Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

January 2022

February 28, 2022

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

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

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

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

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

PAZA has retained the services of WSP Canada Inc. to conduct continuous ambient monitoring and Dr Kevin McCullum 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:

Seven (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 January 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:

There were no readings above the AAAQO and three readings above the $PM_{2.5}$ (80 µg/m³) AAAQG at Milner station during the month of January 2022

- There were three, 1hr $PM_{2.5}$ reading above 80 µg/m³ (AAAQG) as follows:

Reference Number	Pollutant	Station	Date	From MST	To MST	Hour avg µg/m³	WS km/h	WD degrees
388300	$PM_{2.5}$	Milner	Jan 10, 2022	12:00	13:00	98.4	0.6	288
388300	$PM_{2.5}$	Milner	Jan 10, 2022	13:00	14:00	106.0	0.6	344
388300	$PM_{2.5}$	Milner	Jan 20, 2022	12:00	13:00	129.5	40.8	236

Operational times less than 90 percent:

All stations reported above 90% operational times with the exception of THC/CH4/NMHC at Henry Pirker station (reference #**387815)**

Air Incidents

None were reported

Deviations from Authorized Monitoring Methods

None to report

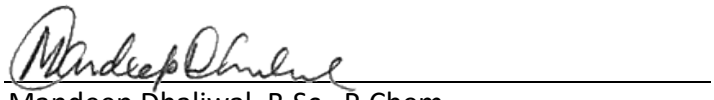
Passive Monitoring

- 46 Stations throughout the PAZA zone
  - Passive sample analyses were performed by Bureau Veritas Laboratories
- There were 15 duplicates sampled in the month of January
  - Seven SO_2 duplicates located at Eaglesham, Steeprock Creek, Wembley, Crooked Creek, Duvernay 4, Jayar Plant, Milner Wanyandie; RPD ranging from 0% to 58% (1 fail, Eaglesham)
  - One O_3 duplicate at Crooked Creek; RPD at 3%
  - Six NO_2 duplicates at Hythe, McLennan, Bay Tree, Little Smoky, Jayar Bone Yard, Milner Ambient Trailer; RPD ranging from 0% to 10% (no fails)
  - Three H_2S duplicates, Guy, Duvernay 4, Jayar 14-8; RPD ranging from 3% to 32% (no fails)
- Girouxville 3 was exposed for two months and reported during this collection
- Milner Sites are now reported as part of the PAZA Passive report.
- 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 previously collected by Milner Power Limited
- There was one duplicate sampled collected for each in the month of January
  - RPD ranged from 6% to 20%
- Total dustfall ranged from 9.4 to 133.6 mg/100cm²/30day
- Milner Sites are now reported as part of the PAZA report

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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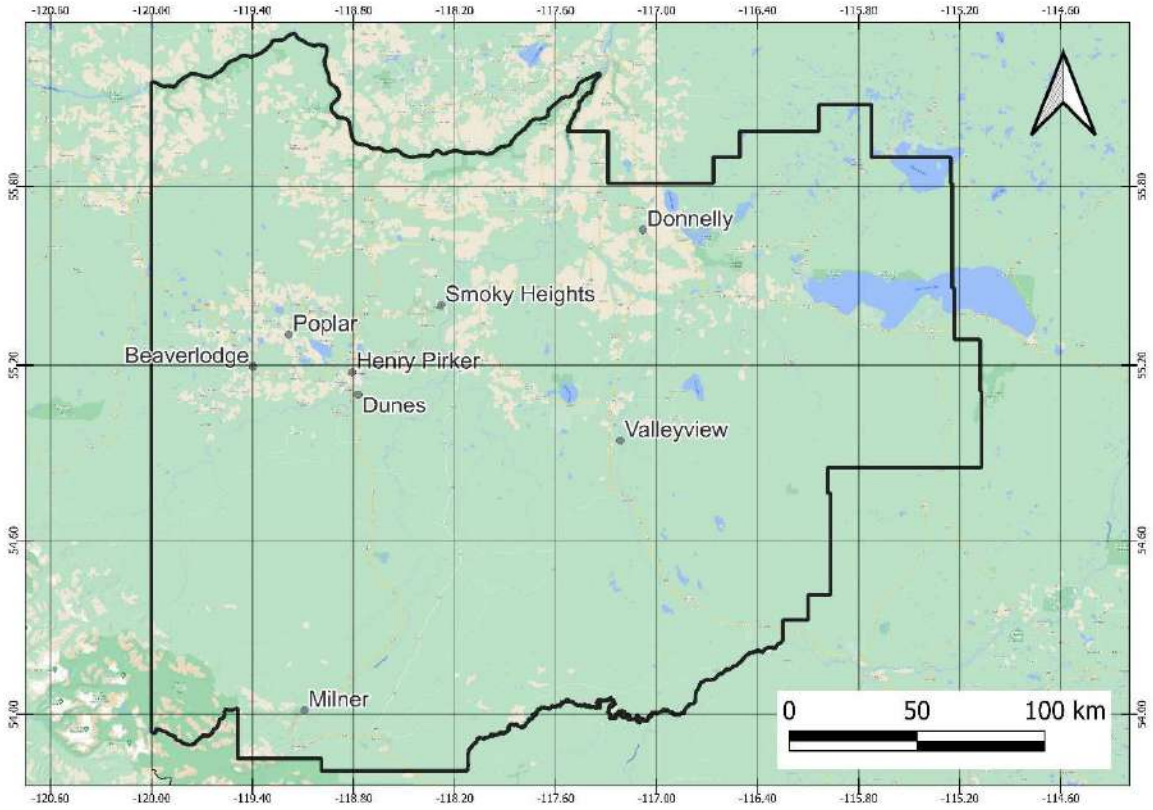
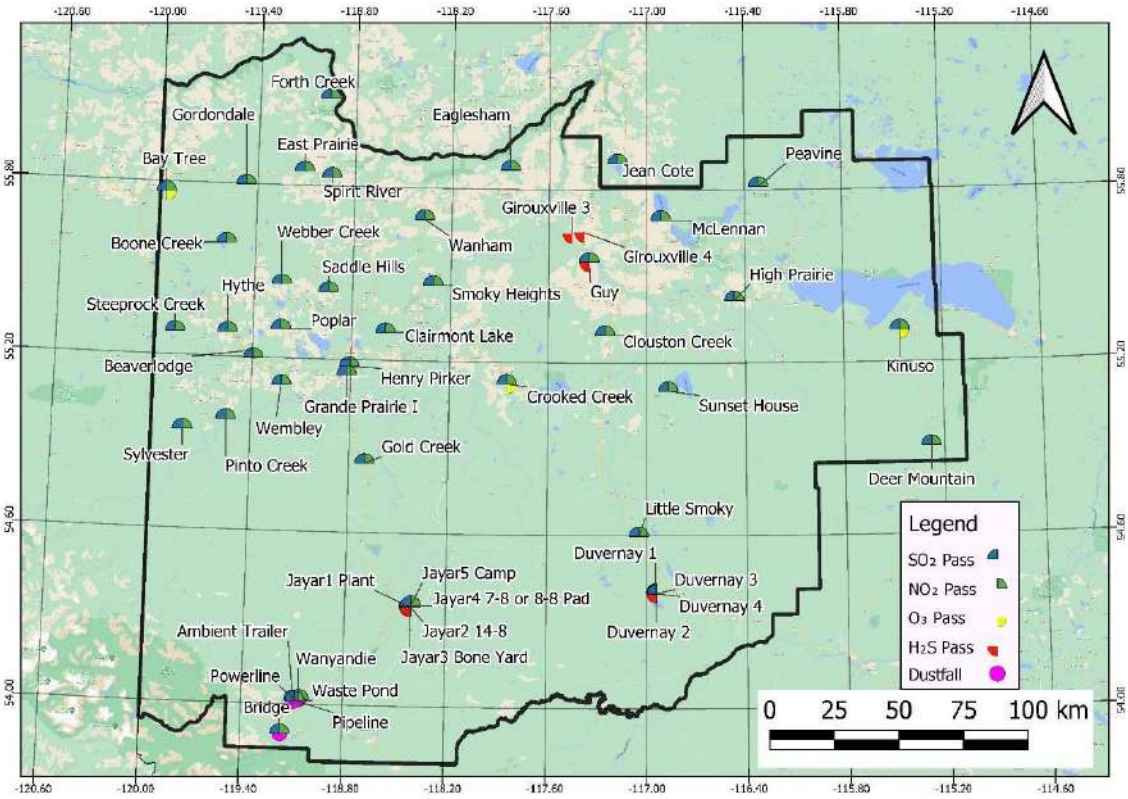
PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 January 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 - January 2022 Beaverlodge Station Report

	January				1-hour			24-hour			Exceedance				Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	2.1	0.0	91.8%	96.6%	64.6	-	Jan-19 13:00	21.9	-	Jan-19	-	-	-	-	Jan 18, 2022
NO_2 (ppb)	7.7	0.3	91.8%	96.6%	36.5	159	Jan-01 18:00	27.1	-	Jan-19	0	-	-	-	Jan 18, 2022
NO_X (ppb)	9.8	0.3	91.8%	96.6%	94.6	-	Jan-19 13:00	49.2	-	Jan-19	-	-	-	-	Jan 18, 2022
O_3 (ppb)	29.3	0.0	92.1%	96.6%	49.1	76	Jan-23 04:00	44.6	-	Jan-22	0	-	-	-	Jan 18, 2022
$PM_{2.5}$ (µg/m³)	2.9	0.0	96.2%	96.6%	22.2	80	Jan-07 05:00	11.7	29	Jan-19	0	-	0	-	Jan 12, 2022
SO_2 (ppb)	0.9	0.0	92.1%	96.6%	21.8	172	Jan-13 04:00	2.9	48	Jan-21	0	-	0	0	Jan 12, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-9.0	-32.5	96.6%	96.6%	7.3
RH (%)	69.5	23.2	96.6%	96.6%	100.0
WS (km/hr)	10.8	0.1	96.6%	96.6%	54.7
WD (deg)	282	0.2	96.6%	96.6%	359.8

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

Average Wind Direction	282	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_X$	Thermo	42i	Jan 1-2 communications failure, 25hrs removed
O_3	Thermo	49iQ	Jan 1-2 communications failure, 25hrs removed
$PM_{2.5}$	Sharp	5030	Jan 1-2 communications failure, 25hrs removed
SO_2	Thermo	43i-TLE	Jan 1-2 communications failure, 25hrs removed
Met Equip	MetOne	50.5	Jan 1-2 communications failure, 25hrs removed

1.2 Dunes Air Monitoring Station

PAZA - January 2022 Dunes Station Report

	January				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
$PM_{2.5}$ (µg/m³)	4.0	0.0	99.7%	100.0%	40.5	80	Jan-01 05:00	15.0	29	Jan-01	0	-	0	-	Jan-21-2022
SO_2 (ppb)	0.5	0.0	95.3%	100.0%	6.5	172	Jan-19 23:00	1.7	48	Jan-05	0	-	0	0	Jan-21-2022
TRS (ppb)	0.4	0.0	95.3%	100.0%	7.2	-	Jan-11 05:00	2.0	-	Jan-11	-	-	-	-	Jan-21-2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-10.6	-33.1	100.0%	100.0%	9.2
RH (%)	71.4	28.6	100.0%	100.0%	97.4
WS (km/hr)	3.9	0.1	100.0%	100.0%	15.5
WD (deg)	292	0.0	100.0%	100.0%	358.4

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

Average Wind Direction	292	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Thermo	TEOM AB	No Operational issues noted
SO_2	TECO	43i	No Operational issues noted
TRS	TECO	43C	No Operational issues noted
Met Equip	Gil/RMYoung	MetPak/RMY86004	No Operational issues noted

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - January 2022 Henry Pirker Station Report

Parameter	January 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)	16.8	0.0	95.2%	100.0%	203.9	-	Jan-12 20:00	64.8	-	Jan-27	-	-	-	-	**Jan 10, 2022**
NO_2 (ppb)	19.9	0.2	95.2%	100.0%	61.1	159	Jan-12 19:00	41.4	-	Jan-27	0	-	-	-	**Jan 10, 2022**
NO_X (ppb)	36.9	0.3	95.2%	100.0%	264.3	-	Jan-12 20:00	106.7	-	Jan-27	-	-	-	-	**Jan 10, 2022**
O_3 (ppb)	19.5	0.2	95.4%	100.0%	49.3	76	Jan-23 04:00	44.0	-	Jan-22	0	-	-	-	**Jan 10, 2022**
$PM_{2.5}$ (µg/m³)	5.8	0.0	99.6%	100.0%	43.6	80	Jan-15 00:00	17.4	29	Jan-01	0	-	0	-	**Jan 11, 2022**
SO_2 (ppb)	0.8	0.0	93.7%	98.4%	22.8	172	Jan-20 07:00	6.9	48	Jan-20	0	-	0	0	**Jan 31, 2022**
H_2S (ppb)	0.4	0.0	95.3%	100.0%	2.3	10	Jan-11 10:00	0.9	3	Jan-27	0	-	0	-	**Jan 11, 2022**
CH_4 (ppm)	2.7	2.1	18.3%	20.1%	4.6	-	Jan-11 08:00	3.1	-	Jan-11	-	-	-	-	**Jan 14, 2022**
THC (ppm)	2.7	2.1	18.3%	20.1%	4.9	-	Jan-11 08:00	3.2	-	Jan-11	-	-	-	-	**Jan 14, 2022**
NMHC (ppm)	0.1	0.0	18.3%	20.1%	0.8	-	Jan-12 20:00	0.2	-	Jan-01	-	-	-	-	**Jan 14, 2022**
CO (ppm)	0.3	0.0	95.3%	100.0%	2.2	13	Jan-12 20:00	**0.6**	**5**	**Jan-27**	**0**	**0**	-	-	**Jan 11, 2022**

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-10.4	-33.6	100.0%	100.0%	7.1
RH (%)	67.1	38.2	100.0%	100.0%	87.4
SR (W/m²)	17.4	0.0	100.0%	100.0%	203.6
WS (km/hr)	7.2	0.1	100.0%	100.0%	35.6
WD (deg)	273	0.2	100.0%	100.0%	359.8

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	42IQ	No Operational issues noted
O_3	TECO	49I	No Operational issues noted
$PM_{2.5}$	Sharp	5030	No Operational issues noted
SO_2	TEI	43I-TLE	Flow issue Jan 31 (6hrs maintenance + 6hrs data removed)
H_2S	TEI	450i	No Operational issues noted
$THC/CH_4/NMHC$	TEI	55i	Issues resulting in several hours removed and finally instrument removed for repair resulting in <75% uptime
CO	TEI	48I-TLE	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.4 Smoky Heights Air Monitoring Station

PAZA - January 2022 Smoky Heights Station Report

Parameter	January 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)	3.4	0.0	98.5%	99.1%	50.7	80	Jan-09 19:00	7.9	29	Jan-09	0	-	0	-	Jan 24, 2022
SO_2 (ppb)	0.8	0.0	95.3%	100.0%	19.8	172	Jan-19 19:00	5.7	48	Jan-19	0	-	0	0	Jan 24, 2022
TRS (ppb)	0.3	0.0	95.2%	100.0%	2.9	-	Jan-19 10:00	0.8	-	Jan-19	-	-	-	-	Jan 24, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-11.2	-35.1	100.0%	100.0%	5.5
WS (km/hr)	13.6	0.4	99.5%	99.5%	46.6
WD (deg)	263	0.1	99.5%	99.5%	359.9

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

Average Wind Direction 263 WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Sharp	5030	Extreme cold resulted in equipment failure Jan 6 (7hrs removed)
SO_2	TECO	43i	No Operational issues noted
TRS	TEI	43I APSAA	No Operational issues noted
Met Equip	MetOne	50.5	Extreme cold resulted in equipment failure Jan5 (4hrs removed)

1.5 Valleyview Air Monitoring Station

PAZA - January 2022 Valleyview Station Report

Parameter	January 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)	0.1	0.0	95.3%	100.0%	2.9	172	Jan-12 16:00	0.7	48	Jan-07	0	-	0	0	Jan 05, 2022
H_2S (ppb)	0.1	0.0	92.5%	97.2%	0.8	10	Jan-06 22:00	0.3	3	Jan-07	0	-	0	-	Jan 05, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-10.2	-34.6	100.0%	100.0%	9.3
RH (%)	79.6	34.6	100.0%	100.0%	100.2
WS (km/hr)	4.4	0.1	100.0%	100.0%	20.1
WD (deg)	283	0.1	100.0%	100.0%	359.9

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

Average Wind Direction	283	NW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	TEI	43i-APSCB	No Operational issues noted during the month
H_2S	TEI	450i-APHAA	Due to tripped breaker H_2S removed from Jan 5-6 (18hrs) with 3hrs maintenance
Met Equip	RMYoung	RMY86004	No Operational issues noted during the month

1.6 Donnelly Air Monitoring Station

PAZA - January 2022 Donnelly Station Report

Parameter	January 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	95.0%	99.6%	1.7	172	Jan-07 14:00	0.5	48	Jan-07	0	-	0	0	Jan 13, 2022
H_2S (ppb)	0.1	0.0	94.1%	98.7%	1.5	10	Jan-11 12:00	0.3	3	Jan-30	0	-	0	-	Jan 13, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-11.1	-36.2	99.6%	99.6%	5.9
WS (km/hr)	12.0	0.0	99.1%	99.1%	40.3
WD (deg)	240	0.0	99.1%	99.1%	359.6

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

Average Wind Direction	240	WSW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	Teco	43i	Jan 26 communications issue (3hrs)
H2S	Thermo	45C	Jan 26 comm issue (3hrs); Installed perm oven Jan 13, issues resulted data removed, Jan 17 (3hrs), Jan 31
Met Equip	RMYoung	5103	Jan 26 communications issue (3hrs); data flatlined Jan 18th (4hrs)

1.7 Poplar Air Monitoring Station

PAZA - January 2022 Poplar Station Report

Parameter	January 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)	1.8	0.0	95.0%	100.0%	40.9	-	Jan-14 22:00	12.1	-	Jan-14	-	-	-	-	Jan 19, 2022
NO_2 (ppb)	8.5	0.3	95.0%	100.0%	38.4	159	Jan-14 18:00	25.7	-	Jan-01	0	-	-	-	Jan 19, 2022
NO_X (ppb)	10.4	0.3	95.0%	100.0%	77.9	-	Jan-14 22:00	36.7	-	Jan-14	-	-	-	-	Jan 19, 2022
O_3 (ppb)	28.8	0.2	95.3%	100.0%	48.5	76	Jan-23 04:00	45.1	-	Jan-22	0	-	-	-	Jan 19, 2022
$PM_{2.5}$ (µg/m³)	2.3	0.0	95.3%	95.7%	23.0	80	Jan-01 00:00	6.9	29	Jan-01	0	-	0	-	Jan 20, 2022
SO_2 (ppb)	1.8	0.0	95.2%	100.0%	36.6	172	Jan-20 04:00	10.2	48	Jan-20	0	-	0	0	Jan 19, 2022
TRS (ppb)	0.5	0.0	95.2%	100.0%	3.1	-	Jan-14 12:00	1.3	-	Jan-14	-	-	-	-	Jan 20, 2022
CH4 (ppm)	2.1	1.6	95.3%	100.0%	3.5	-	Jan-19 19:00	2.8	-	Jan-14	-	-	-	-	Jan 20, 2022
THC (ppm)	2.2	1.6	95.3%	100.0%	3.9	-	Jan-14 12:00	2.9	-	Jan-14	-	-	-	-	Jan 20, 2022
NMHC (ppm)	0.0	0.0	95.3%	100.0%	0.9	-	Jan-14 12:00	0.1	-	Jan-14	-	-	-	-	Jan 20, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	-10.5	-36.7	100.0%	100.0%	6.4
WS (km/hr)	13.8	0.2	99.9%	99.9%	54.1
WD (deg)	284	0.7	99.9%	99.9%	359.2

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

Average Wind Direction	284	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	Several hours of data removed due to negative drift (<-3µg/m³, 32hrs)
SO_2	TEI	43I	No Operational issues noted
TRS	TEI	43I	No Operational issues noted
THC/CH4/NMHC	TEI	55I-A3PHAA	No Operational issues noted
Met Equip	MetOne	50.5	Jan 17 freezing rain resulted in WS/WD 1hr removed

1.8 Milner Air Monitoring Station

PAZA - January 2022 Milner Station Report

Parameter	January 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	94.9%	100.0%	188.6	-	Jan-19 17:00	42.5	-	Jan-19	-	-	-	-	Jan 27, 2022
NO_2 (ppb)	8.7	0.2	94.9%	100.0%	77.5	159	Jan-19 17:00	31.5	-	Jan-19	0	-	-	-	Jan 27, 2022
NO_x (ppb)	11.9	0.0	94.9%	100.0%	266.1	-	Jan-19 17:00	73.9	-	Jan-19	-	-	-	-	Jan 27, 2022
$PM_{2.5}$ (µg/m³)	8.7	0.0	97.2%	97.8%	129.5	80	Jan-20 12:00	24.3	29	Jan-10	3	-	0	-	Jan 27, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)					
WS (km/hr)	10.5	0.0	100.0%	100.0%	40.8
WD (deg)	262	0.3	100.0%	100.0%	357.8

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

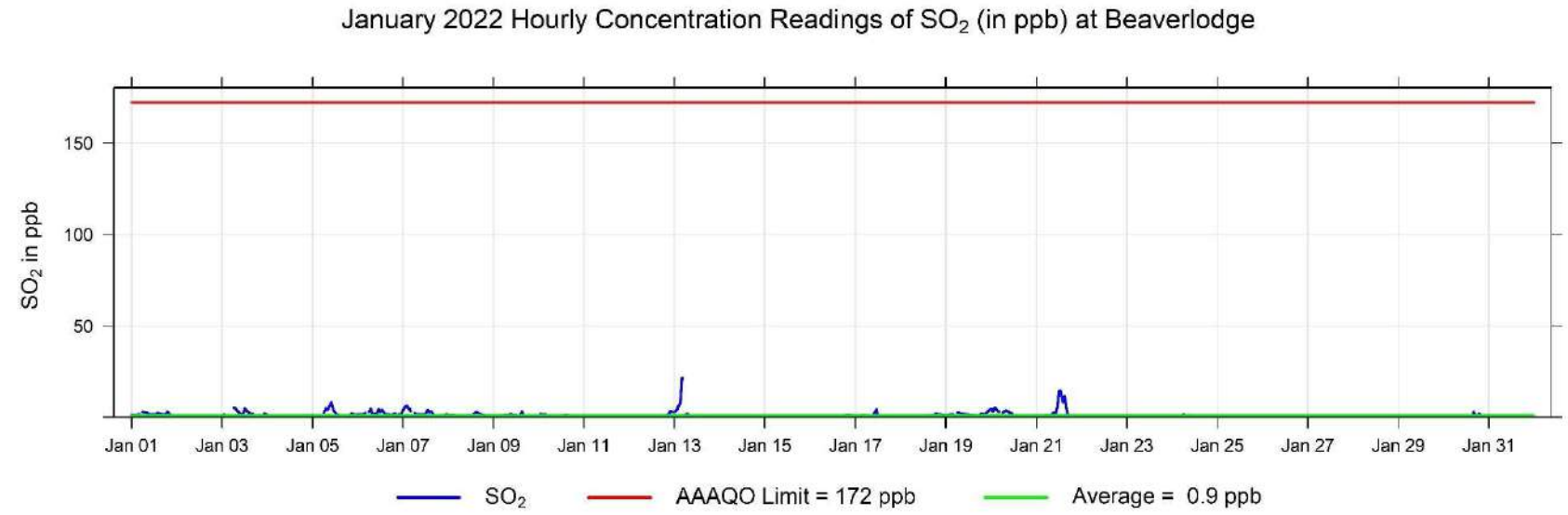
Average Wind Direction	262	W

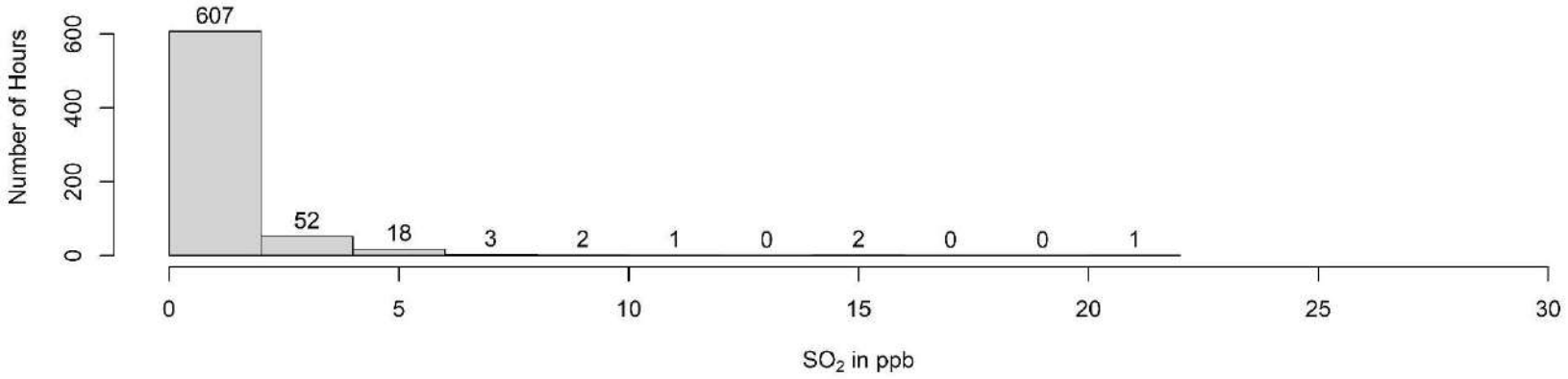
Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	No Operational issues noted
$PM_{2.5}$	TEOM	0	There were five periods of data less than -3µg/m³, removed (17hrs)
Met Equip	MetOne	50.5	No Operational issues noted

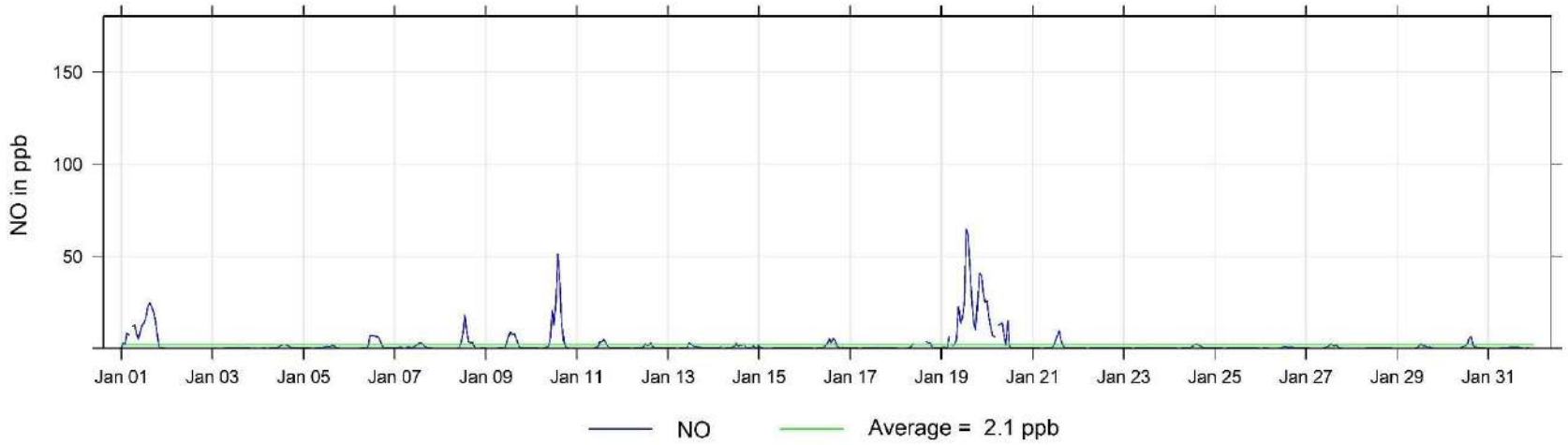
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

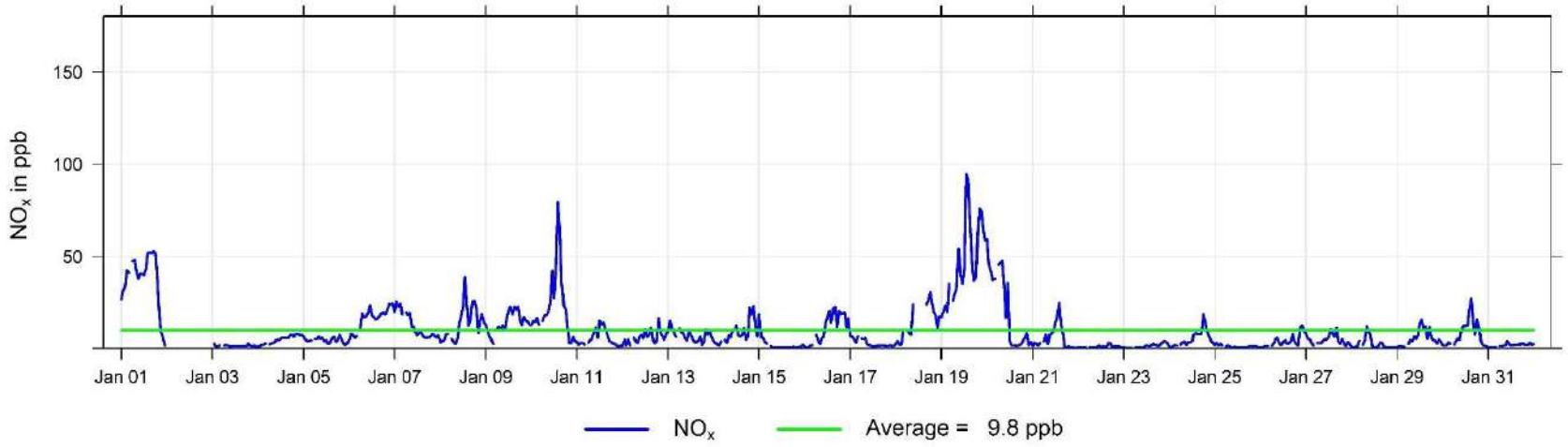

January 2022 Hourly Concentration Readings of SO_2 (in ppb) at Beaverlodge
SO_2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.9 ppb

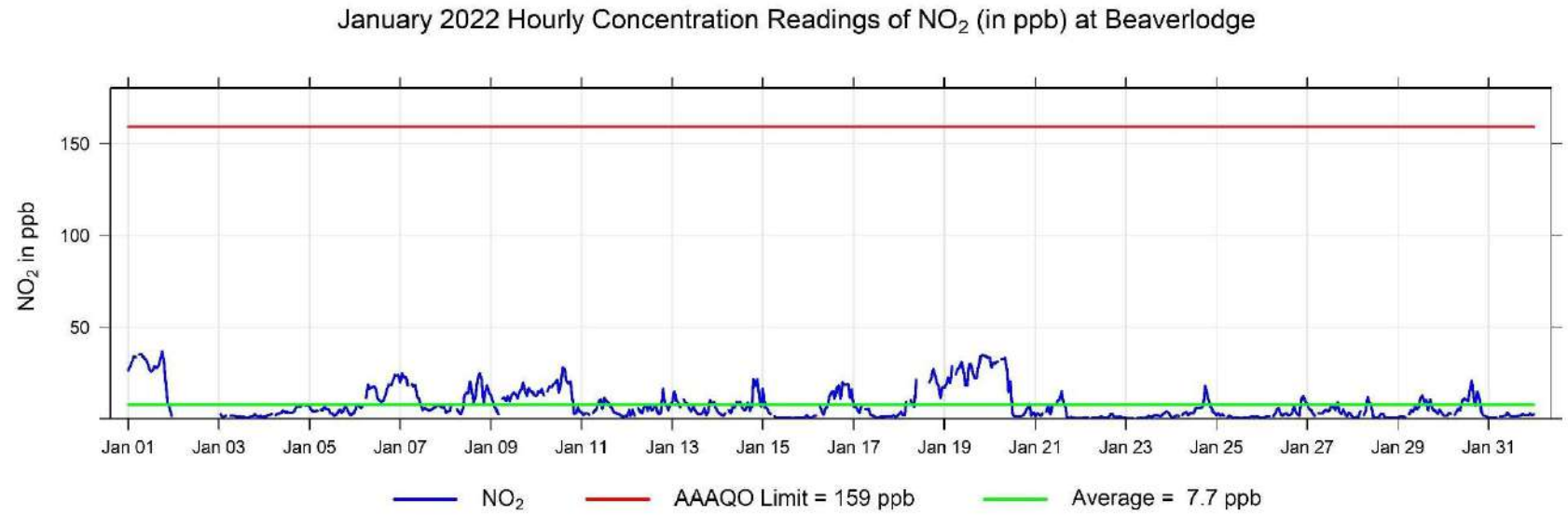

Number of Hours
0
200
400
600
607
52
18
3
2
1
0
2
0
0
1
0
5
10
15
20
25
30
SO_2 in ppb

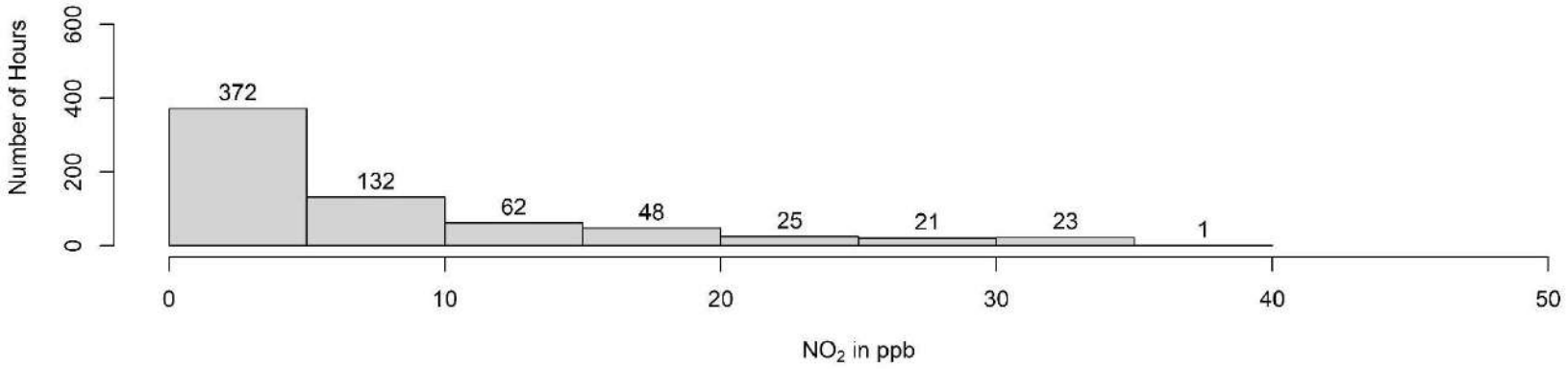
January 2022 Hourly Concentration Readings of NO (in ppb) at Beaverlodge

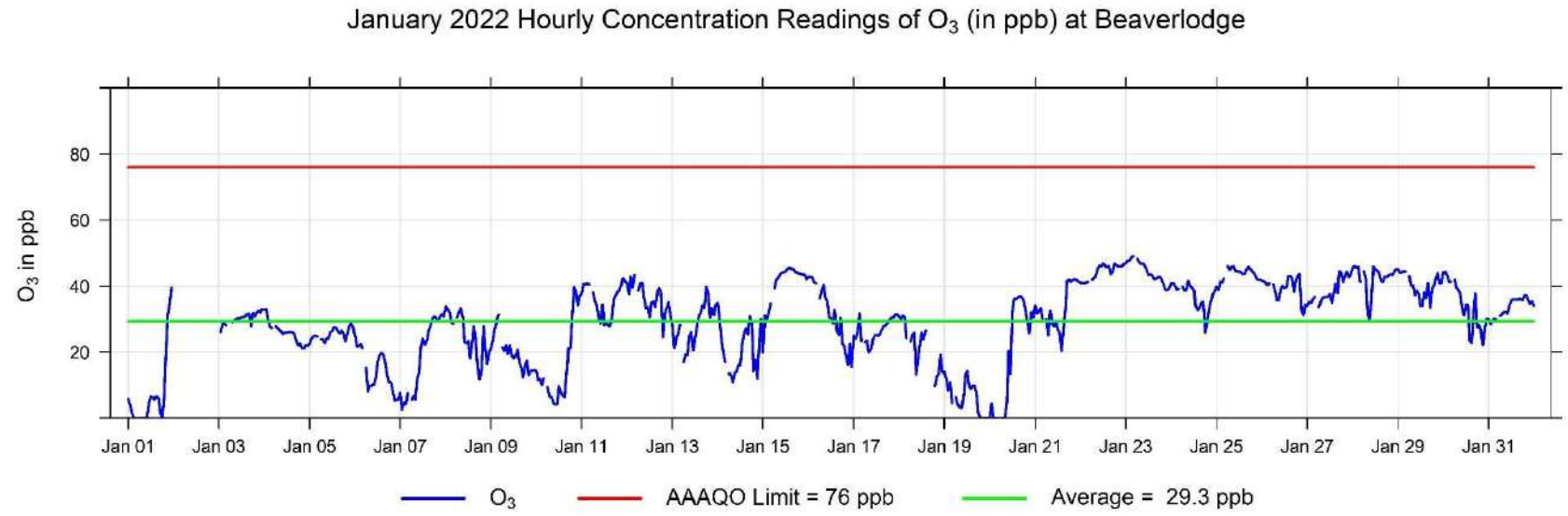


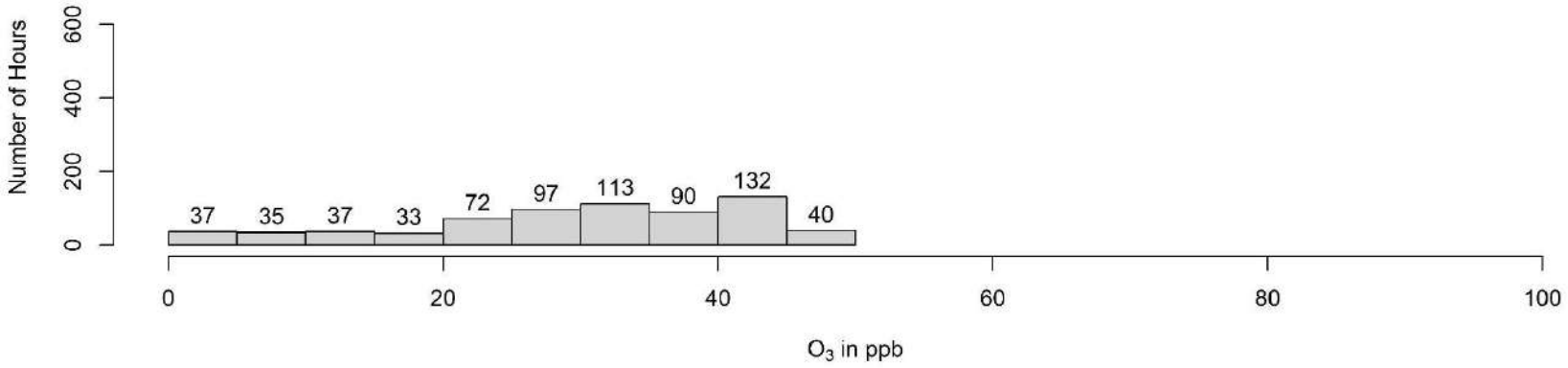
January 2022 Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge

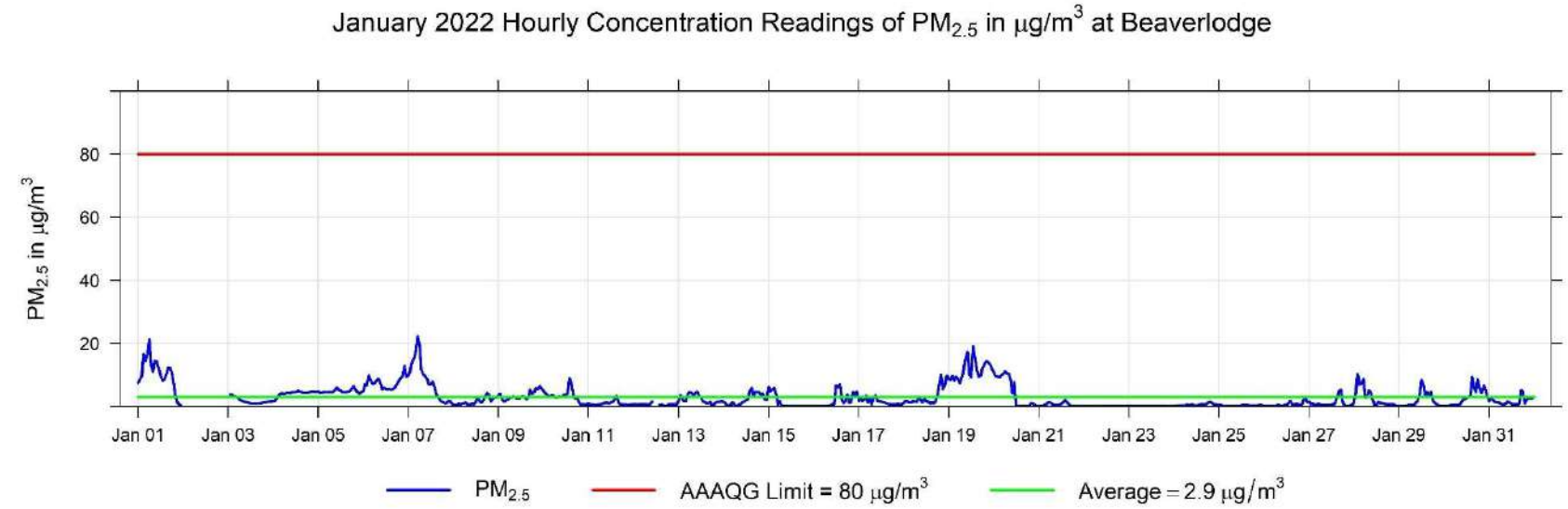


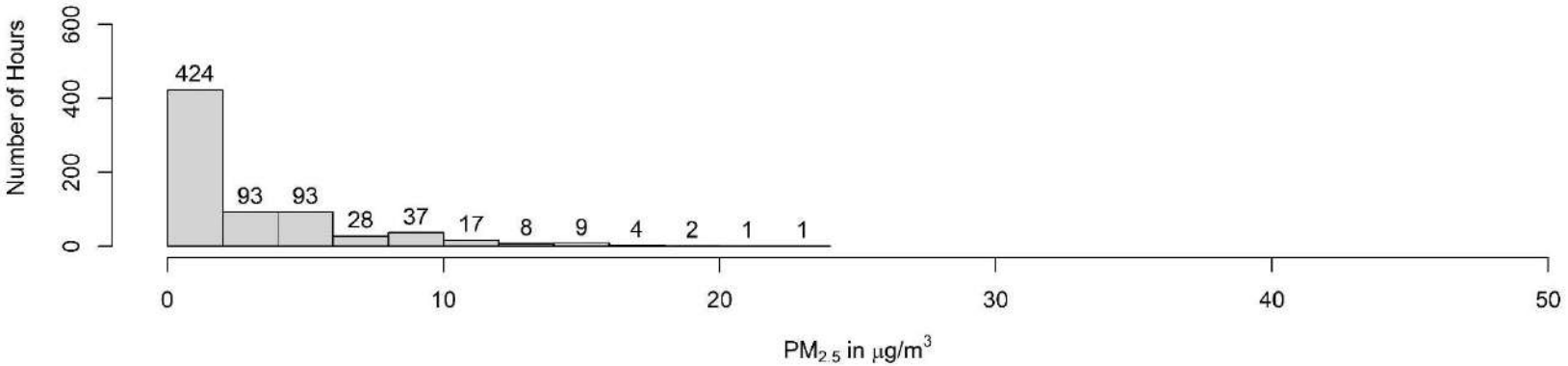

January 2022 Hourly Concentration Readings of NO2 (in ppb) at Beaverlodge
NO2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO2
AAAQO Limit = 159 ppb
Average = 7.7 ppb

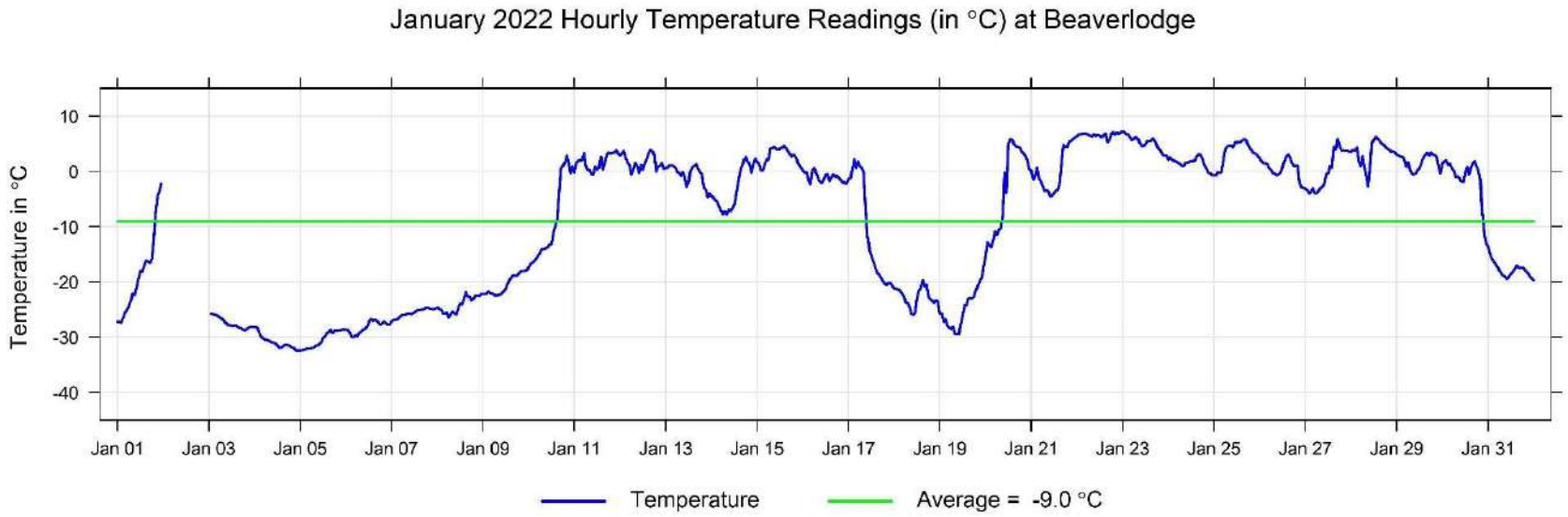

Number of Hours
0
200
400
600
372
132
62
48
25
21
23
1
0
10
20
30
40
50
NO2 in ppb

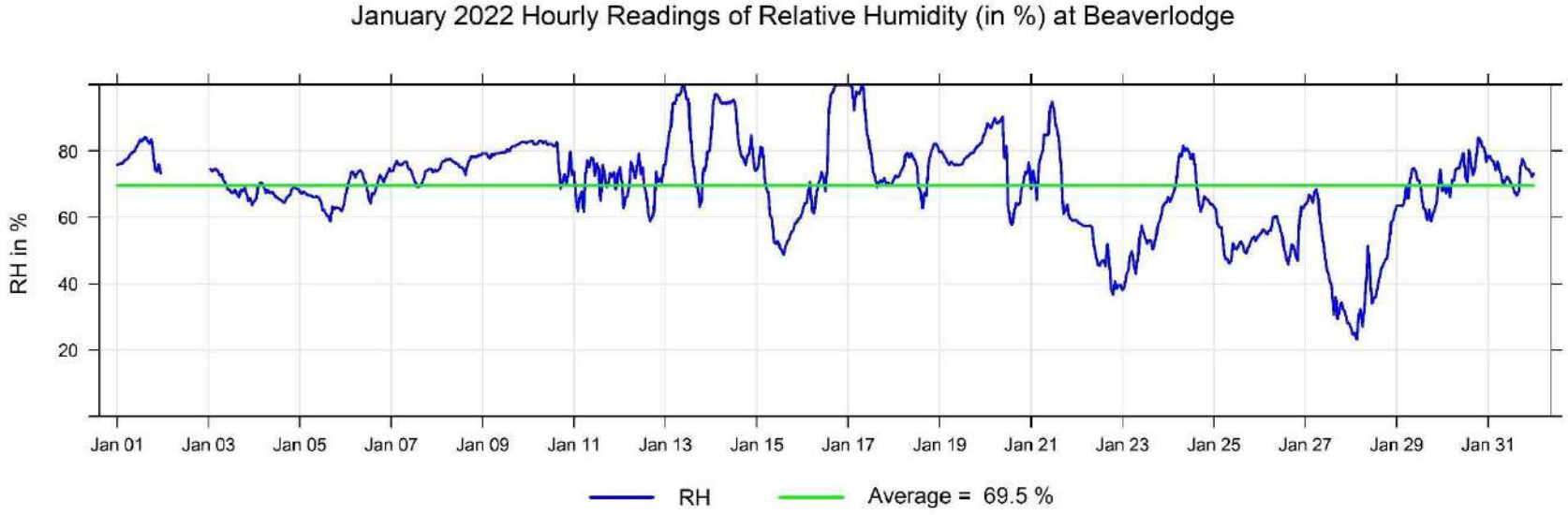

January 2022 Hourly Concentration Readings of O_3 (in ppb) at Beaverlodge
O_3 in ppb
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
O_3
AAAQO Limit = 76 ppb
Average = 29.3 ppb

