



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

October 2020

November 30, 2020

Alberta Environment and Parks

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

Subject: Peace Airshed Zone Association (PAZA)
October 2020 Ambient Air Quality Monitoring Report

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of October 2020.

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

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This report was prepared by Matrix Solutions Inc. and reviewed by Mandeep Dhaliwal.

PAZA has retained the services of WSP Canada Inc. to conduct continuous ambient monitoring and Matrix Solutions Inc. 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

Continuous Monitoring:

Seven (7) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview, Donnelly and Wembley-Portable. Detailed Summaries are included in the report

Calibration and Data Submission:

Monthly report, hourly data and calibration reports for October 2020 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	262479-00-00
Alberta Power (2000) Ltd. (an ATCO company)	Sturgeon	SW-06-069-21-W5	10283-02-02
ATCO Power Canada	Poplar Hill	11-19-073-08-W6	67774-01-01
ATCO Power Canada	Valleyview	SW-06-069-21-W5	147709-01-01
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	247673-00-00
	Ante Creek	02-26-068-25-W5	266694-00-00
	Gordondale	02-26-068-25-W5	287474-00-00
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	10137-02-02
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	252529-00-00
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	1633-02-00
Canfor Forest Products	Grande Prairie	SW-23-071-06-W6	152645-01-00
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	00000212-01-00
Devon Canada	NW Belloy (Dunvegan)	16-36-079-03-W6	00009810-02-00
	Eaglesham (South)	02-14-077-25-W5	00047669-01-00
	North Normanville	03-36-079-23-W5	00047455-01-00
	West Culp	05-34-078-25-W6	00136284-00-00
	Cecil	08-15-084-08-W6	00010032-02-00
Encana Corporation	Sexsmith	04-08-075-07-W6	00010002-01-00
Enerplus Resources	Pouce Coupe	SW-06-069-21-W5	1464-02-03
Exshaw Oil Corporation	Spirit River	03-10-077-07-W6	344521-00-00
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
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	138884-01-00
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	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
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	3-23-080-13-W6	00070203-01-01
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
TAQA North Ltd.	Valhalla	13-21-076-09-W6	00017620-01-00
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 were no readings above the AAAQO or AAAQG

Operational times less than 90 percent:

All operational times in October were greater than 90%

Air Incidents

None were reported to PAZA

Deviations from Authorized Monitoring Methods

None to report.

Passive Monitoring

- 33 Stations throughout the PAZA zone, the passive sample analyses were performed by Bureau Veritas Laboratories
- There were nine duplicate sites sampled in the month of October with RPD ranging from 1 to 71%, with all but one site less than 47%
 - For sulphur dioxide duplicates at Wanham, Grande Prairie I, McLennan stations
 - For ozone duplicate at Bay Tree station
 - For nitrogen dioxide duplicates at Eaglesham, Wembley, Clouston Creek stations
 - For hydrogen sulphide duplicate at Girouxville 3 station
- There was a note of field issues that Wood Piles were burning near by with smoke near Silver Valley and Bay Tree passives.
- There were no exceedances of the AAAQOs for all monitored parameters at any of the passive monitoring stations during this 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.

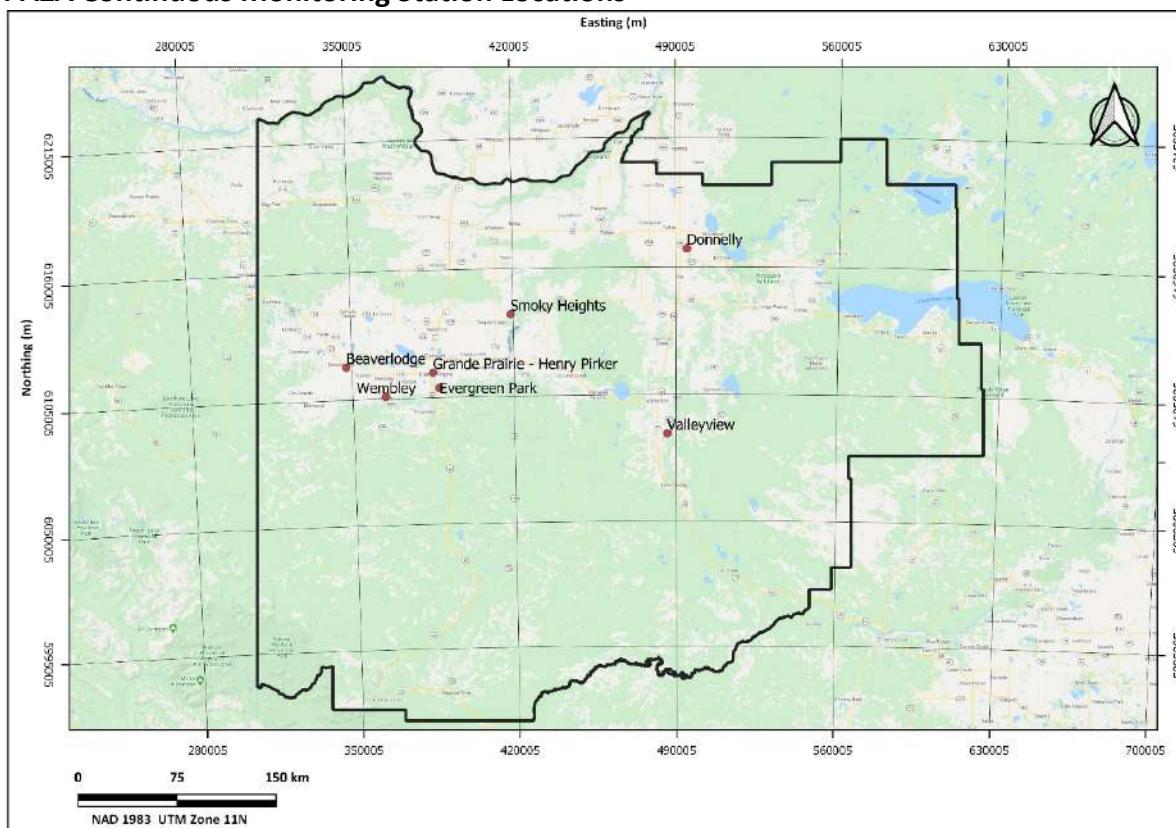


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Program Manager

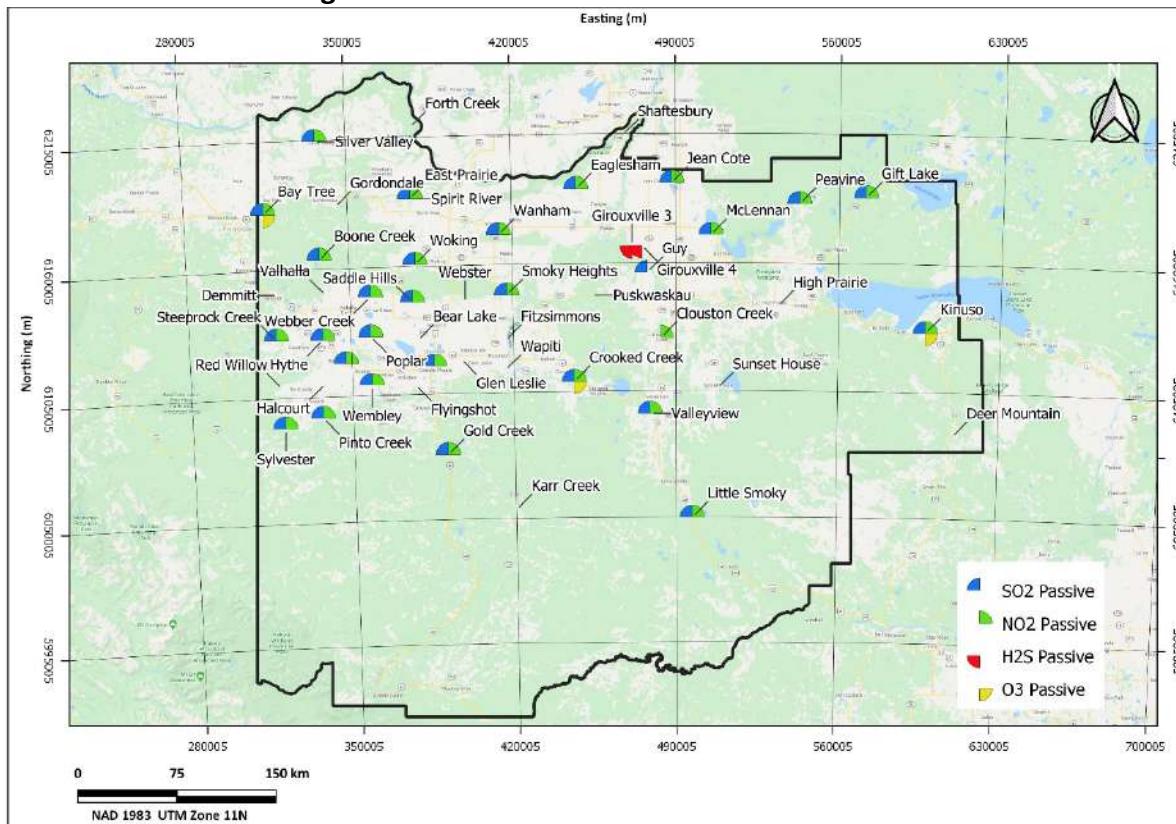
TABLE OF CONTENTS

1	OCTOBER MONTHLY STATION SUMMARIES.....	2
1.1	Beaverlodge Air Monitoring Station	2
1.2	Evergreen Park Air Monitoring Station.....	2
1.3	Grande Prairie - Henry Pirker Air Monitoring Station.....	3
1.4	Smoky Heights Air Monitoring Station	3
1.5	Valleyview Air Monitoring Station.....	4
1.6	Donnelly Air Monitoring Station.....	4
1.7	Wembley Air Monitoring Station.....	4
2	BEAVERLODGE CHARTS.....	5
3	EVERGREEN PARK CHARTS.....	15
4	GRANDE PRAIRIE - HENRY PIRKER CHARTS.....	23
5	SMOKY HEIGHTS CHARTS.....	37
6	VALLEYVIEW CHARTS	44
7	DONNELLY CHARTS	51
8	WEMBLEY (PORTABLE) CHARTS.....	57
9	CONCENTRATION ROSES FOR PAZA.....	69
9.1	Wind Roses	70
9.2	Sulphur Dioxide Plots.....	71
9.3	Nitrogen Dioxide Plots	73
9.4	Fine Particulate Matter (PM _{2.5}) Plots	75
9.5	Ozone (O ₃) Plots.....	77
10	PASSIVE MONITORING DATA.....	79
11	END OF REPORT	89

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 Beavertown Air Monitoring Station

PAZA - October 2020 Beavertown Station Report

Parameter	October	Minimum	Valid	Operational	1-hour			24-hour			Exceedance				Calibration Date	
	Average				Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d		
NO (ppb)	0.4	0.0	95.0%	100.0%	23.0	-	Oct-07 10:00	1.4	-	Oct-02	-	-	-	-	Oct 29, 2020	
NO ₂ (ppb)	2.7	0.3	95.0%	100.0%	15.6	159	Oct-07 10:00	5.1	-	Oct-09	0	-	-	-	Oct 29, 2020	
NO _x (ppb)	3.2	0.3	95.0%	100.0%	38.8	-	Oct-07 10:00	6.4	-	Oct-09	-	-	-	-	Oct 29, 2020	
O ₃ (ppb)	25.1	2.5	95.3%	100.0%	43.5	76	Oct-04 15:00	36.9	-	Oct-06	0	-	-	-	Oct 29, 2020	
PM _{2.5} (µg/m ³)	2.8	0.0	99.6%	100.0%	14.6	80	Oct-25 00:00	8.2	29	Oct-03	0	-	0	-	Oct 29, 2020	
SO ₂ (ppb)	0.3	0.0	94.9%	100.0%	13.8	172	Oct-02 11:00	2.1	48	Oct-16	0	-	0	0	Oct 29, 2020	
Average		Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%										
Temp (°C)	1.7	-13.9	100.0%	100.0%	24.7											
RH (%)	69.6	24.3	100.0%	100.0%	100.0											
WS (km/hr)	10.8	0.2	99.5%	99.5%	55.5											
WD (deg)	282	0.2	99.5%	99.5%	359.5											
Average Wind Direction				282 WNW												

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42i	No Operational issues noted during the month
O ₃	Thermo	49i	No Operational issues noted during the month
PM _{2.5}	Sharp	5030	No Operational issues noted during the month
SO ₂	Thermo	43i-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	Four hours of excessive drift were removed on Oct 30

1.2 Evergreen Park Air Monitoring Station

PAZA - October 2020 Evergreen Park Station Report

Parameter	October	Minimum	Valid	Operational	1-hour			24-hour			Exceedance				Calibration Date	
	Average				Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d		
PM _{2.5} (µg/m ³)	2.9	0.0	98.7%	99.2%	23.3	80	Oct-27 09:00	7.1	29	Oct-03	0	-	0	-	Oct-22-2020	
SO ₂ (ppb)	0.3	0.0	95.3%	100.0%	14.2	172	Oct-19 16:00	1.1	48	Oct-19	0	-	0	0	Oct-22-2020	
TRS (ppb)	0.4	0.0	95.3%	100.0%	1.7	-	Oct-27 09:00	0.5	-	Oct-03	-	-	-	-	Oct-22-2020	
Average		Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%										
Temp (°C)	1.4	-18.2	99.9%	99.9%	25.9											
RH (%)	71.1	22.6	99.9%	99.9%	98.5											
WS (km/hr)	3.8	0.0	100.0%	100.0%	18.6											
WD (deg)	263	0.2	100.0%	100.0%	358.6											
Average Wind Direction				263 W												

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Thermo	TEOM AB	Data was noisy with excessive drifts negative resulting in 6 hours removed
SO ₂	TECO	43i	No Operational issues noted during the month
TRS	TECO	43C	No Operational Issues noted during the month
Met Equip	Gil/RMYoung	MetPak/RMY86004	No Operational Issues noted during the month; small gaps in data for ET and RH resulted in one hour removed

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - October 2020 Henry Pirker Station Report

Parameter	October				Operational	1-hour			8-hour / 24-hour			Exceedance				Calibration Date															
	Average	Minimum	Valid	Max		Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d																	
NO (ppb)	2.8	0.0	94.9%	99.9%	90.3	-	Oct-28 08:00	21.5	-	Oct-28	-	-	-	-	-	Oct 01, 2020															
NO ₂ (ppb)	7.8	0.6	94.9%	99.9%	33.7	159	Oct-28 21:00	19.5	-	Oct-28	0	-	-	-	-	Oct 01, 2020															
NO _x (ppb)	10.7	0.8	94.9%	99.9%	120.5	-	Oct-28 08:00	41.6	-	Oct-28	-	-	-	-	-	Oct 01, 2020															
O ₃ (ppb)	20.5	0.4	95.2%	99.9%	44.0	76	Oct-04 16:00	35.7	-	Oct-06	0	-	-	-	-	Oct 01, 2020															
PM _{2.5} (µg/m ³)	3.8	0.0	99.7%	100.0%	33.5	80	Oct-23 11:00	12.1	29	Oct-03	0	-	0	-	-	Oct 02, 2020															
SO ₂ (ppb)	0.3	0.0	95.2%	99.9%	11.5	172	Oct-22 04:00	1.5	48	Oct-22	0	-	0	0	0	Oct 01, 2020															
H ₂ S (ppb)	0.1	0.0	94.9%	99.7%	1.3	10	Oct-11 05:00	0.3	3	Oct-28	0	-	0	-	-	Oct 02, 2020															
CH ₄ (ppm)	2.1	1.8	95.2%	100.0%	3.7	-	Oct-13 08:00	2.3	-	Oct-28	-	-	-	-	-	Oct 06, 2020															
THC (ppm)	2.1	1.8	95.2%	100.0%	3.7	-	Oct-13 08:00	2.4	-	Oct-28	-	-	-	-	-	Oct 06, 2020															
NMHC (ppm)	0.0	0.0	95.2%	100.0%	0.3	-	Oct-28 22:00	0.1	-	Oct-28	-	-	-	-	-	Oct 06, 2020															
CO (ppm)	0.2	0.1	95.0%	100.0%	1.1	13	Oct-28 08:00	0.4	5	Oct-28	0	0	-	-	-	Oct 06, 2020															
Average				Valid	Operational	Maximum																									
Temp (°C)	2.0	-16.1	100.0%	100.0%			26.4																								
RH (%)	65.0	23.6	100.0%	100.0%			90.0																								
SR (W/m ²)	52.9	0.0	100.0%	100.0%			409.1																								
WS (km/hr)	7.4	0.2	99.9%	99.9%			33.9																								
WD (deg)	274	1.1	99.9%	99.9%			357.0																								
Note: Valid hours must be greater than 75% Operational hours must be greater than 90%																															
Average Wind Direction 274 W																															

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42i	No Operational issues noted during the month; Oct 6 one hour invalidated due to manifold cleaning
O ₃	TECO	49I	No Operational issues noted during the month; Oct 6 one hour invalidated due to manifold cleaning
PM _{2.5}	Sharp	5030	No Operational issues noted during the month
SO ₂	TEI	43I-TLE	No Operational issues noted during the month; Oct 6 one hour invalidated due to manifold cleaning
H ₂ S	TEI	450I	No Operational issues noted during the month; Oct 6 one hour invalidated due to manifold cleaning
THC/CH ₄ /NMHC	TEI	55i	No Operational issues noted during the month
CO	TEI	48I-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	WS flatlined and an hour was removed Oct 14

1.4 Smoky Heights Air Monitoring Station

PAZA - October 2020 Smoky Heights Station Report

Parameter	October				Operational	1-hour			24-hour			Exceedance				Calibration Date															
	Average	Minimum	Valid	Max		Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d																	
PM _{2.5} (µg/m ³)	3.7	0.0	99.1%	99.5%	46.2	80	Oct-03 20:00	12.3	29	Oct-03	0	-	0	-	-	Oct 21, 2020															
SO ₂ (ppb)	0.3	0.0	94.6%	99.5%	8.1	172	Oct-30 23:00	0.6	48	Oct-25	0	-	0	0	0	Oct 21, 2020															
TRS (ppb)	0.2	0.0	94.8%	99.5%	1.1	-	Oct-08 19:00	0.4	-	Oct-08	-	-	-	-	-	Oct 21, 2020															
Average				Valid	Operational	Maximum																									
Temp (°C)	1.0	-17.2	99.5%	99.5%			24.3																								
WS (km/hr)	11.4	0.7	99.5%	99.5%			62.5																								
WD (deg)	260	0.0	99.5%	99.5%			359.9																								
Note: Valid hours must be greater than 75% Operational hours must be greater than 90%																															
Average Wind Direction 260 WNW																															

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	5030	No Operational issues noted during the month; Power failure on Oct 8 resulted in 4 hours removed
SO ₂	TECO	43I	No Operational issues noted during the month; Power failure on Oct 8 resulted in 4 hours removed
TRS	TEI	43I APSAA	No Operational issues noted during the month; Power failure on Oct 8 resulted in 4 hours removed
Met Equip	MetOne	50.5	No Operational issues noted during the month; Power failure on Oct 8 resulted in 4 hours removed

1.5 Valleyview Air Monitoring Station

PAZA - October 2020 Valleyview Station Report

Parameter	October				Max	1-hour		Max	24-hour		Exceedance				Calibration Date
	Average	Minimum	Valid	Operational		Objective	Max Day and Time		Objective	Max Day	1hr	8hr	24hr	30d	
SO ₂ (ppb)	0.1	0.0	95.4%	100.0%	4.0	172	Oct-06 08:00	0.4	48	Oct-01	0	-	0	0	Oct 15, 2020
H ₂ S (ppb)	0.1	0.0	95.3%	100.0%	0.5	10	Oct-02 23:00	0.2	3	Oct-02	0	-	0	-	Oct 15, 2020
Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	1.8	-15.3	100.0%	100.0%	25.1										
RH (%)	75.0	24.5	100.0%	100.0%	100.2										
WS (km/hr)	4.8	0.1	100.0%	100.0%	19.2										
WD (deg)	274	0.4	100.0%	100.0%	359.5										

Note: Valid hours must be greater than 75%
Operational hours must be greater than 90%

Average Wind Direction 274 NW

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	TEI	43I-APSCB	No Operational issues noted during the month
H ₂ S	TEI	450I-APHAA	No Operational issues noted during the month
Met Equip	RMYoung	RMY86004	No Operational issues noted during the month

1.6 Donnelly Air Monitoring Station

PAZA - October 2020 Donnelly Station Report

Parameter	October				Max	1-hour		Max	24-hour		Exceedance				Calibration Date
	Average	Minimum	Valid	Operational		Objective	Max Day and Time		Objective	Max Day	1hr	8hr	24hr	30d	
SO ₂ (ppb)	0.2	0.0	94.8%	99.5%	1.9	172	Oct-23 12:00	0.7	48	Oct-23	0	-	0	0	Oct 16, 2020
H ₂ S (ppb)	0.1	0.0	94.9%	99.5%	1.3	10	Oct-10 13:00	0.3	3	Oct-10	0	-	0	-	Oct 16, 2020
Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	1.0	-13.7	99.5%	99.5%	23.6										
WS (km/hr)	11.1	0.4	99.5%	99.5%	44.3										
WD (deg)	262	5.0	99.5%	99.5%	354.7										

Note: Valid hours must be greater than 75%
Operational hours must be greater than 90%

Average Wind Direction 262 W

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	Teco	43I	No Operational issues noted during the month; Power failure on Oct 7 resulted in 4 hours removed
H ₂ S	Thermo	45C	No Operational issues noted during the month; Power failure on Oct 7 resulted in 4 hours removed
Met Equip	RMYoung	5103	No Operational Issues noted during the month; Power failure on Oct 7 resulted in 4 hours removed

1.7 Wembley Air Monitoring Station

PAZA - October 2020 Wembley Station Report

Parameter	October				Max	1-hour		Max	24-hour		Exceedance				Calibration Date
	Average	Minimum	Valid	Operational		Objective	Max Day and Time		Objective	Max Day	1hr	8hr	24hr	30d	
NO (ppb)	0.4	0.0	95.0%	100.0%	18.2	-	Oct-13 10:00	1.5	-	Oct-13	-	-	-	-	Oct 09, 2020
NO ₂ (ppb)	1.9	0.2	95.0%	100.0%	8.4	159	Oct-09 16:00	4.5	-	Oct-09	0	-	-	-	Oct 09, 2020
NO _x (ppb)	2.3	0.1	95.0%	100.0%	24.7	-	Oct-13 10:00	5.7	-	Oct-09	-	-	-	-	Oct 09, 2020
O ₃ (ppb)	24.7	1.7	95.2%	100.0%	42.0	76	Oct-04 16:00	37.1	-	Oct-06	0	-	-	-	Oct 08, 2020
PM _{2.5} (µg/m ³)	1.7	0.0	99.5%	99.9%	12.5	80	Oct-07 16:00	6.0	29	Oct-03	0	-	0	0	Oct 07, 2020
SO ₂ (ppb)	0.4	0.0	90.2%	95.0%	27.5	172	Oct-19 15:00	2.0	48	Oct-19	0	-	0	0	Oct 08, 2020
TRS (ppb)	0.2	0.0	95.2%	100.0%	0.8	-	Oct-08 23:00	0.4	-	Oct-09	-	-	-	-	Oct 07, 2020
CH ₄ (ppm)	2.0	1.9	94.4%	99.1%	2.5	-	Oct-18 08:00	2.2	-	Oct-09	-	-	-	-	Oct 07, 2020
THC (ppm)	2.0	1.9	94.4%	99.1%	2.7	-	Oct-25 17:00	2.2	-	Oct-09	-	-	-	-	Oct 07, 2020
NMHC (ppm)	0.0	0.0	94.4%	99.1%	0.6	-	Oct-25 17:00	0.0	-	Oct-25	-	-	-	-	Oct 07, 2020
Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	1.7	-17.6	100.0%	100.0%	25.7										
WS (km/hr)	8.6	0.2	100.0%	100.0%	32.5										
WD (deg)	300	0.3	100.0%	100.0%	359.6										

Note: Valid hours must be greater than 75%
Operational hours must be greater than 90%

Average Wind Direction 300 WNW

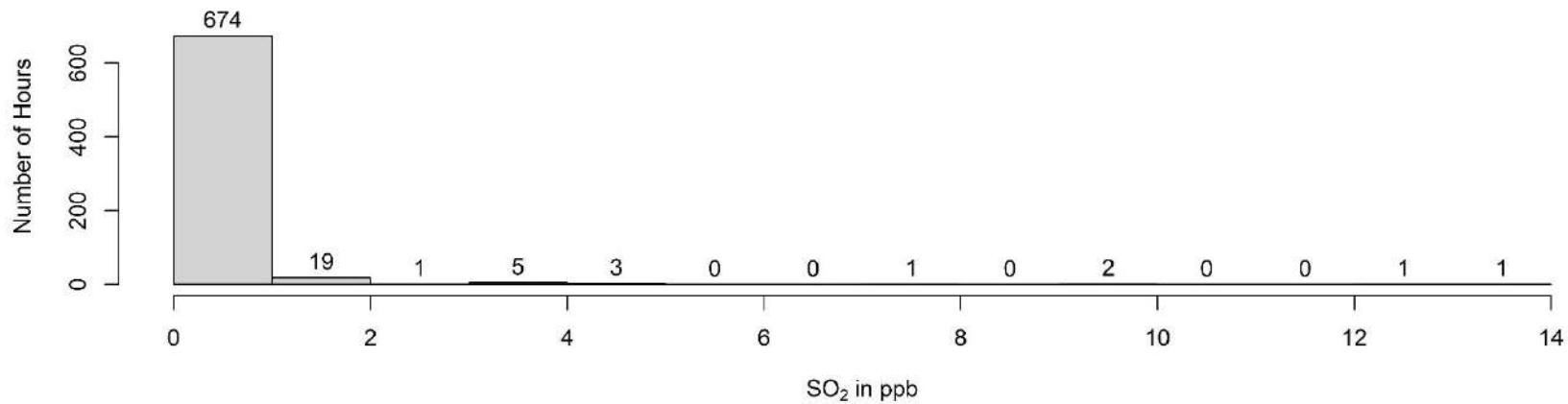
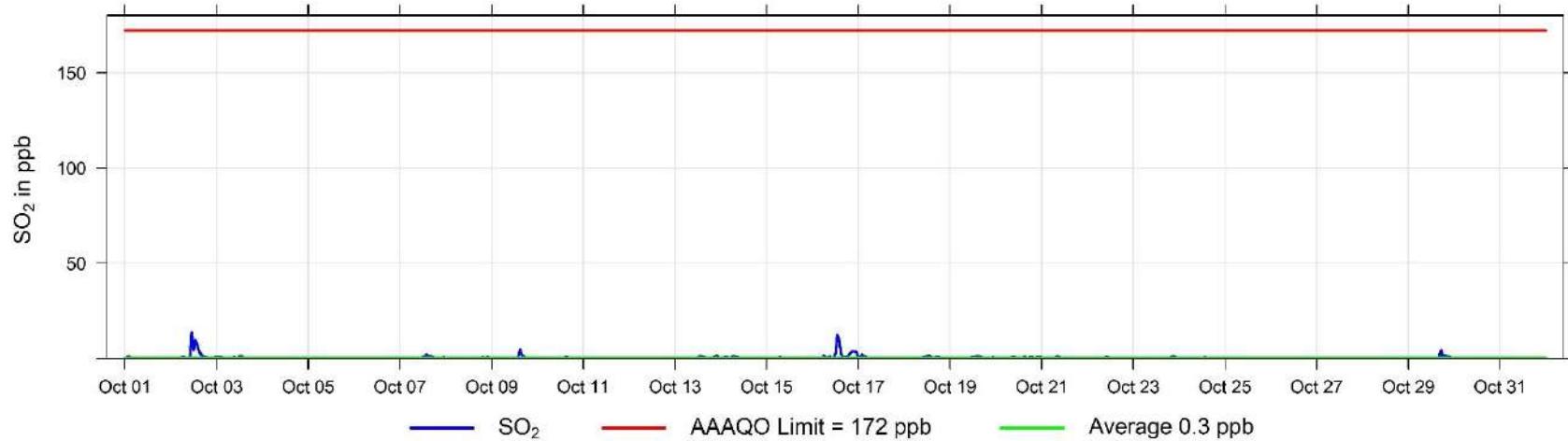
Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TEI	42I	No Operational issues noted during the month
O ₃	TEI	49I	No Operational issues noted during the month
PM _{2.5}	Thermo	TEOM AB	No Operational issues noted during the month; 1 hour removed due to excessive negative drift
SO ₂	TEI	43I	Maintenance and second calibration was required resulting in several hours removed Oct 29-30
TRS	TEI	43I	No Operational issues noted during the month
THC/CH ₄ /NMHC	TEI	55I-A3PHAA	Maintenance on Oct 13 and removal of data up to last good span (5 hours)
Met Equip	MetOne	50.5	No Operational issues noted during the month

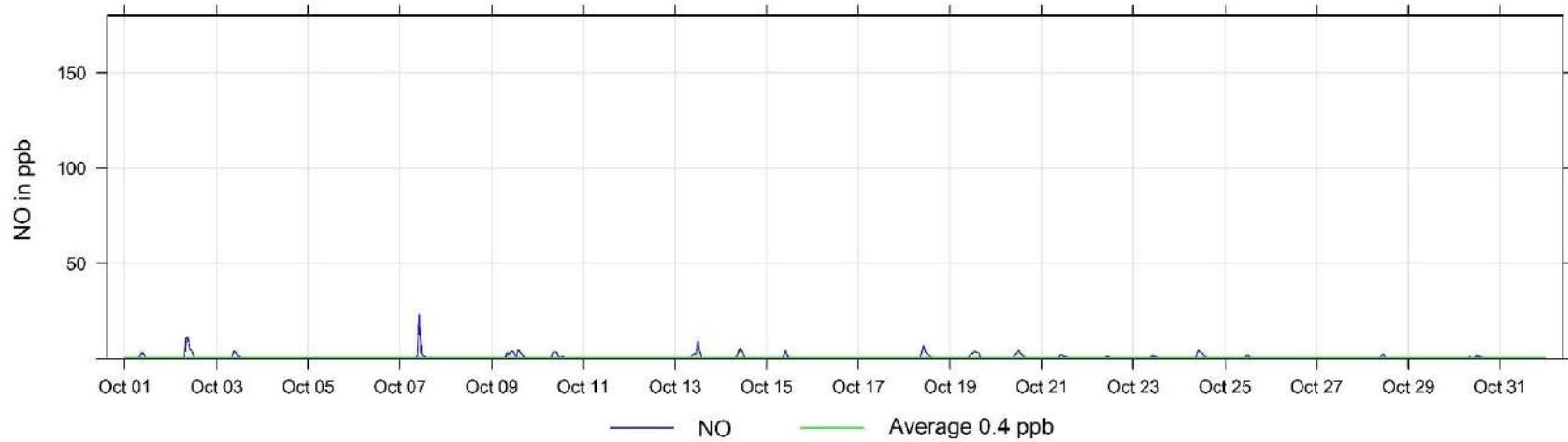
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

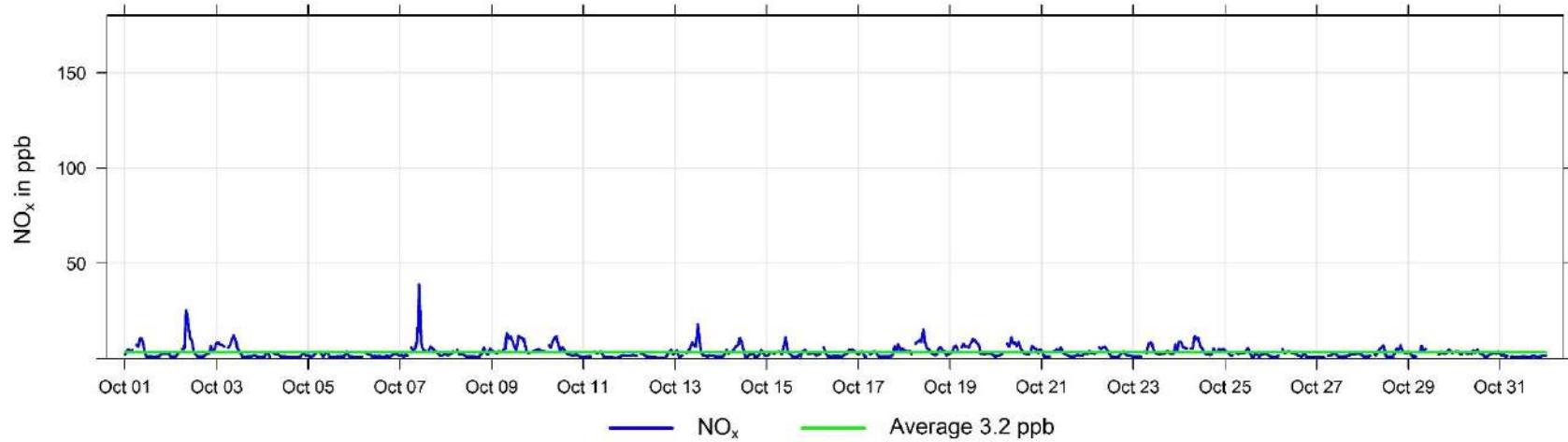
October Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge



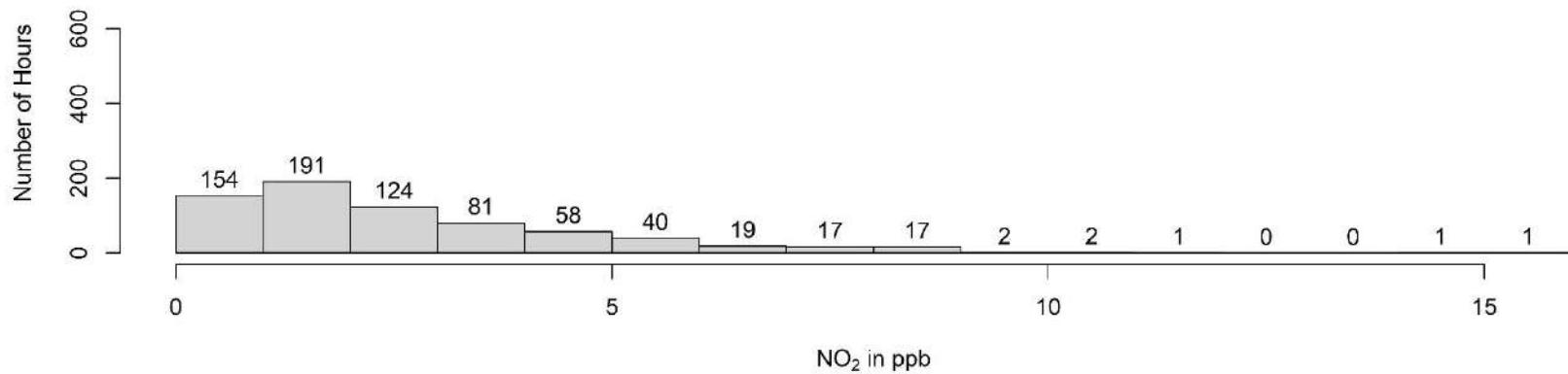
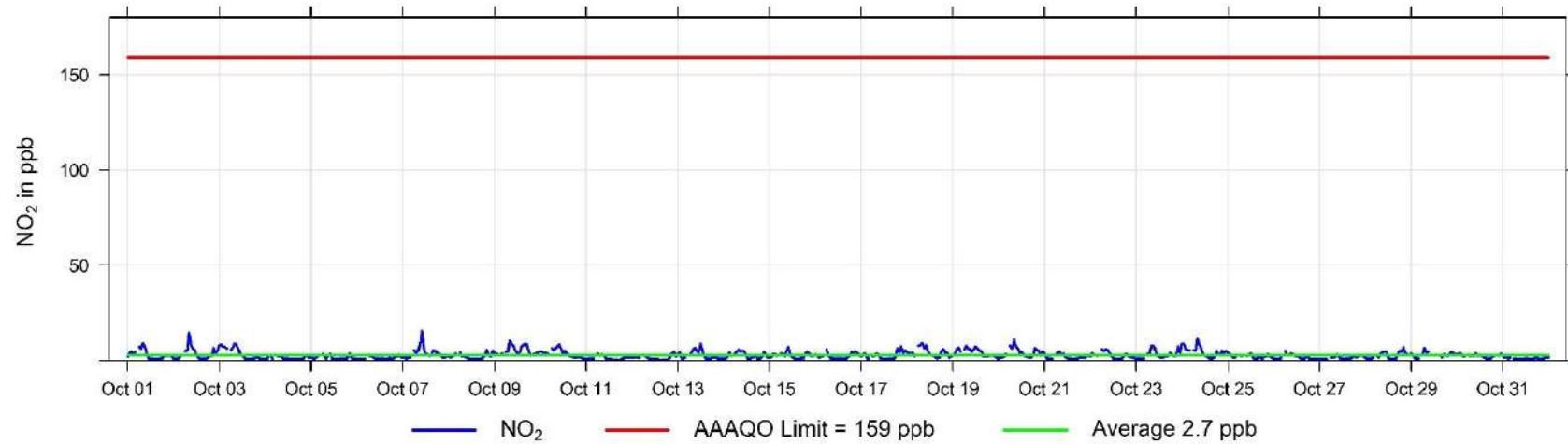
October Hourly Concentration Readings of NO (in ppb) at Beaverlodge



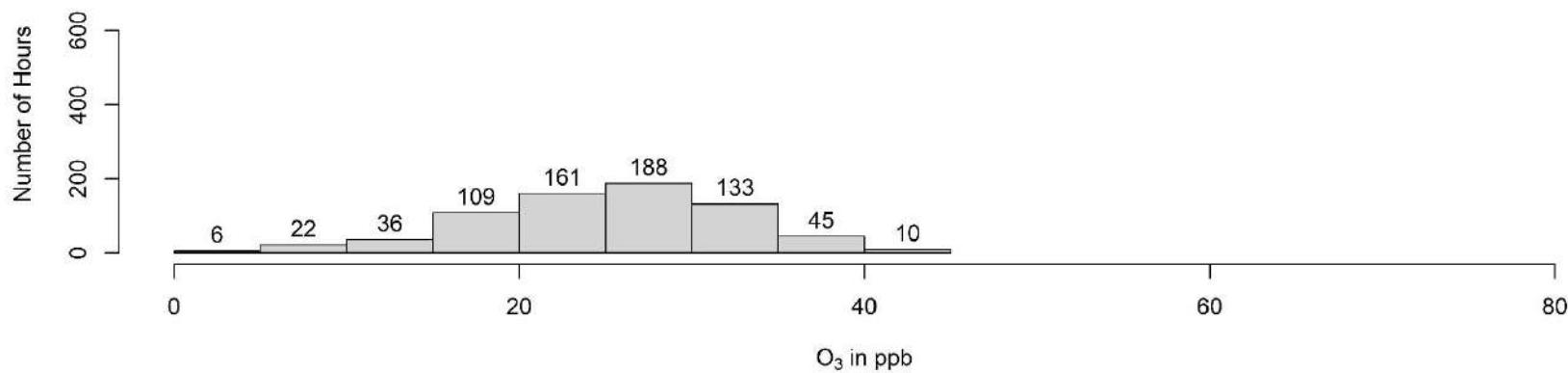
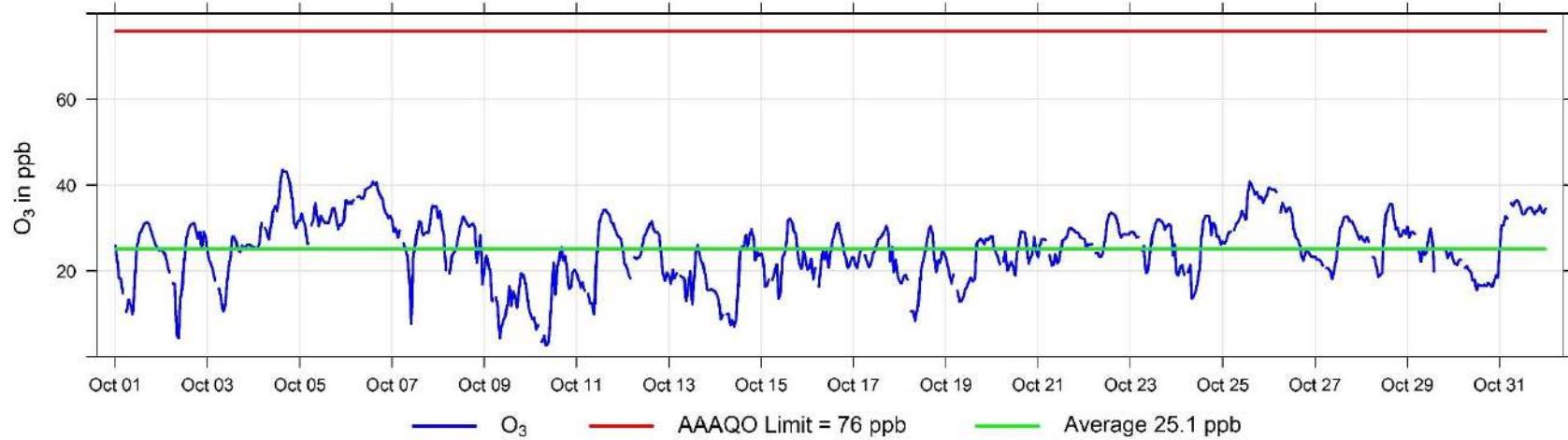
October Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge

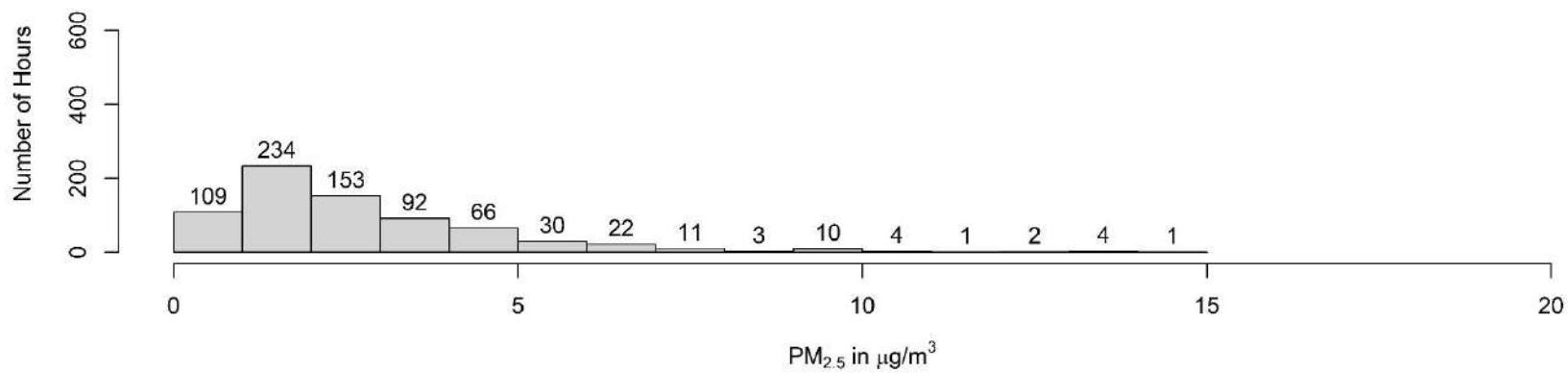
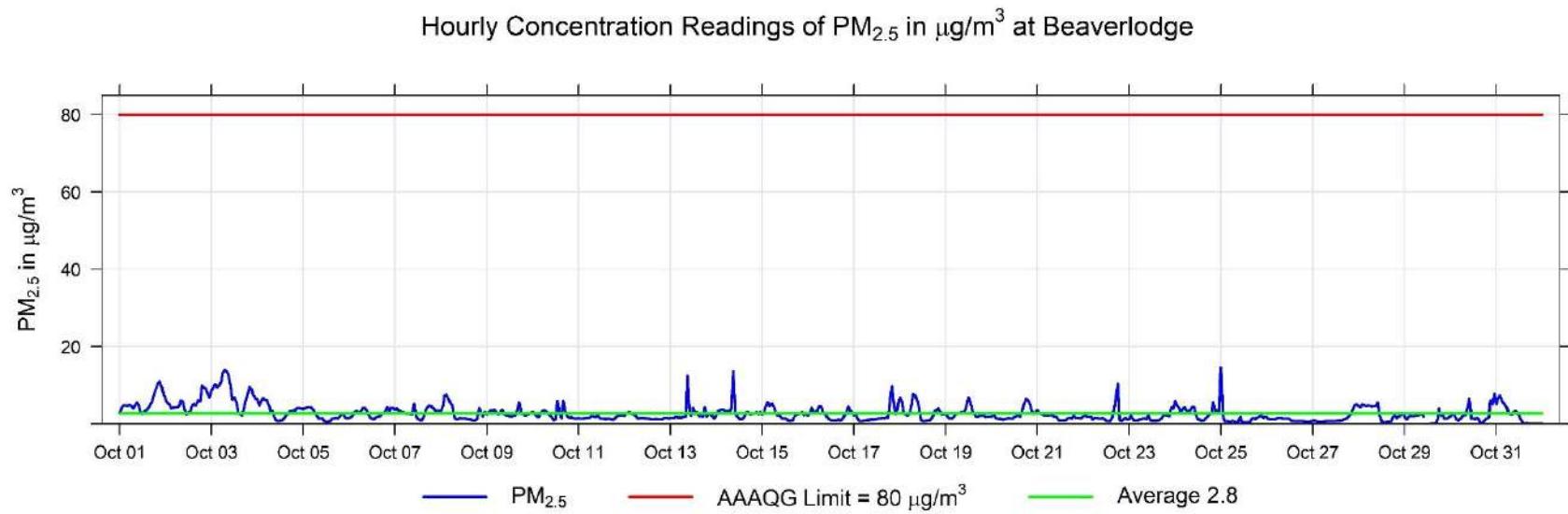


October Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge

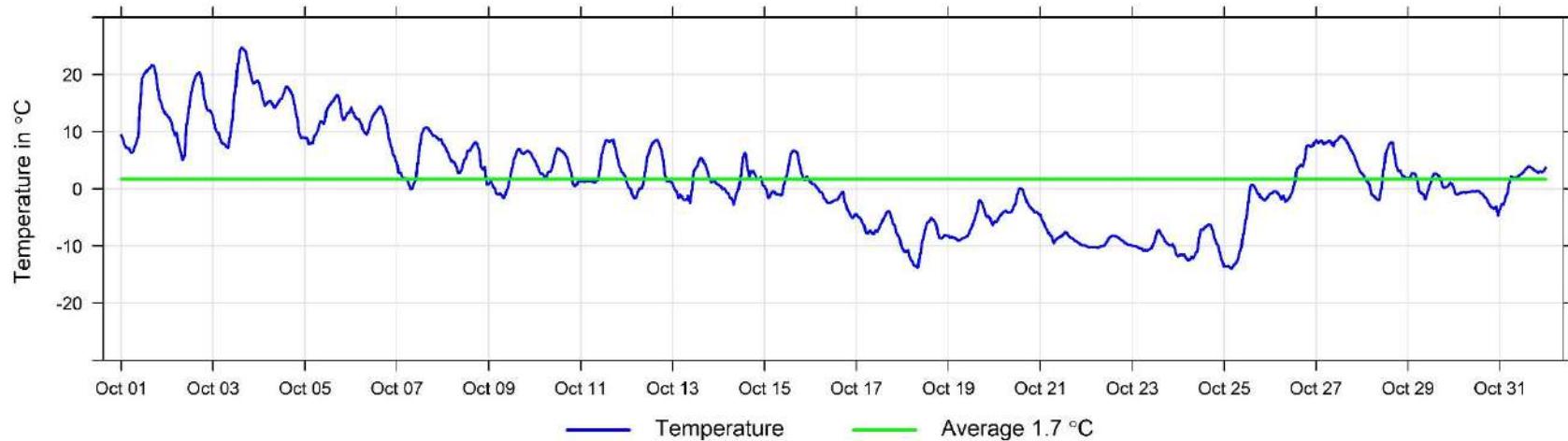


October Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge

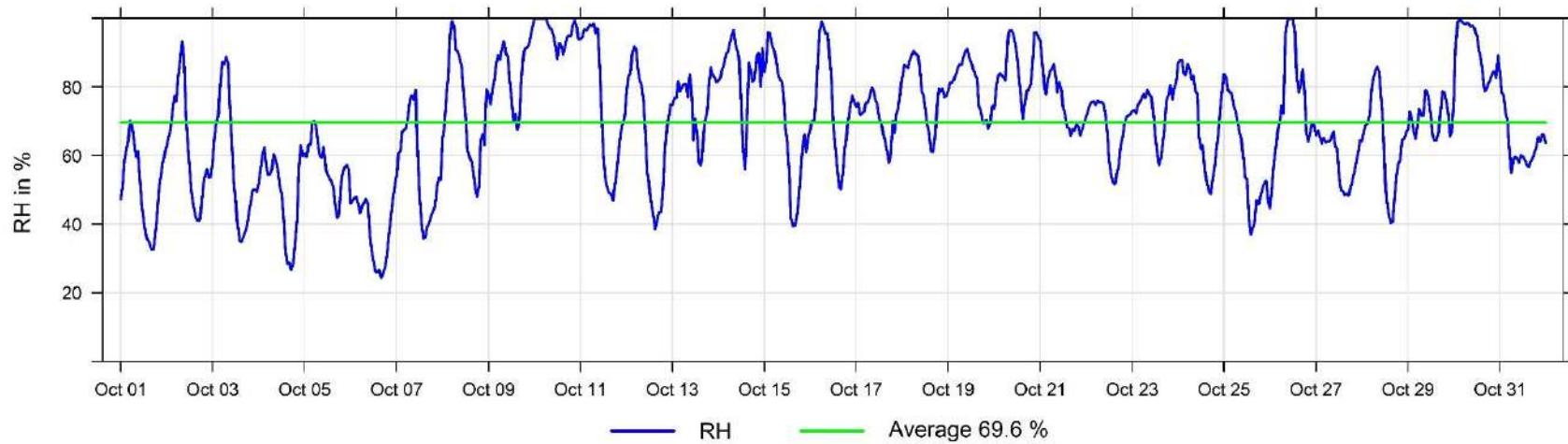




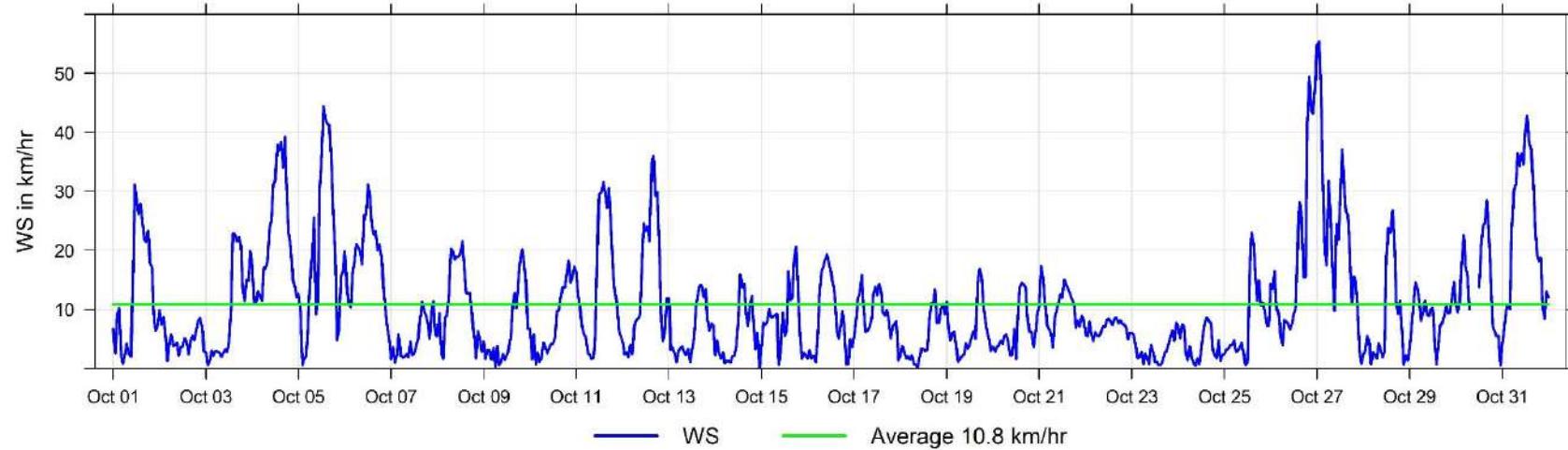
October Hourly Temperature Readings (in °C) at Beaverlodge



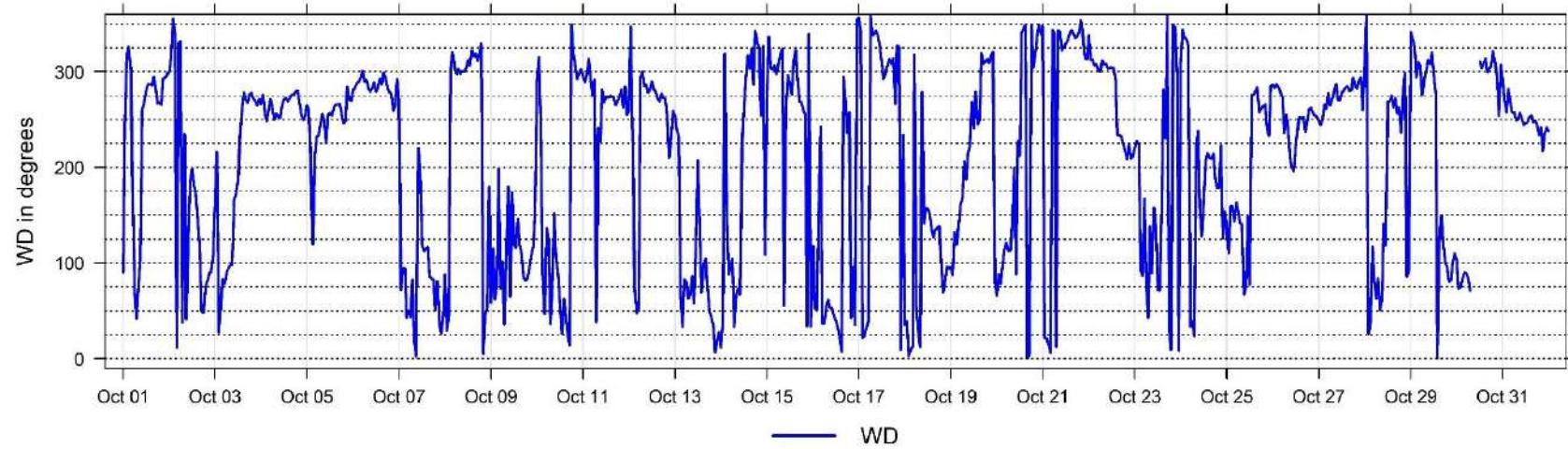
October Hourly Readings of Relative Humidity (in %) at Beaverlodge



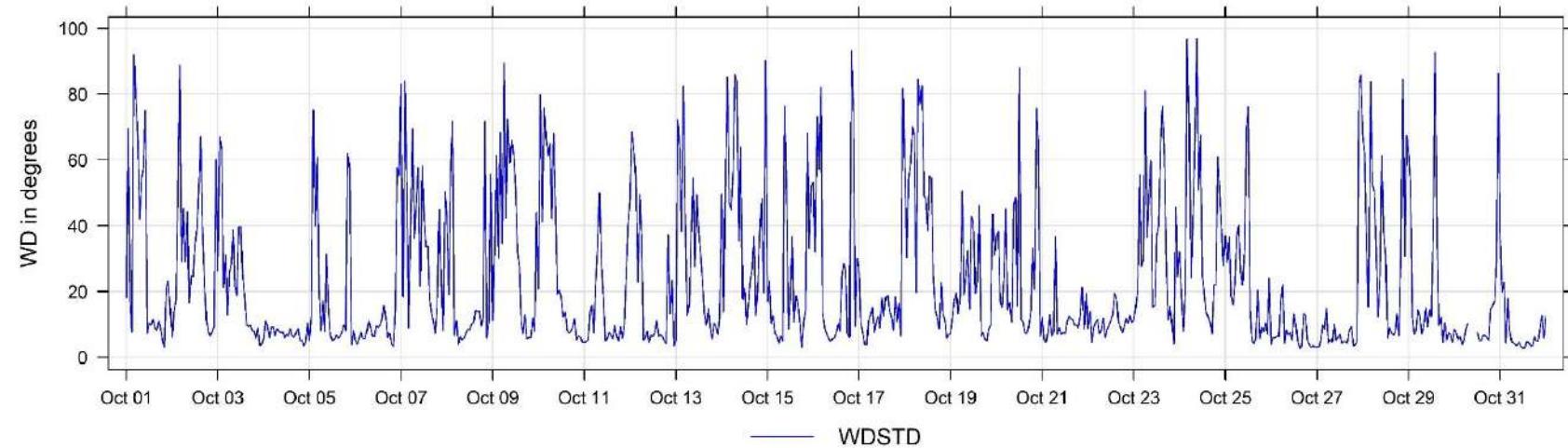
October Hourly Readings of Wind Speed (in km/hr) at Beaverlodge

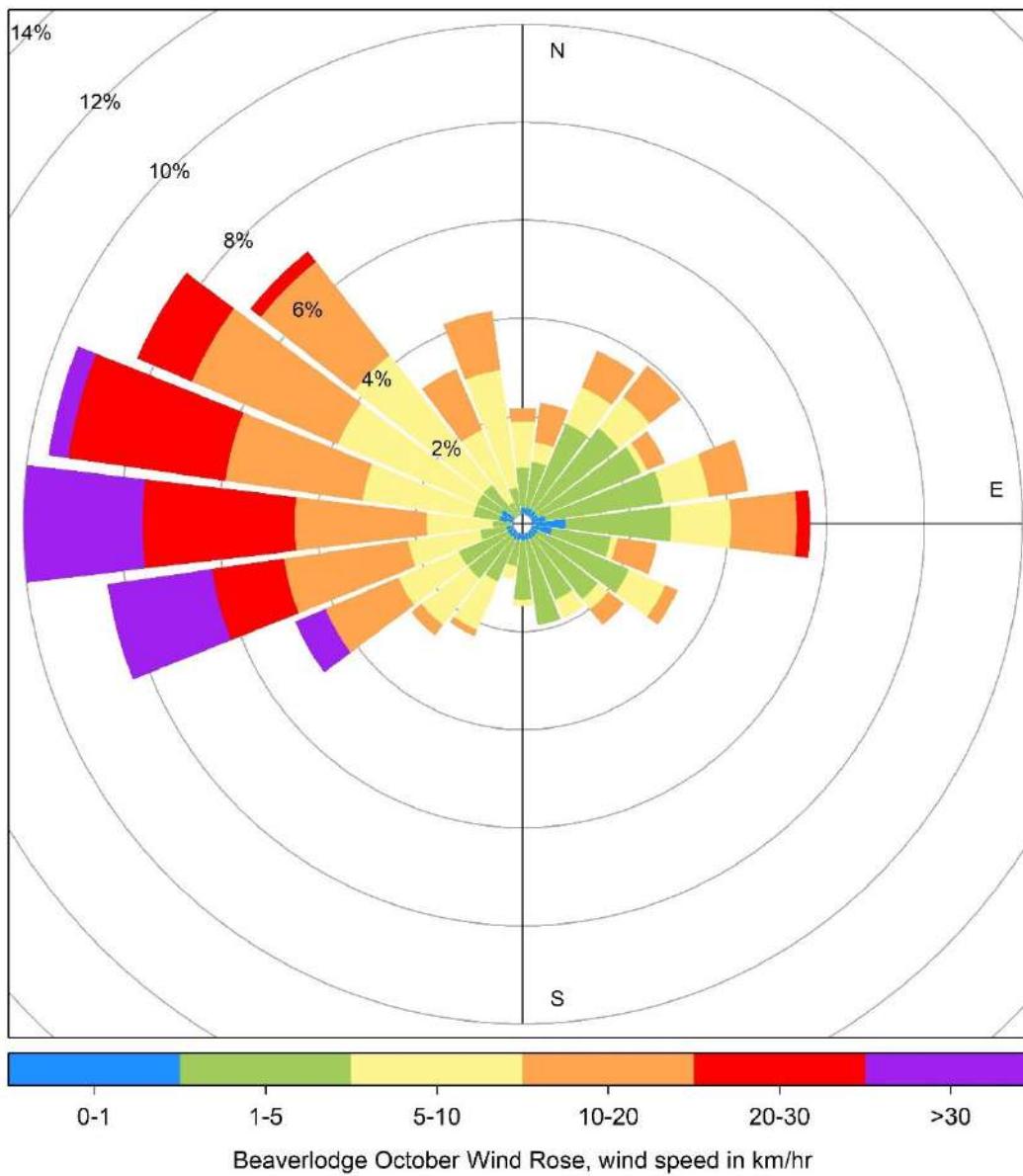


October Hourly Readings of Wind Direction (in degrees) at Beaverlodge



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

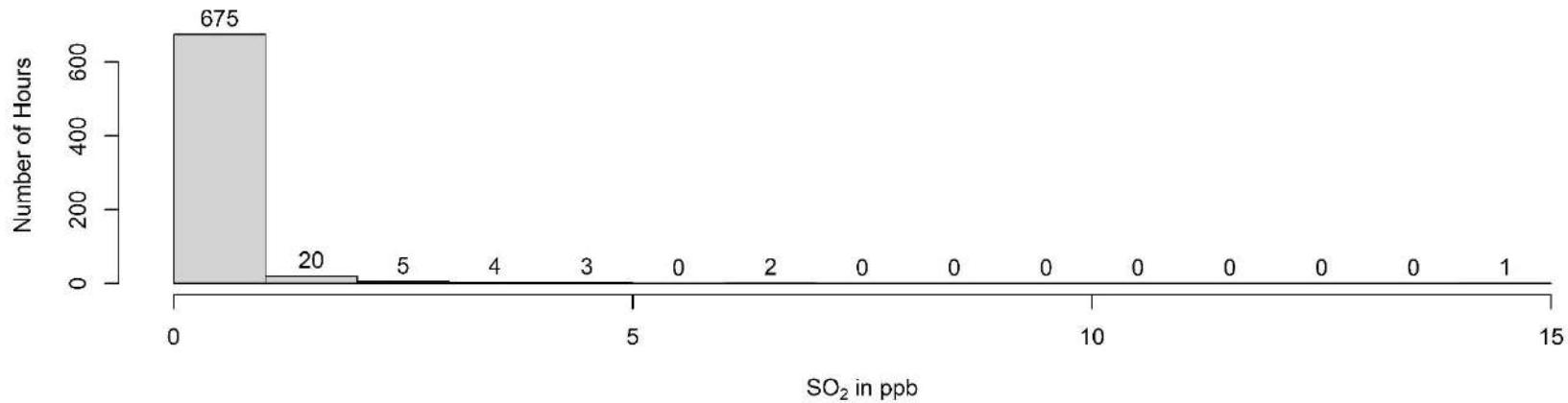
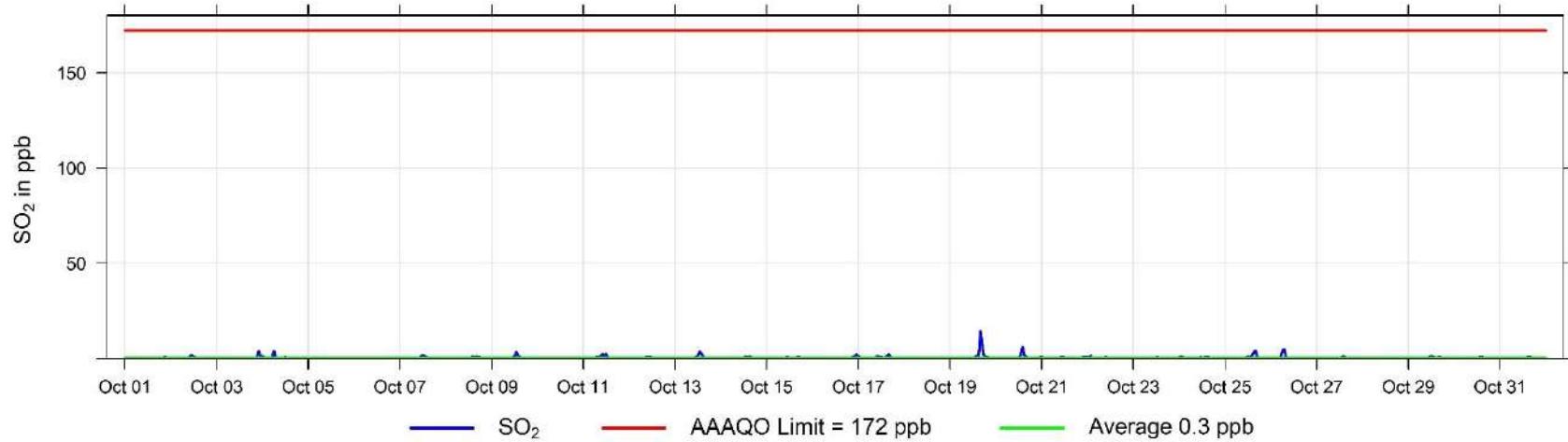




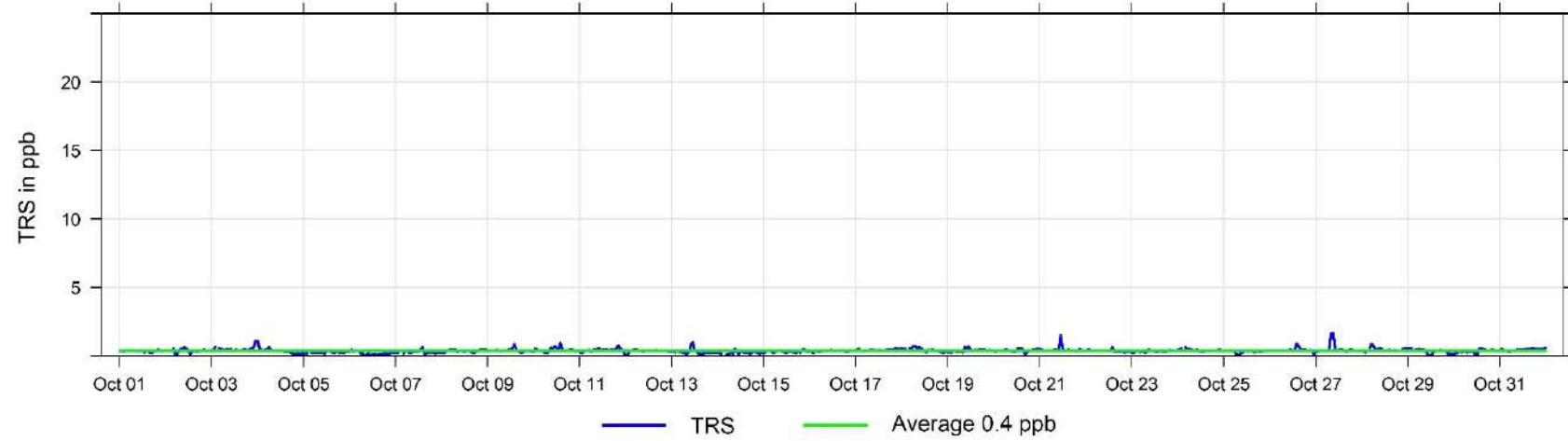
3 Evergreen Park Charts

The following pages include the charts and histograms for Evergreen Park Station

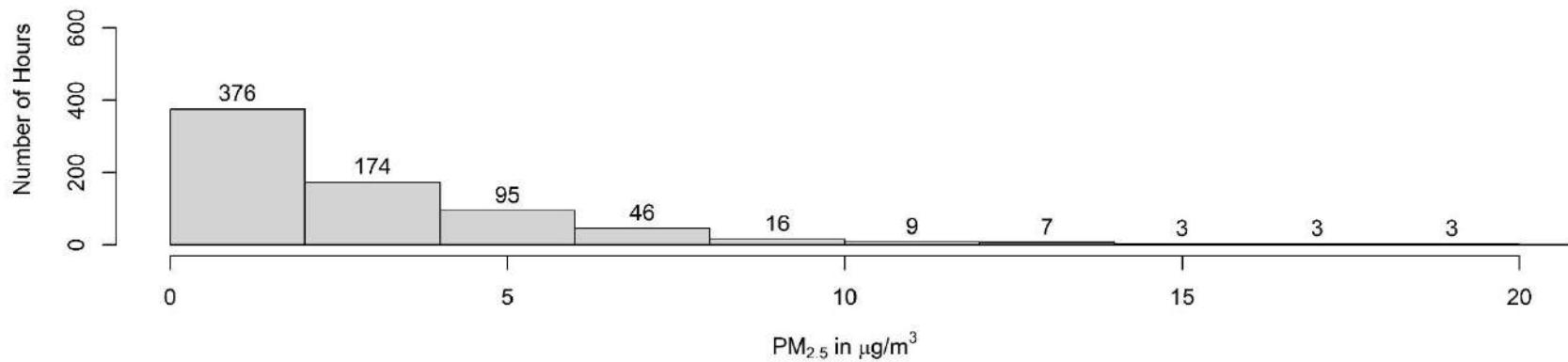
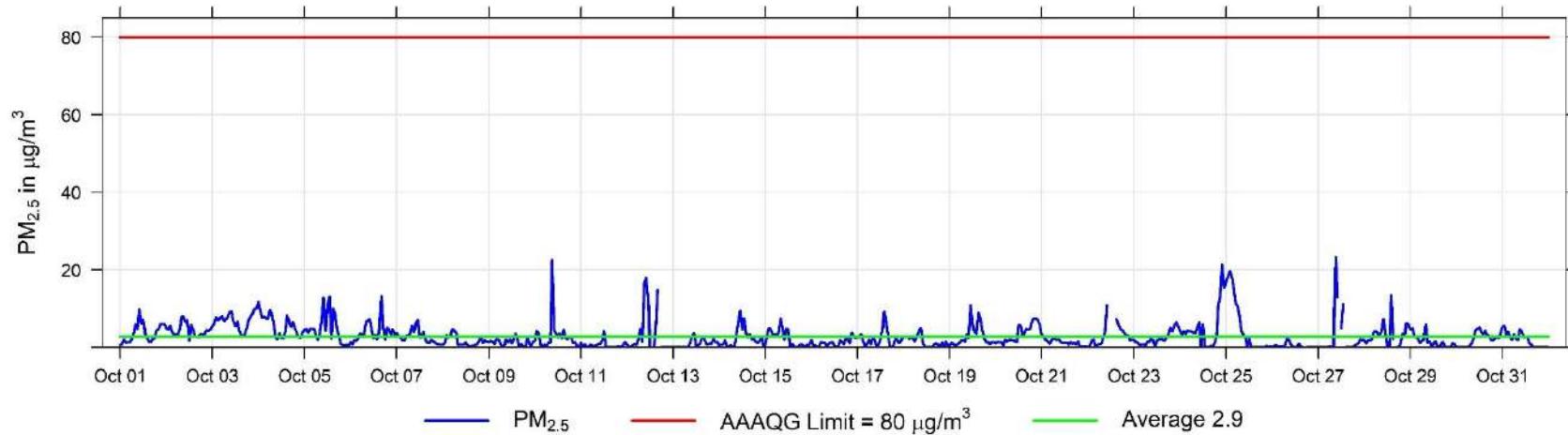
October Hourly Concentration Readings of SO₂ (in ppb) at Evergreen Park

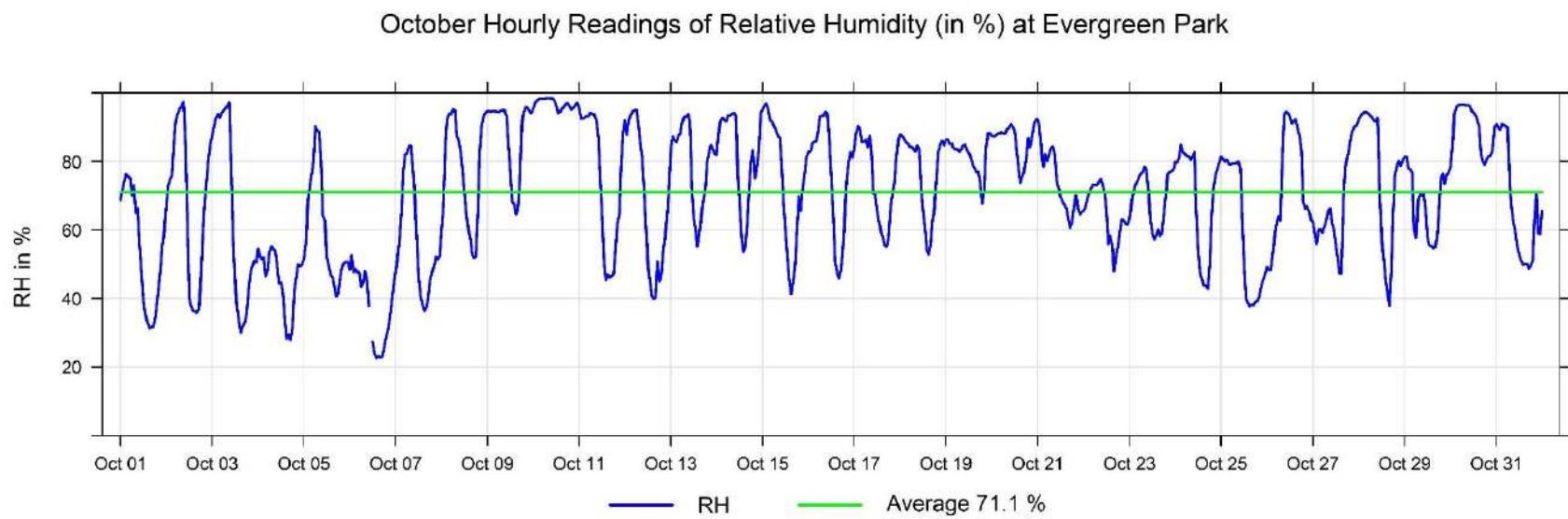
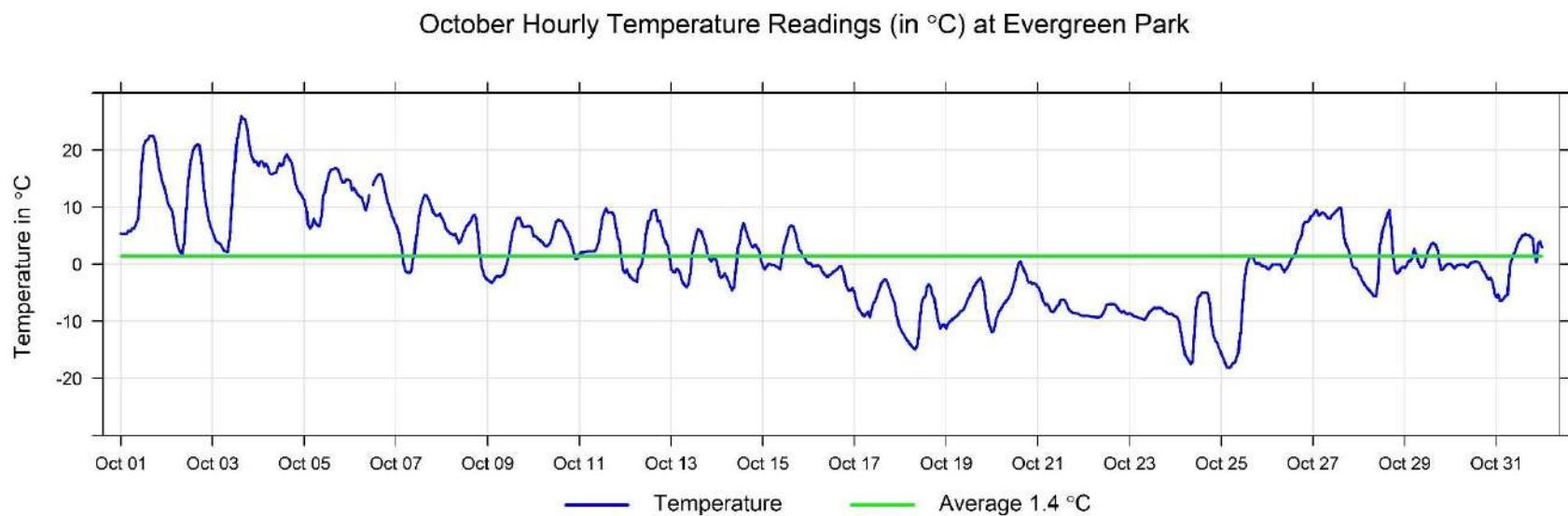


October Hourly Concentration Readings of TRS (in ppb) at Evergreen Park

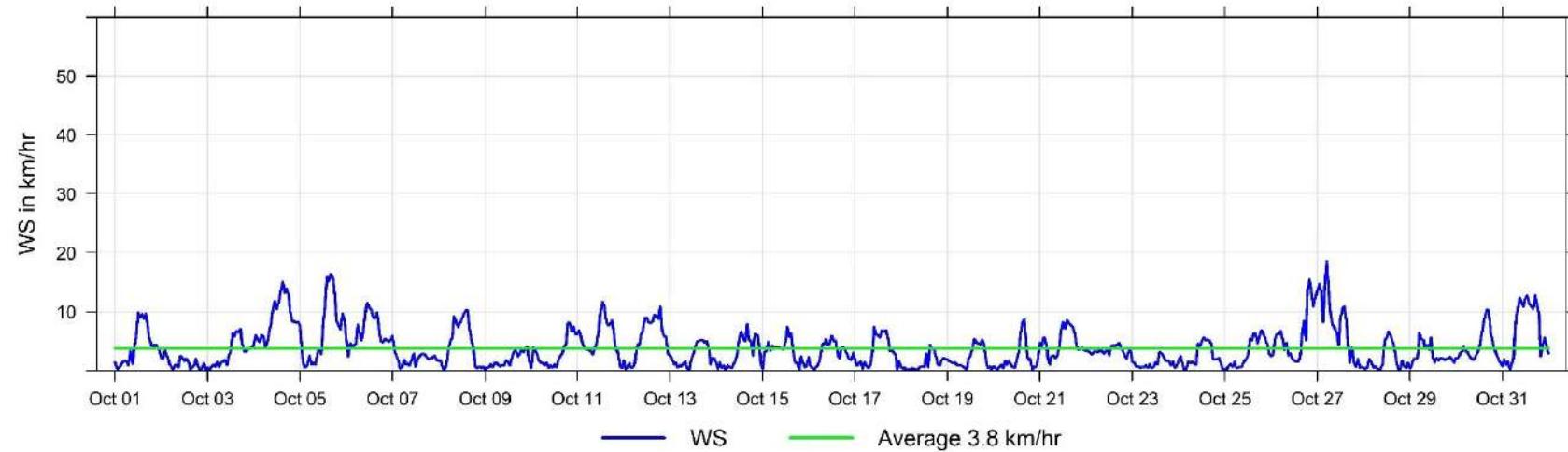


Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Evergreen Park

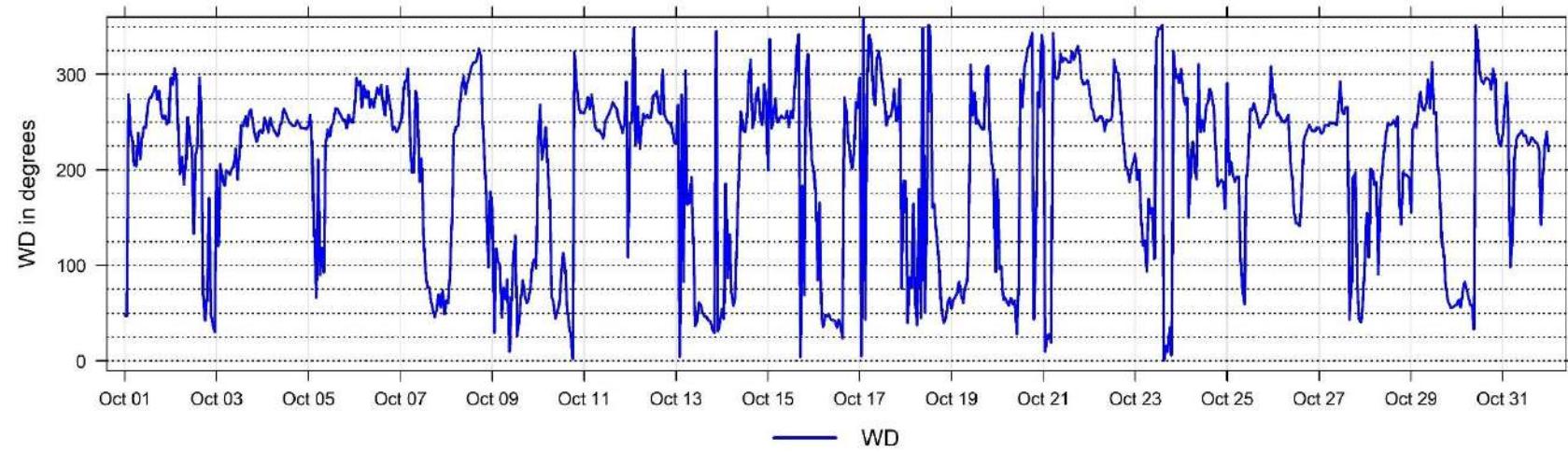




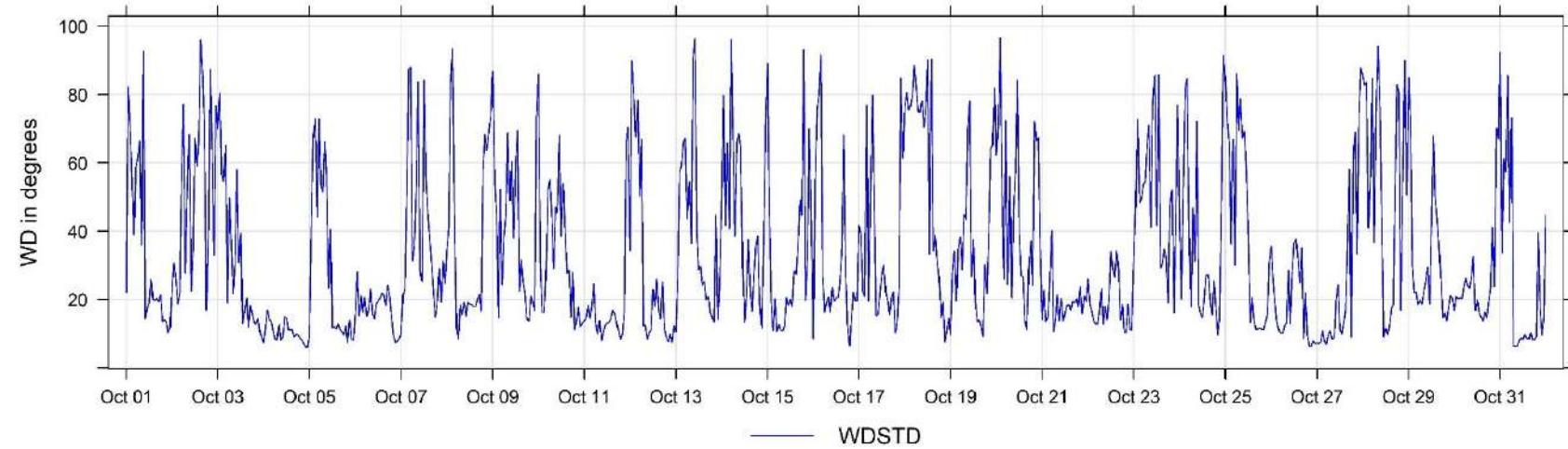
October Hourly Readings of Wind Speed (in km/hr) at Evergreen Park

