



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

October 2023

November 30, 2023

Alberta Environment and Protected Areas

11th Floor, Oxbridge Place
9820-106 Street
Edmonton Alberta T5K 2J6

Subject: **Peace Airshed Zone Association (PAZA)
October 2023 Ambient Air Quality Monitoring Report**

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of October 2023.

The representative of the Person Responsible for this monitoring program is:

Mandeep Dhaliwal, B.Sc., P.Chem.
Program Manager
Box 21135
Grande Prairie, Alberta T8V 6W7
Email: Mandeep@paza.ca
Phone: 403-608-9697

This report was prepared by Dr. Kevin McCullum, P.Eng., and reviewed by Mandeep Dhaliwal.

PAZA has retained the services of WSP Canada Inc. to conduct continuous ambient monitoring and Dr. Kevin McCullum, P.Eng. to provide data validation and reporting.

This report is submitted by PAZA on behalf of the industrial member companies to satisfy the requirements of the facility Operating Approvals listed in Table A

The monthly summary report includes the operational summaries and hourly continuous monitoring and monthly passive results. The Milner station is being reported under the PAZA Monthly report.

Continuous Monitoring:

Eight (8) Stations including Henry Pirker (Grande Prairie), Dunes, Smoky Heights, Beaverlodge, Valleyview, Fox Creek (station was commissioned this month), Poplar-Portable and Milner.
Detailed Summaries are included in the report.

Calibration and Data Submission:

Monthly report, hourly data and calibration reports for October 2023 were submitted to the ETS data system.

Table A. PAZA members with Facility Operating Approvals

Company	Facility	LSD	EPEA Approval No.
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	00262479-00-00
Alberta Power (2000) Ltd. (an ATCO company)	Sturgeon	SW-06-069-21-W5	00010283-02-02
ATCO Power Canada	Poplar Hill	11-19-073-08-W6	00067774-01-01
ATCO Power Canada	Valleyview	SW-06-069-21-W5	00147709-01-01
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	00247673-00-00
	Ante Creek	02-26-068-25-W5	00266694-00-00
	Gordondale	02-26-068-25-W5	00287474-00-00
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	00010137-02-02
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	00252529-00-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	00000029-01-00
	Progress/Gordondale	01-01-077-10-W6	00010036-02-00
	Gold Creek	13-26-067-05-W6	00010446-02-00
	Teepee Creek	SE-2-074-04-W6	00001635-02-00
	Sturgeon/Valleyview	02-02-069-22-W5	00001633-02-00
Canfor Forest Products	Grande Prairie	SW-23-071-06-W6	00152645-01-00
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	00000212-01-00
Encana Corporation	Sexsmith	04-08-075-07-W6	00010002-01-00
Enerplus Resources	Pouce Coupe	SW-06-069-21-W5	00001464-02-03
Exshaw Oil Corporation	Spirit River	03-10-077-07-W6	00344521-00-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	00238762-00-00
Inception Exploration Ltd.	Gold Creek	03-26-069-05-W6	00335317-00-02
KANATA Energy Group Ltd.	Valhalla	13-21-076-09-W6	00017620-02-02
Long Run Exploration	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
	Donnelly	06-01-077-21-W5	00000087-02-00
	Puskwaskau	03-26-074-01-W6	00017524-01-00
Longview Oil Corp.	Sunset House	06-22-070-20-W5	00138884-01-00
Milner Power Limited Partnership	H.R. Milner thermal electric power plant	SE-15-058-08-W6	00009814-03-03
NorthRiver Midstream Inc.	Fourth Creek	16-11-082-09-W6	00000263-01-00
	Gordondale	11-26-079-09-W6	00011495-01-01
	Pouce Coupe/Bonanza	03-23-080-13-W6	00070203-01-01
Pembina Pipeline Corporation	Kakwa River	08-13-063-05 W6	00335342-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	00001746-02-00
	Pouce Coupe	16-07-078-11-W6	00000614-01-00
Petrus Resources	Rycroft	08-25-077-06-W6	00011351-02-00
	Spirit River	08-34-077-06-W6	00011096-02-00
Strathcona Resources Ltd.	Jayar Sour Gas Processing Plant	06-08-062-03 W6	03612040-00-00
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
Tidewater Midstream and Infrastructure Ltd.	Pipestone Sour Gas Plant	NW-35-70-9 W6	00403309-00-00
Veresen Energy	Hythe Brainard	11-18-074-12-W6	00010910-02-00
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	00000113-02-00

Concentrations in excess of the Clean Air (Maximum Levels) Regulation:

- One PM_{2.5} 24hr readings above AAAQO

24-hr readings above the daily PM_{2.5} AAAQO (29 µg/m³) as:

Site	Reference Number	Date	Day average (µg/m ³)	WS km/hr	WD degrees
Fox Creek	422345	Oct 10, 2023	34.3	2.4	268

Operational times less than 90 percent:

Poplar CH₄/NMHC are not in operation.
All other instruments were in operation >90% during the month.

Air Incidents

None were reported.

Deviations from Authorized Monitoring Methods

None were reported.


Passive Monitoring

- 52 Stations throughout the PAZA zone
 - Passive sample analyses were performed by Bureau Veritas Laboratories
- There were 20 duplicates sampled in the month of October.
 - Eight SO₂ duplicates located at Grande Prairie I, Fitzsimmons, Clouston Creek, Sunset House, Duvernay 1, Kakwa 1, Milner Pipeline, Jayar1 Plant
 - RPD ranging from 0% to 40% (no fail)
 - Milner Pipeline duplicate consisted of <0.1ppb and 0.1ppb
- One O₃ duplicate located at Kinuso
 - RPD 11% (no fails)
- Seven NO₂ duplicates at Eaglesham, Gold Creek, Crooked Creek, Deer Mountain, Kakwa 4, Milner Wanyandie, Jayar2 14-8
 - RPD ranging from 0% to 17% (no fail)
- Four H₂S duplicates at Guy, Duvernay 1, Kakwa 2, Jayar5 Camp
 - RPD 2% to 67% (one fail, Kakwa 2 at 0.04ppb and 0.08ppb)

Dustfall Monitoring

- Five Stations collected Total Dustfall and Fixed Dustfall
- There was one duplicate sampled collected for each in the month of October.
 - RPD ranged from 3% to 22%
- Total dustfall ranged from 22.7 to 89.5 mg/100cm²/30day.
- There were no readings above the AAAQG during the month.

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization, and reporting requirements.

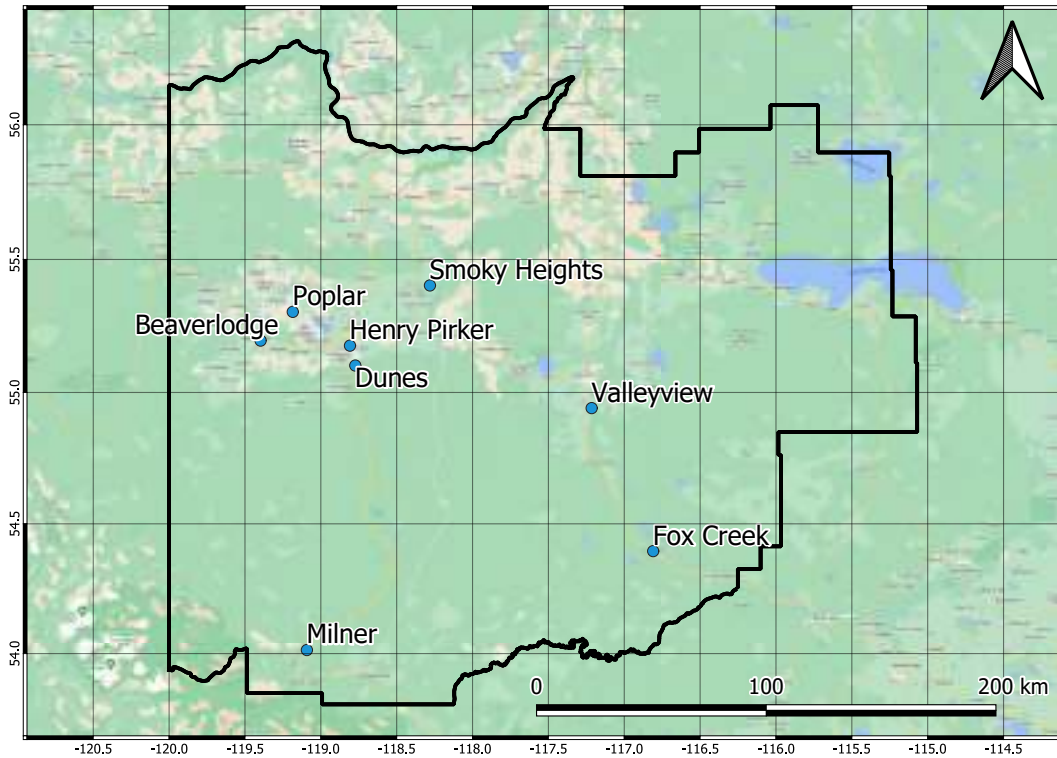


Mandeep Dhaliwal, B.Sc., P.Chem.
Program Manager

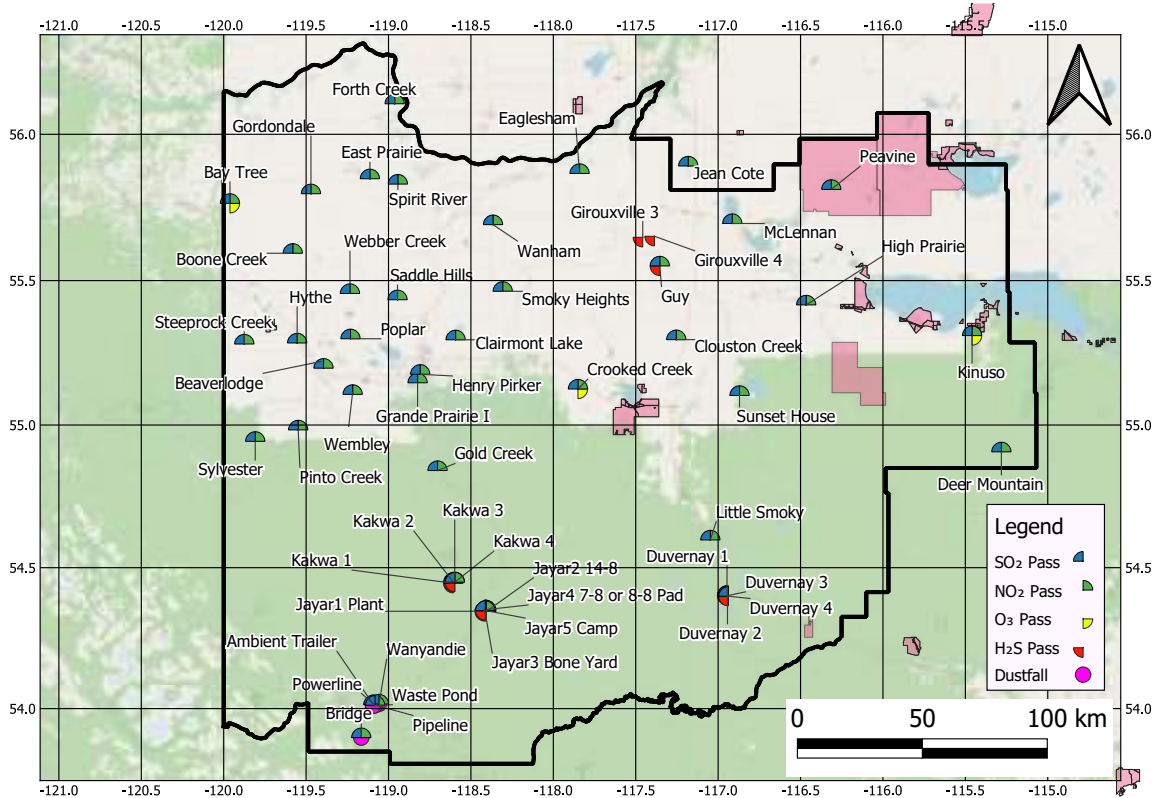
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PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 October Monthly Station Summaries

The following summaries are for the equipment and data results from the continuous ambient monitoring network

1.1 Beaverlodge Air Monitoring Station

PAZA - October 2023 Beaverlodge Station Report

Parameter	October				1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
NO (ppb)	0.6	0.0	94.6%	99.6%	14.7	-	Oct-13 09:00	3.5	-	Oct-16	-	-	-	-	Oct 05, 2023
NO ₂ (ppb)	3.7	0.5	94.6%	99.6%	14.9	150	Oct-20 09:00	9.2	-	Oct-16	0	-	-	-	Oct 05, 2023
NO _x (ppb)	4.3	0.5	94.6%	99.6%	23.8	-	Oct-13 09:00	12.8	-	Oct-16	-	-	-	-	Oct 05, 2023
O ₃ (ppb)	25.7	0.6	95.0%	99.7%	40.7	78	Oct-28 16:00	52.2	-	Oct-28	0	-	-	-	Oct 05, 2023
PM ₁₀ (µg/m ³)	5.5	0.3	97.2%	97.7%	52.0	80	Oct-11 17:00	15.7	25	Oct-21	0	-	0	-	Oct 04, 2023
SO ₂ (ppb)	0.5	0.0	95.2%	99.7%	6.1	172	Oct-13 15:00	1.2	48	Oct-14	0	-	0	0	Oct 04, 2023
Average	5.1	-15.9	95.0%	99.0%	23.9										
Temp (°C)	5.1	-15.9	95.0%	99.0%	23.9										
RH (%)	65.9	26.0	99.6%	99.6%	99.9										
WS (m/s)	8.2	0.1	99.5%	99.5%	43.7										
WD (deg)	281	1.8	99.5%	99.5%	359.8										
<p>Note: Valid hours must be greater than 75% Operational hours must be greater than 90%</p> <p>Average Wind Direction: 281 W</p>															
Update Summary:															
Parameter	Make	Model	Equipment summary												
NO/NO ₂ /NO _x	Thermo	421	Oct 20 power failure (2hrs); Oct 21 span fail, verification check passed (1hr)												
O ₃	Thermo	49QL	Oct 20 power failure (2hrs)												
PM ₁₀	API	T640	Oct 20 power failure (2hrs); analyzer flatline 9H restart, no maintenance Oct 21 (13hrs)												
SO ₂	Thermo	43-TLE	Oct 20 power failure (2hrs)												
Met Equip	MetOne	50.5	Oct 20 power failure (3hrs); Daily drop starting Aug 9, removed every day 04:23-04:43 (33hrs); Oct 24 maintenance to replace power supply (1hr), did not correct issue												

1.2 Dunes Air Monitoring Station

PAZA - October 2023 Dunes Station Report

Parameter	October				1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
PM ₁₀ (µg/m ³)	4.1	0.0	99.9%	100.0%	61.1	80	Oct-38 07:00	10.0	25	Oct-30	0	-	0	-	Oct-25-2023
SO ₂ (ppb)	0.6	0.0	95.3%	100.0%	16.5	172	Oct-25 14:00	3.6	48	Oct-25	0	-	0	0	Oct-25-2023
THS (ppb)	0.4	0.0	93.2%	100.0%	6.0	-	Oct-38 06:00	1.5	-	Oct-30	-	-	-	-	Oct-25-2023
Average	4.5	-16.2	100.0%	100.0%	26.1										
Temp (°C)	4.5	-16.2	100.0%	100.0%	26.1										
RH (%)	65.7	20.1	100.0%	100.0%	99.9										
WS (m/s)	3.1	0.0	100.0%	100.0%	12.2										
WD (deg)	281	1.1	100.0%	100.0%	359.7										
<p>Note: Valid hours must be greater than 75% Operational hours must be greater than 90%</p> <p>Average Wind Direction: 281 W</p>															
Update Summary:															
Parameter	Make	Model	Equipment summary												
PM ₁₀	Sharp	5030	No Operational issues noted												
SO ₂	TECD	431	No Operational Issues noted												
THS	TECD	43C	No Operational issues noted												
Met Equip	G4/IMYoung	MetPak/IMY98004	No Operational issues noted												

1.3 Grande Prairie - Henry Pirkler Air Monitoring Station

PAZA - October 2023 Henry Pirkler Station Report

Parameter	October				1-hour			8-hour / 24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
NO (ppb)	3.2	0.0	94.9%	100.0%	76.6	-	Oct-26 09:00	22.1	-	Oct-30	-	-	-	-	Oct 03, 2023
NO ₂ (ppb)	10.0	0.7	94.8%	100.0%	36.7	159	Oct-27 20:00	22.5	-	Oct-30	0	-	-	-	Oct 03, 2023
NO _x (ppb)	15.2	0.8	94.3%	100.0%	94.8	-	Oct-30 08:00	44.9	-	Oct-30	-	-	-	-	Oct 03, 2023
O ₃ (ppb)	16.7	0.1	95.3%	100.0%	41.4	76	Oct-09 14:00	27.7	-	Oct-19	0	-	-	-	Oct 04, 2023
PM _{2.5} (µg/m ³)	7.8	0.4	99.7%	100.0%	77.4	80	Oct-11 15:00	20.0	29	Oct-11	0	-	0	-	Oct 04, 2023
SO ₂ (ppb)	0.6	0.0	94.5%	99.3%	17.5	172	Oct-28 11:00	1.7	48	Oct-27	0	-	0	0	Oct 04, 2023
H ₂ S (ppb)	0.2	0.0	95.2%	100.0%	2.5	38	Oct-28 09:00	0.8	5	Oct-30	0	-	0	-	Oct 04, 2023
CH ₄ (ppm)	2.2	2.0	87.8%	92.1%	3.8	-	Oct-30 07:00	2.4	-	Oct-29	-	-	-	-	Oct 04, 2023
THC (ppm)	2.2	2.0	87.8%	92.1%	3.8	-	Oct-30 07:00	2.4	-	Oct-29	-	-	-	-	Oct 04, 2023
NMHC (ppm)	0.0	0.0	87.8%	92.1%	0.3	-	Oct-27 22:00	0.0	-	Oct-27	-	-	-	-	Oct 03, 2023
CO (ppm)	0.2	0.1	95.3%	100.0%	0.7	31	Oct-01 00:00	0.4	9	Oct-01	0	0	-	-	Oct 02, 2023
Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	5.1	-14.9	100.0%	100.0%	25.0	<div style="border: 1px solid black; padding: 2px;"> Note: Valid hours must be greater than 75% Operational hours must be greater than 90% </div>									
RH (%)	64.4	22.7	100.0%	100.0%	89.4	<div style="border: 1px solid black; padding: 2px;"> Average Wind Direction 258 WNW </div>									
SR (µg/m ³)	61.4	0.0	100.0%	100.0%	454.6										
WS (km/hr)	5.7	0.2	100.0%	100.0%	25.3										
WD (deg)	258	1.4	100.0%	100.0%	304.7										

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	420L	No operational issues
O ₃	TECO	491	No operational issues
PM _{2.5}	API	T640	No operational issues
SO ₂	TEI	431-TLE	Span fail due to perm tube, replaced and spans settled; Oct 13-17 (5hrs maintenance)
H ₂ S	TEI	450L	No operational issues
THC/CH ₄ /NMHC	TEI	551	Oct 2 could not ignite after hydrogen cylinder replacement, column conditioning overnight, calibration performed Oct 3 (2hrs maintenance, 5hrs removed from startup to calibration); Oct 30 THC flatlined (0ppb), Oct 31 could not ignite after hydrogen cylinder replacement, column conditioning overnight (51hrs removed)
CO	TEI	481-TLE	No operational issues
Met Equip	MetOne	50.5	No operational issues

1.4 Smoky Heights Air Monitoring Station

PAZA - October 2023 Smoky Heights Station Report

Parameter	October				1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
PM _{2.5} (µg/m ³)	5.0	0.0	99.7%	100.0%	47.0	80	Oct-21 20:00	15.8	29	Oct-10	0	-	0	-	Oct 26, 2023
SO ₂ (ppb)	0.4	0.0	95.3%	100.0%	34.9	172	Oct-29 11:00	2.5	48	Oct-19	0	-	0	0	Oct 26, 2023
TRS (ppb)	0.3	0.0	95.2%	100.0%	1.2	-	Oct-14 22:00	0.5	-	Oct-12	-	-	-	-	Oct 26, 2023
Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	-4.4	-17.6	100.0%	100.0%	25.1	<div style="border: 1px solid black; padding: 2px;"> Note: Valid hours must be greater than 75% Operational hours must be greater than 50% </div>									
WS (km/hr)	10.8	0.3	100.0%	100.0%	44.1	<div style="border: 1px solid black; padding: 2px;"> Average Wind Direction 248 WNW </div>									
WD (deg)	248	0.6	100.0%	100.0%	359.8										

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	1030	No Operational issues noted
SO ₂	TECO	431	No Operational issues noted
TRS	TEI	431-APSAA	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.5 Valleyview Air Monitoring Station

PAZA - October 2023 Valleyview Station Report

Parameter	October				1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
SO ₂ (ppb)	0.1	0.0	95.2%	100.0%	2.8	172	Oct-21 12:00	0.5	48	Oct-30	0	0	0	0	Oct 27, 2023
H ₂ S (ppb)	0.1	0.0	95.3%	100.0%	0.4	38	Oct-30 21:00	0.2	3	Oct-26	0	0	0	0	Oct 27, 2023
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	4.9	-15.1	100.0%	100.0%	27.8	<div style="border: 1px solid black; padding: 5px;"> Note: Valid hours must be greater than 75% Operational hours must be greater than 50% </div>									
RH (%)	73.2	18.0	100.0%	100.0%	100.1										
WS (m/s/hr)	3.7	0.0	100.0%	100.0%	16.1										
WD (deg)	248	1.1	100.0%	100.0%	390.0	<div style="border: 1px solid black; padding: 2px;"> Average Wind Direction 248 MW </div>									

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	TEI	43-AF5CB	No Operational issues noted
H ₂ S	TEI	450-APHAA / 43C	No Operational issues noted
Mkt Equip	RMYoung	RMYB5004	No Operational issues noted

1.6 Fox Creek Air Monitoring Station

PAZA - October 2023 Fox Creek Station Report

Parameter	October				1-hour			8-hour / 24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
NO (ppb)	8.5	0.0	86.8%	91.3%	87.5	-	Oct-25 07:00	16.7	-	Oct-30	-	-	-	-	Oct 03, 2023
NO ₂ (ppb)	7.7	0.0	86.8%	91.3%	33.5	150	Oct-07 18:00	15.9	-	Oct-30	0	-	-	-	Oct 03, 2023
NO _x (ppb)	16.3	0.0	86.8%	91.3%	114.2	-	Oct-25 07:00	35.1	-	Oct-30	-	-	-	-	Oct 03, 2023
O ₃ (ppb)	17.2	0.1	85.5%	96.0%	45.0	78	Oct-09 16:00	27.2	-	Oct-19	0	-	-	-	Oct 03, 2023
PM _{2.5} (µg/m ³)	8.9	1.3	91.3%	91.7%	76.0	88	Oct-30 14:00	34.3	25	Oct-10	0	-	1	-	Oct 03, 2023
SO ₂ (ppb)	0.5	0.0	87.3%	91.7%	5.9	172	Oct-29 11:00	1.1	48	Oct-31	0	0	0	0	Oct 03, 2023
H ₂ S (ppb)	0.2	0.0	86.6%	90.7%	1.6	38	Oct-30 22:00	0.4	3	Oct-30	0	0	0	0	Oct 03, 2023
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	4.4	-16.8	91.7%	91.7%	27.3	<div style="border: 1px solid black; padding: 5px;"> Note: Valid hours must be greater than 75% Operational hours must be greater than 50% </div>									
WS (m/s/hr)	5.3	0.2	91.7%	91.7%	20.8										
WD (deg)	239	0.4	91.7%	91.7%	393.9	<div style="border: 1px solid black; padding: 2px;"> Average Wind Direction 239 SW </div>									

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42iQ	Station startup Oct 3; maintenance Oct 4 (5 hrs); maintenance Oct 6 (3 hrs); DAS failure Oct 8 (2 hrs)
O ₃	TECO	49i	Station startup Oct 3; maintenance Oct 4 (5 hrs); maintenance Oct 6 (3 hrs); DAS failure Oct 8 (2 hrs)
PM _{2.5}	API	T640	Station startup Oct 3; DAS failure Oct 8 (2 hrs); 24hr exceedance Oct 10
SO ₂	TEI	43i-TLE	Station startup Oct 3; maintenance Oct 4 (5 hrs); DAS failure Oct 8 (2 hrs)
H ₂ S	TEI	450i	Station startup Oct 3; maintenance Oct 4 (5 hrs); DAS failure Oct 8 (2 hrs)
Mkt Equip	MktDra	50.5	Station startup Oct 3; DAS failure Oct 8 (2 hrs)

1.7 Poplar Air Monitoring Station

PAZA - October 2023 Poplar Station Report

Parameter	October				1-hour			24-hour			Exceedance				Calibration Date																																																																			
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d																																																																				
NO (ppb)	3.6	0.0	94.0%	98.9%	23.0	-	Oct-30 07:00	6.8	-	Oct-14	-	-	-	-	Oct 12, 2023																																																																			
NO ₂ (ppb)	5.0	0.3	94.0%	98.9%	25.0	150	Oct-30 18:00	12.2	-	Oct-30	0	-	-	-	Oct 12, 2023																																																																			
NO _x (ppb)	6.7	0.3	94.0%	98.9%	41.4	-	Oct-30 18:00	18.8	-	Oct-30	-	-	-	-	Oct 12, 2023																																																																			
O ₃ (ppb)	19.3	0.0	94.4%	98.9%	39.0	78	Oct-28 16:00	31.7	-	Oct-19	0	-	-	-	Oct 12, 2023																																																																			
PM _{2.5} (µg/m ³)	6.0	0.5	98.8%	98.9%	51.0	80	Oct-31 14:00	21.0	25	Oct-11	0	-	0	-	Oct 12, 2023																																																																			
SO ₂ (ppb)	3.8	0.0	94.2%	98.9%	37.9	172	Oct-25 13:00	5.8	48	Oct-28	0	-	0	0	Oct 12, 2023																																																																			
TRS (ppm)	0.7	0.3	94.1%	98.9%	4.0	-	Oct-30 00:00	1.0	-	Oct-29	-	-	-	-	Oct 11, 2023																																																																			
CO ₂ (ppm)	removed Dec 12, 2022																																																																																	
THC (ppm)	2.5	1.9	92.3%	97.0%	3.6	-	Oct-30 11:00	2.7	-	Oct-29	-	-	-	-	Oct 30, 2023																																																																			
NMHC (ppm)	removed Dec 12, 2022																																																																																	
<table border="0"> <tr> <td>Average</td> <td>Minimum</td> <td>Valid</td> <td>Operational</td> <td>Maximum</td> <td colspan="11"></td> </tr> <tr> <td>Temp (°C)</td> <td>3.4</td> <td>-16.9</td> <td>98.8%</td> <td>98.9%</td> <td>22.7</td> <td colspan="11"></td> </tr> <tr> <td>WS (m/s/hr)</td> <td>10.5</td> <td>0.3</td> <td>98.9%</td> <td>98.9%</td> <td>49.3</td> <td colspan="11"></td> </tr> <tr> <td>WD (deg)</td> <td>286</td> <td>1.2</td> <td>98.9%</td> <td>98.9%</td> <td>354.9</td> <td colspan="11"></td> </tr> </table>																Average	Minimum	Valid	Operational	Maximum												Temp (°C)	3.4	-16.9	98.8%	98.9%	22.7												WS (m/s/hr)	10.5	0.3	98.9%	98.9%	49.3												WD (deg)	286	1.2	98.9%	98.9%	354.9											
Average	Minimum	Valid	Operational	Maximum																																																																														
Temp (°C)	3.4	-16.9	98.8%	98.9%	22.7																																																																													
WS (m/s/hr)	10.5	0.3	98.9%	98.9%	49.3																																																																													
WD (deg)	286	1.2	98.9%	98.9%	354.9																																																																													
<table border="0"> <tr> <td colspan="16">Note: Valid hours must be greater than 75%</td> </tr> <tr> <td colspan="16">Operational hours must be greater than 90%</td> </tr> <tr> <td colspan="10">Average Wind Direction</td> <td colspan="6">286 WNW</td> </tr> </table>																Note: Valid hours must be greater than 75%																Operational hours must be greater than 90%																Average Wind Direction										286 WNW																								
Note: Valid hours must be greater than 75%																																																																																		
Operational hours must be greater than 90%																																																																																		
Average Wind Direction										286 WNW																																																																								

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TEI	42i	Oct 24 Power failure (8hrs)
O ₃	TEI	49i	Oct 24 Power failure (8hrs)
PM _{2.5}	API	T690	Oct 24 Power failure (8hrs)
SO ₂	TEI	43i	Oct 24 Power failure (8hrs)
TRS	TEI	43i	Oct 24 Power failure (8hrs)
THC	TEI	55i / 518-LT	CO ₂ , NMHC not in service; Oct 5-6 data removed when sudden drop and recovery (4hrs); Oct 11 span check (3hrs); Oct 14 data flatlined (3hrs) followed by span check (2hr); Oct 24 Power failure (8hrs)
Met Equip	MetOne	50.5	Oct 24 Power failure (8hrs)

1.8 Milner Air Monitoring Station

PAZA - October 2023 Milner Station Report

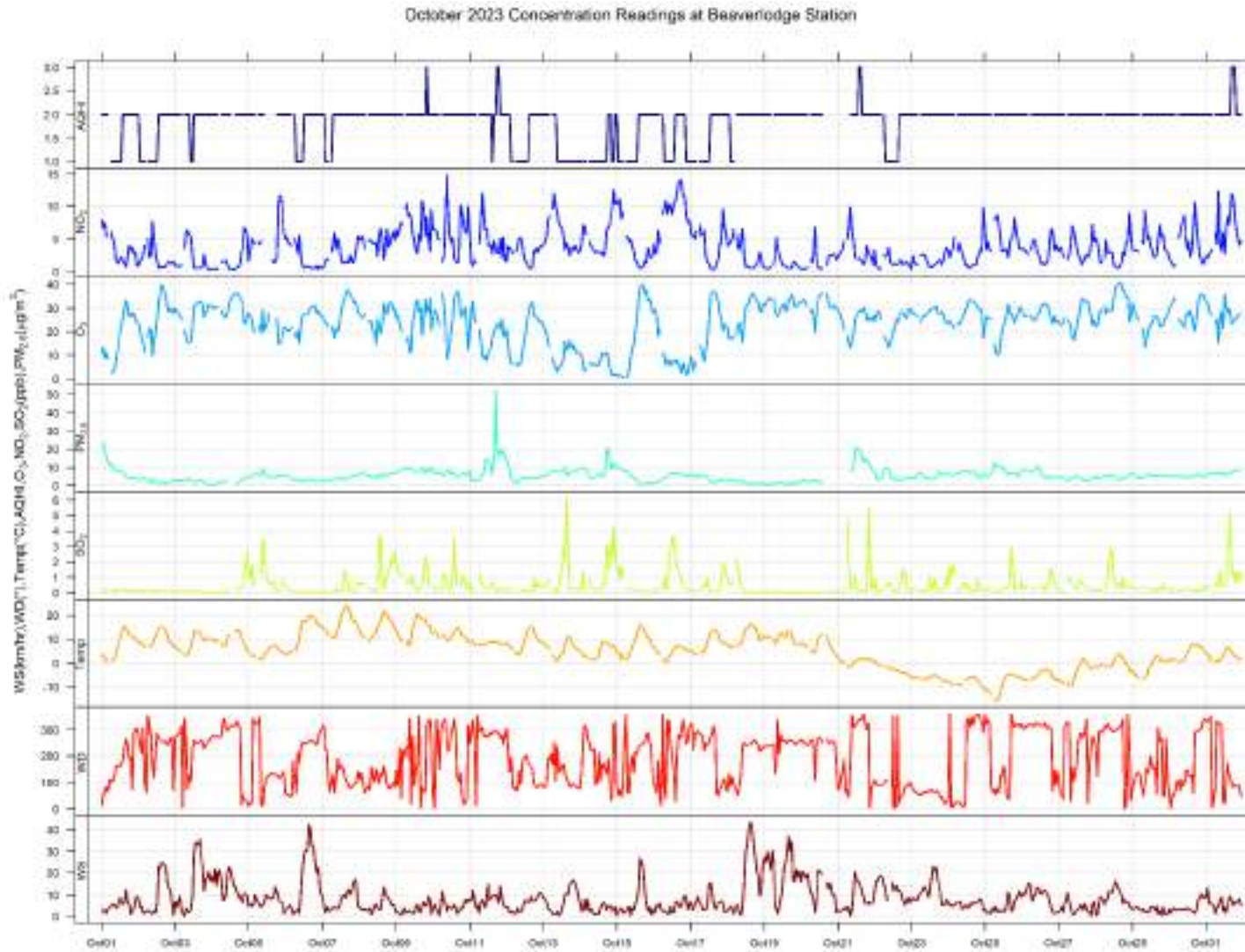
Parameter	October				1-hour			24-hour			Exceedance				Calibration Date																																																		
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d																																																			
NO (ppb)	0.6	0.0	94.2%	99.6%	23.8	-	Oct-09 09:00	3.5	-	Oct-09	-	-	-	-	Oct 07, 2023																																																		
NO ₂ (ppb)	2.3	0.0	94.2%	99.6%	15.7	150	Oct-01 25:00	6.4	-	Oct-09	0	-	-	-	Oct 07, 2023																																																		
NO _x (ppb)	3.5	0.0	94.2%	99.6%	33.7	-	Oct-09 09:00	10.1	-	Oct-09	-	-	-	-	Oct 07, 2023																																																		
PM _{2.5} (µg/m ³)	4.3	0.2	93.2%	99.6%	37.1	80	Oct-30 07:00	10.7	29	Oct-22	0	-	0	-	Oct 07, 2023																																																		
<table border="0"> <tr> <td>Average</td> <td>Minimum</td> <td>Valid</td> <td>Operational</td> <td>Maximum</td> <td colspan="11"></td> </tr> <tr> <td>WS (m/s/hr)</td> <td>6.7</td> <td>0.3</td> <td>99.7%</td> <td>99.7%</td> <td>23.1</td> <td colspan="11"></td> </tr> <tr> <td>WD (deg)</td> <td>254</td> <td>3.2</td> <td>99.7%</td> <td>99.7%</td> <td>393.8</td> <td colspan="11"></td> </tr> </table>																Average	Minimum	Valid	Operational	Maximum												WS (m/s/hr)	6.7	0.3	99.7%	99.7%	23.1												WD (deg)	254	3.2	99.7%	99.7%	393.8											
Average	Minimum	Valid	Operational	Maximum																																																													
WS (m/s/hr)	6.7	0.3	99.7%	99.7%	23.1																																																												
WD (deg)	254	3.2	99.7%	99.7%	393.8																																																												
<table border="0"> <tr> <td colspan="16">Note: Valid hours must be greater than 75%</td> </tr> <tr> <td colspan="16">Operational hours must be greater than 90%</td> </tr> <tr> <td colspan="10">Average Wind Direction</td> <td colspan="6">254 WSW</td> </tr> </table>																Note: Valid hours must be greater than 75%																Operational hours must be greater than 90%																Average Wind Direction										254 WSW							
Note: Valid hours must be greater than 75%																																																																	
Operational hours must be greater than 90%																																																																	
Average Wind Direction										254 WSW																																																							

Update Summary:

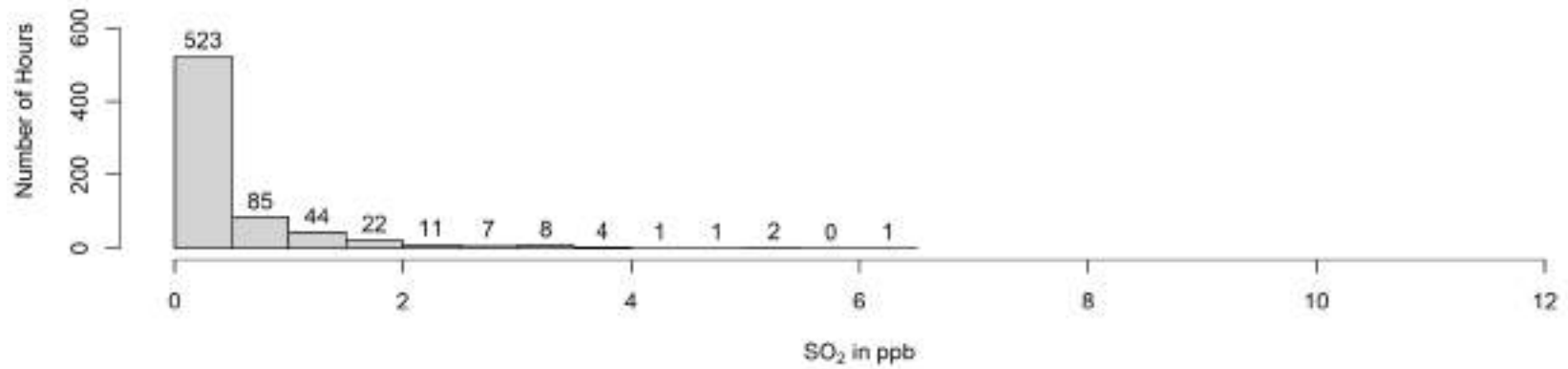
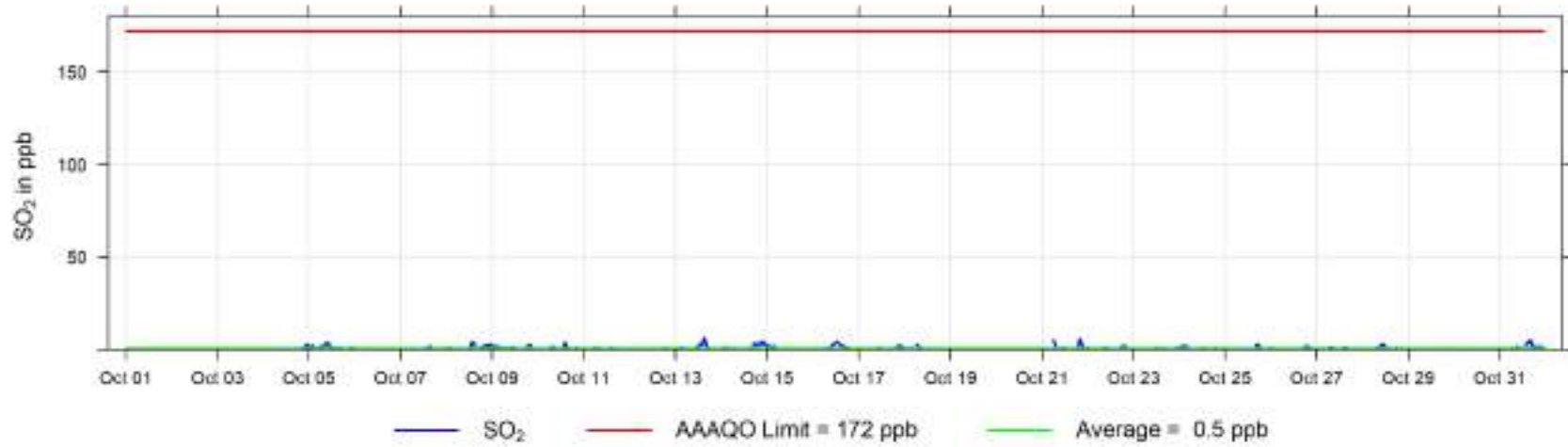
Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42i	Oct 13 power failure (3hrs); baseline shifted to pull data above zero
PM _{2.5}	API	T690	Oct 13 power failure (3hrs)
Met Equip	MetOne	50.5	Oct 13 power failure (3hrs)

2 Beaverlodge Charts

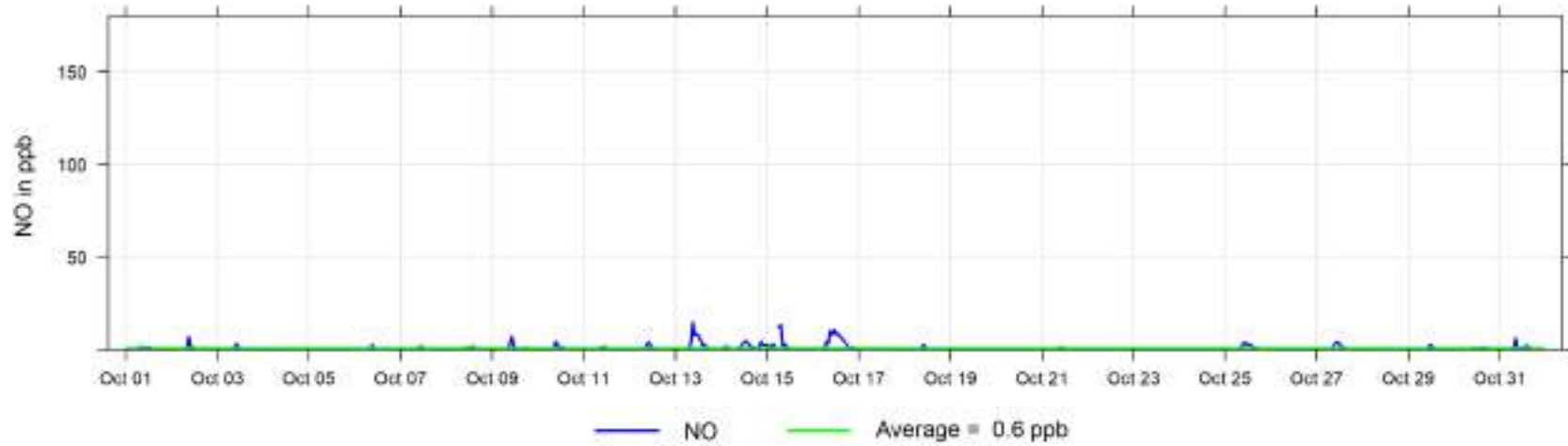
The following pages include the charts and histograms for Beaverlodge Station



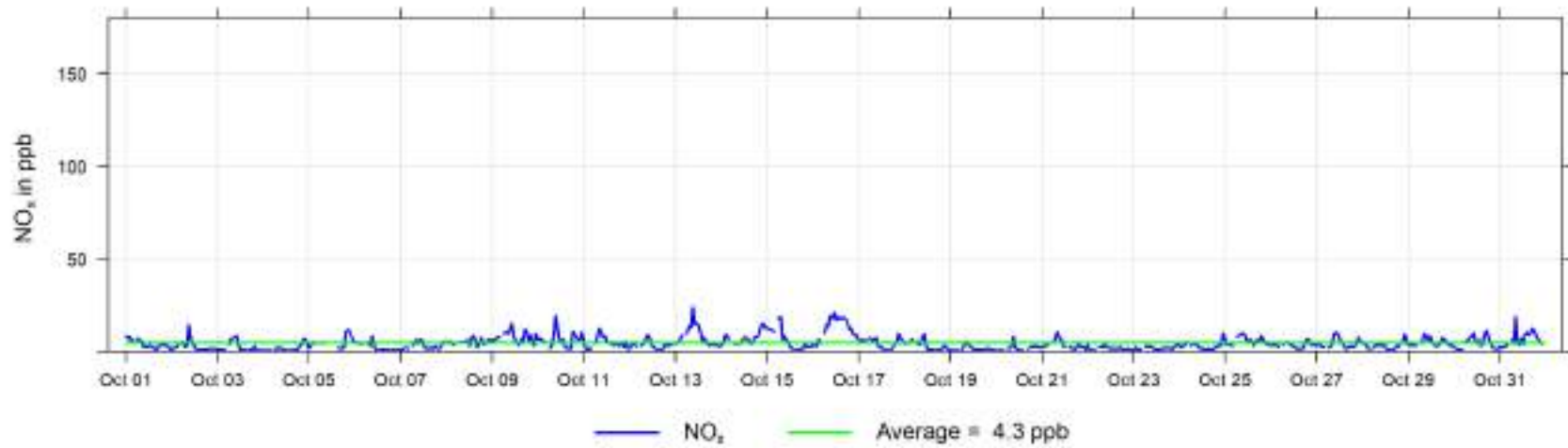
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge



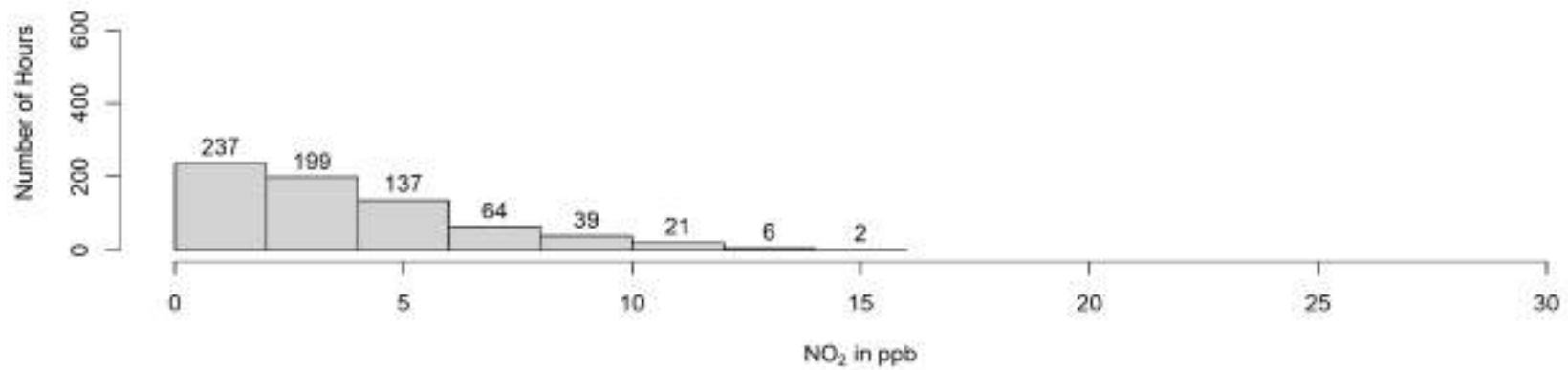
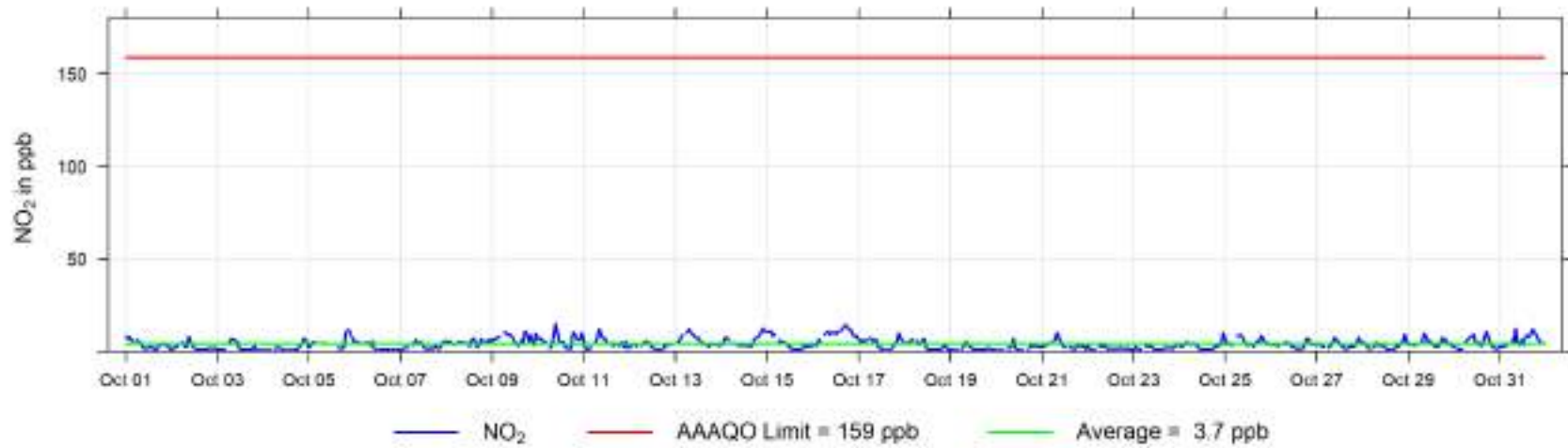
October 2023 Hourly Concentration Readings of NO (in ppb) at Beaverlodge