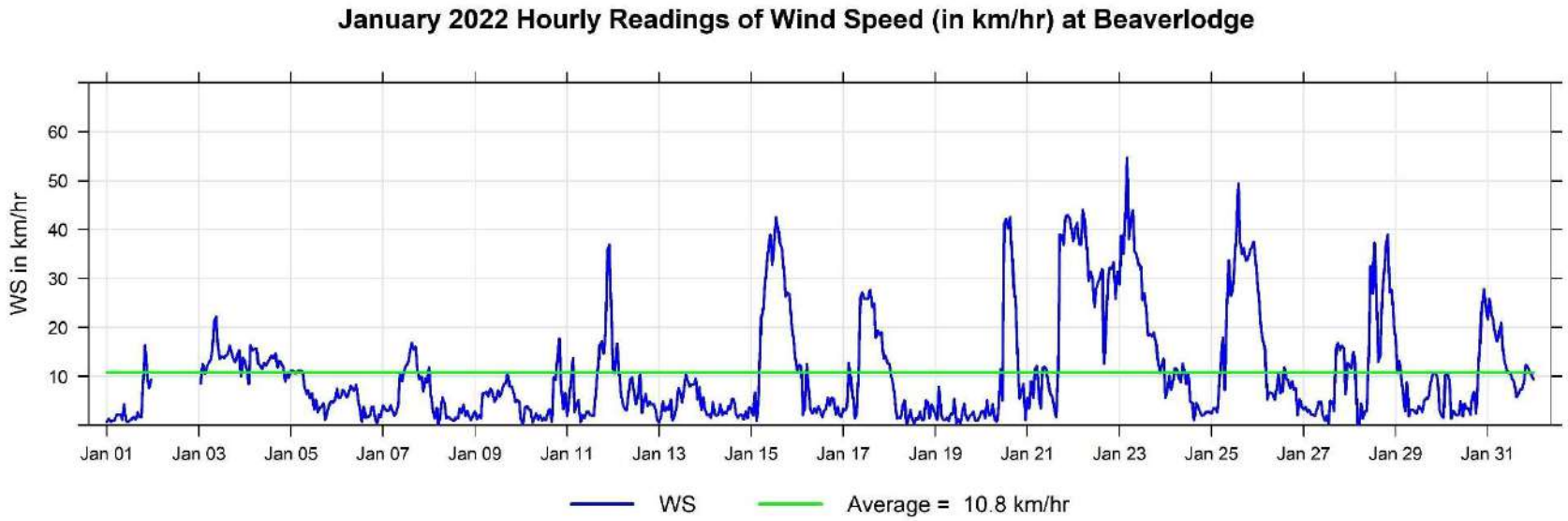

Number of Hours
0
200
400
600
37
35
37
33
72
97
113
90
132
40
0
20
40
60
80
100
O_3 in ppb

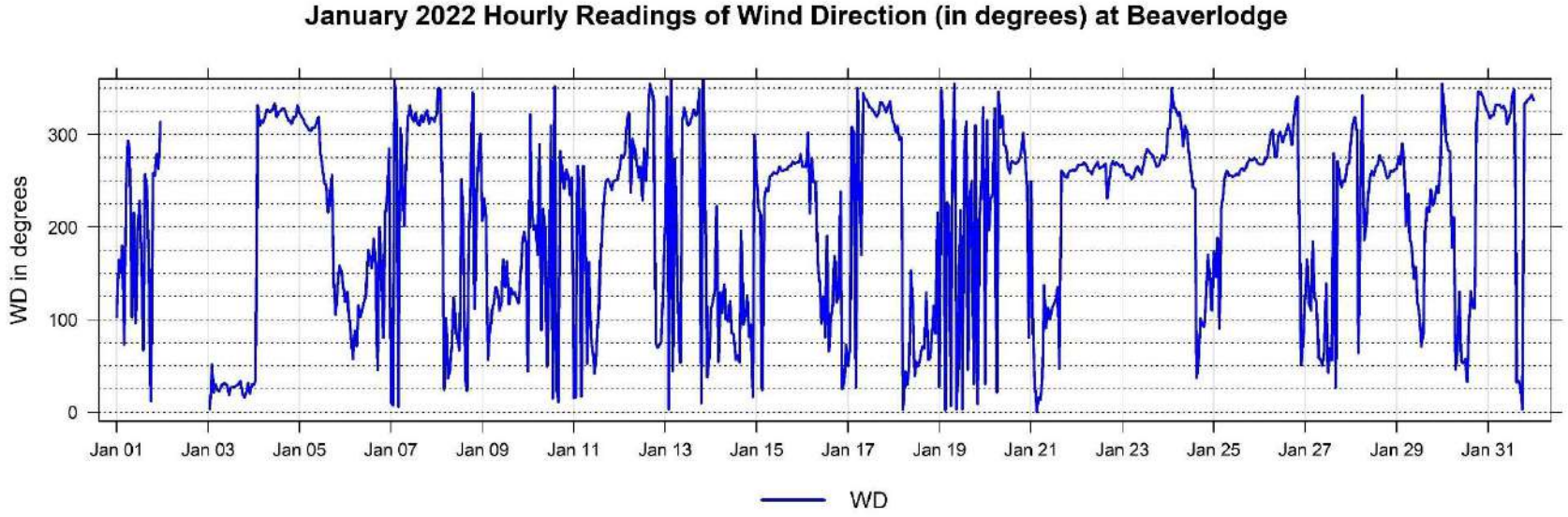

January 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Beaverlodge
PM2.5 in µg/m3
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 2.9 µg/m3

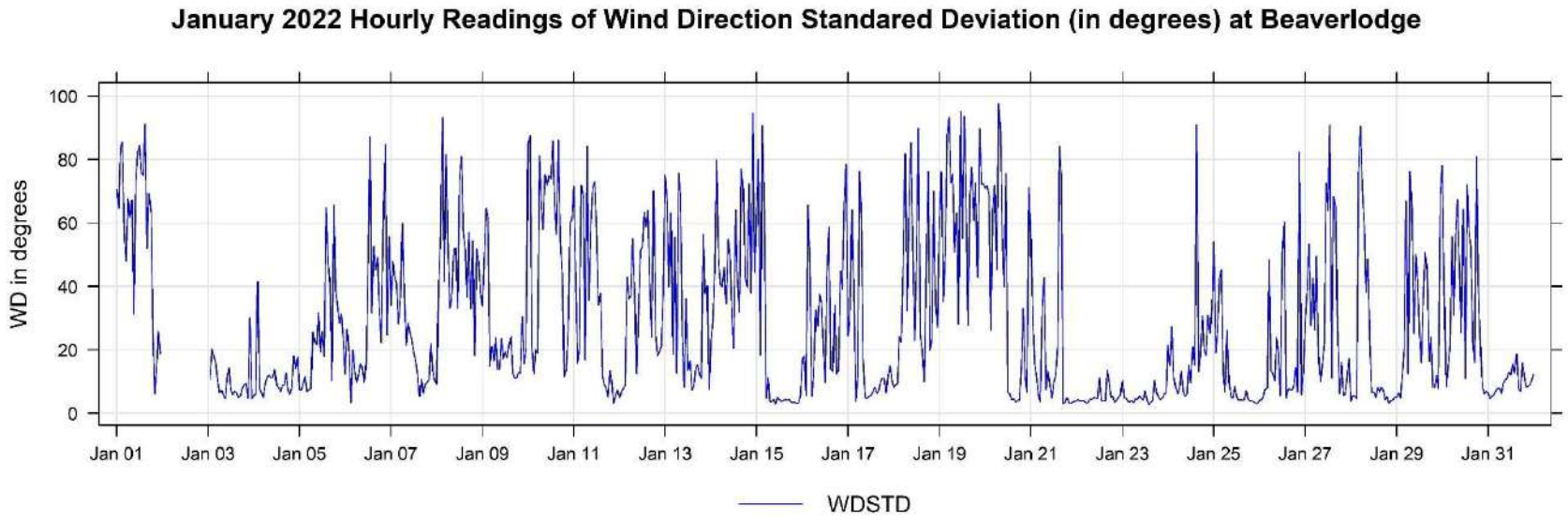

Number of Hours
0
200
400
600
424
93
93
28
37
17
8
9
4
2
1
1
0
10
20
30
40
50
PM2.5 in µg/m3

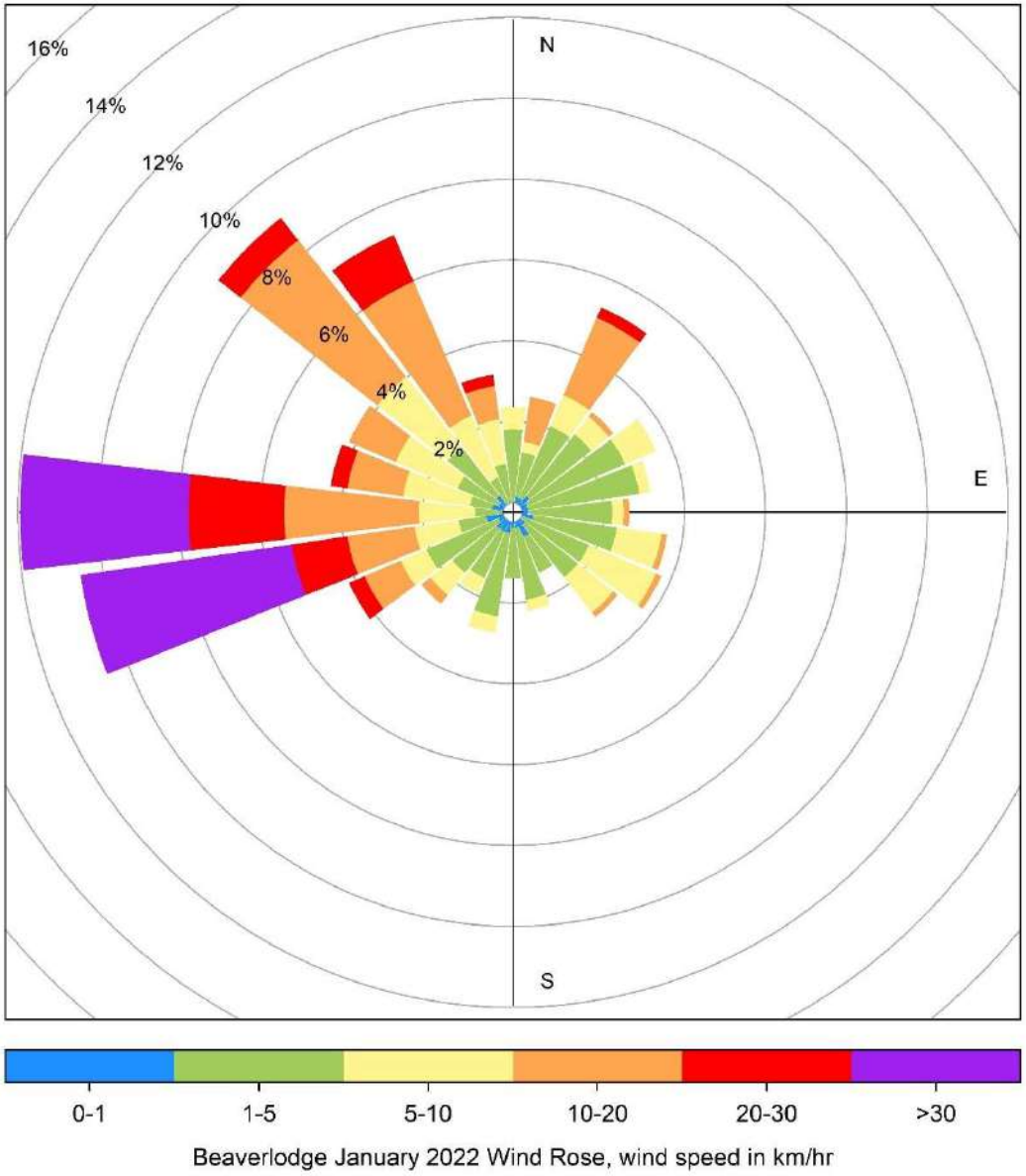

January 2022 Hourly Temperature Readings (in °C) at Beaverlodge
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -9.0 °C


January 2022 Hourly Readings of Relative Humidity (in %) at Beaverlodge
RH in %
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
RH
Average = 69.5 %


January 2022 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 10.8 km/hr

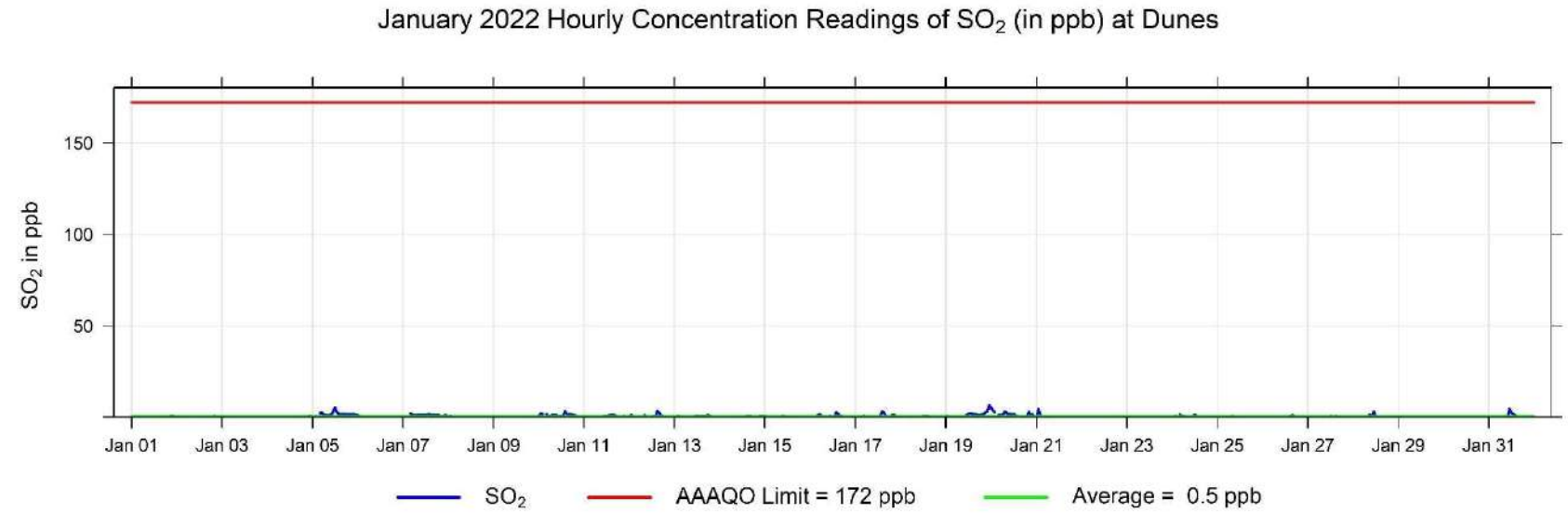

January 2022 Hourly Readings of Wind Direction (in degrees) at Beaverlodge
WD in degrees
300
200
100
0
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WD

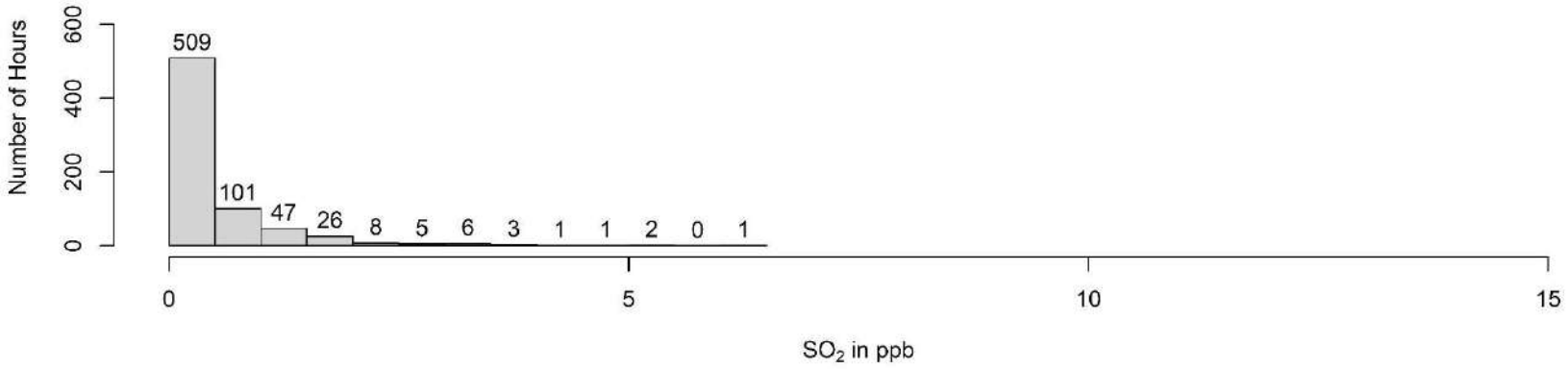

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Beaverlodge
WD in degrees
100
80
60
40
20
0
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD


16%
14%
12%
10%
8%
6%
4%
2%
N
E
S
0-1
1-5
5-10
10-20
20-30
>30
Beaverlodge January 2022 Wind Rose, wind speed in km/hr

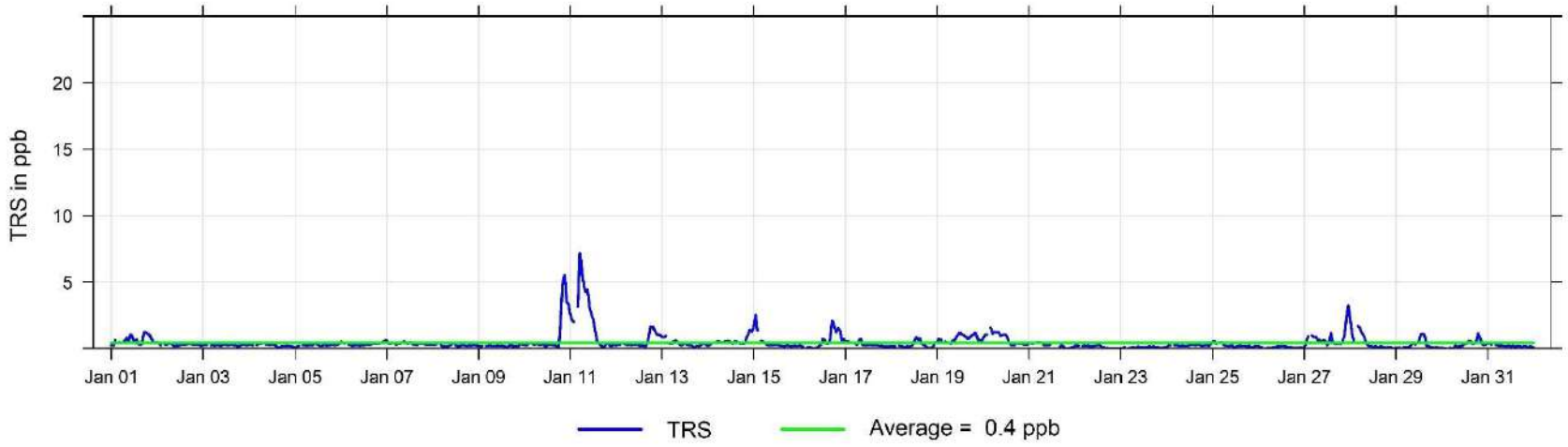
3 Dunes Charts

The following pages include the charts and histograms for Dunes Station

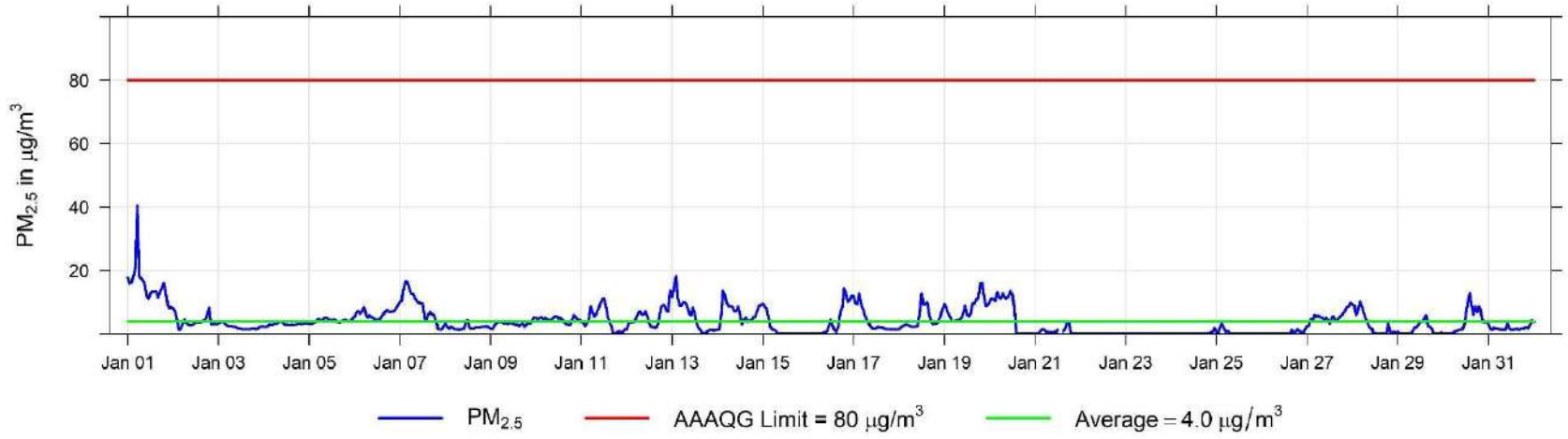

January 2022 Hourly Concentration Readings of SO_2 (in ppb) at Dunes
SO_2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.5 ppb

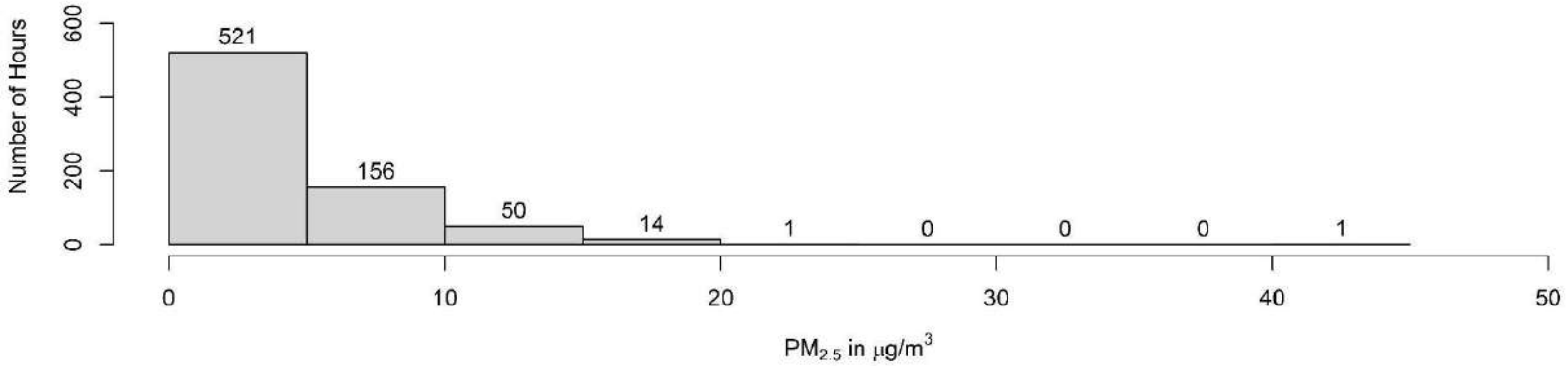

Number of Hours
0
200
400
600
509
101
47
26
8
5
6
3
1
1
2
0
1
0
5
10
15
SO_2 in ppb

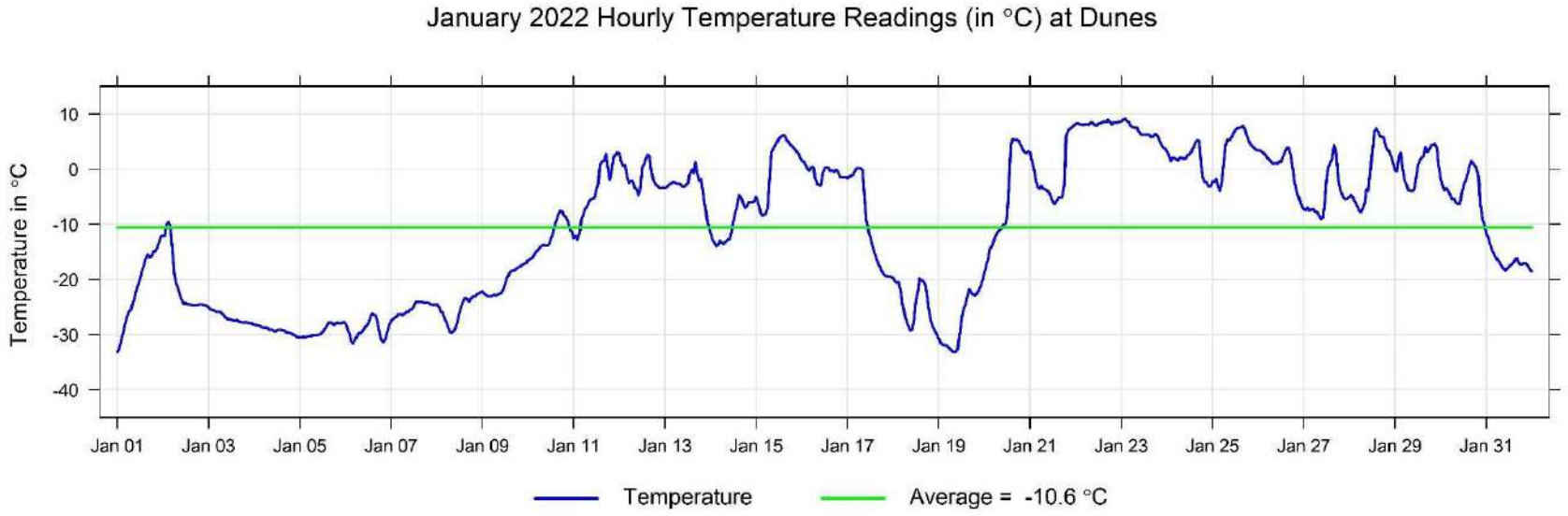
January 2022 Hourly Concentration Readings of TRS (in ppb) at Dunes



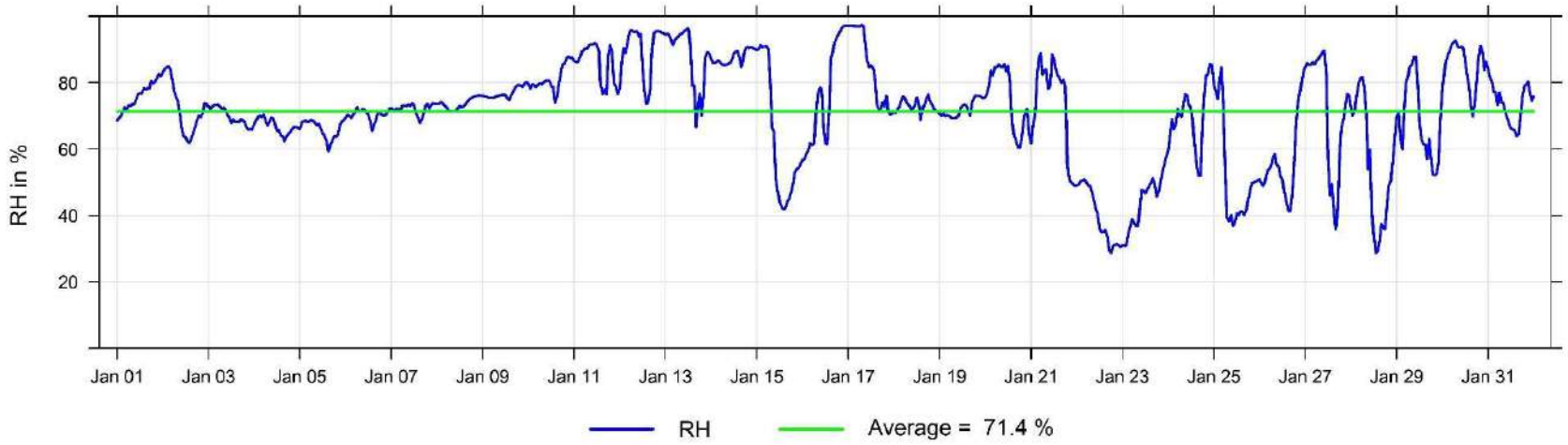
January 2022 Hourly Concentration Readings of $PM_{2.5}$ in $\mu g/m^3$ at Dunes



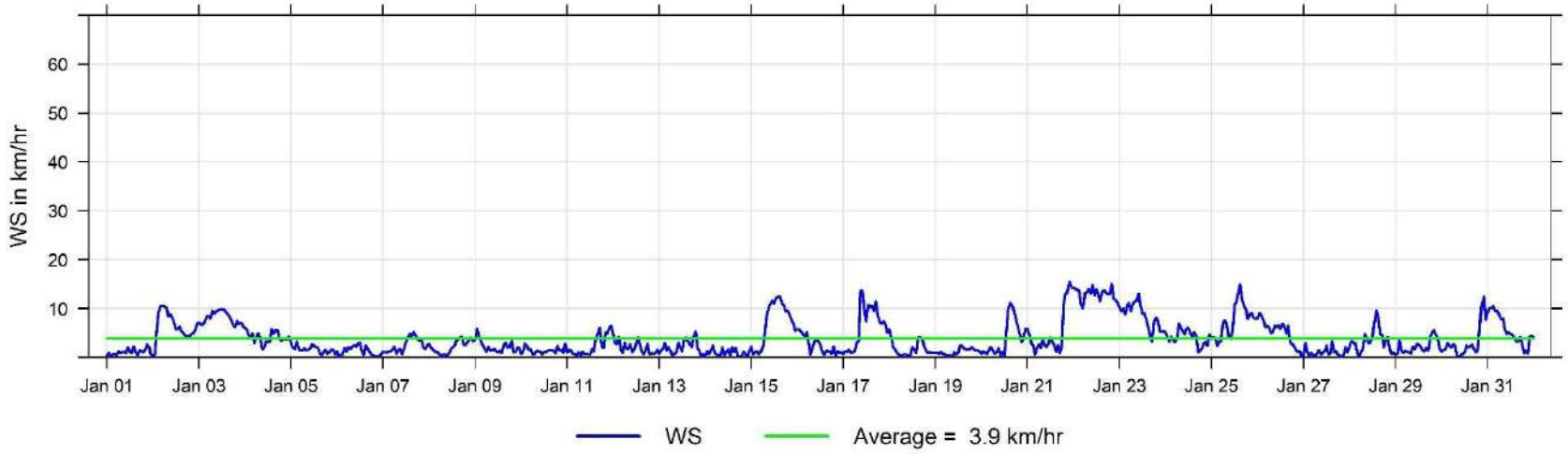

Number of Hours
0
200
400
600
521
156
50
14
1
0
0
0
1
0
10
20
30
40
50
PM2.5 in µg/m3


January 2022 Hourly Temperature Readings (in °C) at Dunes
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -10.6 °C

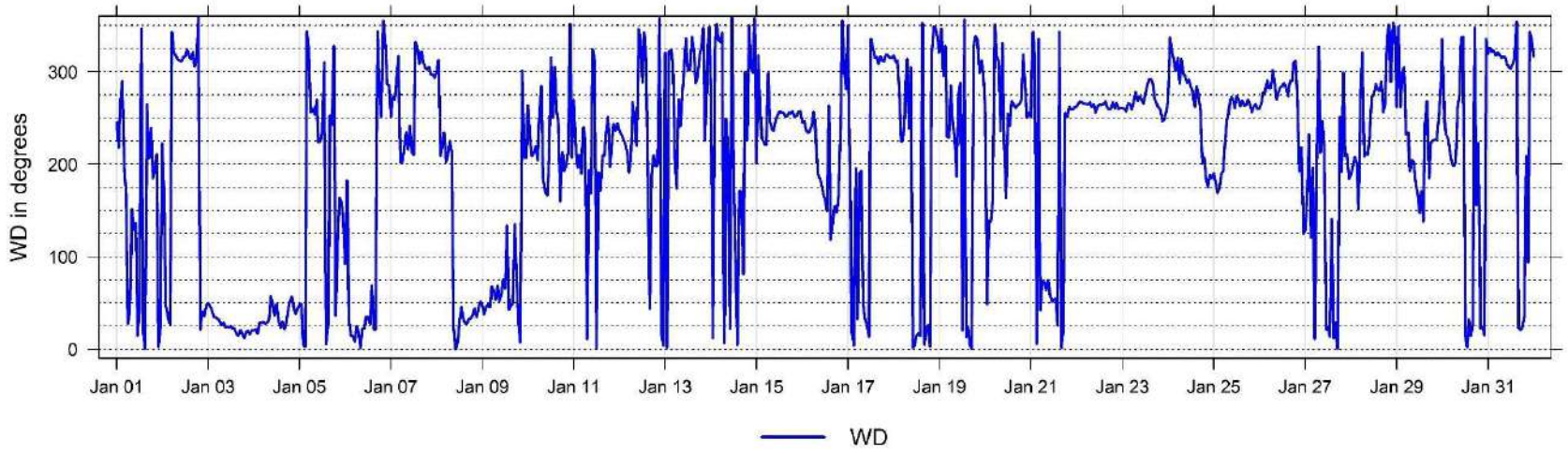
January 2022 Hourly Readings of Relative Humidity (in %) at Dunes



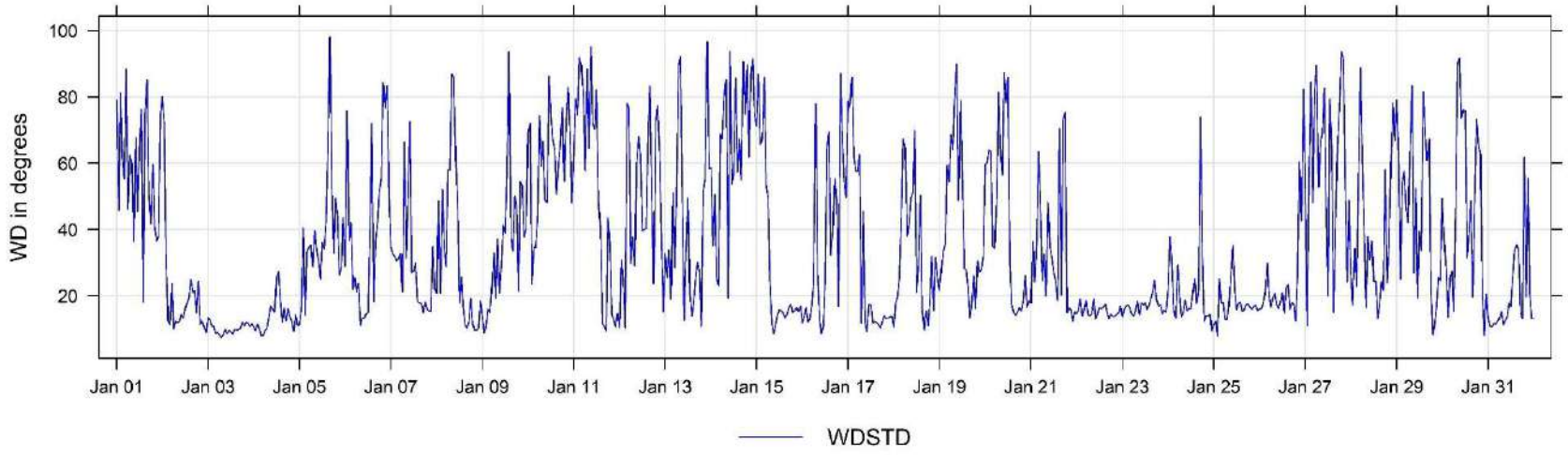
January 2022 Hourly Readings of Wind Speed (in km/hr) at Dunes

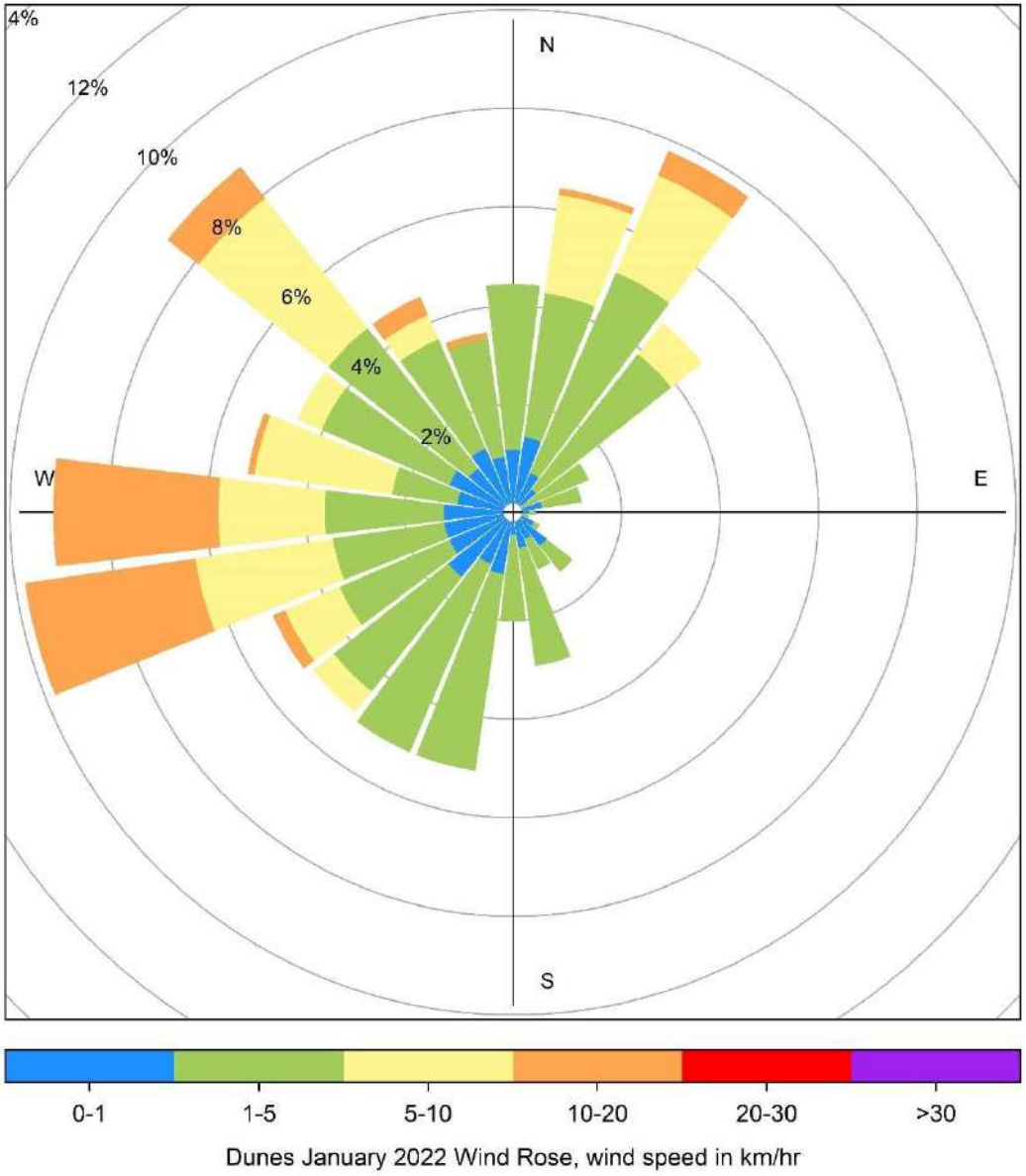


January 2022 Hourly Readings of Wind Direction (in degrees) at Dunes



January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Dunes

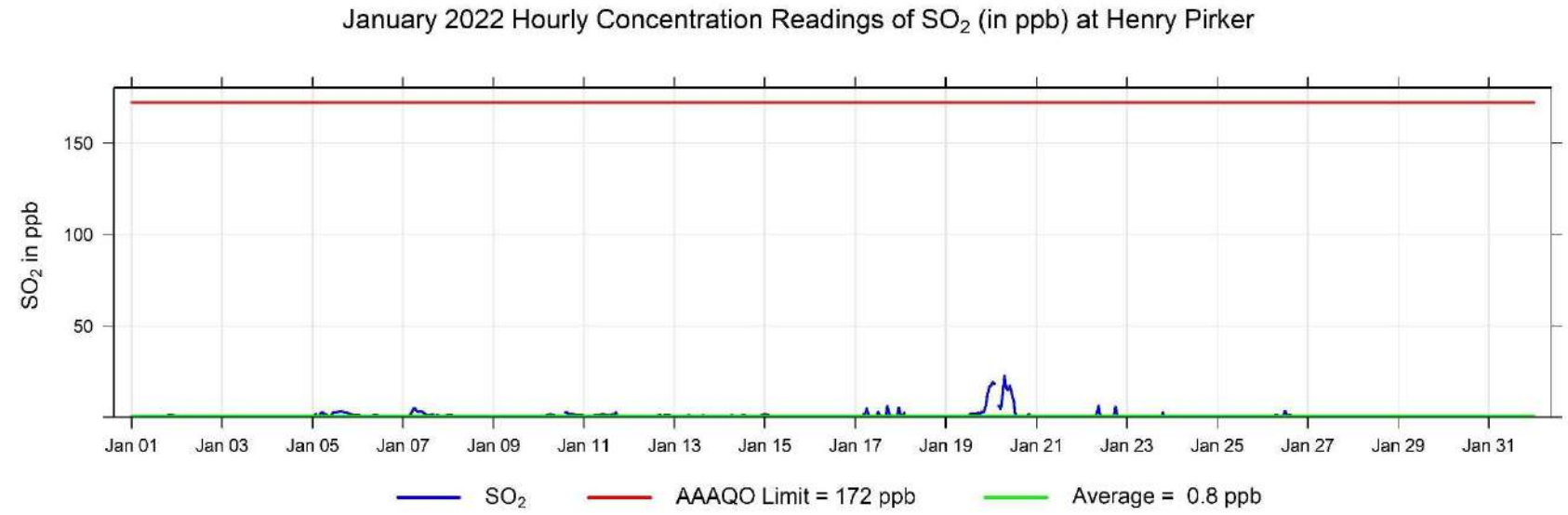


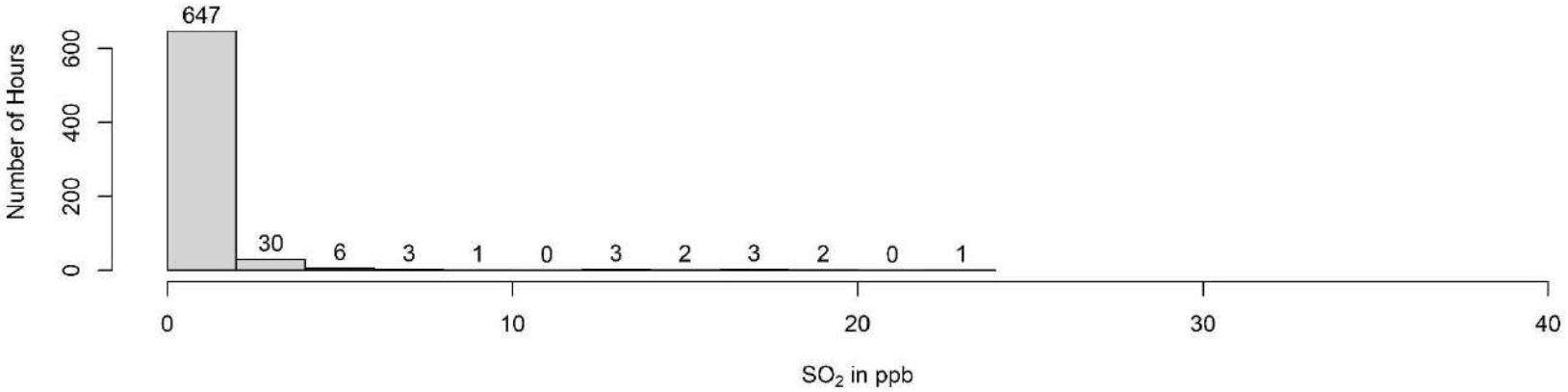


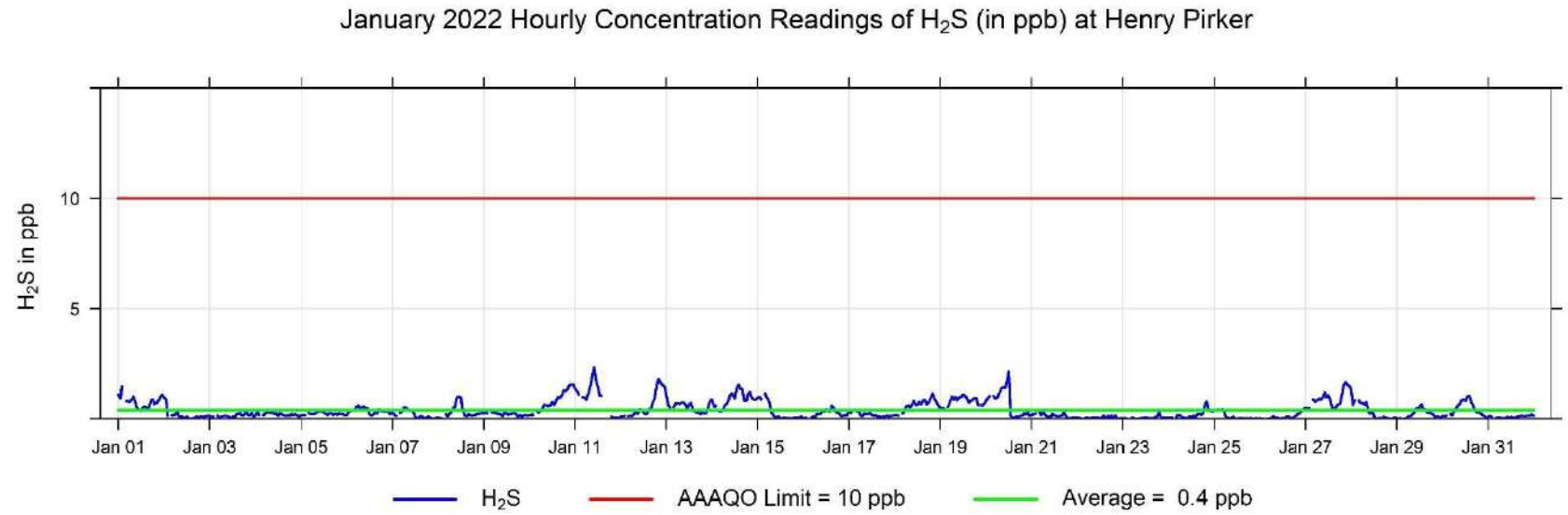
Dunes January 2022 Wind Rose, wind speed in km/hr

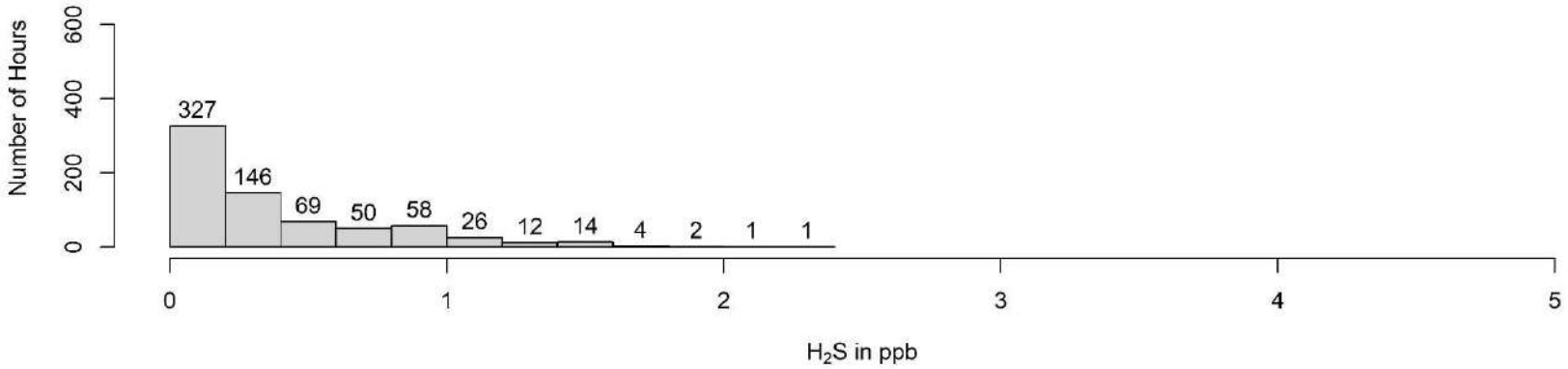
4 Grande Prairie - Henry Pirker Charts

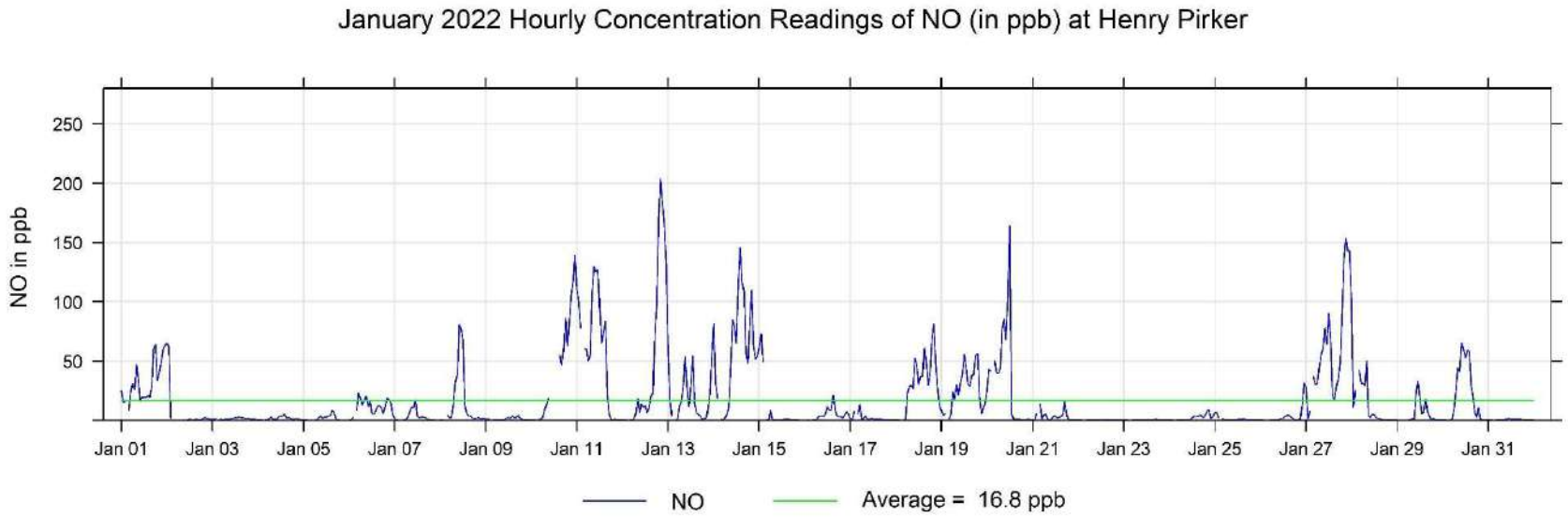
The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie

