



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

February 2021

March 31, 2021

Alberta Environment and Parks

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

Subject: **Peace Airshed Zone Association (PAZA)**
February 2021 Ambient Air Quality Monitoring Report

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of February 2021.

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 February 2021 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	03-23-080-13-W6	00070203-01-01
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
Strathcona Resources Ltd.	Jayar Sour Gas Processing Plant	06-08-062-03 W6	3612040
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:

There were no operational times less than 90% in February 2021

Air Incidents

None were reported to PAZA

Deviations from Authorized Monitoring Methods

None to report.

Passive Monitoring

- 38 Stations throughout the PAZA zone, the passive sample analyses were performed by Bureau Veritas Laboratories
- There were twelve duplicate sites sampled in the month of February with RPD ranging from 2 to 15% (SO₂), 29% (O₃), 0 to 11% (NO₂), 10 to 18% (H₂S);
 - SO₂ duplicates at Pinto Creek, Flyingshot, Guy, Jayar Bone Yard stations
 - O₃ duplicate at Bay Tree station
 - NO₂ duplicates at Shaftesbury, Wembley, Gold Creek, Jean Cote, Jayar Camp stations
 - H₂S duplicate Girouxville 3, Jayar Bone Yard stations
- The following field notes were listed of potential issues.
 - Site 16 (Beaverlodge) – Not collected, No Road Access
 - Milner Sites collected and reported separately.
- 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.

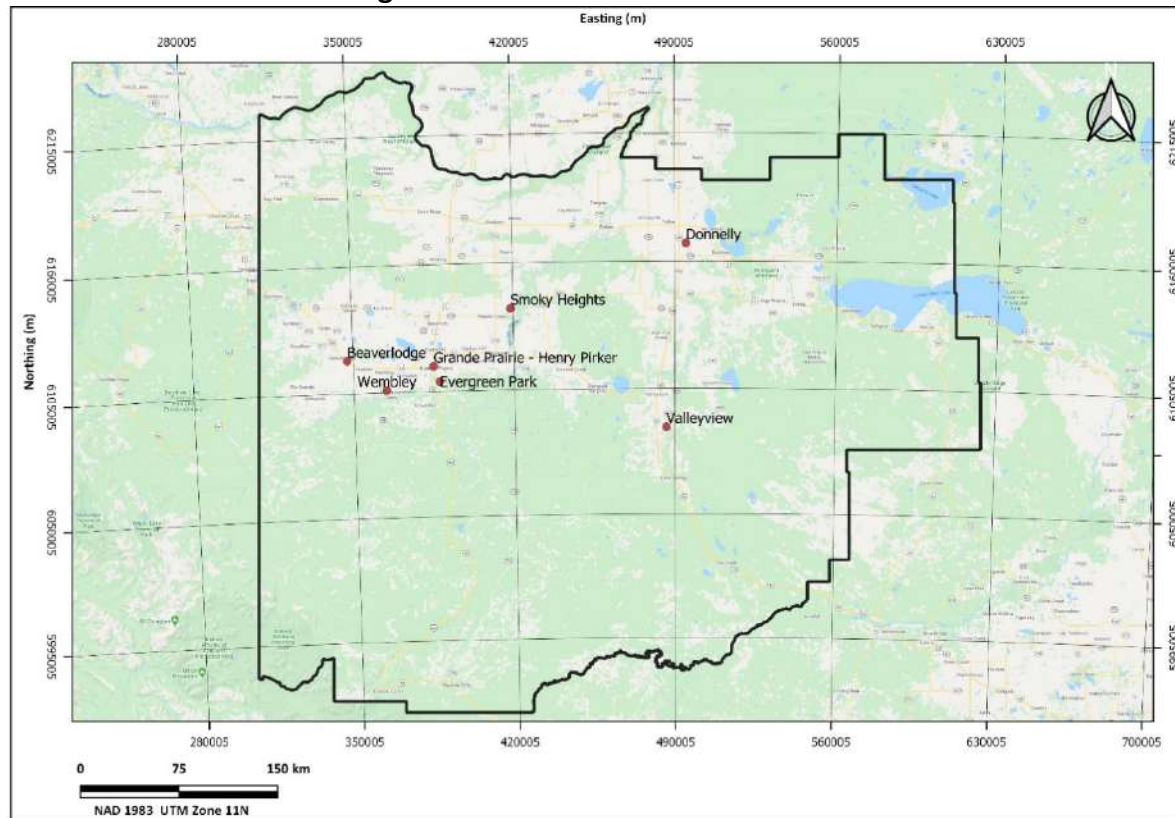


Mandeep Dhaliwal, B.Sc., P.Chem.
Program Manager

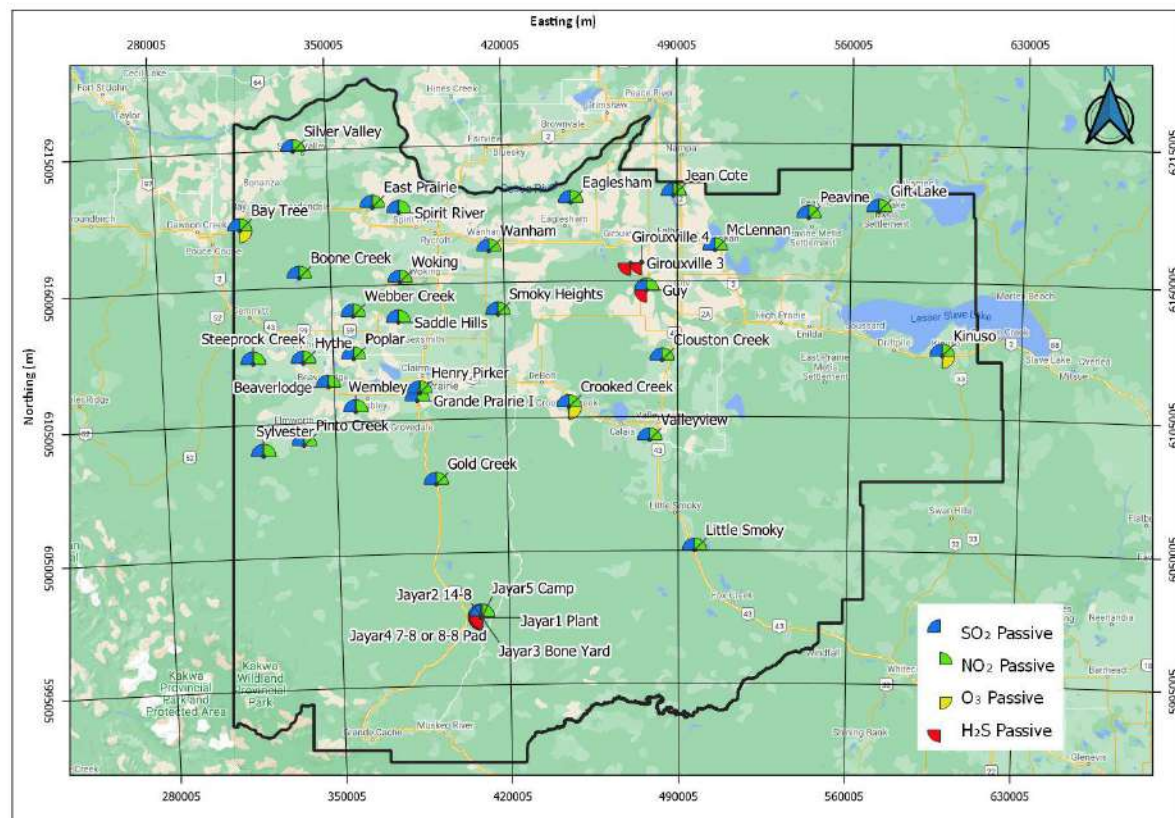
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PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 February 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 - February 2021 Beaverlodge Station Report

February 2021 Leverage Station Report																
Parameter	February				1-hour			24-hour			Exceedance				Calibration	
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date	
NO (ppb)	1.7	0.0	95.1%	100.0%	30.6	-	Feb-01 12:00	6.4	-	Feb-07	-	-	-	-	Feb 02, 2021	
NO ₂ (ppb)	7.4	0.5	95.1%	100.0%	32.8	159	Feb-05 20:00	15.7	-	Feb-07	0	-	-	-	Feb 02, 2021	
NO _x (ppb)	9.1	0.5	95.1%	100.0%	54.3	-	Feb-04 06:00	22.1	-	Feb-07	-	-	-	-	Feb 02, 2021	
O ₃ (ppb)	28.3	0.3	95.2%	100.0%	44.5	76	Feb-22 16:00	42.3	-	Feb-22	0	-	-	-	Feb 02, 2021	
PM _{2.5} (µg/m³)	5.1	0.4	97.2%	97.6%	61.6	80	Feb-07 22:00	13.9	29	Feb-01	0	-	0	-	Feb 03, 2021	
SO ₂ (ppb)	1.0	0.0	95.2%	100.0%	17.9	172	Feb-08 15:00	3.3	48	Feb-18	0	-	0	0	Feb 03, 2021	
	Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	-14.9	-35.3	100.0%	100.0%	4.3	<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div>										
RH (%)	70.5	34.0	100.0%	100.0%	98.5											
WS (km/hr)	10.3	0.3	100.0%	100.0%	64.7											
WD (deg)	275	0.3	100.0%	100.0%	359.3											
Average Wind Direction										275	W					

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	Equipment failure due to extreme cold Feb 7-9, 16hrs removed
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 - February 2021 Evergreen Park Station Report

February 2021 Evergreen Park Station Report																
Parameter	February			Valid	Operational	1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum				Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
PM _{2.5} (µg/m³)	3.8	0.0	97.6%	98.4%	21.8	80	Feb-18 19:00	11.6	29	Feb-18	0	-	0	-	Feb-18-2021	
SO ₂ (ppb)	0.5	0.0	94.1%	98.8%	6.4	172	Feb-08 17:00	1.3	48	Feb-16	0	-	0	0	Feb-18-2021	
TRS (ppb)	0.6	0.1	93.9%	98.8%	2.9	-	Feb-18 10:00	1.4	-	Feb-18	-	-	-	-	Feb-18-2021	
	Average	Minimum	Valid	Operational	Maximum											
Temp (°C)	-15.9	-39.6	98.8%	98.8%	6.7	<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div>										
RH (%)	67.1	32.2	98.8%	98.8%	91.1											
WS (km/hr)	3.9	0.0	98.8%	98.8%	18.0											
WD (deg)	253	1.2	98.8%	98.8%	357.3											
						Average Wind Direction		253		WSW						

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Thermo	TEOM AB	No Operational issues; Power failure Feb 20-21 (8 hrs); Feb 14 extreme negative drift (3 hr)
SO ₂	TECO	43i	No Operational issues; Power failure Feb 20-21 (8 hrs)
TRS	TECO	43C	No Operational issues; Power failure Feb 20-21 (8 hrs)
Met Equip	Gil/RMYoung	MetPak/RMY86004	No Operational issues; Power failure Feb 20-21 (8 hrs)

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - February 2021 Henry Pirker Station Report

Parameter	February			Operational	Max	1-hour		8-hour / 24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
NO (ppb)	8.5	0.0	94.7%	100.0%	162.4	-	Feb-17 20:00	37.4	-	Feb-18	-	-	-	-	Feb 05, 2021
NO ₂ (ppb)	15.7	1.8	94.7%	100.0%	67.0	159	Feb-17 20:00	39.0	-	Feb-18	0	-	-	-	Feb 05, 2021
NO _x (ppb)	24.4	1.9	94.7%	100.0%	230.1	-	Feb-17 20:00	76.9	-	Feb-18	-	-	-	-	Feb 05, 2021
O ₃ (ppb)	22.1	0.4	95.2%	100.0%	44.4	76	Feb-22 15:00	42.5	-	Feb-22	0	-	-	-	Feb 05, 2021
PM _{2.5} (µg/m³)	5.9	0.3	94.5%	95.1%	28.0	80	Feb-01 09:00	16.3	29	Feb-01	0	-	0	-	Feb 10, 2021
SO ₂ (ppb)	0.9	0.0	95.2%	100.0%	32.8	172	Feb-10 12:00	4.4	48	Feb-12	0	-	0	0	Feb 05, 2021
H ₂ S (ppb)	0.3	0.0	95.1%	100.0%	2.0	10	Feb-07 12:00	0.8	3	Feb-07	0	-	0	-	Feb 10, 2021
CH ₄ (ppm)	2.3	2.0	95.2%	100.0%	5.6	-	Feb-18 01:00	3.2	-	Feb-18	-	-	-	-	Feb 04, 2021
THC (ppm)	2.4	2.0	95.2%	100.0%	6.6	-	Feb-18 01:00	3.5	-	Feb-18	-	-	-	-	Feb 04, 2021
NMHC (ppm)	0.0	0.0	95.2%	100.0%	1.0	-	Feb-18 01:00	0.3	-	Feb-18	-	-	-	-	Feb 04, 2021
CO (ppm)	0.3	0.1	95.1%	100.0%	1.6	13	Feb-17 20:00	0.5	5	Feb-17	0	0	-	-	Feb 04, 2021
Average															
Temp (°C)	-15.6	-42.8	100.0%	100.0%	6.1										
RH (%)	60.4	35.1	100.0%	100.0%	85.0										
SR (W/m²)	43.1	0.0	100.0%	100.0%	381.3										
WS (km/hr)	6.9	0.1	100.0%	100.0%	31.9										
WD (deg)	267	0.3	100.0%	100.0%	359.5										
<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div> <div>Average Wind Direction 267 W</div>															

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; Extreme cold events Feb 7-11 resulted in equipment failure, 33hrs removed
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	No Operational issues noted during the month
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 - February 2021 Smoky Heights Station Report

Parameter	February			Operational	Max	1-hour		24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
PM _{2.5} (µg/m³)	4.7	0.0	92.0%	92.7%	34.7	80	Feb-13 02:00	13.8	29	Feb-01	0	-	0	-	Feb 16, 2021
SO ₂ (ppb)	0.6	0.0	95.2%	100.0%	15.1	172	Feb-24 16:00	1.9	48	Feb-12	0	-	0	0	Feb 16, 2021
TRS (ppb)	0.2	0.0	95.1%	100.0%	1.1	-	Feb-17 11:00	0.3	-	Feb-17	-	-	-	-	Feb 09, 2021
Average															
Temp (°C)	-16.9	-41.9	100.0%	100.0%	4.7										
WS (km/hr)	11.8	0.1	100.0%	100.0%	56.5										
WD (deg)	257	0.3	100.0%	100.0%	359.9										
<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div> <div>Average Wind Direction 257 WNW</div>															

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	5030	No Operational issues noted during the month; 33hrs of PM2.5 removed due to extreme cold Feb 7-11
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	No Operational issues noted during the month

1.5 Valleyview Air Monitoring Station

PAZA - February 2021 Valleyview Station Report

A2A - February 2021 Valleyview Station Report																	
February					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)	0.3	0.0	95.2%	100.0%	7.5	172	Feb-03 09:00	1.0	48	Feb-03	0	-	0	0	Feb 11, 2021		
H ₂ S (ppb)	0.1	0.0	95.2%	100.0%	1.0	10	Feb-09 04:00	0.3	3	Feb-01	0	-	0	-	Feb 11, 2021		
Average		Minimum	Valid	Operational	Maximum		<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div>										
Temp (°C)	-15.8	-44.3	100.0%	100.0%	8.8												
RH (%)	69.9	33.1	100.0%	100.0%	98.1												
WS (km/hr)	4.8	0.1	100.0%	100.0%	20.3												
WD (deg)	270	0.6	100.0%	100.0%	359.9												
Average Wind Direction									270		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 - February 2021 Donnelly Station Report

AAR - February 2021 Donnelly Station Report																
February					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)	0.3	0.0	95.1%	100.0%	2.7	172	Feb-17 23:00	1.0	48	Feb-17	0	-	0	0	Feb 25, 2021	
H ₂ S (ppb)	0.1	0.0	95.2%	100.0%	0.5	10	Feb-24 04:00	0.2	3	Feb-01	0	-	0	-	Feb 25, 2021	
Average		Minimum	Valid	Operational	Maximum	<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div> <div>Average Wind Direction248WSW</div>										
Temp (°C)	-16.7	-39.3	100.0%	100.0%	5.4											
WS (km/hr)	11.4	0.1	100.0%	100.0%	55.3											
WD (deg)	248	1.2	100.0%	100.0%	359.9											

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	Teco	43i	No Operational issues noted during the month
H ₂ S	Thermo	45C	No Operational issues noted during the month
Met Equip	RMYoung	5103	No Operational issues noted during the month

1.7 Wembley Air Monitoring Station

PAZA - February 2021 Wembley Station Report

February 2021 Windsor Station Report																	
Parameter	February			Operational	1-hour			24-hour			Exceedance				Calibration		
	Average	Minimum	Valid		Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date		
NO (ppb)	1.2	0.0	94.9%	100.0%	35.4	-	Feb-17 18:00	4.1	-	Feb-18	-	-	-	-	Feb 03, 2021		
NO ₂ (ppb)	6.7	0.4	94.9%	100.0%	36.7	159	Feb-12 22:00	15.9	-	Feb-07	0	-	-	-	Feb 03, 2021		
NO _x (ppb)	7.9	0.5	94.9%	100.0%	66.5	-	Feb-17 18:00	20.0	-	Feb-18	-	-	-	-	Feb 03, 2021		
O ₃ (ppb)	28.4	1.7	95.2%	100.0%	46.8	76	Feb-22 17:00	45.2	-	Feb-22	0	-	-	-	Feb 03, 2021		
PM _{2.5} (µg/m³)	3.2	0.0	99.6%	99.7%	17.6	80	Feb-01 02:00	9.8	29	Feb-01	0	-	0	-	Feb 04, 2021		
SO ₂ (ppb)	0.9	0.0	95.1%	100.0%	23.5	172	Feb-12 15:00	2.7	48	Feb-12	0	-	0	0	Feb 03, 2021		
TRS (ppb)	0.4	0.1	95.1%	100.0%	3.3	-	Feb-04 18:00	0.8	-	Feb-04	-	-	-	-	Feb 04, 2021		
CH ₄ (ppm)	2.1	1.7	89.5%	94.1%	3.1	-	Feb-07 09:00	2.6	-	Feb-07	-	-	-	-	Feb 04, 2021		
THC (ppm)	2.1	1.7	89.5%	94.1%	3.1	-	Feb-07 09:00	2.6	-	Feb-07	-	-	-	-	Feb 04, 2021		
NMHC (ppm)	0.0	0.0	89.5%	94.1%	0.0	-	Feb-22 07:00	0.0	-	Feb-22	-	-	-	-	Feb 04, 2021		
	Average	Minimum	Valid	Operational	Maximum	<div>Note: Valid hours must be greater than 75%</div> <div>Operational hours must be greater than 90%</div> <div>Average Wind Direction297WNW</div>											
Temp (°C)	-15.5	-44.1	100.0%	100.0%	6.4												
WS (km/hr)	9.0	0.5	97.3%	97.3%	31.4												
WD (deg)	297	0.6	97.3%	97.3%	359.9												

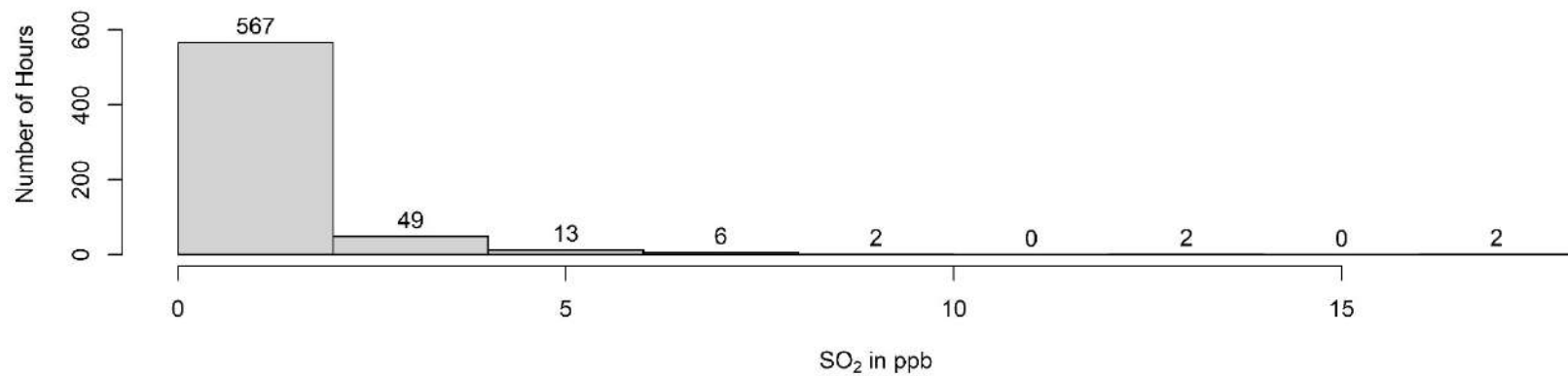
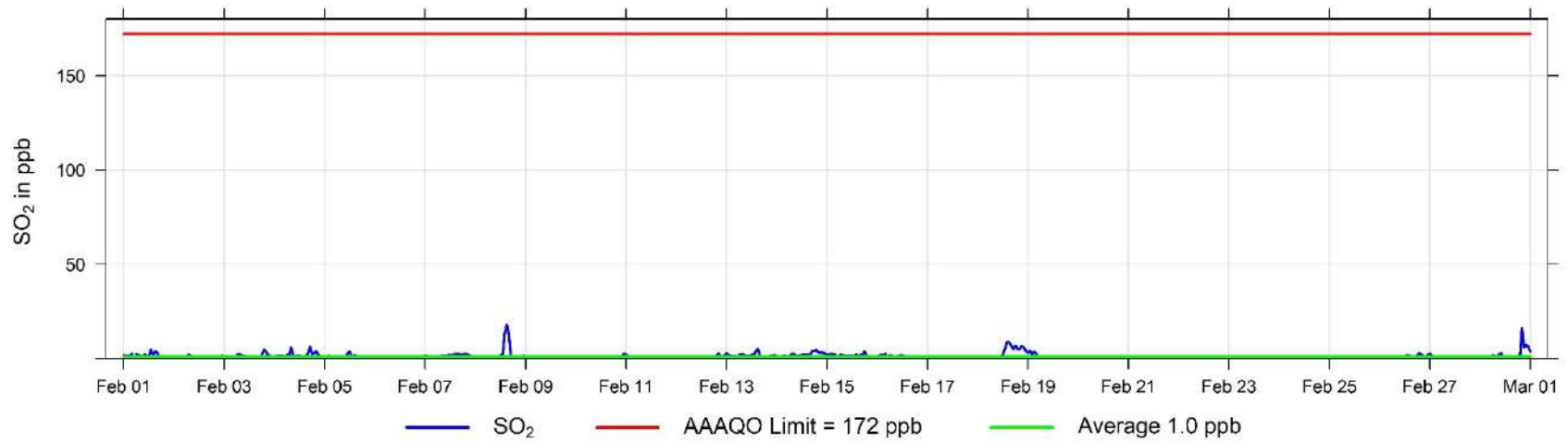
Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TEI	42i	No Operational issues noted
O ₃	TEI	49i	No Operational issues noted
PM _{2.5}	Thermo	TEOM AB	No Operational issues noted; 2hrs of extreme negative spikes removed
SO ₂	TEI	43i	No Operational issues noted
TRS	TEI	43i	No Operational issues noted
THC/CH ₄ /NMHC	TEI	55i-A3PHAA	Pump rebuild and span cylinder replaced; span failure Feb 25, data removed until maintenance calibration
Met Equip	MetOne	50.5	No Operational issues noted; Extreme cold Feb 6-7 resulted in 18hrs removed

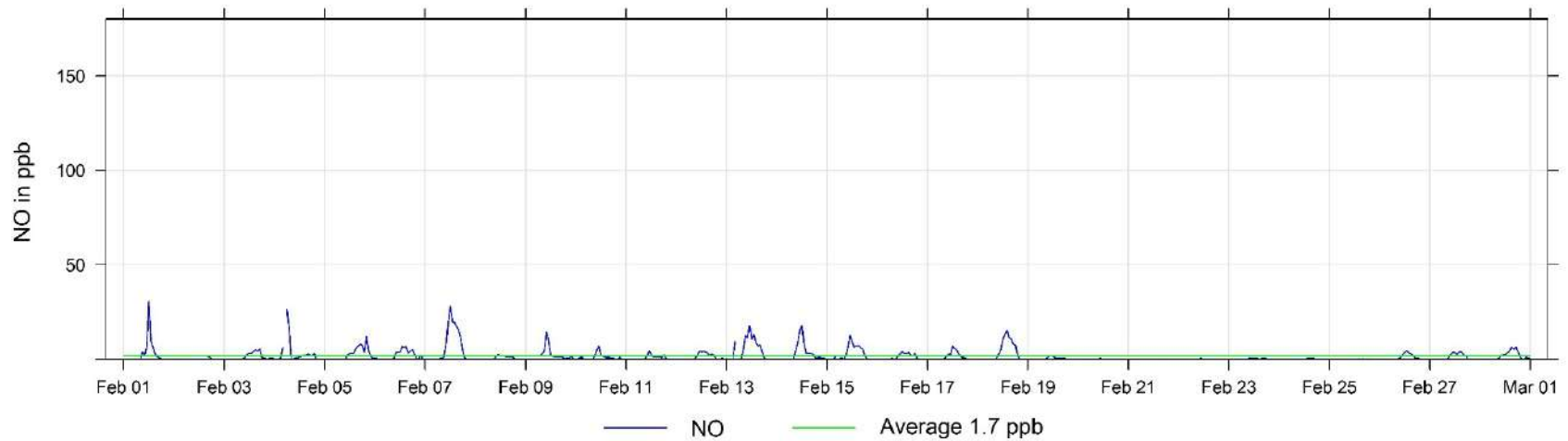
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

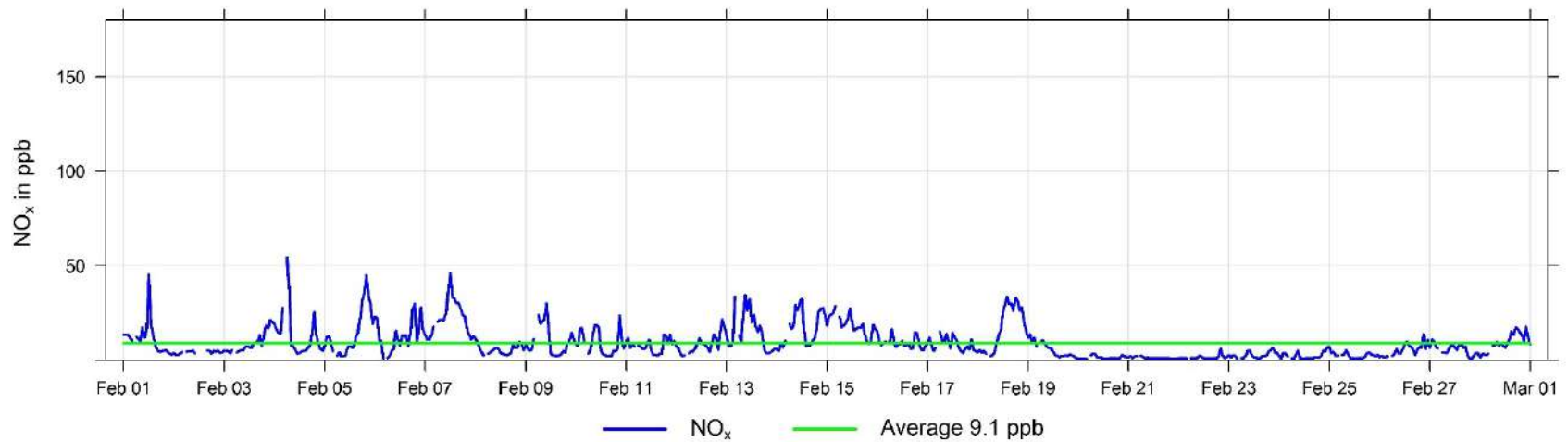
February Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge



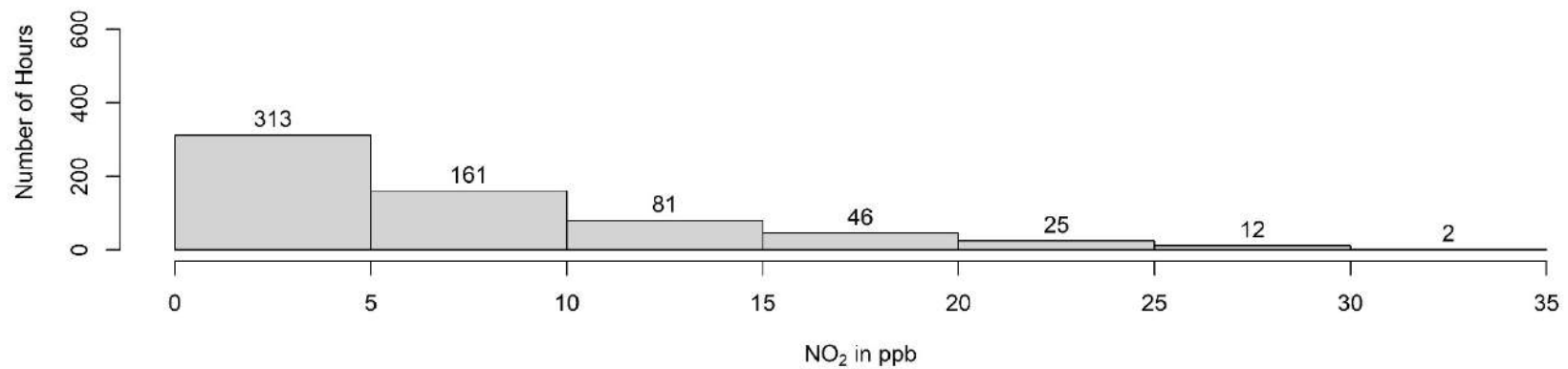
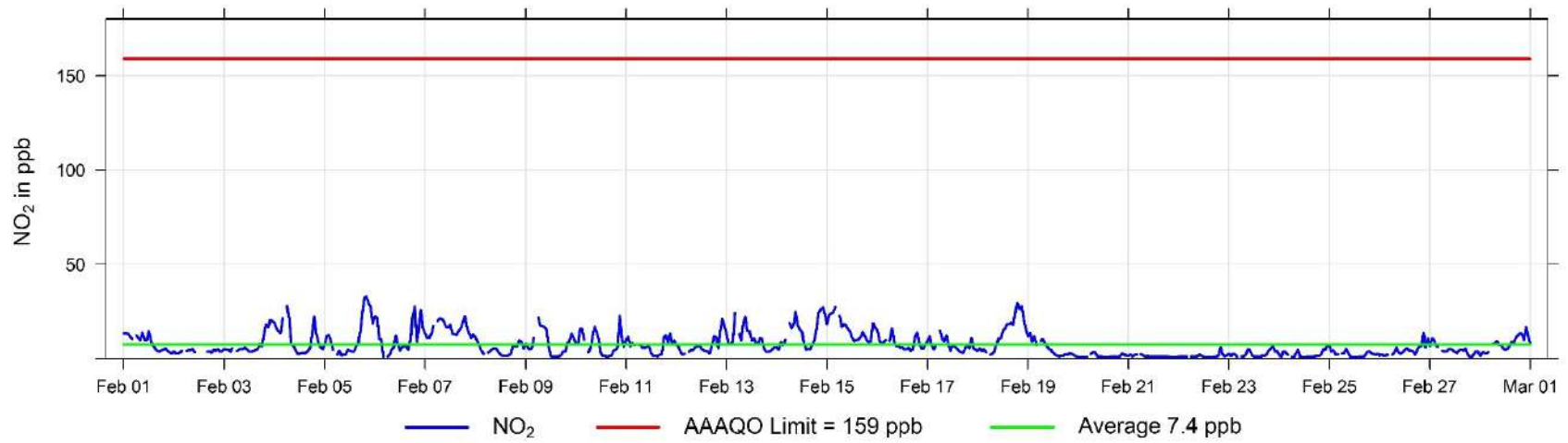
February Hourly Concentration Readings of NO (in ppb) at Beaverlodge



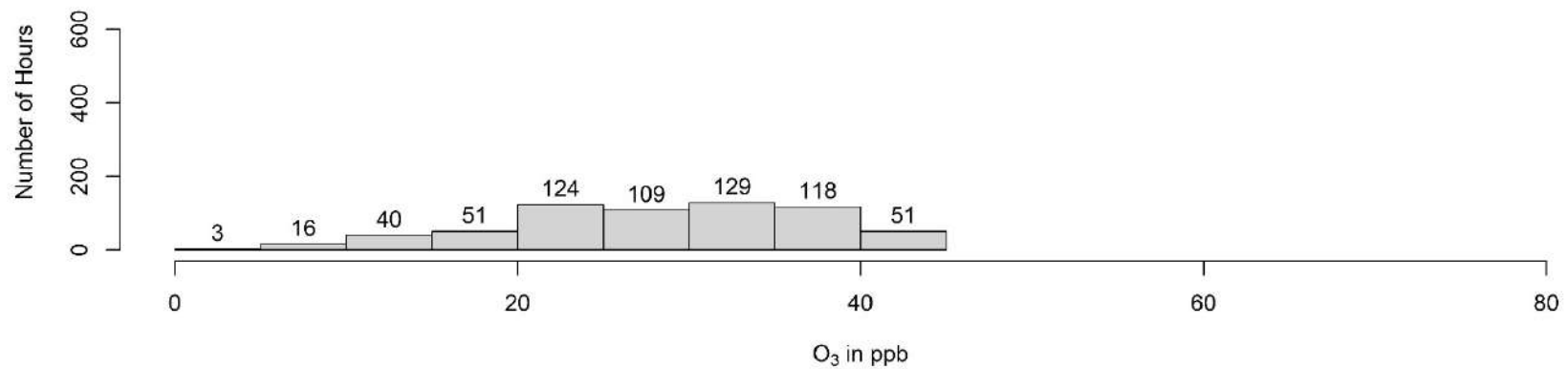
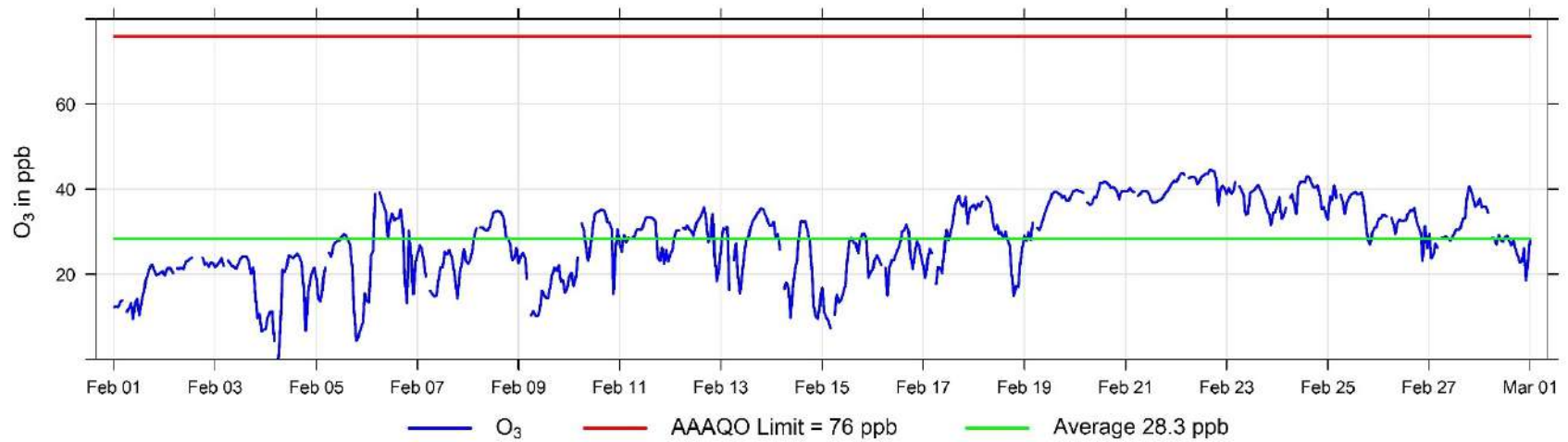
February Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge



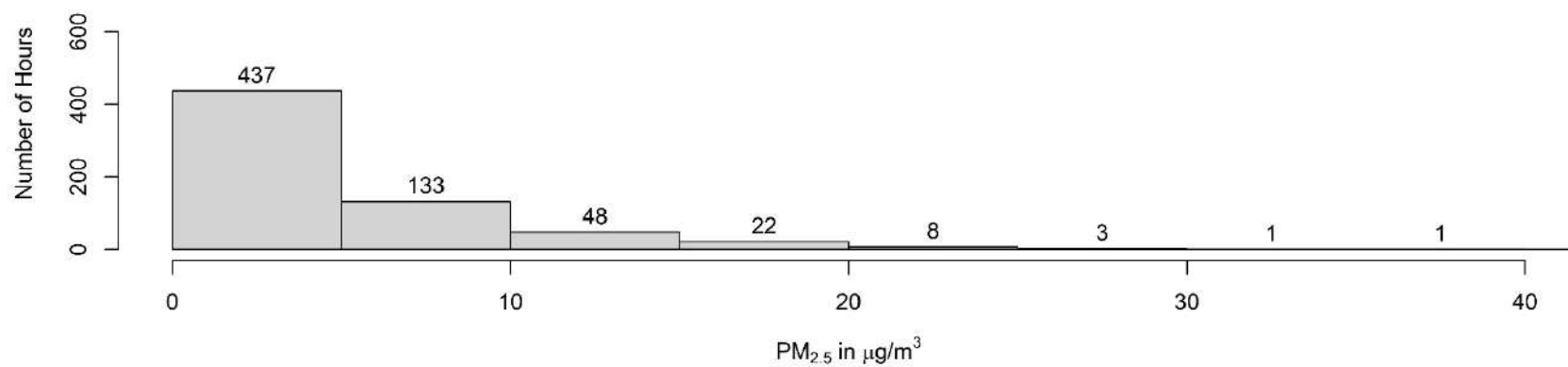
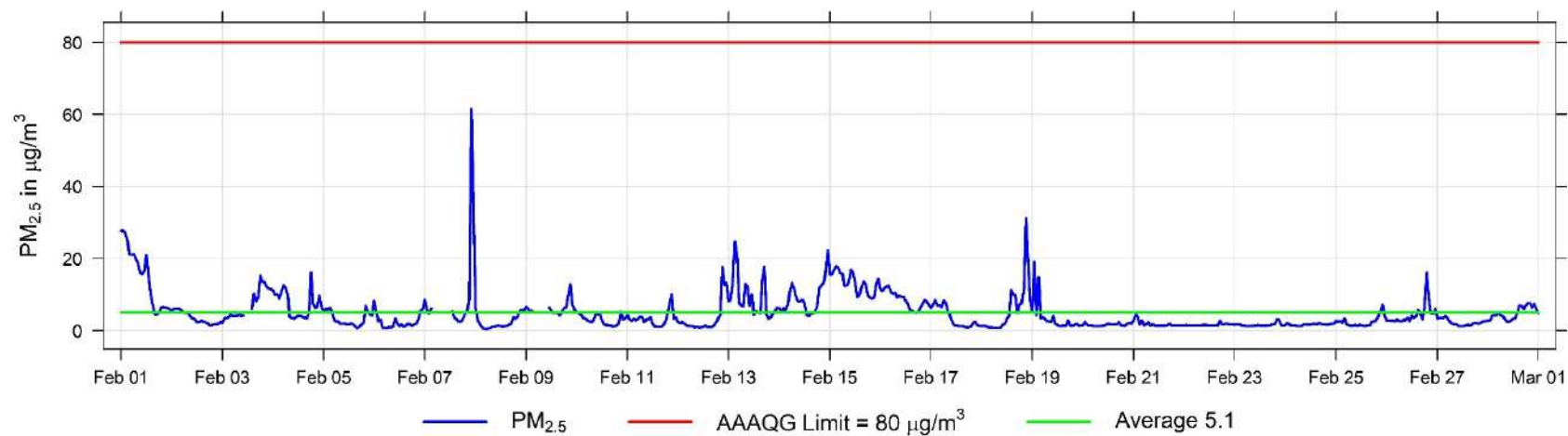
February Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge



