



23 June 2023

Research and
Evaluation Unit

RIMU



Auckland Air Quality Report

Monthly update

Introduction

Auckland Council's Research and Evaluation Unit (RIMU) collects air quality data to ensure compliance with national standards and inform policy development and evaluation. The data we collect provides a better understanding of ambient air quality in the region, including spatial and temporal variations.

This monthly update is prepared using validated data that is available about one month after raw data collection. This report covers data up to 31 May 2023. This regular update on air quality aims to promote awareness and encourage actions to improve air quality in the region.

This update is divided into four sections, with sections A and B featuring tables and graphics that illustrate air quality status in Tāmaki Makaurau / Auckland, and is based on data collected from continuous monitoring sites across the region.

For this edition, section C provides a brief analysis of the recent Sims Metal fire's impact on air pollution levels. Section D provides monthly averages for 2023 and the past two to five years of pollutant concentrations (when data is available).

Summary

As in the previous year, the highest concentrations of both PM₁₀ and PM_{2.5} were recorded at the city centre air quality monitoring sites. The ongoing construction activities in the city centre (e.g., the City Rail Link project) is a primary factor.

As expected, the city centre sites have also recorded the highest levels of nitrogen dioxide (NO₂) concentrations. The Queen Street city centre site recorded higher levels of NO₂ in March, April and May, in contrast to the levels observed in the first two months of the year. This marks a deviation from the short-term downward trend in NO₂ levels that have been observed at the city centre sites since January 2020. The exact cause for this shift is unclear and requires further investigation by RIMU to understand why.

There has been an increase in sulphur dioxide (SO₂) levels at the two monitoring stations (Customs Street and Penrose), and the reason for this is unclear. Further studies are needed to determine the cause of this increase.

Significant event

On 31 May 2023, a large fire broke out at the Sims Metal scrapyards in Favona. This fire resulted in concerns regarding air quality in south and east Auckland. Particulate matter emissions from the fire were detected at three of our network monitoring stations: Glen Eden, Papatoetoe, and Pakuranga – each located at varying distances from the fire site. Data collected from these stations revealed a temporary significant increase in particulate matter levels. These elevated readings surpassed the levels recorded on the same day and month of the previous year, as well as the average levels observed over the past four to five years. Particulate matter levels returned to normal within 26 hours of the fire, and there was no exceedance of the National Air Quality Standards.

It is important to note that air quality at a monitoring site can vary from year to year due to weather and other influences. For a trend analysis of change, please see Table 2 and [Auckland air quality report, October 2021](#).

Where to view our data

Data can be viewed on the [environmental data portal](#), [LAWA](#) or requested from environmentaldata@aucklandcouncil.govt.nz

Full state and trends analyses and reports are prepared every few years (the most recent report is [Trends in Auckland's air quality 2006-2018](#)).

The [2022 Annual data report](#) is available on the Knowledge Auckland website.

See also, the [frequently asked questions](#) about the Auckland air quality monitoring programme.

Glossary of terms

Term	Meaning
Aerodynamic diameter	Used to describe the behaviour of a particle as it moves around in the air; it compares the behaviour with that of a spherical particle of unit density.
Air pollutant/contaminant	Any substance in the air that could harm humans, animals, vegetation, or other parts of the environment when present in high enough concentrations.
Air pollution	The presence of one or more air pollutants in high enough concentrations to cause harm.
Air quality	Is the degree to which air is suitable or clean enough for humans, animals, or plants to remain healthy.
Ambient air	The external air environment (does not include the air environment inside buildings or structures)
Black carbon (BC)	Is an air pollutant made up of tiny soot-like particles discharged into the atmosphere from combustion processes.
CO	Carbon monoxide, a type of air pollutant.
Exceedance	An exceedance defines a period of time during which the concentration of a pollutant is greater than the appropriate air quality criteria.
Ground-level ozone (O ₃)	At ground level, ozone is considered an air pollutant that can seriously affect the human respiratory system. It is a major component of photochemical smog.
Monitoring site	A facility for measuring the concentration of one or more pollutants in the ambient air; also referred to as 'monitoring station'
NESAQ	National Environmental Standard for Air Quality.
NO ₂	Nitrogen dioxide, a type of air pollutant
PM	Particulate matter is made up of a mixture of various sizes of solid and liquid particles suspended in air.
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 micrometres or less; a type of air pollutant.
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 micrometres or less; a type of air pollutant.
SO ₂	Sulphur dioxide, a type of air pollutant
µg/m ³	Microgram of pollutant (1 millionth of a gram) per cubic metre of air, referenced to temperature of 0°C (273.15 K) and absolute pressure of 101.325 kilopascals (kPa)
n/a	Not applicable

What we monitor		Why we monitor
Air	Particulate matter (PM) – PM ₁₀ and PM _{2.5}	Tiny particles (particulate matter) from polluting sources such as vehicles and smoke get into the air. Breathing them may cause health problems.
	Nitrogen dioxide (NO ₂)	Vehicles are the main source of NO ₂ in Auckland. It can irritate the lungs, increasing susceptibility to asthma and lowering resistance to respiratory
	Other pollutants	Air pollutants ozone, sulphur dioxide, carbon monoxide, black carbon and volatile organic compounds (VOCs) like benzene cause adverse health effects at elevated concentrations.
Greenhouse gas emissions	Carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF ₆) and nitrogen trifluoride (NF ₃)	The climate is warming due to increased greenhouse gas (GHG) levels in the atmosphere caused by human activities. Reducing GHG emissions will limit temperature rise.