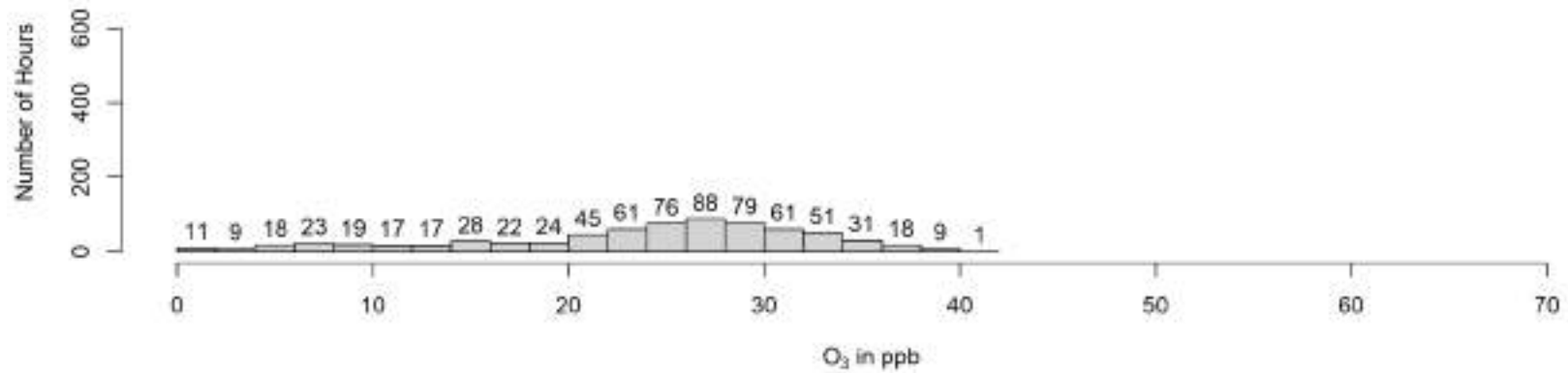
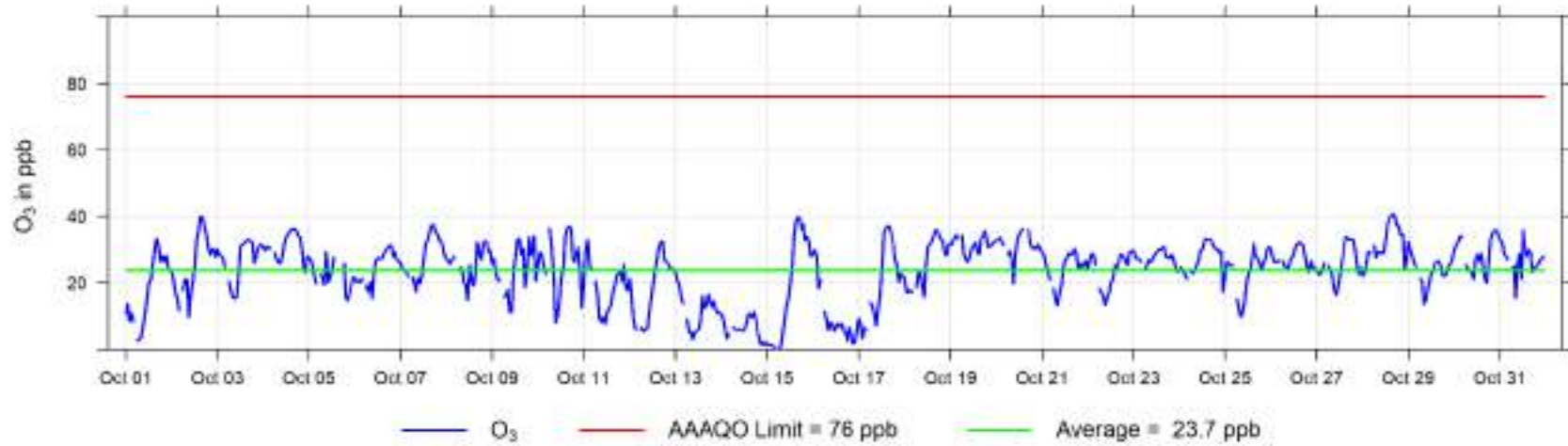
October 2023 Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge



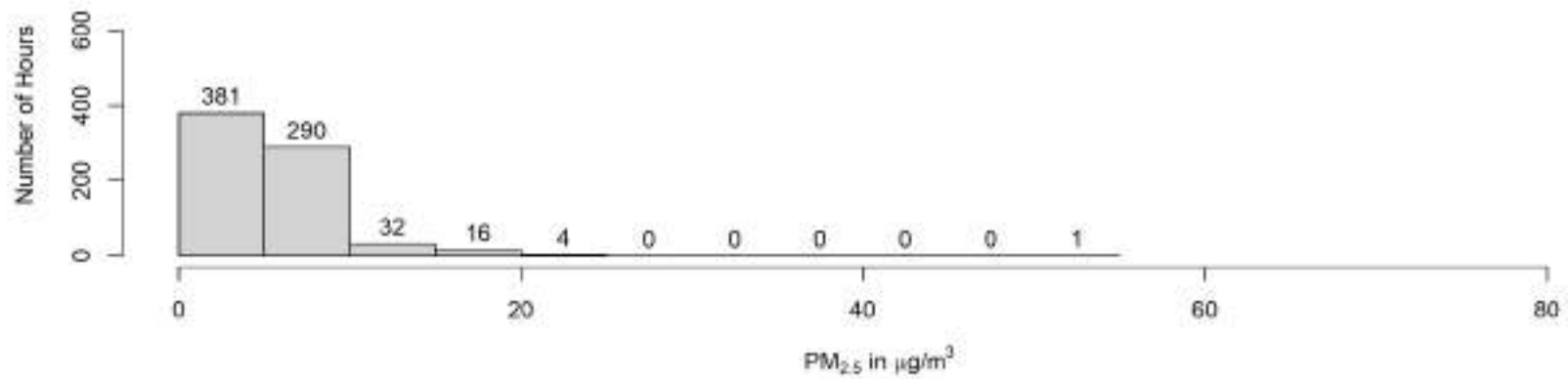
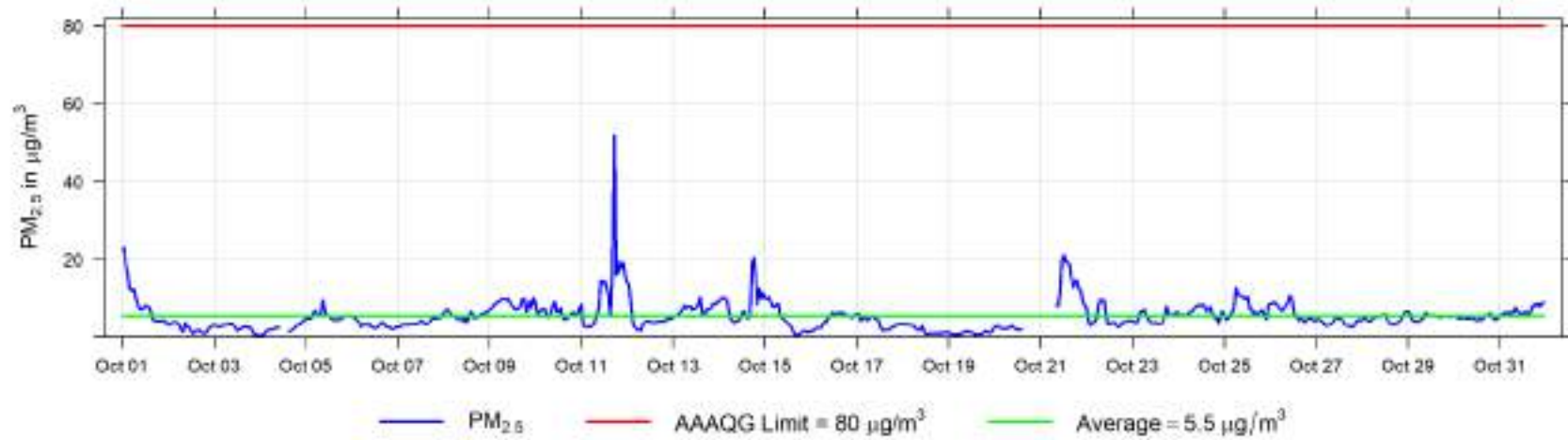
October 2023 Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge



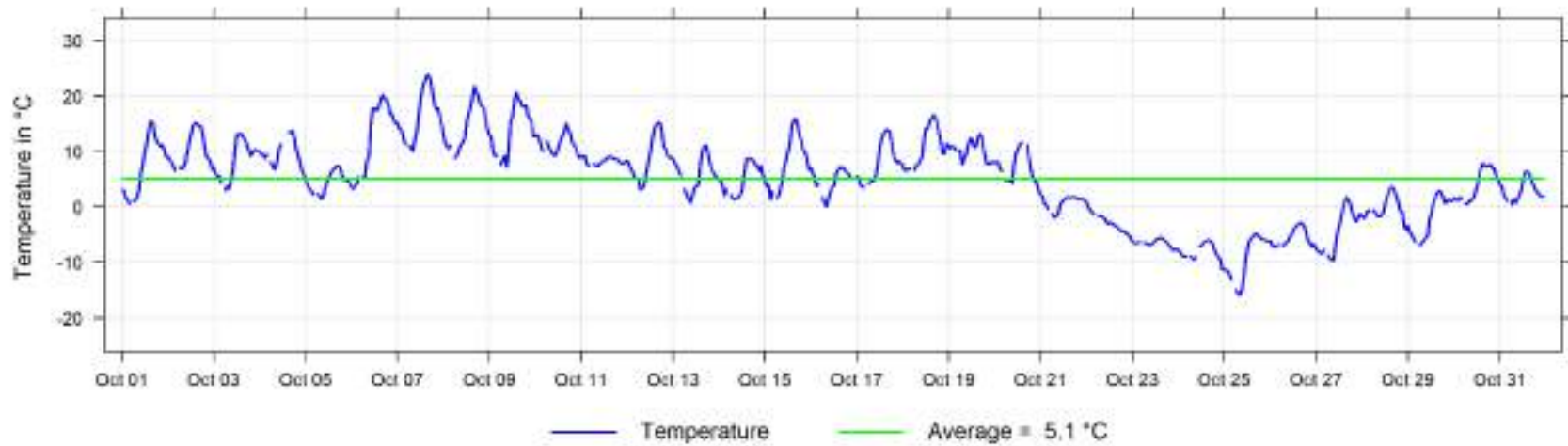
October 2023 Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge



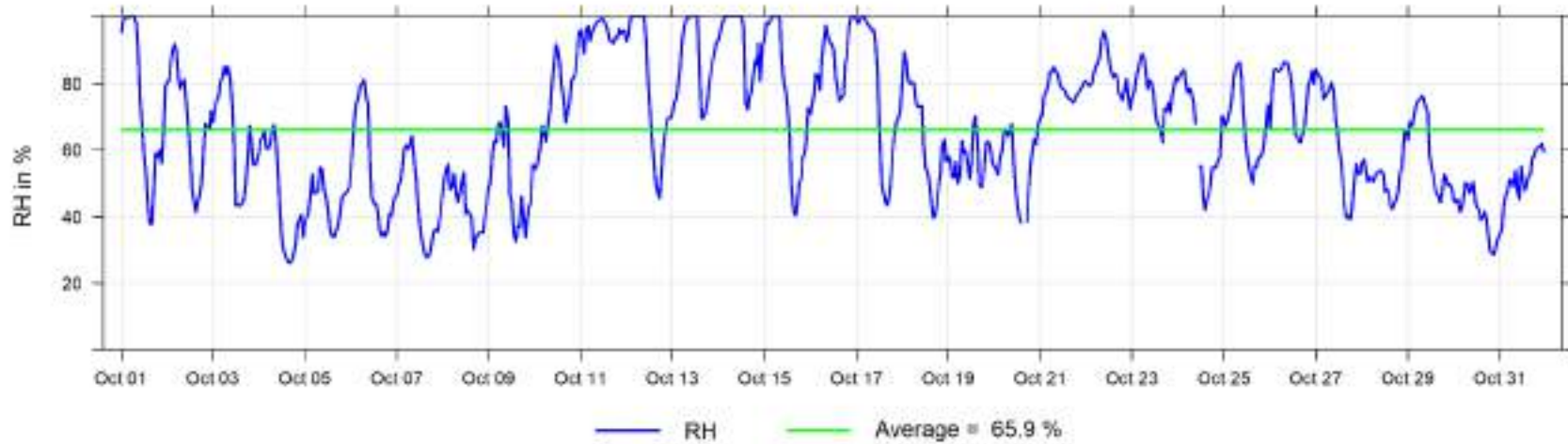
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Beaverlodge



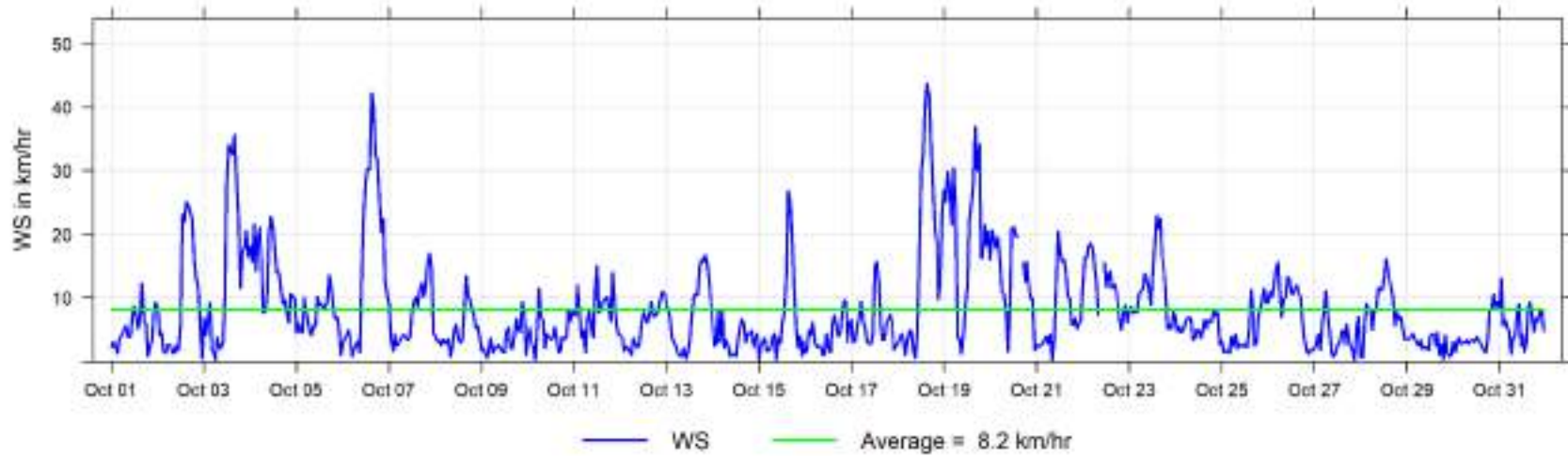
October 2023 Hourly Temperature Readings (in °C) at Beaverlodge



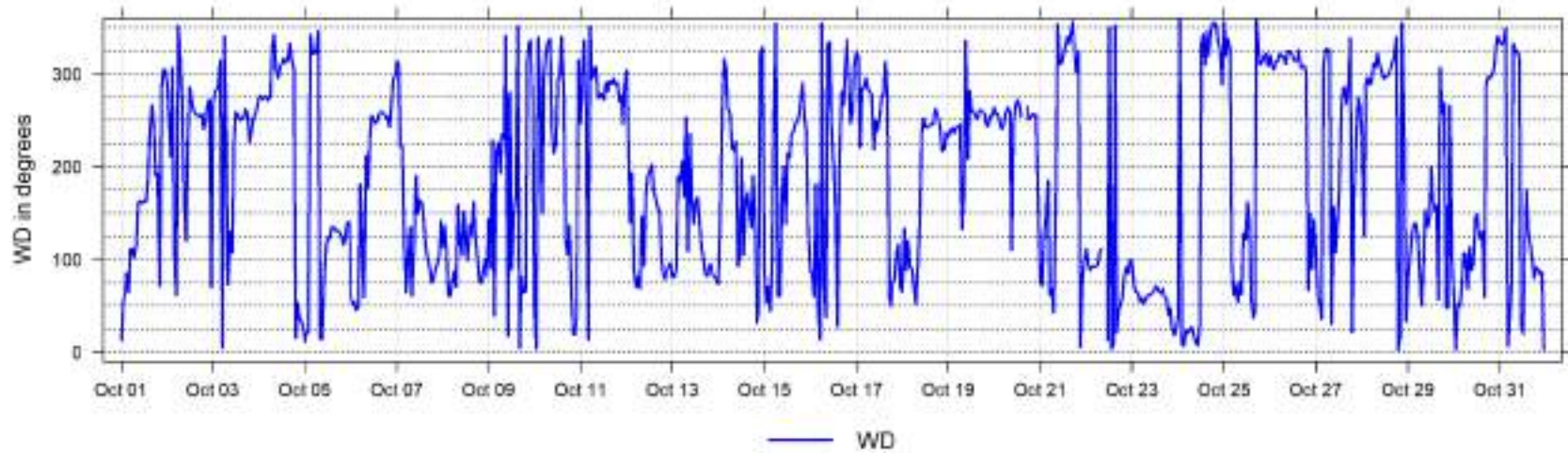
October 2023 Hourly Readings of Relative Humidity (in %) at Beaverlodge



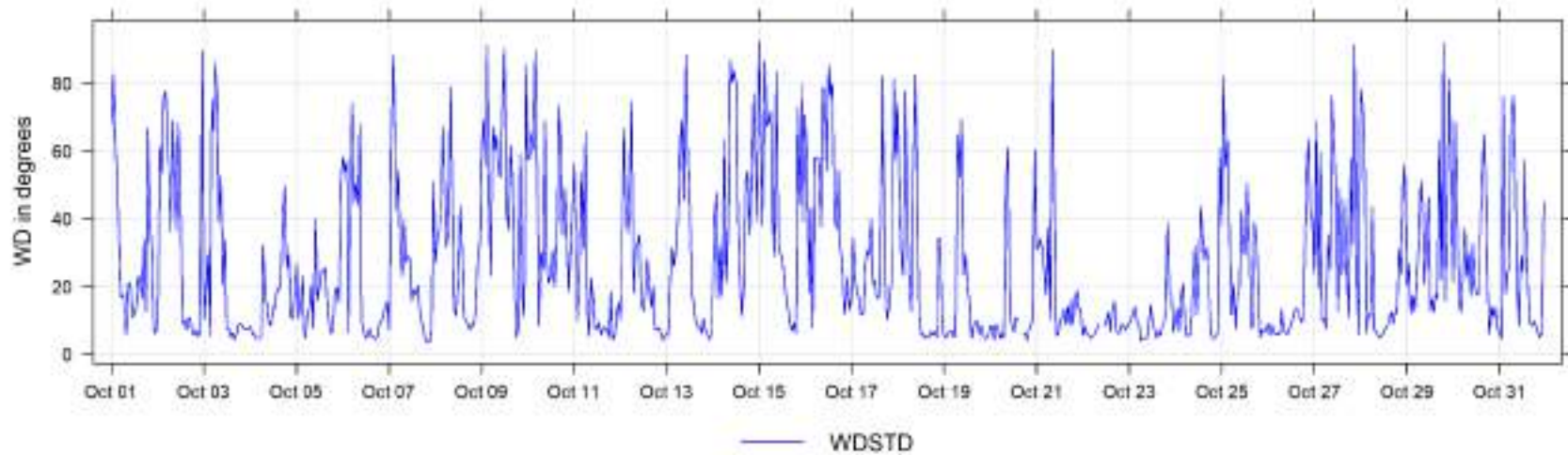
October 2023 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge

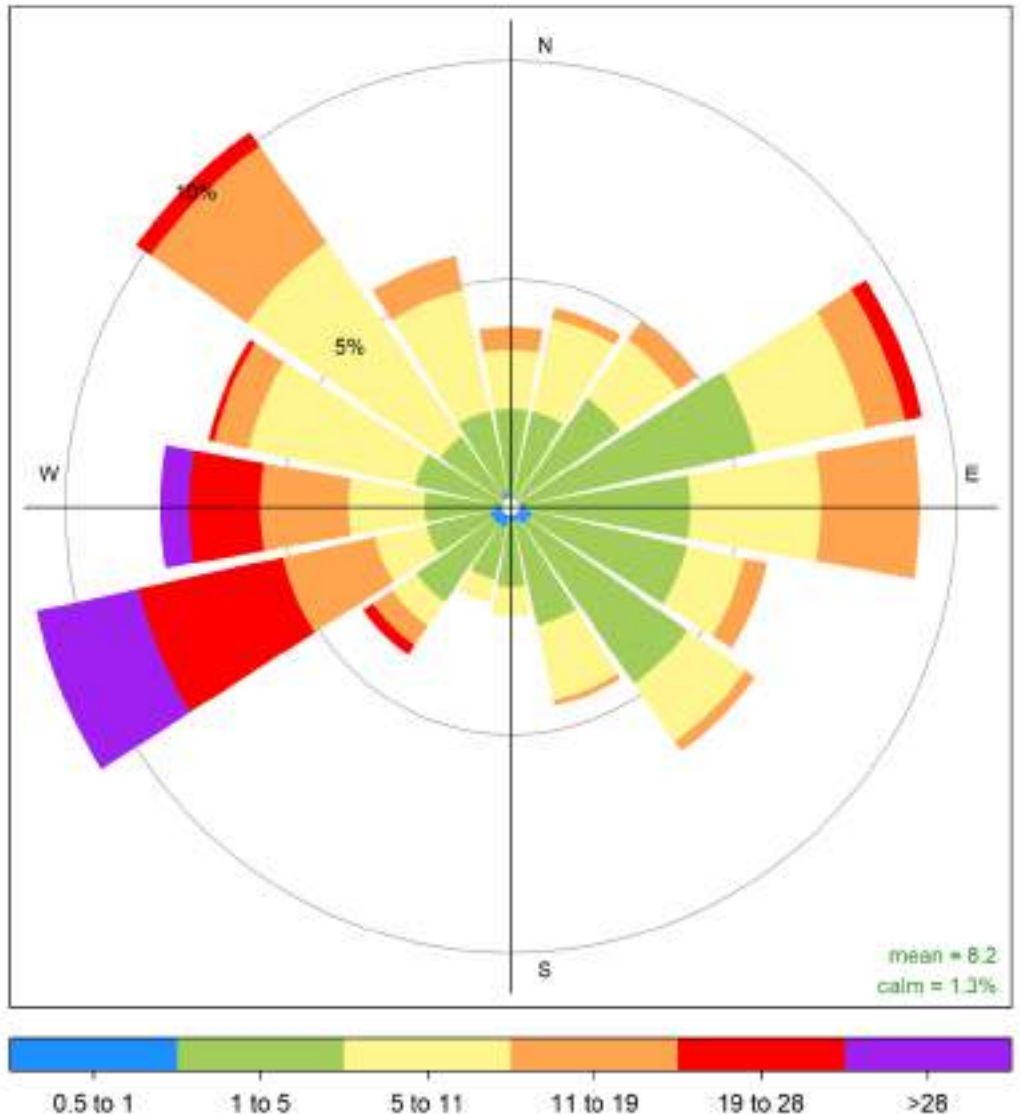


October 2023 Hourly Readings of Wind Direction (in degrees) at Beaverlodge



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Beaverlodge

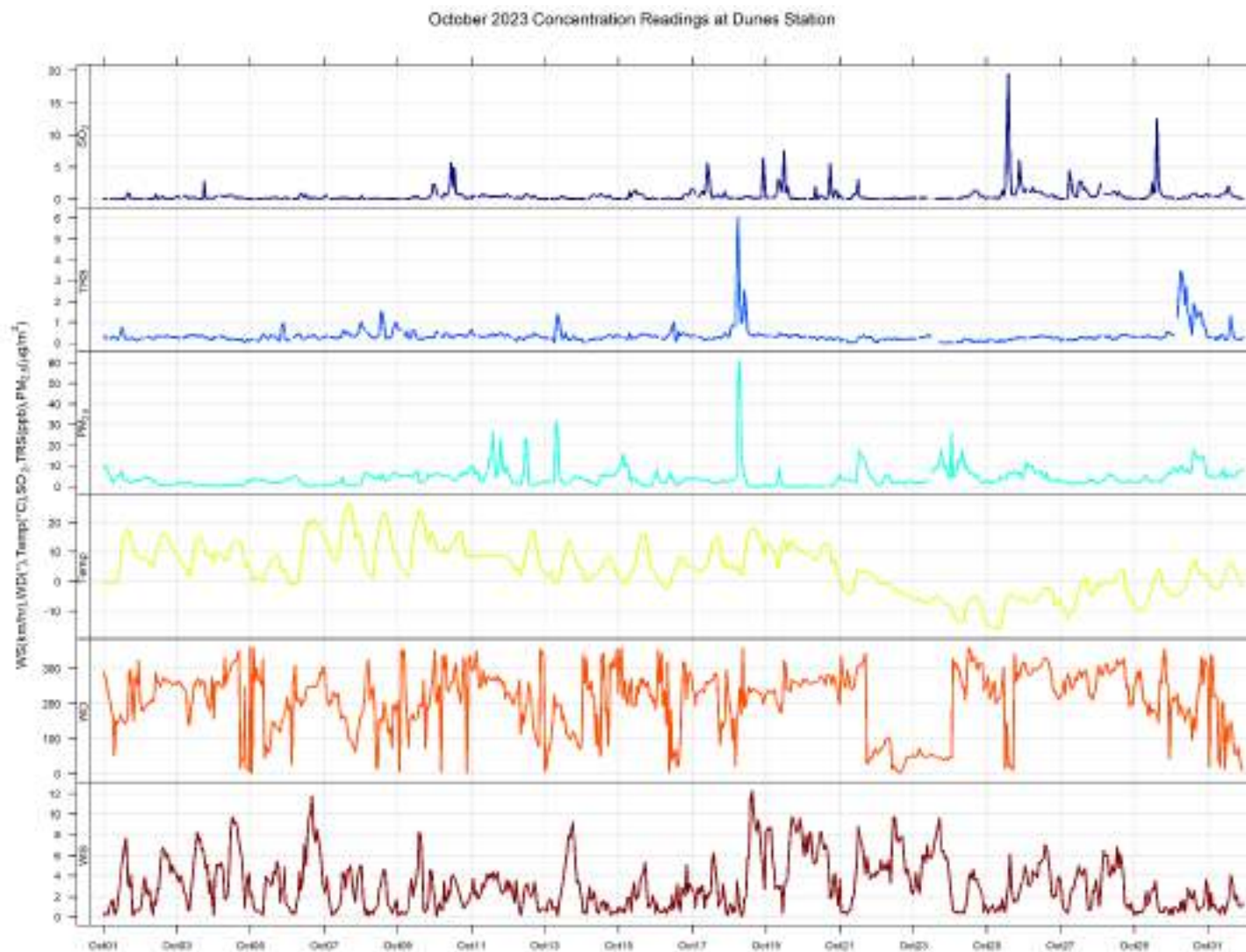




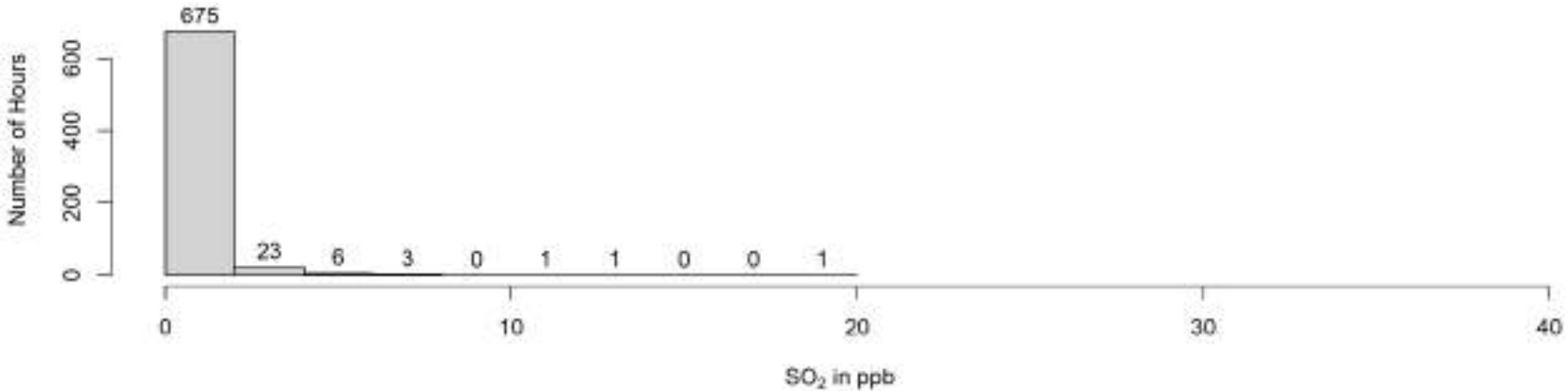
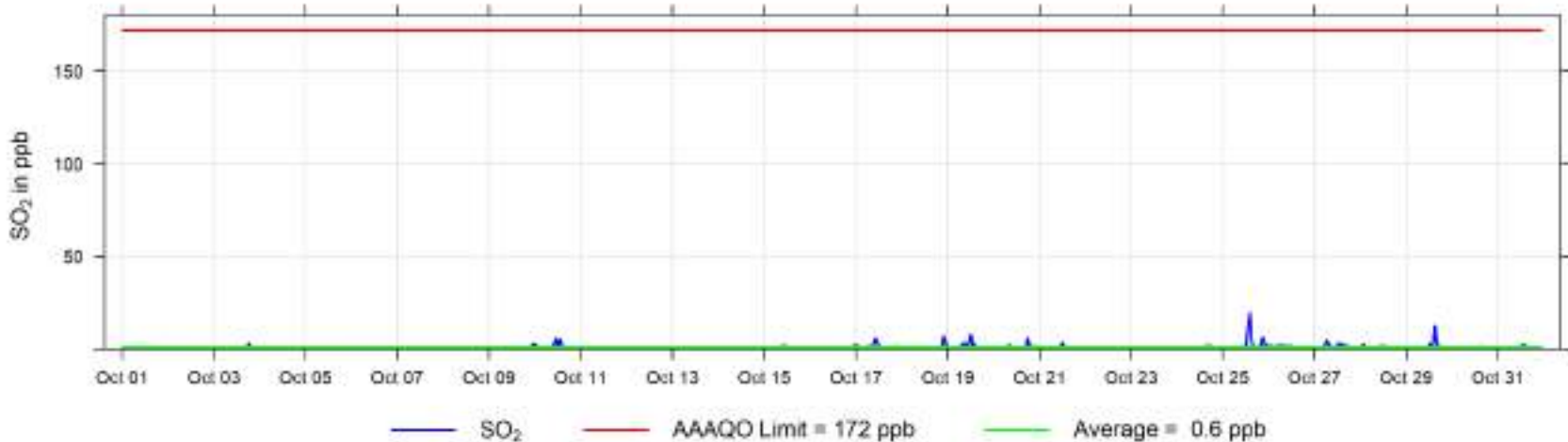
Beaverlodge October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

3 Dunes Charts

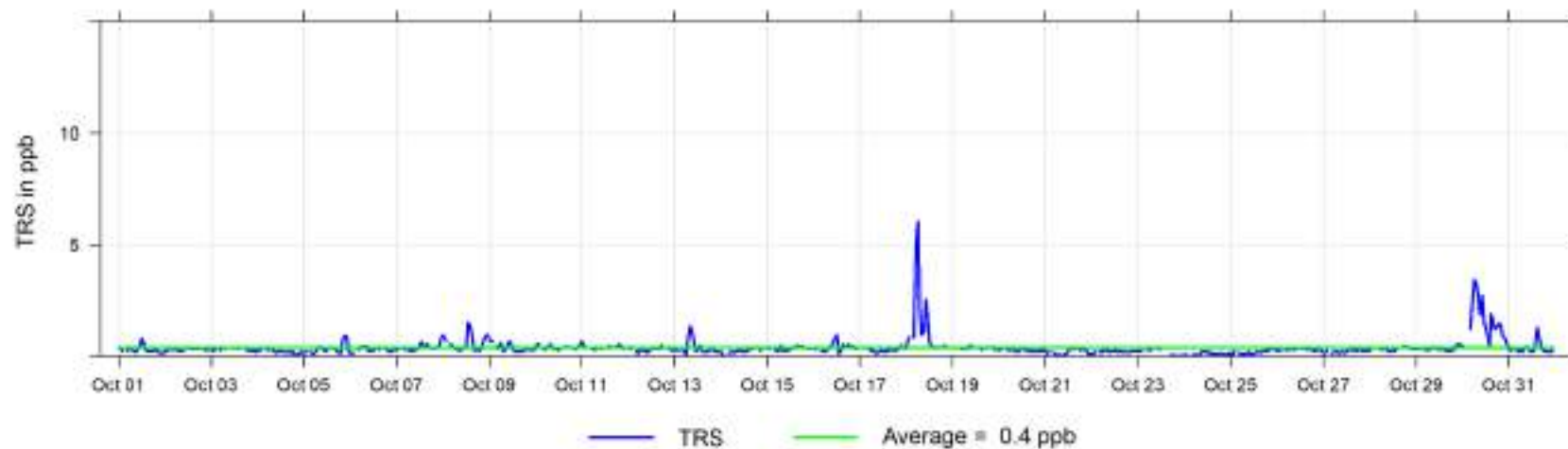
The following pages include the charts and histograms for Dunes Station



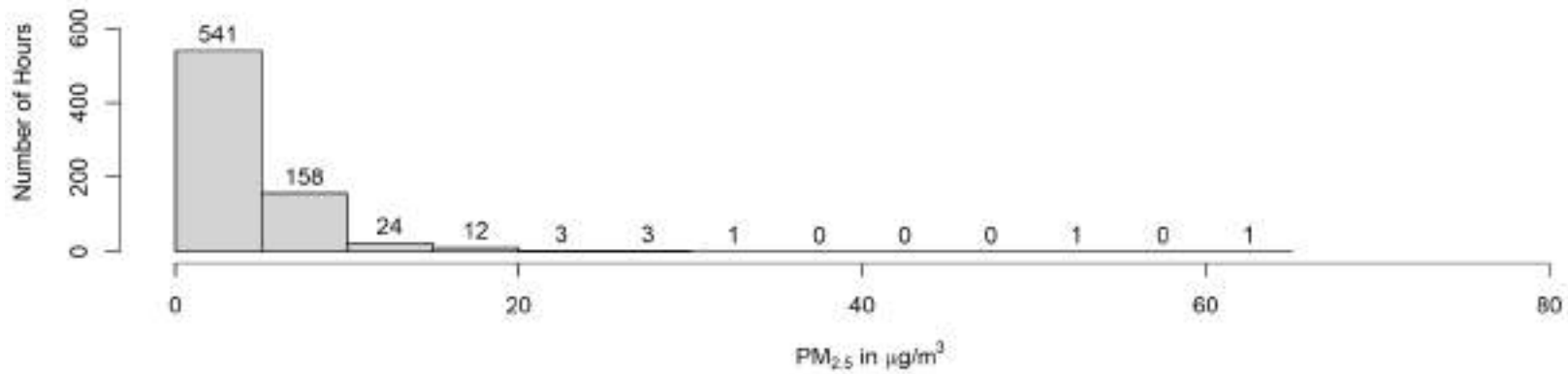
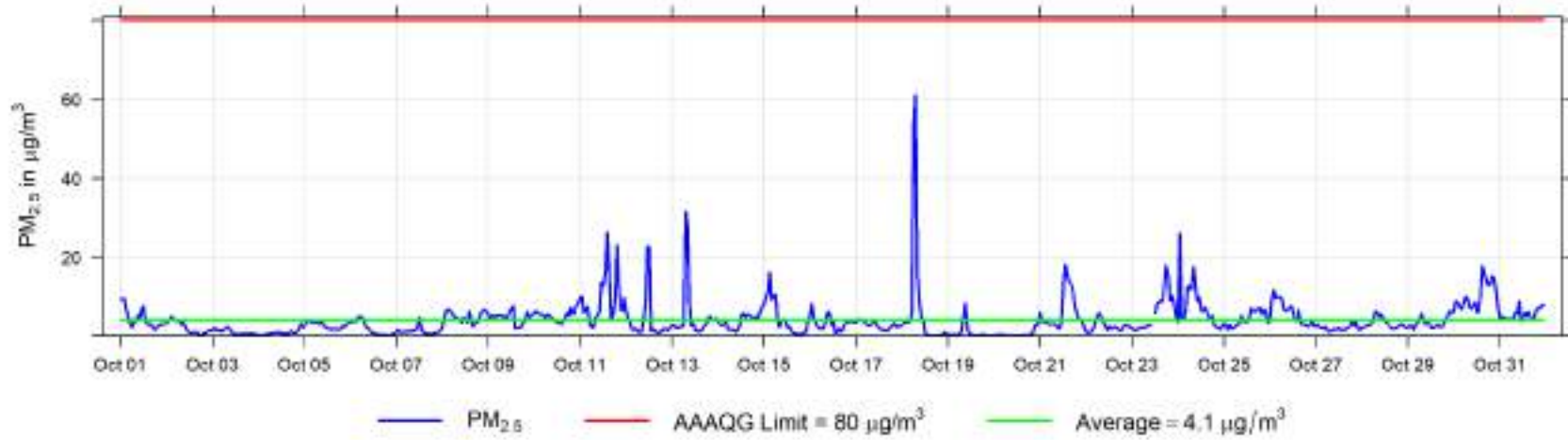
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Dunes



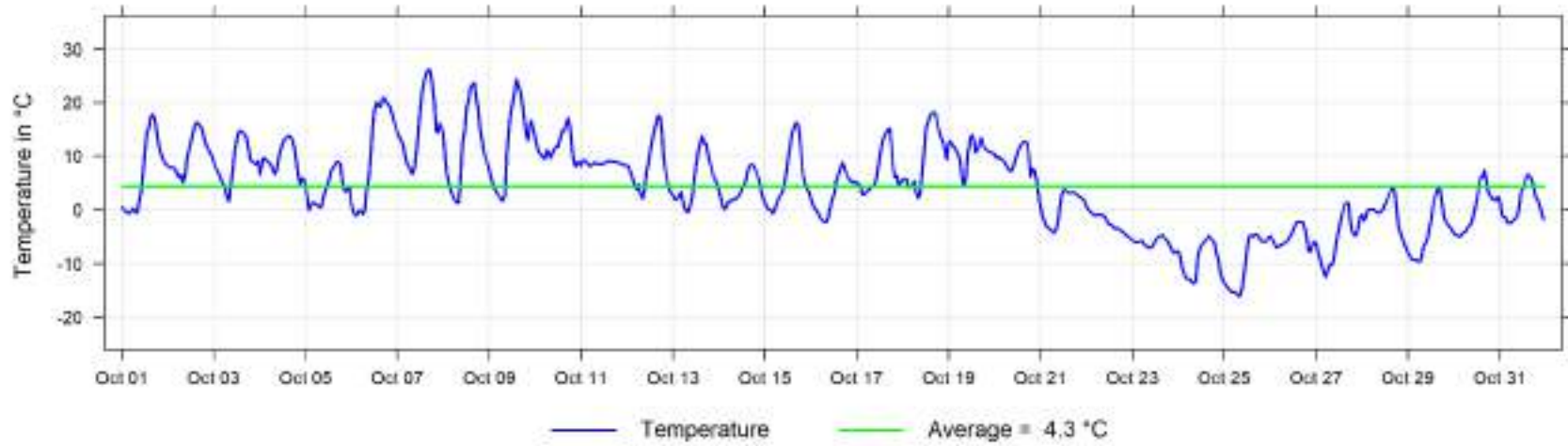
October 2023 Hourly Concentration Readings of TRS (in ppb) at Dunes



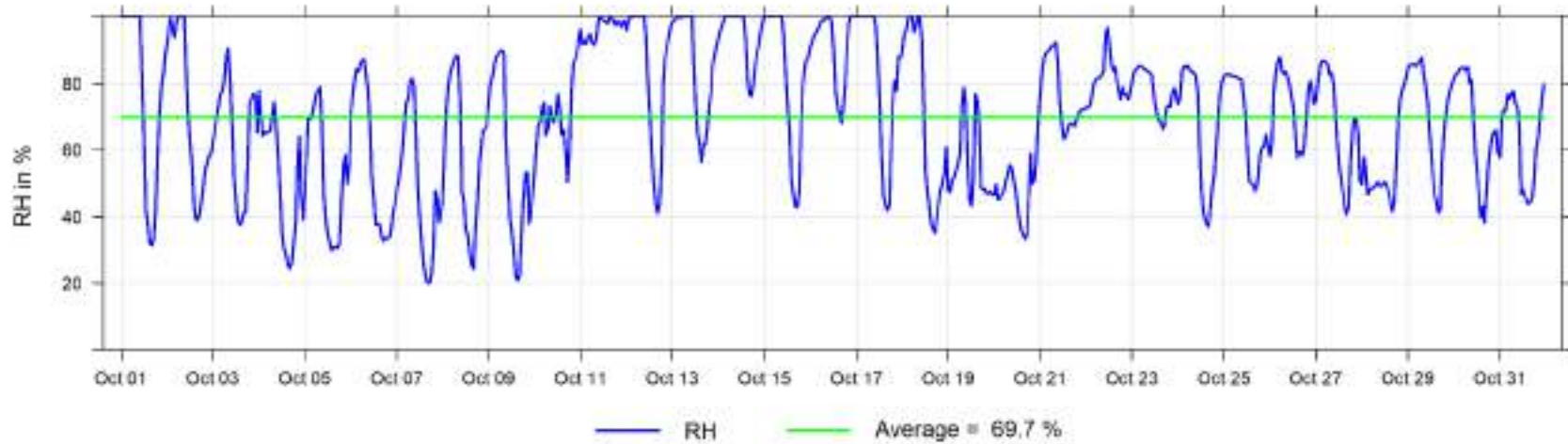
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Dunes



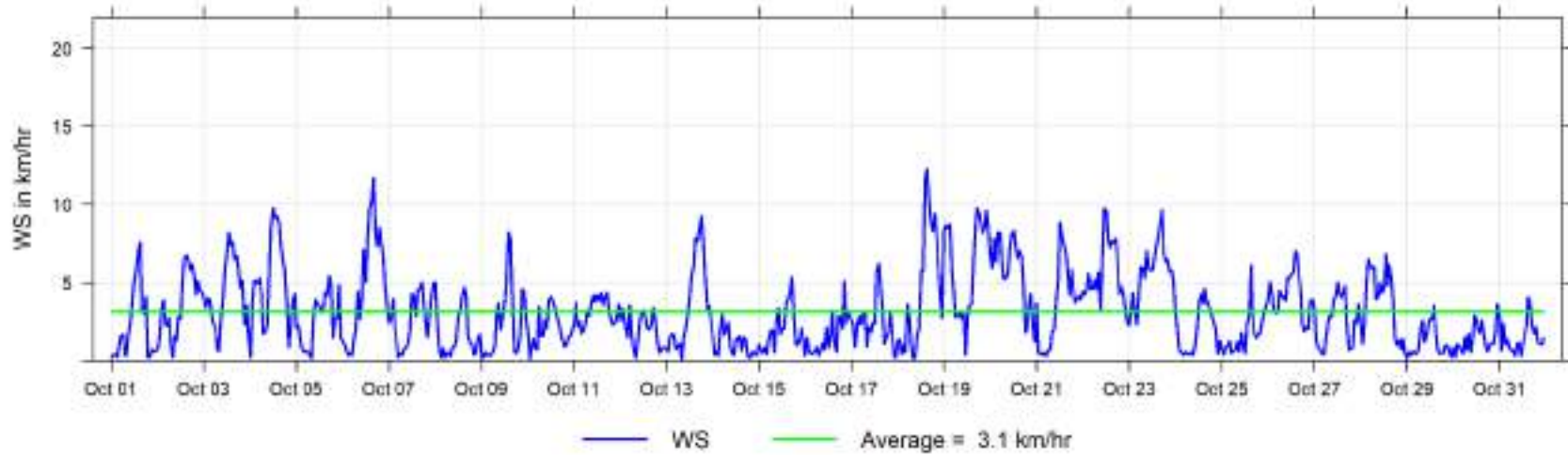
October 2023 Hourly Temperature Readings (in °C) at Dunes



October 2023 Hourly Readings of Relative Humidity (in %) at Dunes



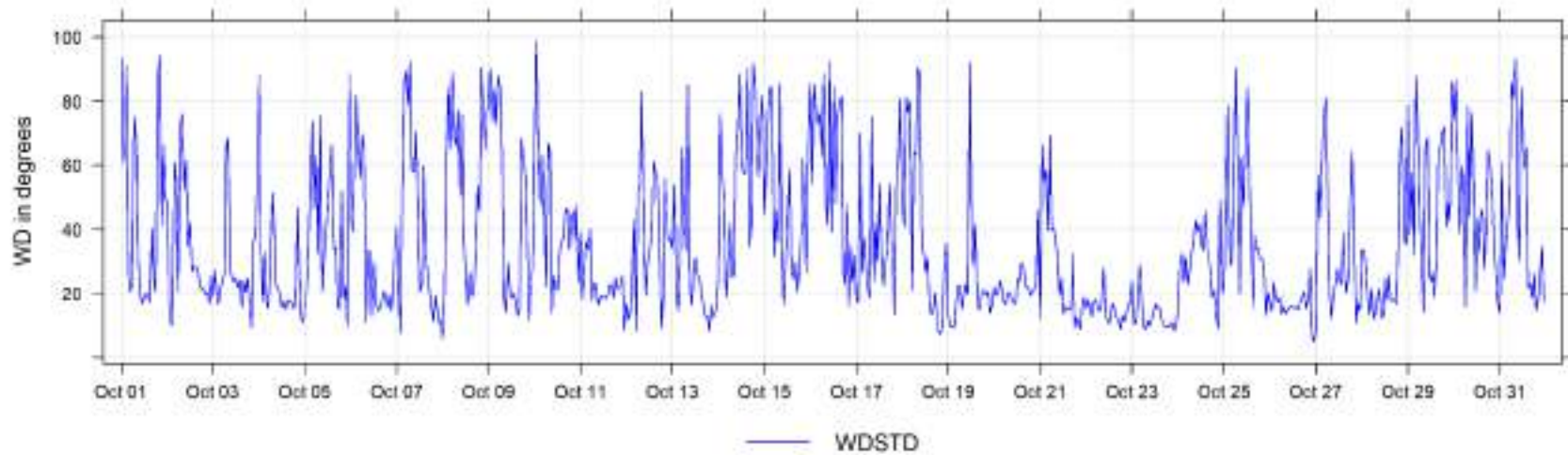
October 2023 Hourly Readings of Wind Speed (in km/hr) at Dunes

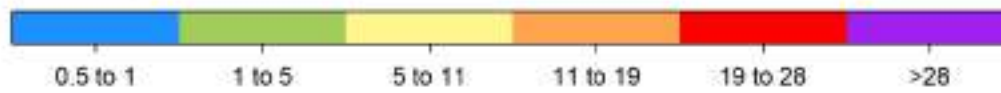
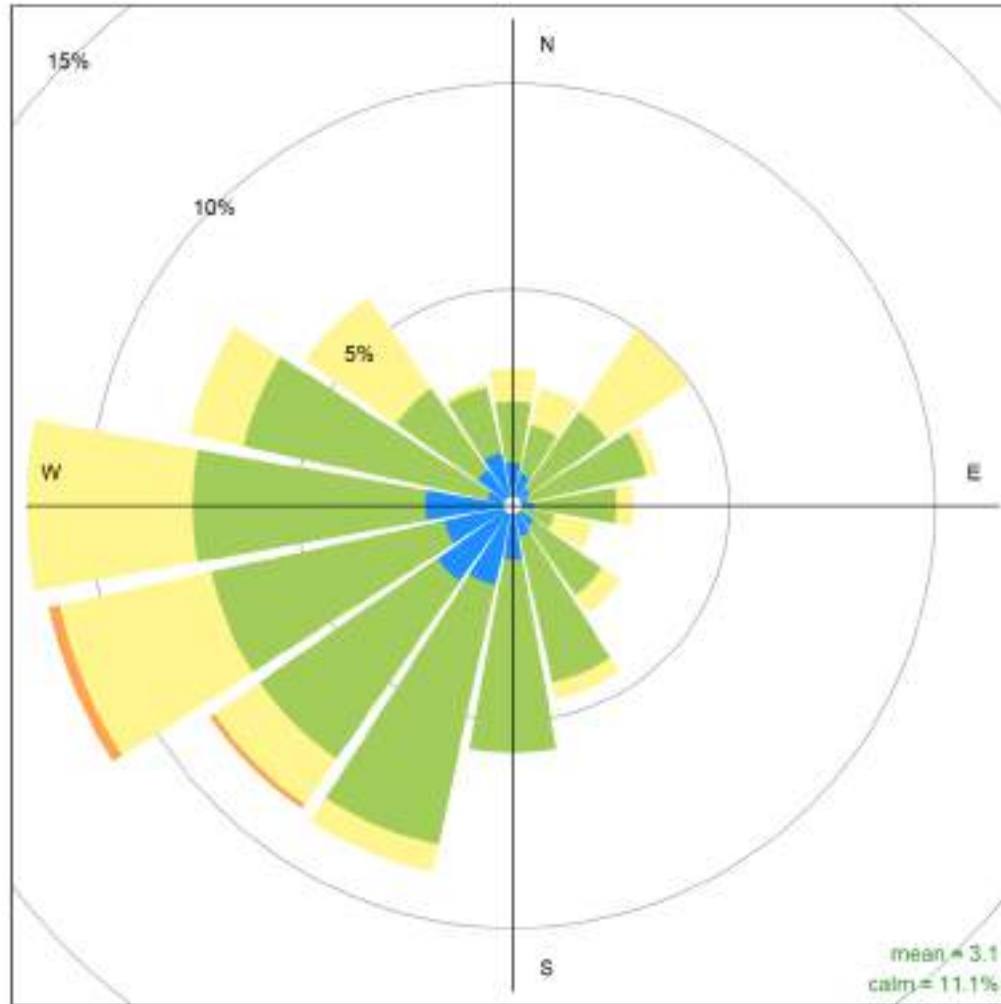