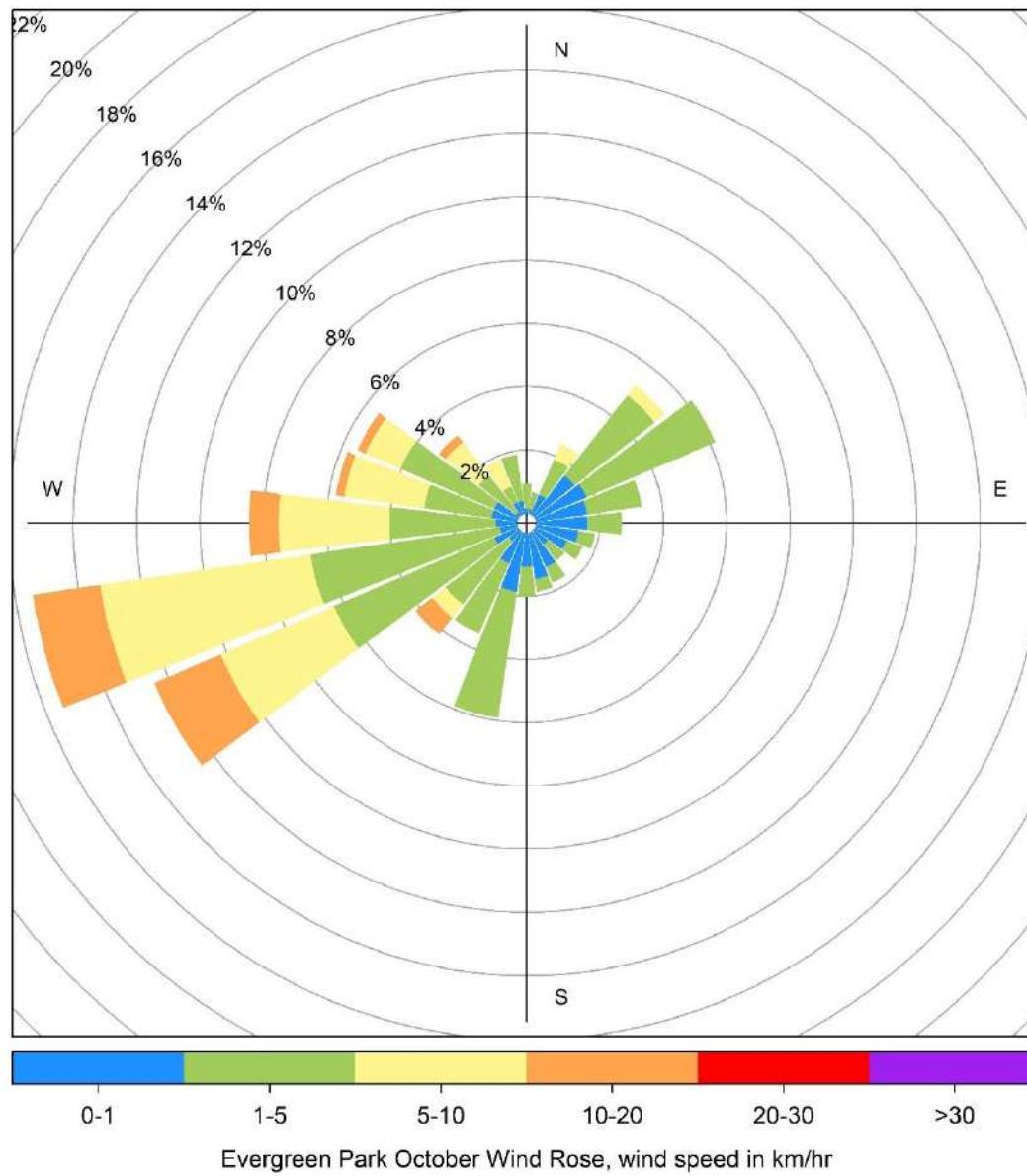


October Hourly Readings of Wind Direction (in degrees) at Evergreen Park



October Hourly Readings of Wind Direction Standard Deviation (in degrees) at Evergreen Park

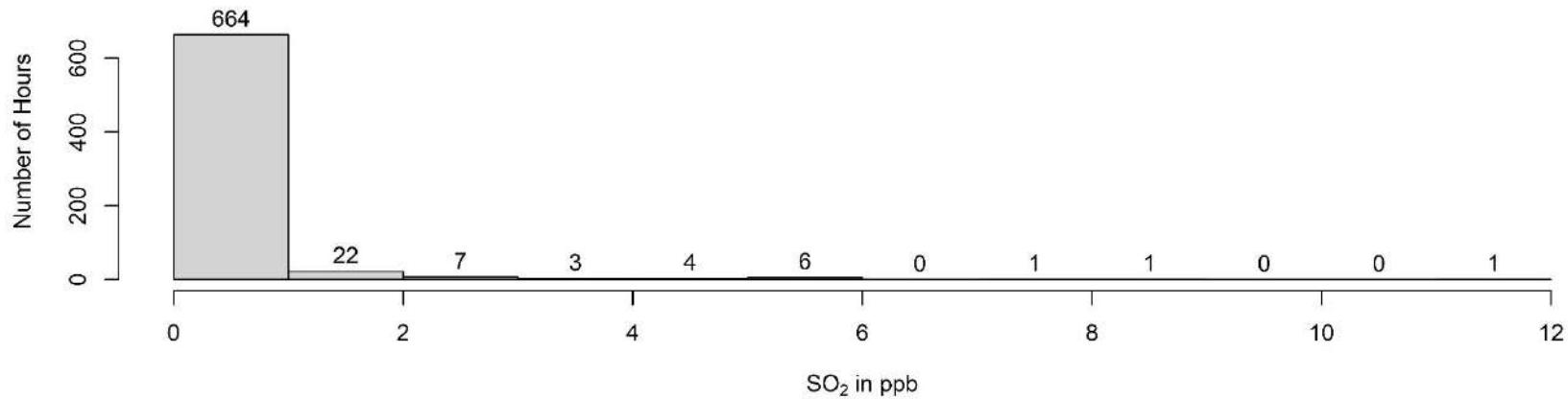
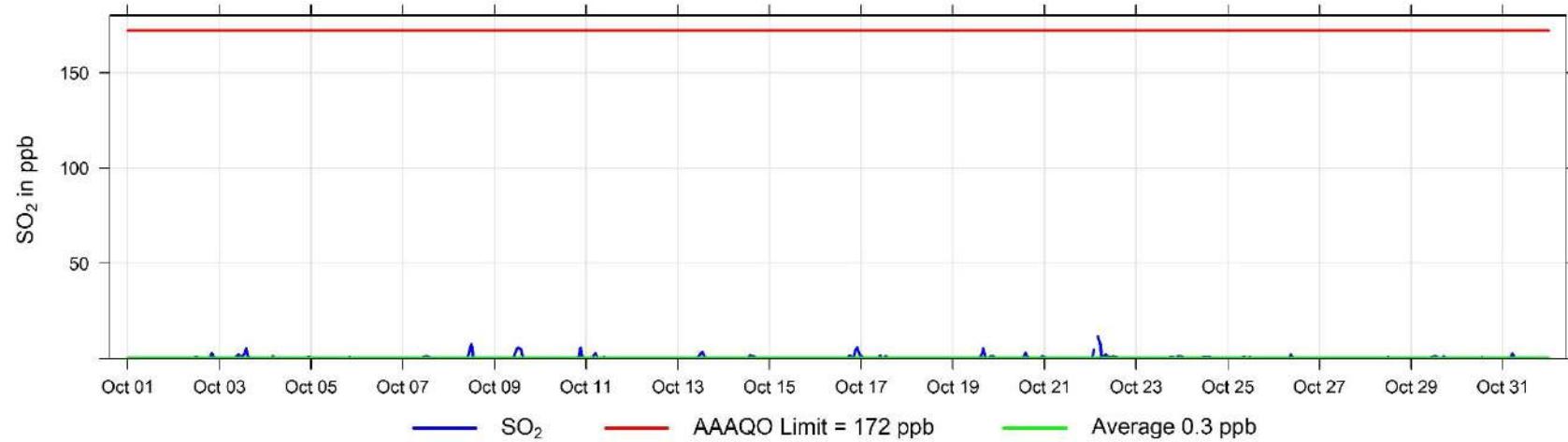




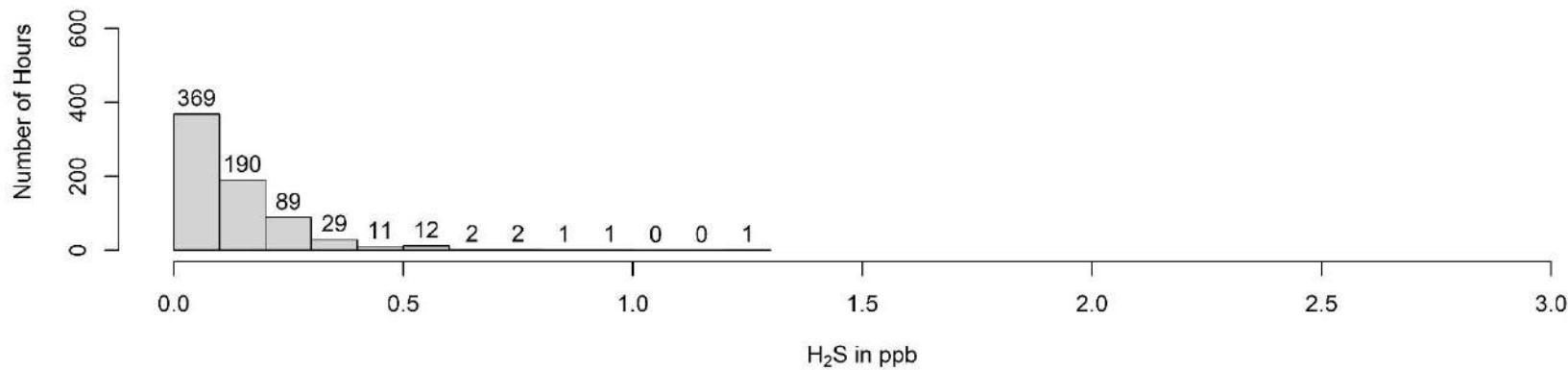
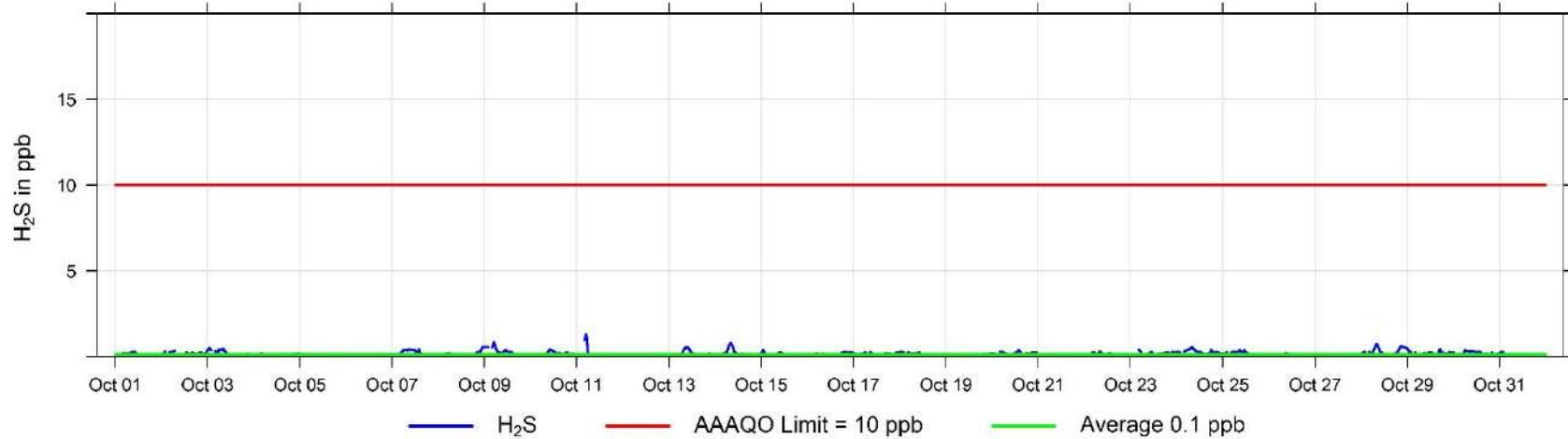
4 Grande Prairie - Henry Pirker Charts

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

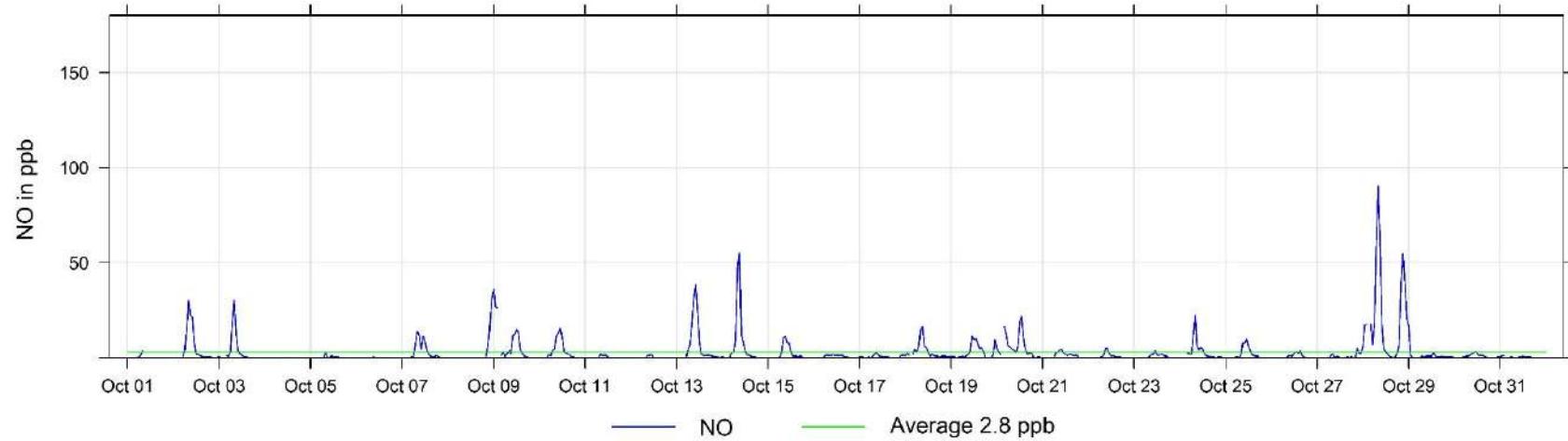
October Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



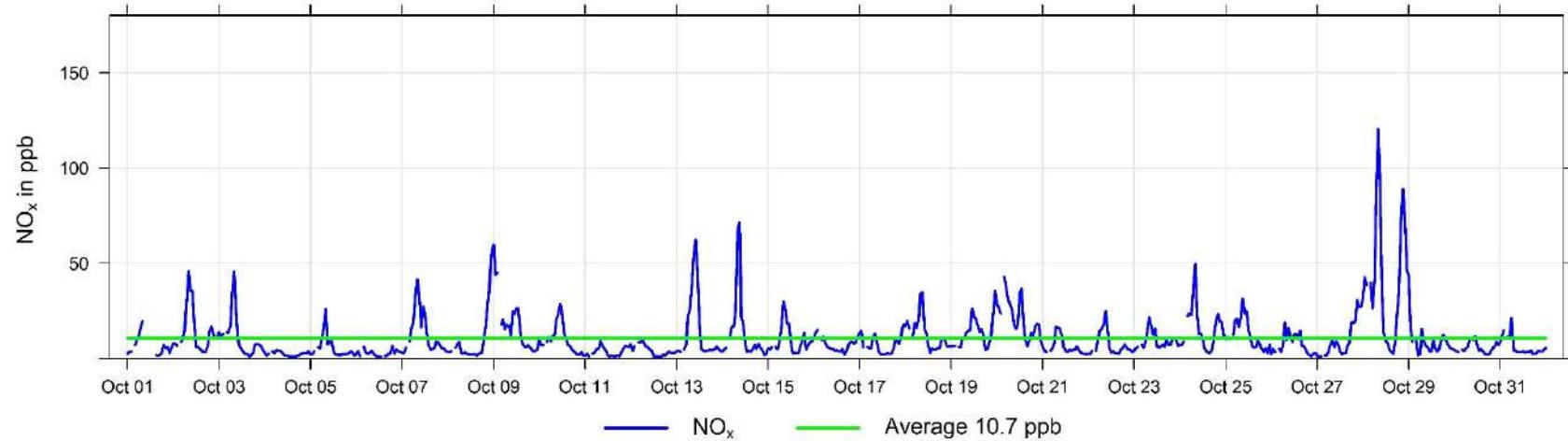
October Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker



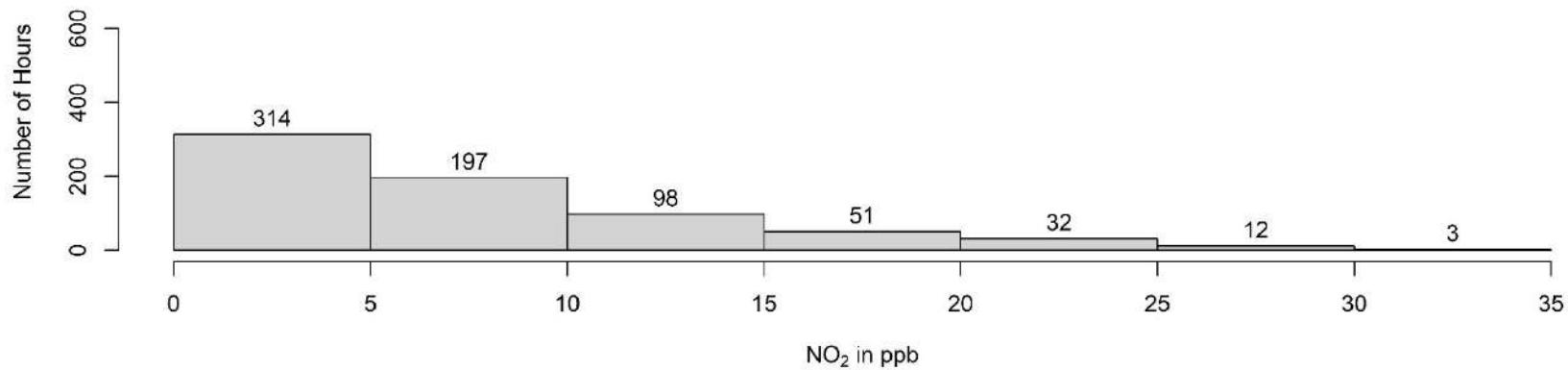
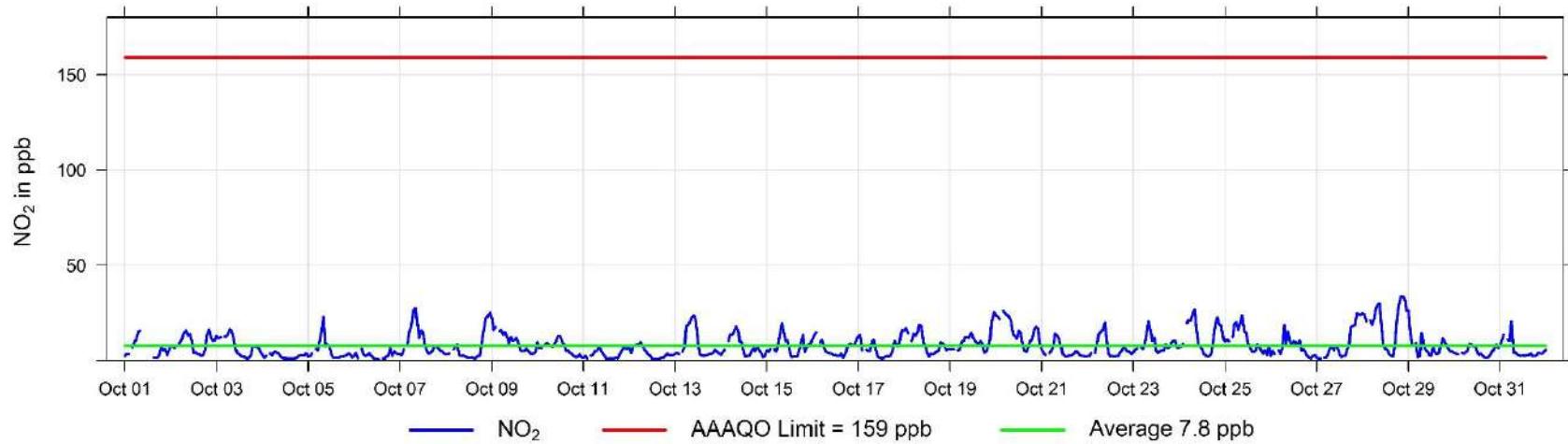
October Hourly Concentration Readings of NO (in ppb) at Henry Pirker



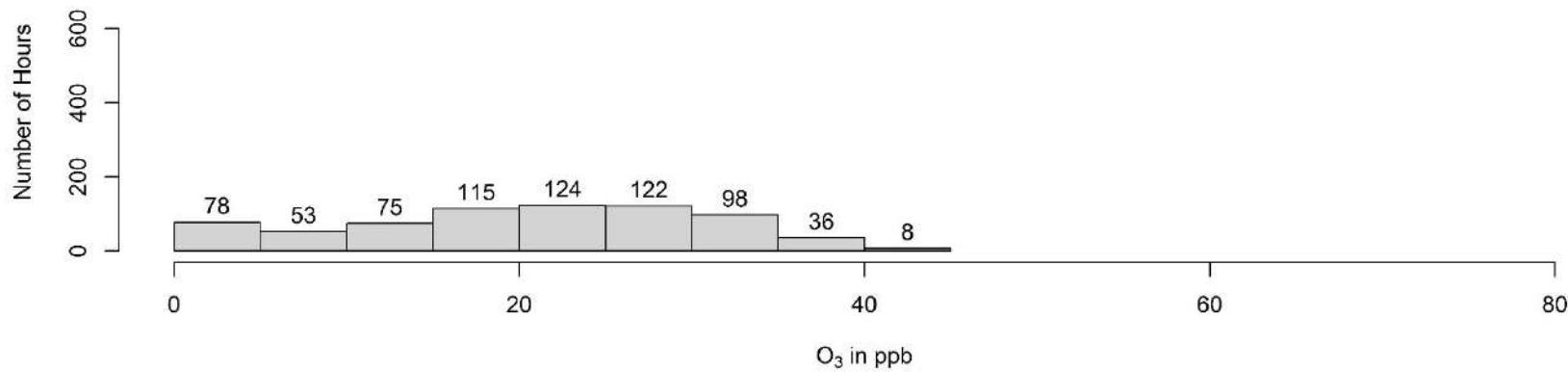
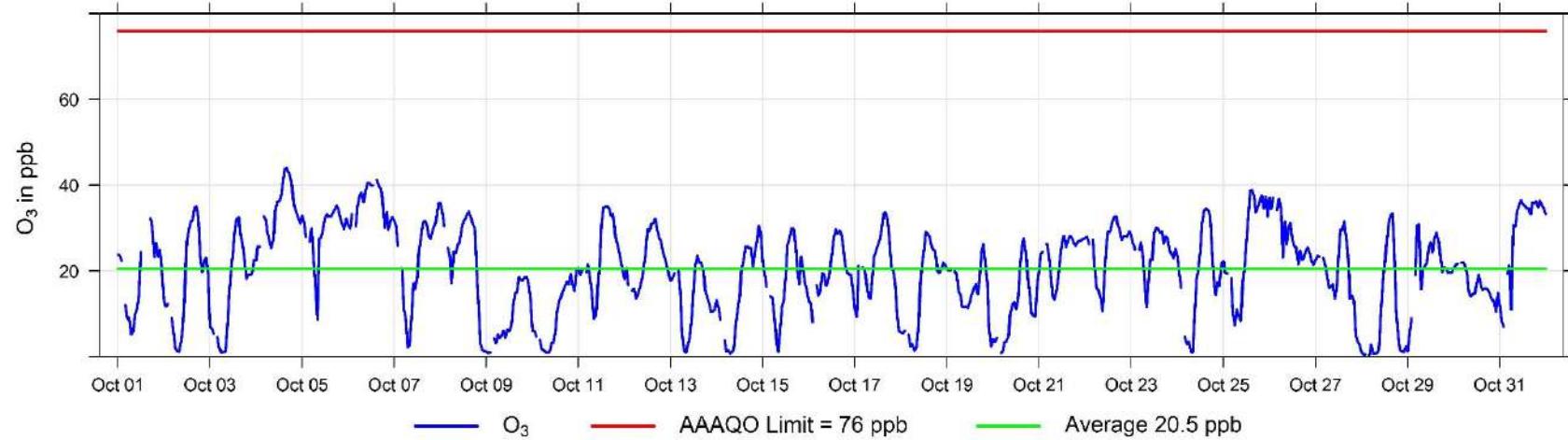
October Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



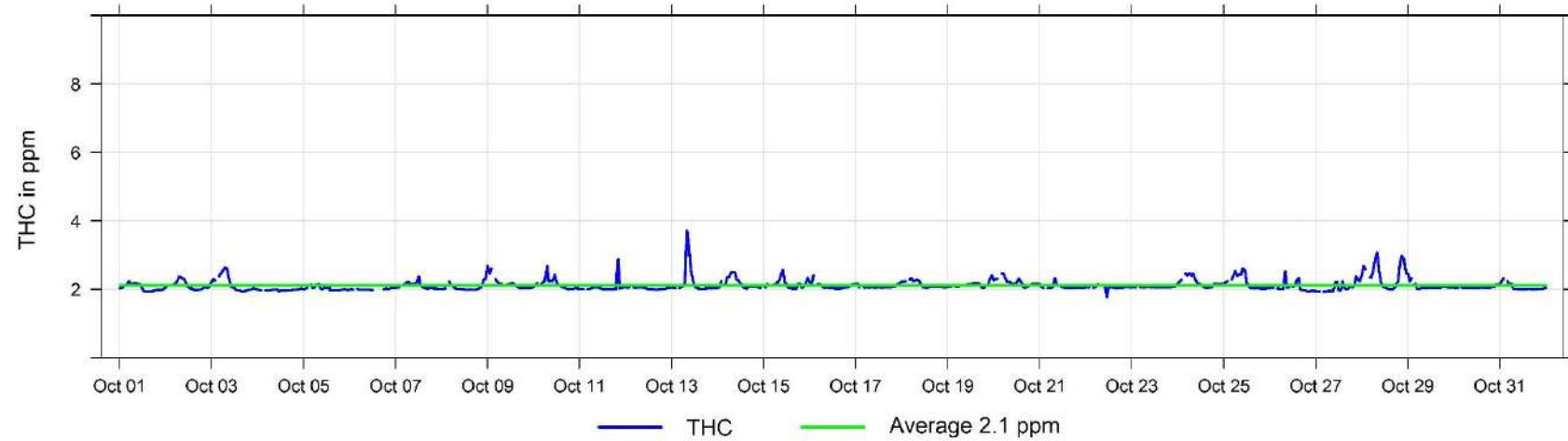
October Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



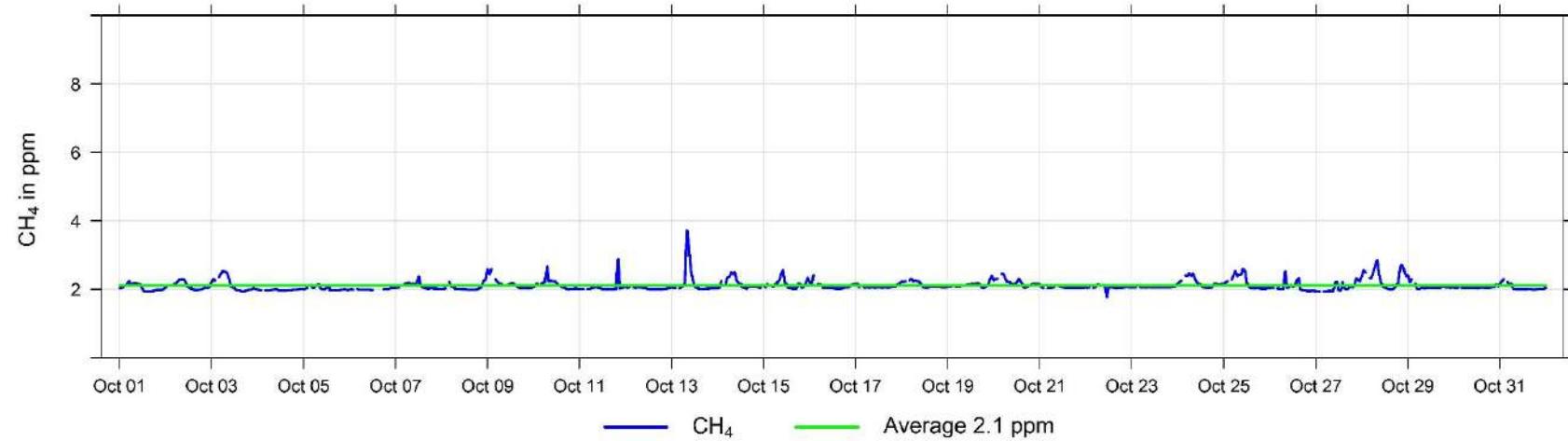
October Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker



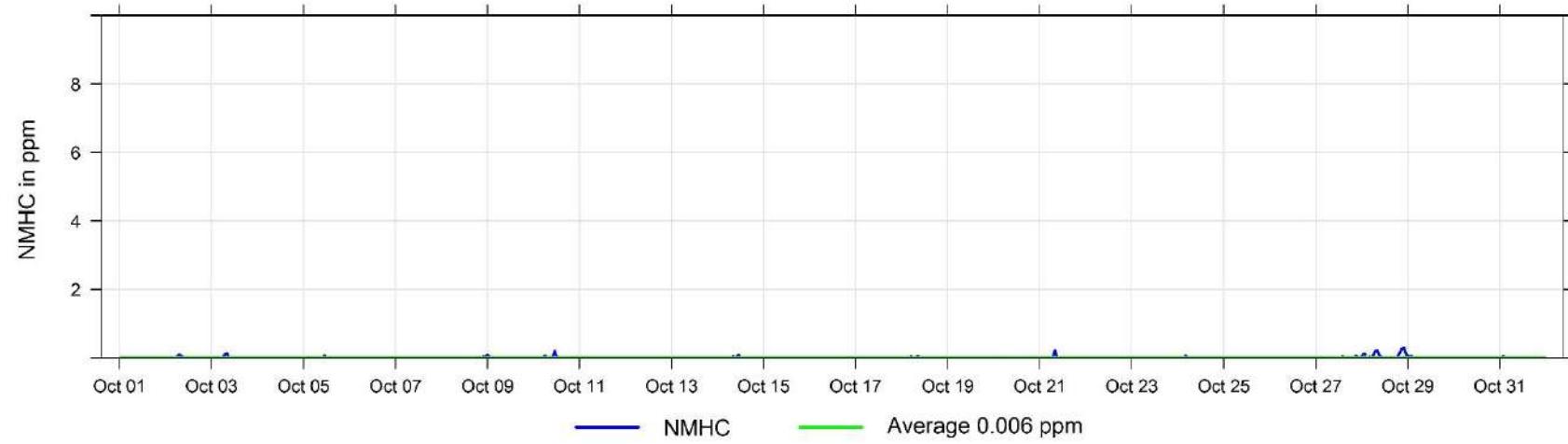
October Hourly Concentration Readings of THC (in ppm) at Henry Pirker



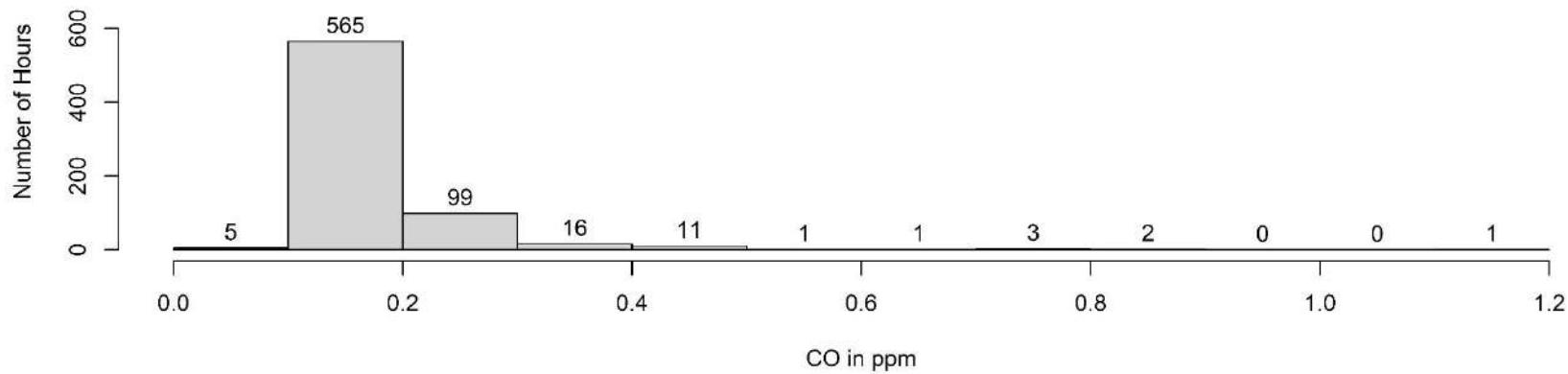
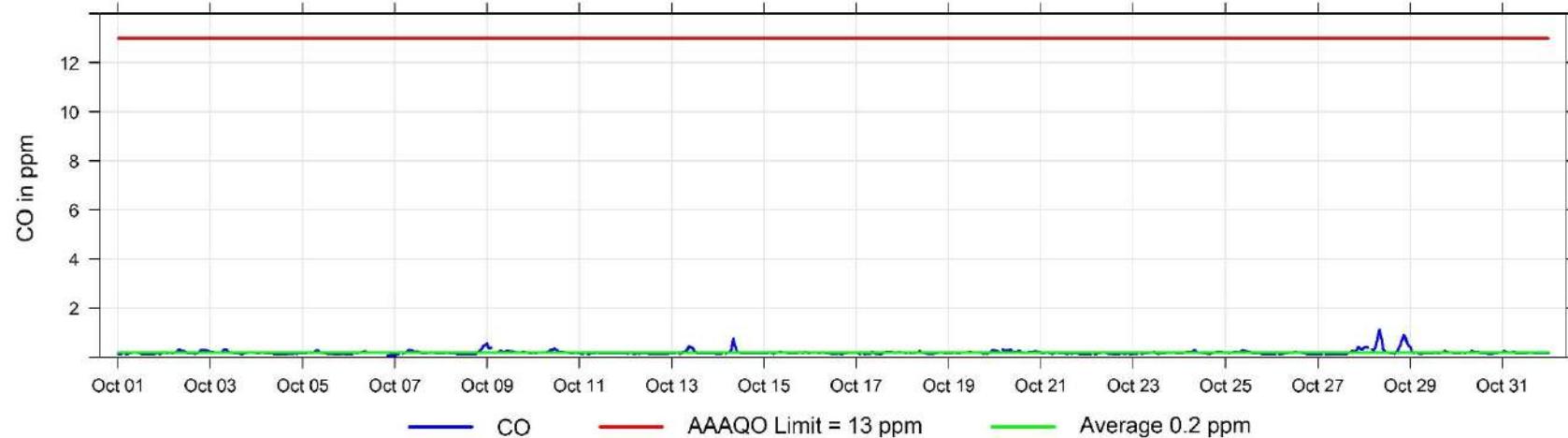
October Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker

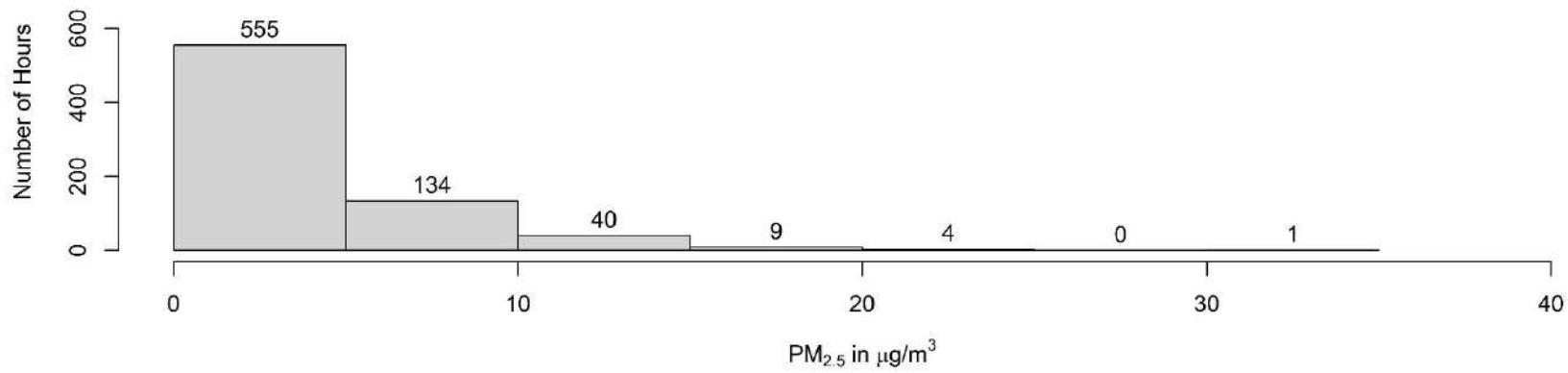
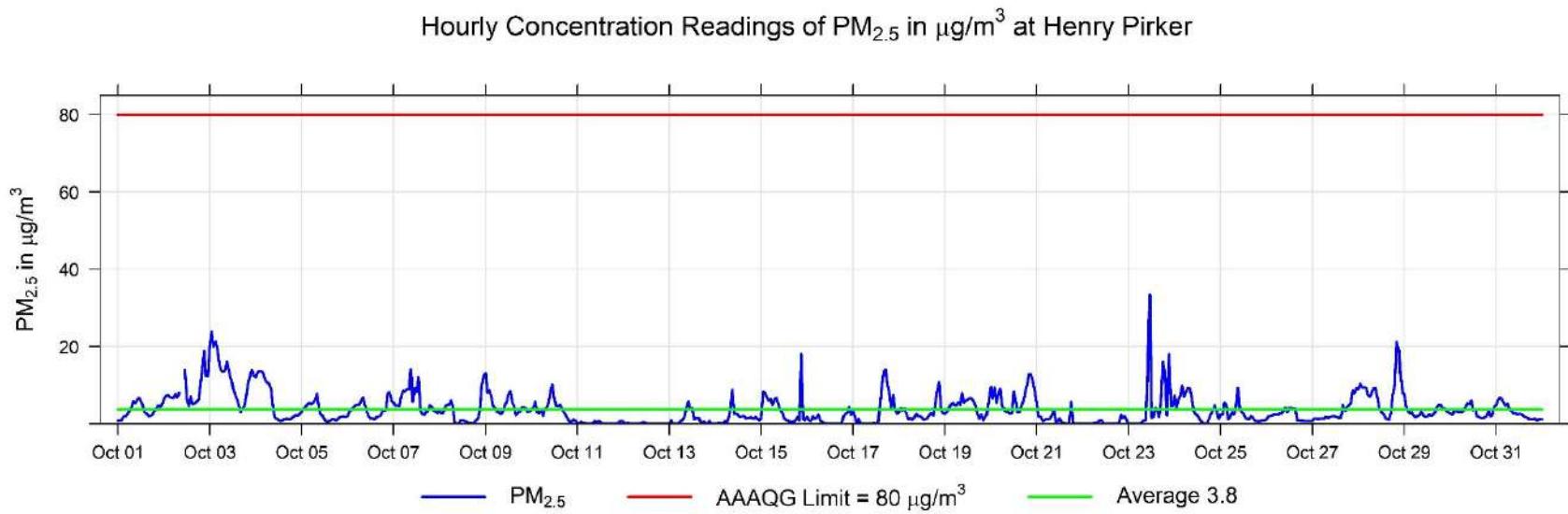


October Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker

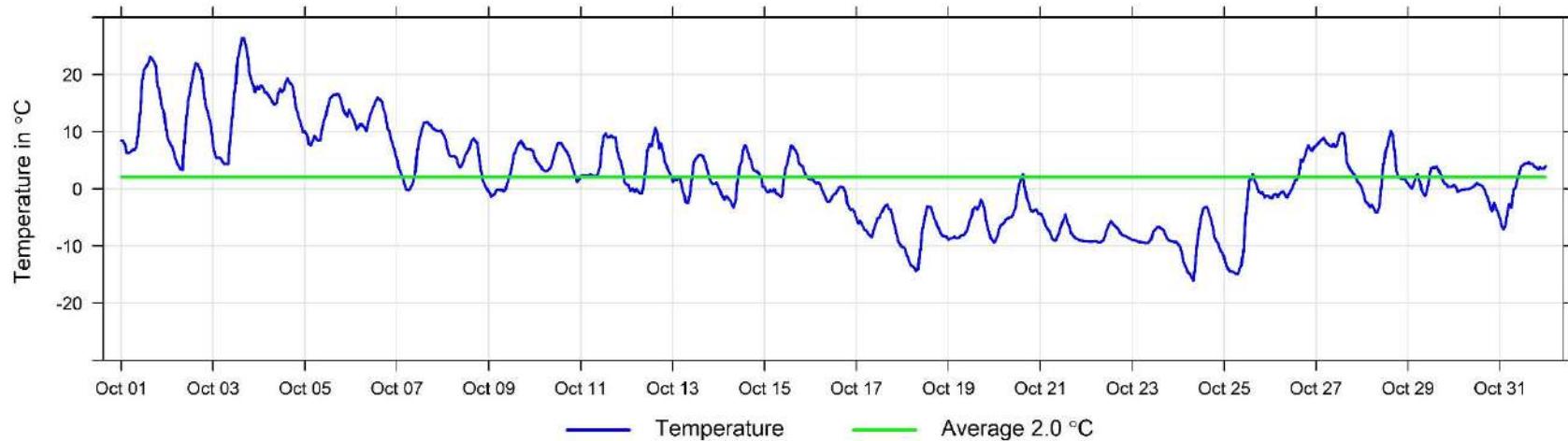


October Hourly Concentration Readings of CO (in ppm) at Henry Pirker

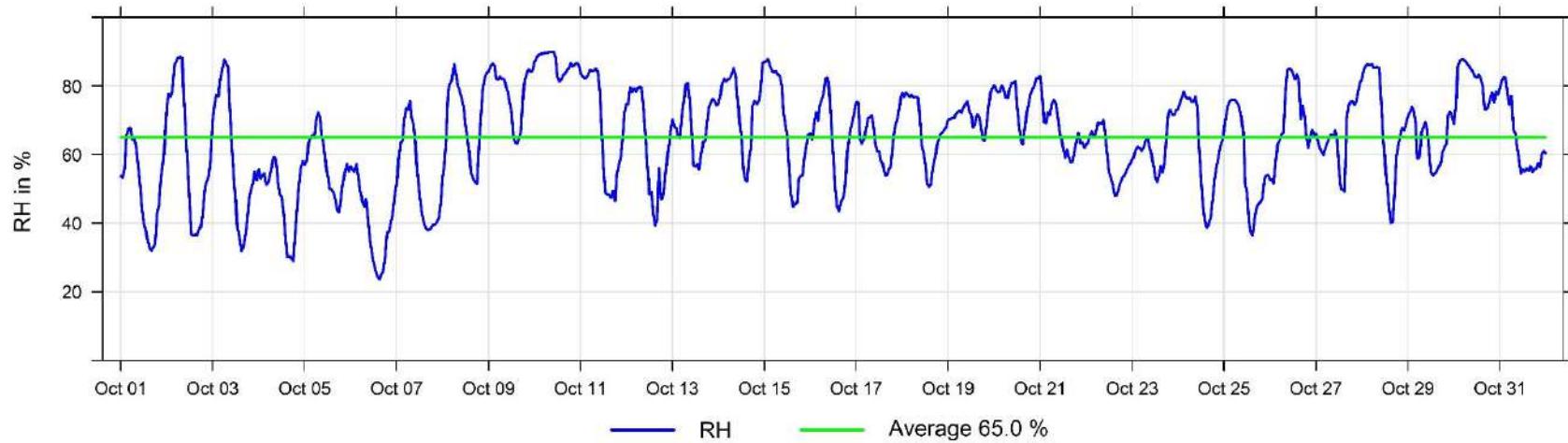




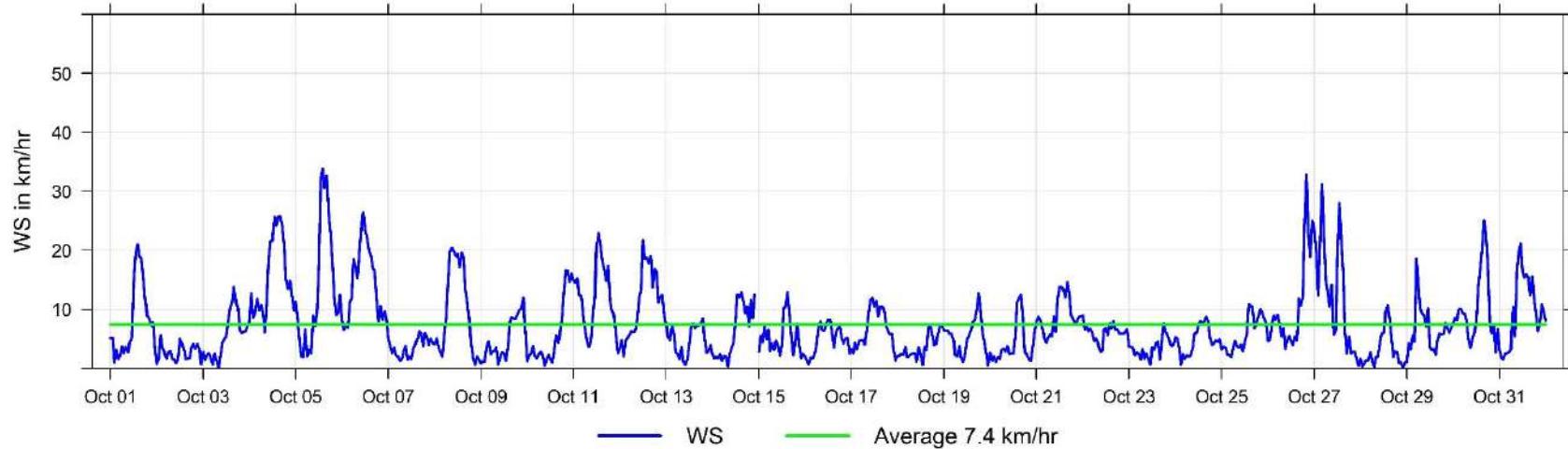
October Hourly Temperature Readings (in °C) at Henry Pirker



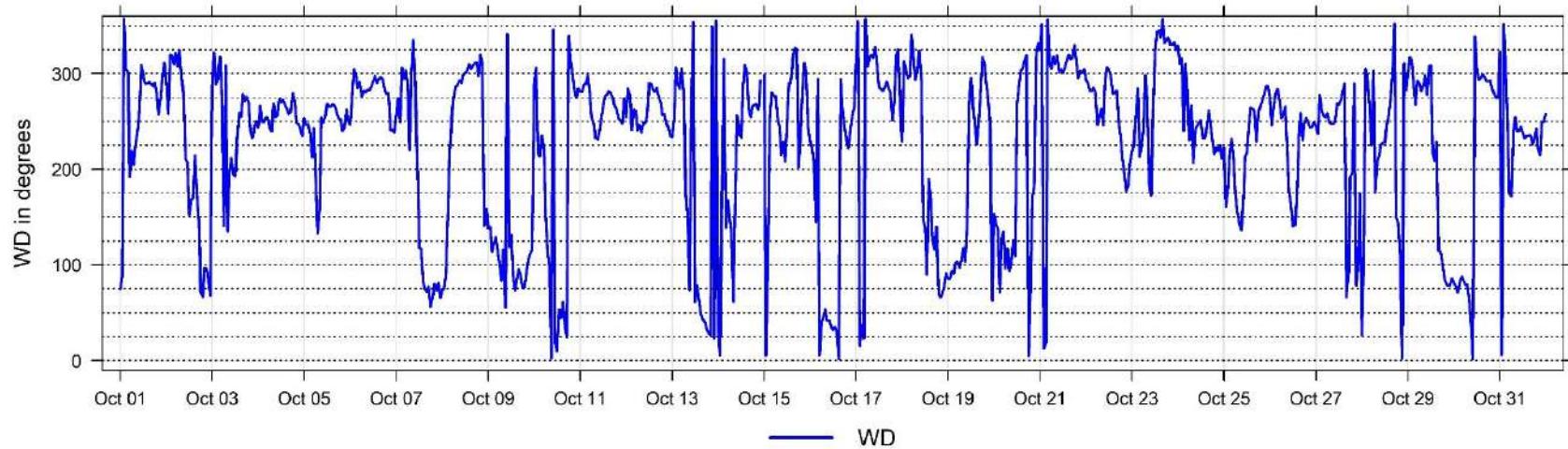
October Hourly Readings of Relative Humidity (in %) at Henry Pirker



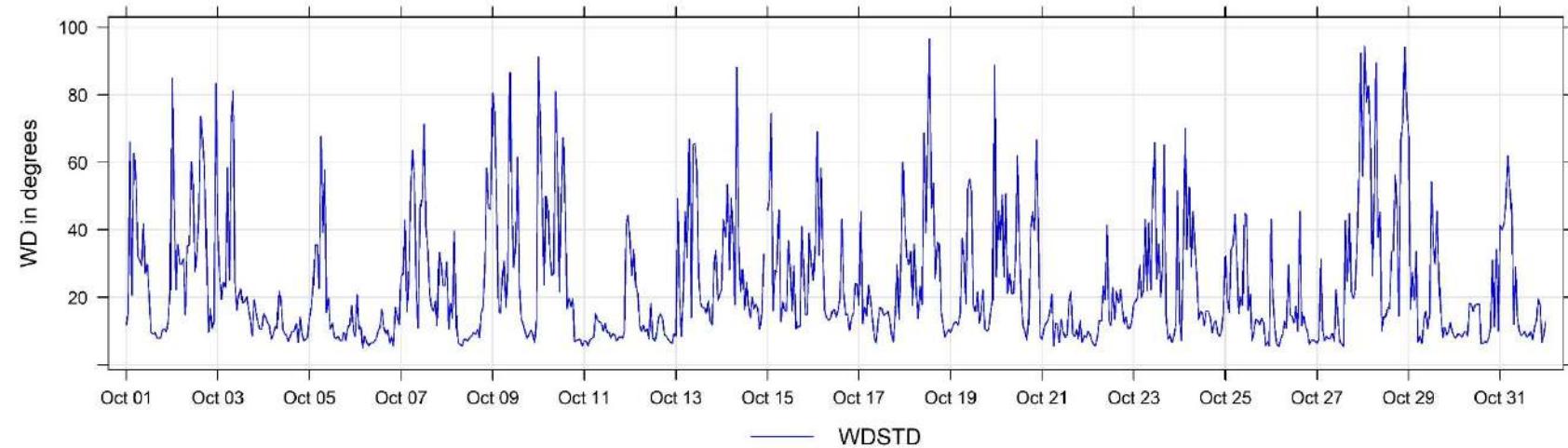
October Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

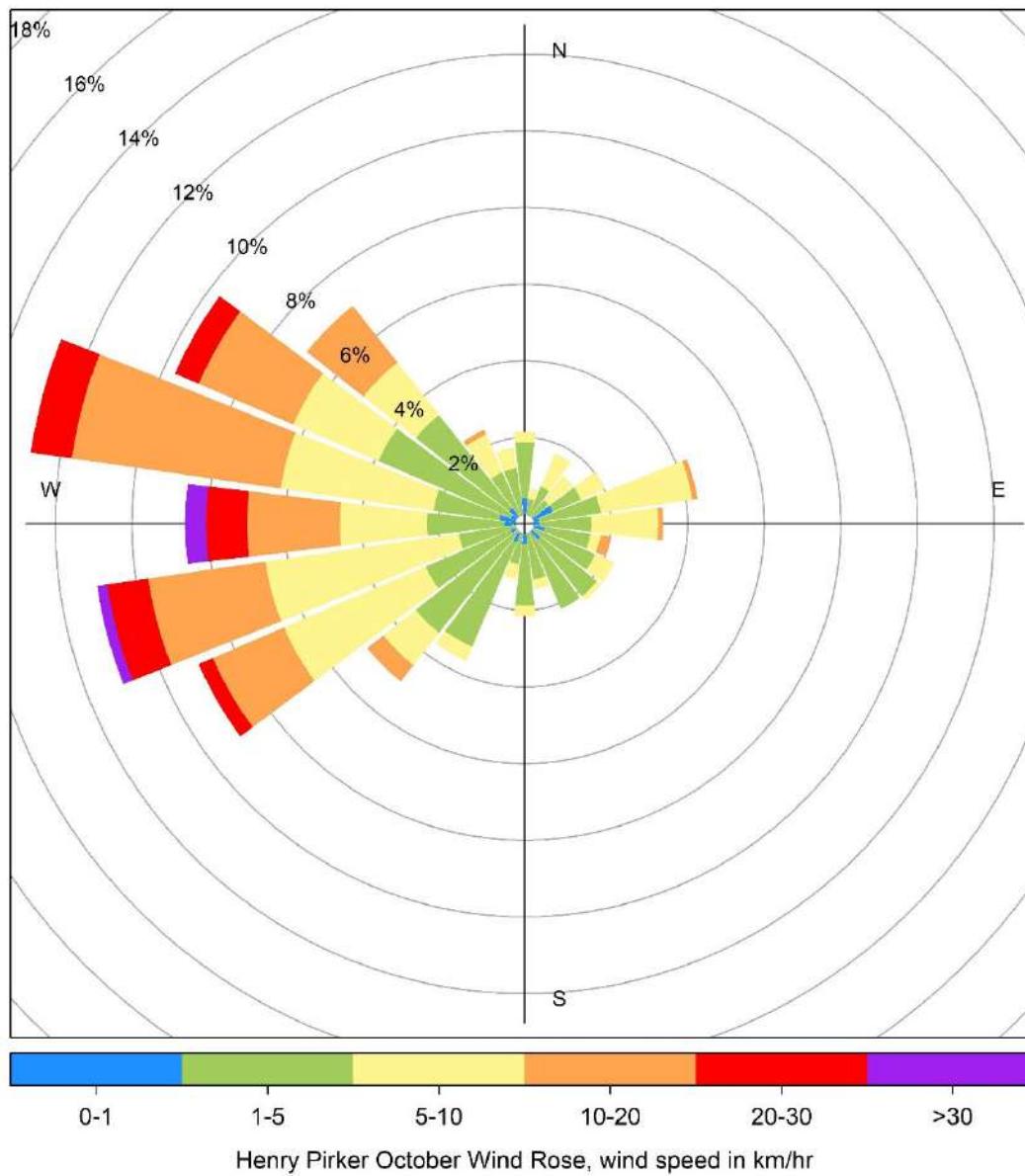


October Hourly Readings of Wind Direction (in degrees) at Henry Pirker



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

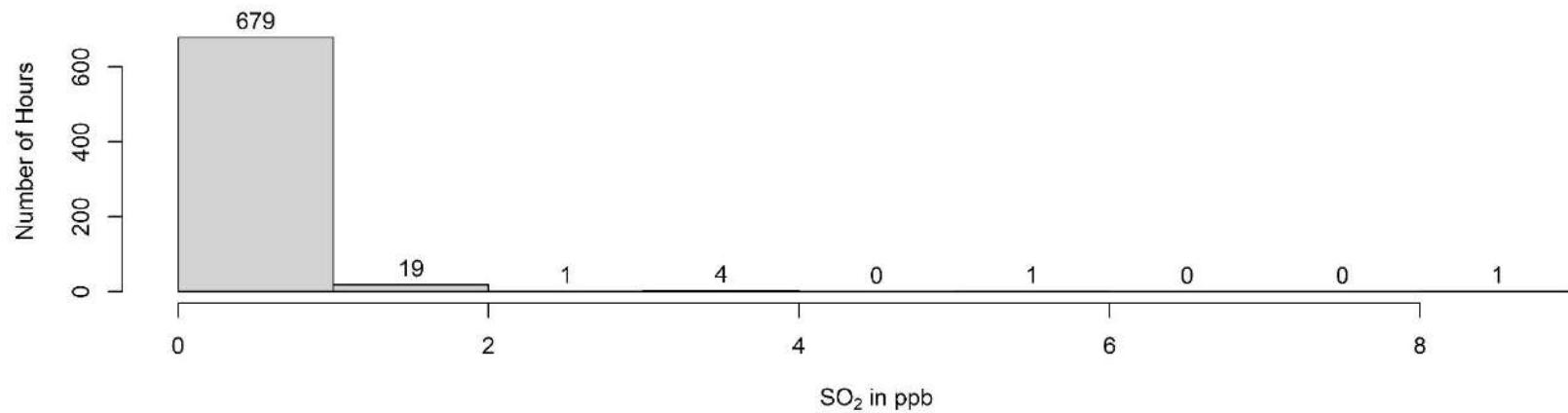
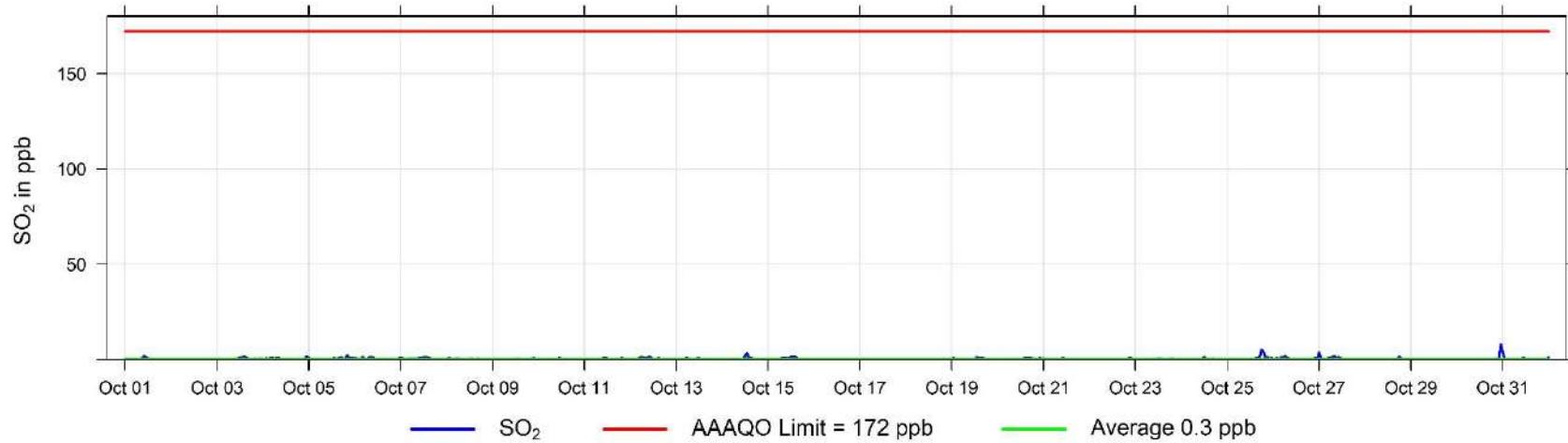




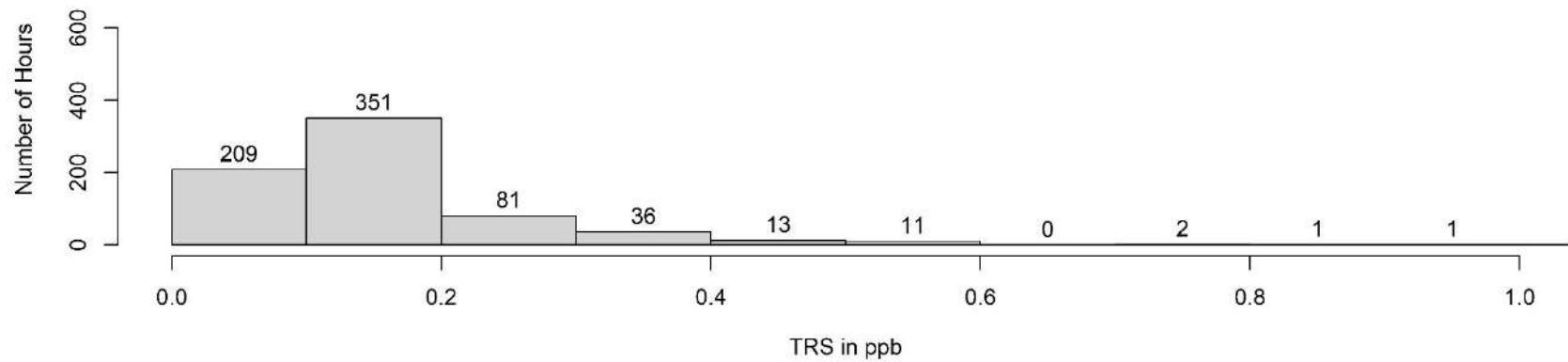
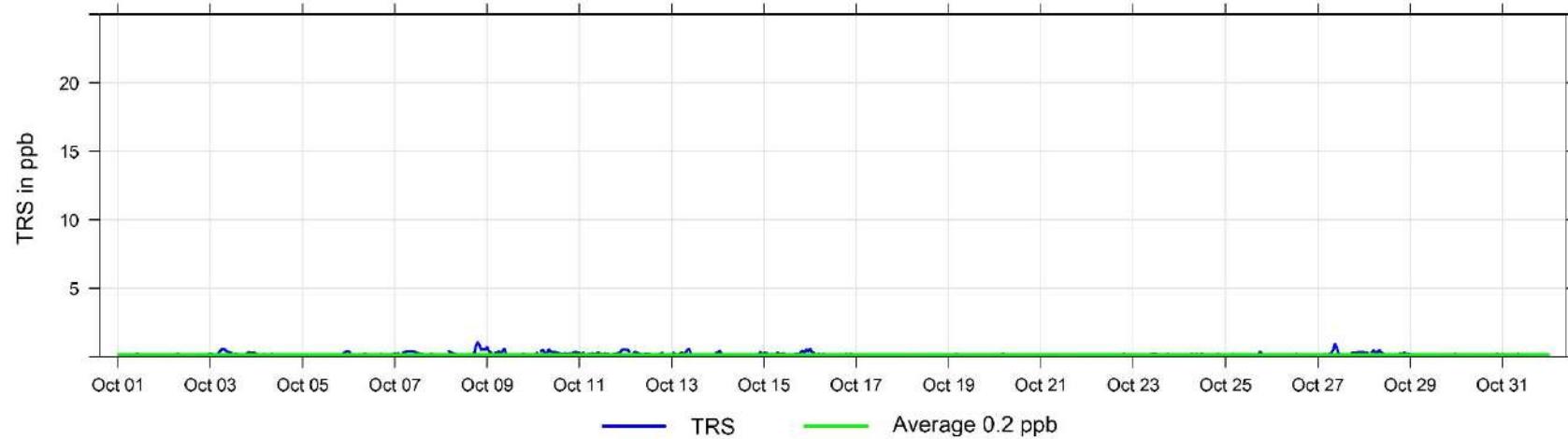
5 Smoky Heights Charts

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

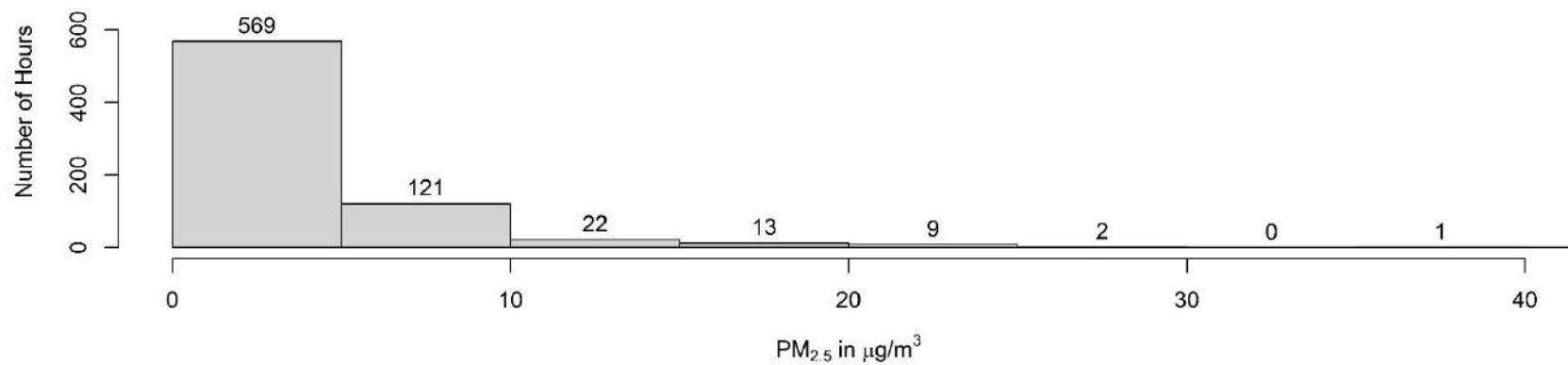
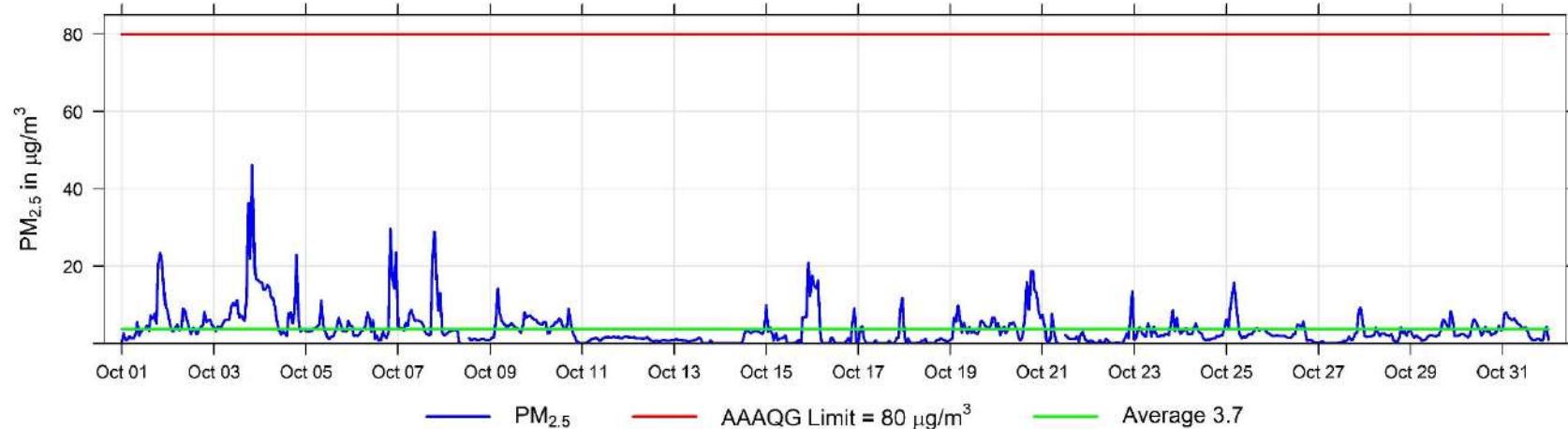
October Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights

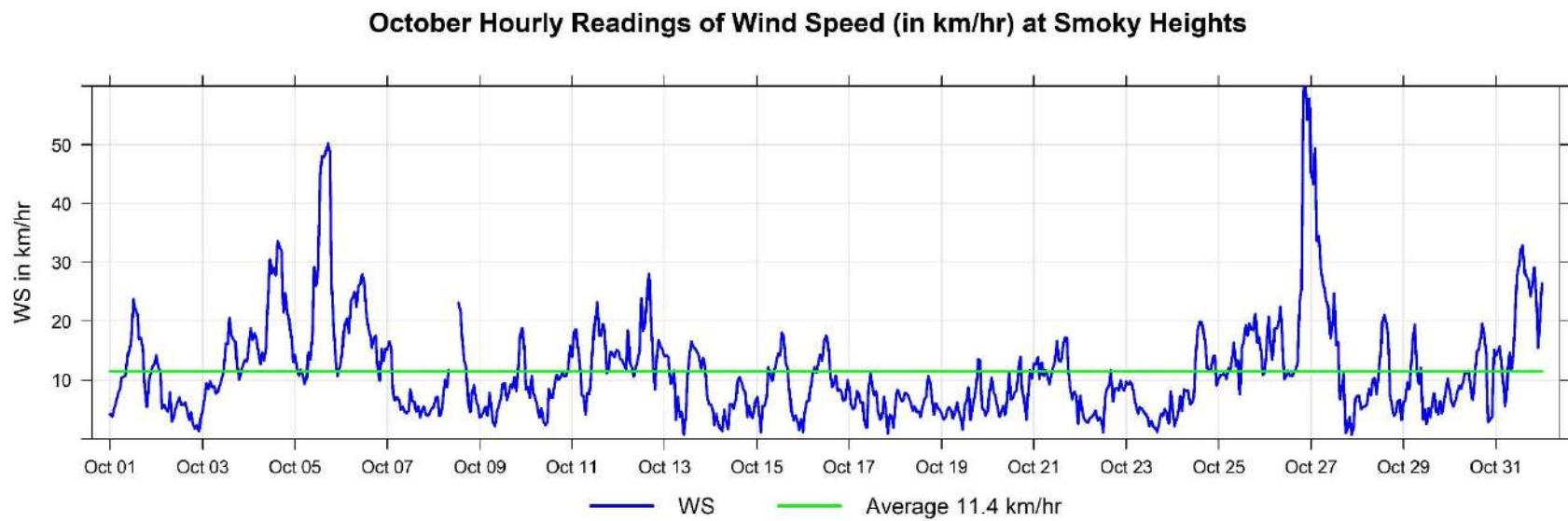
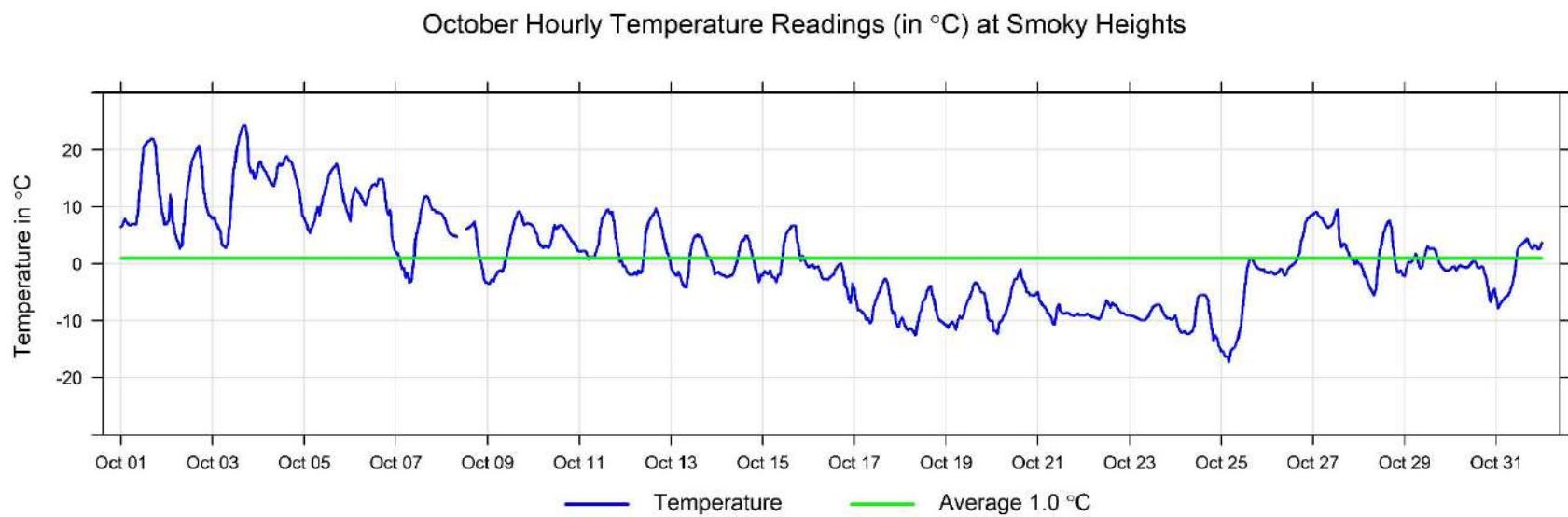


