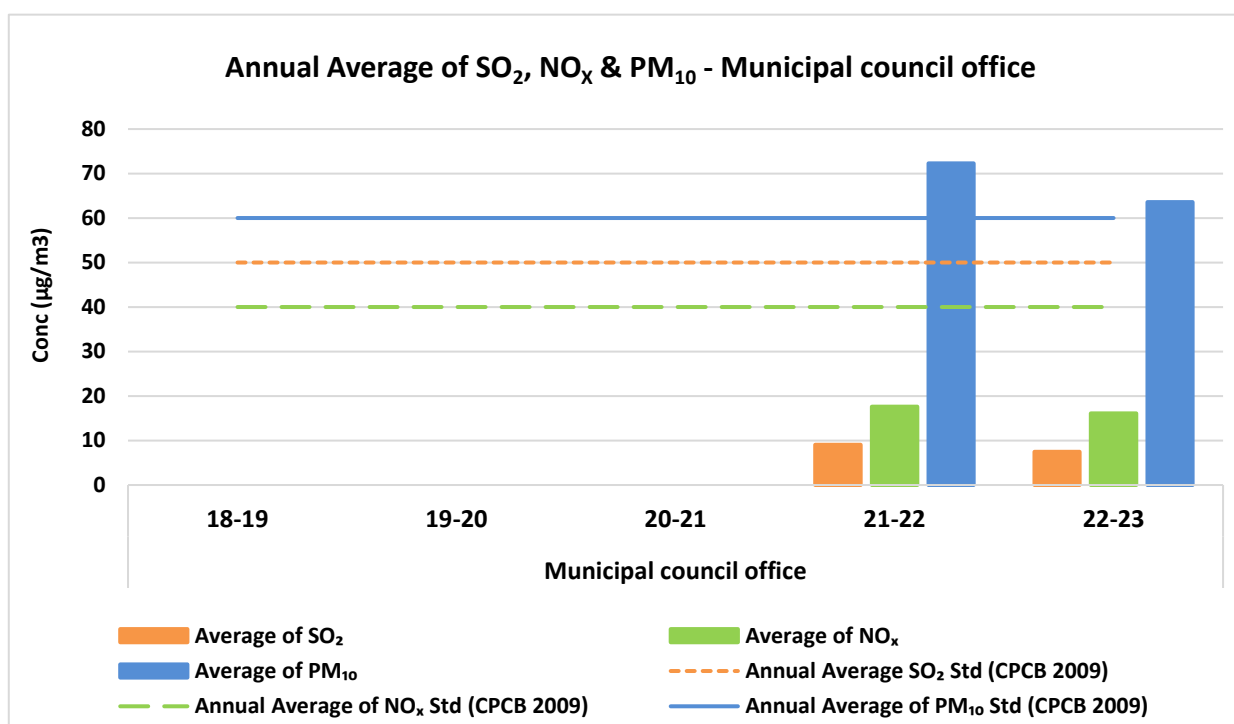


Figure No. 282: Monthly average concentration recorded at Municipal Council Office

Table No. 239: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council Office

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Municipal council office	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	9	18	72
	22-23	7	16	64

Figure No. 283: Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council Office

Municipal Council Water Supply

Table No. 240: Data for Monthly average concentration recorded at Municipal Council Water Supply

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Municipal Council Water Supply	2022	Apr	7	16	59
		May	7	15	57
		Jun	7	15	56
		Jul	7	15	54
		Aug	7	15	51
		Sep	7	15	49
		Oct	7	15	51
		Nov	7	15	53
		Dec	7	15	55
	2023	Jan	7	16	57
		Feb	7	16	59
		Mar	7	16	61

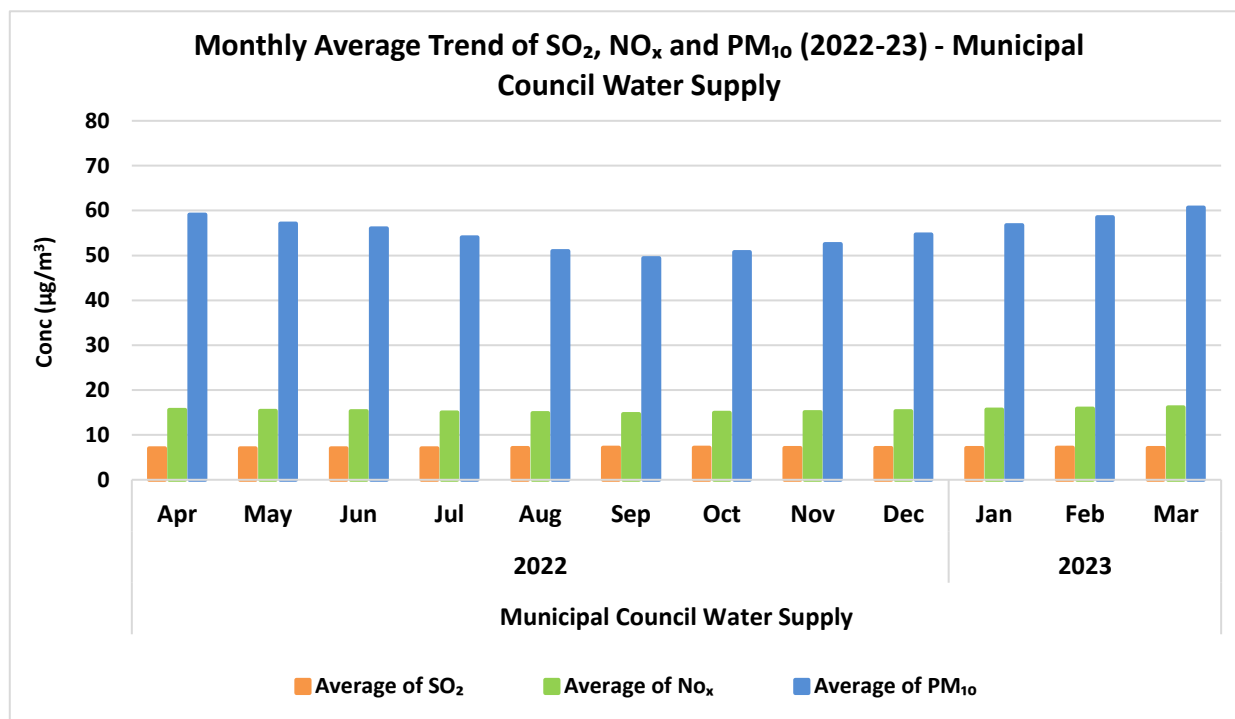
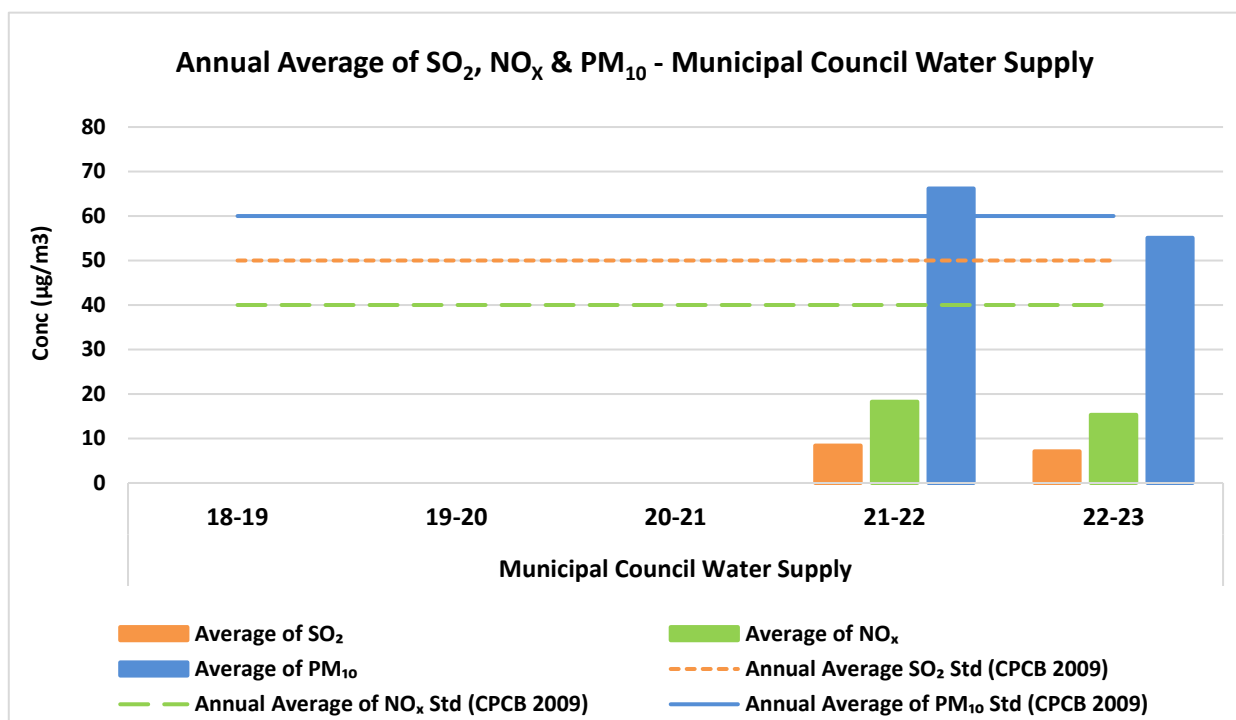


Figure No. 284: Monthly average concentration recorded at Municipal Council Water Supply

Table No. 241: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council Water Supply

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Municipal Council Water Supply	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	8	18	66
	22-23	7	15	55

Figure No. 285: Annual average trend of SO₂, NO_x and PM₁₀ at Municipal Council Water Supply

Municipal High School

Table No. 242: Data for Monthly average concentration recorded at Municipal High School

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Municipal High School	2022	Apr	7	18	134	38
		May	7	18	131	47
		Jun	7	18	130	59
		Jul	7	17	129	40
		Aug	7	17	127	38
		Sep	7	17	125	23
		Oct	7	17	127	25
		Nov	7	17	128	41
		Dec	7	18	129	38
	2023	Jan	8	18	132	35
		Feb	8	18	134	28
		Mar	8	18	136	26

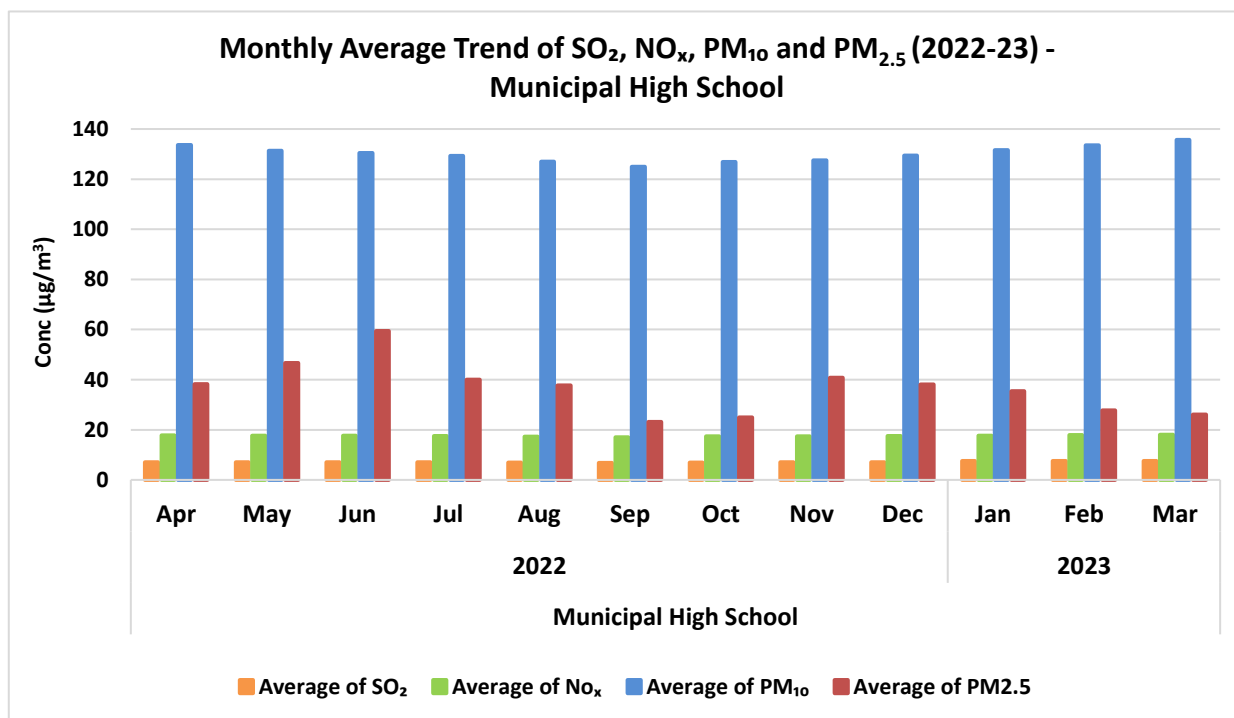
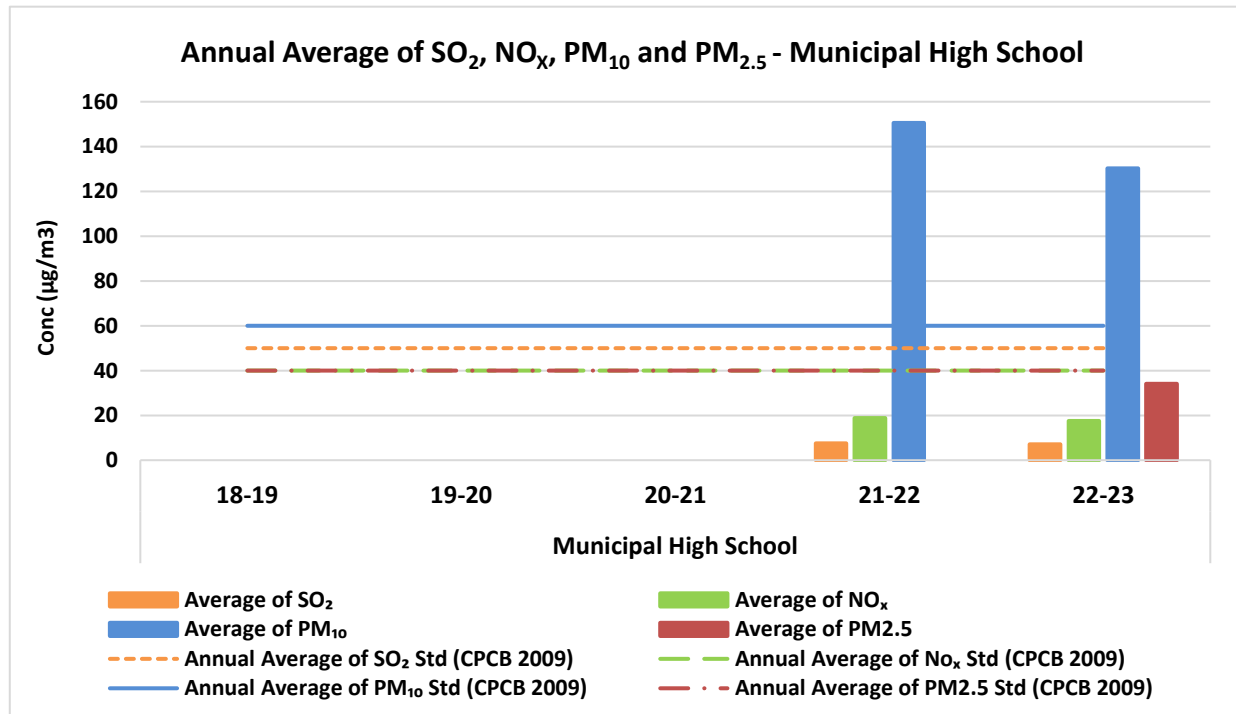


Figure No. 286: Monthly average concentration recorded at Municipal High School

Table No. 243: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Municipal High School

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Municipal High School	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	7	19	150	-
	22-23	7	18	130	34

Figure No. 287: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Municipal High School

Nashik CAAQMS

Table No. 244: Data for Monthly average concentration recorded at Nashik CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nashik CAAQMS	2022	Apr	4	22	66	37
		May	2	19	81	29
		Jun	2	17	41	18
		Jul	2	16	22	13
		Aug	4	12	34	18
		Sep	7	10	31	22
		Oct	5	21	59	37
		Nov	4	27	119	70
		Dec	3	9	87	54
	2023	Jan	4	7	90	56
		Feb	6	7	89	43
		Mar	4	7	71	43

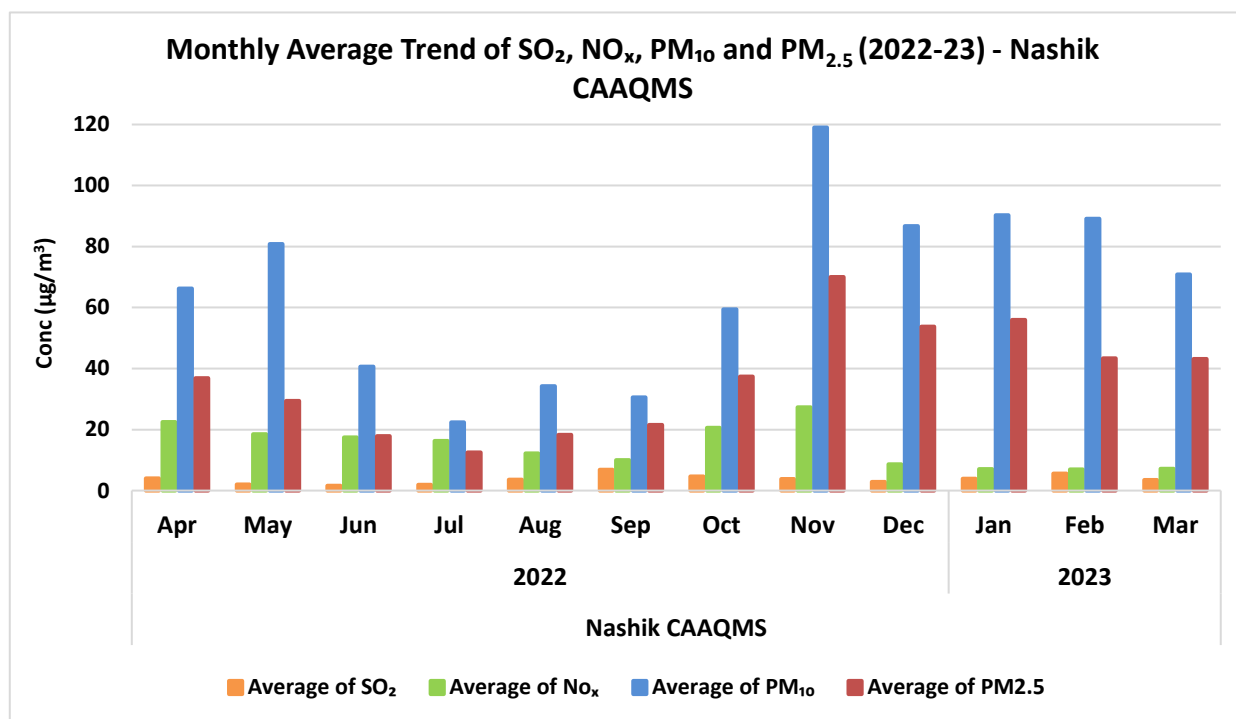
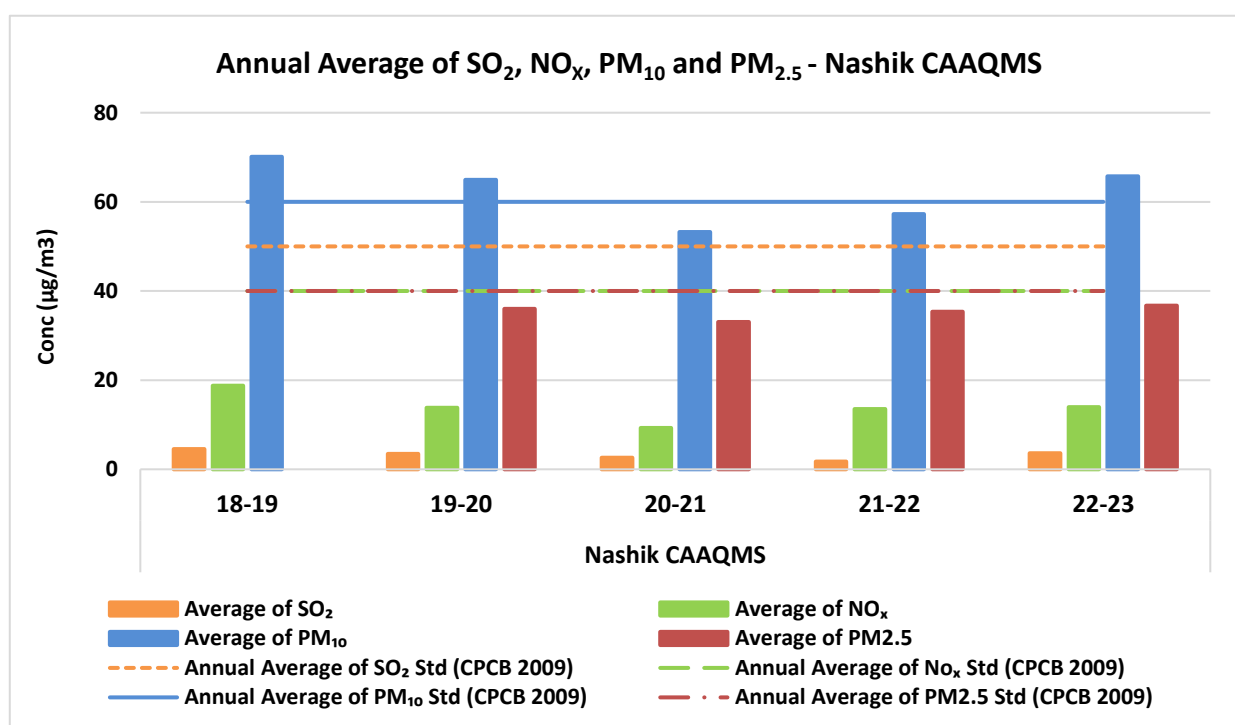


Figure No. 288: Monthly average concentration recorded at Nashik CAAQMS

Table No. 245: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nashik CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nashik CAAQMS	18-19	5	19	70	-
	19-20	3	14	65	36
	20-21	3	9	53	33
	21-22	2	14	57	35
	22-23	4	14	66	37

Figure No. 289: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nashik CAAQMS

Nashik Municipal Council Bldg. Nashik

Table No. 246: Data for Monthly average concentration recorded at Nashik Municipal Council Bldg. Nashik

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Nashik Municipal Council Bldg. Nashik	2022	Apr	4	30	54
		May	4	31	60
		Jun	3	31	52
		Jul	2	31	46
		Aug	3	31	51
		Sep	4	30	56
		Oct	3	31	63
		Nov	5	31	56
		Dec	5	31	62
	2023	Jan	4	32	59
		Feb	4	33	64
		Mar	4	30	55

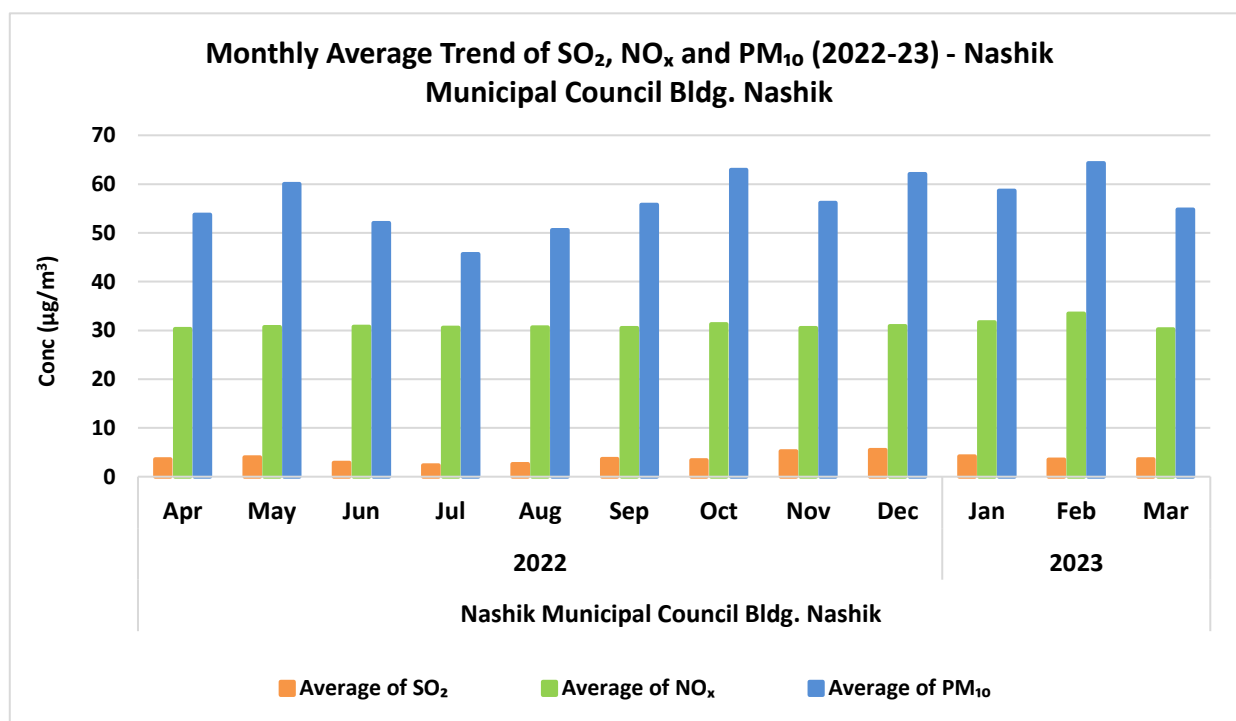
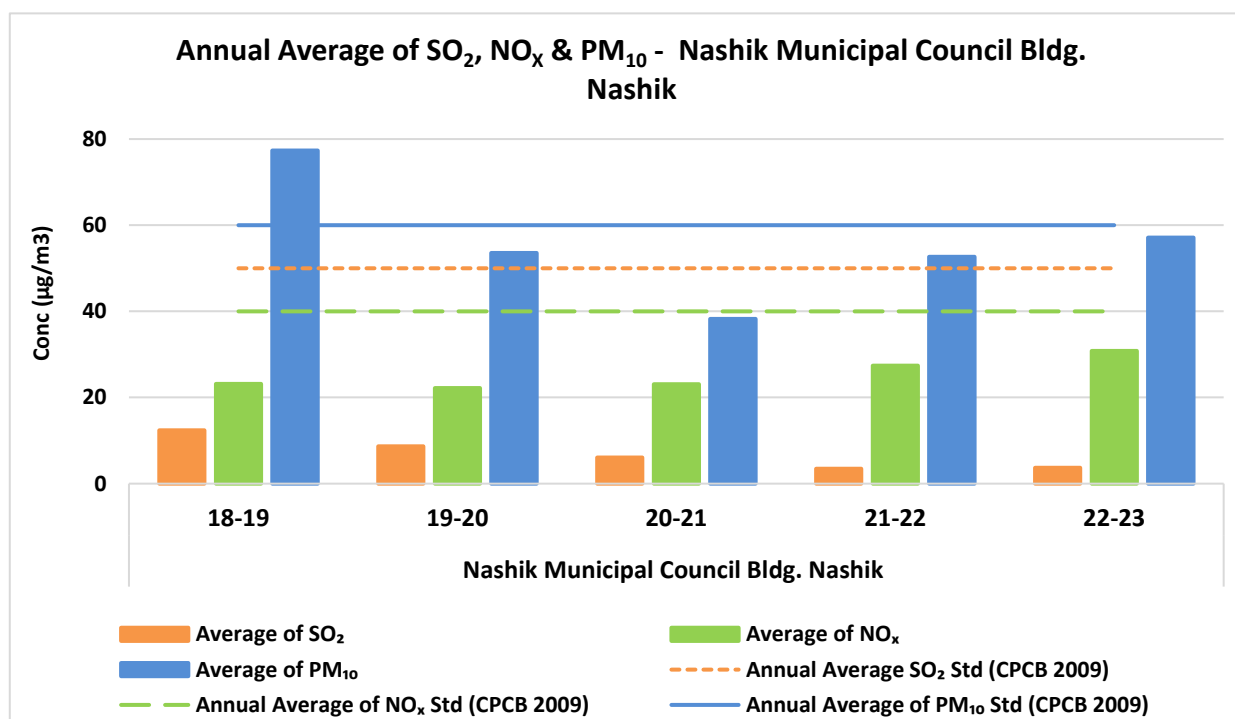


Figure No. 290: Monthly average concentration recorded at Nashik Municipal Council Bldg. Nashik

Table No. 247: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Nashik Municipal Council Bldg, Nashik

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Nashik Municipal Council Bldg, Nashik	18-19	12	23	77
	19-20	9	22	54
	20-21	6	23	38
	21-22	3	27	53
	22-23	4	31	57

Figure No. 291: Annual average trend of SO₂, NO_x and PM₁₀ at Nashik Municipal Council Bldg, Nashik

Panchavati CAAQMS

Table No. 248: Data for Monthly average concentration recorded at Panchavati CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Panchavati CAAQMS	2022	Aug	3	9	39	17
		Sep	5	9	51	24
		Oct	7	23	81	32
		Nov	11	27	119	63
		Dec	9	24	98	57
	2023	Jan	11	22	127	69
		Feb	9	22	109	52
		Mar	8	17	89	39

Table No. 249: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Panchavati CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Panchavati CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	8	19	89	44

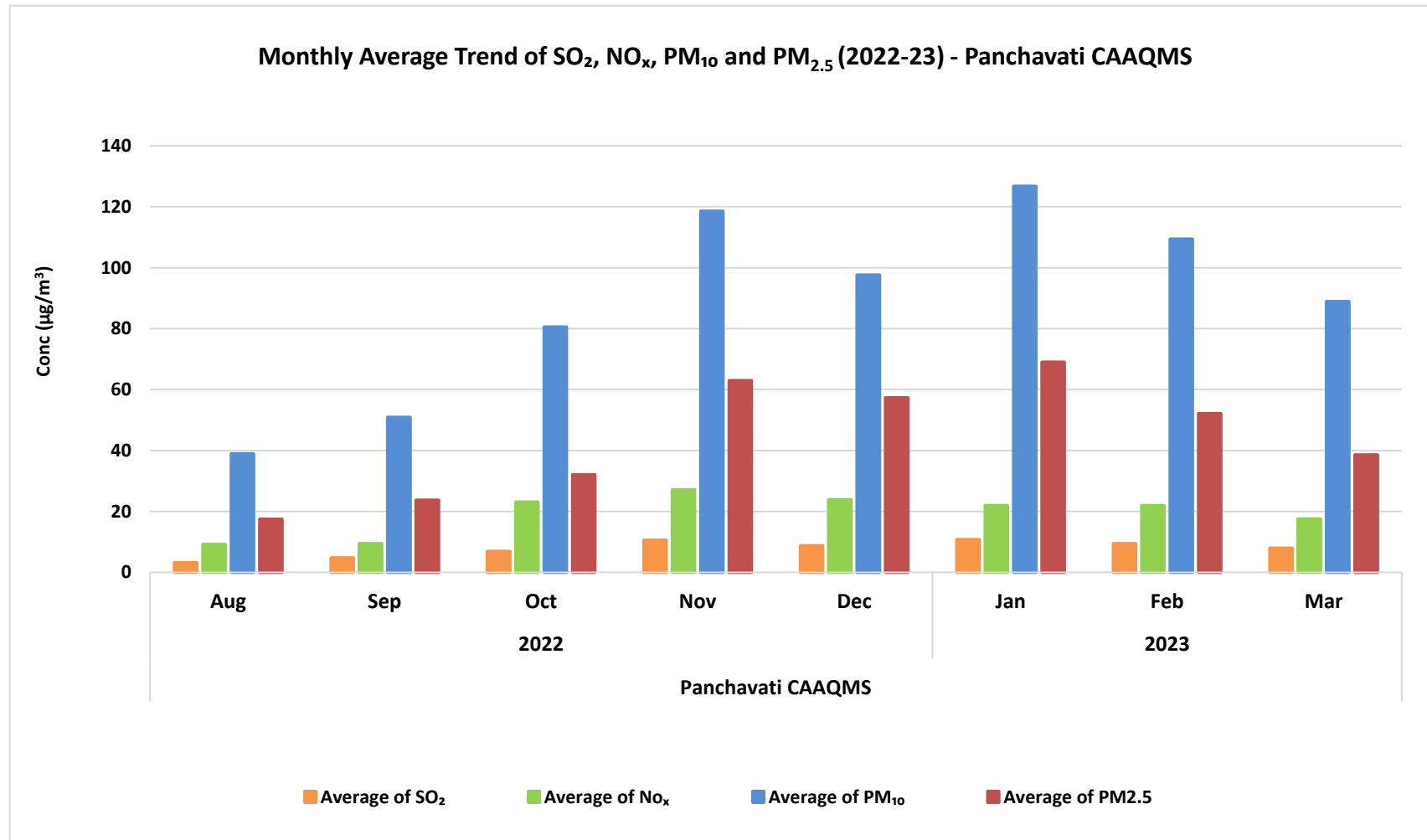


Figure No. 292: Monthly average concentration recorded at Panchavati CAAQMS

R.T.O. Colony Tank Nashik

Table No. 250: Data for Monthly average concentration recorded at R.T.O. Colony Tank Nashik

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
R.T.O. Colony Tank Nashik	2022	Apr	5	34	54
		May	4	29	54
		Jun	3	33	52
		Jul	2	30	49
		Aug	3	30	48
		Sep	3	30	49
		Oct	4	31	56
		Nov	4	32	54
		Dec	4	31	54
	2023	Jan	4	29	55
		Feb	4	34	59
		Mar	5	31	55

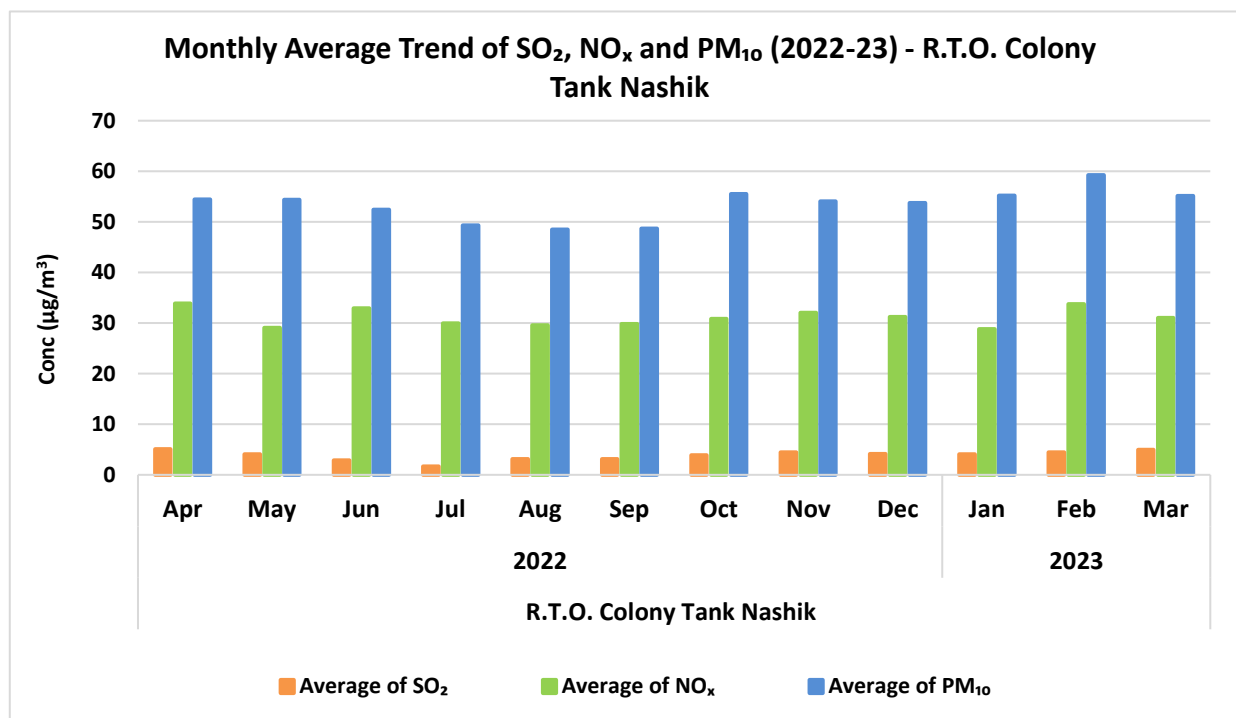
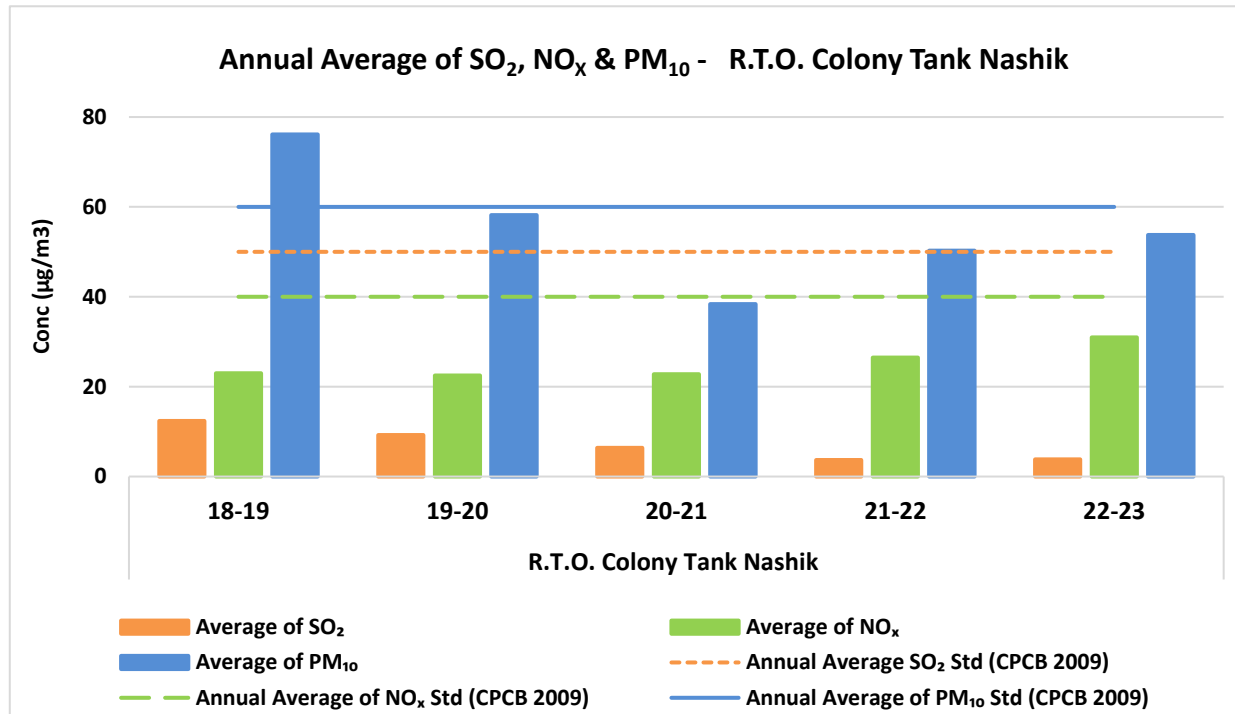


Figure No. 293: Monthly average concentration recorded at R.T.O. Colony Tank Nashik

Table No. 251: Data for Annual average trend of SO₂, NO_x and PM₁₀ at R.T.O. Colony Tank Nashik

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
R.T.O. Colony Tank Nashik	18-19	12	23	76
	19-20	9	22	58
	20-21	6	23	38
	21-22	4	26	50
	22-23	4	31	54

Figure No. 294: Annual average trend of SO₂, NO_x and PM₁₀ at R.T.O. Colony Tank Nashik

V.I.P. Industrial Area MIDC Satpur Nashik

Table No. 252: Data for Monthly average concentration recorded at V.I.P. Industrial Area MIDC Satpur Nashik

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
V.I.P. Industrial Area MIDC Satpur Nashik	2022	Apr	5	34	58
		May	4	32	55
		Jun	2	29	54
		Jul	2	28	43
		Aug	3	31	50
		Sep	4	31	58
		Oct	5	31	55
		Nov	3	30	49
		Dec	6	31	63
	2023	Jan	4	32	51
		Feb	6	31	56
		Mar	3	31	56

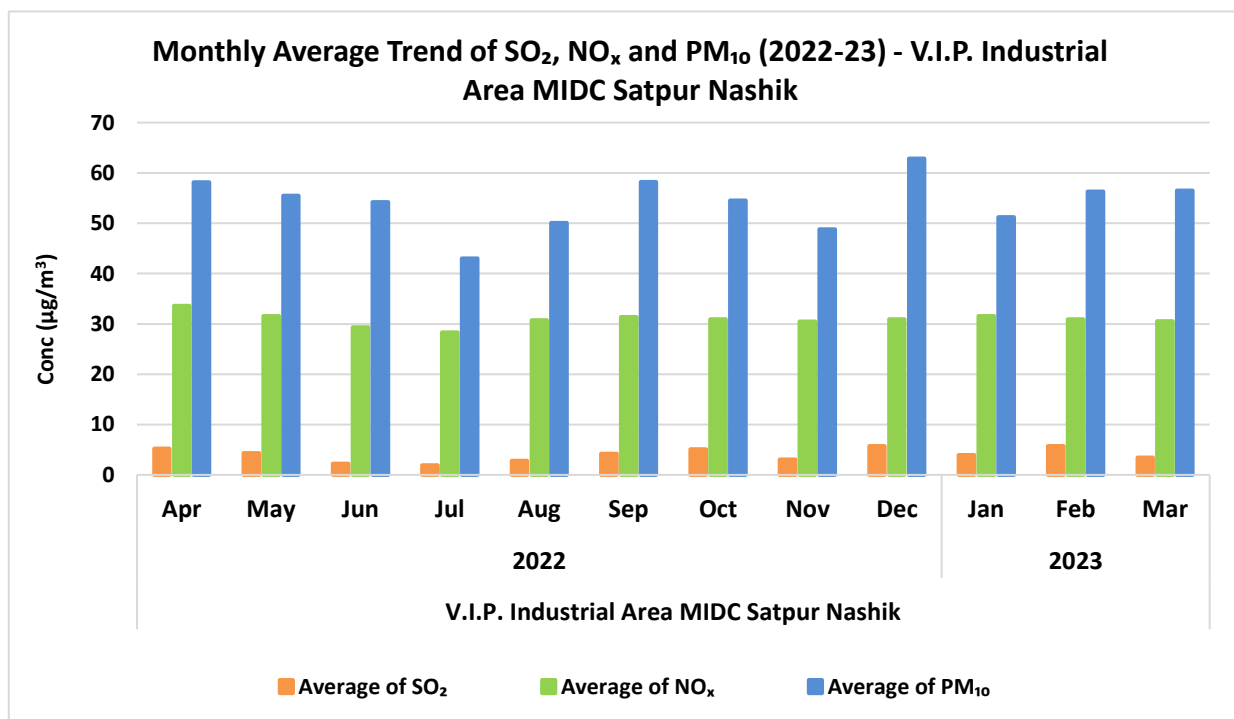


Figure No. 295: Monthly average concentration recorded at V.I.P. Industrial Area MIDC Satpur Nashik

Table No. 253: Data for Annual average trend of SO₂, NO_x and PM₁₀ at V.I.P. Industrial Area MIDC Satpur Nashik

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
V.I.P. Industrial Area MIDC Satpur Nashik	18-19	12	24	78
	19-20	9	22	57
	20-21	6	23	38
	21-22	3	26	49
	22-23	4	31	55

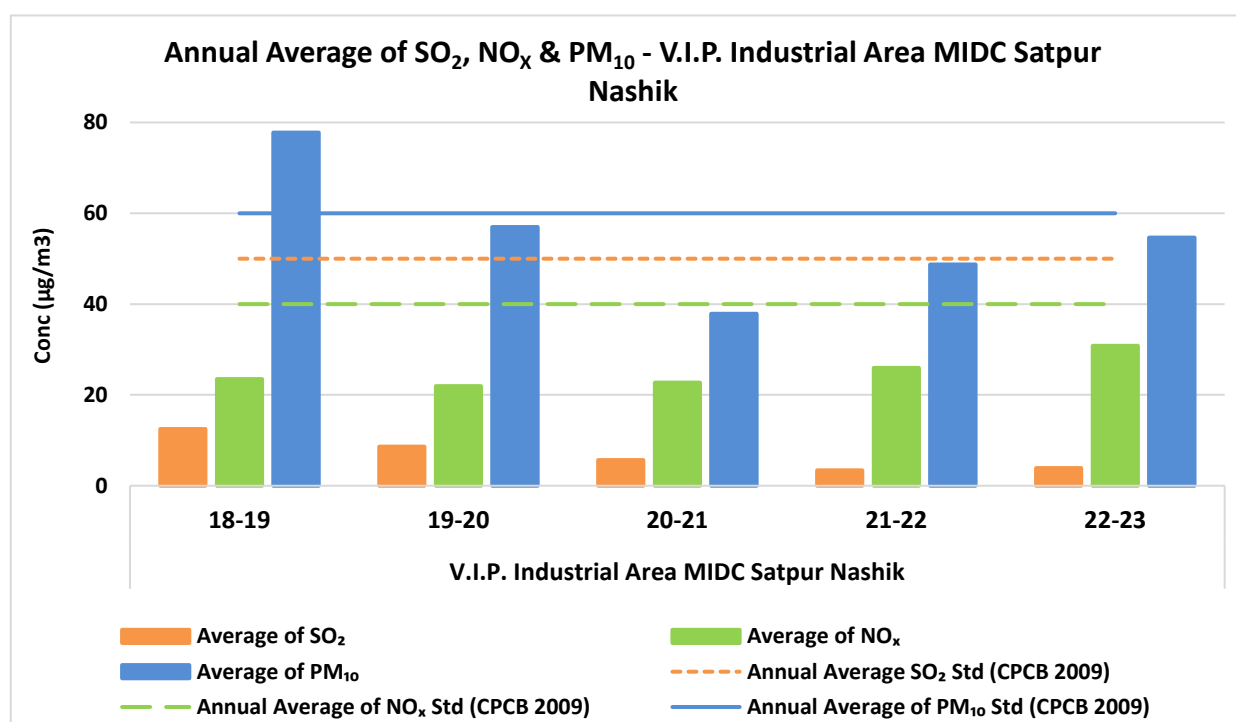
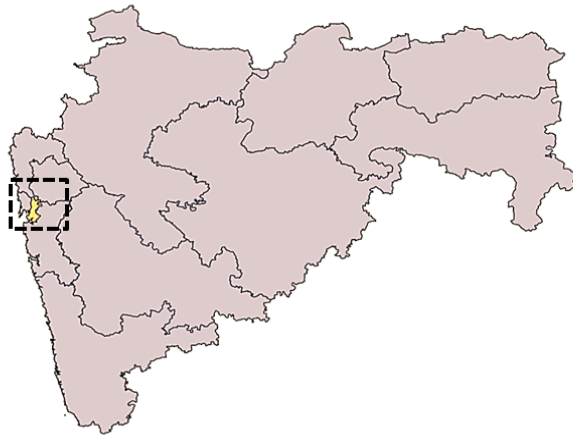
Figure No. 296: Annual average trend of SO₂, NO_x and PM₁₀ at V.I.P. Industrial Area MIDC Satpur Nashik

Table No. 254: Percentage exceedance of pollutants at Nashik RO

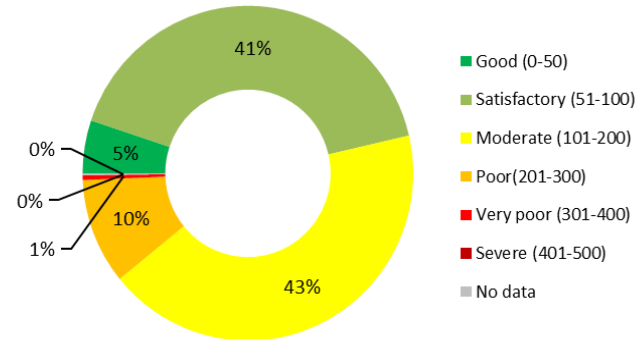
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
B.J. Market	96	93	97	0	0	0	0	0	0	0	0	0
Ahmednagar CAAQMS	228	242	239	241	0	110	149	71	0	45	62	29
Aima Ambad Nashik CAAQMS	239	238	241	237	0	0	175	154	0	0	73	65
Dhule CAAQMS	224	233	242	238	0	0	111	62	0	0	46	26
Girna Water Tank	102	102	102	0	0	0	0	0	0	0	0	0
Guru Gobind Singh Nashik CAAQMS	236	237	242	240	0	3	146	73	0	1	60	30
Jalgaon CAAQMS	237	234	242	234	0	7	160	135	0	3	66	58
Malegaon CAAQMS	217	230	233	216	0	0	143	113	0	0	61	52
MIDC Office	95	100	103	0	0	0	0	0	0	0	0	0
MPCB Sub RO Udyog Bhawan, Nashik	295	221	167	0	0	0	0	0	0	0	0	0
Municipal Council Office	94	104	98	0	0	0	0	0	0	0	0	0
Municipal Council Water Supply	80	103	103	0	0	0	0	0	0	0	0	0
Municipal High School	102	97	103	0	0	0	98	0	0	0	95	0
Nashik CAAQMS	341	322	355	350	0	0	59	48	0	0	17	14
Nashik Municipal Council Bldg. Nashik	90	42	80	0	0	0	0	0	0	0	0	0
Panchavati CAAQMS	221	229	226	223	0	0	108	65	0	0	48	29
R.T.O. Colony Tank Nashik	101	77	70	0	0	0	0	0	0	0	0	0
V.I.P. Industrial Area MIDC Satpur Nashik	100	82	89	0	0	0	0	0	0	0	0	0

CITIES /AREAS UNDER NAVI MUMBAI RO

NAVI MUMBAI RO

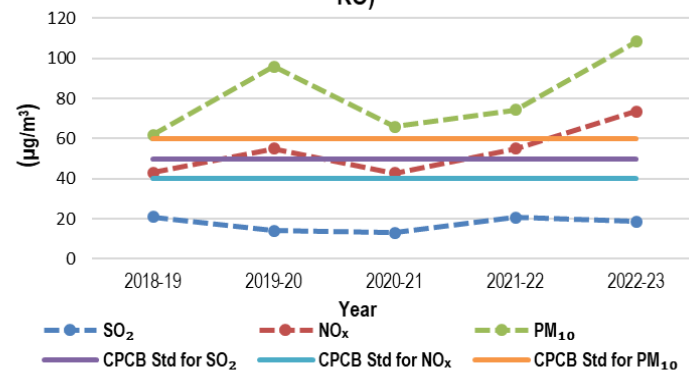


Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Navi Mumbai RO)



Sr No.	Station Name
1	Belapur CAAQMS
2	CIDCO Nodal Office, Kharghar
3	Dr.D.Y.Patil College Nerul TTC
4	Koprigaon CAAQMS
5	Mahape CAAQMS, Navi Mumbai
6	MIDC Office, Taloja
7	Nerul CAAQMS, Navi Mumbai
8	Nirmal Bhavan, Mahape
9	Sanpada CAAQMS
10	Taloja CAAQMS
11	T.B.I.A, Rabale, Navi Mumbai

Trend of Annual Average of SO₂, NO_x and PM₁₀ concentration level recorded by AAQMS (Navi Mumbai RO)



Air Quality Status of Maharashtra, 2022-23



BELAPUR CAAQMS



MAHAPE CAAQMS



NERUL CAAQMS



SANPADA CAAQMS



TALOJA CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

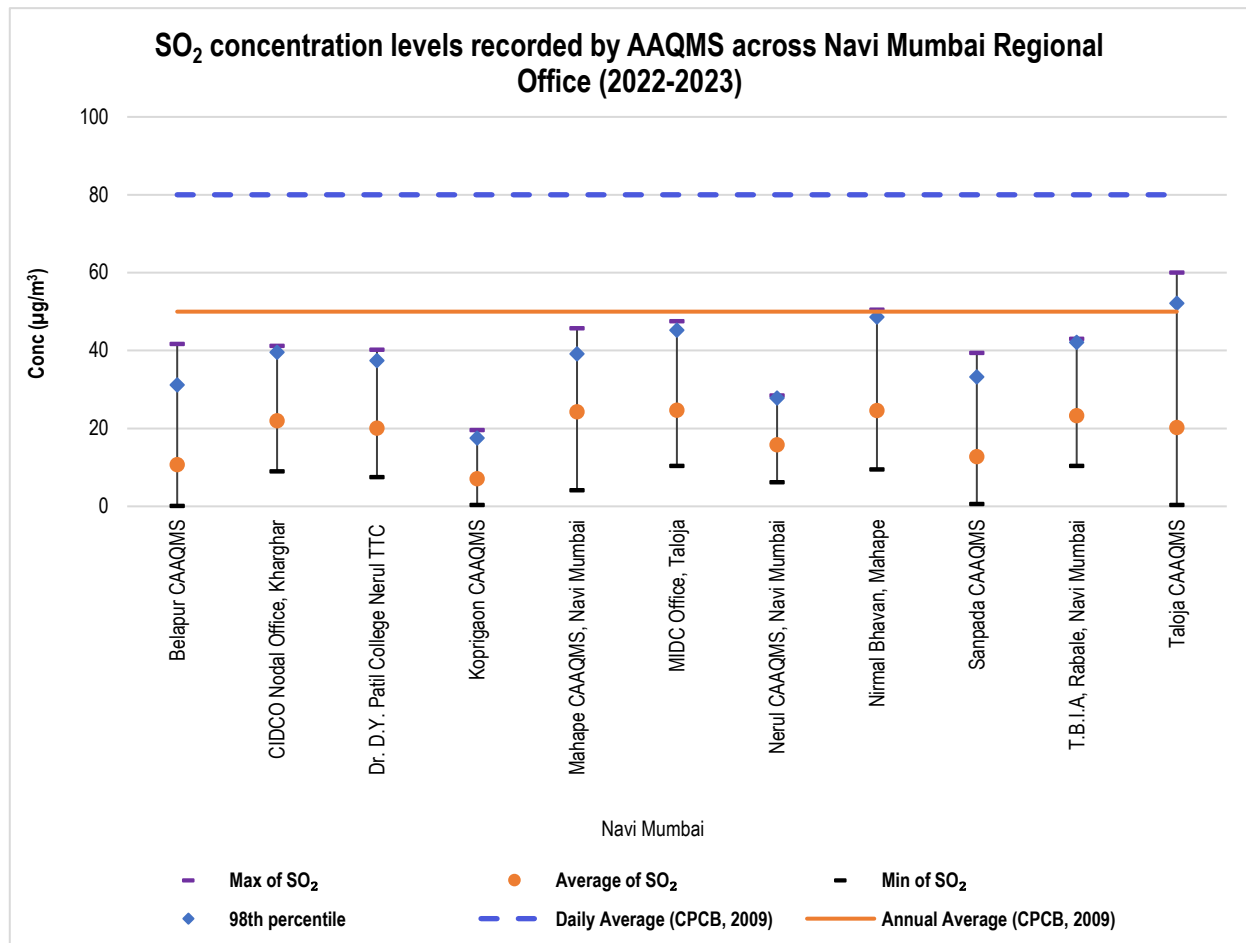


Figure No. 297: Parametric values of SO₂ concentrations recorded by AAQMS across Navi Mumbai RO (2022-2023)

All 11 AAQMS installed in the areas coming under the jurisdiction of Navi Mumbai RO, have recorded annual average SO₂ concentration levels within the annual average permissible limit (50 µg/m³.) These concentration level were found to be in the range of 7.06 µg/m³-24.70 µg/m³. Amongst these stations, MIDC Office - Talaja AAQMS has recorded the highest annual average concentration level of about 24.70 µg/m³. It was followed by Nirmal Bhavan – Mahape CAAQMS (24.62 µg/m³), and Mahape CAAQMS (24.29 µg/m³). The lowest annual average level was noted at Koprigaon CAAQMS with 7.06 µg/m³ as the recorded level.

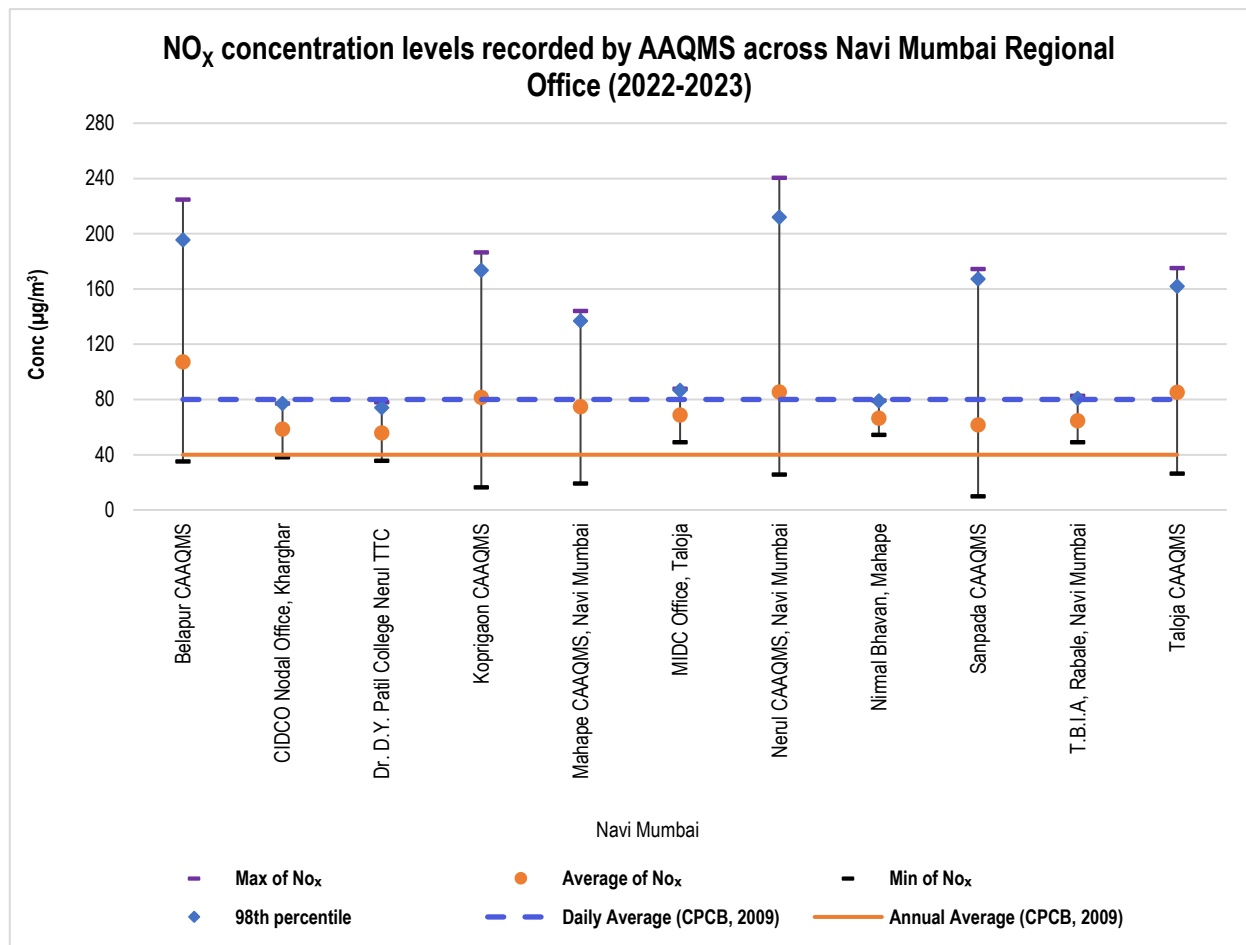
NO_x

Figure No. 298: Parametric values of NO_x concentrations recorded by AAQMS across Navi Mumbai RO (2022-2023)

Just like other metropolitan regions such as Mumbai, Thane and Kalyan, Navi Mumbai RO's area too witnessed very high level of NO_x pollution. This is evident due to the fact that all 11 monitoring stations have recorded annual average concentration level exceeding the standard limit. Amongst these, the Belapur CAAQMS had the highest annual average NO_x concentration level recorded (107.07 µg/m³), followed by the Nerul CAAQMS (85.32 µg/m³), Talaja CAAQMS (85.16 µg/m³) and Koprigaon CAAQMS (81.48 µg/m³). These recorded levels were more than twice to that of the annual average limit (40 µg/m³). The lowest concentration level (still exceeding the standard limit) was recorded by AAQMS installed at Dr. D.Y. Patil College Nerul TTC (55.57 µg/m³).

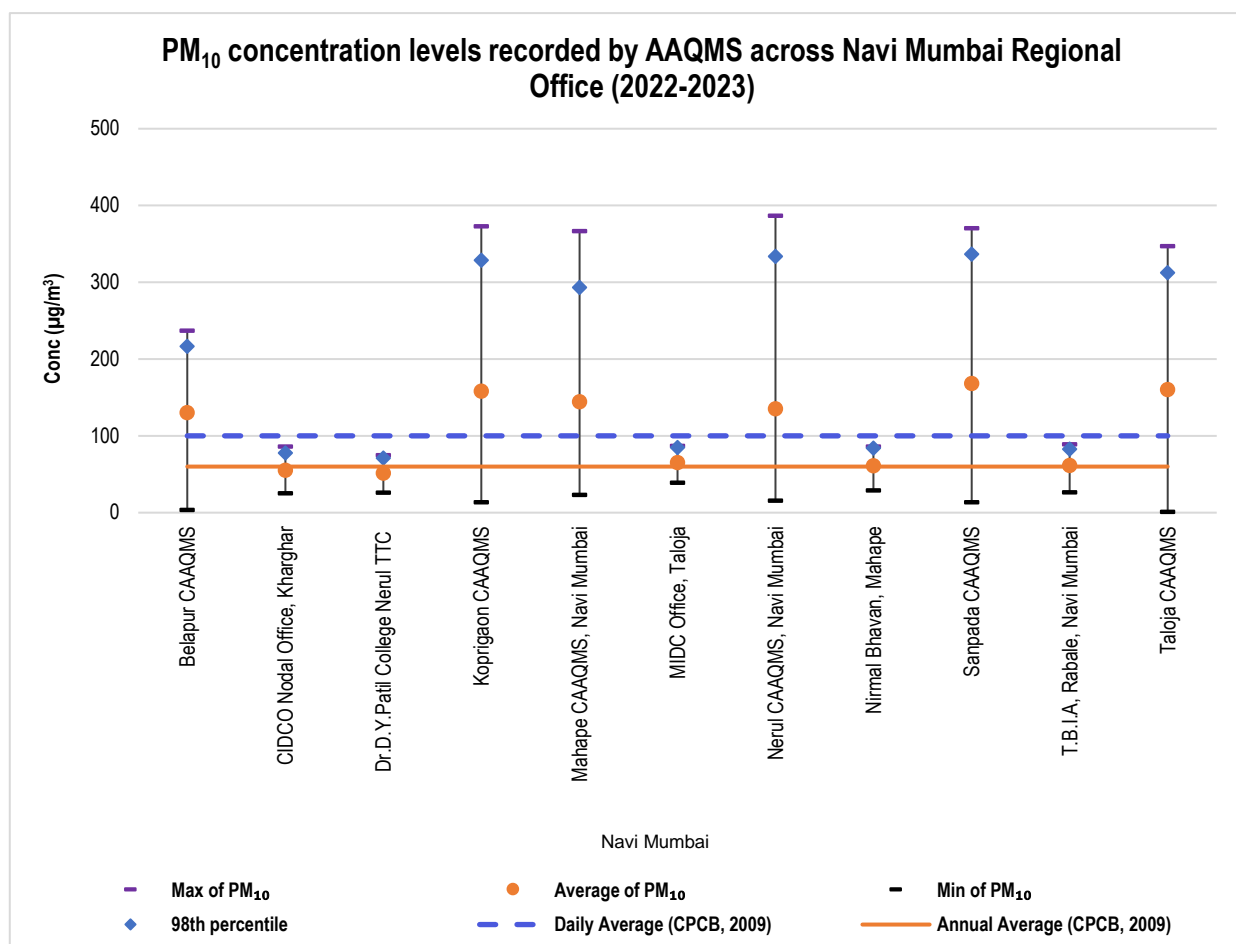
PM₁₀

Figure No. 299: Parametric values of PM₁₀ concentrations recorded by AAQMS across Navi Mumbai RO (2022-2023)

Out of 11 monitoring stations installed in the areas coming under the jurisdiction of Navi Mumbai RO, Only 2 stations namely- CIDCO Nodal Office, Kharghar AAQMS (55.52 µg/m³) and Dr.D.Y.Patil College Nerul TTC AAQMS (51.66 µg/m³) have recorded annual average PM₁₀ concentration levels within the annual average standard limit (60 µg/m³). Out of other monitoring stations, Sanpada CAAQMS recorded level of about 168.25 µg/m³ followed by as Taloja CAAQMS (160.40 µg/m³), Koprigaon CAAQMS (158.50 µg/m³), Mahape CAAQMS (144.35 µg/m³), Nerul CAAQMS (135.44 µg/m³) and Belapur CAAQMS (130.50 µg/m³). These levels were more than twice the levels of prescribed limit.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Navi Mumbai RO

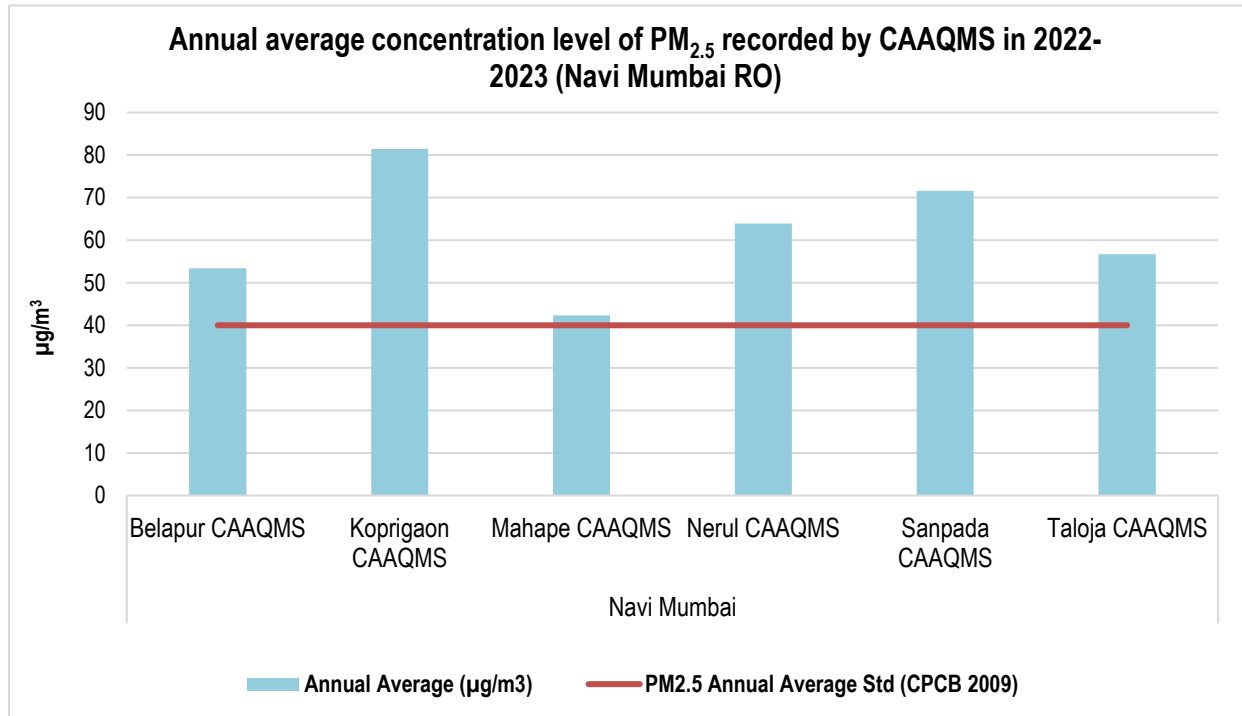


Figure No. 300: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (ug/m³) installed in the areas under the jurisdiction of Navi Mumbai RO (2022-23)

All 6 CAAQMS (installed in the Navi Mumbai RO's jurisdiction areas) have recorded higher annual average concentration levels of PM_{2.5}. Amongst these 6 CAAQMS, the highest levels were recorded by Koprigaon CAAQMS (81.43 µg/m³) whereas Mahape CAAQMS (42.36 µg/m³) recorded slightly higher levels than the permissible limit.

