Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

December 2022

January 31, 2023

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

Subject: **Peace Airshed Zone Association (PAZA)**
December 2022 Ambient Air Quality Monitoring Report

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of December 2022.

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

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

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

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

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

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

Continuous Monitoring:

Eight (8) Stations including Henry Pirker (Grande Prairie), Dunes, Smoky Heights, Beaverlodge, Valleyview, Donnelly, Poplar-Portable and Milner.
Detailed Summaries are included in the report

Calibration and Data Submission:

Monthly report, hourly data and calibration reports for December 2022 were submitted to the ETS data system.

Table A. PAZA members with Facility Operating Approvals

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

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

The follow is a summary of the concentrations in exceedance of AAAQG and AAAQO:

1-hr readings above the $PM_{2.5}$ AAAQG (80 µg/m³) was recorded as:

Reference Number	Site	Date	From MST	To MST	Hour average (µg/m³)	WS km/hr	WD degrees
408074	Milner	2022-12-26	21:00	22:00	100.7	1.0	340
408091	Milner	2022-12-27	04:00	05:00	83.8	0.6	269
408091	Milner	2022-12-27	08:00	09:00	101.7	1.0	250
408091	Milner	2022-12-27	09:00	10:00	89.4	0.7	275
408114	Milner	2022-12-28	14:00	15:00	108.5	3.9	245
408150	Milner	2022-12-29	06:00	07:00	117.3	0.5	23
408150	Milner	2022-12-29	10:00	11:00	98.6	1.0	264
408197	Henry Pirker	2022-12-31	22:00	23:00	86.3	3.0	298

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

Reference Number	Site	Date	Day average (µg/m³)	WS km/hr	WD degrees
408197	Milner	2022-12-29	33.4	0.8	286

Operational times less than 90 percent:

Due to extreme cold conditions in December the following had less than 90%:

Smokey Heights $PM_{2.5}$, 87.8%, reference 408011

Beaverlodge $PM_{2.5}$, 85.4%, reference 408009

Dunes $PM_{2.5}$, was reported (reference 408010), but uptime remained >90%, at 93.4%

Poplar CH_4/NMHC (under THC 55i) was removed Dec 12, but THC remained >90%

Air Incidents

None were reported

Deviations from Authorized Monitoring Methods

None were reported

Passive Monitoring

- 49 Stations throughout the PAZA zone
  - Passive sample analyses were performed by Bureau Veritas Laboratories
- There were 15 duplicates sampled in the month of December.
  - The duplicate H_2S at Girouxville 4 was not collected due to site being inaccessible.
- Six SO_2 duplicates located at High Prairie, Bay Tree, Duvernay 3, Peavine, Jayar1 Plant, Milner Wanyandie; RPD ranging from 0% to 67% (one fail at Wanyandie: 0.1, 0.2)
- One O_3 duplicate located at Kinuso; RPD 13% (no fails)
- Six NO_2 duplicates at Sylvester, Clairmont Lake, Gordondale, Wanham, Jayar2 14-8, Milner Bridge; RPD ranging from 9% to 38% (no fails)
- Three H_2S duplicates, Girouxville 4, Duvernay 3, Jayar5 Camp; RPD 6% to 9% (no fails)
  - The duplicate at Girouxville 4 was not collected with field note recorded as, “Unable to access station because road is not plowed out.”
- There were no exceedances of the AAAQOs for all monitored parameters at any of the passive monitoring stations during this month.

Dustfall Monitoring

- Five Stations collected Total Dustfall and Fixed Dustfall
- There was one duplicate sampled collected for each in the month of December
  - RPD ranged from 36% to 55%
    - The fixed dustfall at Powerline failed, with a reading of 5.7 mg/100cm²/30day and 10.0 mg/100cm²/30day
- Total dustfall ranged from 2.8 to 124.4 mg/100cm²/30day
- There were no readings above the AAAQG during the month

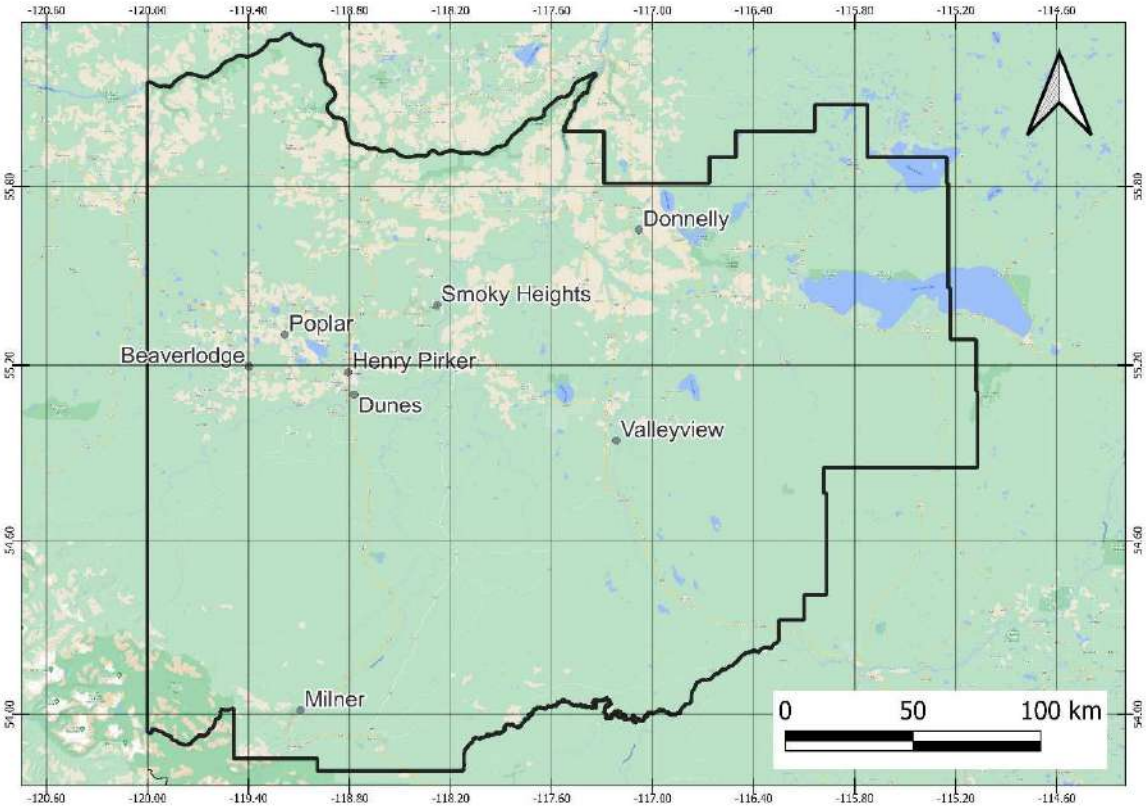
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements.

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

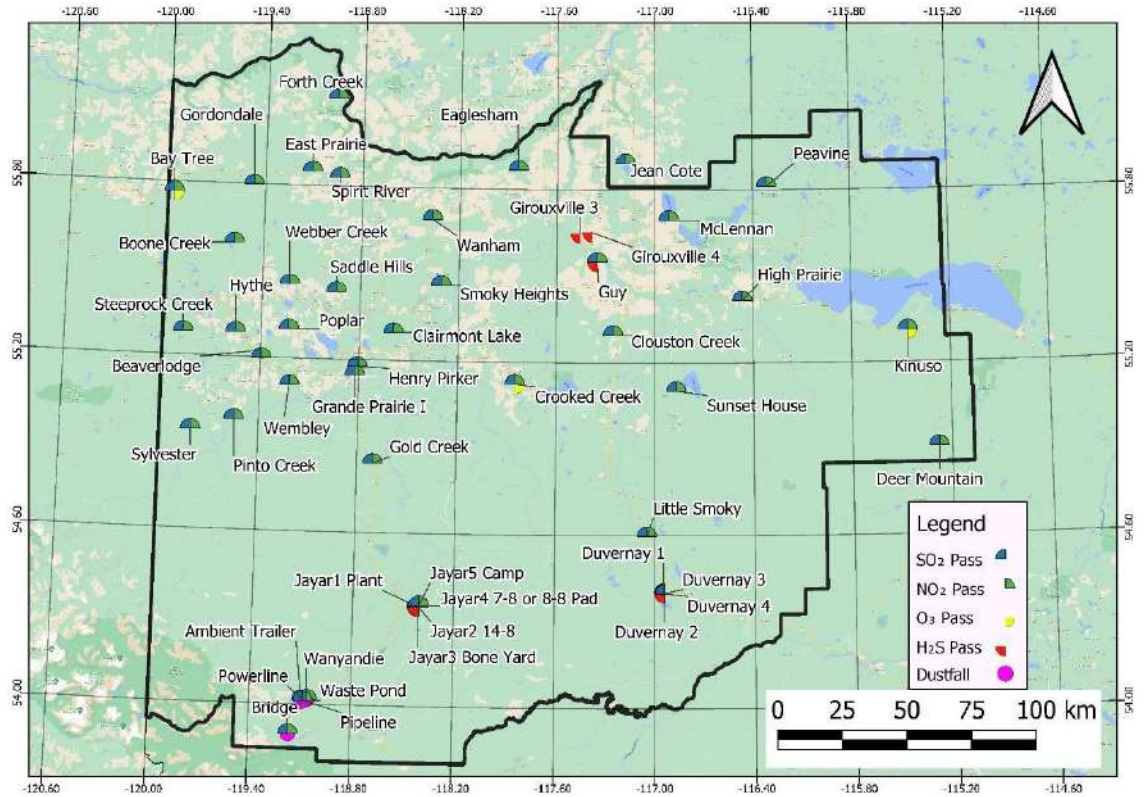
TABLE OF CONTENTS

1 DECEMBER MONTHLY STATION SUMMARIES 2
1.1 Beaverlodge Air Monitoring Station 2
1.2 Dunes Air Monitoring Station 2
1.3 Grande Prairie - Henry Pirker Air Monitoring Station 3
1.4 Smoky Heights Air Monitoring Station 3
1.5 Valleyview Air Monitoring Station 4
1.6 Donnelly Air Monitoring Station 4
1.7 Poplar Air Monitoring Station 4
1.8 Milner Air Monitoring Station 5
2 BEAVERLODGE CHARTS 6
3 DUNES CHARTS 16
4 GRANDE PRAIRIE - HENRY PIRKER CHARTS 24
5 SMOKY HEIGHTS CHARTS 38
6 VALLEYVIEW CHARTS 45
7 DONNELLY CHARTS 52
8 POPLAR (PORTABLE) CHARTS 58
9 MILNER CHARTS 70
10 CONCENTRATION SUMMARIES AND ROSES FOR PAZA 76
10.1 Air Quality Health Index (AQHI) Plots 77
10.2 Wind Roses 78
10.3 Carbon Monoxide (CO) Plots 78
10.4 Sulphur Dioxide (SO_2) Plots 79
10.5 Nitrogen Dioxide (NO_2) Plots 80
10.6 Ozone (O_3) Plots 81
10.7 Fine Particulate Matter ($PM_{2.5}$) Plots 82
10.8 Hydrogen Sulphide (H_2S) Plots 83
10.9 Total Reduced Sulphur (TRS) Plots 84
10.10 Total Hydrocarbon (THC) Plots 85
10.11 Meteorology Summary 86
11 PASSIVE MONITORING DATA 87
12 DUSTFALL MONITORING DATA 97
13 END OF REPORT 98

PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 December 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 - December 2022 Beaverlodge Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
NO (ppb)	3.2	0.0	94.5%	99.2%	61.8	-	Dec-20 11:00	16.3	-	Dec-22	-	-	-	-	Dec 09, 2022
NO_2 (ppb)	9.1	0.2	94.5%	99.2%	36.1	159	Dec-21 00:00	26.6	-	Dec-22	0	-	-	-	Dec 09, 2022
NO_x (ppb)	12.3	0.2	94.5%	99.2%	95.9	-	Dec-20 11:00	42.9	-	Dec-22	-	-	-	-	Dec 09, 2022
O_3 (ppb)	21.0	0.0	94.6%	99.2%	40.3	76	Dec-16 02:00	36.2	-	Dec-04	0	-	-	-	Dec 09, 2022
$PM_{2.5}$ (µg/m³)	4.6	0.2	84.8%	85.4%	15.7	80	Dec-26 21:00	9.7	29	Dec-26	0	-	0	-	Dec 06, 2022
SO_2 (ppb)	1.9	0.0	94.5%	99.2%	84.0	172	Dec-26 20:00	14.7	48	Dec-26	0	-	0	0	Dec 06, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-16.9	-38.9	99.2%	99.2%	3.2
RH (%)	73.6	52.3	99.2%	99.2%	96.0
WS (km/hr)	7.4	0.0	99.2%	99.2%	31.6
WD (deg)	320	0.3	99.2%	99.2%	359.9

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

Average Wind Direction	320	NW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	DAS failure Dec 1 (6hrs)
O_3	Thermo	49iQ	DAS failure Dec 1 (6hrs)
$PM_{2.5}$	Sharp	5030	DAS failure Dec 1 (6hrs); Dec 1 Sharp ran out of tape (8hrs removed); Dec 8-9 filter tape broke (19hrs removed, 2hrs maintenance); Dec 19-23 Sharp froze (73 hrs removed), resulted in <90% uptime
SO_2	Thermo	43i-TLE	DAS failure Dec 1 (6hrs)
Met Equip	MetOne	50.5	DAS failure Dec 1 (6hrs)

1.2 Dunes Air Monitoring Station

PAZA - December 2022 Dunes Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
$PM_{2.5}$ (µg/m³)	7.0	0.0	93.3%	93.4%	52.1	80	Dec-19 23:00	18.0	29	Dec-19	0	-	0	-	Dec-19-2022
SO_2 (ppb)	0.8	0.0	94.9%	99.9%	9.6	172	Dec-14 04:00	2.0	48	Dec-25	0	-	0	0	Dec-19-2022
TRS (ppb)	0.5	0.0	95.3%	100.0%	3.5	-	Dec-08 02:00	1.2	-	Dec-09	-	-	-	-	Dec-19-2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-18.7	-39.2	100.0%	100.0%	2.4
RH (%)	74.2	41.3	100.0%	100.0%	89.4
WS (km/hr)	2.5	0.1	100.0%	100.0%	12.3
WD (deg)	318	0.0	100.0%	100.0%	359.4

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

Average Wind Direction	318	NW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Thermo	TEOM AB	Dec 20-22 analyzer flatlined due to extreme cold (49hrs removed)
SO_2	TECO	43i	Due to internal temperature drop Dec 11 span removed and a manual span was run later in day (1hr)
TRS	TECO	43C	No Operational issues noted
Met Equip	Gil/RMYoung	MetPak/RMY86004	Temperature probe flatlines at -39.2C

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - December 2022 Henry Pirker Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	8-hour / 24-hour Max	8-hour / 24-hour Objective	8-hour / 24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
NO (ppb)	20.3	0.0	95.0%	100.0%	181.1	-	Dec-15 21:00	51.8	-	Dec-09	-	-	-	-	Dec 01, 2022
NO_2 (ppb)	20.1	1.3	95.0%	100.0%	62.9	159	Dec-16 10:00	35.6	-	Dec-09	0	-	-	-	Dec 01, 2022
NO_x (ppb)	40.7	1.6	95.0%	100.0%	236.6	-	Dec-15 21:00	87.8	-	Dec-09	-	-	-	-	Dec 01, 2022
O_3 (ppb)	12.0	0.0	95.0%	100.0%	35.3	76	Dec-04 04:00	31.7	-	Dec-04	0	-	-	-	Dec 02, 2022
$PM_{2.5}$ (µg/m³)	9.6	0.6	99.9%	100.0%	86.3	80	Dec-31 23:00	18.4	29	Dec-31	1	-	0	-	Dec 05, 2022
SO_2 (ppb)	0.9	0.0	95.3%	100.0%	18.3	172	Dec-21 15:00	3.4	48	Dec-21	0	-	0	0	Dec 01, 2022
H_2S (ppb)	0.5	0.0	95.3%	100.0%	2.3	10	Dec-31 23:00	1.3	3	Dec-30	0	-	0	-	Dec 05, 2022
CH_4 (ppm)	2.4	2.0	95.0%	100.0%	7.8	-	Dec-09 22:00	3.0	-	Dec-22	-	-	-	-	Dec 02, 2022
THC (ppm)	2.5	2.0	95.0%	100.0%	8.7	-	Dec-09 22:00	3.5	-	Dec-31	-	-	-	-	Dec 02, 2022
NMHC (ppm)	0.1	0.0	95.0%	100.0%	0.9	-	Dec-09 22:00	0.6	-	Dec-31	-	-	-	-	Dec 02, 2022
CO (ppm)	0.3	0.1	95.3%	100.0%	2.3	13	Dec-16 09:00	0.6	5	Dec-09	0	0	-	-	Dec 02, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-17.8	-39.6	100.0%	100.0%	3.3
RH (%)	65.4	42.7	100.0%	100.0%	81.2
SR (W/m²)	12.3	0.0	100.0%	100.0%	186.3
WS (km/hr)	4.9	0.1	98.1%	98.1%	25.0
WD (deg)	297	0.4	98.1%	98.1%	359.6

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

Average Wind Direction	297	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42IQ	No Operational issues noted
O_3	TECO	49I	No Operational issues noted
$PM_{2.5}$	API	T640	No Operational issues noted; one reading above the AAAQG, Dec 31
SO_2	TEI	43I-TLE	No Operational issues noted
H_2S	TEI	450I	No Operational issues noted
$THC/CH_4/NMHC$	TEI	55i	No Operational issues noted
CO	TEI	48I-TLE	No Operational issues noted
Met Equip	MetOne	50.5	Dec 20-22 several periods of winds effected by extreme cold; 14hrs removed

1.4 Smoky Heights Air Monitoring Station

PAZA - December 2022 Smoky Heights Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
$PM_{2.5}$ (µg/m³)	5.3	0.0	87.1%	87.8%	33.3	80	Dec-13 01:00	15.3	29	Dec-13	0	-	0	-	Dec 12, 2022
SO_2 (ppb)	0.6	0.0	95.3%	100.0%	8.0	172	Dec-02 17:00	1.8	48	Dec-02	0	-	0	0	Dec 12, 2022
TRS (ppb)	0.3	0.0	95.3%	100.0%	1.9	-	Dec-30 15:00	0.8	-	Dec-30	-	-	-	-	Dec 12, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-18.9	-43.1	100.0%	100.0%	-0.9
WS (km/hr)	9.9	0.3	100.0%	100.0%	43.0
WD (deg)	276	0.8	100.0%	100.0%	358.8

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

Average Wind Direction	276	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Sharp	5030	Dec 10 frozen Sharp (8hrs, 1hr maintenance); Dec 19-23 frozen Sharp (82 hrs removed), <90% uptime
SO_2	TECO	43i	No Operational issues noted
TRS	TEI	43I APSAA	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.5 Valleyview Air Monitoring Station

PAZA - December 2022 Valleyview Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
SO_2 (ppb)	0.2	0.0	95.3%	100.0%	3.5	172	Dec-07 01:00	0.6	48	Dec-28	0	-	0	0	Dec 19, 2022
H_2S (ppb)	0.2	0.0	91.0%	95.7%	1.0	10	Dec-30 01:00	0.5	3	Dec-30	0	-	0	-	Dec 19, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-18.8	-44.1	100.0%	100.0%	-0.5
RH (%)	78.7	44.9	100.0%	100.0%	94.0
WS (km/hr)	3.1	0.0	100.0%	100.0%	15.1
WD (deg)	277	0.7	100.0%	100.0%	359.9

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

Average Wind Direction	277	NW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	TEI	43i-APSCB	No Operational issues noted
H_2S	TEI	450i-APHAA / 43C	Due to elevated span, resulted in removal of 450i with 43C, 14hrs maintenance and 18hrs removed
Met Equip	RMYoung	RMY86004	No Operational issues noted

1.6 Donnelly Air Monitoring Station

PAZA - December 2022 Donnelly Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
SO_2 (ppb)	0.3	0.0	94.9%	99.6%	11.2	172	Dec-14 15:00	1.8	48	Dec-14	0	-	0	0	Dec 16, 2022
H_2S (ppb)	0.1	0.0	94.9%	99.6%	0.4	10	Dec-13 11:00	0.2	3	Dec-28	0	-	0	-	Dec 16, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-18.1	-38.9	99.6%	99.6%	-1.4
WS (km/hr)	7.7	0.0	99.6%	99.6%	22.8
WD (deg)	222	0.0	99.6%	99.6%	359.9

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

Average Wind Direction	222	SW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	Teco	43i	Dec 6 power failure (3hrs)
H2S	Thermo	45C	Dec 6 power failure (3hrs)
Met Equip	RMYoung	5103	Dec 6 power failure (3hrs)

1.7 Poplar Air Monitoring Station

PAZA - December 2022 Poplar Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
NO (ppb)	2.2	0.0	94.6%	100.0%	23.9	-	Dec-29 13:00	8.9	-	Dec-29	-	-	-	-	Dec 14, 2022
NO_2 (ppb)	8.6	0.0	94.6%	100.0%	29.8	159	Dec-12 22:00	18.8	-	Dec-30	0	-	-	-	Dec 14, 2022
NO_x (ppb)	10.9	0.0	94.6%	100.0%	48.8	-	Dec-29 17:00	26.6	-	Dec-29	-	-	-	-	Dec 14, 2022
O_3 (ppb)	19.9	0.2	95.3%	100.0%	39.5	76	Dec-04 02:00	36.8	-	Dec-04	0	-	-	-	Dec 14, 2022
$PM_{2.5}$ (µg/m³)	3.2	0.0	99.5%	99.7%	25.3	80	Dec-22 15:00	9.3	29	Dec-28	0	-	0	-	Dec 13, 2022
SO_2 (ppb)	1.4	0.0	95.0%	100.0%	7.4	172	Dec-02 14:00	3.4	48	Dec-22	0	-	0	0	Dec 14, 2022
TRS (ppb)	0.7	0.1	95.3%	100.0%	7.7	-	Dec-28 21:00	1.8	-	Dec-21	-	-	-	-	Dec 13, 2022
CH4 (ppm)	removed Dec 12														
THC (ppm)	2.6	1.9	91.4%	96.2%	8.4	-	Dec-22 00:00	4.1	-	Dec-22	-	-	-	-	Dec 12, 2022
NMHC (ppm)	removed Dec 12														

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-18.8	-40.7	100.0%	100.0%	1.9
WS (km/hr)	9.8	0.1	98.3%	98.3%	43.9
WD (deg)	302	0.1	98.3%	98.3%	359.3

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

Average Wind Direction	302	WNW

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	Periods of data in negative drift (1hr removed); Dec 22 maintenance to replace filter (1hr)
SO_2	TEI	43I	No Operational issues noted
TRS	TEI	43I	No Operational issues noted
THC	TEI	55i / 51Ii-LT	Dec 12 removed 55i, 51Ii-LT installed Dec 13; THC (17hrs no service, 11hrs maint.); CH4, NMHC not in service
Met Equip	MetOne	50.5	Dec 27 + Dec 31, frozen wind head (13hrs removed)

1.8 Milner Air Monitoring Station

PAZA - December 2022 Milner Station Report

Parameter	December Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
NO (ppb)	3.6	0.0	95.0%	100.0%	51.1	-	Dec-02 00:00	14.4	-	Dec-25	-	-	-	-	Dec 15, 2022
NO_2 (ppb)	8.9	0.1	95.0%	100.0%	38.3	159	Dec-23 02:00	19.2	-	Dec-23	0	-	-	-	Dec 15, 2022
NO_x (ppb)	12.5	0.0	95.0%	100.0%	80.2	-	Dec-23 02:00	28.4	-	Dec-19	-	-	-	-	Dec 15, 2022
$PM_{2.5}$ (µg/m³)	6.7	0.0	99.1%	99.2%	117.3	80	Dec-29 07:00	30.6	29	Dec-29	7	-	1	-	Dec 15, 2022

	Average	Minimum	Valid	Operational	Maximum
WS (km/hr)	6.0	0.0	100.0%	100.0%	35.3
WD (deg)	273	2.1	100.0%	100.0%	359.5

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

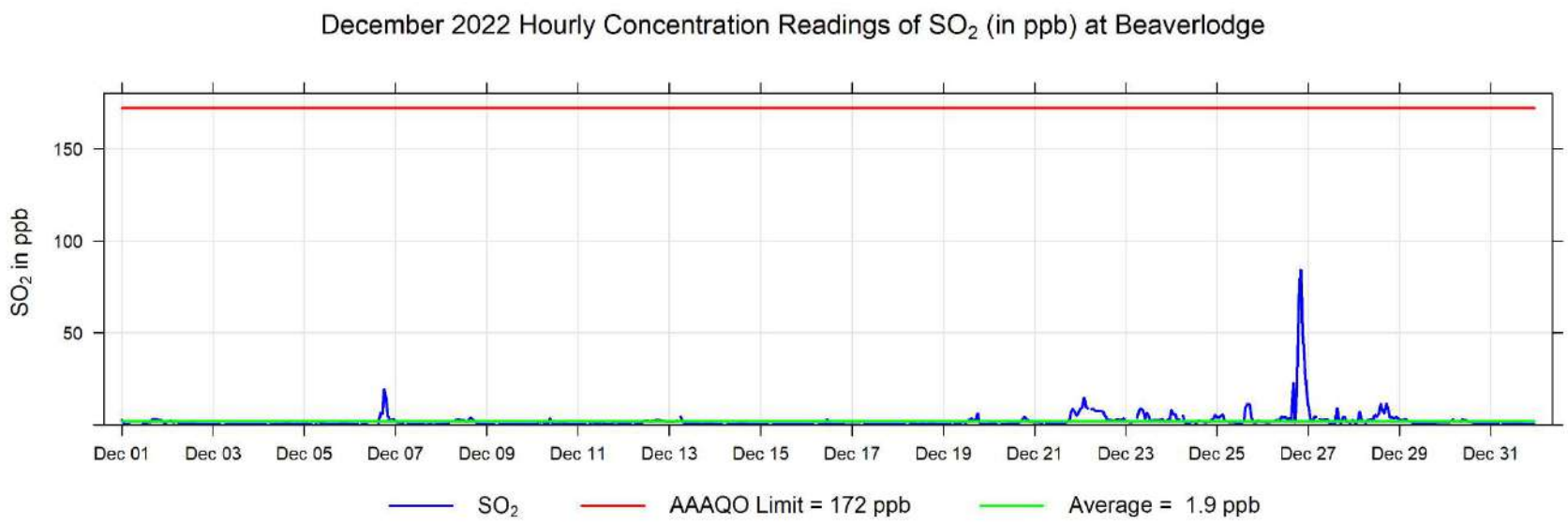
Average Wind Direction	273	W

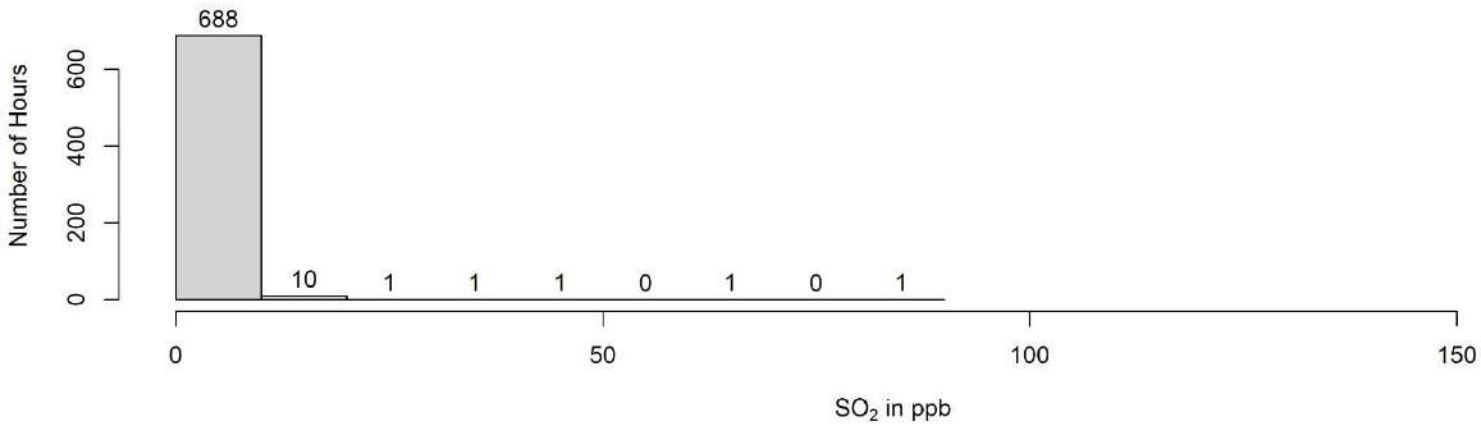
Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	No Operational issues noted
$PM_{2.5}$	TEOM	AB	Excessive drifting removed (6hrs); 7hrs >AAAQG; Dec 29>AAAQO
Met Equip	MetOne	50.5	No Operational issues noted

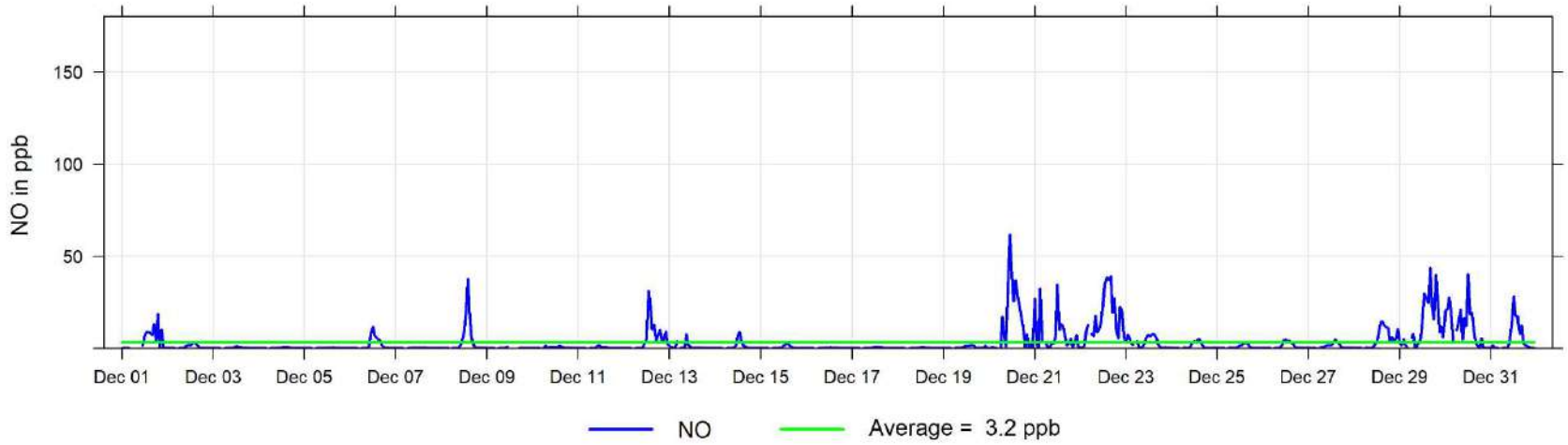
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

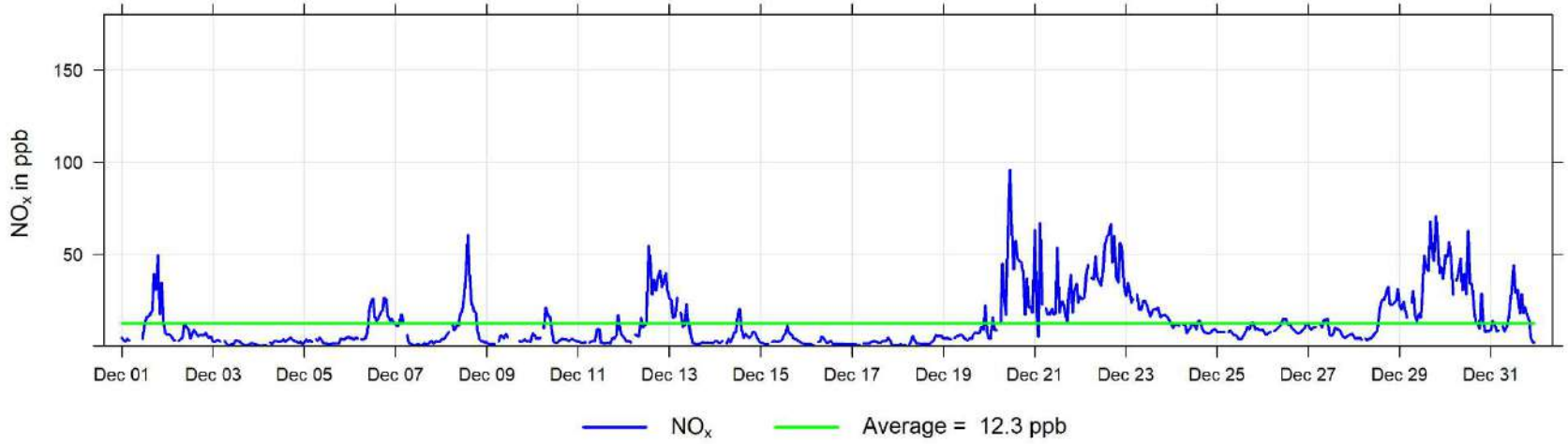

December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Beaverlodge
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 1.9 ppb

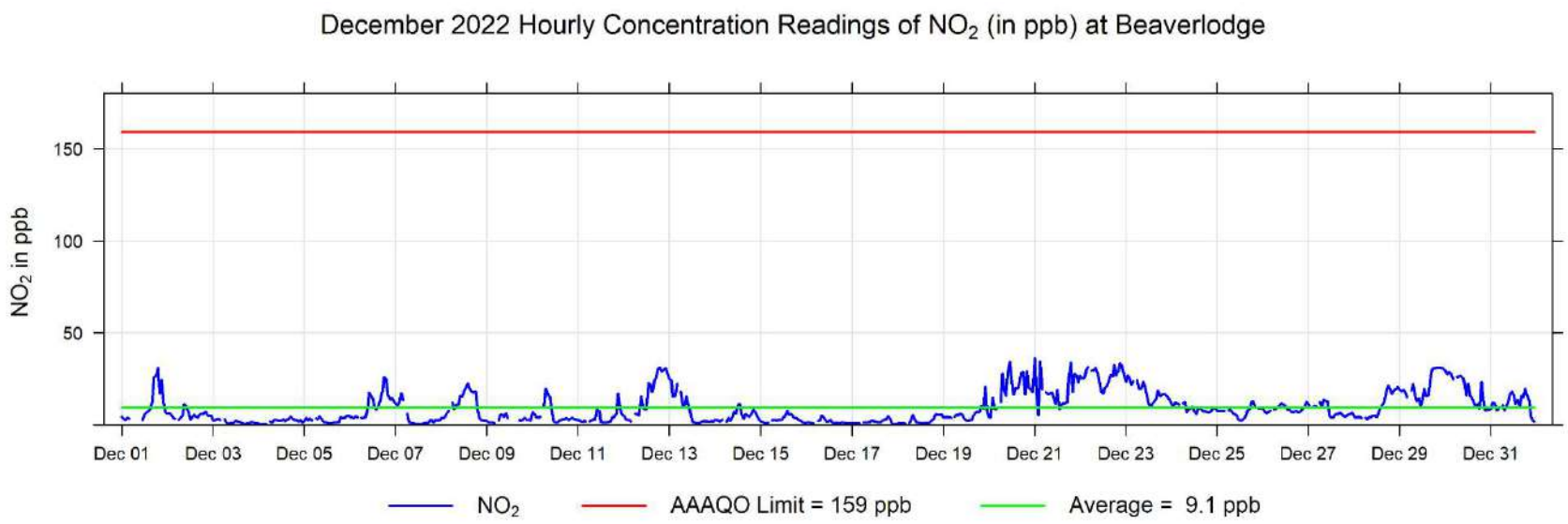

Number of Hours
0
200
400
600
688
10
1
1
1
0
1
0
1
0
50
100
150
SO_2 in ppb

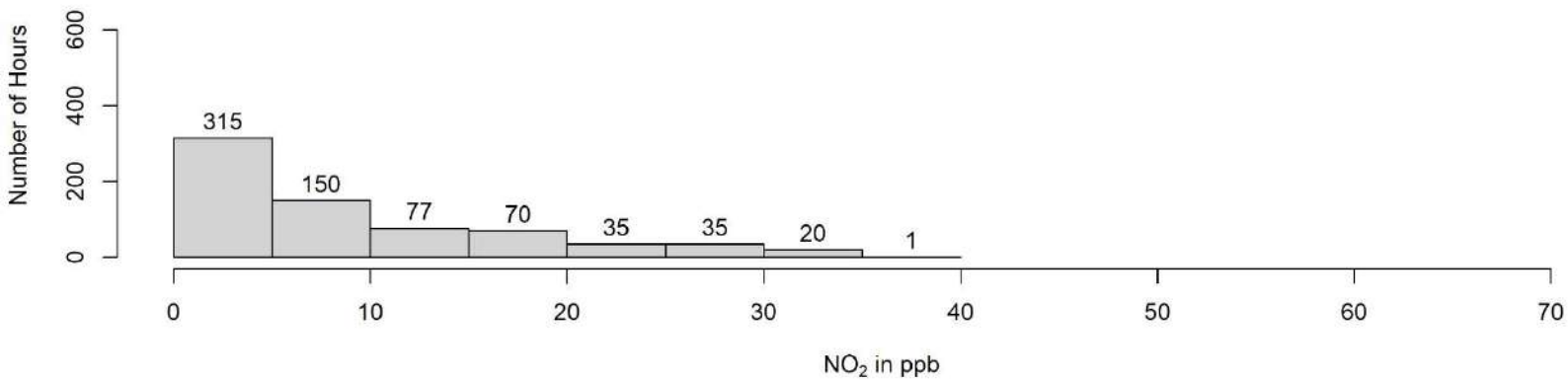
December 2022 Hourly Concentration Readings of NO (in ppb) at Beaverlodge

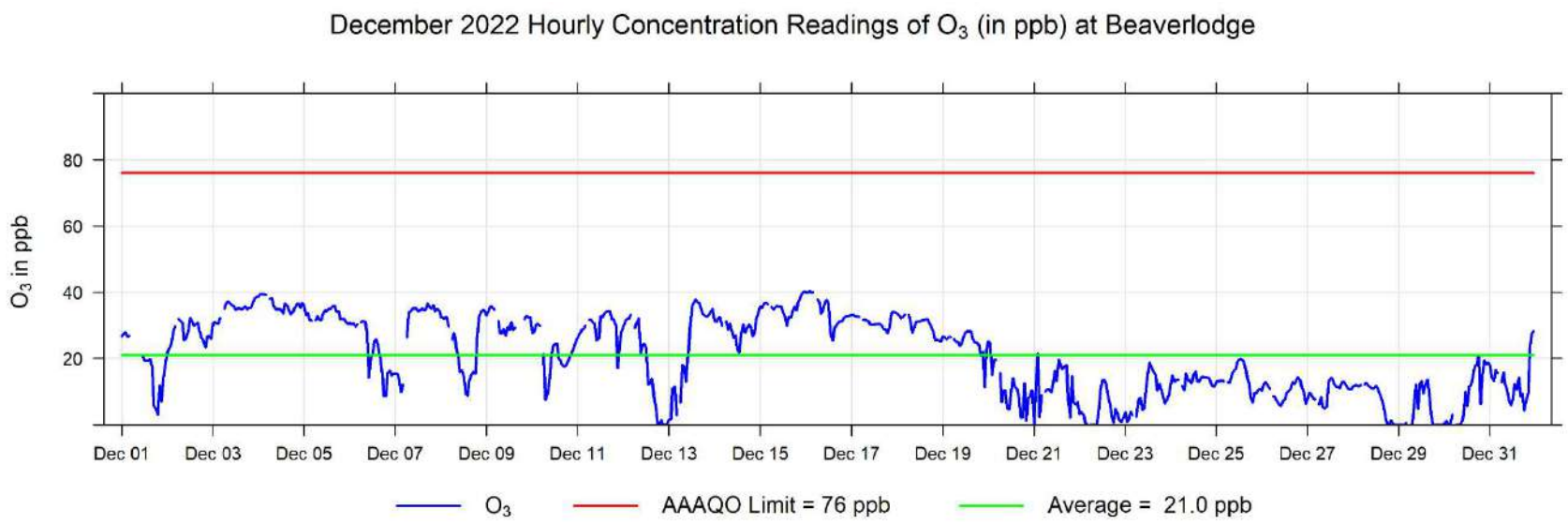


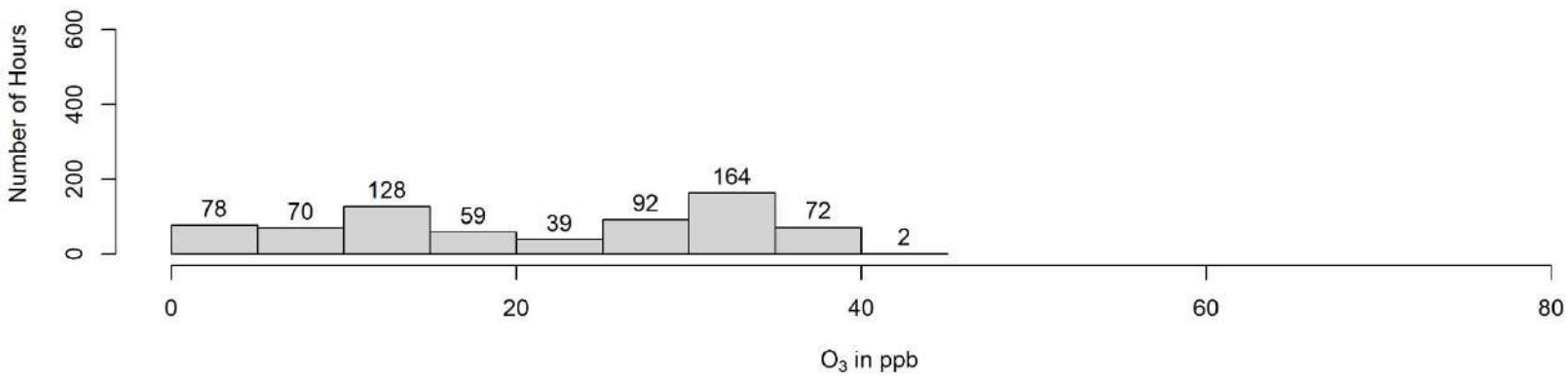
December 2022 Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge

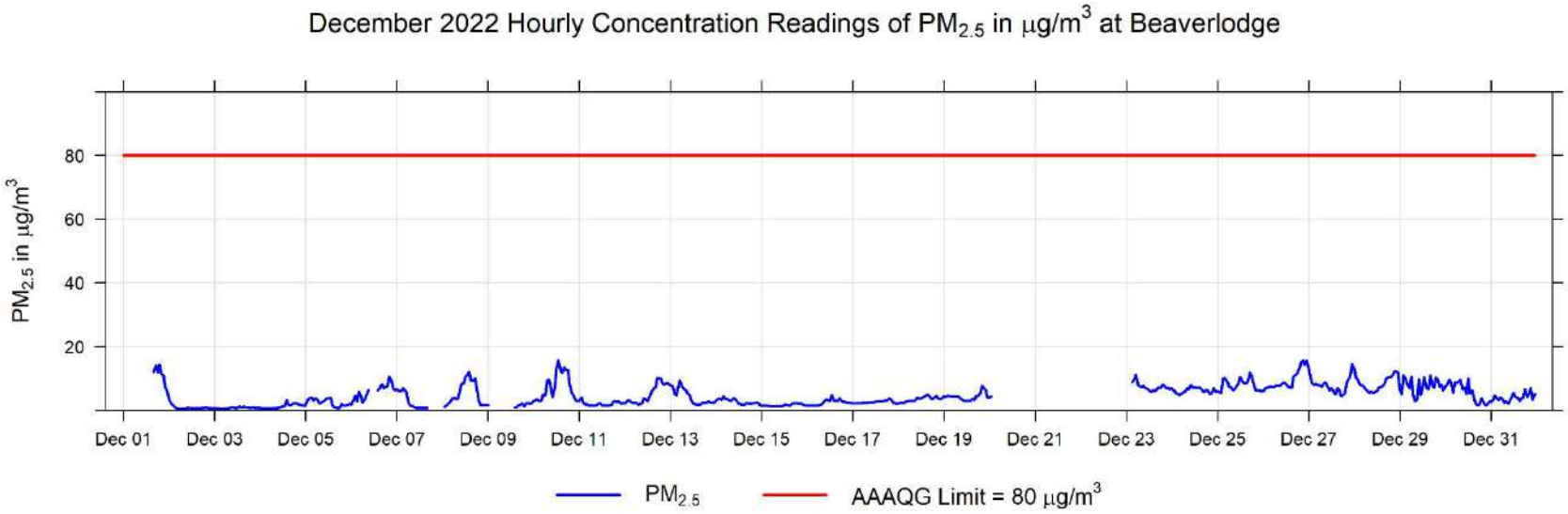


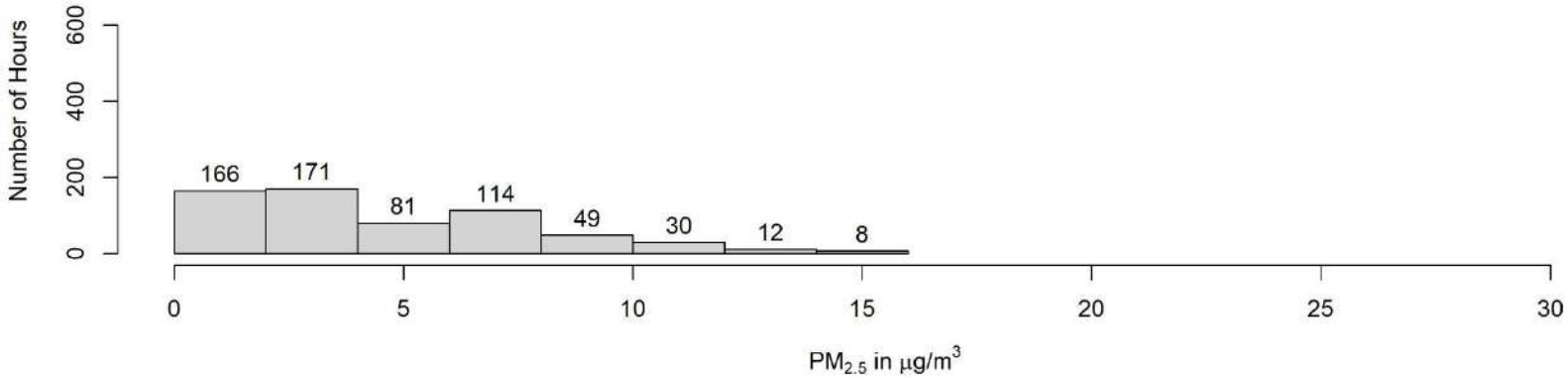

December 2022 Hourly Concentration Readings of NO_2 (in ppb) at Beaverlodge
NO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NO_2
AAAQO Limit = 159 ppb
Average = 9.1 ppb


Number of Hours
0
200
400
600
315
150
77
70
35
35
20
1
0
10
20
30
40
50
60
70
NO_2 in ppb

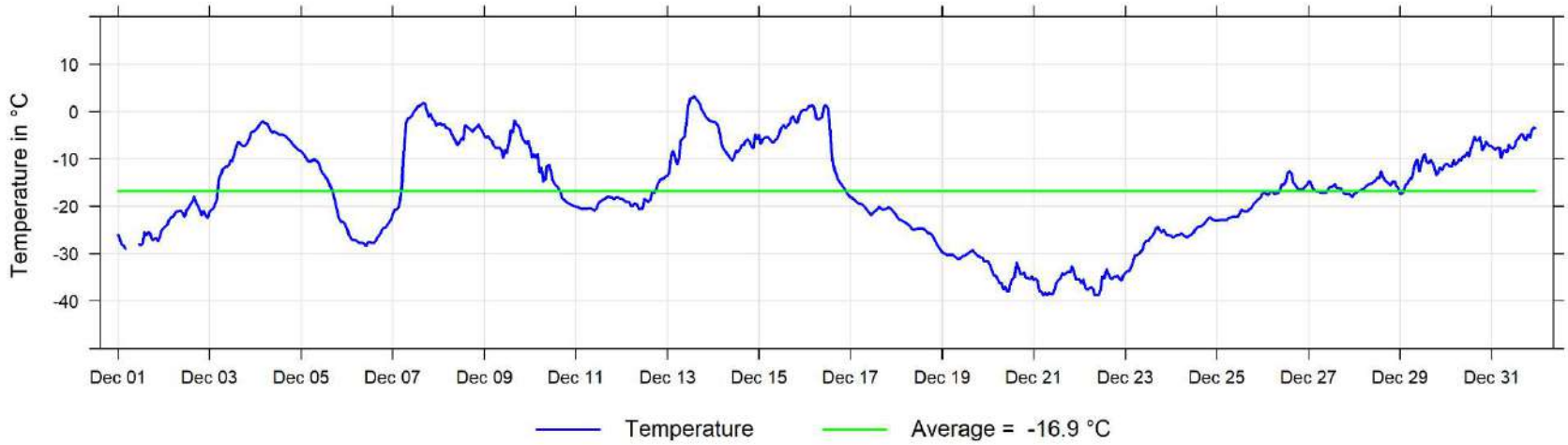

December 2022 Hourly Concentration Readings of O_3 (in ppb) at Beaverlodge
O_3 in ppb
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
O_3
AAAQO Limit = 76 ppb
Average = 21.0 ppb