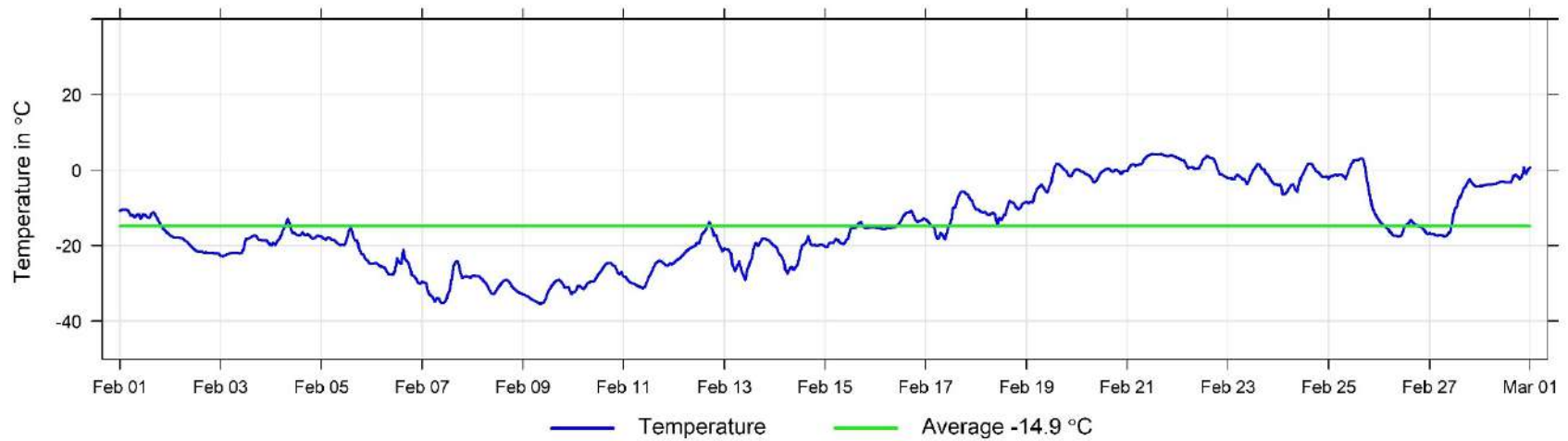
February Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge



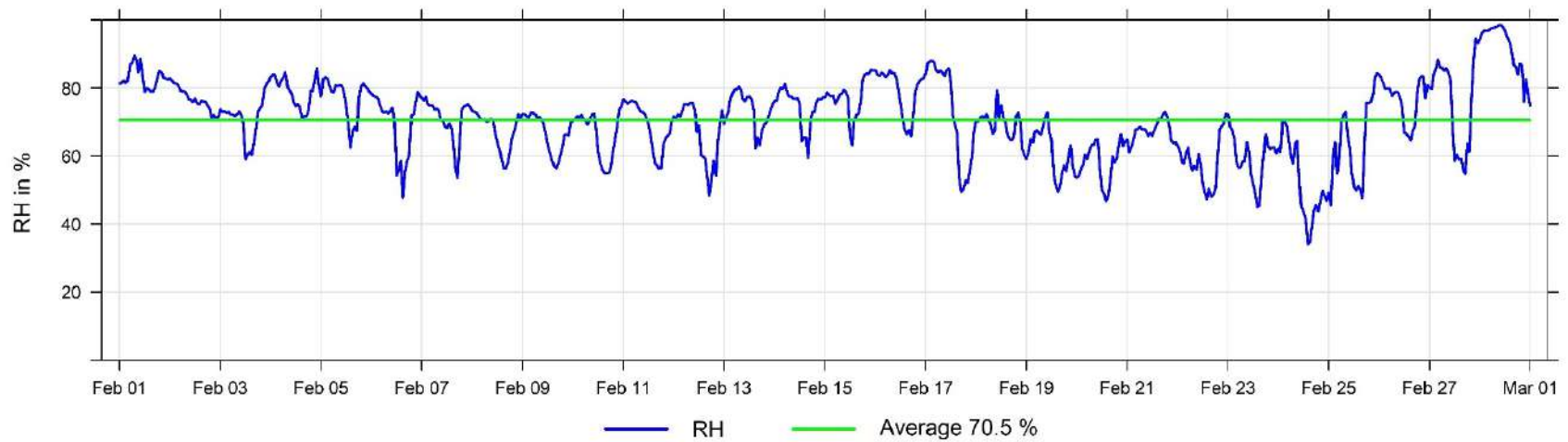
February Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Beaverlodge



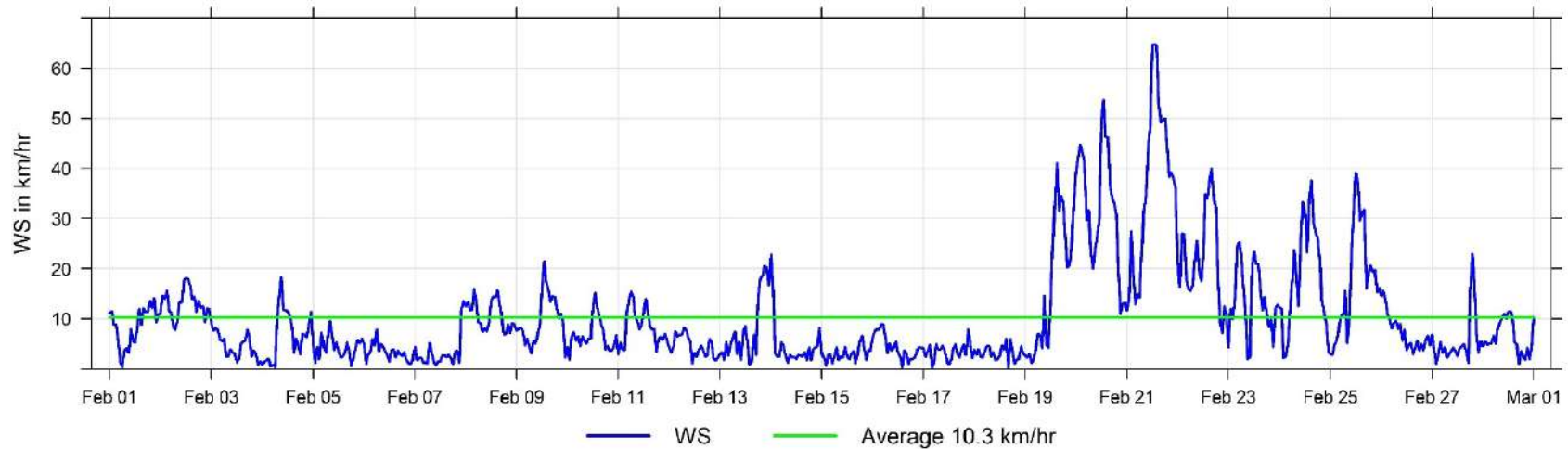
February Hourly Temperature Readings (in °C) at Beaverlodge



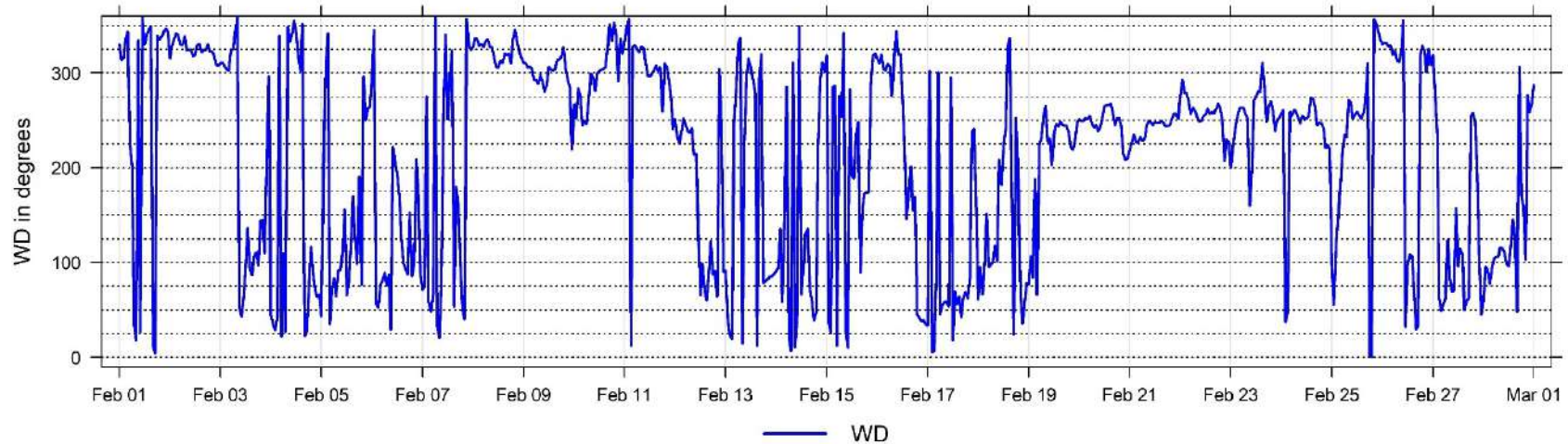
February Hourly Readings of Relative Humidity (in %) at Beaverlodge



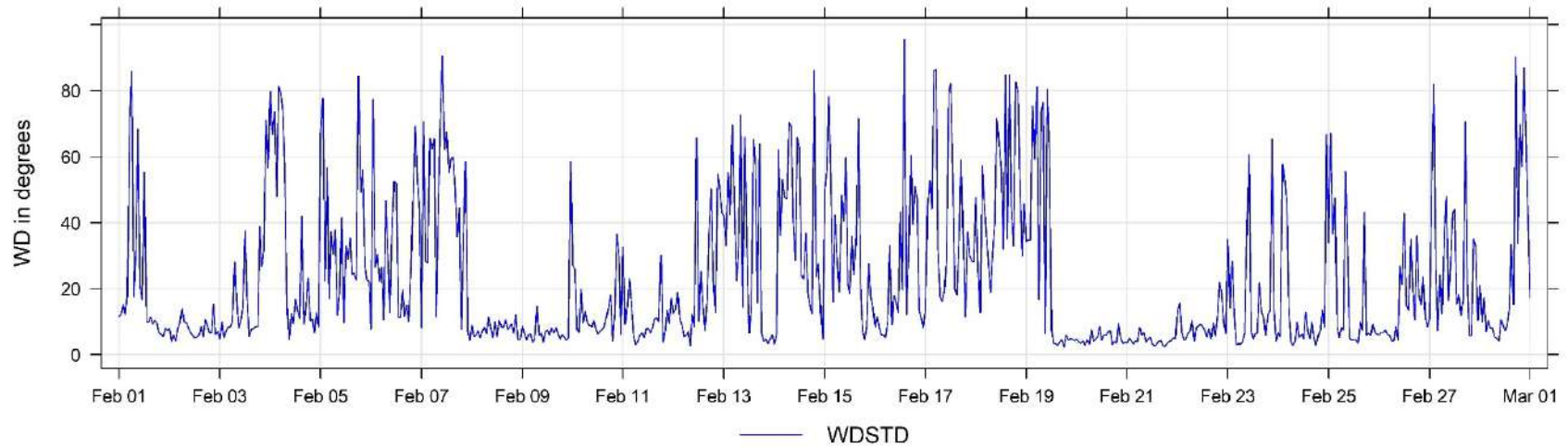
February Hourly Readings of Wind Speed (in km/hr) at Beaverlodge

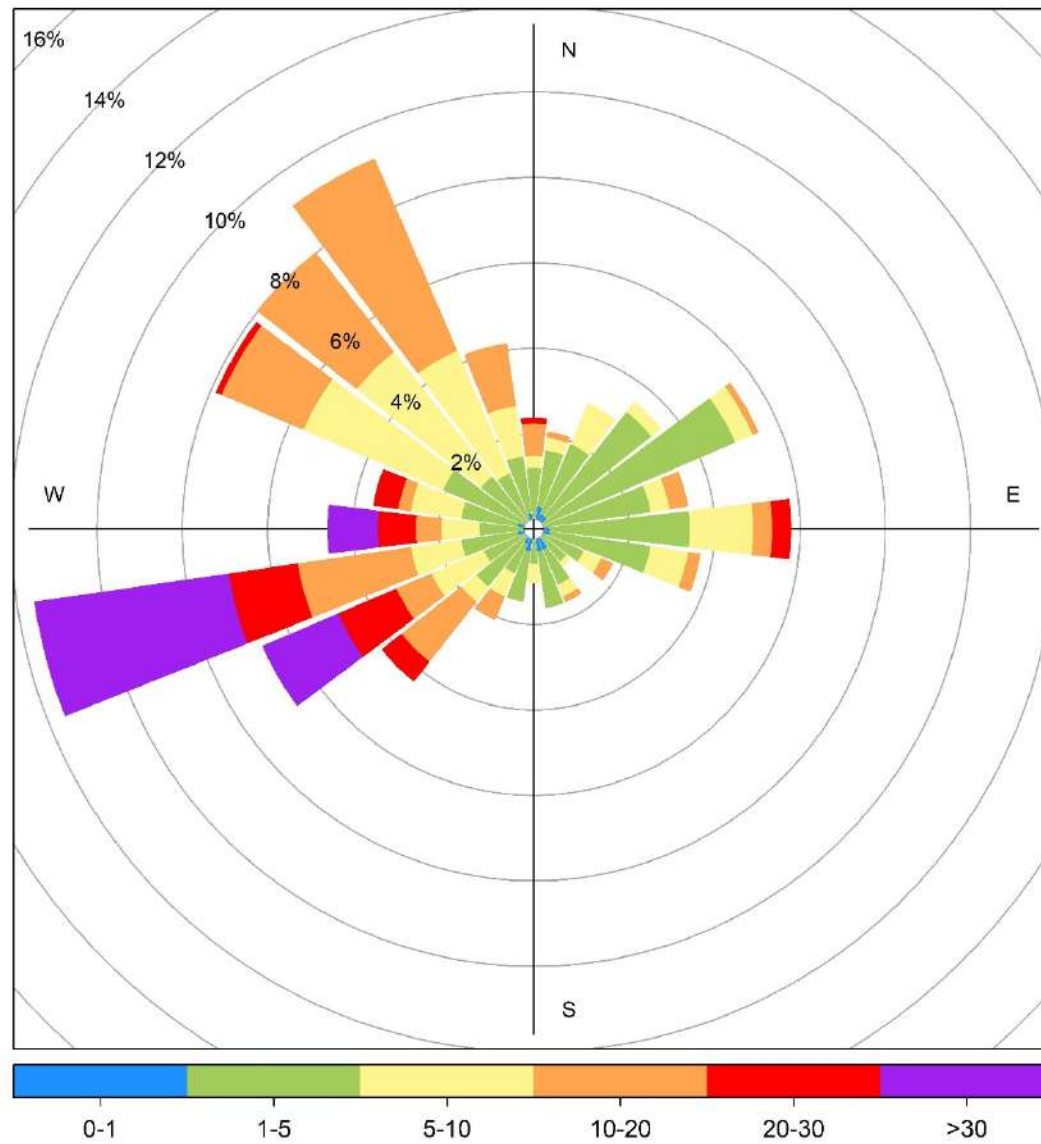


February Hourly Readings of Wind Direction (in degrees) at Beaverlodge



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



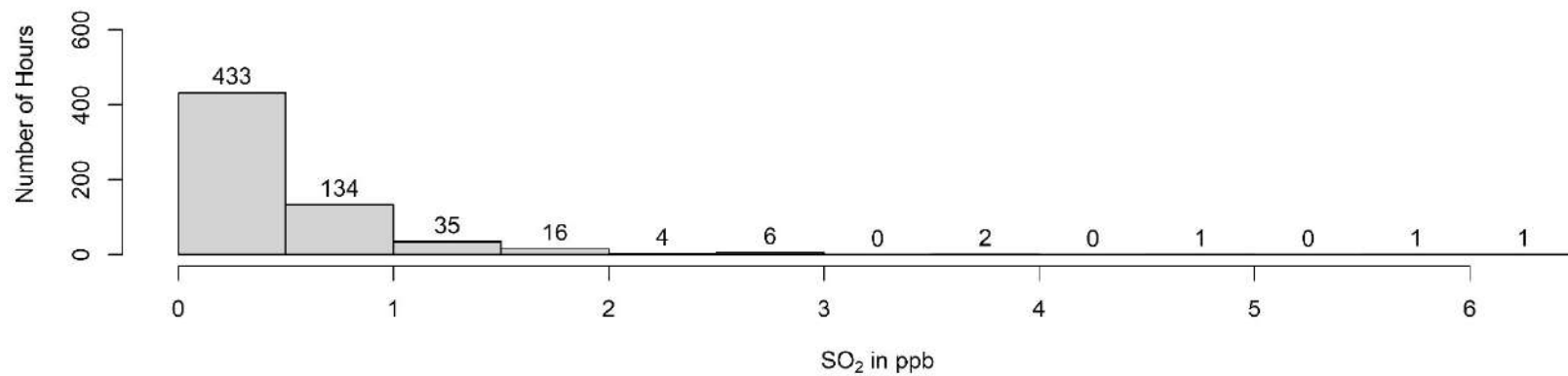
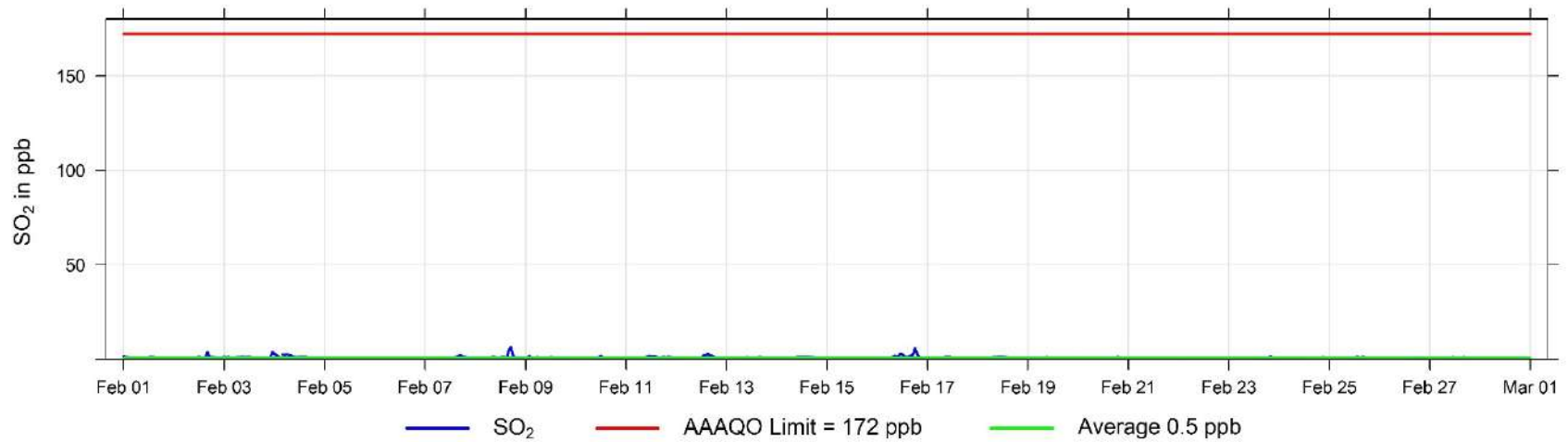


Beaverlodge February Wind Rose, wind speed in km/hr

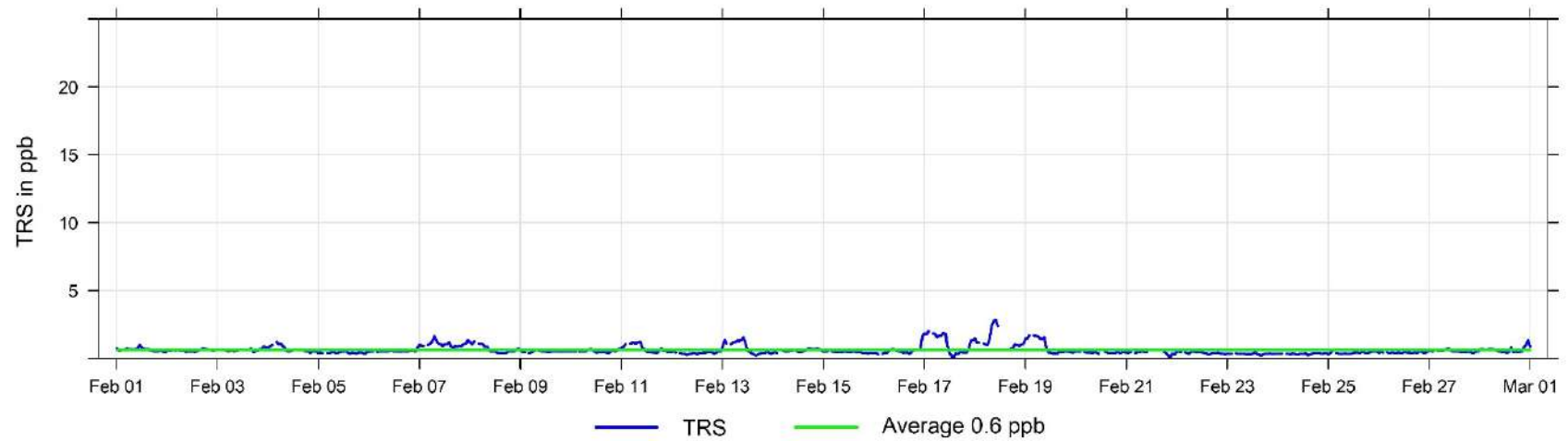
3 **Evergreen Park Charts**

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

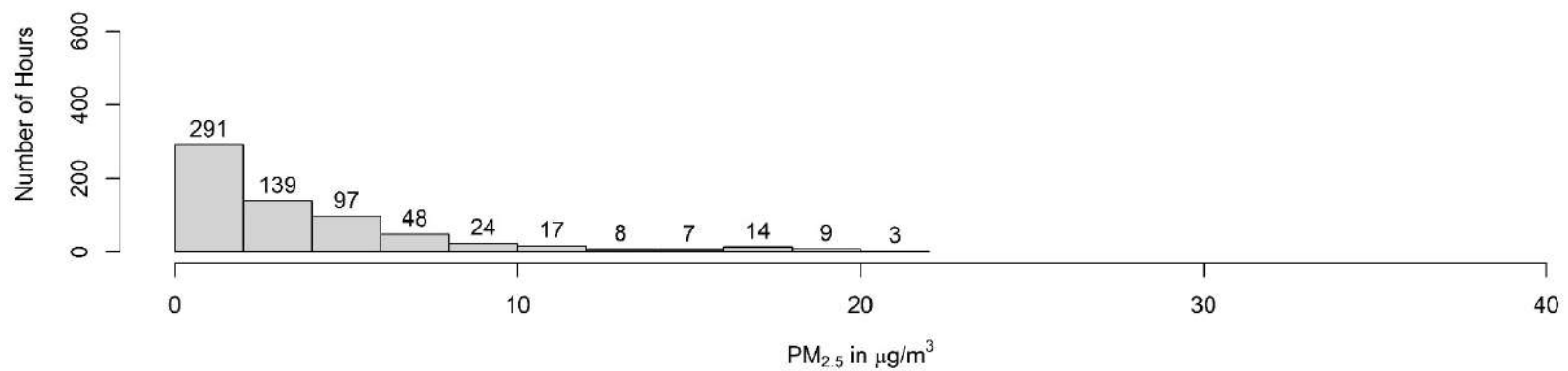
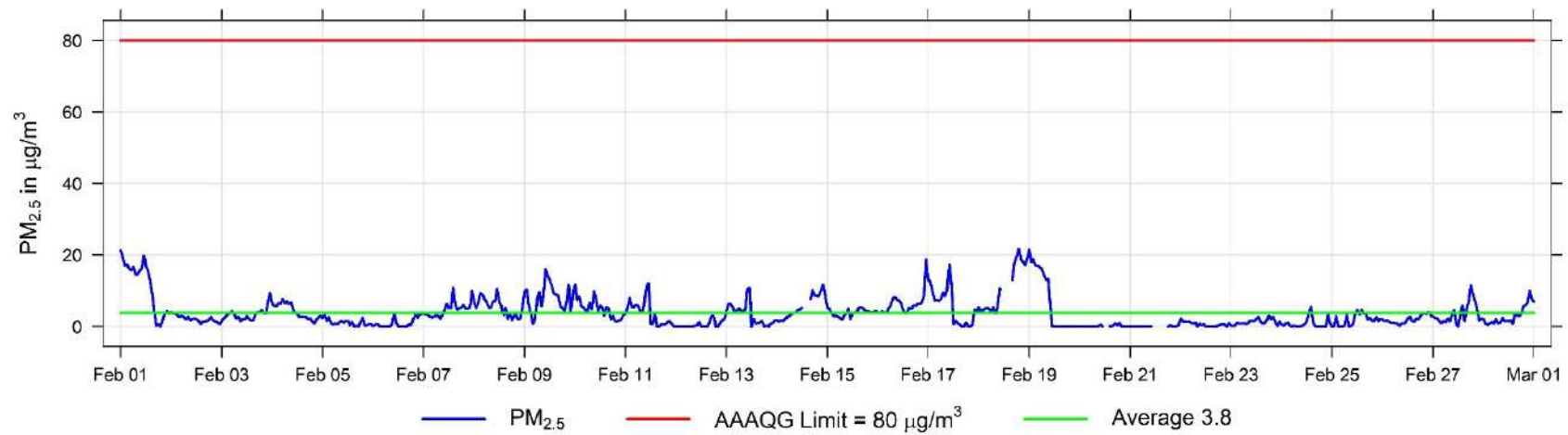
February Hourly Concentration Readings of SO₂ (in ppb) at Evergreen Park



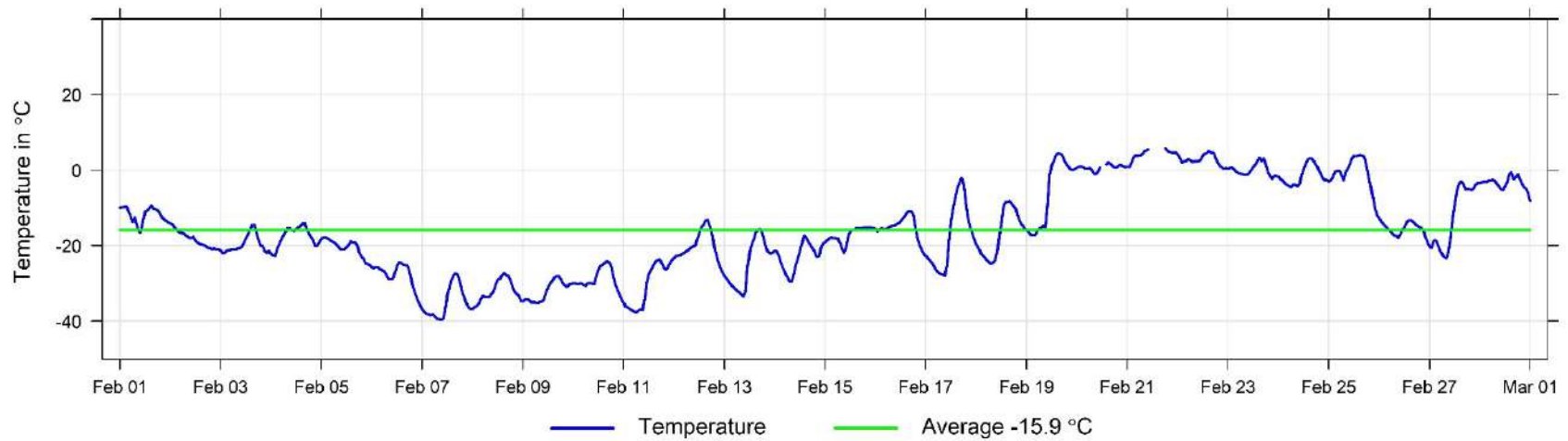
February Hourly Concentration Readings of TRS (in ppb) at Evergreen Park



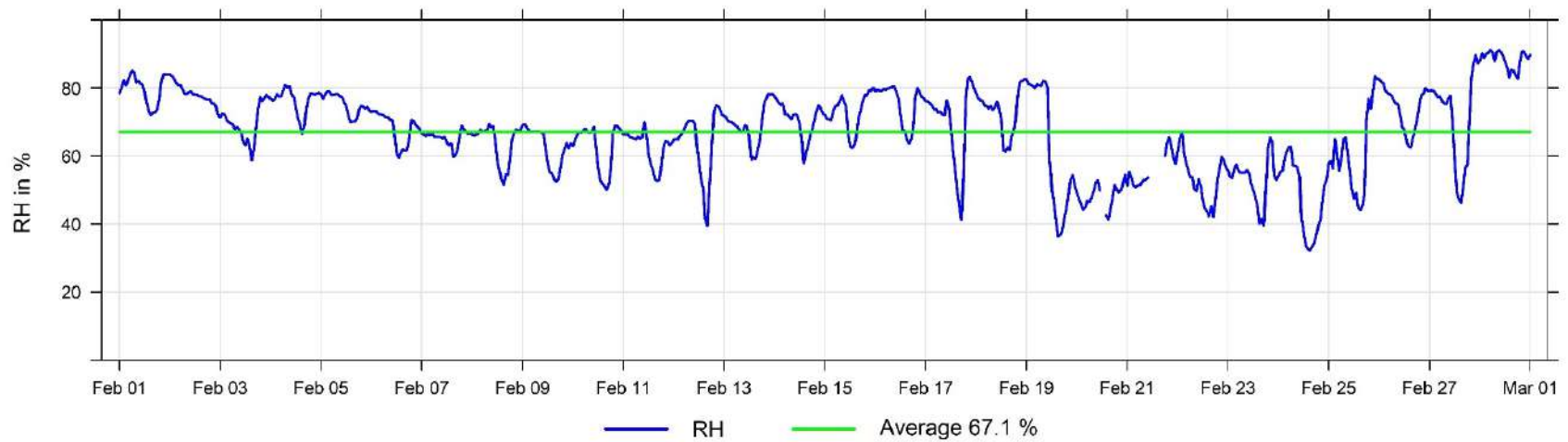
February Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Evergreen Park



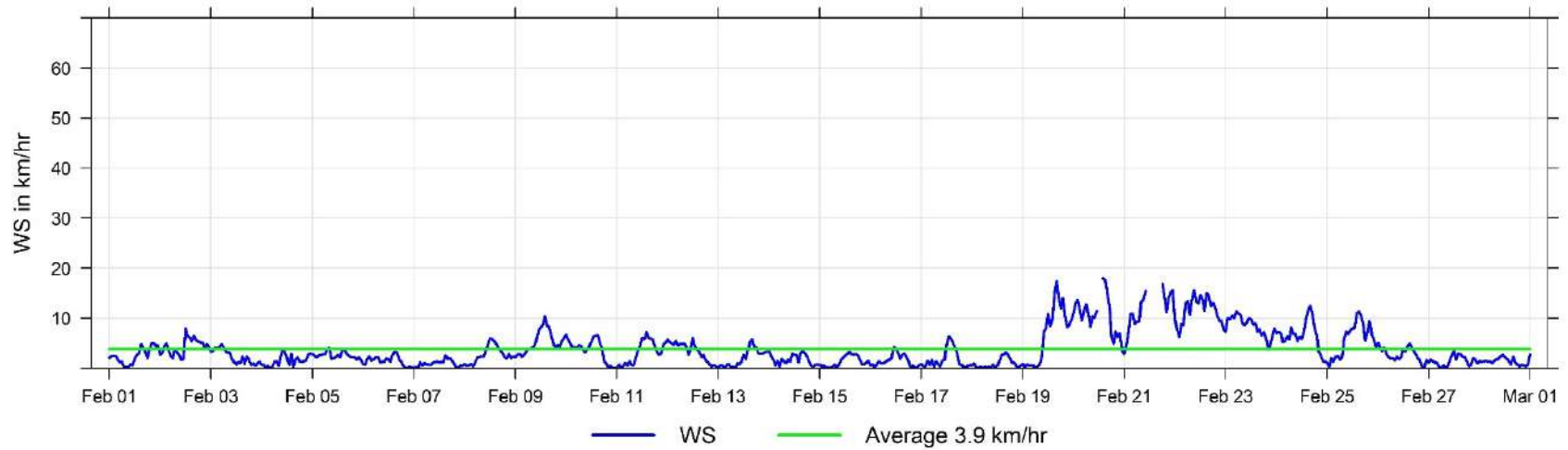
February Hourly Temperature Readings (in °C) at Evergreen Park



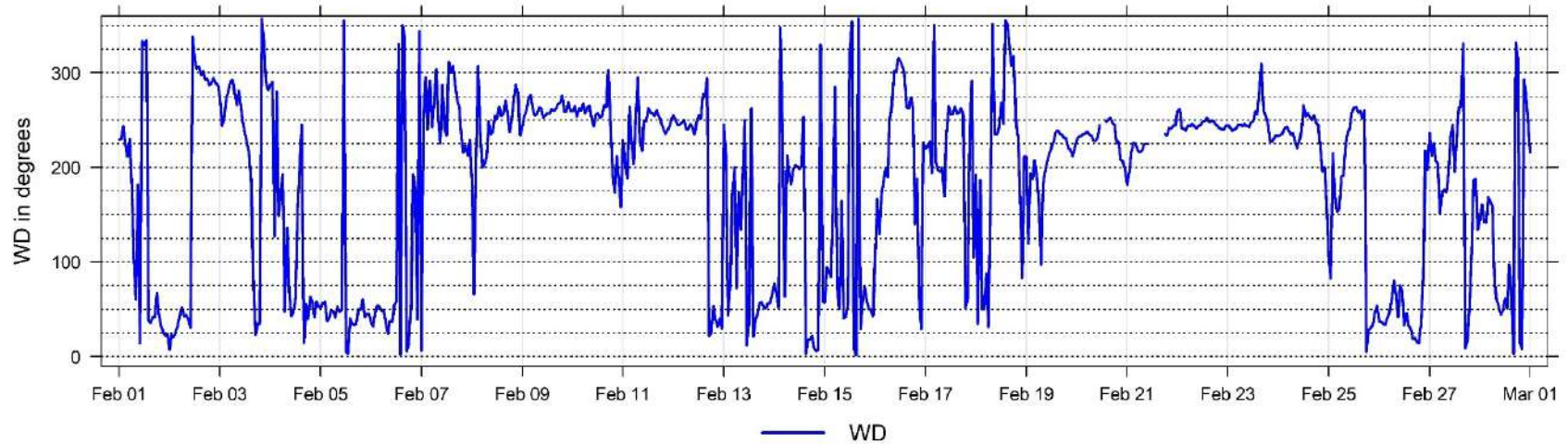
February Hourly Readings of Relative Humidity (in %) at Evergreen Park



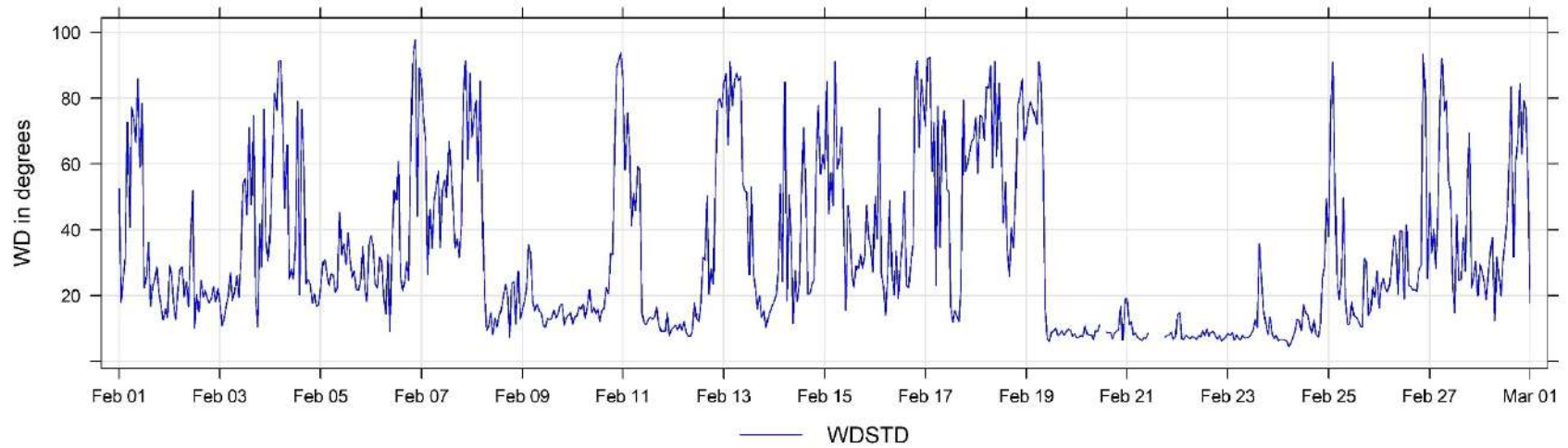
February Hourly Readings of Wind Speed (in km/hr) at Evergreen Park

