



# **Peace Airshed Zone Association**

## **Ambient Air Monitoring Network Summary**

**Ambient Air Quality Monitoring Program**

**Monthly Report**

**November 2024**

December 31, 2024

**Alberta Environment and Protected Areas**

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

Subject: **Peace Airshed Zone Association (PAZA)  
November 2024 Ambient Air Quality Monitoring Report**

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Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of November 2024.

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

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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, Happy Valley-Portable and Milner.  
Detailed Summaries are included in the report.

**Calibration and Data Submission:**

Monthly report, hourly data and calibration reports for November 2024 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
	Gordondale	02-26-068-25-W5	00287474-00-00
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	00010137-02-02
ARC Resources Ltd.	ARC Ante Creek	02-26-068-25-W5	00266694-01-00
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
	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:

- There was one reading above the 30min TRS AAAQG

30min-readings above the TRS AAAQG (5ppb) recorded as follows:

Site	Pollutant	Date	From MST	To MST	Average Ppb	WS km/hr	WD degrees
Smoky Heights	TRS	25-Nov-24	06:00	06:30	5.0	4.6	103

- There were 2 readings above the 24hr PM<sub>2.5</sub> AAAQO, 8 readings above the 1hr PM<sub>2.5</sub> AAAQO for the month

One-hr readings above the PM<sub>2.5</sub> AAAQO (80µg/m<sup>3</sup>) recorded as follows:

Site	reference	Pollutant	Date	From MST	To MST	Average µg/m <sup>3</sup>	WS km/hr	WD degrees
Smoky Heights	435577	PM <sub>2.5</sub>	24-Nov-24	09:00	10:00	121.6	1.6	250
Smoky Heights	435577	PM <sub>2.5</sub>	24-Nov-24	10:00	11:00	141.7	1.1	175
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	03:00	04:00	83.9	3.0	16
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	05:00	06:00	224.7	3.4	296
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	06:00	07:00	753.9	4.6	103
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	07:00	08:00	338.6	1.9	163
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	08:00	09:00	98.5	2.8	129
Smoky Heights	435588	PM <sub>2.5</sub>	26-Nov-24	04:00	05:00	84.1	11.2	229

24-hr readings above the PM<sub>2.5</sub> AAAQO (29µg/m<sup>3</sup>) recorded as follows:

Site	reference	Pollutant	Date	Average µg/m <sup>3</sup>	WS km/hr	WD degrees
Smoky Heights	435577	PM <sub>2.5</sub>	25-Nov-24	71.1	7.4	244
Milner	435678	PM <sub>2.5</sub>	29-Nov-24	32.8	3.9	84

### Operational times less than 90 percent

- Happy Valley had issues with a freezing wind head and maintenance to replace sensor and heater, as a result of data removal wind sensor <90% uptime (89%, reference #436341)
- All other instruments in the network 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 November:

- Eight SO<sub>2</sub> duplicates located at Spirit River, Beaverlodge, Wanham, Guy, Duvernay 3, Kakwa 2, Milner Powerline, Jayar5 Camp
  - RPD ranging from 0% to 64% (one fail at Guy, 0.1 and 0.2ppb results)
- One O<sub>3</sub> duplicate located at Kinuso
  - RPD 7% (no fails)
- Seven NO<sub>2</sub> duplicates at Saddle Hills, Wembley, Sunset House, Deer Mountain, Kakwa 4, Milner Pipeline, Jayar1 Plant
  - RPD ranging from 0% to 16% (no fails)
- Four H<sub>2</sub>S duplicates at Girouxville 3, Duvernay 3, Kakwa 1, Jayar2 14-8
  - RPD ranging from 0% to 21% (no fails)

### Dustfall Monitoring

- Five Stations collected Total Dustfall and Fixed Dustfall
- Total dustfall ranged from 12.2 to 35.2 mg/100cm<sup>2</sup>/30day
- RPD was 28% (no fails)

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.



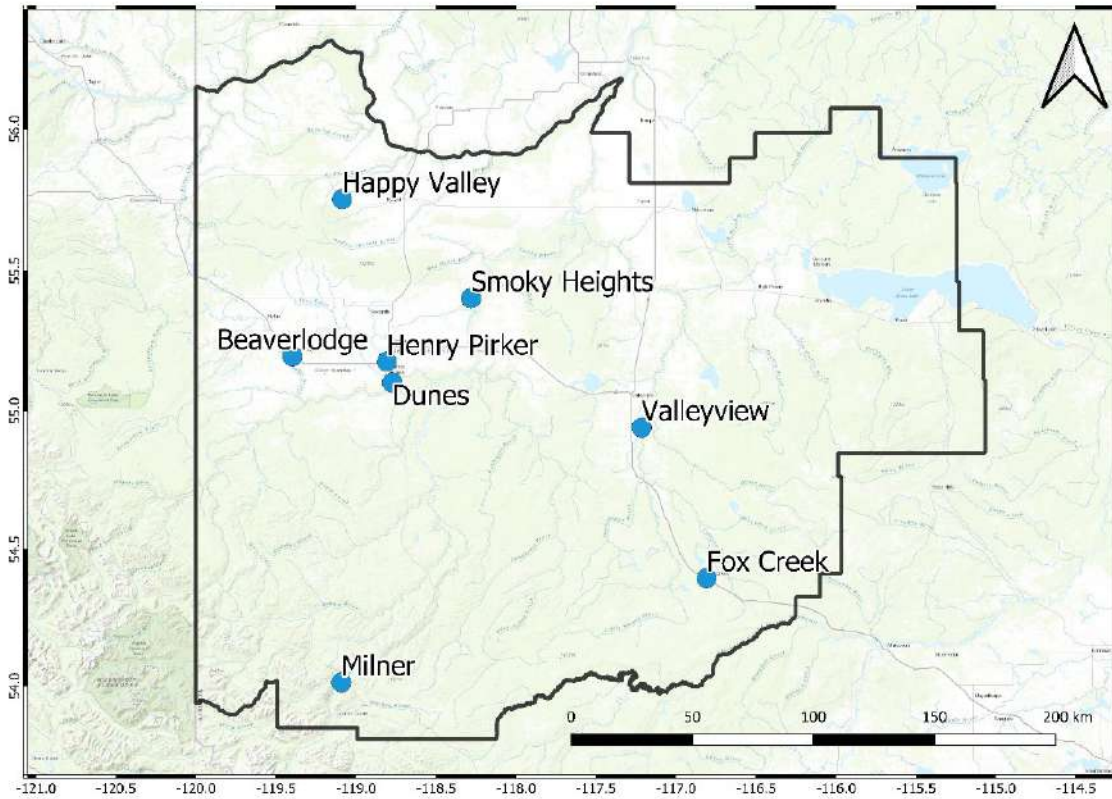
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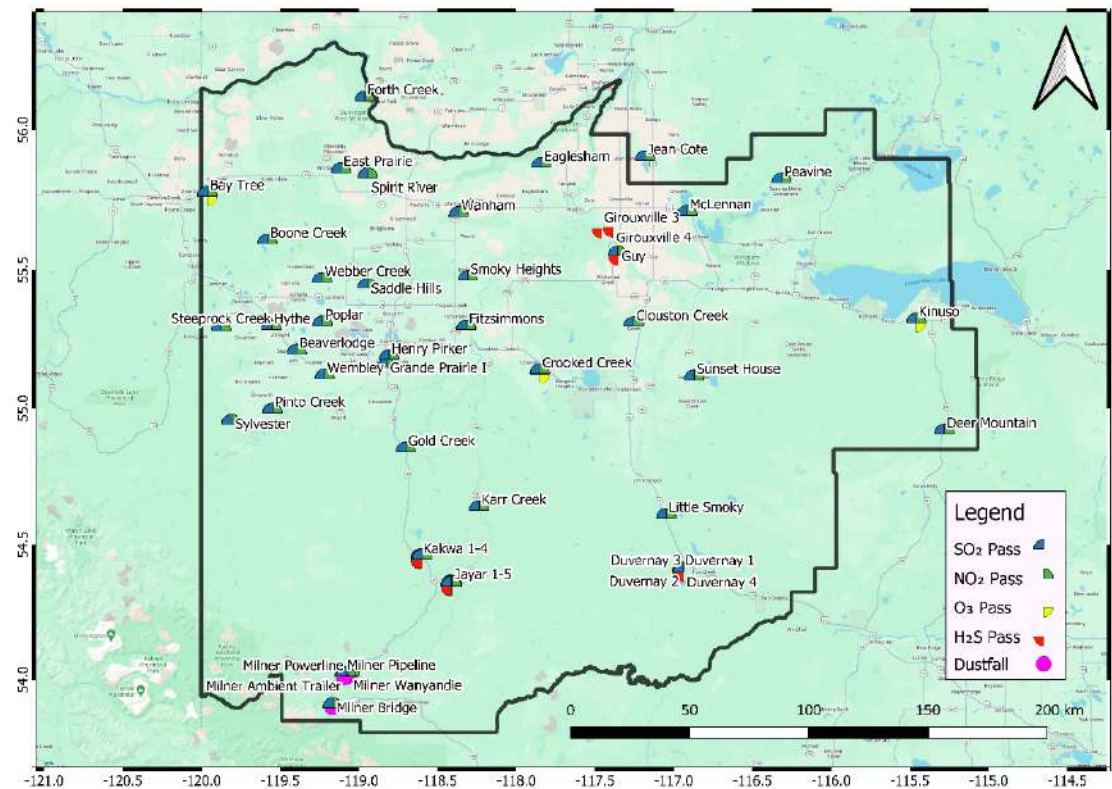
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## PAZA Continuous Monitoring Station Locations



## PAZA Passive Monitoring Station Locations



# 1 November 2024 Monthly Station Summaries

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

## 1.1 Beaverlodge Air Monitoring Station

PAZA - November 2024 Beaverlodge Station Report

Parameter	November				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)	1.1	0.0	94.2%	99.2%	52.1	-	Nov-25 12:00	15.6	-	Nov-25	-	-	-	-	Nov 06, 2024
NO <sub>2</sub> (ppb)	5.1	0.4	94.2%	99.2%	28.2	159	Nov-25 18:00	19.9	-	Nov-25	0	-	-	-	Nov 06, 2024
NO <sub>x</sub> (ppb)	6.2	0.5	94.2%	99.2%	77.0	-	Nov-25 12:00	35.6	-	Nov-25	-	-	-	-	Nov 06, 2024
O <sub>3</sub> (ppb)	21.3	0.0	95.1%	99.9%	39.3	76	Nov-17 14:00	31.4	-	Nov-16	0	-	-	-	Nov 06, 2024
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	4.9	0.2	99.6%	99.7%	25.9	80	Nov-26 05:00	11.9	29	Nov-01	0	-	0	-	Nov 05, 2024
SO <sub>2</sub> (ppb)	0.8	0.0	95.1%	99.7%	9.1	172	Nov-25 01:00	2.9	48	Nov-22	0	-	0	0	Nov 05, 2024
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>										
Temp (°C)	-6.9	-27.0	95.3%	95.3%	10.8	<div style="border: 1px solid black; padding: 5px;"> <b>Note: Valid hours must be greater than 75%</b>  <b>Operational hours must be greater than 90%</b> </div>									
RH (%)	79.1	46.9	99.9%	99.9%	99.9										
WS (km/hr)	7.6	0.1	100.0%	100.0%	43.6										
WD (deg)	337	0.0	100.0%	100.0%	359.7	<div style="border: 1px solid black; padding: 2px;">                     Average Wind Direction      337    NNW                 </div>									

**Update Summary:**

Parameter	Make	Model	Equipment summary
NO/NO <sub>2</sub> /NO <sub>x</sub>	Thermo	42iQ	Nov 5, power failure (1hr); Nov 23-24, spans came in high, Nov 24 calibration performed (5hrs maintenance) span check was within 2%
O <sub>3</sub>	Thermo	49iQ	Nov 5, power failure (1hr)
PM <sub>2.5</sub>	API	T640	Nov 5, power failure (2hrs)
SO <sub>2</sub>	Thermo	43i-TLE	Nov 5, power failure (2hrs), followed by calibration
Met Equip	MetOne	50.5	Nov 5, power failure (1hr for ET and RH); For ET, daily drop removed every day 04:21-04:43 (30hrs); Nov 5, additional 3hrs removed due to data shift

## 1.2 Dunes Air Monitoring Station

PAZA - November 2024 Dunes Station Report

Parameter	November				30min / 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 <sub>2.5</sub> (µg/m <sup>3</sup> )	4.3	0.0	99.9%	100.0%	24.4	80	Nov-25 10:00	13.9	29	Nov-25	0	-	0	-	Nov-13-2024
SO <sub>2</sub> (ppb)	0.4	0.0	95.4%	100.0%	9.6	172	Nov-25 13:00	1.7	48	Nov-25	0	-	0	0	Nov-13-2024
TRS (ppb)	0.5	0.1	95.3%	100.0%	<b>3.8</b>	<b>5</b>	<b>Nov-16 21:00</b>	0.7	3	Nov-25	<b>0</b>	-	0	-	Nov-13-2024
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>										
Temp (°C)	-7.2	-26.4	100.0%	100.0%	13.2	<div style="border: 1px solid black; padding: 5px;"> <b>Note: Valid hours must be greater than 75%</b>  <b>Operational hours must be greater than 90%</b> </div>									
RH (%)	81.6	40.7	100.0%	100.0%	99.9										
WS (km/hr)	3.2	0.0	100.0%	100.0%	12.0										
WD (deg)	15	0.4	100.0%	100.0%	358.6	<div style="border: 1px solid black; padding: 2px;">                     Average Wind Direction      15    NNE                 </div>									

**Update Summary:**

Parameter	Make	Model	Equipment summary
PM <sub>2.5</sub>	Thermo	SHARP 5030	No Operational issues noted during the month
SO <sub>2</sub>	Thermo	43i	No Operational issues noted during the month
TRS	Thermo	43i	No Operational issues noted during the month
Met Equip	Gil/RMYoung	MetPak/RMY86004	No Operational issues noted during the month



### 1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - November 2024 Henry Pirker Station Report

Parameter	November				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)	5.2	0.0	95.0%	100.0%	84.1	-	Nov-08 10:00	21.4	-	Nov-25	-	-	-	-	Nov 05, 2024	
NO <sub>2</sub> (ppb)	10.1	1.4	95.0%	100.0%	34.1	159	Nov-15 19:00	21.3	-	Nov-25	0	-	-	-	Nov 05, 2024	
NO <sub>x</sub> (ppb)	15.3	1.5	95.0%	100.0%	101.4	-	Nov-08 10:00	43.0	-	Nov-25	-	-	-	-	Nov 05, 2024	
O <sub>3</sub> (ppb)	15.9	0.2	95.3%	99.9%	36.1	76	Nov-17 14:00	24.3	-	Nov-28	0	-	-	-	Nov 05, 2024	
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	6.0	0.2	99.9%	100.0%	43.4	80	Nov-25 23:00	14.3	29	Nov-25	0	-	0	-	Nov 07, 2024	
SO <sub>2</sub> (ppb)	0.3	0.0	95.1%	100.0%	7.2	172	Nov-02 13:00	1.7	48	Nov-22	0	-	0	0	Nov 07, 2024	
H <sub>2</sub> S (ppb)	0.2	0.0	95.3%	100.0%	1.5	10	Nov-10 12:00	0.4	3	Nov-25	0	-	0	-	Nov 07, 2024	
CH <sub>4</sub> (ppm)	2.1	1.9	95.3%	100.0%	3.4	-	Nov-03 06:00	2.4	-	Nov-25	-	-	-	-	Nov 06, 2024	
THC (ppm)	2.1	1.9	95.3%	100.0%	3.4	-	Nov-03 06:00	2.4	-	Nov-25	-	-	-	-	Nov 06, 2024	
NMHC (ppm)	0.0	0.0	95.3%	100.0%	0.4	-	Nov-27 08:00	0.0	-	Nov-27	-	-	-	-	Nov 06, 2024	
CO (ppm)	0.2	0.1	95.4%	100.0%	0.8	13	Nov-08 10:00	0.3	5	Nov-09	0	0	-	-	Nov 06, 2024	
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>											
Temp (°C)	-6.8	-28.0	100.0%	100.0%	12.9	<div style="border: 1px solid black; padding: 5px;"> <b>Note:</b> Valid hours must be greater than 75%                      Operational hours must be greater than 90%                 </div>										May 21, 2024
RH (%)	73.5	50.3	100.0%	100.0%	87.8											May 21, 2024
SR (W/m <sup>2</sup> )	16.7	0.0	100.0%	100.0%	214.0											May 21, 2024
WS (km/hr)	5.4	0.3	100.0%	100.0%	20.2											May 21, 2024
WD (deg)	178	1.9	100.0%	100.0%	358.4											May 21, 2024
	Average Wind Direction						178	5								

**Update Summary:**

Parameter	Make	Model	Equipment summary
NO/NO <sub>2</sub> /NO <sub>x</sub>	Thermo	42i	No operational issues noted during the month
O <sub>3</sub>	TECO	49i	November 26, zero removed, span within target (1hr removed)
PM <sub>2.5</sub>	API	T640	No operational issues noted during the month
SO <sub>2</sub>	Thermo	43i-TLE	No operational issues noted during the month
H <sub>2</sub> S	TEI	450i	No operational issues noted during the month
THC/CH <sub>4</sub> /NMHC	TEI	55i	No operational issues noted during the month
CO	Thermo	48i-TLE	No operational issues noted during the month
Met Equip	MetOne	50.5	No operational issues noted during the month

### 1.4 Smoky Heights Air Monitoring Station

PAZA - November 2024 Smoky Heights Station Report

Parameter	November				30min / 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 <sub>2.5</sub> (µg/m <sup>3</sup> )	7.1	0.0	99.9%	100.0%	753.9	80	Nov-25 07:00	71.1	29	Nov-25	8	-	1	-	Nov 13, 2024	
SO <sub>2</sub> (ppb)	0.3	0.0	95.3%	100.0%	5.4	172	Nov-02 14:00	1.0	48	Nov-26	0	-	0	0	Nov 13, 2024	
TRS (ppb)	0.2	0.0	95.3%	100.0%	5.0	5	Nov-25 06:30	0.8	3	Nov-25	1	-	0	-	Nov 13, 2024	
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>											
Temp (°C)	-7.5	-29.3	100.0%	100.0%	11.0	<div style="border: 1px solid black; padding: 5px;"> <b>Note:</b> Valid hours must be greater than 75%                      Operational hours must be greater than 90%                 </div>										Oct 10, 2024
WS (km/hr)	9.8	0.3	99.6%	99.6%	35.8											Oct 10, 2024
WD (deg)	323	0.4	99.6%	99.6%	359.4											Oct 10, 2024
	Average Wind Direction						323	WNW								

**Update Summary:**

Parameter	Make	Model	Equipment summary
PM <sub>2.5</sub>	Sharp	5030	No Operational issues noted during the month; Nov 24-26, 8x1hr above AAAQG and 1x24hr above AAAQO
SO <sub>2</sub>	TECO	43i	No Operational issues noted during the month
TRS	TEI	43i APSAA	No Operational issues noted during the month; Nov 25, 1x30min above AAAQG
Met Equip	MetOne	50.5	Nov 15, 3hrs removed due to invalid wind speeds at full scale

## 1.5 Valleyview Air Monitoring Station

PAZA - November 2024 Valleyview Station Report

Parameter	November				Max	1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid	Operational		Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d		
SO <sub>2</sub> (ppb)	0.1	0.0	95.3%	100.0%	7.6	172	Nov-06 01:00	0.5	48	Nov-29	0	-	0	0	Nov 12, 2024	
H <sub>2</sub> S (ppb)	0.1	0.0	95.3%	100.0%	0.8	10	Nov-22 13:00	0.5	3	Nov-05	0	-	0	-	Nov 12, 2024	
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>											
Temp (°C)	-5.5	-29.1	100.0%	100.0%	17.1	<div style="border: 1px solid black; padding: 5px;"> <p><b>Note:</b> Valid hours must be greater than 75%</p> <p>Operational hours must be greater than 90%</p> </div>										
RH (%)	84.6	41.8	100.0%	100.0%	99.0											
WS (km/hr)	3.7	0.1	100.0%	100.0%	11.9											
WD (deg)	331	0.1	100.0%	100.0%	359.8											
	<b>Average Wind Direction</b>															331

**Update Summary:**

Parameter	Make	Model	Equipment summary
SO <sub>2</sub>	TEI	43i-APSCB	No operational issues noted during the month
H <sub>2</sub> S	TEI	450i-APHAA / 43C	No operational issues noted during the month
Met Equip	RMYoung	RMY86004	No operational issues noted during the month

## 1.6 Fox Creek Air Monitoring Station

PAZA - November 2024 Fox Creek Station Report

Parameter	November				Max	1-hour			8-hour / 24-hour			Exceedance				Calibration Date	
	Average	Minimum	Valid	Operational		Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d			
NO (ppb)	9.9	0.0	95.1%	100.0%	116.2	-	Nov-26 09:00	31.7	-	Nov-26	-	-	-	-	Nov 14, 2024		
NO <sub>2</sub> (ppb)	9.6	0.7	95.1%	100.0%	41.4	159	Nov-26 10:00	16.8	-	Nov-26	0	-	-	-	Nov 14, 2024		
NO <sub>x</sub> (ppb)	19.8	0.7	95.1%	100.0%	153.1	-	Nov-26 09:00	48.6	-	Nov-26	-	-	-	-	Nov 14, 2024		
O <sub>3</sub> (ppb)	16.0	0.2	95.3%	100.0%	39.2	76	Nov-17 16:00	25.2	-	Nov-17	0	-	-	-	Nov 14, 2024		
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	4.4	0.2	99.9%	100.0%	16.4	80	Nov-14 16:00	12.8	29	Nov-14	0	-	0	-	Nov 14, 2024		
SO <sub>2</sub> (ppb)	0.6	0.0	95.4%	100.0%	40.0	172	Nov-03 06:00	3.6	48	Nov-03	0	-	0	0	Nov 14, 2024		
H <sub>2</sub> S (ppb)	0.2	0.0	94.9%	100.0%	1.1	10	Nov-26 09:00	0.4	3	Nov-26	0	-	0	-	Nov 08, 2024		
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>												
Temp (°C)	-5.1	-24.4	100.0%	100.0%	17.1	<div style="border: 1px solid black; padding: 5px;"> <p><b>Note:</b> Valid hours must be greater than 75%</p> <p>Operational hours must be greater than 90%</p> </div>											
WS (km/hr)	5.5	0.1	100.0%	100.0%	17.1												
WD (deg)	167	0.3	100.0%	100.0%	359.4												
	<b>Average Wind Direction</b>															167	SSE

**Update Summary:**

Parameter	Make	Model	Equipment summary
NO/NO <sub>2</sub> /NO <sub>x</sub>	Thermo	42IQ	No operational issues noted in the month
O <sub>3</sub>	TECO	49I	No operational issues noted in the month
PM <sub>2.5</sub>	API	T640	No operational issues noted in the month
SO <sub>2</sub>	TEI	43i-TLE	No operational issues noted in the month
H <sub>2</sub> S	TEI	450i	Nov 8, removal cal to replace loaner convertor and motherboard; noted lamp will need replacement soon
Met Equip	MetOne	50.5	No operational issues noted in the month

## 1.7 Happy Valley Air Monitoring Station

### PAZA - November 2024 Happy Valley Station Report

Parameter	November			30min / 1-hour				24-hour		Exceedance				Calibration Date	
	Average	Minimum	Valid	Operational	Max	Objective	ix Day and Time	Max	Objective	Max Day	1hr	8hr	24hr		30d
NO (ppb)	0.4	0.0	95.0%	100.0%	17.9	-	Nov-25 15:00	2.8	-	Nov-25	-	-	-	-	Nov 07, 2024
NO <sub>2</sub> (ppb)	2.6	0.4	95.0%	100.0%	21.0	159	Nov-25 20:00	7.8	-	Nov-25	0	-	-	-	Nov 07, 2024
NO <sub>x</sub> (ppb)	3.0	0.5	95.0%	100.0%	31.6	-	Nov-25 15:00	10.8	-	Nov-25	-	-	-	-	Nov 07, 2024
O <sub>3</sub> (ppb)	23.8	3.1	95.4%	100.0%	39.1	76	Nov-16 10:00	36.5	-	Nov-16	0	-	-	-	Nov 07, 2024
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	4.3	0.1	99.9%	100.0%	41.6	80	Nov-01 01:00	13.7	29	Nov-01	0	-	0	-	Nov 04, 2024
SO <sub>2</sub> (ppb)	0.3	0.0	95.1%	100.0%	2.9	172	Nov-22 19:00	1.1	48	Nov-22	0	-	0	0	Nov 07, 2024
TRS (ppb)	0.4	0.1	95.1%	100.0%	4.4	5	Nov-04 07:00	0.7	3	Nov-15	0	-	0	-	Nov 04, 2024
THC (ppm)	2.2	2.0	94.7%	99.4%	3.1	-	Nov-25 16:00	2.5	-	Nov-25	-	-	-	-	Nov 04, 2024
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>										
Temp (°C)	-8.4	-32.1	99.0%	99.0%	11.6	<b>Note: Valid hours must be greater than 75%</b> <b>Operational hours must be greater than 90%</b>									
WS (km/hr)	10.8	0.3	89.0%	89.0%	42.9										
WD (deg)	243	1.4	89.0%	89.0%	356.1	Average Wind Direction		243	WSW						

#### Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO <sub>2</sub> /NO <sub>x</sub>	TEI	42i	No operational issues during the month
O <sub>3</sub>	TEI	49i	No operational issues during the month
PM <sub>2.5</sub>	API	T640	No operational issues during the month
SO <sub>2</sub>	TEI	43i	No operational issues during the month
TRS	TEI	43i	No operational issues during the month
THC	TEI	55i / 51ii-LT	Nov 12, second calibration performed due to failed span (4hrs maintenance) data verified within 1%
Met Equip	MetOne	50.5	Nov 12, 3hrs maintenance, tower lowered to work on wind sensor; Nov 14, replaced wind sensor and heater (SN T11768 with SN 5375), 4hrs maintenance. Data removed Nov 1-3 due to freezing, 38hrs removed; Nov 11-13 data removed due to freezing, 35 hrs removed; Wind sensor <90% uptime (89%), ref#436341

## 1.8 Milner Air Monitoring Station

### PAZA - November 2024 Milner Station Report

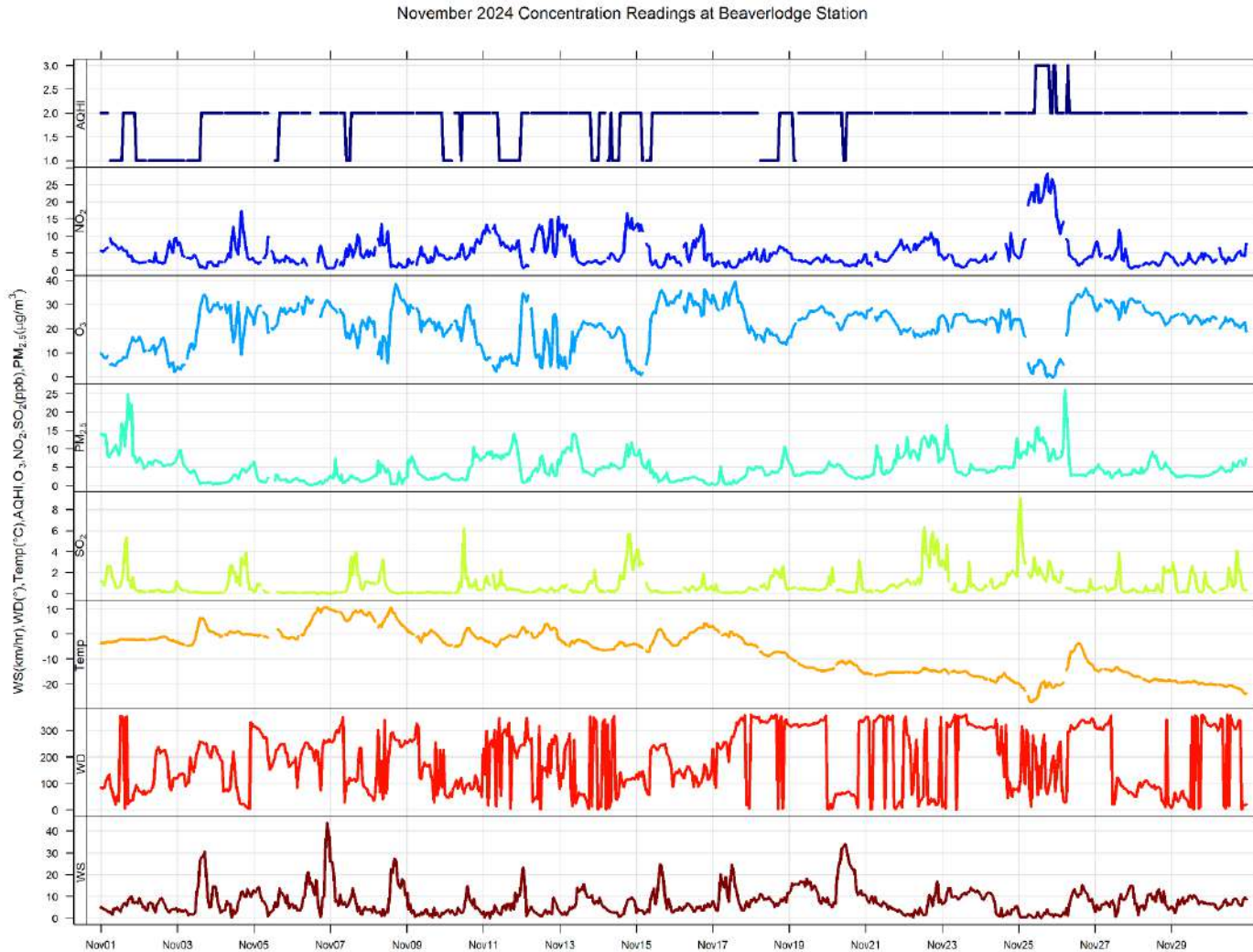
Parameter	November			1-hour				24-hour		Exceedance				Calibration Date	
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr		30d
NO (ppb)	0.9	0.0	95.0%	100.0%	17.8	-	Nov-18 10:00	3.1	-	Nov-14	-	-	-	-	Nov 28, 2024
NO <sub>2</sub> (ppb)	3.9	0.0	95.0%	100.0%	17.7	159	Nov-18 10:00	7.2	-	Nov-29	0	-	-	-	Nov 28, 2024
NO <sub>x</sub> (ppb)	4.8	0.0	95.0%	100.0%	35.7	-	Nov-18 10:00	9.9	-	Nov-14	-	-	-	-	Nov 28, 2024
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	5.1	0.1	99.7%	100.0%	71.7	80	Nov-29 01:00	32.8	29	Nov-29	0	-	1	-	Nov 28, 2024
	<b>Average</b>	<b>Minimum</b>	<b>Valid</b>	<b>Operational</b>	<b>Maximum</b>										
WS (km/hr)	6.7	0.1	100.0%	100.0%	31.8	<b>Note: Valid hours must be greater than 75%</b> <b>Operational hours must be greater than 90%</b>									
WD (deg)	262	3.8	100.0%	100.0%	359.0										
	Average Wind Direction		262	W											

#### Update Summary:

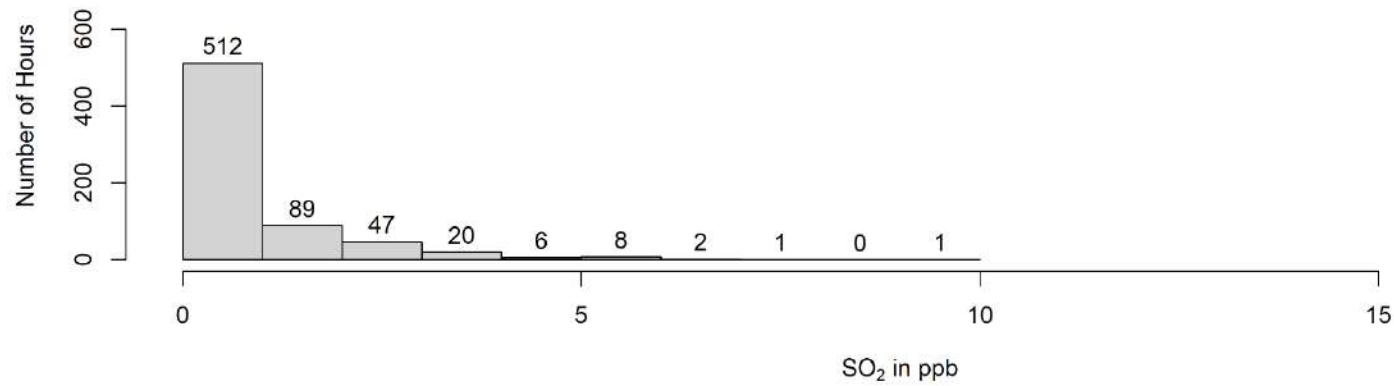
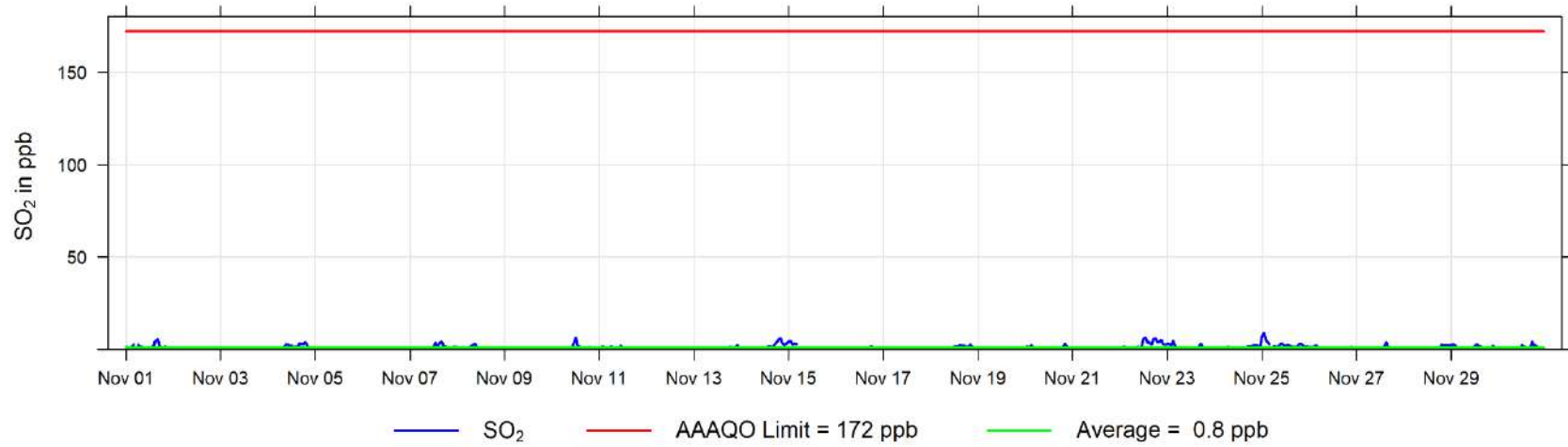
Parameter	Make	Model	Equipment summary
NO/NO <sub>2</sub> /NO <sub>x</sub>	Thermo	42i	No Operational issues noted in the month
PM <sub>2.5</sub>	API	T640	No Operational issues noted in the month; Nov 29, 1x24hr reading above AAAQO
Met Equip	MetOne	50.5	No Operational issues noted in the month

## 2 Beaverlodge Charts

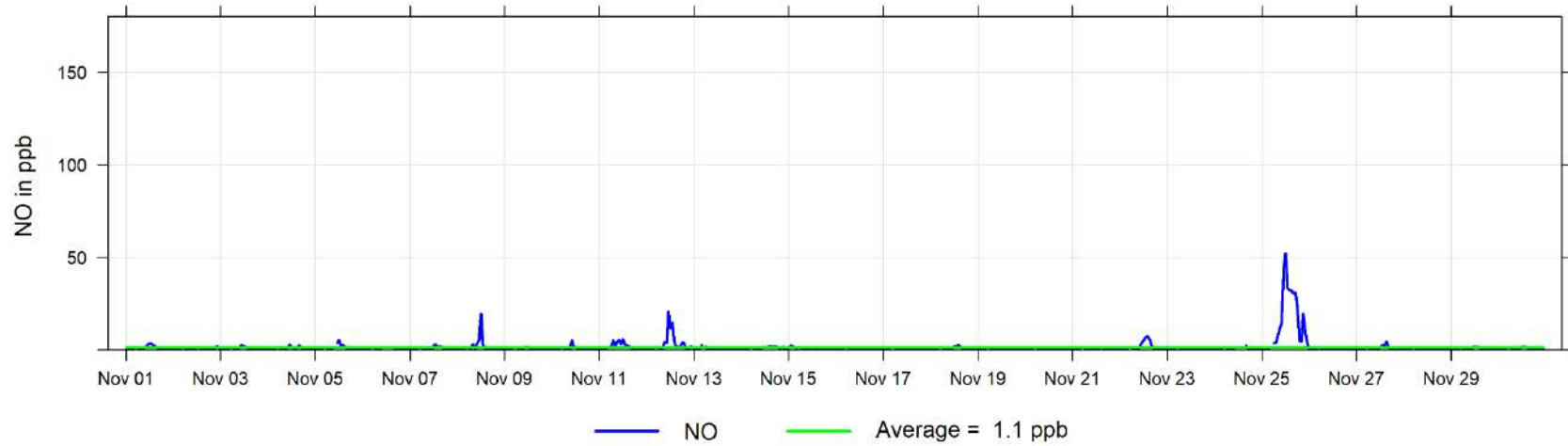
The following pages include the charts and histograms for Beaverlodge Station



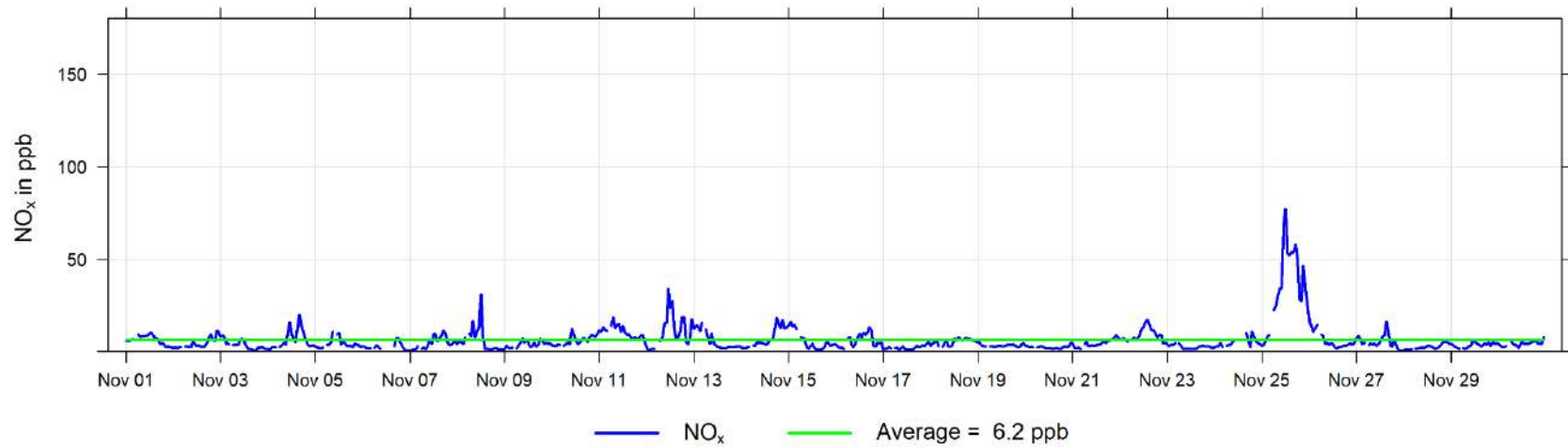
November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Beaverlodge



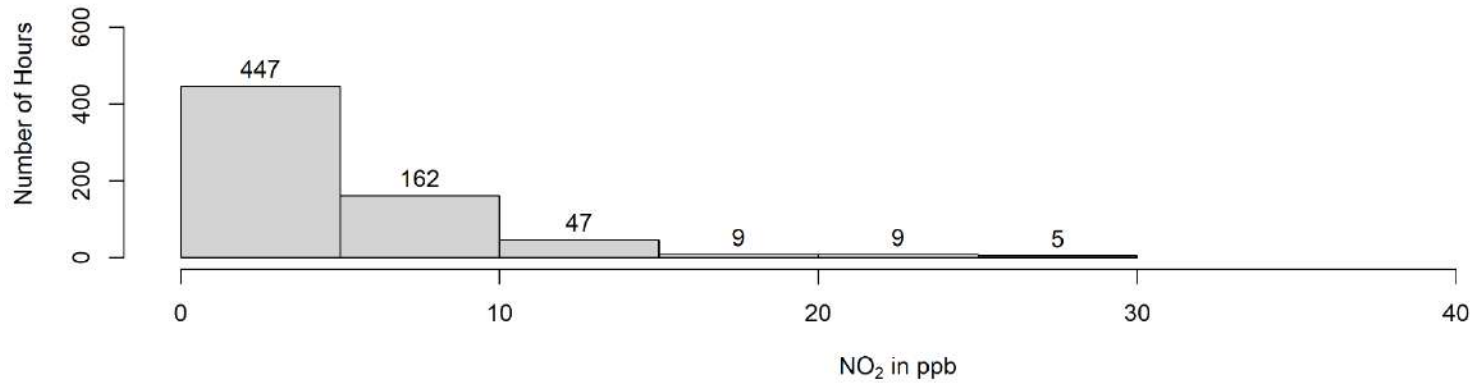
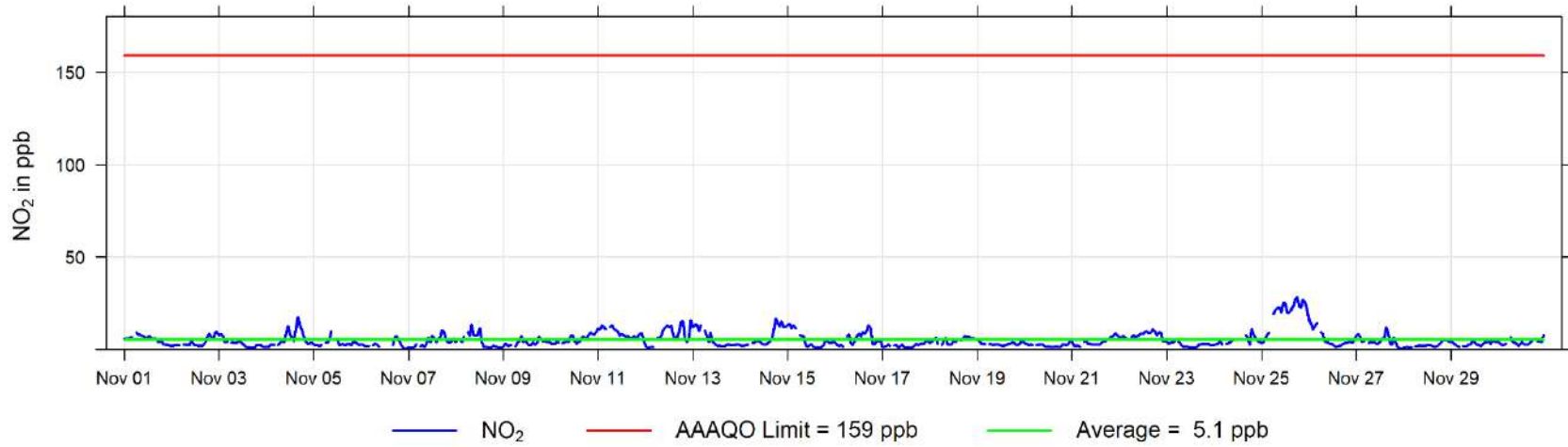
November 2024 Hourly Concentration Readings of NO (in ppb) at Beaverlodge



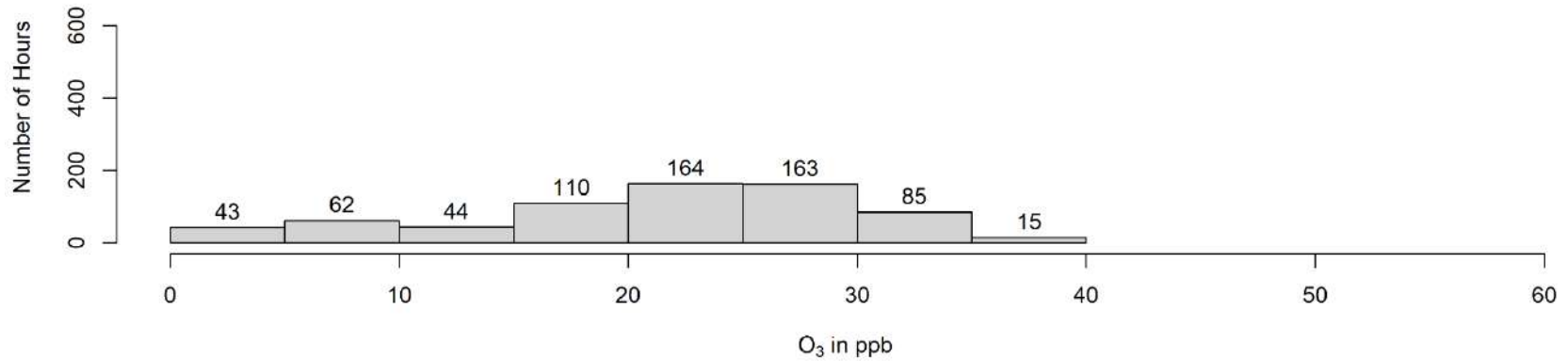
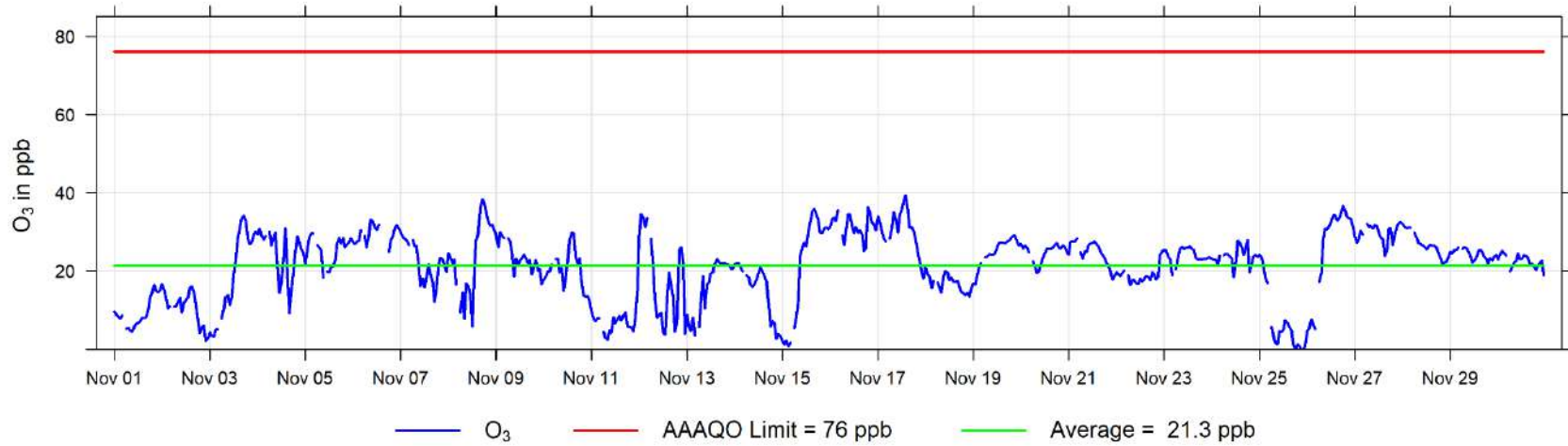
November 2024 Hourly Concentration Readings of NO<sub>x</sub> (in ppb) at Beaverlodge



November 2024 Hourly Concentration Readings of NO<sub>2</sub> (in ppb) at Beaverlodge

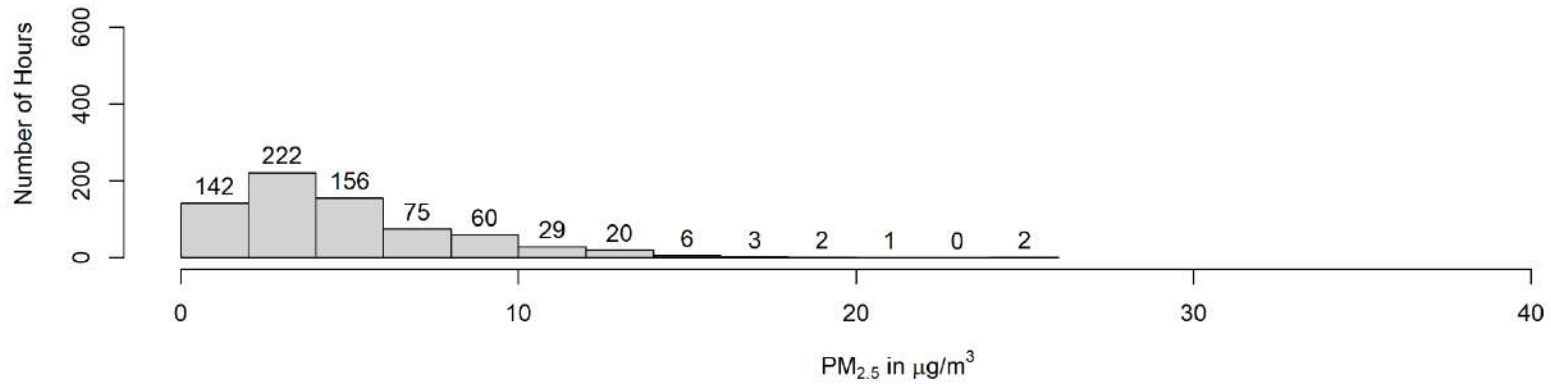
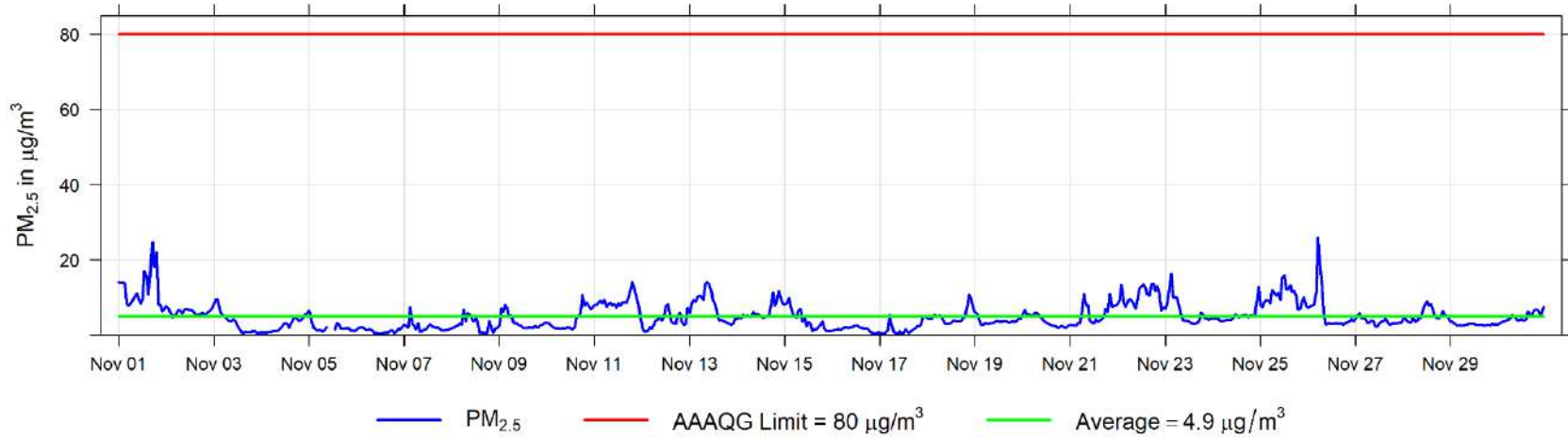


November 2024 Hourly Concentration Readings of O<sub>3</sub> (in ppb) at Beaverlodge