October Hourly Concentration Readings of TRS (in ppb) at Smoky Heights

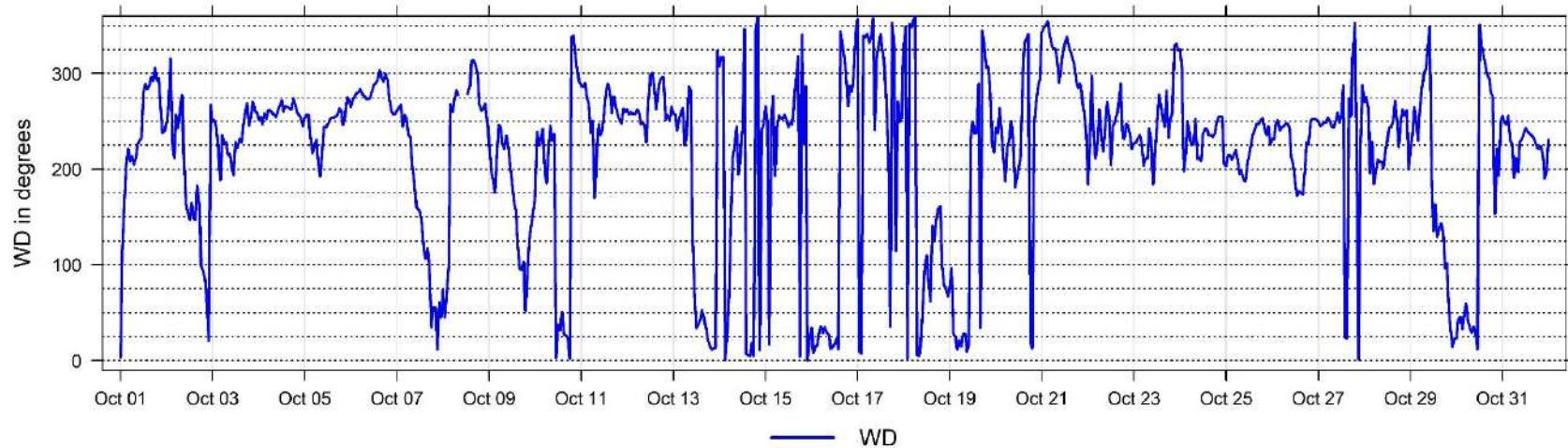


Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Smoky Heights

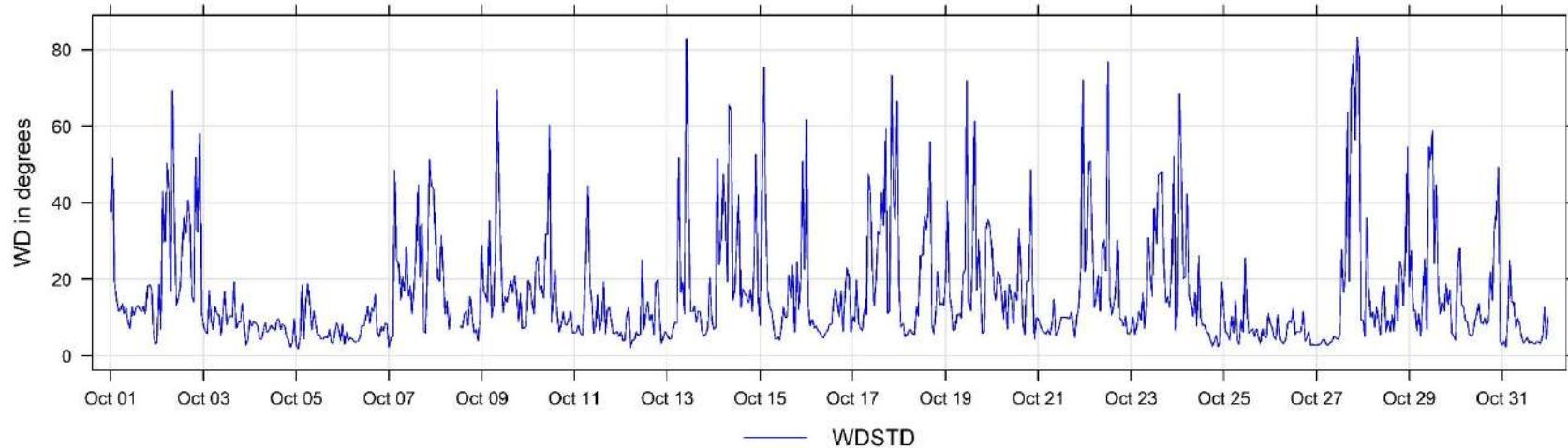


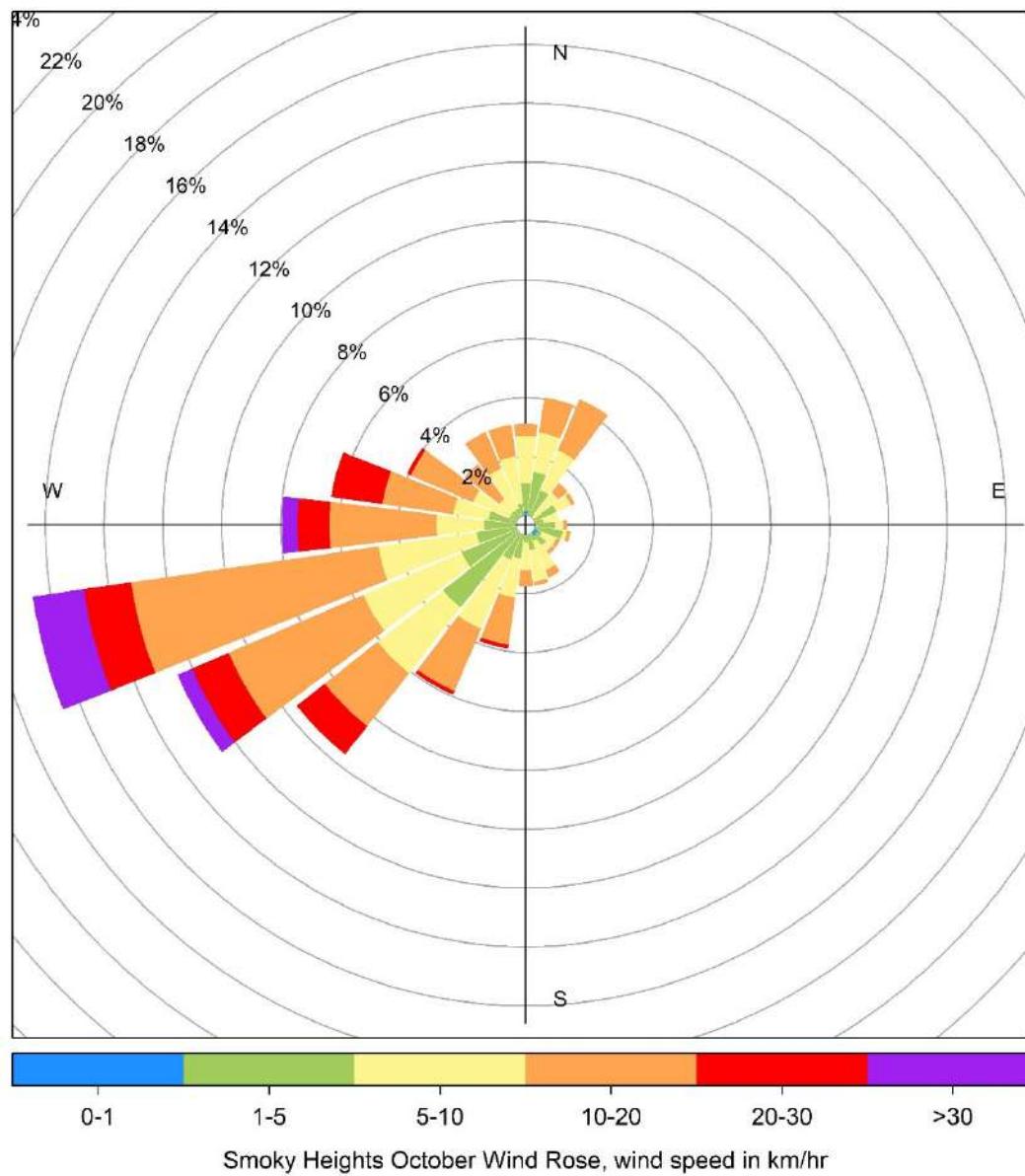


October Hourly Readings of Wind Direction (in degrees) at Smoky Heights



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

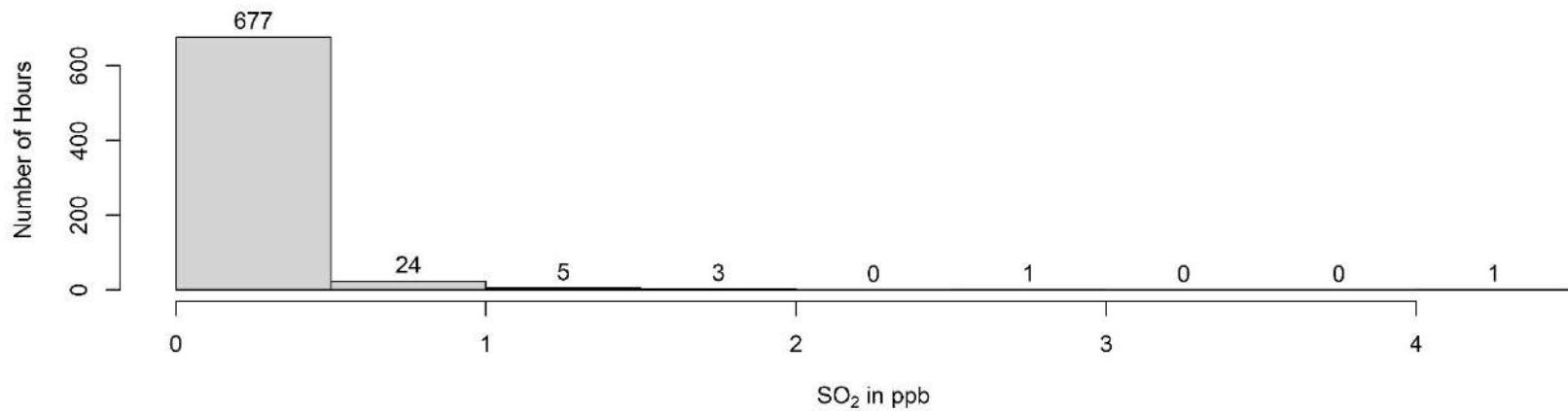
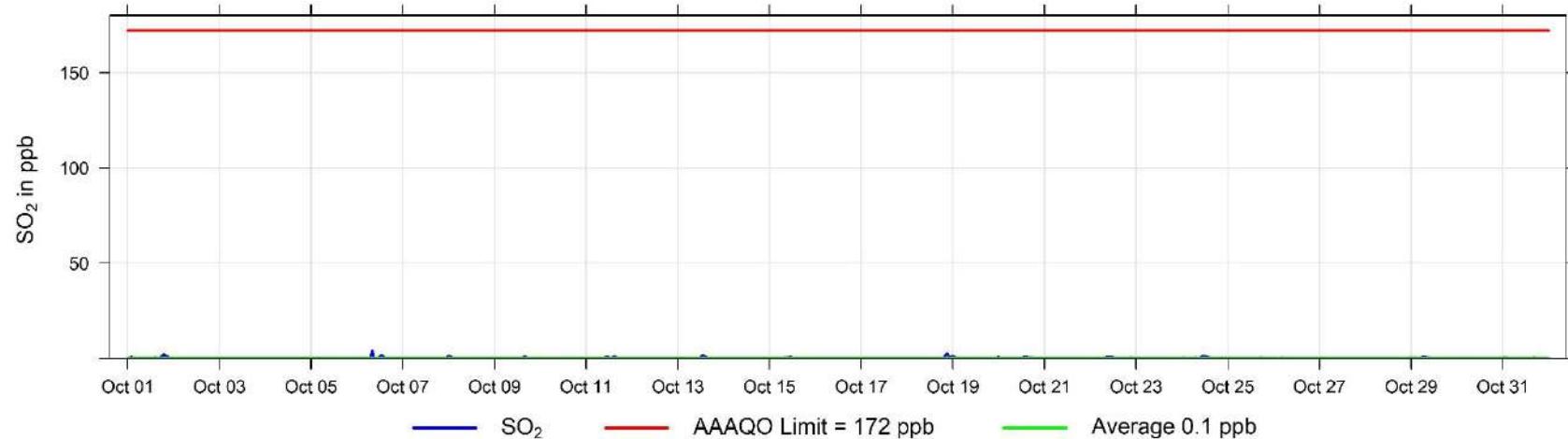




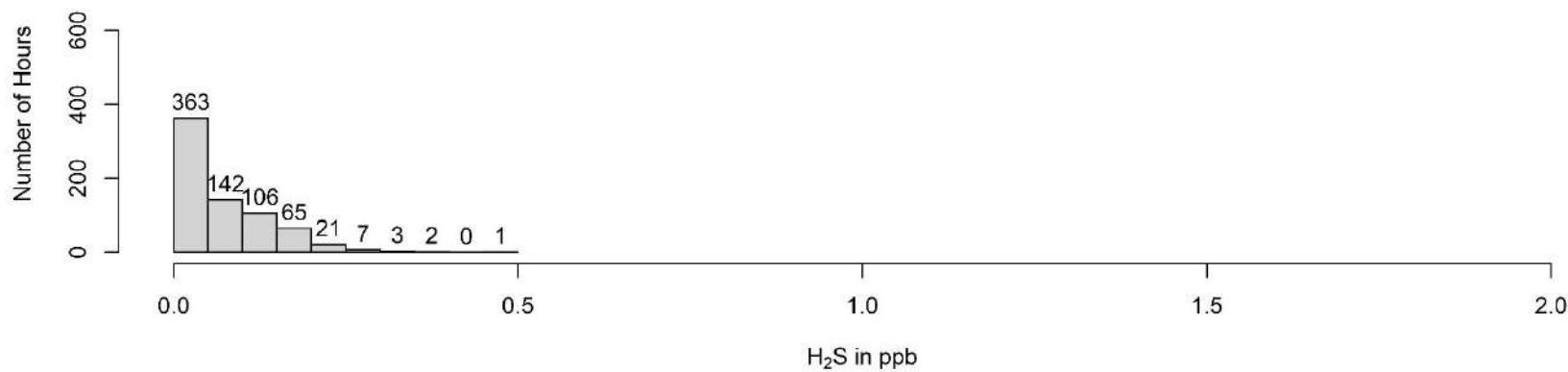
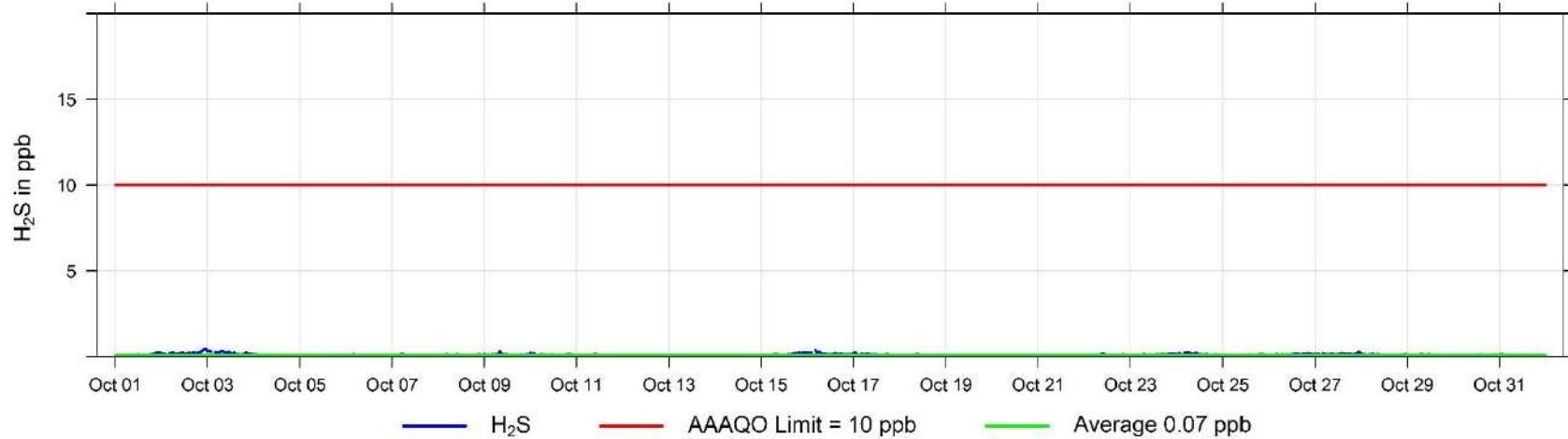
6 Valleyview Charts

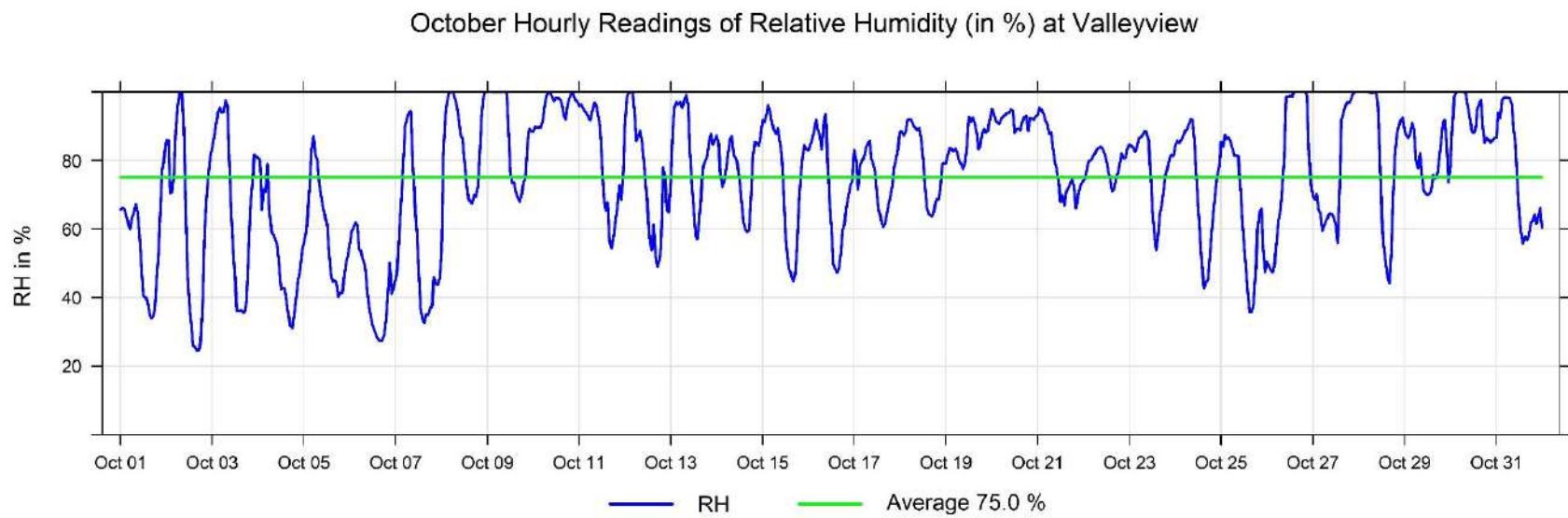
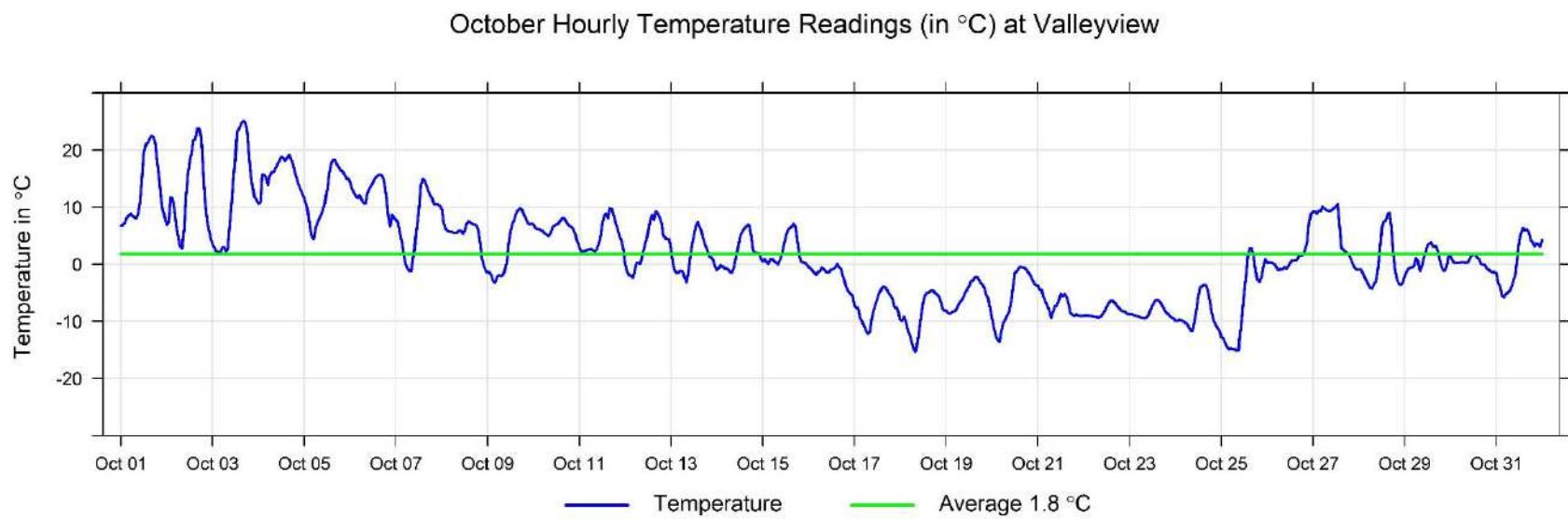
The following pages include the charts and histograms for Valleyview Station

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

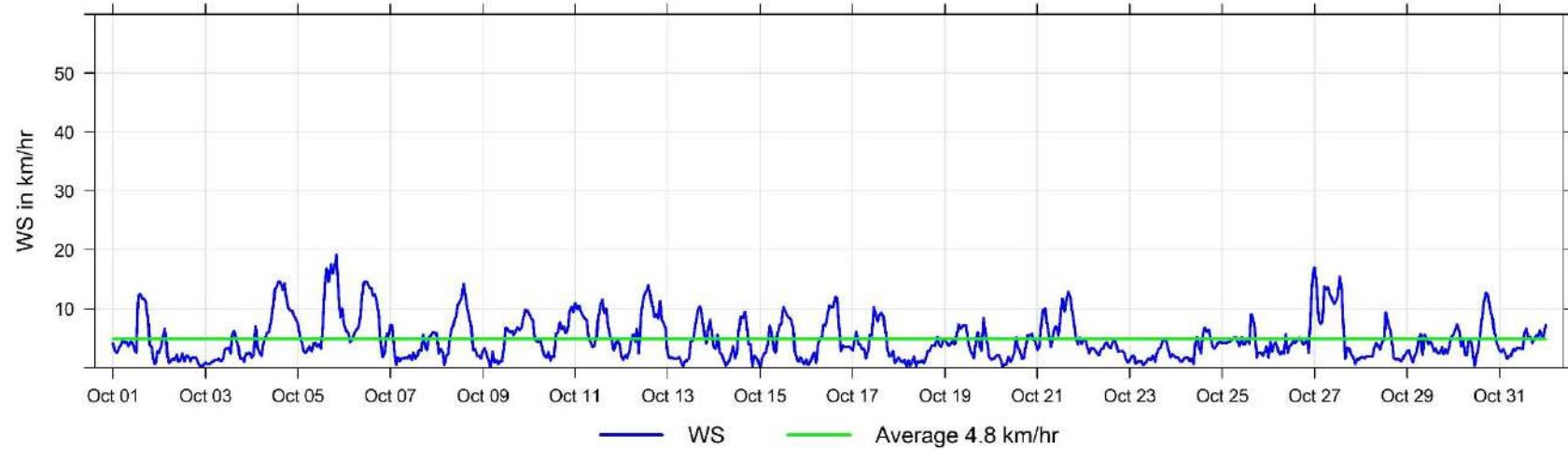


October Hourly Concentration Readings of H₂S (in ppb) at Valleyview

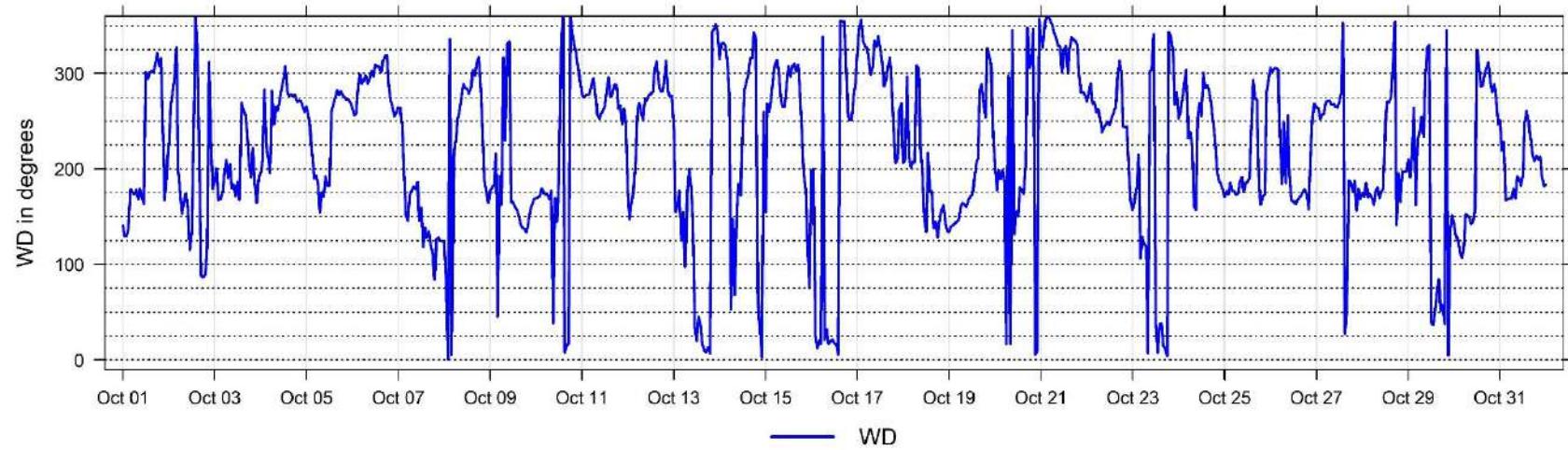




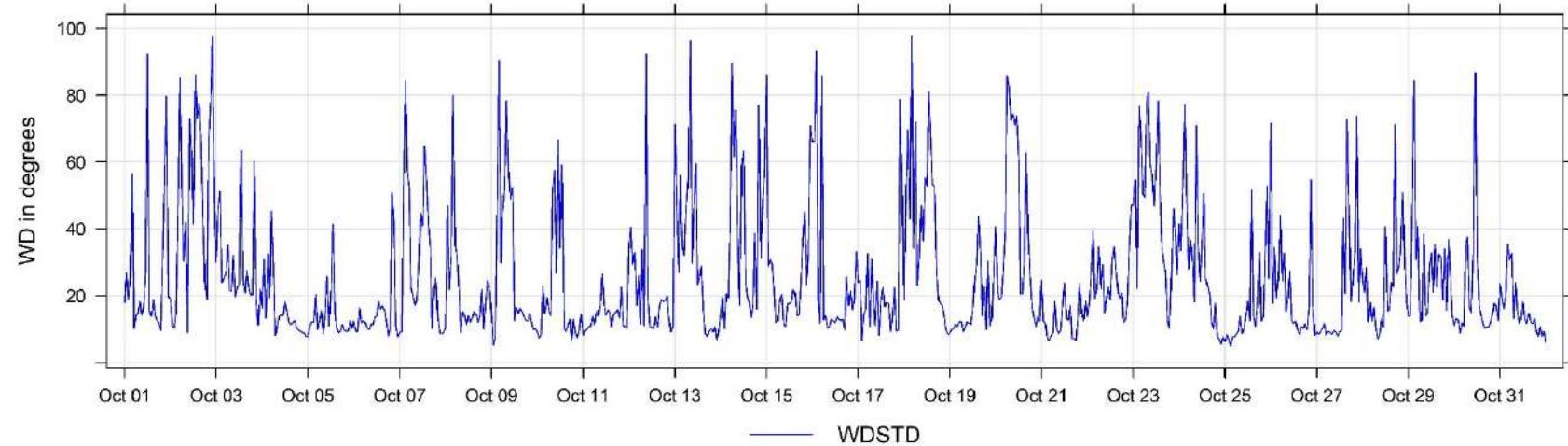
October Hourly Readings of Wind Speed (in km/hr) at Valleyview

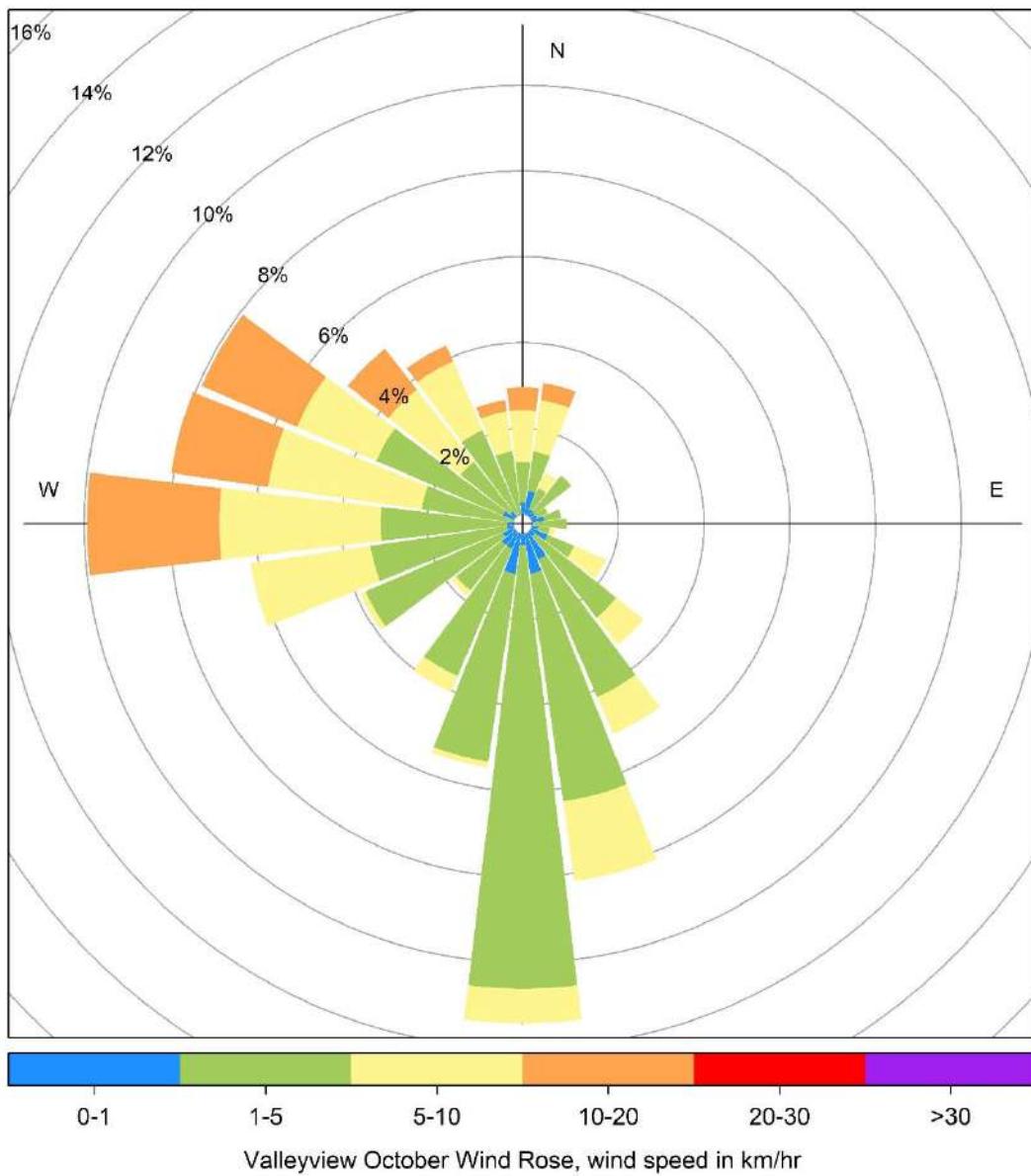


October Hourly Readings of Wind Direction (in degrees) at Valleyview



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

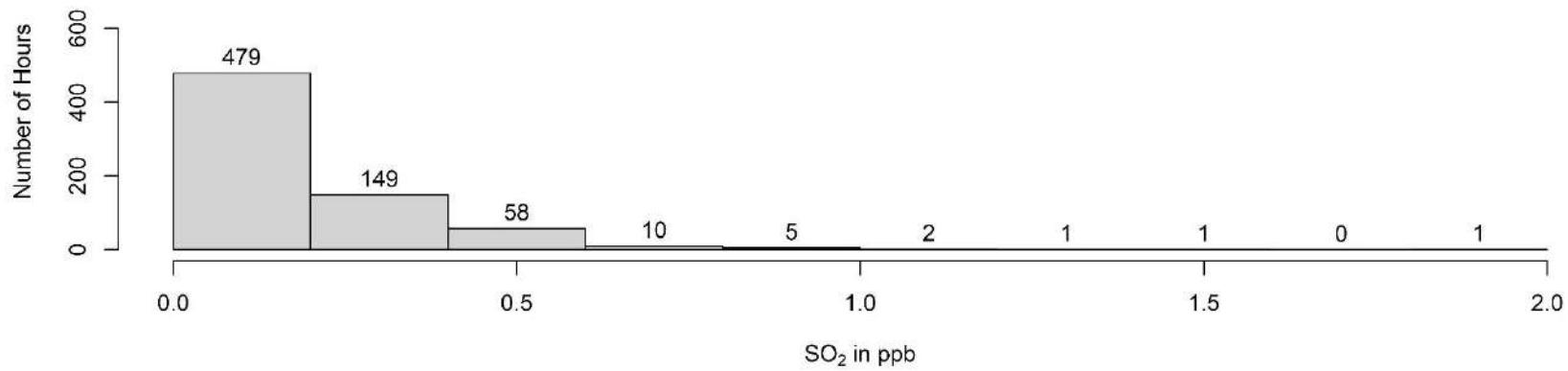
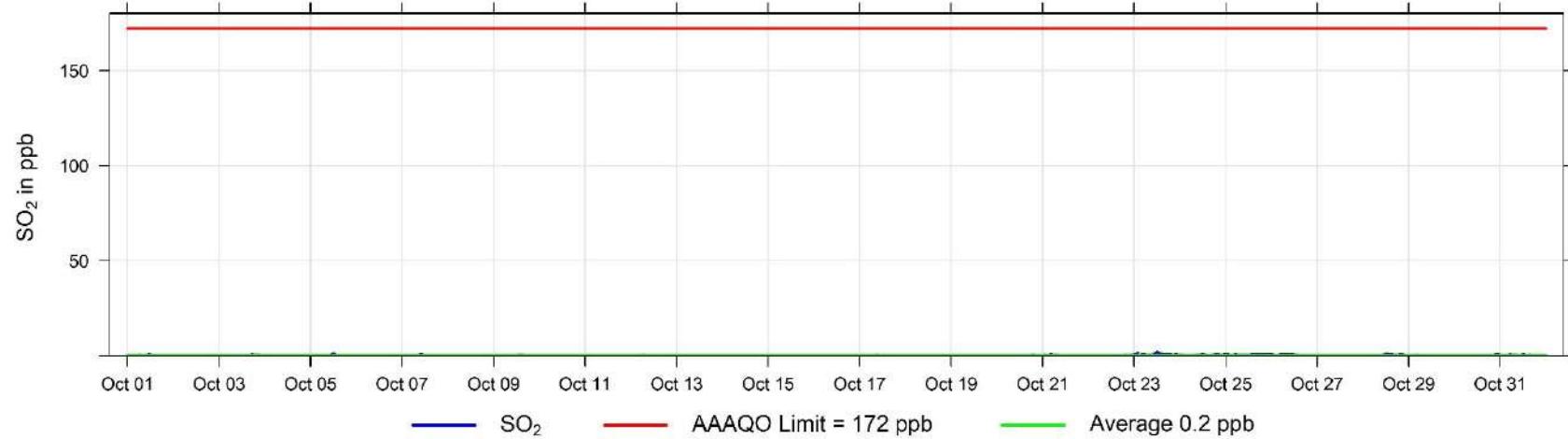




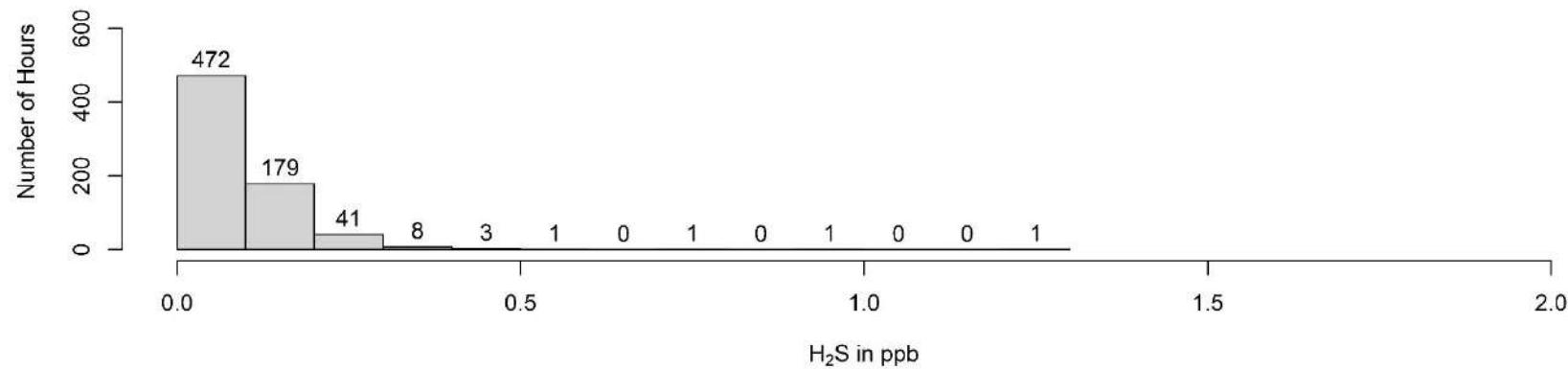
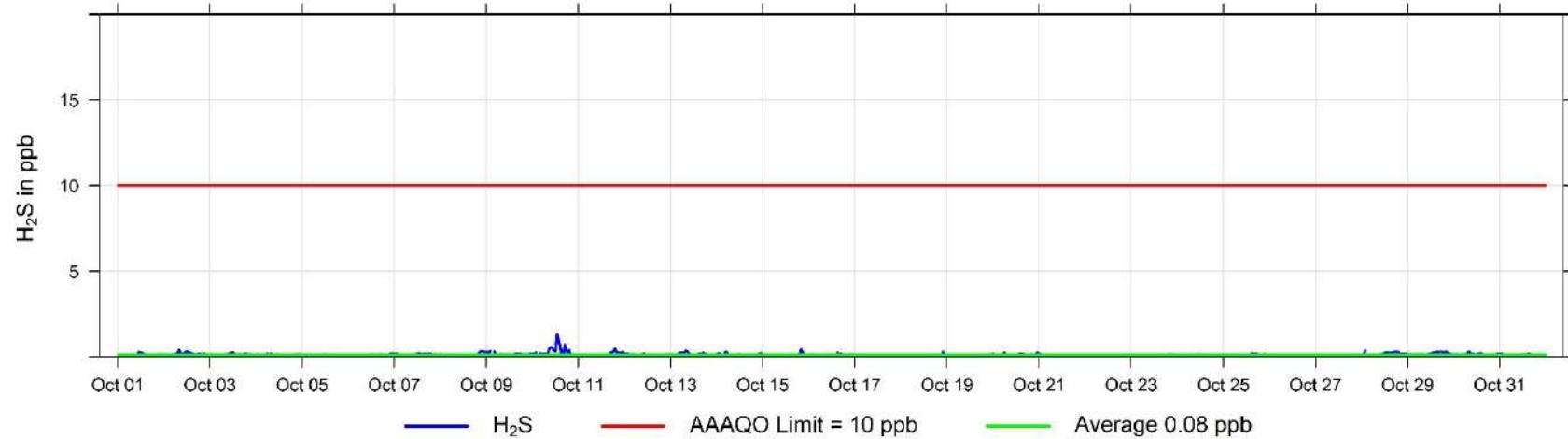
7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

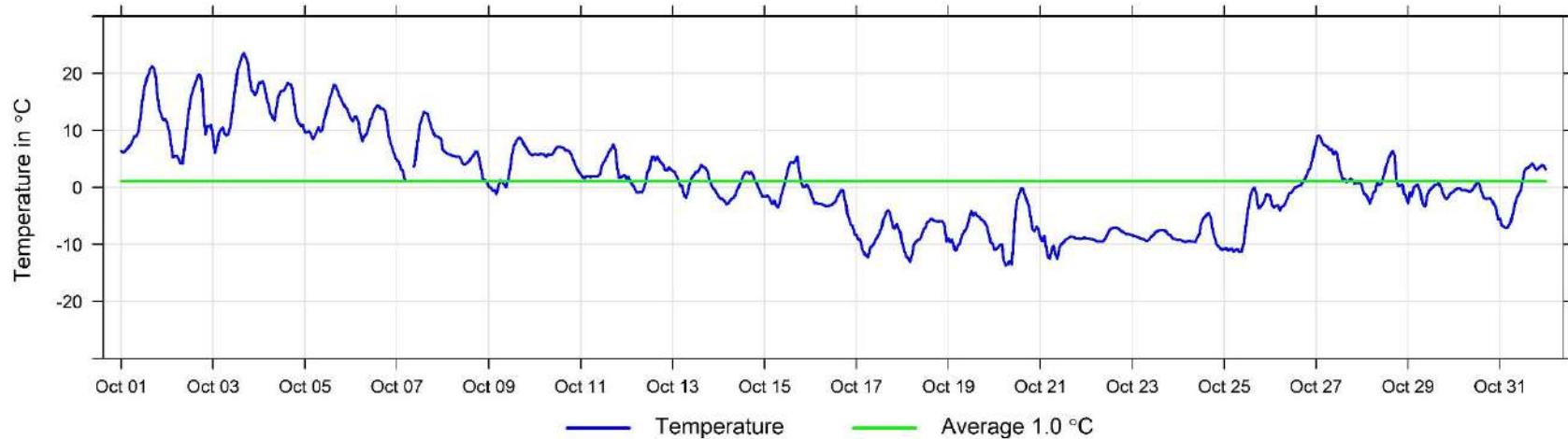
October Hourly Concentration Readings of SO₂ (in ppb) at Donnelly



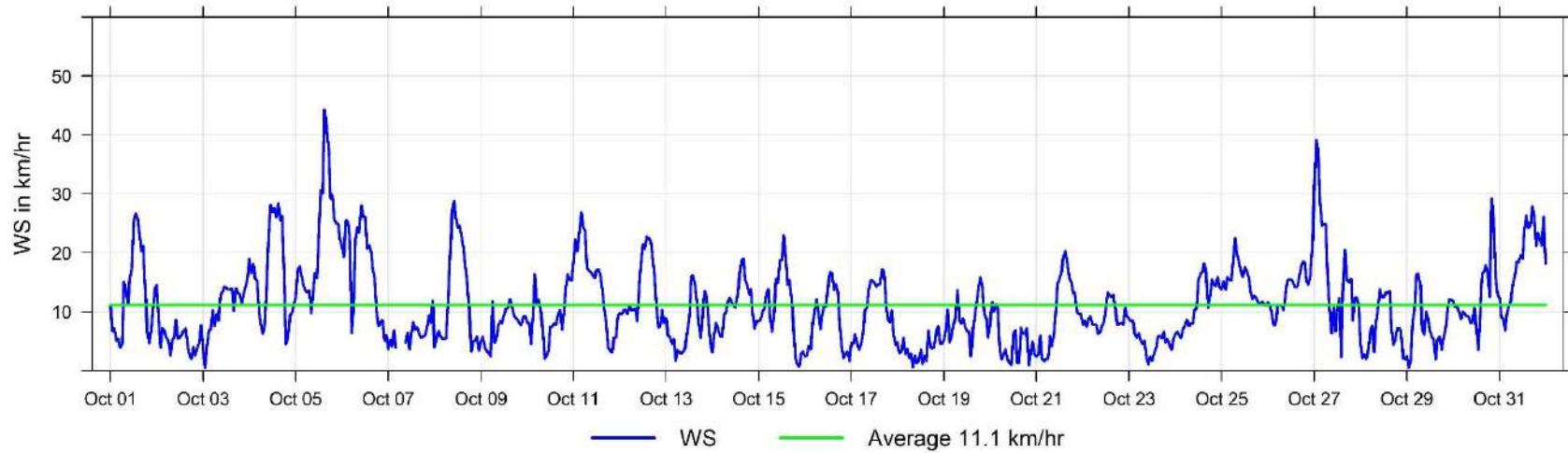
October Hourly Concentration Readings of H₂S (in ppb) at Donnelly