Section A – Data tables

Table 1. Summary information about Auckland air quality monitoring programme 1 January to 31 May 2023

Number of exceedances of NESAQ in 2023	0	
Number of exceedances of Auckland ambient air quality targets in 2023	0	
Maximum PM ₁₀ 24-hours mean (January to May 2023)	35.2 µg/m ³ (70.4% of NESAQ)	Recorded at Queen Street on 19 April 2023
Maximum PM _{2.5} 24-hour mean (January to May 2023)	17.3 µg/m ³ (69.2% of Auckland target)	Recorded at Patumahoe on 8 Feb 2023
Maximum NO ₂ 1-hour mean (January to May 2023)	163.0 µg/m ³ (81.5% of NESAQ)	Recorded at Queen Street on 31 May 2023
Maximum SO ₂ 1-hour mean (January to May 2023)	24.0 µg/m ³ (6.8% of NESAQ)	Recorded at Customs Street on 27 April 2023
Maximum O ₃ 1-hour mean (January to May 2023)	69.0 µg/m ³ (46.0% of NESAQ)	Recorded at Patumahoe on 21 May 2023
Maximum CO running 8-hour mean (January to May 2023)	1.1 mg/m ³ (11.0% of NESAQ)	Recorded at Khyber Pass Rd on 17 May 2023
Number of continuous monitoring sites	10	
Location of monitoring sites	Queen Street, Customs Street, Khyber Pass Road, Penrose, Henderson, Takapuna, Glen Eden, Pakuranga, Papatoetoe, and Patumahoe	

Table 2. General changes in concentration of key contaminants monitored for the last 29, 41 and 53 months.

↑ indicates an increase ↓ indicates a decrease ↗ increase but not significant ↘ decrease but not significant

Site	PM ₁₀			PM _{2.5}			NO ₂			Black carbon			Ozone			CO			SO ₂			Site
	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	Last 29 months	Last 41 months	Last 53 months	
Customs Street*	n/a	n/a	n/a	↗	↗	n/a	↓	↓	n/a	↗	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	↑	↑	n/a	Customs Street*
Glen Eden*	↘	↘	↘	↘	↘	↘	↗	↑	↑	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Glen Eden*
Henderson	↗	↗	↘	n/a	n/a	n/a	↗	↗	↘	↗	↗	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Henderson
Khyber Pass Road	↑	↑	↑	n/a	n/a	n/a	↘	↓	↓	n/a	n/a	n/a	n/a	n/a	n/a	↘	↓	↓	n/a	n/a	n/a	Road
Pakuranga*	↗	↑	↘	↗	↗	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Pakuranga*
Papatoetoe	↓	↘	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Papatoetoe
Patumahoe	↘	↘	↓	↗	↗	↗	↑	↑	↑	n/a	n/a	n/a	↗	↘	↘	n/a	n/a	n/a	n/a	n/a	n/a	Patumahoe
Penrose	↗	↗	↓	↘	↓	↓	↘	↘	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	↗	↑	↑	Penrose
Queen Street	↗	↑	↑	↗	↑	↑	↓	↓	↓	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Queen Street
Takapuna	↑	↑	↘	↗	↗	↘	↗	↗	↘	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Takapuna

Notes

Change significance was determined using the Theil-Sen method: ↑ and ↓ mean change is statistically significant at the 0.05 level, 95% confidence intervals.

Effective dates: 29 months (1 January 2021 to 31 May 2023), 41 months (1 January 2020 to 31 May 2023), and 53 months (1 January 2019 to 31 May 2023)

PM₁₀ is monitored at Glen Eden, Henderson, Khyber Pass Rd, Pakuranga, Papatoetoe, Patumahoe, Penrose, Takapuna, and Queen St.

PM_{2.5} is monitored at Customs St, Glen Eden, Pakuranga, Patumahoe, Penrose, Takapuna, and Queen St.

NO₂ is monitored at Customs St, Glen Eden, Henderson, Khyber Pass Rd, Patumahoe, Penrose, Takapuna, and Queen St.

