



Adelaide Brighton Cement Ltd

an **ADBRI** company

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QUARTERLY GROUND LEVEL PARTICULATE MONITORING REPORT FOR BIRKENHEAD WORKS

COMPLIANCE DATE: 31/12/24 - Quarter 4, 2024

**EPA Licence 1126: Ground Level Particulate Monitoring and
Reporting Plan (U - 1555)**

Licensed site: Adelaide Brighton Cement, Birkenhead Works

62 Elder Road, Birkenhead, SA 5015

Date of Submission: 31 January 2025

Version Number: 1



Report Submitted by: Business Partner - Environment

Glossary

Term	Definition
$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
μm	micrometre
$^{\circ}\text{C}$	degrees Celsius
m	metre
m^3	cubic metre
m^3/s	cubic metres per second

Nomenclature

Definition	Definition
PM_{10}	Particulate matter with a diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with a diameter less than 2.5 micrometres
TSP	Total Suspended Particulate
24 hour average	Calendar day (midnight to midnight)

Abbreviations

Definition	Definition
ABC	Adelaide Brighton Cement
Air EPP	South Australian Environment Protection (Air Quality) Policy 2016
GLPMRP	ABC's Ground Level Particulate Monitoring and Reporting Plan
EPA	Environment Protection Authority

Monitoring Locations

- Map showing sampling locations, major infrastructure, sensitive environmental receptors, and north arrow.



Monitoring locations are indicated by colour-coded dots on the above map.

NB: Four sampling points are located on the Birkenhead Works site; the other monitoring locations are in the community (Community Park), and Corner of Walton Street and Mary Street.

The property (not owned by ABC), on which the Gunn Street Monitor was located, was sold for redevelopment and was no longer available for use. As a consequence the monitor was removed on 28 June 2022. After a period of negotiating with the EPA and discussion with City of Port Adelaide Enfield Council, Adbri initiated the application process for installation of a permanent air quality monitor in the preferred location, the NW corner of Naval Reserve in November 2023. The application was ultimately not approved in June 2024 and Adbri will continue to work respectfully with both parties to reinstate a long term solution. In the mean time a trailer mounted air quality monitor has been set up on the corner of Walton Street and Mary Street, Peterhead, until a long-term monitoring station can be established

Monitoring Objective	<p>To provide monitoring and reporting of ground level particulate concentrations (PM10 and PM2.5), from a network of monitors located within and external to the site premises.</p> <ul style="list-style-type: none"> • Monitoring data for each monitor (on site and off site) shall include: <ul style="list-style-type: none"> ○ Monthly wind rose showing the distribution of wind directions ○ Monthly dust rose showing the distribution of PM₁₀ concentration ○ Monthly dust rose showing the distribution of PM_{2.5} concentration ○ Monitoring data for each ABC monitor (on site and off site) including EPA monitor (Le Fevre 1) for comparison as follows: <ul style="list-style-type: none"> ○ Monthly time series graph of 24-hour average PM₁₀ concentration reported against the Air EPP for PM₁₀ of 50 micrograms per cubic metre (24-hour average). ○ Monthly time series graph of 24-hour average PM_{2.5} concentration reported against the Air EPP for PM_{2.5} of 25 micrograms per cubic metre (24-hour average).
Monitoring Plan	<p>This monitoring report has been prepared in compliance with the Ground Level Particulate Monitoring and Reporting Plan (GLPMRP), approved 16 October 2023 by the South Australian EPA.</p> <p>The Plan is available on the ABC Birkenhead Community Website: https://adelaidebrightoncommunity.com.au/</p> <p>In September ABC installed and commissioned trailer mounted monitoring stations at two locations in the local community. One of these was co-located at the ABC Community Park (Birkenhead), and the other was located on the corner of Walton Street and Mary Street, Peterhead, and is a replacement for the former Gunn Street monitor until a long-term monitoring station can be established.</p> <p>The trailer mounted monitoring stations have been set up to measure PM2.5, PM10 and TSP particulate sizes using the following equipment:</p> <ul style="list-style-type: none"> • Thermo Scientific Model 5028i BAM which consistently measure PM2.5 and PM10. • Thermo Scientific Model 5014i BAM which consistently measure TSP. • 10m pump up mast 86000 Wind Speed/Direction Sensor • Wind speed and direction at each particulate monitor is measured continuously by a RM Young 86000 windspeed and direction sensor, mounted on a 10m pump up mast. <p>This monitoring arrangement allows for analysis of the new BAM equipment capability and suitability, and to address concerns raised by the EPA with the PM2.5, PM10 and PM2.5/PM10 ratio measured by the DustTrak monitors, that have been in service.</p>

	<p>The new BAM's at Community Park and Walton Street commenced operation on the 10 and 11 September, respectively.</p> <p>A revised Ground Level Particulate Monitoring and Reporting Plan (GLPMRP), capturing the changes in monitoring has been submitted to the EPA for review and approval, and will be made available on the ABC Birkenhead Community Website: https://adelaidebrightoncommunity.com.au/ when approved.</p>
<p>Monitoring data for each ABC monitor</p>	<p>Monitoring reports for October, November and December, provide for each monitor the following:</p> <ul style="list-style-type: none"> • PM_{2.5}, PM₁₀, 24-hour averages • PM_{2.5}, PM₁₀ monthly wind & dust rose <p>Insufficient PM_{2.5} data at the Community Park monitor was collected on 18/12/2024 for a valid 24 hr average, due to monthly maintenance and replacement of PM_{2.5} channel detector.</p> <p>There were no 24-hour exceedances of PM₁₀ or PM_{2.5} Air (EPP) criteria on community particulate monitors, during this reporting period.</p>
<p>Appendix</p>	<p>October, November and December Monitoring Reports</p>

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Monitoring Summary (01 Oct, 2024 - 31 Oct, 2024)

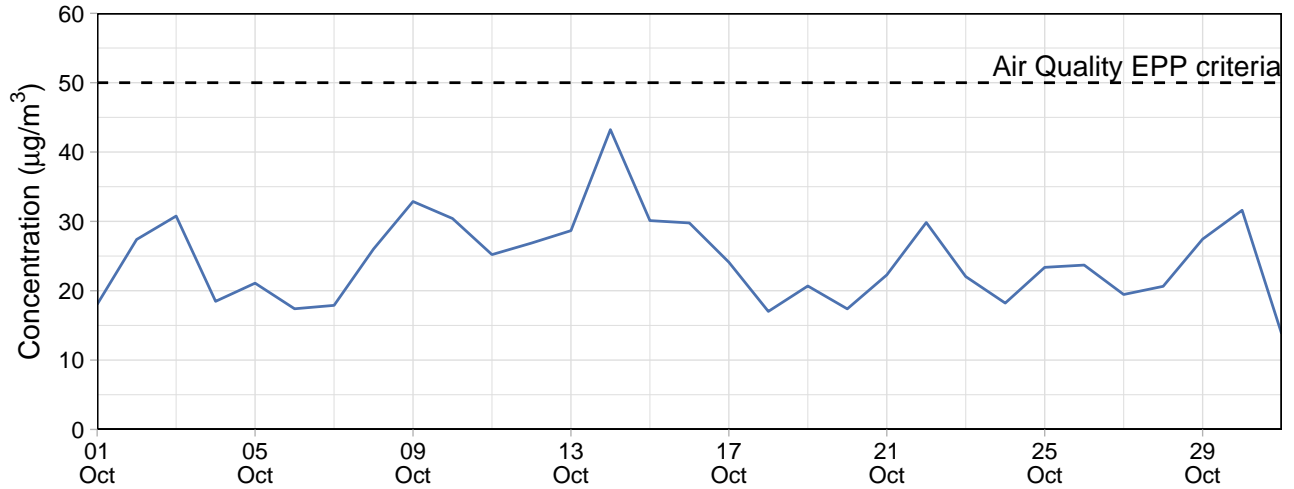
Public Monitors

Table 1: Summary of 24-hour average data collected at public monitors ($\mu\text{g}/\text{m}^3$)

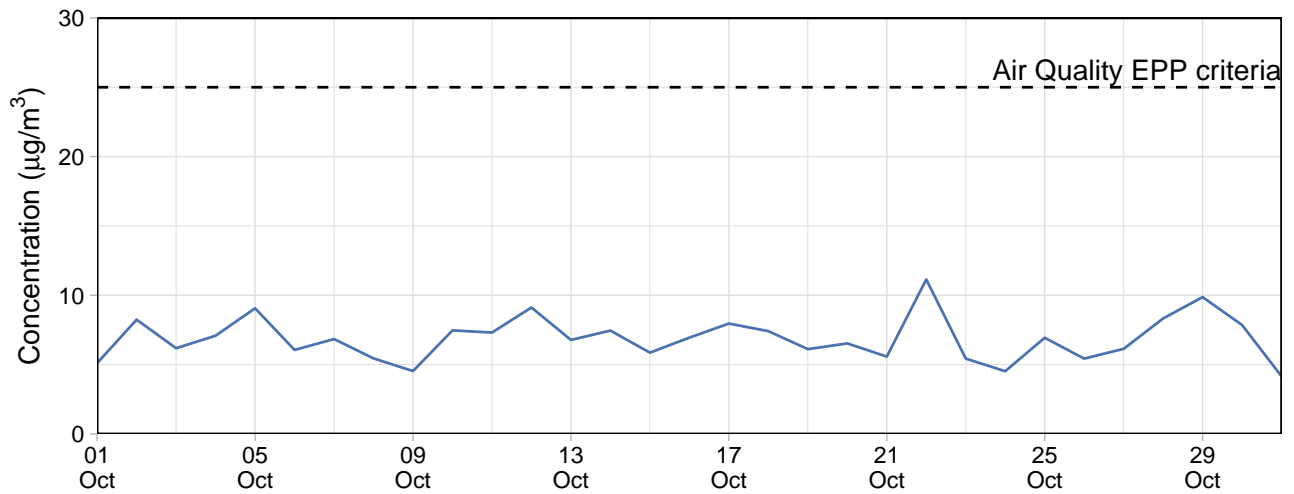
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Community Park BAM	13.8	24.4	43.2	100	4.1	6.9	11.1	100
Walton Street	12.4	20.1	30.4	100	2.4	5.7	9.9	100

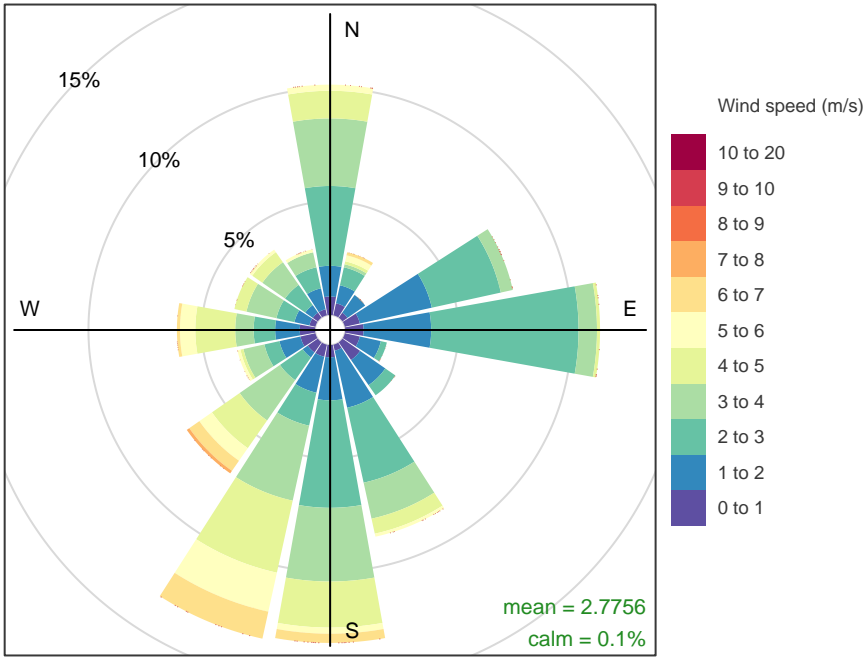
Community Park BAM

Community Park BAM – 24-hour average PM₁₀

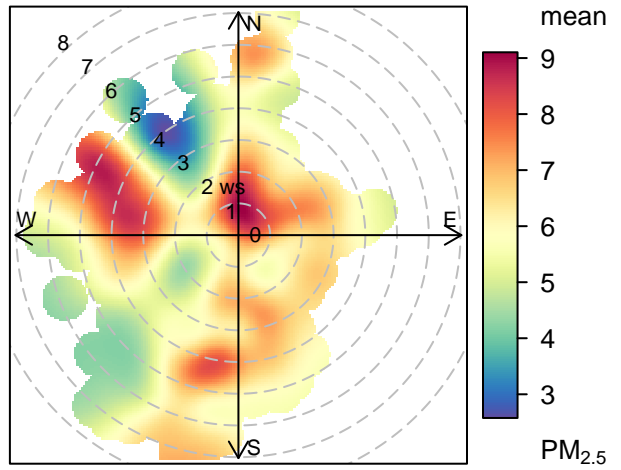
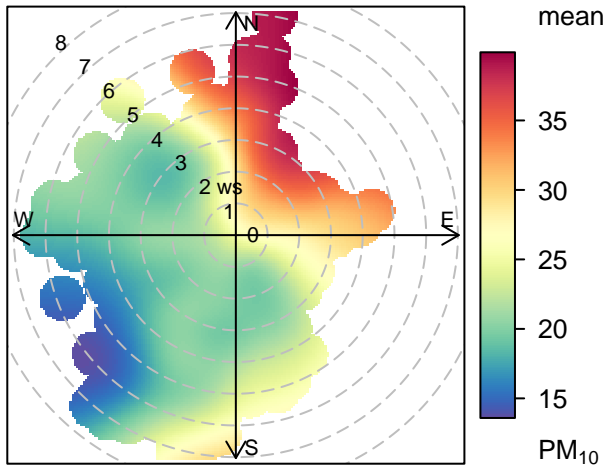


Community Park BAM – 24-hour average PM_{2.5}



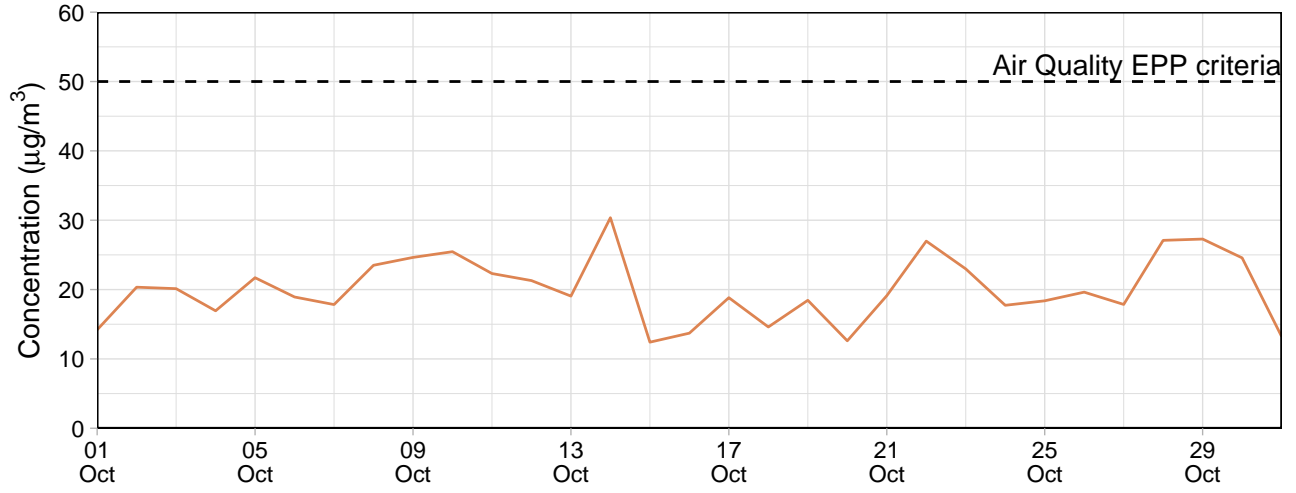


Frequency of counts by wind direction (%)

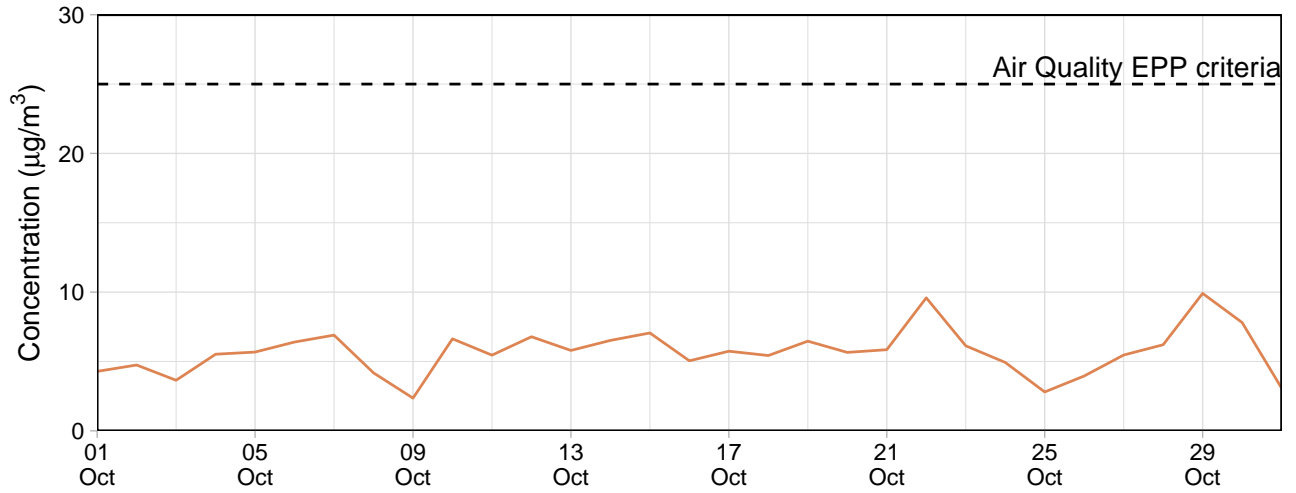


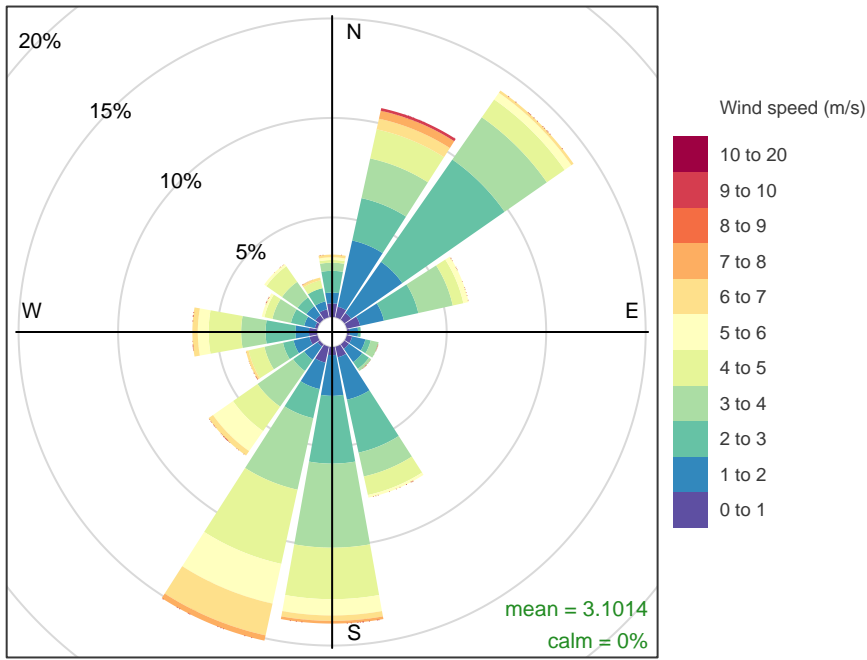
Walton Street

Walton Street – 24-hour average PM₁₀

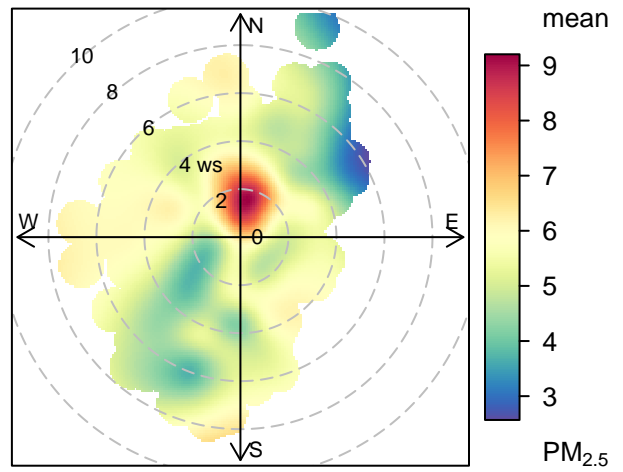
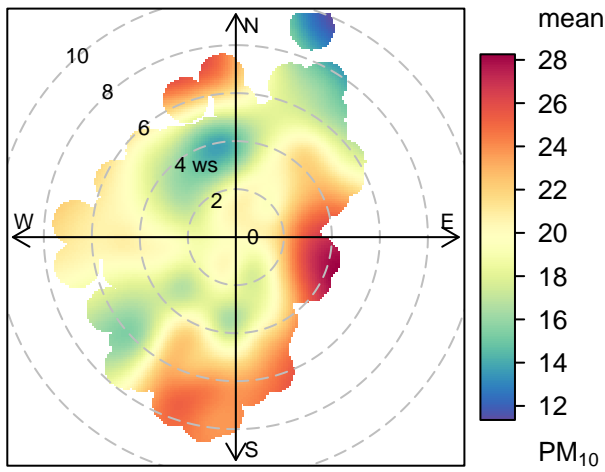