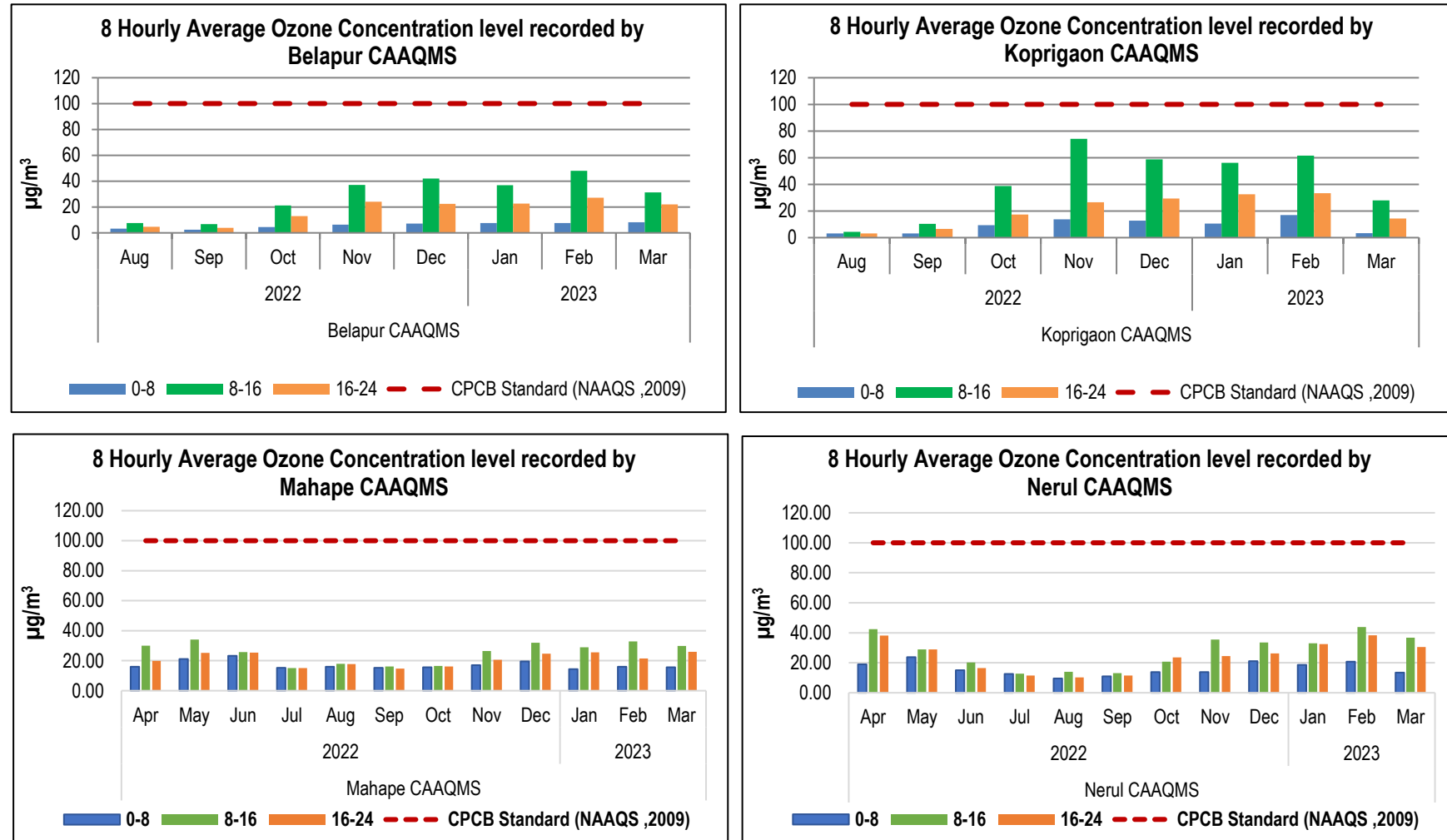
Ozone (O₃)

Figure No. 301: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Navi Mumbai RO (1)

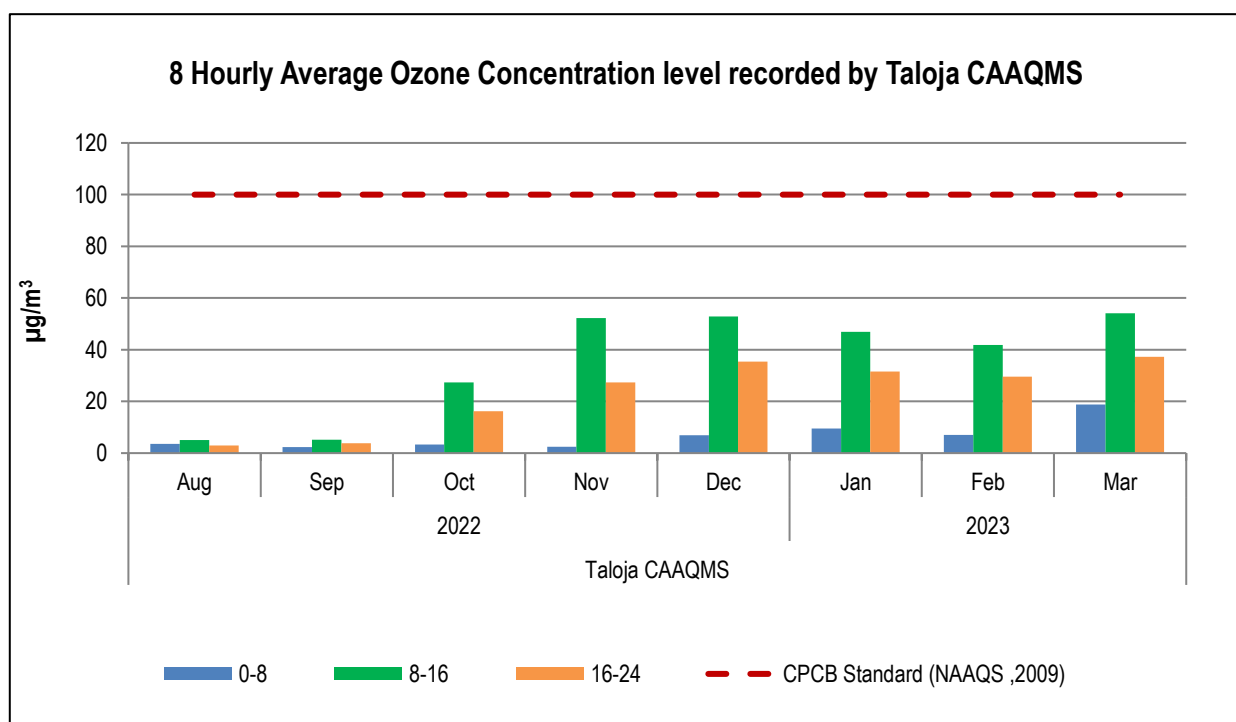
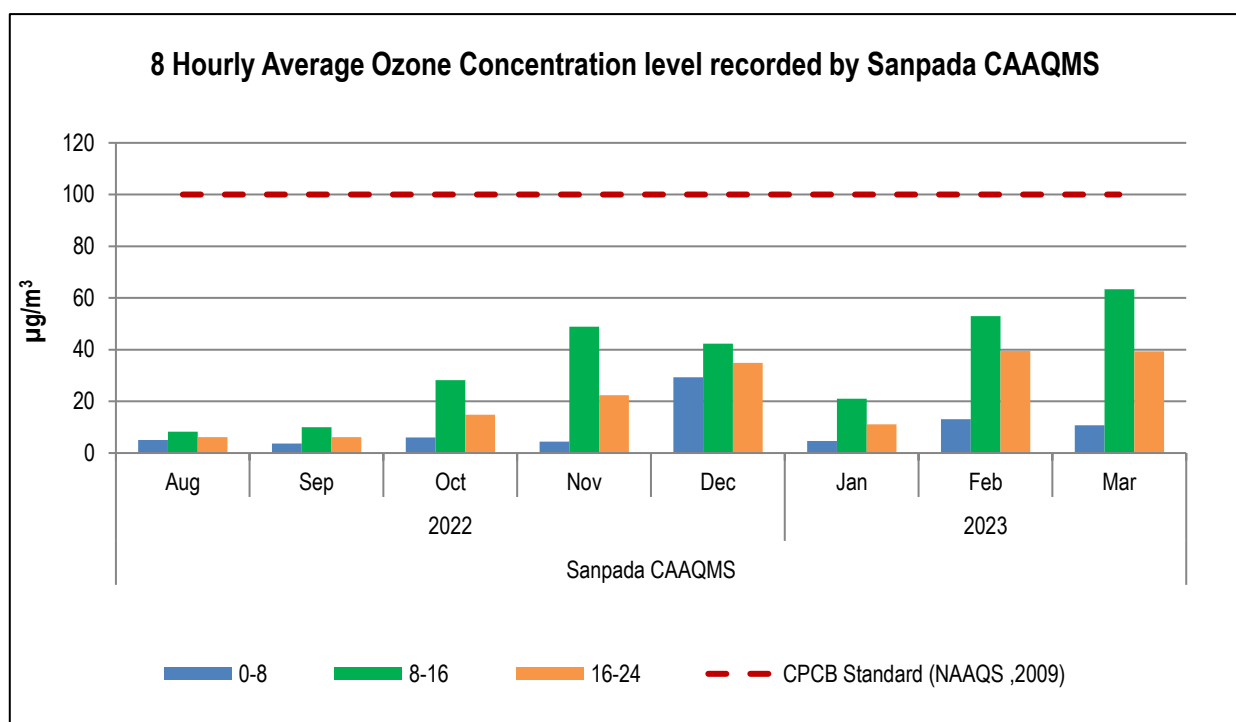


Figure No. 302: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Navi Mumbai RO (2)

Carbon Monoxide (CO)

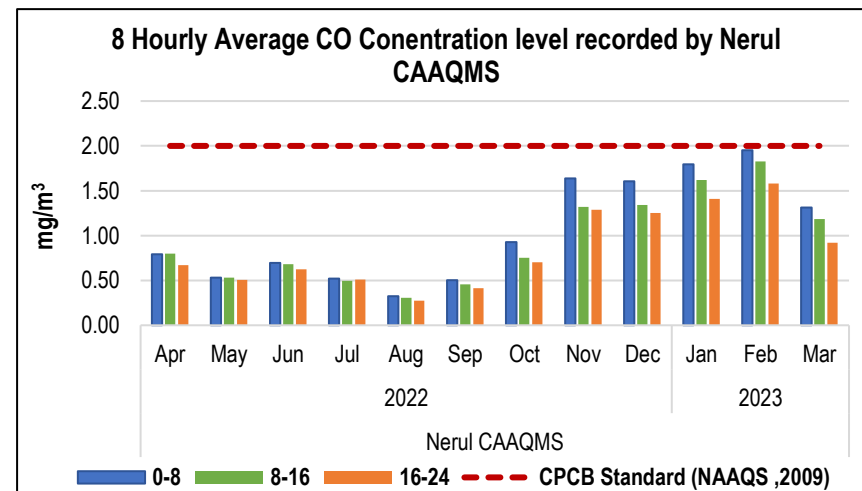
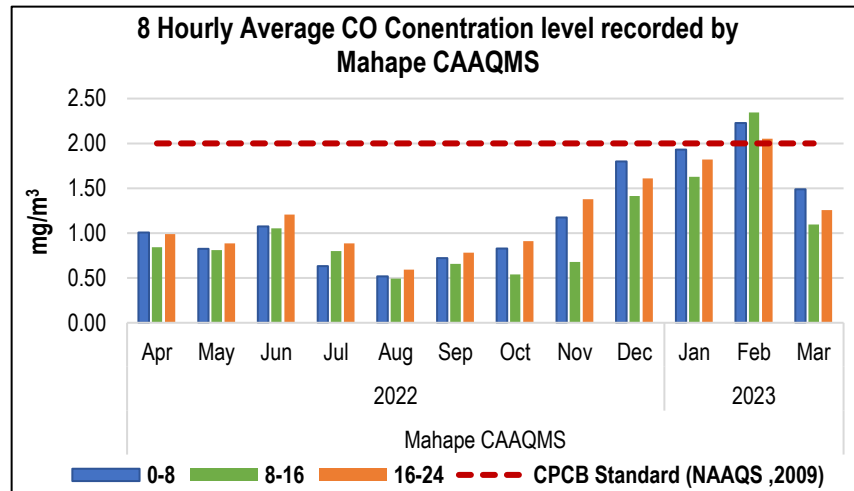
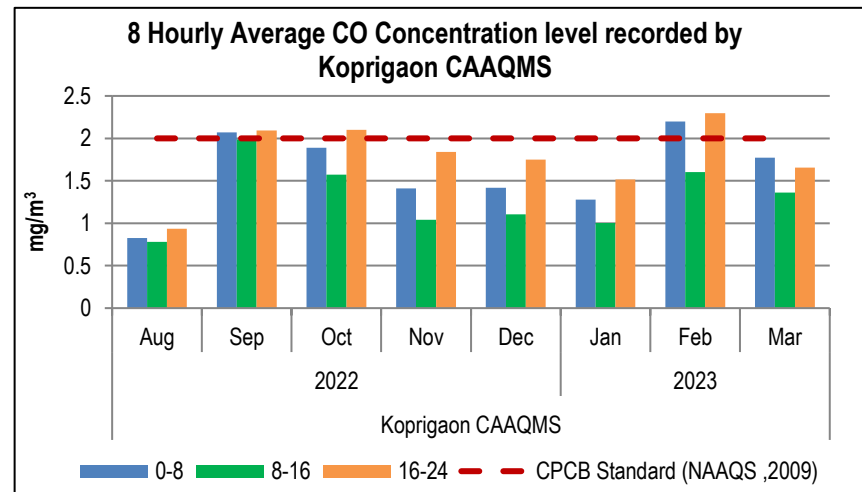
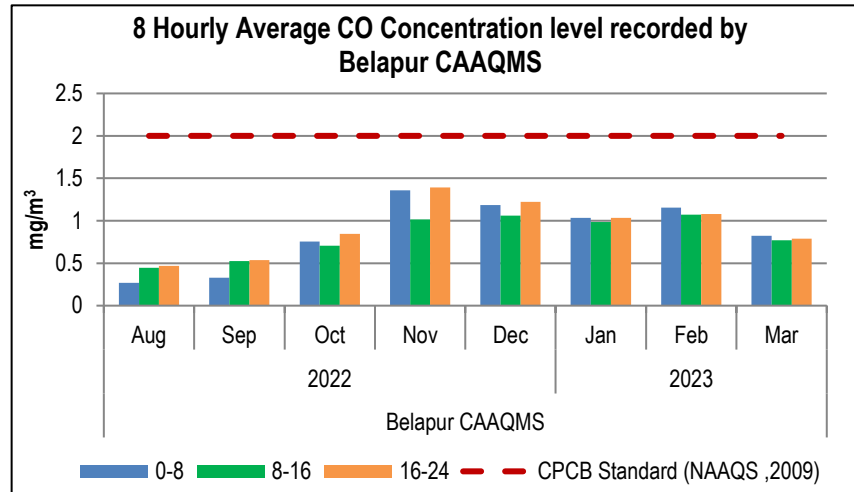


Figure No. 303 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Navi Mumbai RO (1)

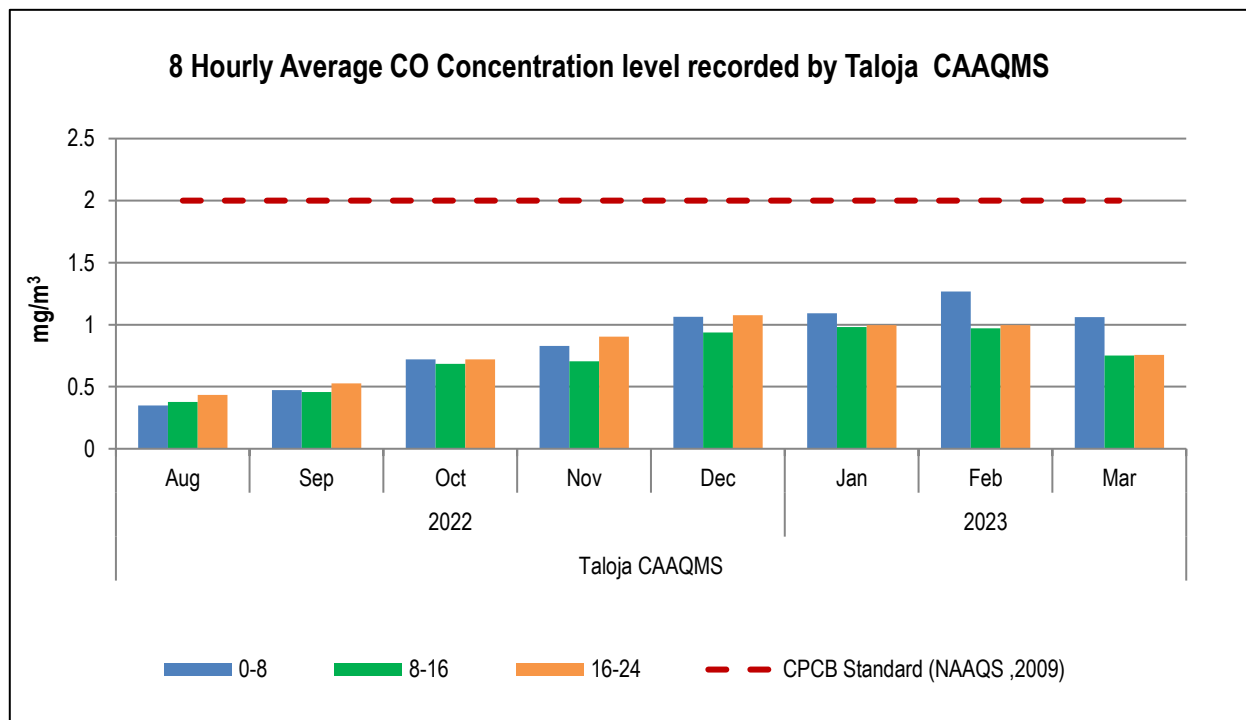
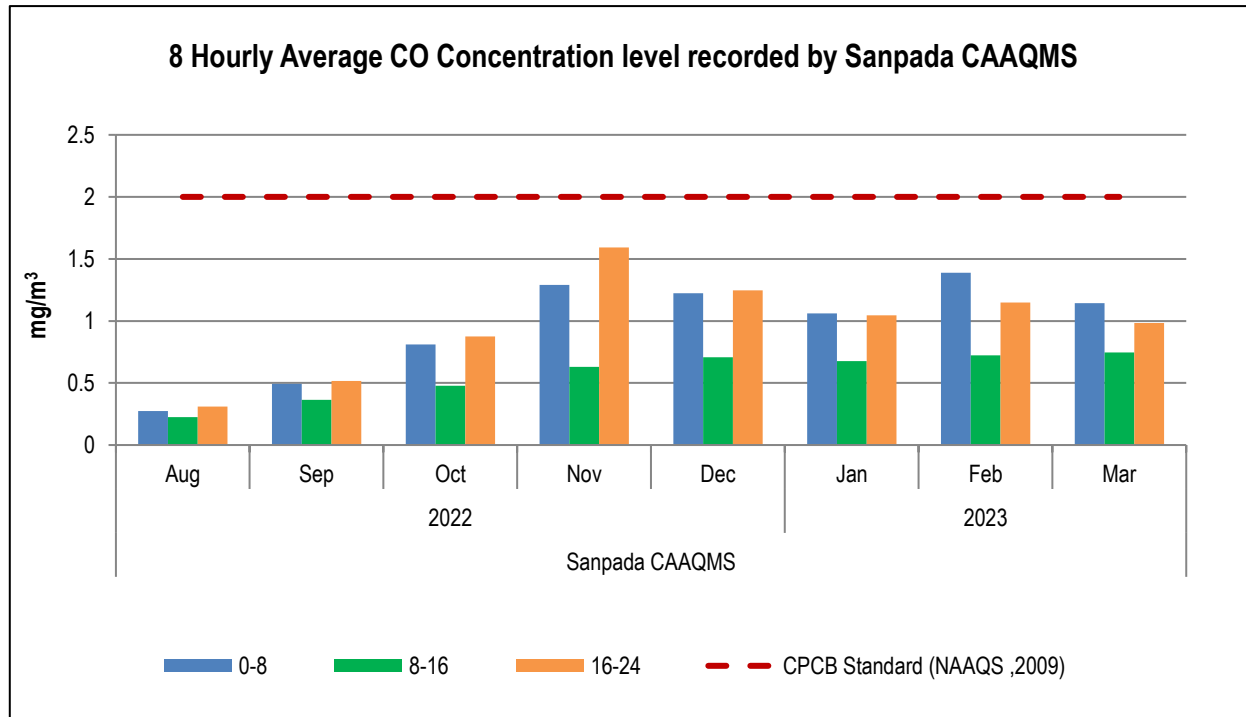


Figure No. 304 : CO concentration level installed in the areas under the jurisdiction of Navi Mumbai RO (2)

Benzene

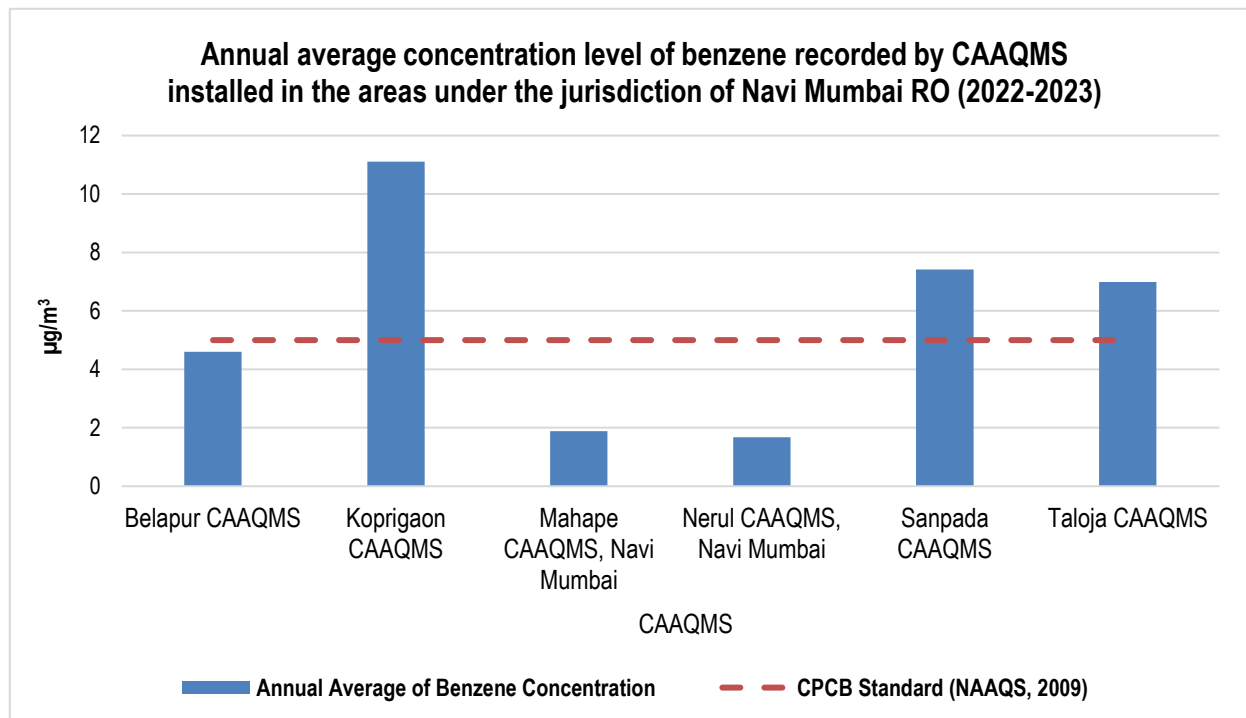


Figure No. 305: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Navi Mumbai RO (2022-23)

In case of Navi Mumbai RO, the highest annual average concentration of benzene was recorded by Koprigaon CAAQMS ($11.11 \mu\text{g}/\text{m}^3$) which was found to be more than double the levels of standard limit. Followed by it, Sanpada CAAQMS ($7.42 \mu\text{g}/\text{m}^3$) and Taloja CAAQMS ($6.99 \mu\text{g}/\text{m}^3$) recorded concentration level above the standard limit. The Belapur CAAQMS, Mahape CAAQMS and Nerul CAAQMS recorded levels of about $4.61 \mu\text{g}/\text{m}^3$, $1.89 \mu\text{g}/\text{m}^3$ and $1.68 \mu\text{g}/\text{m}^3$ respectively.

AQI percentage occurrence graphs - Navi Mumbai RO

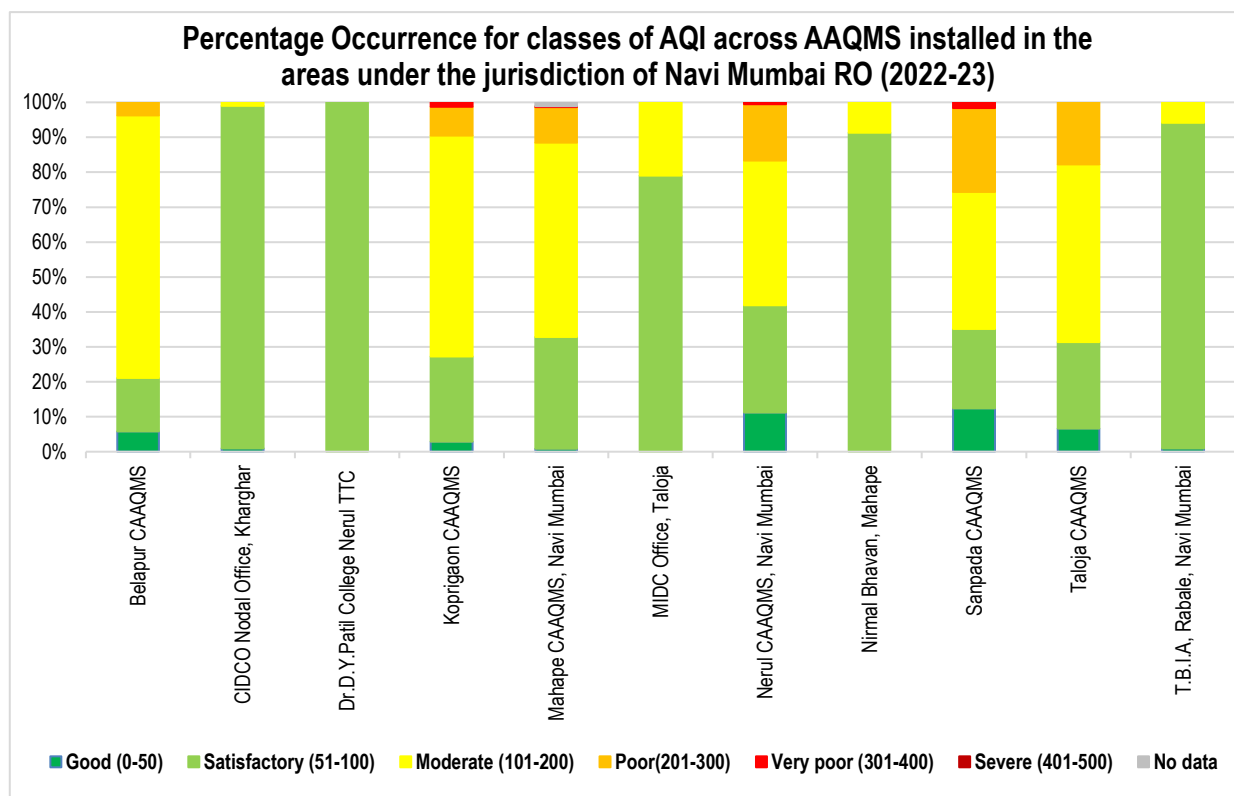


Figure No. 306: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Navi Mumbai RO (2022-23)

Out of 11 AAQMS stations installed in the areas coming under the jurisdiction of Navi Mumbai RO, AAQMS installed at Dr. D. Y. Patil College - Nerul TTC recorded 100 % of the observations under the 'Satisfactory' AQI category. The highest share of observations recorded under the 'Moderate' category was recorded by Belapur CAAQMS (75.21%) followed by Koprigaon CAAQMS (63.22%), Mahape CAAQMS (55.62%) and Taloja CAAQMS (50.83%). Similarly, about 23.97% observations recorded by the Sanpada CAAQMS were recorded under the 'Poor' AQI category followed by 17.77% by Taloja CAAQMS, 16.16% by Nerul CAAQMS, 10.14% by Mahape CAAQMS.

Koparigaon CAAQMS, Mahape CAAQMS, Nerul CAAQMS and Sanpada CAAQMS recorded 1.24%, 0.27%, 0.55%, and 1.65% of the total observations under the 'Very Poor' category respectively.

Monthly and Annual Graphs

Belapur CAAQMS

Table No. 255: Data for Monthly average concentration recorded at Belapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Belapur CAAQMS	2022	Aug	1	55	57	12
		Sep	1	54	83	20
		Oct	4	76	98	43
		Nov	9	94	158	81
		Dec	15	66	164	75
	2023	Jan	17	80	168	82
		Feb	24	105	175	78
		Mar	12	66	123	64

Table No. 256: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Belapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Belapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	76	130	59

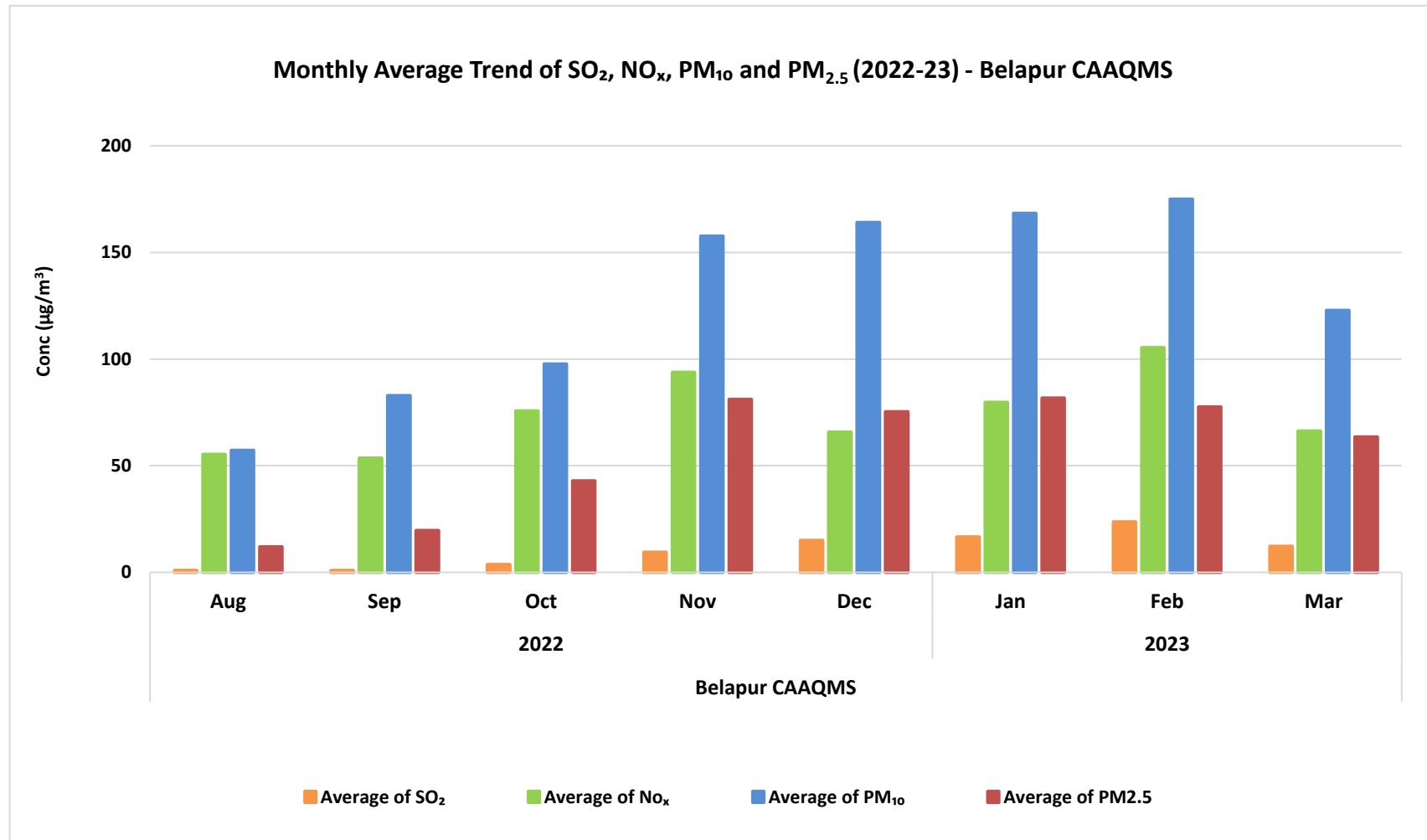


Figure No. 307: Monthly average concentration recorded at Belapur CAAQMS

CIDCO Nodal Office, Kharghar

Table No. 257: Data for Monthly average concentration recorded at CIDCO Nodal Office, Kharghar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
CIDCO Nodal Office Kharghar	2022	Apr	20	68	68
		May	20	61	58
		Jun	16	57	57
		Jul	16	57	41
		Aug	15	42	40
		Sep	13	41	37
		Oct	19	53	42
		Nov	30	59	54
		Dec	35	65	60
	2023	Jan	33	63	70
		Feb	26	62	71
		Mar	21	61	64

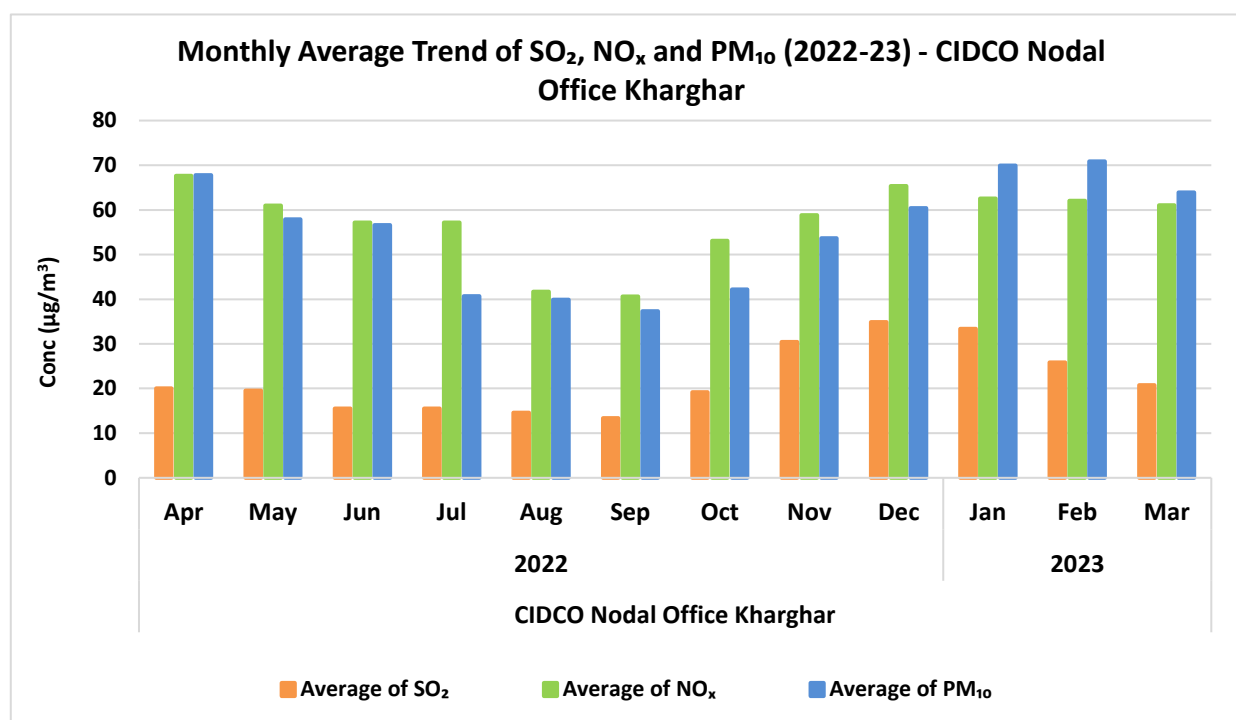
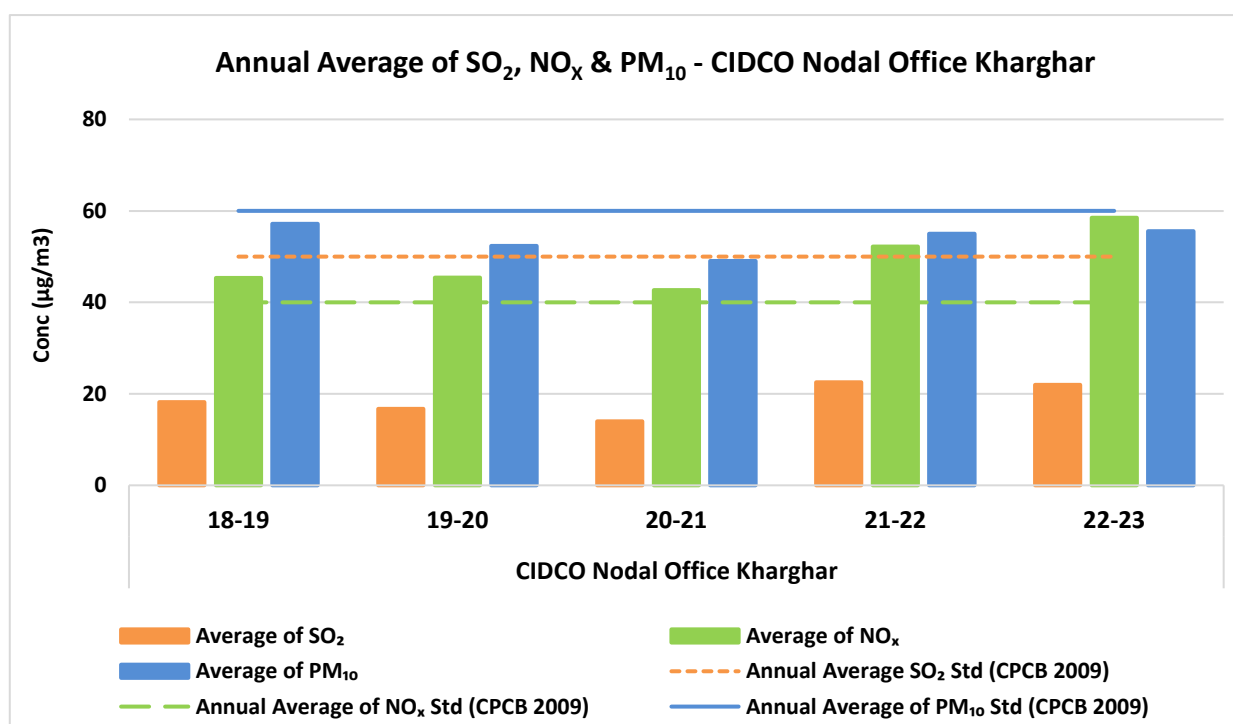


Figure No. 308: Monthly average concentration recorded at CIDCO Nodal Office, Kharghar

Table No. 258: Data for Annual average trend of SO₂, NO_x and PM₁₀ at CIDCO Nodal Office, Kharghar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
CIDCO Nodal Office Kharghar	18-19	18	45	57
	19-20	17	45	52
	20-21	14	43	49
	21-22	23	52	55
	22-23	22	58	56

Figure No. 309: Annual average trend of SO₂, NO_x and PM₁₀ at CIDCO Nodal Office, Kharghar

Dr. D.Y. Patil College Nerul TTC

Table No. 259: Data for Monthly average concentration recorded at Dr. D.Y. Patil College Nerul TTC

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Dr. D.Y. Patil College Nerul TTC	2022	Apr	18	60	61
		May	18	63	58
		Jun	17	53	61
		Jul	14	53	34
		Aug	15	43	39
		Sep	13	42	36
		Oct	17	46	45
		Nov	27	55	54
		Dec	35	62	55
	2023	Jan	29	65	54
		Feb	26	57	64
		Mar	18	56	57

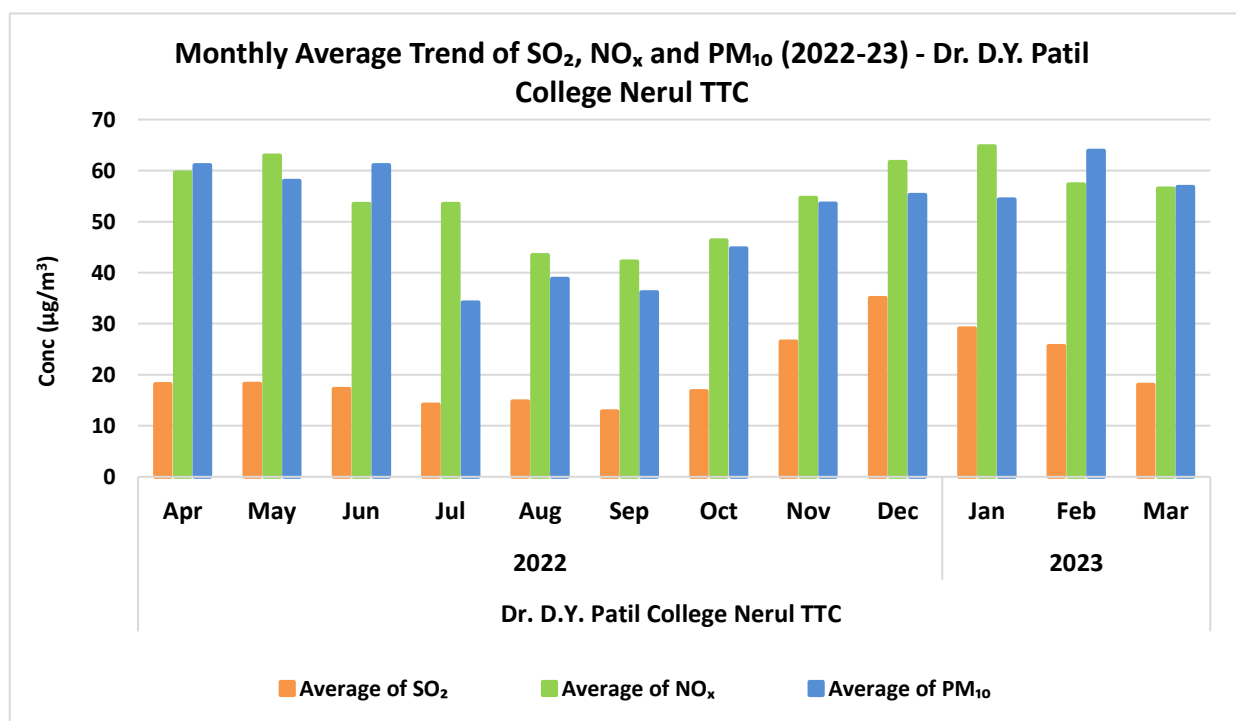
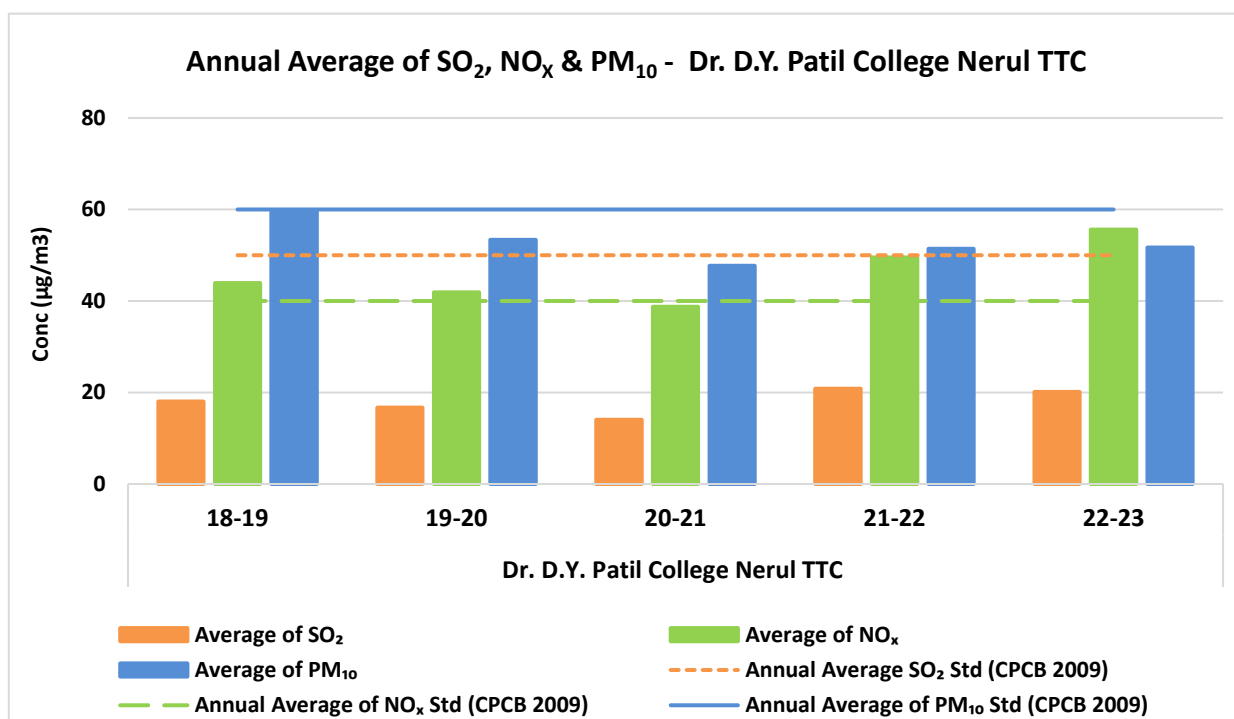


Figure No. 310: Monthly average concentration recorded at Dr. D.Y. Patil College Nerul TTC

Table No. 260: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Dr. D.Y. Patil College Nerul TTC

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Dr. D.Y. Patil College Nerul TTC	18-19	18	44	60
	19-20	17	42	53
	20-21	14	39	48
	21-22	21	50	51
	22-23	20	56	52

Figure No. 311: Annual average trend of SO₂, NO_x and PM₁₀ at Dr. D.Y. Patil College Nerul TTC

Koprigaon CAAQMS

Table No. 261: Data for Monthly average concentration recorded at Koprigaon CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Koprigaon CAAQMS	2022	Aug	3	22	99	47
		Sep	3	32	104	63
		Oct	6	39	104	60
		Nov	10	65	196	81
		Dec	9	66	208	118
	2023	Jan	7	93	206	100
		Feb	12	102	206	106
		Mar	8	60	152	83

Table No. 262: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Koprigaon CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Koprigaon CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	7	60	159	82

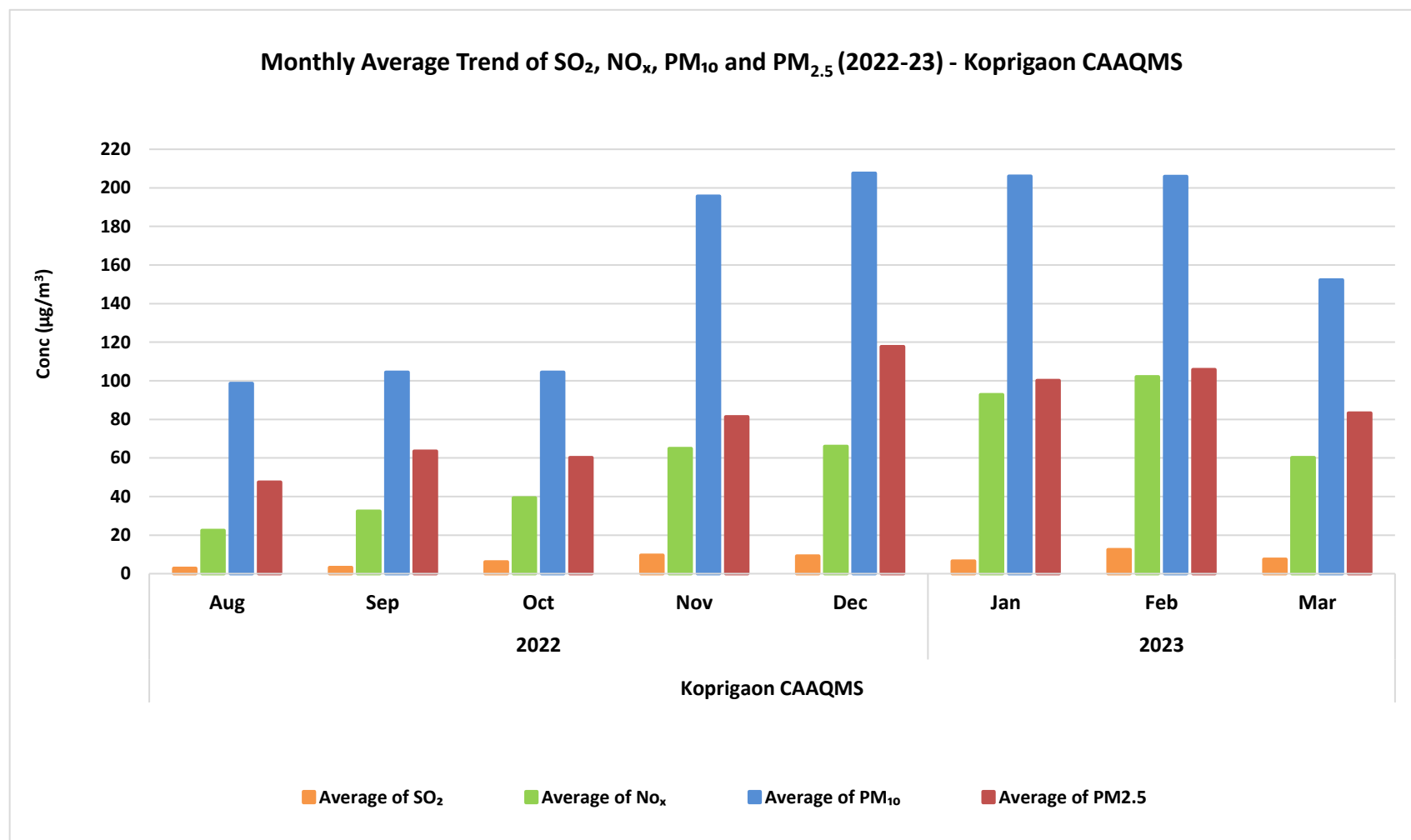


Figure No. 312: Monthly average concentration recorded at Koprigaon CAAQMS

Mahape CAAQMS, Navi Mumbai

Table No. 263: Data for Monthly average concentration recorded at Mahape CAAQMS, Navi Mumbai

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Mahape CAAQMS, Navi Mumbai	2022	Apr	22	77	157	58
		May	23	35	142	45
		Jun	23	52	64	26
		Jul	24	58	55	18
		Aug	23	60	89	28
		Sep	18	74	59	29
		Oct	14	68	107	35
		Nov	23	114	208	60
		Dec	26	96	218	57
	2023	Jan	32	100	226	60
		Feb	34	91	231	67
		Mar	31	80	190	49

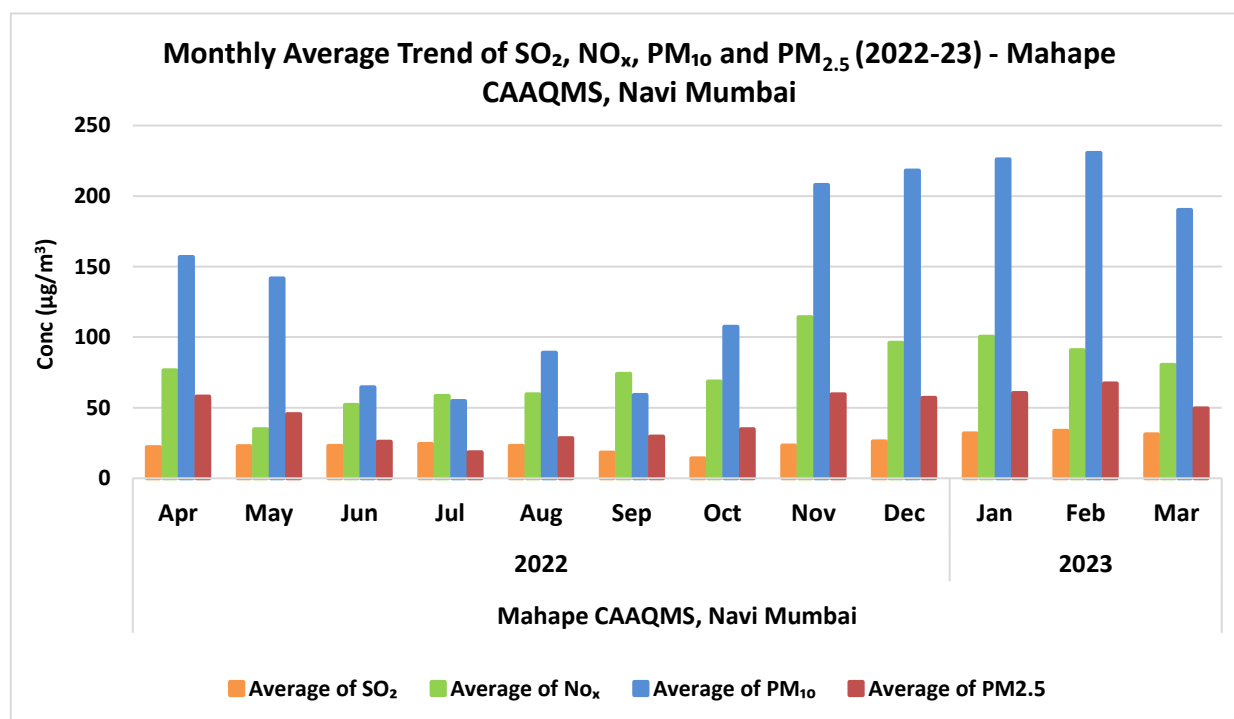
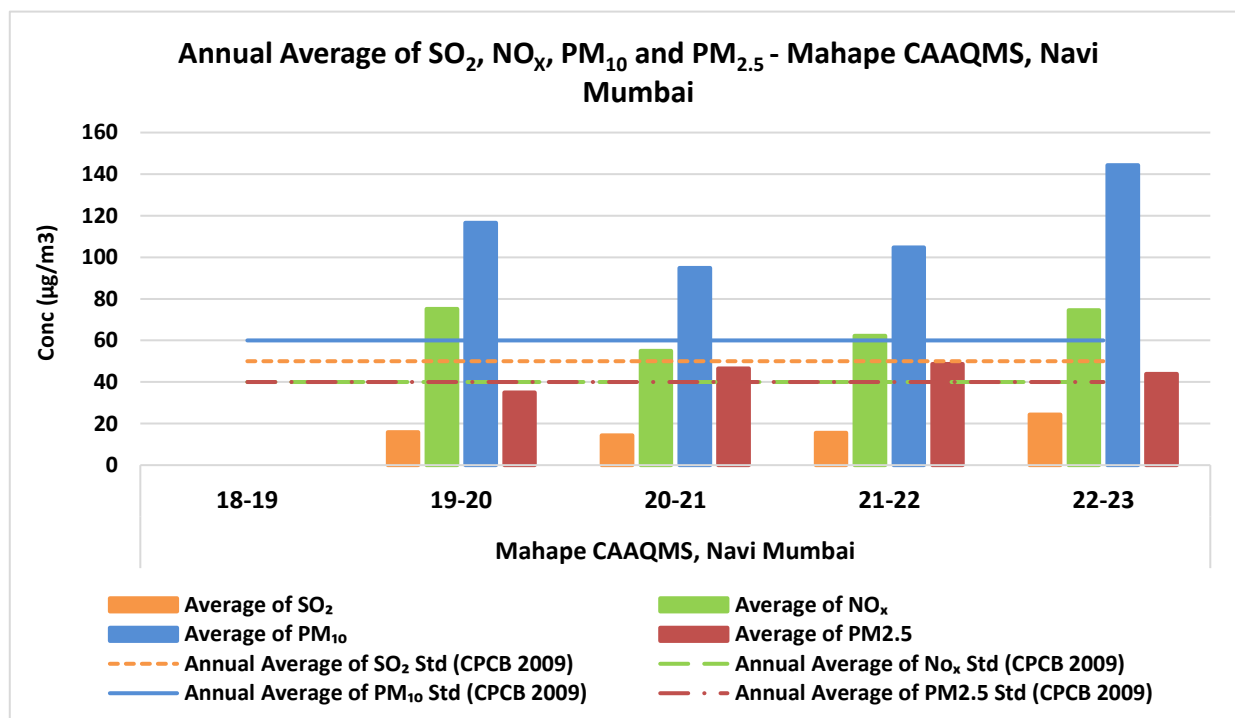


Figure No. 313: Monthly average concentration recorded at Mahape CAAQMS, Navi Mumbai

Table No. 264: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mahape CAAQMS, Navi Mumbai

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Mahape CAAQMS, Navi Mumbai	18-19	-	-	-	-
	19-20	16	75	117	35
	20-21	14	55	95	47
	21-22	15	62	105	49
	22-23	24	75	144	44

Figure No. 314: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mahape CAAQMS, Navi Mumbai

MIDC Office, Taloja

Table No. 265: Data for Monthly average concentration recorded at MIDC Office, Taloja

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MIDC Office, Taloja	2022	Apr	22	82	77
		May	20	75	74
		Jun	20	72	77
		Jul	20	72	52
		Aug	17	53	51
		Sep	15	51	51
		Oct	21	63	54
		Nov	32	67	57
		Dec	43	75	74
	2023	Jan	39	71	64
		Feb	34	68	76
		Mar	22	70	72

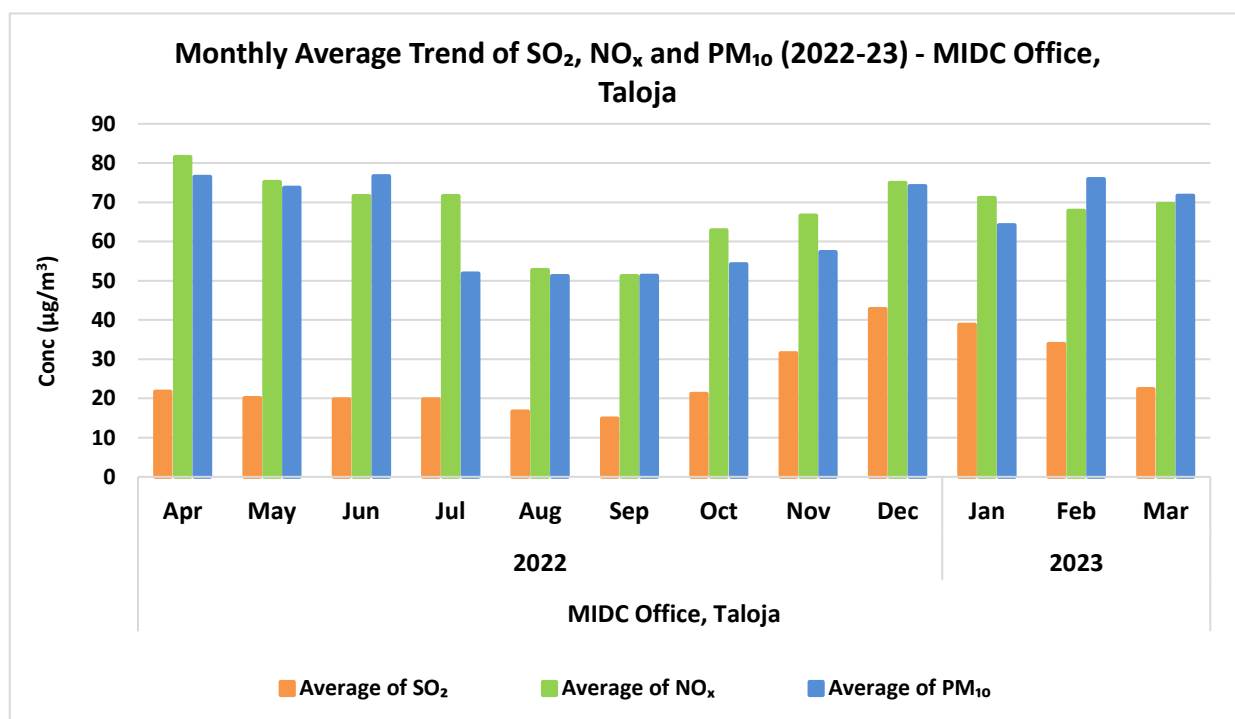
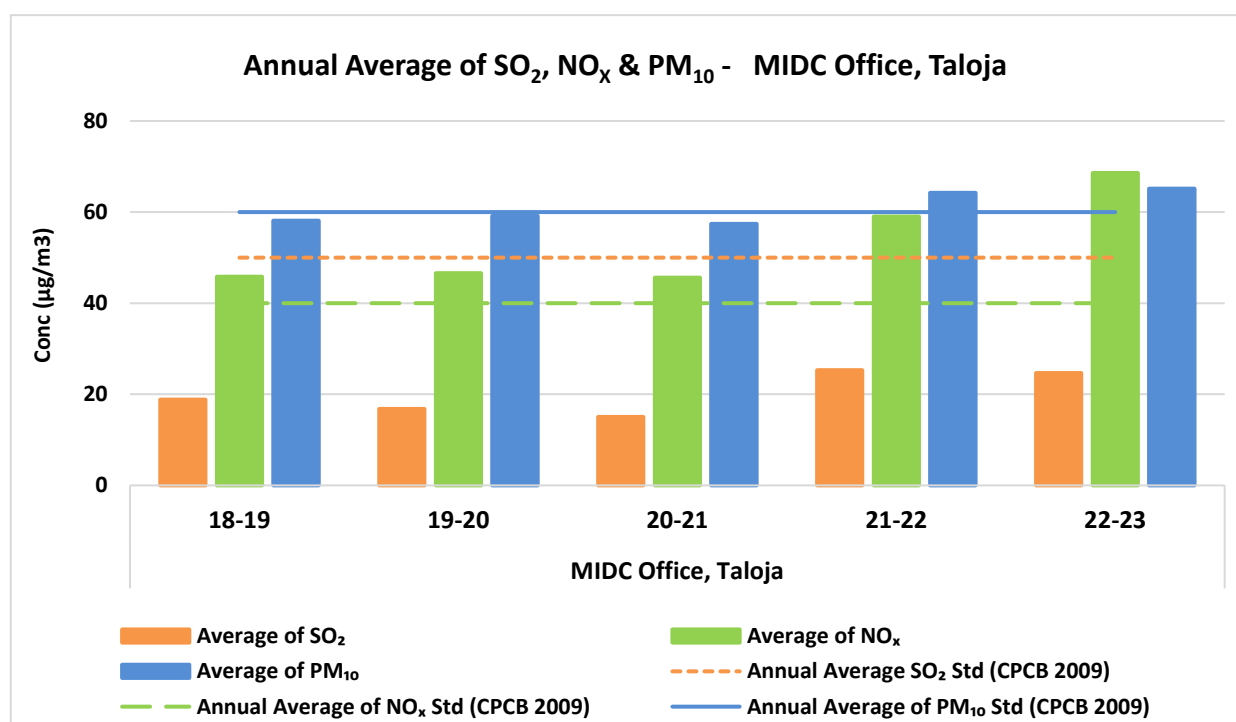


Figure No. 315: Monthly average concentration recorded at MIDC Office, Taloja

Table No. 266: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office, Taloja

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MIDC Office, Taloja	18-19	19	46	58
	19-20	17	47	59
	20-21	15	46	57
	21-22	25	59	64
	22-23	25	69	65

Figure No. 316: Annual average trend of SO₂, NO_x and PM₁₀ at MIDC Office, Taloja

Nerul CAAQMS, Navi Mumbai

Table No. 267: Data for Monthly average concentration recorded at Nerul CAAQMS, Navi Mumbai

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Nerul CAAQMS, Navi Mumbai	2022	Apr	20	66	135	47
		May	17	38	111	33
		Jun	10	31	44	13
		Jul	11	41	41	13
		Aug	9	57	41	14
		Sep	9	52	50	20
		Oct	11	63	101	50
		Nov	23	128	208	106
		Dec	22	159	230	108
	2023	Jan	21	157	230	101
		Feb	20	139	251	107
		Mar	18	96	192	79

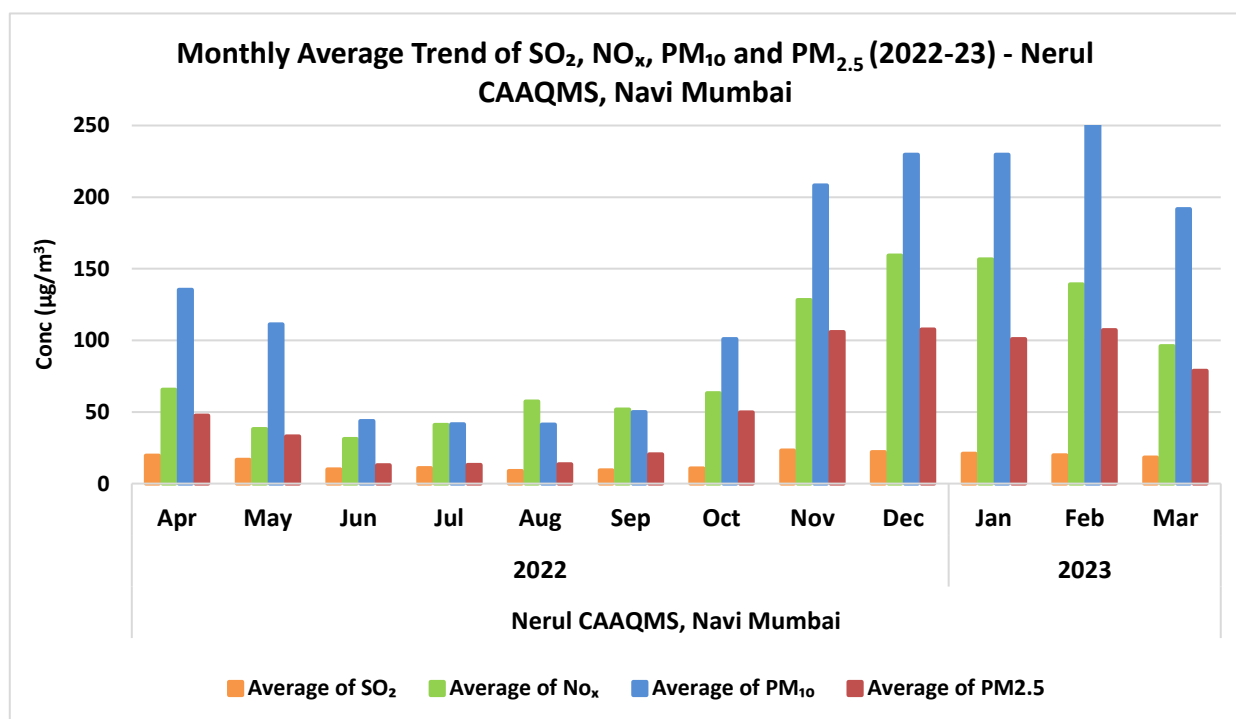
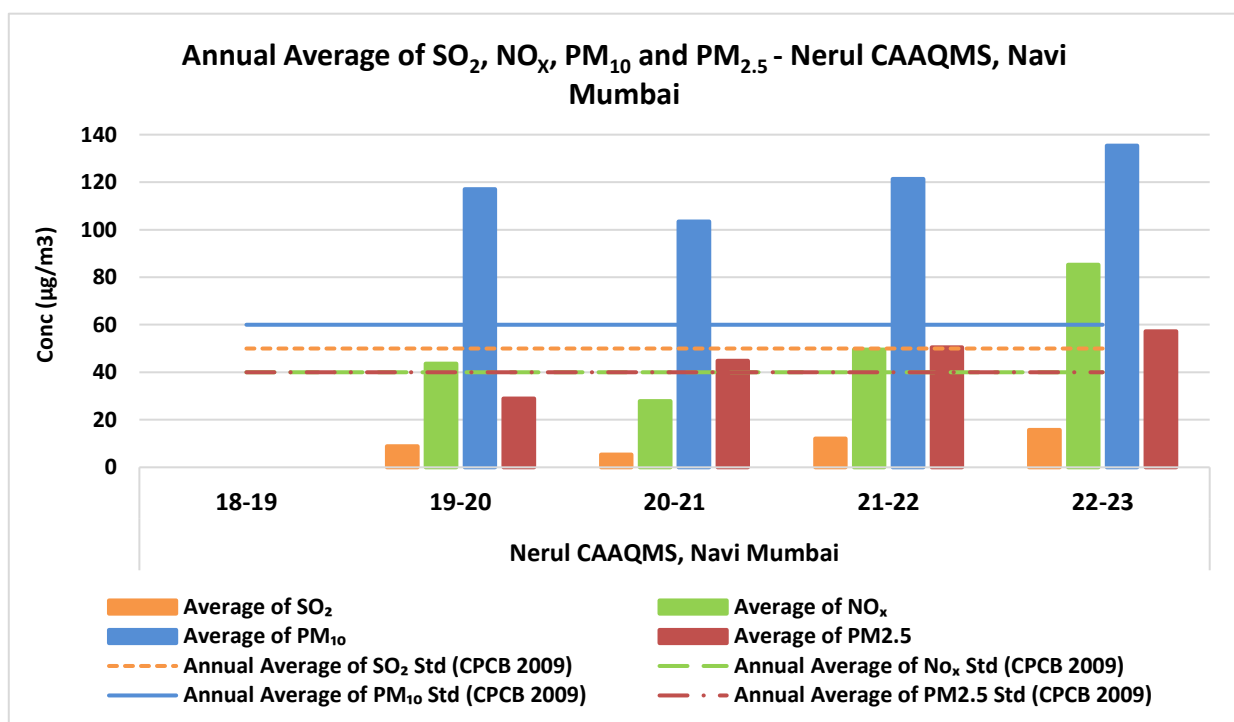


Figure No. 317: Monthly average concentration recorded at Nerul CAAQMS, Navi Mumbai

Table No. 268: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nerul CAAQMS, Navi Mumbai

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Nerul CAAQMS, Navi Mumbai	18-19	-	-	-	-
	19-20	9	44	117	29
	20-21	5	28	103	45
	21-22	12	50	121	51
	22-23	16	85	135	57

Figure No. 318: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Nerul CAAQMS, Navi Mumbai

Nirmal Bhavan, Mahape

Table No. 269: Data for Monthly average concentration recorded at Nirmal Bhavan, Mahape

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Nirmal Bhavan, Mahape	2022	Apr	18	65	74
		May	19	67	73
		Jun	19	67	69
		Jul	19	67	41
		Aug	15	57	39
		Sep	16	57	37
		Oct	23	61	54
		Nov	31	70	62
		Dec	34	68	66
	2023	Jan	47	68	70
		Feb	35	69	74
		Mar	25	67	75

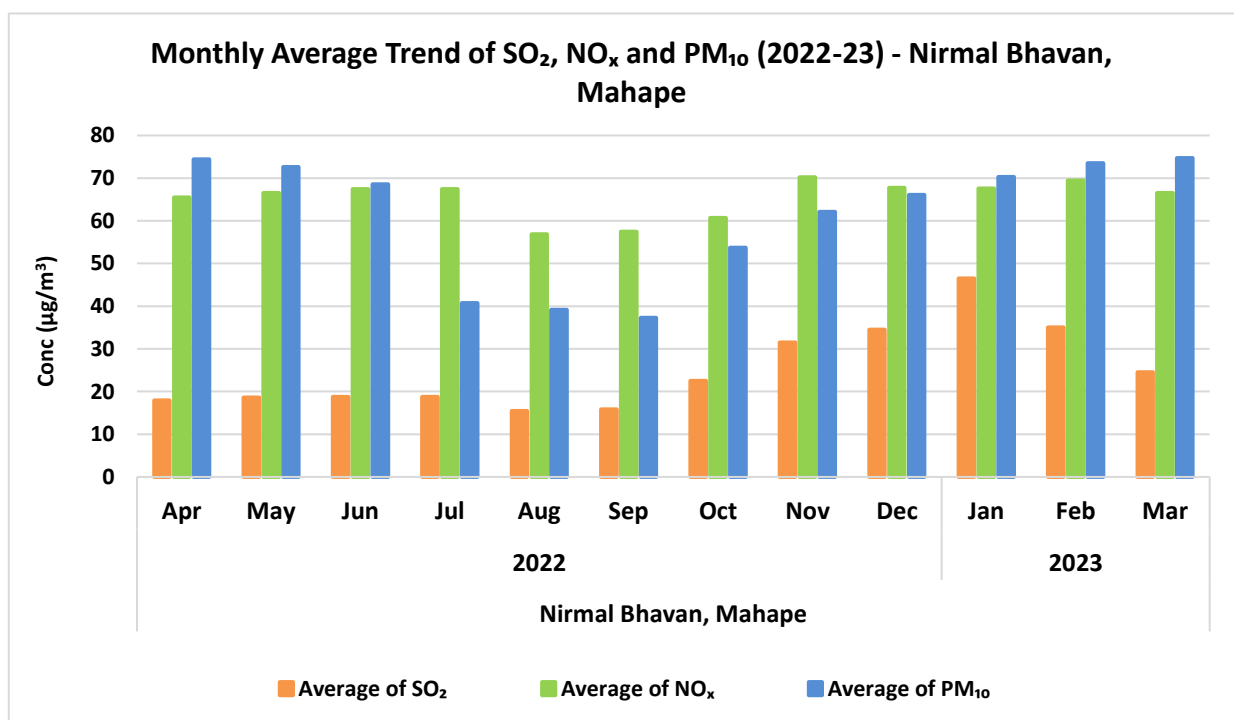
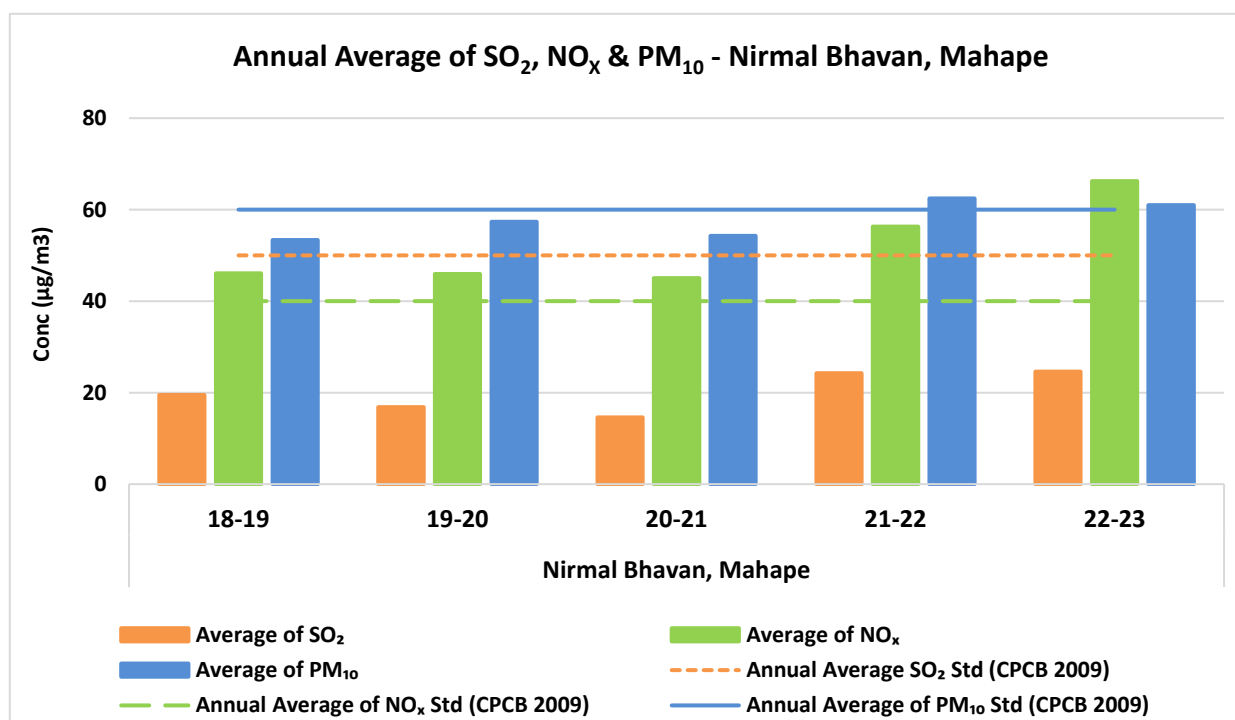


Figure No. 319: Monthly average concentration recorded at Nirmal Bhavan, Mahape

Table No. 270: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Nirmal Bhavan, Mahape

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Nirmal Bhavan, Mahape	18-19	19	46	53
	19-20	17	46	57
	20-21	15	45	54
	21-22	24	56	62
	22-23	25	66	61