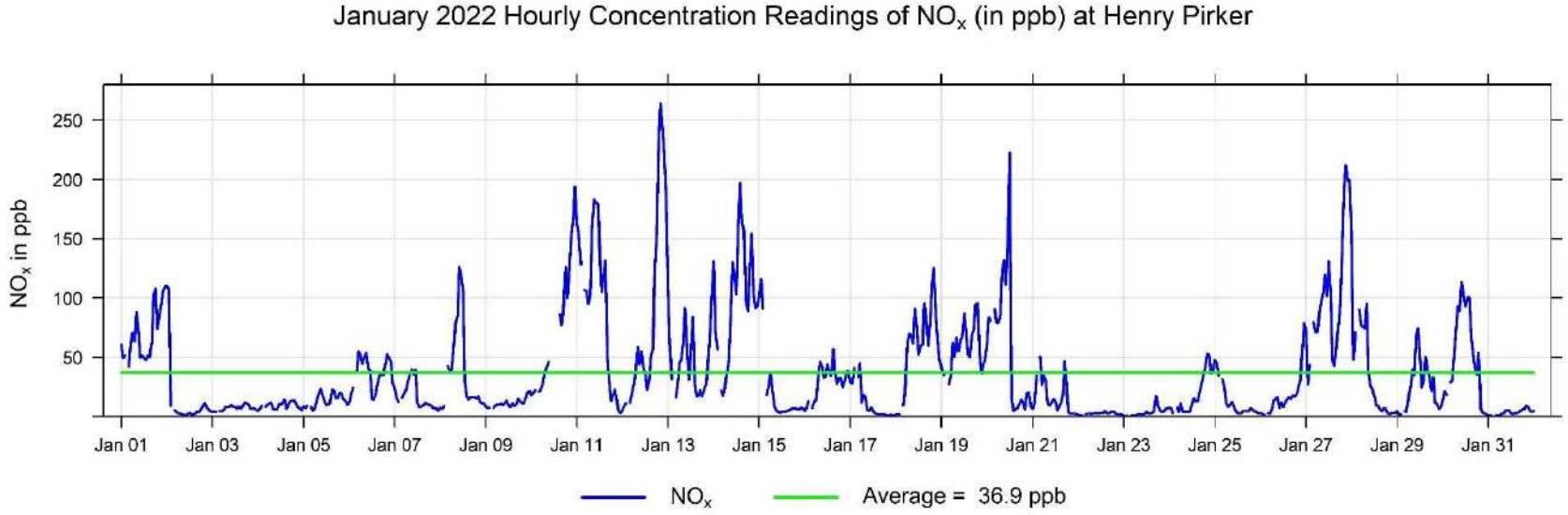

January 2022 Hourly Concentration Readings of SO_2 (in ppb) at Henry Pirker
SO_2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.8 ppb

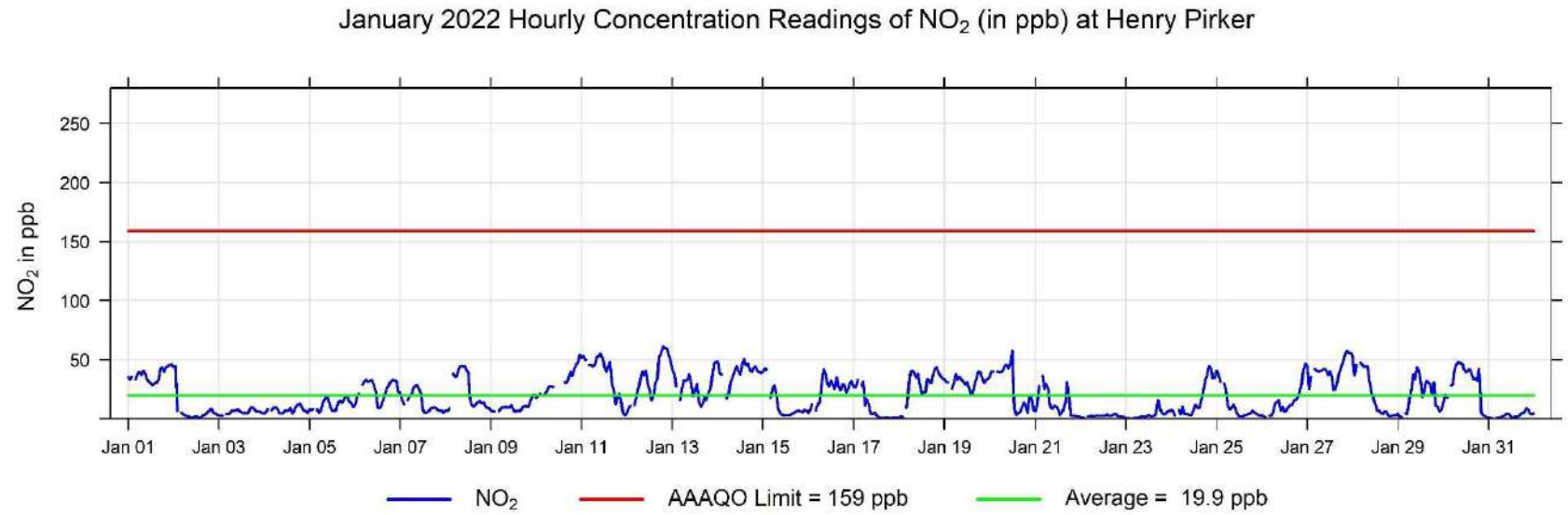

Number of Hours
0
200
400
600
647
30
6
3
1
0
3
2
3
2
0
1
0
10
20
30
40
SO_2 in ppb

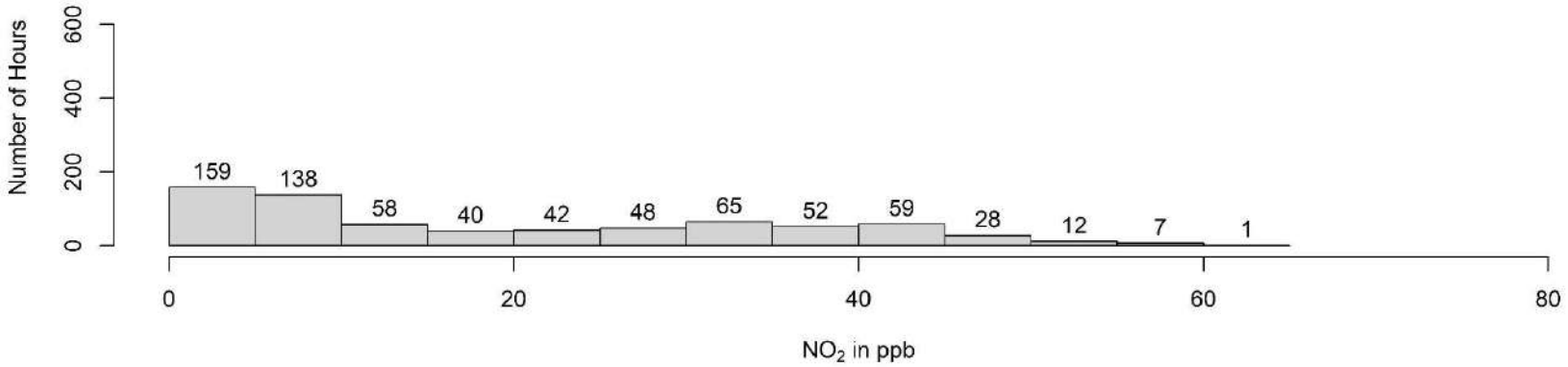

January 2022 Hourly Concentration Readings of H2S (in ppb) at Henry Pirker
H2S in ppb
10
5
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
H2S
AAAQO Limit = 10 ppb
Average = 0.4 ppb

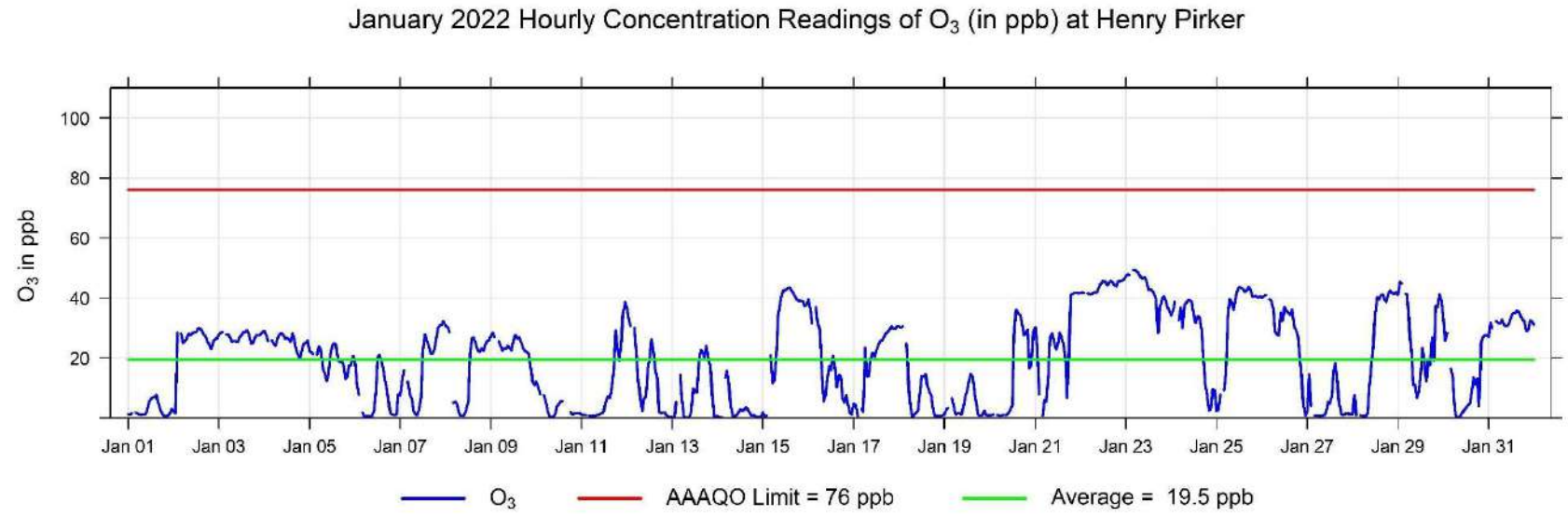

Number of Hours
0
200
400
600
327
146
69
50
58
26
12
14
4
2
1
1
0
1
2
3
4
5
H2S in ppb

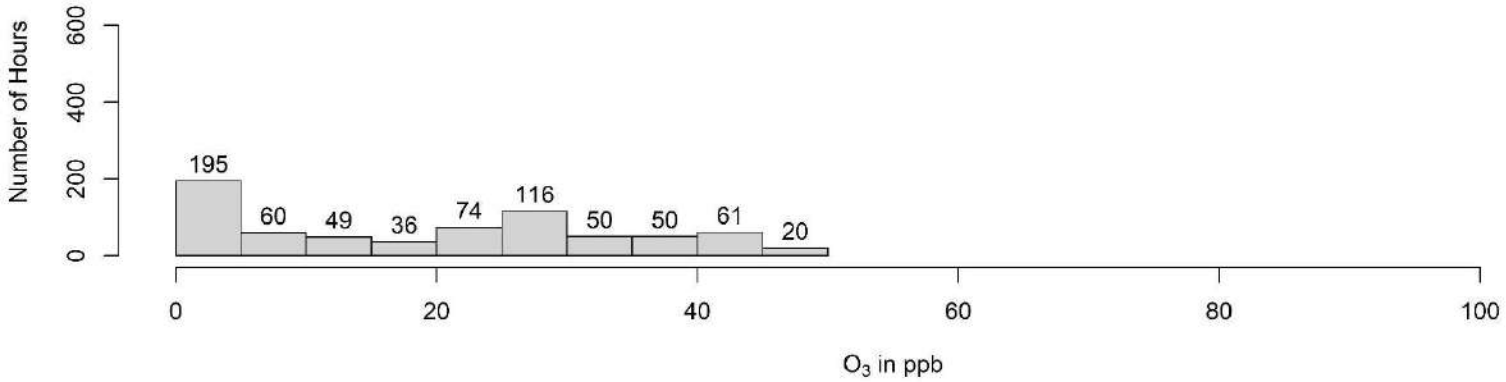

January 2022 Hourly Concentration Readings of NO (in ppb) at Henry Pirker
NO in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO
Average = 16.8 ppb

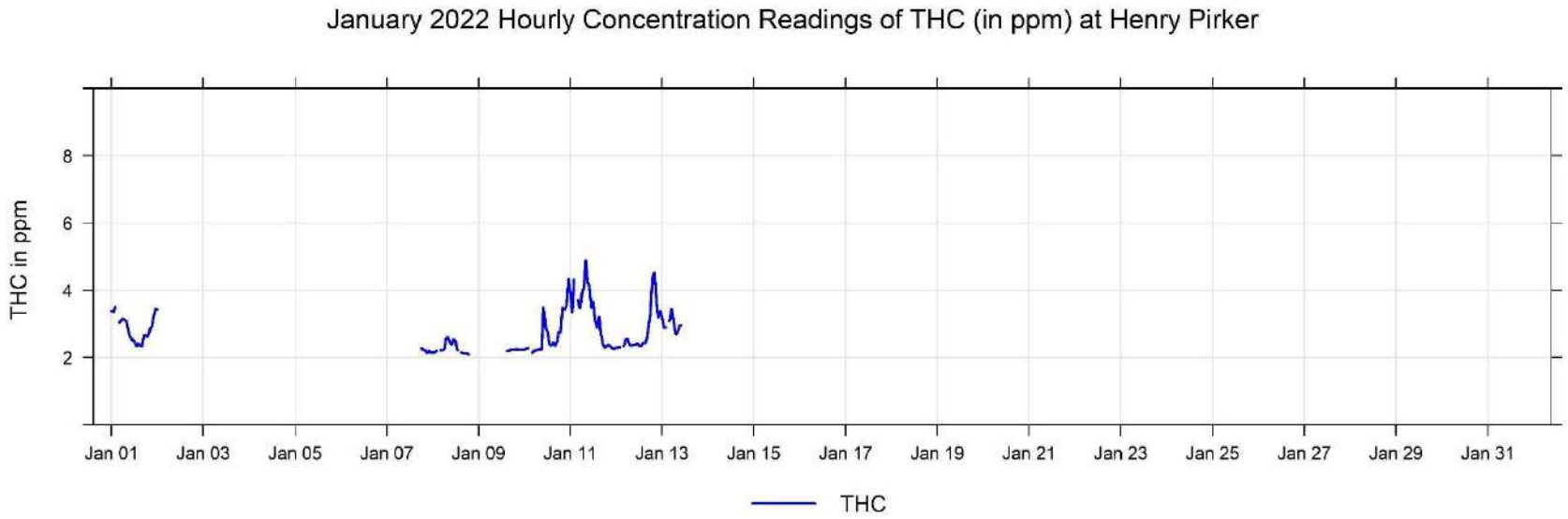

January 2022 Hourly Concentration Readings of NOx (in ppb) at Henry Pirker
NOx in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NOx
Average = 36.9 ppb

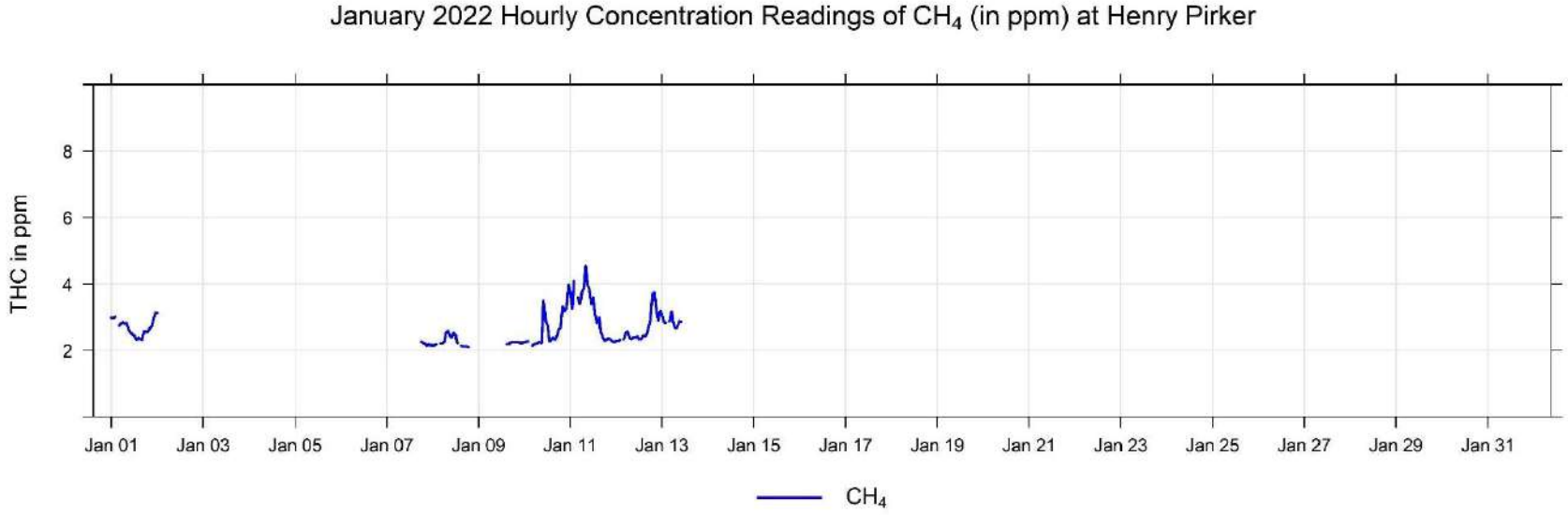

January 2022 Hourly Concentration Readings of NO2 (in ppb) at Henry Pirker
NO2 in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO2
AAAQO Limit = 159 ppb
Average = 19.9 ppb

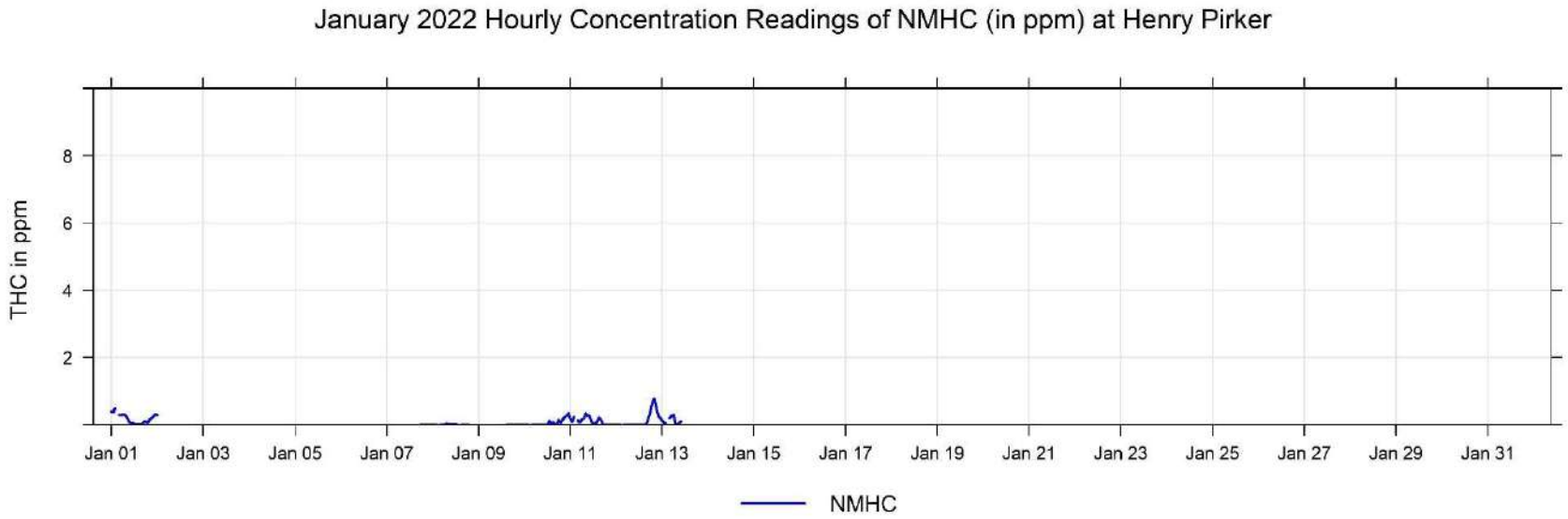

Number of Hours
0
200
400
600
159
138
58
40
42
48
65
52
59
28
12
7
1
0
20
40
60
80
NO2 in ppb

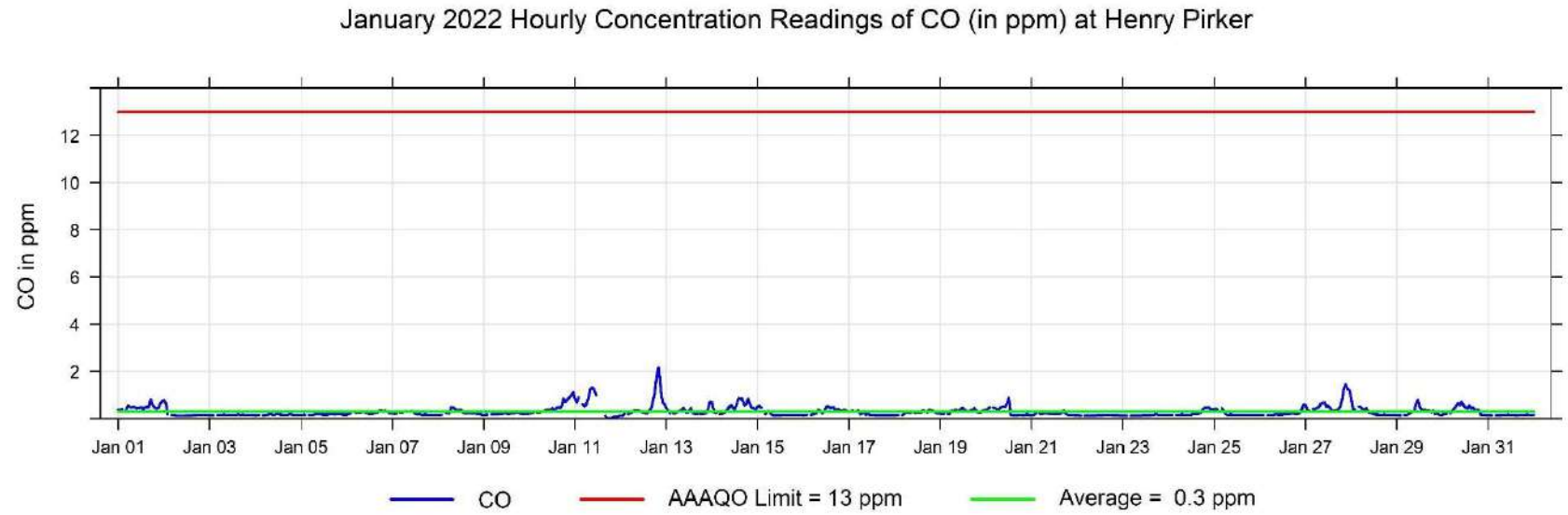

January 2022 Hourly Concentration Readings of O_3 (in ppb) at Henry Pirker
O_3 in ppb
100
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
O_3
AAAQO Limit = 76 ppb
Average = 19.5 ppb

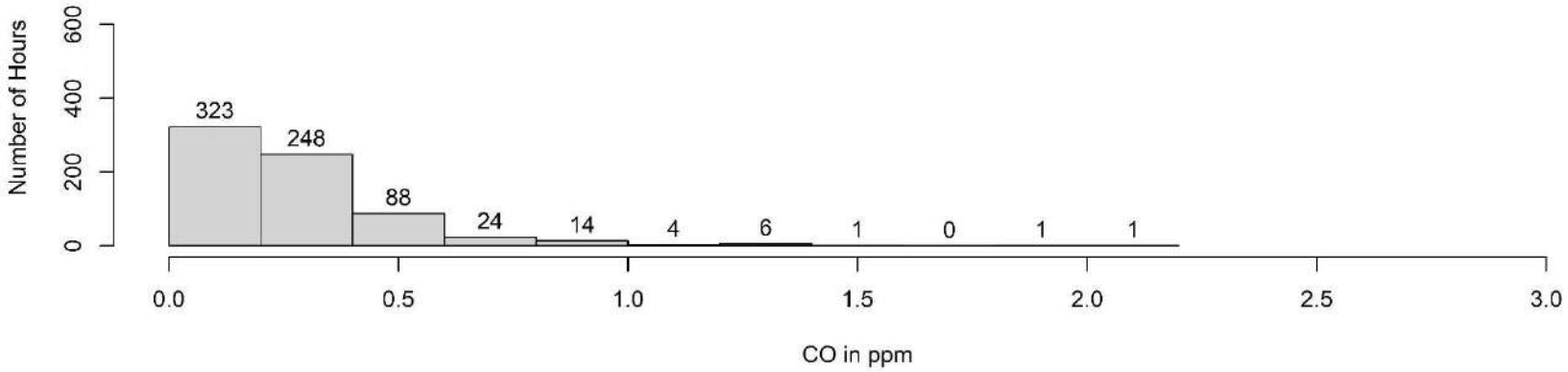

Number of Hours
0
200
400
600
195
60
49
36
74
116
50
50
61
20
0
20
40
60
80
100
O_3 in ppb

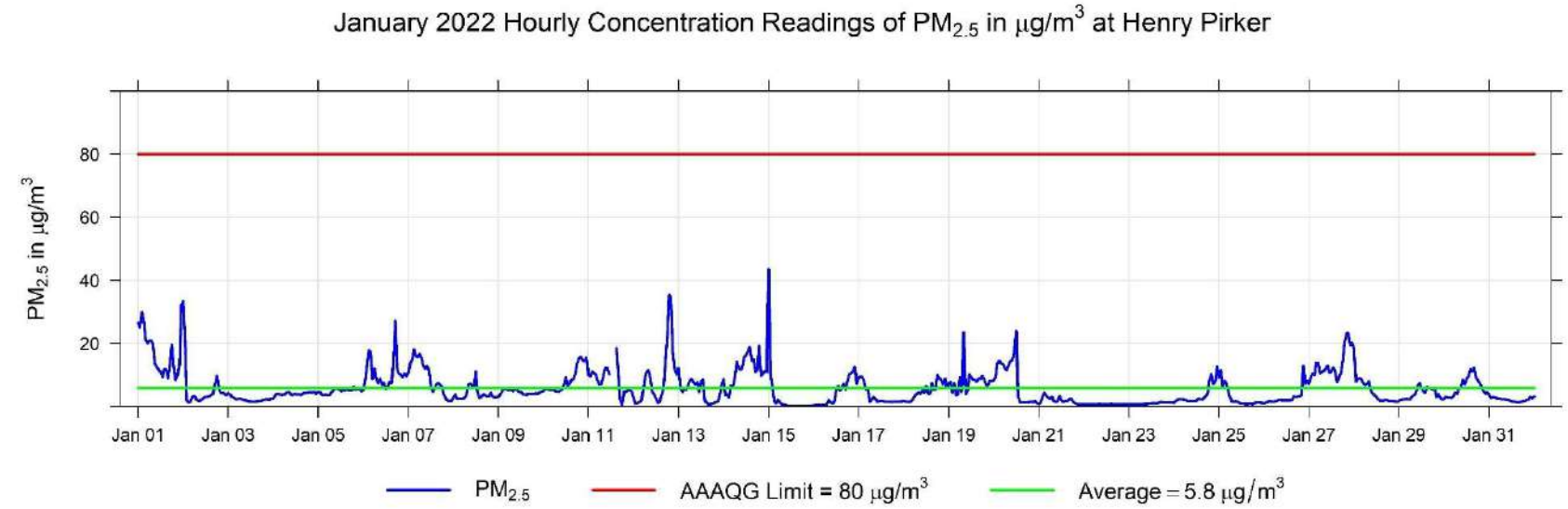

January 2022 Hourly Concentration Readings of THC (in ppm) at Henry Pirker
THC in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
THC

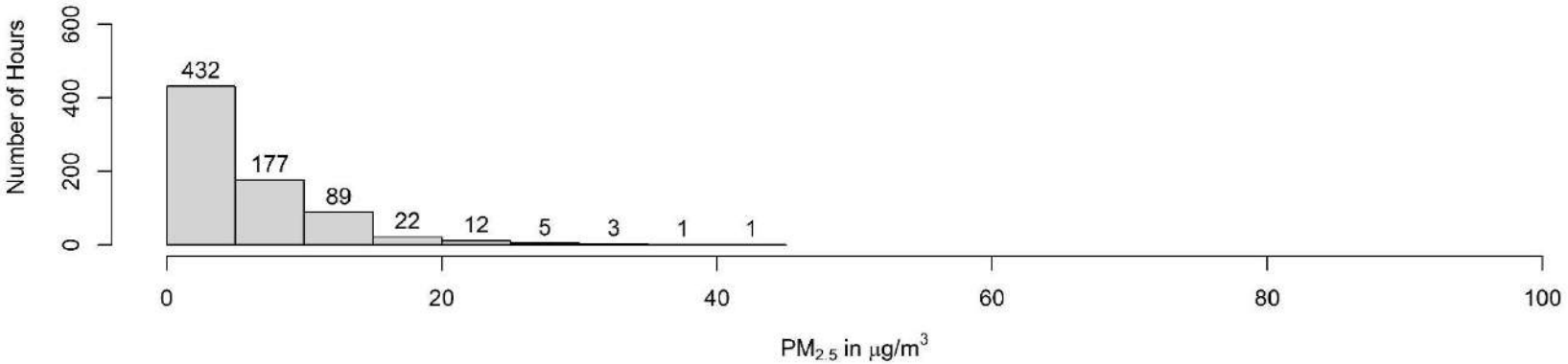

January 2022 Hourly Concentration Readings of CH_4 (in ppm) at Henry Pirker
THC in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
CH_4

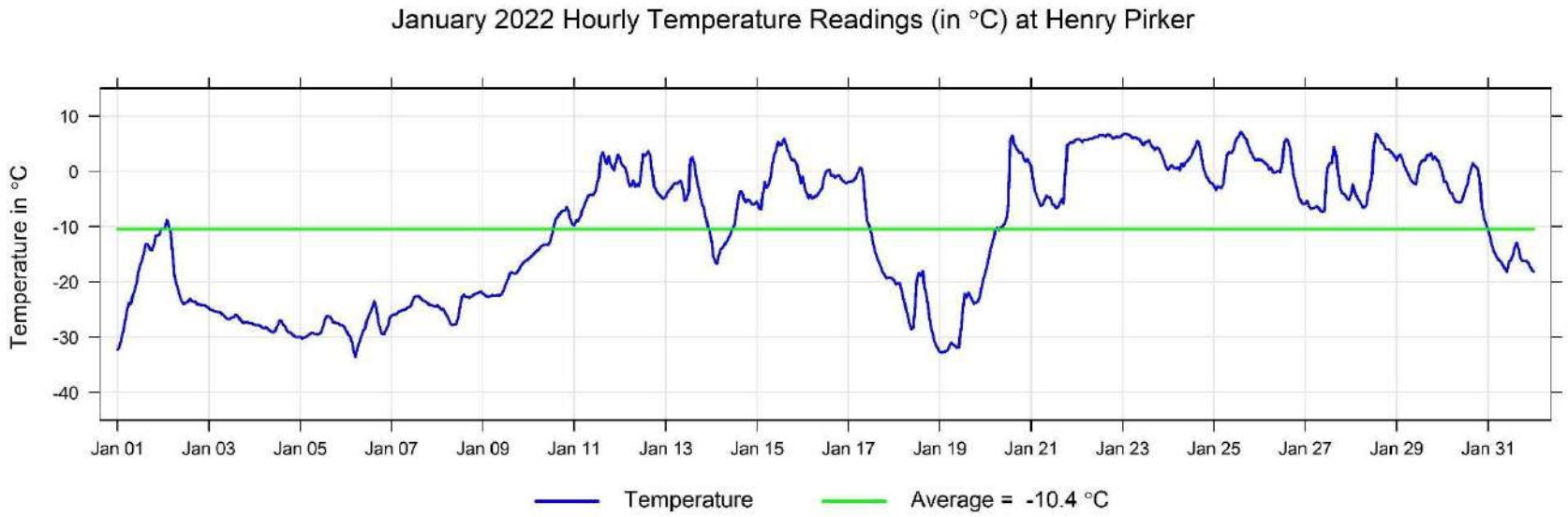

January 2022 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker
THC in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NMHC

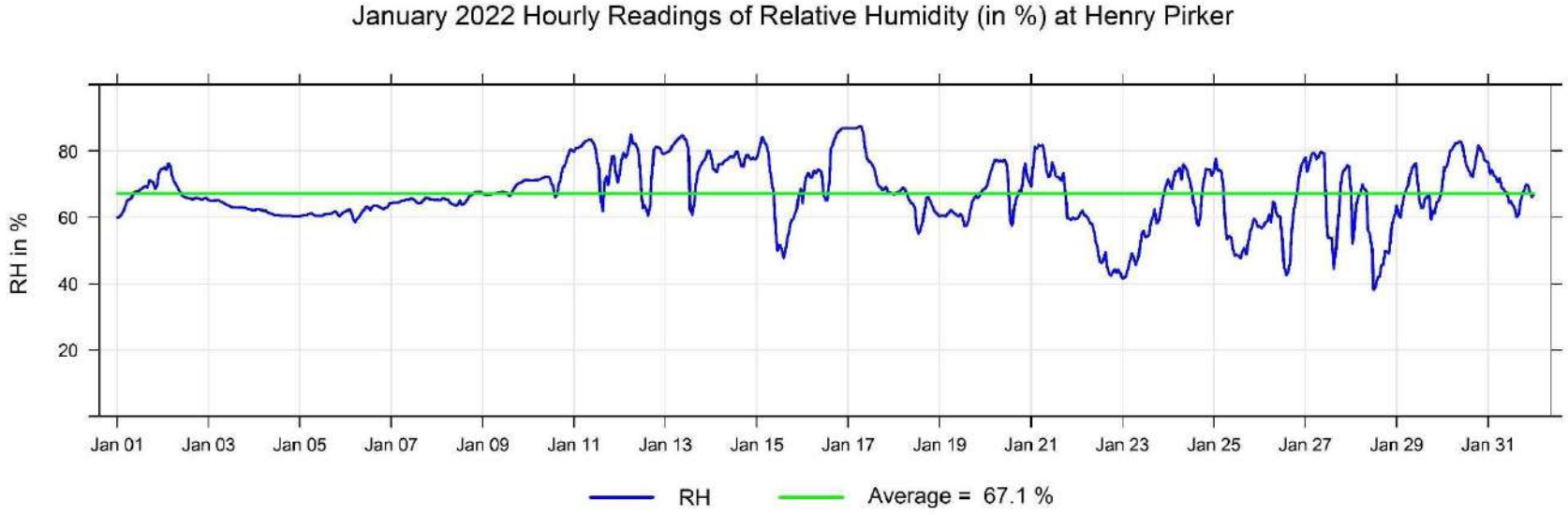

January 2022 Hourly Concentration Readings of CO (in ppm) at Henry Pirker
CO in ppm
12
10
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
CO
AAAQO Limit = 13 ppm
Average = 0.3 ppm

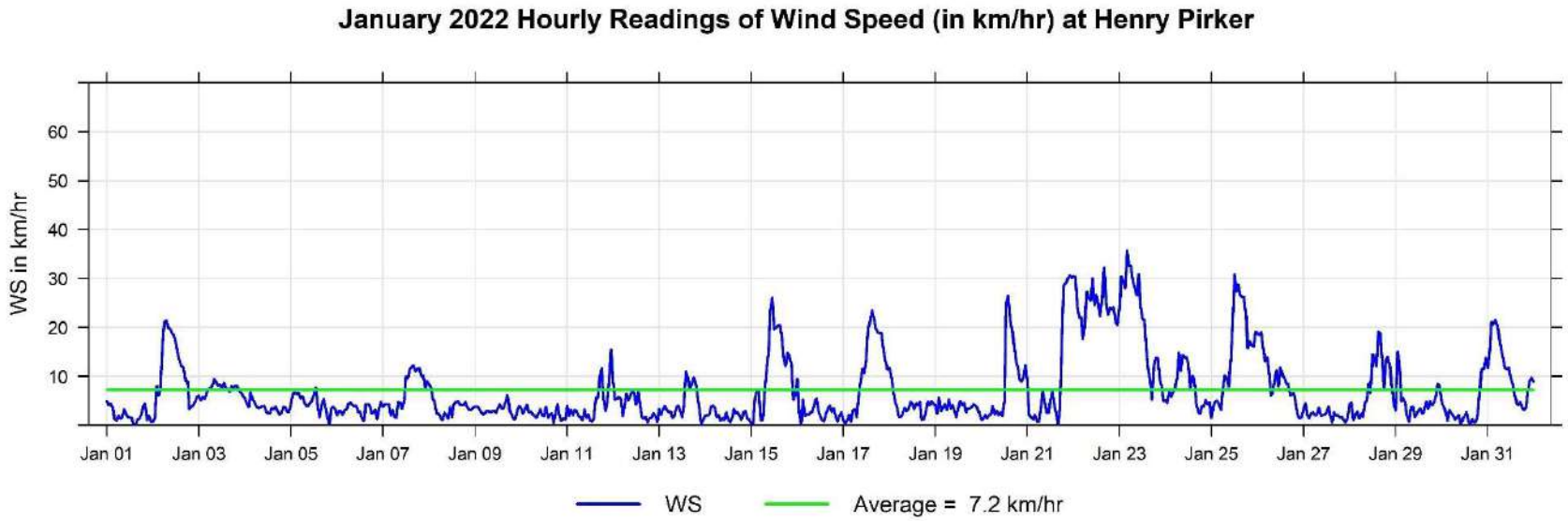

Number of Hours
0
200
400
600
323
248
88
24
14
4
6
1
0
1
1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
CO in ppm

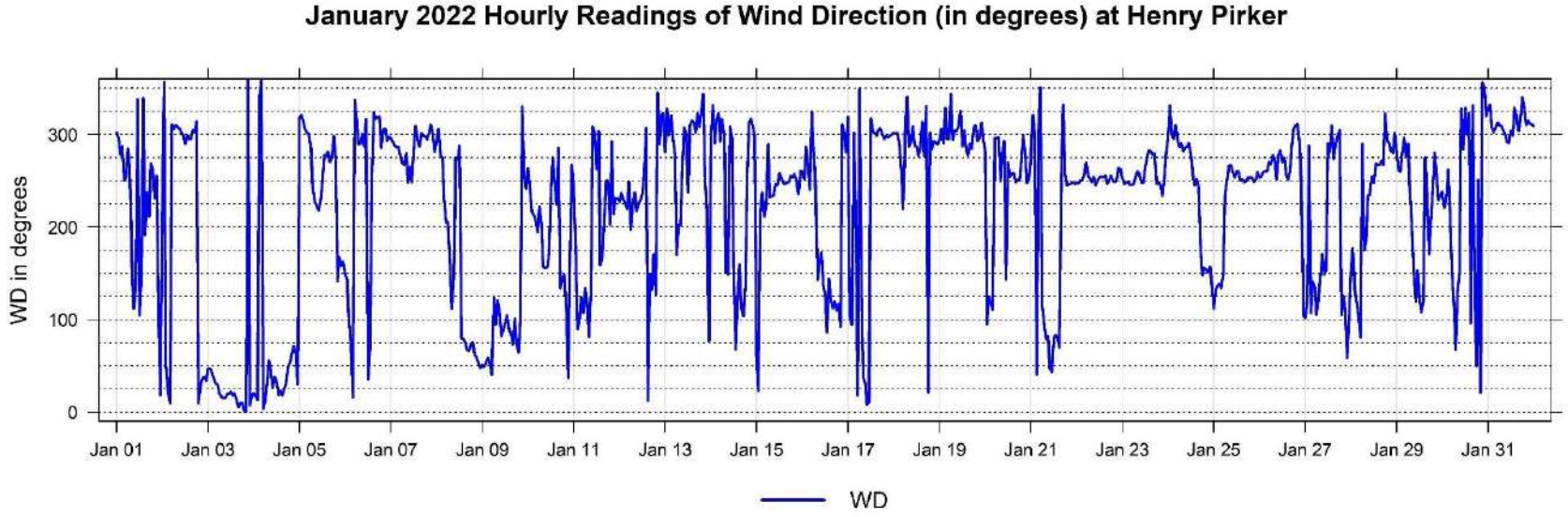

January 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Henry Pirker
PM2.5 in µg/m3
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 5.8 µg/m3

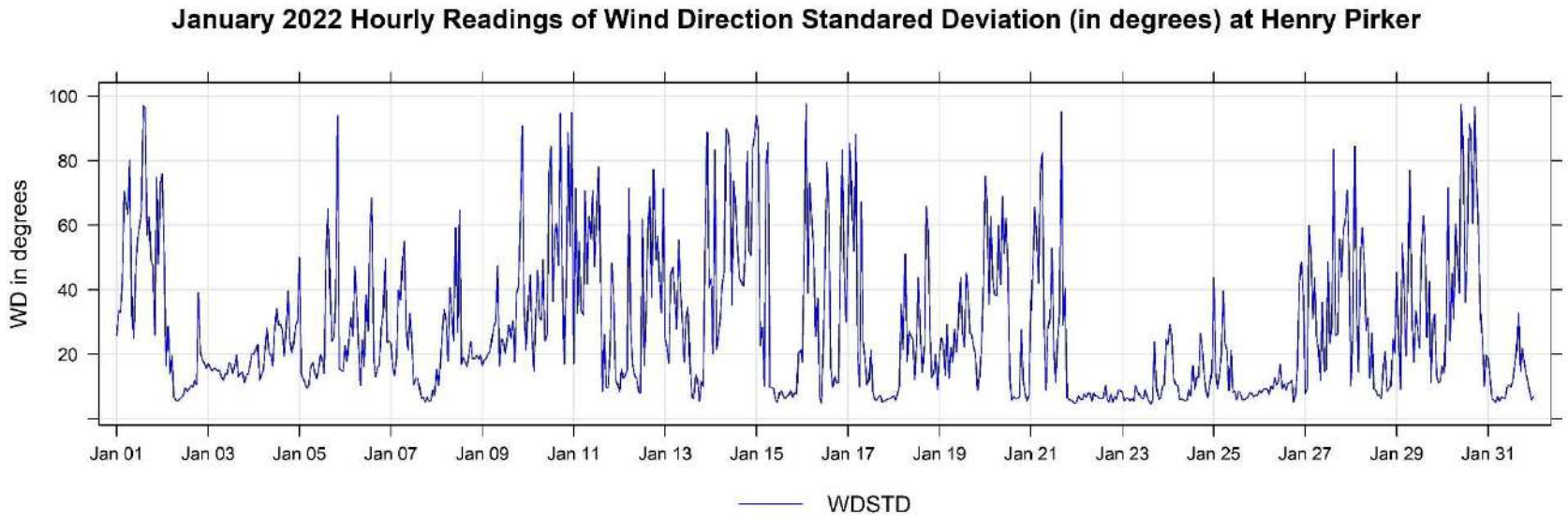

Number of Hours
0
200
400
600
432
177
89
22
12
5
3
1
1
0
20
40
60
80
100
PM2.5 in µg/m3

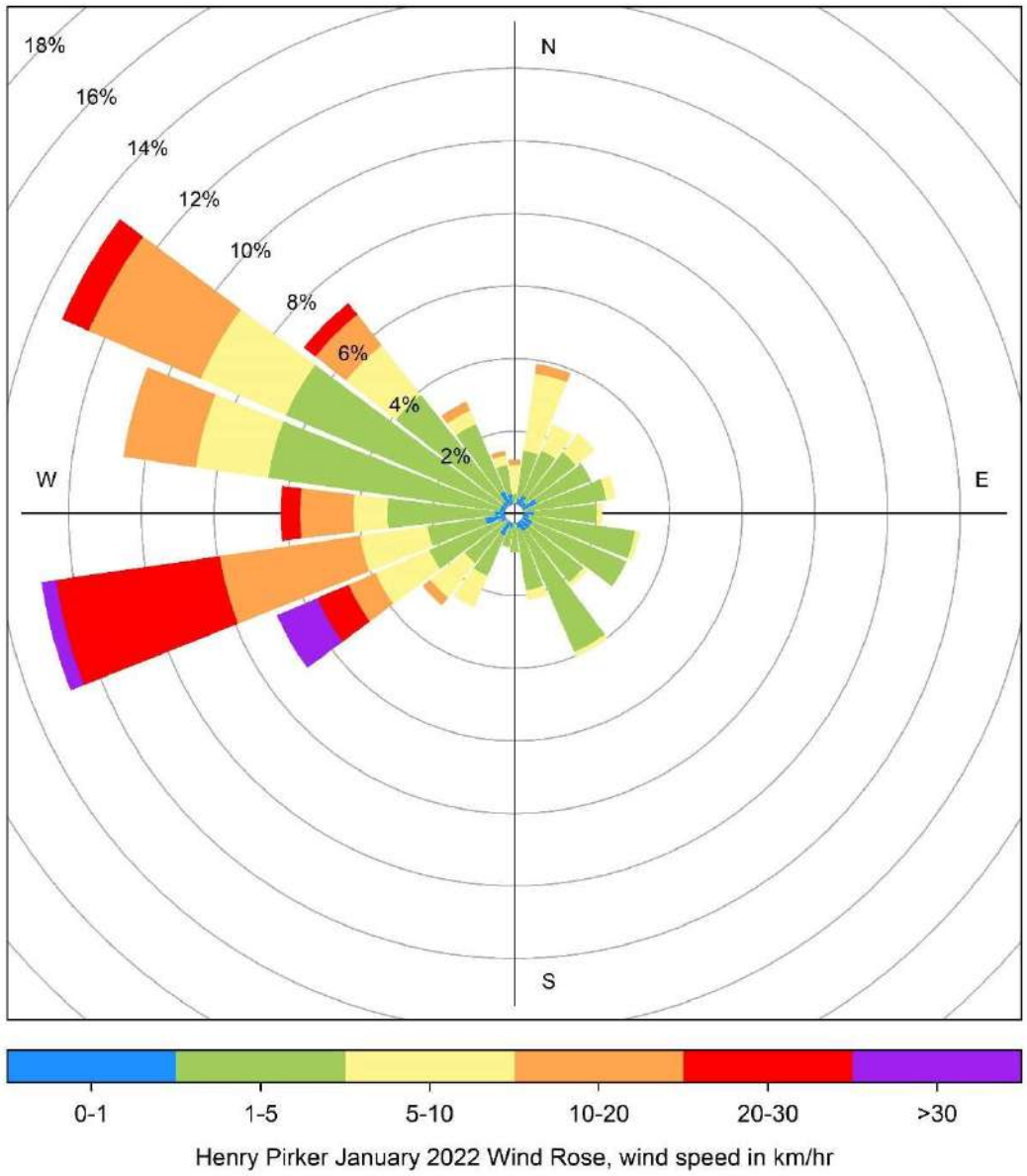

January 2022 Hourly Temperature Readings (in °C) at Henry Pirker
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -10.4 °C


January 2022 Hourly Readings of Relative Humidity (in %) at Henry Pirker
RH in %
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
RH
Average = 67.1 %