Walton Street – 24-hour average PM_{2.5}





Frequency of counts by wind direction (%)



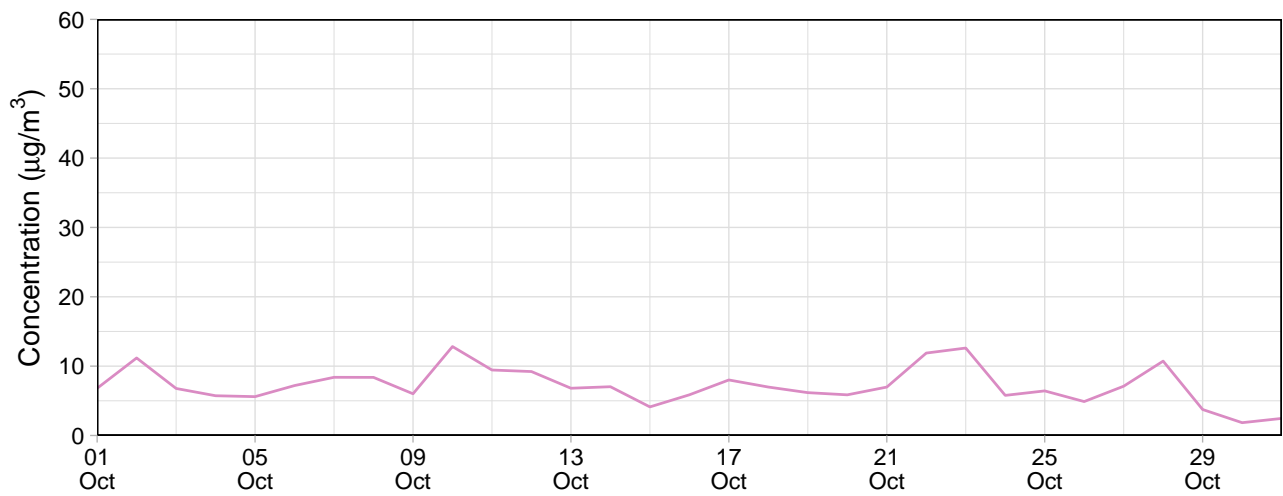
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Table 2: Summary of 24-hour average data collected at internal monitors ($\mu\text{g}/\text{m}^3$)

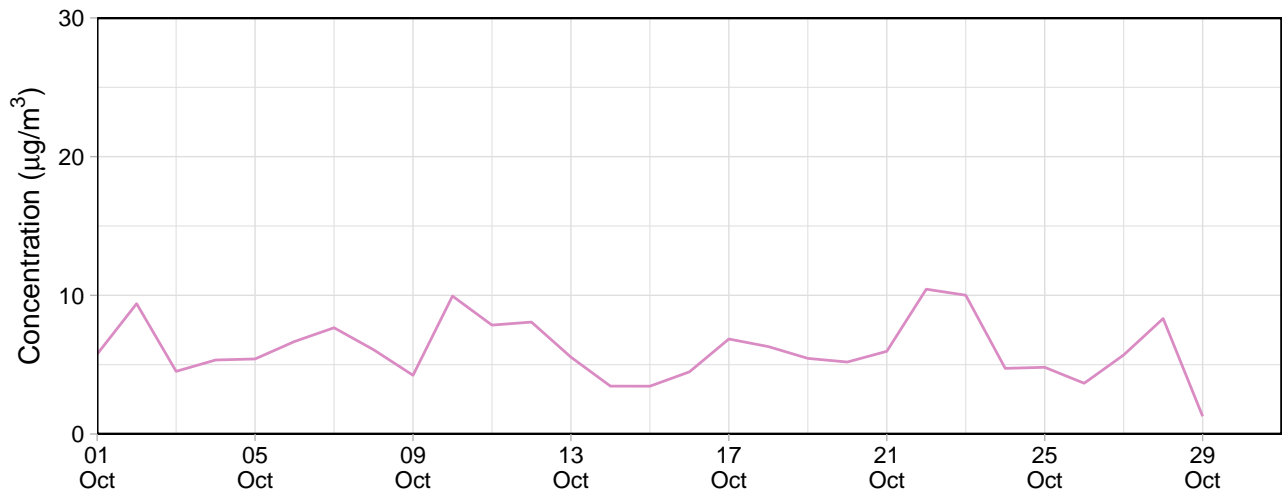
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Southern Grounds	3.9	7.0	11.8	100	3.6	6.1	10.1	100
Eastern Grounds	5.7	8.7	13.6	100	4.4	7.1	11.8	100
Block 9	2.9	6.4	12.6	100	2.6	5.5	9.8	100
Northern Grounds	1.8	7.2	12.8	100	-0.3	5.7	10.4	100

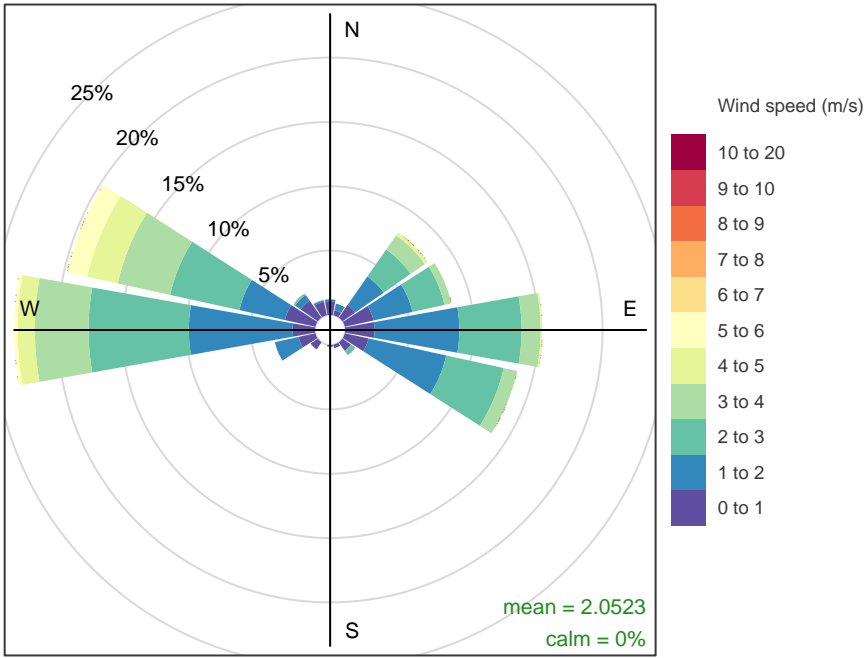
Northern Grounds

Northern Grounds – 24-hour average PM₁₀

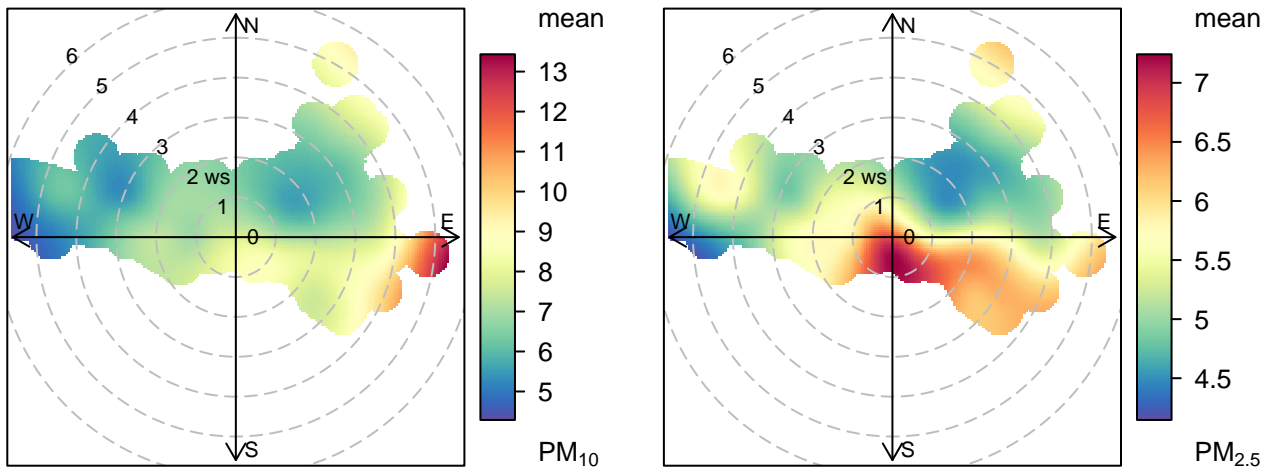


Northern Grounds – 24-hour average PM_{2.5}



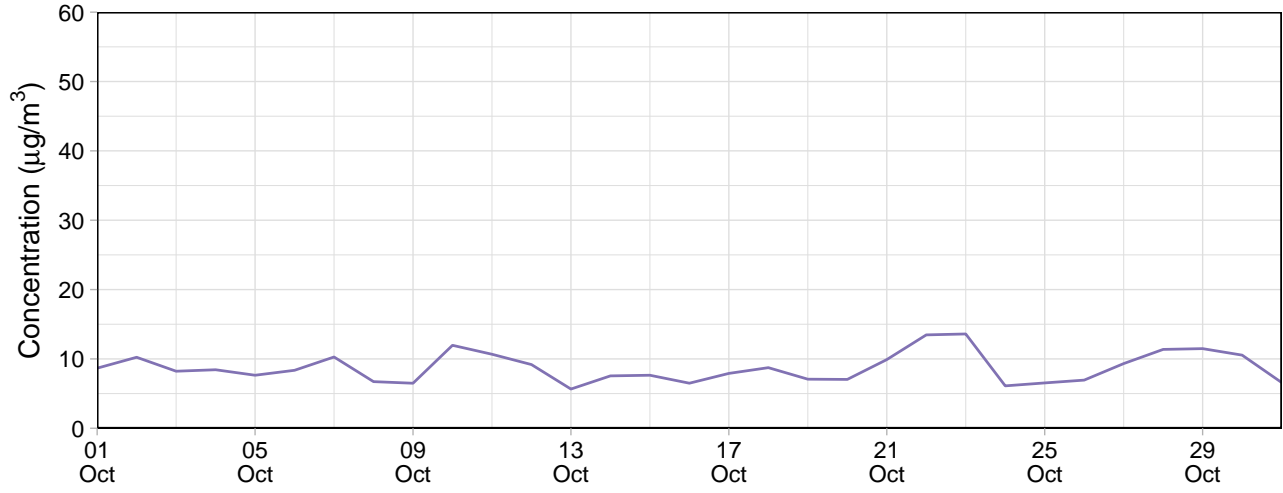


Frequency of counts by wind direction (%)

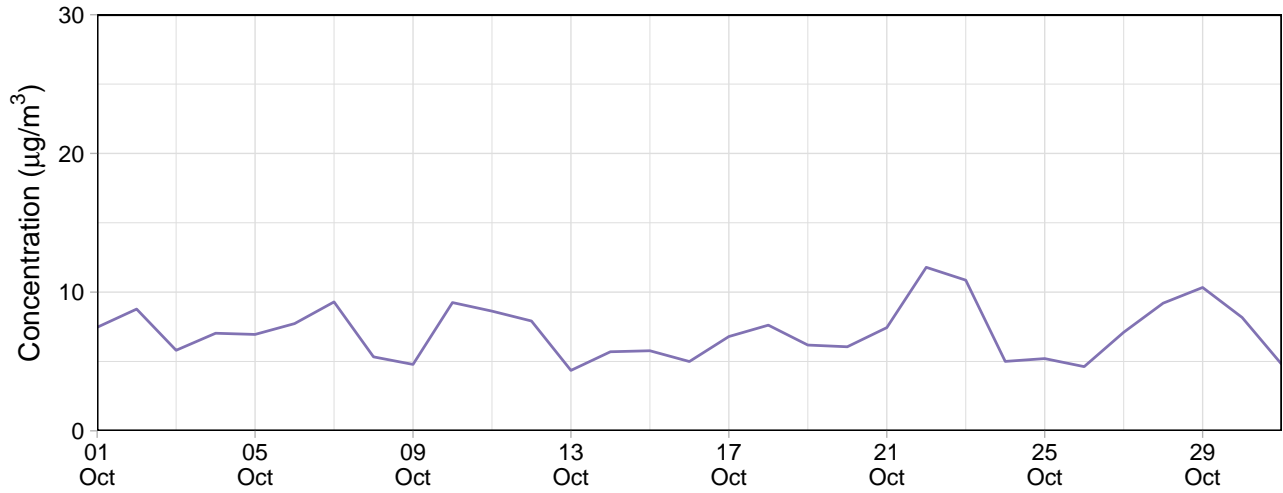


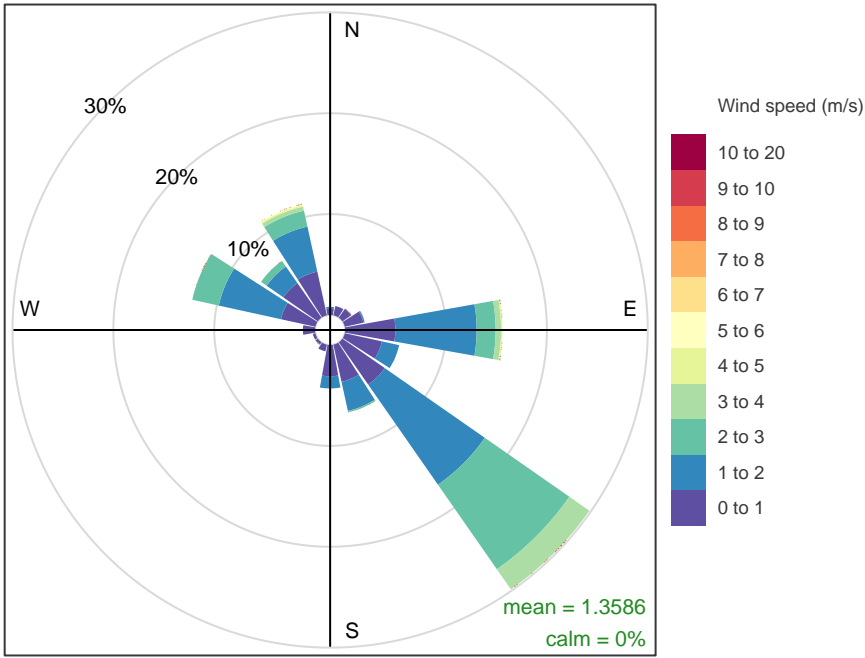
Eastern Grounds

Eastern Grounds – 24-hour average PM₁₀

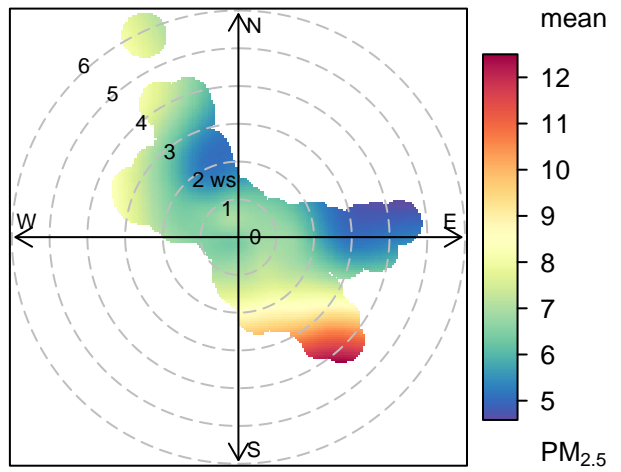
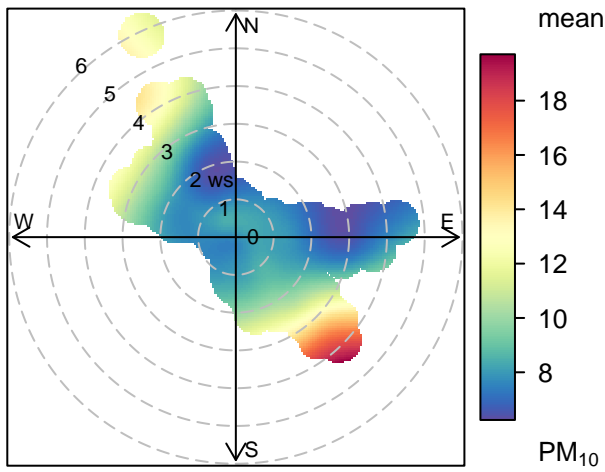


Eastern Grounds – 24-hour average PM_{2.5}



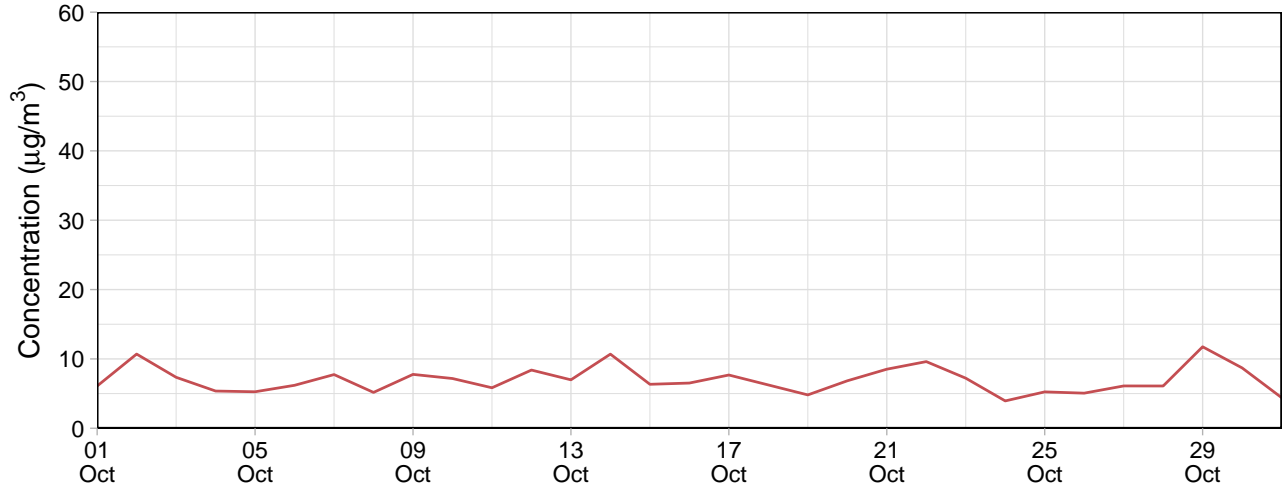


Frequency of counts by wind direction (%)