Number of Hours
0
200
400
600
78
70
128
59
39
92
164
72
2
0
20
40
60
80
O_3 in ppb

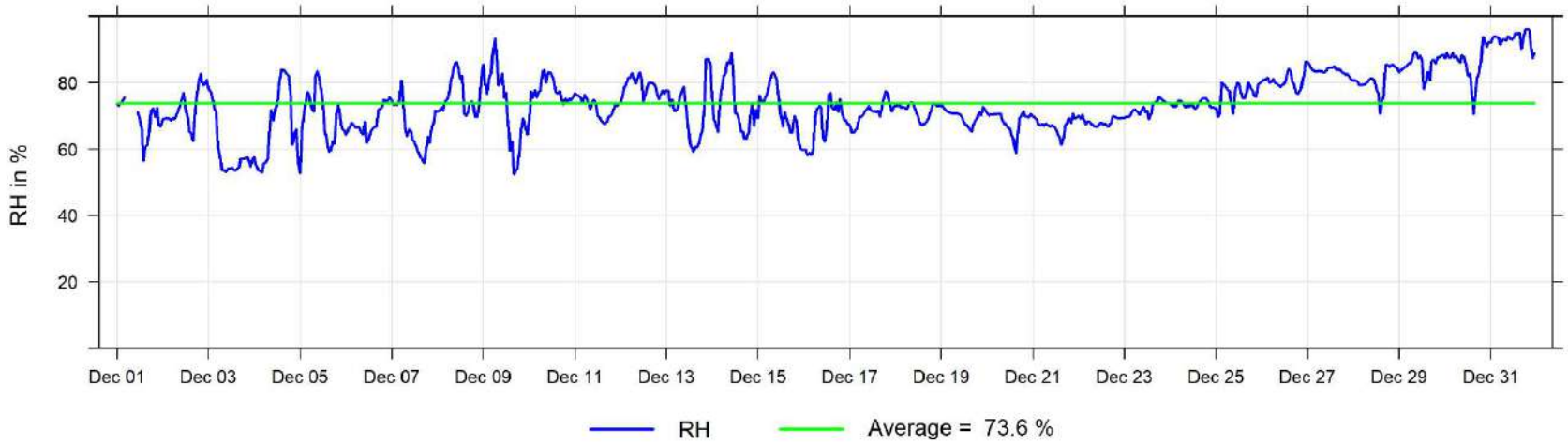

December 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Beaverlodge
PM2.5 in µg/m3
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 µg/m3

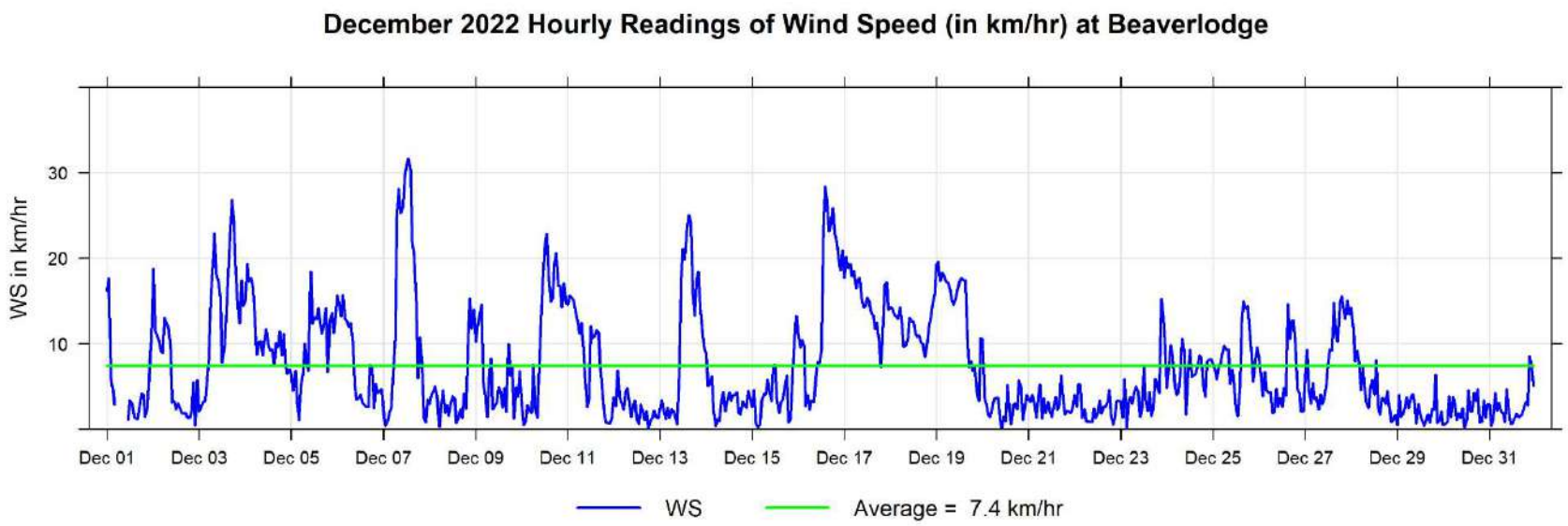

Number of Hours
0
200
400
600
166
171
81
114
49
30
12
8
0
5
10
15
20
25
30
PM2.5 in µg/m3

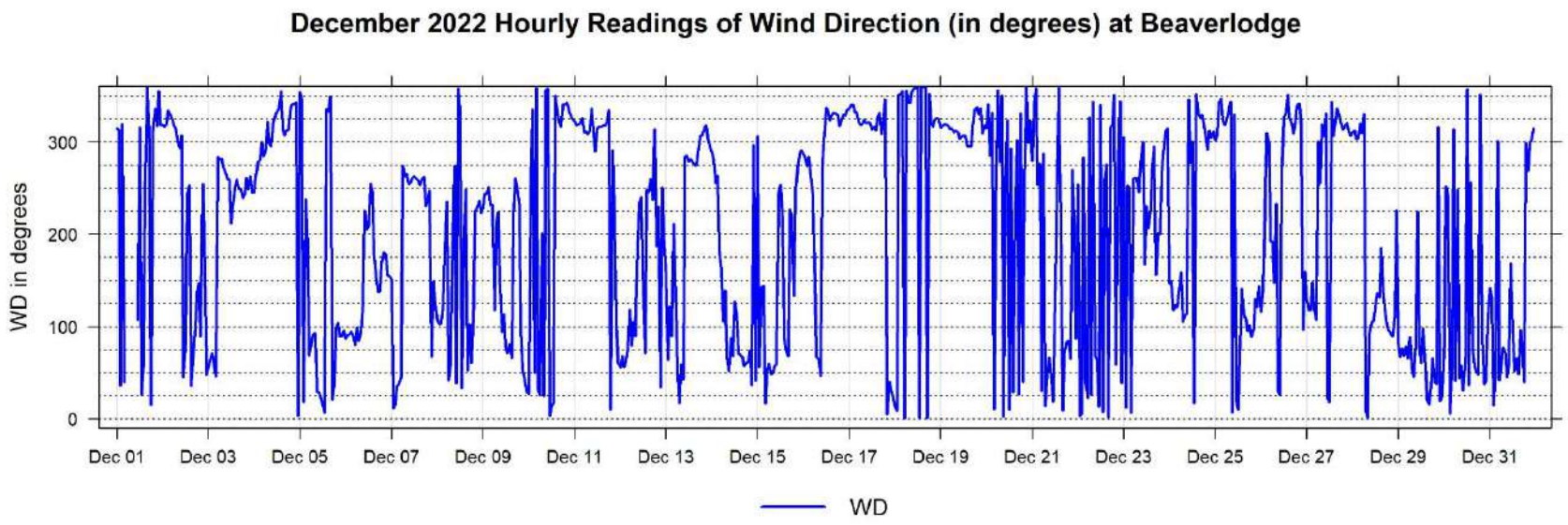
December 2022 Hourly Temperature Readings (in °C) at Beaverlodge

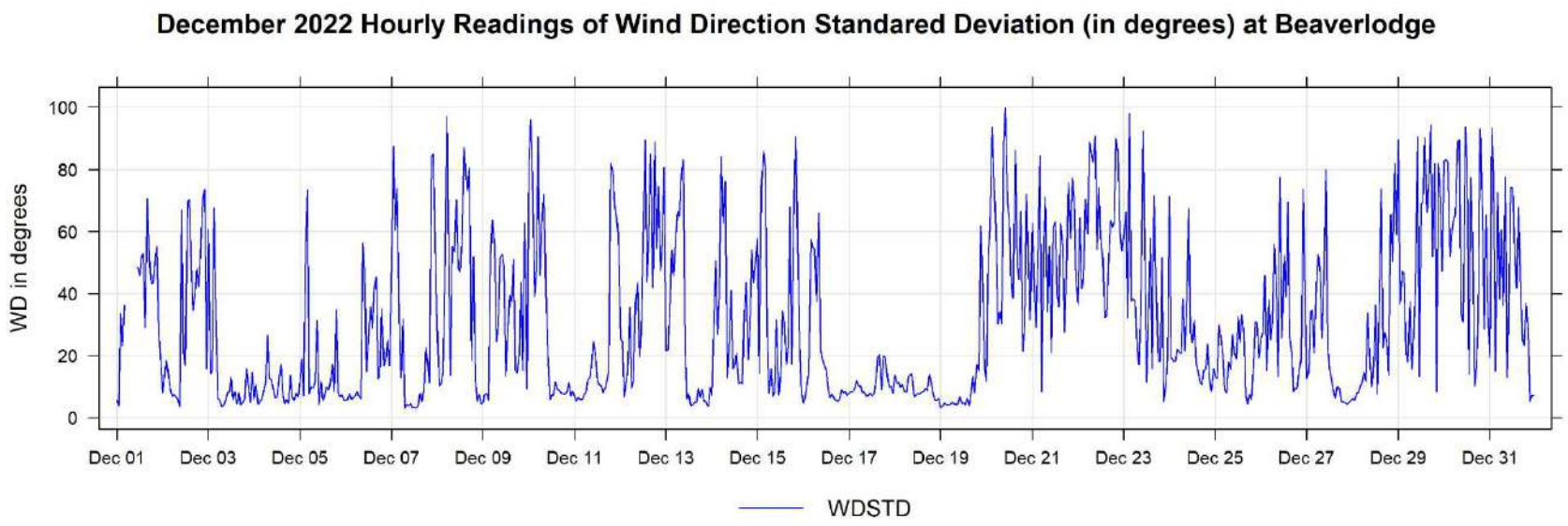


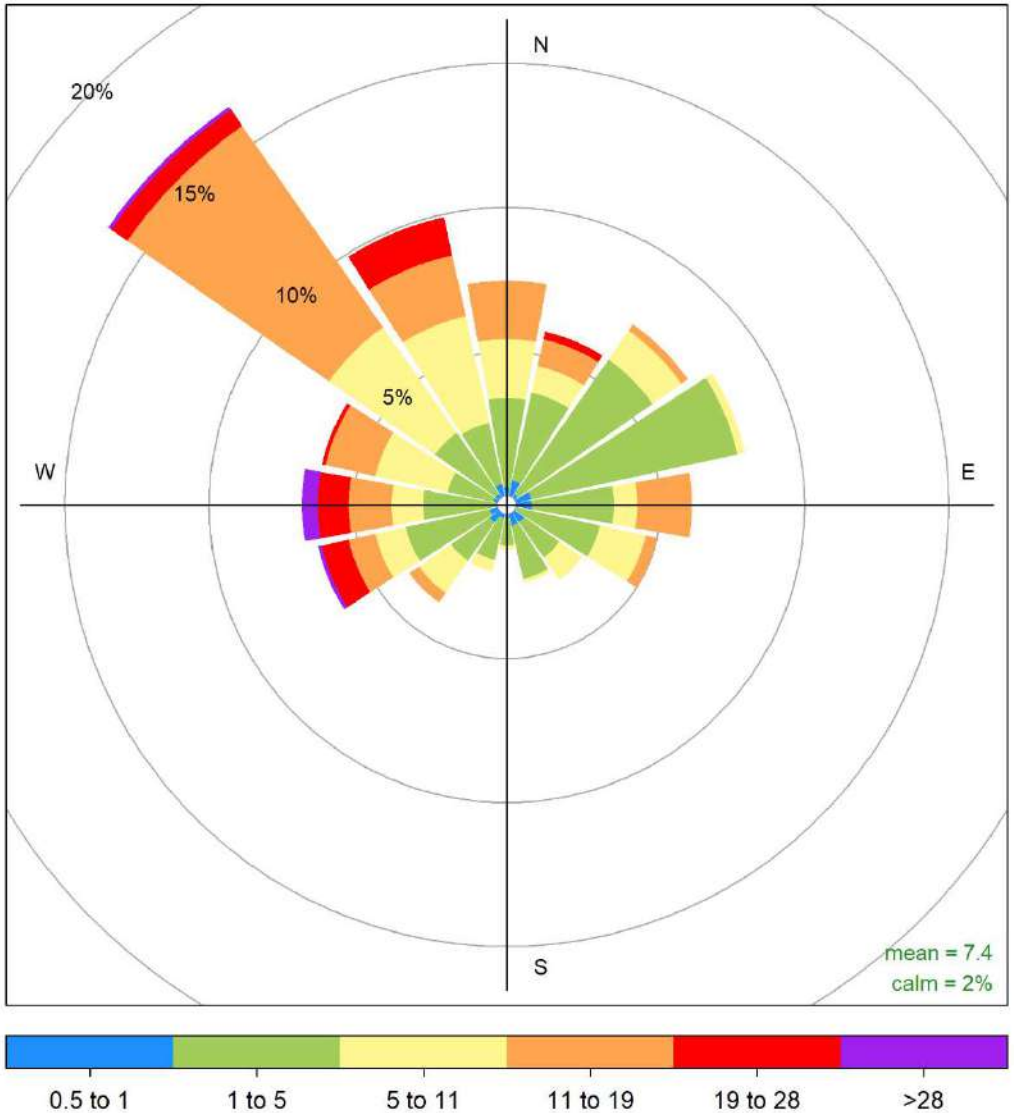
December 2022 Hourly Readings of Relative Humidity (in %) at Beaverlodge




December 2022 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge
WS in km/hr
30
20
10
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WS
Average = 7.4 km/hr


December 2022 Hourly Readings of Wind Direction (in degrees) at Beaverlodge
WD in degrees
300
200
100
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Beaverlodge
WD in degrees
100
80
60
40
20
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

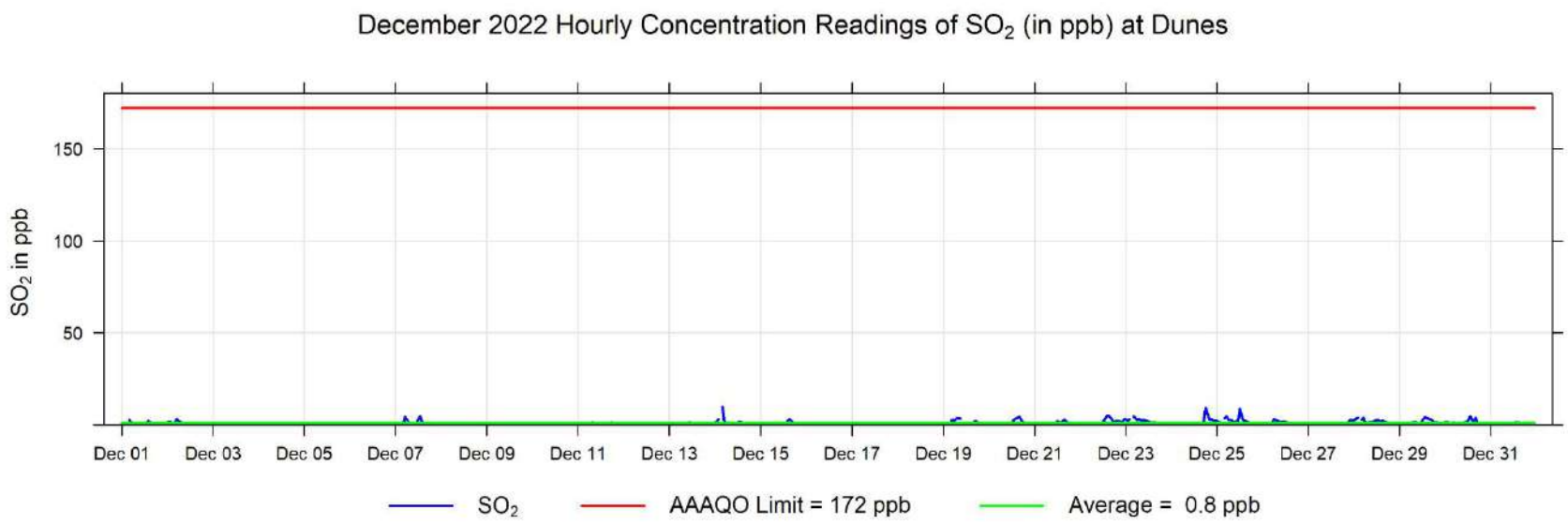


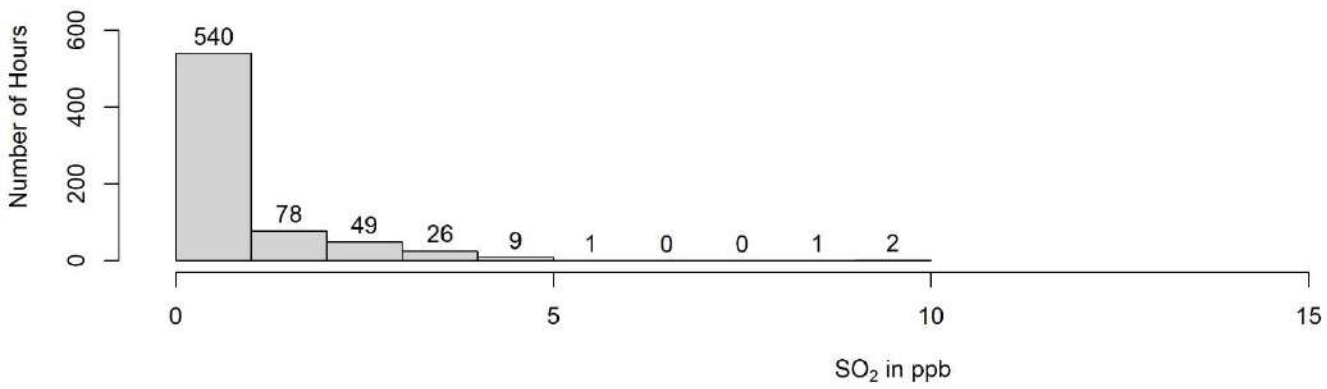
Beaverlodge December 2022 Wind Rose, wind speed in km/hr

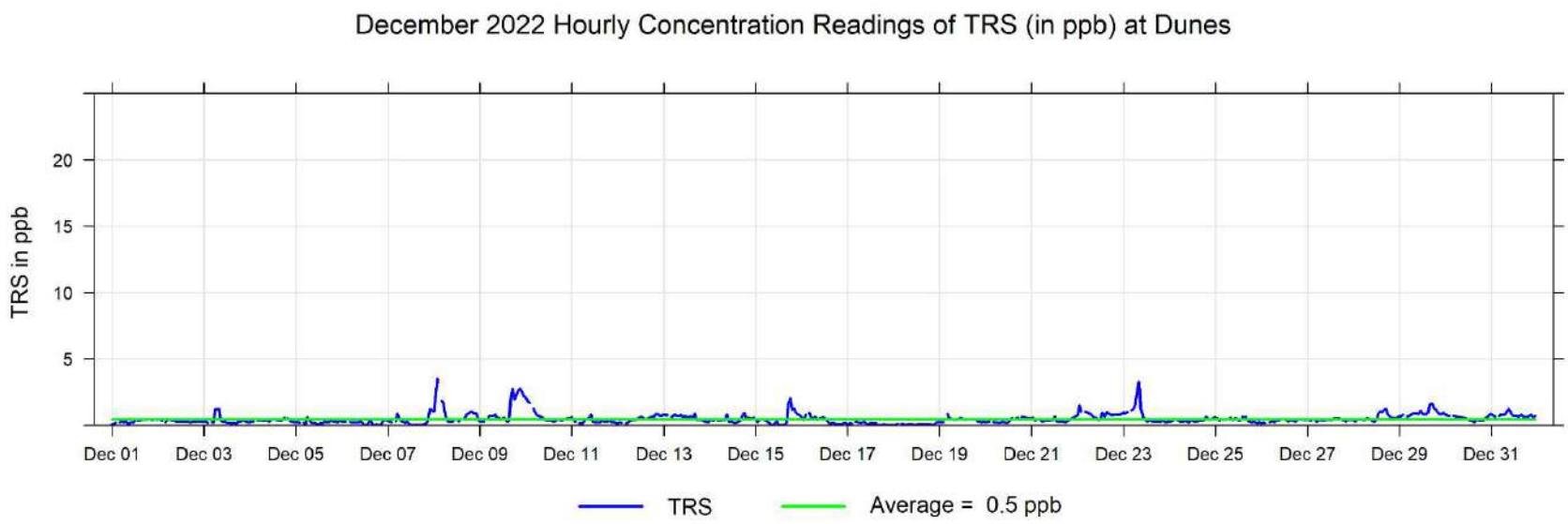
Frequency of counts by wind direction (%)

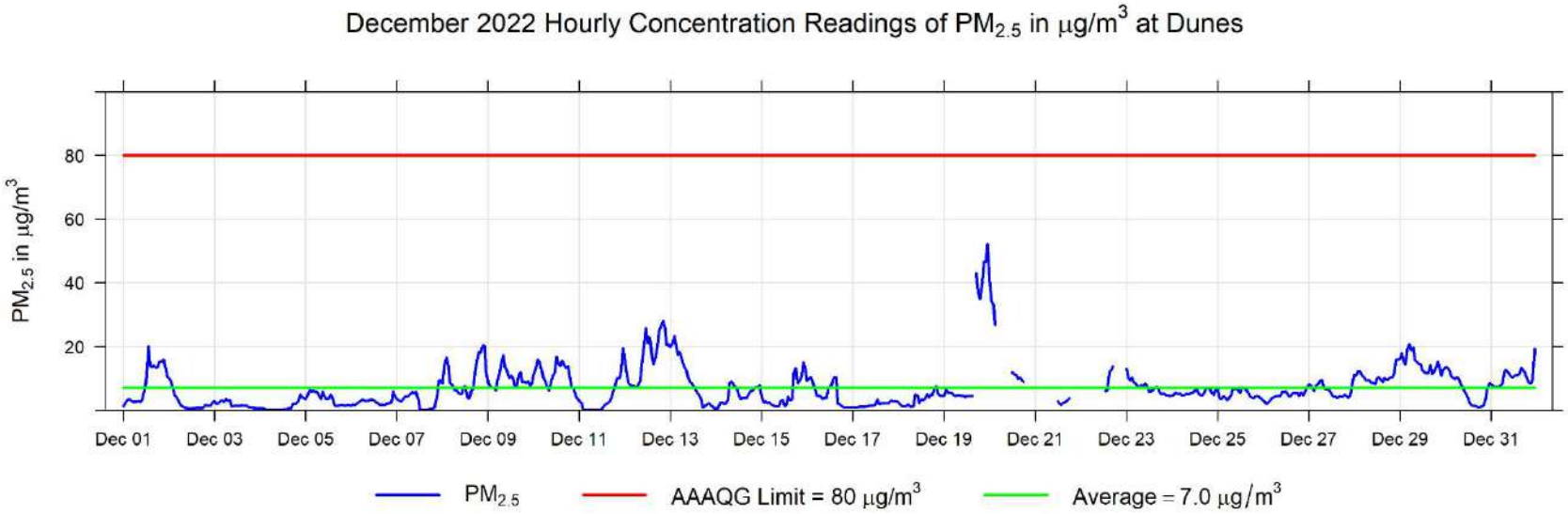
3 Dunes Charts

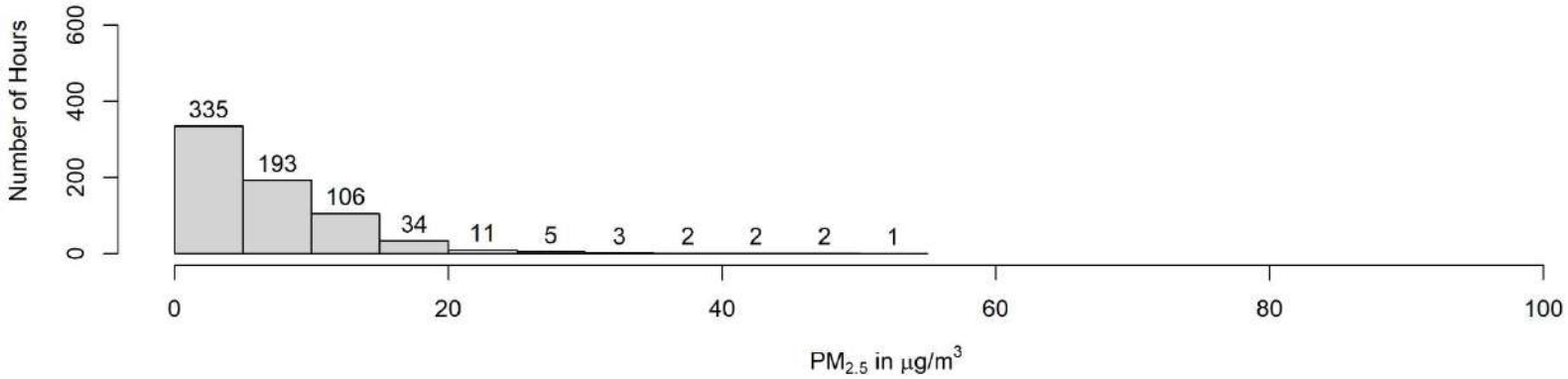
The following pages include the charts and histograms for Dunes Station


December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Dunes
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.8 ppb

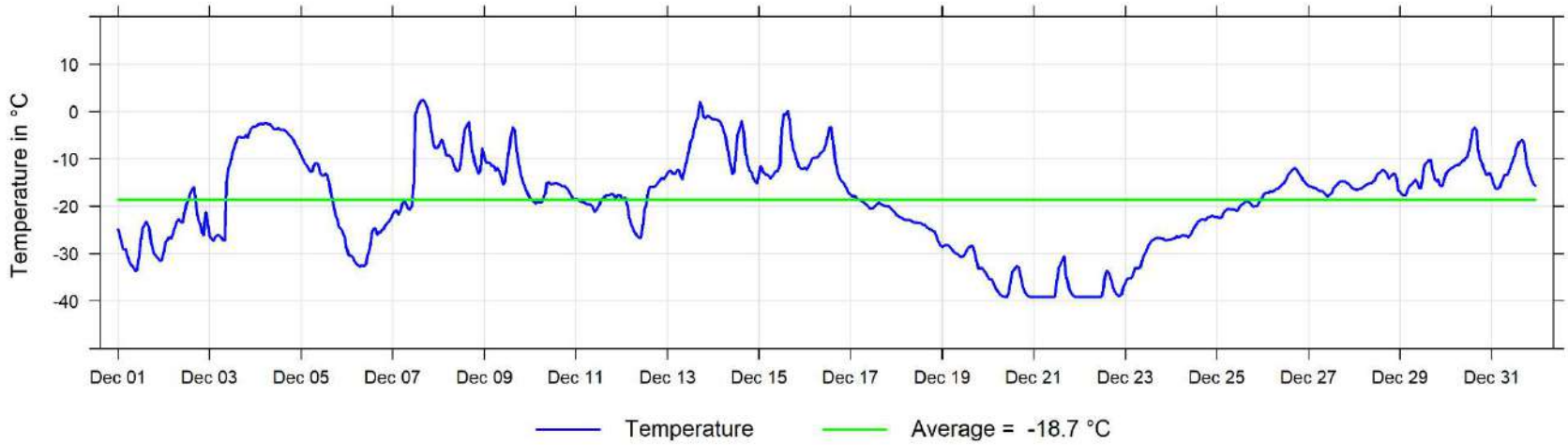

Number of Hours
0
200
400
600
540
78
49
26
9
1
0
0
1
2
0
5
10
15
SO_2 in ppb


December 2022 Hourly Concentration Readings of TRS (in ppb) at Dunes
TRS in ppb
20
15
10
5
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
TRS
Average = 0.5 ppb

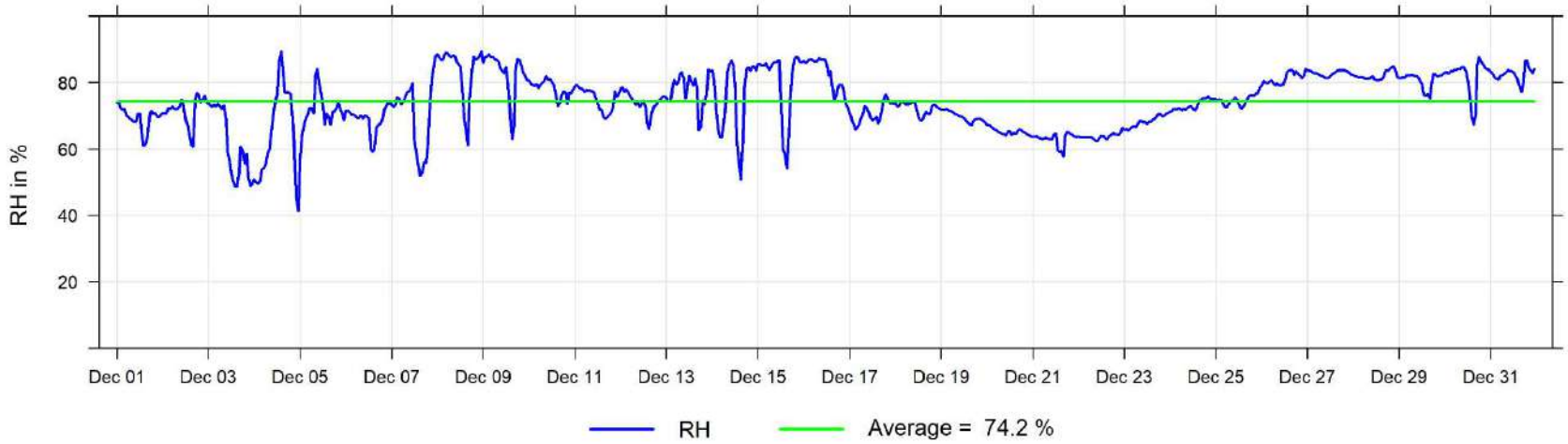

December 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Dunes
PM2.5 in µg/m3
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 7.0 µg/m3

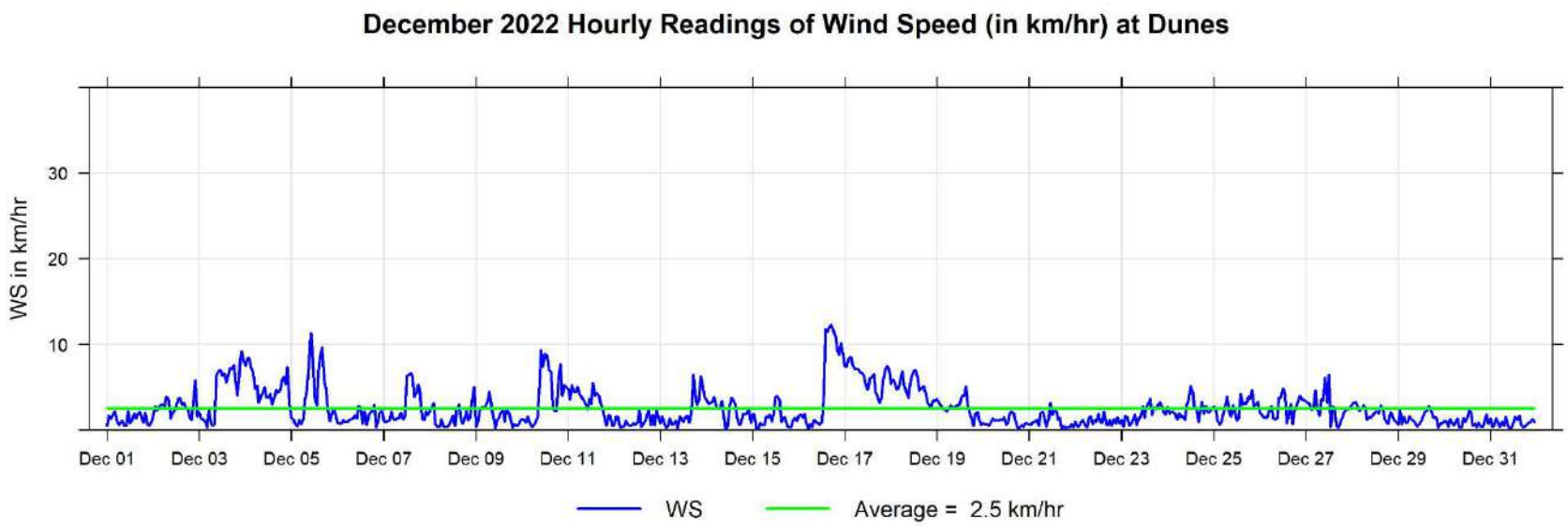

Number of Hours
0
200
400
600
335
193
106
34
11
5
3
2
2
2
1
0
20
40
60
80
100
PM2.5 in µg/m3

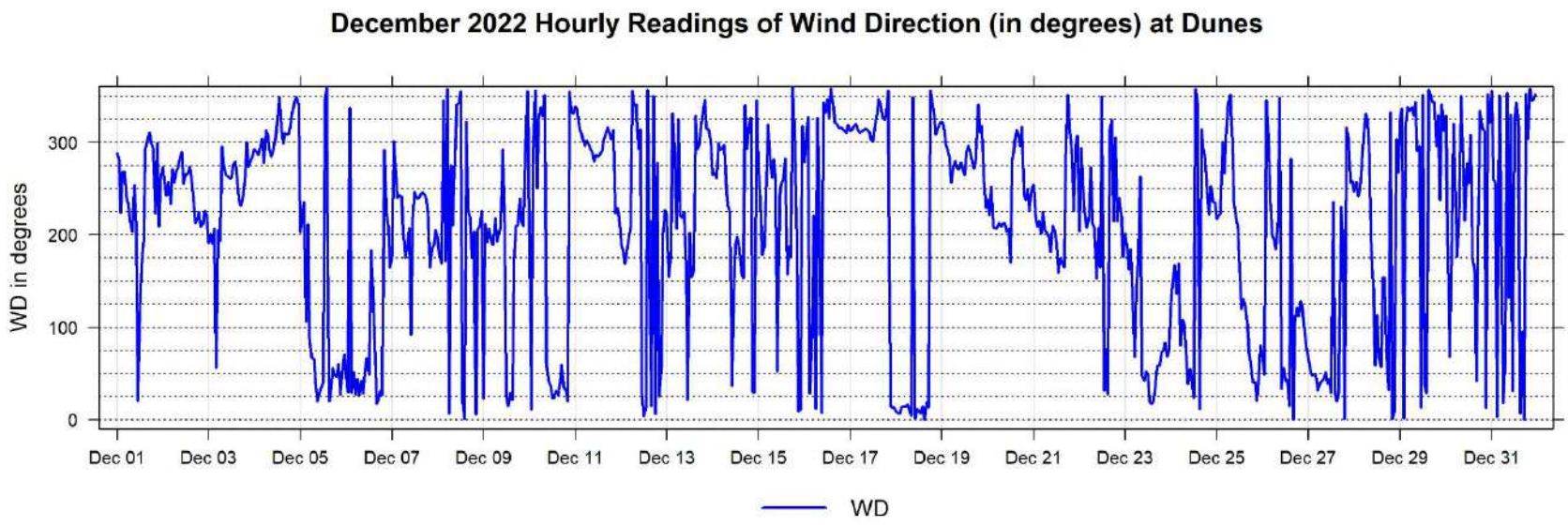
December 2022 Hourly Temperature Readings (in °C) at Dunes

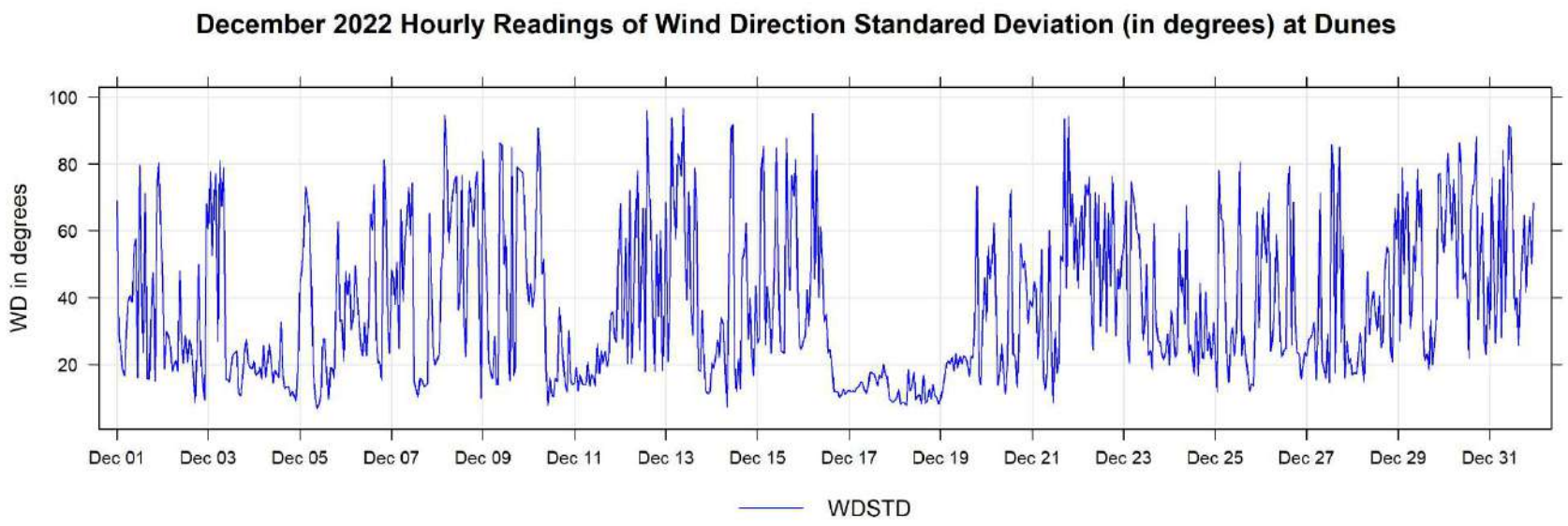


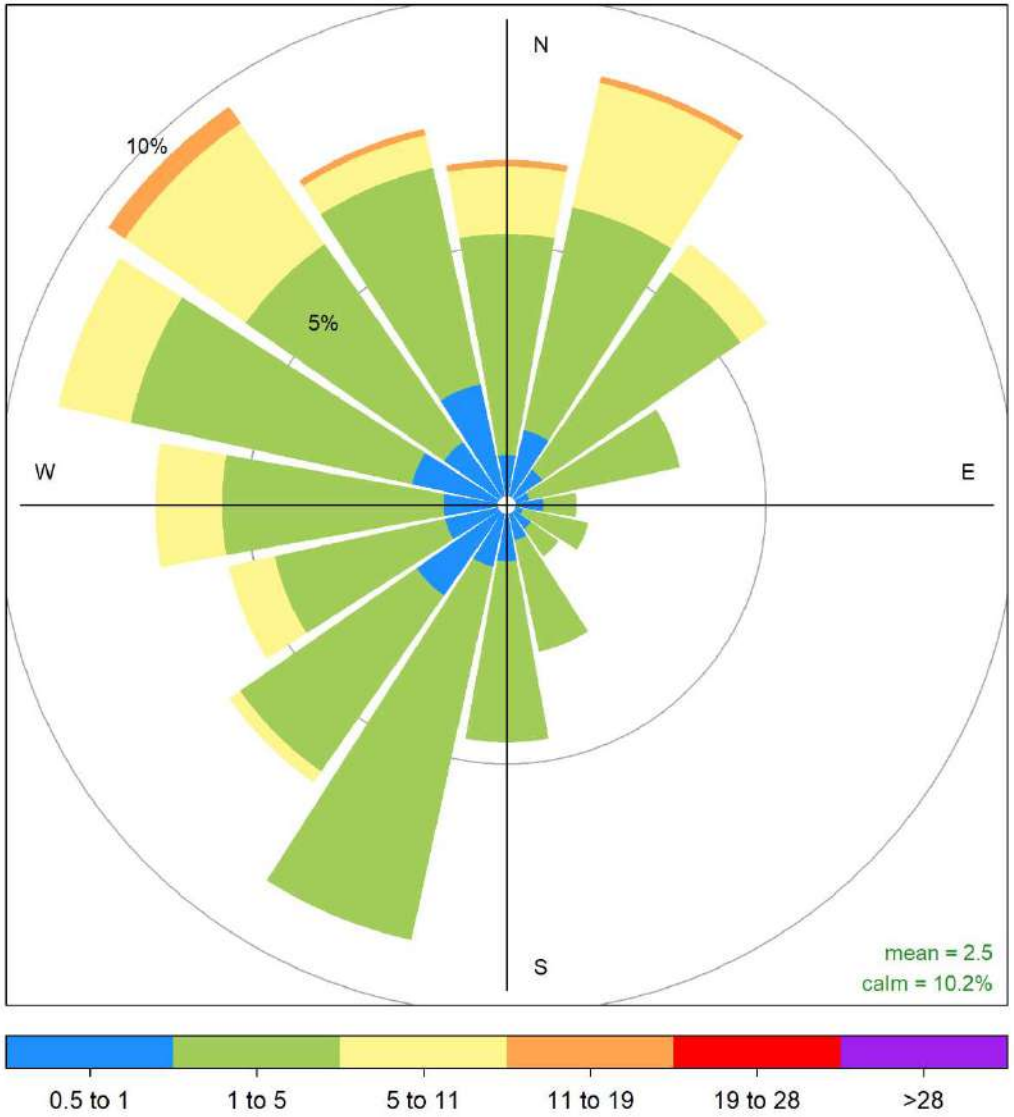
December 2022 Hourly Readings of Relative Humidity (in %) at Dunes




December 2022 Hourly Readings of Wind Speed (in km/hr) at Dunes
WS in km/hr
30
20
10
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WS
Average = 2.5 km/hr


December 2022 Hourly Readings of Wind Direction (in degrees) at Dunes
WD in degrees
300
200
100
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Dunes
WD in degrees
100
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

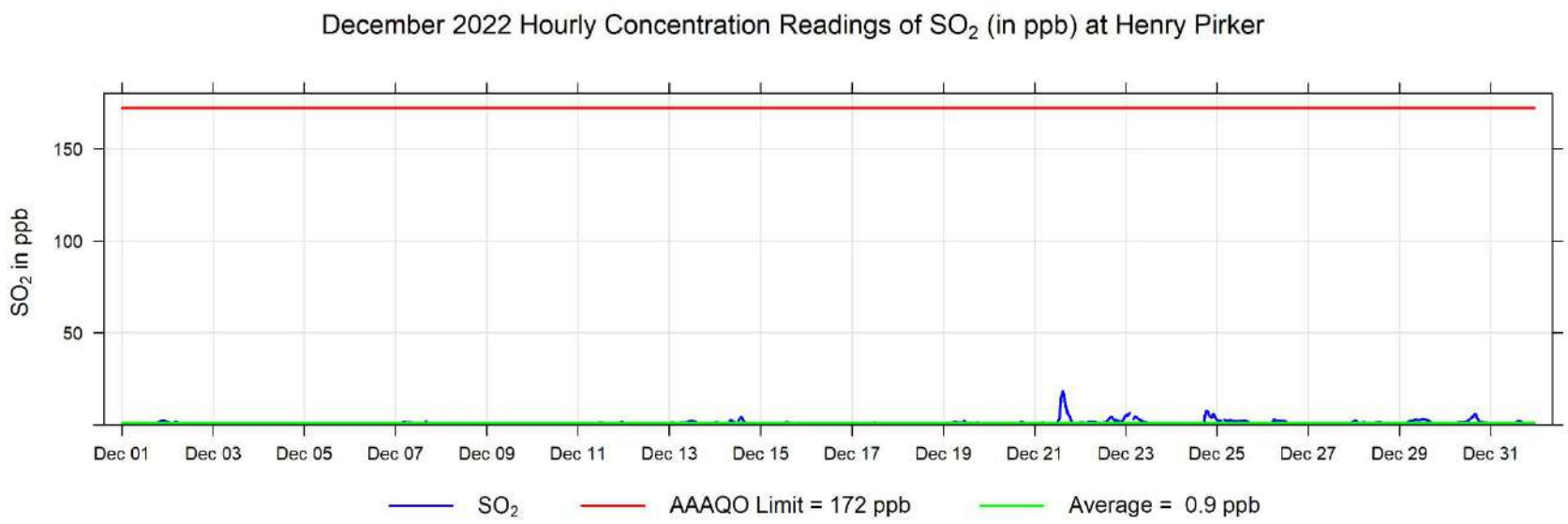


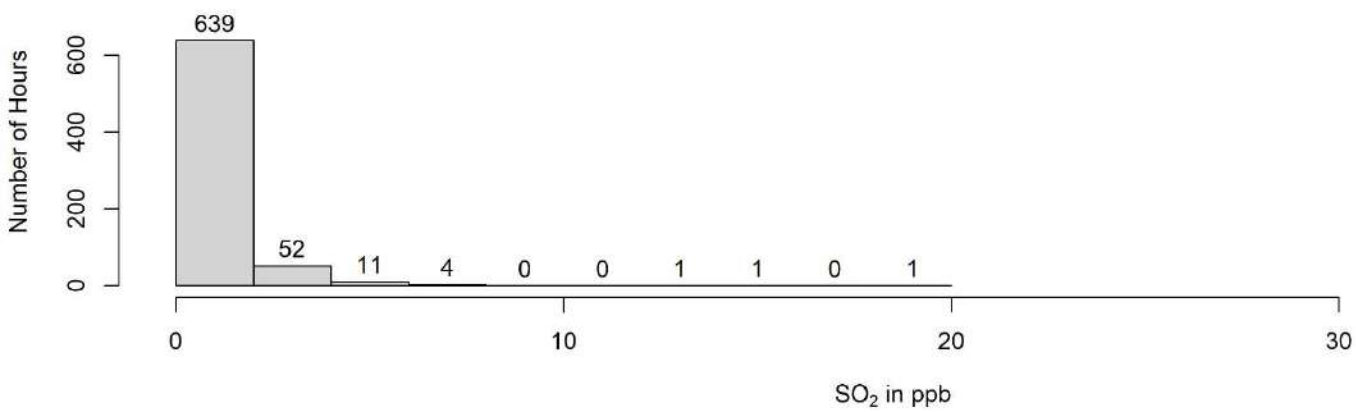
Dunes December 2022 Wind Rose, wind speed in km/hr