October 2023 Hourly Readings of Wind Direction (in degrees) at Dunes



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Dunes



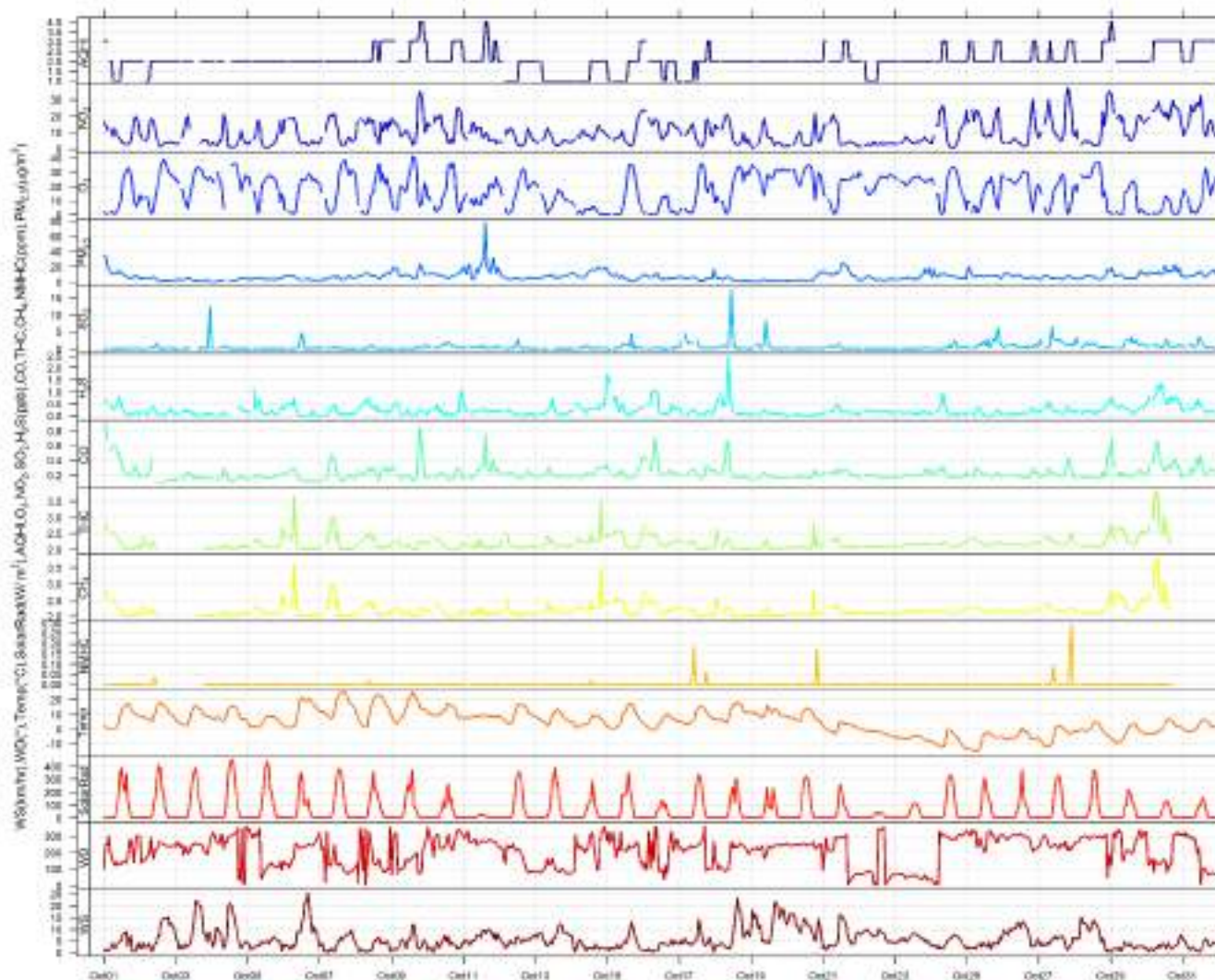


Dunes October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

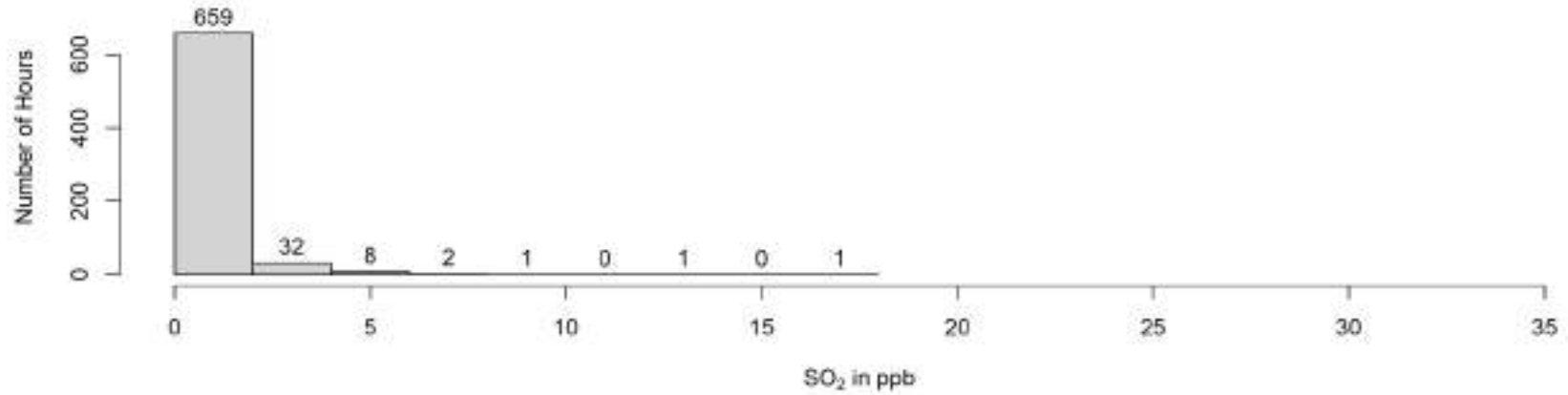
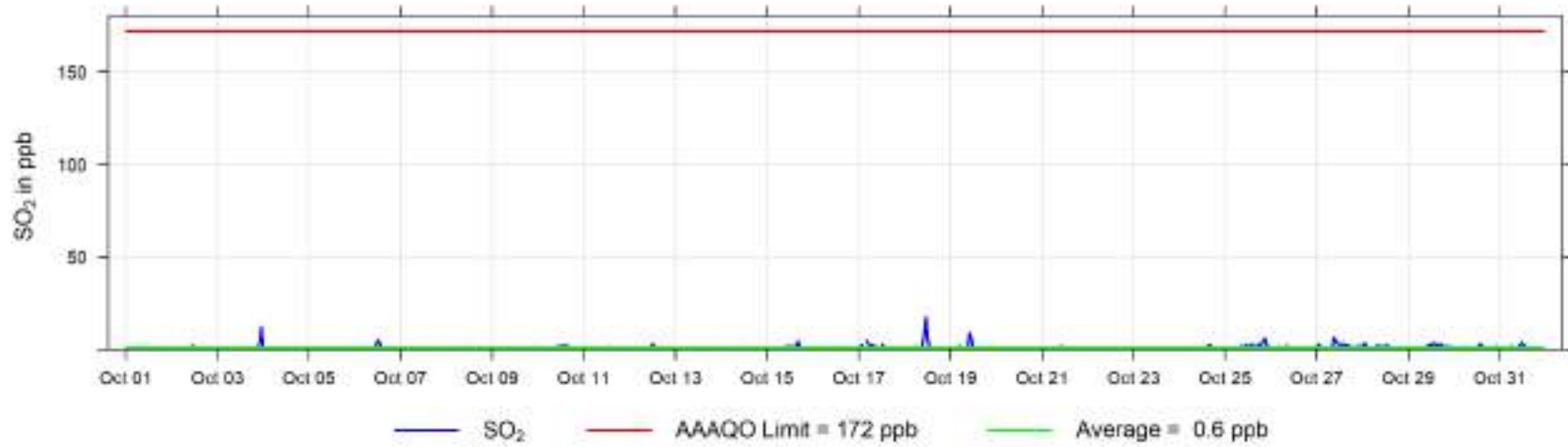
4 Grande Prairie - Henry Pirker Charts

The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie

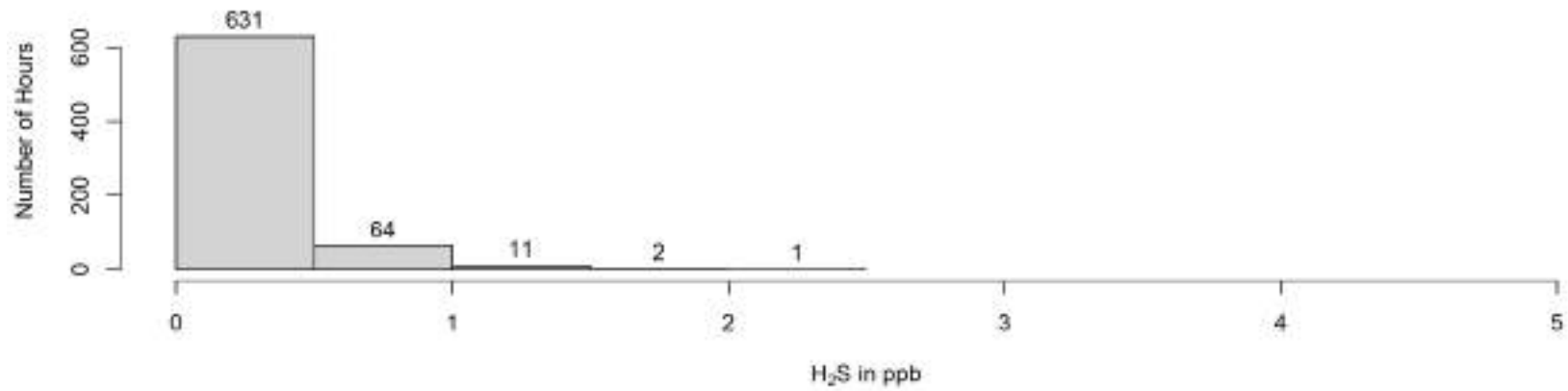
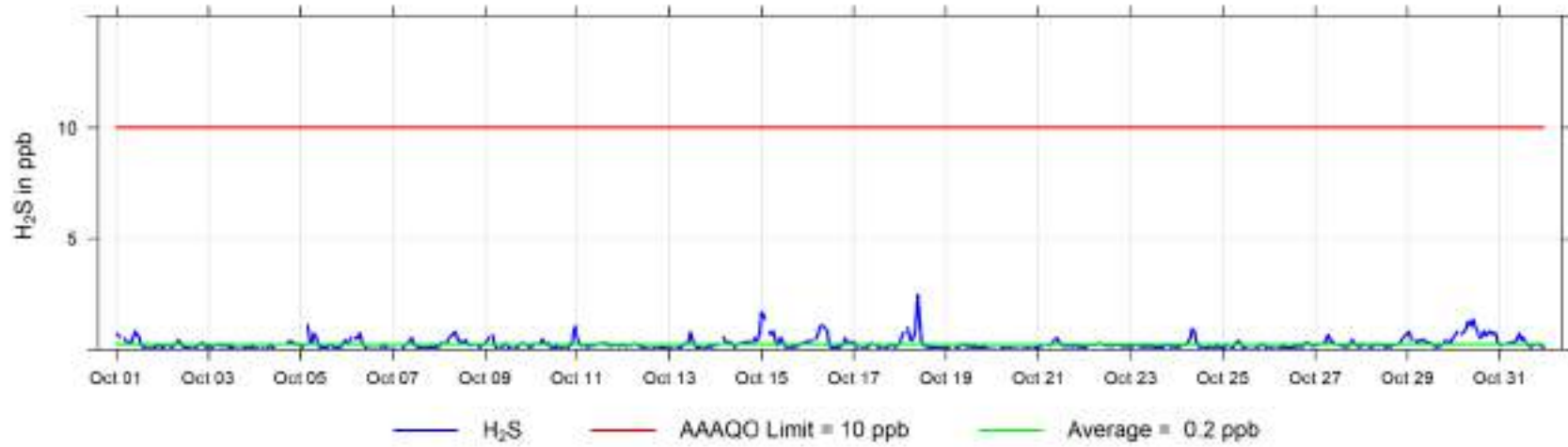
October 2023 Concentration Readings at Henry Pirker Station



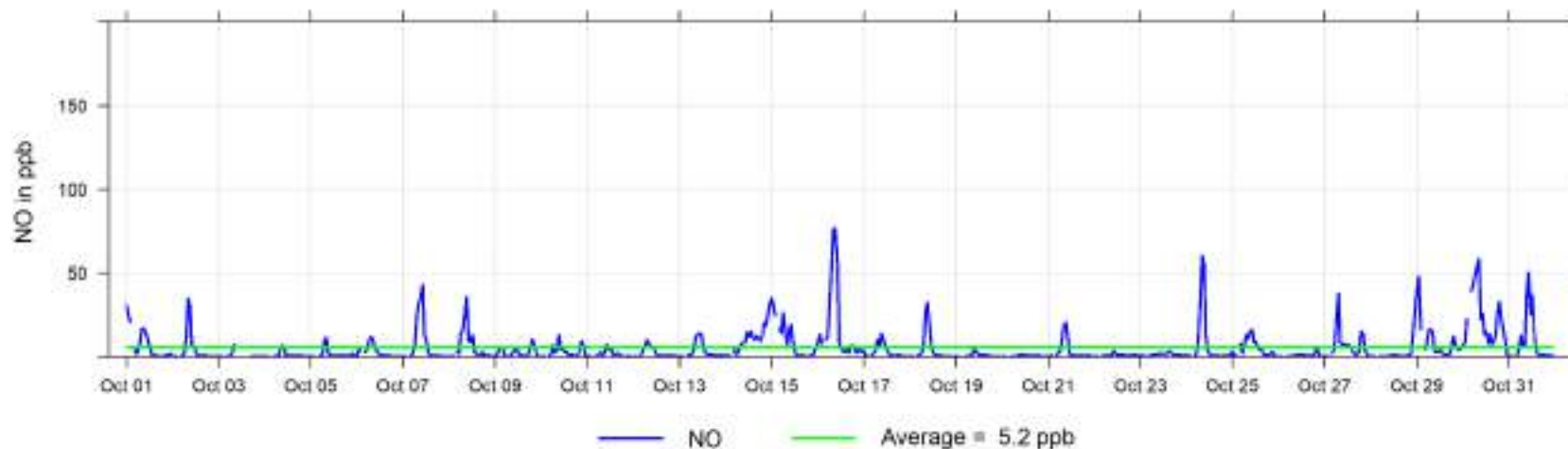
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



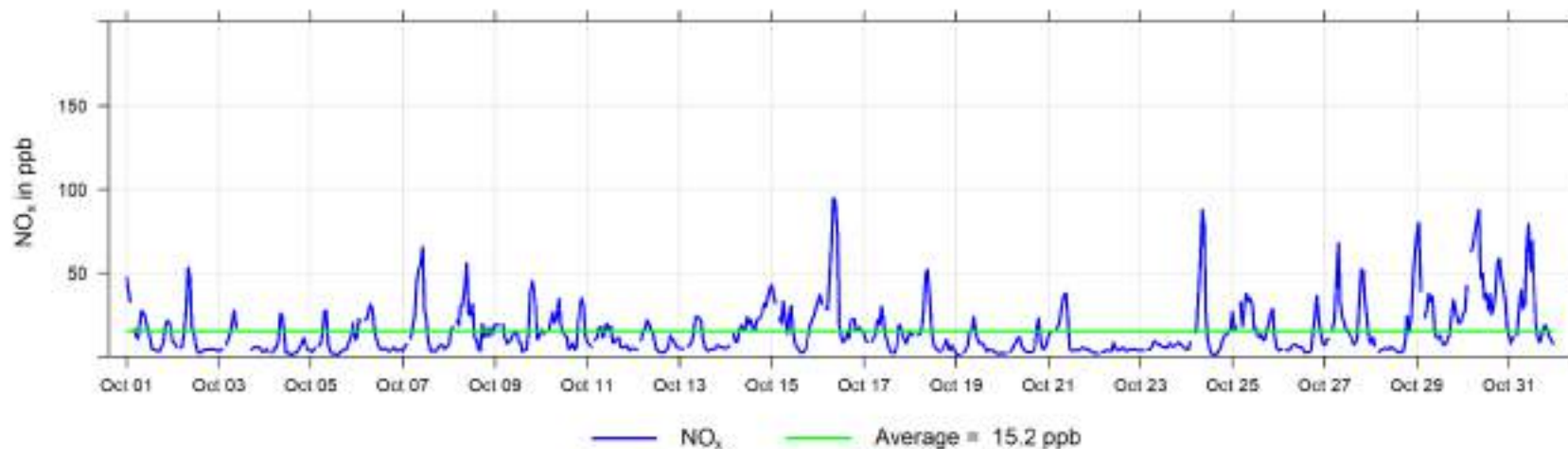
October 2023 Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker



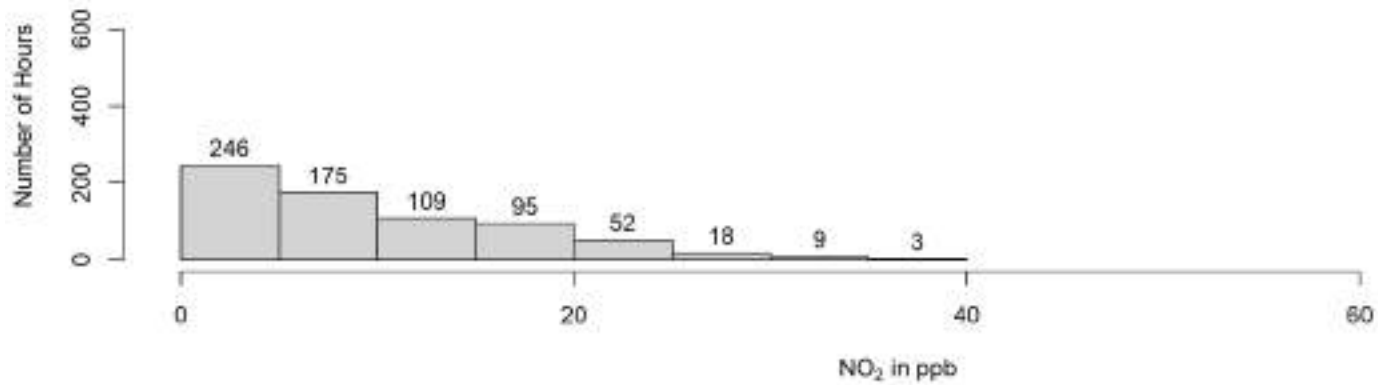
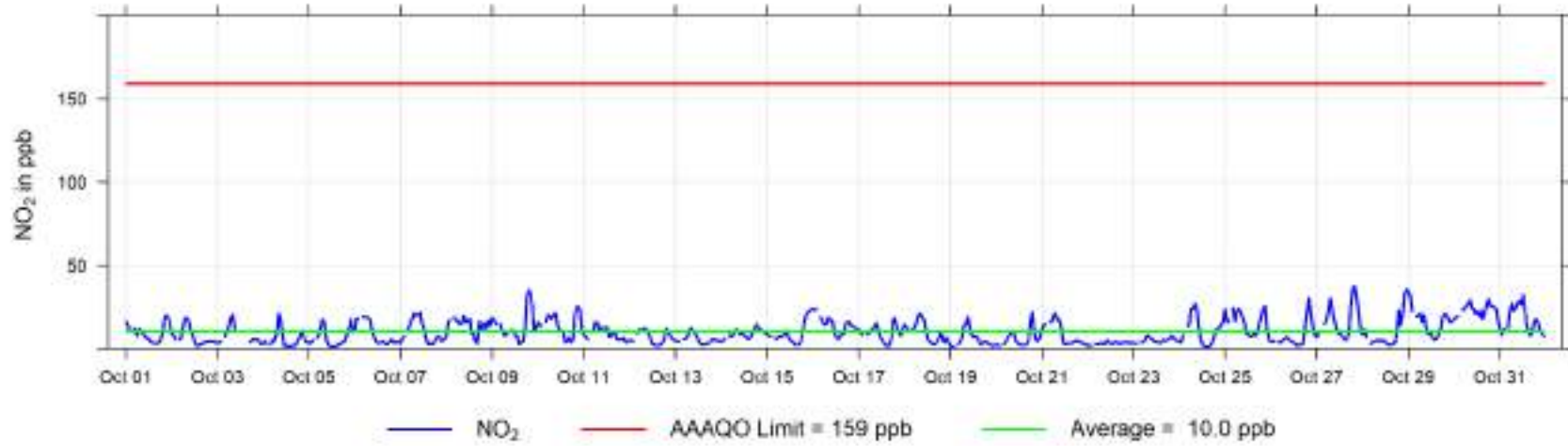
October 2023 Hourly Concentration Readings of NO (in ppb) at Henry Pirker



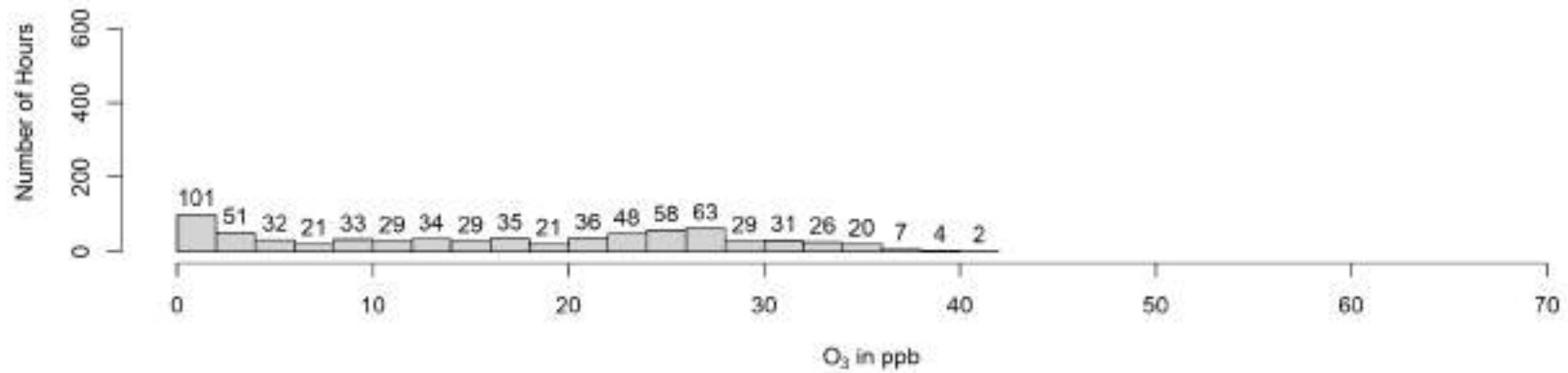
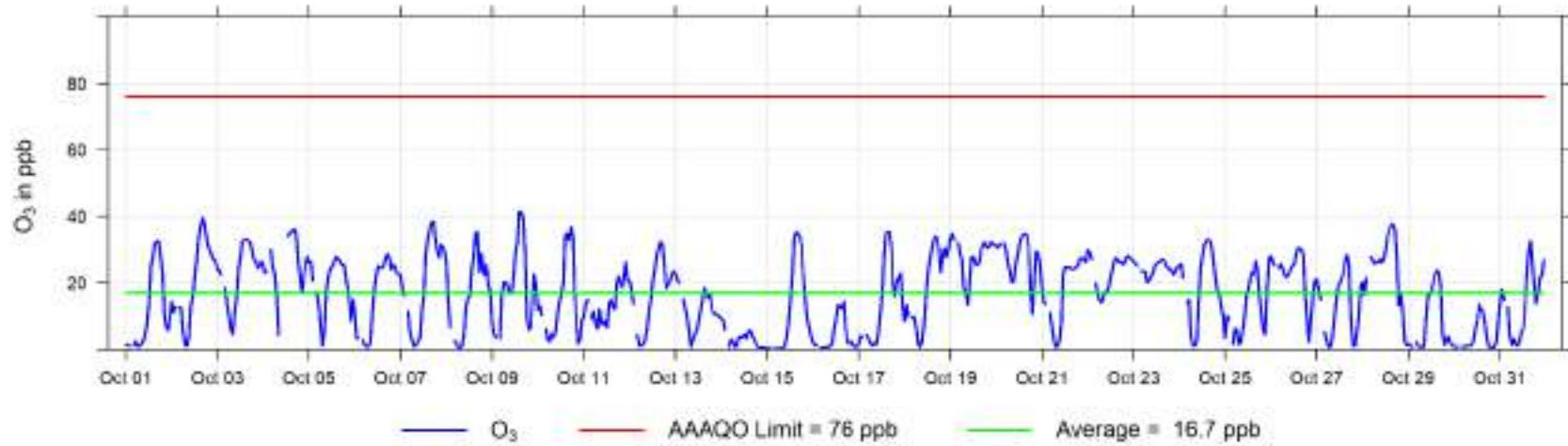
October 2023 Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



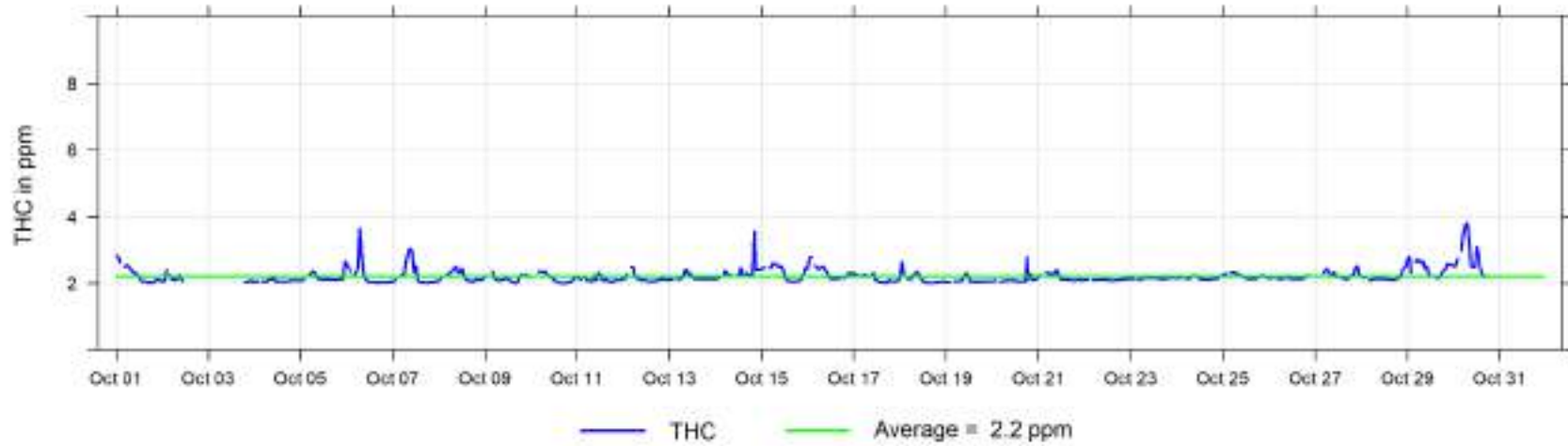
October 2023 Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



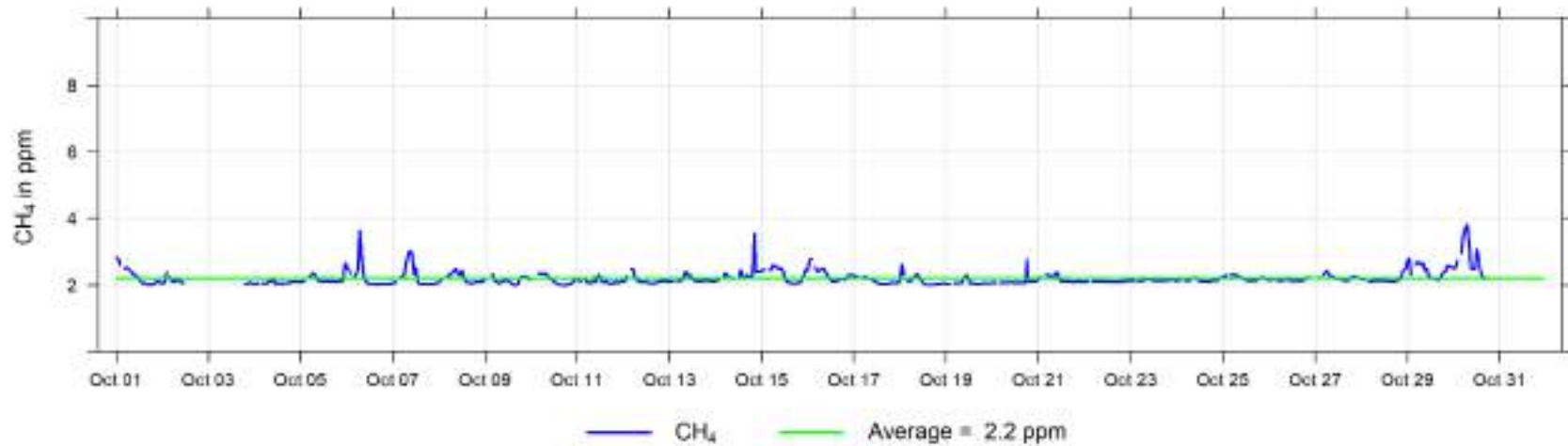
October 2023 Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker



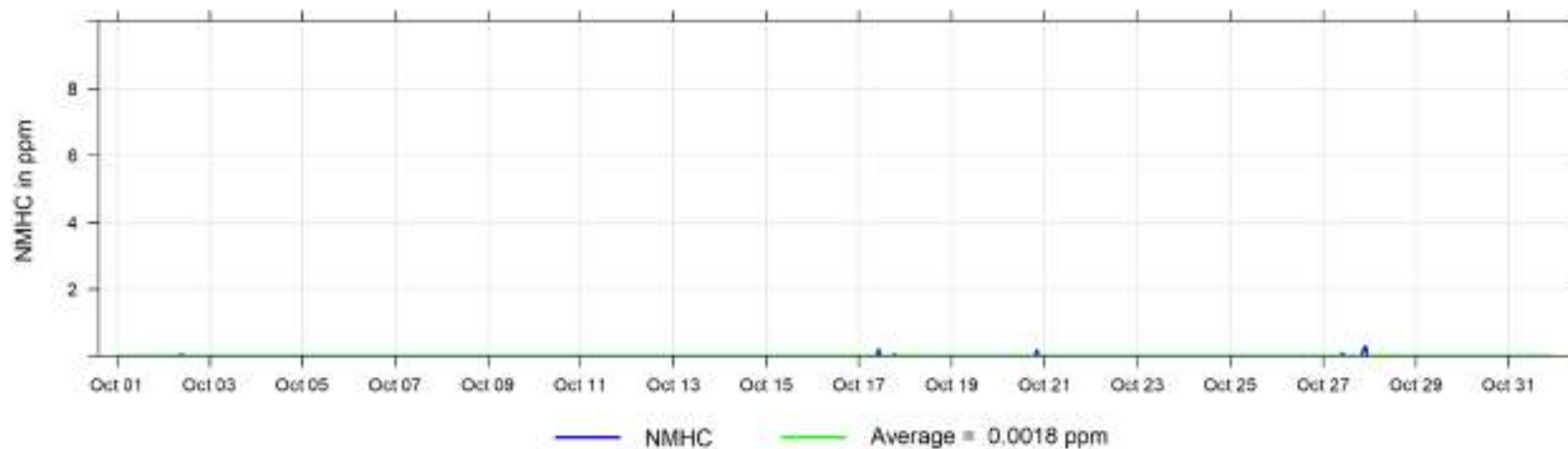
October 2023 Hourly Concentration Readings of THC (in ppm) at Henry Pirker



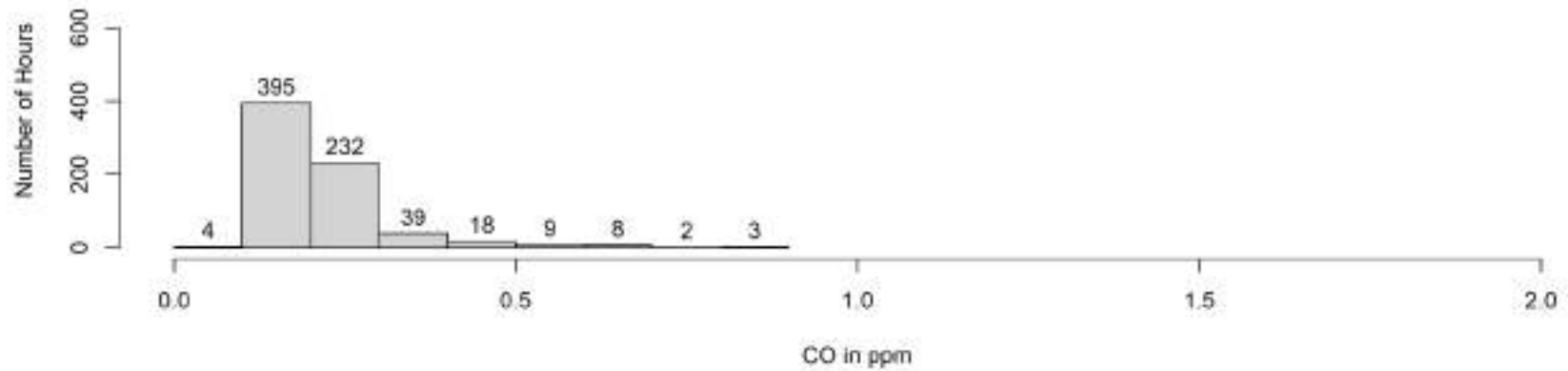
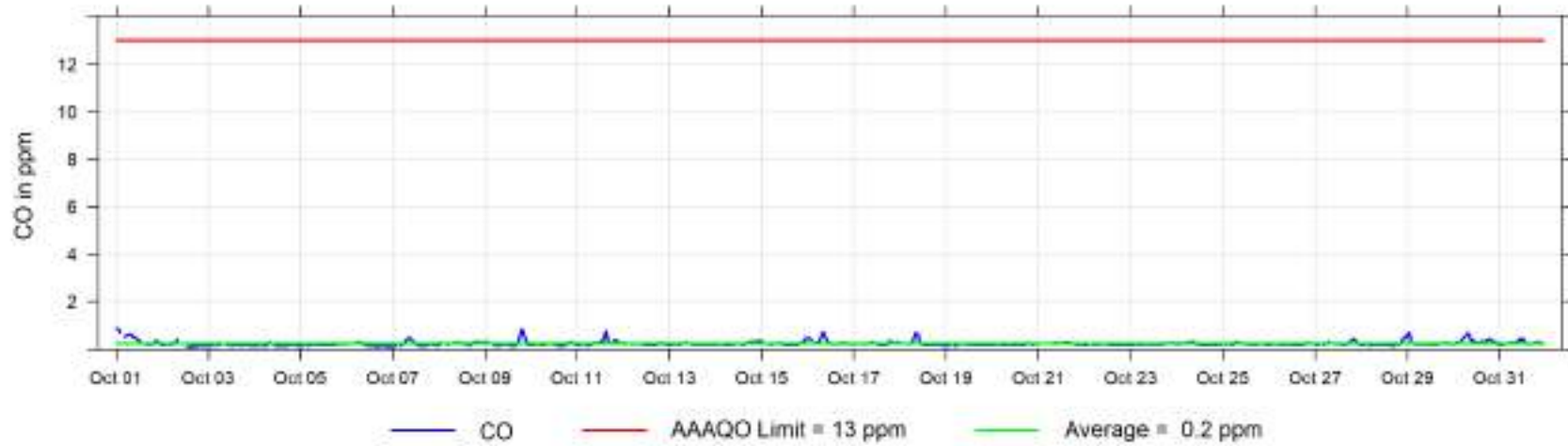
October 2023 Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker



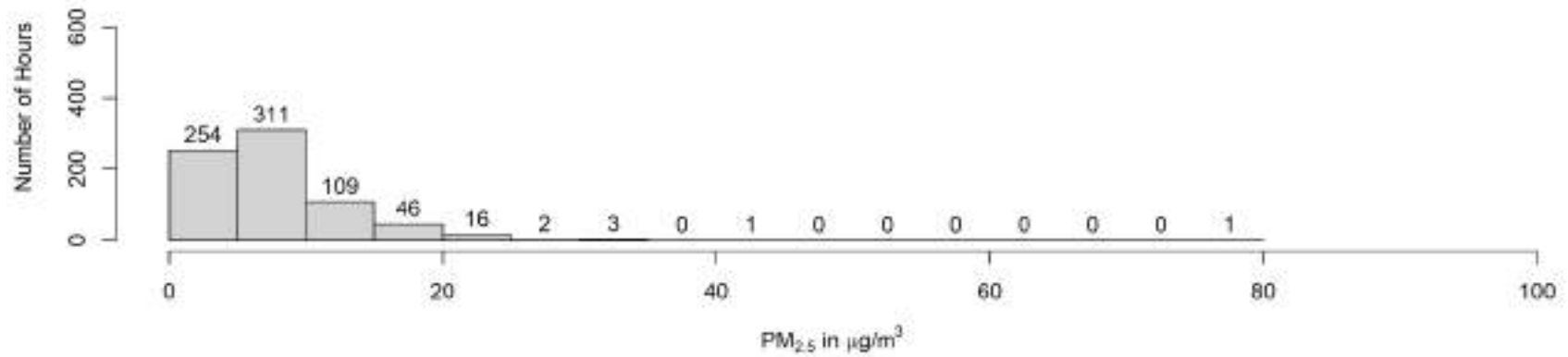
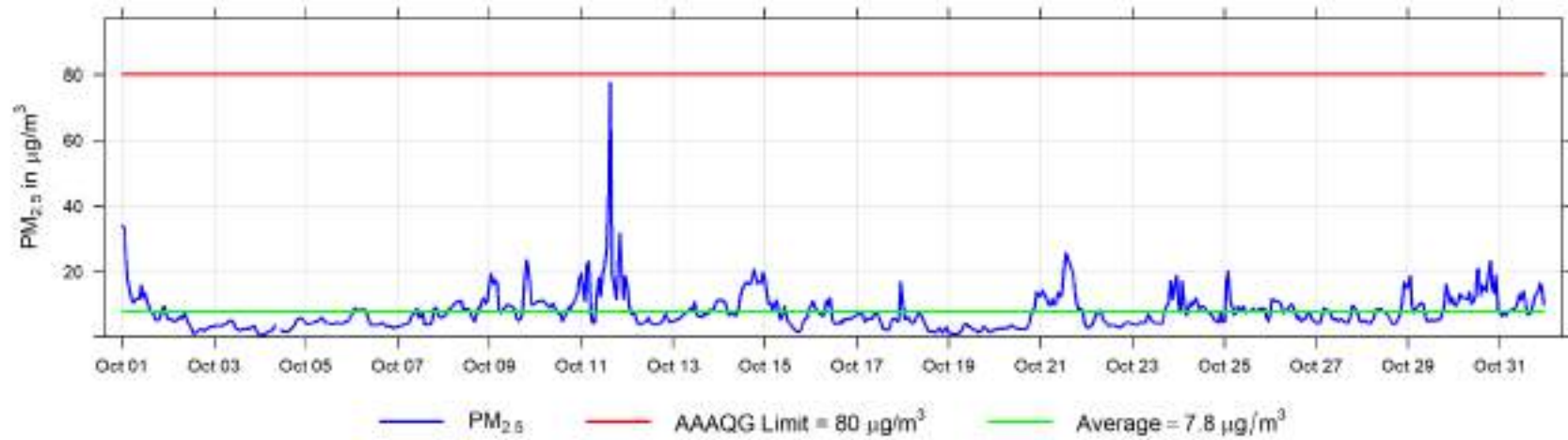
October 2023 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker



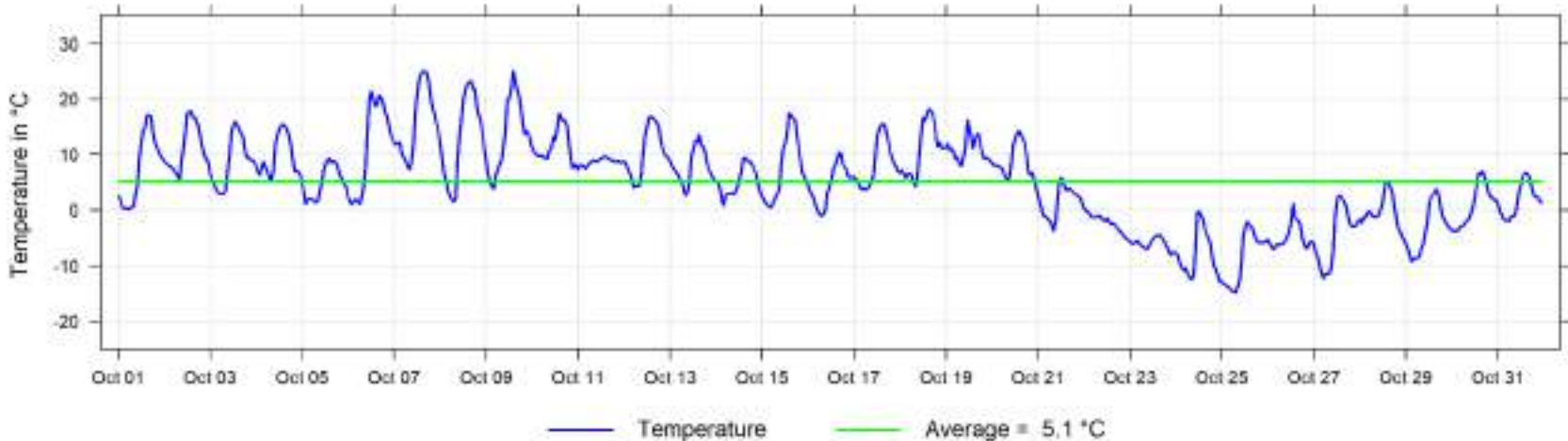
October 2023 Hourly Concentration Readings of CO (in ppm) at Henry Pirker



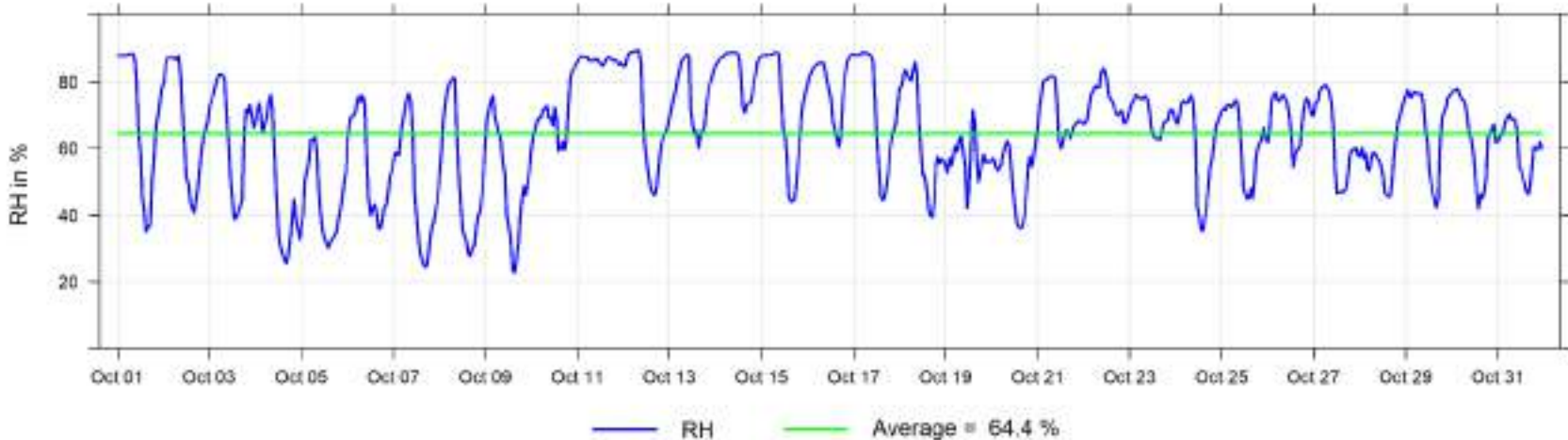
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker



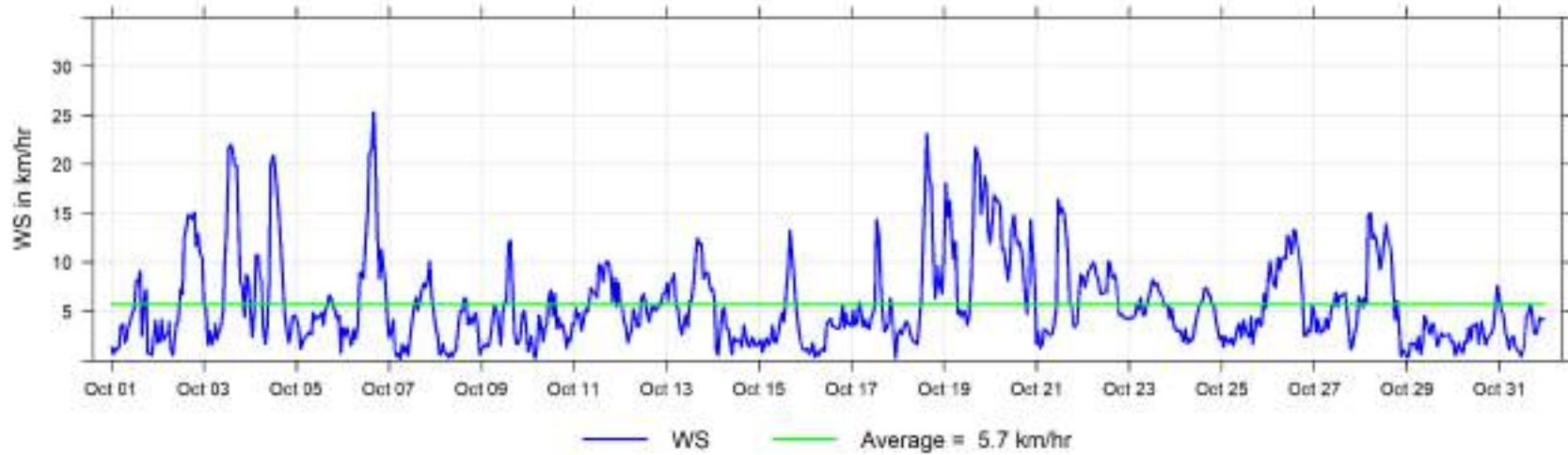
October 2023 Hourly Temperature Readings (in °C) at Henry Pirker



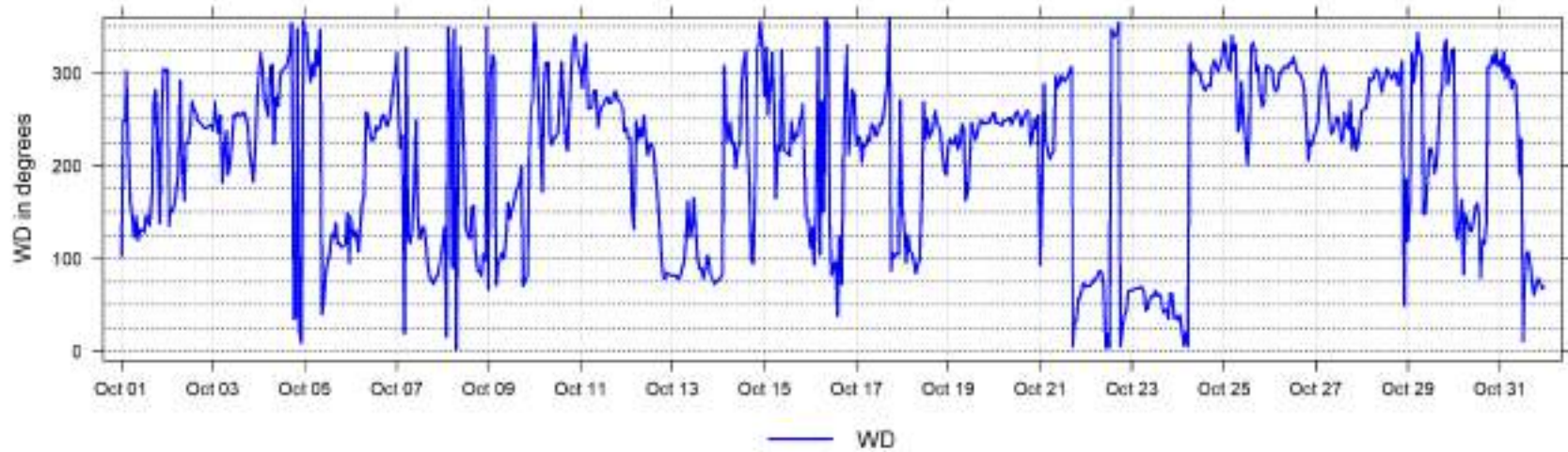
October 2023 Hourly Readings of Relative Humidity (in %) at Henry Pirker



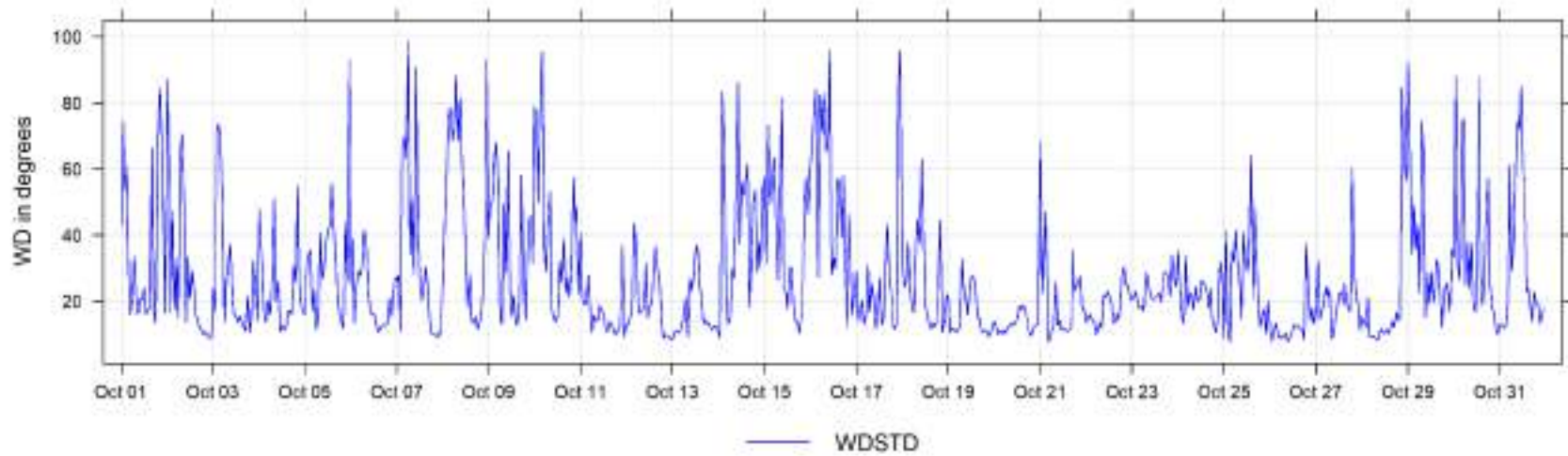
October 2023 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

