Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

October 2022

November 30, 2022

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

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

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of October 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 October 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
405635	Beaverlodge	2022-10-15	02:00	03:00	82.9	9.8	67
405848	Beaverlodge	2022-10-19	11:00	12:00	80.8	21.1	264
405848	Beaverlodge	2022-10-19	16:00	17:00	121.5	37.4	230
405636	Dunes	2022-10-15	02:00	03:00	92.6	6.4	52
405846	Dunes	2022-10-19	13:00	14:00	125.2	8.4	282
405846	Dunes	2022-10-19	14:00	15:00	90.0	10.6	255
405637	Henry Pirker	2022-10-15	01:00	02:00	131.2	4.4	41
405637	Henry Pirker	2022-10-15	02:00	03:00	103.5	5.0	53
405847	Henry Pirker	2022-10-19	12:00	13:00	147.0	11.3	254
405847	Henry Pirker	2022-10-19	13:00	14:00	140.3	28.0	262
405847	Henry Pirker	2022-10-19	15:00	16:00	102.5	17.6	220
405847	Henry Pirker	2022-10-19	22:00	23:00	86.0	13.0	282
405847	Henry Pirker	2022-10-19	23:00	24:00	104.4	17.7	258
405639	Smoky Heights	2022-10-15	24:00	01:00	103.8	11.3	32
405638	Poplar	2022-10-15	02:00	03:00	80.0	6.5	118
405845	Poplar	2022-10-19	09:00	10:00	82.2	14.4	270
405845	Poplar	2022-10-19	10:00	11:00	89.5	16.6	259

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
405635	Beaverlodge	2022-10-15	34.2	6.4	126
405848	Beaverlodge	2022-10-19	32.5	19.8	202
405636	Dunes	2022-10-15	29.2	1.8	56
405846	Dunes	2022-10-19	29.2	5.0	237
405637	Henry Pirker	2022-10-15	45.2	3.0	110
405807	Henry Pirker	2022-10-18	38.4	3.5	213
405847	Henry Pirker	2022-10-19	52.6	10.3	219
405638	Poplar	2022-10-15	30.3	5.5	147

Operational times less than 90 percent:

All stations reported above 90% operational times

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 17 duplicates sampled in the month of October.

- Seven SO_2 duplicates located at Spirit River, Gordondale, Wembley, Duvernay 1, Crooked Creek, Jayar3 Bone Yard, Ambient Trailer; RPD ranging from 2% to 80% (one fail at Crooked Creek: 0.1, 0.3)
- One O_3 duplicate located at Kinuso; RPD 20% (no fails)
- Six NO_2 duplicates at Forth Creek, Clouston Creek, Bay Tree, Hythe, Jayar5 Camp, Wanyandie; RPD ranging from 0% to 33% (no fails)
- Three H_2S duplicates, Girouxville 4, Duvernay 1, Jayar4 7-8 or 8-8 Pad; RPD 0% to 6% (no fails)
- 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 October
  - RPD ranged from 0% to 4%
- Total dustfall ranged from 52.2 to 190.3 mg/100cm²/30day
- There was one exceedance of the commercial AAAQG (158 mg/100cm²/30day) at the Pipeline site in October, reading of 190.3, reference 407025
- There was one exceedance of the residential AAAQG (53 mg/100cm²/30day) at the Wanyandie site in October, reading of 61.7, reference 407026

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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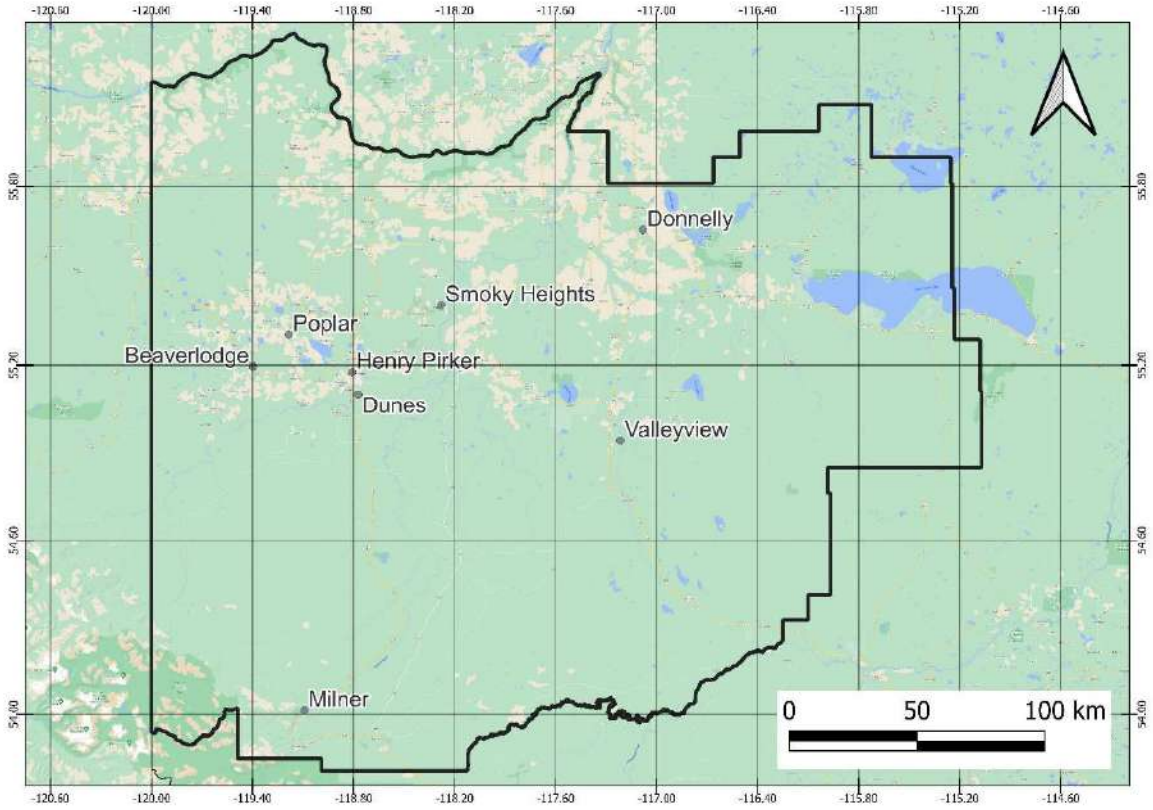
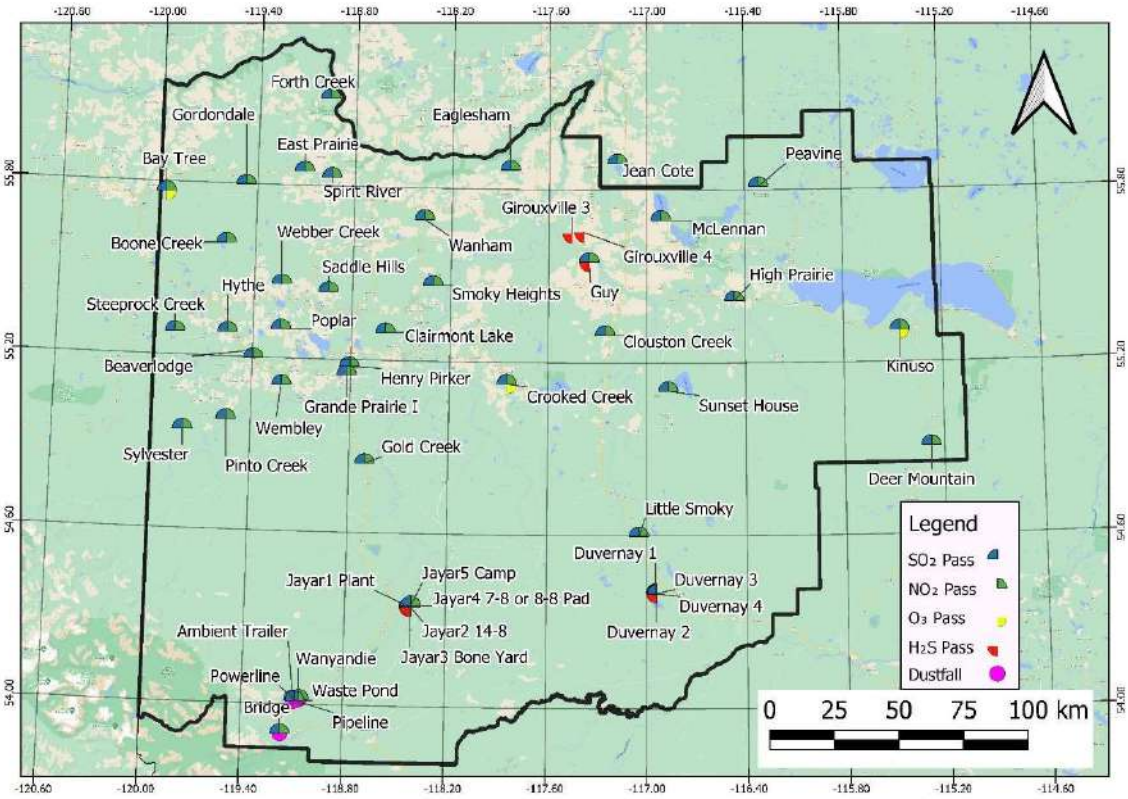
PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 October 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 - October 2022 Beaverlodge Station Report

Parameter	October 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)	0.5	0.0	95.0%	100.0%	14.4	-	Oct-24 10:00	2.0	-	Oct-24	-	-	-	-	Oct 03, 2022
NO_2 (ppb)	2.7	0.1	95.0%	100.0%	13.5	159	Oct-24 09:00	6.0	-	Oct-24	0	-	-	-	Oct 03, 2022
NO_x (ppb)	3.2	0.1	95.0%	100.0%	26.3	-	Oct-24 10:00	8.0	-	Oct-24	-	-	-	-	Oct 03, 2022
O_3 (ppb)	28.3	3.3	95.3%	100.0%	46.9	76	Oct-04 16:00	39.1	-	Oct-27	0	-	-	-	Oct 03, 2022
$PM_{2.5}$ (µg/m³)	7.8	0.0	99.7%	100.0%	121.5	80	Oct-19 17:00	34.2	29	Oct-15	3	-	2	-	Oct 04, 2022
SO_2 (ppb)	0.5	0.0	95.3%	100.0%	9.6	172	Oct-26 02:00	1.9	48	Oct-16	0	-	0	0	Oct 04, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	8.6	-4.7	100.0%	100.0%	24.3
RH (%)	58.7	20.7	100.0%	100.0%	99.9
WS (km/hr)	12.2	0.1	100.0%	100.0%	48.6
WD (deg)	254	0.8	100.0%	100.0%	360.0

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

Average Wind Direction	254	WSW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	No Operational issues noted
O_3	Thermo	49iQ	No Operational issues noted
$PM_{2.5}$	Sharp	5030	No Operational issues noted; 2 days above AAAQO and 3 hours above AAAQG
SO_2	Thermo	43i-TLE	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.2 Dunes Air Monitoring Station

PAZA - October 2022 Dunes Station Report

Parameter	October 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)	7.7	0.0	99.5%	99.9%	125.2	80	Oct-19 14:00	29.2	29	Oct-15	3	-	2	-	Oct-28-2022
SO_2 (ppb)	0.4	0.0	95.2%	99.9%	17.7	172	Oct-28 06:00	1.9	48	Oct-28	0	-	0	0	Oct-28-2022
TRS (ppb)	0.3	0.0	95.2%	99.9%	2.8	-	Oct-16 15:00	0.9	-	Oct-17	-	-	-	-	Oct-28-2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	7.8	-7.1	99.9%	99.9%	25.9
RH (%)	62.5	20.5	99.9%	99.9%	98.2
WS (km/hr)	4.2	0.1	99.9%	99.9%	18.2
WD (deg)	245	0.4	99.9%	99.9%	359.9

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

Average Wind Direction	245	WSW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Thermo	TEOM AB	Oct 5, power failure (1hr); two days above AAAQO and 3 hours above AAAQG
SO_2	TECO	43i	Oct 5, power failure (1hr)
TRS	TECO	43C	Oct 5, power failure (1hr)
Met Equip	Gil/RMYoung	MetPak/RMY86004	Oct 5, power failure (1hr)

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - October 2022 Henry Pirker Station Report

Parameter	October 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)	6.7	0.0	87.2%	91.9%	69.2	-	Oct-17 08:00	22.0	-	Oct-17	-	-	-	-	Oct 05, 2022
NO_2 (ppb)	10.0	0.9	87.2%	91.9%	41.0	159	Oct-12 07:00	22.6	-	Oct-17	0	-	-	-	Oct 05, 2022
NO_x (ppb)	16.9	1.0	87.2%	91.9%	105.1	-	Oct-18 22:00	44.8	-	Oct-17	-	-	-	-	Oct 05, 2022
O_3 (ppb)	20.7	0.4	92.2%	96.8%	43.4	76	Oct-04 16:00	38.2	-	Oct-27	0	-	-	-	Oct 05, 2022
$PM_{2.5}$ (µg/m³)	13.4	0.2	96.5%	96.8%	147.0	80	Oct-19 13:00	52.6	29	Oct-19	7	-	3	-	Oct 06, 2022
SO_2 (ppb)	0.5	0.0	91.9%	96.5%	44.1	172	Oct-18 12:00	2.8	48	Oct-18	0	-	0	0	Oct 05, 2022
H_2S (ppb)	0.3	0.0	92.2%	96.8%	3.1	10	Oct-18 08:00	0.9	3	Oct-17	0	-	0	-	Oct 06, 2022
CH_4 (ppm)	2.1	2.0	92.2%	96.8%	3.9	-	Oct-09 09:00	2.3	-	Oct-09	-	-	-	-	Oct 03, 2022
THC (ppm)	2.2	2.0	92.2%	96.8%	3.9	-	Oct-09 09:00	2.4	-	Oct-17	-	-	-	-	Oct 03, 2022
NMHC (ppm)	0.0	0.0	92.2%	96.8%	0.4	-	Oct-18 21:00	0.1	-	Oct-18	-	-	-	-	Oct 03, 2022
CO (ppm)	0.3	0.1	92.2%	96.8%	1.6	13	Oct-22 08:00	0.6	5	Oct-18	0	0	-	-	Oct 03, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	8.2	-4.6	96.9%	96.9%	24.1
RH (%)	59.7	24.9	96.9%	96.9%	89.4
SR (W/m²)	65.6	0.0	96.9%	96.9%	405.1
WS (km/hr)	7.4	0.2	96.9%	96.9%	34.6
WD (deg)	242	1.7	96.9%	96.9%	357.1

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

Average Wind Direction 242 WSW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42IQ	Removal cal Oct 4 (13hrs removed); period between cals Oct 5 removed (18hrs); Oct 14 cal (5hrs maintenance); Power failure Oct 13-14 (24hrs)
O_3	TECO	49I	Power failure Oct 13-14 (24hrs)
$PM_{2.5}$	API	T640	Power failure Oct 13-14 (24hrs); 3 days above AAAQO and 7 hours above AAAQG
SO_2	TEI	43I-TLE	Oct 4, 2hrs maintenance; Power failure Oct 13-14 (24hrs)
H_2S	TEI	450i	Power failure Oct 13-14 (24hrs)
$THC/CH_4/NMHC$	TEI	55i	Power failure Oct 13-14 (24hrs)
CO	TEI	48I-TLE	Power failure Oct 13-14 (24hrs)
Met Equip	MetOne	50.5	Power failure Oct 13-14 (23hrs)

1.4 Smoky Heights Air Monitoring Station

PAZA - October 2022 Smoky Heights Station Report

Parameter	October 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)	7.9	0.0	99.6%	100.0%	103.8	80	Oct-15 00:00	28.2	29	Oct-19	1	-	0	-	Oct 24, 2022
SO_2 (ppb)	0.3	0.0	95.2%	100.0%	9.9	172	Oct-30 18:00	0.9	48	Oct-30	0	-	0	0	Oct 24, 2022
TRS (ppb)	0.2	0.0	95.2%	100.0%	1.3	-	Oct-06 21:00	0.4	-	Oct-06	-	-	-	-	Oct 24, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	7.5	-7.4	100.0%	100.0%	23.5
WS (km/hr)	13.7	0.3	100.0%	100.0%	50.4
WD (deg)	241	1.0	100.0%	100.0%	359.4

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

Average Wind Direction 241 WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Sharp	5030	There was one reading above the AAAQG
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 - October 2022 Valleyview Station Report

Parameter	October 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%	0.9	172	Oct-11 16:00	0.3	48	Oct-16	0	-	0	0	Oct 12, 2022
H_2S (ppb)	0.1	0.0	95.3%	100.0%	0.6	10	Oct-04 08:00	0.2	3	Oct-09	0	-	0	-	Oct 12, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	7.9	-6.6	100.0%	100.0%	26.2
RH (%)	68.0	18.3	100.0%	100.0%	100.2
WS (km/hr)	4.5	0.1	100.0%	100.0%	21.8
WD (deg)	232	0.5	100.0%	100.0%	359.8

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

Average Wind Direction	232	NW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	TEI	43i-APSCB	No Operational issues noted
H_2S	TEI	450i-APHAA	No Operational issues noted
Met Equip	RMYoung	RMY86004	No Operational issues noted

1.6 Donnelly Air Monitoring Station

PAZA - October 2022 Donnelly Station Report

Parameter	October 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	93.0%	97.4%	1.1	172	Oct-30 20:00	0.4	48	Oct-16	0	-	0	0	Oct 13, 2022
H_2S (ppb)	0.1	0.0	94.4%	99.1%	0.4	10	Oct-06 23:00	0.2	3	Oct-07	0	-	0	-	Oct 13, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	8.5	-3.4	99.5%	99.5%	23.7
WS (km/hr)	13.3	0.2	97.6%	97.6%	52.0
WD (deg)	221	1.0	97.6%	97.6%	359.2

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

Average Wind Direction	221	SW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	Teco	43i	Oct 13 power failure (6hrs); following power 12hrs of maintenance; Oct 29 data communications fail (1hr)
H2S	Thermo	45C	Oct 13 power failure (6hrs); Oct 29 data communications fail (1hr)
Met Equip	RMYoung	5103	Oct 13 power failure (3hrs); Oct 22-23 wind data froze (14hrs); Oct 29 data communications fail (1hr)

1.7 Poplar Air Monitoring Station

PAZA - October 2022 Poplar Station Report

Parameter	October 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)	1.3	0.0	94.8%	99.7%	18.5	-	Oct-16 09:00	4.8	-	Oct-16	-	-	-	-	Oct 05, 2022
NO_2 (ppb)	4.4	0.0	94.8%	99.7%	25.9	159	Oct-17 20:00	10.8	-	Oct-16	0	-	-	-	Oct 05, 2022
NO_x (ppb)	5.7	0.0	94.8%	99.7%	30.8	-	Oct-17 20:00	15.8	-	Oct-16	-	-	-	-	Oct 05, 2022
O_3 (ppb)	23.0	0.2	95.0%	99.7%	47.1	76	Oct-04 16:00	38.8	-	Oct-27	0	-	-	-	Oct 05, 2022
$PM_{2.5}$ (µg/m³)	6.8	0.0	98.1%	98.7%	89.5	80	Oct-19 11:00	30.3	29	Oct-15	3	-	1	-	Oct 05, 2022
SO_2 (ppb)	0.9	0.0	94.9%	99.7%	62.1	172	Oct-30 16:00	3.2	48	Oct-30	0	-	0	0	Oct 05, 2022
TRS (ppb)	0.5	0.0	95.0%	99.7%	10.6	-	Oct-23 09:00	1.0	-	Oct-17	-	-	-	-	Oct 06, 2022
CH4 (ppm)	removed August 10														
THC (ppm)	2.4	1.9	95.0%	99.7%	4.2	-	Oct-16 09:00	2.8	-	Oct-16	-	-	-	-	Oct 06, 2022
NMHC (ppm)	removed August 10														

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	7.2	-8.4	99.9%	99.9%	24.0
WS (km/hr)	14.2	0.2	99.9%	99.9%	51.2
WD (deg)	259	0.5	99.9%	99.9%	358.9

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

Average Wind Direction	259	W

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_X$	TEI	42i	Oct 10 power failure (1hr); Oct 15 communication failure (1hr)
O_3	TEI	49I	Oct 10 power failure (1hr); Oct 15 communication failure (1hr)
$PM_{2.5}$	Thermo	TEOM AB	Oct 10 power (1hr); Oct 15 comm failure (1hr); Negative drift (8hrs); 1 day above AAAQO, 3hrs above AAAQG
SO_2	TEI	43I	Oct 10 power failure (1hr); Oct 15 communication failure (1hr)
TRS	TEI	43I	Oct 10 power failure (1hr); Oct 15 communication failure (1hr)
THC	TEI	55I-A3PHAA	Oct 10 power failure (1hr); Oct 15 communication failure (1hr)
Met Equip	MetOne	50.5	Oct 15 communication failure (1hr)

1.8 Milner Air Monitoring Station

PAZA - October 2022 Milner Station Report

Parameter	October 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)	1.0	0.0	94.2%	98.9%	33.3	-	Oct-03 10:00	4.1	-	Oct-19	-	-	-	-	Oct 21, 2022
NO_2 (ppb)	3.2	0.0	94.2%	98.9%	22.3	159	Oct-19 10:00	8.0	-	Oct-18	0	-	-	-	Oct 21, 2022
NO_x (ppb)	4.2	0.0	94.2%	98.9%	46.9	-	Oct-19 10:00	11.5	-	Oct-19	-	-	-	-	Oct 21, 2022
$PM_{2.5}$ (µg/m³)	7.8	0.0	96.5%	97.0%	56.3	80	Oct-02 08:00	24.1	29	Oct-18	0	-	0	-	Oct 21, 2022

	Average	Minimum	Valid	Operational	Maximum
WS (km/hr)	8.5	0.0	99.9%	99.9%	36.5
WD (deg)	249	1.8	99.9%	99.9%	353.0

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

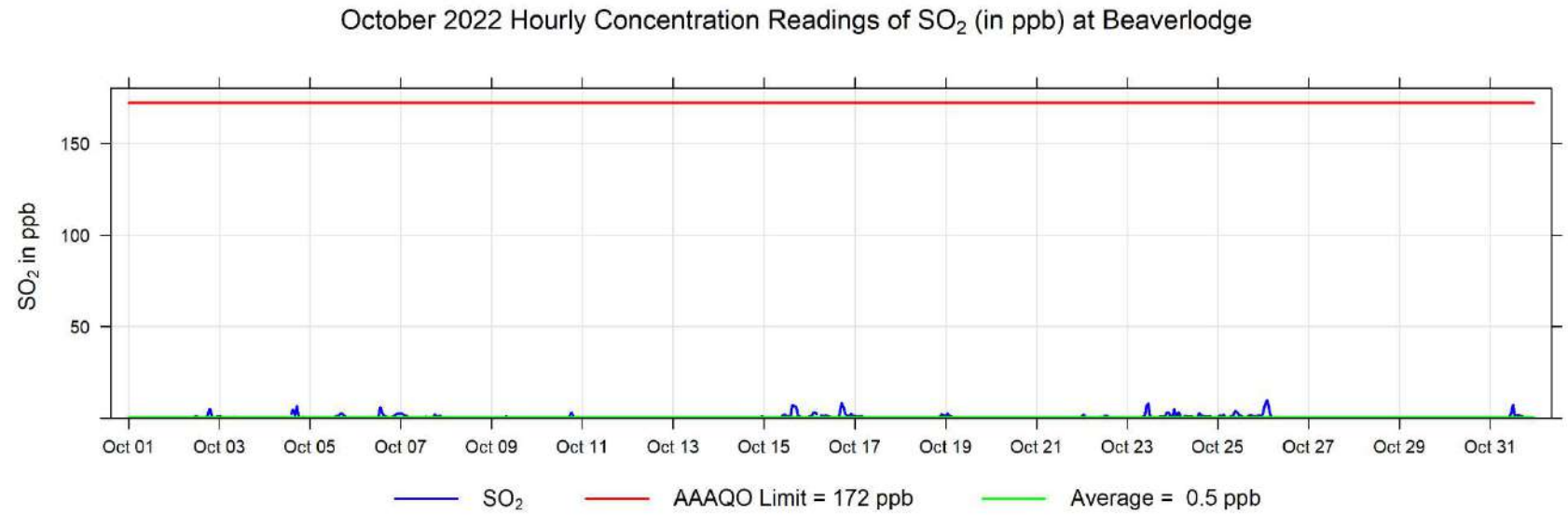
Average Wind Direction 249 WSW

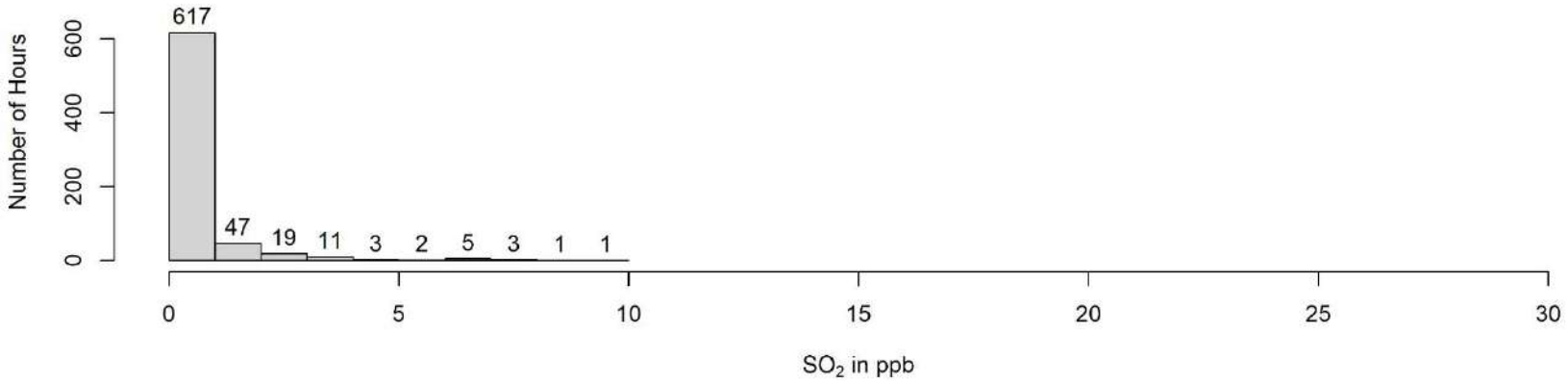
Update Summary:

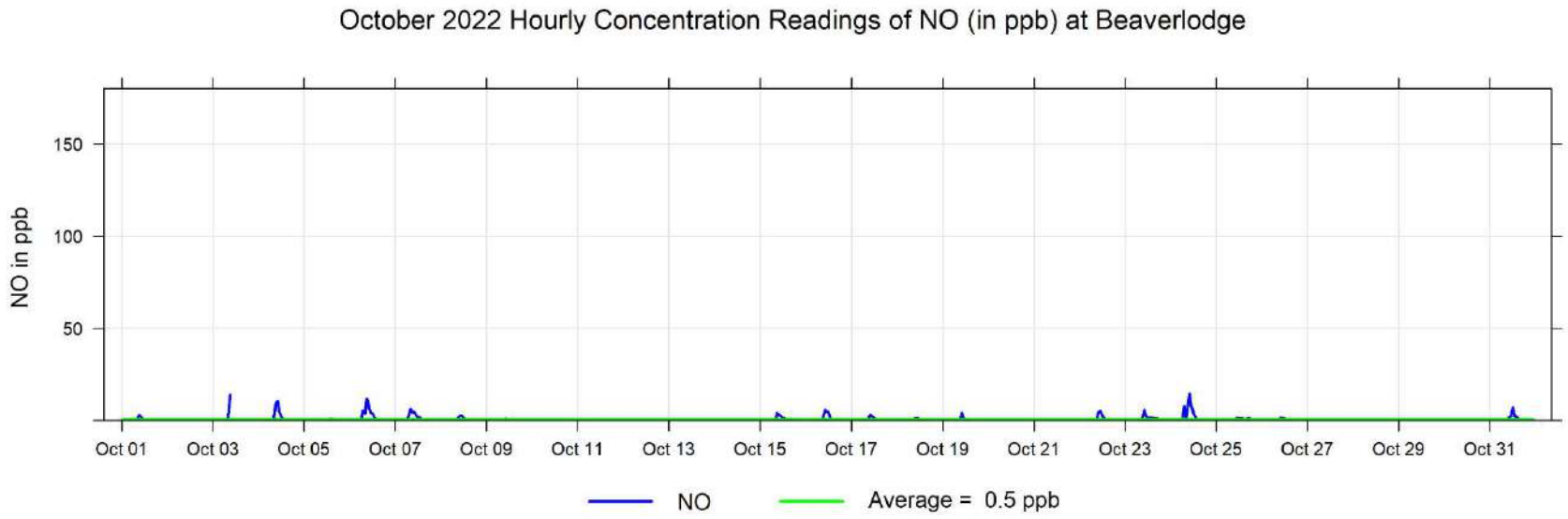
Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	Oct12, 2hrs missing due to power failure; Oct27, 5hrs data communication failure
$PM_{2.5}$	TEOM	AB	Oct12, 2hrs missing due to power failure; Excessive drifting removed (16hrs); Oct27, 4hrs data failure
Met Equip	MetOne	50.5	Oct27, 1hr data communication failure

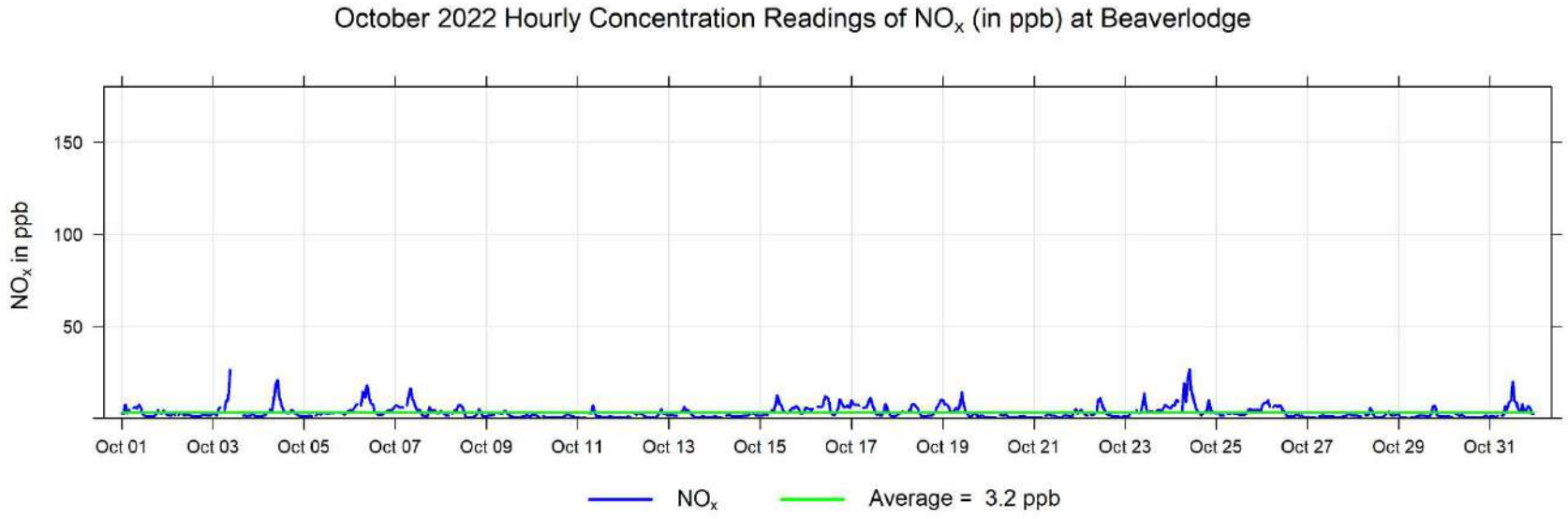
2 Beaverlodge Charts

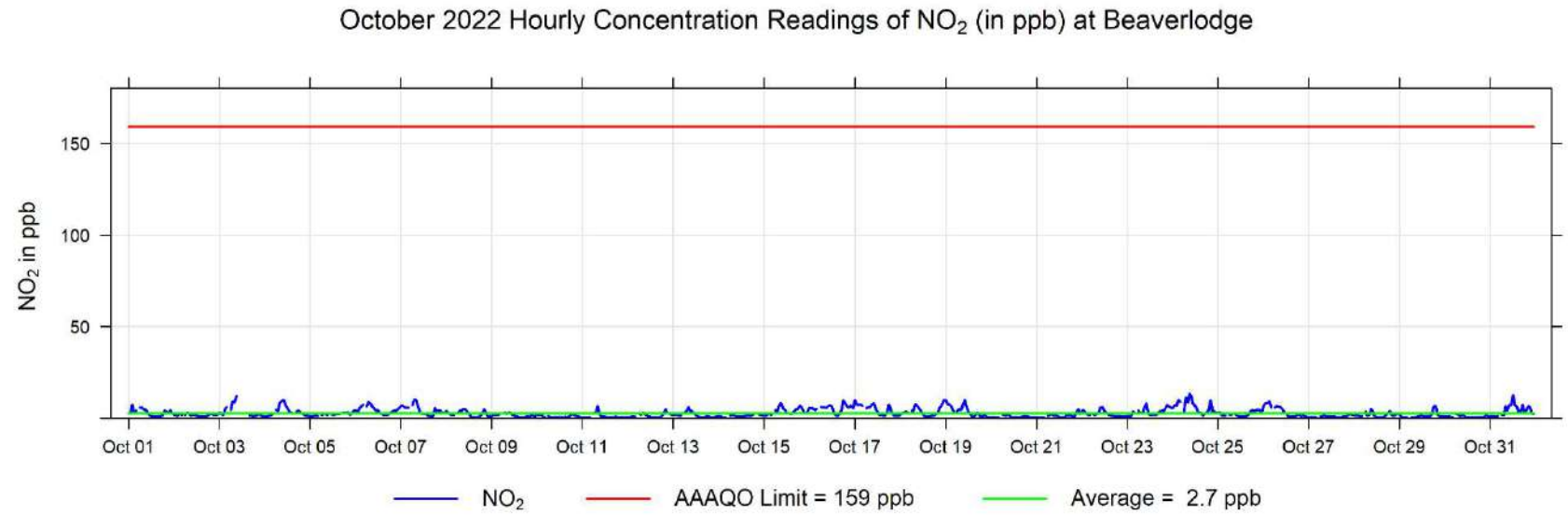
The following pages include the charts and histograms for Beaverlodge Station

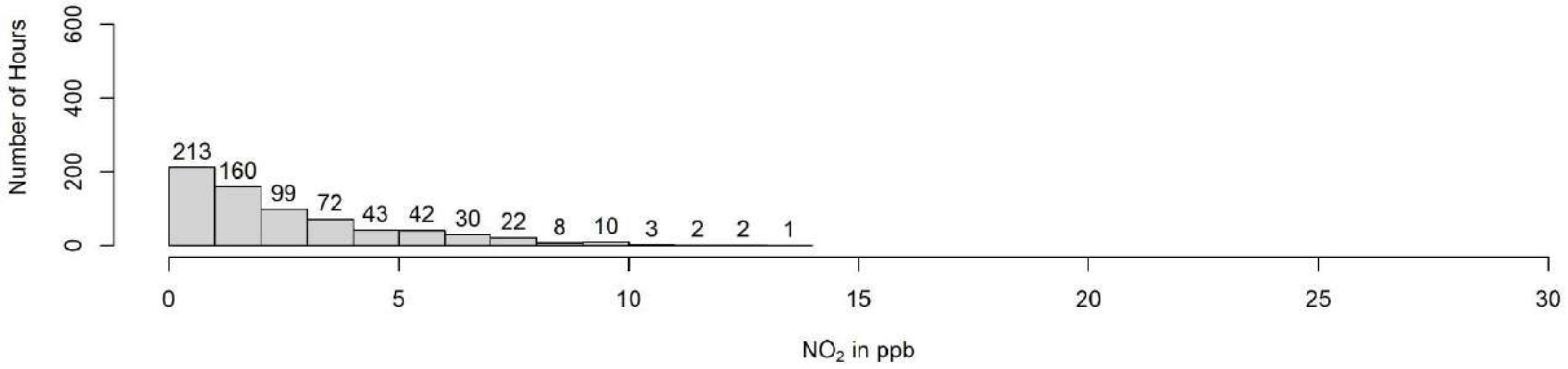

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Beaverlodge
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.5 ppb

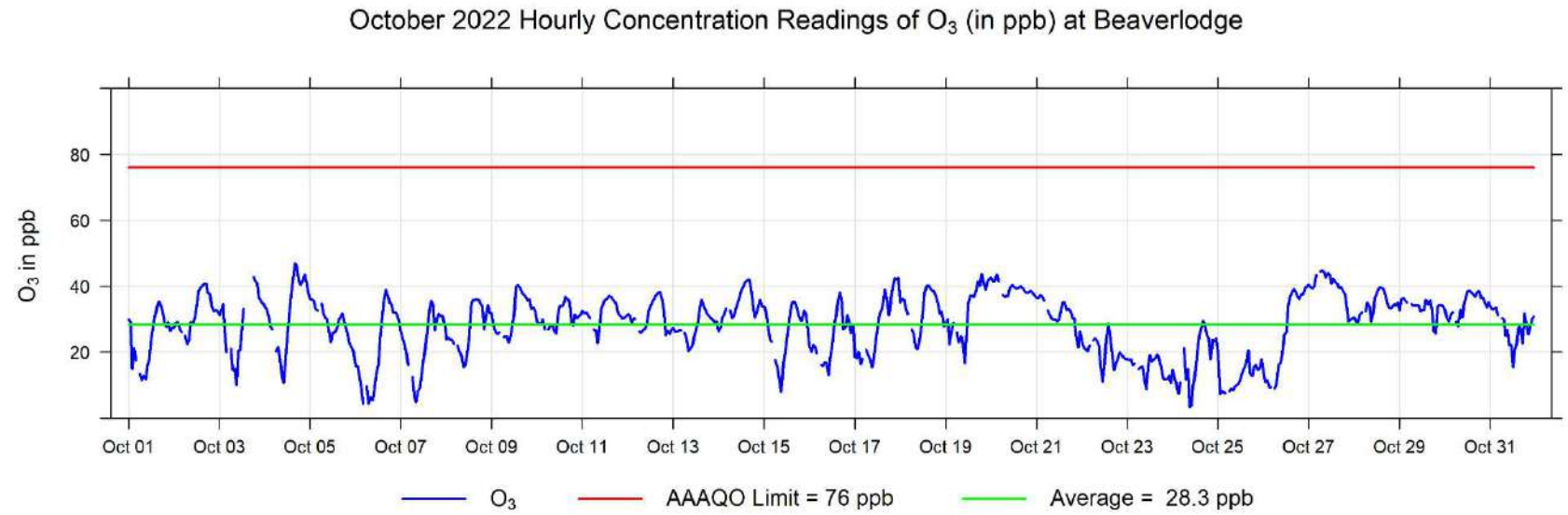

Number of Hours
0
200
400
600
617
47
19
11
3
2
5
3
1
1
0
5
10
15
20
25
30
SO_2 in ppb

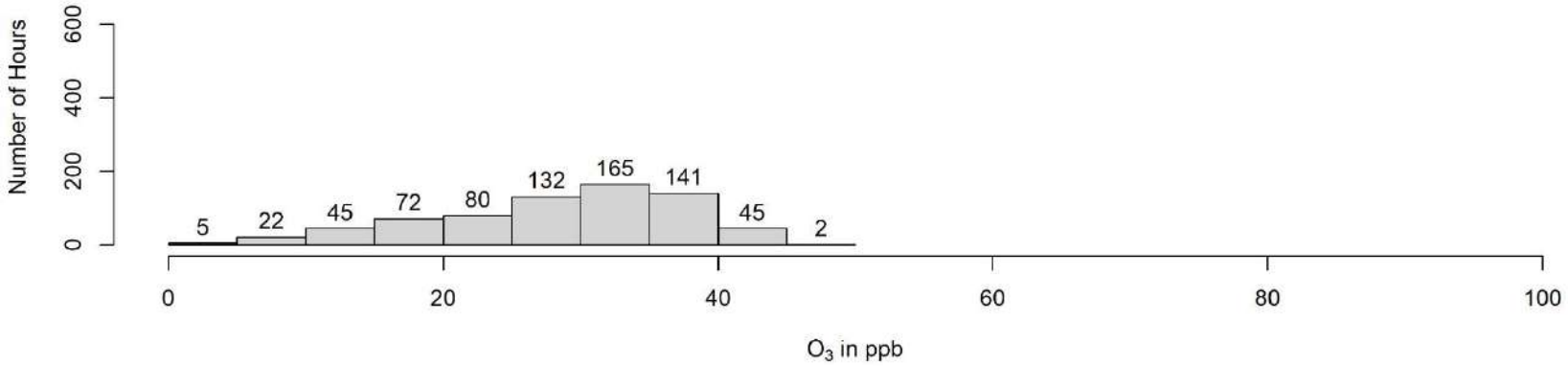

October 2022 Hourly Concentration Readings of NO (in ppb) at Beaverlodge
NO in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO
Average = 0.5 ppb

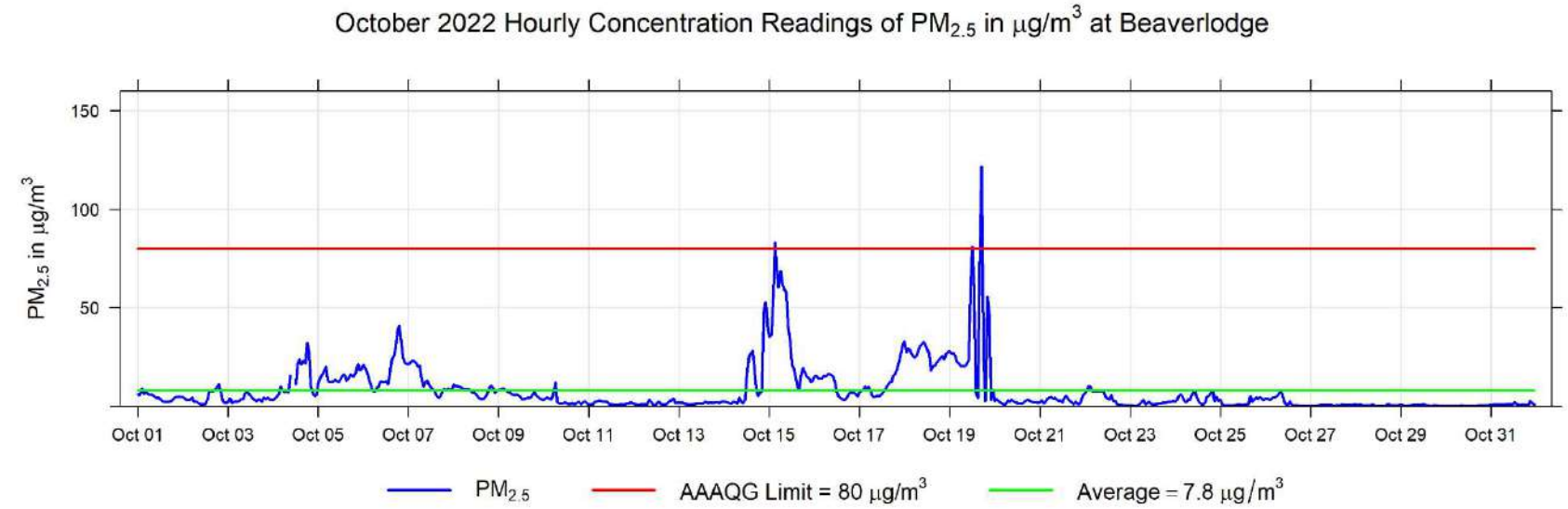

October 2022 Hourly Concentration Readings of NOx (in ppb) at Beaverlodge
NOx in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NOx
Average = 3.2 ppb

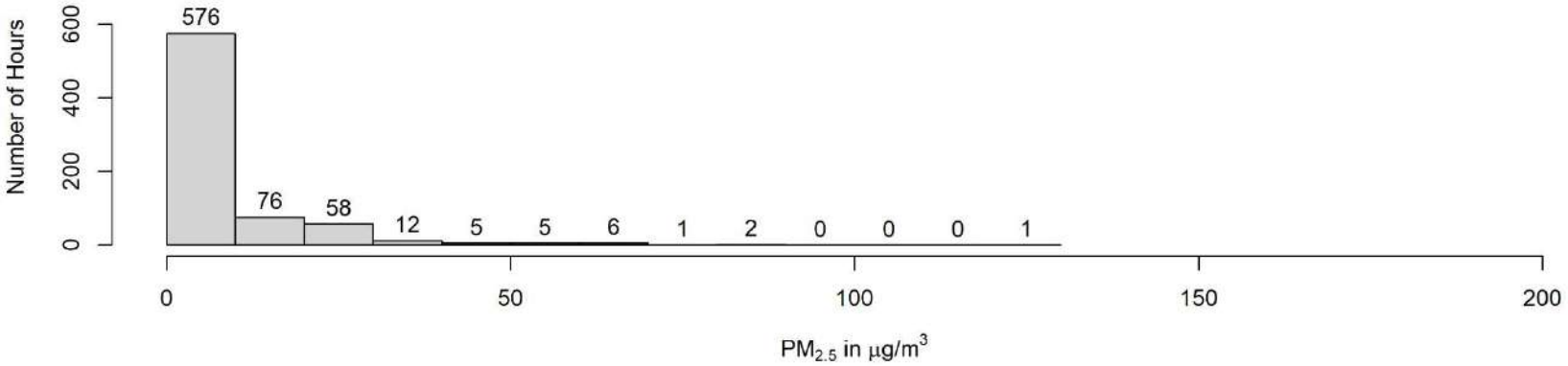

October 2022 Hourly Concentration Readings of NO2 (in ppb) at Beaverlodge
NO2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO2
AAAQO Limit = 159 ppb
Average = 2.7 ppb

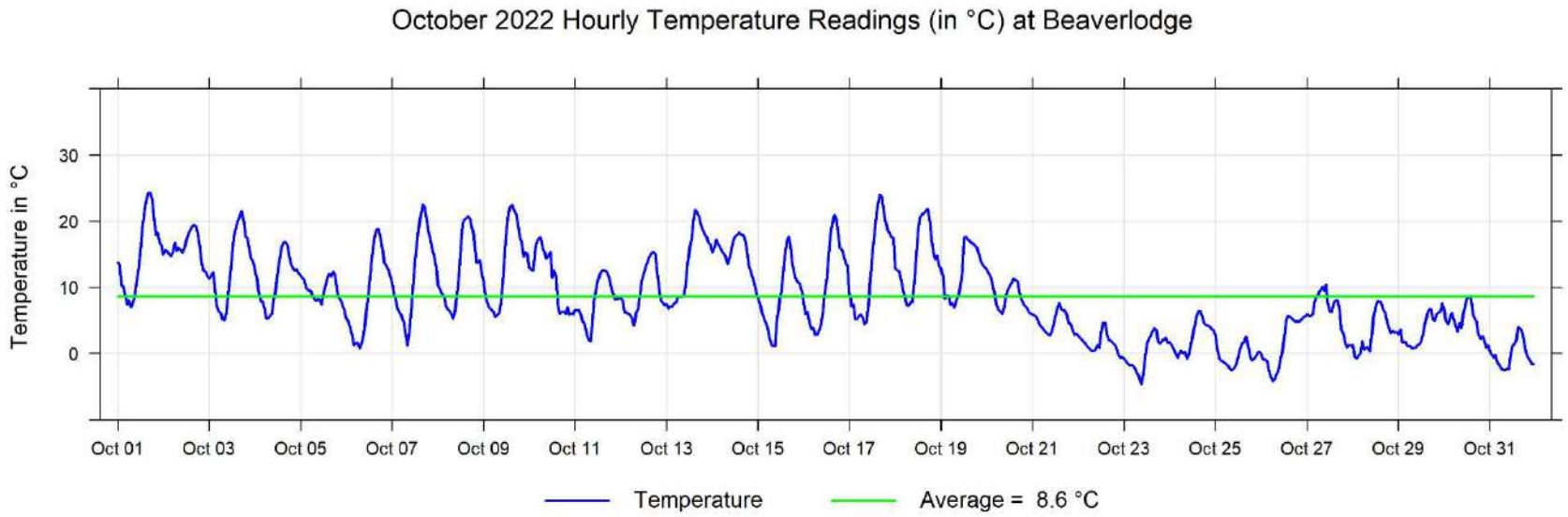

Number of Hours
0
200
400
600
213
160
99
72
43
42
30
22
8
10
3
2
2
1
0
5
10
15
20
25
30
NO2 in ppb

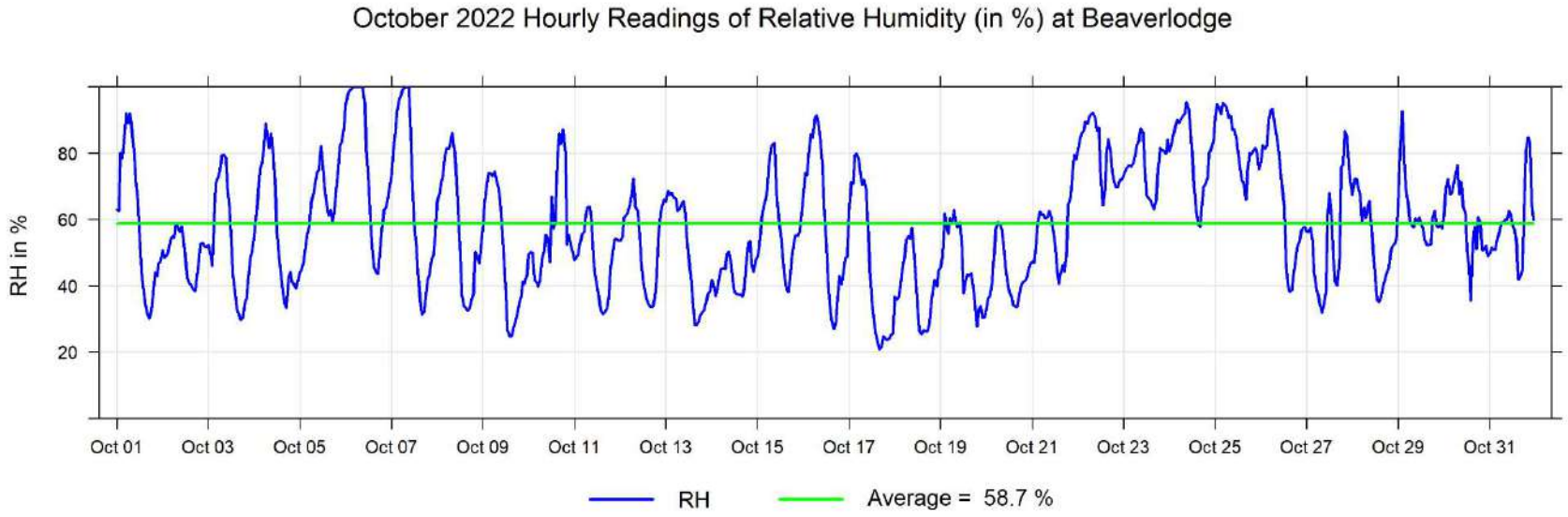

October 2022 Hourly Concentration Readings of O_3 (in ppb) at Beaverlodge
O_3 in ppb
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
O_3
AAAQO Limit = 76 ppb
Average = 28.3 ppb