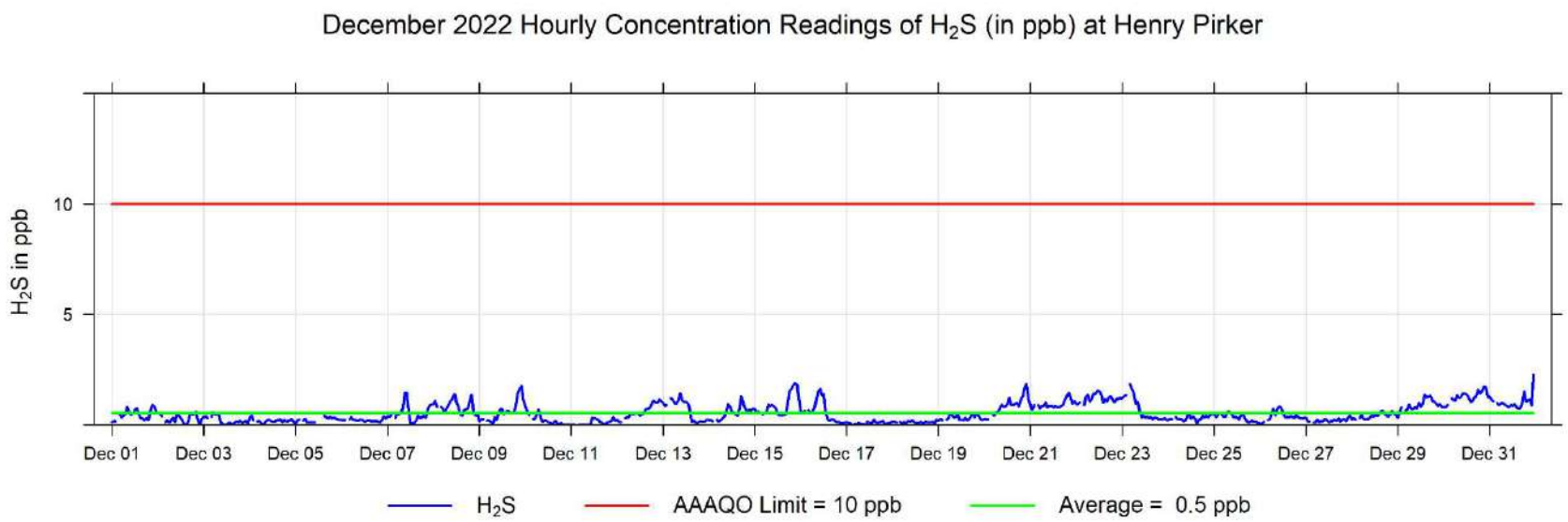
Frequency of counts by wind direction (%)

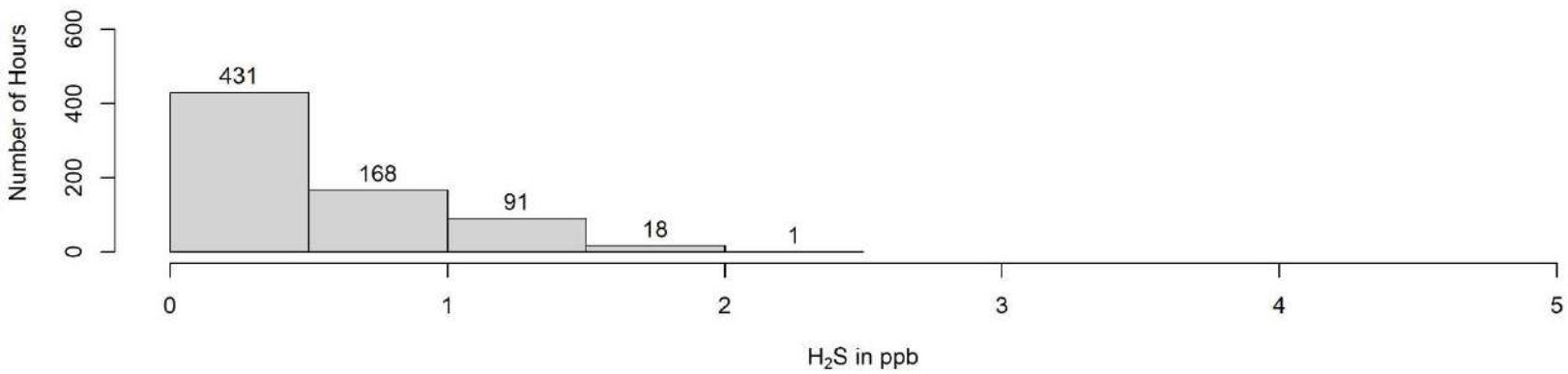
4 Grande Prairie - Henry Pirker Charts

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

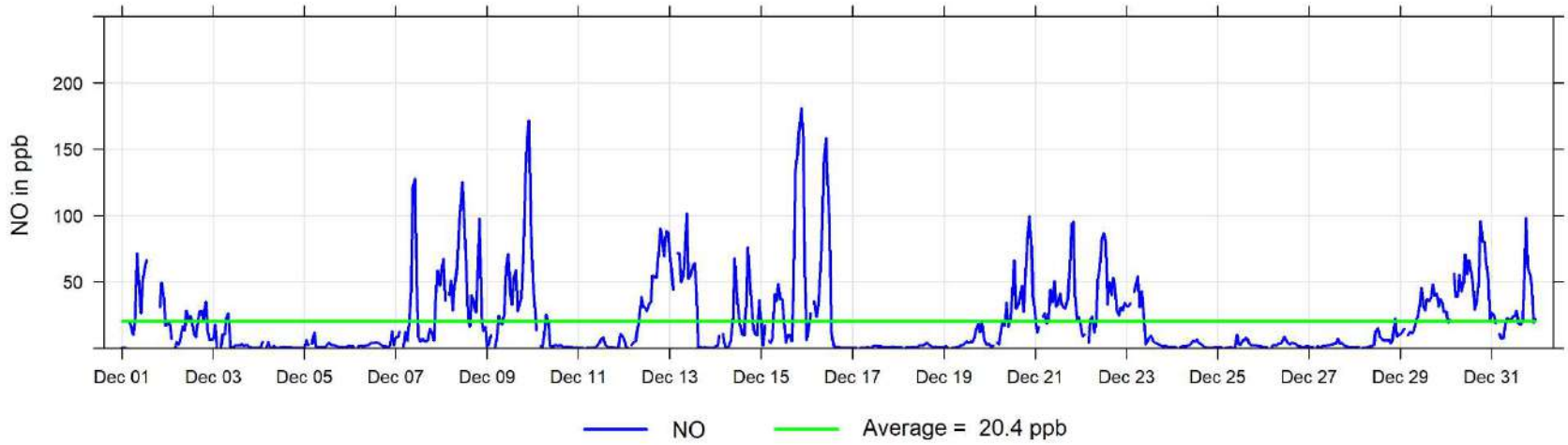

December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Henry Pirker
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.9 ppb


Number of Hours
0
200
400
600
639
52
11
4
0
0
1
1
0
1
0
10
20
30
SO_2 in ppb

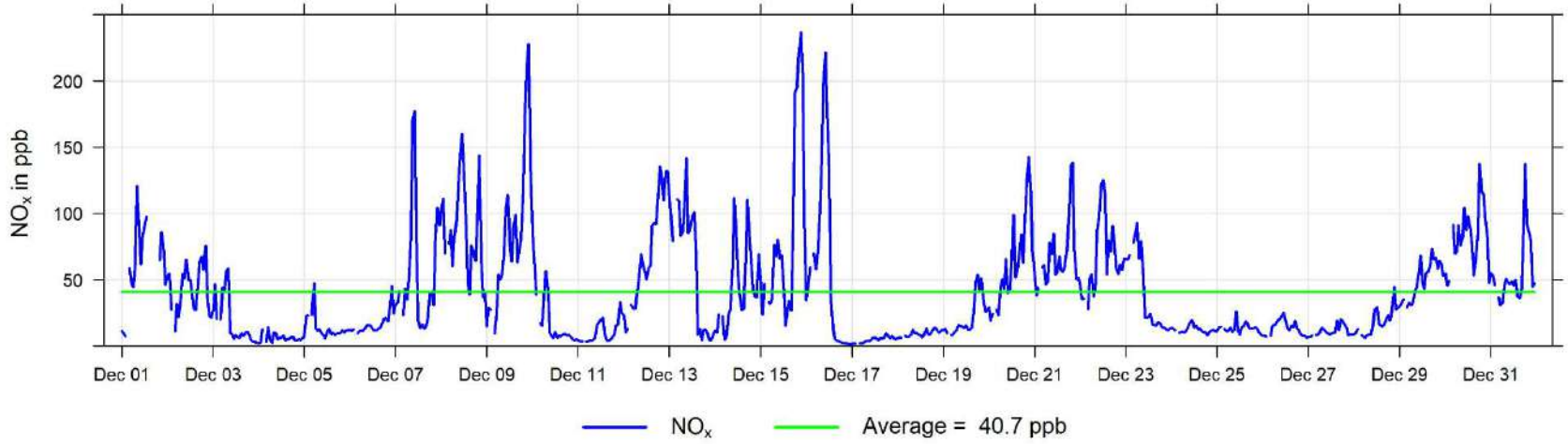

December 2022 Hourly Concentration Readings of H_2S (in ppb) at Henry Pirker
H_2S in ppb
10
5
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
H_2S
AAAQO Limit = 10 ppb
Average = 0.5 ppb

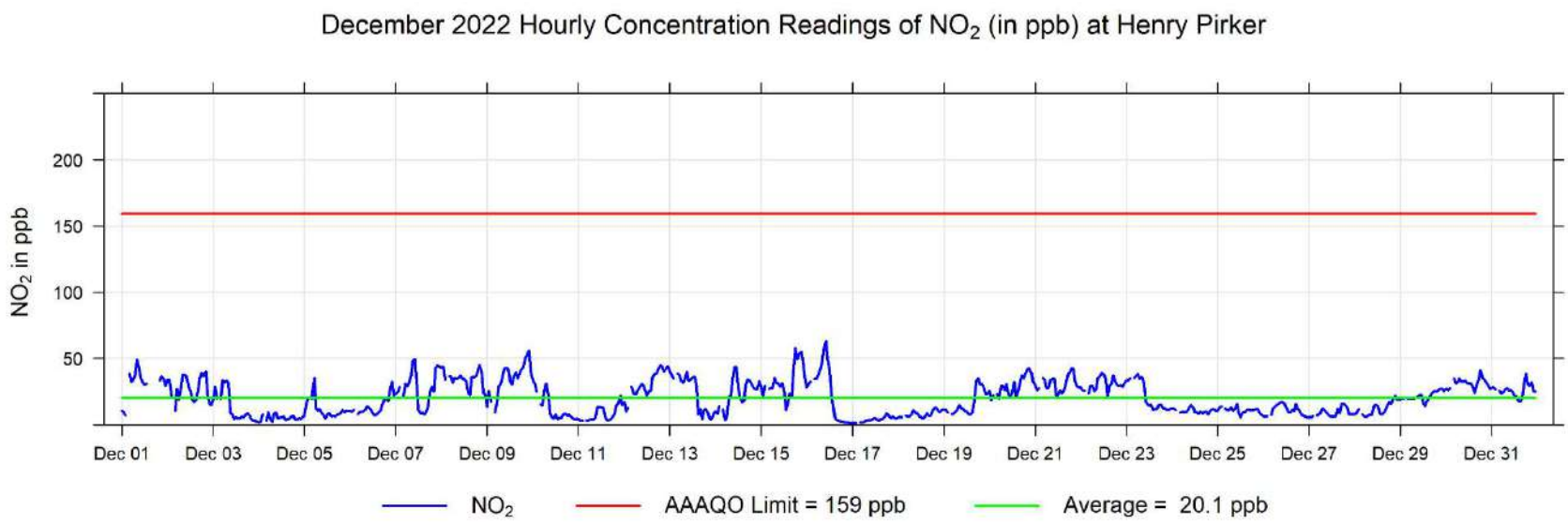

Number of Hours
0
200
400
600
431
168
91
18
1
0
1
2
3
4
5
H_2S in ppb

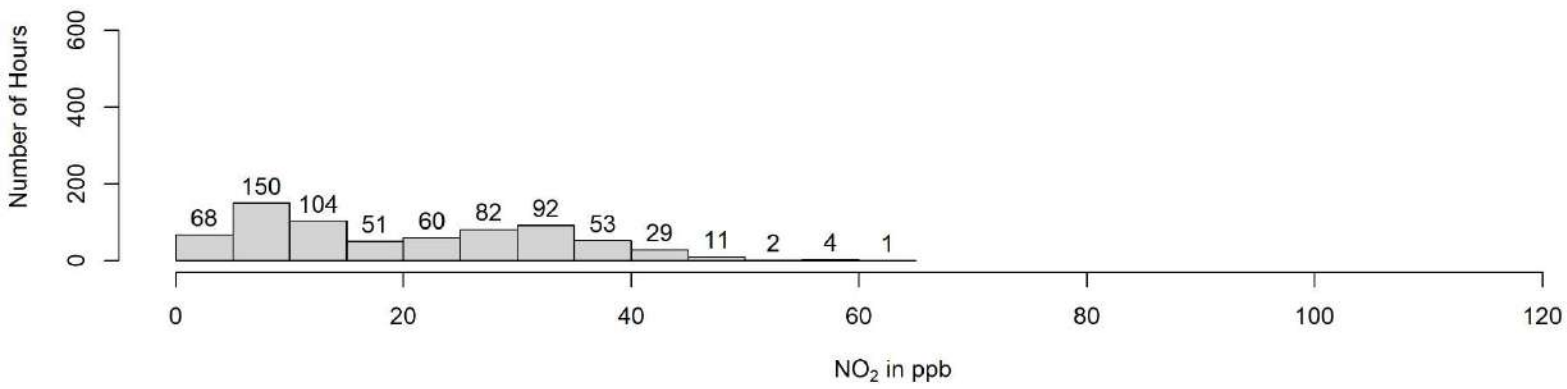
December 2022 Hourly Concentration Readings of NO (in ppb) at Henry Pirker

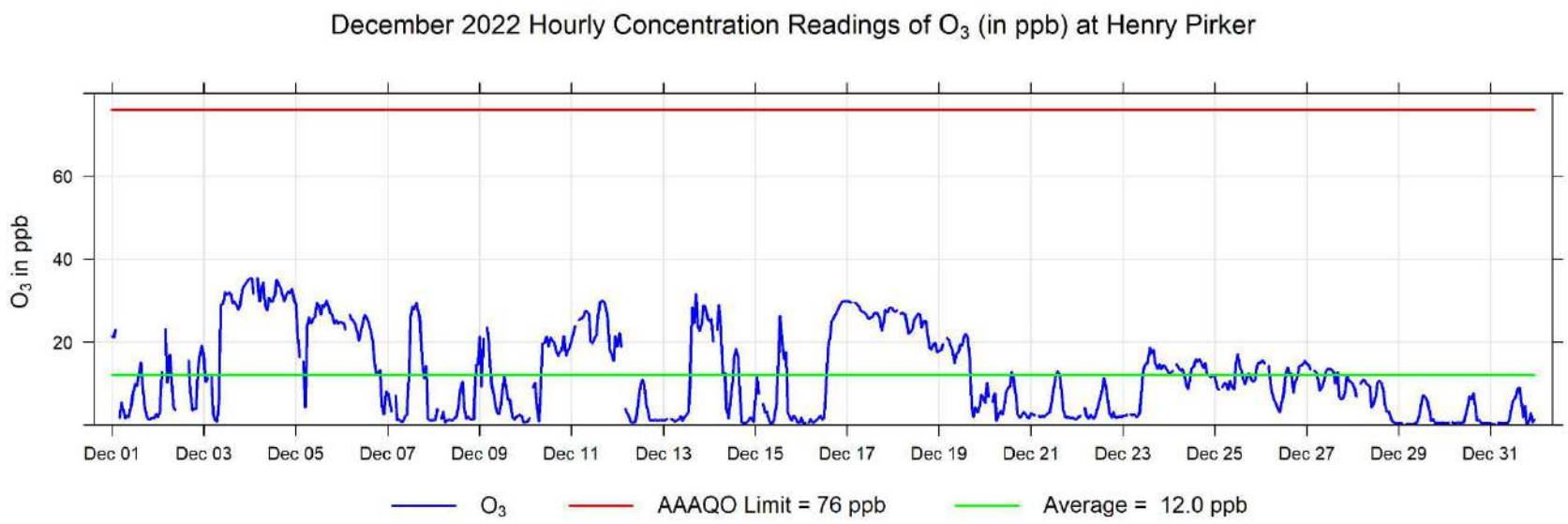


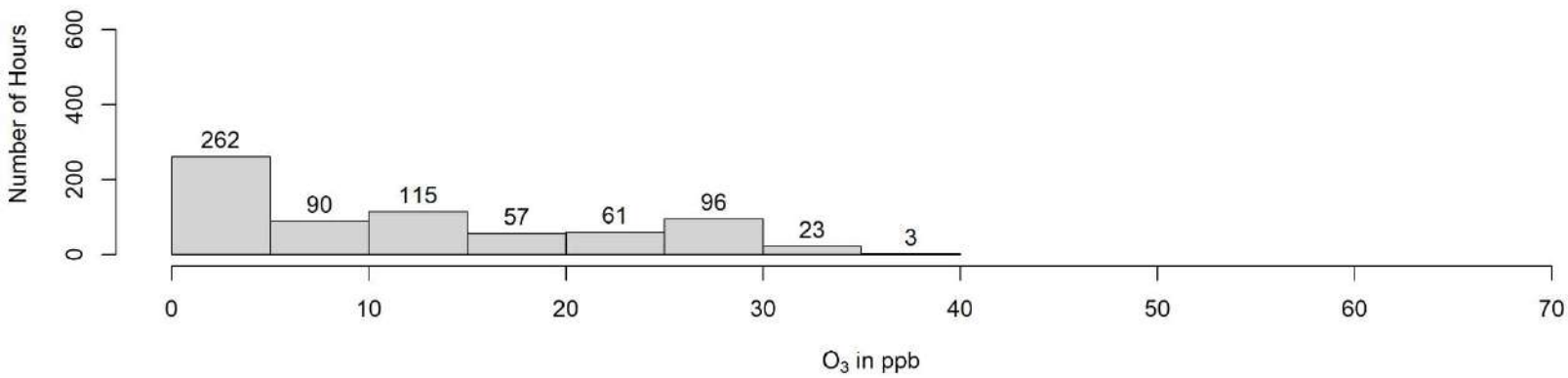
December 2022 Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



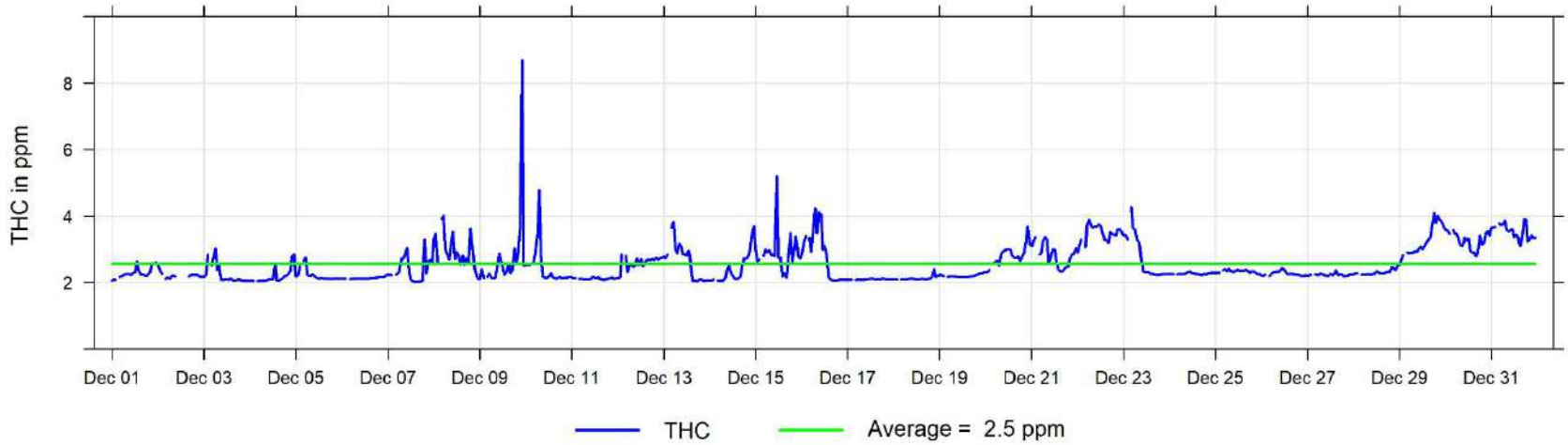

December 2022 Hourly Concentration Readings of NO_2 (in ppb) at Henry Pirker
NO_2 in ppb
200
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NO_2
AAAQO Limit = 159 ppb
Average = 20.1 ppb


Number of Hours
0
200
400
600
68
150
104
51
60
82
92
53
29
11
2
4
1
0
20
40
60
80
100
120
NO_2 in ppb

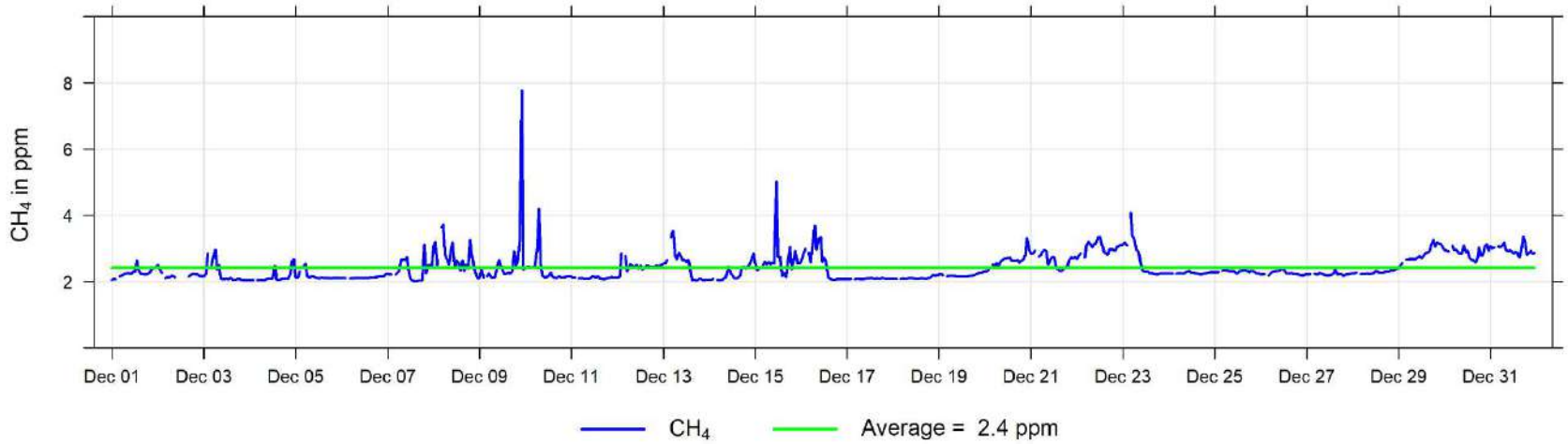

December 2022 Hourly Concentration Readings of O_3 (in ppb) at Henry Pirker
O_3 in ppb
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
O_3
AAAQO Limit = 76 ppb
Average = 12.0 ppb

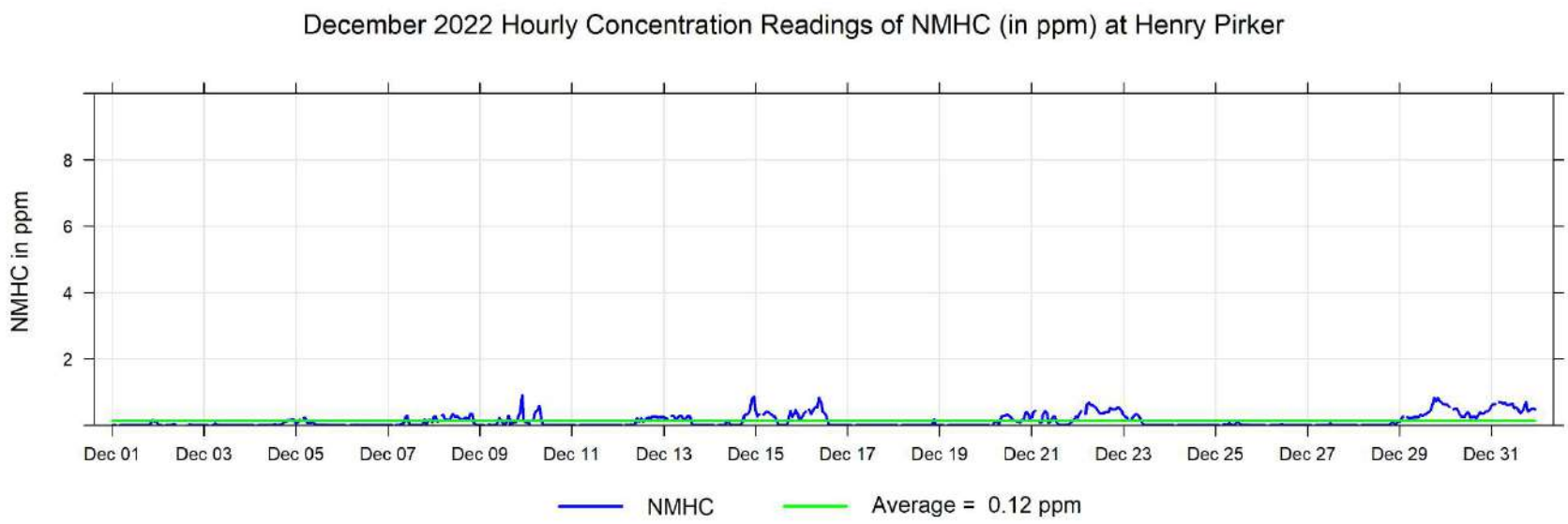

Number of Hours
0
200
400
600
262
90
115
57
61
96
23
3
0
10
20
30
40
50
60
70
O_3 in ppb

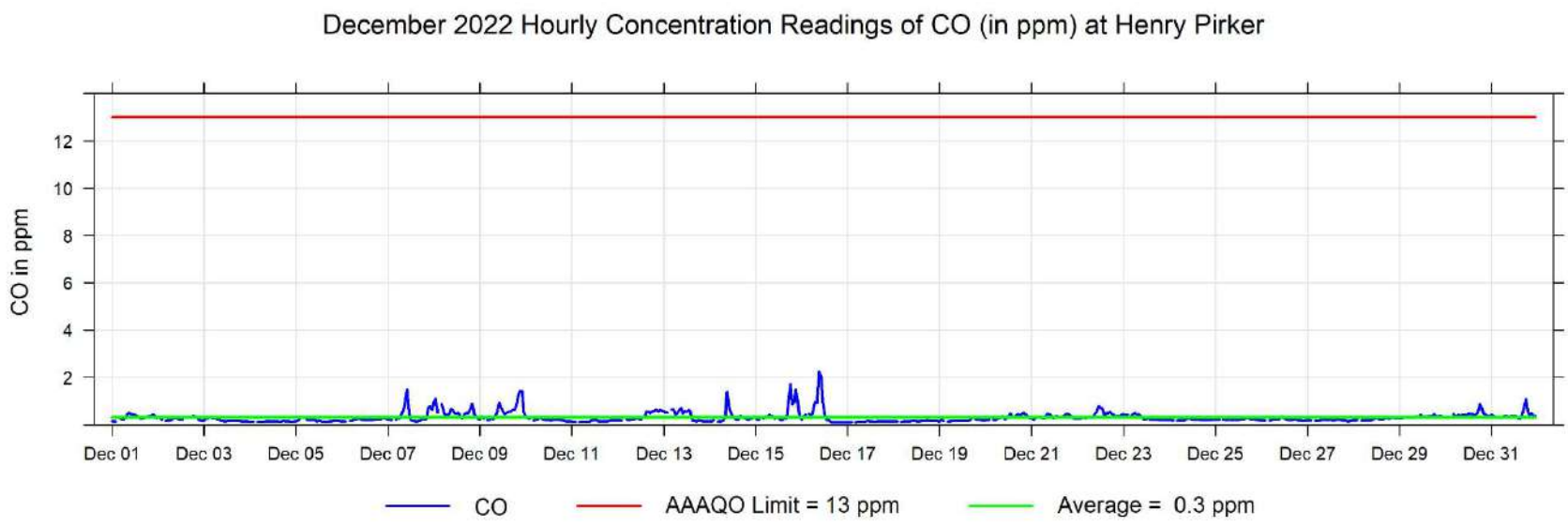
December 2022 Hourly Concentration Readings of THC (in ppm) at Henry Pirker

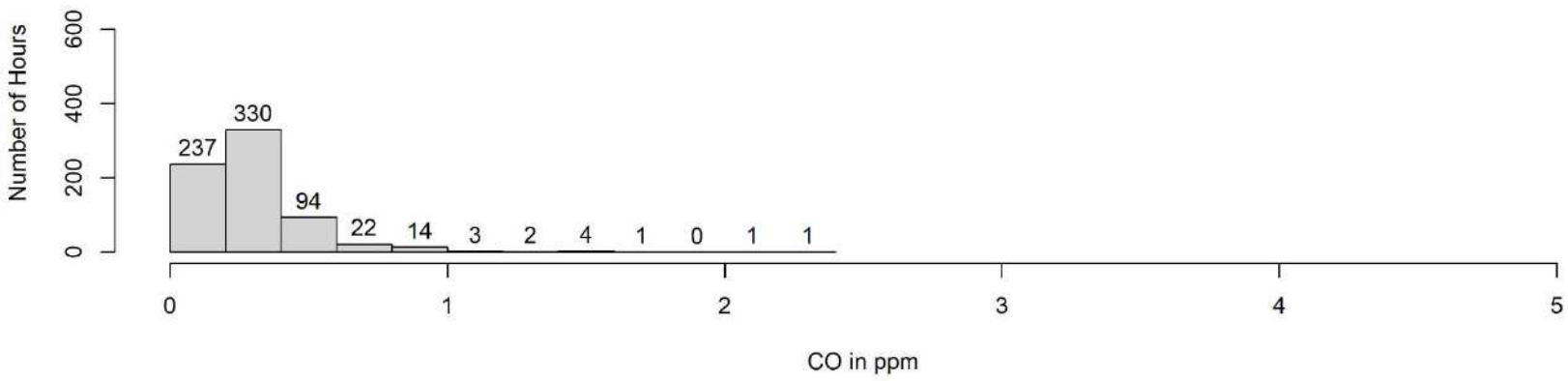


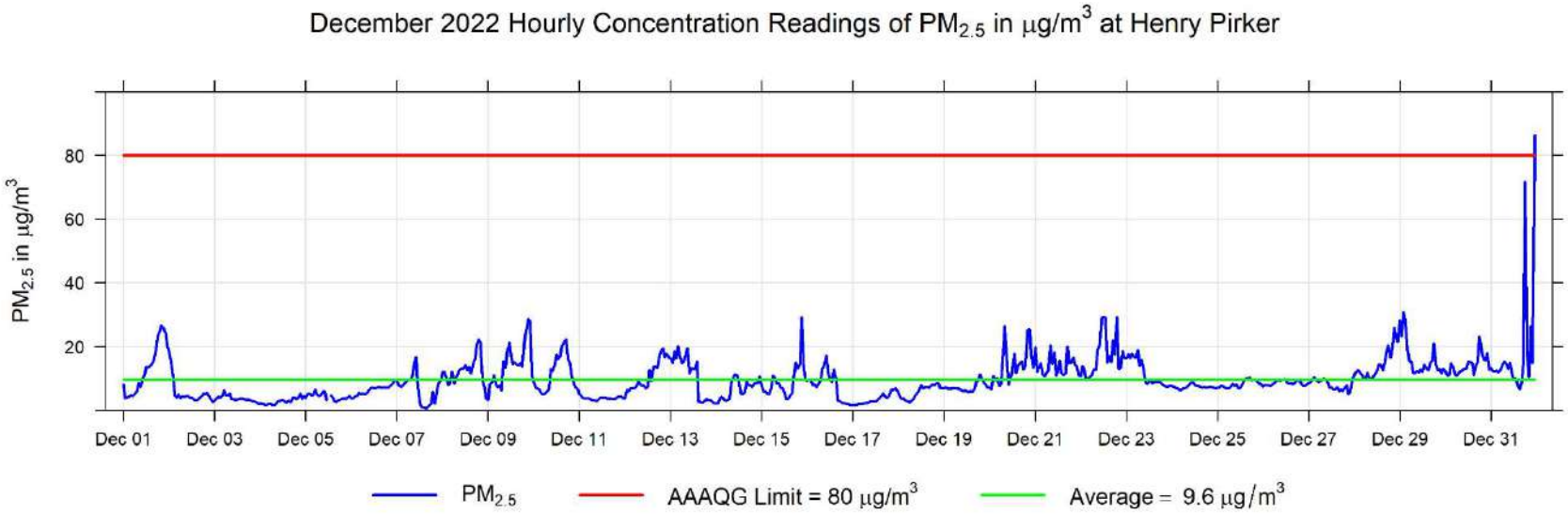
December 2022 Hourly Concentration Readings of CH_4 (in ppm) at Henry Pirker

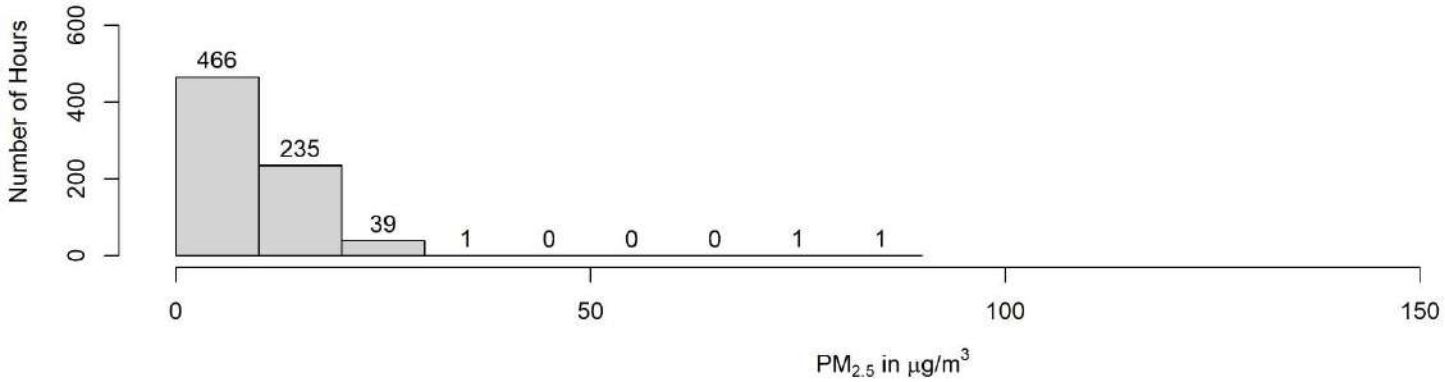



December 2022 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker
NMHC in ppm
8
6
4
2
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NMHC
Average = 0.12 ppm

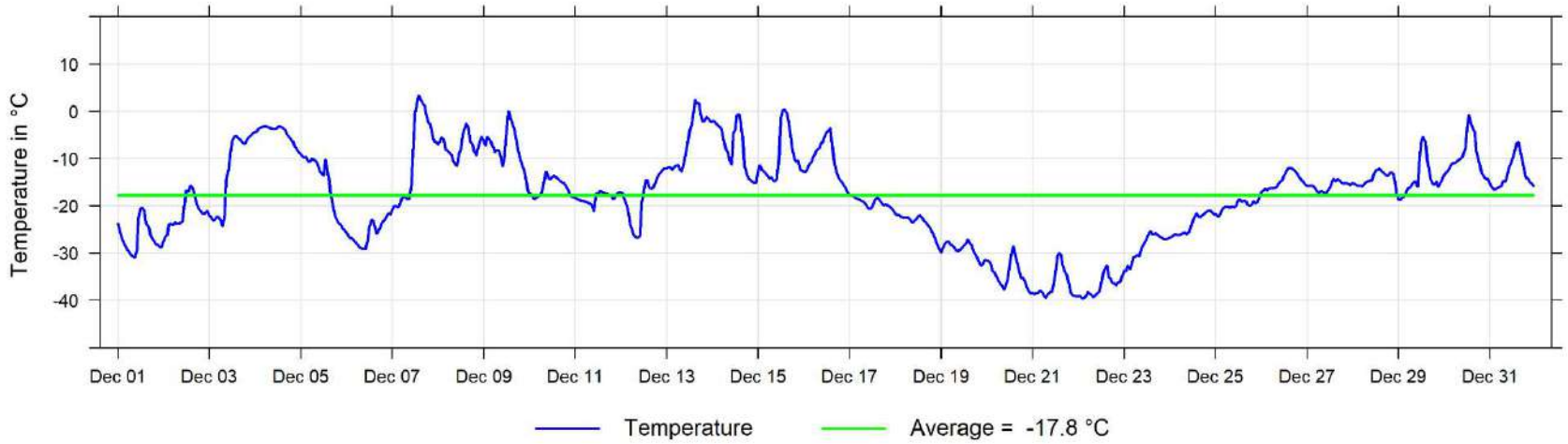

December 2022 Hourly Concentration Readings of CO (in ppm) at Henry Pirker
CO in ppm
12
10
8
6
4
2
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
CO
AAAQO Limit = 13 ppm
Average = 0.3 ppm


Number of Hours
0
200
400
600
237
330
94
22
14
3
2
4
1
0
1
1
0
1
2
3
4
5
CO in ppm

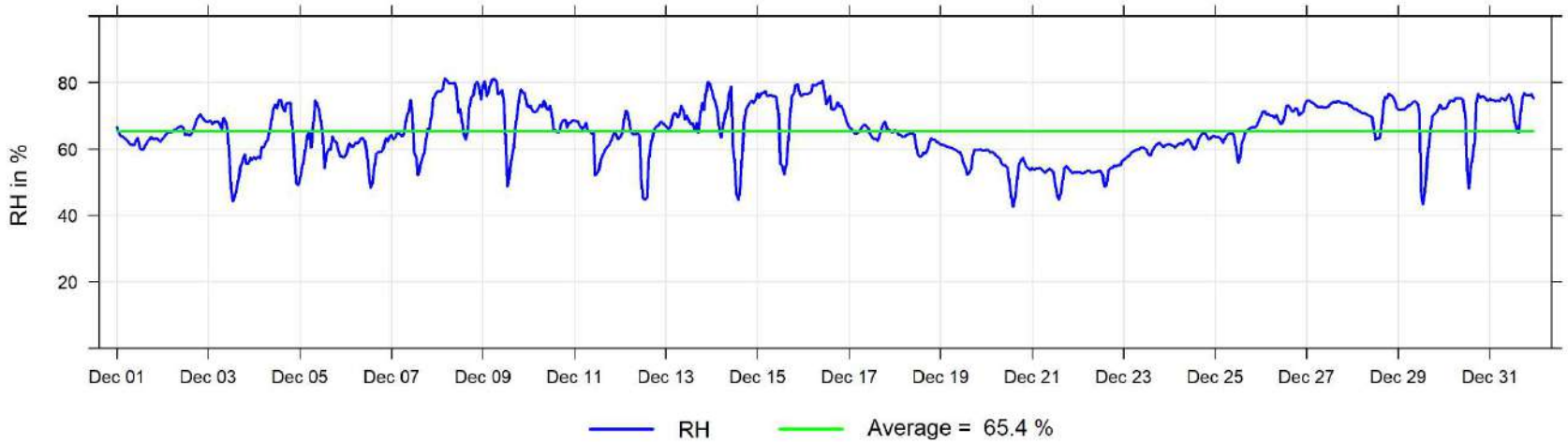

December 2022 Hourly Concentration Readings of PM2.5 in μg/m3 at Henry Pirker
PM2.5 in μg/m3
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 μg/m3
Average = 9.6 μg/m3

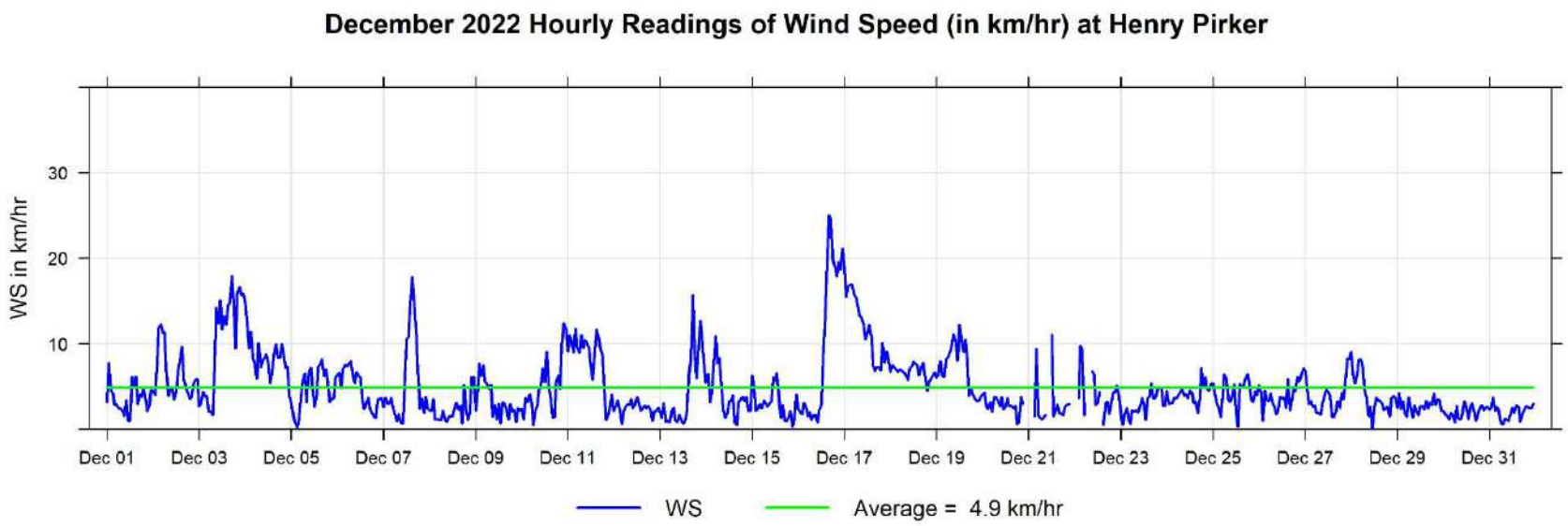

Number of Hours
0
200
400
600
466
235
39
1
0
0
0
1
1
0
50
100
150
PM2.5 in μg/m3

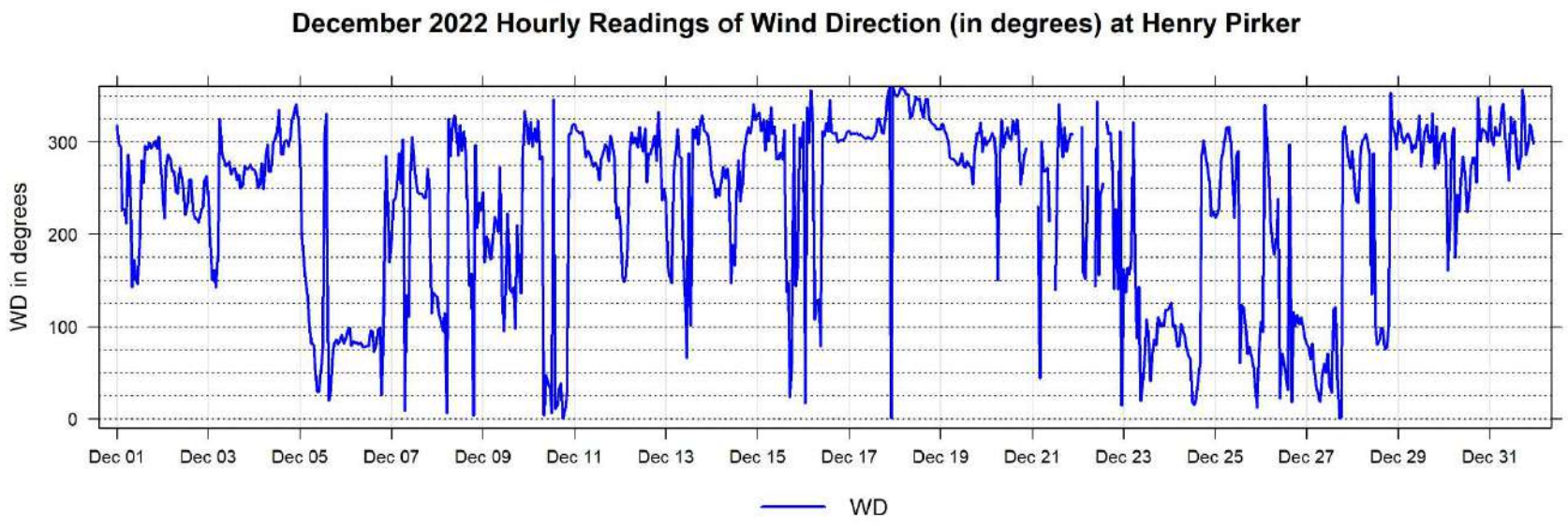
December 2022 Hourly Temperature Readings (in °C) at Henry Pirker

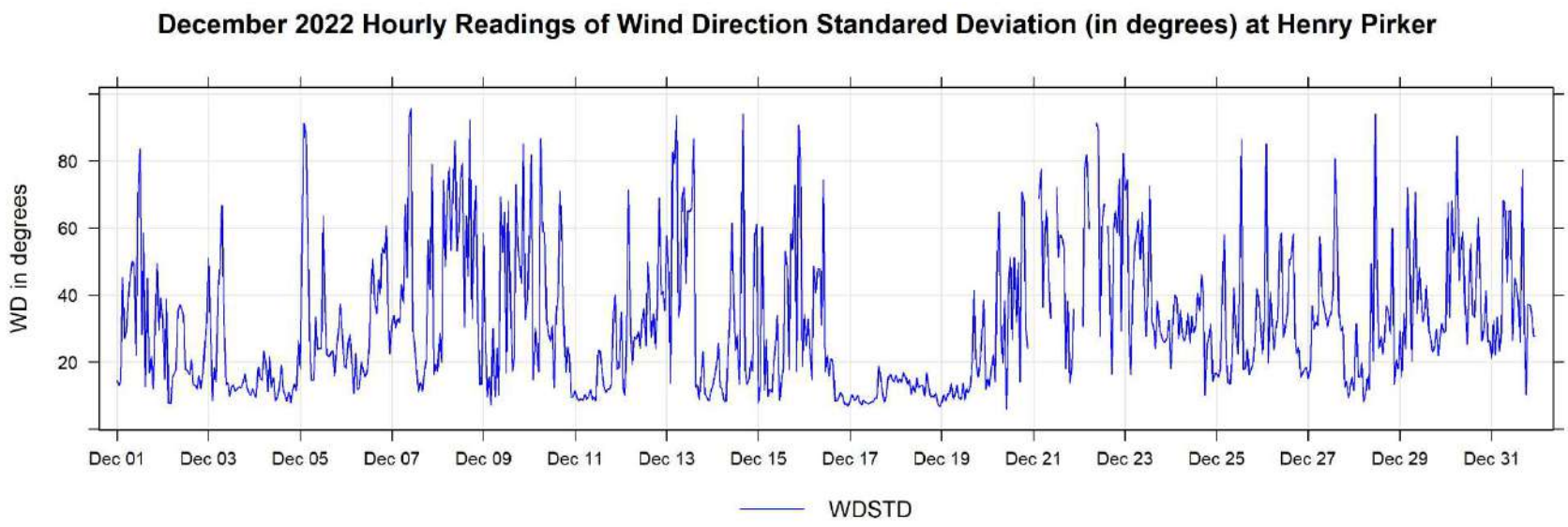


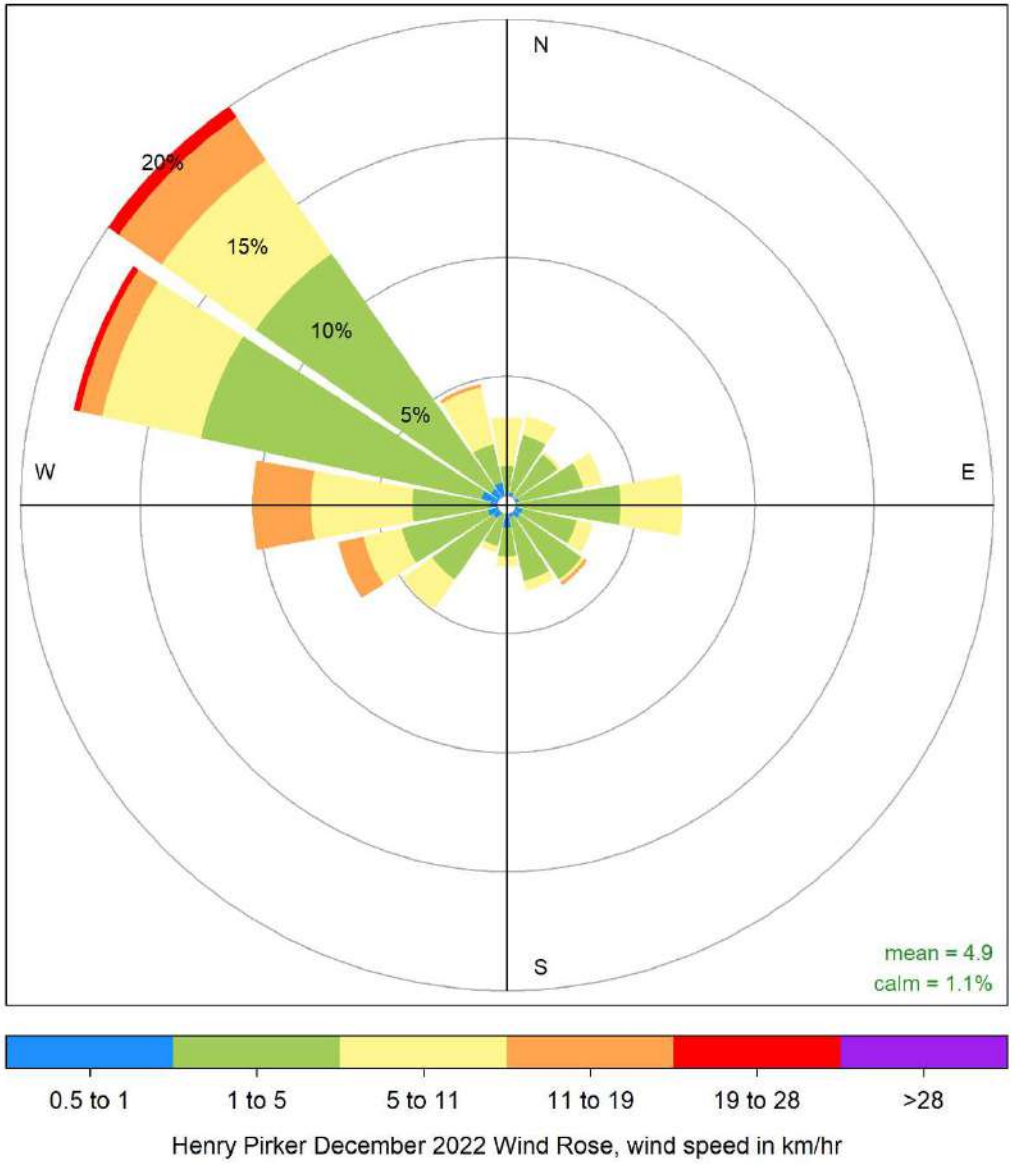
December 2022 Hourly Readings of Relative Humidity (in %) at Henry Pirker