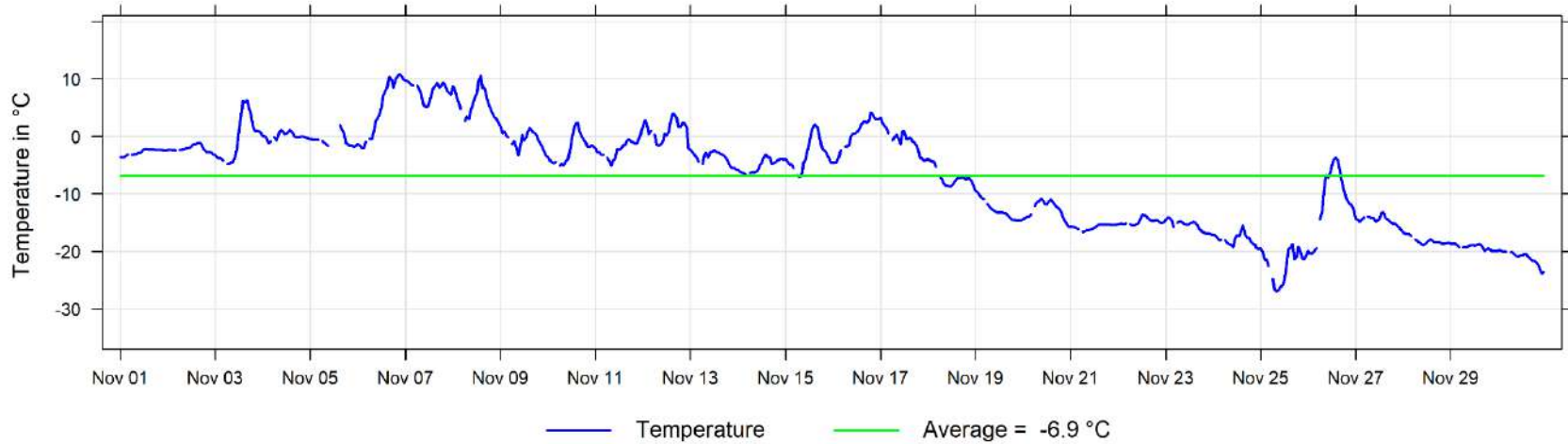




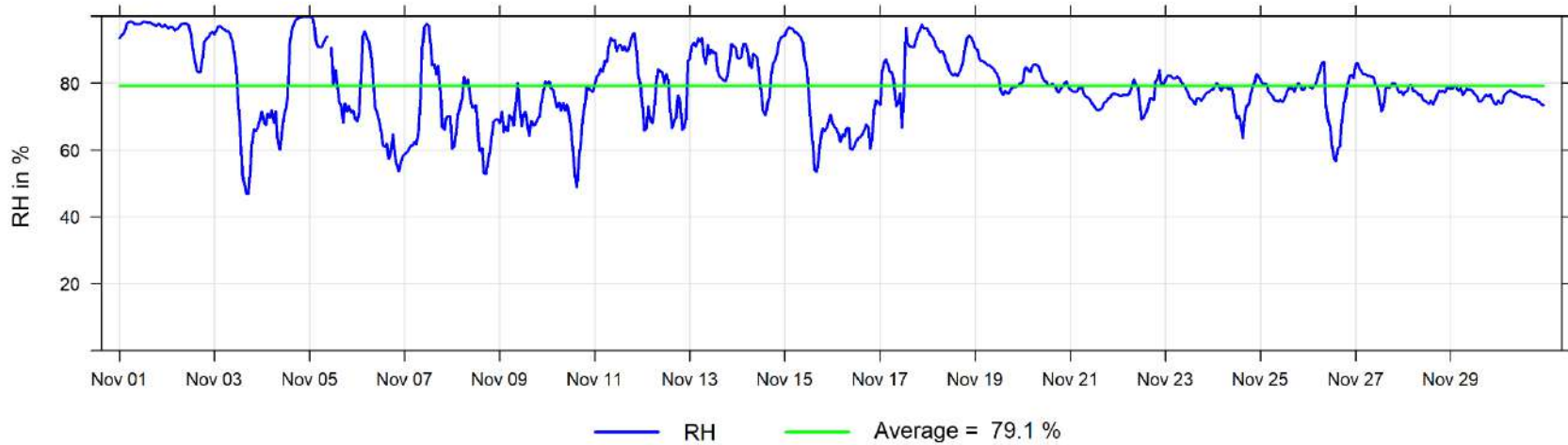
November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Beaverlodge



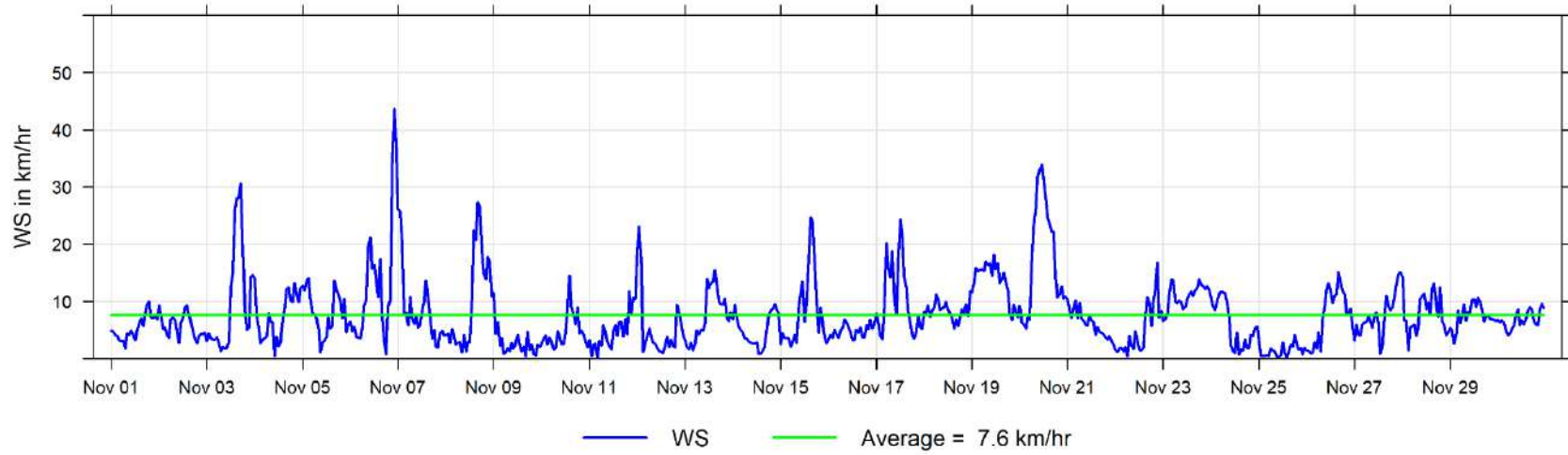
November 2024 Hourly Temperature Readings (in °C) at Beaverlodge



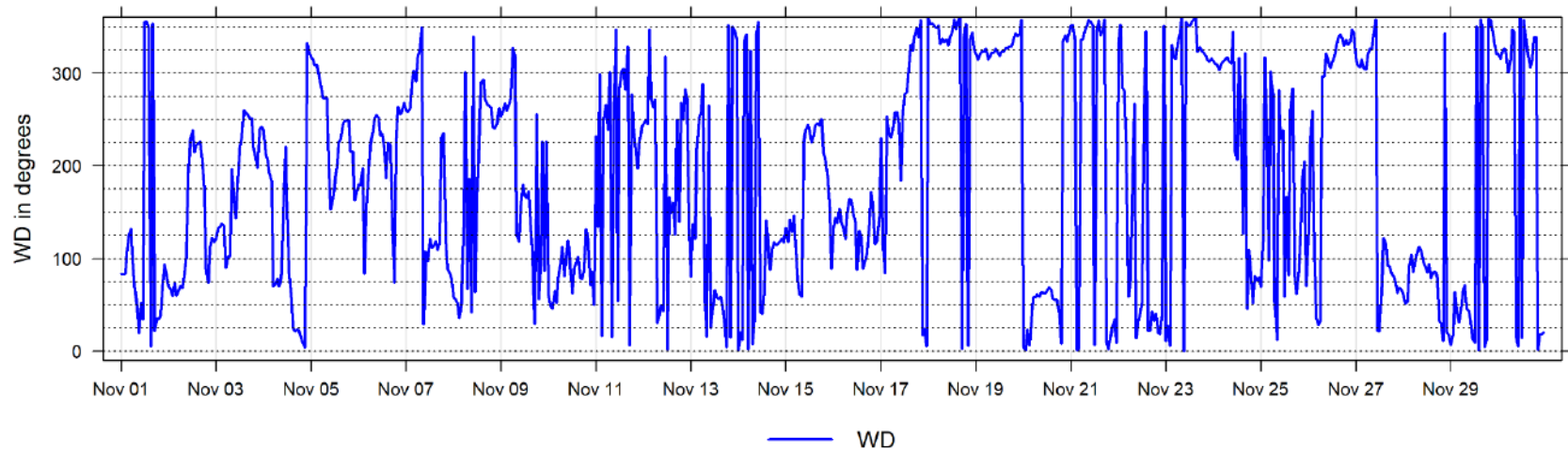
November 2024 Hourly Readings of Relative Humidity (in %) at Beaverlodge



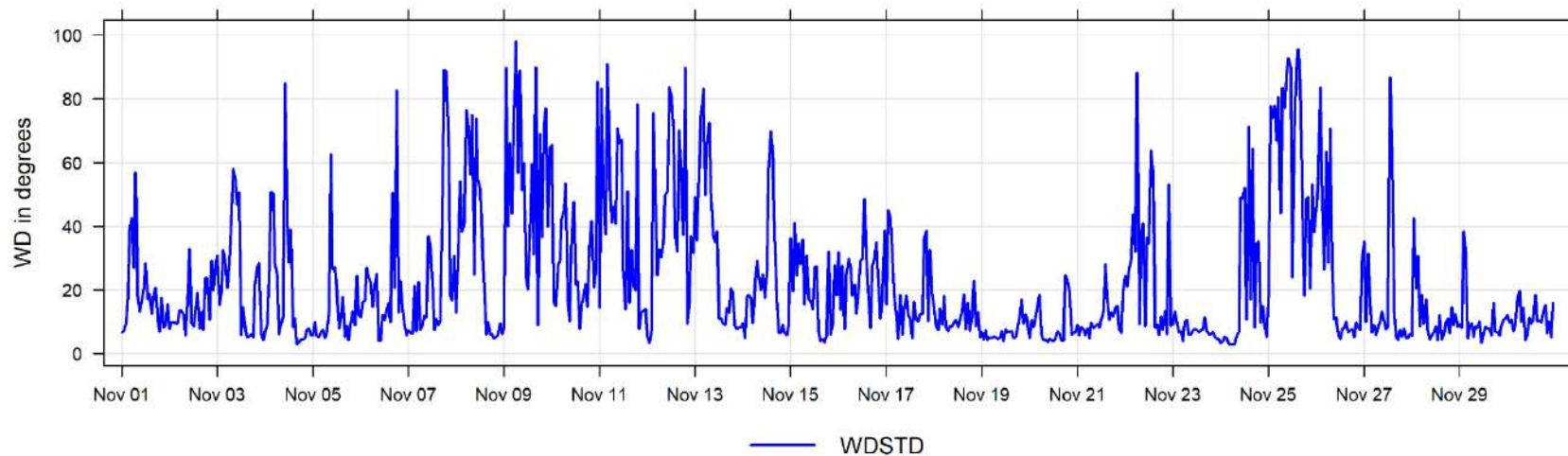
November 2024 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge

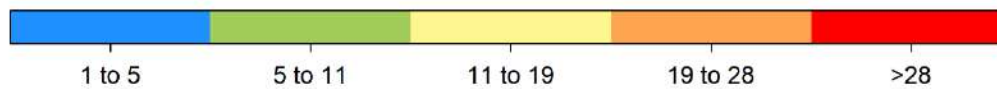
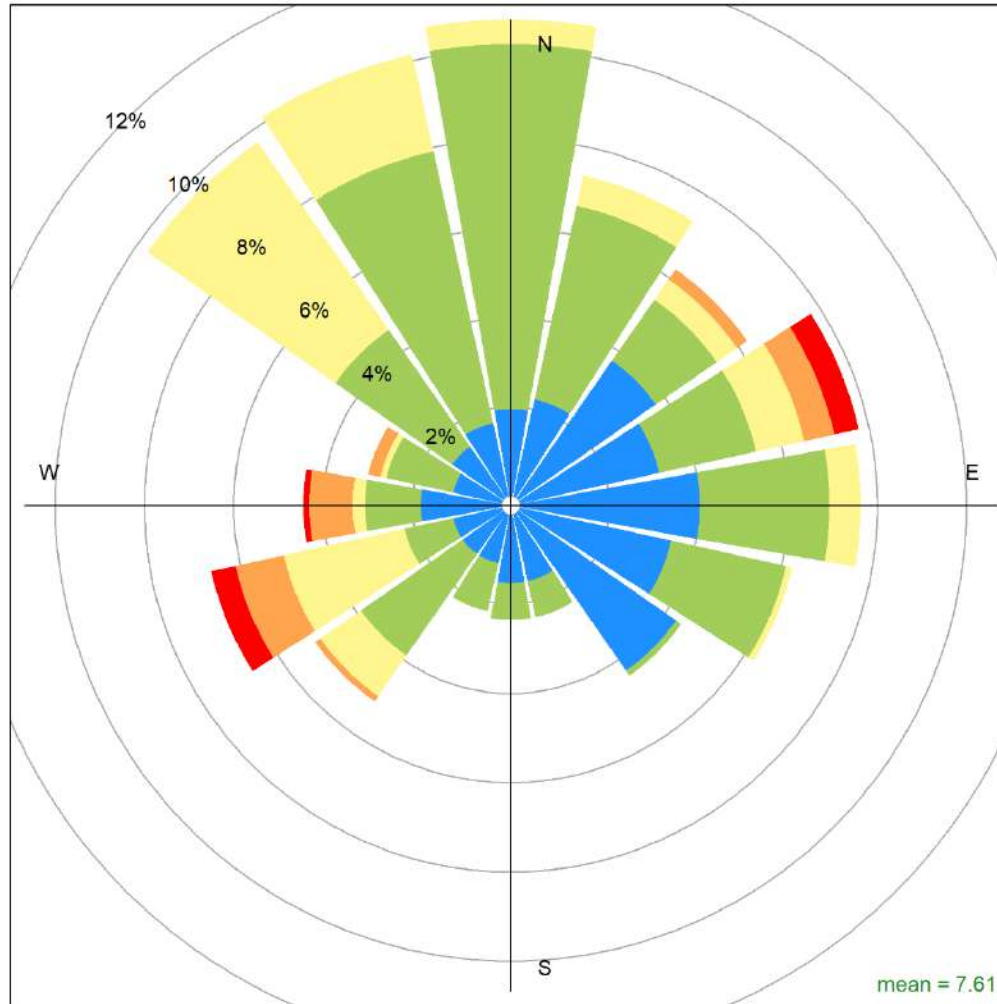


November 2024 Hourly Readings of Wind Direction (in degrees) at Beaverlodge



November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Beaverlodge



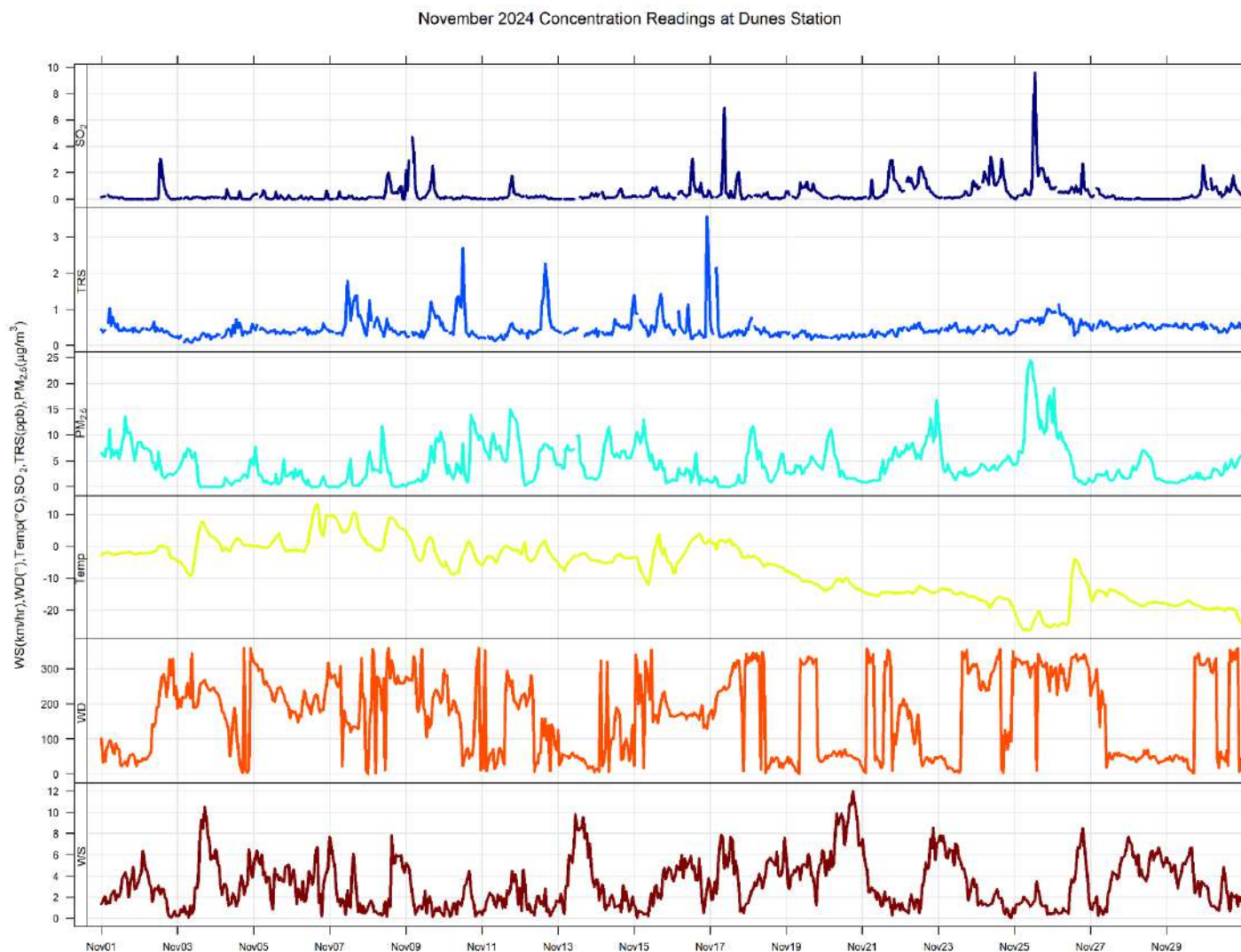


Beaverlodge November 2024 Wind Rose, wind speed in km/hr

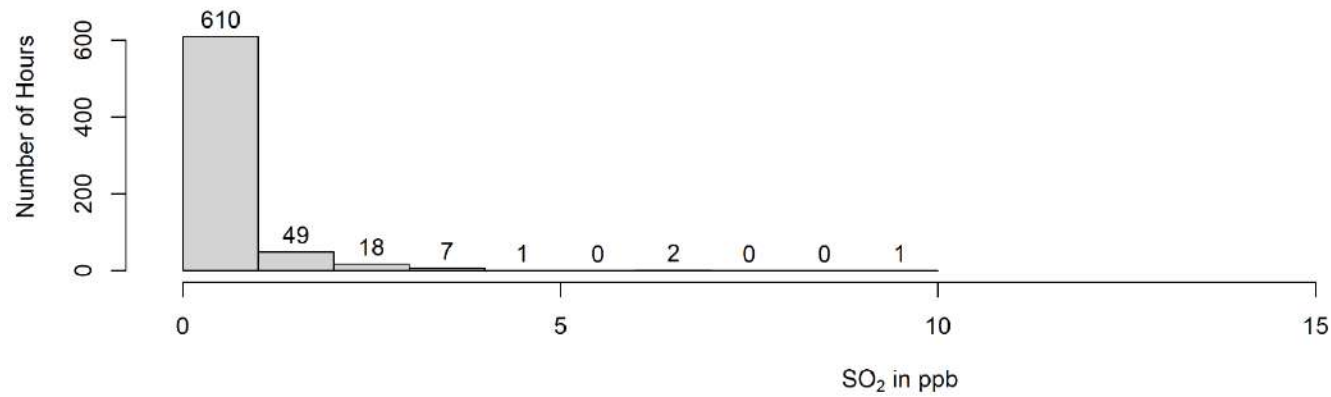
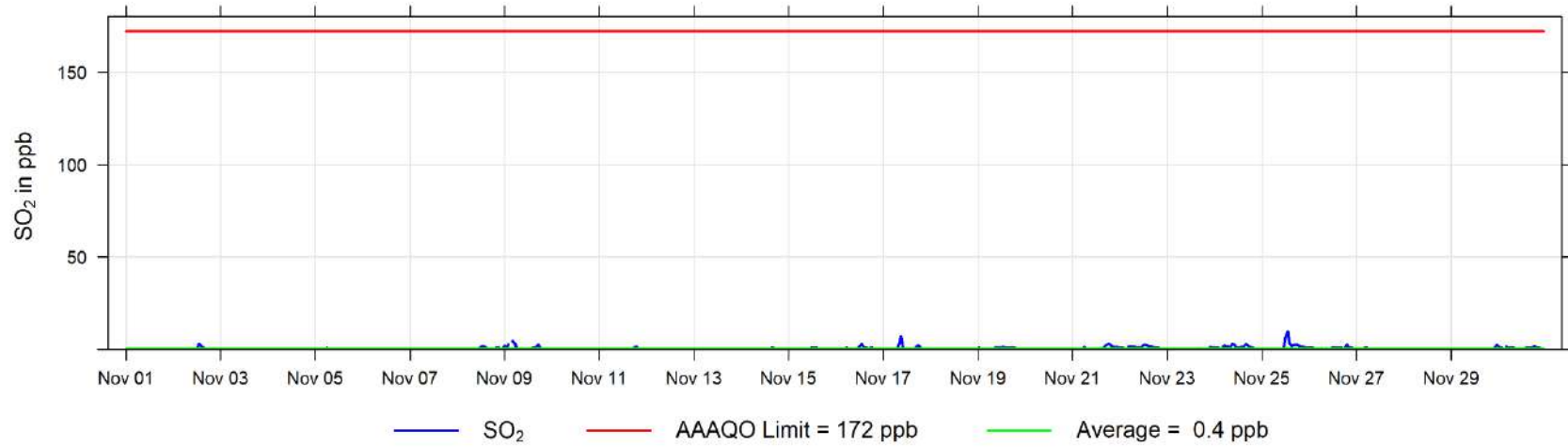
**Calms (<1km/hr) = 3.6 %**

### 3 Dunes Charts

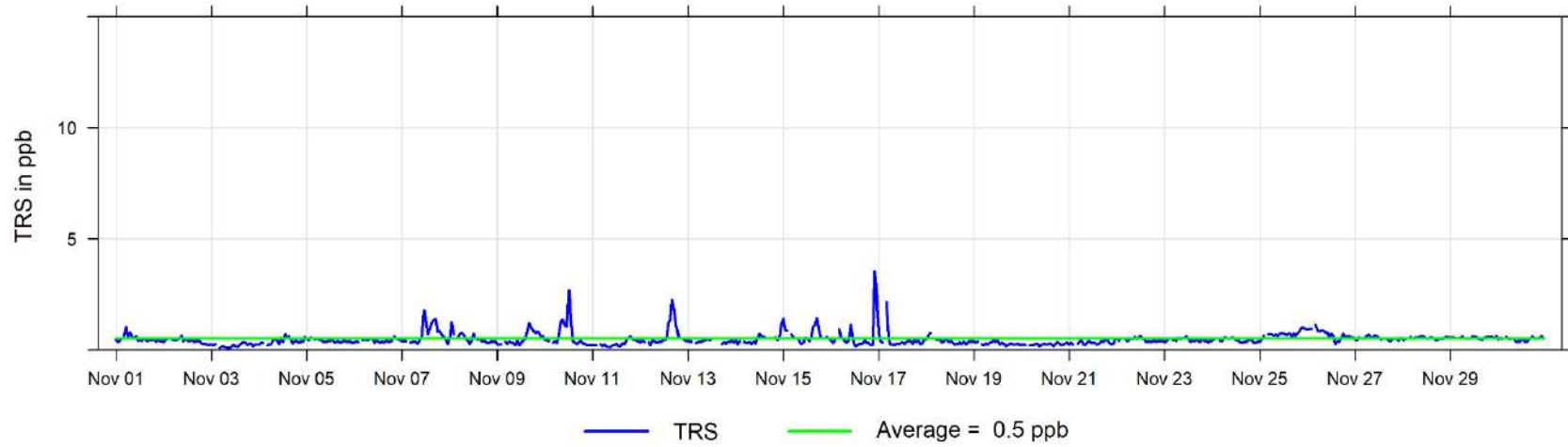
The following pages include the charts and histograms for Dunes Station



November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Dunes

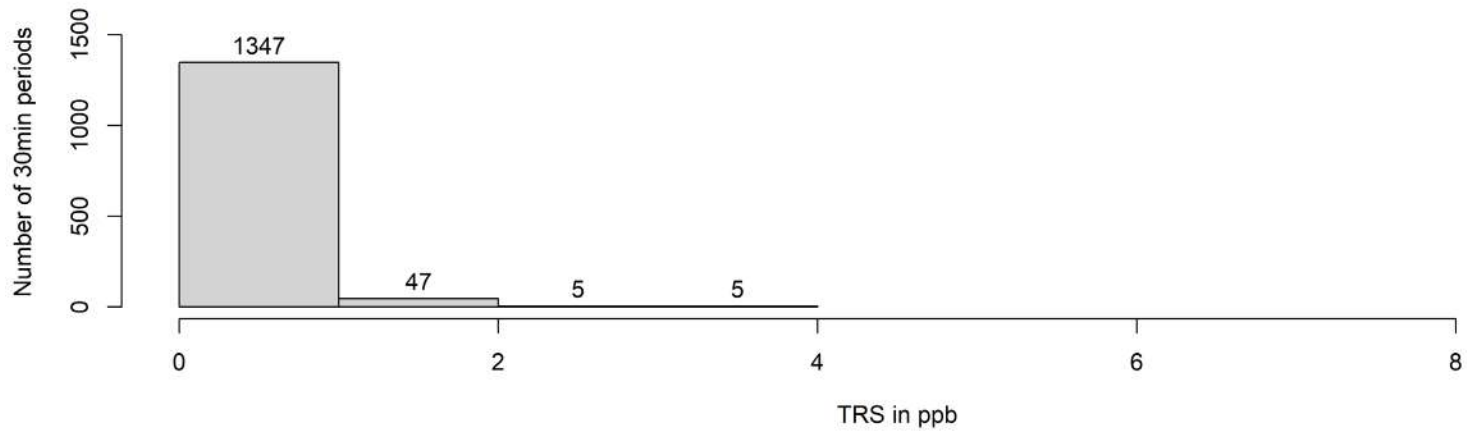
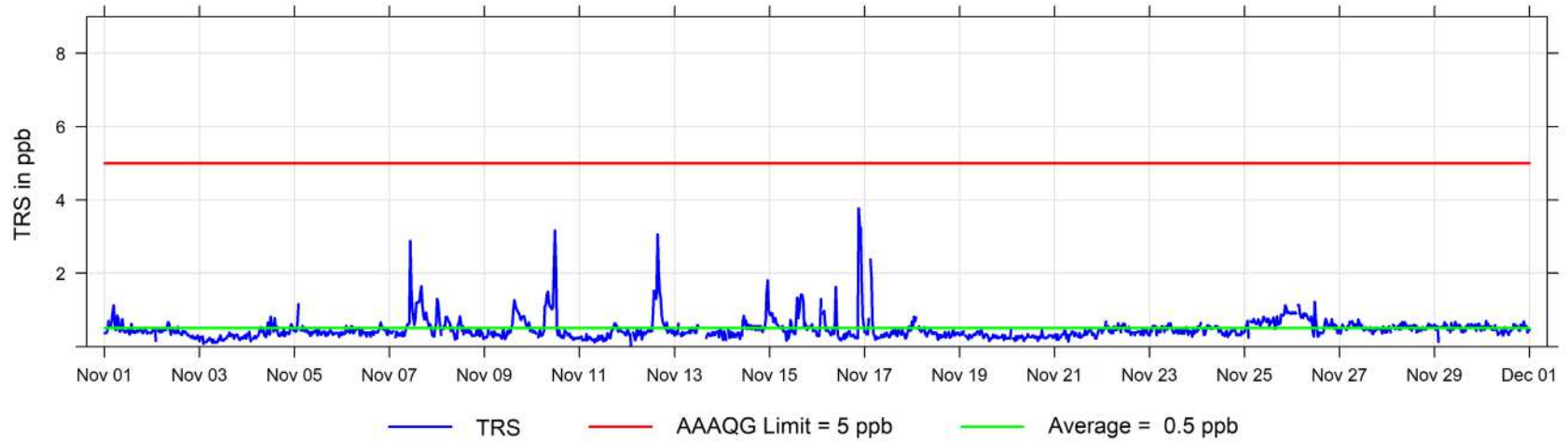


November 2024 Hourly Concentration Readings of TRS (in ppb) at Dunes

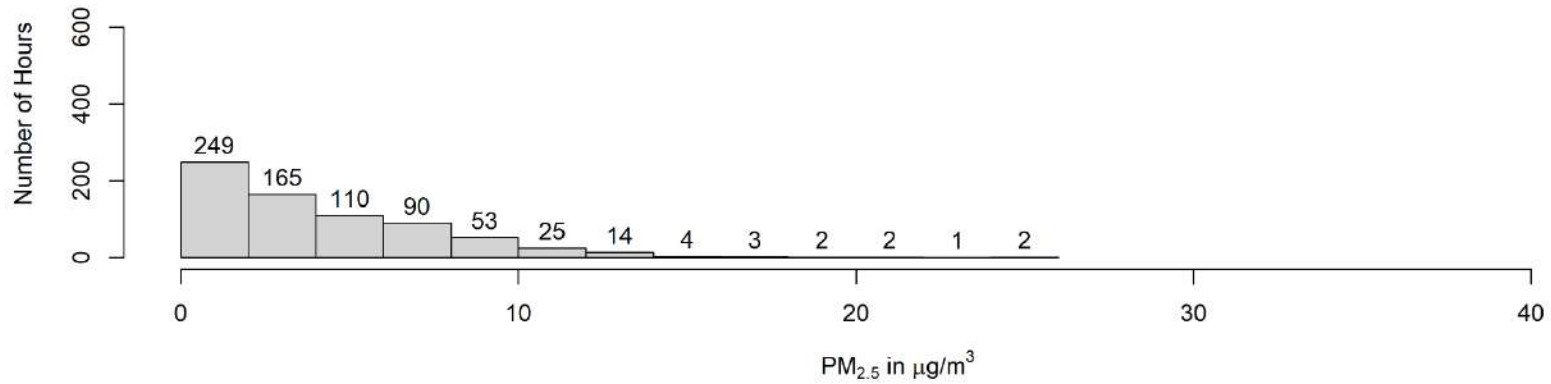
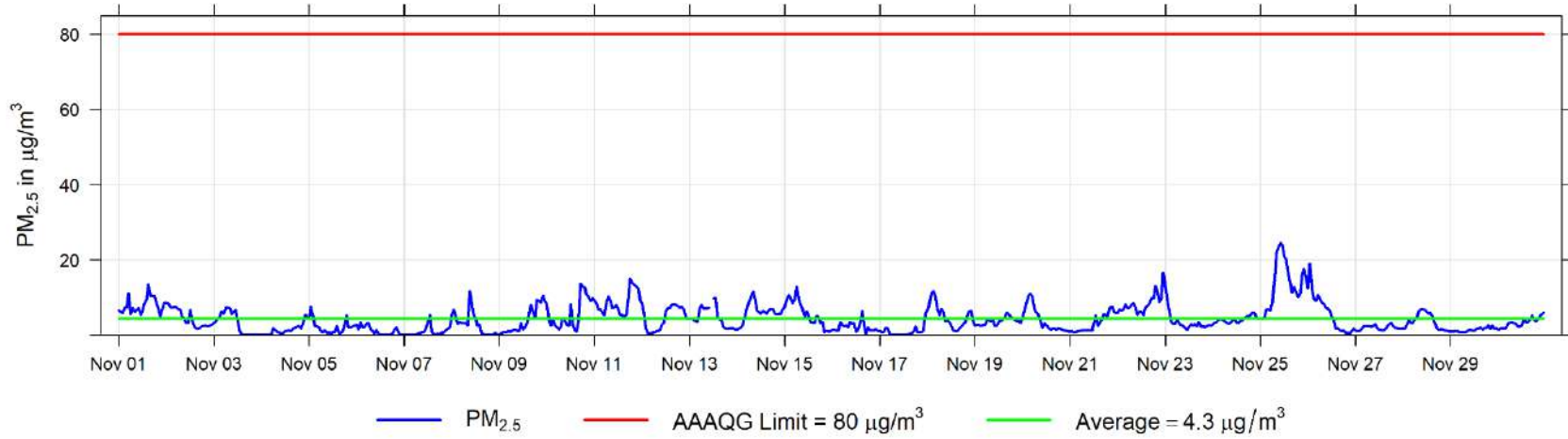




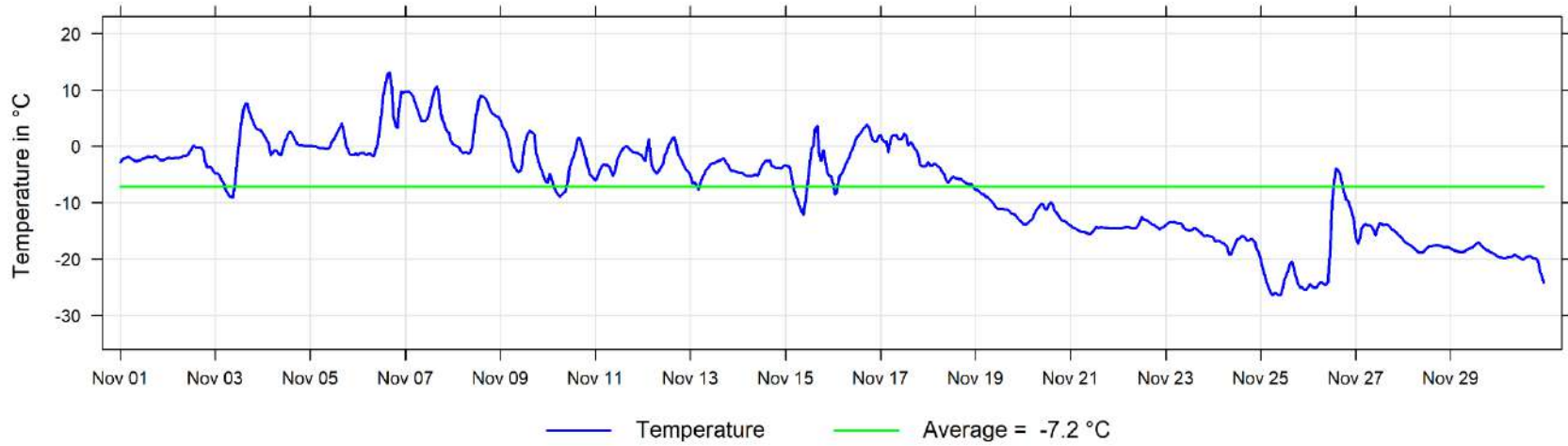
November 2024 30 min Concentration Readings of TRS (in ppb) at Dunes



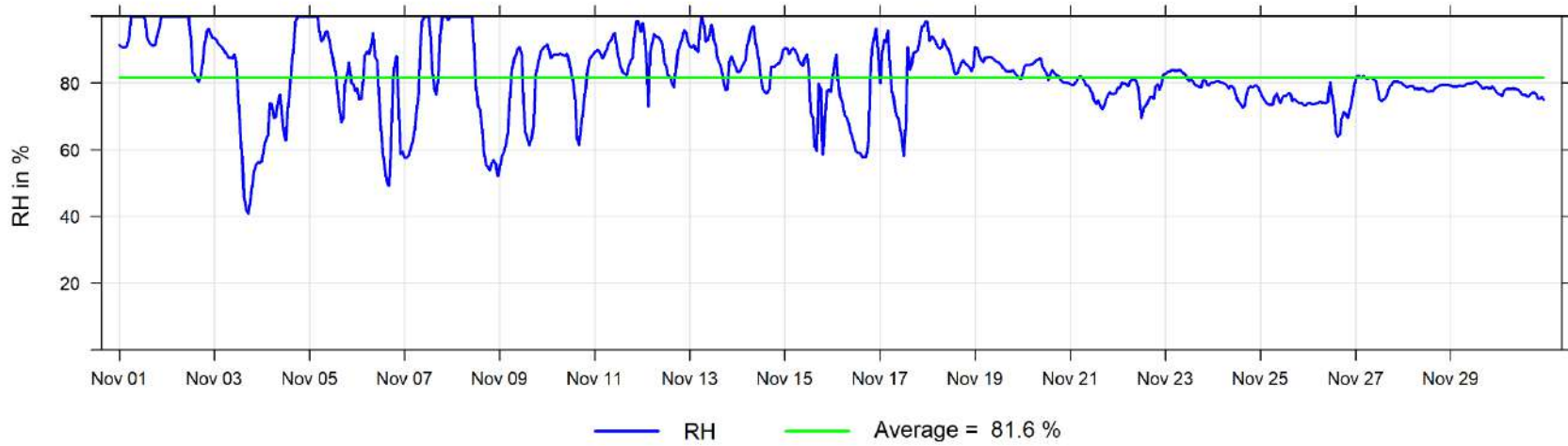
November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Dunes



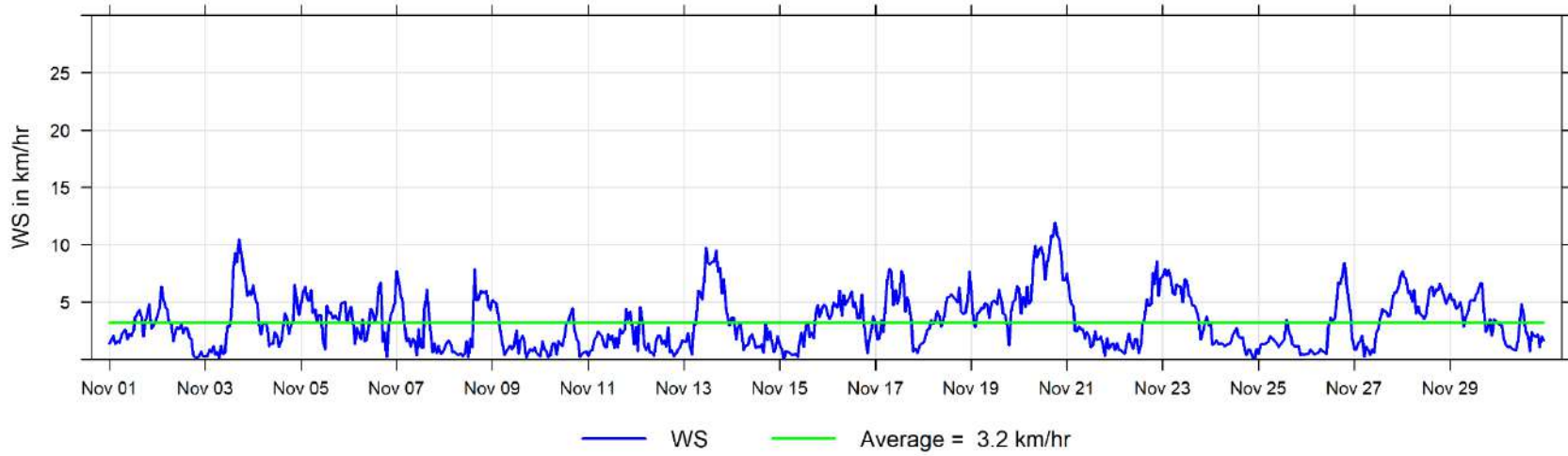
November 2024 Hourly Temperature Readings (in °C) at Dunes



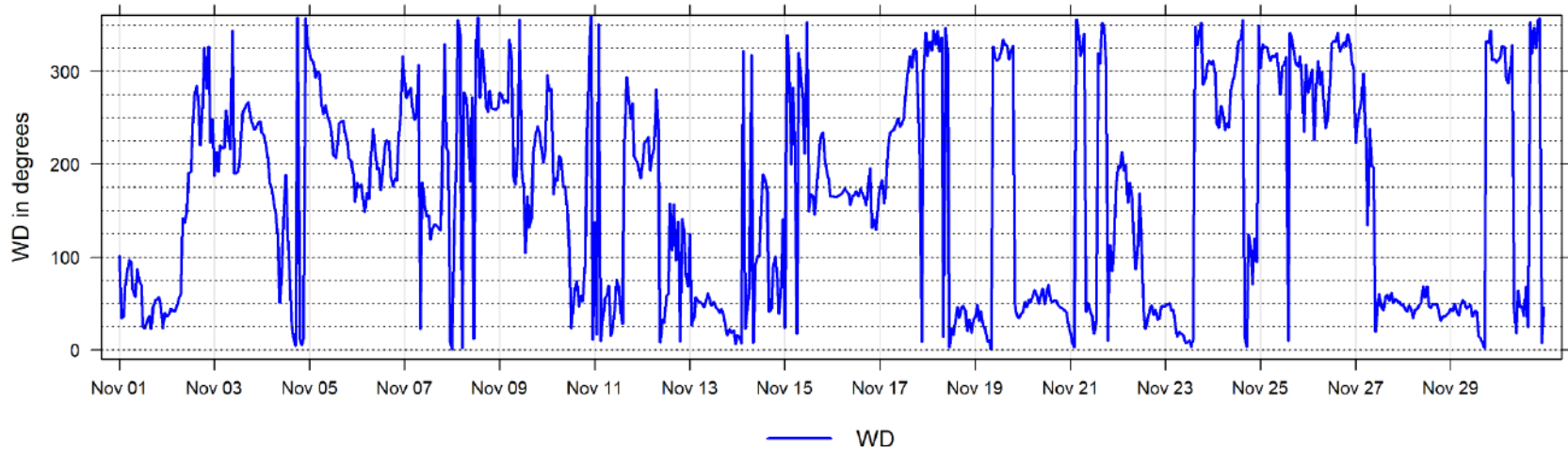
November 2024 Hourly Readings of Relative Humidity (in %) at Dunes



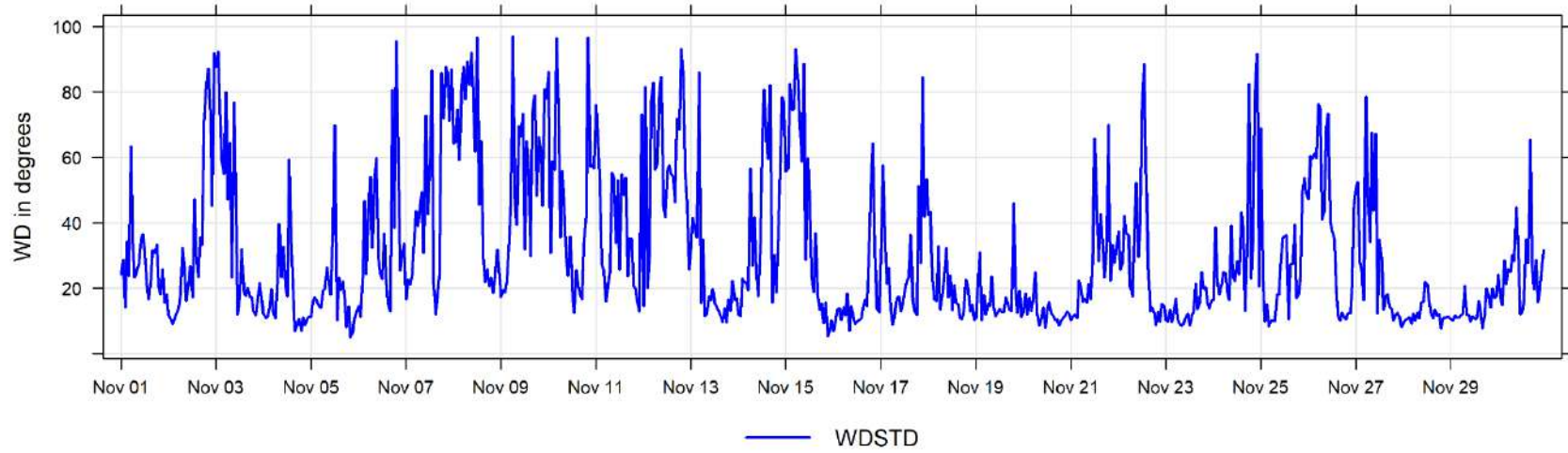
November 2024 Hourly Readings of Wind Speed (in km/hr) at Dunes

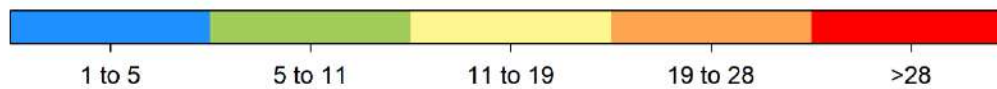
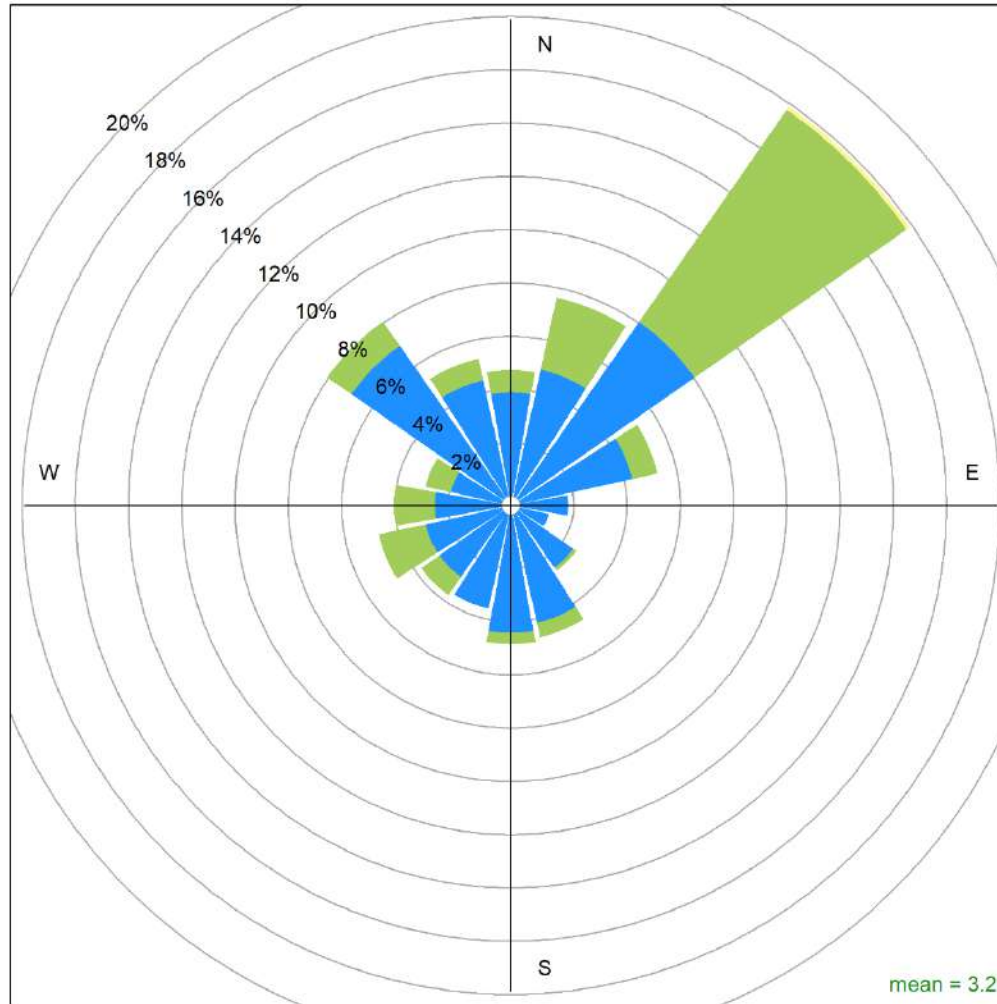


November 2024 Hourly Readings of Wind Direction (in degrees) at Dunes



November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Dunes





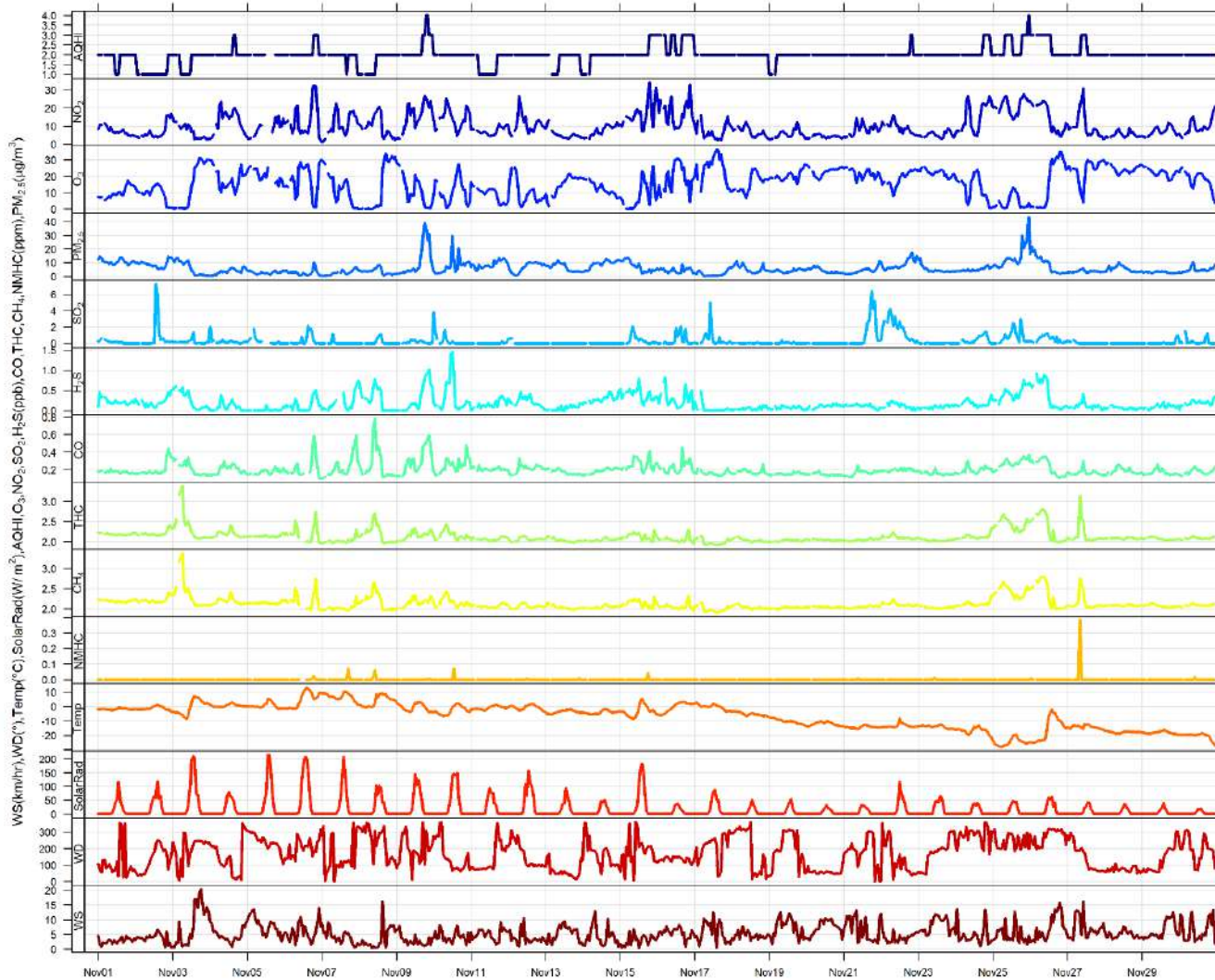
Dunes November 2024 Wind Rose, wind speed in km/hr