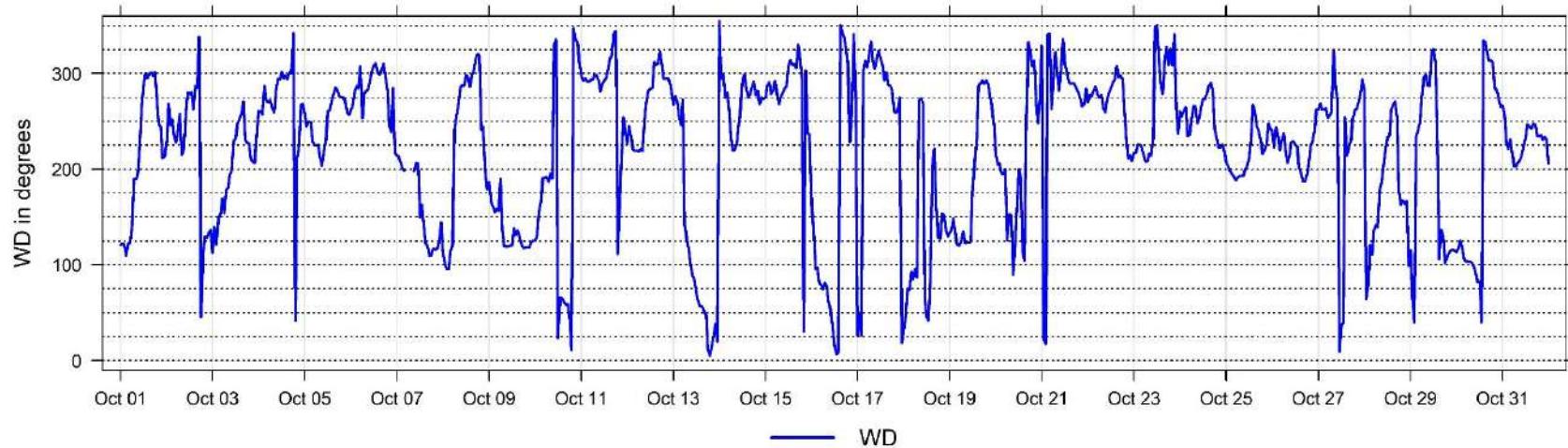
October Hourly Temperature Readings (in °C) at Donnelly



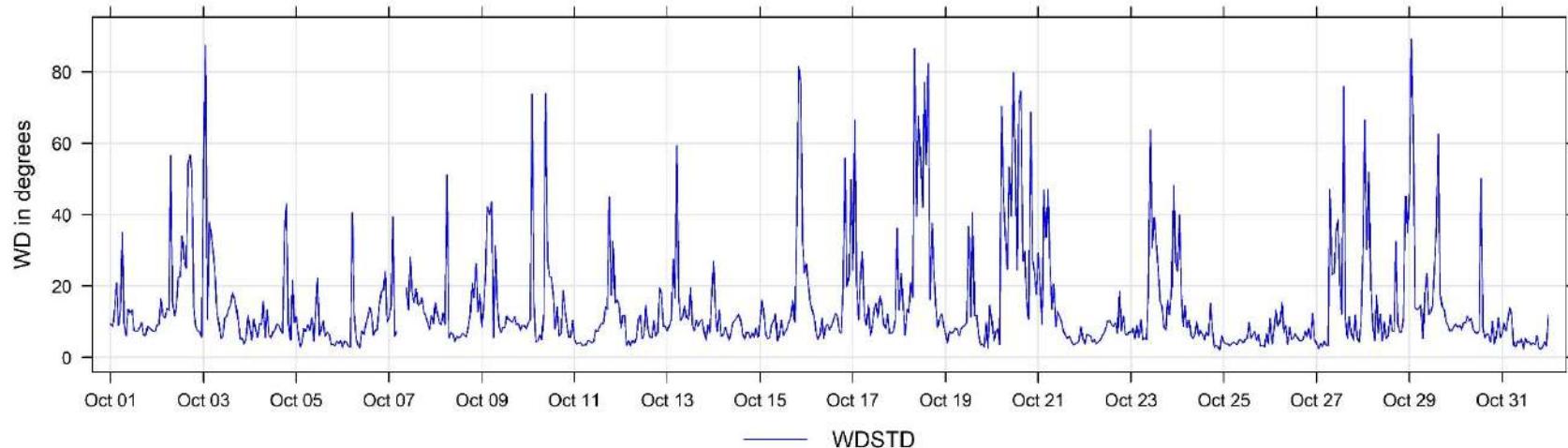
October Hourly Readings of Wind Speed (in km/hr) at Donnelly

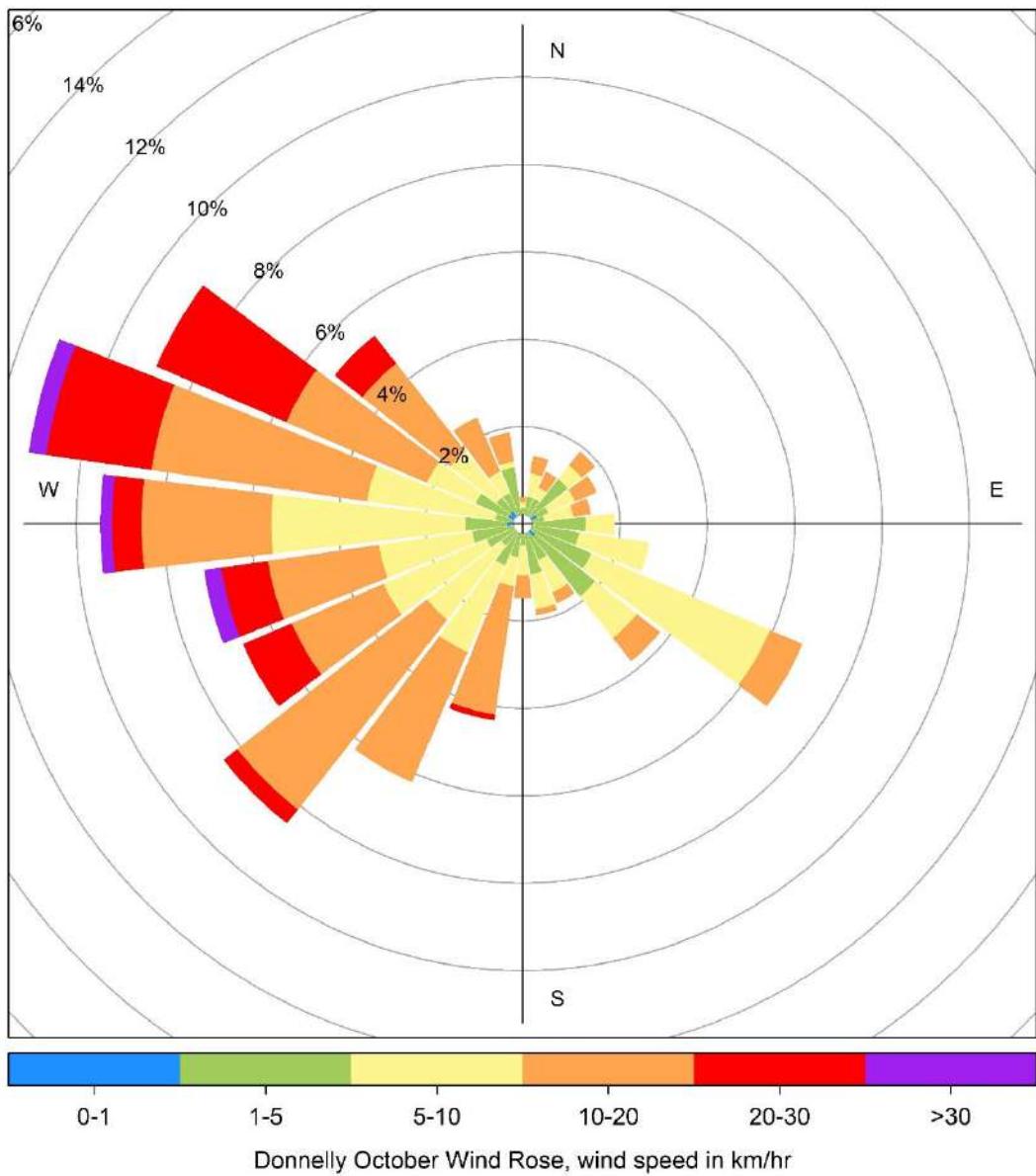


October Hourly Readings of Wind Direction (in degrees) at Donnelly



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

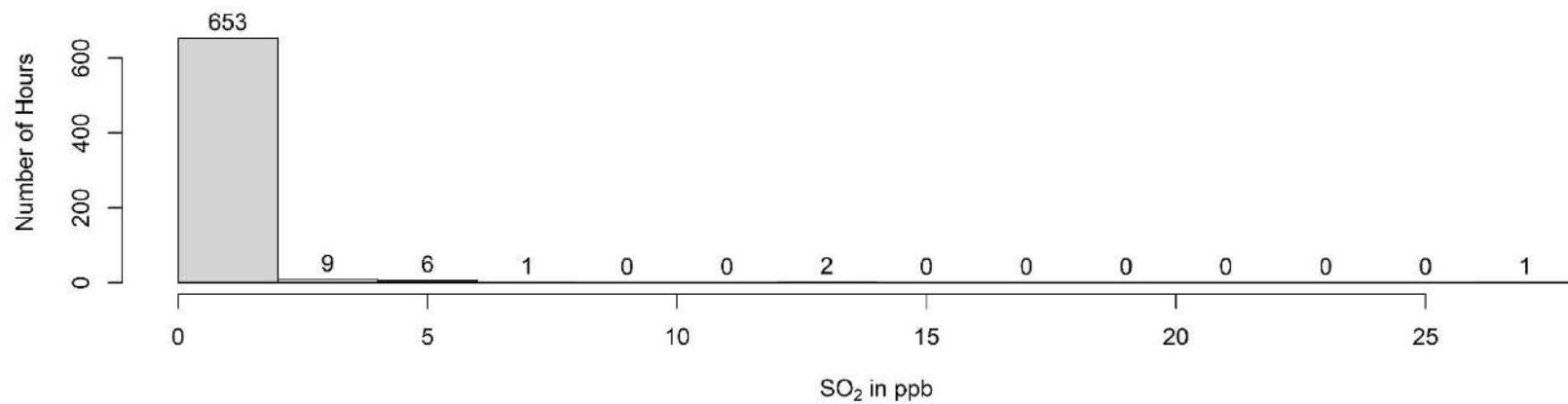
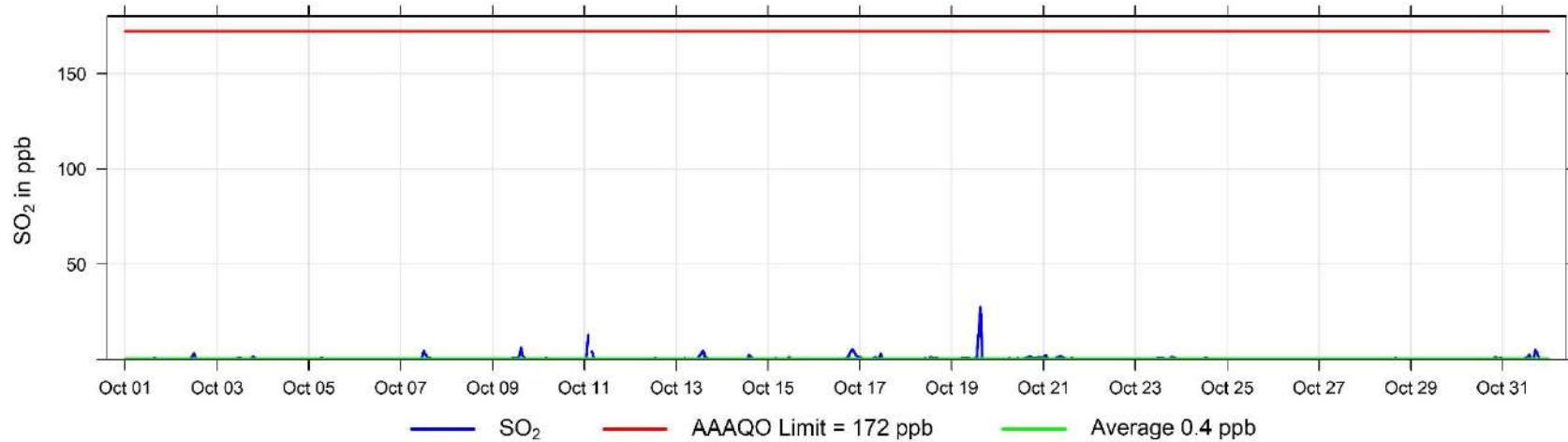




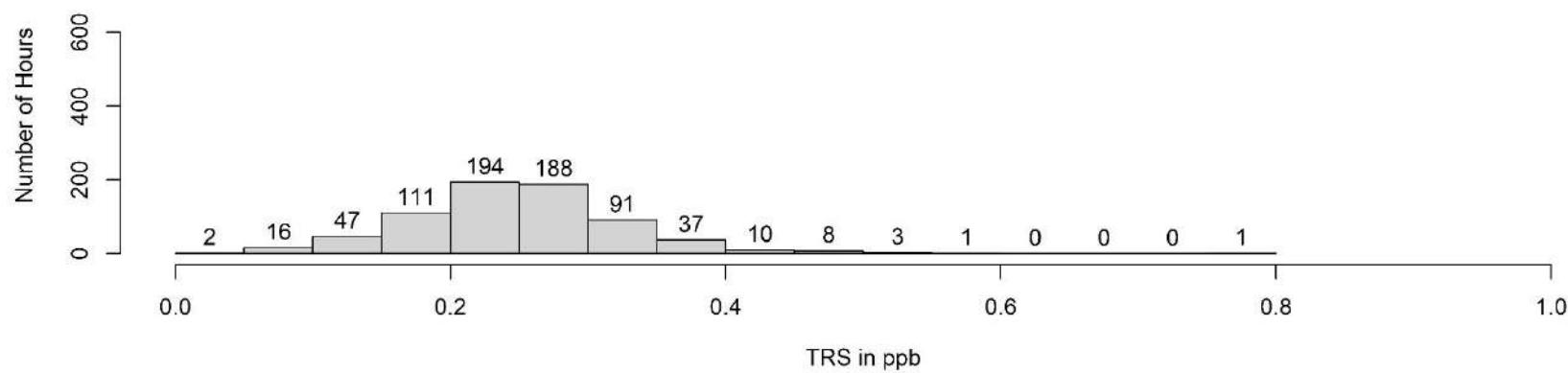
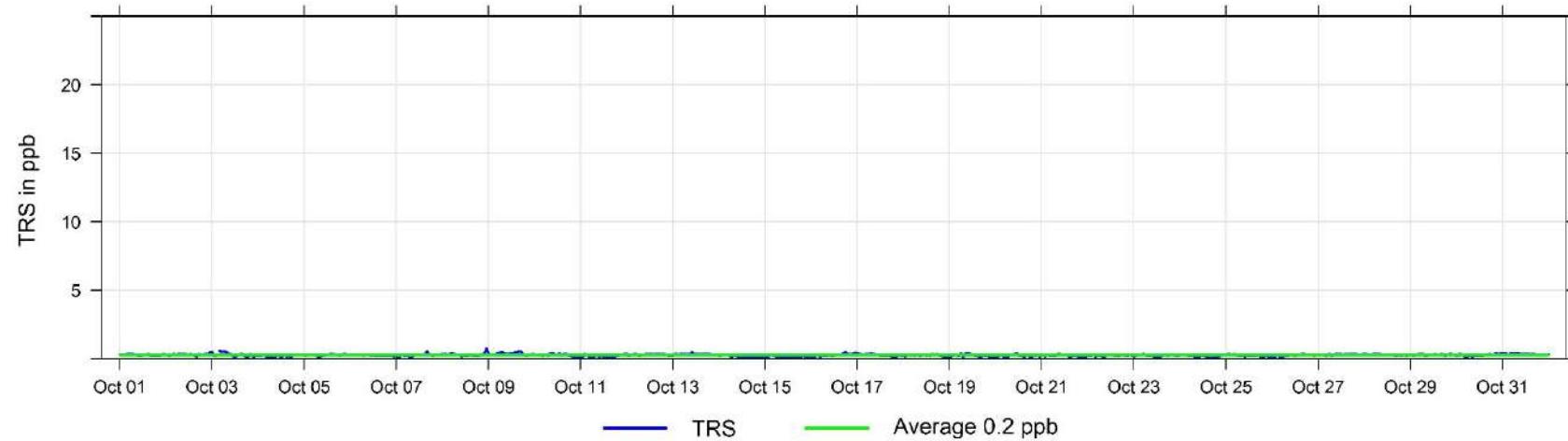
8 Wembley (Portable) Charts

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

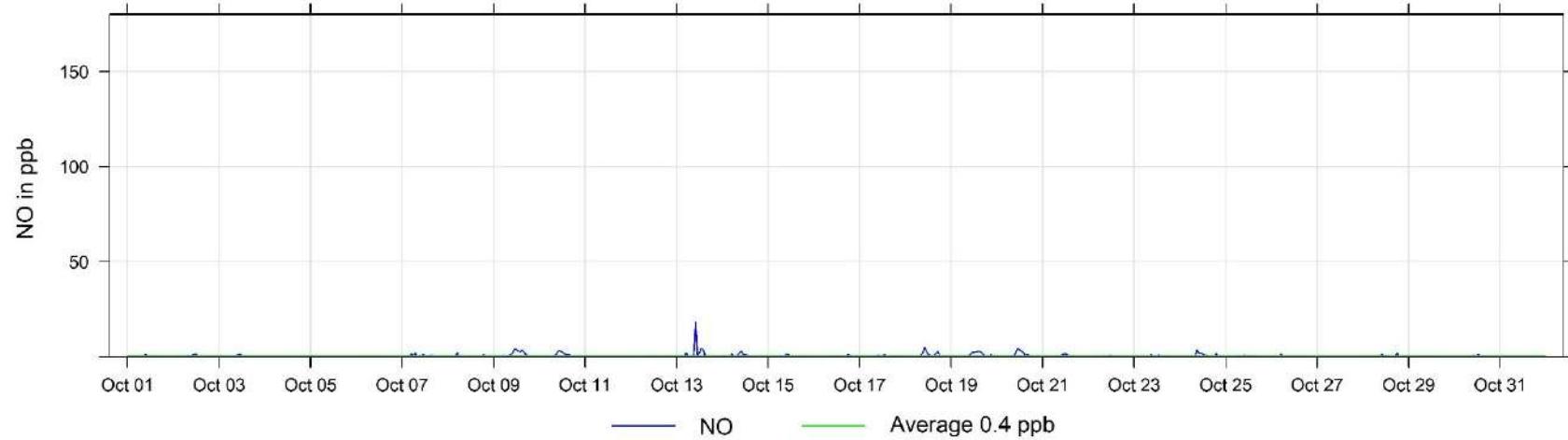
October Hourly Concentration Readings of SO₂ (in ppb) at Wembley



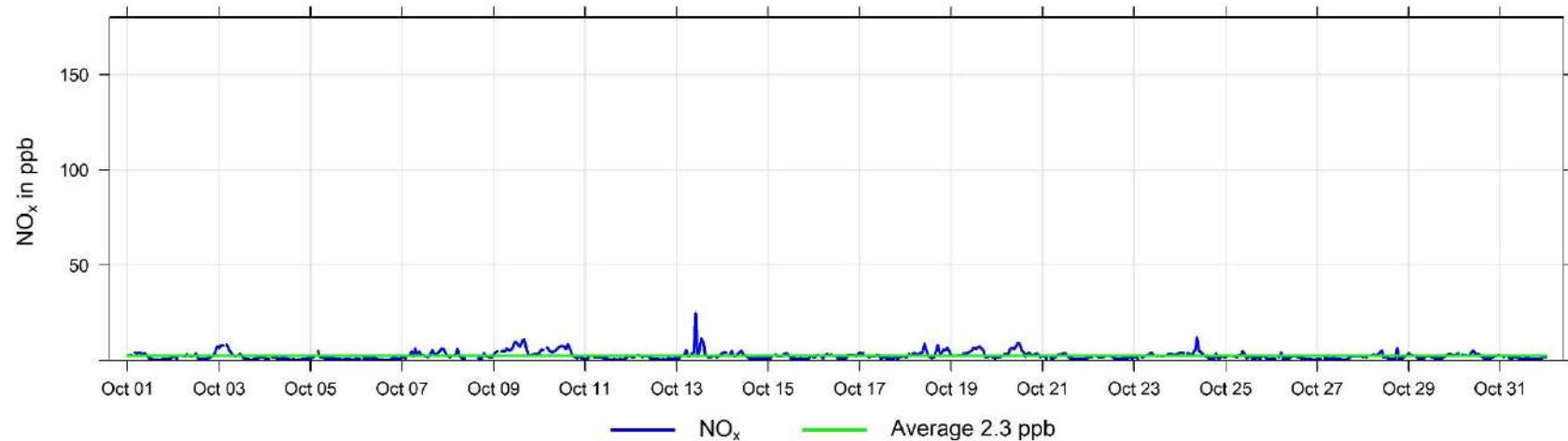
October Hourly Concentration Readings of TRS (in ppb) at Wembley



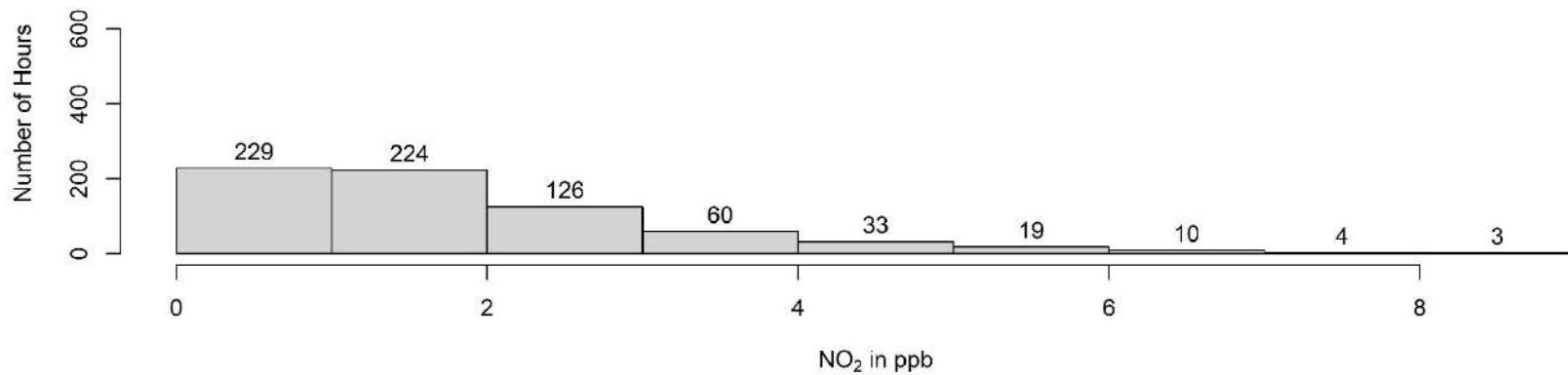
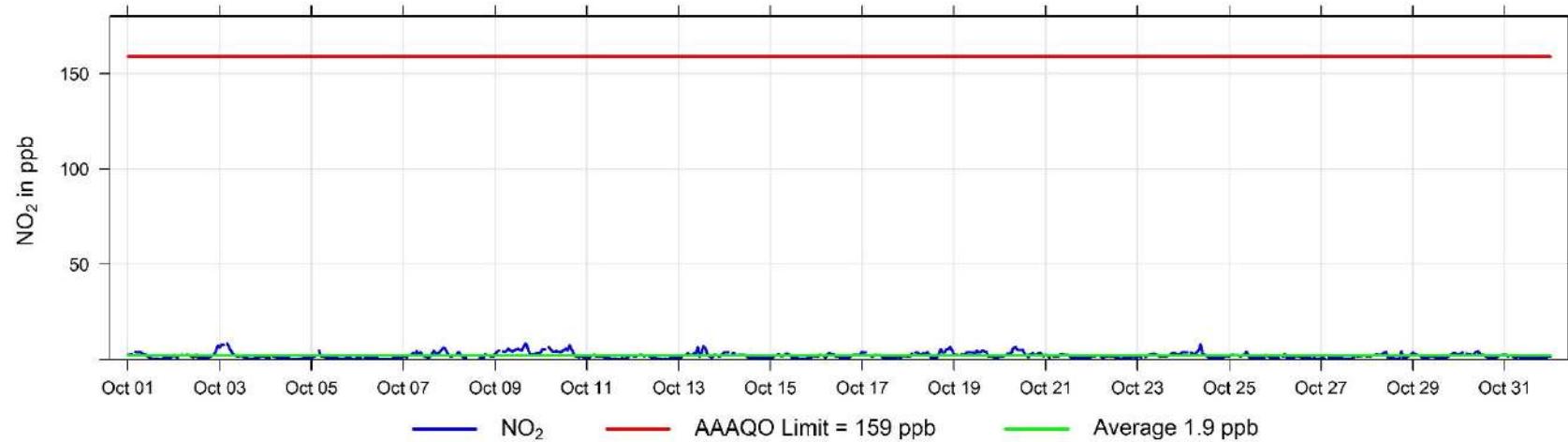
October Hourly Concentration Readings of NO (in ppb) at Wembley



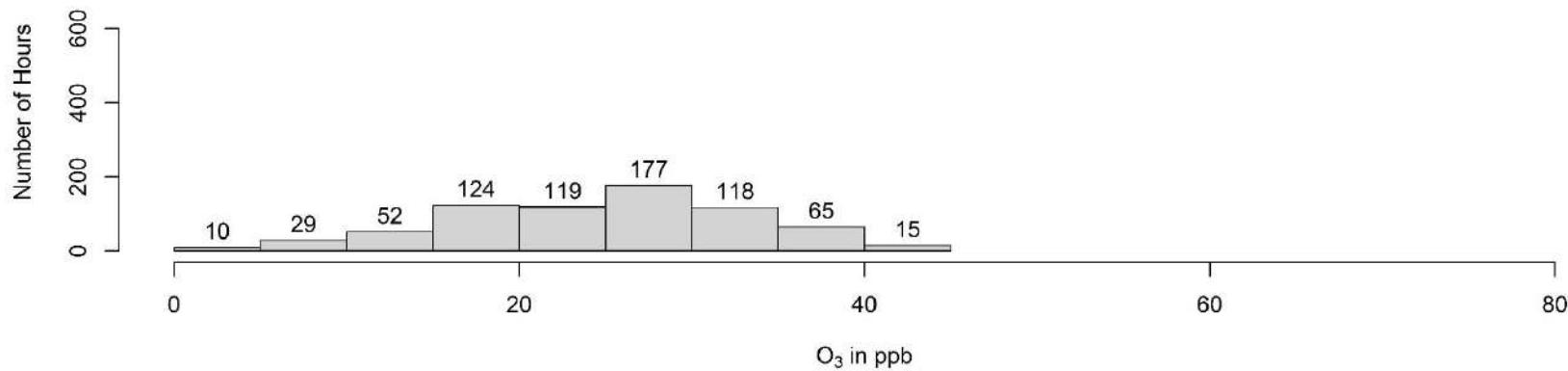
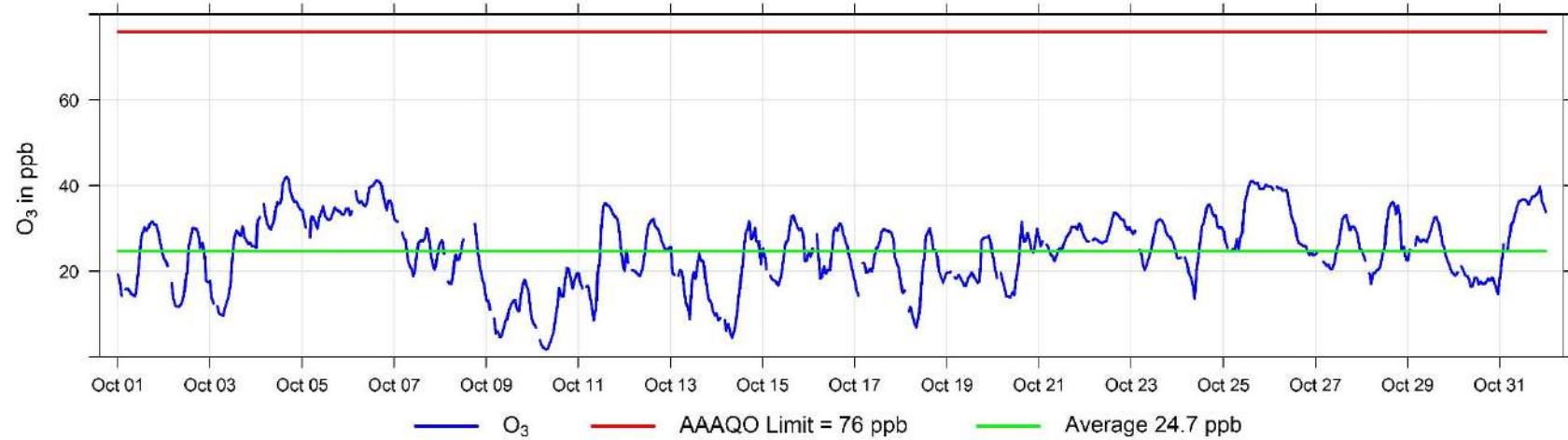
October Hourly Concentration Readings of NO_x (in ppb) at Wembley



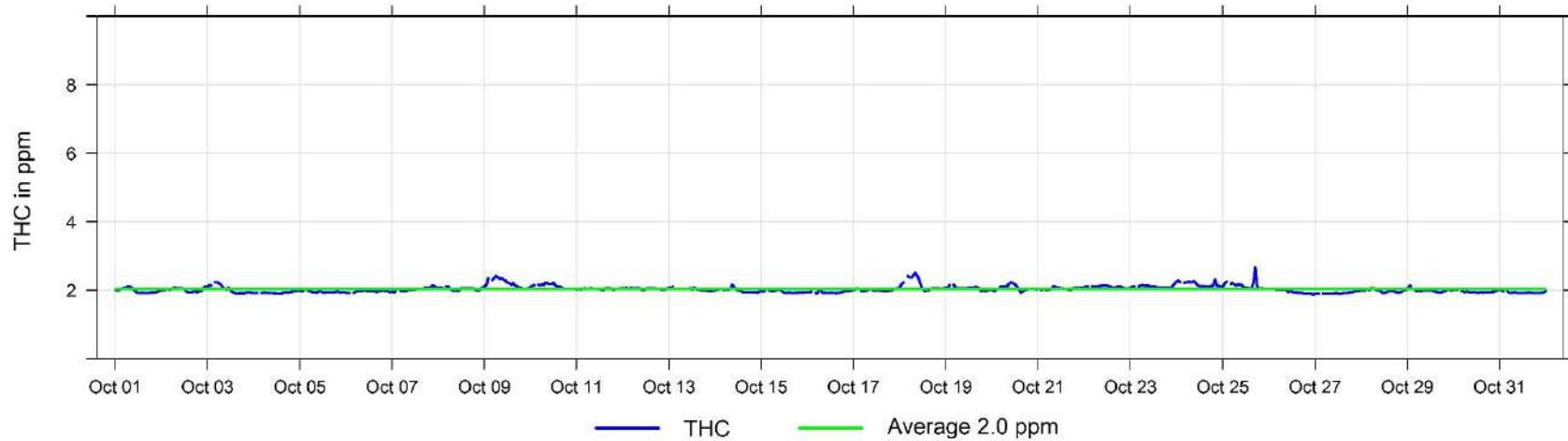
October Hourly Concentration Readings of NO₂ (in ppb) at Wembley



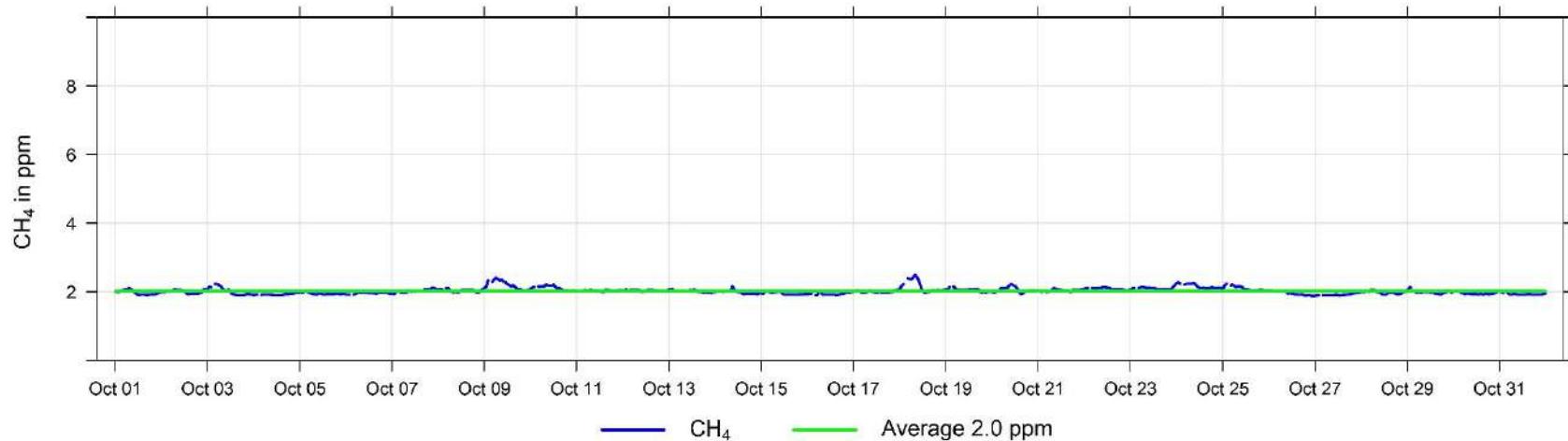
October Hourly Concentration Readings of O₃ (in ppb) at Wembley



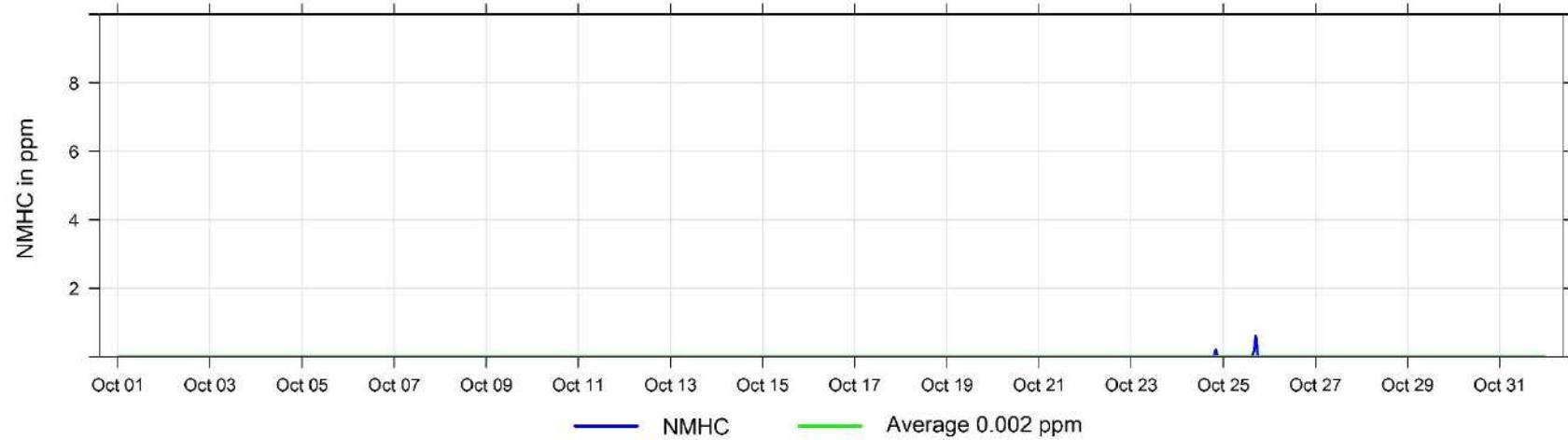
October Hourly Concentration Readings of THC (in ppm) at Wembley



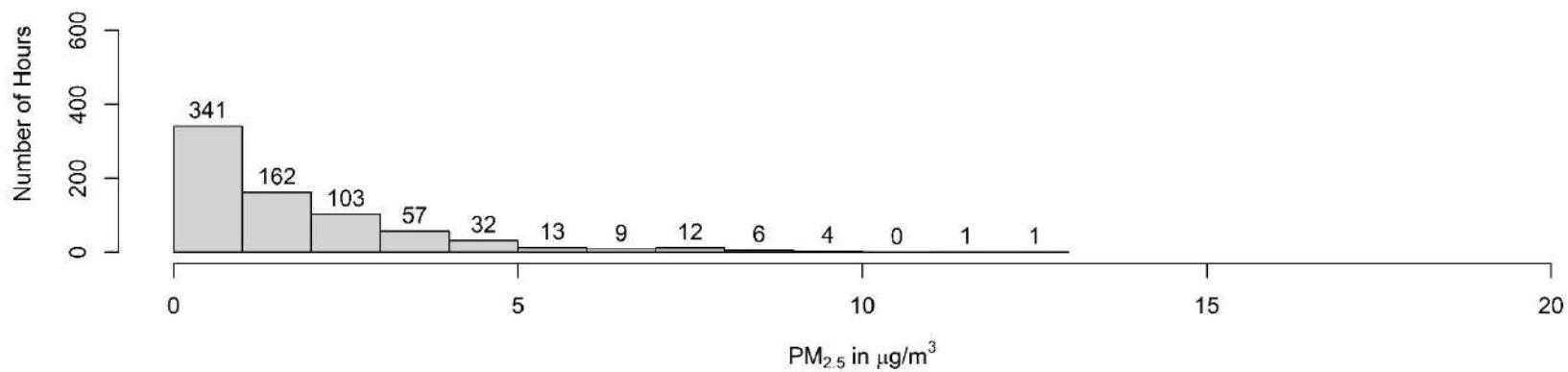
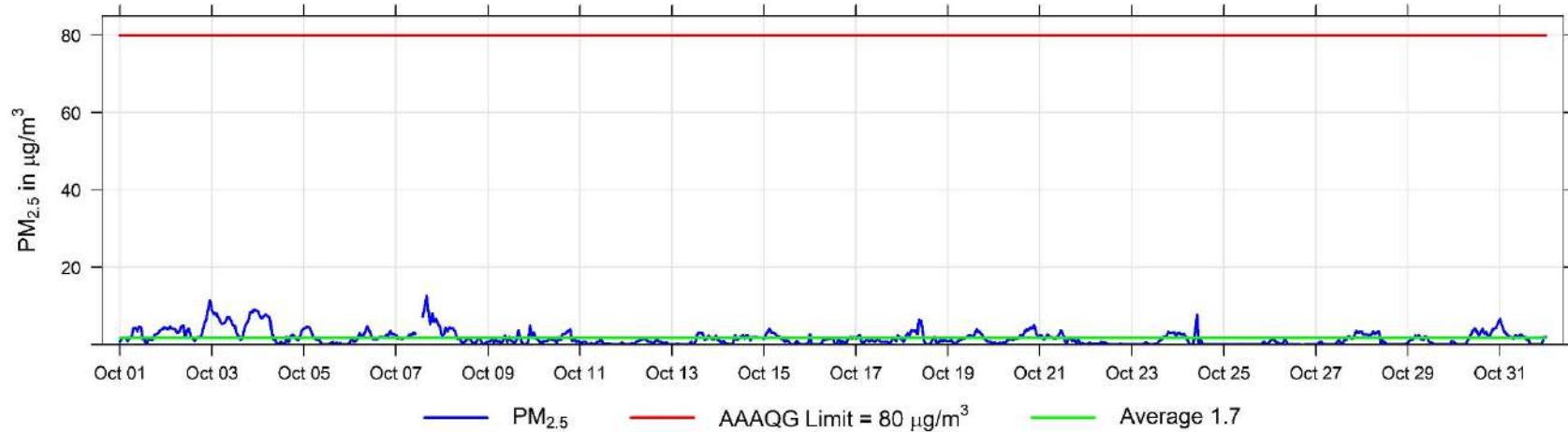
October Hourly Concentration Readings of CH₄ (in ppm) at Wembley