Figure No. 320: Annual average trend of SO₂, NO_x and PM₁₀ at Nirmal Bhavan, Mahape

Sanpada CAAQMS

Table No. 271: Data for Monthly average concentration recorded at Sanpada CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Sanpada CAAQMS	2022	Aug	2	18	52	15
		Sep	2	35	68	27
		Oct	5	41	111	56
		Nov	14	70	230	111
		Dec	18	38	231	116
	2023	Jan	19	75	267	124
		Feb	24	99	224	105
		Mar	18	56	145	78

Table No. 272 Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Sanpada CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Sanpada CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	13	54	168	79

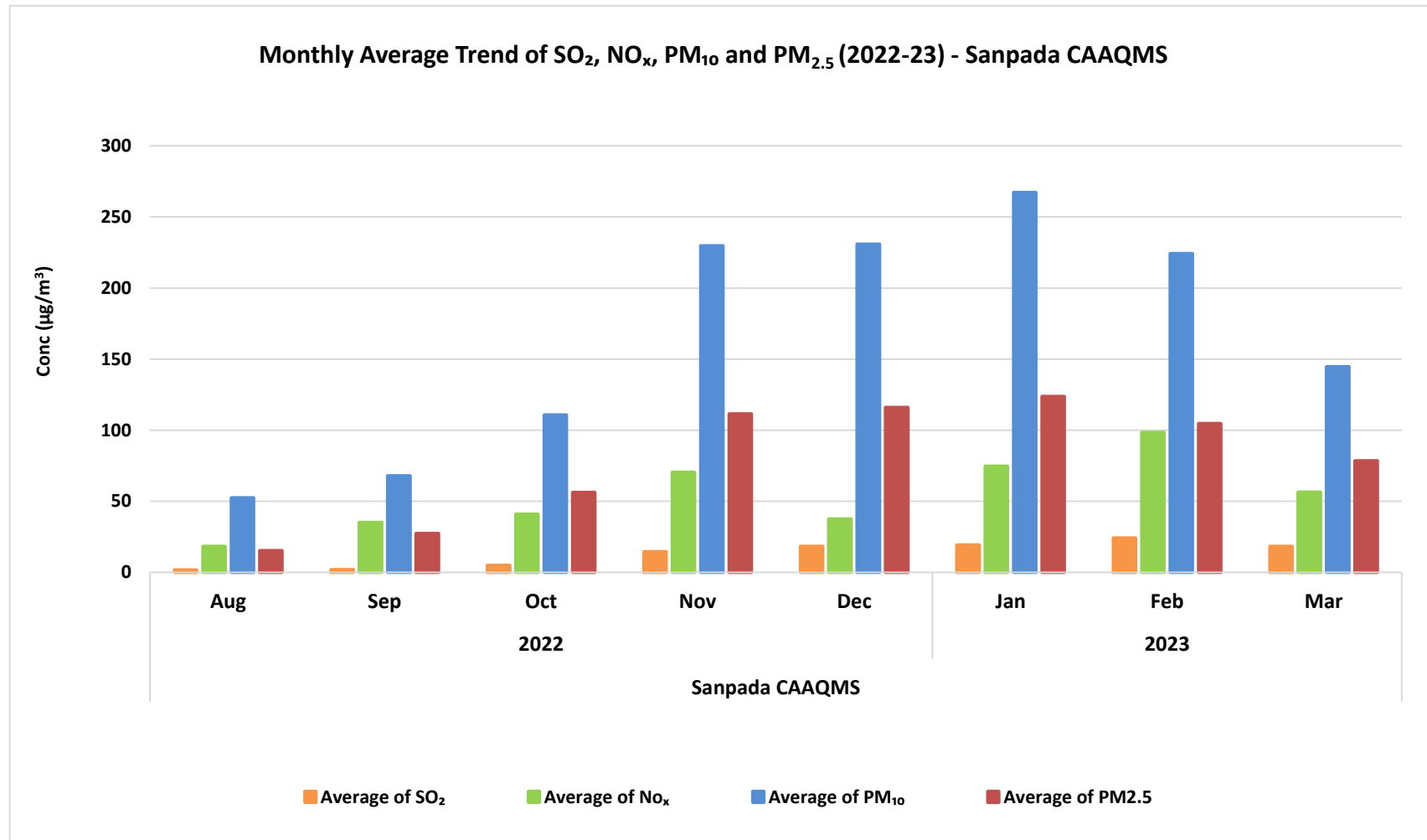


Figure No. 321: Monthly average concentration recorded at Sanpada CAAQMS

T.B.I.A., Rabale, Navi Mumbai**Table No. 273: Data for Monthly average concentration recorded at T.B.I.A., Rabale, Navi Mumbai**

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
T.B.I.A., Rabale, Navi Mumbai	2022	Apr	19	71	72
		May	20	67	73
		Jun	18	63	67
		Jul	18	63	37
		Aug	16	57	41
		Sep	15	53	42
		Oct	21	57	51
		Nov	34	64	62
		Dec	39	70	70
	2023	Jan	36	70	73
		Feb	27	67	72
		Mar	24	66	70

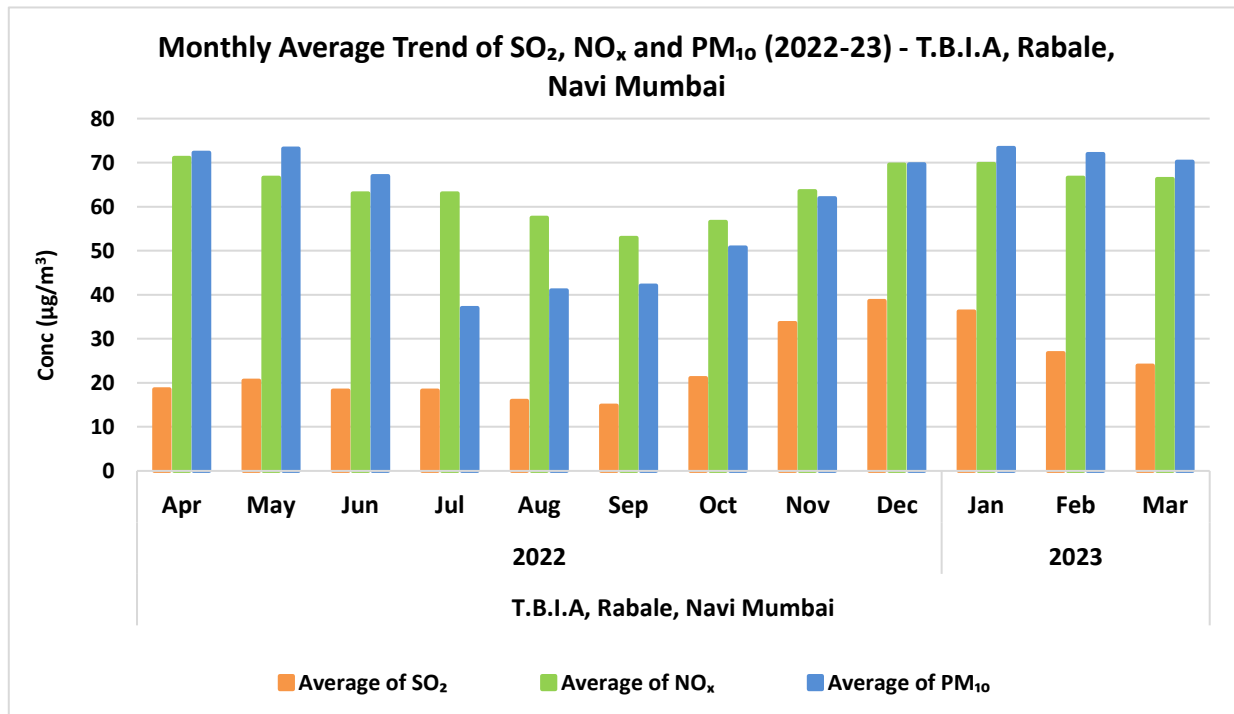
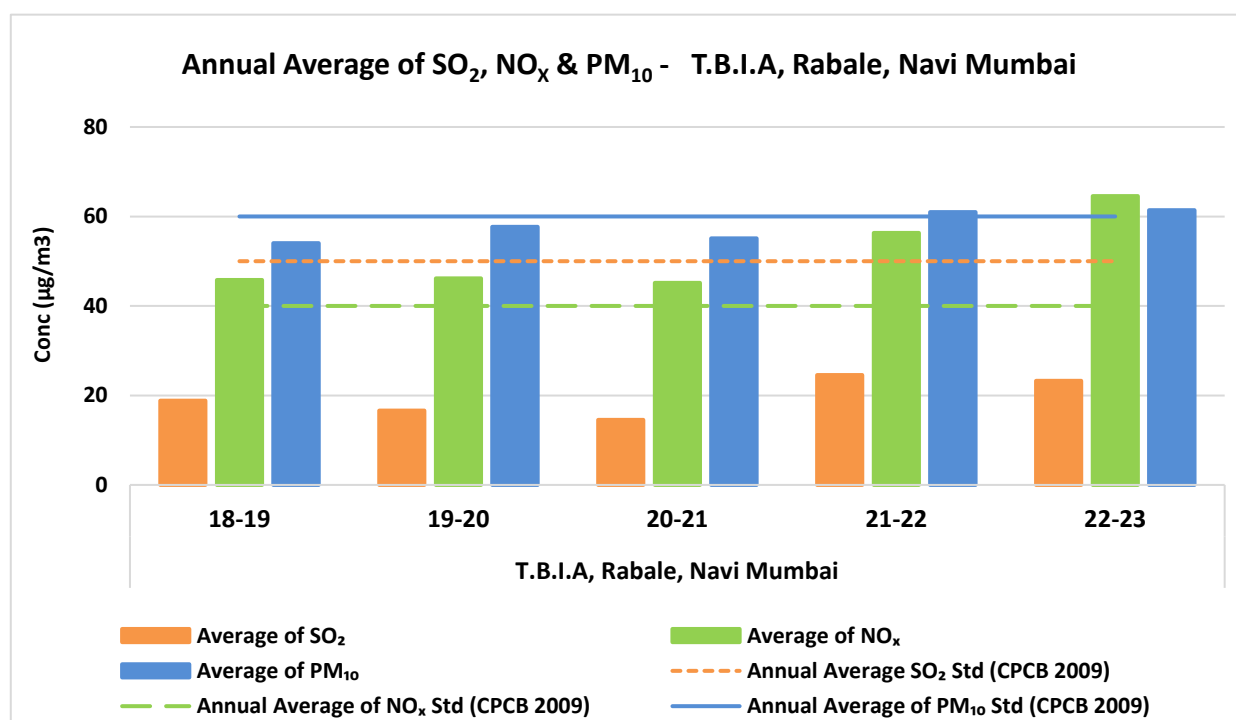
**Figure No. 322: Monthly average concentration recorded at T.B.I.A., Rabale, Navi Mumbai**

Table No. 274: Data for Annual average trend of SO₂, NO_x and PM₁₀ at T.B.I.A., Rabale, Navi Mumbai

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
T.B.I.A, Rabale, Navi Mumbai	18-19	19	46	54
	19-20	17	46	58
	20-21	15	45	55
	21-22	25	56	61
	22-23	23	65	61

Figure No. 323: Annual average trend of SO₂, NO_x and PM₁₀ at T.B.I.A., Rabale, Navi Mumbai

Taloja CAAQMS

Table No. 275: Data for Monthly average concentration recorded at Taloja CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Taloja CAAQMS	2022	Aug	2	27	36	21
		Sep	1	27	65	21
		Oct	7	34	129	42
		Nov	29	58	255	77
		Dec	28	50	229	83
	2023	Jan	33	59	210	89
		Feb	40	66	199	91
		Mar	21	64	162	72

Table No. 276: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Taloja CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Taloja CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	20	51	160	62

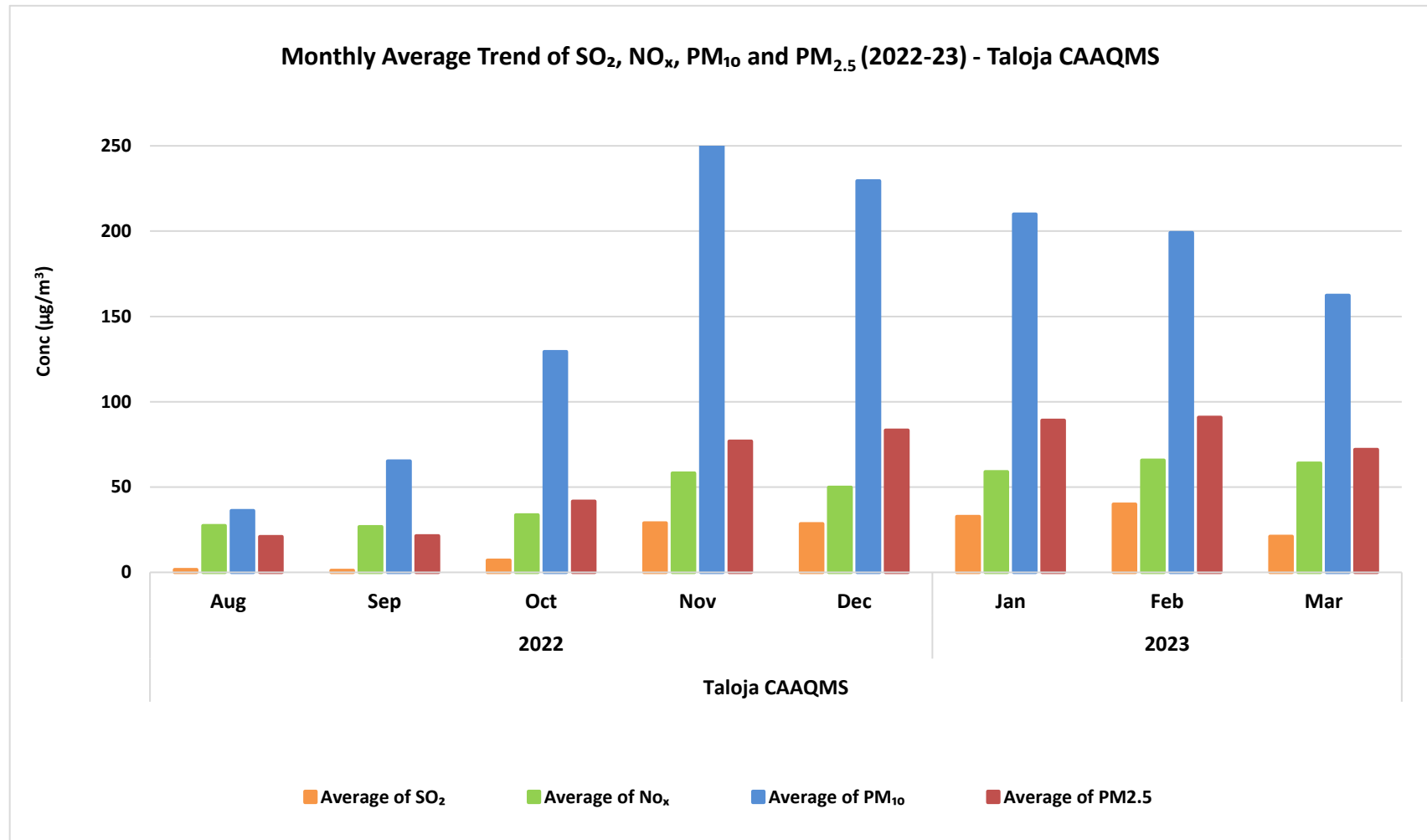


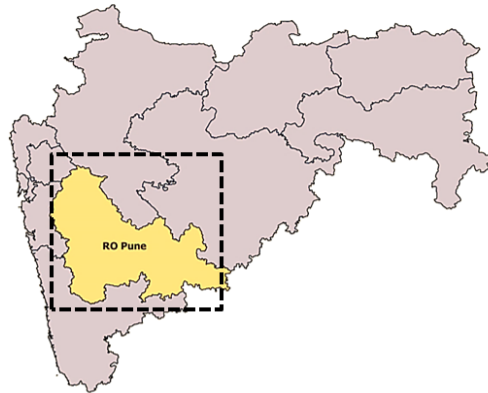
Figure No. 324: Monthly average concentration recorded at Taloja CAAQMS

Table No. 277: Percentage exceedance of pollutants at Navi Mumbai RO

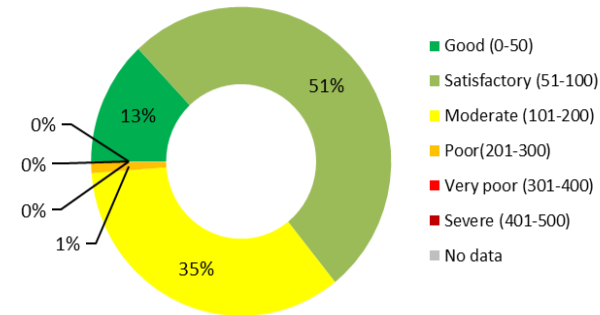
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Belapur CAAQMS	226	222	228	228	0	158	153	120	0	71	67	53
CIDCO Nodal Office, Kharghar	100	85	102	0	0	0	0	0	0	0	0	0
Dr. D.Y. Patil College Nerul TTC	94	91	98	0	0	0	0	0	0	0	0	0
Koprigaon CAAQMS	239	235	239	235	0	104	174	146	0	44	73	62
Mahape CAAQMS, Navi Mumbai	358	360	365	359	0	143	224	80	0	40	61	22
MIDC Office, Taloja	96	86	99	0	0	13	0	0	0	15	0	0
Nerul CAAQMS, Navi Mumbai	365	365	365	365	0	158	204	153	0	43	56	42
Nirmal Bhavan, Mahape	103	77	104	0	0	0	0	0	0	0	0	0
Sanpada CAAQMS	242	212	237	242	0	47	157	141	0	22	66	58
T.B.I.A, Rabale, Navi Mumbai	95	86	102	0	0	2	0	0	0	2	0	0
Taloja CAAQMS	237	202	242	240	0	100	163	130	0	50	67	54

CITIES /AREAS UNDER PUNE RO

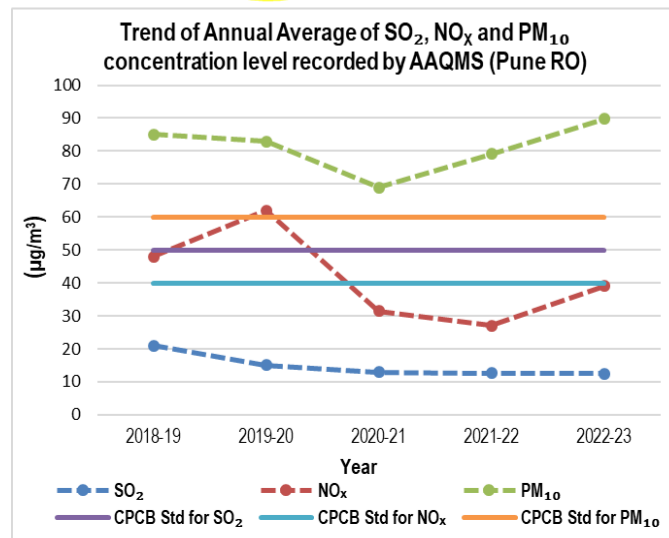
PUNE RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Pune RO)



Sr No.	Station Name	Sr No.	Station Name
1	Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building	13	Pune CAAQMS
2	Barbole Shopping Centre, Pimpalekar Chowk	14	Pune Pimpri Rose Garden CAAQMS
3	Dange Chowk Pune CAAQMS	15	Pune University CAAQMS
4	Fire Brigade Station, Pandharpur	16	Rupabhawani Chowk
5	Indradhanu (Backside), Degaon Road	17	Satara Municipal Council, Satara
6	Jagtap Dairy Pune CAAQMS	18	Solapur CAAQMS
7	Jule Solapur CAAQMS	19	Solapur Revenue CAAQMS
8	Karmaveer Bhaurao Patil College of Engg	20	State Electricity Board BLDG Nalstop
9	Katraj Dairy Pune CAAQMS	21	Swargate Police Chowki
10	Maharashtra Industrial Development Corporation	22	Ujani Jalshuddikaran Kendra, Gadegaon
11	Mahatma Phule Bhaji Market Fire Brigade	23	Voronoko School. Rang-Bhavan, Solapur
12	Maratha Chamber of Commerce, Bhosari	24	Walchand Institute of Technology Campus, Solapur





DANGE CHOWK PUNE CAAQMS



JAGPAT DAIRY PUNE CAAQMS



JULE SOLAPUR CAAQMS



KATRAJ DAIRY PUNE CAAQMS



PUNE CAAQMS



PUNE PIMPRI ROSE GARDEN CAAQMS



PUNE UNIVERSITY CAAQMS



SOLAPUR CAAQMS



SOLAPUR REVENUE CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

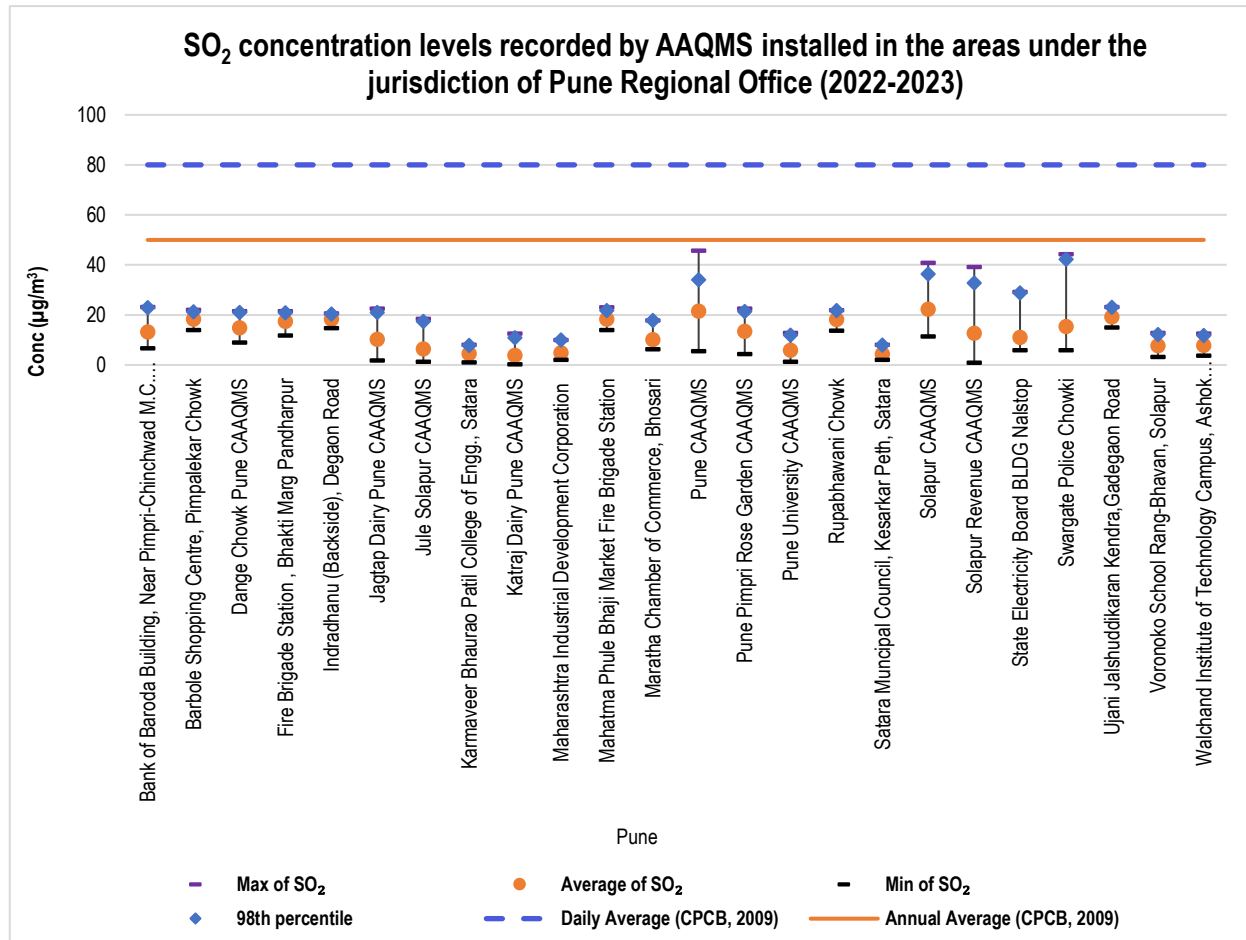


Figure No. 325: Parametric values of SO₂ concentrations recorded by AAQMS across Pune RO (2022-2023)

All monitoring stations installed within the jurisdiction area of Pune RO have recorded annual average SO₂ concentration level within the permissible limit (50 µg/m³). The recorded annual average SO₂ concentration level were in the range of about 3.86 µg/m³ – 22.22 µg/m³.

The highest annual average concentration level was recorded by Solapur CAAQMS (22.22 µg/m³) followed by Pune CAAQMS (21.45 µg/m³) whereas the lowest concentration level was recorded at Katraj Dairy Pune CAAQMS (3.86 µg/m³).

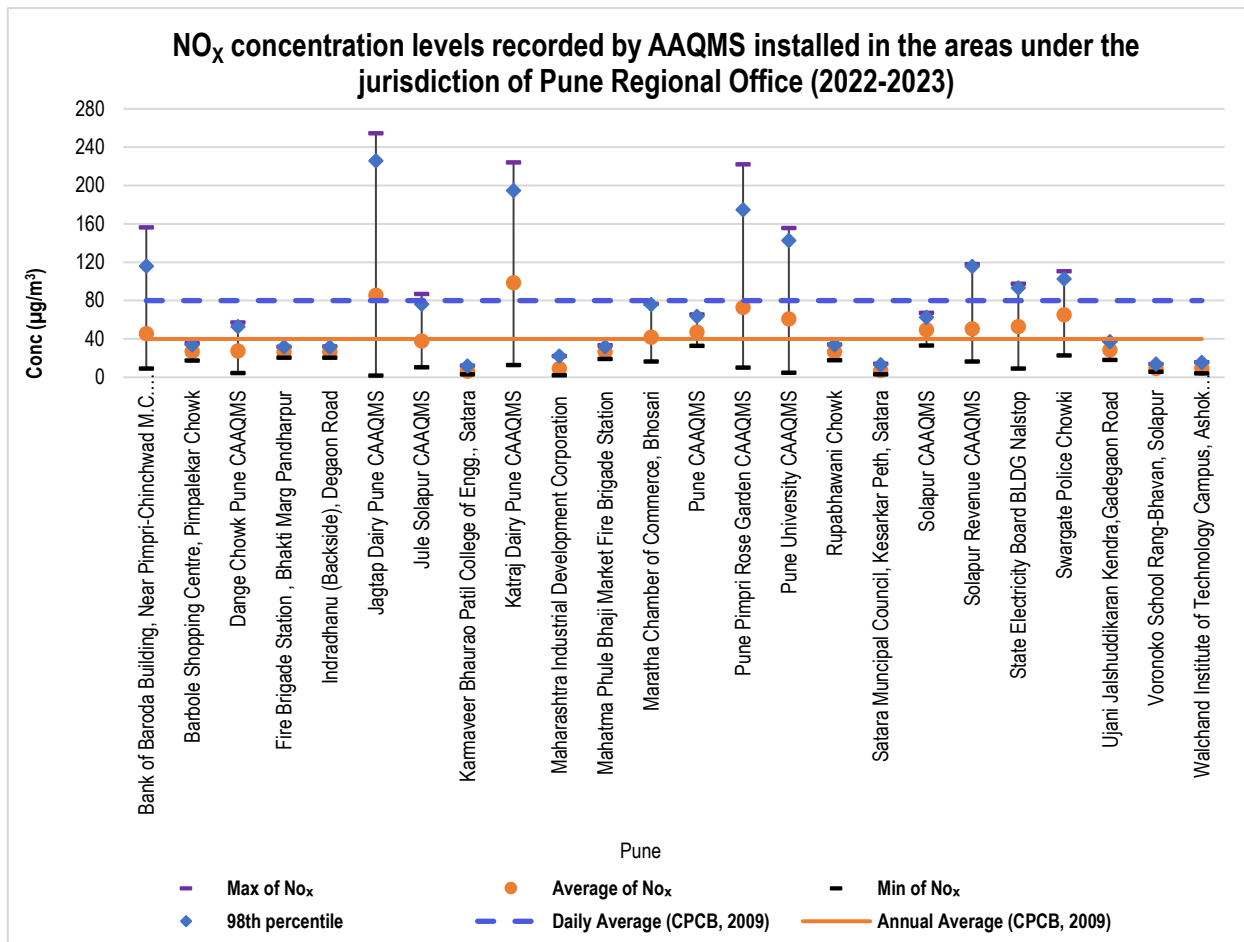
NO_x

Figure No. 326: Parametric values of NO_x concentrations recorded by AAQMS across Pune RO (2022-2023)

Out of total 24 monitoring stations installed within Pune RO's jurisdiction area, 11 AAQMS recorded annual average concentration levels higher than the annual average limit (40 µg/m³). Out of these stations, Katraj Dairy Pune CAAQMS (98.44 µg/m³) recorded levels more than 2.46 times as compared to standard limit. This was followed by Jagtap Dairy Pune CAAQMS (85.50 µg/m³) and Pune Pimpri Rose Garden CAAQMS (72.80 µg/m³) with concentration levels more than 2.1 times and 1.8 times as compared to standard limit. Pune University CAAQMS too recorded higher level of about 60.83 µg/m³.

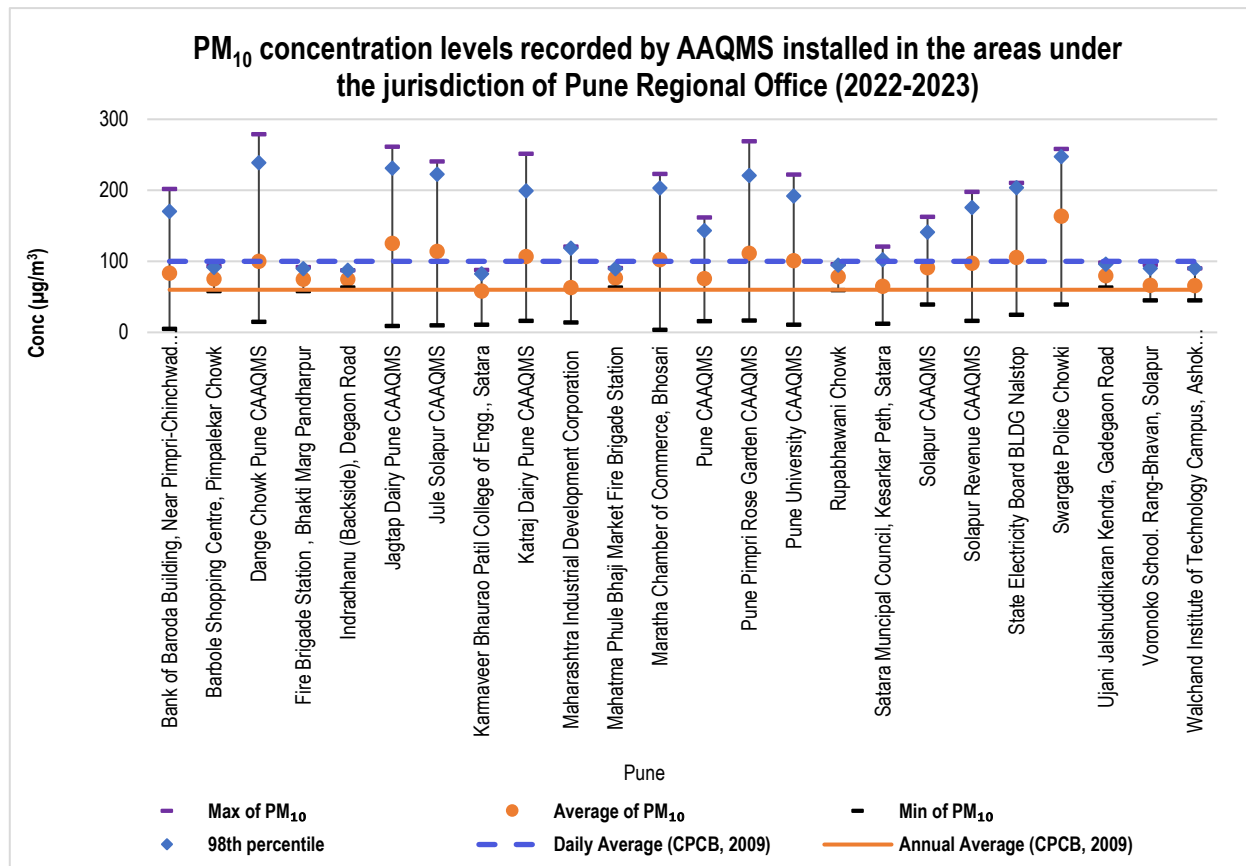
PM₁₀

Figure No. 327: Parametric values of PM₁₀ concentrations recorded by AAQMS across Pune RO (2022-2023)

In terms of annual average concentration of PM₁₀, all AAQMS except 1 AAQMS (Karmaveer Bhaurao Patil College of Engg., Satara AAQMS - 58 µg/m³) recorded levels exceeding the prescribed annual average limit (60 µg/m³). The highest annual average concentration level was recorded at Swargate Police Chowki AAQMS (163.54 µg/m³) which was about 2.72 times the standard limit.

Apart from this, several monitoring stations such as Jagtap Dairy Pune CAAQMS (125.10 µg/m³), Jule Solapur CAAQMS (114.20 µg/m³), Pune Pimpri Rose Garden CAAQMS (111.40 µg/m³), Katraj Dairy Pune CAAQMS (106.60 µg/m³), State Electricity Board BLDG Nalstop AAQMS (105.63 µg/m³), Maratha Chamber of Commerce – Bhosari AAQMS (102.10 µg/m³), Pune University CAAQMS (101.0 µg/m³), and Dange Chowk Pune CAAQMS (100.20 µg/m³) recorded concentration levels more than 1.5 times that of the prescribed limit.

Trend in PM_{2.5} concentration recorded by CAAQMS across Pune RO

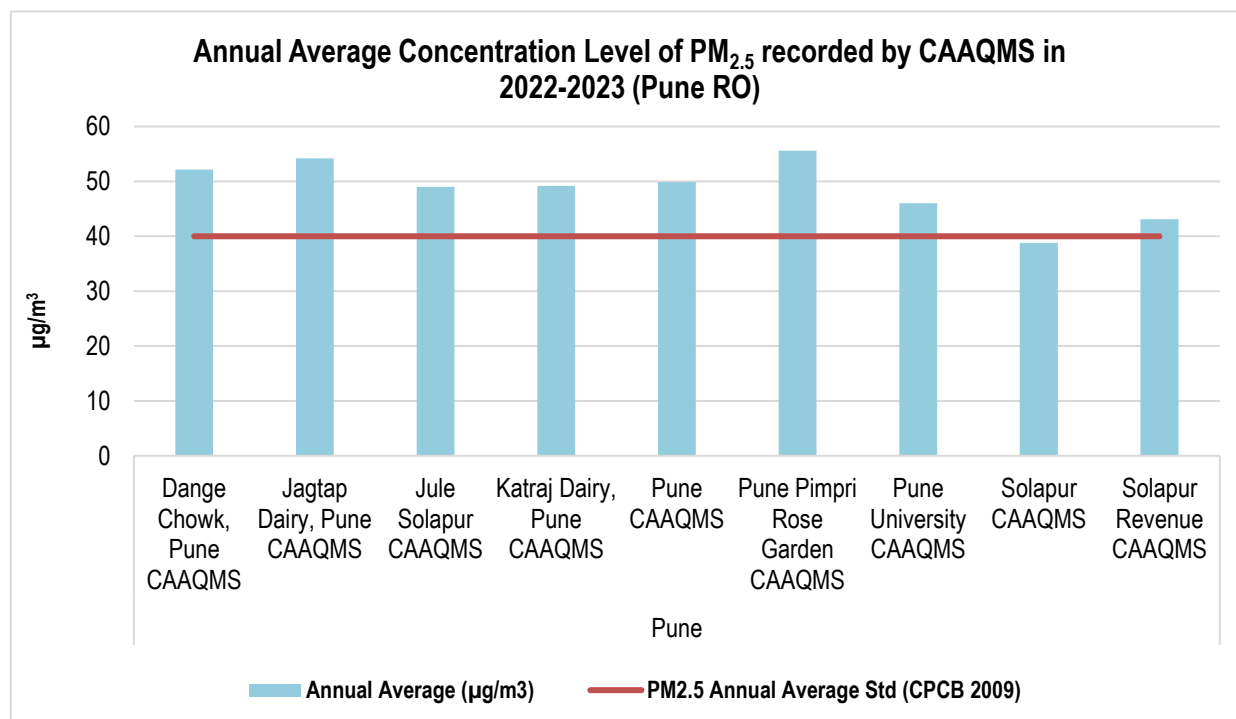


Figure No. 328: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (ug/m³) installed in the areas under the jurisdiction of Pune RO (2022-23)

As of 2022-23, there are a total of 9 CAAQMS installed in the areas coming under the jurisdiction of Pune RO. Out of these CAAQMS, only 1 CAAQMS namely Solapur CAAQMS (38.8 µg/m³) recorded annual average concentration level of PM_{2.5} under the standard limit prescribed by CPCB (40 µg/m³). Out of remaining CAAQMS, Pune Pimpri Rose Garden CAAQMS (55.61 µg/m³) recorded highest concentration level followed by Jagtap Dairy - Pune CAAQMS (54.22 µg/m³) and Dange Chowk - Pune CAAQMS (52.13 µg/m³). Rest of the CAAQMS recorded levels in between 43 µg/m³ to 49 µg/m³.

Ozone (O₃)

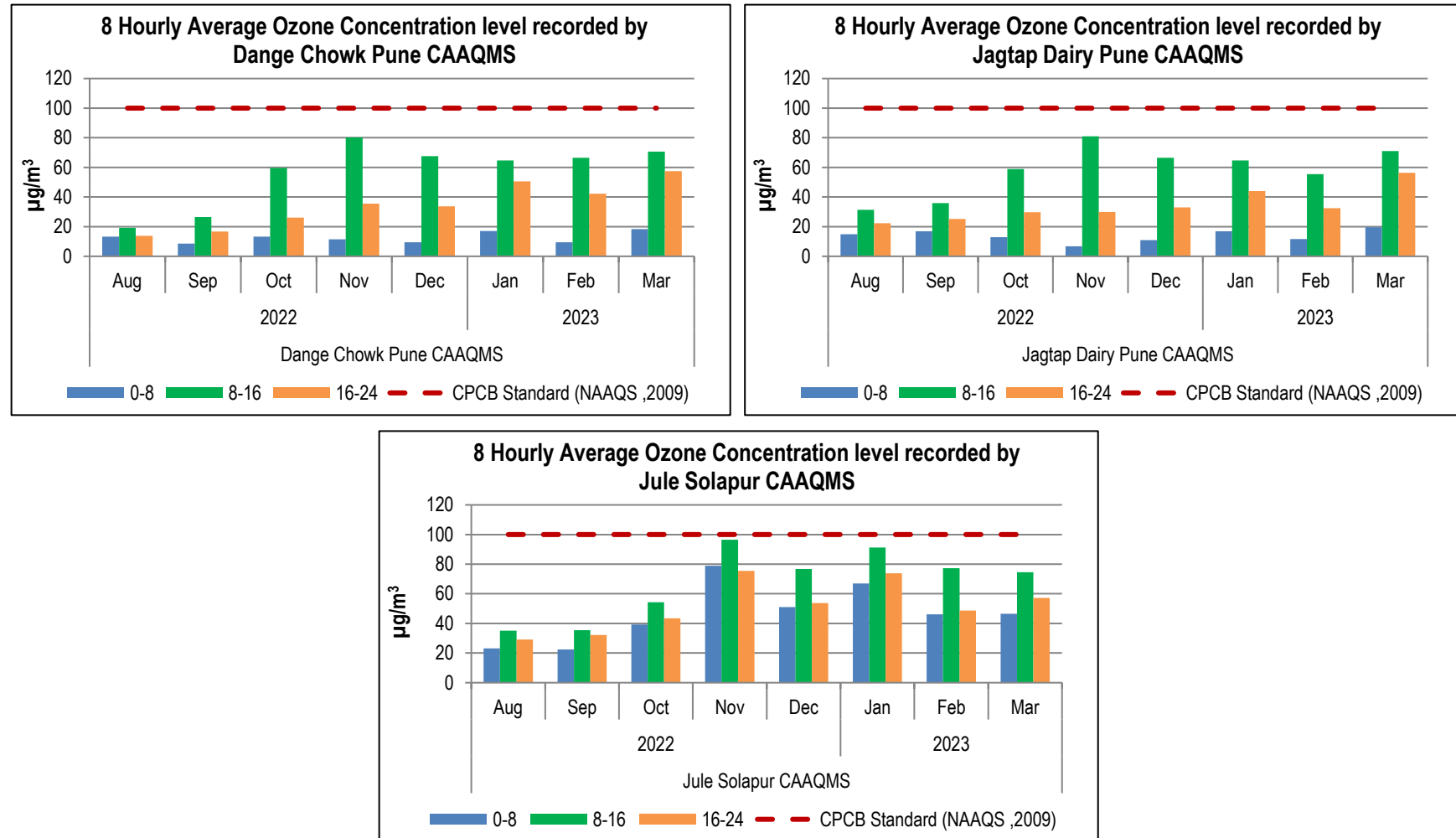


Figure No. 329: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (1)

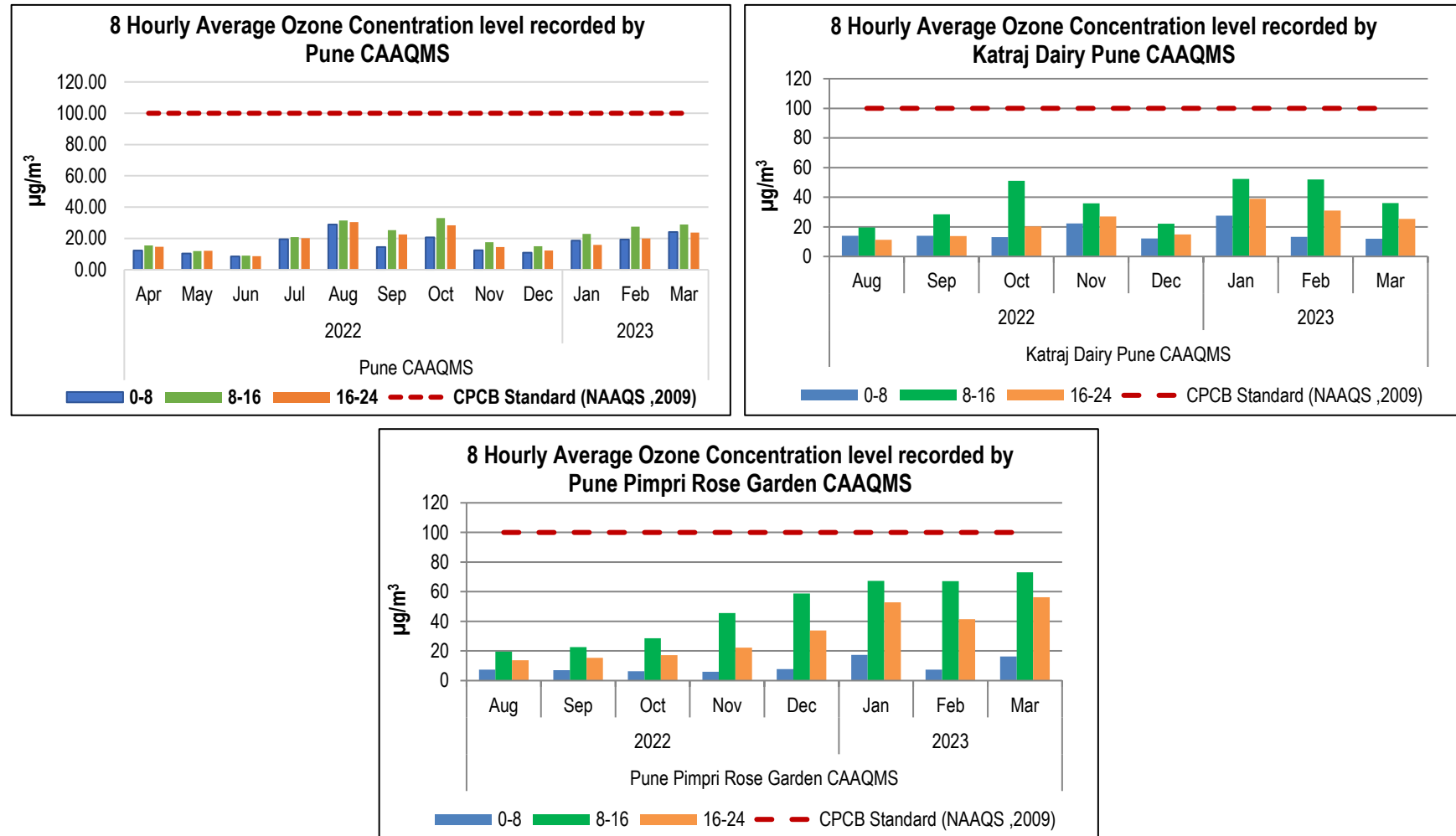


Figure No. 330: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (2)

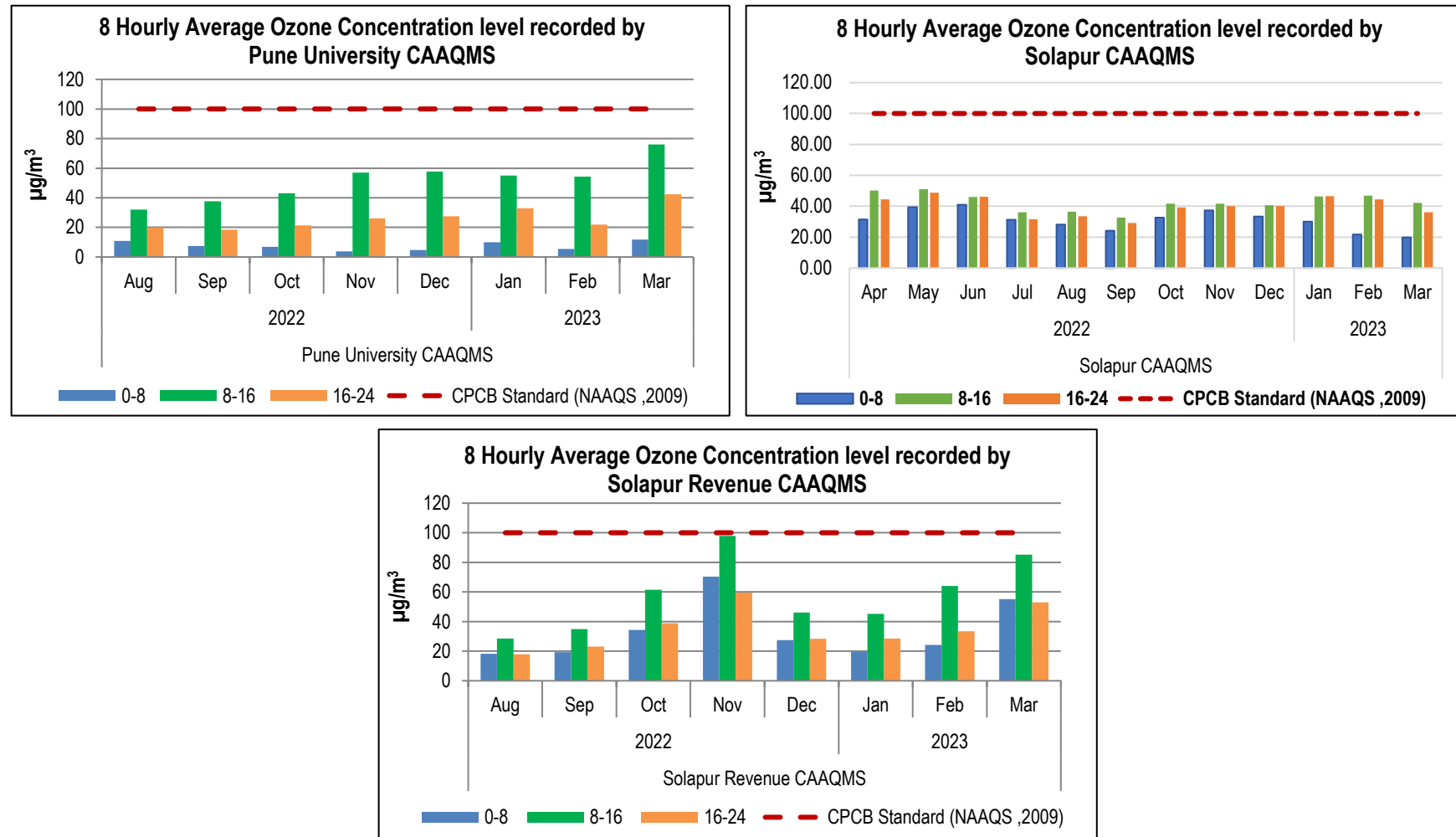


Figure No. 331 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (3)

Carbon Monoxide (CO)

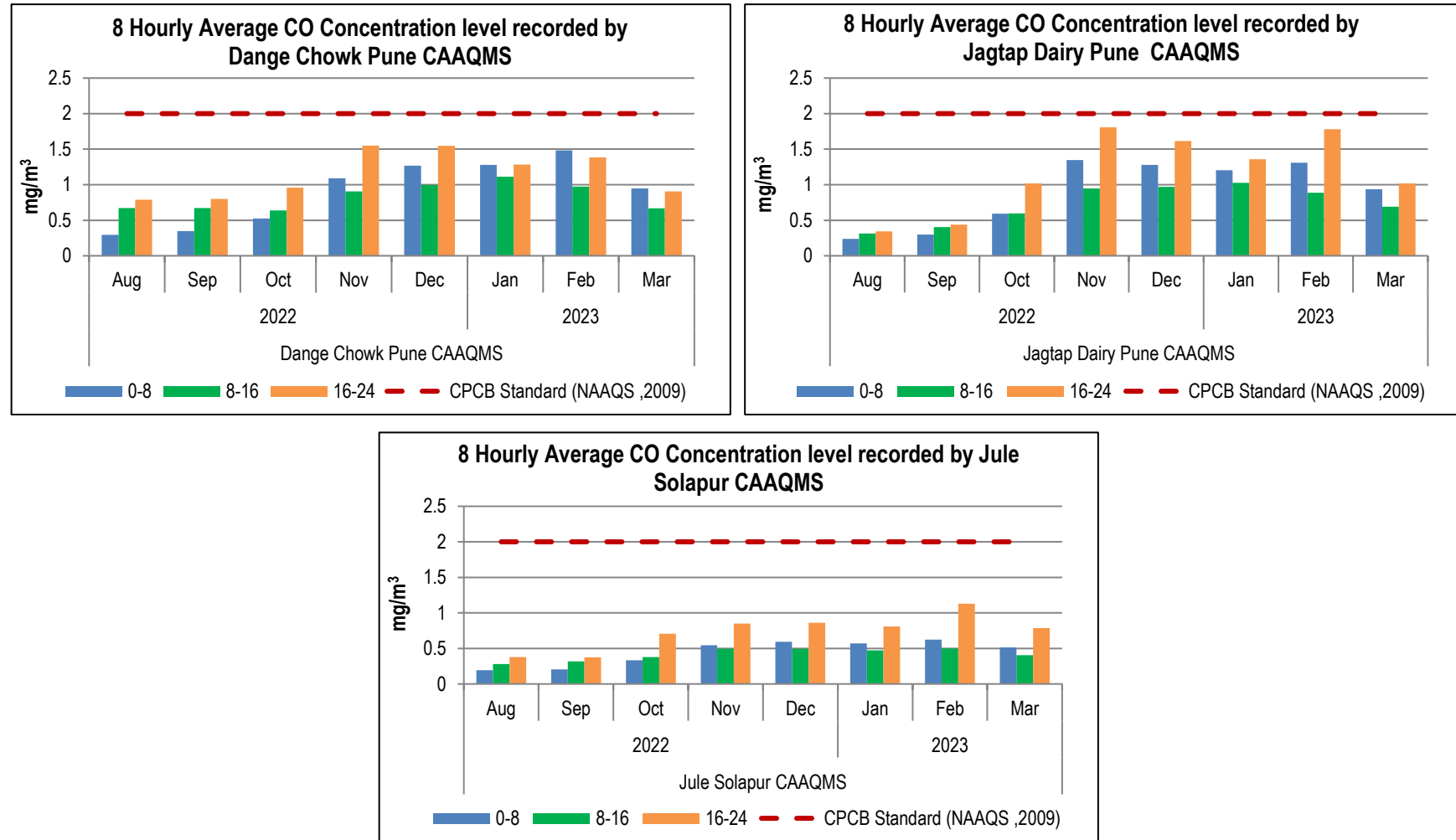


Figure No. 332 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (1)

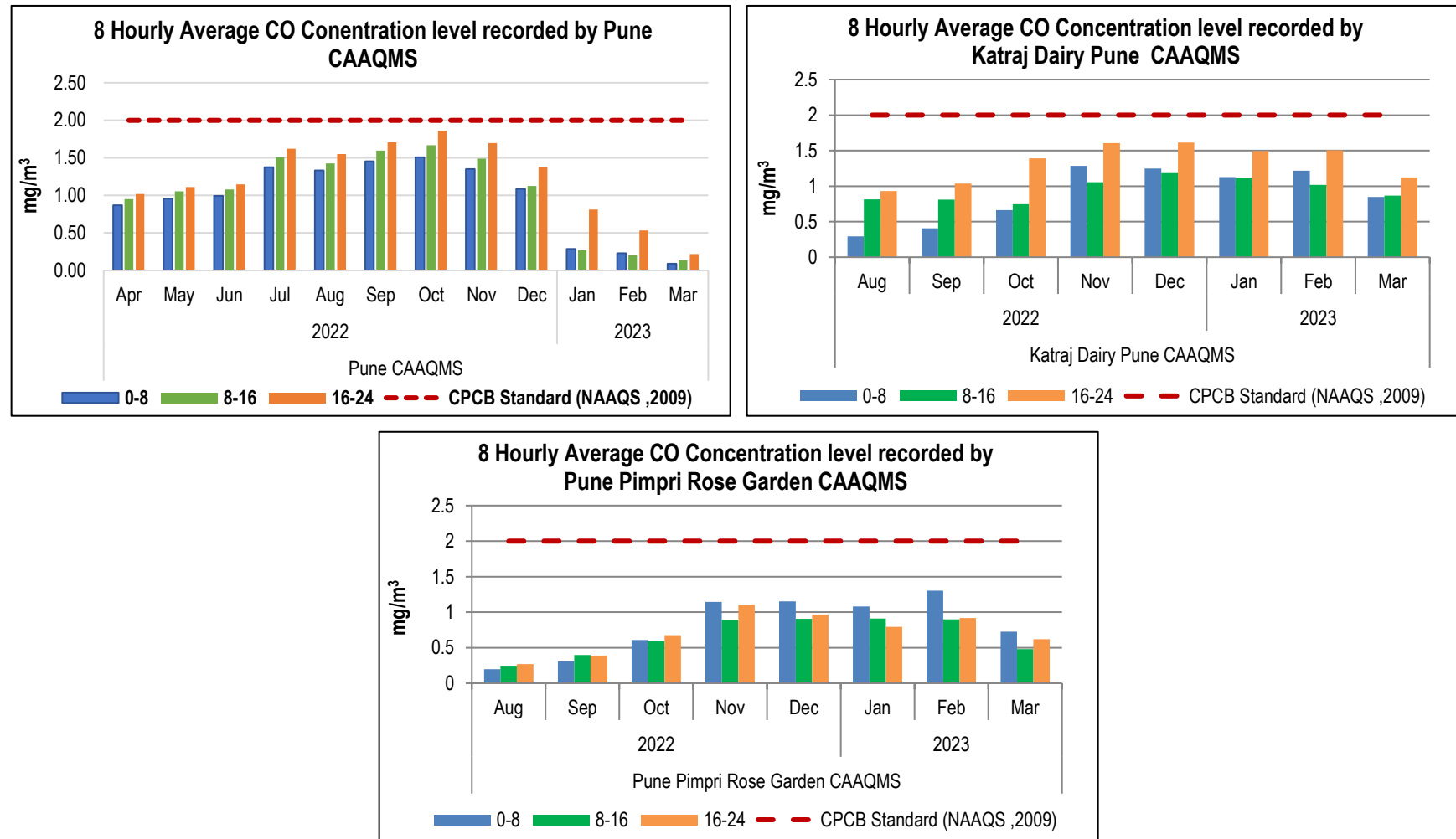


Figure No. 333 : CO Concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (2)

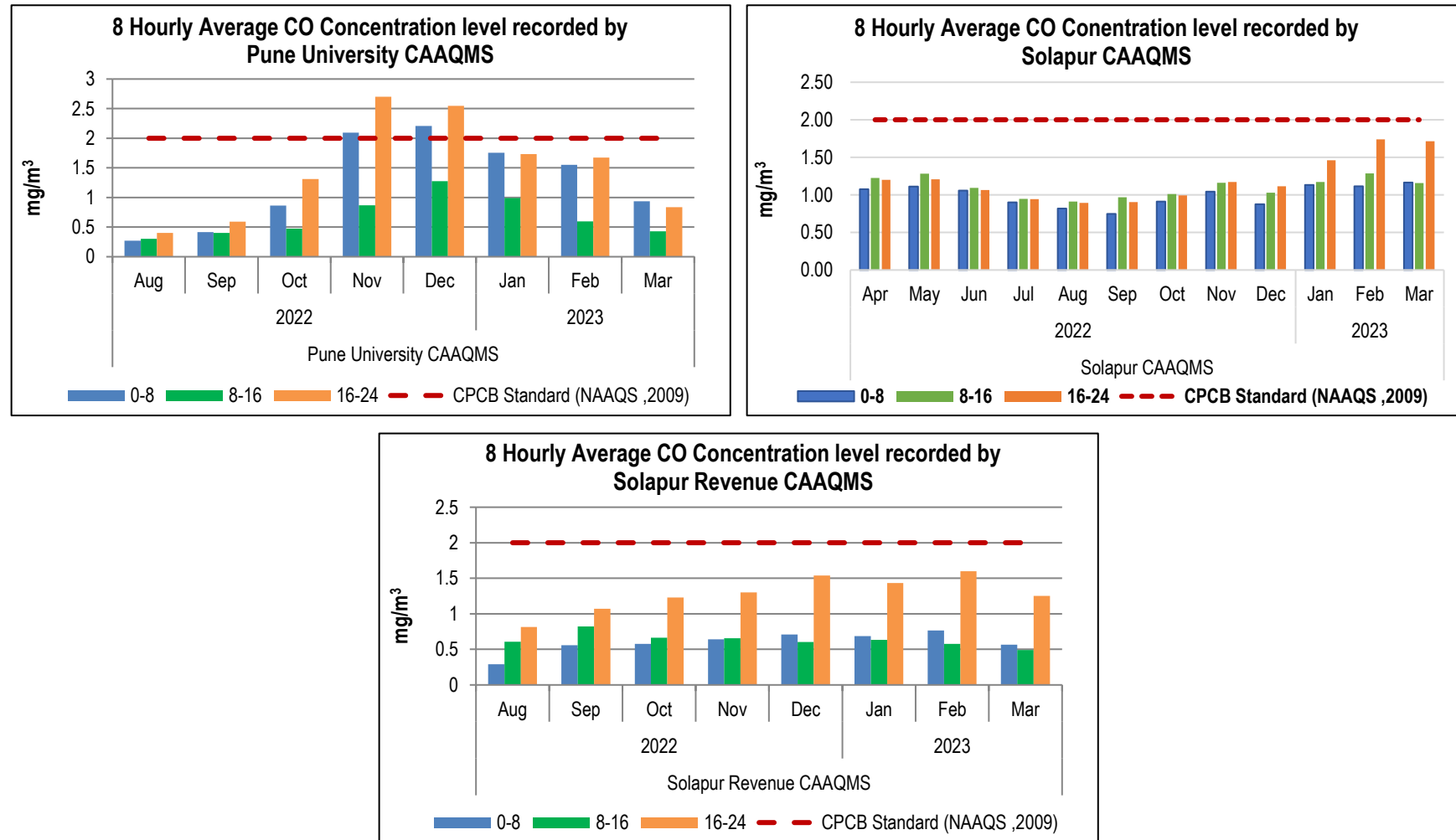


Figure No. 334 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (3)

Benzene

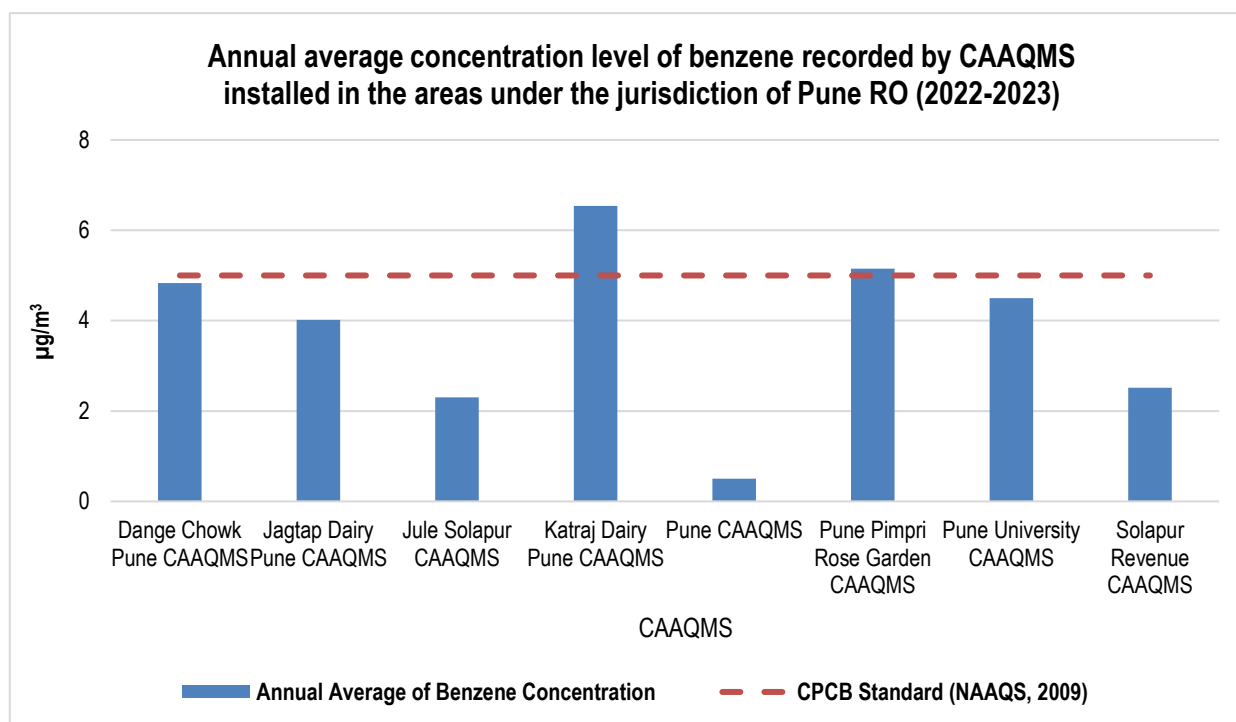


Figure No. 335: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Pune RO (2022-23)

Note: No record of Benzene recorded by Solapur CAAQMS

Out of 8 CAAQMS which recorded the benzene concentration level, only Katraj Dairy Pune CAAQMS ($6.54 \mu\text{g}/\text{m}^3$) and Pune Pimpri Rose Garden CAAQMS ($5.15 \mu\text{g}/\text{m}^3$) recorded annual average concentration levels above the standard limit ($5.0 \mu\text{g}/\text{m}^3$). The Dange Chowk Pune CAAQMS ($4.83 \mu\text{g}/\text{m}^3$) recorded levels which were slightly less than the permissible limit. The levels recorded by the rest of CAAQMS were found to be within the permissible limit.

AQI percentage occurrence graphs - Pune RO

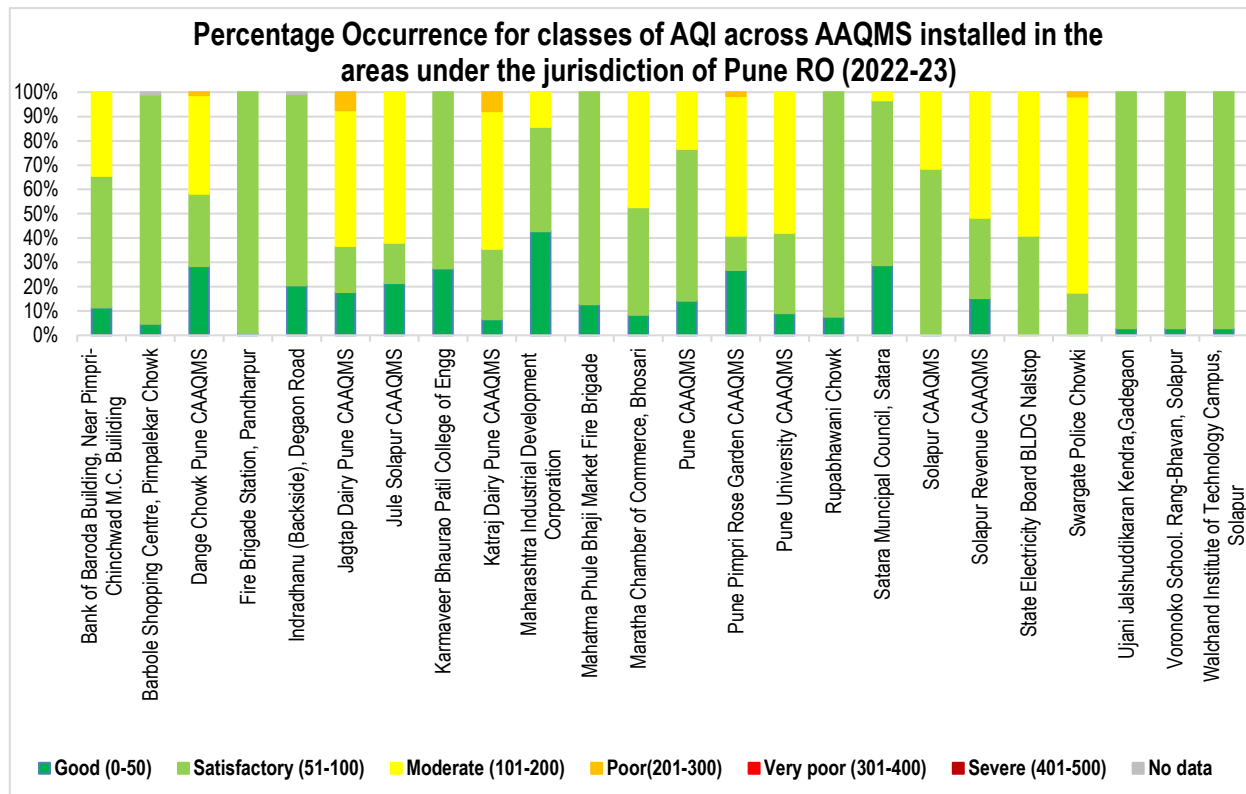


Figure No. 336: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Pune RO (2022-23)

Out of 24 monitoring stations installed in the areas under the jurisdiction of Pune RO, 9 AAQMS were categorized as 'Non-Polluted' as majority of the AQI observations recorded by these monitoring stations were found to be either in the 'Good' or 'Satisfactory' categories. Amongst the stations considered under the 'Polluted' category, Swargate Police Chowki AAQMS recorded about 80.70% of the total observations under the 'Moderate' category.

AAQMS installed at Katraj Dairy Pune CAAQMS and Jagtap Dairy Pune CAAQMS recorded 7.85% and 7.44% observations under the 'Poor' category respectively while 'No Data' category observations were recorded at Barbole Shopping Centre-Pimpalekar Chowk AAQMS (0.95%) and Indradhanu (Backside) - Degaon Road AAQMS (0.89%).