**Calms (<1km/hr) = 17.1 %**

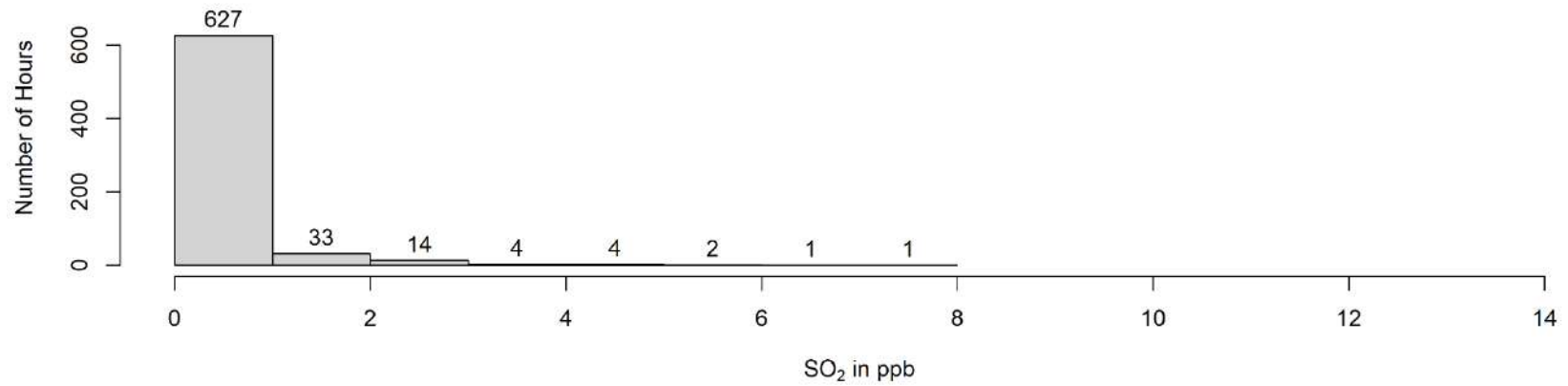
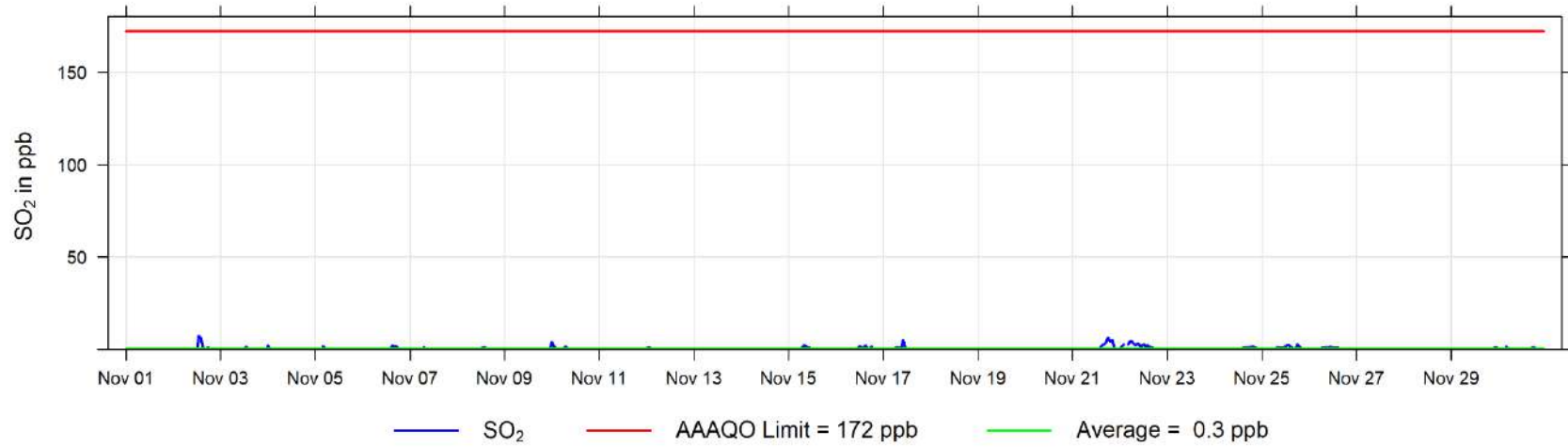
## 4 Grande Prairie - Henry Pirker Charts

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

November 2024 Concentration Readings at Henry Pirker Station

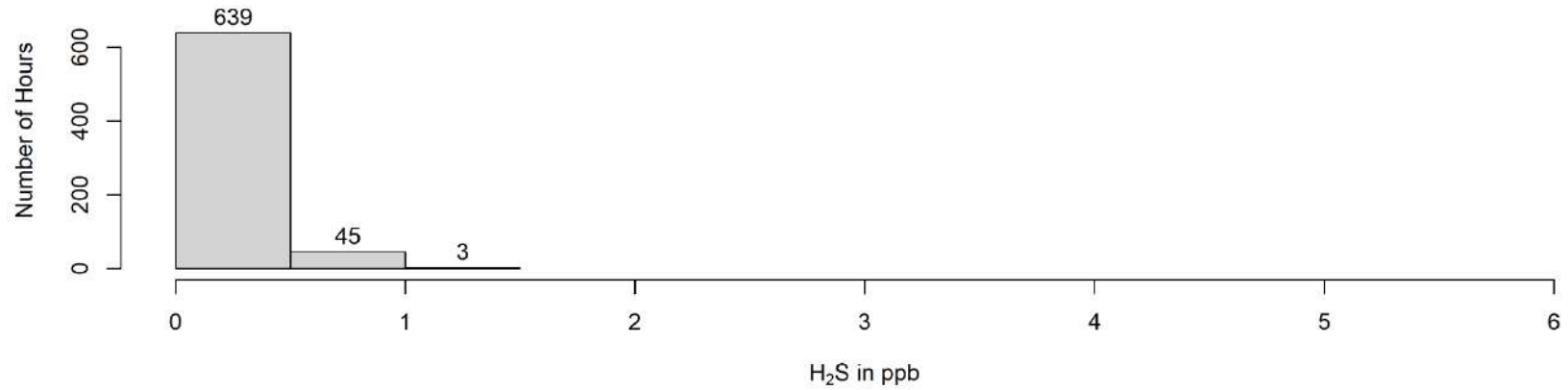
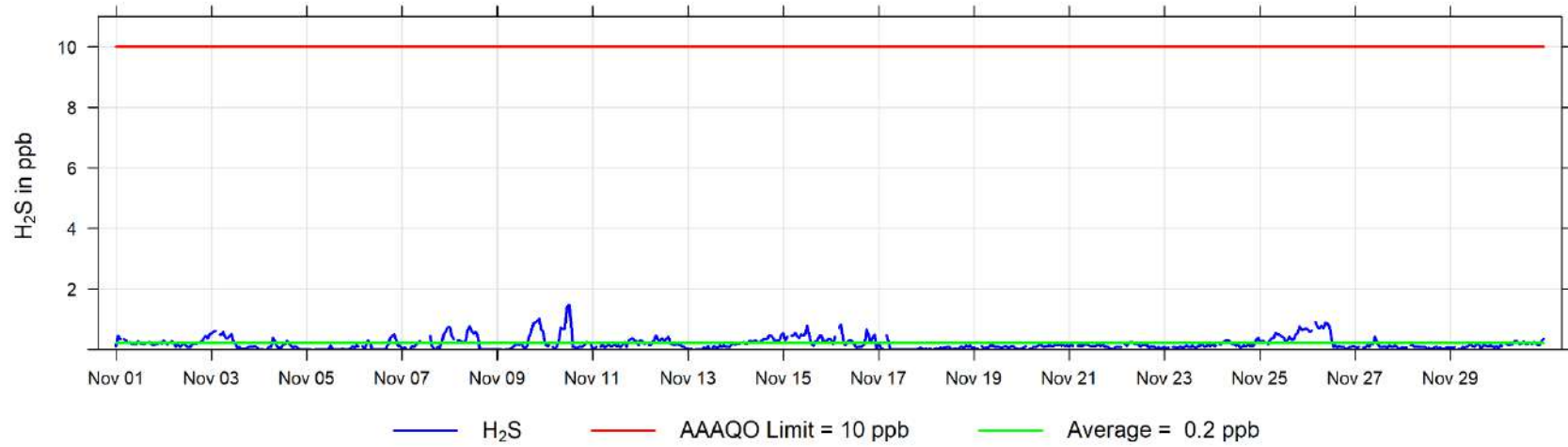


November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Henry Pirker

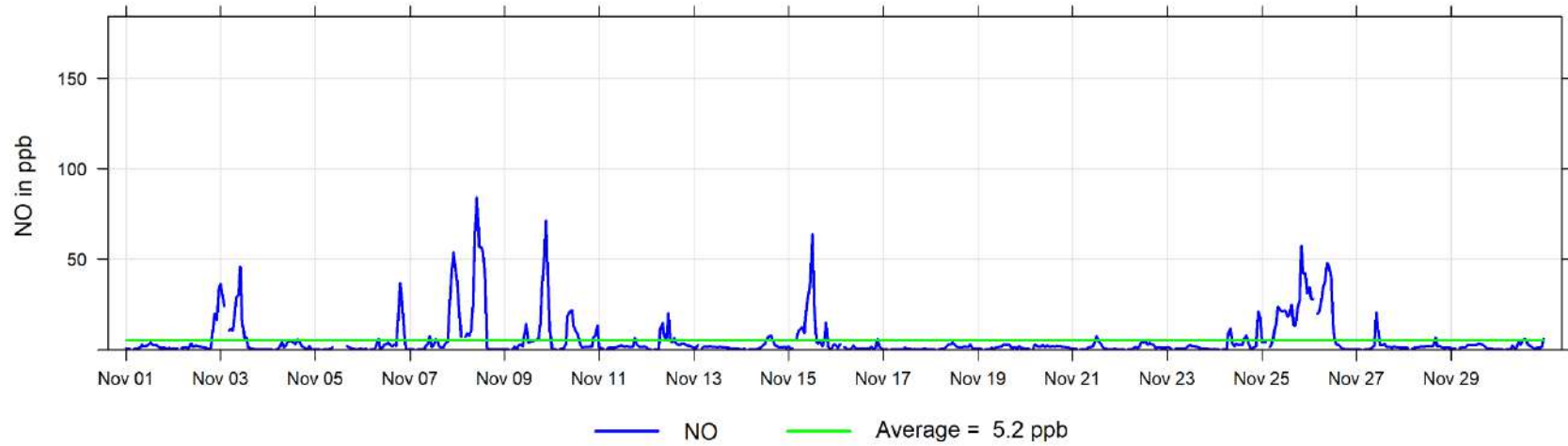




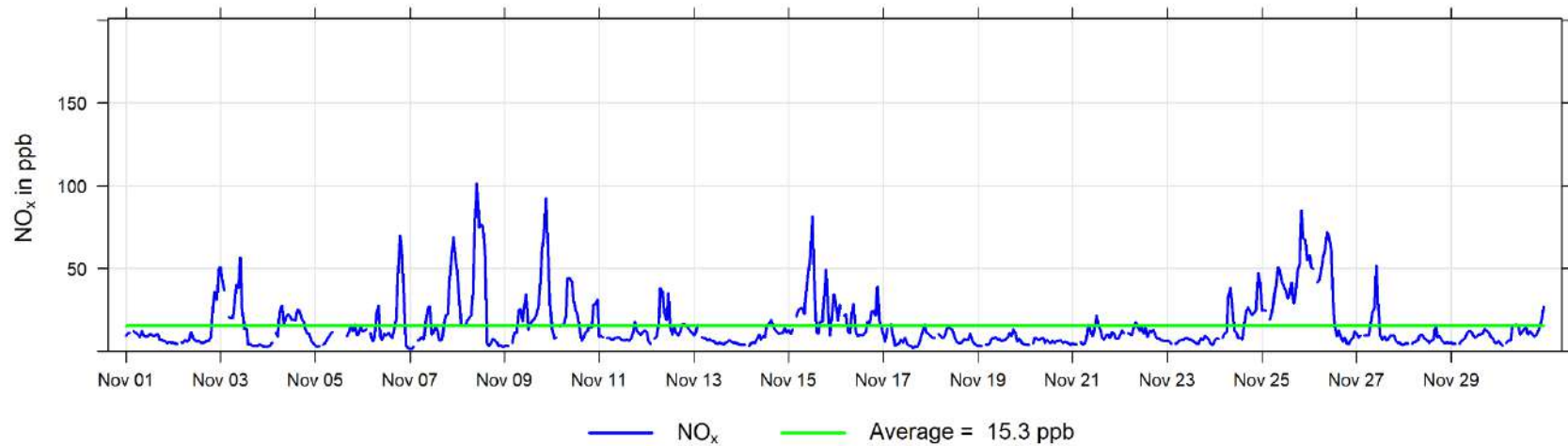
November 2024 Hourly Concentration Readings of H<sub>2</sub>S (in ppb) at Henry Pirker



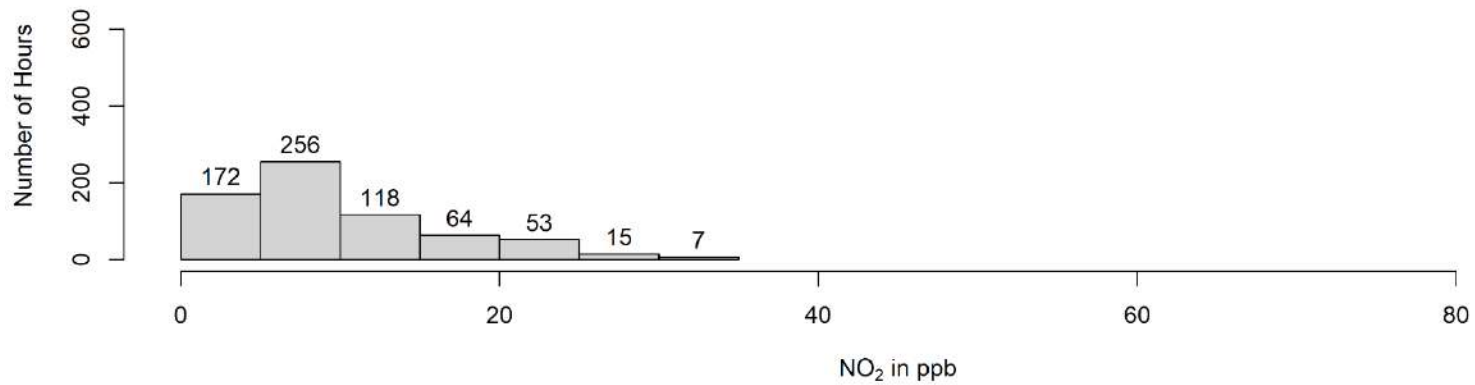
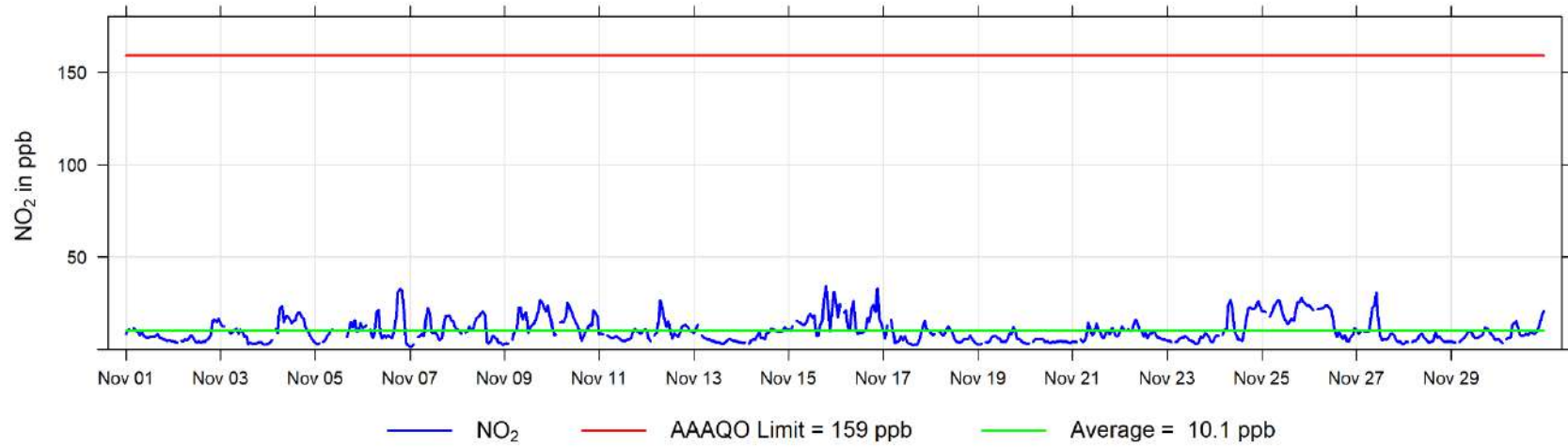
November 2024 Hourly Concentration Readings of NO (in ppb) at Henry Pirker



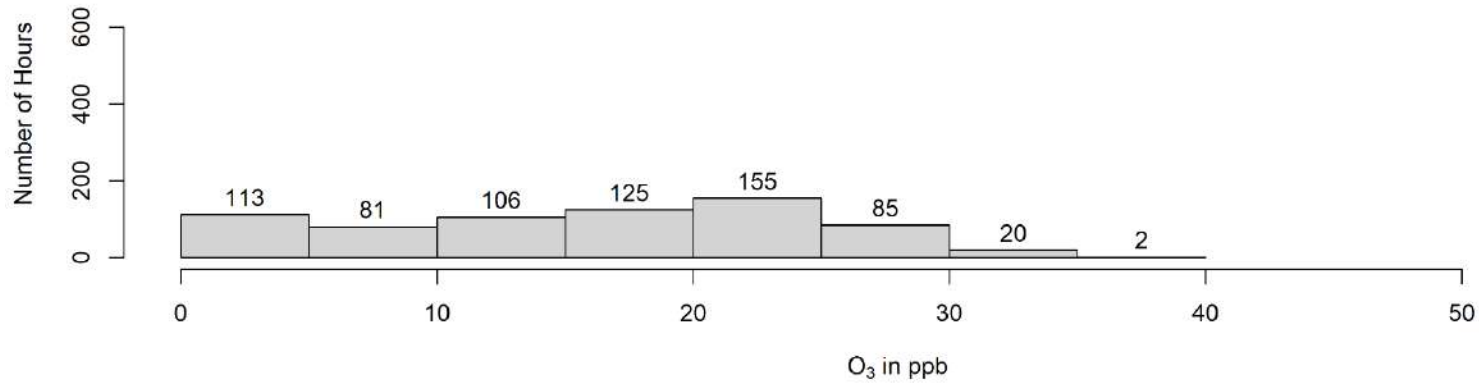
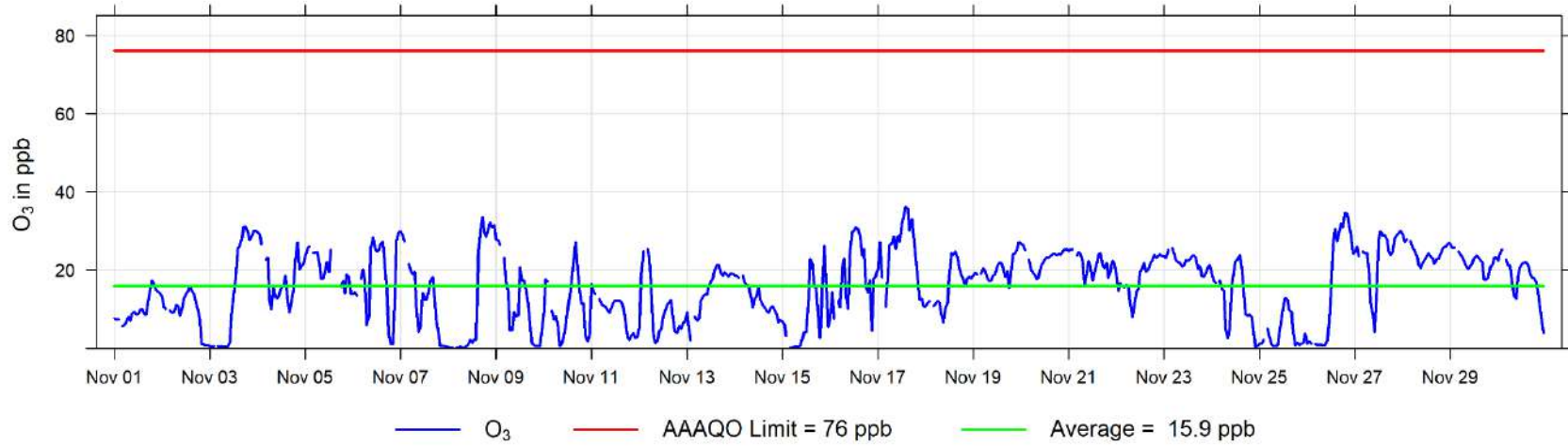
November 2024 Hourly Concentration Readings of NO<sub>x</sub> (in ppb) at Henry Pirker



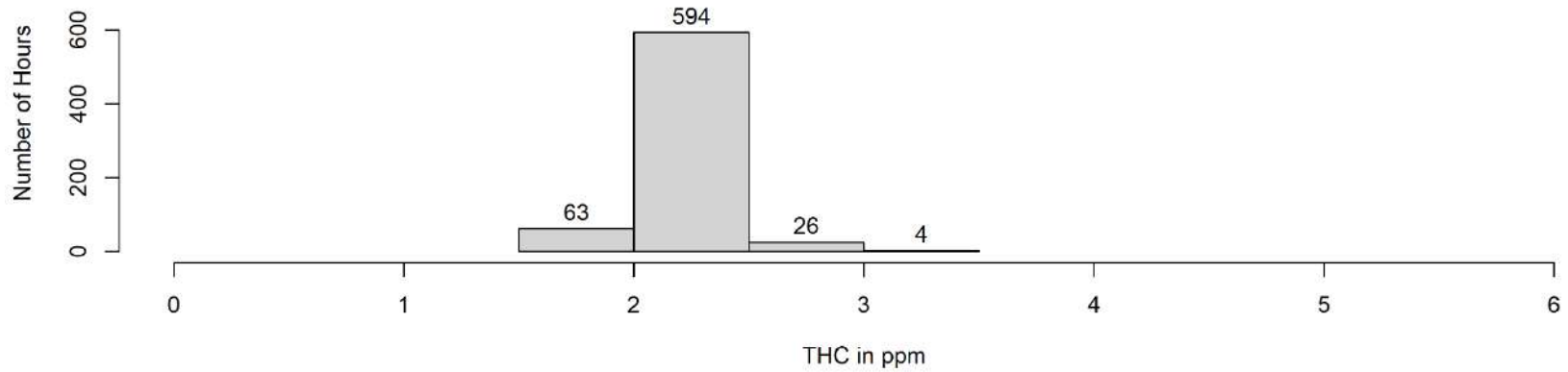
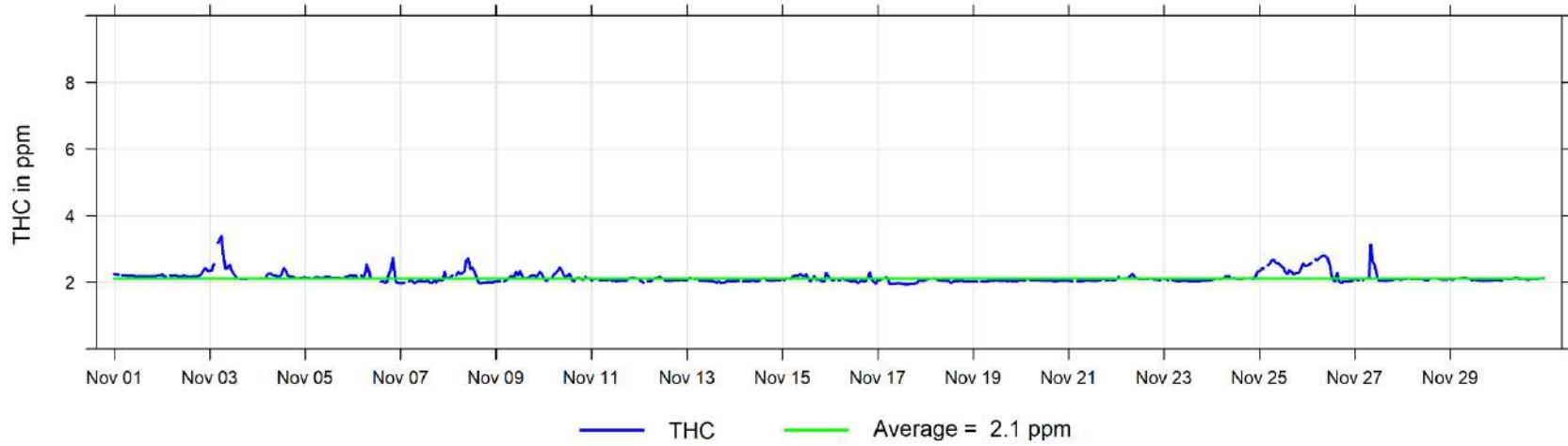
November 2024 Hourly Concentration Readings of NO<sub>2</sub> (in ppb) at Henry Pirker



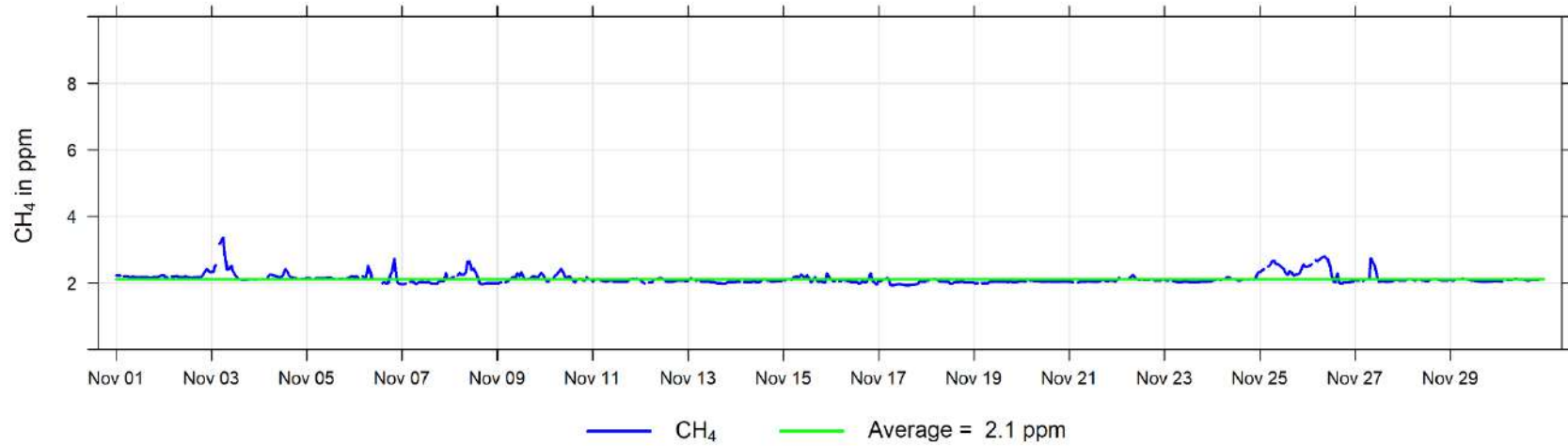
November 2024 Hourly Concentration Readings of O<sub>3</sub> (in ppb) at Henry Pirker



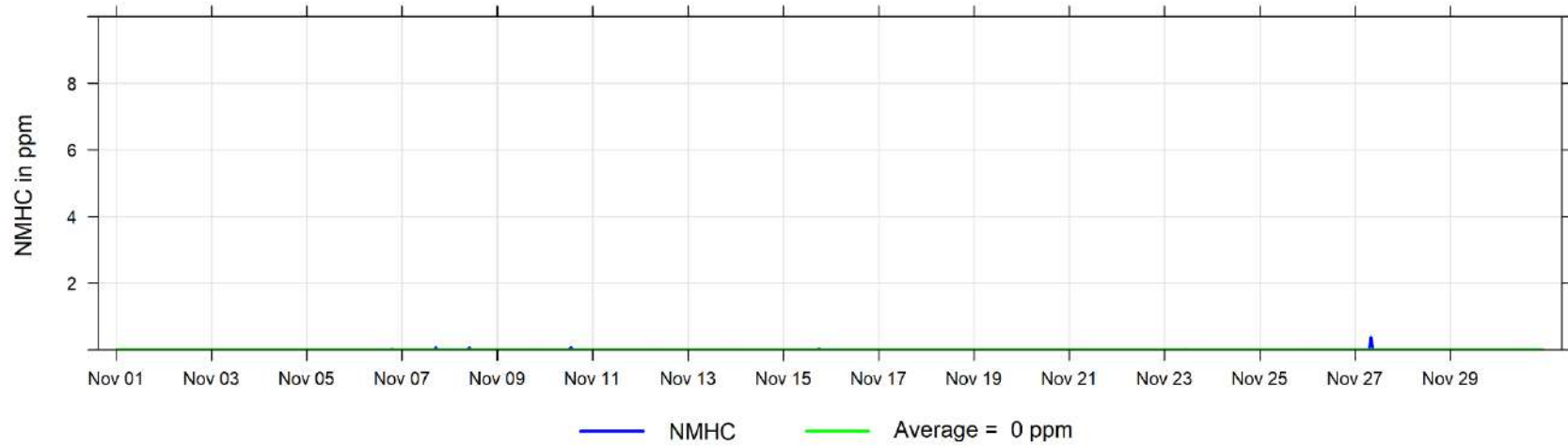
November 2024 Hourly Concentration Readings of THC (in ppm) at Henry Pirker



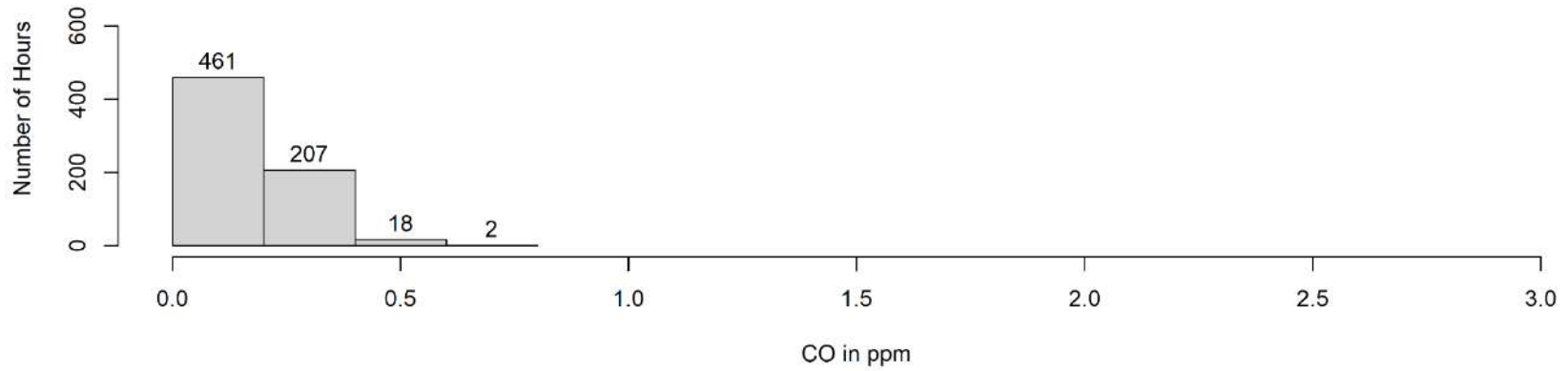
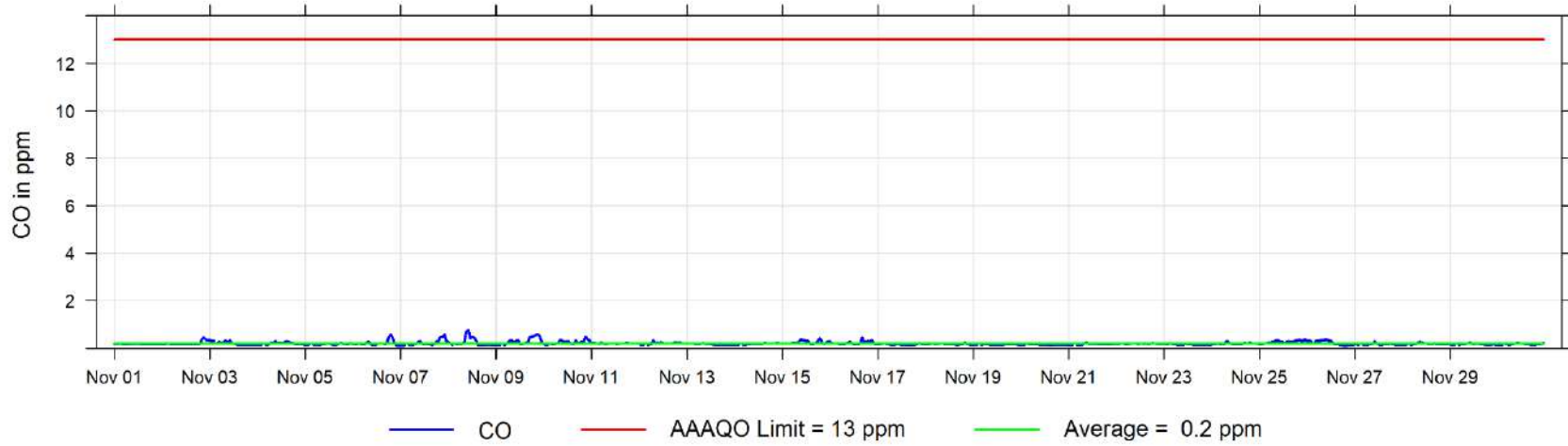
November 2024 Hourly Concentration Readings of CH<sub>4</sub> (in ppm) at Henry Pirker



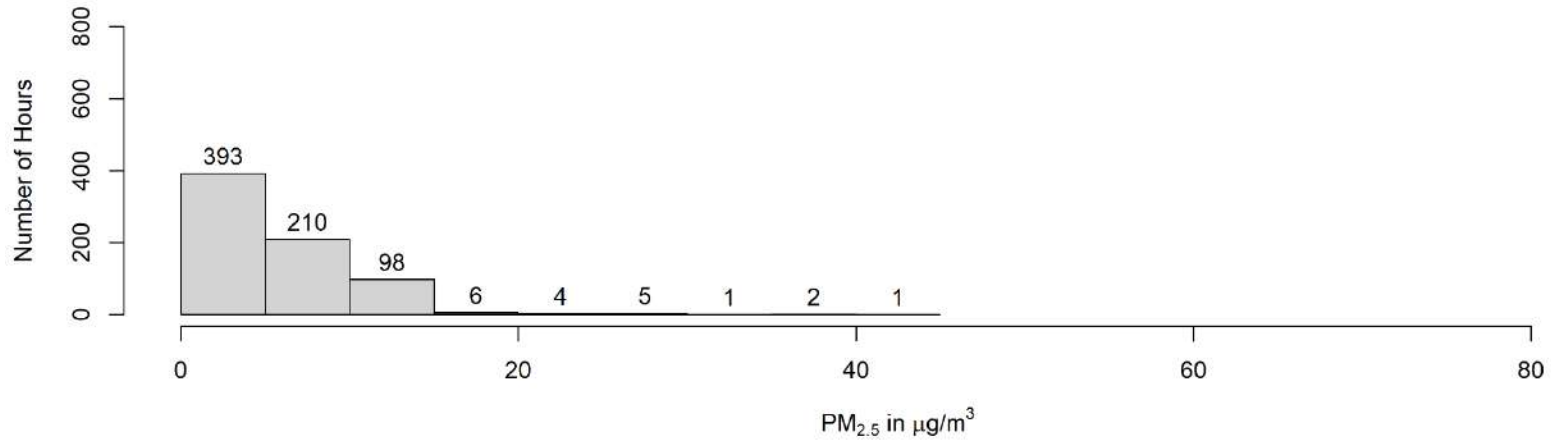
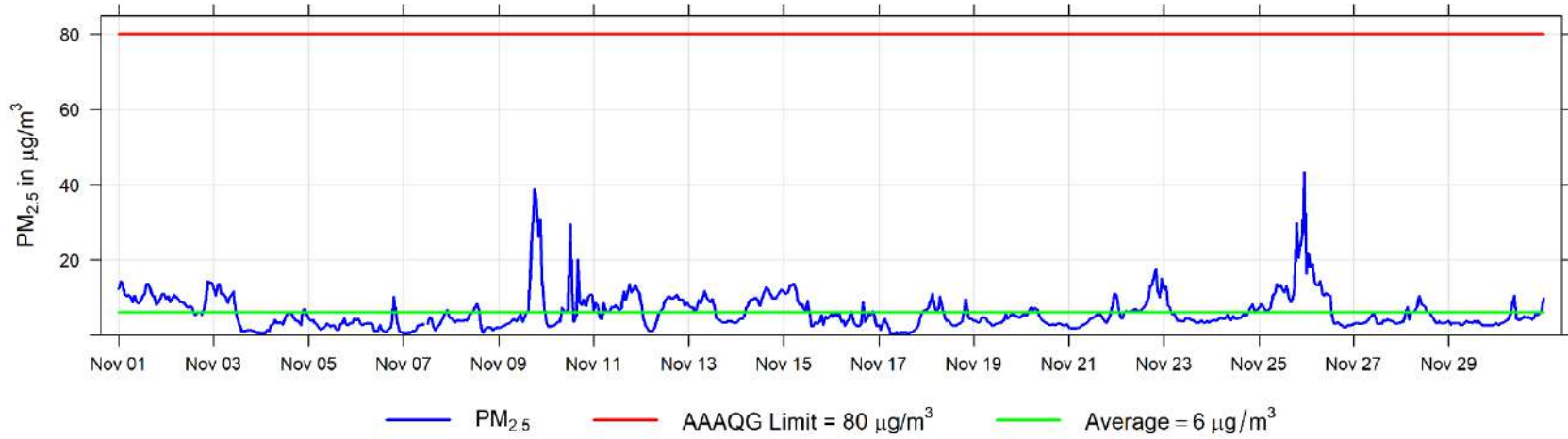
November 2024 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker



November 2024 Hourly Concentration Readings of CO (in ppm) at Henry Pirker

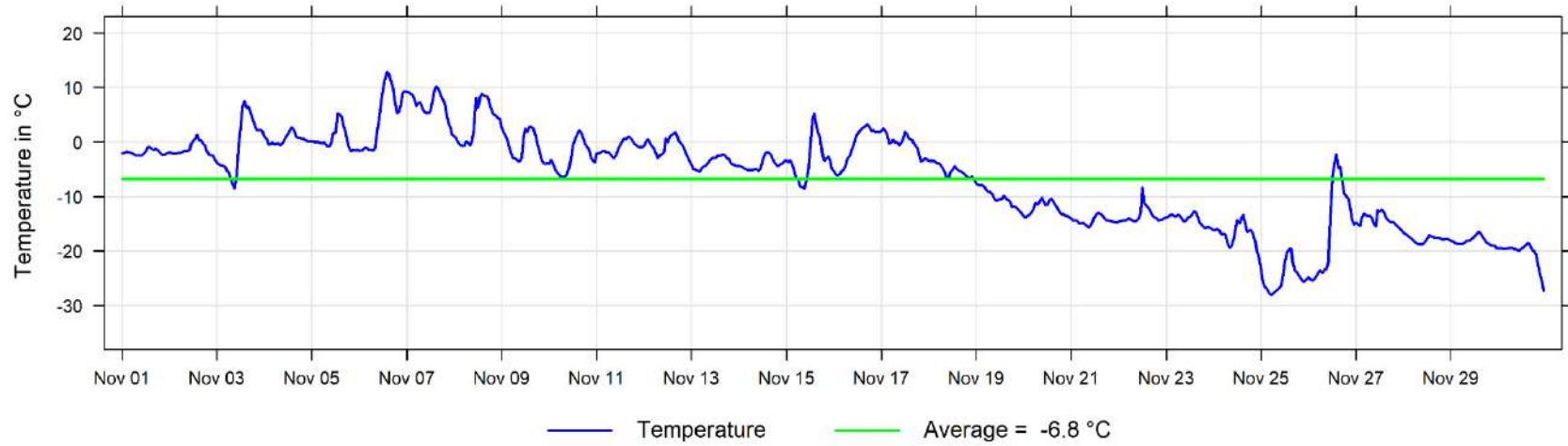


November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Henry Pirker

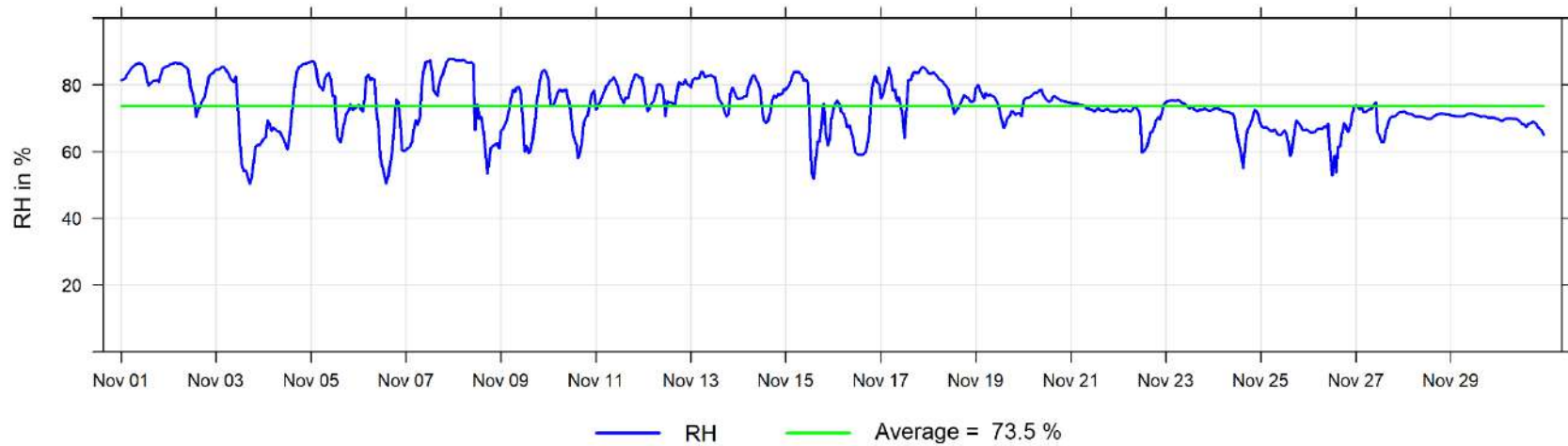




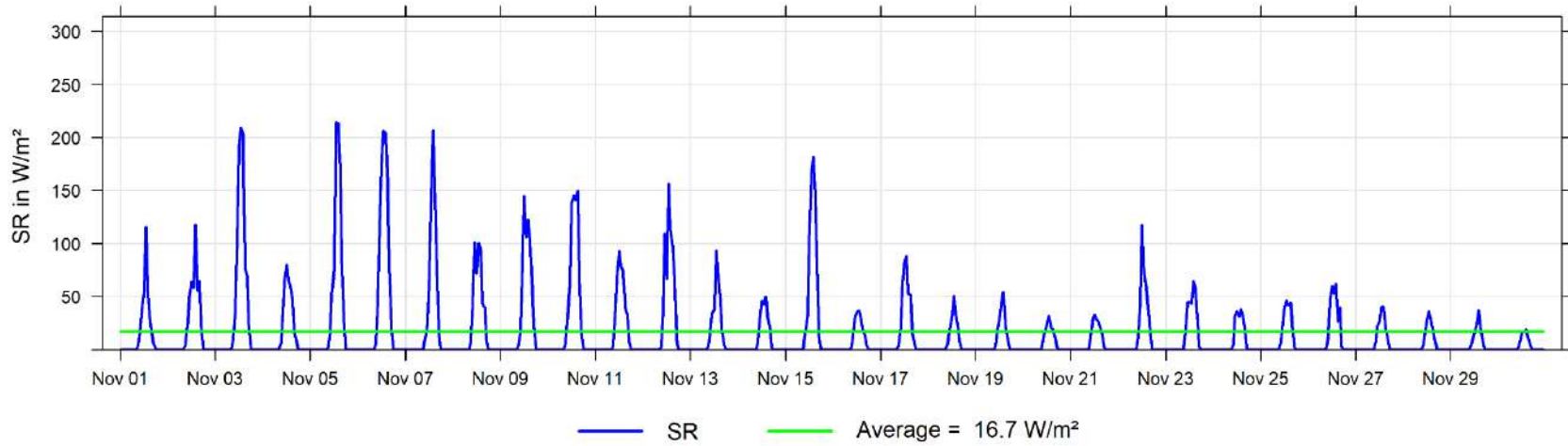
November 2024 Hourly Temperature Readings (in °C) at Henry Pirker



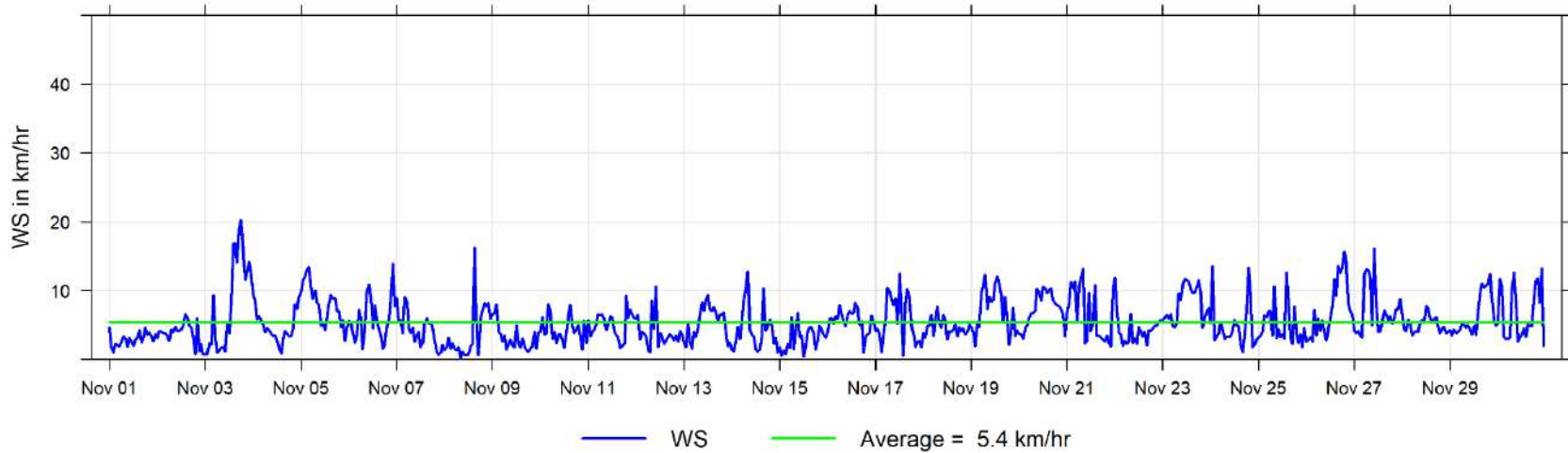
November 2024 Hourly Readings of Relative Humidity (in %) at Henry Pirker



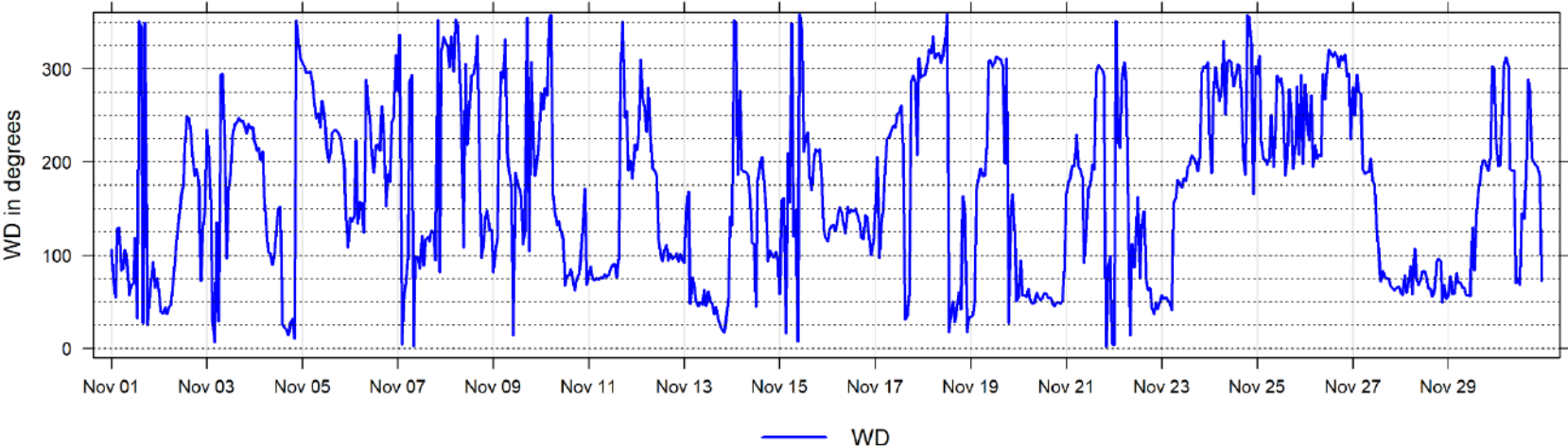
November 2024 Hourly Readings of Solar Radiation (in W/m<sup>2</sup>) at Henry Pirker



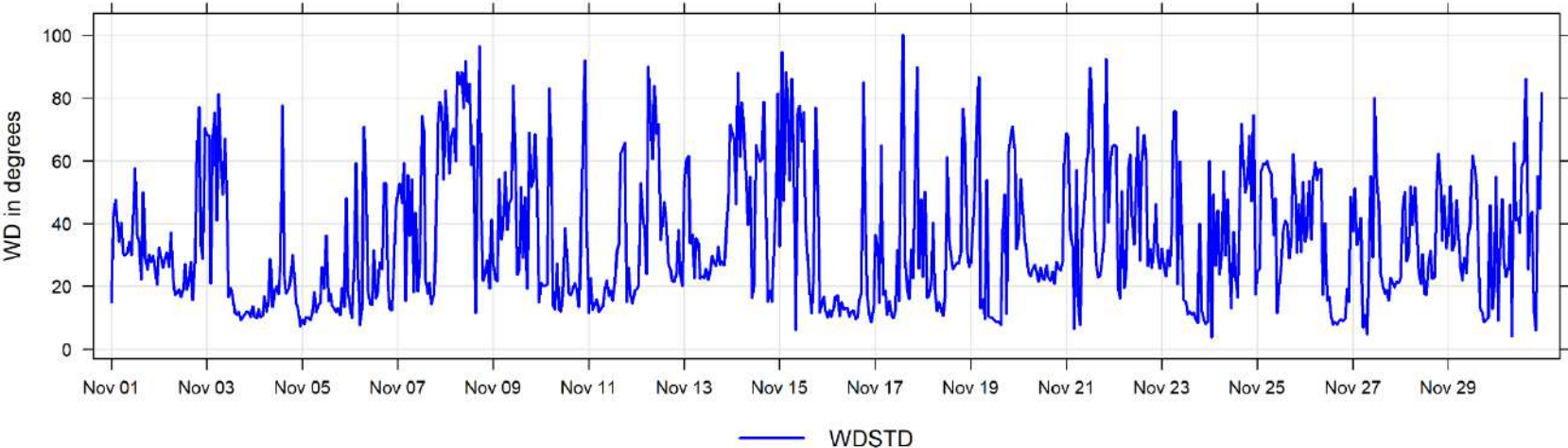
November 2024 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

