



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

September 2020

October 31, 2020

Alberta Environment and Parks

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

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

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of September 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 September 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 was one hour at Henry Pirker (Grande Prairie) where $\text{PM}_{2.5}$ was $>29 \mu\text{g}/\text{m}^3$, September 19, 2020, $\text{PM}_{2.5} = 30.7 \mu\text{g}/\text{m}^3$, $\text{WS} = 3.6 \text{ km/hr}$; 264 degrees. This was reported to AEP under reference number 371836.

Operational times less than 90 percent:

All operational times in September 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 eight duplicate sites sampled in the month of September with RPD all less than 30%
 - For sulphur dioxide duplicates at Silver Valley, Sylvester, and Jean Cote stations
 - For ozone duplicate at Kinuso station
 - For nitrogen dioxide duplicates at Steeprock Creek, Eaglesham, and McLennan stations
 - For hydrogen sulphide duplicate at Girouxville 4 station
- There were no recorded field issues with 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.

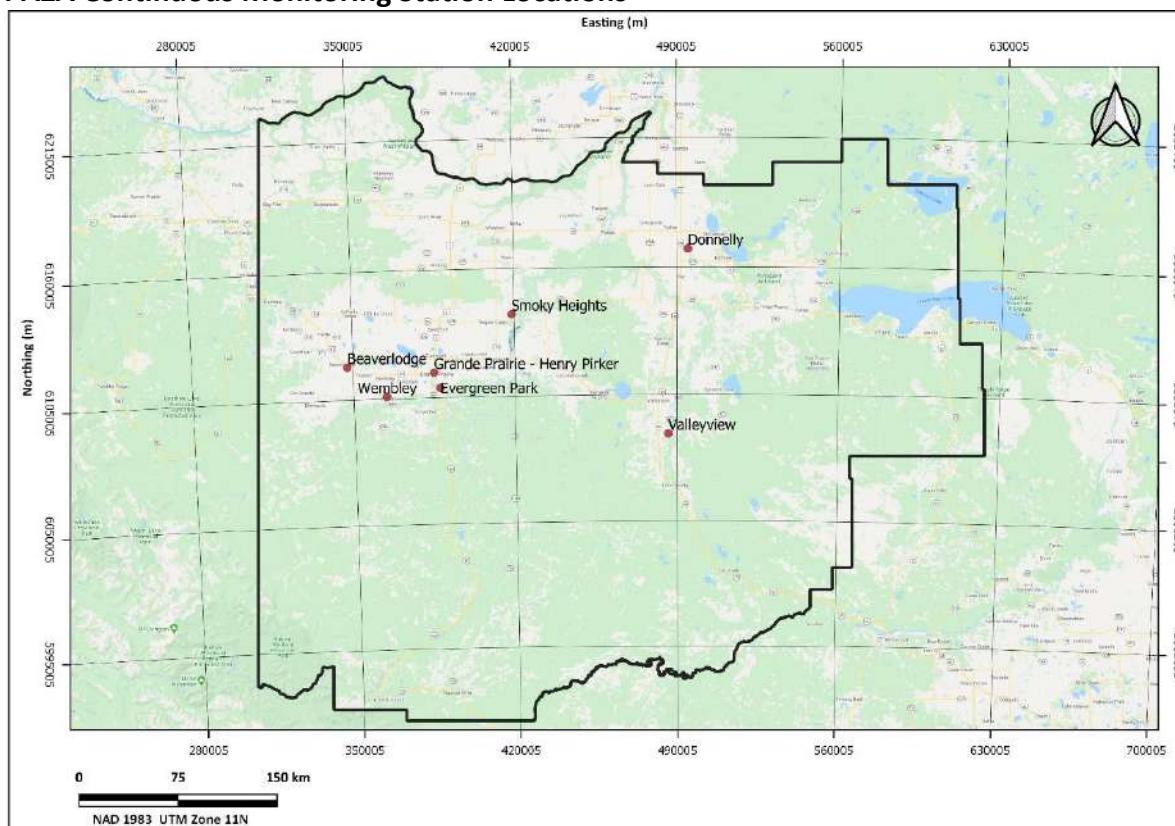


Mandeep Dhaliwal, B.Sc., P.Chem.
Program Manager

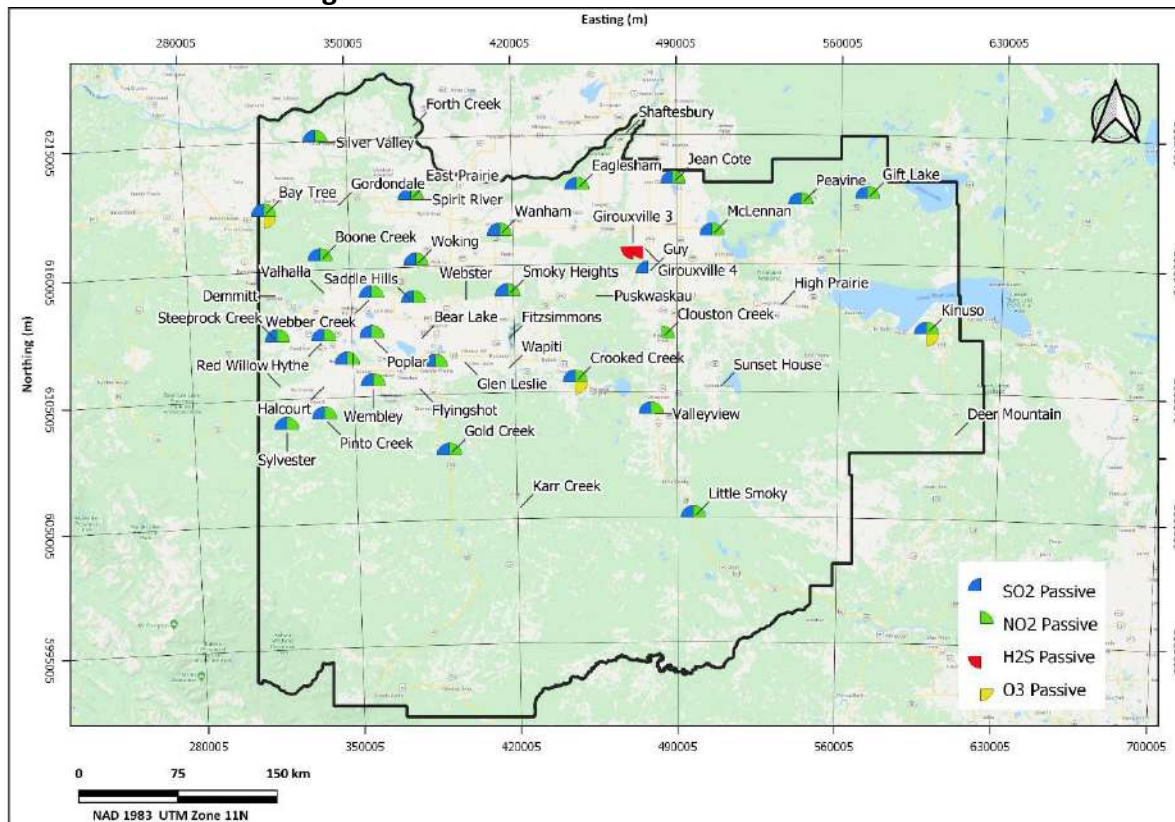
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PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 September Monthly Station Summaries

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

1.1 Beaverlodge Air Monitoring Station

PAZA - September 2020 Beaverlodge Station Report

Parameter	September			Operational	Max	1-hour		24-hour		Max Day	Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective		1hr	8hr	24hr	30d	
NO (ppb)	0.5	0.0	95.1%	100.0%	16.8	-	Sep-30 10:00	2.2	-	Sep-16	-	-	-	-	Sep 02, 2020
NO ₂ (ppb)	2.3	0.2	95.1%	100.0%	15.4	159	Sep-30 08:00	4.9	-	Sep-30	0	-	-	-	Sep 02, 2020
NO _x (ppb)	2.8	0.2	95.1%	100.0%	29.2	-	Sep-30 10:00	6.8	-	Sep-30	-	-	-	-	Sep 02, 2020
O ₃ (ppb)	22.0	0.6	95.3%	100.0%	42.9	76	Sep-28 14:00	32.9	-	Sep-28	0	-	-	-	Sep 02, 2020
PM _{2.5} (µg/m ³)	4.5	0.3	99.2%	99.6%	53.7	80	Sep-19 11:00	23.5	29	Sep-19	0	-	0	-	Sep 15, 2020
SO ₂ (ppb)	0.3	0.0	95.4%	100.0%	14.5	172	Sep-23 19:00	1.9	48	Sep-23	0	-	0	0	Sep 02, 2020
Average	11.5	-1.1	100.0%	100.0%	26.6	Note: Valid hours must be greater than 75% Operational hours must be greater than 90% Average Wind Direction 279 W									
Temp (°C)	11.5	-1.1	100.0%	100.0%	26.6										
RH (%)	66.8	22.6	100.0%	100.0%	100.0										
WS (km/hr)	11.4	0.3	100.0%	100.0%	45.8										
WD (deg)	279	1.8	100.0%	100.0%	358.2										

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	A second calibration resulted in 3 hours of maintenance
SO ₂	Thermo	43i-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.2 Evergreen Park Air Monitoring Station

PAZA - September 2020 Evergreen Park Station Report

Parameter	September			Operational	Max	1-hour		24-hour		Max Day	Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective		1hr	8hr	24hr	30d	
PM _{2.5} (µg/m ³)	4.2	0.0	97.8%	98.2%	50.4	80	Sep-19 12:00	24.5	29	Sep-19	0	-	0	-	Sep-28-2020
SO ₂ (ppb)	0.2	0.0	95.1%	99.9%	8.3	172	Sep-18 17:00	0.8	48	Sep-18	0	-	0	0	Sep-28-2020
TRS (ppb)	0.3	0.0	95.0%	99.9%	3.0	-	Sep-01 20:00	0.6	-	Sep-01	-	-	-	-	Sep-28-2020
Average	11.1	-3.1	99.9%	99.9%	27.8	Note: Valid hours must be greater than 75% Operational hours must be greater than 90% Average Wind Direction 255 WSW									
Temp (°C)	11.1	-3.1	99.9%	99.9%	27.8										
RH (%)	70.5	21.5	99.9%	99.9%	98.4										
WS (km/hr)	3.8	0.0	99.9%	99.9%	18.0										
WD (deg)	255	4.9	99.9%	99.9%	359.7										

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Thermo	TEOM AB	No Operational issues noted during the month; power failure and negative drift resulted in data loss
SO ₂	TECO	43i	No Operational issues noted during the month; power failure resulted in 1-hr data loss
TRS	TECO	43C	No Operational issues noted during the month; power failure resulted in 1-hr data loss
Met Equip	GI/RYYoung	MetPak/RMY86004	No Operational issues noted during the month; power failure resulted in 1-hr data loss

1.3 Grande Prairie - Henry Pirkler Air Monitoring Station

PAZA - September 2020 Henry Pirkler Station Report

Parameter	September			Operational	Max	1-hour		8-hour / 24-hour		Max Day	Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective		1hr	8hr	24hr	30d	
NO (ppb)	2.0	0.0	95.1%	100.0%	57.4	-	Sep-18 08:00	11.7	-	Sep-18	-	-	-	-	Sep 09, 2020
NO ₂ (ppb)	5.3	0.5	95.1%	100.0%	27.4	159	Sep-25 08:00	12.3	-	Sep-17	0	-	-	-	Sep 09, 2020
NO _x (ppb)	7.4	0.5	95.1%	100.0%	72.1	-	Sep-18 08:00	22.9	-	Sep-18	-	-	-	-	Sep 09, 2020
O ₃ (ppb)	19.9	0.3	95.3%	100.0%	46.5	76	Sep-28 15:00	32.1	-	Sep-01	0	-	-	-	Sep 09, 2020
PM _{2.5} (µg/m ³)	4.7	0.0	99.6%	100.0%	61.3	80	Sep-19 13:00	30.7	29	Sep-19	0	-	1	-	Sep 10, 2020
SO ₂ (ppb)	0.2	0.0	95.4%	100.0%	11.5	172	Sep-21 02:00	0.9	48	Sep-18	0	-	0	0	Sep 10, 2020
H ₂ S (ppb)	0.2	0.0	95.3%	100.0%	1.3	10	Sep-05 08:00	0.4	3	Sep-18	0	-	0	-	Sep 10, 2020
CH ₄ (ppm)	2.1	1.9	94.6%	99.3%	3.5	-	Sep-25 07:00	2.3	-	Sep-18	-	-	-	-	Sep 03, 2020
THC (ppm)	2.1	1.9	94.6%	99.3%	3.5	-	Sep-25 07:00	2.4	-	Sep-18	-	-	-	-	Sep 03, 2020
NMHC (ppm)	0.0	0.0	94.6%	99.3%	0.3	-	Sep-19 04:00	0.0	-	Sep-18	-	-	-	-	Sep 03, 2020
CO (ppm)	0.2	0.1	95.3%	100.0%	1.0	13	Sep-18 21:00	0.4	5	Sep-18	0	0	-	-	Sep 03, 2020
Average					Maximum										
Temp (°C)	12.1	-1.3	100.0%	100.0%	28.1	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
RH (%)	63.7	20.1	100.0%	100.0%	90.0										
SR (W/m ²)	100.2	0.0	100.0%	100.0%	542.6										
WS (km/hr)	7.5	0.1	100.0%	100.0%	33.0										
WD (deg)	268	1.2	100.0%	100.0%	359.2	Average Wind Direction 268 W									

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42i	No Operational issues noted during the month
O ₃	TECO	49i	No Operational issues noted during the month
PM _{2.5}	Sharp	5030	No Operational issues noted during the month
SO ₂	TEI	43i-TLE	No Operational issues noted during the month
H ₂ S	TEI	450i	No Operational issues noted during the month
THC/CH ₄ /NMHC	TEI	55i	Replaced THC span tank (Sept 9); Hydrogen cylinder replaced (Sept 11); second calibration flagged as maintenance
CO	TEI	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 - September 2020 Smoky Heights Station Report

Parameter	September			Operational	Max	1-hour		24-hour		Max Day	Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective		1hr	8hr	24hr	30d	
PM _{2.5} (µg/m ³)	4.9	0.0	99.6%	100.0%	44.9	80	Sep-19 13:00	26.8	29	Sep-19	0	-	0	-	Sep 21, 2020
SO ₂ (ppb)	0.4	0.0	95.0%	100.0%	16.6	172	Sep-28 19:00	2.2	48	Sep-28	0	-	0	0	Sep 21, 2020
TRS (ppb)	0.2	0.0	95.1%	100.0%	0.8	-	Sep-28 20:00	0.4	-	Sep-19	-	-	-	-	Sep 21, 2020
Average					Maximum										
Temp (°C)	10.9	-2.2	100.0%	100.0%	26.2	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
WS (km/hr)	11.9	0.2	98.9%	98.9%	46.4										
WD (deg)	260	0.2	98.9%	98.9%	359.8										
						Average Wind Direction 260 WNW									

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	5030	No Operational issues noted during the month
SO ₂	TECO	43i	No Operational issues noted during the month
TRS	TEI	43i APSAA	No Operational issues noted during the month
Met Equip	MetOne	50.5	Wind speed sensor recording excessive windspeeds in error, eight hours removed between Sept 16-20

1.5 Valleyview Air Monitoring Station

PAZA - September 2020 Valleyview Station Report

AZA - September 2020 Valleyview Station Report																																												
Parameter	September			Operational	Max	1-hour		Max	24-hour		Exceedance				Calibration Date																													
	Average	Minimum	Valid			Objective	Max Day and Time		Objective	Max Day	1hr	8hr	24hr	30d																														
SO ₂ (ppb)	0.1	0.0	94.3%	98.9%	0.9	172	Sep-17 23:00	0.2	48	Sep-17	0	-	0	0	Sep 24, 2020																													
H ₂ S (ppb)	0.1	0.0	94.2%	98.9%	1.1	10	Sep-15 12:00	0.2	3	Sep-13	0	-	0	-	Sep 24, 2020																													
<table><tr><th>Average</th><th>Minimum</th><th>Valid</th><th>Operational</th><th>Maximum</th></tr><tr><td>Temp (°C)</td><td>11.2</td><td>-3.9</td><td>98.9%</td><td>98.9%</td><td>27.7</td></tr><tr><td>RH (%)</td><td>74.3</td><td>24.4</td><td>98.9%</td><td>98.9%</td><td>100.2</td></tr><tr><td>WS (km/hr)</td><td>4.3</td><td>0.1</td><td>98.9%</td><td>98.9%</td><td>17.6</td></tr><tr><td>WD (deg)</td><td>275</td><td>0.5</td><td>98.9%</td><td>98.9%</td><td>357.5</td></tr></table>																Average	Minimum	Valid	Operational	Maximum	Temp (°C)	11.2	-3.9	98.9%	98.9%	27.7	RH (%)	74.3	24.4	98.9%	98.9%	100.2	WS (km/hr)	4.3	0.1	98.9%	98.9%	17.6	WD (deg)	275	0.5	98.9%	98.9%	357.5
Average	Minimum	Valid	Operational	Maximum																																								
Temp (°C)	11.2	-3.9	98.9%	98.9%	27.7																																							
RH (%)	74.3	24.4	98.9%	98.9%	100.2																																							
WS (km/hr)	4.3	0.1	98.9%	98.9%	17.6																																							
WD (deg)	275	0.5	98.9%	98.9%	357.5																																							
Note: Valid hours must be greater than 75% Operational hours must be greater than 90%																																												
<table><tr><td>Average Wind Direction</td><td>275</td><td>NW</td></tr></table>																Average Wind Direction	275	NW																										
Average Wind Direction	275	NW																																										

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	TEI	431-APSCB	No Operational issues noted during the month; Power failure on Sept 9 resulted in 8 hours removed
H ₂ S	TEI	450I-APHAA	No Operational issues noted during the month; Power failure on Sept 9 resulted in 8 hours removed
Met Equip	RMYoung	RMY86004	No Operational issues noted during the month; Power failure on Sept 9 resulted in 8 hours removed

1.6 Donnelly Air Monitoring Station

PAZA - September 2020 Donnelly Station Report

AQA - September 2020 Donnelly Station Report																
September					1-hour			24-hour			Exceedance				Calibration	
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date	
SO ₂ (ppb)	0.2	0.0	94.7%	99.4%	2.7	172	Sep-26 07:00	0.6	48	Sep-18	0	-	0	0	Sep 22, 2020	
H ₂ S (ppb)	0.2	0.0	94.9%	99.4%	4.5	10	Sep-13 09:00	0.7	3	Sep-13	0	-	0	-	Sep 22, 2020	
Average		Minimum	Valid	Operational	Maximum											
Temp (°C)	11.5	-1.3	99.7%	99.7%	25.6											
WS (km/hr)	11.2	0.2	99.7%	99.7%	38.6											
WD (deg)	259	0.0	99.7%	99.7%	359.2											
Note: Valid hours must be greater than 75% Operational hours must be greater than 90%																
Average Wind Direction									259	WSW						

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	Teco	43I	No Operational issues noted during the month; 1 hour of data removed as power failure and 3 hours as not valid
H ₂ S	Thermo	45C	No Operational issues noted during the month; 1 hour of data removed as power failure and 3 hours as not valid
Met Equip	RMYoung	5103	No Operational issues noted during the month; 1 hour of data removed as power failure and 1 hour as not valid

1.7 Wembley Air Monitoring Station

PAZA - September 2020 Wembley Station Report

September					1-hour			24-hour			Exceedance				Calibration	
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date	
NO (ppb)	0.4	0.0	93.6%	98.3%	13.7	-	Sep-22 05:00	1.7	-	Sep-22	-	-	-	-	Sep 16, 2020	
NO ₂ (ppb)	1.8	0.1	93.6%	98.3%	10.7	159	Sep-22 05:00	4.5	-	Sep-23	0	-	-	-	Sep 16, 2020	
NO _x (ppb)	2.1	0.0	93.6%	98.3%	24.4	-	Sep-22 05:00	5.6	-	Sep-23	-	-	-	-	Sep 16, 2020	
O ₃ (ppb)	20.9	1.9	93.8%	98.3%	46.7	76	Sep-28 15:00	33.6	-	Sep-28	0	-	-	-	Sep 16, 2020	
PM _{2.5} (µg/m³)	2.8	0.0	97.8%	98.3%	50.3	80	Sep-19 11:00	21.9	29	Sep-19	0	-	0	-	Sep 25, 2020	
SO ₂ (ppb)	0.2	0.0	93.8%	98.3%	4.8	172	Sep-15 16:00	1.0	48	Sep-15	0	-	0	0	Sep 16, 2020	
TRS (ppb)	0.3	0.1	93.8%	98.5%	1.4	-	Sep-23 07:00	0.5	-	Sep-25	-	-	-	-	Sep 25, 2020	
CH ₄ (ppm)	2.0	1.9	93.8%	98.3%	2.5	-	Sep-30 09:00	2.2	-	Sep-30	-	-	-	-	Sep 11, 2020	
THC (ppm)	2.1	1.9	93.8%	98.3%	2.5	-	Sep-30 09:00	2.2	-	Sep-30	-	-	-	-	Sep 11, 2020	
NMHC (ppm)	0.0	0.0	93.8%	98.3%	0.0	-	Sep-29 20:00	0.0	-	Sep-29	-	-	-	-	Sep 11, 2020	
Average					Minimum	Valid	Operational	Maximum								
Temp (°C)	11.2	-3.6	98.5%	98.5%	26.9	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%										
WS (km/hr)	7.8	0.4	98.5%	98.5%	32.5											
WD (deg)	294	0.3	98.5%	98.5%	359.1											
					Average Wind Direction										294	WNW

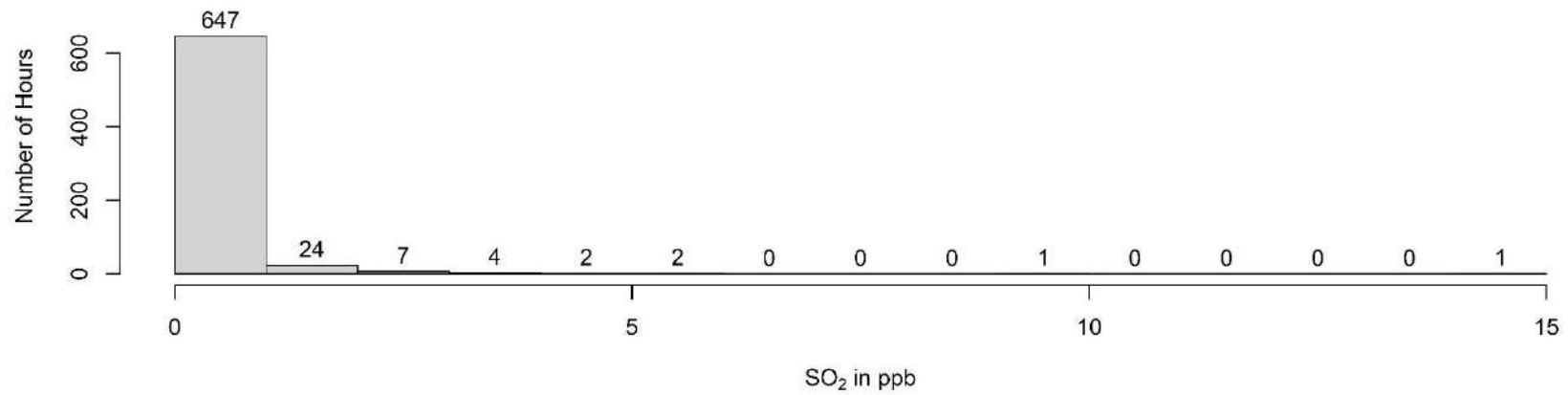
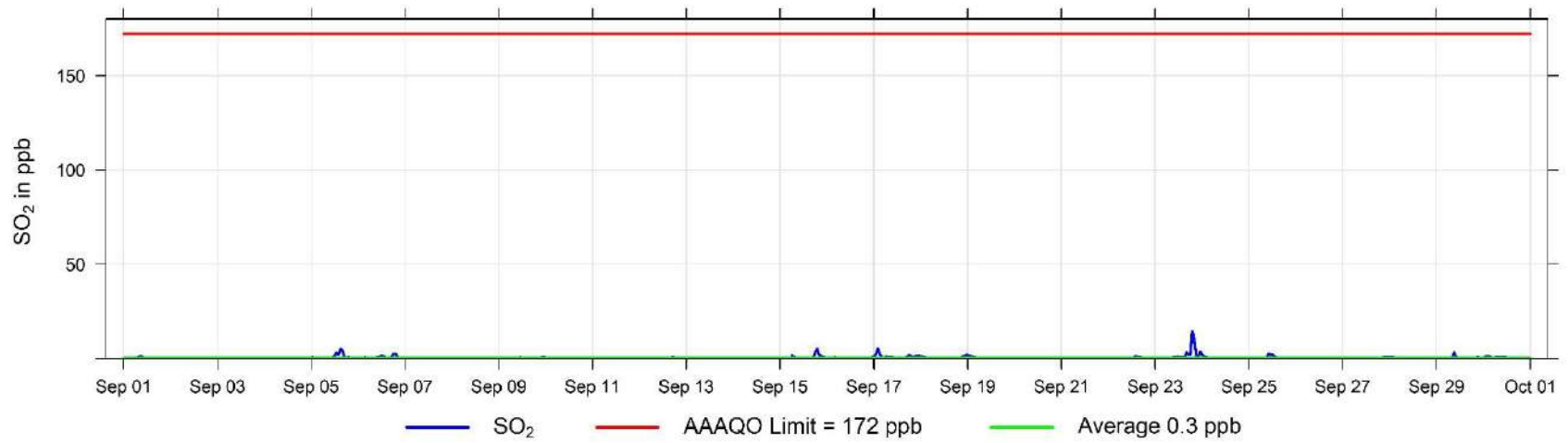
Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TEI	42I	No Operational issues noted during the month; power failure Sept 1 and Maintenance Sept 25 resulted in missing data
O ₃	TEI	49I	No Operational issues noted during the month; power failure Sept 1 and Maintenance Sept 25 resulted in missing data
PM _{2.5}	Thermo	TEOM AB	No Operational issues noted during the month; power failure Sept 1 resulted in missing data
SO ₂	TEI	43I	No Operational issues noted during the month; power failure Sept 1 and Maintenance Sept 25 resulted in missing data
TRS	TEI	43I	No Operational issues noted during the month; power failure Sept 1 resulted in missing data
THC/CH ₄ /NMHC	TEI	55I-A3PHAA	No Operational issues noted during the month; power failure Sept 1 and Maintenance Sept 25 resulted in missing data
Met Equip	MetOne	50.5	No Operational issues noted during the month; power failure Sept 1 resulted in missing data

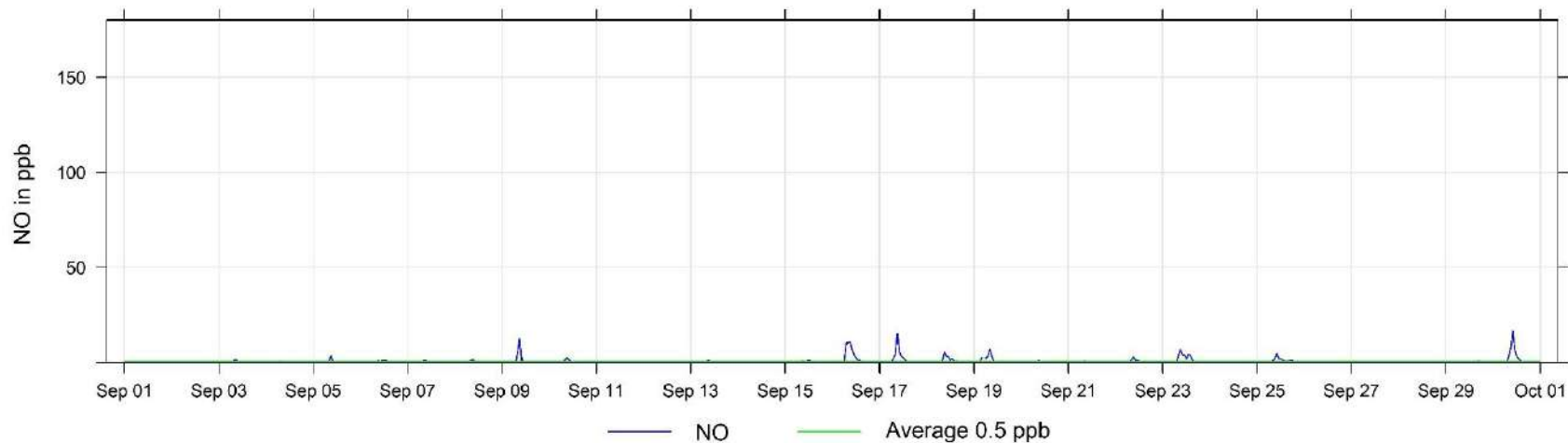
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

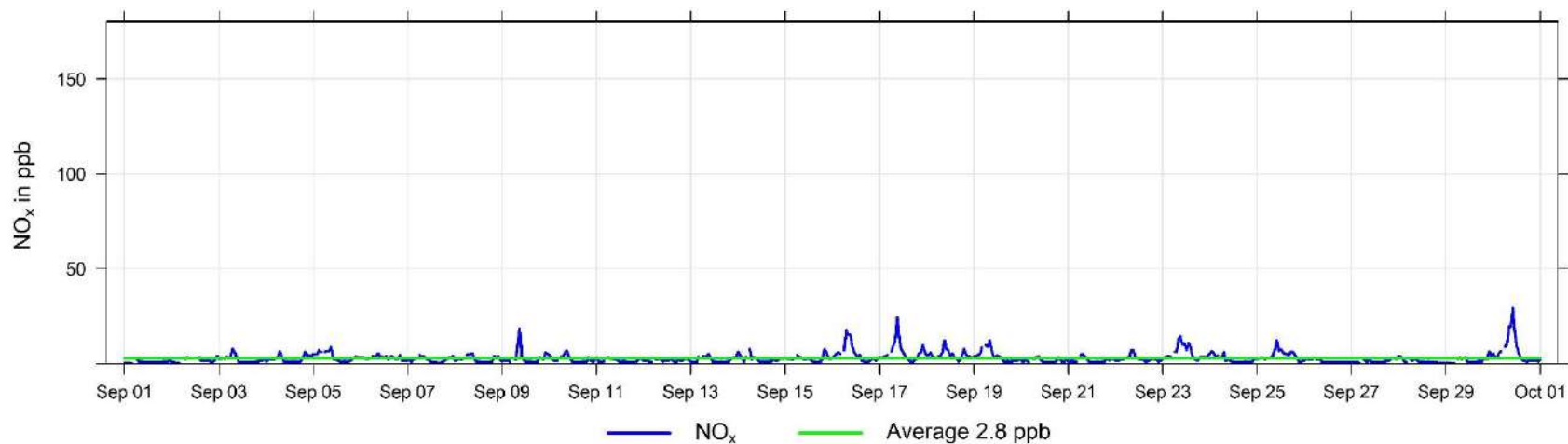
September Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge



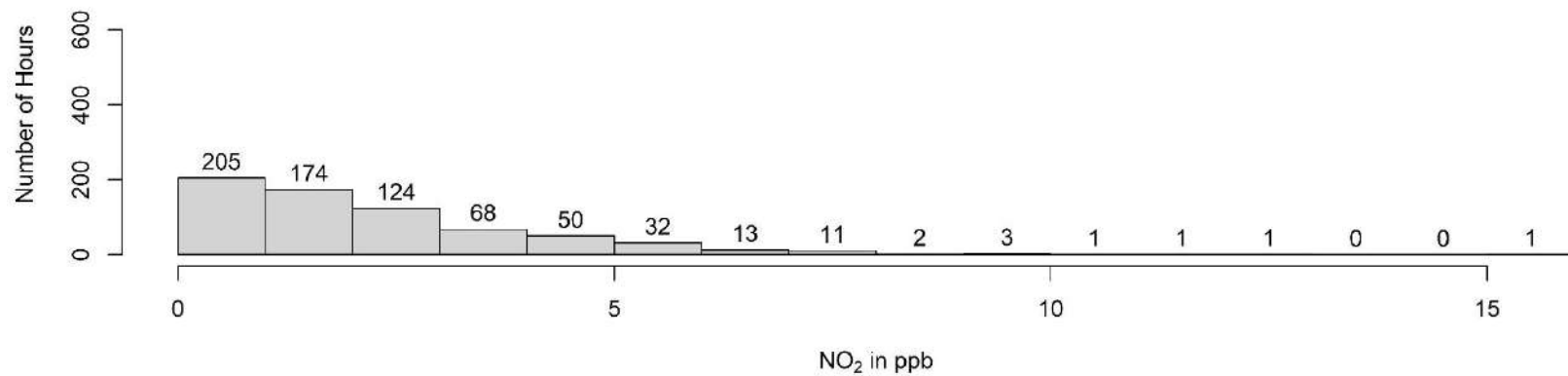
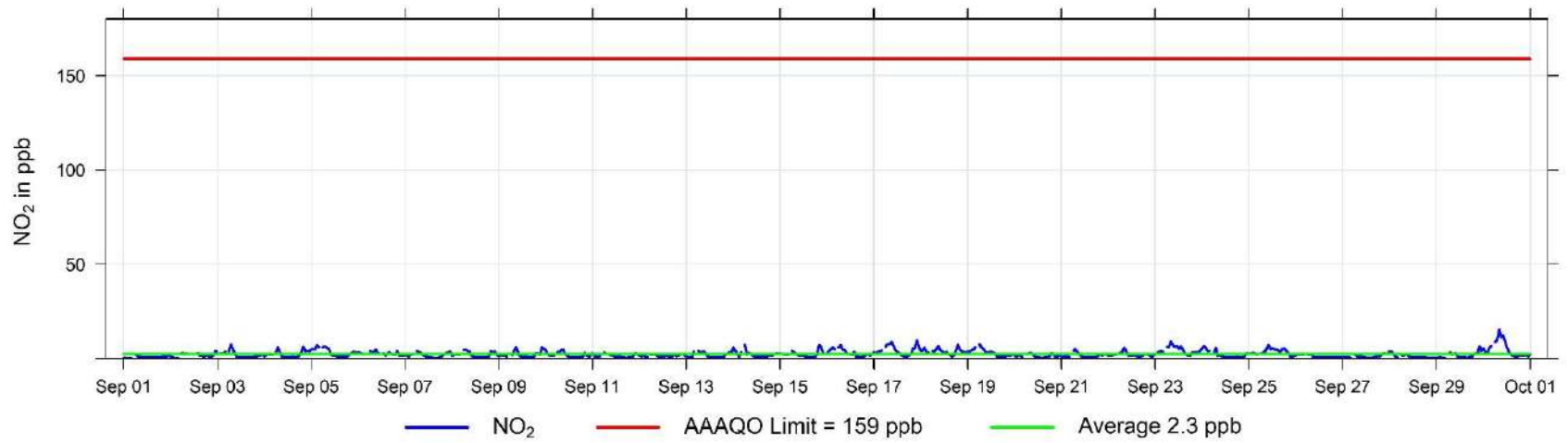
September Hourly Concentration Readings of NO (in ppb) at Beaverlodge



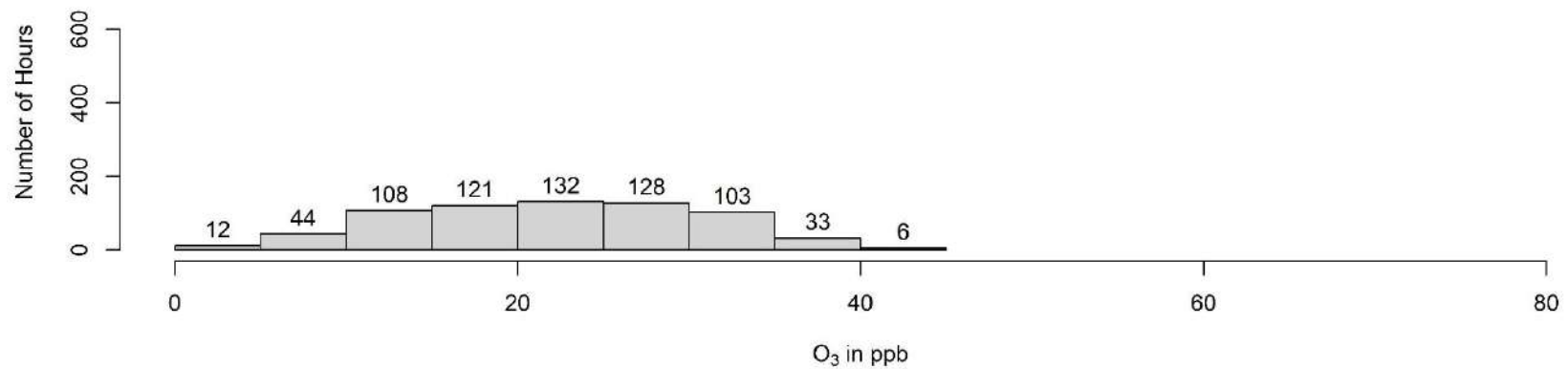
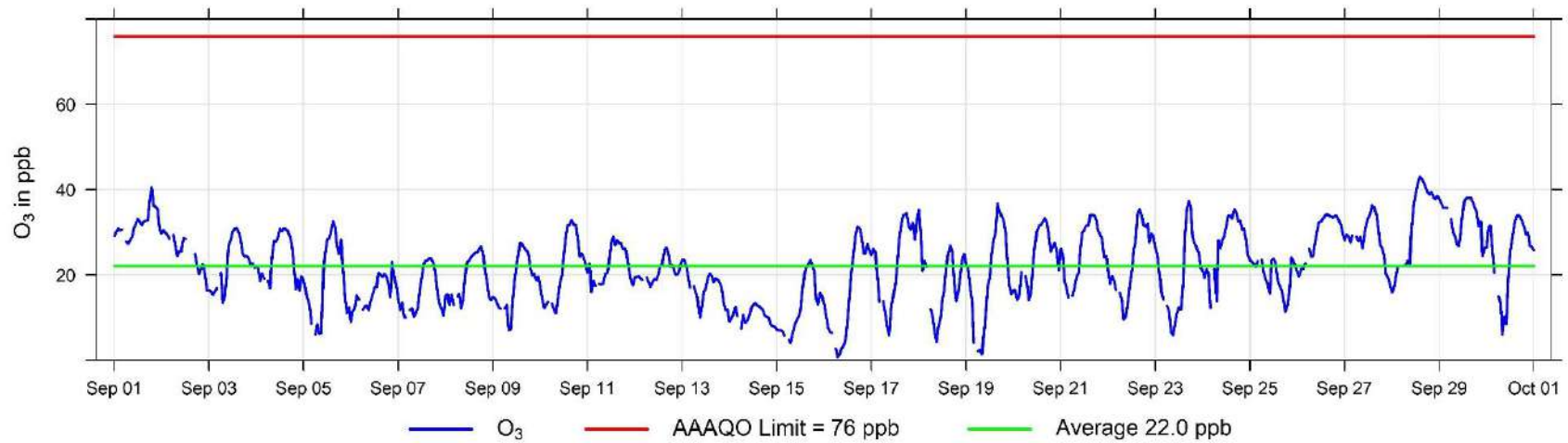
September Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge