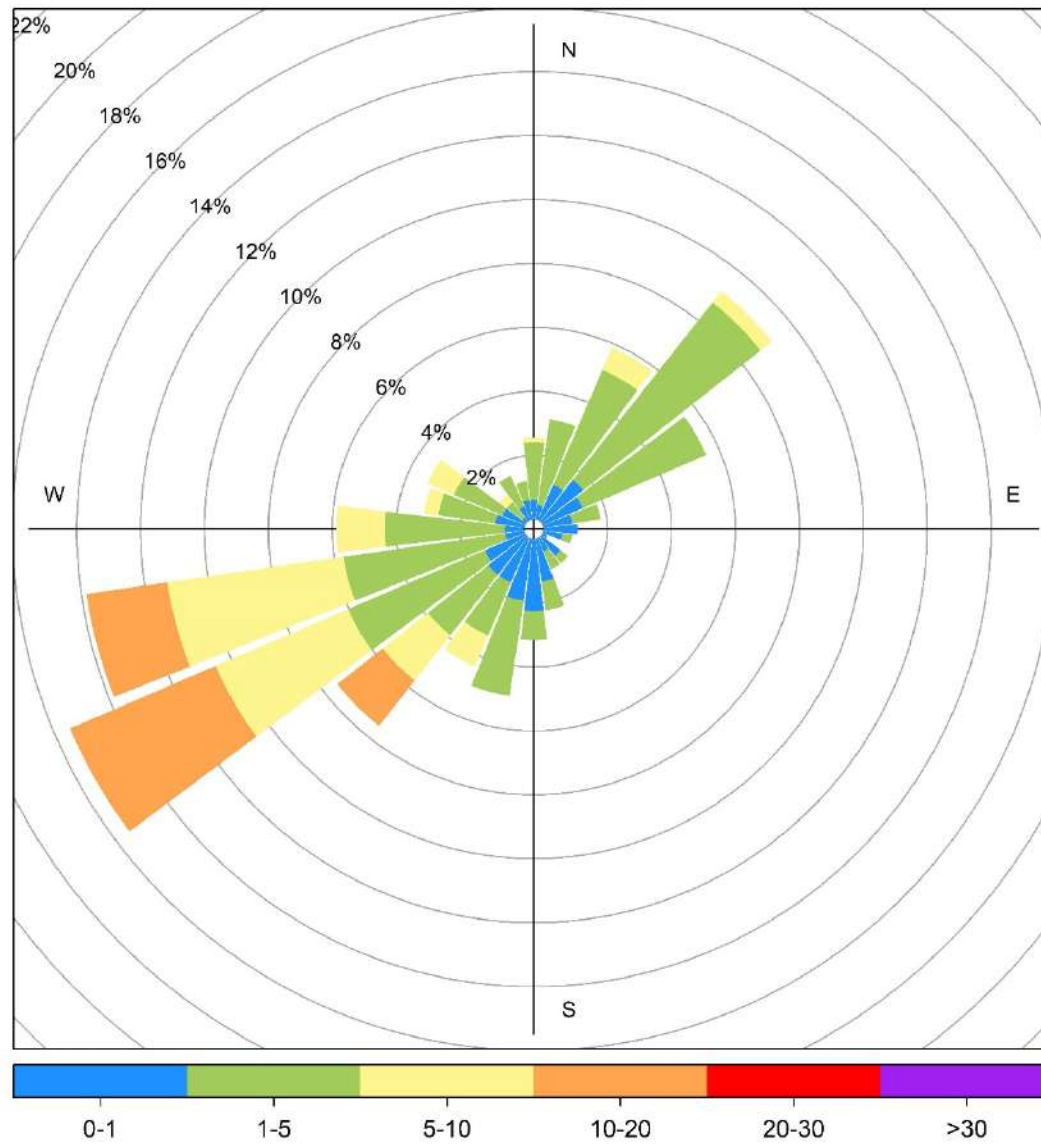


February Hourly Readings of Wind Direction (in degrees) at Evergreen Park



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



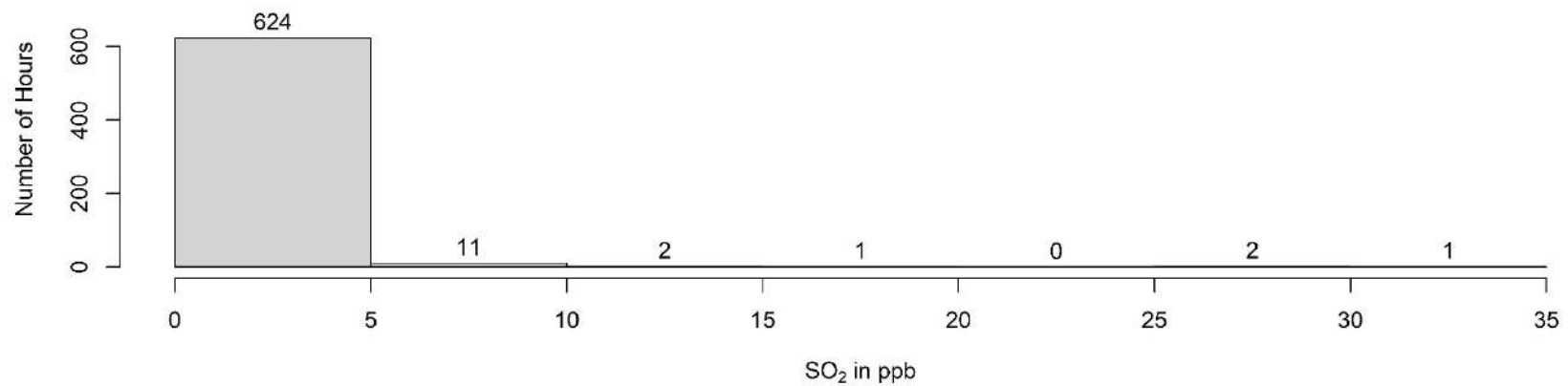
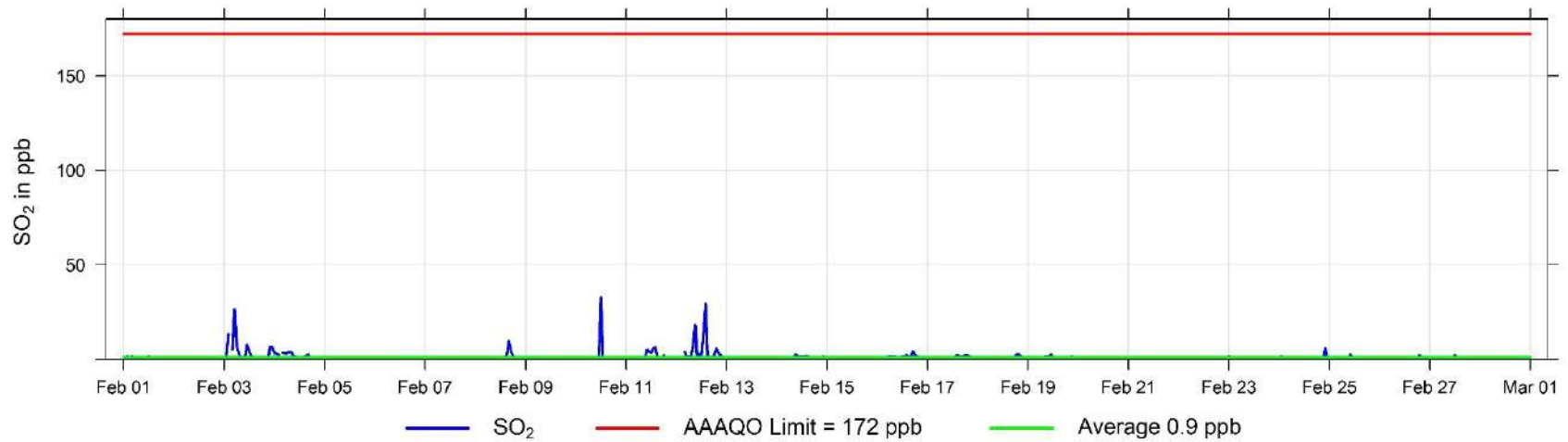


Evergreen Park February Wind Rose, wind speed in km/hr

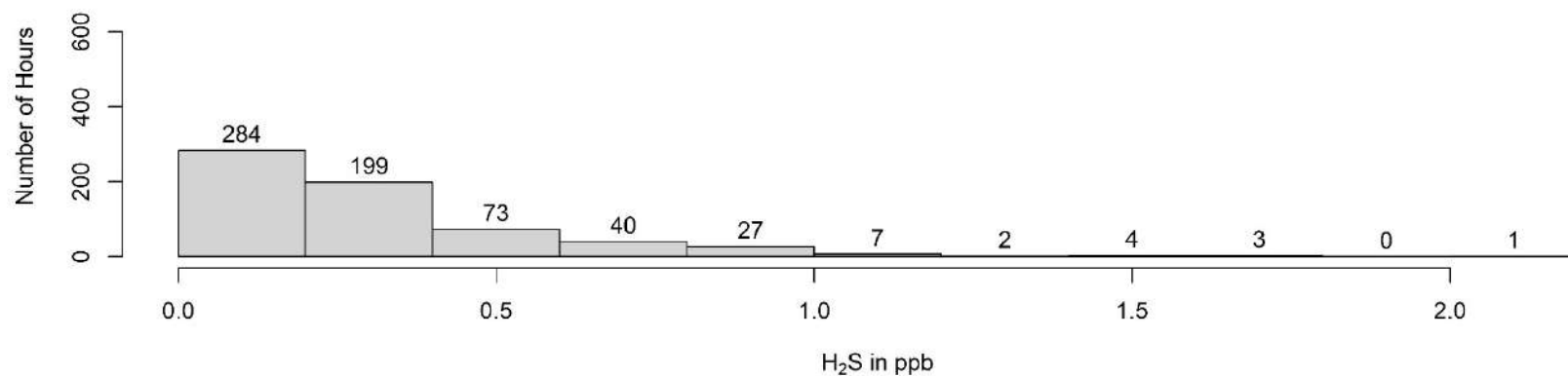
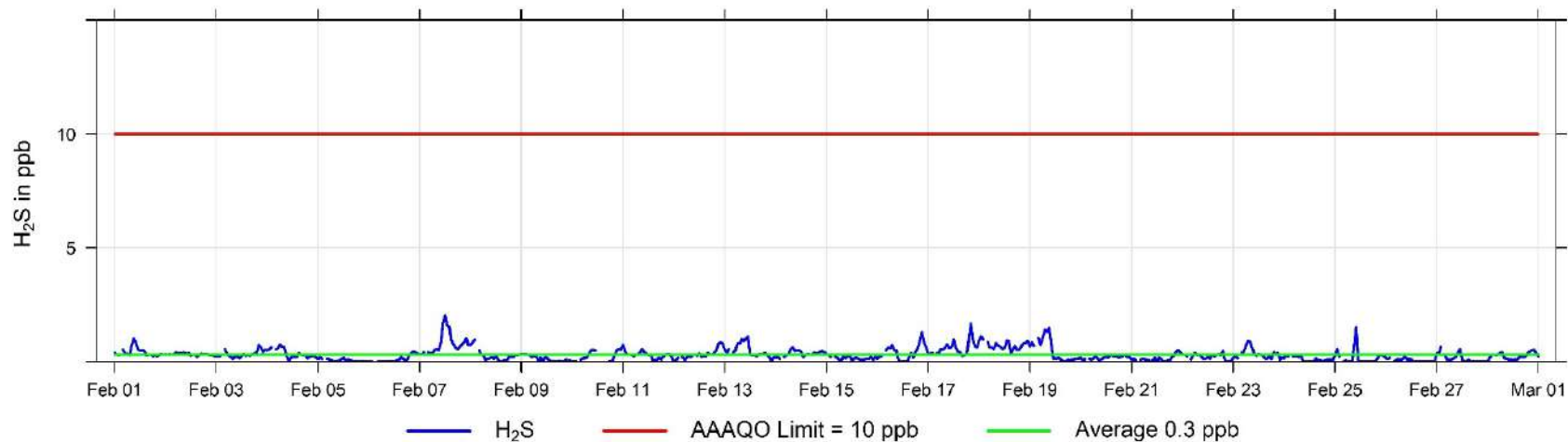
4 Grande Prairie - Henry Pirker Charts

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

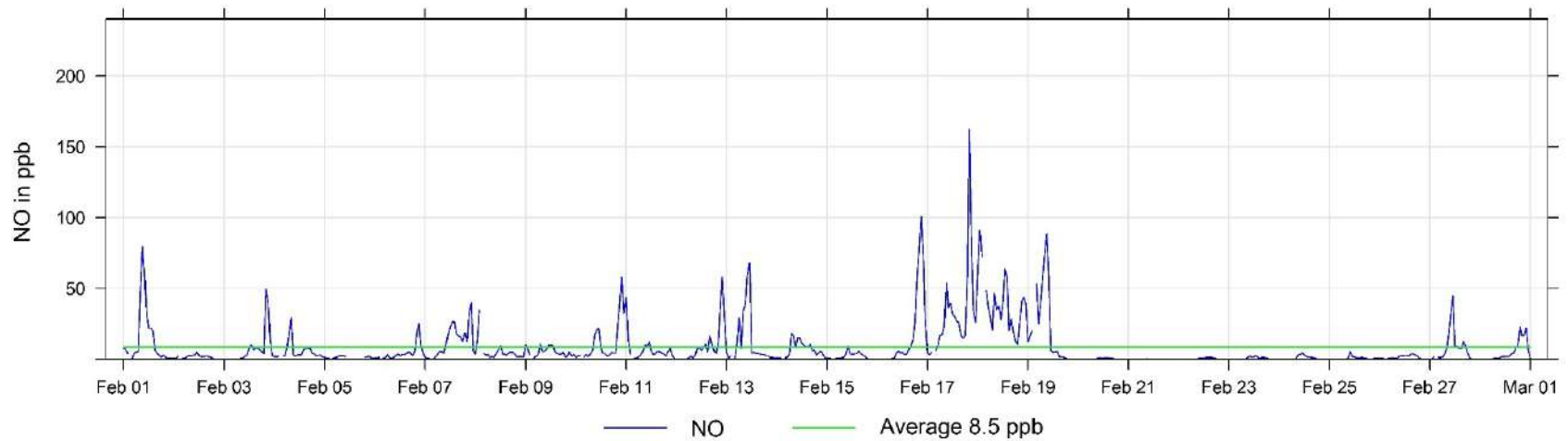
February Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



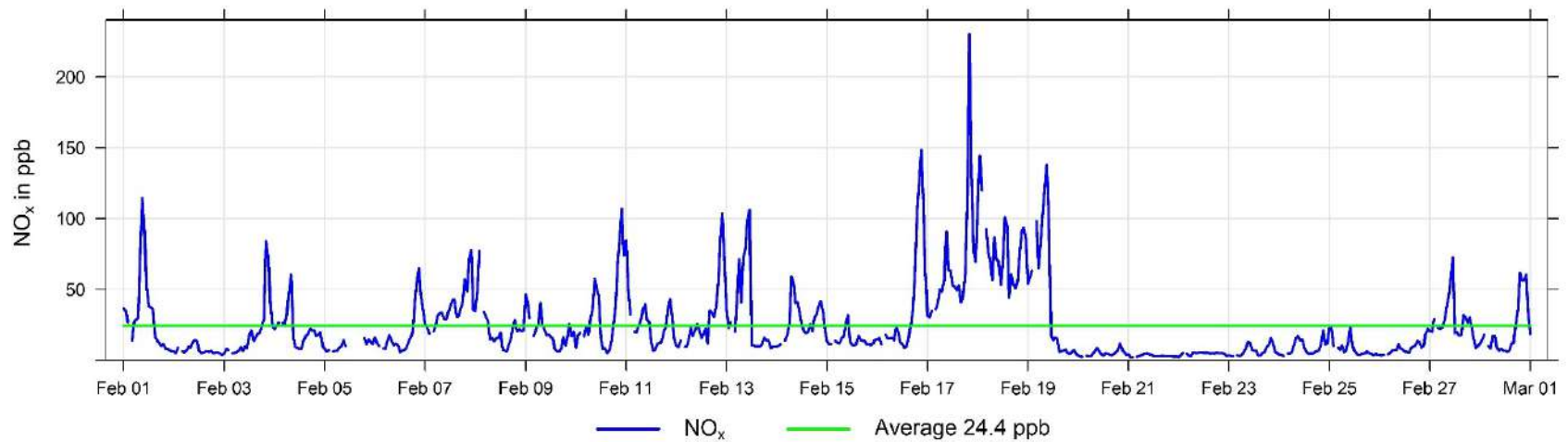
February Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker



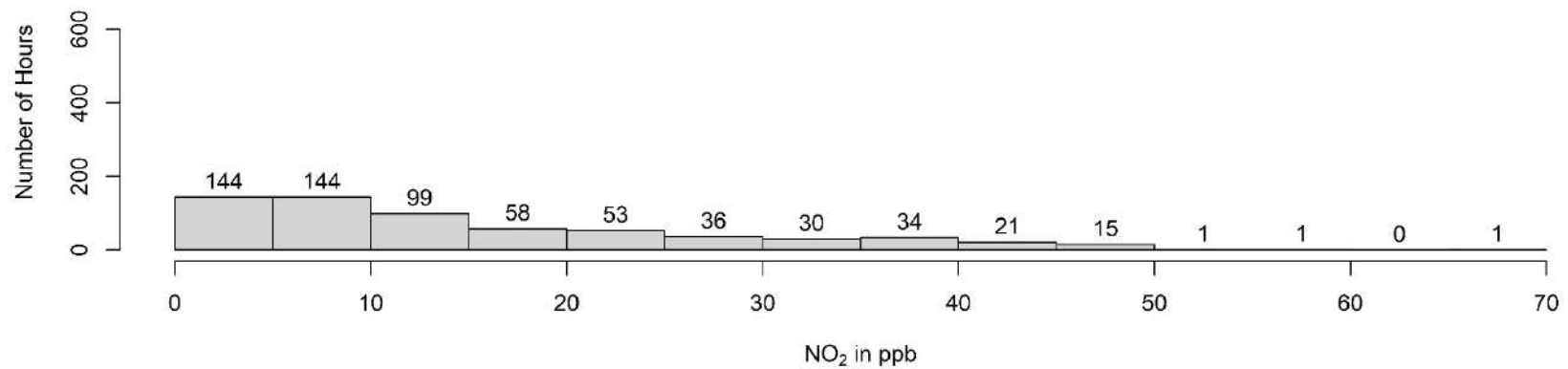
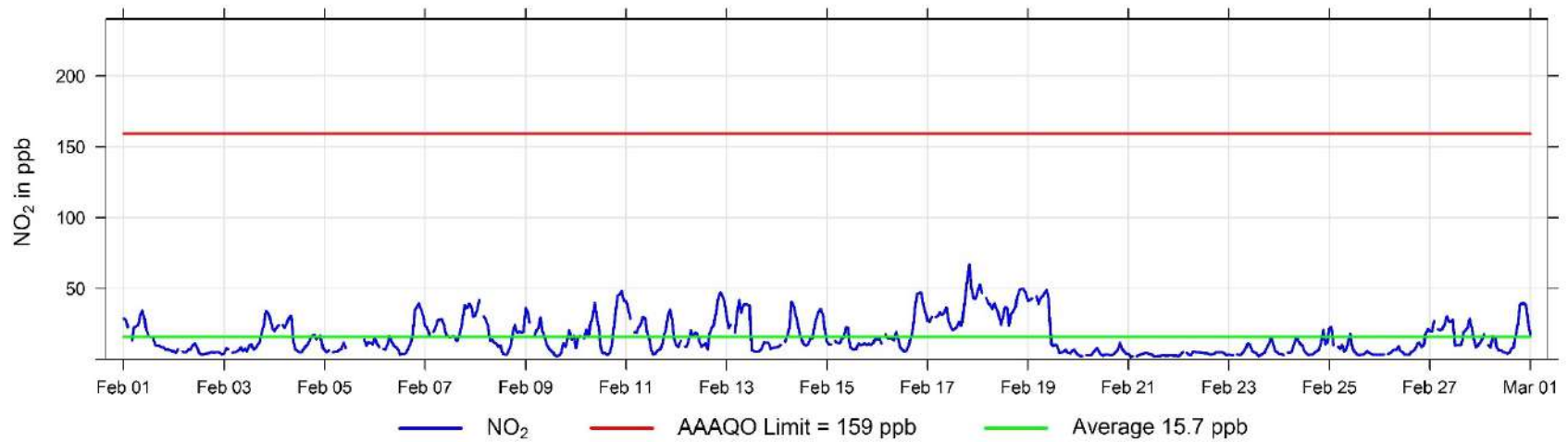
February Hourly Concentration Readings of NO (in ppb) at Henry Pirker



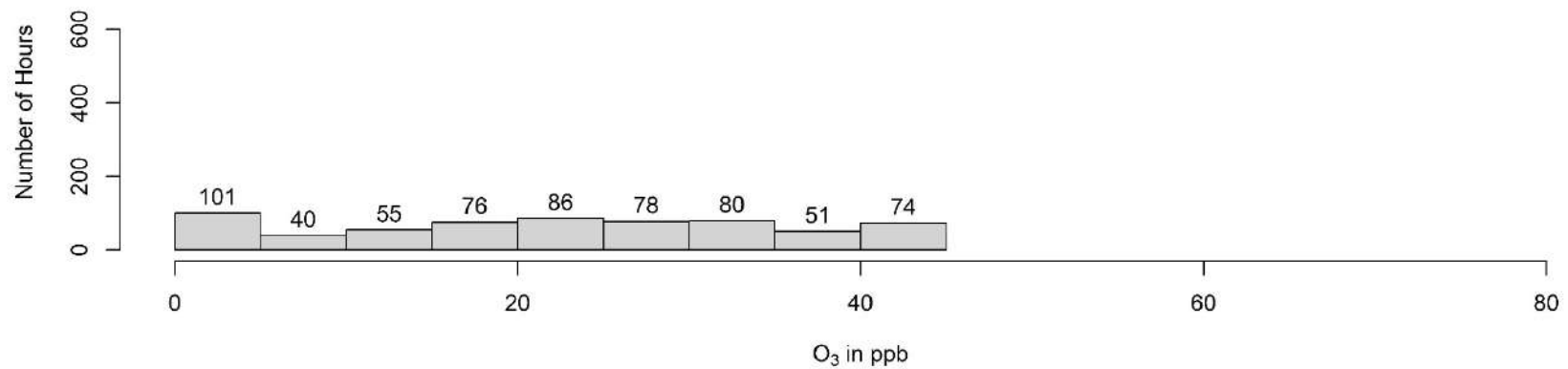
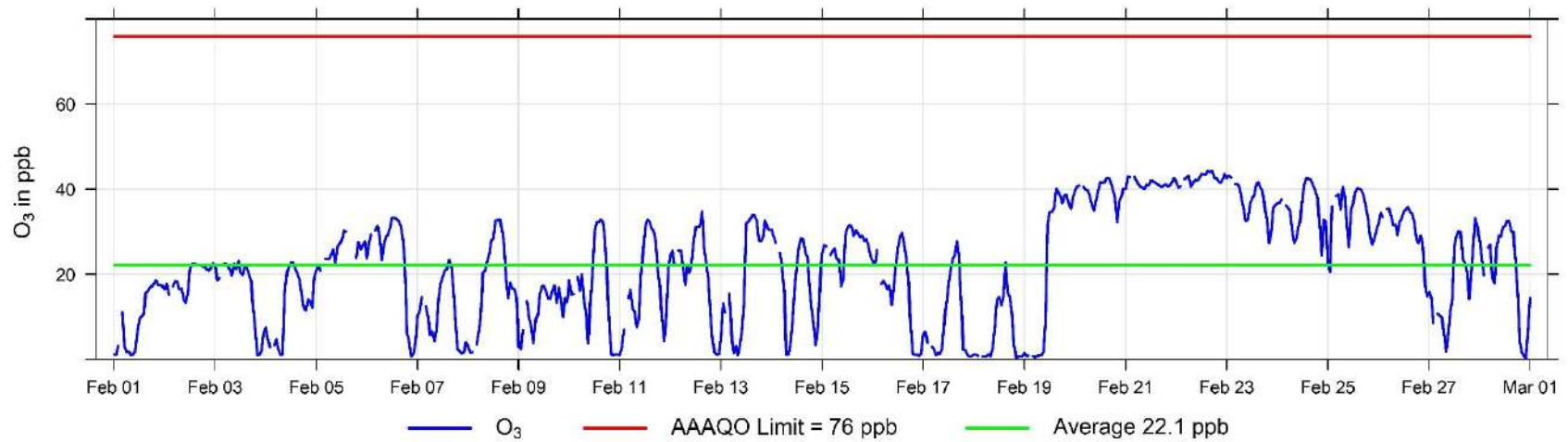
February Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



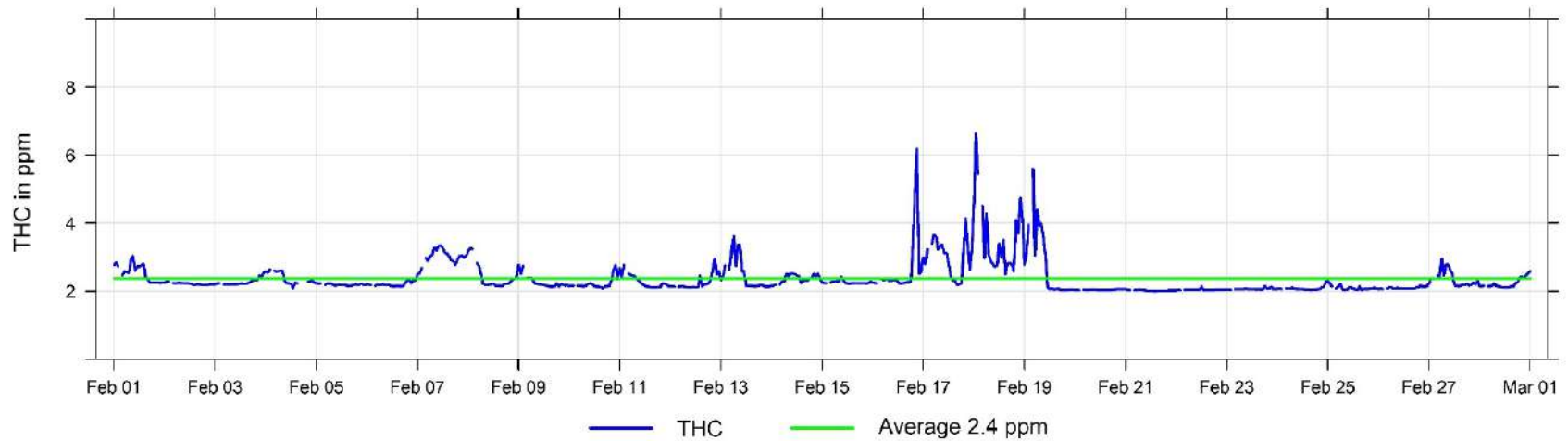
February Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



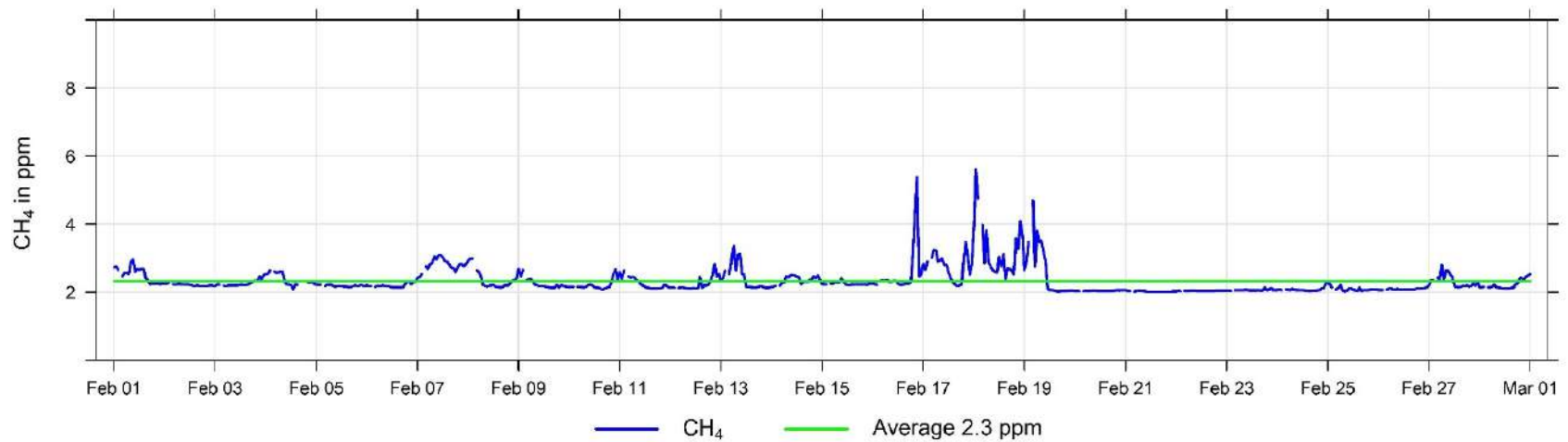
February Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker



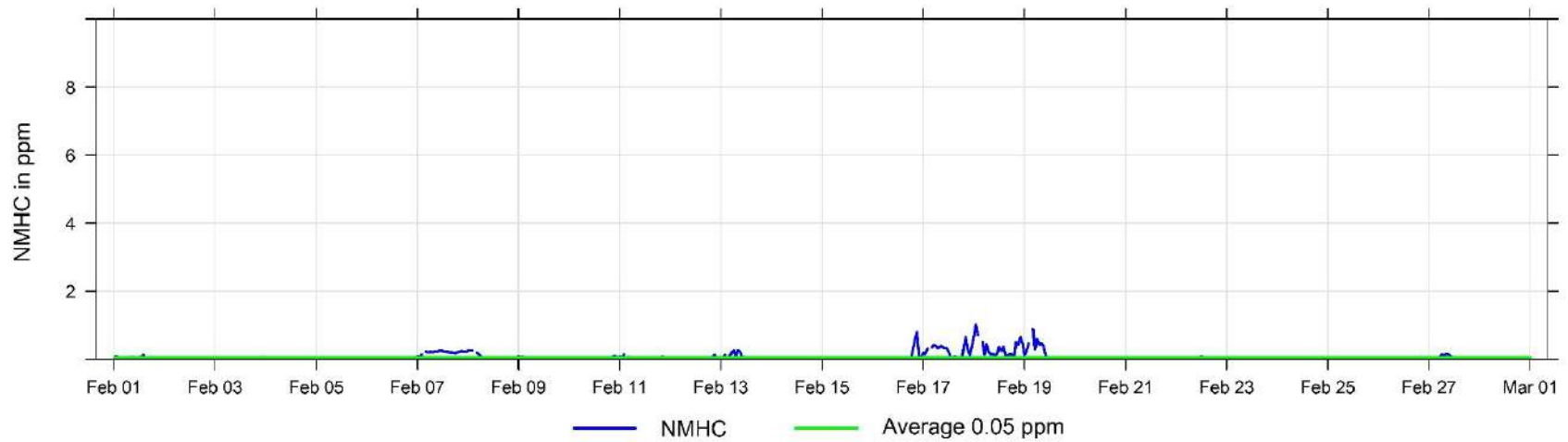
February Hourly Concentration Readings of THC (in ppm) at Henry Pirker



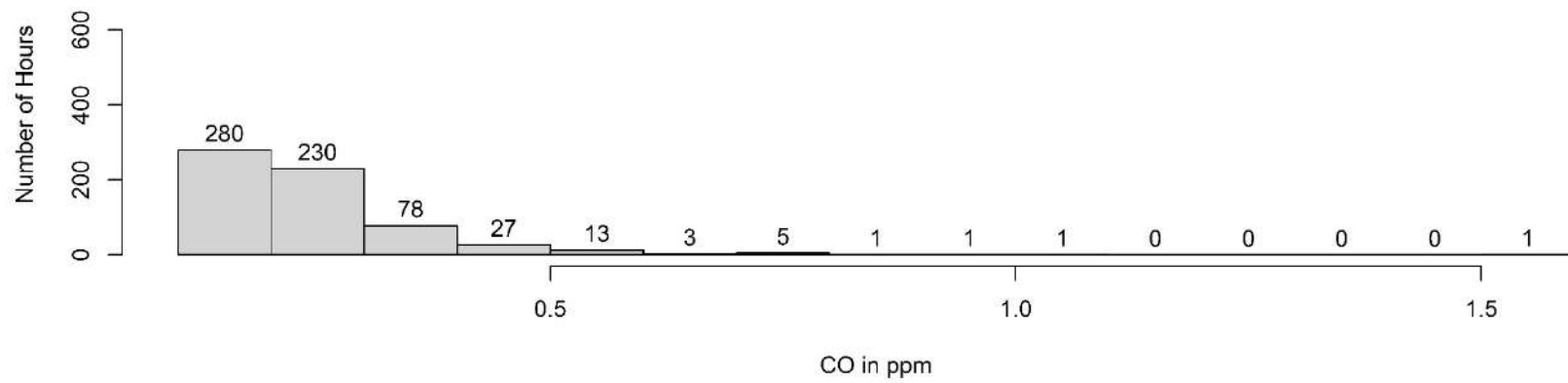
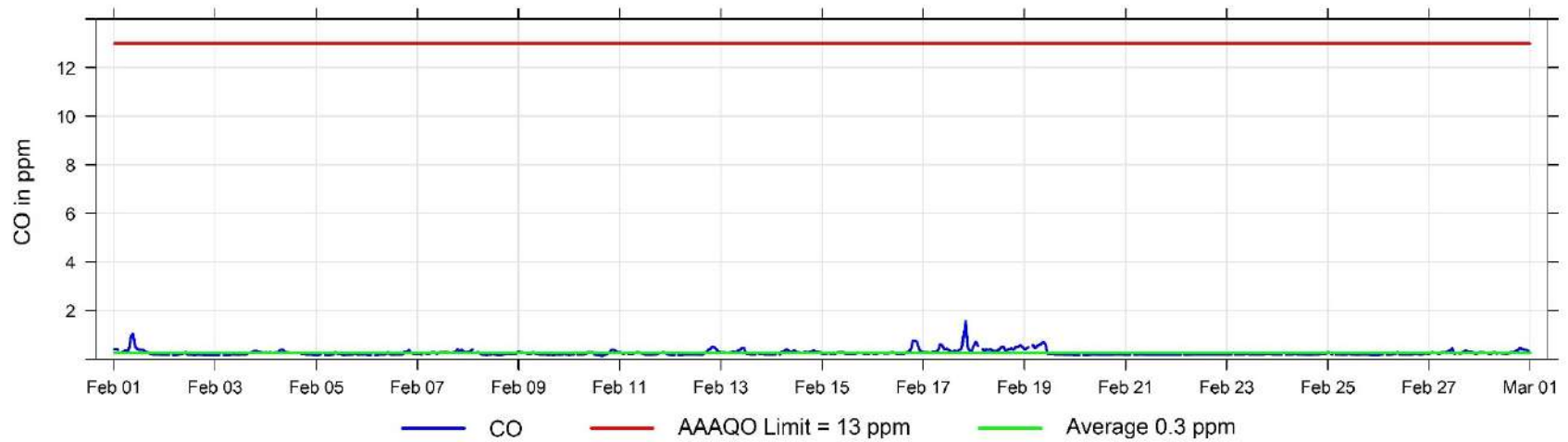
February Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker



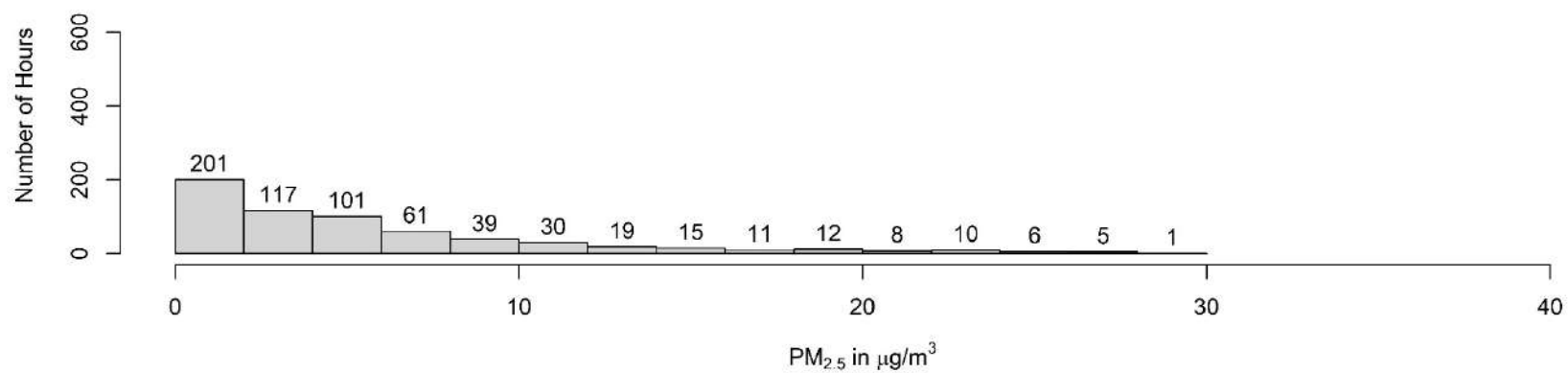
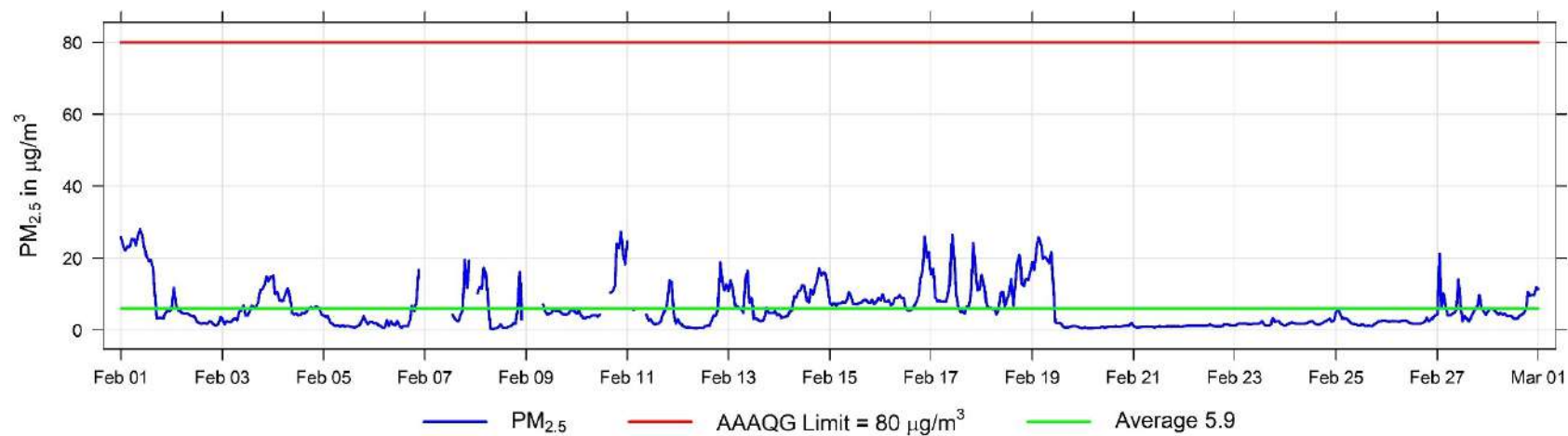
February Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker



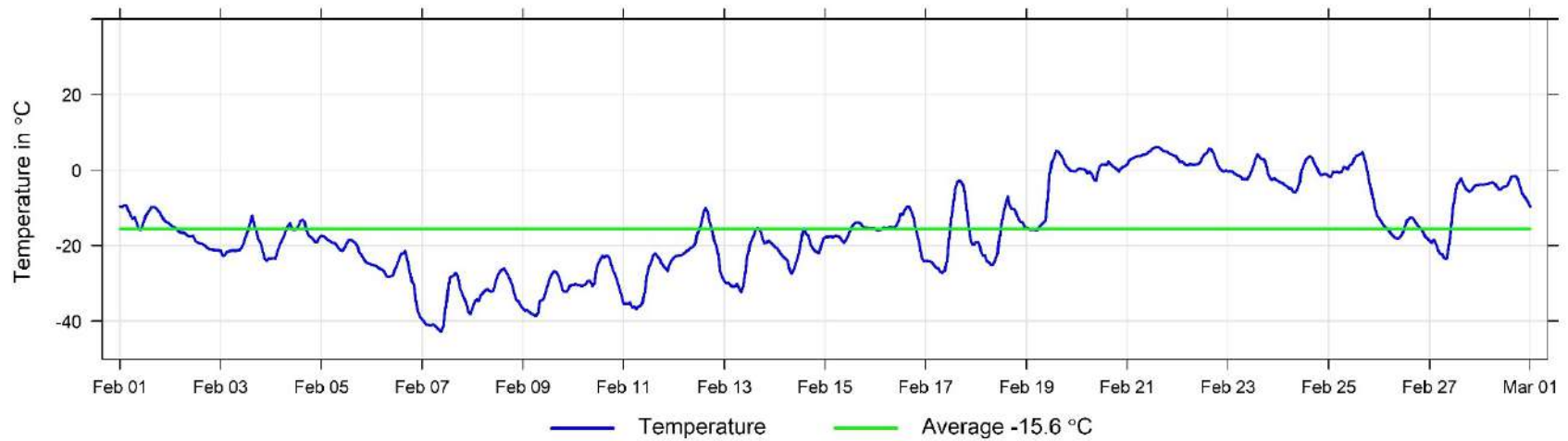
February Hourly Concentration Readings of CO (in ppm) at Henry Pirker