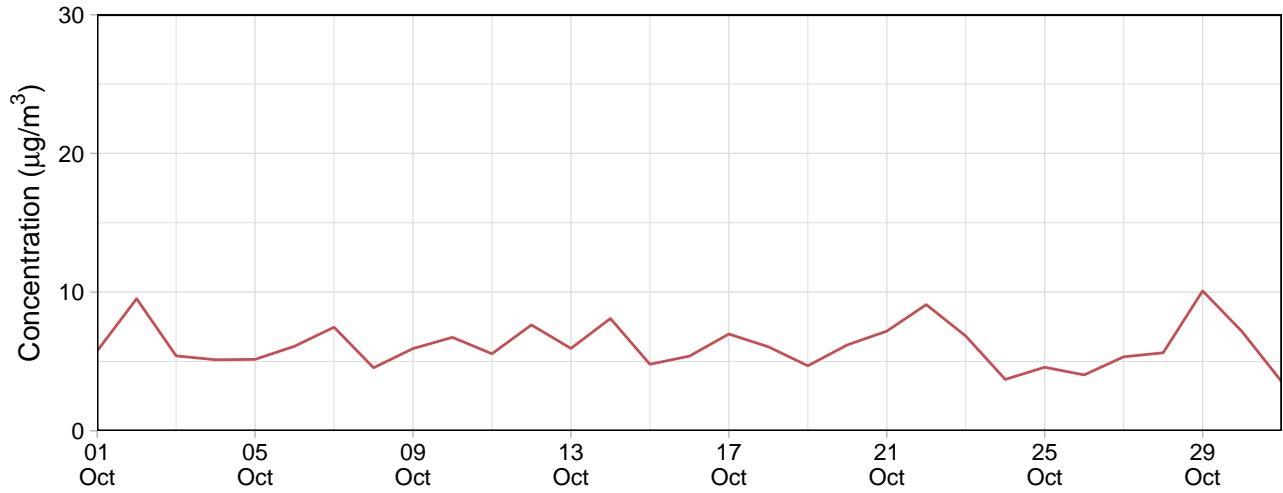


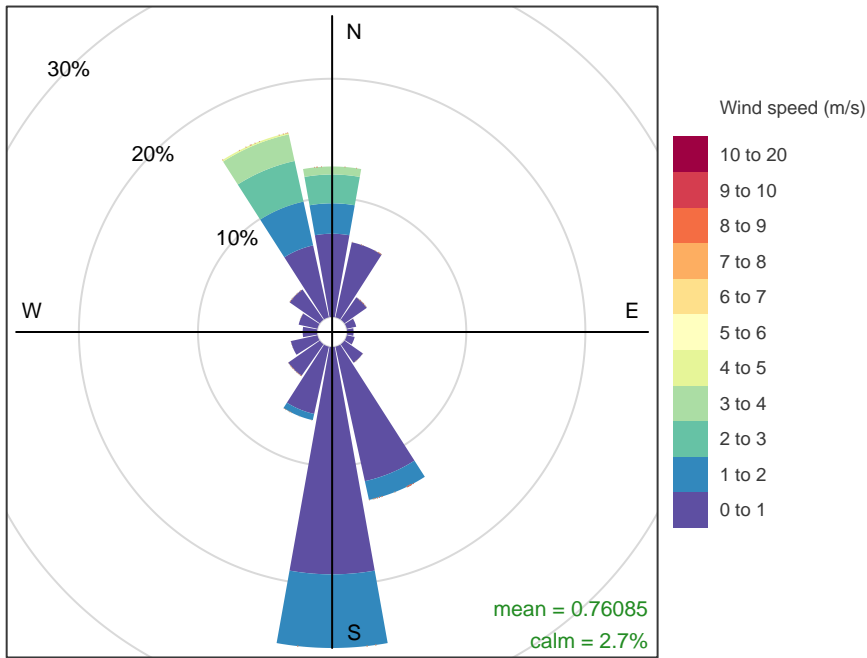
Southern Grounds

Southern Grounds – 24-hour average PM₁₀

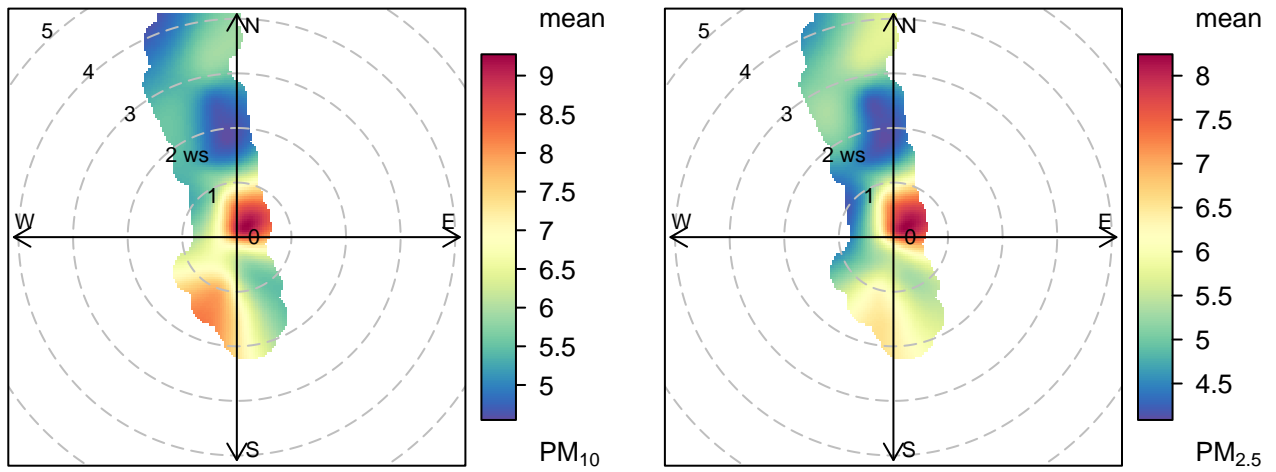


Southern Grounds – 24-hour average PM_{2.5}



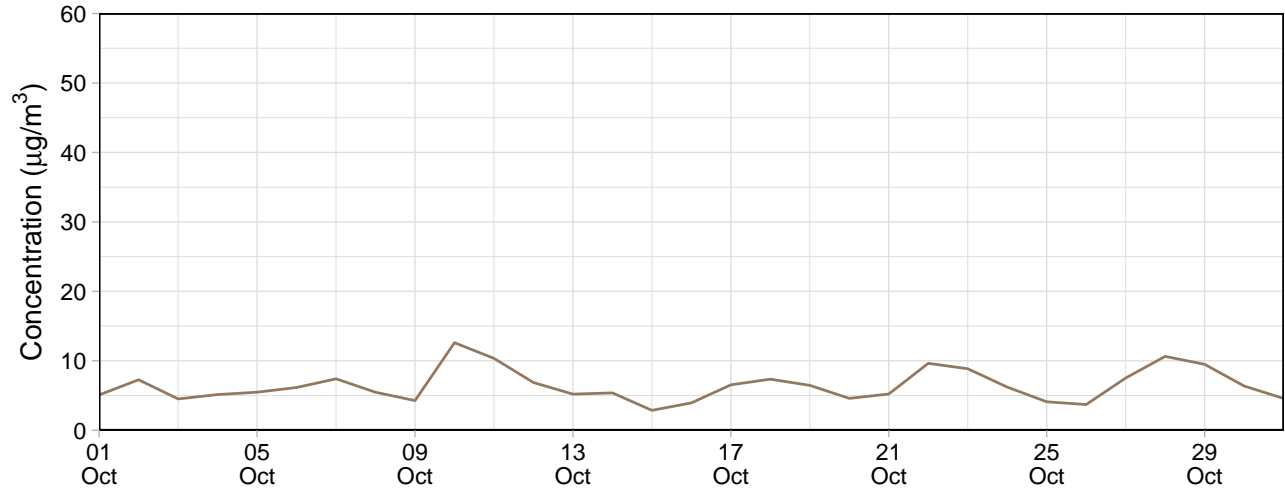


Frequency of counts by wind direction (%)

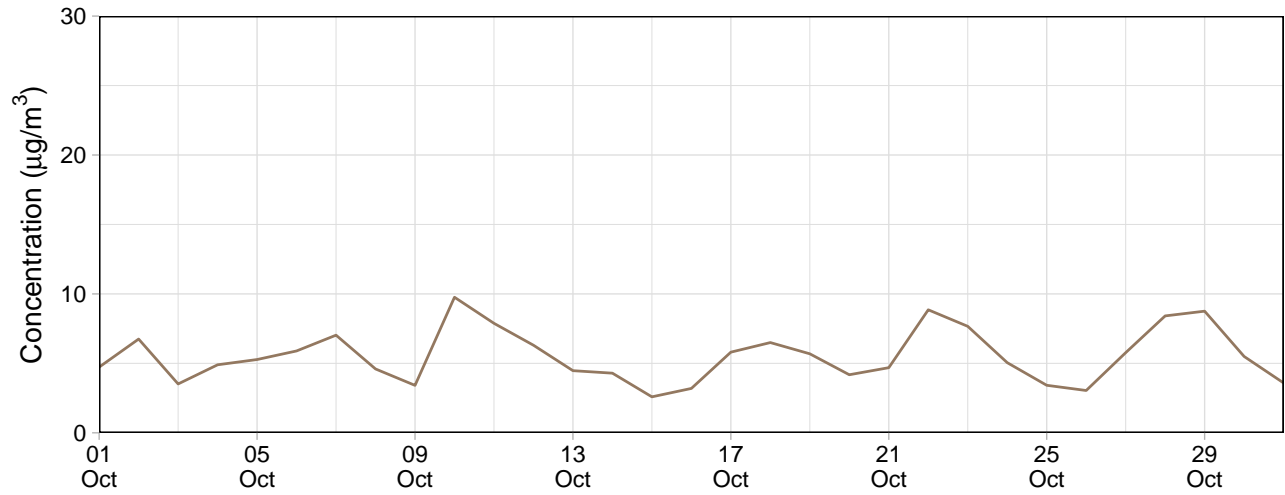


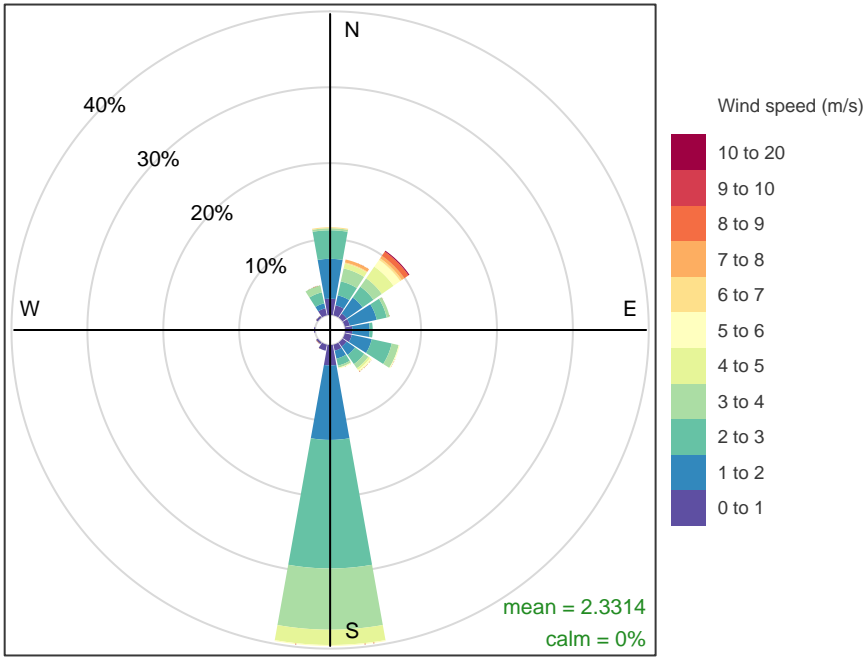
Block 9

Block 9 – 24-hour average PM₁₀

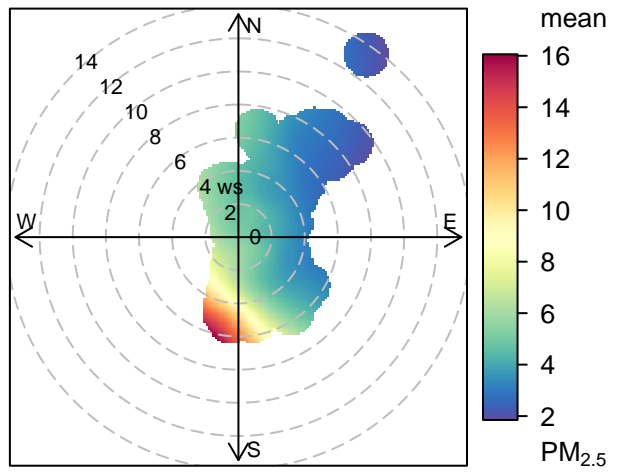
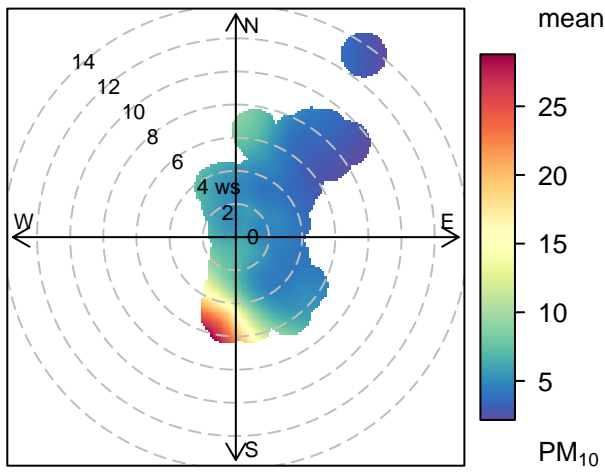


Block 9 – 24-hour average PM_{2.5}





Frequency of counts by wind direction (%)



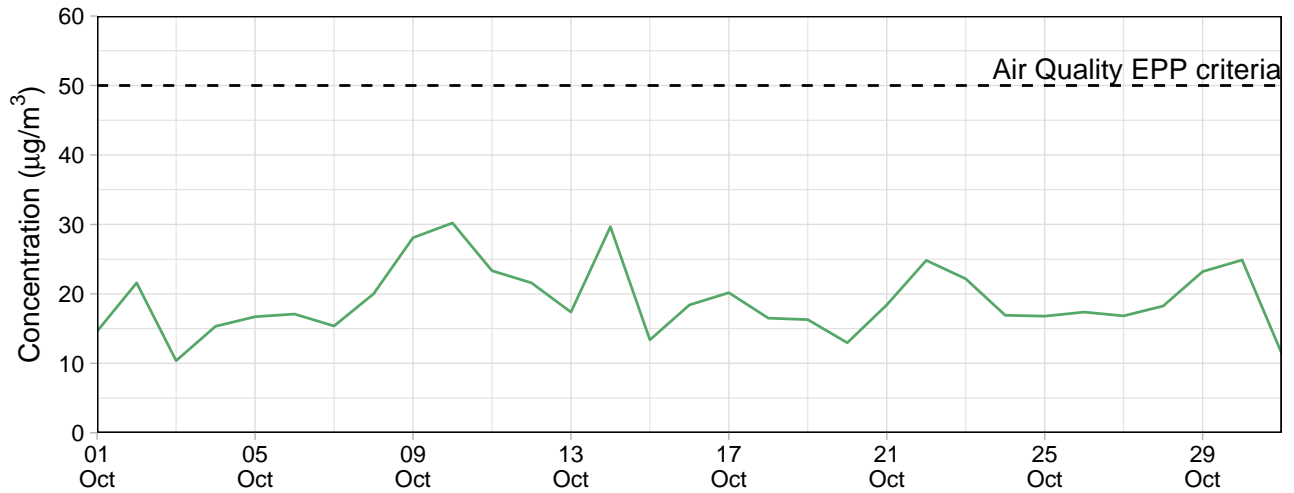
EPA Monitoring

Le Fevre 1

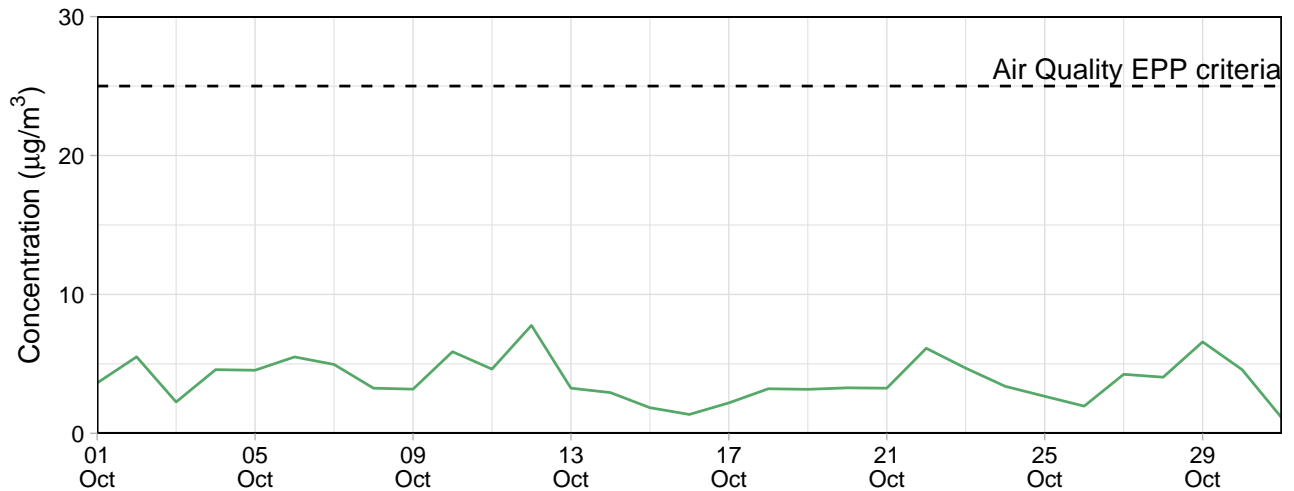
Table 3: Summary of 24-hour average data collected at EPA monitors ($\mu\text{g}/\text{m}^3$)

Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Le Fevre 1	10.4	19	30.2	100	1.1	3.9	7.8	100

Le Fevre 1 – 24-hour average PM₁₀



Le Fevre 1 – 24-hour average PM_{2.5}



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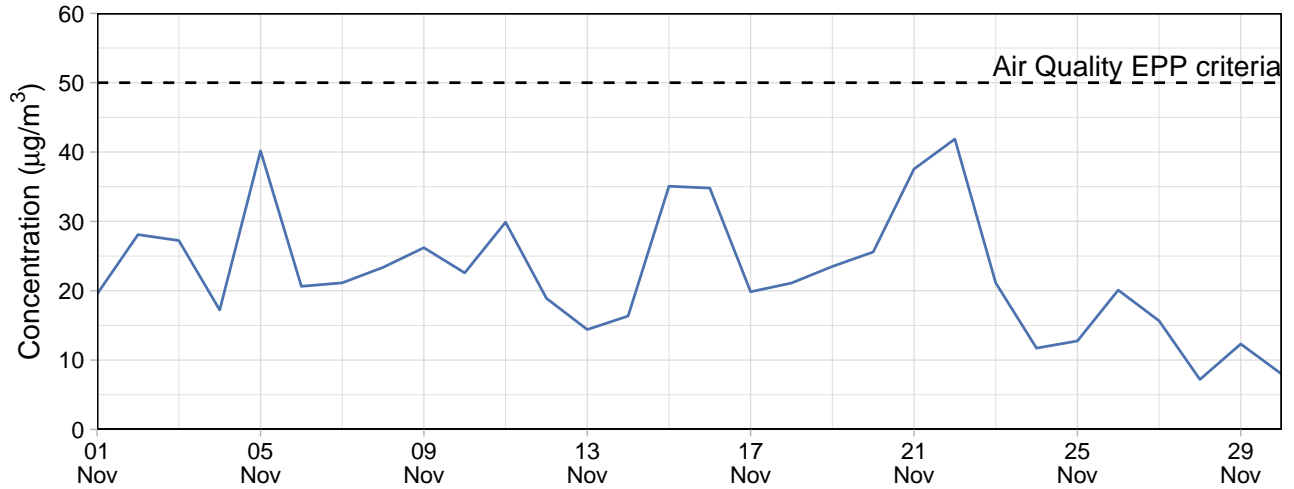
Public Monitors