December 2022 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker
WS in km/hr
30
20
10
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WS
Average = 4.9 km/hr


December 2022 Hourly Readings of Wind Direction (in degrees) at Henry Pirker
WD in degrees
300
200
100
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Henry Pirker
WD in degrees
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

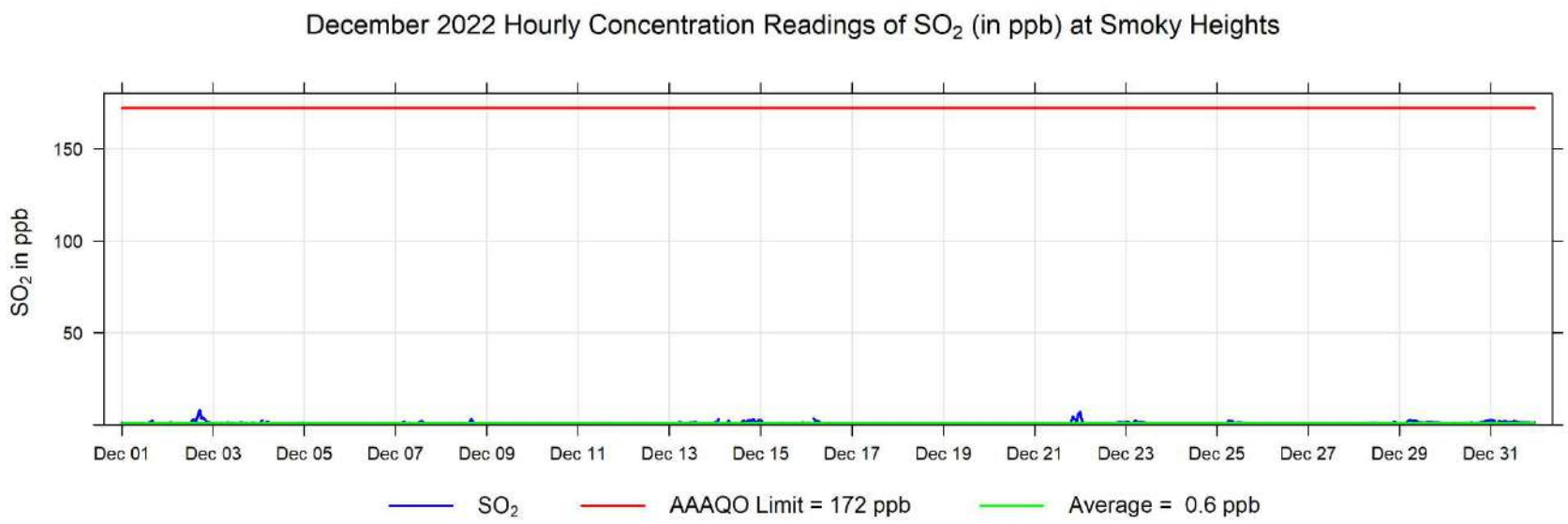


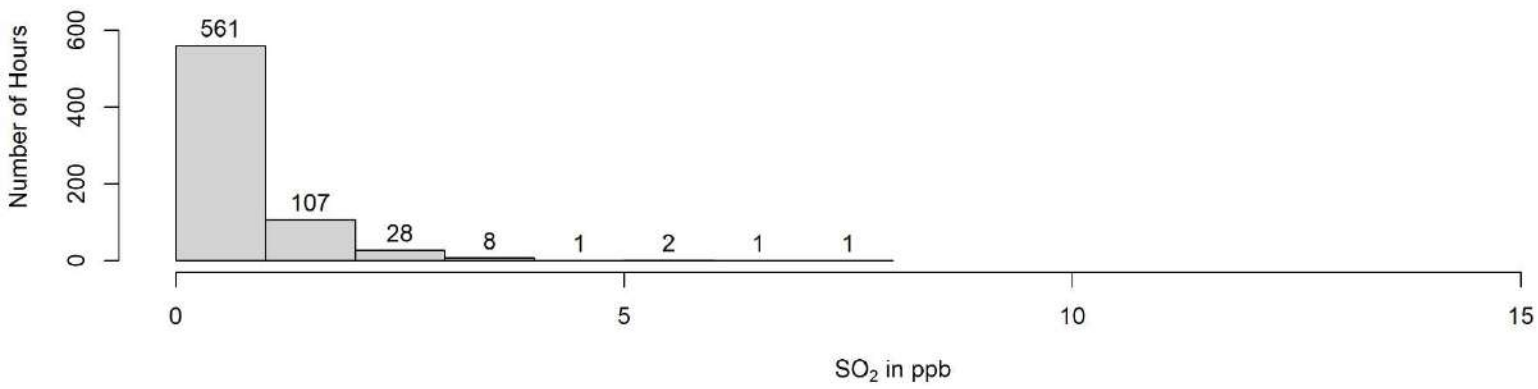
Henry Pirker December 2022 Wind Rose, wind speed in km/hr

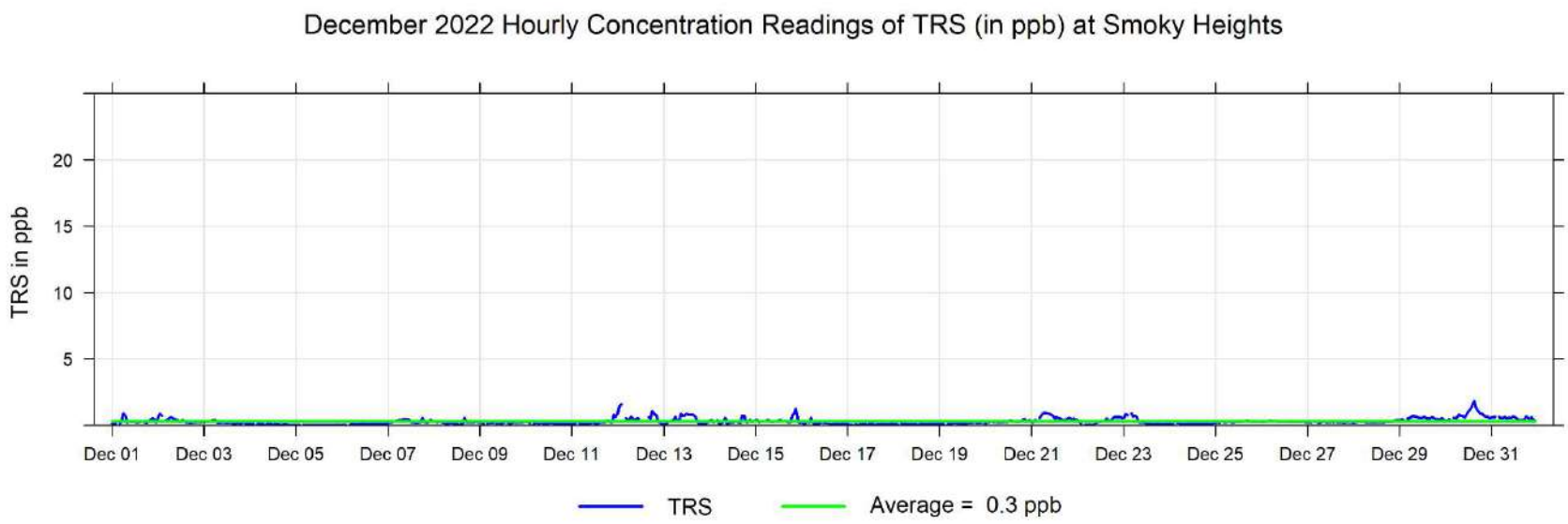
Frequency of counts by wind direction (%)

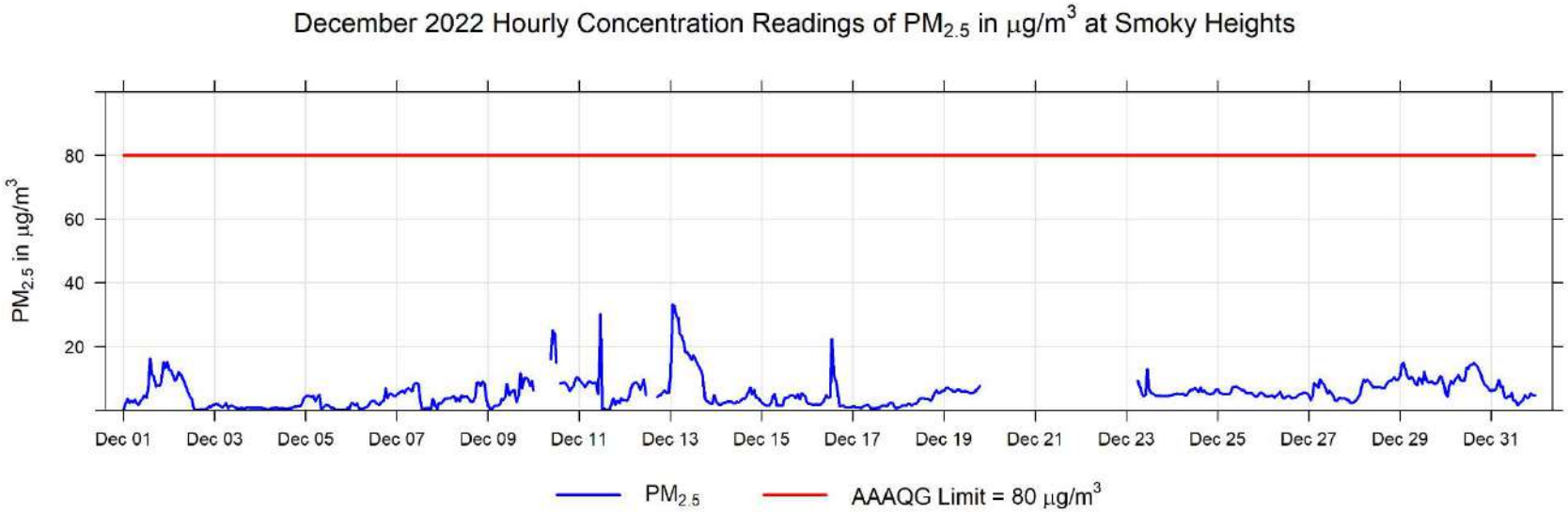
5 Smoky Heights Charts

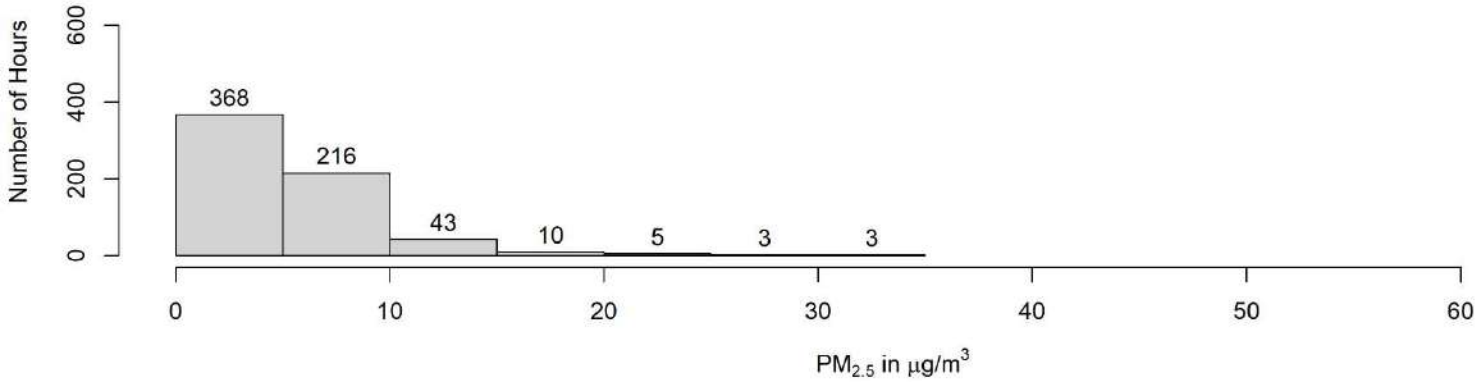
The following pages include the charts and histograms for Smoky Heights Station


December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Smoky Heights
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.6 ppb

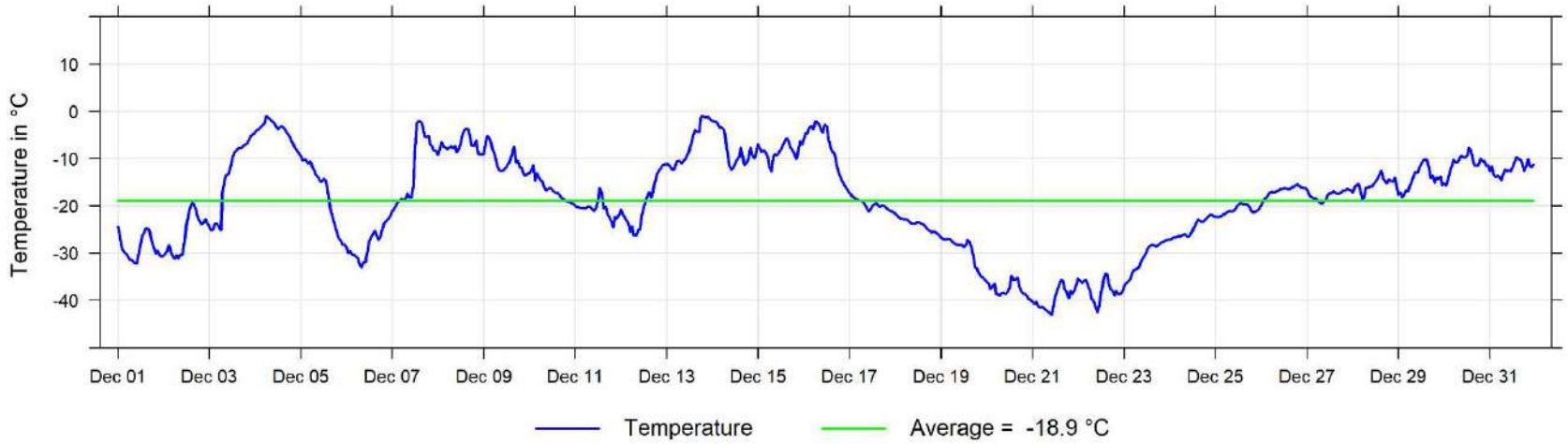

Number of Hours
0
200
400
600
561
107
28
8
1
2
1
1
0
5
10
15
SO_2 in ppb


December 2022 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights
TRS in ppb
20
15
10
5
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
TRS
Average = 0.3 ppb

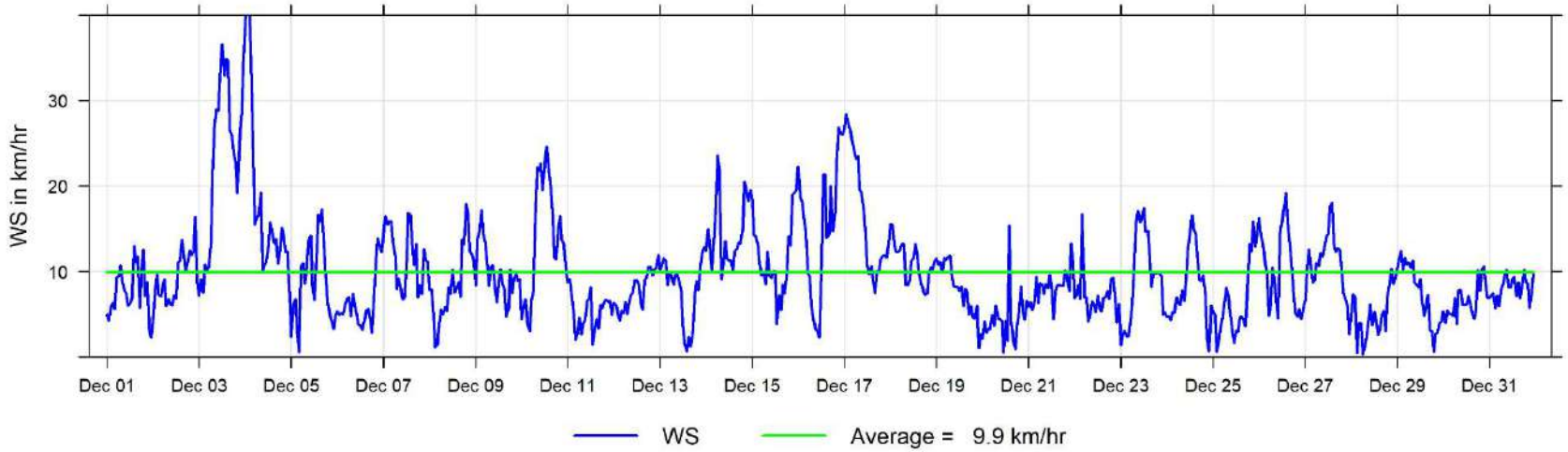

December 2022 Hourly Concentration Readings of PM2.5 in μg/m3 at Smoky Heights
PM2.5 in μg/m3
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 μg/m3

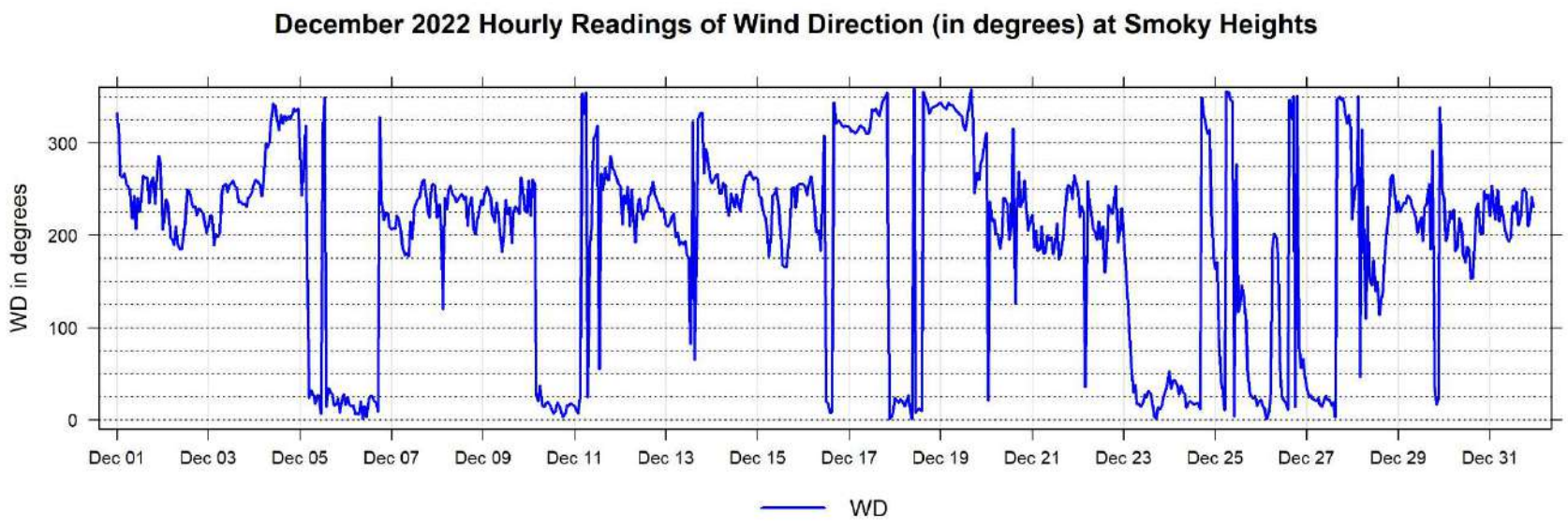

Number of Hours
0
200
400
600
368
216
43
10
5
3
3
0
10
20
30
40
50
60
PM2.5 in μg/m3

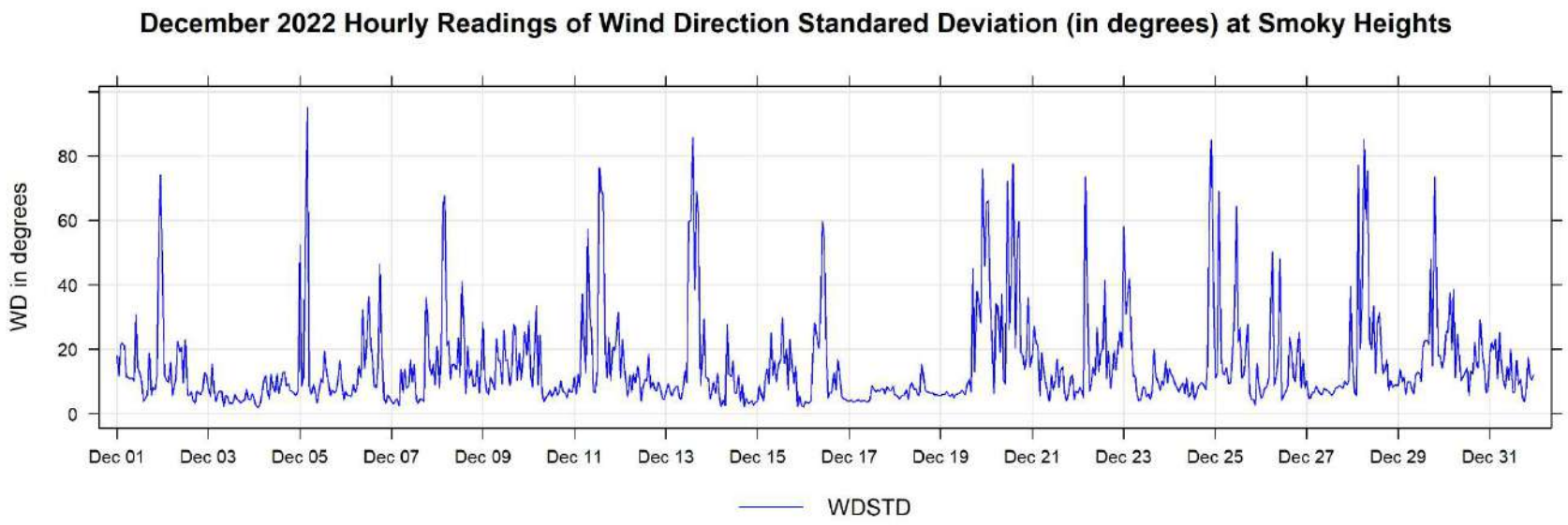
December 2022 Hourly Temperature Readings (in °C) at Smoky Heights

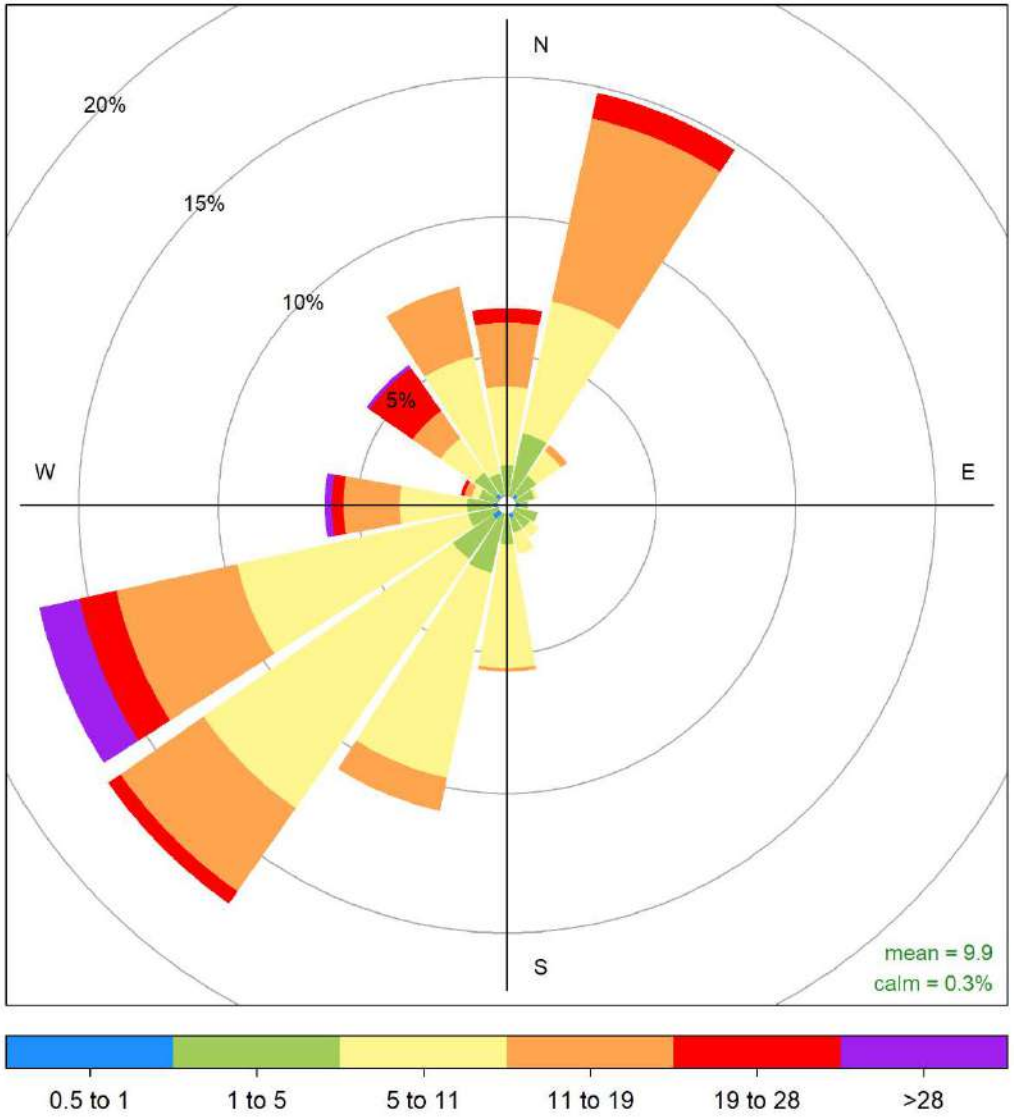


December 2022 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights




December 2022 Hourly Readings of Wind Direction (in degrees) at Smoky Heights
WD in degrees
0
100
200
300
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Smoky Heights
WD in degrees
0
20
40
60
80
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

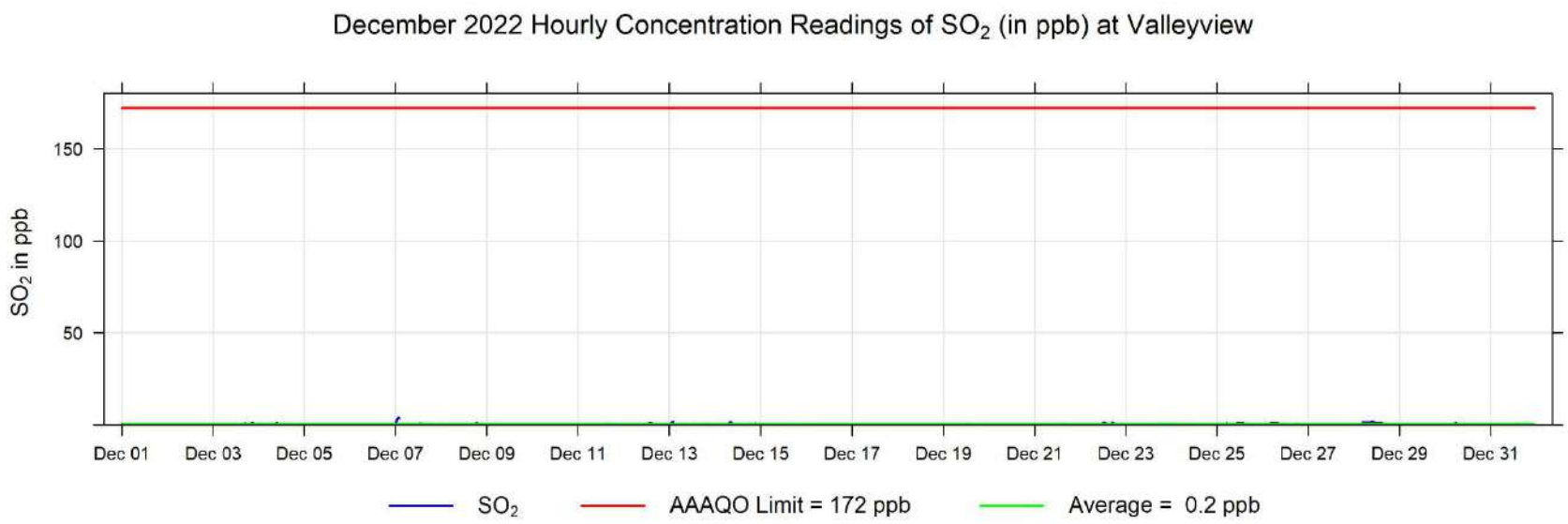


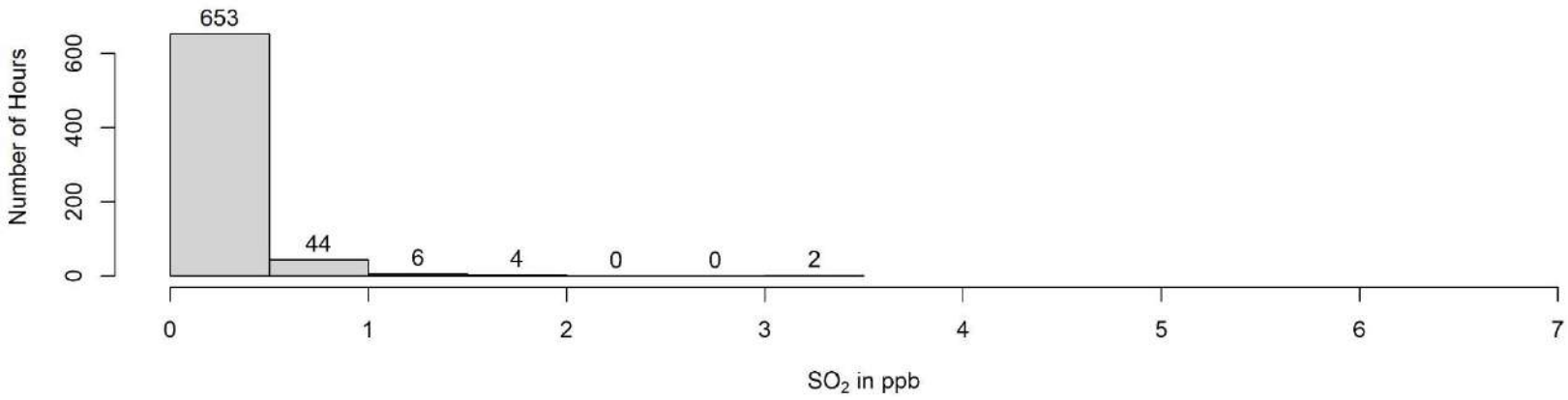
Smoky Heights December 2022 Wind Rose, wind speed in km/hr

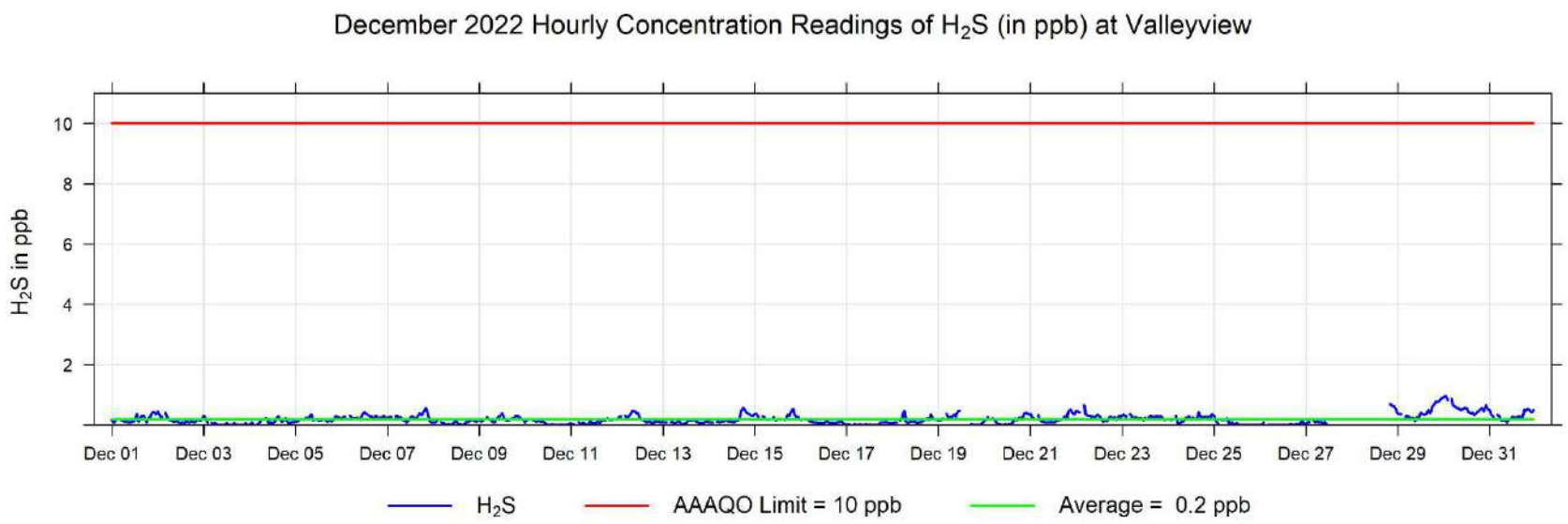
Frequency of counts by wind direction (%)

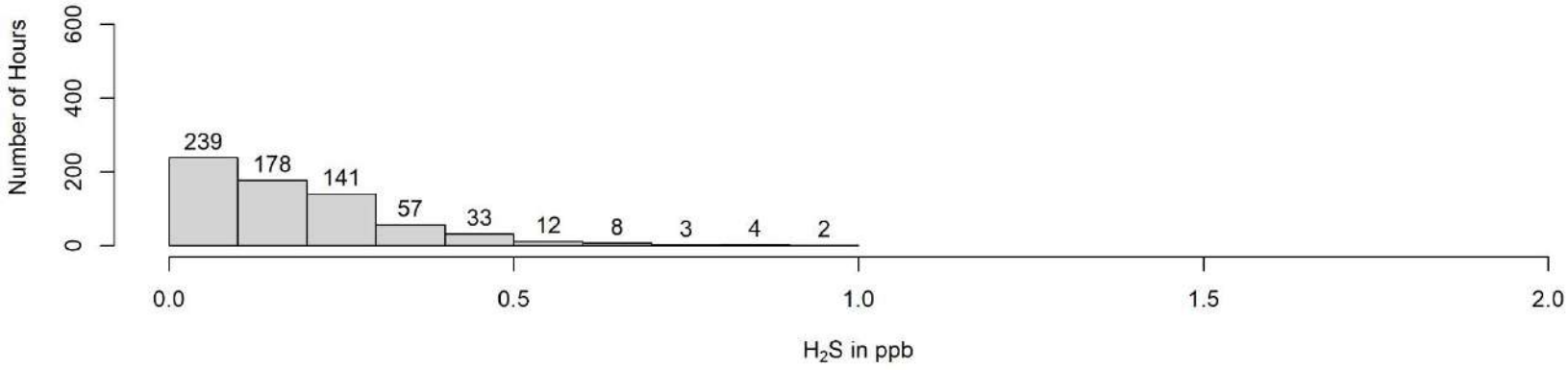
6 Valleyview Charts

The following pages include the charts and histograms for Valleyview Station

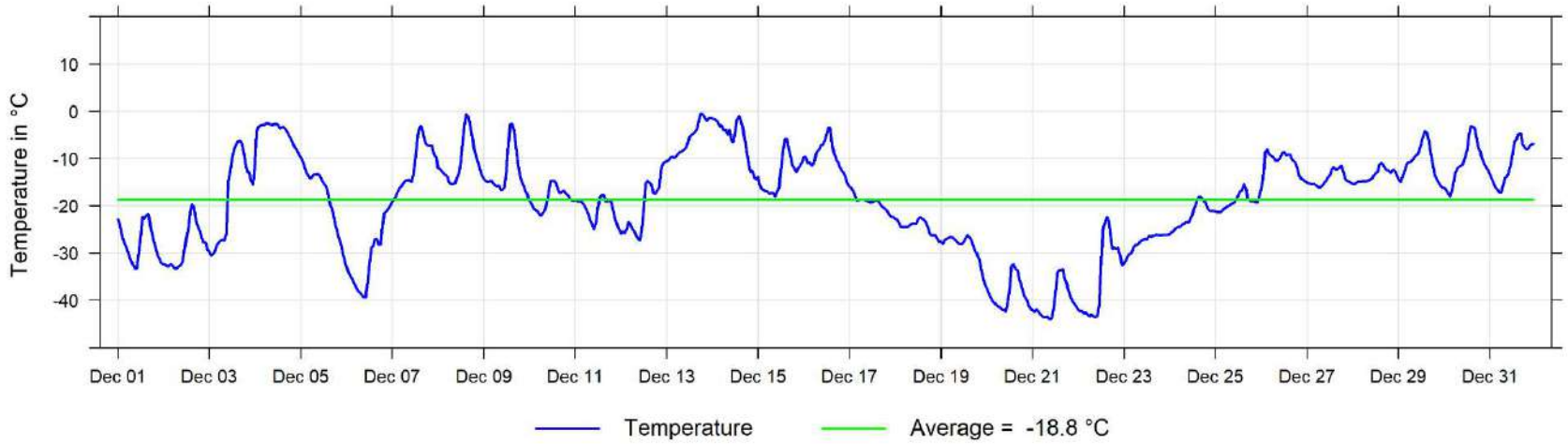

December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Valleyview
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.2 ppb


Number of Hours
0
200
400
600
653
44
6
4
0
0
2
0
1
2
3
4
5
6
7
SO_2 in ppb

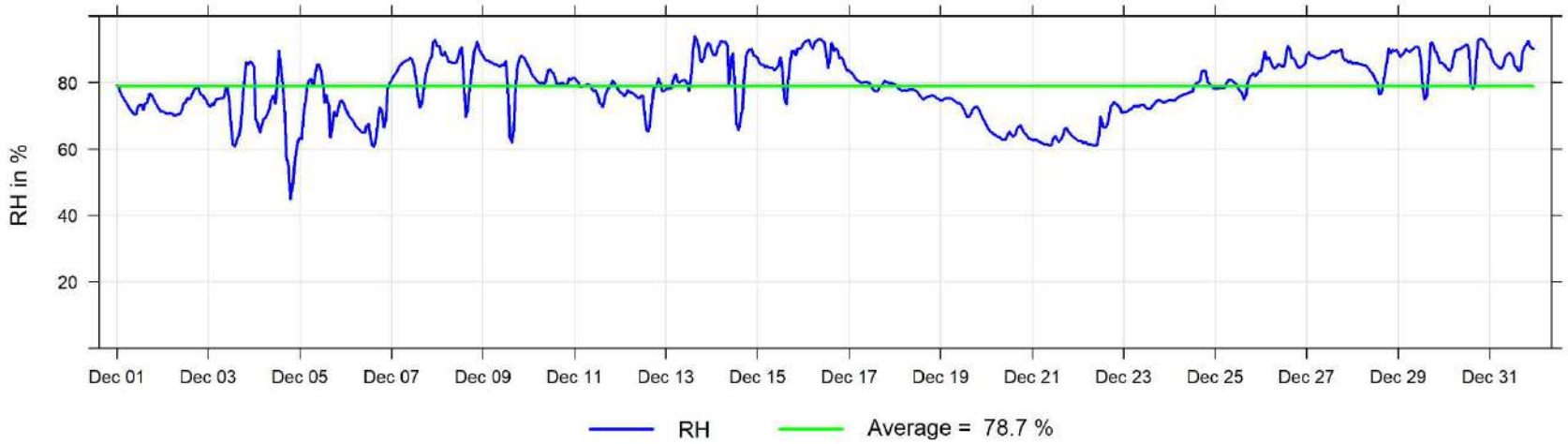

December 2022 Hourly Concentration Readings of H_2S (in ppb) at Valleyview
H_2S in ppb
10
8
6
4
2
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
H_2S
AAAQO Limit = 10 ppb
Average = 0.2 ppb

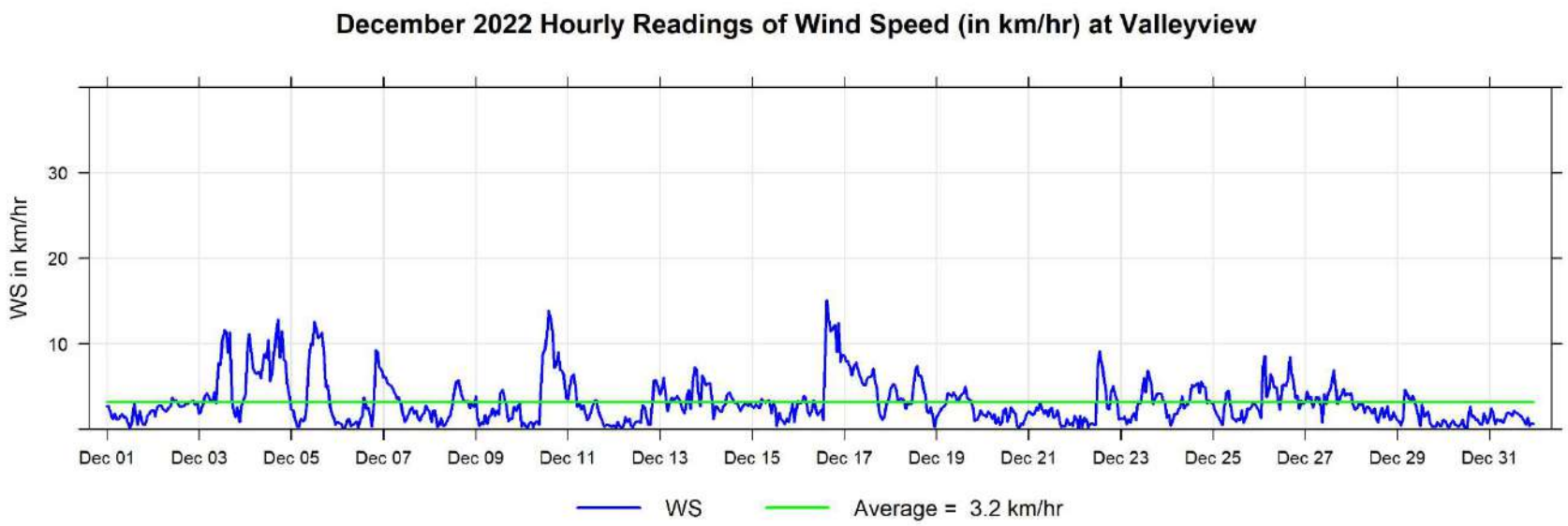

Number of Hours
0
200
400
600
239
178
141
57
33
12
8
3
4
2
0.0
0.5
1.0
1.5
2.0
H_2S in ppb

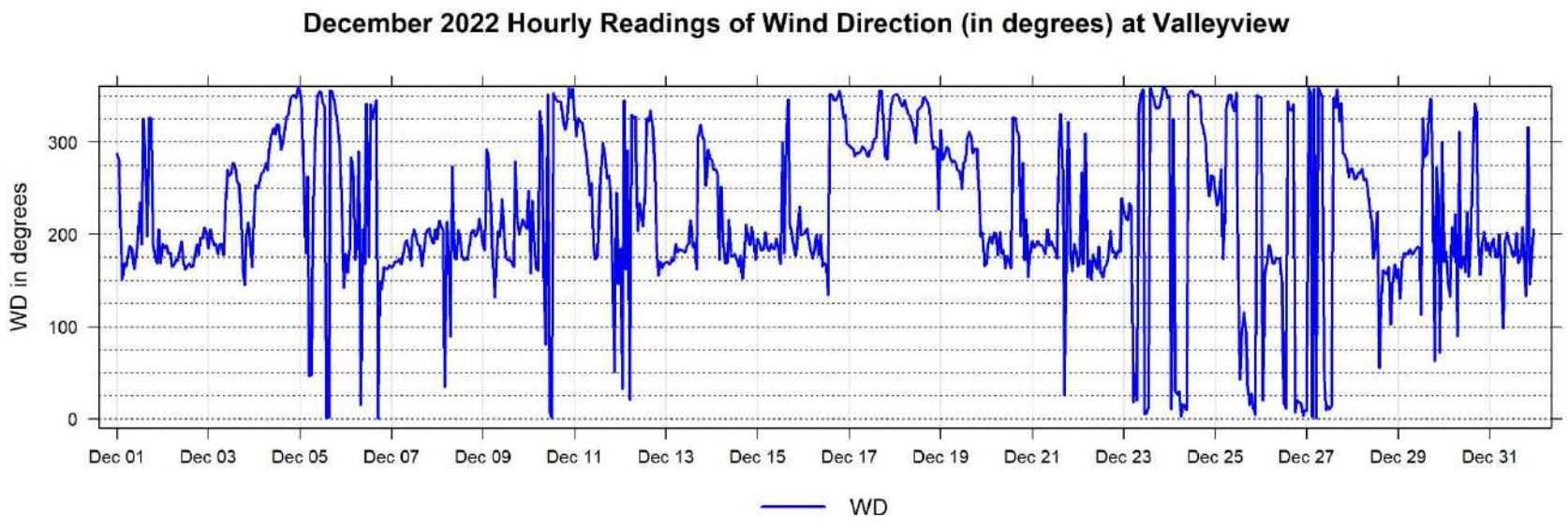
December 2022 Hourly Temperature Readings (in °C) at Valleyview