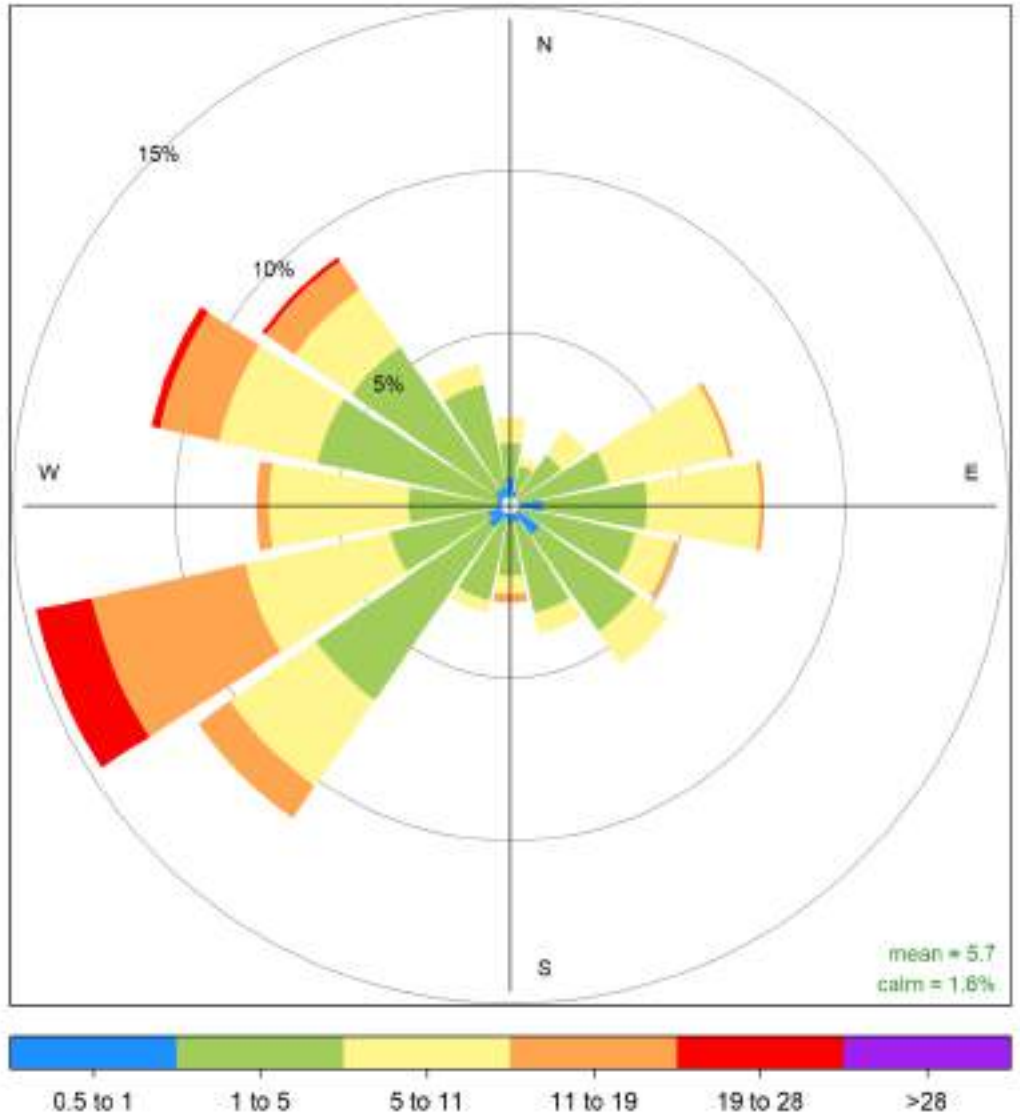


October 2023 Hourly Readings of Wind Direction (in degrees) at Henry Pirker



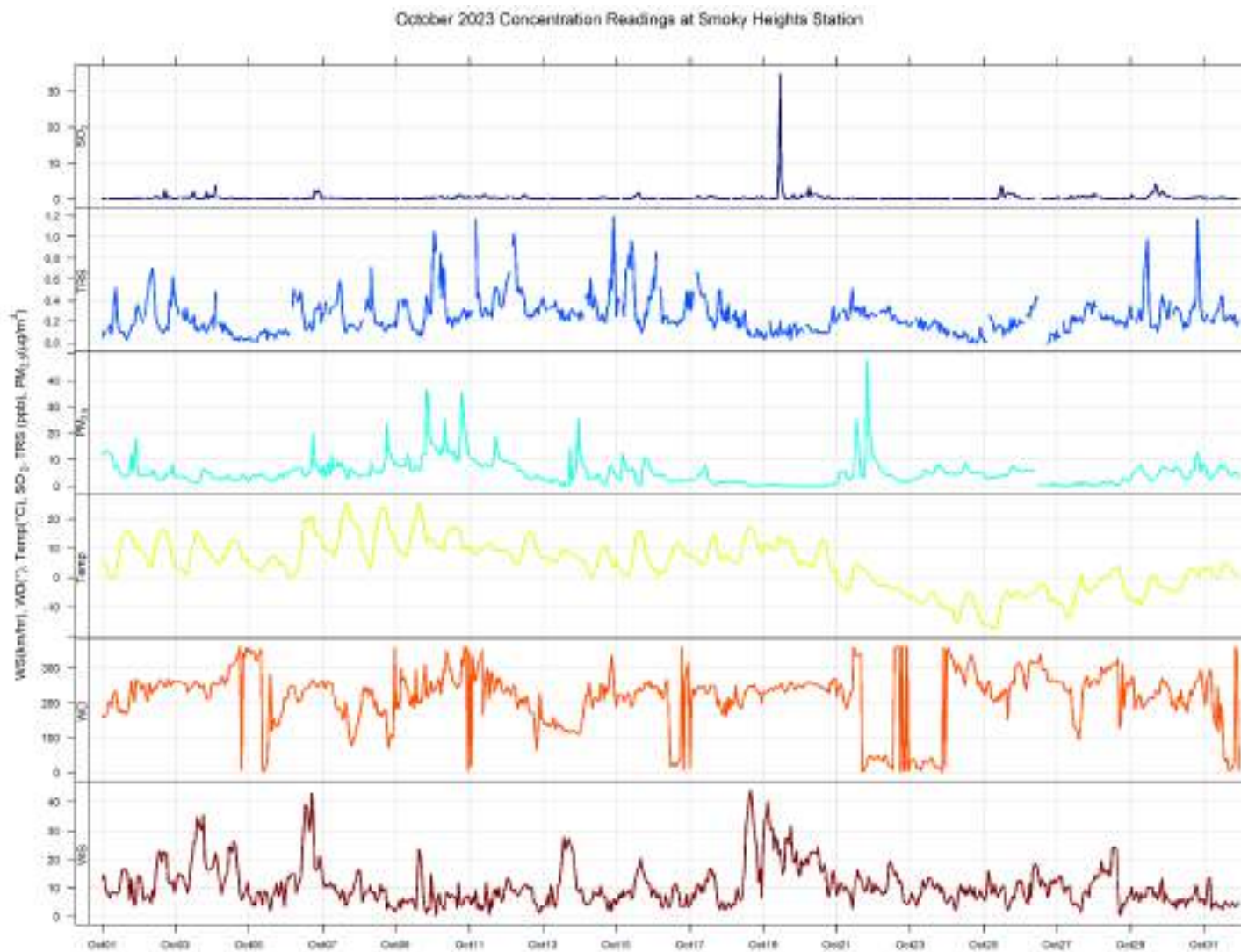
October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Henry Pirker



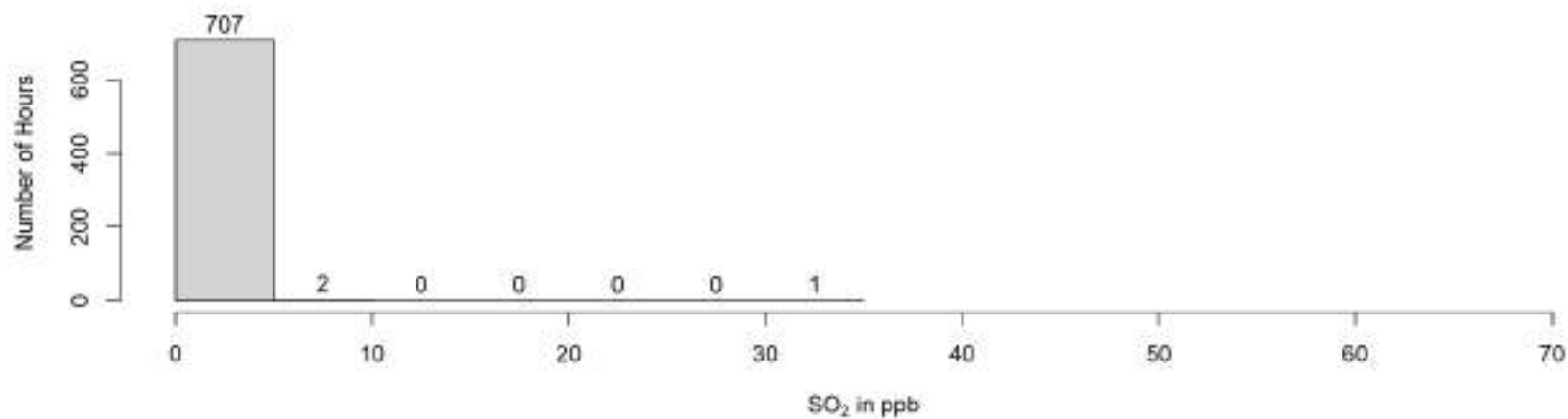
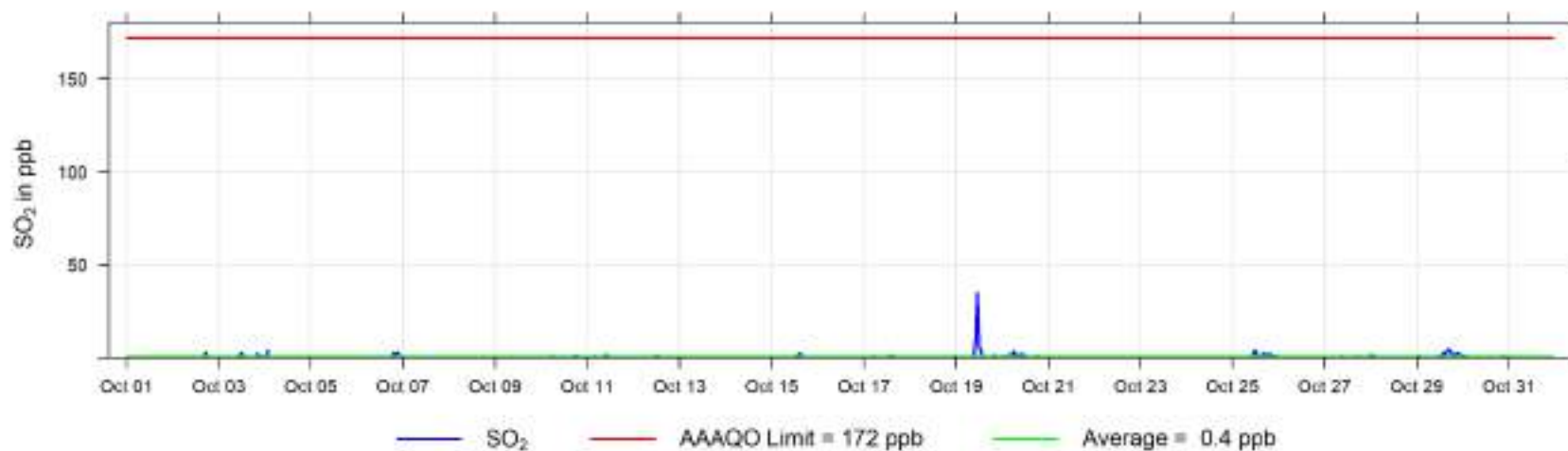


5 Smoky Heights Charts

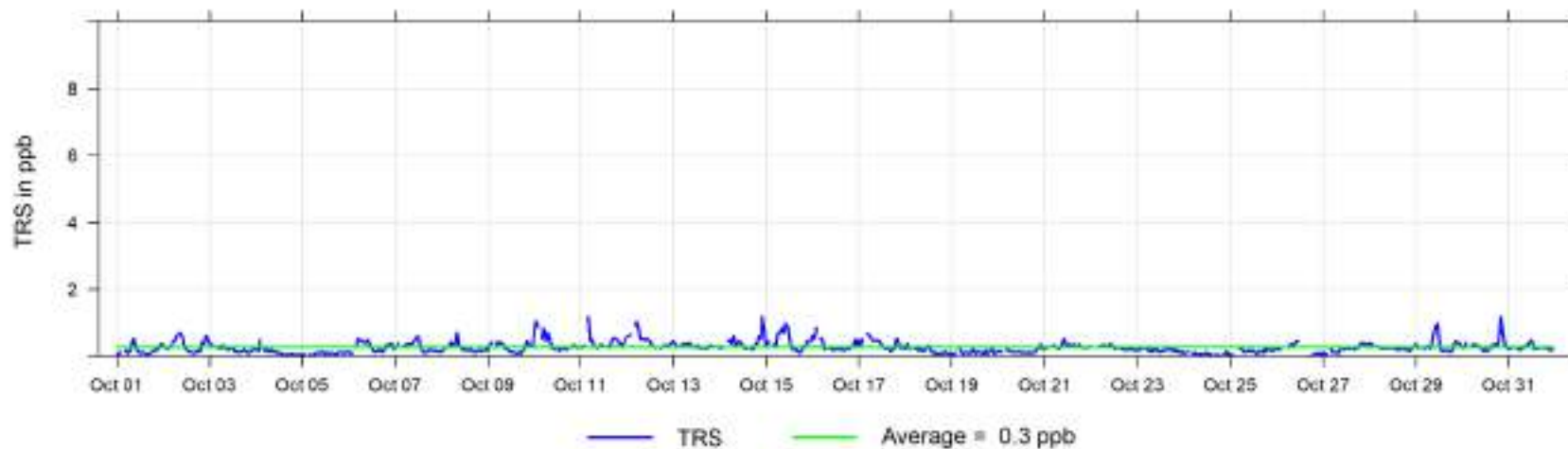
The following pages include the charts and histograms for Smoky Heights Station



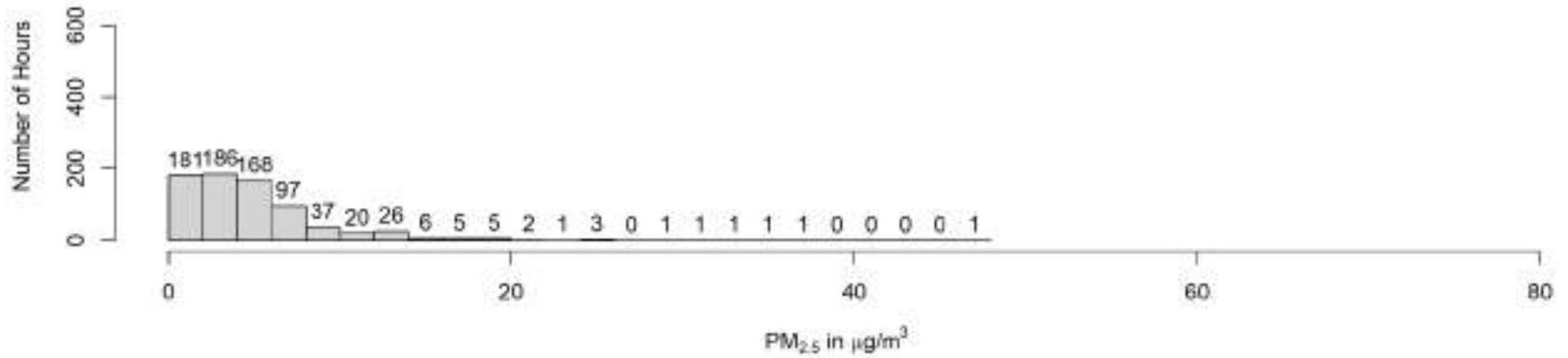
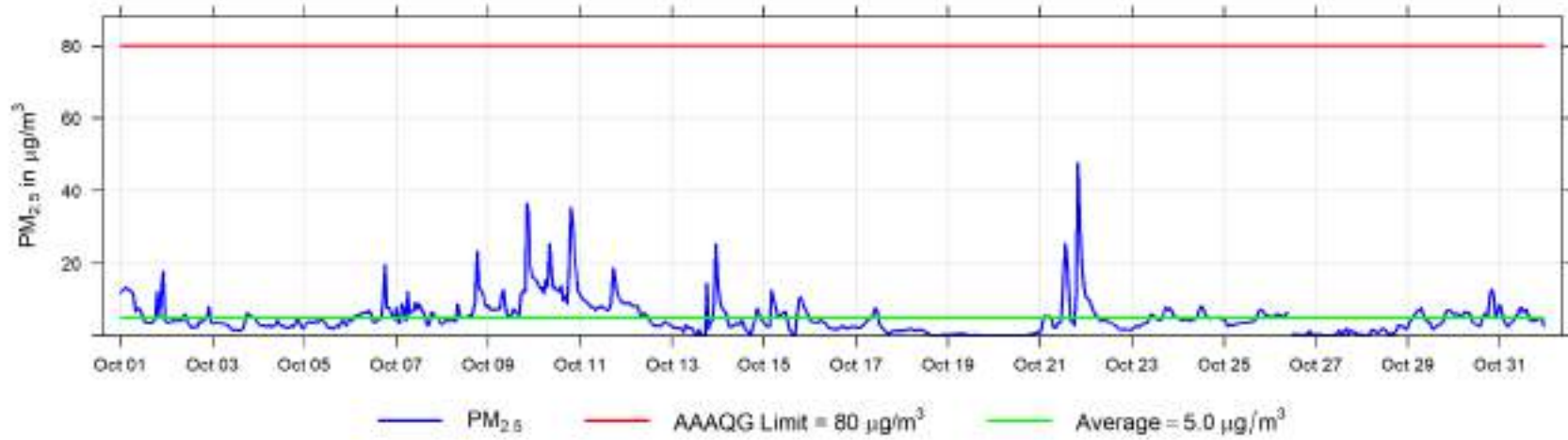
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights



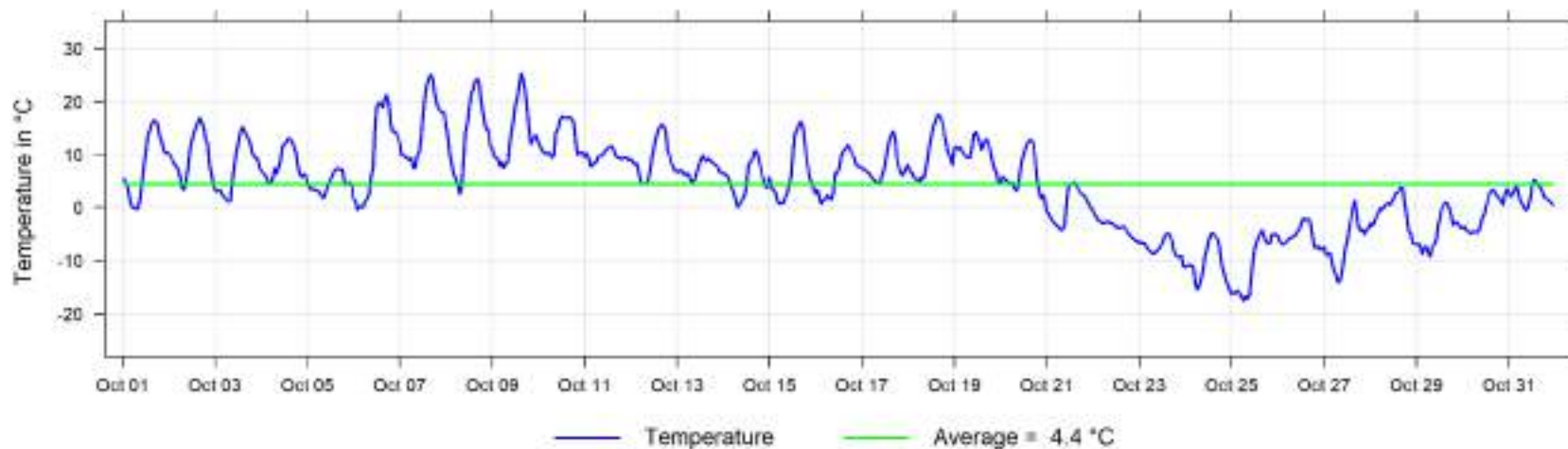
October 2023 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights



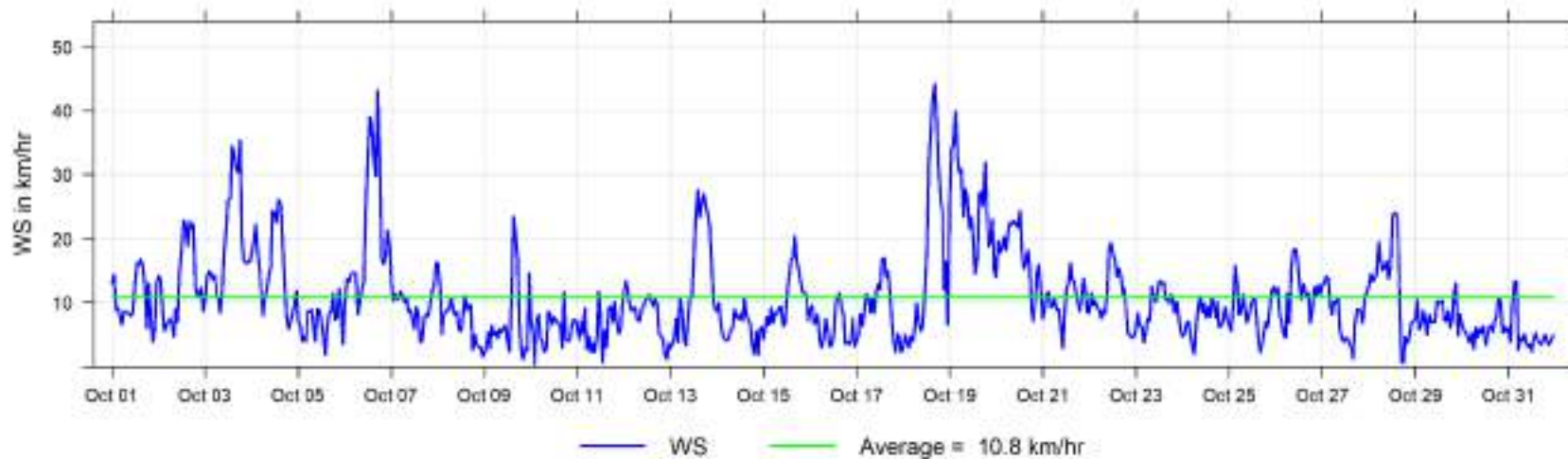
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Smoky Heights



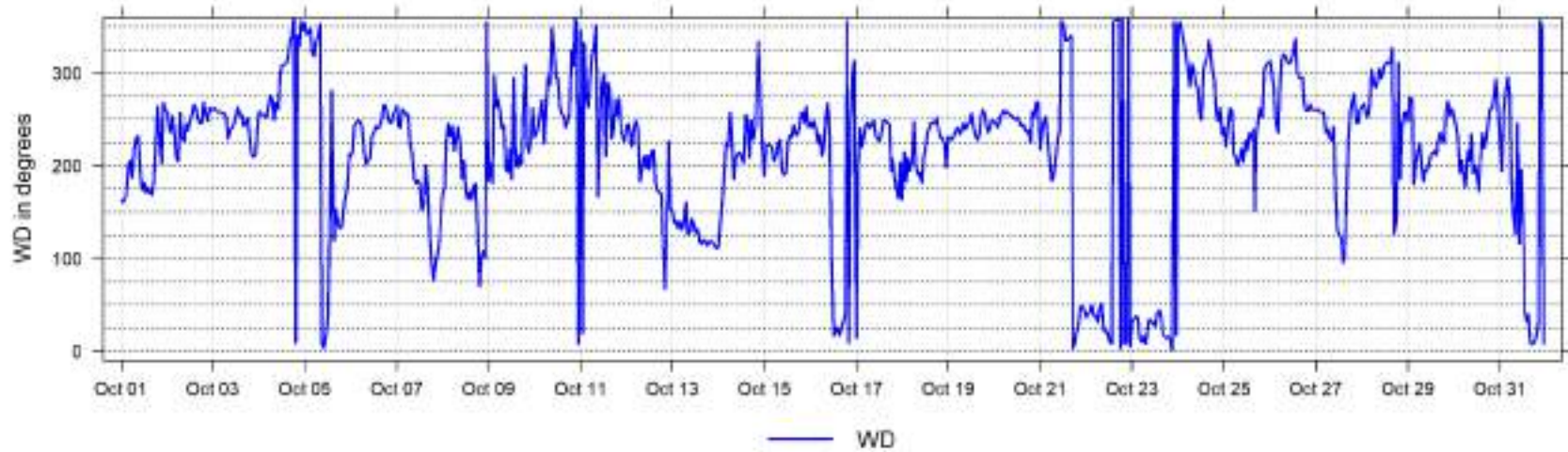
October 2023 Hourly Temperature Readings (in °C) at Smoky Heights



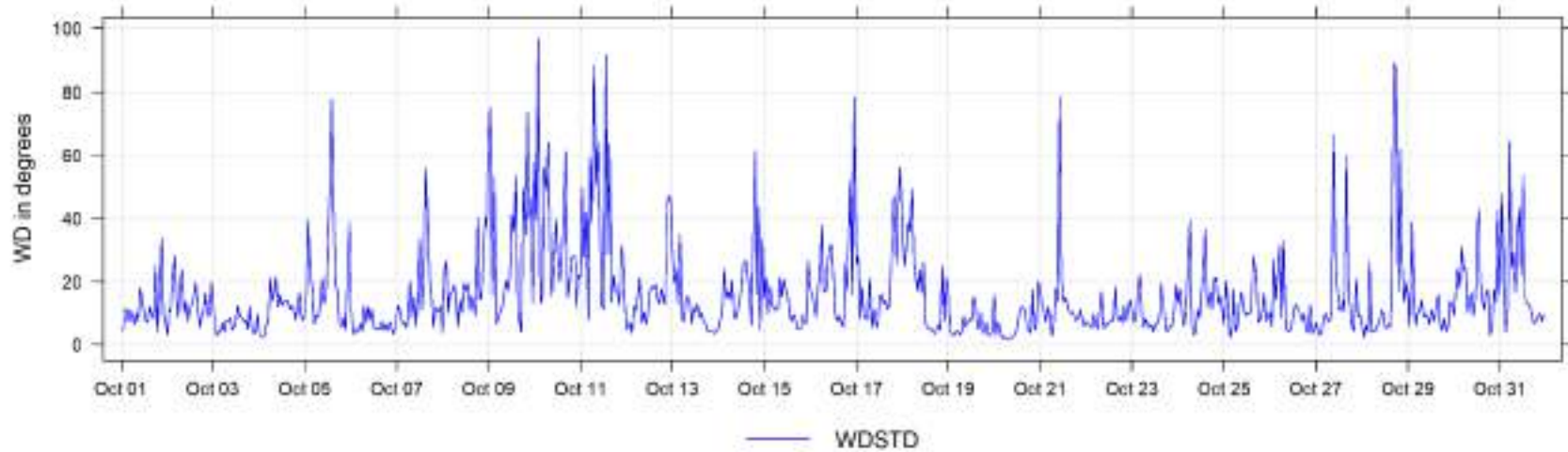
October 2023 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights

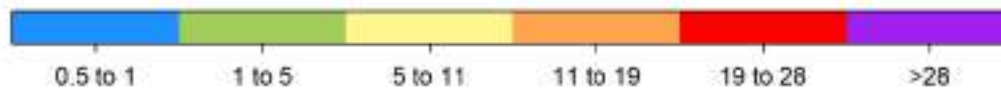
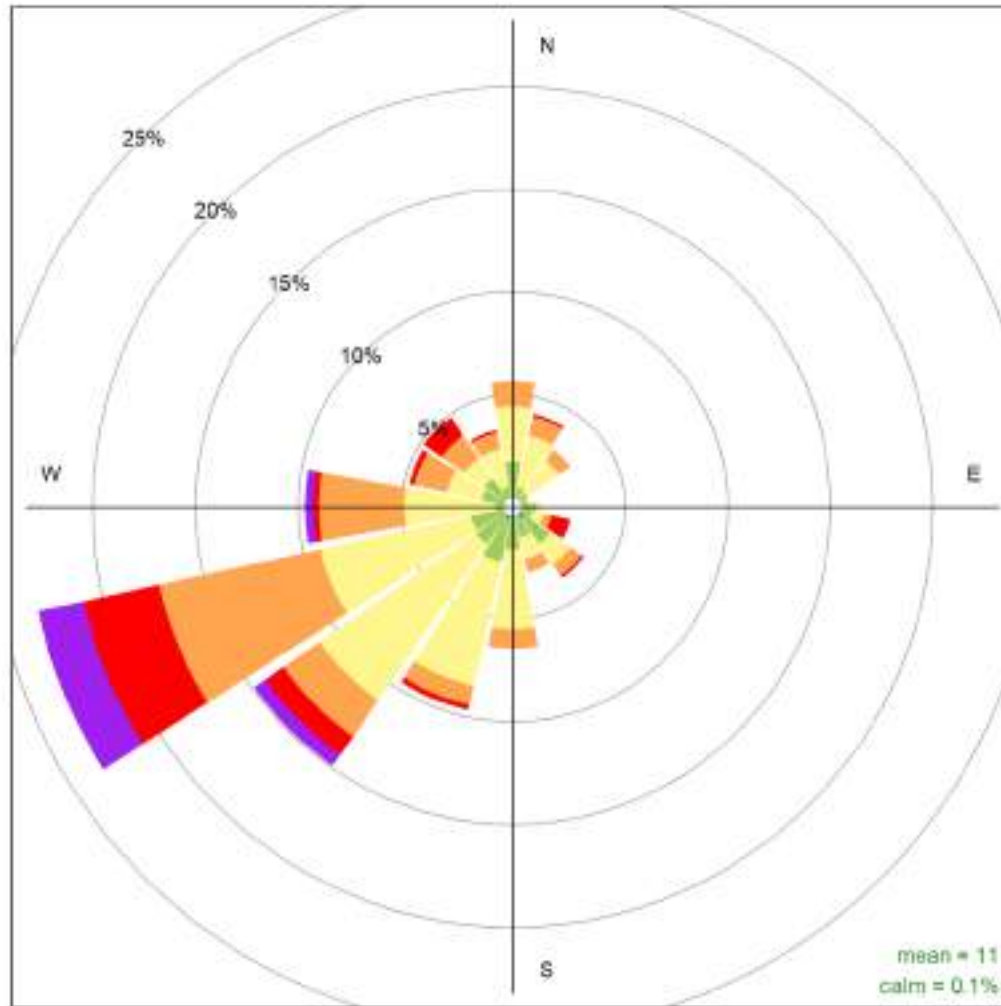


October 2023 Hourly Readings of Wind Direction (in degrees) at Smoky Heights



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Smoky Heights

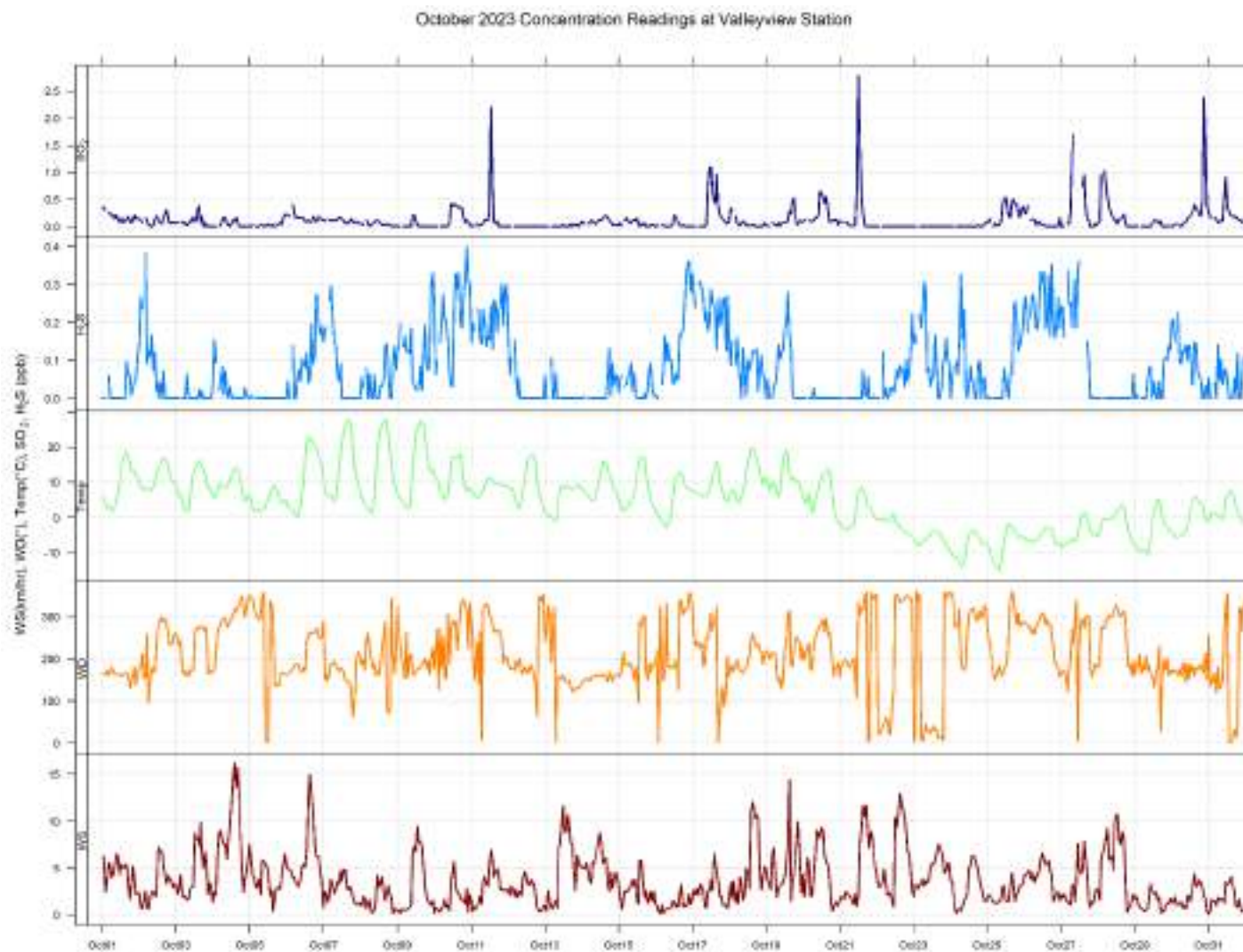




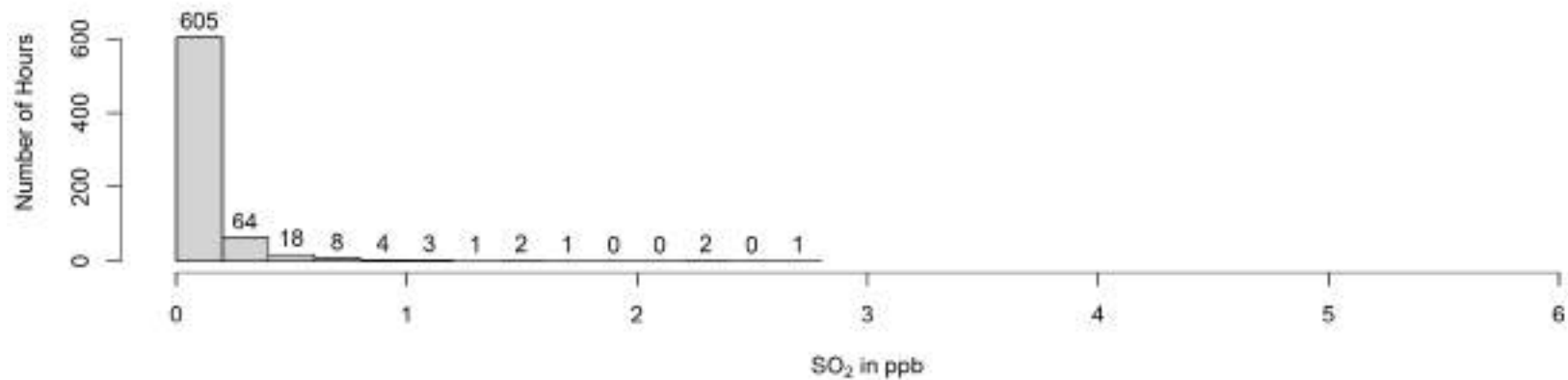
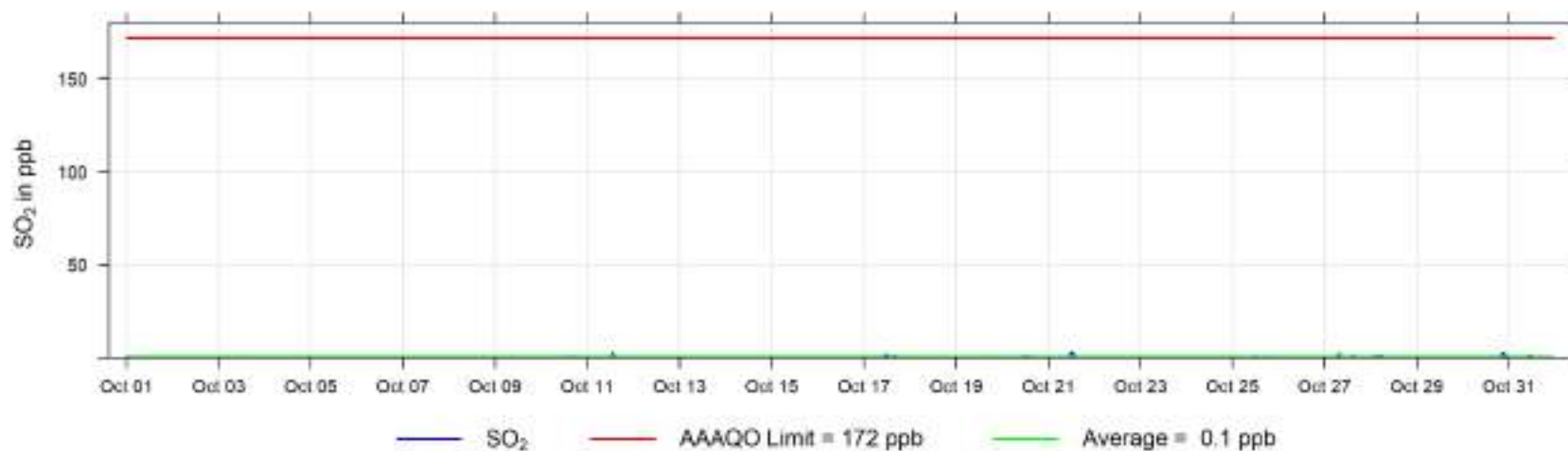
Smoky Heights October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

6 Valleyview Charts

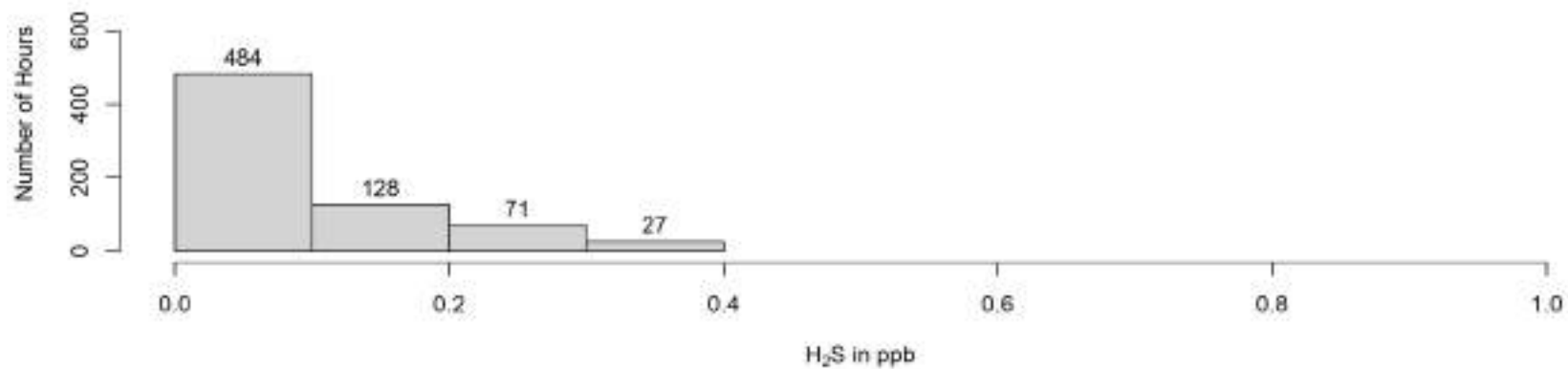
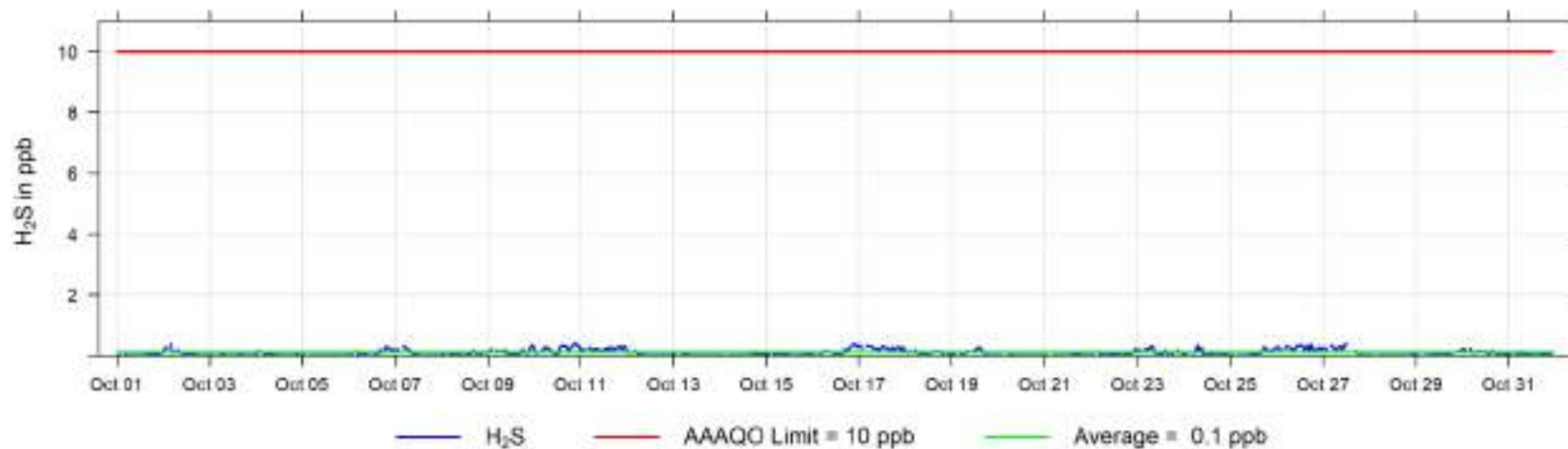
The following pages include the charts and histograms for Valleyview Station



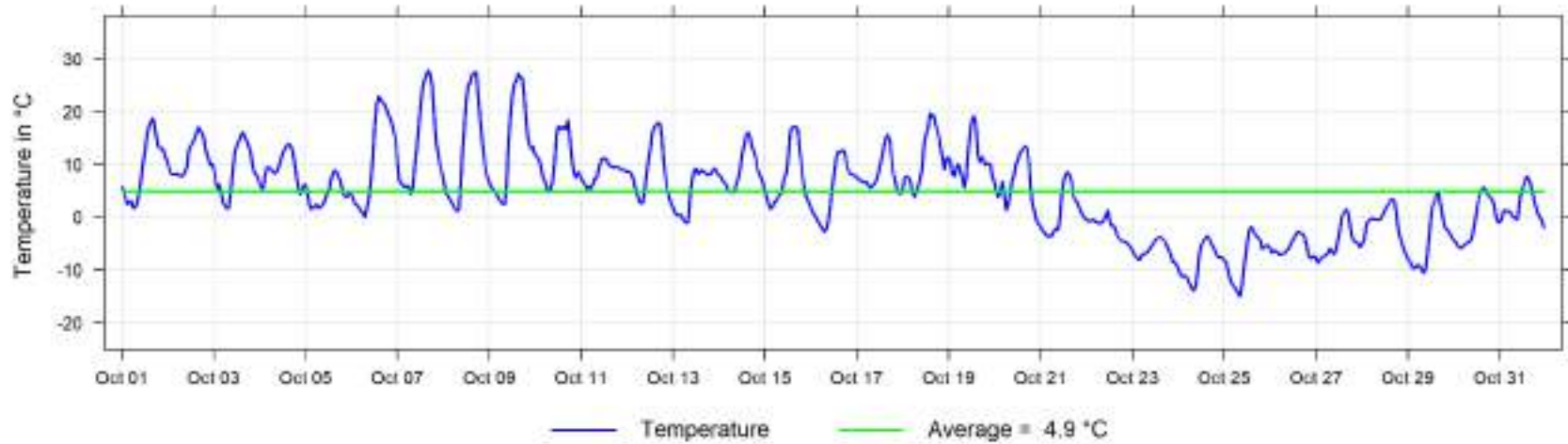
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Valleyview



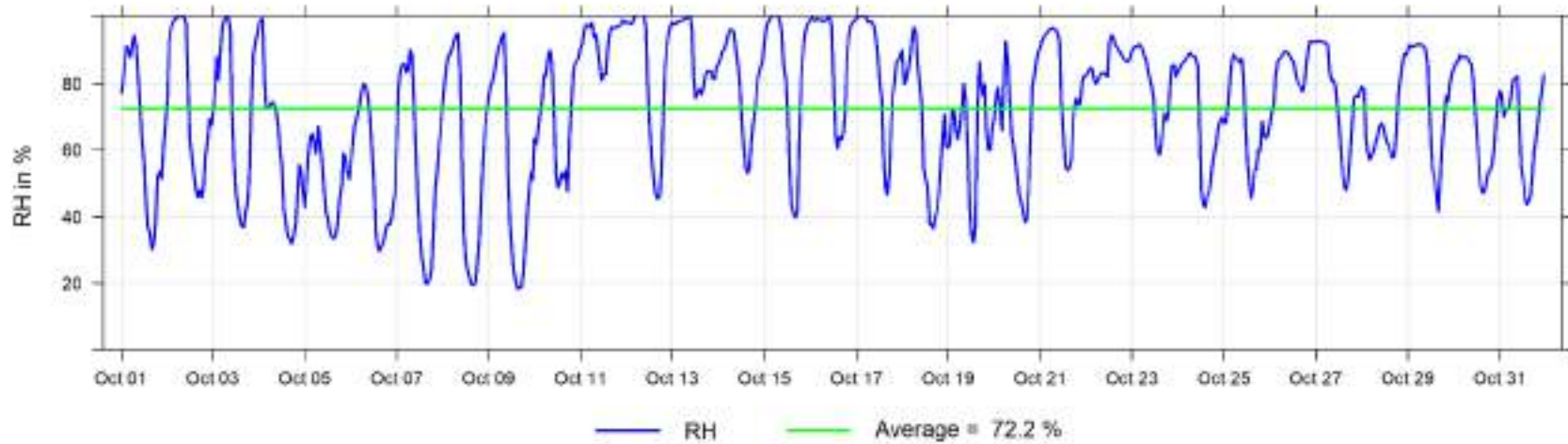
October 2023 Hourly Concentration Readings of H₂S (in ppb) at Valleyview



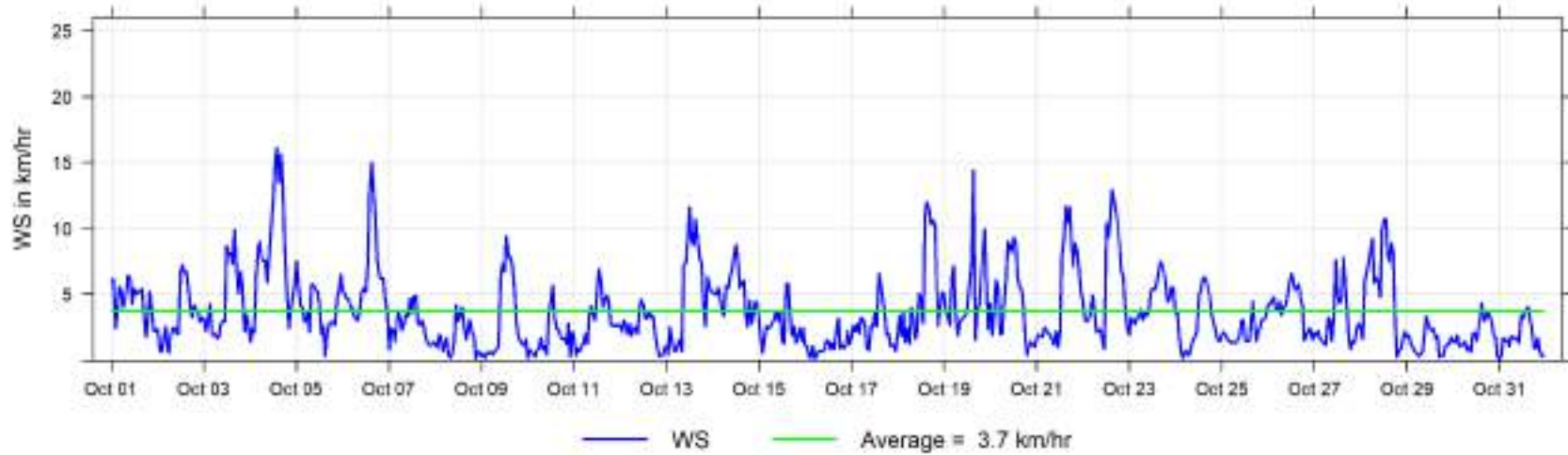
October 2023 Hourly Temperature Readings (in °C) at Valleyview