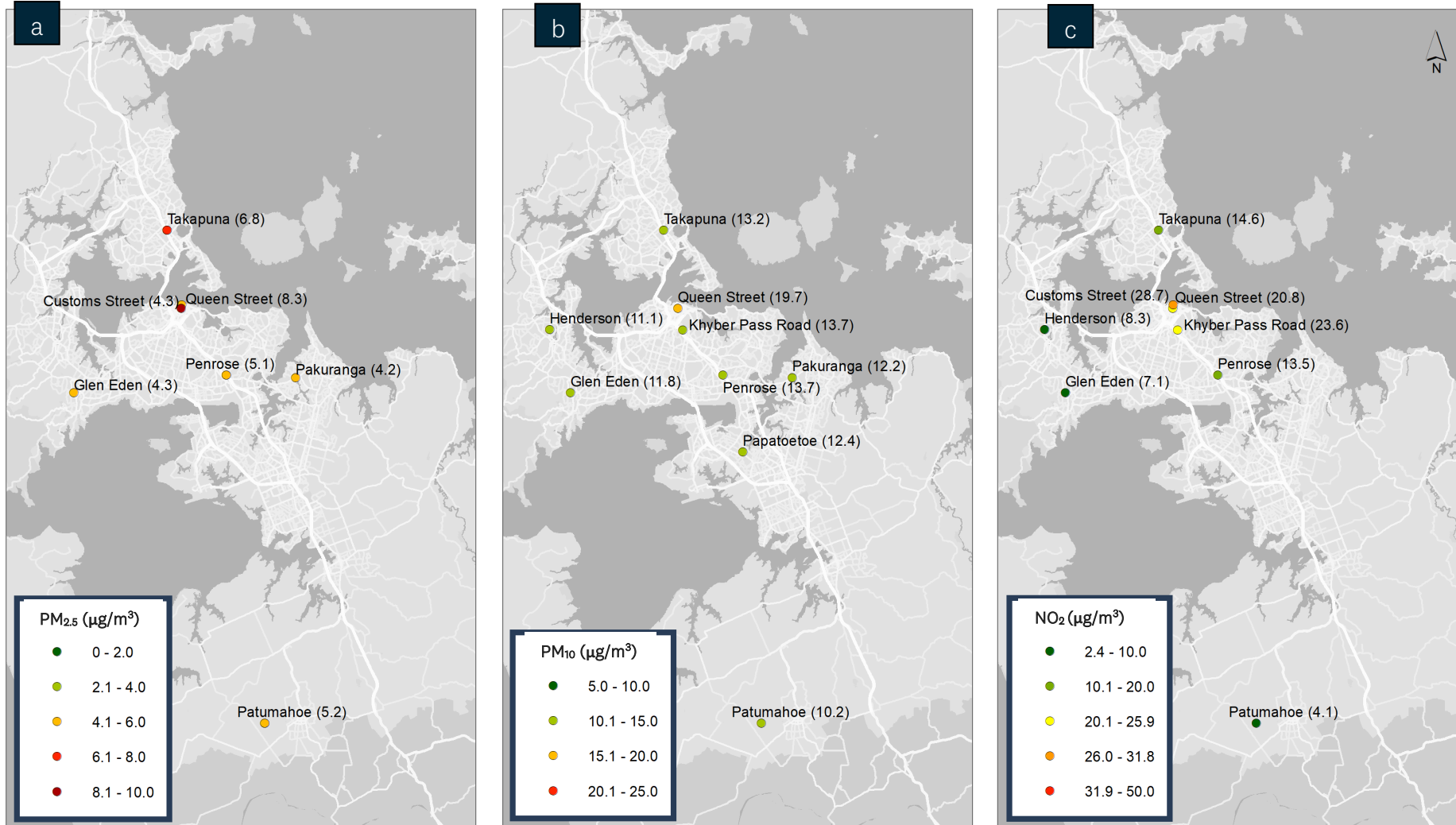
Black carbon is monitored at Customs St, and Henderson.

CO is monitored at Khyber Pass Rd.

Ozone is monitored at Patumahoe.

SO₂ is monitored at Customs St, and Penrose.

*PM_{2.5} data coverage for Glen Eden, Customs Street and Pakuranga is less than 75% due to instrument failure between September 2021 and January 2022. Weather changes significantly affect concentrations of air contaminants (see [Auckland air quality report, October 2021](#)). No data for Takapuna in Jan and Feb 2023 due to the Auckland floods.



0 3,200 6,400 9,600
Meters
Scale @ A4
= 1:500,000

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Figure 1. Maps a, b and c show the air quality monitoring sites and their last 12 months (1 June 2022 to 31 May 2023) average PM and NO₂ concentrations in brackets. Auckland city centre monitoring sites recorded the highest PM and NO₂ concentrations.

Section B. Key air contaminants across the 10 air quality monitoring sites (1 January 2023 to 31 May 2023)

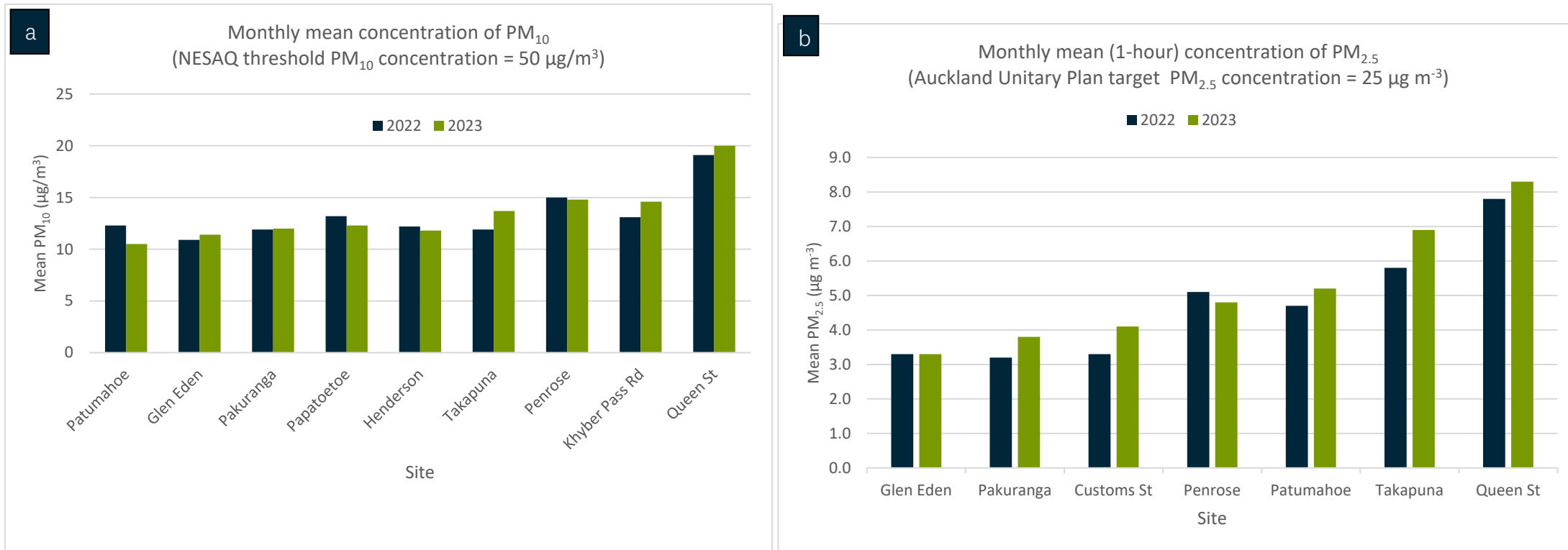


Figure 2. Monthly mean particulate matter concentration – 2023 compared to 2022. As in the previous year, the highest concentrations of both PM₁₀ and PM_{2.5} were recorded at Queen Street site. Plots a and b represent PM₁₀ and PM_{2.5} respectively. The average particulate matter concentration at Queen Street is slightly higher than the same period of the previous year. PM₁₀ and PM_{2.5} have multiple sources including home heating, motor vehicles, sea salt, marine diesel, and soils (windblown soil, road dust, and dust generated by earthworks, construction, and road works).

