

Air Quality Index (AQI) Report

Data Source: West Bengal Pollution Control Board
Station- Bhasa 2nd Campus of Asutosh College
(May 2024)

Introduction

The Air Quality Index (AQI) is a crucial tool for assessing air quality and communicating potential health risks associated with air pollution. This report presents the AQI data for May, highlighting the main pollutants, their concentrations, and the resulting health concerns. In May, the air quality in our monitored area exhibited significant fluctuations, with varying levels of pollutants impacting different days. This report provides a detailed analysis of the AQI readings, identifying trends, sources of pollution, and their implications for public health. It includes comprehensive data on key pollutants, comparisons with national standards, and recommendations for improving air quality.

Data Collection


- **Monitoring Stations:** AQI data was collected from Asutosh College Bhasa Campus
- **Pollutants Monitored:** Particulate matter (PM₁₀ and PM_{2.5}), temperature, relative humidity, wind speed maximum, wind speed and so on.
- **Data Frequency:** Hourly data collected and averaged to daily AQI values.

Calculation

- AQI values for each pollutant were calculated using the EPA's standardized formula.
- The highest AQI value among the pollutants determined the overall AQI for each day.

Description of Data

The following interpretations are based on the line graphs illustrating daily levels of key pollutants (PM_{2.5}, PM₁₀ temp and relative humidity) throughout the month of May. Each graph provides insights into the fluctuations and trends

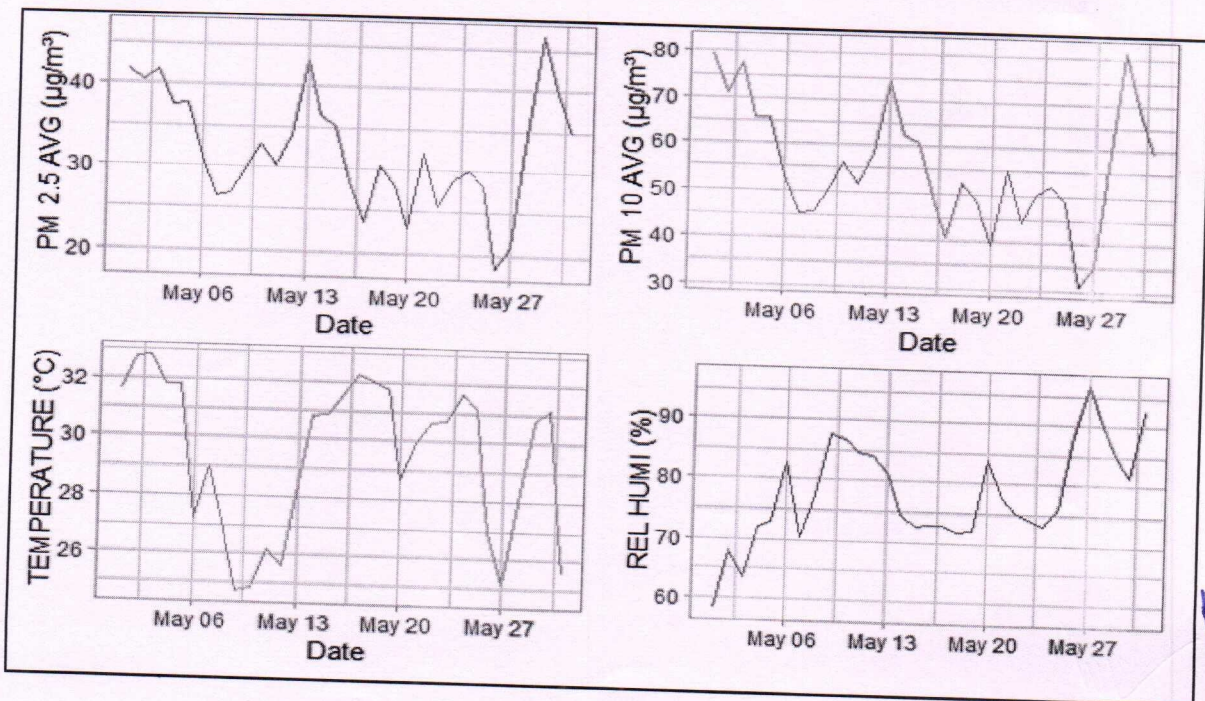

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in pollutant concentrations, helping to identify the factors influencing air quality.