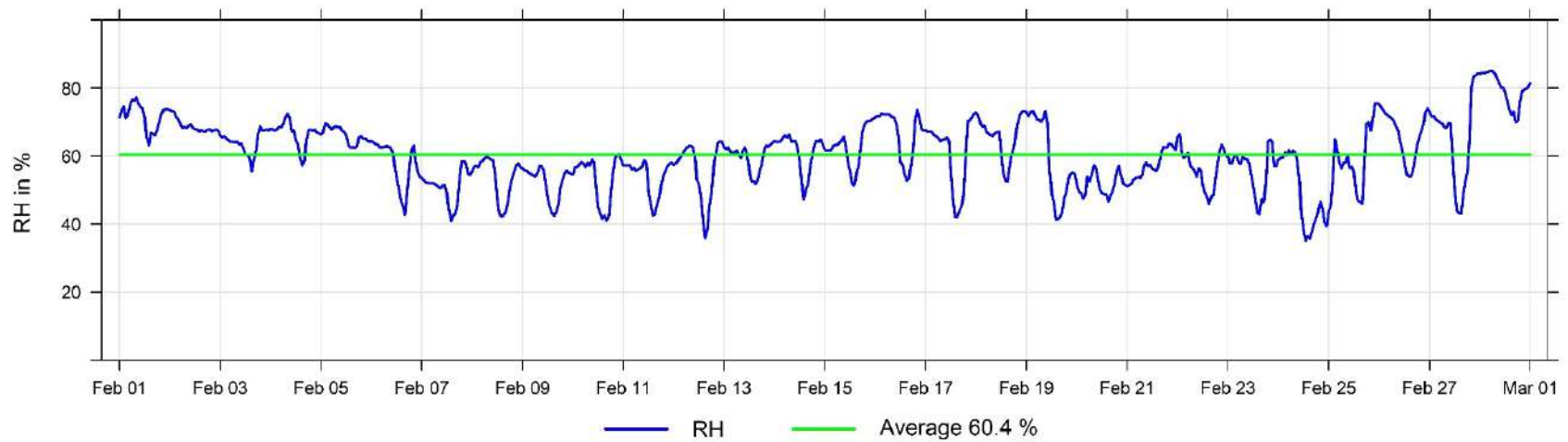
February Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker



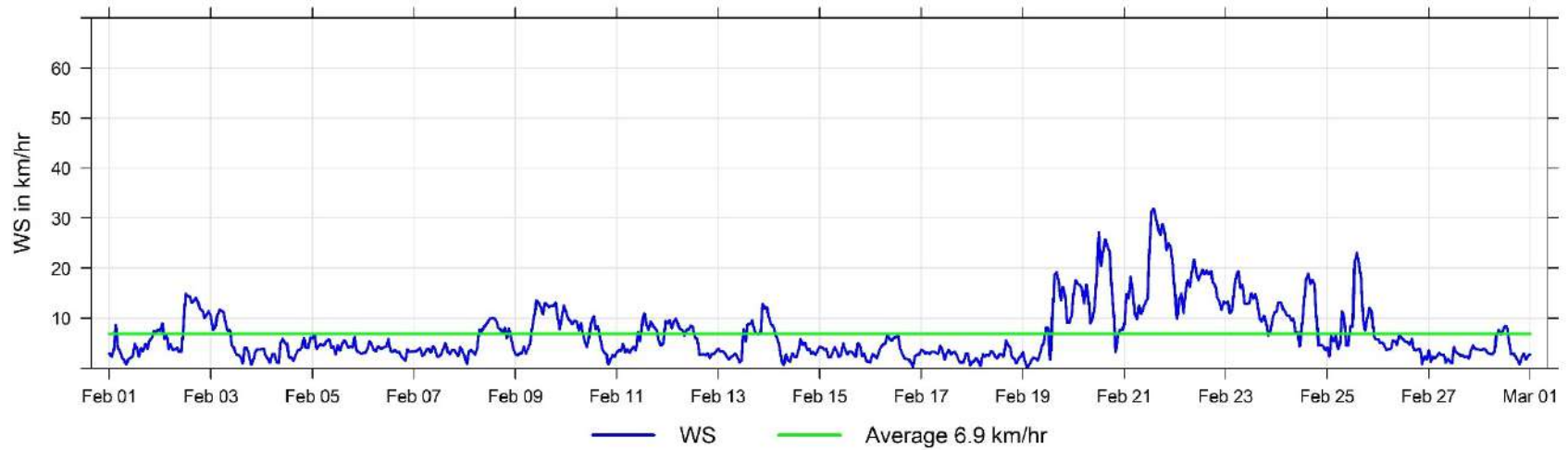
February Hourly Temperature Readings (in °C) at Henry Pirker



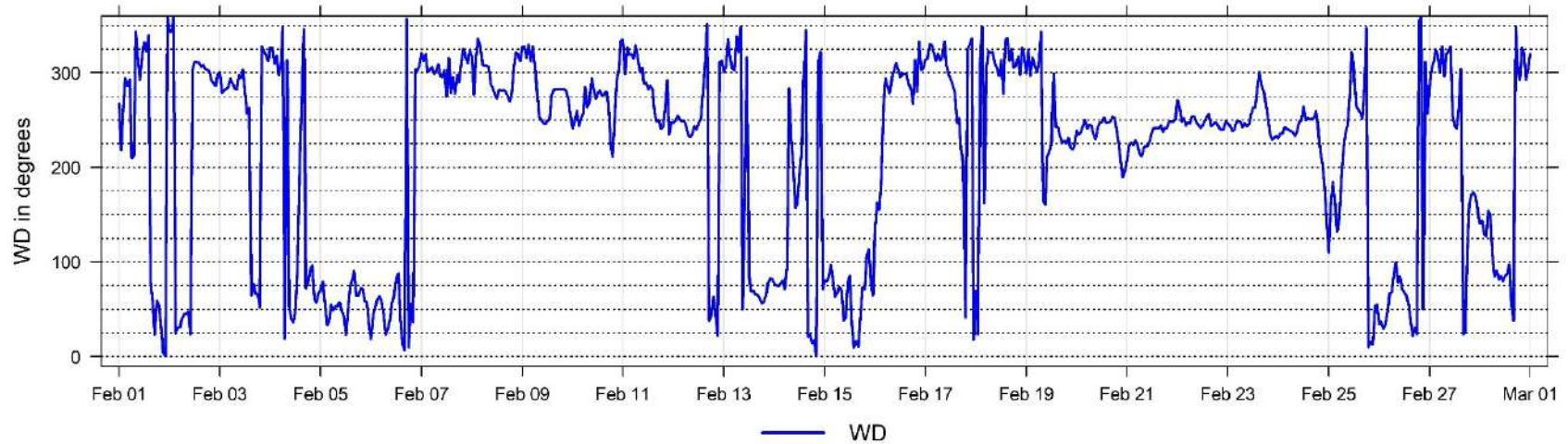
February Hourly Readings of Relative Humidity (in %) at Henry Pirker



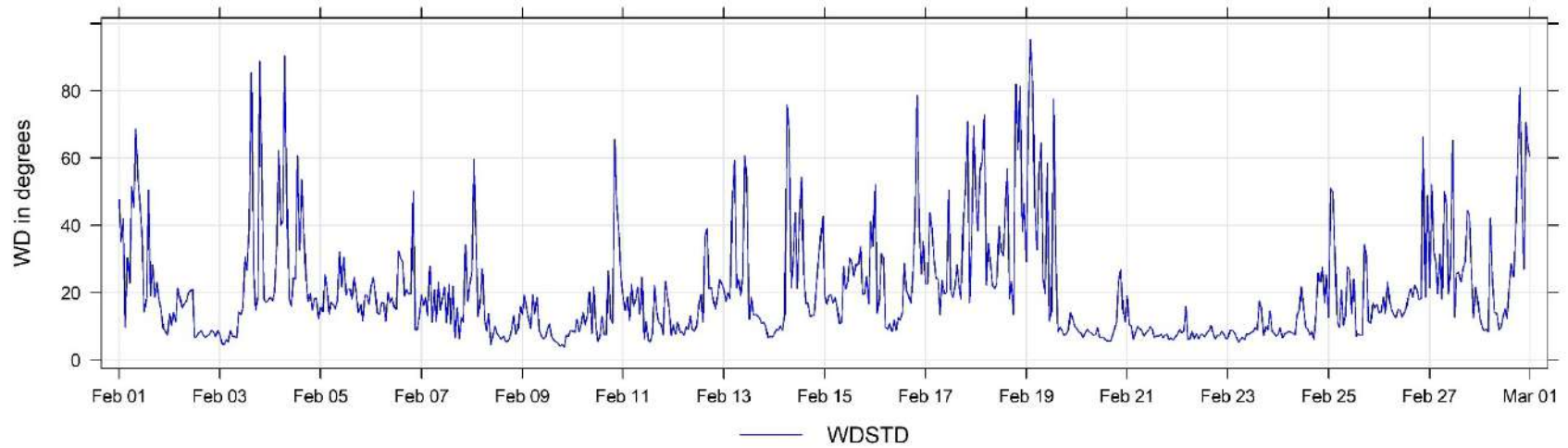
February Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

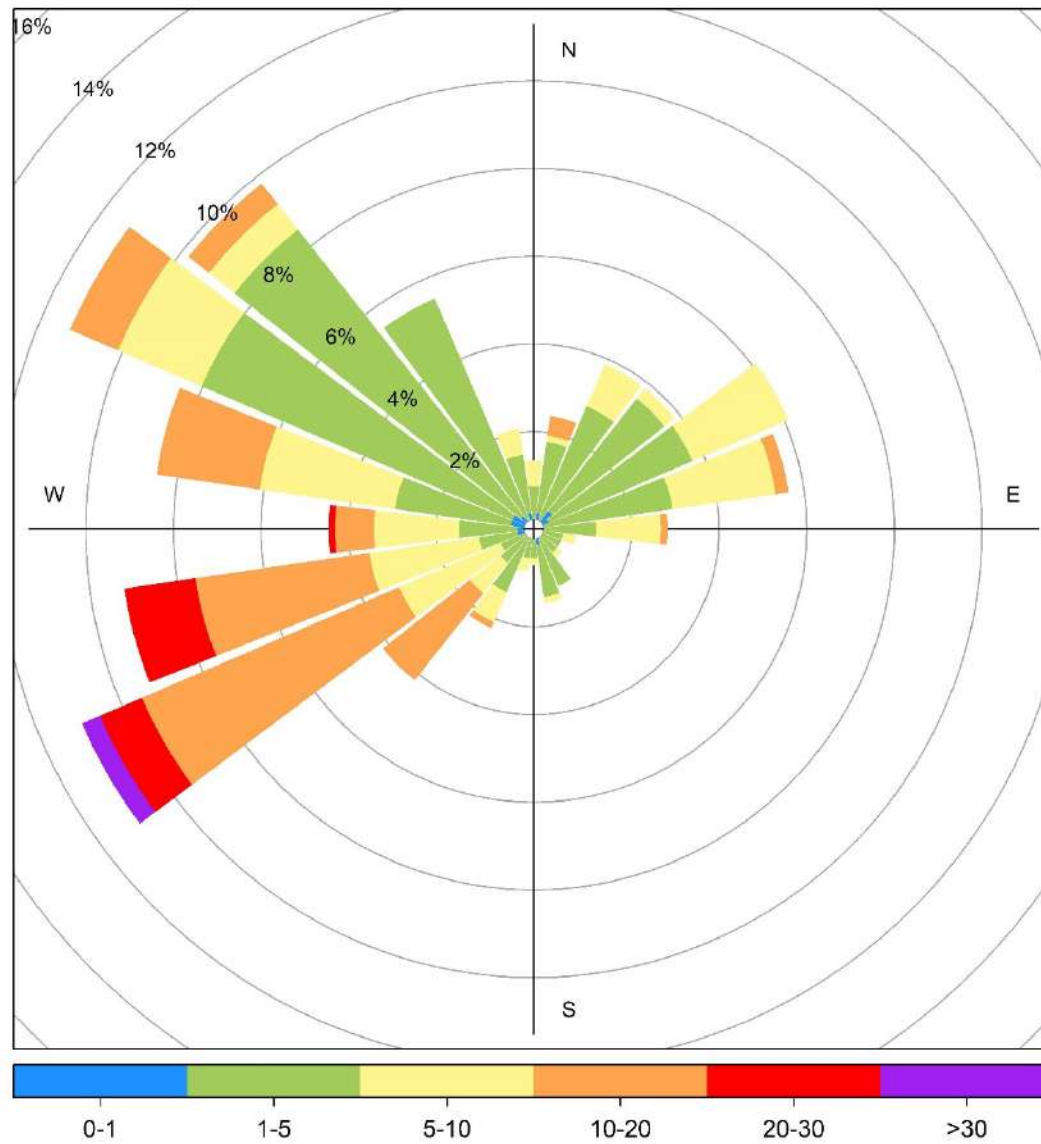


February Hourly Readings of Wind Direction (in degrees) at Henry Pirker



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



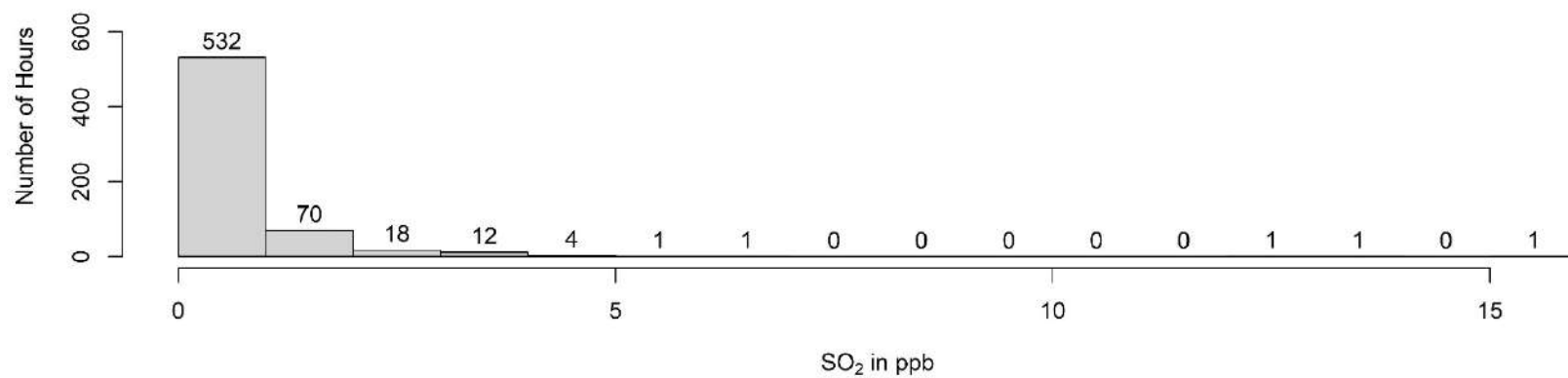
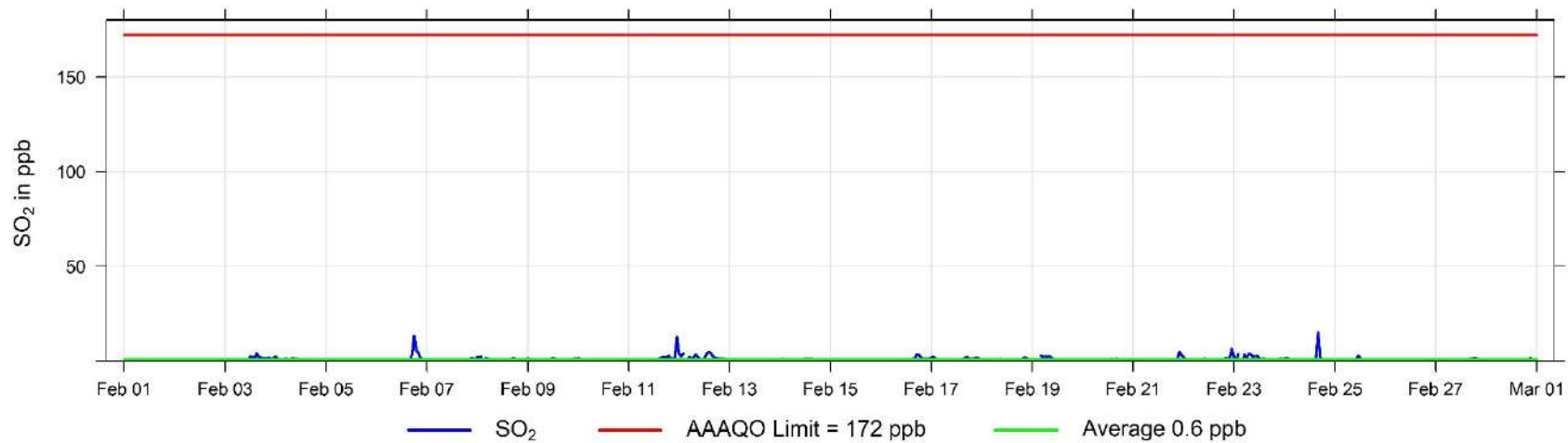


Henry Pirker February Wind Rose, wind speed in km/hr

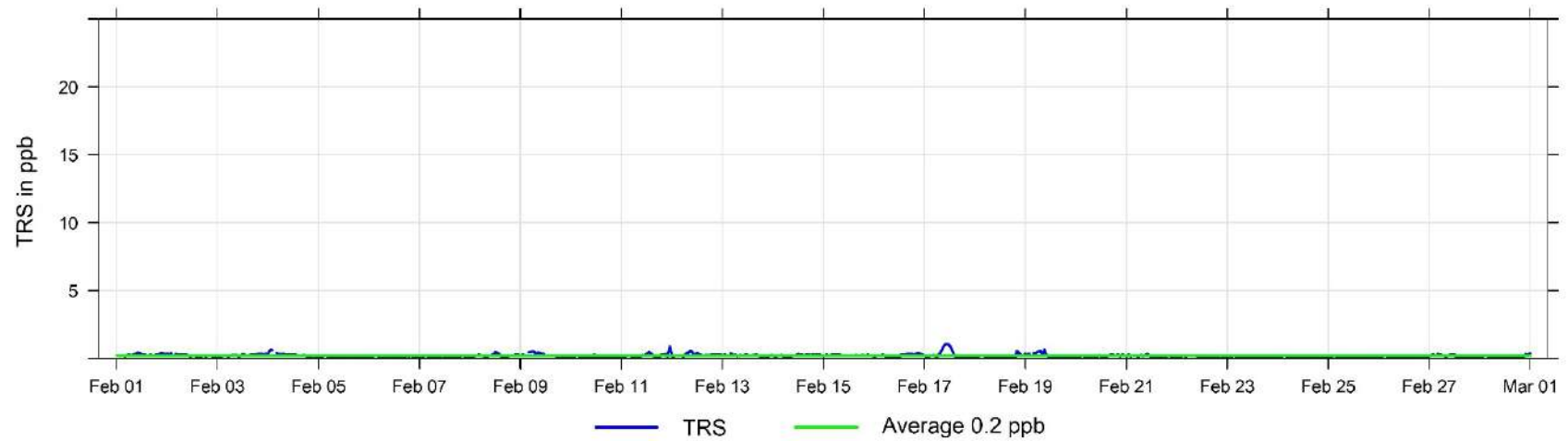
5 Smoky Heights Charts

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

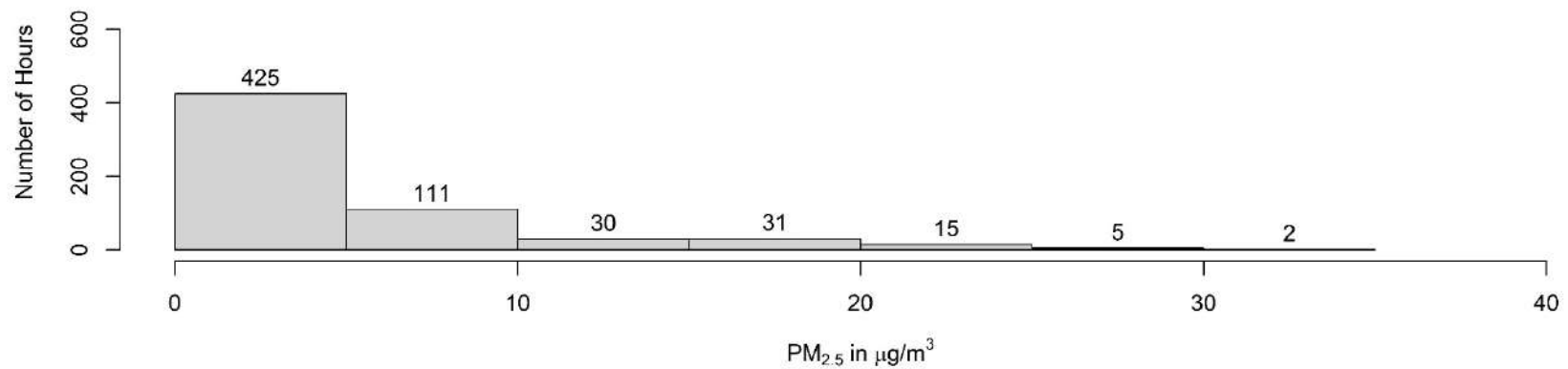
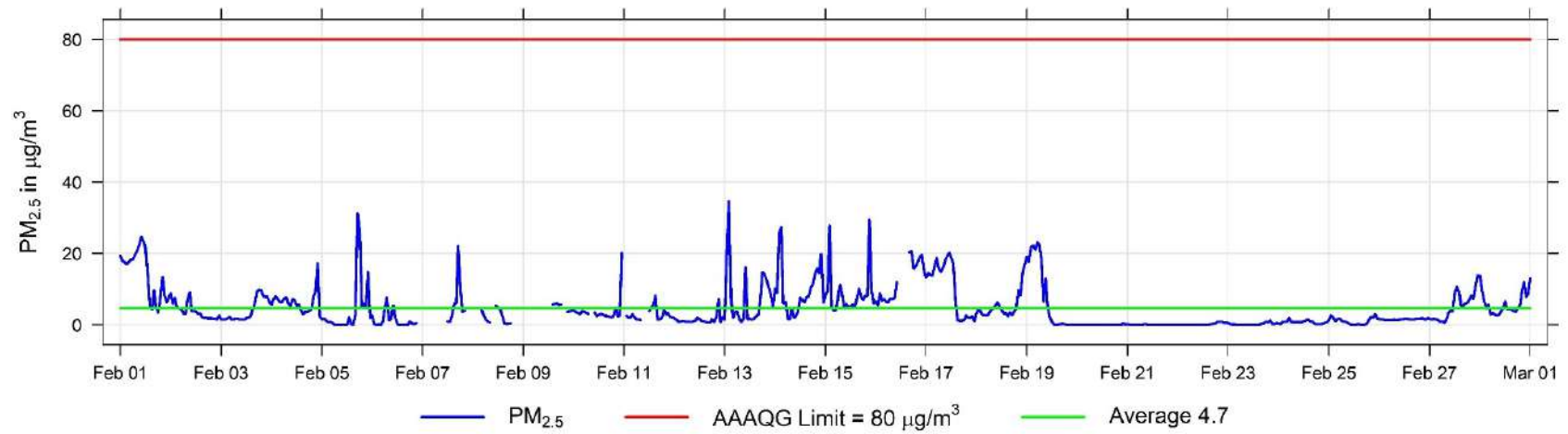
February Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights



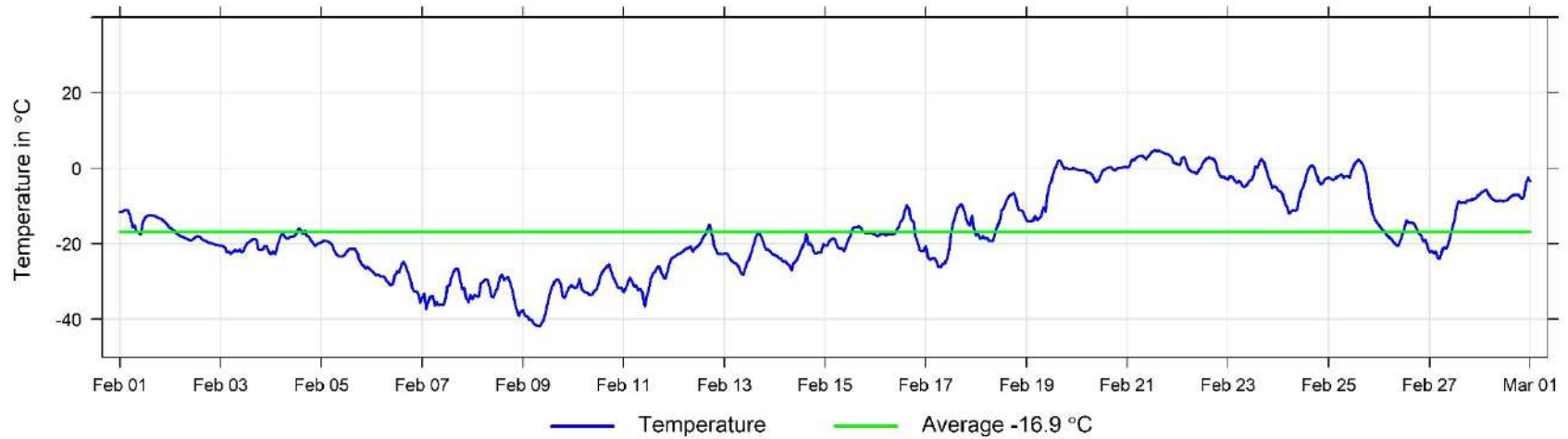
February Hourly Concentration Readings of TRS (in ppb) at Smoky Heights



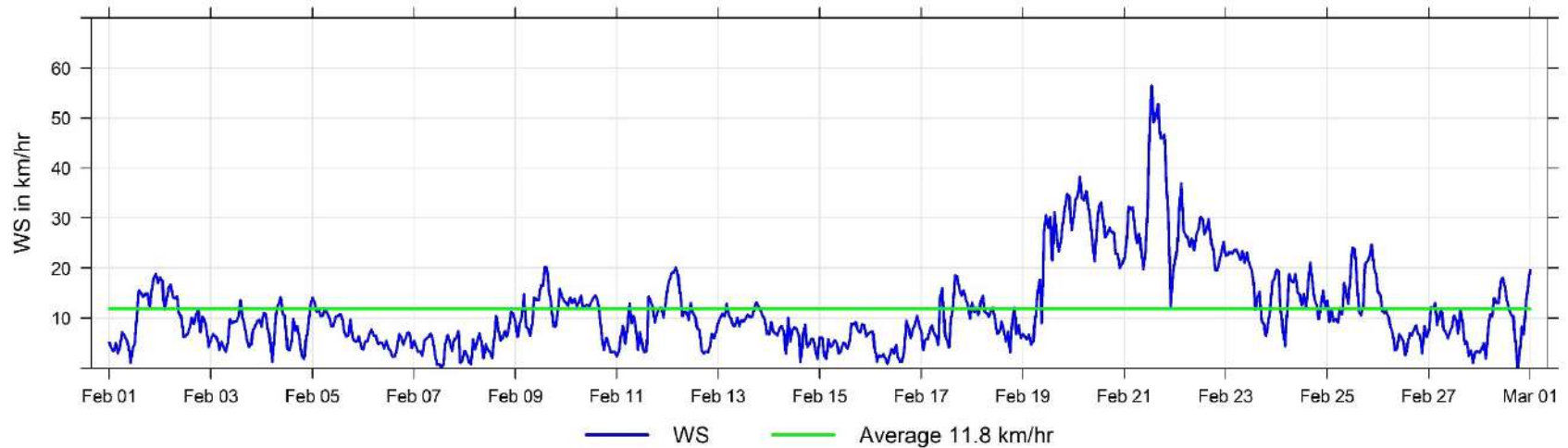
February Hourly Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Smoky Heights



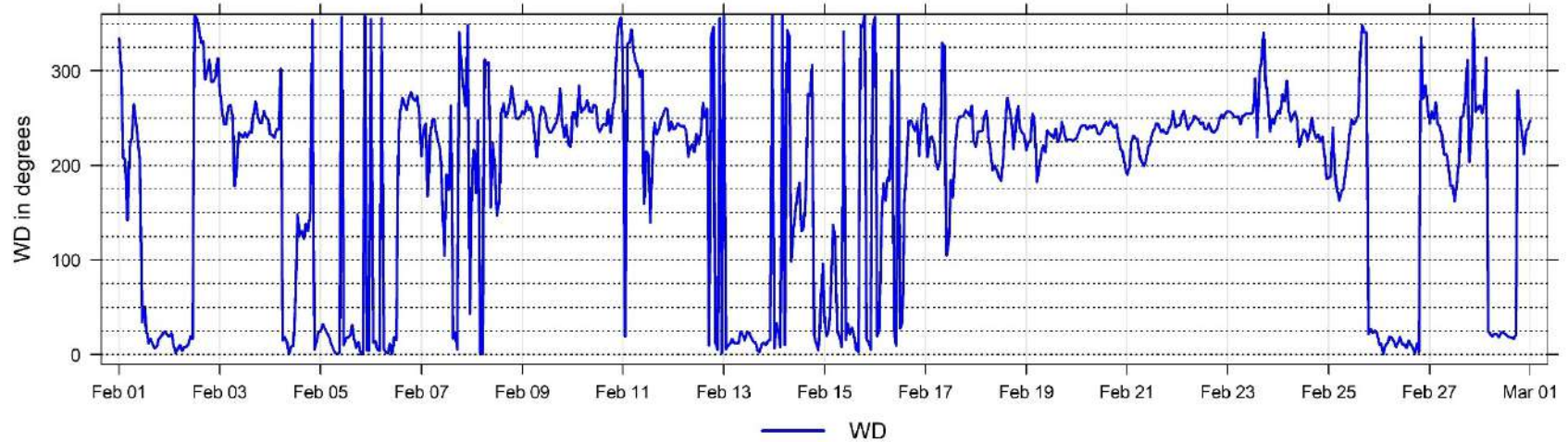
February Hourly Temperature Readings (in °C) at Smoky Heights



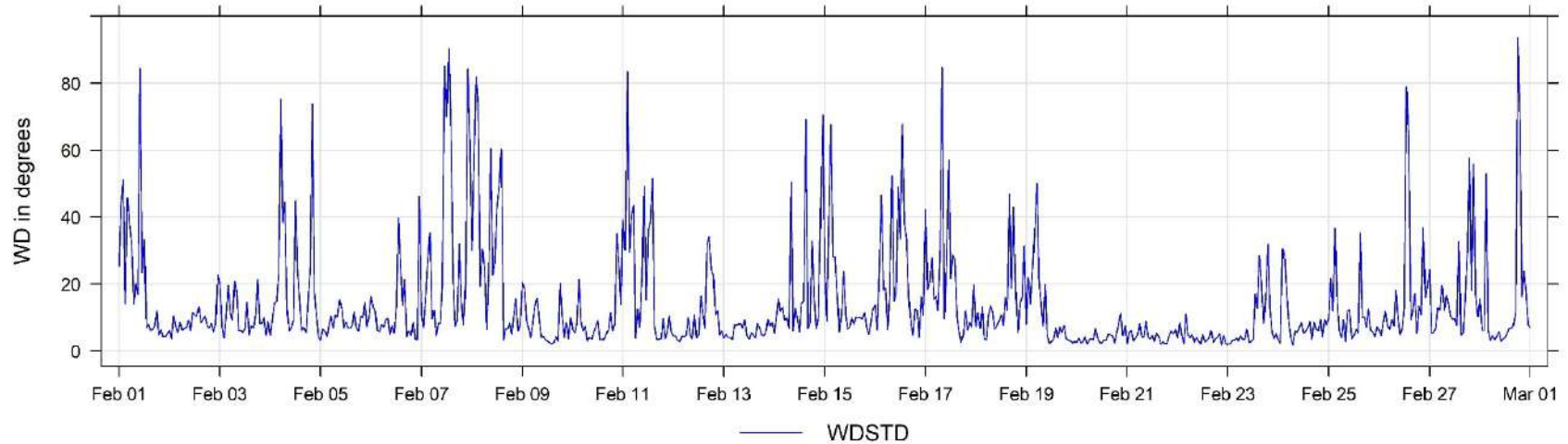
February Hourly Readings of Wind Speed (in km/hr) at Smoky Heights

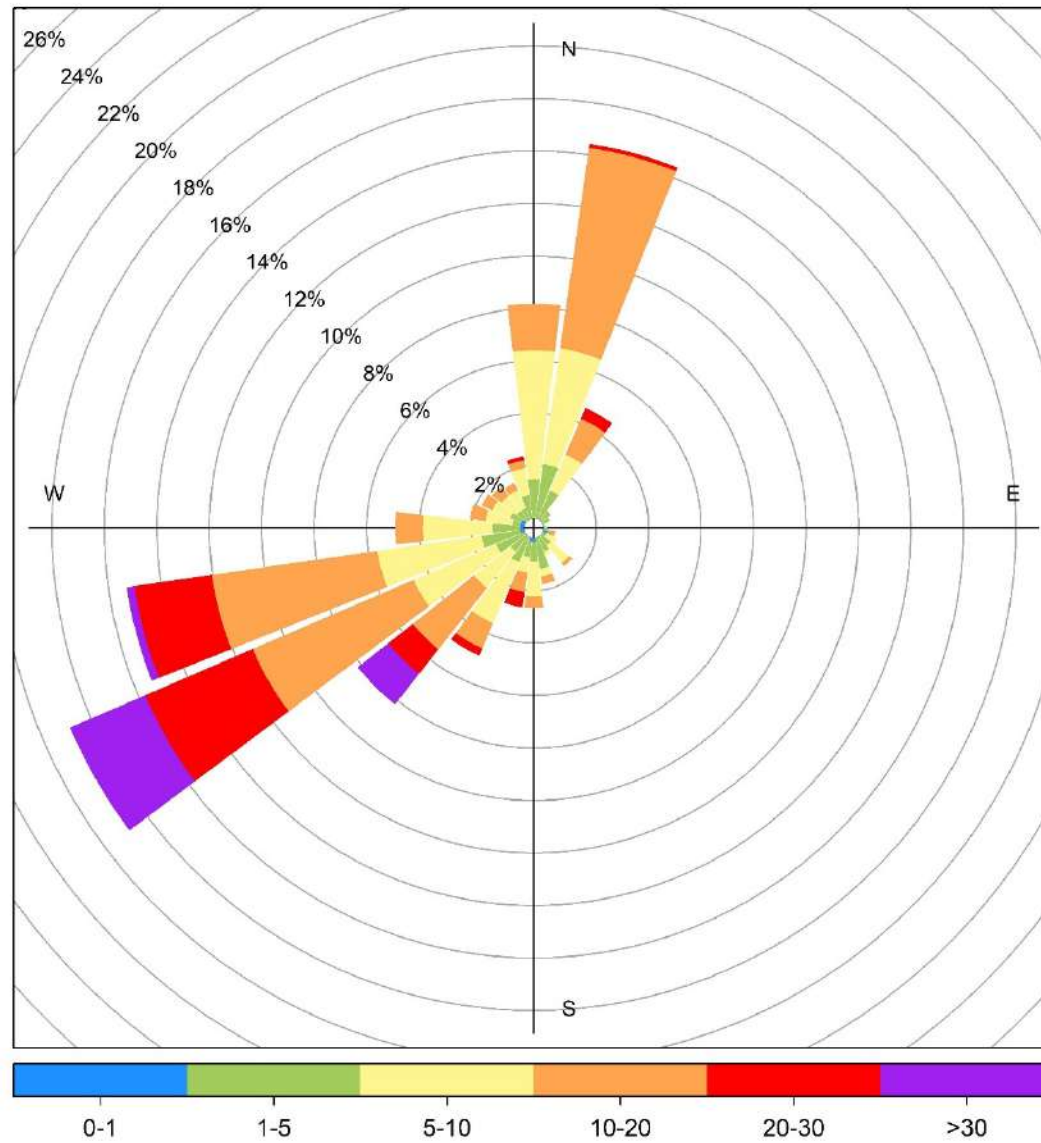


February Hourly Readings of Wind Direction (in degrees) at Smoky Heights



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



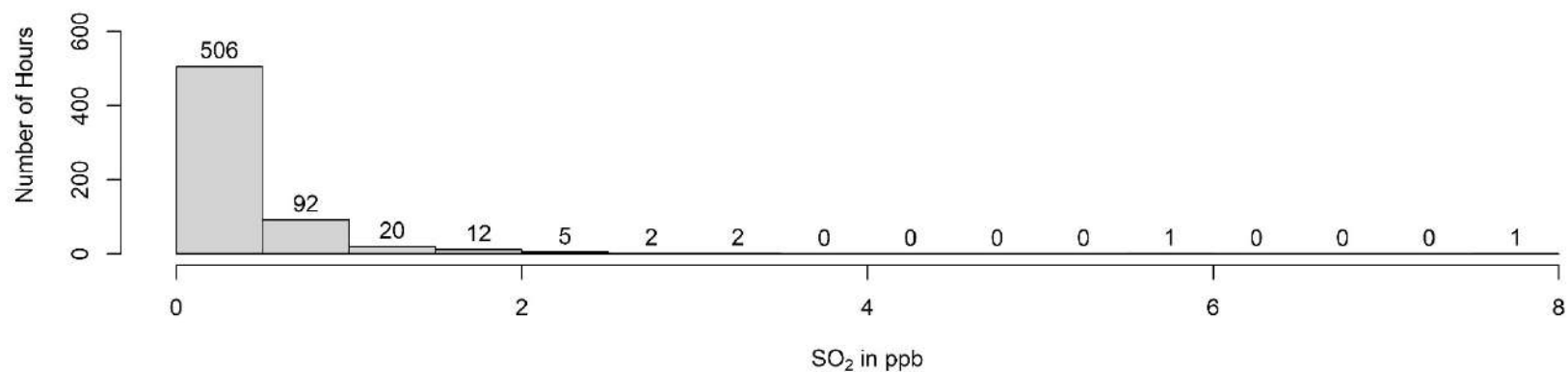
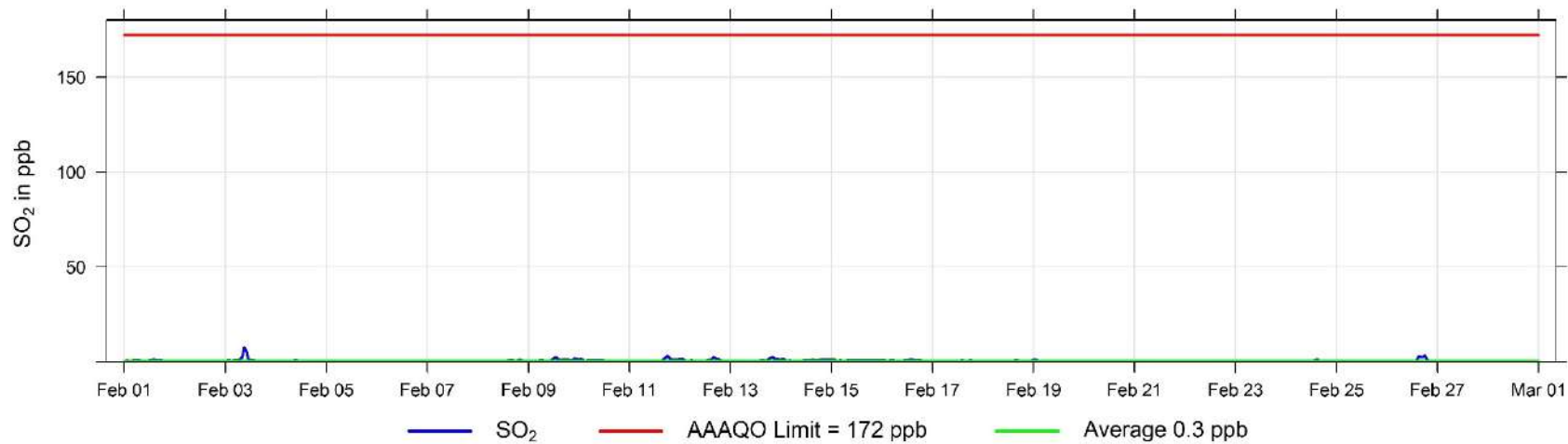