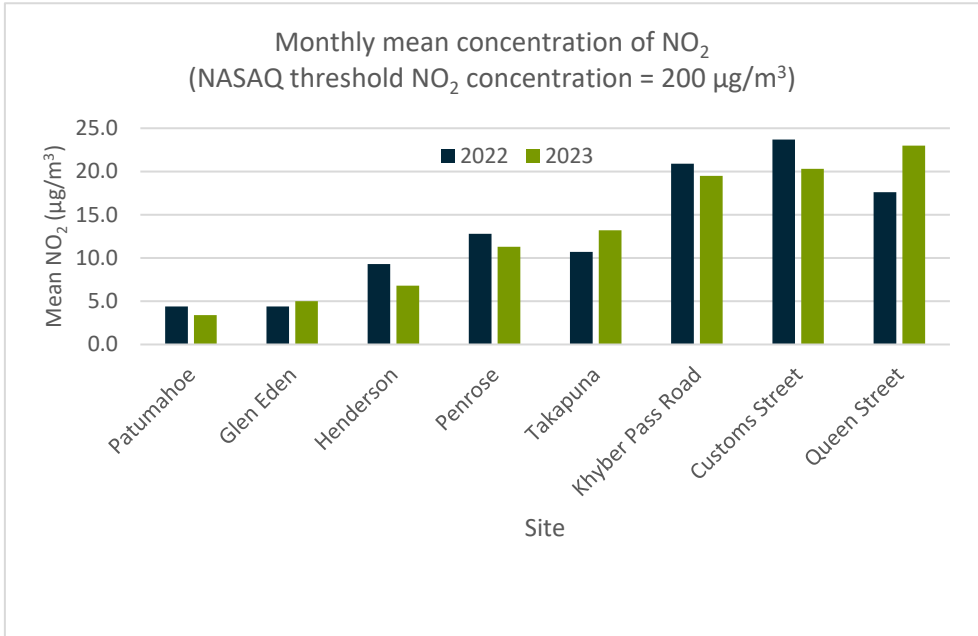


Figure 3. Monthly mean NO₂ concentration in Auckland. The highest concentrations were recorded at monitoring sites in the city centre. In March and April higher levels of NO₂ were recorded at Queen Street compared to the previous year. Motor vehicles are the primary source of NO₂.

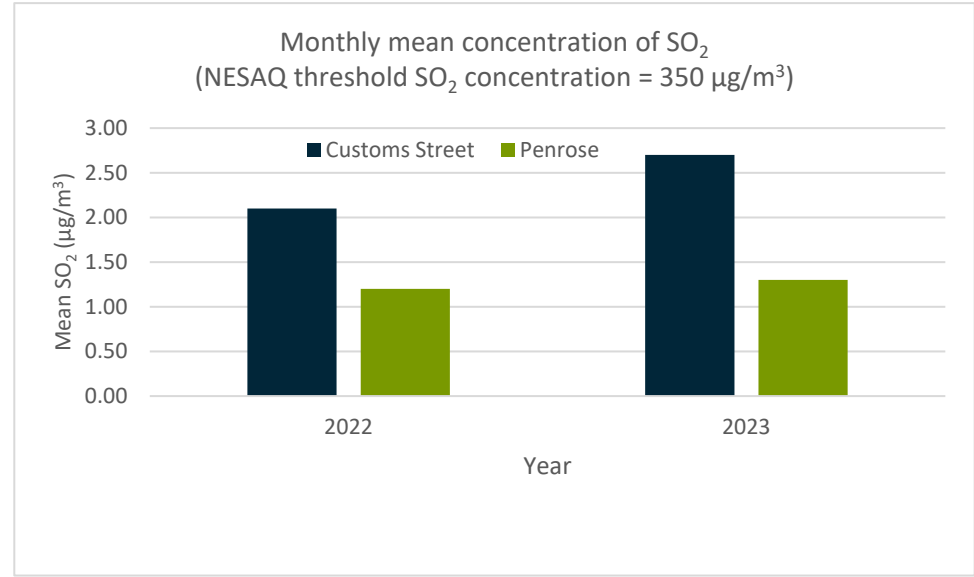


Figure 4. Monthly mean SO₂ levels at Customs Street and Penrose sites. The highest concentrations were recorded at the Customs Street monitoring site in the city centre. The mean concentrations at both sites were higher than the previous year. SO₂ is produced from the combustion of fossil fuels that contain sulphur, such as coal and oil (used for home heating, industry, and shipping). Motor vehicles also contribute to SO₂ levels in urban air.