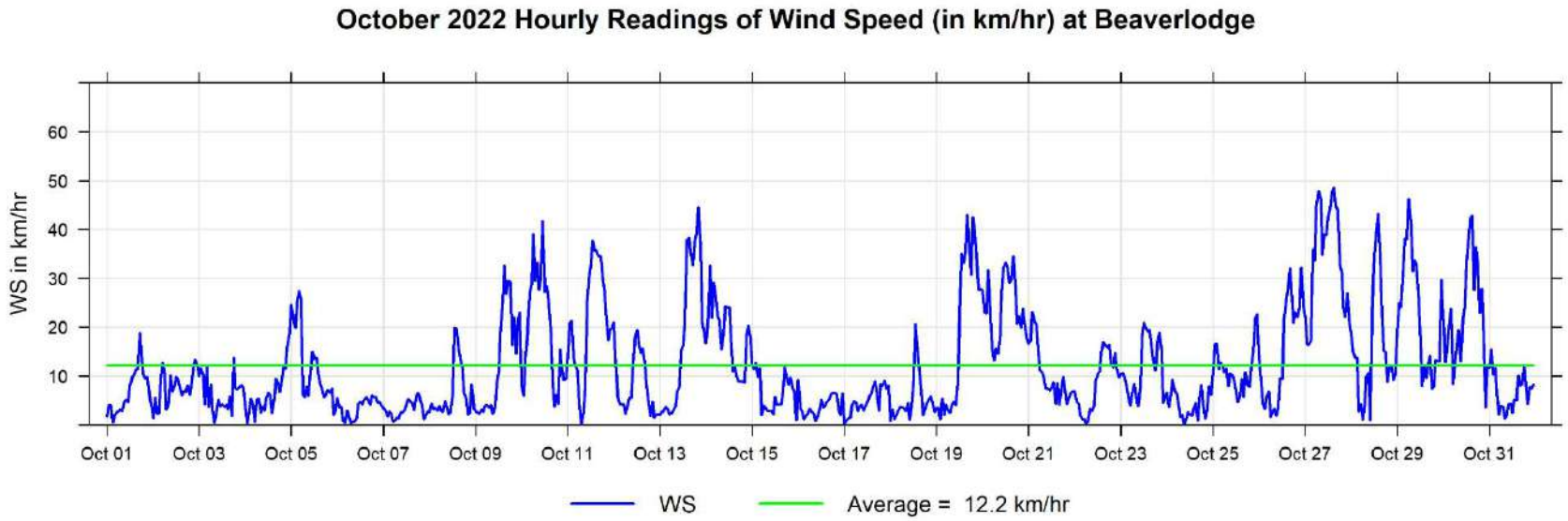

Number of Hours
0
200
400
600
5
22
45
72
80
132
165
141
45
2
0
20
40
60
80
100
O_3 in ppb

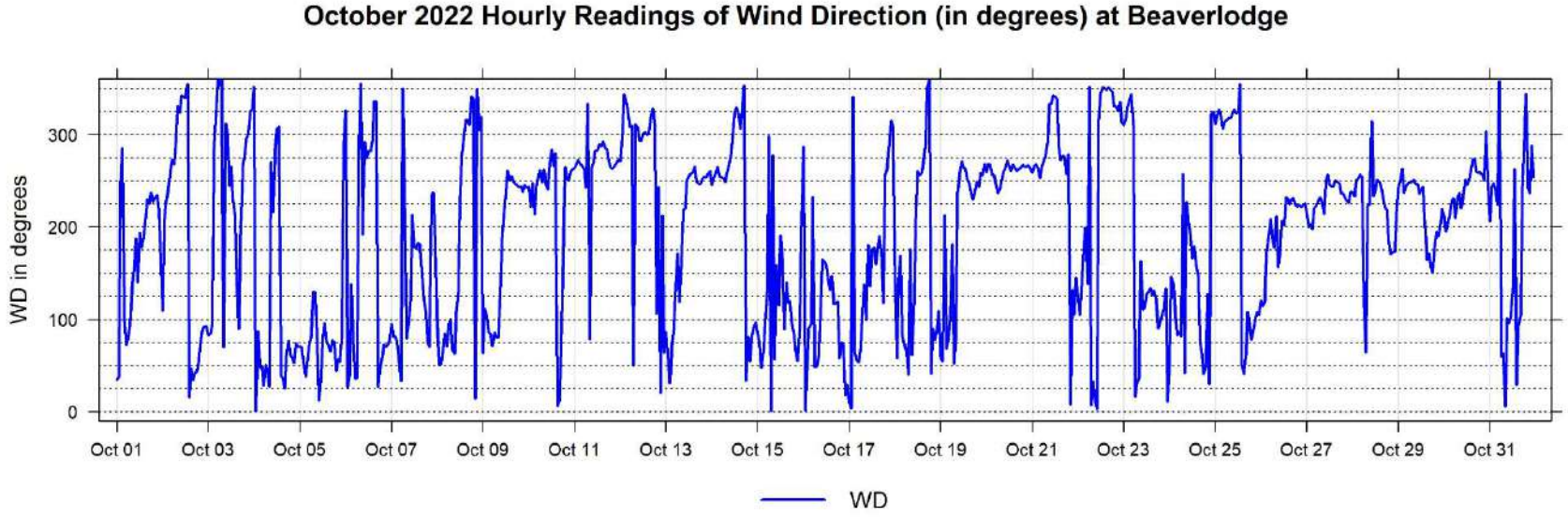

October 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Beaverlodge
PM2.5 in µg/m3
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 7.8 µg/m3

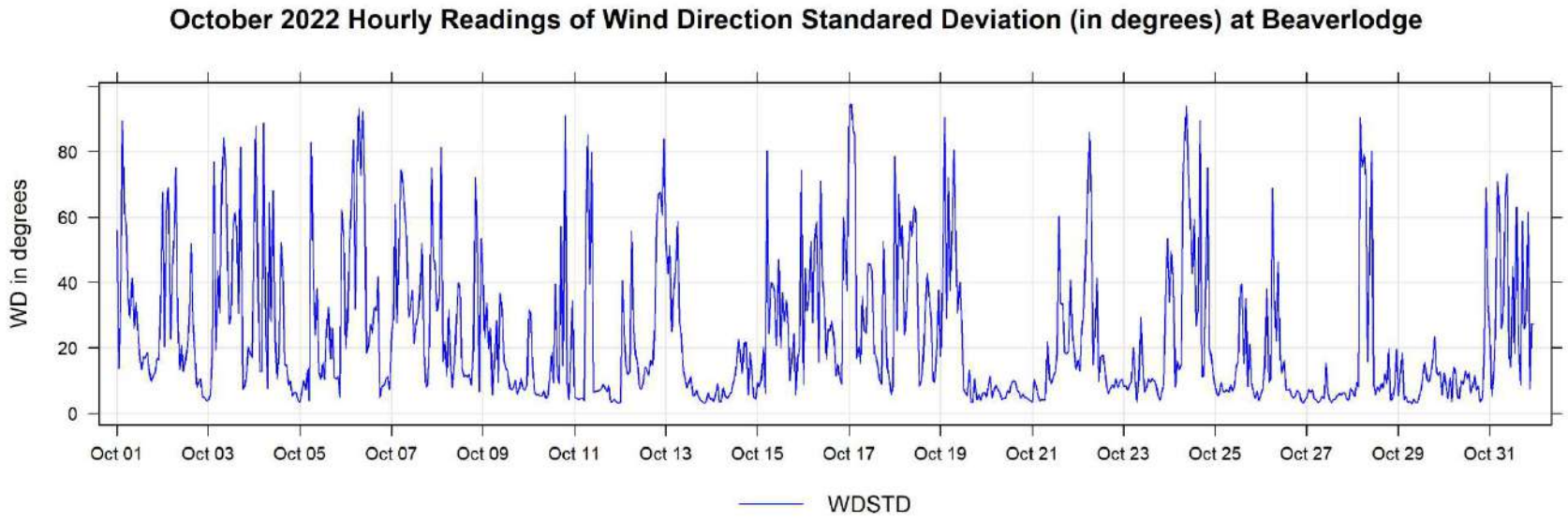

Number of Hours
0
200
400
600
576
76
58
12
5
5
6
1
2
0
0
0
1
0
50
100
150
200
PM2.5 in µg/m3

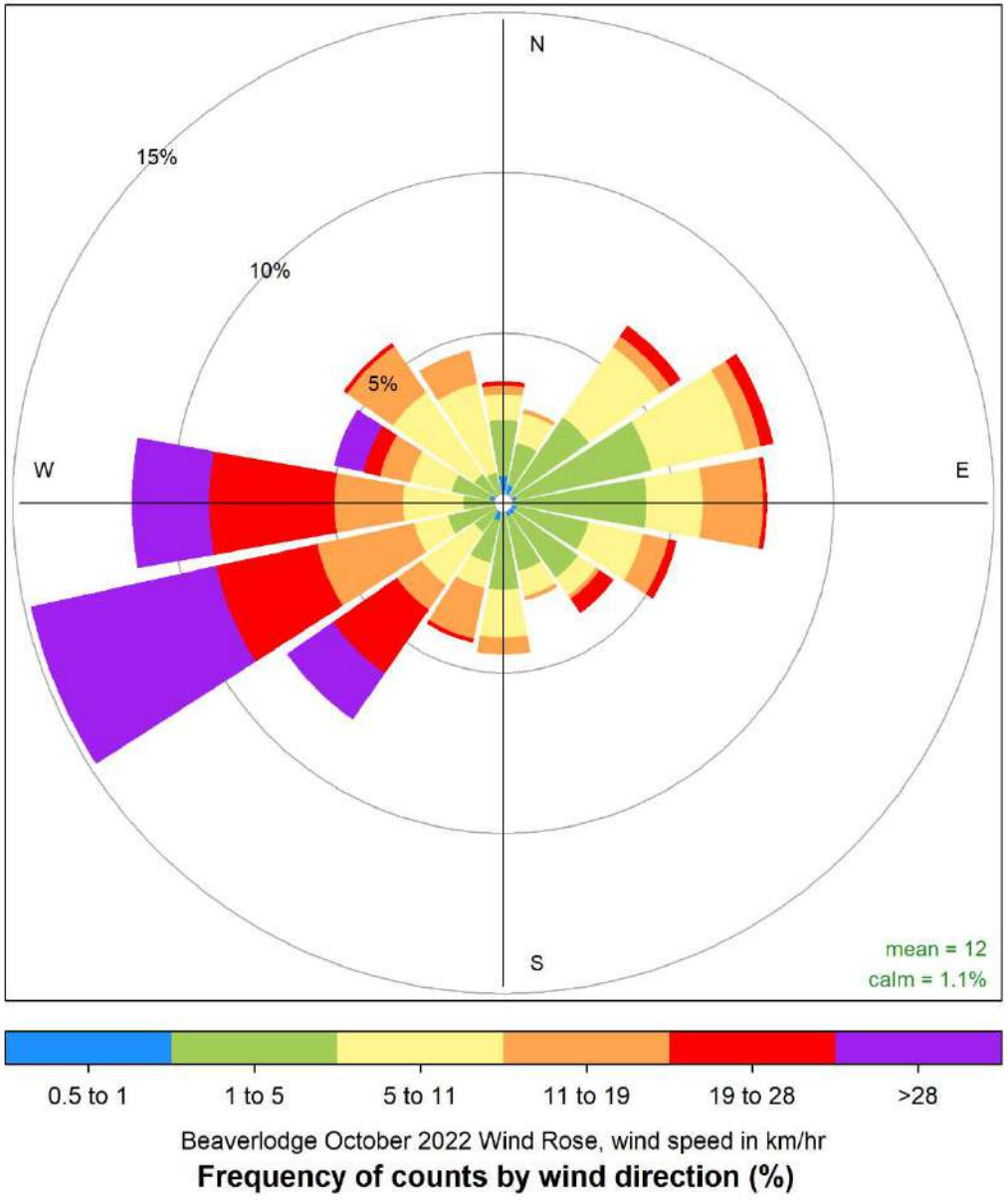

October 2022 Hourly Temperature Readings (in °C) at Beaverlodge
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 8.6 °C


October 2022 Hourly Readings of Relative Humidity (in %) at Beaverlodge
RH in %
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
RH
Average = 58.7 %


October 2022 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 12.2 km/hr

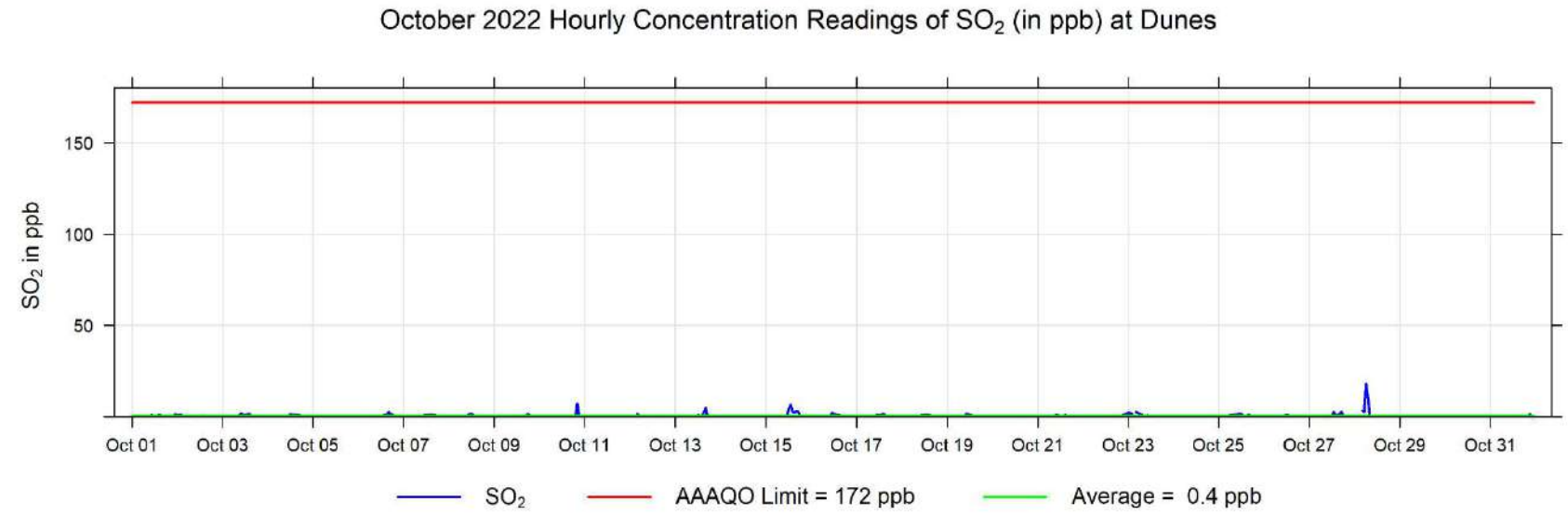

October 2022 Hourly Readings of Wind Direction (in degrees) at Beaverlodge
WD in degrees
300
200
100
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WD

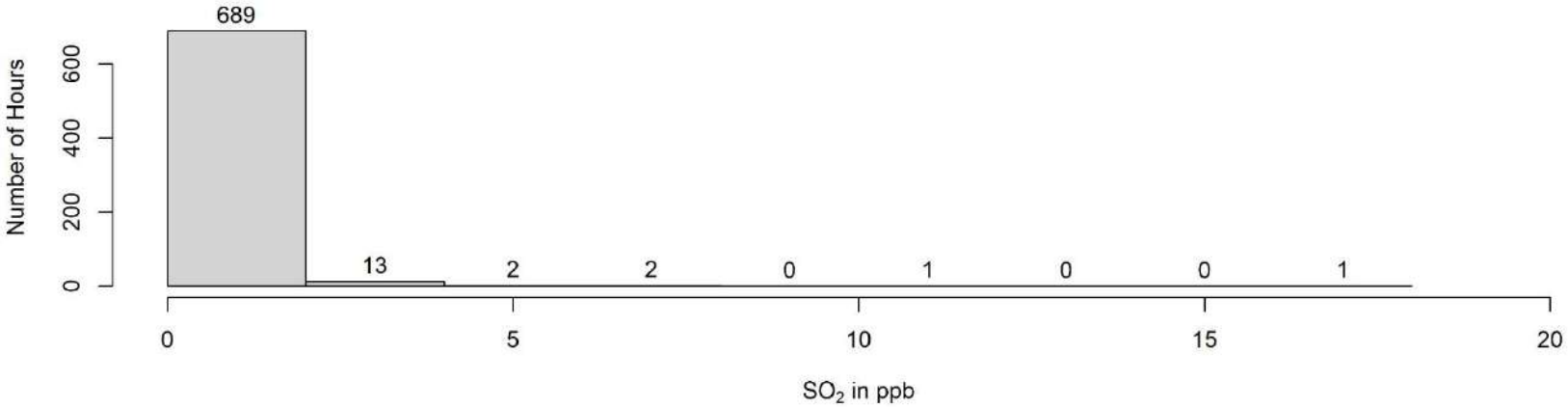

October 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Beaverlodge
WD in degrees
0
20
40
60
80
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WDSTD

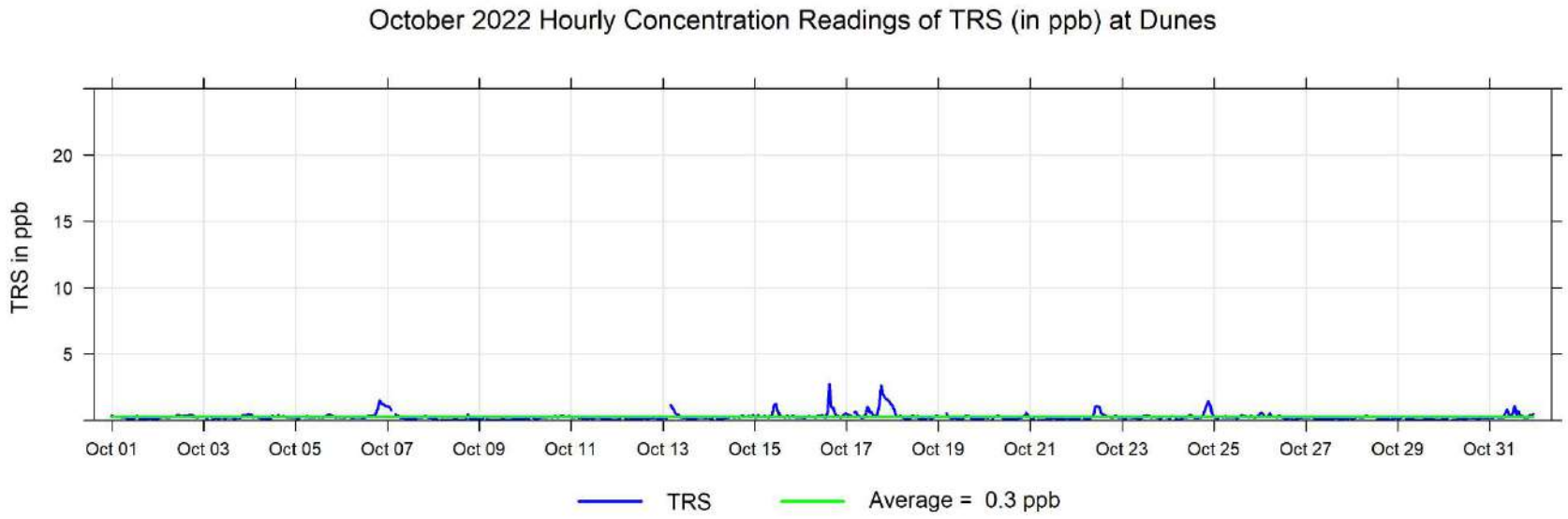

N
15%
10%
5%
W
E
S
mean = 12
calm = 1.1%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Beaverlodge October 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

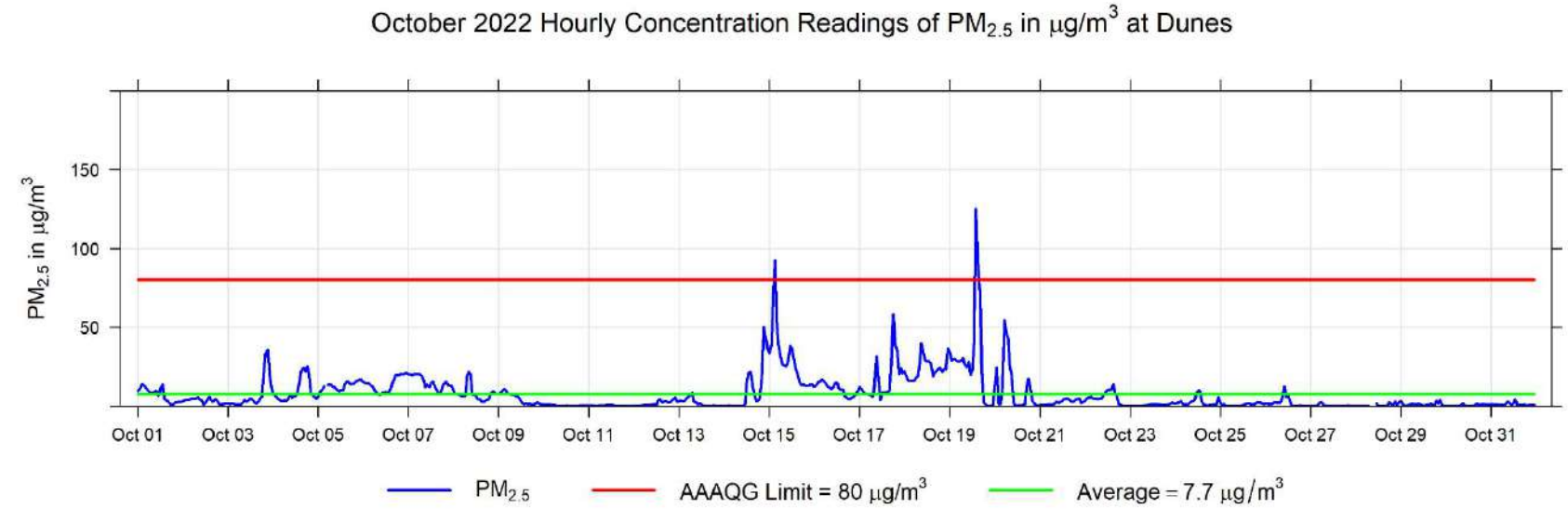
3 Dunes Charts

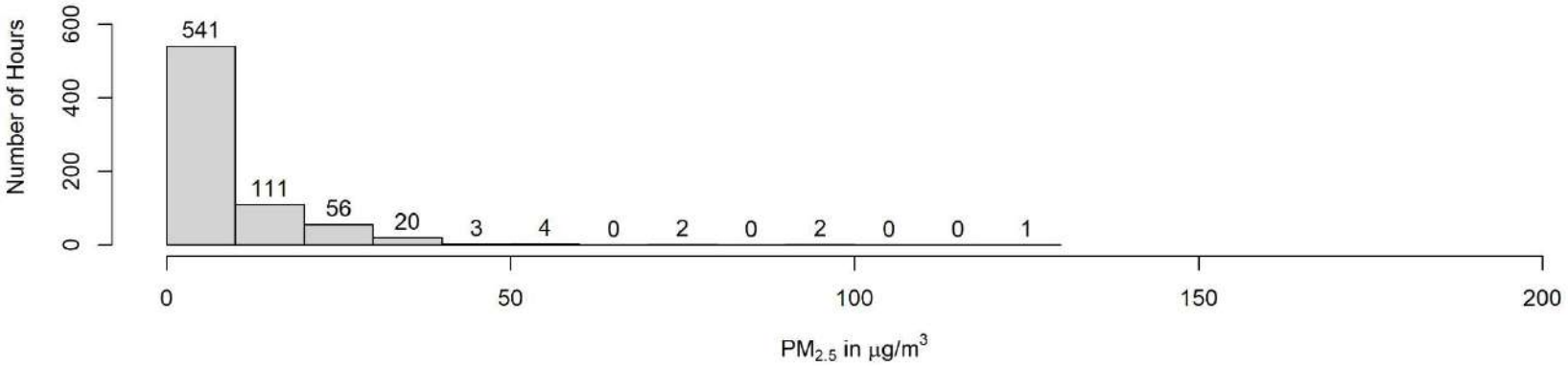
The following pages include the charts and histograms for Dunes Station

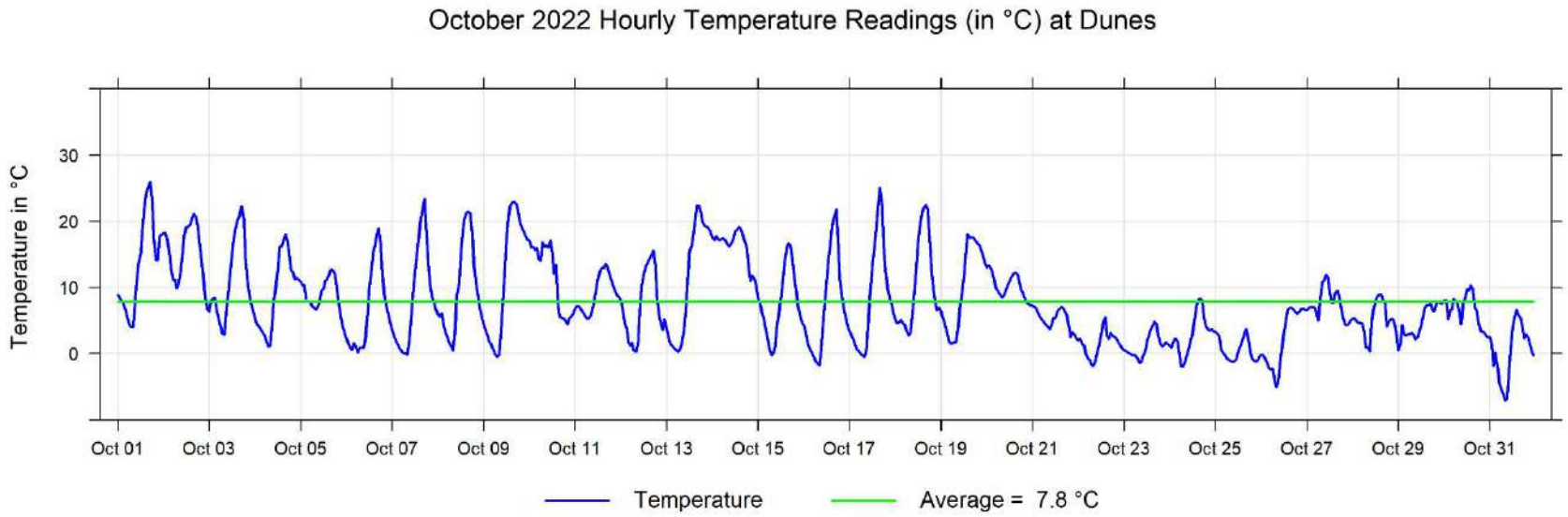

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Dunes
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.4 ppb