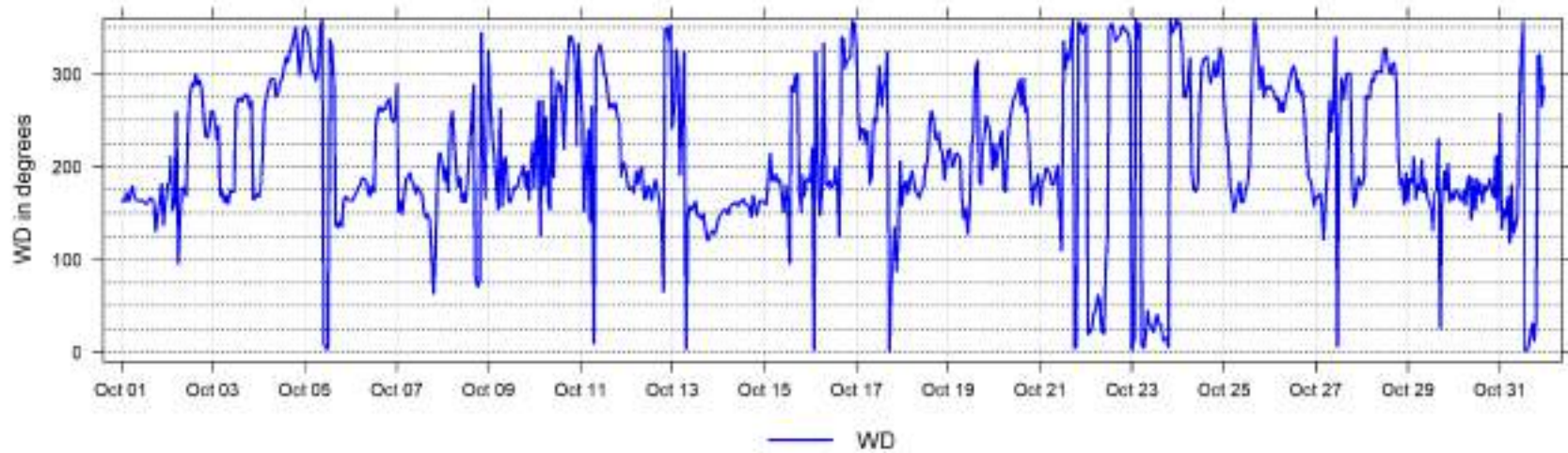
October 2023 Hourly Readings of Relative Humidity (in %) at Valleyview



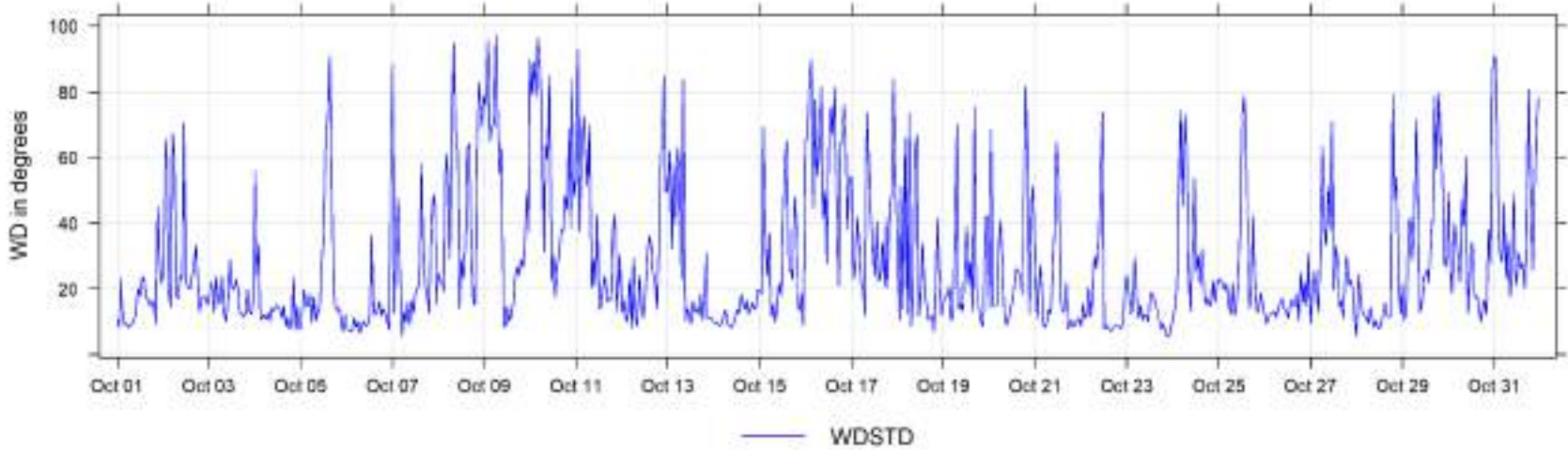
October 2023 Hourly Readings of Wind Speed (in km/hr) at Valleyview

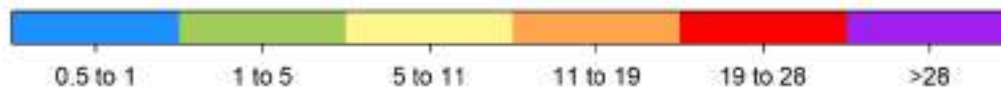
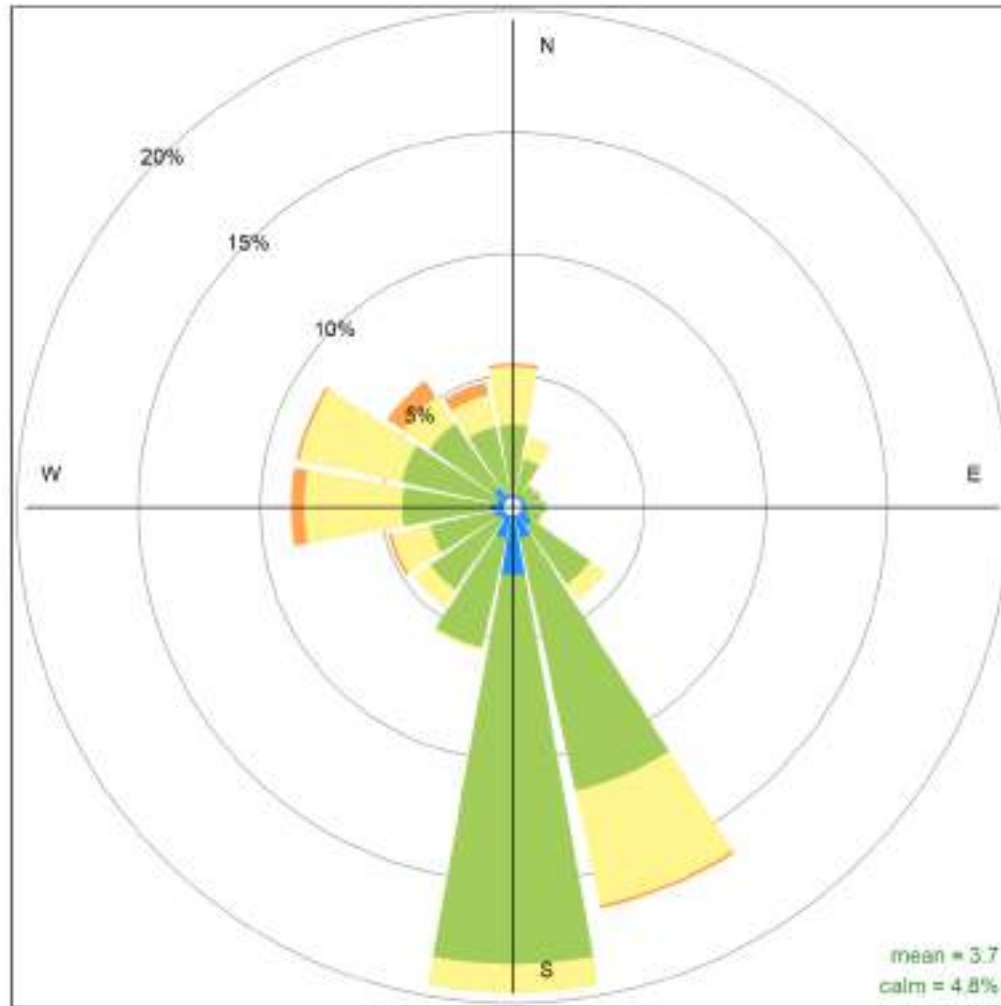


October 2023 Hourly Readings of Wind Direction (in degrees) at Valleyview



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Valleyview

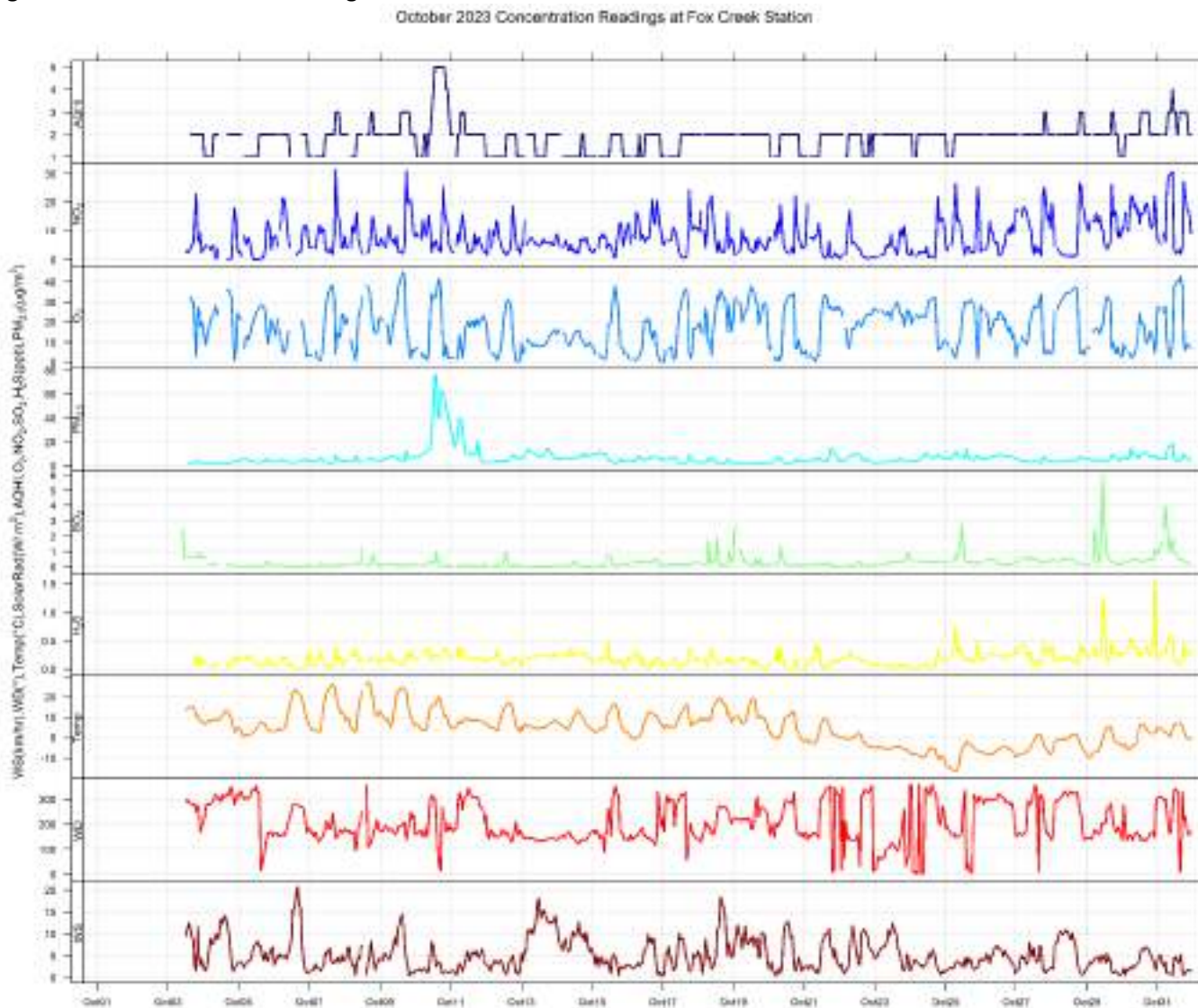




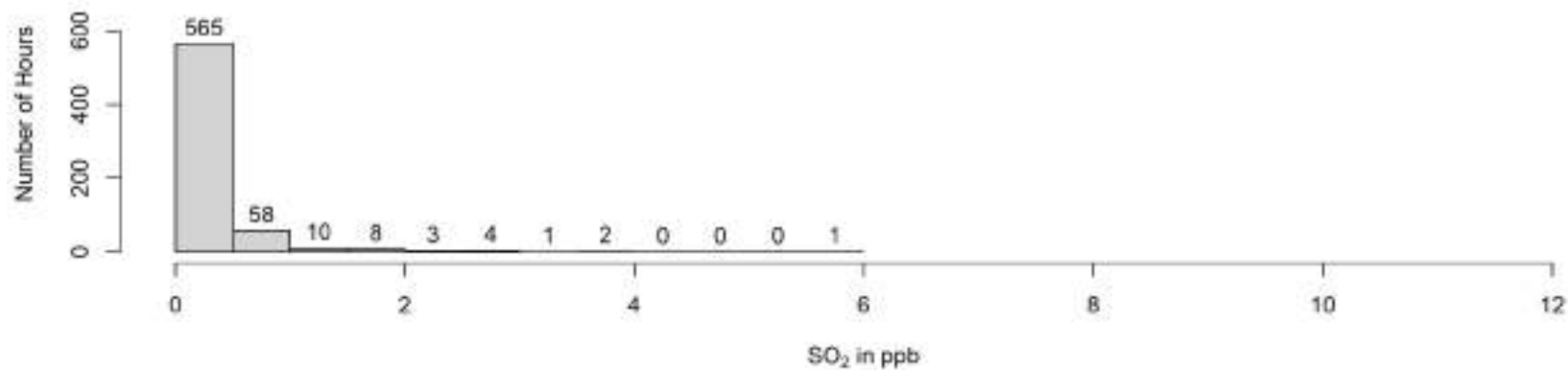
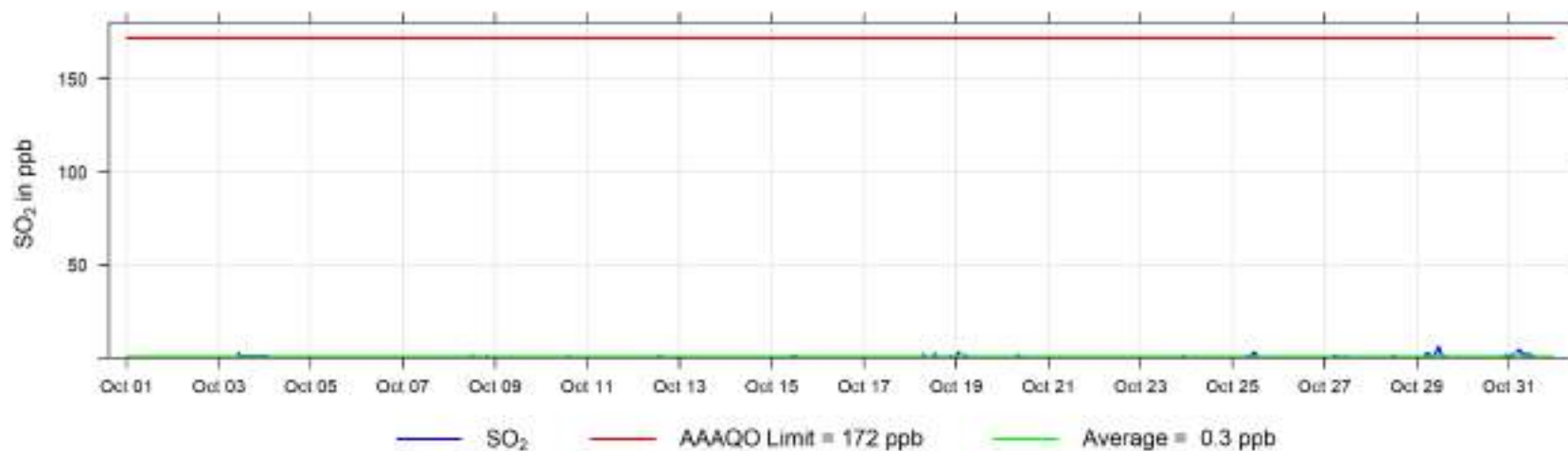
Valleyview October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

7 Fox Creek Charts

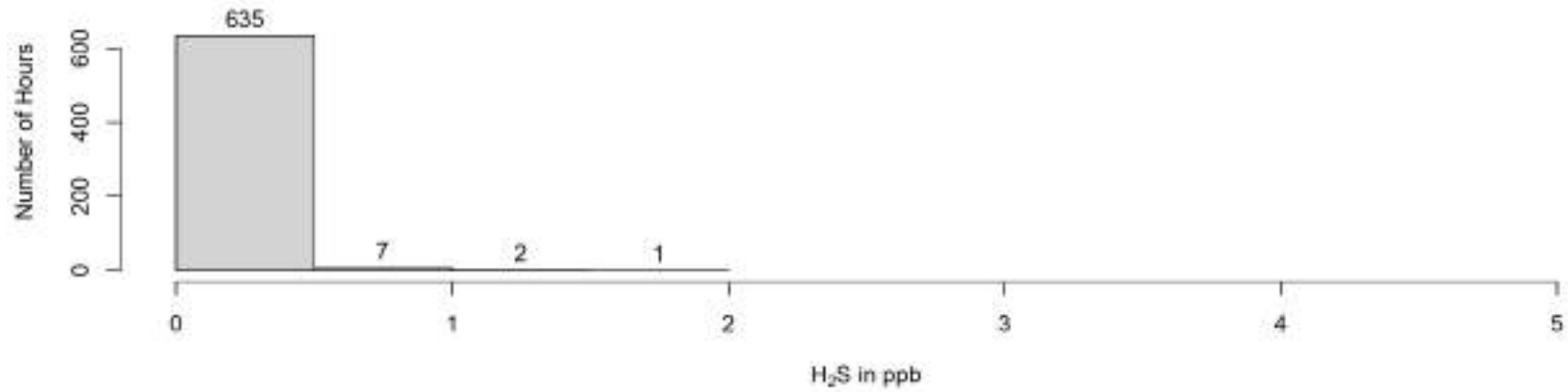
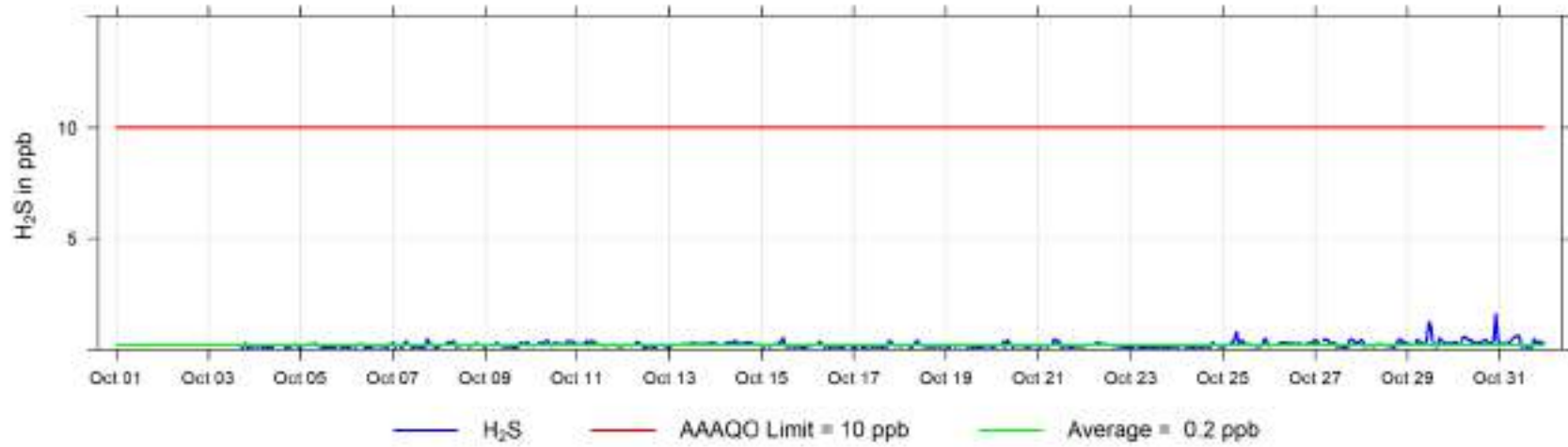
The following pages include the charts and histograms for Fox Creek Station



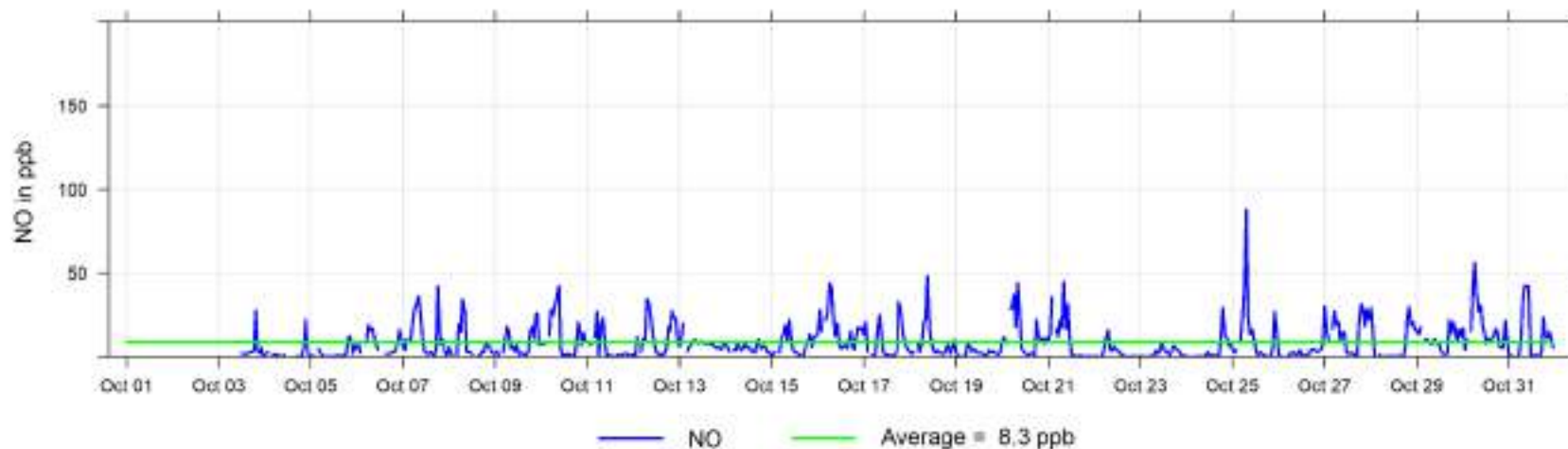
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Fox Creek



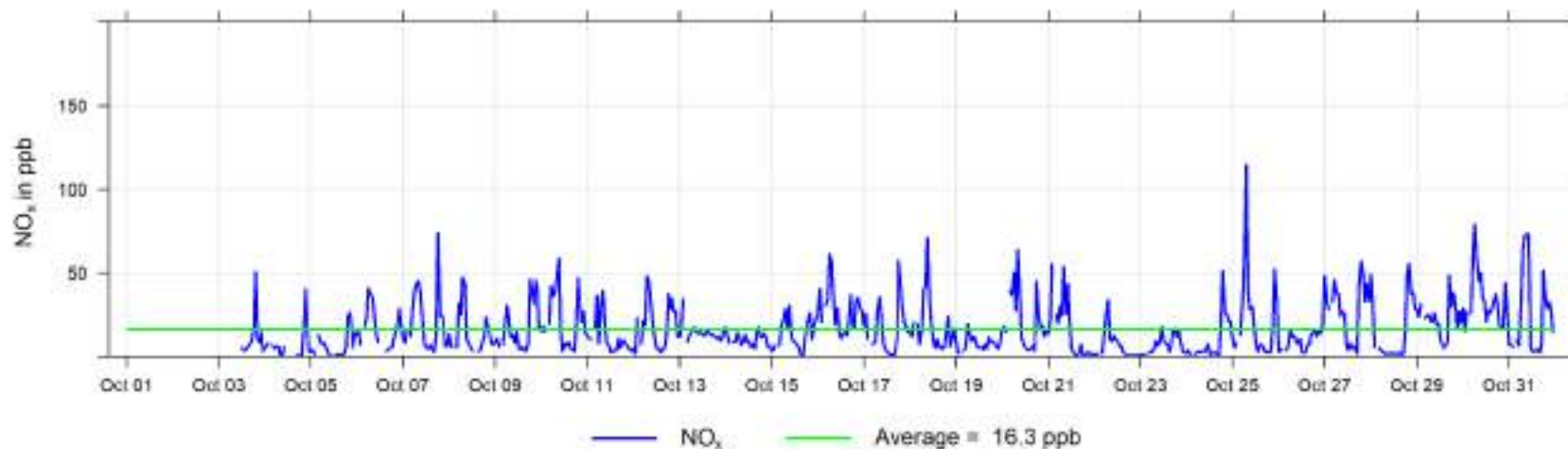
October 2023 Hourly Concentration Readings of H₂S (in ppb) at Fox Creek



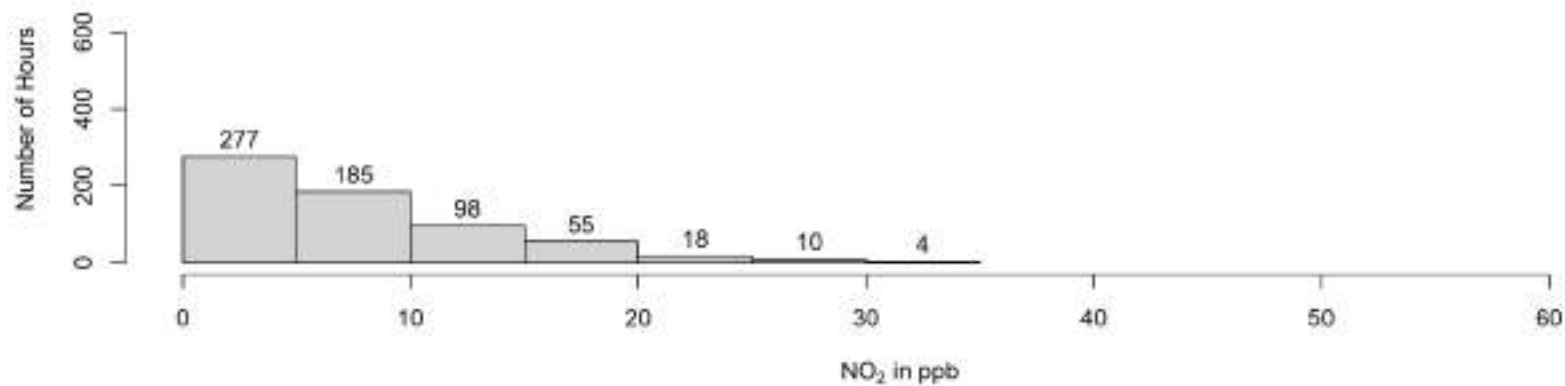
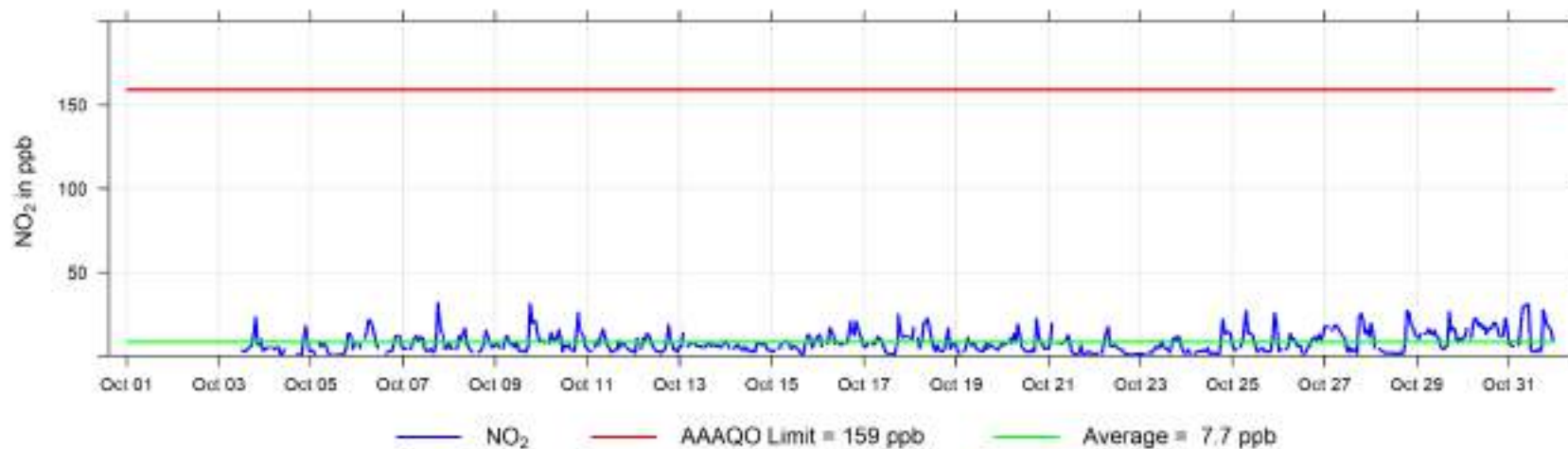
October 2023 Hourly Concentration Readings of NO (in ppb) at Fox Creek



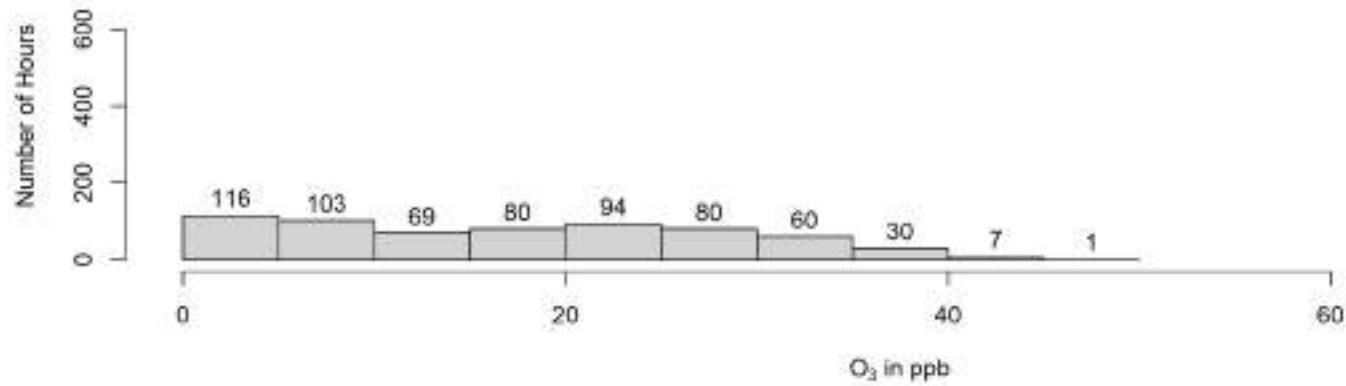
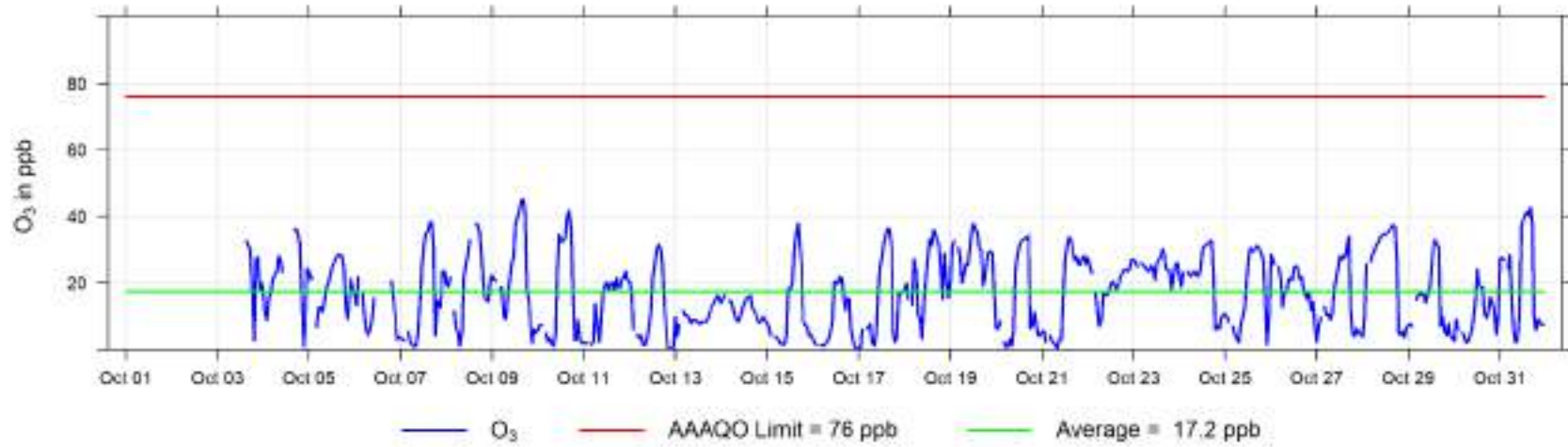
October 2023 Hourly Concentration Readings of NO_x (in ppb) at Fox Creek



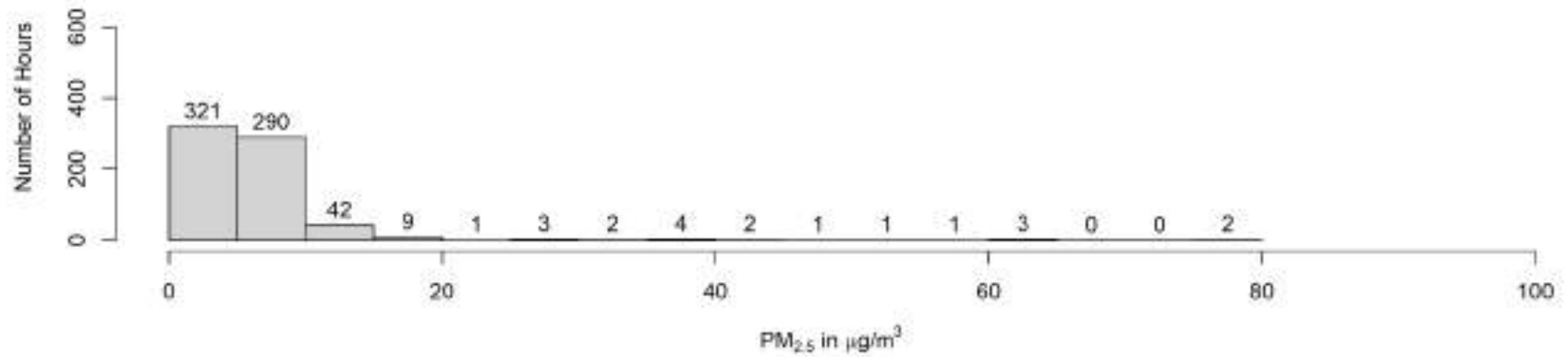
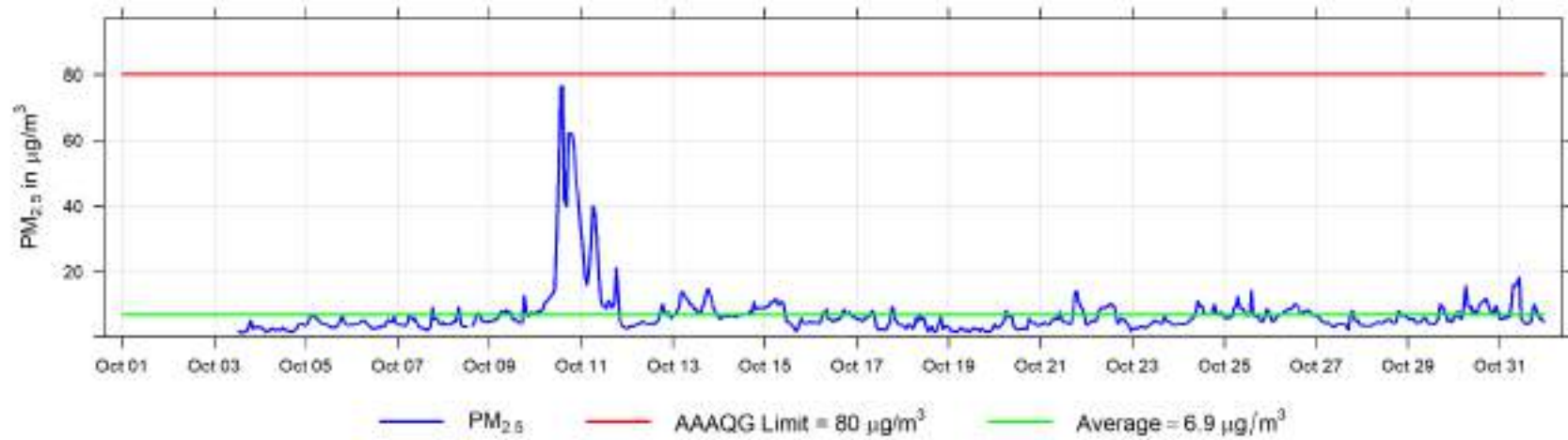
October 2023 Hourly Concentration Readings of NO₂ (in ppb) at Fox Creek



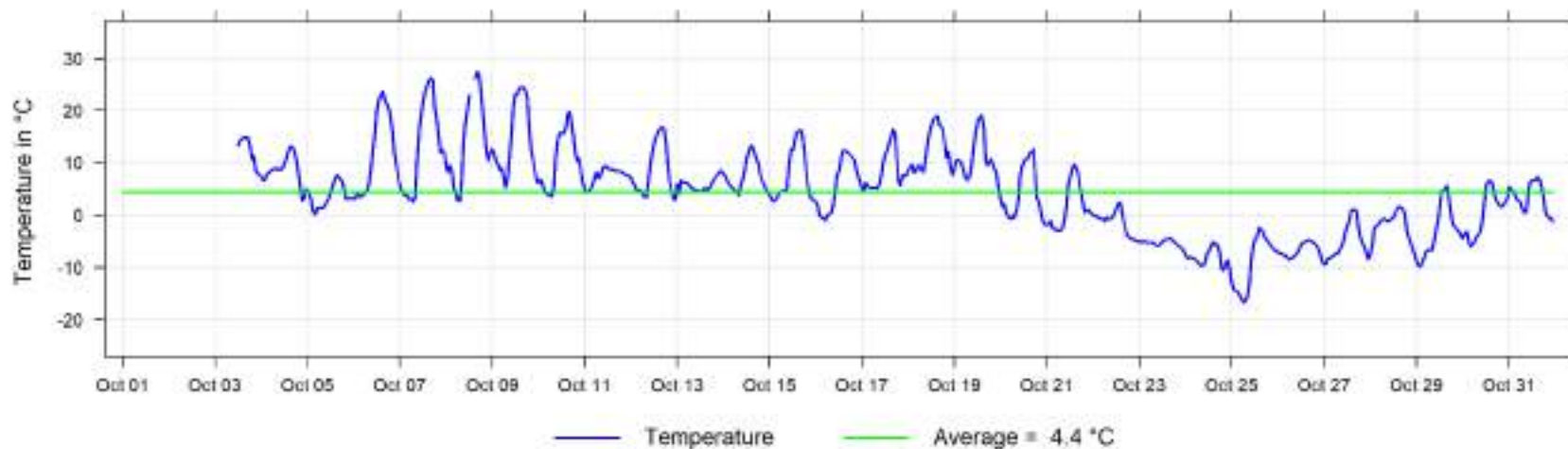
October 2023 Hourly Concentration Readings of O₃ (in ppb) at Fox Creek



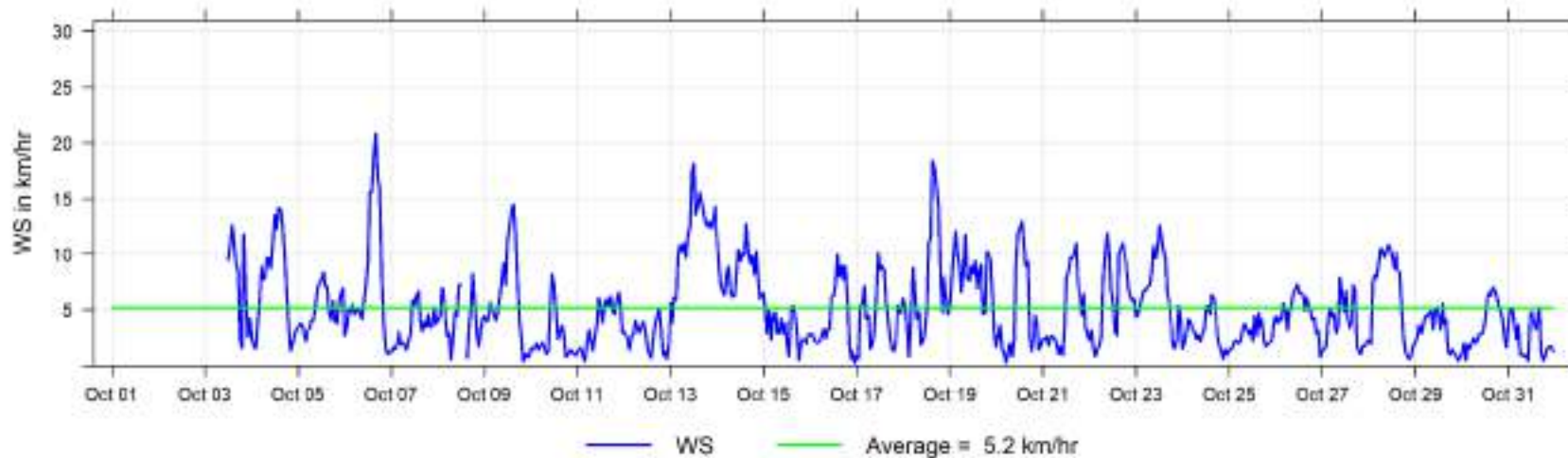
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Fox Creek



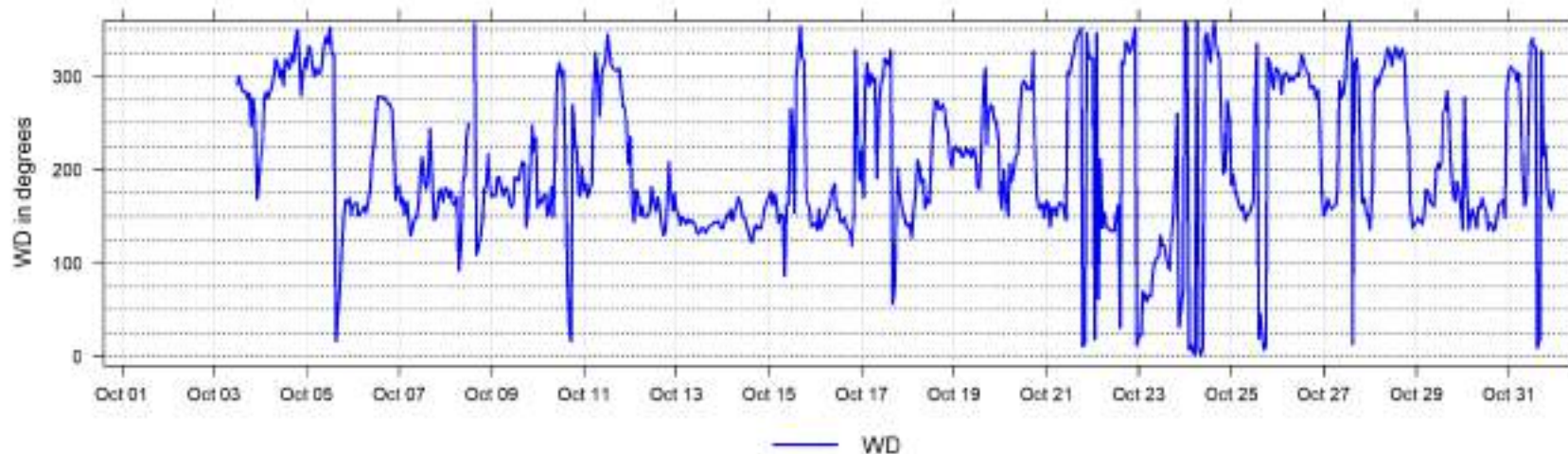
October 2023 Hourly Temperature Readings (in °C) at Fox Creek



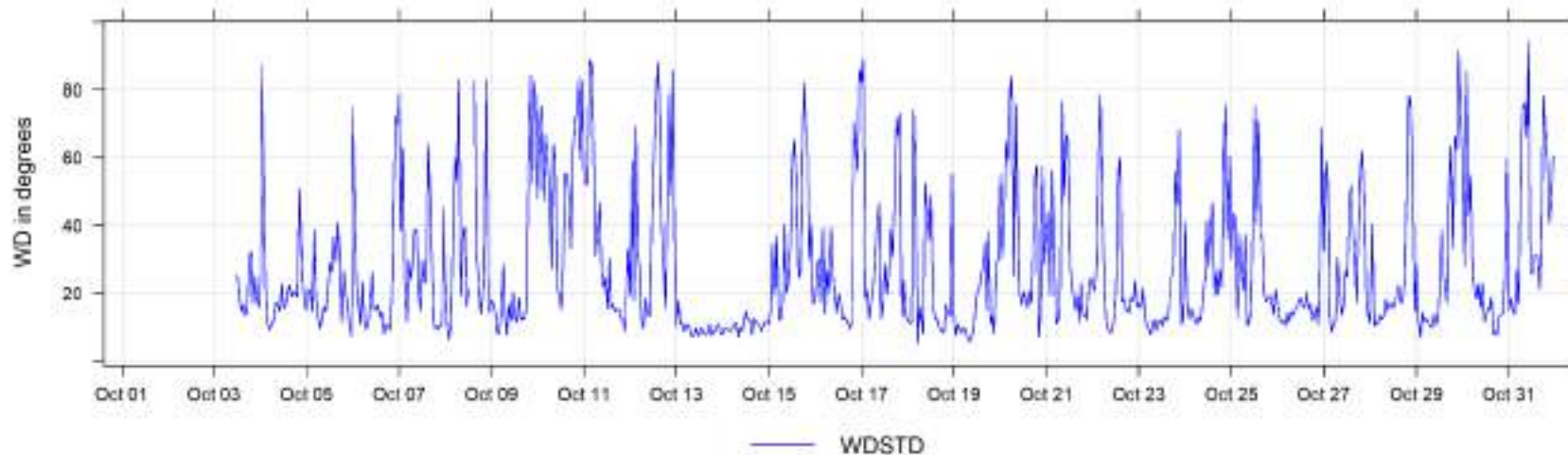
October 2023 Hourly Readings of Wind Speed (in km/hr) at Fox Creek