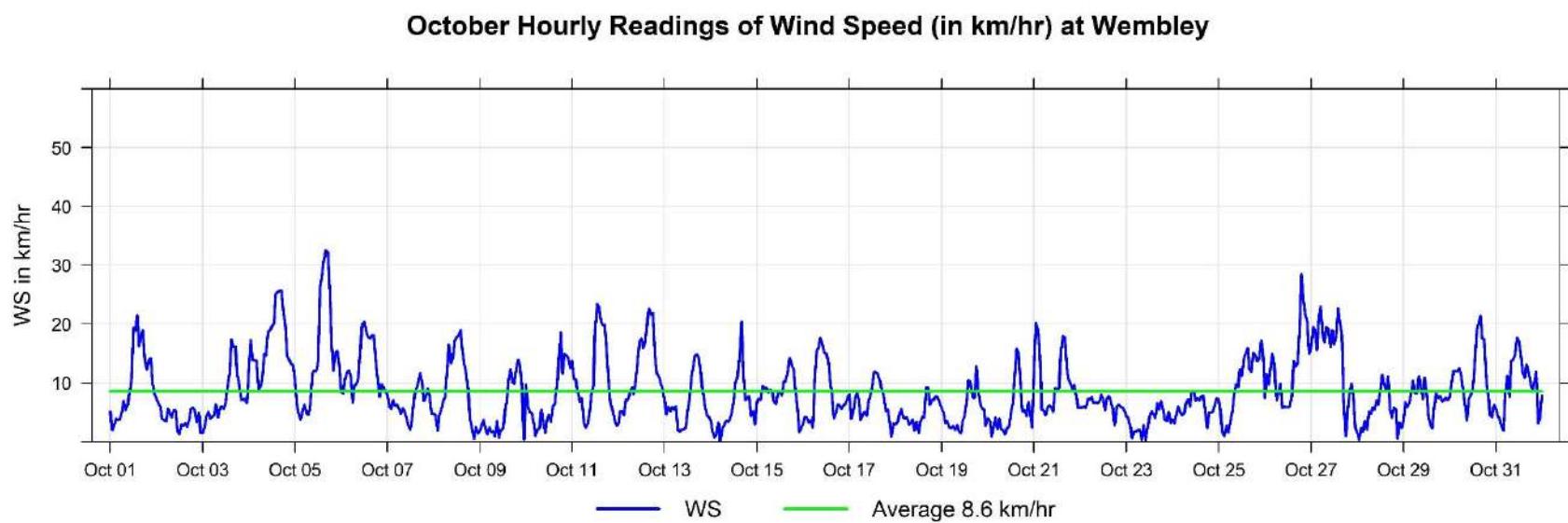
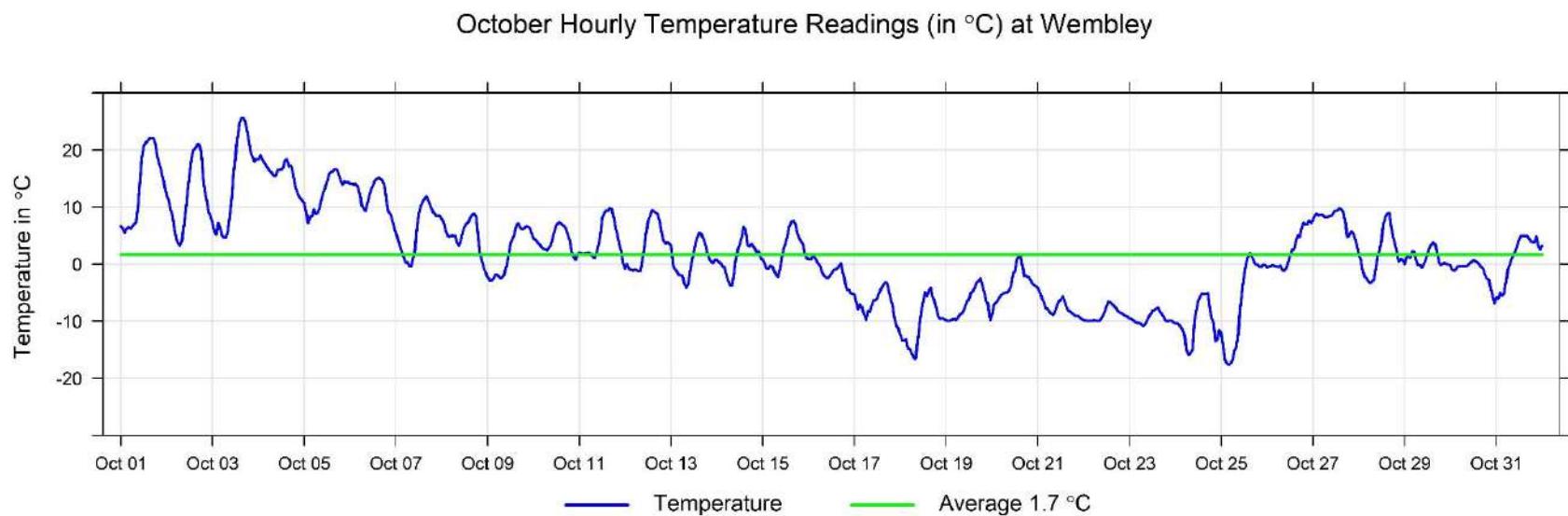


October Hourly Concentration Readings of NMHC (in ppm) at Wembley

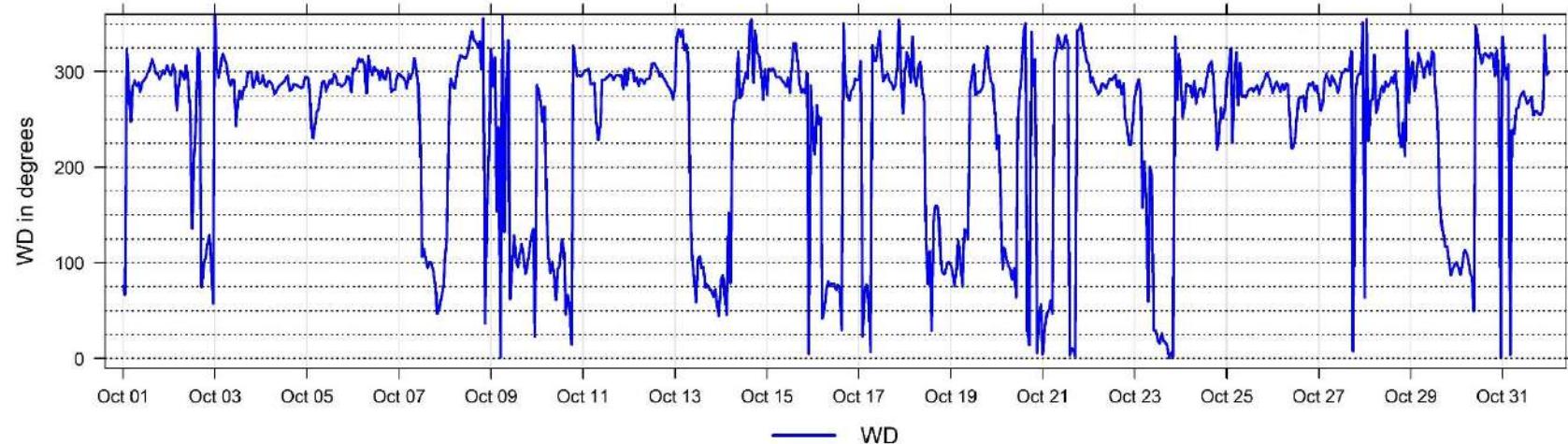


Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Wembley

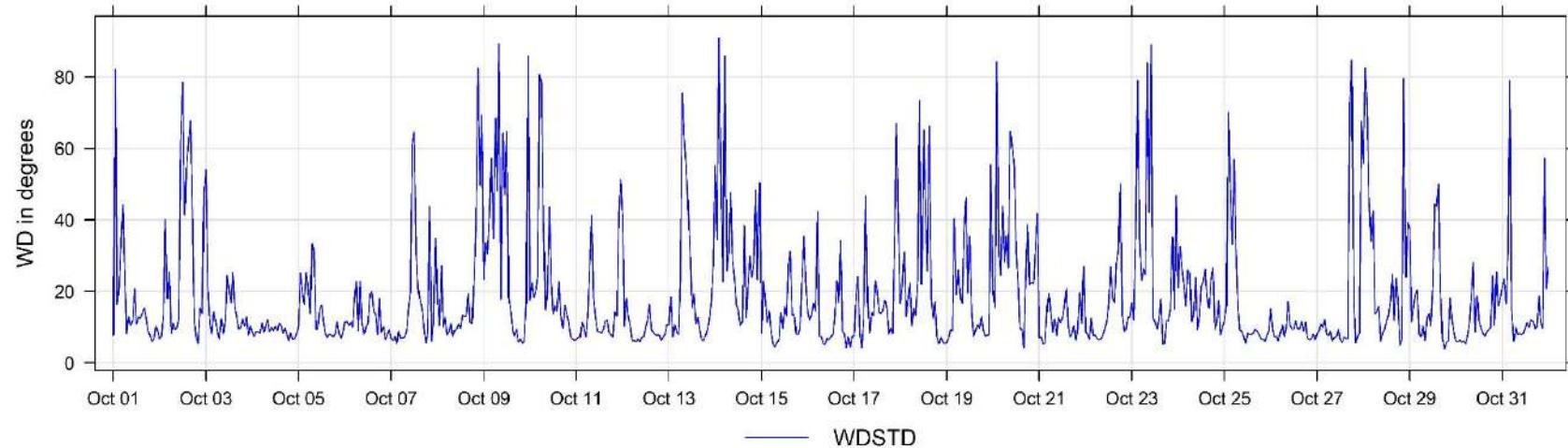


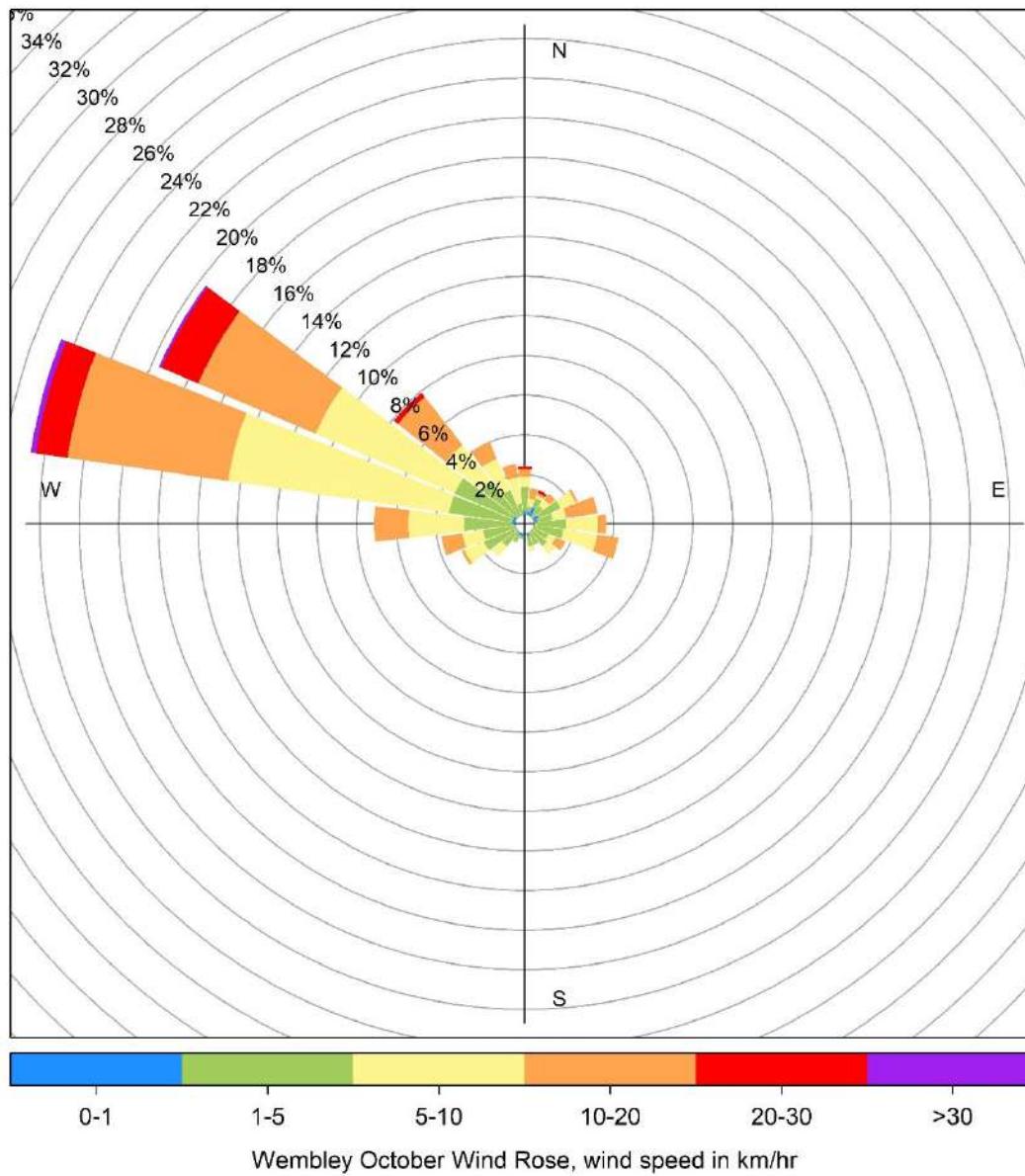


October Hourly Readings of Wind Direction (in degrees) at Wembley

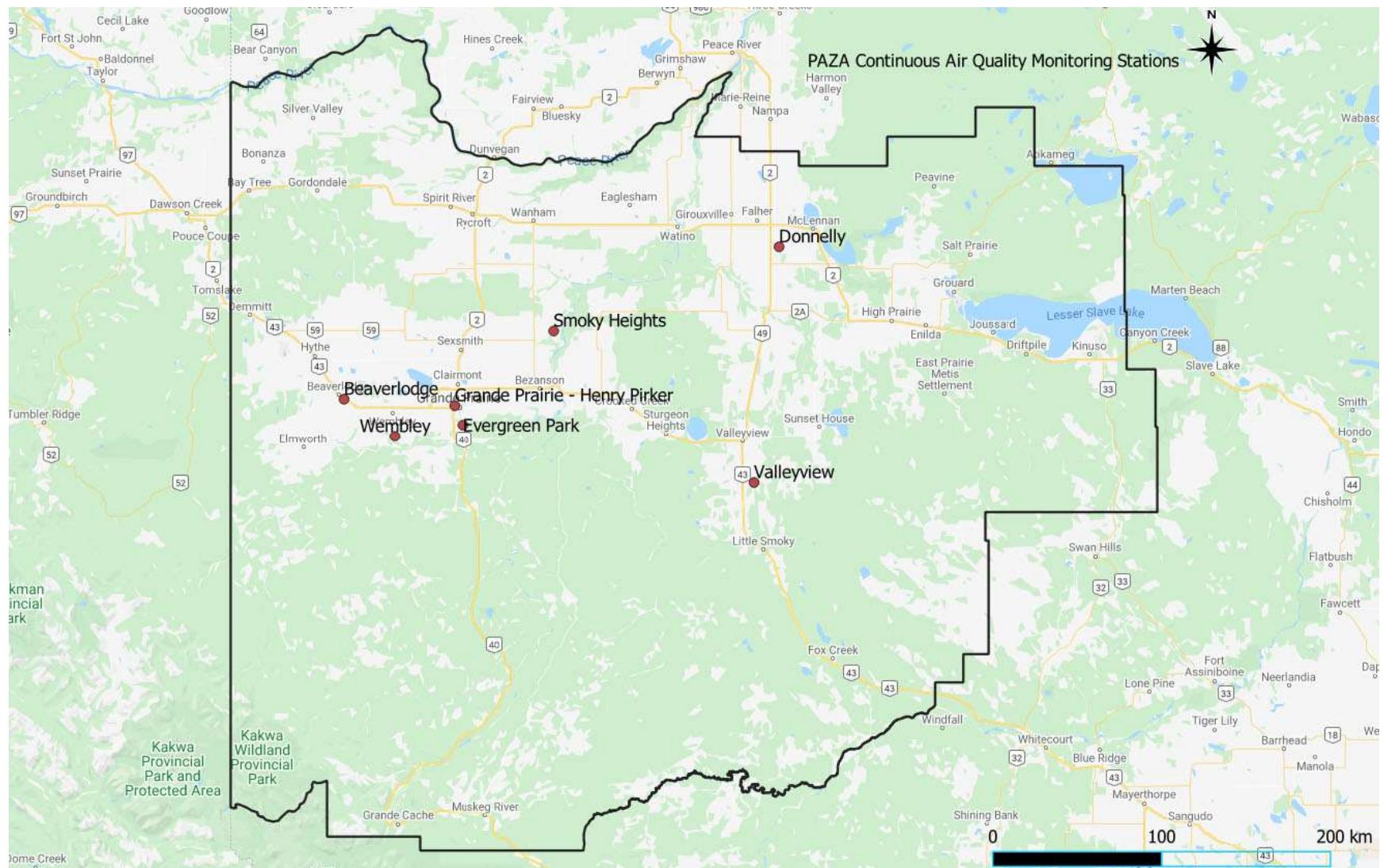


October Hourly Readings of Wind Direction Standard Deviation (in degrees) at Wembley



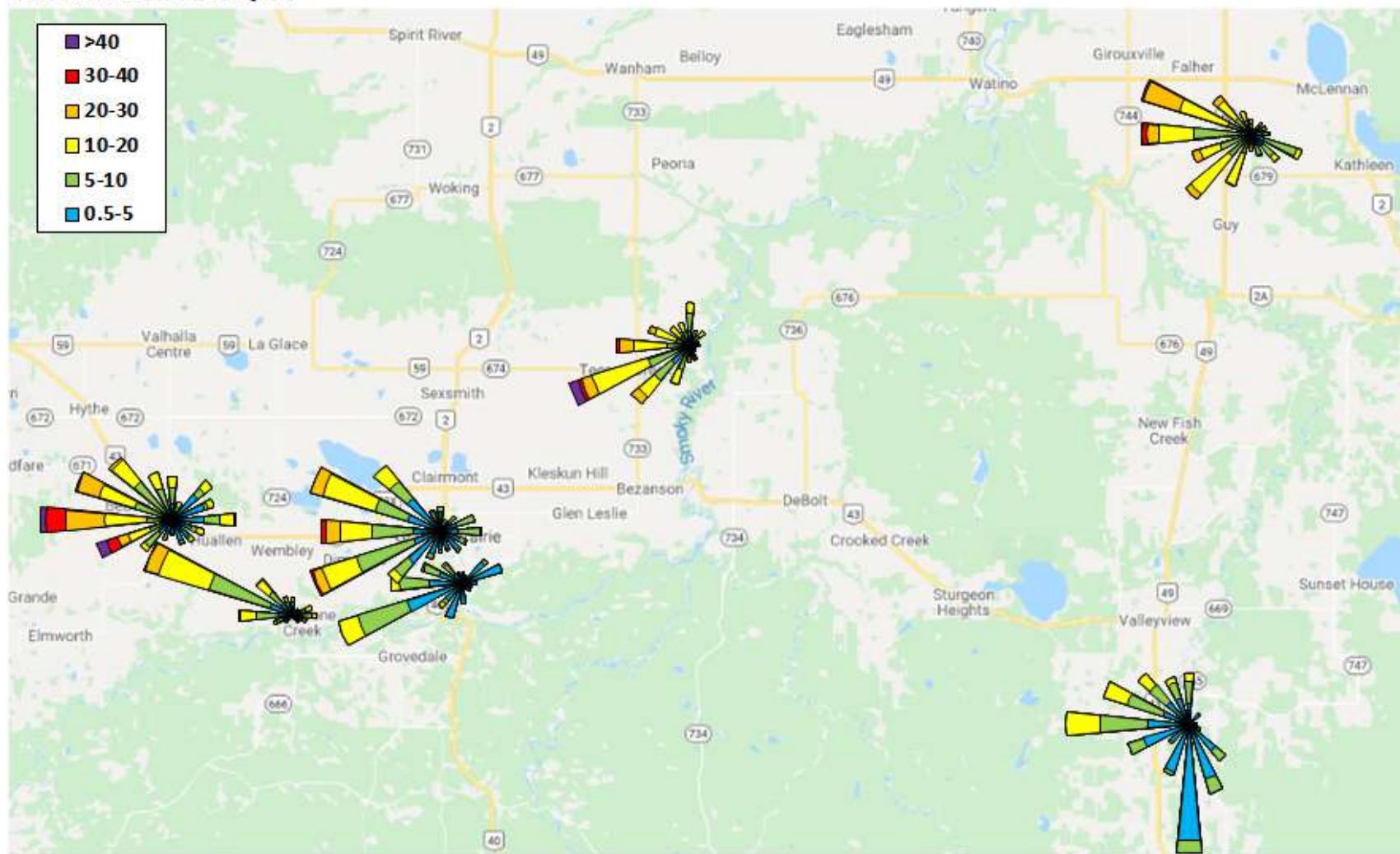


9 Concentration Roses for PAZA



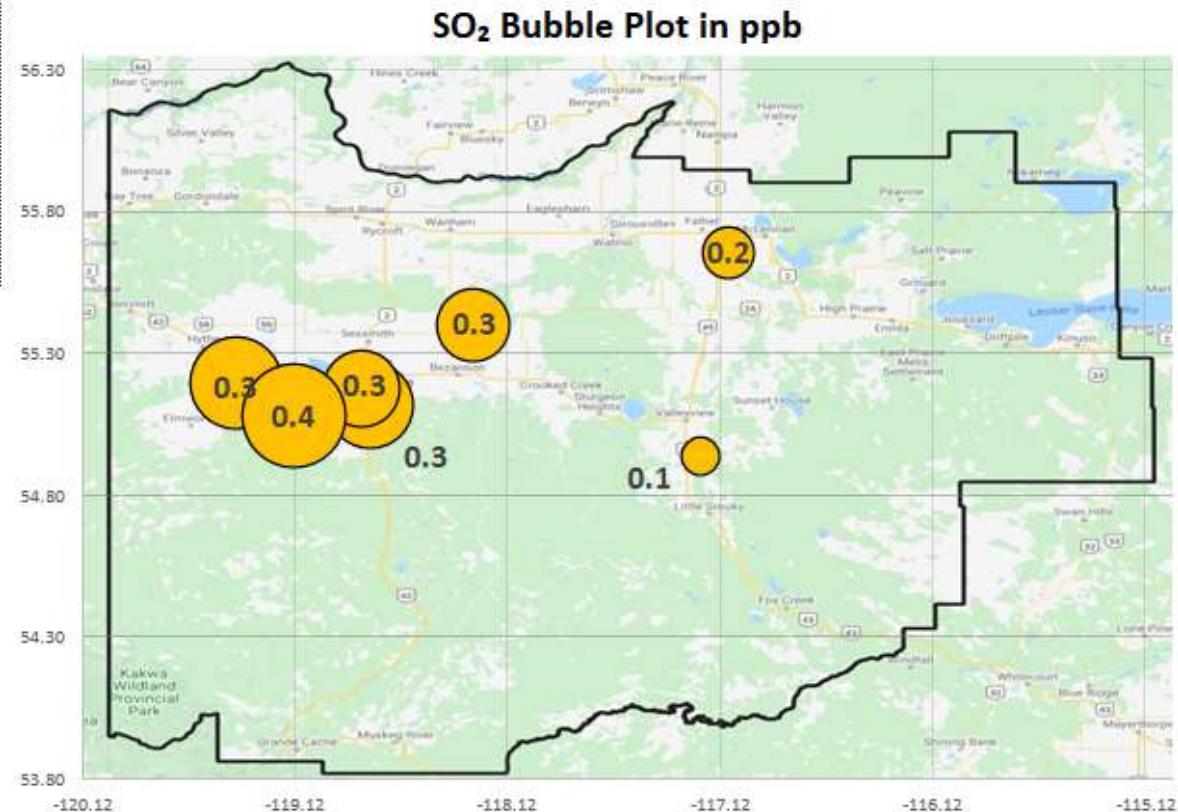
9.1 Wind Roses

Wind Roses in km/hr

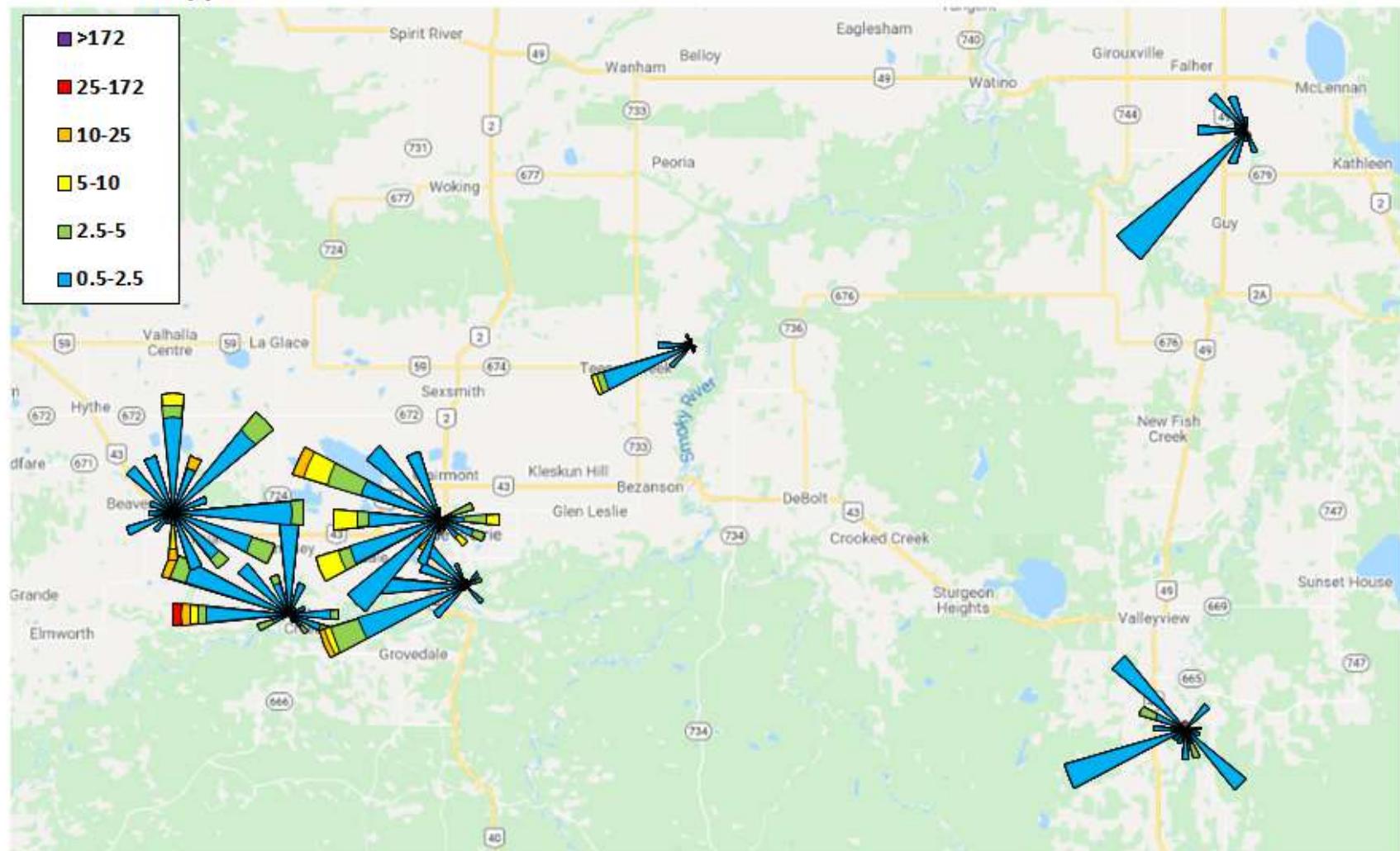


9.2 Sulphur Dioxide Plots

October 2020 SO ₂ Summary	
Station	Avg (ppb)
Evergreen Park	0.3
Henry Pirker	0.3
Smoky Heights	0.3
Beaverlodge	0.3
Valleyview	0.1
Donnelly	0.2
Wembley	0.4

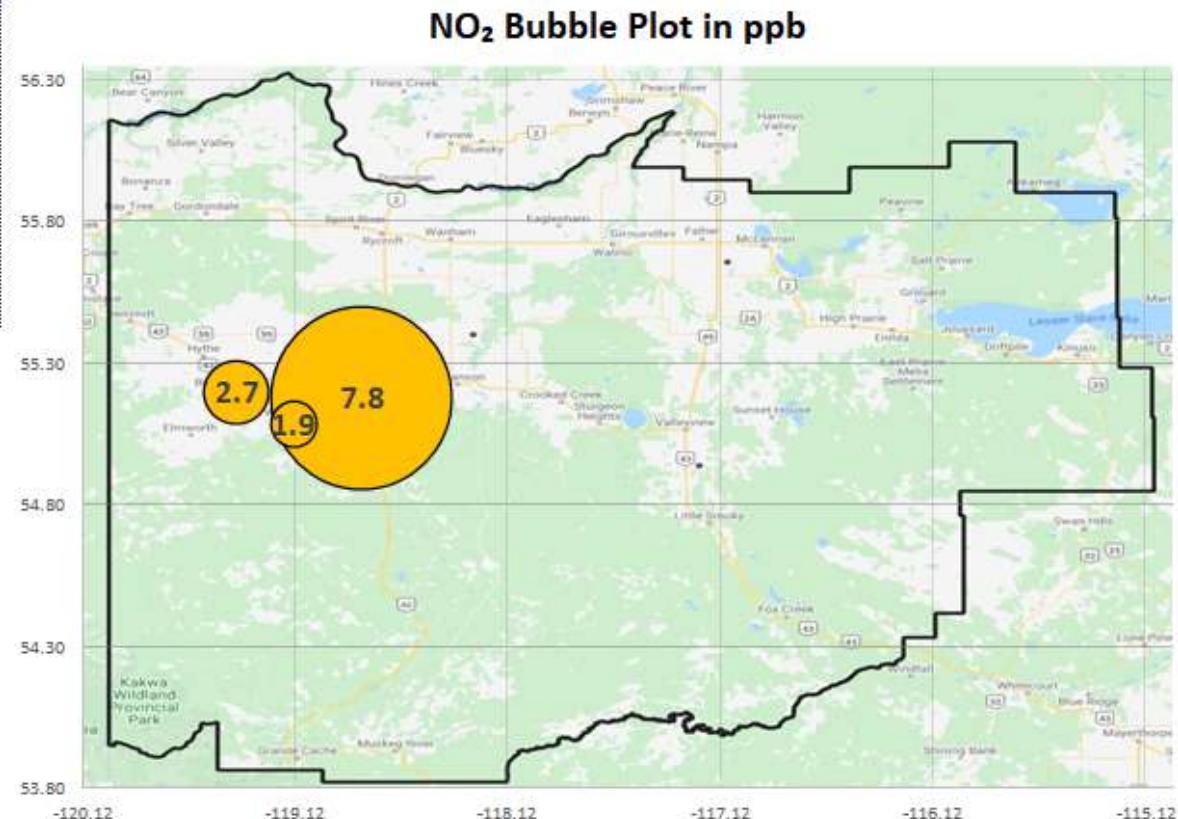


SO₂ Roses in ppb

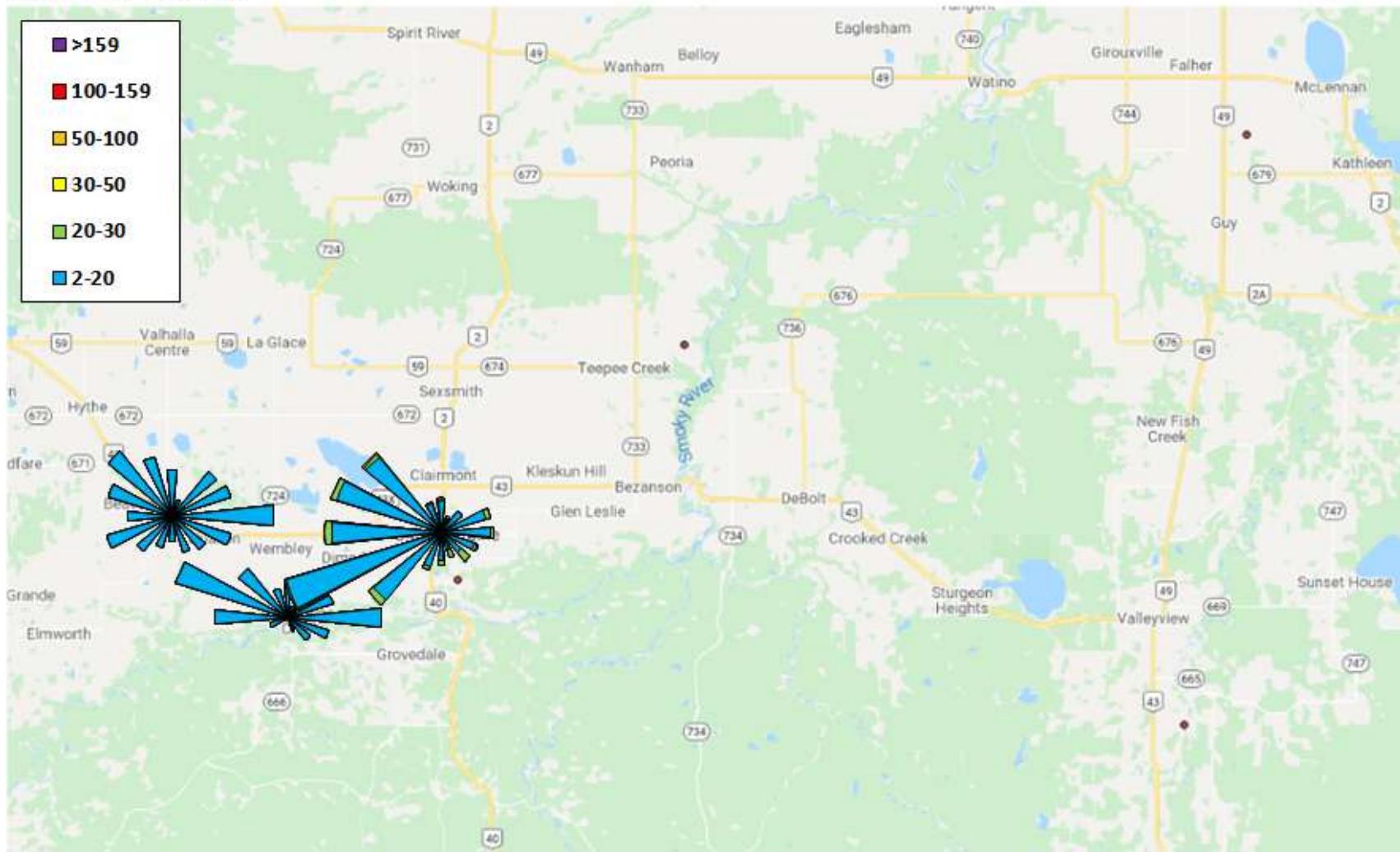


9.3 Nitrogen Dioxide Plots

October 2020 NO ₂ Summary	
Station	Avg (ppb)
Evergreen Park	-
Henry Pirker	7.8
Smoky Heights	-
Beaverlodge	2.7
Valleyview	-
Donnelly	-
Wembley	1.9

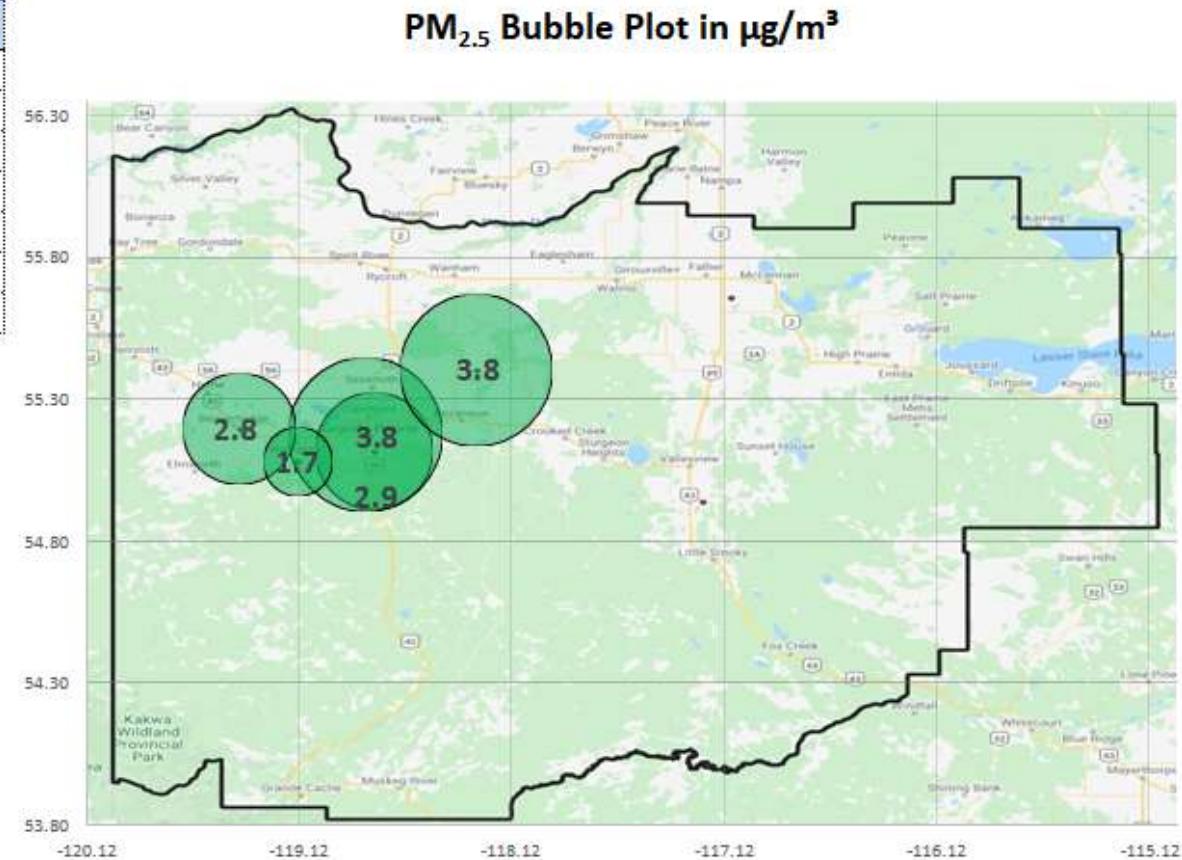


NO₂ Roses in ppb



9.4 Fine Particulate Matter (PM_{2.5}) Plots

October 2020 PM _{2.5} Summary	
Station	Avg ($\mu\text{g}/\text{m}^3$)
Evergreen Park	2.9
Henry Pirker	3.8
Smoky Heights	3.8
Beaverlodge	2.8
Valleyview	-
Donnelly	-
Wembley	1.7