Section C. Sims Metal scrapyard fire on 31 May 2023: brief review of air pollution levels

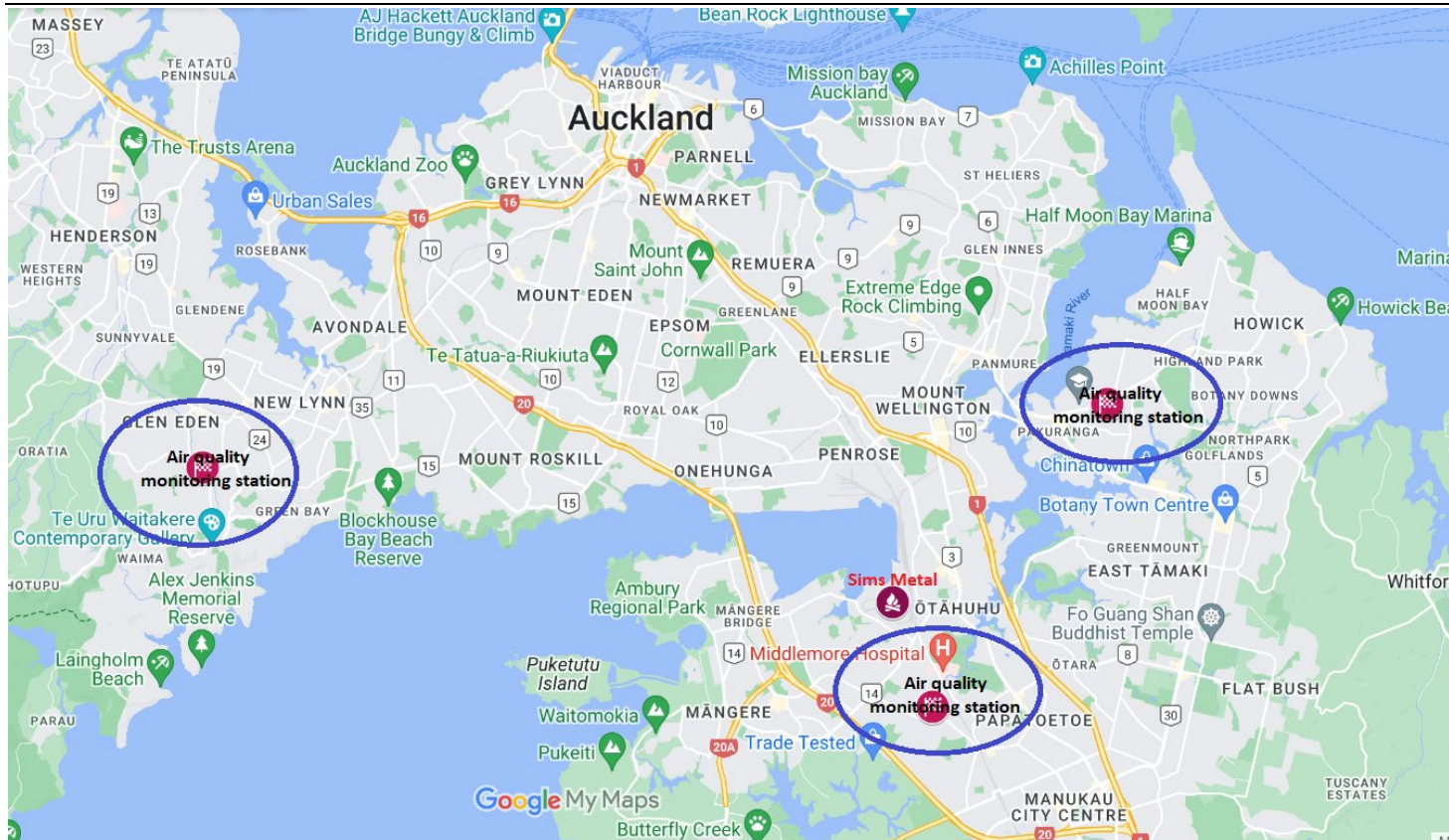




Figure 5. A Google map showing the Papatoetoe, Glen Eden and Pakuranga air quality monitoring stations and fire site.

-  Air quality monitoring stations site
-  Sims metal fire site

Key findings:

- On 31 May 2023 a large fire at the Sims Metal scrapyard in Favona raised concerns about air quality in south and east Auckland.
- Particulate matter emissions from the fire was detected at three of the monitoring stations; Glen Eden, Papatoetoe and Pakuranga on the day of the fire.
- The fire temporarily caused a substantial rise in particulate matter levels.
- Compared with the average of the previous four to five years, elevations ranged from 1% to 129%.
- Particulate matter levels returned to normal levels within 26 hours and there was no exceedance of the National Air Quality Standards.

Increase in particulate matter levels – 31 May 2023 compared to 31 May 2022

During the fire, emissions were detected at three air quality monitoring stations. Glen Eden, located approximately 21 kilometres north-west of the fire site, recorded a 22% increase in PM₁₀ levels and a 40% increase in PM_{2.5} concentration compared to the same day in the previous year. In Papatoetoe station, situated approximately four kilometres south of the fire, PM₁₀ levels spiked by 58%. Pakuranga station, located about 12 kilometres north-east of the incident, experienced a 12% increase in PM₁₀ levels. Pakuranga also observed a significant rise of 100% in PM_{2.5} levels, indicating a higher concentration of fine particulate matter. Figure 5 shows the map of the air quality monitoring stations and the fire site. The spike in PM₁₀ levels on 31 May 2023 relative to the normal pattern of concentrations at the sites is shown in Figure 6 below.