Monthly and Annual Graphs

Bank of Baroda Building, Near Pimpri-Chinchwad M.C. building

Table No. 278: Data for Monthly average concentration recorded at Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Bank of Baroda Building, Near Pimpri-Chinchwad M.C Building	2022	Apr	12	38	91
		May	16	32	78
		Jun	12	27	63
		Jul	17	29	64
		Aug	15	24	37
		Sep	12	28	46
		Oct	14	34	43
		Nov	14	47	109
		Dec	14	84	110
	2023	Jan	12	80	139
		Feb	11	74	132
		Mar	11	55	87

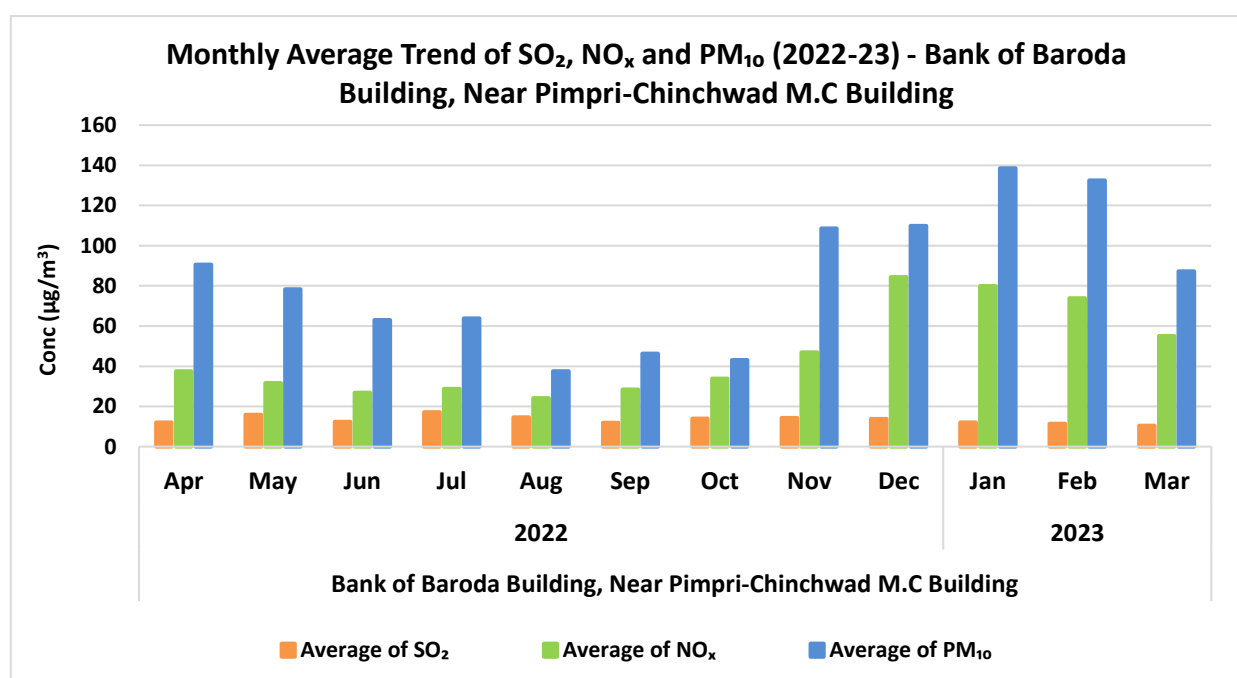
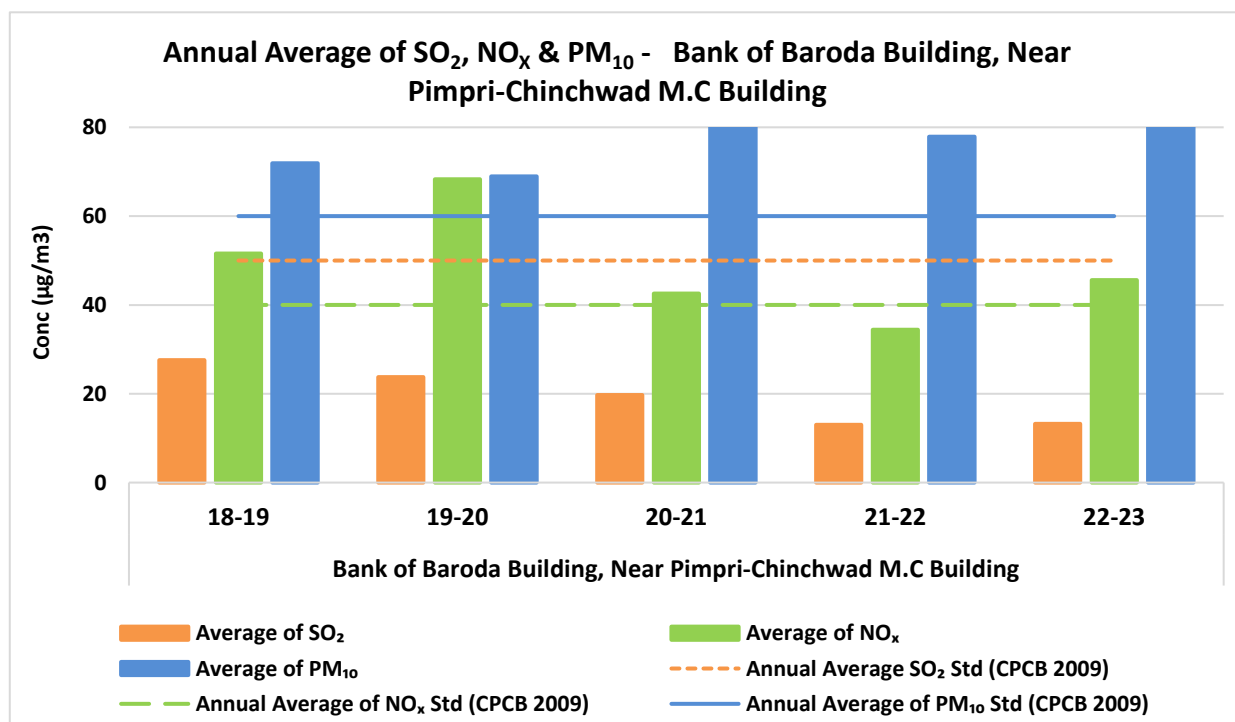


Figure No. 337: Monthly average concentration recorded at Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building

Table No. 279: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Bank of Baroda Building, Near Pimpri-Chinchwad M.C Building	18-19	28	52	72
	19-20	24	68	69
	20-21	20	43	82
	21-22	13	34	78
	22-23	13	46	83

Figure No. 338: Annual average trend of SO₂, NO_x and PM₁₀ at Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building

Barbole Shopping Centre, Pimpalekar Chowk

Table No. 280: Data for Monthly average concentration recorded at Barbole Shopping Centre, Pimpalekar Chowk

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Barbole Shopping Centre, Pimpalekar Chowk	2022	Apr	20	30	79
		May	20	29	82
		Jun	17	23	67
		Jul	15	20	65
		Aug	18	25	76
		Sep	19	30	75
		Oct	17	24	74
		Nov	18	25	71
		Dec	19	30	85
	2023	Jan	20	28	76
		Feb	18	29	72
		Mar	17	25	82

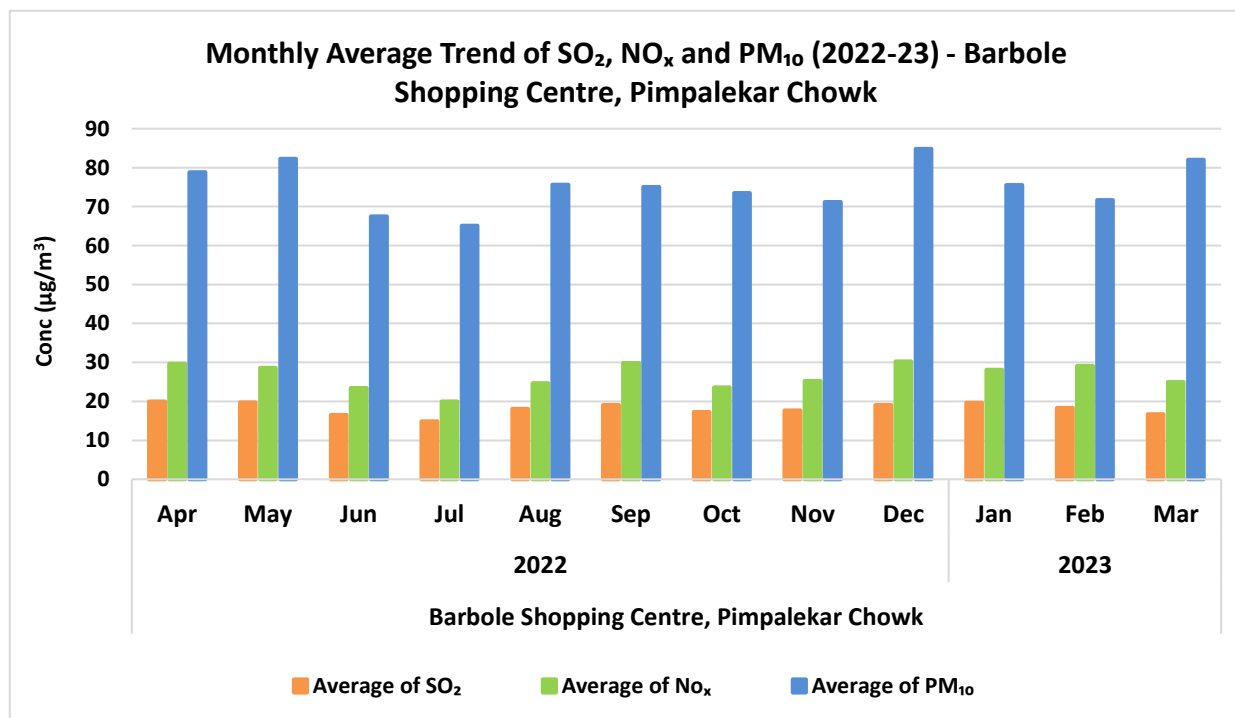
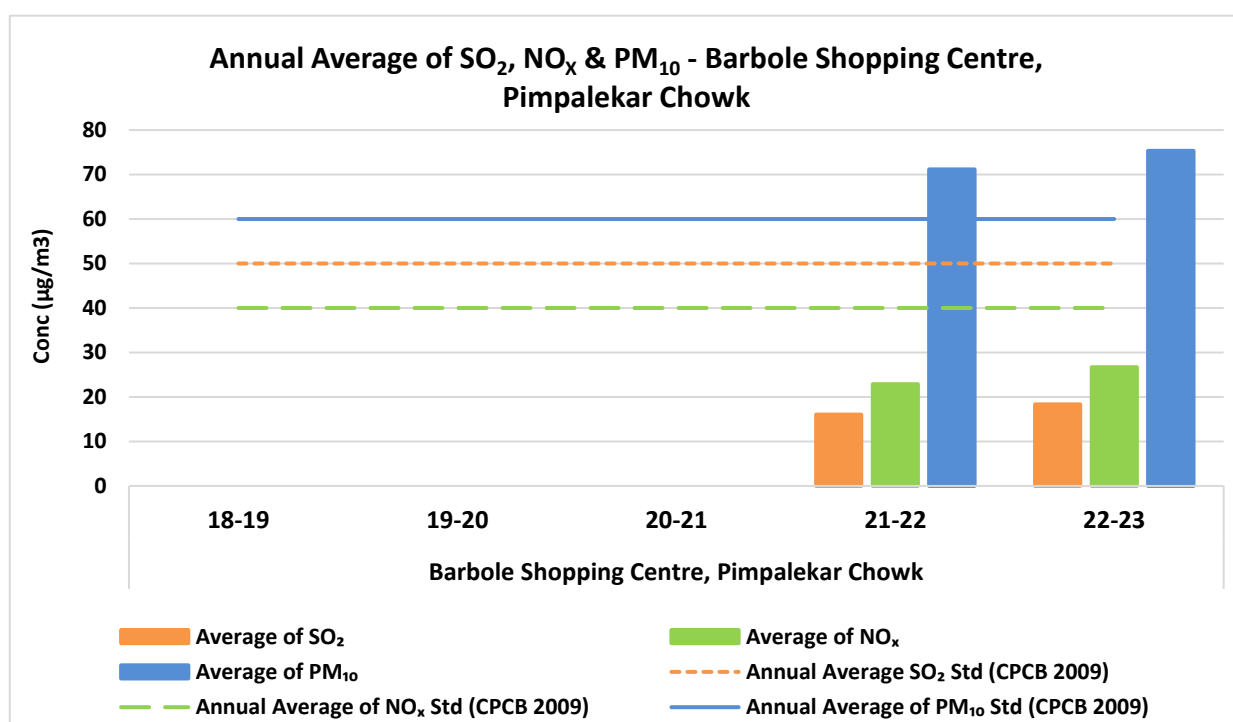


Figure No. 339: Monthly average concentration recorded at Barbole Shopping Centre, Pimpalekar Chowk

Table No. 281: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Barbole Shopping Centre, Pimpalekar Chowk

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Barbole Shopping Centre, Pimpalekar Chowk	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	16	23	71
	22-23	18	27	75

Figure No. 340: Annual average trend of SO₂, NO_x and PM₁₀ at Barbole Shopping Centre, Pimpalekar Chowk

Dange Chowk Pune CAAQMS

Table No. 282: Data for Monthly average concentration recorded at Dange Chowk Pune CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Dange Chowk Pune CAAQMS	2022	Aug	13	31	33	13
		Sep	14	19	29	13
		Oct	15	17	52	32
		Nov	15	21	100	62
		Dec	14	19	136	83
	2023	Jan	17	18	154	76
		Feb	16	20	169	86
		Mar	15	13	111	79

Table No. 283: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Dange Chowk Pune CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Dange Chowk Pune CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	15	20	100	57

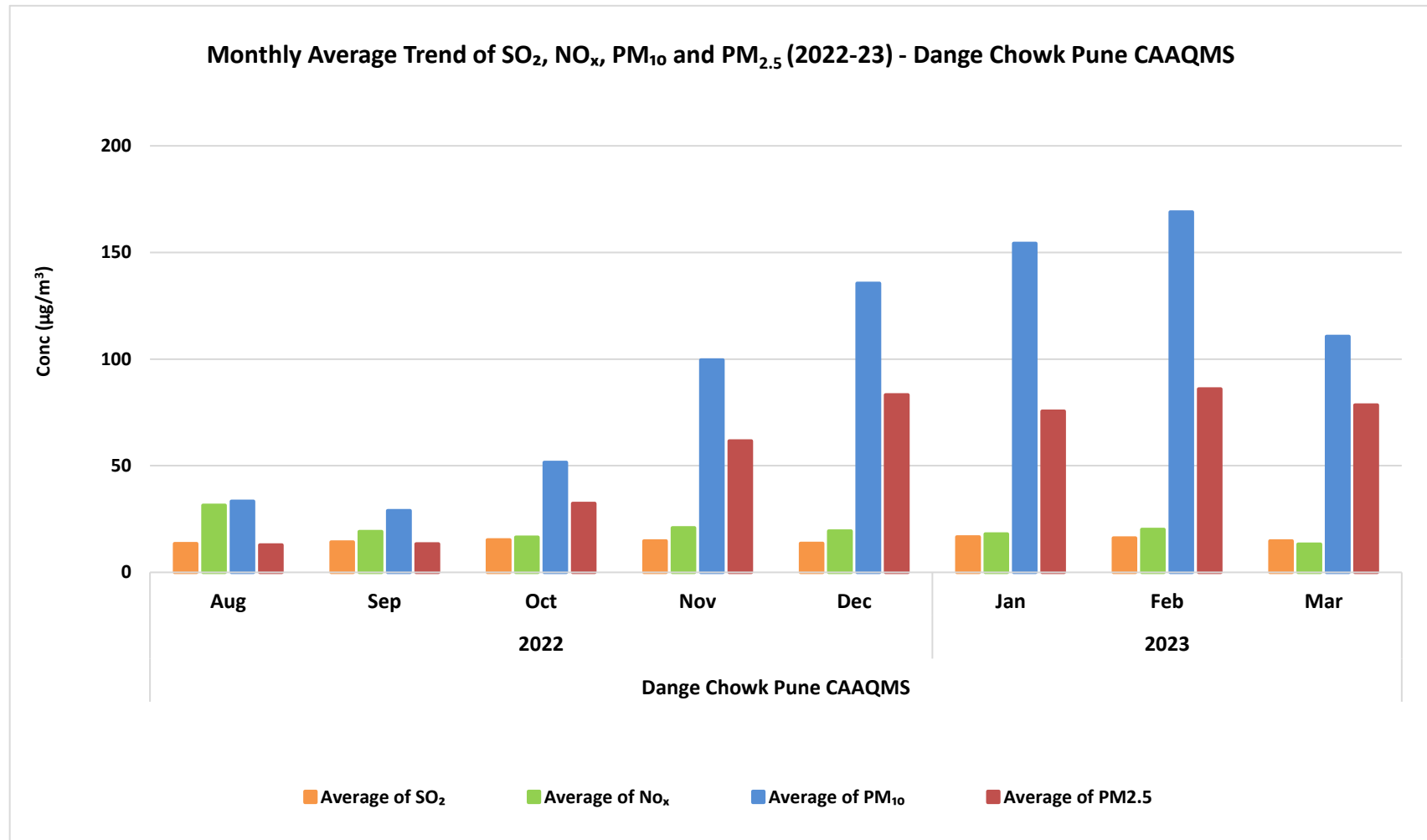


Figure No. 341: Monthly average concentration recorded at Dange Chowk Pune CAAQMS

Fire Brigade Station, Bhakti Marg Pandharpur

Table No. 284: Data for Monthly average concentration recorded at Fire Brigade Station, Bhakti Marg Pandharpur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Fire Brigade Station , Bhakti Marg Pandharpur	2022	Apr	19	30	83	22
		May	20	27	81	21
		Jun	17	25	66	17
		Jul	14	22	67	16
		Aug	18	24	74	18
		Sep	18	29	80	19
		Oct	20	28	73	19
		Nov	18	26	69	18
		Dec	19	27	82	21
	2023	Jan	16	25	72	17
		Feb	15	27	72	18
		Mar	16	24	75	17

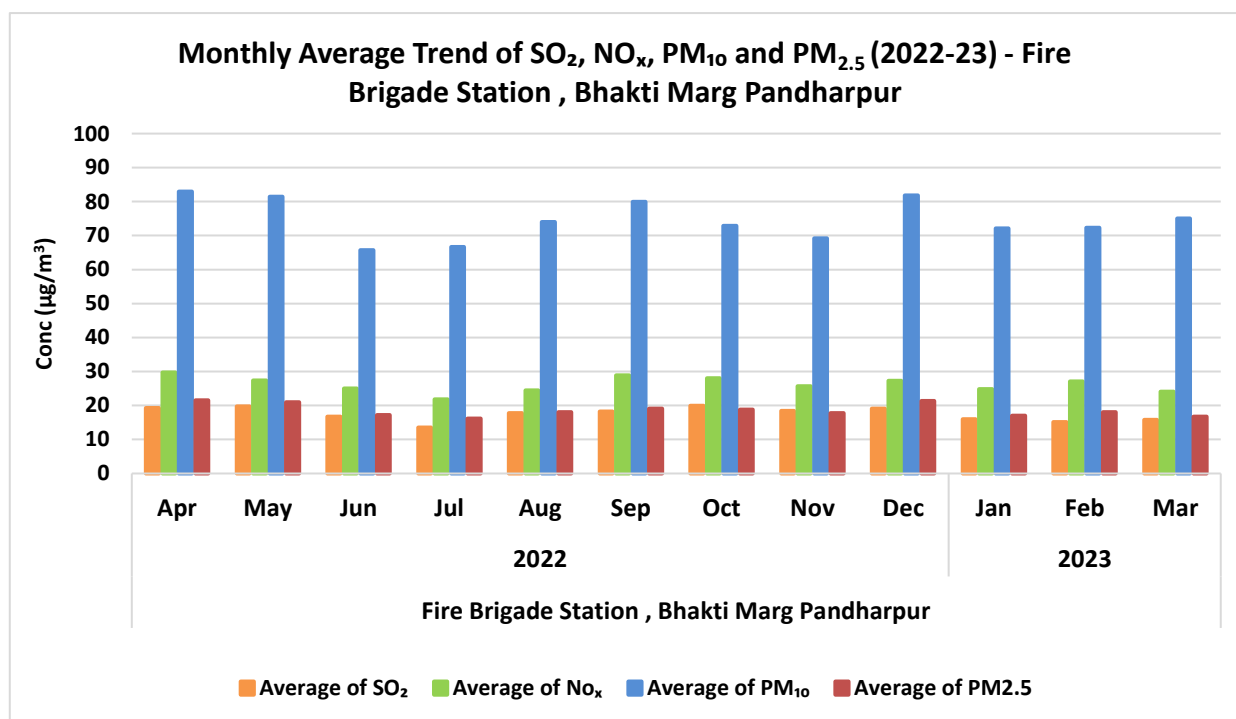
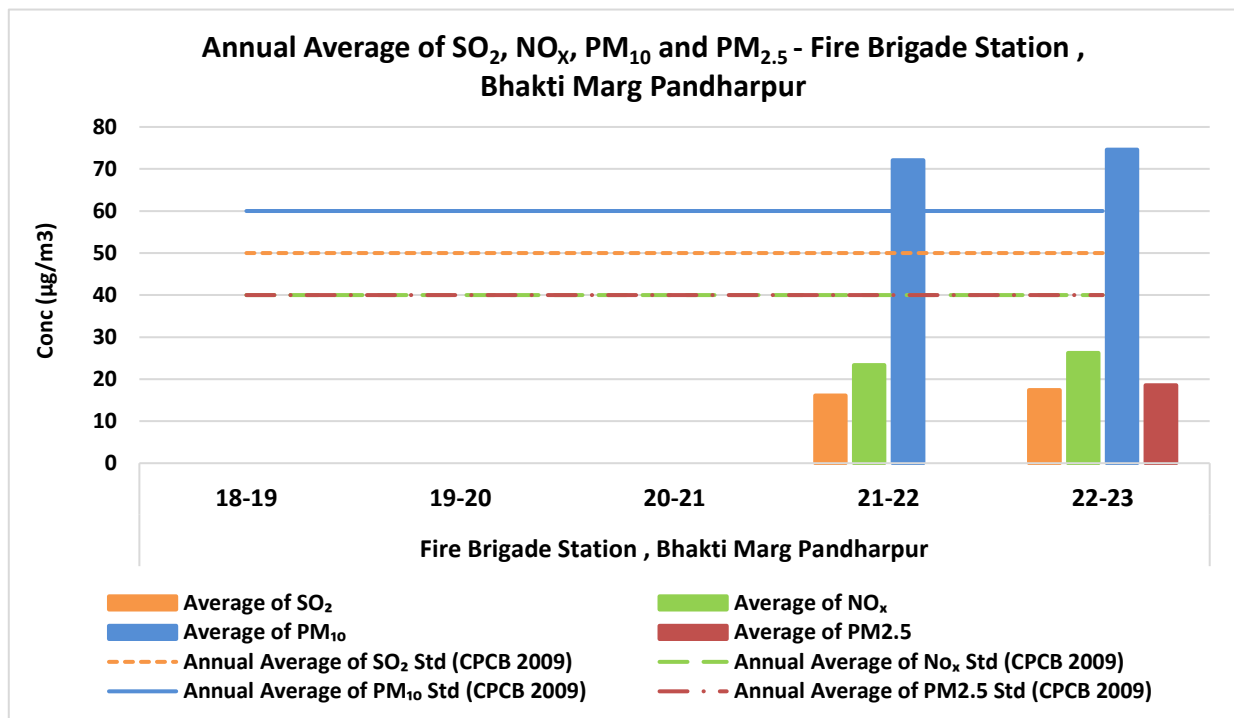


Figure No. 342: Monthly average concentration recorded at Fire Brigade Station, Bhakti Marg Pandharpur

Table No. 285: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Fire Brigade Station, Bhakti Marg Pandharpur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Fire Brigade Station , Bhakti Marg Pandharpur	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	16	23	72	-
	22-23	17	26	75	19

Figure No. 343: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Fire Brigade Station, Bhakti Marg Pandharpur

Indradhanu (Backside), Degaon Road

Table No. 286: Data for Monthly average concentration recorded at Indradhanu (Backside), Degaon Road

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Indradhanu (Backside), Degaon Road	2022	Apr	18	27	79	19
		May	20	28	81	22
		Jun	18	24	72	17
		Jul		22	70	16
		Aug	19	25	77	18
		Sep	19	27	76	17
		Oct	19	27	74	18
		Nov	18	25	72	17
		Dec	19	28	83	20
	2023	Jan	18	30	72	19
		Feb	17	25	74	18
		Mar	17	28	78	18

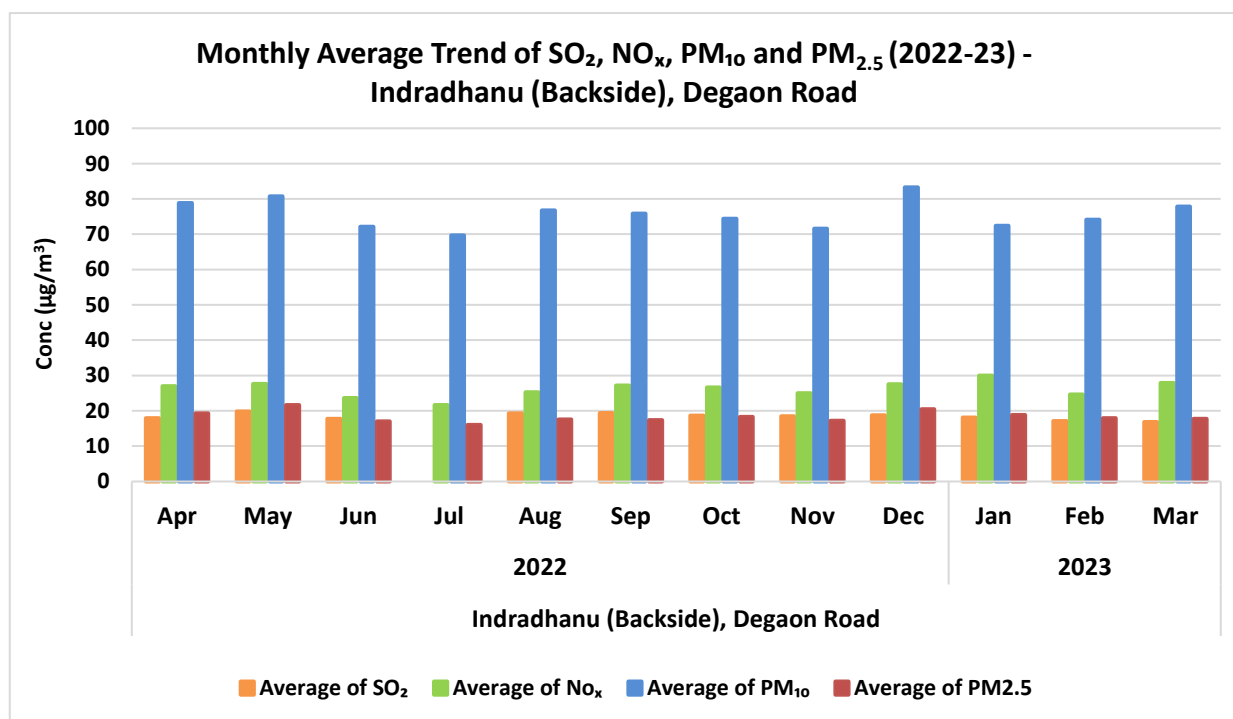
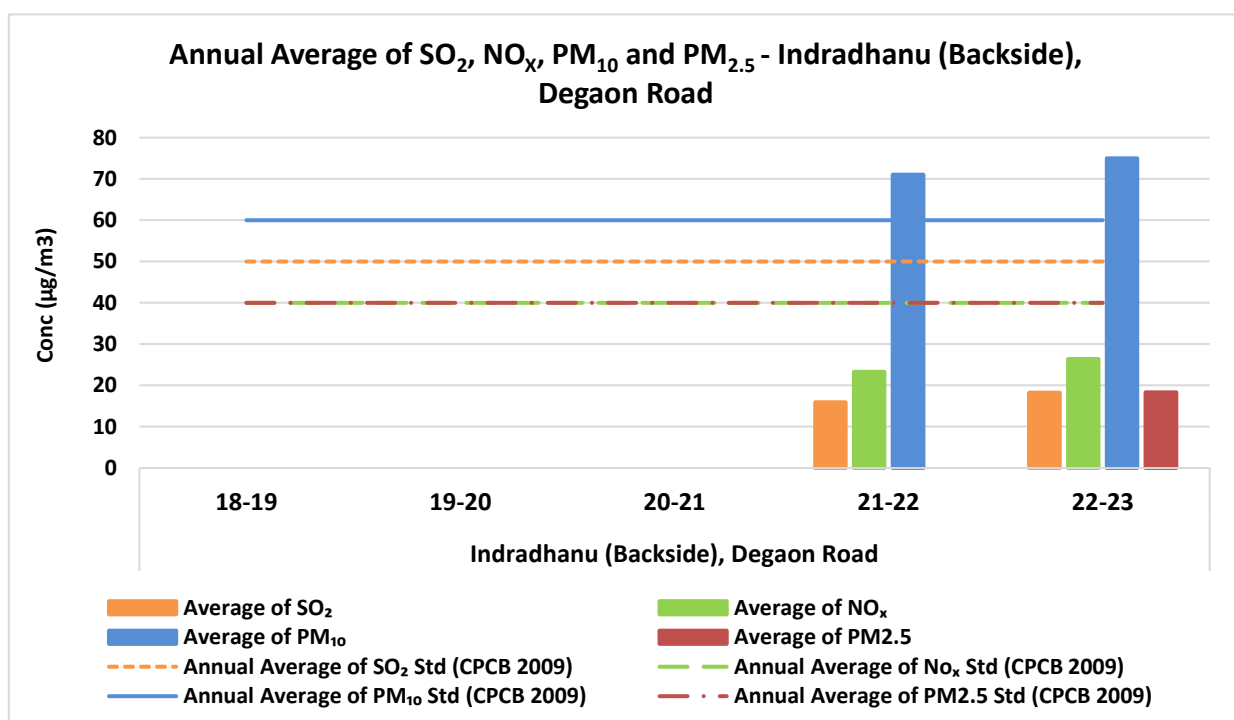


Figure No. 344: Monthly average concentration recorded at Indradhanu (Backside), Degaon Road

Table No. 287: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Indradhanu (Backside), Degaon Road

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Indradhanu (Backside), Degaon Road	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	16	23	71	-
	22-23	18	26	75	18

Figure No. 345: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Indradhanu (Backside), Degaon Road

Jagtap Dairy Pune CAAQMS

Table No. 288: Data for Monthly average concentration recorded at Jagtap Dairy Pune CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Jagtap Dairy Pune CAAQMS	2022	Aug	5	11	40	12
		Sep	6	12	51	18
		Oct	8	39	101	44
		Nov	14	83	180	82
		Dec	13	77	176	75
	2023	Jan	11	74	174	89
		Feb	13	100	160	90
		Mar	13	31	120	68

Table No. 289: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Jagtap Dairy Pune CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Jagtap Dairy Pune CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	10	53	125	59

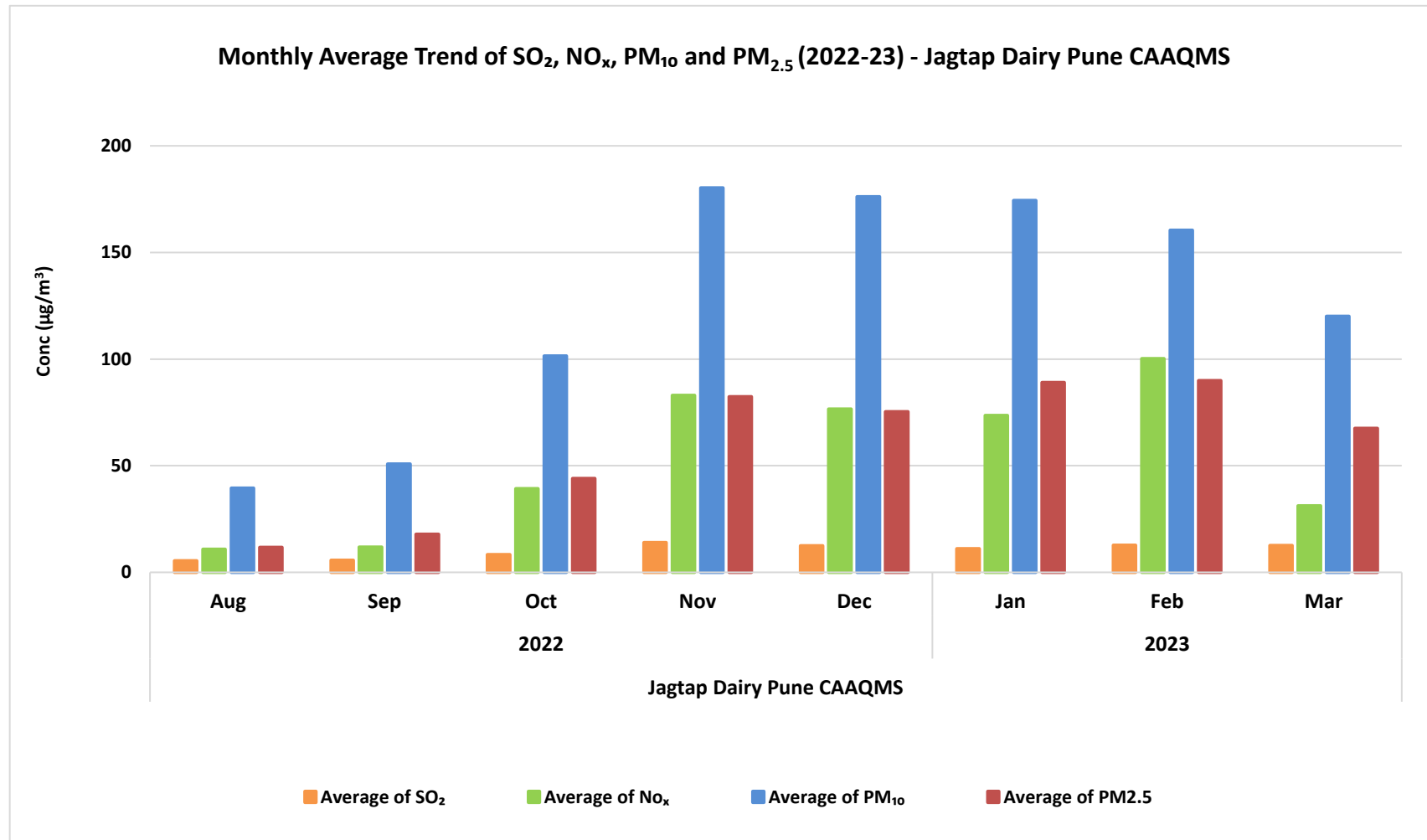


Figure No. 346: Monthly average concentration recorded at Jagtap Dairy Pune CAAQMS

Jule Solapur CAAQMS

Table No. 290: Data for Monthly average concentration recorded at Jule Solapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Jule Solapur CAAQMS	2022	Aug	4	12	44	8
		Sep	3	14	42	10
		Oct	4	19	72	27
		Nov	6	20	146	82
		Dec	7	20	132	60
	2023	Jan	9	30	137	77
		Feb	12	42	191	85
		Mar	8	23	157	82

Table No. 291: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Jule Solapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Jule Solapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	6	22	114	54

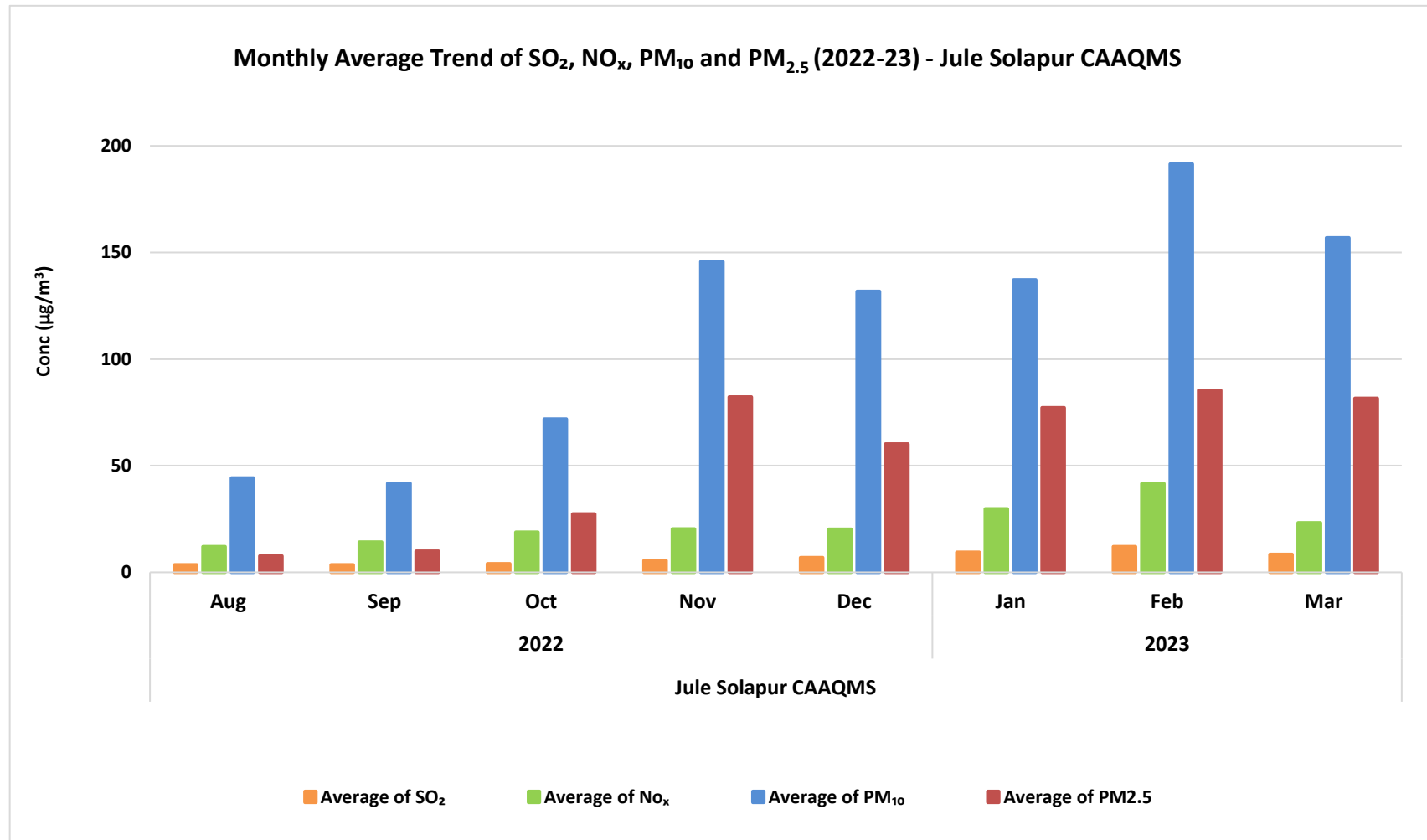


Figure No. 347: Monthly average concentration recorded at Jule Solapur CAAQMS

Karmaveer Bhaurao Patil College of Engg., Satara

Table No. 292: Data for Monthly average concentration recorded at Karmaveer Bhaurao Patil College of Engg., Satara

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Karmaveer Bhaurao Patil College of Engg., Satara	2022	Apr	4	7	81	12
		May	6	7	75	13
		Jun	5	6	69	13
		Jul	4	7	58	12
		Aug	3	4	34	11
		Sep	4	6	25	12
		Oct	4	5	26	12
	2023	Jan	8	-	74	46
		Feb	7	12	65	41
		Mar	4	8	63	37

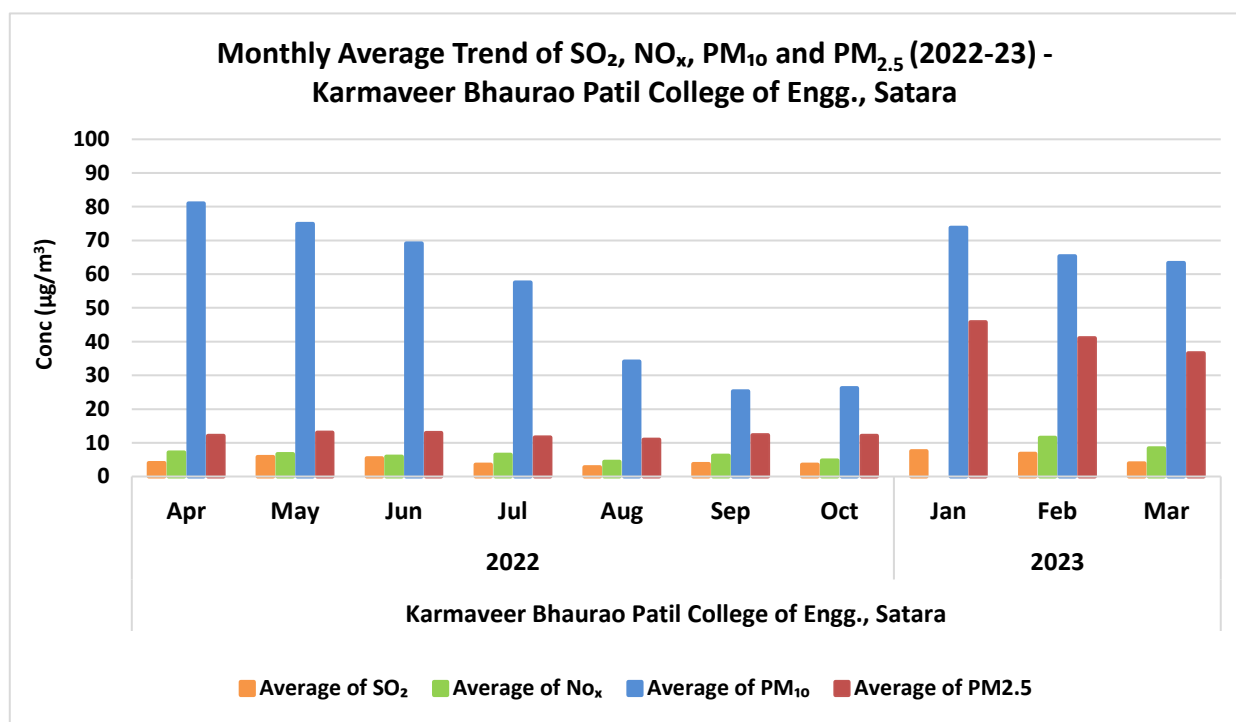
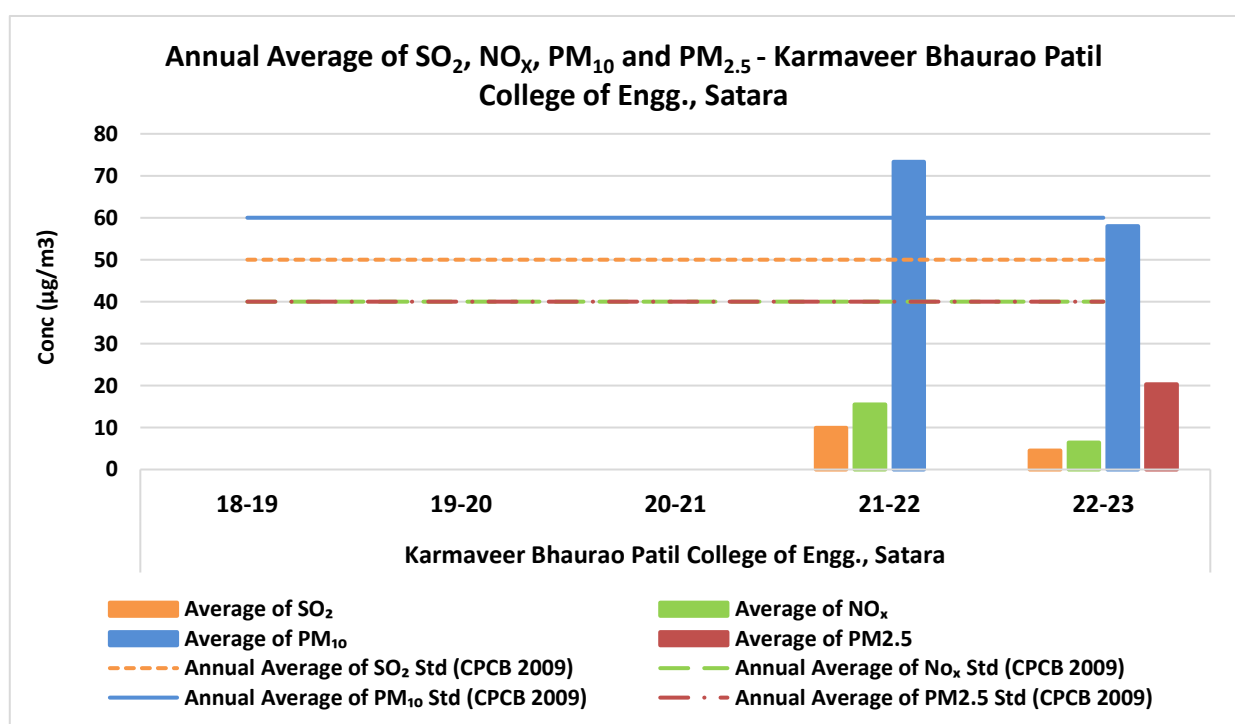


Figure No. 348: Monthly average concentration recorded at Karmaveer Bhaurao Patil College of Engg., Satara

Table No. 293: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Karmaveer Bhaurao Patil College of Engg., Satara

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Karmaveer Bhaurao Patil College of Engg., Satara	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	10	16	73	-
	22-23	5	6	58	20

Figure No. 349: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Karmaveer Bhaurao Patil College of Engg., Satara

Katraj Dairy Pune CAAQMS

Table No. 294: Data for Monthly average concentration recorded at Katraj Dairy Pune CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Katraj Dairy Pune CAAQMS	2022	Aug	2	27	47	21
		Sep	6	33	42	19
		Oct	8	52	80	35
		Nov	3	75	147	63
		Dec	2	53	138	61
	2023	Jan	3	64	144	80
		Feb	5	88	144	82
		Mar	4	48	113	66

Table No. 295: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Katraj Dairy Pune CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Katraj Dairy Pune CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	4	55	107	53

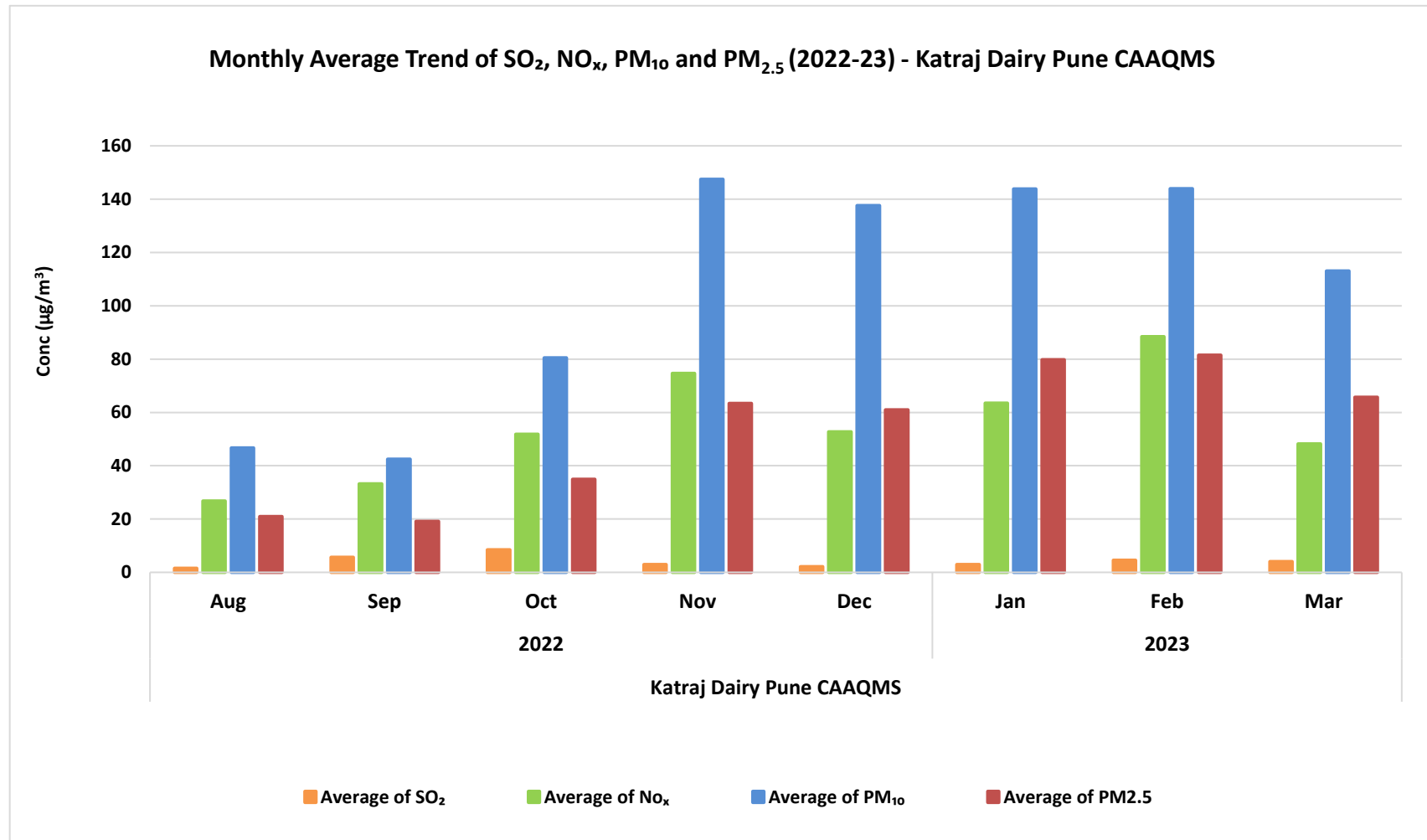


Figure No. 350: Monthly average concentration recorded at Katraj Dairy Pune CAAQMS

Maharashtra Industrial Development Corporation

Table No. 296: Data for Monthly average concentration recorded at Maharashtra Industrial Development Corporation

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Maharashtra Industrial Development Corporation	2022	Jun	6	7	67
		Jul	4	6	65
		Aug	3	4	41
		Sep	4	6	27
		Oct	4	5	30
	2023	Jan	9	22	89
		Feb	9	18	114
		Mar	6	11	88

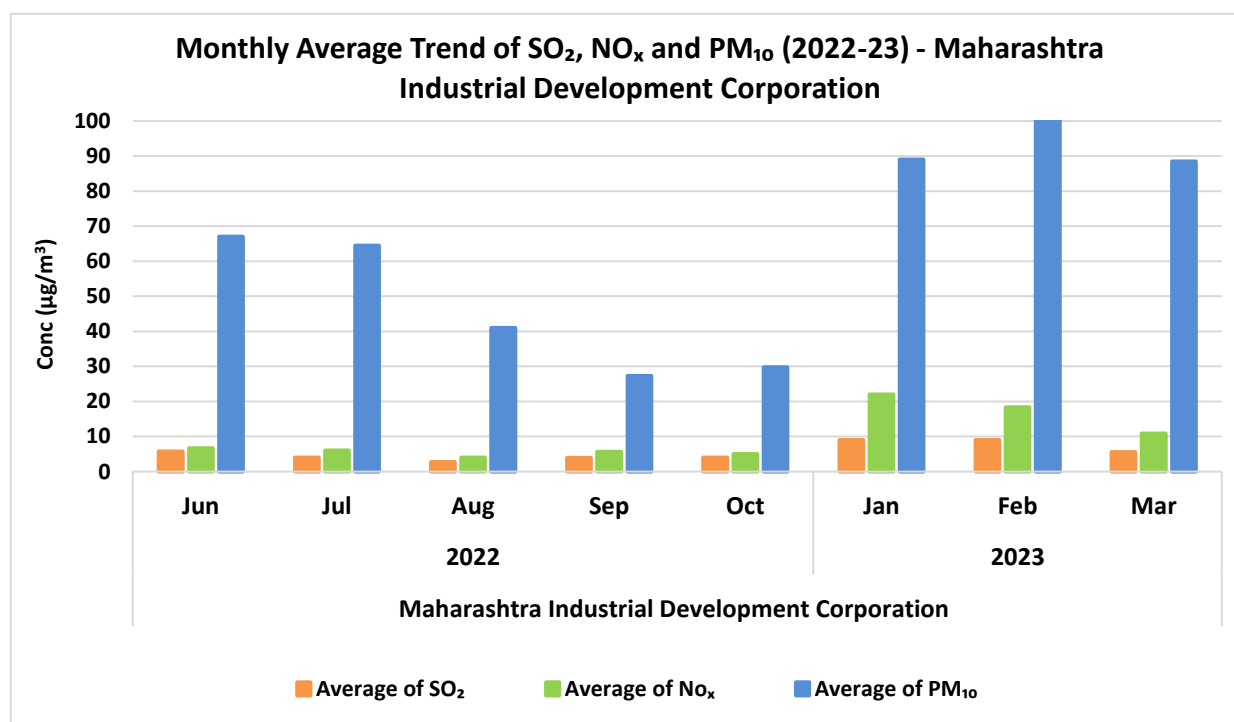
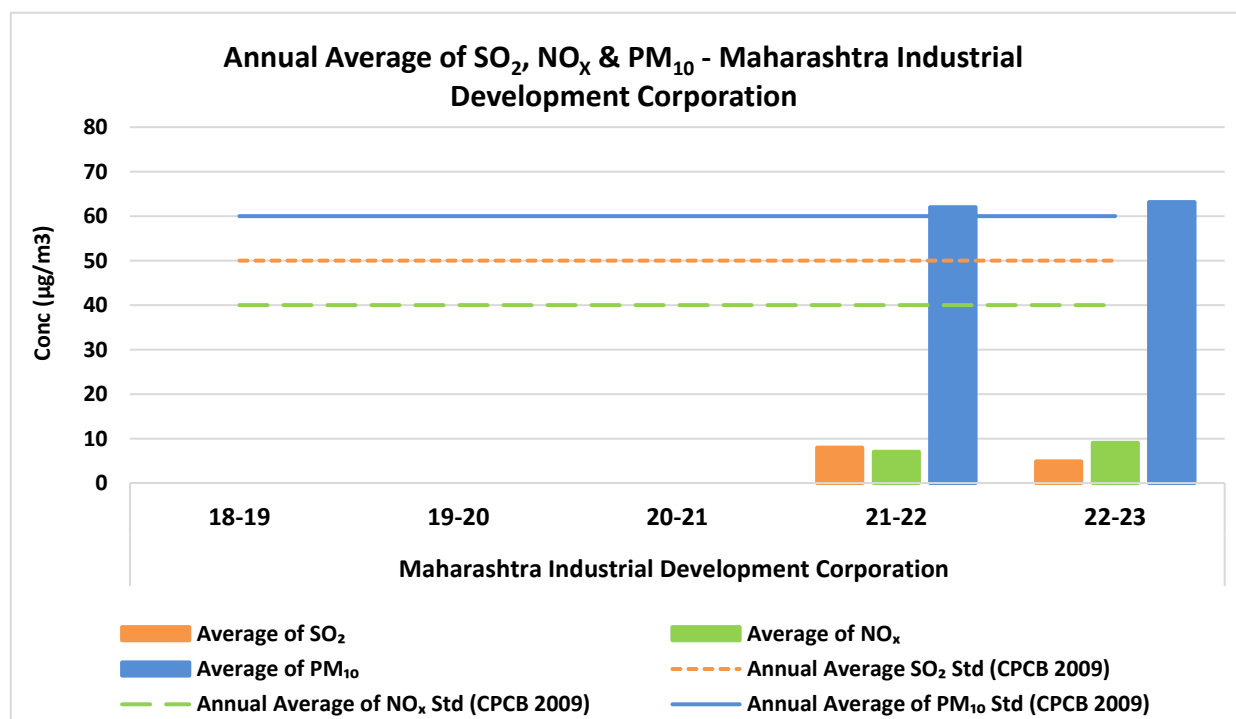


Figure No. 351: Monthly average concentration recorded at Maharashtra Industrial Development Corporation

Table No. 297: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Maharashtra Industrial Development Corporation

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Maharashtra Industrial Development Corporation	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	8	7	62
	22-23	5	9	63

Figure No. 352: Annual average trend of SO₂, NO_x and PM₁₀ at Maharashtra Industrial Development Corporation

Mahatma Phule Bhaji Market Fire Brigade Station

Table No. 298: Data for Monthly average concentration recorded at Mahatma Phule Bhaji Market Fire Brigade Station

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Mahatma Phule Bhaji Market Fire Brigade Station	2022	Apr	20	28	82	20
		May	20	27	80	21
		Jun	16	23	69	18
		Jul	14	20	69	16
		Aug	19	26	79	18
		Sep	19	31	80	20
		Oct	19	26	73	19
		Nov	17	26	69	18
		Dec	19	29	79	20
	2023	Jan	20	29	78	20
		Feb	17	28	75	18
		Mar	17	24	79	19

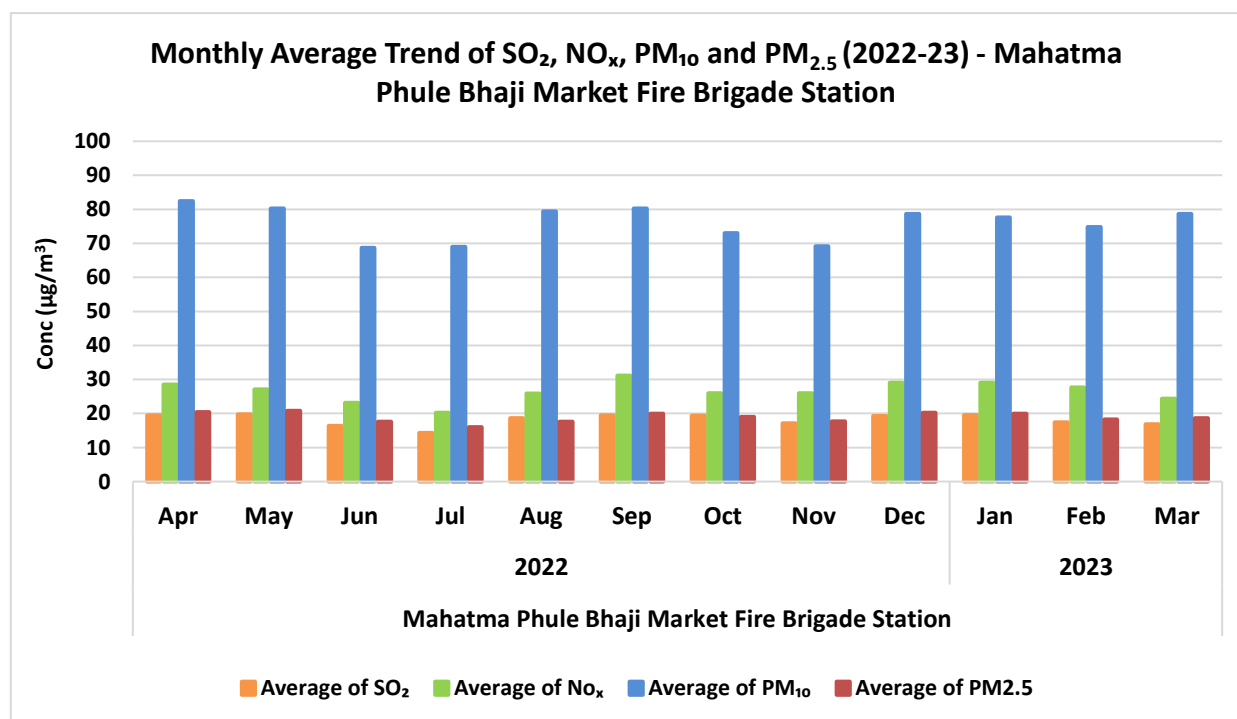
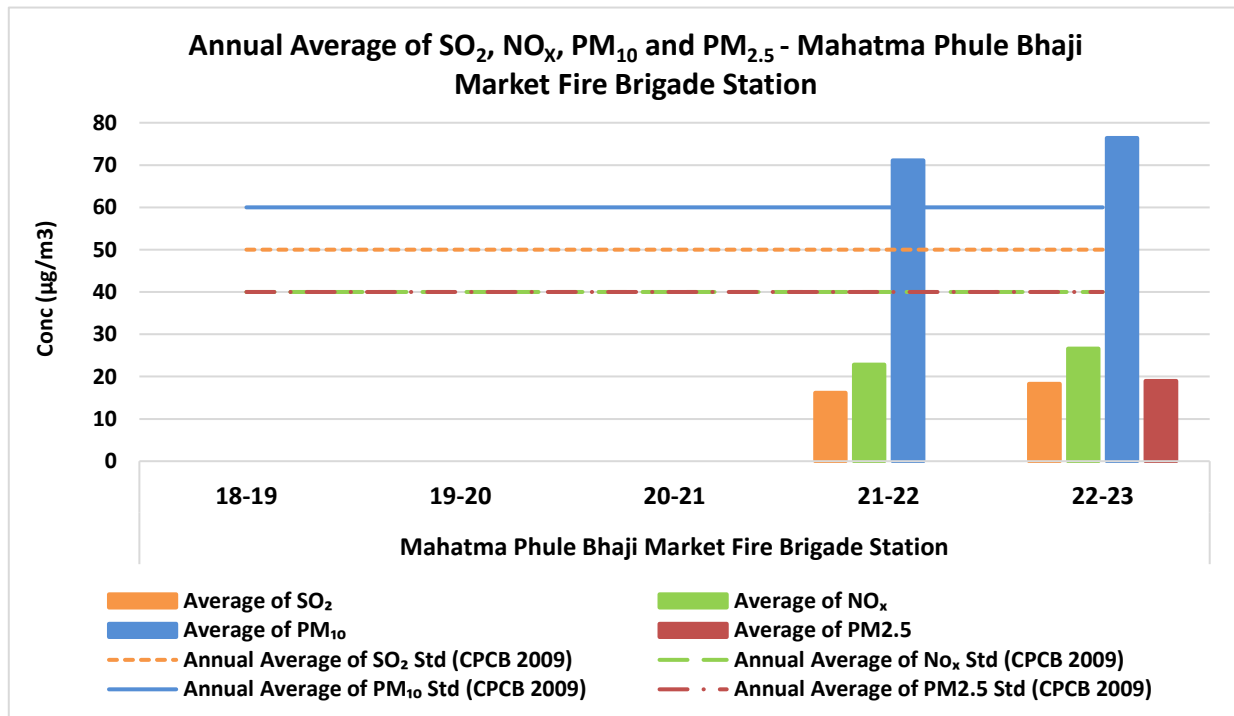


Figure No. 353: Monthly average concentration recorded at Mahatma Phule Bhaji Market Fire Brigade Station

Table No. 299: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mahatma Phule Bhaji Market Fire Brigade Station

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Mahatma Phule Bhaji Market Fire Brigade Station	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	16	23	71	-
	22-23	18	27	76	19

Figure No. 354: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mahatma Phule Bhaji Market Fire Brigade Station

Maratha Chamber of Commerce, Bhosari

Table No. 300: Data for Monthly average concentration recorded at Maratha Chamber of Commerce, Bhosari

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Maratha Chamber of commerce, Bhosari	2022	Apr	15	50	126
		May	9	37	78
		Jun	10	28	67
		Jul	6	40	73
		Aug	15	40	27
		Sep	11	27	43
		Oct	10	36	59
		Nov	14	47	148
		Dec	7	50	152
	2023	Jan	10	60	159
		Feb	12	53	173
		Mar	10	38	101

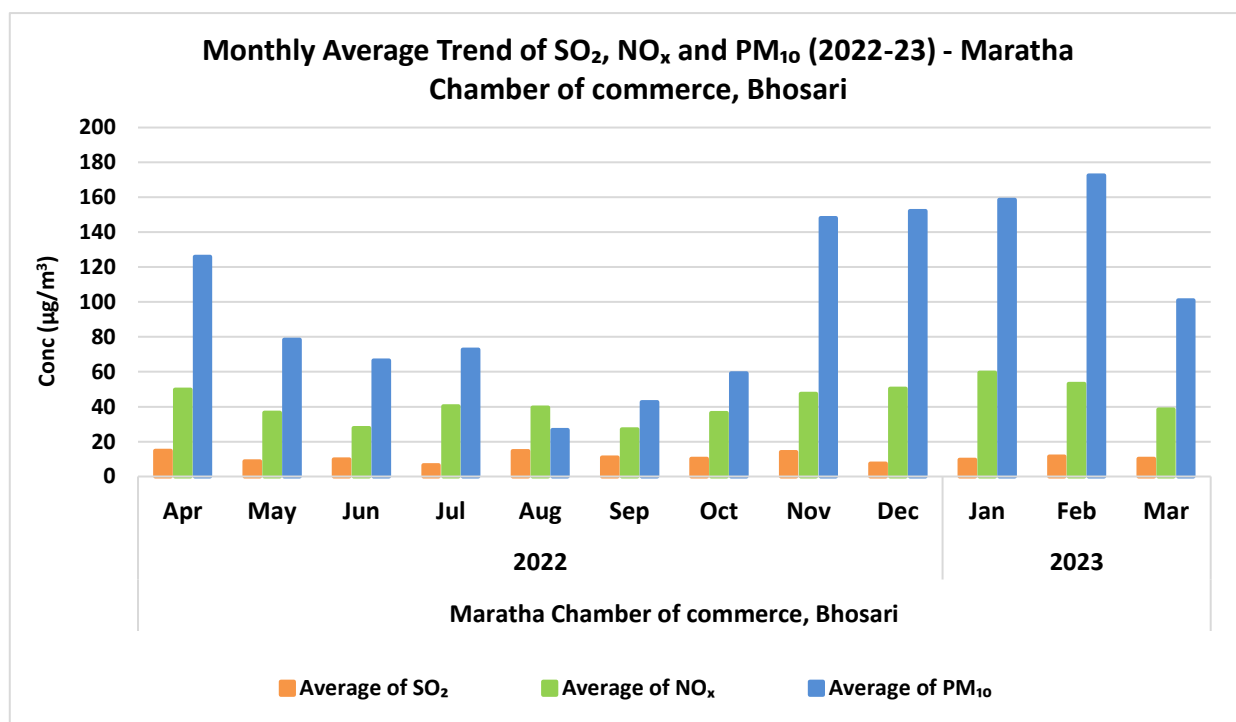
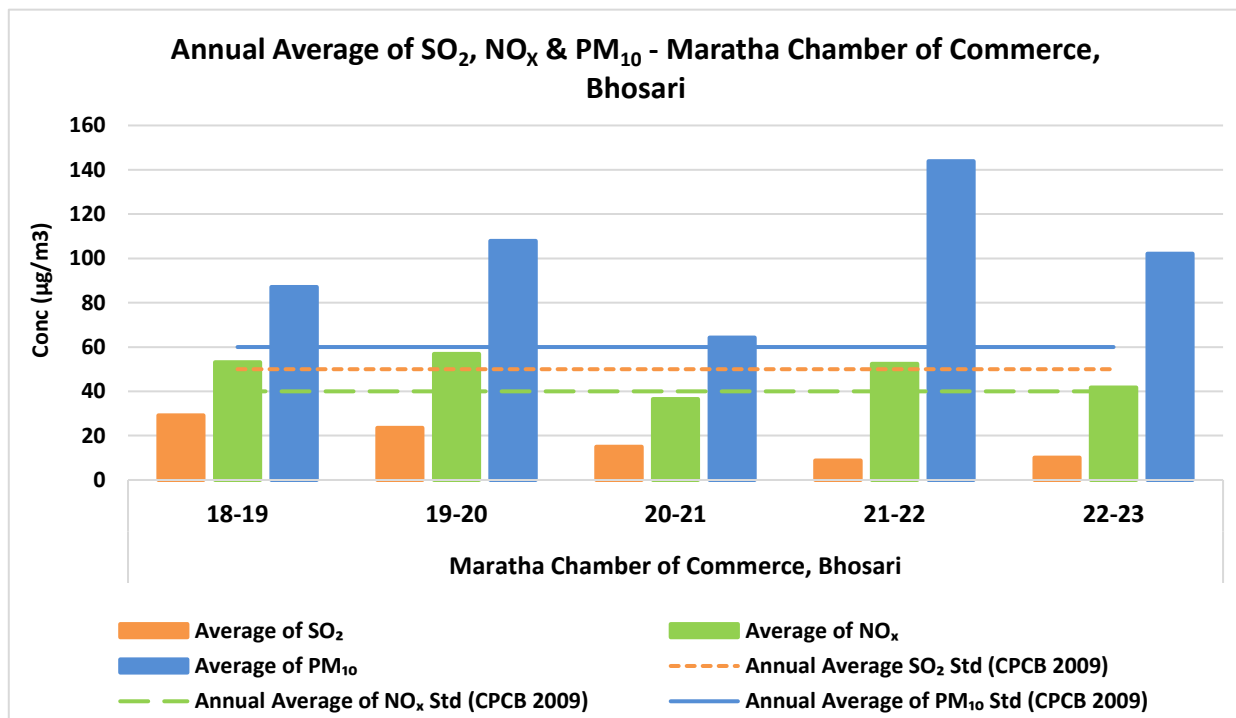


Figure No. 355: Monthly average concentration recorded at Maratha Chamber of Commerce, Bhosari

Table No. 301: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Maratha Chamber of Commerce, Bhosari

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Maratha Chamber of Commerce, Bhosari	18-19	29	53	87
	19-20	24	57	108
	20-21	15	37	64
	21-22	9	52	144
	22-23	10	42	102

Figure No. 356: Annual average trend of SO₂, NO_x and PM₁₀ at Maratha Chamber of Commerce, Bhosari

Pune CAAQMS

Table No. 302: Data for Monthly average concentration recorded at Pune CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Pune CAAQMS	2022	Apr	21	51	106	44
		May	17	48	75	36
		Jun	13	36	58	30
		Jul	12	41	33	14
		Aug	32	47	38	13
		Sep	30	48	45	14
		Oct	27	49	76	26
		Nov	27	50	103	43
		Dec	27	49	111	45
	2023	Jan	12	45	99	63
		Feb	17	55	82	55
		Mar	22	50	83	47

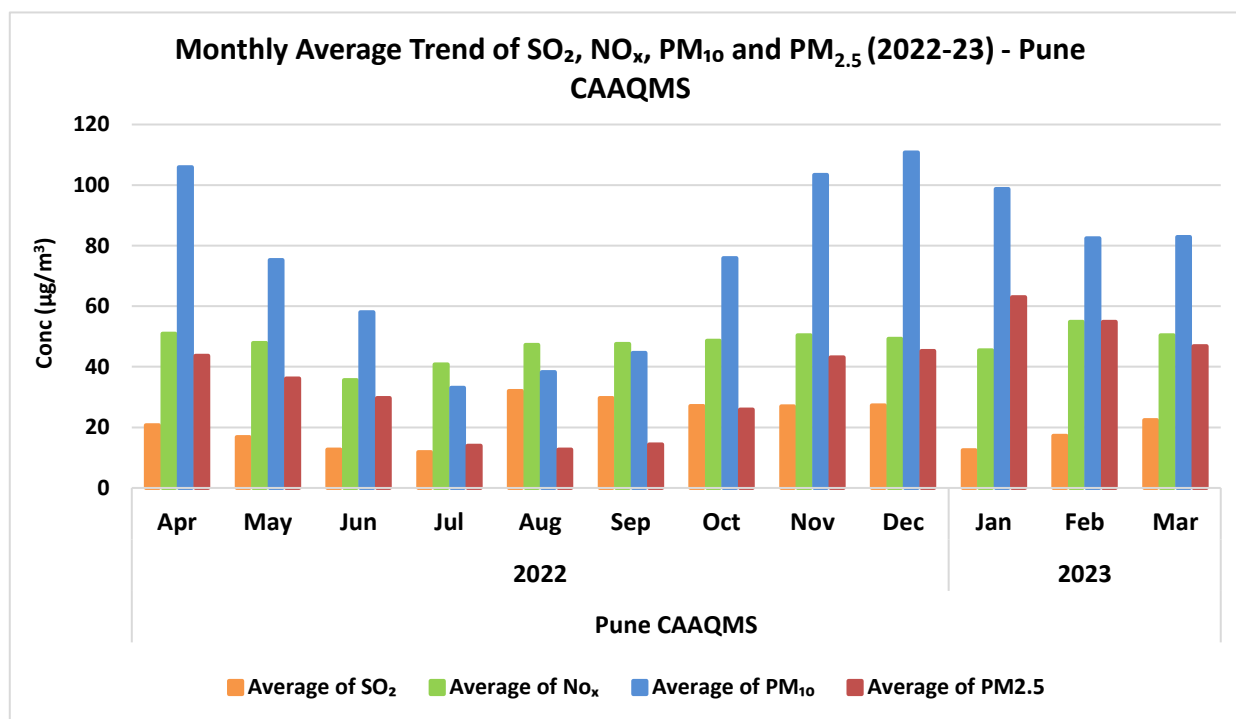
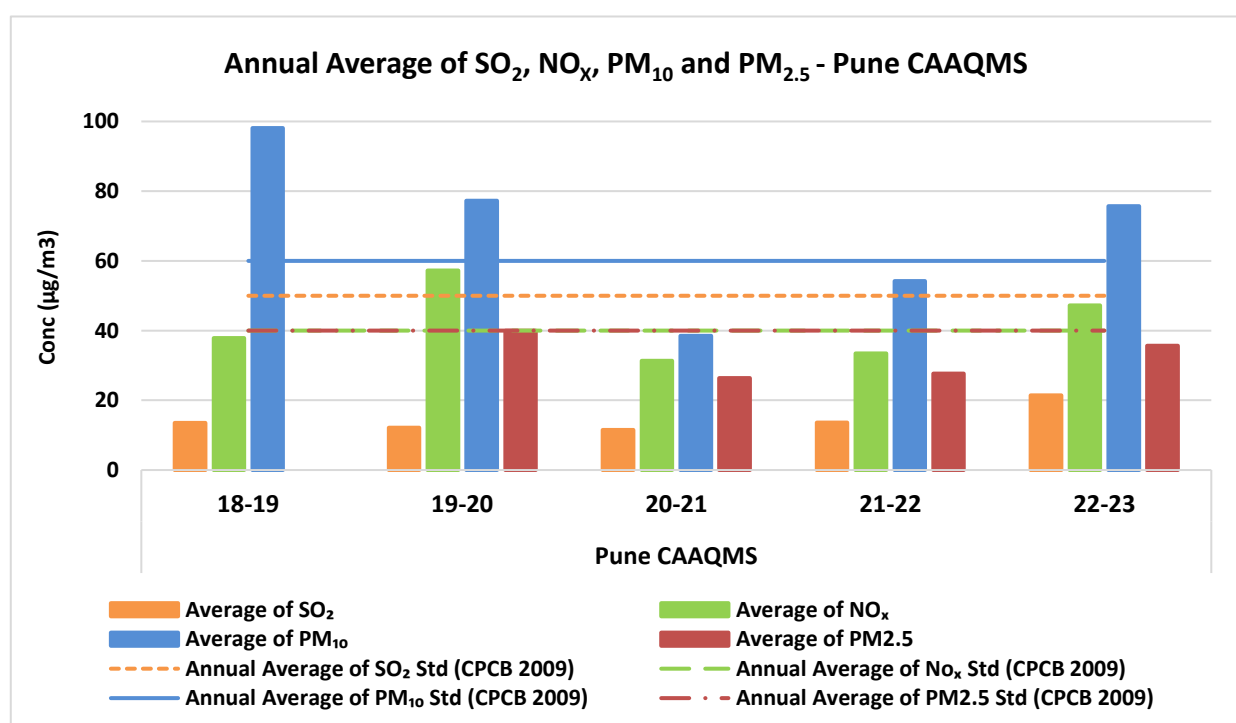


Figure No. 357: Monthly average concentration recorded at Pune CAAQMS

Table No. 303: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Pune CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Pune CAAQMS	18-19	14	38	98	-
	19-20	12	57	77	40
	20-21	12	31	39	26
	21-22	14	33	54	28
	22-23	21	47	76	36

Figure No. 358: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Pune CAAQMS

Pune Pimpri Rose Garden CAAQMS

Table No. 304: Data for Monthly average concentration recorded at Pune Pimpri Rose Garden CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Pune Pimpri Rose Garden CAAQMS	2022	Aug	7	9	41	15
		Sep	10	13	33	20
		Oct	12	26	72	42
		Nov	15	55	164	95
		Dec	18	56	157	90
	2023	Jan	15	60	171	92
		Feb	16	84	140	75
		Mar	16	44	114	61

Table No. 305: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Pune Pimpri Rose Garden CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Pune Pimpri Rose Garden CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	13	43	111	61