Smoky Heights February Wind Rose, wind speed in km/hr

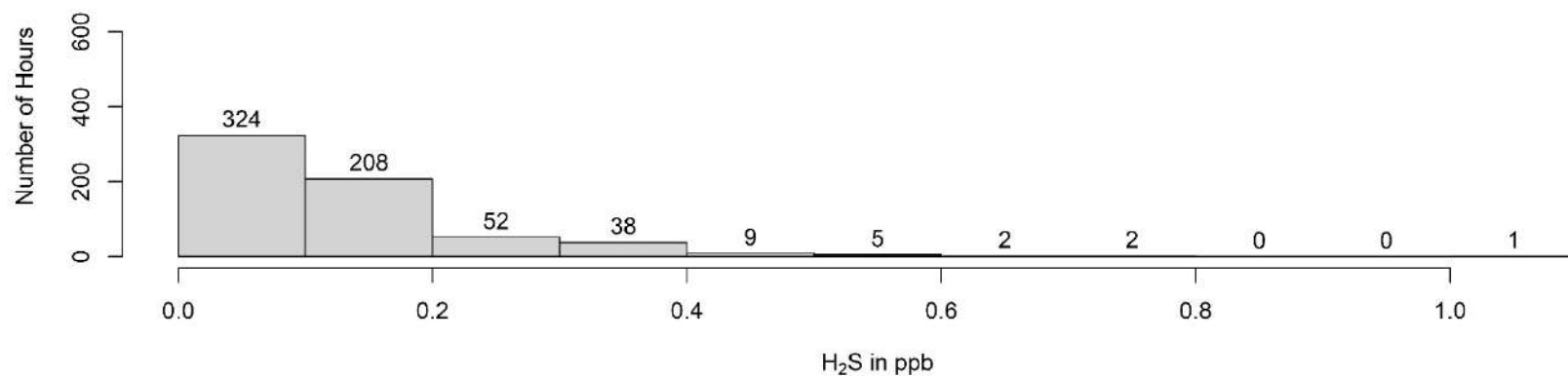
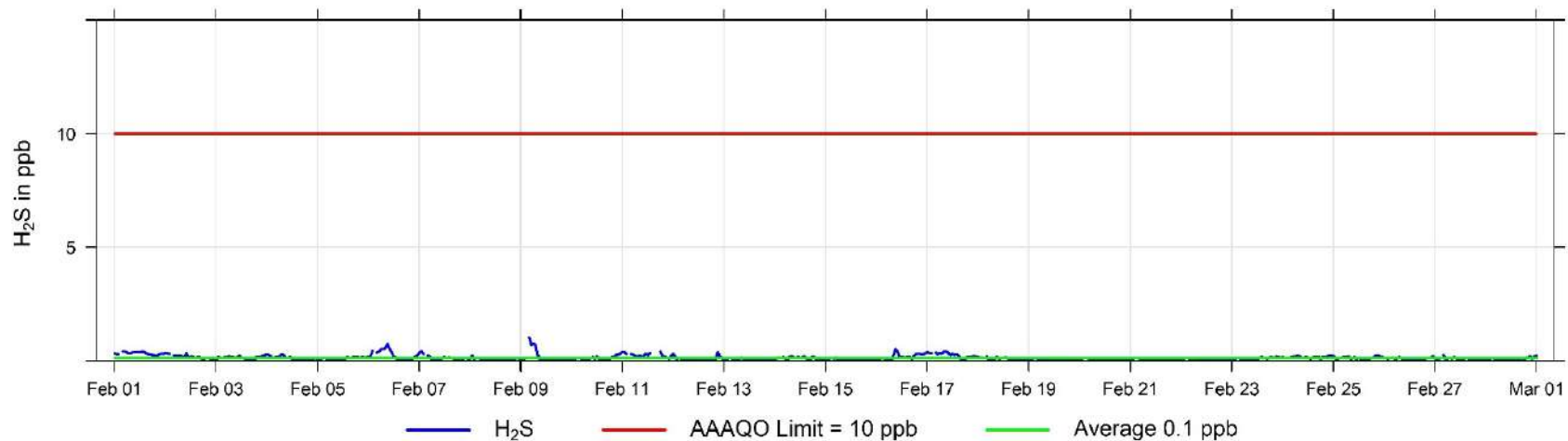
6 Valleyview Charts

The following pages include the charts and histograms for Valleyview Station

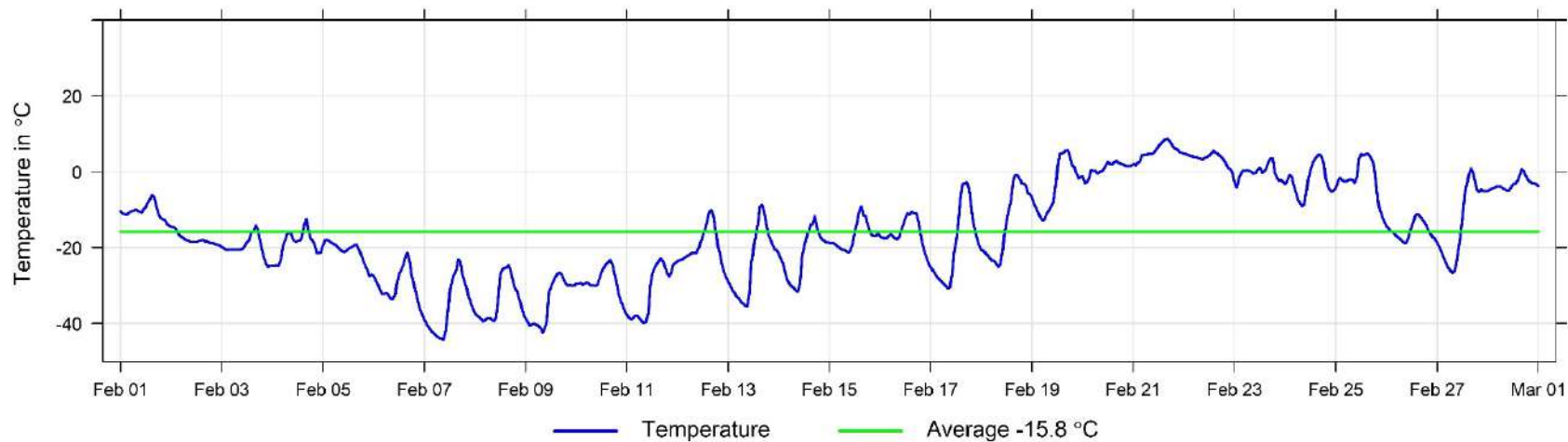
February Hourly Concentration Readings of SO₂ (in ppb) at Valleyview



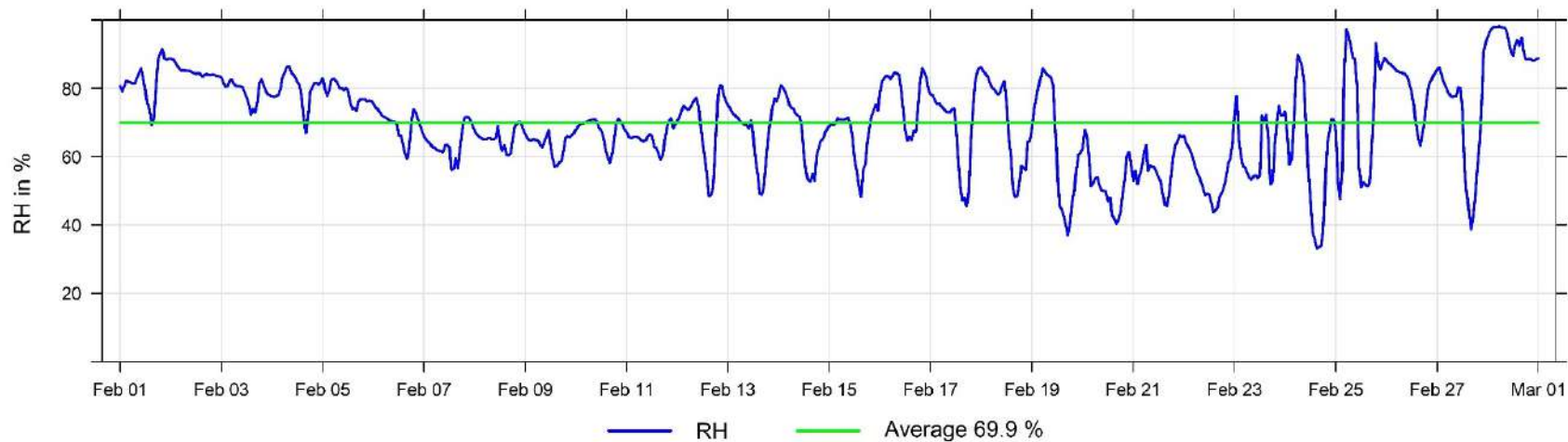
February Hourly Concentration Readings of H₂S (in ppb) at Valleyview



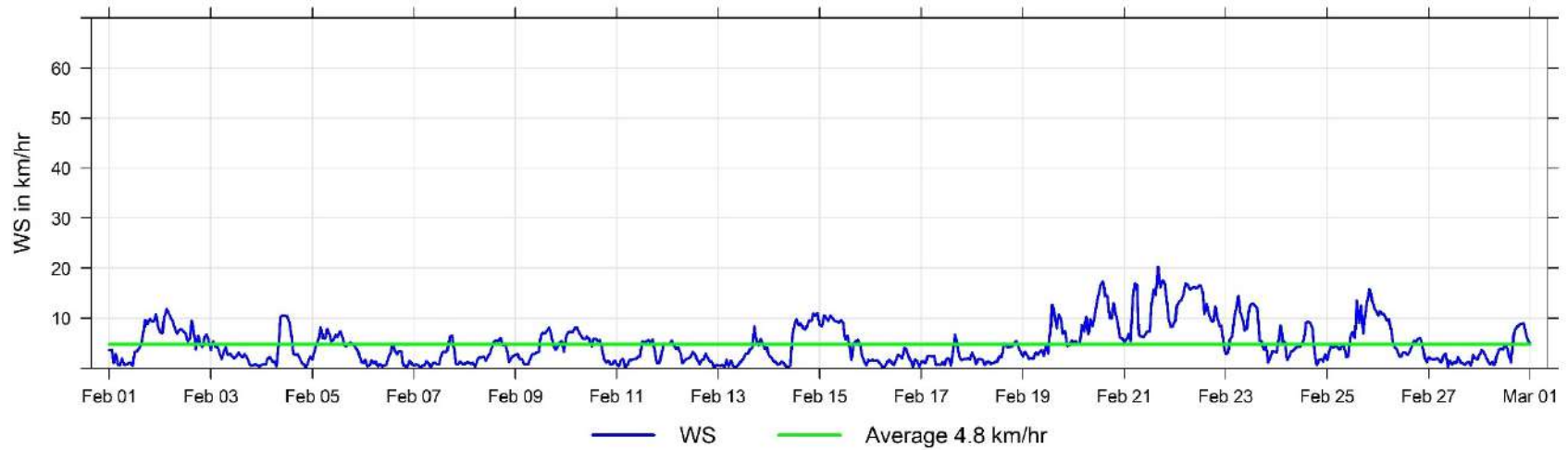
February Hourly Temperature Readings (in °C) at Valleyview



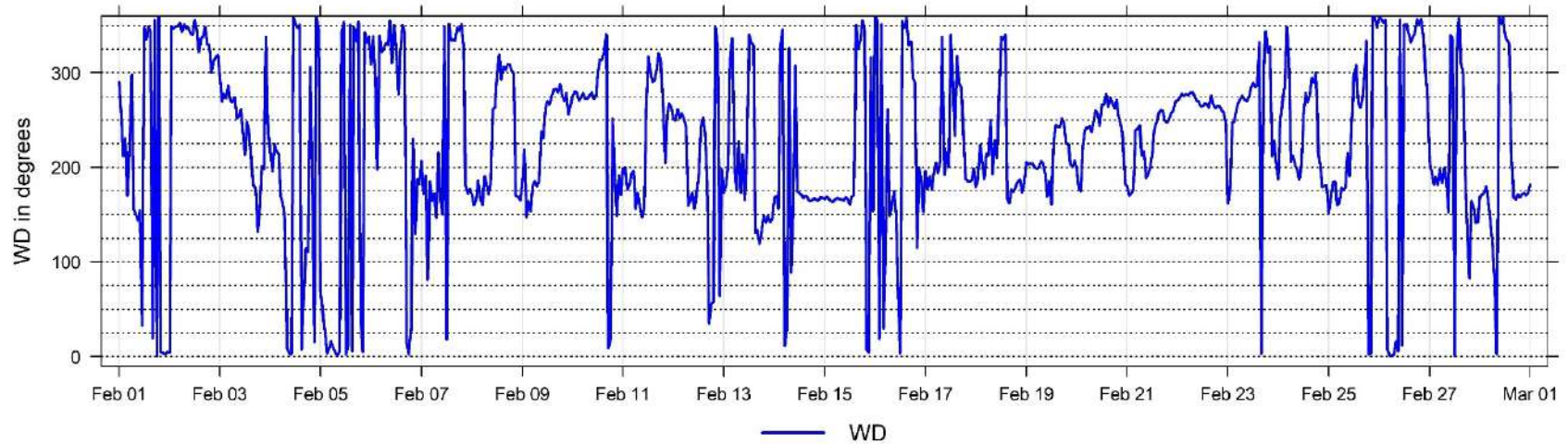
February Hourly Readings of Relative Humidity (in %) at Valleyview



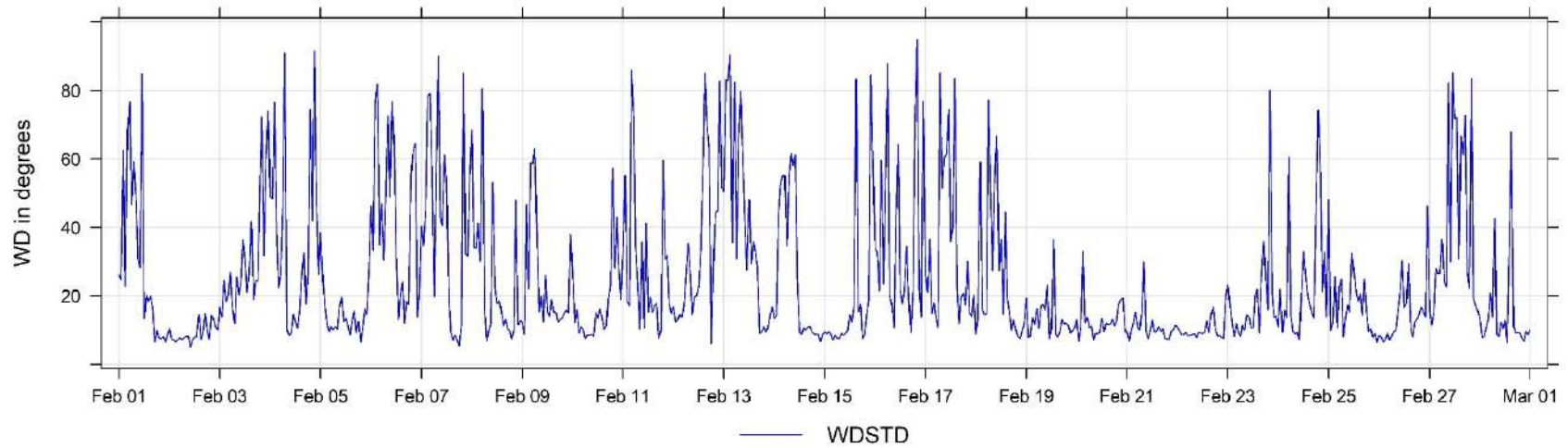
February Hourly Readings of Wind Speed (in km/hr) at Valleyview

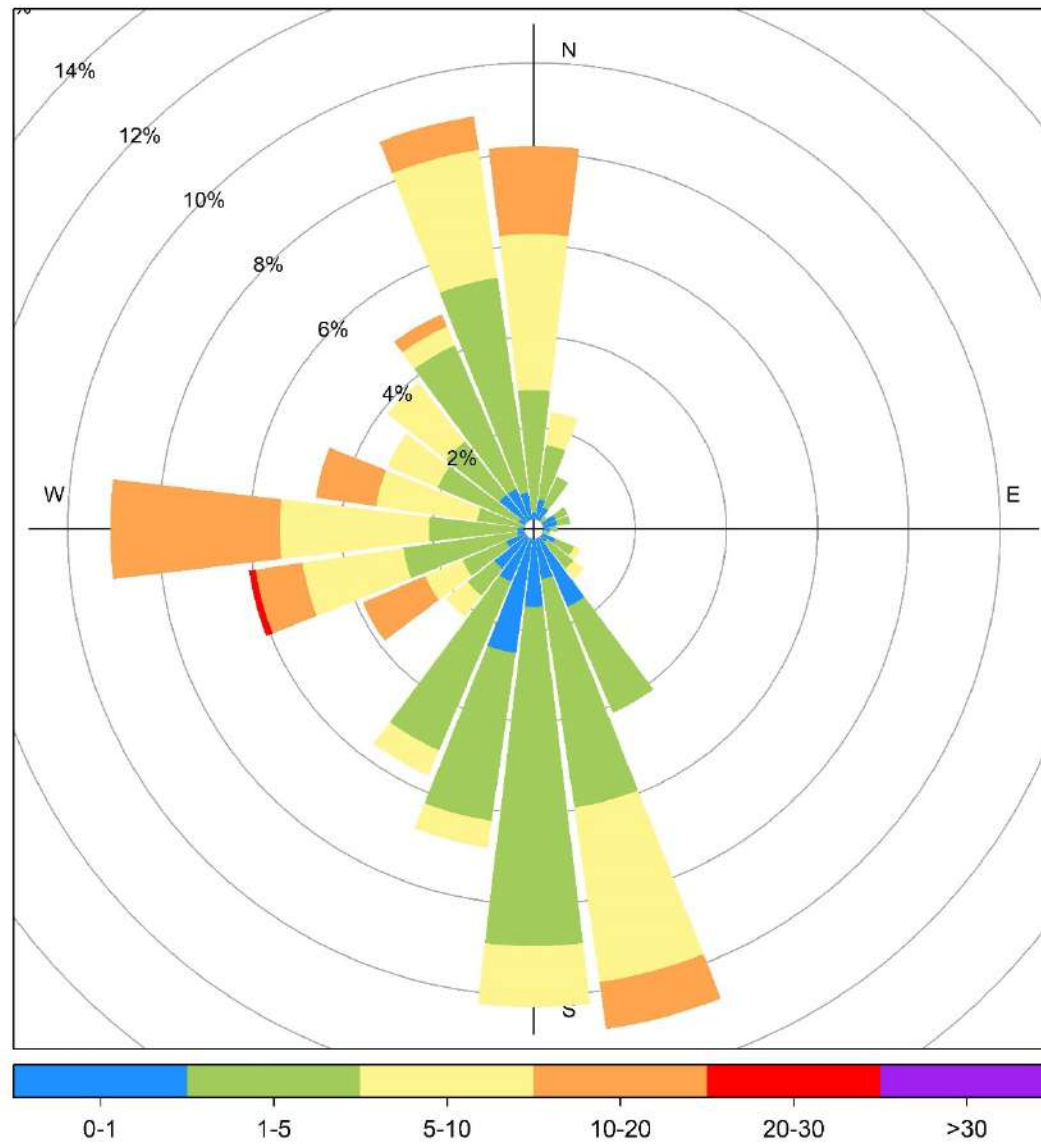


February Hourly Readings of Wind Direction (in degrees) at Valleyview



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



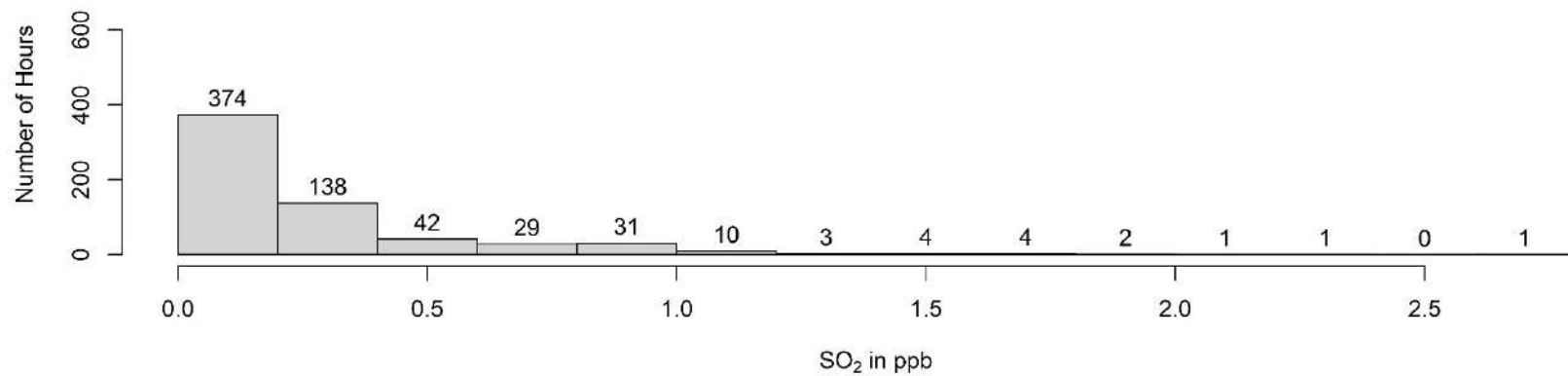
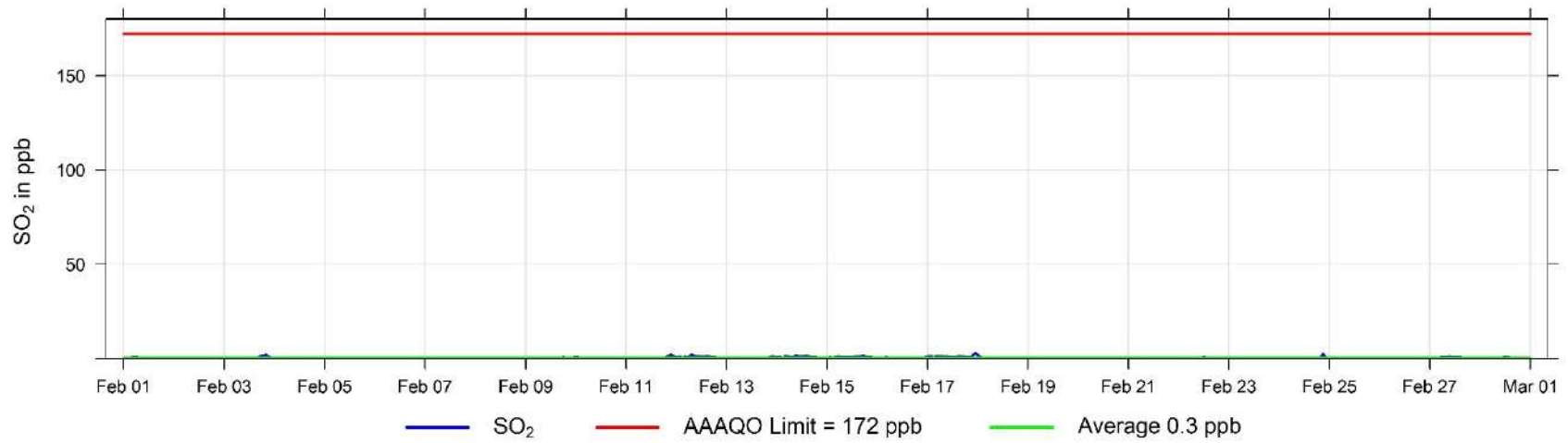


Valleyview February Wind Rose, wind speed in km/hr

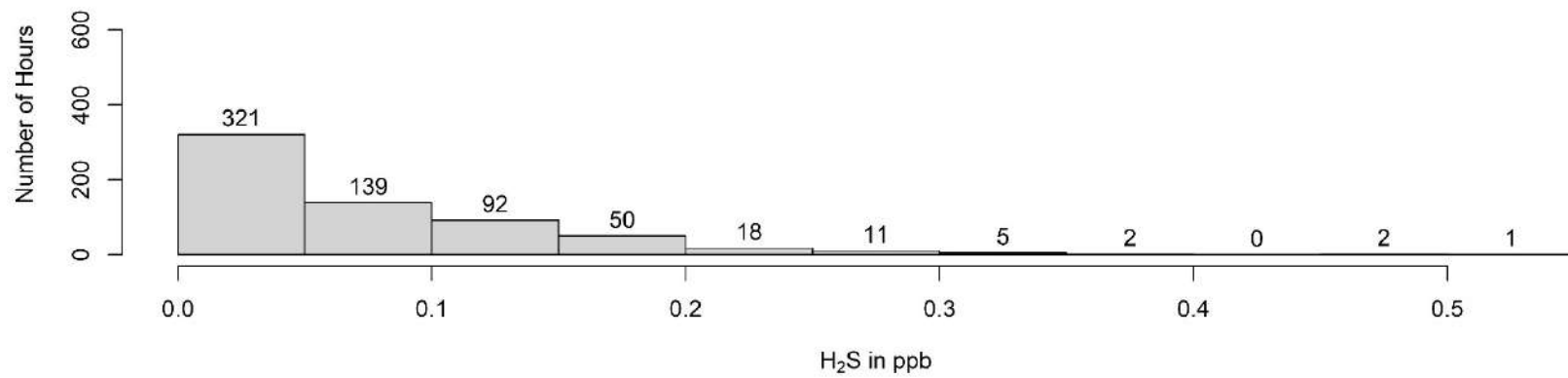
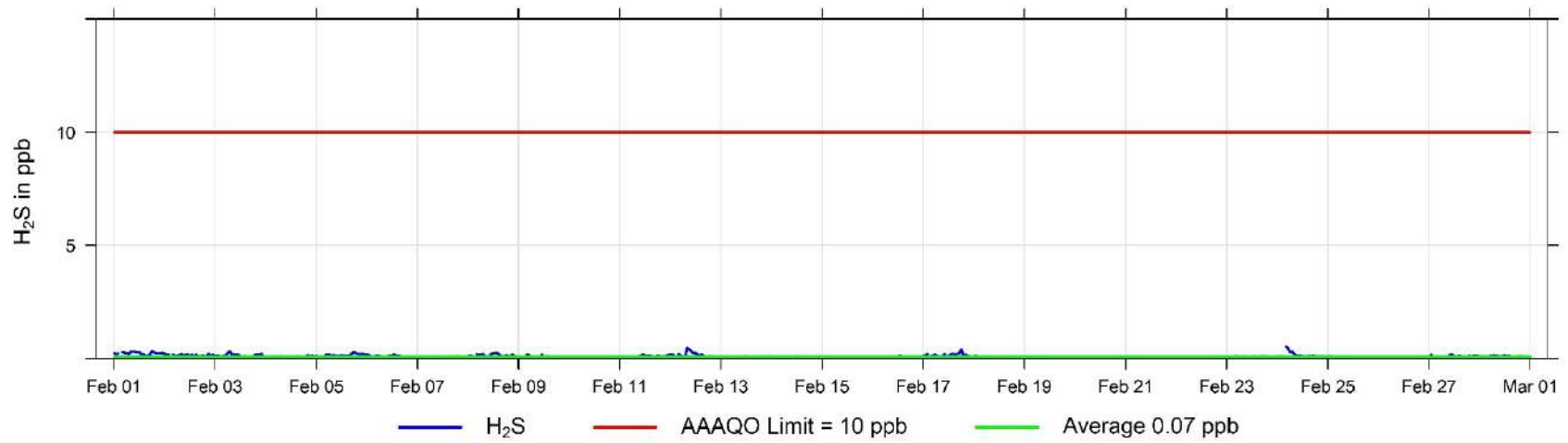
7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

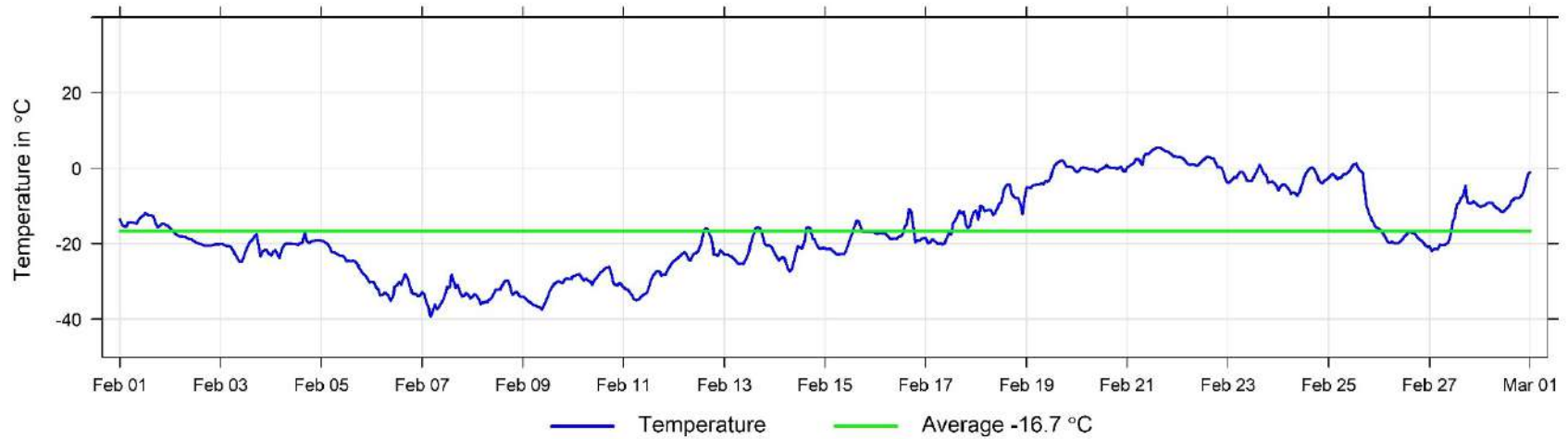
February Hourly Concentration Readings of SO₂ (in ppb) at Donnelly



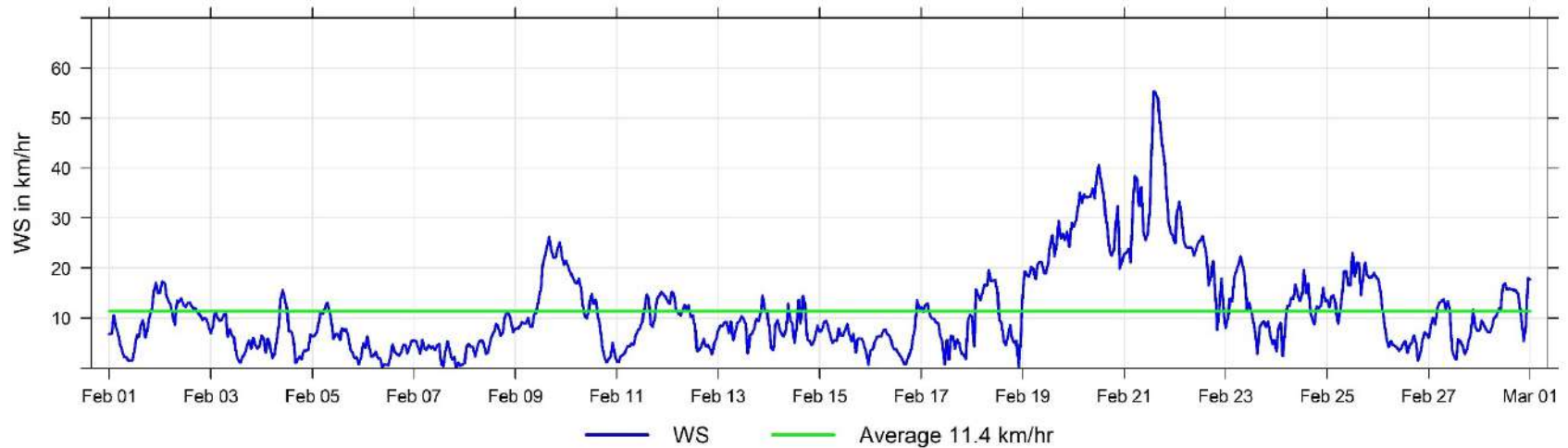
February Hourly Concentration Readings of H₂S (in ppb) at Donnelly



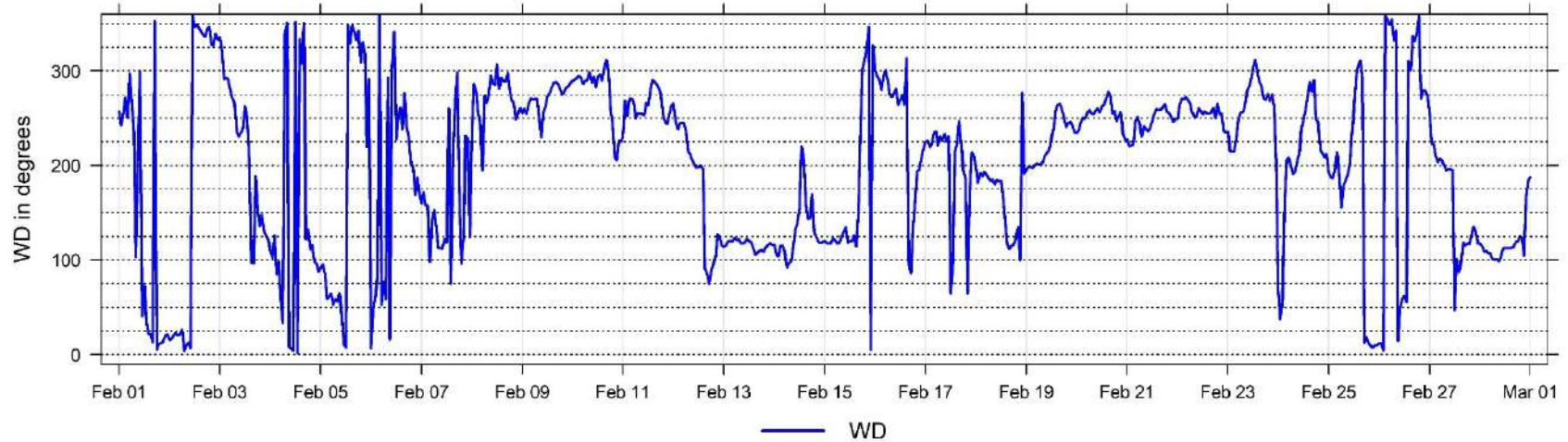
February Hourly Temperature Readings (in °C) at Donnelly



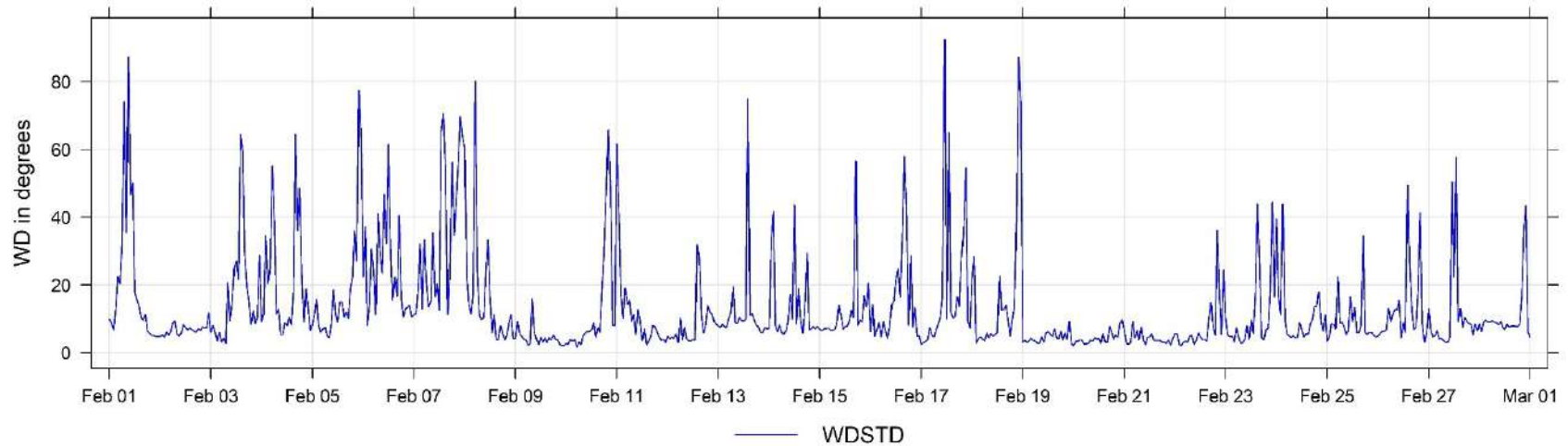
February Hourly Readings of Wind Speed (in km/hr) at Donnelly