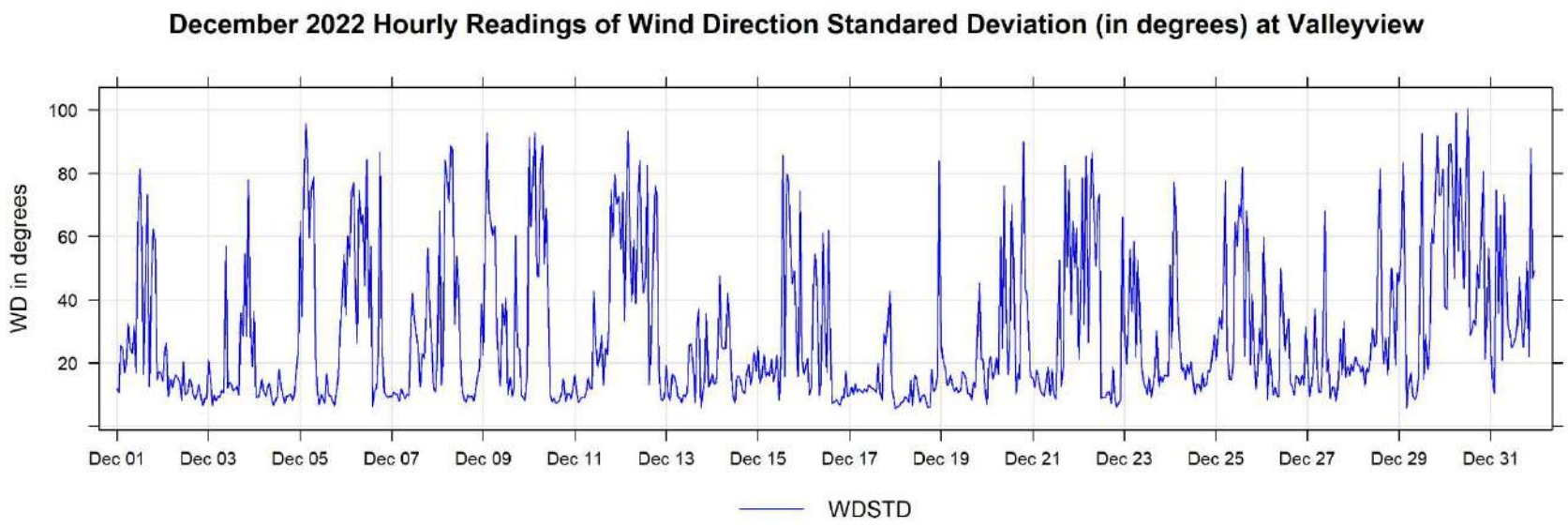


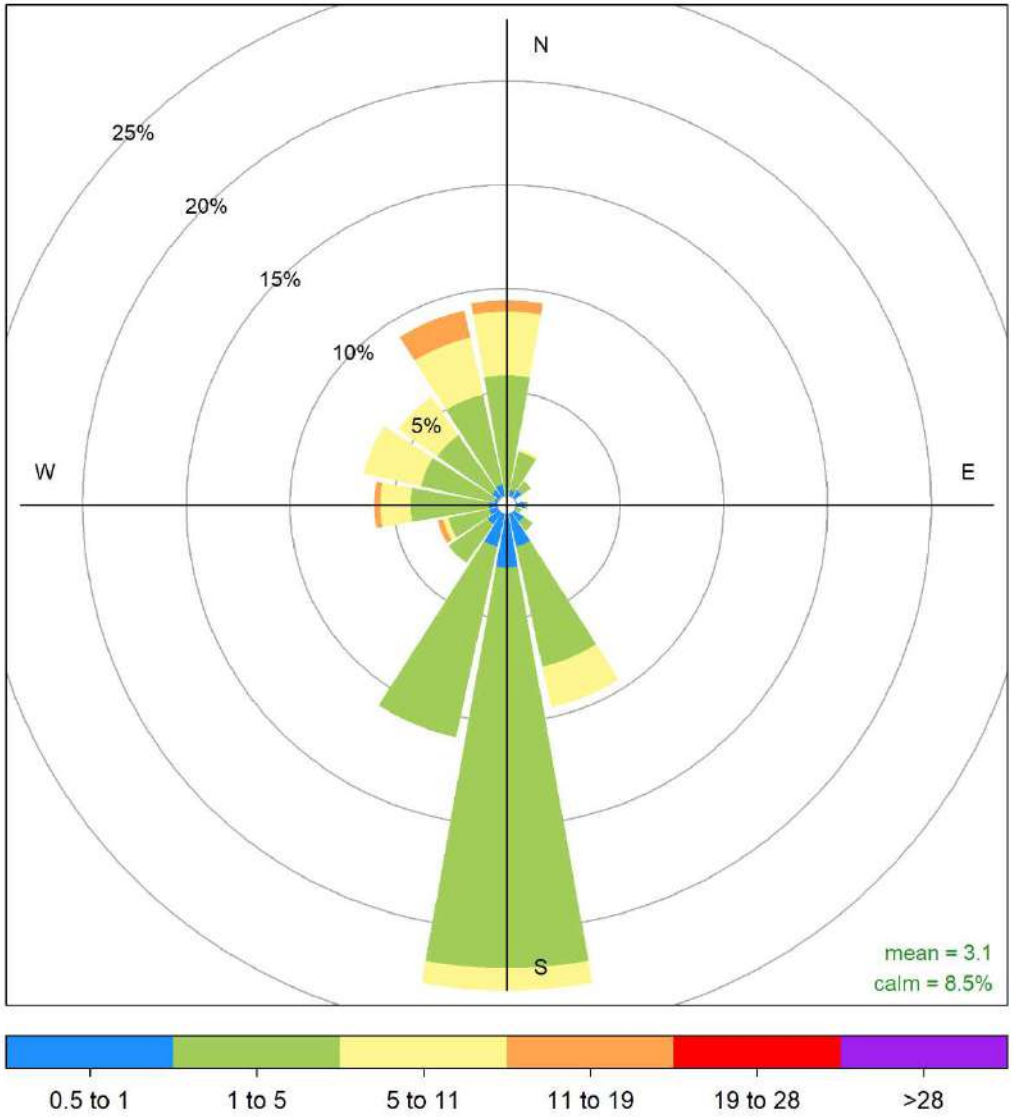
December 2022 Hourly Readings of Relative Humidity (in %) at Valleyview




December 2022 Hourly Readings of Wind Speed (in km/hr) at Valleyview
WS in km/hr
30
20
10
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WS
Average = 3.2 km/hr


December 2022 Hourly Readings of Wind Direction (in degrees) at Valleyview
WD in degrees
300
200
100
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Valleyview
WD in degrees
100
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

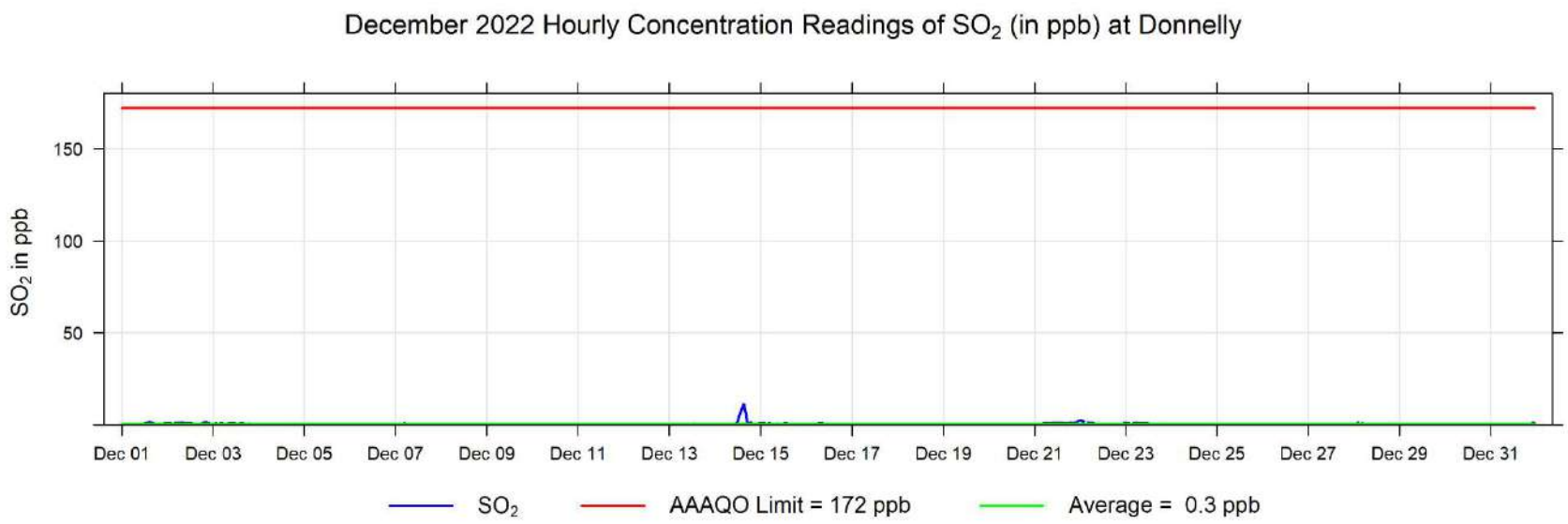


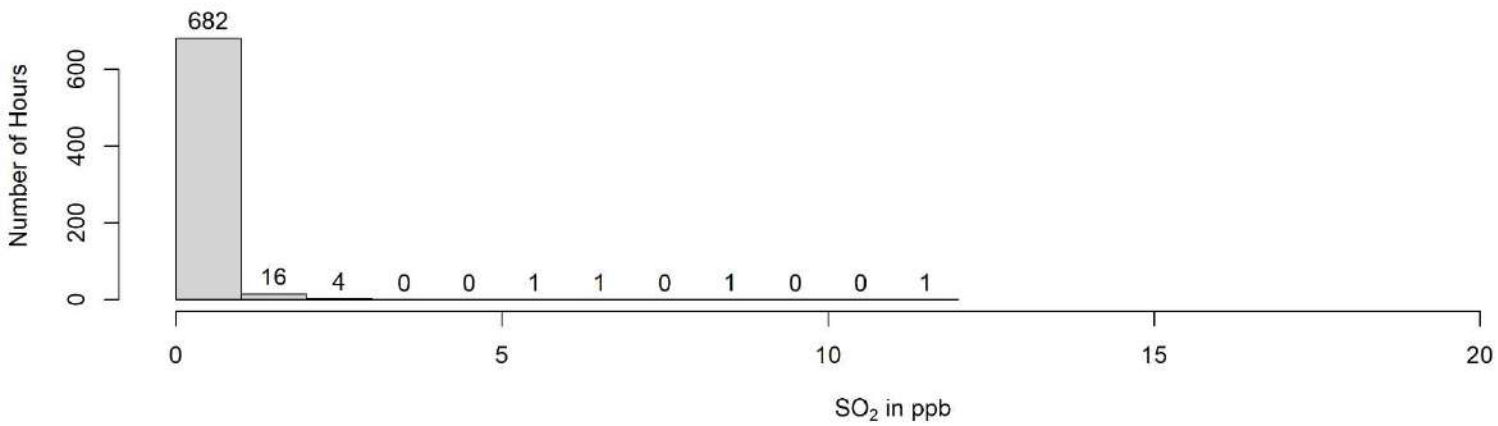
Valleyview December 2022 Wind Rose, wind speed in km/hr

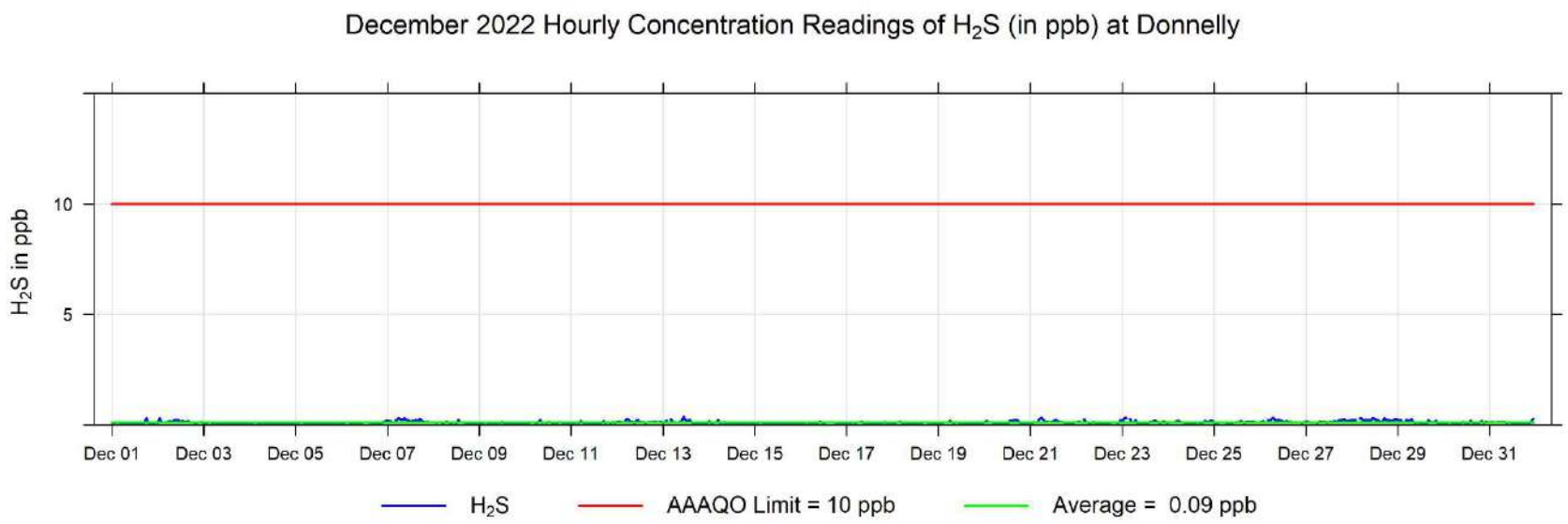
Frequency of counts by wind direction (%)

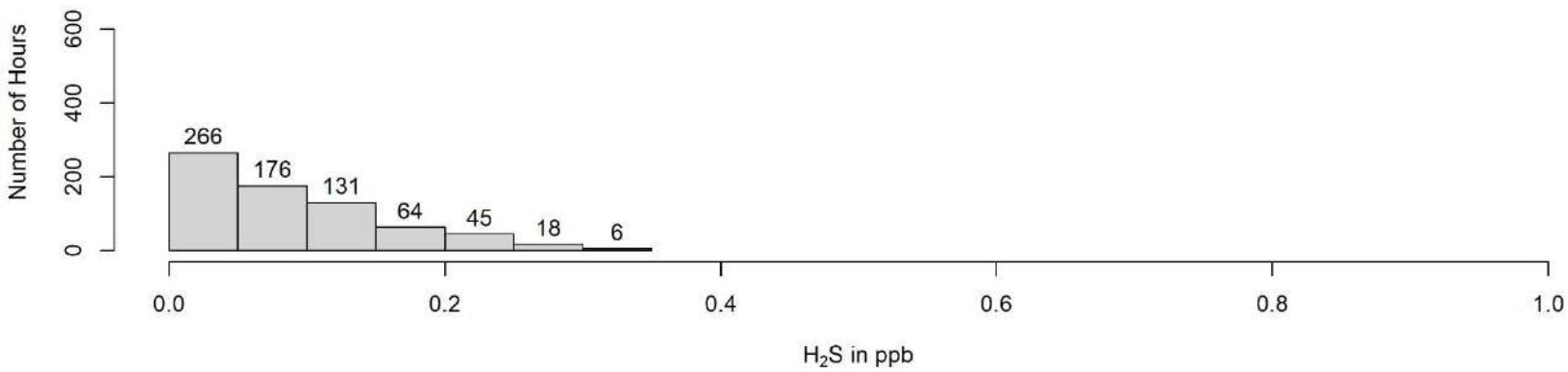
7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

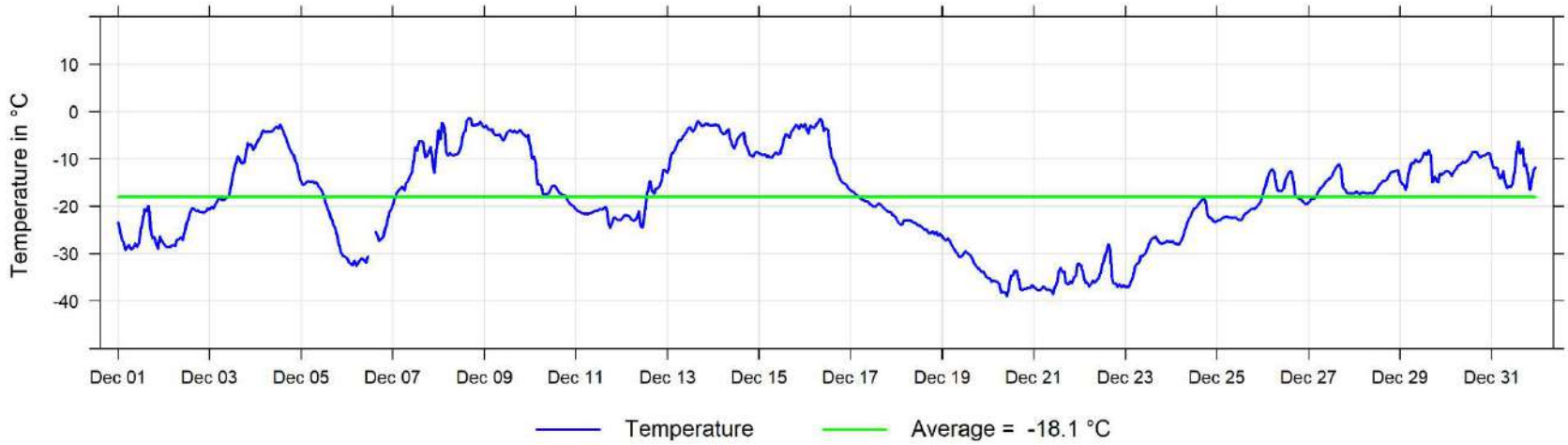

December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Donnelly
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.3 ppb


Number of Hours
0
200
400
600
682
16
4
0
0
1
1
0
1
0
0
1
0
5
10
15
20
SO_2 in ppb

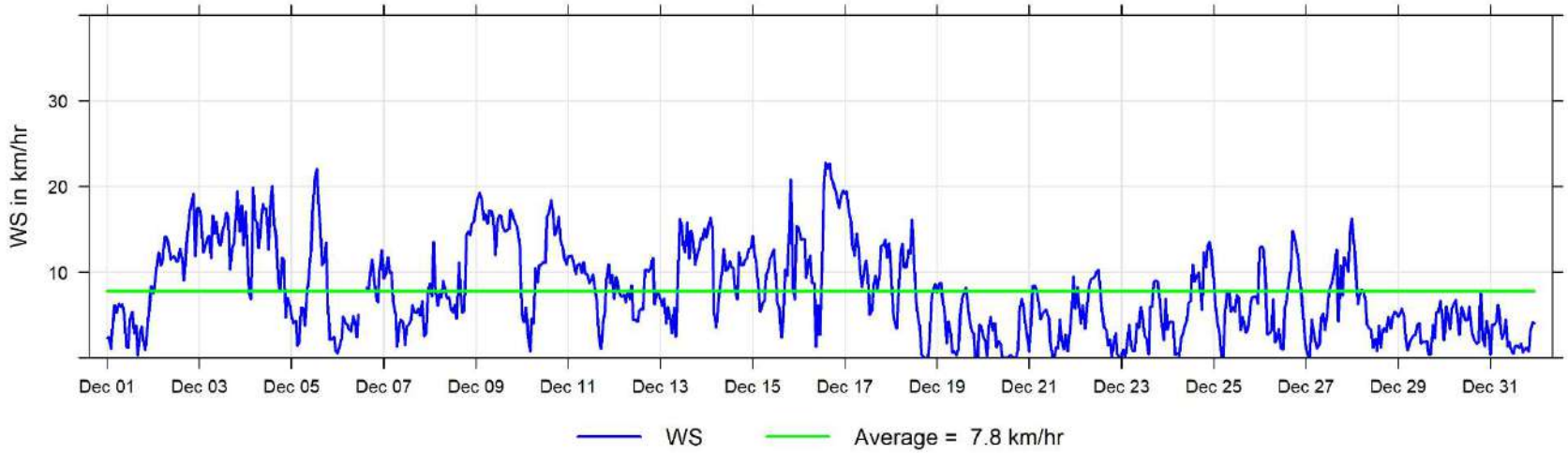

December 2022 Hourly Concentration Readings of H_2S (in ppb) at Donnelly
H_2S in ppb
10
5
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
H_2S
AAAQO Limit = 10 ppb
Average = 0.09 ppb

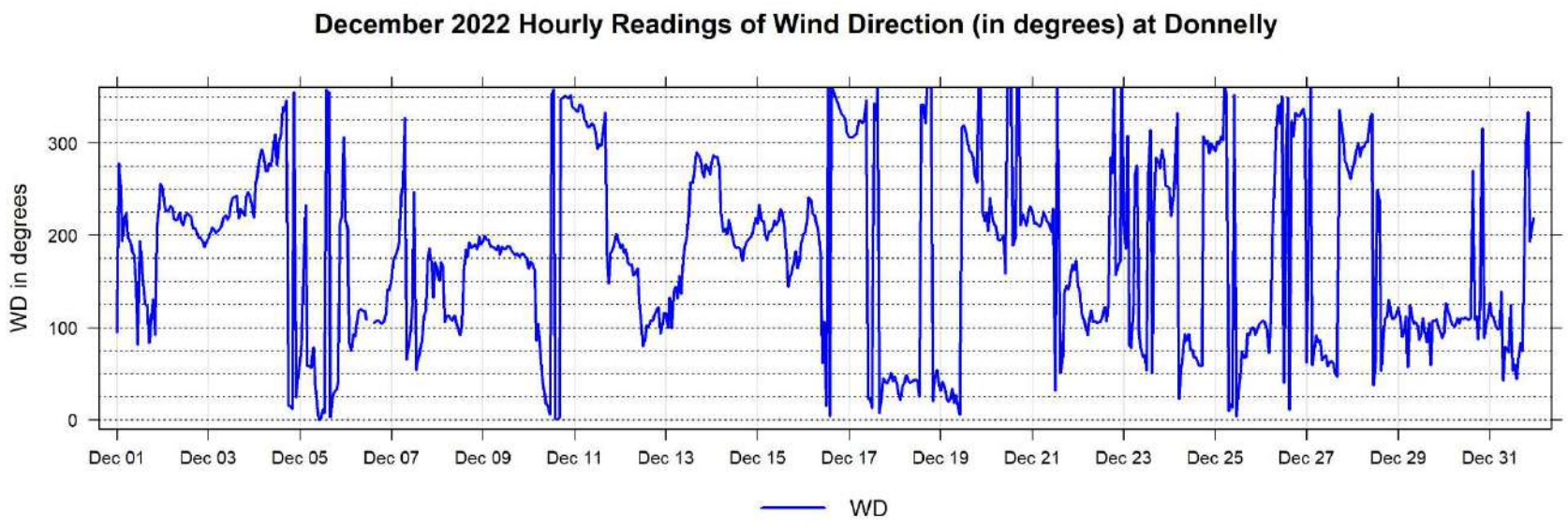

Number of Hours
0
200
400
600
266
176
131
64
45
18
6
0.0
0.2
0.4
0.6
0.8
1.0
H_2S in ppb

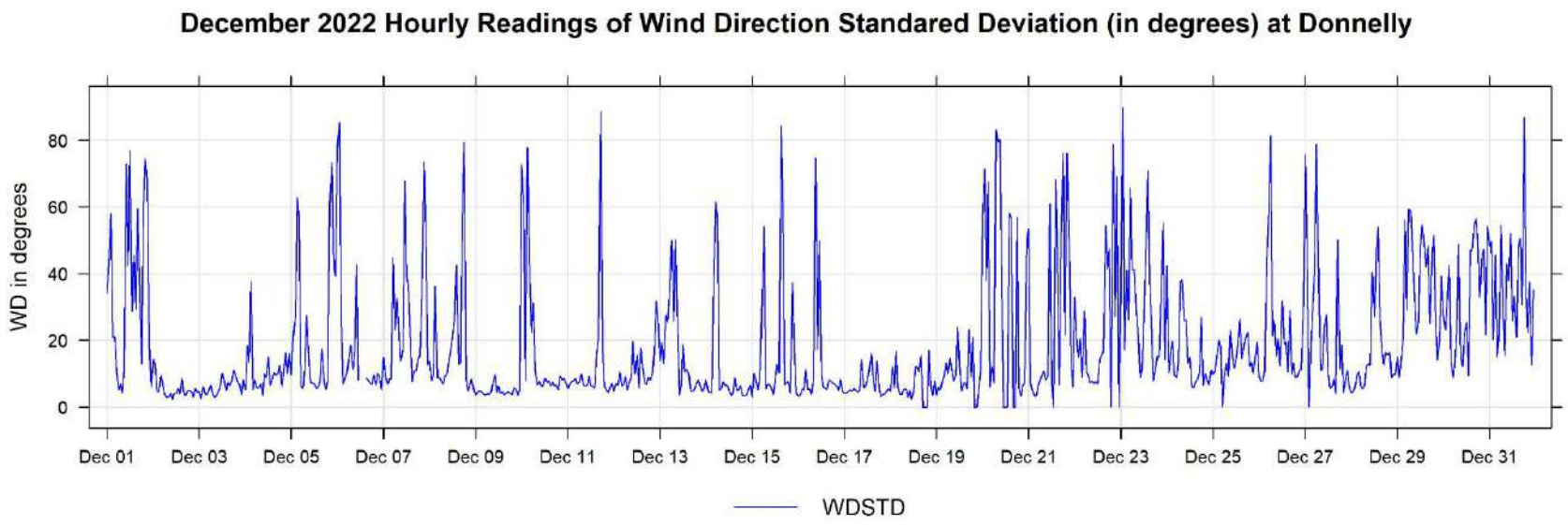
December 2022 Hourly Temperature Readings (in °C) at Donnelly

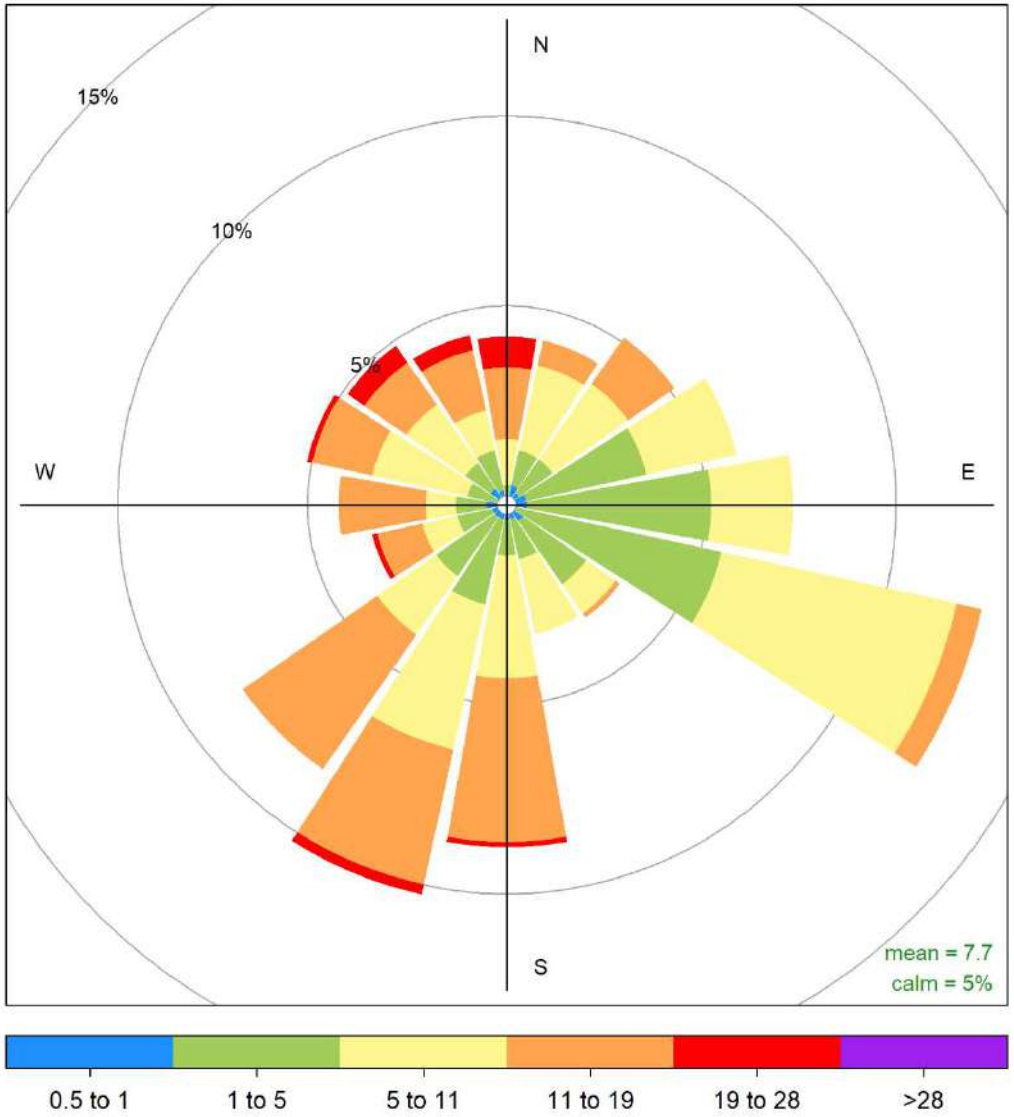


December 2022 Hourly Readings of Wind Speed (in km/hr) at Donnelly




December 2022 Hourly Readings of Wind Direction (in degrees) at Donnelly
WD in degrees
0
100
200
300
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Donnelly
WD in degrees
0
20
40
60
80
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD

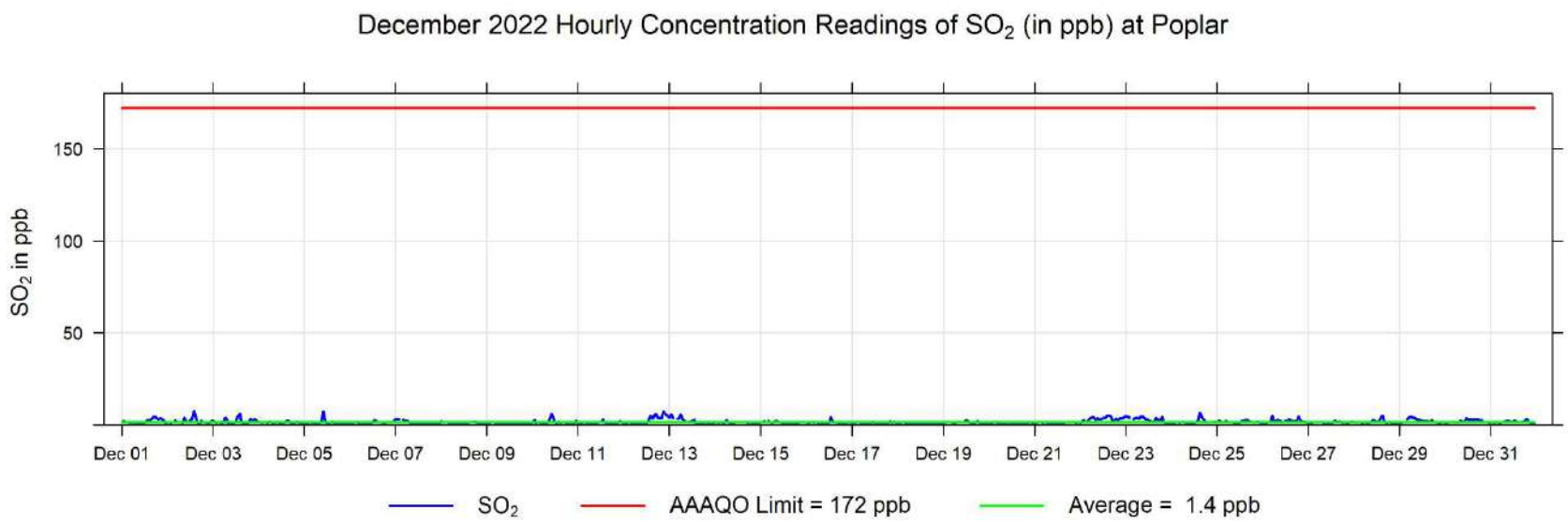


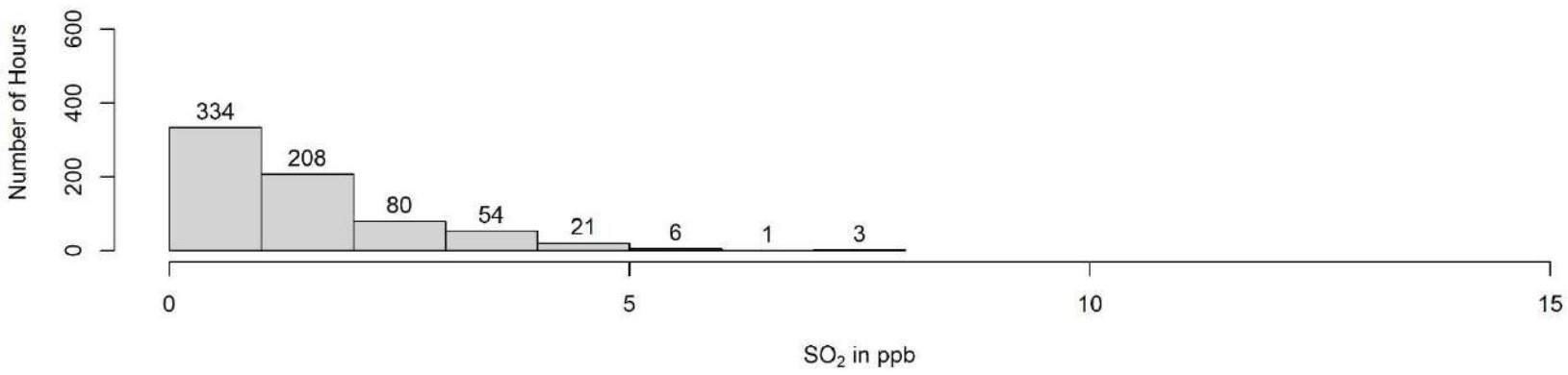
Donnelly December 2022 Wind Rose, wind speed in km/hr

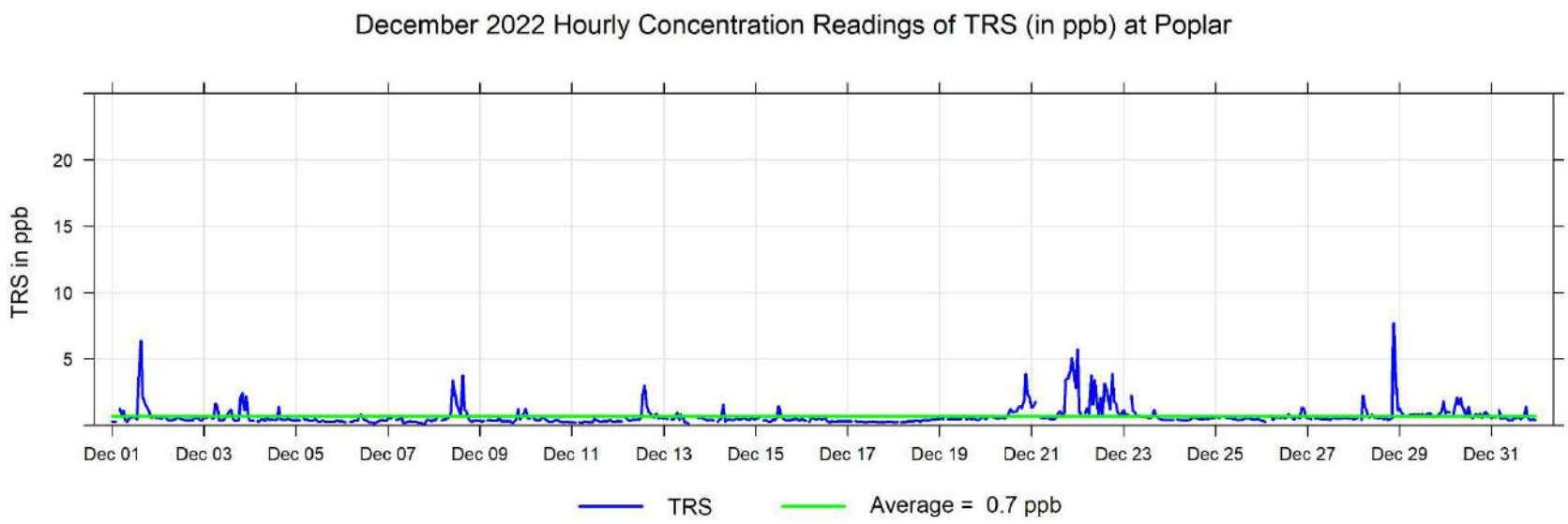
Frequency of counts by wind direction (%)

8 Poplar (Portable) Charts

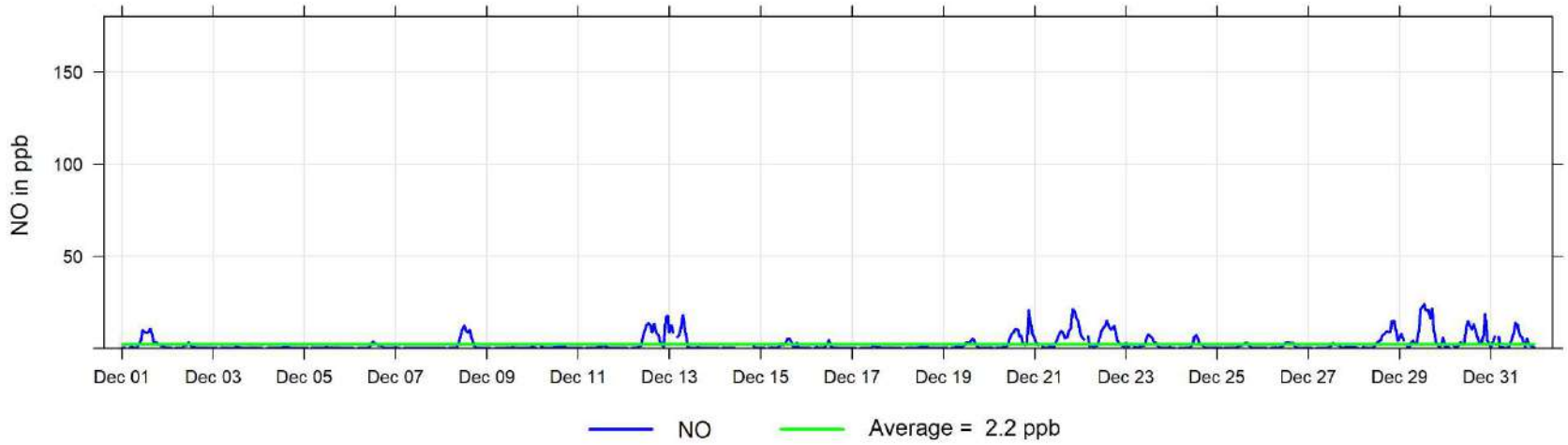
The following pages include the charts and histograms for Poplar Portable Station


December 2022 Hourly Concentration Readings of SO_2 (in ppb) at Poplar
SO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
SO_2
AAAQO Limit = 172 ppb
Average = 1.4 ppb

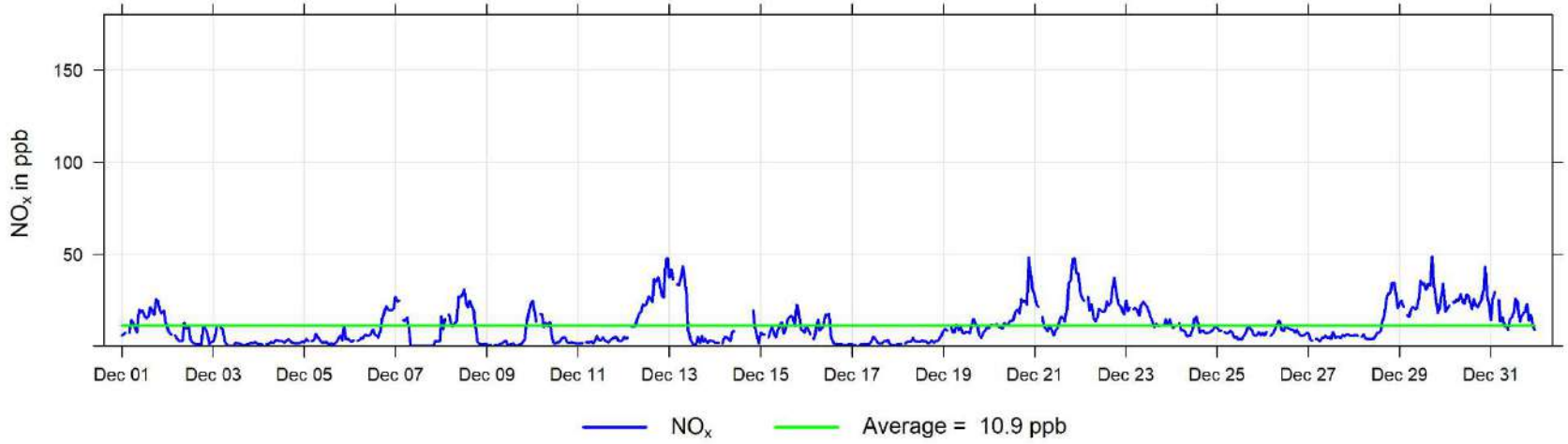

Number of Hours
0
200
400
600
334
208
80
54
21
6
1
3
0
5
10
15
SO_2 in ppb

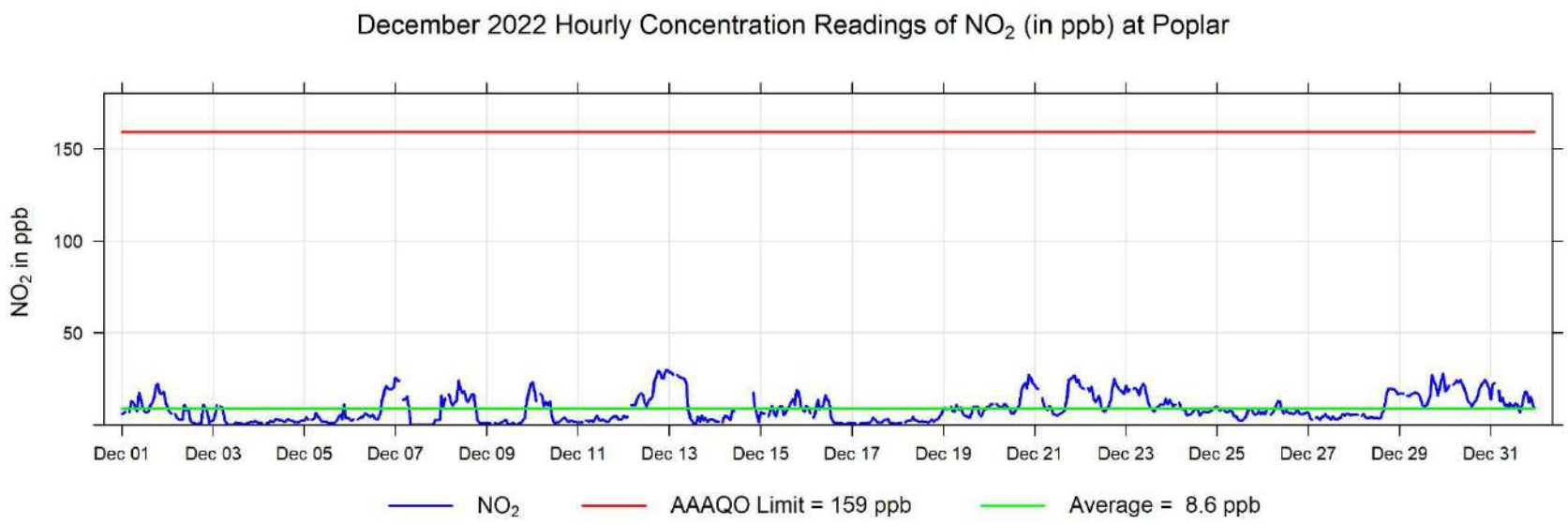

December 2022 Hourly Concentration Readings of TRS (in ppb) at Poplar
TRS in ppb
20
15
10
5
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
TRS
Average = 0.7 ppb

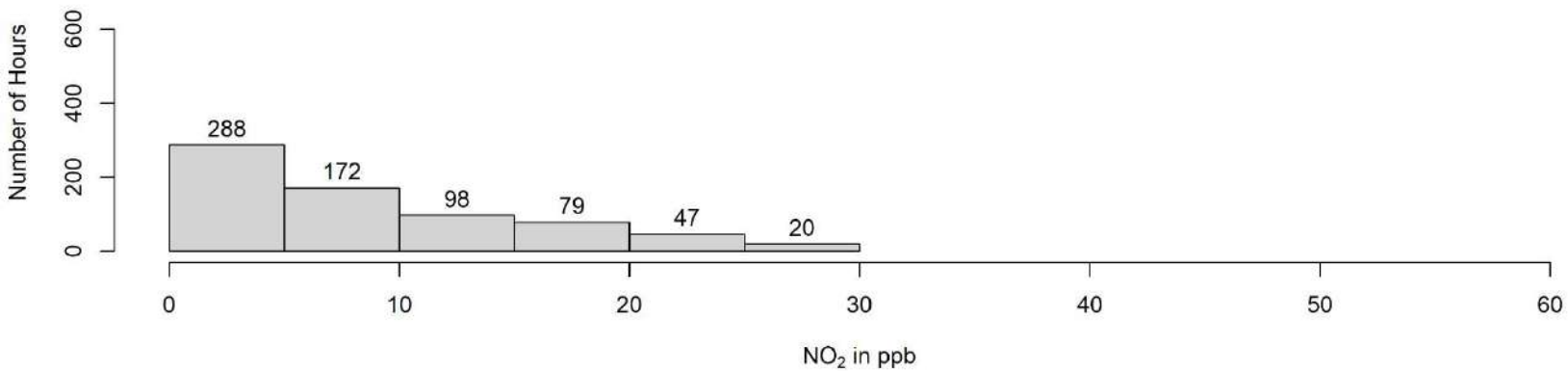
December 2022 Hourly Concentration Readings of NO (in ppb) at Poplar

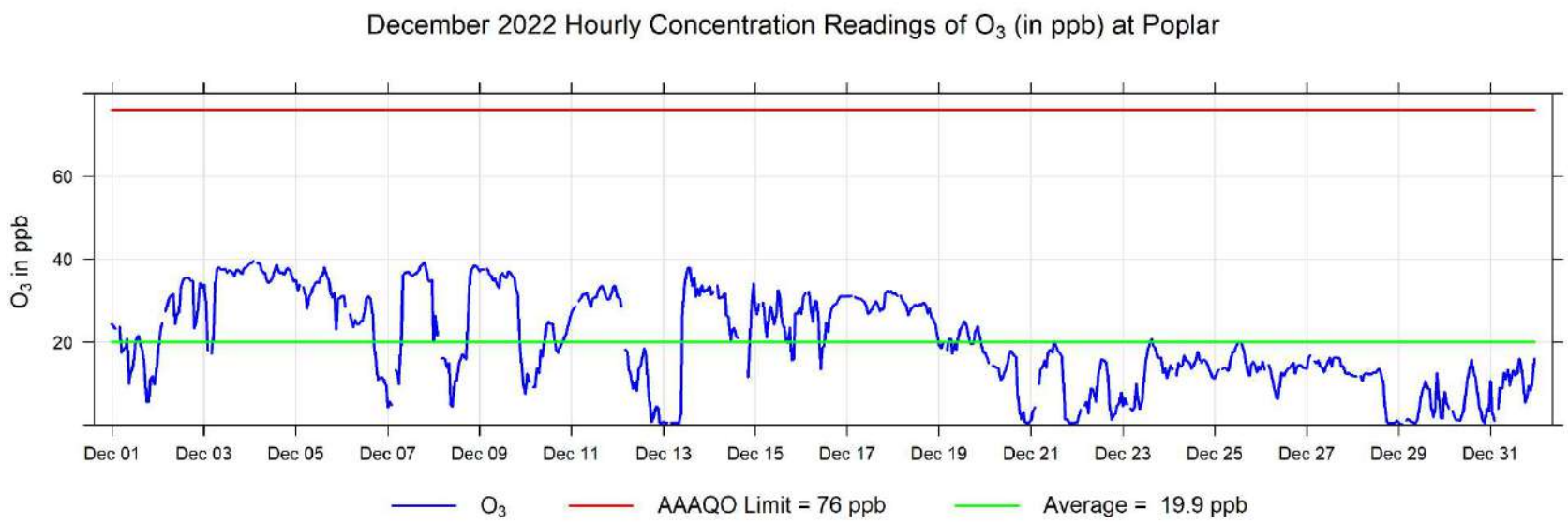


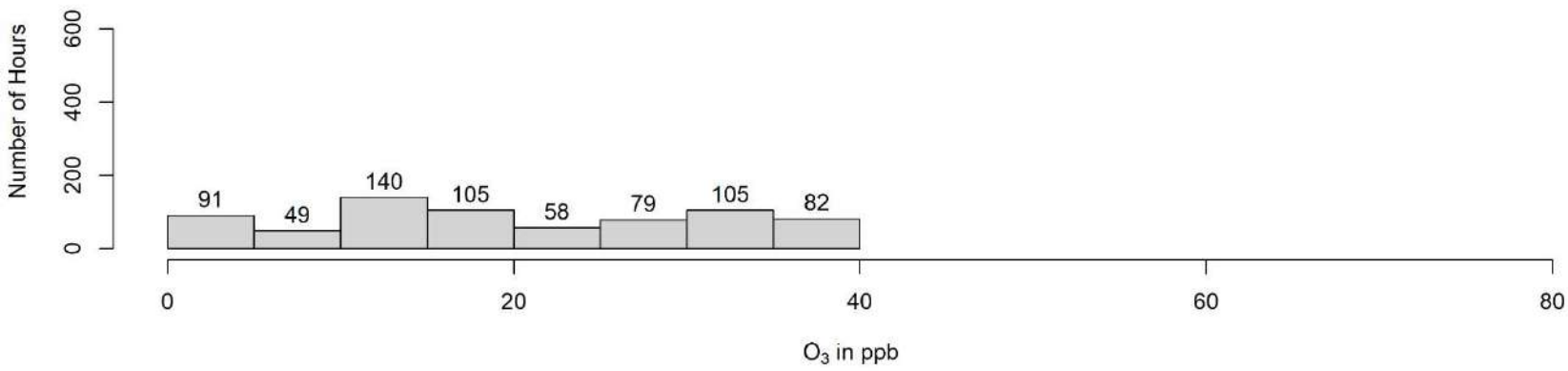
December 2022 Hourly Concentration Readings of NO_x (in ppb) at Poplar