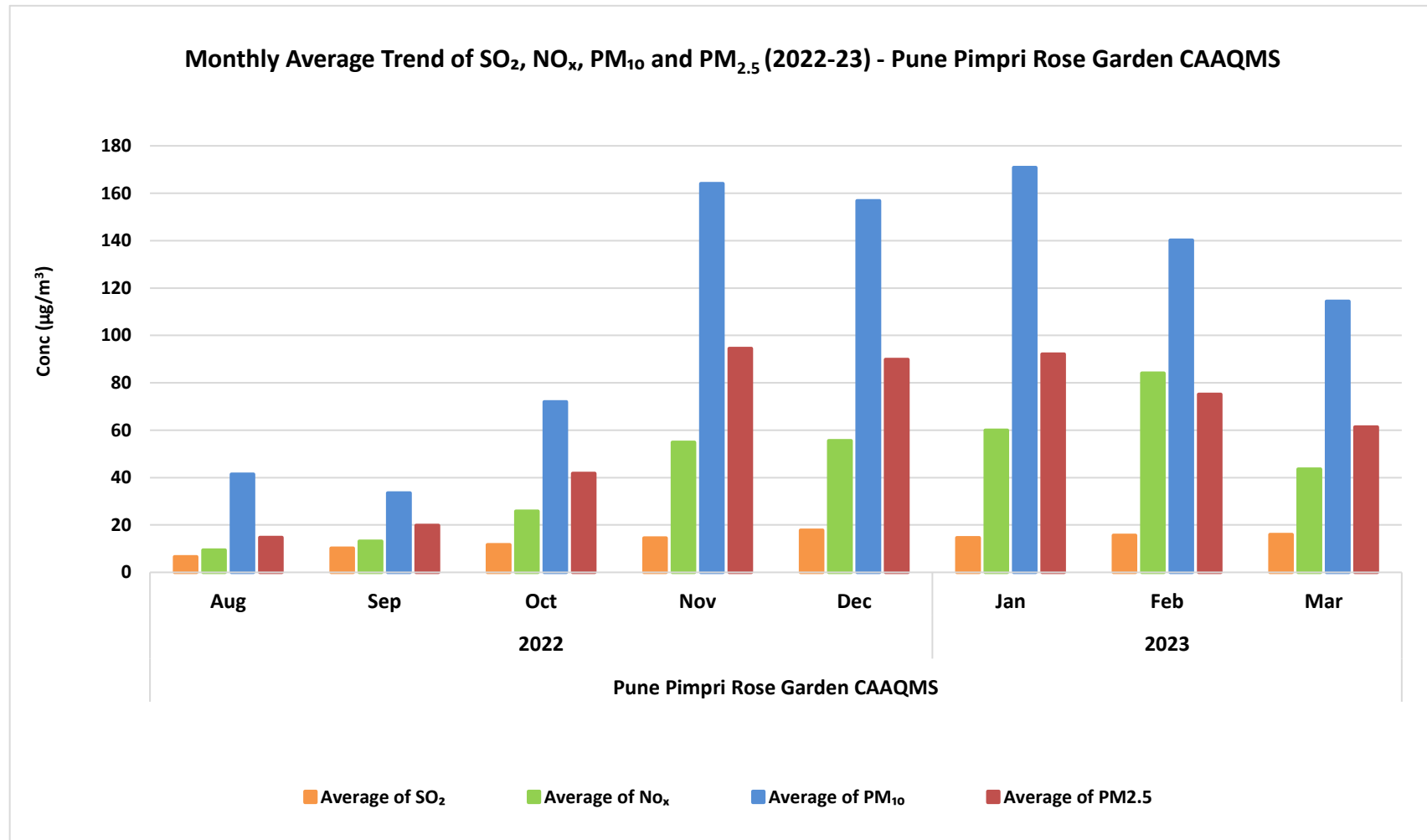


Figure No. 359: Monthly average concentration recorded at Pune Pimpri Rose Garden CAAQMS

Pune University CAAQMS

Table No. 306: Data for Monthly average concentration recorded at Pune University CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Pune University CAAQMS	2022	Aug	5	25	38	18
		Sep	5	34	42	20
		Oct	6	51	69	32
		Nov	5	75	145	69
		Dec	7	74	147	79
	2023	Jan	5	71	134	66
		Feb	9	61	137	67
		Mar	6	18	98	48

Table No. 307: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Pune University CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Pune University CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	6	51	101	50

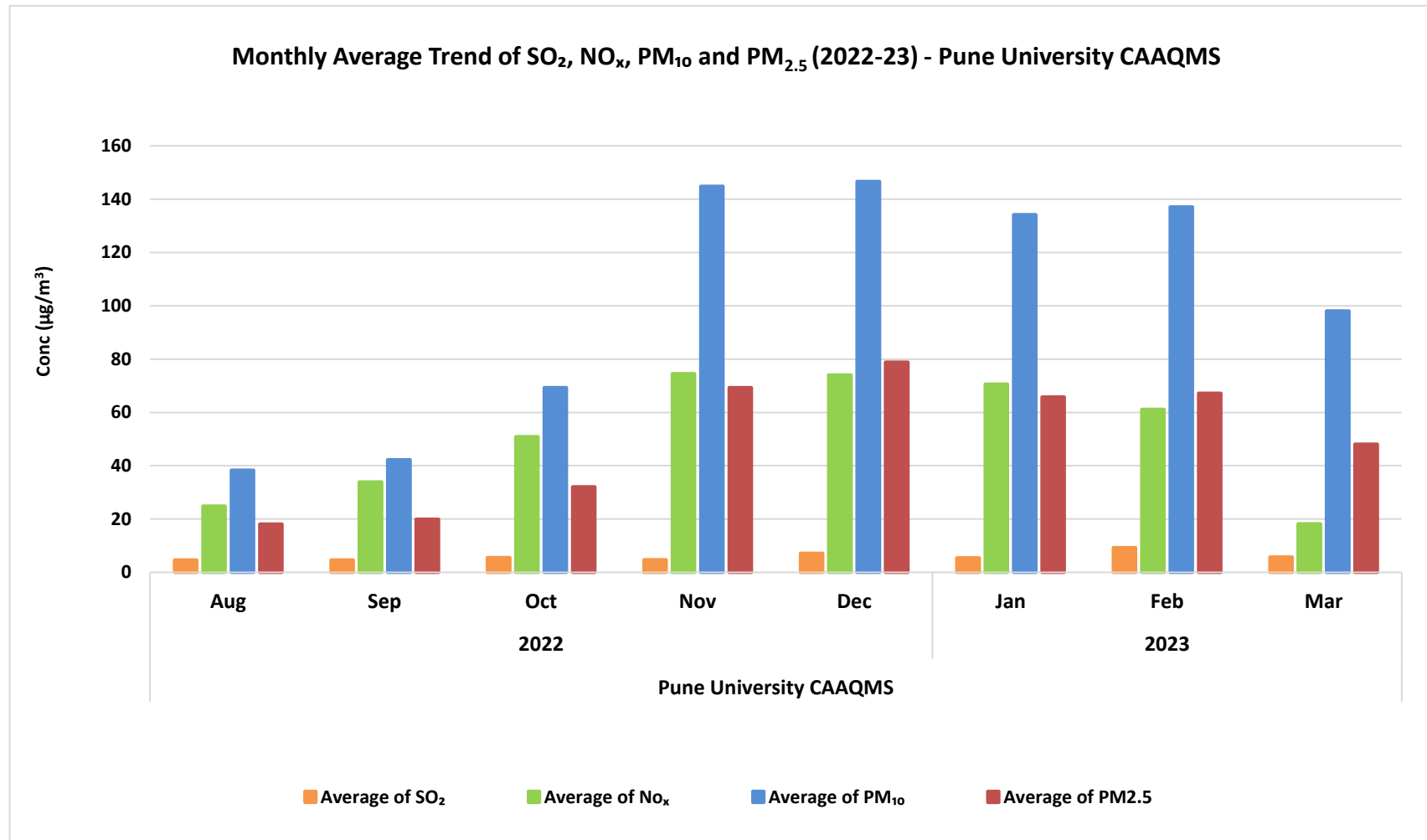


Figure No. 360: Monthly average concentration recorded at Pune University CAAQMS

Rupabhawani Chowk

Table No. 308: Data for Monthly average concentration recorded at Rupabhawani Chowk

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Rupabhawani Chowk	2022	Apr	19	30	83
		May	21	31	89
		Jun	16	23	72
		Jul	14	21	67
		Aug	18	25	78
		Sep	16	24	74
		Oct	20	28	76
		Nov	19	24	75
		Dec	19	28	87
	2023	Jan	18	29	82
		Feb	18	25	74
		Mar	17	27	80

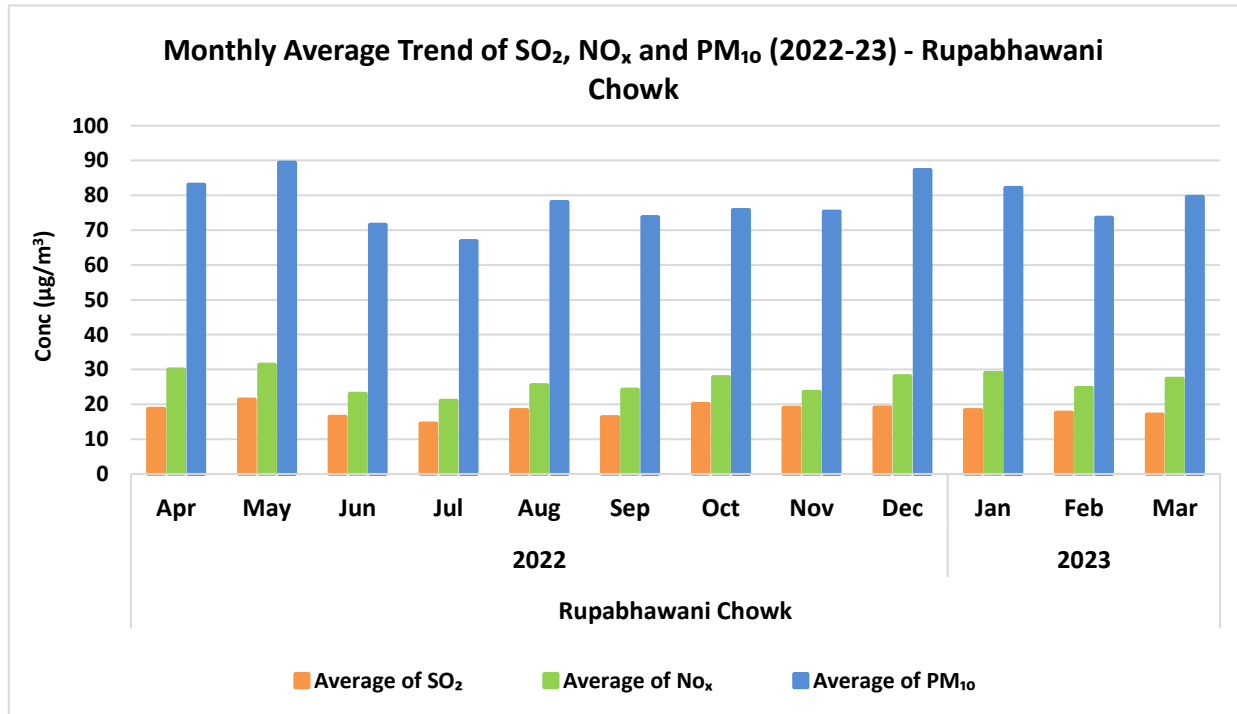
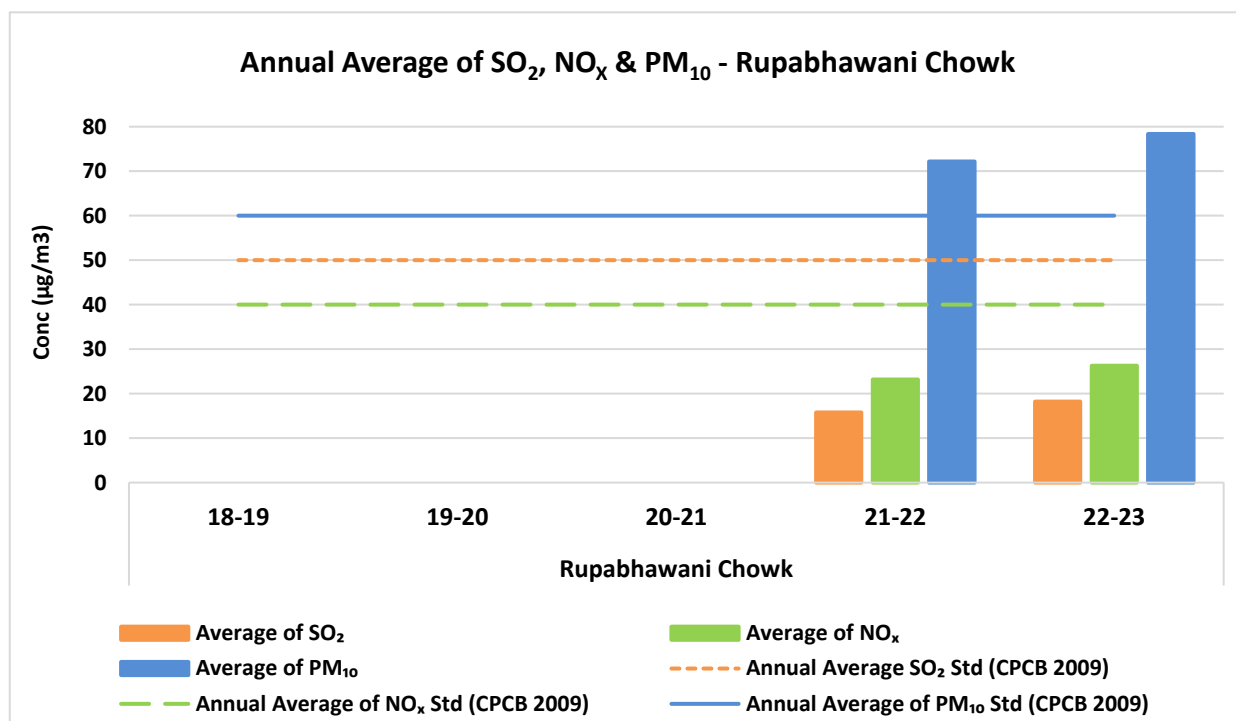


Figure No. 361: Monthly average concentration recorded at Rupabhawani Chowk

Table No. 309: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Rupabhawani Chowk

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Rupabhawani Chowk	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	16	23	72
	22-23	18	26	78

Figure No. 362: Annual average trend of SO₂, NO_x and PM₁₀ at Rupabhawani Chowk

Satara Municipal Council, Kesarkar Peth, Satara

Table No. 310: Data for Monthly average concentration recorded at Satara Municipal Council, Kesarkar Peth, Satara

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Satara Municipal Council, Kesarkar Peth, Satara	2022	Apr	4	7	81
		May	6	7	73
		Jun	4	8	76
		Jul	5	7	65
		Aug	3	5	37
		Sep	3	6	24
		Oct	3	6	30
	2023	Jan	-	-	98
		Feb	8	14	96
		Mar	5	10	70

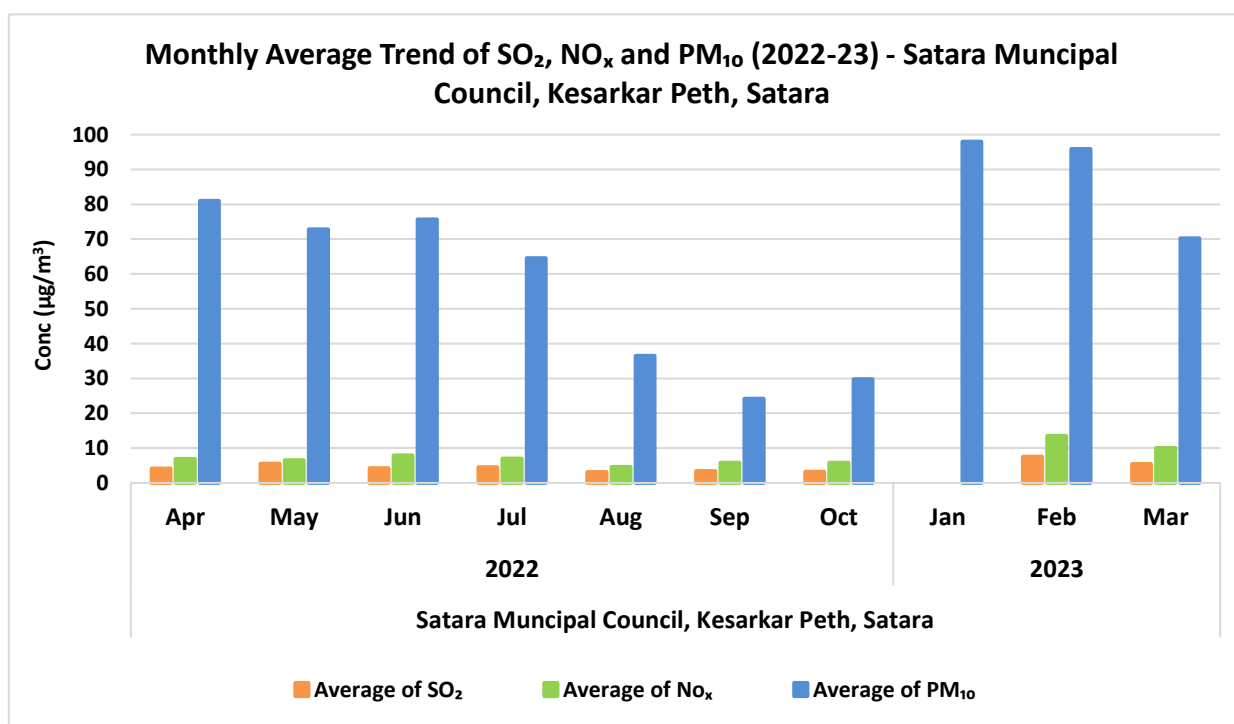
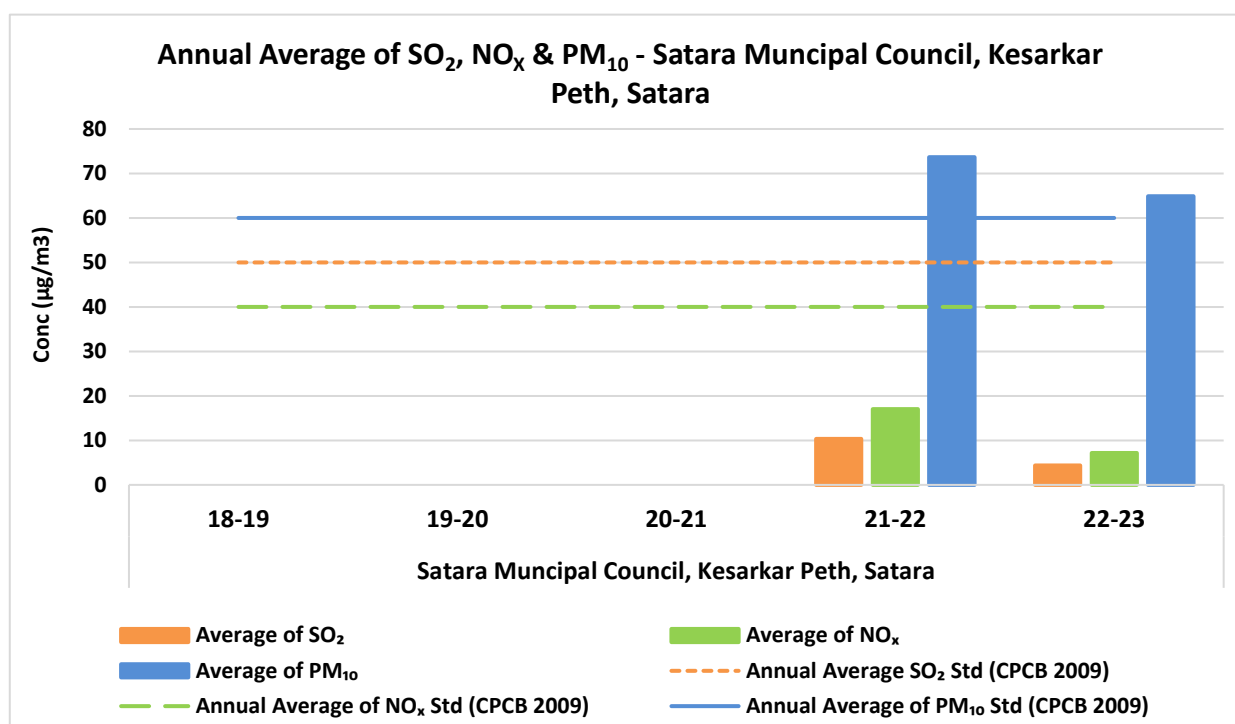


Figure No. 363: Monthly average concentration recorded at Satara Municipal Council, Kesarkar Peth, Satara

Table No. 311: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Satara Municipal Council, Kesarkar Peth, Satara

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Satara Municipal Council, Kesarkar Peth, Satara	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	10	17	74
	22-23	4	7	65

Figure No. 364: Annual average trend of SO₂, NO_x and PM₁₀ at Satara Municipal Council, Kesarkar Peth, Satara

Solapur CAAQMS

Table No. 312: Data for Monthly average concentration recorded at Solapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Solapur CAAQMS	2022	Apr	21	51	87	42
		May	21	52	93	44
		Jun	21	51	80	36
		Jul	21	47	69	31
		Aug	21	43	67	28
		Sep	20	45	67	28
		Oct	23	51	79	33
		Nov	24	51	98	46
		Dec	19	51	92	45
	2023	Jan	29	51	114	41
		Feb	40	52	129	32
		Mar	34	51	124	34

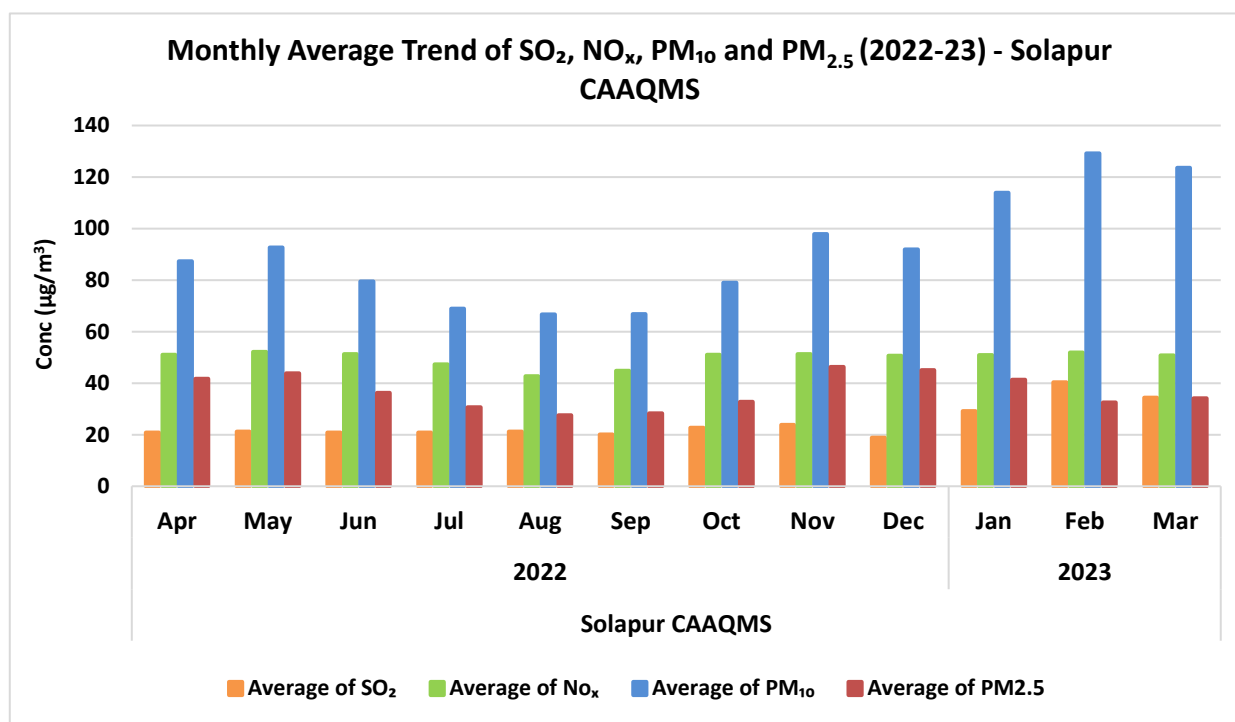
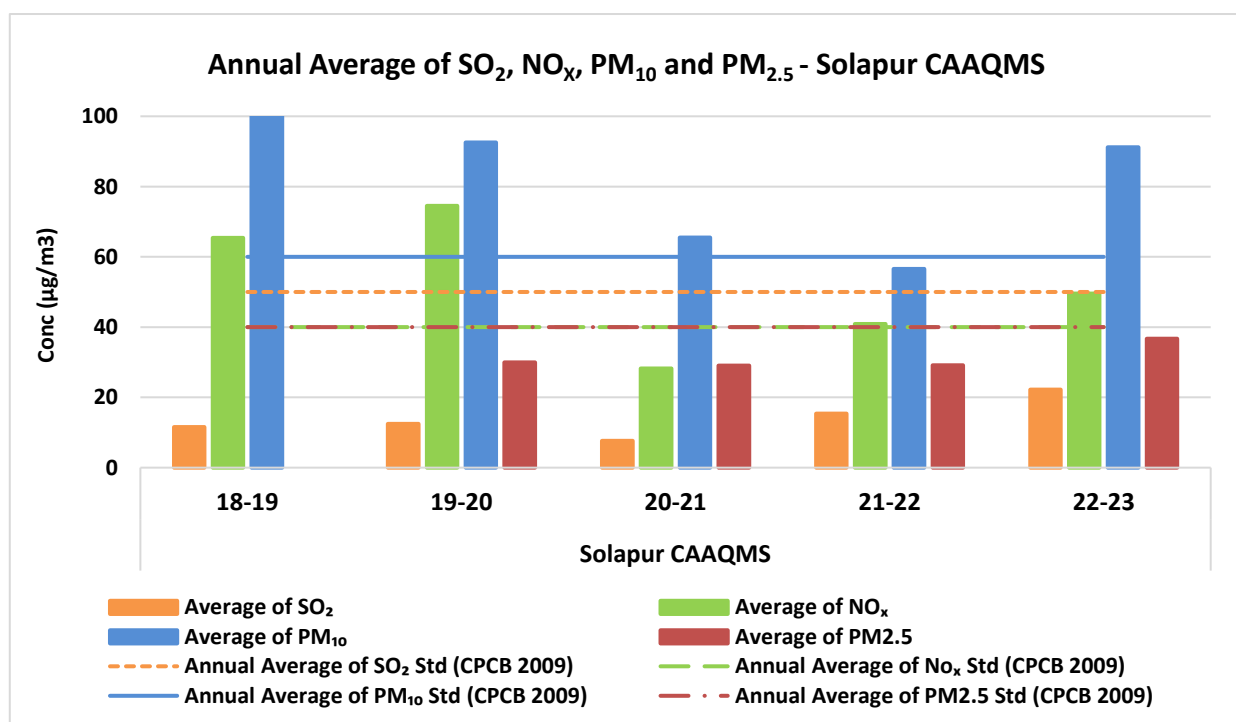


Figure No. 365: Monthly average concentration recorded at Solapur CAAQMS

Table No. 313: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Solapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Solapur CAAQMS	18-19	12	65	101	-
	19-20	12	75	93	30
	20-21	8	28	66	29
	21-22	15	41	57	29
	22-23	22	50	91	37

Figure No. 366: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Solapur CAAQMS

Solapur Revenue CAAQMS

Table No. 314: Data for Monthly average concentration recorded at Solapur Revenue CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Solapur Revenue CAAQMS	2022	Aug	6	25	53	12
		Sep	4	23	43	12
		Oct	8	23	80	35
		Nov	14	28	127	61
		Dec	20	34	115	60
	2023	Jan	19	37	110	52
		Feb	17	53	132	77
		Mar	15	34	119	64

Table No. 315: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Solapur Revenue CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Solapur Revenue CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	13	32	98	46

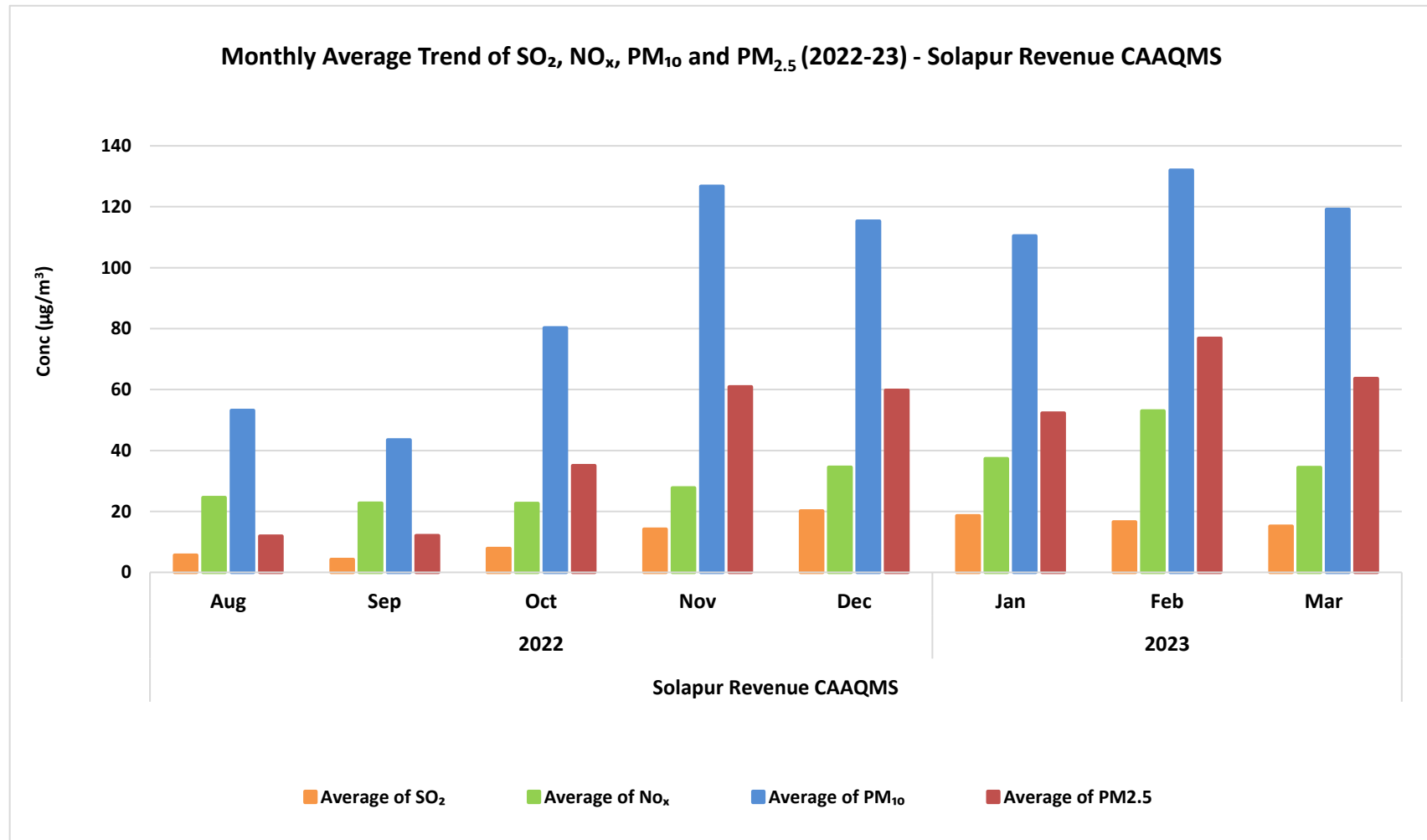


Figure No. 367: Monthly average concentration recorded at Solapur Revenue CAAQMS

State Electricity Board BLDG Nalstop

Table No. 316: Data for Monthly average concentration recorded at State Electricity Board BLDG Nalstop

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
State Electricity Board BLDG Nalstop	2022	Apr	14	66	133
		May	15	52	124
		Jun	19	52	90
		Jul	7	71	76
		Aug	9	39	68
		Sep	6	30	75
		Oct	11	36	91
		Nov	10	59	149
		Dec	8	67	144
	2023	Jan	6	61	36

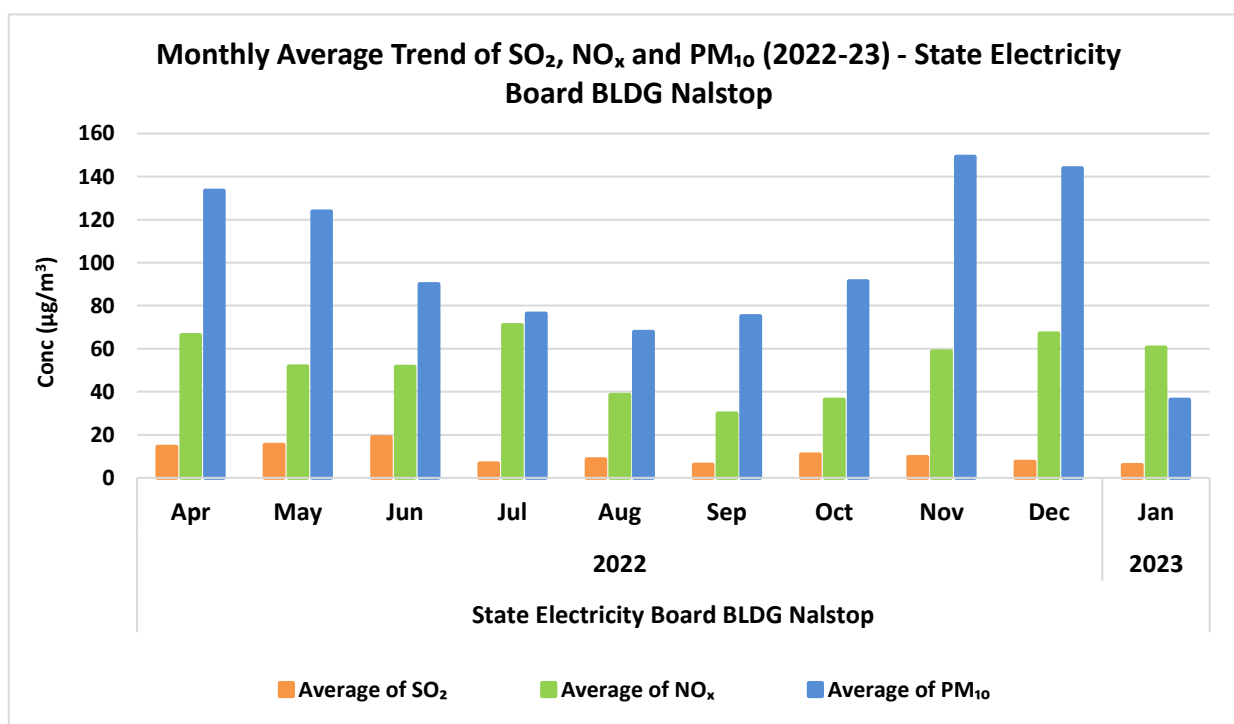
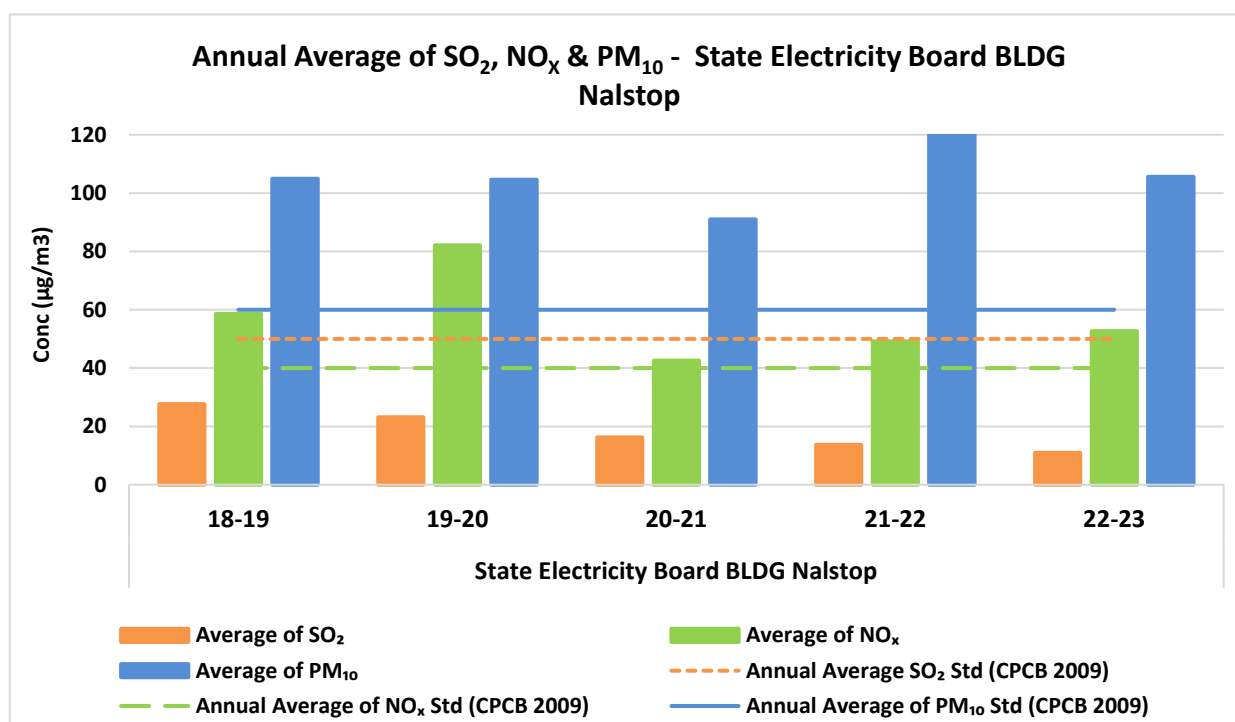


Figure No. 368: Monthly average concentration recorded at State Electricity Board BLDG Nalstop

Table No. 317: Data for Annual average trend of SO₂, NO_x and PM₁₀ at State Electricity Board BLDG Nalstop

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
State Electricity Board BLDG Nalstop	18-19	28	59	105
	19-20	23	82	105
	20-21	16	43	91
	21-22	14	49	125
	22-23	11	53	106

Figure No. 369: Annual average trend of SO₂, NO_x and PM₁₀ at State Electricity Board BLDG Nalstop

Swargate Police Chowki

Table No. 318: Data for Monthly average concentration recorded at Swargate Police Chowki

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Swargate Police Chowki	2022	Apr	17	53	165
		May	35	51	134
		Jun	15	43	104
		Sep	7	31	126
		Oct	18	59	101
		Nov	18	72	184
		Dec	8	89	193
	2023	Jan	19	77	196
		Feb	10	99	212

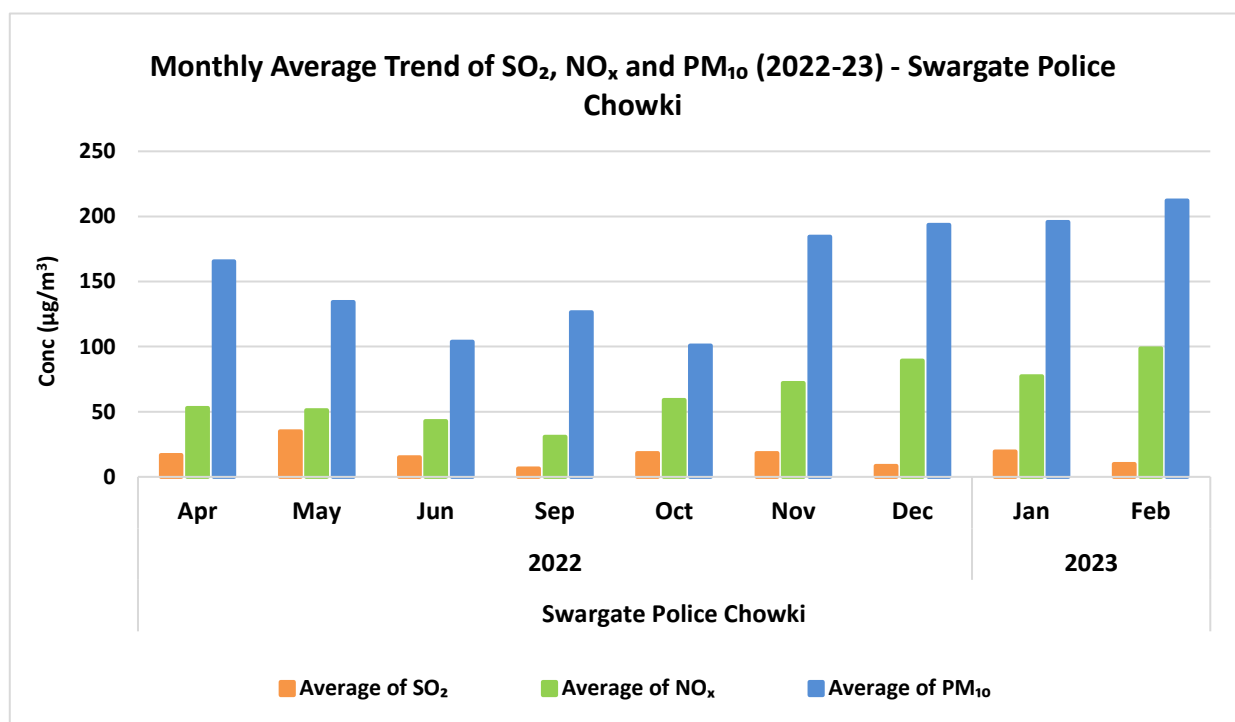
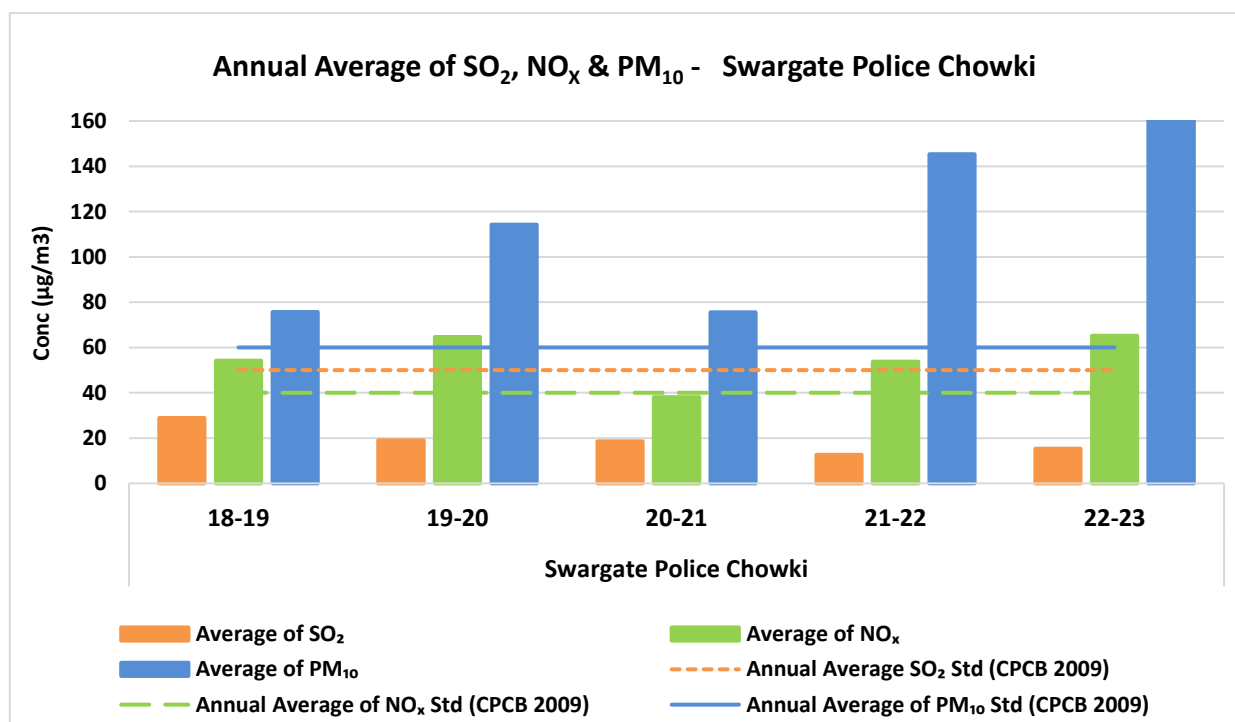


Figure No. 370: Monthly average concentration recorded at Swargate Police Chowki

Table No. 319: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Swargate Police Chowki

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Swargate Police Chowki	18-19	29	54	76
	19-20	19	65	114
	20-21	18	38	76
	21-22	13	54	145
	22-23	15	65	164

Figure No. 371: Annual average trend of SO₂, NO_x and PM₁₀ at Swargate Police Chowki

Ujani Jalshuddikaran Kendra, Gadegaon Road

Table No. 320: Data for Monthly average concentration recorded at Ujani Jalshuddikaran Kendra, Gadegaon Road

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Ujani Jalshuddikaran Kendra, Gadegaon Road	2022	Apr	21	31	85	-
		May	22	32	91	-
		Jun	18	27	75	-
		Jul	16	24	70	17
		Aug	19	27	80	-
		Sep	19	33	83	-
		Oct	19	25	74	-
		Nov	20	27	78	-
		Dec	20	29	85	-
	2023	Jan	20	32	81	-
		Feb	18	29	76	-
		Mar	16	25	77	-

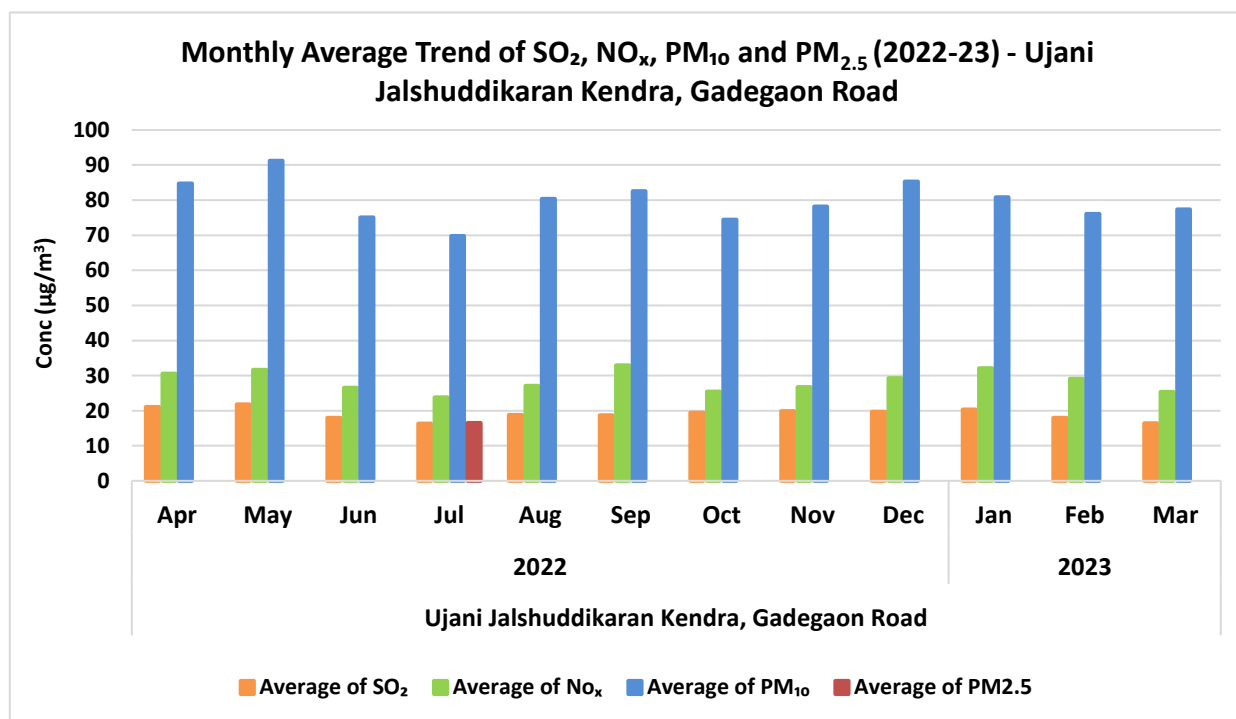
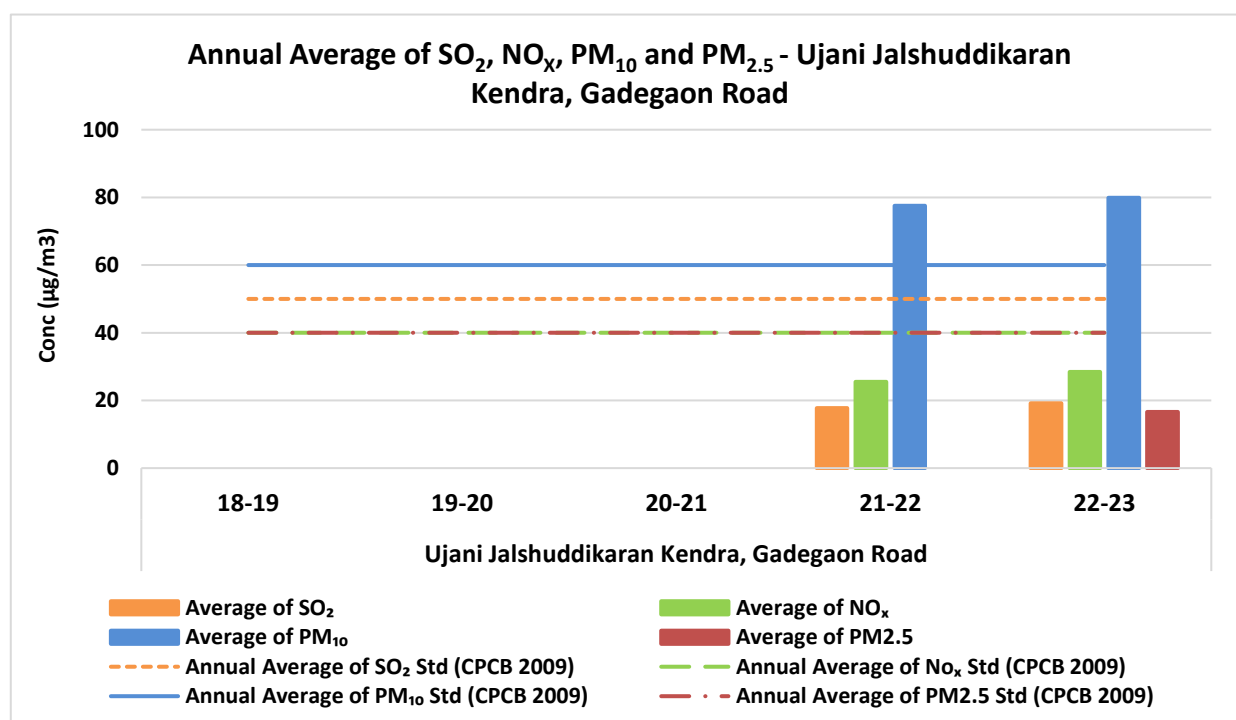


Figure No. 372: Monthly average concentration recorded at Ujani Jalshuddikaran Kendra, Gadegaon Road

Table No. 321: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ujani Jalshuddikaran Kendra, Gadegaon Road

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Ujani Jalshuddikaran Kendra, Gadegaon Road	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	18	25	78	-
	22-23	19	28	80	17

Figure No. 373: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Ujani Jalshuddikaran Kendra, Gadegaon Road

Voronoko School Rang-Bhavan, Solapur

Table No. 322: Data for Monthly average concentration recorded at Voronoko School Rang-Bhavan, Solapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Voronoko School Rang-Bhavan, Solapur	2022	Apr	8	10	63
		May	8	9	66
		Jun	7	9	61
		Jul	8	8	56
		Aug	8	9	55
		Sep	7	7	53
		Oct	7	9	61
		Nov	9	9	68
		Dec	6	8	69
	2023	Jan	9	10	79
		Feb	-	13	87
		Mar	10	12	85

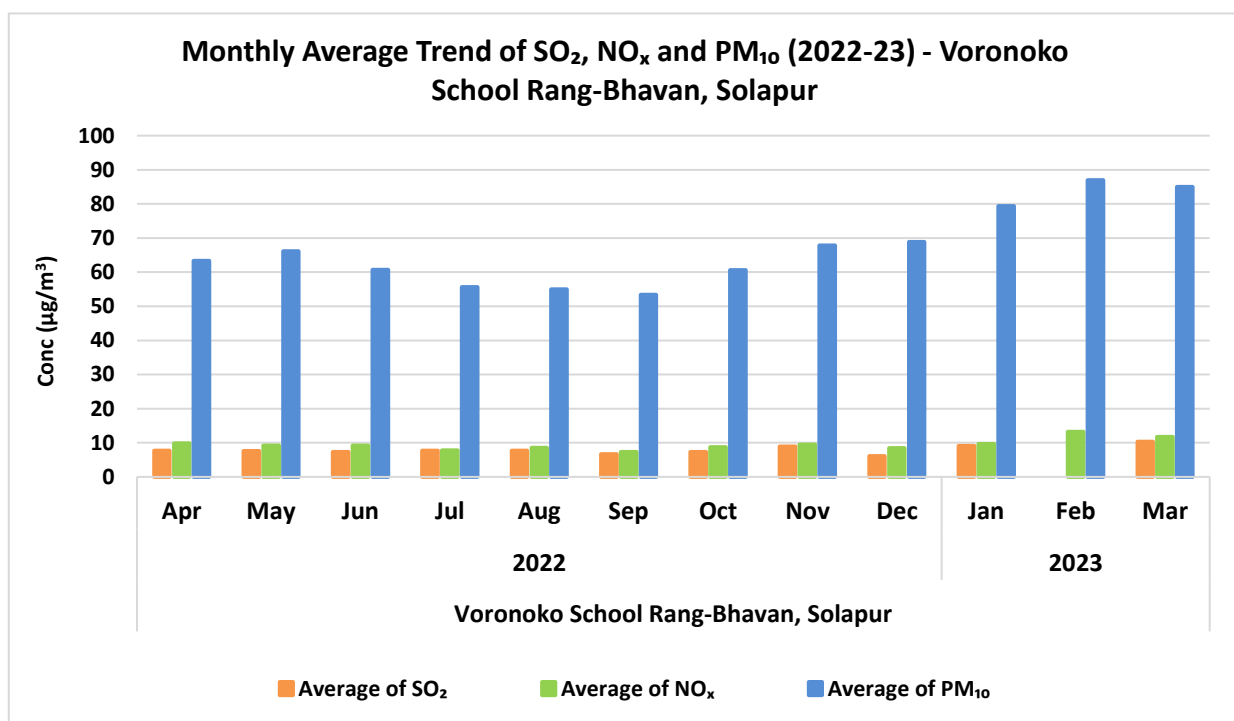
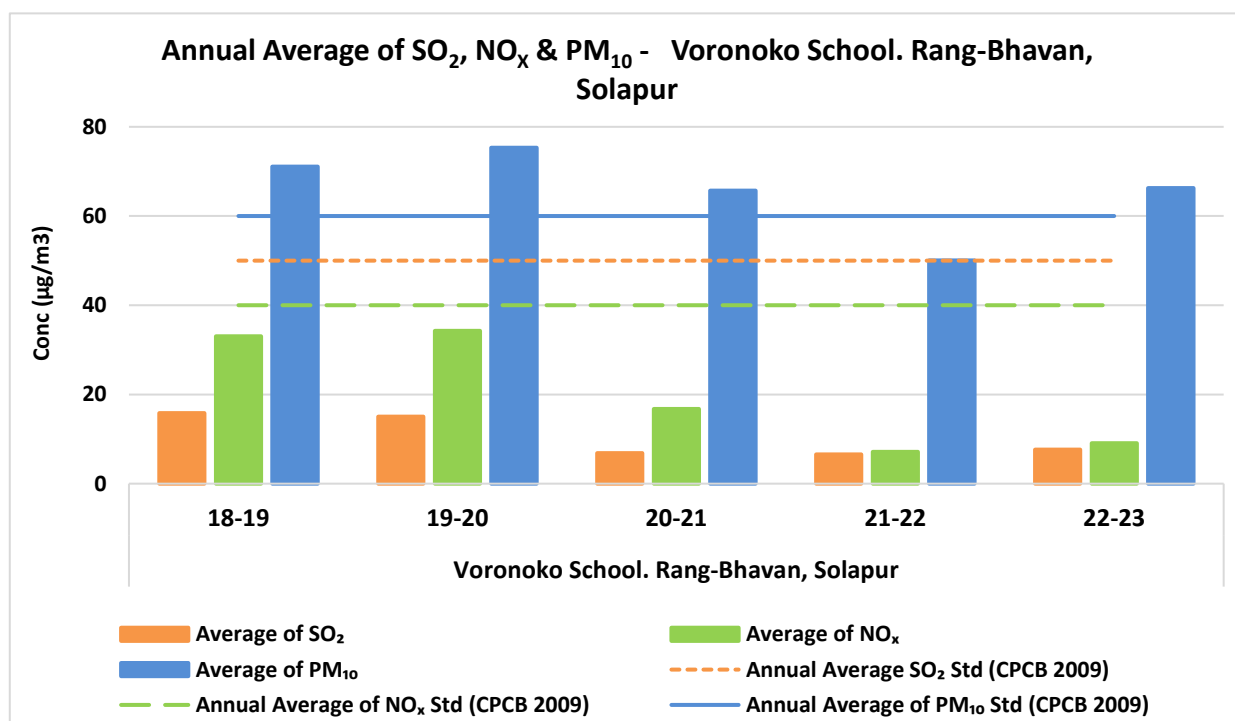


Figure No. 374: Monthly average concentration recorded at Voronoko School Rang-Bhavan, Solapur

Table No. 323: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Voronoko School Rang-Bhavan, Solapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Voronoko School. Rang-Bhavan, Solapur	18-19	16	33	71
	19-20	15	34	75
	20-21	7	17	66
	21-22	7	7	50
	22-23	8	9	66

Figure No. 375: Annual average trend of SO₂, NO_x and PM₁₀ at Voronoko School Rang-Bhavan, Solapur

Walchand Institute of Technology Campus, Ashok Chowk, Solapur

Table No. 324: Data for Monthly average concentration recorded at Walchand Institute of Technology Campus, Ashok Chowk, Solapur

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Walchand Institute of Technology Campus, Ashok chowk, Solapur	2022	Apr	8	11	64
		May	8	9	66
		Jun	7	9	58
		Jul	8	8	56
		Aug	8	8	54
		Sep	7	7	55
		Oct	8	10	61
		Nov	9	8	67
		Dec	5	8	69
	2023	Jan	10	10	78
		Feb	-	15	83
		Mar	10	13	84

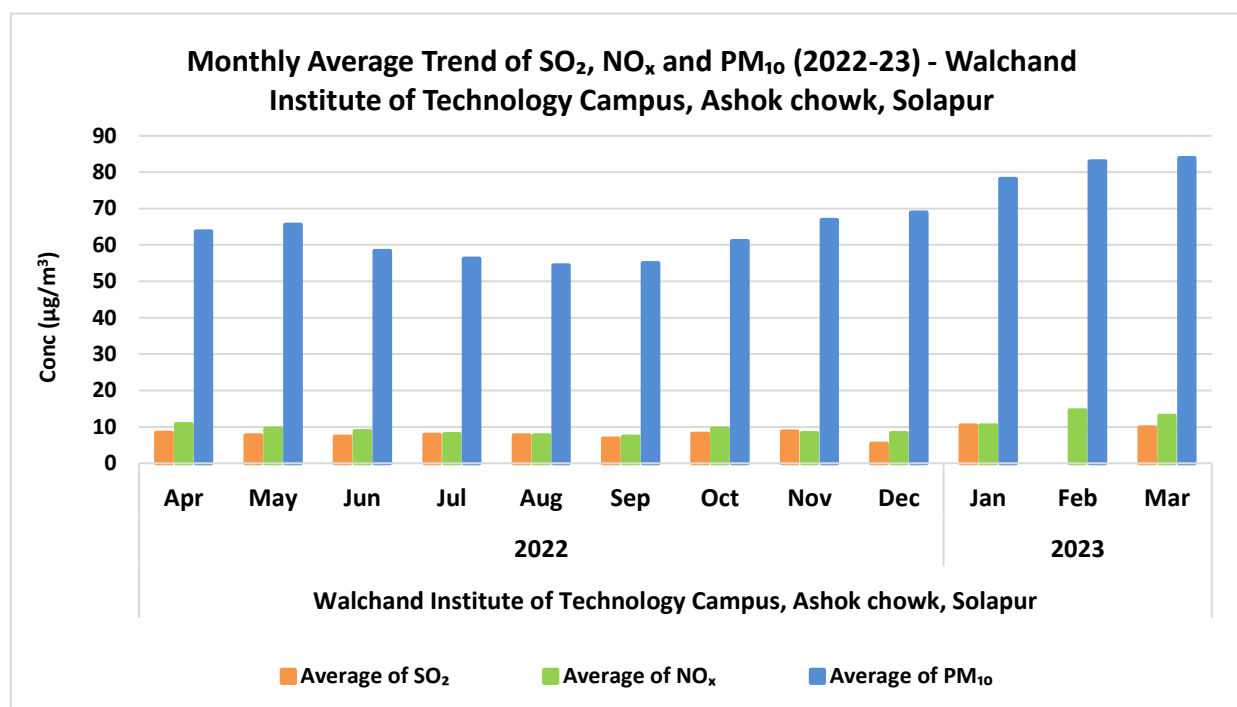


Figure No. 376: Monthly average concentration recorded at Walchand Institute of Technology Campus, Ashok Chowk, Solapur

Table No. 325: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Walchand Institute of Technology Campus, Ashok Chowk, Solapur

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Walchand Institute of Technology Campus, Ashok Chowk, Solapur	18-19	16	33	70
	19-20	15	34	74
	20-21	7	16	67
	21-22	6	7	49
	22-23	8	9	66

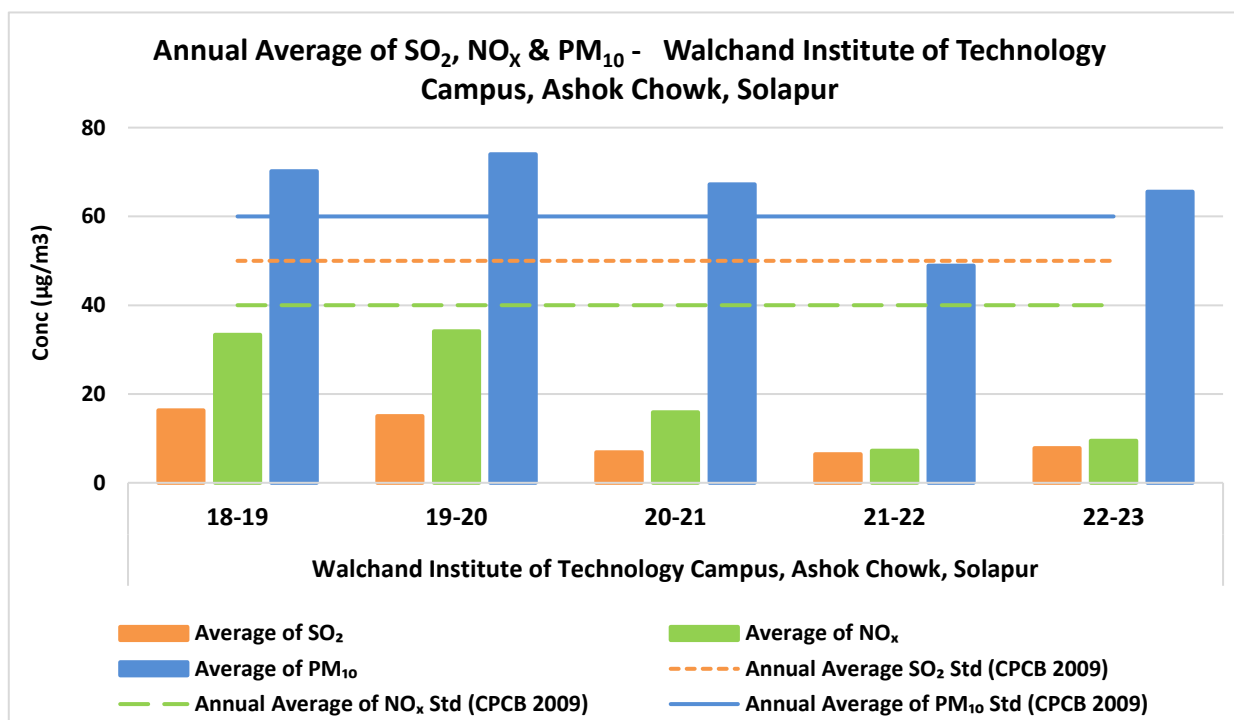
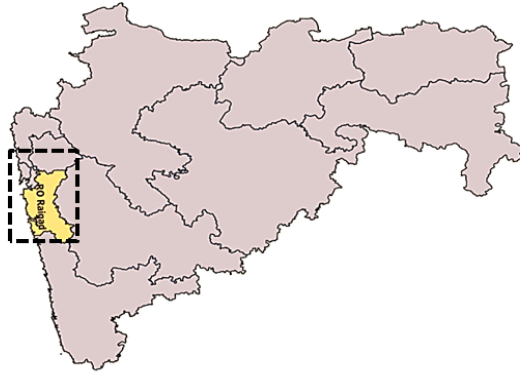
Figure No. 377: Annual average trend of SO₂, NO_x and PM₁₀ at Walchand Institute of Technology Campus, Ashok Chowk, Solapur

Table No. 326: Percentage exceedance of pollutants at Pune RO

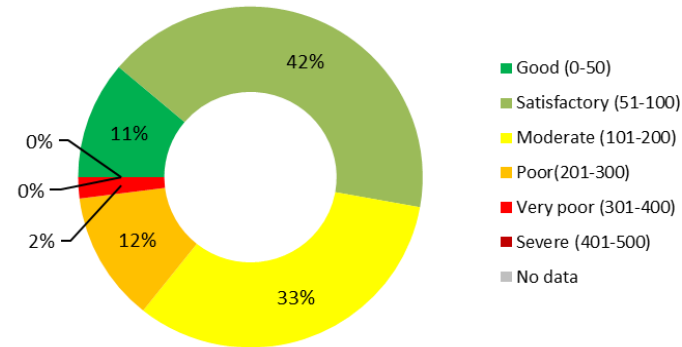
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Bank of Baroda Building, Near Pimpri-Chinchwad M.C. Building	142	257	253	0	0	34	82	0	0	13	32	0
Barbole Shopping Centre, Pimpalekar Chowk	92	100	99	0	0	0	32	0	0	0	32	0
Dange Chowk Pune CAAQMS	213	218	230	229	0	0	101	107	0	0	44	47
Fire Brigade Station, Bhakti Marg Pandharpur	99	88	102	0	0	0	25	0	0	0	25	0
Indradhanu (Backside), Degaon Road	81	98	89	0	0	0	21	0	0	0	24	0
Jagtap Dairy Pune CAAQMS	238	242	242	242	0	125	153	133	0	52	63	55
Jule Solapur CAAQMS	224	239	242	242	0	2	150	133	0	1	62	55
Karmaveer Bhaurao Patil College of Engg., Satara	64	59	69	0	0	0	6	0	0	0	9	0
Katraj Dairy Pune CAAQMS	233	242	242	242	0	140	143	113	0	58	59	47
Maharashtra Industrial Development Corporation	39	42	42	0	0	0	15	0	0	0	36	0
Mahatma Phule Bhaji Market Fire Brigade Station	95	90	89	0	0	0	27	0	0	0	30	0
Maratha Chamber of Commerce, Bhosari	45	88	95	0	0	0	45	0	0	0	47	0
Pune CAAQMS	360	300	360	360	0	0	85	46	0	0	24	13
Pune Pimpri Rose Garden CAAQMS	228	242	242	242	0	107	142	141	0	44	59	58
Pune University CAAQMS	239	220	242	242	0	51	136	106	0	23	56	44
Rupabhawani Chowk	80	92	96	0	0	0	41	0	0	0	43	0
Satara Municipal Council, Kesarkar Peth, Satara	53	53	59	0	0	0	16	0	0	0	27	0
Solapur CAAQMS	307	353	365	361	0	0	115	9	0	0	32	2
Solapur Revenue CAAQMS	238	233	238	242	0	31	122	91	0	13	51	38
State Electricity Board BLDG Nalstop	55	65	66	0	0	7	38	0	0	11	58	0
Swargate Police Chowki	53	53	57	0	0	14	47	0	0	26	82	0
Ujani Jalshuddikaran Kendra, Gadegaon Road	93	102	100	0	0	0	45	0	0		45	0
Voronoko School Rang-Bhavan, Solapur	87	87	99	0	0	0	0	0	0	0	0	0
Walchand Institute of Technology Campus, Ashok chowk, Solapur	86	96	100	0	0	0	0	0	0	0	0	0

CITIES /AREAS UNDER RAIGAD RO

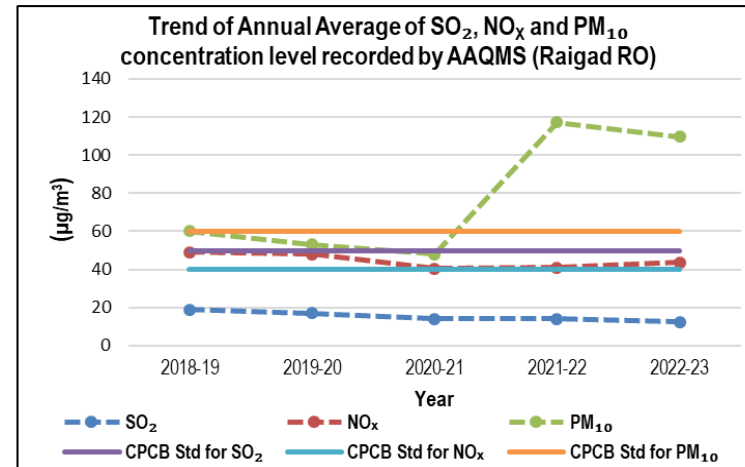
RAIGAD RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Raigad RO)



Sr No.	Station Name
1	Filter House of MIDC Water Works, Roha
2	Kalamboli CAAQMS
3	Mahad CAAQMS
4	Roha Industrial Association office, Roha
5	Water Pump House, Panvel





KALAMBOLI CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

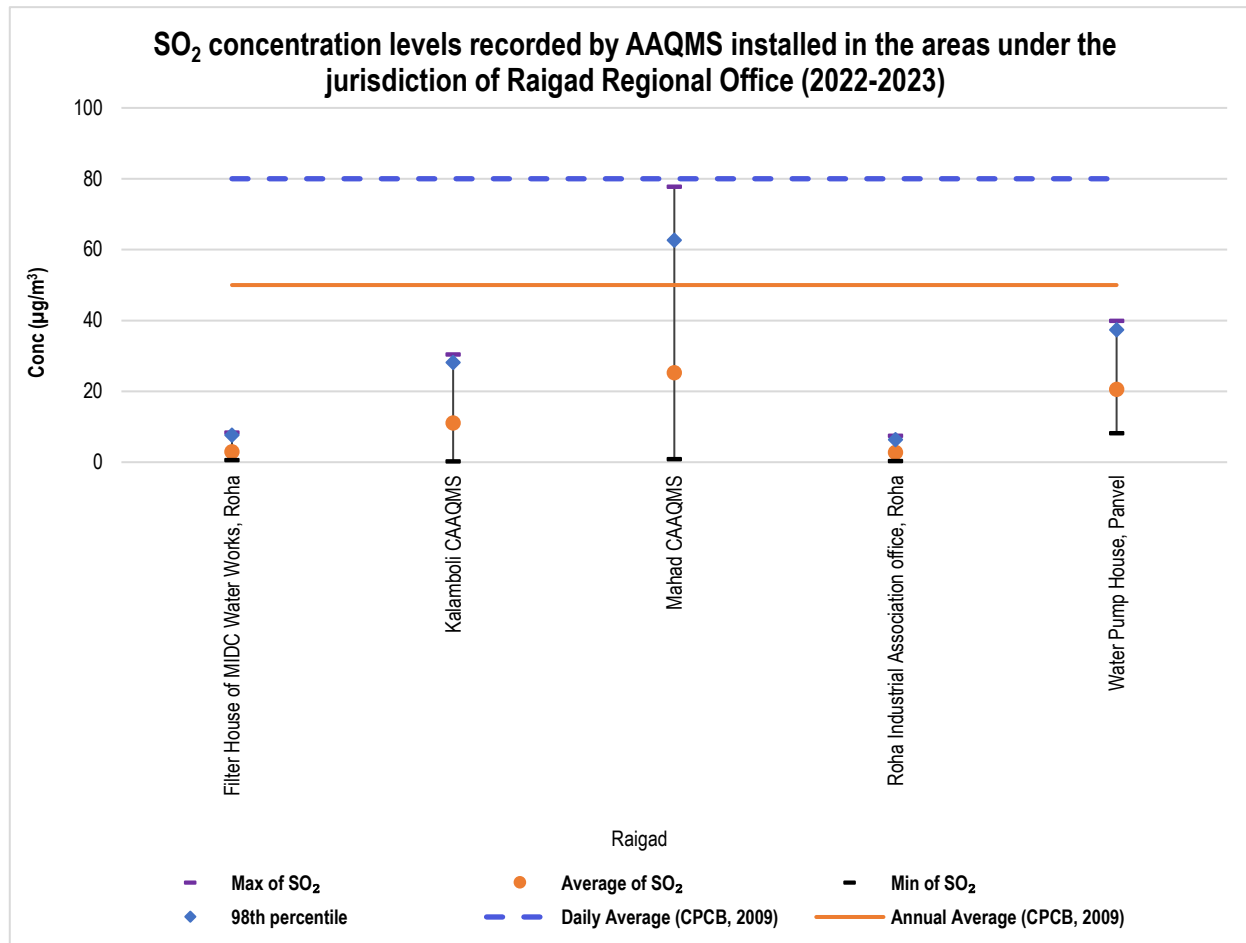


Figure No. 378: Parametric values of SO₂ concentrations recorded by AAQMS across Raigad RO (2022-2023)

According to the data recorded by the monitoring stations installed in the areas under jurisdiction of the Raigad Regional Office, the annual average concentration level of SO₂ in year 2022-23 remained within the daily and annual average limit specified by CPCB, which is 80 µg/m³ and 50 µg/m³ respectively. Mahad CAAQMS recorded the highest annual average concentration level of about 25.24 µg/m³ whereas the lowest annual average concentration level was recorded by AAQMS installed at the Roha Industrial Association office - Roha (2.70 µg/m³).