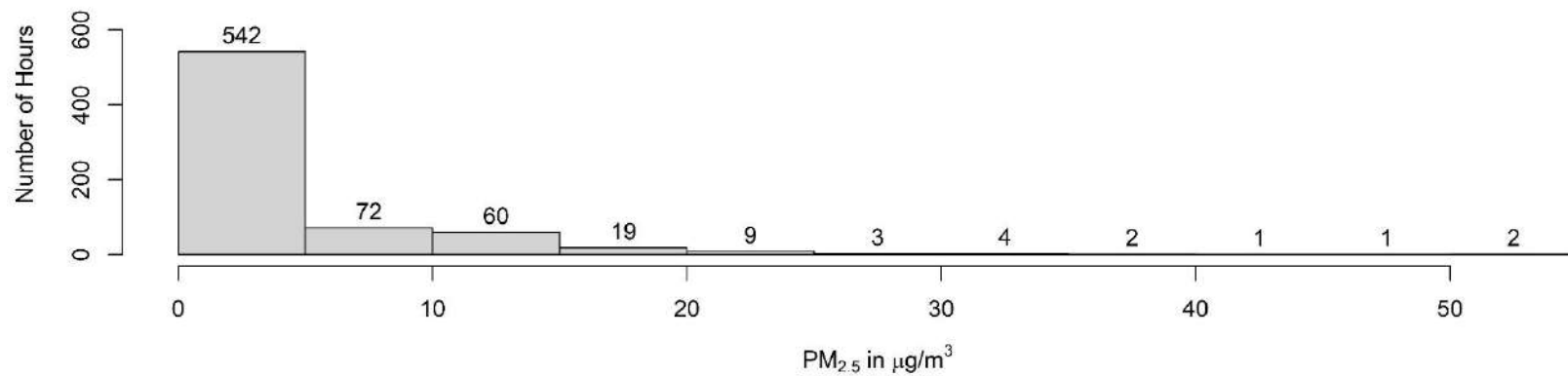
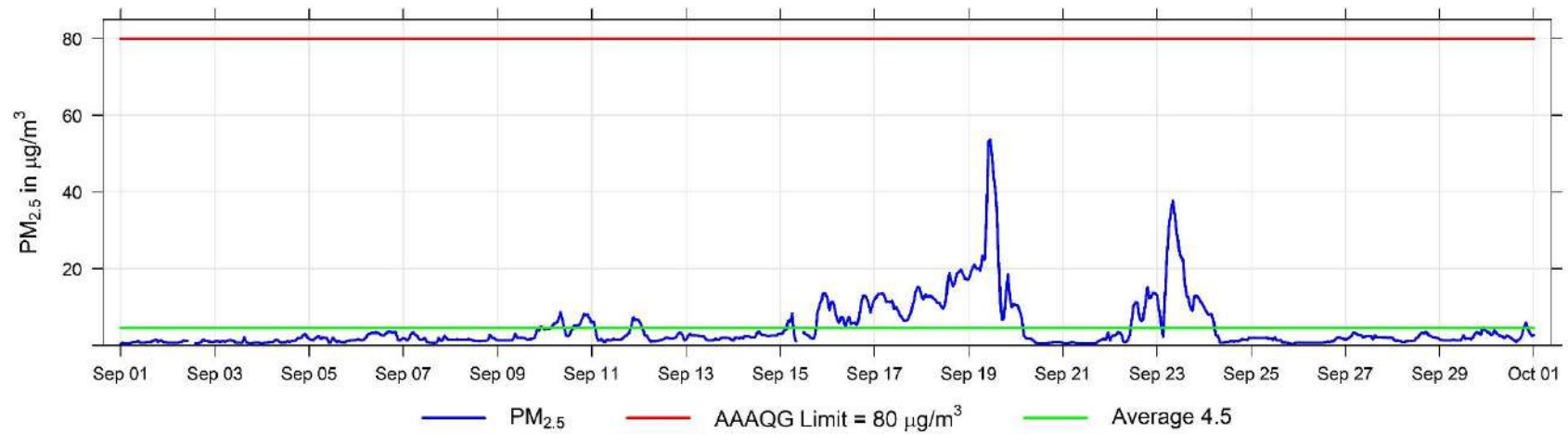
September Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge



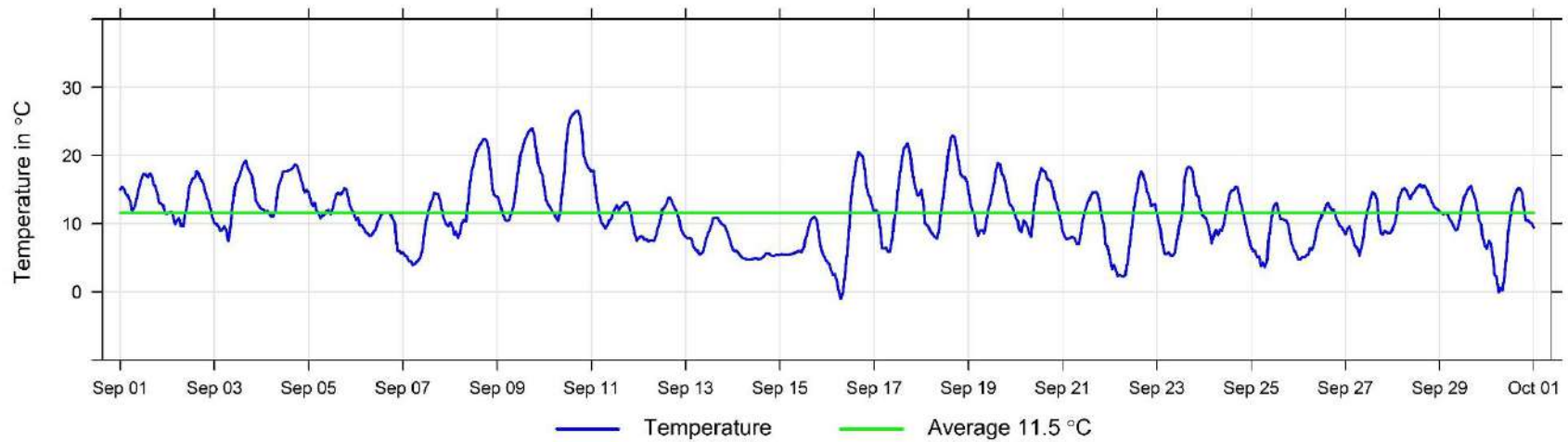
September Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge



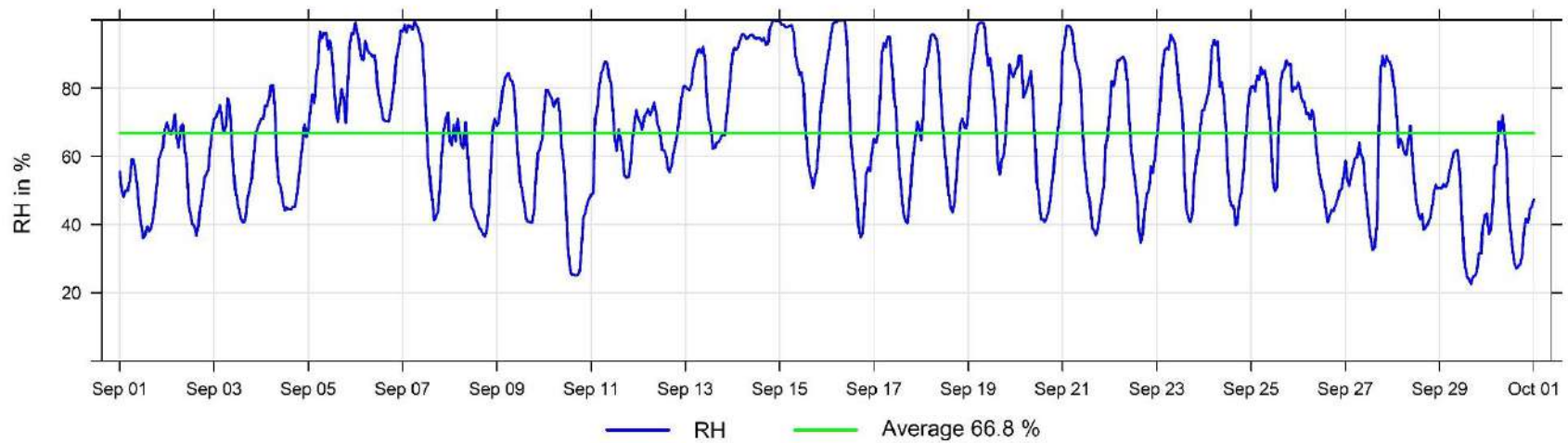
Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Beaverlodge



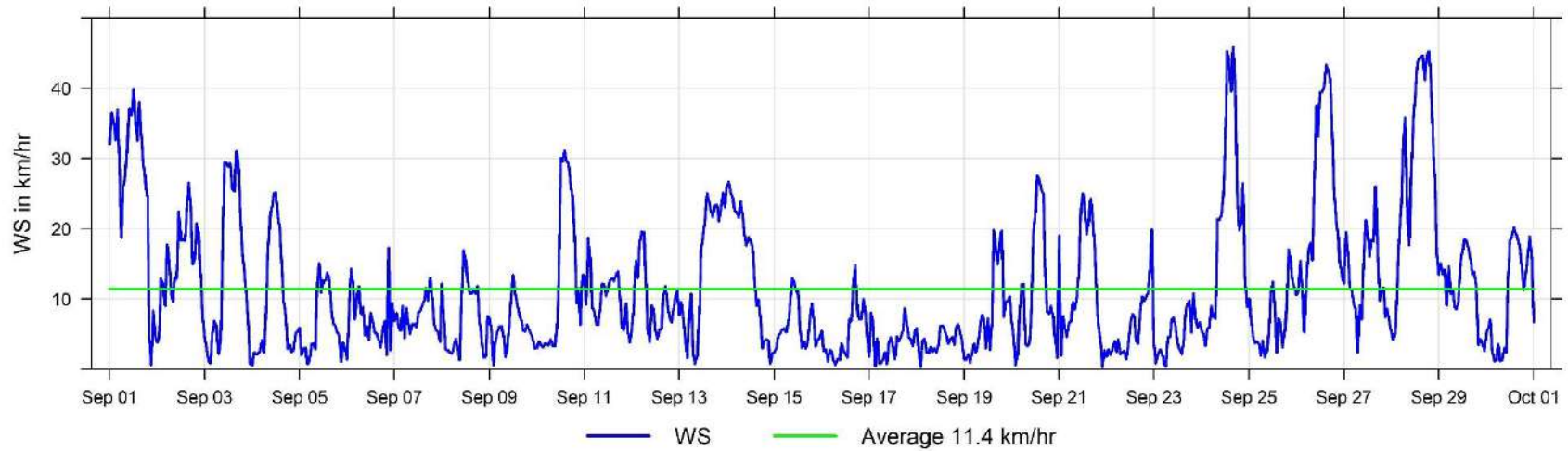
September Hourly Temperature Readings (in °C) at Beaverlodge



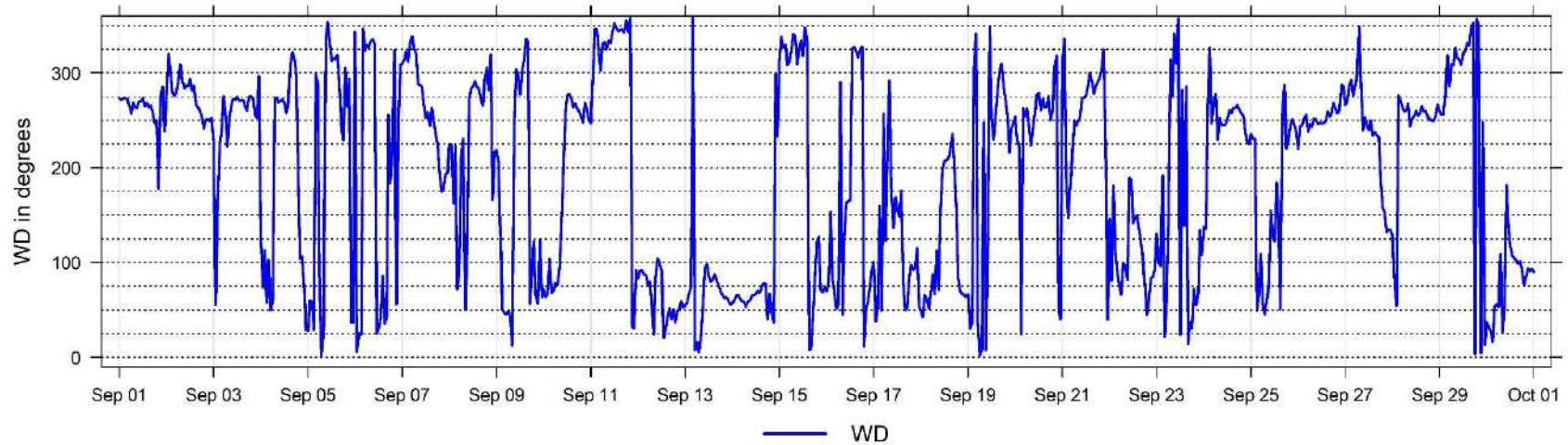
September Hourly Readings of Relative Humidity (in %) at Beaverlodge



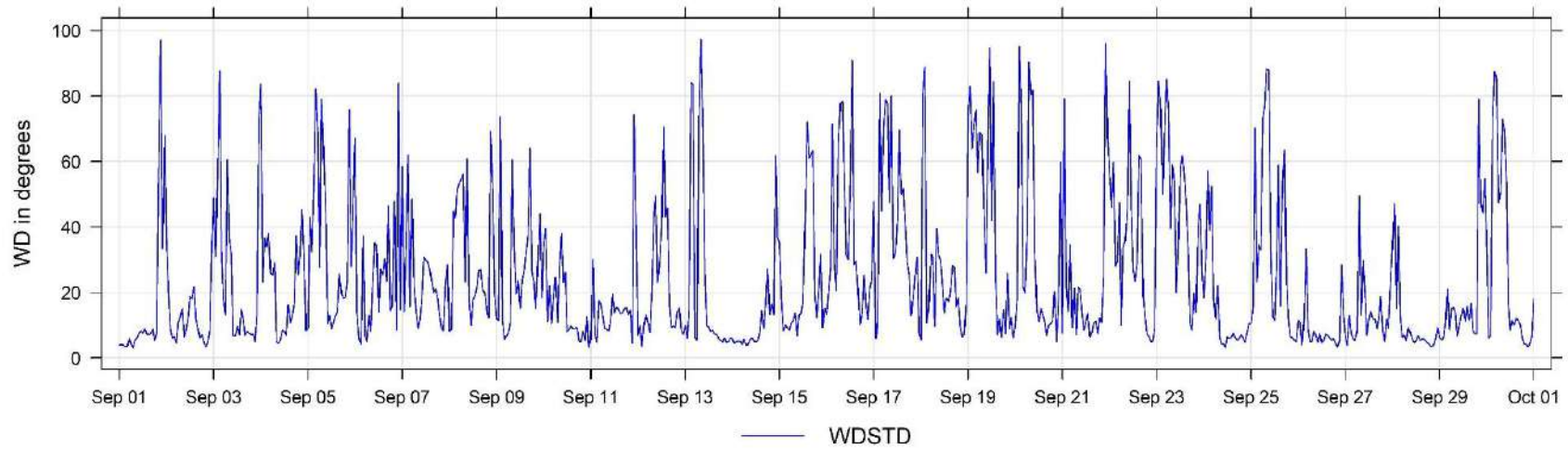
September Hourly Readings of Wind Speed (in km/hr) at Beaverlodge



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



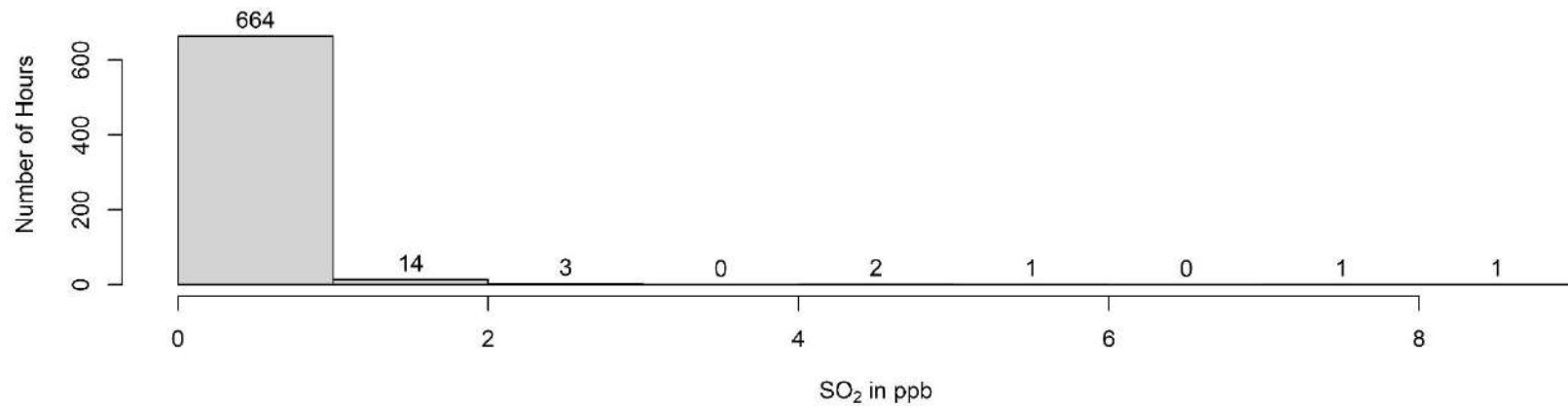
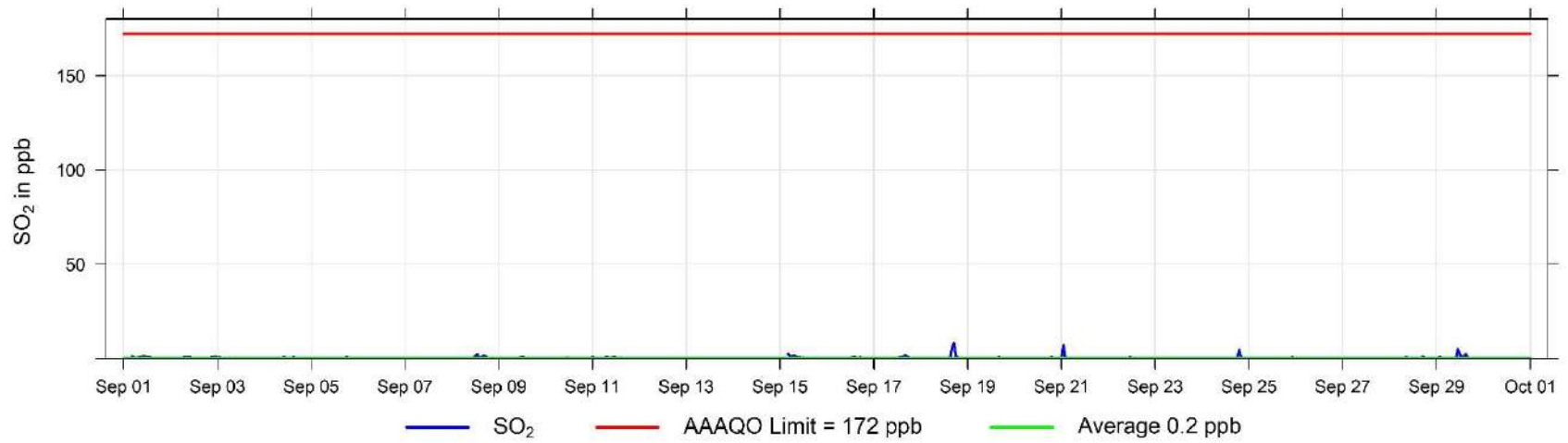
September Hourly Readings of Wind Direction Standard Deviation (in degrees) at Beaverlodge



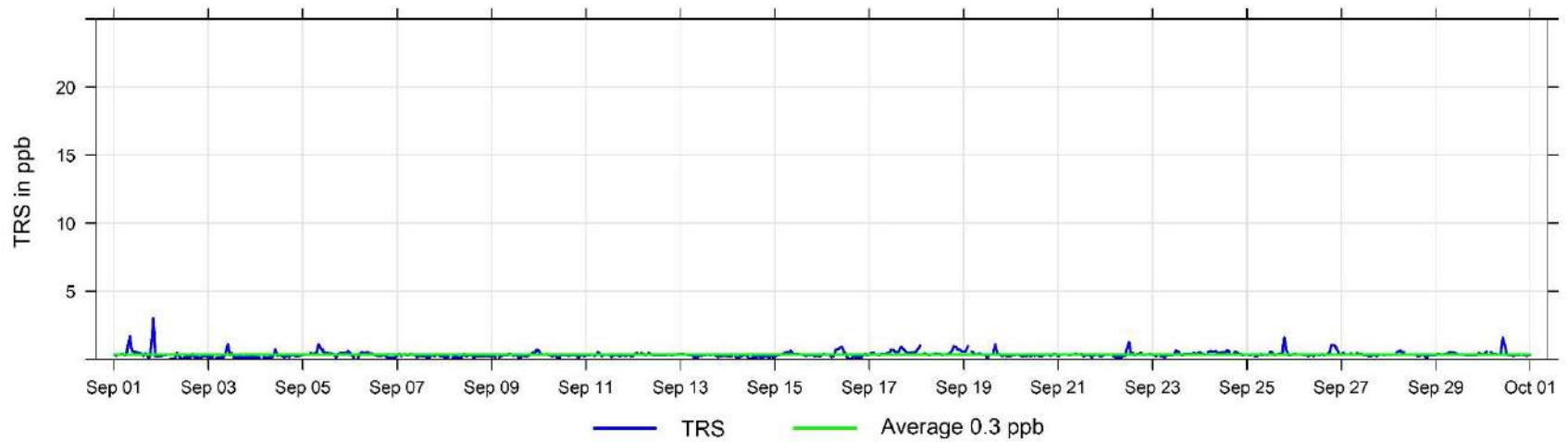
3 Evergreen Park Charts

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

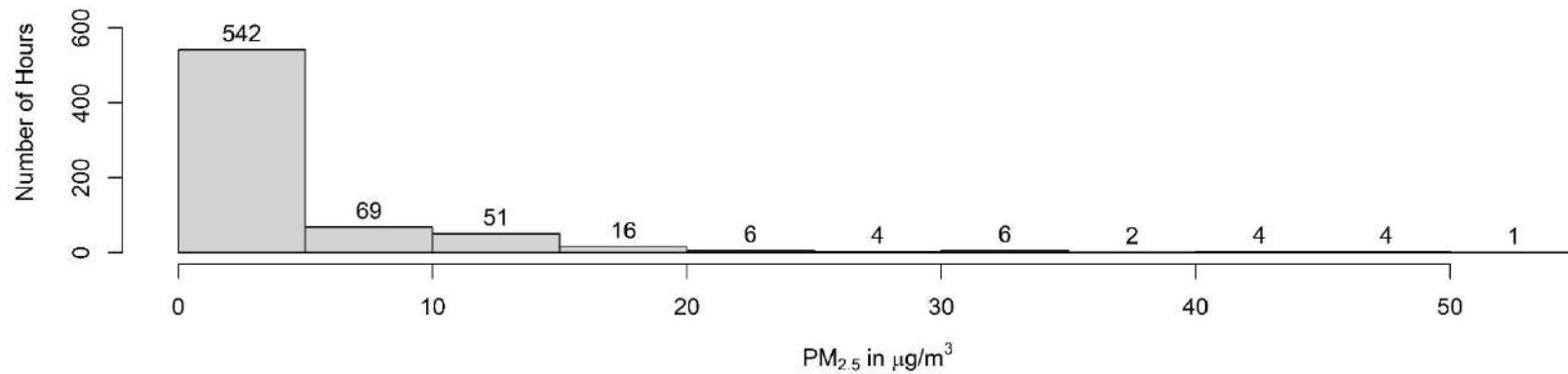
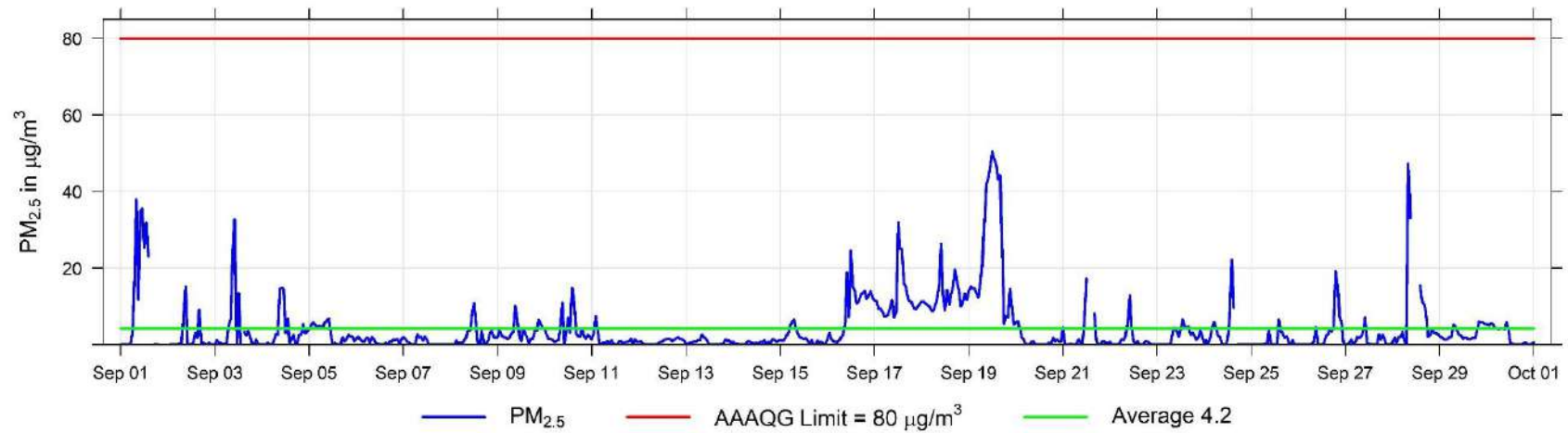
September Hourly Concentration Readings of SO₂ (in ppb) at Evergreen Park



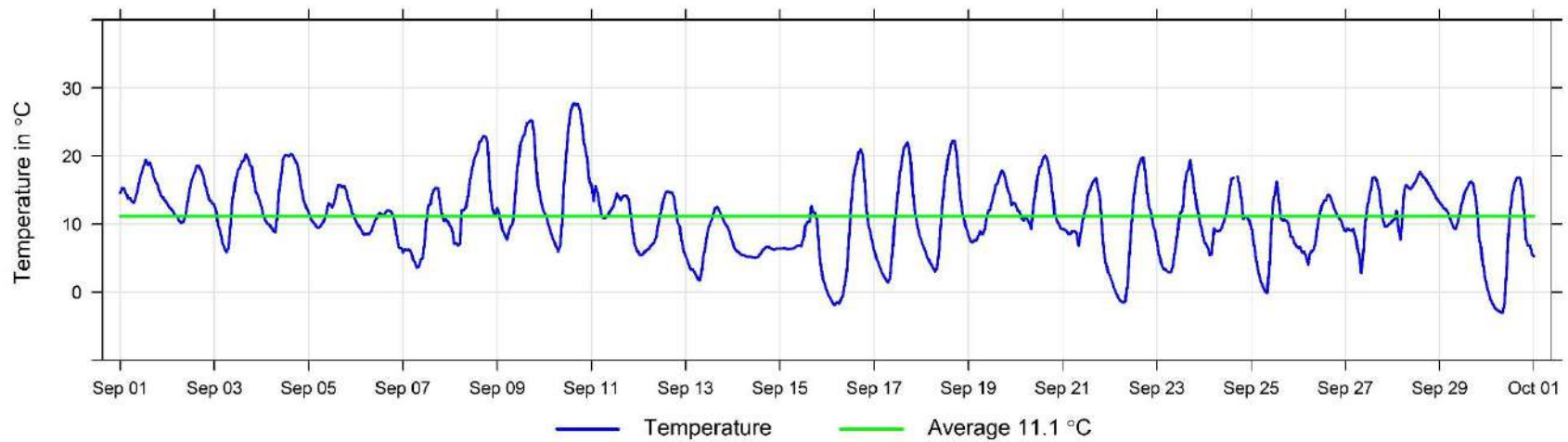
September Hourly Concentration Readings of TRS (in ppb) at Evergreen Park



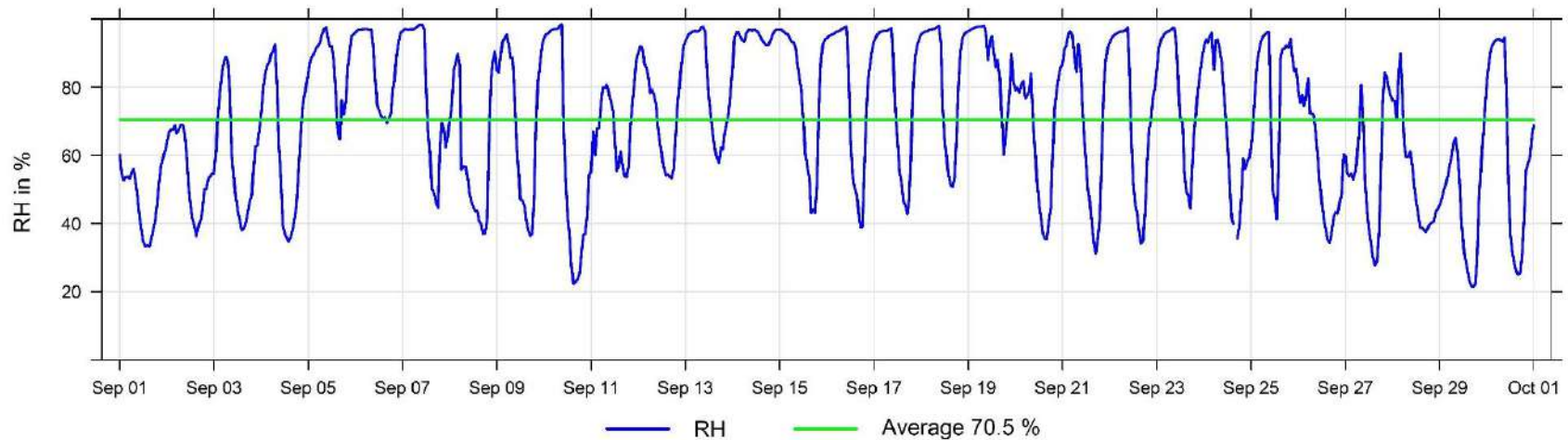
Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Evergreen Park



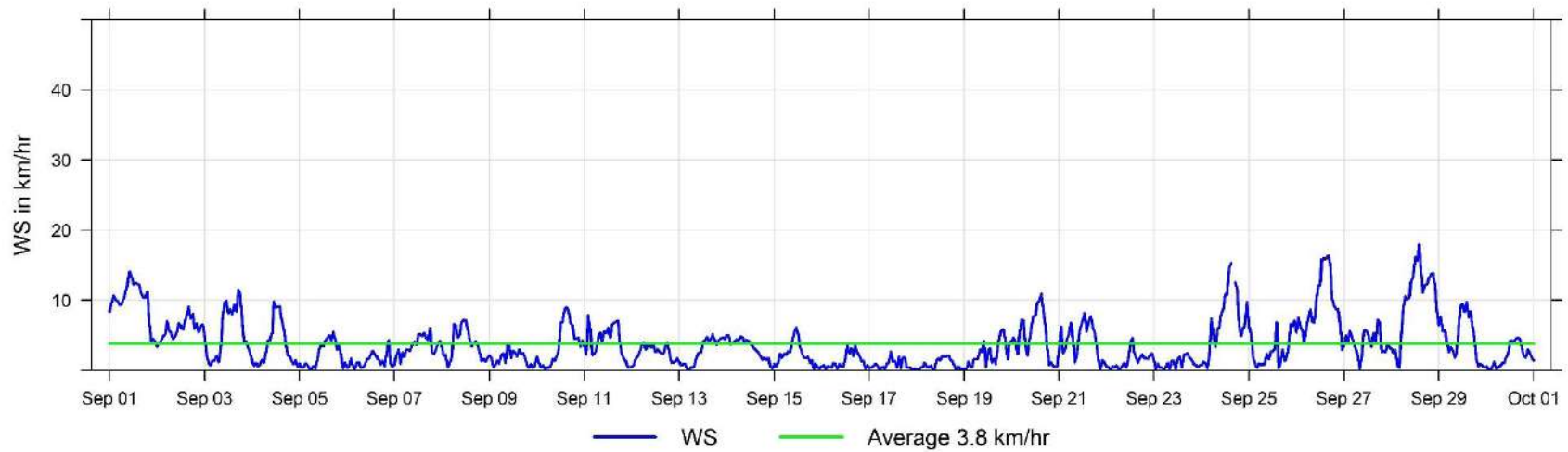
September Hourly Temperature Readings (in °C) at Evergreen Park



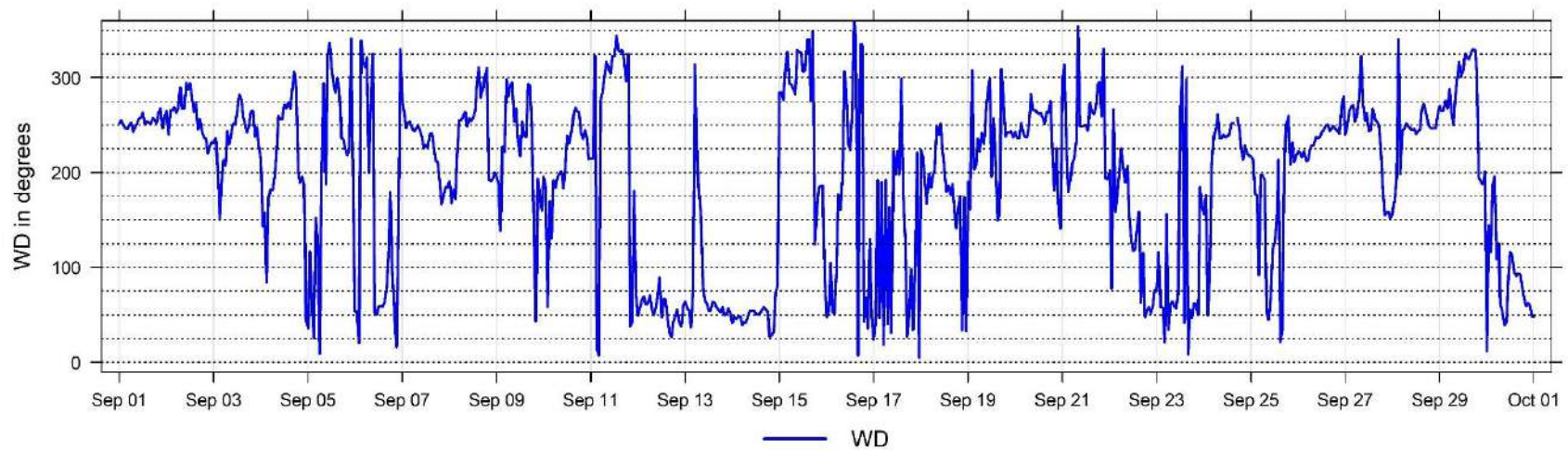
September Hourly Readings of Relative Humidity (in %) at Evergreen Park