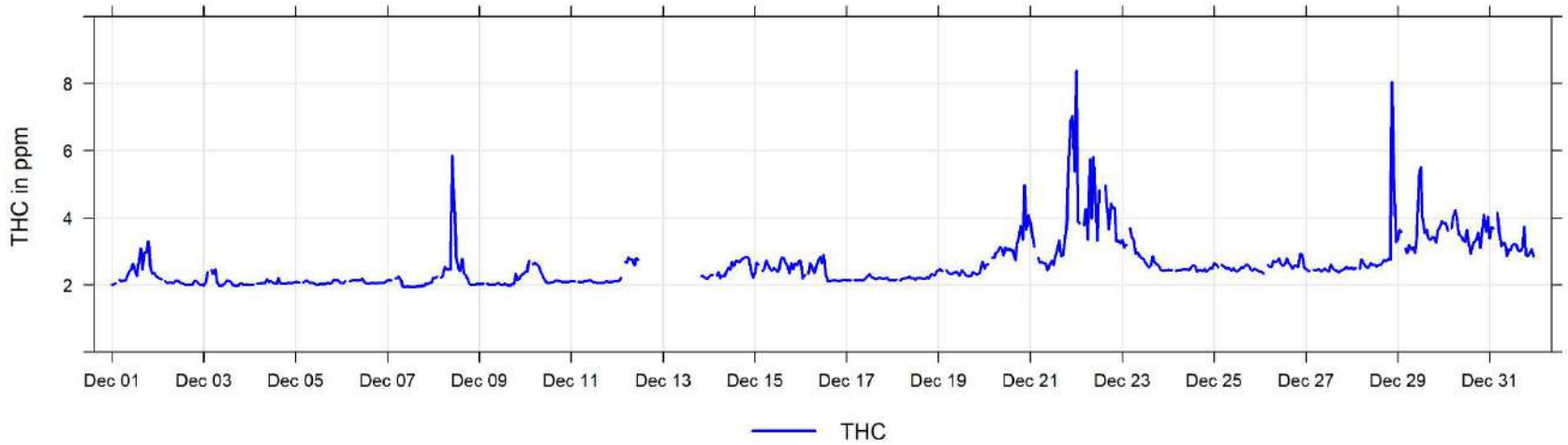

December 2022 Hourly Concentration Readings of NO_2 (in ppb) at Poplar
NO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NO_2
AAAQO Limit = 159 ppb
Average = 8.6 ppb


Number of Hours
0
200
400
600
288
172
98
79
47
20
0
10
20
30
40
50
60
NO_2 in ppb

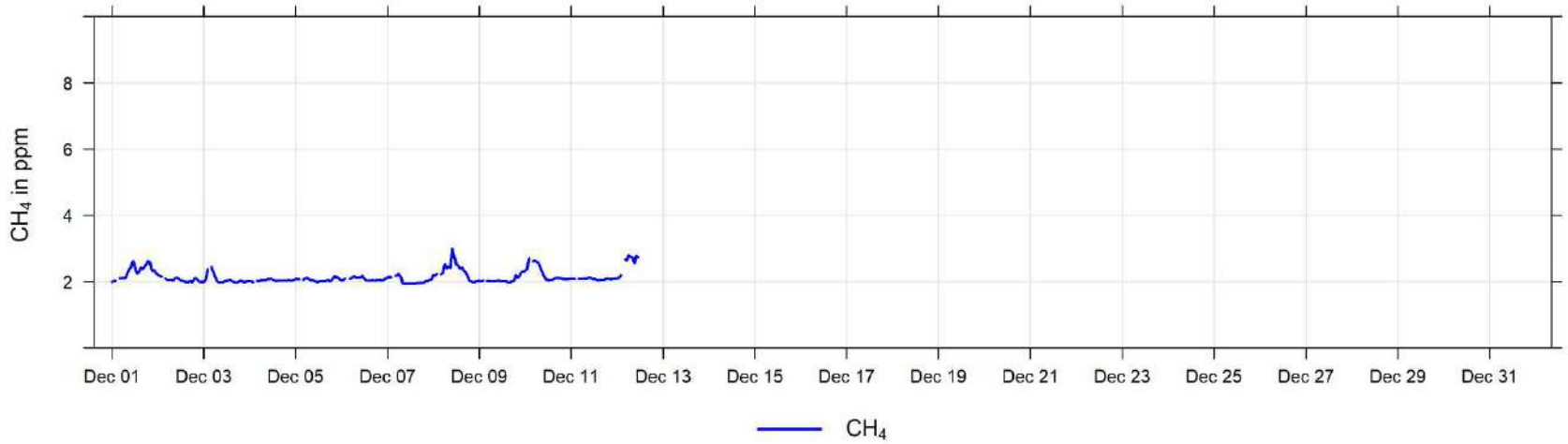

December 2022 Hourly Concentration Readings of O_3 (in ppb) at Poplar
O_3 in ppb
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
O_3
AAAQO Limit = 76 ppb
Average = 19.9 ppb

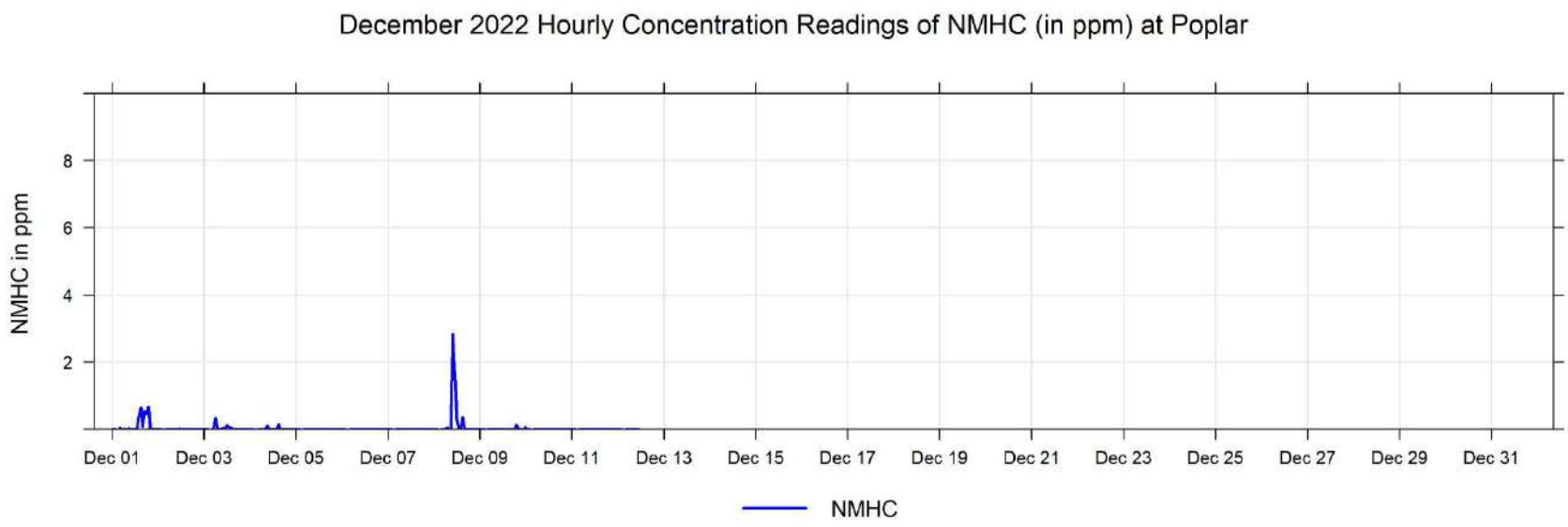

Number of Hours
0
200
400
600
91
49
140
105
58
79
105
82
0
20
40
60
80
O_3 in ppb

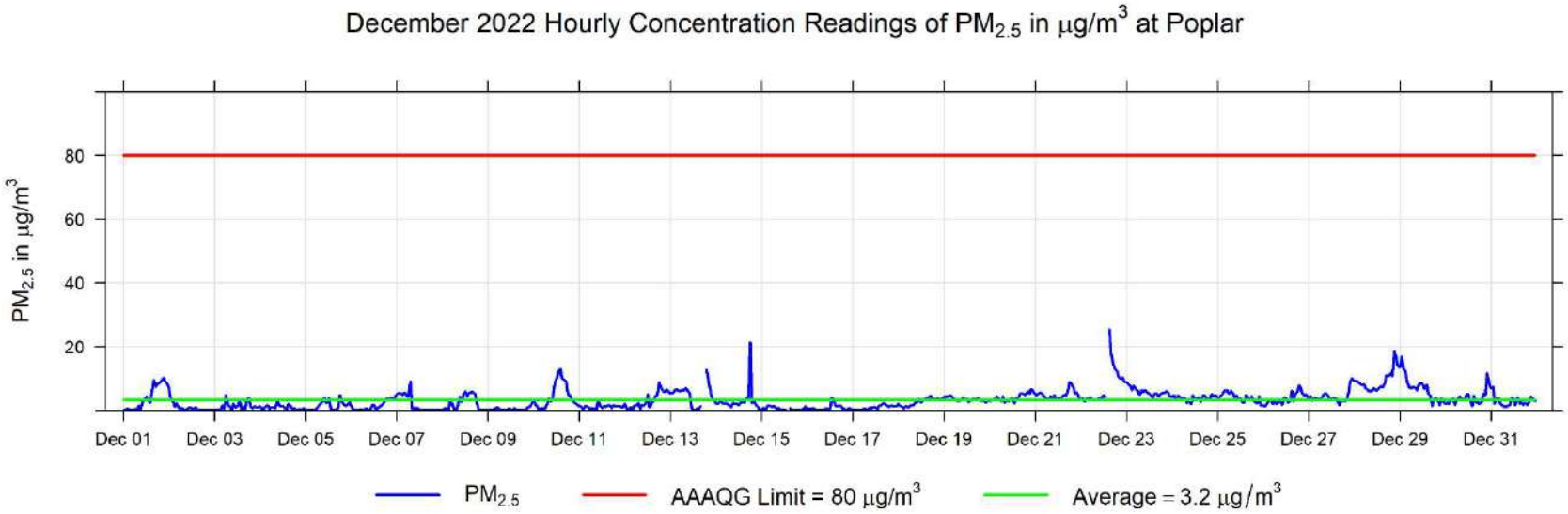
December 2022 Hourly Concentration Readings of THC (in ppm) at Poplar

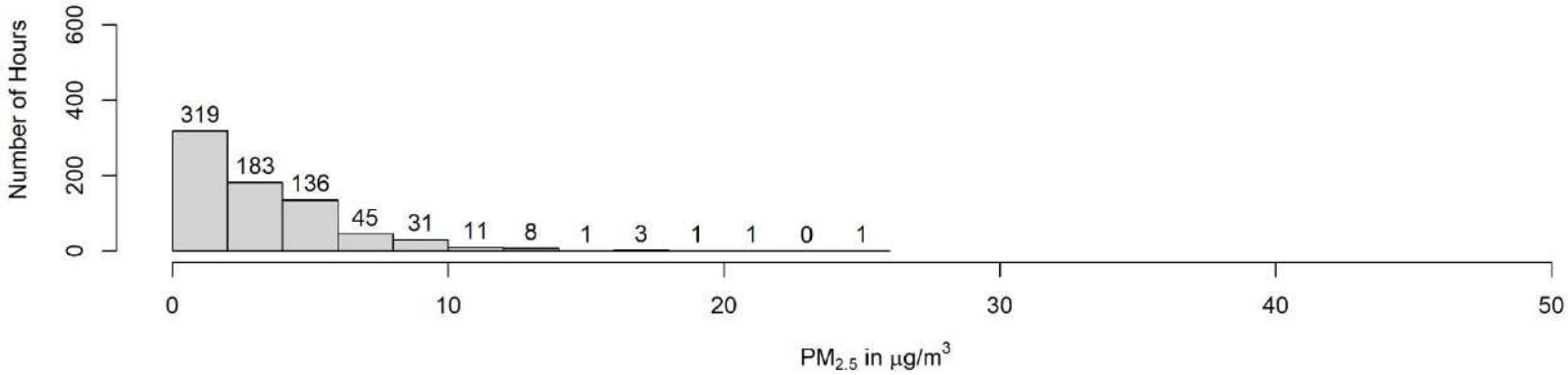


December 2022 Hourly Concentration Readings of CH_4 (in ppm) at Poplar

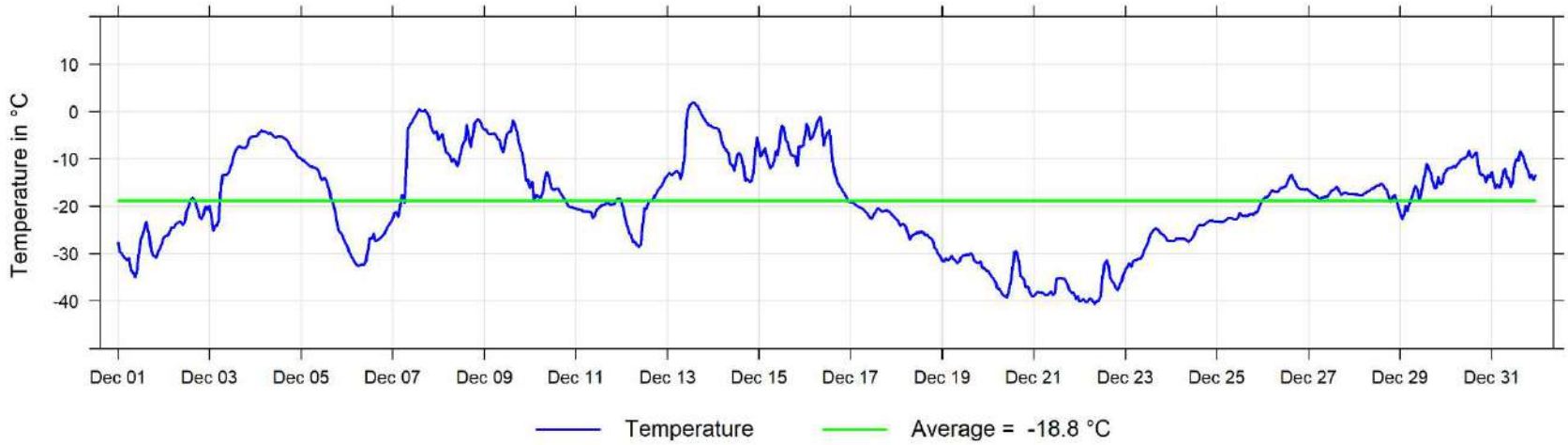



December 2022 Hourly Concentration Readings of NMHC (in ppm) at Poplar
NMHC in ppm
8
6
4
2
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NMHC

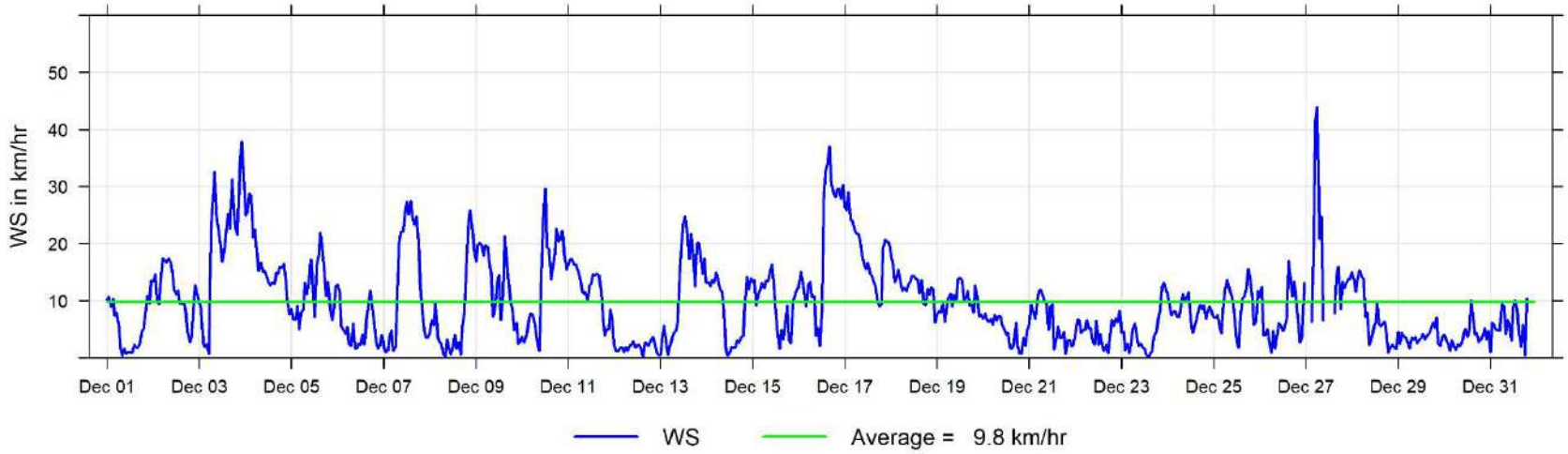

December 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Poplar
PM2.5 in µg/m3
80
60
40
20
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 3.2 µg/m3

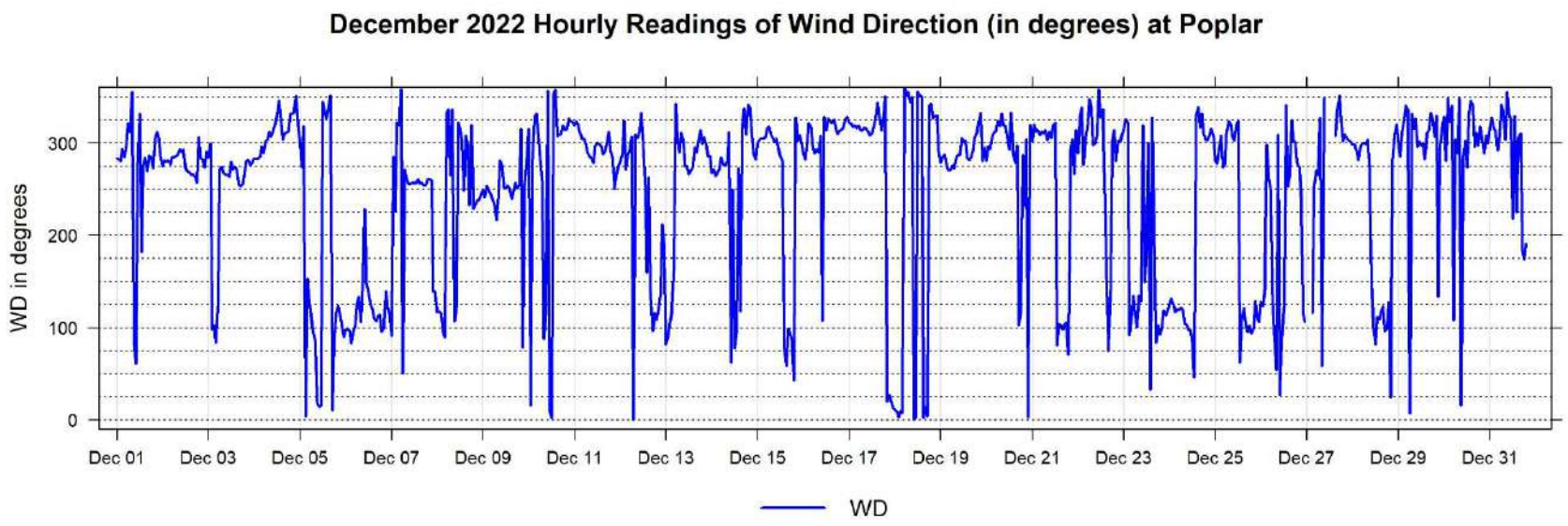

Number of Hours
0
200
400
600
319
183
136
45
31
11
8
1
3
1
1
0
1
0
10
20
30
40
50
PM2.5 in µg/m3

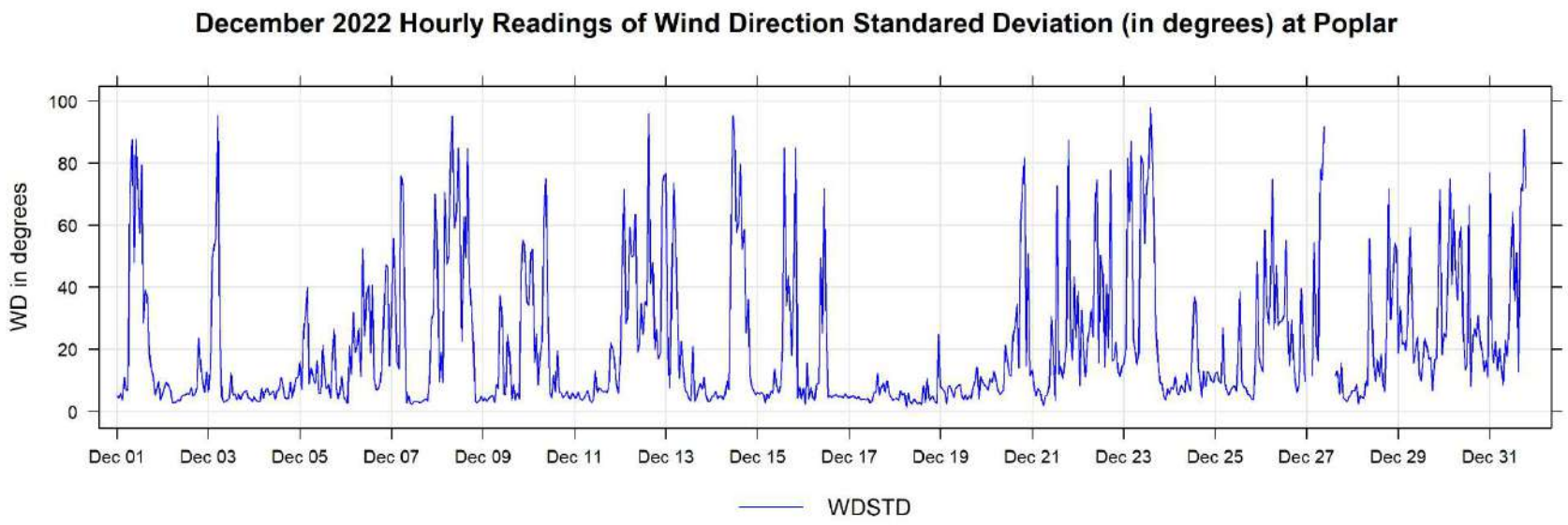
December 2022 Hourly Temperature Readings (in °C) at Poplar

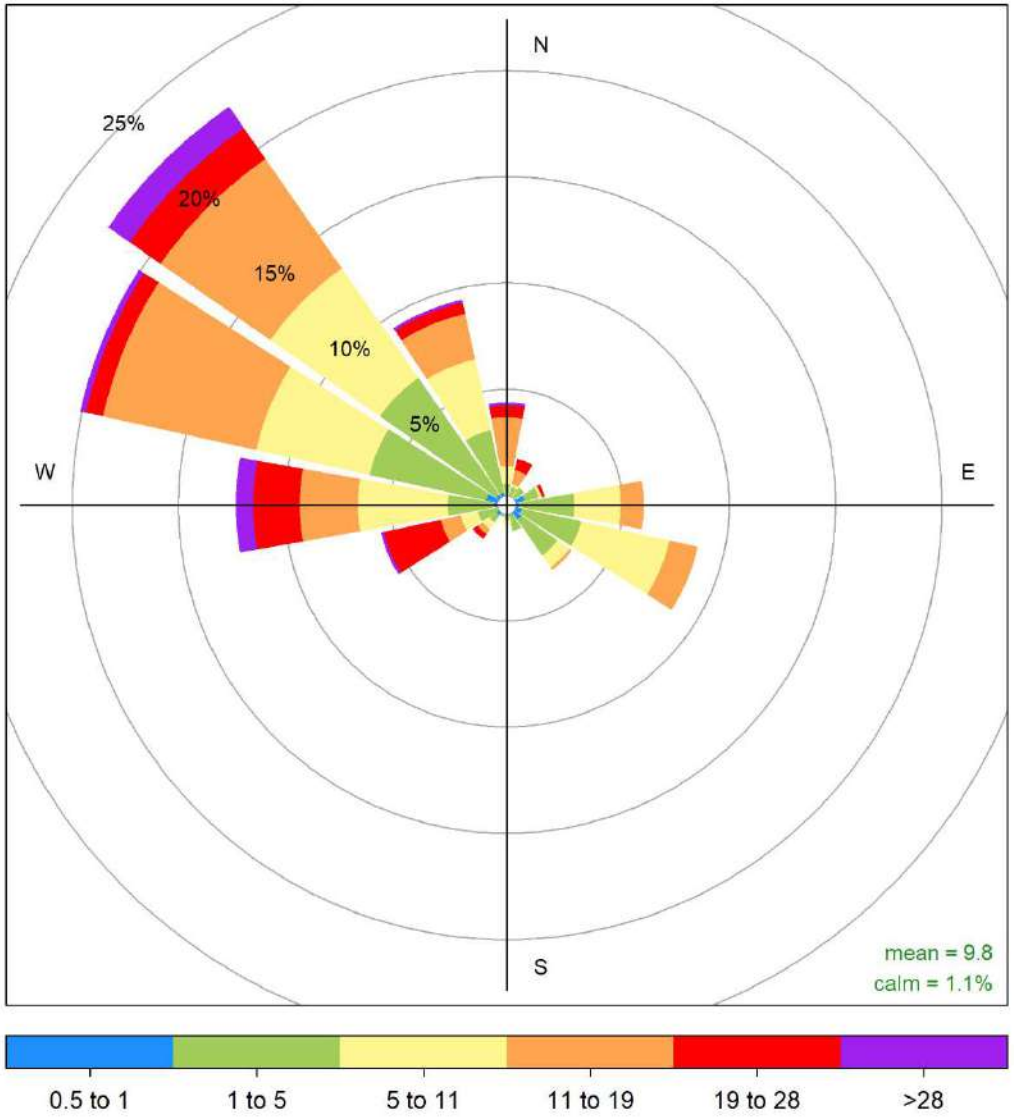


December 2022 Hourly Readings of Wind Speed (in km/hr) at Poplar




December 2022 Hourly Readings of Wind Direction (in degrees) at Poplar
WD in degrees
0
100
200
300
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD


December 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Poplar
WD in degrees
0
20
40
60
80
100
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WDSTD



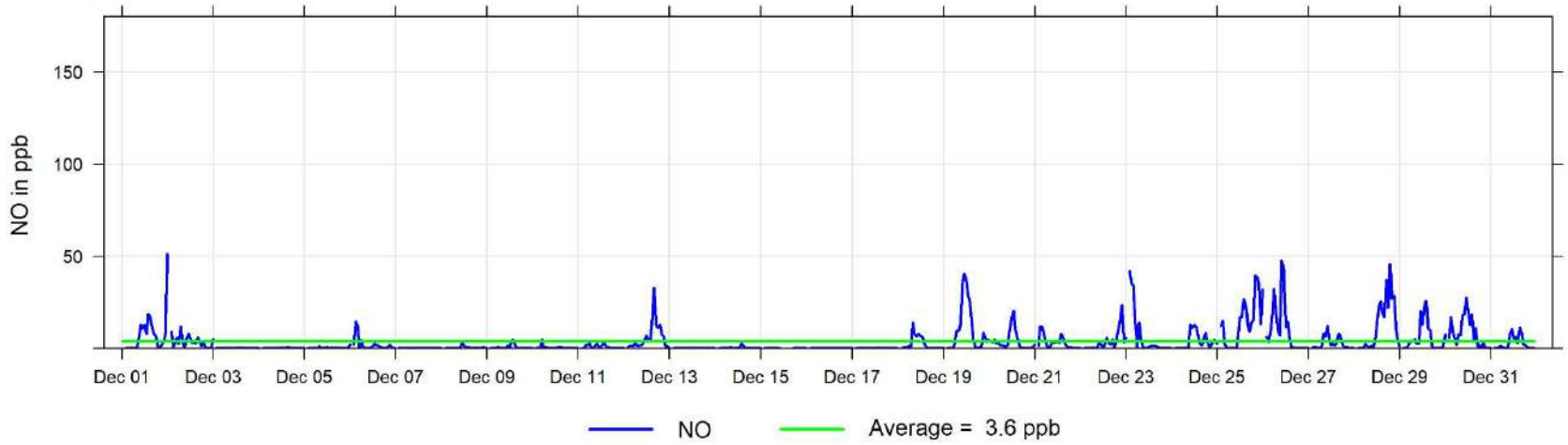
Poplar December 2022 Wind Rose, wind speed in km/hr

Frequency of counts by wind direction (%)

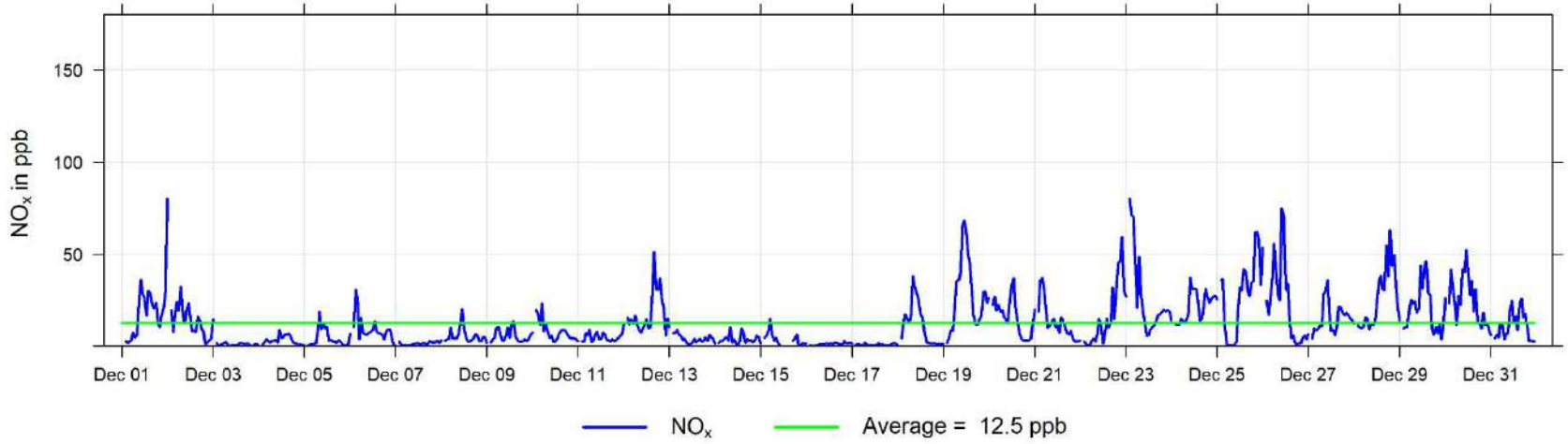
9 Milner Charts

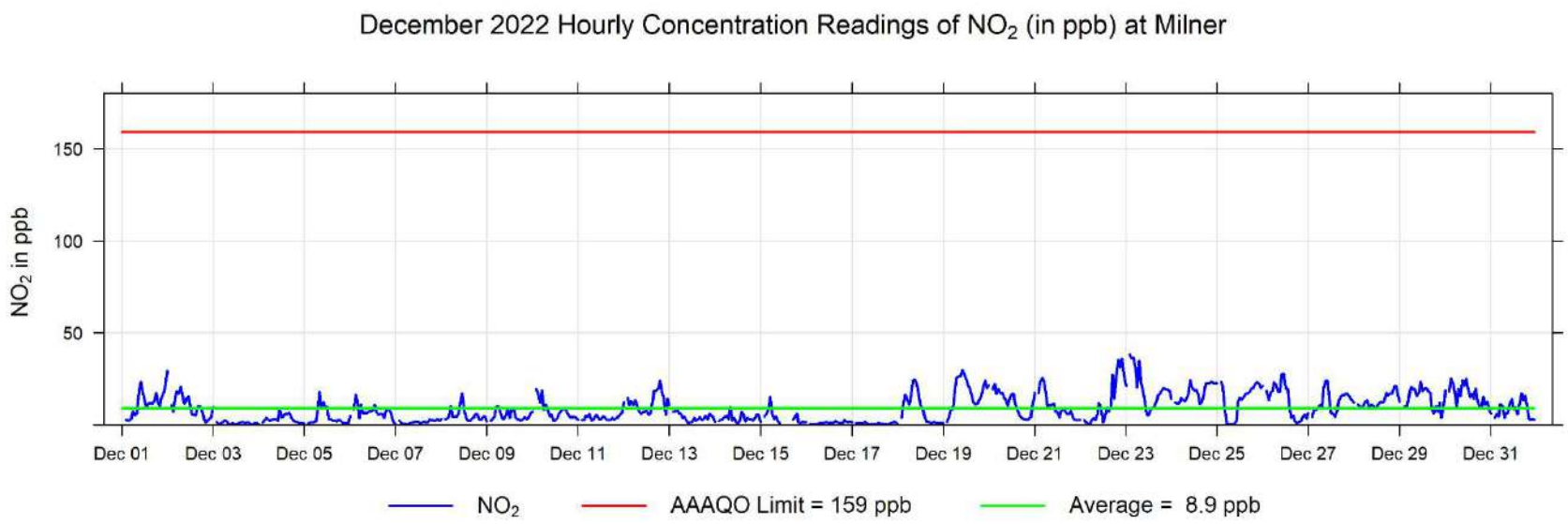
The following pages include the charts and histograms for Poplar Portable Station

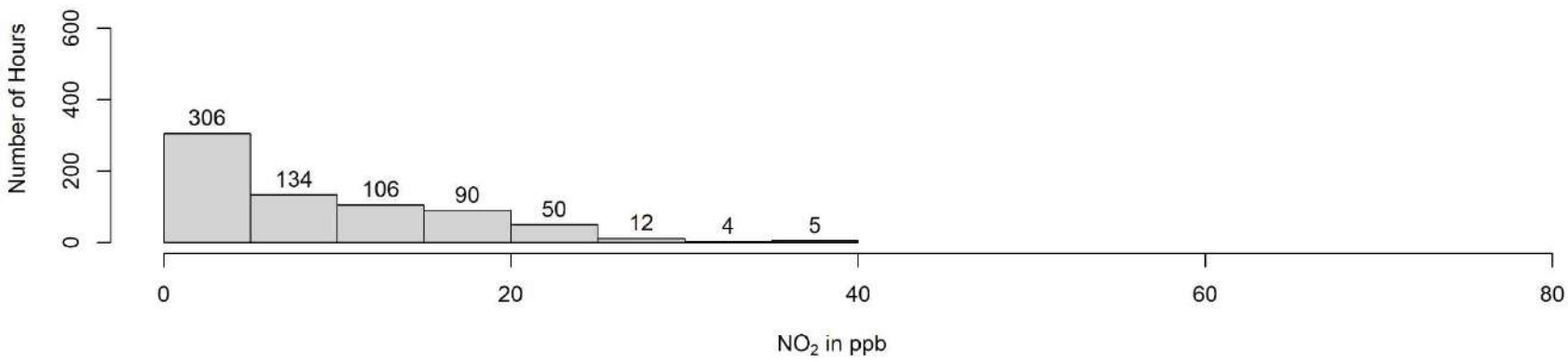
December 2022 Hourly Concentration Readings of NO (in ppb) at Milner

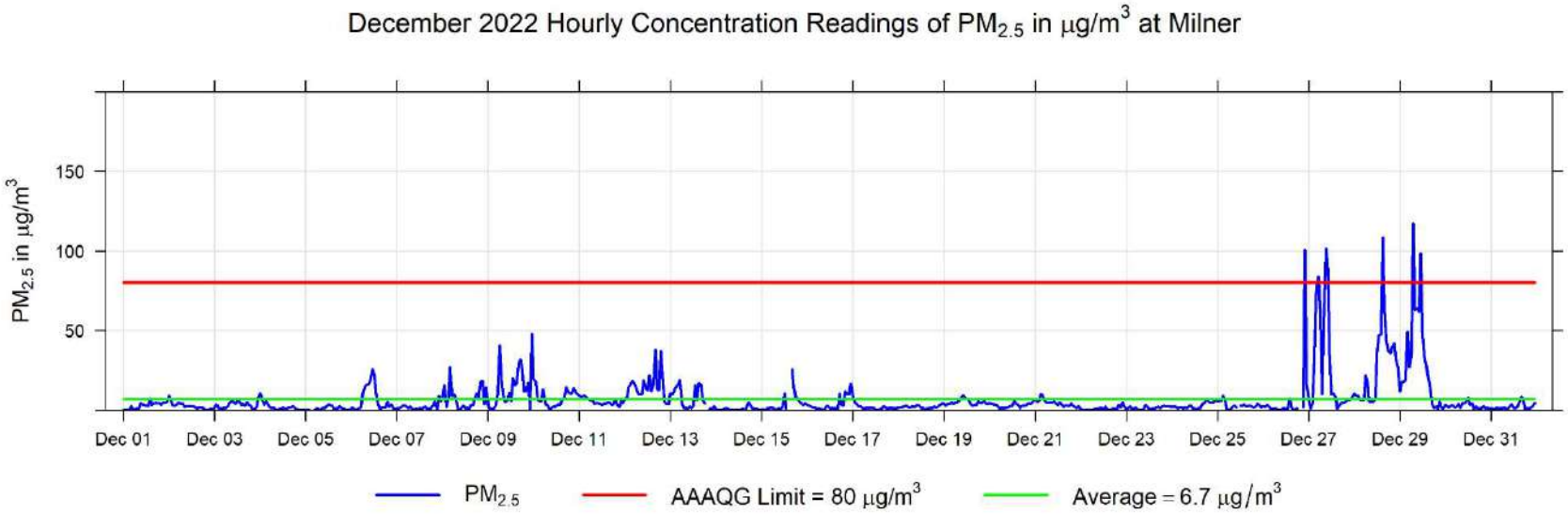


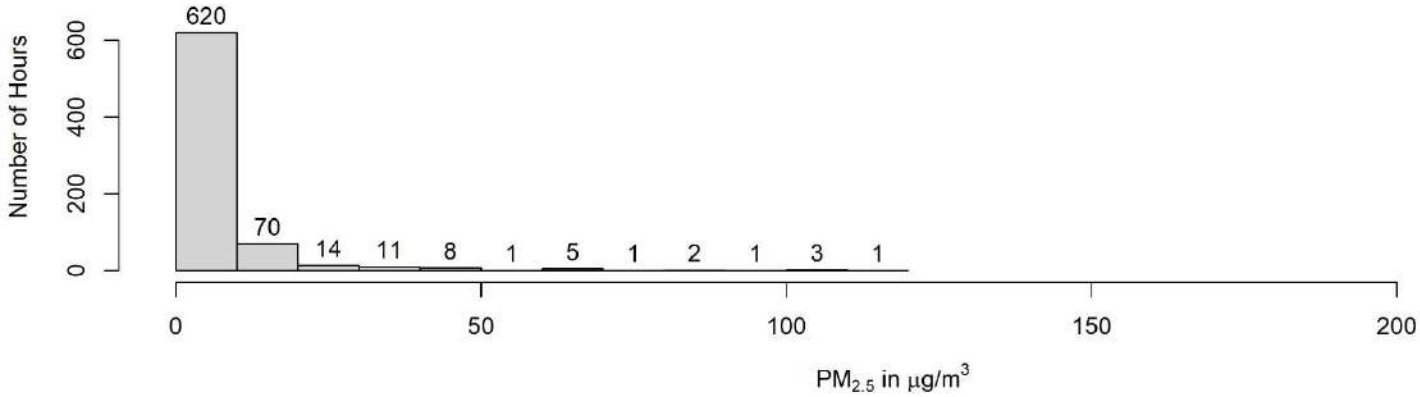
December 2022 Hourly Concentration Readings of NO_x (in ppb) at Milner

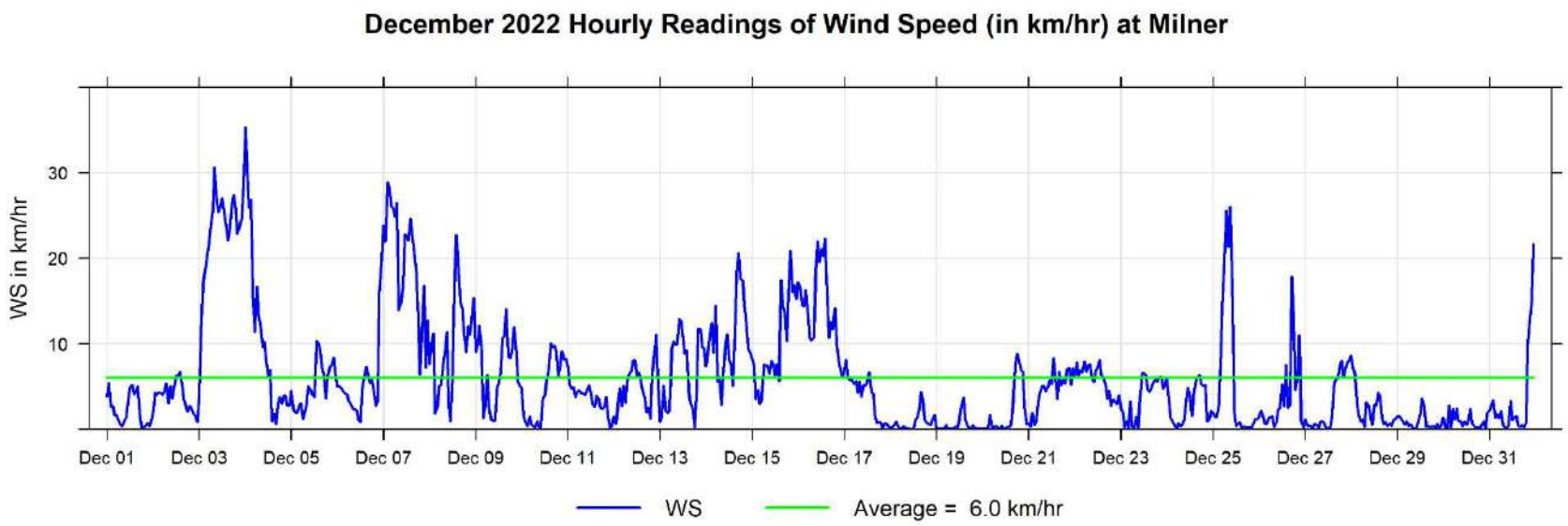


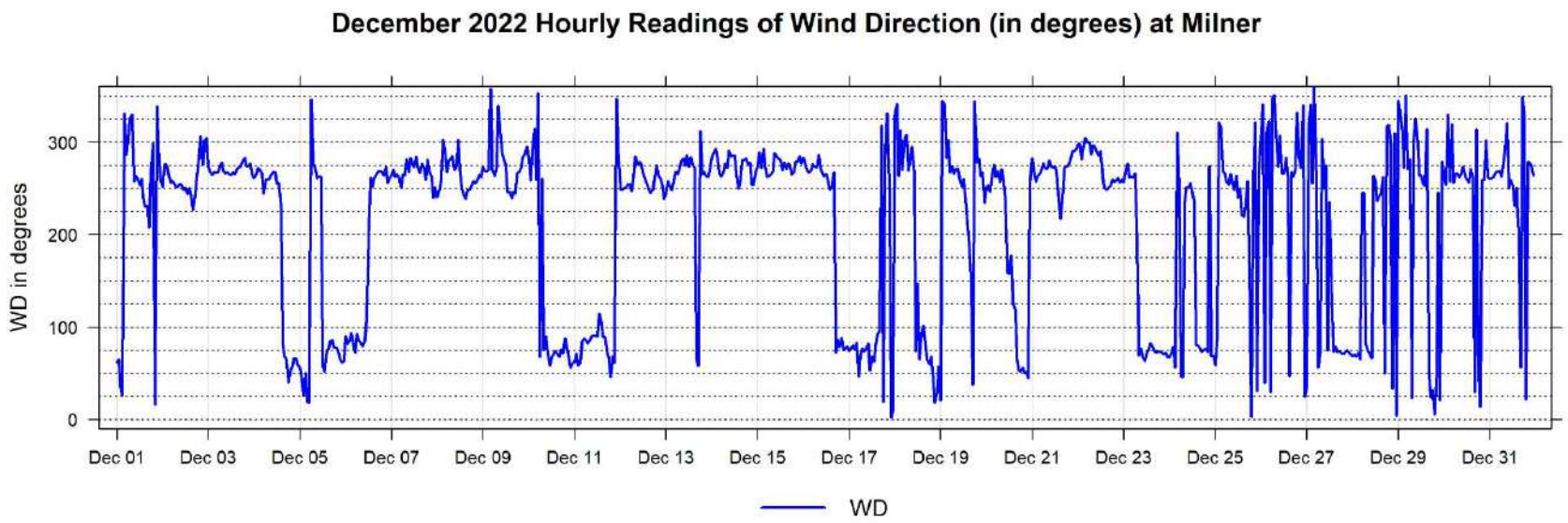

December 2022 Hourly Concentration Readings of NO_2 (in ppb) at Milner
NO_2 in ppb
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
NO_2
AAAQO Limit = 159 ppb
Average = 8.9 ppb

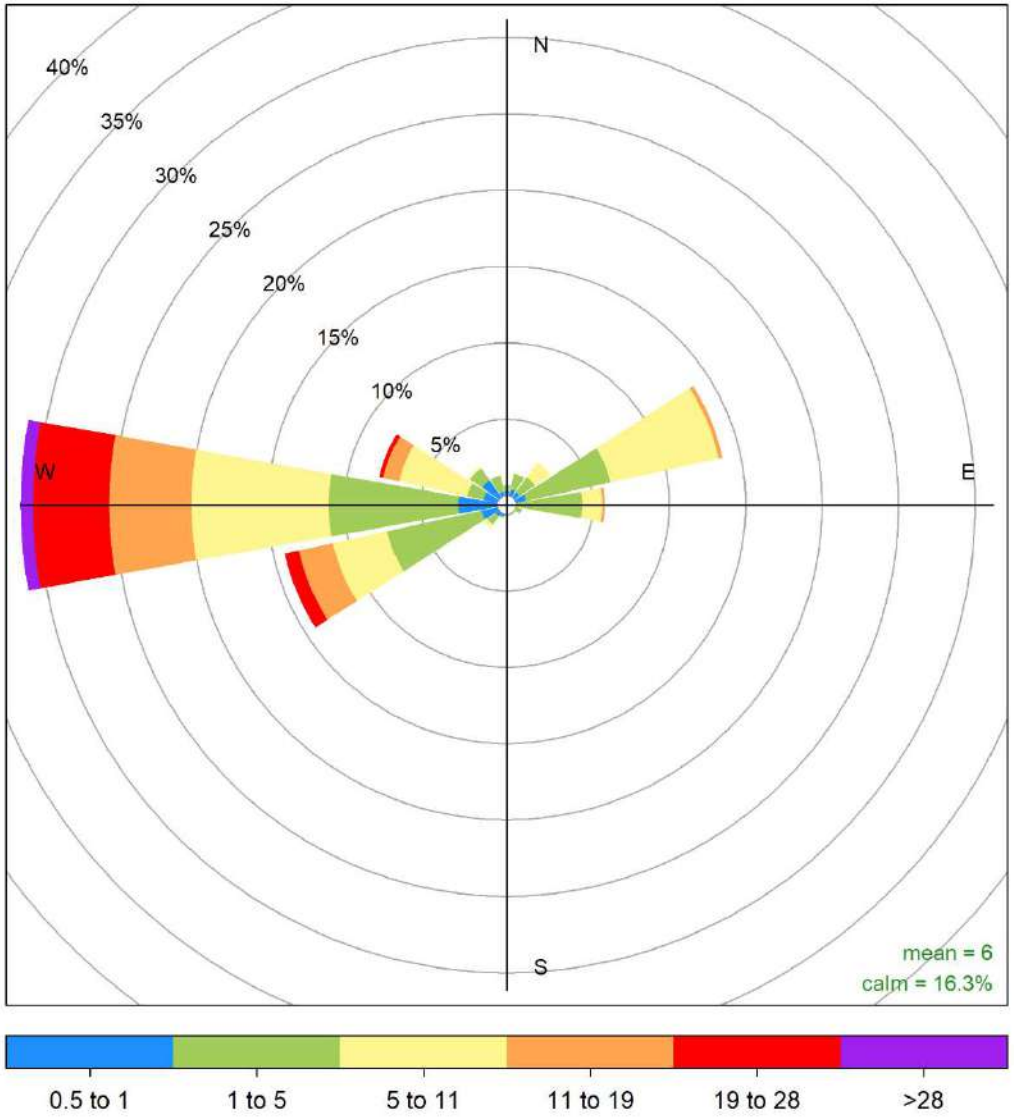

Number of Hours
0
200
400
600
306
134
106
90
50
12
4
5
0
20
40
60
80
NO_2 in ppb


December 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Milner
PM2.5 in µg/m3
150
100
50
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 6.7 µg/m3