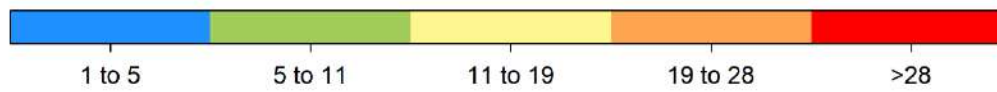
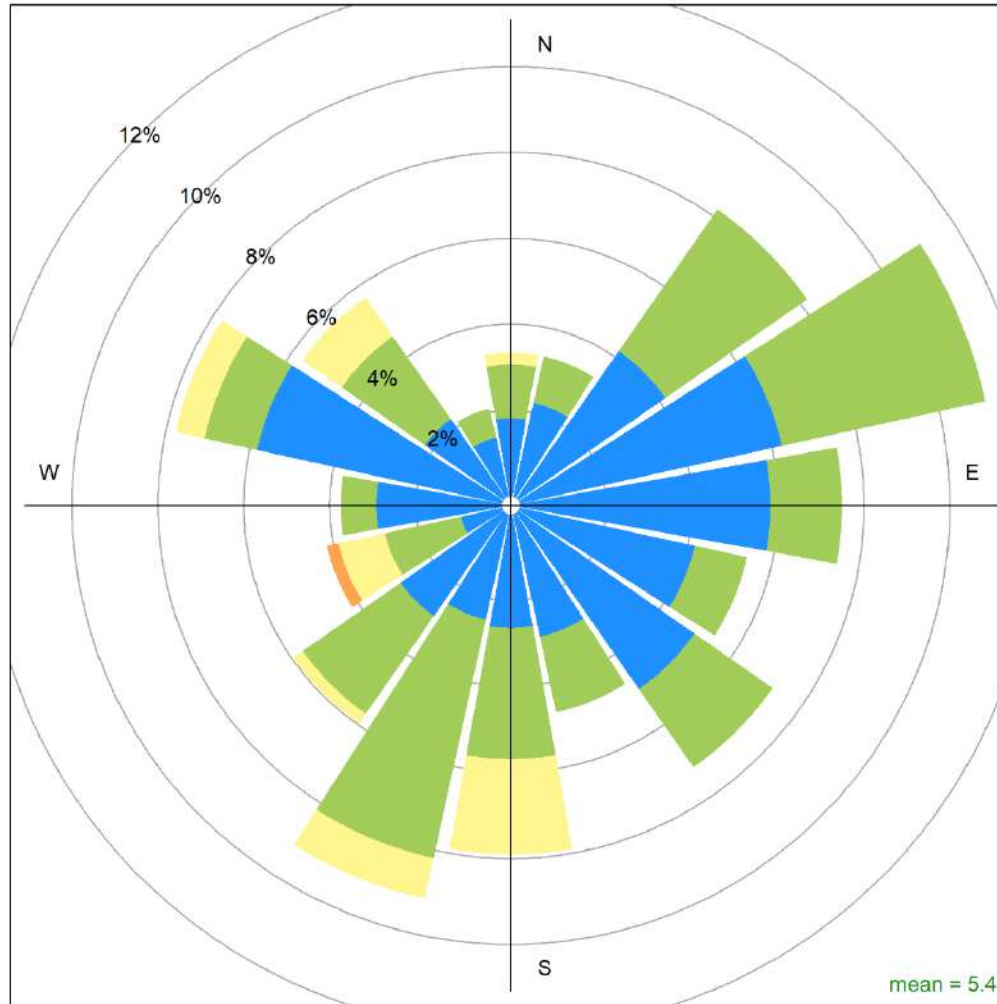


**November 2024 Hourly Readings of Wind Direction (in degrees) at Henry Pirker**



**November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Henry Pirker**

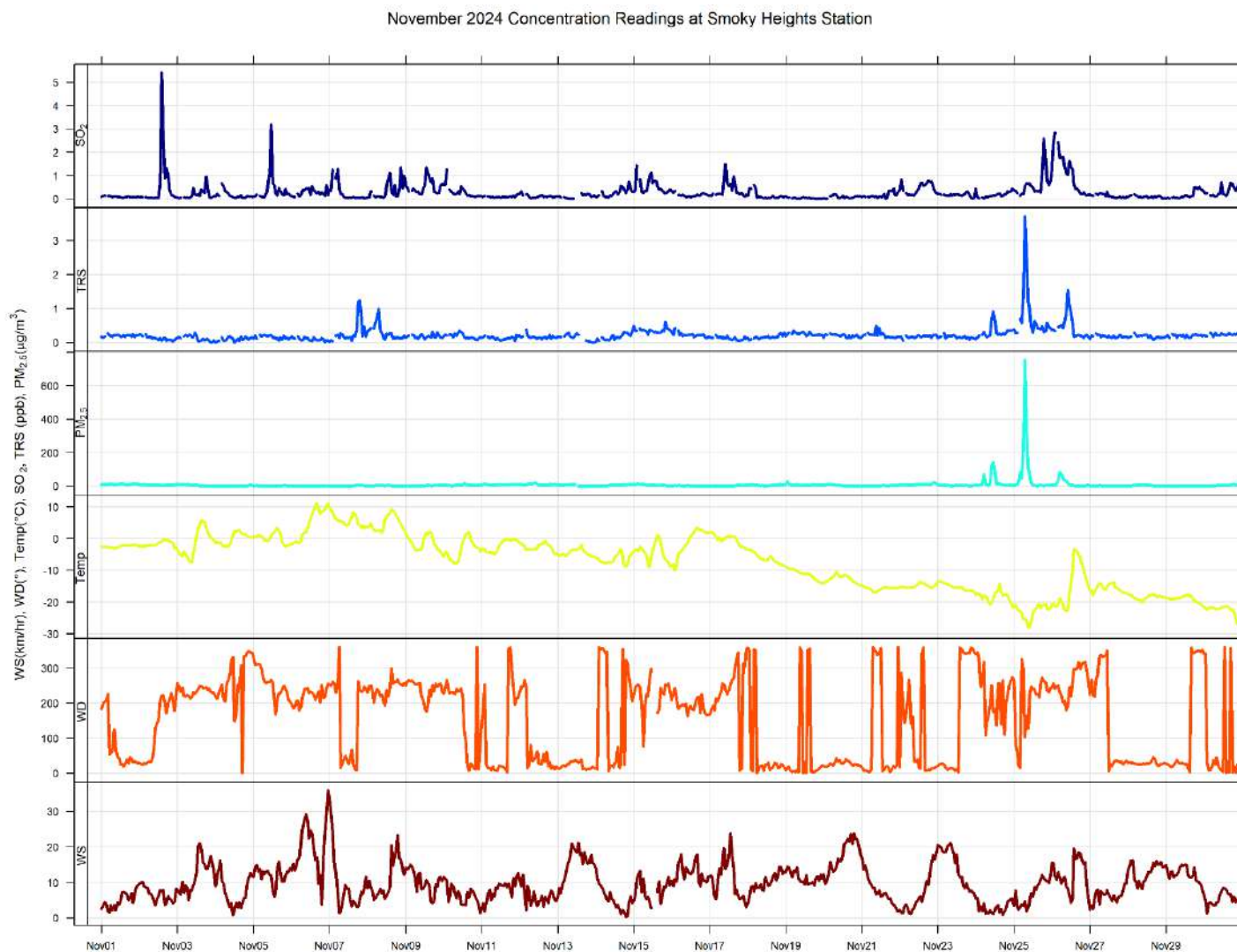




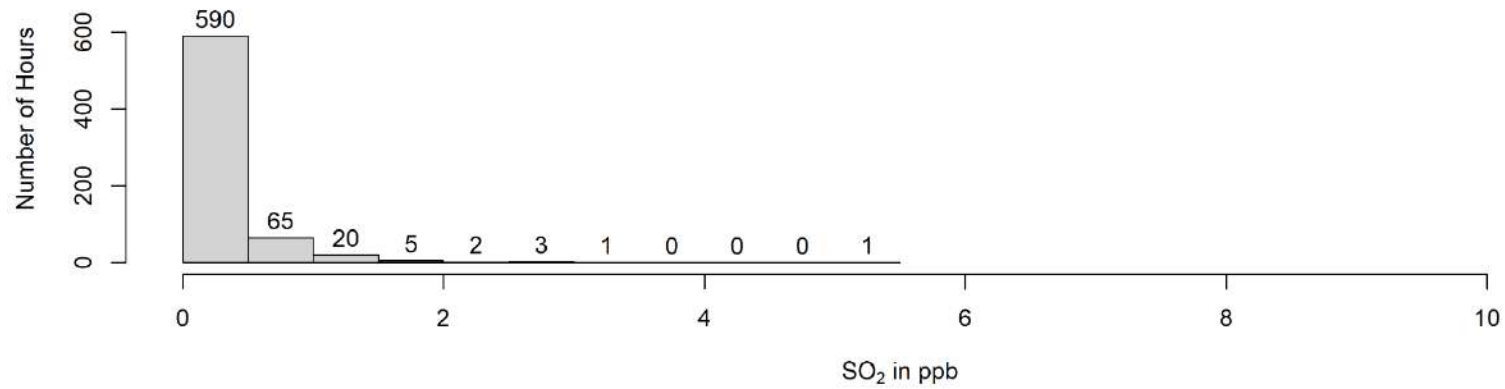
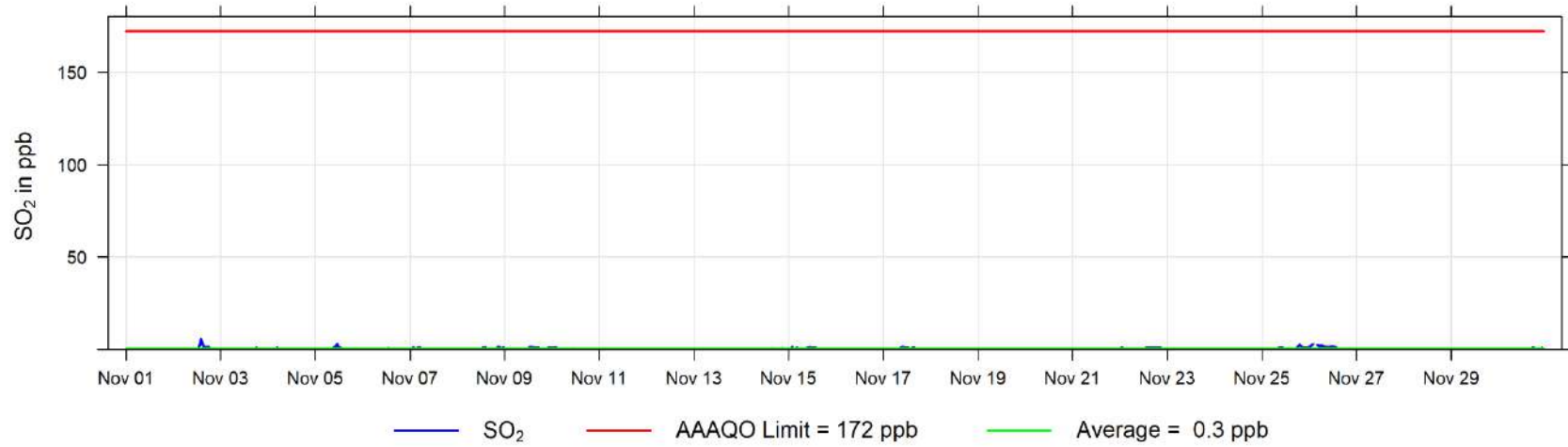
Henry Pirker November 2024 Wind Rose, wind speed in km/hr  
**Calms (<1km/hr) = 2.8 %**

## 5 Smoky Heights Charts

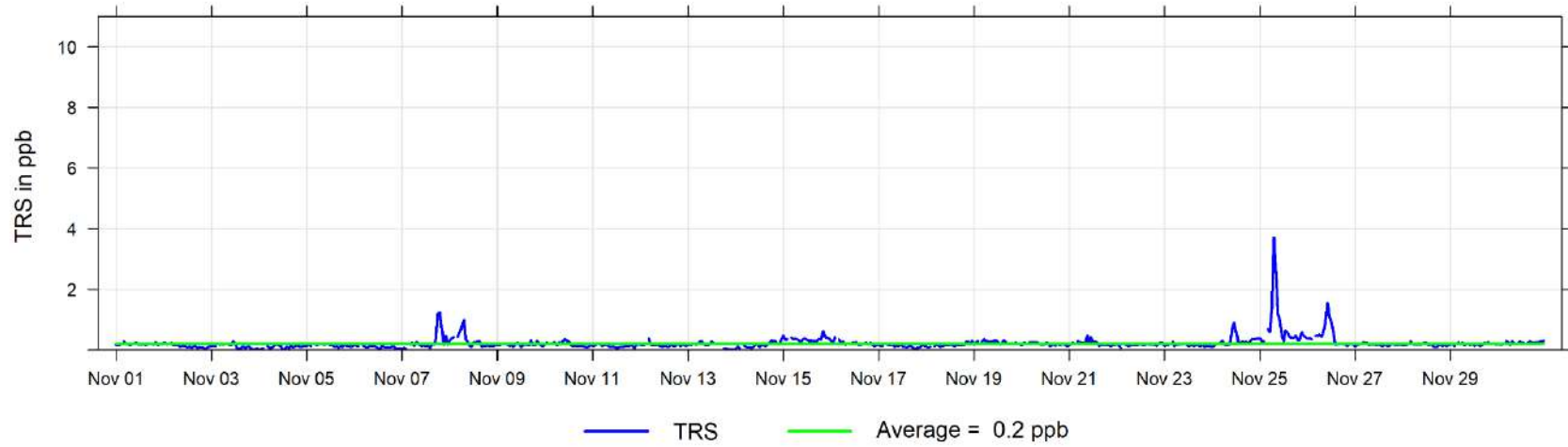
The following pages include the charts and histograms for Smoky Heights Station



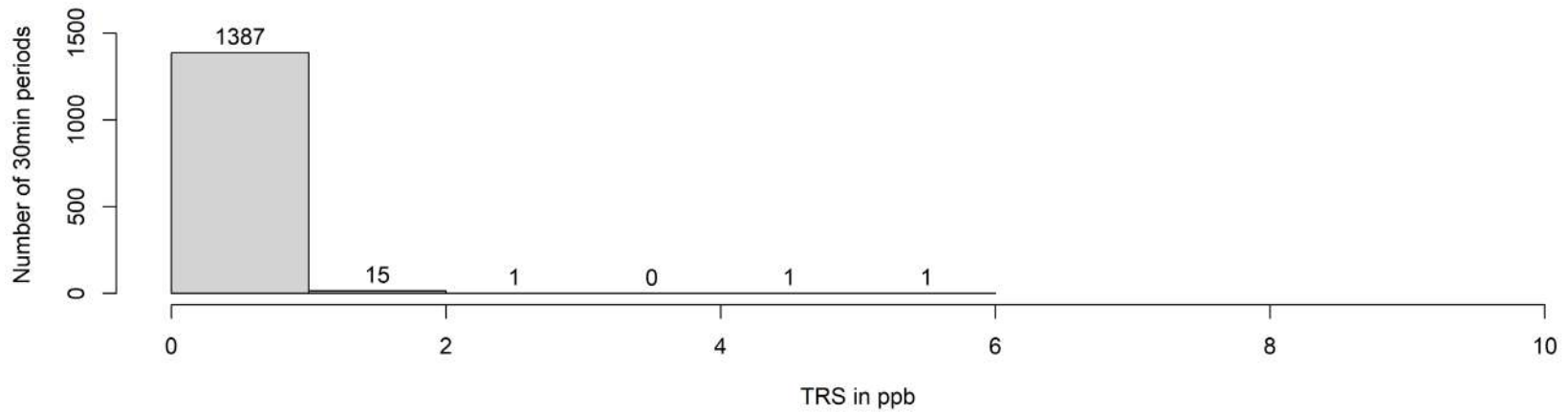
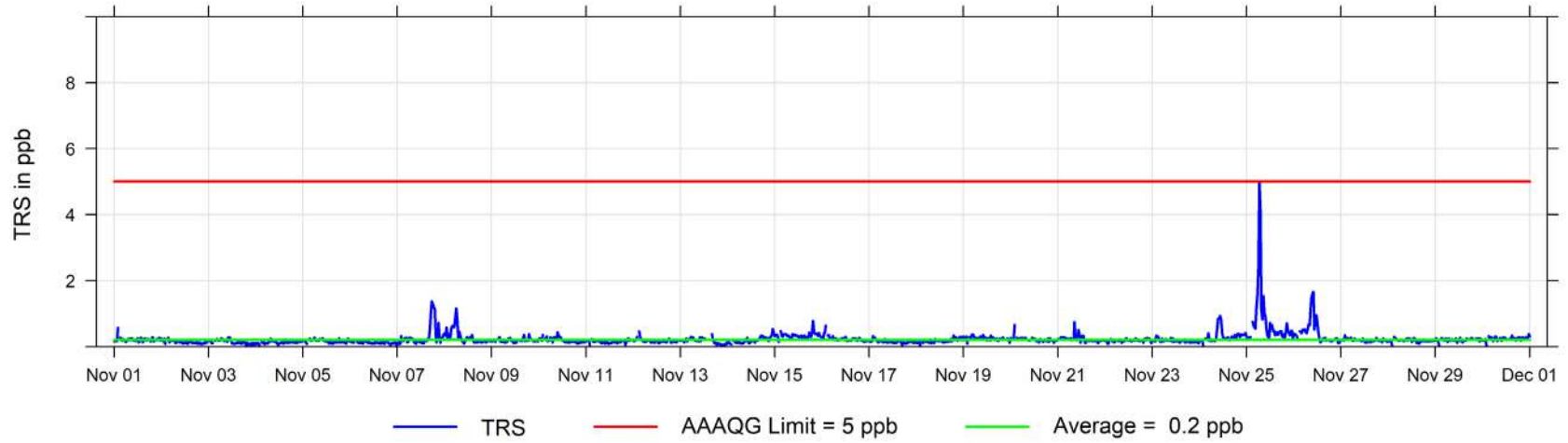
November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Smoky Heights



November 2024 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights

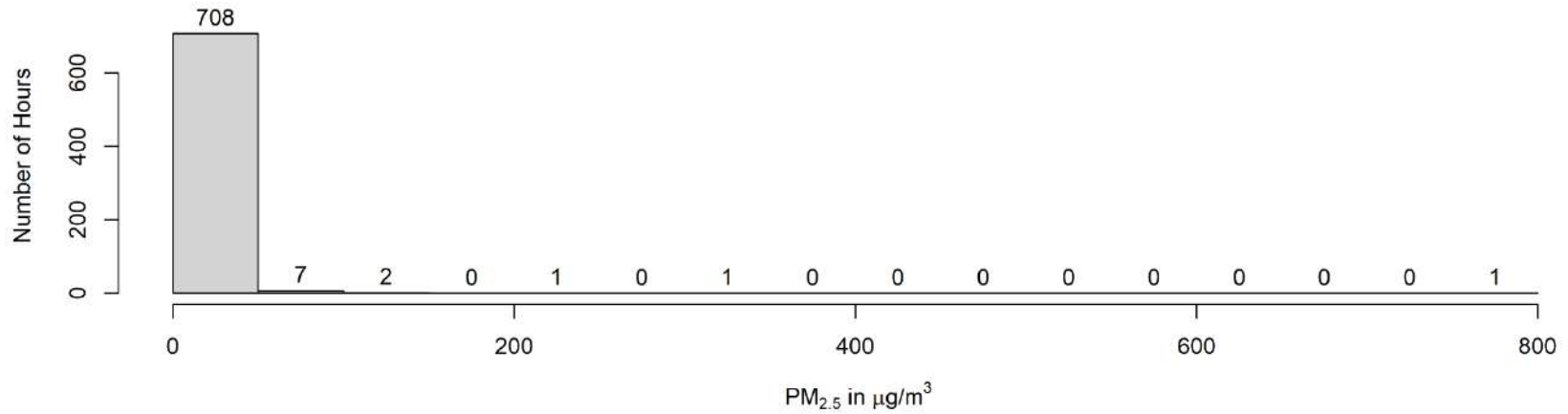
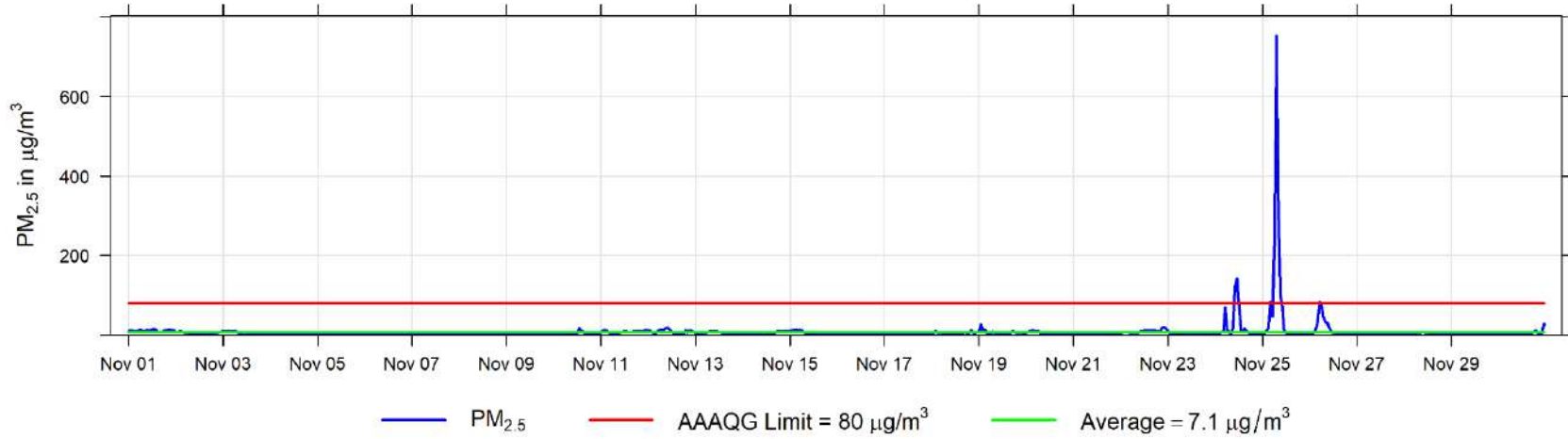


November 2024 30 min Concentration Readings of TRS (in ppb) at Smoky Heights

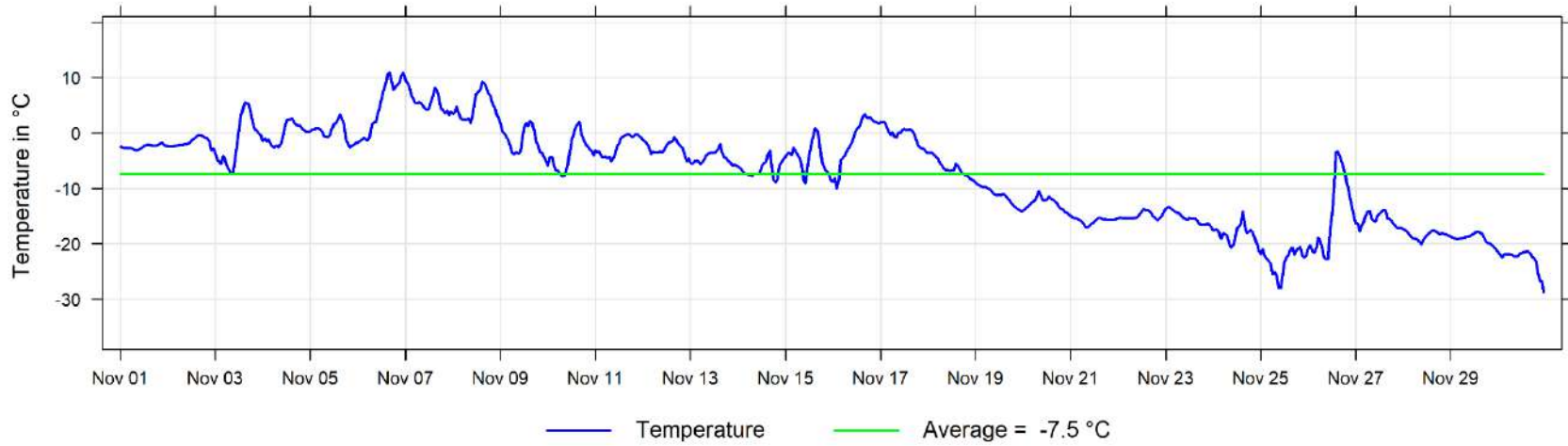




November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Smoky Heights



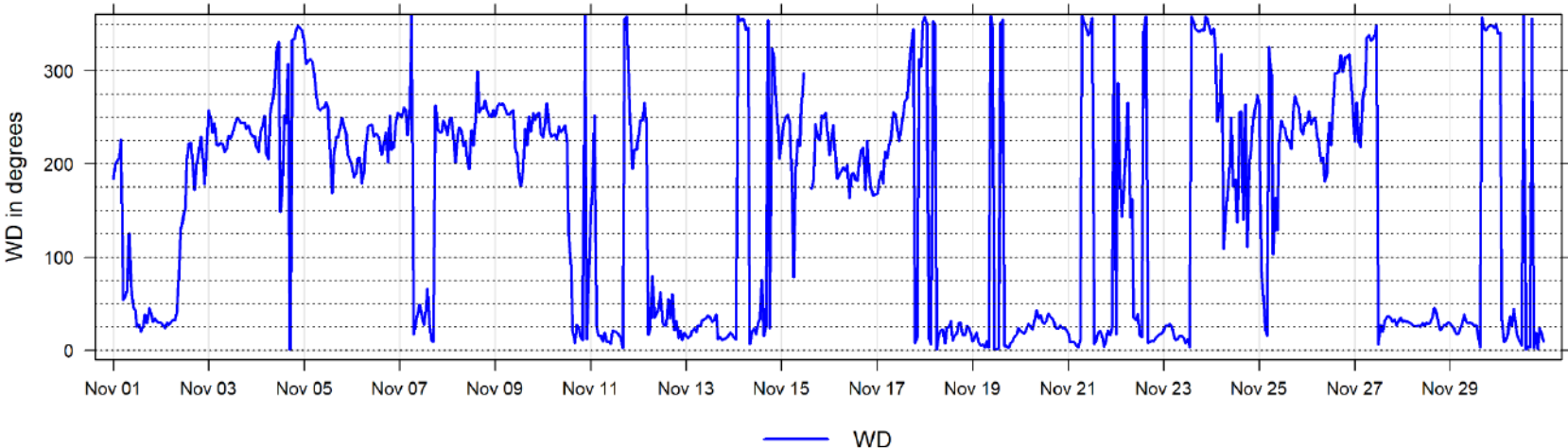
November 2024 Hourly Temperature Readings (in °C) at Smoky Heights



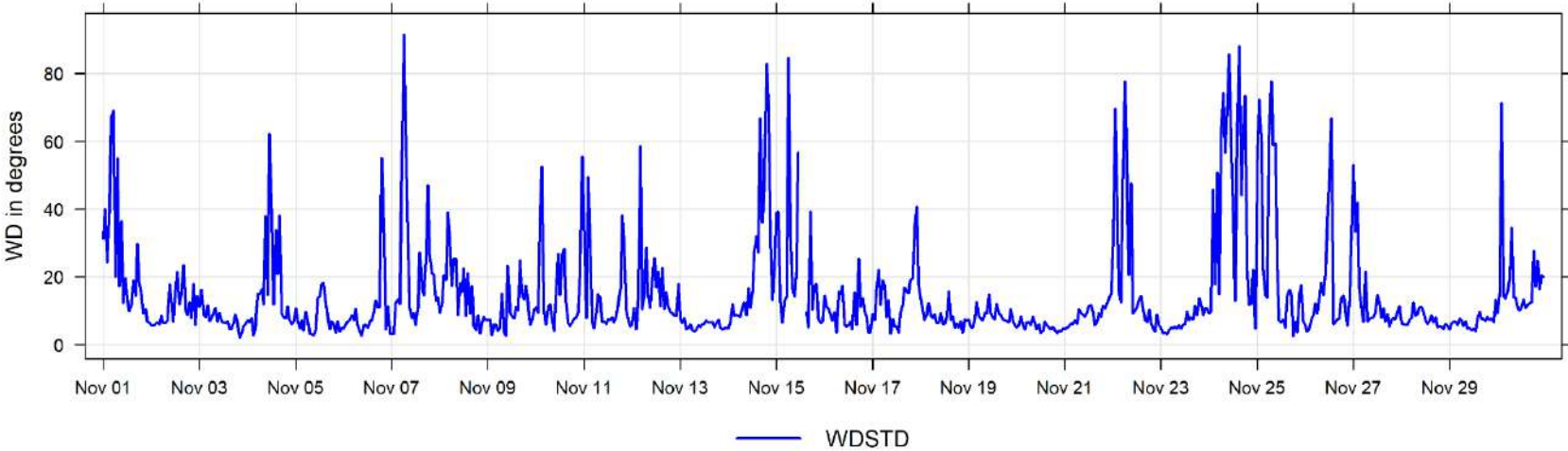
November 2024 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights

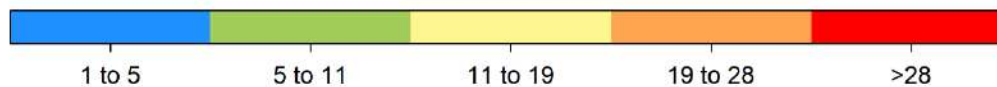
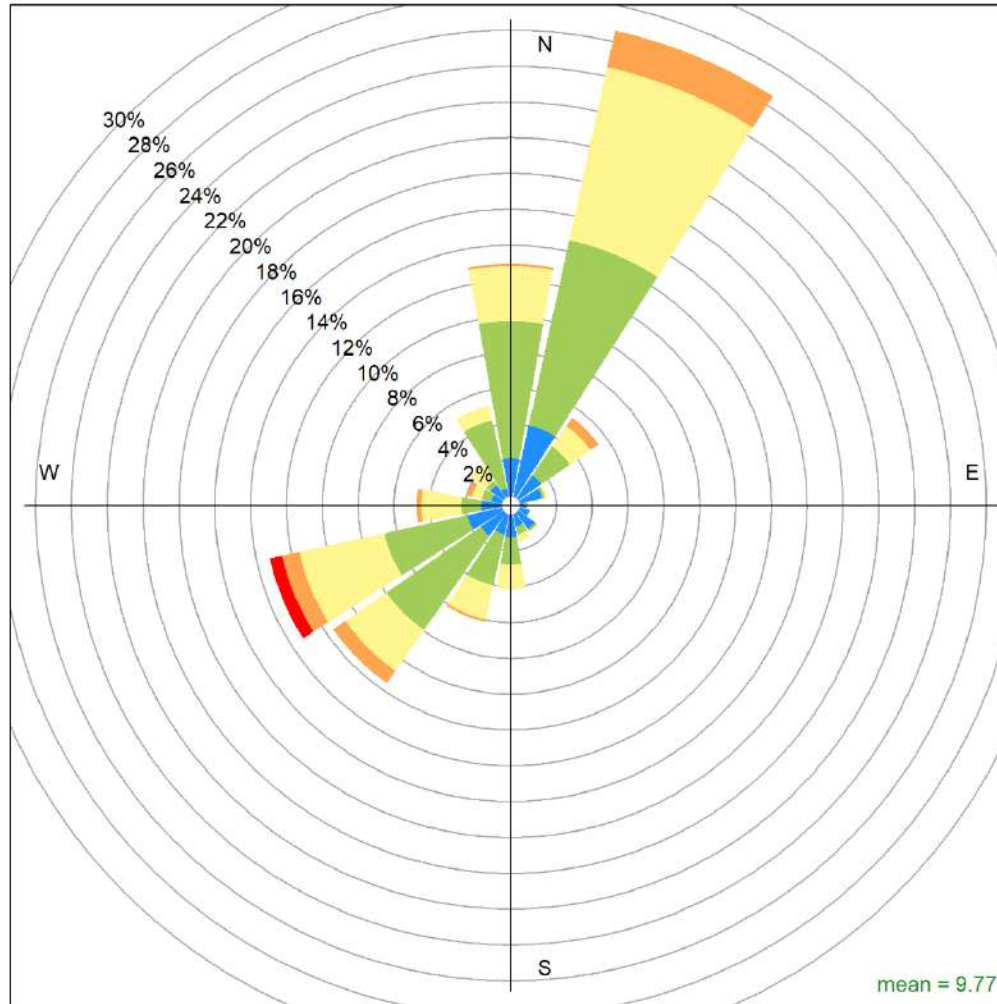


**November 2024 Hourly Readings of Wind Direction (in degrees) at Smoky Heights**



**November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Smoky Heights**



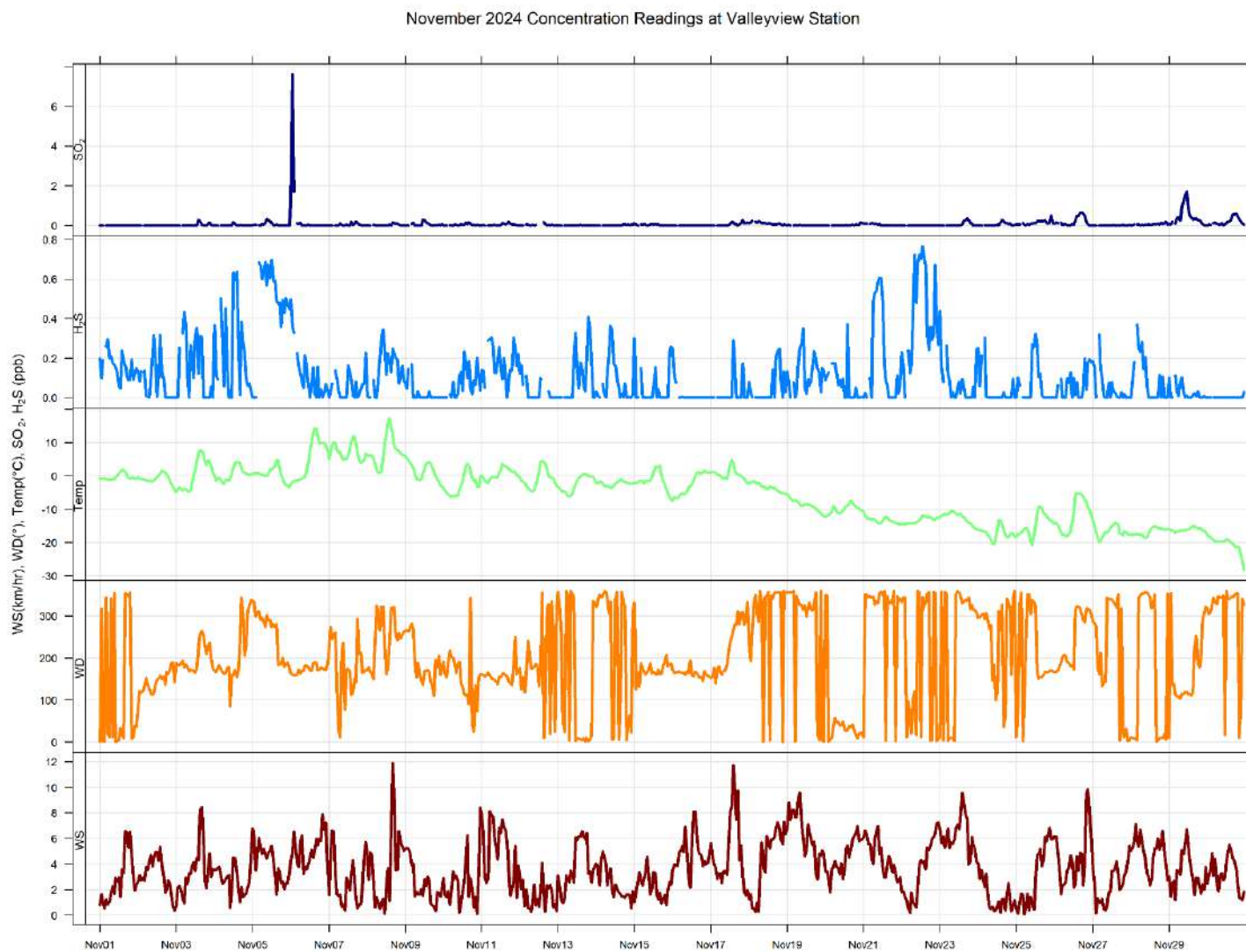


Smoky Heights November 2024 Wind Rose, wind speed in km/hr

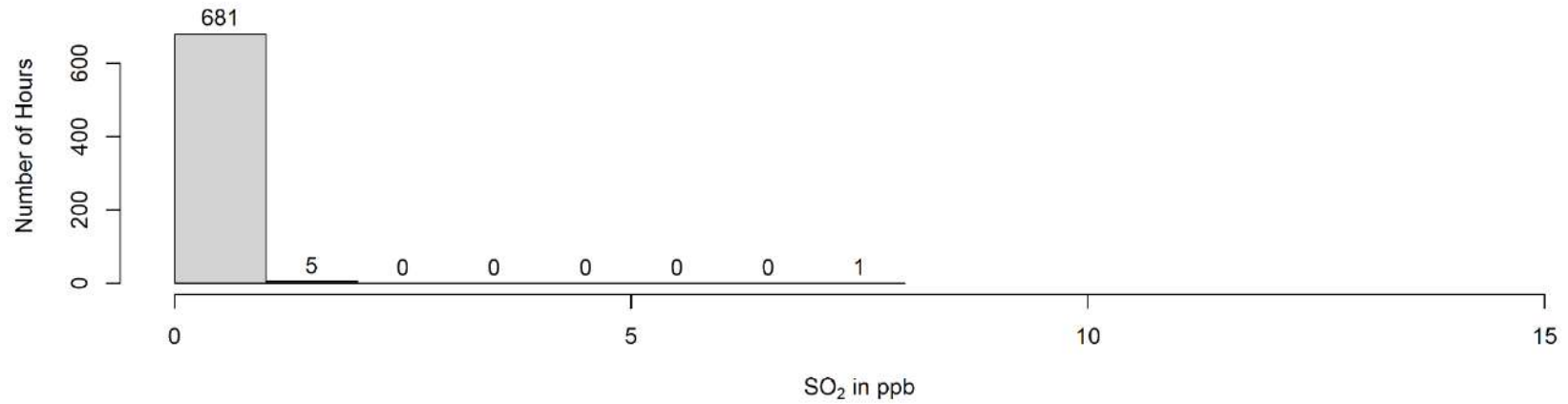
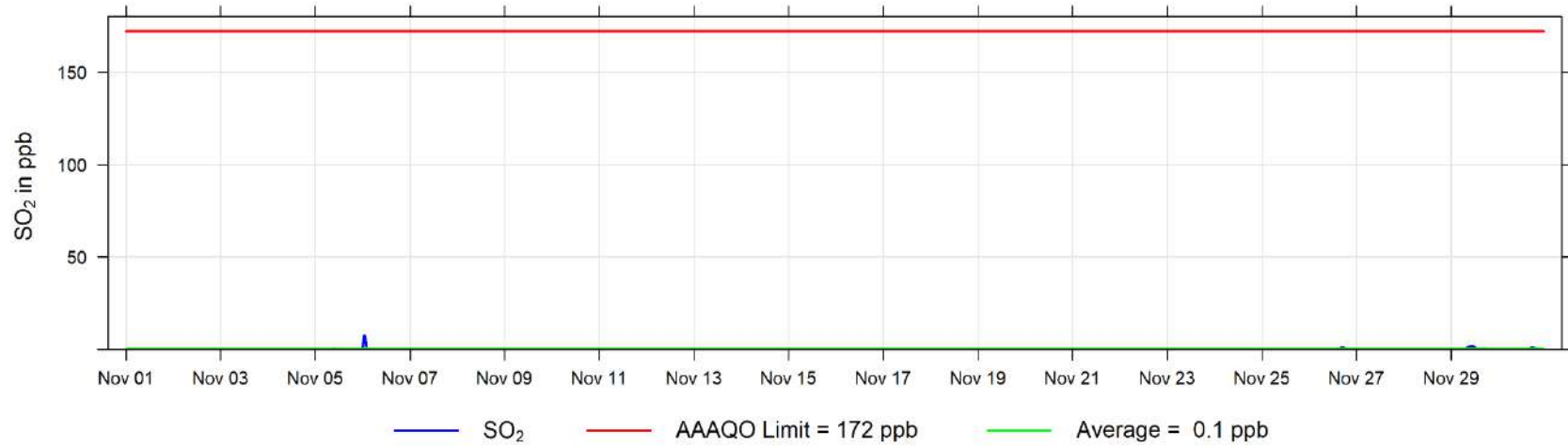
**Calms (<1km/hr) = 0.6 %**

## 6 Valleyview Charts

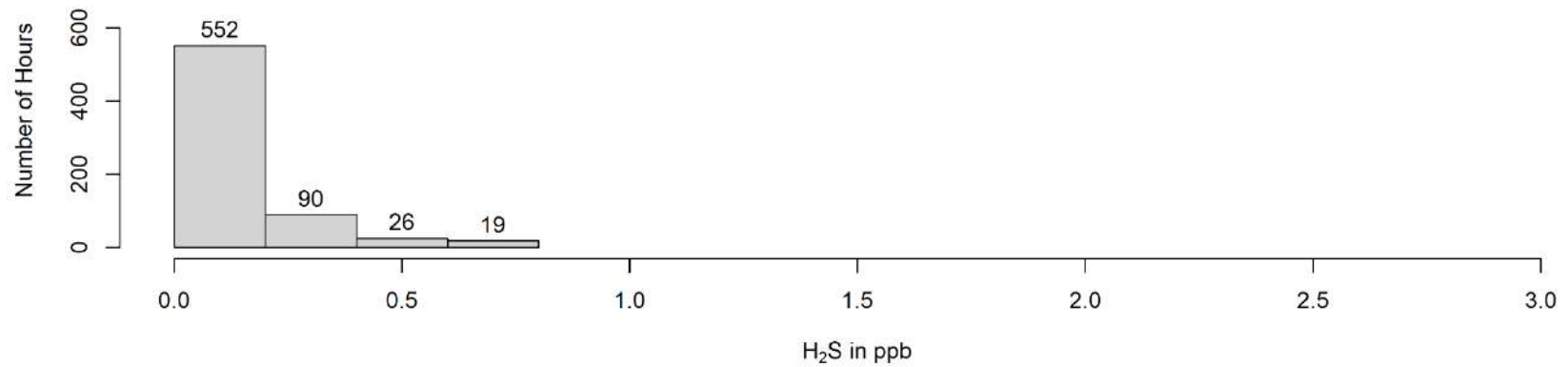
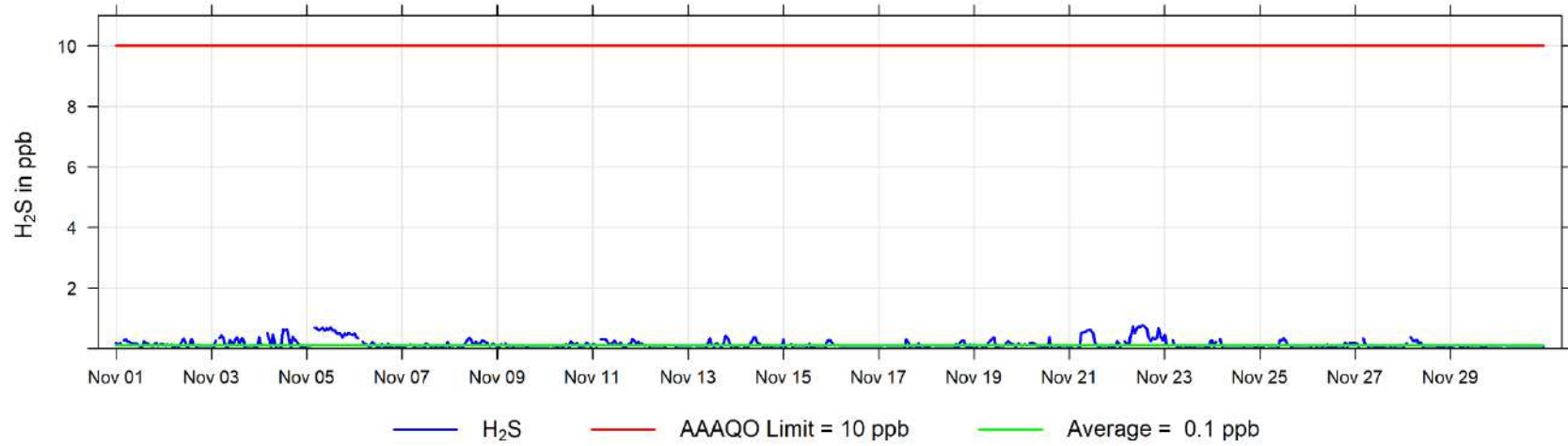
The following pages include the charts and histograms for Valleyview Station



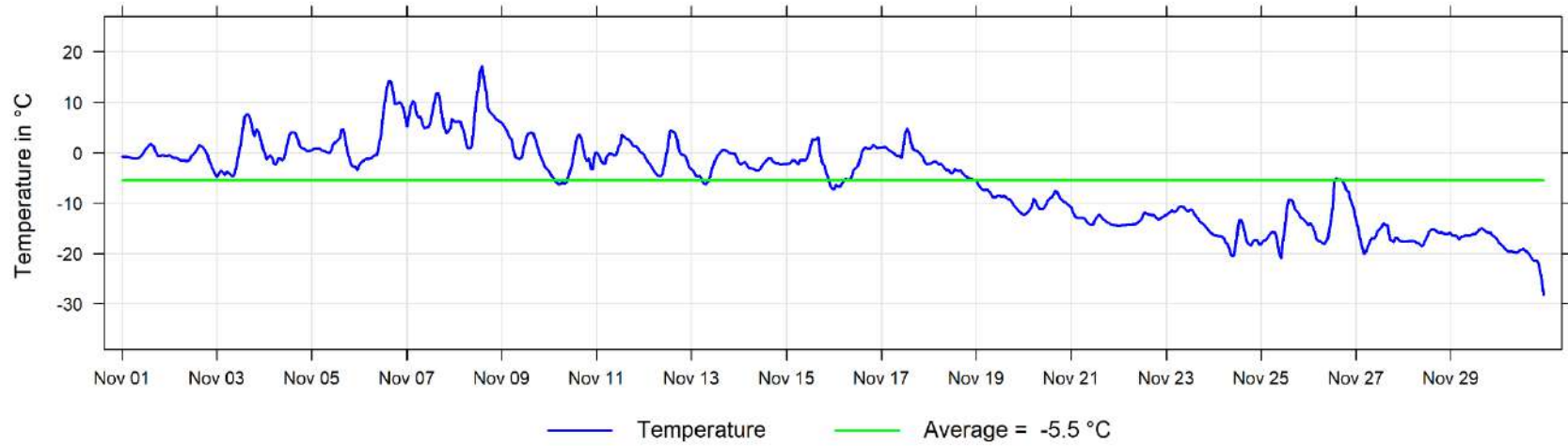
November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Valleyview



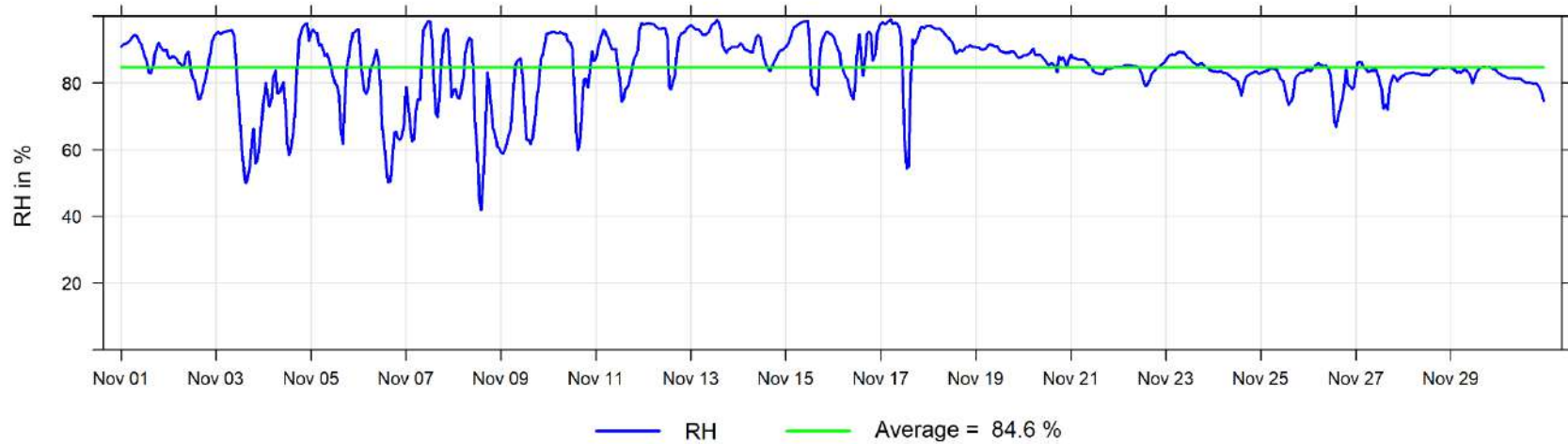
November 2024 Hourly Concentration Readings of H<sub>2</sub>S (in ppb) at Valleyview



November 2024 Hourly Temperature Readings (in °C) at Valleyview

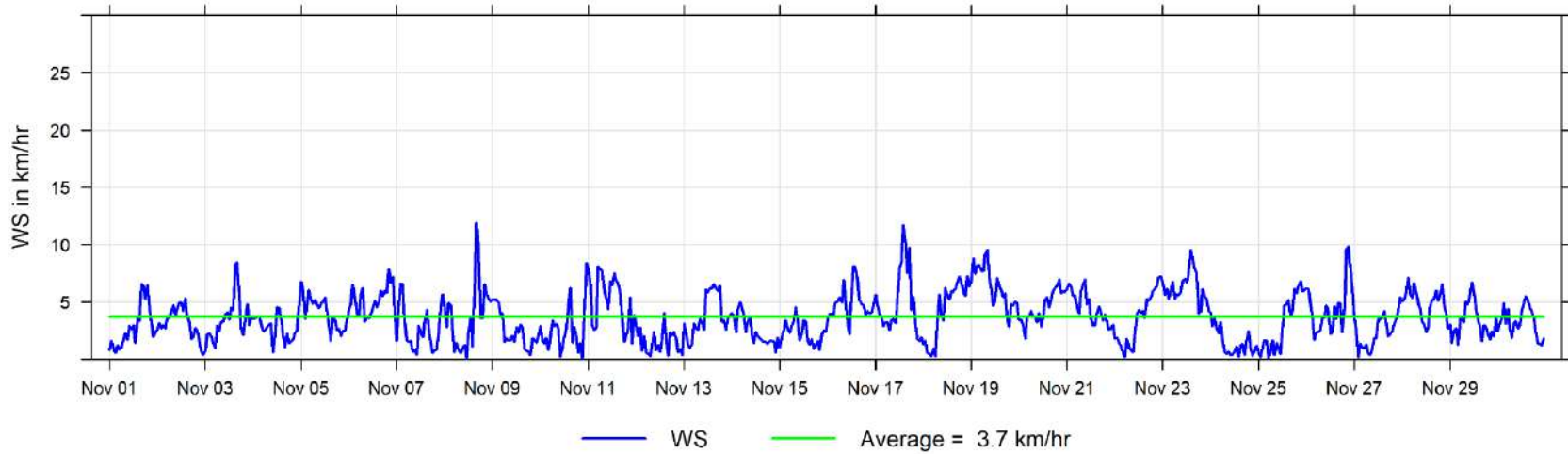


November 2024 Hourly Readings of Relative Humidity (in %) at Valleyview

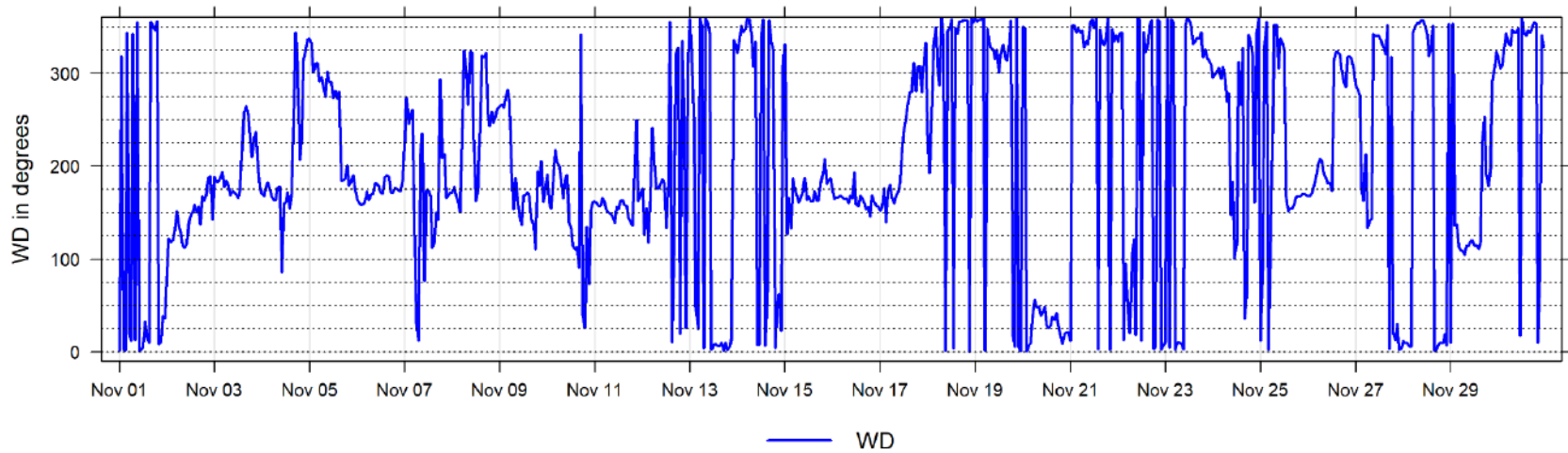




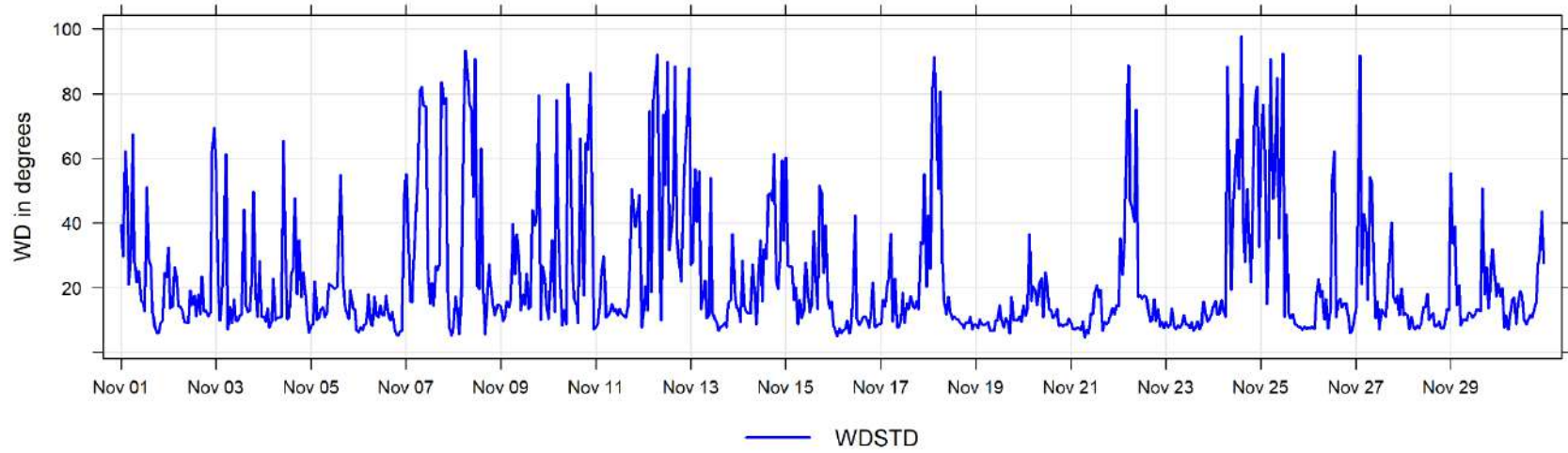
November 2024 Hourly Readings of Wind Speed (in km/hr) at Valleyview