January 2022 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 7.2 km/hr


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

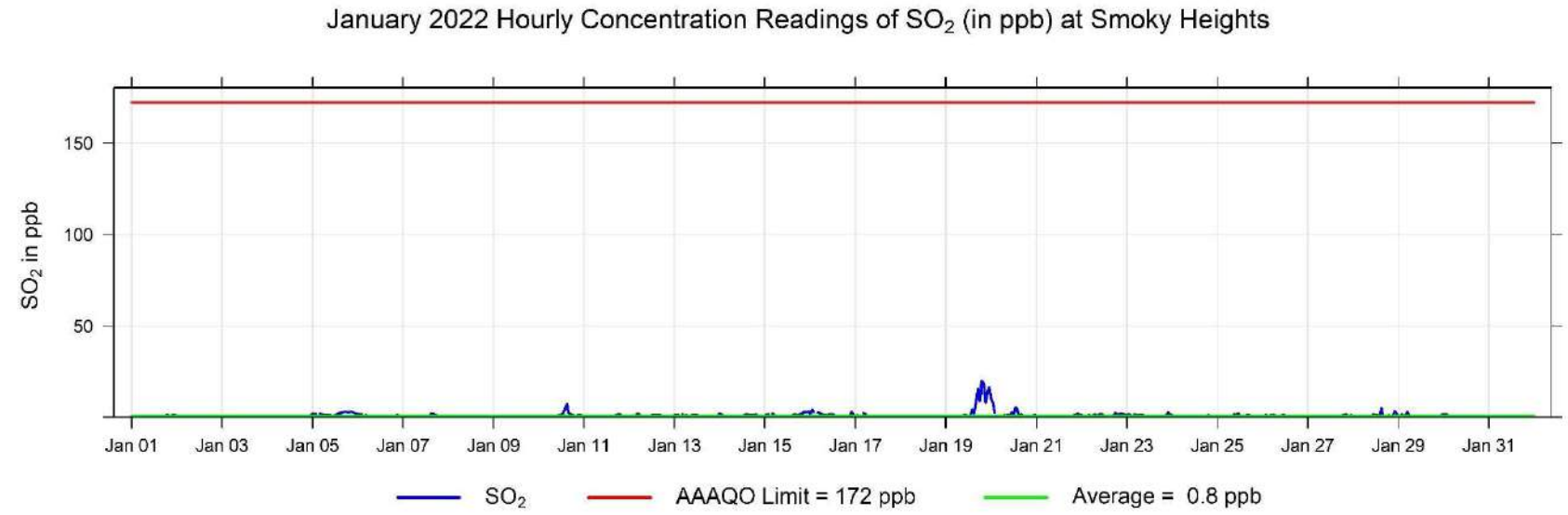

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Henry Pirker
WD in degrees
100
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD

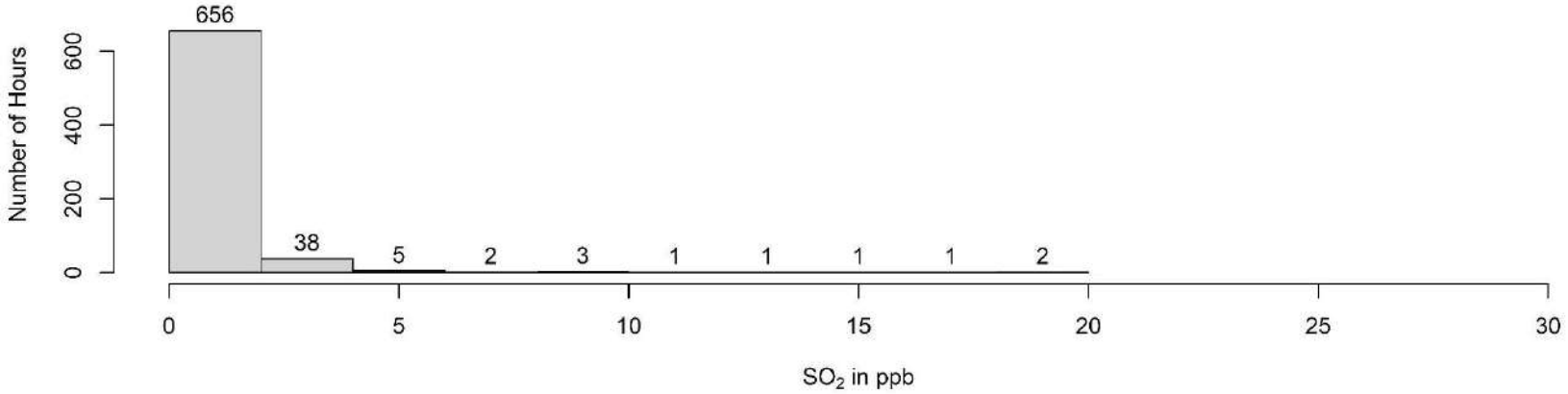


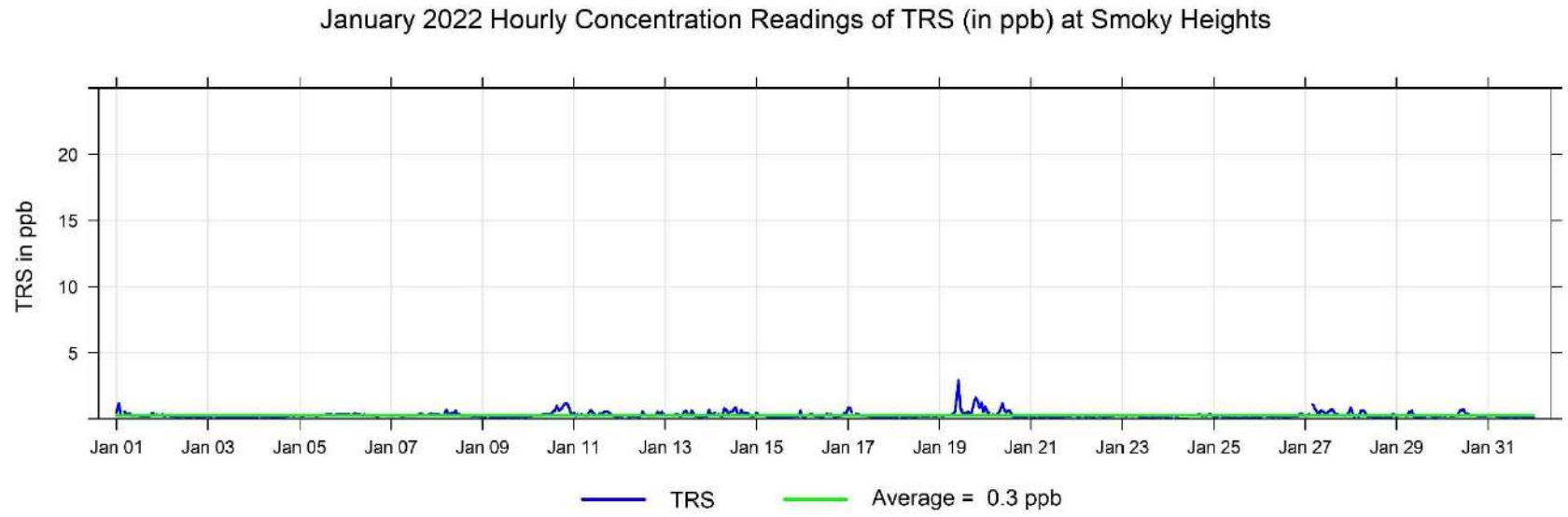
Henry Pirker January 2022 Wind Rose, wind speed in km/hr

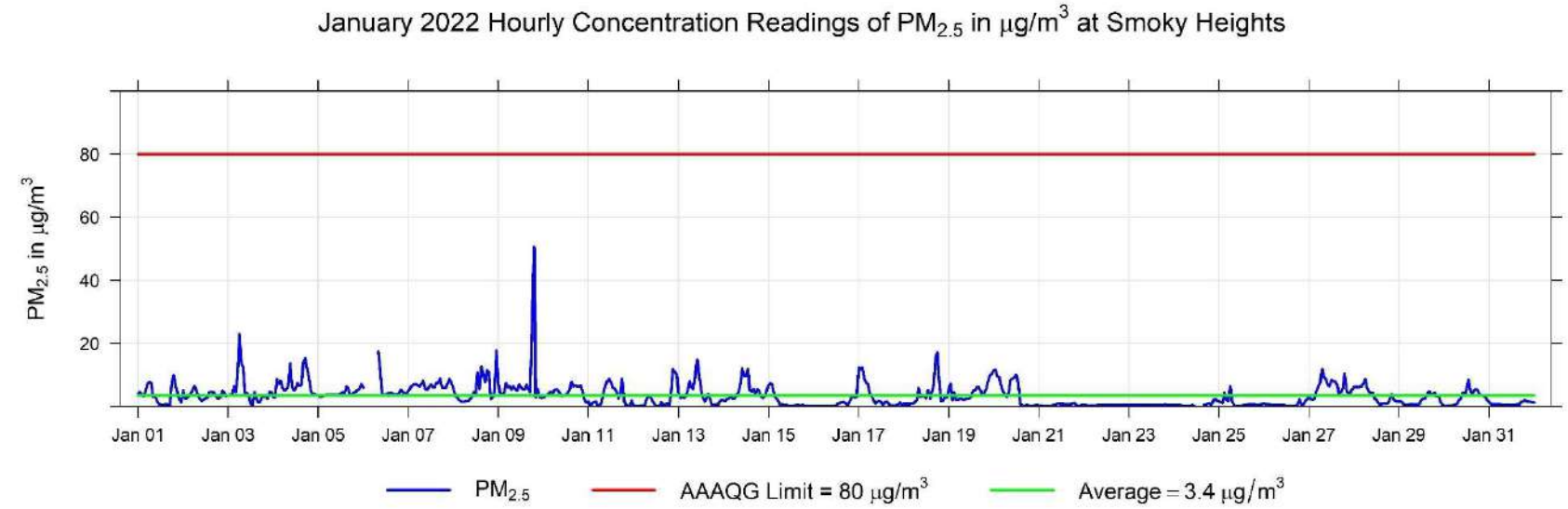
5 Smoky Heights Charts

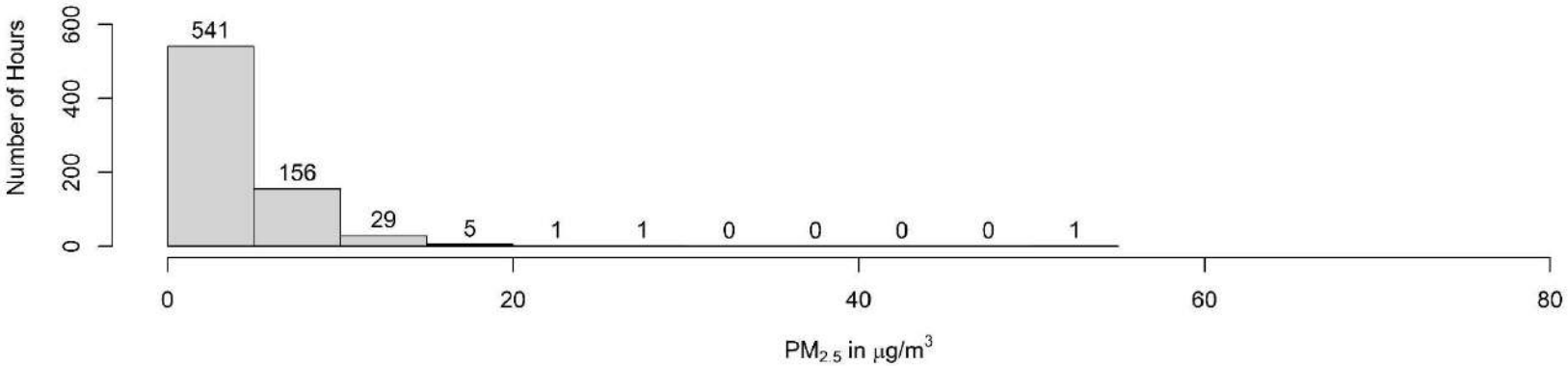
The following pages include the charts and histograms for Smoky Heights Station

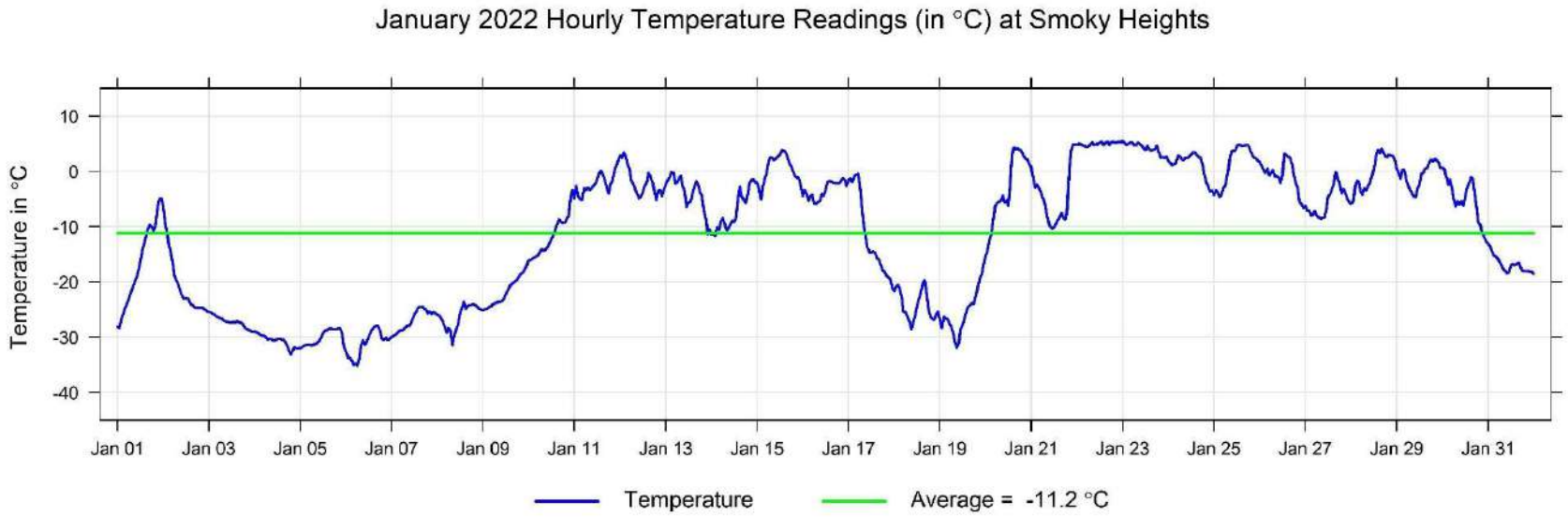

January 2022 Hourly Concentration Readings of SO2 (in ppb) at Smoky Heights
SO2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO2
AAAQO Limit = 172 ppb
Average = 0.8 ppb

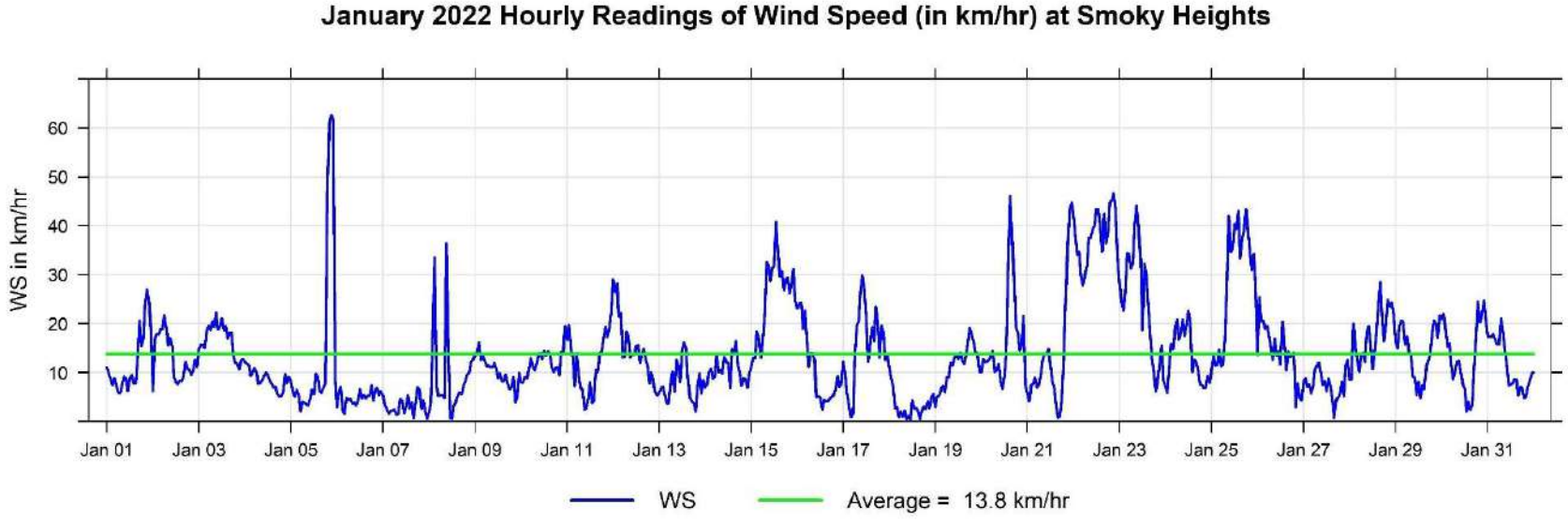

Number of Hours
0
200
400
600
656
38
5
2
3
1
1
1
1
2
0
5
10
15
20
25
30
SO2 in ppb

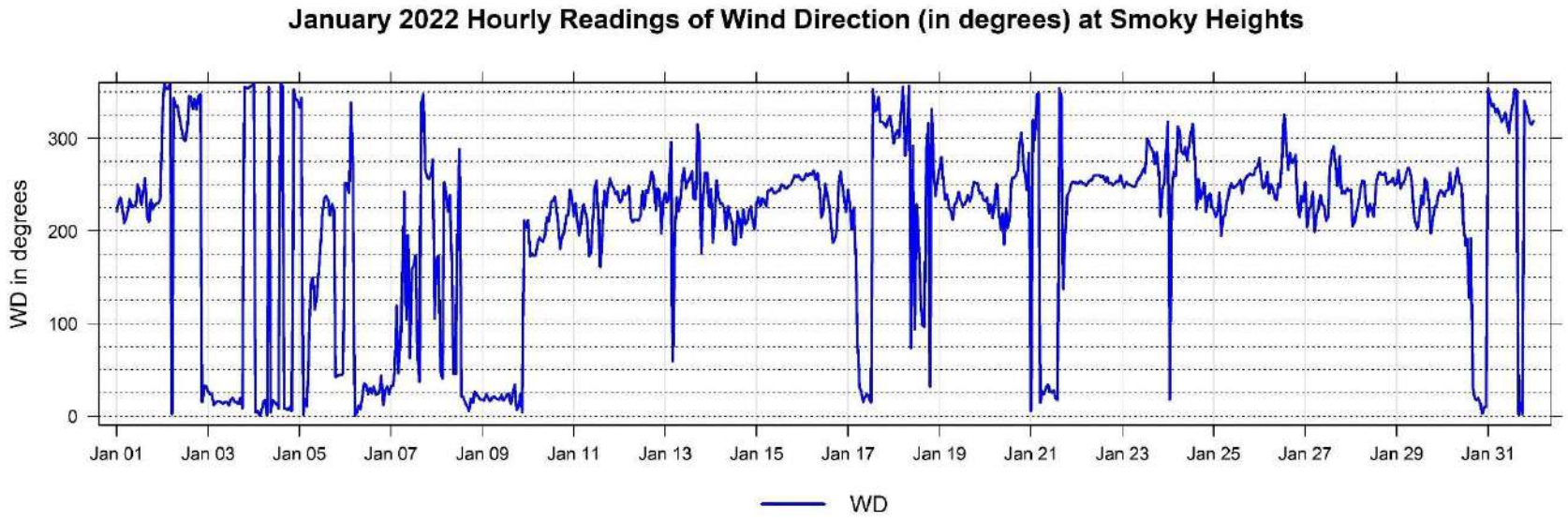

January 2022 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights
TRS in ppb
20
15
10
5
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
TRS
Average = 0.3 ppb

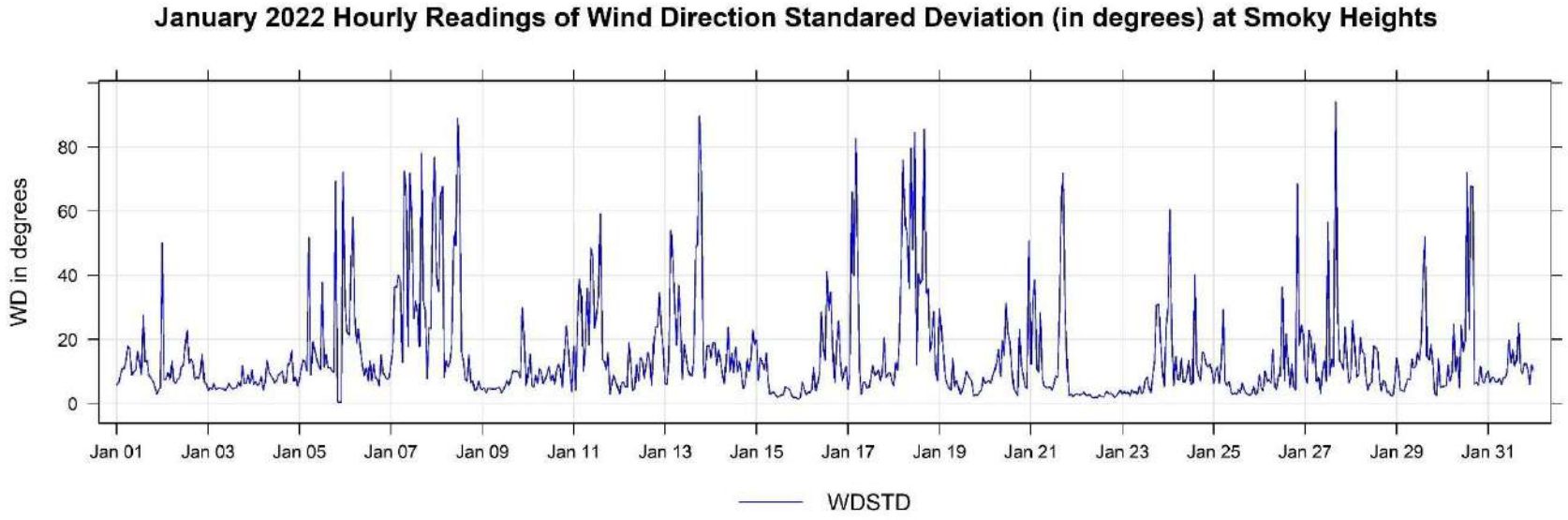

January 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Smoky Heights
PM2.5 in µg/m3
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 3.4 µg/m3

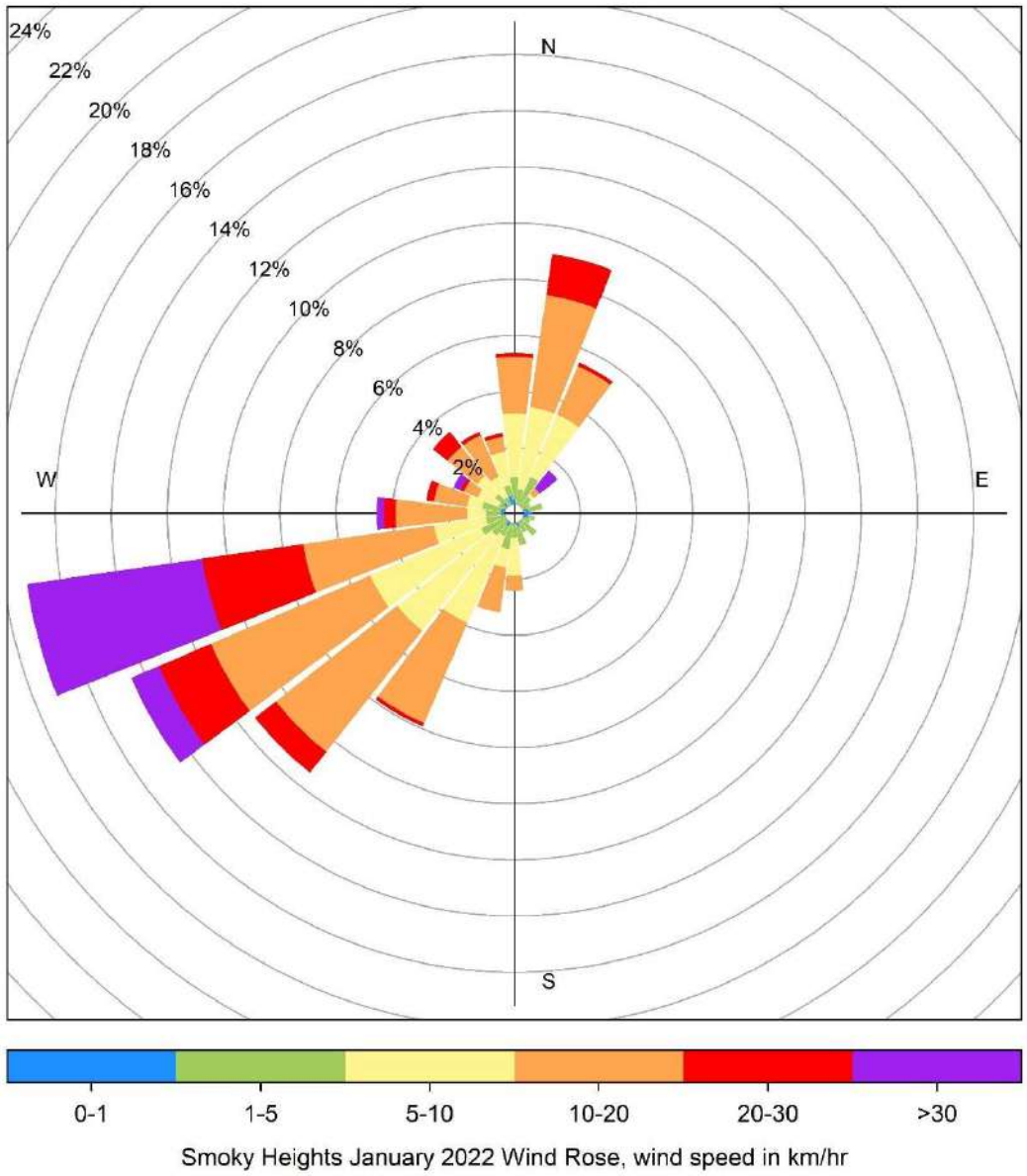

Number of Hours
0
200
400
600
541
156
29
5
1
1
0
0
0
0
1
0
20
40
60
80
PM2.5 in µg/m3


January 2022 Hourly Temperature Readings (in °C) at Smoky Heights
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -11.2 °C


January 2022 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 13.8 km/hr


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

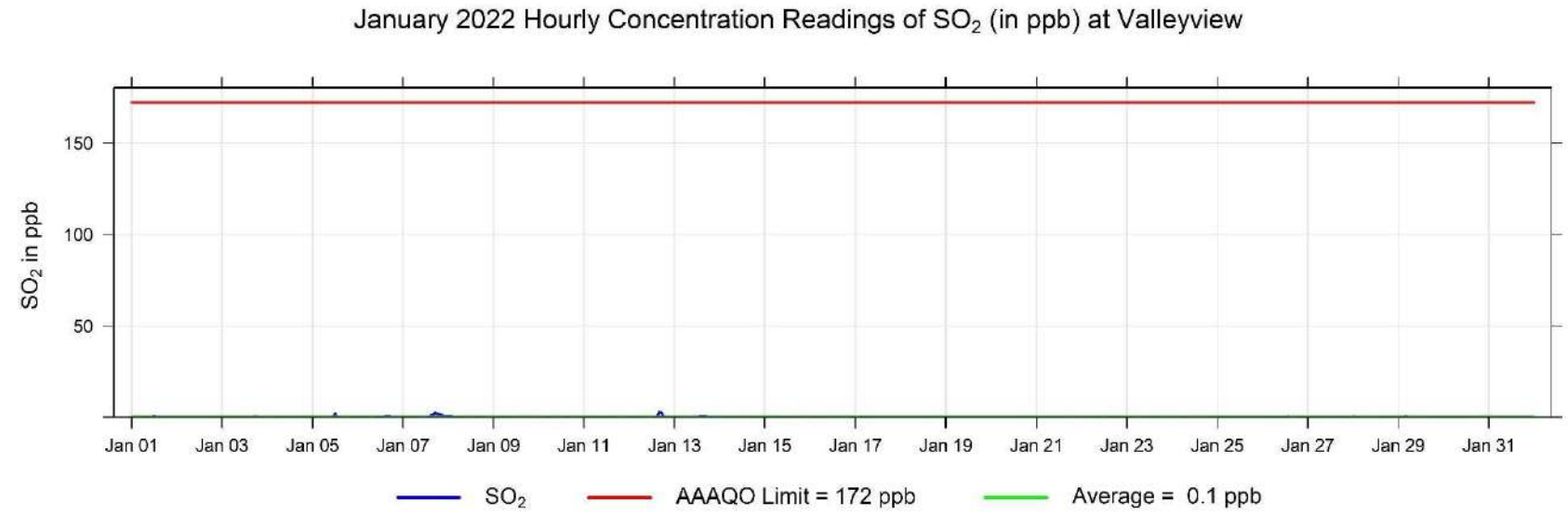

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Smoky Heights
WD in degrees
0
20
40
60
80
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD

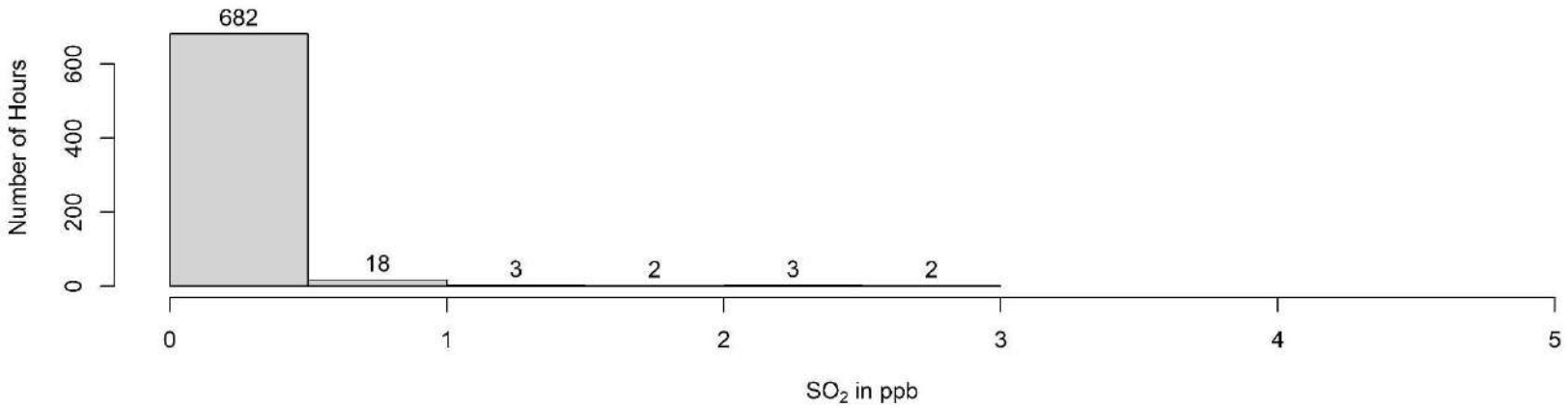


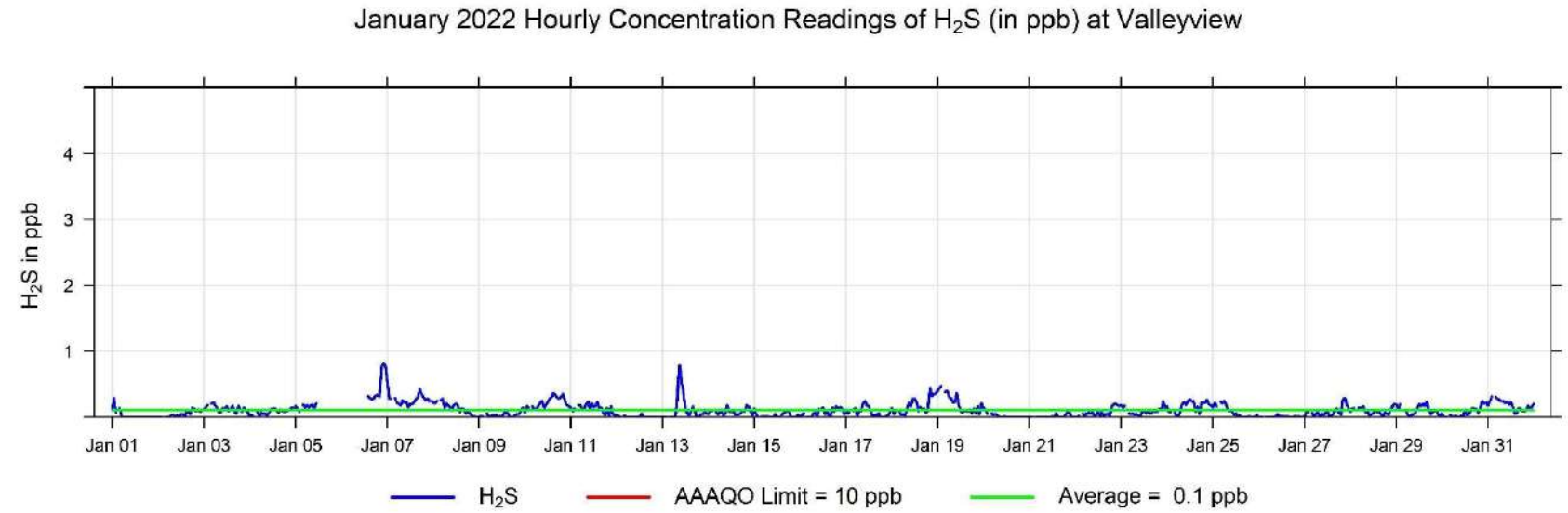
Smoky Heights January 2022 Wind Rose, wind speed in km/hr

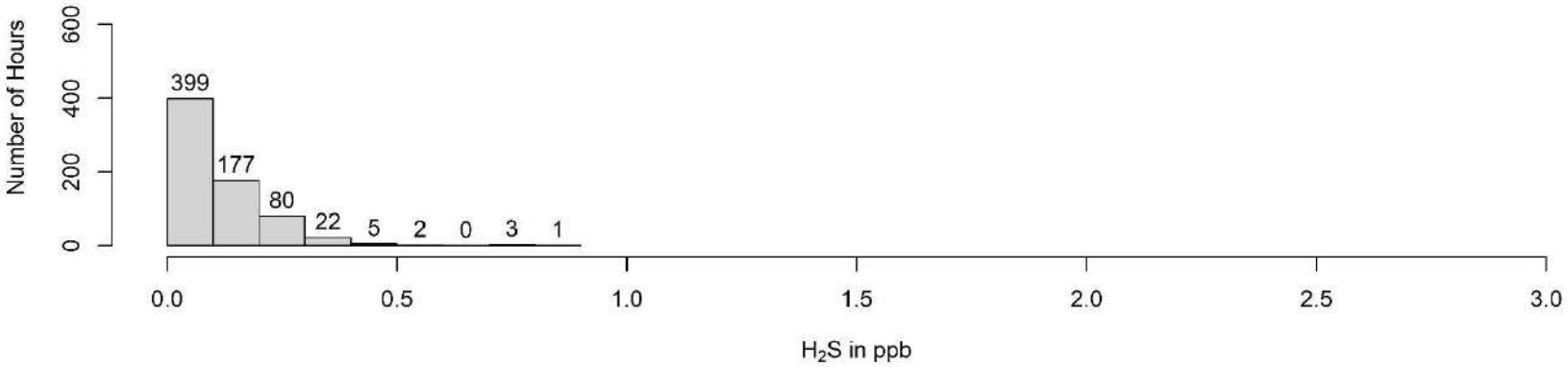
6 Valleyview Charts

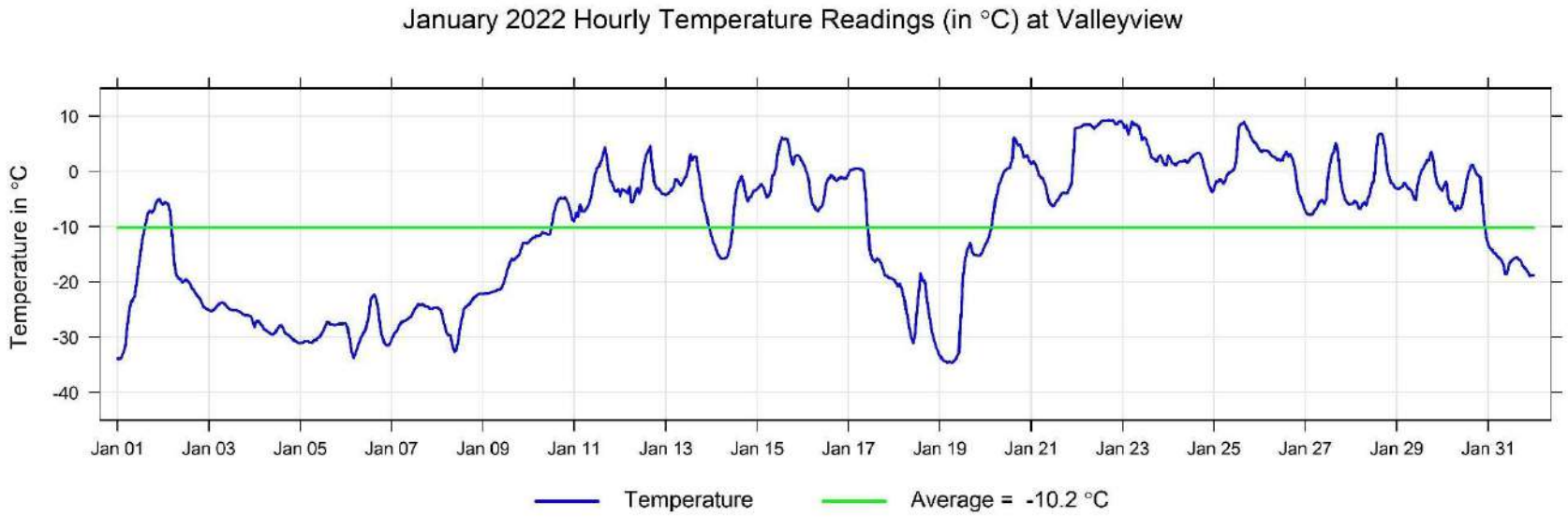
The following pages include the charts and histograms for Valleyview Station

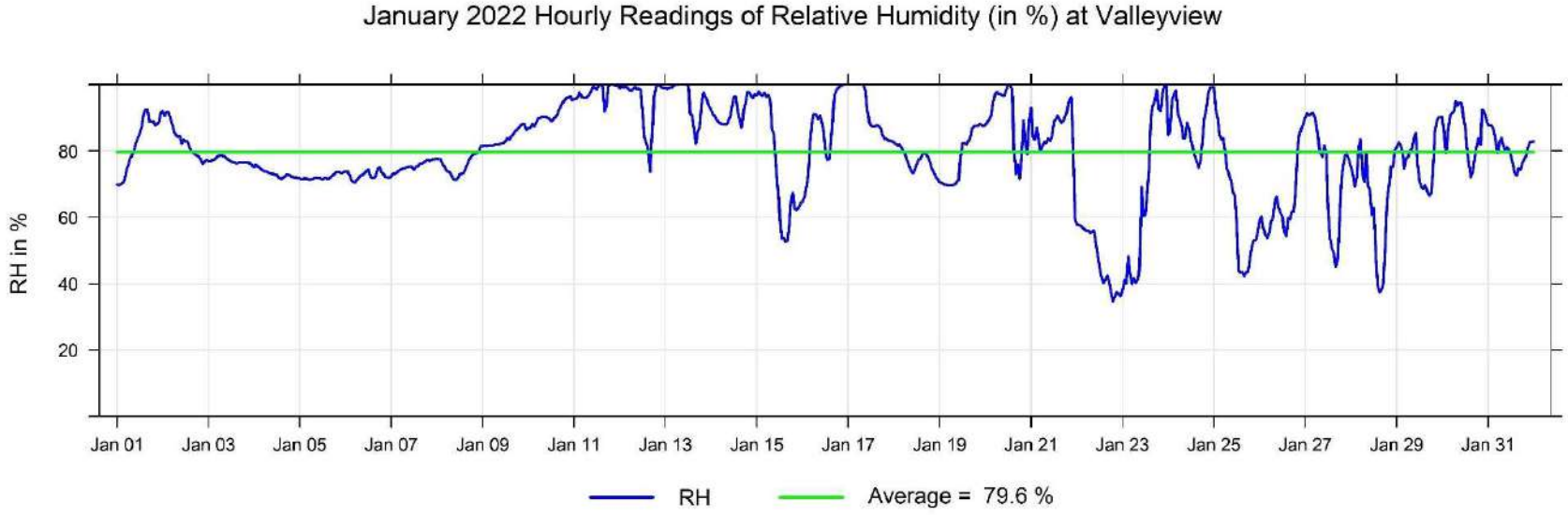

January 2022 Hourly Concentration Readings of SO2 (in ppb) at Valleyview
SO2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO2
AAAQO Limit = 172 ppb
Average = 0.1 ppb

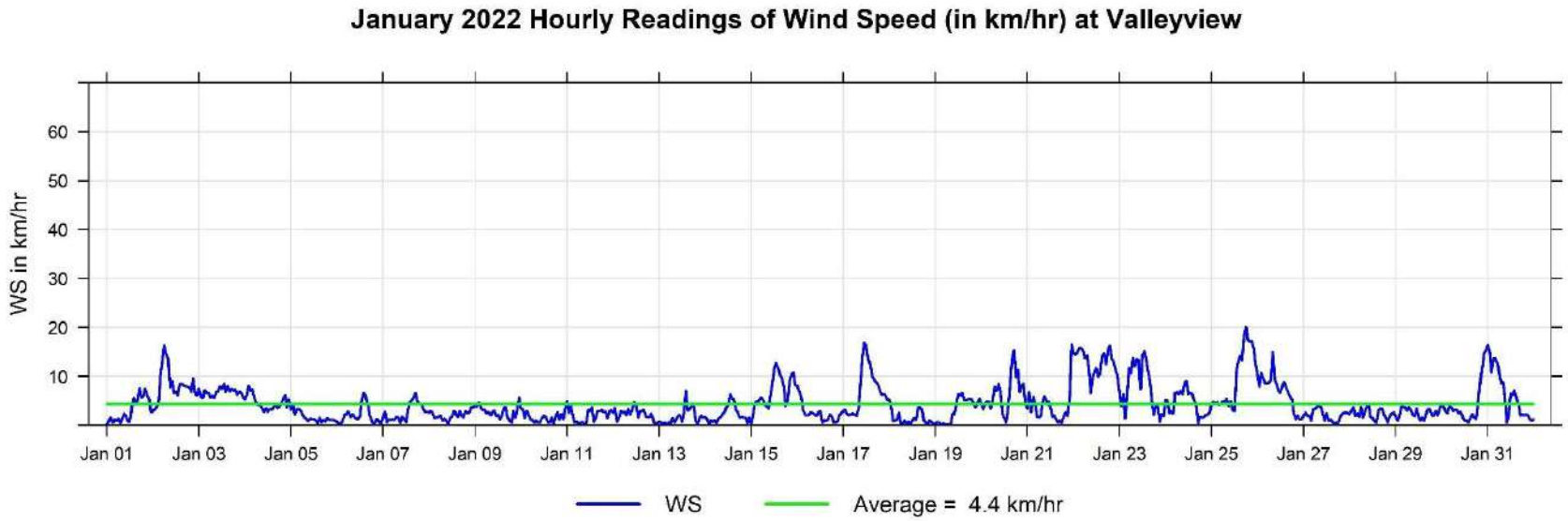

Number of Hours
0
200
400
600
682
18
3
2
3
2
0
1
2
3
4
5
SO2 in ppb

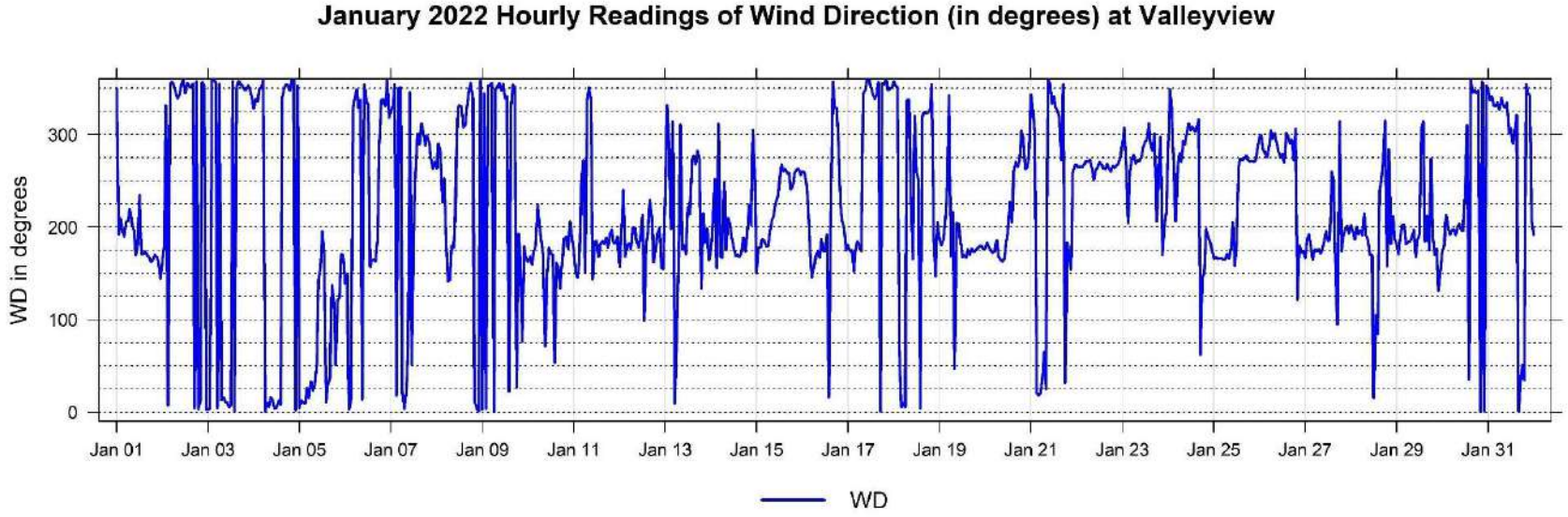

January 2022 Hourly Concentration Readings of H2S (in ppb) at Valleyview
H2S in ppb
1
2
3
4
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
H2S
AAAQO Limit = 10 ppb
Average = 0.1 ppb

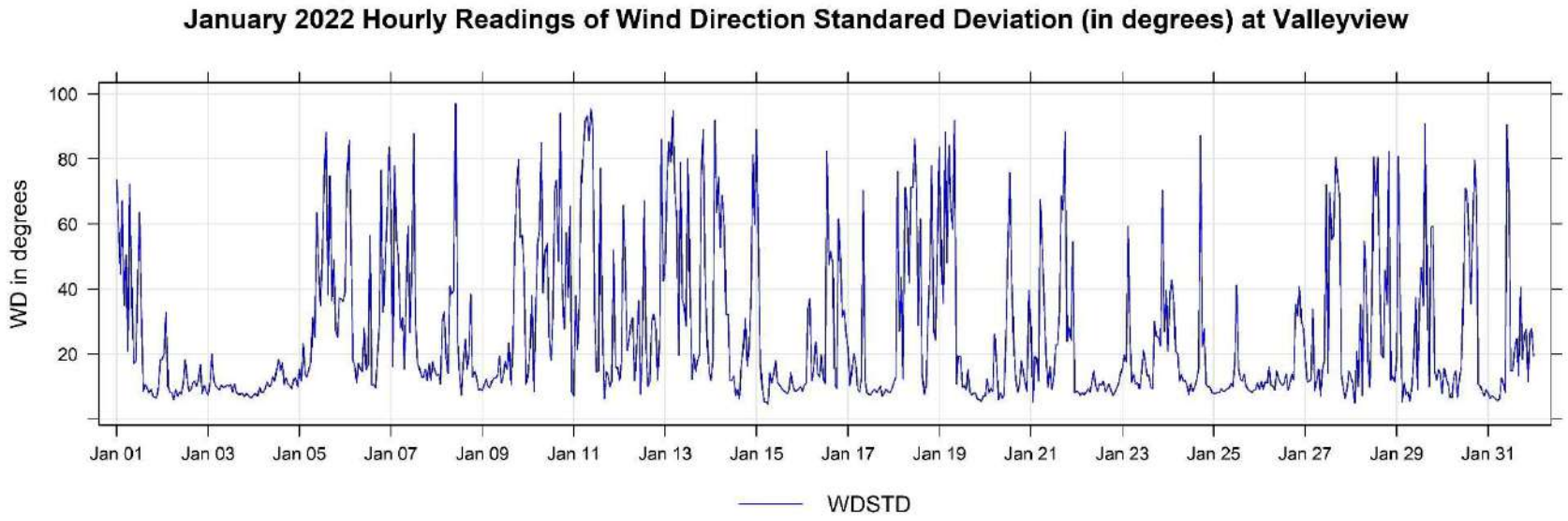

Number of Hours
0
200
400
600
399
177
80
22
5
2
0
3
1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
H2S in ppb