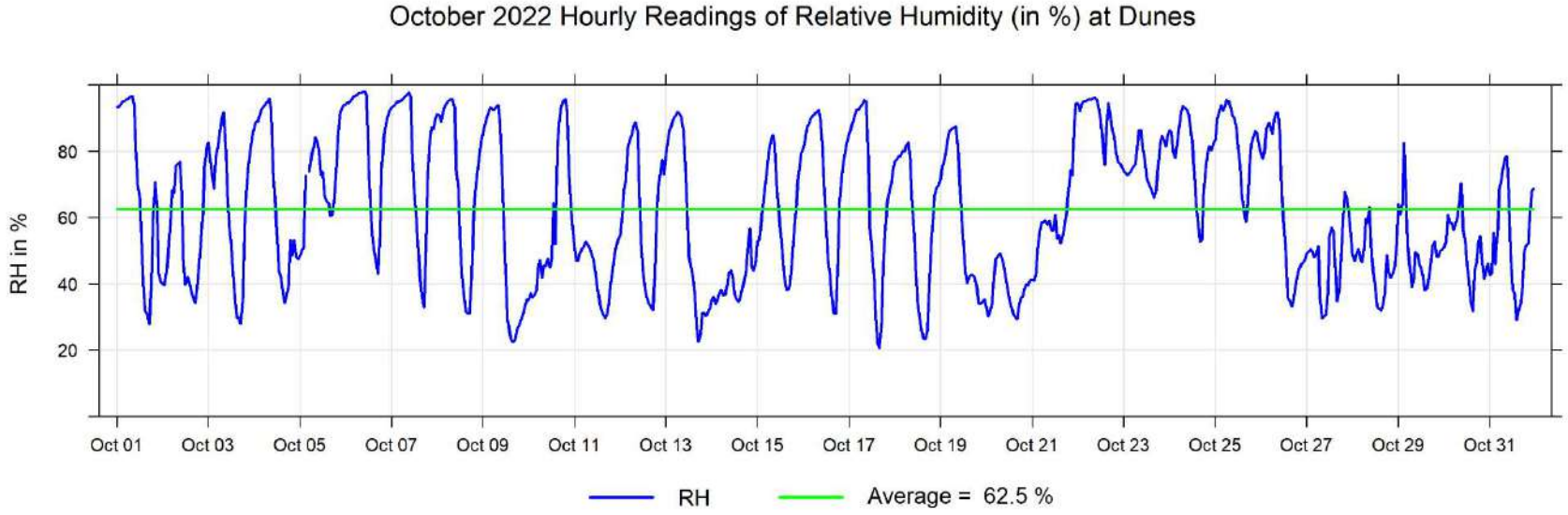

Number of Hours
0
200
400
600
689
13
2
2
0
1
0
0
1
0
5
10
15
20
SO_2 in ppb

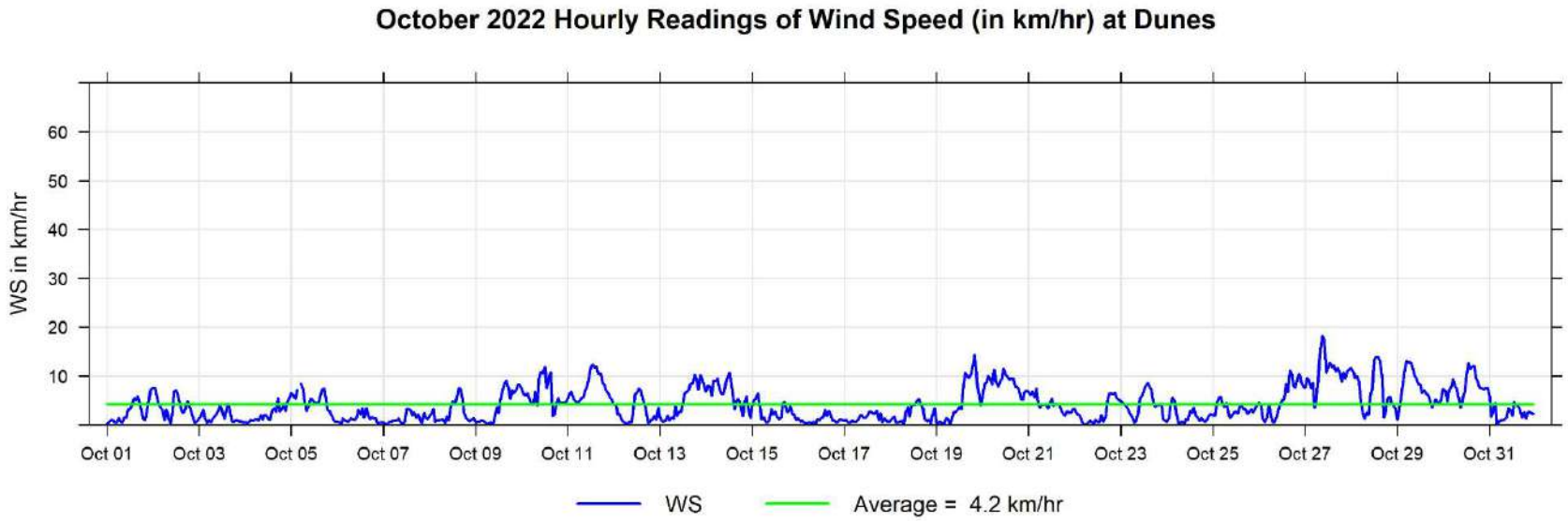

October 2022 Hourly Concentration Readings of TRS (in ppb) at Dunes
TRS in ppb
20
15
10
5
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
TRS
Average = 0.3 ppb

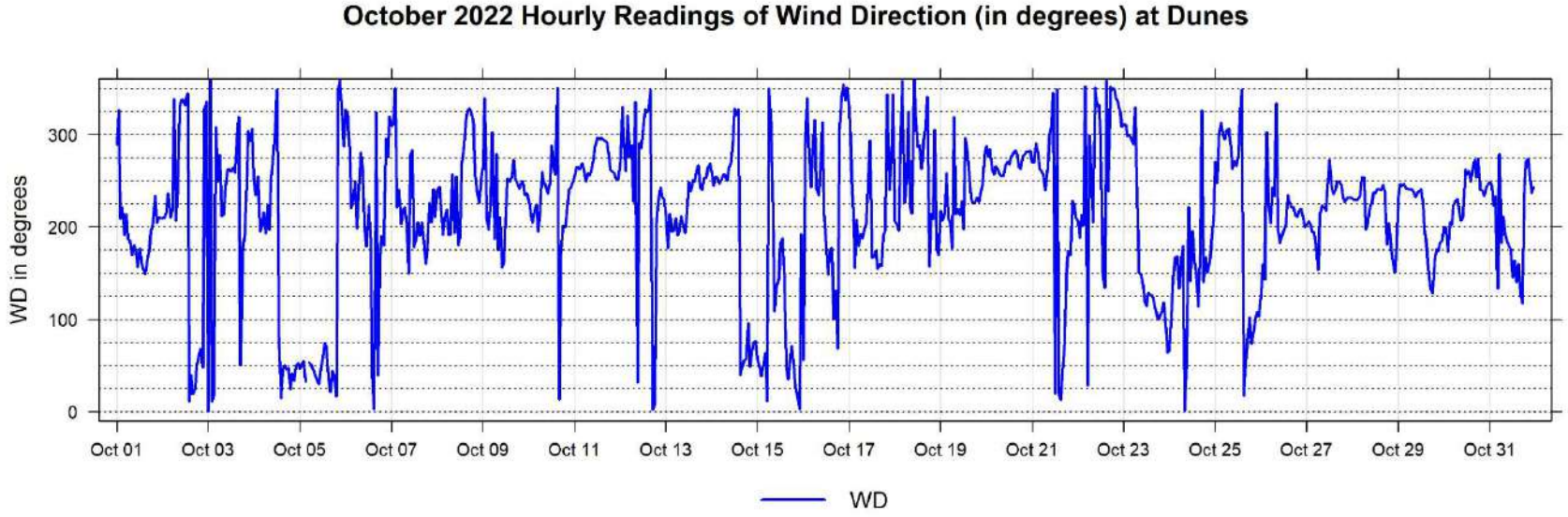

October 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Dunes
PM2.5 in µg/m3
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 7.7 µg/m3

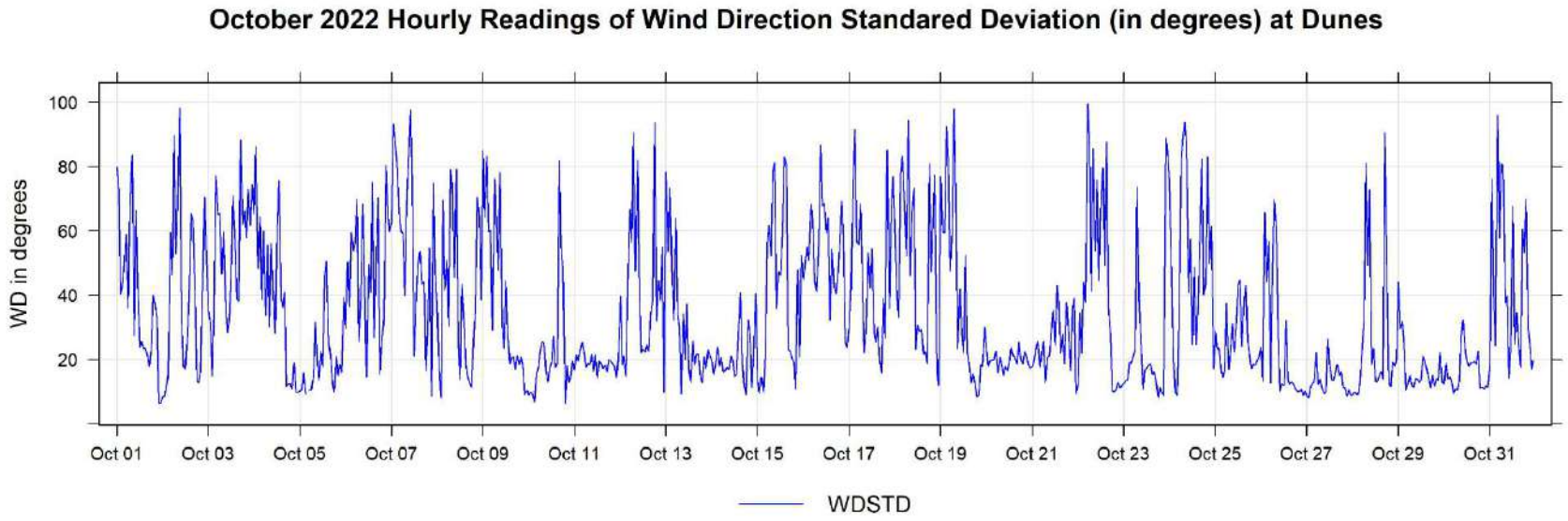

Number of Hours
0
200
400
600
541
111
56
20
3
4
0
2
0
2
0
0
1
0
50
100
150
200
PM2.5 in µg/m3

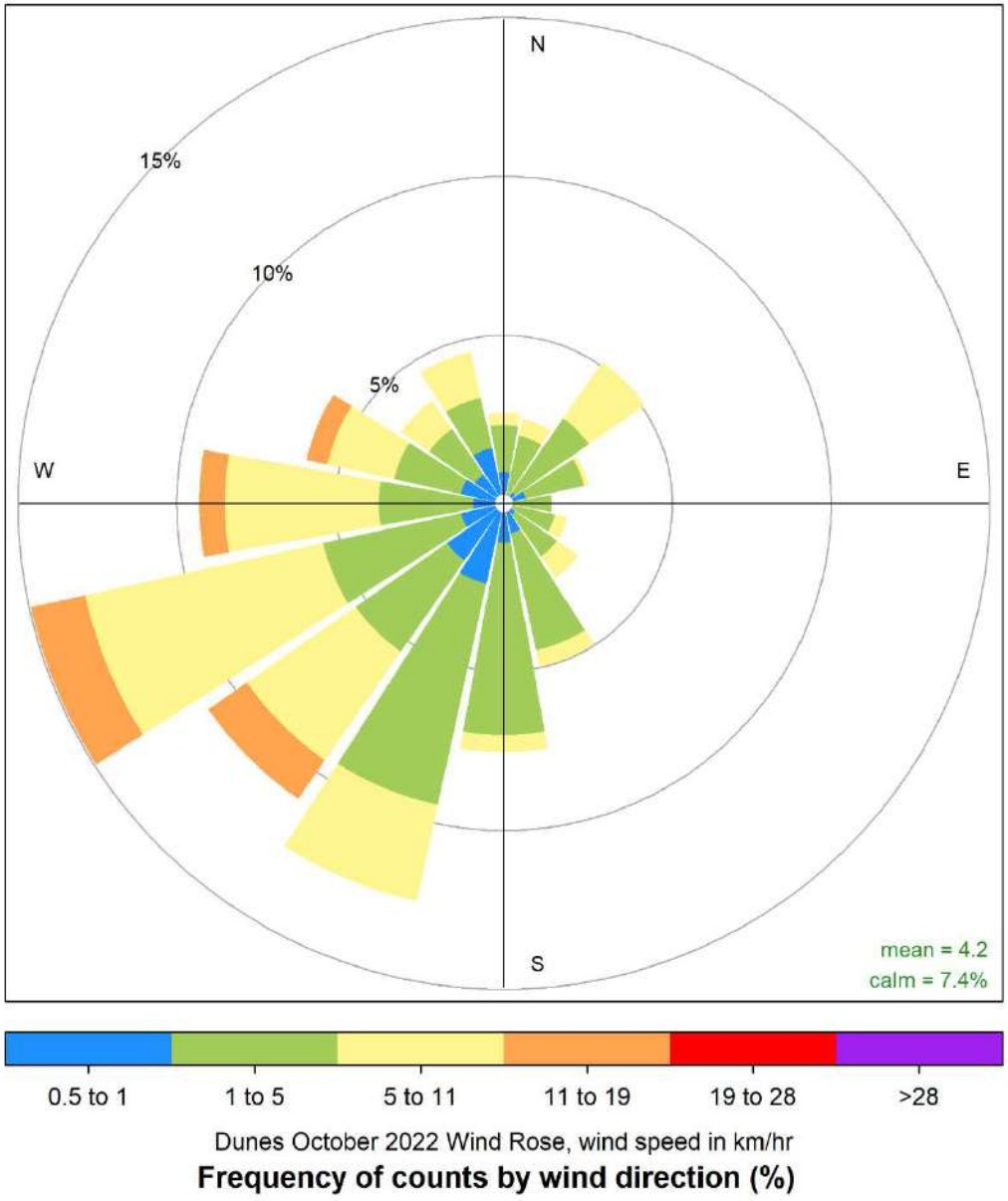

October 2022 Hourly Temperature Readings (in °C) at Dunes
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 7.8 °C


October 2022 Hourly Readings of Relative Humidity (in %) at Dunes
RH in %
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
RH
Average = 62.5 %


October 2022 Hourly Readings of Wind Speed (in km/hr) at Dunes
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 4.2 km/hr

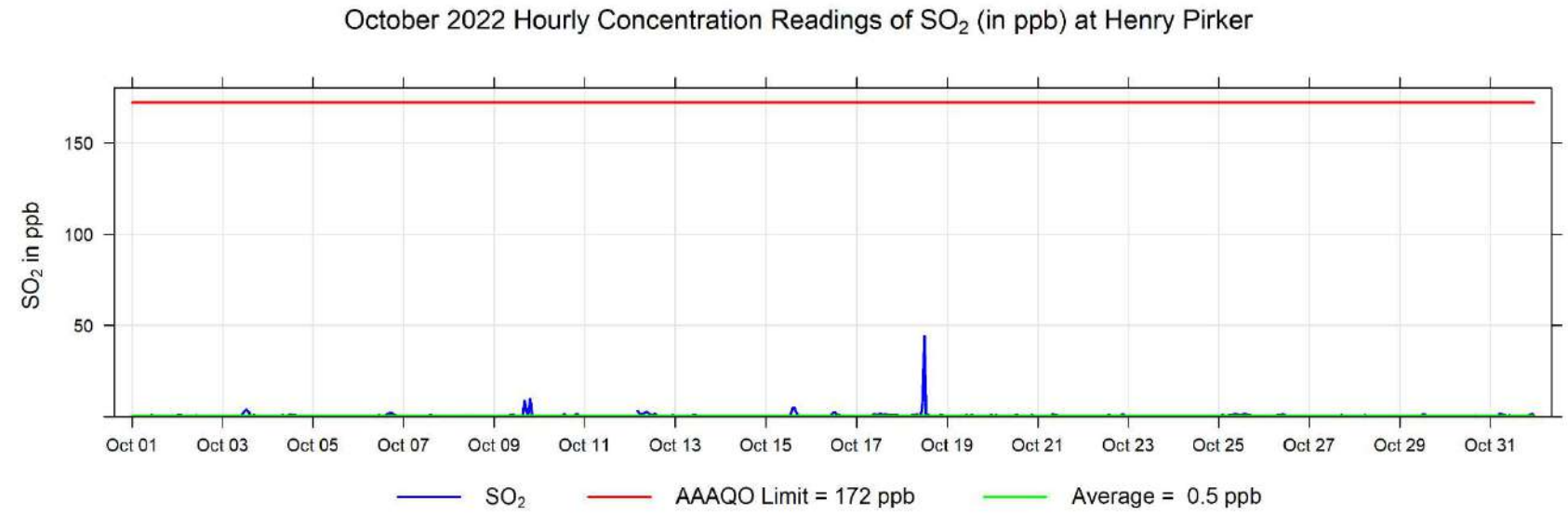

October 2022 Hourly Readings of Wind Direction (in degrees) at Dunes
WD in degrees
300
200
100
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WD

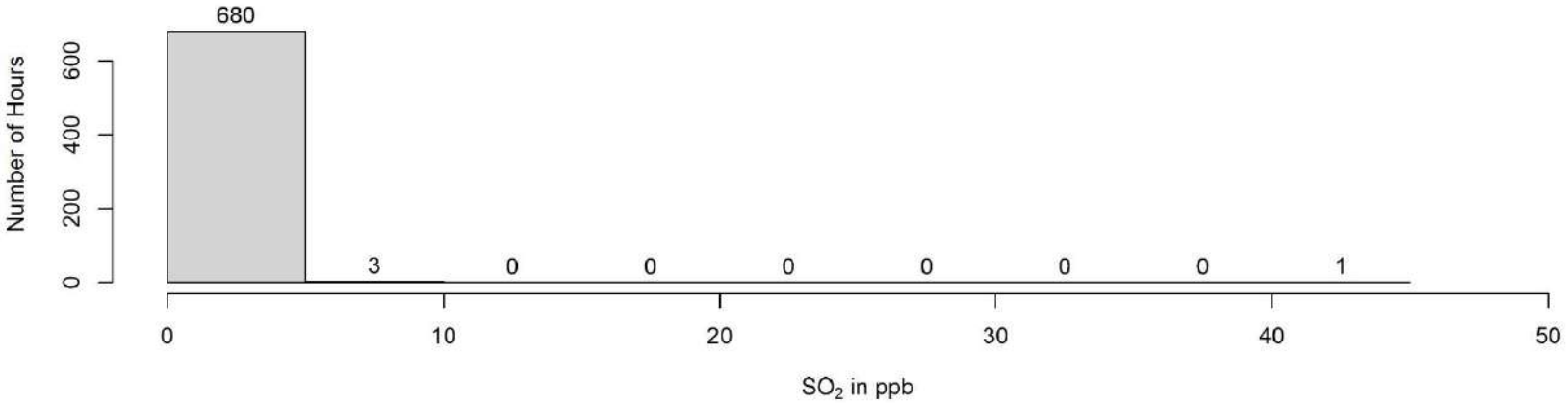

October 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Dunes
WD in degrees
100
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WDSTD

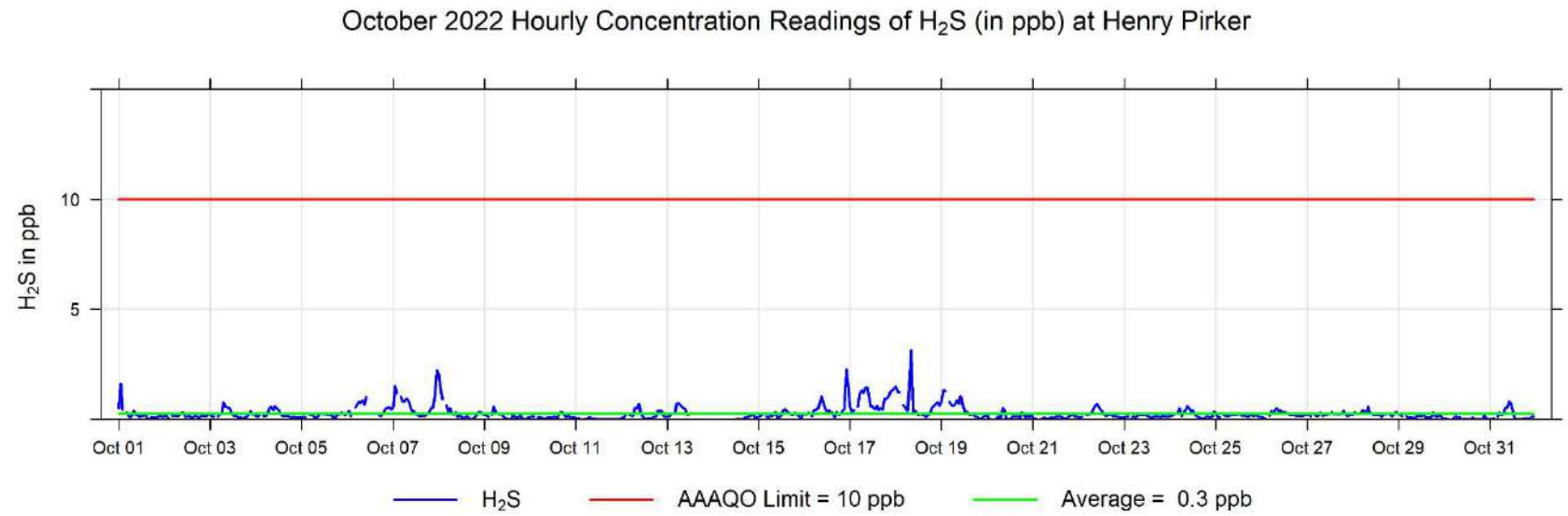

N
15%
10%
5%
W
E
S
mean = 4.2
calm = 7.4%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Dunes October 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

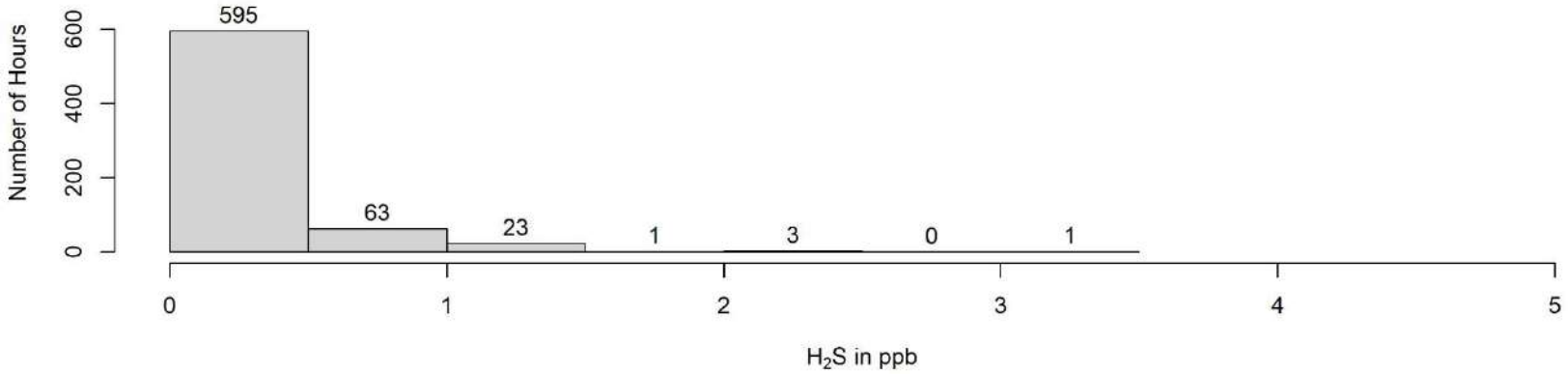
4 Grande Prairie - Henry Pirker Charts

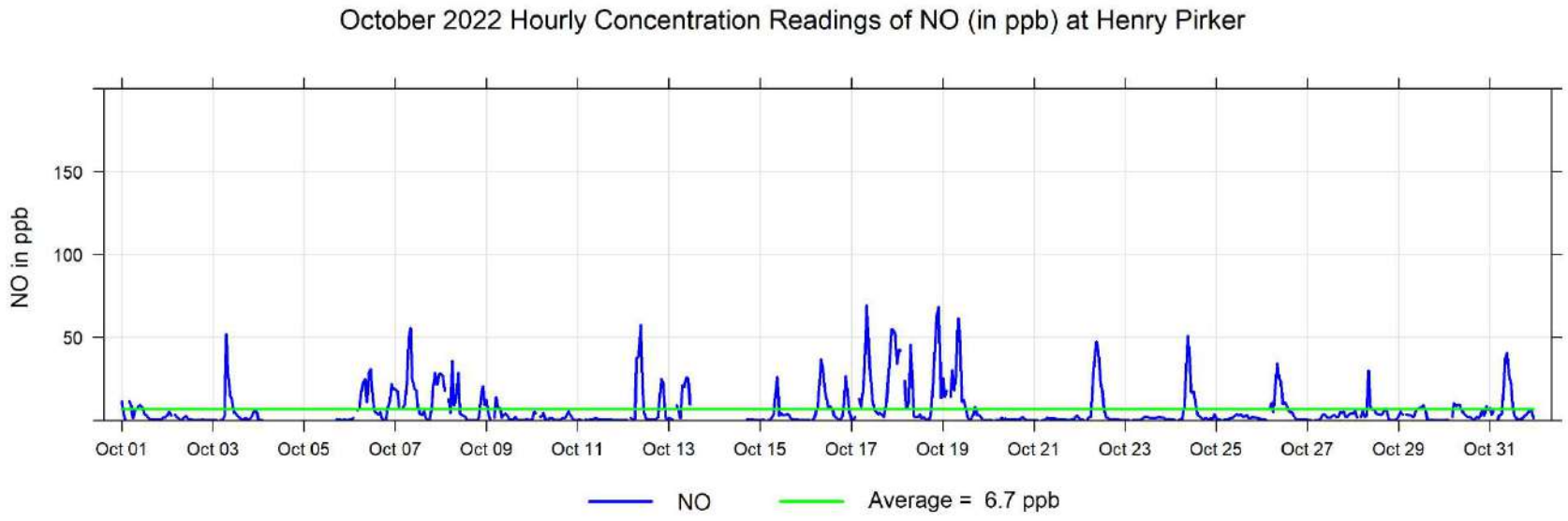
The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie

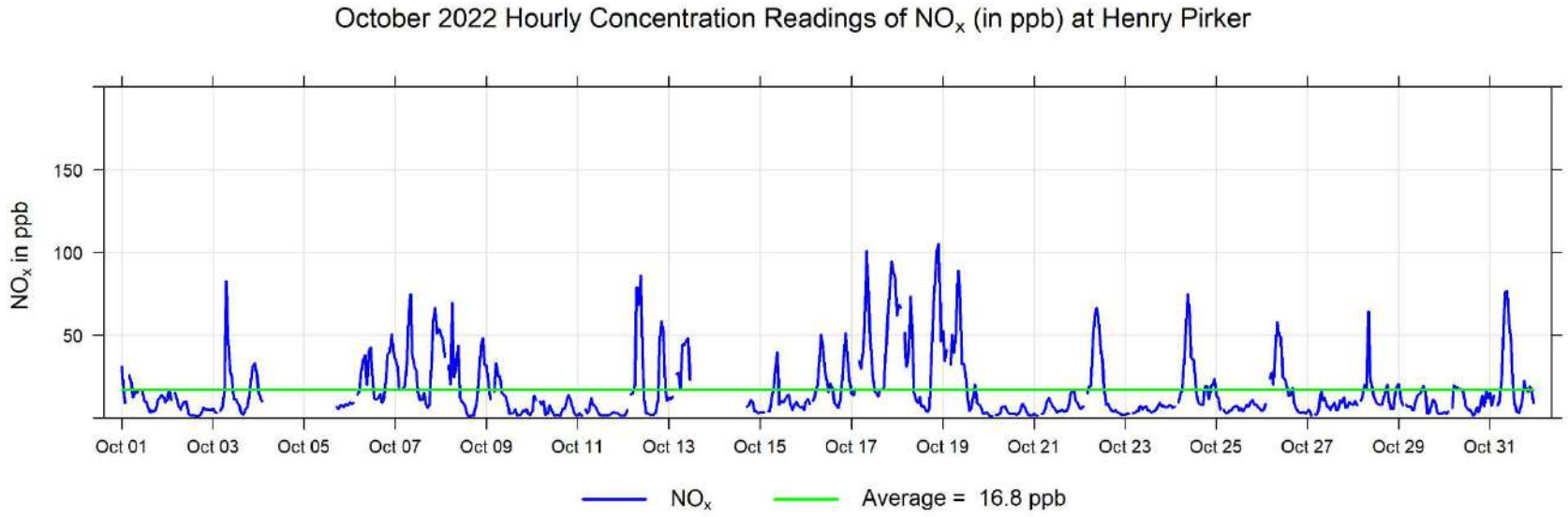

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Henry Pirker
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.5 ppb

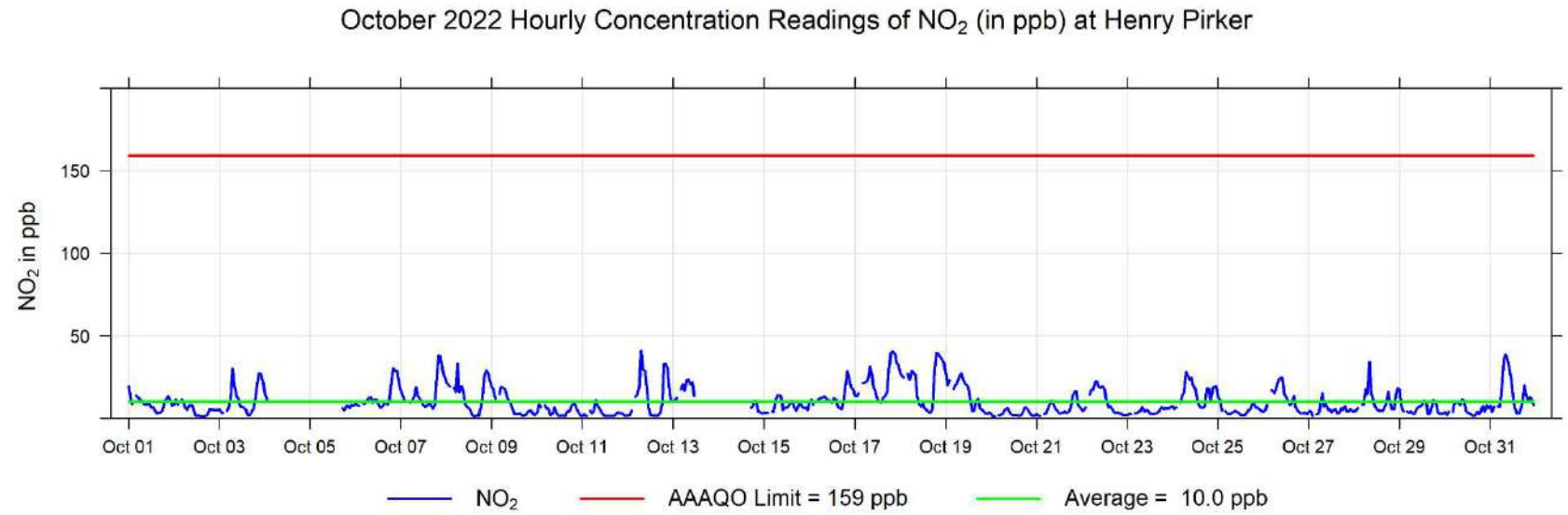

Number of Hours
0
200
400
600
680
3
0
0
0
0
0
0
1
0
10
20
30
40
50
SO_2 in ppb

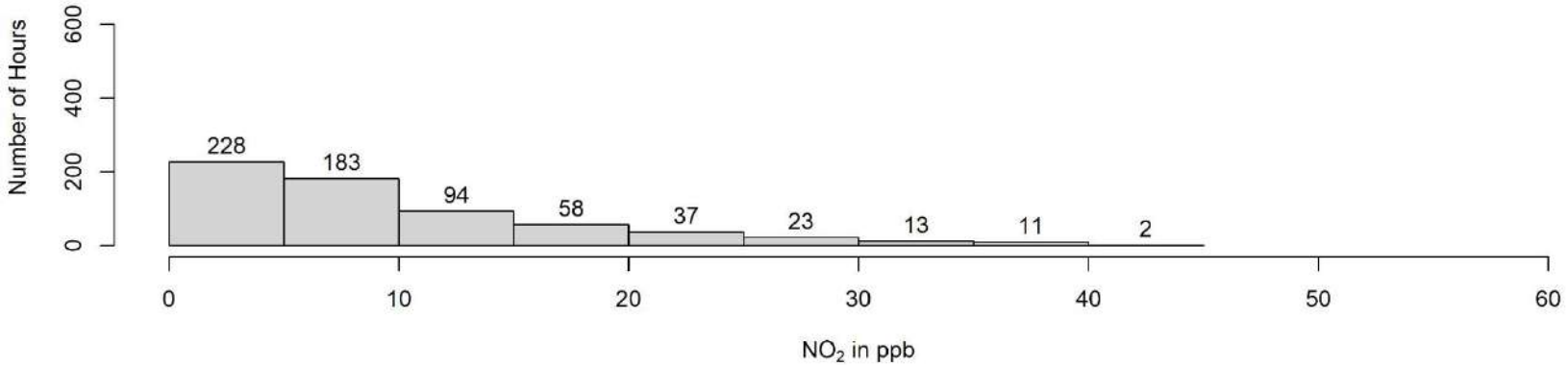

October 2022 Hourly Concentration Readings of H2S (in ppb) at Henry Pirker
H2S in ppb
10
5
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
H2S
AAAQO Limit = 10 ppb
Average = 0.3 ppb

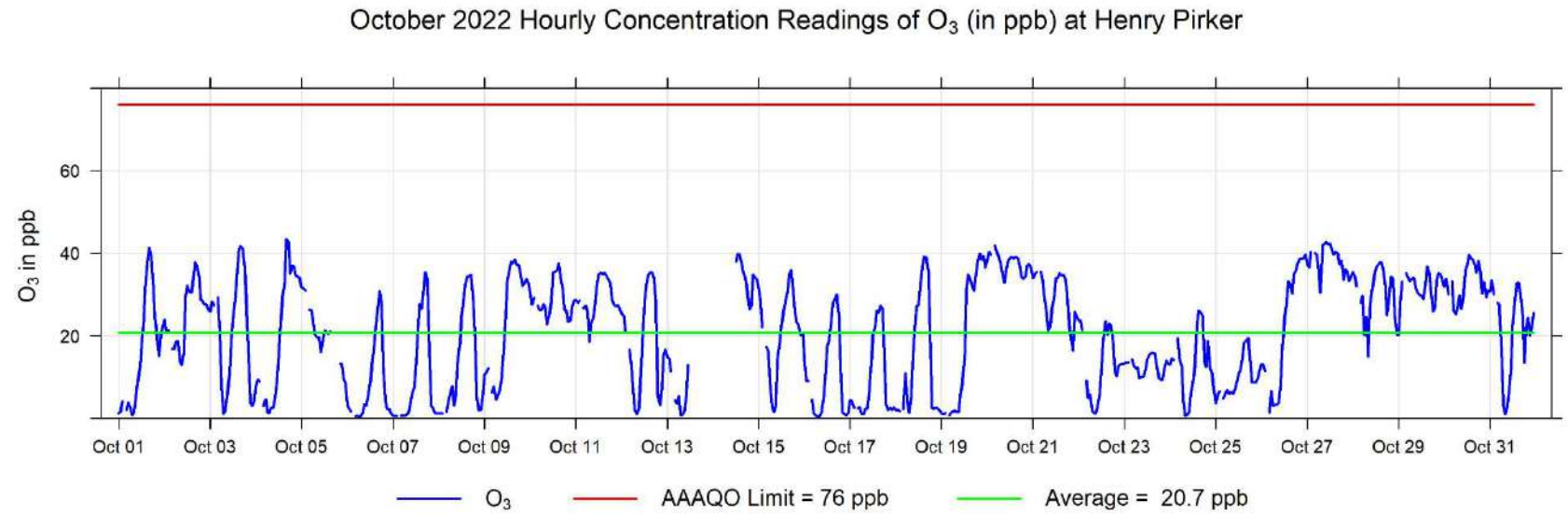

Number of Hours
0
200
400
600
595
63
23
1
3
0
1
0
1
2
3
4
5
H2S in ppb

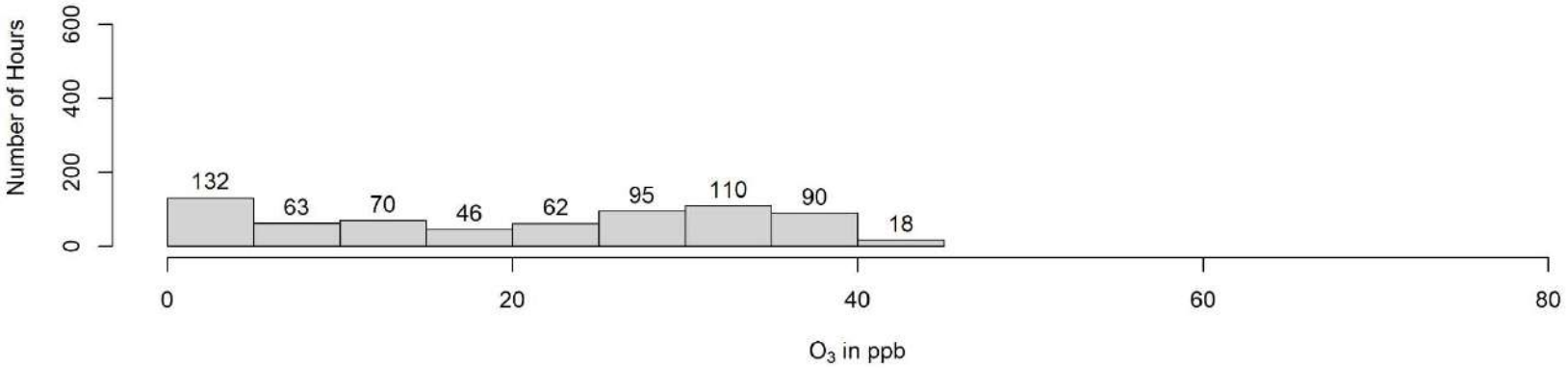

October 2022 Hourly Concentration Readings of NO (in ppb) at Henry Pirker
NO in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO
Average = 6.7 ppb

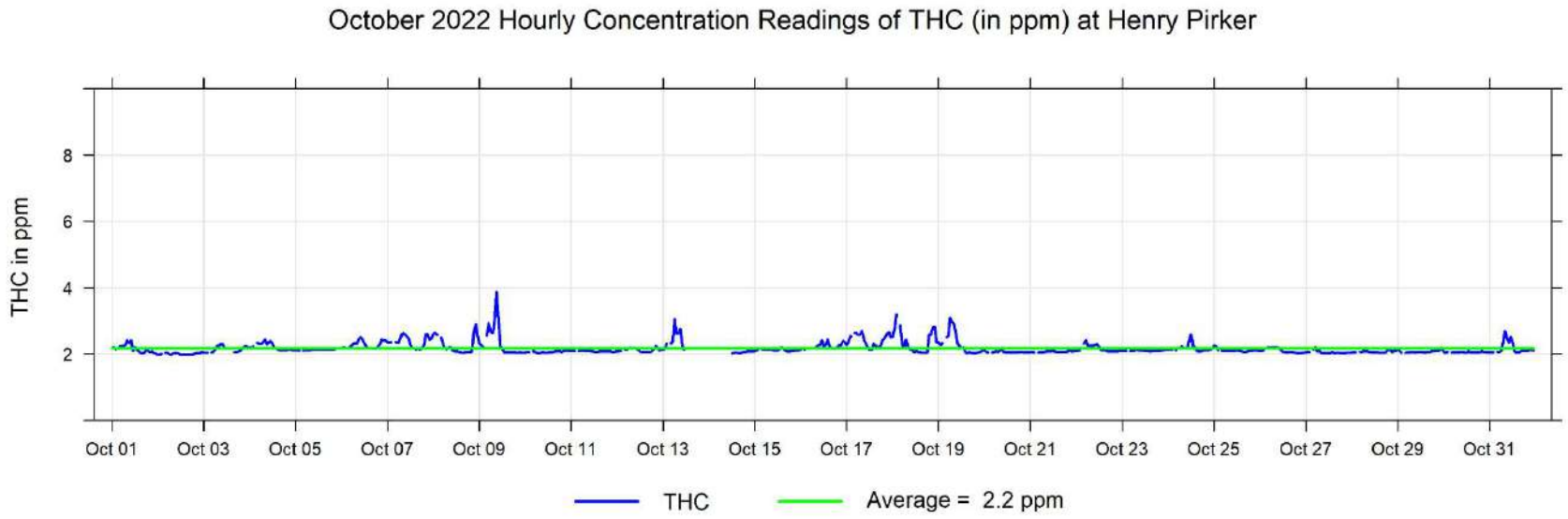

October 2022 Hourly Concentration Readings of NOx (in ppb) at Henry Pirker
NOx in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NOx
Average = 16.8 ppb

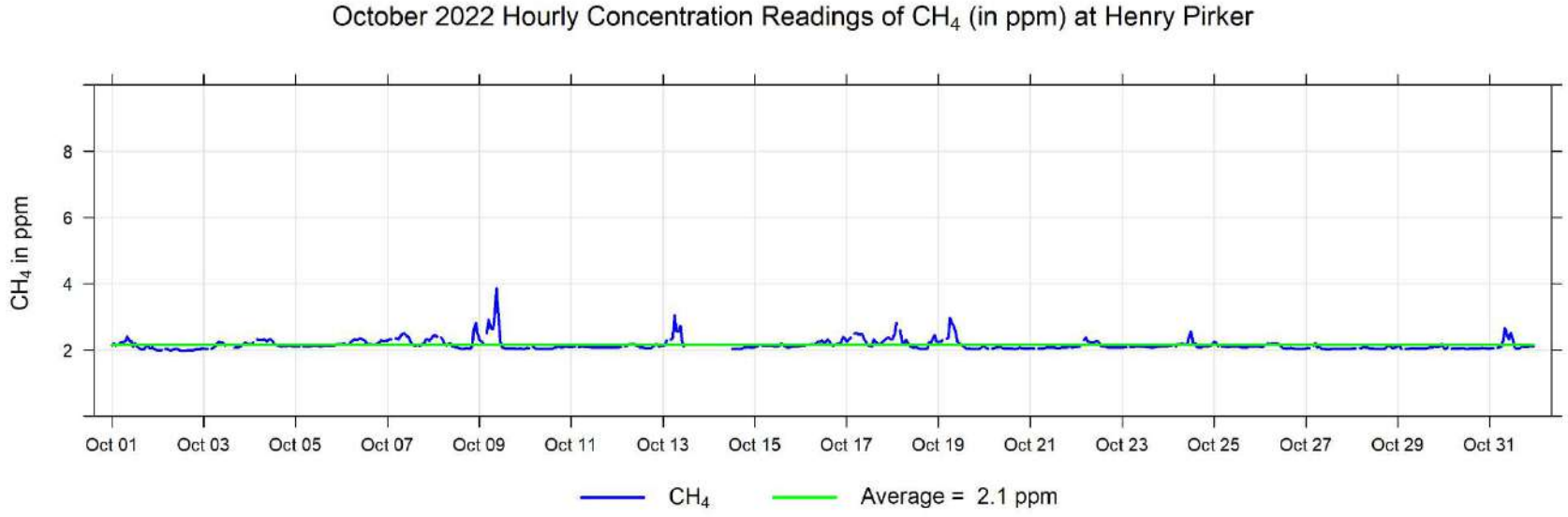

October 2022 Hourly Concentration Readings of NO2 (in ppb) at Henry Pirker
NO2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO2
AAAQO Limit = 159 ppb
Average = 10.0 ppb

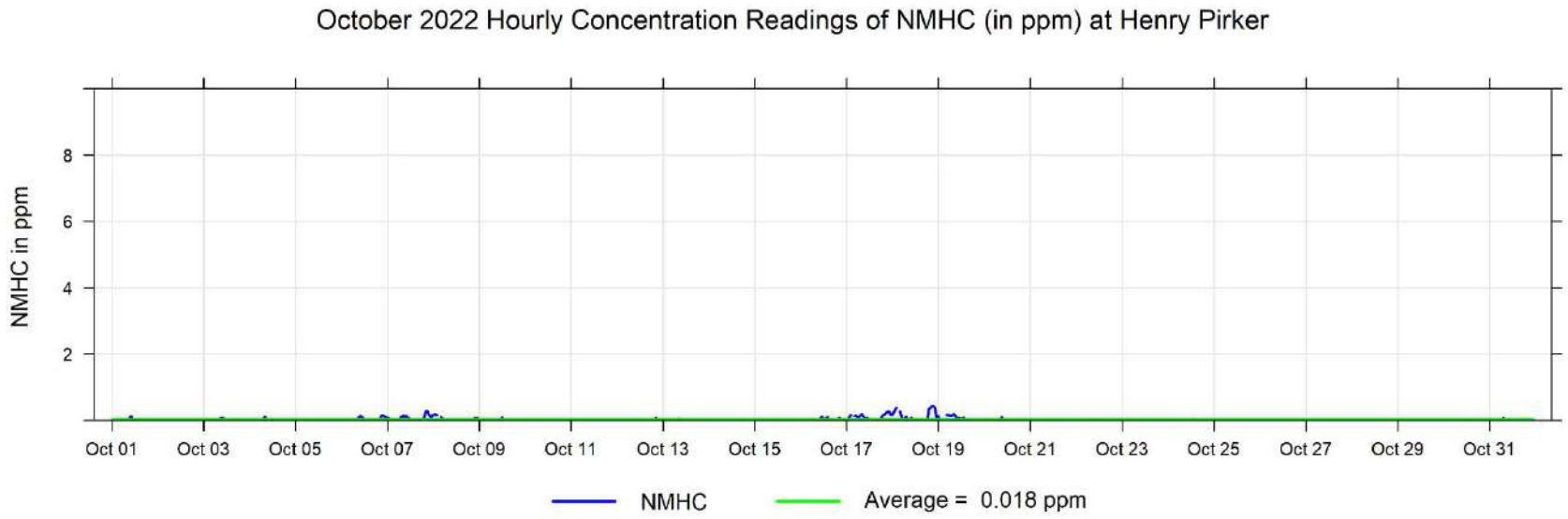

Number of Hours
0
200
400
600
228
183
94
58
37
23
13
11
2
0
10
20
30
40
50
60
NO2 in ppb

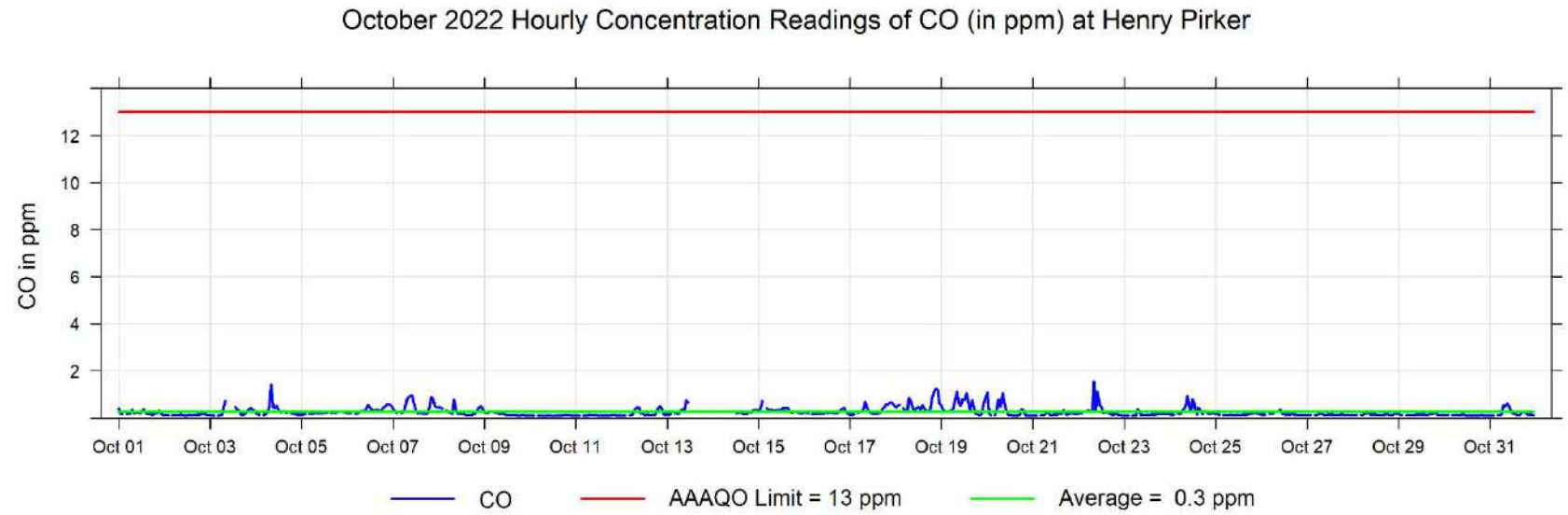

October 2022 Hourly Concentration Readings of O_3 (in ppb) at Henry Pirker
O_3 in ppb
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
O_3
AAAQO Limit = 76 ppb
Average = 20.7 ppb

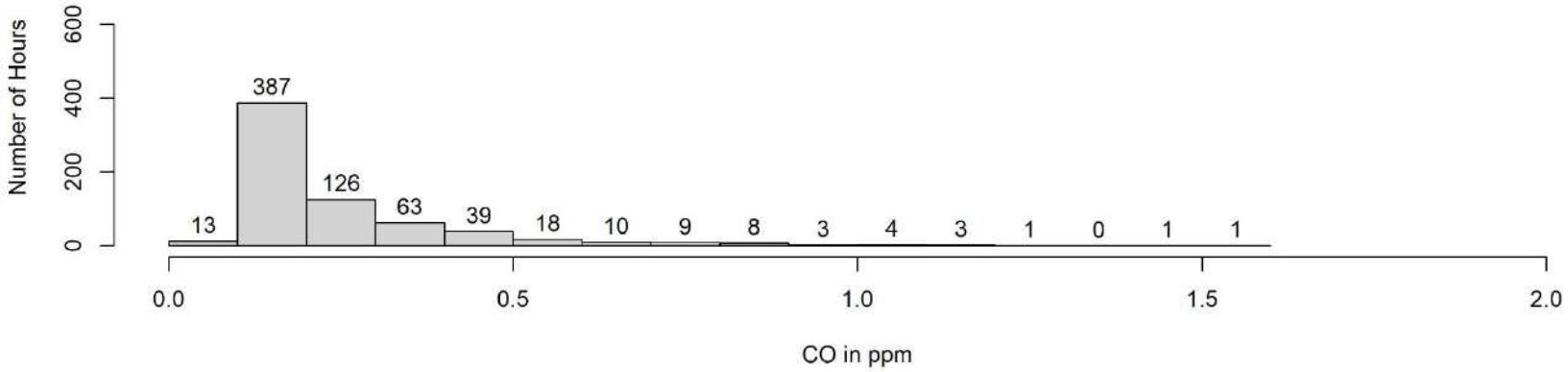

Number of Hours
0
200
400
600
132
63
70
46
62
95
110
90
18
0
20
40
60
80
O_3 in ppb