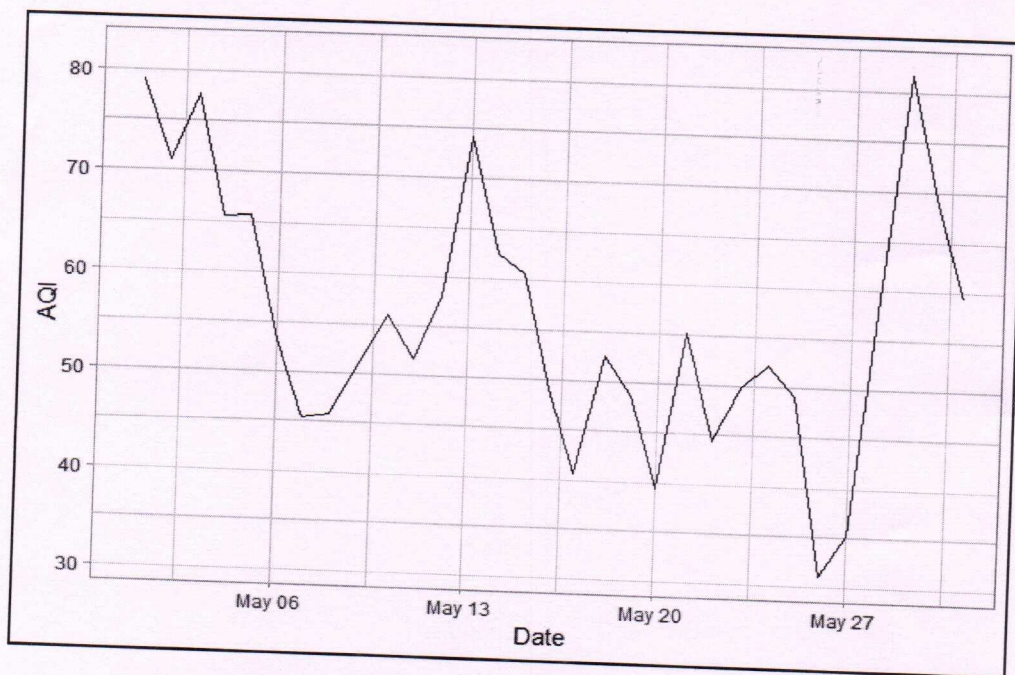
TABLE

May					
	AQI	PM _{2.5} AVG ($\mu\text{g}/\text{m}^3$)	PM ₁₀ AVG ($\mu\text{g}/\text{m}^3$)	REL HUMI (%)	TEMPERATURE ($^{\circ}\text{C}$)
Min.	31.08	18.5	31.04	58.08	24.75
1st Qu.	48.79	28.16	48.81	72.67	27.18
Median	53.16	30.92	53.11	76.17	30.68
3rd Qu.	64.12	36.93	64.11	84.33	31.65
Max.	81.54	46.69	81.54	96.77	32.82
Mean	55.91	32.19	55.92	78.08	29.48
St. d.	12.7	6.78	12.73	8.67	2.61

This data table shows on various parameters of AQI index like 1st Quartile (Qu.), median, 3rd quartile (Qu.), maximum (Max.), mean and standard deviation (St. d.) values for the following parameters. The minimum AQI value is 31.08, the 1st quartile value is 48.79, the median is 53.16, and the maximum is 81.54. The PM_{2.5} average values range from a minimum of 18.5 $\mu\text{g}/\text{m}^3$ to a maximum of 46.69 $\mu\text{g}/\text{m}^3$, with a mean of 32.19 $\mu\text{g}/\text{m}^3$. The PM₁₀ Average values ranges from a minimum of 31.04 $\mu\text{g}/\text{m}^3$ to a maximum of 81.54 $\mu\text{g}/\text{m}^3$, with a mean of 55.92 $\mu\text{g}/\text{m}^3$. The relative humidity percentages range from minimum of 58.08% to a maximum of 96.77%, with a mean of 78.08%. The temperature values range from a minimum of 24.75 $^{\circ}\text{C}$ to a maximum of 32.82 $^{\circ}\text{C}$, with a mean of 29.48 $^{\circ}\text{C}$.