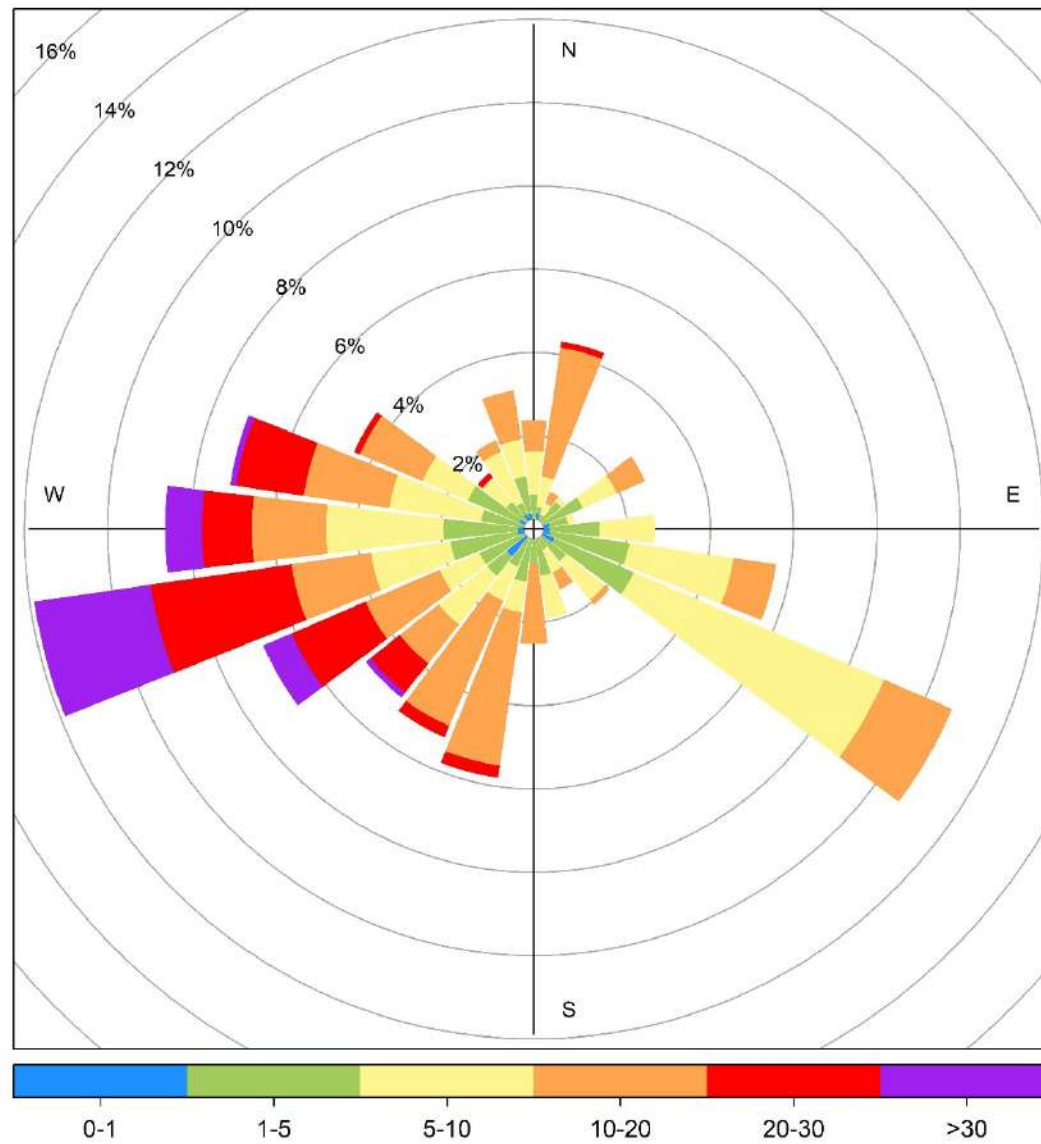


February Hourly Readings of Wind Direction (in degrees) at Donnelly



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



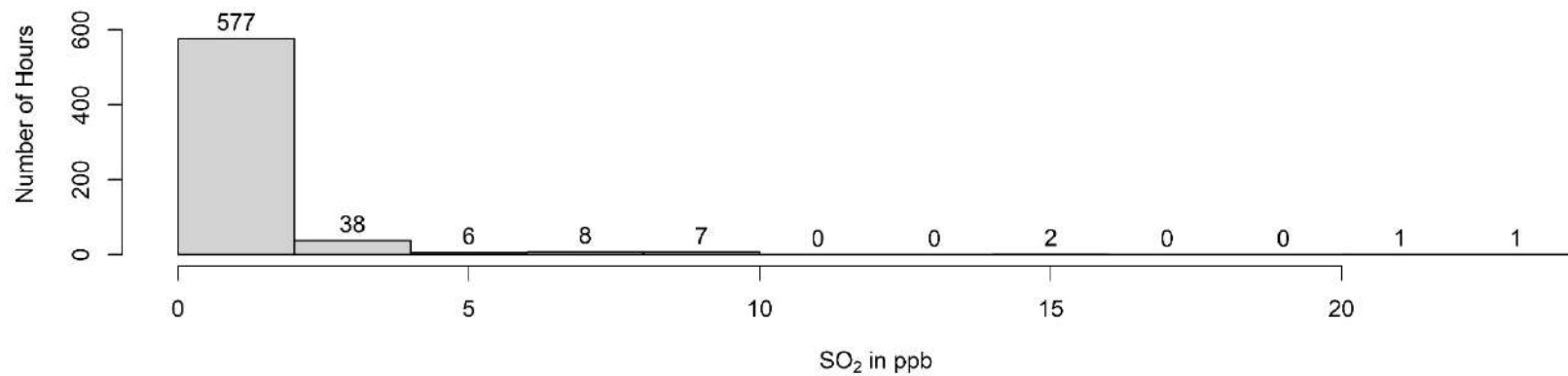
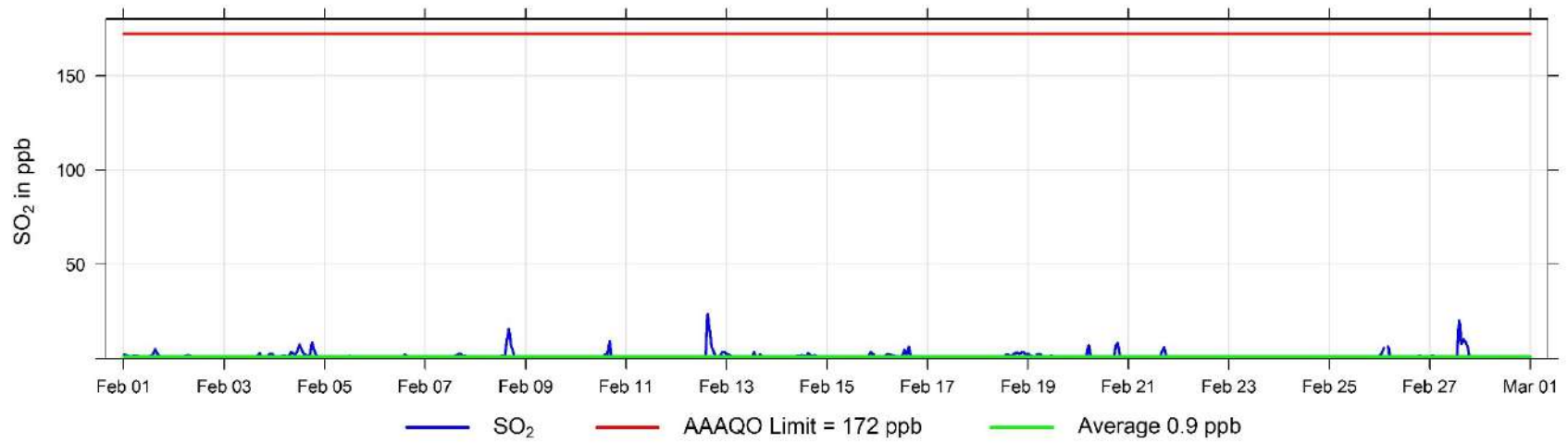


Donnelly February Wind Rose, wind speed in km/hr

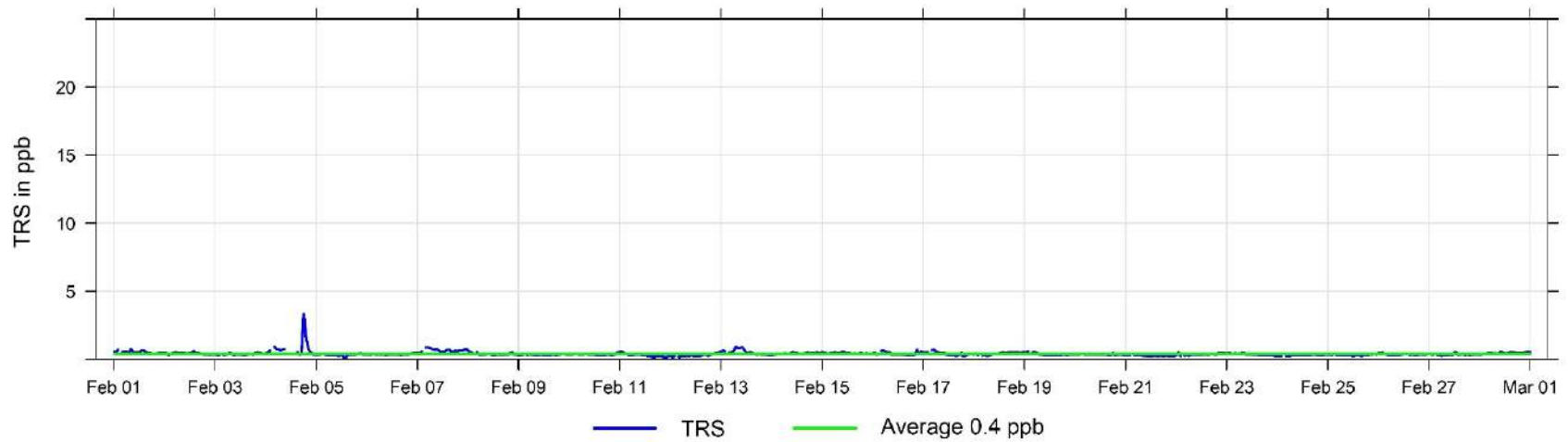
8 Wembley (Portable) Charts

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

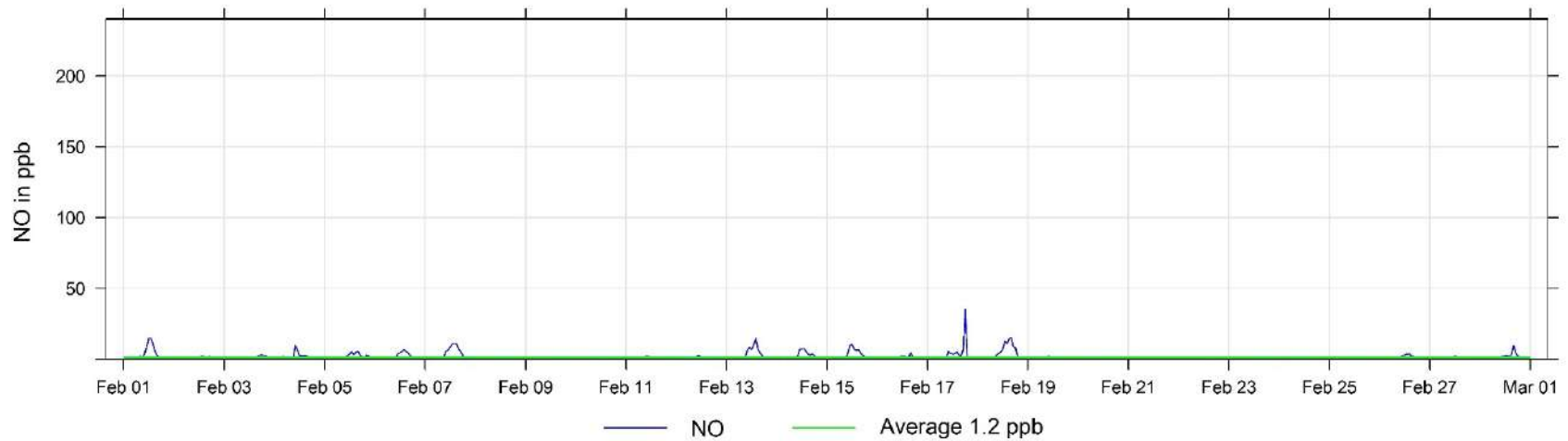
February Hourly Concentration Readings of SO₂ (in ppb) at Wembley



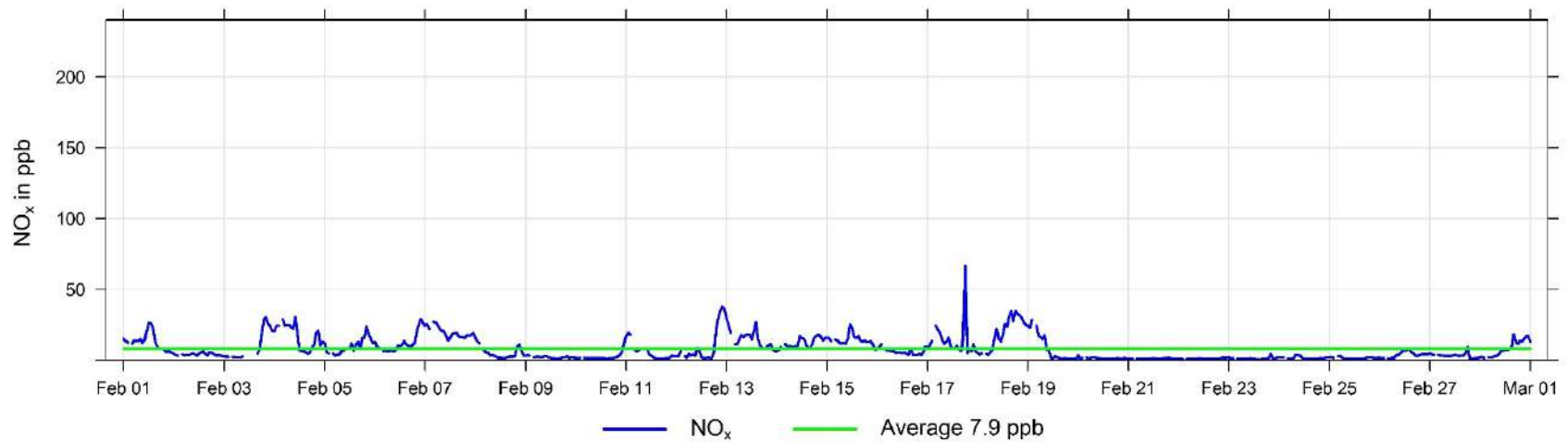
February Hourly Concentration Readings of TRS (in ppb) at Wembley



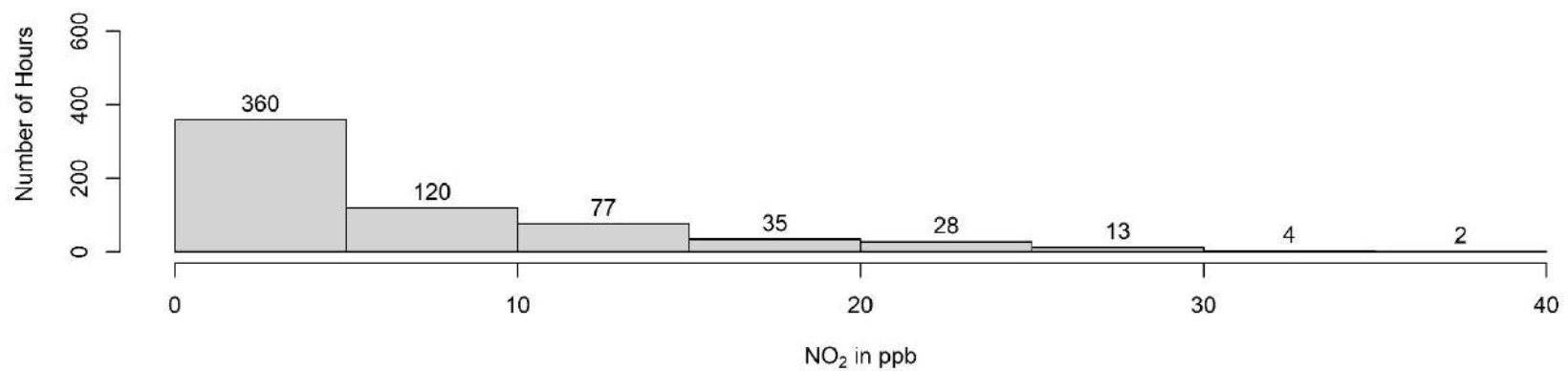
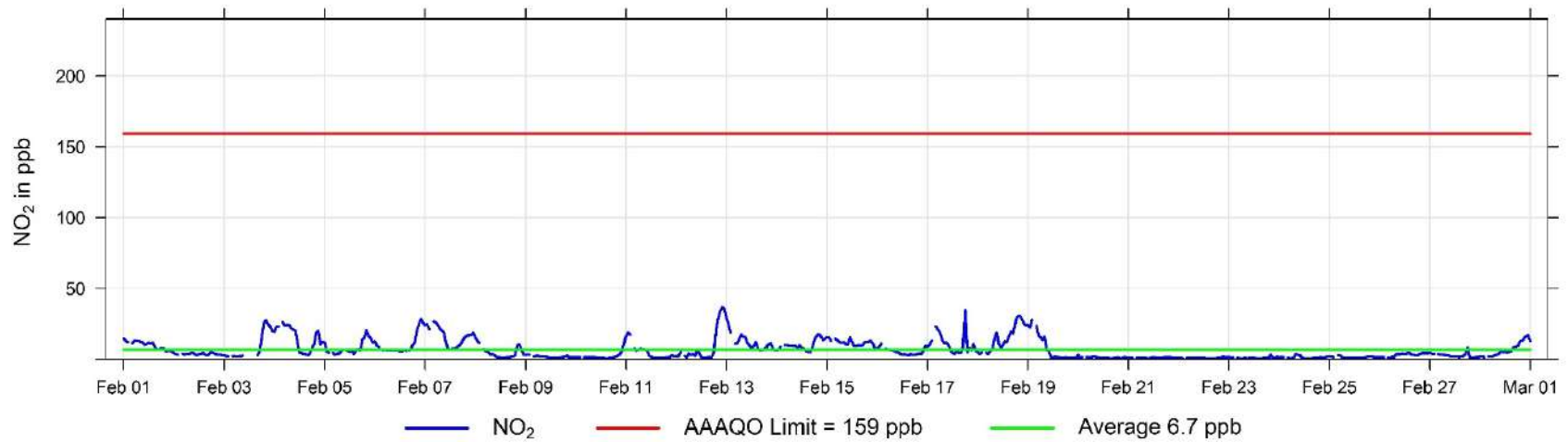
February Hourly Concentration Readings of NO (in ppb) at Wembley



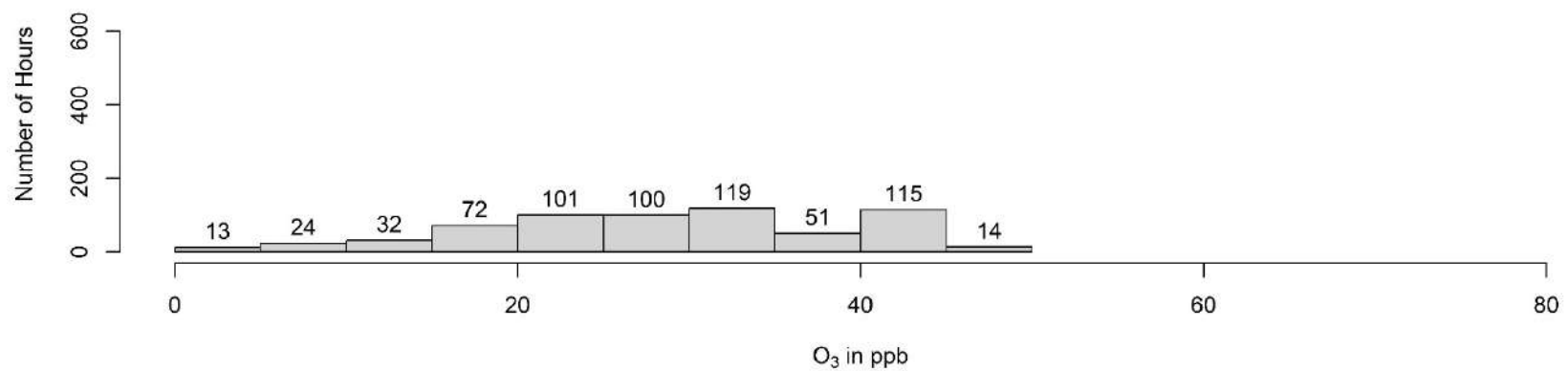
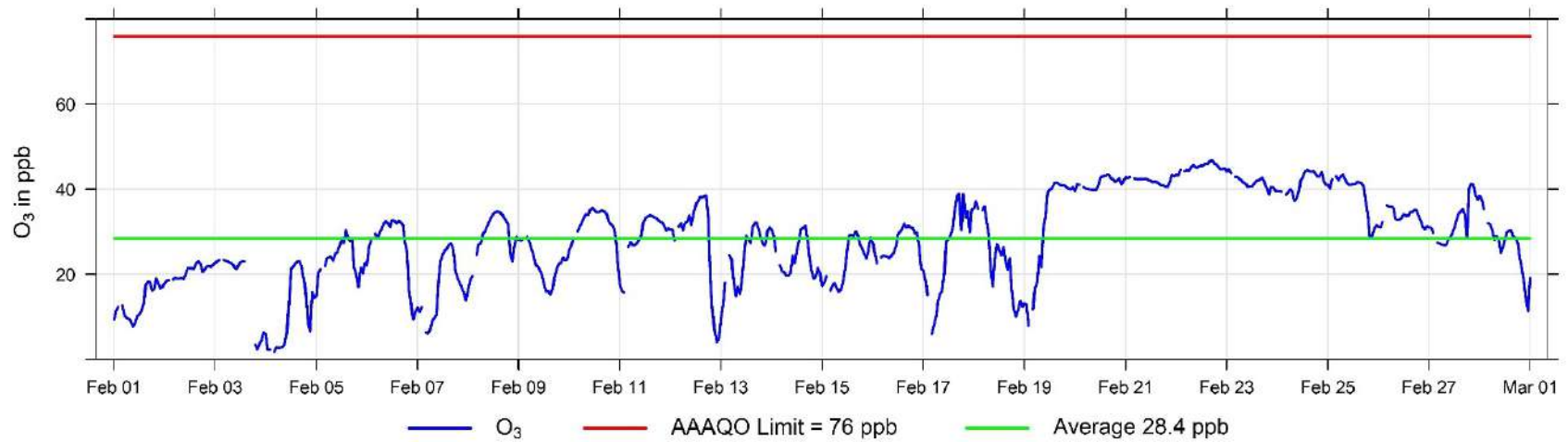
February Hourly Concentration Readings of NO_x (in ppb) at Wembley



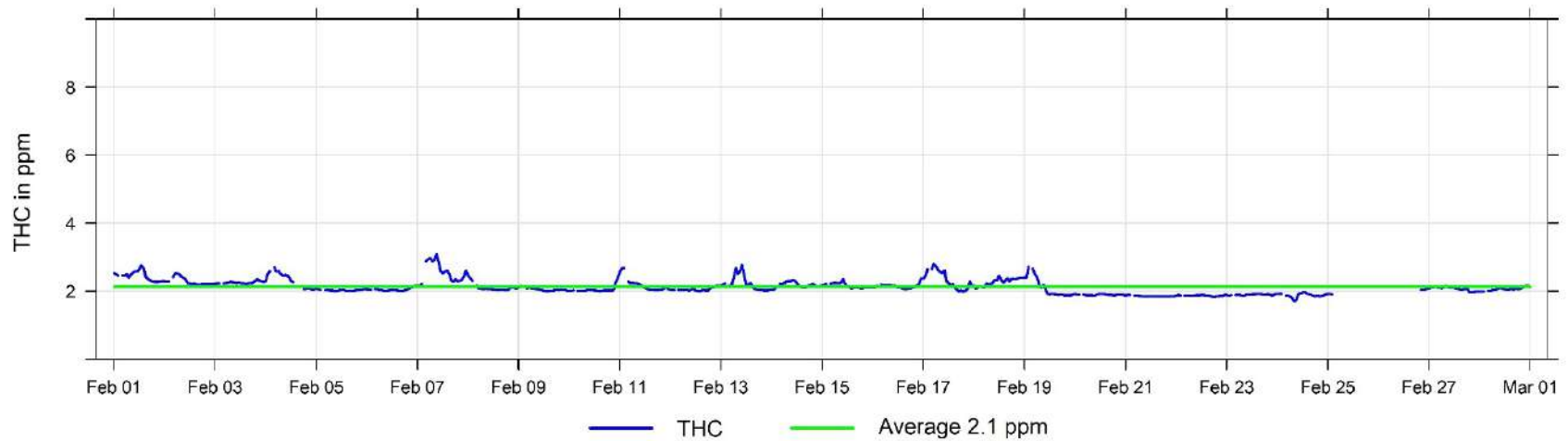
February Hourly Concentration Readings of NO₂ (in ppb) at Wembley



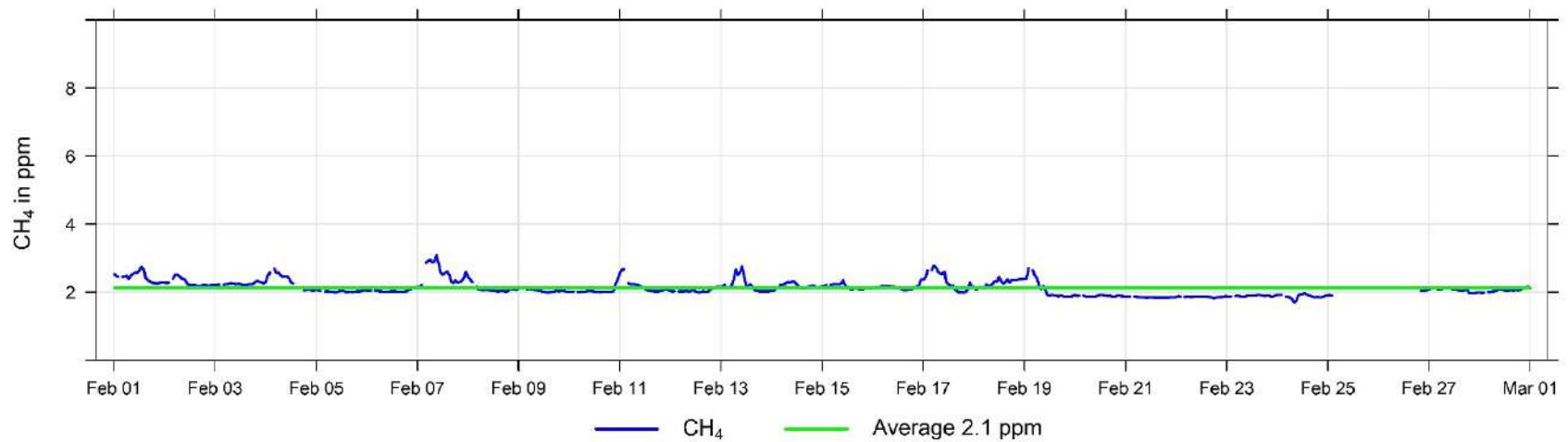
February Hourly Concentration Readings of O₃ (in ppb) at Wembley



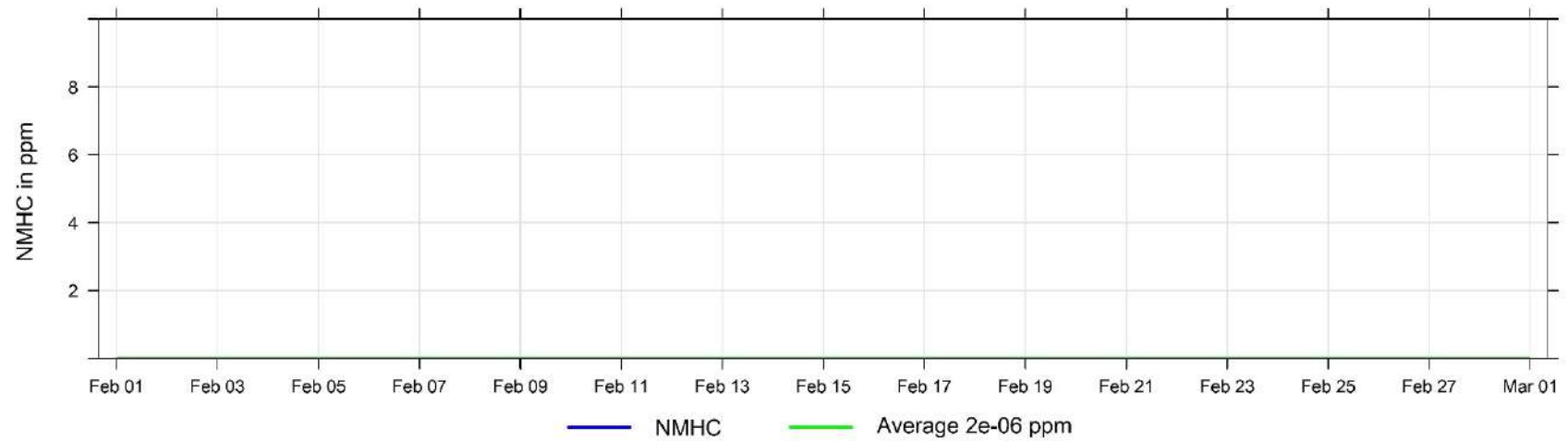
February Hourly Concentration Readings of THC (in ppm) at Wembley



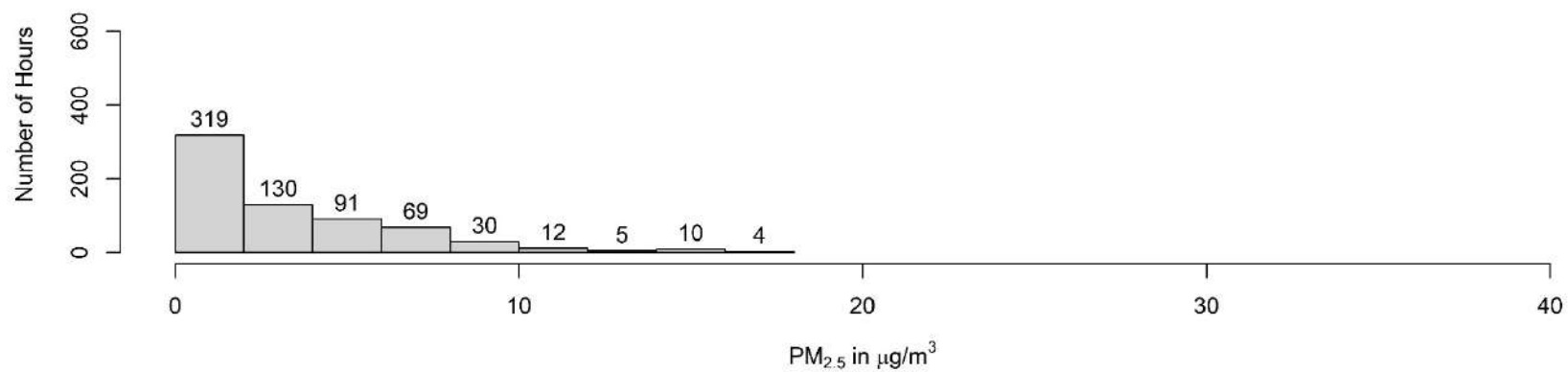
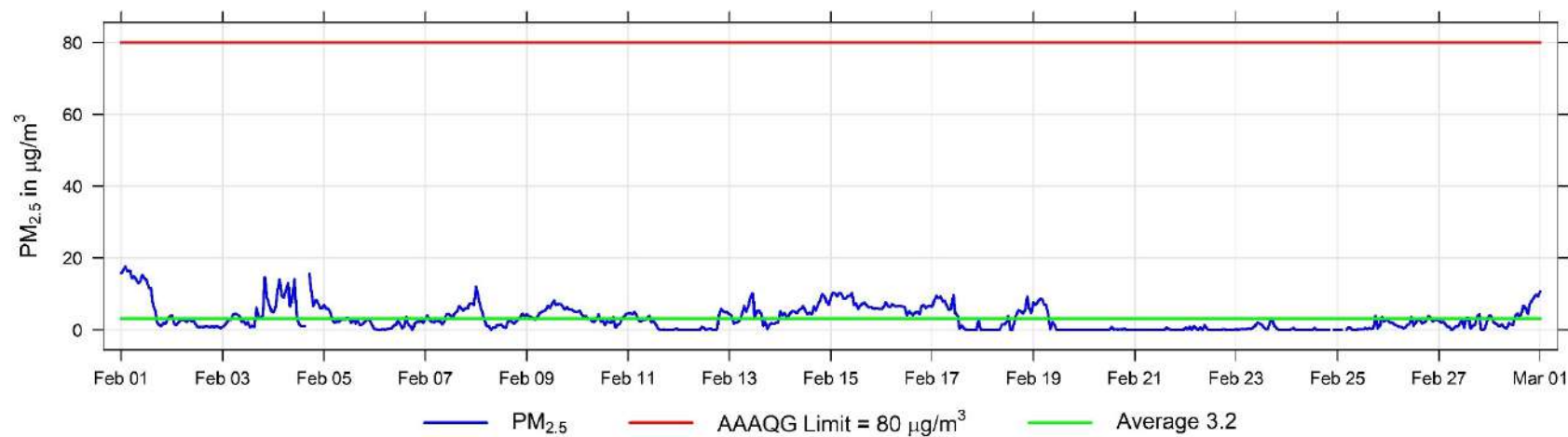
February Hourly Concentration Readings of CH₄ (in ppm) at Wembley



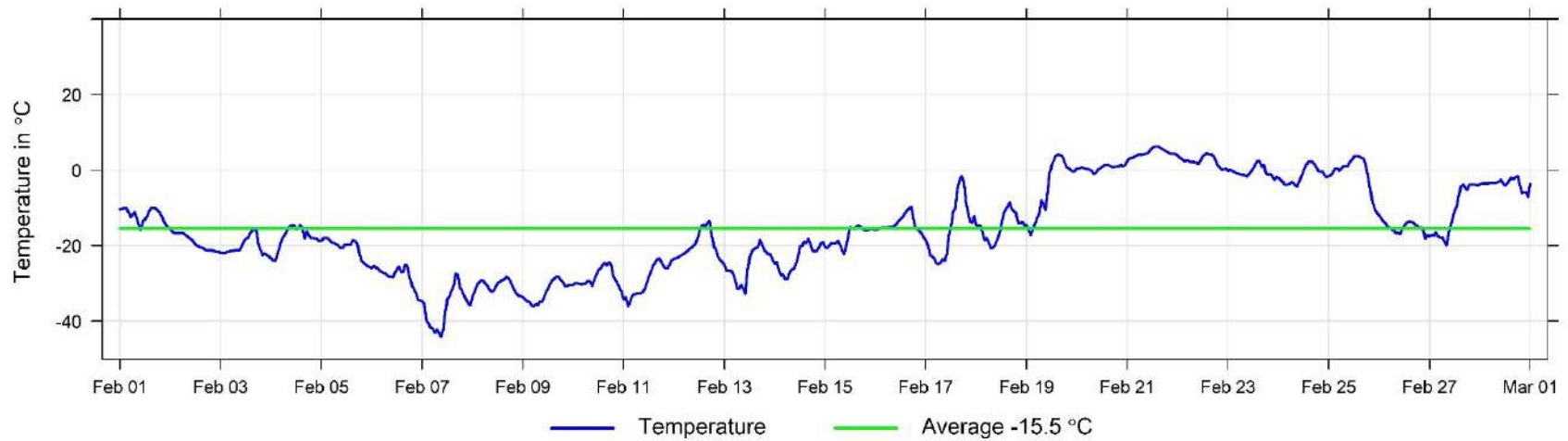
February Hourly Concentration Readings of NMHC (in ppm) at Wembley



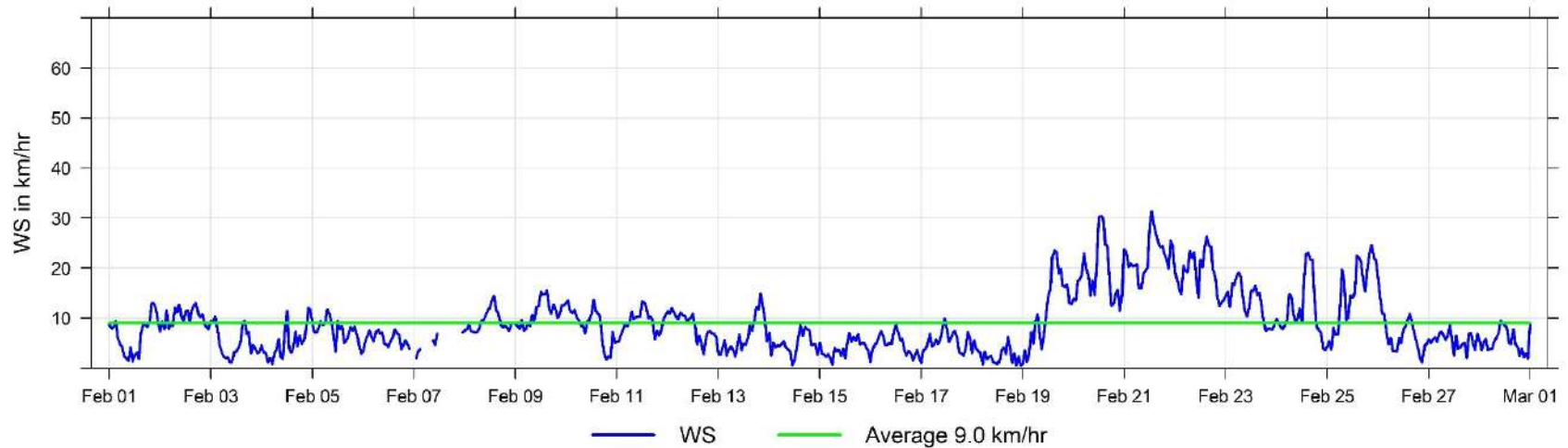
February Hourly Concentration Readings of PM_{2.5} in µg/m³ at Wembley



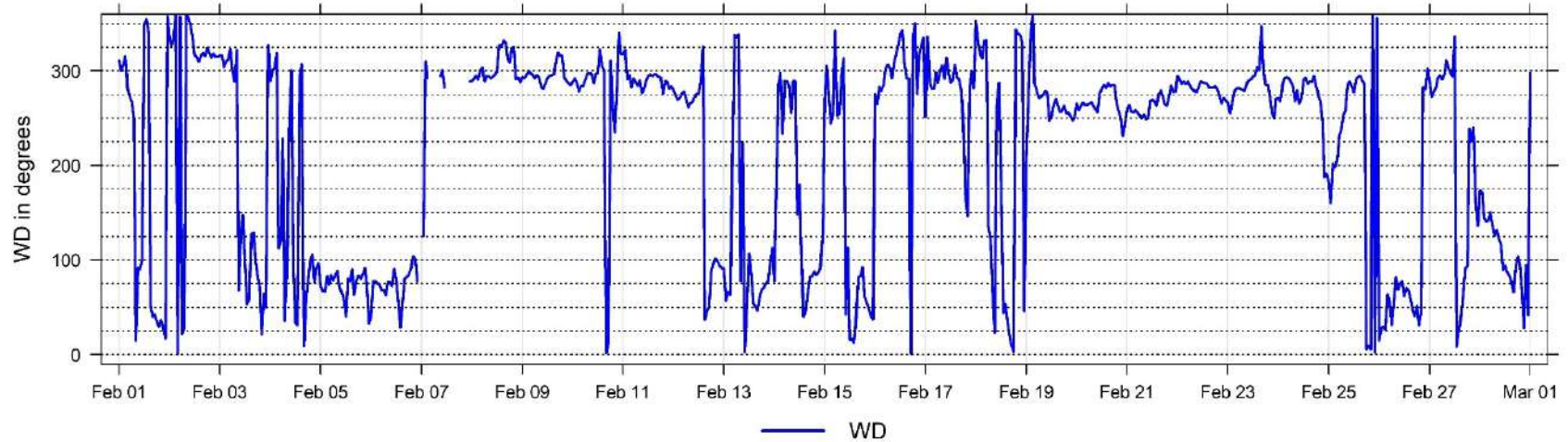
February Hourly Temperature Readings (in °C) at Wembley



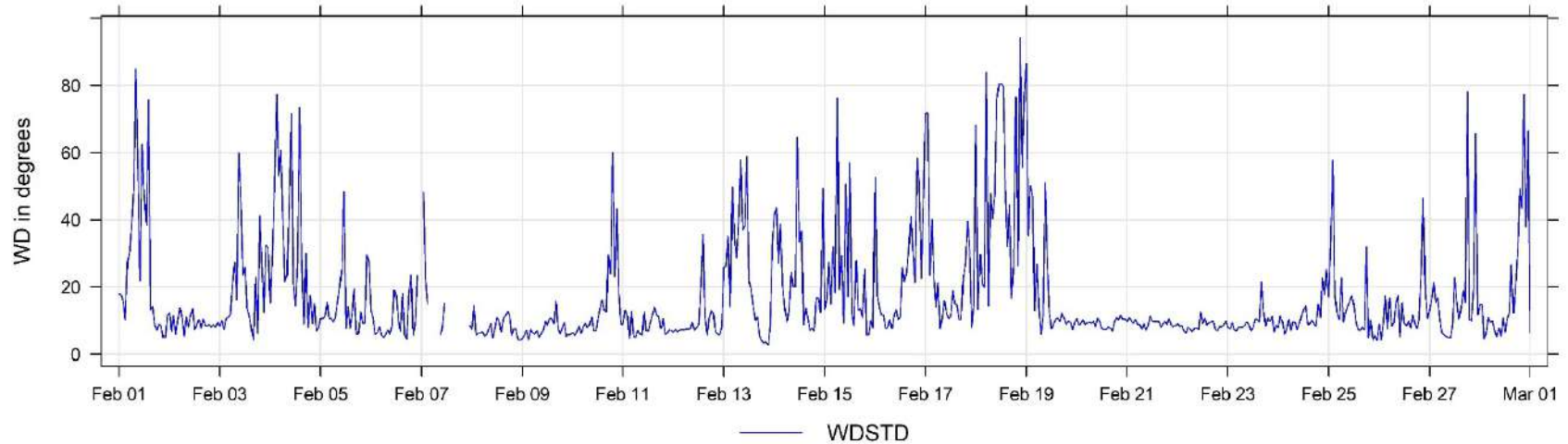
February Hourly Readings of Wind Speed (in km/hr) at Wembley