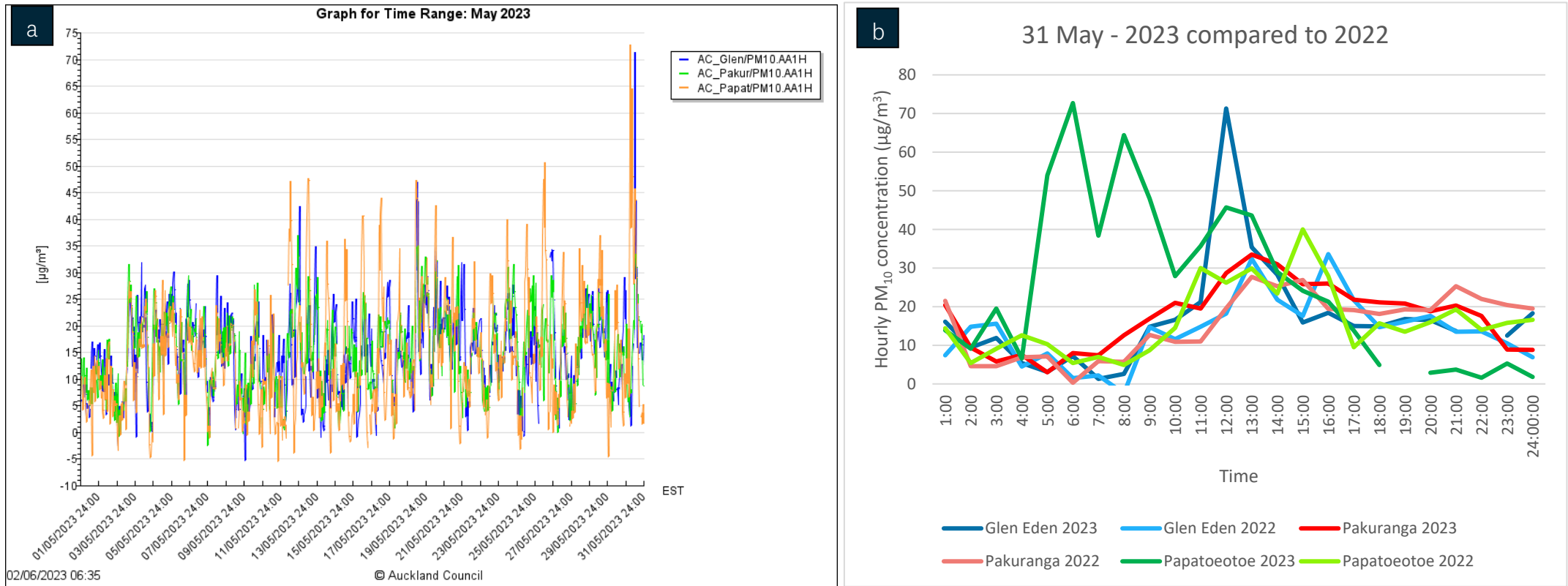


Figure 6. Charts showing the spikes in PM₁₀ levels at the three monitoring stations on 31 May 2023. Chart **a** shows PM₁₀ concentration variations throughout May, indicating spikes on 31st. Chart **b** shows spikes in PM₁₀ levels during the early hours of the fire.

An analysis of particulate matter levels in May 2023 compared to the previous year showed that Glen Eden experienced a significant 17% increase in PM₁₀ levels and an even higher 24% increase in PM_{2.5} concentration. Despite being relatively close to the fire site, Papatoetoe station recorded a lesser impact with a 4% increase in PM₁₀ levels, which can be attributed to favourable wind direction. In the case of Pakuranga station, there was a notable 15% increase in PM₁₀ levels along with a 22% increase in PM_{2.5} levels. Table 3 below provides the summary PM₁₀ and PM_{2.5} the average concentrations recorded at the three sites compared to previous year and past four to five years average (when data is available).

Table 3. Particulate matter concentrations measured at the three air quality monitoring stations. The National Environmental Standard (NES) for 24-hour average PM₁₀ is 50 µg/m³. The World Health Organisation guideline for 24-hour average PM_{2.5} levels is 15 µg/m³

		Daily average for May (µg/m ³)		Average level for 31 May (µg/m ³)	
Year	Site	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
2022	Glen Eden	12.3	5.1	13.8	5.0
	Papatoetoe	13.6	No data	16.2	No data
	Pakuranga	13.0	4.9	15.5	4.0
2023	Glen Eden	14.4	6.3	16.8	7.0
	Papatoetoe	14.1	No data	25.6	No data
	Pakuranga	14.9	6.0	17.3	8.0
Past five years (* four-year average, ** Not enough data)	Glen Eden	12.9	5.7*	12.9	**
	Papatoetoe	14.0	No data	14.0	No data
	Pakuranga	12.4	5.3*	10.1	3.5

Increase in particulate matter levels – 31 May 2023 compared to the past four to five years average (when data is available)

In addition to emissions, various factors, including weather conditions, can impact air pollutant concentrations. To adjust for the influence of meteorological conditions, we have conducted a comparison of PM concentrations averaged over the corresponding period in previous years (up to five years from 2018). The Glen Eden station observed a 12% increase in PM₁₀ levels compared to the average of the past five years. The Papatoetoe site recorded a relatively minor 1% increase in PM₁₀ levels when compared to the five-year average. However, the impact was more significant in Pakuranga, where the air quality monitoring station recorded a 20% increase in PM₁₀ levels compared to the five-year average. The Pakuranga site exhibited a 129% increase in PM_{2.5} levels compared to the average of the past four years, indicating a more severe impact on air quality in that area.