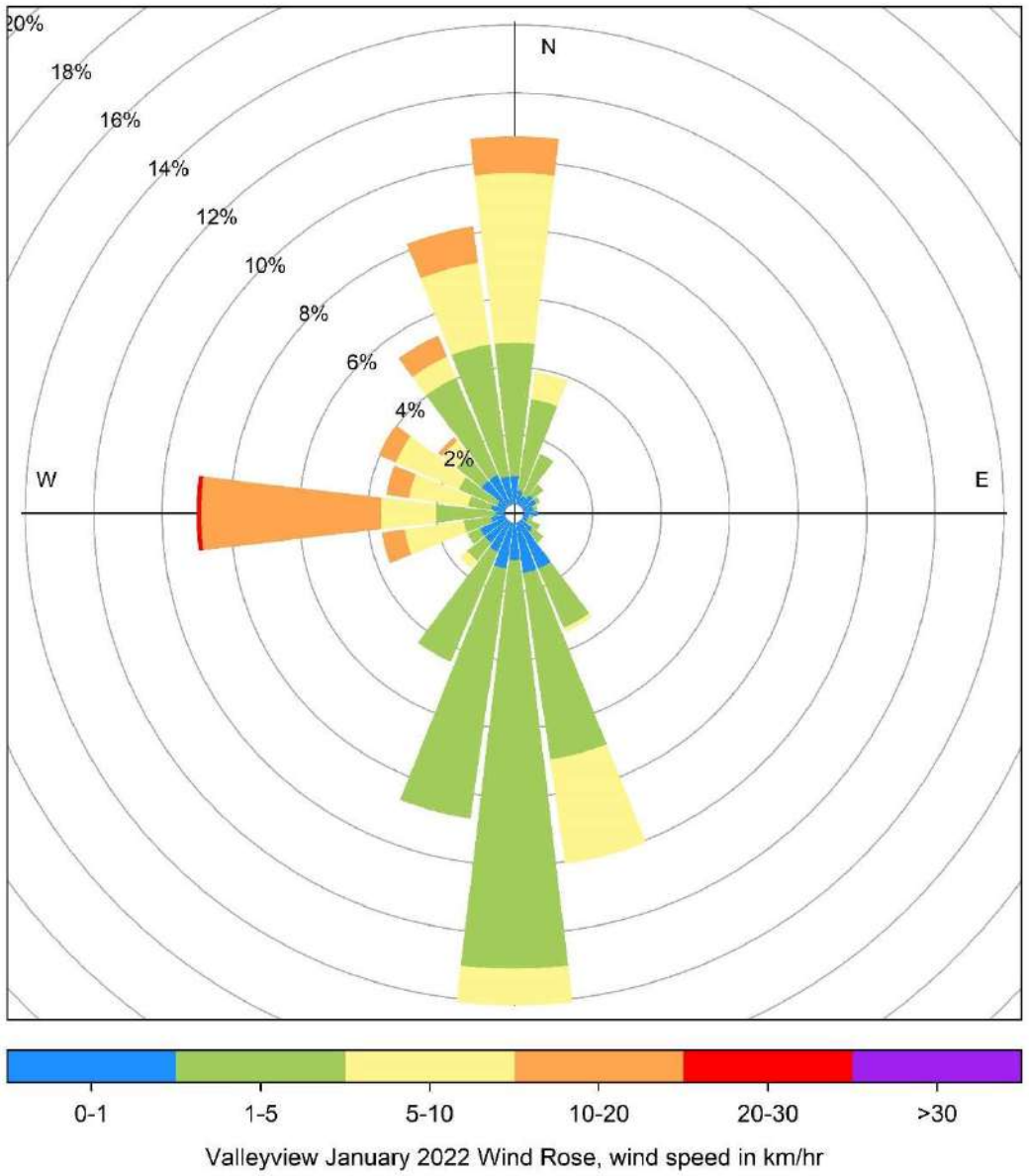

January 2022 Hourly Temperature Readings (in °C) at Valleyview
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -10.2 °C


January 2022 Hourly Readings of Relative Humidity (in %) at Valleyview
RH in %
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
RH
Average = 79.6 %


January 2022 Hourly Readings of Wind Speed (in km/hr) at Valleyview
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 4.4 km/hr

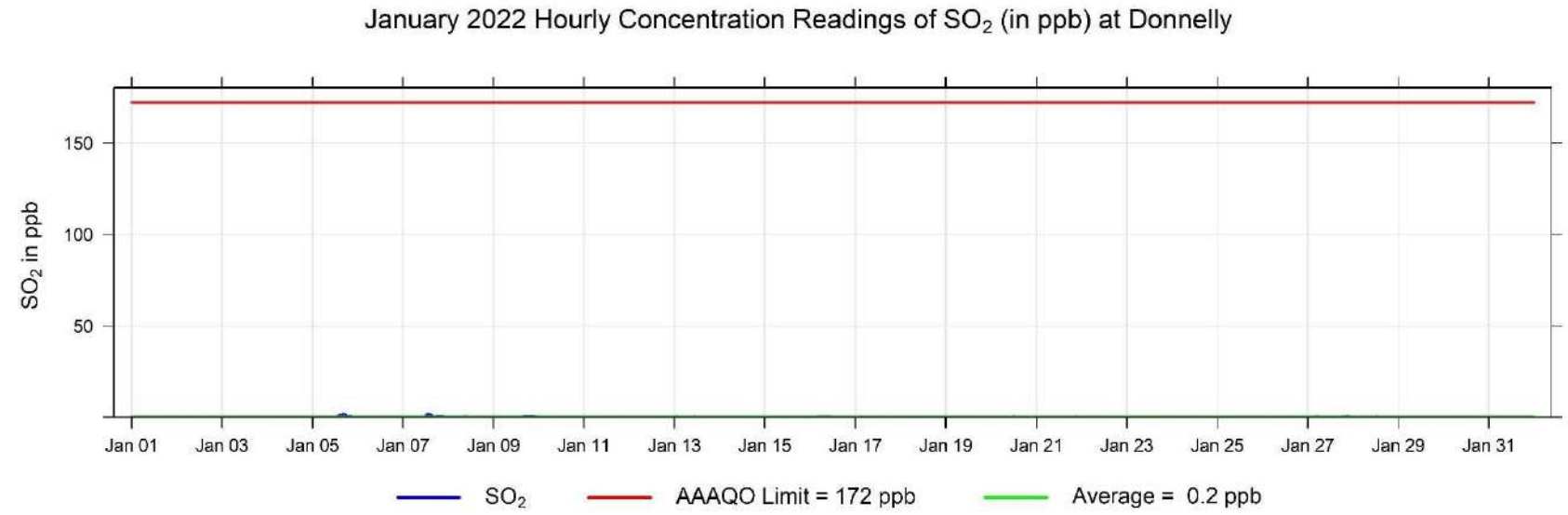

January 2022 Hourly Readings of Wind Direction (in degrees) at Valleyview
WD in degrees
300
200
100
0
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WD

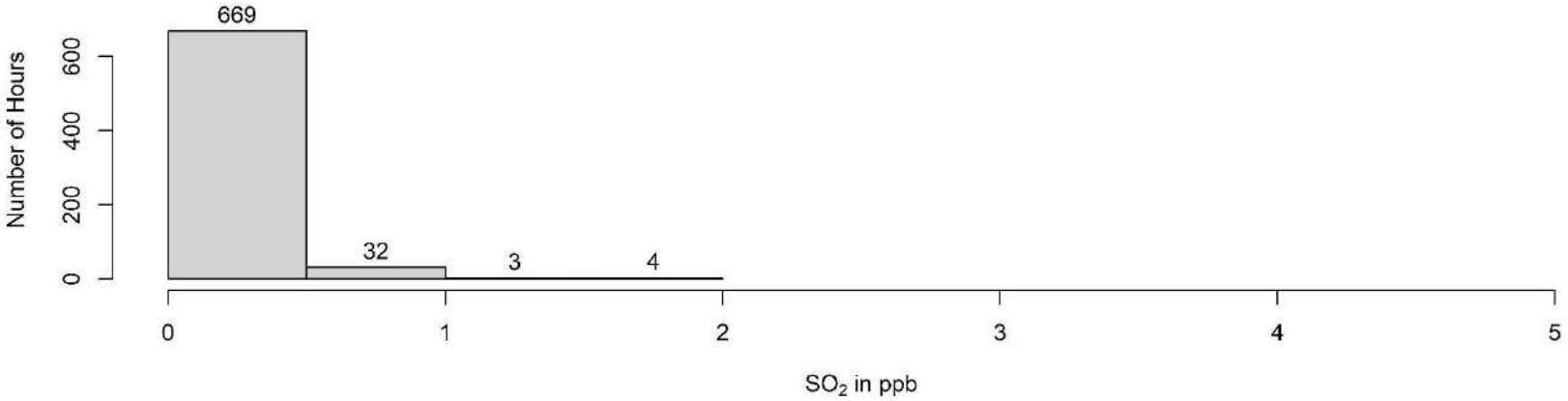

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Valleyview
WD in degrees
100
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD

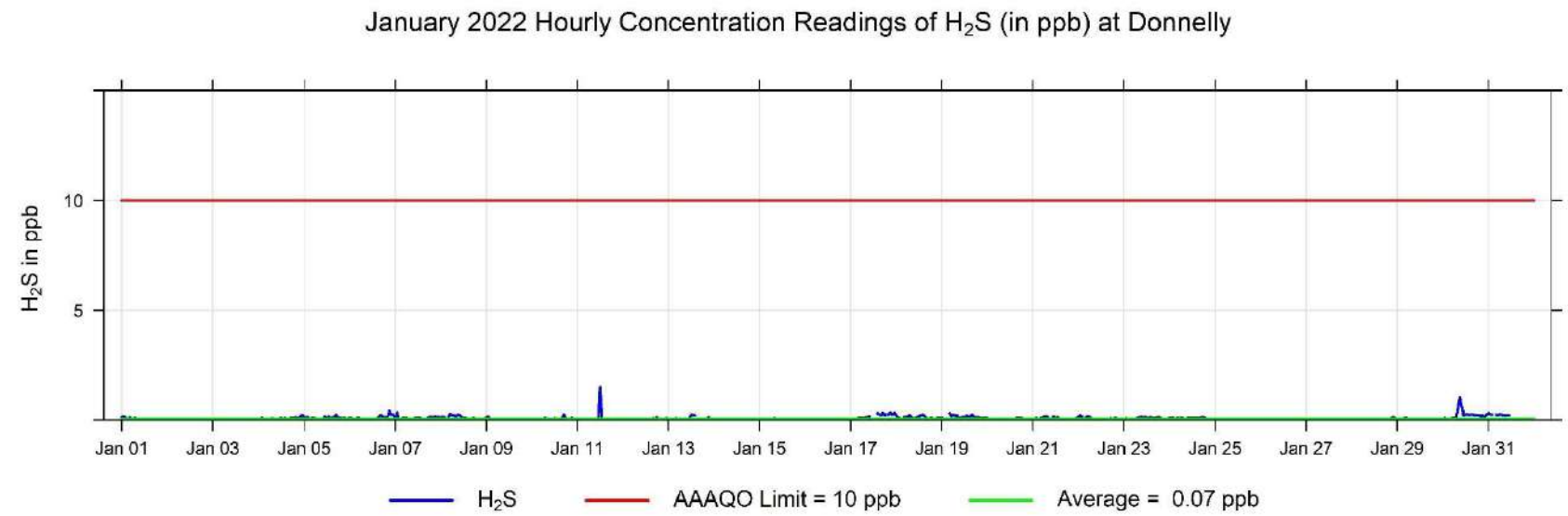

20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
N
W
E
0-1
1-5
5-10
10-20
20-30
>30
Valleyview January 2022 Wind Rose, wind speed in km/hr

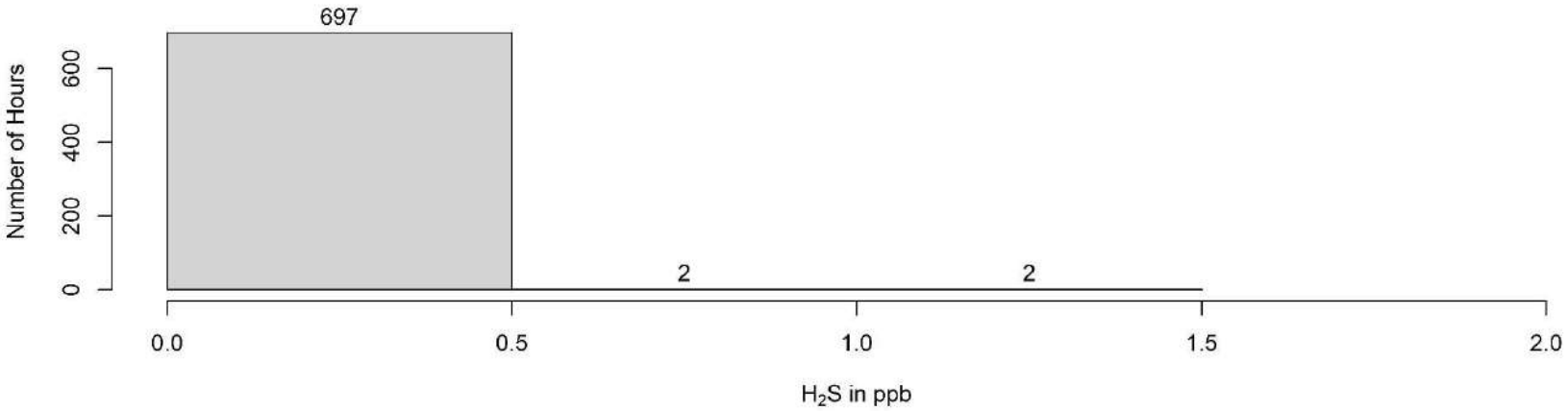
7 Donnelly Charts

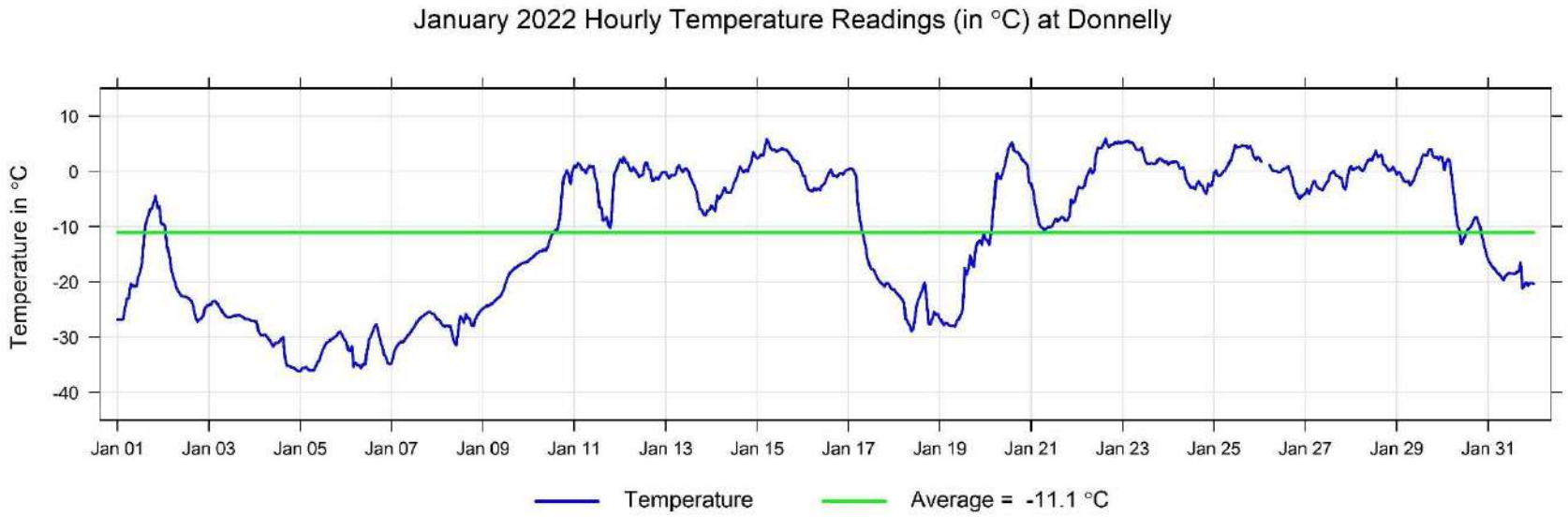
The following pages include the charts and histograms for Donnelly Station

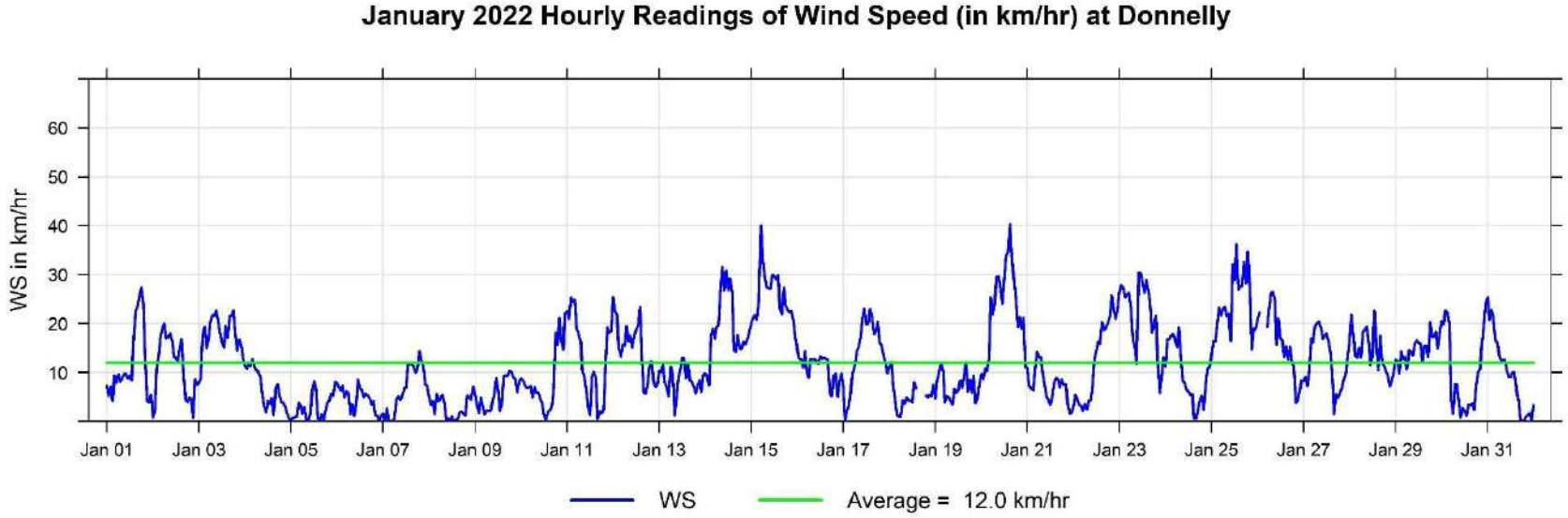

January 2022 Hourly Concentration Readings of SO_2 (in ppb) at Donnelly
SO_2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.2 ppb

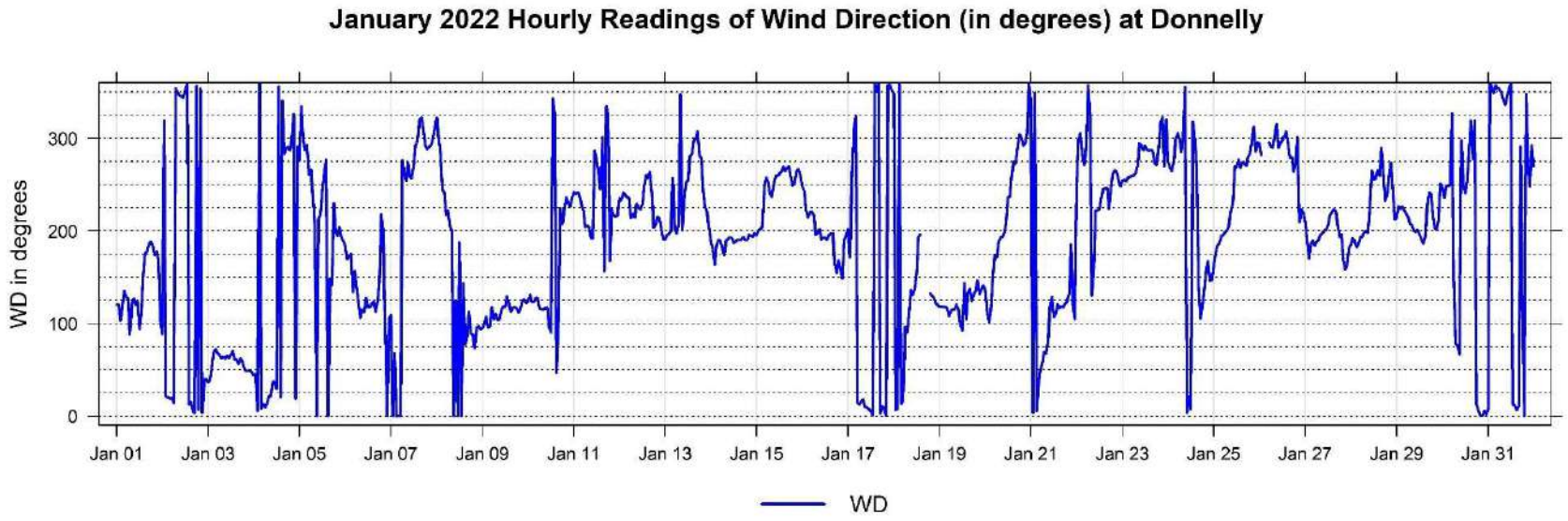

Number of Hours
0
200
400
600
669
32
3
4
0
1
2
3
4
5
SO_2 in ppb

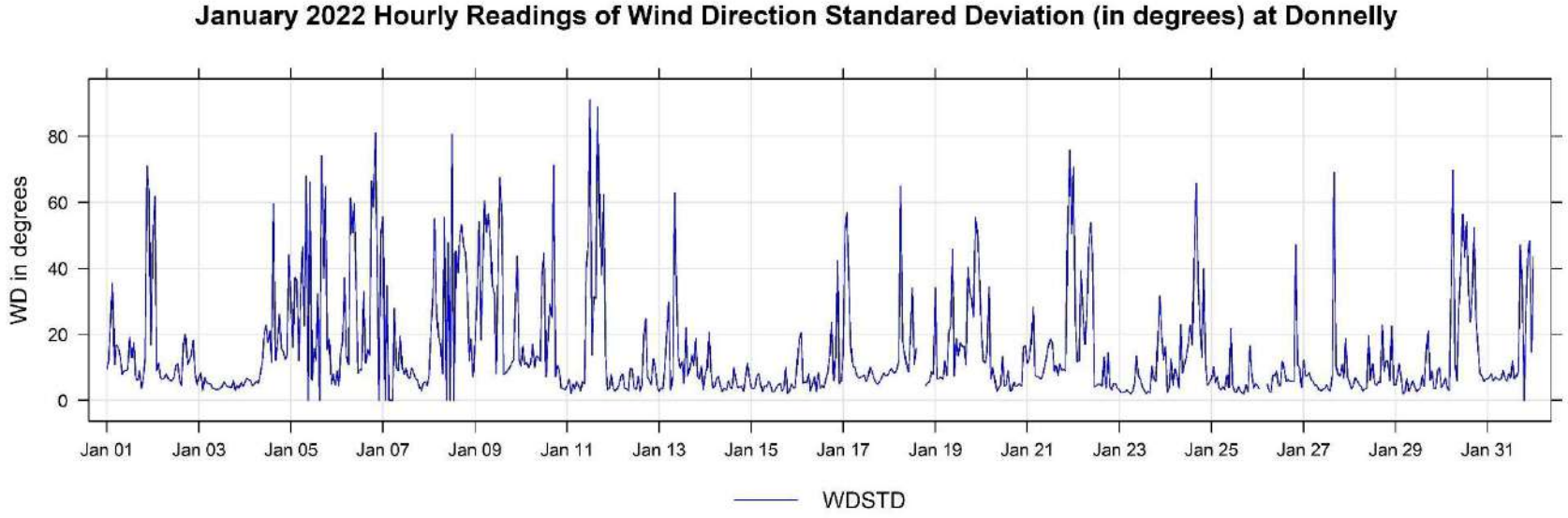

January 2022 Hourly Concentration Readings of H2S (in ppb) at Donnelly
H2S in ppb
10
5
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
H2S
AAAQO Limit = 10 ppb
Average = 0.07 ppb

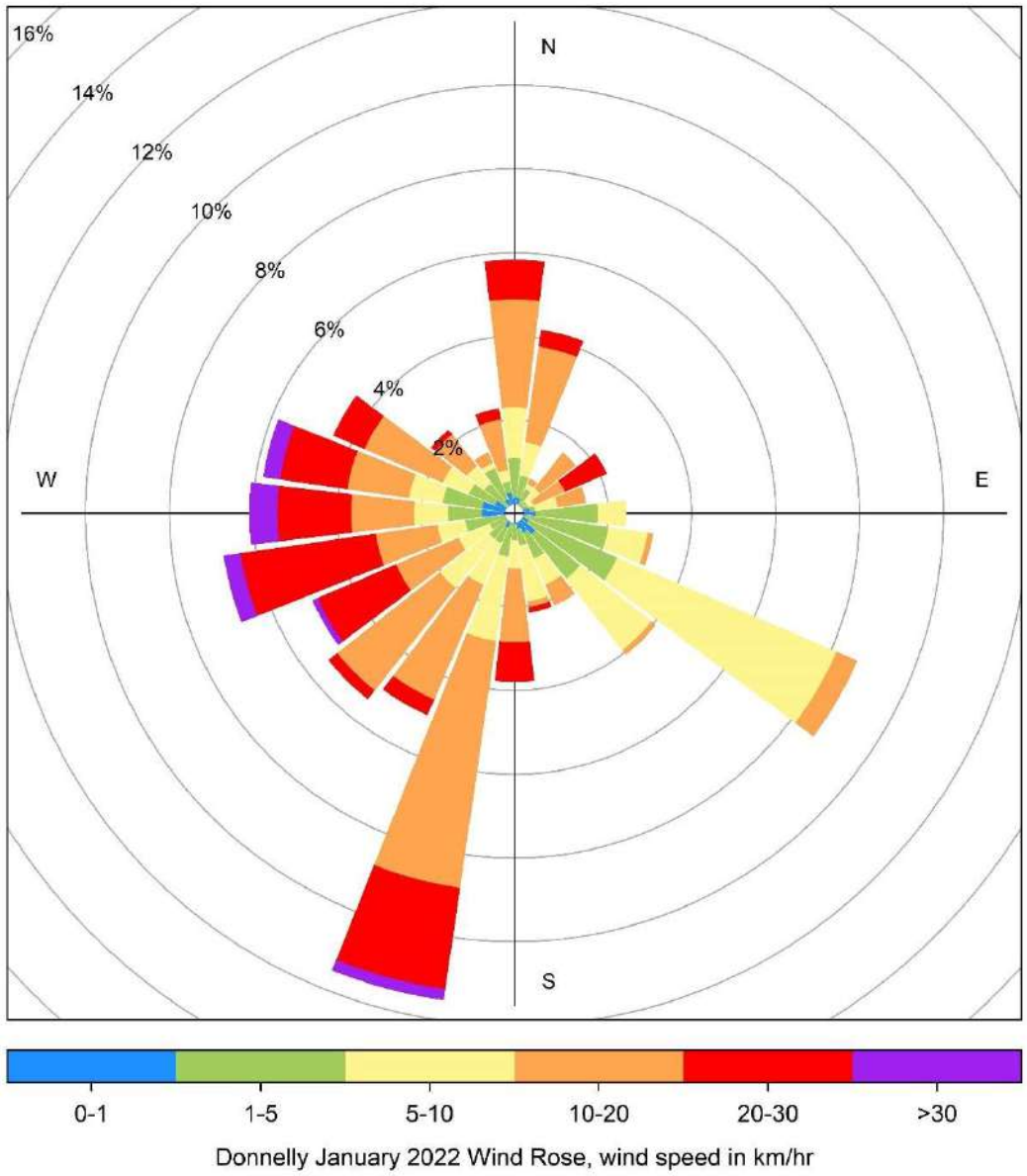

Number of Hours
0
200
400
600
697
2
2
0.0
0.5
1.0
1.5
2.0
H2S in ppb


January 2022 Hourly Temperature Readings (in °C) at Donnelly
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -11.1 °C


January 2022 Hourly Readings of Wind Speed (in km/hr) at Donnelly
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 12.0 km/hr


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

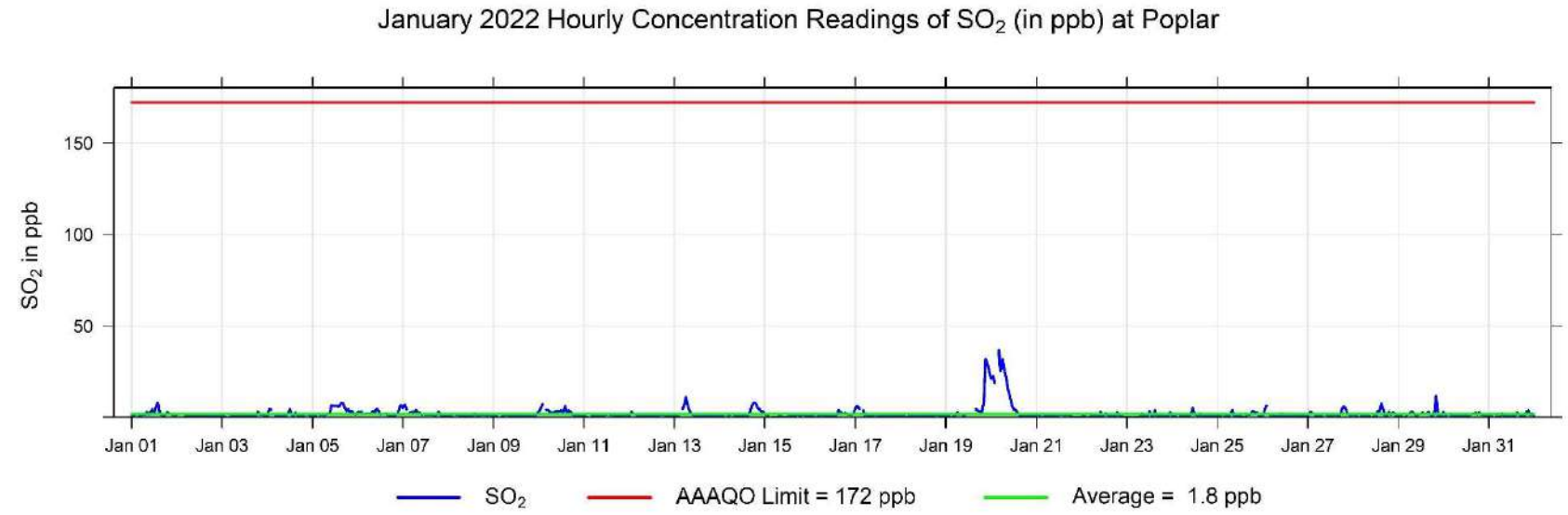

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Donnelly
WD in degrees
0
20
40
60
80
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD

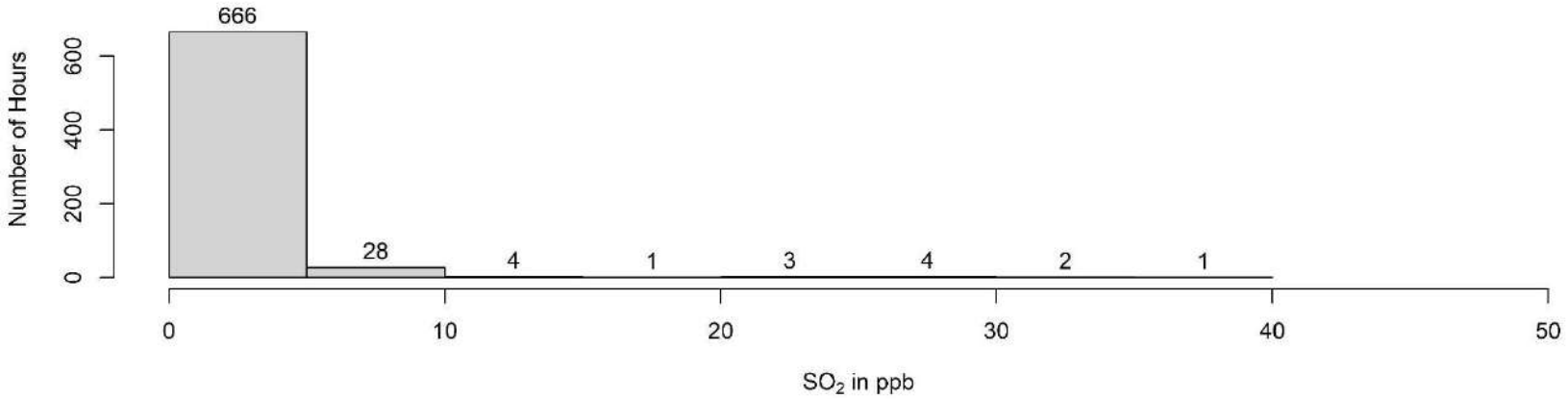


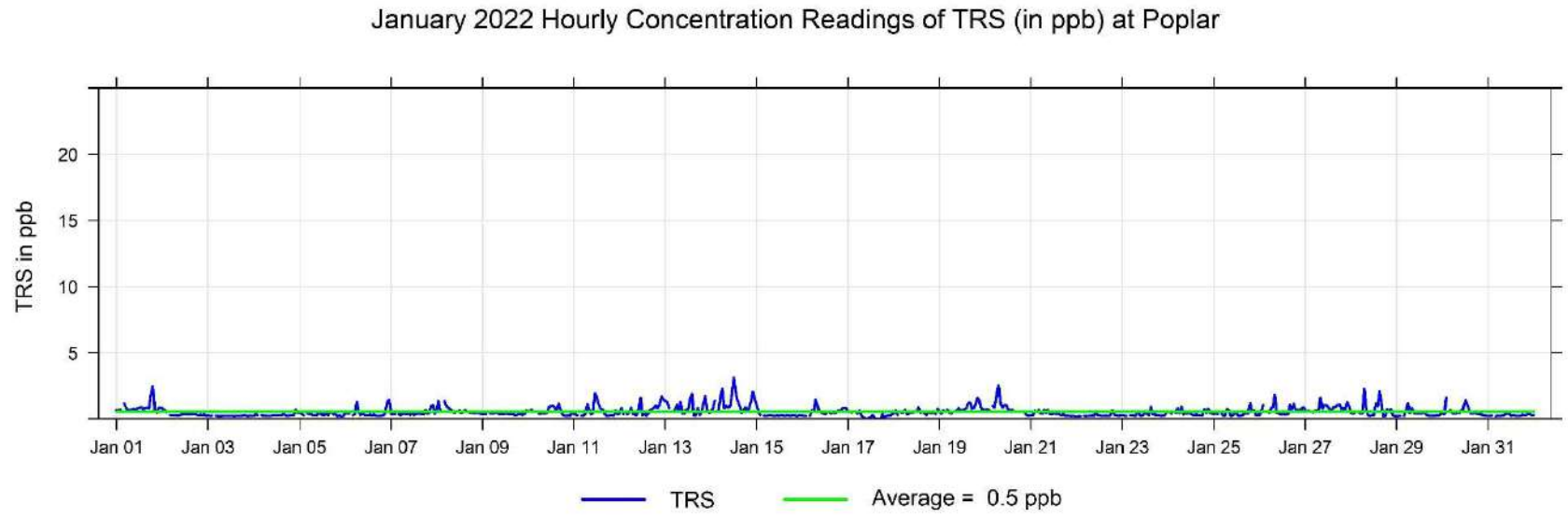
Donnelly January 2022 Wind Rose, wind speed in km/hr

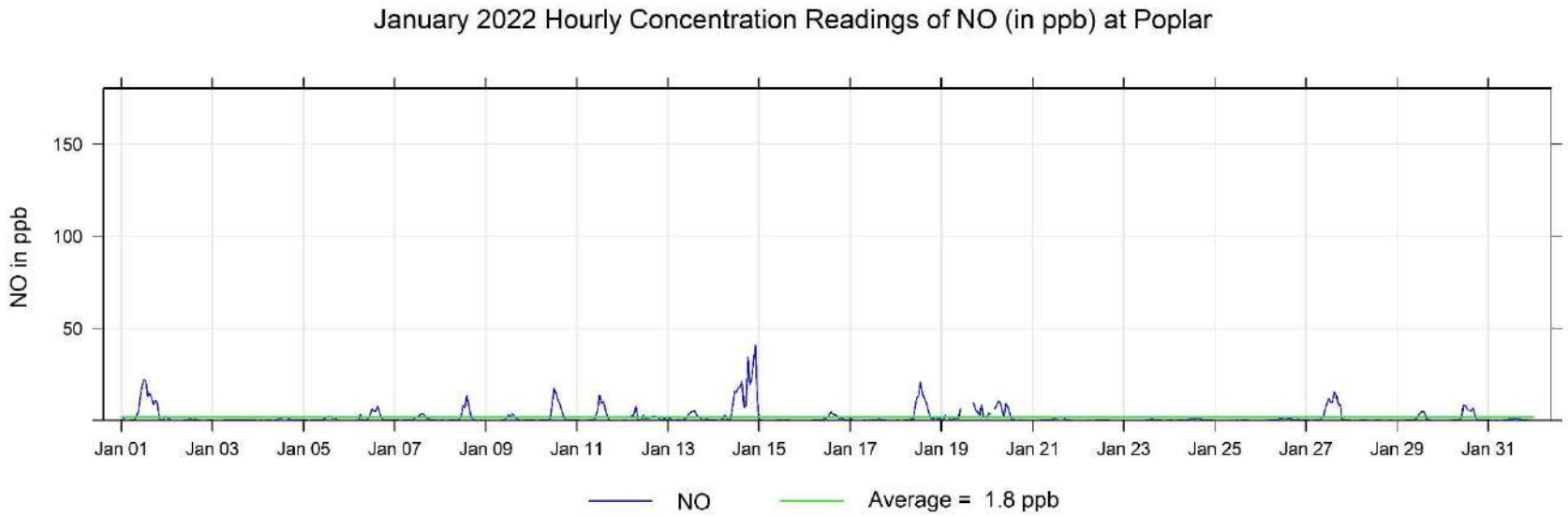
8 Poplar (Portable) Charts

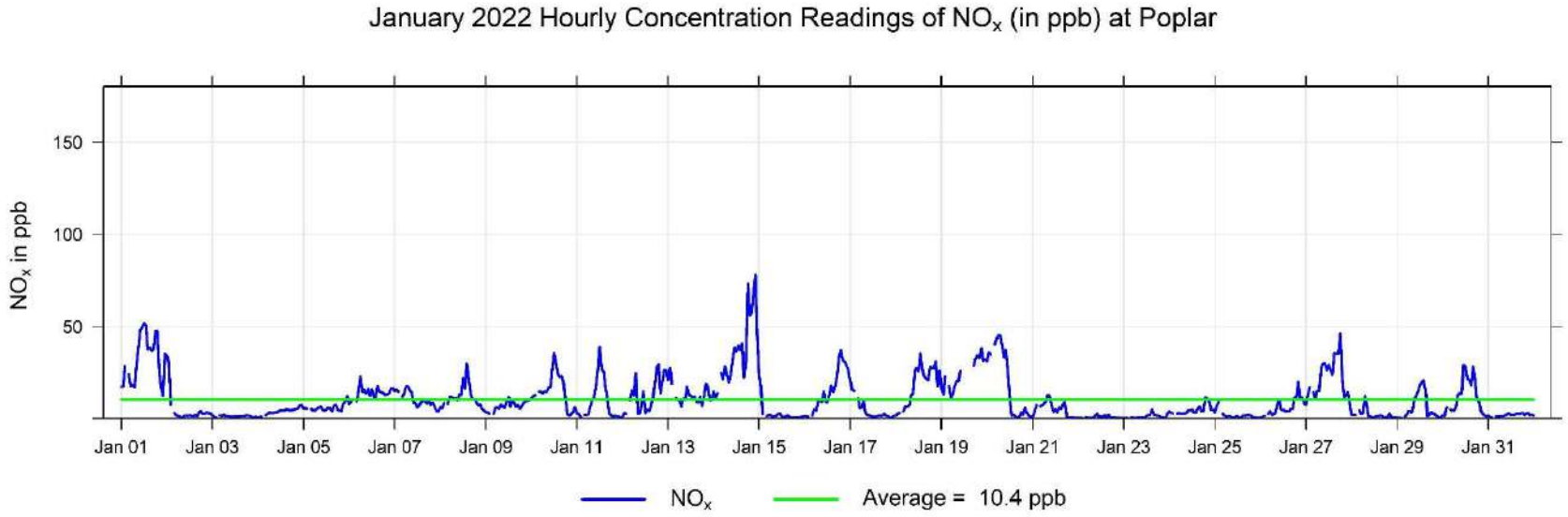
The following pages include the charts and histograms for Poplar Portable Station

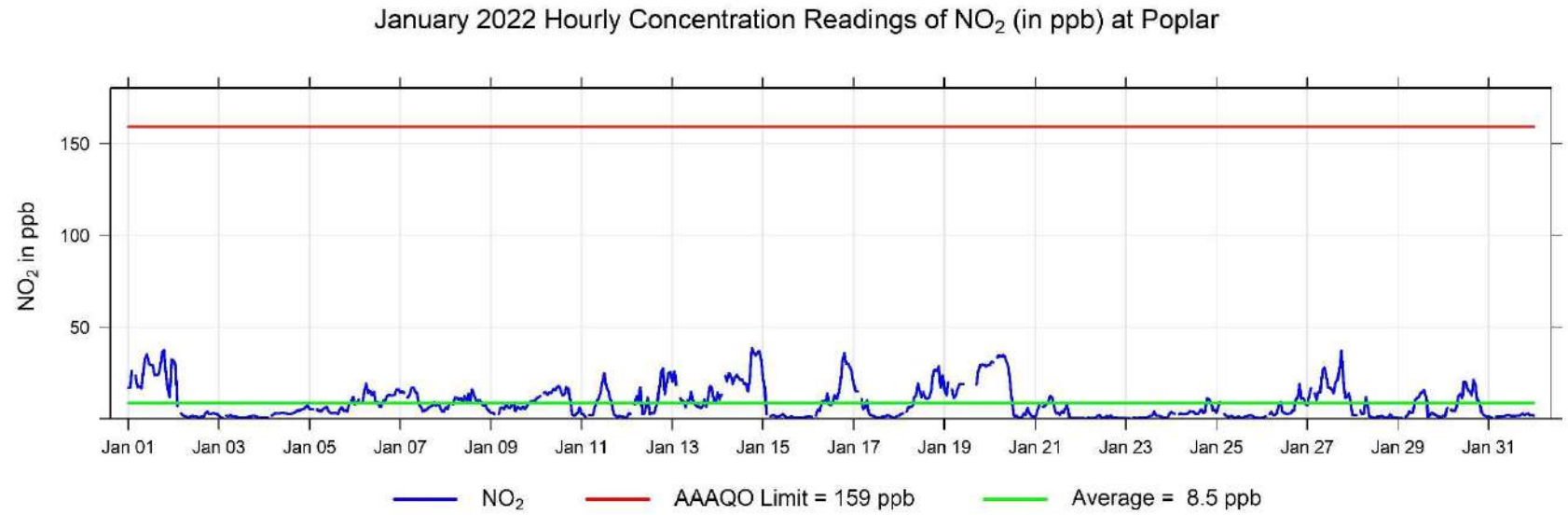

January 2022 Hourly Concentration Readings of SO_2 (in ppb) at Poplar
SO_2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
SO_2
AAAQO Limit = 172 ppb
Average = 1.8 ppb

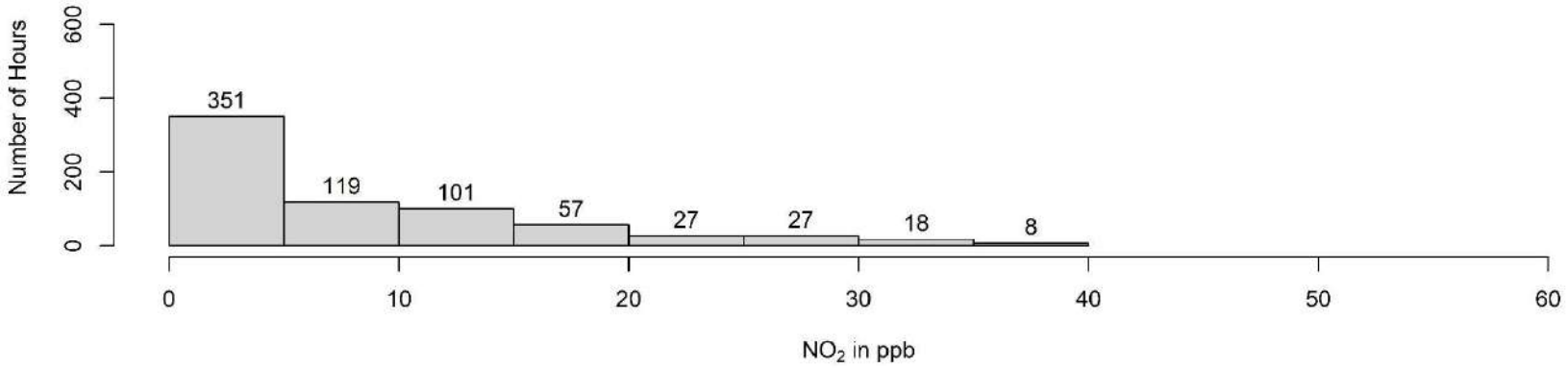

Number of Hours
0
200
400
600
666
28
4
1
3
4
2
1
0
10
20
30
40
50
SO_2 in ppb

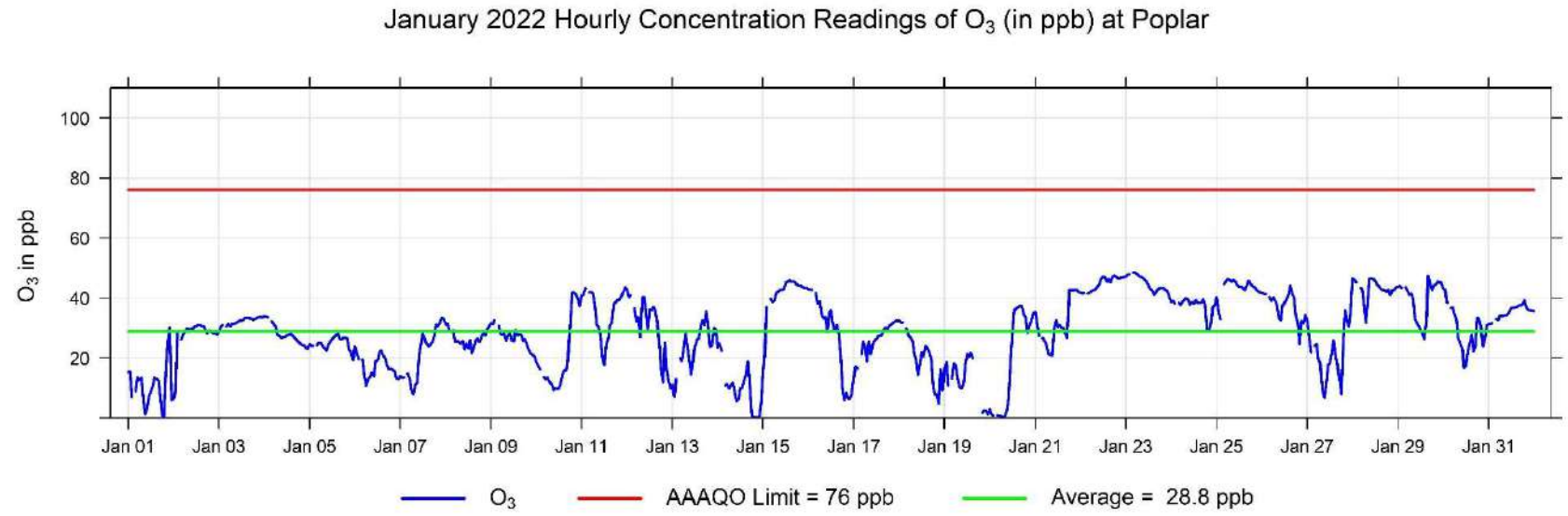

January 2022 Hourly Concentration Readings of TRS (in ppb) at Poplar
TRS in ppb
20
15
10
5
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
TRS
Average = 0.5 ppb

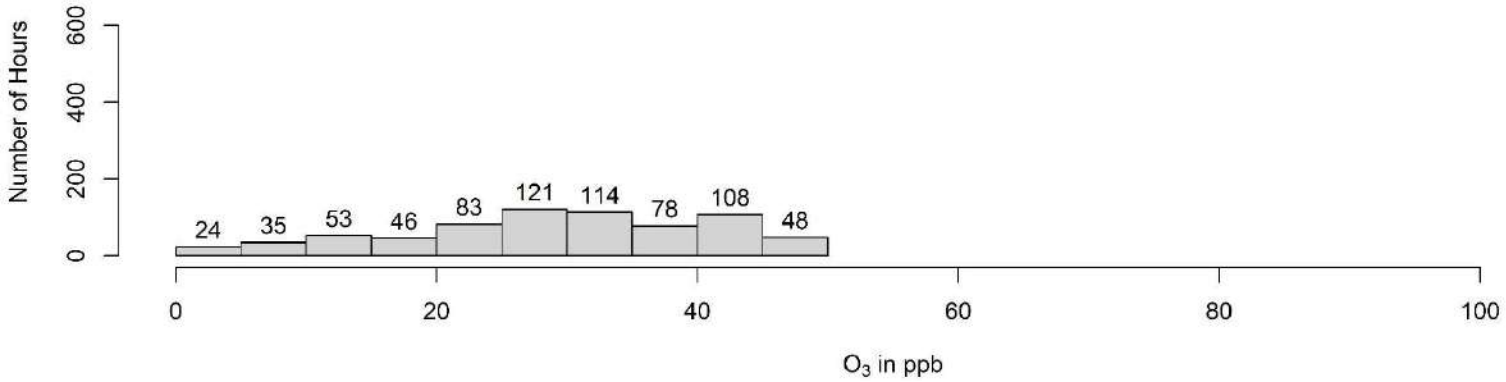

January 2022 Hourly Concentration Readings of NO (in ppb) at Poplar
NO in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO
Average = 1.8 ppb