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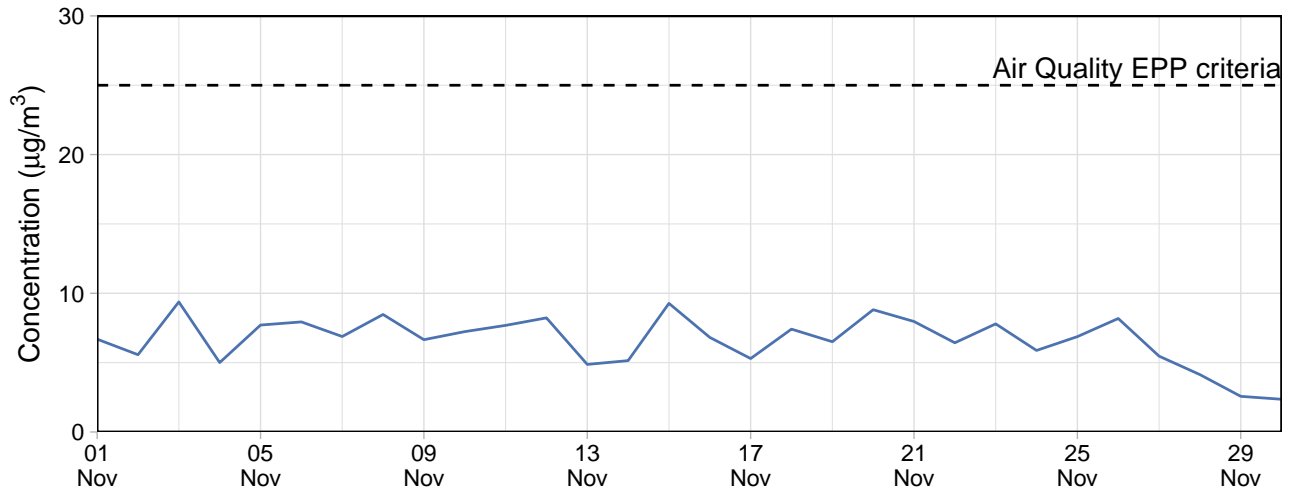
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Community Park BAM	7.2	22.5	41.9	100	2.4	6.6	9.4	100
Walton Street	6.2	21.0	36.8	100	1.2	5.4	8.9	100

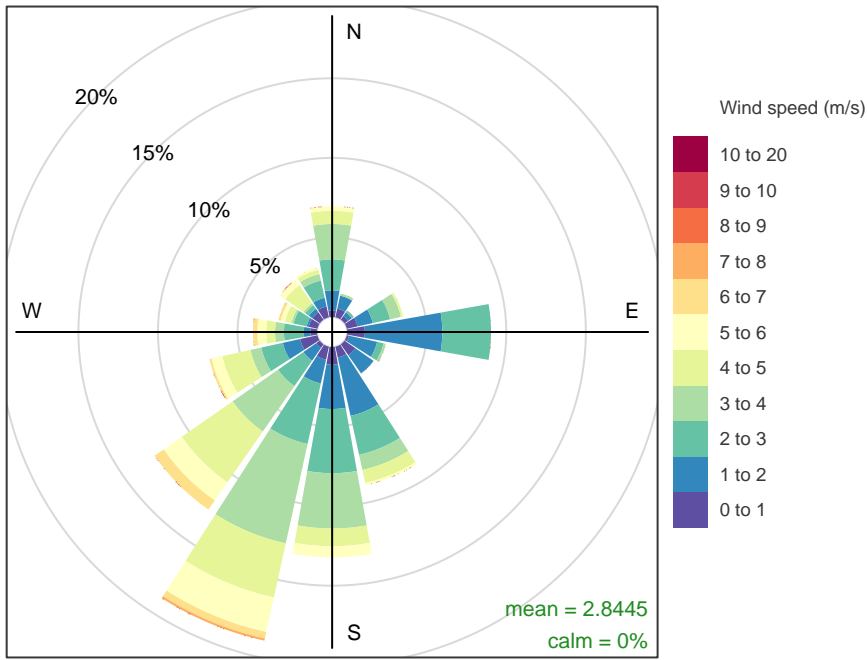
Community Park BAM

Community Park BAM – 24-hour average PM₁₀

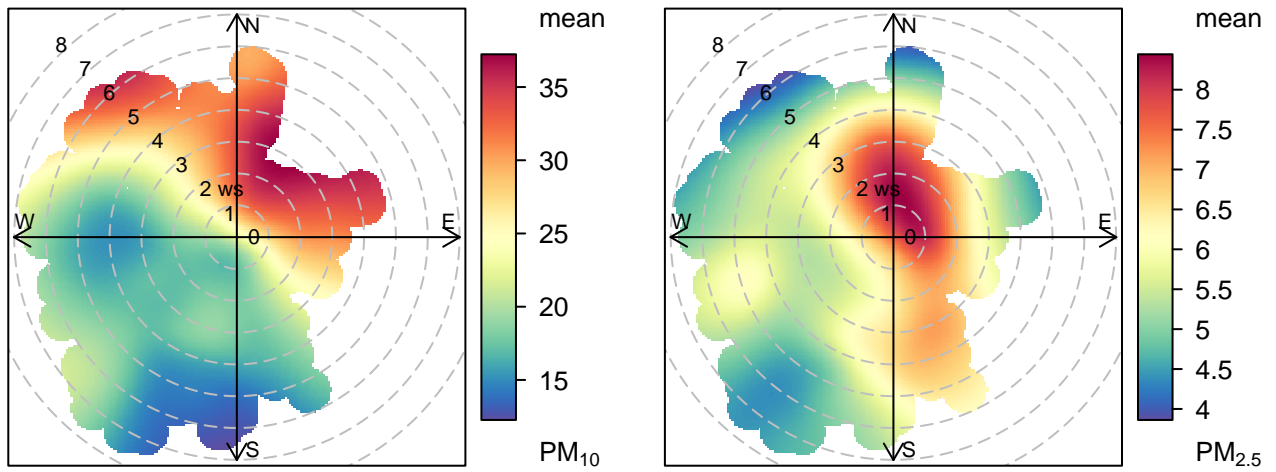


Community Park BAM – 24-hour average PM_{2.5}



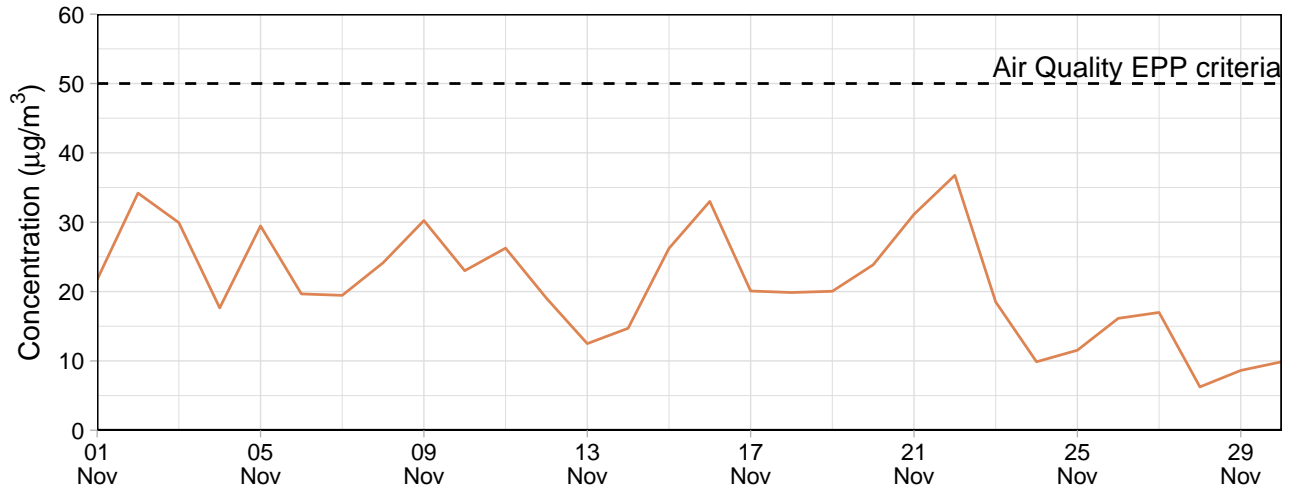


Frequency of counts by wind direction (%)

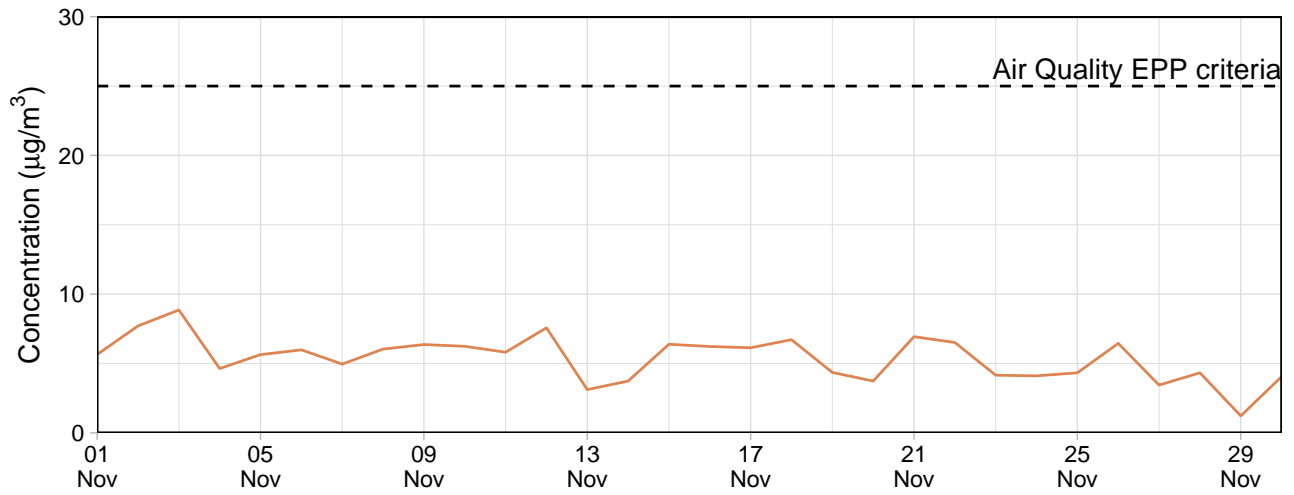


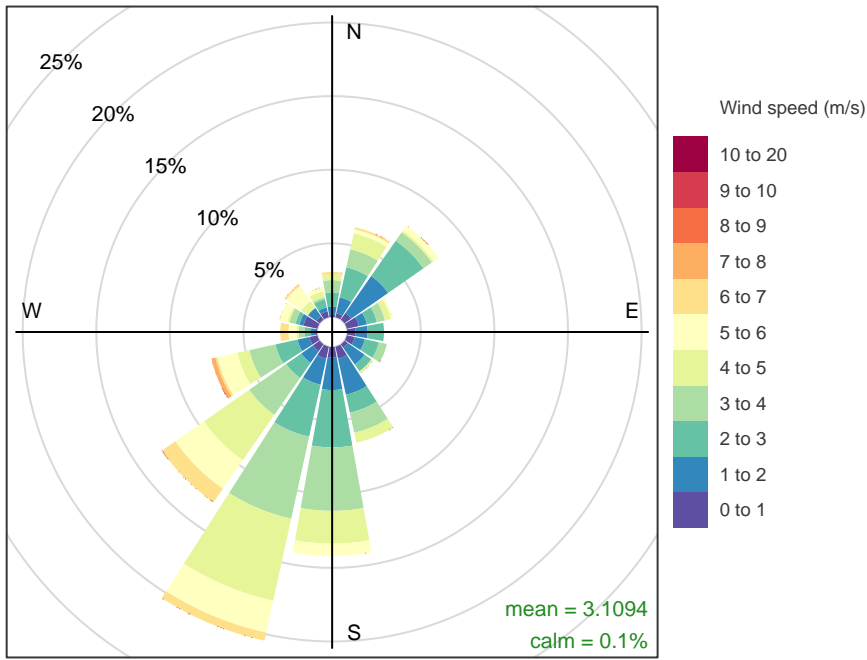
Walton Street

Walton Street – 24-hour average PM₁₀

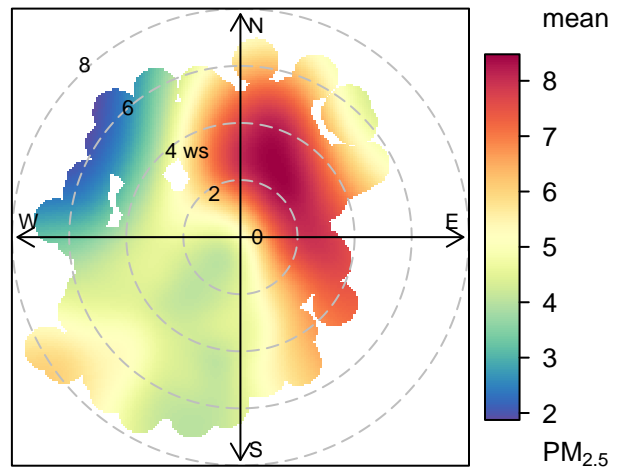
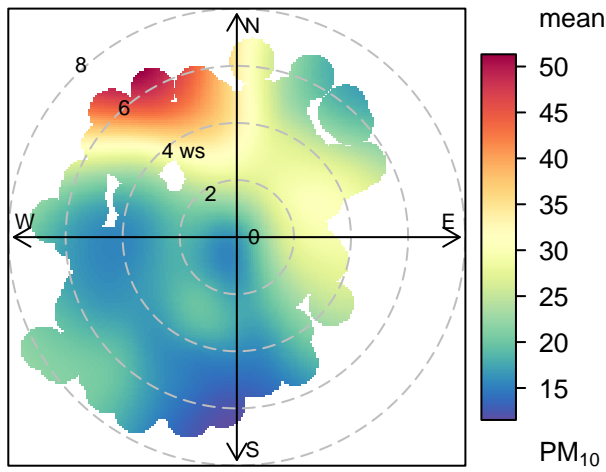


Walton Street – 24-hour average PM_{2.5}





Frequency of counts by wind direction (%)



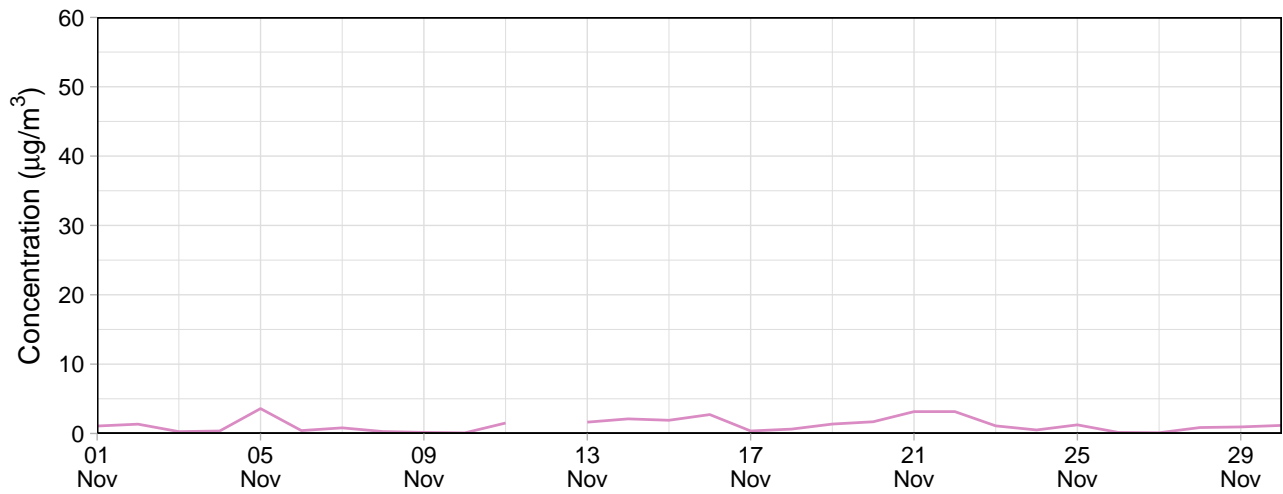
Internal Monitors

Table 2: Summary of 24-hour average data collected at internal monitors ($\mu\text{g}/\text{m}^3$)

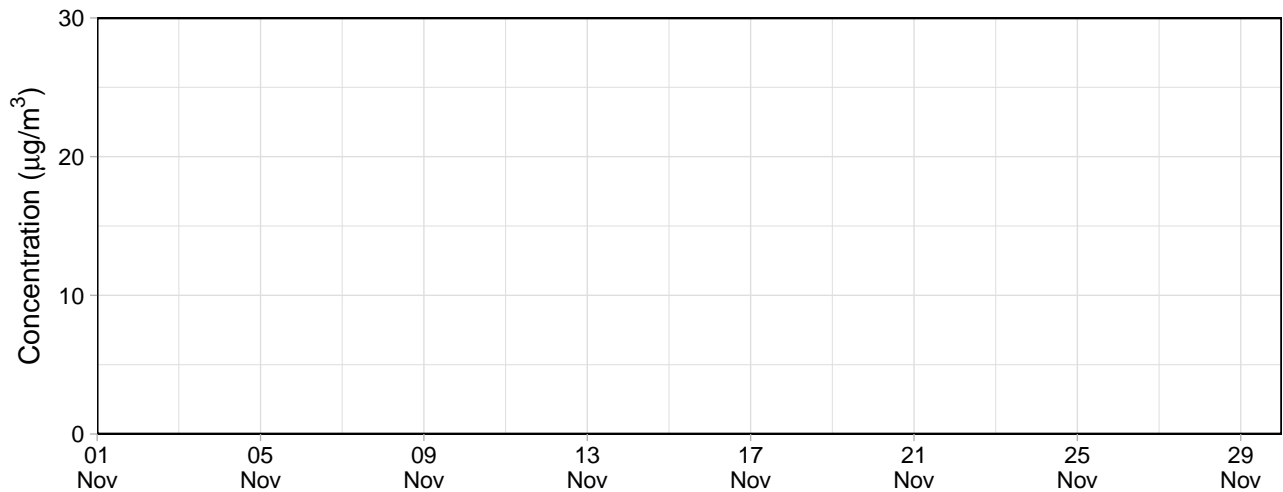
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Southern Grounds	2.6	7.3	12.1	100	2.3	6.0	8.8	100
Eastern Grounds	4.9	9.0	12.0	100	3.8	7.0	10.4	100
Block 9	2.5	6.9	15.4	100	2.0	5.6	10.2	100
Northern Grounds	-0.4	1.1	3.6	100	-1.6	-0.5	0.6	100

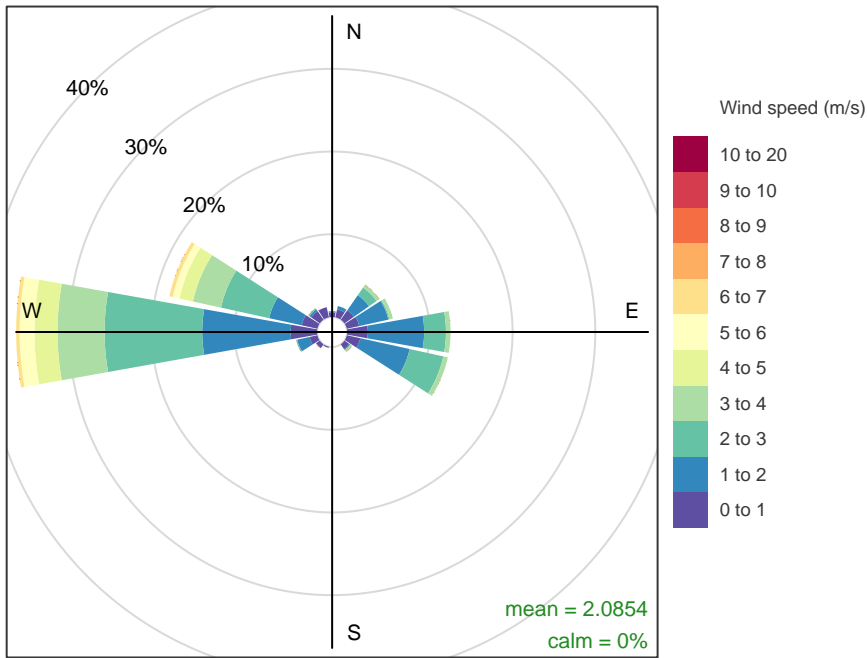
Northern Grounds

Northern Grounds – 24-hour average PM₁₀

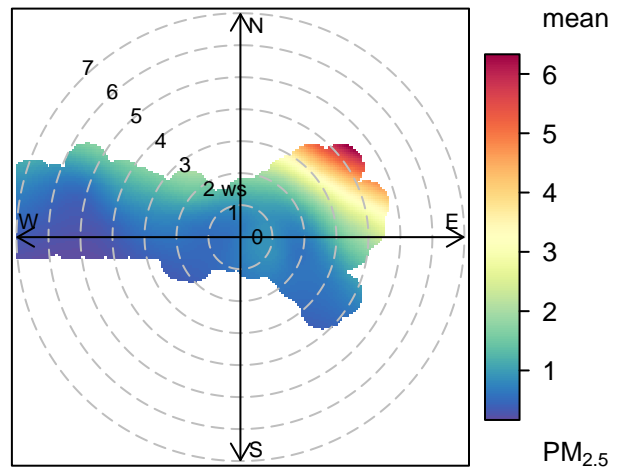
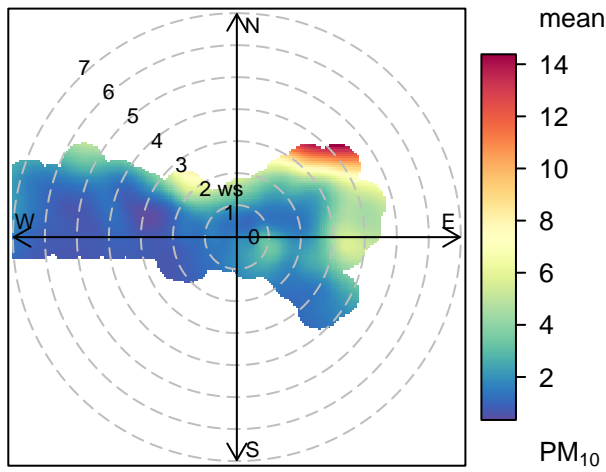