November 2024 Hourly Readings of Wind Direction (in degrees) at Valleyview



November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Valleyview

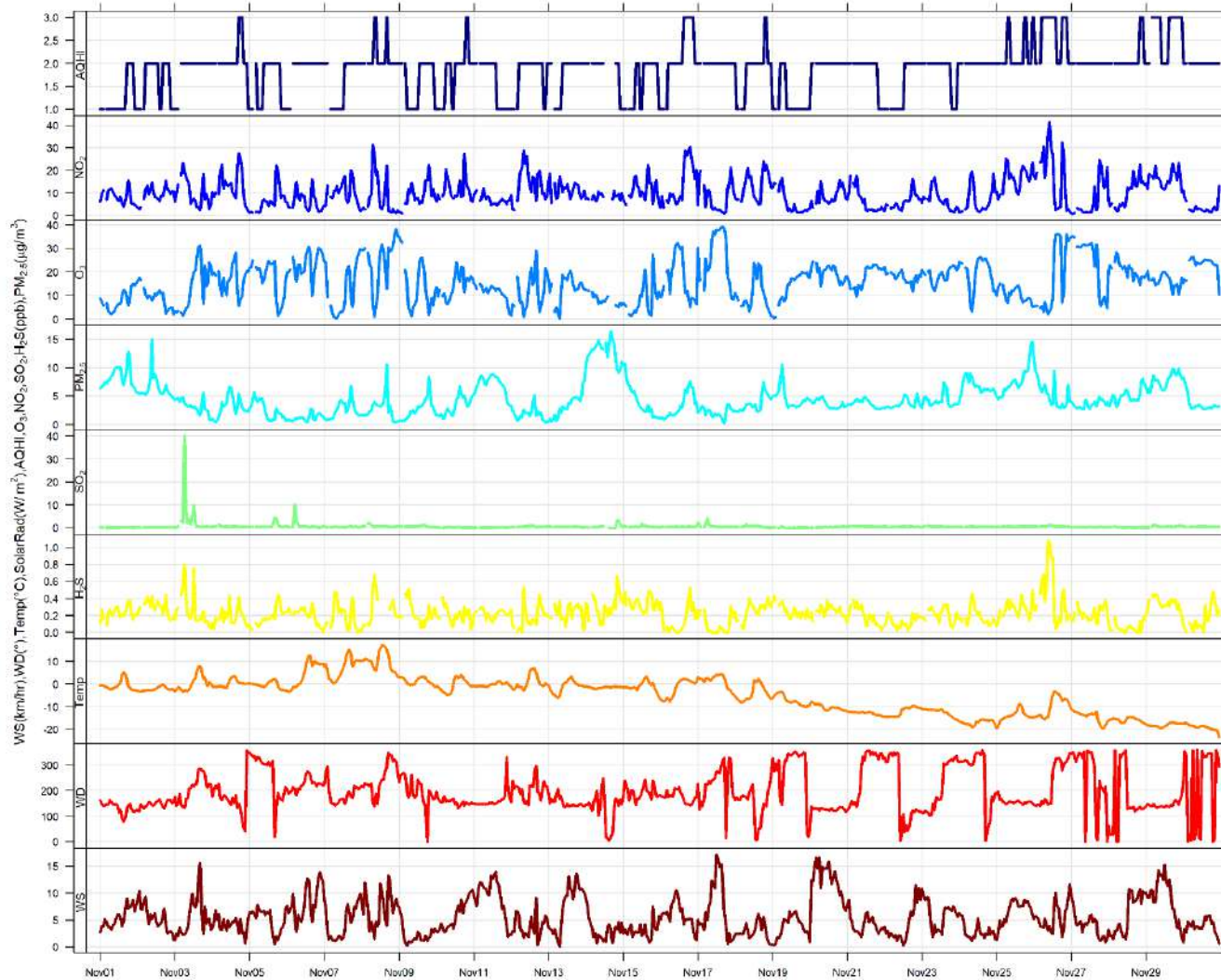




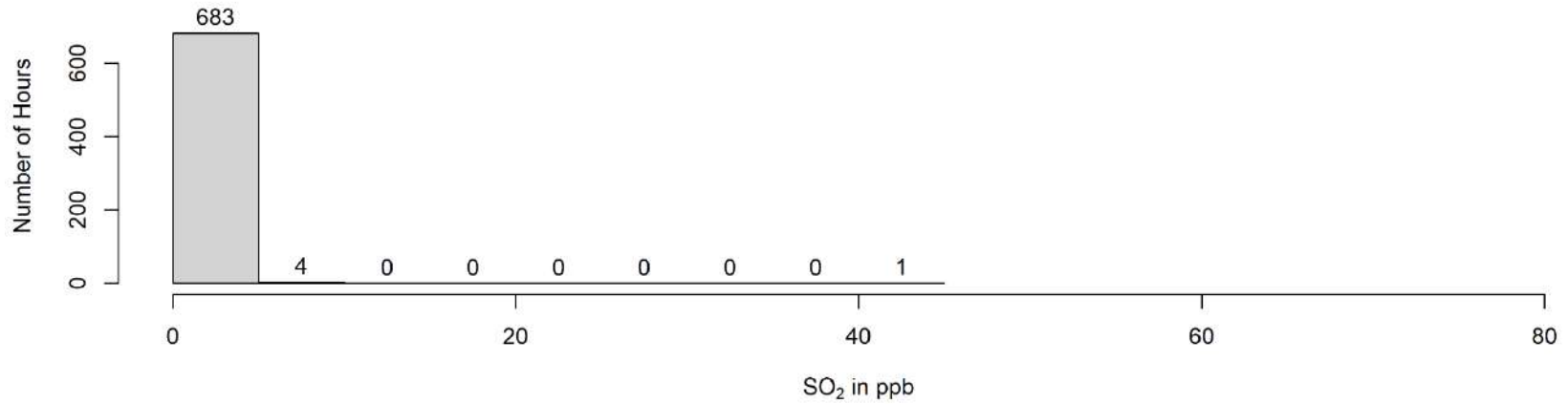
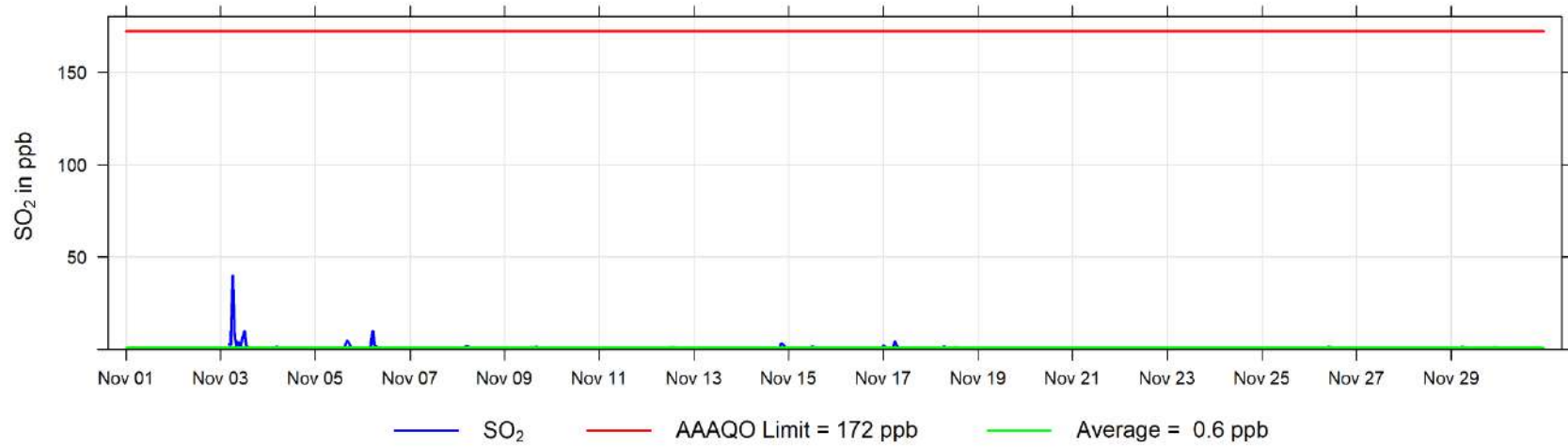
## 7 Fox Creek Charts

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

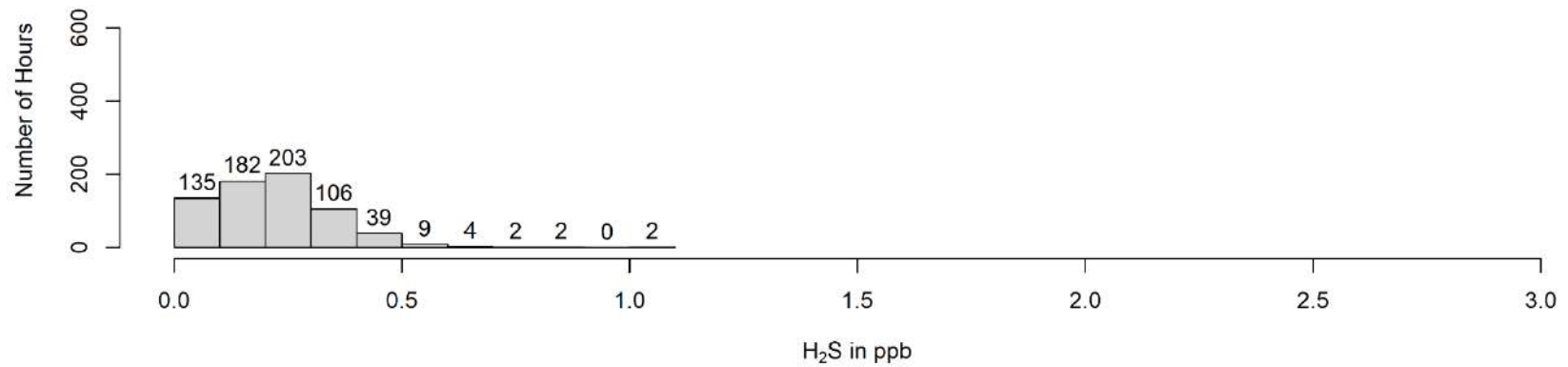
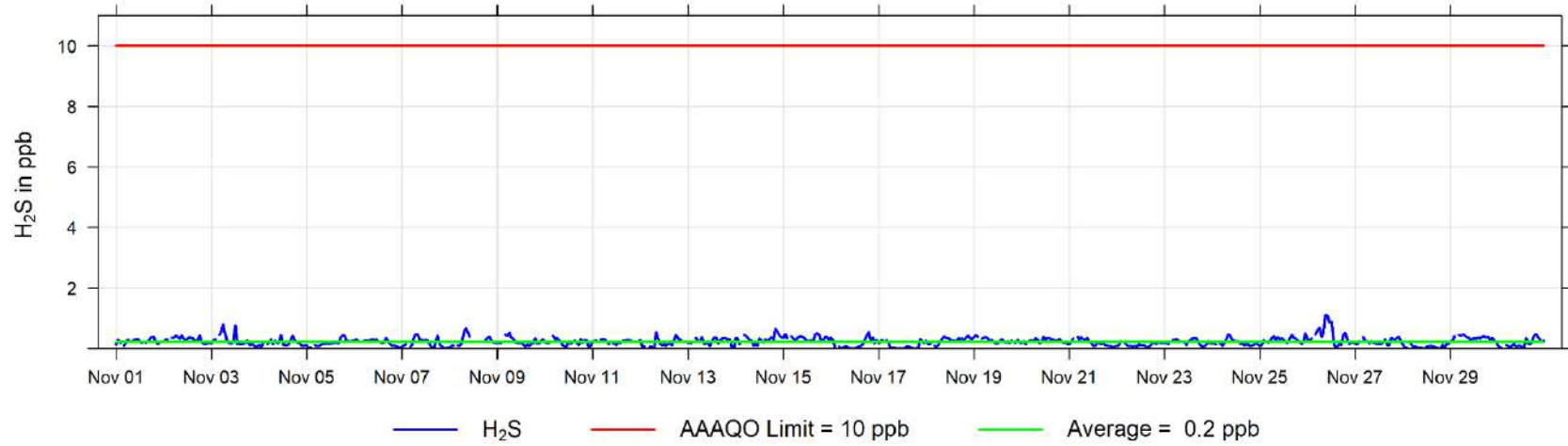
November 2024 Concentration Readings at Fox Creek Station



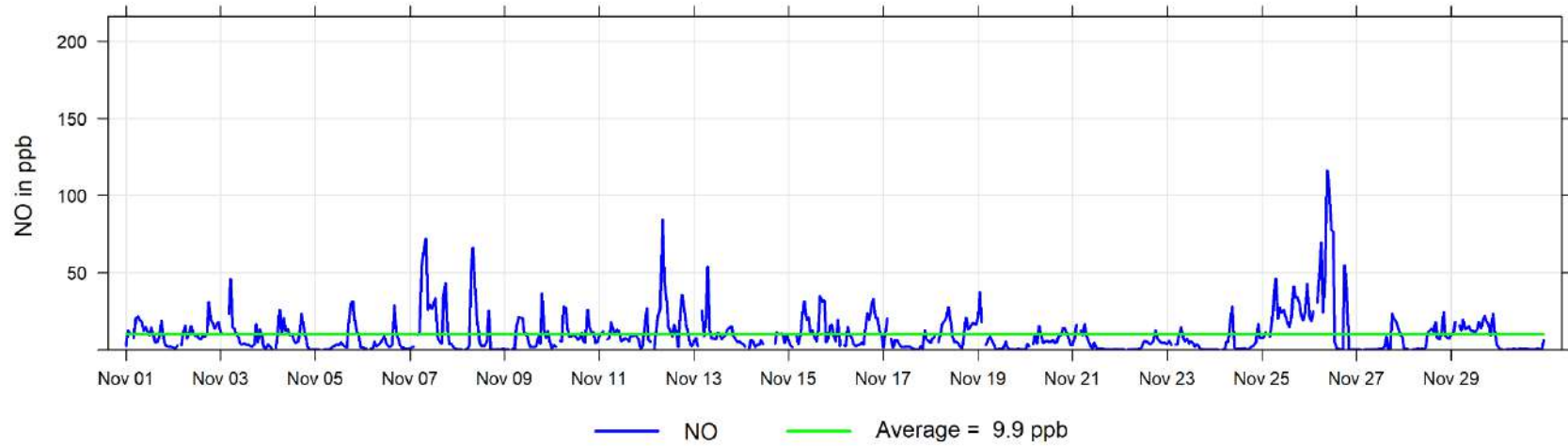
November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Fox Creek



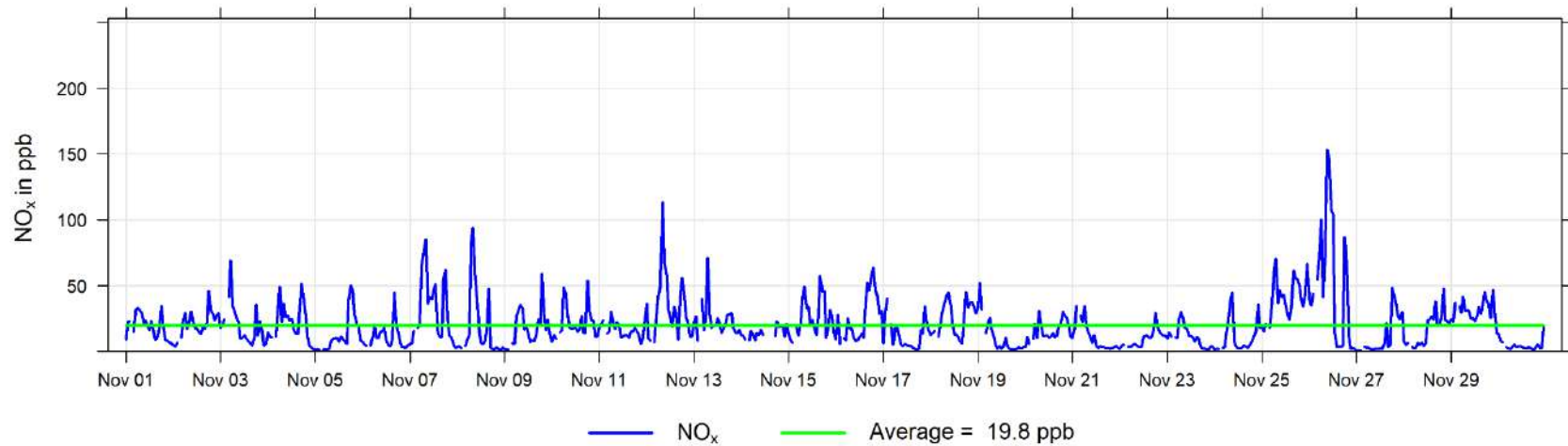
November 2024 Hourly Concentration Readings of H<sub>2</sub>S (in ppb) at Fox Creek



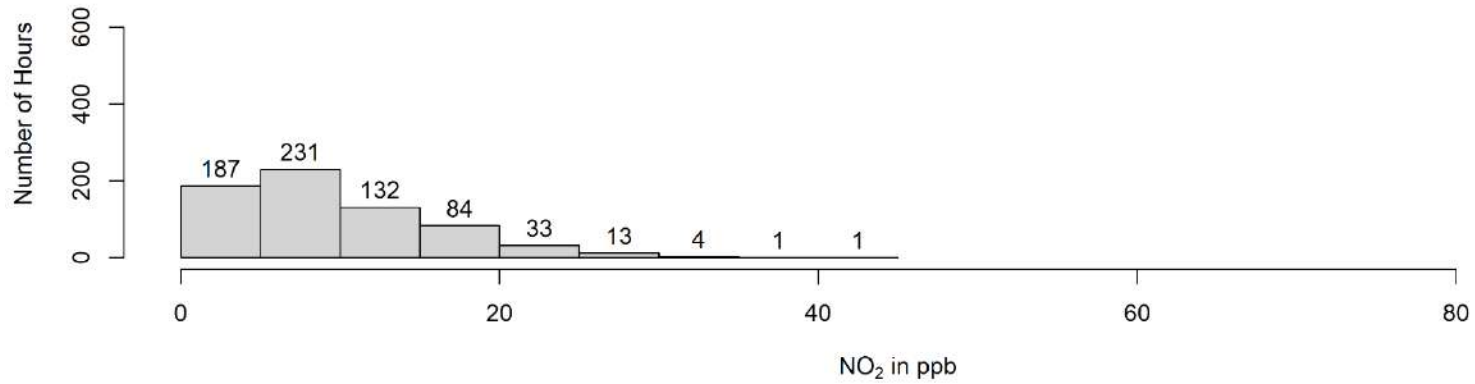
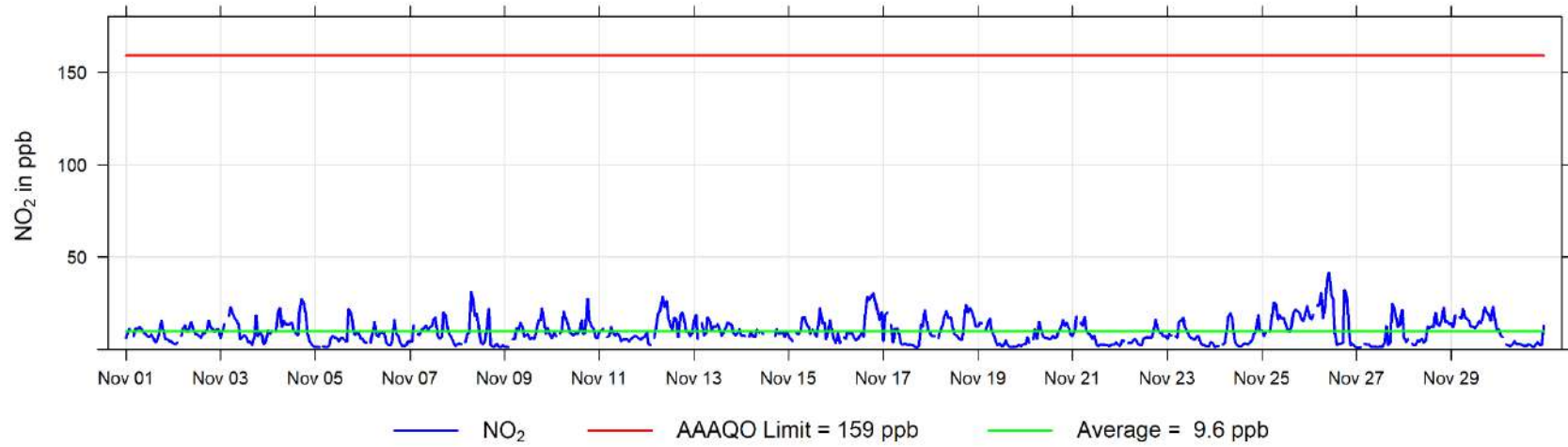
November 2024 Hourly Concentration Readings of NO (in ppb) at Fox Creek



November 2024 Hourly Concentration Readings of NO<sub>x</sub> (in ppb) at Fox Creek

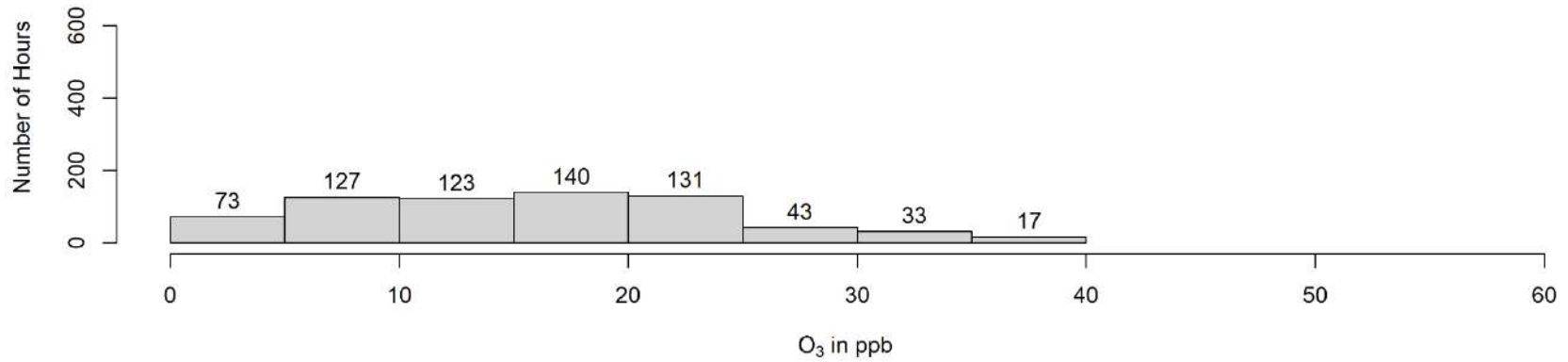
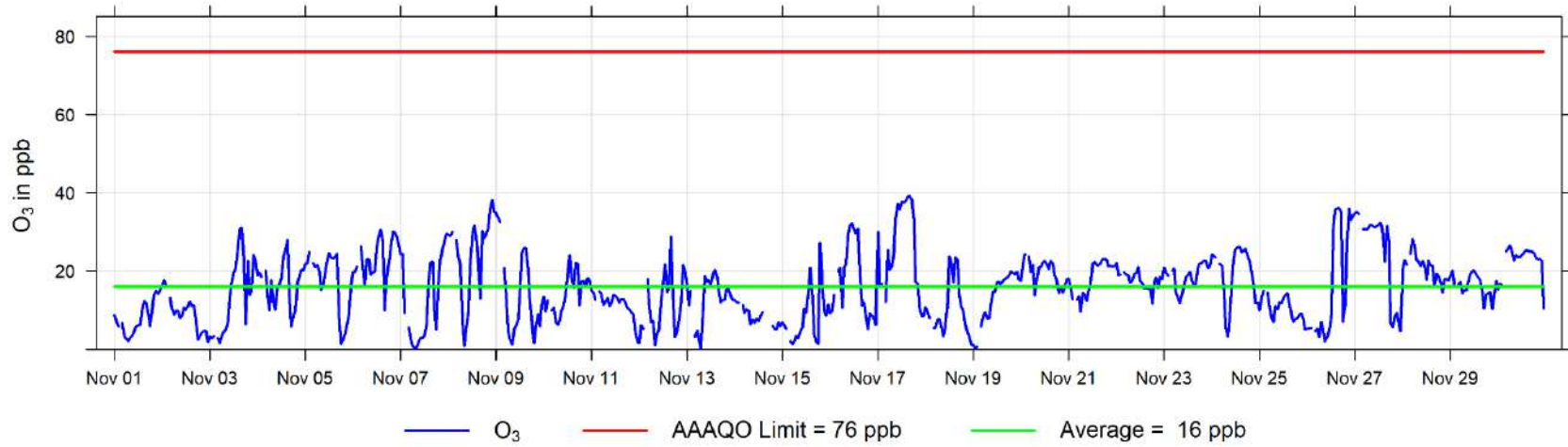


November 2024 Hourly Concentration Readings of NO<sub>2</sub> (in ppb) at Fox Creek

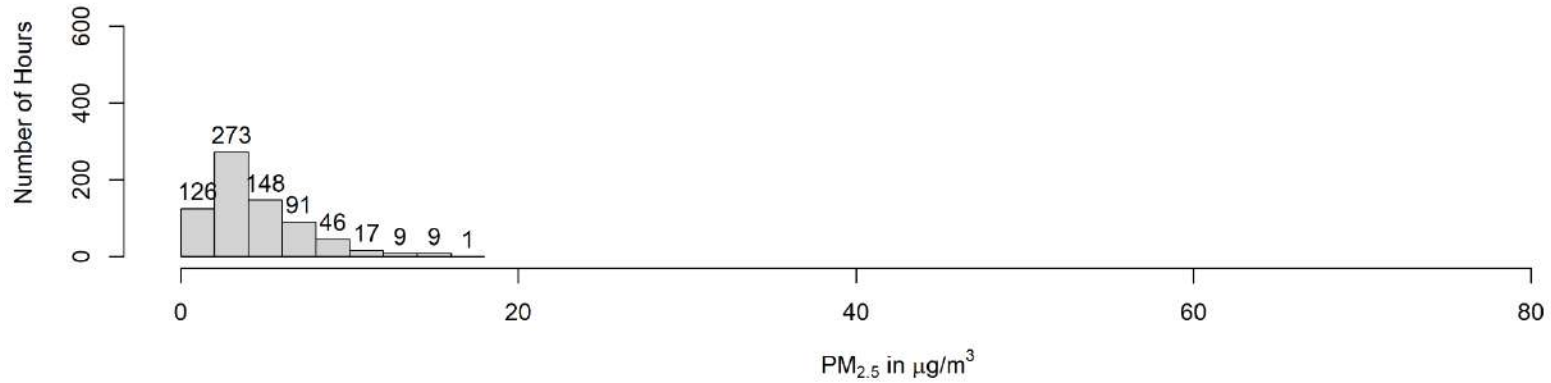
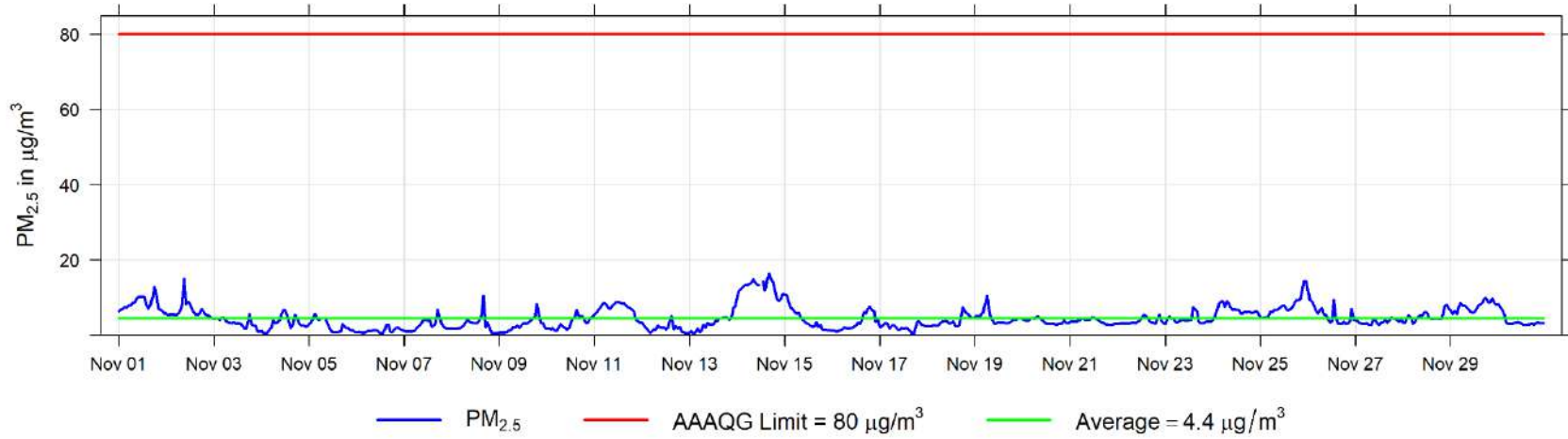




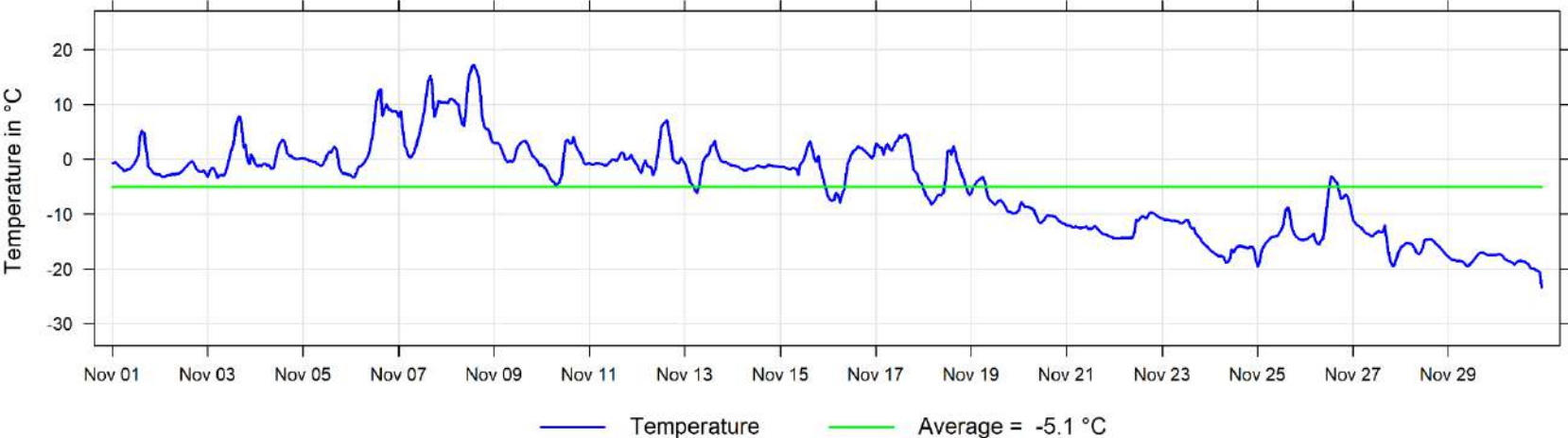
November 2024 Hourly Concentration Readings of O<sub>3</sub> (in ppb) at Fox Creek



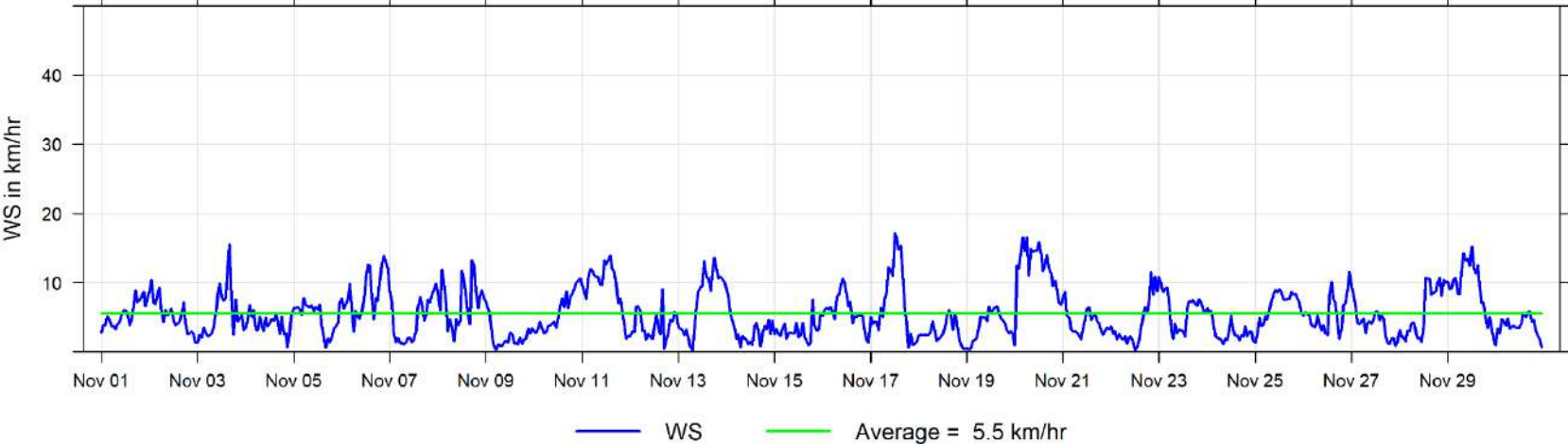
November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Fox Creek



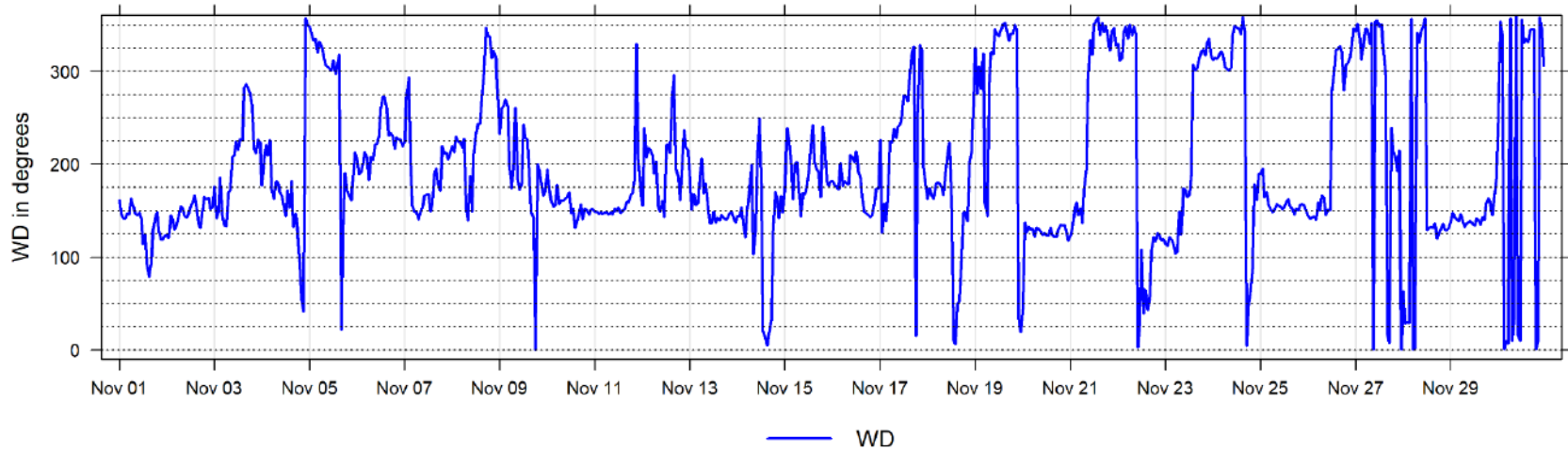
November 2024 Hourly Temperature Readings (in °C) at Fox Creek



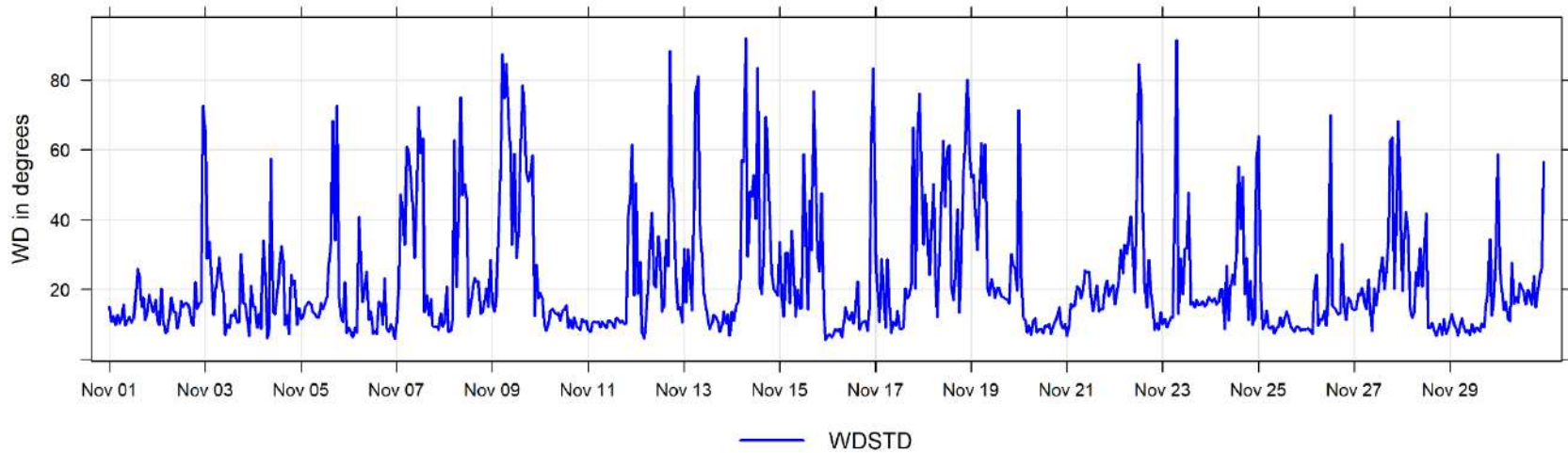
November 2024 Hourly Readings of Wind Speed (in km/hr) at Fox Creek

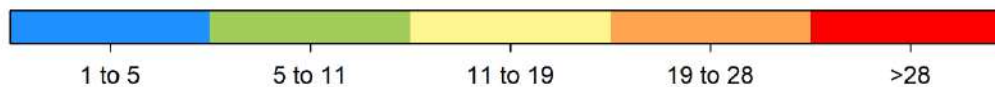
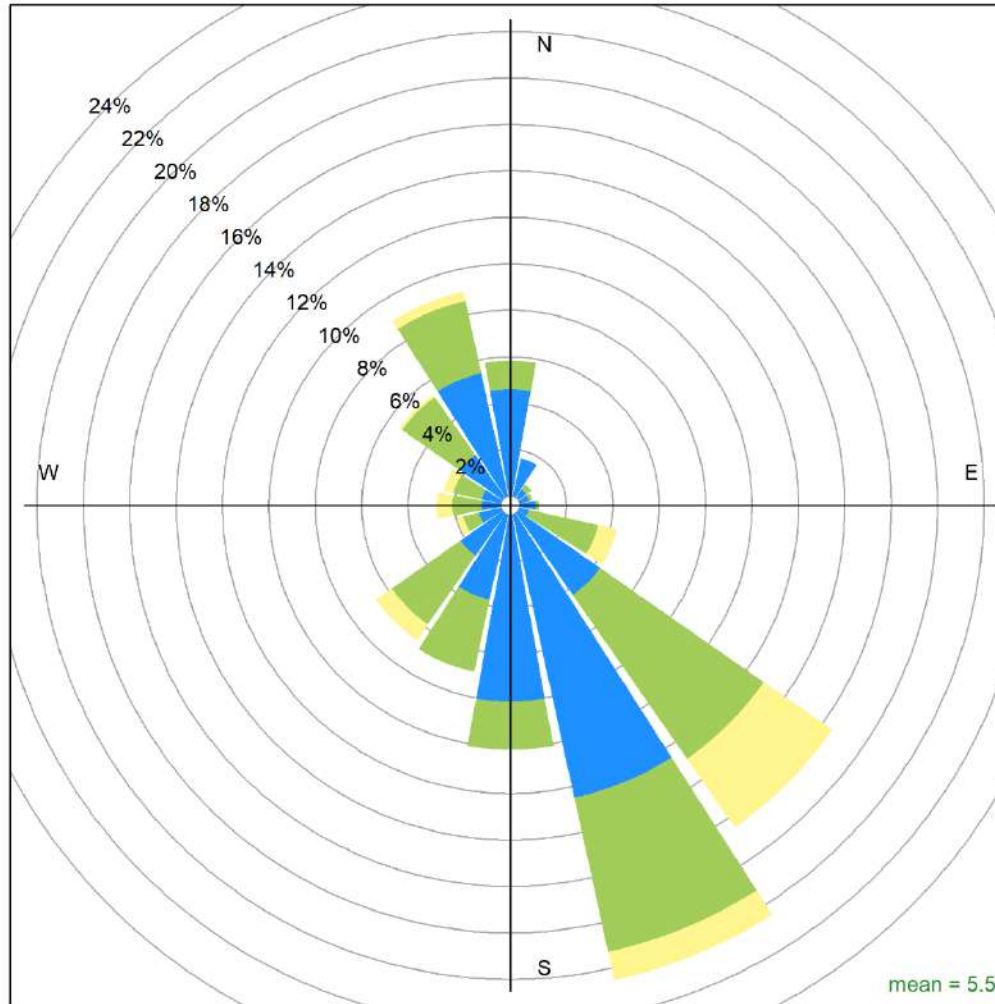


**November 2024 Hourly Readings of Wind Direction (in degrees) at Fox Creek**



**November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Fox Creek**





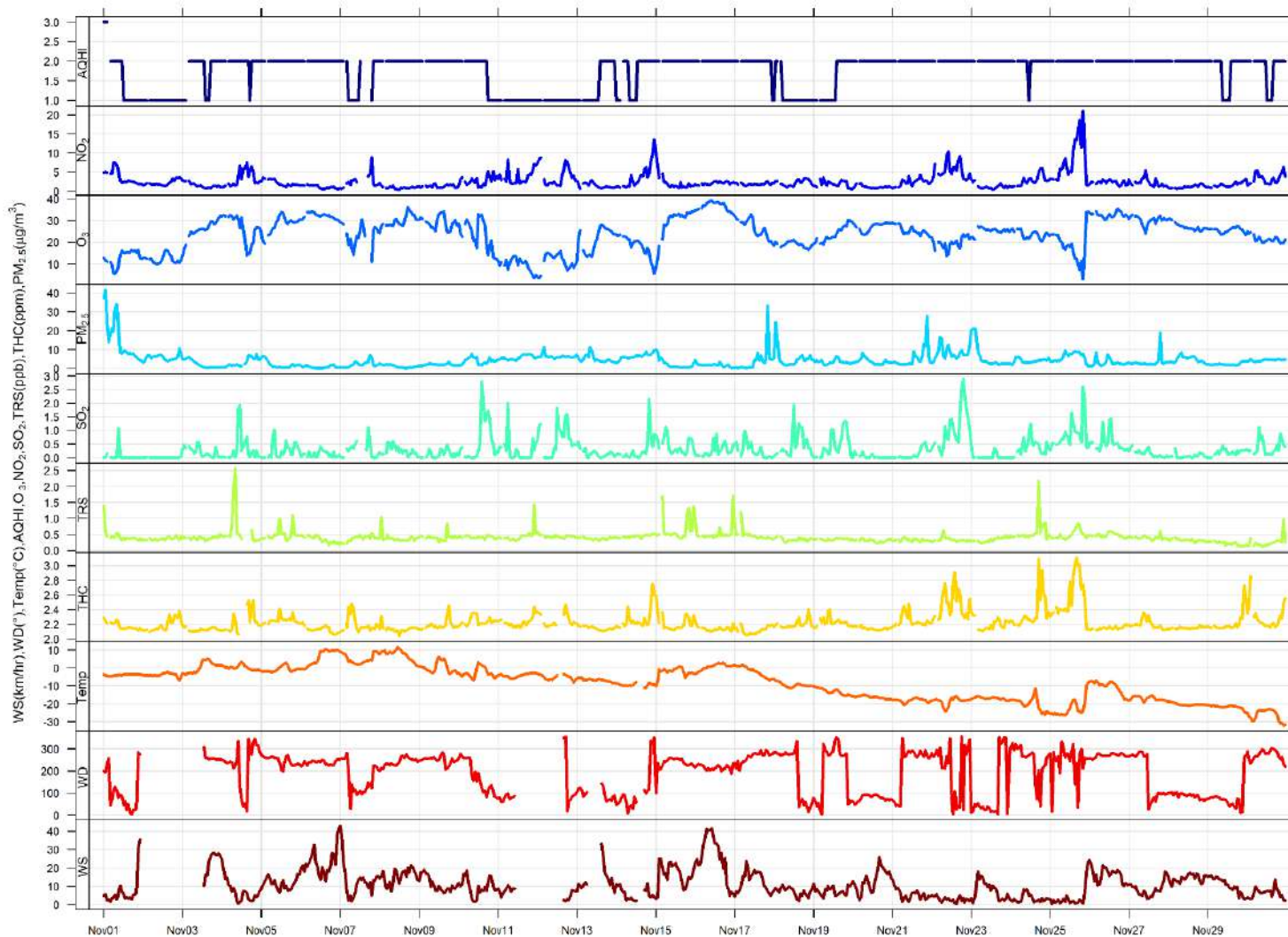
Fox Creek November 2024 Wind Rose, wind speed in km/hr

**Calms (<1km/hr) = 3.7 %**

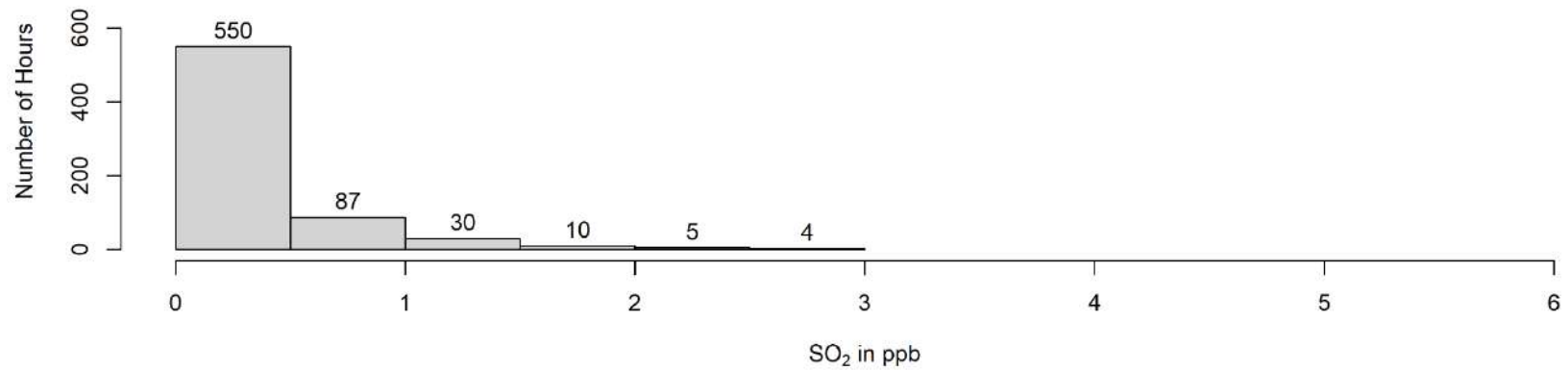
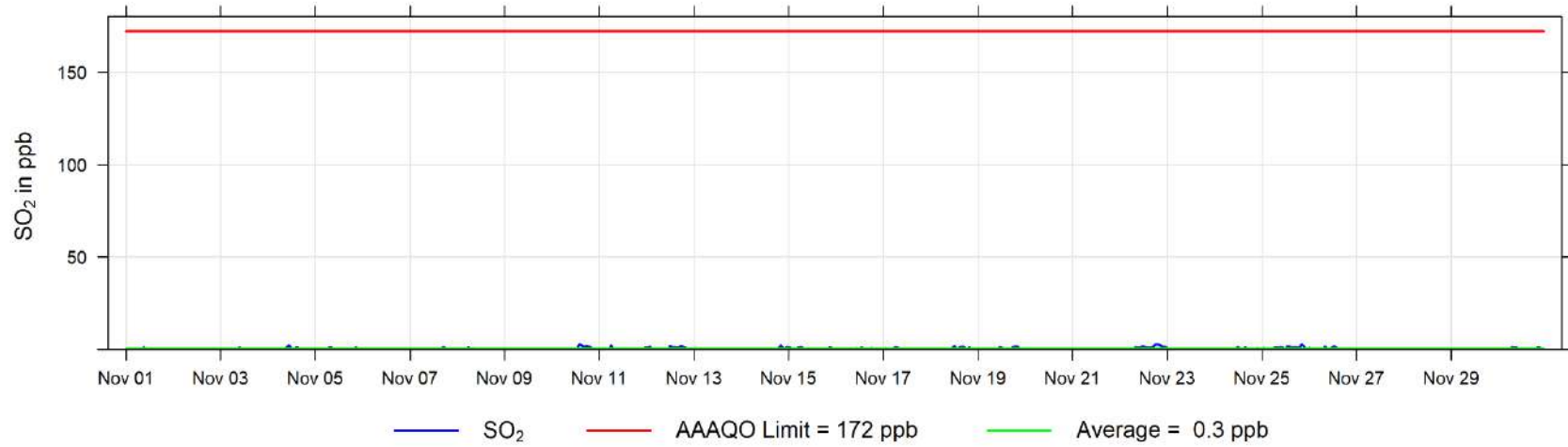
## 8 Happy Valley (Portable) Charts