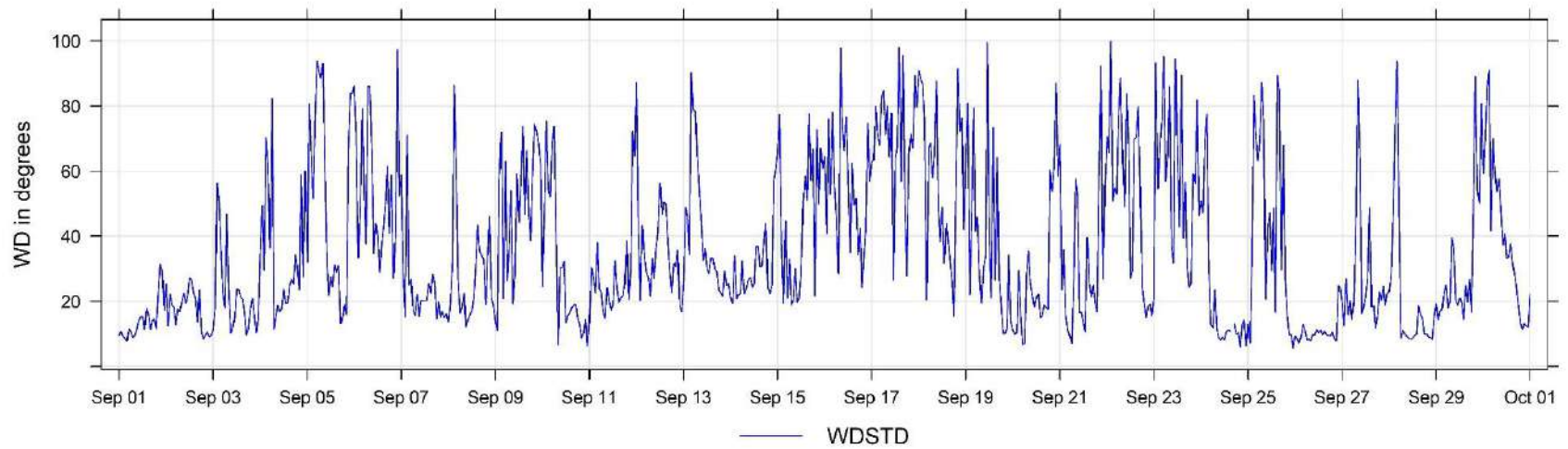
September Hourly Readings of Wind Speed (in km/hr) at Evergreen Park



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



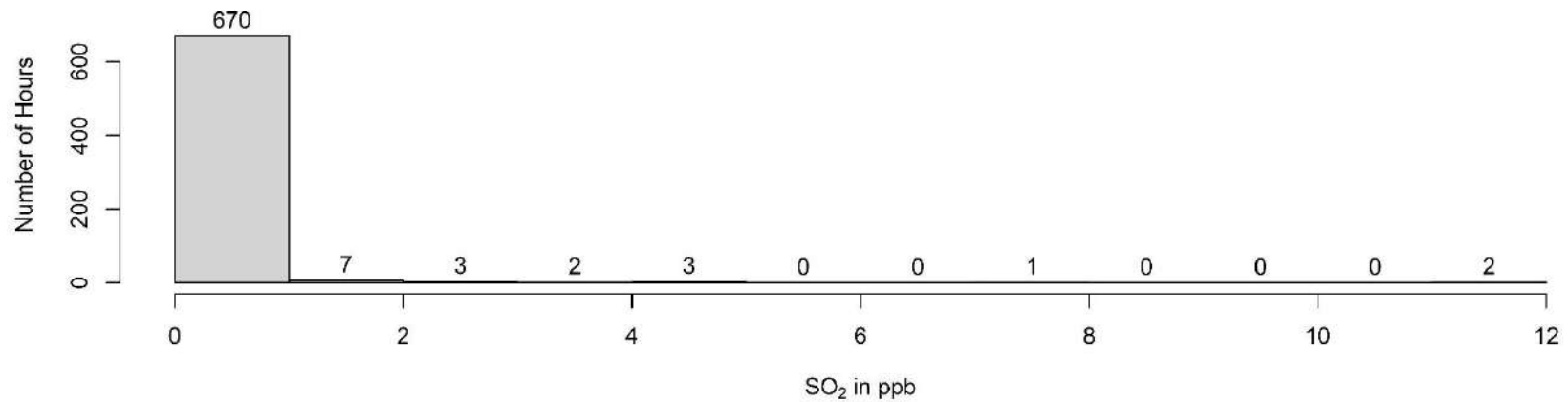
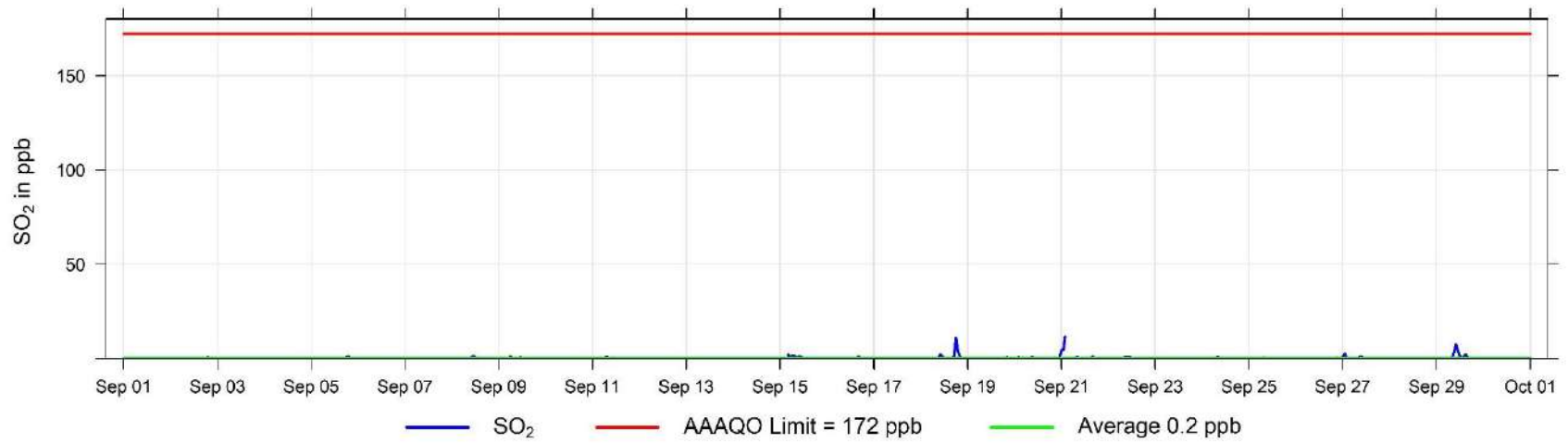
September Hourly Readings of Wind Direction Standard Deviation (in degrees) at Evergreen Park



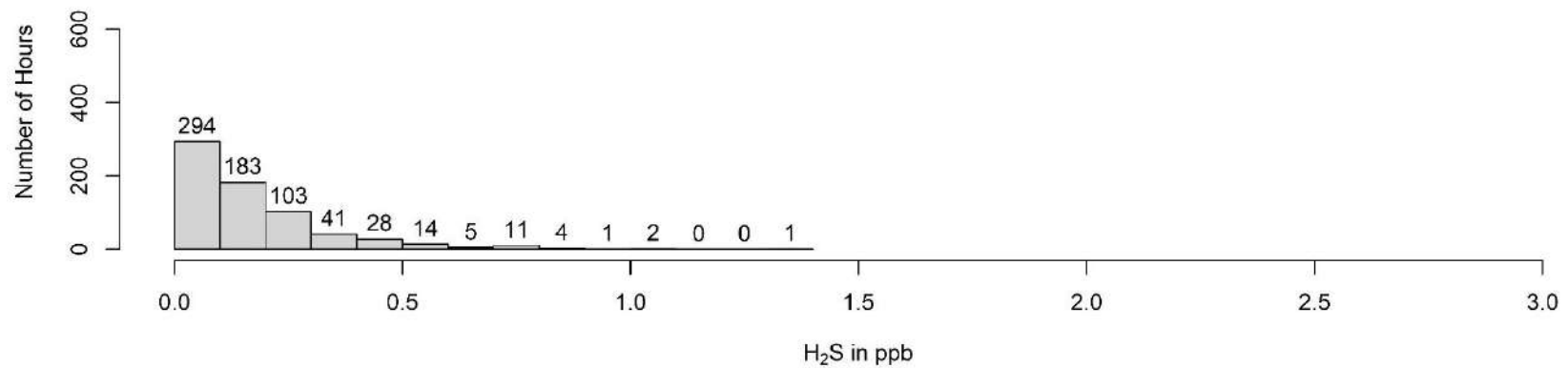
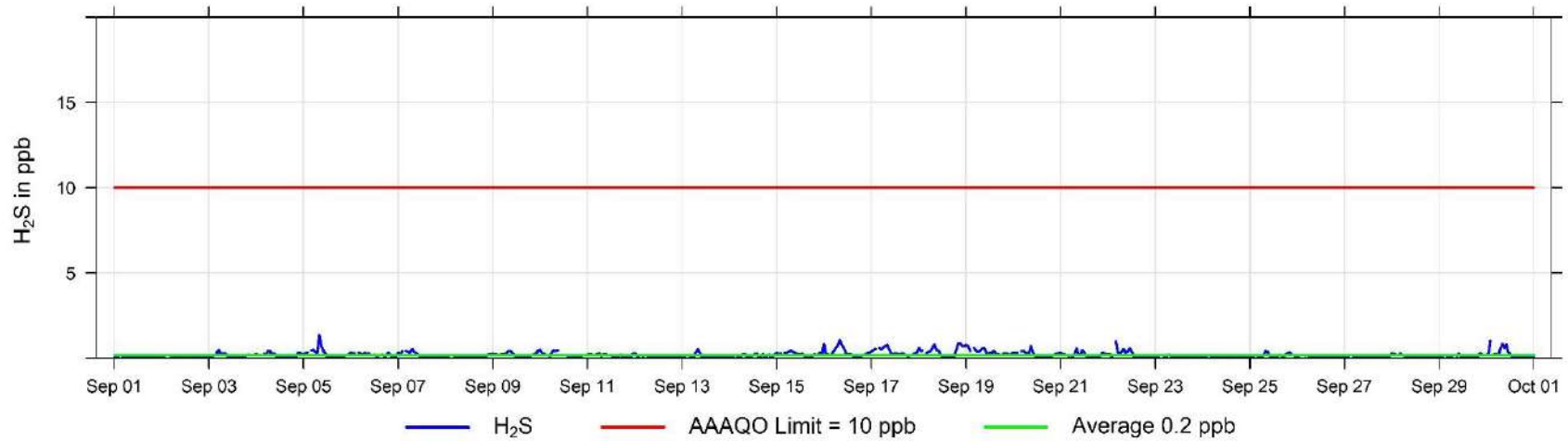
4 Grande Prairie - Henry Pirker Charts

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

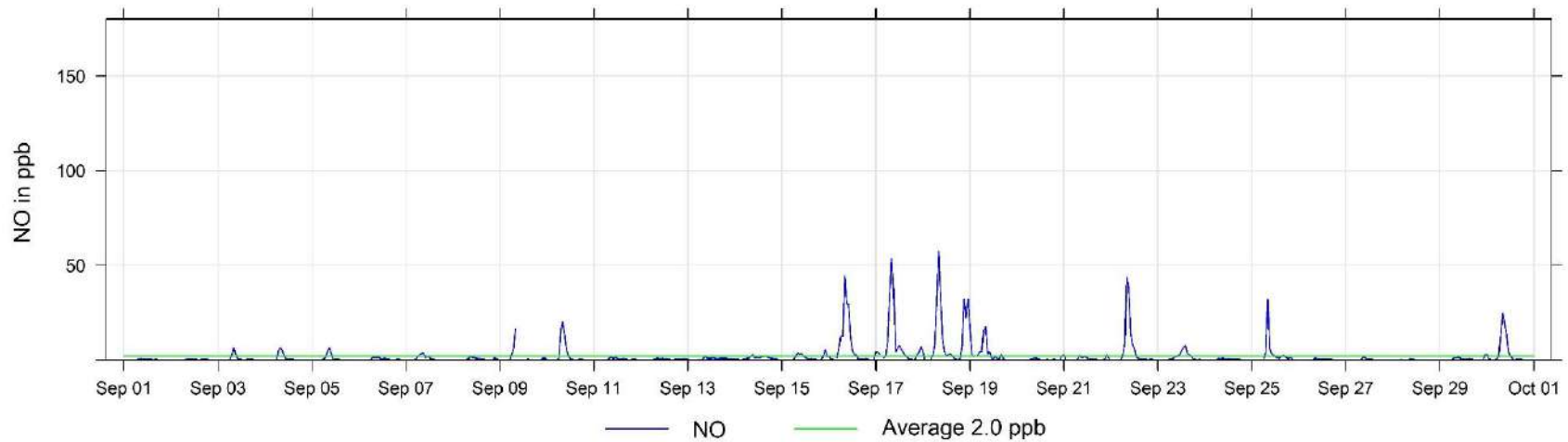
September Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



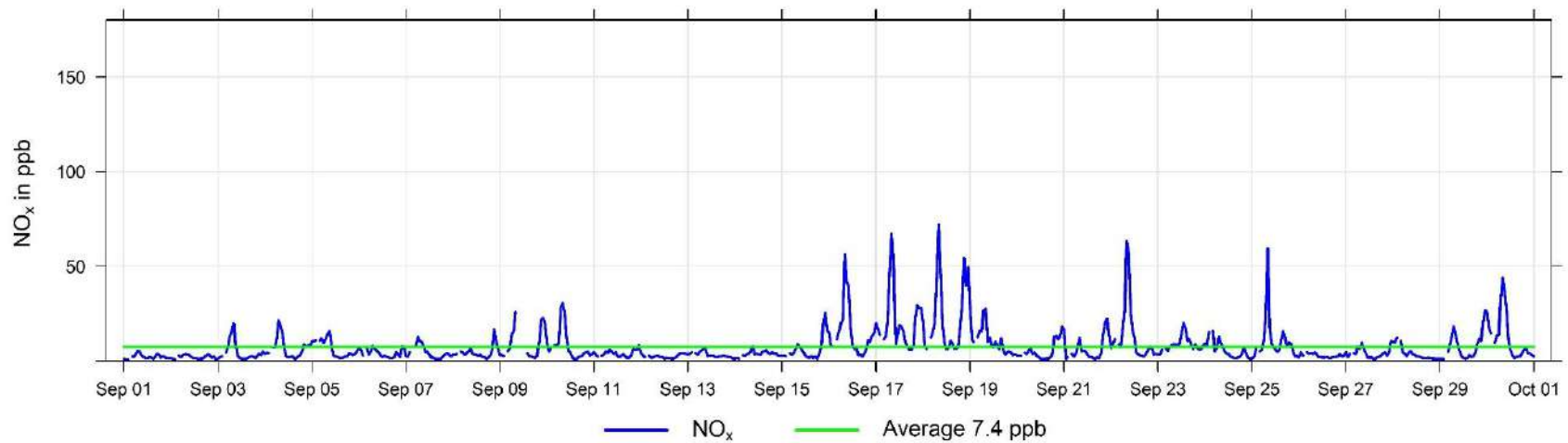
September Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker



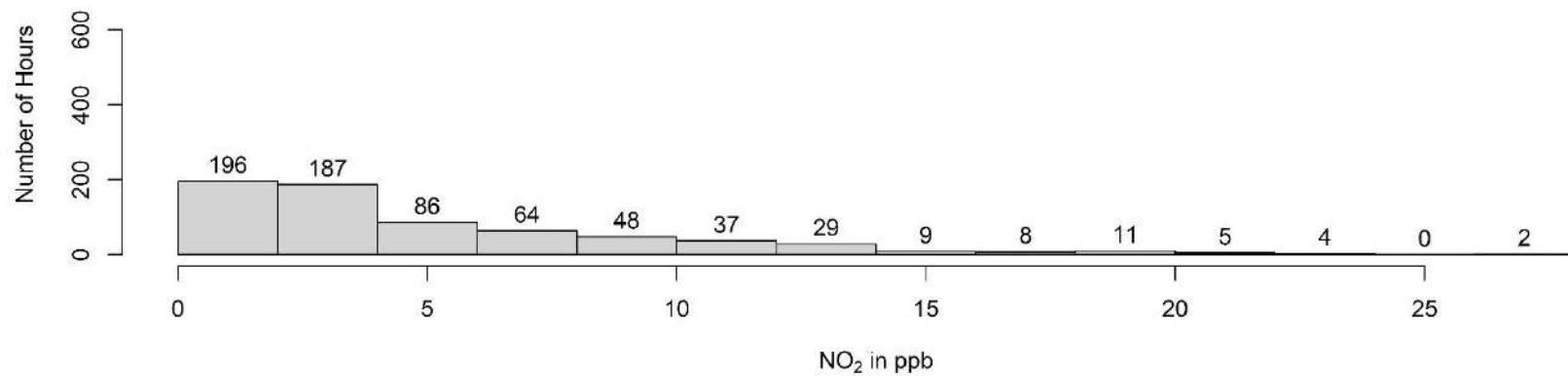
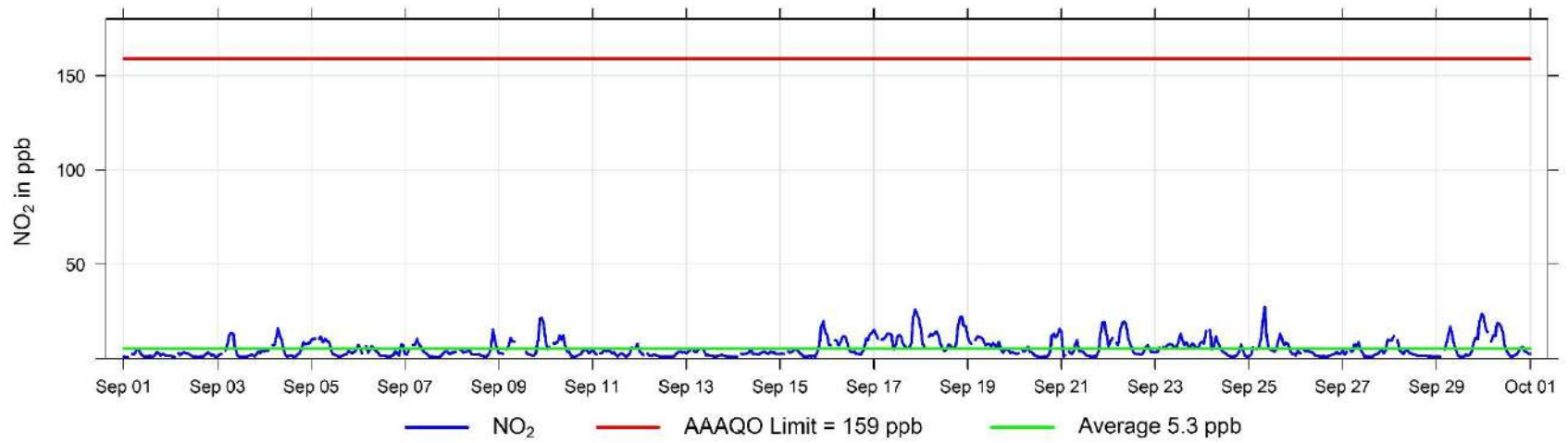
September Hourly Concentration Readings of NO (in ppb) at Henry Pirker



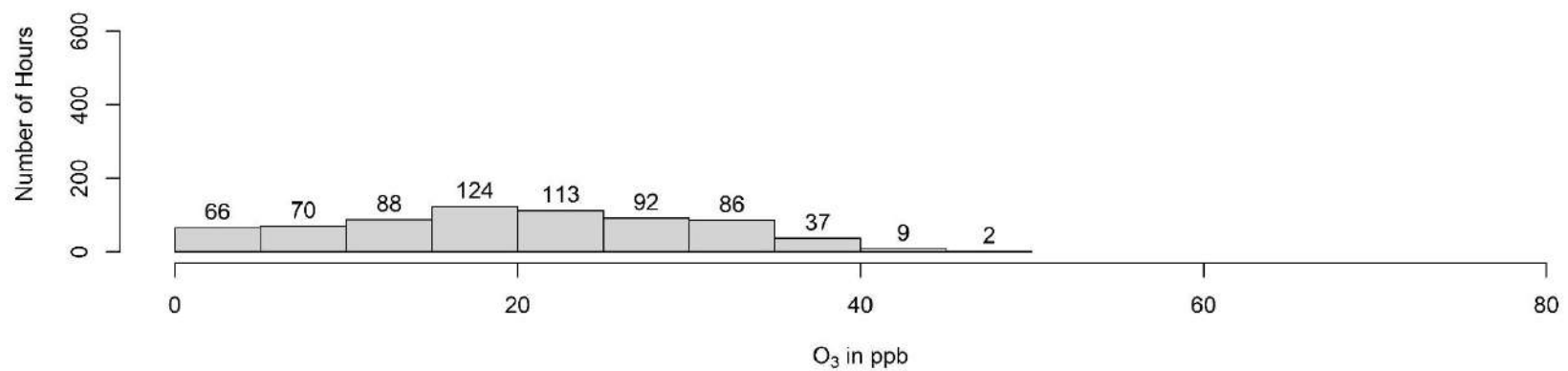
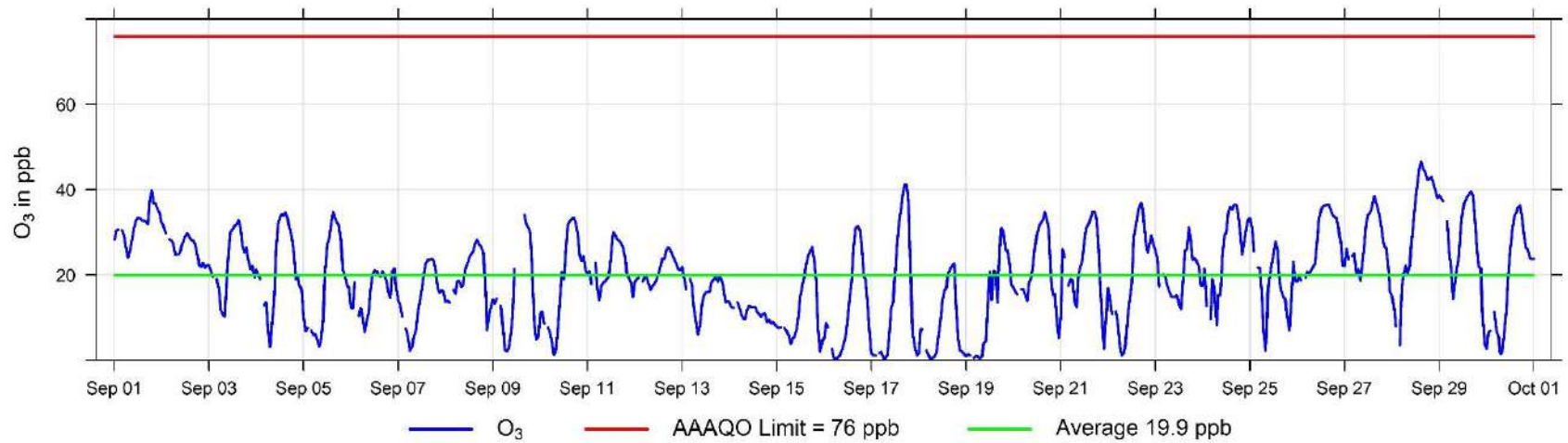
September Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



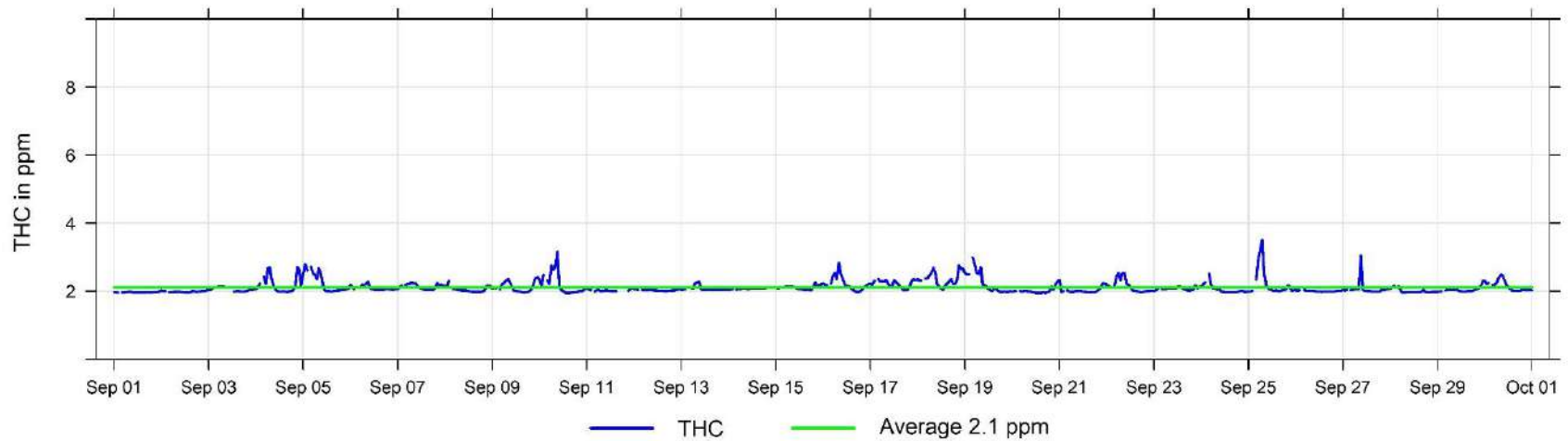
September Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



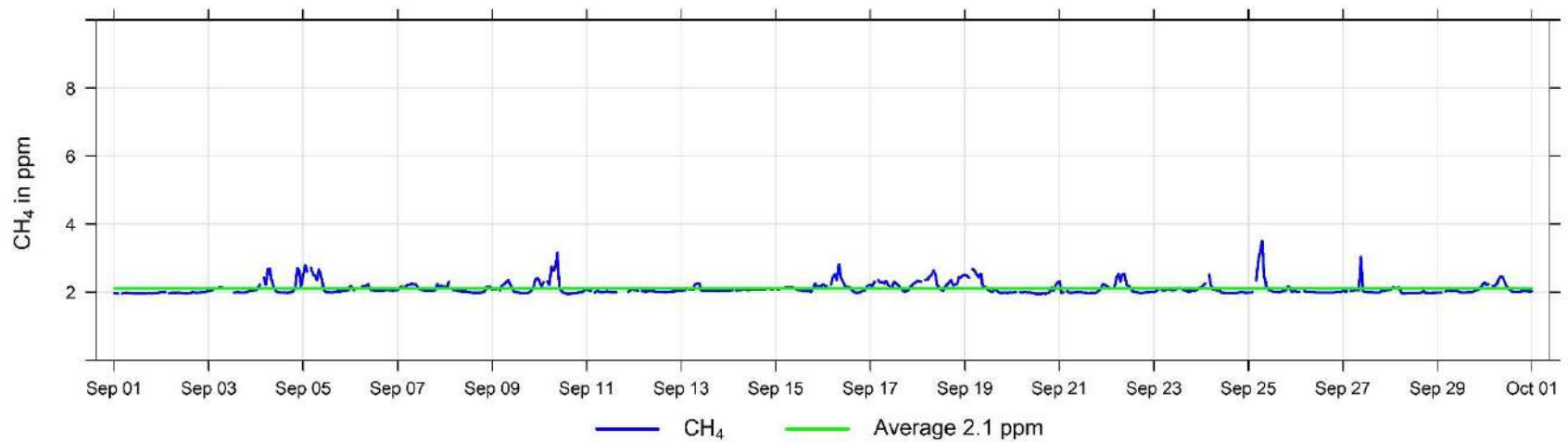
September Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker



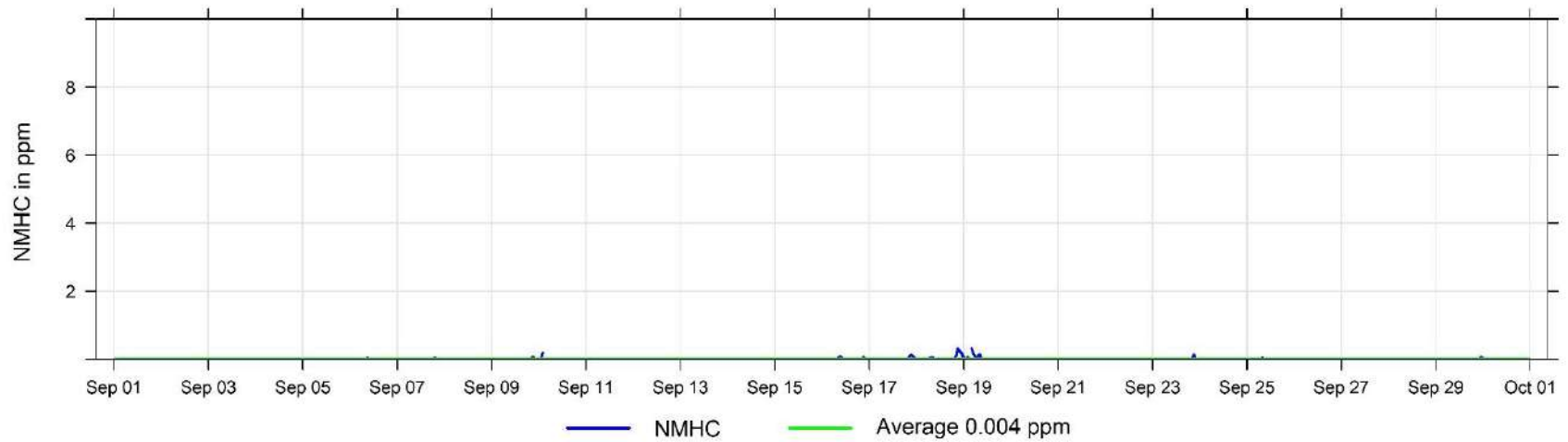
September Hourly Concentration Readings of THC (in ppm) at Henry Pirker



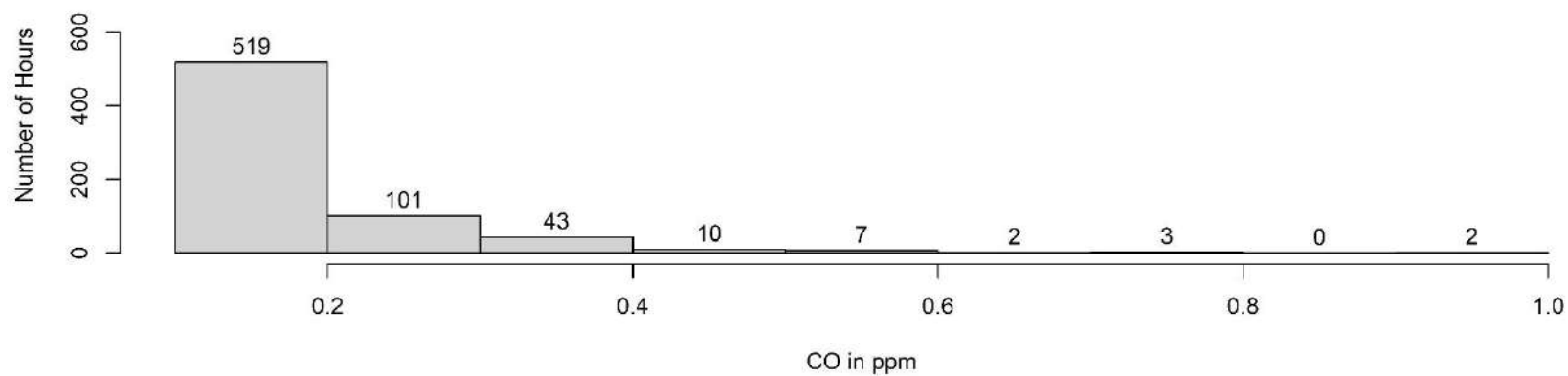
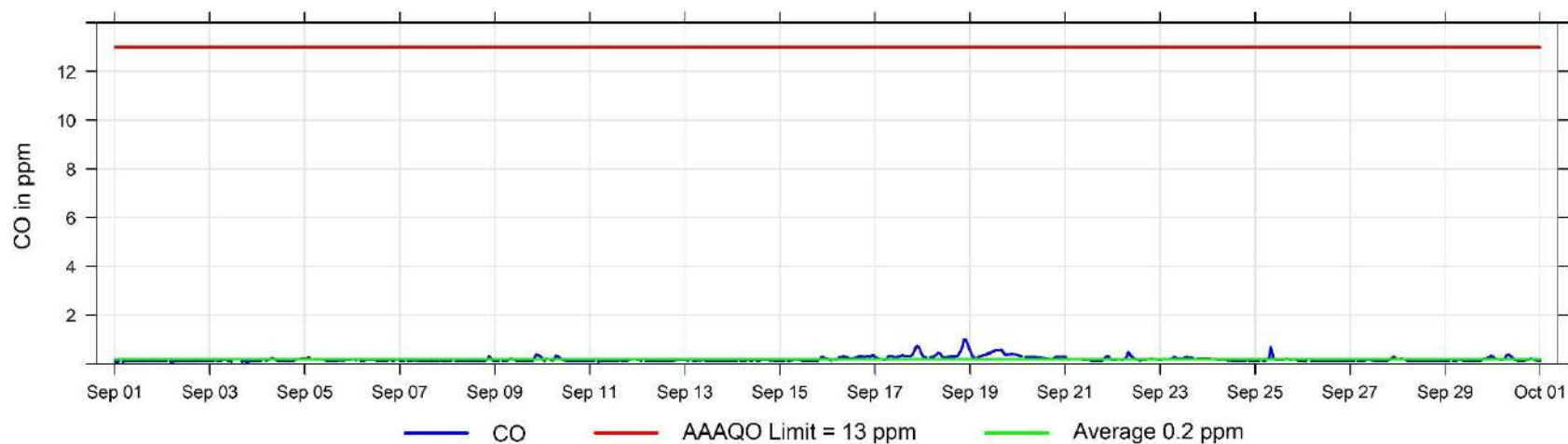
September Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker



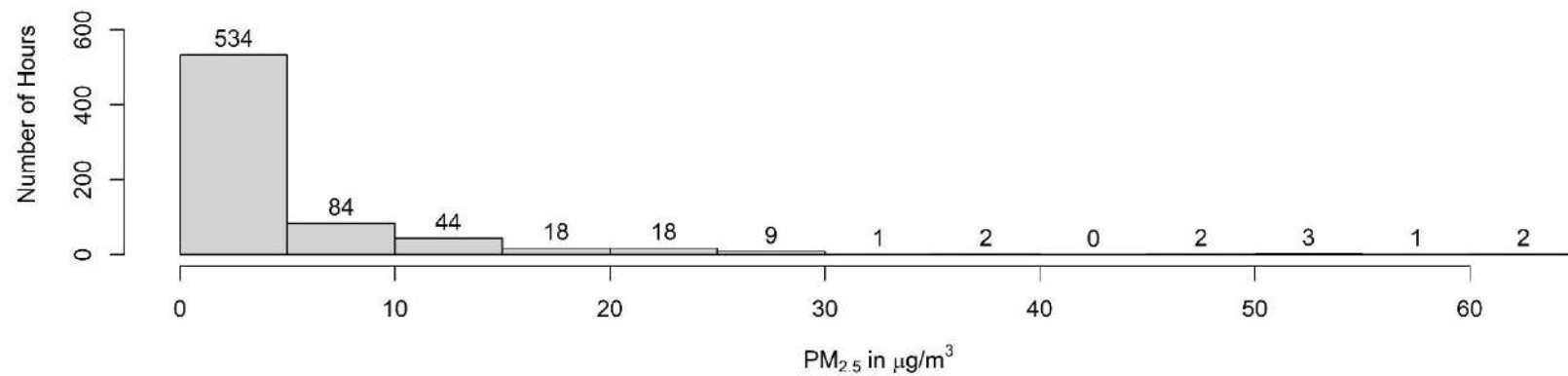
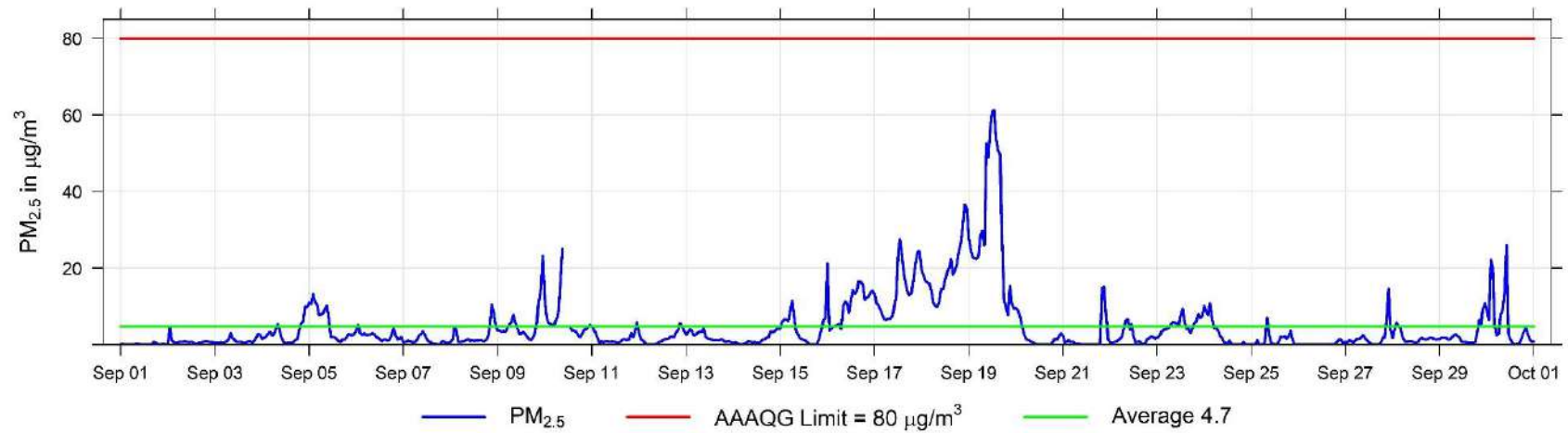
September Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker