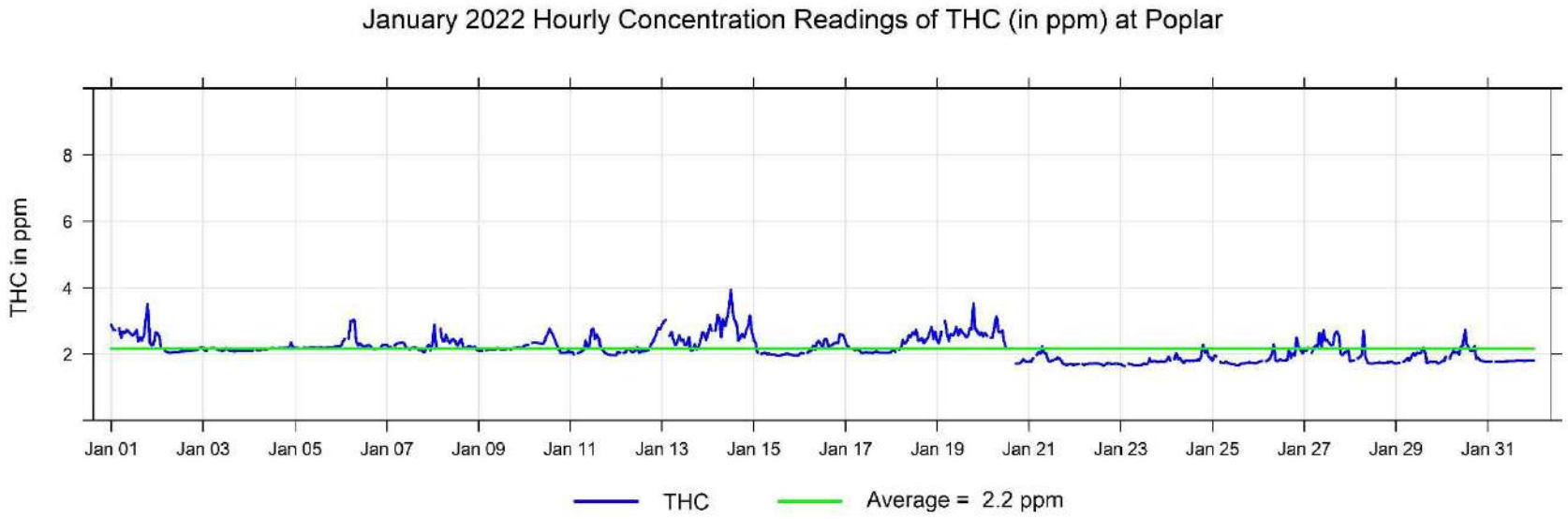

January 2022 Hourly Concentration Readings of NOx (in ppb) at Poplar
NOx in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NOx
Average = 10.4 ppb

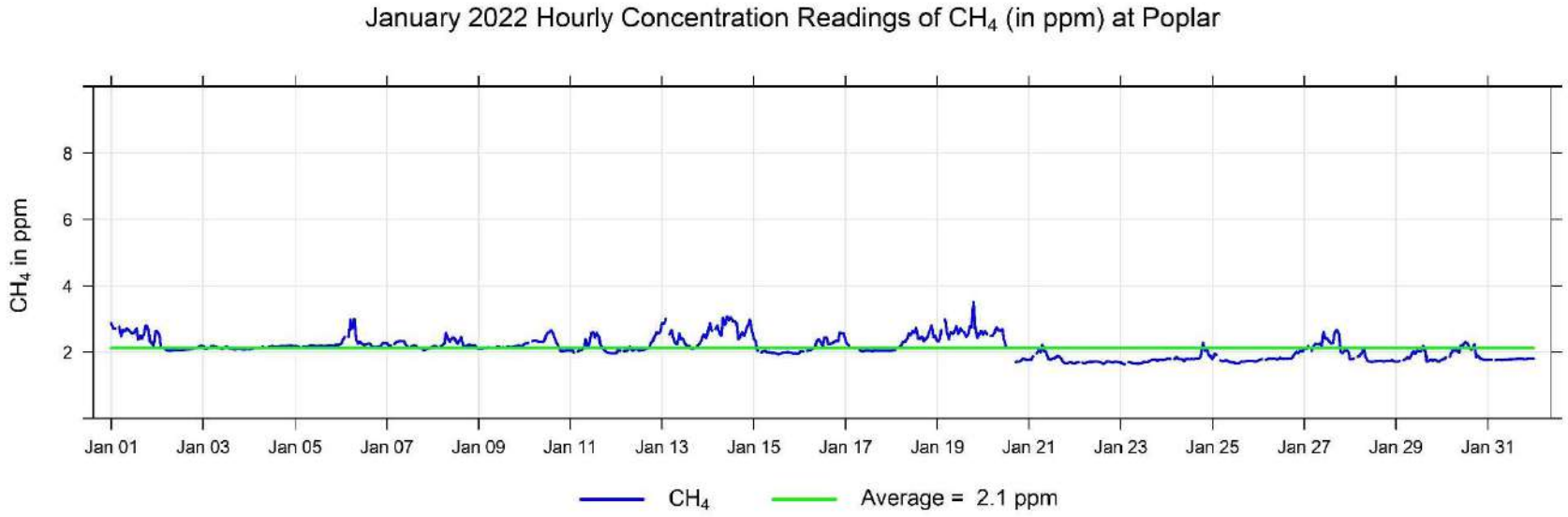

January 2022 Hourly Concentration Readings of NO2 (in ppb) at Poplar
NO2 in ppb
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO2
AAAQO Limit = 159 ppb
Average = 8.5 ppb

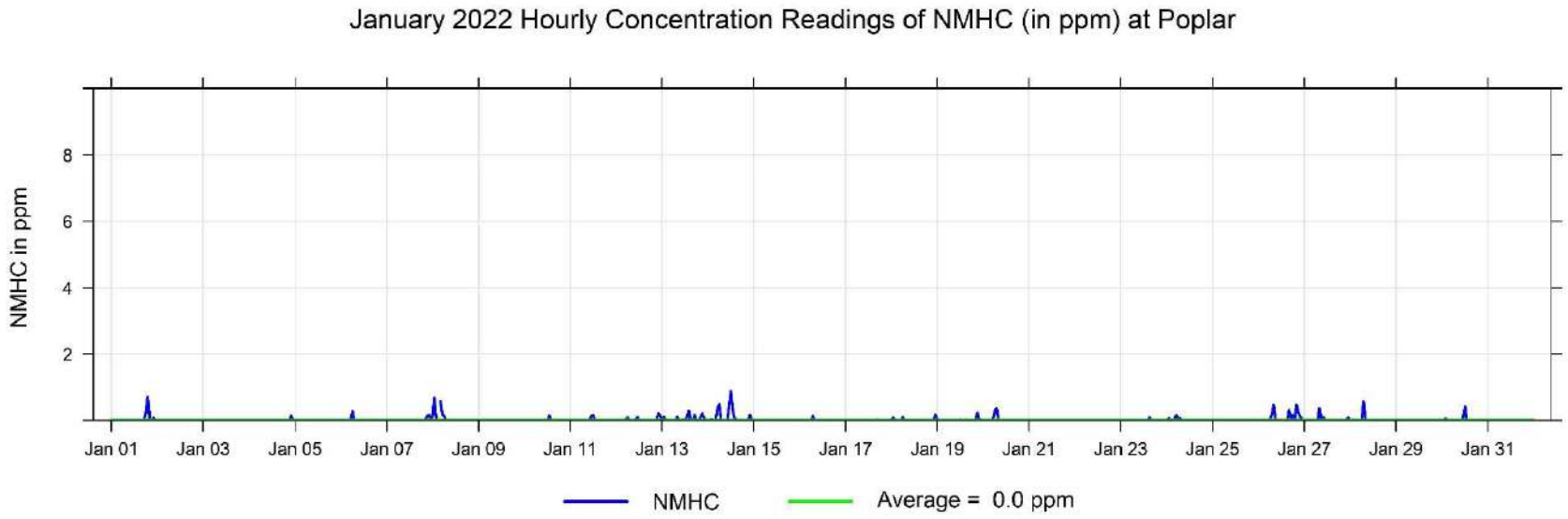

Number of Hours
0
200
400
600
351
119
101
57
27
27
18
8
0
10
20
30
40
50
60
NO2 in ppb

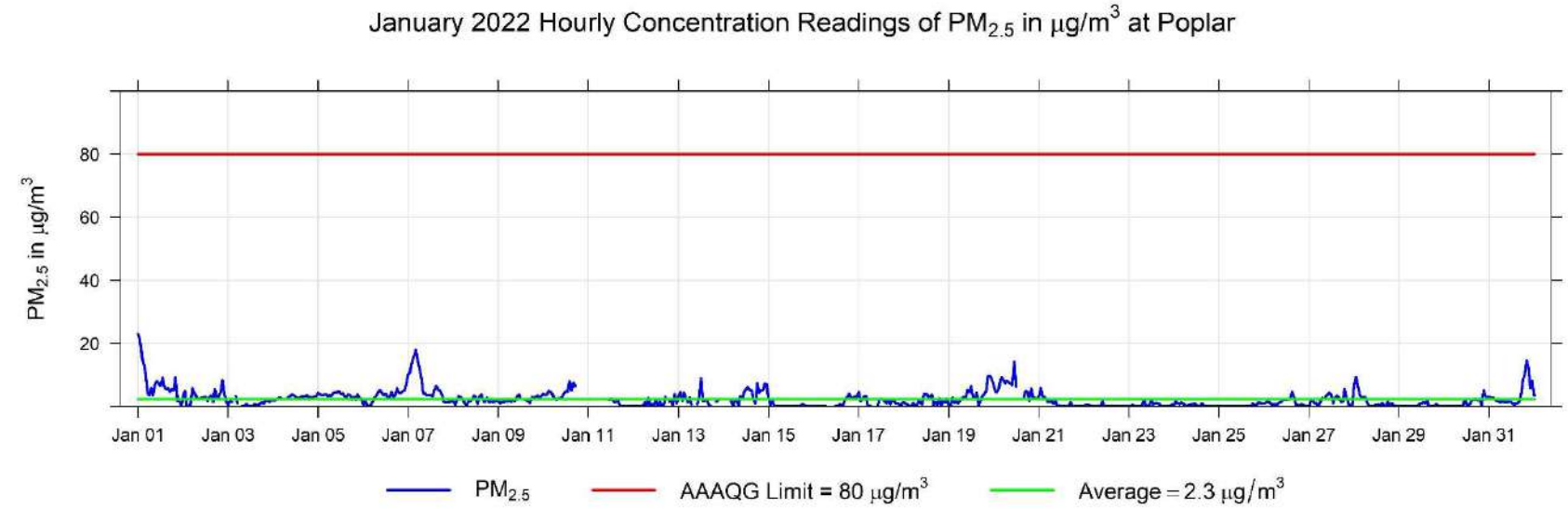

January 2022 Hourly Concentration Readings of O_3 (in ppb) at Poplar
O_3 in ppb
100
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
O_3
AAAQO Limit = 76 ppb
Average = 28.8 ppb

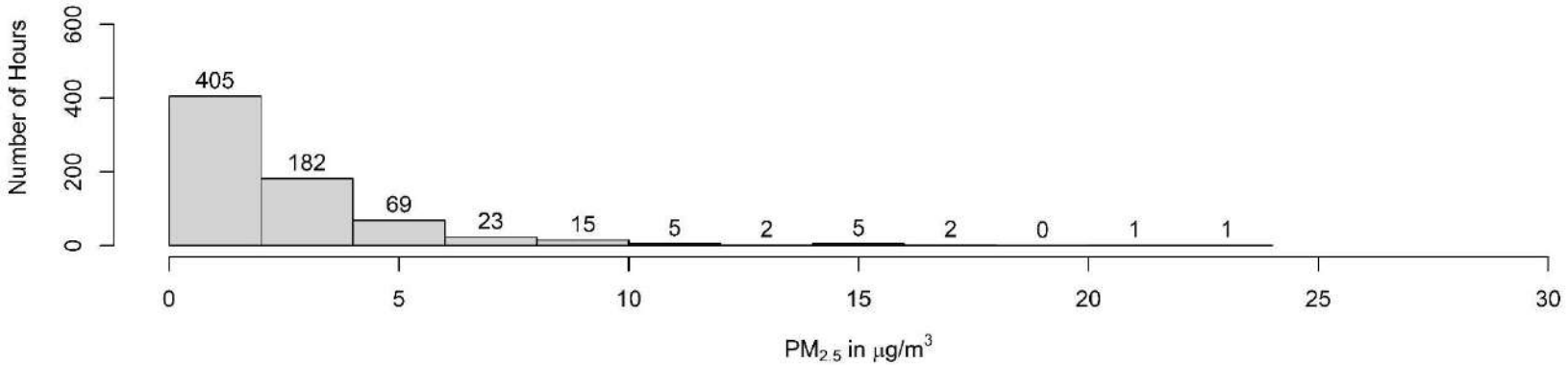

Number of Hours
0
200
400
600
24
35
53
46
83
121
114
78
108
48
0
20
40
60
80
100
O_3 in ppb

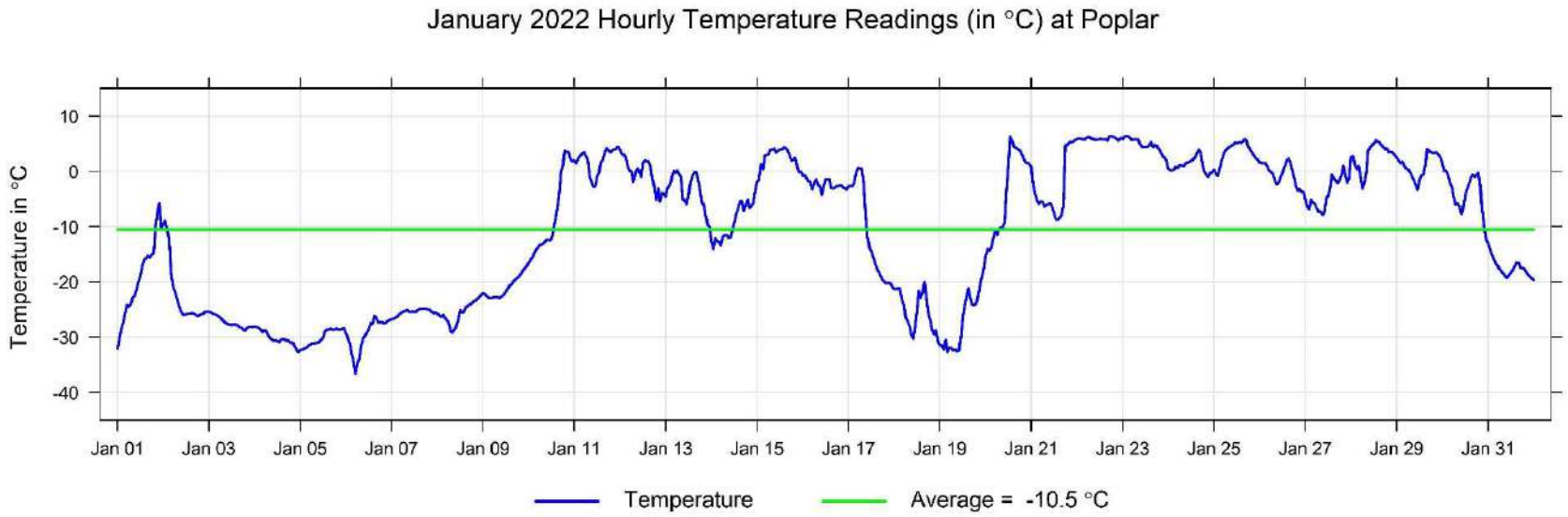

January 2022 Hourly Concentration Readings of THC (in ppm) at Poplar
THC in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
THC
Average = 2.2 ppm

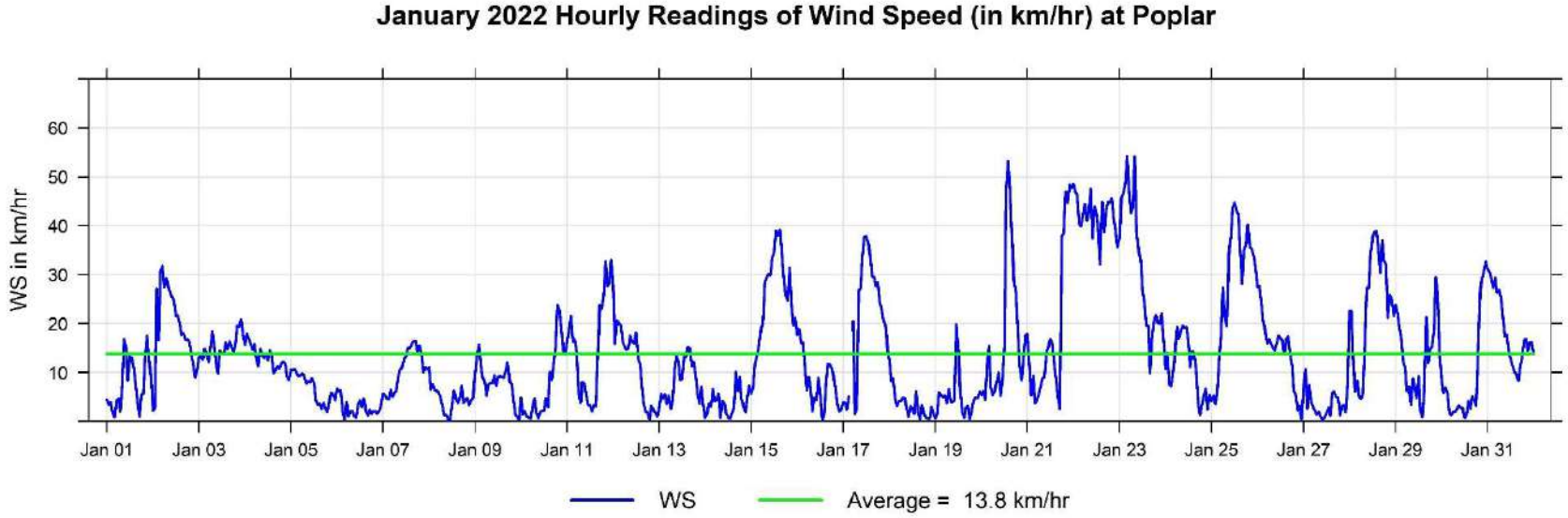

January 2022 Hourly Concentration Readings of CH4 (in ppm) at Poplar
CH4 in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
CH4
Average = 2.1 ppm

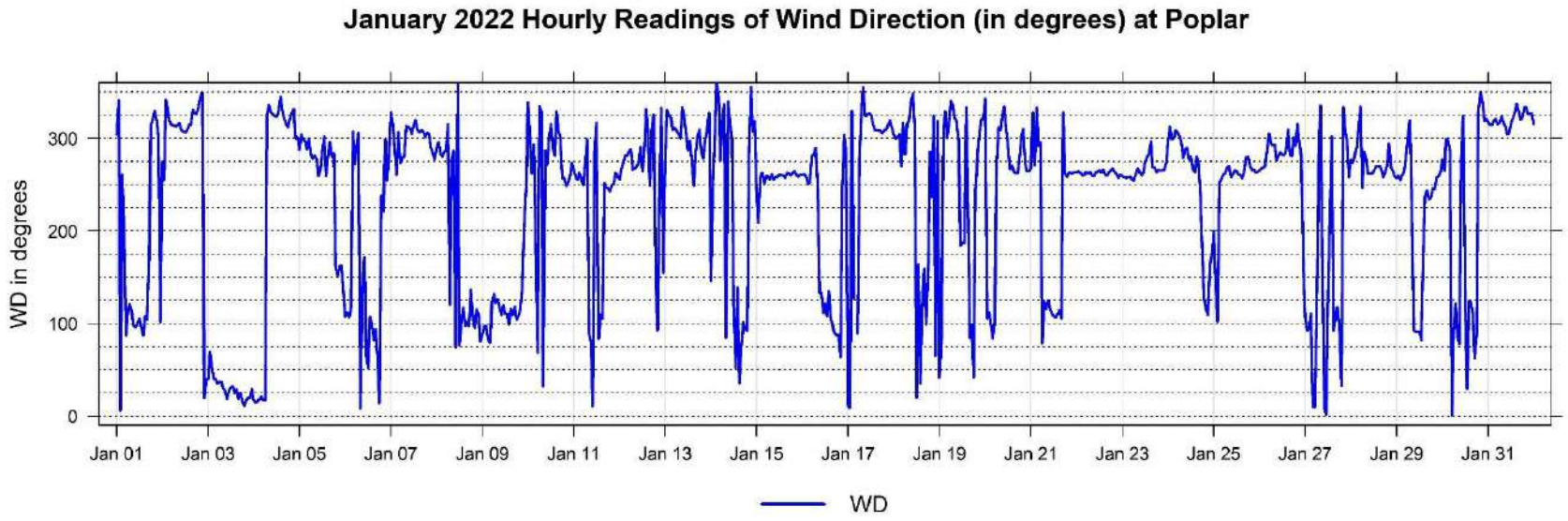

January 2022 Hourly Concentration Readings of NMHC (in ppm) at Poplar
NMHC in ppm
8
6
4
2
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NMHC
Average = 0.0 ppm

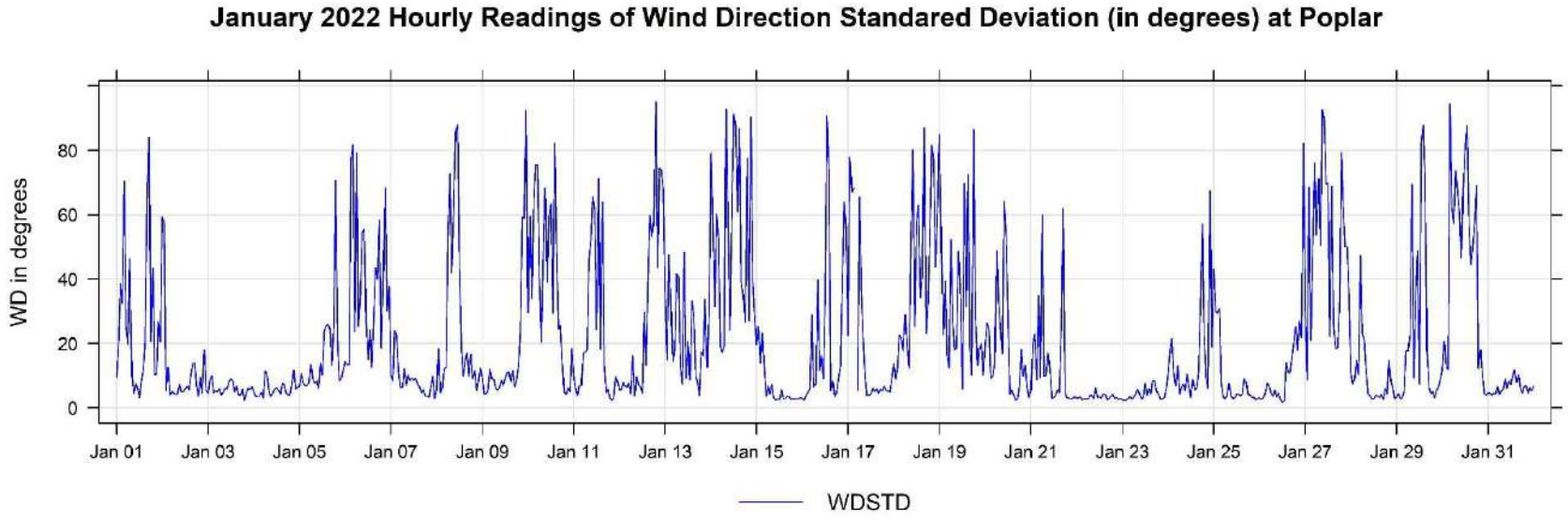

January 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Poplar
PM2.5 in µg/m3
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 2.3 µg/m3

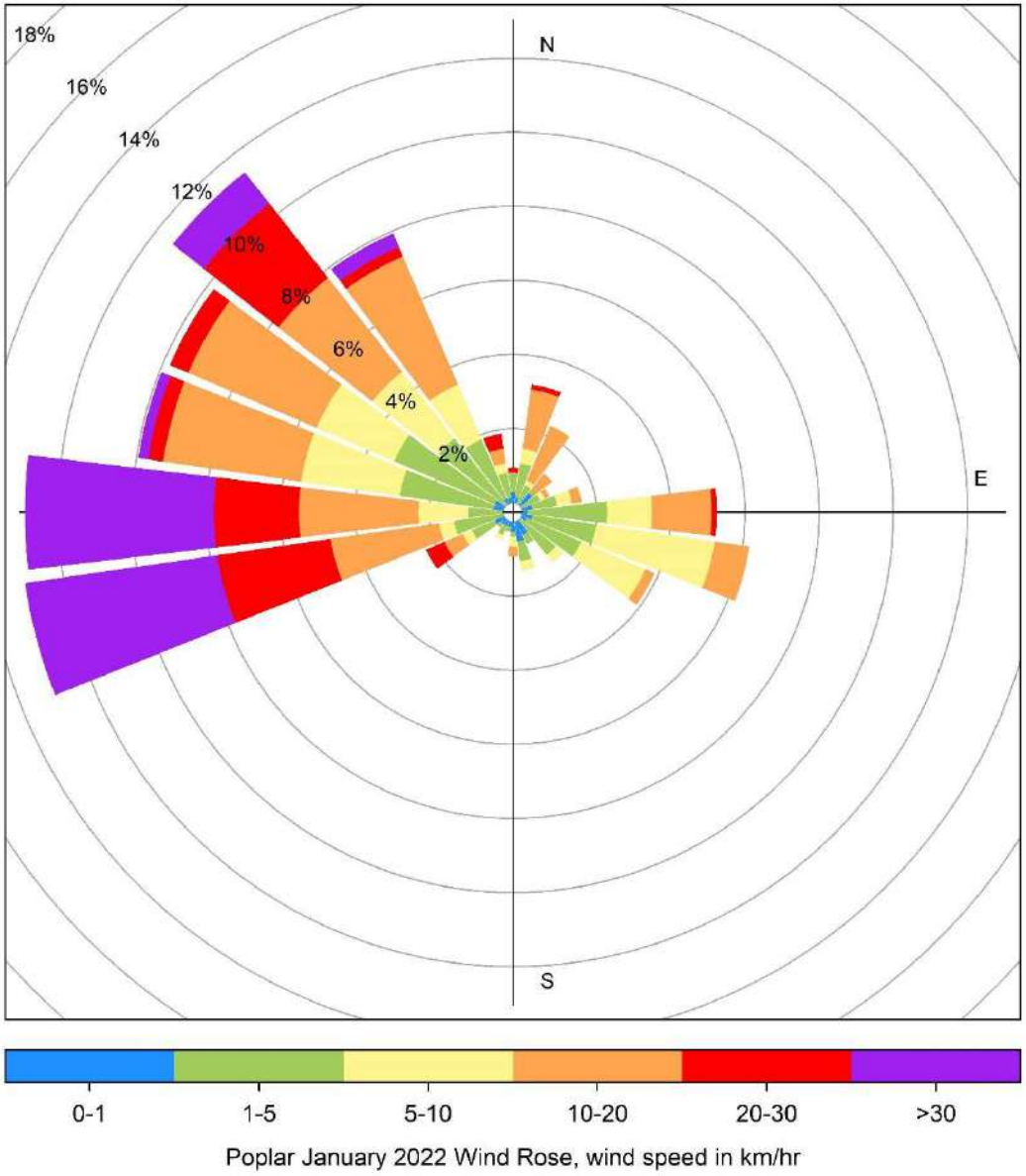

Number of Hours
0
200
400
600
405
182
69
23
15
5
2
5
2
0
1
1
0
5
10
15
20
25
30
PM2.5 in µg/m3


January 2022 Hourly Temperature Readings (in °C) at Poplar
Temperature in °C
10
0
-10
-20
-30
-40
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
Temperature
Average = -10.5 °C


January 2022 Hourly Readings of Wind Speed (in km/hr) at Poplar
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 13.8 km/hr


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

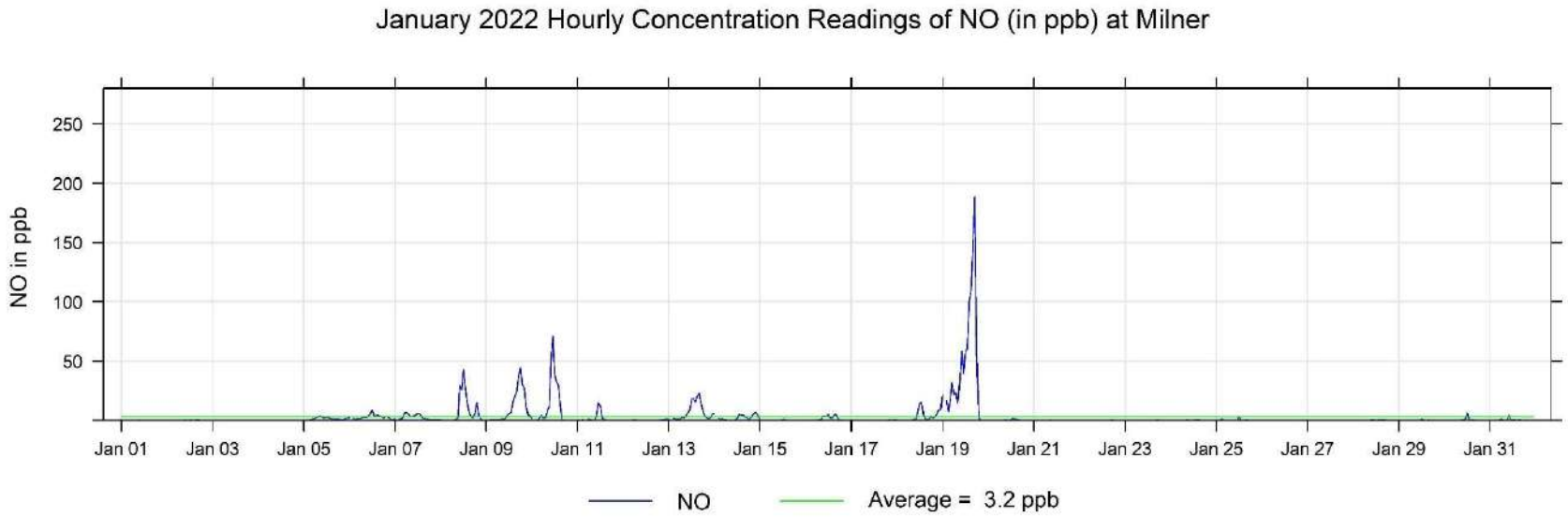

January 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Poplar
WD in degrees
0
20
40
60
80
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WDSTD

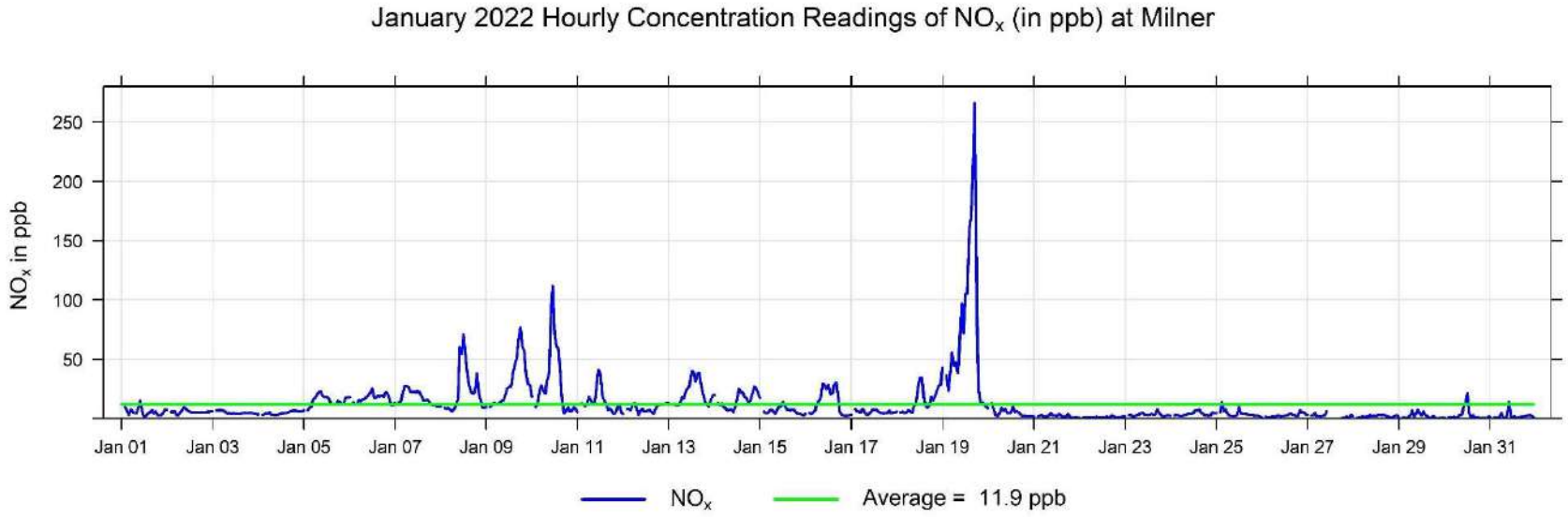


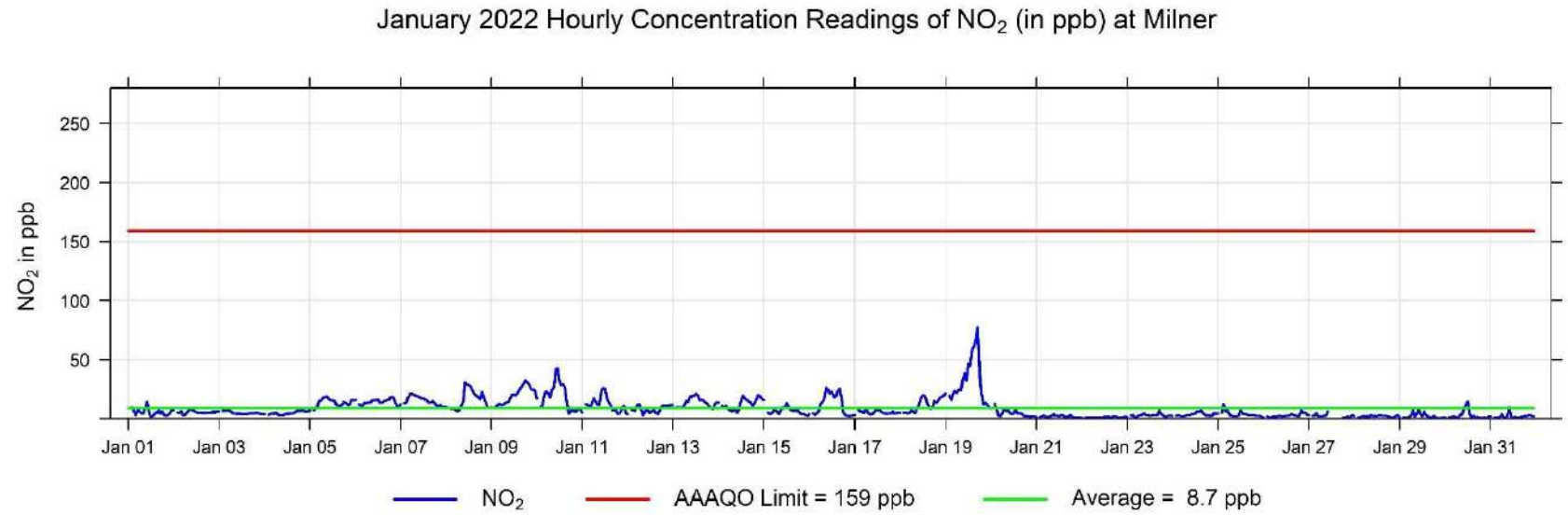
Poplar January 2022 Wind Rose, wind speed in km/hr

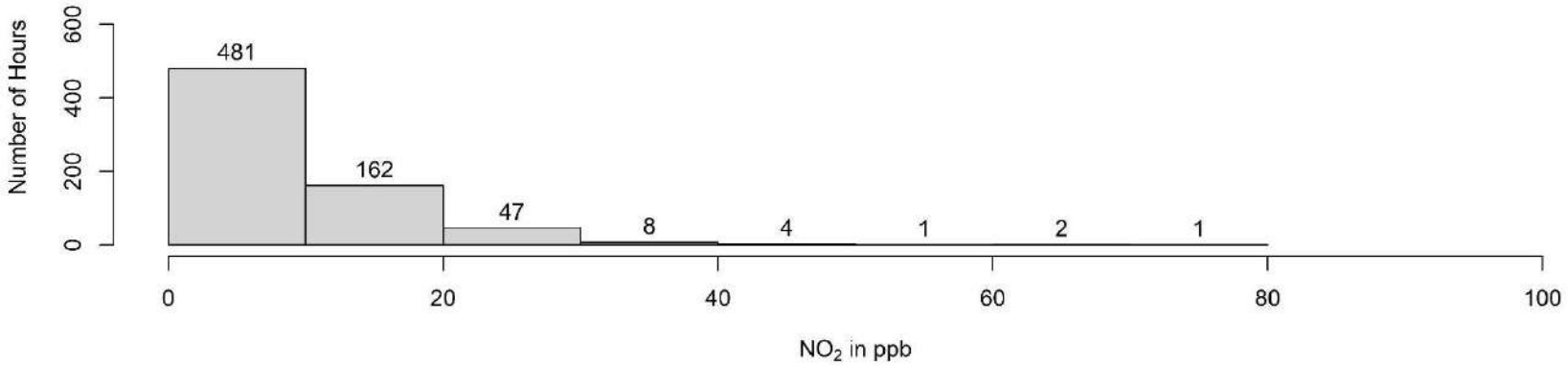
9 Milner Charts

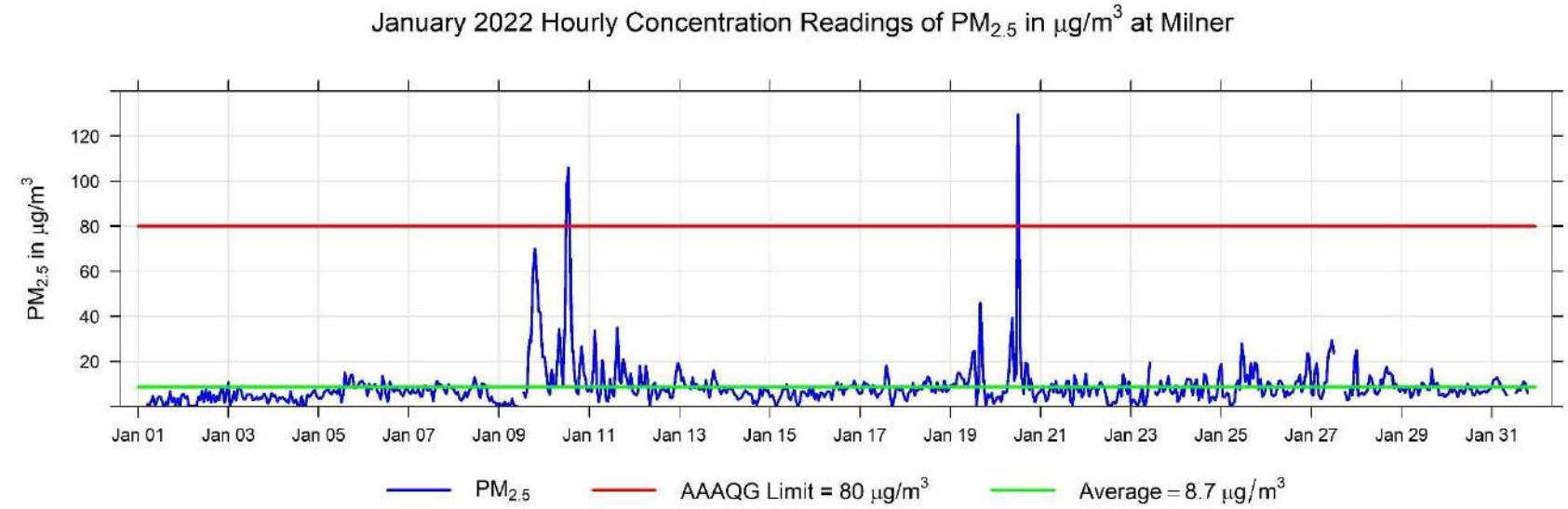
The following pages include the charts and histograms for Poplar Portable Station

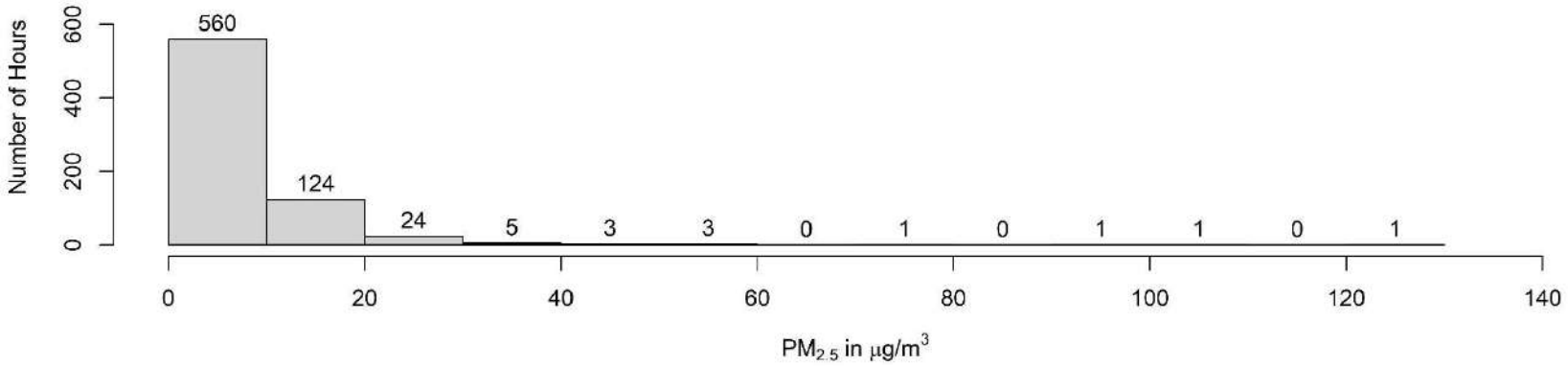

January 2022 Hourly Concentration Readings of NO (in ppb) at Milner
NO in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO
Average = 3.2 ppb

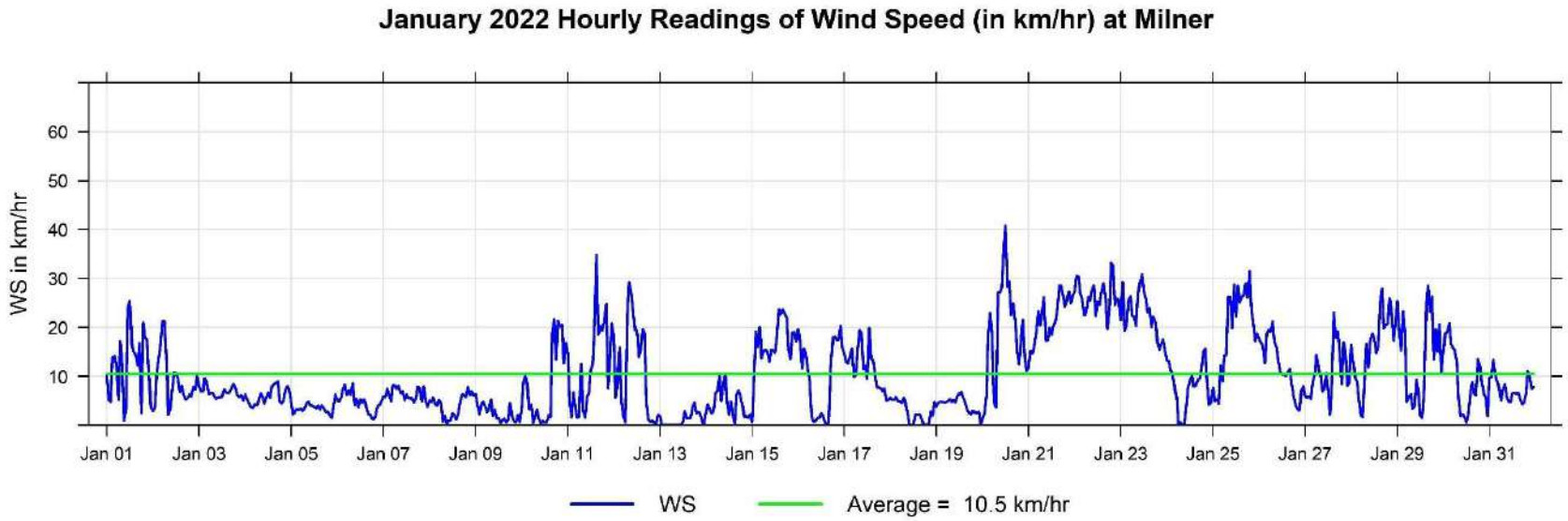

January 2022 Hourly Concentration Readings of NOx (in ppb) at Milner
NOx in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NOx
Average = 11.9 ppb

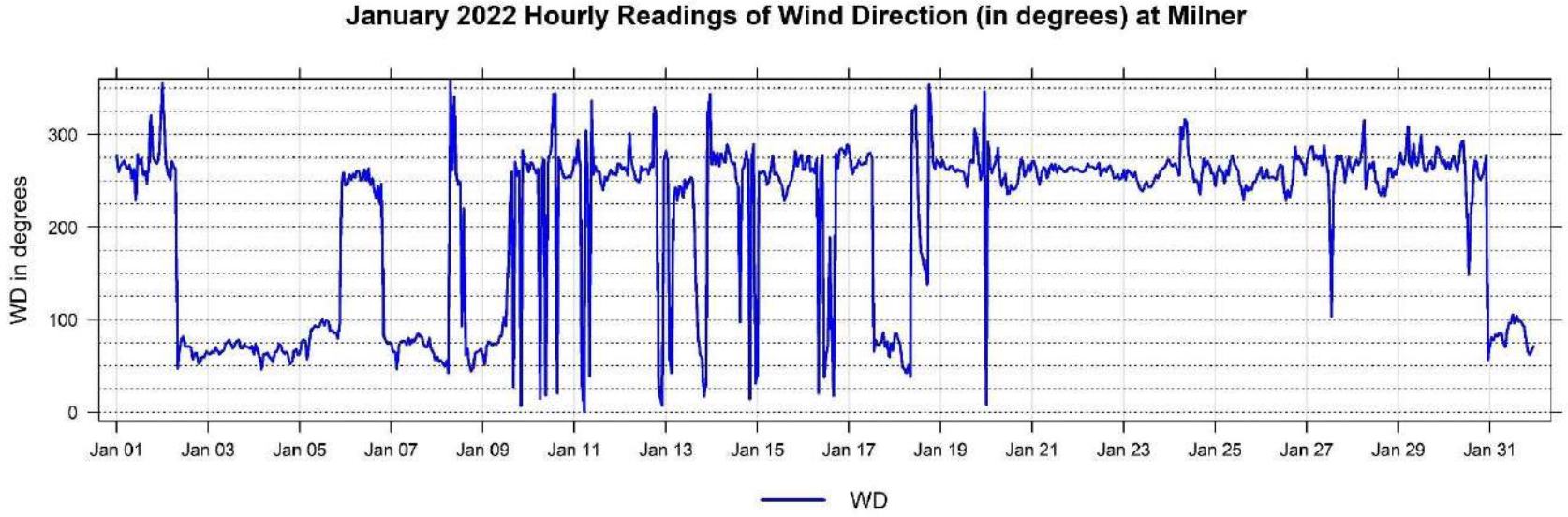

January 2022 Hourly Concentration Readings of NO2 (in ppb) at Milner
NO2 in ppb
250
200
150
100
50
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
NO2
AAAQO Limit = 159 ppb
Average = 8.7 ppb