The following pages include the charts and histograms for Happy Valley Portable Station

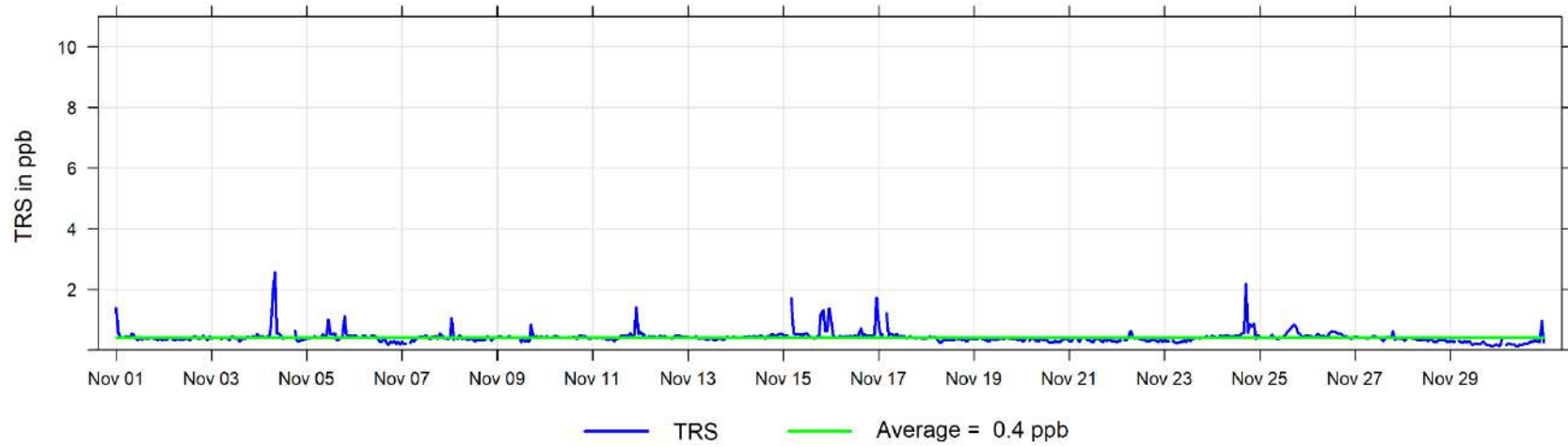
November 2024 Concentration Readings at Happy Valley Station



November 2024 Hourly Concentration Readings of SO<sub>2</sub> (in ppb) at Happy Valley

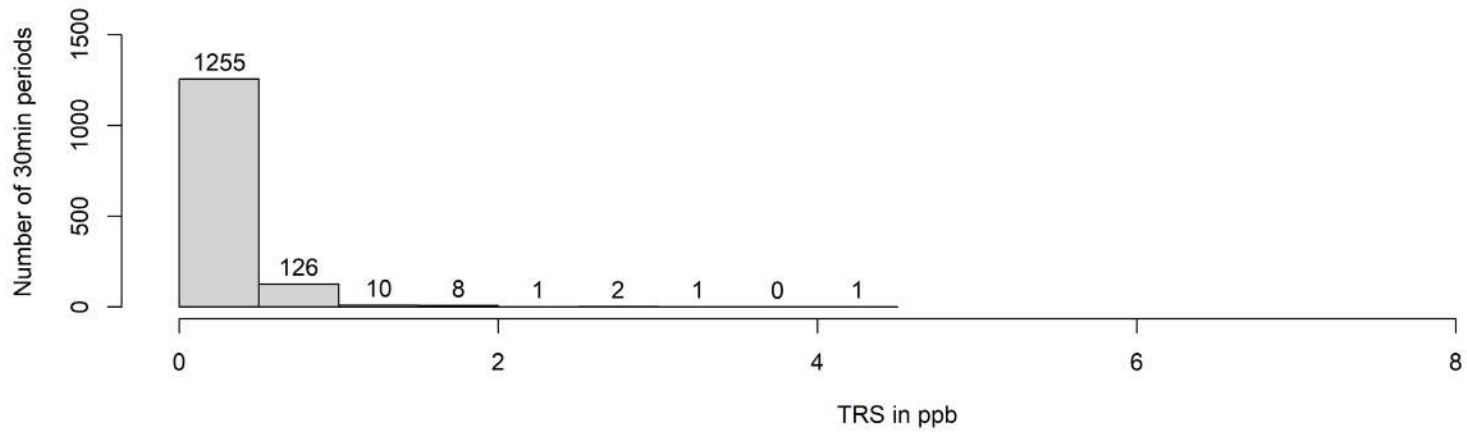
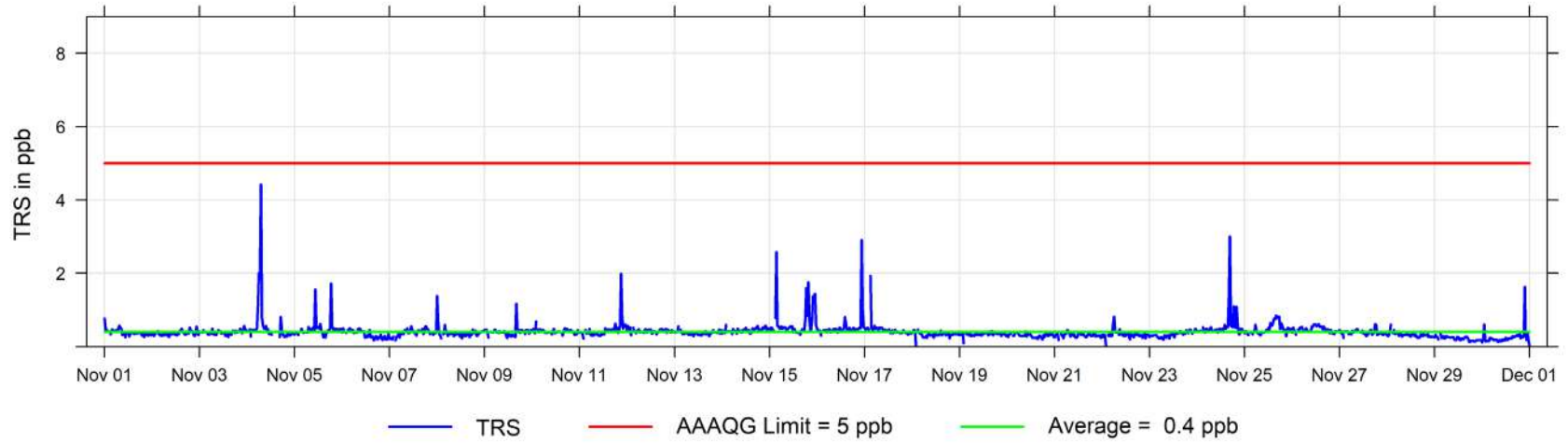


November 2024 Hourly Concentration Readings of TRS (in ppb) at Happy Valley

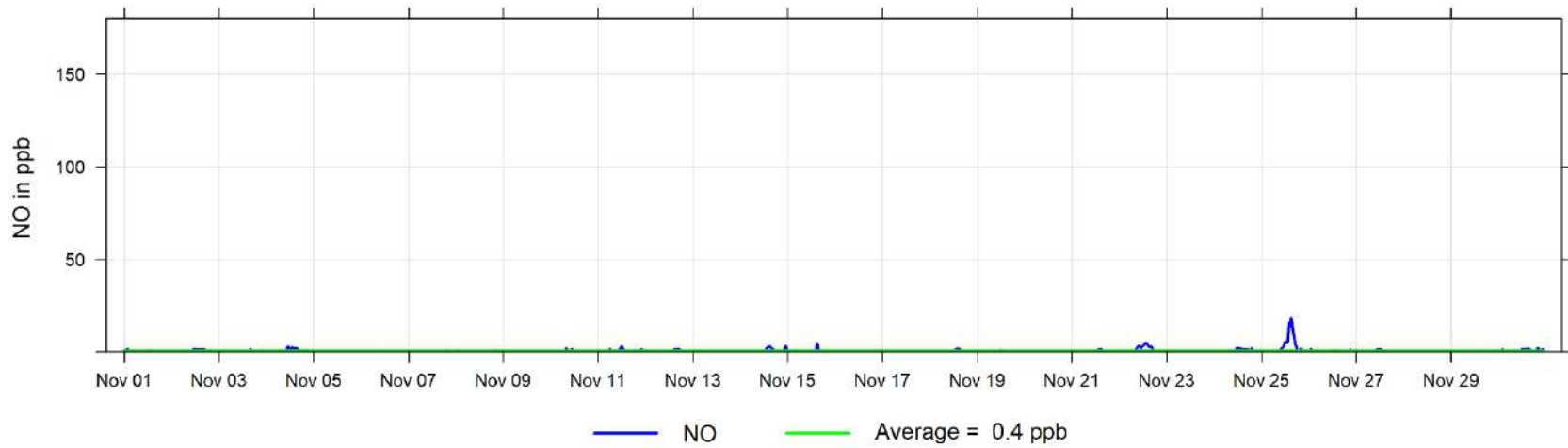




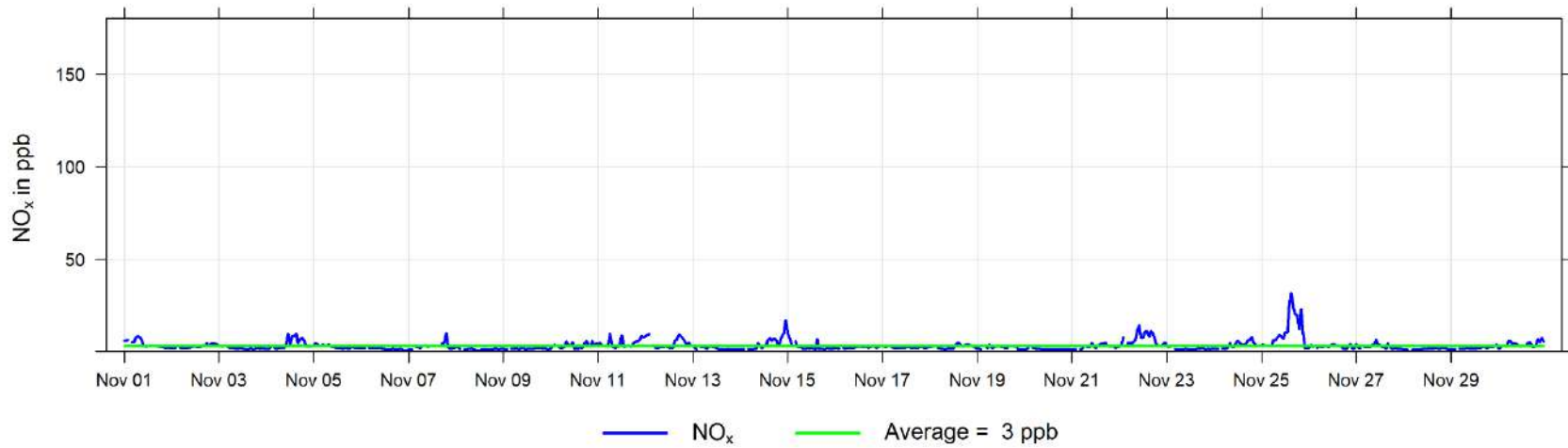
November 2024 30 min Concentration Readings of TRS (in ppb) at Happy Valley



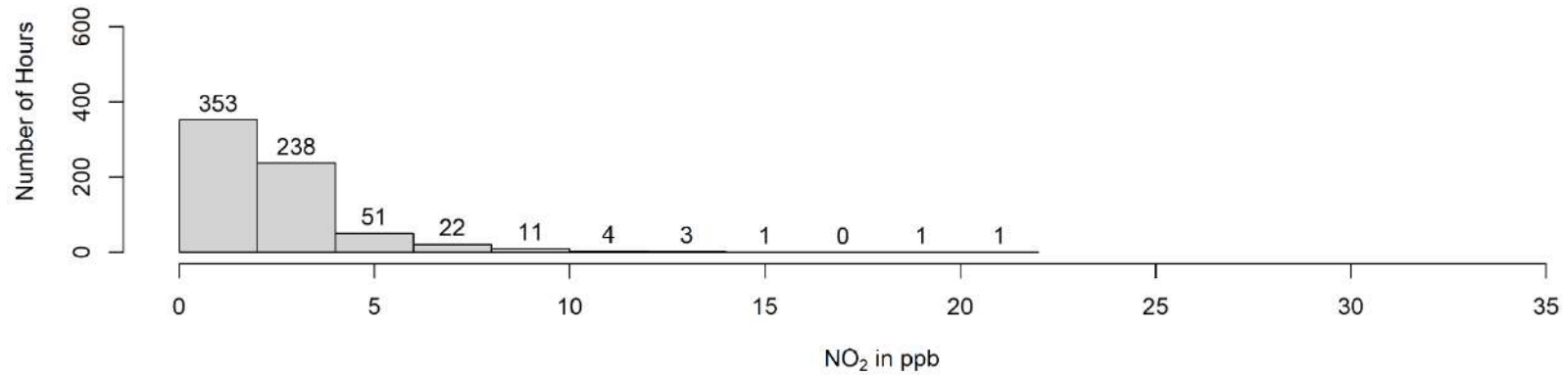
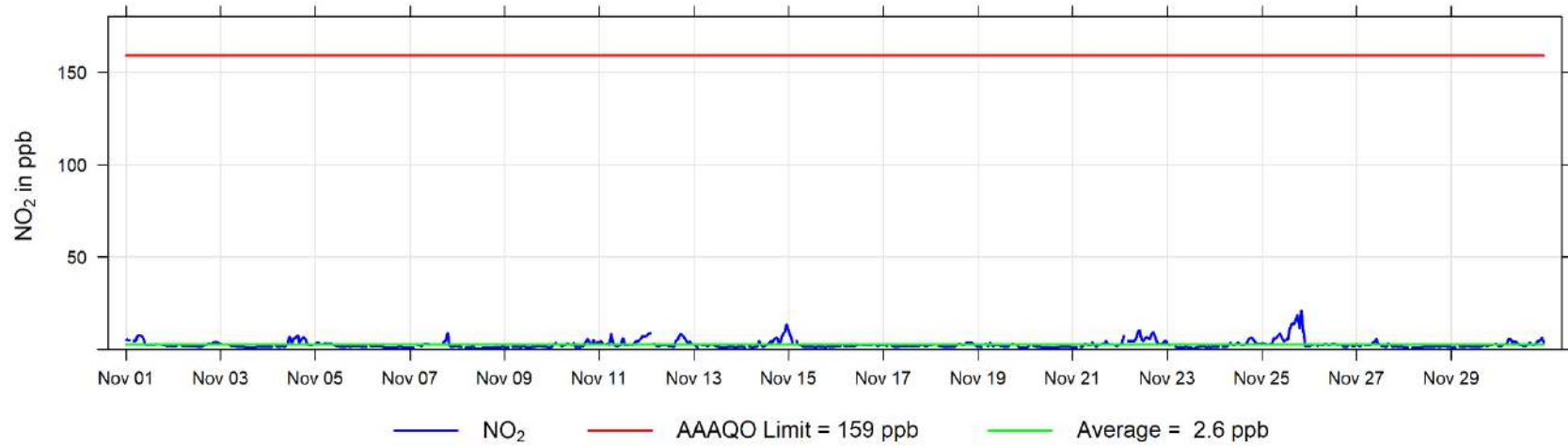
November 2024 Hourly Concentration Readings of NO (in ppb) at Happy Valley



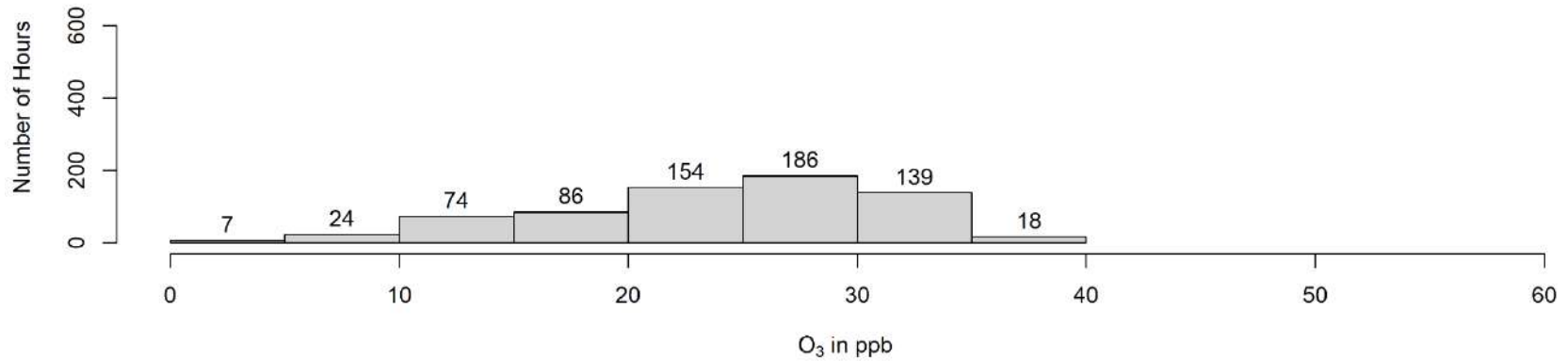
November 2024 Hourly Concentration Readings of NO<sub>x</sub> (in ppb) at Happy Valley



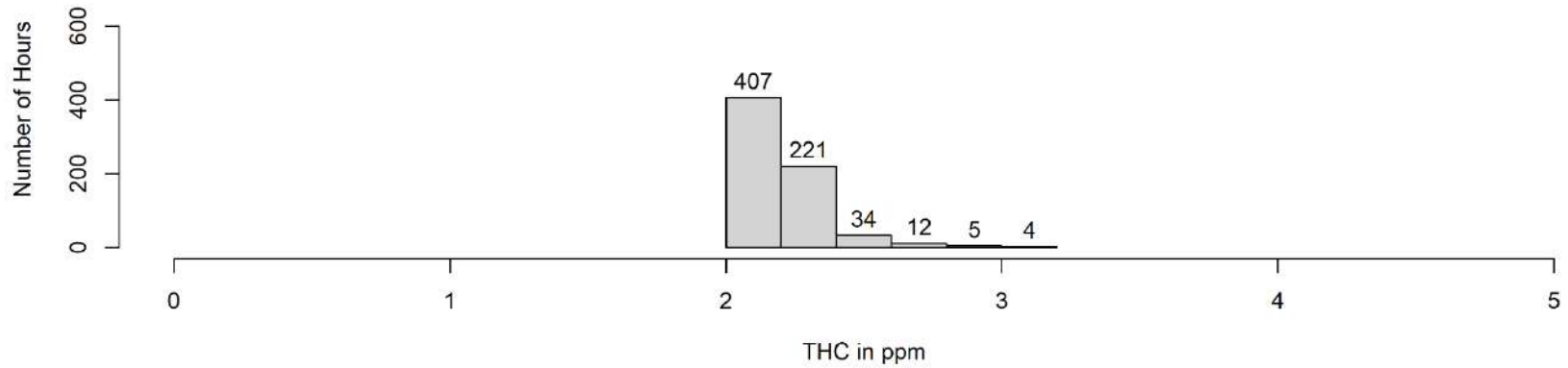
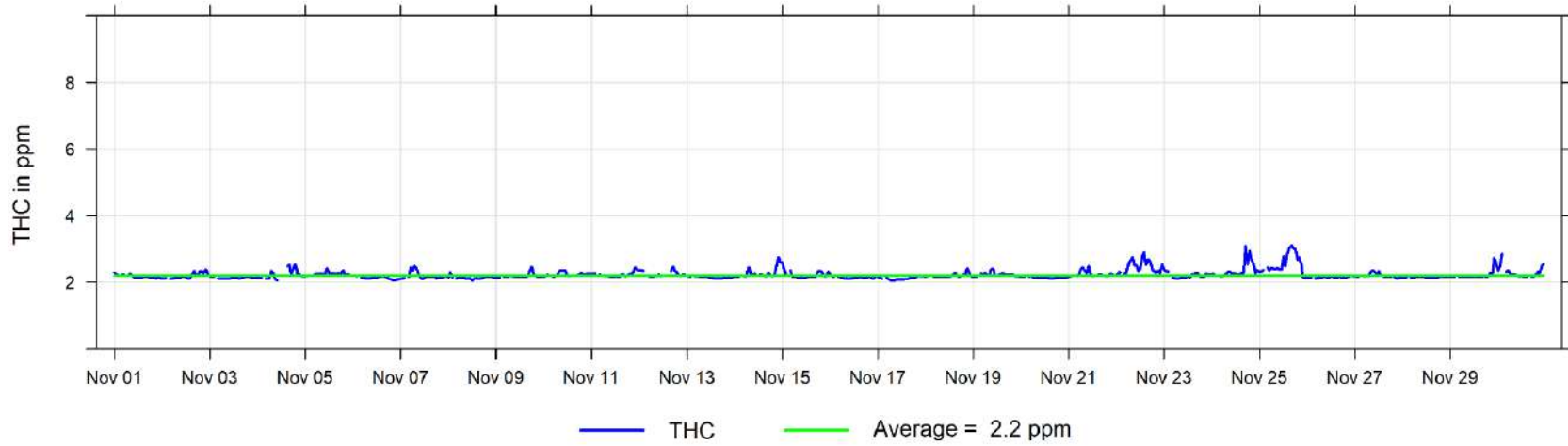
November 2024 Hourly Concentration Readings of NO<sub>2</sub> (in ppb) at Happy Valley



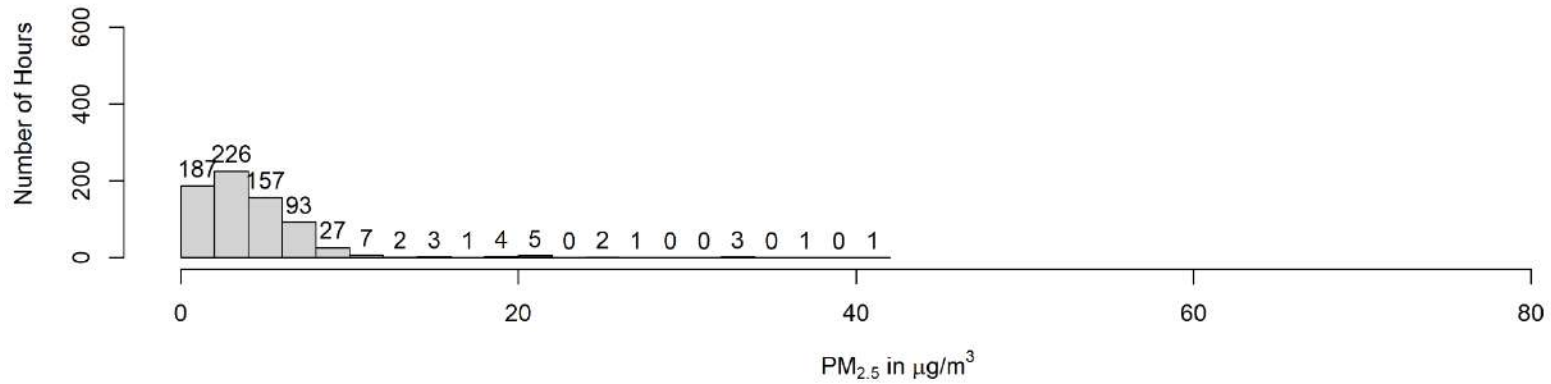
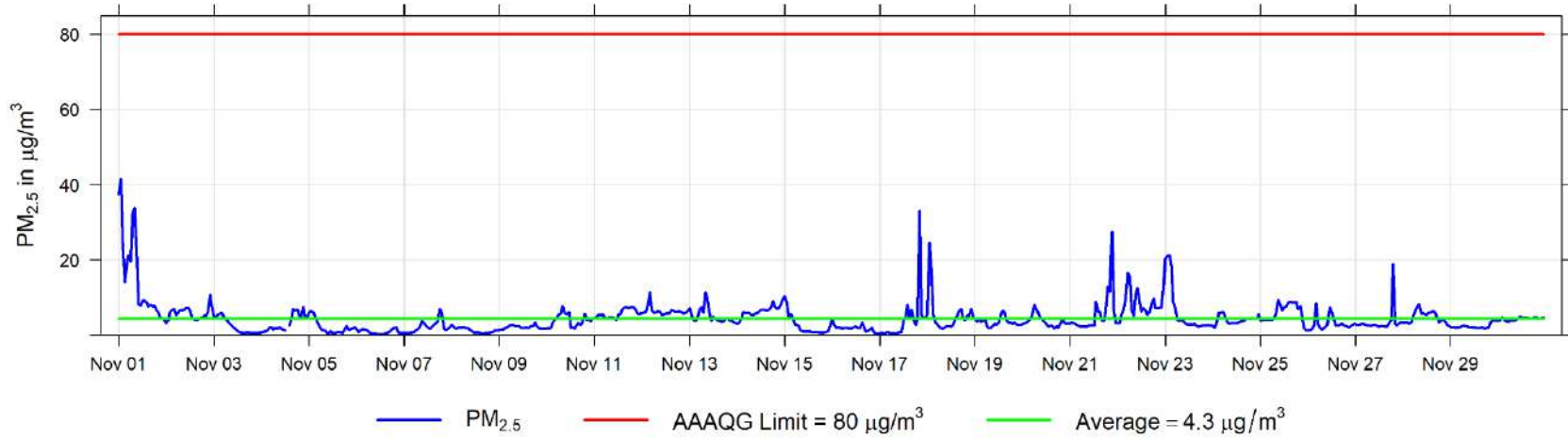
November 2024 Hourly Concentration Readings of O<sub>3</sub> (in ppb) at Happy Valley



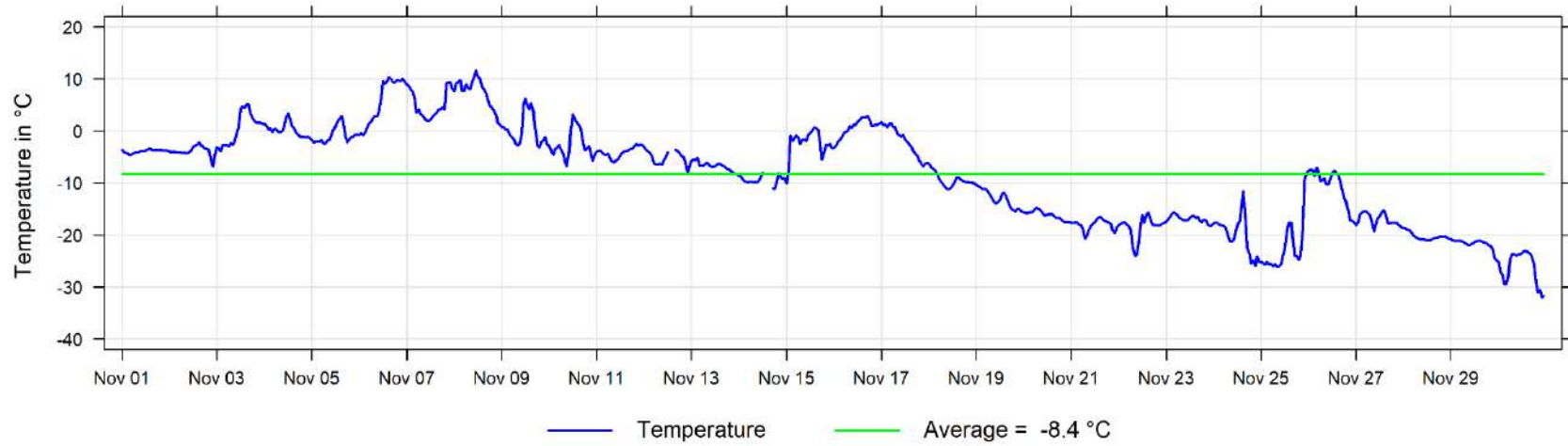
November 2024 Hourly Concentration Readings of THC (in ppm) at Happy Valley



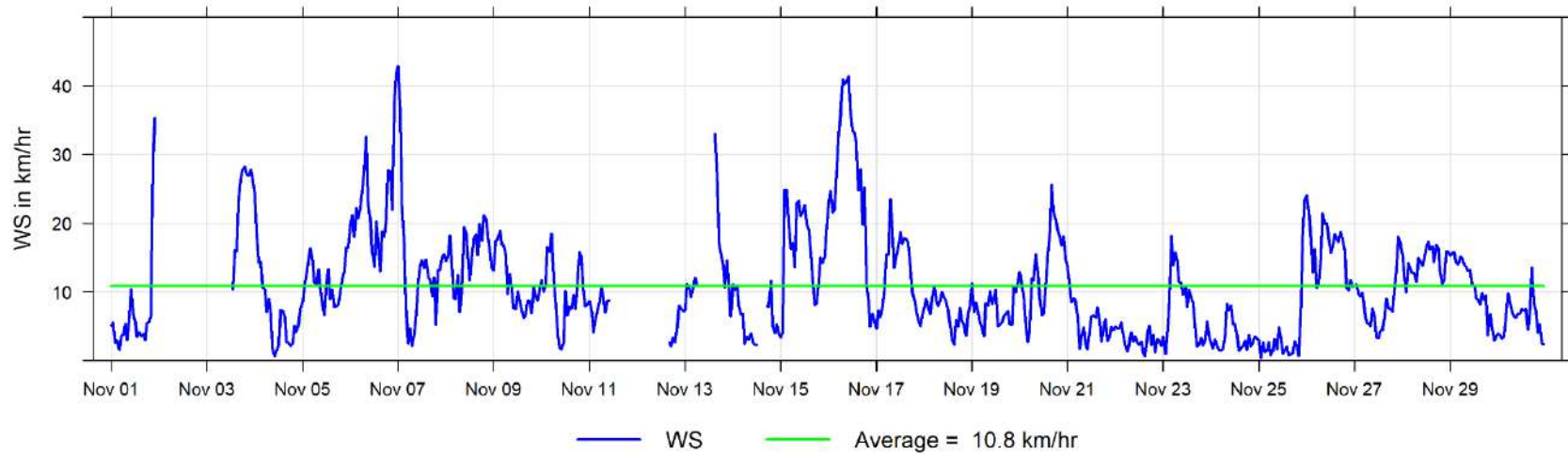
November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Happy Valley



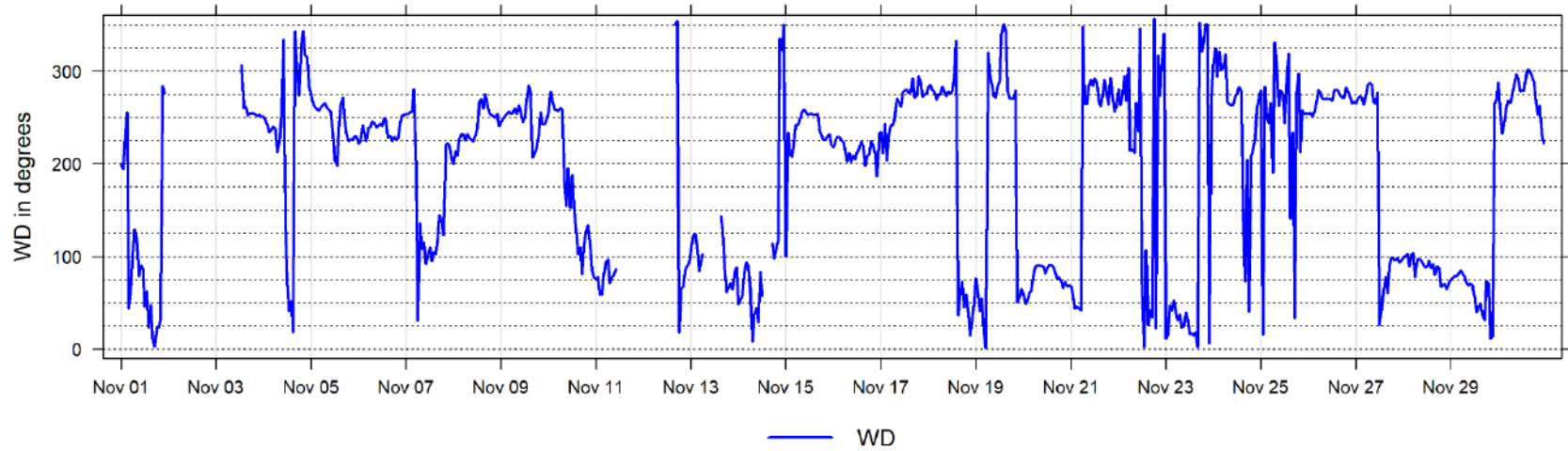
November 2024 Hourly Temperature Readings (in °C) at Happy Valley



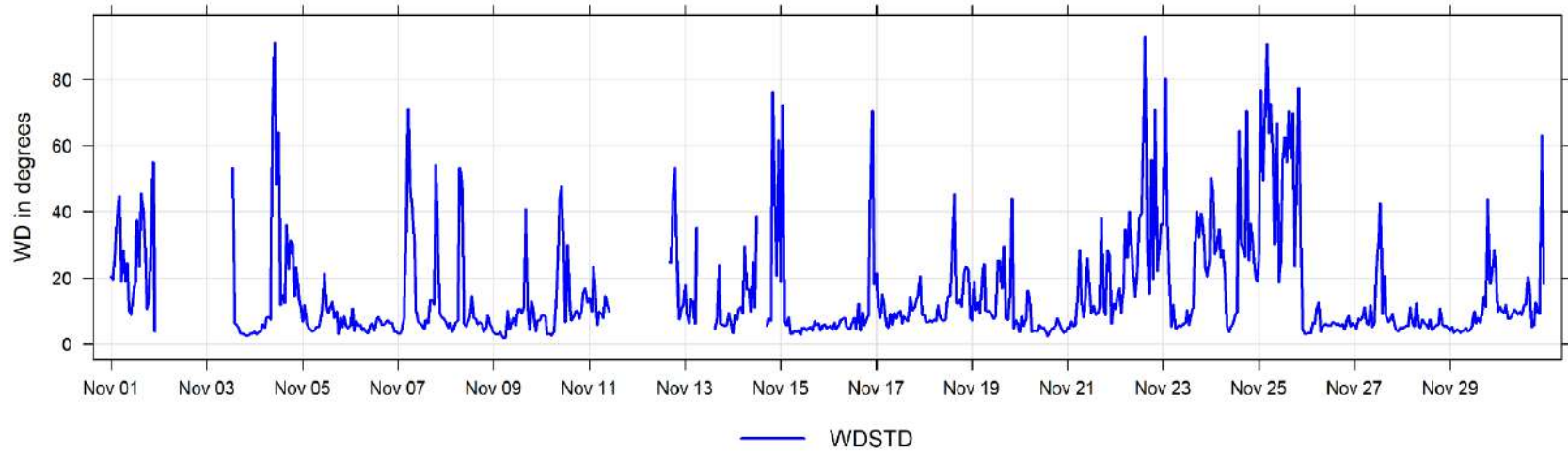
November 2024 Hourly Readings of Wind Speed (in km/hr) at Happy Valley



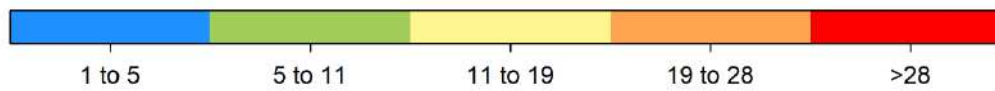
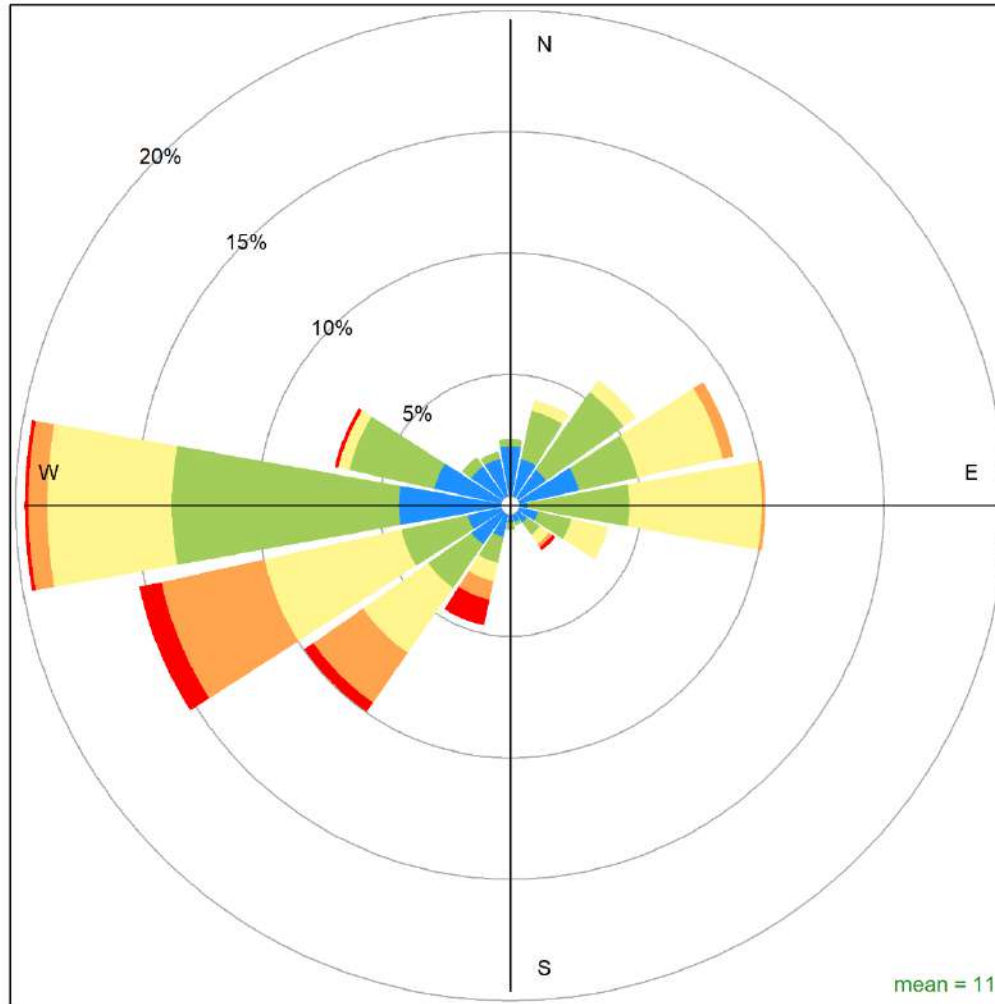
**November 2024 Hourly Readings of Wind Direction (in degrees) at Happy Valley**



**November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Happy Valley**



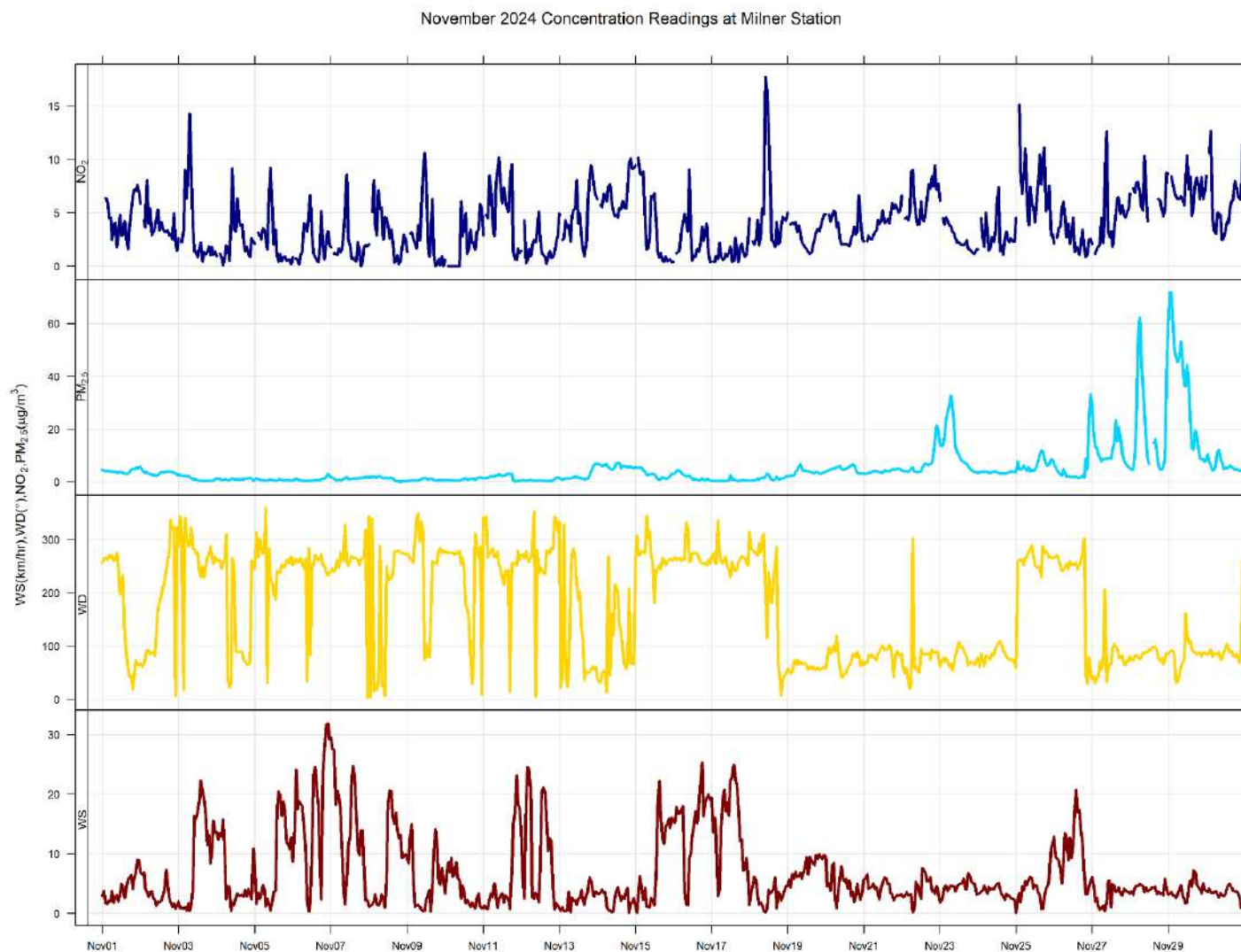




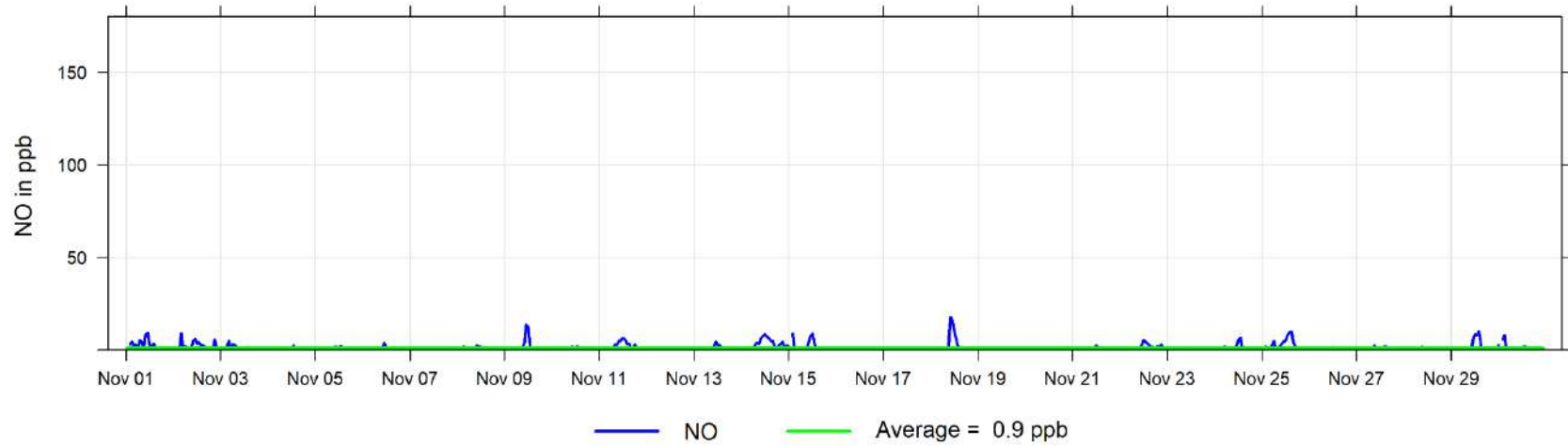
Happy Valley November 2024 Wind Rose, wind speed in km/hr  
**Calms (<1km/hr) = 1.4 %**

## 9 Milner Charts

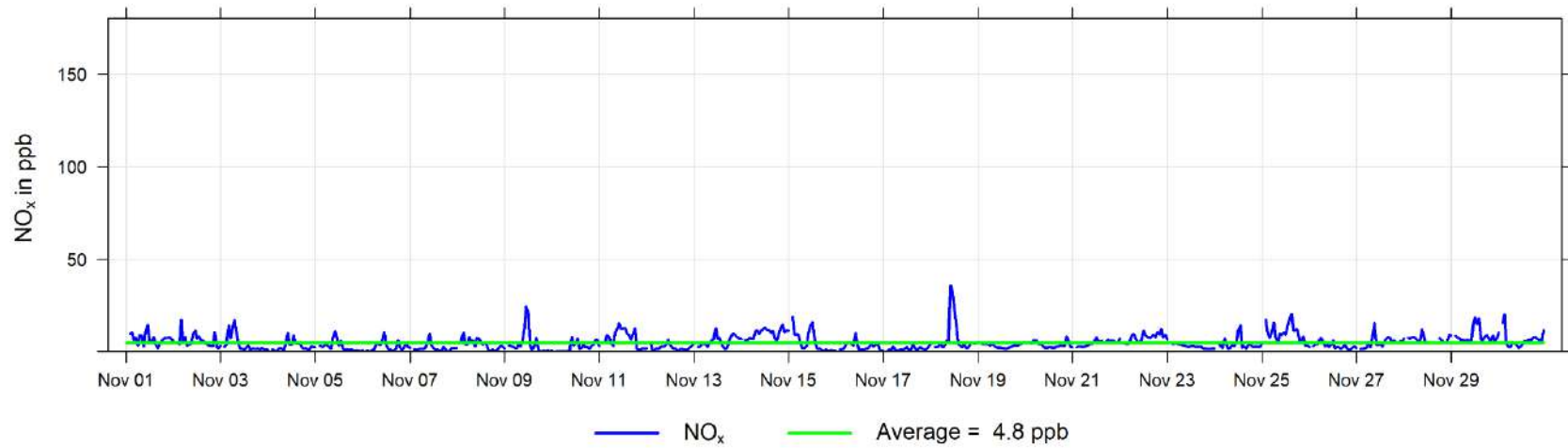
The following pages include the charts and histograms for Milner Station



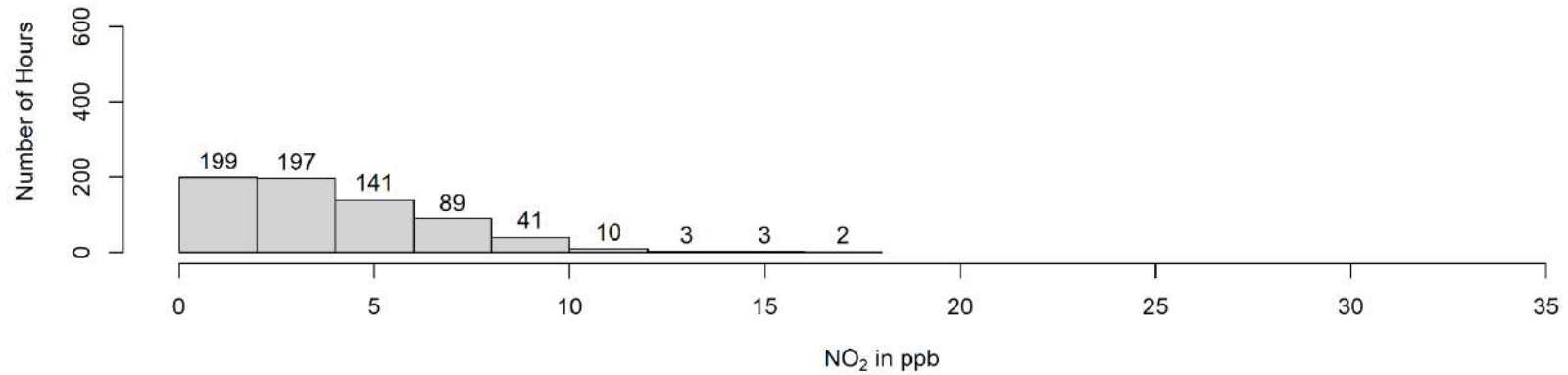
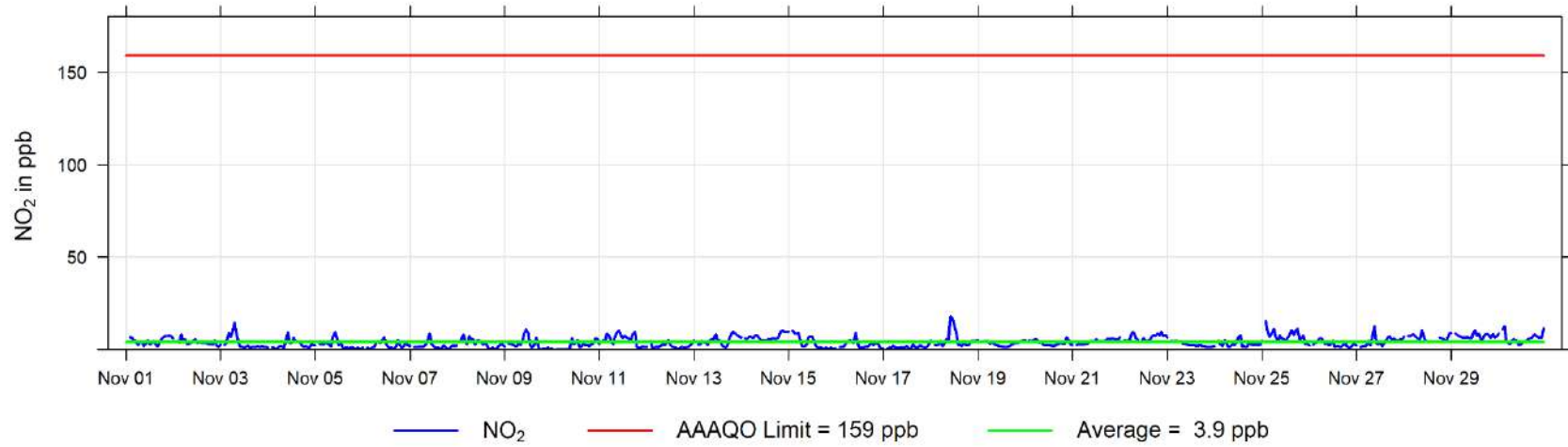
November 2024 Hourly Concentration Readings of NO (in ppb) at Milner