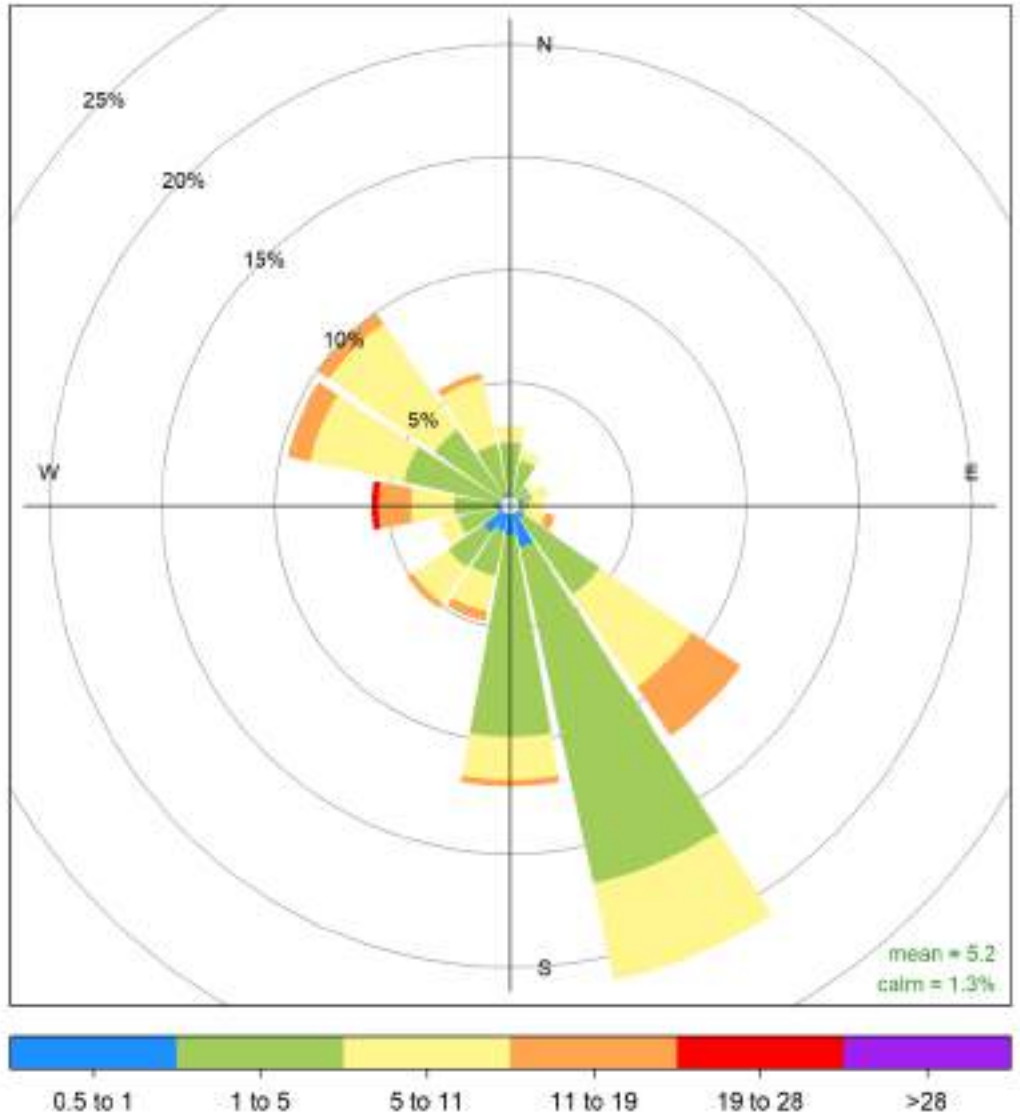


October 2023 Hourly Readings of Wind Direction (in degrees) at Fox Creek



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Fox Creek

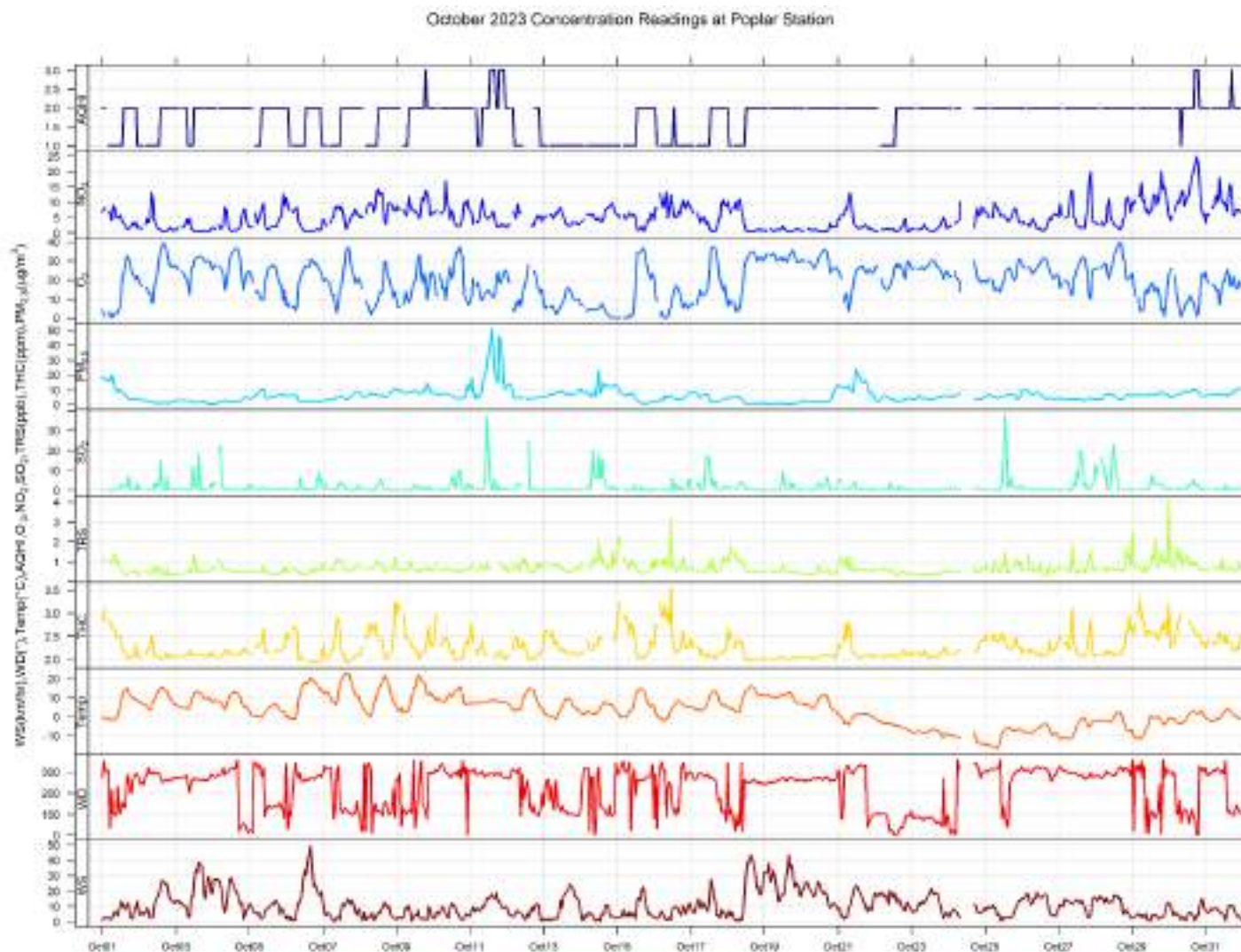




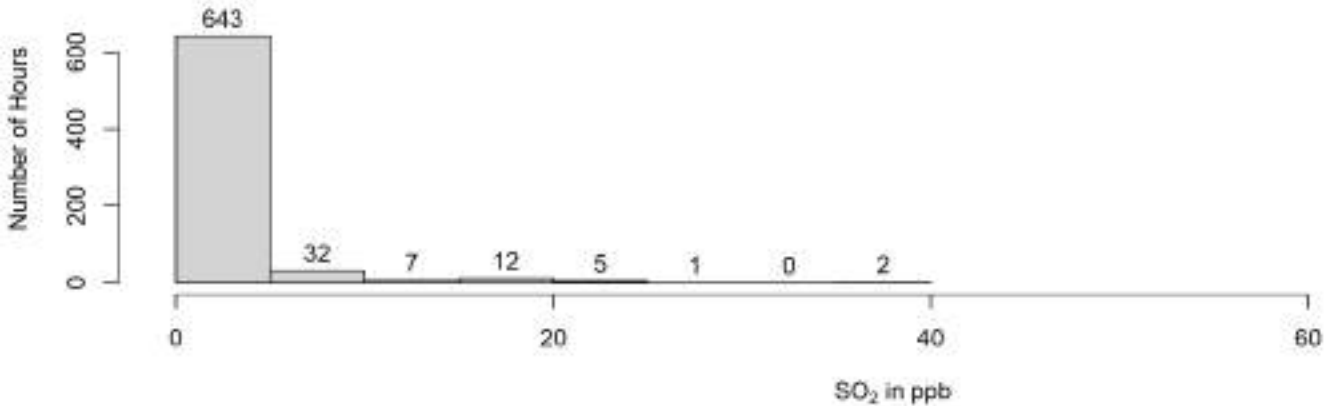
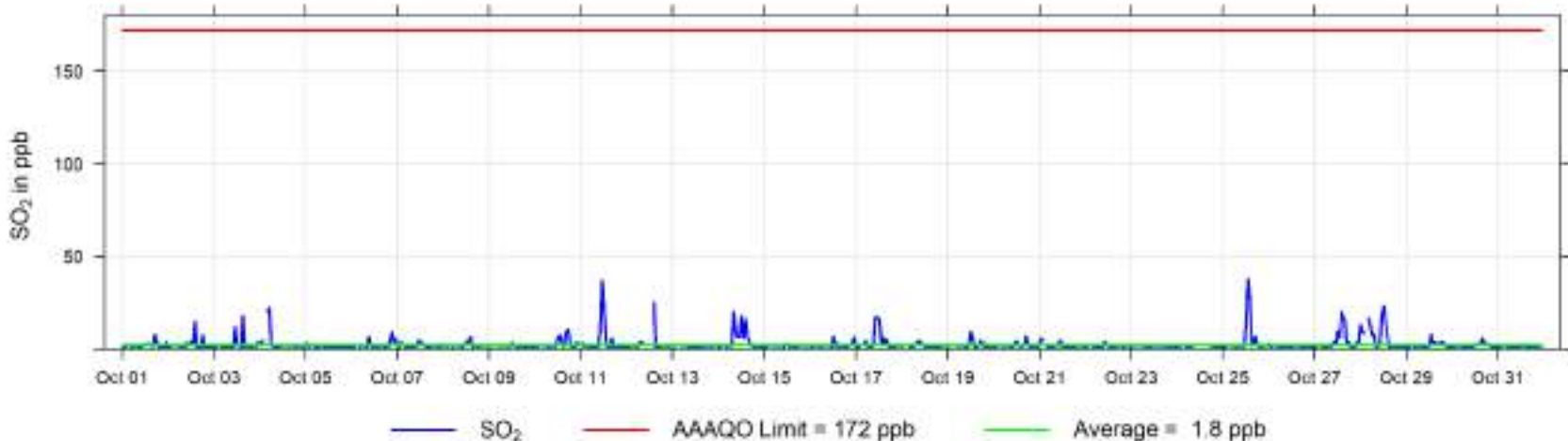
Fox Creek October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

8 Poplar (Portable) Charts

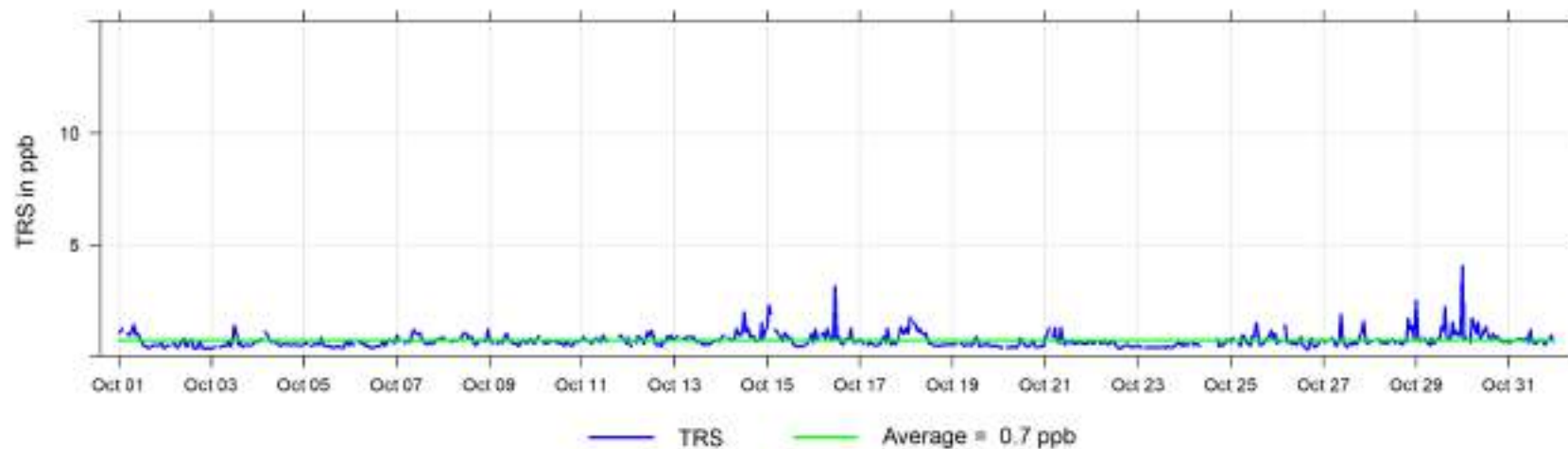
The following pages include the charts and histograms for Poplar Portable Station



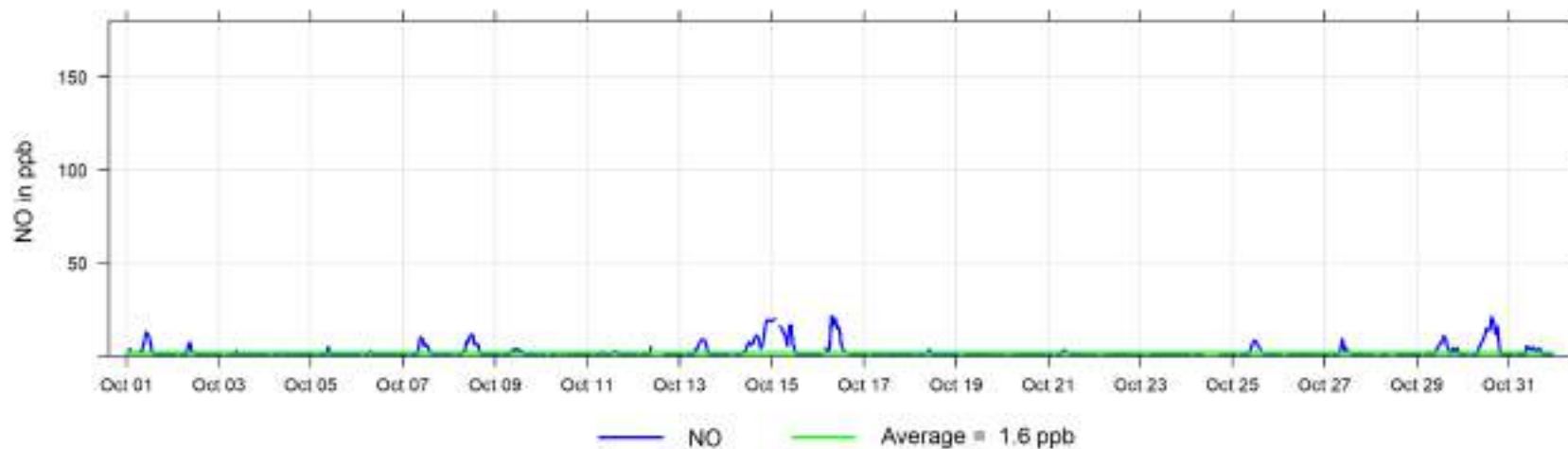
October 2023 Hourly Concentration Readings of SO₂ (in ppb) at Poplar



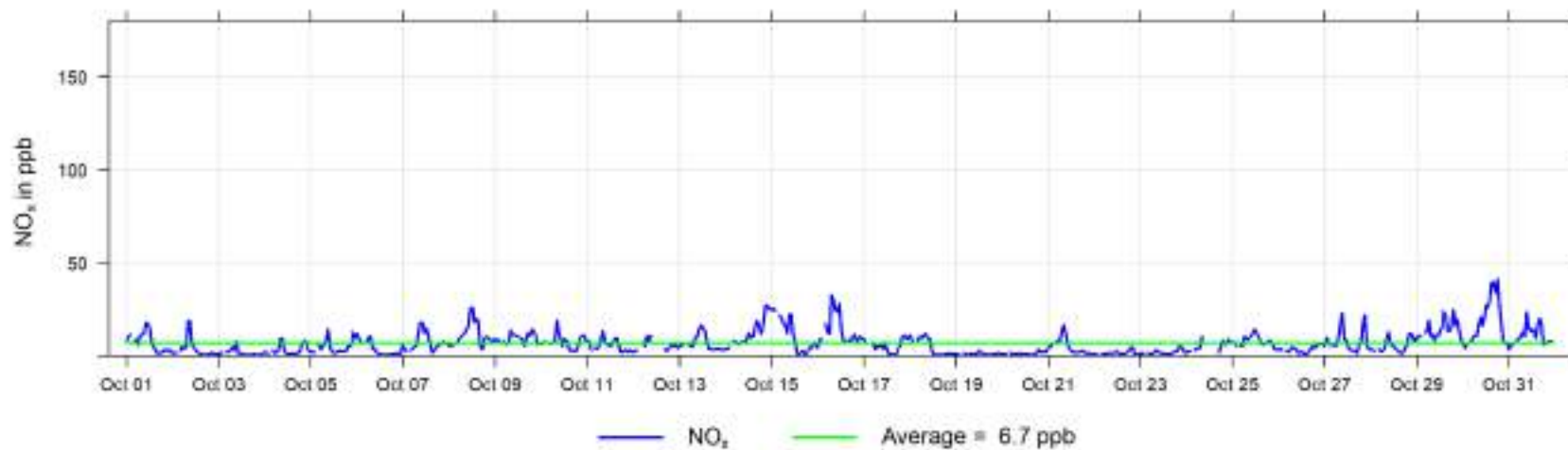
October 2023 Hourly Concentration Readings of TRS (in ppb) at Poplar



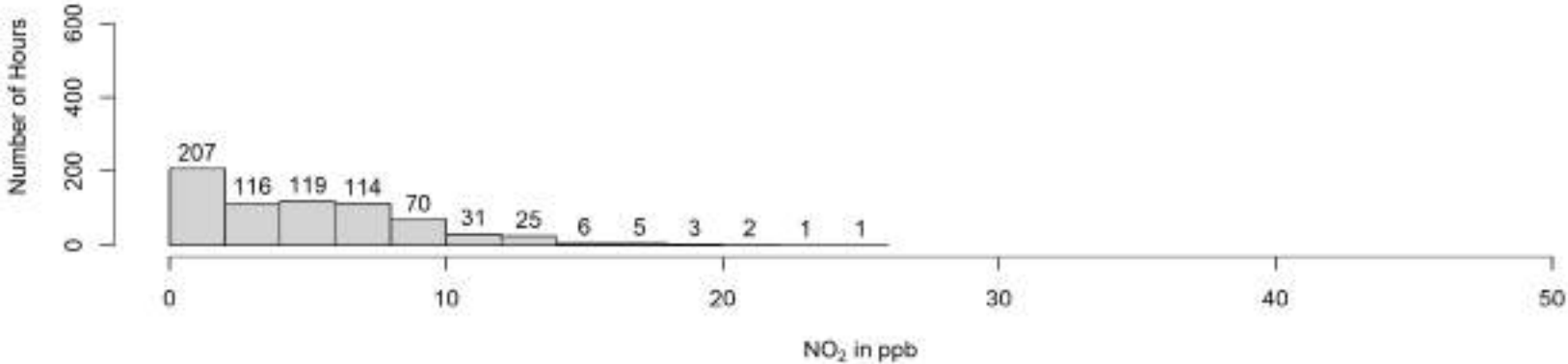
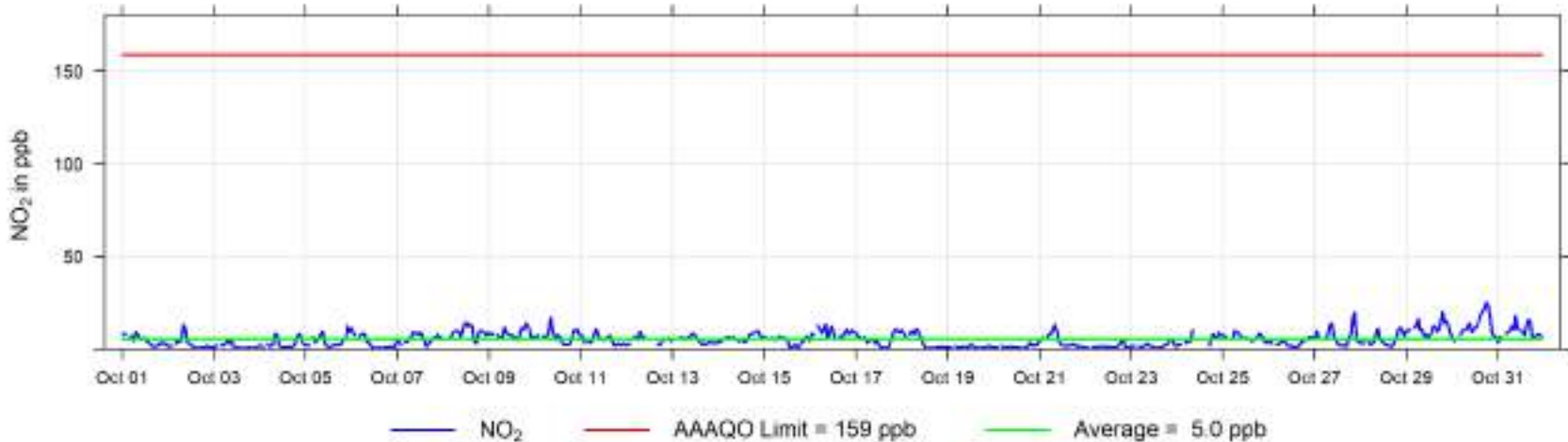
October 2023 Hourly Concentration Readings of NO (in ppb) at Poplar



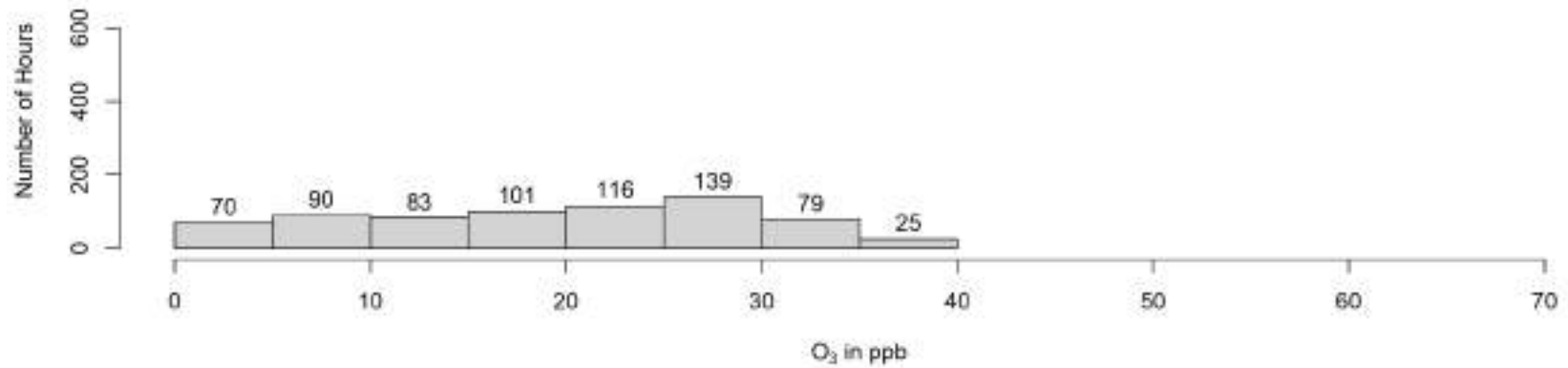
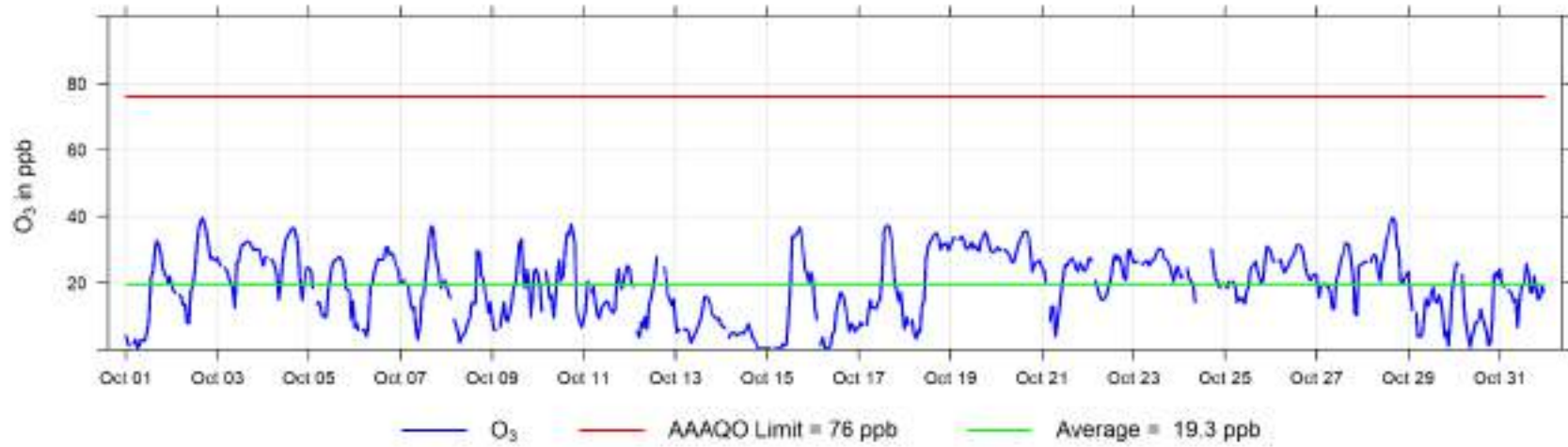
October 2023 Hourly Concentration Readings of NO_x (in ppb) at Poplar



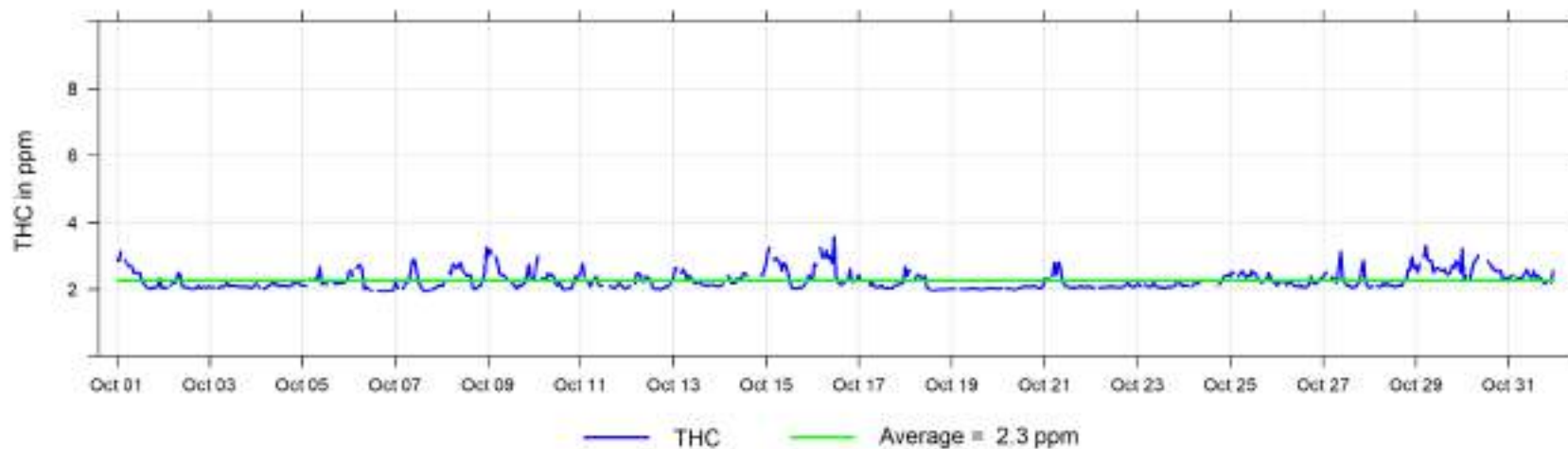
October 2023 Hourly Concentration Readings of NO₂ (in ppb) at Poplar



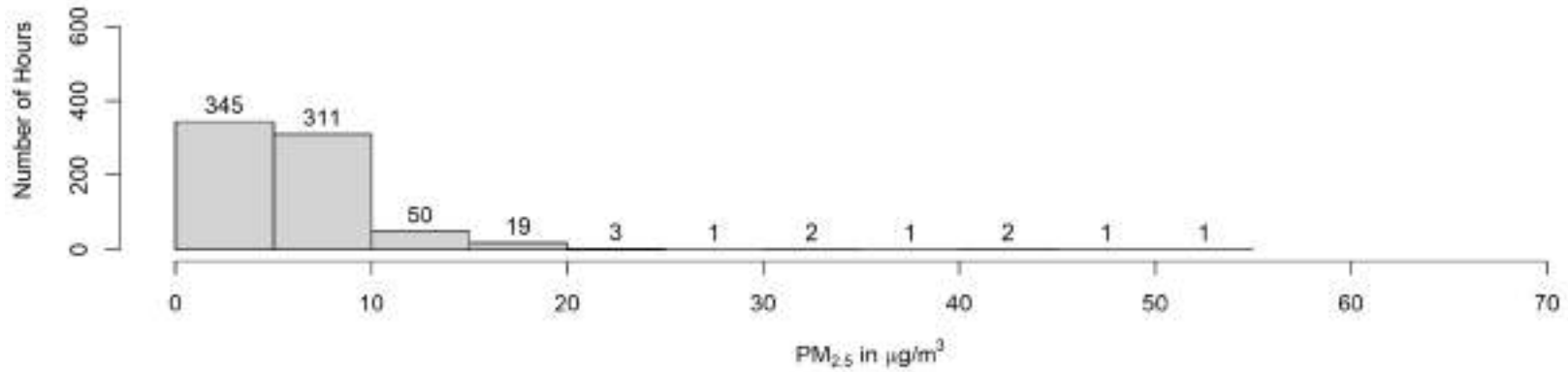
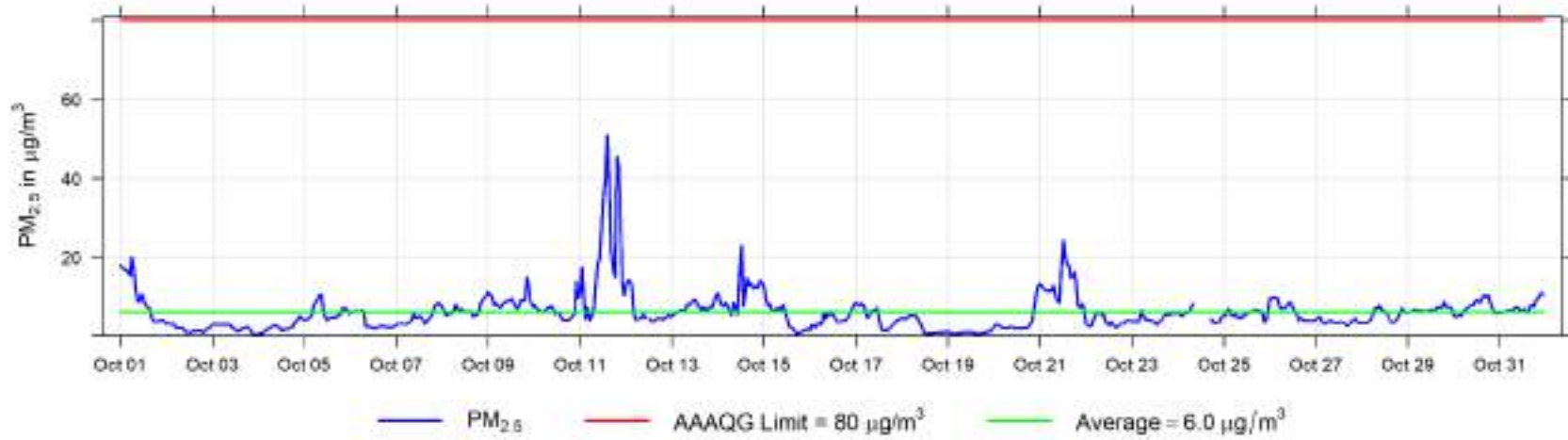
October 2023 Hourly Concentration Readings of O₃ (in ppb) at Poplar



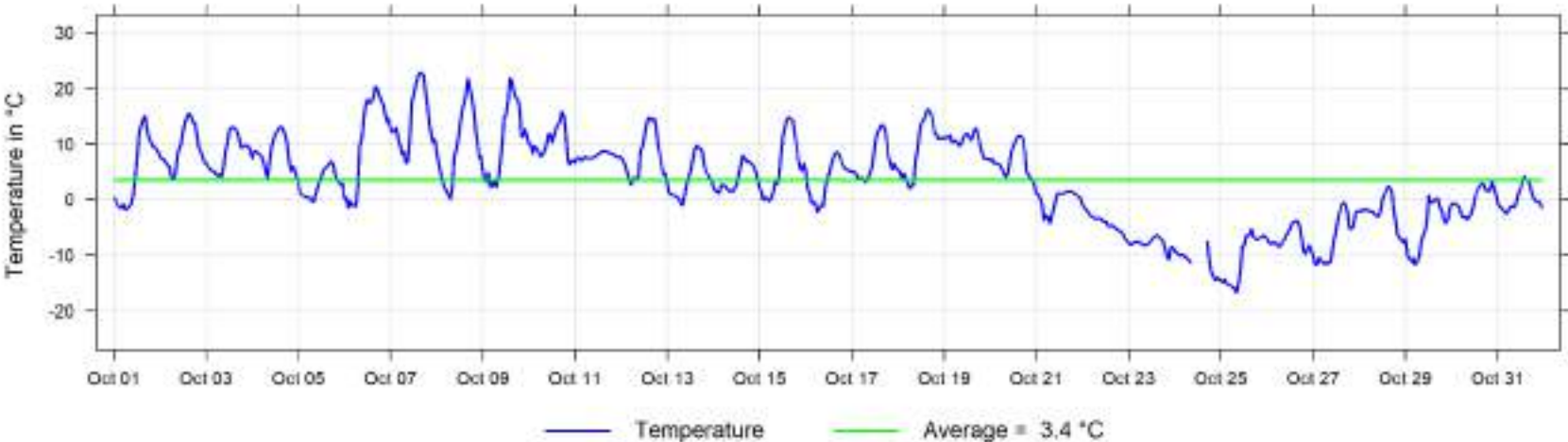
October 2023 Hourly Concentration Readings of THC (in ppm) at Poplar



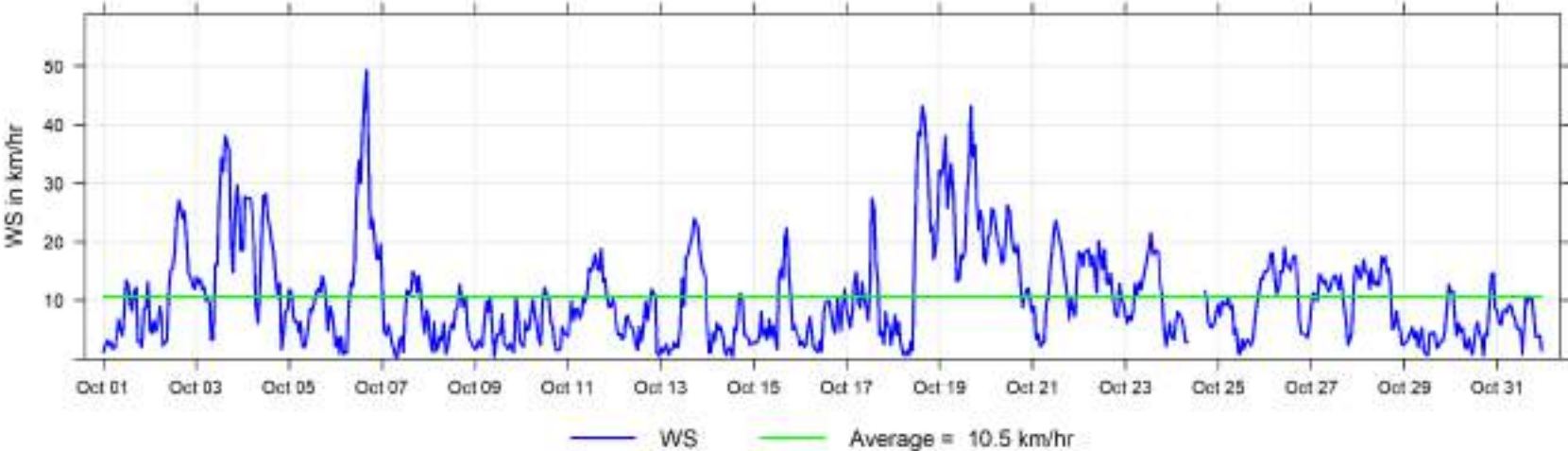
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Poplar



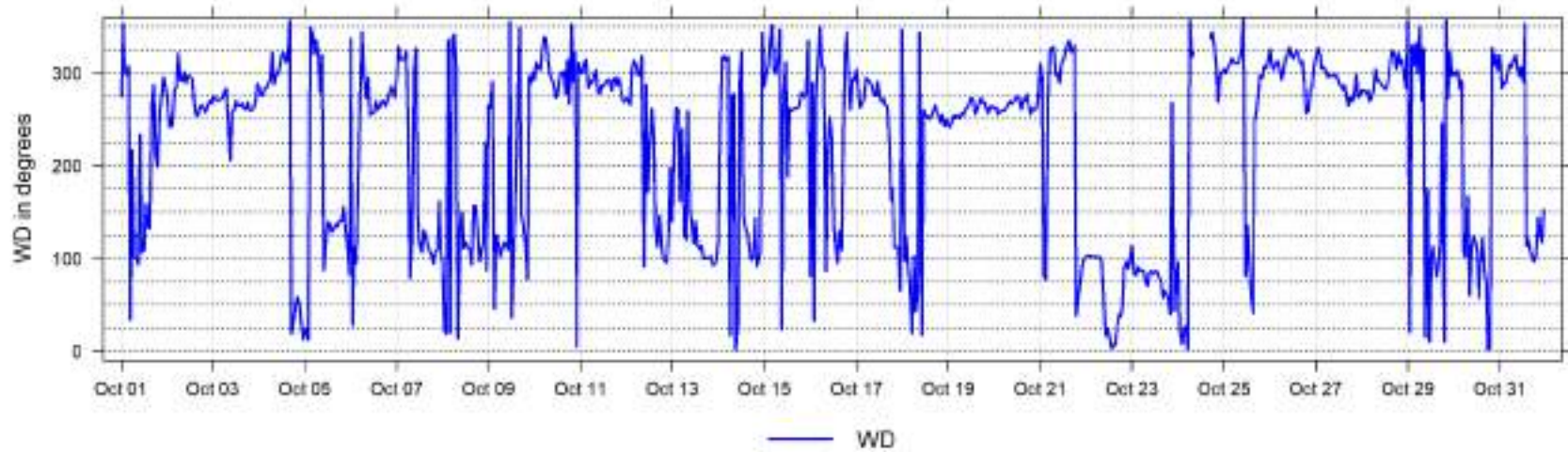
October 2023 Hourly Temperature Readings (in °C) at Poplar



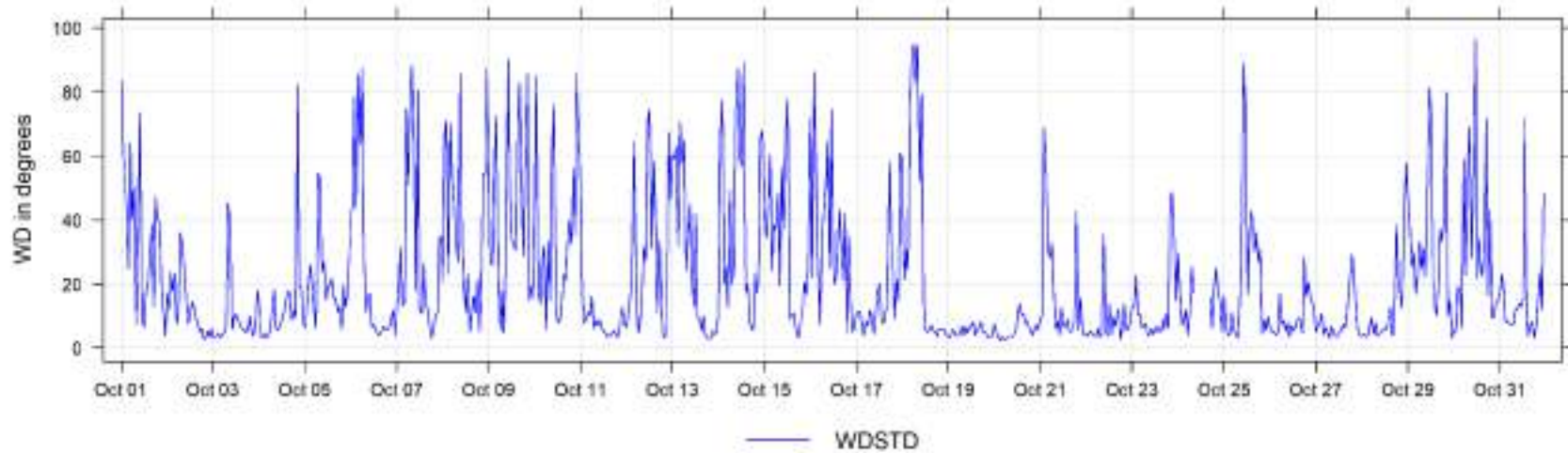
October 2023 Hourly Readings of Wind Speed (in km/hr) at Poplar

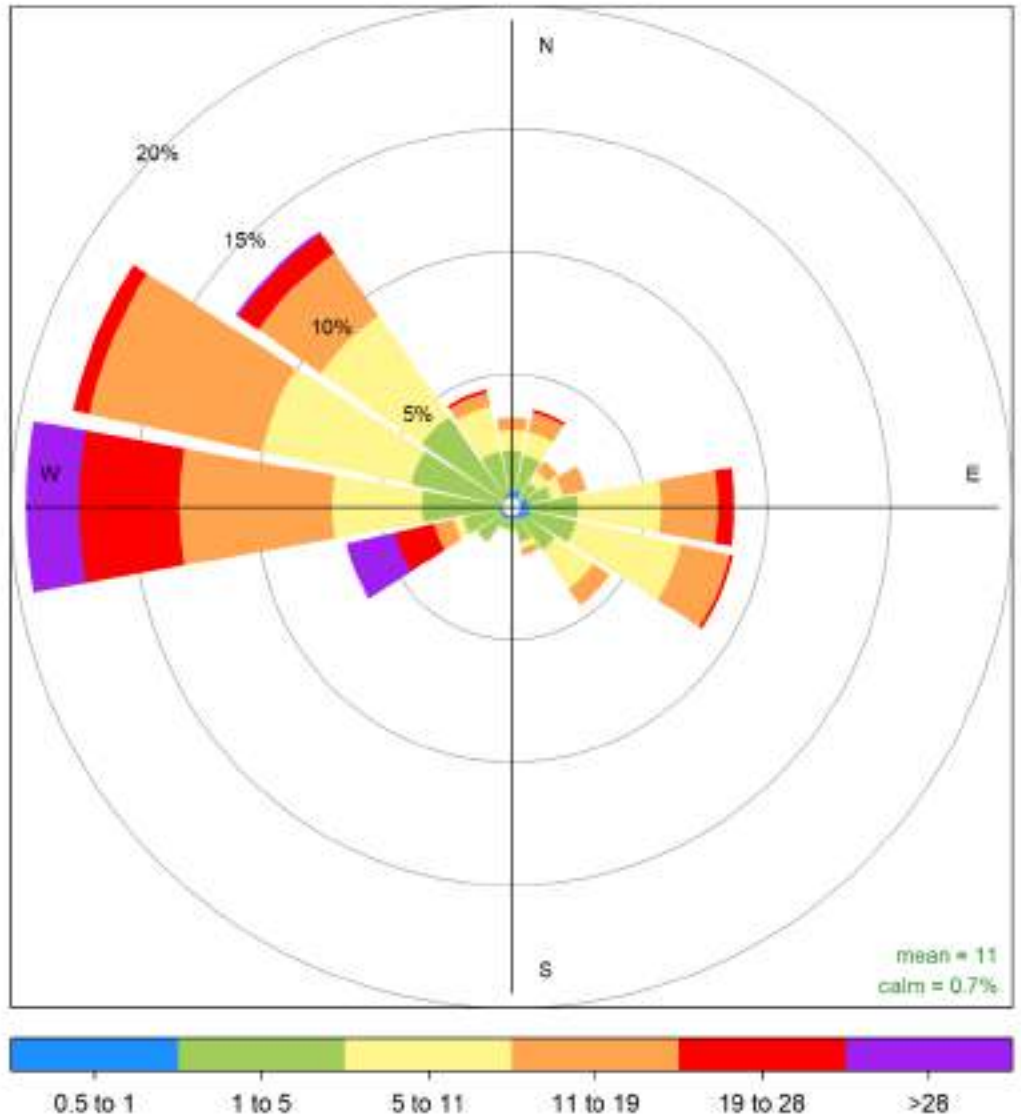


October 2023 Hourly Readings of Wind Direction (in degrees) at Poplar



October 2023 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Poplar

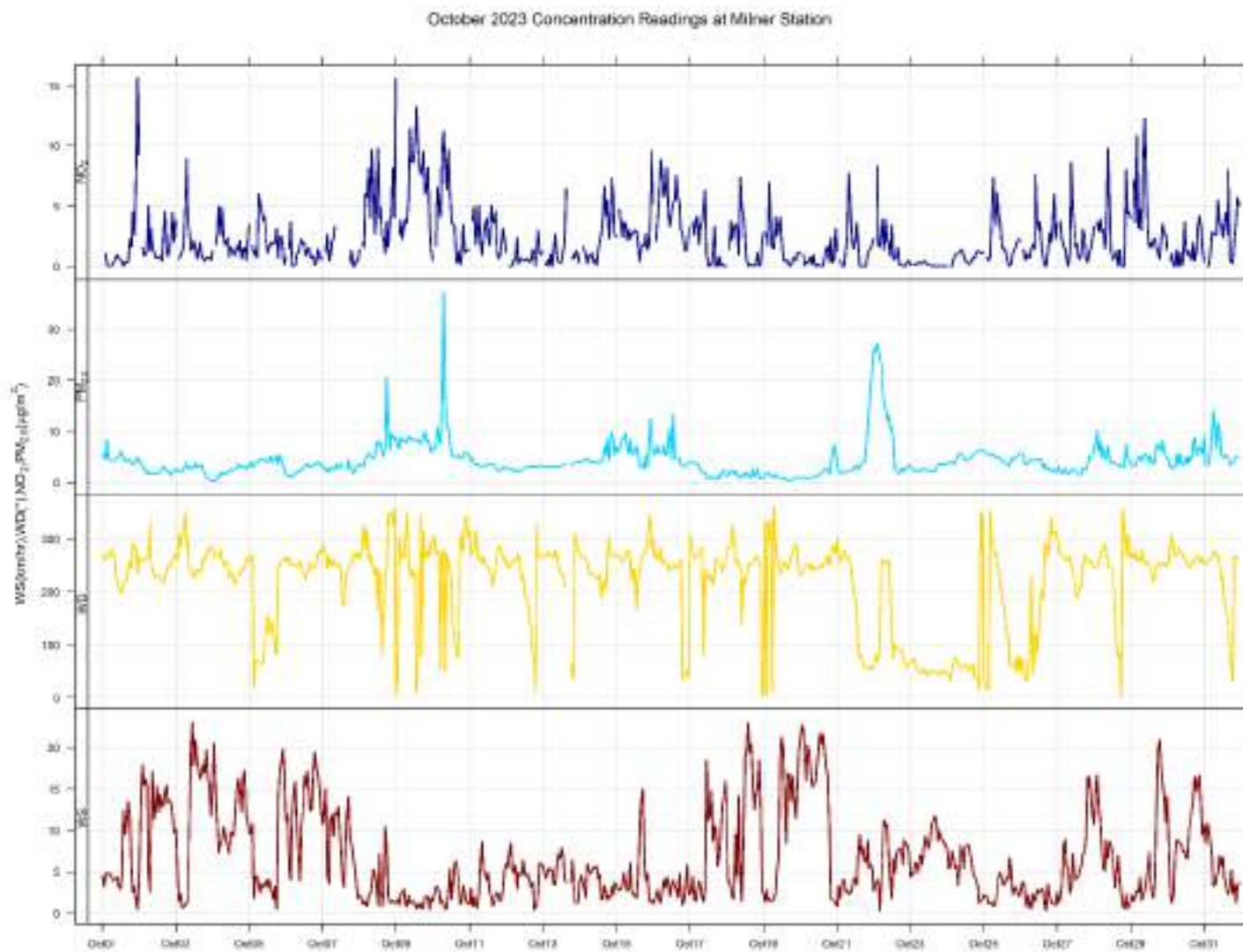




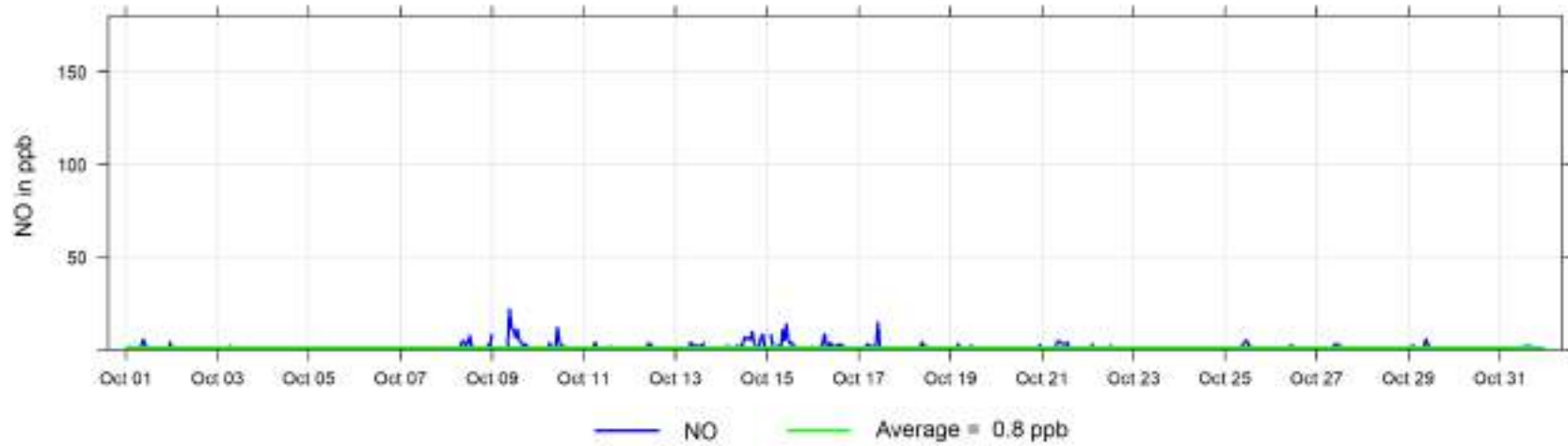
Poplar October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