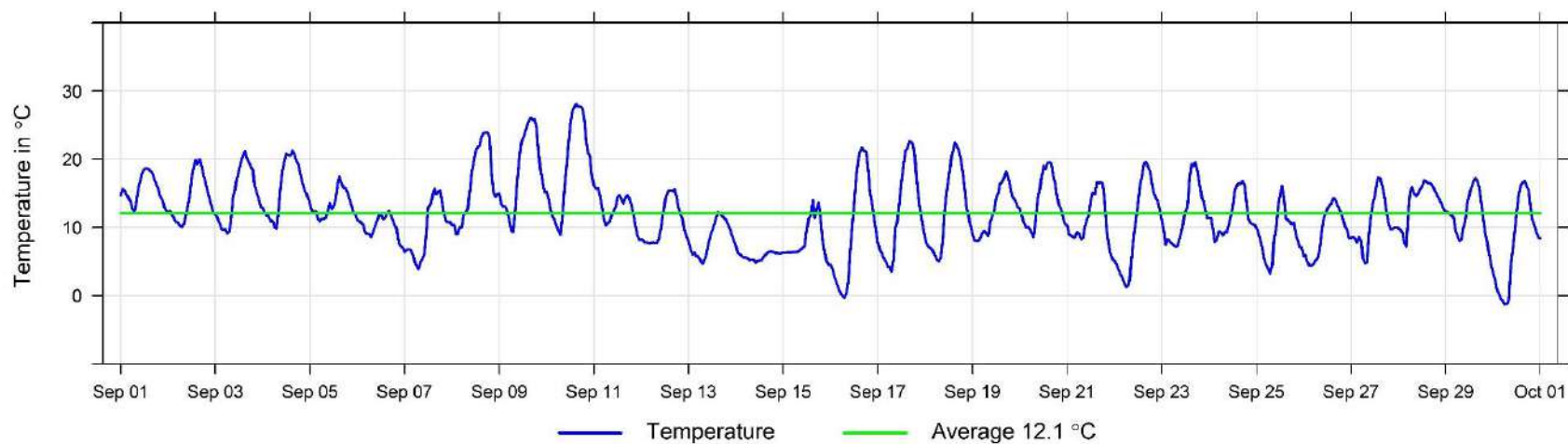
September Hourly Concentration Readings of CO (in ppm) at Henry Pirker



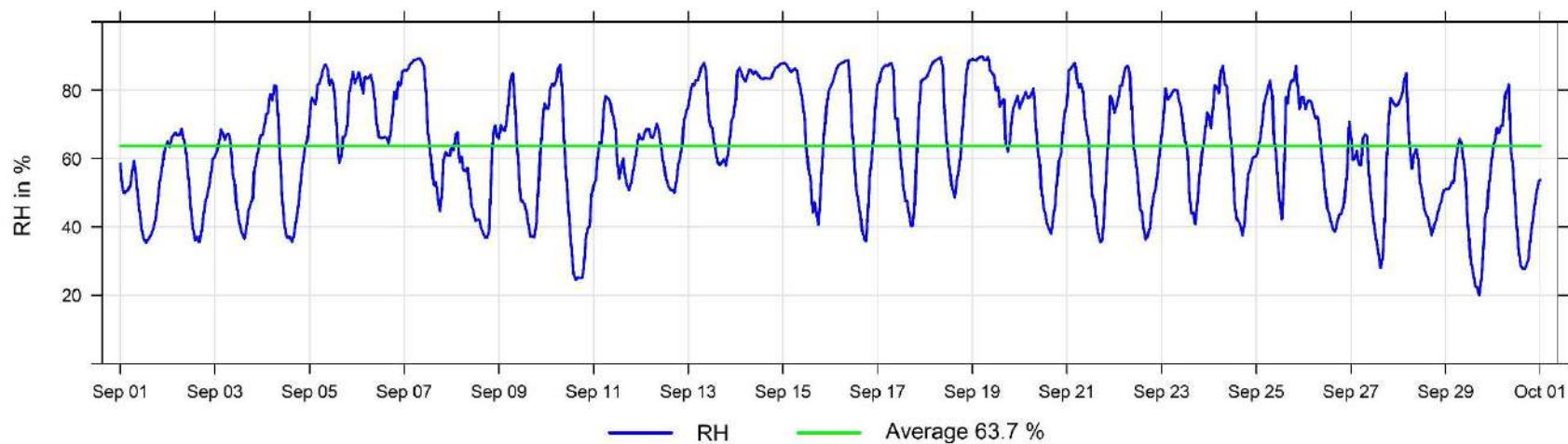
Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker



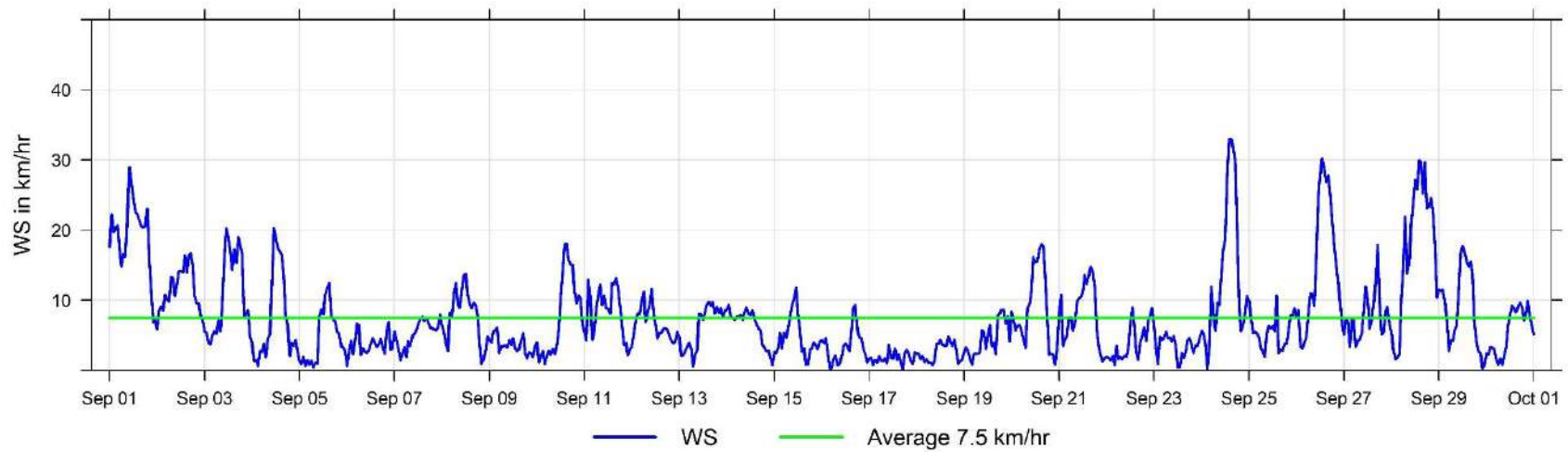
September Hourly Temperature Readings (in °C) at Henry Pirker



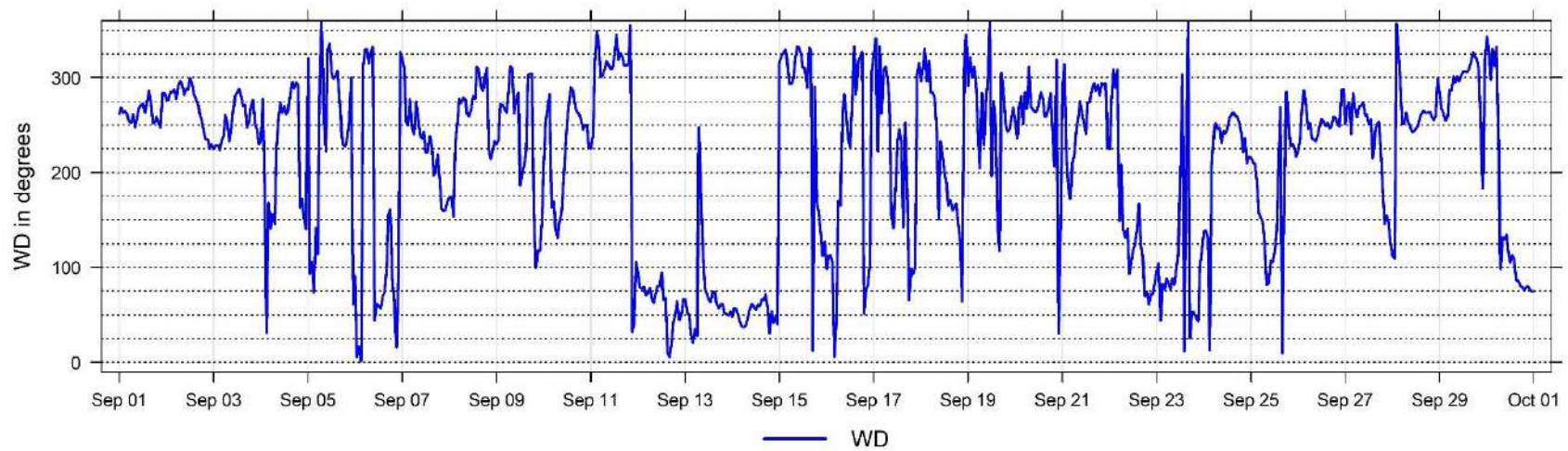
September Hourly Readings of Relative Humidity (in %) at Henry Pirker



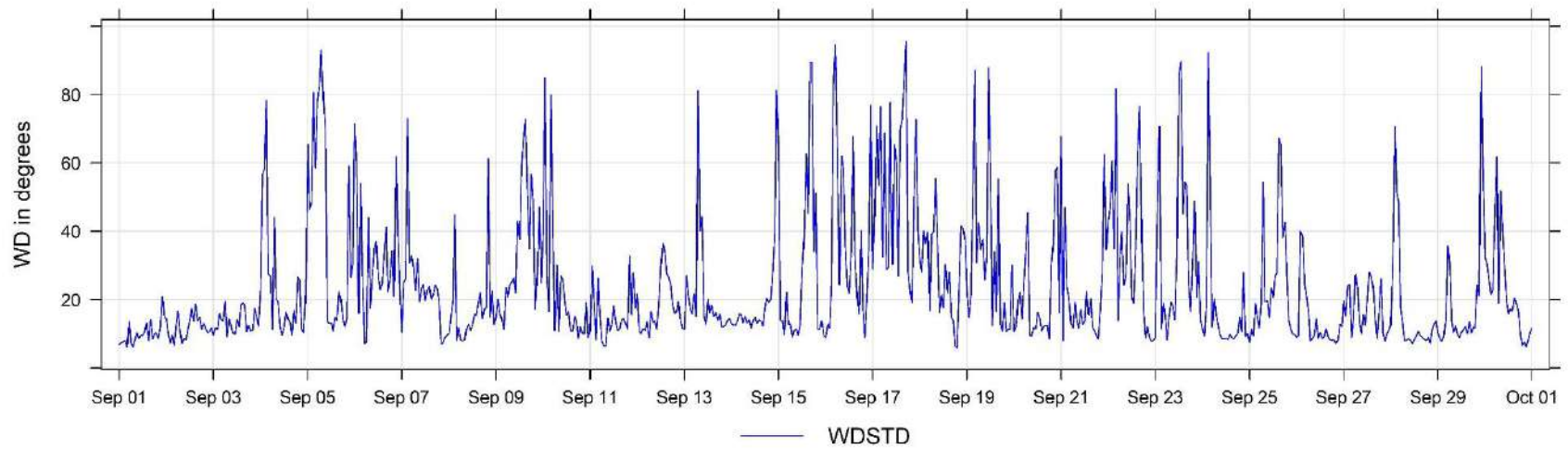
September Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

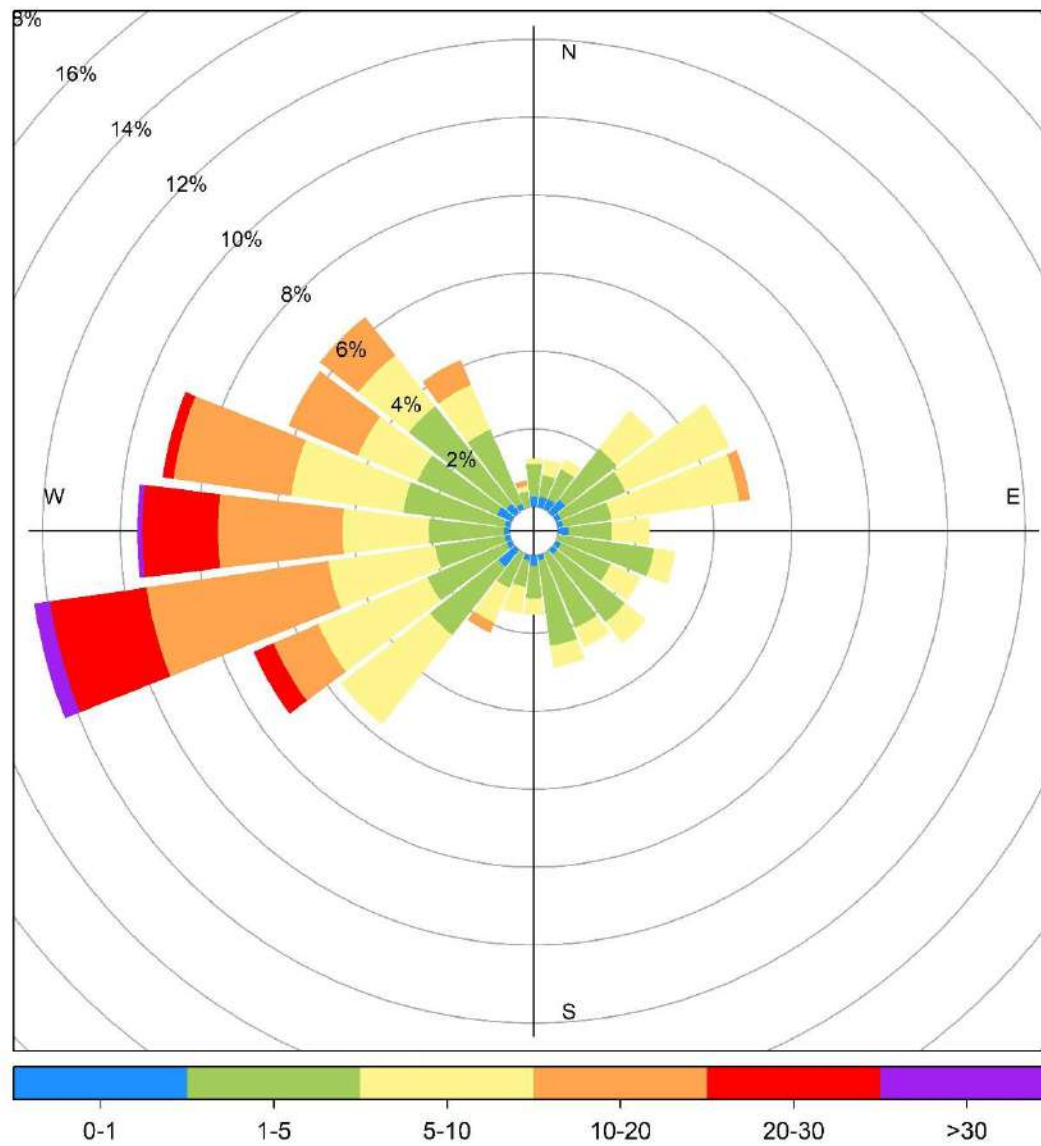


September Hourly Readings of Wind Direction (in degrees) at Henry Pirker



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



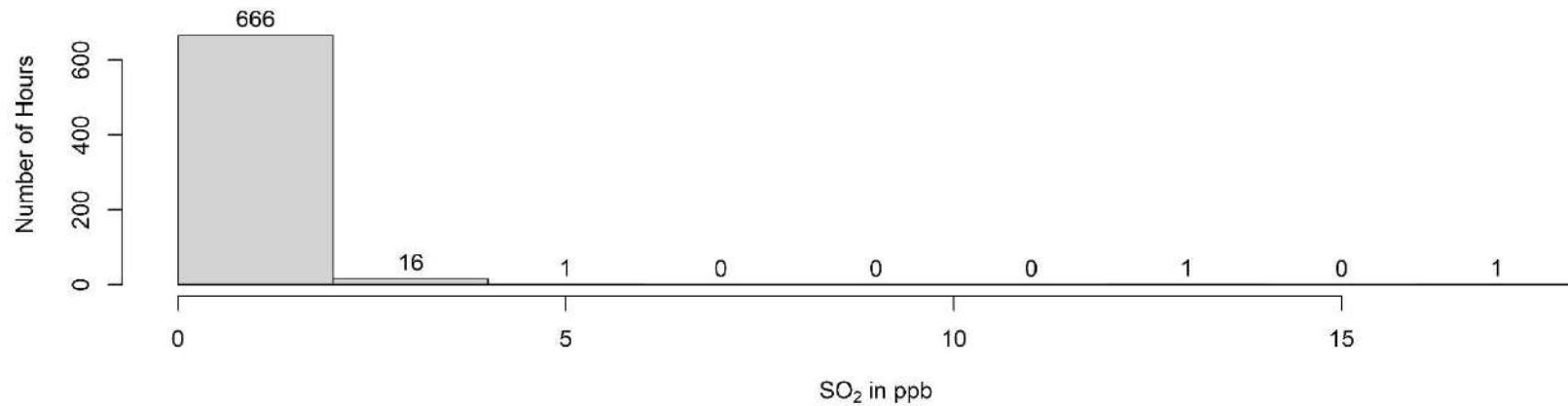
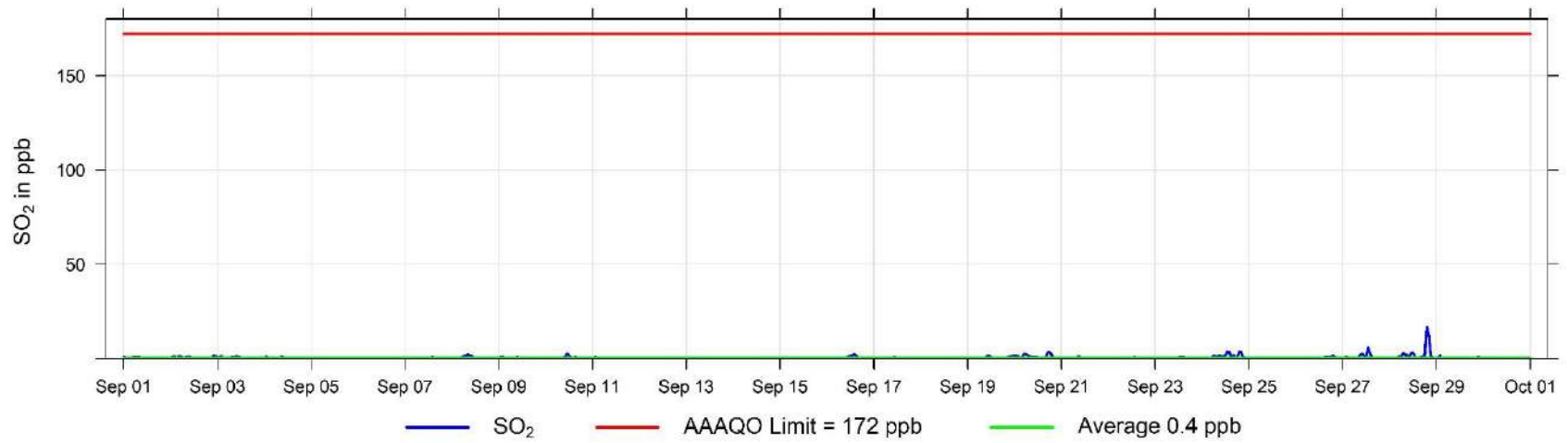


Henry Pirker September Wind Rose, wind speed in km/hr

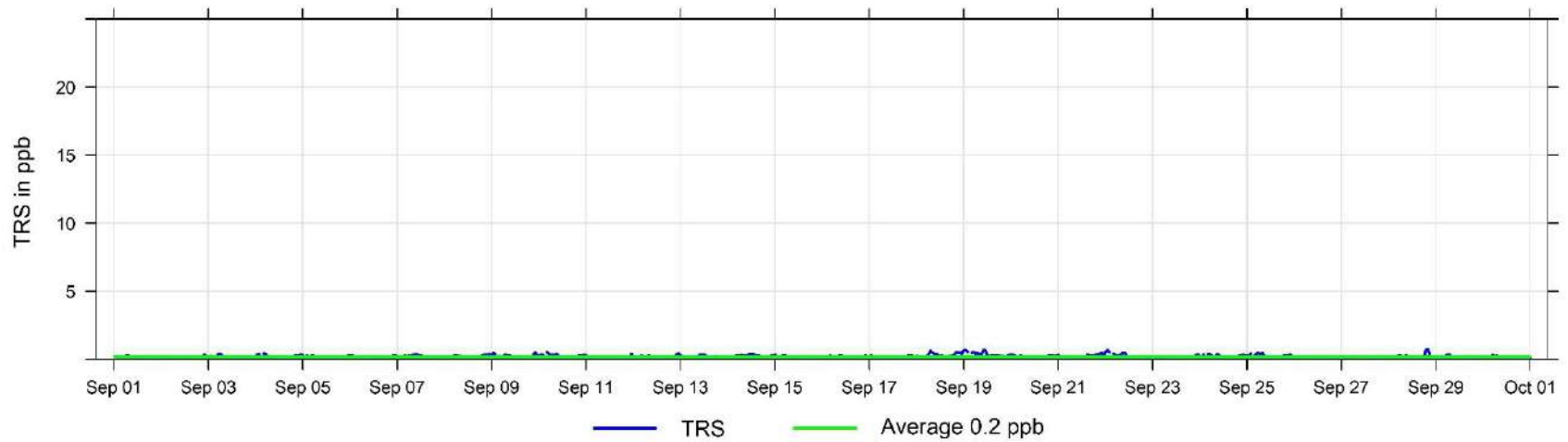
5 Smoky Heights Charts

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

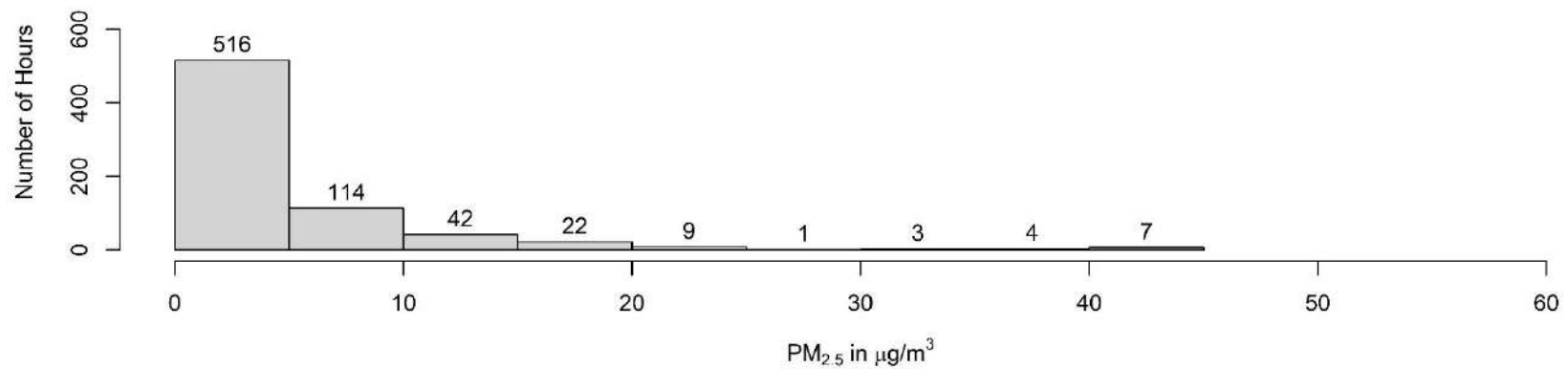
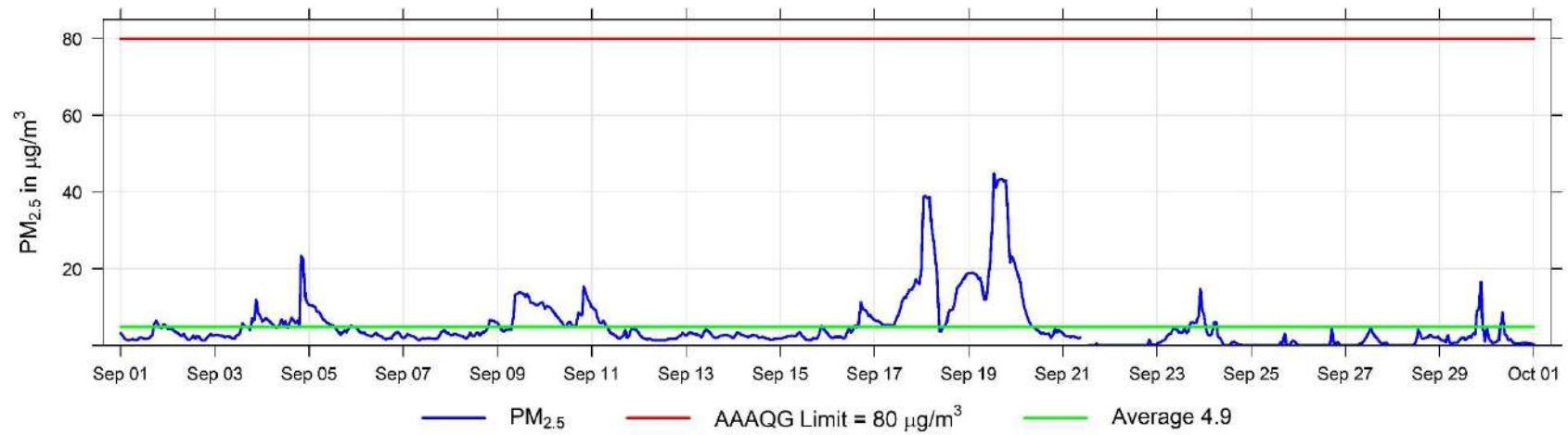
September Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights



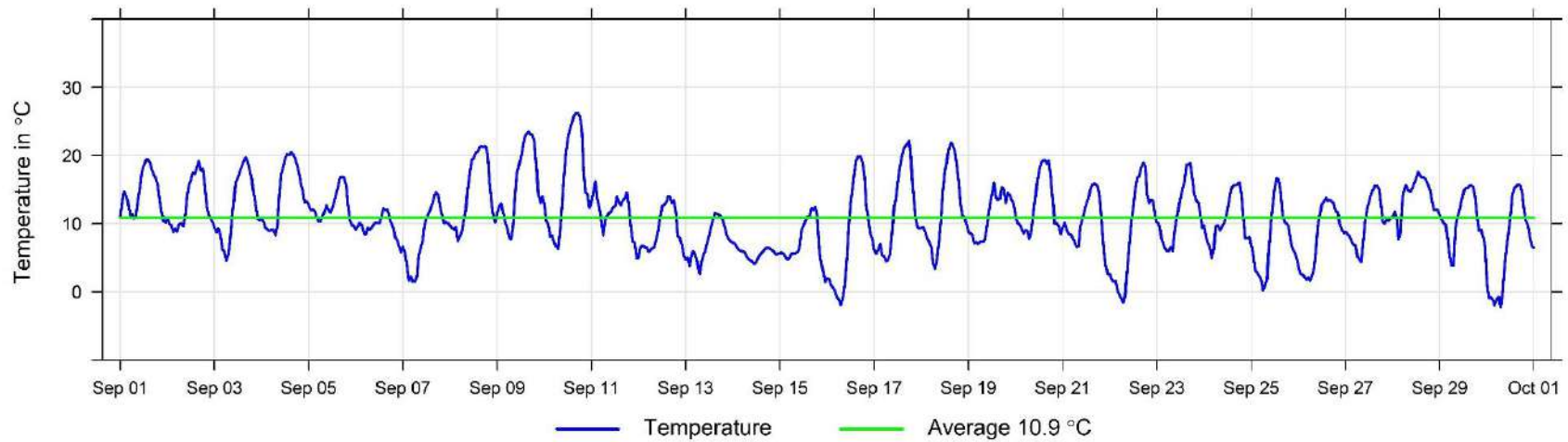
September Hourly Concentration Readings of TRS (in ppb) at Smoky Heights



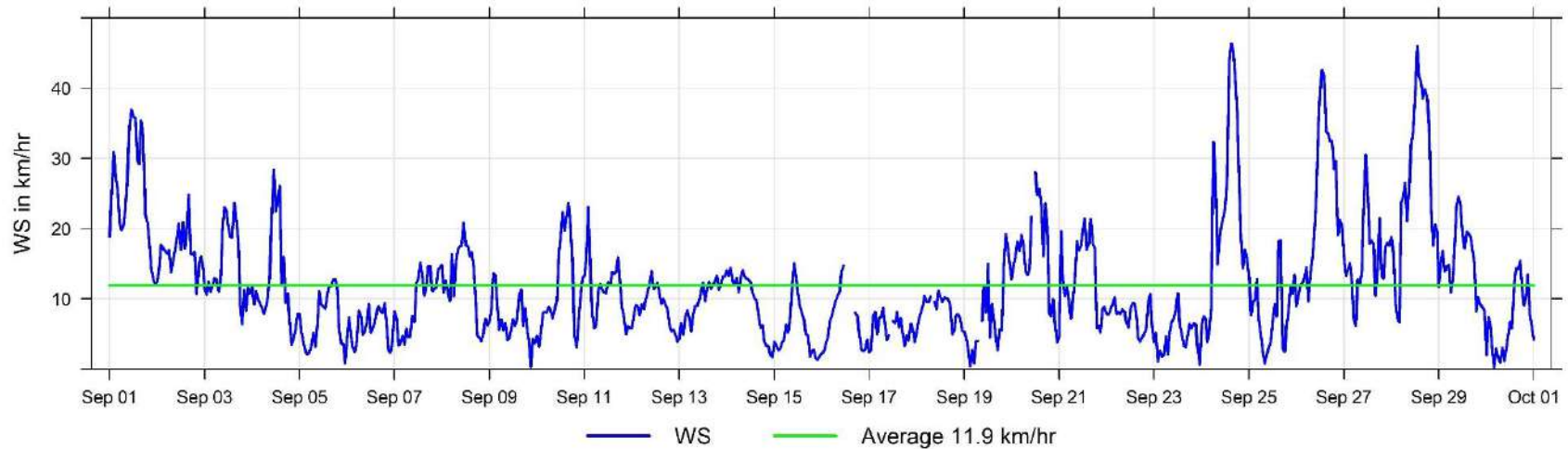
Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Smoky Heights



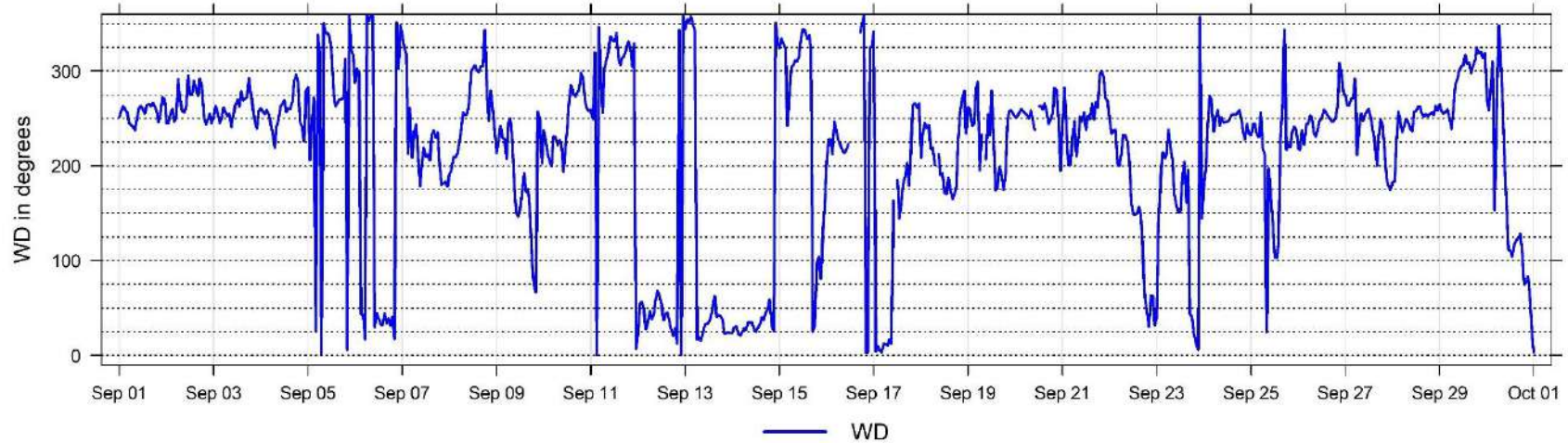
September Hourly Temperature Readings (in °C) at Smoky Heights



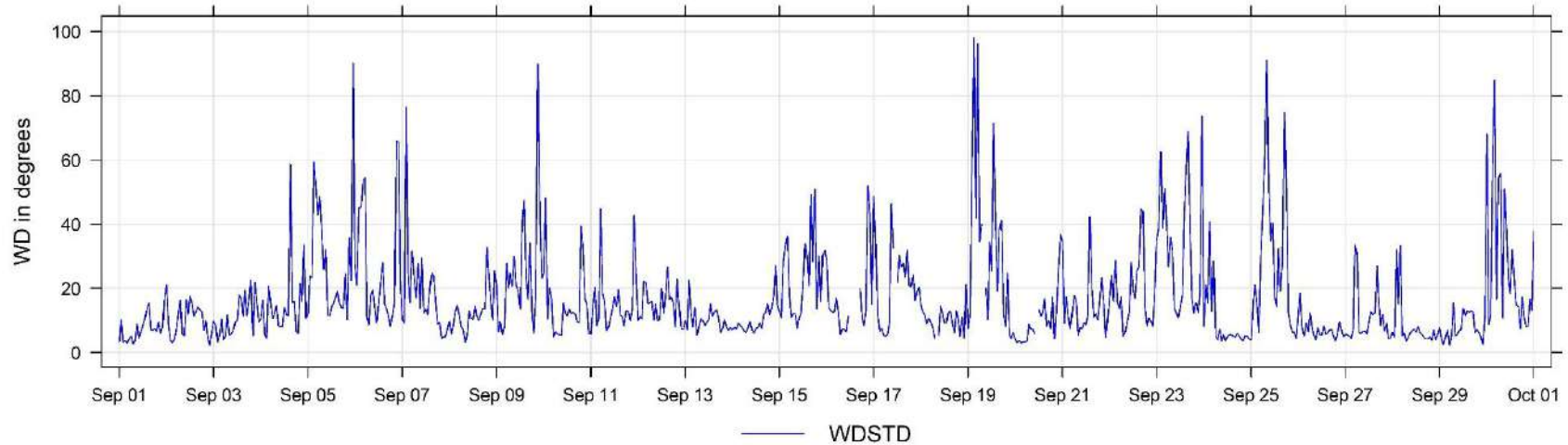
September Hourly Readings of Wind Speed (in km/hr) at Smoky Heights