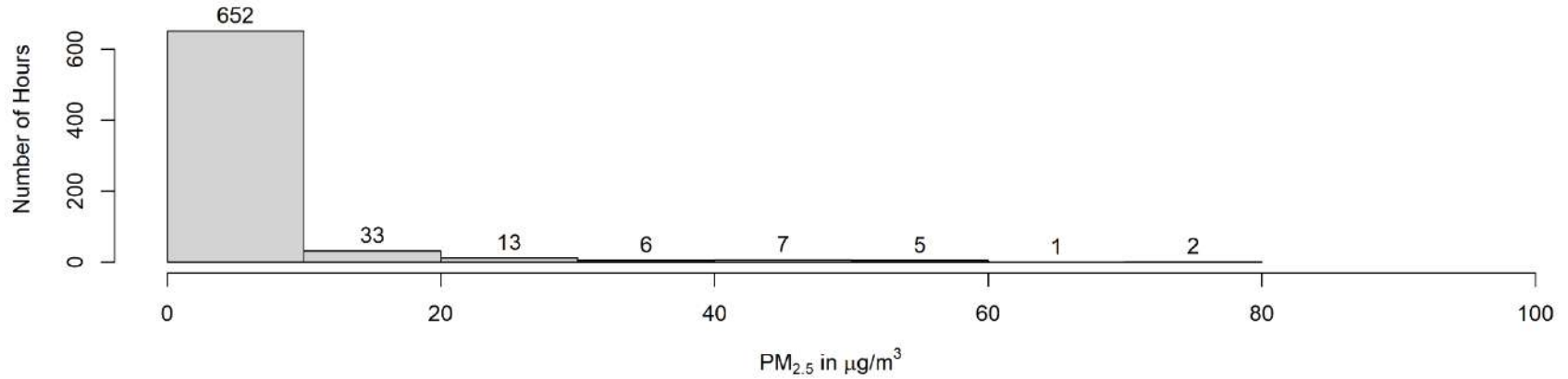
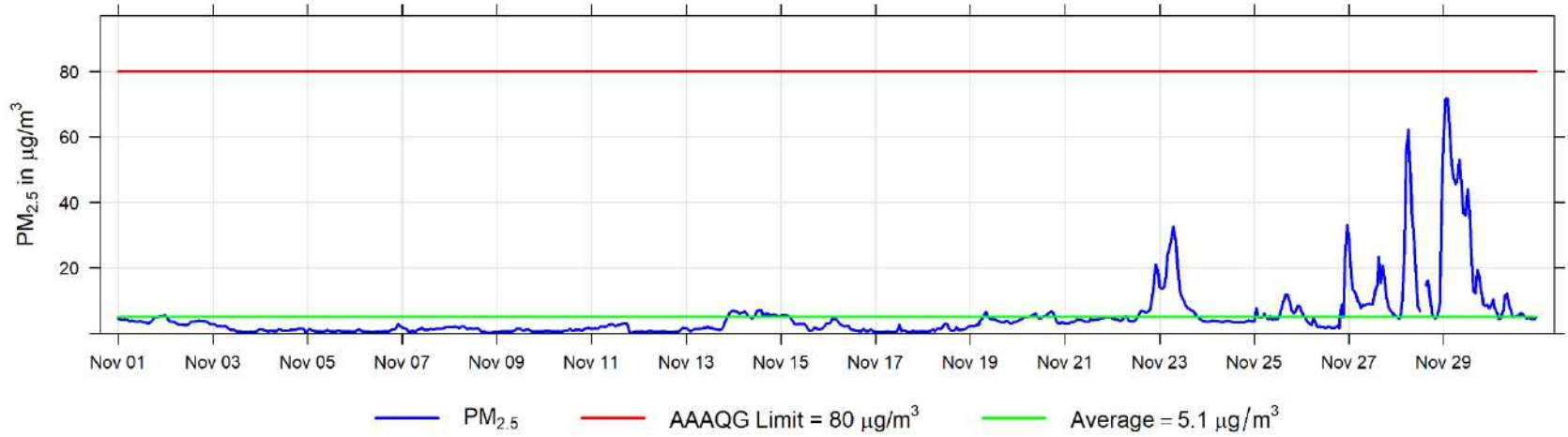
November 2024 Hourly Concentration Readings of NO<sub>x</sub> (in ppb) at Milner



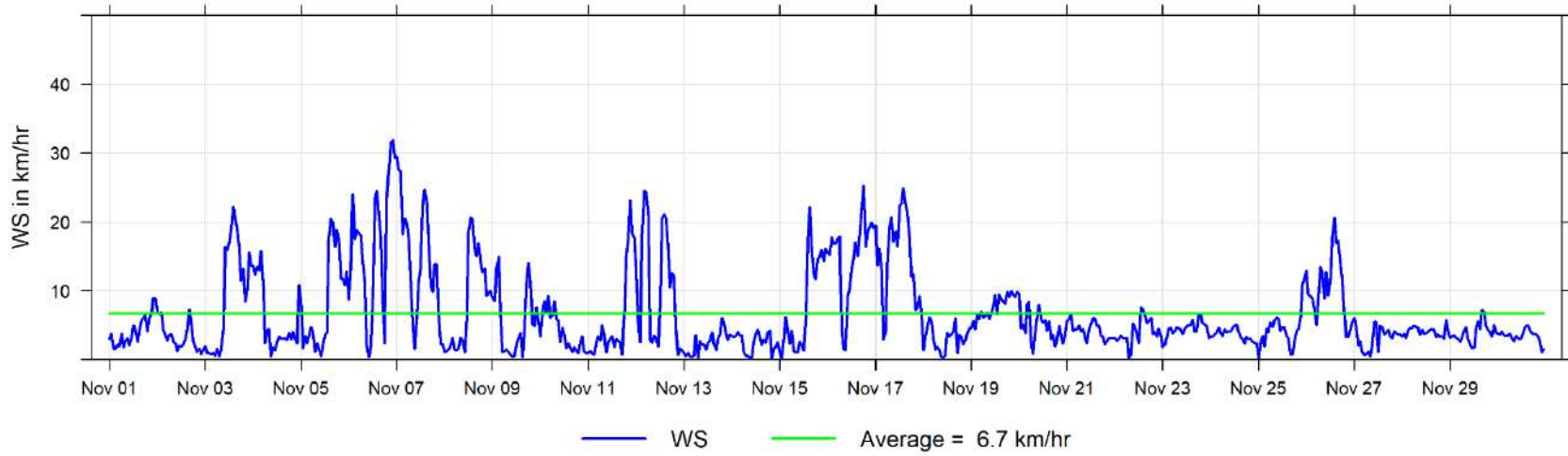
November 2024 Hourly Concentration Readings of NO<sub>2</sub> (in ppb) at Milner



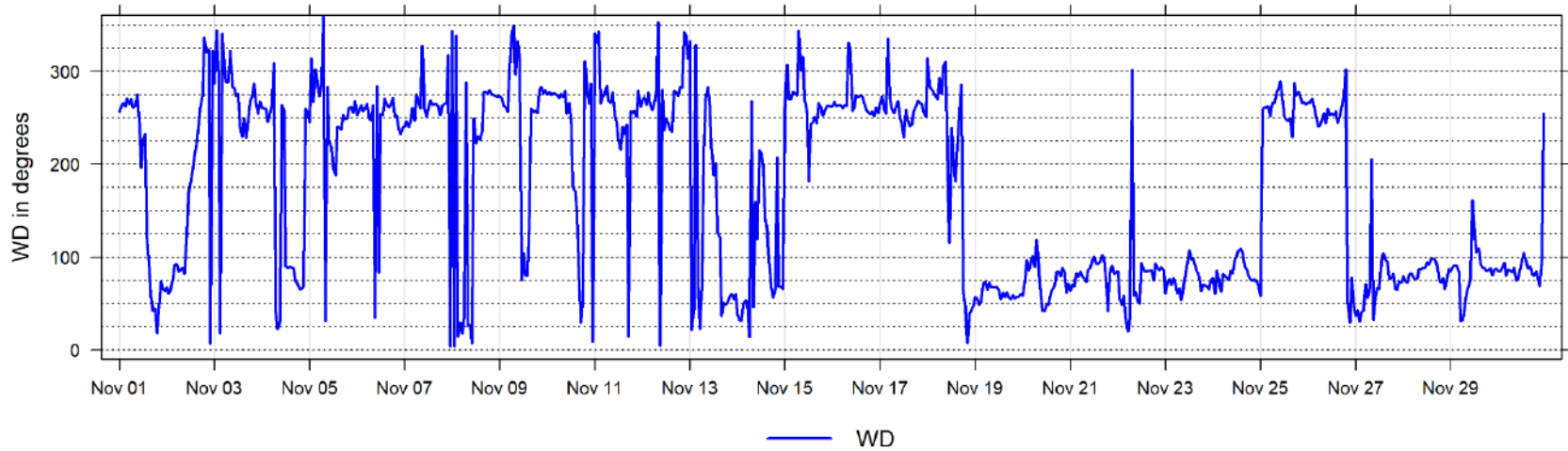
November 2024 Hourly Concentration Readings of PM<sub>2.5</sub> in  $\mu\text{g}/\text{m}^3$  at Milner



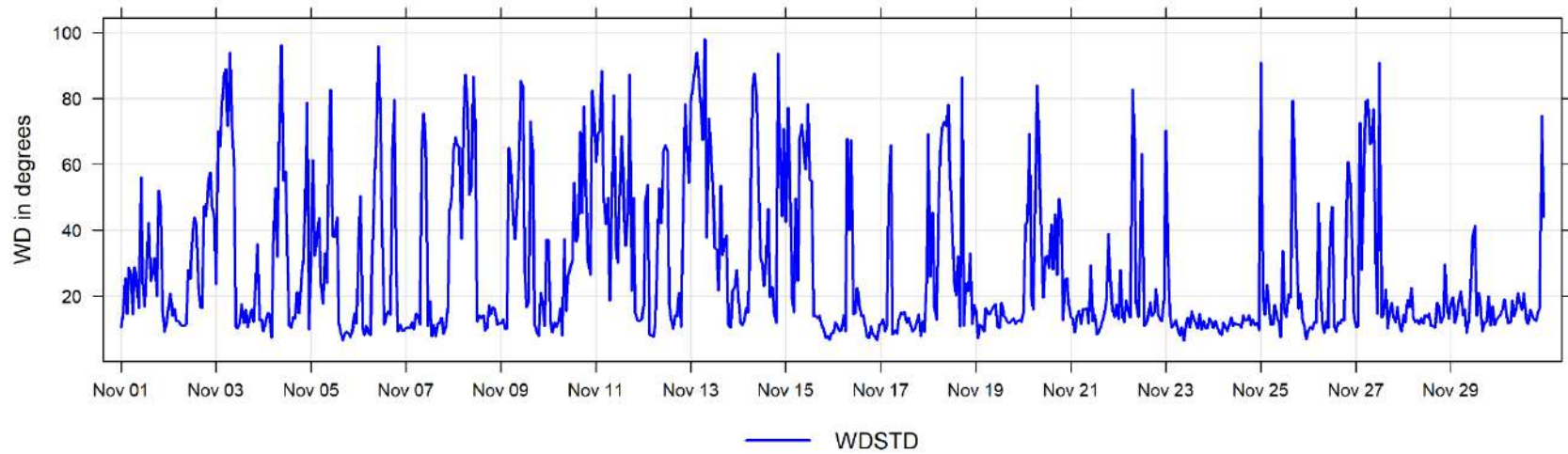
**November 2024 Hourly Readings of Wind Speed (in km/hr) at Milner**

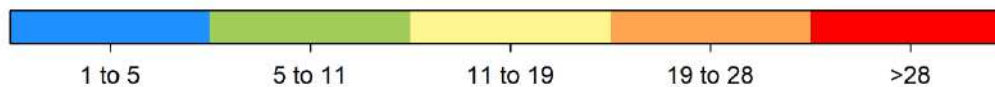
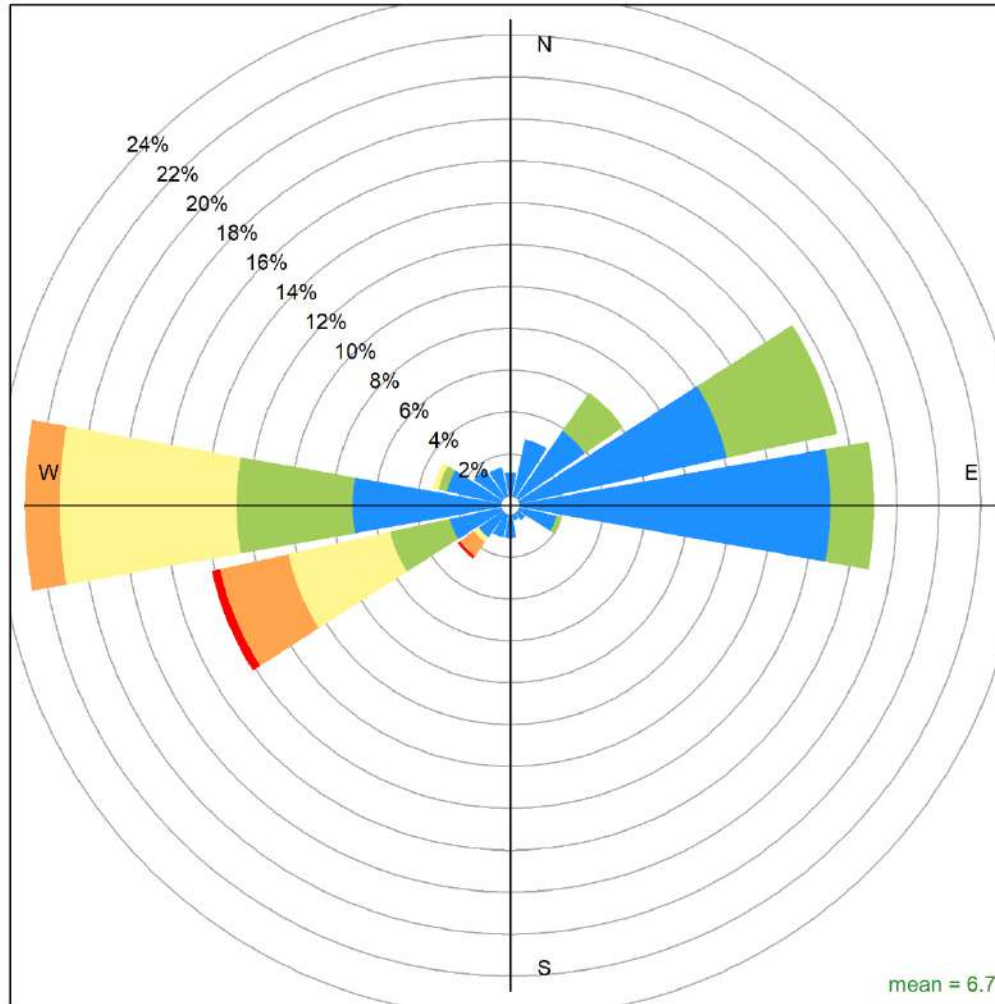


**November 2024 Hourly Readings of Wind Direction (in degrees) at Milner**



November 2024 Hourly Readings of Wind Direction Standard Deviation (in degrees) at Milner



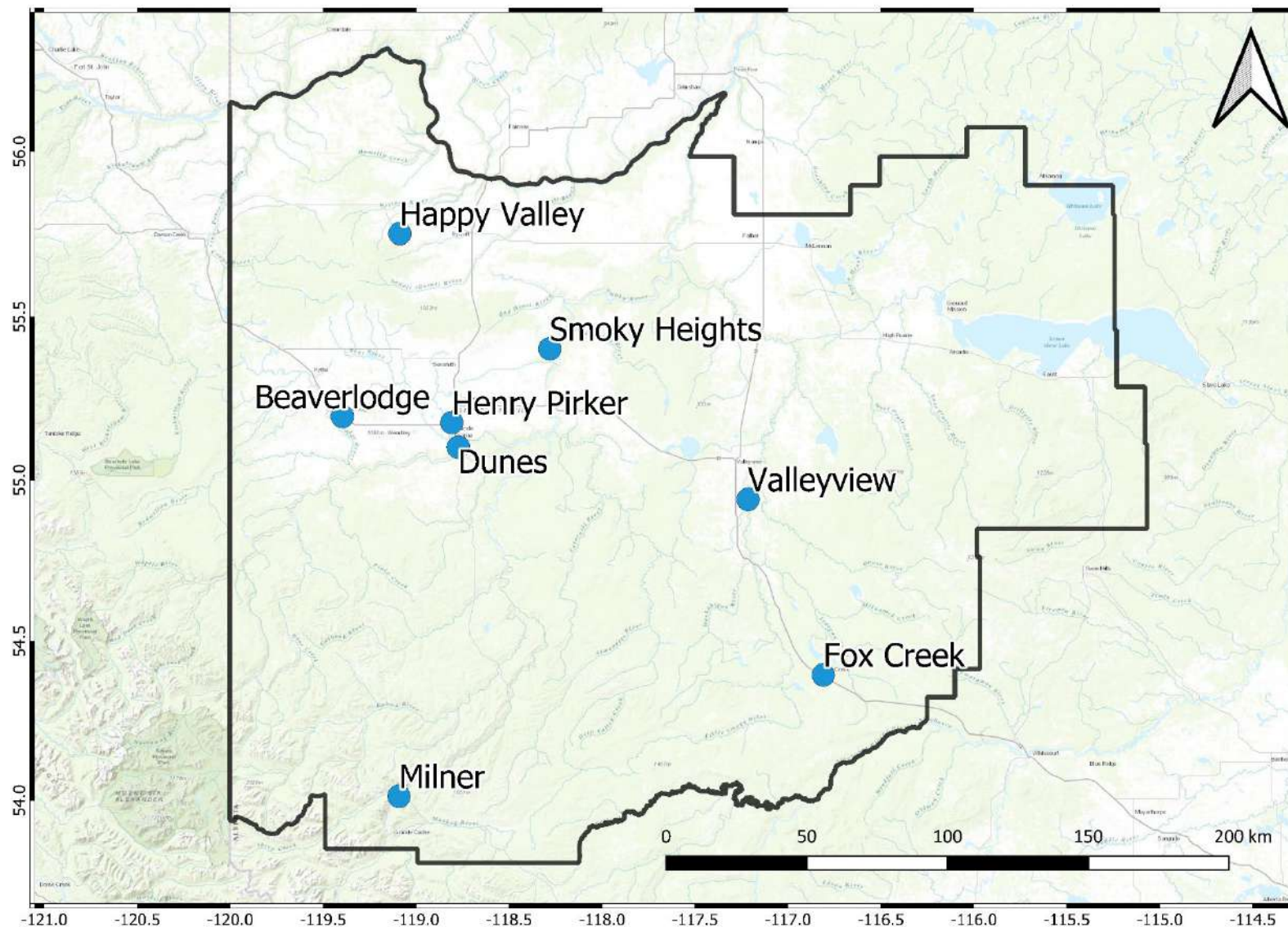


Milner November 2024 Wind Rose, wind speed in km/hr

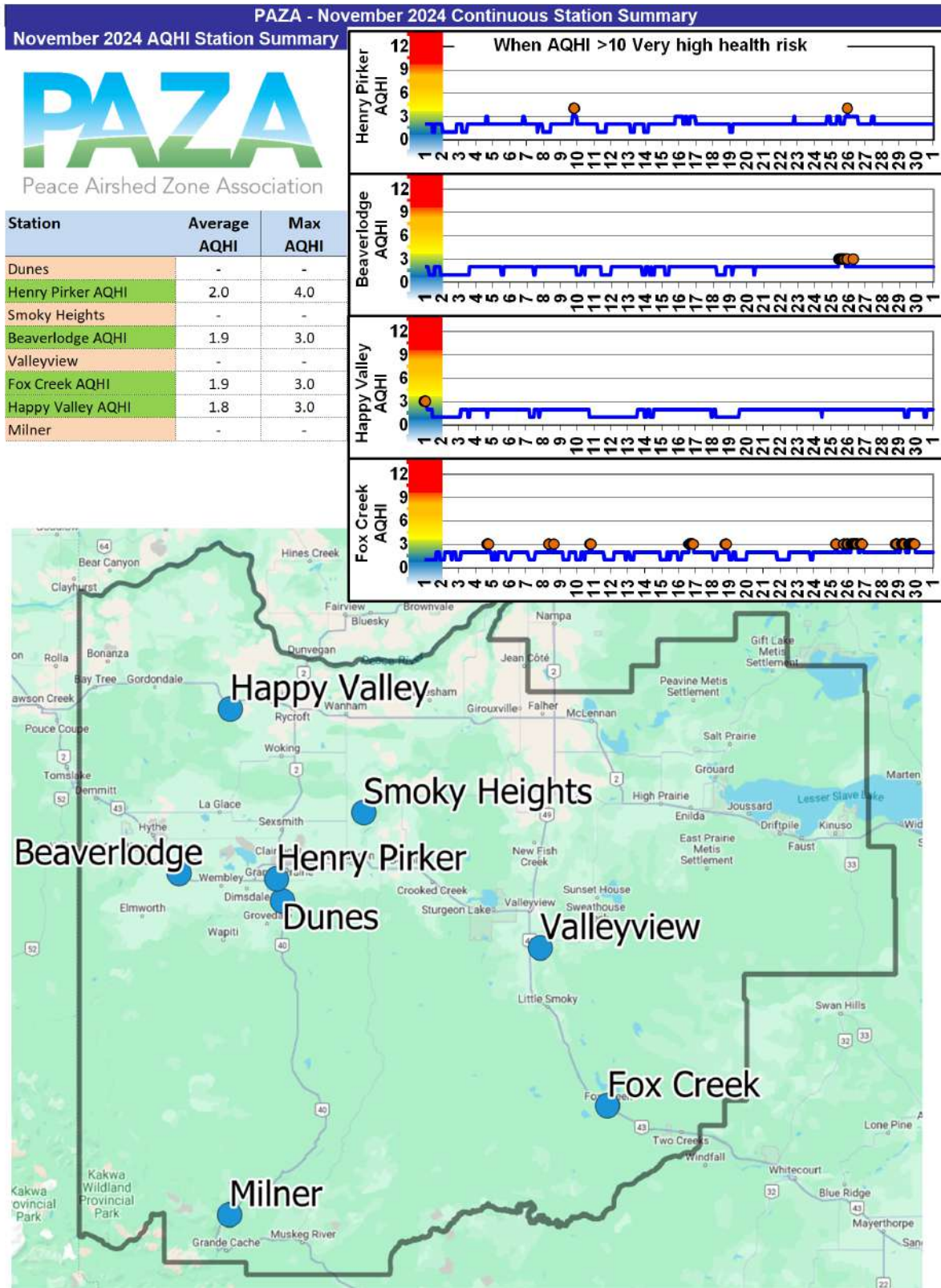
**Calms (<1km/hr) = 6.7 %**



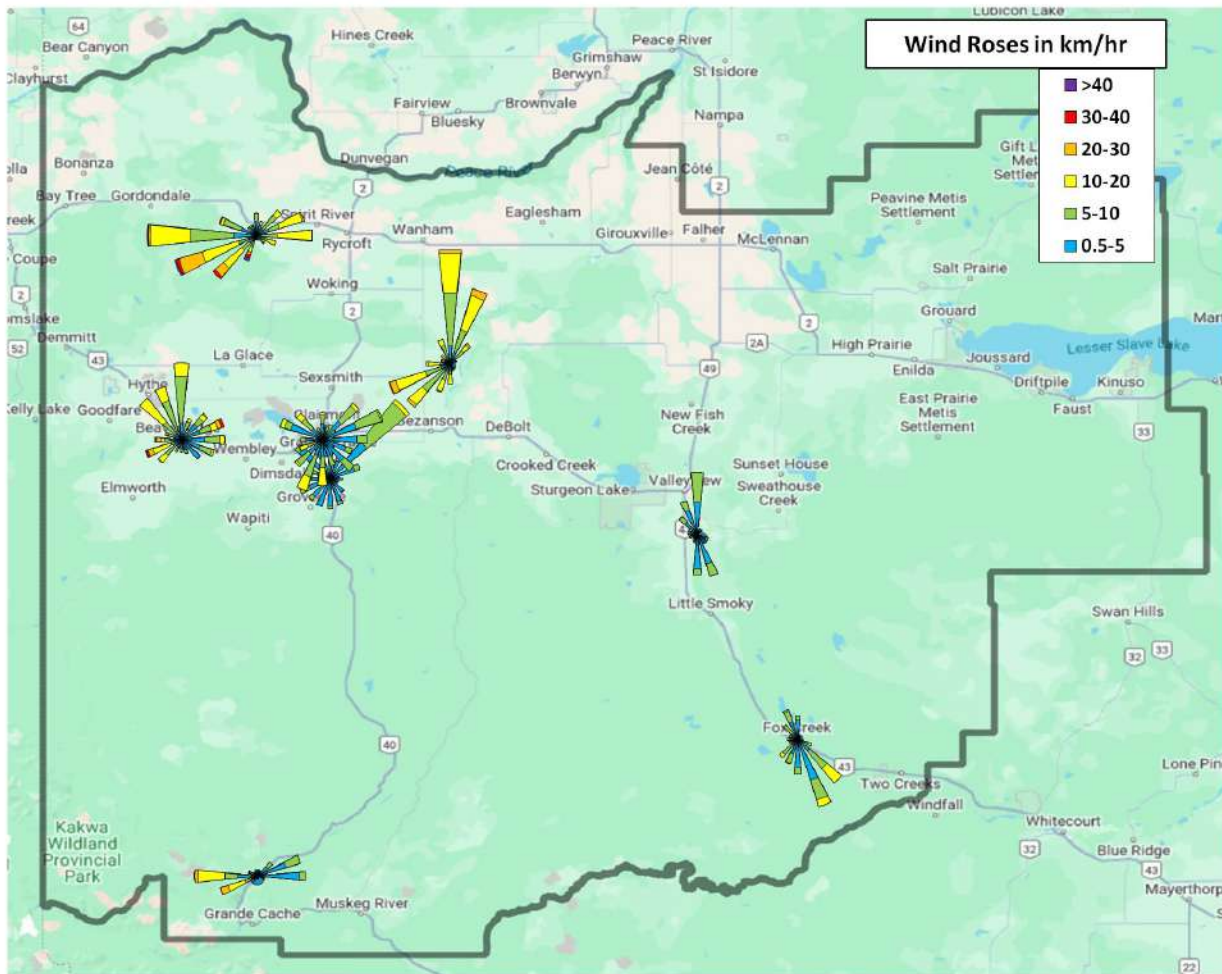
## 10 Concentration Summaries and Roses for PAZA



## 10.1 Air Quality Health Index (AQHI) Plots

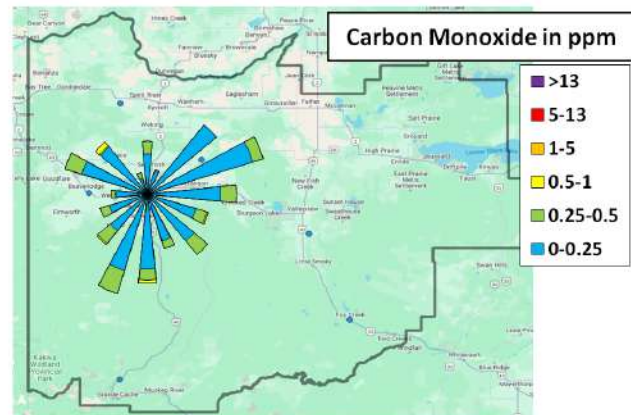
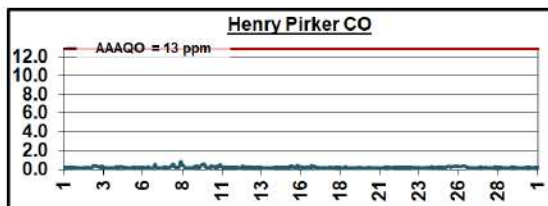


## 10.2 Wind Roses



## 10.3 Carbon Monoxide (CO) Plots

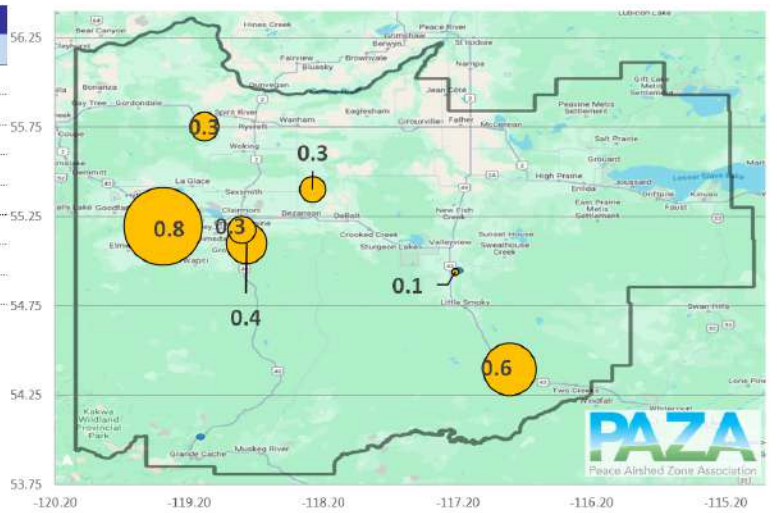
November 2024 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.20	0.78



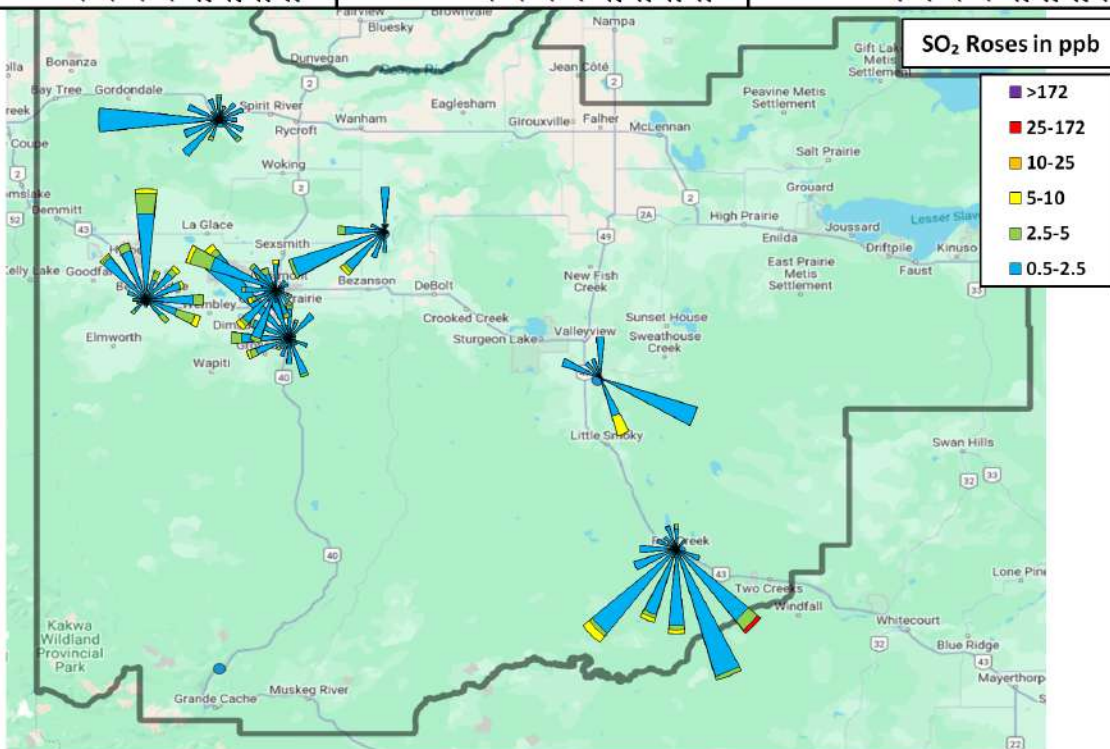
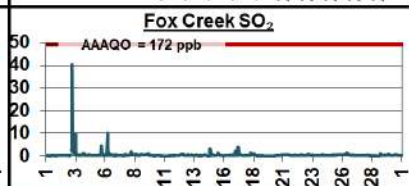
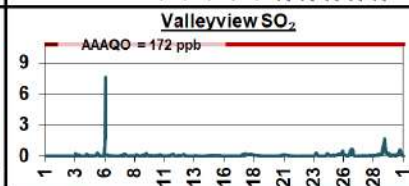
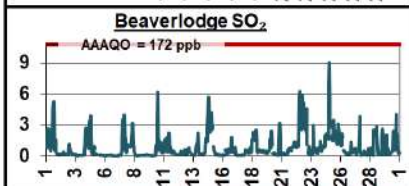
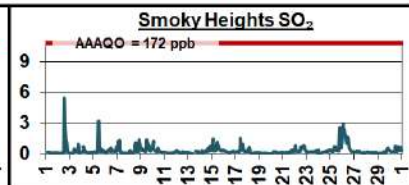
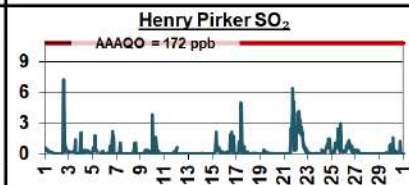
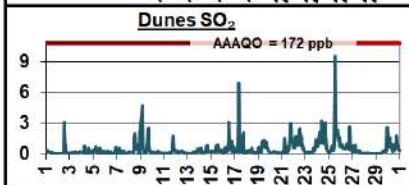
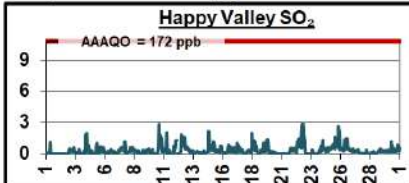
## 10.4 Sulphur Dioxide (SO<sub>2</sub>) Plots

November 2024 SO<sub>2</sub> Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes SO <sub>2</sub>	0.4	9.6
Henry Pirker SO <sub>2</sub>	0.3	7.2
Smoky Heights SO <sub>2</sub>	0.3	5.4
Beaverlodge SO <sub>2</sub>	0.8	9.1
Valleyview SO <sub>2</sub>	0.1	7.6
Fox Creek SO <sub>2</sub>	0.6	40.0
Happy Valley SO <sub>2</sub>	0.3	2.9
Milner SO <sub>2</sub>	-	-



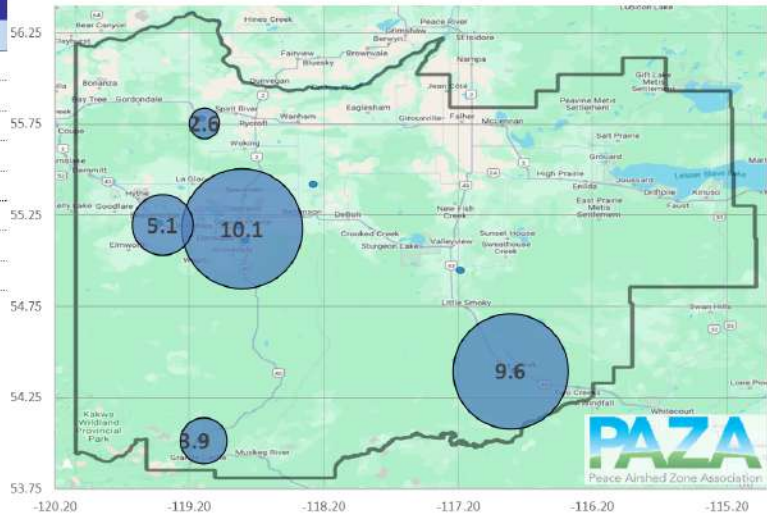
Sulphur Dioxide in ppb



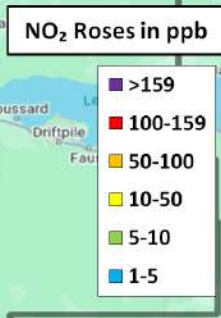
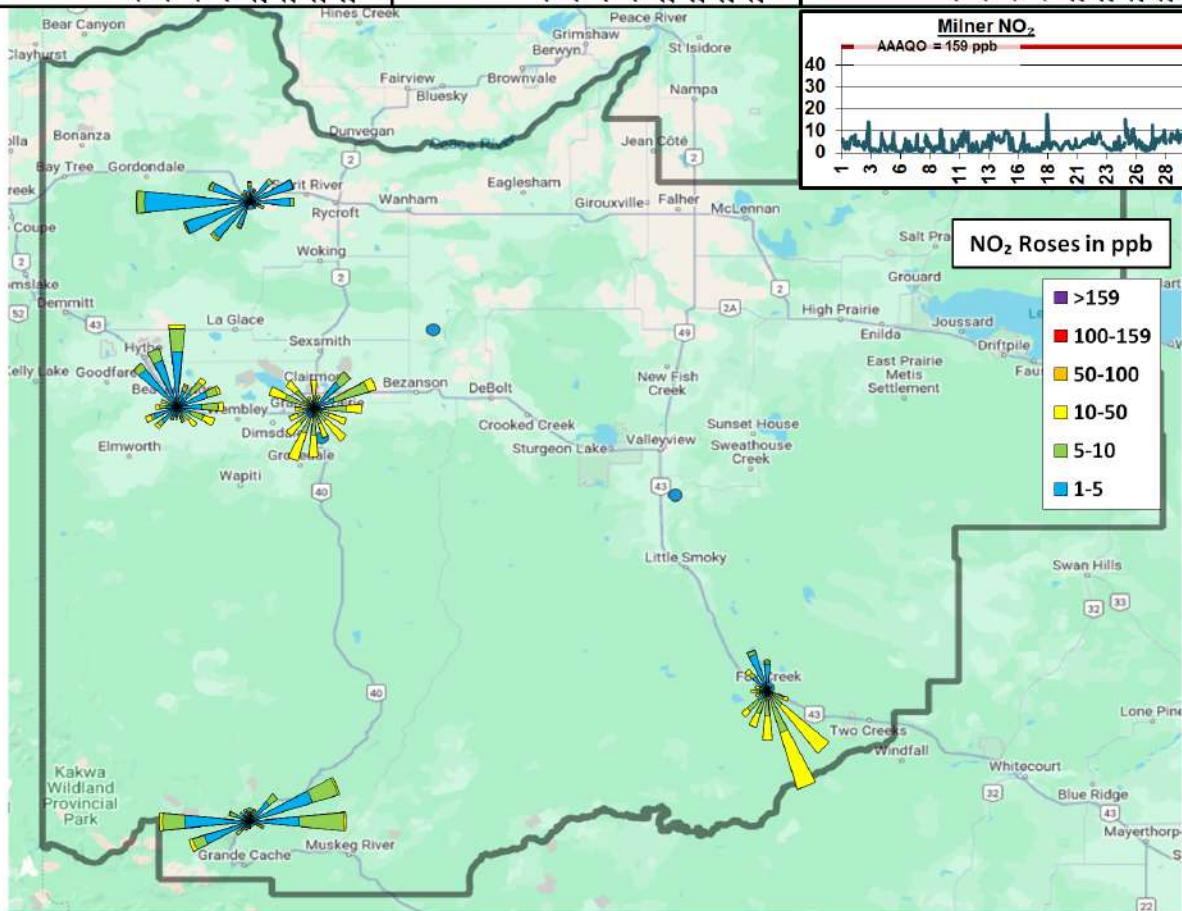
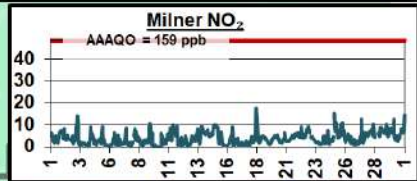
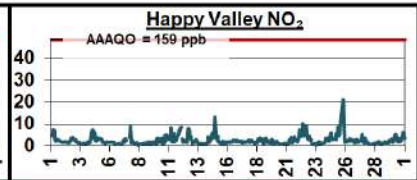
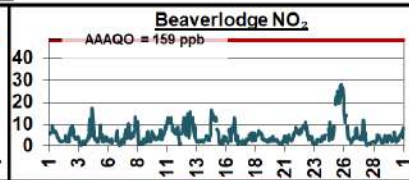
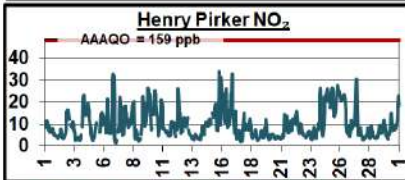
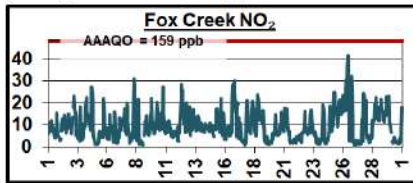
## 10.5 Nitrogen Dioxide (NO<sub>2</sub>) Plots

November 2024 NO<sub>2</sub> Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes NO <sub>2</sub>	-	-
Henry Pirkler NO <sub>2</sub>	10.1	34.1
Smoky Heights NO <sub>2</sub>	-	-
Beaverlodge NO <sub>2</sub>	5.1	28.2
Valleyview NO <sub>2</sub>	-	-
Fox Creek NO <sub>2</sub>	9.6	41.4
Happy Valley NO <sub>2</sub>	2.6	21.0
Milner NO <sub>2</sub>	3.9	17.7



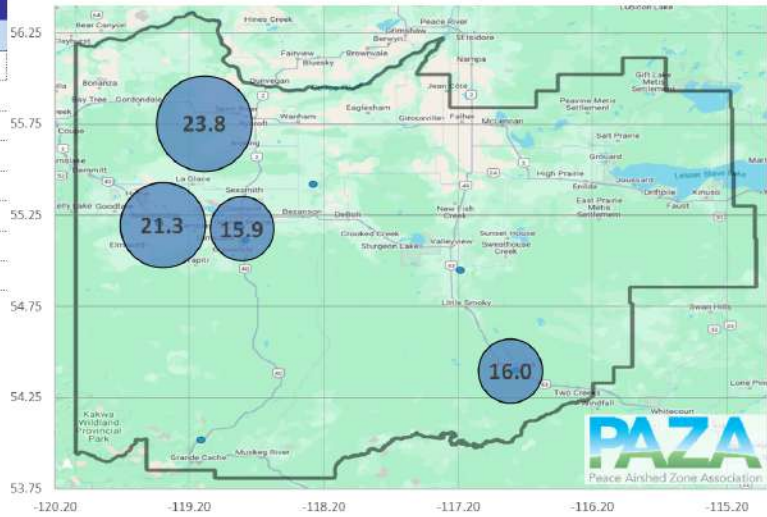
Nitrogen Dioxide in ppb



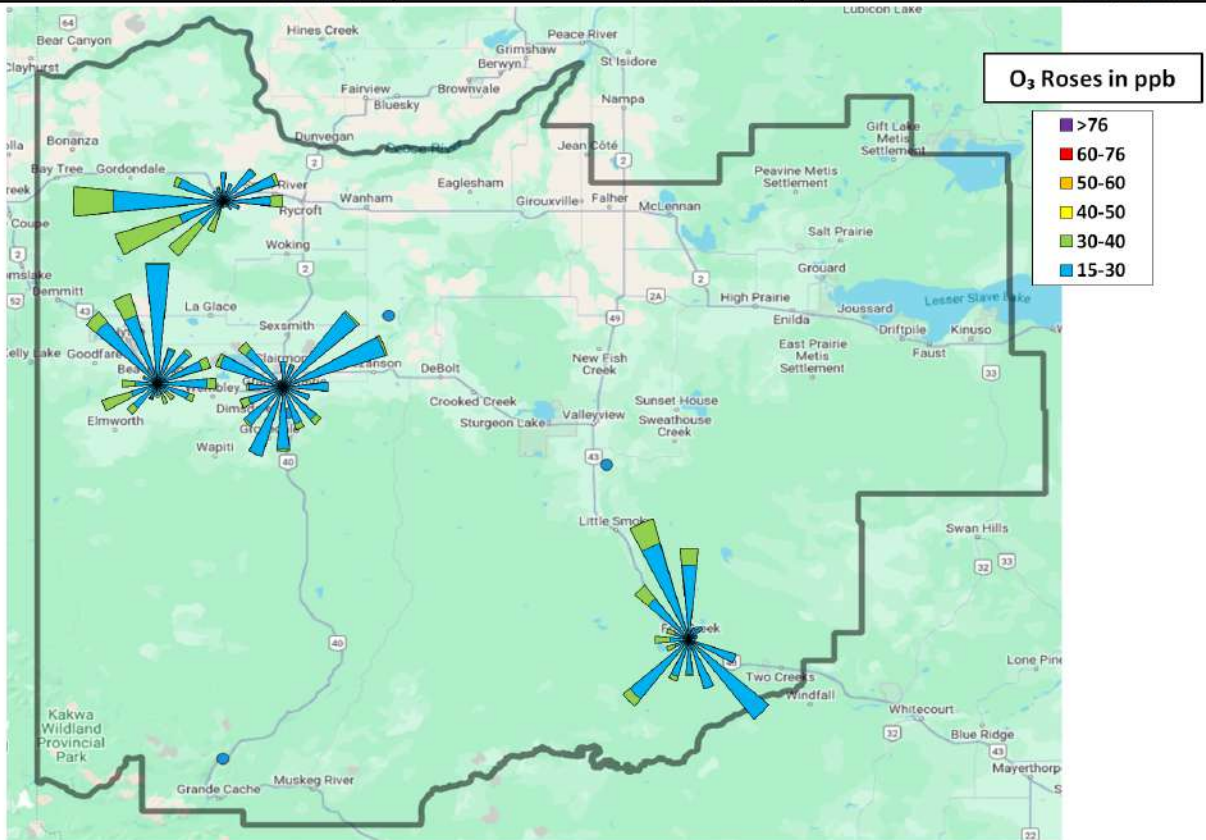
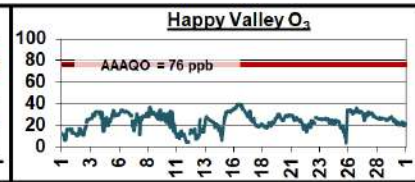
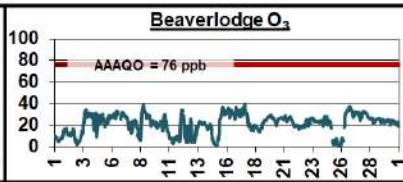
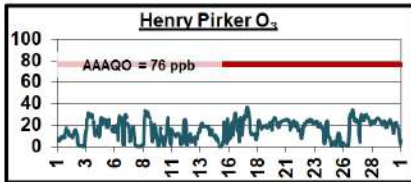
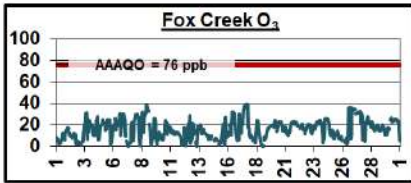
## 10.6 Ozone (O<sub>3</sub>) Plots

November 2024 O<sub>3</sub> Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes O <sub>3</sub>	-	-
Henry Pirkler O <sub>3</sub>	15.9	36.1
Smoky Heights O <sub>3</sub>	-	-
Beaverlodge O <sub>3</sub>	21.3	39.3
Valleyview O <sub>3</sub>	-	-
Fox Creek O <sub>3</sub>	16.0	39.2
Happy Valley O <sub>3</sub>	23.8	39.1
Milner O <sub>3</sub>	-	-



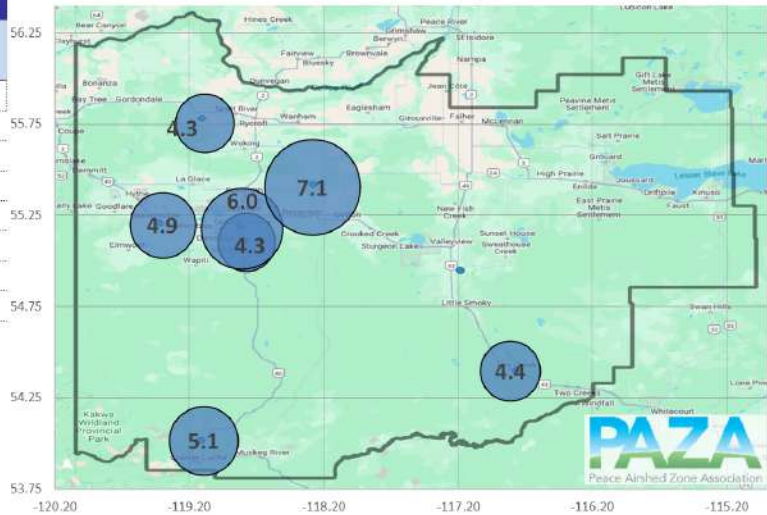
Ozone in ppb



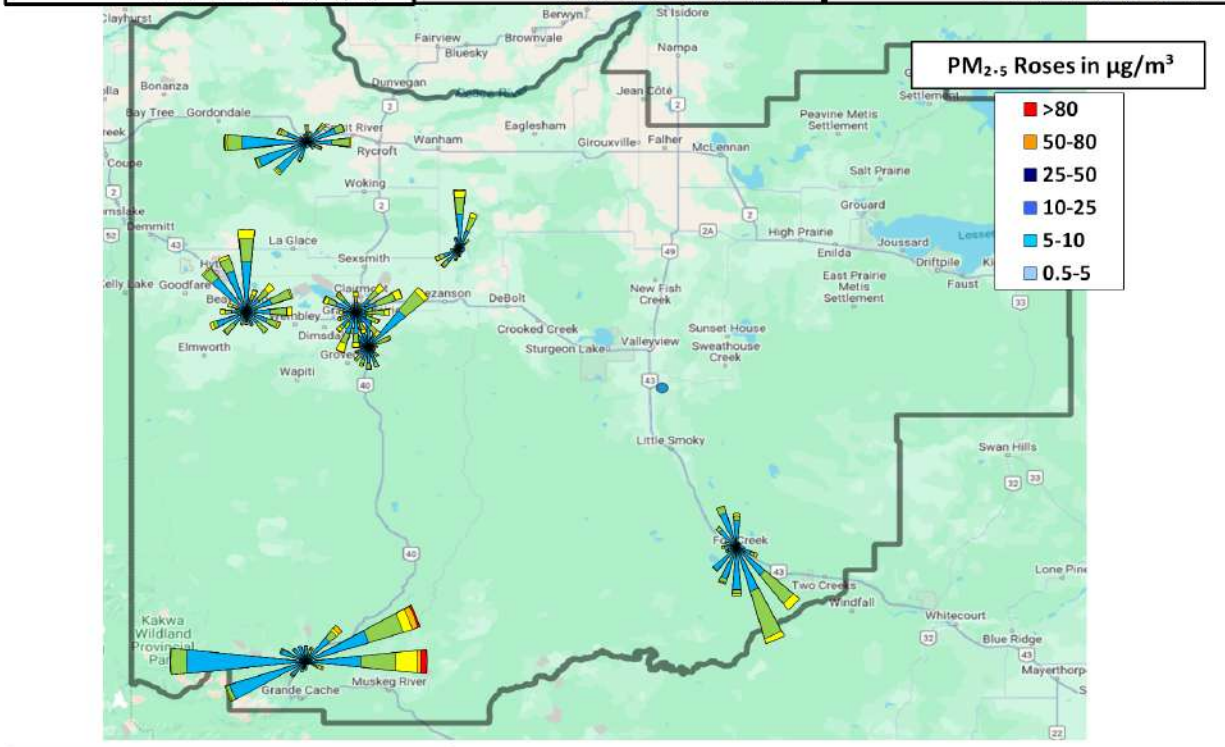
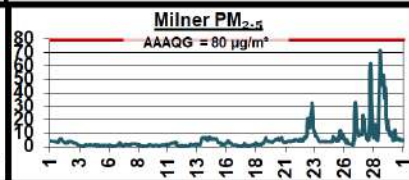
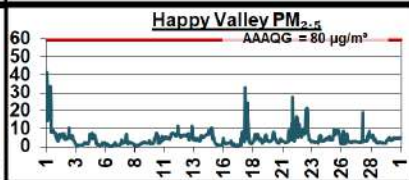
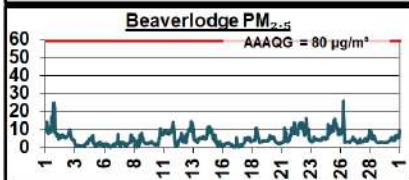
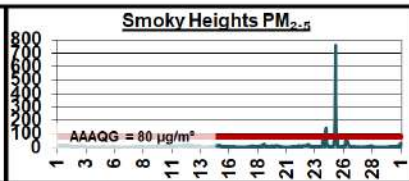
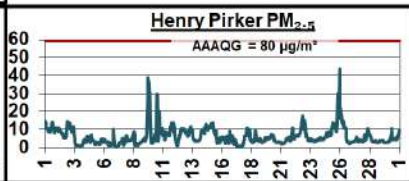
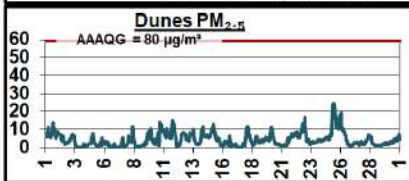
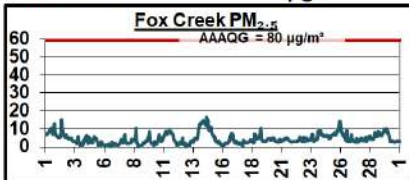
## 10.7 Fine Particulate Matter (PM<sub>2.5</sub>) Plots