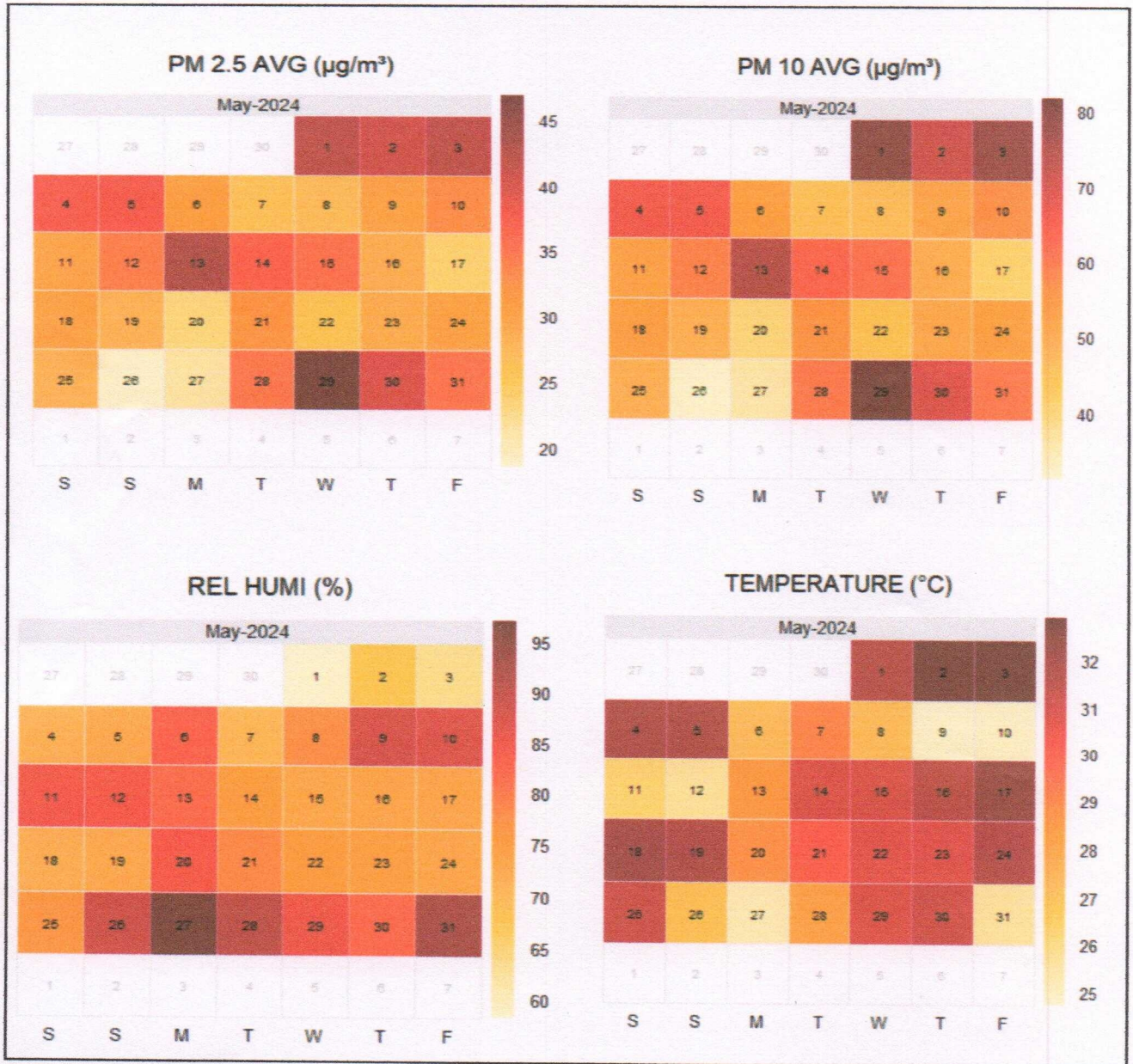


The PM_{2.5} graph shows the fluctuation in AQI values. The AQI value exhibit significant volatility, with sharp peaks and valleys throughout the monitoring period. The highest peak reaches over 70, indicating unhealthy or high levels of air pollution. After this peak, the AQI drops sharply, suggesting a rapid improvement in air quality. The PM₁₀ AQI values over the same time frame significantly change its value which depicts substantial fluctuations, with multiple peaks and valleys. The overall range of AQI values shown is from around 45 to over 70, indicating wide variations in air quality conditions. The temperature graph depicts changes during the observed period. The values exhibit fluctuations, but are not as pronounced as the AQI graphs. The temperature range shown is from around 26°C to 32°C. The relative humidity graph shows steep variation with multiple peaks and dips through the month. The RH values ranges from around 65% to 85%, indicating significant changes in the humidity levels.



The AQI values exhibit significant volatility, with sharp peaks and valleys throughout the monitoring period. The highest peak in AQI occurs around May 27th, reaching over 80. This would be considered an unhealthy or high level of air pollution. After the peak on May 27th, the AQI drops sharply, indicating a rapid improvement in air quality. There are multiple other peaks and valleys in the graph showing that the air quality experienced substantial fluctuations

during this time frame. The overall range of AQI values shown is from around 30-80, indicating a wide variation in air quality conditions. The dynamic nature of the air quality is evident with air pollution levels rising and falling substantially over the 3 week period captured in the graph. Overall the graph demonstrate the significant fluctuations and instability in the air quality in the monitored location during the period from May 6 to May 27th.



The calendar of PM _{2.5} AVG ($\mu\text{g}/\text{m}^3$)

- This visualization shows the average levels of particulate matter (PM _{2.5}) for each day of the month.