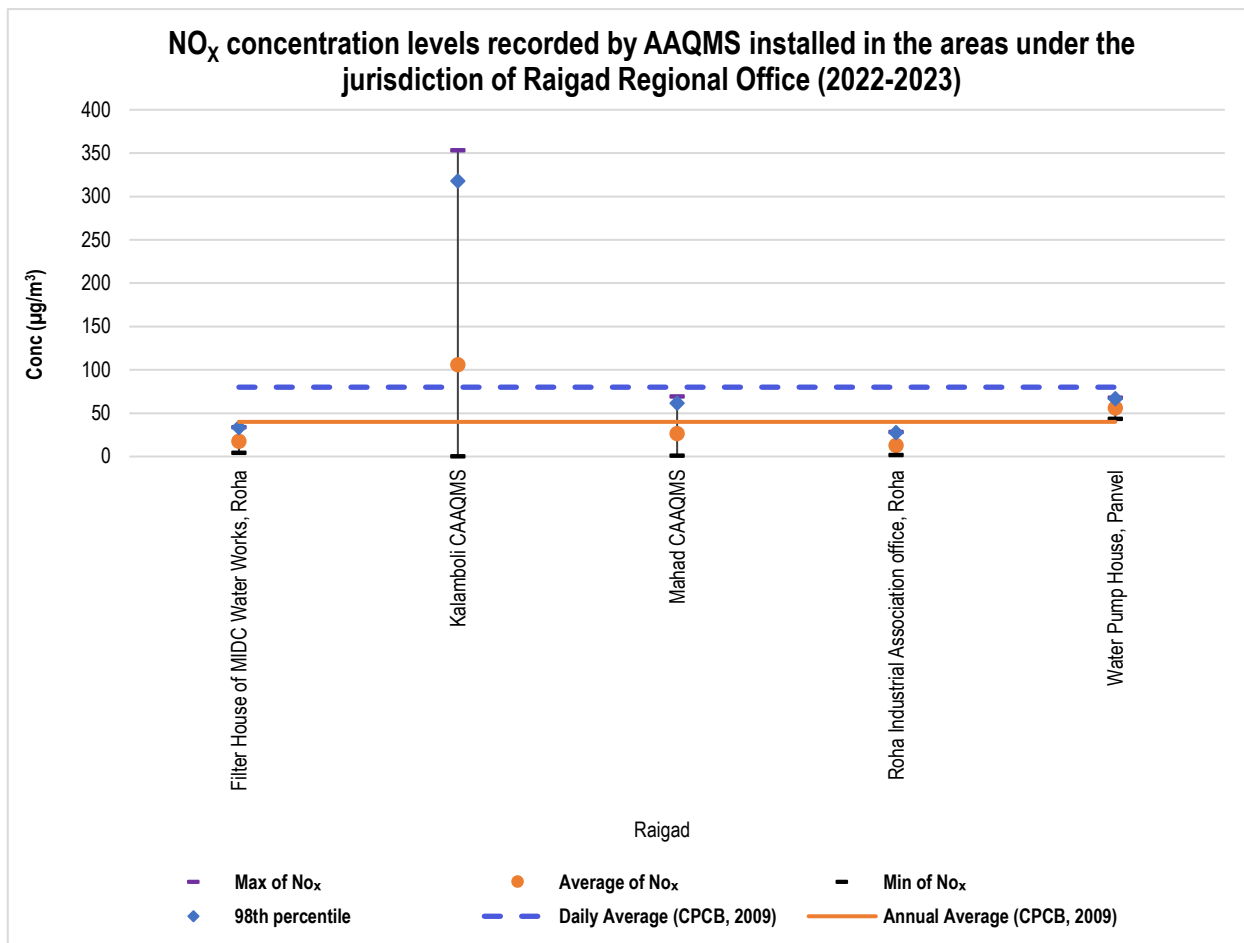
NO_x

Figure No. 379: Parametric values of NO_x concentrations recorded by AAQMS across Raigad RO (2022-2023)

Based on data recorded by the monitoring stations installed in areas under the jurisdiction of the Raigad RO, the annual average NO_x concentration levels recorded by Kalamboli CAAQMS and Water Pump House - Panvel AAQMS were found to be higher than the prescribed limit of 40 µg/m³. The intensity of NO_x pollution was found to be very high in the Kalamboli region as the Kalamboli CAAQMS recorded an annual average level of about 105.99 µg/m³ which is almost 2.5 times that of the limit. Rest all monitoring stations recorded levels within the limit.

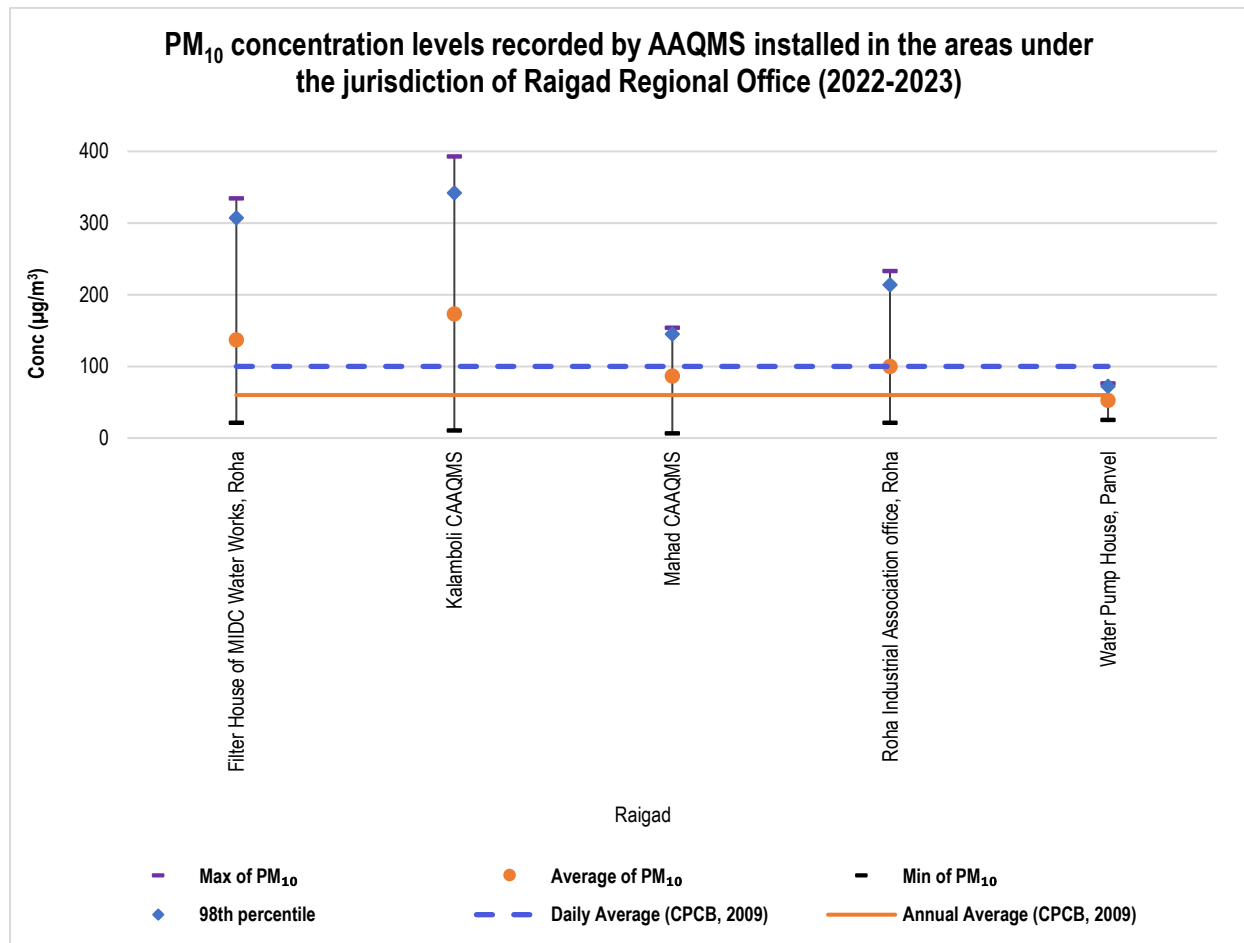
PM₁₀

Figure No. 380: Parametric values of PM₁₀ concentrations recorded by AAQMS across Raigad RO (2022-2023)

Except the AAQMS installed at the Water Pump House – Panvel location, rest all monitoring stations have recorded the annual average concentration level of PM₁₀ higher than the annual average limit (60 µg/m³). Out of these monitoring stations, Kalamboli CAAQMS recorded level of about 173.10 µg/m³ which was almost 3 times that of the prescribed limit. Similarly, Filter House of MIDC Water Works – Roha AAQMS recorded annual average level of 136.77 µg/m³ which is slightly more than twice the prescribed limit. The lowest concentration level was recorded at Water Pump House – Panvel AAQMS (52.40 µg/m³).

Trend in PM_{2.5} concentration recorded by CAAQMS across Raigad RO

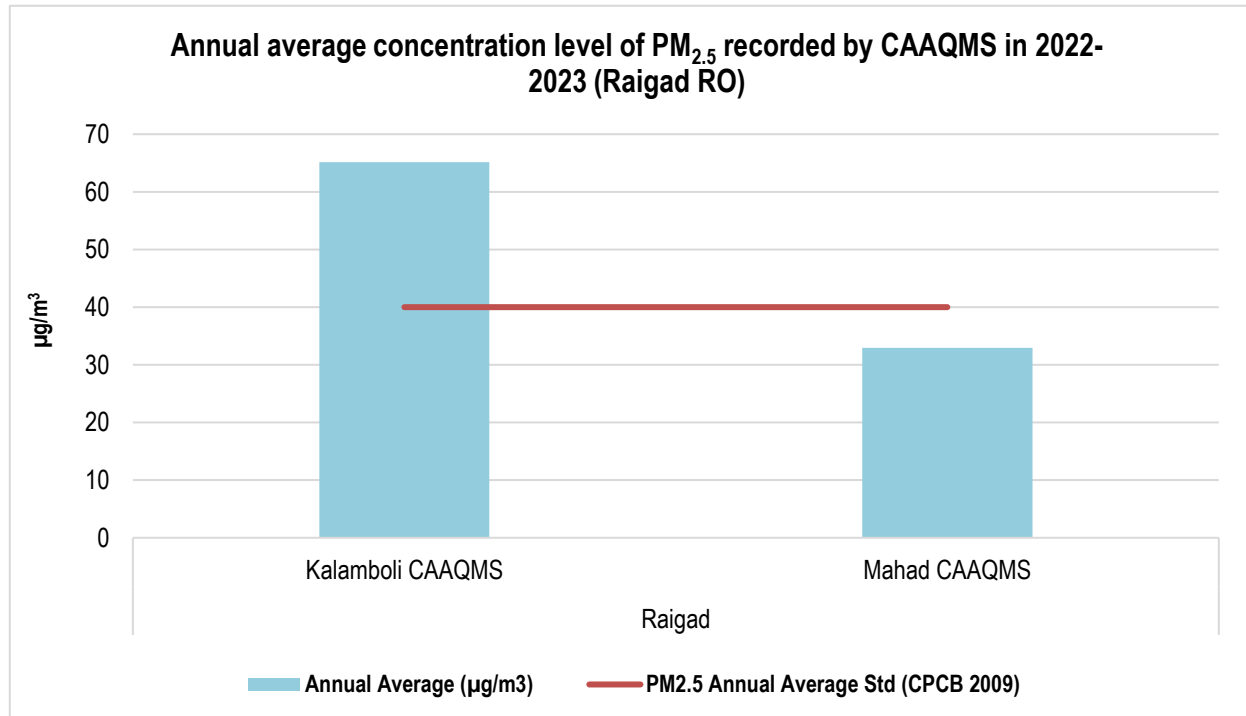


Figure No. 381: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (µg/m³) installed in the areas under the jurisdiction of Raigad RO (2022-23)

In the year 2022-2023, the standard limit (40 µg/m³) for the annual average concentration of PM_{2.5} was exceeded at Kalamboli CAAQMS (65.15 µg/m³) whereas Mahad CAAQMS recorded levels of about 32.97 µg/m³ which happen to be under the standard prescribed limit.

Ozone (O₃)

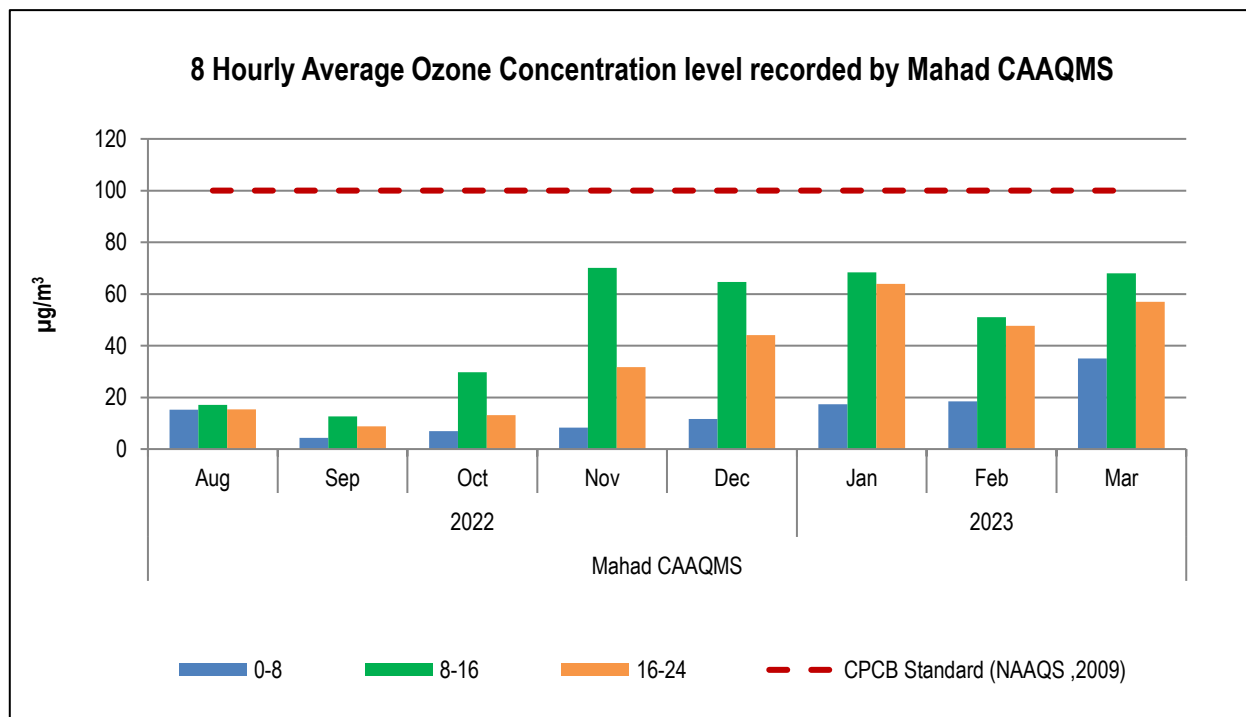
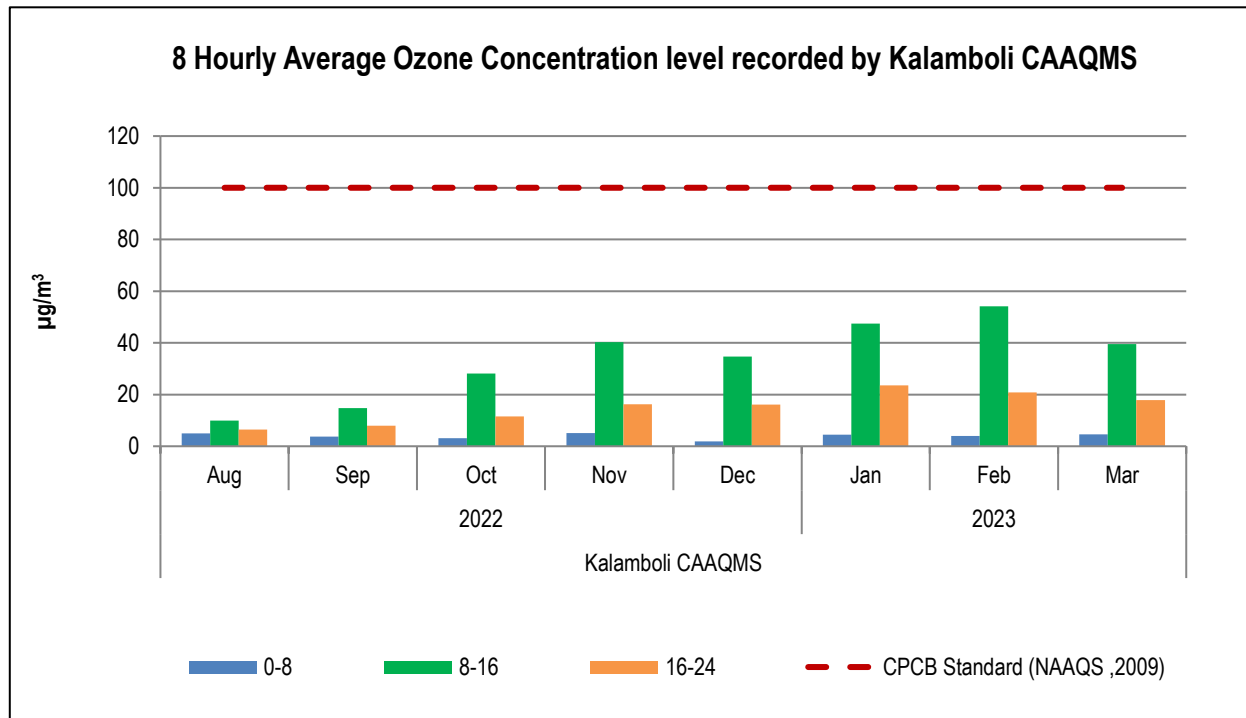


Figure No. 382: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Raigad RO

Carbon Monoxide (CO)

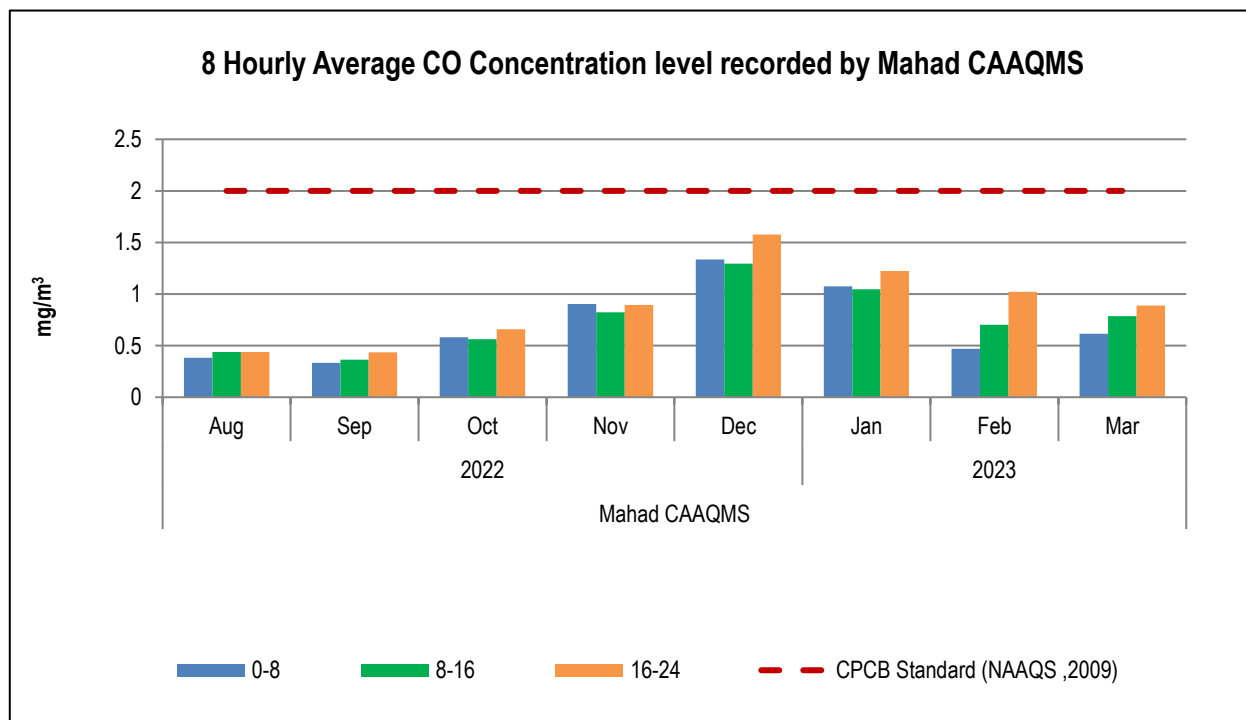
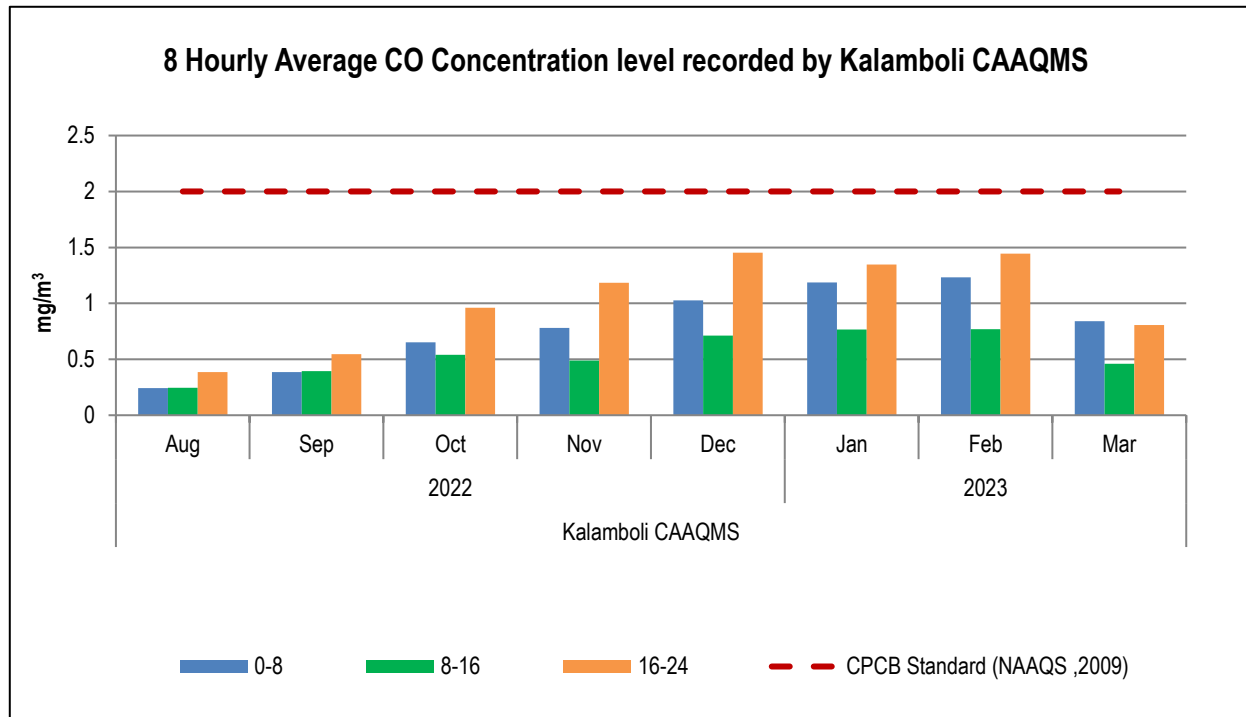


Figure No. 383 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Raigad RO

Benzene

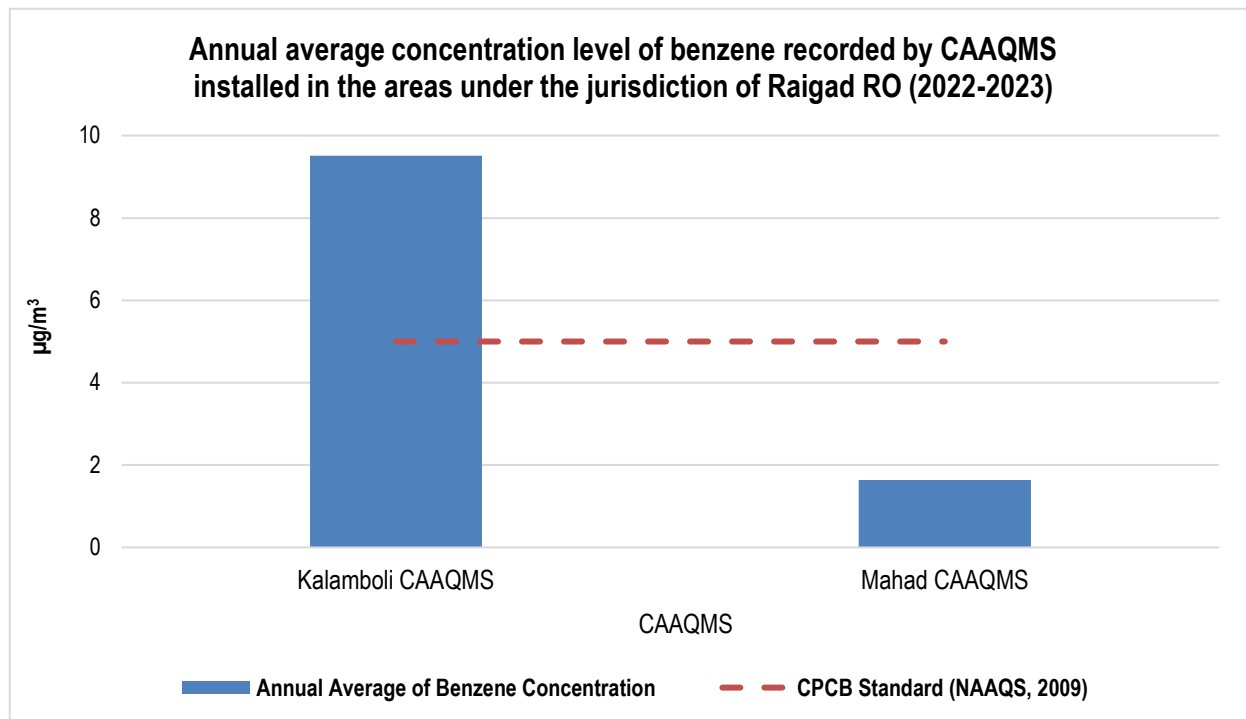


Figure No. 384: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Raigad RO (2022-23)

The annual average concentration of benzene recorded by Kalamboli CAAQMS ($9.51 \mu\text{g}/\text{m}^3$) was observed to be more than the prescribed standard concentration limit ($5.0 \mu\text{g}/\text{m}^3$) set by CPCB whereas the same recorded by Mahad CAAQMS ($1.64 \mu\text{g}/\text{m}^3$) was well within the limit.

AQI percentage occurrence graphs Raigad RO

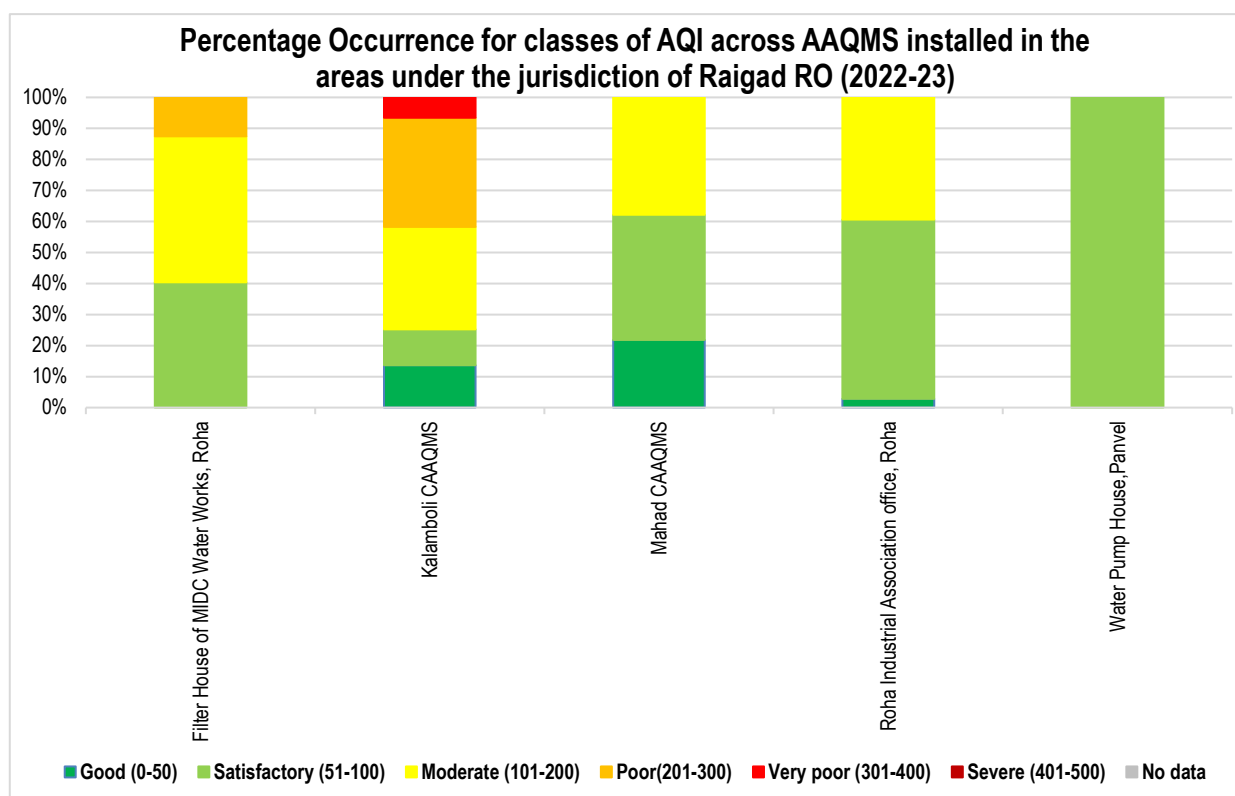


Figure No. 385: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Raigad RO (2022-23)

Out of the 5 AAQMS installed in the areas coming under the jurisdiction of Raigad RO, Water Pump House-Panvel AAQMS is categorized as 'Non-Polluted' as all observations (100%) recorded by this AAQMS were found to be under the 'Satisfactory' category. Kalamboli CAAQMS recorded about 13.64% of the observations under the 'Good' category followed by 11.57% ('Satisfactory'), 33.6% ('Moderate'), 35.12% ('Poor') and 6.61% observations under the 'Very Poor' category. The highest share of 'Moderate' category observations (47.12%) were recorded by AAQMS installed at Filter House of MIDC Water Works – Roha accompanied by 40.38% observations under the 'Satisfactory' and 12.50% under the 'Poor' AQI category.

Monthly and Annual Graphs

Filter House of MIDC Water Works, Roha

Table No. 327: Data for Monthly average concentration recorded at Filter House of MIDC Water Works, Roha

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Filter House of MIDC Water Works, Roha	2022	Apr	5	26	114
		May	6	27	124
		Jun	4	17	77
		Jul	3	17	45
		Aug	2	7	39
		Sep	2	16	146
		Oct	2	22	82
		Nov	3	12	180
		Dec	2	15	199
	2023	Jan	2	22	232
		Feb	3	21	238
		Mar	5	15	166

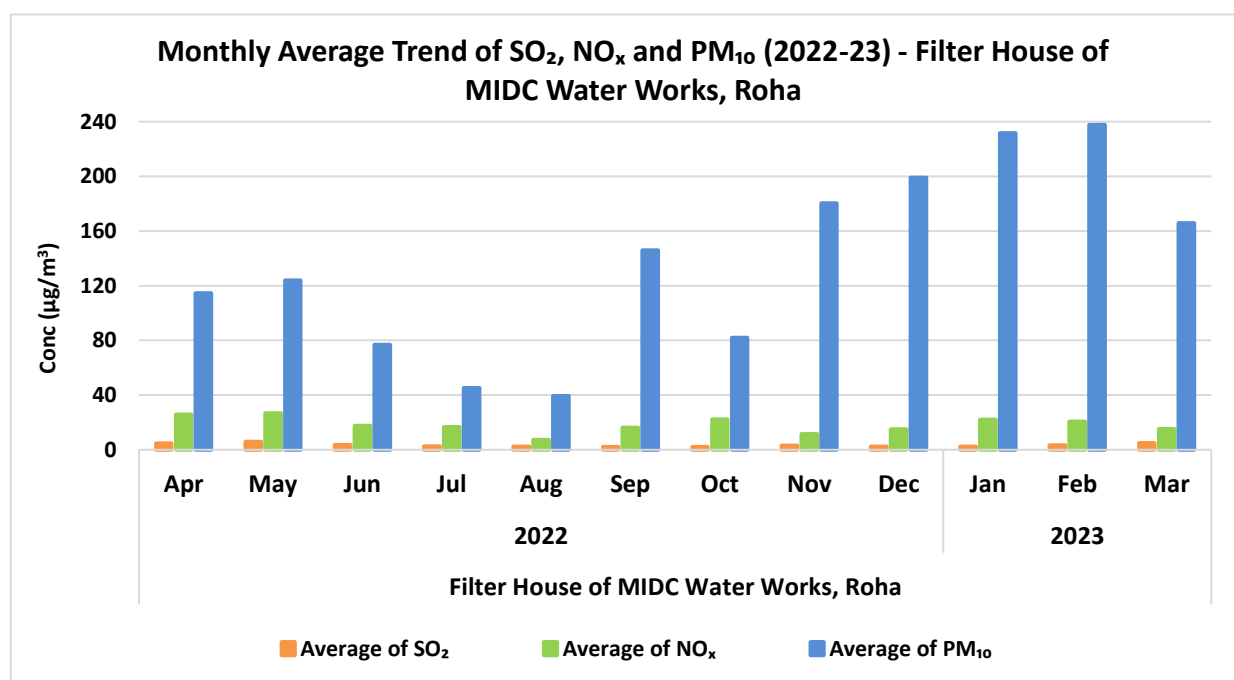
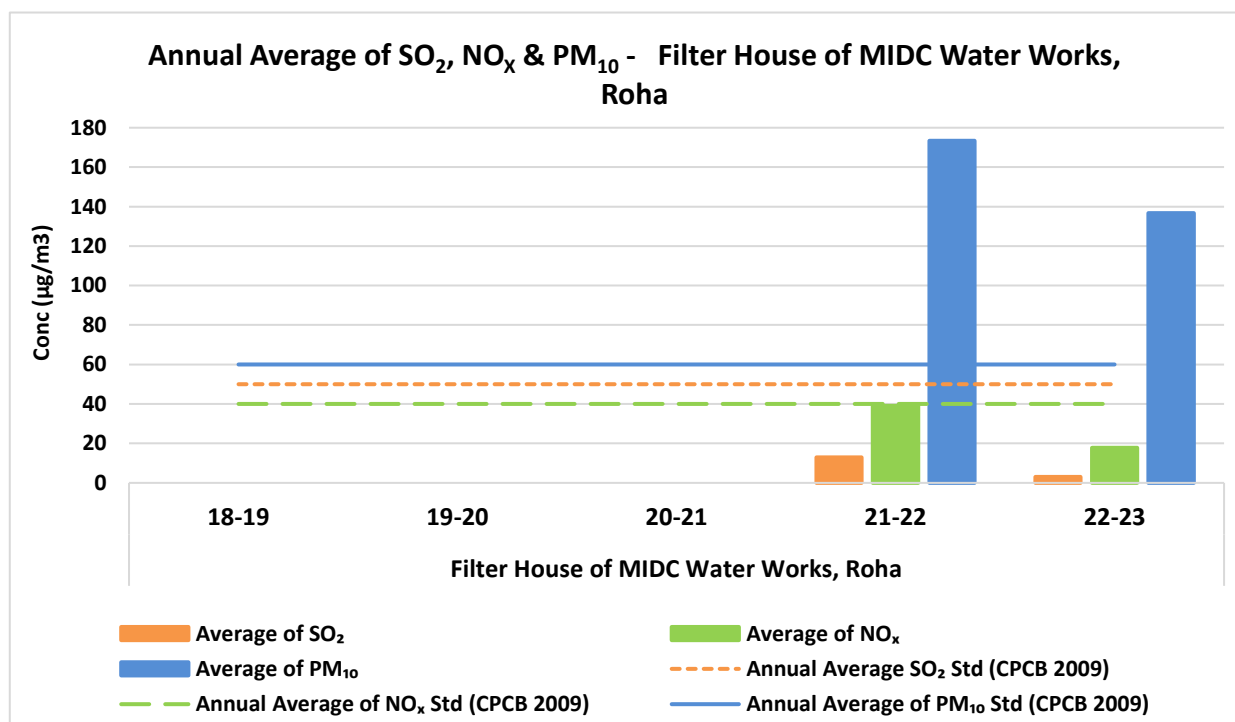


Figure No. 386: Monthly average concentration recorded at Filter House of MIDC Water Works, Roha

Table No. 328: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Filter House of MIDC Water Works, Roha

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Filter House of MIDC Water Works, Roha	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	13	39	173
	22-23	3	18	137

Figure No. 387: Annual average trend of SO₂, NO_x and PM₁₀ at Filter House of MIDC Water Works, Roha

Kalamboli CAAQMS

Table No. 329: Data for Monthly average concentration recorded at Kalamboli CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Kalamboli CAAQMS	2022	Aug	3	10	57	15
		Sep	4	1	70	21
		Oct	7	43	149	38
		Nov	13	67	292	114
		Dec	13	63	271	116
	2023	Jan	16	75	238	113
		Feb	21	105	215	102
		Mar	12	76	94	60

Table No. 330: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Kalamboli CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Kalamboli CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	11	55	173	72

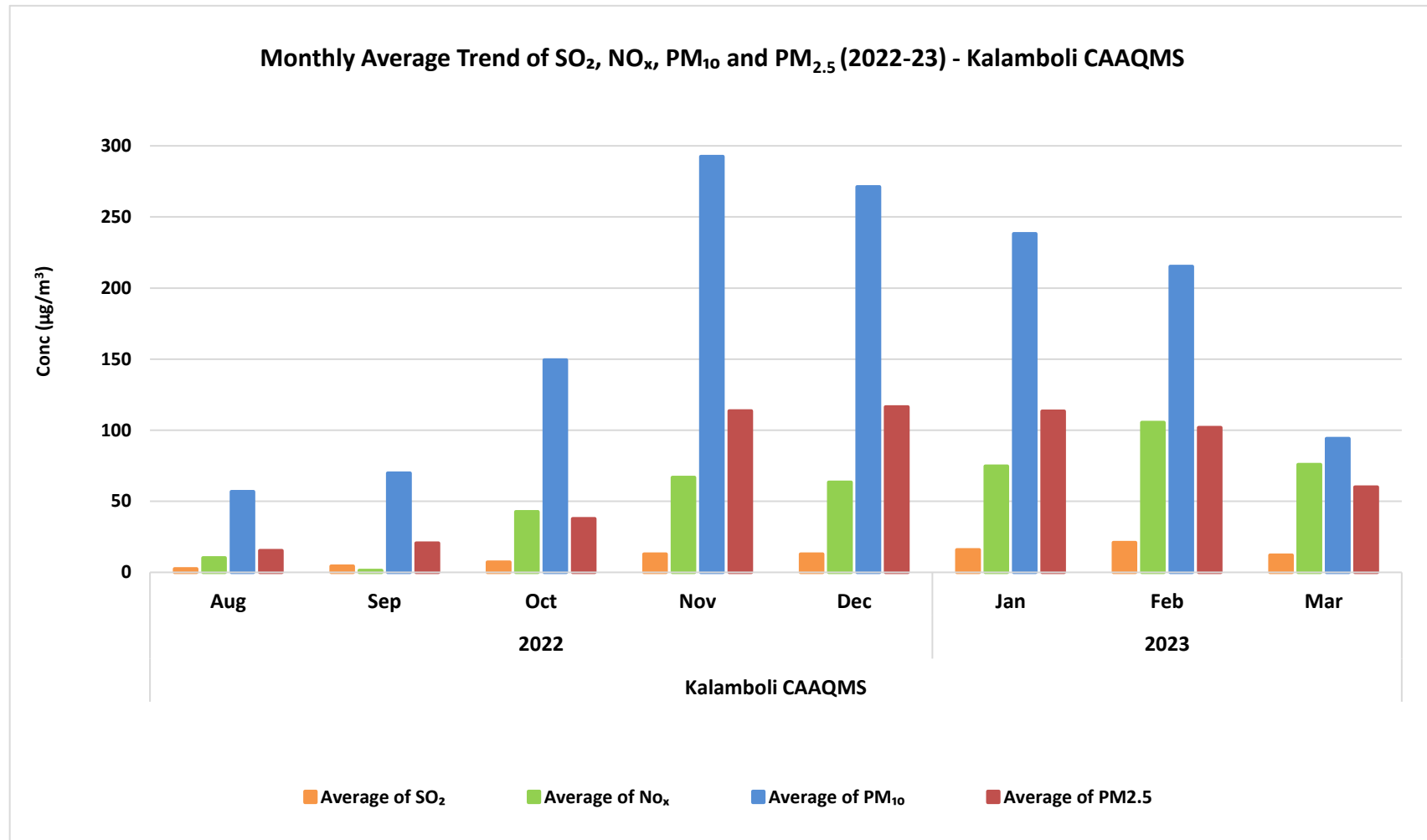


Figure No. 388: Monthly average concentration recorded at Kalamboli CAAQMS

Mahad CAAQMS

Table No. 331: Data for Monthly average concentration recorded at Mahad CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Mahad CAAQMS	2022	Aug	12	5	40	8
		Sep	12	10	46	10
		Oct	14	29	104	36
		Nov	45	19	111	50
		Dec	38	18	100	42
	2023	Jan	19	16	87	37
		Feb	35	24	102	42
		Mar	28	20	106	51

Table No. 332: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Mahad CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Mahad CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	25	17	86	35

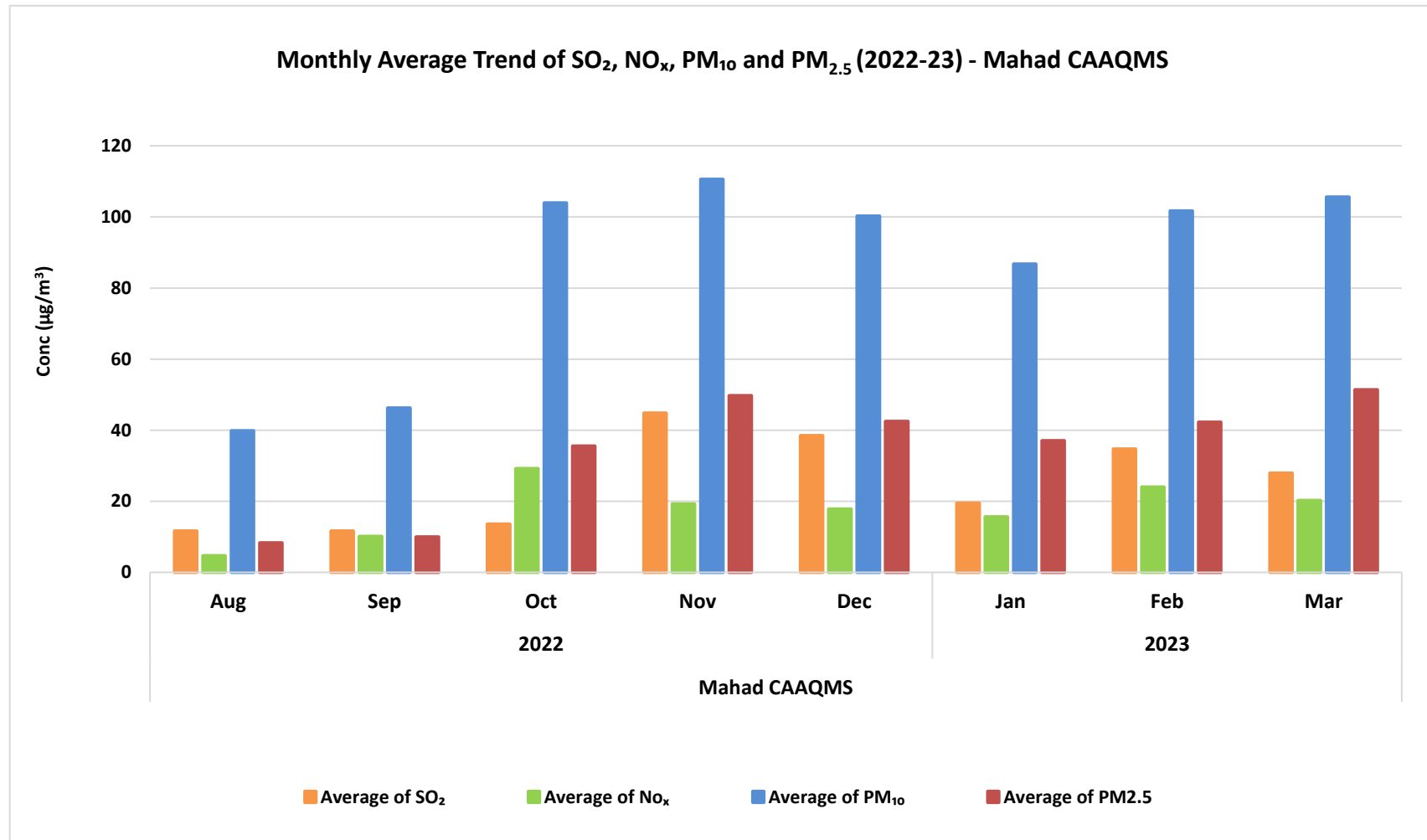


Figure No. 389: Monthly average concentration recorded at Mahad CAAQMS

Roha Industrial Association office, Roha

Table No. 333: Data for Monthly average concentration recorded at Roha Industrial Association office, Roha

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Roha Industrial Association office, Roha	2022	Apr	5	23	111
		May	5	22	89
		Jun	4	13	57
		Jul	2	10	32
		Aug	3	15	73
		Sep	2	12	70
		Oct	1	12	125
		Nov	2	12	110
		Dec	2	9	149
	2023	Jan	2	12	146
		Feb	2	17	143
		Mar	2	6	111

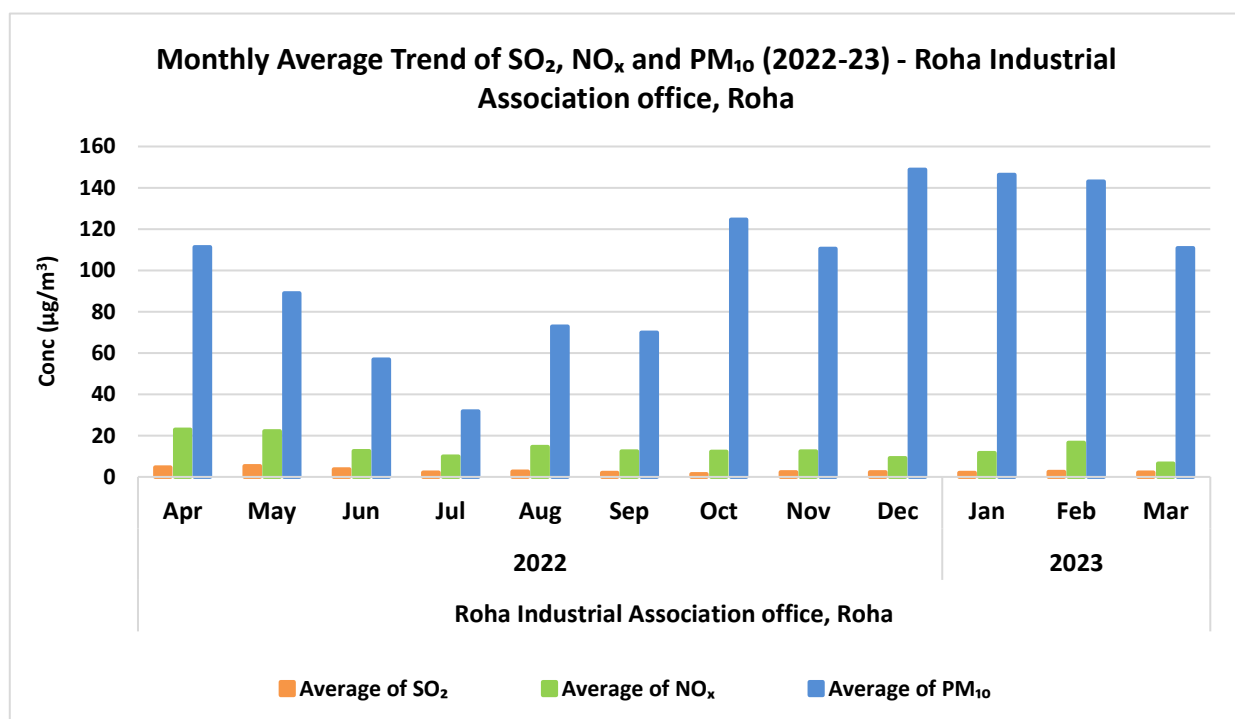
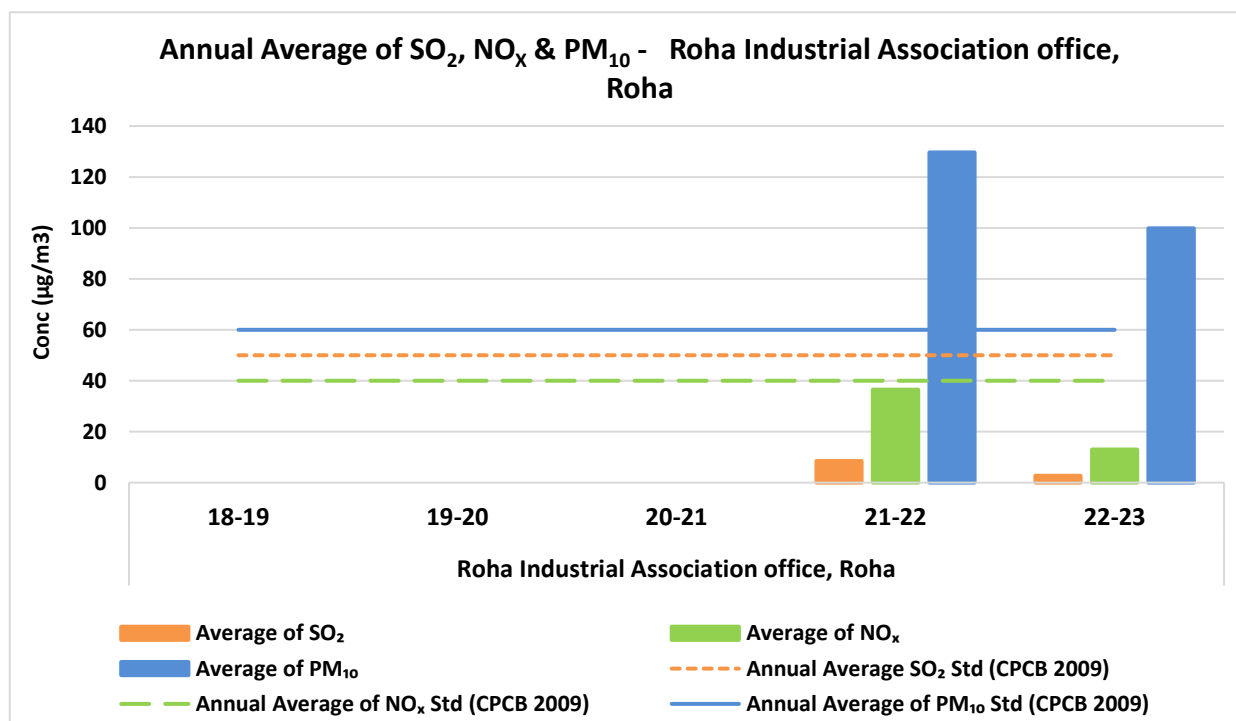


Figure No. 390: Monthly average concentration recorded at Roha Industrial Association office, Roha

Table No. 334: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Roha Industrial Association office, Roha

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Roha Industrial Association office, Roha	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	8	37	130
	22-23	3	13	100

Figure No. 391: Annual average trend of SO₂, NO_x and PM₁₀ at Roha Industrial Association office, Roha

Water Pump House, Panvel

Table No. 335: Data for Monthly average concentration recorded at Water Pump House, Panvel

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Water Pump House, Panvel	2022	Apr	18	60	59
		May	18	57	54
		Jun	16	55	59
		Jul	16	55	32
		Aug	15	51	38
		Sep	12	44	34
		Oct	17	52	49
		Nov	28	58	55
		Dec	27	59	58
	2023	Jan	37	58	65
		Feb	26	61	63
		Mar	22	59	62

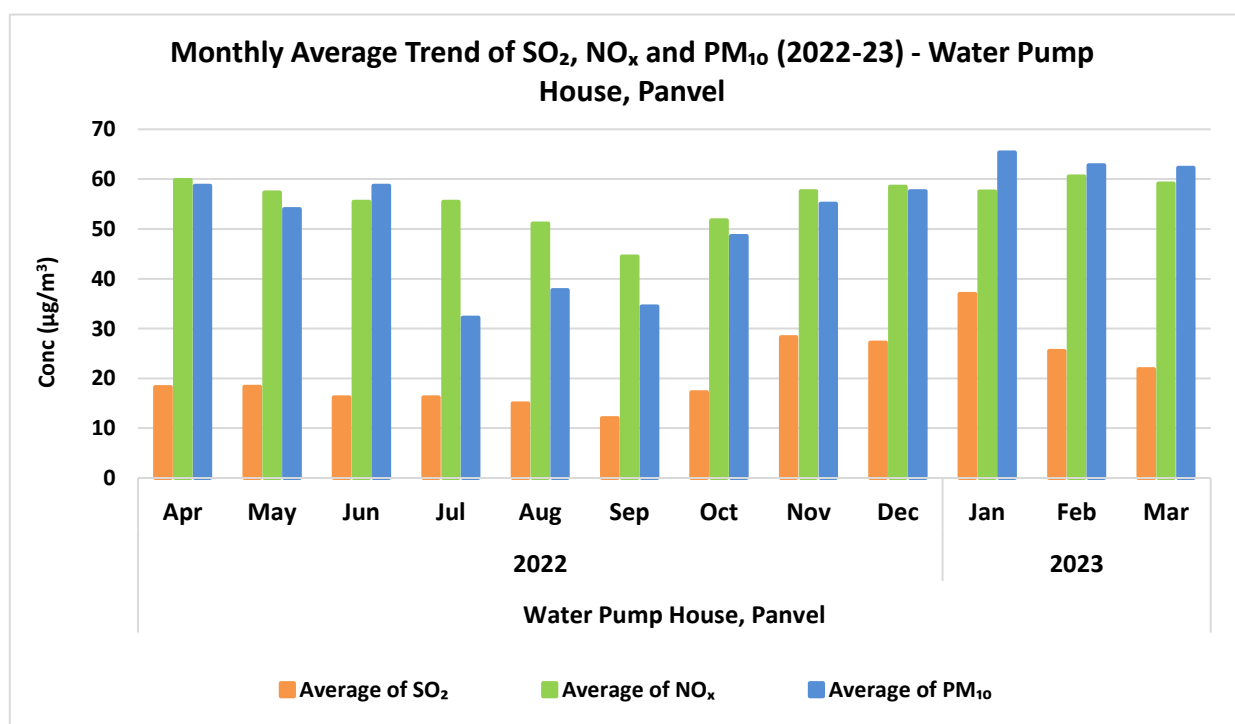


Figure No. 392: Monthly average concentration recorded at Water Pump House, Panvel

Table No. 336: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Water Pump House, Panvel

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Water Pump House, Panvel	18-19	19	49	60
	19-20	17	48	53
	20-21	14	40	48
	21-22	20	47	49
	22-23	21	56	52

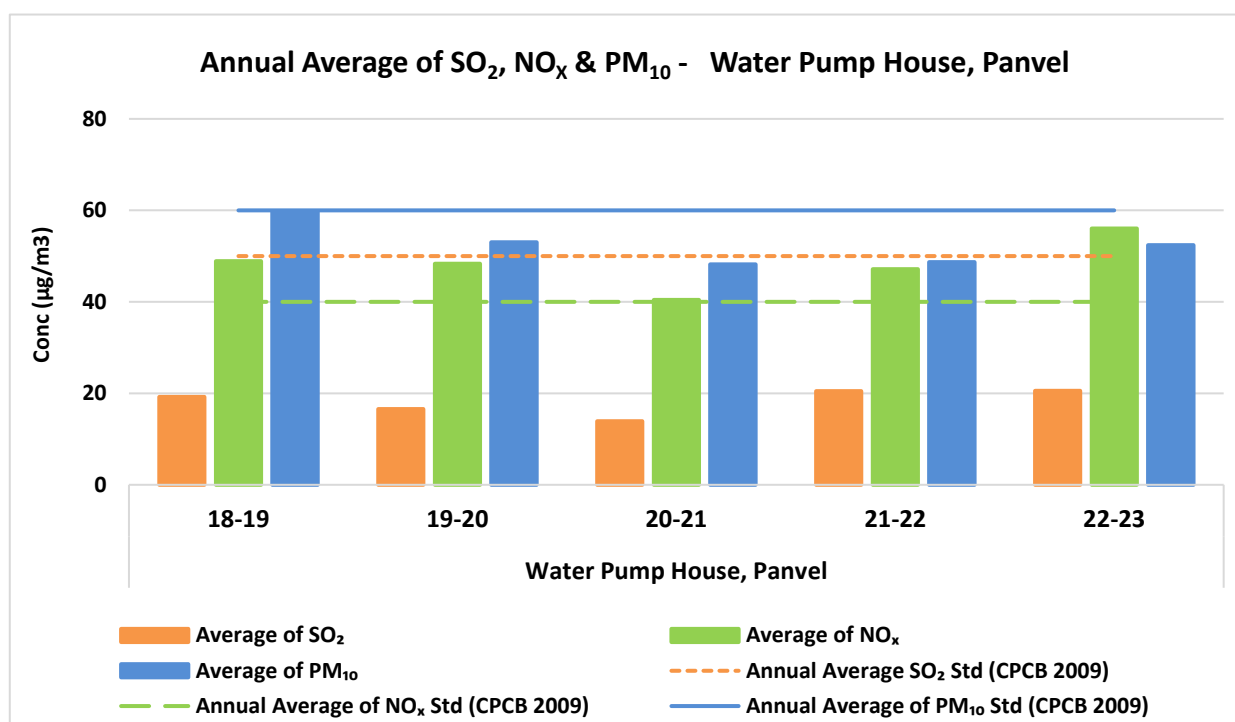
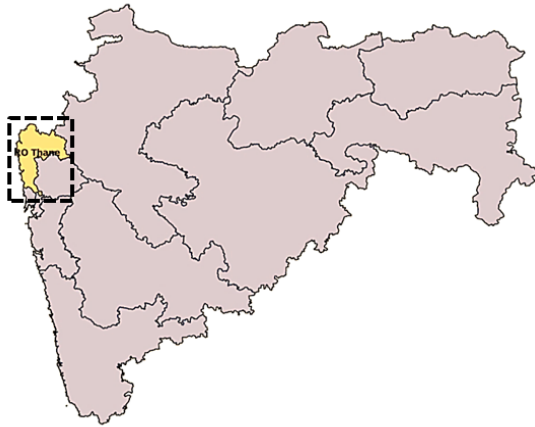
Figure No. 393: Annual average trend of SO₂, NO_x and PM₁₀ at Water Pump House, Panvel

Table No. 337: Percentage exceedance of pollutants at Raigad RO

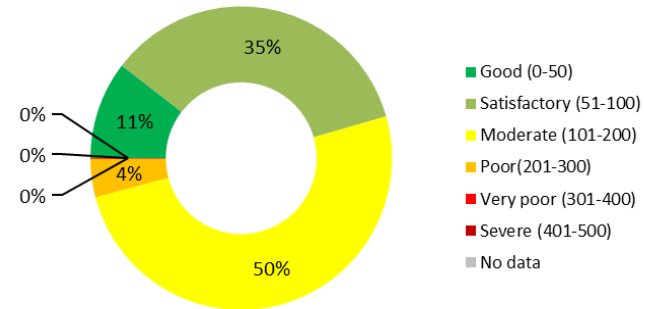
Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NOX	PM ₁₀	PM2.5	SO ₂	NOX	PM ₁₀	PM2.5	SO ₂	NOX	PM ₁₀	PM2.5
Filter House of MIDC Water Works, Roha	85	93	102	0	0	0	62	0	0	0	61	0
Kalamboli CAAQMS	232	229	239	239	0	121	163	138	0	53	68	58
Mahad CAAQMS	235	230	237	228	0	61	139	120	0	27	59	53
Roha Industrial Association office, Roha	98	93	98	0	0	0	41	0	0	0	42	0
Water Pump House, Panvel	101	82	103	0	0	0	0	0	0	0	0	0

CITIES /AREAS UNDER THANE RO

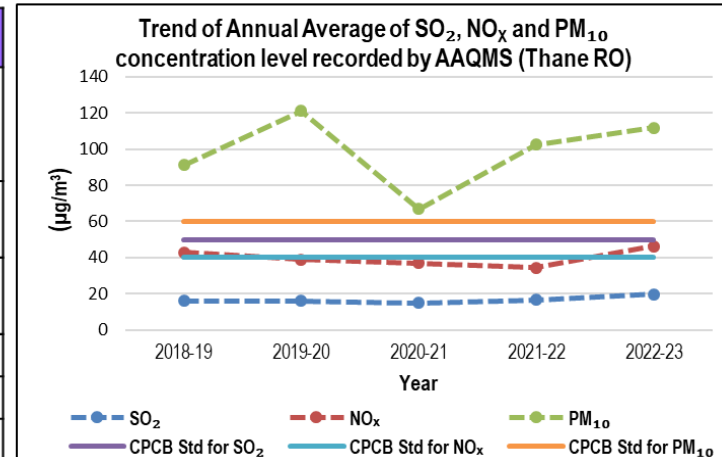
THANE RO



Percentage Share of AQI category for the observations recorded by AAQMS in 2022-23 (Thane RO)



Sr No.	Station Name	Sr No.	Station Name
1	Industrial Premises of Glaxo Pokhran road, Thane.	7	Terrace of Kopri Prabhag Samiti office, Kopri, Thane, East
2	Kolawade Grampanchayat, Boisar	8	Terrace of Shahu Market, Naupada
3	Mira Bhayander CAAQMS	9	Thane Ghodbunder CTP CAAQMS
4	MPCB Office, Boisar	10	Upvan Thane CAAQMS
5	PDTS Ground, Boisar	11	Vasai CAAQMS
6	Tarapur CAAQMS	12	Virar CAAQMS





MIRA BHAYANDAR CAAQMS



TARAPUR CAAQMS



THANE GHODBUNDER CTP CAAQMS



THANE UPAVAN CAAQMS



VASAI CAAQMS



VIRAR CAAQMS

Parametric Values of Criteria Air Pollutants

SO₂

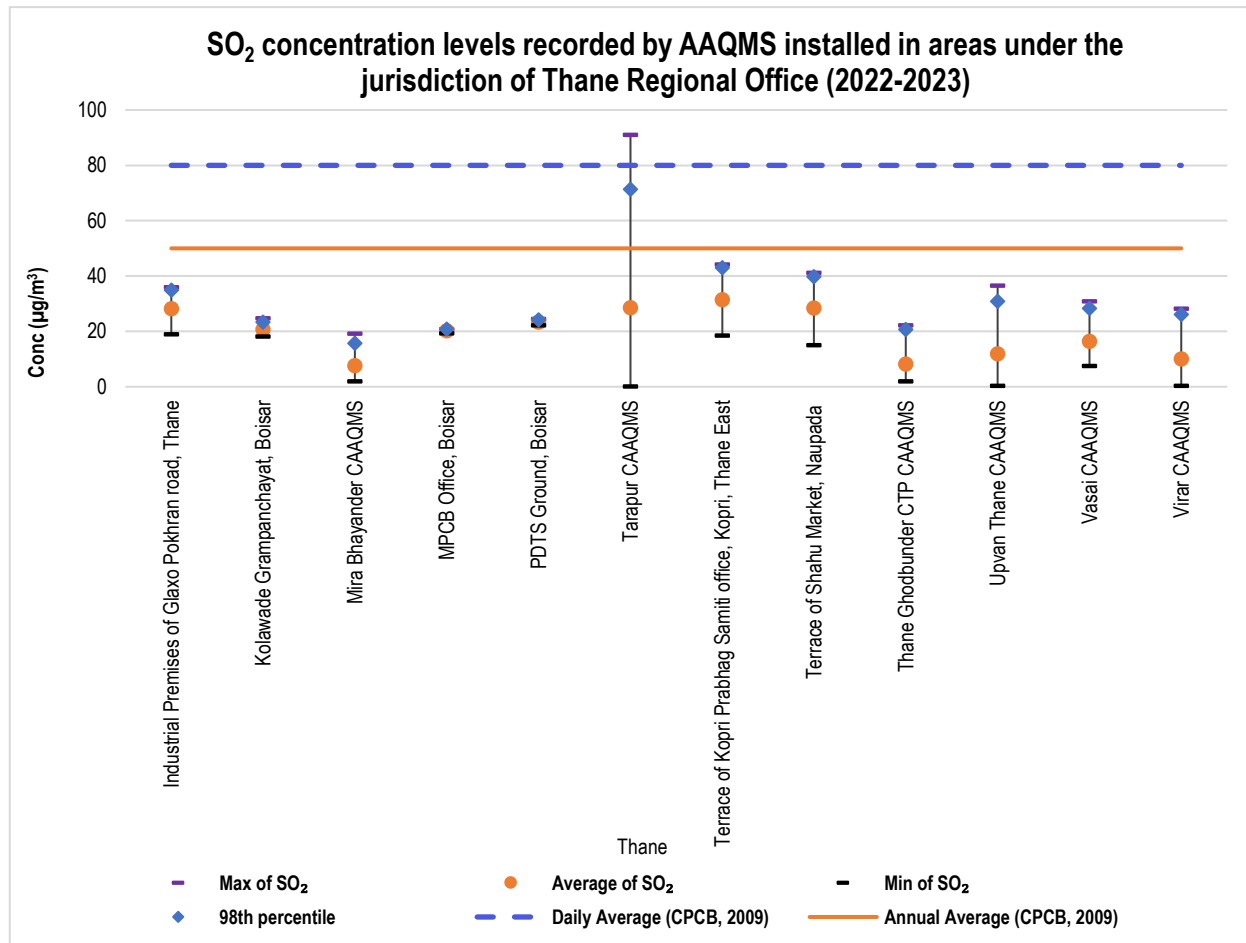


Figure No. 394: Parametric values of SO₂ concentrations recorded by AAQMS across Thane RO (2022-2023)

All 12 monitoring stations installed in the areas coming under the jurisdiction of Thane RO recorded annual average SO₂ concentration level within the annual average limit specified by the CPCB (50 µg/m³). Amongst these stations, the highest annual average SO₂ concentration level was recorded by the AAQMS installed at the Terrace of Kopri Prabhag Samiti office – Kopri - Thane East (31.5 µg/m³) followed by Tarapur CAAQMS (28.60 µg/m³) and Terrace of Shahu Market – Naupada AAQMS (28.42 µg/m³). The lowest annual average level was recorded by Mira Bhayander CAAQMS (7.69 µg/m³).

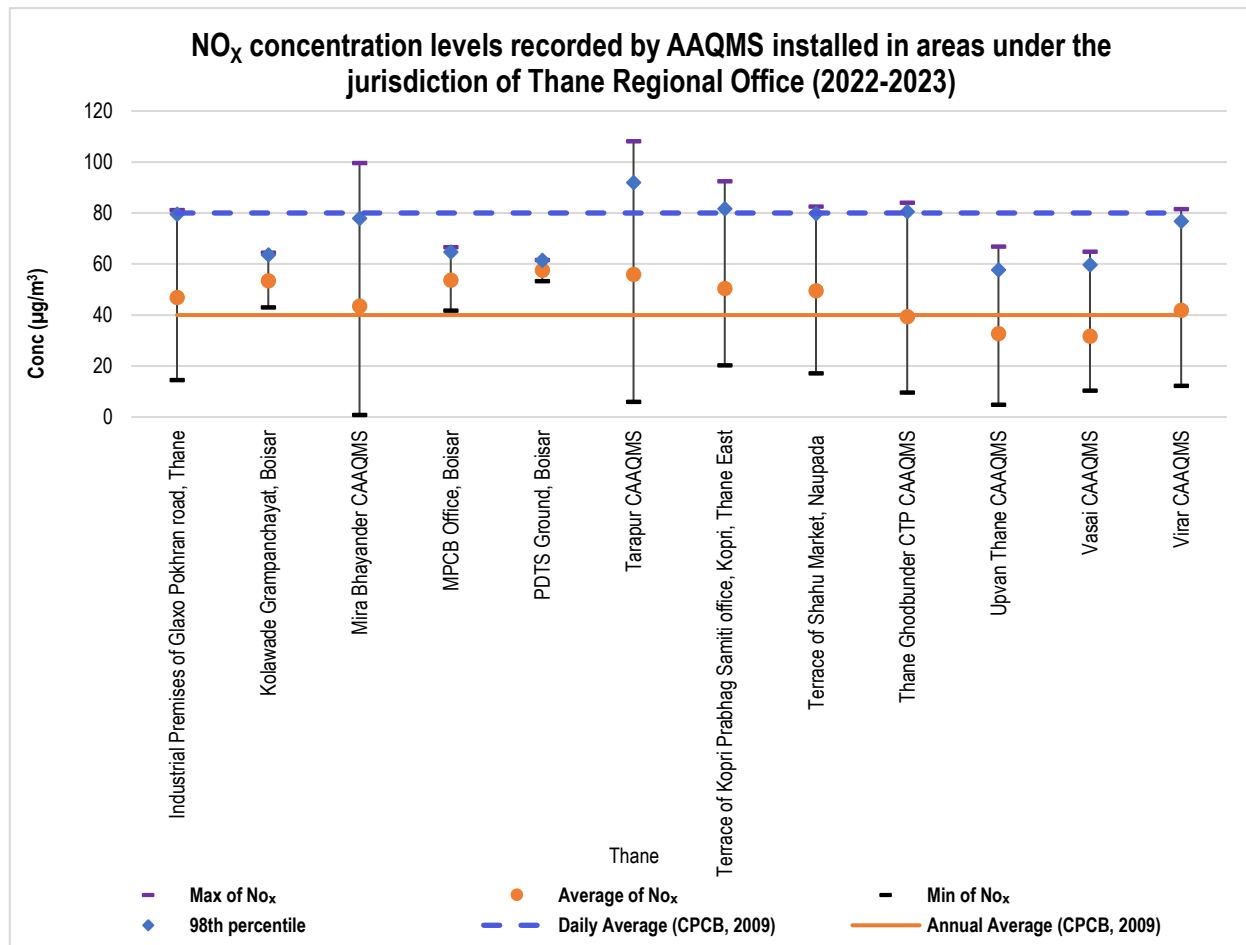
NO_x

Figure No. 395: Parametric values of NO_x concentrations recorded by AAQMS across Thane RO (2022-2023)

Out of 12 monitoring station, only 3 monitoring stations namely Thane Ghodbunder CTP CAAQMS (39.37 µg/m³), Upvan Thane CAAQMS (32.71 µg/m³) and Vasai CAAQMS (31.67 µg/m³) have recorded annual average concentration level which were within the standard limit. Rest all 9 monitoring stations recorded annual average concentration level higher than the prescribed limit (40 µg/m³).