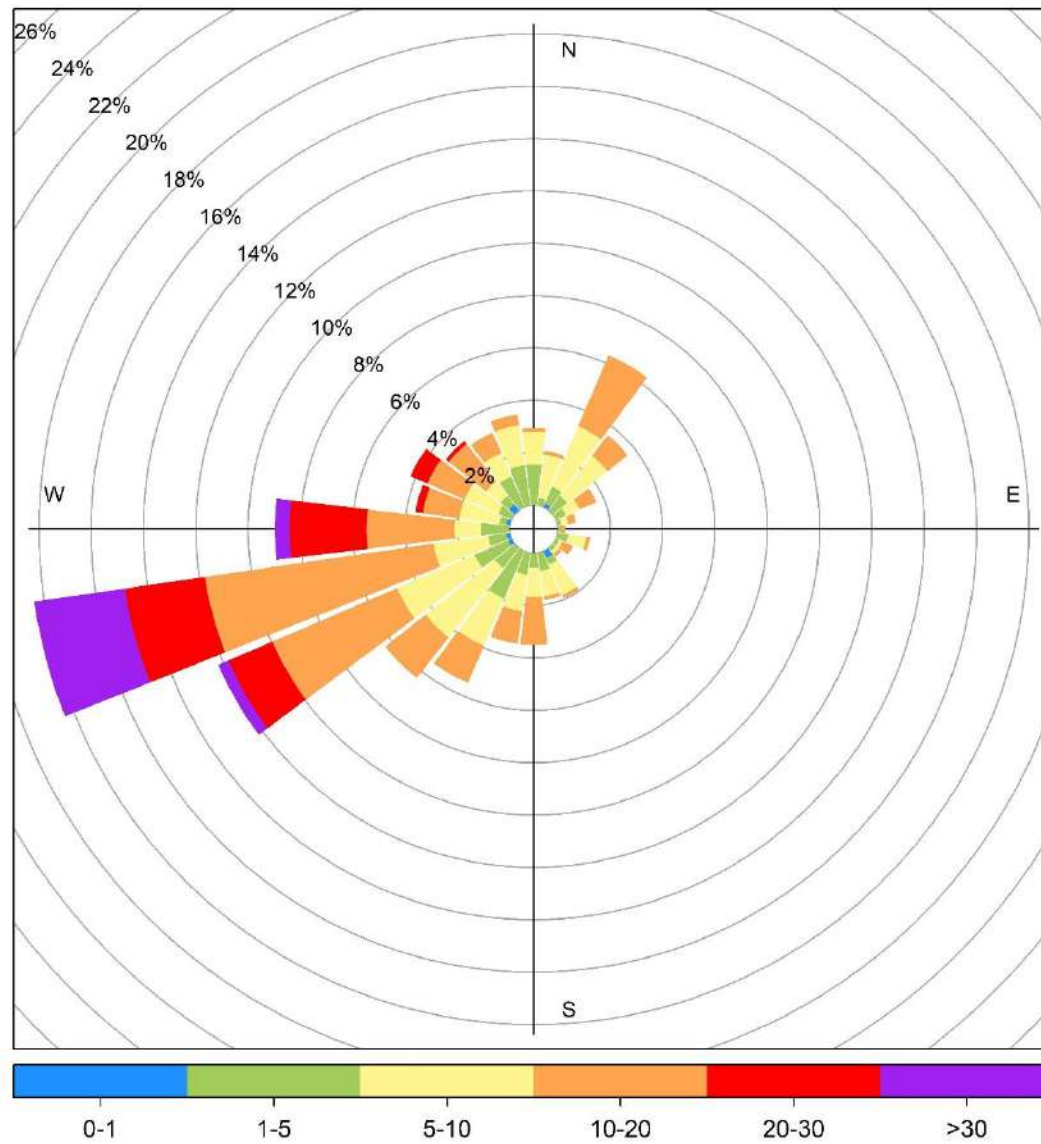


September Hourly Readings of Wind Direction (in degrees) at Smoky Heights



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



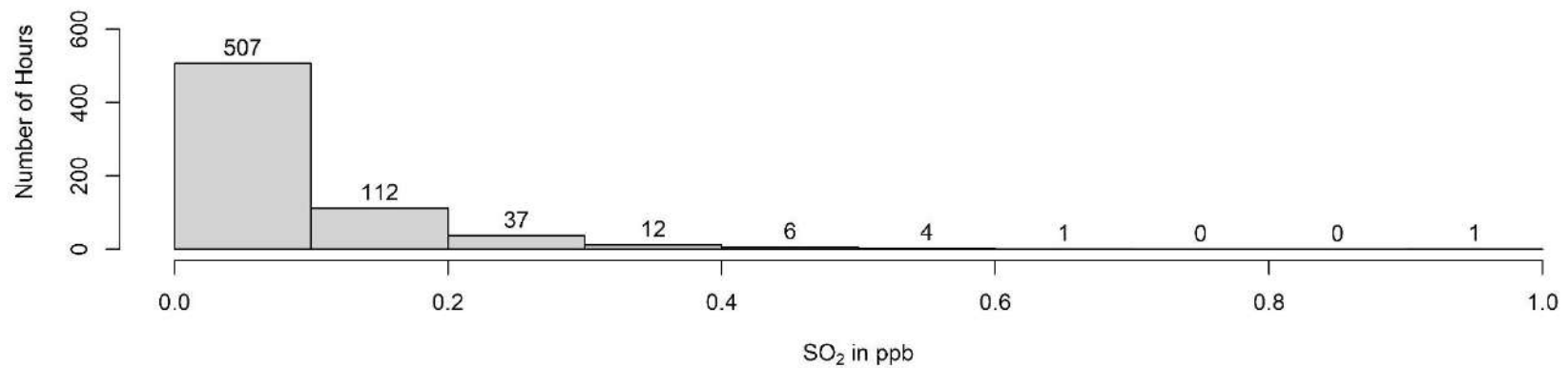
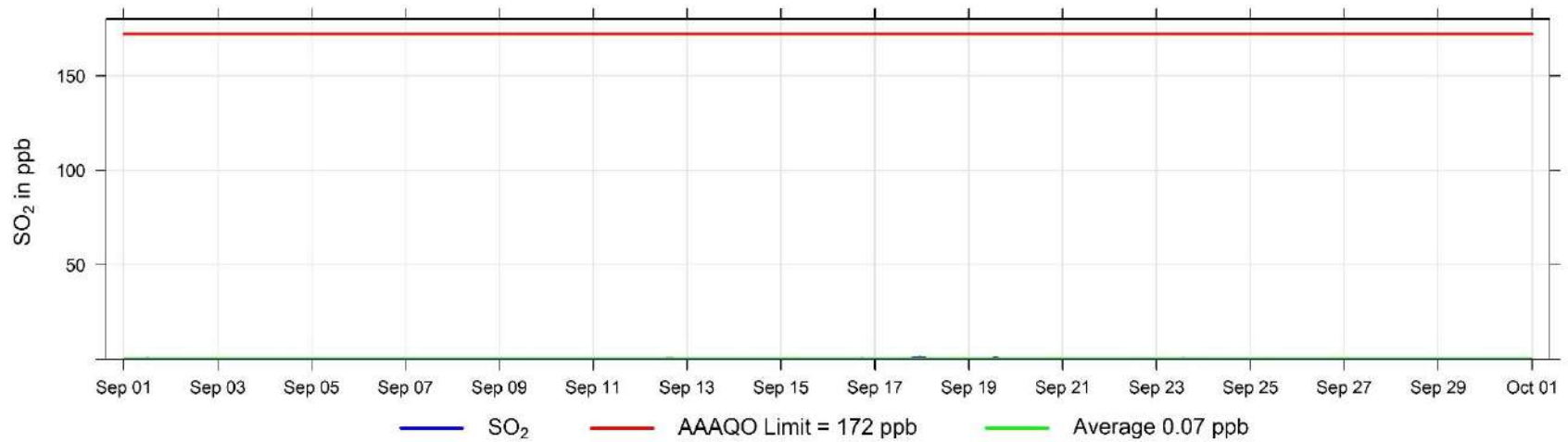


Smoky Heights September Wind Rose, wind speed in km/hr

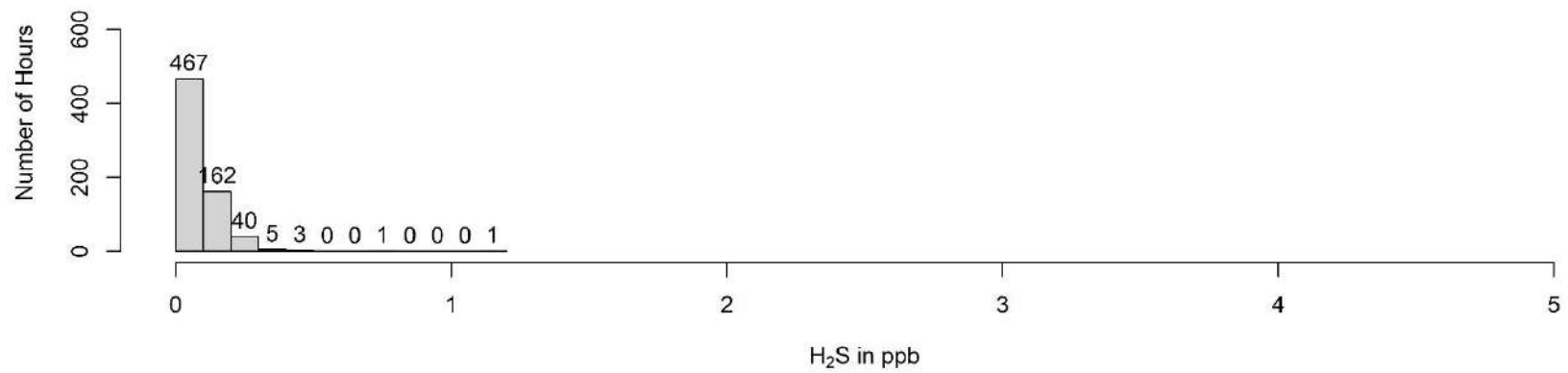
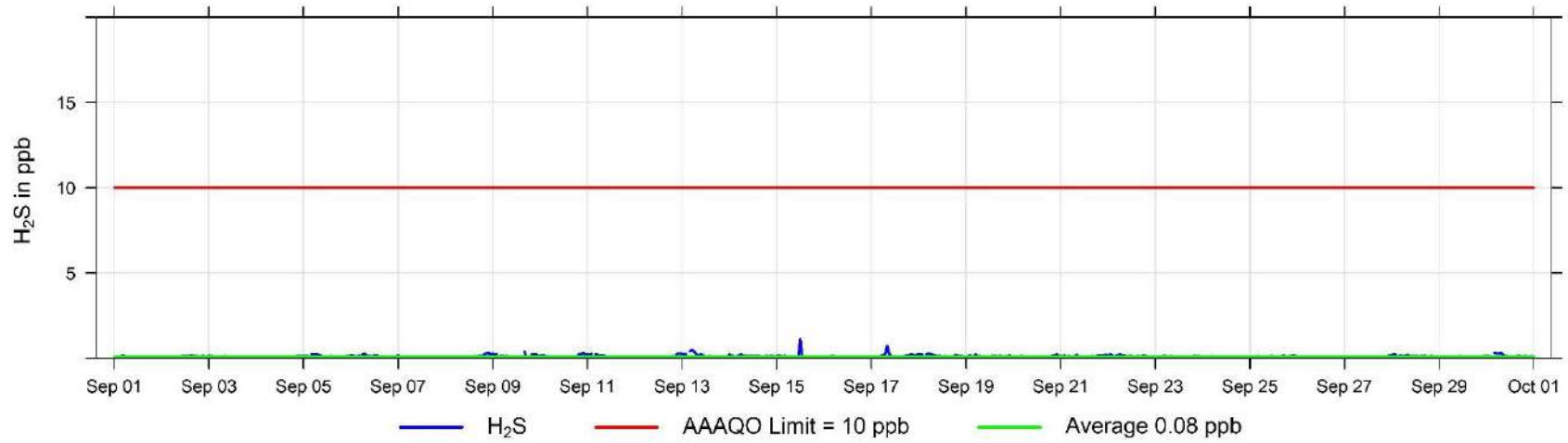
6 Valleyview Charts

The following pages include the charts and histograms for Valleyview Station

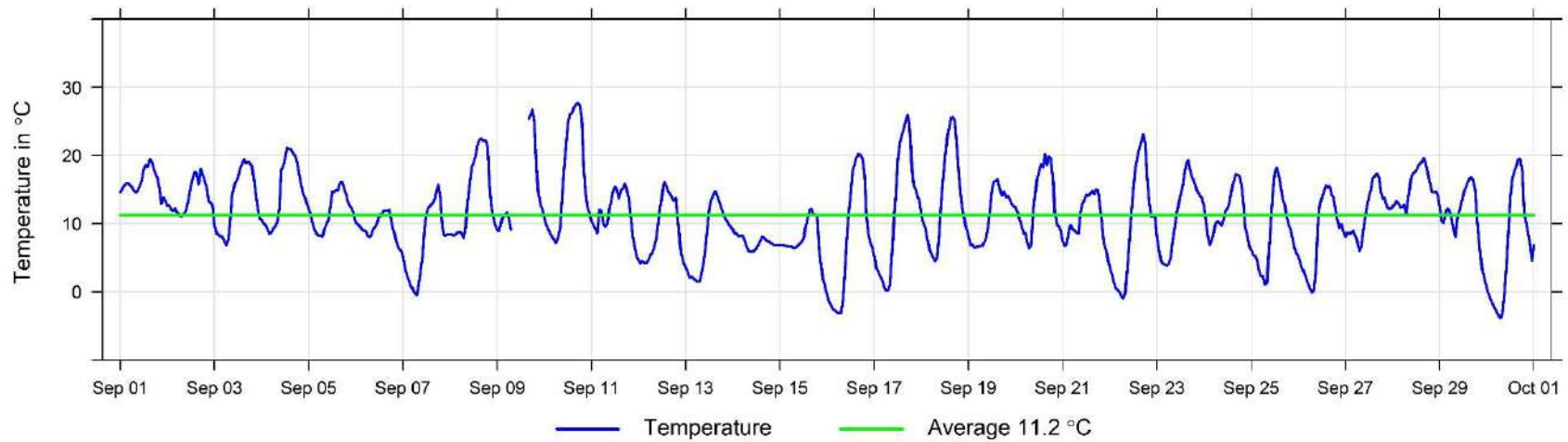
September Hourly Concentration Readings of SO₂ (in ppb) at Valleyview



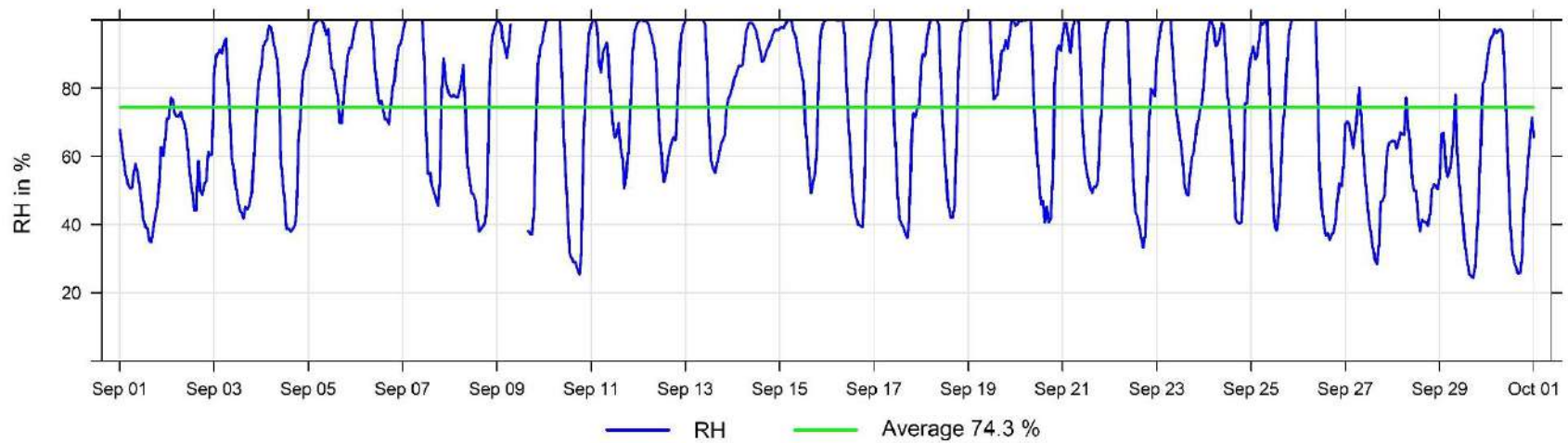
September Hourly Concentration Readings of H₂S (in ppb) at Valleyview



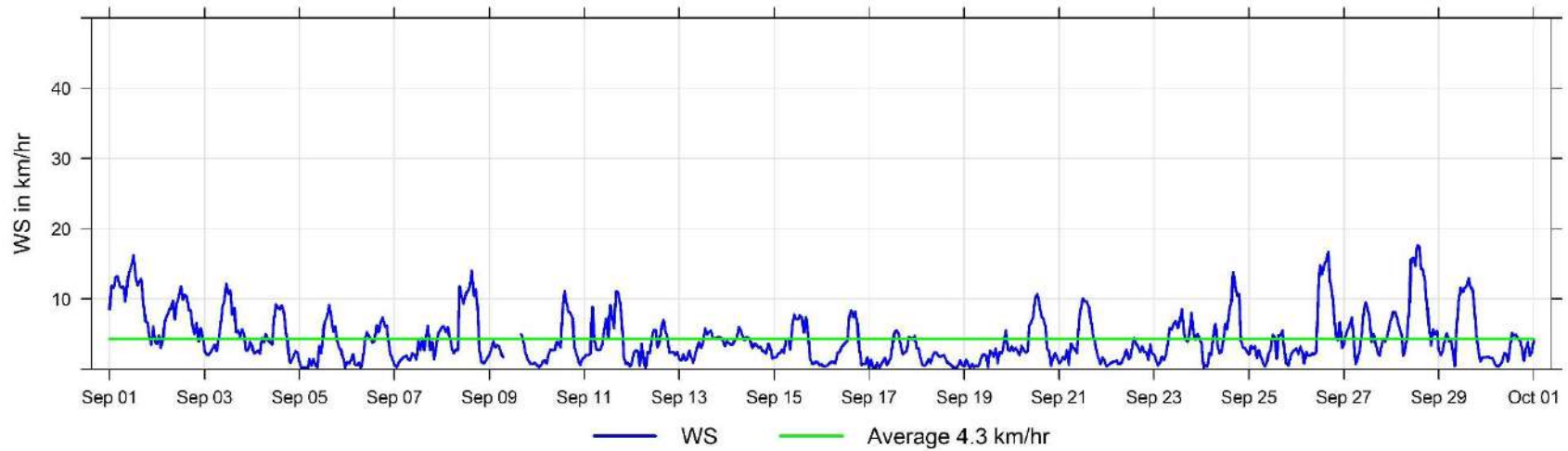
September Hourly Temperature Readings (in °C) at Valleyview



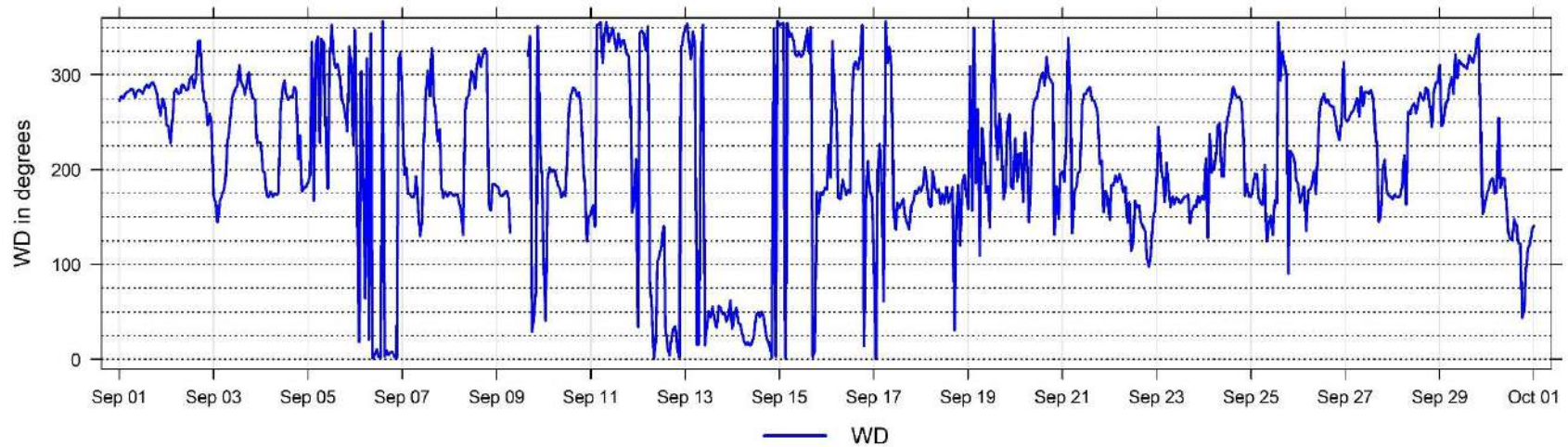
September Hourly Readings of Relative Humidity (in %) at Valleyview



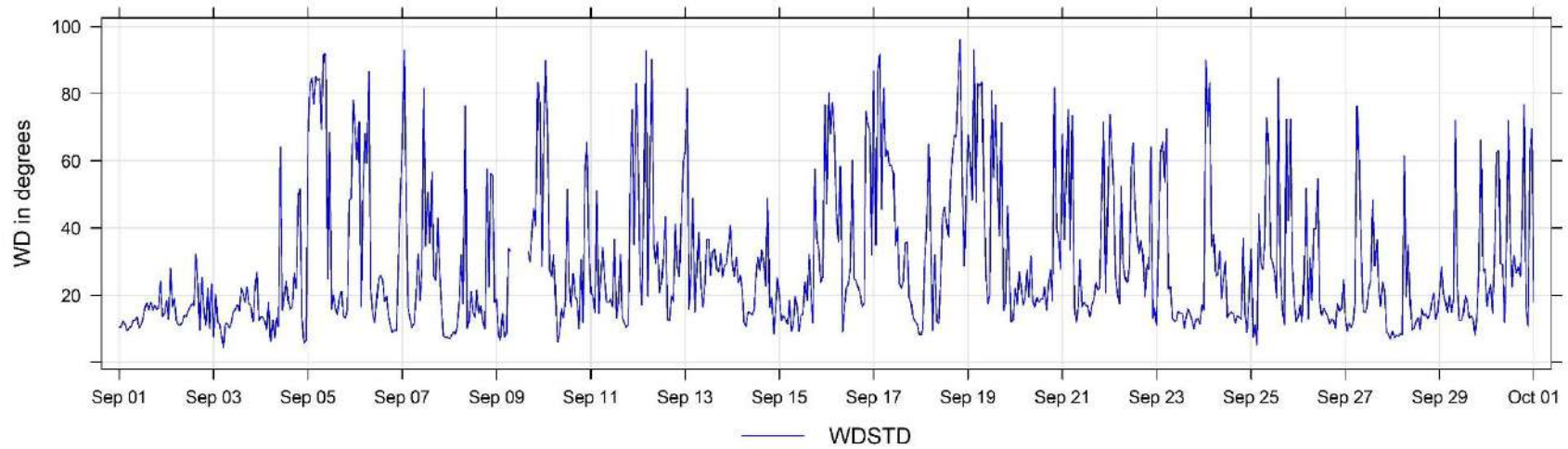
September Hourly Readings of Wind Speed (in km/hr) at Valleyview

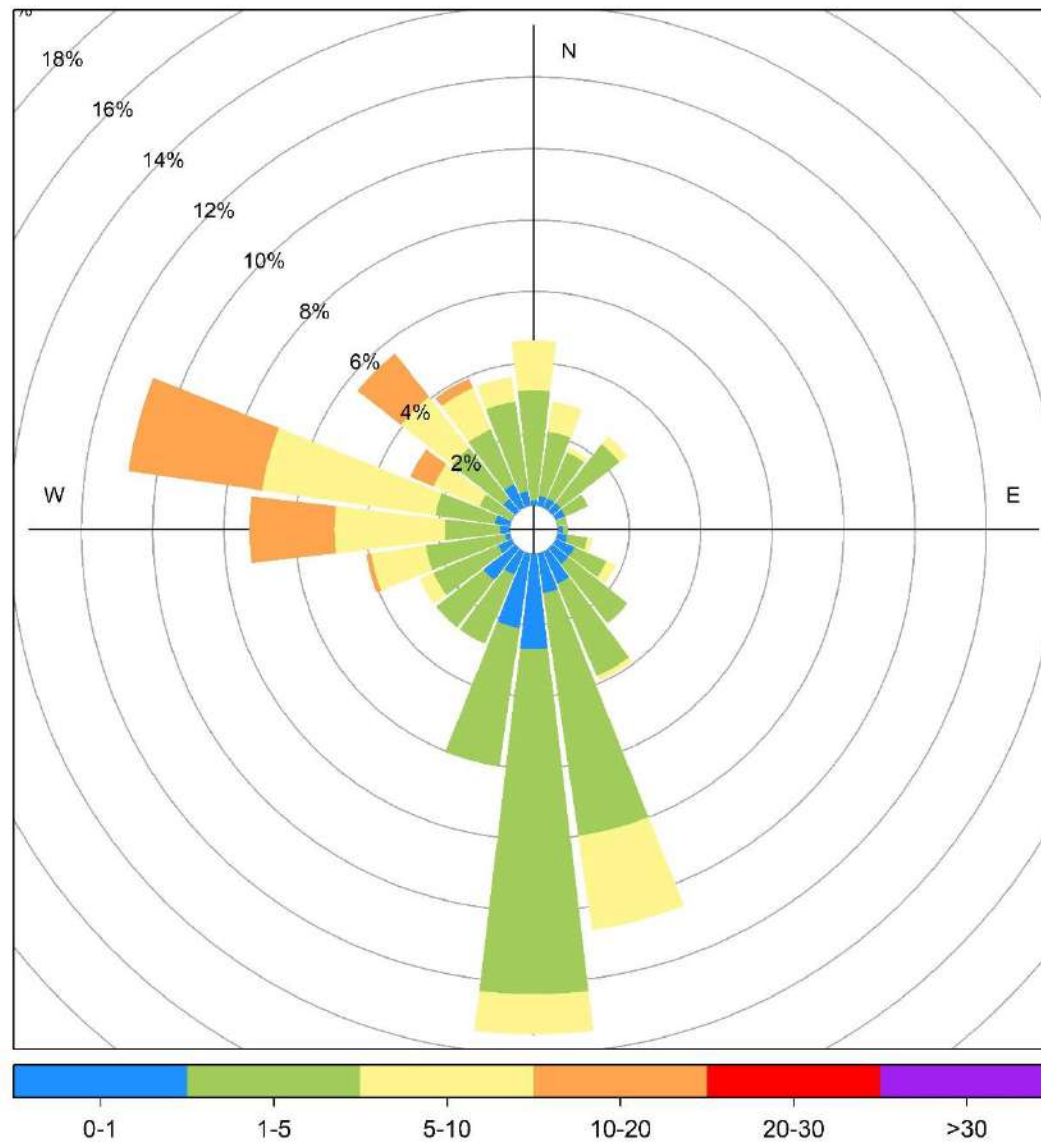


September Hourly Readings of Wind Direction (in degrees) at Valleyview



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



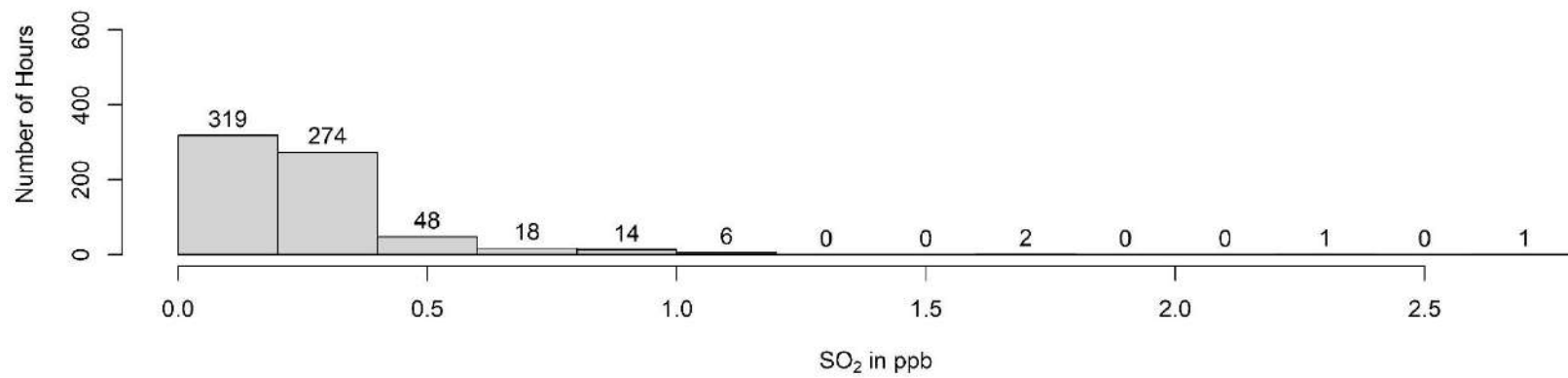
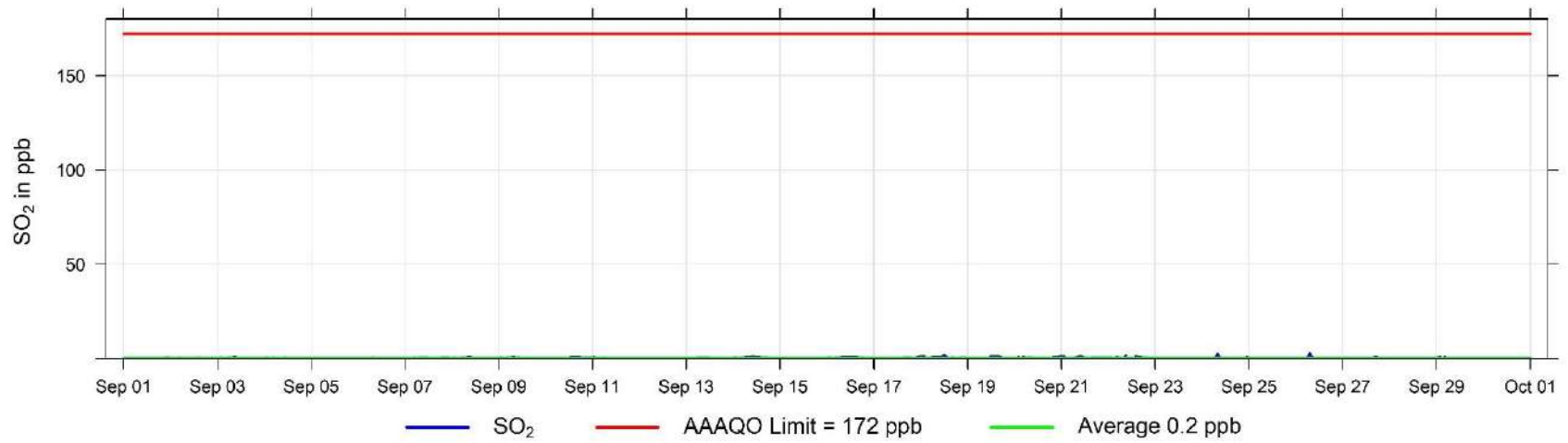


Valleyview September Wind Rose, wind speed in km/hr

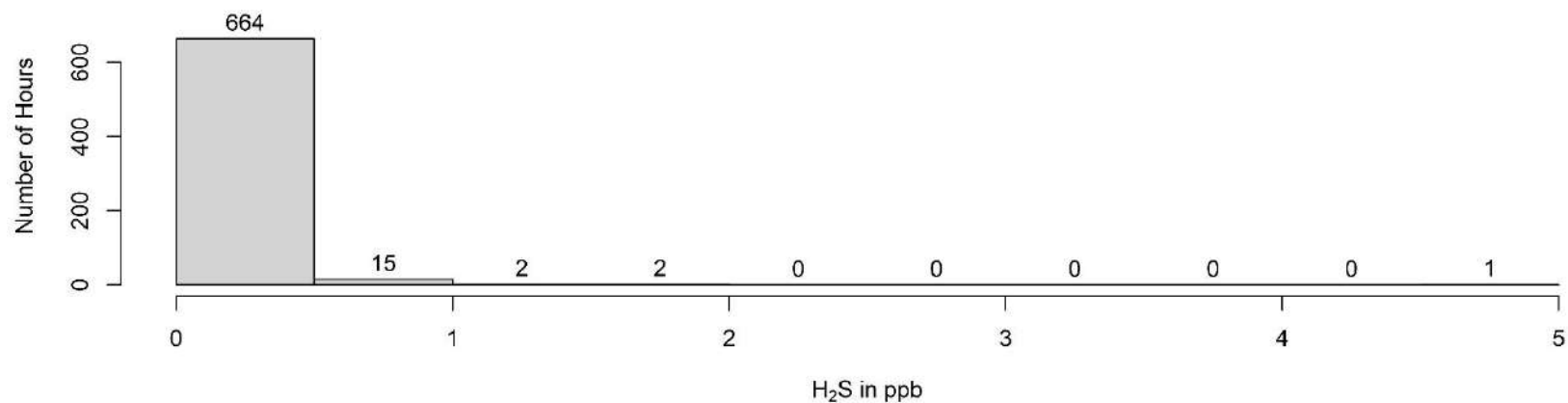
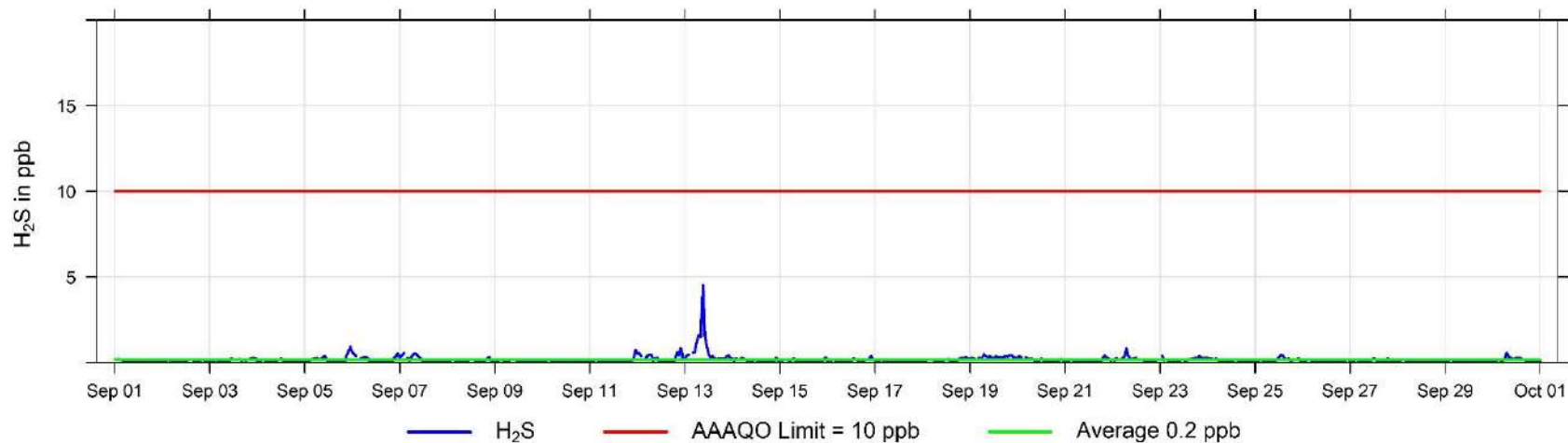
7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

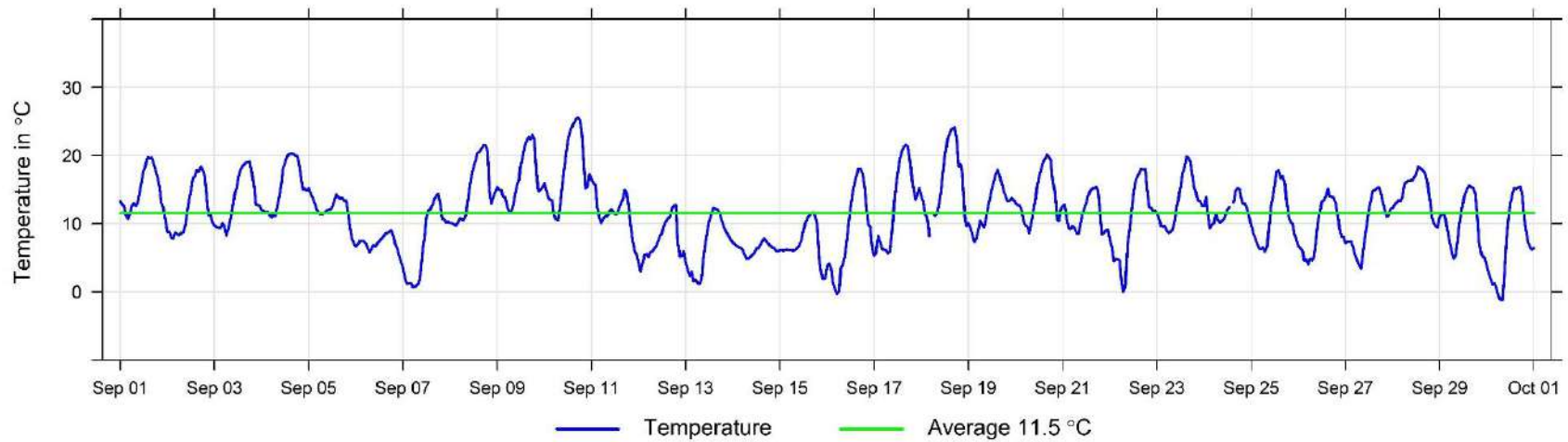
September Hourly Concentration Readings of SO₂ (in ppb) at Donnelly



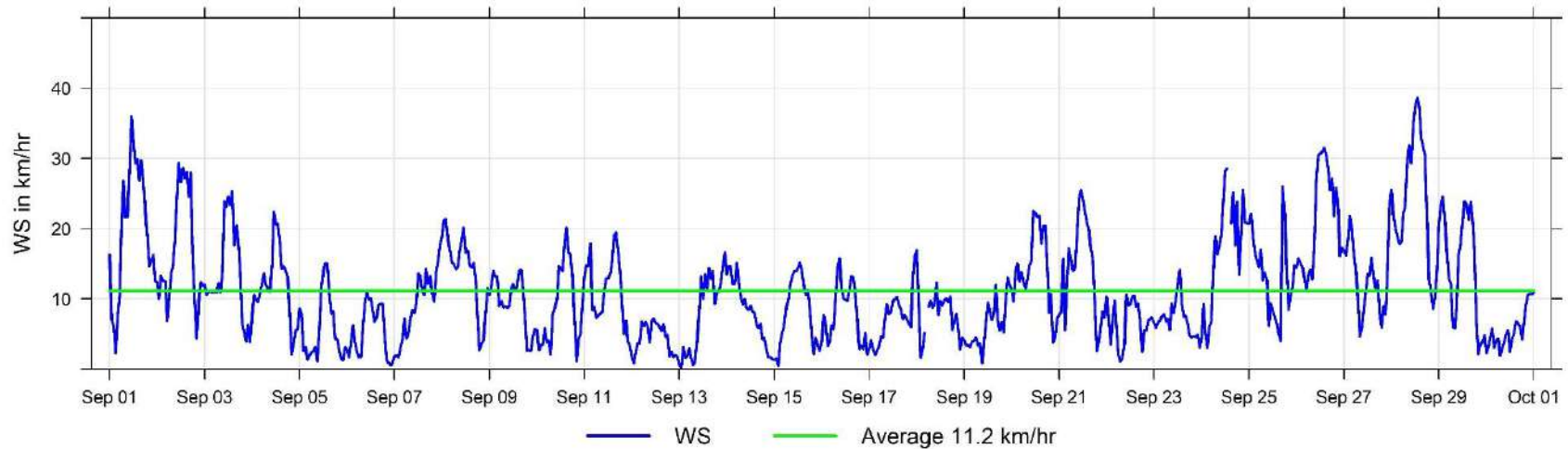
September Hourly Concentration Readings of H₂S (in ppb) at Donnelly