It is important to note that the predominant particulate matter concentration rose for 31 May 2023 differed from the same period in the previous year (See Figure 7)

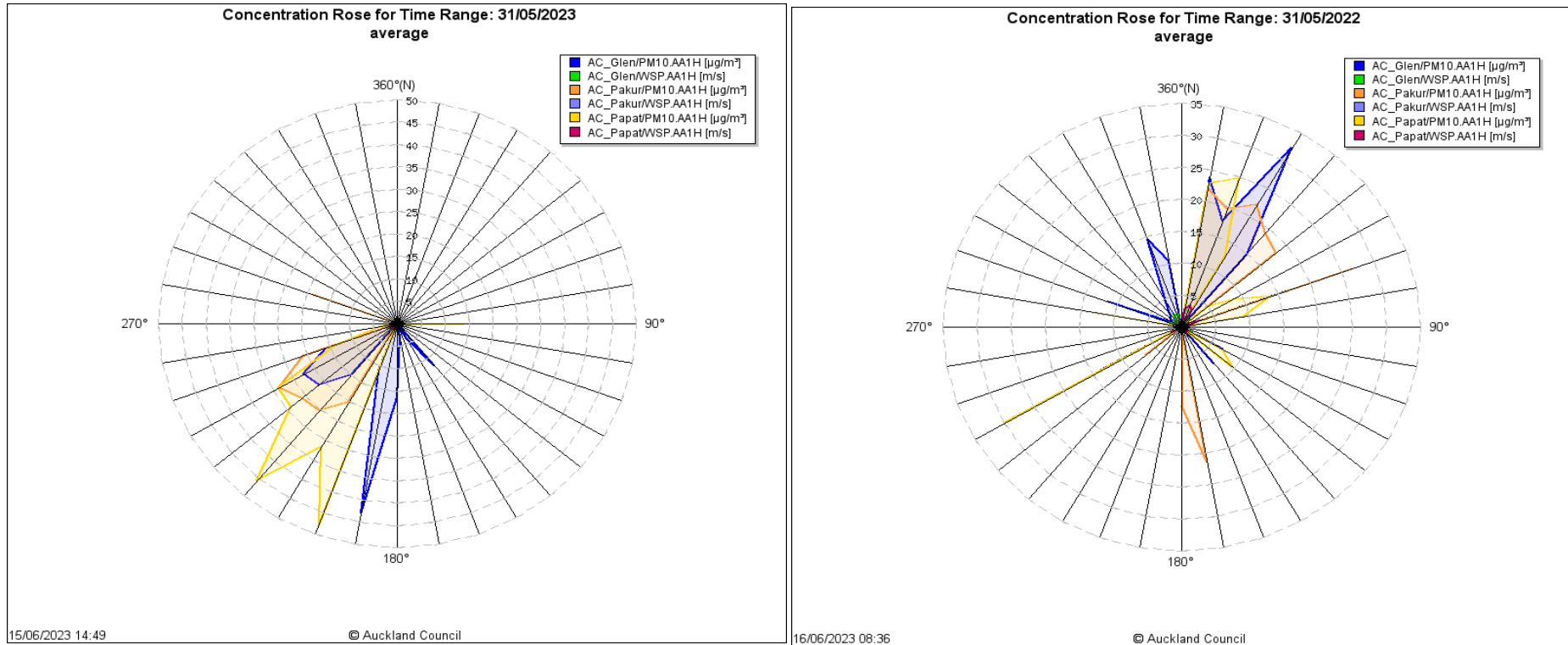


Figure 7. Comparison of PM₁₀ concentration roses on 31 May 2023 (left) and 31 May 2022 (right). Wind Direction: 31 May 2023 (predominantly south-western) vs. 31 May 2022 (mainly north-eastern). Wind speeds are split into the intervals shown by the scale in each panel. The grey circles show the per cent frequencies.

Section D. Table 4. Monthly averages: 2023 and past two to five years (when data is available)