The AAQMS installed at PDTS Ground - Boisar recorded annual average level of about 57.53 µg/m³ followed by Tarapur CAAQMS (55.95 µg/m³), MPCB Office - Boisar AAQMS (53.62 µg/m³) and Kolawade Grampanchayat, Boisar (53.43 µg/m³). Virar CAAQMS (41.92 µg/m³) recorded a slightly higher annual average concentration level than the standard limit.

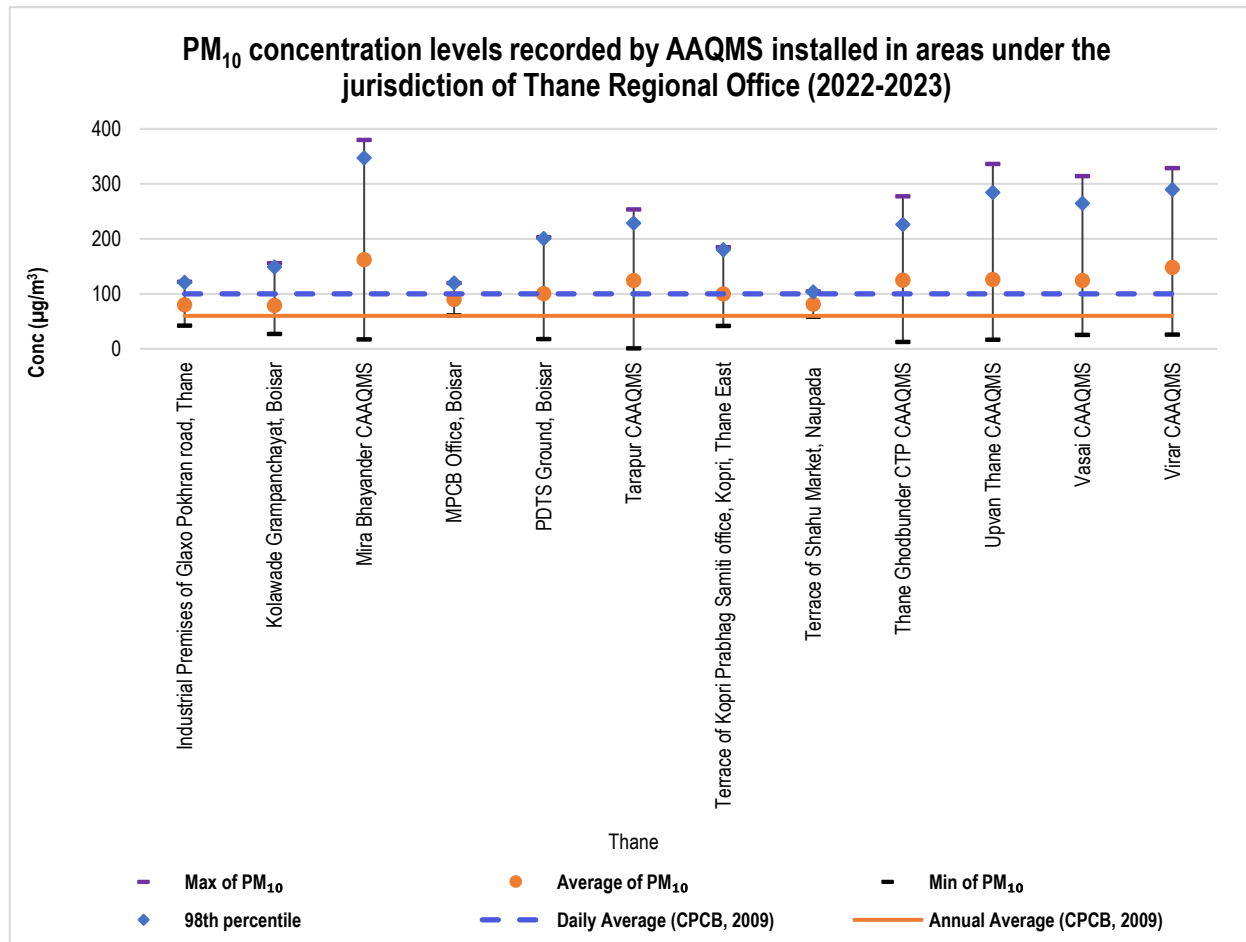
PM₁₀

Figure No. 396: Parametric values of PM₁₀ concentrations recorded by AAQMS across Thane RO (2022-2023)

All air quality monitoring stations installed in the areas coming under the Thane RO's jurisdiction have recorded higher annual average PM₁₀ concentration levels in the year 2022-23. The concentration level more than 2.5 times that of the annual average standard limit (60 µg/m³) was recorded by Mira Bhayander CAAQMS (162.40 µg/m³). It was followed by Virar CAAQMS (148.2 µg/m³), Upvan Thane CAAQMS (126.1 µg/m³), Thane Ghodbunder CTP CAAQMS (124.90 µg/m³), Tarapur CAAQMS (124.20 µg/m³) and Vasai CAAQMS (124.16 µg/m³). The lowest annual average concentration level was recorded by Kolawade Grampanchayat - Boisar AAQMS (79.05 µg/m³) which was still higher than the standard limit.

Trend in PM_{2.5} concentrations recorded by CAAQMS across Thane RO

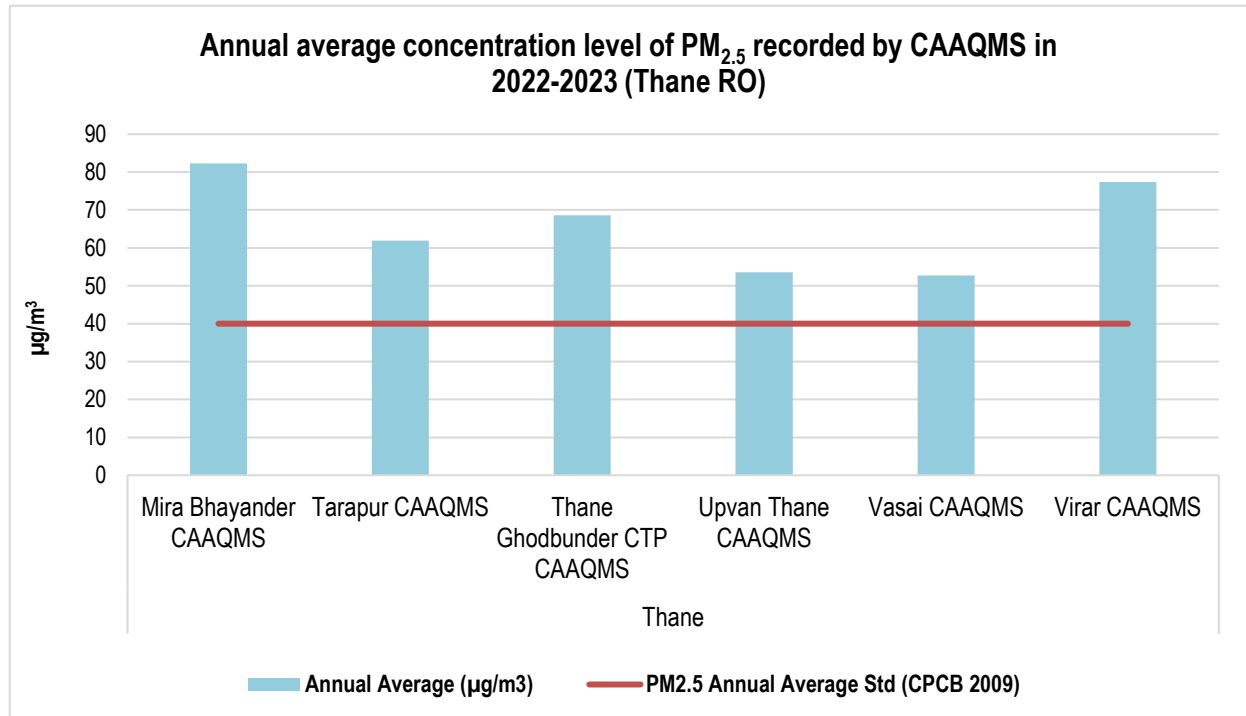


Figure No. 397: Annual average trend of PM_{2.5} concentration levels recorded by CAAQMS (ug/m³) installed in the areas under the jurisdiction of Thane RO (2022-23)

All 6 CAAQMS installed in the areas coming under the jurisdiction of Thane RO have recorded significantly higher annual average concentration levels of PM_{2.5} than the permissible limit (40 µg/m³). Mira Bhayander CAAQMS, Virar CAAQMS, Thane Ghodbunder CTP CAAQMS, Tarapur CAAQMS, Upvan Thane CAAQMS and Vasai CAAQMS recorded the levels of about 82.24 µg/m³, 77.38 µg/m³, 68.63 µg/m³, 61.89 µg/m³, 53.6 µg/m³ and 52.75 µg/m³ respectively.

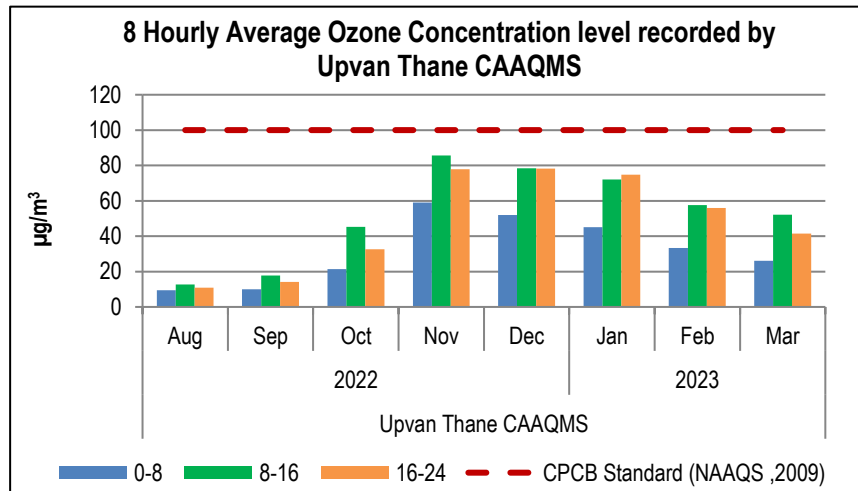
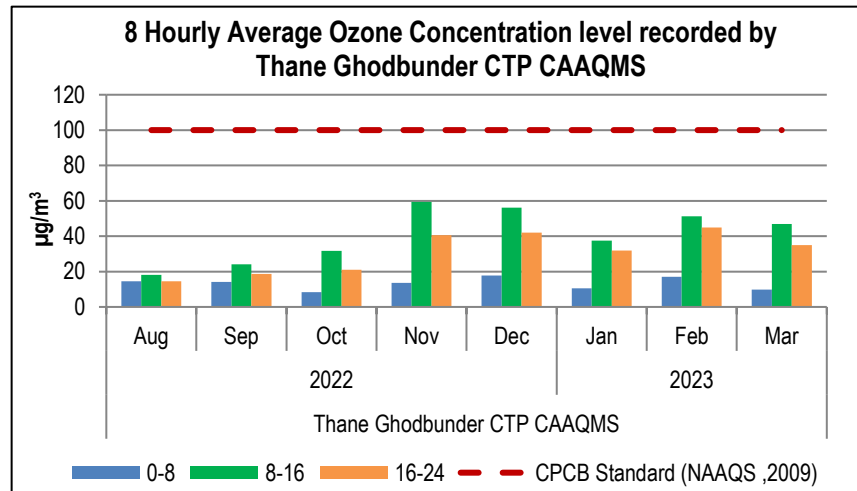
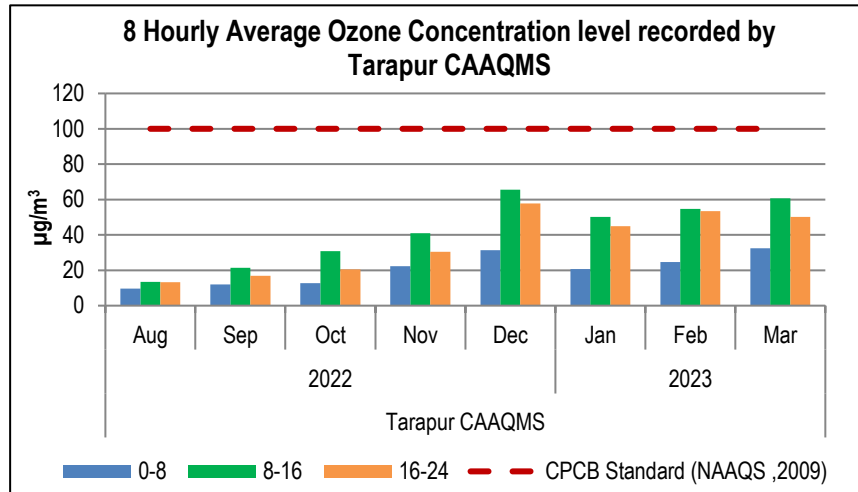
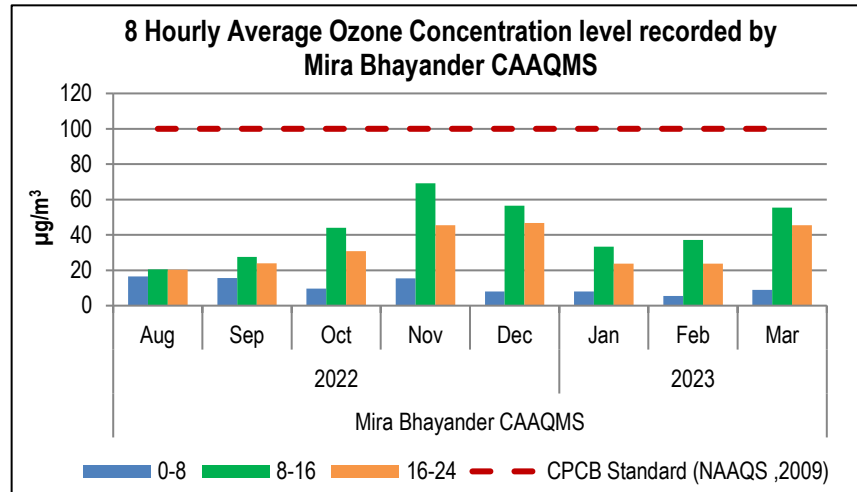
Ozone (O₃)

Figure No. 398 : Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Thane RO (1)

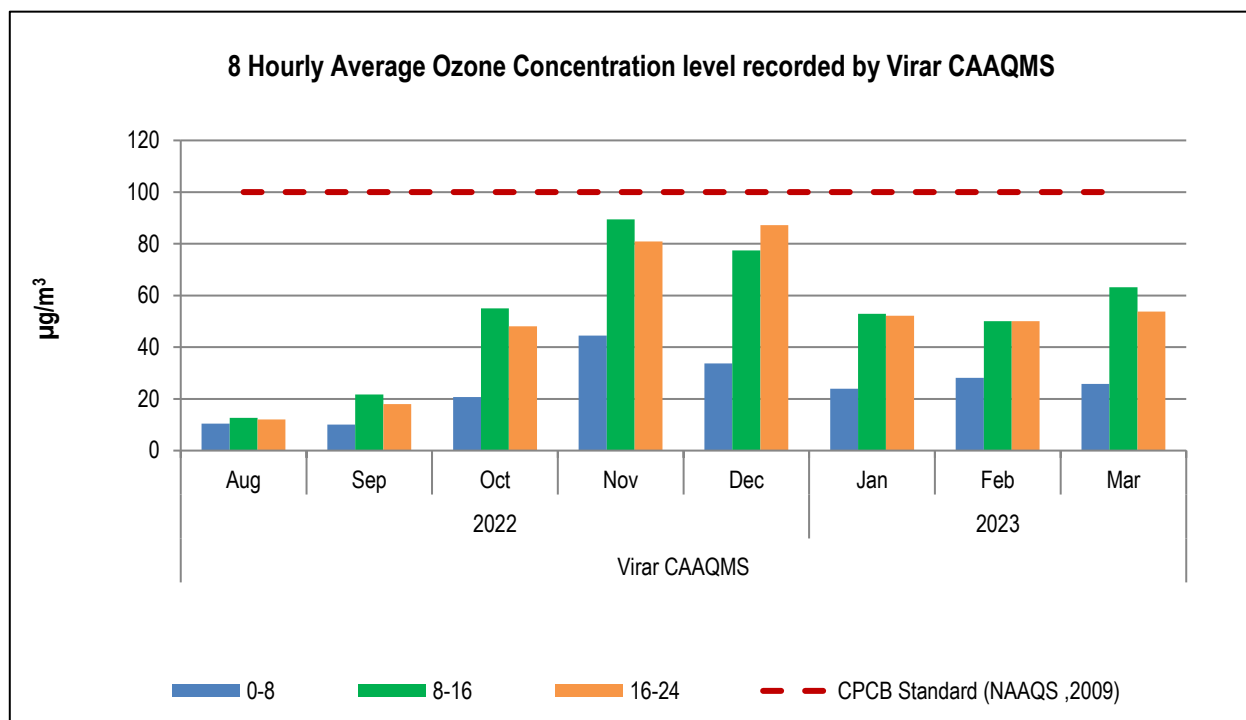
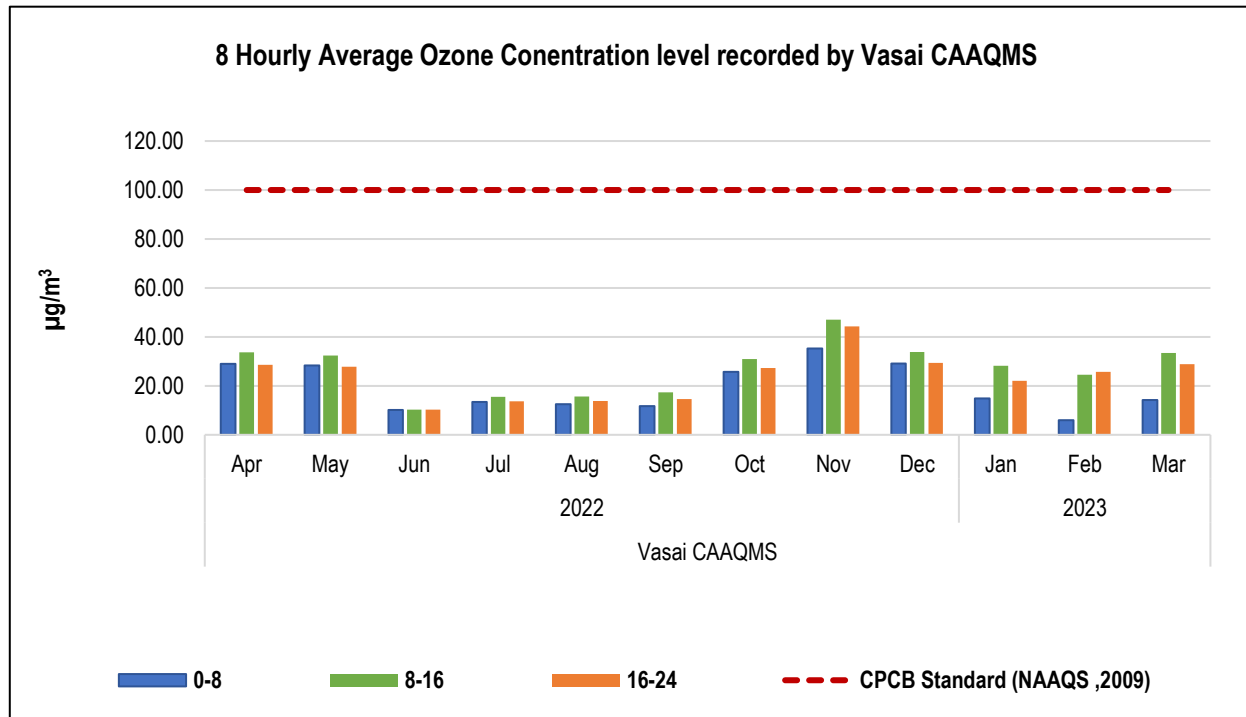


Figure No. 399: Ozone concentration recorded by CAAQMS installed in the areas under the jurisdiction of Thane RO (2)

Carbon Monoxide (CO)

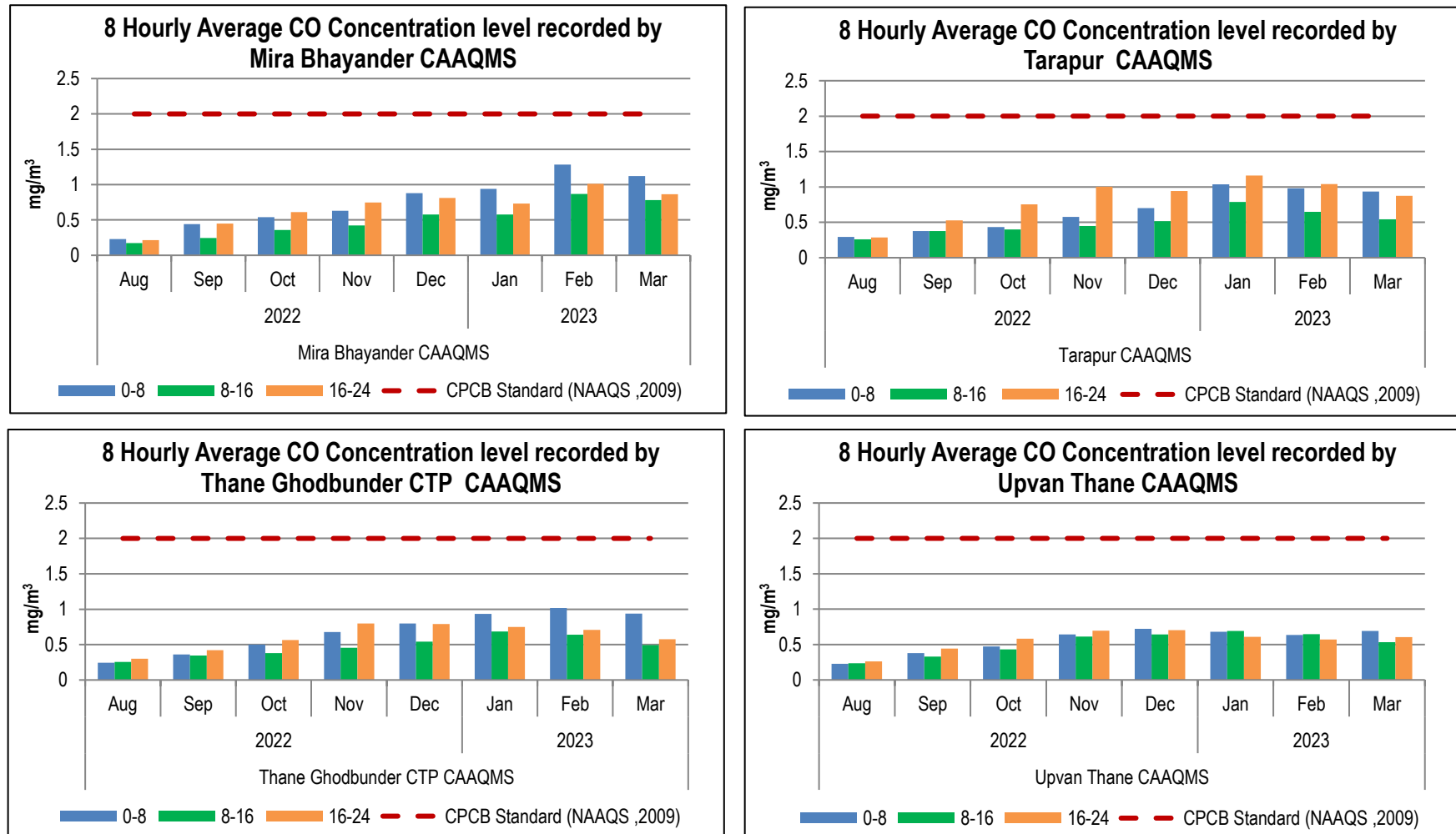


Figure No. 400 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Thane RO (1)

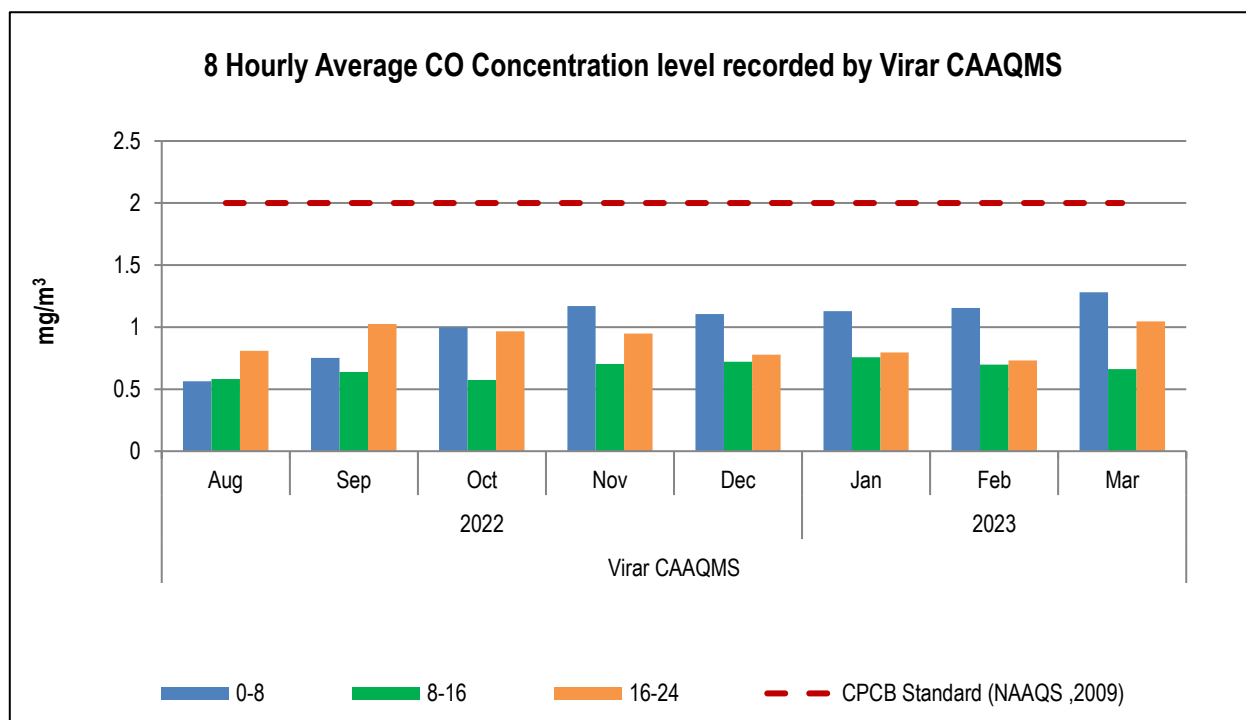
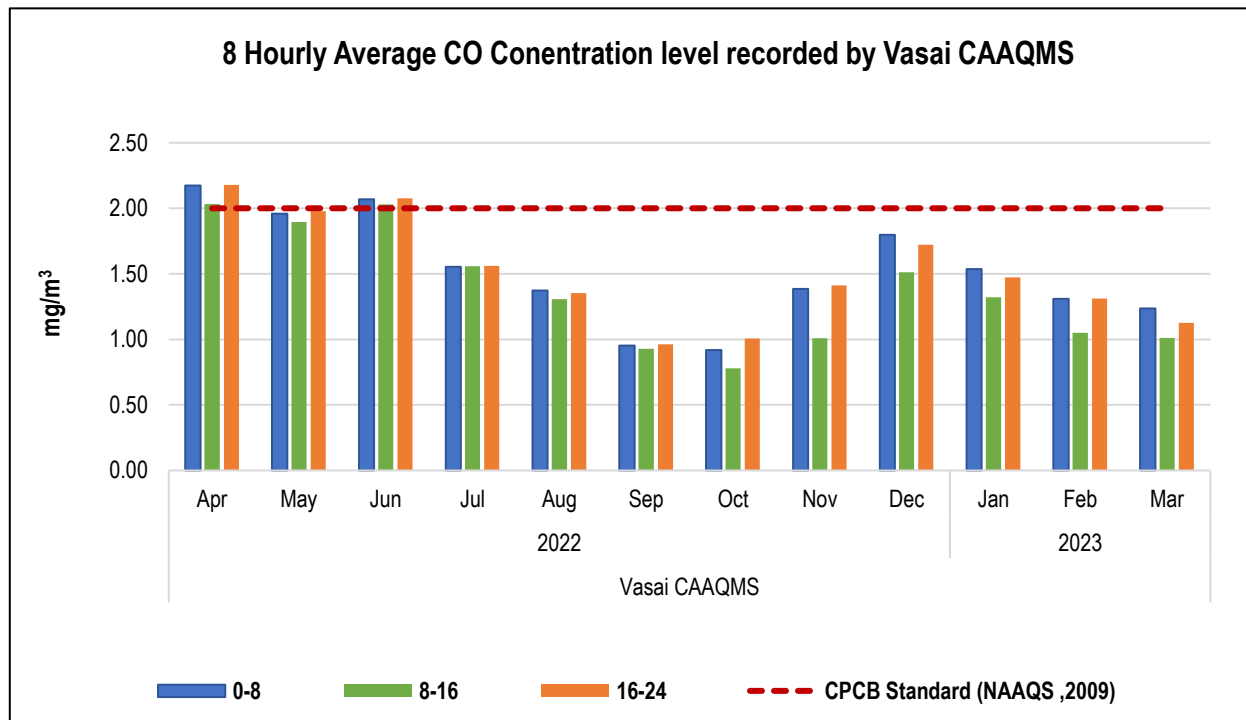


Figure No. 401 : CO concentration level recorded by CAAQMS installed in the areas under the jurisdiction of Thane RO (2)

Benzene

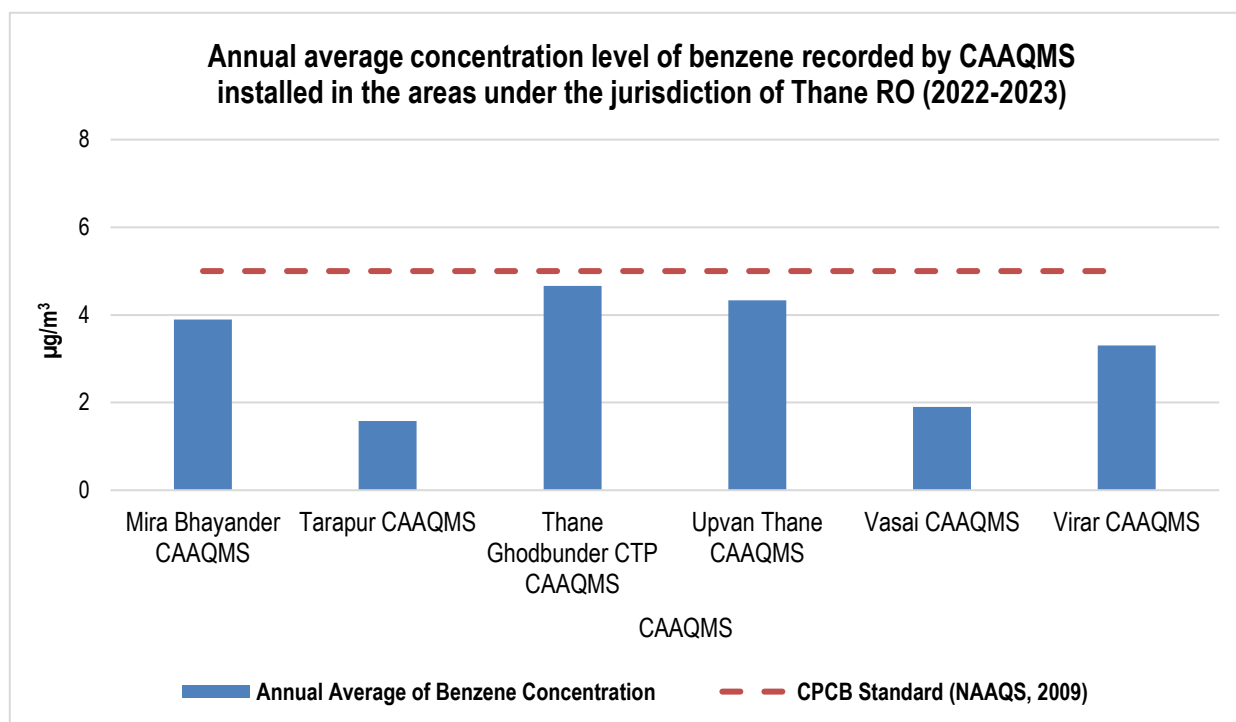


Figure No. 402: Annual average concentration of benzene recorded by CAAQMS installed in the areas under the jurisdiction of Thane RO (2022-23)

All monitoring stations installed within Thane RO's jurisdiction areas recorded annual average benzene concentration level within the permissible limit ($5 \mu\text{g}/\text{m}^3$). Thane Ghodbunder CTP CAAQMS recorded the highest annual average level of $4.66 \mu\text{g}/\text{m}^3$ whereas Tarapur CAAQMS recorded level of $1.58 \mu\text{g}/\text{m}^3$ marking the lowest concentration level amongst all other stations.

AQI percentage occurrence graphs - Thane RO

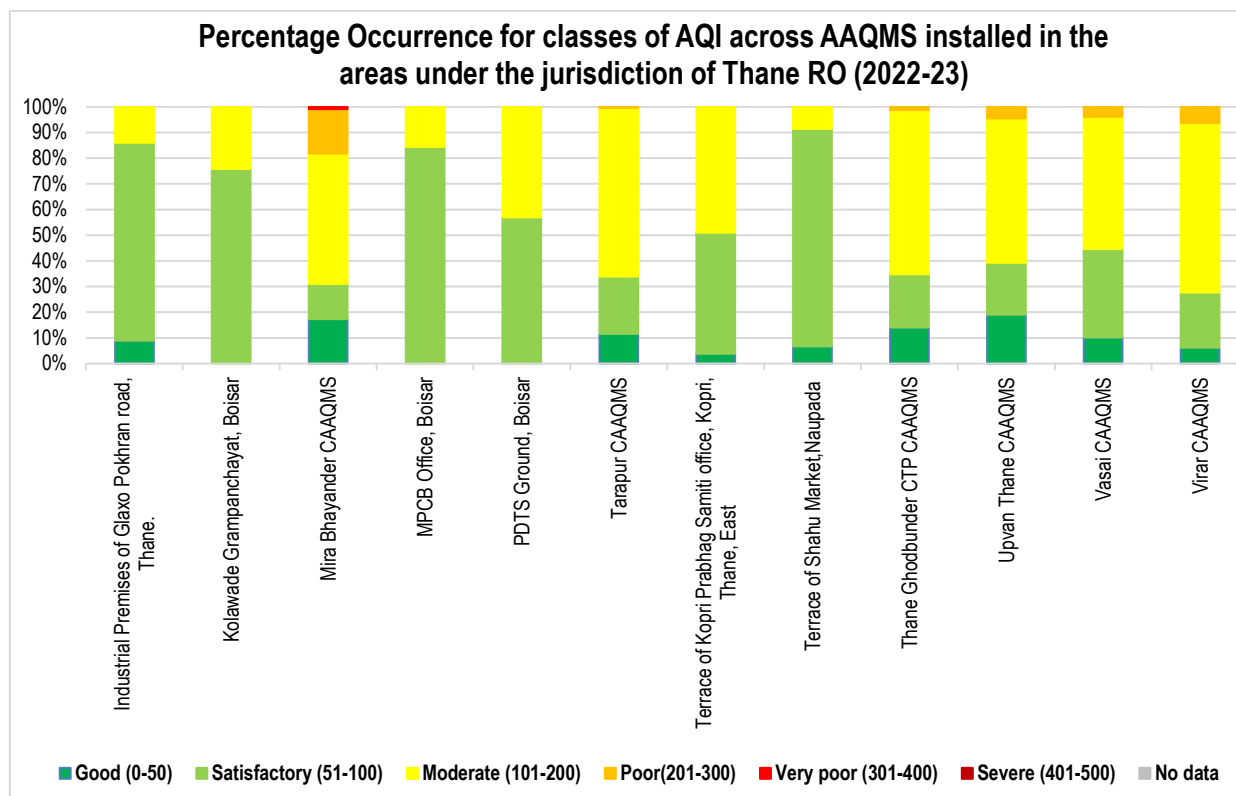


Figure No. 403: Percentage Occurrence for classes of AQI across AAQMS installed in the areas under the jurisdiction of Thane RO (2022-23)

Out of the 12 monitoring stations installed in the areas coming under the jurisdiction of Thane RO, a maximum share of observations (84.62%) under the 'Satisfactory' AQI category was recorded by AAQMS installed at Terrace of Shahu Market – Naupada followed by MPCB Office - Boisar AAQMS (84.44%). The highest share of 'Moderate' category observations were recorded by Virar CAAQMS (66.12%) followed by Tarapur CAAQMS (65.70%) and Thane Ghodbunder CTP CAAQMS (64.05%). Mira Bhayandar CAAQMS recorded about 50.83% of the total observations under the 'Moderate' category followed by 17.36% and 0.83% observations under the 'Poor' and 'Very Poor' category respectively.

Monthly and Annual Graphs

Industrial Premises of Glaxo Pokhran Road, Thane

Table No. 338: Data for Monthly average concentration recorded at Industrial Premises of Glaxo Pokhran Road, Thane

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Industrial Premises of Glaxo Pokhran Road, Thane	2022	Apr	28	39	97
		May	25	52	111
		Jun	32	71	82
		Jul	34	68	75
		Aug	26	34	64
		Sep	22	19	54
		Oct	25	56	80
		Nov	30	44	89
		Dec	29	61	73
	2023	Jan	29	51	74
		Feb	30	45	85
		Mar	29	40	85

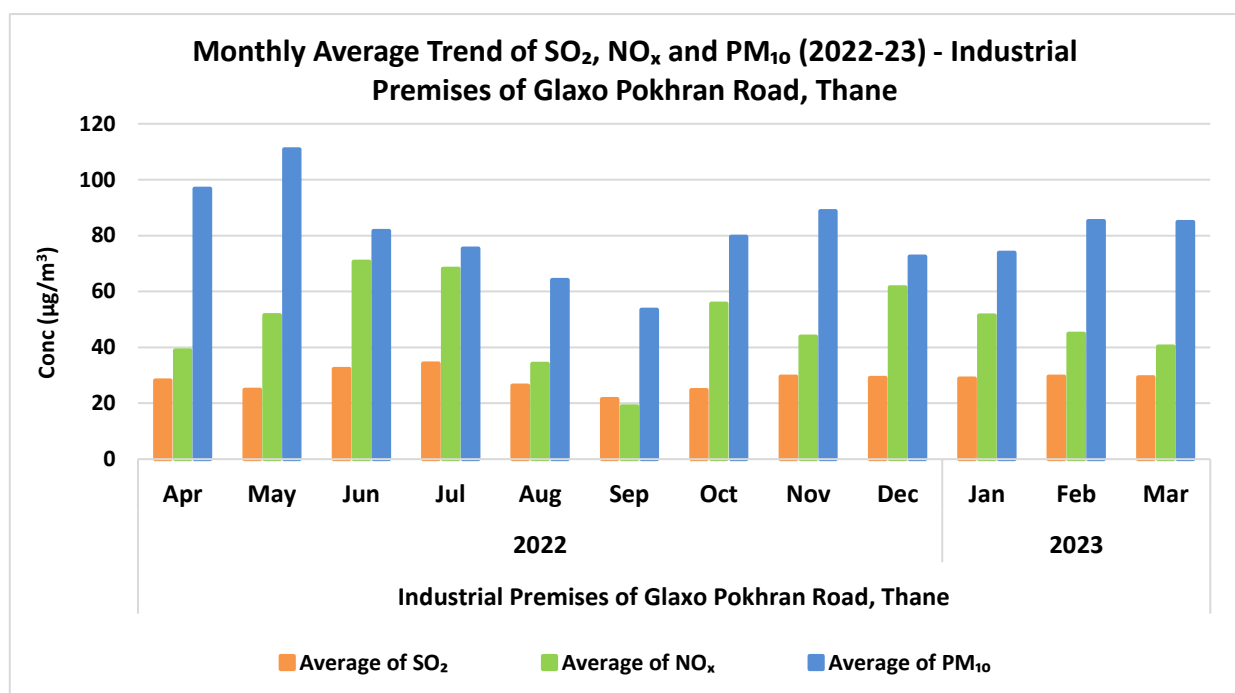
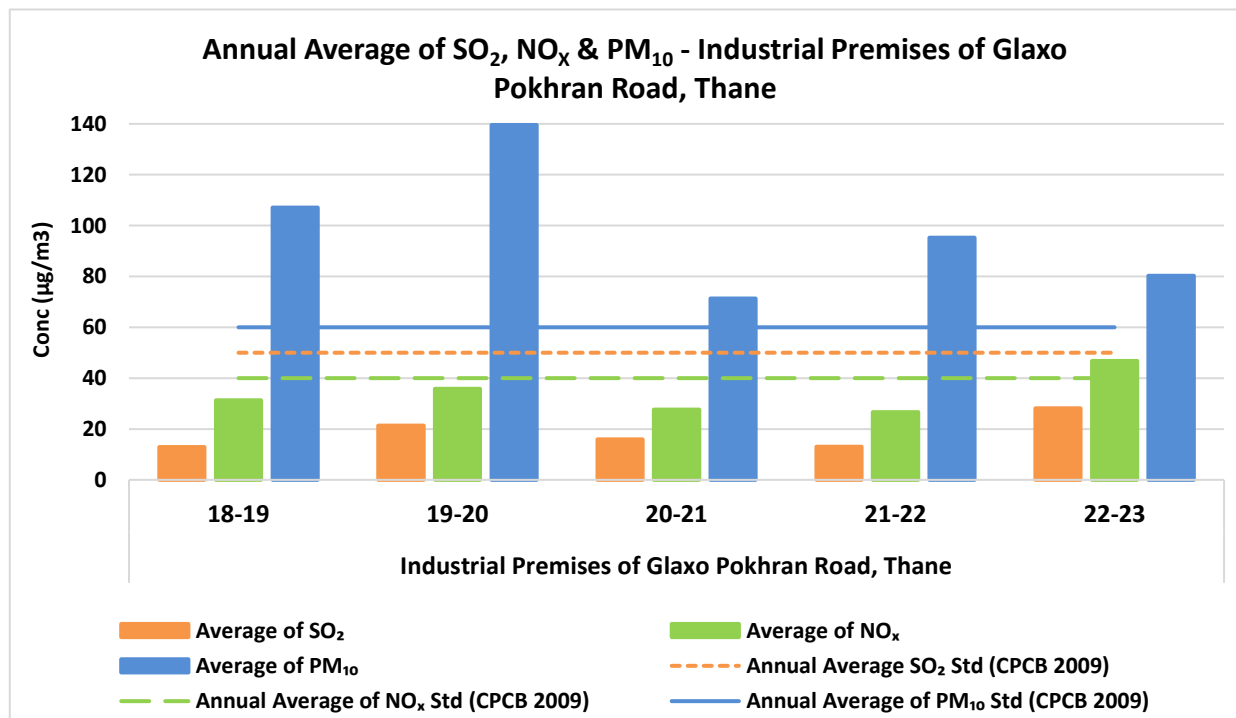


Figure No. 404: Monthly average concentration recorded at Industrial Premises of Glaxo Pokhran Road, Thane

Table No. 339: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Industrial Premises of Glaxo Pokhran Road, Thane

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Industrial Premises of Glaxo Pokhran Road, Thane	18-19	13	31	107
	19-20	21	36	140
	20-21	16	28	71
	21-22	13	27	95
	22-23	28	47	80

Figure No. 405: Annual average trend of SO₂, NO_x and PM₁₀ at Industrial Premises of Glaxo Pokhran Road, Thane

Kolawade Grampanchayat, Boisar

Table No. 340: Data for Monthly average concentration recorded at Kolawade Grampanchayat, Boisar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Kolawade Grampanchayat, Boisar	2022	Apr	20	50	64
		Jun	23	62	69
		Jul	23	52	60
		Aug	20	55	99
		Sep	20	54	43
		Oct	20	54	71
		Nov	20	55	78
		Dec	20	54	93
	2023	Jan	20	49	111
		Feb	20	48	98
		Mar	20	49	80

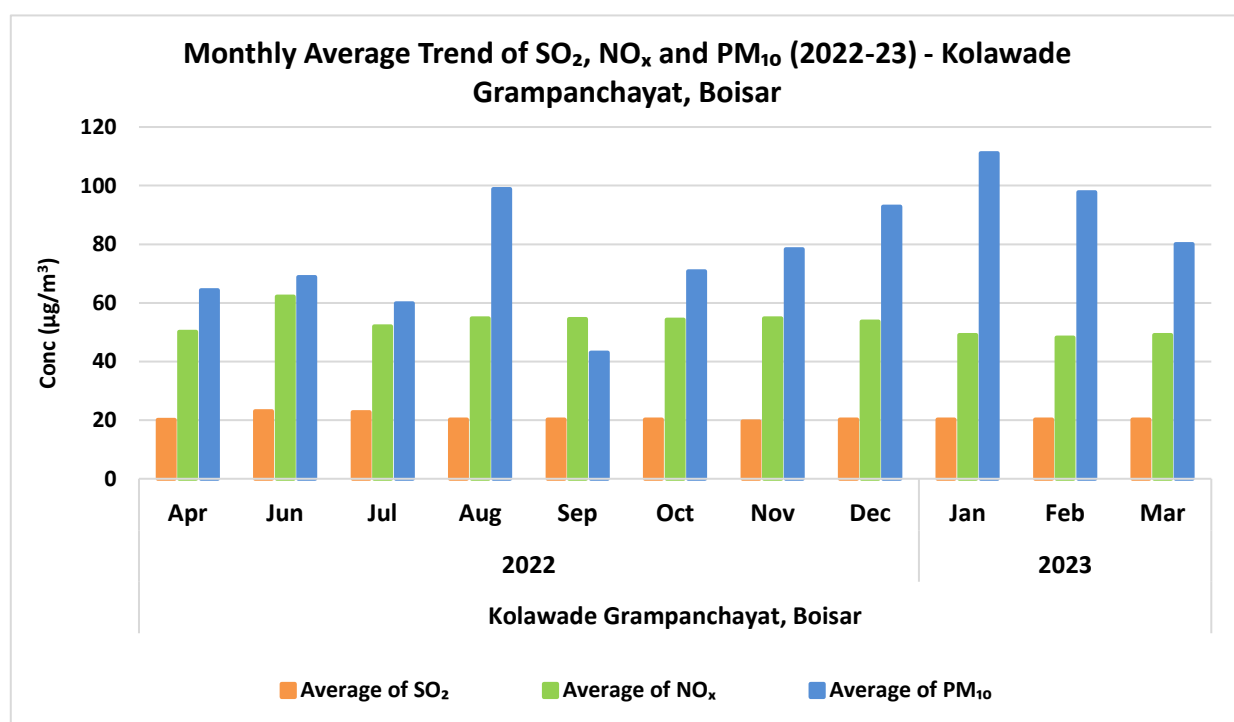
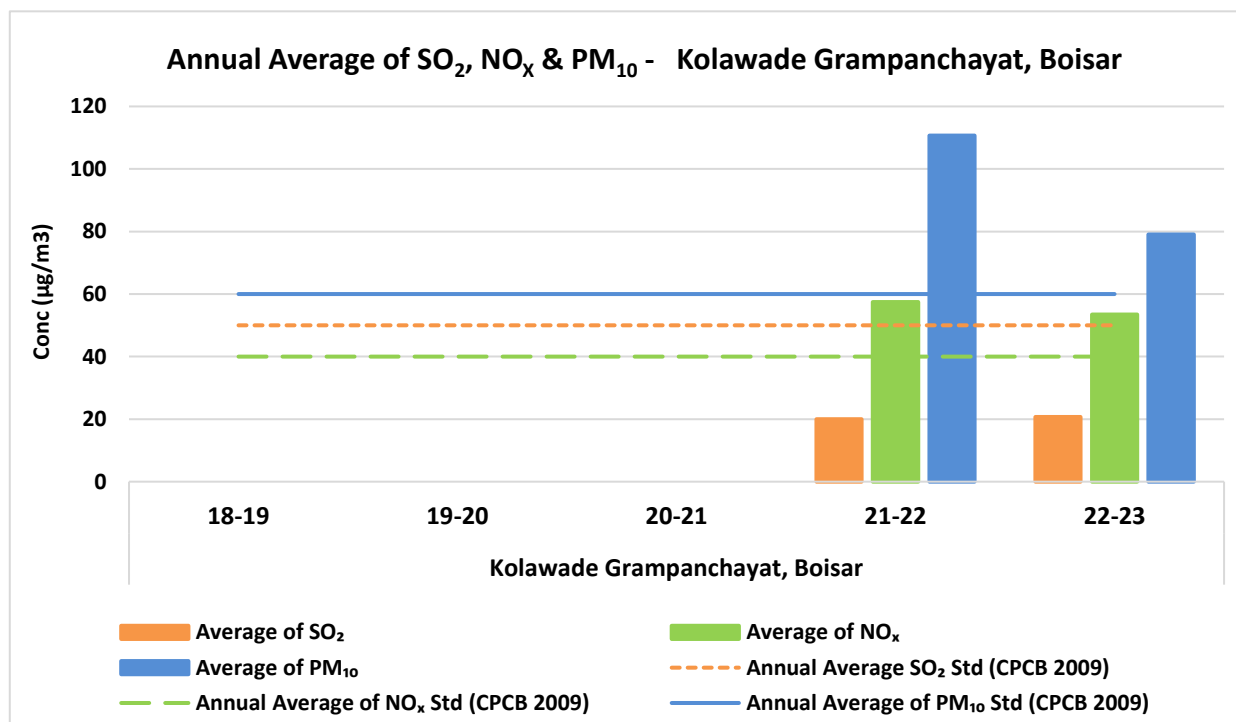


Figure No. 406: Monthly average concentration recorded at Kolawade Grampanchayat, Boisar

Table No. 341: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Kolawade Grampanchayat, Boisar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Kolawade Grampanchayat, Boisar	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	20	57	111
	22-23	21	53	79

Figure No. 407: Annual average trend of SO₂, NO_x and PM₁₀ at Kolawade Grampanchayat, Boisar

Mira Bhayander CAAQMS

Table No. 342: Data for Monthly average concentration recorded at Mira Bhayander CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Mira Bhayander CAAQMS	2022	Aug	4	6	44	18
		Sep	3	16	54	26
		Oct	6	22	120	67
		Nov	9	30	194	119
		Dec	10	32	225	139
	2023	Jan	10	30	263	146
		Feb	12	36	235	117
		Mar	9	29	168	91

Table No. 343: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Mira Bhayander CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Mira Bhayander CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	8	25	162	90

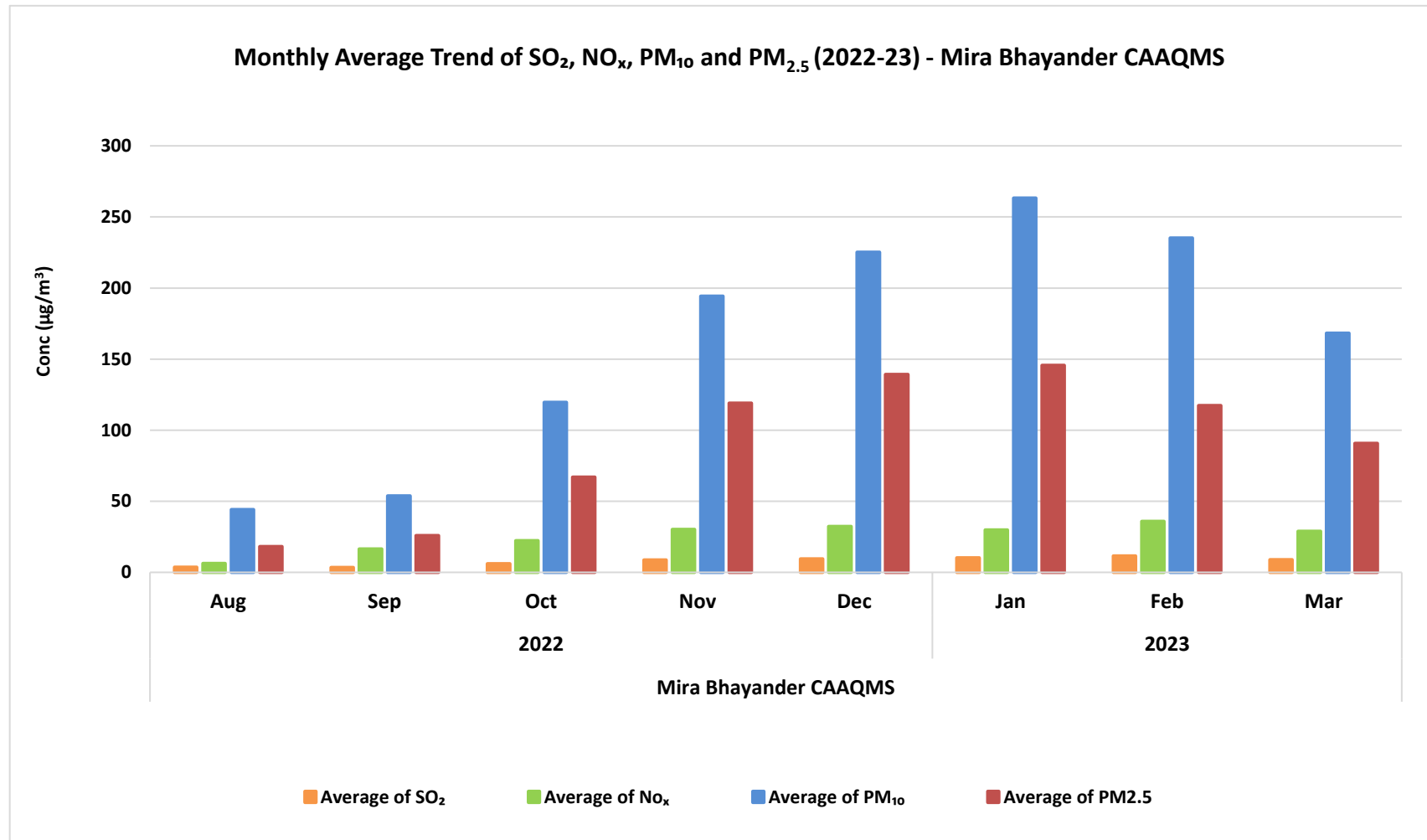


Figure No. 408: Monthly average concentration recorded at Mira Bhayander CAAQMS

MPCB Office, Boisar

Table No. 344: Data for Monthly average concentration recorded at MPCB Office, Boisar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
MPCB Office, Boisar	2022	Apr	-	57	76
		May	21	54	96
		Dec	20	47	94
	2023	Jan	20	49	104
		Feb	20	53	88
		Mar	21	58	92

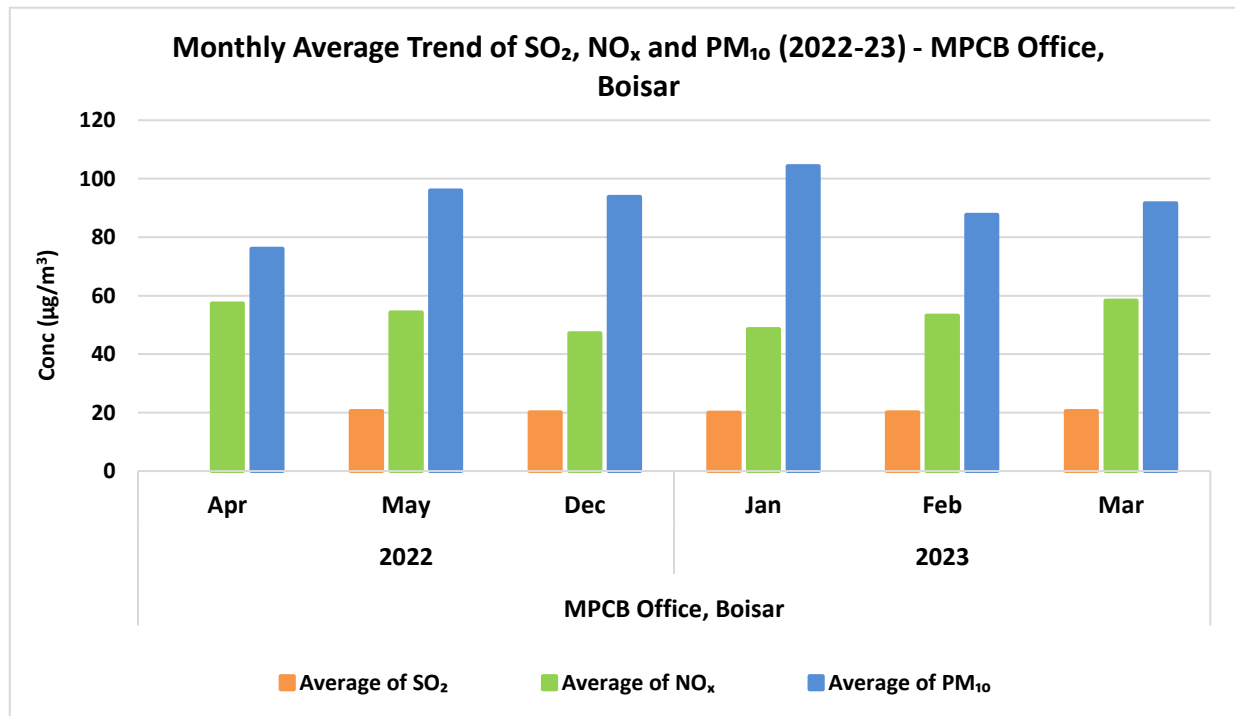
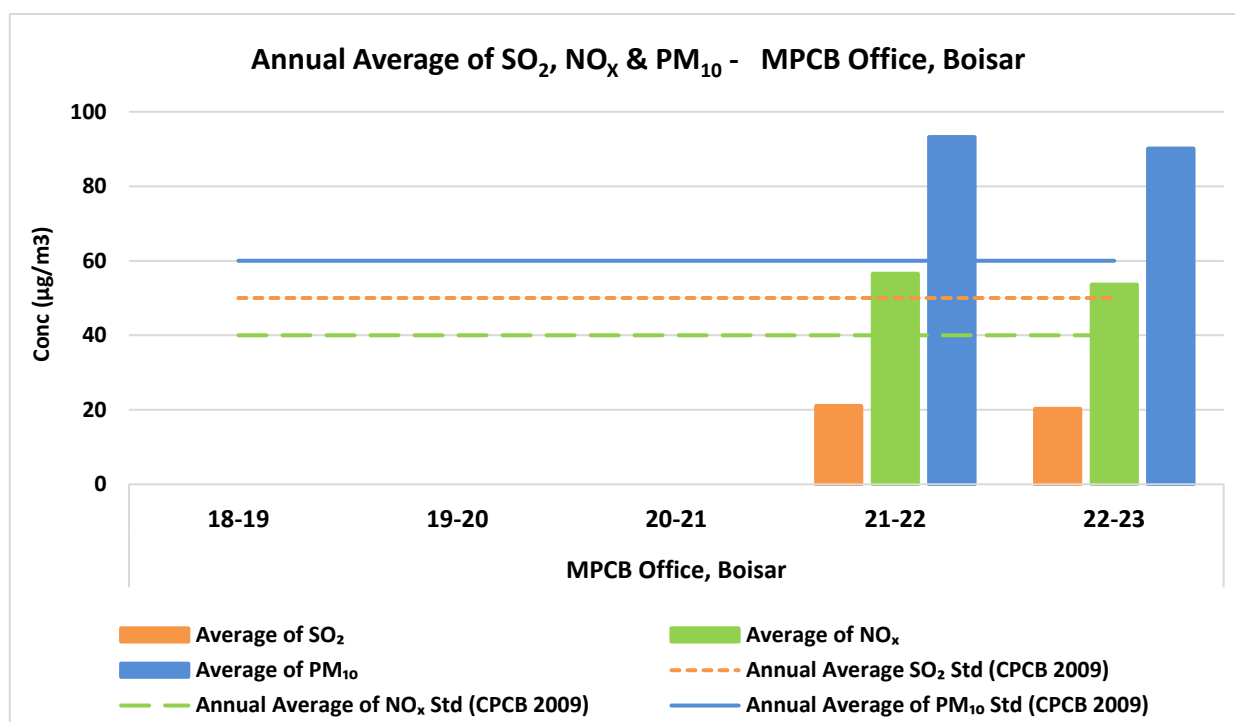


Figure No. 409: Monthly average concentration recorded at MPCB Office, Boisar

Table No. 345: Data for Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office, Boisar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
MPCB Office, Boisar	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	21	56	93
	22-23	20	54	90

Figure No. 410: Annual average trend of SO₂, NO_x and PM₁₀ at MPCB Office, Boisar

PDTS Ground, Boisar

Table No. 346: Data for Monthly average concentration recorded at PDTS Ground, Boisar

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
PDTS Ground, Boisar	2022	Apr	24	62	94
		May	-	54	111
		Jun	-	-	84
		Jul	23	57	69
		Aug	23	58	84
		Sep	23	58	62
		Oct	23	58	62
		Nov	23	58	117
		Dec	23	58	137
	2023	Jan	23	58	141
		Feb	23	59	124
		Mar	-	55	121

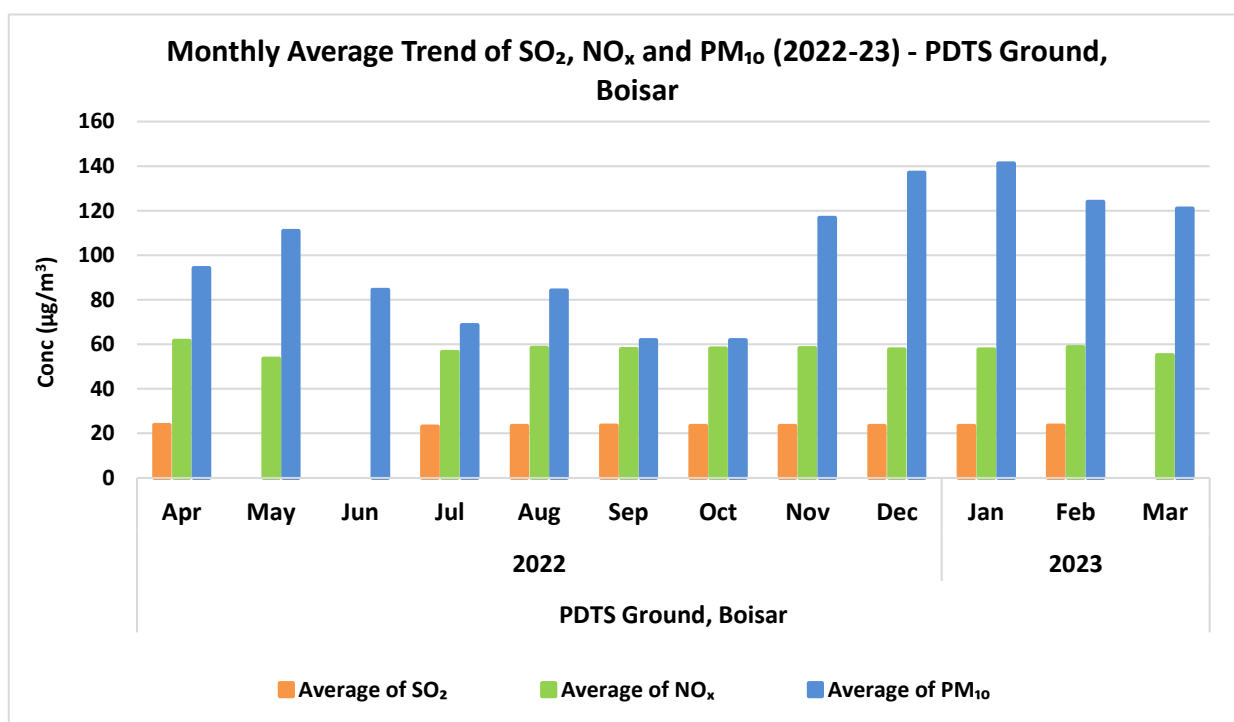
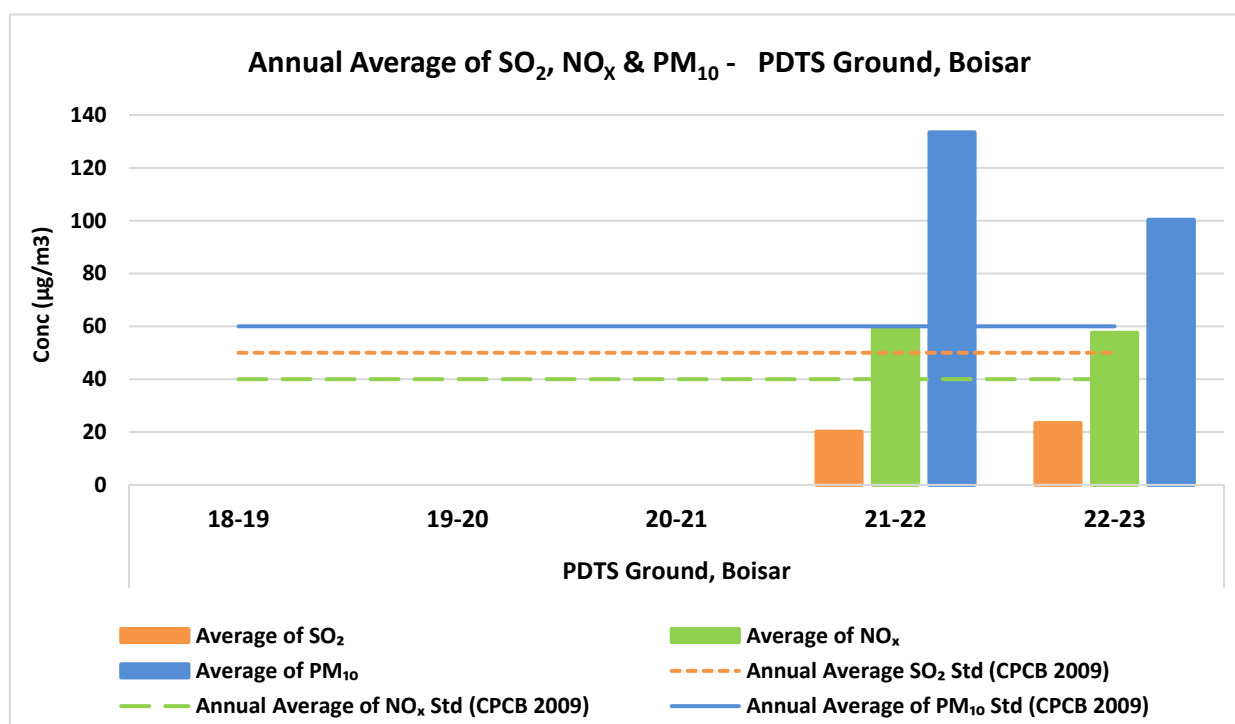


Figure No. 411: Monthly average concentration recorded at PDTS Ground, Boisar

Table No. 347: Data for Annual average trend of SO₂, NO_x and PM₁₀ at PDTs Ground, Boisar

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
PDTs Ground, Boisar	18-19	-	-	-
	19-20	-	-	-
	20-21	-	-	-
	21-22	20	59	133
	22-23	23	58	100

Figure No. 412: Annual average trend of SO₂, NO_x and PM₁₀ at PDTs Ground, Boisar

Tarapur CAAQMS

Table No. 348: Data for Monthly average concentration recorded at Tarapur CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Tarapur CAAQMS	2022	Aug	4	19	62	28
		Sep	3	25	57	25
		Oct	18	30	100	35
		Nov	38	39	157	85
		Dec	37	35	162	96
	2023	Jan	38	35	173	99
		Feb	54	47	152	83
		Mar	37	41	127	70

Table No. 349: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Tarapur CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Tarapur CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	29	34	124	65

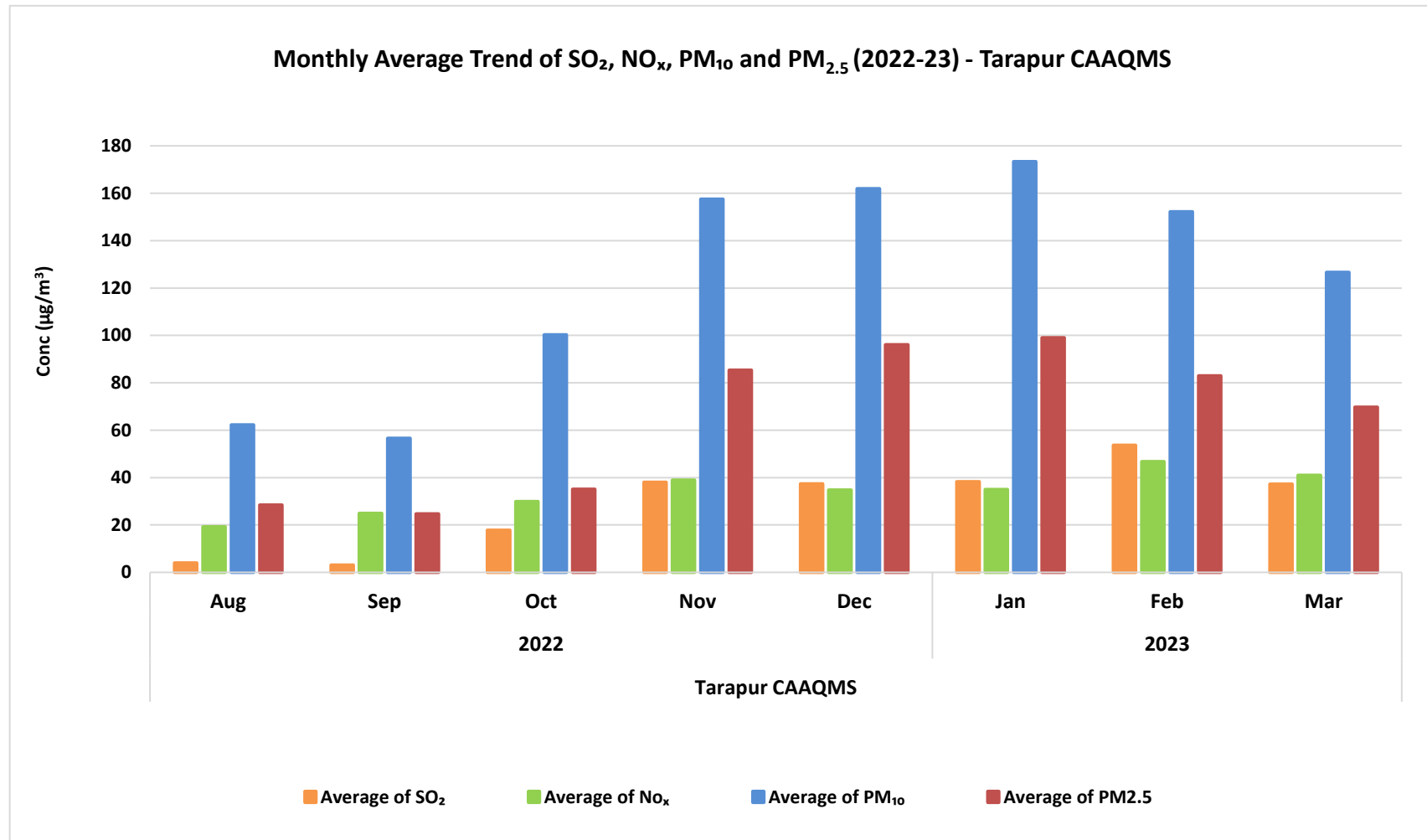


Figure No. 413: Monthly average concentration recorded at Tarapur CAAQMS

Terrace of Kopri Prabhag Samiti office, Kopri, Thane East

Table No. 350: Data for Monthly average concentration recorded at Terrace of Kopri Prabhag Samiti office, Kopri, Thane East

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Kopri Prabhag Samiti office, Kopri, Thane East	2022	Apr	33	35	139
		May	29	53	141
		Jun	38	71	69
		Jul	39	74	82
		Aug	35	63	63
		Sep	-	26	50
		Oct	27	50	105
		Nov	31	40	114
		Dec	29	61	124
	2023	Jan	29	54	130
		Feb	32	40	97
		Mar	30	42	97