Number of Hours
0
200
400
600
620
70
14
11
8
1
5
1
2
1
3
1
0
50
100
150
200
PM2.5 in µg/m3


December 2022 Hourly Readings of Wind Speed (in km/hr) at Milner
WS in km/hr
30
20
10
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WS
Average = 6.0 km/hr

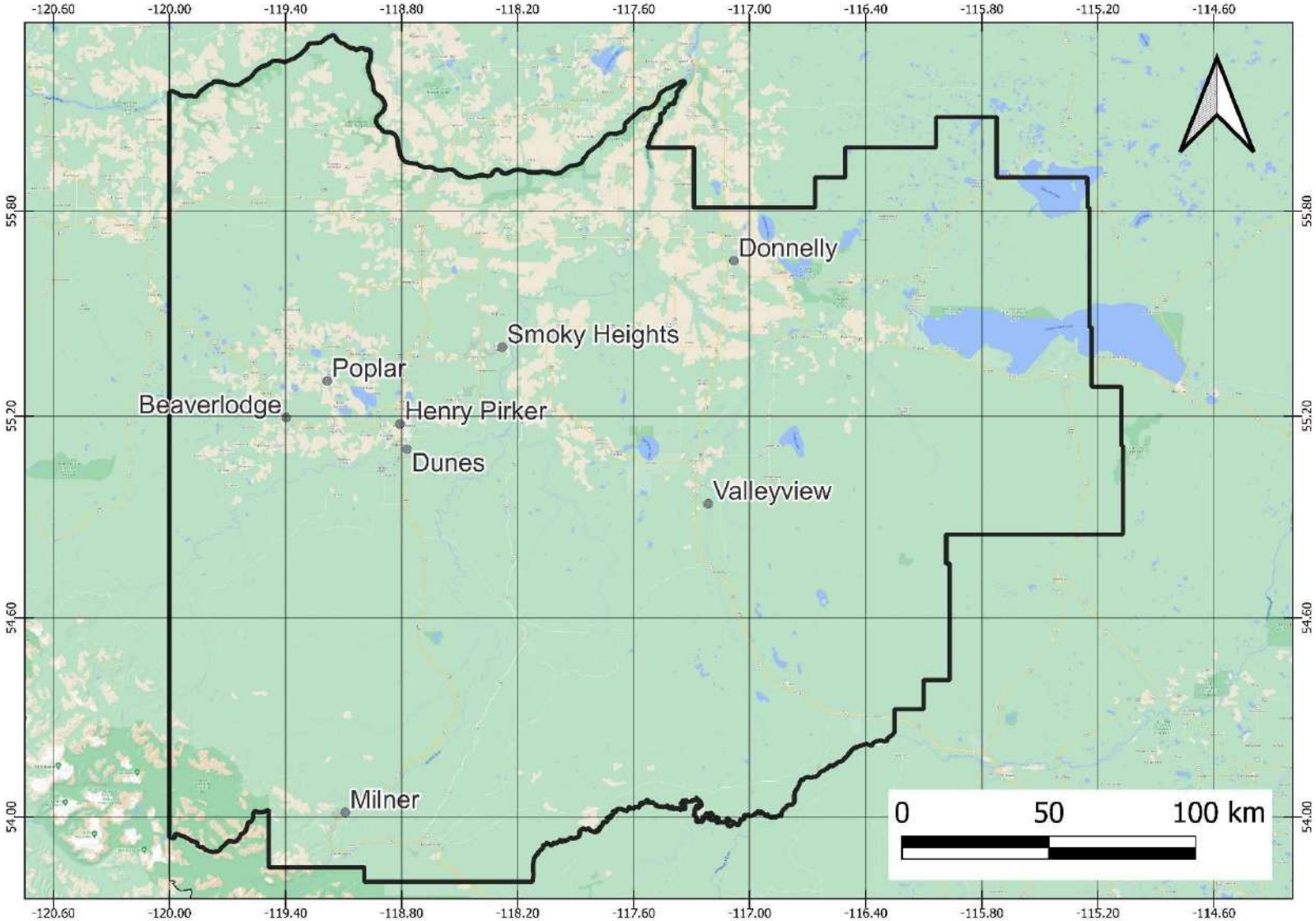

December 2022 Hourly Readings of Wind Direction (in degrees) at Milner
WD in degrees
300
200
100
0
Dec 01
Dec 03
Dec 05
Dec 07
Dec 09
Dec 11
Dec 13
Dec 15
Dec 17
Dec 19
Dec 21
Dec 23
Dec 25
Dec 27
Dec 29
Dec 31
WD



Milner December 2022 Wind Rose, wind speed in km/hr

Frequency of counts by wind direction (%)

10 Concentration Summaries and Roses for PAZA



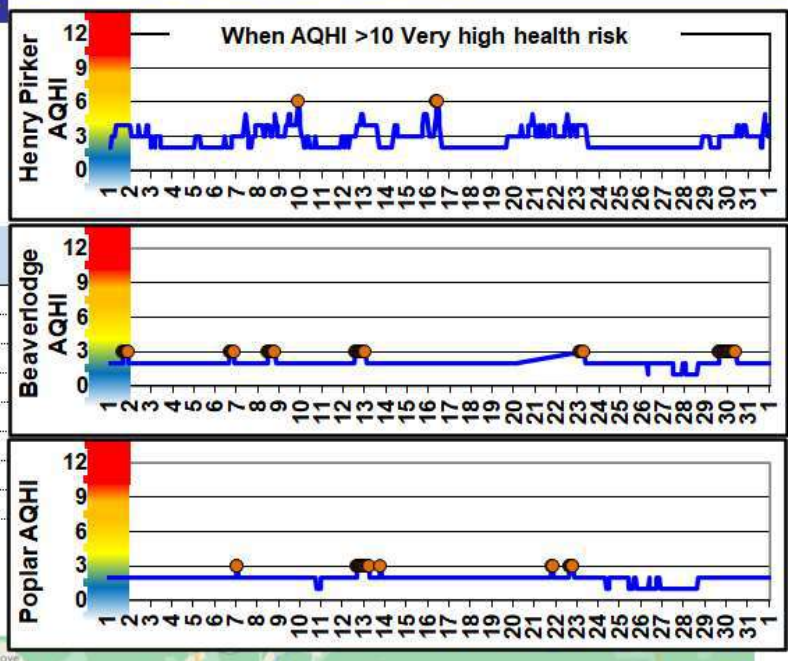
10.1 Air Quality Health Index (AQHI) Plots

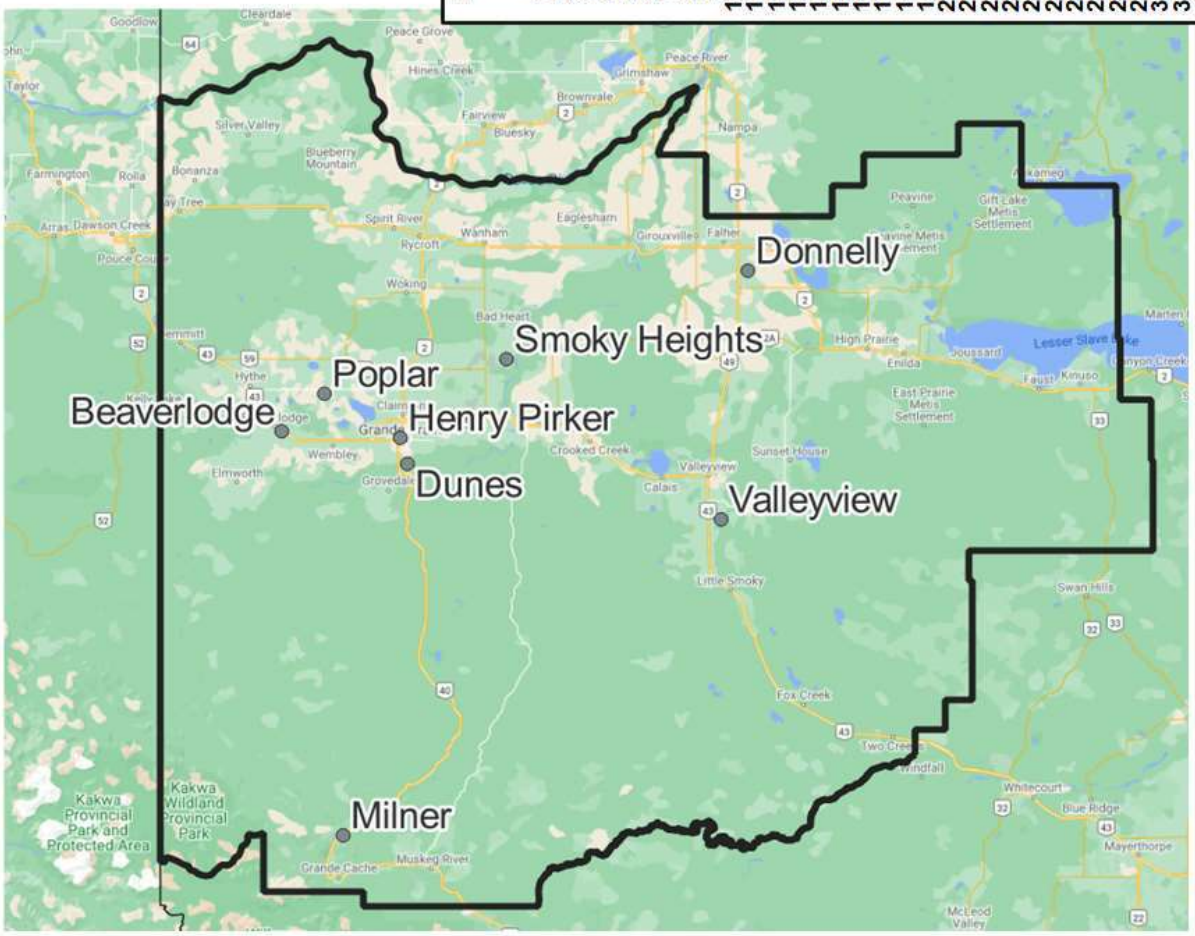
PAZA - December 2022 Continuous Station Summary

December 2022 AQHI Station Summary

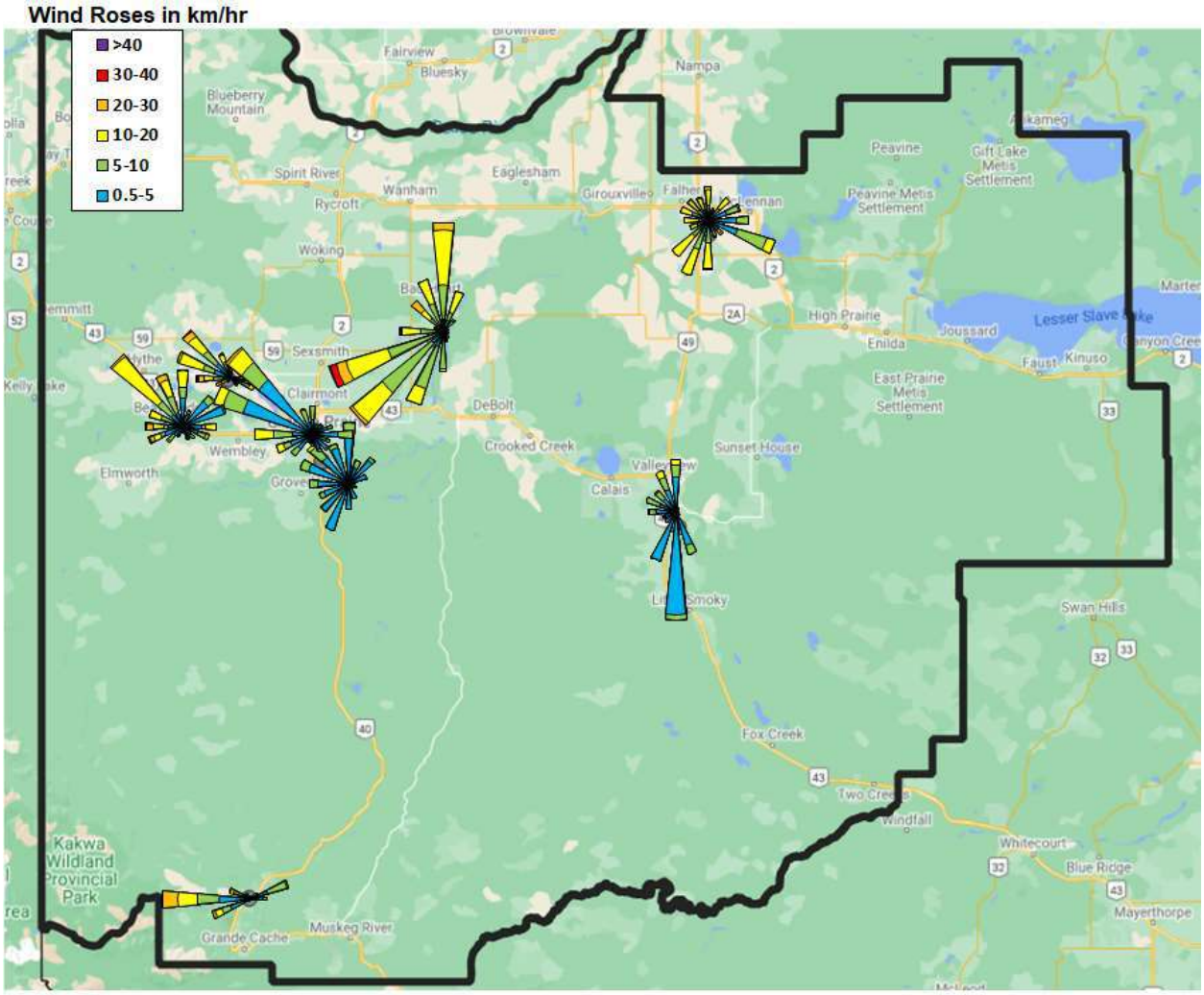
Peace Airshed Zone Association

Station	Average AQHI	Max AQHI
Dunes	-	-
Henry Pirker AQHI	2.8	6
Smoky Heights	-	-
Beaverlodge AQHI	2.0	3
Valleyview	-	-
Donnelly	-	-
Poplar AQHI	1.9	3
Milner	-	-



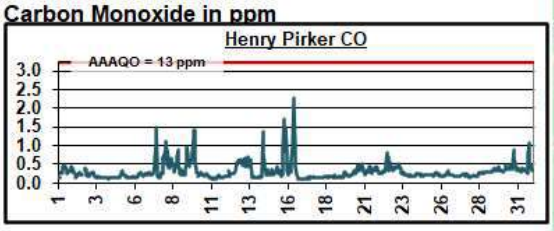


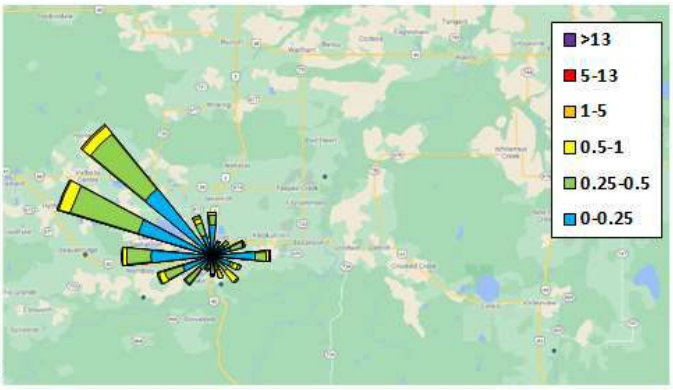
10.2 Wind Roses



10.3 Carbon Monoxide (CO) Plots

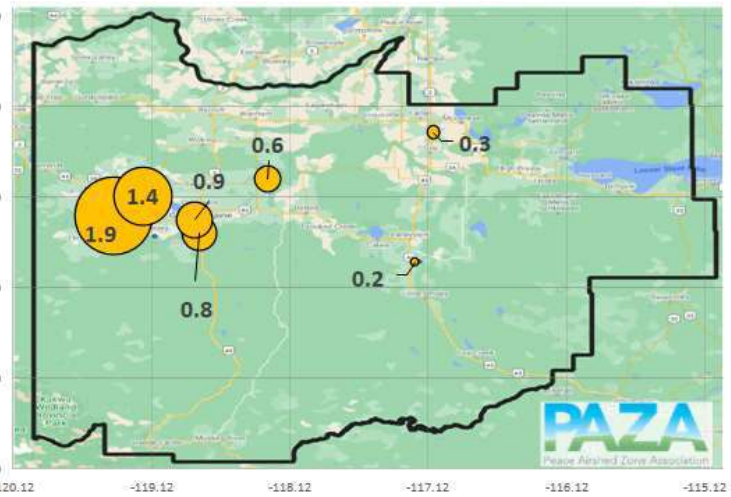
December 2022 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.31	2.26



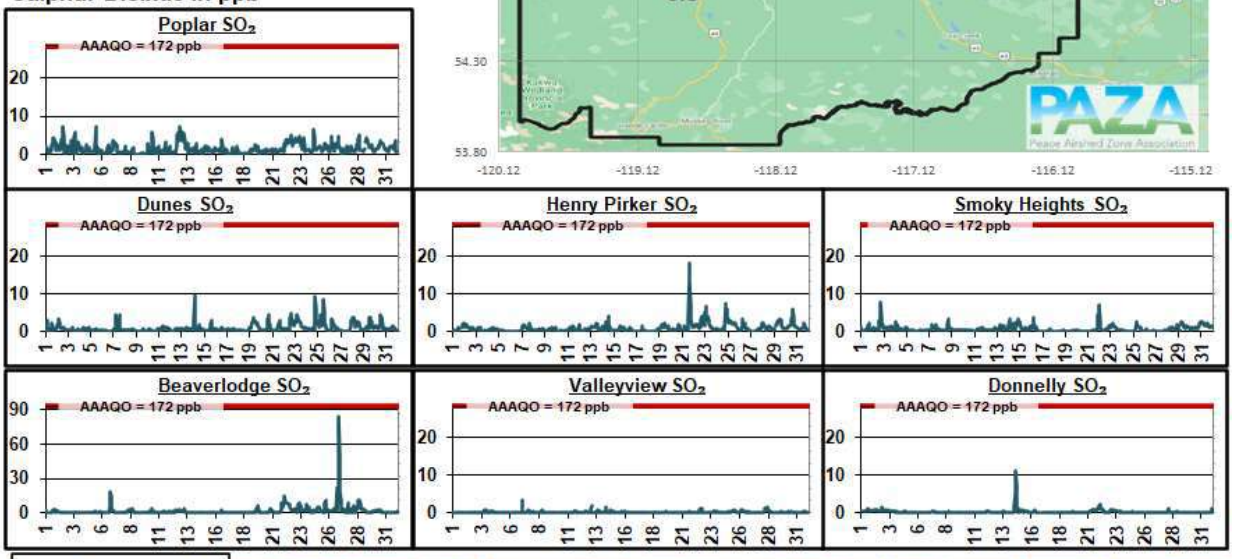


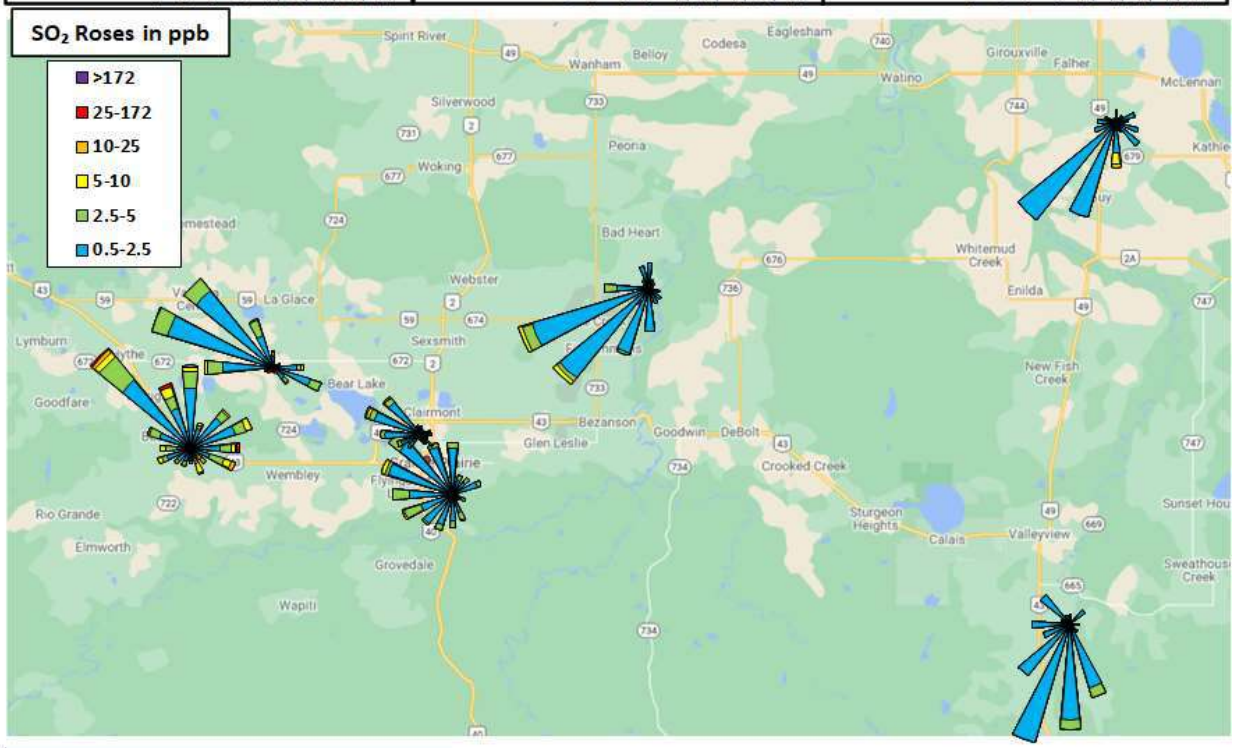
10.4 Sulphur Dioxide (SO_2) Plots

December 2022 SO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes SO_2	0.8	9.6
Henry Pirker SO_2	0.9	18.3
Smoky Heights SO_2	0.6	8.0
Beaverlodge SO_2	1.9	84.0
Valleyview SO_2	0.2	3.5
Donnelly SO_2	0.3	11.2
Poplar SO_2	1.4	7.4
Milner SO_2	-	-



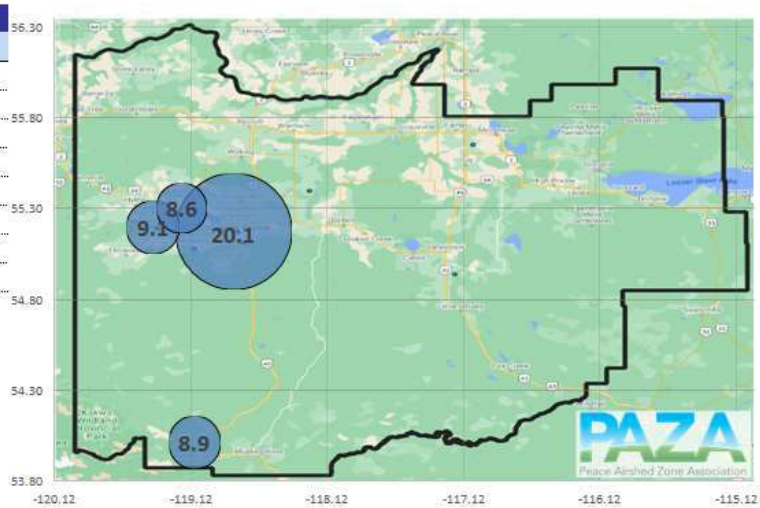
Sulphur Dioixde in ppb



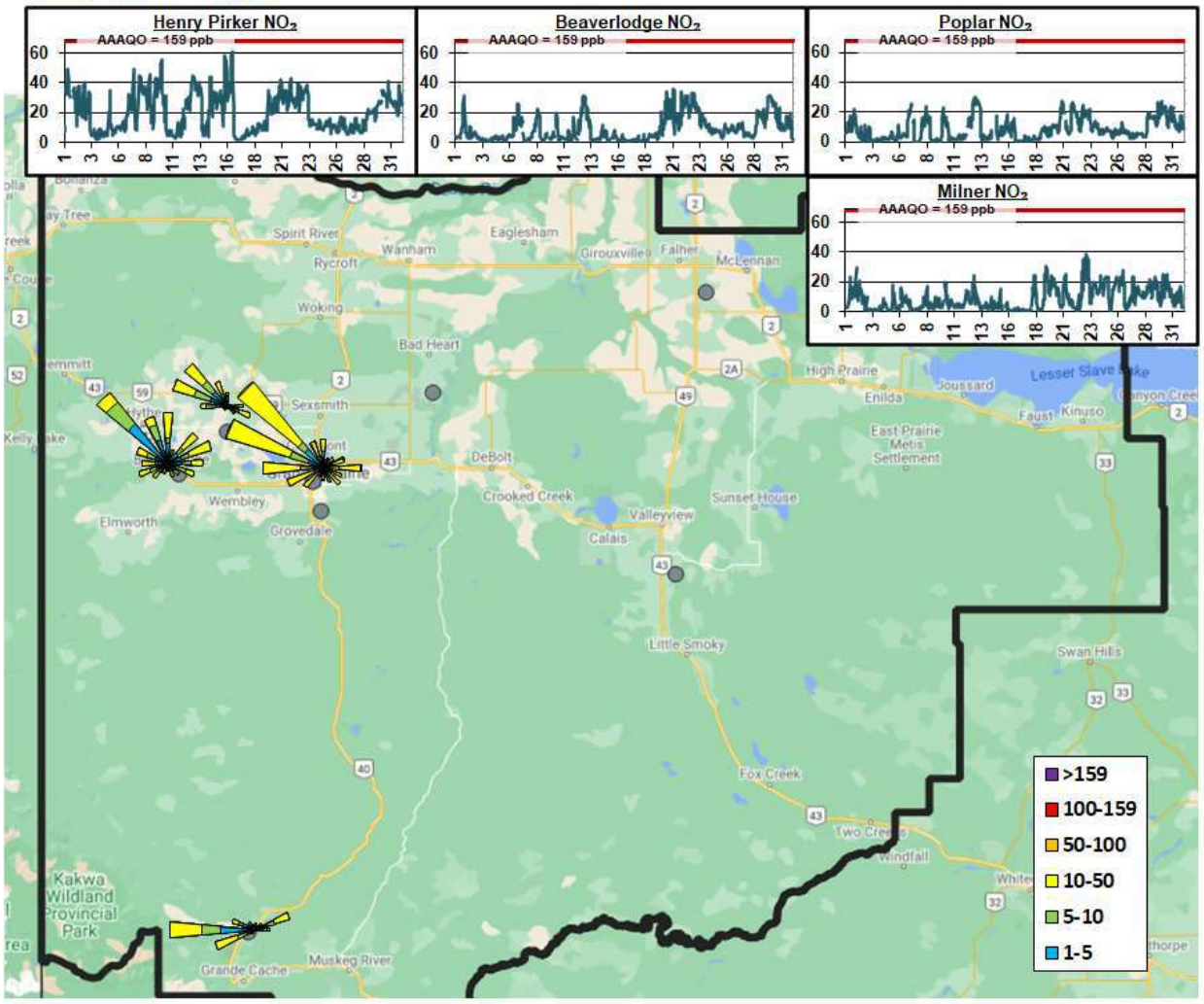


10.5 Nitrogen Dioxide (NO_2) Plots

December 2022 NO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes NO_2	-	-
Henry Pirker NO_2	20.1	62.9
Smoky Heights NO_2	-	-
Beaverlodge NO_2	9.1	36.1
Valleyview NO_2	-	-
Donnelly NO_2	-	-
Poplar NO_2	8.6	29.8
Milner NO_2	8.9	38.3

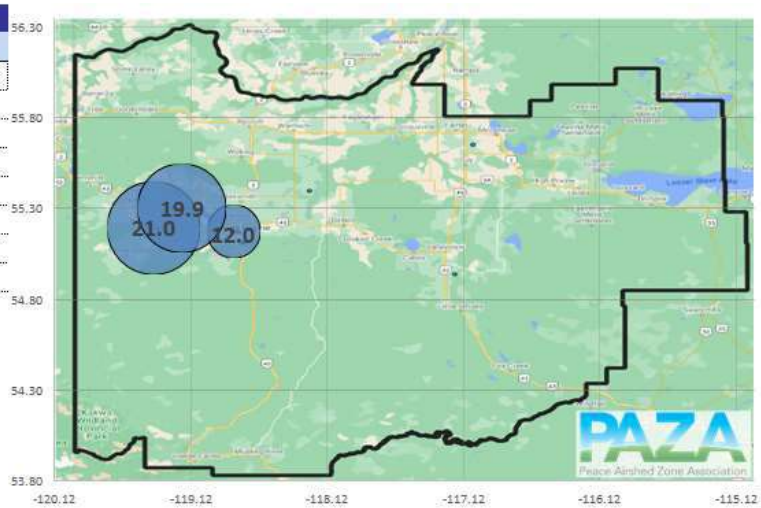


Nitrogen Dioixde in ppb

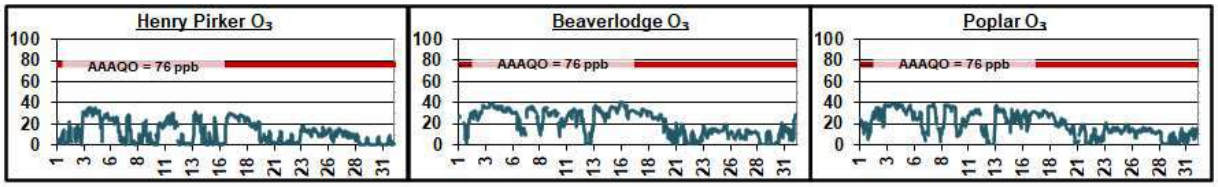


10.6 Ozone (O_3) Plots

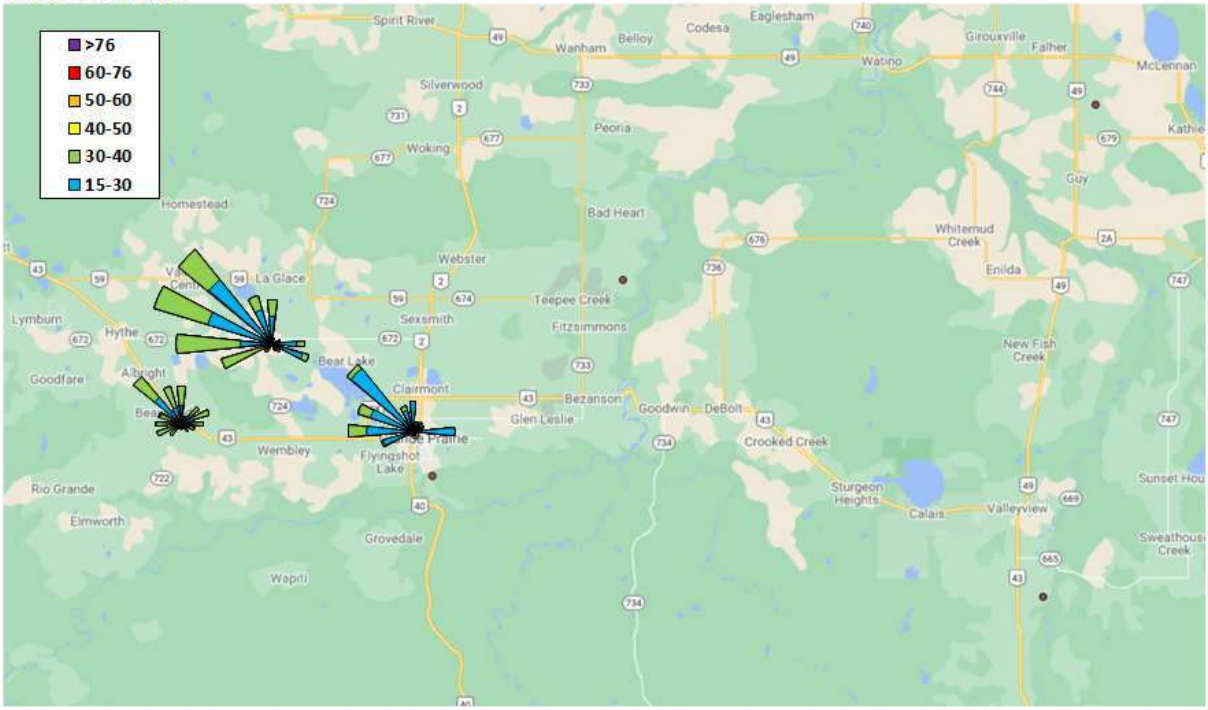
December 2022 O_3 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes O_3	-	-
Henry Pirker O_3	12.0	35.3
Smoky Heights O_3	-	-
Beaverlodge O_3	21.0	40.3
Valleyview O_3	-	-
Donnelly O_3	-	-
Poplar O_3	19.9	39.5
Milner O_3	-	-



Ozone in ppb

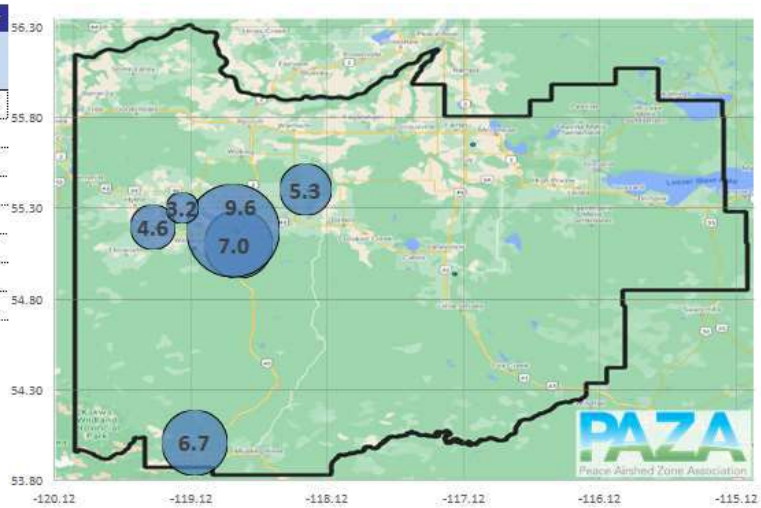


O_3 Roses in ppb

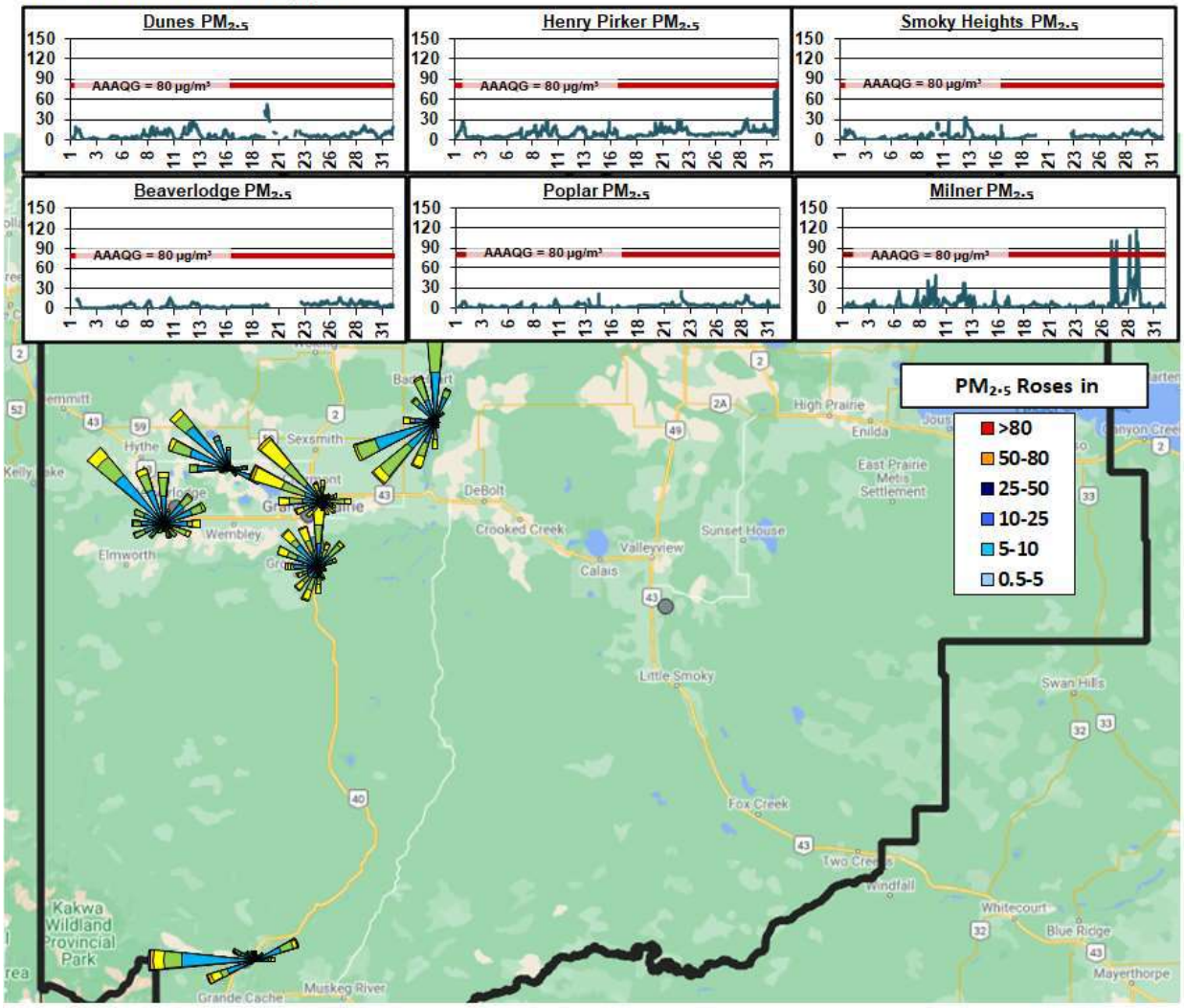


10.7 Fine Particulate Matter ($PM_{2.5}$) Plots

December 2022 $PM_{2.5}$ Station Summary		
Station	Avg µg/m³	Max µg/m³
Dunes $PM_{2.5}$	7.0	52.1
Henry Pirker $PM_{2.5}$	9.6	86.3
Smoky Heights $PM_{2.5}$	5.3	33.3
Beaverlodge $PM_{2.5}$	4.6	15.7
Valleyview $PM_{2.5}$	-	-
Donnelly $PM_{2.5}$	-	-
Poplar $PM_{2.5}$	3.2	25.3
Milner $PM_{2.5}$	6.7	117.3

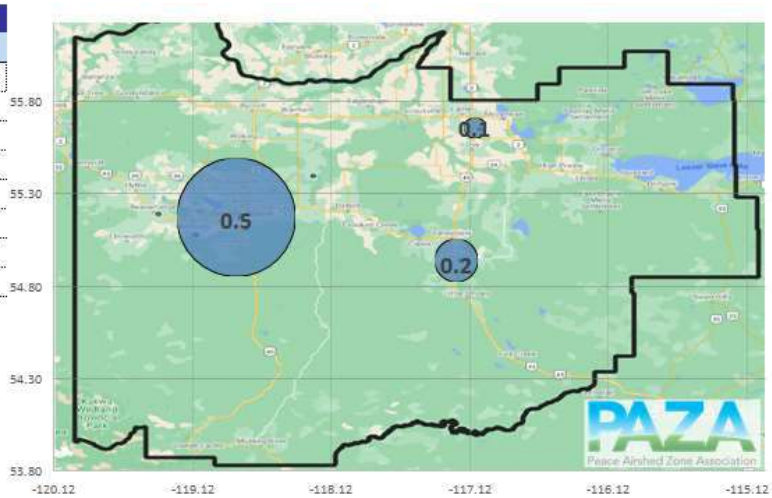


Fine Particulate Matter in µg/m³

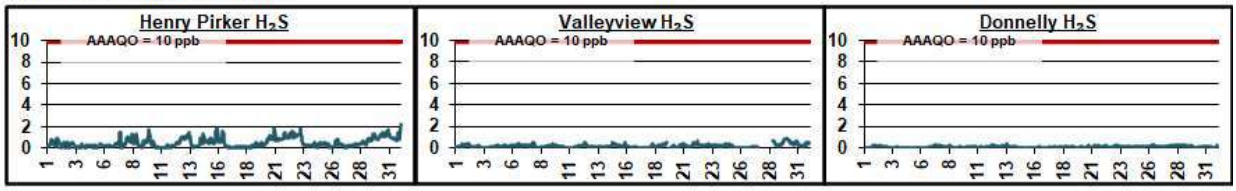


10.8 Hydrogen Sulphide (H_2S) Plots

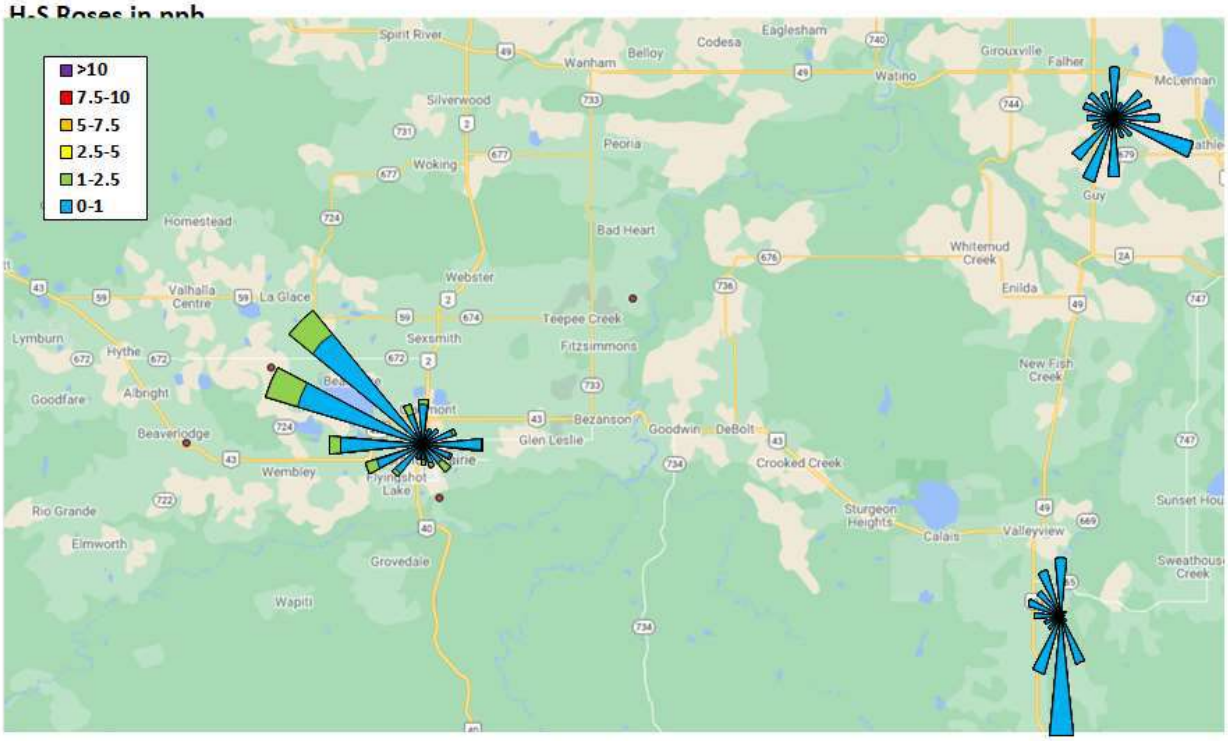
December 2022 H_2S Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes H_2S	-	-
Henry Pirker H_2S	0.5	2.3
Smoky Heights H_2S	-	-
Beaverlodge H_2S	-	-
Valleyview H_2S	0.2	1.0
Donnelly H_2S	0.1	0.4
Poplar H_2S	-	-
Milner H_2S	-	-



Hydrogen Sulphide in ppb

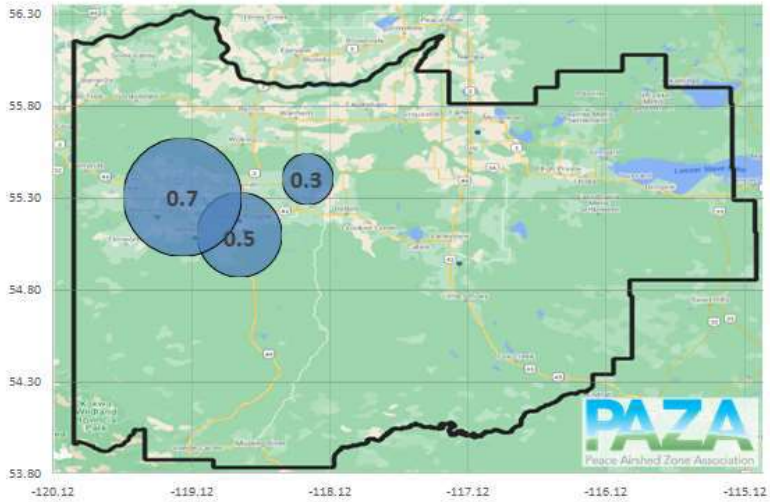


H_2S Roses in ppb

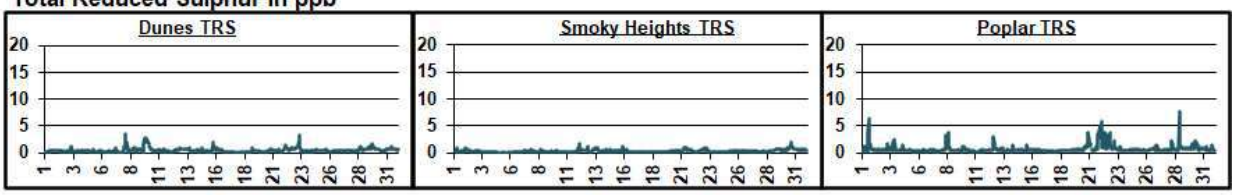


10.9 Total Reduced Sulphur (TRS) Plots

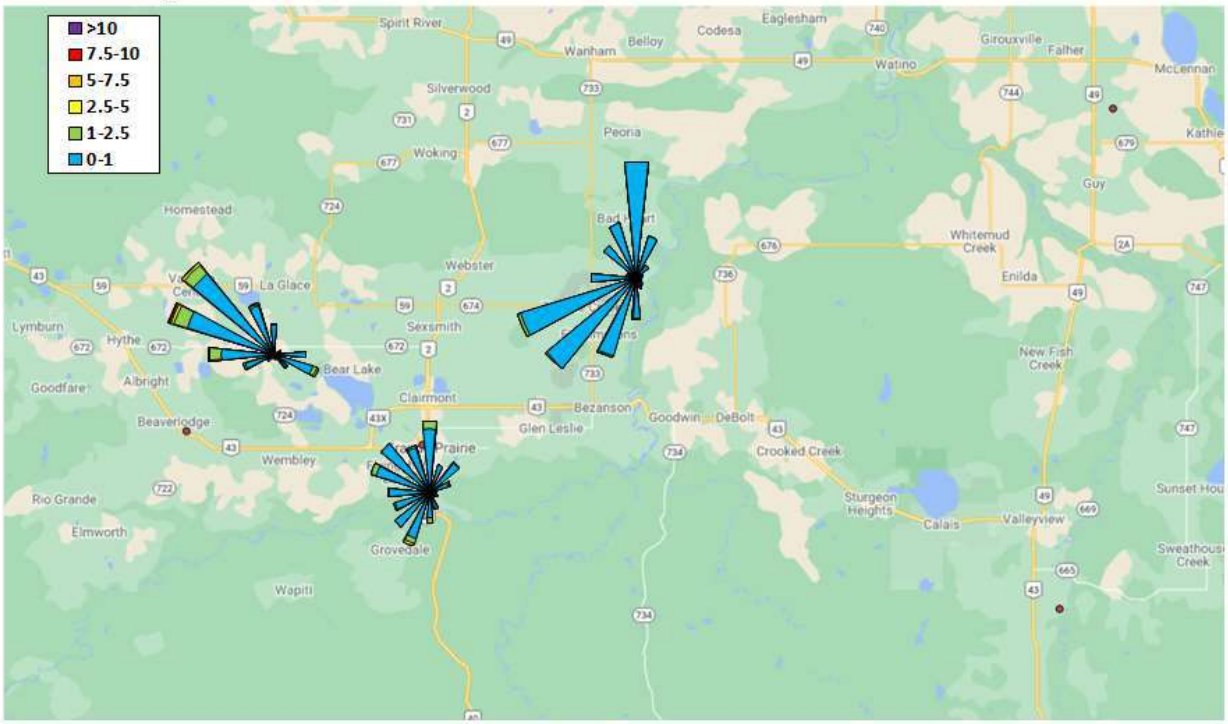
December 2022 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes TRS	0.5	3.5
Henry Pirker TRS	-	-
Smoky Heights TRS	0.3	1.9
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Poplar TRS	0.7	7.7
Milner TRS	-	-