9 Milner Charts

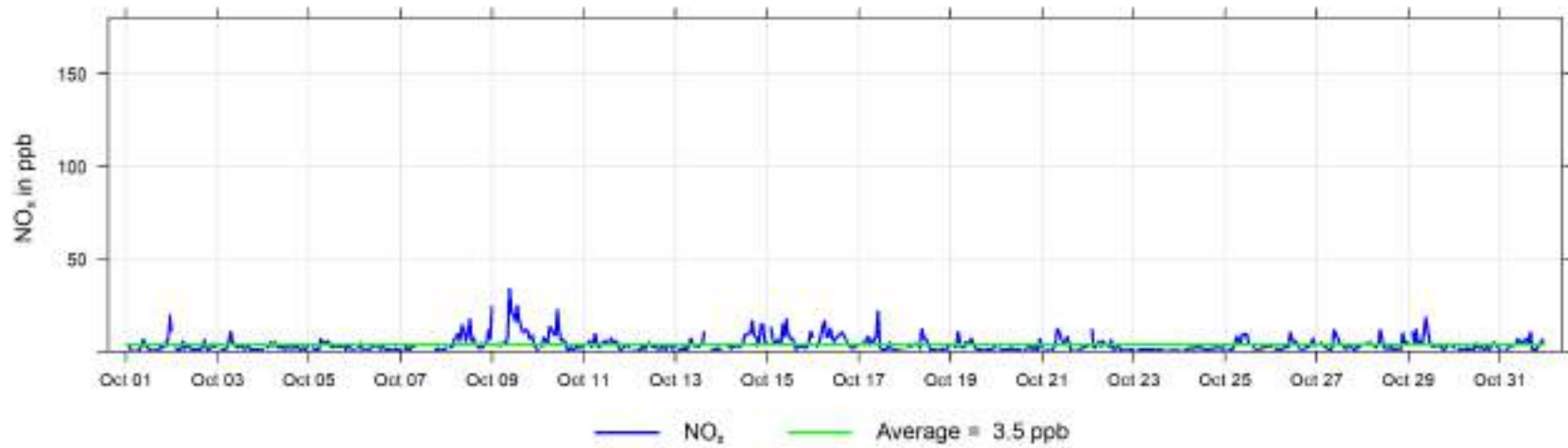
The following pages include the charts and histograms for Milner Station



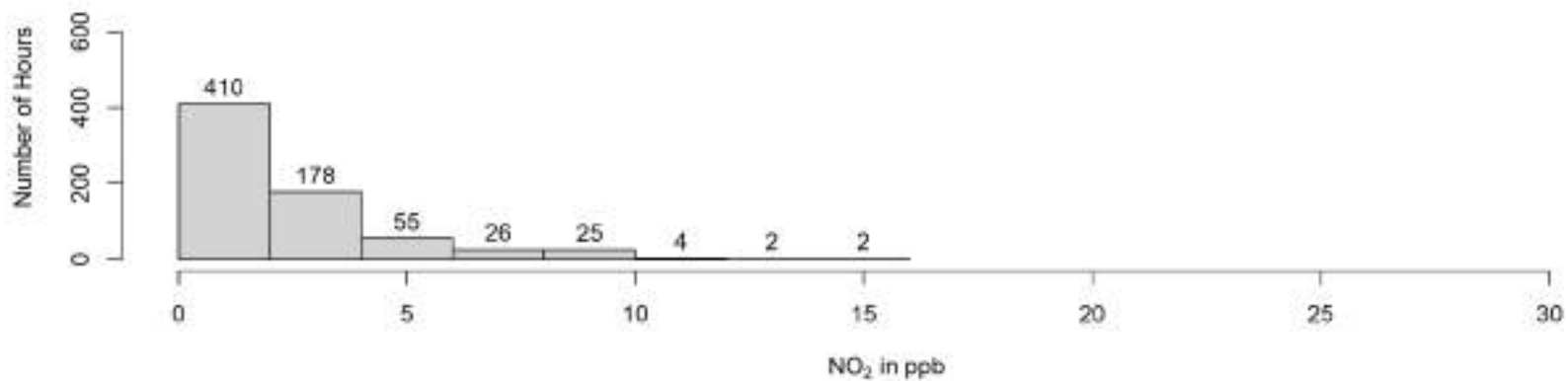
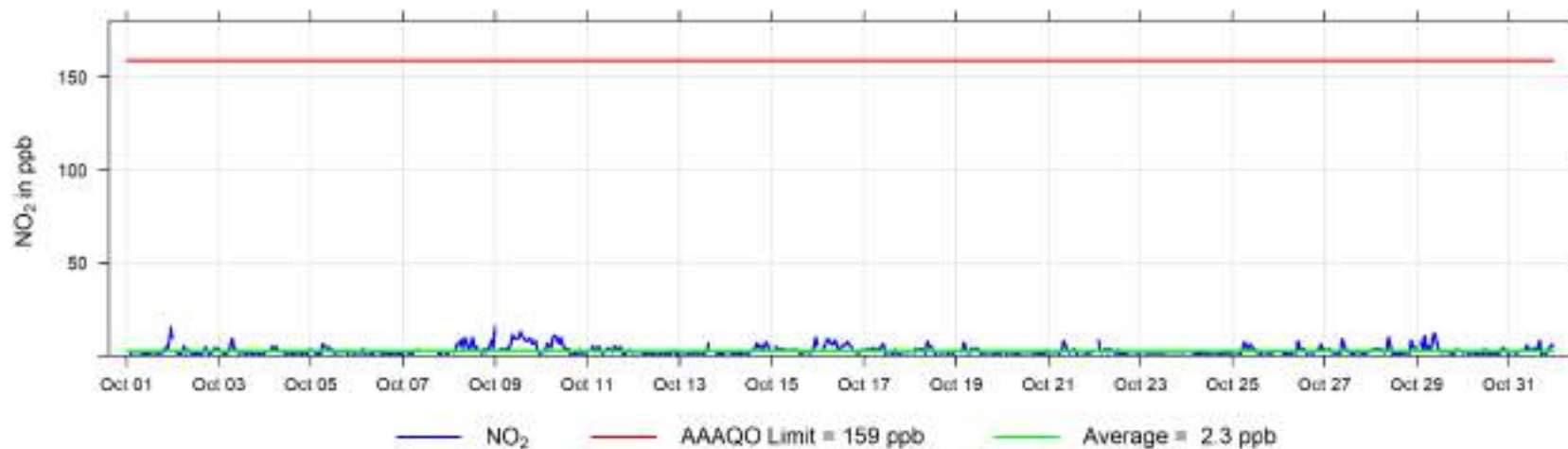
October 2023 Hourly Concentration Readings of NO (in ppb) at Milner



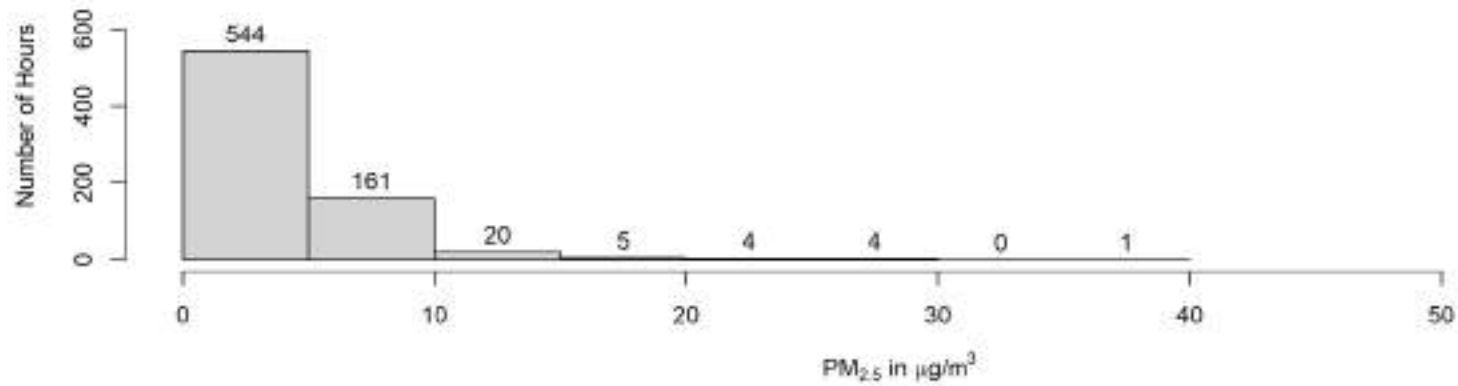
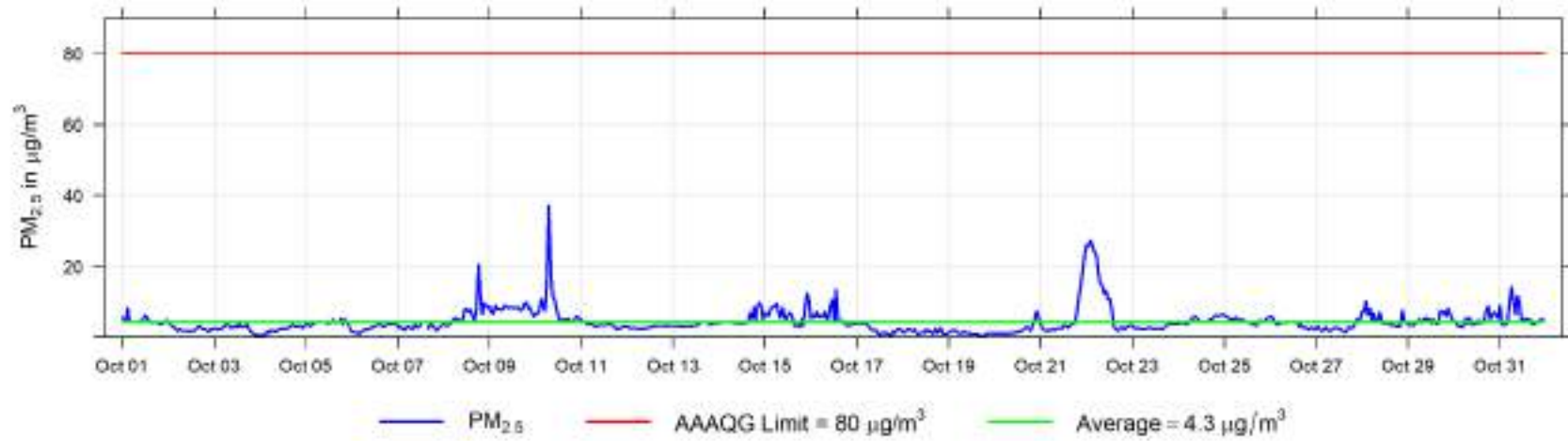
October 2023 Hourly Concentration Readings of NO_x (in ppb) at Milner



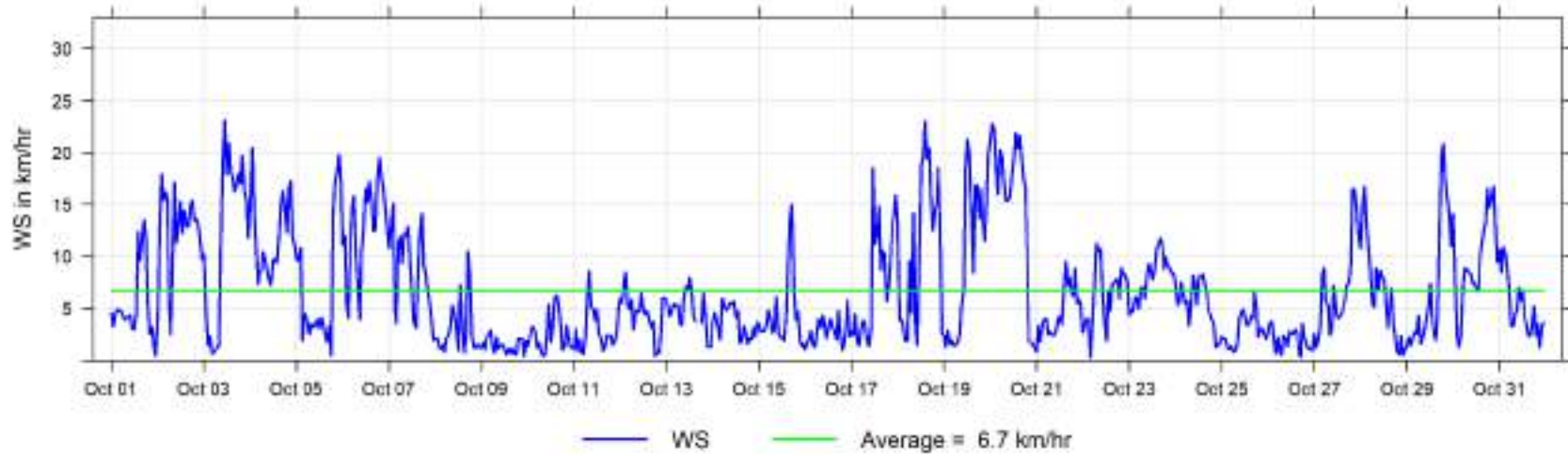
October 2023 Hourly Concentration Readings of NO₂ (in ppb) at Milner



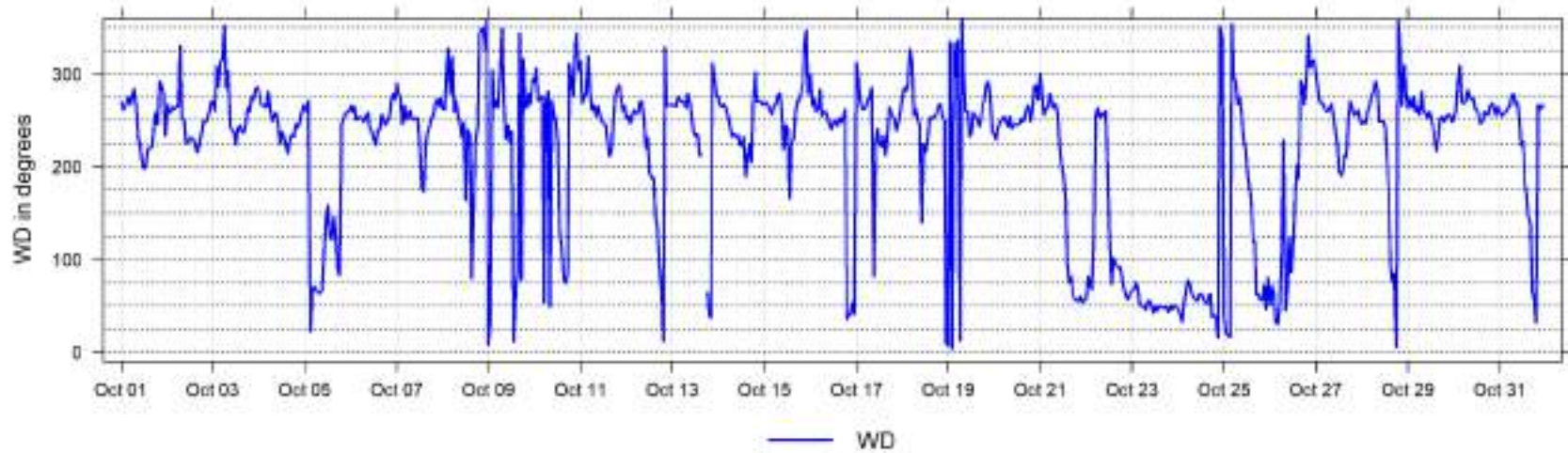
October 2023 Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Milner

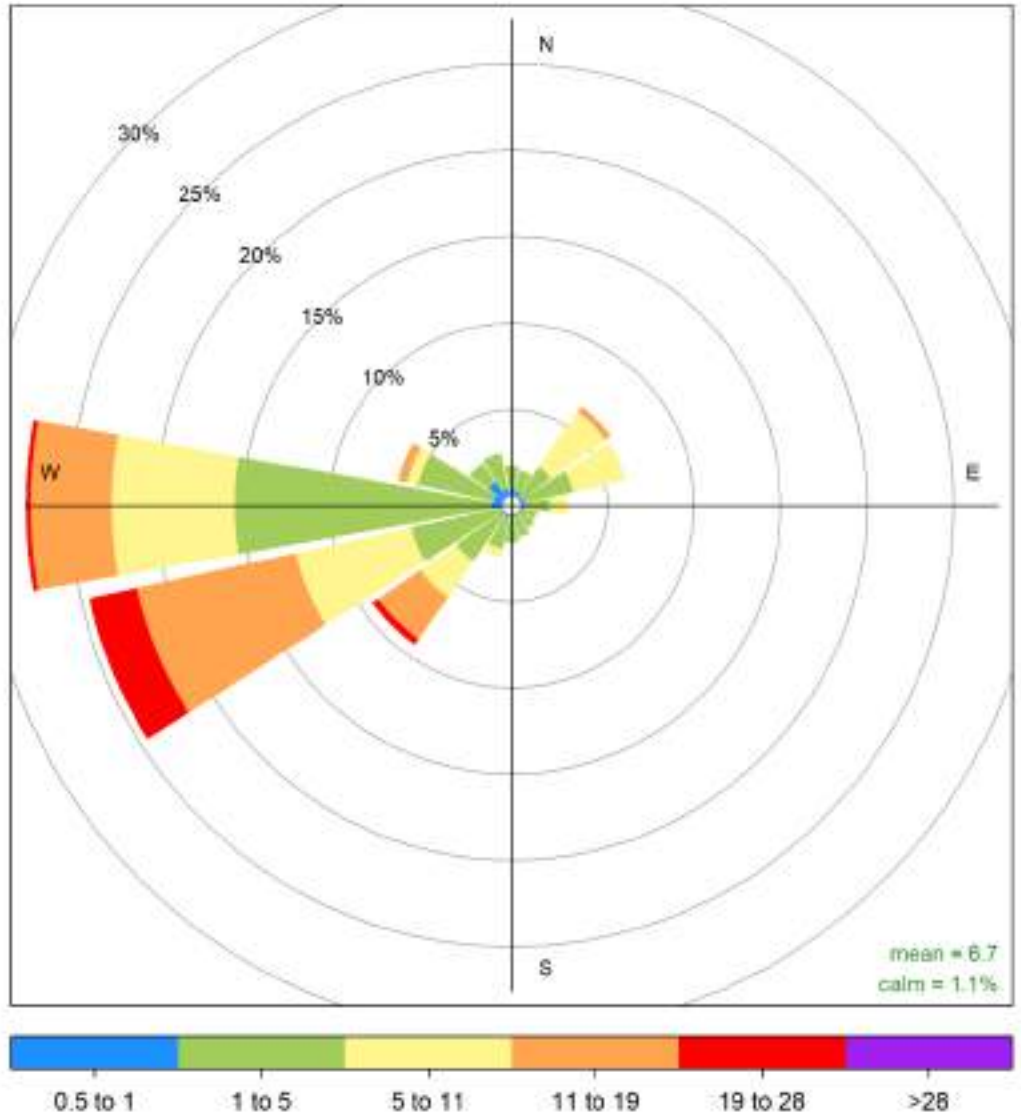


October 2023 Hourly Readings of Wind Speed (in km/hr) at Milner



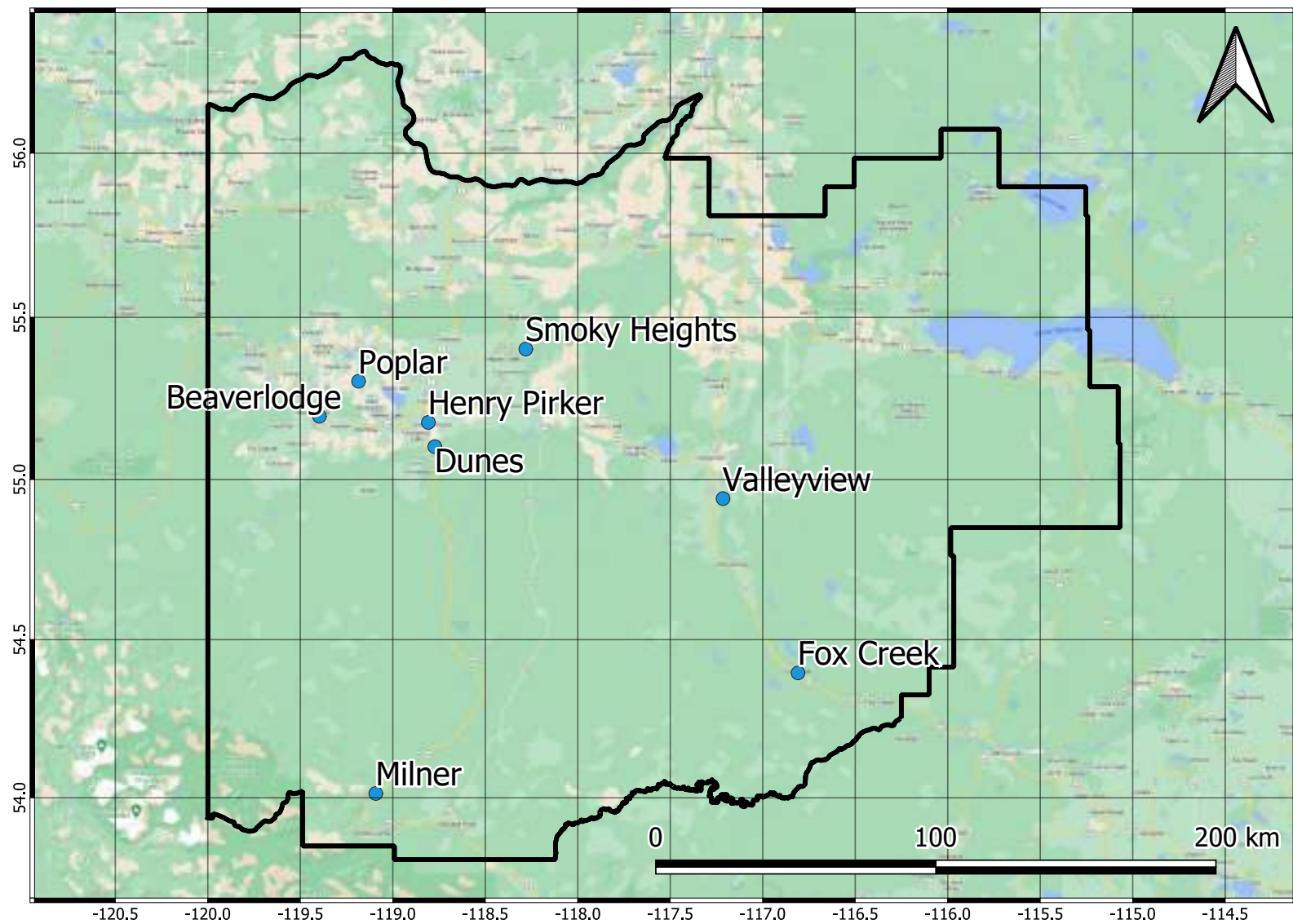
October 2023 Hourly Readings of Wind Direction (in degrees) at Milner



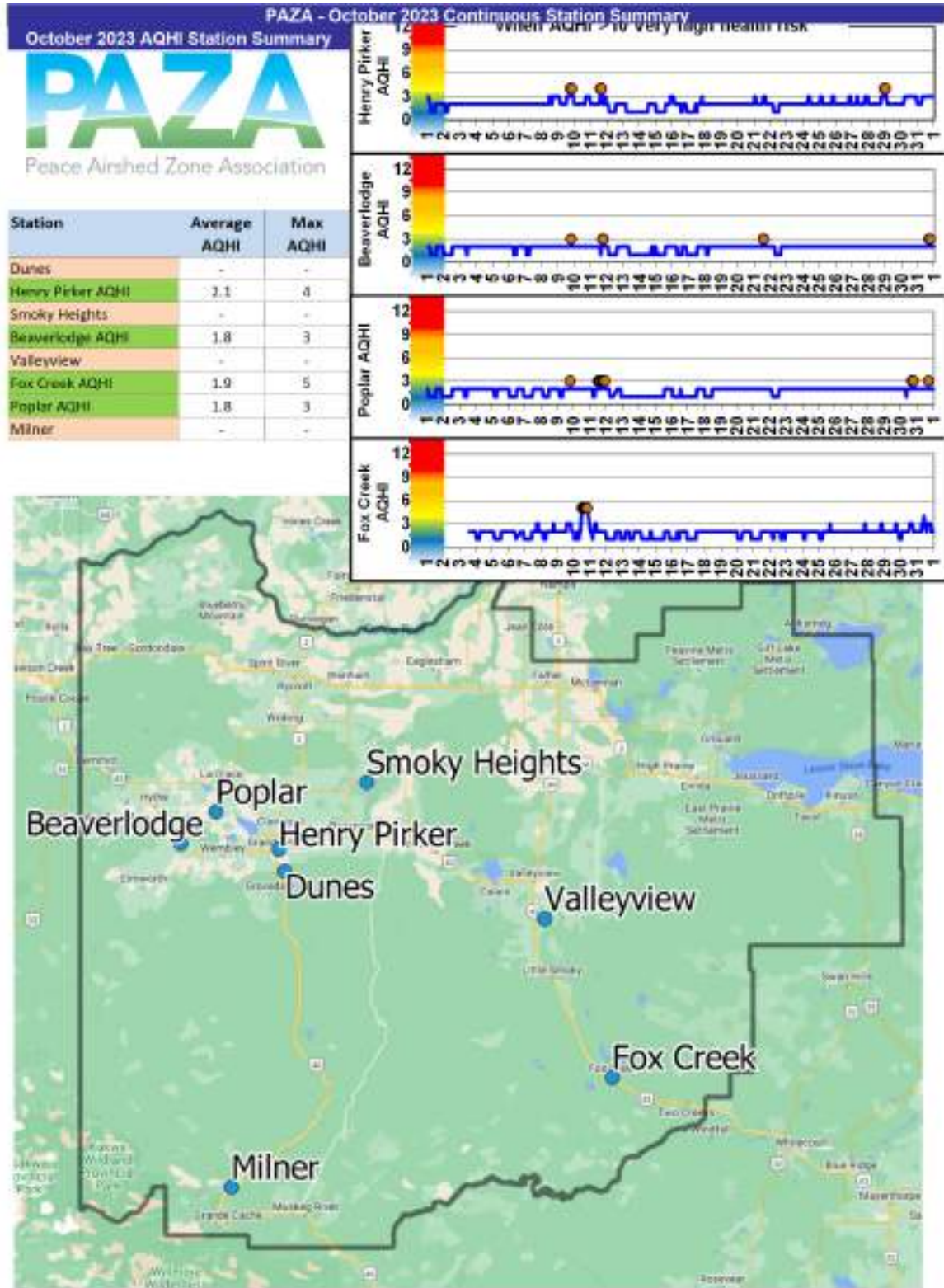


Milner October 2023 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

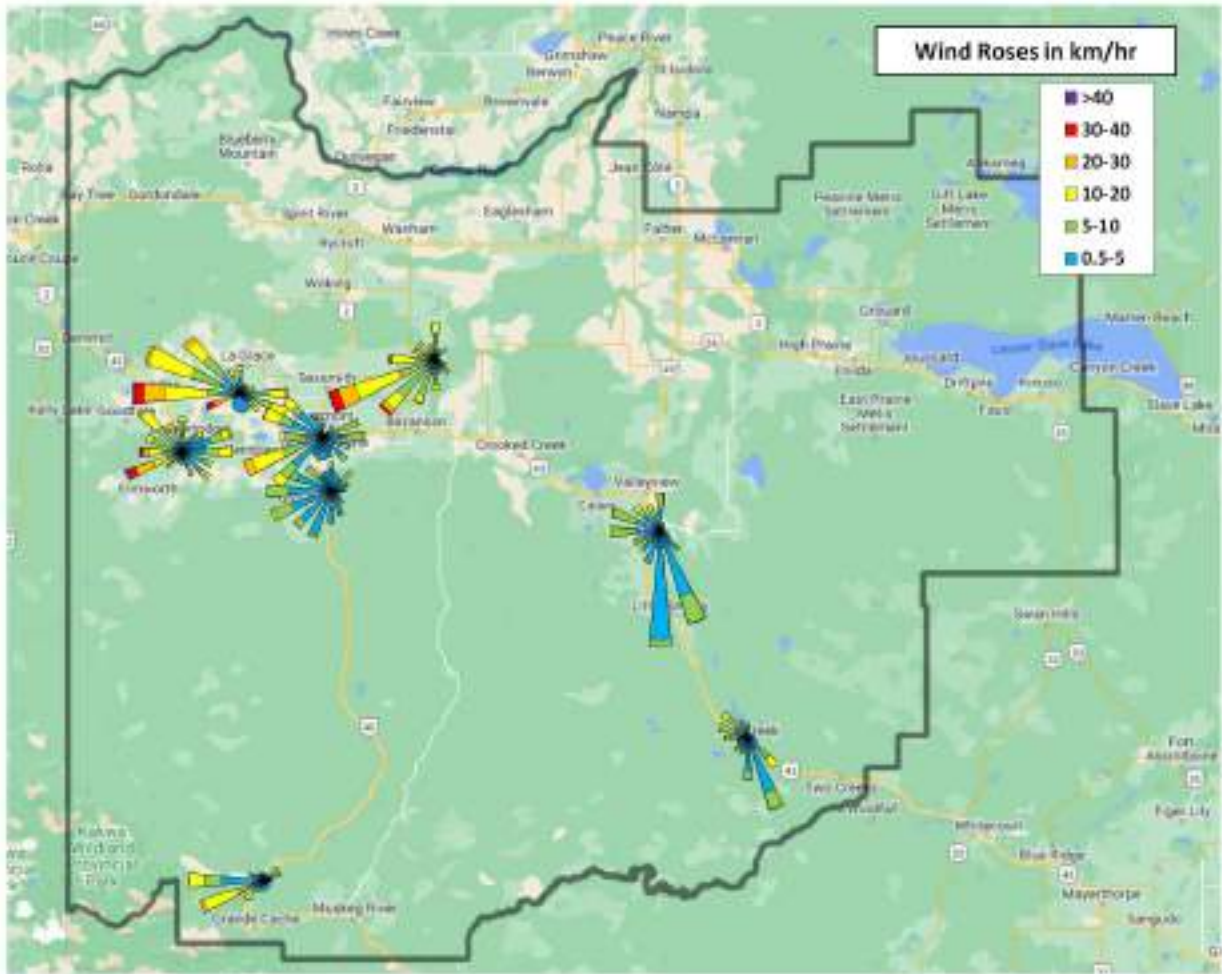
10 Concentration Summaries and Roses for PAZA



10.1 Air Quality Health Index (AQHI) Plots



10.2 Wind Roses



10.3 Carbon Monoxide (CO) Plots

October 2023 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.22	0.89

Carbon Monoxide in ppm



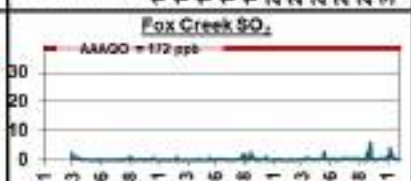
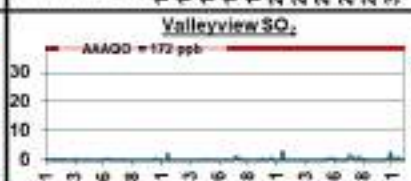
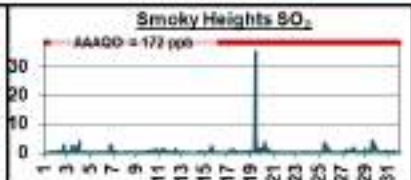
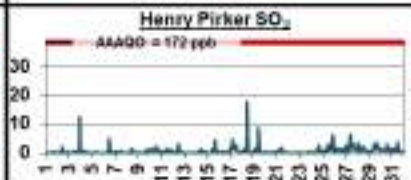
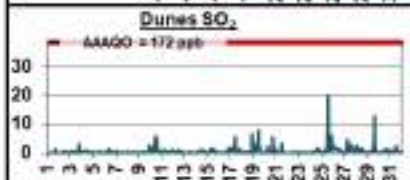
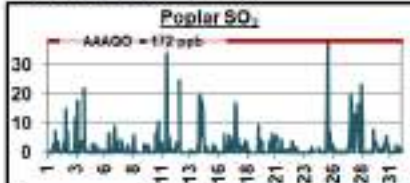
10.4 Sulphur Dioxide (SO₂) Plots

October 2023 SO₂ Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes SO ₂	0.6	19.5
Henry Pirkler SO ₂	0.6	17.3
Smoky Heights SO ₂	0.4	34.9
Beaverlodge SO ₂	0.5	6.1
Valleyview SO ₂	0.1	2.8
Fox Creek SO ₂	0.3	5.9
Poplar SO ₂	1.8	37.9
Milner SO ₂	*	*

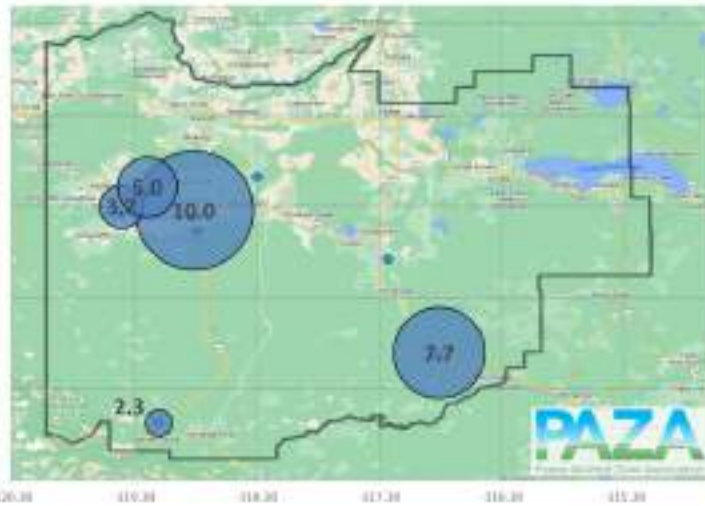


Sulphur Dioxide in ppb

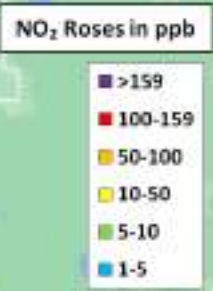
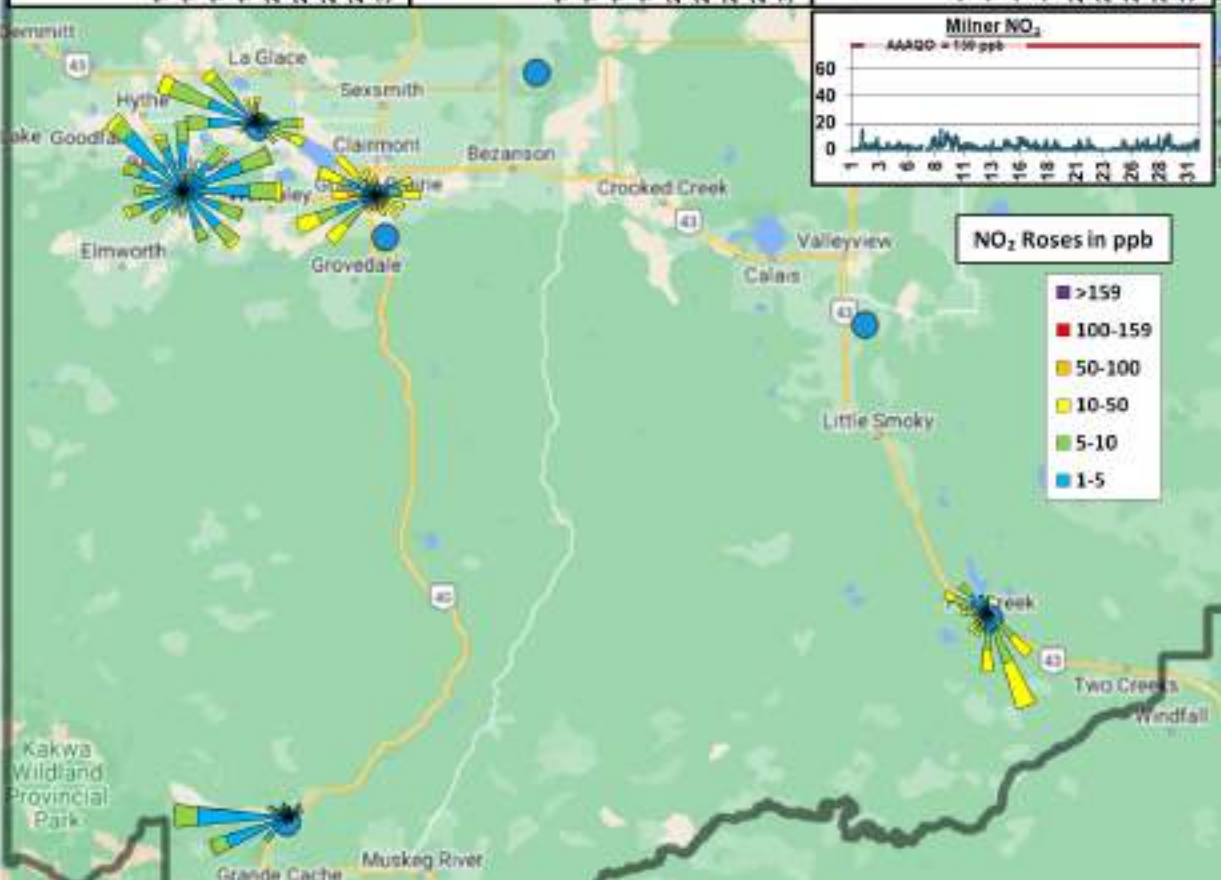
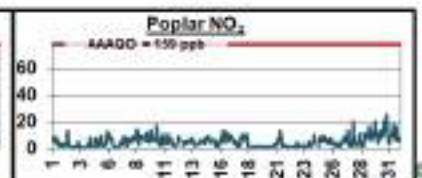
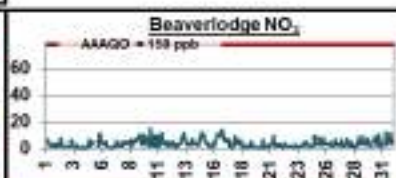
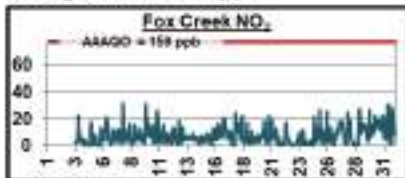


10.5 Nitrogen Dioxide (NO₂) Plots

October 2023 NO ₂ Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes NO ₂	-	-
Henry Parker NO ₂	10.0	36.7
Smoky Heights NO ₂	-	-
Beaverfodge NO ₂	3.7	14.9
Valleyview NO ₂	-	-
Fox Creek NO ₂	7.7	33.5
Poplar NO ₂	5.0	25.0
Milner NO ₂	2.3	15.7



Nitrogen Dioxide in ppb

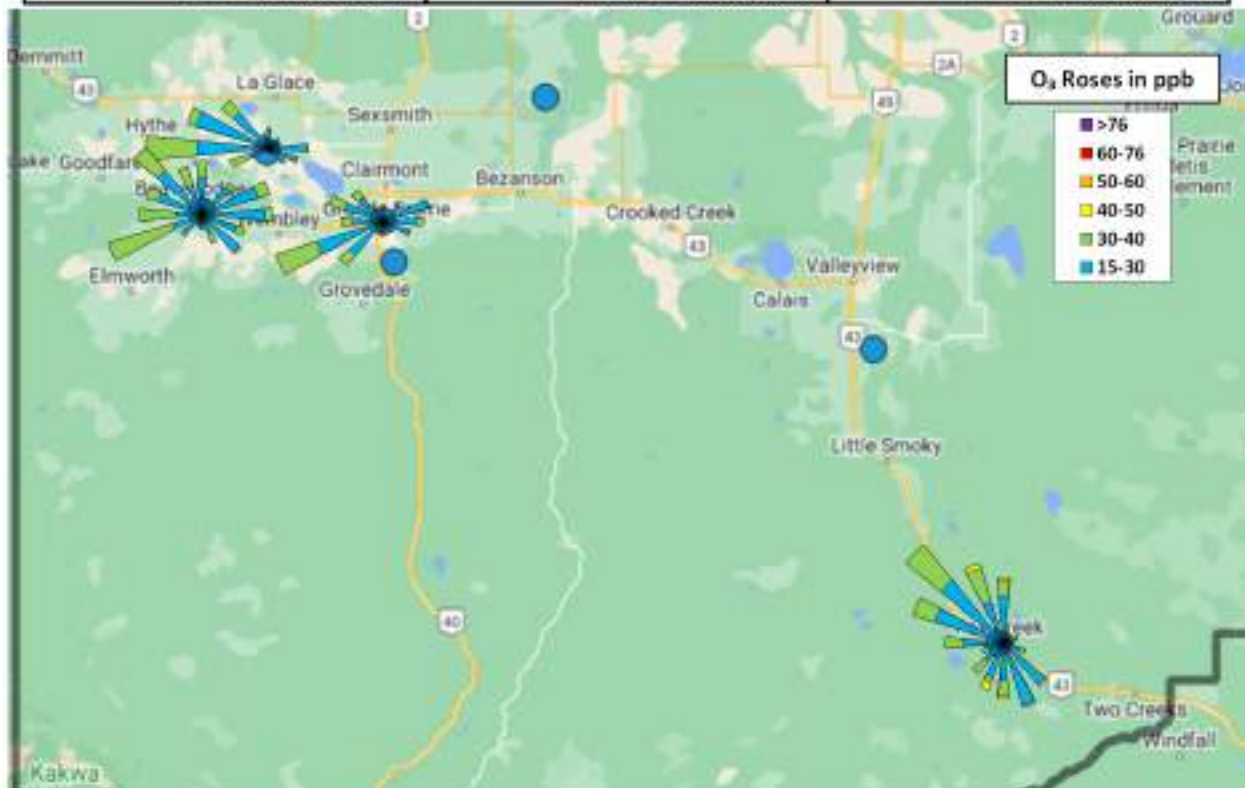
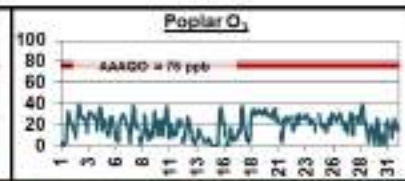
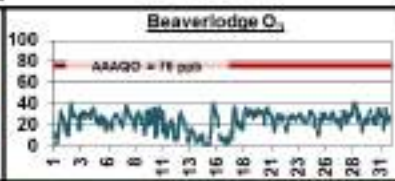
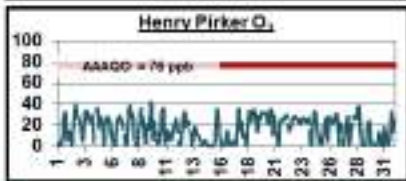
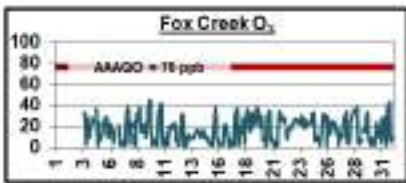


10.6 Ozone (O₃) Plots

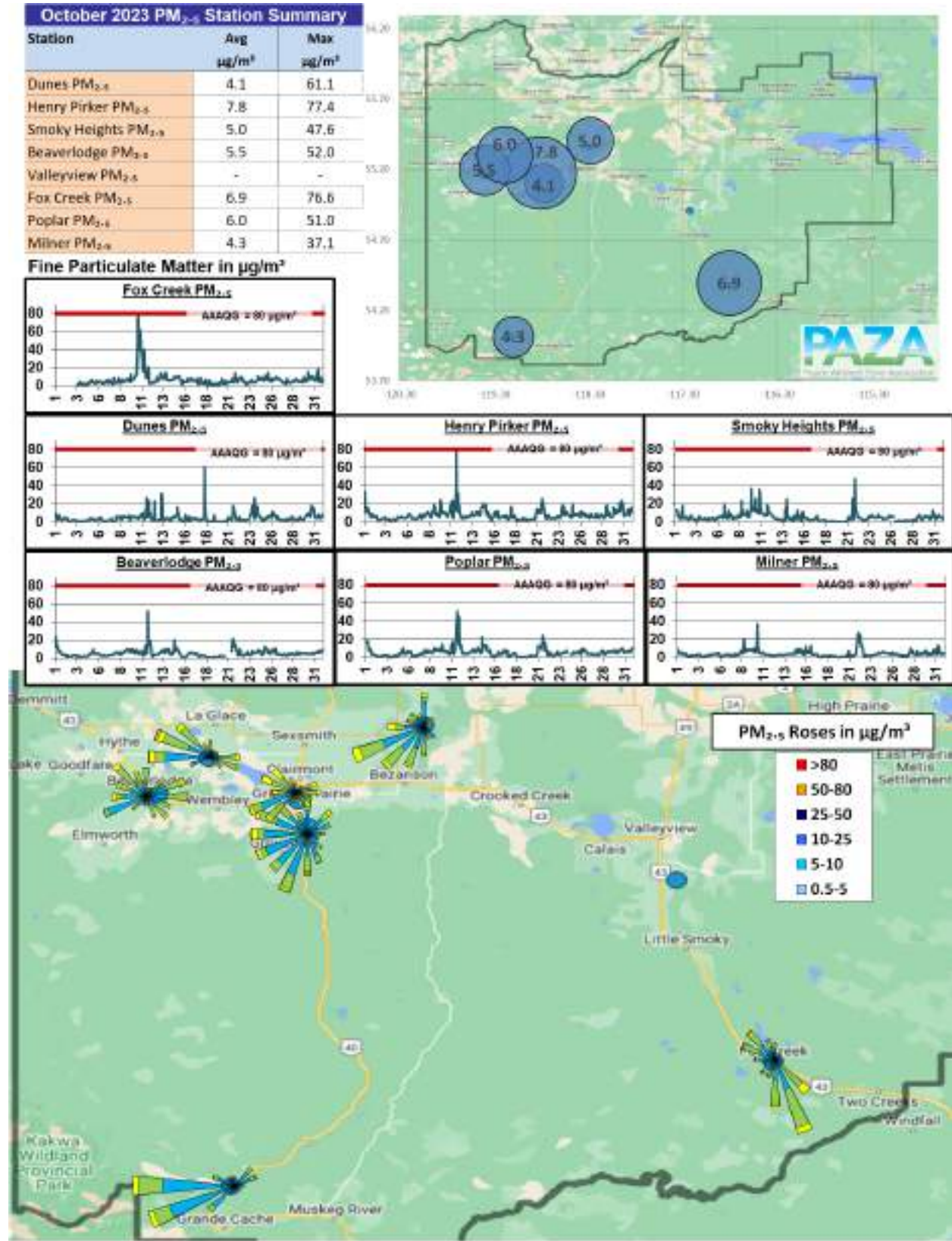
October 2023 O ₃ Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes O ₃	-	-
Henry Pirkler O ₃	16.7	41.4
Smoky Heights O ₃	-	-
Beaverlodge O ₃	23.7	40.7
Valleyview O ₃	-	-
Fox Creek O ₃	17.2	45.0
Poplar O ₃	19.3	39.6
Milner O ₃	-	-



Ozone in ppb



10.7 Fine Particulate Matter (PM_{2.5}) Plots

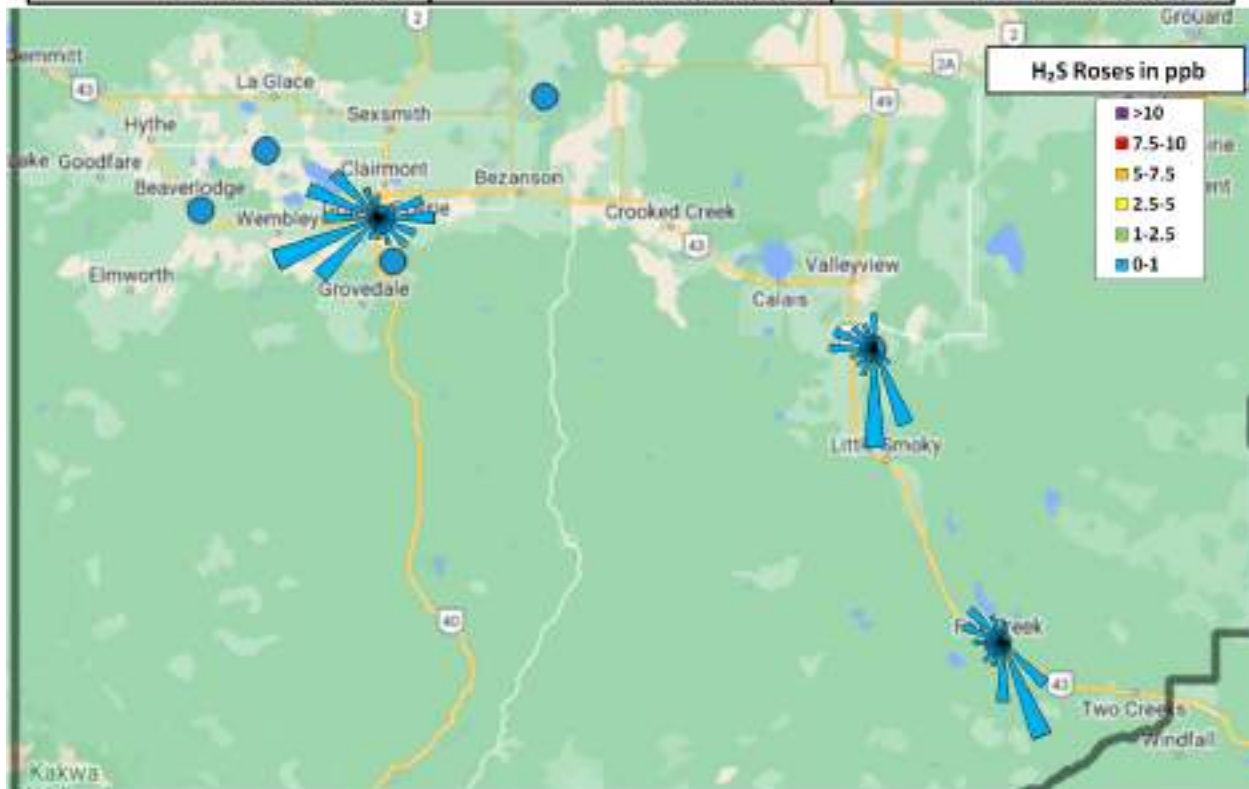
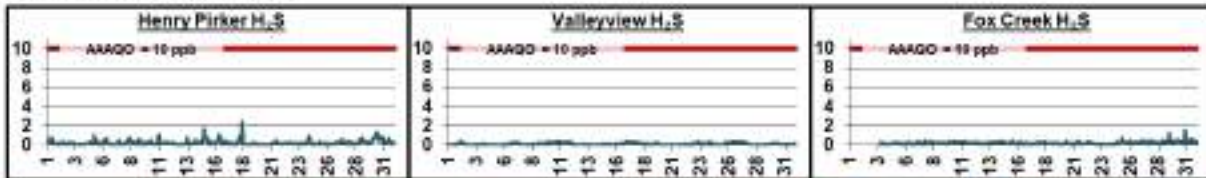