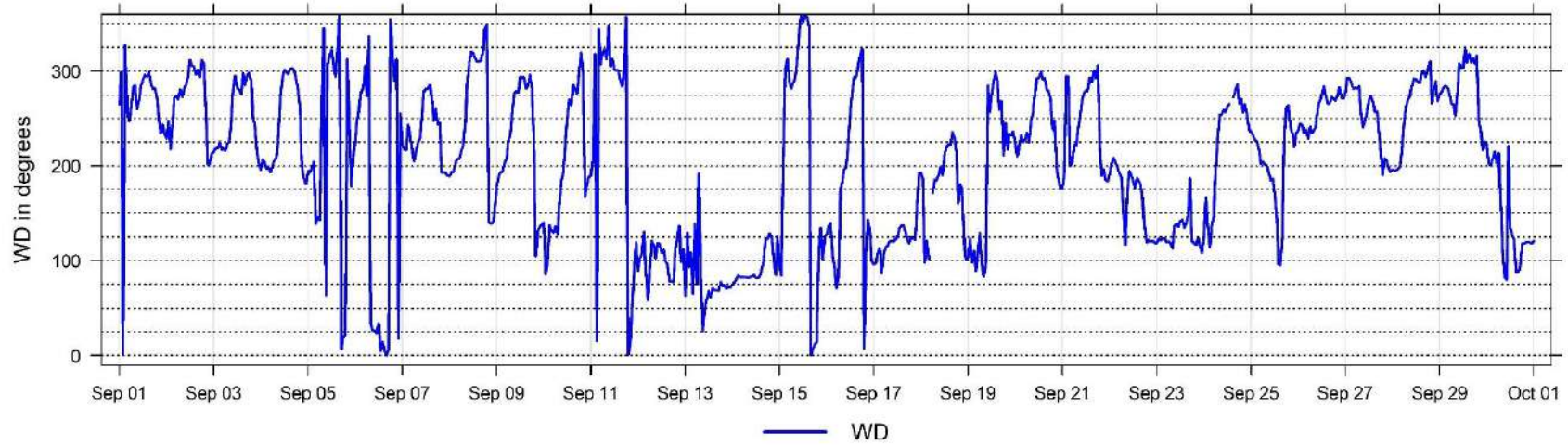
September Hourly Temperature Readings (in °C) at Donnelly



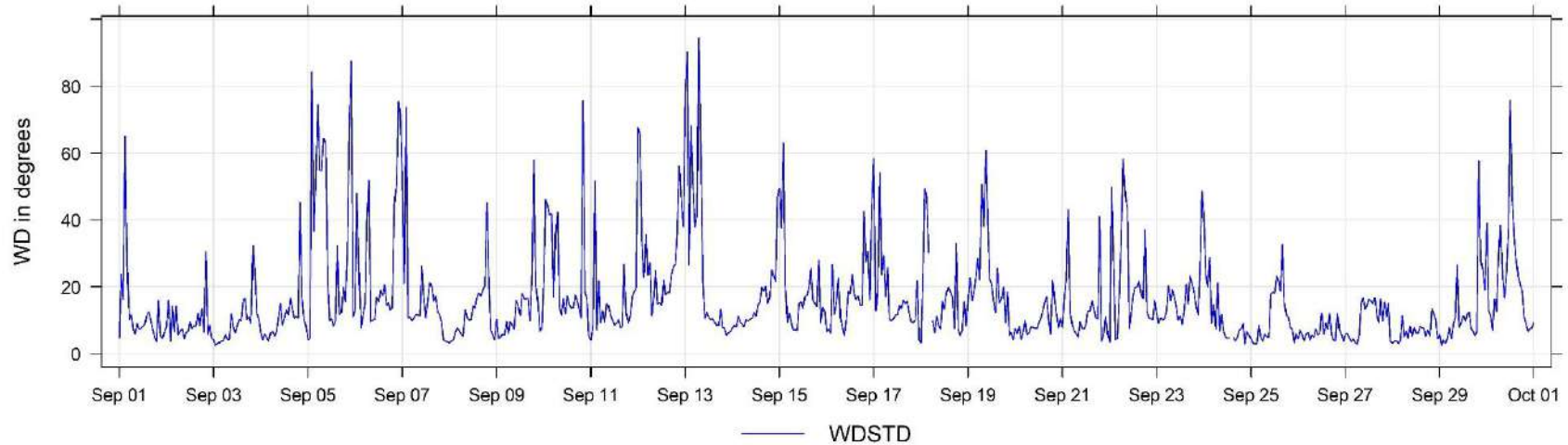
September Hourly Readings of Wind Speed (in km/hr) at Donnelly



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



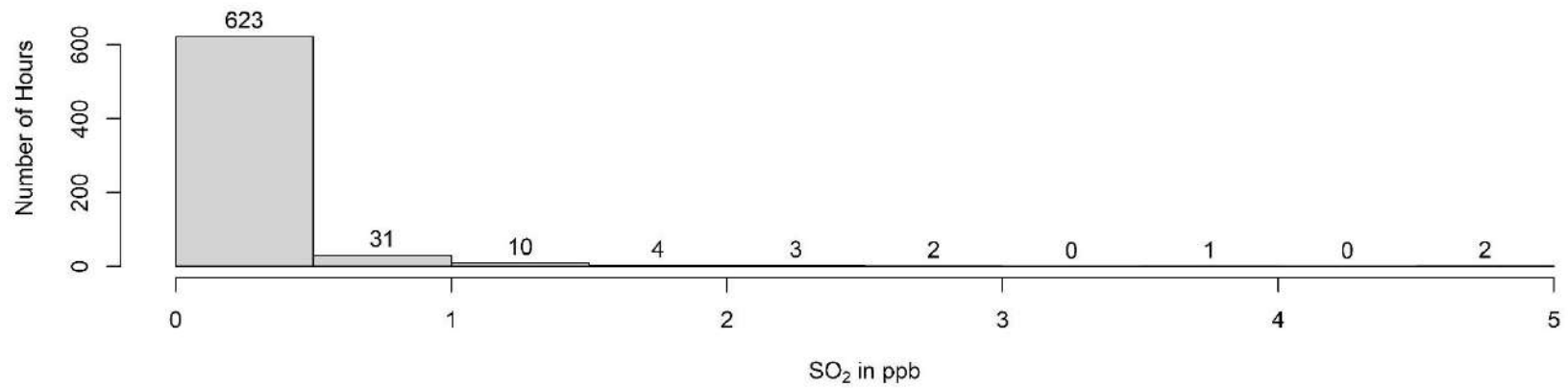
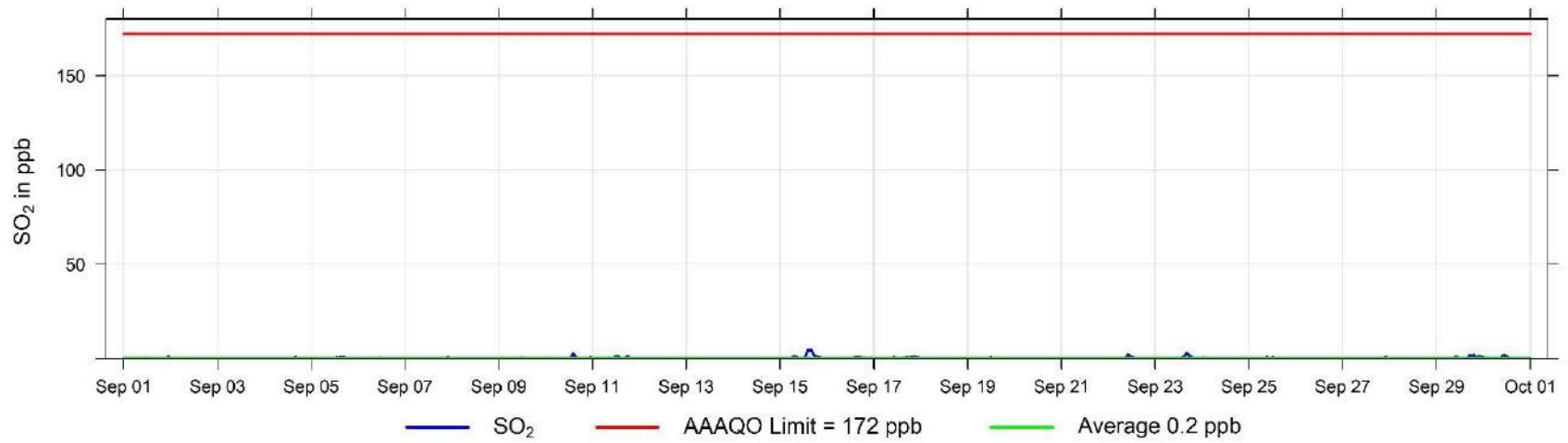
September Hourly Readings of Wind Direction Standard Deviation (in degrees) at Donnelly



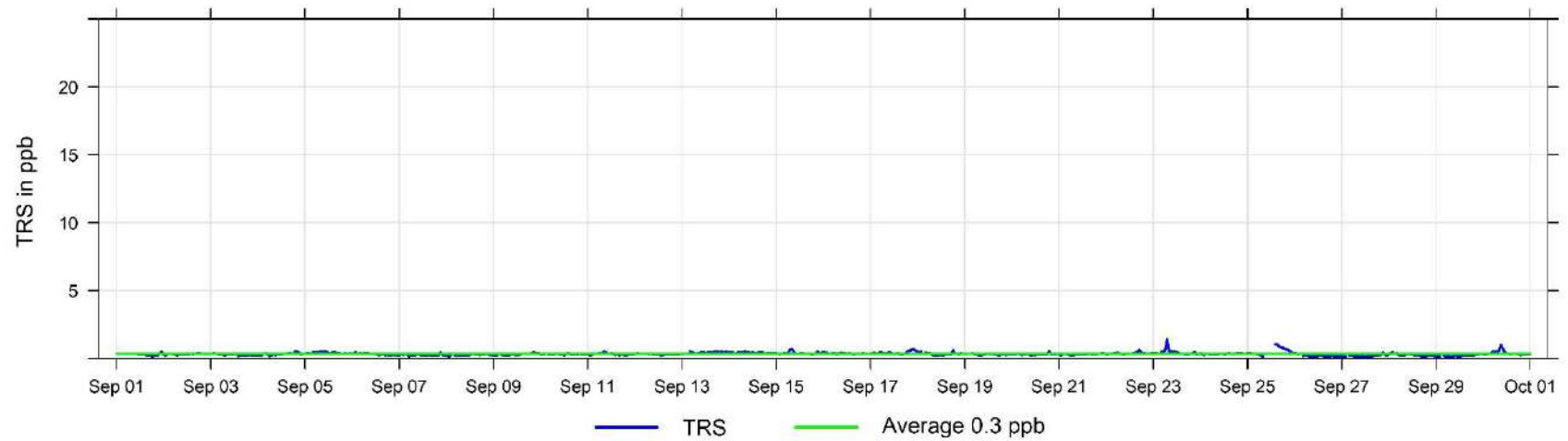
8 Wembley (Portable) Charts

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

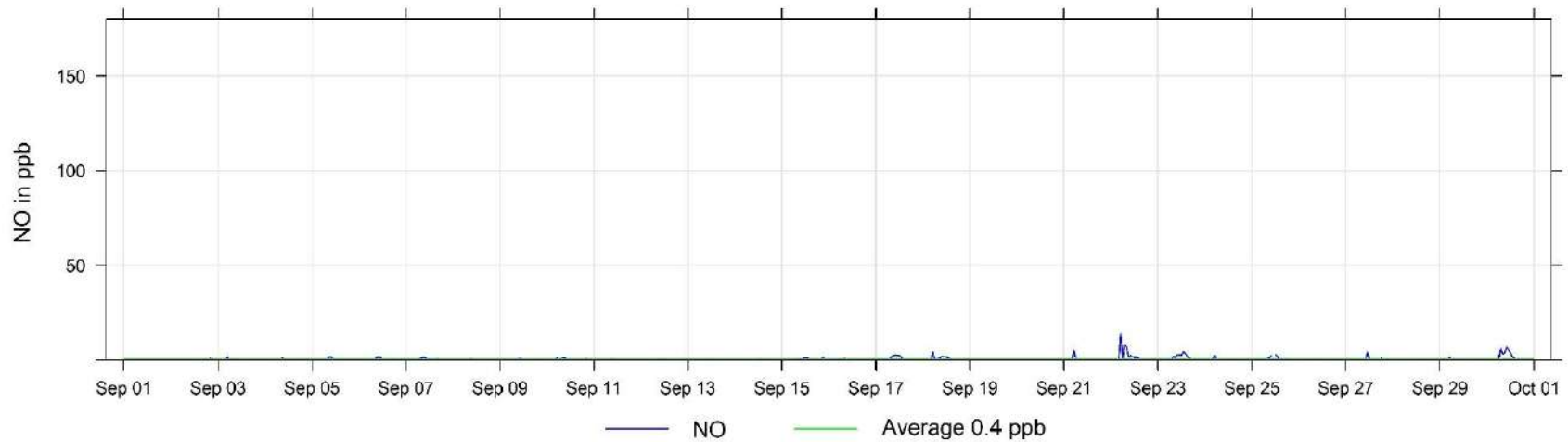
September Hourly Concentration Readings of SO₂ (in ppb) at Wembley



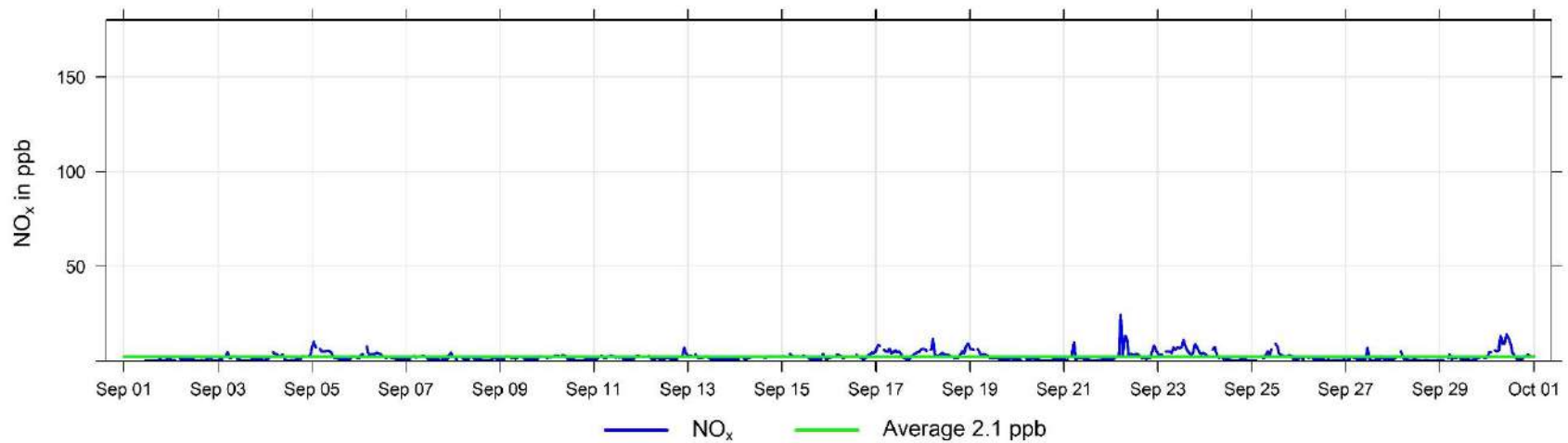
September Hourly Concentration Readings of TRS (in ppb) at Wembley



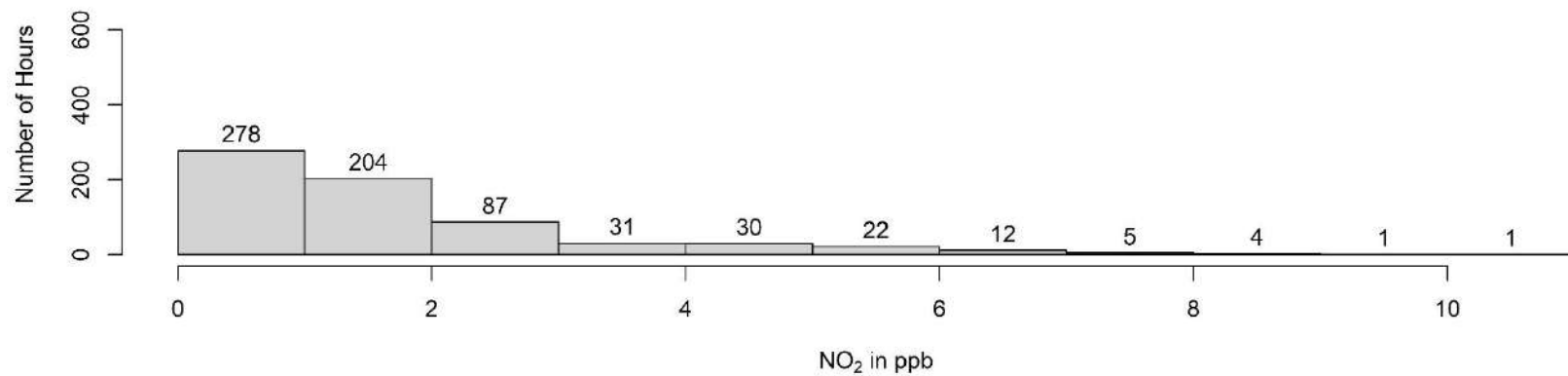
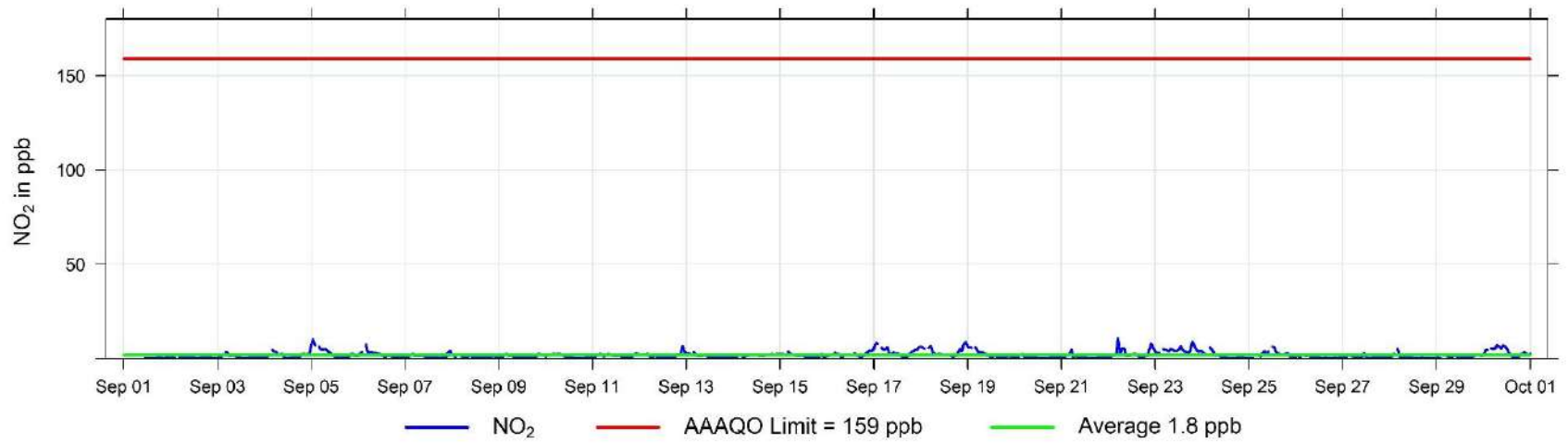
September Hourly Concentration Readings of NO (in ppb) at Wembley



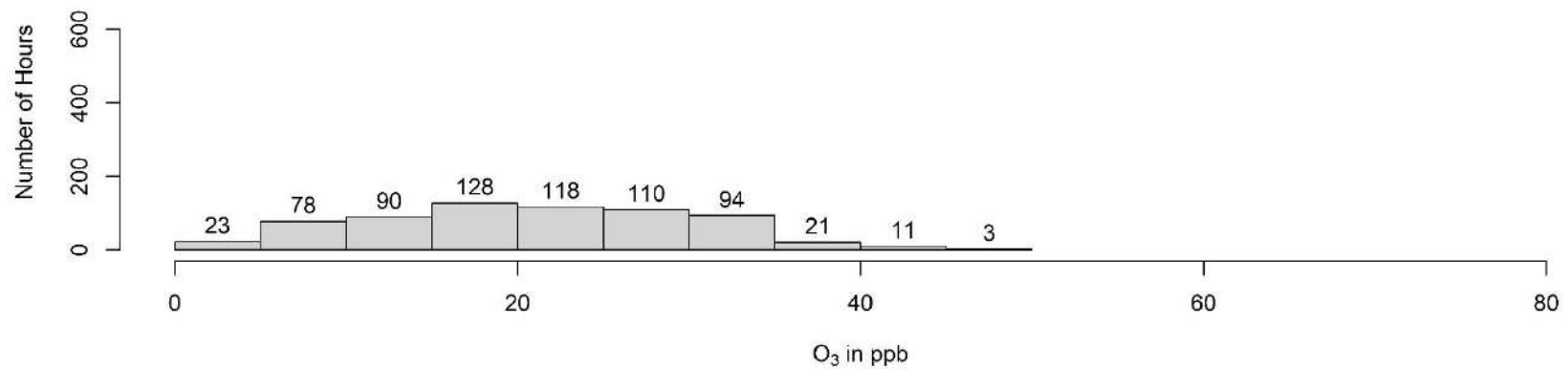
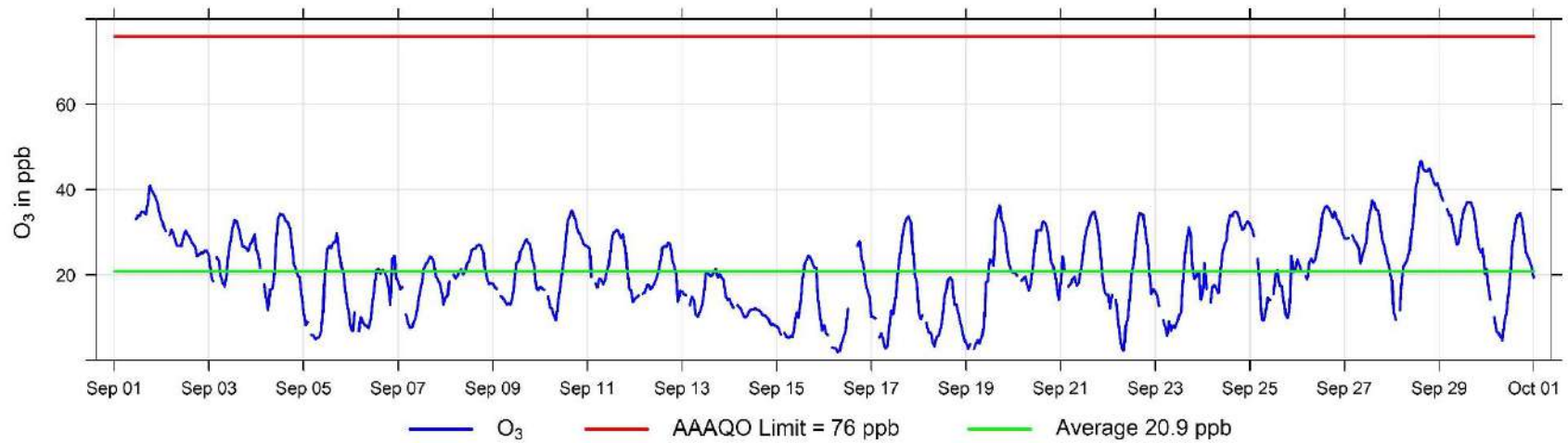
September Hourly Concentration Readings of NO_x (in ppb) at Wembley



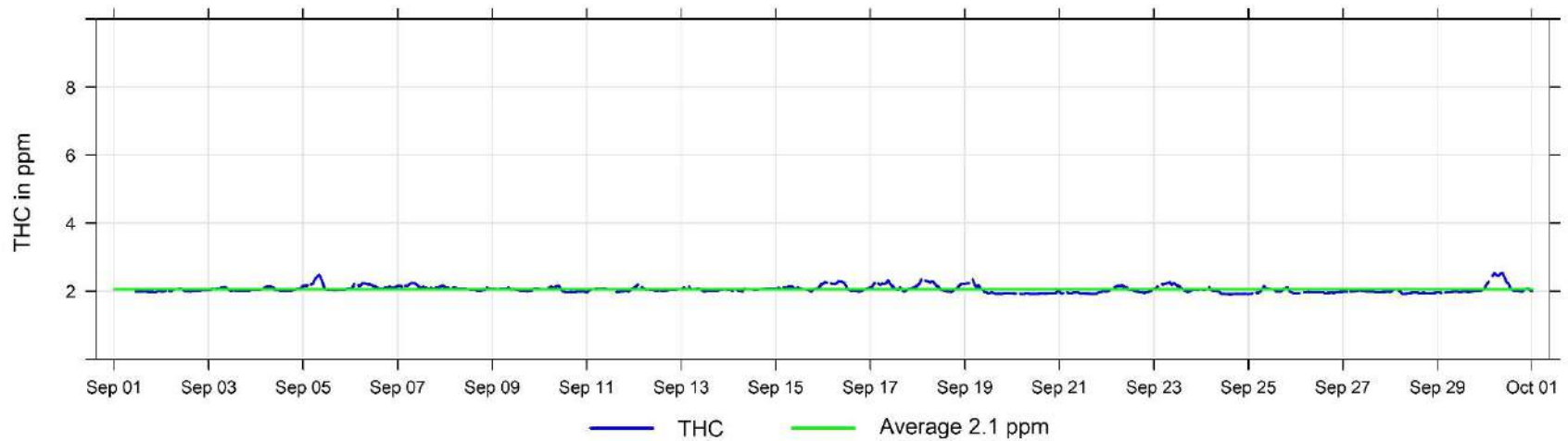
September Hourly Concentration Readings of NO₂ (in ppb) at Wembley



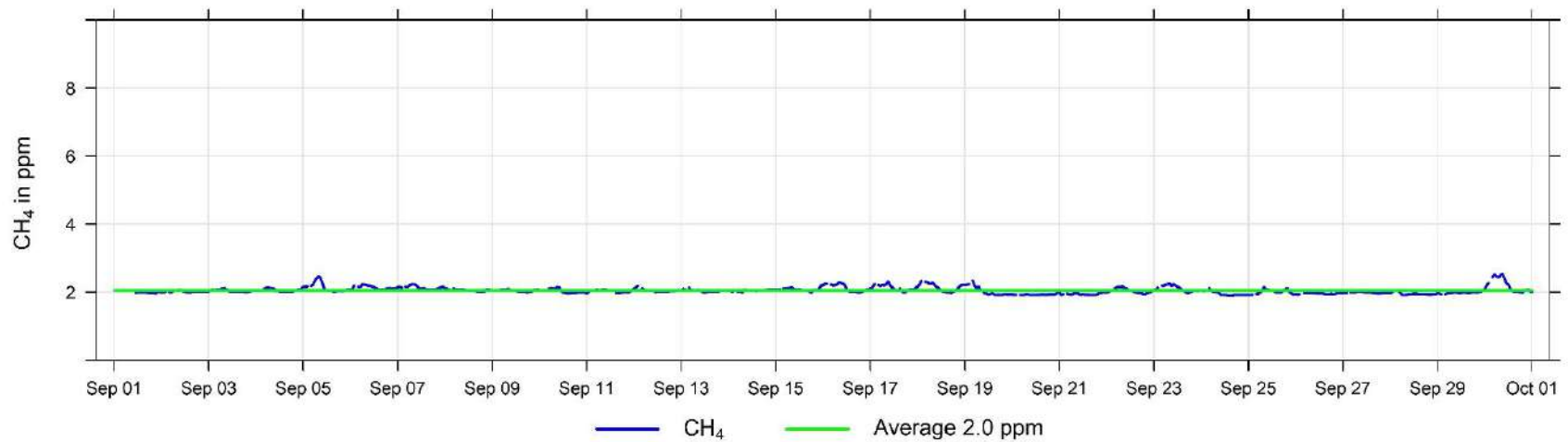
September Hourly Concentration Readings of O₃ (in ppb) at Wembley



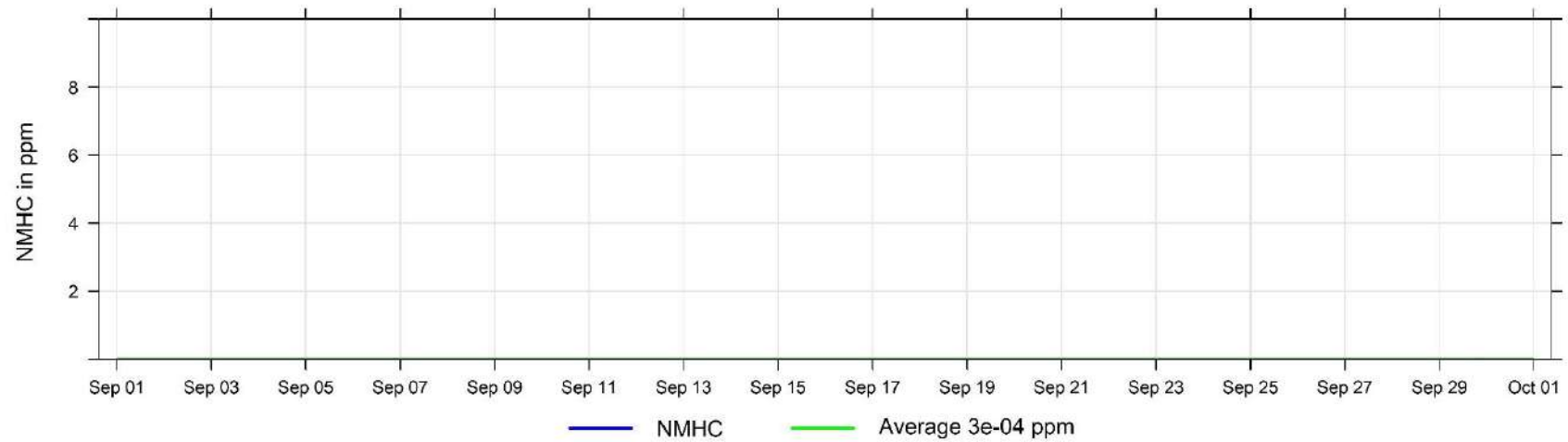
September Hourly Concentration Readings of THC (in ppm) at Wembley



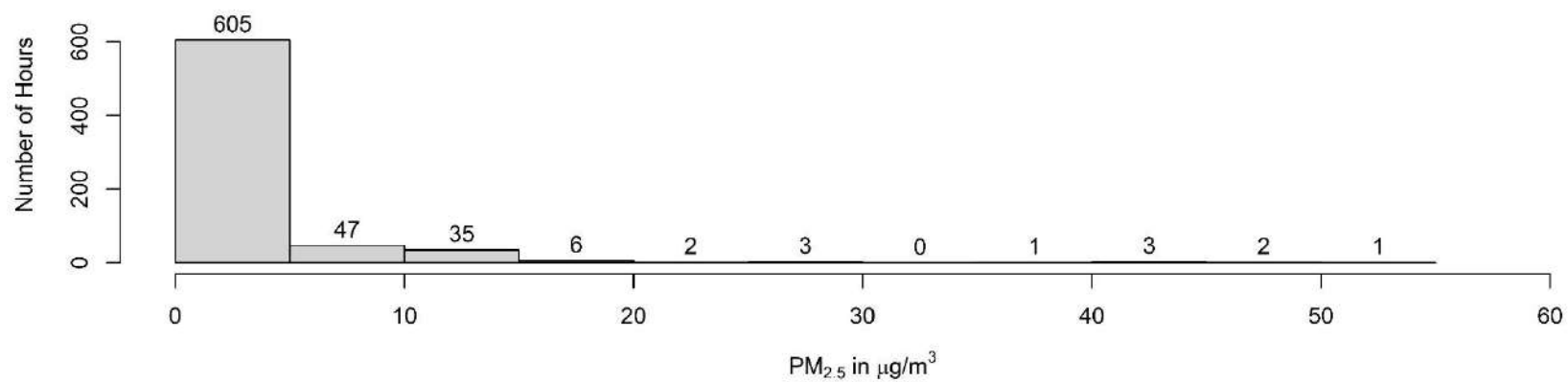
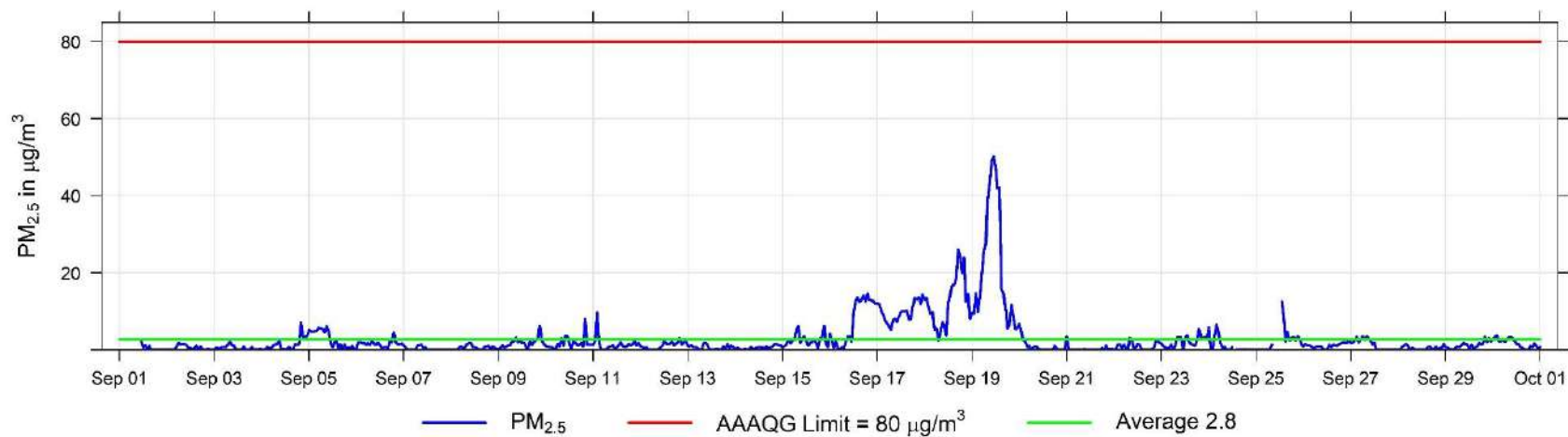
September Hourly Concentration Readings of CH₄ (in ppm) at Wembley



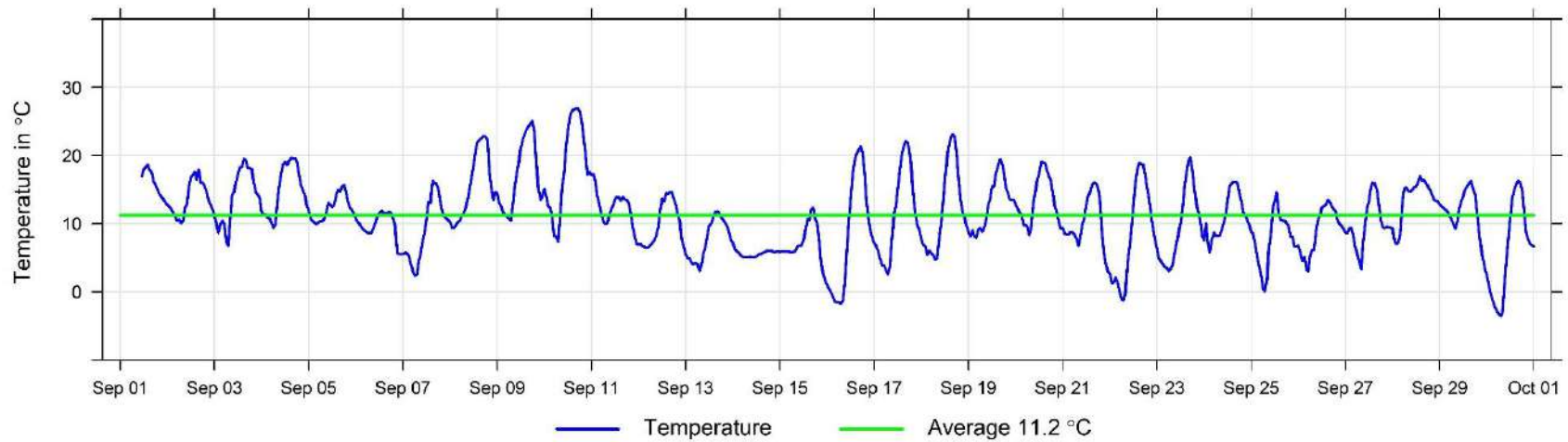
September Hourly Concentration Readings of NMHC (in ppm) at Wembley



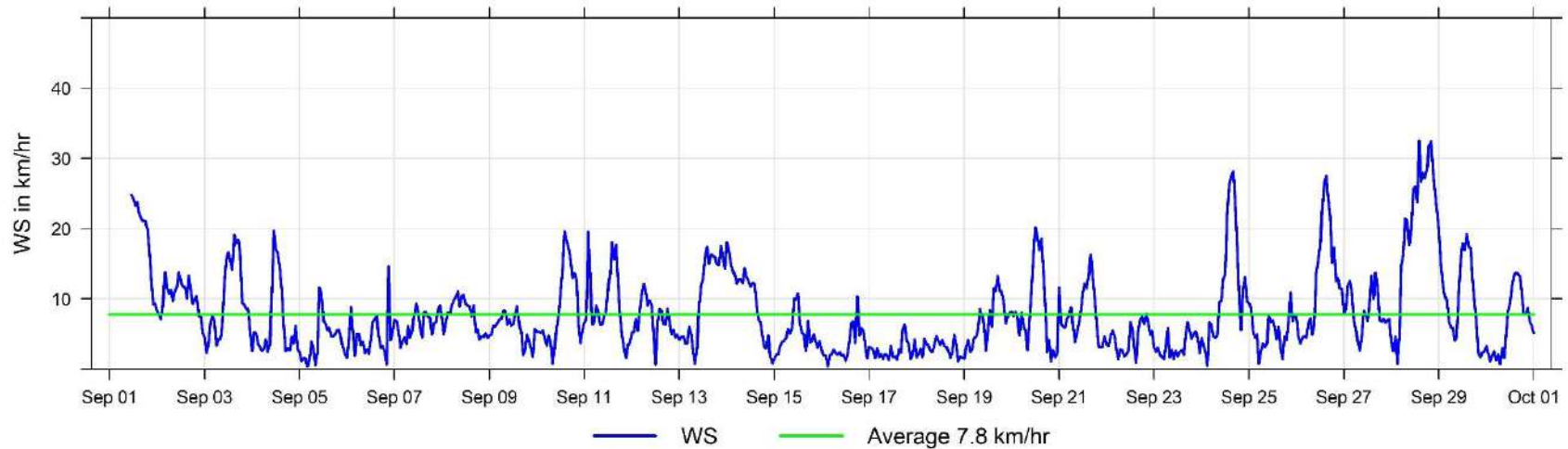
Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Wembley