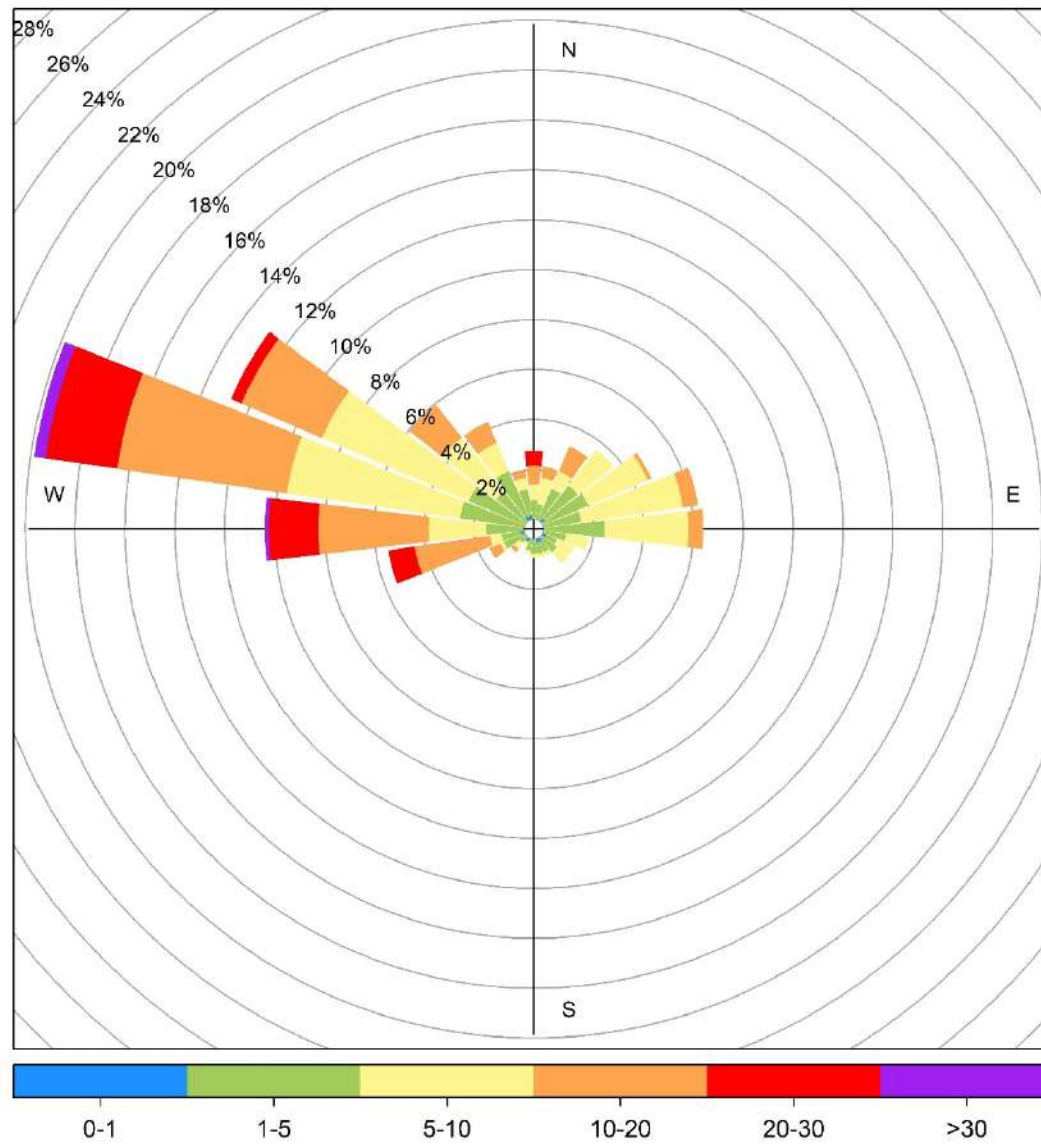


February Hourly Readings of Wind Direction (in degrees) at Wembley



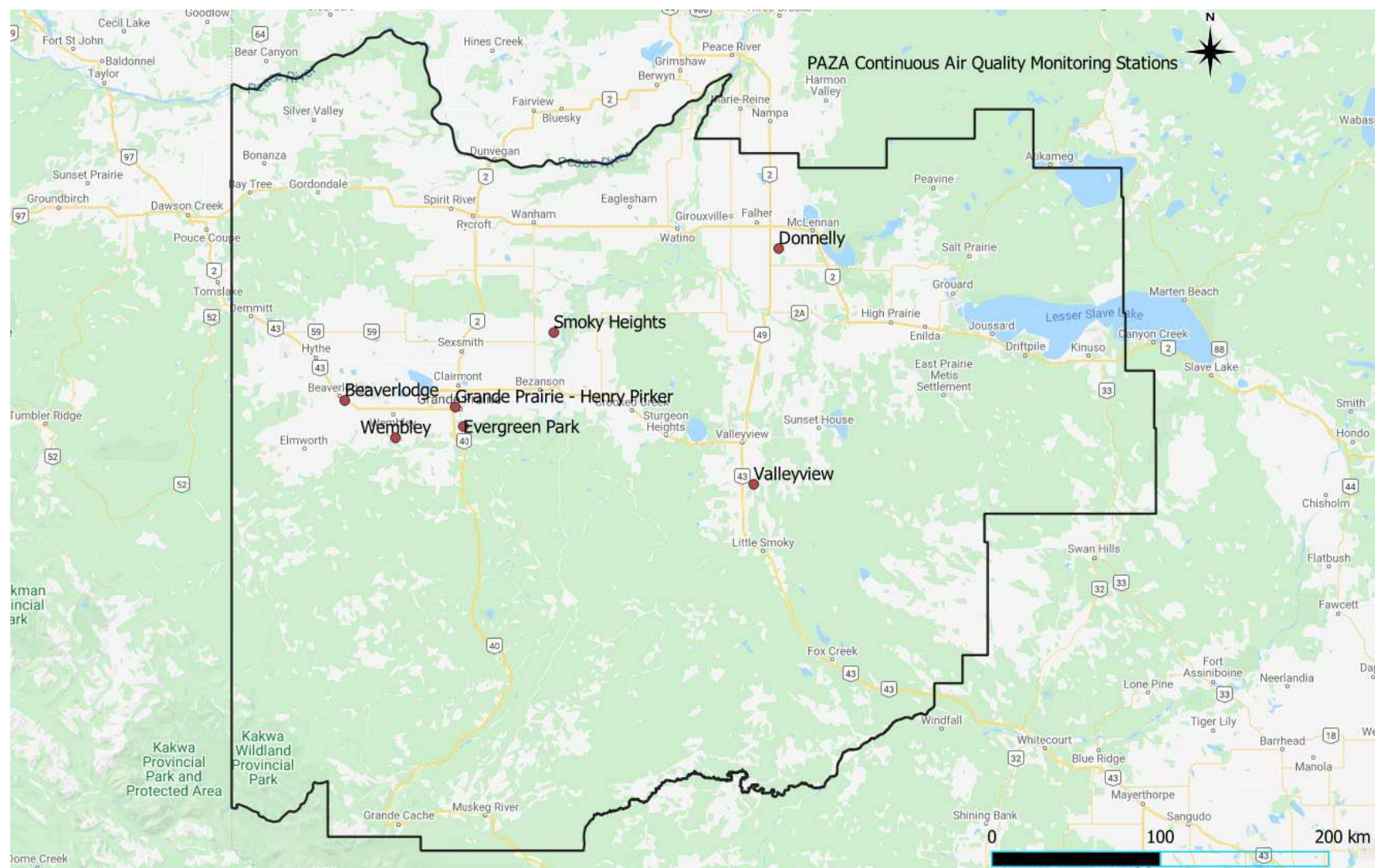
February Hourly Readings of Wind Direction Standard Deviation (in degrees) at Wembley





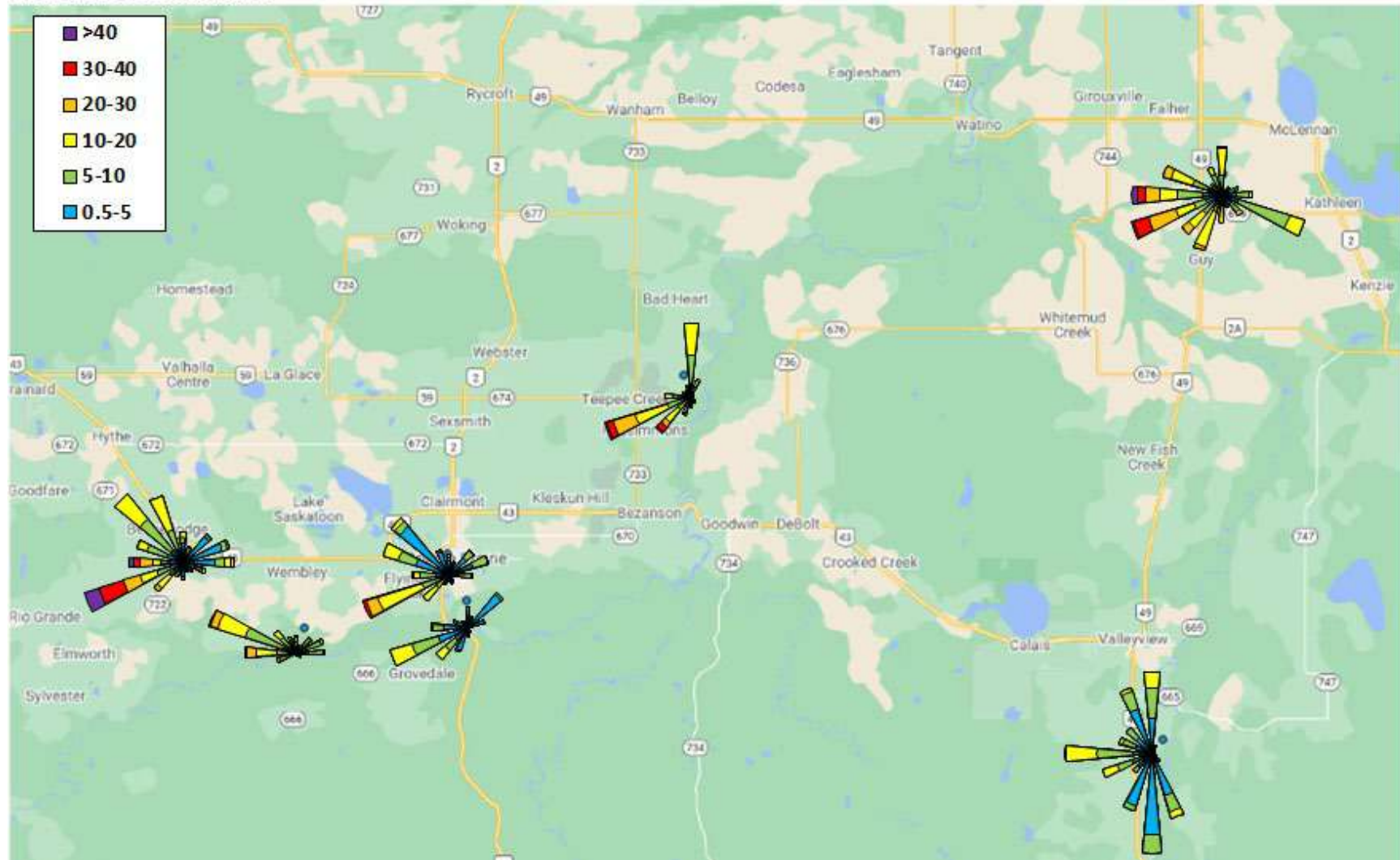
Wembley February Wind Rose, wind speed in km/hr

9 Concentration Summaries and Roses for PAZA



9.1 Wind Roses

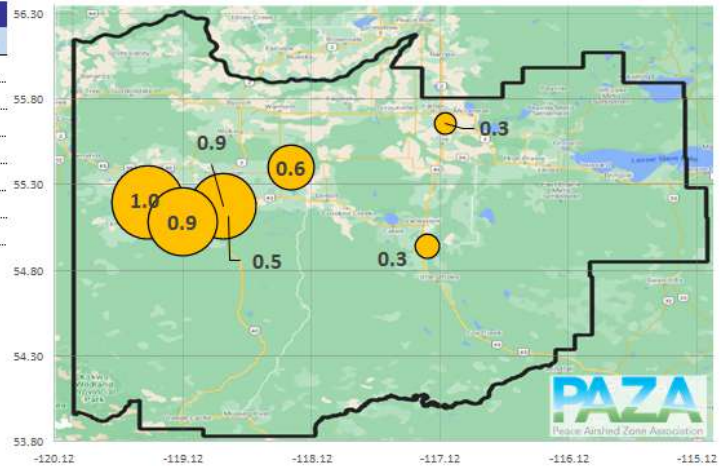
Wind Roses in km/hr



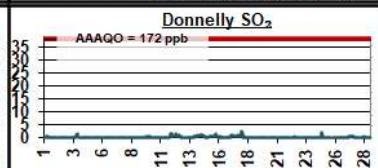
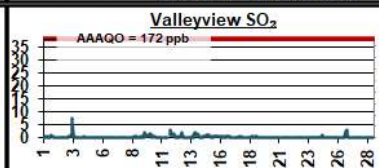
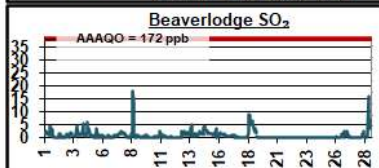
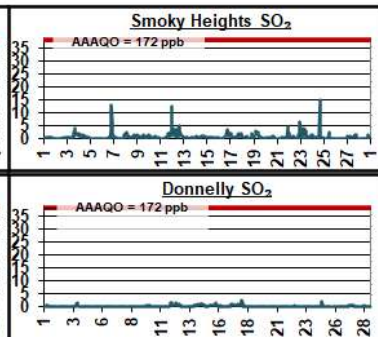
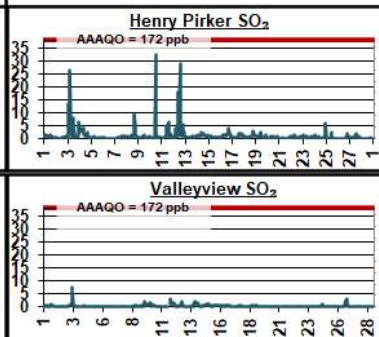
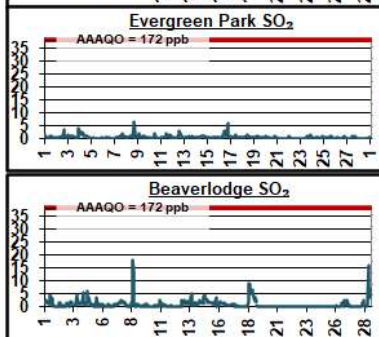
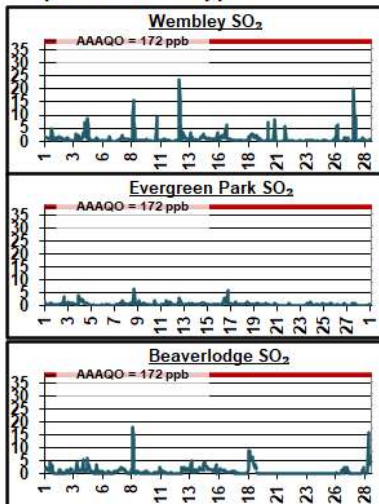
9.2 Sulphur Dioxide (SO₂) Plots

February 2021 SO₂ Station Summary

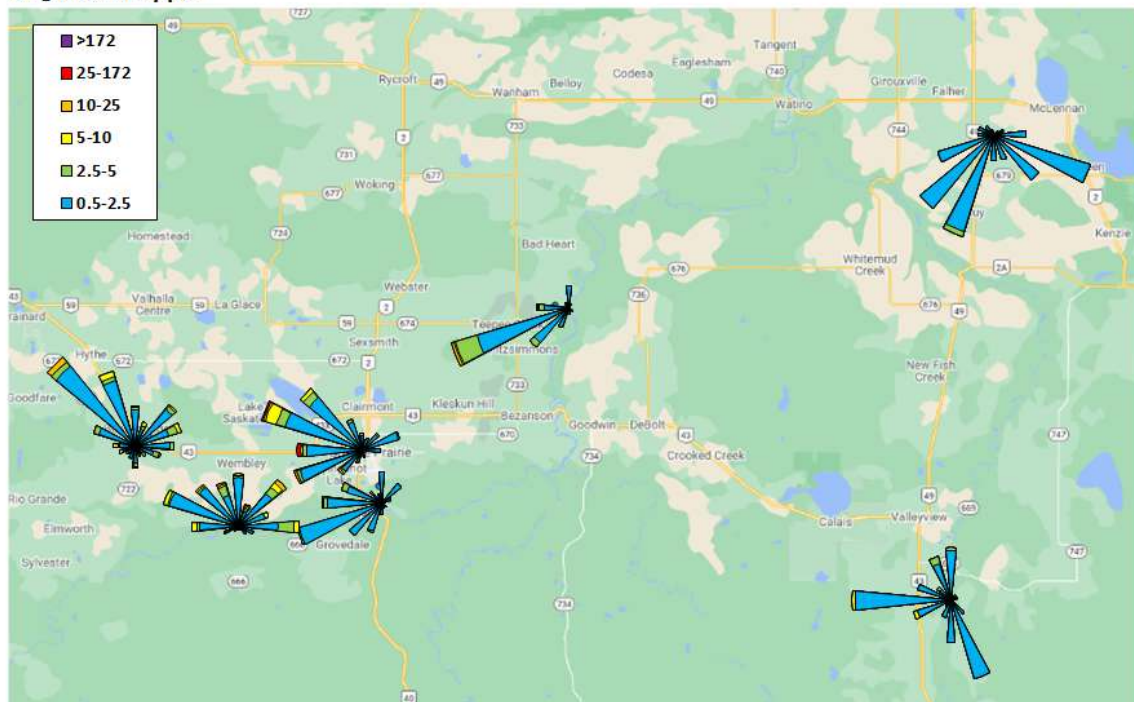
Station	Avg (ppb)	Max (ppb)
Evergreen Park SO ₂	0.5	6.4
Henry Pirkler SO ₂	0.9	32.8
Smoky Heights SO ₂	0.6	15.1
Beaverlodge SO ₂	1.0	17.9
Valleyview SO ₂	0.3	7.5
Donnelly SO ₂	0.3	2.7
Wembley SO ₂	0.9	23.5



Sulphur Dioxide in ppb



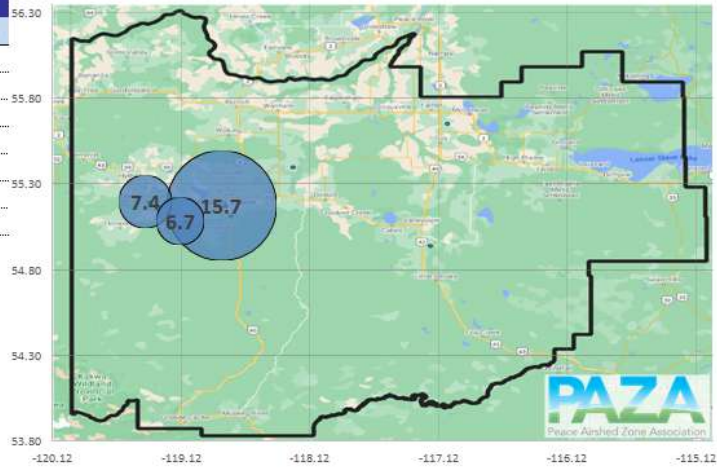
SO₂ Roses in ppb



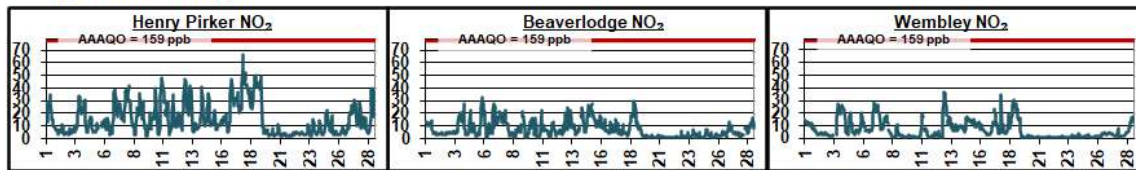
9.3 Nitrogen Dioxide (NO₂) Plots

February 2021 NO₂ Station Summary

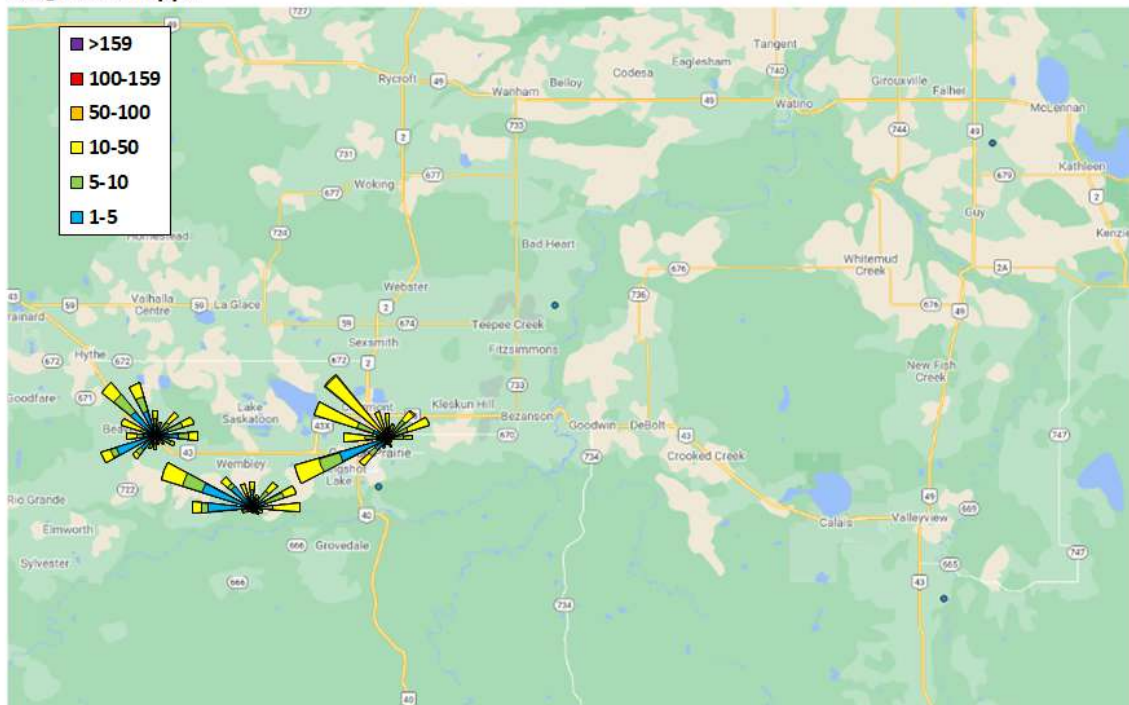
Station	Avg (ppb)	Max (ppb)
Evergreen Park NO ₂	-	-
Henry Pirker NO ₂	15.7	67.0
Smoky Heights NO ₂	-	-
Beaverlodge NO ₂	7.4	32.8
Valleyview NO ₂	-	-
Donnelly NO ₂	-	-
Wembley NO ₂	6.7	36.7



Nitrogen Dioxide in ppb

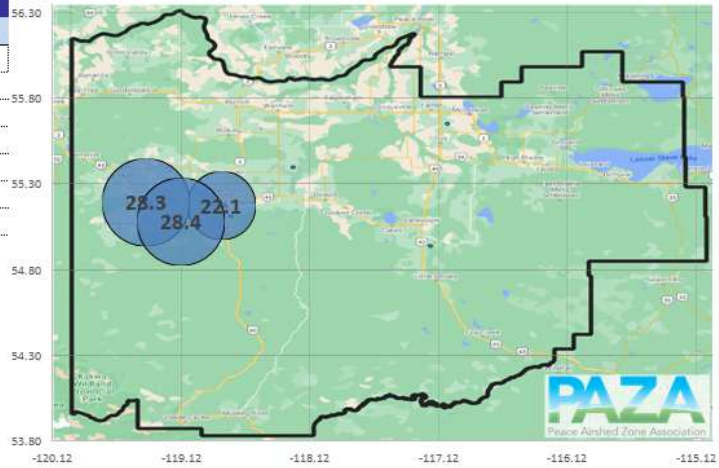


NO₂ Roses in ppb

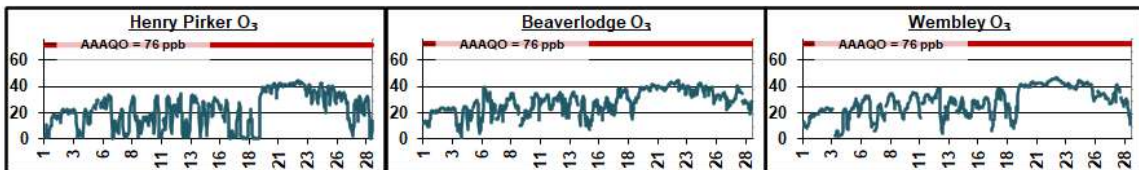


9.4 Ozone (O₃) Plots

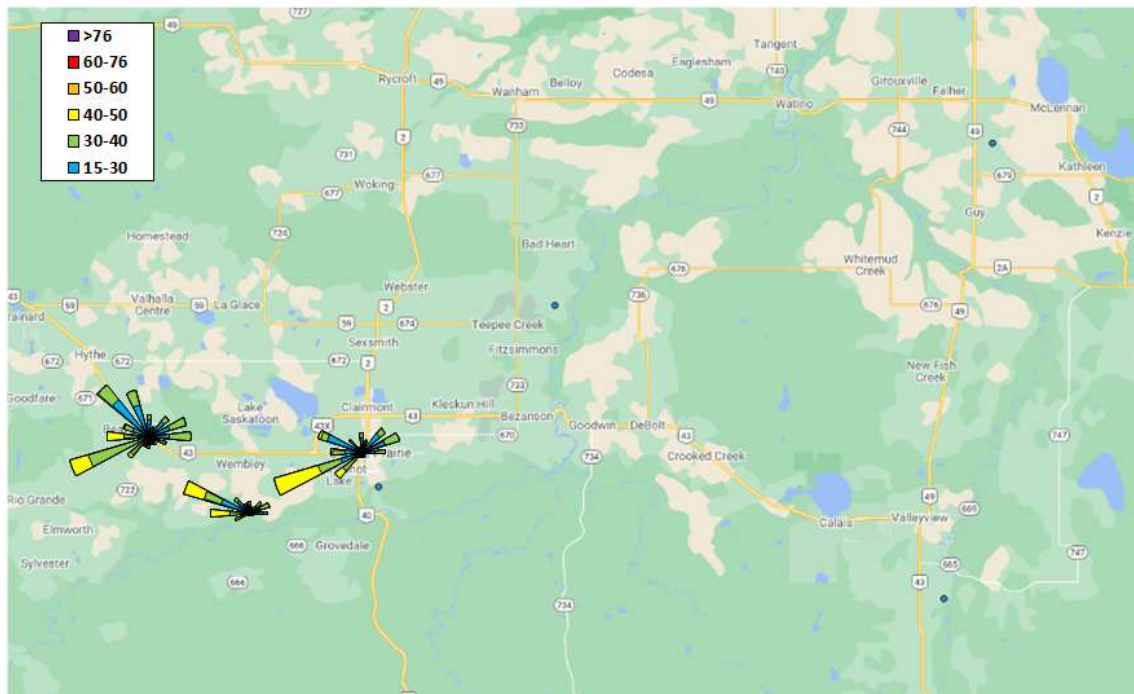
February 2021 O ₃ Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park O ₃	-	-
Henry Pirkler O ₃	22.1	44.4
Smoky Heights O ₃	-	-
Beaverlodge O ₃	28.3	44.5
Valleyview O ₃	-	-
Donnelly O ₃	-	-
Wembley O ₃	28.4	46.8



Ozone in ppb



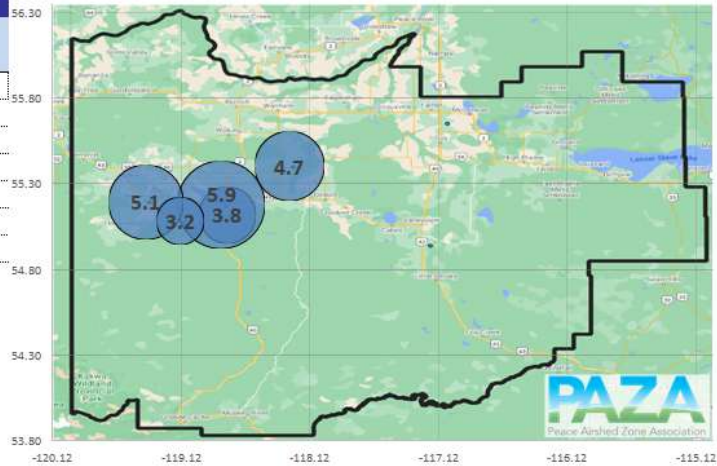
O₃ Roses in ppb



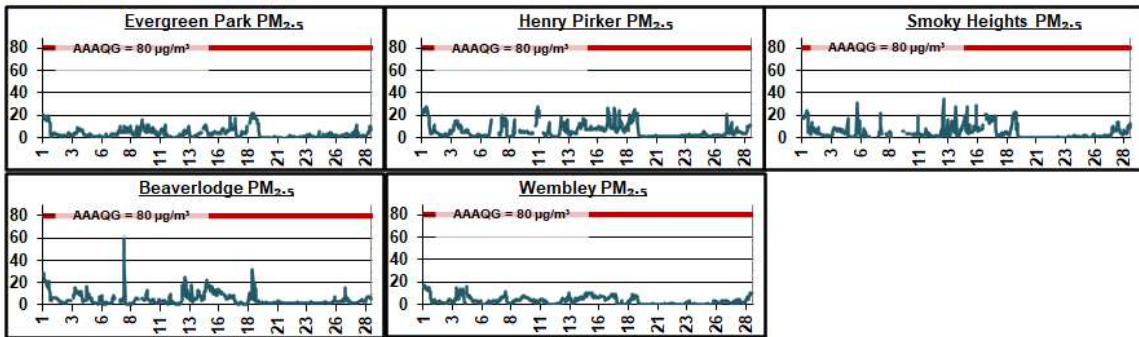
9.5 Fine Particulate Matter (PM_{2.5}) Plots

February 2021 PM_{2.5} Station Summary

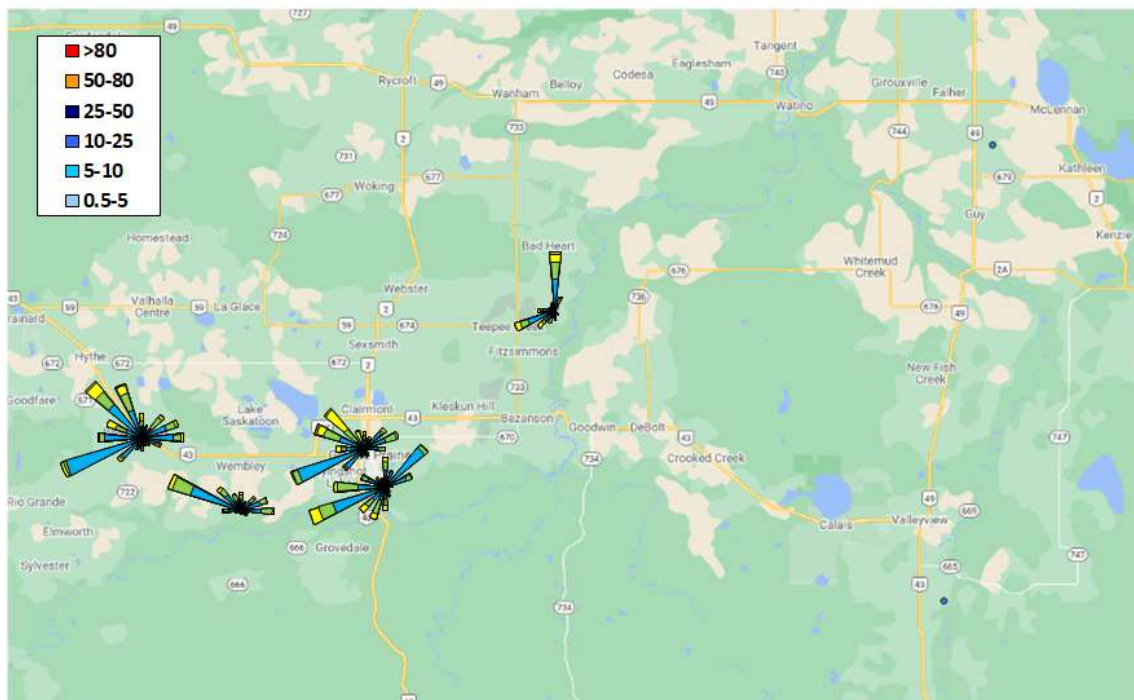
Station	Avg µg/m ³	Max µg/m ³
Evergreen Park PM _{2.5}	3.8	21.8
Henry Pirker PM _{2.5}	5.9	28.0
Smoky Heights PM _{2.5}	4.7	34.7
Beaverlodge PM _{2.5}	5.1	61.6
Valleyview PM _{2.5}	-	-
Donnelly PM _{2.5}	-	-
Wembley PM _{2.5}	3.2	17.6



Fine Particulate Matter in µg/m³



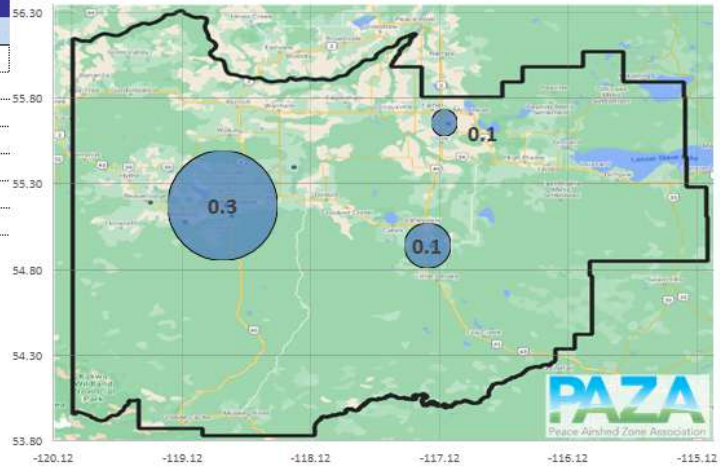
PM_{2.5} Roses in µg/m³



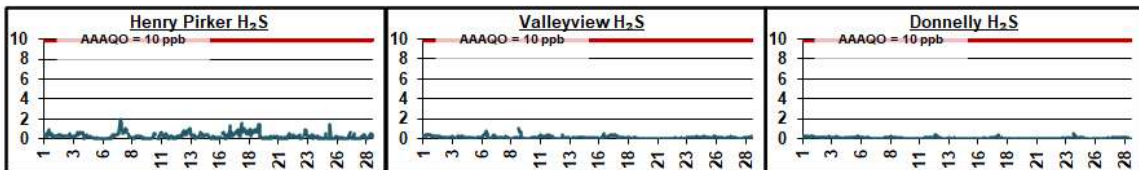
9.6 Hydrogen Sulphide (H₂S) Plots

February 2021 H₂S Station Summary

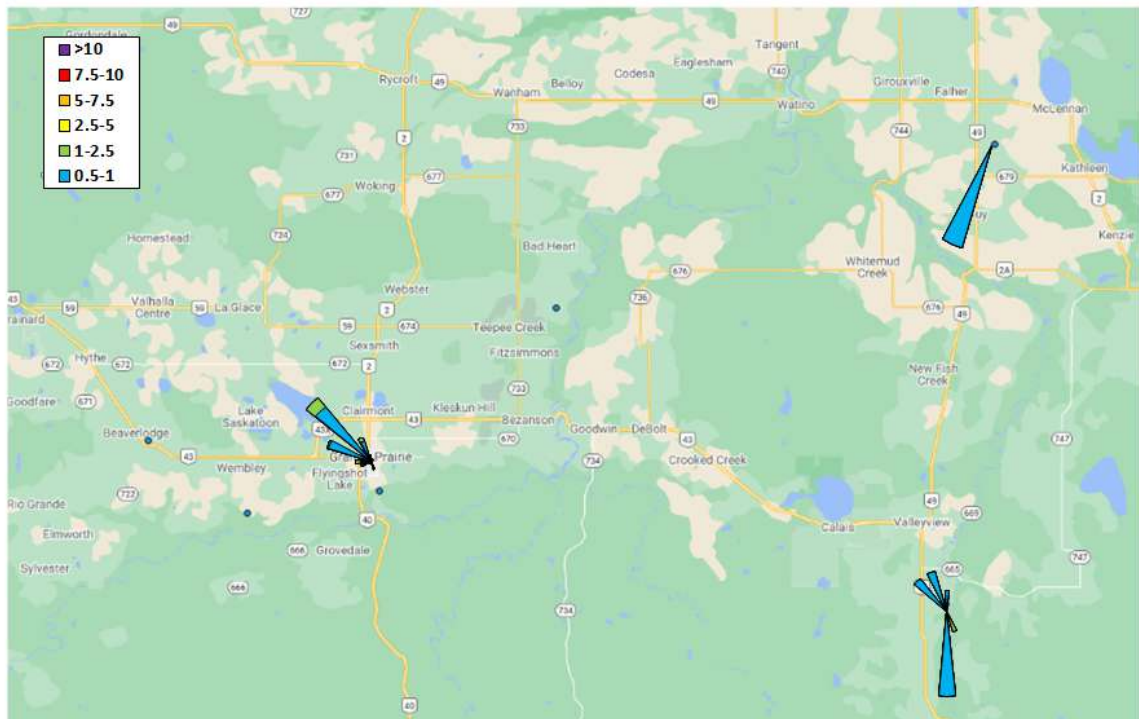
Station	Avg (ppb)	Max (ppb)
Evergreen Park H ₂ S	-	-
Henry Pirker H ₂ S	0.3	2.0
Smoky Heights H ₂ S	-	-
Beaverlodge H ₂ S	-	-
Valleyview H ₂ S	0.1	1.0
Donnelly H ₂ S	0.1	0.5
Wembley H ₂ S	-	-