Northern Grounds – 24-hour average PM_{2.5}



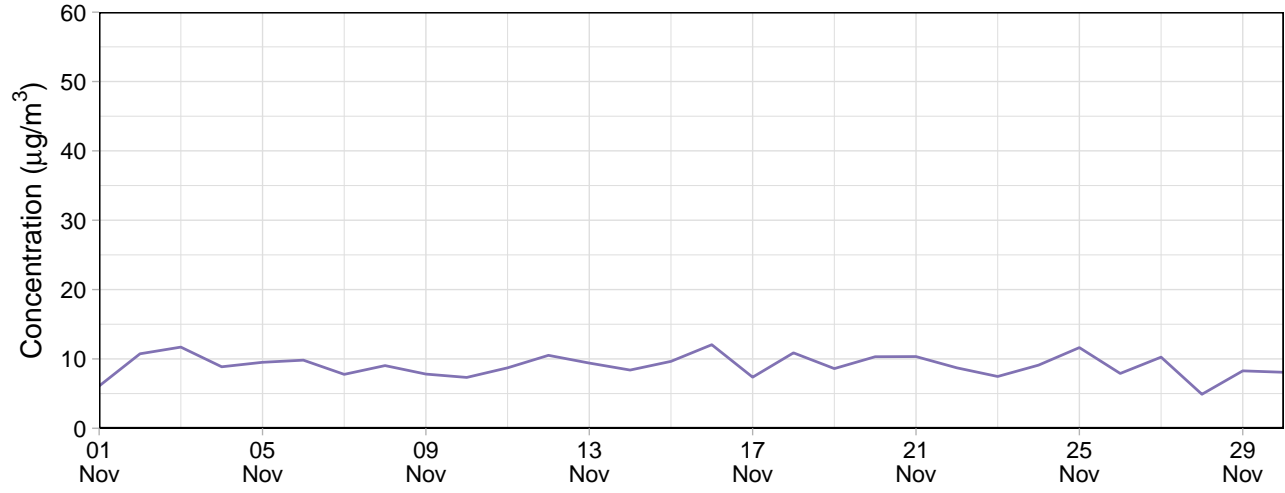


Frequency of counts by wind direction (%)

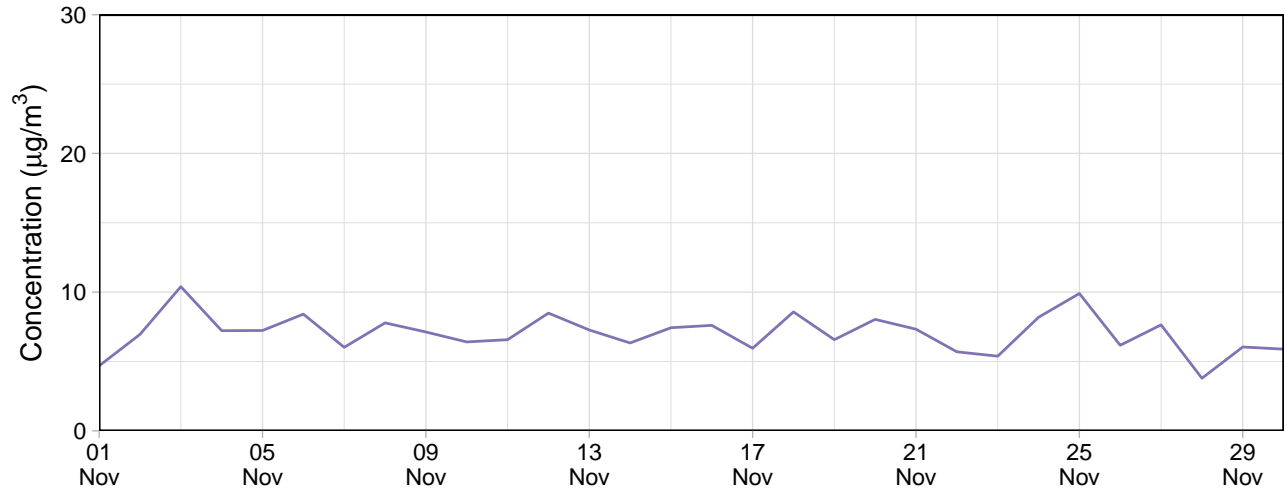


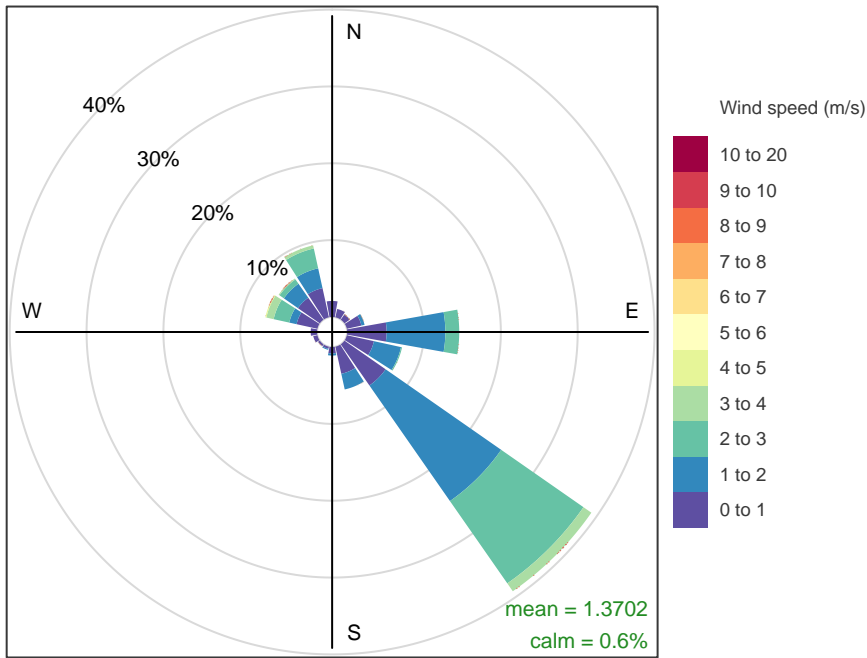
Eastern Grounds

Eastern Grounds – 24-hour average PM₁₀

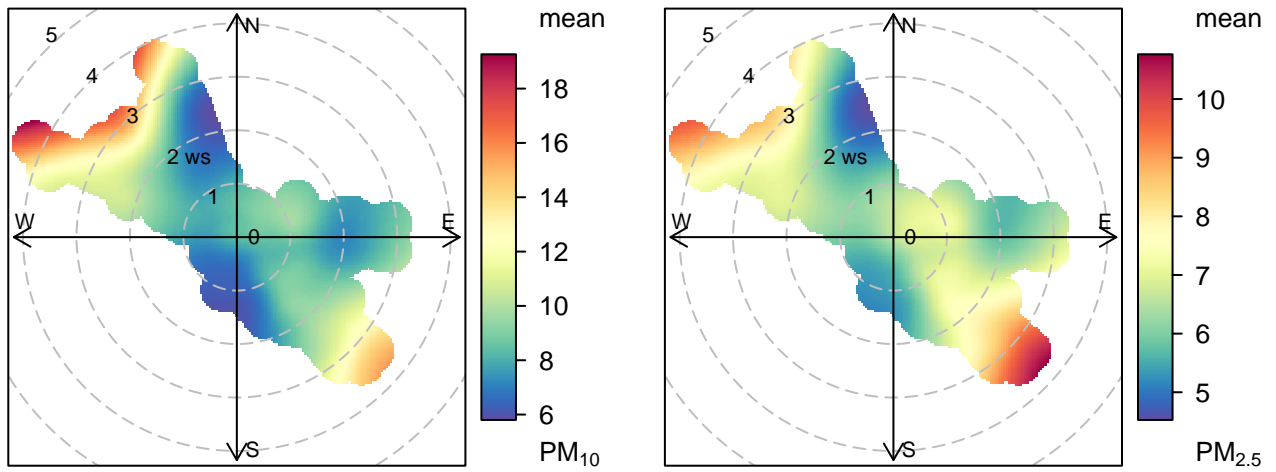


Eastern Grounds – 24-hour average PM_{2.5}



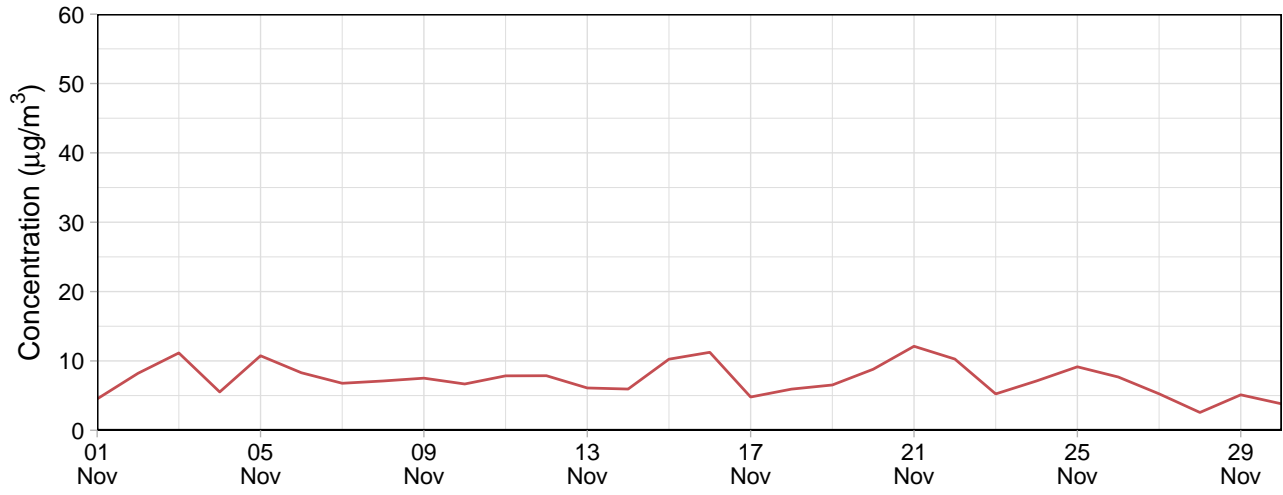


Frequency of counts by wind direction (%)

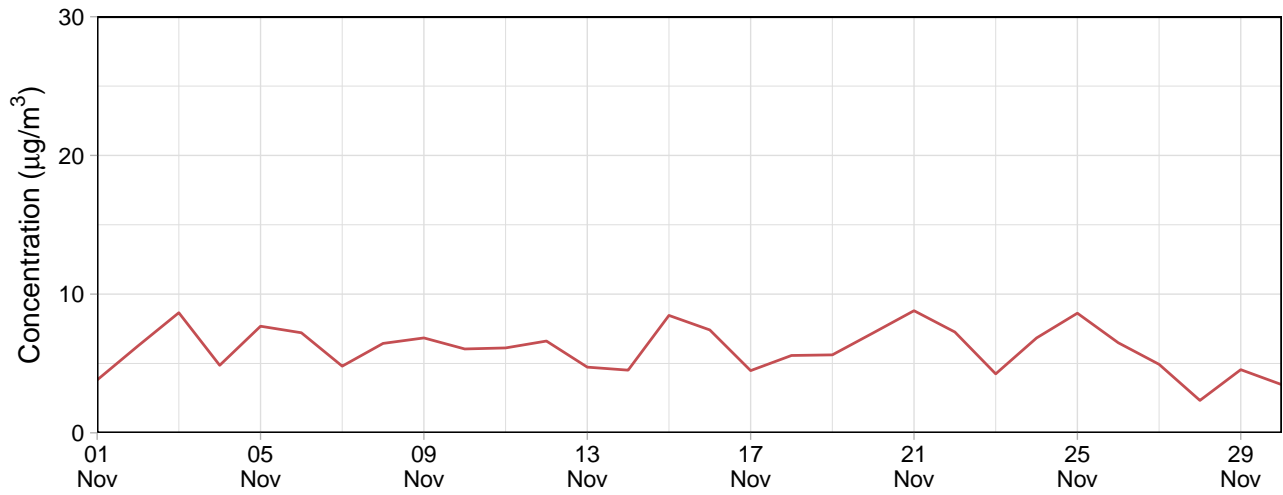


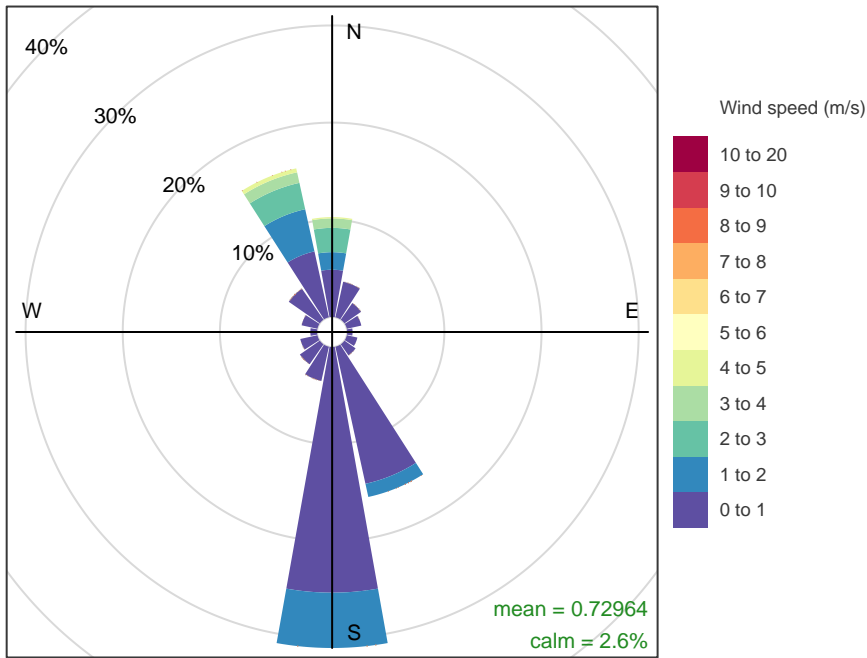
Southern Grounds

Southern Grounds – 24-hour average PM₁₀

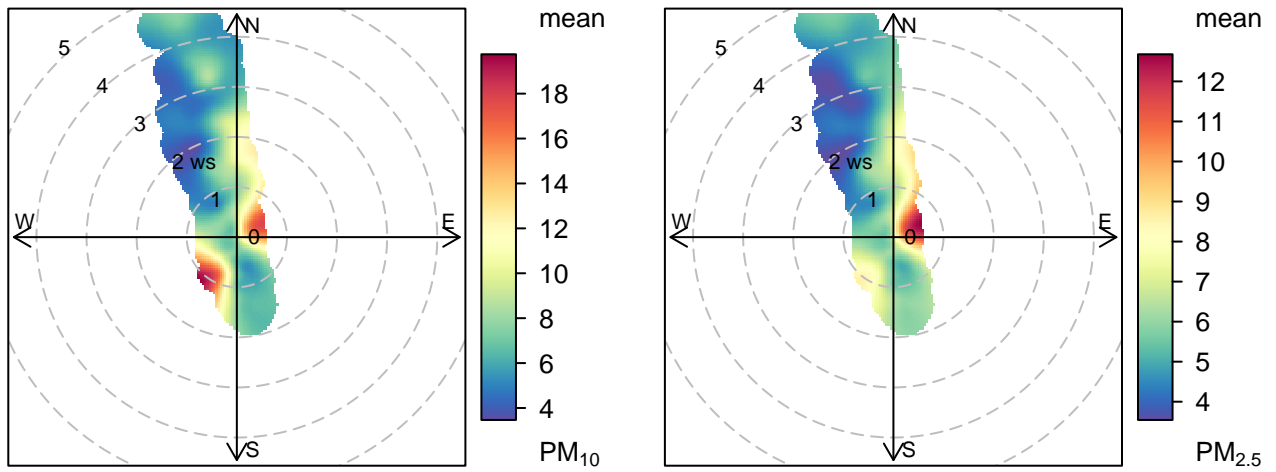


Southern Grounds – 24-hour average PM_{2.5}



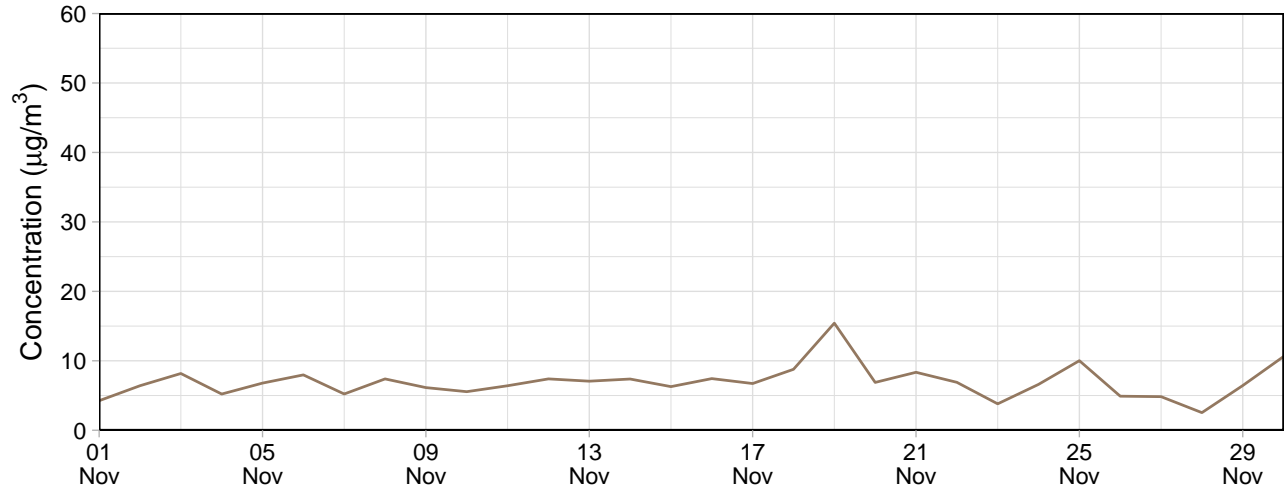


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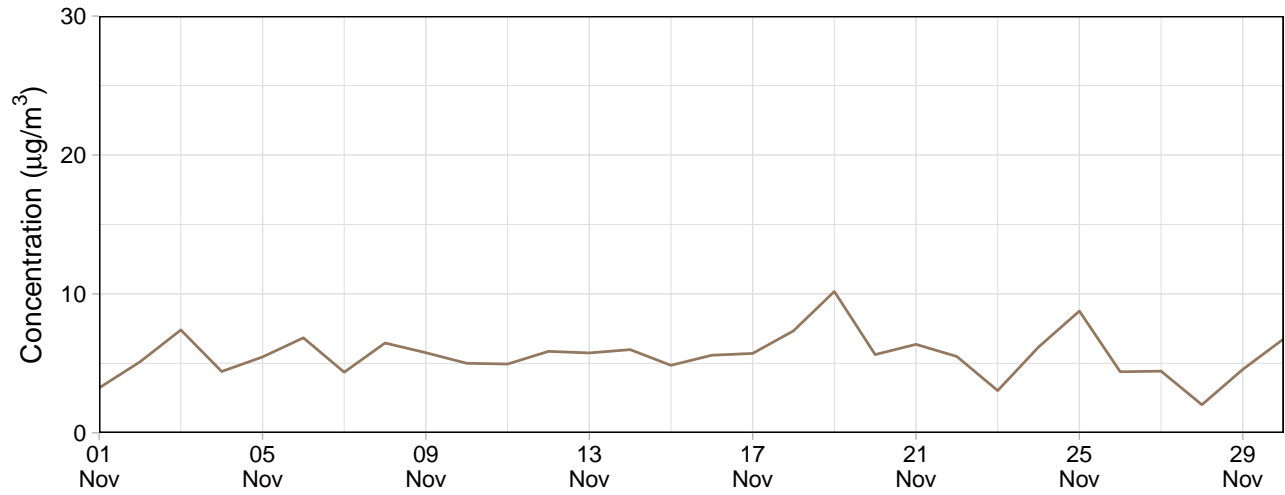