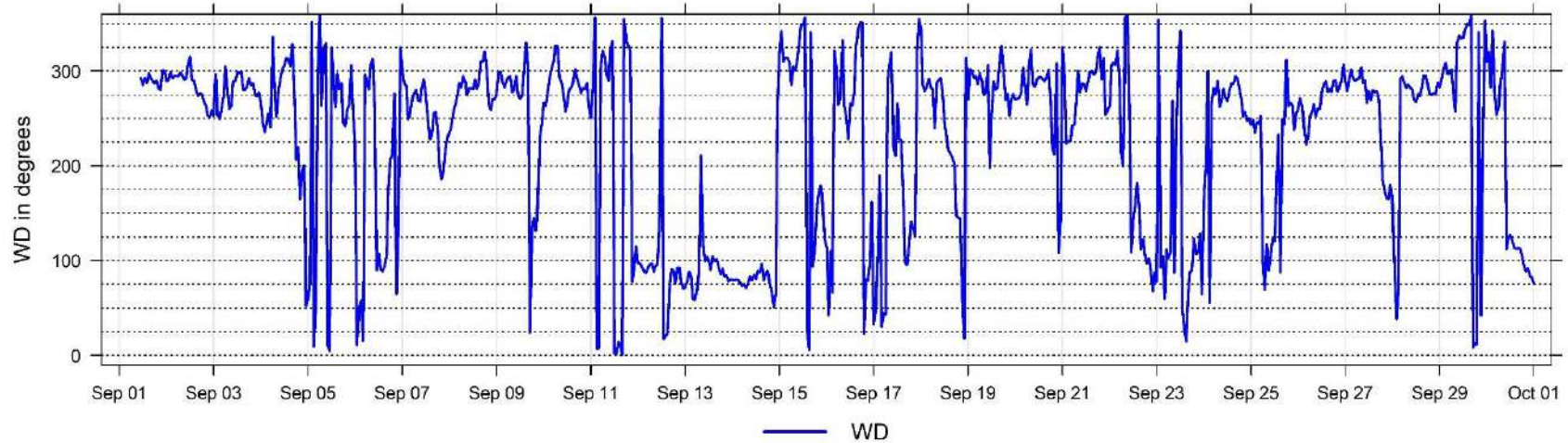
September Hourly Temperature Readings (in °C) at Wembley



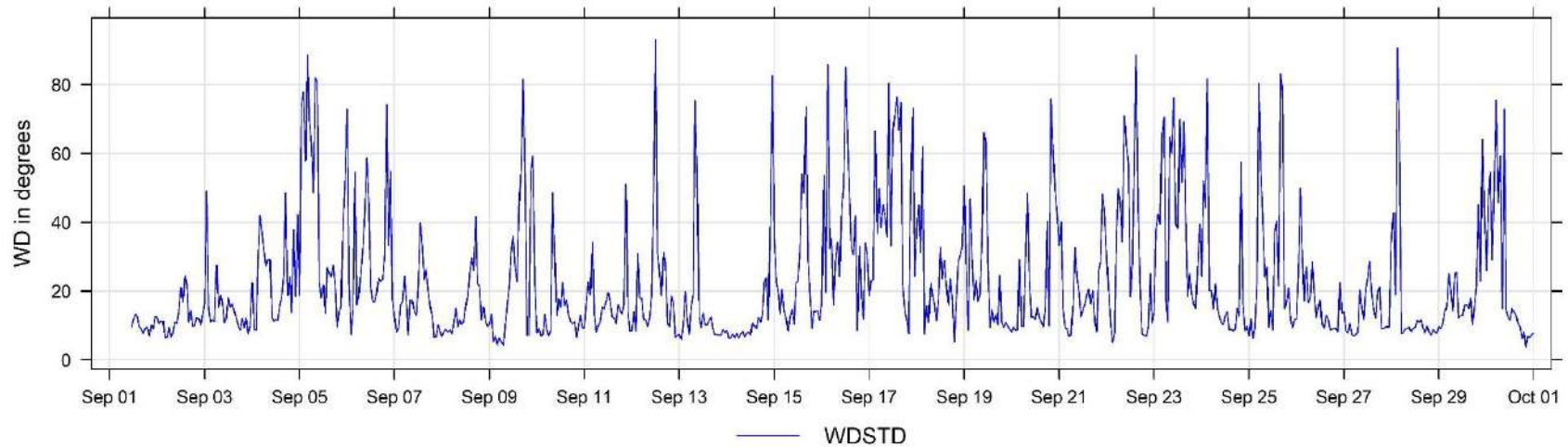
September Hourly Readings of Wind Speed (in km/hr) at Wembley

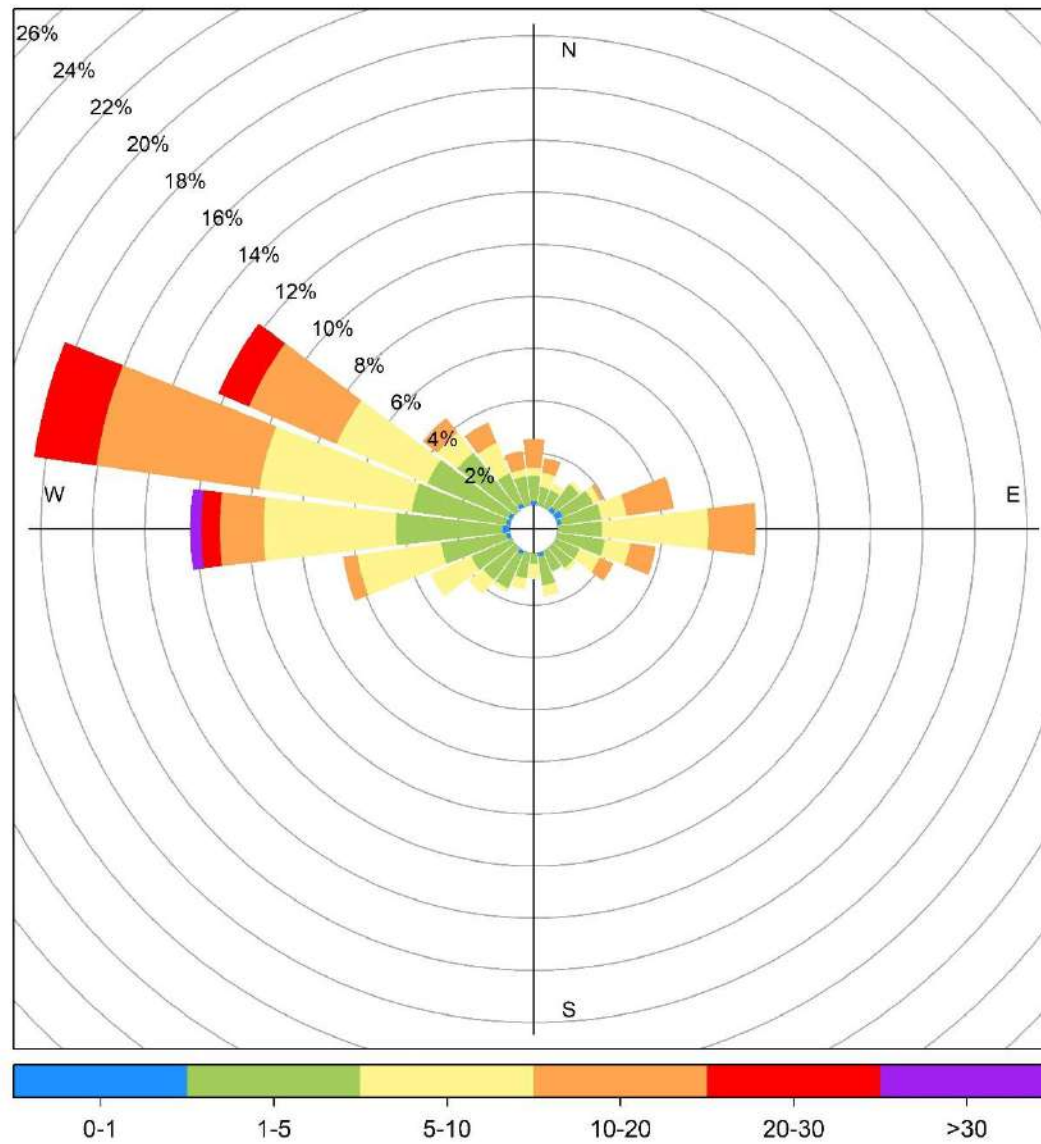


September Hourly Readings of Wind Direction (in degrees) at Wembley

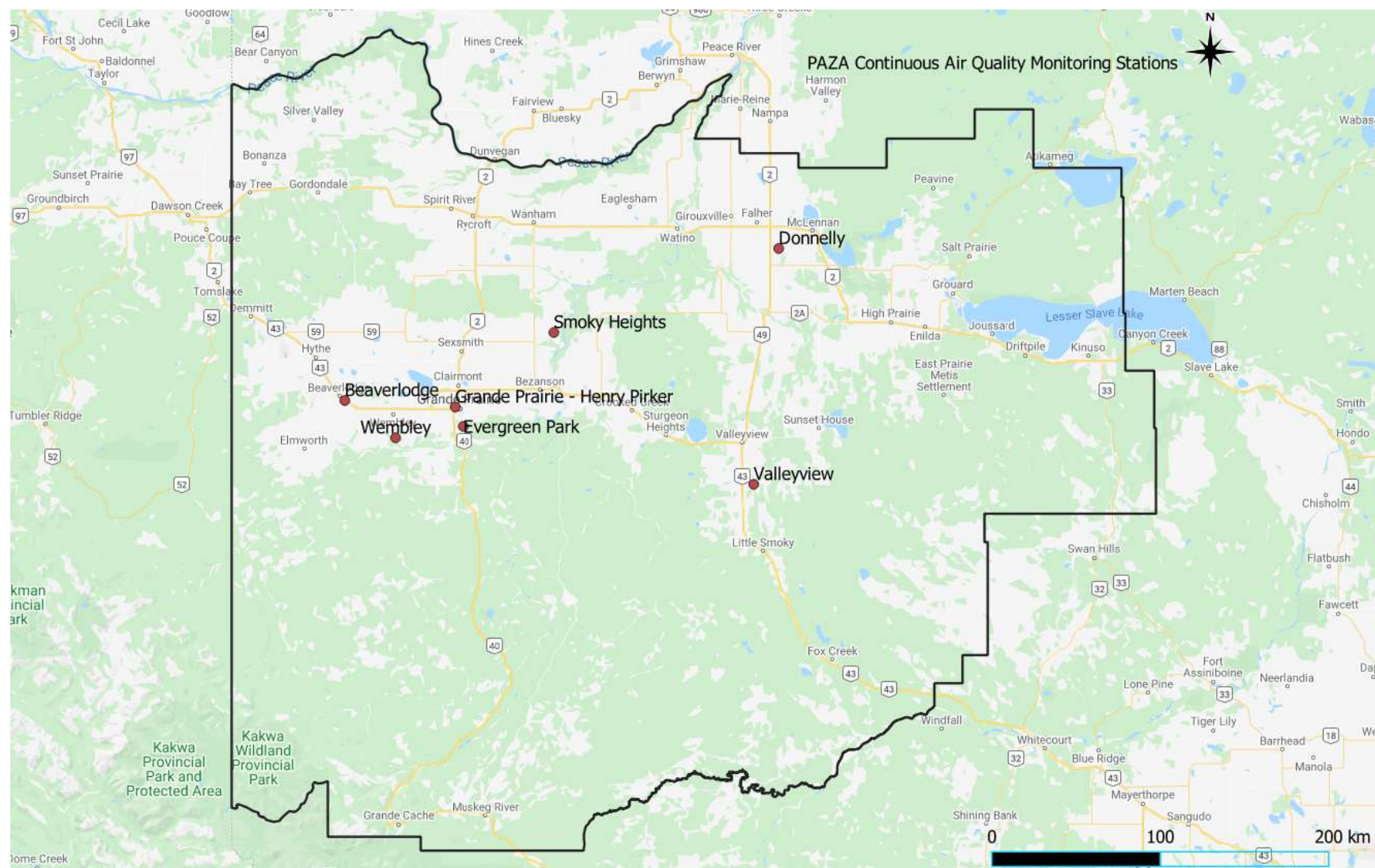


September Hourly Readings of Wind Direction Standard Deviation (in degrees) at Wembley



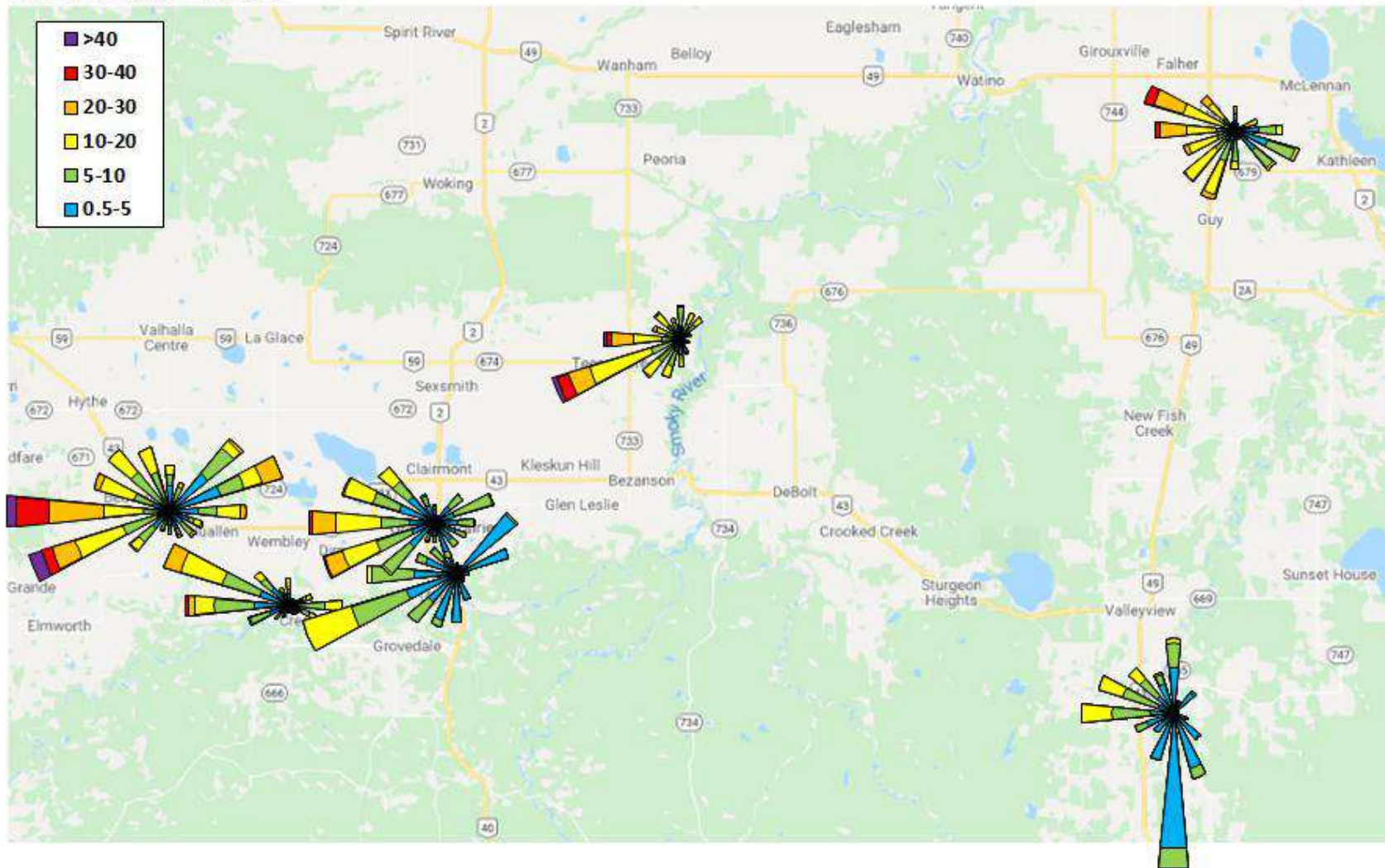


9 Concentration Roses for PAZA



9.1 Wind Roses

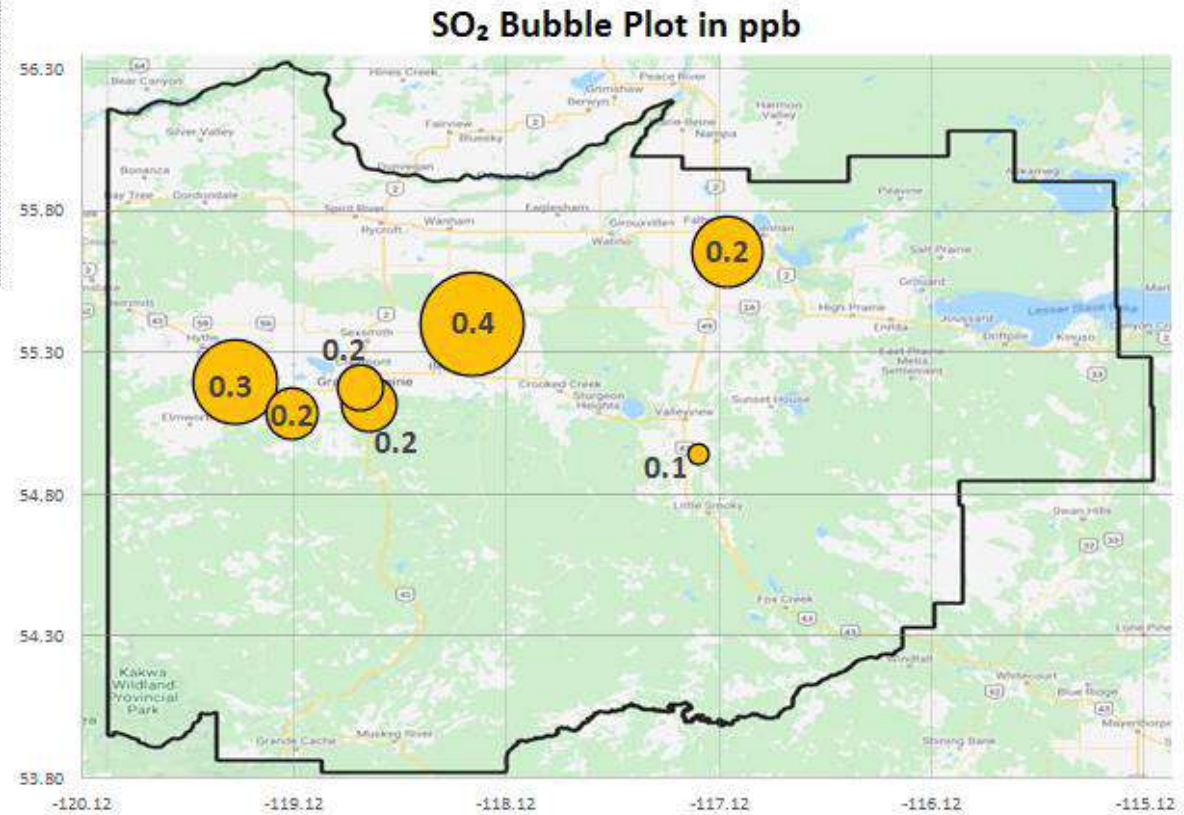
Wind Roses in km/hr



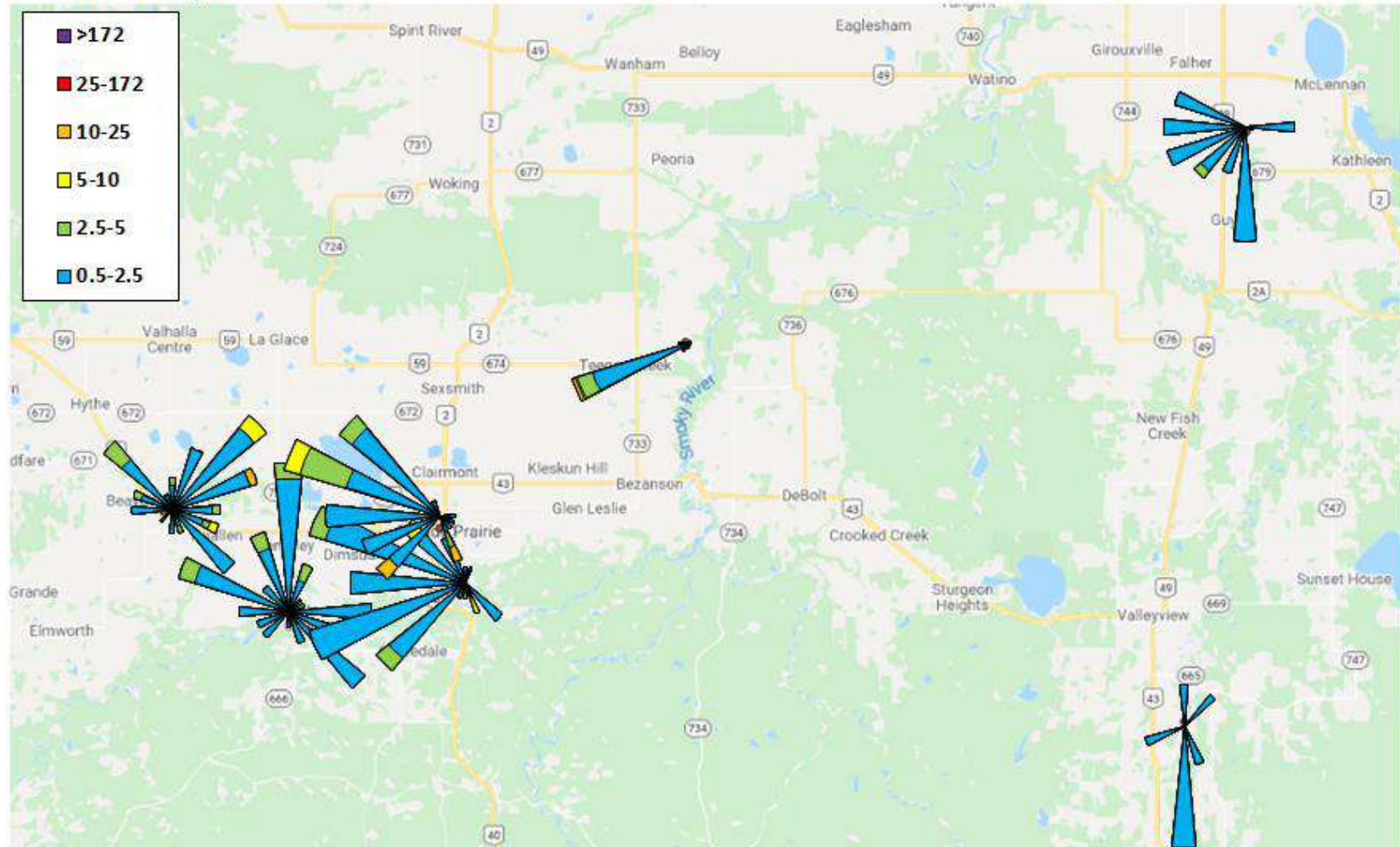
9.2 Sulphur Dioxide Plots

September 2020 SO₂ Summary

Station	Avg (ppb)
Evergreen Park	0.2
Henry Pirker	0.2
Smoky Heights	0.4
Beaverlodge	0.3
Valleyview	0.1
Donnelly	0.2
Wembley	0.2



SO₂ Roses in ppb

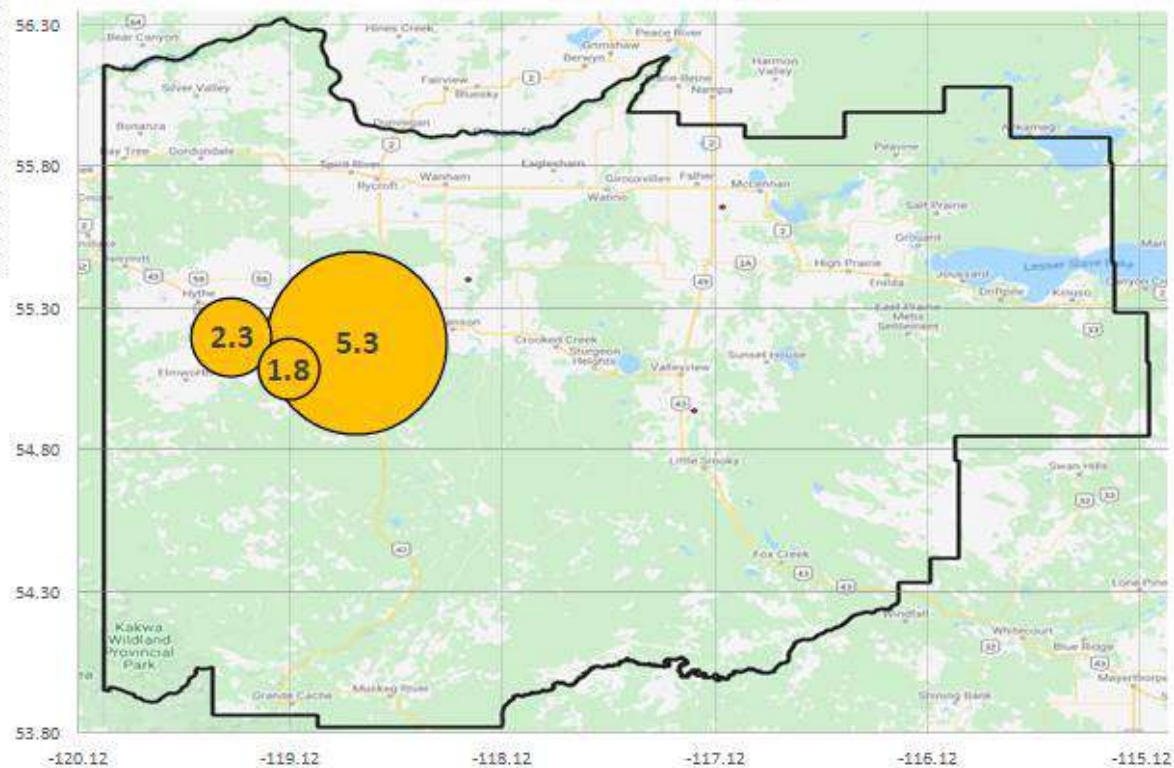


9.3 Nitrogen Dioxide Plots

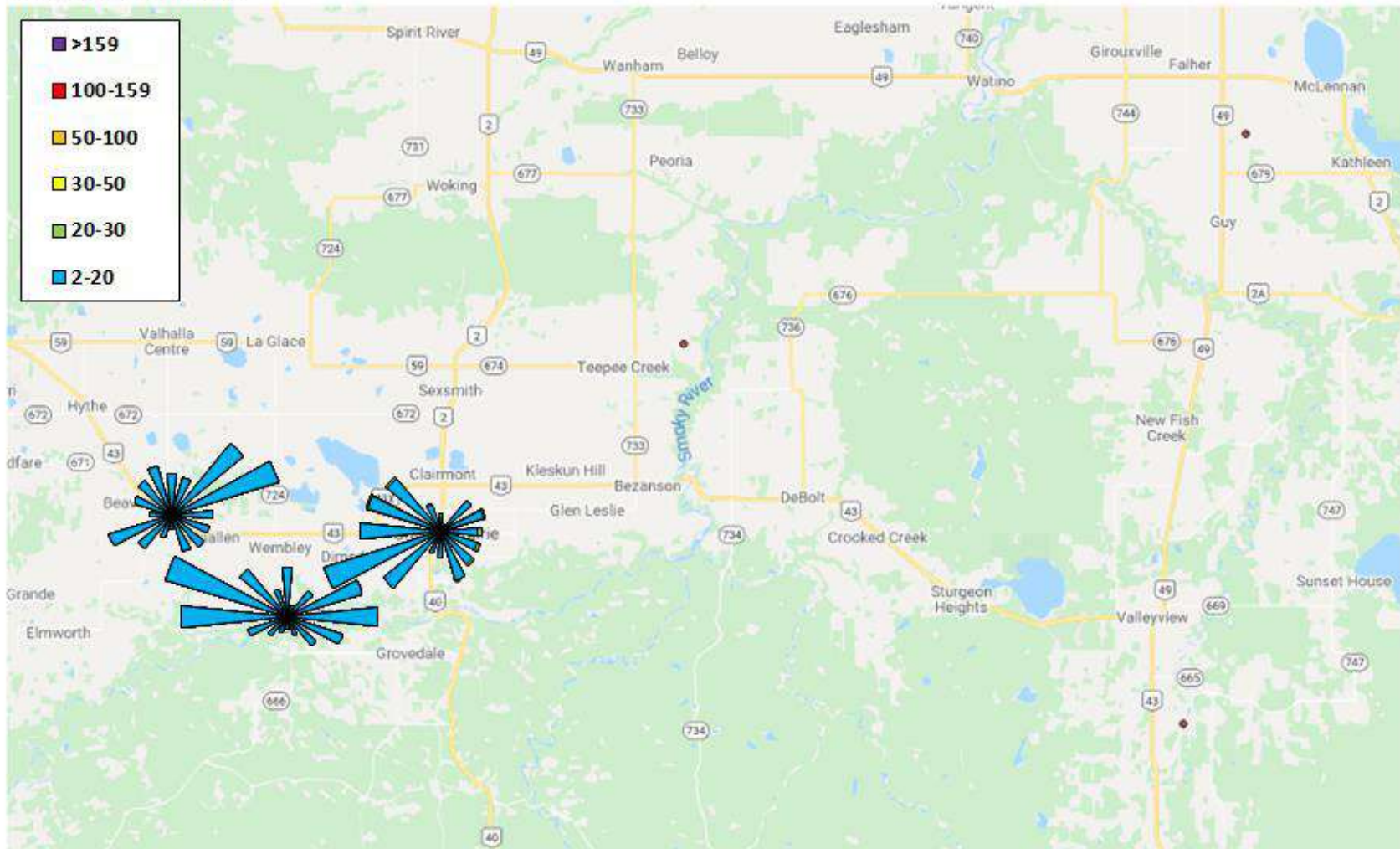
September 2020 NO₂ Summary

Station	Avg (ppb)
Evergreen Park	-
Henry Pirker	5.3
Smoky Heights	-
Beaverlodge	2.3
Valleyview	-
Donnelly	-
Wembley	1.8

NO₂ Bubble Plot in ppb



NO₂ Roses in ppb

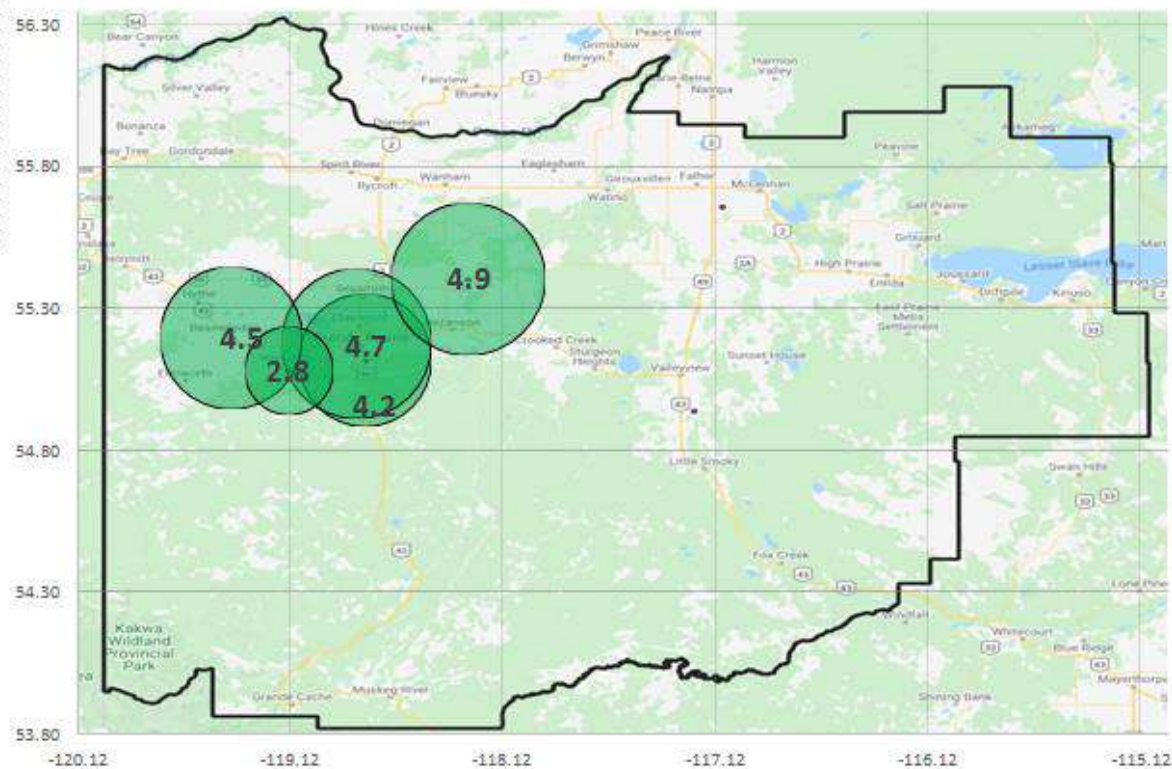


9.4 Fine Particulate Matter (PM_{2.5}) Plots

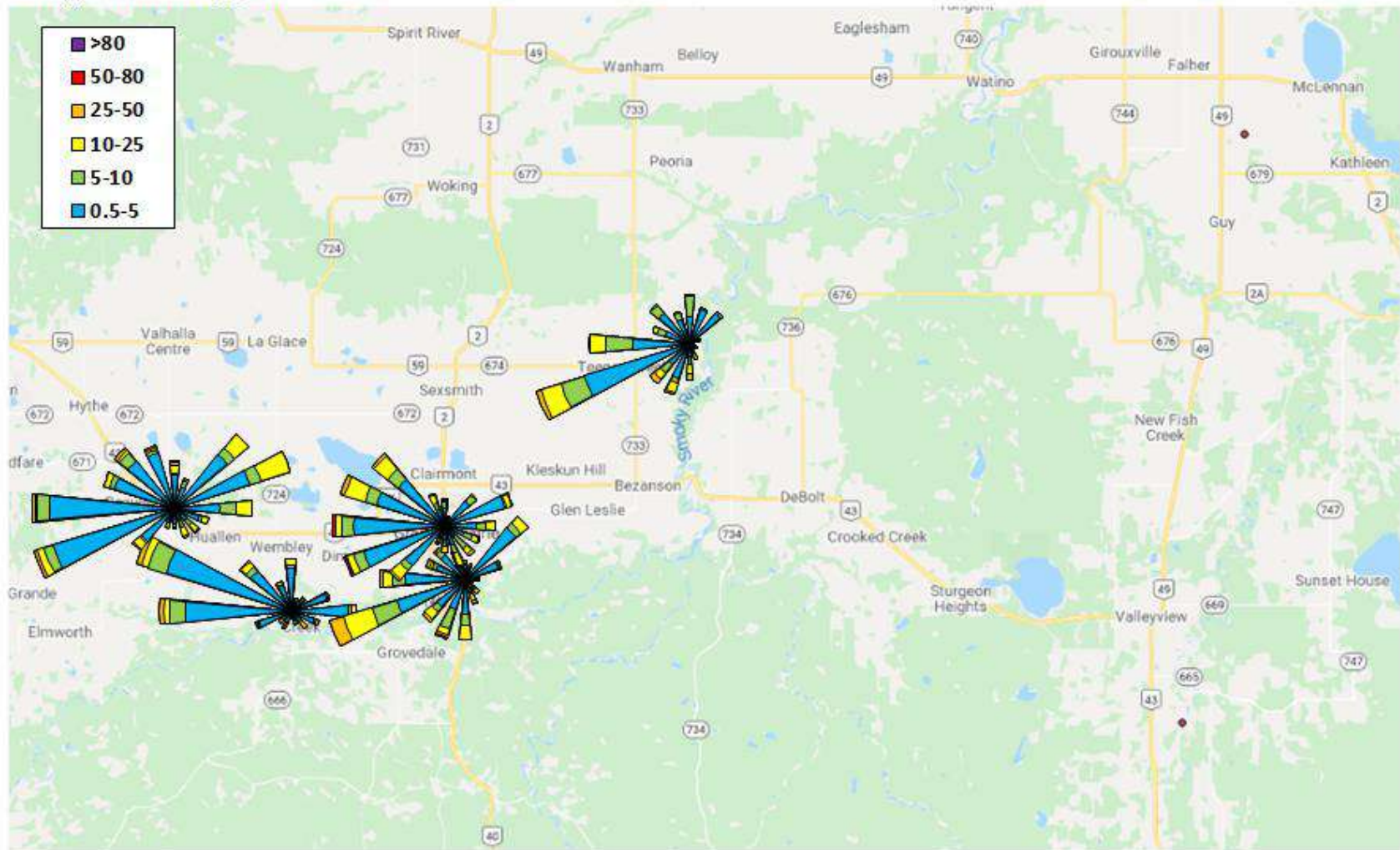
September 2020 PM_{2.5} Summary

Station	Avg (µg/m ³)
Evergreen Park	4.2
Henry Pirker	4.7
Smoky Heights	4.9
Beaverlodge	4.5
Valleyview	-
Donnelly	-
Wembley	2.8