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- The values are represented using a colour-coded grid, with darker shades of red indicating higher PM_{2.5} levels and lighter shades of yellow and green indicating lower levels.
- The PM_{2.5} levels range from the lowest values around 5-10 µg/m³ to the highest values around 45 µg/m³

PM₁₀ AVG(µg/m³)

- This visualization shows the average levels of particulate matter (PM₁₀) for each day of the month.
- The colour -coded grid follows a similar pattern ,with darker shades of red representing higher PM₁₀ Levels and lighter PM10 levels and lighter shades indicating lower levels.
- The PM₁₀ levels range from around 40 µg/m³ to 75 µg/m³.

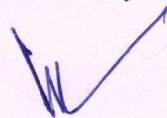
RELATIVE HUMIDITY (%)

- The colour coded grid shows the humidity percentages with darker shades of red representing higher humidity and lighter shades of yellow and orange indicating lower humidity.
- The relative humidity levels range from around 65% to 95%.

TEMPERATURE (°c)

- This visualization displays the temperature in degrees Celsius for each day of month.
- The temperature ranges from approximately 25°C to 32°C.
- Higher temperature is reflected by darker tone of red whereas lighter shades of yellow and green reflects low temperature.

Overall, this calendar serves as a useful tool for tracking and understanding the air quality, humidity and temperature trends in the given location during the month of May 2024. The insights gained from this data can support informed decision -making and the development of targeted interventions to address any identified environmental concerns.

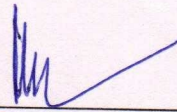


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Note: Report produced by Air Quality Monitoring System Committee

Committee Members

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Dr. Shramana Roy Barman (Dept. of Environmental Management)	Shramana Roy Barman
Dr. Sayanti Kar (Dept. of Environmental Management)	Sayanti Kar.



Signature of Principal with date and seal

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