Hydrogen Sulphide in ppb

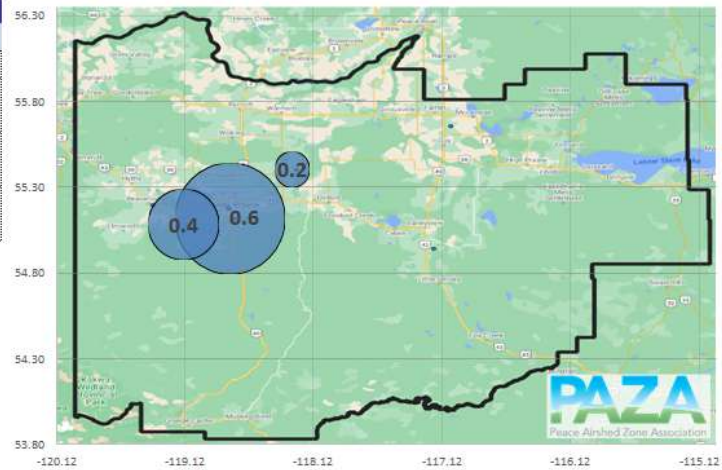


H₂S Roses in ppb

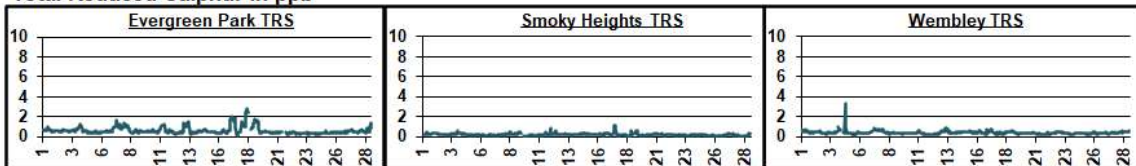


9.7 Total Reduced Sulphur (TRS) Plots

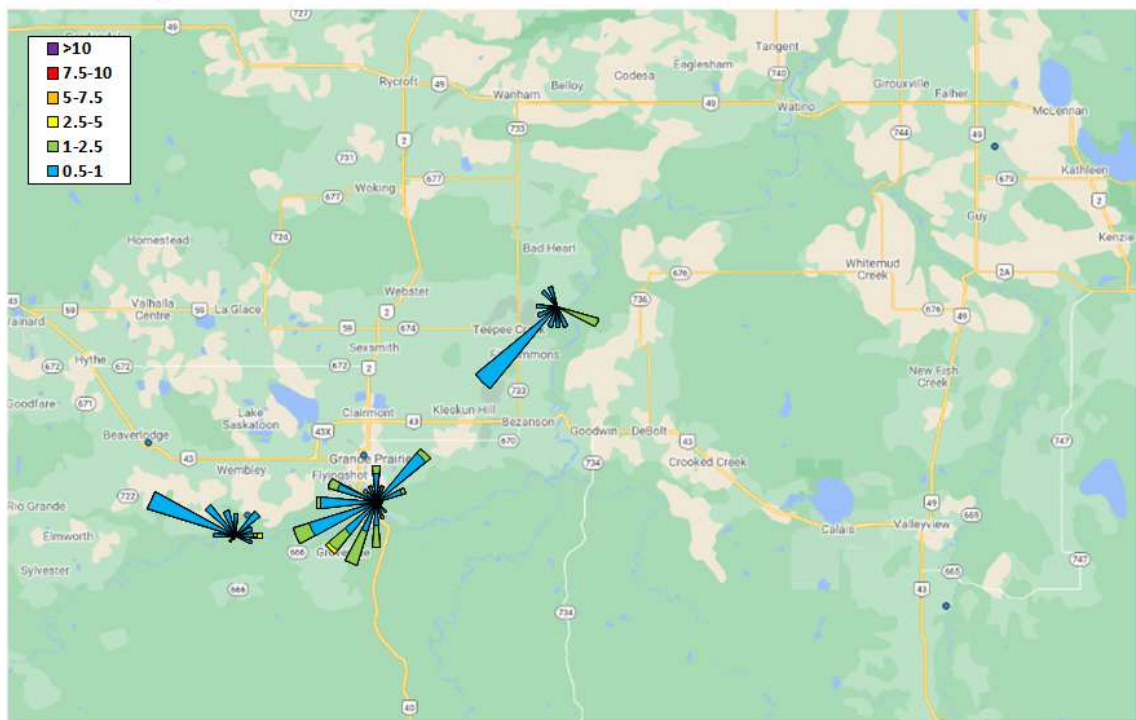
February 2021 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park TRS	0.6	2.9
Henry Pirkner TRS	-	-
Smoky Heights TRS	0.2	1.1
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Wembley TRS	0.4	3.3



Total Reduced Sulphur in ppb



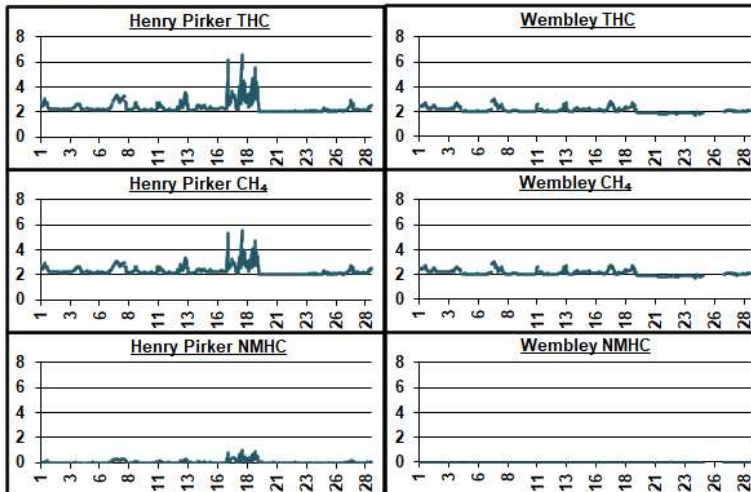
TRS Roses in ppb



9.8 Total Hydrocarbon (THC) Plots

February 2021 THC Station Summary						
Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Evergreen Park THC	-	-	-	-	-	-
Henry Pirkler THC	2.4	6.6	5.6	5.6	1.0	1.0
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Wembley THC	2.1	3.1	3.1	3.1	0.0	0.0

Total Hydrocarbons in ppm

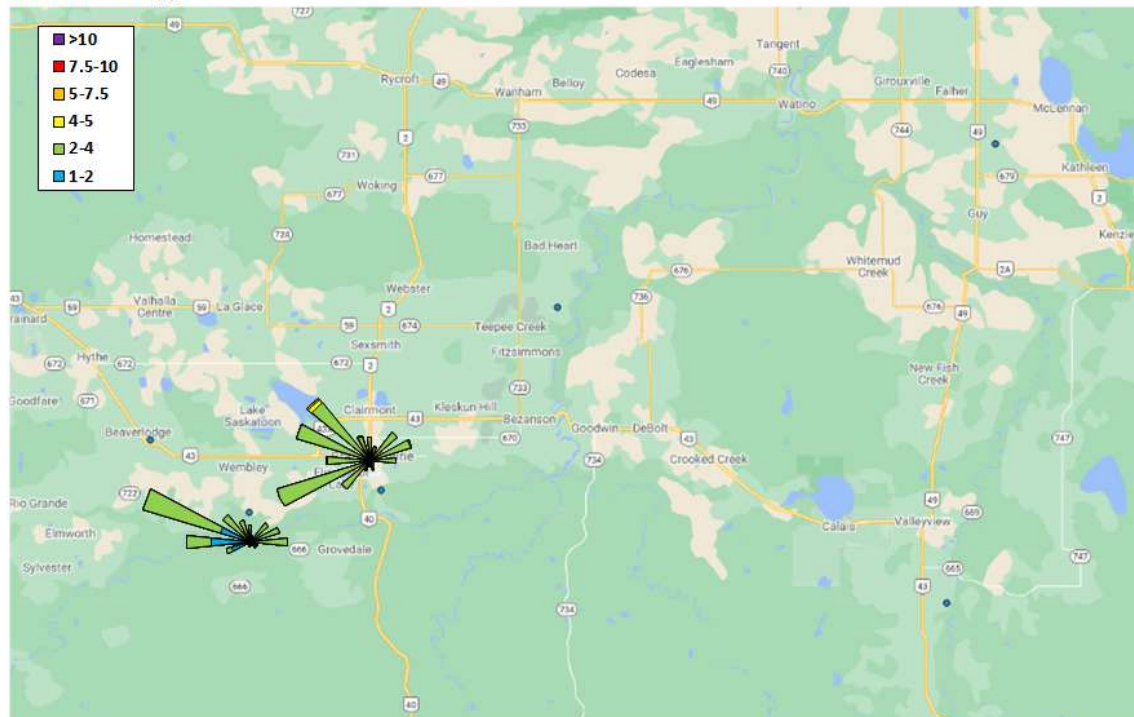


Total Hydrocarbons (THC)

Methane (CH₄)

Non-Methane Hydrocarbons (NMHC)

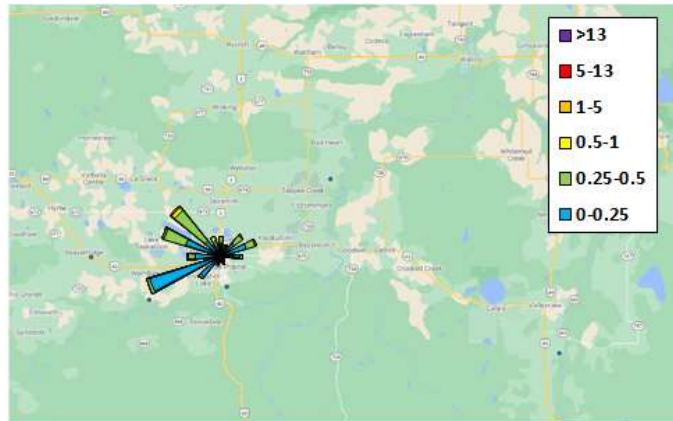
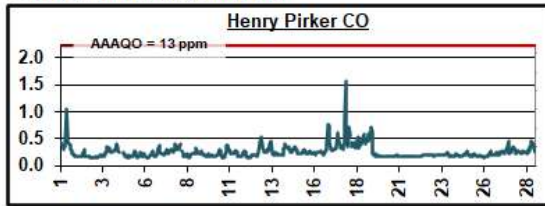
THC Roses in ppm



9.9 Carbon Monoxide (CO) Plots

February 2021 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.25	1.57

Carbon Monoxide in ppm



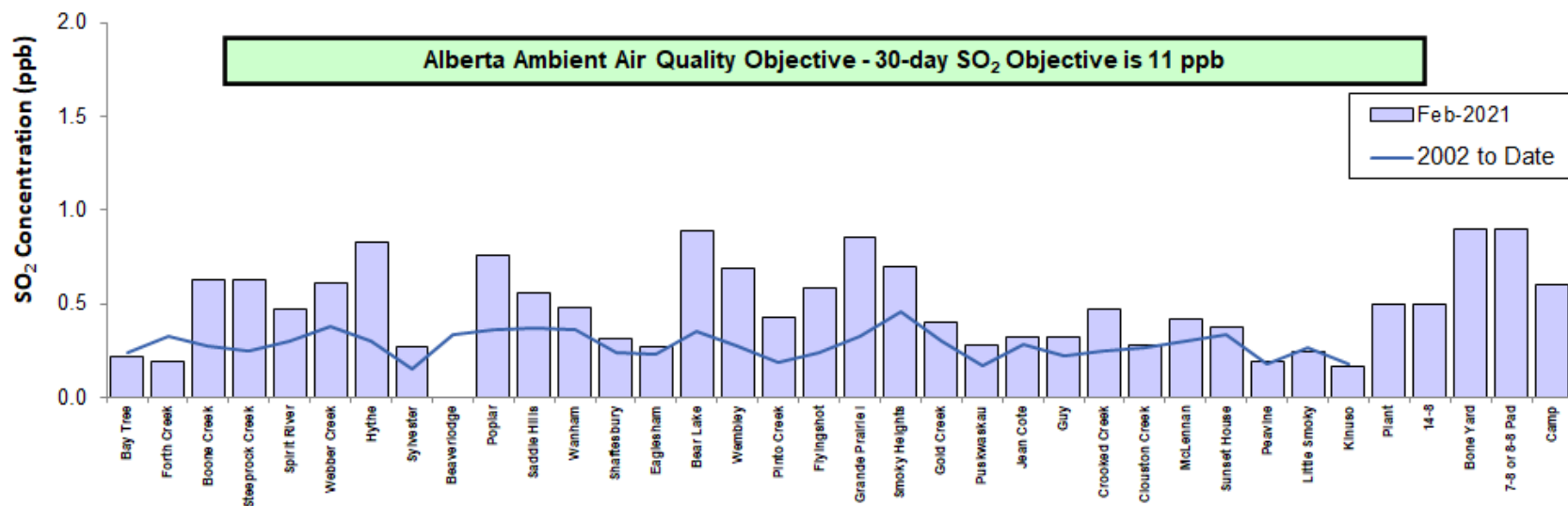
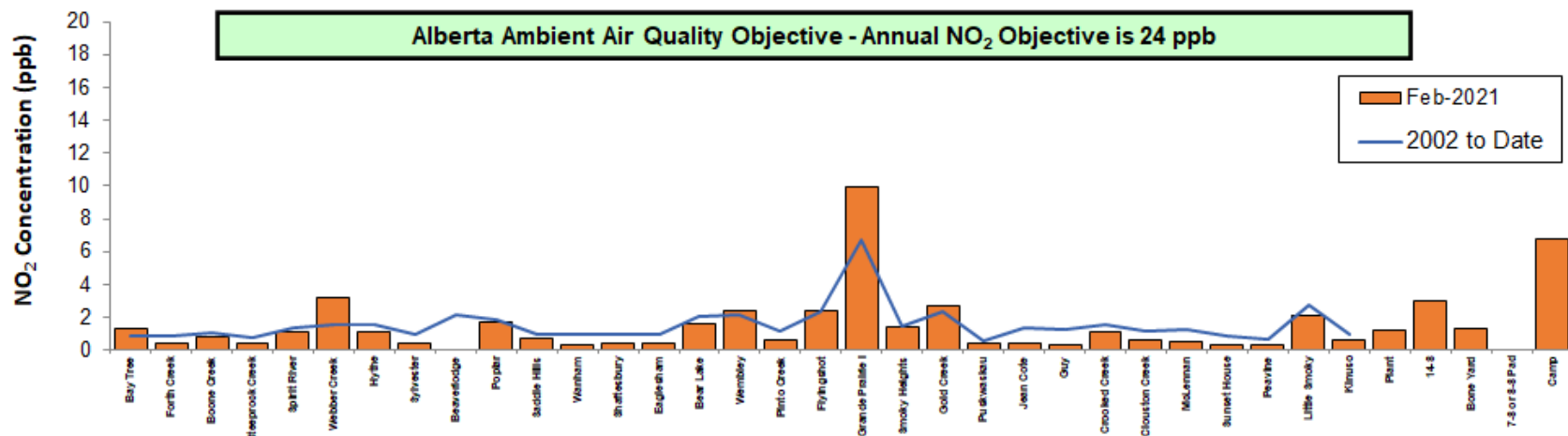
10 Passive Monitoring Data

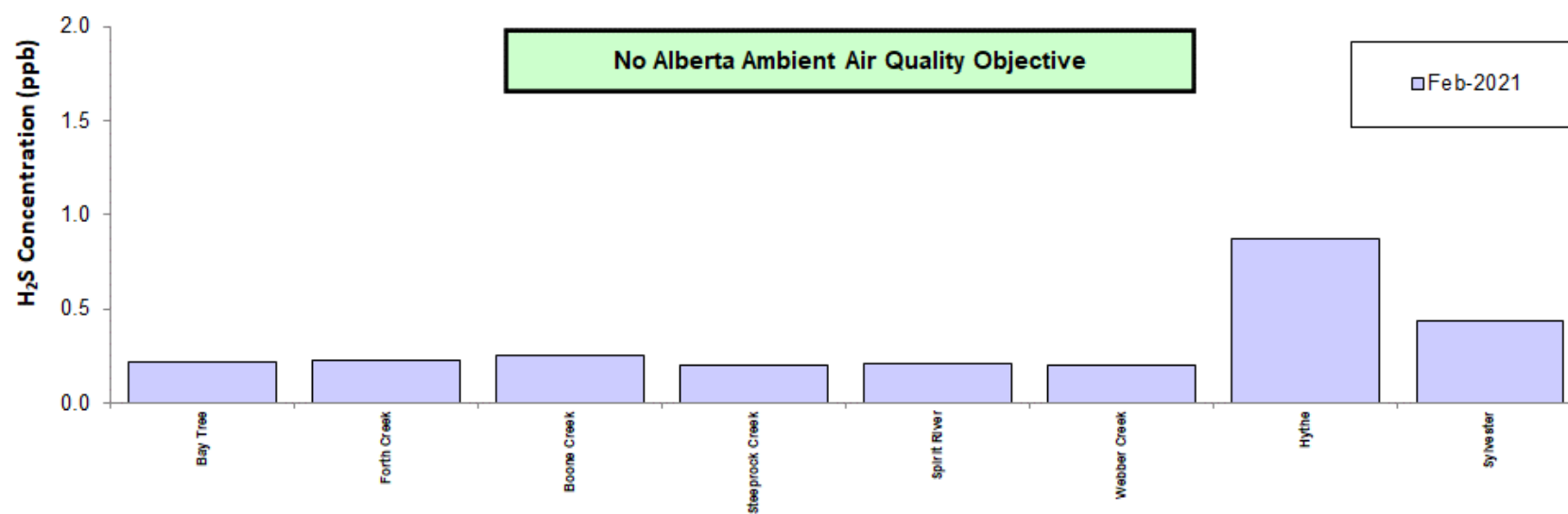
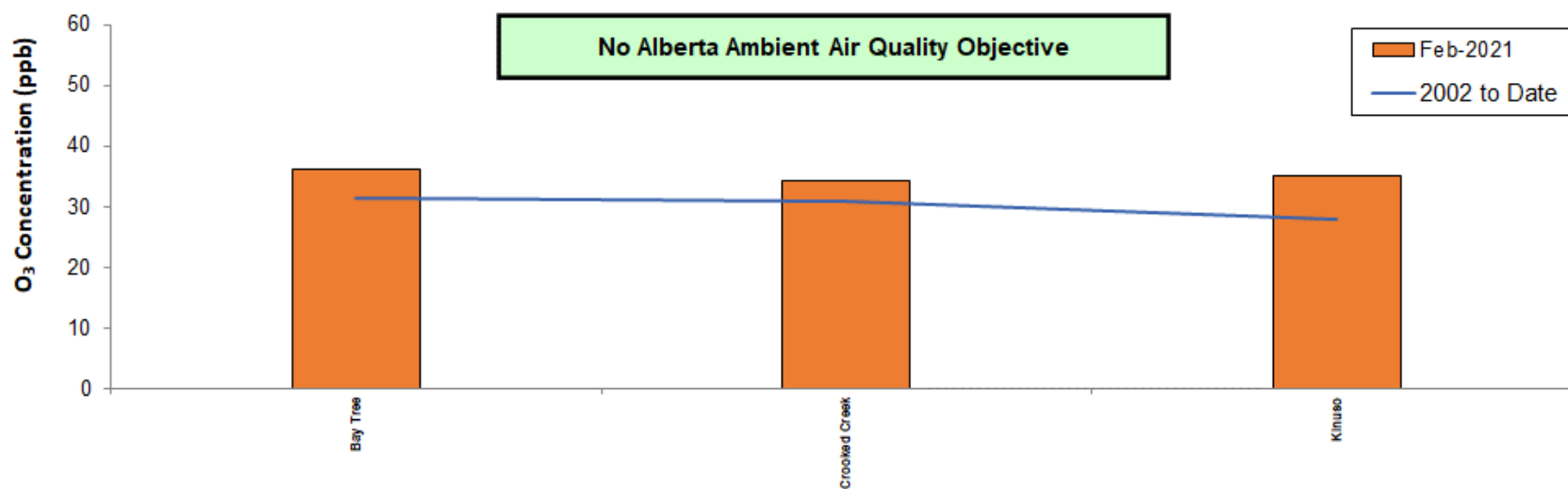
Peace Airshed Zone Association - PAZA Passive Stations for February 2021

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
2a	Bay Tree		30.8			
2b	Bay Tree		41.3			
20a	Shaftesbury			0.4		
20b	Shaftesbury			0.5		
24a	Wembley			2.4		
24b	Wembley			2.3		
25a	Pinto Creek	0.4				
25b	Pinto Creek	0.4				
26a	Flyingshot	0.6				
26b	Flyingshot	0.5				
32a	Gold Creek			2.6		
32b	Gold Creek			2.9		
35a	Jean Cote			0.4		
35b	Jean Cote			0.4		
36a	Guy	0.3				
36b	Guy	0.3				
39a	Bone Yard	0.9			0.2	
39b	Bone Yard	0.9			0.2	
63a	Girouxville 3				0.9	
63b	Girouxville 3				0.8	
63a	Camp			6.4		
63b	Camp			7.2		
2	Bay Tree	0.2	36.0	1.3	-	13-16-078-13 W6M
3	Forth Creek	0.2	-	0.4	-	04-13-082-07 W6M
5	Boone Creek	0.6	-	0.8	-	01-23-076-11 W6M
7	Steepprock Creek	0.6	-	0.4	-	09-35-072-13 W6M
9	Spirit River	0.5	-	1.1	-	08-12-079-07 W6M
11	Webber Creek	0.6	-	3.2	-	09-36-074-09 W6M
12	Hythe	0.8	-	1.1	-	14-36-072-11 W6M
14	Sylvester	0.3	-	0.4	-	08-06-069-12 W6M
16	Beaverlodge	-	-	-	-	15-36-071-10 W6M
17	Poplar	0.8	-	1.7	-	13-06-073-08 W6M
18	Saddle Hills	0.6	-	0.7	-	04-25-074-07 W6M
19	Wanham	0.5	-	0.3	-	16-22-077-03 W6M
20	Shaftesbury	0.3	-	0.4	-	04-03-082-23 W5M
21	Eaglesham	0.3	-	0.4	-	16-21-079-25 W5M
23	Bear Lake	0.9	-	1.6	-	15-31-072-06 W6M
24	Wembley	0.7	-	2.4	-	12-31-070-08 W6M
25	Pinto Creek	0.4	-	0.6	-	04-24-069-11 W6M
26	Flyingshot	0.6	-	2.4	-	15-36-070-07 W6M
27	Grande Prairie I	0.9	-	9.9	-	08-15-071-06 W6M
29	Smoky Heights	0.7	-	1.4	-	04-06-075-02 W6M
32	Gold Creek	0.4	-	2.7	-	06-33-067-05 W6M
34	Puskwaskau	0.3	-	0.4	-	15-35-074-25 W5M
35	Jean Cote	0.3	-	0.4	-	12-35-079-21 W5M
36	Guy	0.3	-	0.4	0.2	03-04-076-22 W5M
37	Crooked Creek	0.5	34.2	1.1	-	16-01-071-26 W5M
39	Clouston Creek	0.3	-	0.6	-	12-01-073-22 W5M
40	McLennan	0.4	-	0.5	-	03-29-077-19 W5M
42	Sunset House	0.4	-	0.3	-	05-32-070-19 W5M
44	Peavine	0.2	-	0.3	-	03-05-079-15 W5M
46	Little Smoky	0.2	-	2.1	-	12-01-065-21 W5M
47	Kinuso	0.2	35.1	0.6	-	12-10-073-10 W5M
J1	Plant	0.5	-	1.2	0.2	06-08-062-03 W6M
J2	14-8	0.5	-	3.0	0.3	07-08-062-03 W6M
J3	Bone Yard	0.9	-	1.3	0.2	14-08-062-03 W6M
J4	7-8 or 8-8 Pad	0.9	-	0.0	0.2	10-08-062-03 W6M
J5	Camp	0.6	-	6.8	0.2	11-08-062-03 W6M
63	Girouxville 3	-	-	-	0.9	14-02-077-23 W5M
64	Girouxville 4	-	-	-	0.4	04-08-077-22 W5M

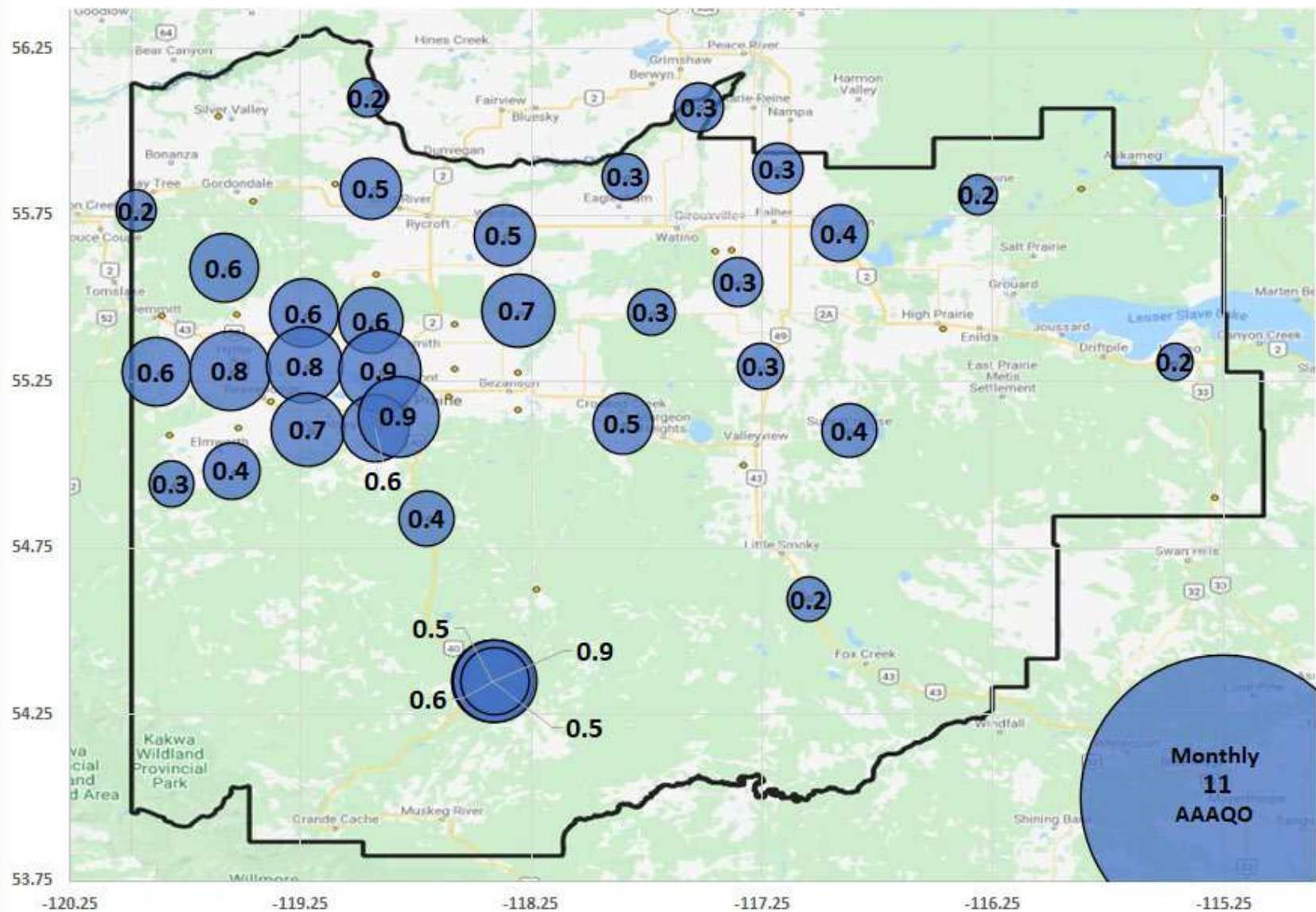
Passive Summary for February 2021

Stats	Sulphur Dioxide SO ₂	Ozone O ₃	Nitrogen Dioxide NO ₂	Hydrogen Sulphide H ₂ S
	ppb	ppb	ppb	ppb
Passive Summary for February 2021 (PAZA)				
Mean	0.5	35.1	1.5	0.3
Standard Deviation	0.2	0.9	1.9	0.2
Minimum	0.2	34.2	0.0	0.2
	Kinuso (#47)	Crooked Creek (#37)	7-8 or 8-8 Pad (#J4)	Bone Yard (#J3)
Maximum	0.9	36.0	9.9	0.9
	Bone Yard (#J3)	Bay Tree (#2)	Grande Prairie I (#27)	Girouxville 3 (#63)
Continuous and Passive Monitoring Comparison				
PAZA Beaverlodge Station	1.0	28.3	7.4	-
Beaverlodge Passive (#16)	-	-	-	-
PAZA Henry Pirker Station	0.9	22.1	15.7	0.3
Henry Pirker passive (#49)	0.9	-	9.9	-

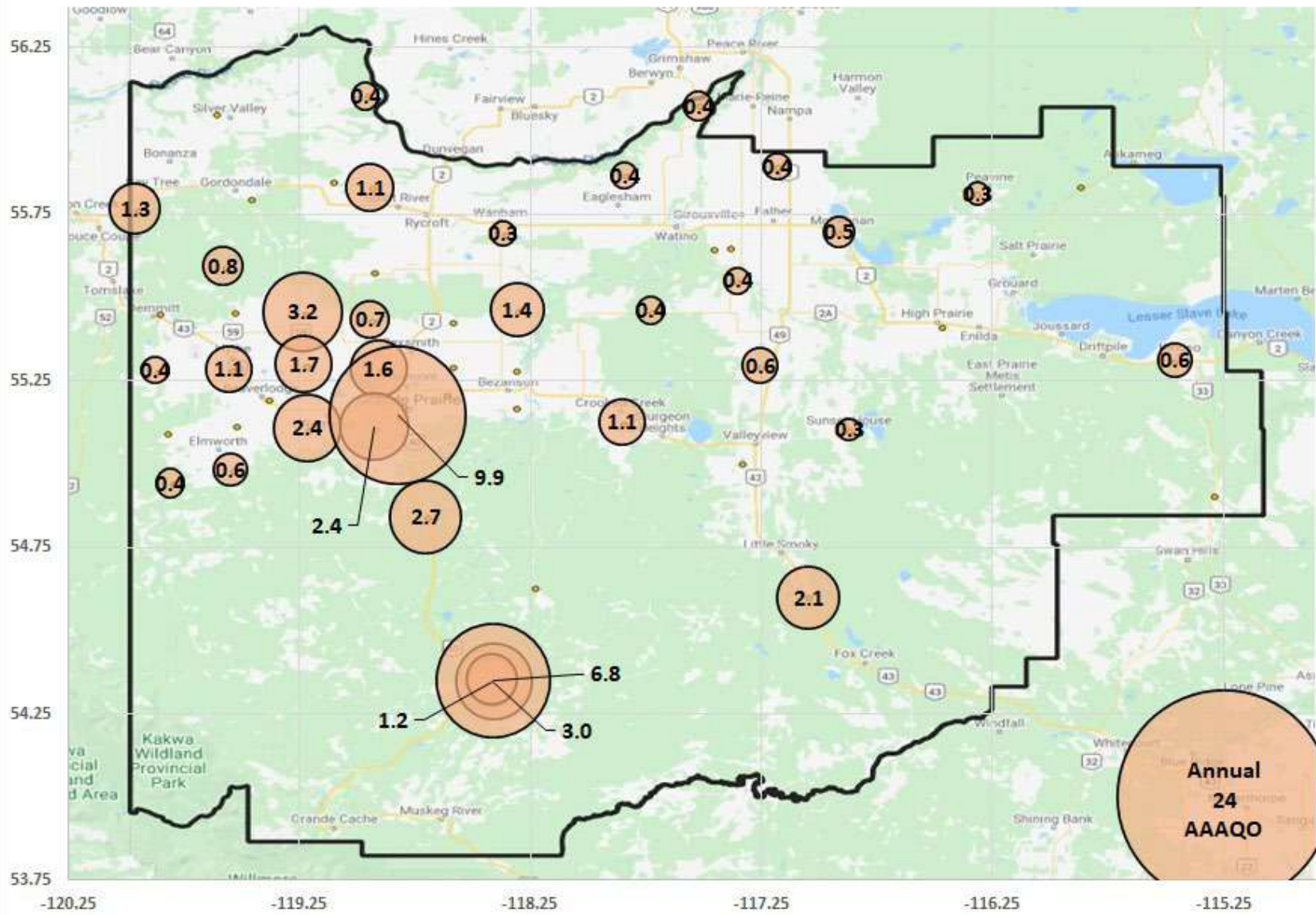




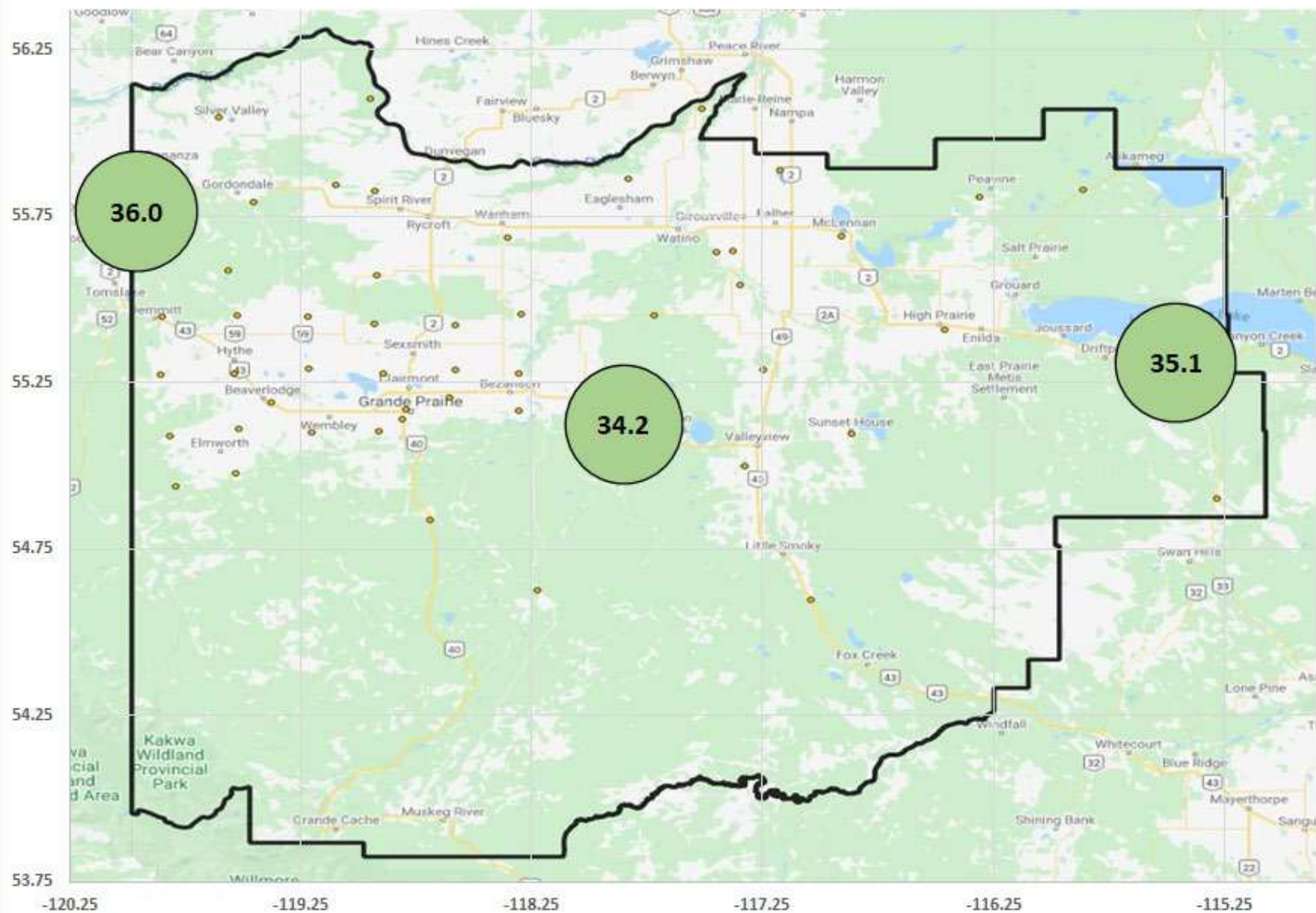
SO₂ Monthly Average (units in ppb)



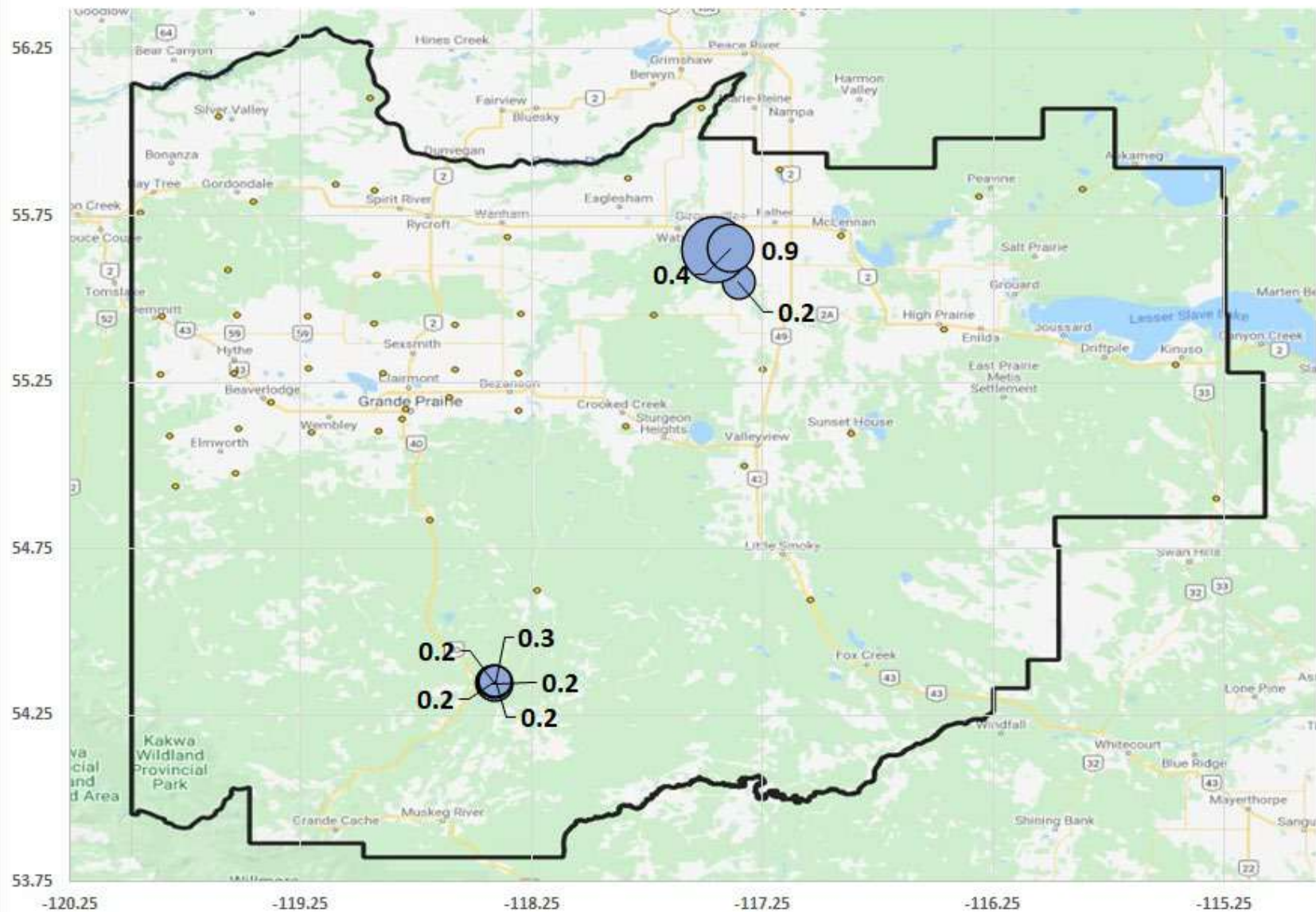
NO₂ Monthly Average (units in ppb)



O₃ Monthly Average (units in ppb)



H₂S Monthly Average (units in ppb)



End of Report



Peace Airshed Zone Association Ambient Air Monitoring Report

February 2021