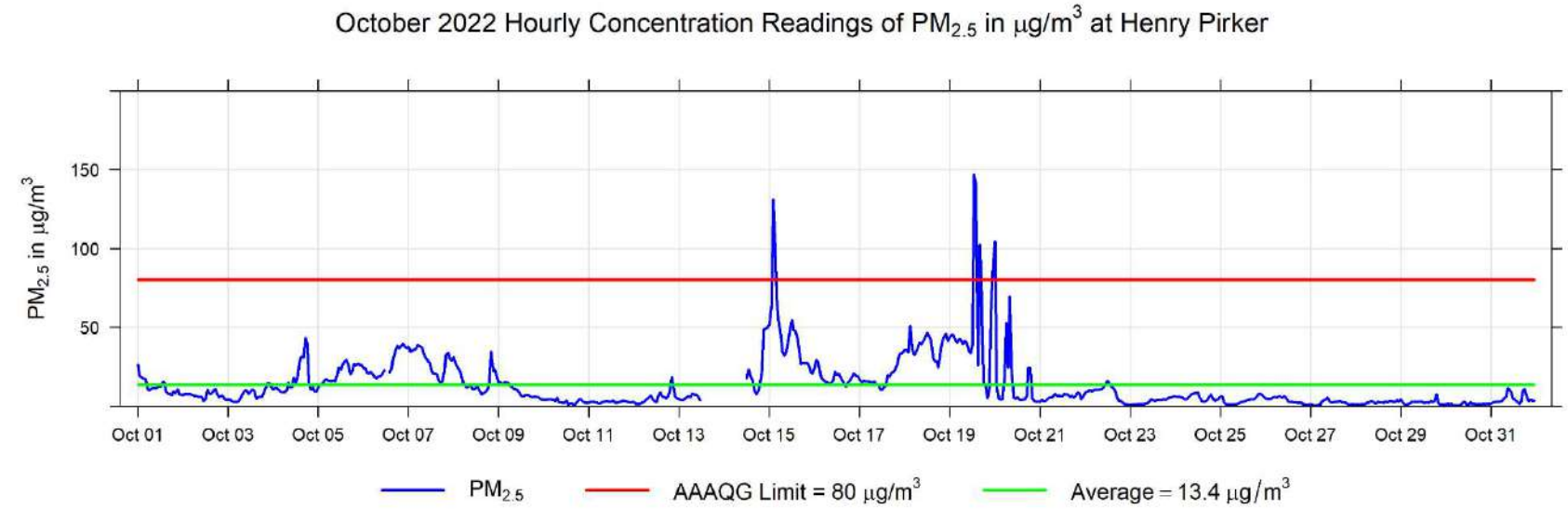

October 2022 Hourly Concentration Readings of THC (in ppm) at Henry Pirker
THC in ppm
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
THC
Average = 2.2 ppm

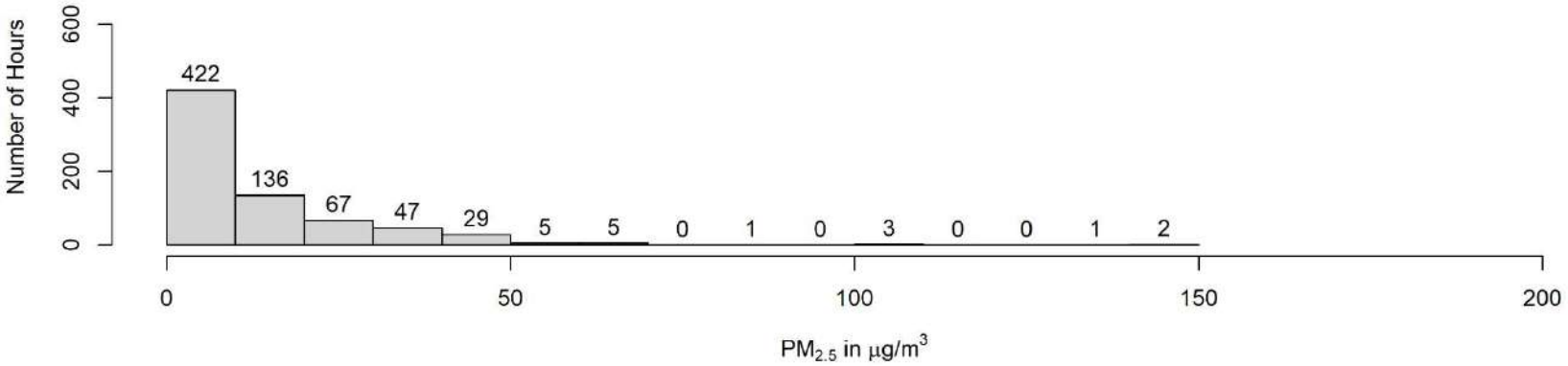

October 2022 Hourly Concentration Readings of CH4 (in ppm) at Henry Pirker
CH4 in ppm
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
CH4
Average = 2.1 ppm

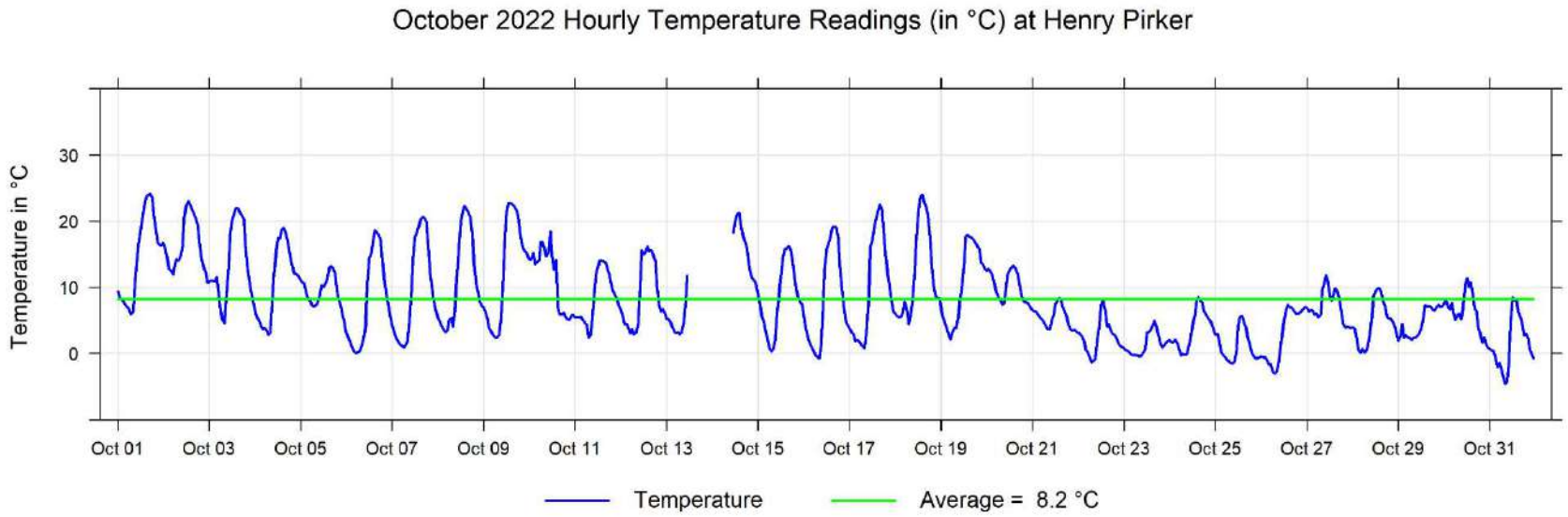

October 2022 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker
NMHC in ppm
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NMHC
Average = 0.018 ppm

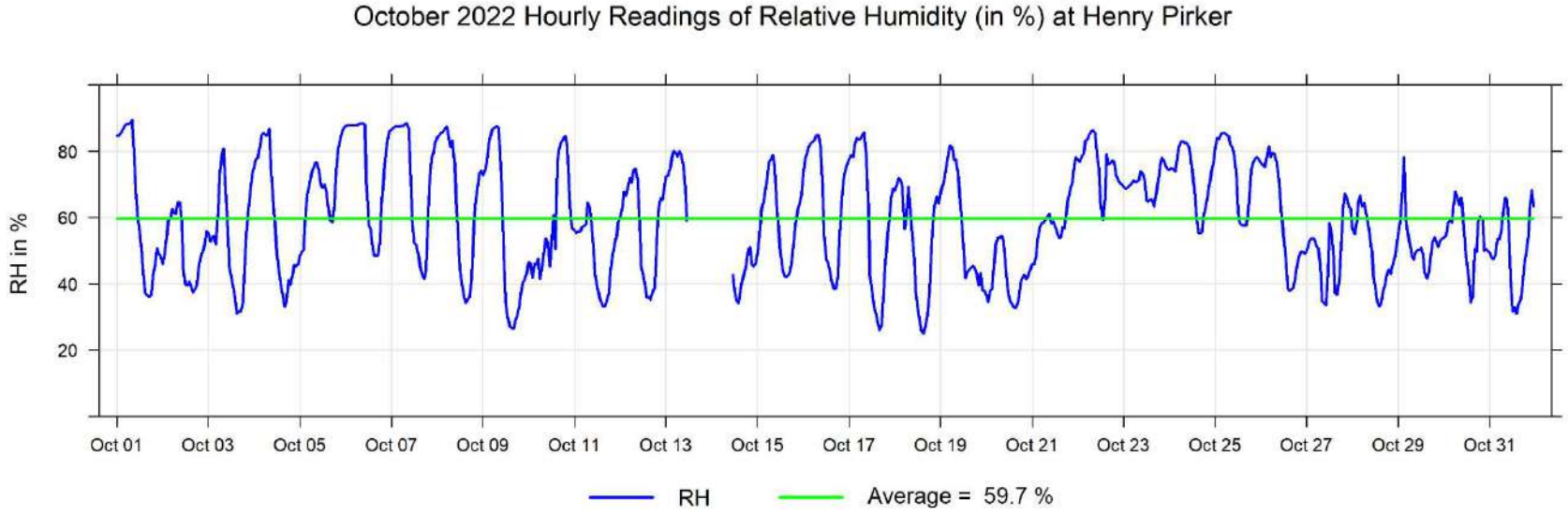

October 2022 Hourly Concentration Readings of CO (in ppm) at Henry Pirker
CO in ppm
12
10
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
CO
AAAQO Limit = 13 ppm
Average = 0.3 ppm

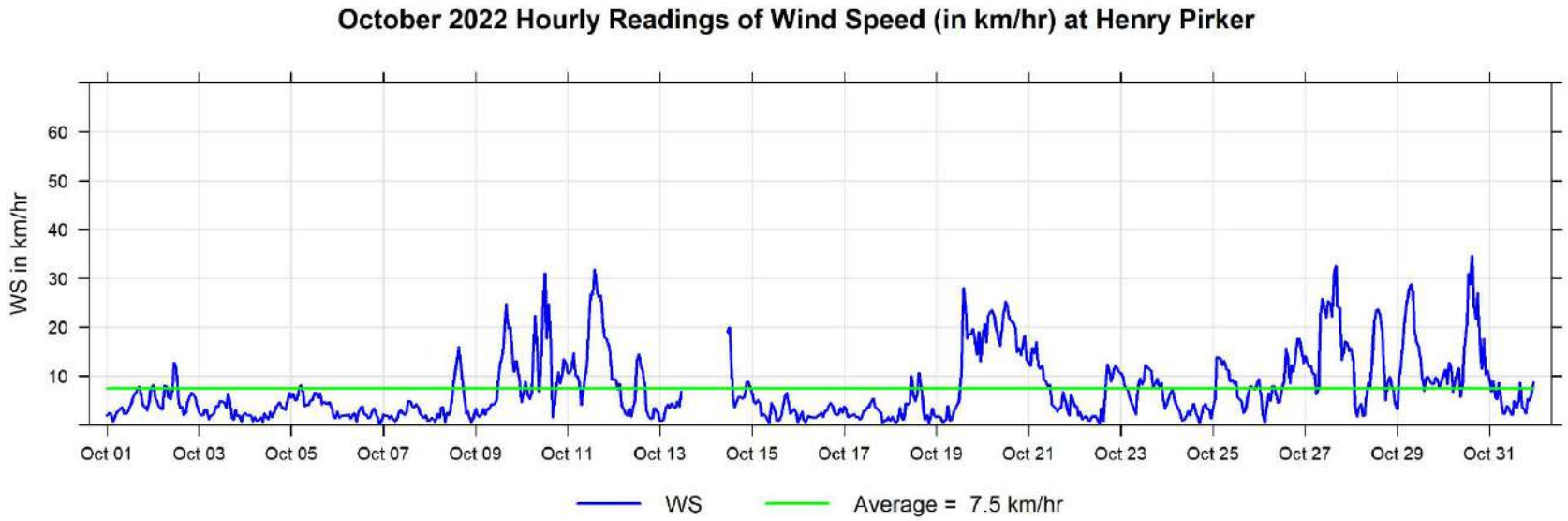

Number of Hours
0
200
400
600
13
387
126
63
39
18
10
9
8
3
4
3
1
0
1
1
0.0
0.5
1.0
1.5
2.0
CO in ppm

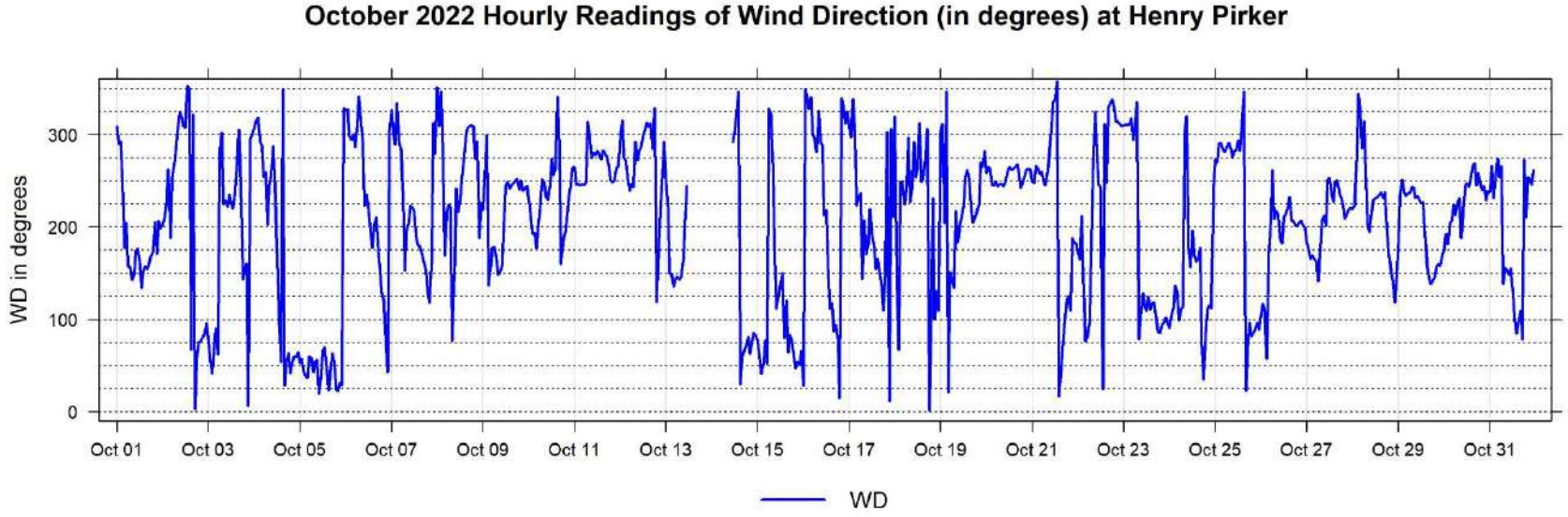

October 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Henry Pirker
PM2.5 in µg/m3
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 13.4 µg/m3

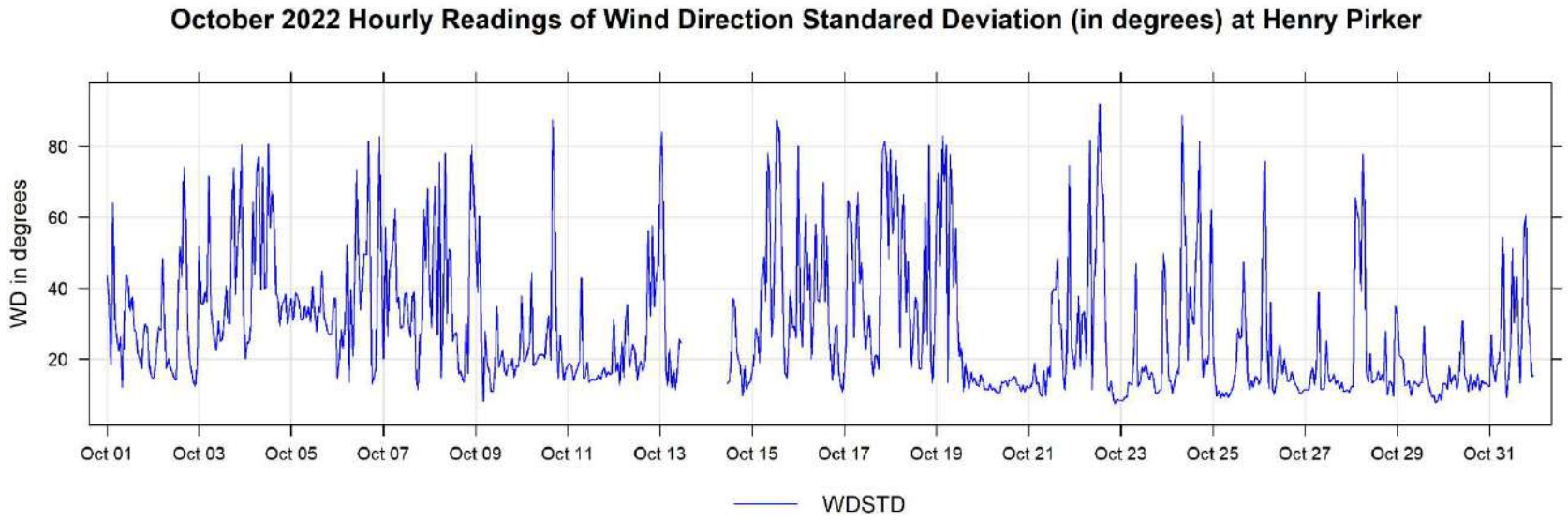

Number of Hours
0
200
400
600
422
136
67
47
29
5
5
0
1
0
3
0
0
1
2
0
50
100
150
200
PM2.5 in µg/m3

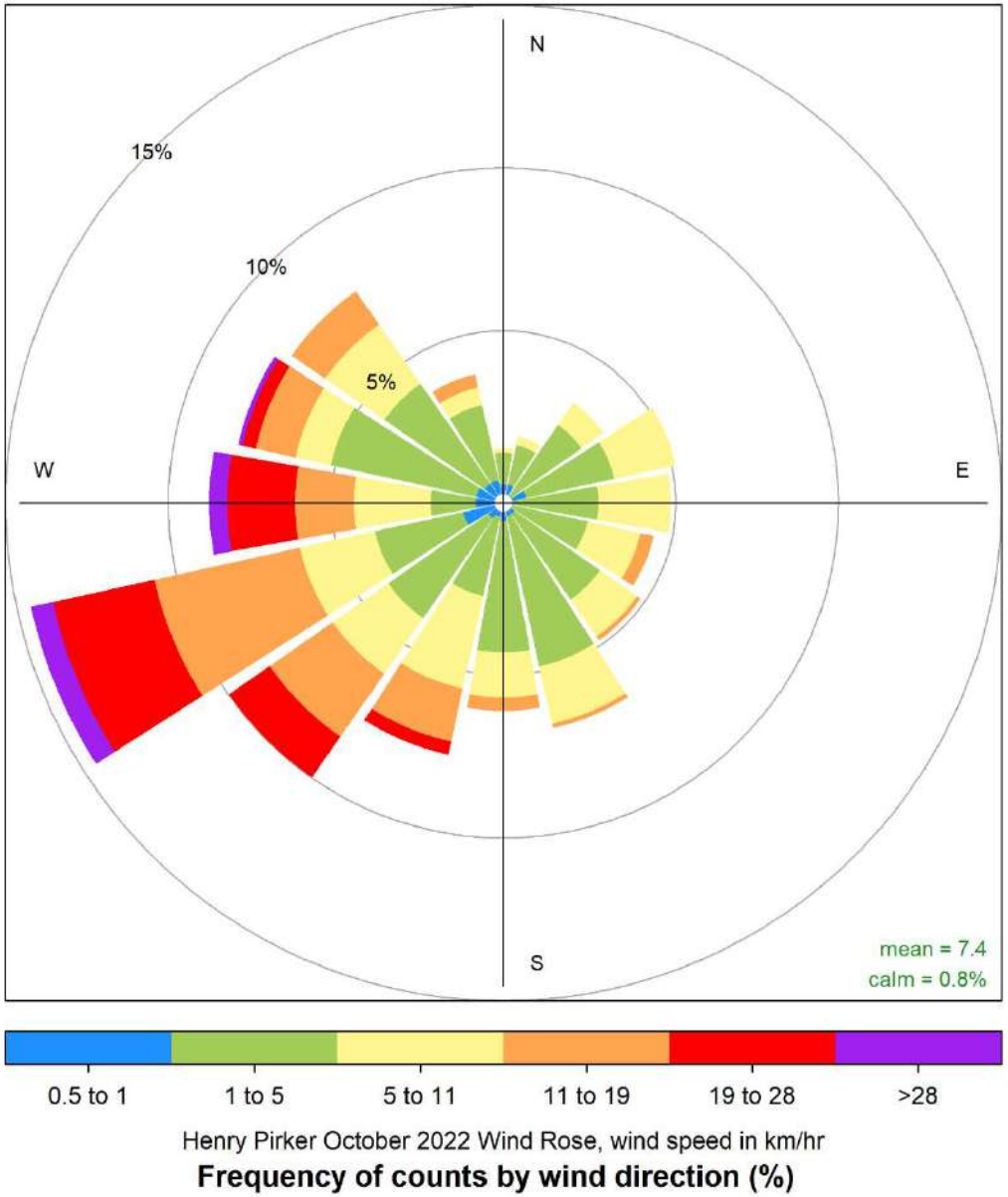

October 2022 Hourly Temperature Readings (in °C) at Henry Pirker
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 8.2 °C


October 2022 Hourly Readings of Relative Humidity (in %) at Henry Pirker
RH in %
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
RH
Average = 59.7 %


October 2022 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 7.5 km/hr


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


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

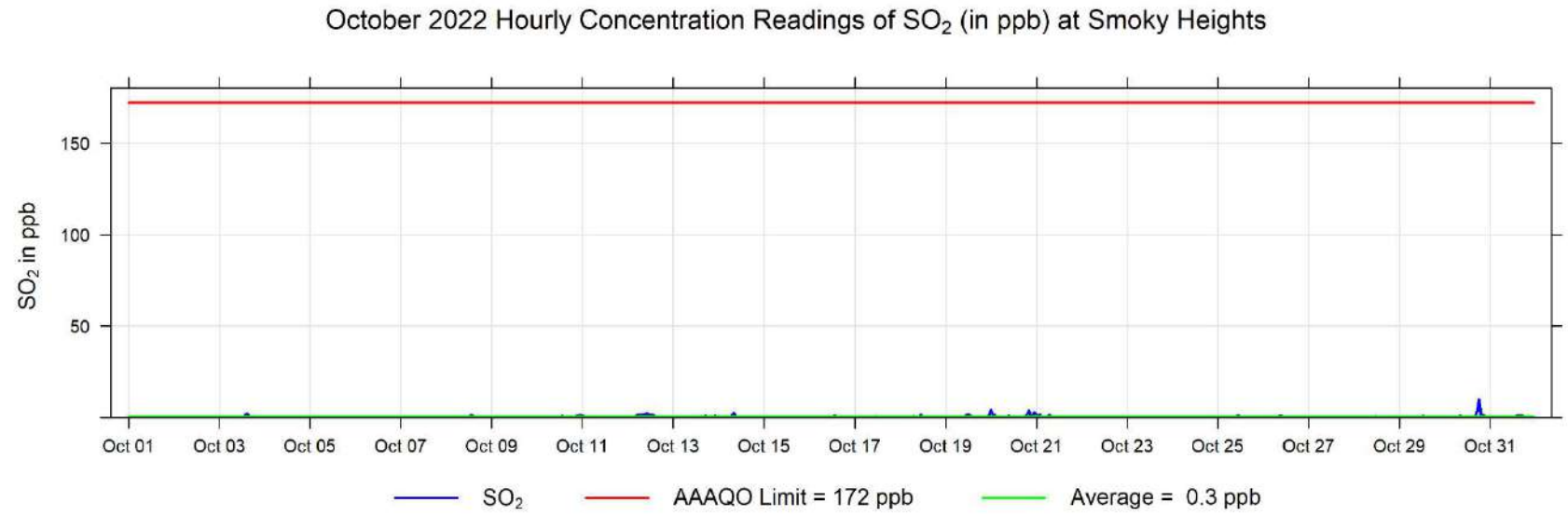


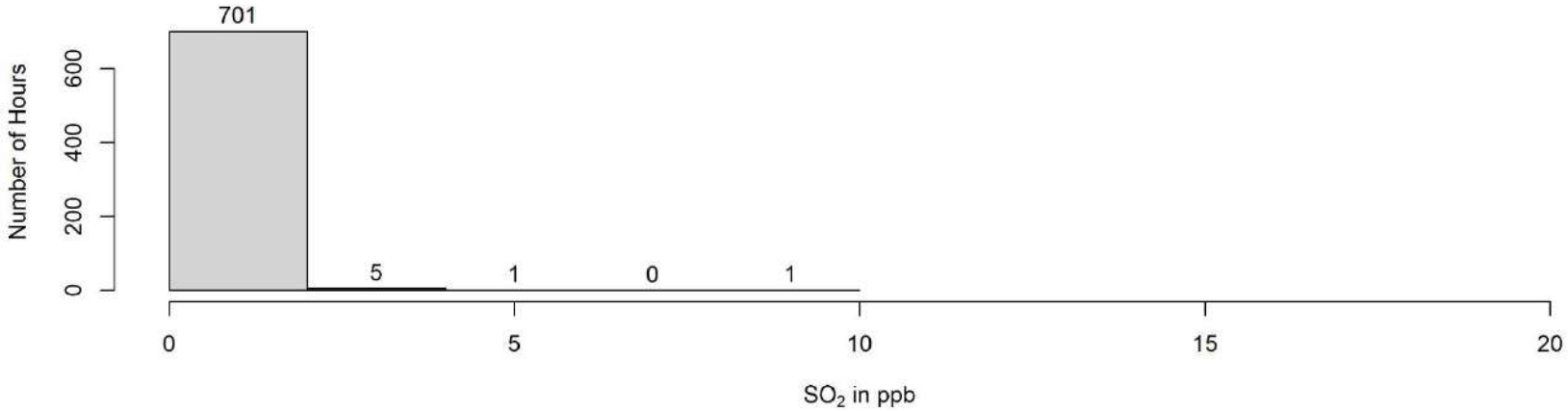
Henry Pirker October 2022 Wind Rose, wind speed in km/hr