**November 2024 PM<sub>2.5</sub> Station Summary**

Station	Avg µg/m <sup>3</sup>	Max µg/m <sup>3</sup>
Dunes PM <sub>2.5</sub>	4.3	24.4
Henry Pirker PM <sub>2.5</sub>	6.0	43.4
Smoky Heights PM <sub>2.5</sub>	7.1	753.9
Beaverlodge PM <sub>2.5</sub>	4.9	25.9
Valleyview PM <sub>2.5</sub>	-	-
Fox Creek PM <sub>2.5</sub>	4.4	16.4
Happy Valley PM <sub>2.5</sub>	4.3	41.6
Milner PM <sub>2.5</sub>	5.1	71.7



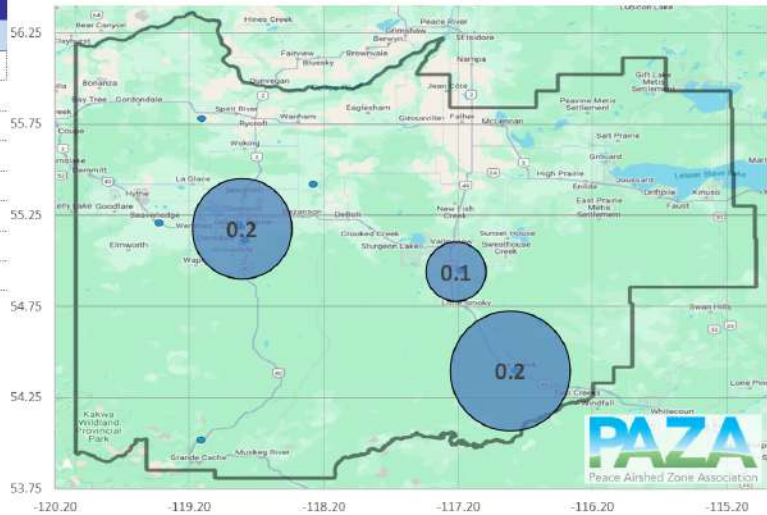
**Fine Particulate Matter in µg/m<sup>3</sup>**



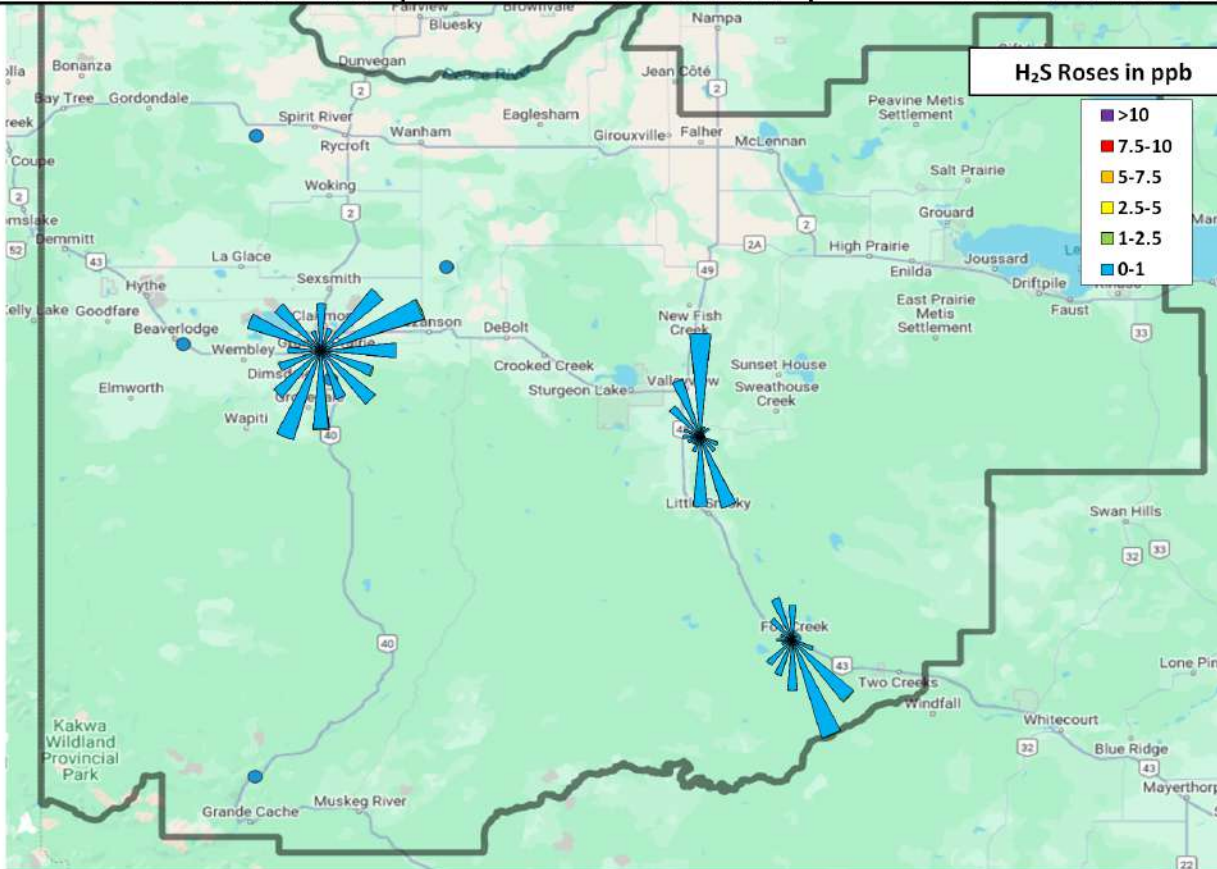
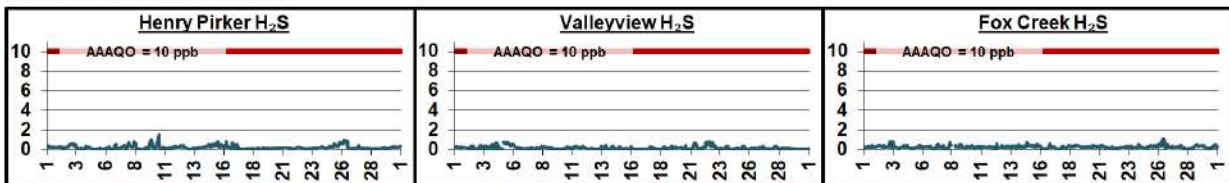
## 10.8 Hydrogen Sulphide (H<sub>2</sub>S) Plots

November 2024 H<sub>2</sub>S Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes H <sub>2</sub> S	-	-
Henry Pirker H <sub>2</sub> S	0.2	1.5
Smoky Heights H <sub>2</sub> S	-	-
Beaverlodge H <sub>2</sub> S	-	-
Valleyview H <sub>2</sub> S	0.1	0.8
Fox Creek H <sub>2</sub> S	0.2	1.1
Happy Valley H <sub>2</sub> S	-	-
Milner H <sub>2</sub> S	-	-



Hydrogen Sulphide in ppb

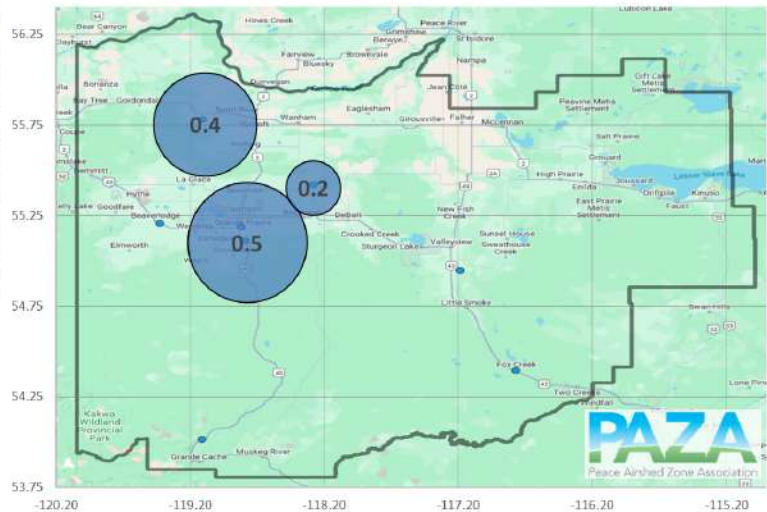




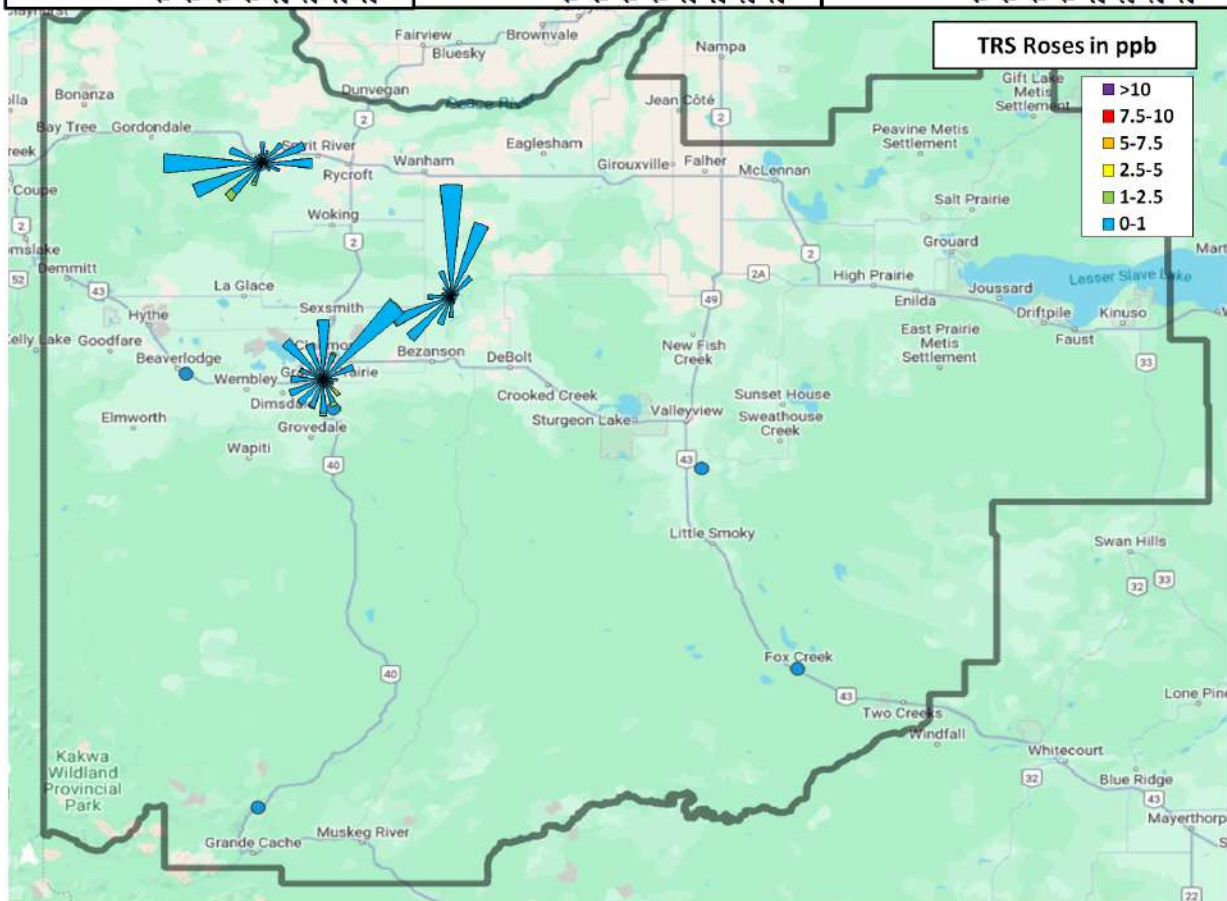
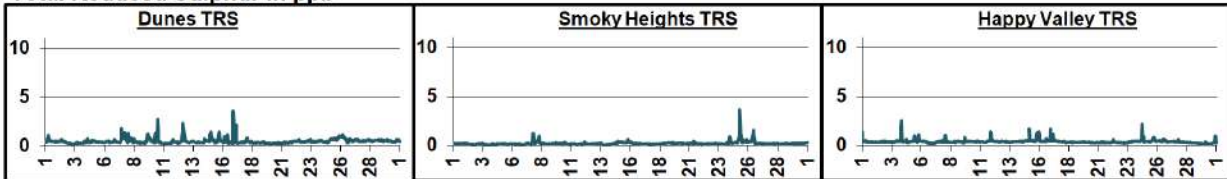
## 10.9 Total Reduced Sulphur (TRS) Plots

November 2024 TRS Station Summary

Station	Avg (ppb)	Max (ppb)
Dunes TRS	0.5	3.6
Henry Pirkler TRS	-	-
Smoky Heights TRS	0.2	3.7
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Fox Creek TRS	-	-
Happy Valley TRS	0.4	2.6
Milner TRS	-	-



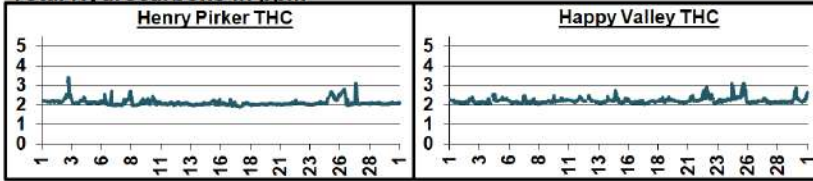
Total Reduced Sulphur in ppb



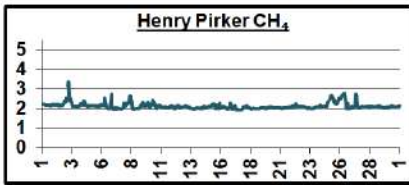
## 10.10 Total Hydrocarbon (THC) Plots

November 2024 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 Pirker THC	2.1	3.4	2.1	3.4	0.00	0.38
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Fox Creek THC	-	-	-	-	-	-
Happy Valley THC	2.2	3.1	-	-	-	-

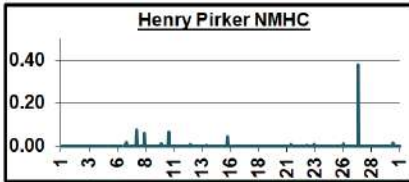
### Total Hydrocarbons in ppm



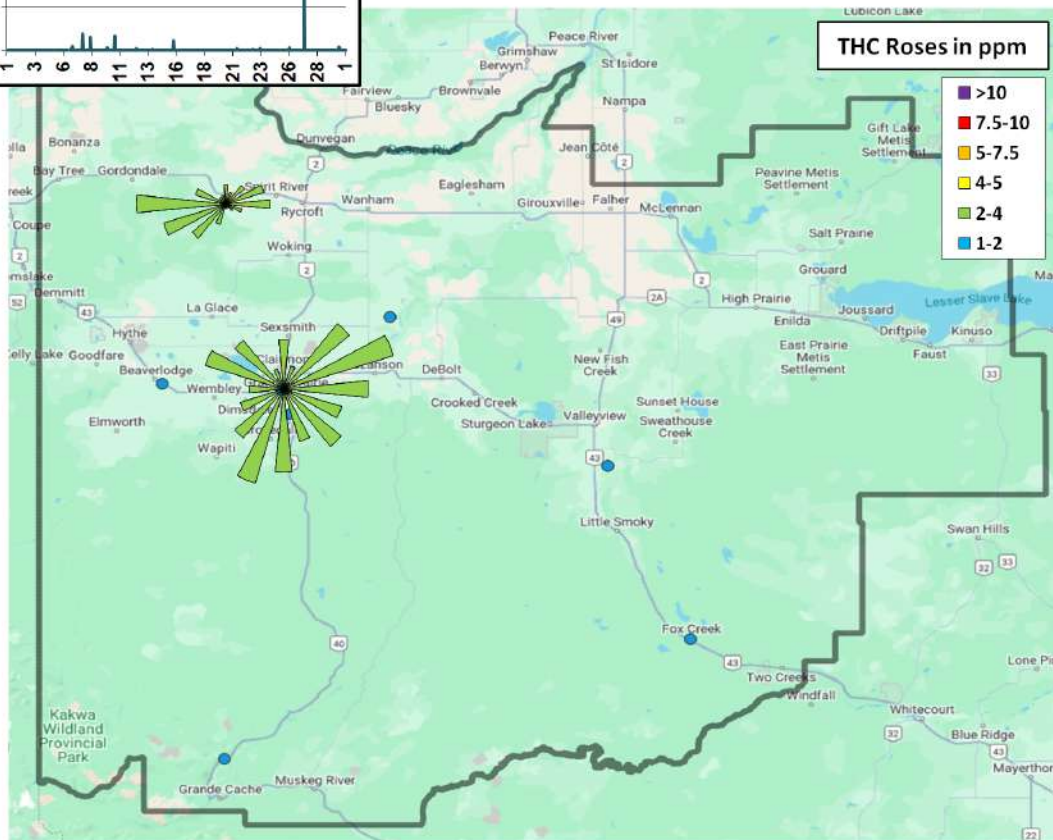
Total Hydrocarbons (THC)



Methane (CH<sub>4</sub>)



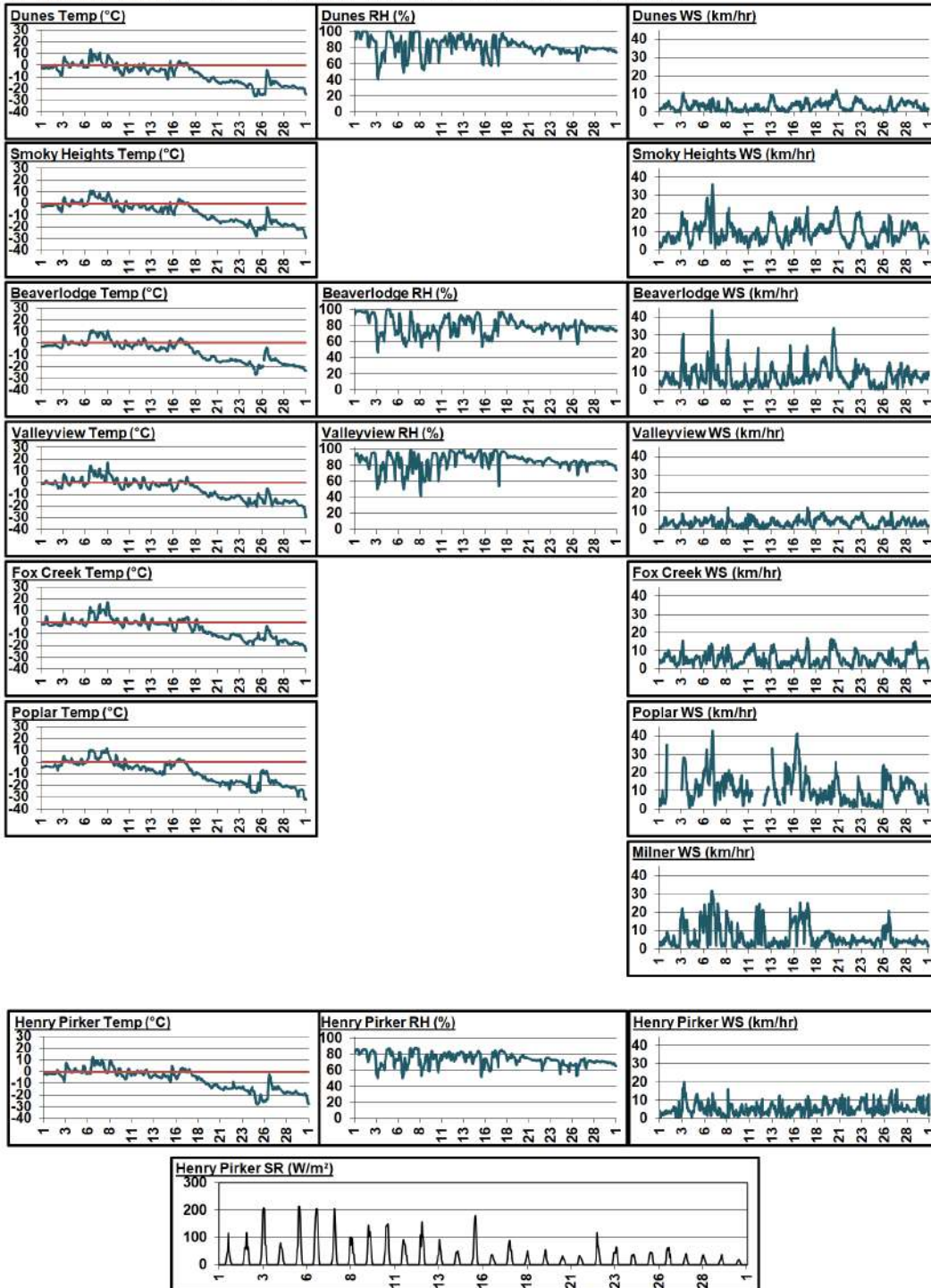
Non-Methane Hydrocarbons (NMHC)



# 10.11 Meteorology Summary

November 2024 Meteorological Summary						
Station	Temp (°C)	RH (%)	SR (W/m <sup>2</sup> )	WS (km/hr)	WD (deg)	WD
Dunes	-7.2	81.6	-	3.2	15	NNE
Henry Pirker	-6.8	73.5	16.7	5.4	178	S
Smoky Heights	-7.5	-	-	9.8	323	NW
Beaverlodge	-6.9	79.1	-	7.6	337	NNW
Valleyview	-5.5	84.6	-	3.7	331	NNW
Fox Creek	-5.1	-	-	5.5	167	WSW
Happy Valley	-8.4	-	-	10.8	243	WSW
Milner	-	-	-	6.7	262	W

Temp (°C) Outside Temperature  
 RH (%) Relative Humidity  
 SR (W/m<sup>2</sup>) Solar Radiation  
 WS (km/hr) Wind Speed  
 WD (deg) Wind Direction  
 WD Wind Direction



## 11 Passive Monitoring Data - update

### Peace Airshed Zone Association - PAZA Passive Stations for November 2024

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
<b>Duplicates</b>						
9a	Spirit River	0.2				08-12-079-07 W6M
9b	Spirit River	0.2				
16a	Beaverlodge	0.8				15-36-071-10 W6M
16b	Beaverlodge	1.3				
18a	Saddle Hills			1.4		04-25-074-07 W6M
18b	Saddle Hills			1.4		
19a	Wanham	0.2				16-22-077-03 W6M
19b	Wanham	0.3				
24a	Wembley			2.5		12-31-070-08 W6M
24b	Wembley			2.8		
36a	Guy	0.1				03-04-076-22 W5M
36b	Guy	0.2				
42a	Sunset House			1.0		05-32-070-19 W5M
42b	Sunset House			1.1		
47a	Kinuso		25.7			12-10-073-10 W5M
47b	Kinuso		23.9			
48a	Deer Mountain			0.8		15-22-068-09 W5M
48b	Deer Mountain			0.7		
G3a	Girouxville 3				0.35	14-02-077-23 W5M
G3b	Girouxville 3				0.44	
D3a	Duvernay 3	0.5			0.26	04-33-062-20 W5M
D3b	Duvernay 3	0.5			0.27	
K4a	Kakwa 4			4.1		06-18-063-04 W6M
K4b	Kakwa 4			3.5		
K2a	Kakwa 2	2.5				08-13-063-05 W6M
K2b	Kakwa 2	2.2				
K1a	Kakwa 1				0.10	01-13-063-05 W6M
K1b	Kakwa 1				0.10	
M9Aa	Milner Pipeline			3.4		12-14-058-08 W6M
M9Ab	Milner Pipeline			3.6		
M10a	Milner Powerline	0.2				06-14-058-08 W6M
M10b	Milner Powerline	0.2				
J1Da	Jayar1 Plant			2.6		06-08-062-03 W6M
J1Db	Jayar1 Plant			3.0		
J5Da	Jayar5 Camp	0.4				11-08-062-03 W6M
J5Db	Jayar5 Camp	0.4				
J2Da	Jayar2 14-8				0.17	07-08-062-03 W6M
J2Db	Jayar2 14-8				0.14	

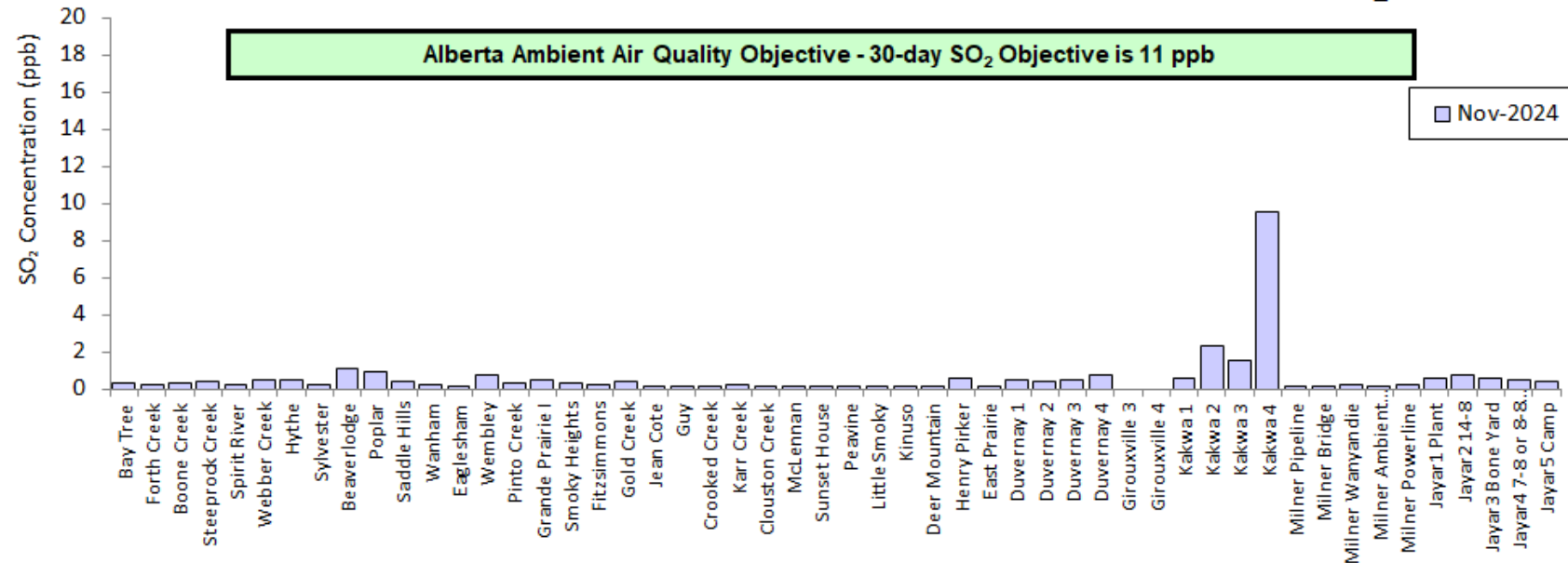
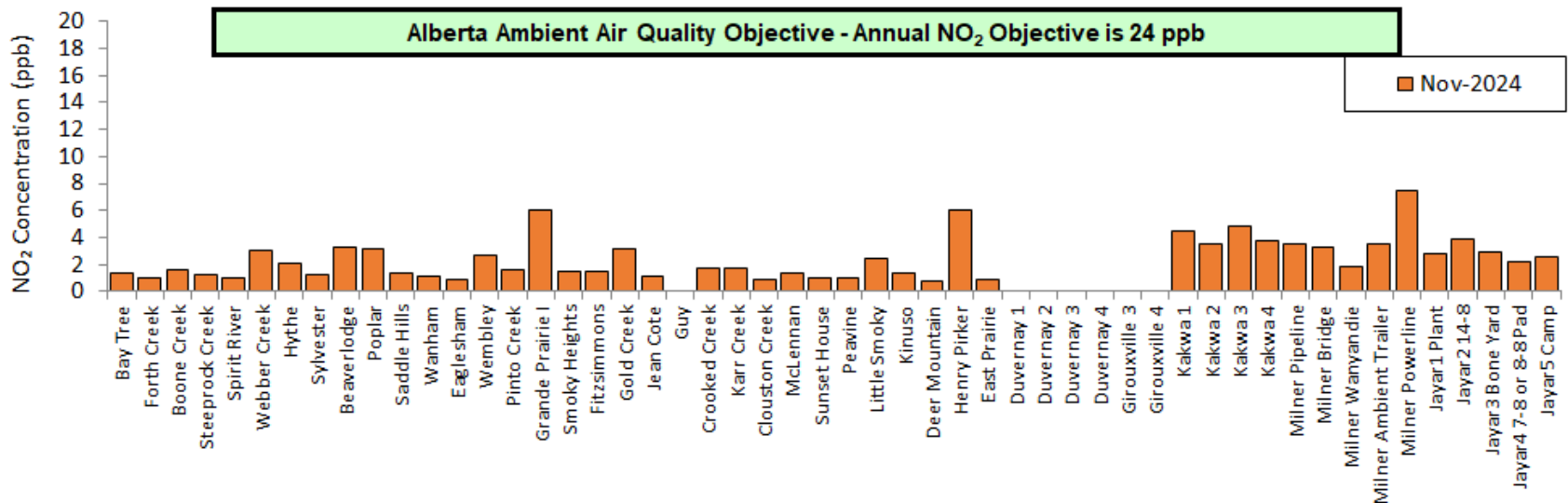
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.3	30.1	1.4	-	13-16-078-13 W6M
3	Forth Creek	0.2	-	1.0	-	04-13-082-07 W6M
5	Boone Creek	0.3	-	1.6	-	01-23-076-11 W6M
7	Steeprock Creek	0.4	-	1.2	-	09-35-072-13 W6M
9	Spirit River	0.2	-	1.0	-	08-12-079-07 W6M
11	Webber Creek	0.5	-	3.1	-	09-36-074-09 W6M
12	Hythe	0.5	-	2.1	-	14-36-072-11 W6M
14	Sylvester	0.3	-	1.2	-	08-06-069-12 W6M
16	Beaverlodge	1.1	-	3.3	-	15-36-071-10 W6M
17	Poplar	0.9	-	3.1	-	13-06-073-08 W6M
18	Saddle Hills	0.4	-	1.4	-	04-25-074-07 W6M
19	Wanham	0.3	-	1.1	-	16-22-077-03 W6M
21	Eaglesham	0.1	-	0.8	-	16-21-079-25 W5M
24	Wembley	0.8	-	2.7	-	12-31-070-08 W6M
25	Pinto Creek	0.3	-	1.5	-	04-24-069-11 W6M
27	Grande Prairie I	0.5	-	6.0	-	08-15-071-06 W6M
29	Smoky Heights	0.3	-	1.4	-	04-06-075-02 W6M
30	Fitzsimmons	0.2	-	1.5	-	15-36-072-03 W6M
32	Gold Creek	0.4	-	3.1	-	06-33-067-05 W6M
35	Jean Cote	0.1	-	1.1	-	12-35-079-21 W5M
36	Guy	0.2	-	0.0	0.2	03-04-076-22 W5M
37	Crooked Creek	0.1	25.4	1.7	-	16-01-071-26 W5M
38	Karr Creek	0.2	-	1.7	-	10-16-065-02 W6M
39	Clouston Creek	0.1	-	0.9	-	12-01-073-22 W5M
40	McLennan	0.1	-	1.3	-	03-29-077-19 W5M
42	Sunset House	0.2	-	1.0	-	05-32-070-19 W5M
44	Peavine	0.1	-	1.0	-	03-05-079-15 W5M
46	Little Smoky	0.1	-	2.5	-	12-01-065-21 W5M
47	Kinuso	0.1	24.8	1.3	-	12-10-073-10 W5M
48	Deer Mountain	0.1	-	0.8	-	15-22-068-09 W5M
49	Henry Pirkler	0.6	-	6.0	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.9	-	11-13-079-08 W6M
D1	Duvernay 1	0.5	-	-	0.14	04-33-062-20 W5M
D2	Duvernay 2	0.4	-	-	0.17	04-33-062-20 W5M
D3	Duvernay 3	0.5	-	-	0.26	04-33-062-20 W5M
D4	Duvernay 4	0.7	-	-	0.23	04-33-062-20 W5M
G3	Girouxville 3	-	-	-	0.40	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	0.22	04-08-077-22 W5M
K1	Kakwa 1	0.6	-	4.5	0.10	01-13-063-05 W6M
K2	Kakwa 2	2.4	-	3.5	0.17	08-13-063-05 W6M
K3	Kakwa 3	1.5	-	4.8	0.22	12-18-063-04 W6M
K4	Kakwa 4	9.5	-	3.8	0.19	06-18-063-04 W6M
M1	Milner Pipeline	0.1	-	3.5	-	12-14-058-08 W6M
M2	Milner Bridge	0.1	-	3.3	-	08-06-057-08 W6M
M3	Milner Wanyandie	0.2	-	1.8	-	11-13-058-08 W6M
M4	Milner Ambient Trailer	0.1	-	3.5	-	09-15-058-08 W6M
M5	Milner Powerline	0.2	-	7.5	-	06-14-058-08 W6M
J1	Jayar1 Plant	0.6	-	2.8	0.10	06-08-062-03 W6M
J2	Jayar2 14-8	0.7	-	3.9	0.16	07-08-062-03 W6M
J3	Jayar3 Bone Yard	0.6	-	2.9	0.08	14-08-062-03 W6M
J4	Jayar4 7-8 or 8-8 Pad	0.5	-	2.2	0.11	10-08-062-03 W6M
J5	Jayar5 Camp	0.4	-	2.6	0.18	11-08-062-03 W6M

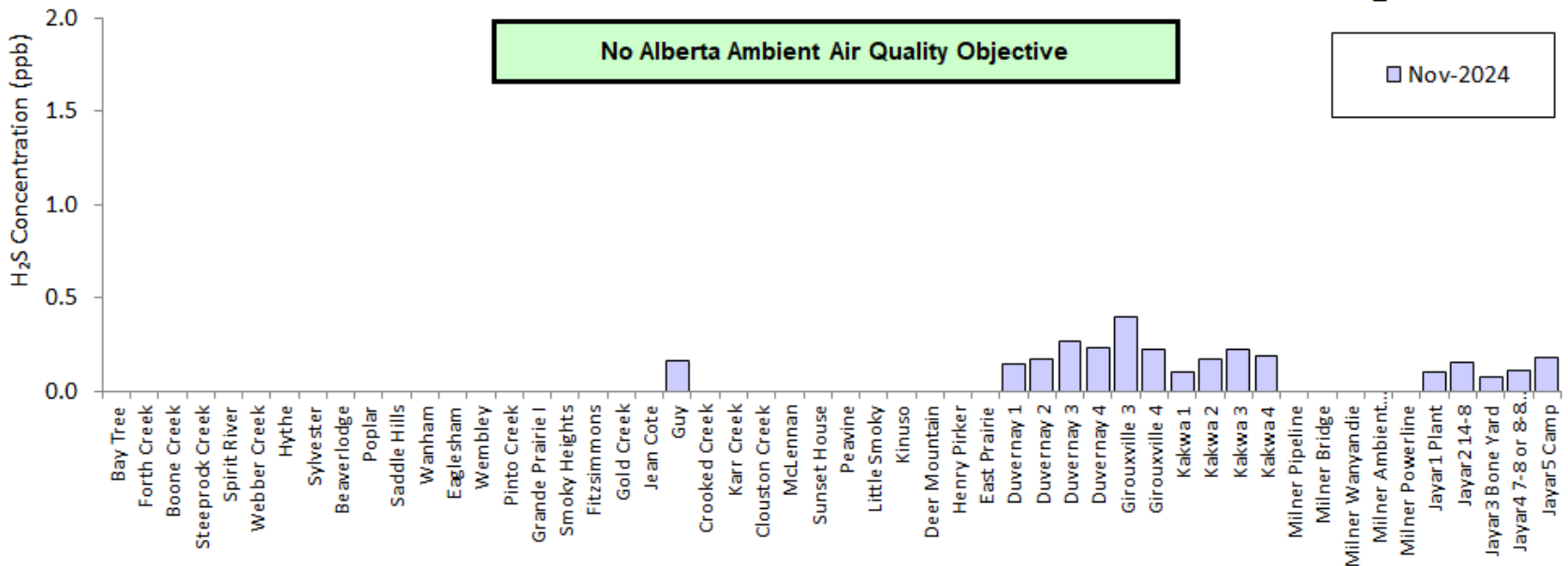
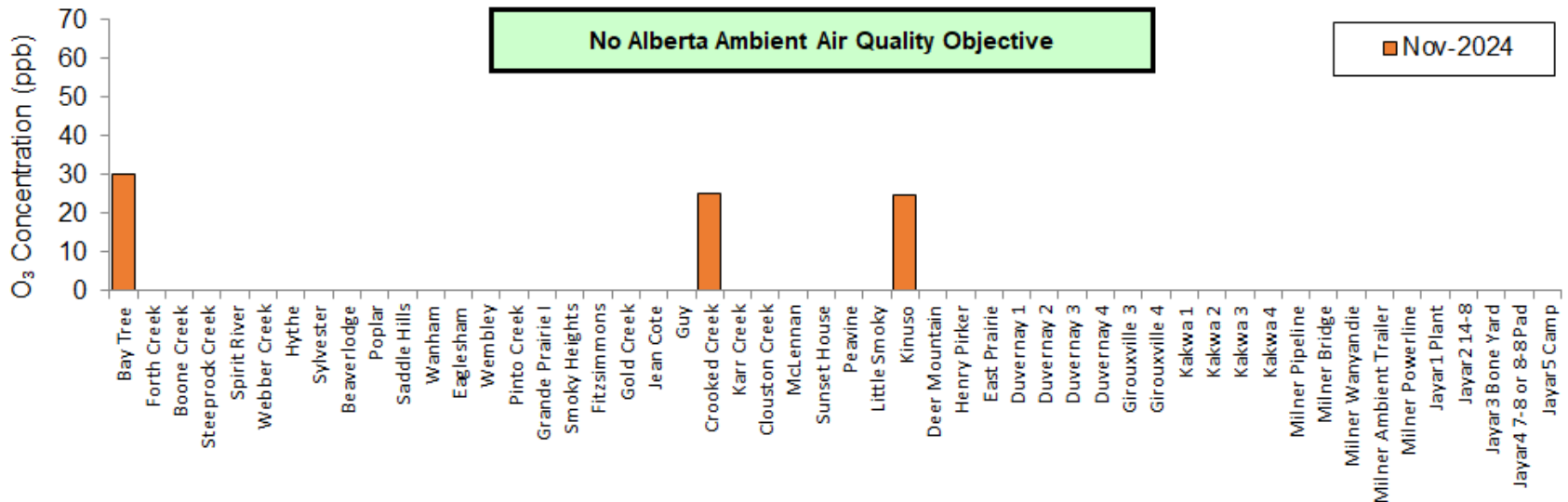
### Passive Summary for November 2024

Stats	Sulphur Dioxide SO <sub>2</sub> ppb	Ozone O <sub>3</sub> ppb	Nitrogen Dioxide NO <sub>2</sub> ppb	Hydrogen Sulphide H <sub>2</sub> S ppb
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Passive Summary for November 2024 (PAZA)				
<b>Mean</b>	0.6	26.8	2.4	0.2
<b>Standard Deviation</b>	1.3	2.9	1.6	0.1
<b>Minimum</b>	0.1	24.8	0.0	0.1
	Deer Mountain (#48)	Kinuso (#47)	Guy (#36)	Jayar3 Bone Yard (#J3)
<b>Maximum</b>	9.5	30.1	7.5	0.4
	Kakwa 4 (#K4)	Bay Tree (#2)	Milner Powerline (#M5)	Girouxville 3 (#G3)

Continuous and Passive Monitoring Comparision				
<b>PAZA Beaverlodge Station</b>	<b>0.8</b>	<b>21.3</b>	<b>5.1</b>	<b>-</b>
<b>Beaverlodge Passive (#16)</b>	<b>1.1</b>	<b>-</b>	<b>3.3</b>	<b>-</b>
<b>PAZA Henry Pirker Station</b>	<b>0.3</b>	<b>15.9</b>	<b>10.1</b>	<b>0.2</b>
<b>Henry Pirker passive (#49)</b>	<b>0.6</b>	<b>-</b>	<b>6.0</b>	<b>-</b>
<b>Milner Station</b>	<b>-</b>	<b>-</b>	<b>3.9</b>	<b>-</b>
<b>Milner passive</b>	<b>0.1</b>	<b>-</b>	<b>3.5</b>	<b>-</b>

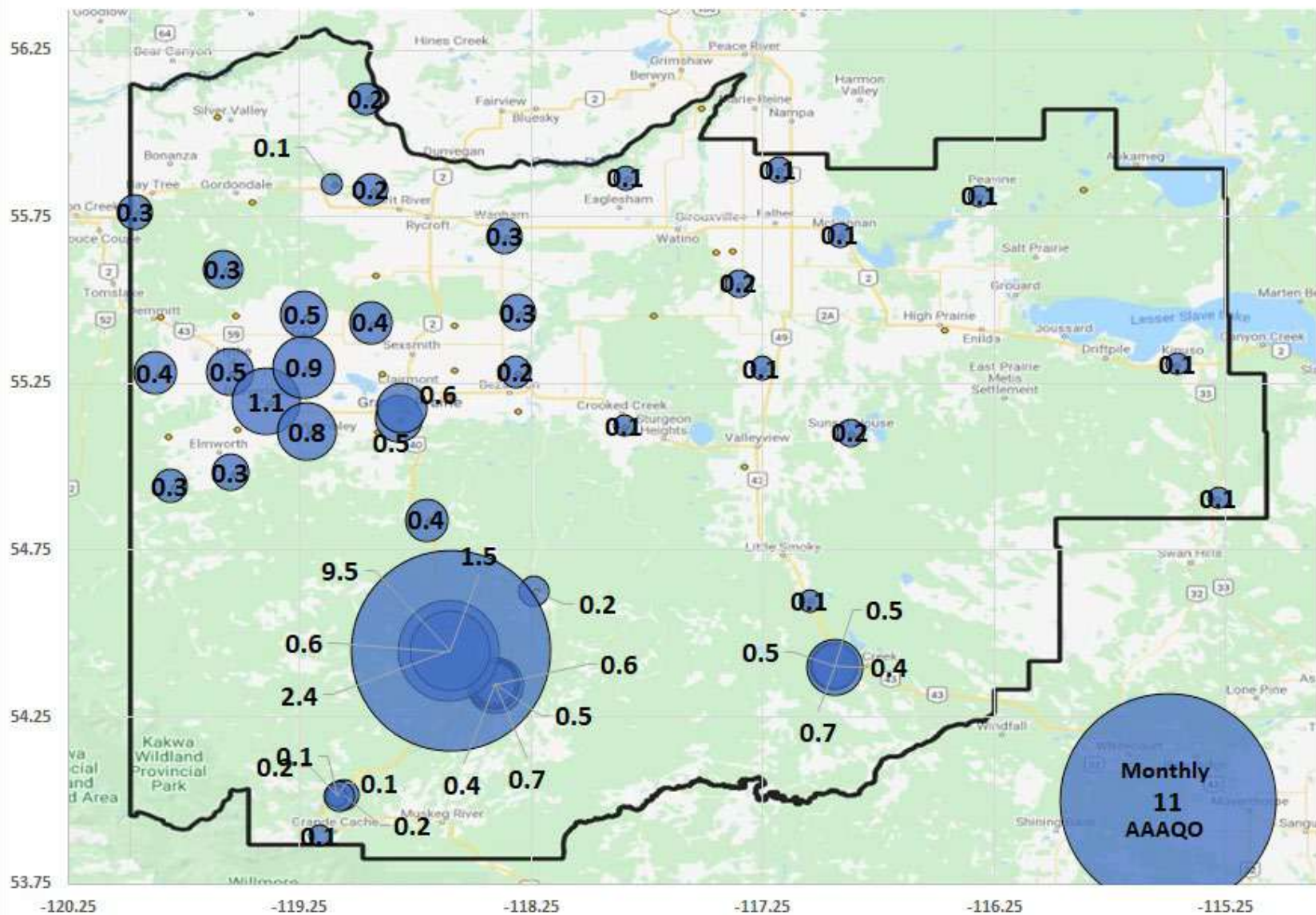




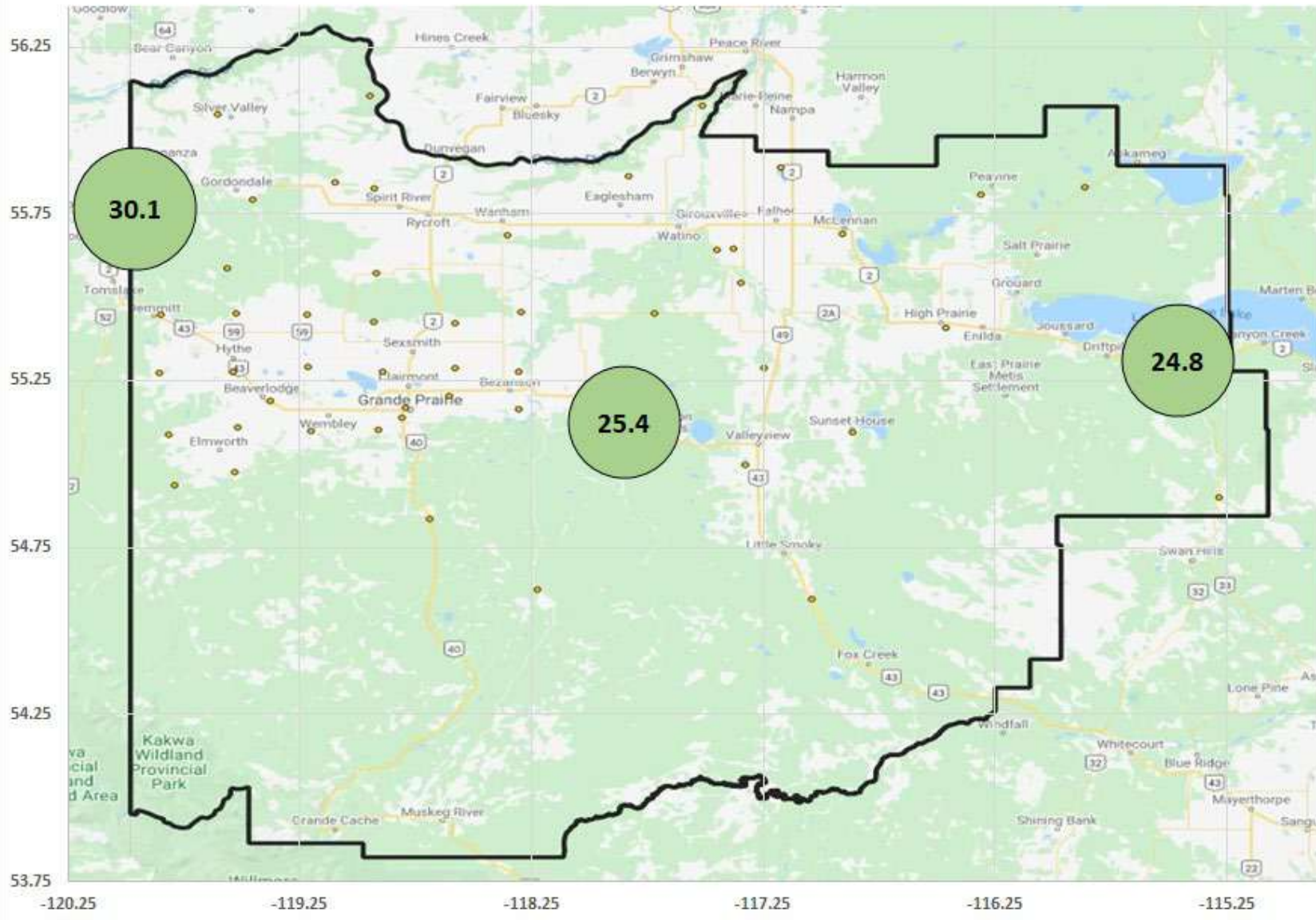




### SO<sub>2</sub> Monthly Average (units in ppb)



### O<sub>3</sub> Monthly Average (units in ppb)

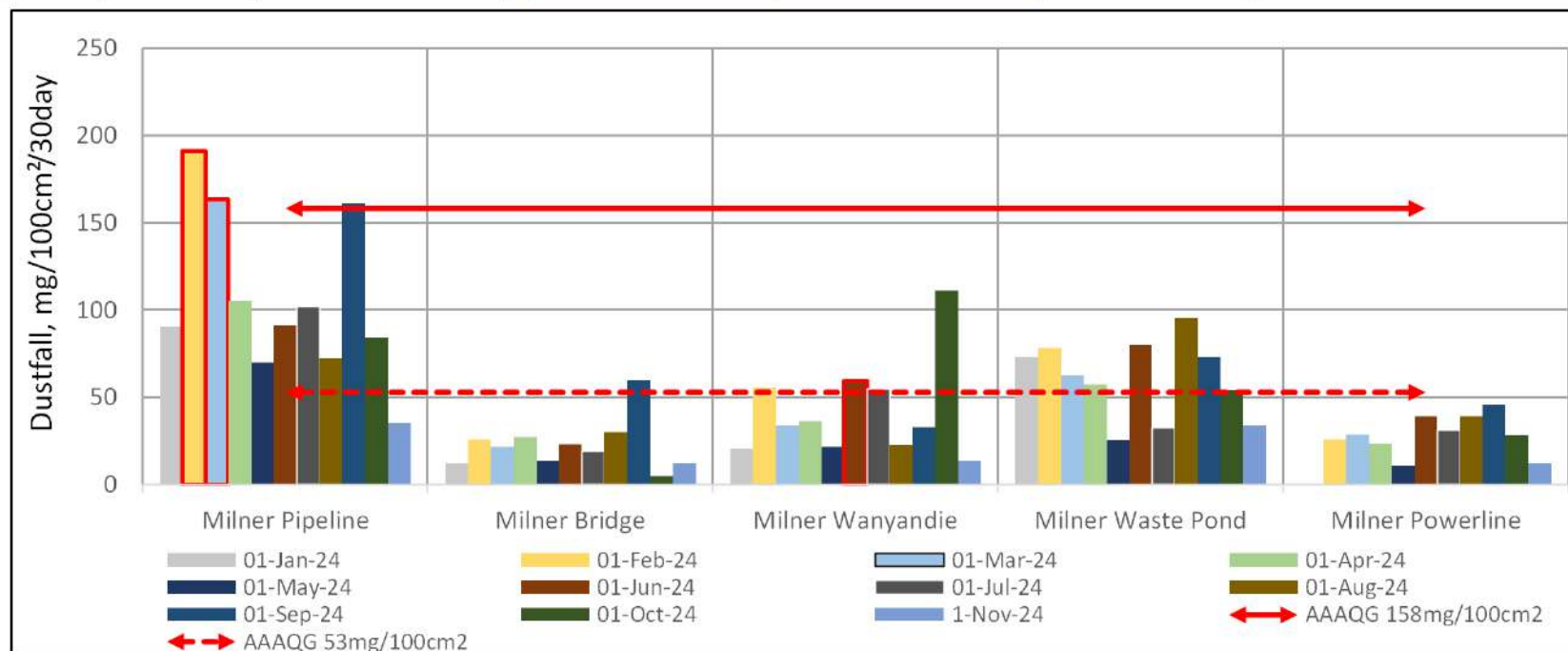




## 12 Dustfall Monitoring Data - update

### Milner Dustfall Samples November 2024

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm <sup>2</sup> /30day	Fixed Dustfall (30 day) mg/100cm <sup>2</sup> /30day	Exposure days	Field Notes
November	2024	Milner Pipeline	35.2	14.1	30	
November	2024	Milner Bridge	12.2	8.9	30	
November	2024	Milner Wanyandie	13.5	9.5	30	
November	2024	Milner Waste Pond	34.1	10.6	30	
November	2024	Milner Powerline	12.2	4.9	30	
November	2024	Milner Powerline Dup	16.2	6.5	30	RPD, 28% / 28%



## End of Report



# Peace Airshed Zone Association

## Ambient Air Monitoring Report

November 2024