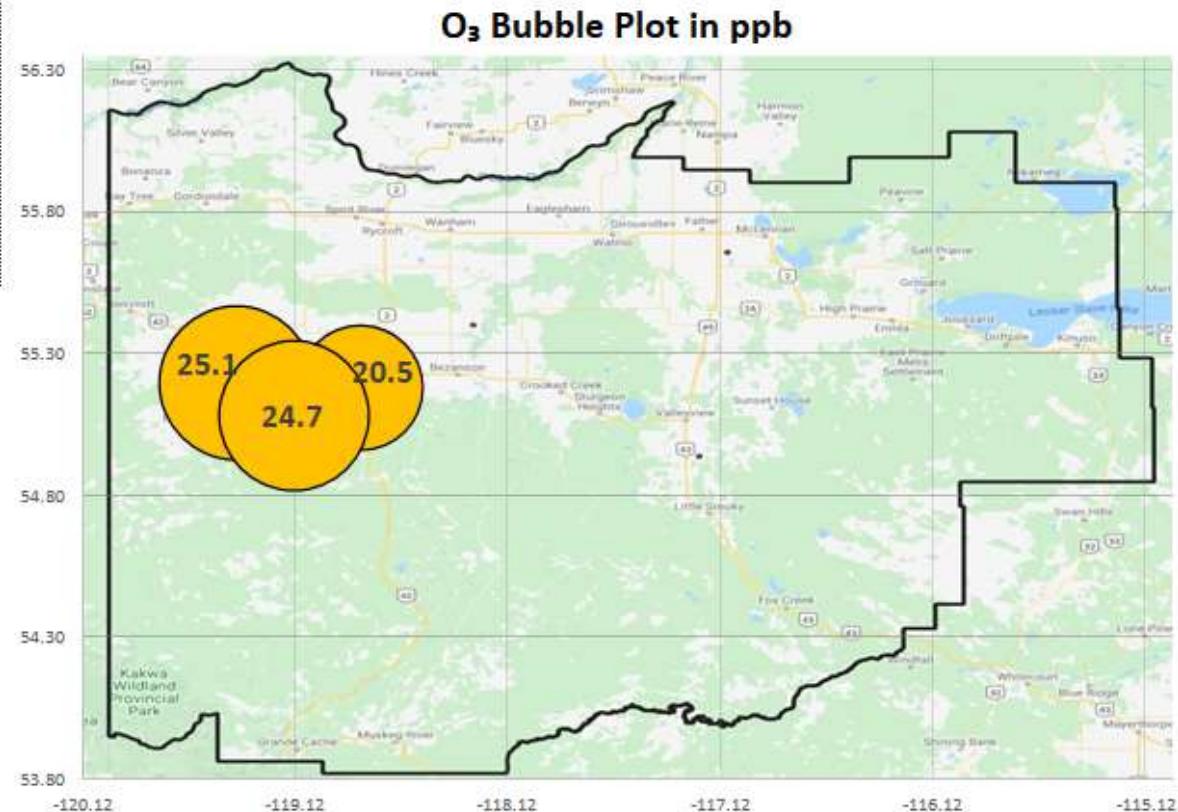


PM_{2.5} Roses in $\mu\text{g}/\text{m}^3$

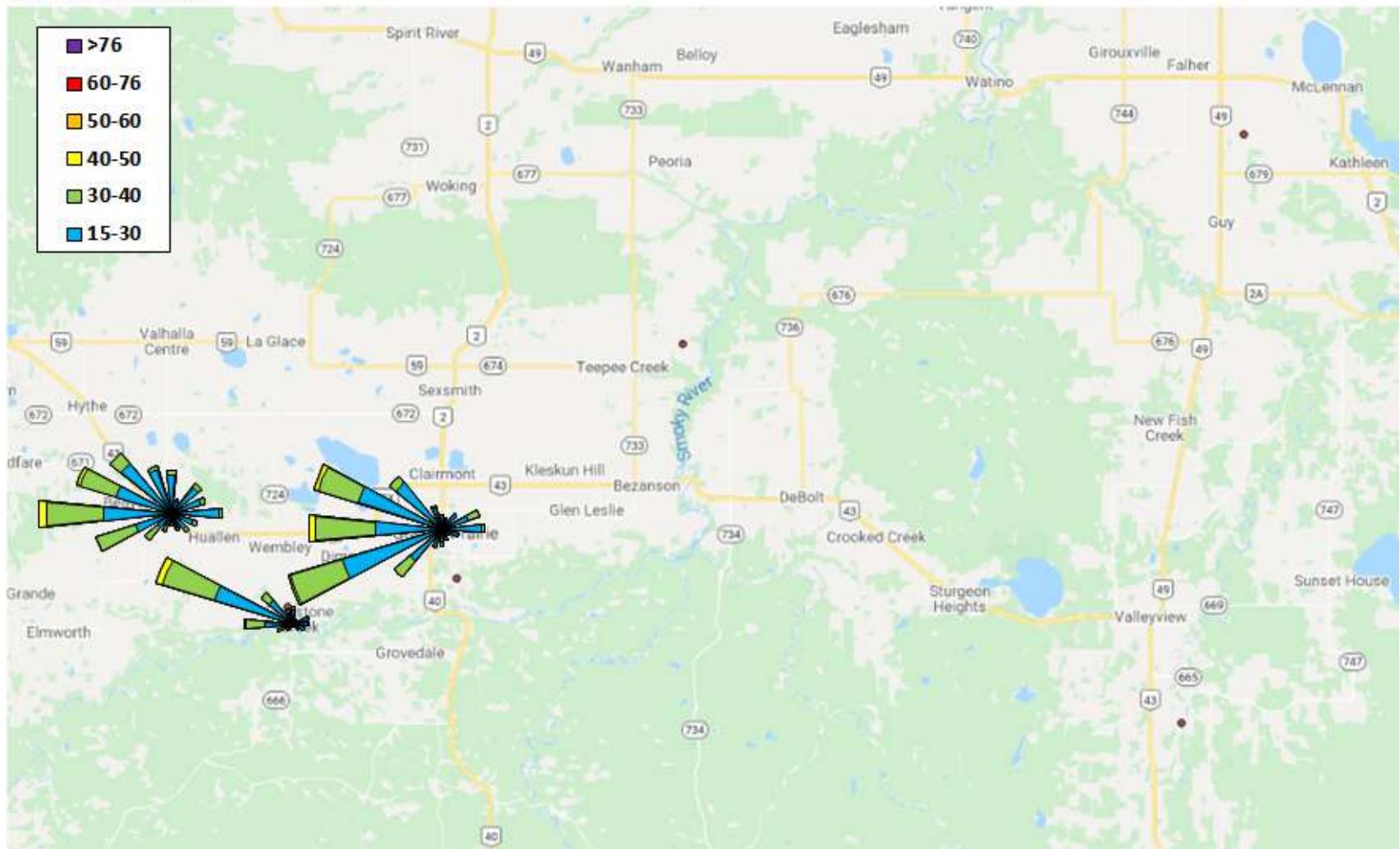


9.5 Ozone (O_3) Plots

October 2020 O_3 Summary	
Station	Avg (ppb)
Evergreen Park	-
Henry Pirker	20.5
Smoky Heights	-
Beaverlodge	25.1
Valleyview	-
Donnelly	-
Wembley	24.7



O₃ Roses in ppb



10 Passive Monitoring Data

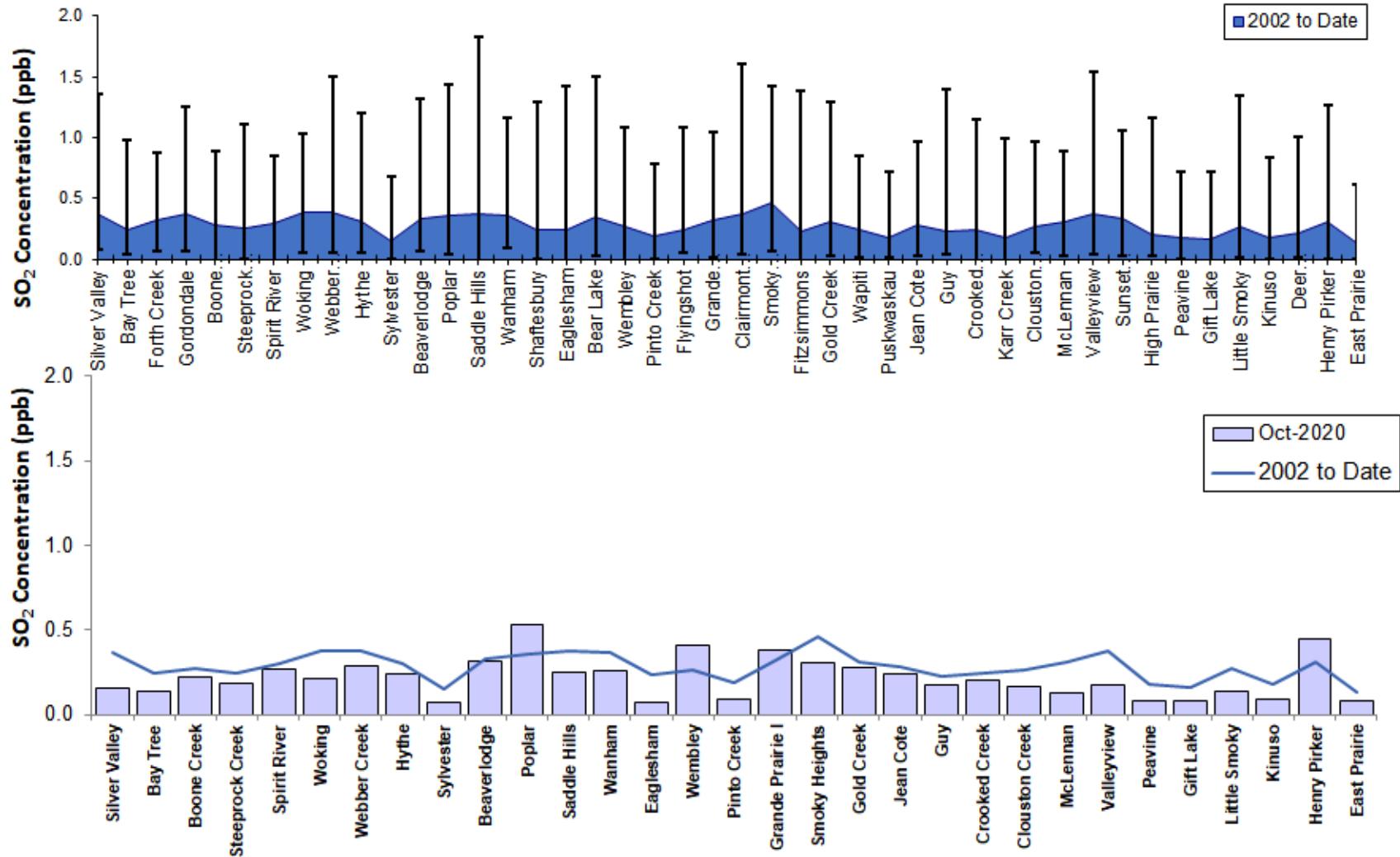
Peace Airshed Zone Association - PAZA Passive Stations for October 2020

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
2a	Bay Tree		31.3			
2b	Bay Tree		35.4			
19a	Wanham	0.2				
19b	Wanham	0.3				
21a	Eaglesham			0.5		
21b	Eaglesham			0.9		
24a	Wembley			2.0		
24b	Wembley			1.6		
27a	Grande Prairie I	0.4				
27b	Grande Prairie I	0.4				
36a	Guy	0.1				
36b	Guy	0.2				
39a	Clouston Creek			1.0		
39b	Clouston Creek			0.7		
40a	McLennan	0.1				
40b	McLennan	0.1				
63a	Girouxville 3				0.4	
63b	Girouxville 3				0.4	
1	Silver Valley	0.2	33.3	1.9	-	08-27-081-11 W6M
2	Bay Tree	0.1	31.3	0.6	-	13-16-078-13 W6M
5	Boone Creek	0.2	-	0.7	-	01-23-076-11 W6M
7	Steeprock Creek	0.2	-	0.4	-	09-35-072-13 W6M
9	Spirit River	0.3	-	1.1	-	08-12-079-07 W6M
10	Woking	0.2	-	0.9	-	01-13-076-07 W6M
11	Webber Creek	0.3	-	2.8	-	09-36-074-09 W6M
12	Hythe	0.2	-	0.9	-	14-36-072-11 W6M
14	Sylvester	0.1	-	0.6	-	08-06-069-12 W6M
16	Beaverlodge	0.3	-	1.5	-	15-36-071-10 W6M
17	Poplar	0.5	-	1.5	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	0.9	-	04-25-074-07 W6M
19	Wanham	0.3	-	0.6	-	16-22-077-03 W6M
21	Eaglesham	0.1	-	0.7	-	16-21-079-25 W5M
24	Wembley	0.4	-	1.8	-	12-31-070-08 W6M
25	Pinto Creek	0.1	-	0.6	-	04-24-069-11 W6M
27	Grande Prairie I	0.4	-	8.8	-	08-15-071-06 W6M
29	Smoky Heights	0.3	-	1.1	-	04-06-075-02 W6M
32	Gold Creek	0.3	-	2.8	-	06-33-067-05 W6M
35	Jean Cote	0.2	-	0.6	-	12-35-079-21 W5M
36	Guy	0.2	-	0.6	0.1	03-04-076-22 W5M
37	Crooked Creek	0.2	36.3	1.0	-	16-01-071-26 W5M
39	Clouston Creek	0.2	-	0.9	-	12-01-073-22 W5M
40	McLennan	0.1	-	0.9	-	03-29-077-19 W5M
41	Valleyview	0.2	-	0.9	-	09-30-069-22 W5M
44	Peavine	0.1	-	0.4	-	03-05-079-15 W5M
45	Gift Lake	0.1	-	0.6	-	10-07-079-12 W5M
46	Little Smoky	0.1	-	1.7	-	12-01-065-21 W5M
47	Kinuso	0.1	35.1	0.6	-	12-10-073-10 W5M
49	Henry Pirker	0.4	-	5.2	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.3	-	11-13-079-08 W6M
63	Girouxville 3	-	-	-	0.4	14-02-077-23 W5M
64	Girouxville 4	-	-	-	0.5	04-08-077-22 W5M

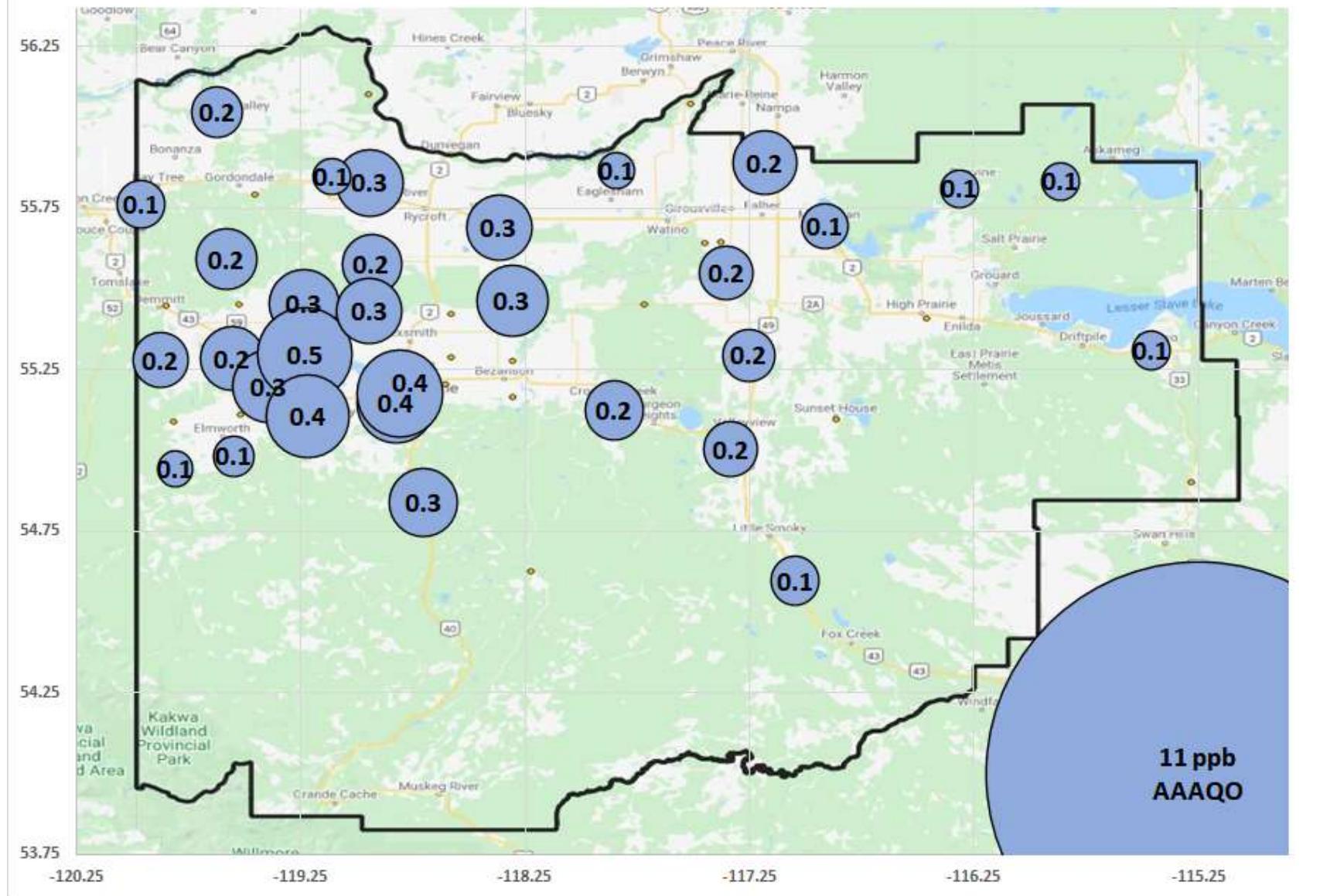
Passive Summary for October 2020

Stats	Sulphur Dioxide SO ₂	Ozone O ₃	Nitrogen Dioxide NO ₂	Hydrogen Sulphide H ₂ S
	ppb	ppb	ppb	ppb
Passive Summary for September 2020 (PAZA)				
Mean	0.2	34.0	1.4	0.3
Standard Deviation	0.1	2.2	1.7	0.2
Minimum	0.1	31.3	0.3	0.1
Sylvester (#14)	Bay Tree (#2)	East Prairie (#50)	Guy (#36)	
Maximum	0.5	36.3	8.8	0.5
Poplar (#17)	Crooked Creek (#37)	Grande Prairie I (#27)	Girouxville 4 (#64)	
Continuous and Passive Monitoring Comparision				
PAZA Beaverlodge Station	0.3	22.0	2.3	-
Beaverlodge Passive (#16)	0.3	-	1.5	-
PAZA Henry Pirker Station	0.3	20.5	7.8	0.1
Henry Pirker passive (#49)	0.4	-	5.2	-

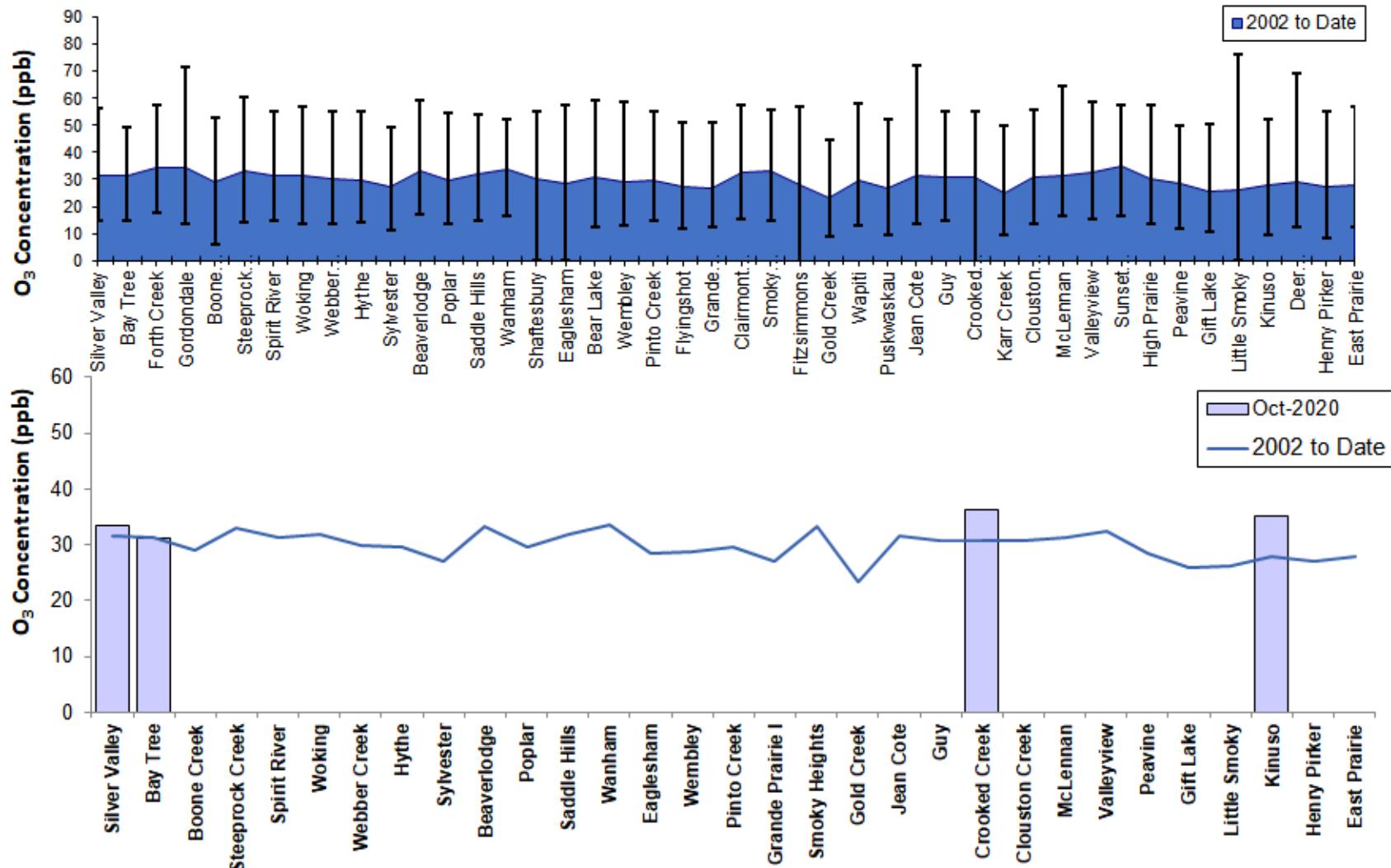
Alberta Ambient Air Quality Objective - 30-day SO₂ Objective is 11 ppb



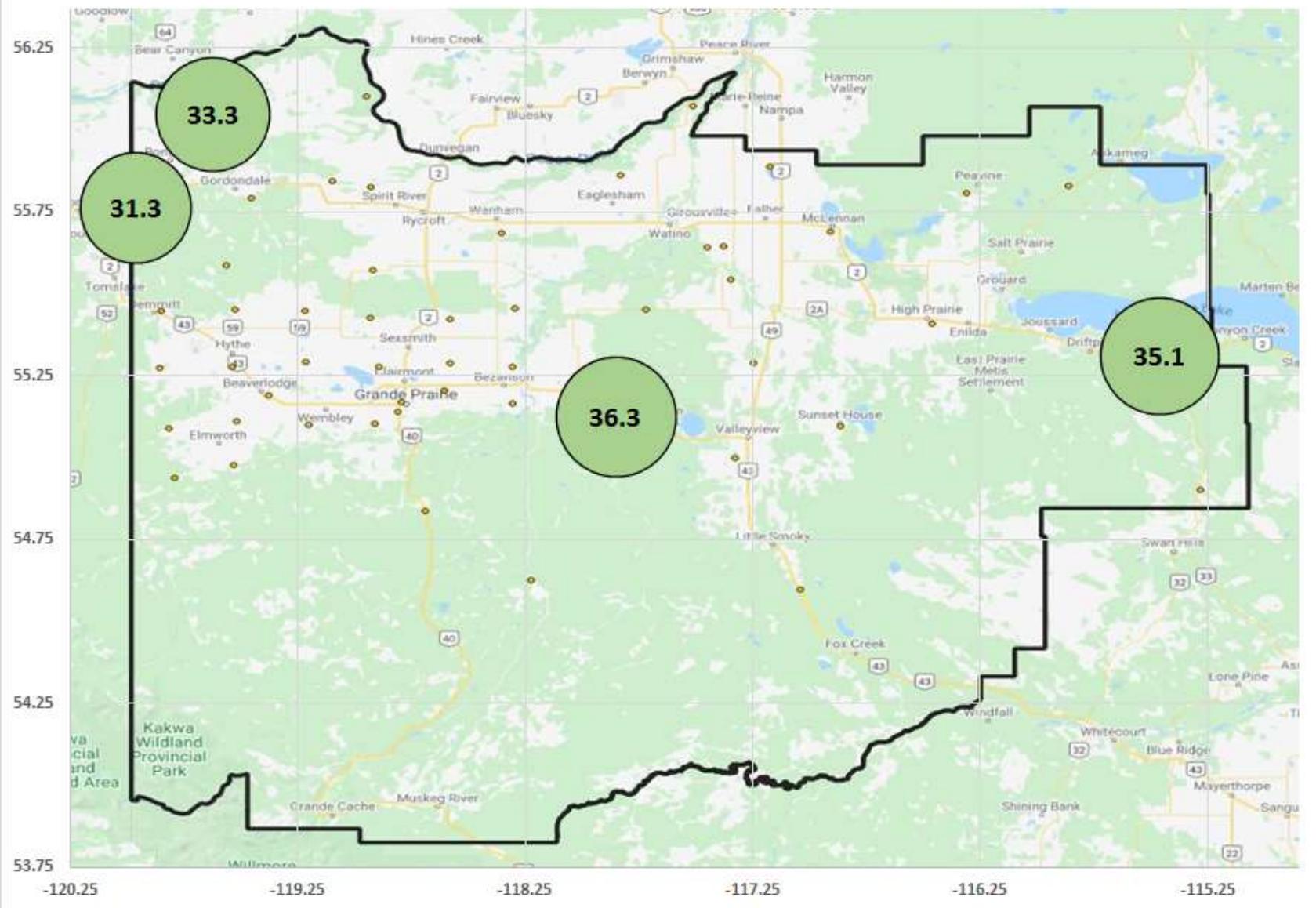
SO₂ Monthly Average (units in ppb)



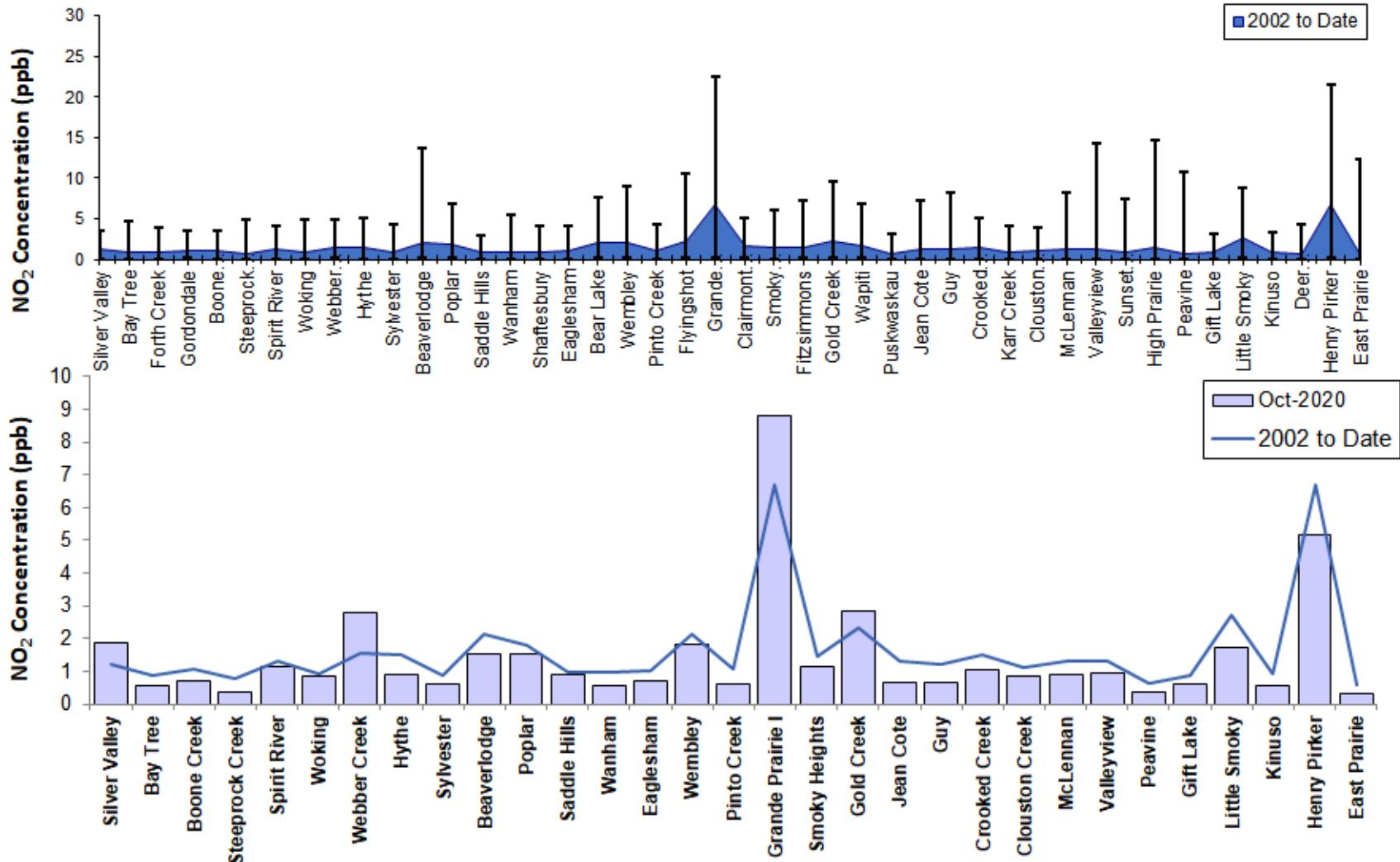
No Monthly or Annual Alberta Ambient Air Quality Objective for O₃



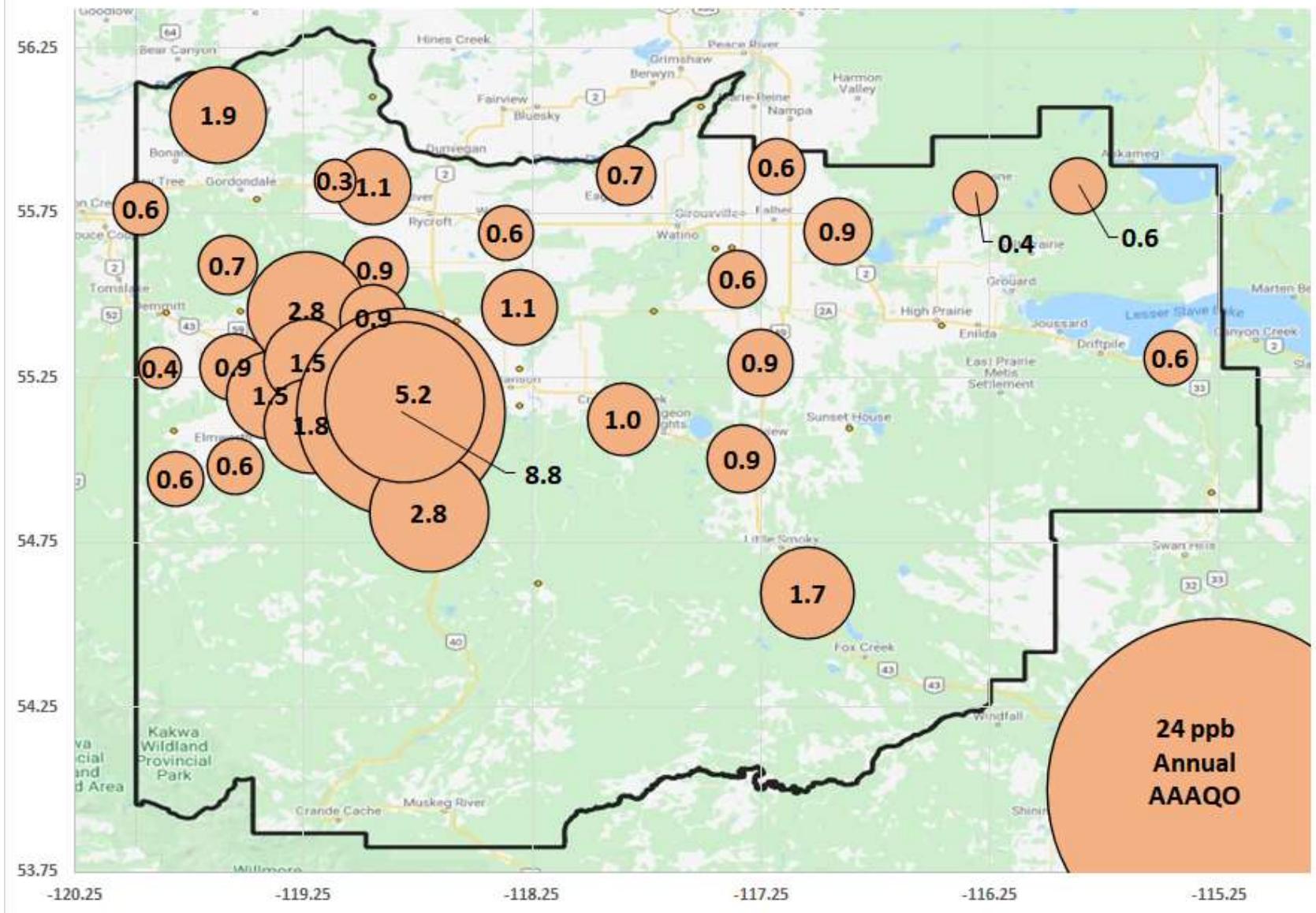
O₃ Monthly Average (units in ppb)



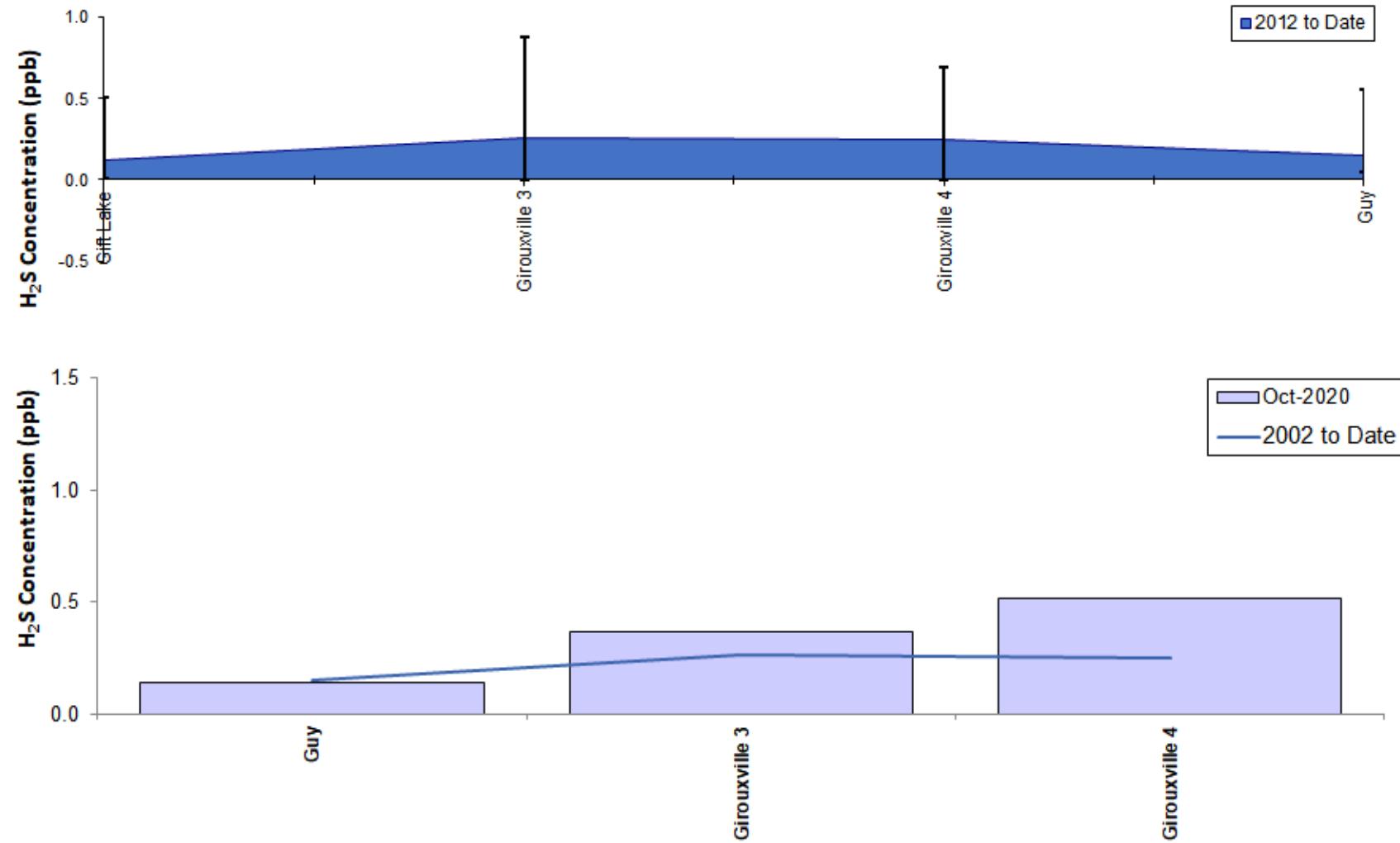
Alberta Ambient Air Quality Objective - Annual NO₂ Objective is 24 ppb



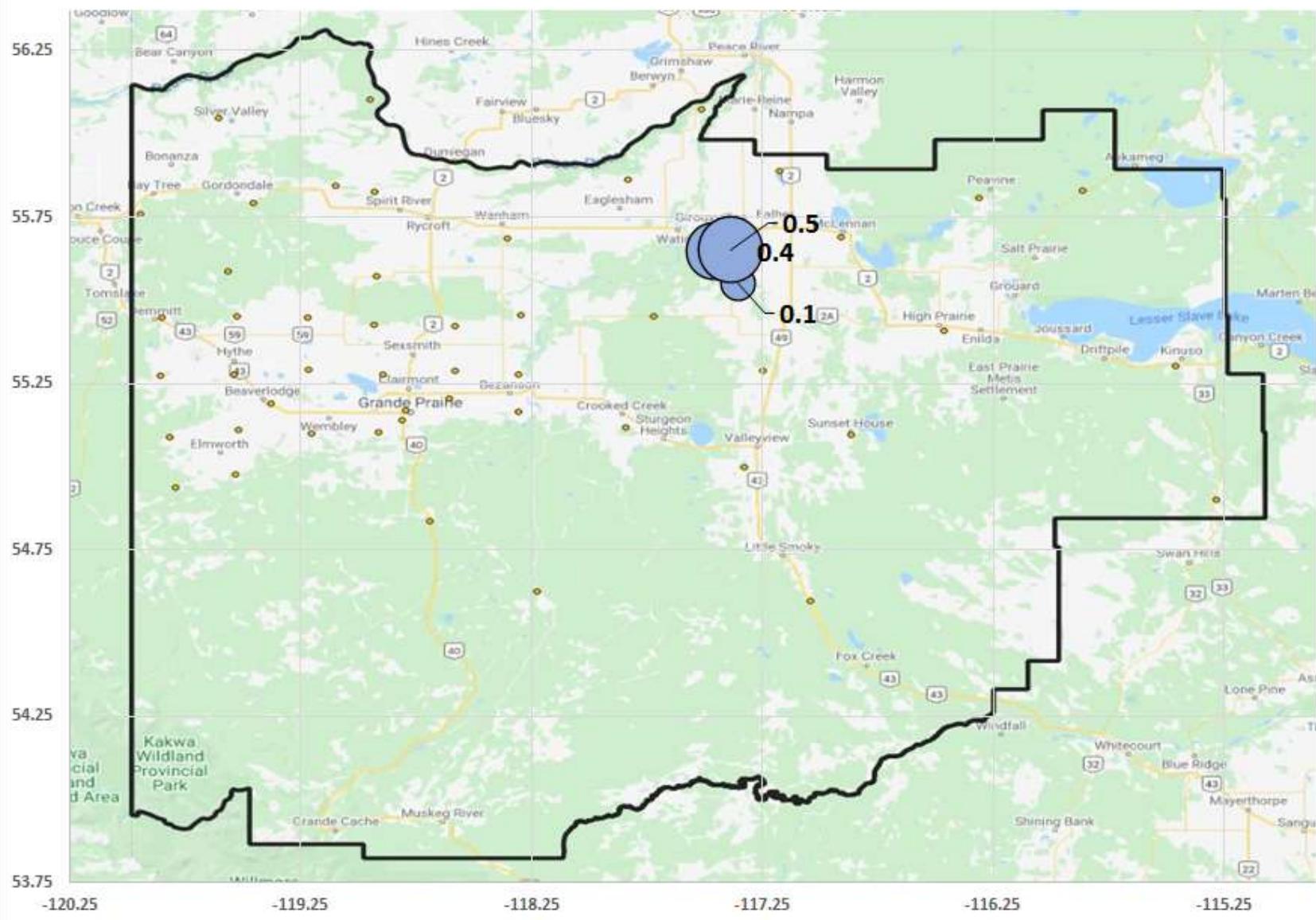
NO₂ Monthly Average (units in ppb)



No Monthly or Annual Alberta Ambient Air Quality Objective for H₂S



H₂S Monthly Average (units in ppb)



End of Report



Peace Airshed Zone Association
Ambient Air Monitoring Report

October 2020