Department of Environmental Conservation's Air Monitoring Program
Community-Based Air Monitoring Project

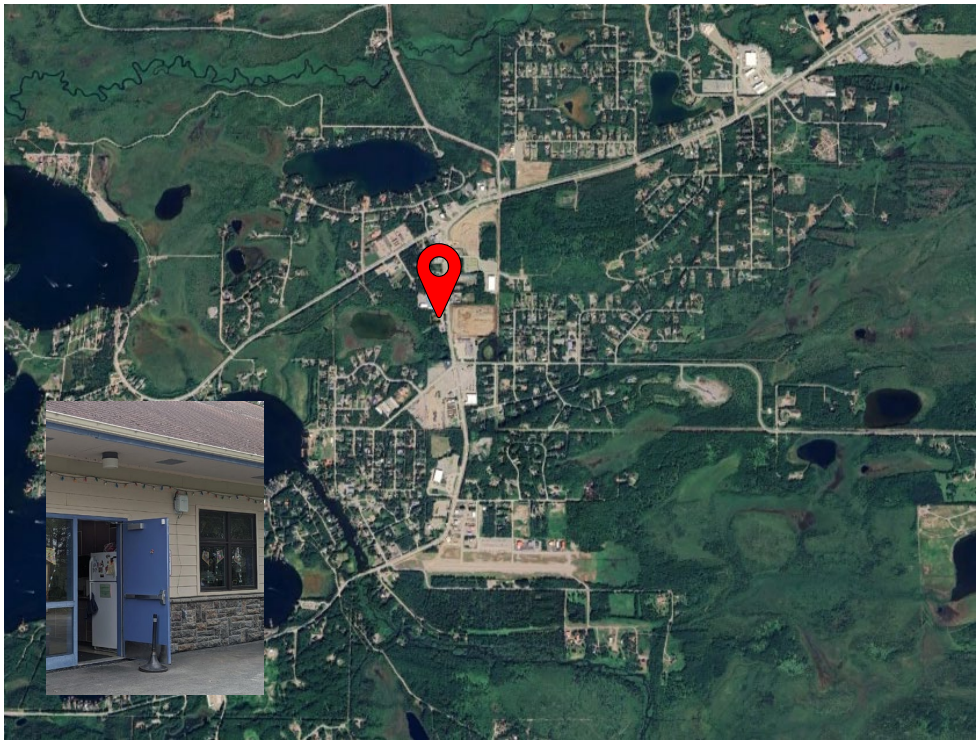
2024-25 Winter Season Air Quality Report for Big Lake, Alaska

The QuantAQ MODULAIR™ sensor in Big Lake (61.5477 ° N, 149.8197 ° W) was installed on 07/01/2024.