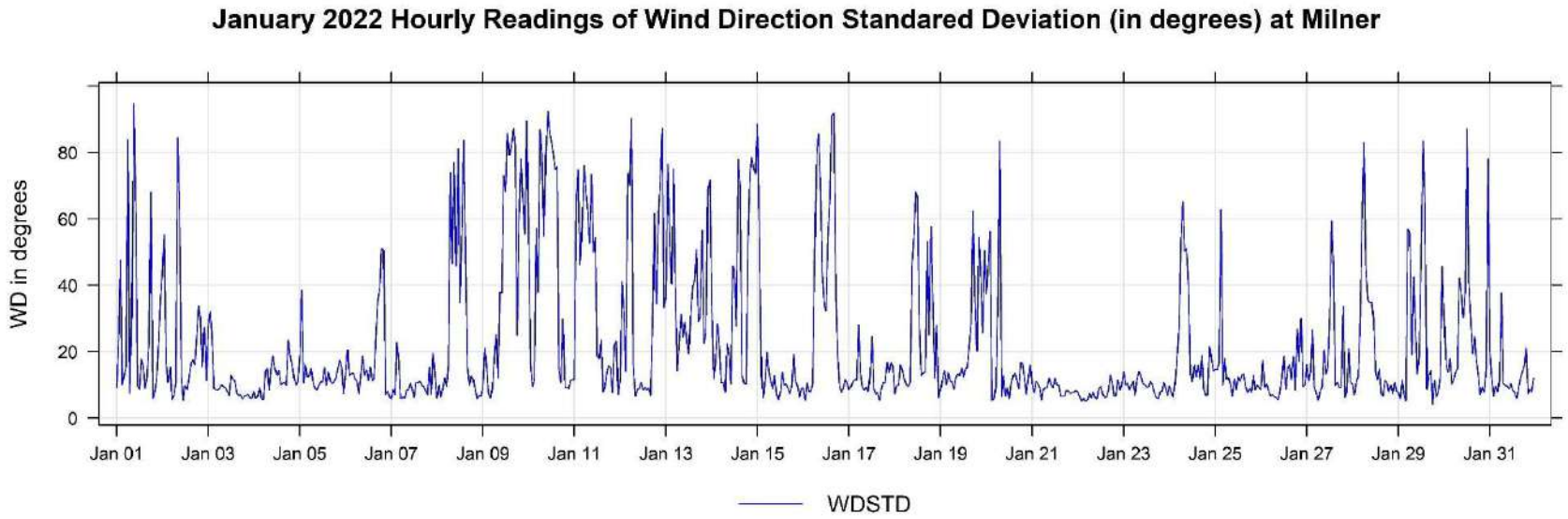

Number of Hours
0
200
400
600
481
162
47
8
4
1
2
1
0
20
40
60
80
100
NO2 in ppb

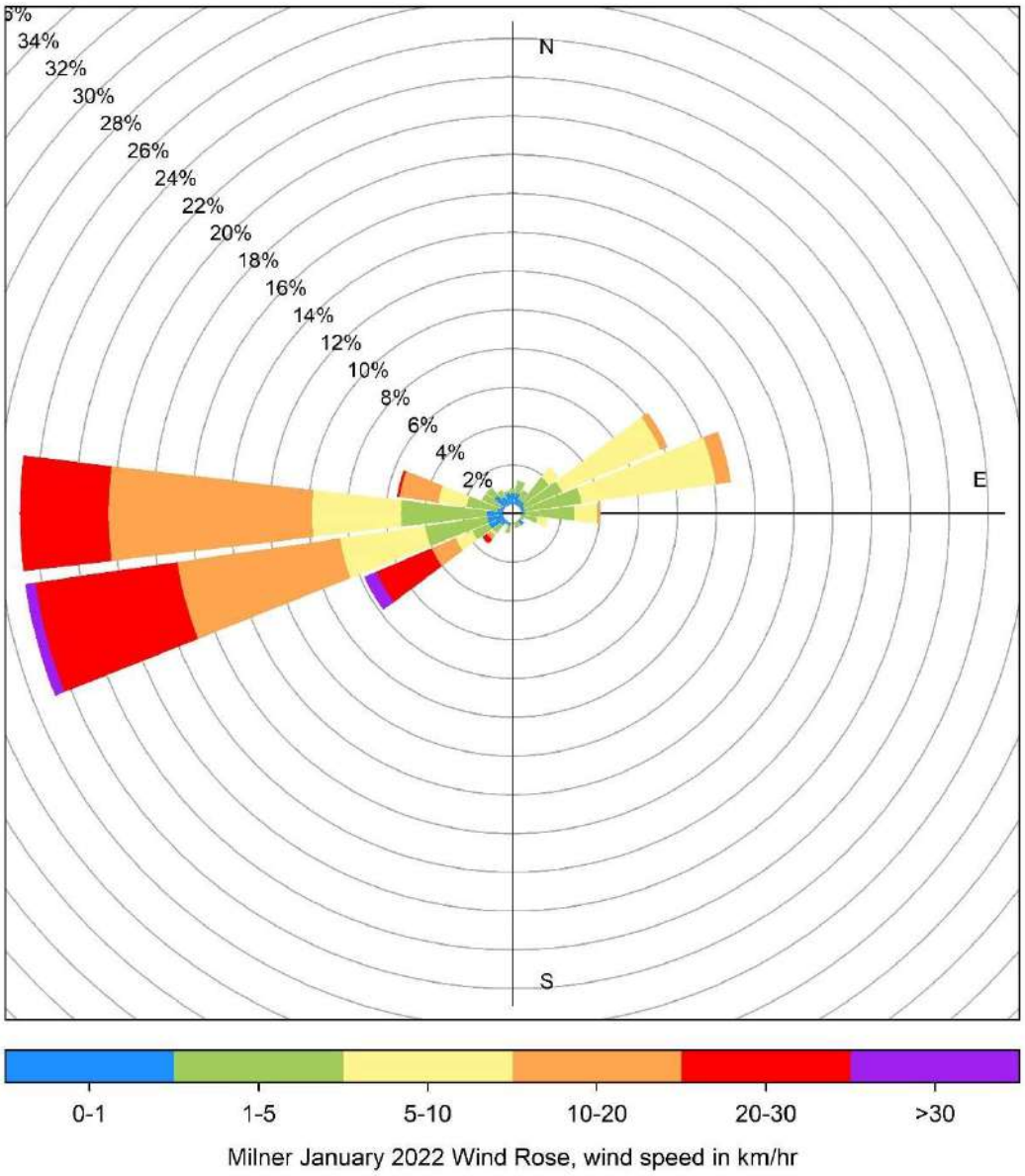

January 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Milner
PM2.5 in µg/m3
120
100
80
60
40
20
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 8.7 µg/m3


Number of Hours
0
200
400
600
560
124
24
5
3
3
0
1
0
1
1
0
1
0
20
40
60
80
100
120
140
PM2.5 in µg/m3

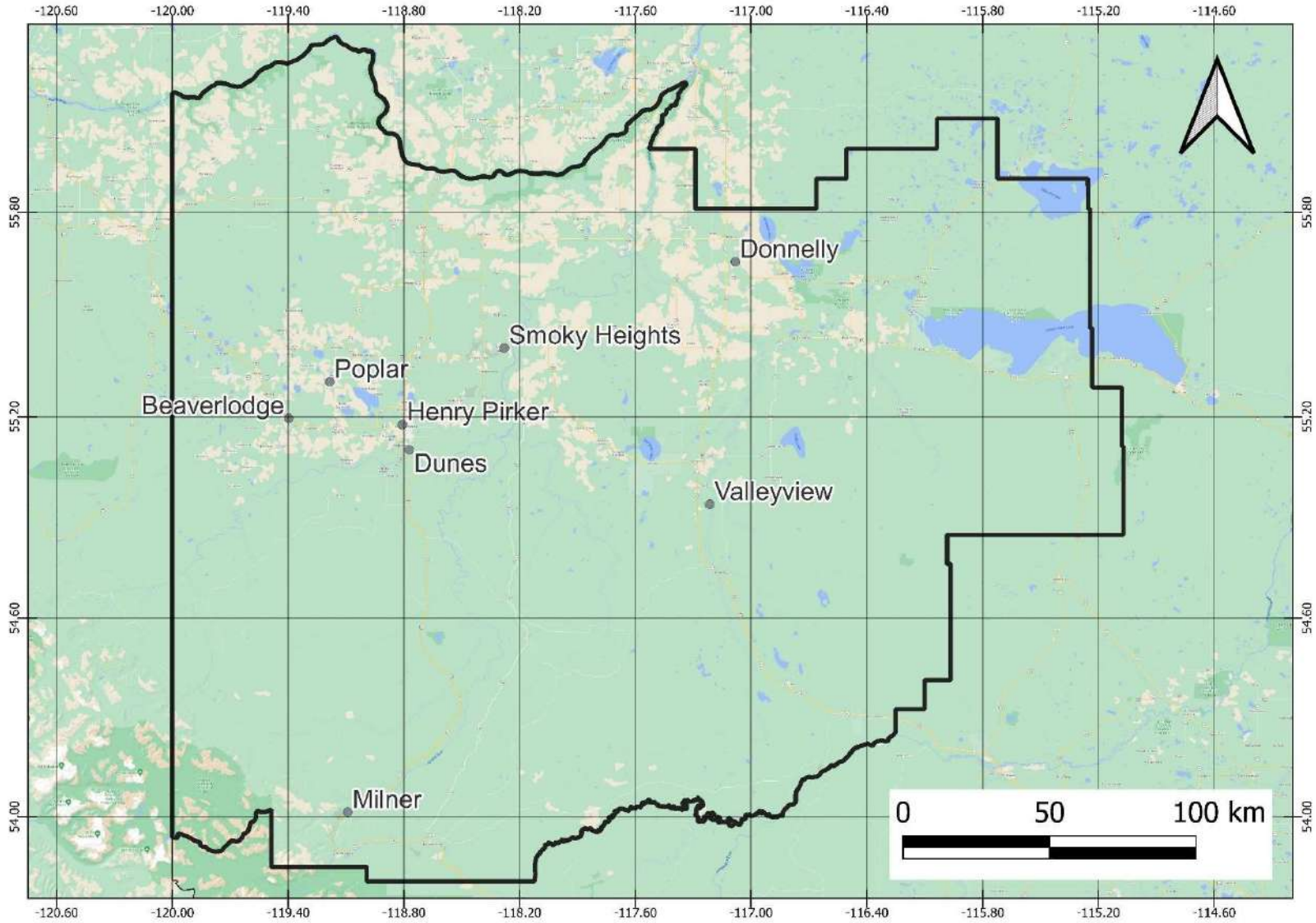

January 2022 Hourly Readings of Wind Speed (in km/hr) at Milner
WS in km/hr
60
50
40
30
20
10
Jan 01
Jan 03
Jan 05
Jan 07
Jan 09
Jan 11
Jan 13
Jan 15
Jan 17
Jan 19
Jan 21
Jan 23
Jan 25
Jan 27
Jan 29
Jan 31
WS
Average = 10.5 km/hr


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


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


34%
32%
30%
28%
26%
24%
22%
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
N
E
S
0-1
1-5
5-10
10-20
20-30
>30
Milner January 2022 Wind Rose, wind speed in km/hr

10 Concentration Summaries and Roses for PAZA



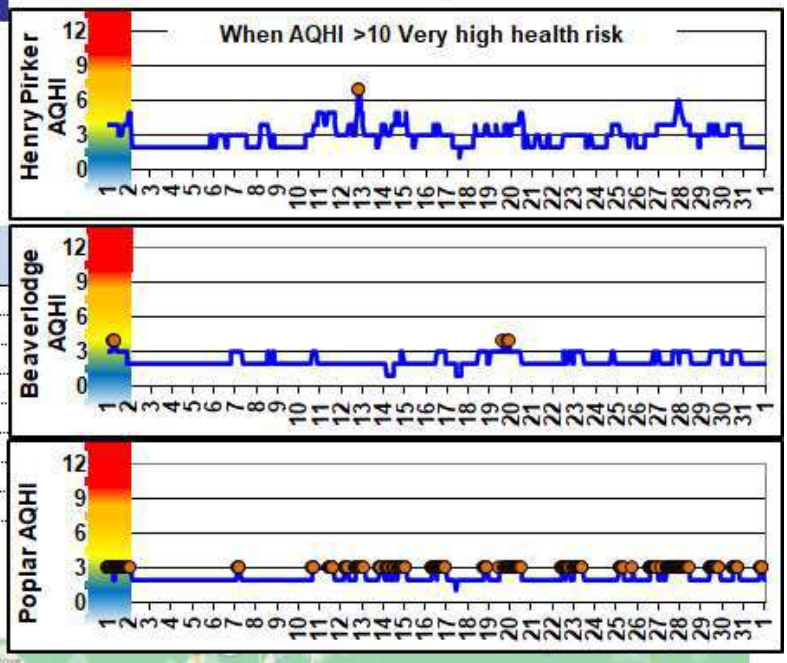
10.1 Air Quality Health Index (AQHI) Plots

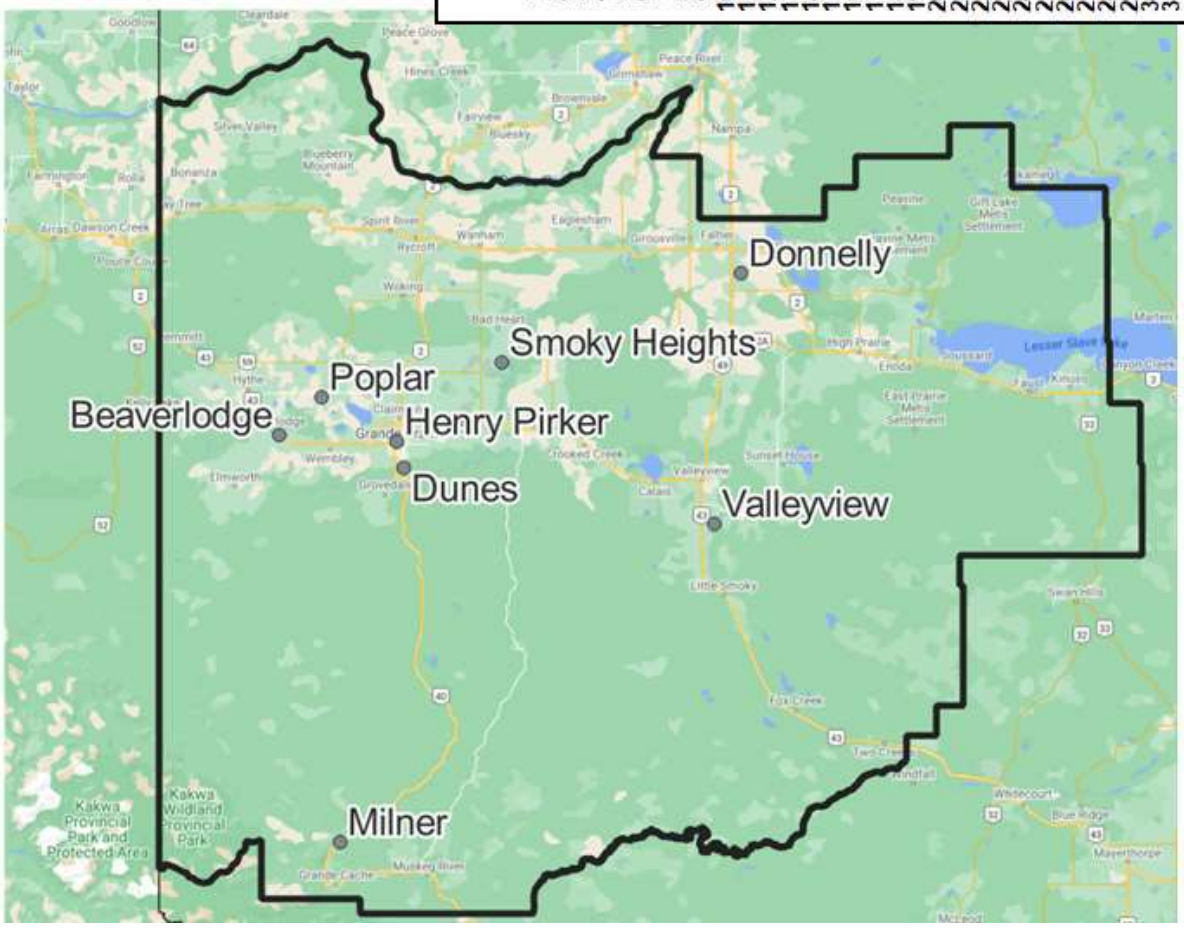
PAZA - January 2022 Continuous Station Summary

January 2022 AQHI Station Summary

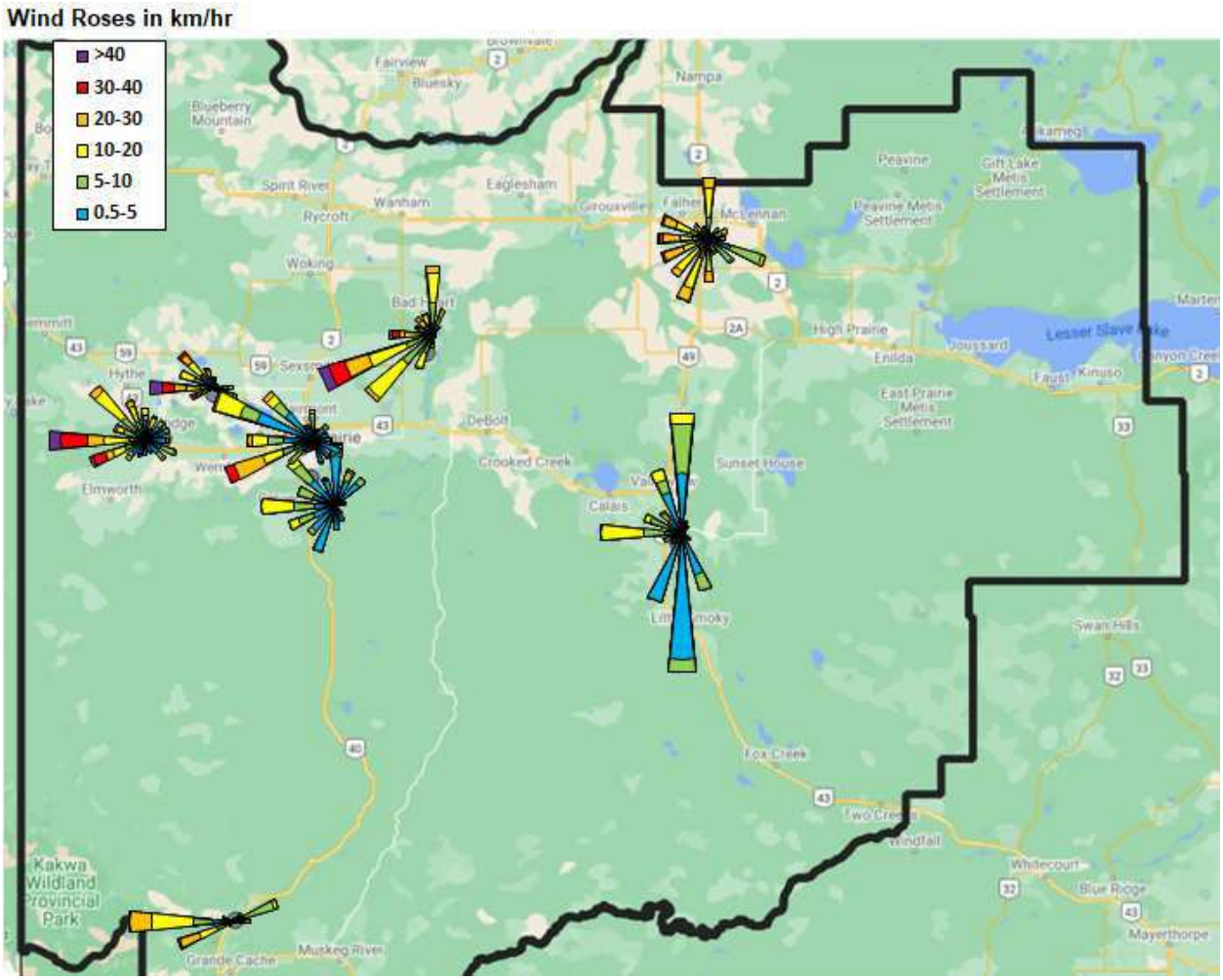
PAZA
Peace Airshed Zone Association

Station	Average AQHI	Max AQHI
Dunes	-	-
Henry Pirker AQHI	3.0	7
Smoky Heights	-	-
Beaverlodge AQHI	2.2	4
Valleyview	-	-
Donnelly	-	-
Poplar AQHI	2.3	3
Milner	-	-



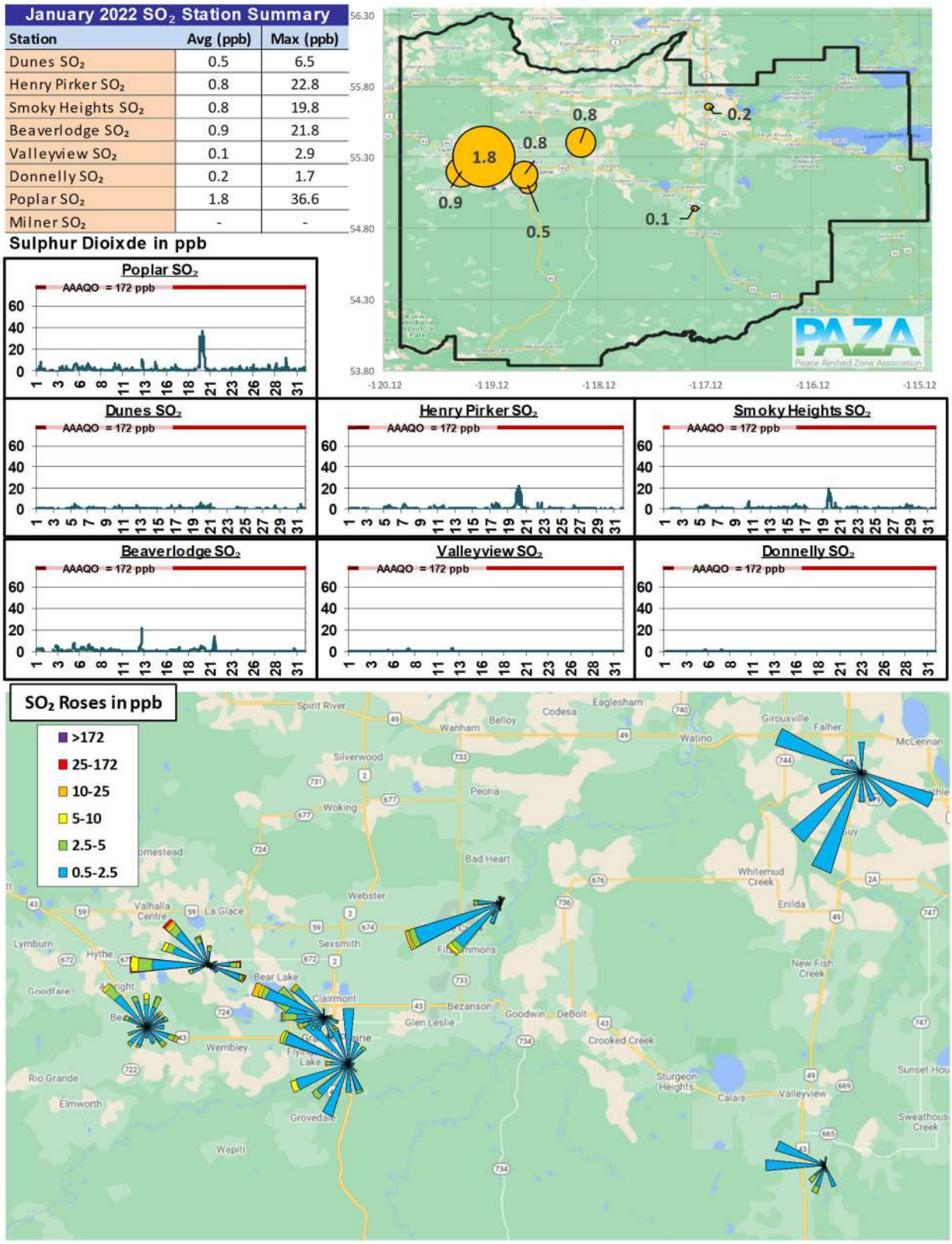


10.2 Wind Roses



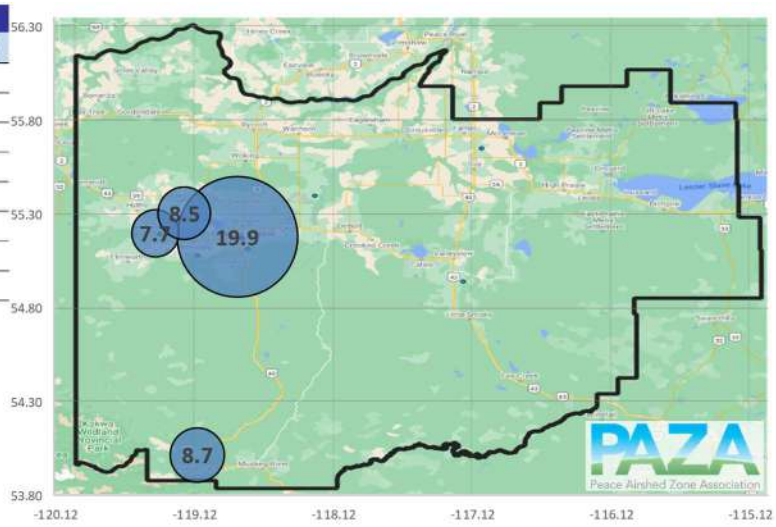
10.3 Sulphur Dioxide (SO_2) Plots

January 2022 SO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes SO_2	0.5	6.5
Henry Pirker SO_2	0.8	22.8
Smoky Heights SO_2	0.8	19.8
Beaverlodge SO_2	0.9	21.8
Valleyview SO_2	0.1	2.9
Donnelly SO_2	0.2	1.7
Poplar SO_2	1.8	36.6
Milner SO_2	-	-

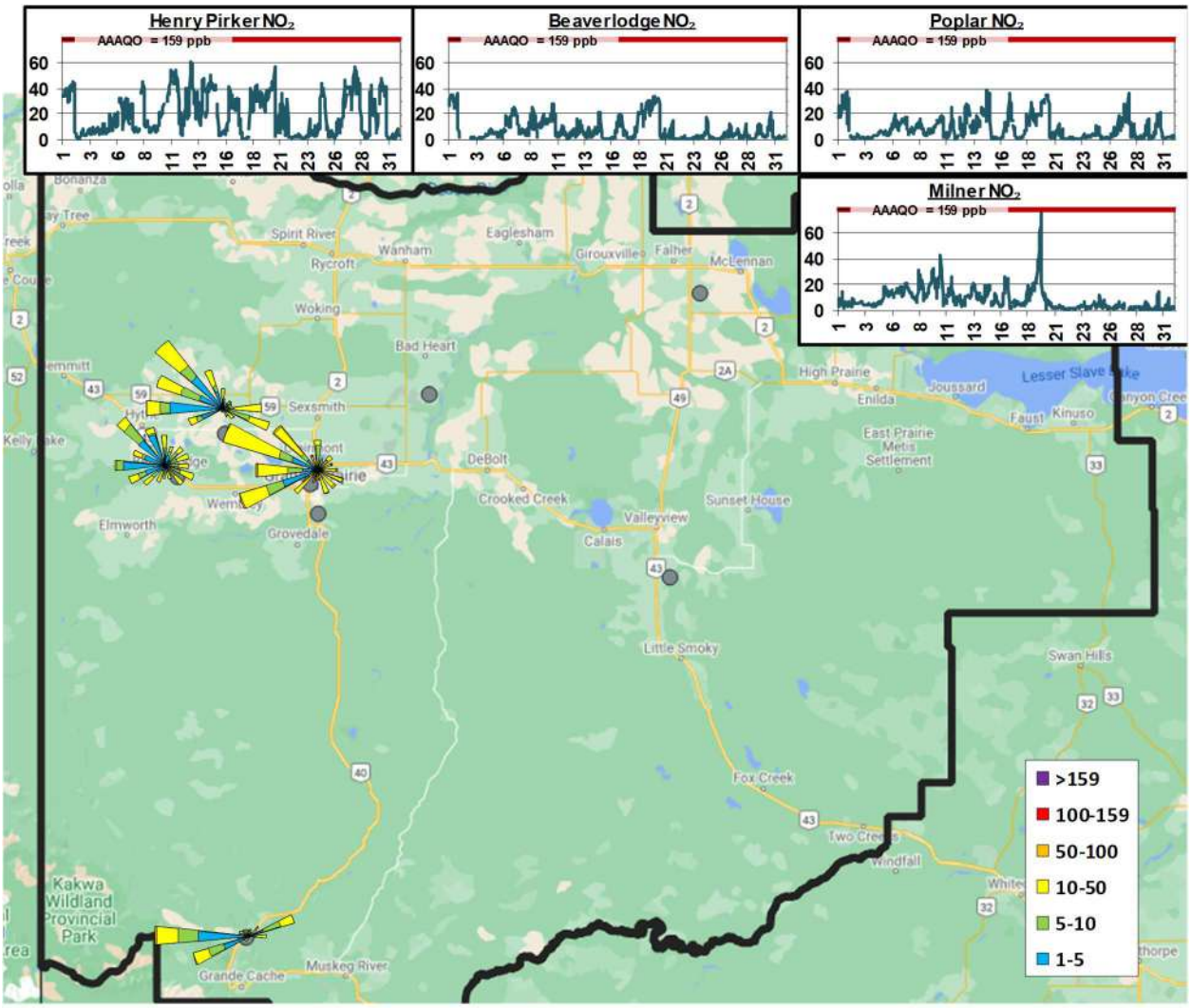


10.4 Nitrogen Dioxide (NO_2) Plots

January 2022 NO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes NO_2	-	-
Henry Pirker NO_2	19.9	61.1
Smoky Heights NO_2	-	-
Beaverlodge NO_2	7.7	36.5
Valleyview NO_2	-	-
Donnelly NO_2	-	-
Poplar NO_2	8.5	38.4
Milner NO_2	8.7	77.5

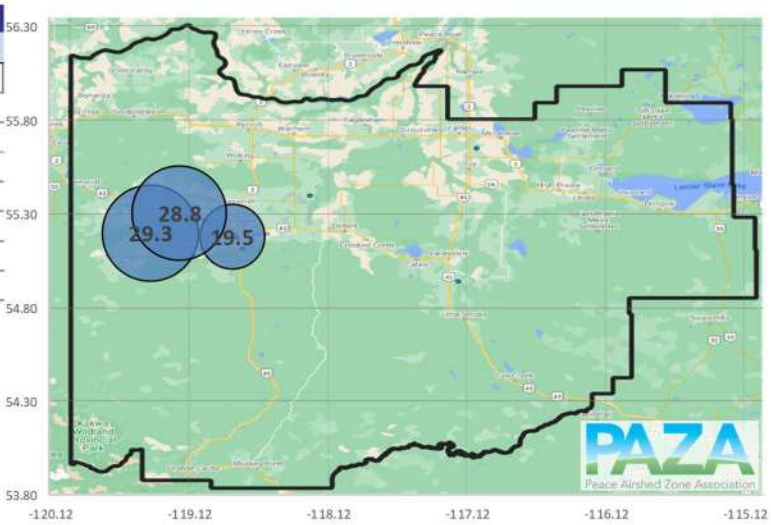


Nitrogen Dioixde in ppb

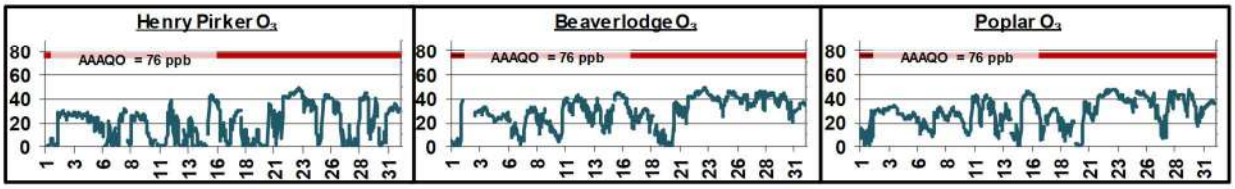


10.5 Ozone (O_3) Plots

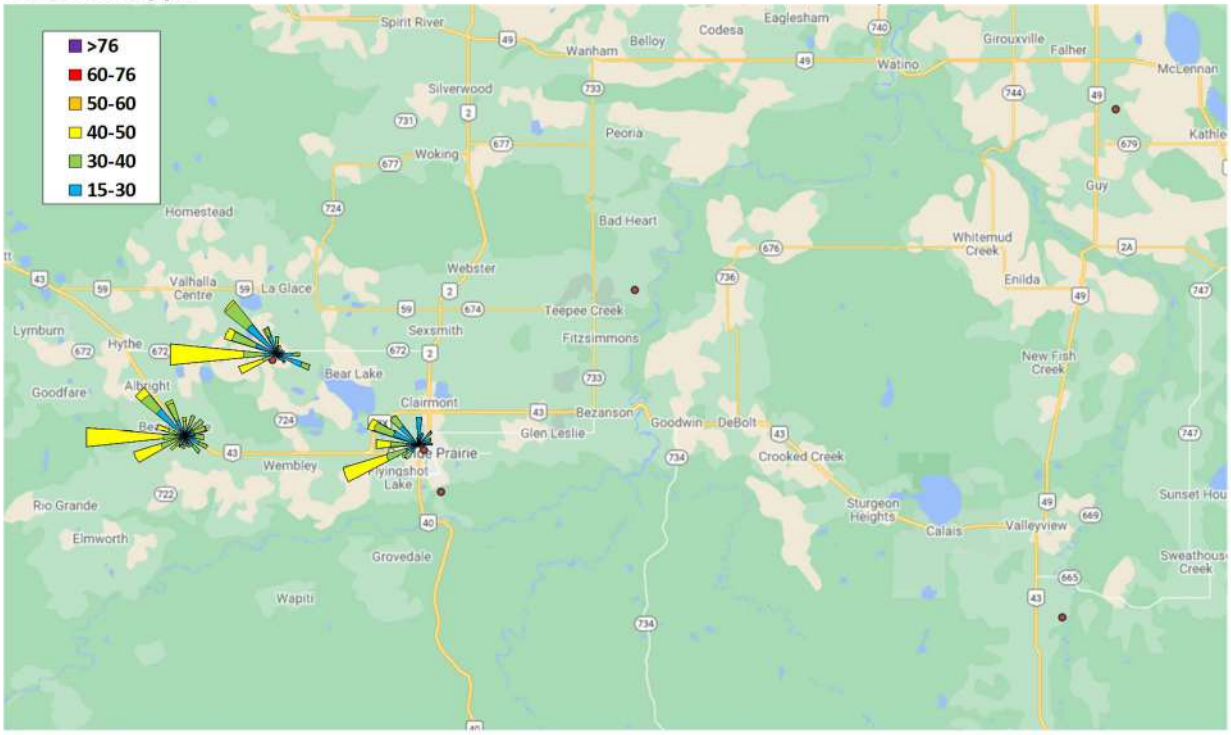
January 2022 O_3 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes O_3	-	-
Henry Pirker O_3	19.5	49.3
Smoky Heights O_3	-	-
Beaverlodge O_3	29.3	49.1
Valleyview O_3	-	-
Donnelly O_3	-	-
Poplar O_3	28.8	48.5
Milner O_3	-	-



Ozone in ppb

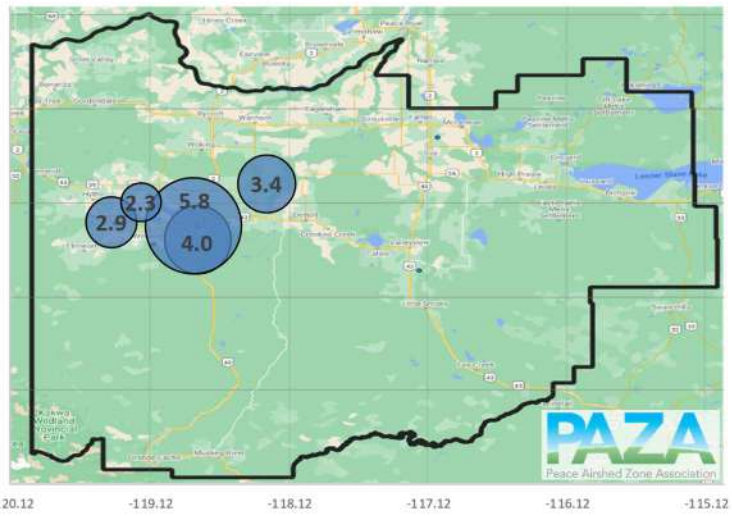


O_3 Roses in ppb

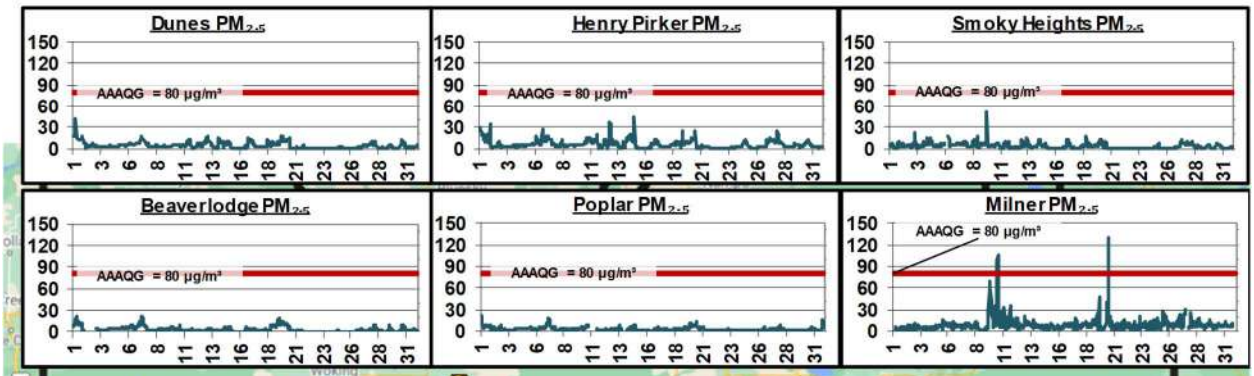


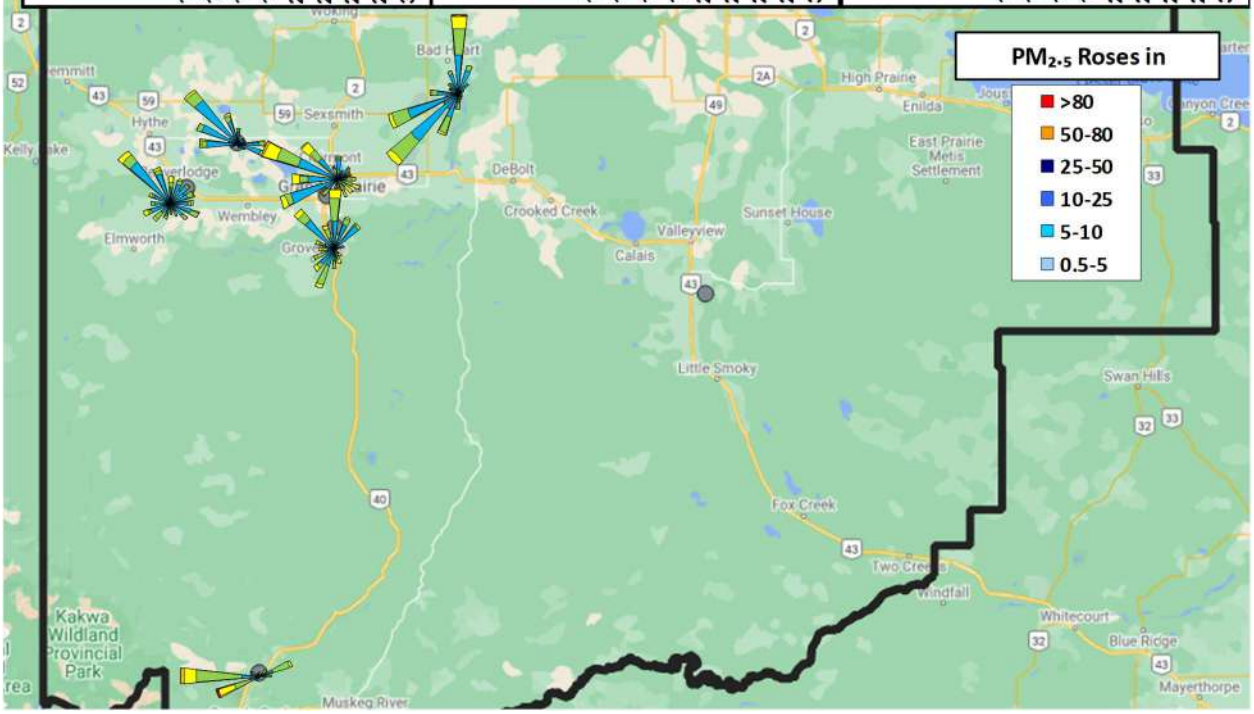
10.6 Fine Particulate Matter ($PM_{2.5}$) Plots

January 2022 $PM_{2.5}$ Station Summary		
Station	Avg µg/m³	Max µg/m³
Dunes $PM_{2.5}$	4.0	40.5
Henry Pirker $PM_{2.5}$	5.8	43.6
Smoky Heights $PM_{2.5}$	3.4	50.7
Beaverlodge $PM_{2.5}$	2.9	22.2
Valleyview $PM_{2.5}$	-	-
Donnelly $PM_{2.5}$	-	-
Poplar $PM_{2.5}$	2.3	23.0
Milner $PM_{2.5}$	8.7	129.5



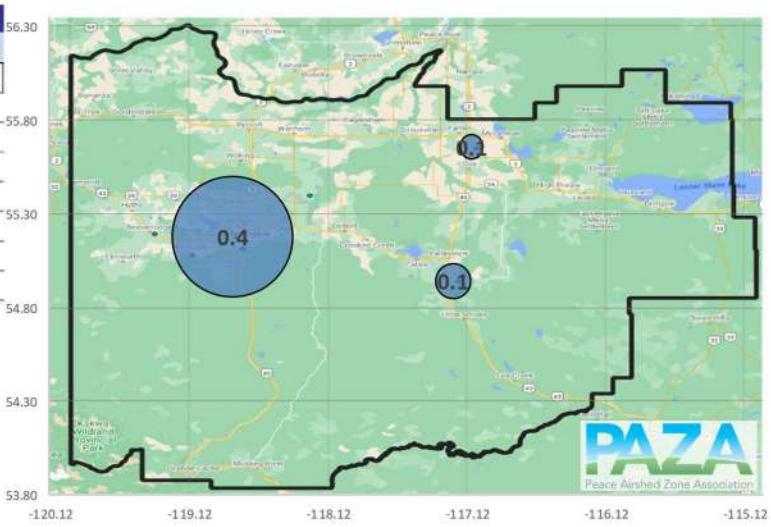
Fine Particulate Matter in µg/m³



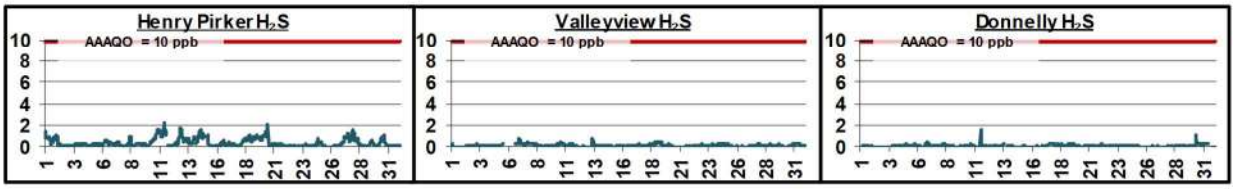


10.7 Hydrogen Sulphide (H_2S) Plots

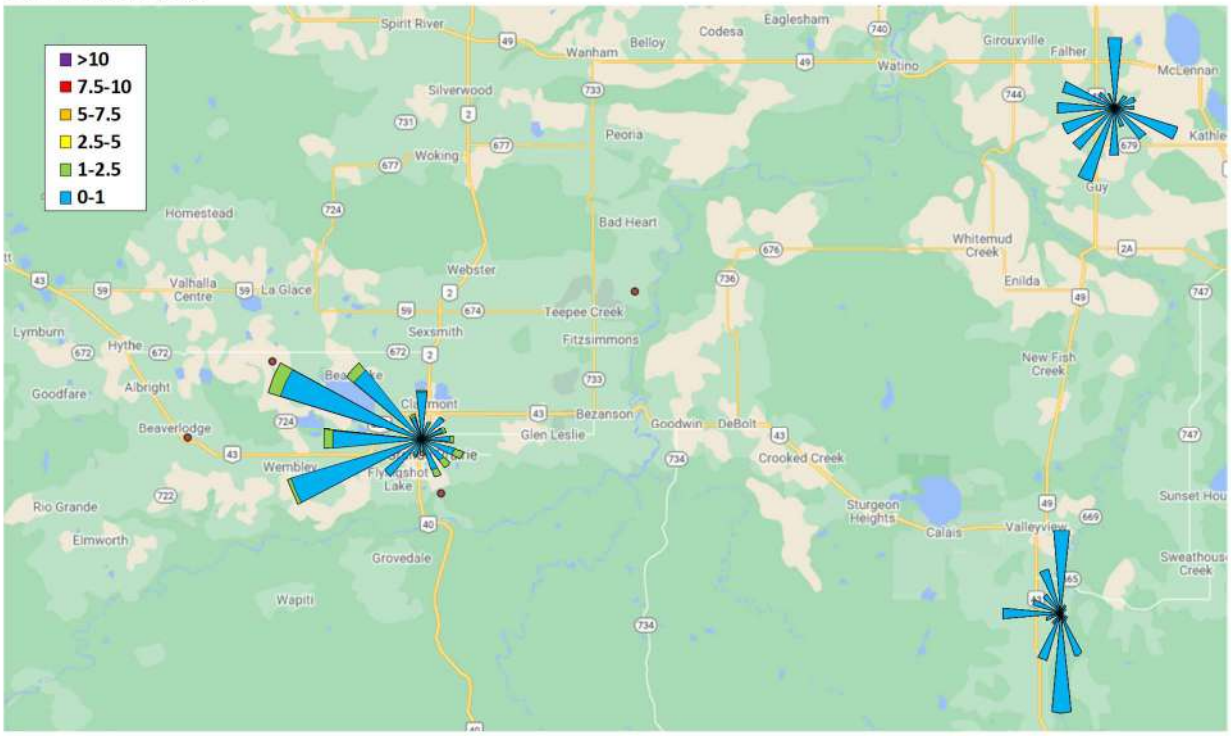
January 2022 H_2S Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes H_2S	-	-
Henry Pirker H_2S	0.4	2.3
Smoky Heights H_2S	-	-
Beaverlodge H_2S	-	-
Valleyview H_2S	0.1	0.8
Donnelly H_2S	0.1	1.5
Poplar H_2S	-	-
Milner H_2S	-	-



Hydrogen Sulphide in ppb

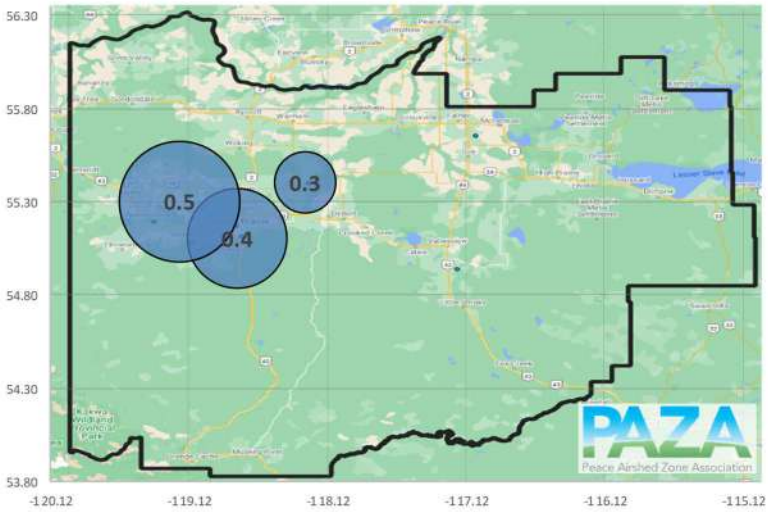


H_2S Roses in ppb

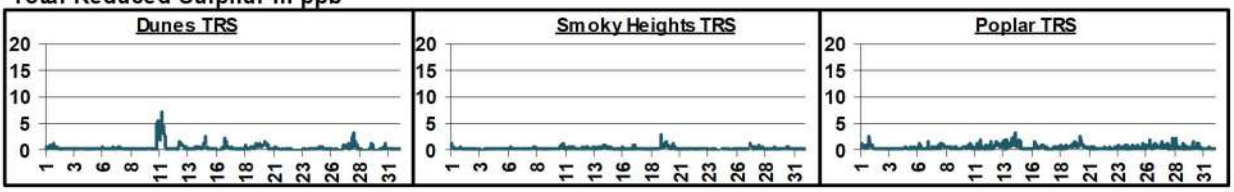


10.8 Total Reduced Sulphur (TRS) Plots

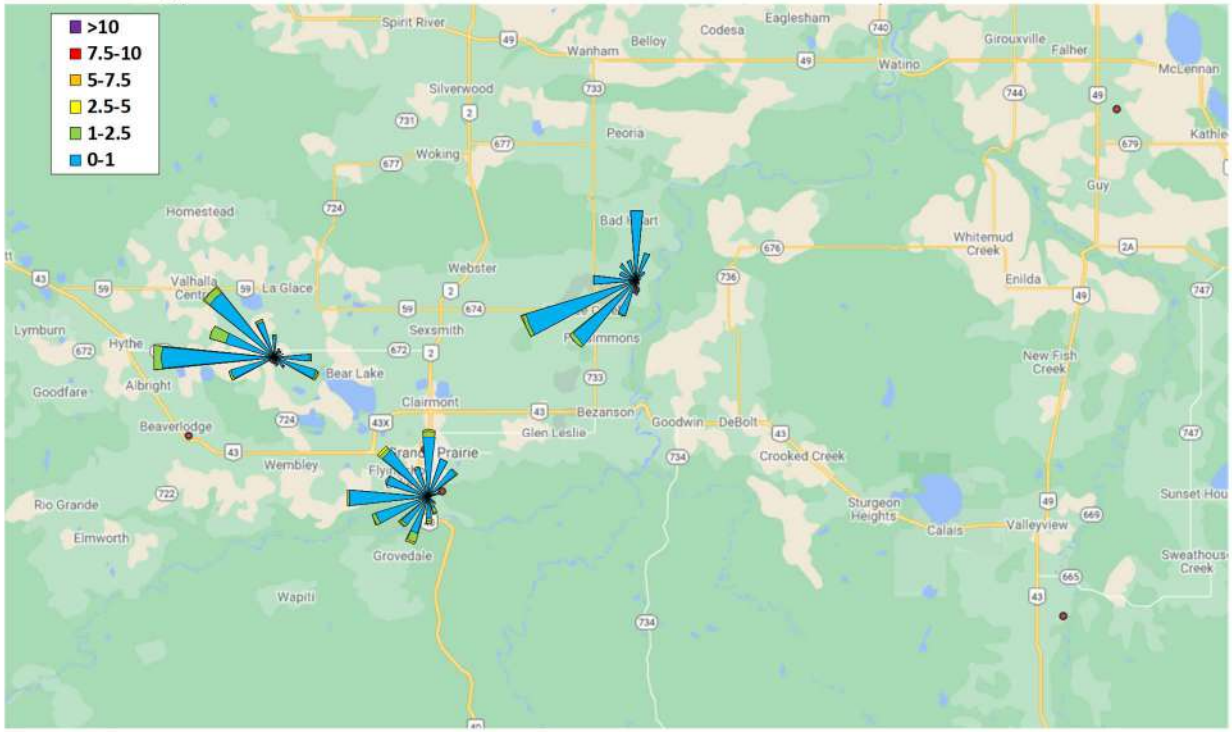
January 2022 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes TRS	0.4	7.2
Henry Pirker TRS	-	-
Smoky Heights TRS	0.3	2.9
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Poplar TRS	0.5	3.1
Milner TRS	-	-