Frequency of counts by wind direction (%)

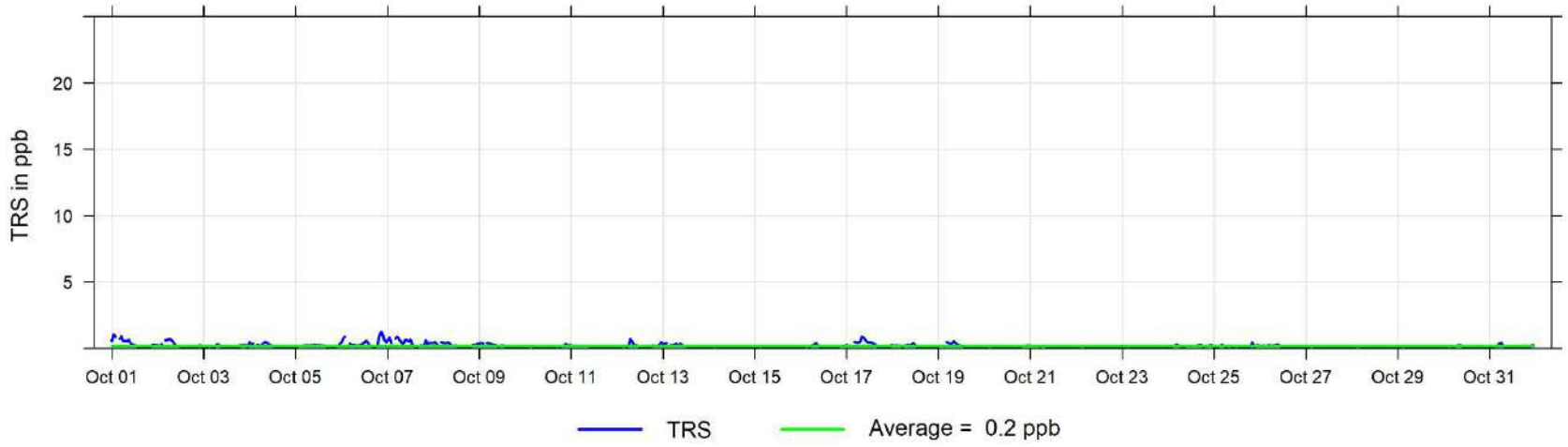
5 Smoky Heights Charts

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

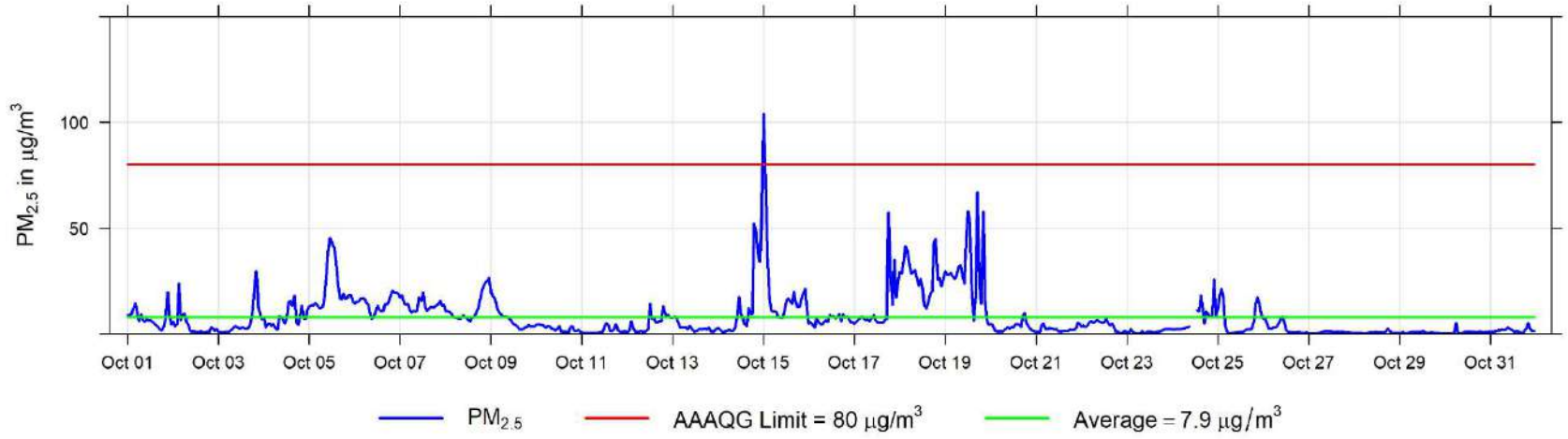

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Smoky Heights
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.3 ppb

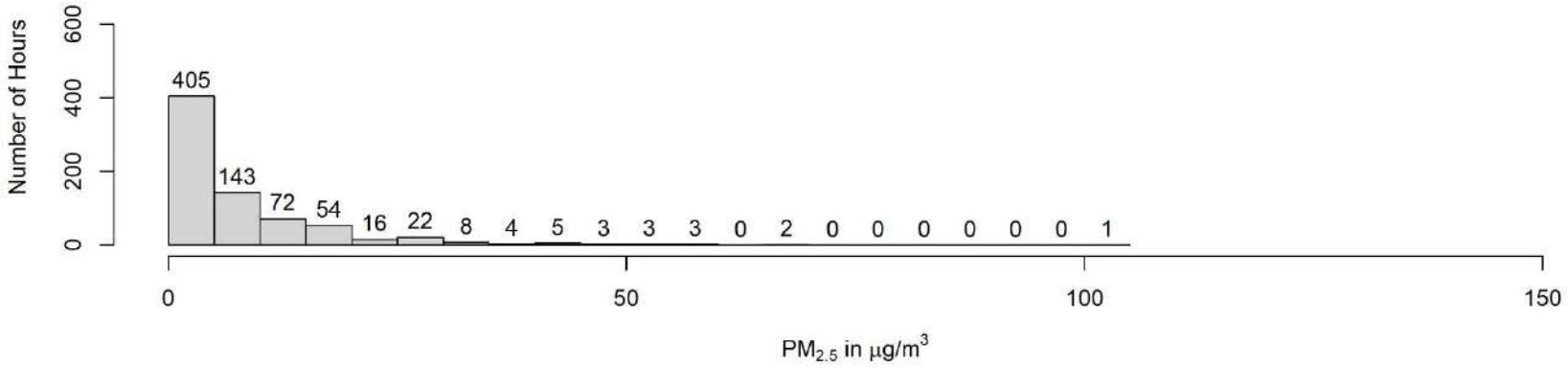

Number of Hours
0
200
400
600
701
5
1
0
1
0
5
10
15
20
SO_2 in ppb

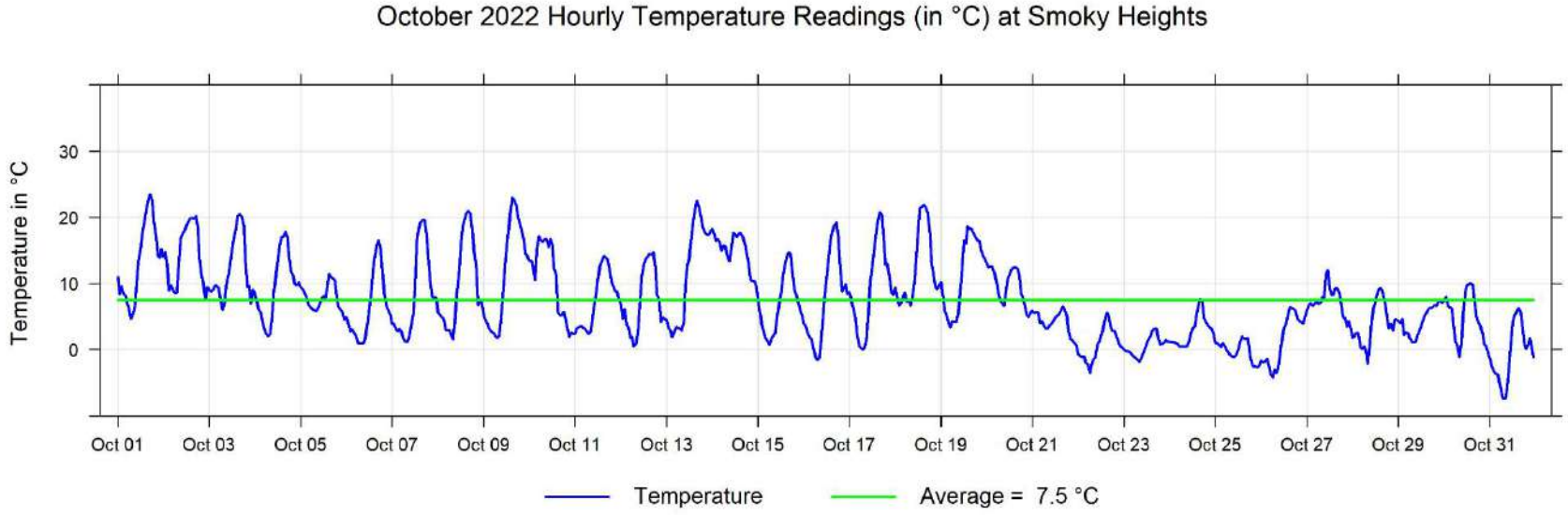
October 2022 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights

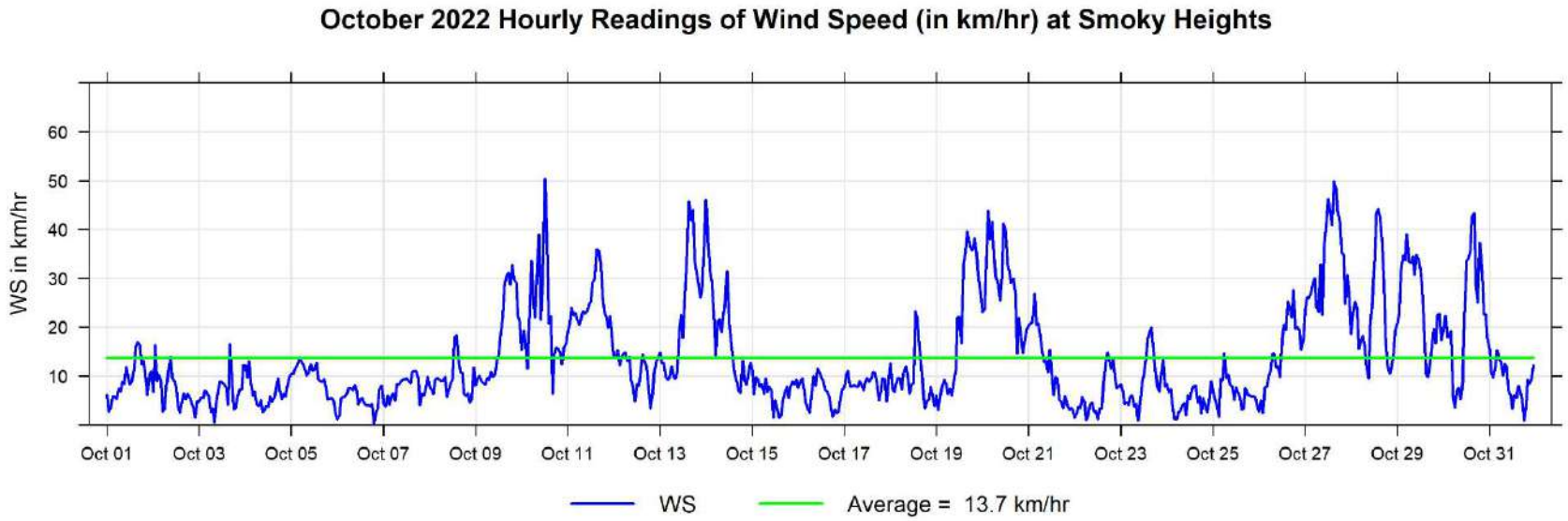


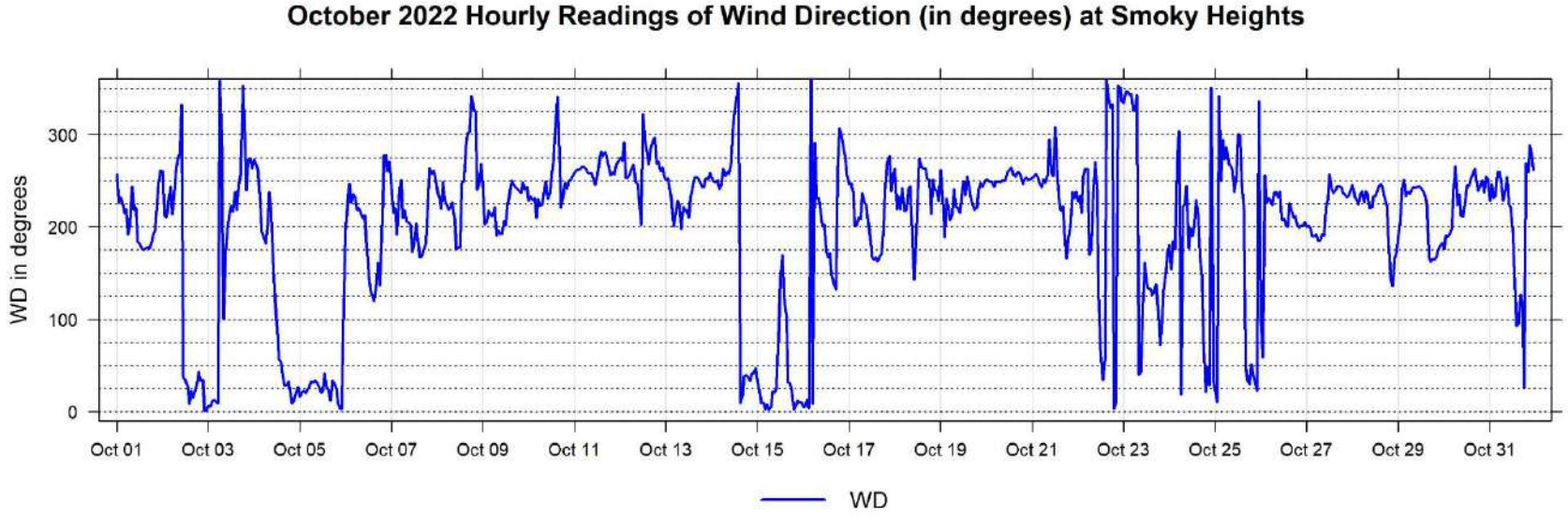
October 2022 Hourly Concentration Readings of $PM_{2.5}$ in $\mu g/m^3$ at Smoky Heights

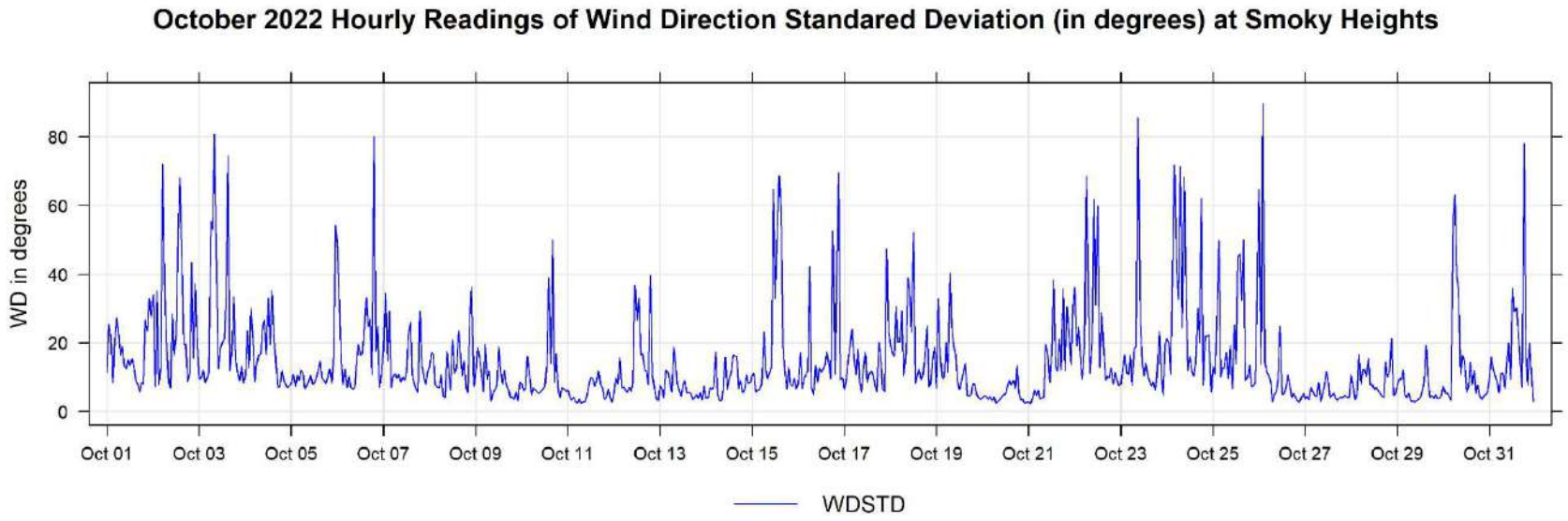


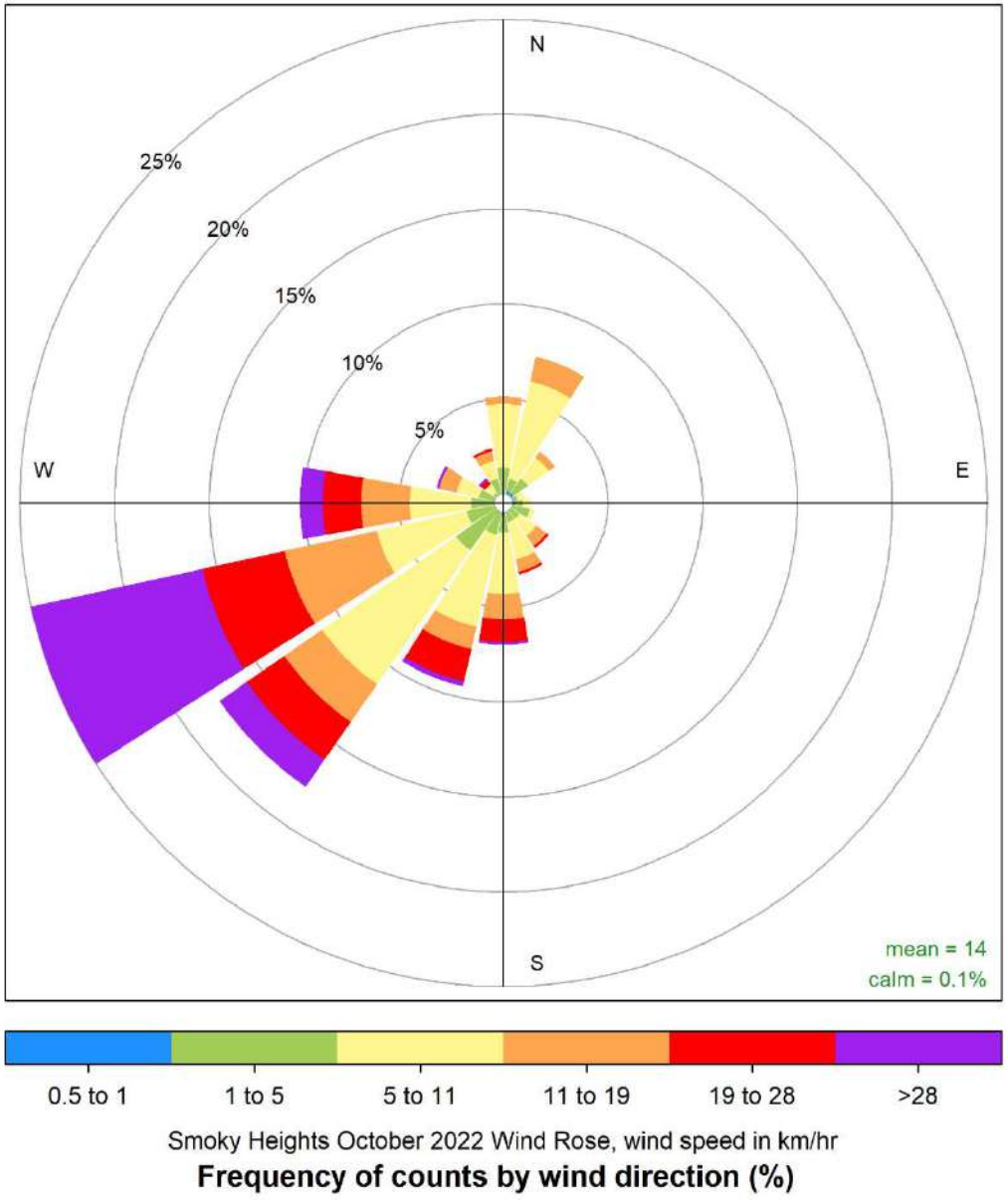

Number of Hours
0
200
400
600
405
143
72
54
16
22
8
4
5
3
3
3
0
2
0
0
0
0
0
0
1
0
50
100
150
PM2.5 in µg/m3


October 2022 Hourly Temperature Readings (in °C) at Smoky Heights
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 7.5 °C


October 2022 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 13.7 km/hr

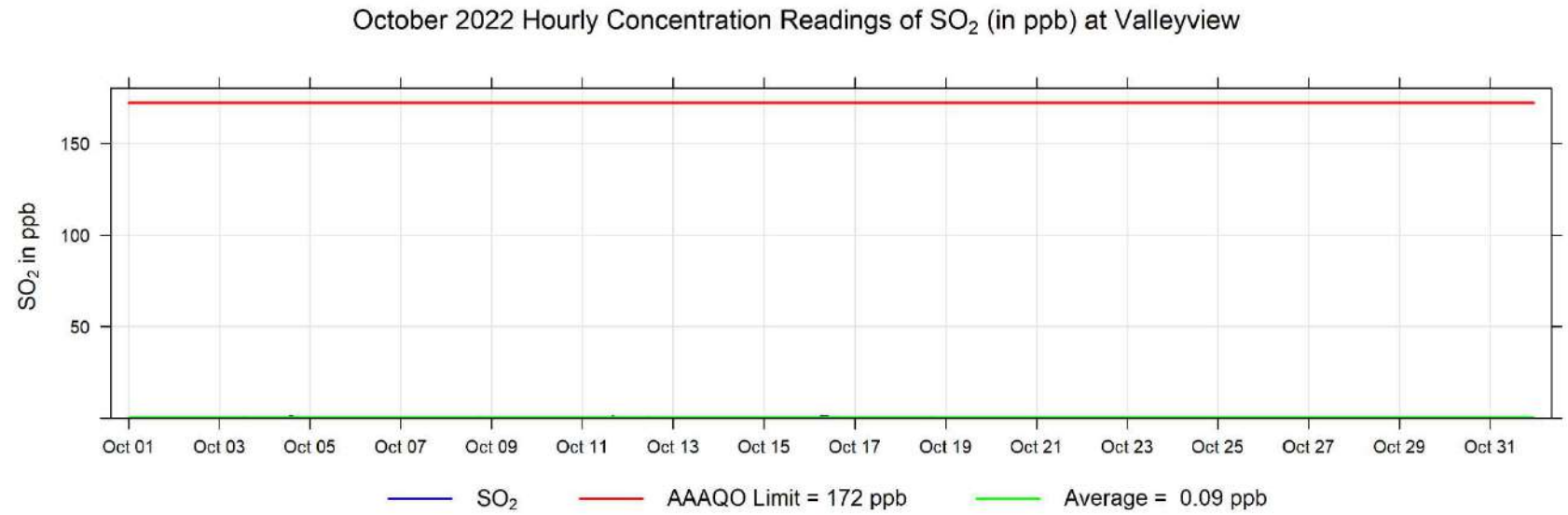

October 2022 Hourly Readings of Wind Direction (in degrees) at Smoky Heights
WD in degrees
300
200
100
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WD

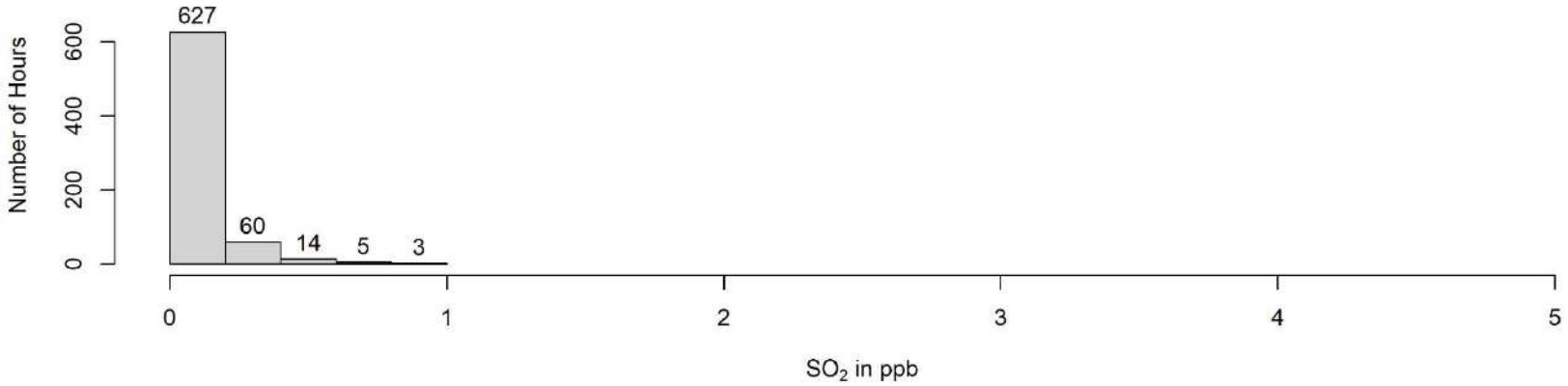

October 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Smoky Heights
WD in degrees
0
20
40
60
80
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WDSTD