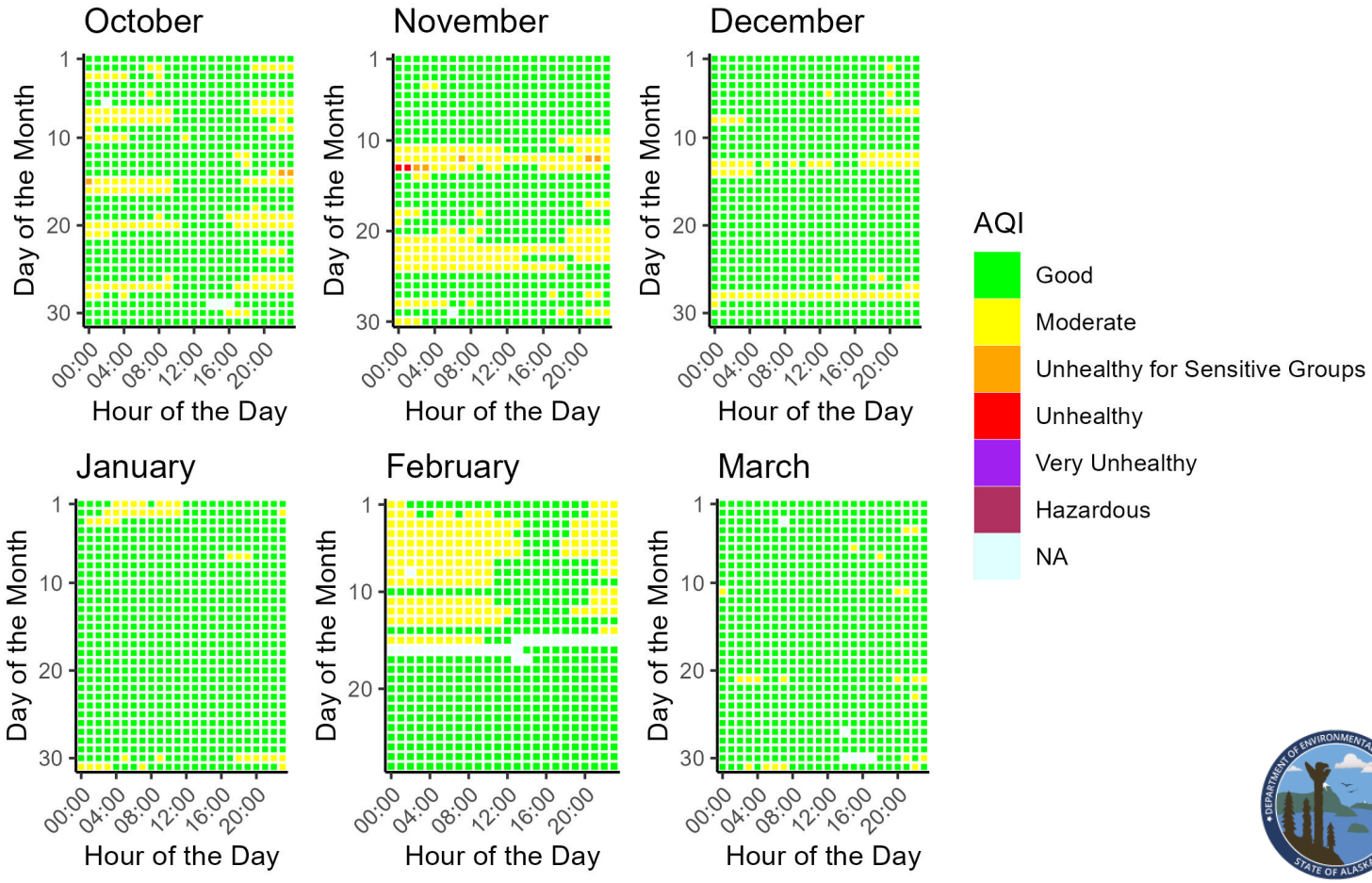
The sensor measures for carbon monoxide (CO), ozone (O_3), nitrogen oxide (NO), nitrogen dioxide (NO_2), particulate matter ($PM_{2.5}$ and PM_{10}), temperature (°C), and relative humidity (RH). Data is collected every minute and is then processed into hourly averages.

The sensor in Big Lake has run well since its installation in July of 2024; there have been no physical issues with the sensor.

This data report covers the date range of October 1, 2024, to March 31, 2025.