Total Reduced Sulphur in ppb



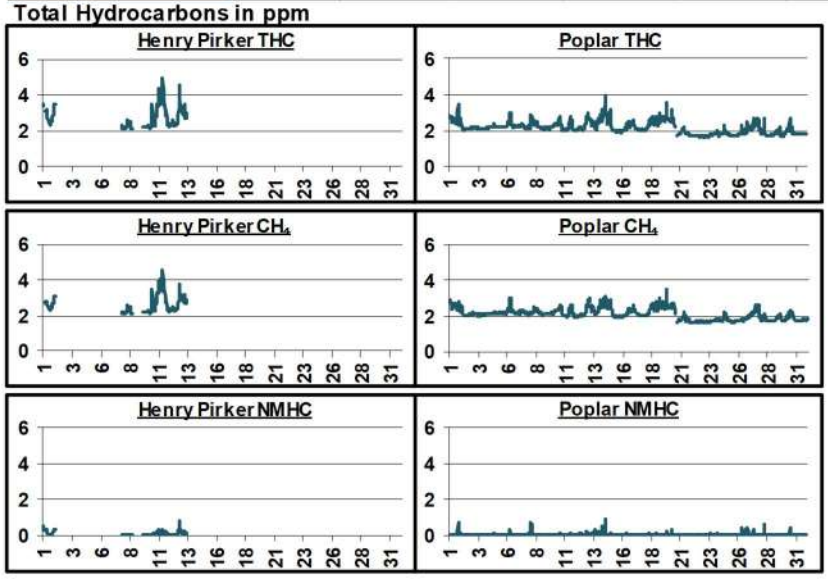
TRS Roses in ppb



10.9 Total Hydrocarbon (THC) Plots

January 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	-	4.9	-	4.6	-	0.8
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Poplar THC	2.2	3.9	2.1	3.5	0.0	0.9

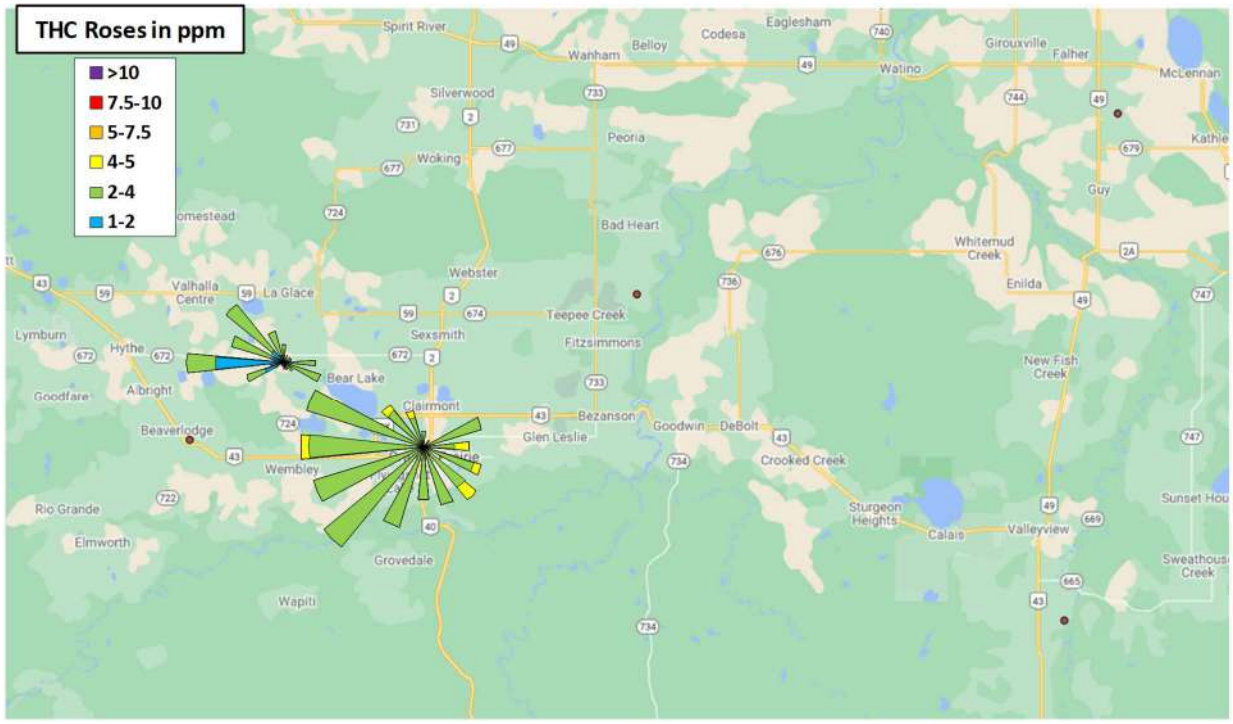
Total Hydrocarbons in ppm



Total Hydrocarbons (THC)

Methane (CH_4)

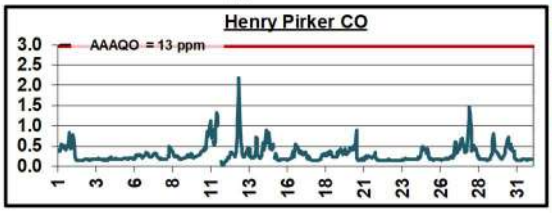
Non-Methane Hydrocarbons (NMHC)

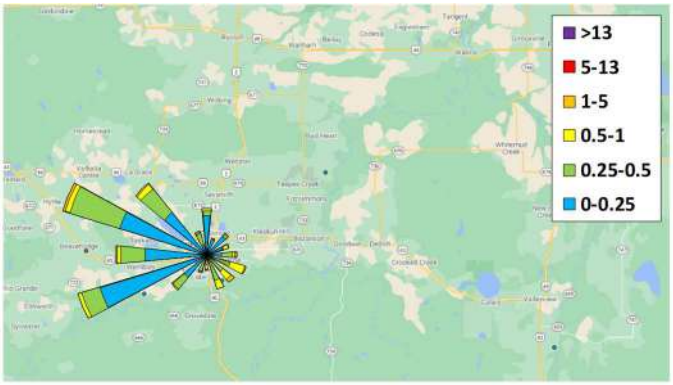


10.10 Carbon Monoxide (CO) Plots

January 2022 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.30	2.17

Carbon Monoxide in ppm

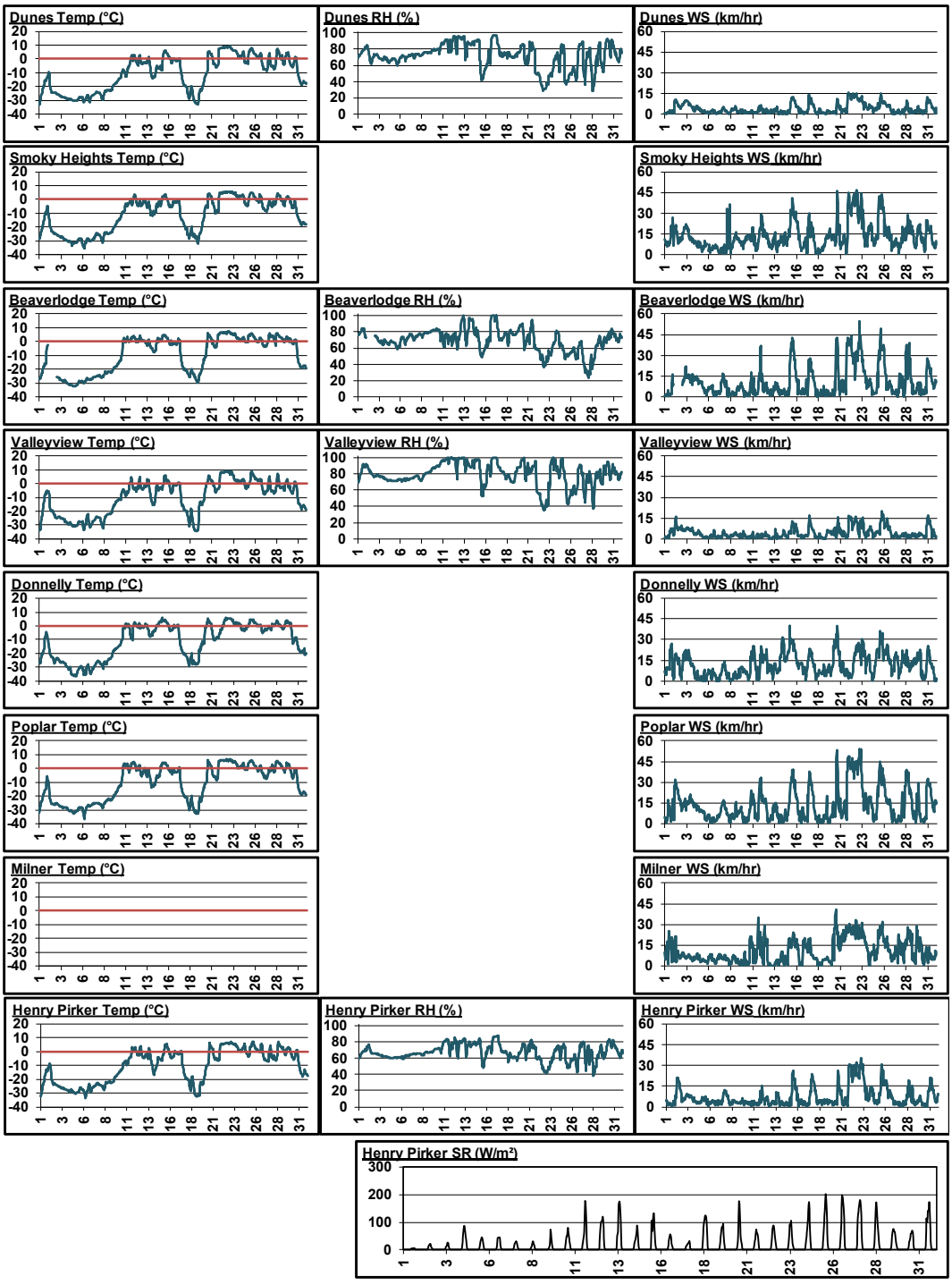




10.11 Meteorology Summary

January 2022 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Dunes	-10.6	71.4	-	3.9	292	WNW
Henry Pirker	-10.4	67.1	17.4	7.2	273	W
Smoky Heights	-11.2	-	-	13.6	263	W
Beaverlodge	-9.0	69.5	-	10.8	282	WNW
Valleyview	-10.2	79.6	-	4.4	283	WNW
Donnelly	-11.1	-	-	12.0	240	WSW
Poplar	-10.5	-	-	13.8	284	WNW
Milner	-	-	-	10.5	290	290.1

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 January 2022

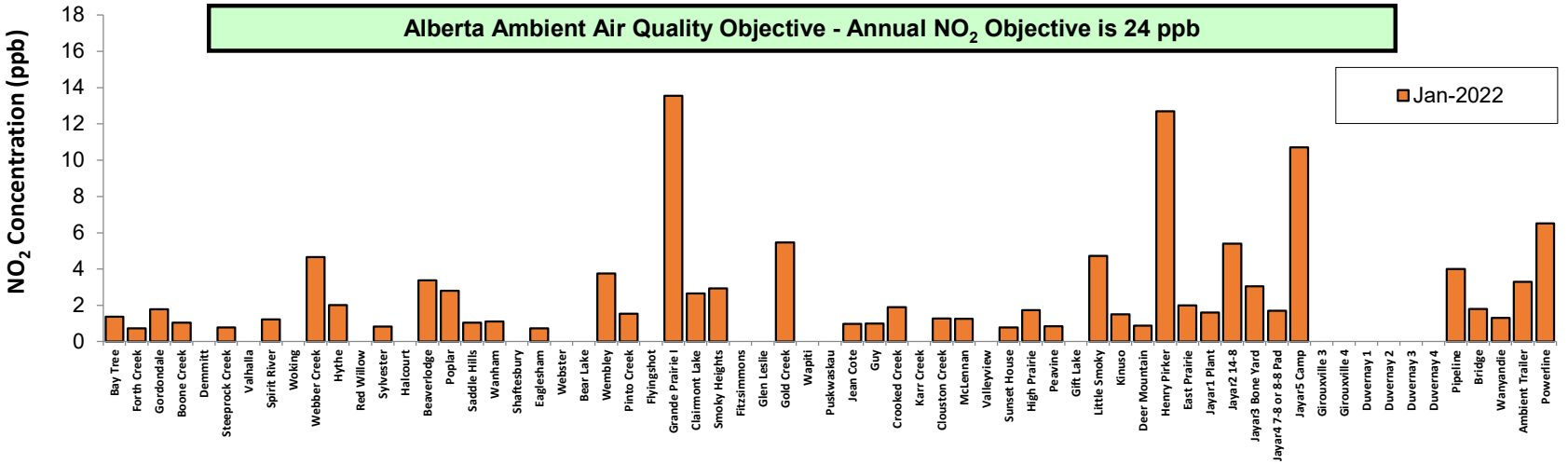
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
2a	Bay Tree			**1.4**		13-16-078-13 W6M
2b	Bay Tree			**1.4**		
7a	Steeprock Creek	**0.2**				09-35-072-13 W6M
7b	Steeprock Creek	**0.3**				
12a	Hythe			**2.1**		14-36-072-11 W6M
12b	Hythe			**2.0**		
21a	Eaglesham	**0.1**				16-21-079-25 W5M
21b	Eaglesham	**0.1**				
24a	Wembley	**0.8**				12-31-070-08 W6M
24b	Wembley	**0.8**				
36a	Guy				**0.2**	03-04-076-22 W5M
36b	Guy				**0.2**	
37a	Crooked Creek	**0.1**	**33.6**			16-01-071-26 W5M
37b	Crooked Creek	**0.1**	**34.7**			
40a	McLennan			**1.2**		03-29-077-19 W5M
40b	McLennan			**1.3**		
46a	Little Smoky			**4.7**		12-01-065-21 W5M
46b	Little Smoky			**4.7**		
D4a	Duvernay 4	**0.9**			**0.1**	04-33-062-20 W5M
D4b	Duvernay 4	**1.0**			**0.2**	
J1a	Jayar1 Plant	**0.6**				06-08-062-03 W6M
J1b	Jayar1 Plant	**0.5**				
J2a	Jayar2 14-8				**0.2**	07-08-062-03 W6M
J2b	Jayar2 14-8				**0.2**	
J3a	Jayar3 Bone Yard			**2.9**		14-08-062-03 W6M
J3b	Jayar3 Bone Yard			**3.2**		
M3a	Wanyandie	**0.2**				11-13-058-08 W6M
M3b	Wanyandie	**0.2**				
M4a	Ambient Trailer			**3.3**		09-15-058-08 W6M
M4b	Ambient Trailer			**3.3**		

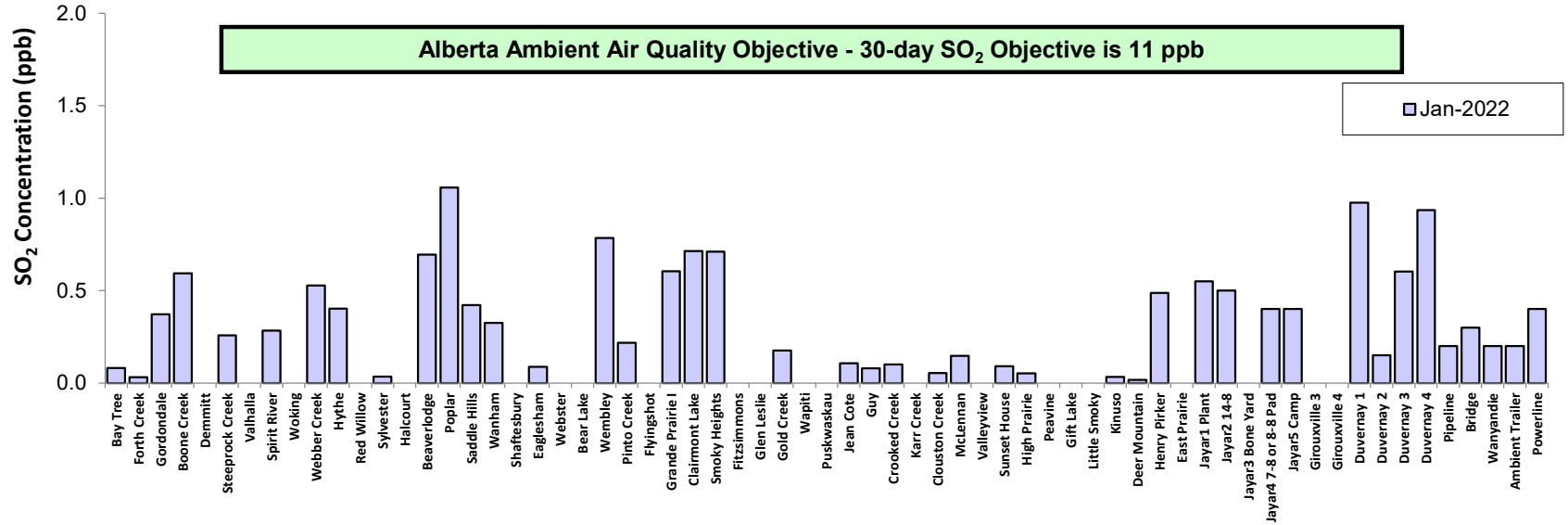
Peace Airshed Zone Association - PAZA Passive Stations for January 2022

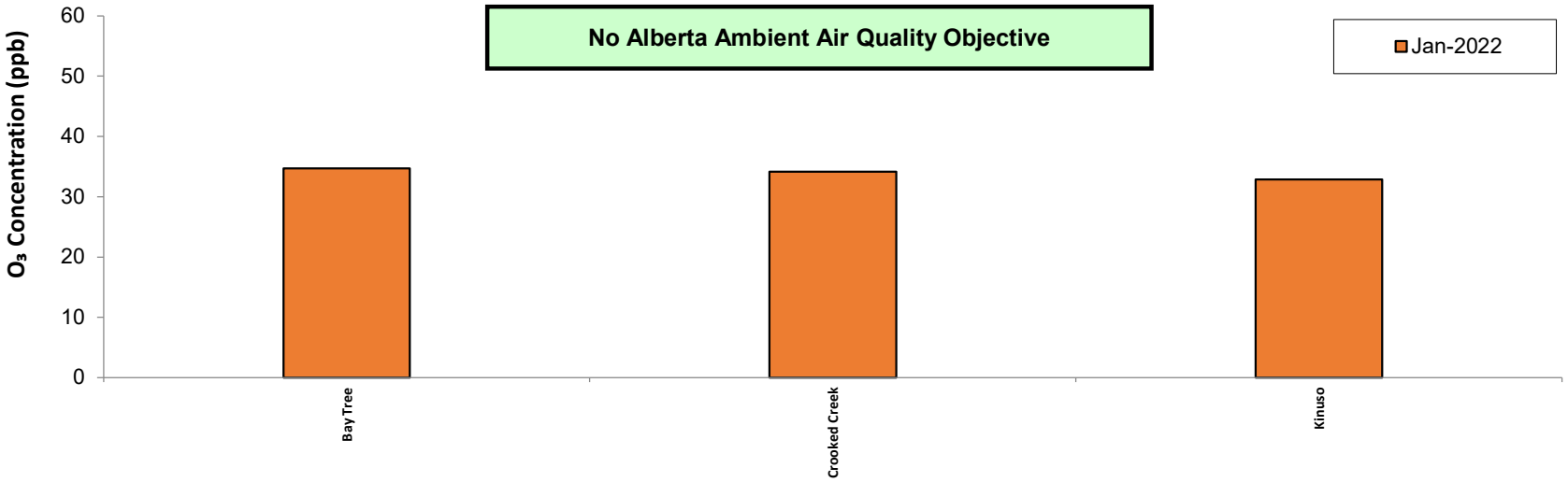
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.1	34.7	1.4	-	13-16-078-13 W6M
3	Forth Creek	0.0	-	0.7	-	04-13-082-07 W6M
5	Boone Creek	0.6	-	1.0	-	01-23-076-11 W6M
7	Steeprock Creek	0.3	-	0.8	-	09-35-072-13 W6M
9	Spirit River	0.3	-	1.2	-	08-12-079-07 W6M
11	Webber Creek	0.5	-	4.7	-	09-36-074-09 W6M
12	Hythe	0.4	-	2.0	-	14-36-072-11 W6M
14	Sylvester	0.0	-	0.8	-	08-06-069-12 W6M
16	Beaverlodge	0.7	-	3.4	-	15-36-071-10 W6M
17	Poplar	1.1	-	2.8	-	13-06-073-08 W6M
18	Saddle Hills	0.4	-	1.0	-	04-25-074-07 W6M
19	Wanham	0.3	-	1.1	-	16-22-077-03 W6M
21	Eaglesham	0.1	-	0.7	-	16-21-079-25 W5M
24	Wembley	0.8	-	3.8	-	12-31-070-08 W6M
25	Pinto Creek	0.2	-	1.5	-	04-24-069-11 W6M
27	Grande Prairie I	0.6	-	13.5	-	08-15-071-06 W6M
29	Smoky Heights	0.7	-	2.9	-	04-06-075-02 W6M
32	Gold Creek	0.2	-	5.5	-	06-33-067-05 W6M
35	Jean Cote	0.1	-	1.0	-	12-35-079-21 W5M
36	Guy	0.1	-	1.0	0.2	03-04-076-22 W5M
37	Crooked Creek	0.1	34.1	1.9	-	16-01-071-26 W5M
39	Clouston Creek	0.1	-	1.3	-	12-01-073-22 W5M
40	McLennan	0.1	-	1.2	-	03-29-077-19 W5M
42	Sunset House	0.1	-	0.8	-	05-32-070-19 W5M
44	Peavine	0.0	-	0.8	-	03-05-079-15 W5M
46	Little Smoky	0.0	-	4.7	-	12-01-065-21 W5M
47	Kinuso	0.0	32.8	1.5	-	12-10-073-10 W5M
48	Deer Mountain	0.0	-	0.9	-	15-22-068-09 W5M
49	Henry Pirker	0.5	-	12.7	-	17-26-071-06 W6M
50	East Prairie	0.0	-	2.0	-	11-13-079-08 W6M
57	Jayar1 Plant	0.6	-	1.6	0.2	06-08-062-03 W6M
58	Jayar2 14-8	0.5	-	5.4	0.2	07-08-062-03 W6M
59	Jayar3 Bone Yard	-	-	3.1	0.1	14-08-062-03 W6M
60	Jayar4 7-8 or 8-8 Pad	0.4	-	1.7	0.2	10-08-062-03 W6M
61	Jayar5 Camp	0.4	-	10.7	0.3	11-08-062-03 W6M
G3	Girouxville 3	-	-	-	0.7	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	0.5	04-08-077-22 W5M
D1	Duvernay 1	1.0	-	-	0.2	04-33-062-20 W5M
D2	Duvernay 2	0.2	-	-	0.2	04-33-062-20 W5M
D3	Duvernay 3	0.6	-	-	0.2	04-33-062-20 W5M
D4	Duvernay 4	0.9	-	-	0.1	04-33-062-20 W5M
M1	Pipeline	0.2	-	4.0	-	12-14-058-08 W6M
M2	Bridge	0.3	-	1.8	-	08-06-057-08 W6M
M3	Wanyandie	0.2	-	1.3	-	11-13-058-08 W6M
M4	Ambient Trailer	0.2	-	3.3	-	09-15-058-08 W6M
M5	Powerline	0.4	-	6.5	-	06-14-058-08 W6M

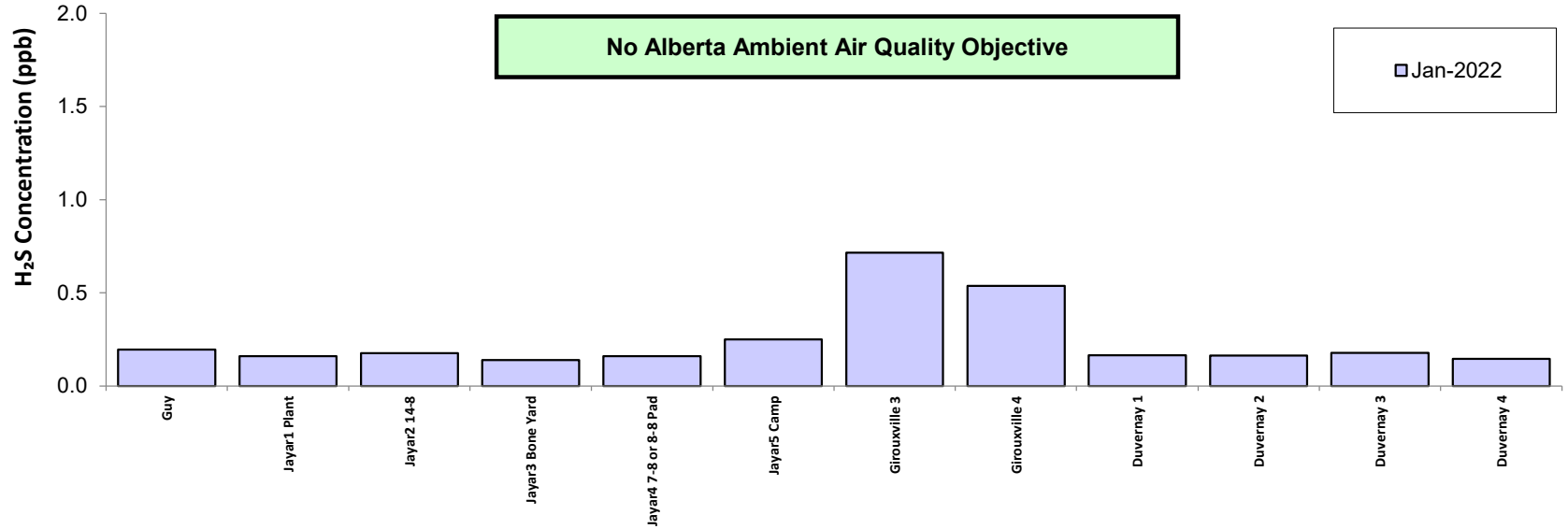
Passive Summary for January 2022

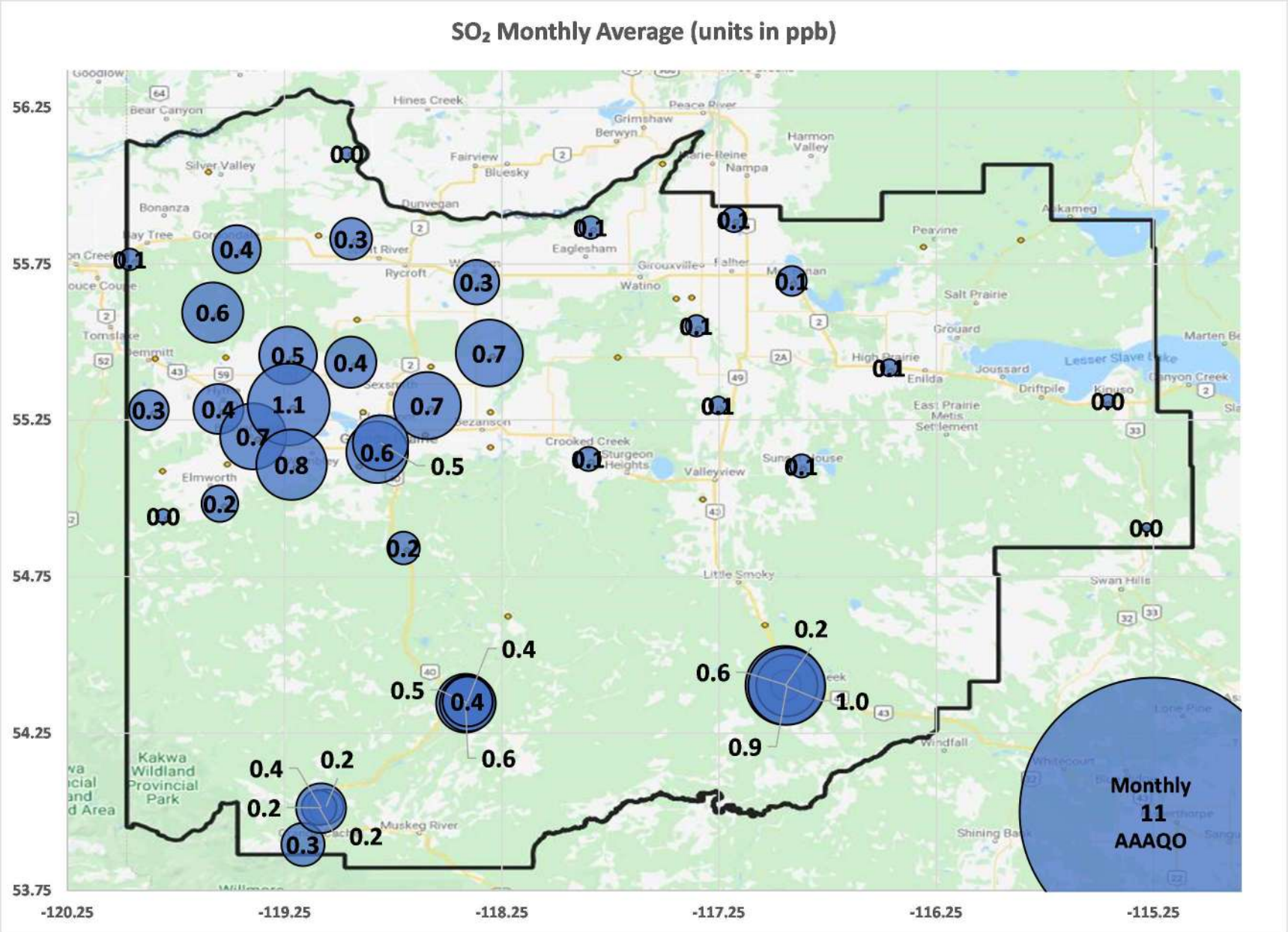
Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2	Hydrogen Sulphide H_2S
	ppb	ppb	ppb	ppb
	Passive Summary for August 2021 (PAZA)			
Mean	0.3	33.9	2.9	0.2
Standard Deviation	0.3	1.0	3.0	0.2
Minimum	0.0 Peavine (#44)	32.8 Kinuso (#47)	0.7 Forth Creek (#3)	0.1 Jayar3 Bone Yard (#59)
Maximum	1.1 Poplar (#17)	34.7 Bay Tree (#2)	13.5 Grande Prairie I (#27)	0.7 Girouxville 3 (#G3)
	Continuous and Passive Monitoring Comparision			
PAZA Beaverlodge Station	**0.9**	**29.3**	**7.7**	**-**
Beaverlodge Passive (#16)	**0.7**	**-**	**3.4**	**-**
PAZA Henry Pirker Station	**0.8**	**19.5**	**19.9**	**0.4**
Henry Pirker passive (#49)	**0.5**	**-**	**12.7**	**-**
Milner Station	**-**	**-**	**8.7**	**-**
Henry Pirker passive (#49)	**0.2**	**-**	**3.3**	**-**

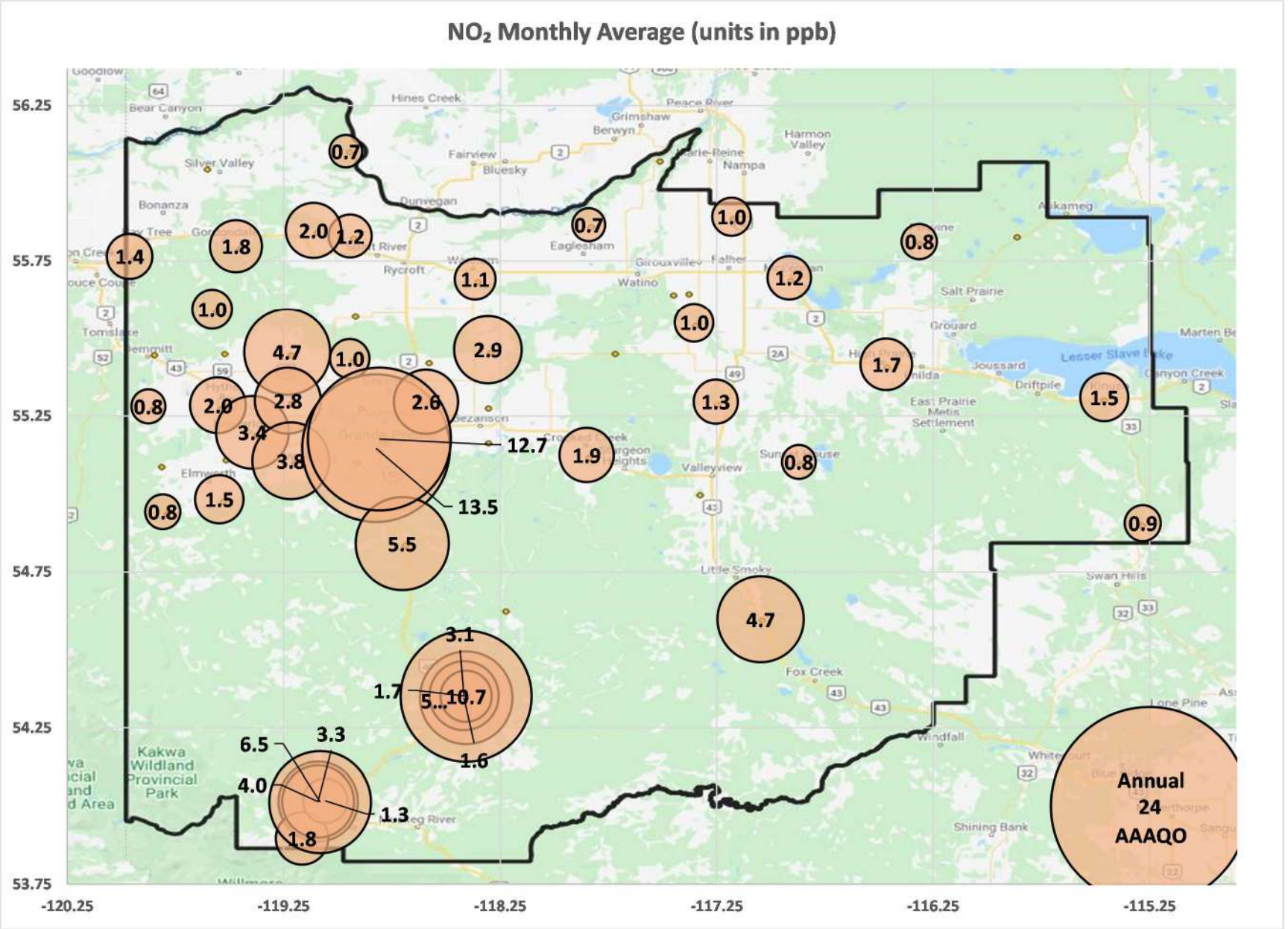

Alberta Ambient Air Quality Objective - Annual NO2 Objective is 24 ppb
NO2 Concentration (ppb)
Jan-2022
0
2
4
6
8
10
12
14
16
18
Bay Tree
Forth Creek
Gordondale
Boone Creek
Demmitt
Steeprock Creek
Valhalla
Spirit River
Woking
Webber Creek
Hythe
Red Willow
Sylvester
Halcourt
Beaverlodge
Poplar
Saddle Hills
Wanham
Shaftesbury
Eaglesham
Webster
Bear Lake
Wembley
Pinto Creek
Flyingshot
Grande Prairie I
Clairmont Lake
Smoky Heights
Fitzsimmons
Glen Leslie
Gold Creek
Wapiti
Puskwaskau
Jean Cote
Guy
Crooked Creek
Karr Creek
Clouston Creek
McLennan
Valleyview
Sunset House
High Prairie
Peavine
Gift Lake
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

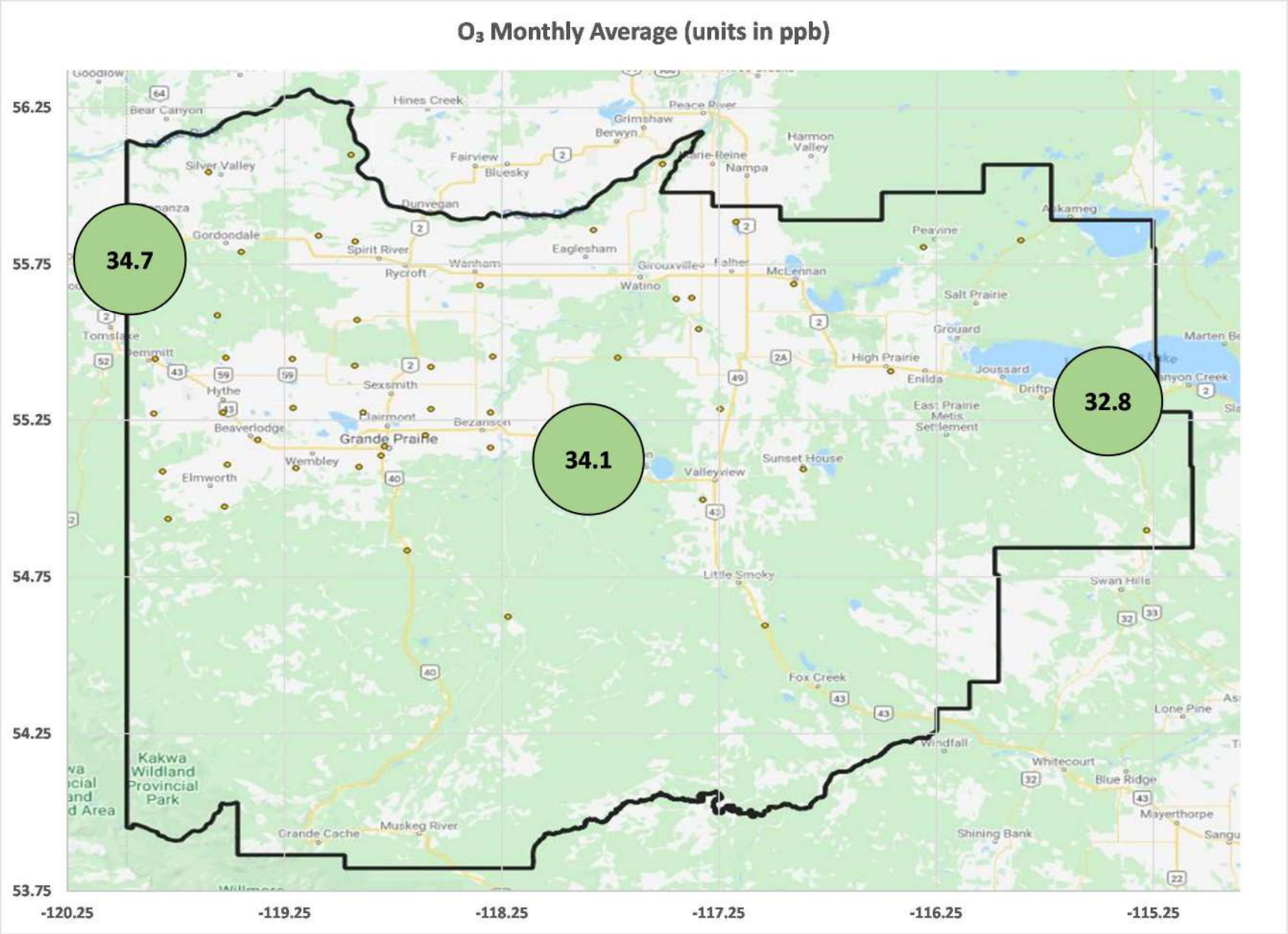

Alberta Ambient Air Quality Objective - 30-day SO2 Objective is 11 ppb
SO2 Concentration (ppb)
Jan-2022
0.0
0.5
1.0
1.5
2.0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Demmitt
Steeprock Creek
Valhalla
Spirit River
Woking
Webber Creek
Hythe
Red Willow
Sylvester
Halcourt
Beaverlodge
Poplar
Saddle Hills
Wanham
Shaftesbury
Eaglesham
Webster
Bear Lake
Wembley
Pinto Creek
Flyingshot
Grande Prairie I
Clairmont Lake
Smoky Heights
Fitzsimmons
Glen Leslie
Gold Creek
Wapiti
Puskwaskau
Jean Cote
Guy
Crooked Creek
Karr Creek
Clouston Creek
McLennan
Valleyview
Sunset House
High Prairie
Peavine
Gift Lake
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

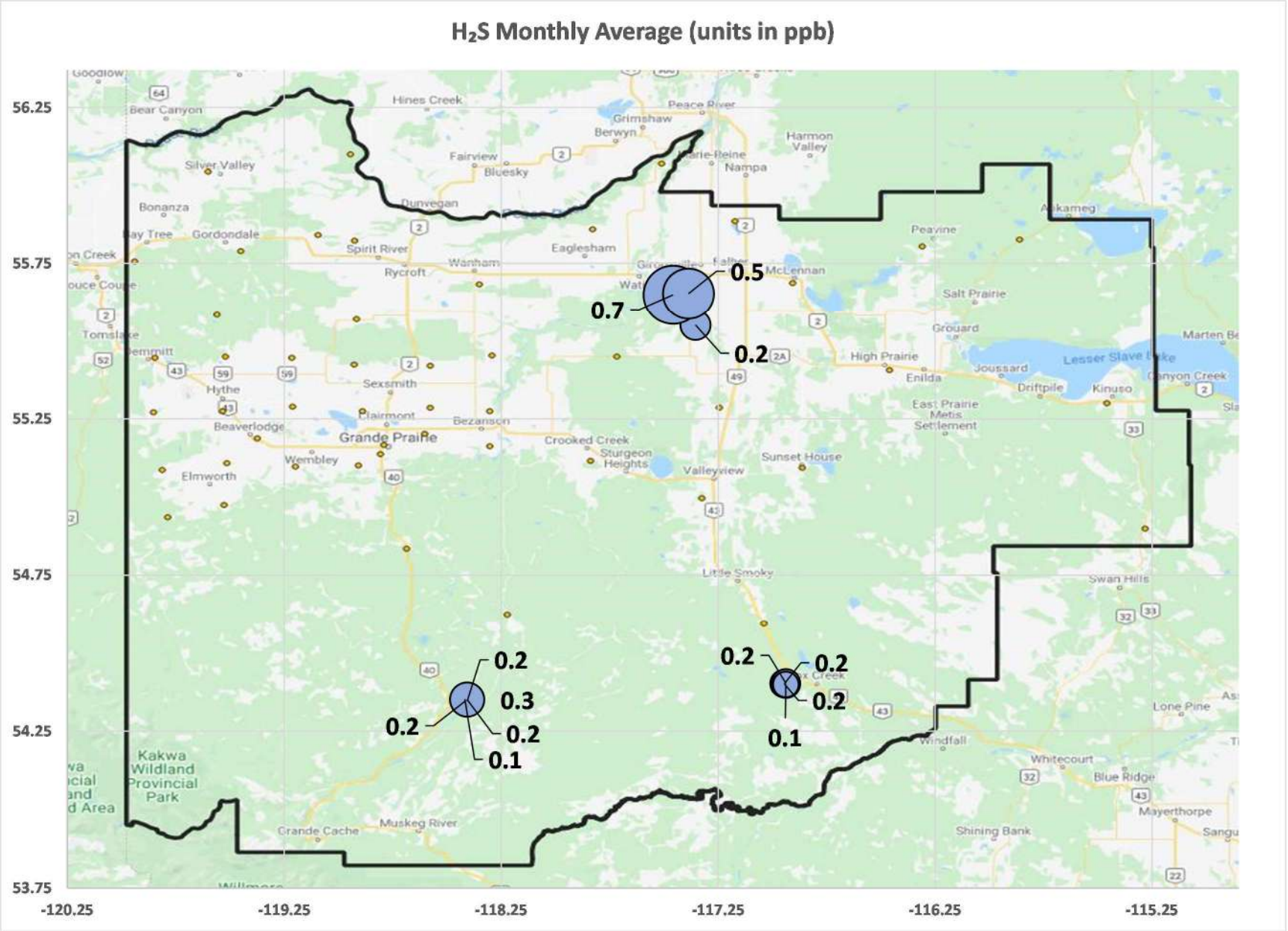

No Alberta Ambient Air Quality Objective
Jan-2022
O3 Concentration (ppb)
60
50
40
30
20
10
0
BayTree
Crooked Creek
Kinuso


No Alberta Ambient Air Quality Objective
Jan-2022
H2S Concentration (ppb)
2.0
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


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
0.7
1.4
1.8
2.0
1.2
0.7
1.0
0.8
1.1
1.2
1.0
1.0
4.7
1.0
2.9
1.7
0.8
2.0
2.8
2.6
1.3
1.5
3.4
12.7
1.9
0.8
3.8
1.5
13.5
0.8
5.5
0.9
4.7
3.1
1.7
10.7
6.5
3.3
4.0
1.3
1.8
1.6
Annual
24
AAAQO
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Silver Valley
Fairview
Bluesky
Nampa
Bonanza
Dunvegan
Eaglesham
Rycroft
Girouxville
Watino
Salt Prairie
Grouard
Joussard
Lesser Slave Lake
Driftpile
East Prairie Metis Settlement
Valleyview
Little Smoky
Swan Hills
Fox Creek
Windfall
Shining Bank
Kakwa Wildland Provincial Park

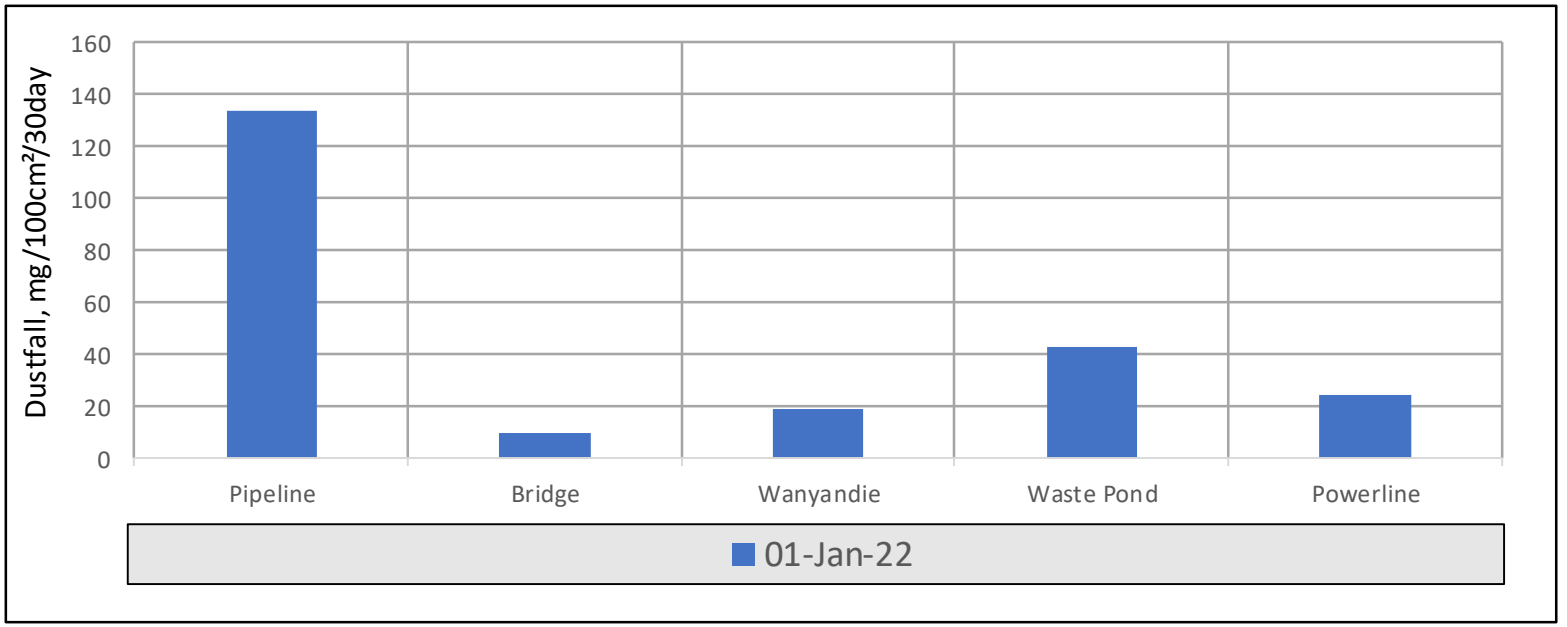

O3 Monthly Average (units in ppb)
34.7
34.1
32.8
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Dunvegan
Gordondale
Spirit River
Eaglesham
Rycroft
Wanham
Watino
McLennan
Pearvine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Wembley
Elmworth
Sunset House
Valleyview
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
0.5
0.7
0.2
0.2
0.3
0.2
0.1
0.2
0.2
0.2
0.1
Grande Prairie
Hythe
Beaverlodge
Wembley
Elmworth
Sexsmith
Fairview
Bluesky
Hines Creek
Bear Canyon
Silver Valley
Bonanza
Gordondale
Spirit River
Dunvegan
Rycroft
Wanham
Eaglesham
Grimshaw
Berwyn
Peace River
Nampa
Harmon Valley
McLennan
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Driftpile
Kinuso
East Prairie Metis Settlement
Lesser Slave Lake
Sunset House
Valleyview
Crooked Creek
Sturgeon Heights
Bezanson
Clairmont
Tomslake
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 January 2022

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm²/30day	Fixed Dustfall (30 day) mg/100cm²/30day	Exposure days	Field Notes
January	2022	Pipeline	133.6	52.8	33	
January	2022	Bridge	9.4	0.7	33	
January	2022	Wanyandie	18.7	5.3	33	
January	2022	Waste Pond	42.7	4.0	33	
January	2022	Powerline	24.0	6.0	33	
January	2022	Powerline Dup	25.4	7.3	33	RPD= 6% / 20%



13 End of Report

End of Report

Peace Airshed Zone Association

Ambient Air Monitoring Report

January 2022