PM_{2.5} Bubble Plot in µg/m³



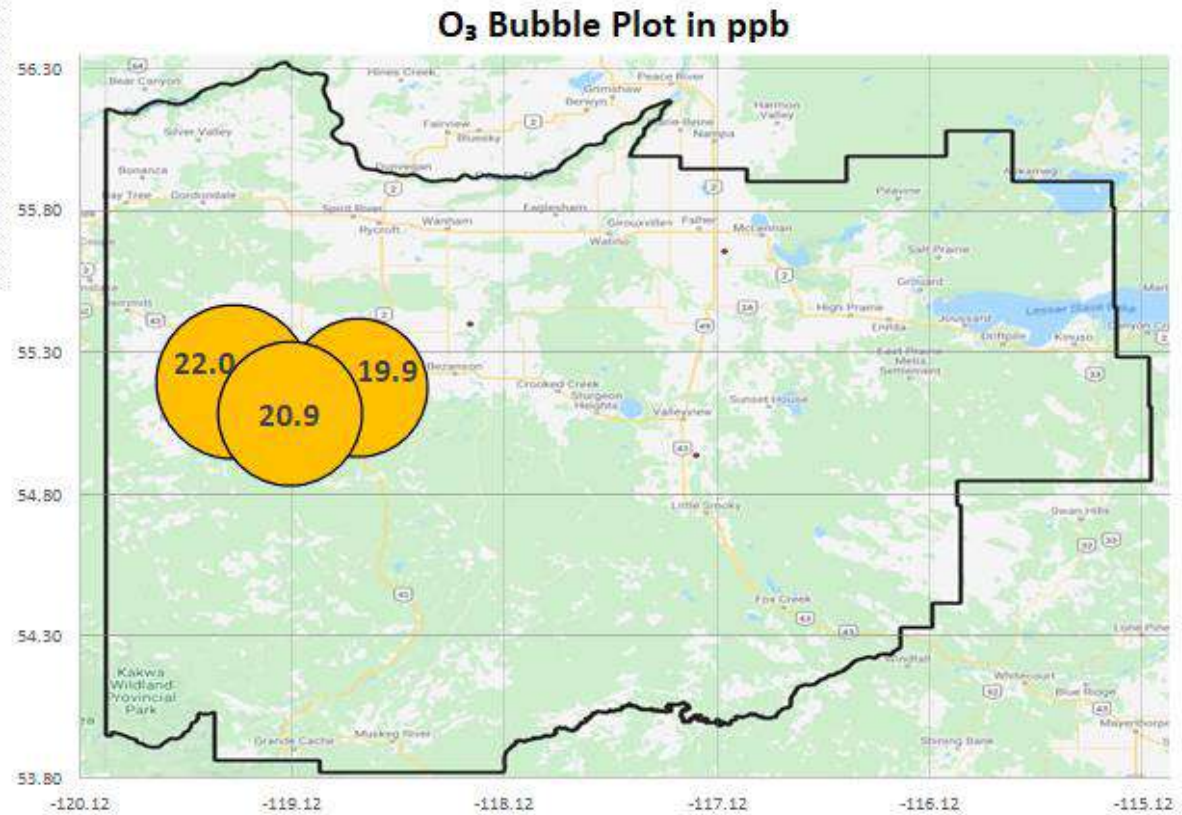
PM_{2.5} Roses in µg/m³



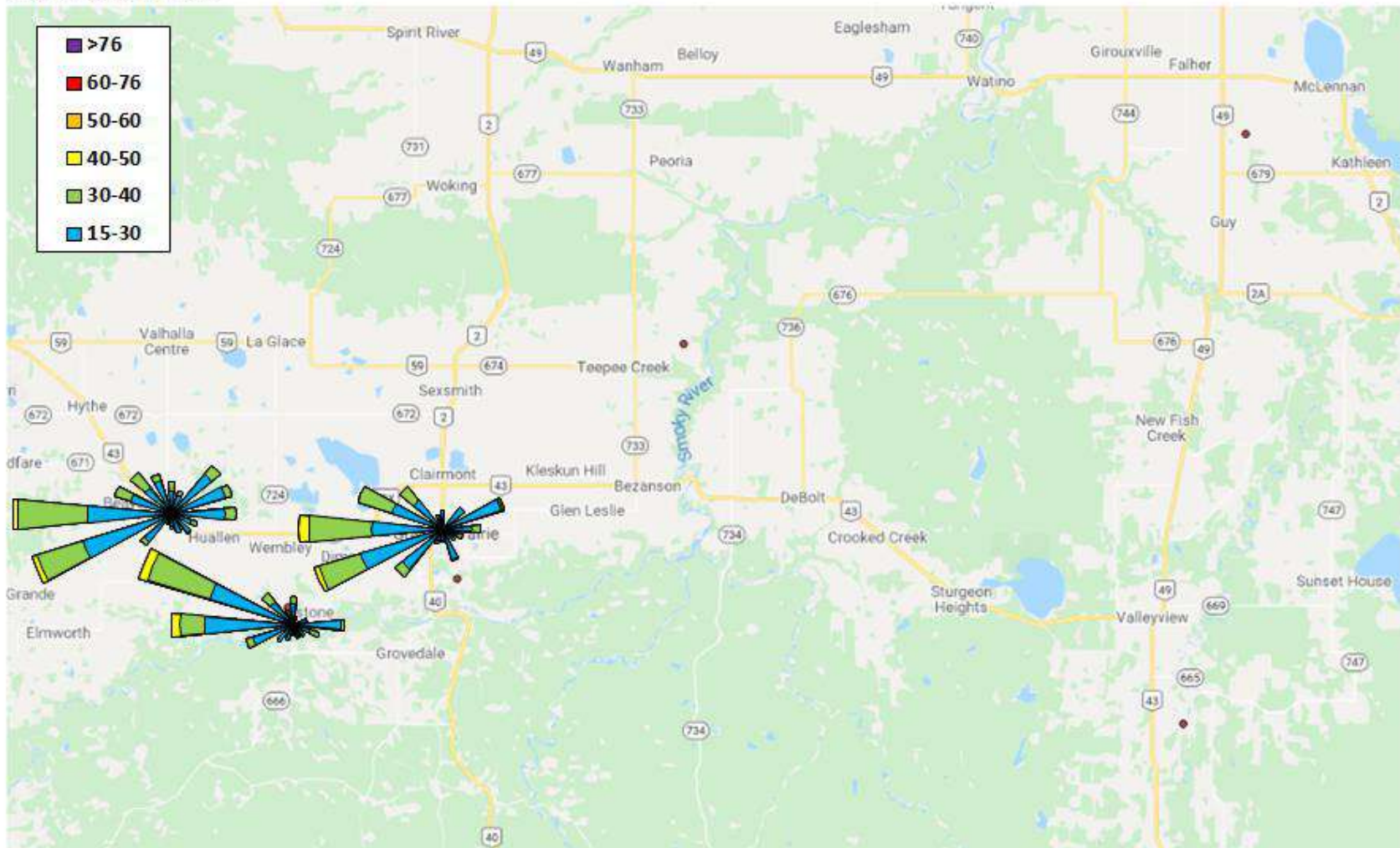
9.5 Ozone (O₃) Plots

September 2020 O₃ Summary

Station	Avg (ppb)
Evergreen Park	-
Henry Pirker	19.9
Smoky Heights	-
Beaverlodge	22.0
Valleyview	-
Donnelly	-
Wembley	20.9



O₃ Roses in ppb



10 Passive Monitoring Data

Peace Airshed Zone Association - PAZA Passive Stations for September 2020

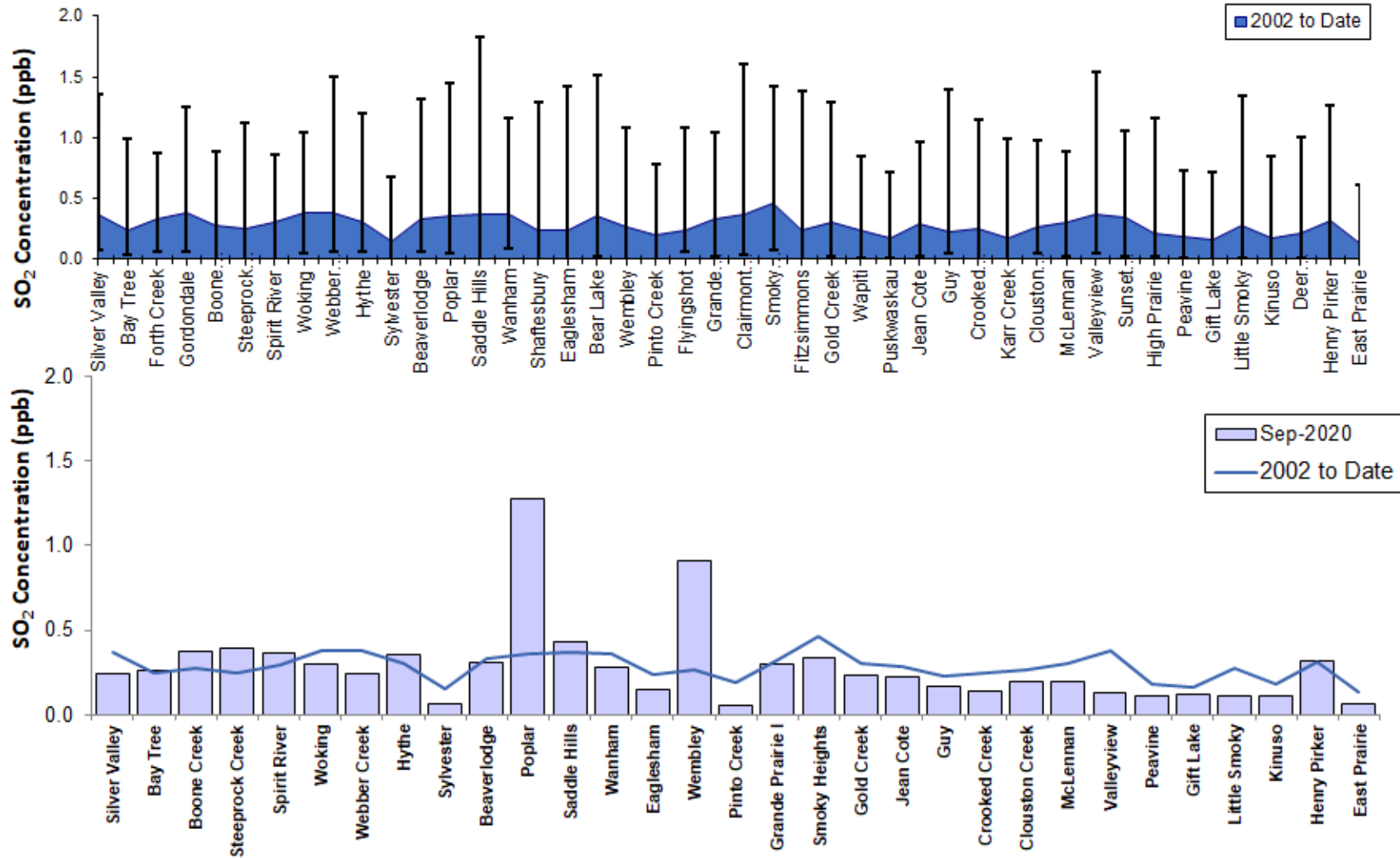
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
1a	Silver Valley	0.2				
1b	Silver Valley	0.3				
7a	Steeprock Creek			0.4		
7b	Steeprock Creek			0.4		
14a	Sylvester	0.1				
14b	Sylvester	0.1				
21a	Eaglesham			0.7		
21b	Eaglesham			0.7		
35a	Jean Cote	0.2				
35b	Jean Cote	0.2				
40a	McLennan			0.8		
40b	McLennan			1.0		
47a	Kinuso		23.4			
47b	Kinuso		19.7			
64a	Girouxville 4				0.0	
64b	Girouxville 4				0.0	

1	Silver Valley	0.2	-	1.1	-	08-27-081-11 W6M
2	Bay Tree	0.3	19.3	0.6	-	13-16-078-13 W6M
5	Boone Creek	0.4	-	0.6	-	01-23-076-11 W6M
7	Steeprock Creek	0.4	-	0.4	-	09-35-072-13 W6M
9	Spirit River	0.4	-	1.4	-	08-12-079-07 W6M
10	Woking	0.3	-	0.8	-	01-13-076-07 W6M
11	Webber Creek	0.2	-	2.8	-	09-36-074-09 W6M
12	Hythe	0.4	-	0.9	-	14-36-072-11 W6M
14	Sylvester	0.1	-	0.9	-	08-06-069-12 W6M
16	Beaverlodge	0.3	-	1.5	-	15-36-071-10 W6M
17	Poplar	1.3	-	1.4	-	13-06-073-08 W6M
18	Saddle Hills	0.4	-	0.6	-	04-25-074-07 W6M
19	Wanham	0.3	-	0.6	-	16-22-077-03 W6M
21	Eaglesham	0.2	-	0.7	-	16-21-079-25 W5M
24	Wembley	0.9	-	1.7	-	12-31-070-08 W6M
25	Pinto Creek	0.1	-	0.6	-	04-24-069-11 W6M
27	Grande Prairie I	0.3	-	3.9	-	08-15-071-06 W6M
29	Smoky Heights	0.3	-	1.1	-	04-06-075-02 W6M
32	Gold Creek	0.2	-	2.0	-	06-33-067-05 W6M
35	Jean Cote	0.2	-	0.7	-	12-35-079-21 W5M
36	Guy	0.2	-	0.6	0.1	03-04-076-22 W5M
37	Crooked Creek	0.1	27.1	0.9	-	16-01-071-26 W5M
39	Clouston Creek	0.2	-	0.6	-	12-01-073-22 W5M
40	McLennan	0.2	-	0.9	-	03-29-077-19 W5M
41	Valleyview	0.1	-	0.7	-	09-30-069-22 W5M
44	Peavine	0.1	-	0.3	-	03-05-079-15 W5M
45	Gift Lake	0.1	-	0.4	-	10-07-079-12 W5M
46	Little Smoky	0.1	-	1.8	-	12-01-065-21 W5M
47	Kinuso	0.1	21.5	0.6	-	12-10-073-10 W5M
49	Henry Pirker	0.3	-	3.7	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.3	-	11-13-079-08 W6M
63	Girouxville 3	-	-	-	0.0	14-02-077-23 W5M
64	Girouxville 4	-	-	-	0.0	04-08-077-22 W5M

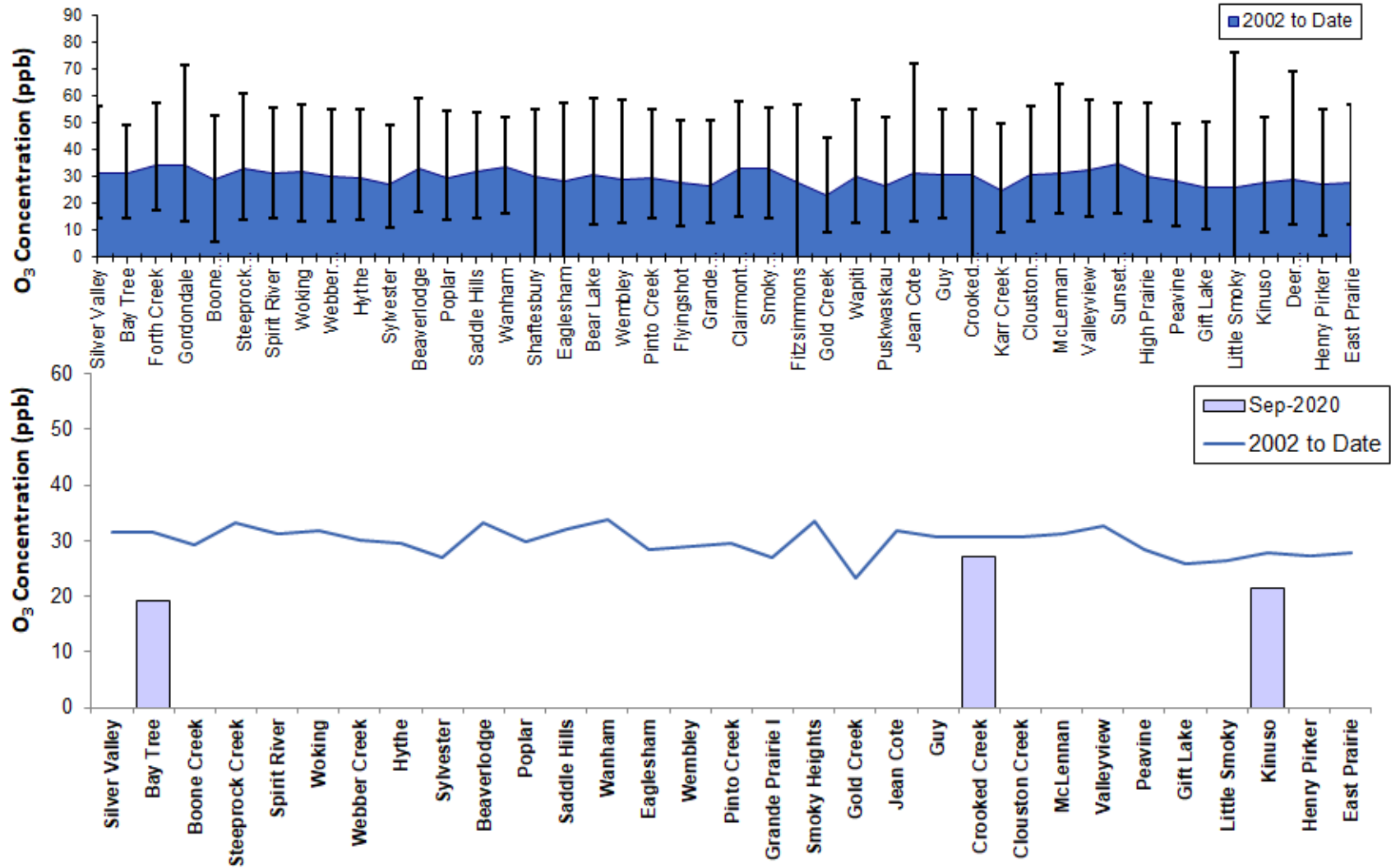
Passive Summary for September 2020

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	0.3	22.6	1.1	0.0
Standard Deviation	0.2	4.0	0.9	0.1
Minimum	0.1	19.3	0.3	0.0
	Pinto Creek (#25)	Bay Tree (#2)	Peavine (#44)	Girouxville 3 (#63)
Maximum	1.3	27.1	3.9	0.1
	Poplar (#17)	Crooked Creek (#37)	Grande Prairie I (#27)	Guy (#36)
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	0.2	19.9	5.3	0.2
Henry Pirker passive (#49)	0.3	-	3.7	-

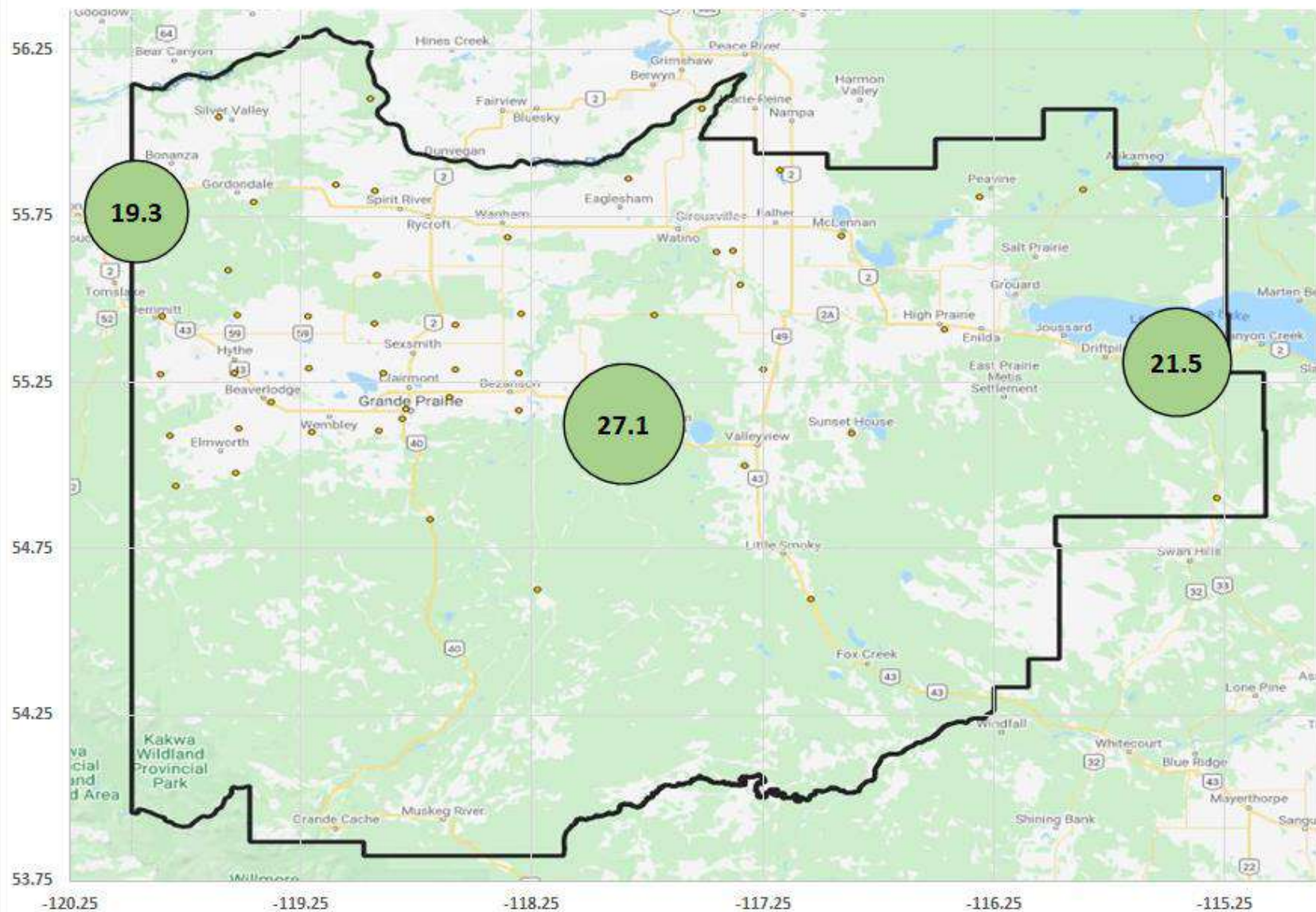
Alberta Ambient Air Quality Objective - 30-day SO₂ Objective is 11 ppb



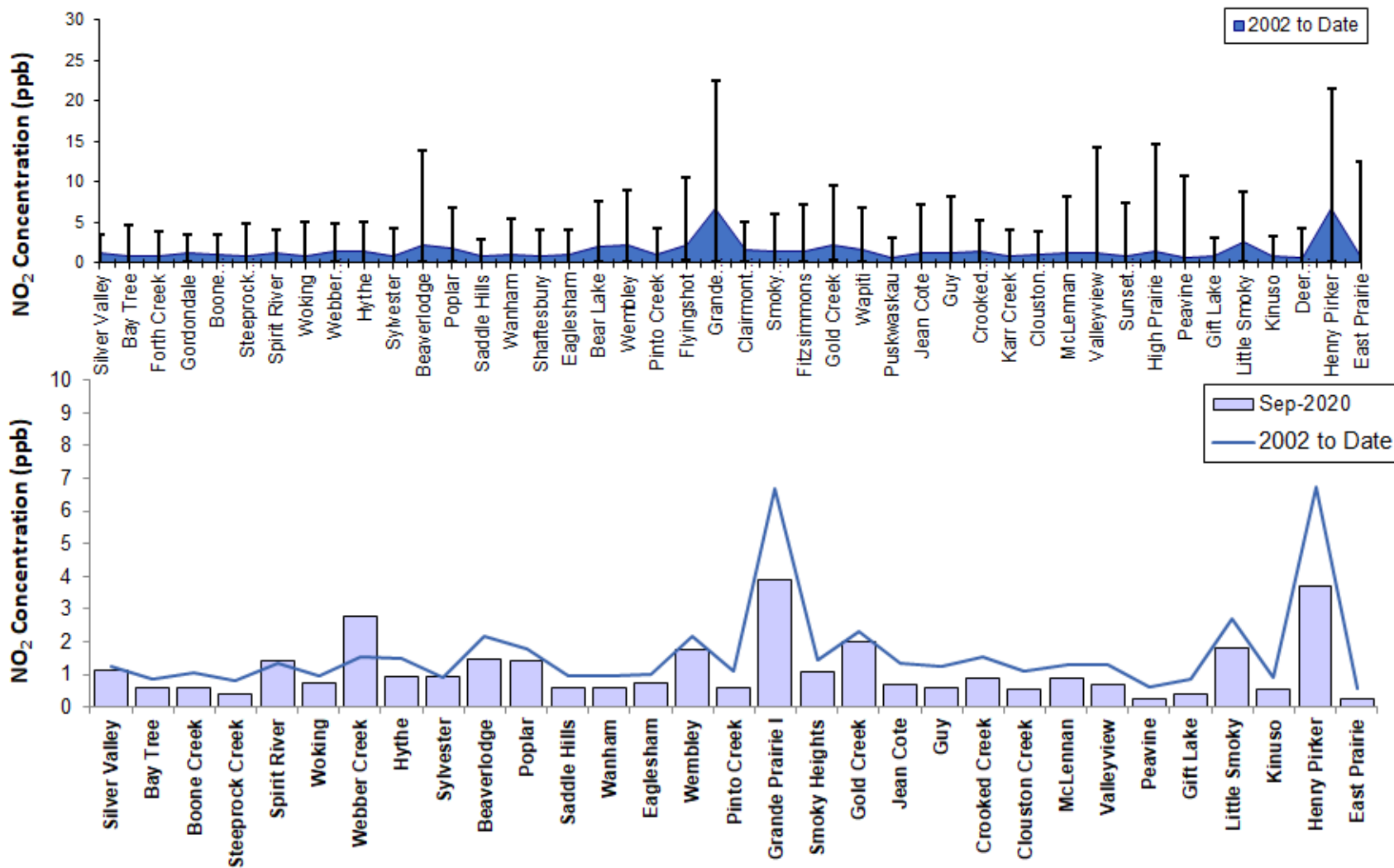
No Monthly or Annual Alberta Ambient Air Quality Objective for O₃



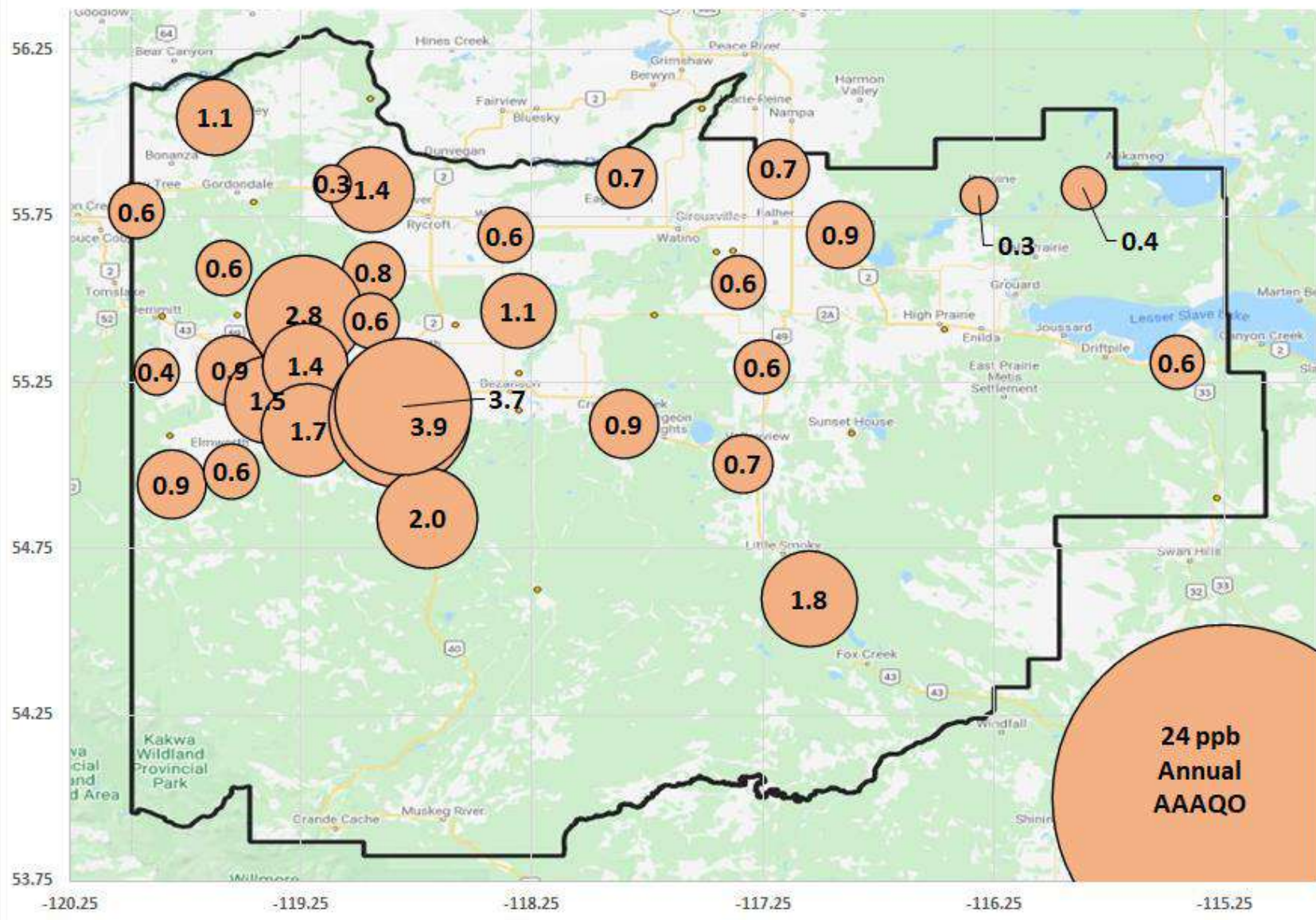
O₃ Monthly Average (units in ppb)



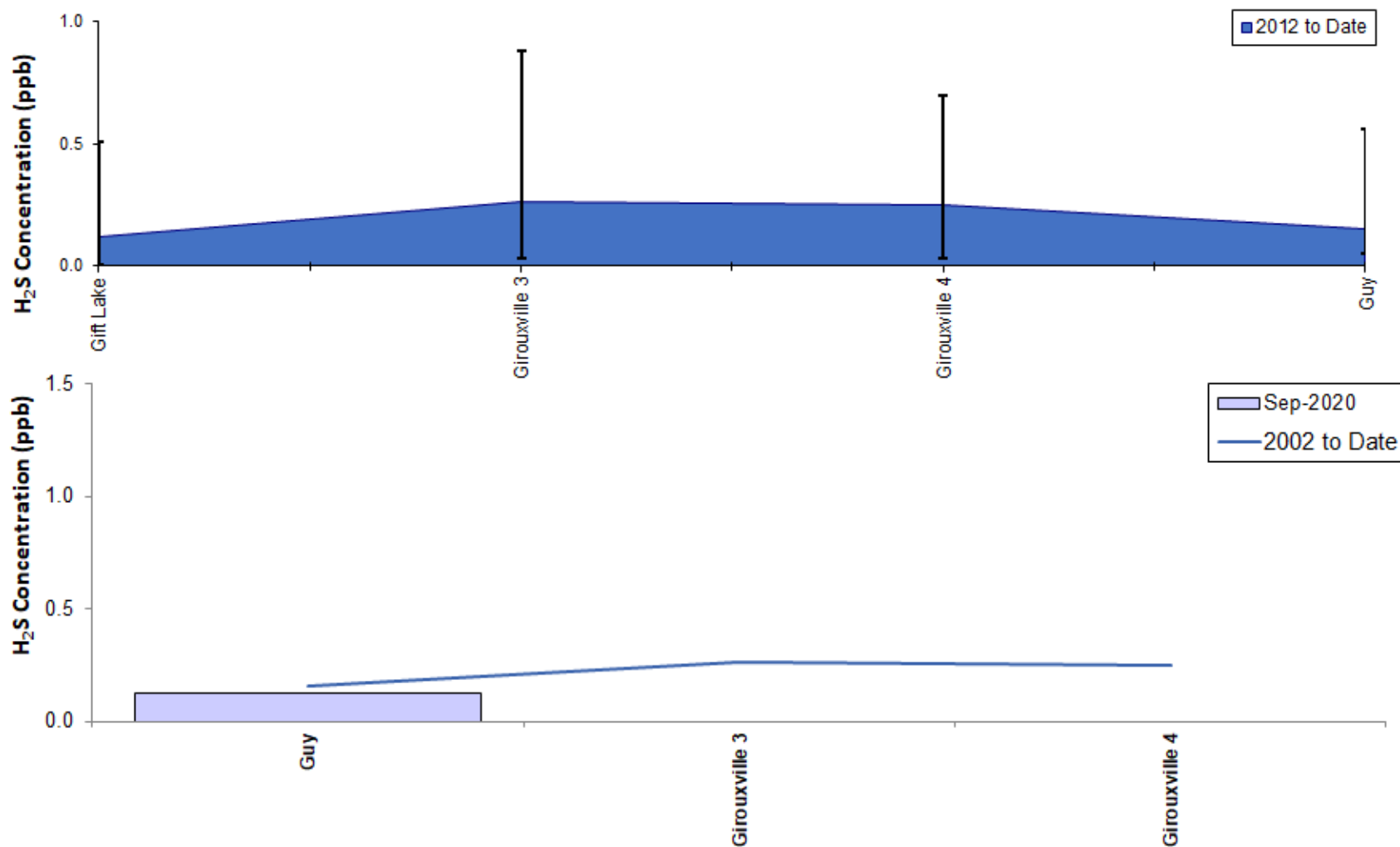
Alberta Ambient Air Quality Objective - Annual NO₂ Objective is 24 ppb



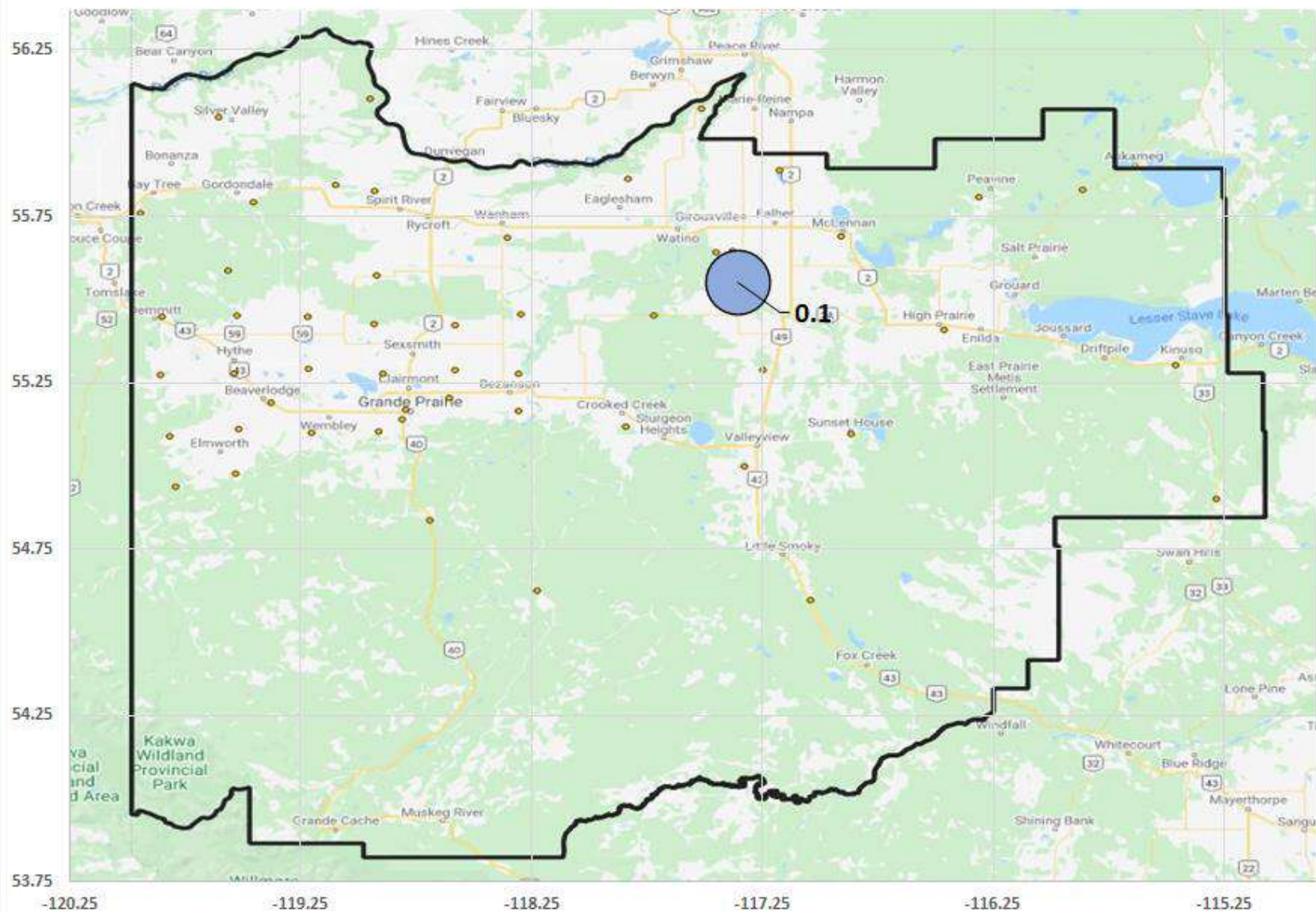
NO₂ Monthly Average (units in ppb)



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

September 2020