Daily $PM_{2.5}$ Air Quality Index (AQI) for October 1, 2024 – March 31, 2024



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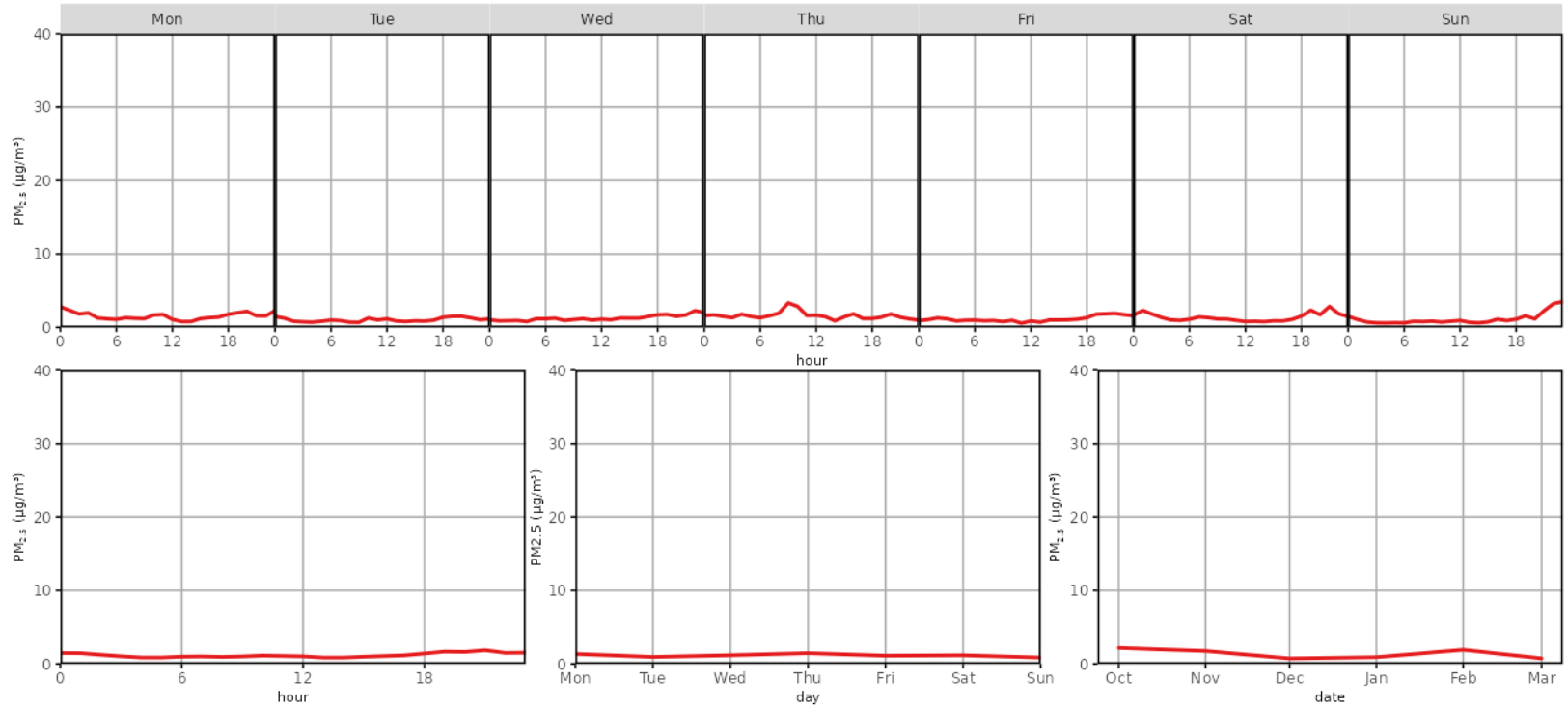
Median $PM_{2.5}$ Concentrations for October 1, 2024 – March 31, 2024



Descriptive Statistics of Air Pollutants*

Parameter	1-hr $PM_{2.5}$ ($\mu g/m^3$)	24-hr $PM_{2.5}$ ($\mu g/m^3$)	1-hr PM_{10} ($\mu g/m^3$)**	24-hr PM_{10} ($\mu g/m^3$)**	1-hr O_3 (ppb)	1-hr NO_2 (ppb)	1-hr NO (ppb)	1-hr CO (ppb)
Min	0.04	0.22	0.00	0.33	0.00	4.86	1.38	0.28
Mean	4.02	4.05	18.32	16.39	27.21	18.38	3.58	0.40
1st Max	72.71	27.37	922.00	137.54	57.10	34.57	47.00	1.45
2nd Max	60.43	21.05	862.00	115.92	57.00	32.38	35.73	1.44

Data Discussion

Big Lake's $PM_{2.5}$ ambient air quality for the winter 2024-25 season fell mostly in the "good" range of the Air Quality Index (AQI; more information about AQI is provided on page 3). Daily AQI levels reached the "moderate" range for several multi-day periods with brief spikes into the "hazardous for sensitive groups" range throughout October, November, and February. Diurnal patterns show little variability of $PM_{2.5}$ concentrations across different months, times of day, or days of the week.

*These statistics are based on preliminary data readings and are intended to provide a brief overview of sensor activity. Finalized data may be obtained upon request and through our annual statistical reports. Data from the community sensor network is non-regulatory and not comparable to the EPA's National Ambient Air Quality Standards (NAAQS; more information about the EPA NAAQS is provided on page 3).

**PM_{10} particle sensors are influenced by weather events such as fog and snow due to hygroscopic effects, creating false maximum values that do not pose health risks.

***Negative values can be attributed to expected uncertainty or sensor calibration drift. Values that fall within the expected uncertainty range are still considered 'good'. If the drift reaches a certain threshold, the sensor is recalibrated.

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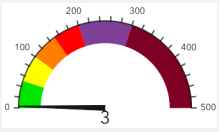
Resources

Alaska Department of Environmental Conservation

EPA NAAQS Information

Air Quality Index (AQI) Basics



Real-Time AQI Data

Data Access

To access historical data for your community's sensor, please email a request to: AMQA-Data-Request@alaska.gov . Data will be provided in Excel or .csv format.

Questions or Comments?

Please contact us!

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