10.8 Hydrogen Sulphide (H₂S) Plots

October 2023 H ₂ S Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes H ₂ S	-	-
Henry Pirkler H ₂ S	0.2	2.5
Smoky Heights H ₂ S	-	-
Beaverlodge H ₂ S	-	-
Valleyview H ₂ S	0.1	0.4
Fox Creek H ₂ S	0.2	1.6
Poplar H ₂ S	-	-
Milner H ₂ S	-	-



Hydrogen Sulphide in ppb

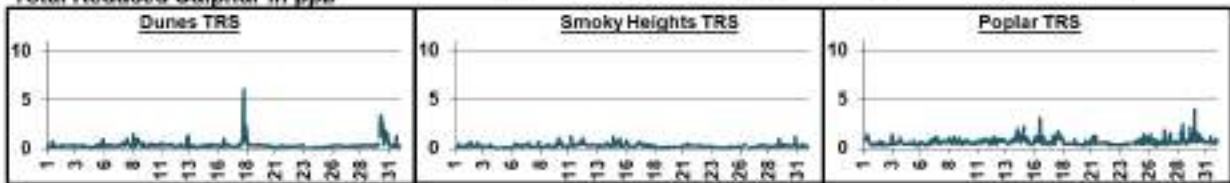


10.9 Total Reduced Sulphur (TRS) Plots

October 2023 TRS Station Summary		
Station	Aug (ppb)	Max (ppb)
Dunes TRS	0.4	6.0
Henry Pirkler TRS	-	-
Smoky Heights TRS	0.3	1.2
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Fox Creek TRS	-	-
Poplar TRS	0.7	4.0
Milner TRS	-	-



Total Reduced Sulphur in ppb



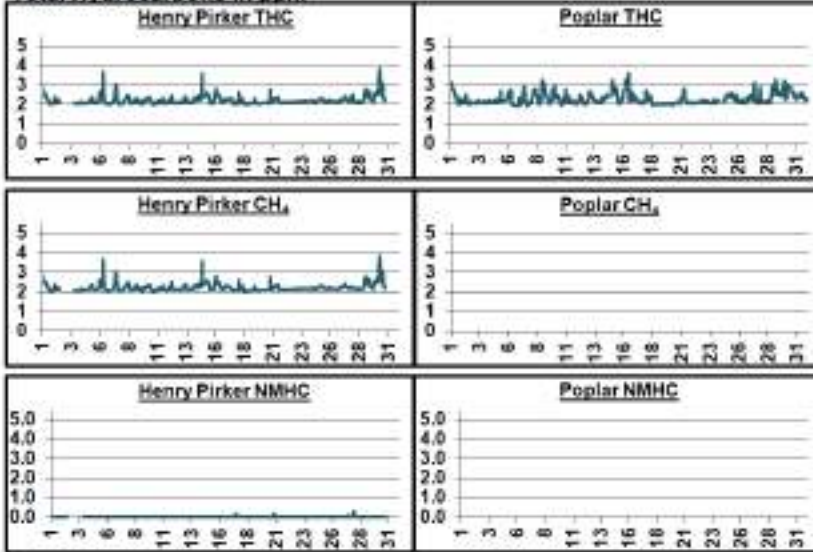
TRS Roses in ppb



10.10 Total Hydrocarbon (THC) Plots

October 2023 THC Station Summary						
Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Dunes THC	-	-	-	-	-	-
Henry Pirkler THC	2.2	3.8	2.2	3.8	0.0	0.3
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Fox Creek THC	-	-	-	-	-	-
Poplar THC	2.3	3.6	-	-	-	-

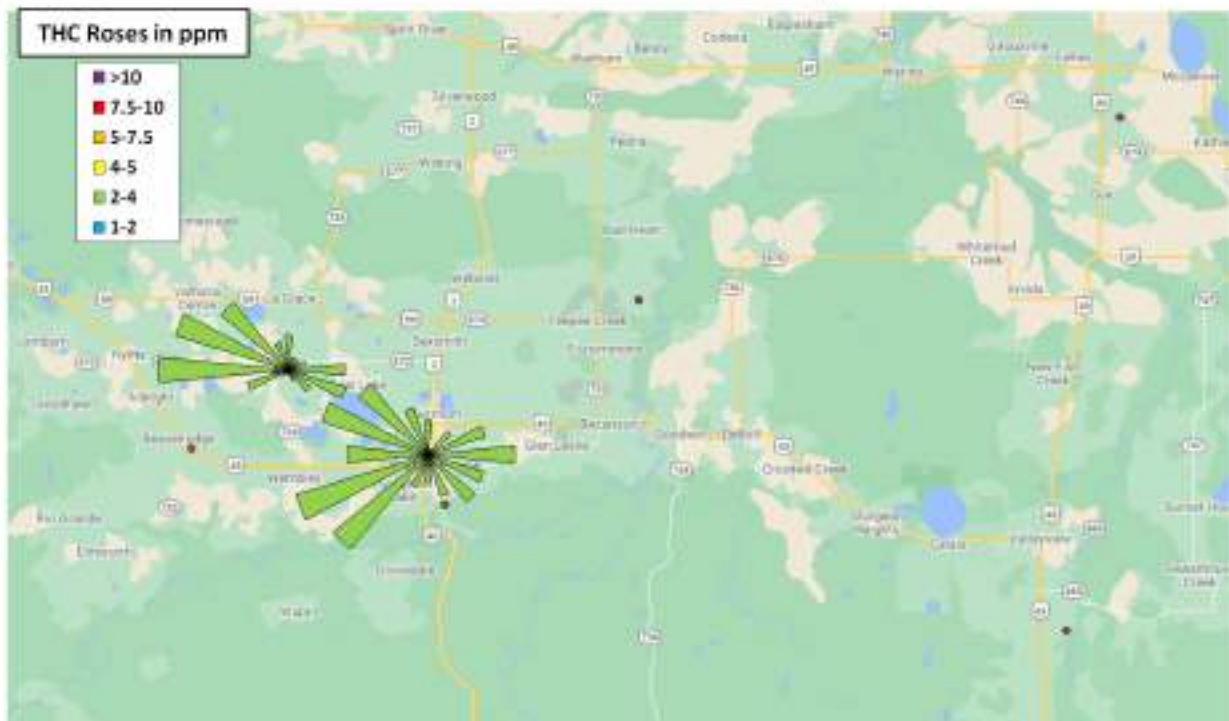
Total Hydrocarbons in ppm



Total Hydrocarbons (THC)

Methane (CH₄)

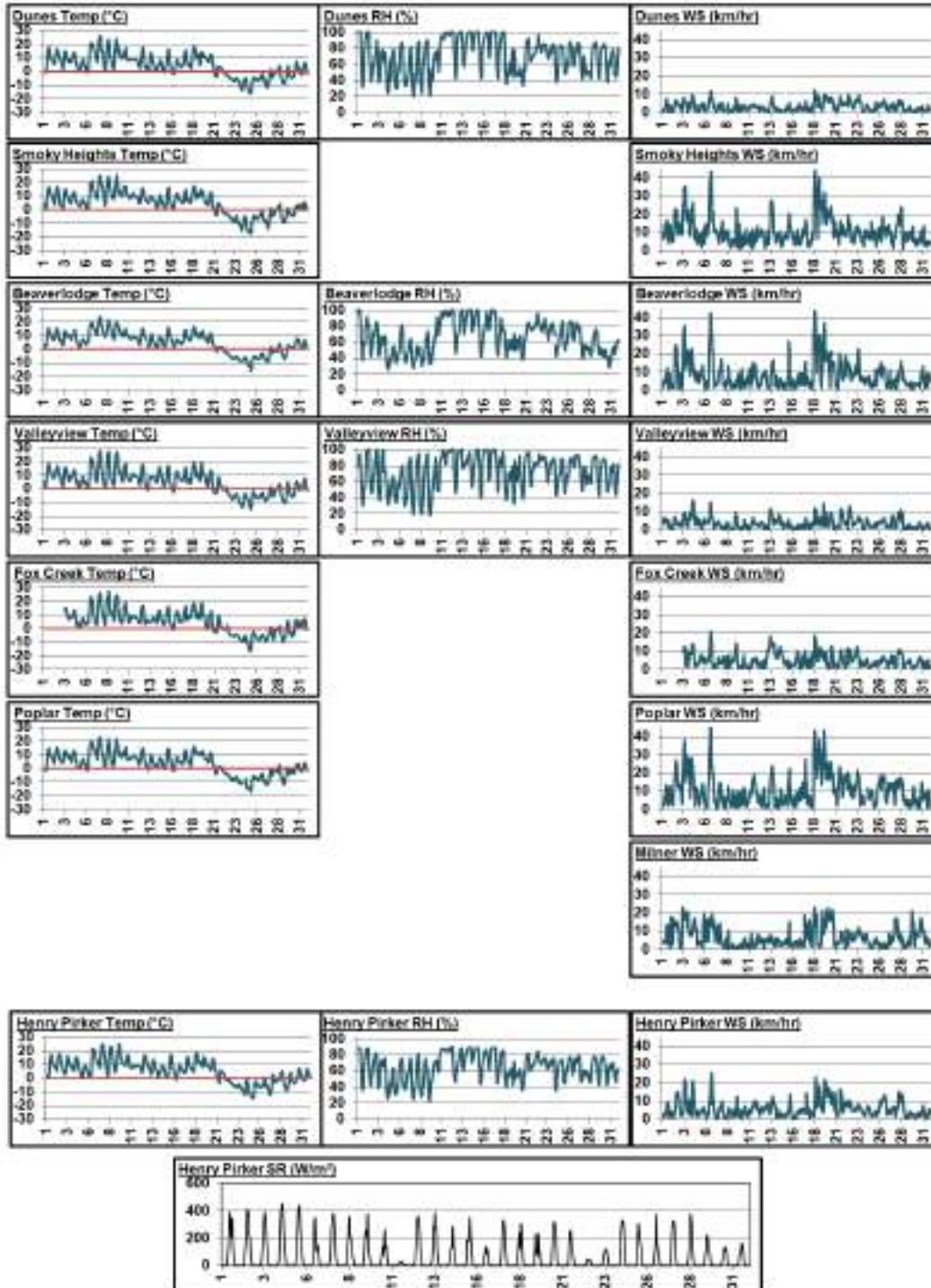
Non-Methane Hydrocarbons (NMHC)



10.11 Meteorology Summary

October 2023 Meteorological Summary						
Station	Temp (°C)	RH (%)	SR (W/m ²)	WS (km/hr)	WD (deg)	WD
Dunes	4.3	69.7	-	3.1	261	W
Henry Piker	5.1	64.4	61.4	5.7	258	WSW
Smoky Heights	4.4	-	-	10.8	248	WSW
Beaverlodge	5.1	65.9	-	8.2	281	W
Valleyview	4.9	72.2	-	3.7	248	WSW
Fox Creek	4.4	-	-	5.2	219	WSW
Poplar	3.4	-	-	10.5	286	WNW
Milner	-	-	-	6.7	254	WSW

Temp (°C) Outside Temperature
 RH (%) Relative Humidity
 SR (W/m²) Solar Radiation
 WS (km/hr) Wind Speed
 WD (deg) Wind Direction
 WD Wind Direction



11 Passive Monitoring Data

Peace Airshed Zone Association - PAZA Passive Stations for October 2023

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
21a	Eaglesham			0.8		16-21-079-25 W5M
21b	Eaglesham			0.9		
27a	Grande Prairie I	0.6				08-15-071-06 W6M
27b	Grande Prairie I	0.7				
30a	Fitzsimmons	0.3				15-36-072-03 W6M
30b	Fitzsimmons	0.3				
32a	Gold Creek			3.6		06-33-067-05 W6M
32b	Gold Creek			3.0		
36a	Guy				0.36	03-04-076-22 W5M
36b	Guy				0.22	
37a	Crooked Creek			1.8		16-01-071-26 W5M
37b	Crooked Creek			1.7		
39a	Clouston Creek	0.2				12-01-073-22 W5M
39b	Clouston Creek	0.2				
42a	Sunset House	0.2				05-32-070-19 W5M
42b	Sunset House	0.3				
47a	Kinuso		26.7			12-10-073-10 W5M
47b	Kinuso		29.7			
48a	Deer Mountain			0.8		15-22-068-09 W5M
48b	Deer Mountain			0.8		
D1a	Duvernay 1	0.5			0.17	04-33-062-20 W5M
D1b	Duvernay 1	0.4			0.17	
K4a	Kakwa 4			6.9		06-18-063-04 W6M
K4b	Kakwa 4			7.0		
K1a	Kakwa 1	0.3				01-13-063-05 W6M
K1b	Kakwa 1	0.3				
K2a	Kakwa 2				0.04	08-13-063-05 W6M
K2b	Kakwa 2				0.08	
M9Aa	Milner Pipeline	<0.1				12-14-058-08 W6M
M9Ab	Milner Pipeline	0.1				
M7a	Milner Wanyandie			2.1		11-13-058-08 W6M
M7b	Milner Wanyandie			1.8		
J2a	Jayar2 14-8			2.1		07-08-062-03 W6M
J2b	Jayar2 14-8			2.3		
J1a	Jayar1 Plant	0.2				06-08-062-03 W6M
J1b	Jayar1 Plant	0.3				
J5a	Jayar5 Camp				0.17	11-08-062-03 W6M
J5b	Jayar5 Camp				0.20	

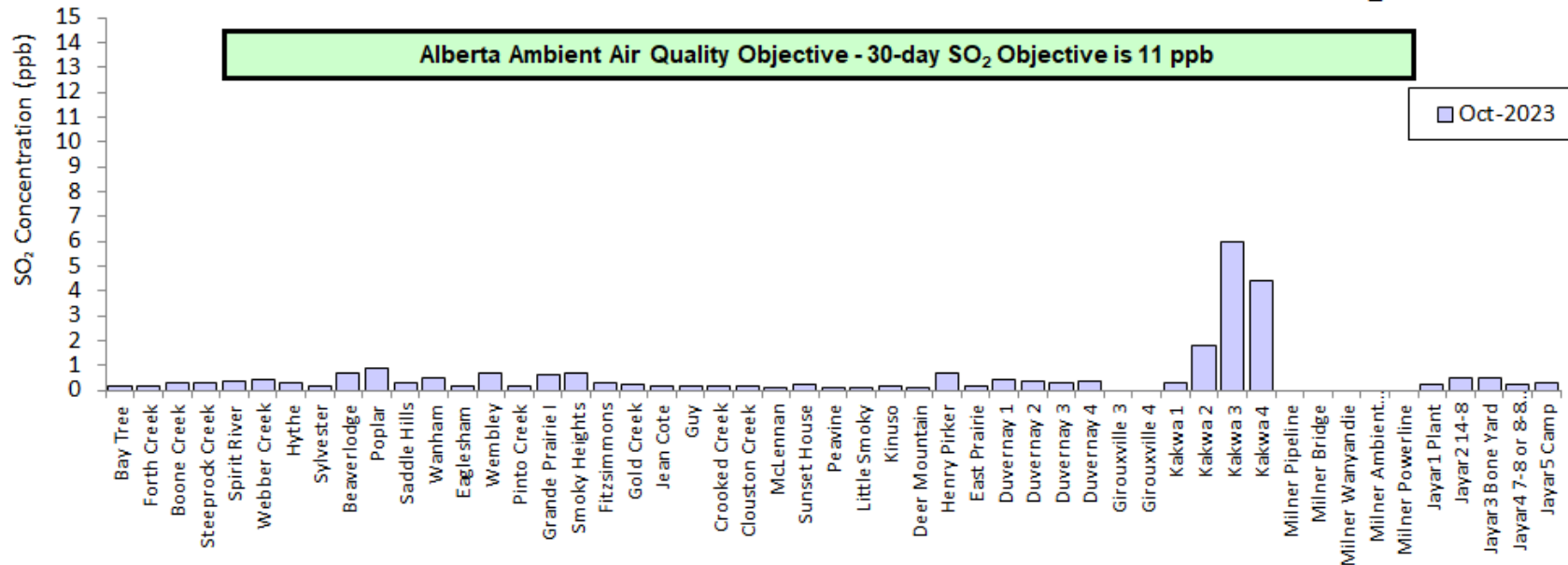
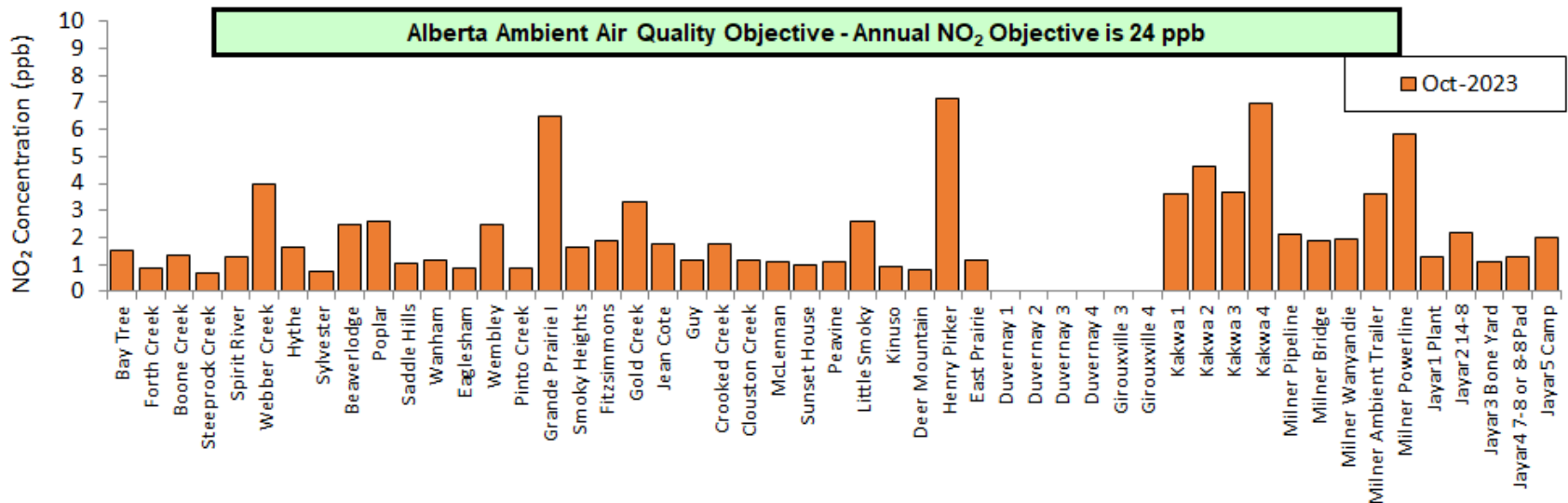
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.2	23.7	1.5	-	13-16-078-13 W6M
3	Forth Creek	0.2	-	0.9	-	04-13-082-07 W6M
5	Boone Creek	0.3	-	1.3	-	01-23-076-11 W6M
7	Steeprock Creek	0.3	-	0.7	-	09-35-072-13 W6M
9	Spirit River	0.4	-	1.3	-	08-12-079-07 W6M
11	Webber Creek	0.4	-	3.9	-	09-36-074-09 W6M
12	Hythe	0.3	-	1.6	-	14-36-072-11 W6M
14	Sylvester	0.2	-	0.8	-	08-06-069-12 W6M
16	Beaverlodge	0.7	-	2.5	-	15-36-071-10 W6M
17	Poplar	0.9	-	2.6	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	1.1	-	04-25-074-07 W6M
19	Wanham	0.5	-	1.2	-	16-22-077-03 W6M
21	Eaglesham	0.1	-	0.9	-	16-21-079-25 W5M
24	Wembley	0.7	-	2.5	-	12-31-070-08 W6M
25	Pinto Creek	0.2	-	0.8	-	04-24-069-11 W6M
27	Grande Prairie I	0.6	-	6.5	-	08-15-071-06 W6M
29	Smoky Heights	0.7	-	1.6	-	04-06-075-02 W6M
30	Fitzsimmons	0.3	-	1.9	-	15-36-072-03 W6M
32	Gold Creek	0.2	-	3.3	-	06-33-067-05 W6M
35	Jean Cote	0.1	-	1.8	-	12-35-079-21 W5M
36	Guy	0.2	-	1.2	0.29	03-04-076-22 W5M
37	Crooked Creek	0.1	28.6	1.7	-	16-01-071-26 W5M
39	Clouston Creek	0.2	-	1.1	-	12-01-073-22 W5M
40	McLennan	0.1	-	1.1	-	03-29-077-19 W5M
42	Sunset House	0.3	-	1.0	-	05-32-070-19 W5M
44	Peavine	0.1	-	1.1	-	03-05-079-15 W5M
46	Little Smoky	0.1	-	2.6	-	12-01-065-21 W5M
47	Kinuso	0.1	28.2	0.9	-	12-10-073-10 W5M
48	Deer Mountain	0.1	-	0.8	-	15-22-068-09 W5M
49	Henry Pirker	0.7	-	7.1	-	17-26-071-06 W6M
50	East Prairie	0.2	-	1.1	-	11-13-079-08 W6M
D1	Duvernay 1	0.4	-	-	0.17	04-33-062-20 W5M
D2	Duvernay 2	0.3	-	-	0.20	04-33-062-20 W5M
D3	Duvernay 3	0.3	-	-	0.22	04-33-062-20 W5M
D4	Duvernay 4	0.4	-	-	0.25	04-33-062-20 W5M
G3	Girouxville 3	-	-	-	0.47	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	0.35	04-08-077-22 W5M
K1	Kakwa 1	0.3	-	3.6	0.05	01-13-063-05 W6M
K2	Kakwa 2	1.8	-	4.6	0.06	08-13-063-05 W6M
K3	Kakwa 3	6.0	-	3.7	0.12	12-18-063-04 W6M
K4	Kakwa 4	4.4	-	7.0	0.14	06-18-063-04 W6M
M1	Milner Pipeline	NA	-	2.1	-	12-14-058-08 W6M
M2	Milner Bridge	<0.1	-	1.9	-	08-06-057-08 W6M
M3	Milner Wanyandie	<0.1	-	2.0	-	11-13-058-08 W6M
M4	Milner Ambient Trailer	<0.1	-	3.6	-	09-15-058-08 W6M
M5	Milner Powerline	<0.1	-	5.8	-	06-14-058-08 W6M
J1	Jayar1 Plant	0.3	-	1.3	0.20	06-08-062-03 W6M
J2	Jayar2 14-8	0.5	-	2.2	0.19	07-08-062-03 W6M
J3	Jayar3 Bone Yard	0.5	-	1.1	0.09	14-08-062-03 W6M
J4	Jayar4 7-8 or 8-8 Pad	0.2	-	1.3	0.05	10-08-062-03 W6M
J5	Jayar5 Camp	0.3	-	2.0	0.19	11-08-062-03 W6M

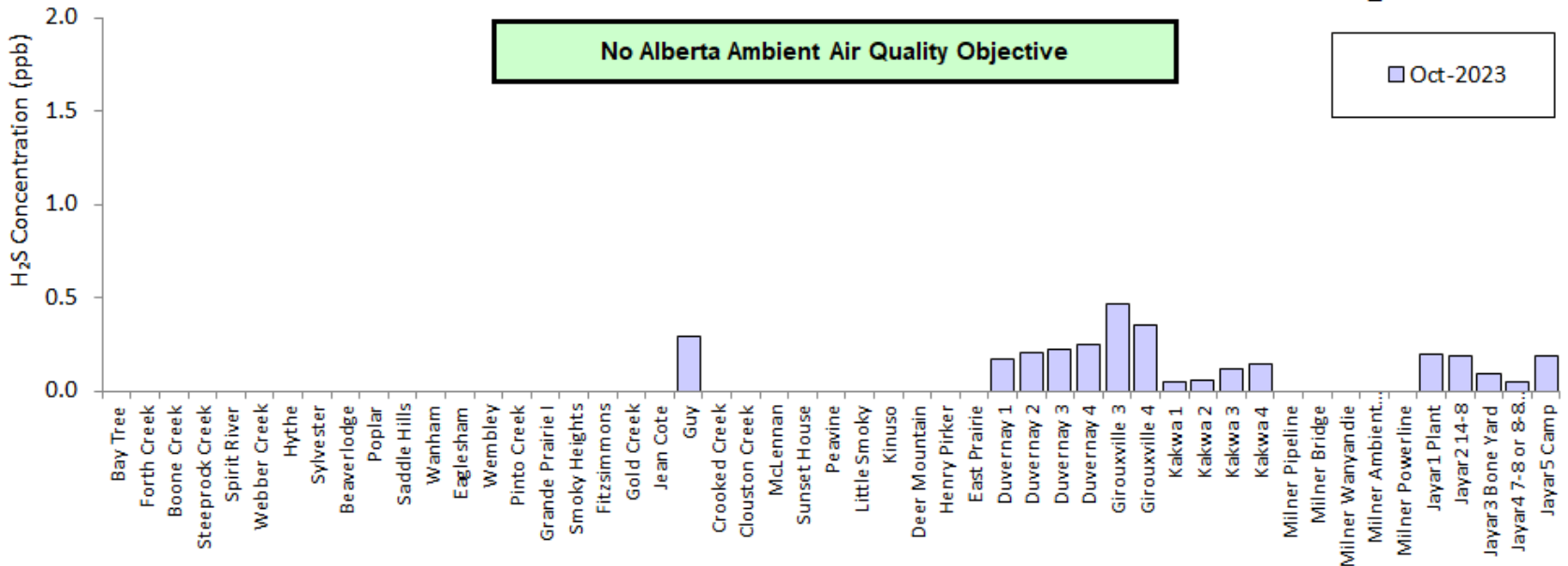
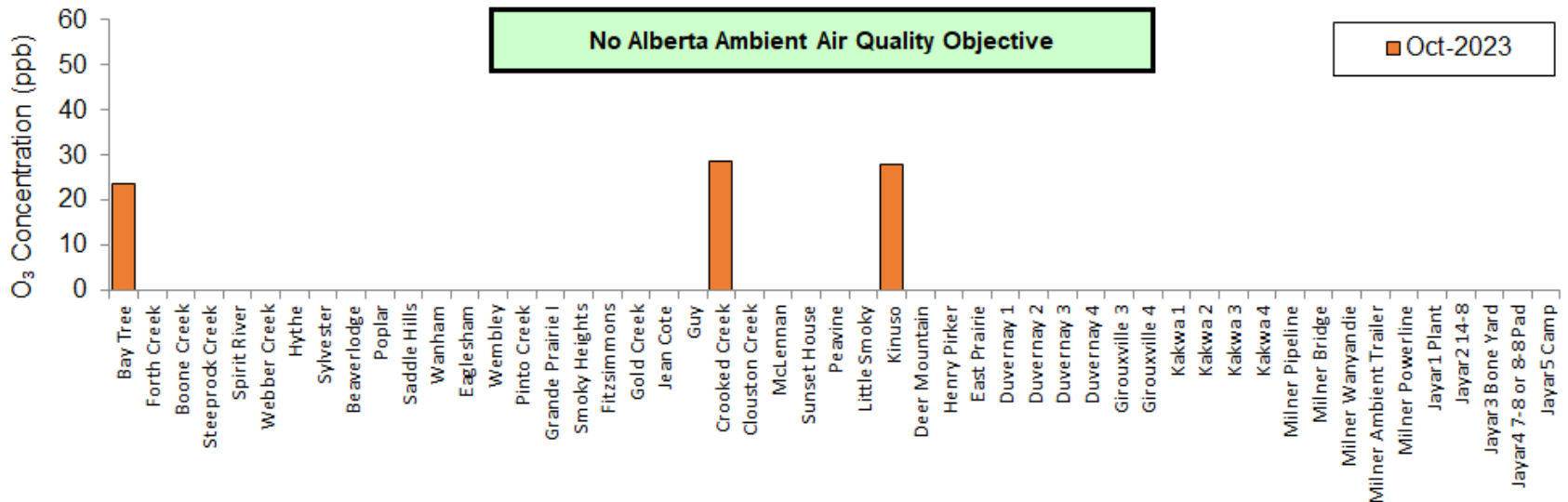
Passive Summary for October 2023

Stats	Sulphur Dioxide SO ₂ ppb	Ozone O ₃ ppb	Nitrogen Dioxide NO ₂ ppb	Hydrogen Sulphide H ₂ S ppb
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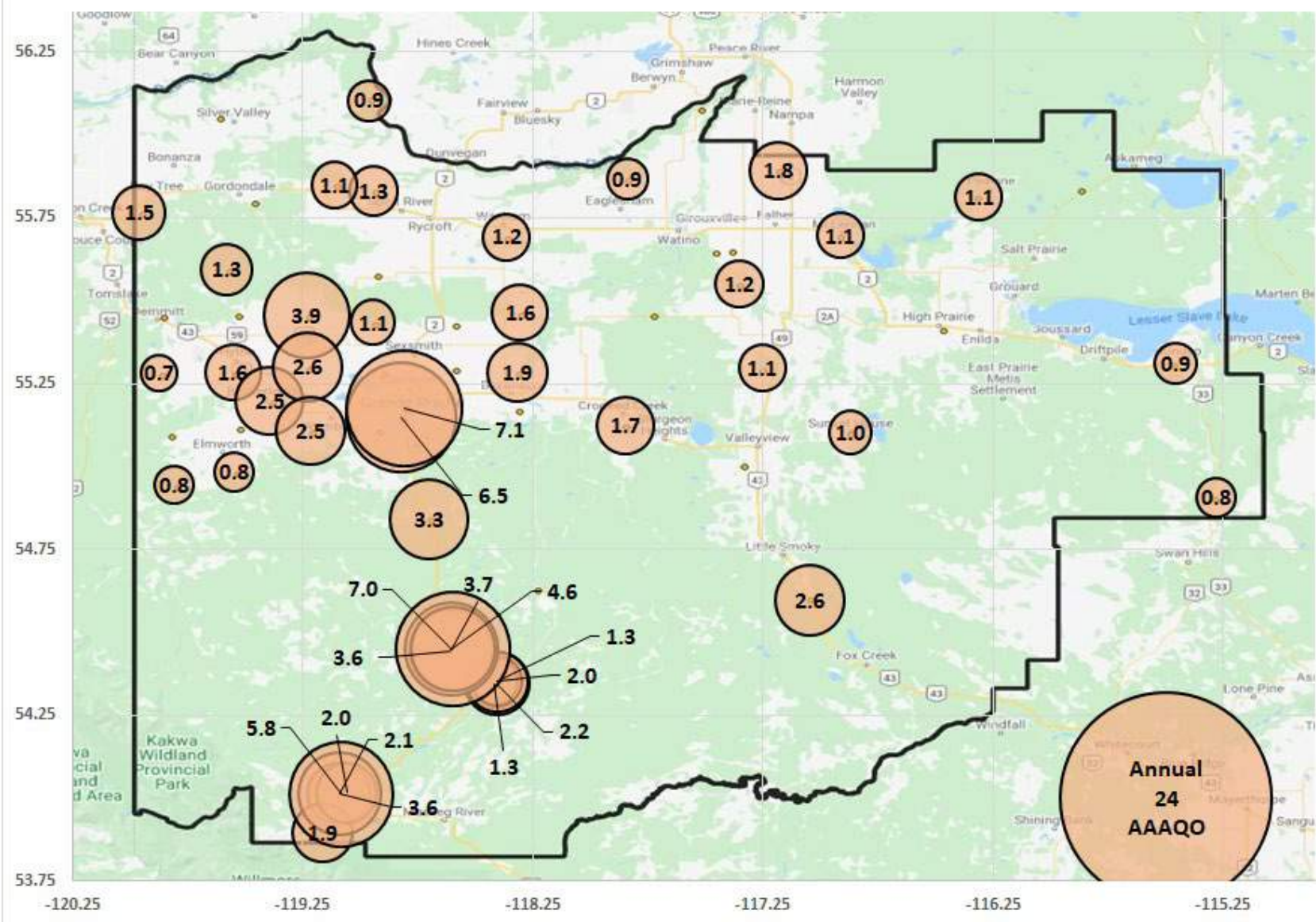
Passive Summary for October 2023 (PAZA)				
Mean	0.6	26.8	2.2	0.2
Standard Deviation	1.1	2.7	1.7	0.1
Minimum	0.1	23.7	0.7	0.1
	Little Smoky (#46)	Bay Tree (#2)	Steepprock Creek (#7)	Kakwa 1 (#K1)
Maximum	6.0	28.6	7.1	0.5
	Kakwa 3 (#K3)	Crooked Creek (#37)	Henry Pirker (#49)	Girouxville 3 (#G3)

Continuous and Passive Monitoring Comparison				
PAZA Beaverlodge Station	0.5	23.7	3.7	-
Beaverlodge Passive (#16)	0.7	-	2.5	-
PAZA Henry Pirker Station	0.6	16.7	10.0	0.2
Henry Pirker passive (#49)	0.7	-	7.1	-
Milner Station	-	-	2.3	-
Milner passive	<0.1	-	3.6	-

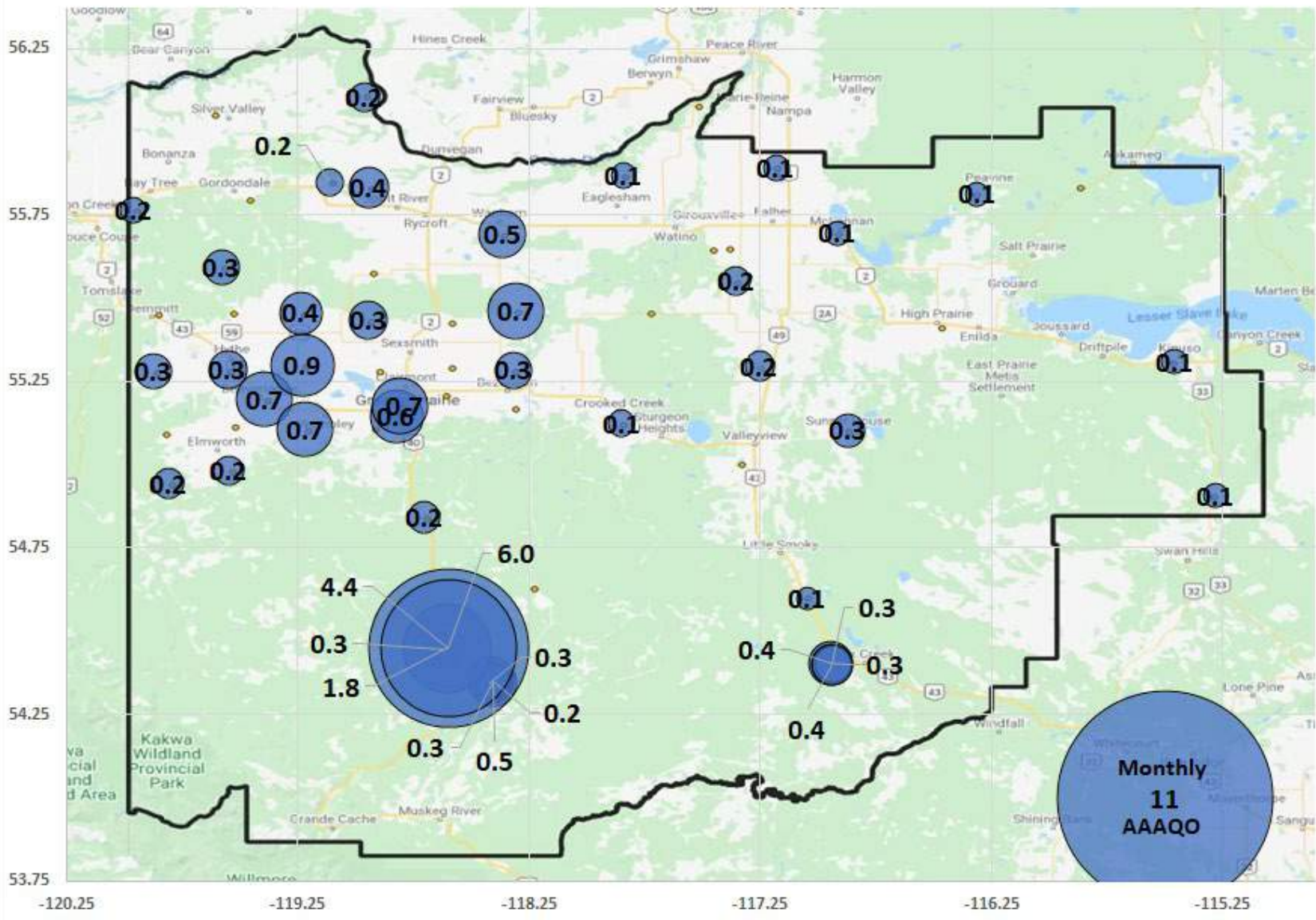




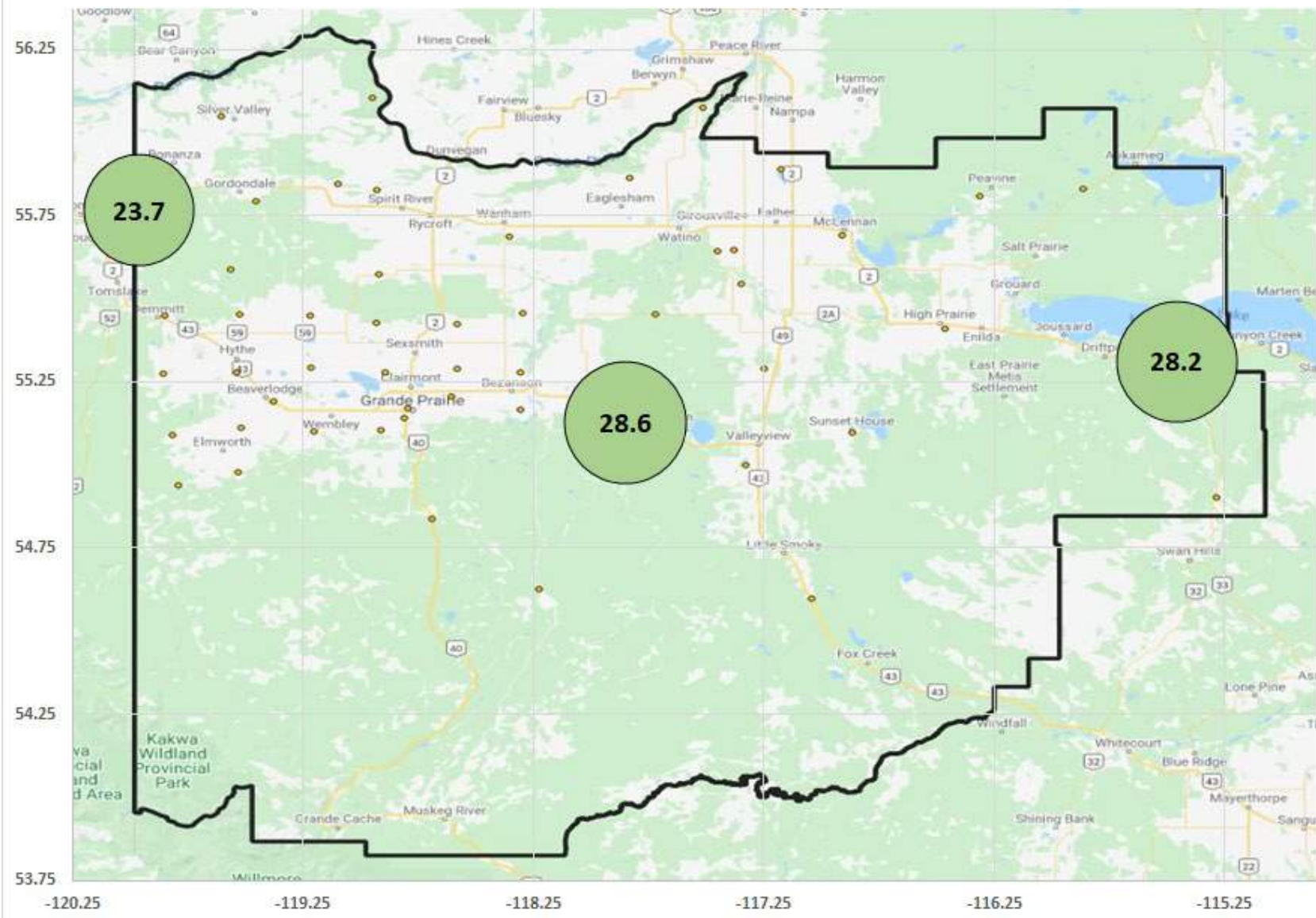
NO₂ Monthly Average (units in ppb)



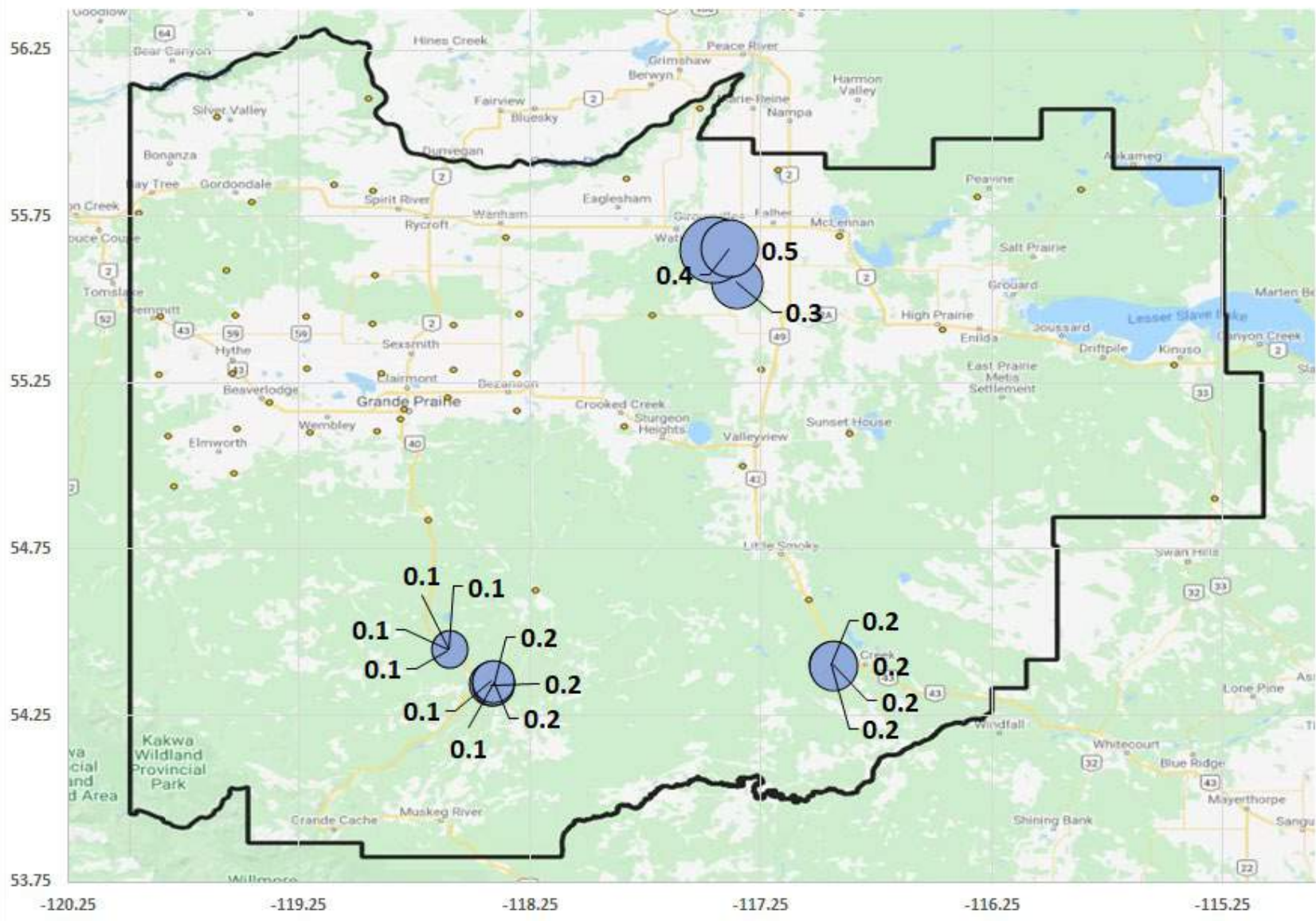
SO₂ Monthly Average (units in ppb)



O₃ Monthly Average (units in ppb)



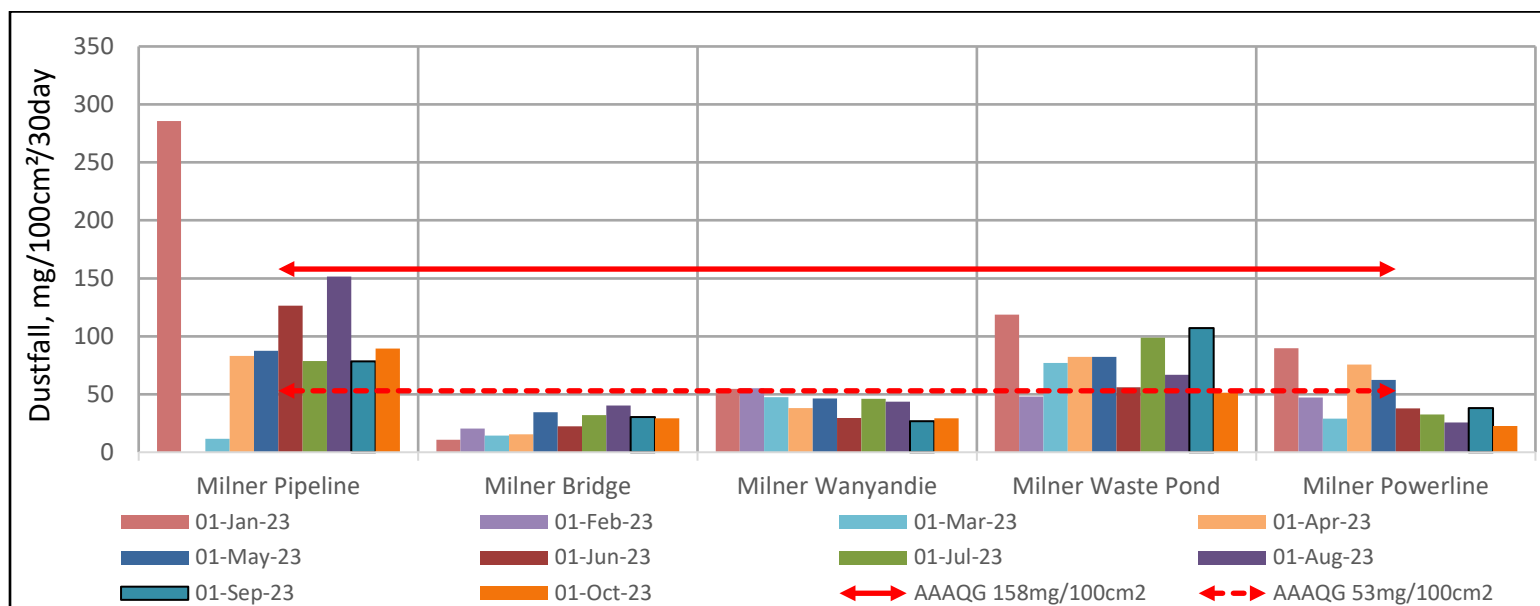
H₂S Monthly Average (units in ppb)



12 Dustfall Monitoring Data

Milner Dustfall Samples October 2023

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm ² /30day	Fixed Dustfall (30 day) mg/100cm ² /30day	Exposure days	Field Notes
October	2023	Milner Pipeline	89.5	42.7	33	
October	2023	Milner Bridge	29.4	22.7	33	
October	2023	Milner Wanyandie	29.4	17.8	33	
October	2023	Milner Waste Pond	51.4	32.1	33	
October	2023	Milner Powerline	22.7	14.0	33	
October	2023	Milner Powerline Dup	23.4	17.4	33	RPD= 3% / 22%



End of Report



Peace Airshed Zone Association **Ambient Air Monitoring Report**

October 2023