Pollutant	Site	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PM ₁₀ (µg/m ³)	Glen Eden	2023	8.9	10.9	10.0	13.0	14.5	-	-	-	-	-	-	-
		Past 5 years	11.6	11.1	9.6	11.1	12.9	15.4	15.6	13.8	11.5	10.2	11.9	12.9
	Henderson	2023	10.1	12.2	10.6	12.5	13.8	-	-	-	-	-	-	-
		Past 5 years	12.0	11.5	11.0	11.7	12.5	12.9	13.1	12.1	11.1	10.5	12.5	12.8
	Khyber Pass Road	2023	12.2	14.6	14.0	16.0	16.6	-	-	-	-	-	-	-
		Past 4 years	11.8	11.4	10.8	11.4	10.9	11.1	11.9	11.3	11.2	11.0	12.9	13.8
	Pakuranga	2023	9.6	11.1	11.4	13.0	14.9	-	-	-	-	-	-	-
		Past 5 years	12.1	11.5	10.0	10.7	12.4	13.3	14.2	13.0	11.4	10.9	12.6	12.7
	Papatoetoe	2023	9.8	12.0	12.8	12.6	14.1	-	-	-	-	-	-	-
		Past 5 years	14.2	13.6	12.4	13.1	14.0	14.0	15.6	14.3	13.5	13.0	14.5	14.7
	Patumahoe	2023	8.9	10.7	12.0	11.0	9.7	-	-	-	-	-	-	-
		Past 5 years	14.9	14.3	12.5	12.2	11.8	9.9	10.5	10.8	11.4	11.1	13.3	14.9
	Penrose	2023	12.4	14.2	14.6	16.5	16.0	-	-	-	-	-	-	-
		Past 5 years	15.6	14.9	14.1	14.3	15.5	14.2	14.9	13.9	13.5	12.9	15.0	15.9
Queen Street	2023	16.8	19.5	19.2	21.7	22.7	-	-	-	-	-	-	-	
	Past 5 years	17.5	16.7	16.0	16.5	16.9	16.7	18.4	18.2	17.8	17.9	19.1	19.4	
Takapuna	2023	11.5	ND	12.6	15.0	15.9	-	-	-	-	-	-	-	
	Past 5 years	13.1	12.3	11.0	12.4	12.8	13.3	14.1	12.9	11.7	11.3	13.0	13.4	
PM _{2.5} (µg/m ³)	Customs Street	2023	3.7	3.8	3.1	4.5	5.2	-	-	-	-	-	-	-
		Past 3 years	4.4	3.7	3.3	3.9	4.0	4.7	4.8	5.6	5.5	3.8	3.8	3.7
	Glen Eden	2023	2.1	2.7	2.2	3.3	6.2	-	-	-	-	-	-	-
		Past 4 years	2.7	2.5	2.0	3.1	5.7	9.8	9.7	7.7	5.0	3.2	3.5	3.2
	Pakuranga	2023	2.9	3.2	3.1	4.0	6.0	-	-	-	-	-	-	-
		Past 4 years	3.0	2.9	2.5	3.5	5.3	6.3	9.3	5.7	4.4	3.2	3.9	3.5
	Patumahoe	2023	4.9	6.4	4.8	5.2	4.8	-	-	-	-	-	-	-
		Past 5 years	5.4	4.5	4.3	5.0	5.4	5.1	4.7	4.8	4.7	4.4	5.2	5.3
	Penrose	2023	4.2	4.7	4.6	5.1	5.1	-	-	-	-	-	-	-
		Past 5 years	6.8	5.3	5.0	5.6	6.5	7.3	7.3	6.3	5.8	5.8	6.5	5.9
Queen Street	2023	7.2	8.0	7.5	9.0	9.8	-	-	-	-	-	-	-	
	Past 5 years	7.1	6.5	6.0	6.7	7.2	7.4	8.0	7.7	7.3	7.3	7.7	7.9	
Takapuna	2023	ND	ND	5.3	7.1	8.3	-	-	-	-	-	-	-	
	Past 5 years	5.9	5.4	4.9	5.7	6.8	8.2	8.8	7.7	6.6	6.1	6.7	6.3	
NO ₂ (µg/m ³)	Customs Street	2023	18.7	17.8	20.1	21.3	23.8	-	-	-	-	-	-	-
		Past 3 years	34.8	36.9	39.1	30.8	37.1	52.4	37.4	35.6	30.8	29.1	24.1	23.9
	Glen Eden	2023	6.0	5.0	4.0	4.1	5.8	-	-	-	-	-	-	-
		Past 5 years	2.0	3.0	4.0	4.6	7.4	8.2	7.9	6.1	4.7	4.6	3.8	2.9
	Henderson	2023	4.5	5.1	7.0	7.6	9.8	-	-	-	-	-	-	-
		Past 5 years	3.9	7.3	8.4	8.7	12.0	12.8	11.7	9.2	7.5	6.5	6.1	4.7
	Khyber Pass Road	2023	11.4	18.7	26.0	11.2	23.5	-	-	-	-	-	-	-
		Past 4 years	21.5	19.5	22.4	23.8	32.8	33.8	35.1	30.8	30.2	24.9	30.0	20.1
	Patumahoe	2023	2.1	2.5	3.2	4.6	4.8	-	-	-	-	-	-	-
		Past 5 years	1.4	2.0	2.9	2.8	3.8	4.2	4.3	3.4	2.5	2.4	2.4	2.1
	Penrose	2023	6.3	9.2	15.4	11.7	14.1	-	-	-	-	-	-	-
		Past 5 years	9.0	10.8	13.4	16.9	22.3	22.8	22.8	18.7	16.6	12.6	12.9	8.5
Queen Street	2023	10.8	10.0	30.1	29.7	34.3	-	-	-	-	-	-	-	
	Past 5 years	28.2	28.8	30.8	31.0	37.4	39.5	43.2	42.1	37.7	36.4	32.2	28.0	
Takapuna	2023	5.3	ND	19.0	12.6									
	Past 5 years	6.5	8.4	10.7	14.6	20.2	21.1	22.1	18.5	15.2	12.7	11.8	7.9	
SO ₂ (µg/m ³)	Customs Street	2023	2.3	2.4	2.5	3.2	2.5	-	-	-	-	-	-	-
		Past 3 years	1.6	1.6	2.3	1.5	1.7	4.4	2.6	2.8	2.2	2.2	1.6	1.5
	Penrose	2023	1.2	1.6	1.7	0.9	1.7	-	-	-	-	-	-	-
Past 5 years		0.5	0.8	1.1	0.8	1.2	1.2	1.0	0.8	1.0	0.8	1.0	0.5	
O ₃ (µg/m ³)	Patumahoe	2023	26.1	25.8	26.3	40.1	26.3	-	-	-	-	-	-	
		Past 5 years	26.6	29.3	33.4	38.9	41.2	43.1	46.8	52.6	51.4	46.9	41.0	31.4
CO (mg/m ³)	Khyber Pass Road	2023	0.105	0.159	0.220	0.160	0.053	-	-	-	-	-	-	
		Past 4 years	0.206	0.180	0.192	0.216	0.268	0.258	0.297	0.220	0.204	0.178	0.183	0.164
Black carbon (ng/m ³)	Customs Street	2023	1095	1286	1735	1429	1735	-	-	-	-	-	-	
		Past 3 years	1447	1535	1316	1094	1356	3363	1350	1326	1034	1016	1127	1047
	Henderson	2023	247	316	510	455	510	-	-	-	-	-	-	
		Past 5 years	265	458	566	540	995	1204	1113	879	542	412	381	301

ND = No data measured due to Auckland flood

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