Total Reduced Sulphur in ppb



TRS Roses in ppb

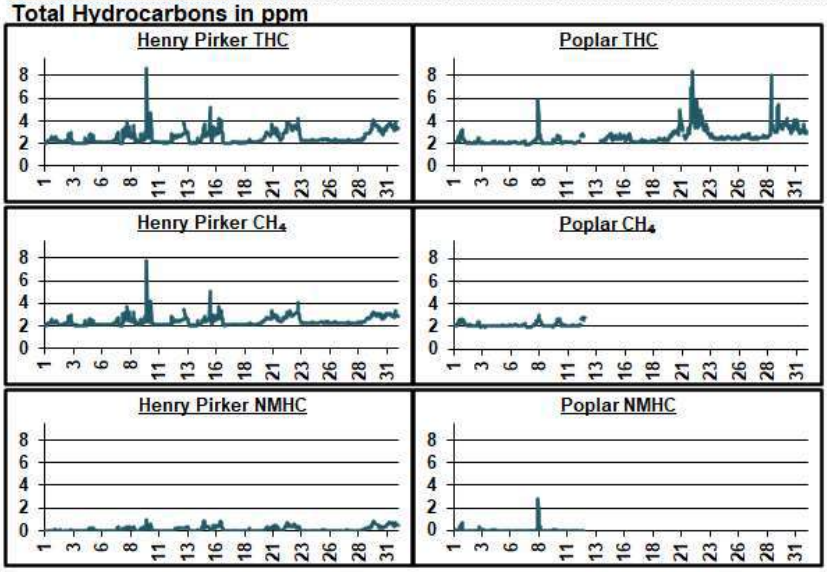


10.10 Total Hydrocarbon (THC) Plots

December 2022 THC Station Summary

Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Dunes THC	-	-	-	-	-	-
Henry Pirker THC	2.5	8.7	2.4	7.8	0.1	0.9
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Poplar THC	2.6	8.4	-	-	-	-

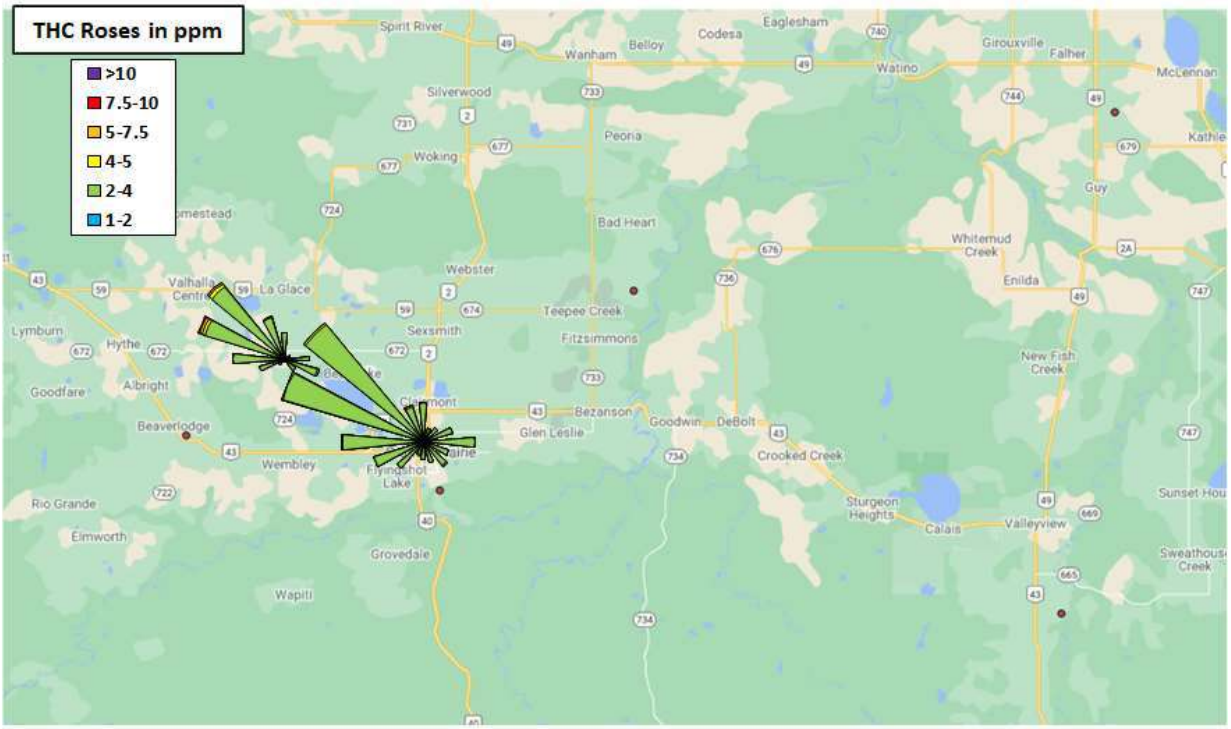
Total Hydrocarbons in ppm



Total Hydrocarbons (THC)

Methane (CH_4)

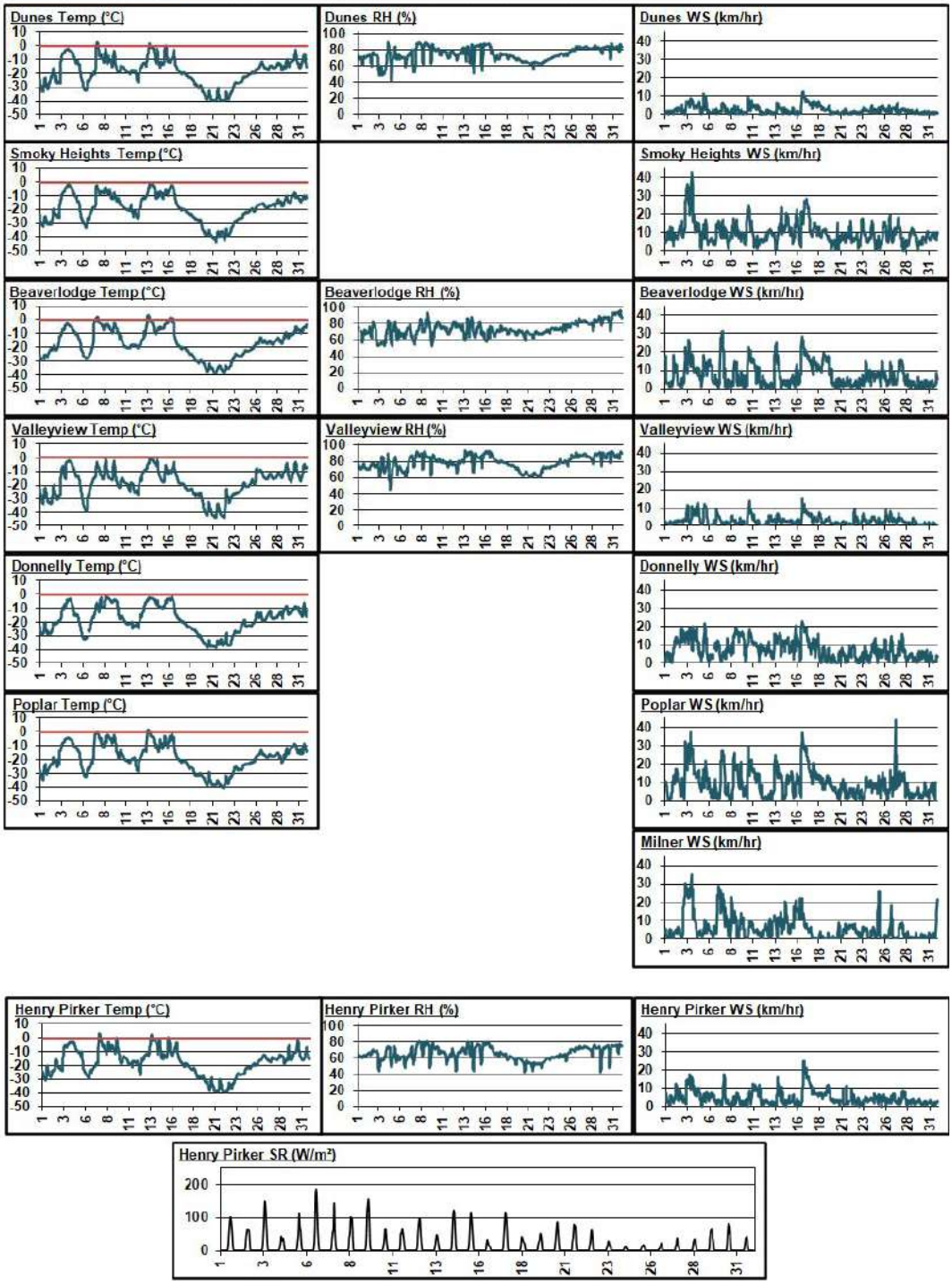
Non-Methane Hydrocarbons (NMHC)



10.11 Meteorology Summary

December 2022 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Dunes	-18.7	74.2	-	2.5	318	NW
Henry Pirker	-17.8	65.4	12.3	4.9	297	WNW
Smoky Heights	-18.9	-	-	9.9	276	W
Beaverlodge	-16.9	73.6	-	7.4	320	NW
Valleyview	-18.8	78.7	-	3.1	277	W
Donnelly	-18.1	-	-	7.7	222	SW
Poplar	-18.8	-	-	9.8	302	WNW
Milner	-	-	-	6.0	273	W

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



11 Passive Monitoring Data

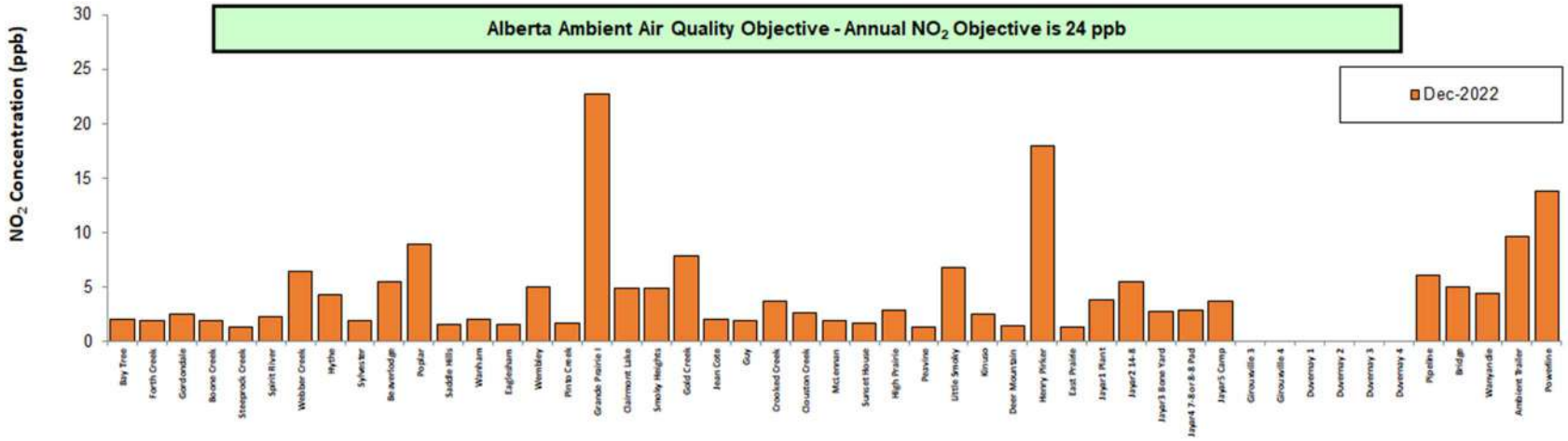
Peace Airshed Zone Association - PAZA Passive Stations for December 2022

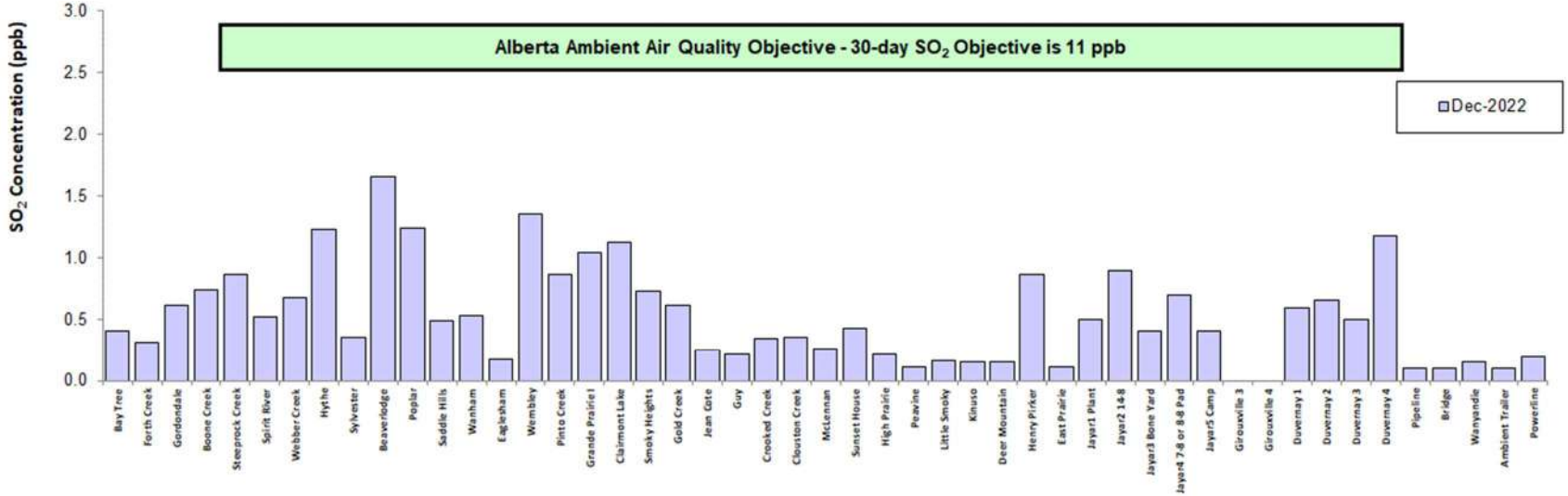
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
2a	Bay Tree	**0.4**				13-16-078-13 W6M
2b	Bay Tree	**0.4**				
4a	Gordondale			**2.6**		04-34-078-10 W6M
4b	Gordondale			**2.4**		
14a	Sylvester			**1.6**		08-06-069-12 W6M
14b	Sylvester			**2.4**		
19a	Wanham			**2.1**		16-22-077-03 W6M
19b	Wanham			**1.9**		
28a	Clairmont Lake			**4.5**		09-06-073-04 W6M
28b	Clairmont Lake			**5.4**		
43a	High Prairie	**0.2**				16-13-074-17 W5M
43b	High Prairie	**0.2**				
44a	Peavine	**0.1**				03-05-079-15 W5M
44b	Peavine	**0.1**				
47a	Kinuso		**28.8**			12-10-073-10 W5M
47b	Kinuso		**25.3**			
G4a	Girouxville 4				**missing**	04-08-077-22 W5M
G4b	Girouxville 4				**missing**	
D3a	Duvernay 3	**0.5**			**0.26**	04-33-062-20 W5M
D3b	Duvernay 3	**0.5**			**0.24**	
J1a	Jayar1 Plant	**0.5**				06-08-062-03 W6M
J1b	Jayar1 Plant	**0.5**				
J2a	Jayar2 14-8			**6.1**		07-08-062-03 W6M
J2b	Jayar2 14-8			**4.9**		
J5a	Jayar5 Camp				**0.2**	11-08-062-03 W6M
J5b	Jayar5 Camp				**0.2**	
M5a	Bridge			**5.3**		08-06-057-08 W6M
M5b	Bridge			**4.7**		
M7a	Wanyandie	**0.1**				11-13-058-08 W6M
M7b	Wanyandie	**0.2**				

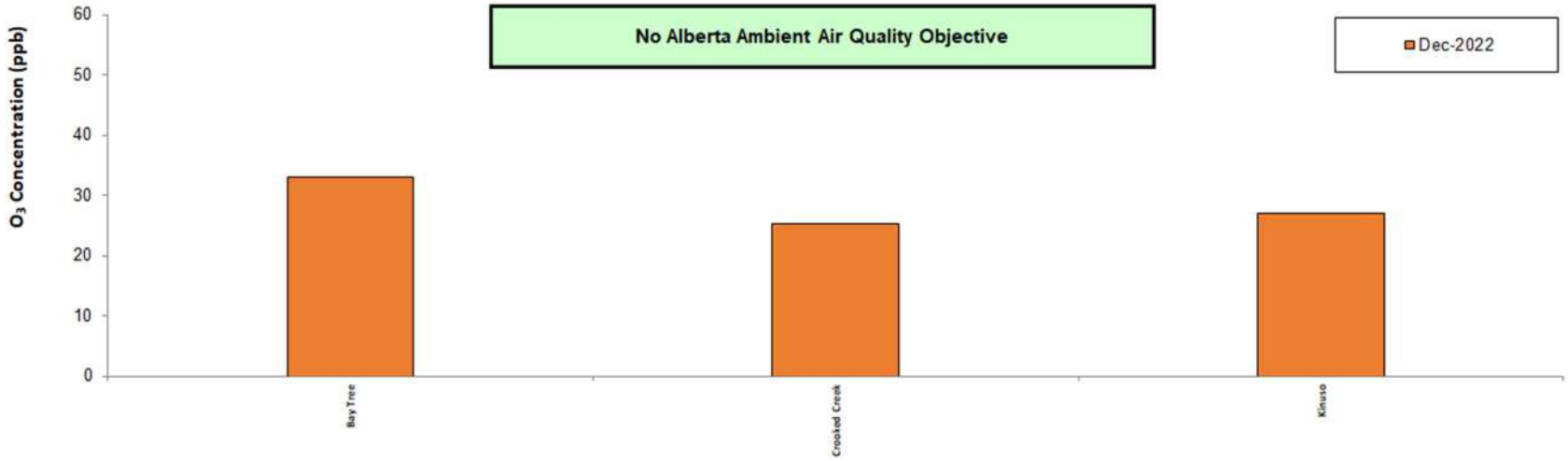
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.4	33.1	2.0	-	13-16-078-13 W6M
3	Forth Creek	0.3	-	1.9	-	04-13-082-07 W6M
4	Gordondale	0.6	-	2.5	-	04-34-078-10 W6M
5	Boone Creek	0.7	-	2.0	-	01-23-076-11 W6M
7	Steeprock Creek	0.9	-	1.4	-	09-35-072-13 W6M
9	Spirit River	0.5	-	2.3	-	08-12-079-07 W6M
11	Webber Creek	0.7	-	6.4	-	09-36-074-09 W6M
12	Hythe	1.2	-	4.3	-	14-36-072-11 W6M
14	Sylvester	0.3	-	2.0	-	08-06-069-12 W6M
16	Beaverlodge	1.7	-	5.5	-	15-36-071-10 W6M
17	Poplar	1.2	-	8.9	-	13-06-073-08 W6M
18	Saddle Hills	0.5	-	1.6	-	04-25-074-07 W6M
19	Wanham	0.5	-	2.0	-	16-22-077-03 W6M
21	Eaglesham	0.2	-	1.6	-	16-21-079-25 W5M
24	Wembley	1.4	-	5.0	-	12-31-070-08 W6M
25	Pinto Creek	0.9	-	1.8	-	04-24-069-11 W6M
27	Grande Prairie I	1.0	-	22.8	-	08-15-071-06 W6M
28	Clairmont Lake	1.1	-	4.9	-	09-06-073-04 W6M
29	Smoky Heights	0.7	-	4.9	-	04-06-075-02 W6M
32	Gold Creek	0.6	-	7.9	-	06-33-067-05 W6M
35	Jean Cote	0.3	-	2.0	-	12-35-079-21 W5M
36	Guy	0.2	-	1.9	0.2	03-04-076-22 W5M
37	Crooked Creek	0.3	25.3	3.8	-	16-01-071-26 W5M
39	Clouston Creek	0.4	-	2.6	-	12-01-073-22 W5M
40	McLennan	0.3	-	2.0	-	03-29-077-19 W5M
42	Sunset House	0.4	-	1.7	-	05-32-070-19 W5M
43	High Prairie	0.2	-	2.9	-	16-13-074-17 W5M
44	Peavine	0.1	-	1.4	-	03-05-079-15 W5M
46	Little Smoky	0.2	-	6.8	-	12-01-065-21 W5M
47	Kinuso	0.2	27.0	2.5	-	12-10-073-10 W5M
48	Deer Mountain	0.2	-	1.5	-	15-22-068-09 W5M
49	Henry Pirker	0.9	-	18.0	-	17-26-071-06 W6M
50	East Prairie	0.1	-	1.4	-	11-13-079-08 W6M
57	Jayar1 Plant	0.5	-	3.9	0.17	06-08-062-03 W6M
58	Jayar2 14-8	0.9	-	5.5	0.21	07-08-062-03 W6M
59	Jayar3 Bone Yard	0.4	-	2.8	0.24	14-08-062-03 W6M
60	Jayar4 7-8 or 8-8 Pad	0.7	-	2.9	0.18	10-08-062-03 W6M
61	Jayar5 Camp	0.4	-	3.7	0.16	11-08-062-03 W6M
G3	Girouxville 3	-	-	-	0.9	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	missing	04-08-077-22 W5M
D1	Duvernay 1	0.6	-	-	0.29	04-33-062-20 W5M
D2	Duvernay 2	0.7	-	-	0.26	04-33-062-20 W5M
D3	Duvernay 3	0.5	-	-	0.25	04-33-062-20 W5M
D4	Duvernay 4	1.2	-	-	0.27	04-33-062-20 W5M
M1	Pipeline	0.1	-	6.1		12-14-058-08 W6M
M2	Bridge	0.1	-	5.0		08-06-057-08 W6M
M3	Wanyandie	0.2	-	4.4		11-13-058-08 W6M
M4	Ambient Trailer	0.1	-	9.6		09-15-058-08 W6M
M5	Powerline	0.2	-	13.8		06-14-058-08 W6M

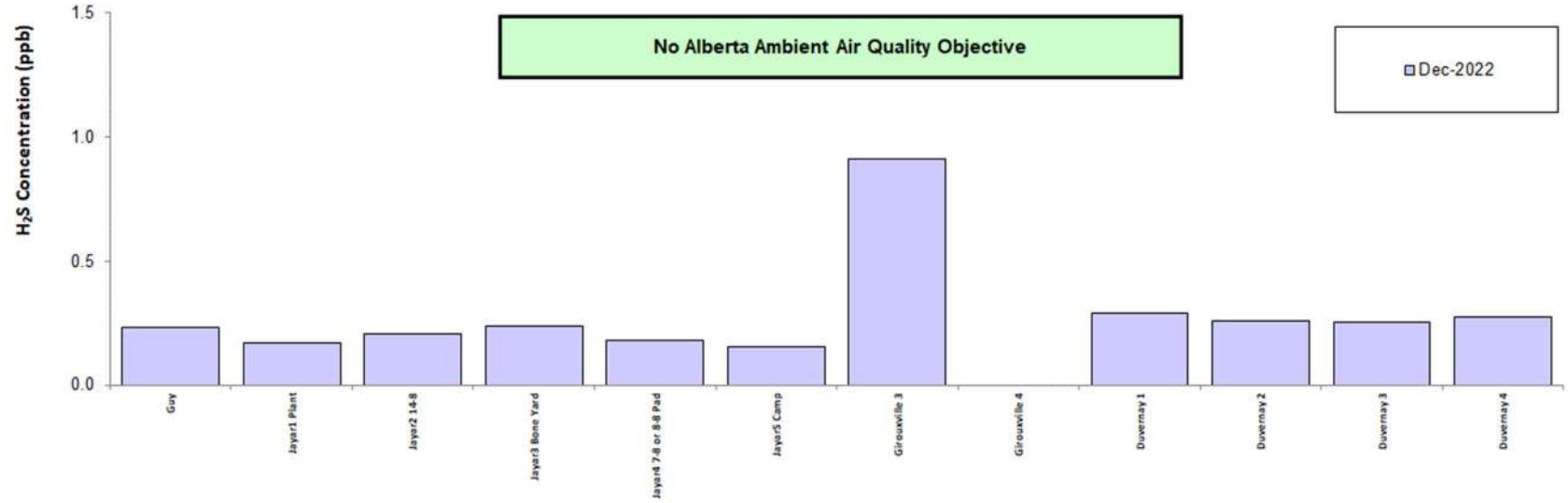
Passive Summary for December 2022

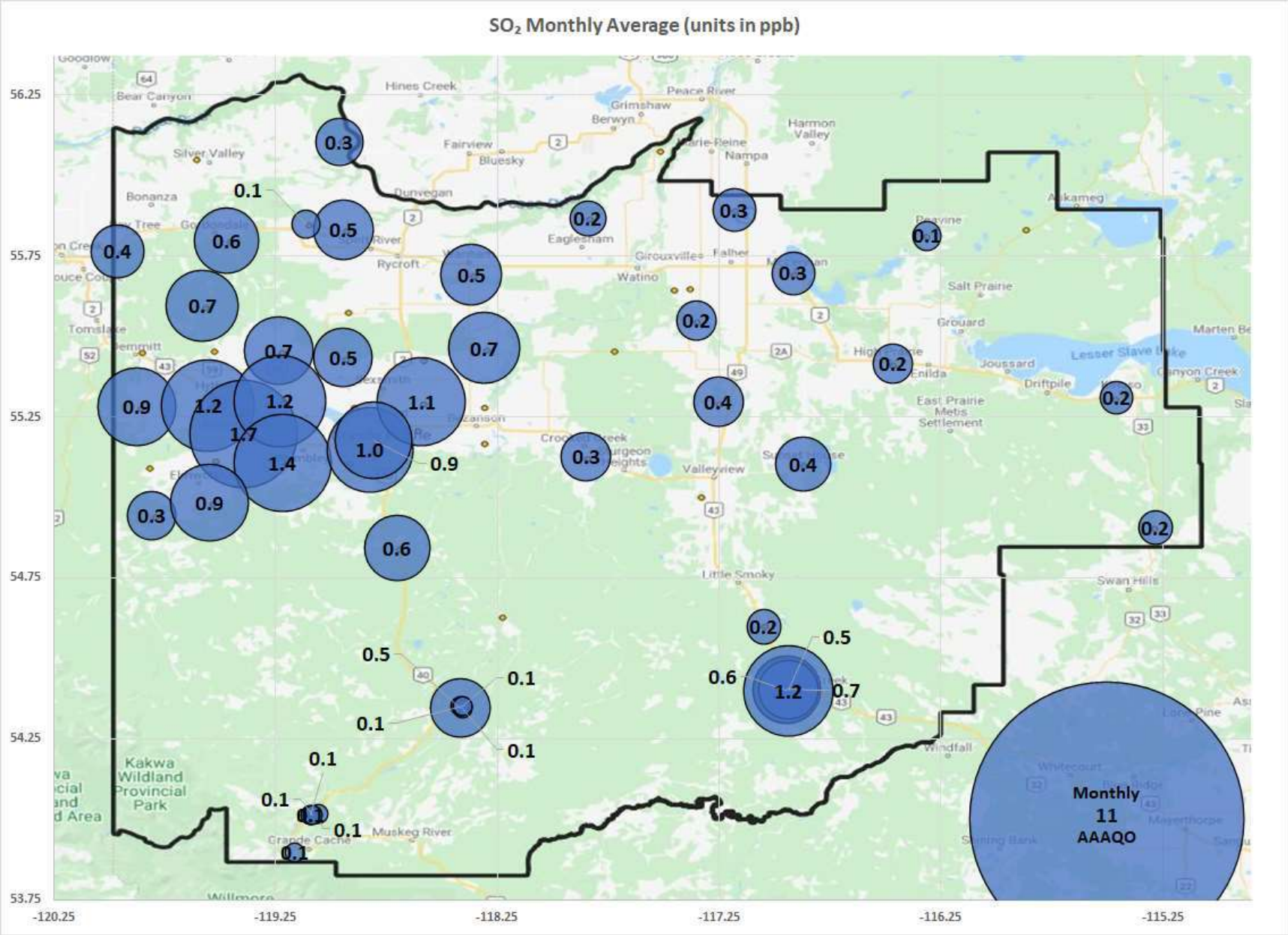
Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2	Hydrogen Sulphide H_2S
	ppb	ppb	ppb	ppb
	Passive Summary for December 2022 (PAZA)			
Mean	0.5	28.5	4.6	0.3
Standard Deviation	0.4	4.1	4.4	0.2
Minimum	0.1 Pipeline (#M1)	25.3 Crooked Creek (#37)	1.4 Steeprock Creek (#7)	0.2 Jayar5 Camp (#61)
Maximum	1.7 Beaverlodge (#16)	33.1 Bay Tree (#2)	22.8 Grande Prairie I (#27)	0.9 Girouxville 3 (#G3)
	Continuous and Passive Monitoring Comparision			
PAZA Beaverlodge Station	**1.9**	**21.0**	**9.1**	**-**
Beaverlodge Passive (#16)	**1.7**	**-**	**5.5**	**-**
PAZA Henry Pirker Station	**0.9**	**12.0**	**20.1**	**0.5**
Henry Pirker passive (#49)	**0.9**	**-**	**18.0**	**-**
Milner Station	**-**	**-**	**8.9**	**-**
Henry Pirker passive (#49)	**0.1**	**-**	**9.6**	**-**

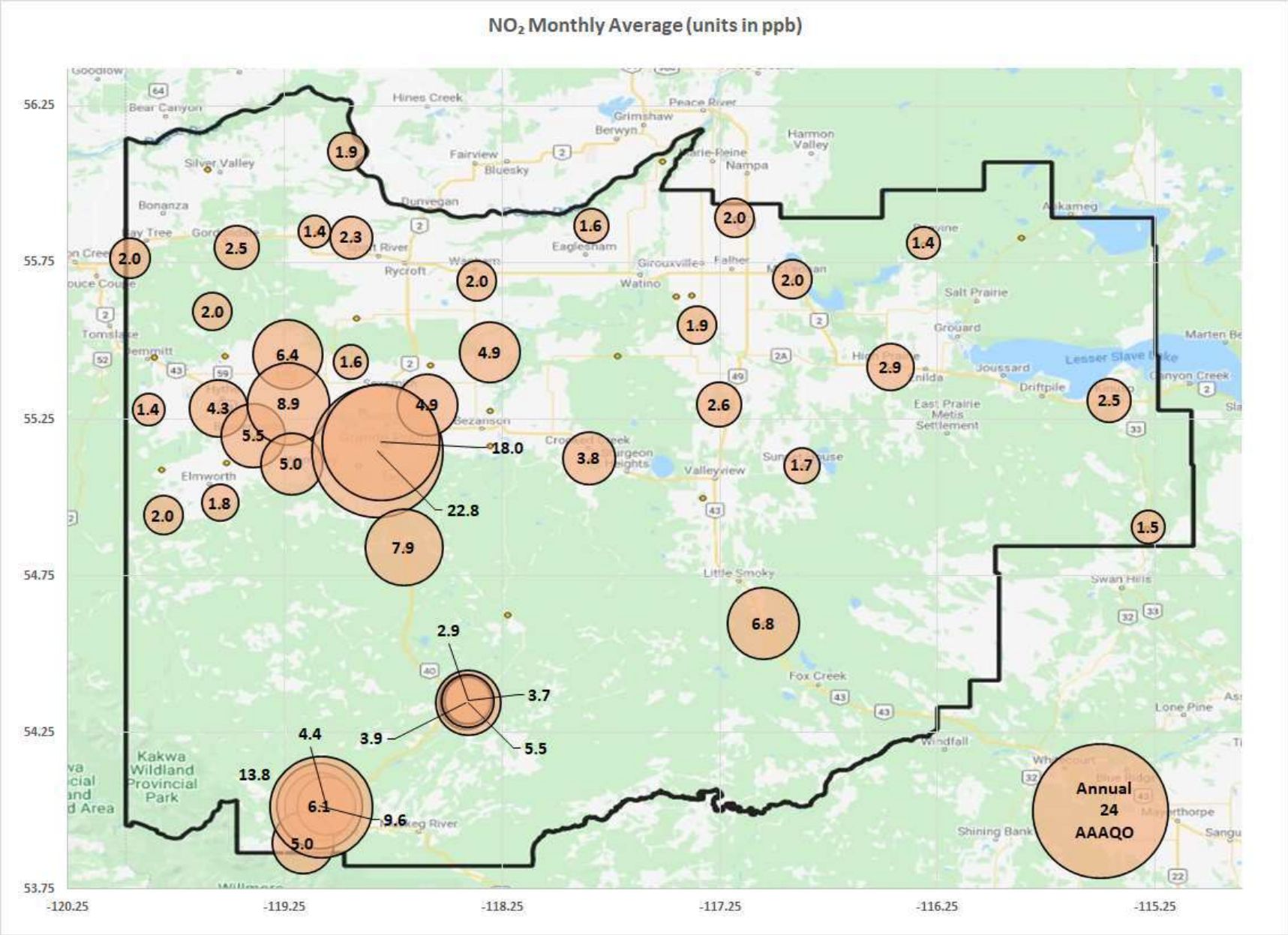

Alberta Ambient Air Quality Objective - Annual NO_2 Objective is 24 ppb
Dec-2022
NO_2 Concentration (ppb)
30
25
20
15
10
5
0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande Prairie I
Clairmont Lake
Smoky Heights
Gold Creek
Jean Cote
Guy
Crooked Creek
Clouston Creek
McLennan
Sunset House
High Prairie
Peavine
Little Smoky
Kinuso
Deer Mountain
Henry Pirker
East Prairie
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Duvernay 1
Duvernay 2
Duvernay 3
Duvernay 4
Pipeline
Bridge
Wanyandie
Ambient Trailer
Powerline

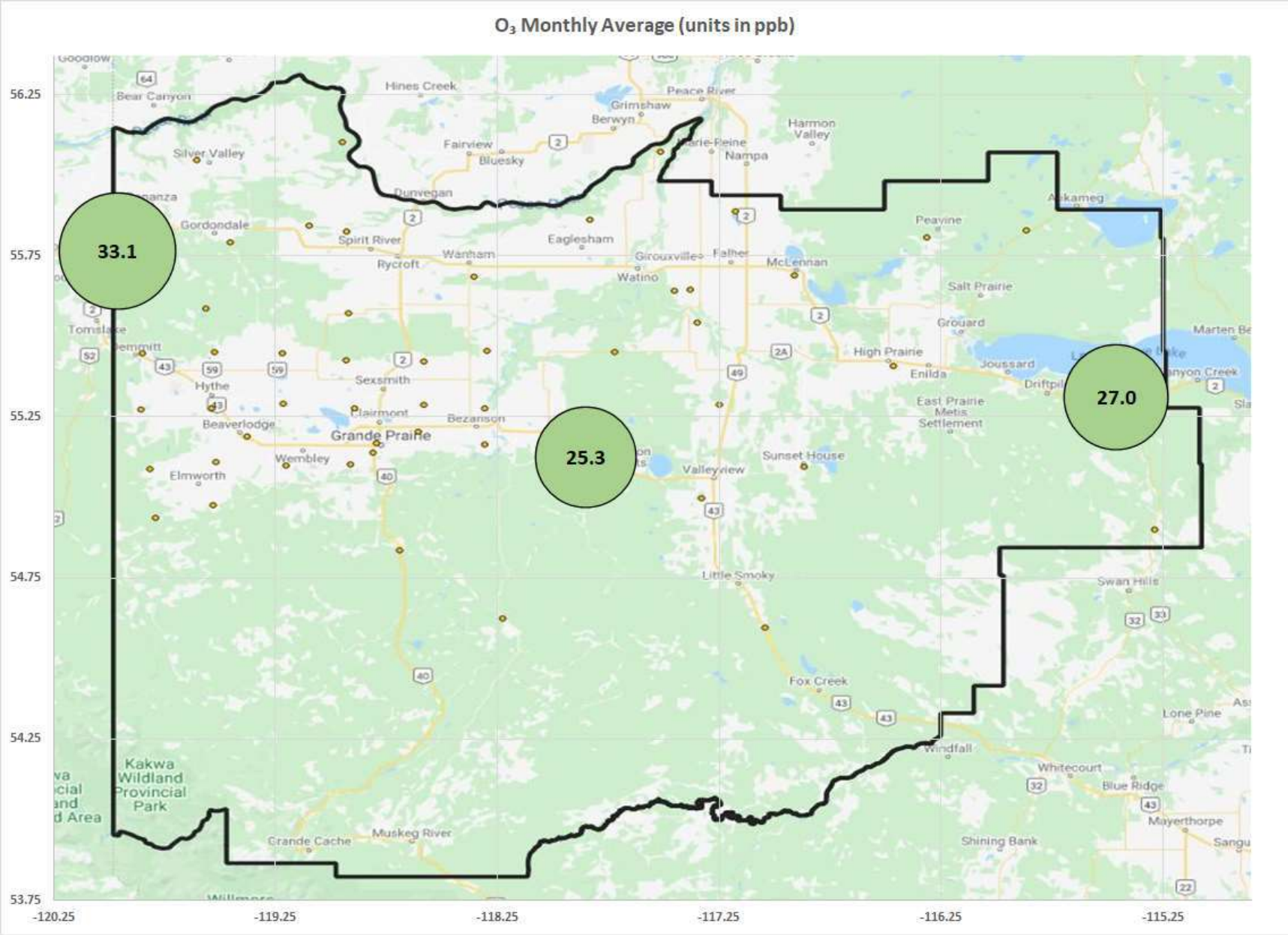

Alberta Ambient Air Quality Objective - 30-day SO_2 Objective is 11 ppb
Dec-2022
SO_2 Concentration (ppb)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande Prairie I
Clairmont Lake
Smoky Heights
Gold Creek
Jean Cote
Guy
Crooked Creek
Clouston Creek
McLennan
Sunset House
High Prairie
Peavine
Little Smoky
Kinuso
Deer Mountain
Henry Pirker
East Prairie
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Duvernay 1
Duvernay 2
Duvernay 3
Duvernay 4
Pipeline
Bridge
Wanyandie
Ambient Trailer
Powerline

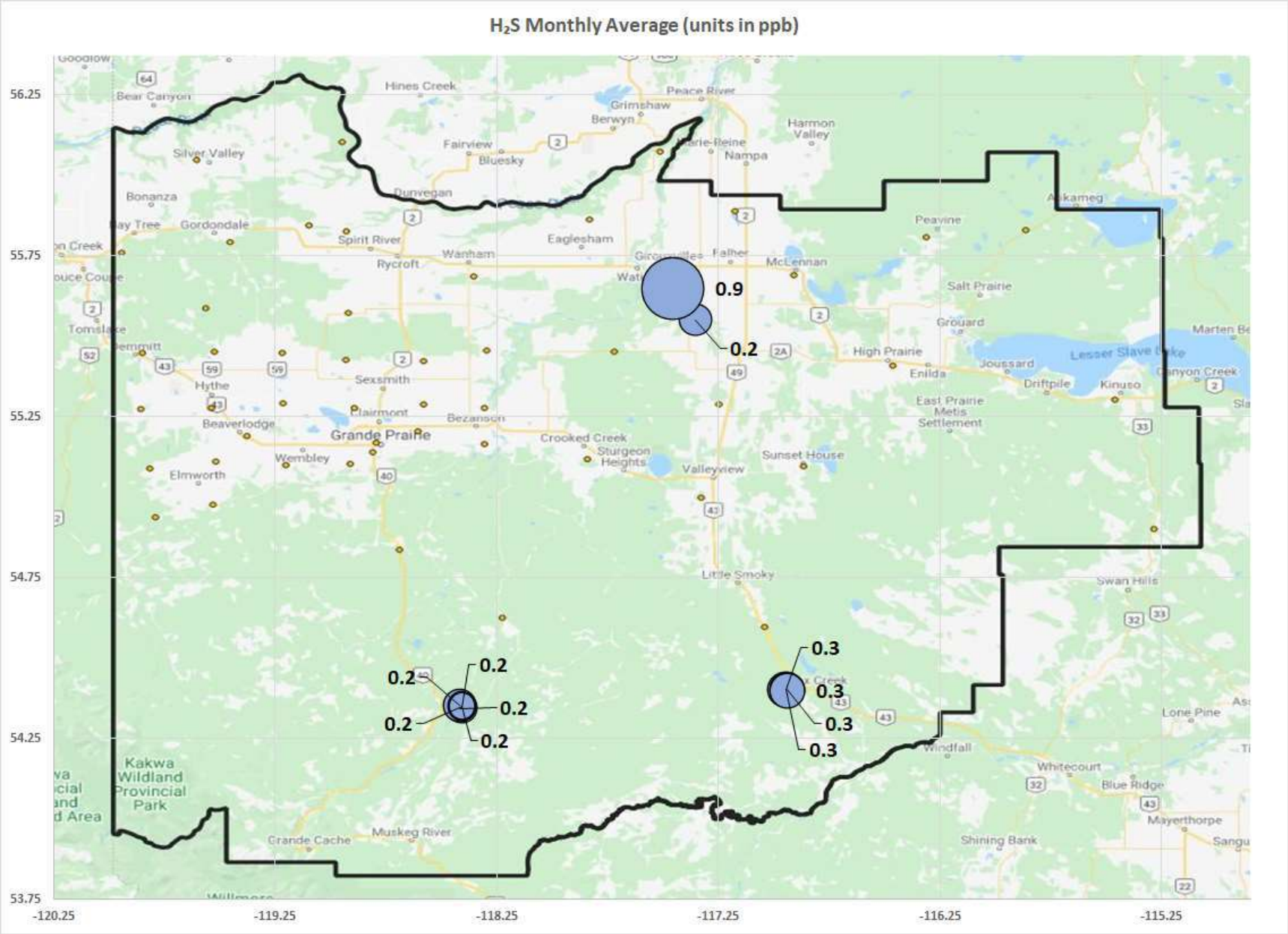

No Alberta Ambient Air Quality Objective
Dec-2022
O3 Concentration (ppb)
60
50
40
30
20
10
0
Bay Tree
Crooked Creek
Kinuso


No Alberta Ambient Air Quality Objective
Dec-2022
H2S Concentration (ppb)
1.5
1.0
0.5
0.0
Guy
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Duvernay 1
Duvernay 2
Duvernay 3
Duvernay 4


SO₂ Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Monthly
11
AAAQO
Kakwa Wildland Provincial Park
Hines Creek
Peace River
Grimshaw
Berwyn
Fairview
Bluesky
Nampa
Harmon Valley
Silver Valley
Bonanza
Dunvegan
Eaglesham
Rycroft
Watino
Girouxville
Falher
Salt Prairie
Grouard
Joussard
Driftpile
East Prairie Metis Settlement
Lesser Slave Lake
Valleyview
Little Smoky
Swan Hills
Windfall
Whitecourt
Grande Cache
Muskeg River
Tomslake
Bear Canyon


NO₂ Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
1.9
2.0
2.5
1.4
2.3
1.6
2.0
2.0
2.0
2.0
1.4
1.9
6.4
1.6
4.9
2.9
4.3
8.9
4.9
2.6
2.5
5.5
18.0
3.8
1.7
5.0
1.8
22.8
7.9
1.5
6.8
2.9
3.7
3.9
5.5
4.4
13.8
6.1
9.6
5.0
Annual
24
AAAQO
Hines Creek
Grimshaw
Peace River
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Silver Valley
Bear Canyon
Bonanza
Dunvegan
Eaglesham
Rycroft
Girouxvilles
Watino
Salt Prairie
Grouard
Lesser Slave Lake
Joussard
Driftpile
East Prairie Metis Settlement
Bezanson
Valleyview
Elmworth
Little Smoky
Swan Hills
Fox Creek
Lone Pine
Windfall
Shining Bank
Kakwa Wildland Provincial Park

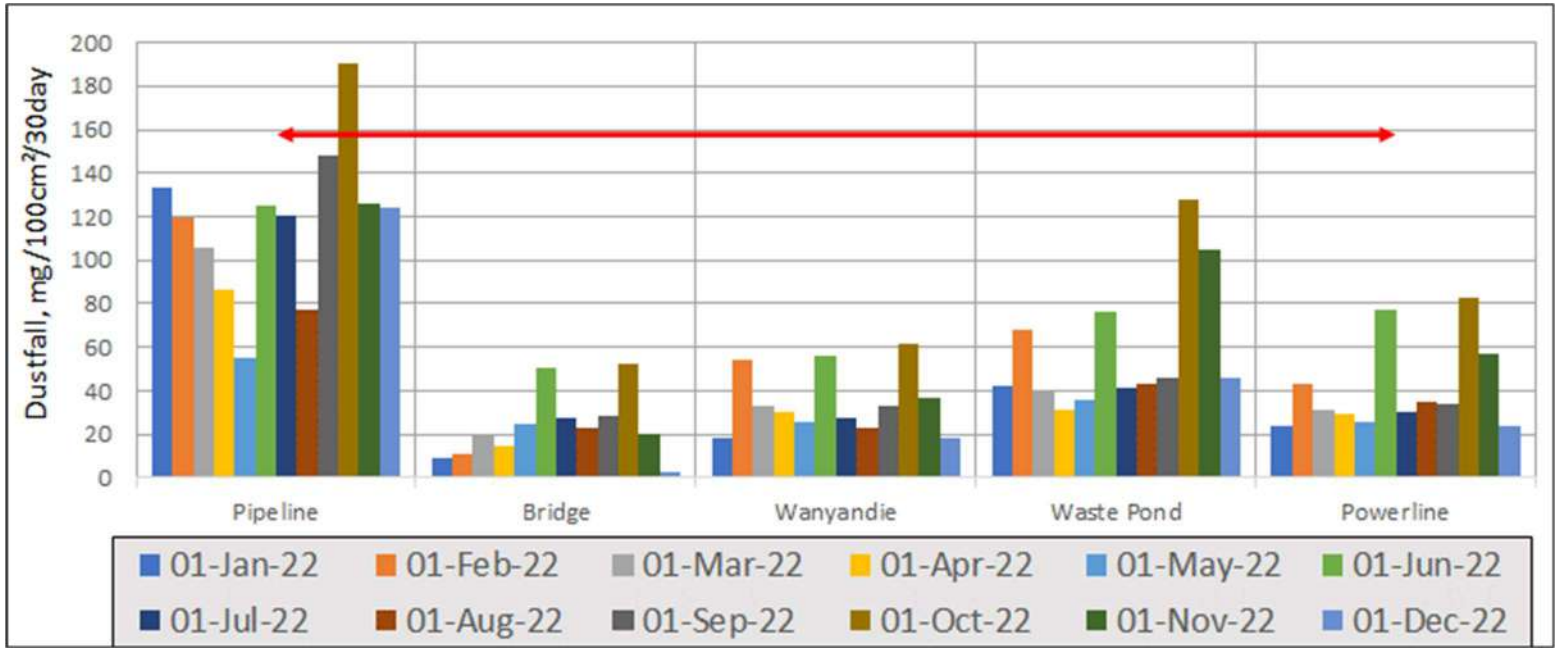

O₃ Monthly Average (units in ppb)
33.1
25.3
27.0
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Silver Valley
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
Girouxville
Falher
McLennan
Watino
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Clairmont
Bezanson
Grande Prairie
Wembley
Elmworth
Valleyview
Sunset House
Little Smoky
Swan Hills
Fox Creek
Lone Pine
Windfall
Whitecourt
Blue Ridge
Mayerthorpe
Shining Bank
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River


H₂S Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
0.9
0.2
0.2
0.2
0.2
0.2
0.3
0.3
0.3
0.3
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Silver Valley
Bonanza
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
McLennan
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Driftpile
Kinuso
Lesser Slave Lake
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Bezanson
Crooked Creek
Sturgeon Heights
Valleyview
Sunset House
Wembley
Elmworth
Little Smoky
Swan Hills
Lone Pine
Windfall
Whitecourt
Blue Ridge
Mayerthorpe
Shining Bank
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River

12 Dustfall Monitoring Data

Milner Dustfall Samples December 2022

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm²/30day	Fixed Dustfall (30 day) mg/100cm²/30day	Exposure days	Field Notes
December	2022	Pipeline	124.4	22.0	31	
December	2022	Bridge	2.8	1.9	31	
December	2022	Wanyandie	18.1	4.0	31	
December	2022	Waste Pond	45.5	9.2	31	
December	2022	Powerline	24.2	5.7	31	
December	2022	Powerline Dup	34.8	10.0	31	RPD= 36% / 55%



13 End of Report

End of Report

Peace Airshed Zone Association

Ambient Air Monitoring Report

December 2022