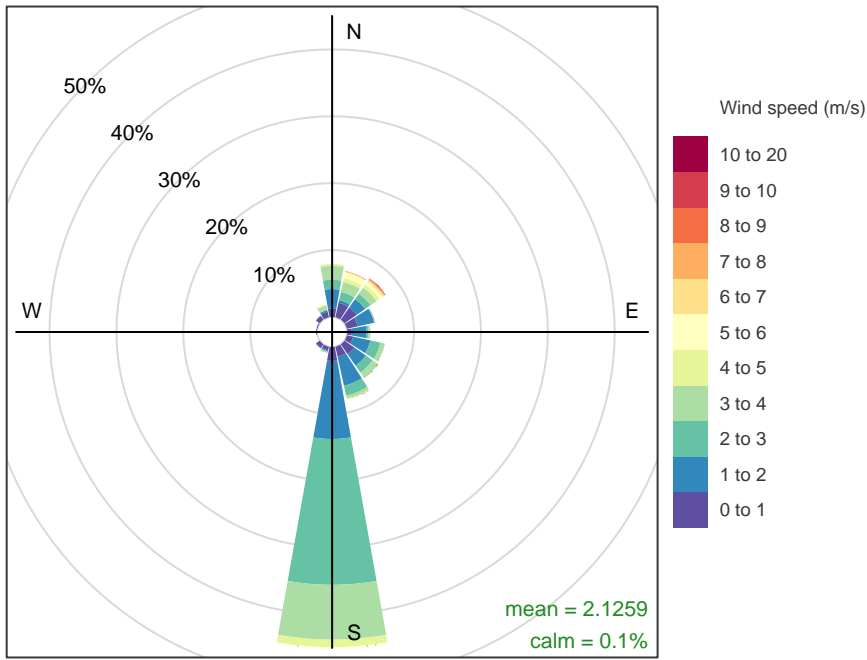
Block 9

Block 9 – 24-hour average PM₁₀

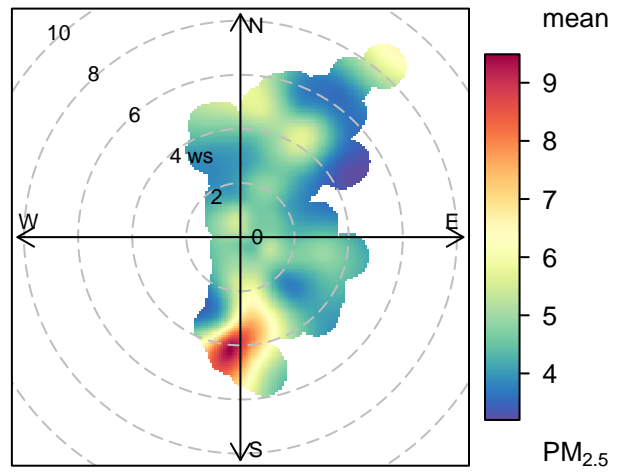
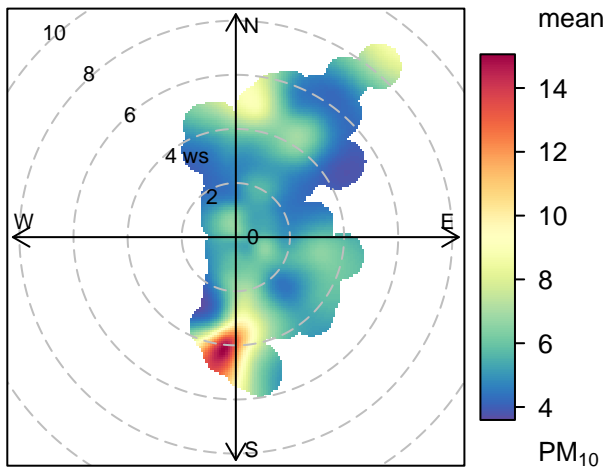


Block 9 – 24-hour average PM_{2.5}





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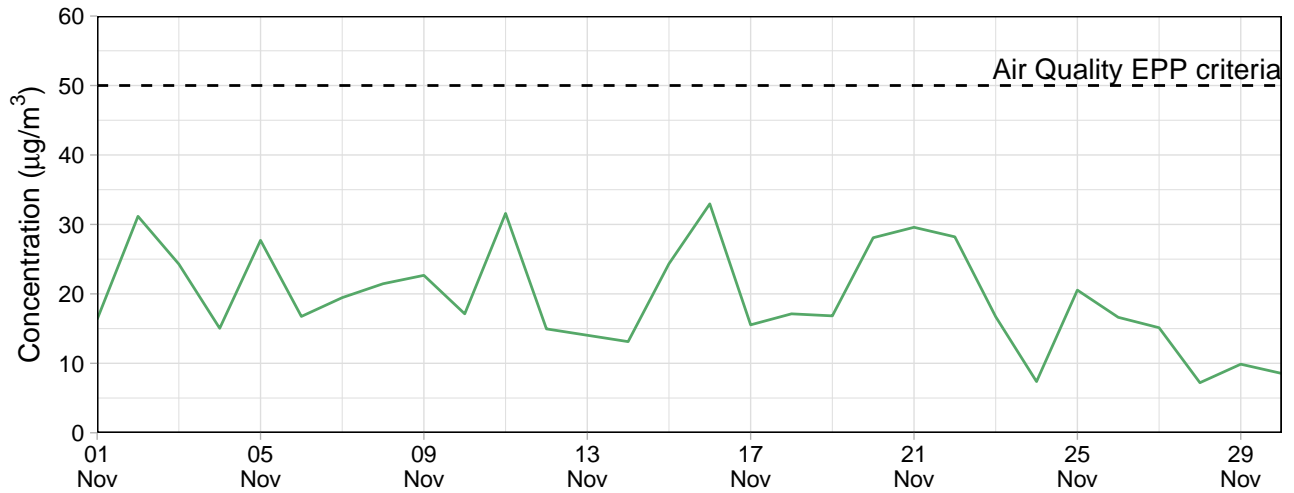
EPA Monitoring

Le Fevre 1

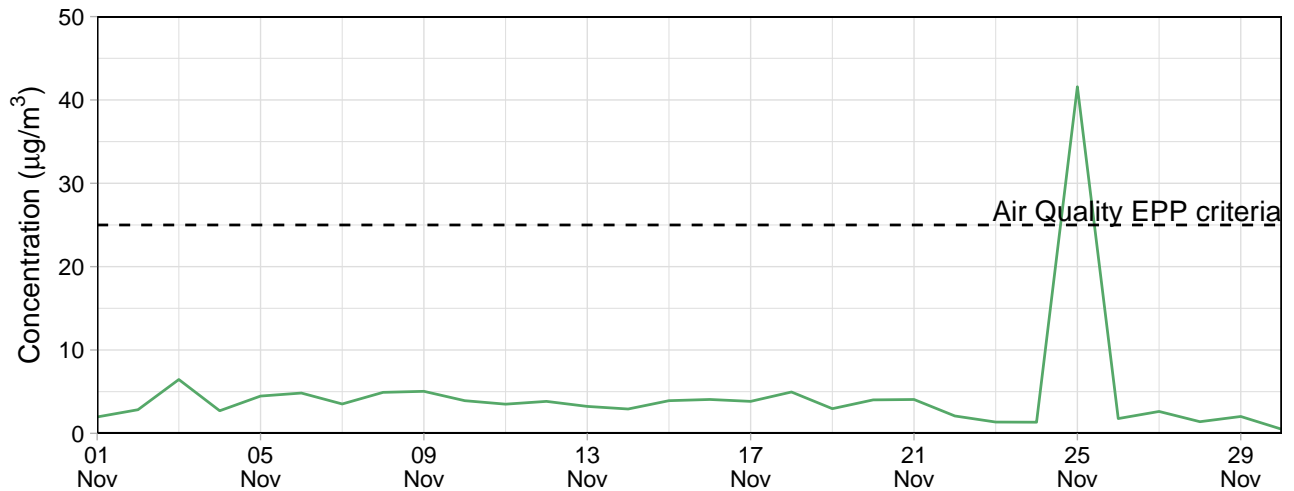
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Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Le Fevre 1	7.2	19.3	33	100	0.5	4.6	41.6	100

Le Fevre 1 – 24-hour average PM₁₀



Le Fevre 1 – 24-hour average PM_{2.5}



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Monitoring Summary (01 Dec, 2024 - 31 Dec, 2024)

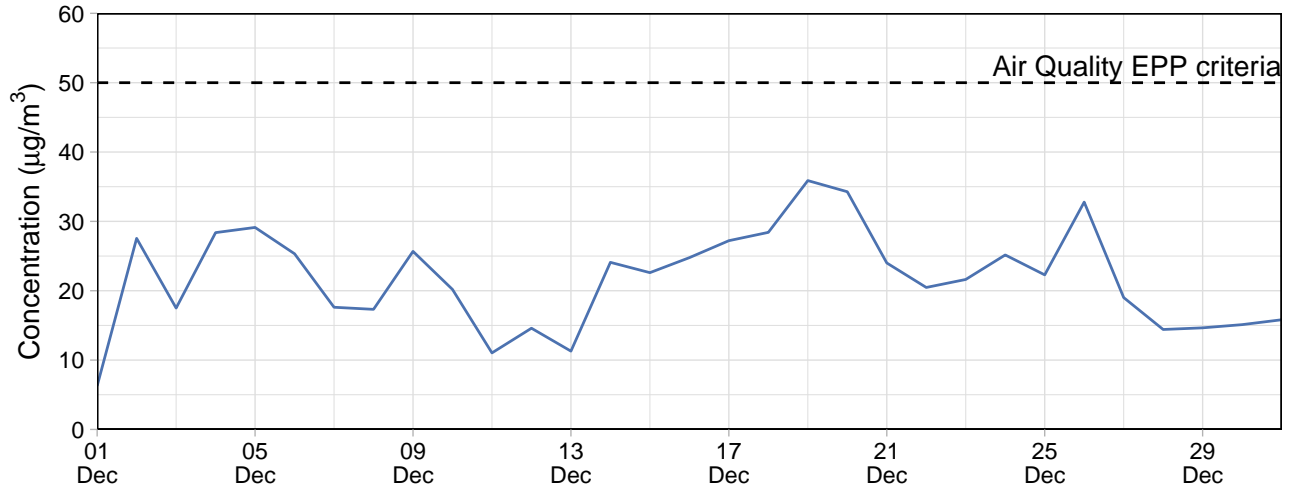
Public Monitors

Table 1: Summary of 24-hour average data collected at public monitors ($\mu\text{g}/\text{m}^3$)

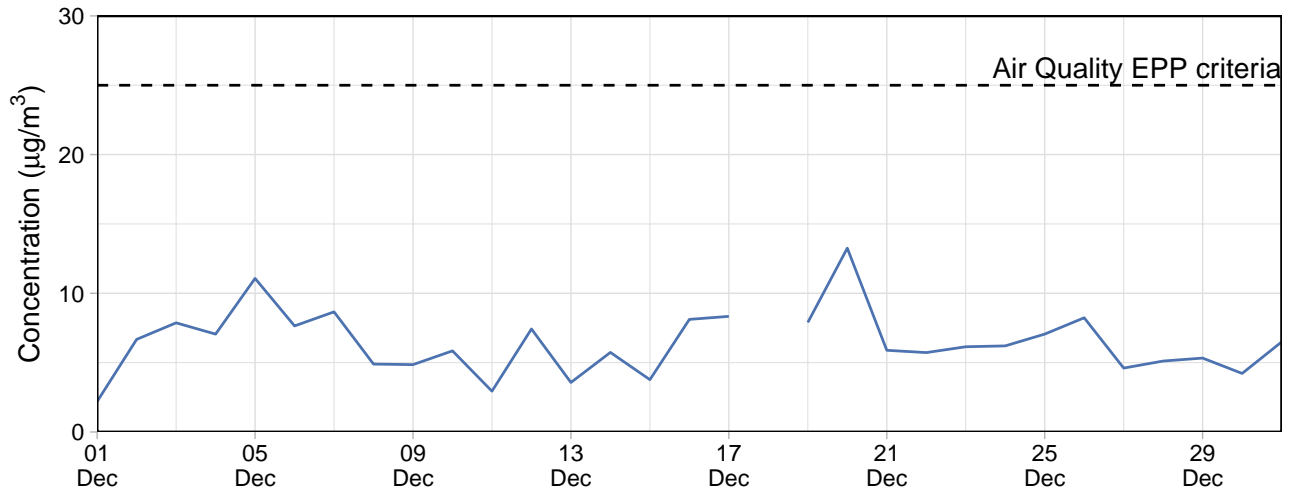
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Community Park BAM	6.3	21.8	35.9	100	-16.5	5.7	13.3	100
Walton Street	5.5	20.0	37.7	100	2.2	5.6	12.4	100

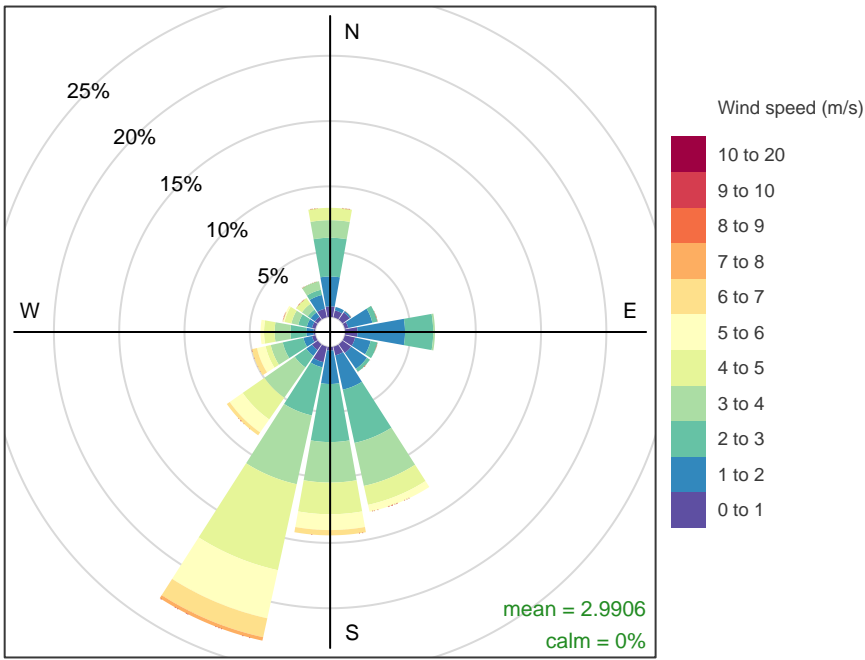
Community Park BAM

Community Park BAM – 24-hour average PM₁₀

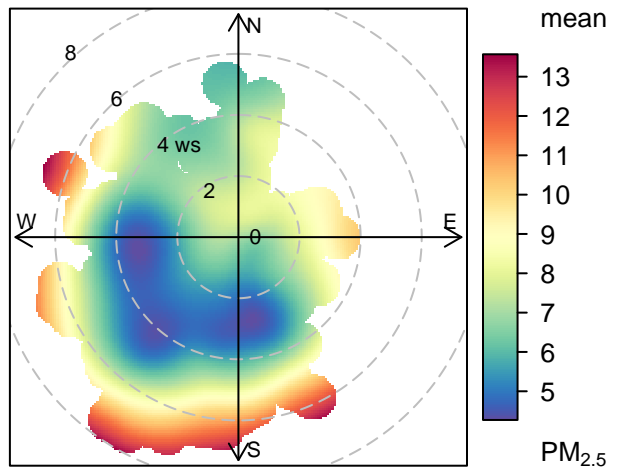
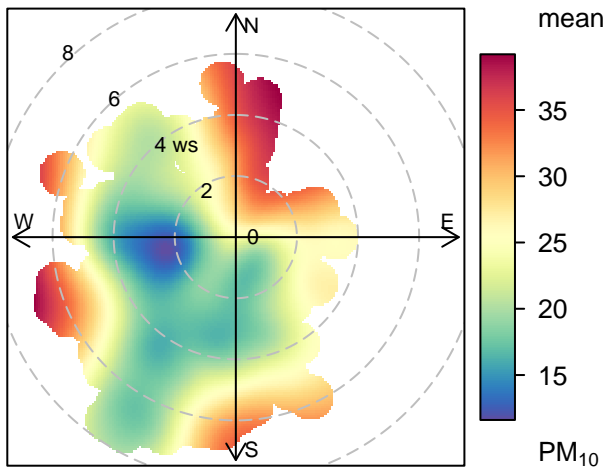


Community Park BAM – 24-hour average PM_{2.5}



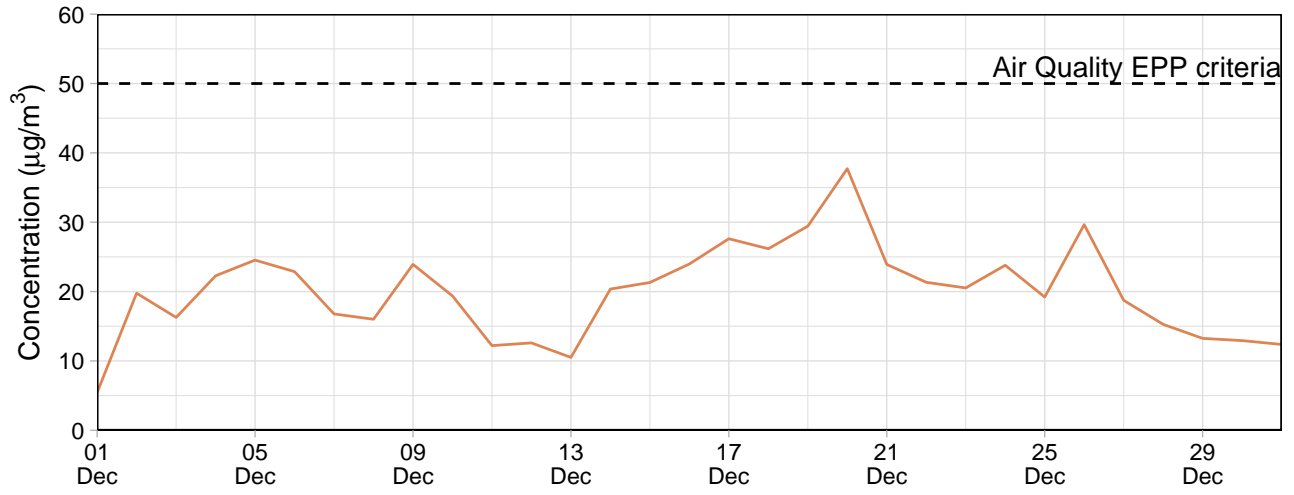


Frequency of counts by wind direction (%)