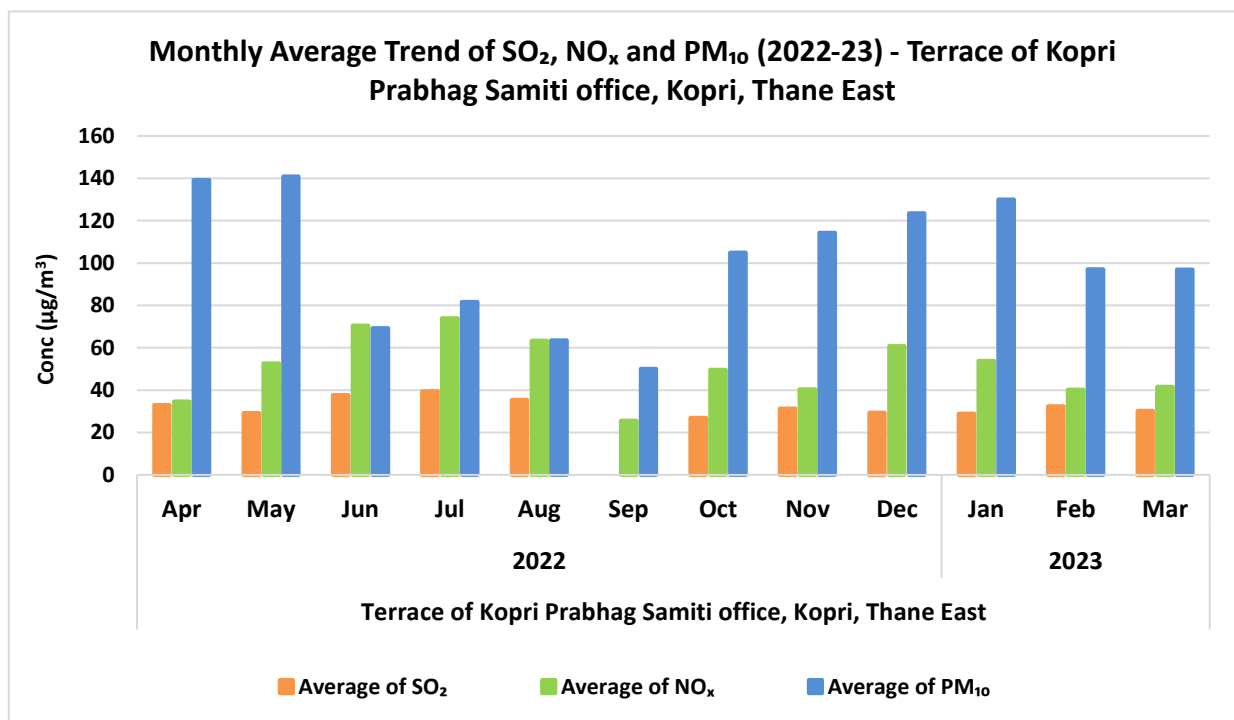
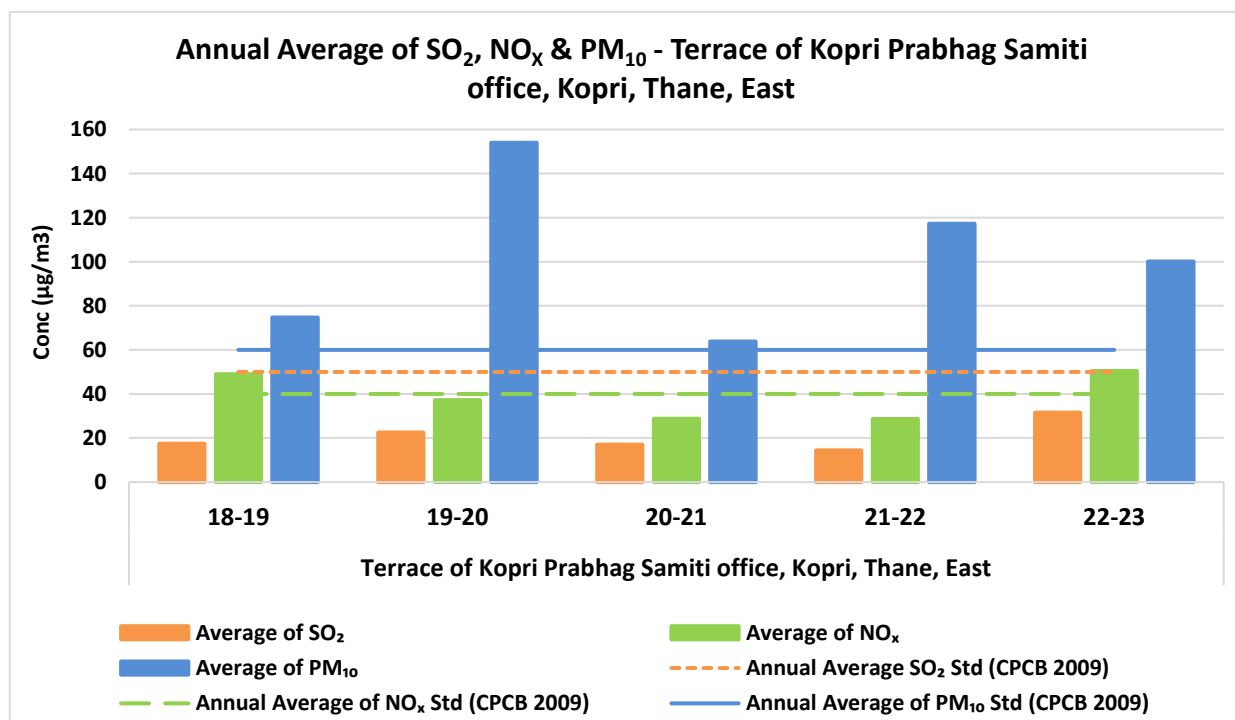


Figure No. 414: Monthly average concentration recorded at Terrace of Kopri Prabhag Samiti office, Kopri, Thane East

Table No. 351: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Kopri Prabhag Samiti office, Kopri, Thane East

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Kopri Prabhag Samiti office, Kopri, Thane, East	18-19	17	49	75
	19-20	23	37	154
	20-21	17	29	64
	21-22	14	29	117
	22-23	32	50	100

Figure No. 415: Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Kopri Prabhag Samiti office, Kopri, Thane East

Terrace of Shahu Market, Naupada

Table No. 352: Data for Monthly average concentration recorded at Terrace of Shahu Market, Naupada

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀
Terrace of Shahu Market, Naupada	2022	Apr	28	30	66
		May	31	57	81
		Jun	-	73	92
		Jul	38	76	78
		Aug	31	46	60
		Sep	18	25	79
		Oct	28	56	83
		Nov	32	40	82
		Dec	28	63	90
	2023	Jan	28	49	86
		Feb	30	41	83
		Mar	25	40	90

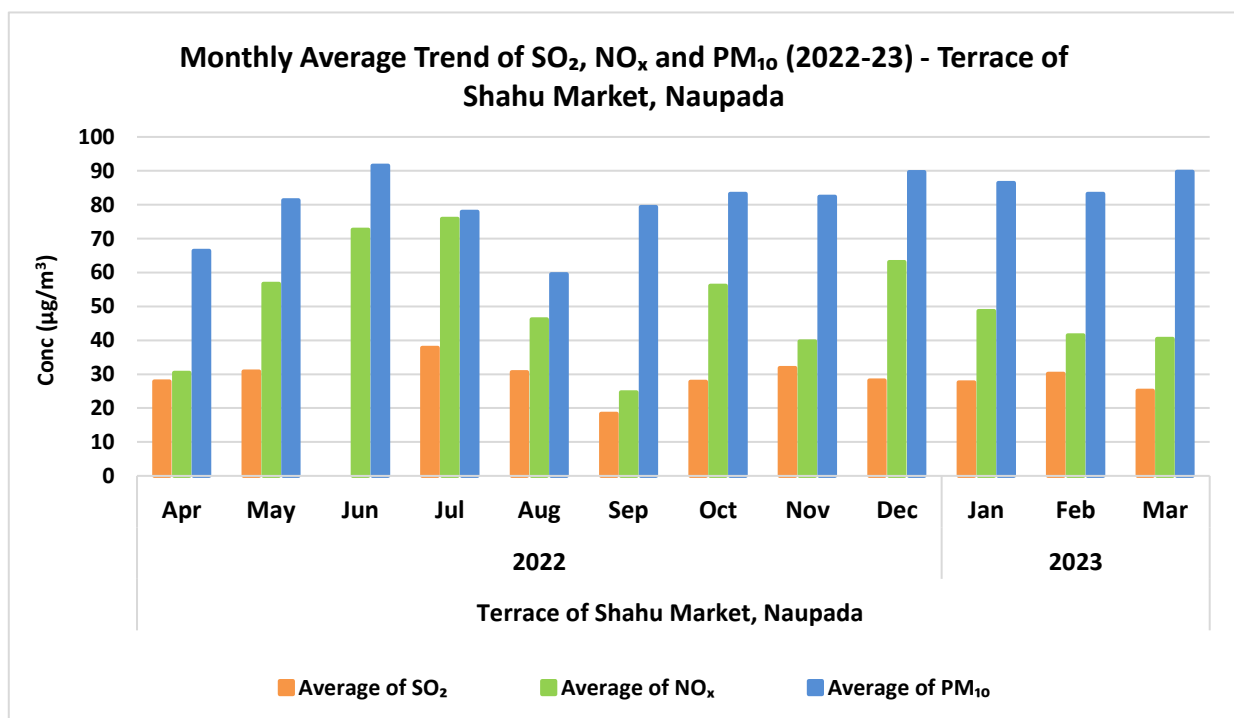
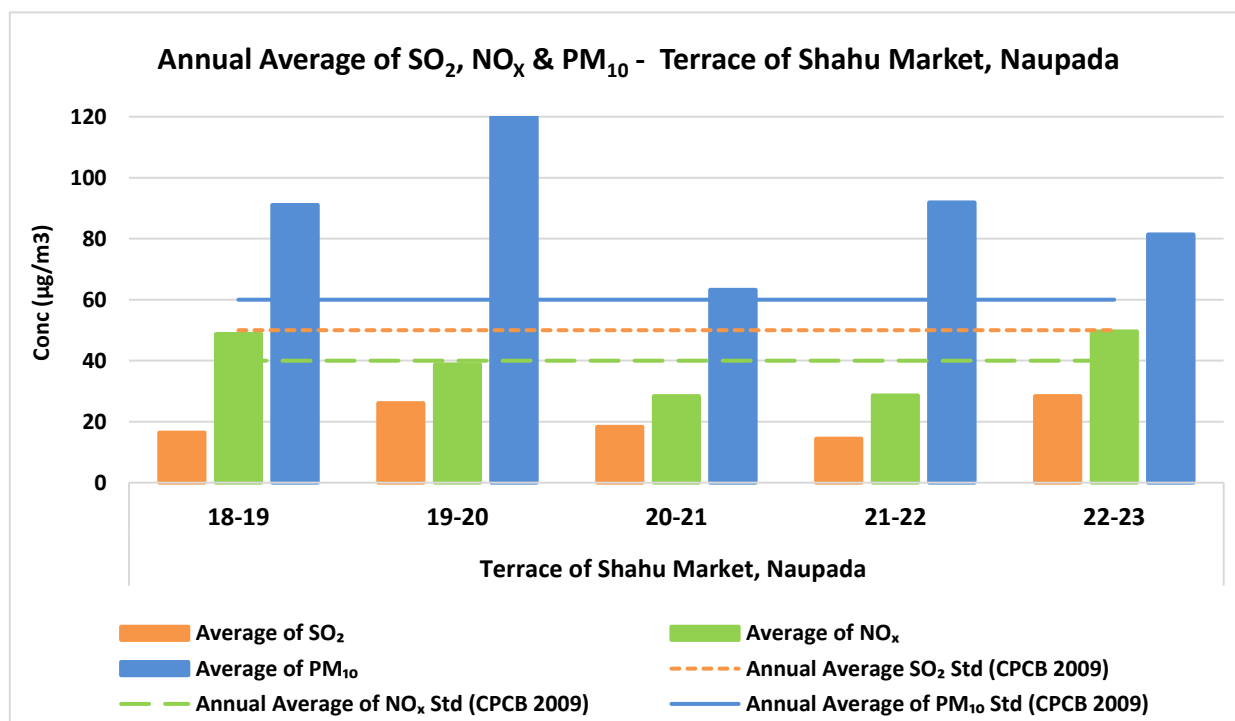


Figure No. 416: Monthly average concentration recorded at Terrace of Shahu Market, Naupada

Table No. 353: Data for Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Shahu Market, Naupada

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀
		50	40	60
Terrace of Shahu Market, Naupada	18-19	16	49	91
	19-20	26	39	153
	20-21	18	28	63
	21-22	14	29	92
	22-23	28	50	81

Figure No. 417: Annual average trend of SO₂, NO_x and PM₁₀ at Terrace of Shahu Market, Naupada

Thane Ghodbunder CTP CAAQMS

Table No. 354: Data for Monthly average concentration recorded at Thane Ghodbunder CTP CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Thane Ghodbunder CTP CAAQMS	2022	Aug	4	11	50	17
		Sep	4	15	54	23
		Oct	5	17	100	55
		Nov	8	25	166	108
		Dec	10	24	156	105
	2023	Jan	11	28	158	104
		Feb	16	37	178	107
		Mar	10	27	141	82

Table No. 355: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Thane Ghodbunder CTP CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Thane Ghodbunder CTP CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	8	23	125	75

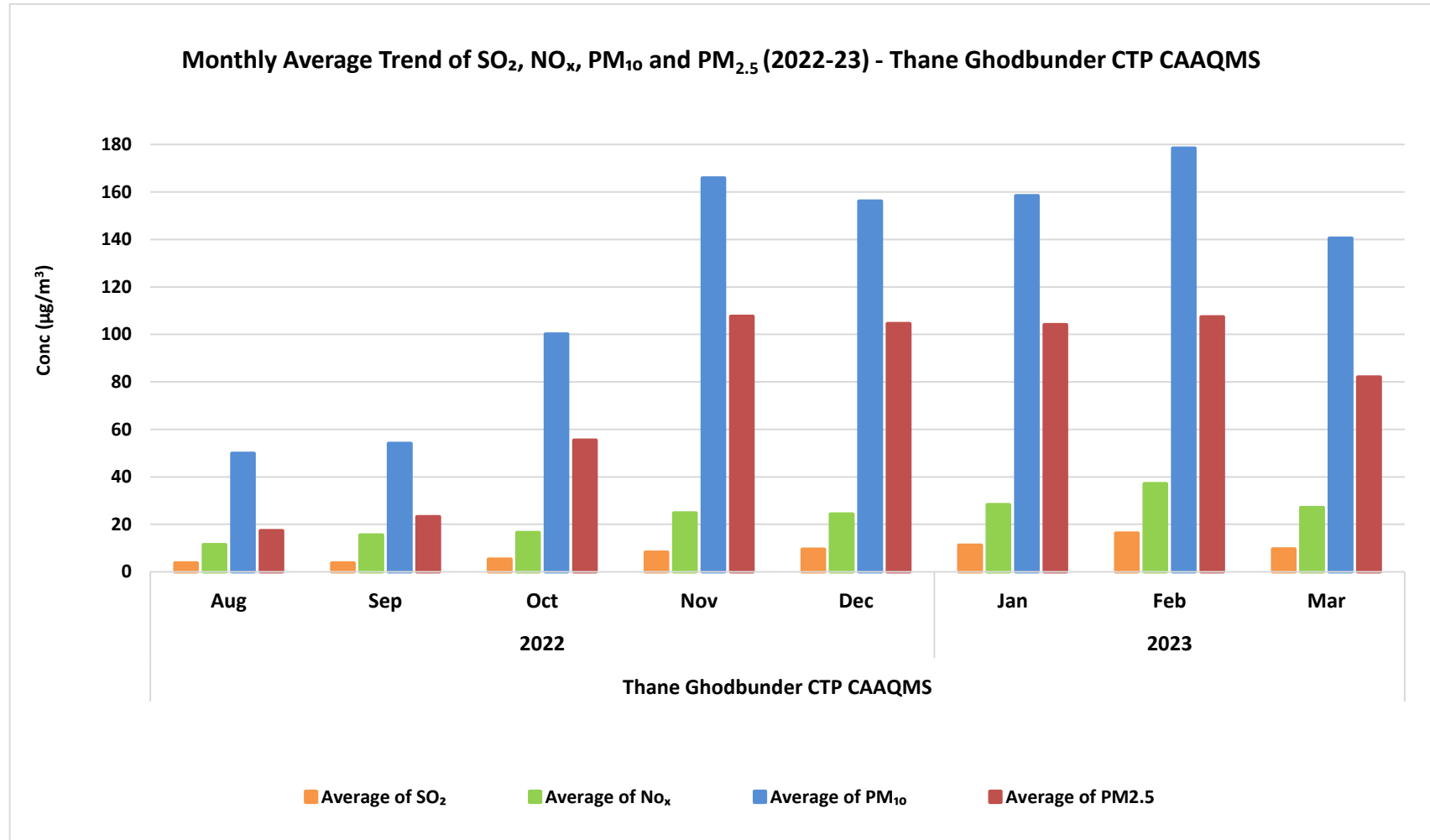


Figure No. 418: Monthly average concentration recorded at Thane Ghodbunder CTP CAAQMS

Upvan Thane CAAQMS

Table No. 356: Data for Monthly average concentration recorded at Upvan Thane CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Upvan Thane CAAQMS	2022	Aug	3	8	44	15
		Sep	4	14	48	20
		Oct	7	16	110	50
		Nov	13	22	167	78
		Dec	16	39	179	85
	2023	Jan	15	27	164	81
		Feb	23	22	137	70
		Mar	16	18	161	68

Table No. 357: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Upvan Thane CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Upvan Thane CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	12	21	126	58

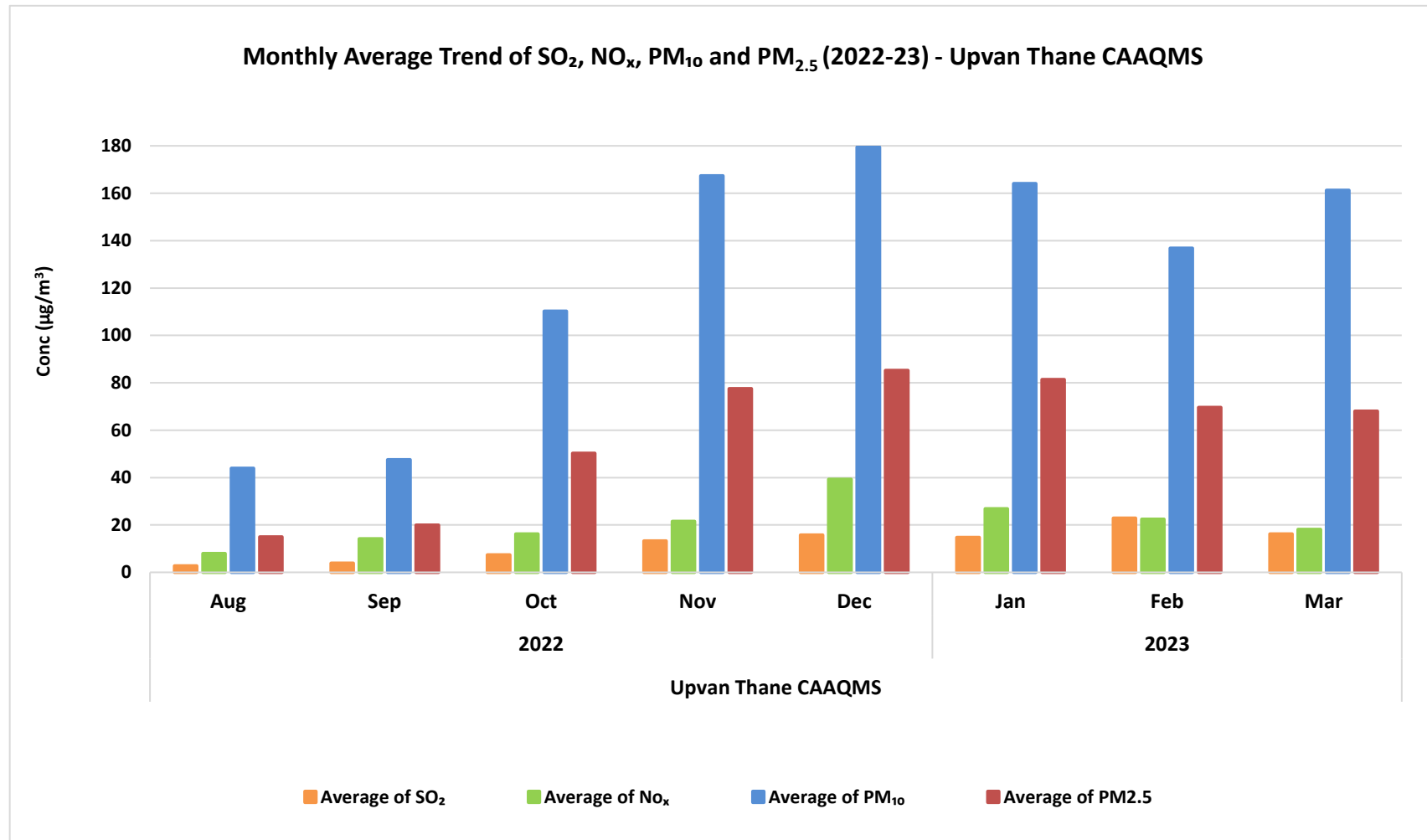


Figure No. 419: Monthly average concentration recorded at Upvan Thane CAAQMS

Vasai CAAQMS

Table No. 358: Data for Monthly average concentration recorded at Vasai CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Vasai CAAQMS	2022	Apr	22	39	133	40
		May	20	16	125	33
		Jun	25	29	69	17
		Jul	15	36	62	17
		Aug	13	22	52	15
		Sep	8	37	66	20
		Oct	11	40	79	35
		Nov	16	46	163	84
		Dec	20	29	211	95
	2023	Jan	18	30	181	89
		Feb	15	25	189	78
		Mar	15	32	166	65

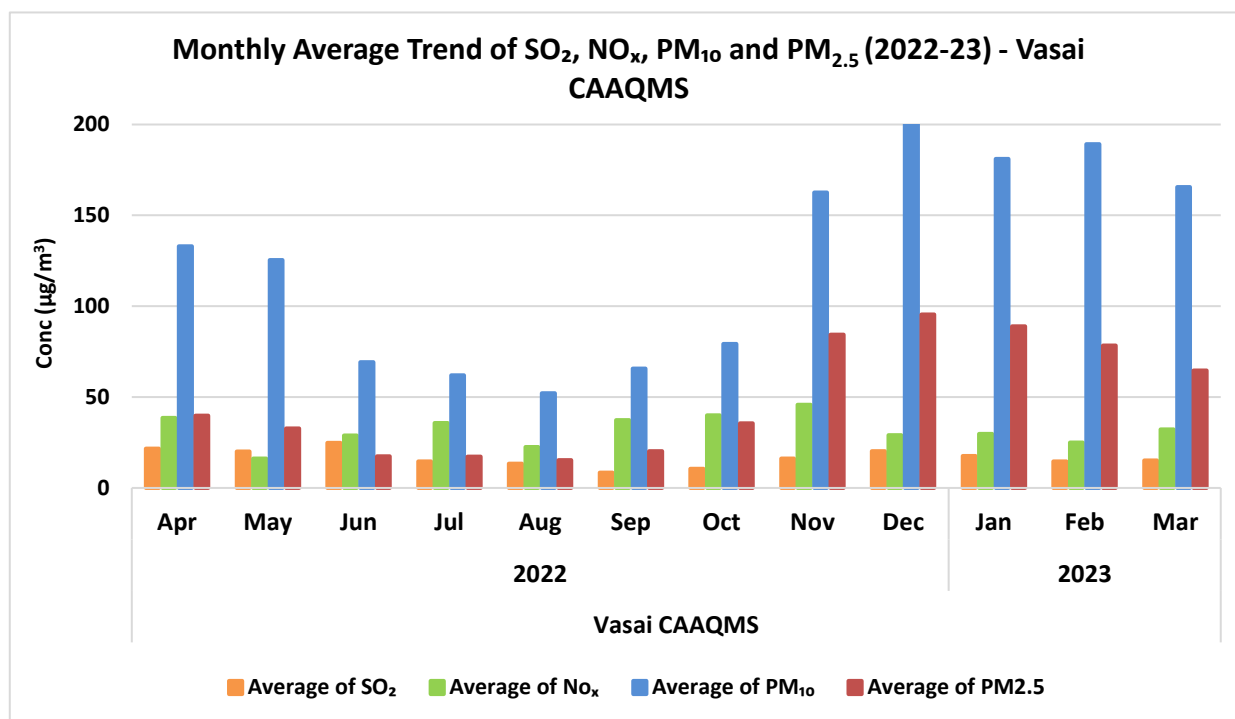
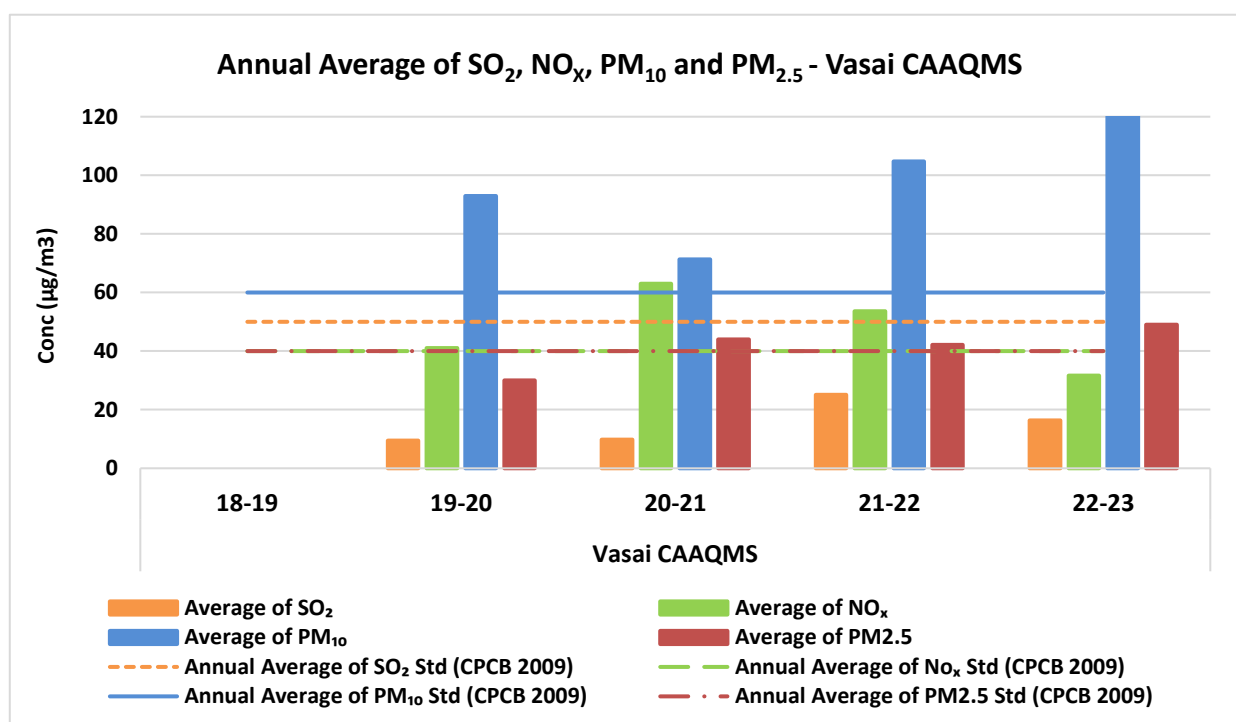


Figure No. 420: Monthly average concentration recorded at Vasai CAAQMS

Table No. 359: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Vasai CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Vasai CAAQMS	18-19	-	-	-	-
	19-20	9	41	93	30
	20-21	10	63	71	44
	21-22	25	54	105	42
	22-23	16	32	124	49

Figure No. 421: Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Vasai CAAQMS

Virar CAAQMS

Table No. 360: Data for Monthly average concentration recorded at Virar CAAQMS

Station Name	Year	Month	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
Virar CAAQMS	2022	Aug	5	19	66	25
		Sep	5	28	68	36
		Oct	7	25	117	54
		Nov	11	28	182	117
		Dec	12	27	199	138
	2023	Jan	14	26	205	118
		Feb	20	28	185	92
		Mar	9	34	166	82

Table No. 361: Data for Annual average trend of SO₂, NO_x, PM₁₀ and PM_{2.5} at Virar CAAQMS

Station Name	Year	Average of SO ₂	Average of NO _x	Average of PM ₁₀	Average of PM _{2.5}
		50	40	60	40
Virar CAAQMS	18-19	-	-	-	-
	19-20	-	-	-	-
	20-21	-	-	-	-
	21-22	-	-	-	-
	22-23	10	27	148	83

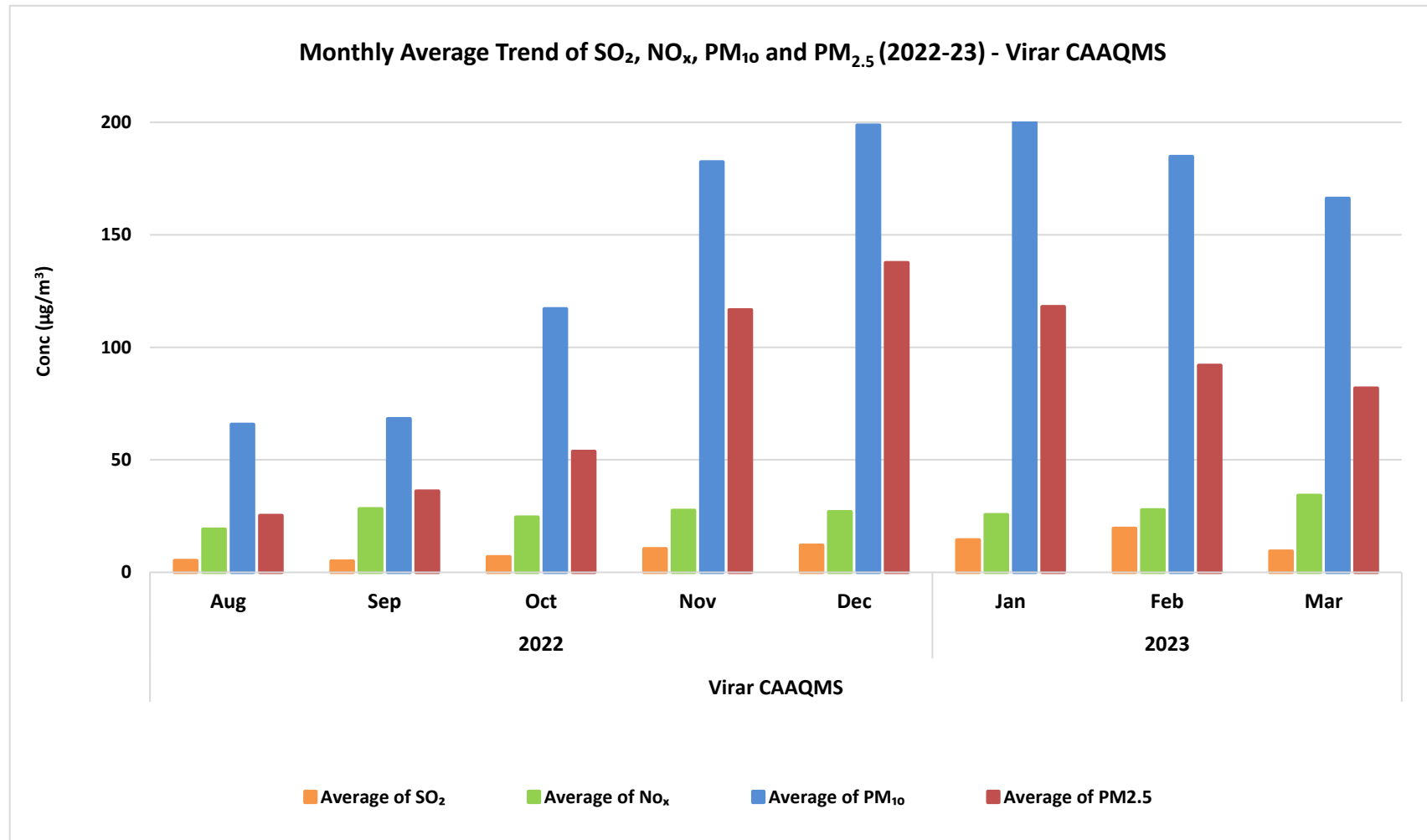


Figure No. 422: Monthly average concentration trend of SO₂, NO_x, PM₁₀ and PM_{2.5} recorded at Virar CAAQMS

Table No. 362: Percentage exceedance of pollutants at Thane RO

Station Name	Number of Observations				Number of Exceedance				% Exceedance			
	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}	SO ₂	NO _x	PM ₁₀	PM _{2.5}
Industrial Premises of Glaxo Pokhran road, Thane	71	95	75	0	0	2	12	0	0	2	16	0
Kolawade Grampanchayat, Boisar	87	82	89	0	0	0	23	0	0	0	26	0
Mira Bhayander CAAQMS	241	241	242	242	0	3	167	152	0	1	69	63
MPCB Office, Boisar	35	45	30	0	0	0	0	0	0	0	23	0
PDTs Ground, Boisar	73	76	97	0	0	0	43	0	0	0	44	0
Tarapur CAAQMS	238	231	238	238	1	23	158	129	0	10	66	54
Terrace of Kopri Prabhag Samiti office, Kopri, Thane, East	67	104	101	0	0	4	46	0	0	4	46	0
Terrace of Shahu Market, Naupada	70	98	73	0	0	2	6	0	0	2	8	0
Thane Ghodbunder CTP CAAQMS	236	237	242	242	0	6	158	145	0	3	65	60
Upvan Thane CAAQMS	238	239	241	241	0	0	147	122	0	0	61	51
Vasai CAAQMS	362	364	363	365	0	0	202	128	0	0	56	35
Virar CAAQMS	233	234	239	241	0	4	174	146	0	2	73	61

Conclusion

Conclusion

The anthropogenic pressures have caused a consequential change in the composition of atmosphere and significantly increased the amount of greenhouse gases in the atmosphere especially after the industrial revolution. This has resulted in frequent occurrence and severity of climate related events such as extreme droughts, floods, wildfires along with increased level of pollution and its associated impacts on humans and the environment. The issue of air pollution is a pressing environmental issue that has significant risks for both human health and the planet. The detrimental effects of air pollution have gained increasing attention due to its adverse impacts on various aspects of life. It is thus necessary to continuously monitor air quality and take decisions on preventive measures to mitigate the air pollution.

MPCB continuously monitors the air quality through 175 AQMS installed across 12 RO's in the state. These monitoring stations monitors the concentration level of criteria air pollutants (SO_2 , NO_x , Particulate matter $\{\text{PM}_{10}$ & $\text{PM}_{2.5}\}$) on regular basis. In the year 2022-23, all monitoring stations installed in the state of Maharashtra recorded annual average SO_2 concentration levels which were found to be under the prescribed annual standard limit of $50 \mu\text{g}/\text{m}^3$. It is important to note that the top 3 monitoring stations which recorded highest annual average SO_2 concentration levels (though under the limit) lies in the area that comes under the jurisdiction of Kalyan RO. This region houses one of the oldest and largest industrial complexes and witnessing rapid urbanization and developmental activities. These could be the major sources of SO_2 emissions in the atmosphere.

The rise in urbanization and industrialization, is coupled with population growth in urban areas due to migration, increased vehicular movement, traffic congestion to name a few. The emissions from these vehicles are further fueling the concentration level of pollutants in the atmosphere. This is evident due to the fact that majority of the monitoring stations which recorded annual average concentration of NO_x higher than the permissible limit are installed in the regions of Mumbai, Navi Mumbai, Kalyan, Thane and Pune. Implementation and practicing of appropriate vehicular norms and ease of traffic congestion is highly desirable especially in densely populated cities/urban areas which are witnessing high concentration levels of NO_x . Appropriate traffic management and strict adherence to traffic rules may also help in reducing the traffic congestion and help in reducing NO_x concentrations in those areas.

The intensity of PM_{10} pollution was found to be very high and widespread in the state of Maharashtra due to the fact that 153 monitoring stations out of 175 have recorded annual average PM_{10} concentration level higher than the standard prescribed limit ($60 \mu\text{g}/\text{m}^3$) set by CPCB. Apart from the areas coming under the Chandrapur RO which consistently shown the higher levels of PM_{10} , other regions too have recorded higher concentration levels. This issue could be attributed to the fast paced developmental activities of various infrastructural (residential, commercial, industrial) projects that are currently in various phases of development. These operations are primarily responsible for emissions of pollutants including Particulate matter (PM_{10} and $\text{PM}_{2.5}$). Apart from these, dust kicked up by vehicles

plying on the roads, vehicular emissions, quarrying and mining activities also contribute significantly in the emission of particulate matter in the air.

The intensity of Benzene pollution was predominantly seen higher in the areas coming under the Kalyan and Navi Mumbai RO. The main reasons for the high level of concentration level could be attributed to industrial and vehicular emissions; the issues which are readily faced by the regions of Kalyan and Navi Mumbai.

Considering the expanse and complexity of air pollution in the state of Maharashtra, stringent action and mitigative measures needs to be taken to curb the level of air pollutants in the atmosphere. The strict implementation of such measures would not only help improve the air quality but would also help reducing the air pollution associated health impacts. One such initiative is National Clean Air Programme (NCAP), first-ever effort in the country to prepare a national framework for air quality management with a time-bound reduction target. The NCAP provides cities an overall framework for developing air quality management plans, with guidance on policies across a range of sectors. Launched in 2019, NCAP revised its target to reduction of particulate matter to 40% by 2026 updating the earlier goal of 20% to 30% reduction by 2024 in the cities covered under the programme¹⁵.

¹⁵ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909910>

Mitigation Measures and Recommendations

Mitigation Measures and Recommendations

The worsening of air quality especially in the urban environment has gathered considerable interest amongst the scientific community and public due to the strong relationship between exposure to air pollution and increased harmful short and long-term health effects on human health. Effective mitigation measures need to be implemented for the sake of the environment and human health. By looking at the increasing trend of air pollution, to address and minimize air pollution, source-specific guidelines need to be prepared and implemented

No.	Pollutant	Permissible limit as per CPCB	Cities wherein AQMS recorded predominantly higher concentration level of pollutants than the permissible limit	Major Sources
1	NO _x	40 µg/m ³ (Annual Average)	Mumbai, Navi Mumbai, Pune, Thane and Kalyan	Emissions from Transport, Industries and Power sector
Sector-specific mitigation measures				
1A	Transport*	<ul style="list-style-type: none"> • Switch to low sulphur fuel (10 ppm) and implement Bharat VI (similar to Euro VI) standards for engine emissions which require tail-pipe controls like selective catalytic reduction for NO_x and diesel particulate filters for PM • Implementing fleet modernization scheme (phase-wise transforming pre BS-IV commercial vehicles to BS-VI) • Enhancement of public transport system preferably on electric modes. Installation of electric charging infrastructure. • Regular checking of Vehicular emissions and issue of Pollution under Control Certificate (PUC). • Implement National Biofuel Policy 2018: Blending of ethanol with petrol. • Launch Extensive drives against polluting vehicles to ensure strict compliance. • Creation of green buffers along the traffic corridors and their maintenance. • Introduce water fountains at major traffic intersections. <p>In addition to the above measures, it is suggested to emphasize the importance of regular maintenance for diesel particulate filters and selective catalytic reduction systems. Provide incentives for the transition to electric vehicles.</p>		
1B	Industries*	<ul style="list-style-type: none"> • Deploy National Emission Trading Schemes (ETS) with cap and trade for power generation and other large polluting industries. • Enforcement of new and stringent SO₂/NO_x/ PM_{2.5} standards for industries using solid fuels. • Introduction and shifting towards cleaner fuels in industries. • Enforcement of zig-zag brick technology for brick kilns. • Ensure installation/Up-gradation and operation of air pollution control devices in industries. • Implement a Continuous Emission Monitoring System (CEMS) across all targeted and applicable polluting industries. <p>In addition, it's suggested to specify penalties for non-compliance & consider incentives for industries adopting cleaner technologies.</p>		

1C	Power	<ul style="list-style-type: none">• Emphasis on improved power reliability to eliminate the operation of Diesel Generator (DG) sets.• Expansion of renewable (RE) power initiatives prioritizing the use of the existing framework of the National Clean Air Programme (NCAP) in non-attainment cities.• Phasing out older coal-based power plants and converting specific coal-based power plants to natural gas. <p>In addition to the above measures, it is suggested to specify strategies for the transition from coal to natural gas in a phased manner and consider outlining policies to encourage renewable energy adoption in the residential sector.</p>		
No.	Pollutant	Permissible limit as per CPCB	Cities wherein AQMS recorded predominantly higher concentration levels of pollutants than the permissible limit	Major Sources
2	PM ₁₀	60 µg/m ³ (Annual Avg.	Predominantly throughout the state	Emissions from Transport, Industries, Construction sites, Road dust, Residential/Commercial sector
	PM _{2.5}	40 µg/m ³ (Annual Avg.	Amravati, Aurangabad, Kalyan, Nagpur, Nashik, Navi Mumbai, Pune, Raigad, Thane	
Sector-specific mitigation measures				
2A	Transport (*In addition to measures mentioned in Point 1A)	<ul style="list-style-type: none">• Designated parking areas should be identified and violation charges of vehicular parking should be implemented and strictly followed. One-way traffic flow may be implemented on the major roads of the area during the rush hours of the day (8 AM to 8 PM). This can reduce the traffic volume in the area and improve the flow of traffic on the major roads of the area.• Congestion pricing should be implemented in areas with high traffic density, especially in the commercial areas.• All major city roads should have designated IC engine-free lanes. Traffic police should maintain the lane with the provision of heavy fines for the violators. This may gradually shift people from the use of 2-wheeler vehicles to bicycles.		
2B	Industries (*In addition to Point 1B)	<ul style="list-style-type: none">• Complete banning of industries using pet coke and furnace oil and replace with Coal and Light Diesel Oil (LDO).• All industries using biomass or biomass briquettes as fuel should be shifted to biochar briquettes which can be produced from the surplus crop residues in agricultural fields. The study has reported that the emission of PM_{2.5} from the biochar briquettes can be reduced by up to 90% compared to the emission from the biomass briquettes.		
2C	Construction sites	<ul style="list-style-type: none">• Ensure transportation of construction materials in covered vehicles• Strict enforcement of CPCB guidelines for construction (use of green screens, side covering of digging sites, etc.)• Restriction on storage of construction materials along the road.• At all construction sites, the water sprinkling to be done on debris that are likely to produce airborne particulate matter.• Promote recycling of construction and demolition waste.• All construction sites are required to transport the waste generated during construction and demolition (C&D) within the premises or site of work to designated unloading site strictly as per C & D Waste Management Plan <p>In addition, it is suggested to explore additional measures for reducing dust during construction activities. Consider tax incentives for companies engaging in sustainable construction practices</p>		

2D	Road dust	<ul style="list-style-type: none"> To control road dust re-suspension, all major roads need to be regularly cleaned with cost-effective road sweeping machines and the collected dust can be used at the construction development sites as filling material. Kerbs of the roads need to be properly landscaped to reduce silt loadings on the roads. Increase plantation in open spaces within the city, wherever feasible. Black-topping of unpaved road Remove road dust/silt regularly by using mechanical sweepers. Use of recycled water for cleaning of roads. Roads in all industrial areas need to be reconstructed with consideration of truck loads. Both sides of the asphalt road in the industrial area should have sufficient granite stone pavement followed by maintained bushes. All major roads should have wall-to-wall paving. In addition, it is suggested to specify the frequency of road cleaning and consider additional measures for dust control during construction, such as wet suppression techniques. 		
2E	Residential/ Commercial	<ul style="list-style-type: none"> Coal and biomass use in the tandoors should be completely banned. Promote restaurants to use energy efficient either electric or gas based ovens, adopting for cleaner fuels (LPG, Electricity) and low emission chullahs Prohibition/complete ban on garbage burning. Guidelines and provisions for building designs that define proper ventilation, clean cooking and living area to maintain healthy indoor air quality. Awareness drive against open burning of bio-mass, crop residue, garbage, leaves, etc. <p>In addition, it is suggested to provide specific measures for the widespread adoption of clean cooking technologies. Consider incentives for households to switch to cleaner fuels.</p>		
No.	Pollutant	Permissible limit as per CPCB	Cities wherein AQMS recorded predominantly higher concentration levels of pollutants than the permissible limit	Major Sources
3	CO	2 mg/m ³ (8-hourly Average)	Predominantly by CAAQMS installed in cities of Mumbai (Airport CAAQMS), Navi Mumbai (Mahape CAAQMS,) Thane (Vasai CAAQMS) and Nagpur (Nagpur CAAQMS)	Emissions from Vehicles, Industrial operations and Biomass burning from residential/commercial areas
Sector-specific mitigation measures				
3A	Vehicular emissions	Mitigation measures as mentioned above in Point No.1A, 2A can be implemented to address the high concentration levels of CO		
3B	Industrial emissions	Mitigation measures as mentioned above in Point No.1B, 2B can be implemented to address the high concentration levels of CO		
3C	Residential/ Commercial sector	Mitigation measures as mentioned above in Point No.2E can be implemented to address the high concentration levels of CO		

4	Ozone	100 µg/m ³ (8 hourly Average)	Predominantly by CAAQMS installed in cities of Dombivali (Dombivali CAAQMS) and Nagpur (Nagpur CAAQMS)	Ground-level ozone is a secondary pollutant formed through chemical reactions between nitrogen oxides (NO _x) and volatile organic compounds (VOCs).
4A	To mitigate the formation of secondary pollutants is to minimize the emissions of primary pollutants such as NO _x .			
No.	Pollutant	Permissible limit as per CPCB	Cities wherein AQMS recorded predominantly higher concentration levels of pollutants than the permissible limit	Major Sources
5	Benzene	5 µg/m ³ (Annual Average)	Predominantly by CAAQMS installed in cities of Dombivali (Dombivali CAAQMS) and Navi Mumbai Koprigaon CAAQMS)	Vehicular Exhaust, Evaporation from motor vehicles and petroleum retails outlets.
Sector specific mitigation measures				
5A	Vehicular exhaust	Mitigation measures as mentioned above in Point No.1A,2A can be implemented to address the high concentration levels of benzene.		
5B	Evaporation from motor vehicles and petroleum retails outlets.	<ul style="list-style-type: none"> To reduce escaping pollutants, adoption and development of appropriate technology such as vapour recovery system for reducing toxic pollutants released from the refuelling nozzle, at tank delivery and storage tank filling time would prove beneficial. Develop criteria to index fuel pump based on its pollution potential¹⁶. 		

As far as SO₂ pollution, the annual average concentration levels were recorded within the permissible limits throughout the state. Still, a shift in energy production from conventional sources such as coal to renewable sources, strict environmental regulations, adoption of technologies such as FGD (Flue gas desulphurization) and effective emissions inventory would help curb SO₂ pollution. Overall, the proposed measures cover a wide range of sectors, but detailed implementation plans and mechanisms for monitoring and enforcement should be emphasized for effective results.

¹⁶ <https://www.teriin.org/blog/noxious-fumes-fuel>

Annexure

Annexure

Annex-1: List of Active AAQMS in Maharashtra (2022-23)

MPCB RO	Region	Stn code	Station name	Category	Type
Amravati	Akola		Akola CAAQMS	Residential/Commercial	CAAQMS
		702	College of Engg & Technology, Akola	Commercial	NAMP
		700	L.R.T. Commerce College, Ratanlal Plot Civil line Akola	Residential	NAMP
		701	MIDC Water Work, Phase-II, MIDC Akola	Industrial	NAMP
	Amravati		Amravati Shivaji College CAAQMS	Residential/Commercial	CAAQMS
		549	Godhadiwala Processing Private Limited	Industrial	NAMP
		548	Govt. College of Engineering, Amravati	Residential	NAMP
			MPCB Premises Amravati CAAQMS	Residential	CAAQMS
		547	Rajkamal Square, Vanita Samaj Bldg., Amravati	Rural and other areas	NAMP
Aurangabad	Aurangabad		Aurangabad CAAQMS	Industrial	CAAQMS
			Aurangabad Devgiri College CAAQMS	Residential	CAAQMS
		513	C.A.D.A. Office, Aurangabad	Residential	NAMP
		512	Collector Office, Aurangabad	Residential	NAMP
			MPCB Bhavan Aurangabad CAAQMS	Residential	CAAQMS
		511	S.B. College, Aurangabad	Residential	NAMP
	Basmath		Tashil Office, Basmath	Commercial	SAMP
	Jalna	707	Krishnadhan Seeds Ltd, Jalna	Industrial	NAMP
		706	S P Office, Jalna	Residential	NAMP
	Latur		Latur CAAQMS	Commercial	CAAQMS
		641	MIDC Water Works, Latur	Industrial	NAMP
		642	Terrace of Kshewraj Vidyalaya Shyam nagar	Residential	NAMP
		643	Terrace of Sidhleshwar Sahakari Bank Ganjgolai	Rural and other areas	NAMP

MPCB RO	Region	Stn code	Station name	Category	Type
	Nanded	703	Ganesh Nagar	Residential	NAMP
		705	Industrial Area, CIDCO	Industrial	NAMP
		704	Mutha Chowk, Vazirabad	Commercial	NAMP
			Nanded CAAQMS	Residential	CAAQMS
	Osmanabad		Jalna CAAQMS	Residential/Commercial	CAAQMS
			MIDC Office, Osmanabad	Industrial	SAMP
			Municipal Council, Osmanabad	Commercial	SAMP
			Woman Government Hospital, Osmanabad	Commercial	SAMP
	Parbhani		MPCB Office, Parbhani	Commercial	SAMP
			Parbhani CAAQMS	Residential	CAAQMS
			Shri Shivaji College, Parbhani	Commercial	SAMP
			Tashil Office, Parbhani	Commercial	SAMP
	Parli		Tahasil Office Parli	Commercial	SAMP
Chandrapur	Bhadravati		Bhadravati	Residential /Commercial	SAMP
	Chandrapur		Chandrapur (Udyog Bhavan)	Commercial	CAAQMS
		640	Gadchandur Gram Panchayat	Industrial	NAMP
		267	Grampanchayat Ghuggus	Residential	NAMP
		281	M.I.D.C Chandrapur	Industrial	NAMP
		638	M.I.D.C Tadali	Industrial	NAMP
			MIDC Khutala , Chandrapur CAAQMS	Industrial	CAAQMS
		639	Municipal Council Ballarshah	Residential	NAMP
			Nagar Parishad Chandrapur	Commercial	NAMP
	Gadchiroli		Gadchiroli	Residential /Commercial	SAMP
	Wani		Dal Mill, Wani	Commercial	SAMP
			GP Chikhalgaon, Wani	Residential /Commercial	SAMP
			Tahasil Office, Wani	Residential /Commercial	SAMP

MPCB RO	Region	Stn code	Station name	Category	Type
Kalyan	Ambernath	445	Ambernath Municipal corporation Building, Ambernath	Rural and Commercial	NAMP
	Badlapur	649	BIWA House, Badlapur	Rural and Commercial	NAMP
			Badlapur CAAQMS	Residential	CAAQMS
	Bhiwandi		Bhiwandi CAAQMS	Residential	CAAQMS
			I.G.M. Hospital Premises, Bhiwandi	Rural and Commercial	NAMP
			Prematai Hall, Bhiwandi	Commercial	NAMP
	Dombivali	265	CETP, Dombivali	Industrial	NAMP
			Dombivali CAAQMS	Industrial	CAAQMS
			MIDC Office Dombivali	Industrial	SAMP
	Kalyan		Kalyan CAAQMS	Commercial/ Residential	CAAQMS
			MPCB office RO, Kalyan	Commercial	NAMP
			Terrace of Sampada Hall	Residential	SAMP
	Ulhasnagar	648	Powai Chowk, Ulhasnagar	Rural and other areas	NAMP
		647	Smt. CHM College Campus, Ulhasnagar	Rural and other areas	NAMP
			Ulhasnagar CAAQMS	Residential	CAAQMS
Kolhapur	Kolhapur	510	Mahadwar Road, Kolhapur	Residential	NAMP
		509	Ruikar Trust, Kolhapur	Rural and other areas	NAMP
		508	Shivaji University Campus, Kolhapur	Residential	NAMP
			Shivaji University Kolhapur CAAQMS	Commercial	CAAQMS
			Sinchan Bhavan Kolhapur CAAQMS	Commercial	CAAQMS
	Ratnagiri		Central Co-op Bank, Ratnagiri	Commercial	SAMP
			Sub Campus, Ratnagiri	Residential /Commercial	SAMP
	Sangli	576	Krishna Valley school, Sangli	Industrial	NAMP
			Sangli CAAQMS	Residential/Commercial	CAAQMS
		575	Sangli-Miraj Primary Municipal school	Rural and other areas	NAMP
		574	Terrace of SRO-Sangli, Udyog Bhavan	Residential	NAMP

MPCB RO	Region	Stn code	Station name	Category	Type
Mumbai	Mumbai		Airport CAAQMS, Mumbai	Commercial	CAAQMS
			Bandra CAAQMS, Mumbai	Residential	CAAQMS
			BKC CAAQMS, Mumbai	Residential	CAAQMS
			Borivali CAAQMS, Mumbai	Residential	CAAQMS
			Chembur CAAQMS, Mumbai	Residential	CAAQMS
			Colaba CAAQMS, Mumbai	Commercial	CAAQMS
			Kandivali CAAQMS, Mumbai	Industrial/ Commercial	CAAQMS
			Kurla CAAQMS, Mumbai	Commercial	CAAQMS
			Malad CAAQMS, Mumbai	Residential	CAAQMS
			Manual Sion	Residential / Commercial	NAMP
			Mulund CAAQMS, Mumbai	Industrial cum commercial	CAAQMS
			Powai IIT CAAQMS, Mumbai	Residential / Commercial	CAAQMS
		441	Sion CAAQMS, Mumbai	Residential	CAAQMS
			Vile Parle CAAQMS, Mumbai	Commercial	CAAQMS
			Worli CAAQMS, Mumbai	Residential / Commercial	CAAQMS
Nagpur	Bhandara		MIET, Gondia	Residential / Commercial	SAMP
			NMD College, Gondia	Commercial	SAMP
			SS Girls College, Gondia	Commercial	SAMP
	Kamptee		Water treatment facility, Ram Nagar, Good shed road Kamptee	Commercial	SAMP
	Nagpur	711	Civil lines, Nagpur	Residential	NAMP
		314	Govt Polytechnic Col, Sadar, Nagpur	Rural and other areas	NAMP
		287	IOE North Ambazari road, Nagpur	Residential	NAMP
		288	MIDC Office, Hingna Road, Nagpur	Industrial	NAMP
			Nagpur CAAQMS	Commercial	CAAQMS

MPCB RO	Region	Stn code	Station name	Category	Type
			Nagpur LIT	Residential/Commercial	CAAQMS
			Nagpur Town Hall	Residential/Commercial	CAAQMS
			Nagpur-Visvesvaraya National Institute of Technology	Residential/Commercial	CAAQMS
	Wadi		Shri Sant Gajanan Seva Samiti, Dattawadi, Wadi, Nagpur	Residential	SAMP
	Wardha		DIC, Wardha	Industrial	SAMP
			DMIETR Campus, Wardha	Residential /Commercial	SAMP
			MIDC, Wardha	Industrial	SAMP
Nashik	Ahmednagar		Ahmednagar CAAQMS	Residential	CAAQMS
	Bhusawal		Municipal council office, Bhusawal	Commercial	SAMP
			Municipal council water supply, Bhusawal	Commercial	SAMP
			Municipal high school, Bhusawal	Commercial	SAMP
	Dhule		Dhule CAAQMS	Industrial/Commercial	CAAQMS
	Jalgaon	645	Girna Water Tank, Jalgaon	Residential	NAMP
		646	MIDC Jalgaon	Industrial	NAMP
		644	Old B.J. Market, Jalgaon	Residential	NAMP
			Jalgaon CAAQMS	Residential/Commercial	CAAQMS
	Malegaon		Malegaon CAAQMS	Residential/Commercial	CAAQMS
	Nashik		Aima Ambad Nashik CAAQMS	Industrial	CAAQMS
			Guru Gobind Singh Nashik CAAQMS	Residential	CAAQMS
			Nashik CAAQMS	Commercial	CAAQMS
		280	NMC Nashik	Residential	NAMP
			Panchavati CAAQMS	Residential	CAAQMS
		259	RTO Colony, Nashik	Residential	NAMP
		710	SRO Office Nashik	Residential	NAMP
		269	VIP,MIDC Satpur, Nashik	Industrial	NAMP
Navi Mumbai	Navi Mumbai		Belapur CAAQMS	Residential	CAAQMS
			Nirmal Bhavan CAAQMS , Mahape, Navi Mumbai	Industrial	CAAQMS
		494	Kharghar - CIDCO Nodal Office, Navi Mumbai	Residential	NAMP

MPCB RO	Region	Stn code	Station name	Category	Type
			Koprigaon CAAQMS	Residential	CAAQMS
		493	MPCB Nirmal Bhavan , Mahape, Navi Mumbai	Industrial	NAMP
		492	Nerul - D Y Patil, Navi Mumbai	Residential	NAMP
			Nerul CAAQMS, Navi Mumbai	Residential	CAAQMS
		491	Rabale, Navi Mumbai	Industrial	NAMP
			Sanpada CAAQMS	Residential	CAAQMS
	Taloja	496	Taloja - MIDC Building, Navi Mumbai	Industrial	NAMP
			Taloja CAAQMS	Industrial	CAAQMS
Pune	Barshi		Barbole Shopping Centre, Pimpalekar Chowk, Barshi	Residential/ Commercial	SAMP
			Mahatma Phule Bhaji Market Fire Brigade Station, Barshi	Commercial	SAMP
			Ujani Jalshuddikaran Kendra, Gadegaon Road, Barshi, Pune	Commercial	SAMP
	Pandharpur		Fire Brigade Station , Bhakti Marg Pandharpur, Pandharpur	Residential/ Commercial	SAMP
	Pune	312	Bhosari, Pune	Industrial	NAMP
			Dange Chowk Pune CAAQMS	Industrial	CAAQMS
			Jagtap Dairy Pune CAAQMS	Industrial	CAAQMS
			Karve Road – CAAQMS, Pune	Residential	CAAQMS
			Katraj Dairy Pune CAAQMS	Commercial	CAAQMS
		379	Nal stop, Pune	Rural & other areas	NAMP
		708	Pimpri-Chinchwad - BOB Building, Pune	Residential	NAMP
			Pune Pimpri Rose Garden CAAQMS	Industrial	CAAQMS
			Pune University CAAQMS	Commercial	CAAQMS
		381	Swargate, Pune	Residential	NAMP
	Satara		Karmaveer Bhaurao Patil College of Engineering., Satara.	Commercial	SAMP

MPCB RO	Region	Stn code	Station name	Category	Type
			Maharashtra Industrial Development Corporation, Satara	Industrial	SAMP
			Satara Municipal Council, Kesarkar Peth, Satara	Commercial	SAMP
	Solapur		Indradhanu (Backside), Degaon Road, Solapur	Residential/ Commercial	SAMP
			Jule Solapur CAAQMS	Residential	CAAQMS
			Rupabhawani Chowk, Solapur	Commercial	SAMP
		300	Saat Rasta- Chithale Clinic, Solapur	Residential	NAMP
			Solapur	Residential	CAAQMS
			Solapur Revenue CAAQMS	Residential/ Commercial	CAAQMS
		299	WIT Campus , Solapur	Residential	NAMP
Raigad	Kalamboli		Kalamboli CAAQMS	Industrial	CAAQMS
	Mahad		Mahad CAAQMS	Residential	CAAQMS
	Panvel	495	Water Supply Plant ,Panvel	Residential	NAMP
	Roha		JM Rathi, Entrance of MIDC, Roha	Commercial	NAMP
			MIDC office, Roha	Industrial	NAMP
Thane	Tarapur		Kolawade Grampanchayat, Tarapur	Residential	NAMP
			MPCB Office, Tarapur	Commercial	NAMP
			PDTs Ground, Tarapur	Residential	NAMP
			Tarapur CAAQMS	Industrial	CAAQMS
	Thane		Balkum/Glaxo, Thane	Industrial	NAMP
		303	Kopri, Thane	Residential	NAMP
			Mira Bhayander CAAQMS	Residential	CAAQMS
		304	Naupada, Thane	Rural & other areas	NAMP
			Thane Ghodbunder CTP CAAQMS	Residential	CAAQMS
			Upvan Thane CAAQMS	Residential	CAAQMS
			Vasai CAAQMS	Commercial	CAAQMS
			Virar CAAQMS	Residential	CAAQMS

Annex-2: MPCB Guidelines for Air Pollution Mitigation¹⁷

- 1 All the project proponents in the corporation area shall ensure that at least 25 feet high tin/metal sheets shall be erected around the periphery of construction projects having height more than 50 mtrs and outside the corporation area at least 20 feet high tin metal sheets
2. In mega Cities, all construction layout having area more than 1 acre shall have tin / metal sheet erected of high 25 feet at least around periphery of the construction project sites and for construction sites less than 1 acre, the tin / metal sheet height shall be at least 25 feet.
3. All the buildings under construction shall be compulsorily enclosed by wet green cloth / wet jute sheet / tarpaulin from all sides
4. All the Structures under demolition shall be covered with tarpaulin / wet green cloth /wet jute sheet from top to bottom. There shall be continuous sprinkling/ spraying of water during the process of demolishing the structure.
5. It shall be ensured that water fogging shall be carried out during loading and unloading of materials at the construction sites (use of stationery/mobile antismog guns).
6. The water sprinkling shall be done at debris /earth material etc. which are prone to generate airborne particulate matters at all construction sites without fail.
7. All vehicles carrying construction materials shall be fully covered (i.e. from top and all sides) so that construction material or debris does not become airborne during transportation and the vehicles shall not be overloaded to avoid any spillage from the vehicle
8. All construction sites shall deploy sensor-based air pollution monitors at work sites and act immediately on observing pollution levels exceeding the limit. This monitoring shall be made available for inspection to Municipal authorities as and when demanded.

¹⁷https://greentribunal.gov.in/sites/default/files/news_updates/REPORT%20BY%20MAHARASHTRA%20SPCB%20IN%20OA%20NO.687%20of%202023%20AIR%20QUALITY%20INDEX%20IN%20VARI%20CITIES.pdf (Pg 523-526)

9. All the work sites shall ensure that the grinding, cutting, drilling, sawing and trimming work is carried out in enclosed area and water sprinkler / water fogging is continuously done while working to avoid escape of fugitive air.
10. All the construction sites shall ensure that construction and demolition (C & D) waste generated within the premises / site of work is transported to designated unloading site strictly as per C & D Waste Management Plan. After unloading the debris, the vehicle shall be washed and cleaned thoroughly.
11. All the construction personnel managers shall mandatorily wear personal protective equipment such as masks, goggles, helmets, etc.
12. All the worksites like bridges and flyovers shall have barricading of minimum 20 feet.
13. All the metro works above ground shall be covered with barricading of 20 feet height. The construction site shall be covered with tarpaulin / wet green cloth / jute sheet. The smog guns / water sprinklers shall be used during the construction work.
14. District Collectors / Commissioners shall deploy special squads to prevent illegal C & D dumping at late night.
15. District Collectors / Commissioners shall deploy special squads for air pollution mitigation enforcement. The squad shall be headed by one senior officer from the Ward / Taluka.
16. The enforcement squad shall visit the premises and video graph the worksite. If it is observed that the work site is not adhering to the above stated provisions, stringent action such as issue of Stop Work notice and / or sealing of worksite shall be taken immediately.
17. The timeline for procurement of sprinklers shall be 15 days and for procurement of smog guns shall 30 days from issuance of the circular from MPCB. All the project proponent / contractor shall abide by the mentioned timelines without fail.
18. The vehicles carrying construction material or C & D material must have a vehicle tracking system installed on them, otherwise shall be seized and impounded by the RTO / Police Department in case if found not adhering to the stated provisions.
19. The Transport Department shall take action against overloading of vehicles, uncovered vehicles, vehicles spilling construction materials on roads. Vehicle Scrappage policy shall be encouraged for End-of-Life Vehicles.
20. All vehicles carrying materials shall have valid PUC certificates and the same shall be produced as and when asked for by competent authorities.
21. The loose soil, sand, construction materials and debris of any kind and quantity shall be stored in demarcated/dedicated area and properly barricaded, fully covered/enclosed/protected with tarpaulins. It shall be ensured that there is no dumping of construction material and debris on public roads, footpaths, pavements and open area.

22. Vehicle tyre washing facility shall be provided at all exit points of construction sites. It shall be ensured that daily cleaning is carried out of major roads for removal of dust by using vacuum sweeping or water sprinkling, brushing, brooming and sweeping. This work may be outsourced to ensure wide and fast coverage of all major roads in one month's time.
23. There shall be complete ban on open burning anywhere especially garbage dumping grounds and possible sites of trash burning.
24. All roads under corporation/municipal council area shall be provided with paved footpaths
25. Issue directions for the conversion of fuel in bakeries from non-renewable and polluting sources to cleaner alternatives, such as electric ovens, use of PNG or other eco friendly technologies.
26. Take proactive steps in transitioning crematoria facilities to electric or other environmentally friendly cremation methods.
27. The continuous air quality monitoring stations installed by the MPCB shall be regularly checked/monitored by the municipal authority.
28. Non attainment cities (NCAP and 15th Finance Commission/VX FC) shall increase the air quality monitoring stations by utilizing their own resources.
29. Regular awareness campaigns shall be conducted in order to sensitize stakeholders.

Annex-3 – Revised NAAQS (2009)

रजिस्ट्री सं. डी.एल.-33004/99

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राष्ट्रीय परिवेशी वायु गुणवत्ता मानक

केन्द्रीय प्रदूषण नियंत्रण बोर्ड

अधिसूचना

नई दिल्ली, 18 नवम्बर, 2009

सं. डी-29016/20/90/पी.सी.आई.-1.—वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 (1981 का 14) की धारा 16 की उपधारा (2) (एच) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए तथा अधिसूचना संख्या का.आ. 384(ई), दिनांक 11 अप्रैल, 1994 और का.आ. 935 (ई) दिनांक 14 अक्टूबर, 1998 के अधिक्रमण में केन्द्रीय प्रदूषण नियंत्रण बोर्ड इसके द्वारा तत्काल प्रभाव से राष्ट्रीय परिवेशी वायु गुणवत्ता मानक अधिसूचित करता है, जो इस प्रकार है:-

राष्ट्रीय परिवेशी वायु गुणवत्ता मानक

क्र. सं.	प्रदूषक	समय आधारित औसत	परिवेशी वायु में सान्द्रता		
			औद्योगिक, शहरी, ग्रामीण और अन्य क्षेत्र	पारिस्थितिकीय संवेदनशील क्षेत्र (केन्द्र सरकार द्वारा अधिसूचित)	प्रबोधन की पद्धति
(1)	(2)	(3)	(4)	(5)	(6)
1	सल्फर डाई आक्साइड (SO ₂), µg/m ³	वार्षिक* 24 घंटे**	50 80	20 80	-उन्नत वेस्ट और गार्ड -परवर्गनी परिसीमती
2	नाइट्रोजन डाई आक्साइड (NO ₂), µg/m ³	वार्षिक* 24 घंटे**	40 80	30 80	-उपांतरित जैकब और हॉवाइजर (सोडियम-आर्सेनाइट) -रासायनिक संदीप्ति
3	विशिष्ट पदार्थ (10माइक्रोन से कम आकार) या PM ₁₀ , µg/m ³	वार्षिक* 24 घंटे**	60 100	60 100	-हरात्मक विश्लेषण -टोयम -बीटा तनुकरण पद्धति

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(1)

2	THE GAZETTE OF INDIA : EXTRAORDINARY				(PART III—SEC. 4)
4	विविक्त पदार्थ (2.5 माइक्रान से कम आकार या $PM_{2.5}$, $\mu g/m^3$)	वार्षिक* 24 घंटे**	40 60	40 60	-हरात्मक विश्लेषण -टोयम -बीटा तनुकरण पद्धति
5	ओजोन (O_3) $\mu g/m^3$	8 घंटे** 1 घंटा**	100 180	100 180	-पराबैंगनी द्विपिकाल -रासायनिक संदीप्ति -रासायनिक पद्धति
6	सीसा (Pb) $\mu g/m^3$	वार्षिक* 24 घंटे**	0.50 1.0	0.50 1.0	ई.पी.एम. 2000 या समरूप फिल्टर पेपर का प्रयोग करके AAS/ICP पद्धति -टेफ्लॉन फिल्टर पेपर का प्रयोग करते हुए ED-XRF
7	कार्बन मोनोक्साइड (CO) mg/m^3	8 घंटे** 1 घंटा**	02 04	02 04	-अविपेक्षी अवरक्त (NDIR) स्पेक्ट्रम मापन
8	अमोनिया (NH_3) $\mu g/m^3$	वार्षिक* 24 घंटे**	100 400	100 400	-रासायनिक संदीप्ति -इण्डोफिनॉल ब्ल्यू पद्धति
9	बैन्जीन (C_6H_6) $\mu g/m^3$	वार्षिक*	05	05	- गैस क्रोमेटोग्राफी आधारित सतत विश्लेषक -अधिशोषण तथा निशोषण के बाद गैस क्रोमेटोग्राफी
10	बैन्जो (ए) पाईरीन (BaP) केवल विविक्त कण, ng/m^3	वार्षिक*	01	01	-विलायक निष्कर्षण के बाद HPLC/GC द्वारा विश्लेषण
11	आर्सेनिक (As) ng/m^3	वार्षिक*	06	06	-असंवितरक अवरक्त स्पेक्ट्रोमिती ई.पी.एम. 2000 या समरूप फिल्टर पेपर का प्रयोग करके ICP/AAS पद्धति
12	निकिल (Ni) ng/m^3	वार्षिक*	20	20	ई.पी.एम. 2000 या समरूप फिल्टर पेपर का प्रयोग करके ICP/AAS पद्धति

* वर्ष में एक समान अंतरालों पर सप्ताह में दो बार प्रति 24 घंटे तक किसी एक स्थान विशेष पर लिये गये न्यूनतम 104 मापों का वार्षिक अंकगणीतीय औसत ।

** वर्ष में 98 प्रतिशत समय पर 24 घंटे या 8 घंटे या 1 घंटा के मानीटर मापमान, जो लागू हों, अनुपालन किये जाएंगे । दो प्रतिशत समय पर यह मापमान अधिक हो सकता है, किन्तु क्रमिक दो मानीटर करने के दिनों पर नहीं ।

टिप्पणी:

1. जब कभी और जहाँ भी किसी अपने-अपने प्रवर्ग के लिये दो क्रमिक प्रबोधन दिनों पर मापित मूल्य, ऊपर विनिर्दिष्ट सीमा से अधिक हो तो इसे नियमित या निरंतर प्रबोधन तथा अतिरिक्त अन्वेषण करवाने के लिये पर्याप्त कारण समझा जायेगा ।

संत प्रसद गौतम, अध्यक्ष
[विज्ञापन-III/4/184/09/अस.]

टिप्पणी: राष्ट्रीय परिवेशी वायु गुणवत्ता मानक संबंधी अधिसूचनाएँ, केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा भारत के राजपत्र आसाधरण में अधिसूचना संख्या का.आ. 384 (ई), दिनांक 11 अप्रैल, 1994 एवं का. आ. 935 (ई), दिनांक 14 अक्टूबर, 1998 द्वारा प्रकाशित की गयी थी ।

NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION

New Delhi, the 18th November, 2009

No. B-29016/20/90/PCI-L—In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in supersession of the Notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual* 24 hours**	50 80	20 80	- Improved West and Gaeke -Ultraviolet fluorescence
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual* 24 hours**	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual* 24 hours**	60 100	60 100	- Gravimetric - TOEM - Beta attenuation
4	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual* 24 hours**	40 60	40 60	- Gravimetric - TOEM - Beta attenuation
5	Ozone (O ₃) µg/m ³	8 hours** 1 hour**	100 180	100 180	- UV photometric - Chemiluminescence - Chemical Method
6	Lead (Pb) µg/m ³	Annual* 24 hours**	0.50 1.0	0.50 1.0	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
7	Carbon Monoxide (CO) mg/m ³	8 hours** 1 hour**	02 04	02 04	- Non Dispersive Infra Red (NDIR) spectroscopy
8	Ammonia (NH ₃) µg/m ³	Annual* 24 hours**	100 400	100 400	-Chemiluminescence -Indophenol blue method

(1)	(2)	(3)	(4)	(5)	(6)
9	Benzene (C ₆ H ₆) µg/m ³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only, ng/m ³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/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

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman
[ADVT-III/4/184/09/Ext.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India, Extraordinary vide notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998.