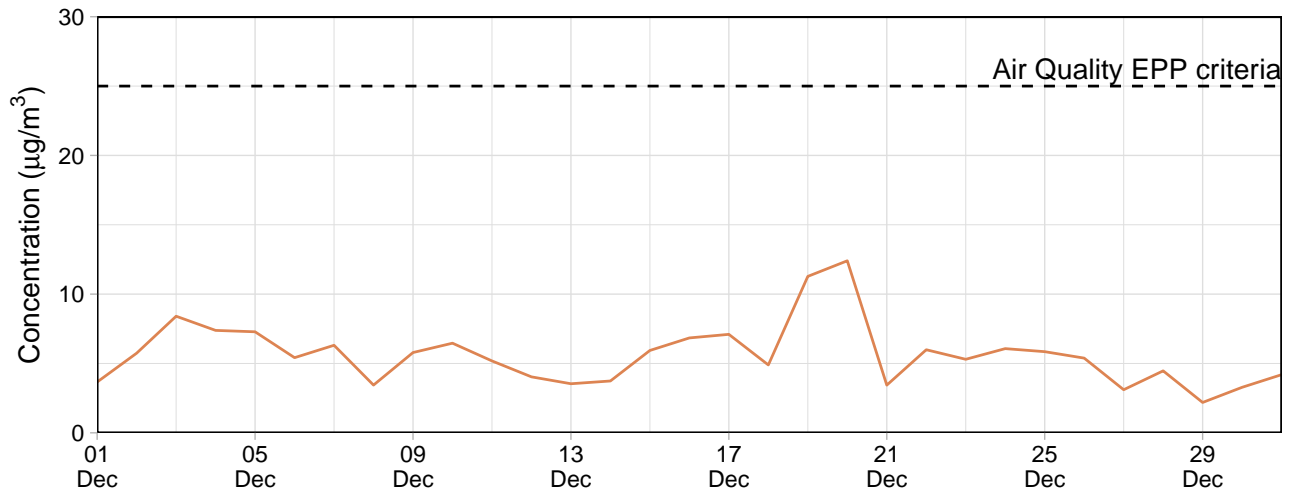


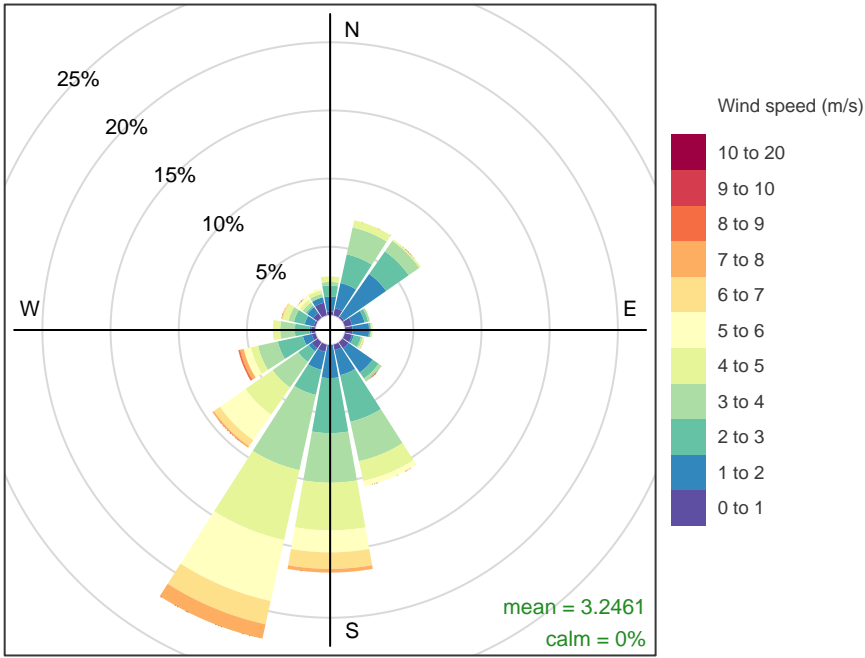
Walton Street

Walton Street – 24-hour average PM₁₀

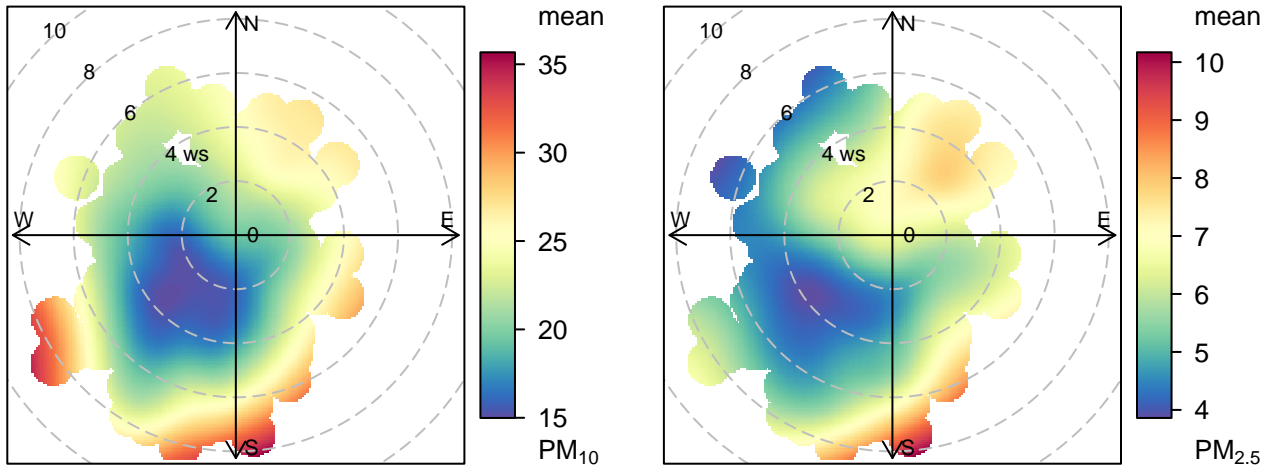


Walton Street – 24-hour average PM_{2.5}





Frequency of counts by wind direction (%)



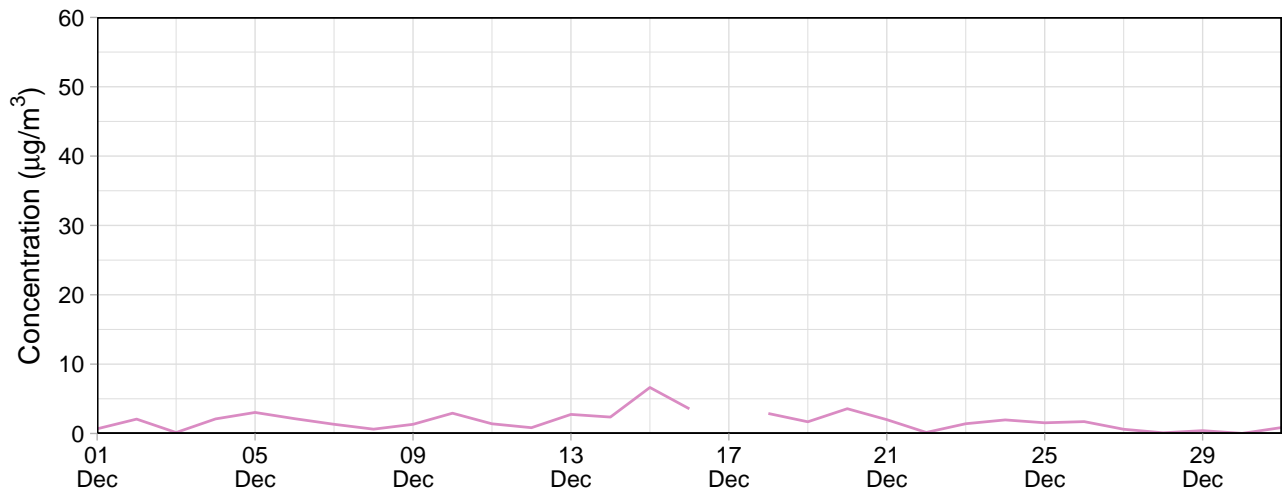
Internal Monitors

Table 2: Summary of 24-hour average data collected at internal monitors ($\mu\text{g}/\text{m}^3$)

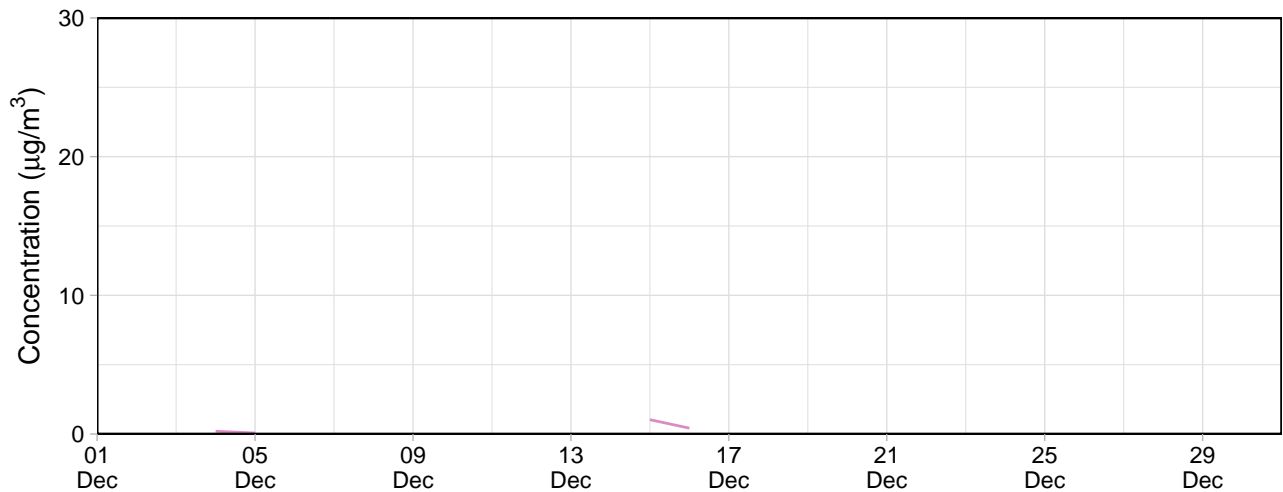
Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Southern Grounds	3.5	6.5	13.7	100.0	3.2	5.6	12.4	100.0
Eastern Grounds	4.3	9.8	25.3	100.0	3.7	7.3	18.6	100.0
Block 9	2.7	9.6	30.4	100.0	2.5	6.9	21.4	100.0
Northern Grounds	0.0	1.8	6.6	96.8	-2.0	-0.5	1.0	96.8

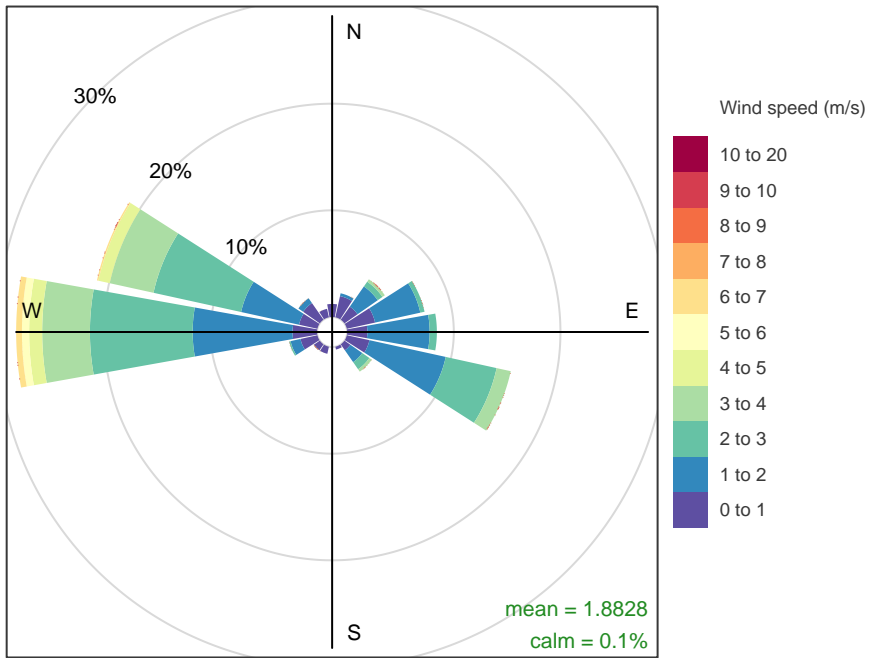
Northern Grounds

Northern Grounds – 24-hour average PM₁₀

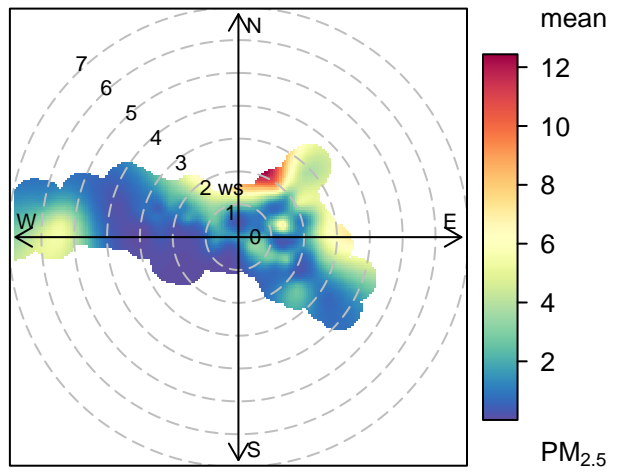
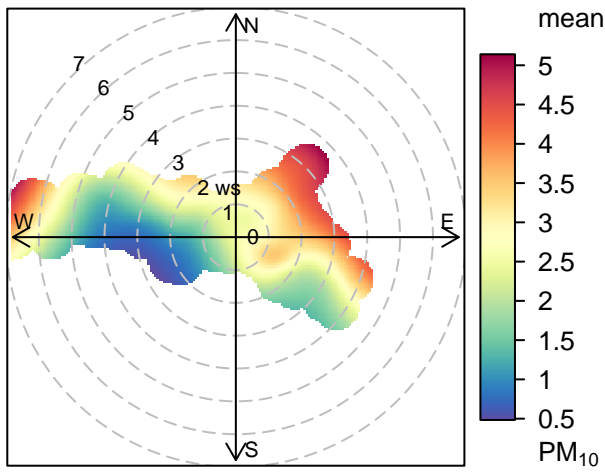


Northern Grounds – 24-hour average PM_{2.5}



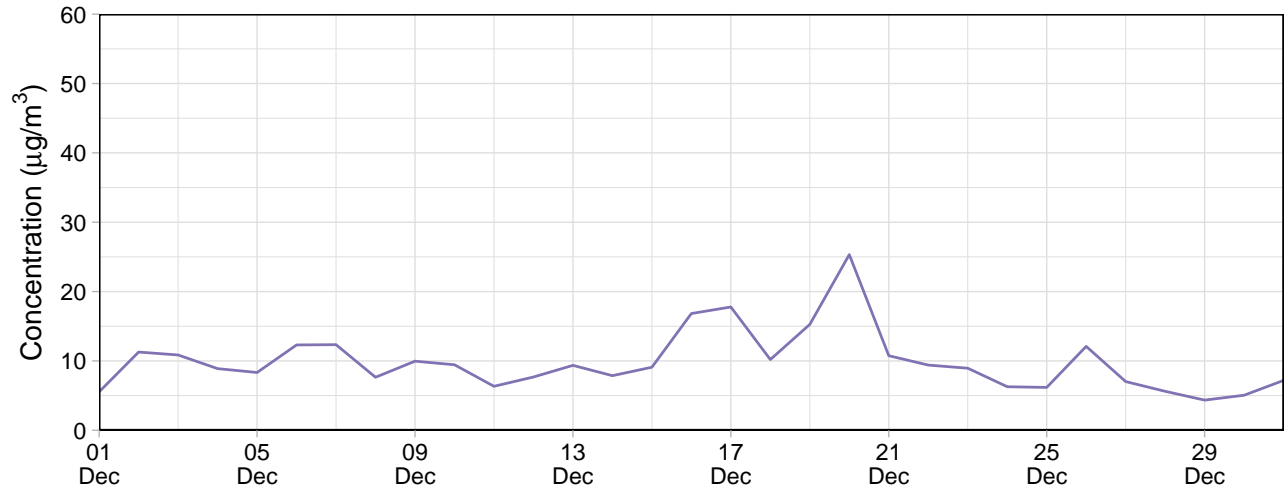


Frequency of counts by wind direction (%)

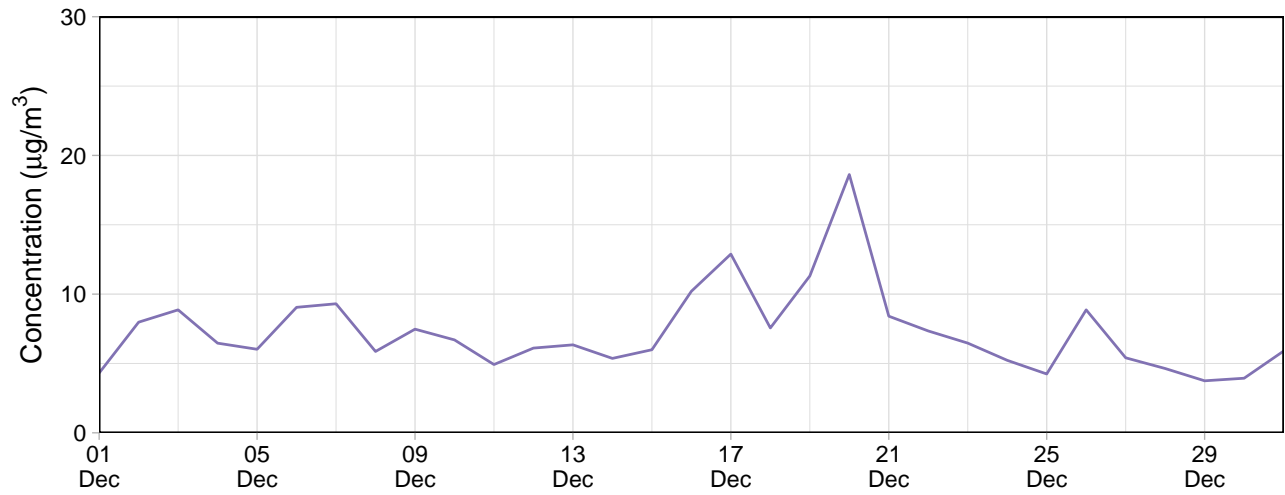


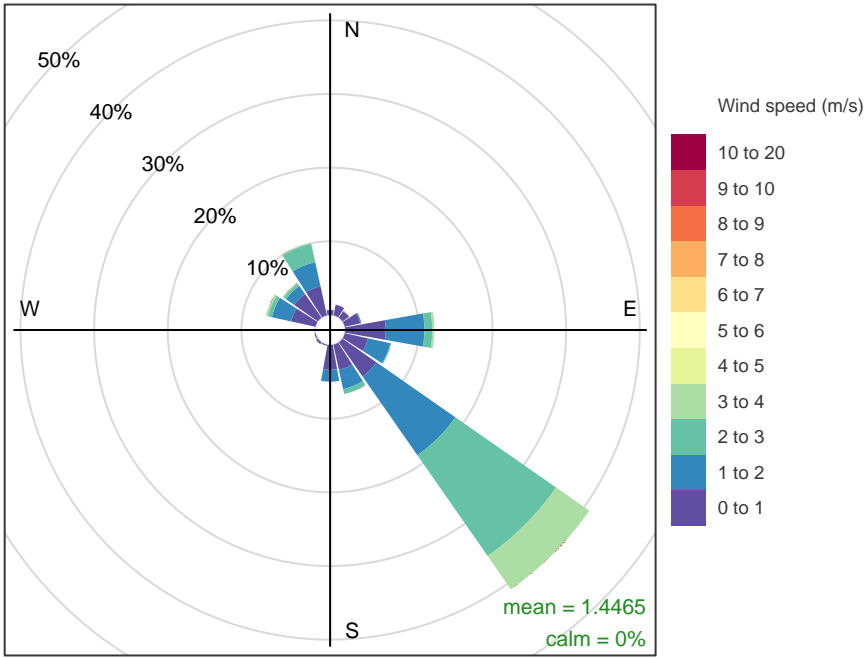
Eastern Grounds

Eastern Grounds – 24-hour average PM₁₀

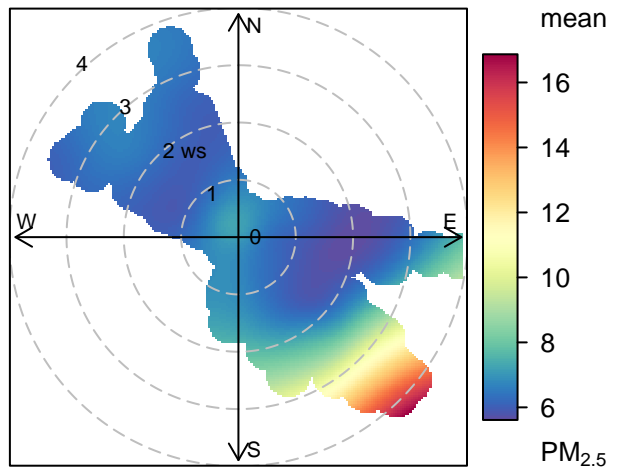
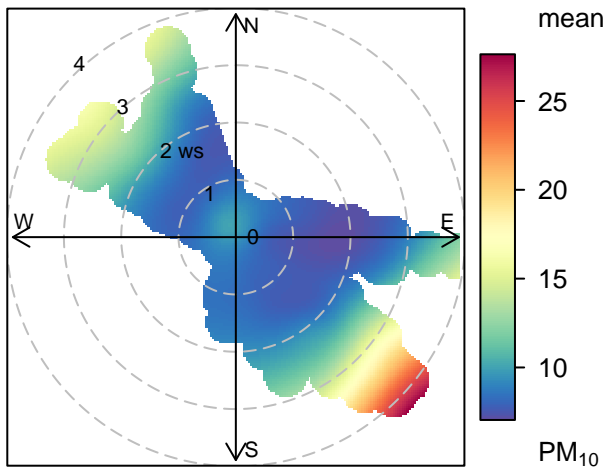


Eastern Grounds – 24-hour average PM_{2.5}



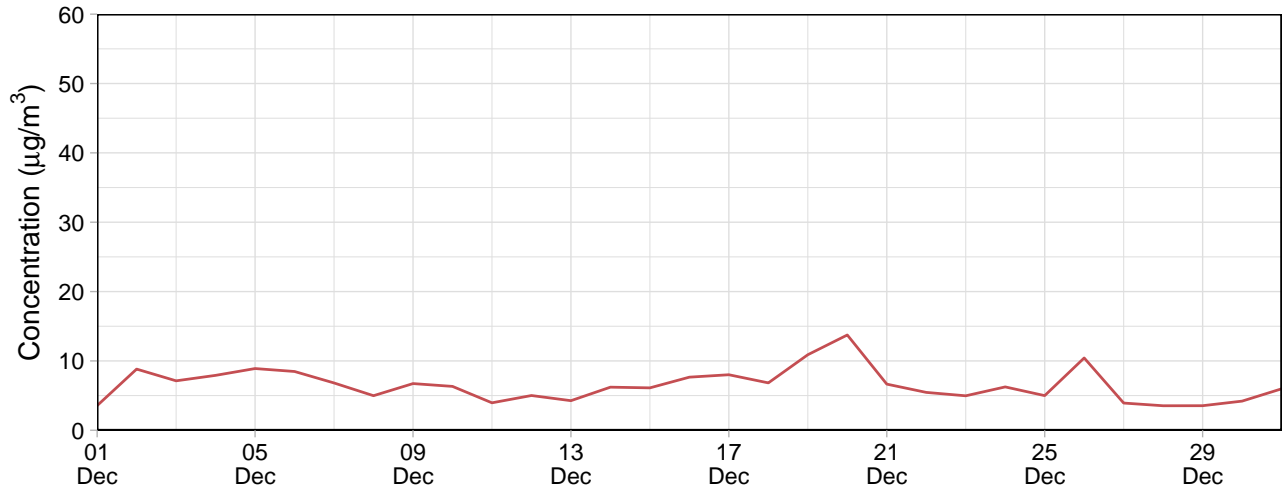


Frequency of counts by wind direction (%)

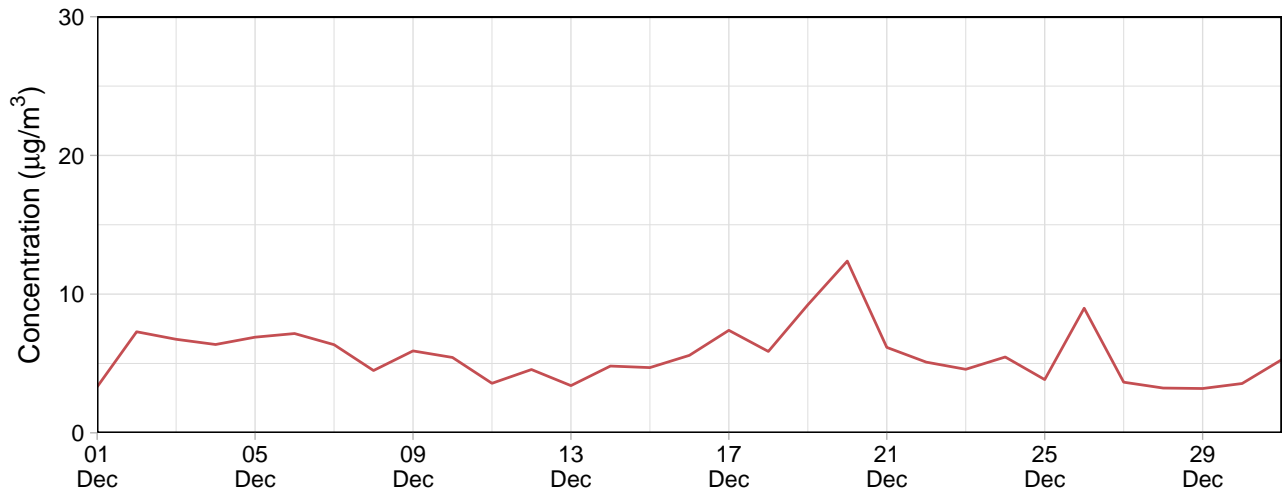


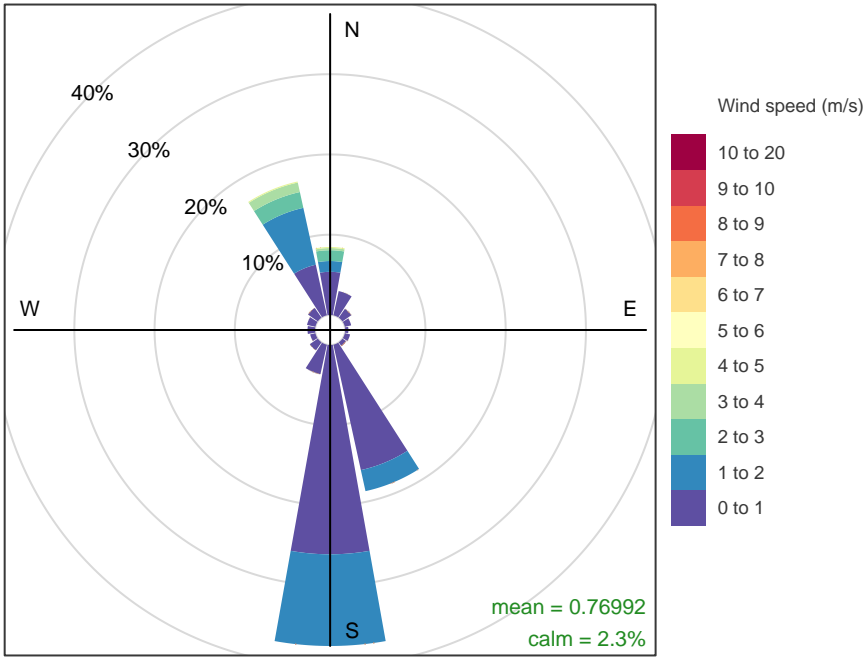
Southern Grounds

Southern Grounds – 24-hour average PM₁₀

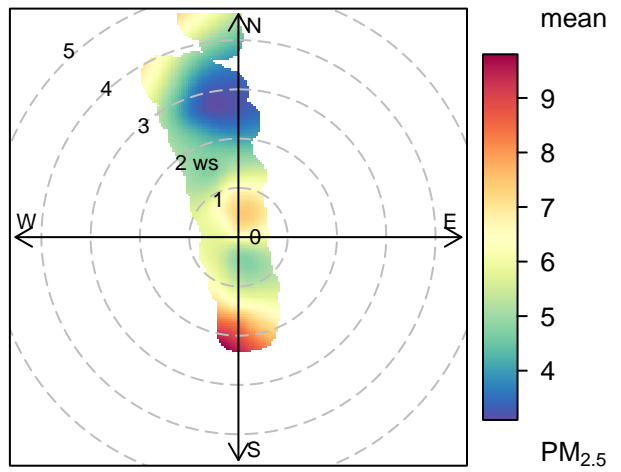
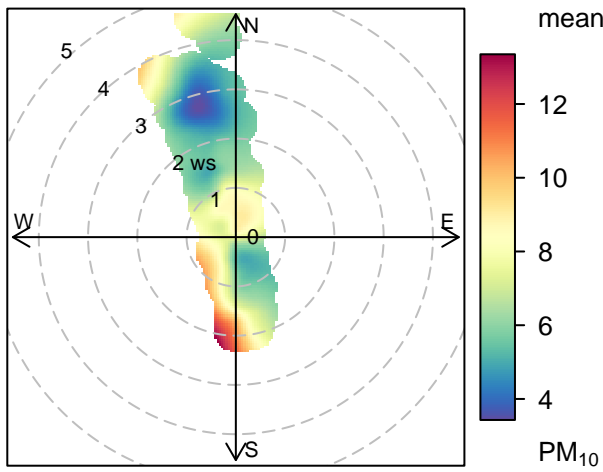


Southern Grounds – 24-hour average PM_{2.5}



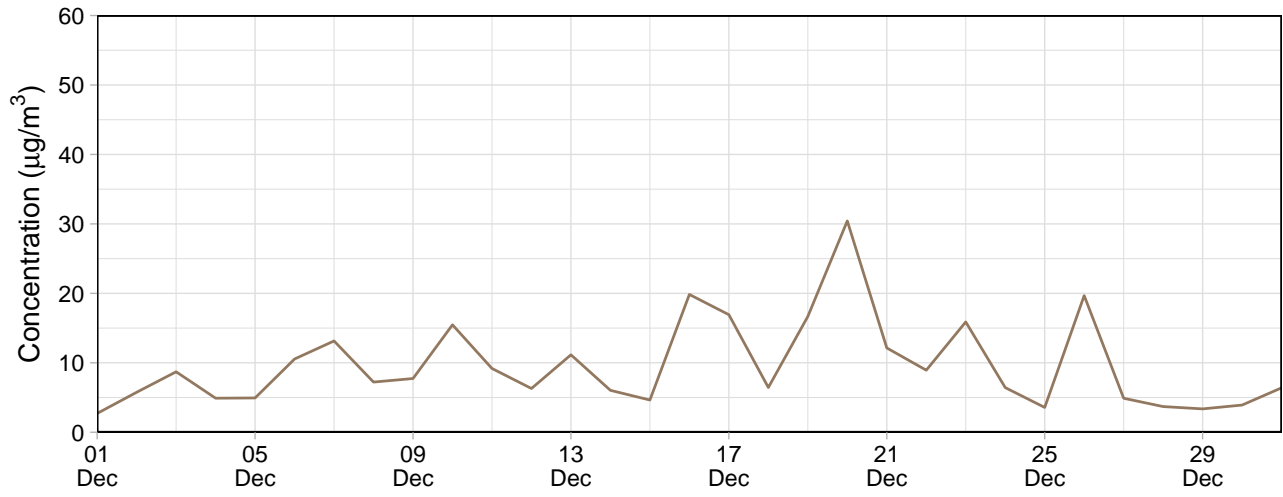


Frequency of counts by wind direction (%)

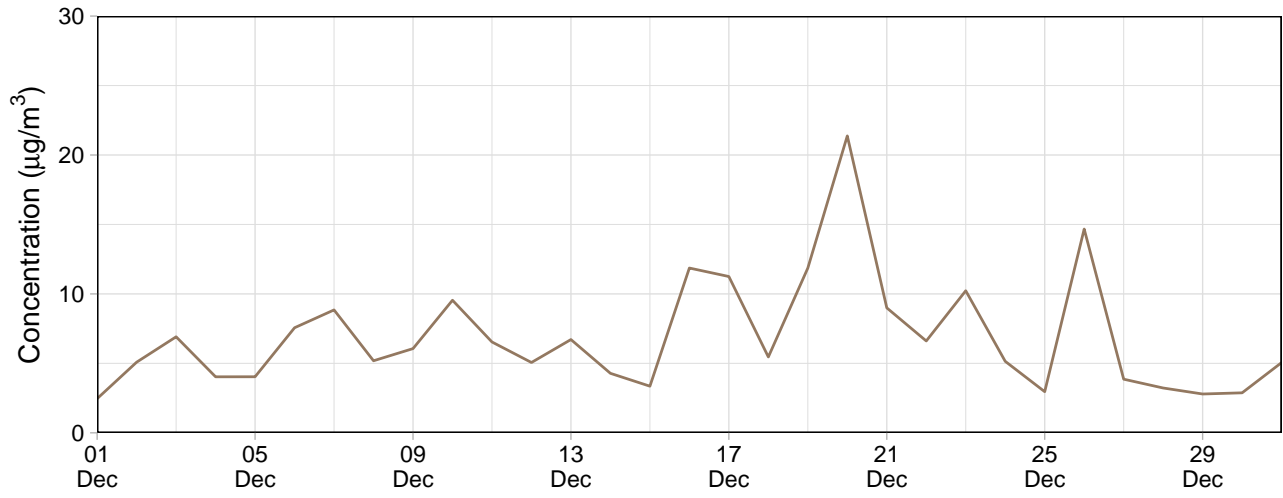


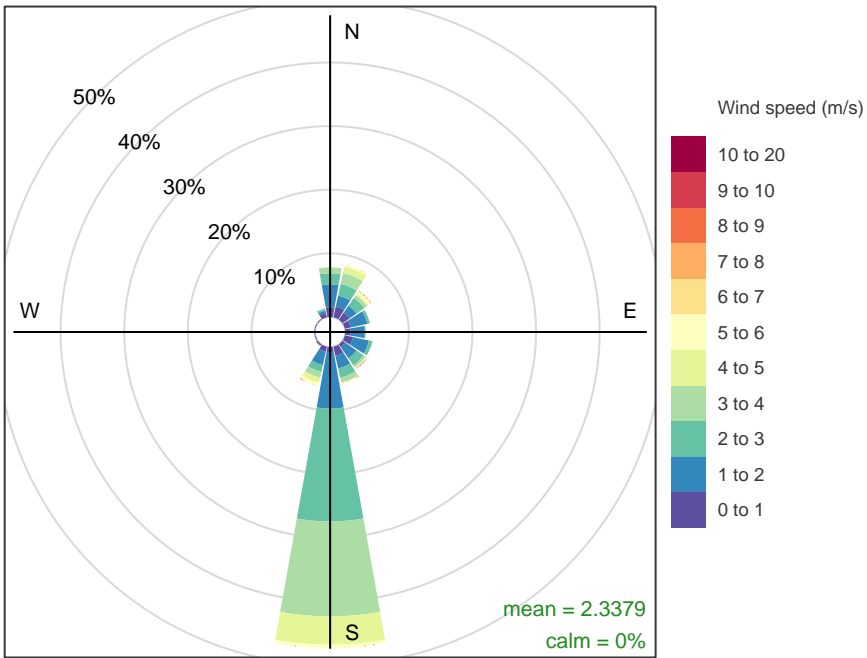
Block 9

Block 9 – 24-hour average PM₁₀

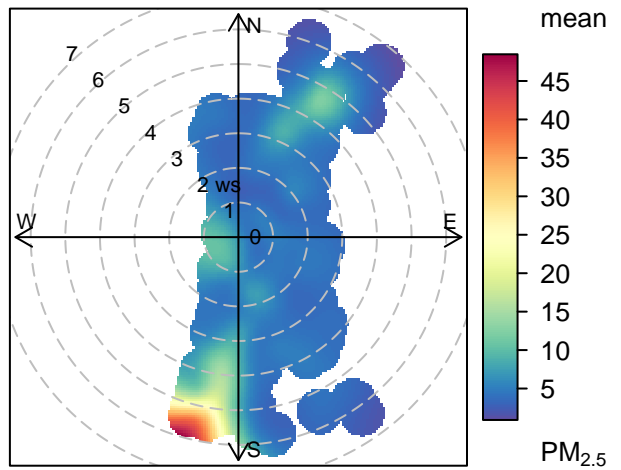
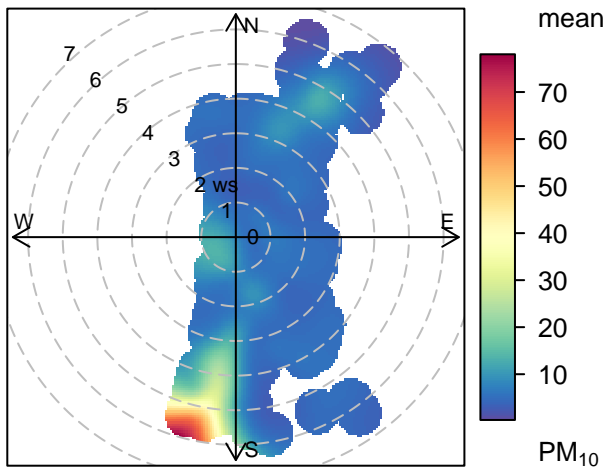


Block 9 – 24-hour average PM_{2.5}





Frequency of counts by wind direction (%)



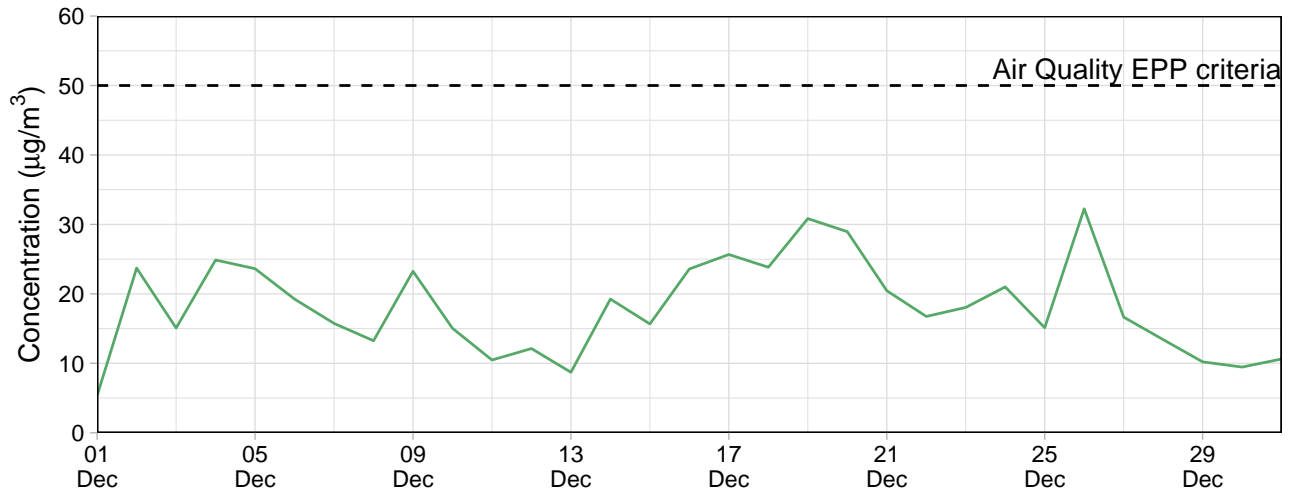
EPA Monitoring

Le Fevre 1

Table 3: Summary of 24-hour average data collected at EPA monitors ($\mu\text{g}/\text{m}^3$)

Site	PM ₁₀				PM _{2.5}			
	Min	Avg	Max	Capture (%)	Min	Avg	Max	Capture (%)
Le Fevre 1	5.4	18.1	32.2	100	0.9	3.1	7.4	100

Le Fevre 1 – 24-hour average PM₁₀



Le Fevre 1 – 24-hour average PM_{2.5}