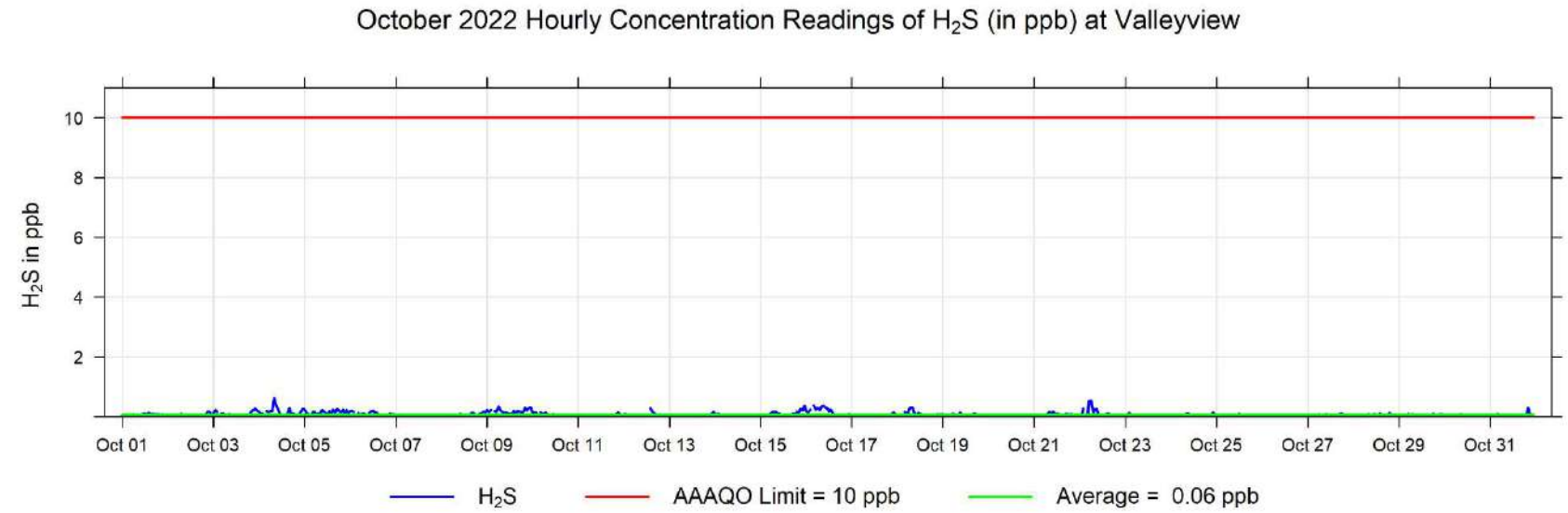

N
25%
20%
15%
10%
5%
W
E
S
mean = 14
calm = 0.1%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Smoky Heights October 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

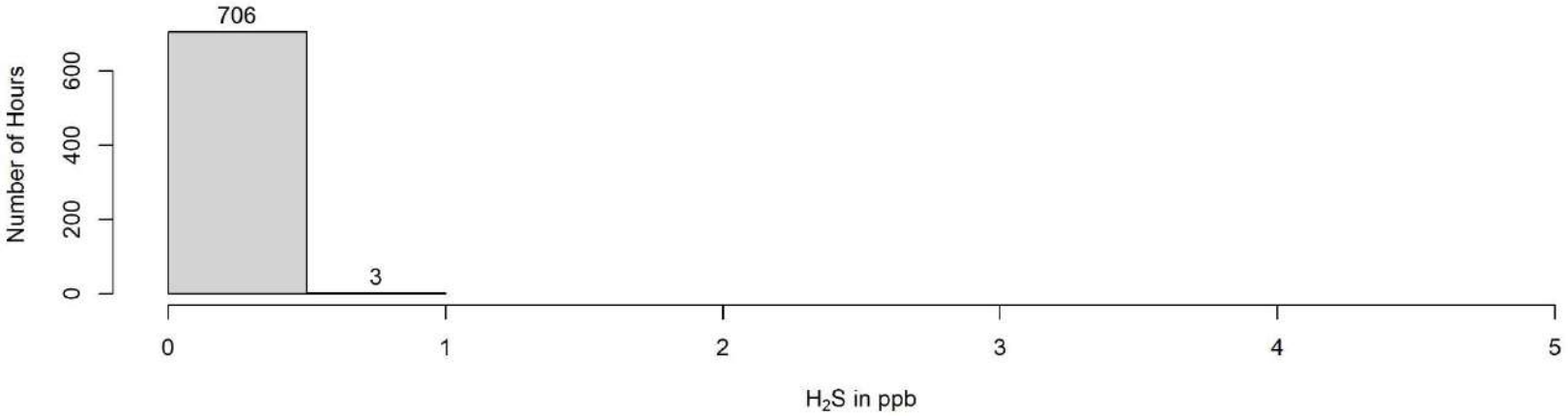
6 Valleyview Charts

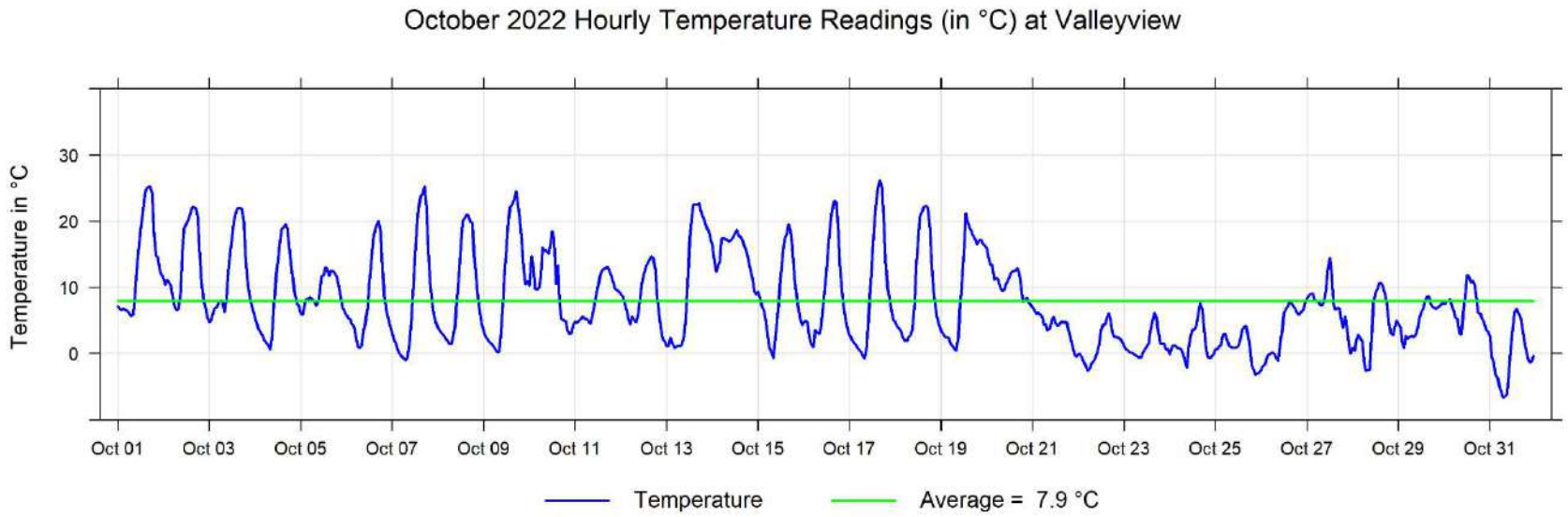
The following pages include the charts and histograms for Valleyview Station

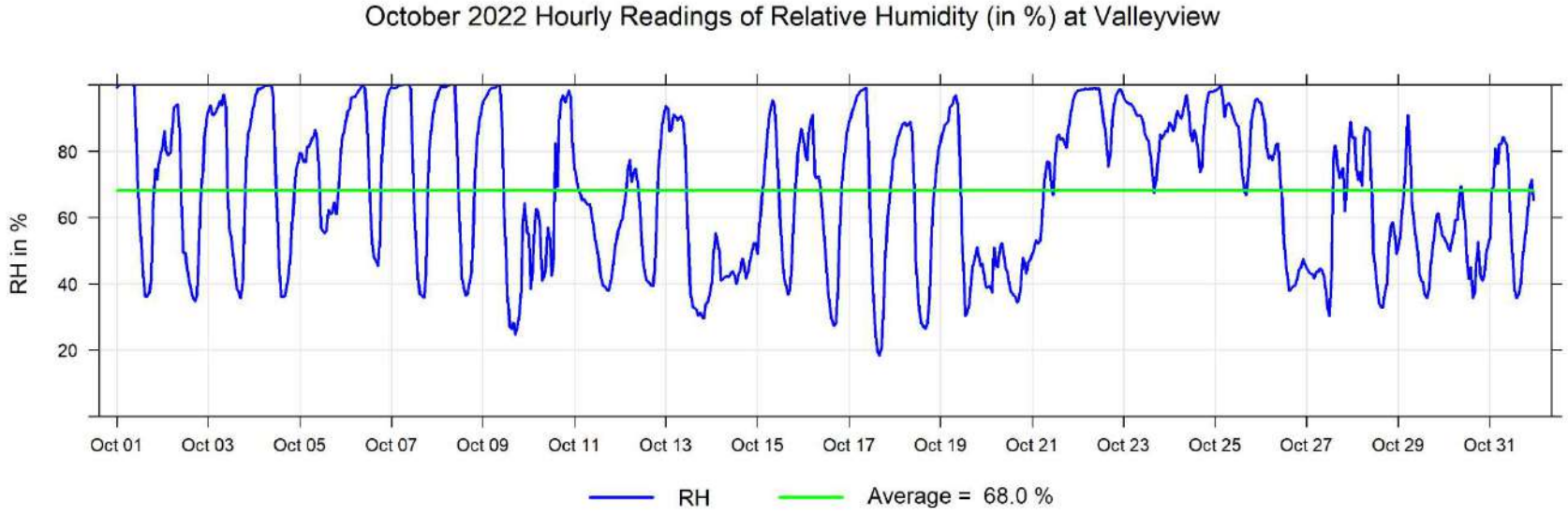

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Valleyview
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.09 ppb

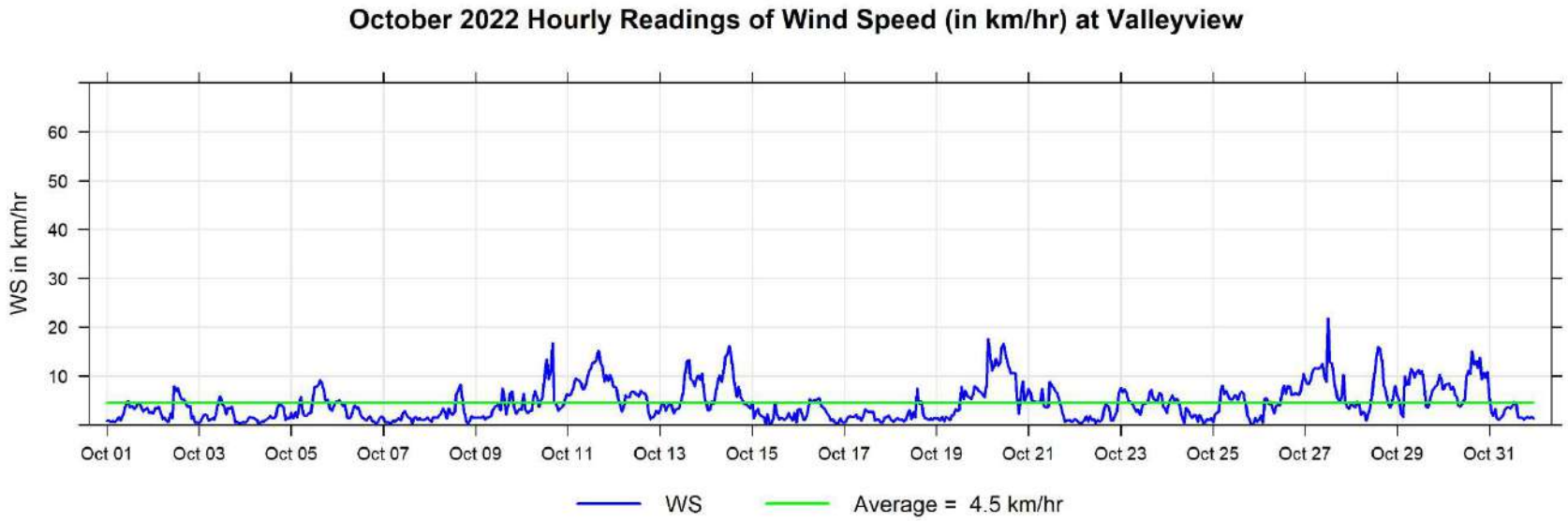

Number of Hours
0
200
400
600
627
60
14
5
3
0
1
2
3
4
5
SO_2 in ppb

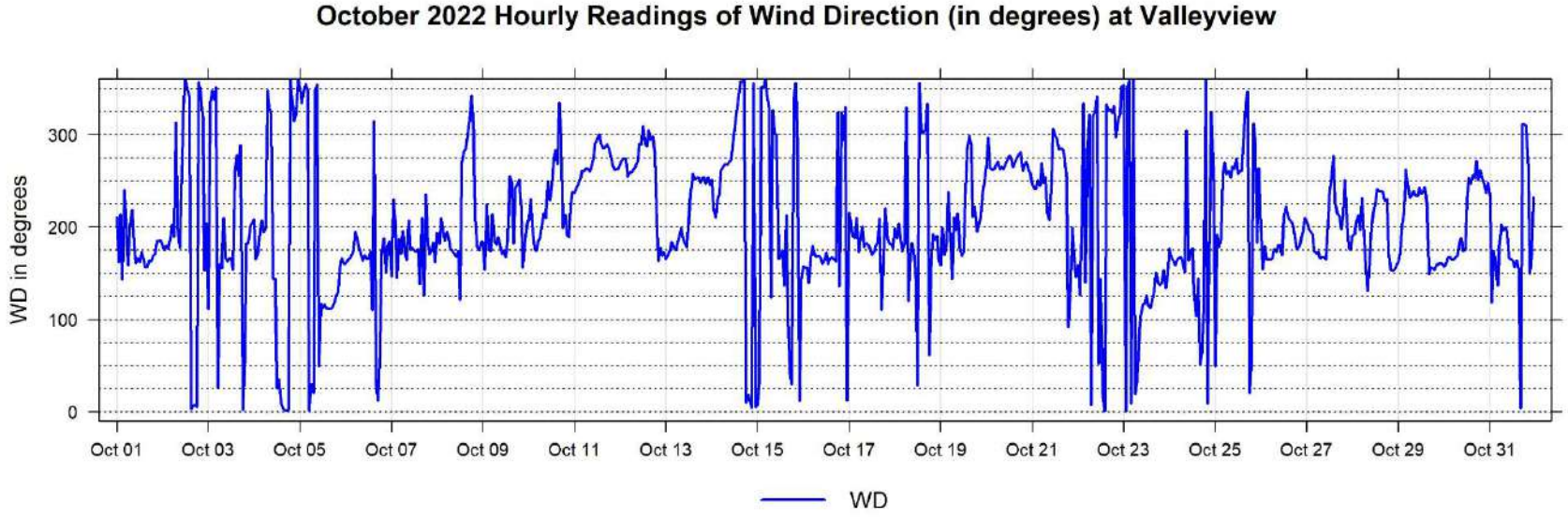

October 2022 Hourly Concentration Readings of H_2S (in ppb) at Valleyview
H_2S in ppb
10
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
H_2S
AAAQO Limit = 10 ppb
Average = 0.06 ppb

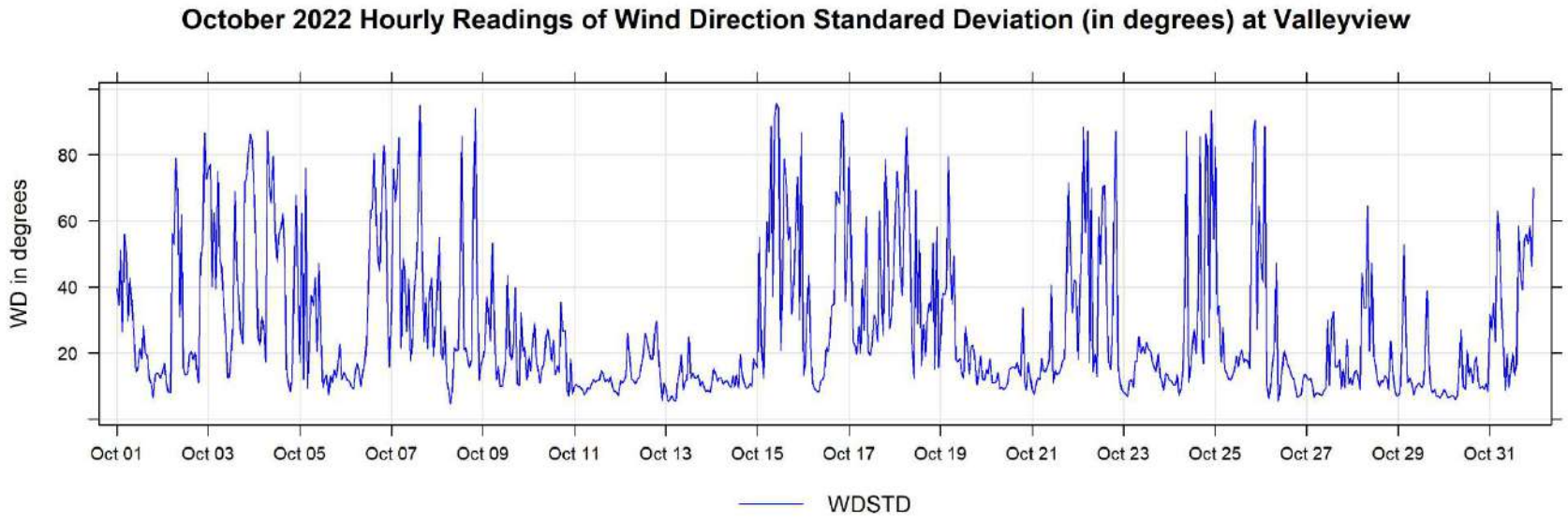

706
3
Number of Hours
0
200
400
600
0
1
2
3
4
5
H_2S in ppb

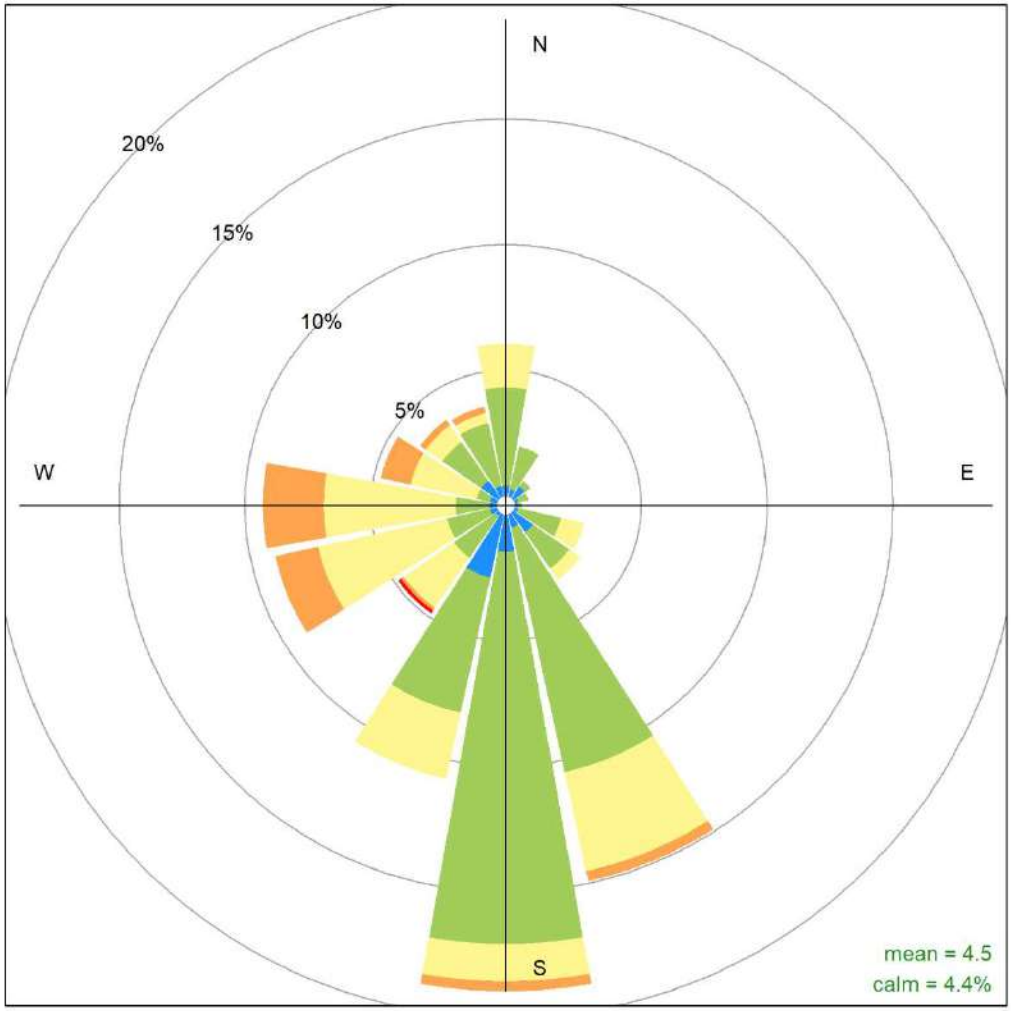

October 2022 Hourly Temperature Readings (in °C) at Valleyview
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 7.9 °C


October 2022 Hourly Readings of Relative Humidity (in %) at Valleyview
RH in %
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
RH
Average = 68.0 %


October 2022 Hourly Readings of Wind Speed (in km/hr) at Valleyview
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 4.5 km/hr


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


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

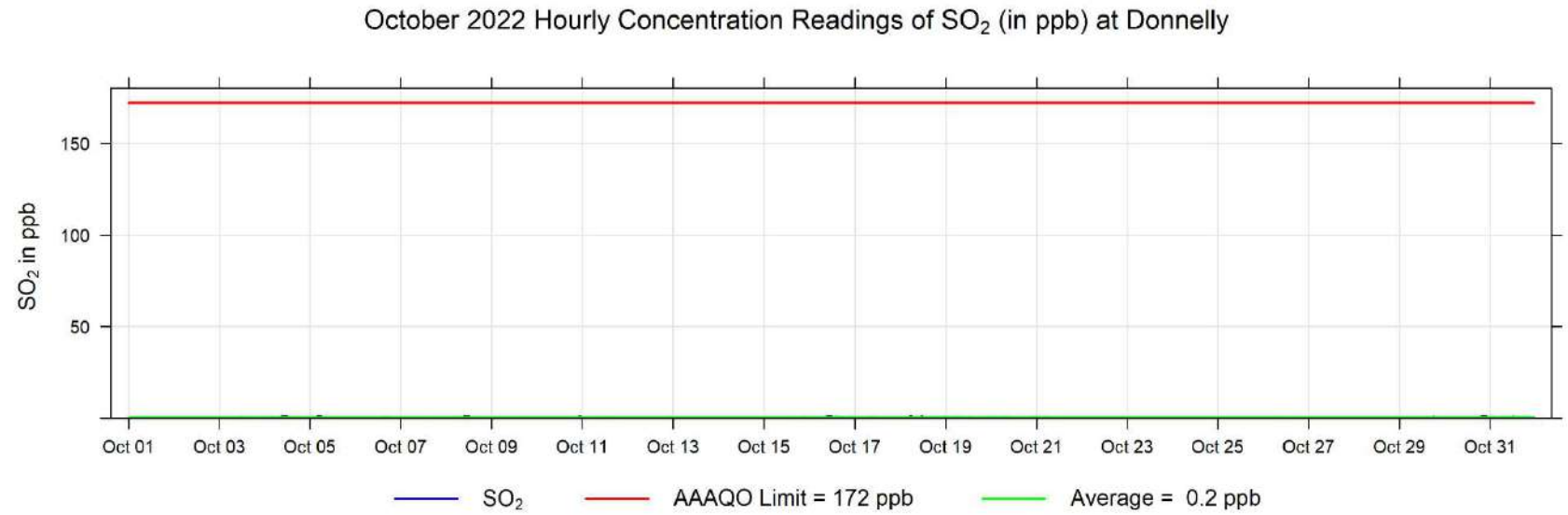


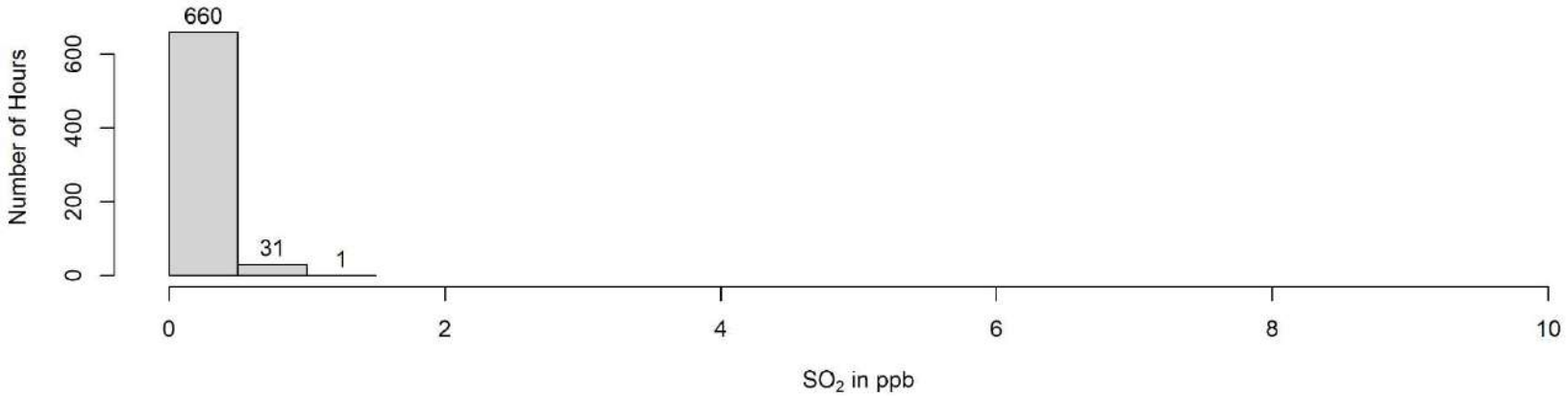
Valleyview October 2022 Wind Rose, wind speed in km/hr

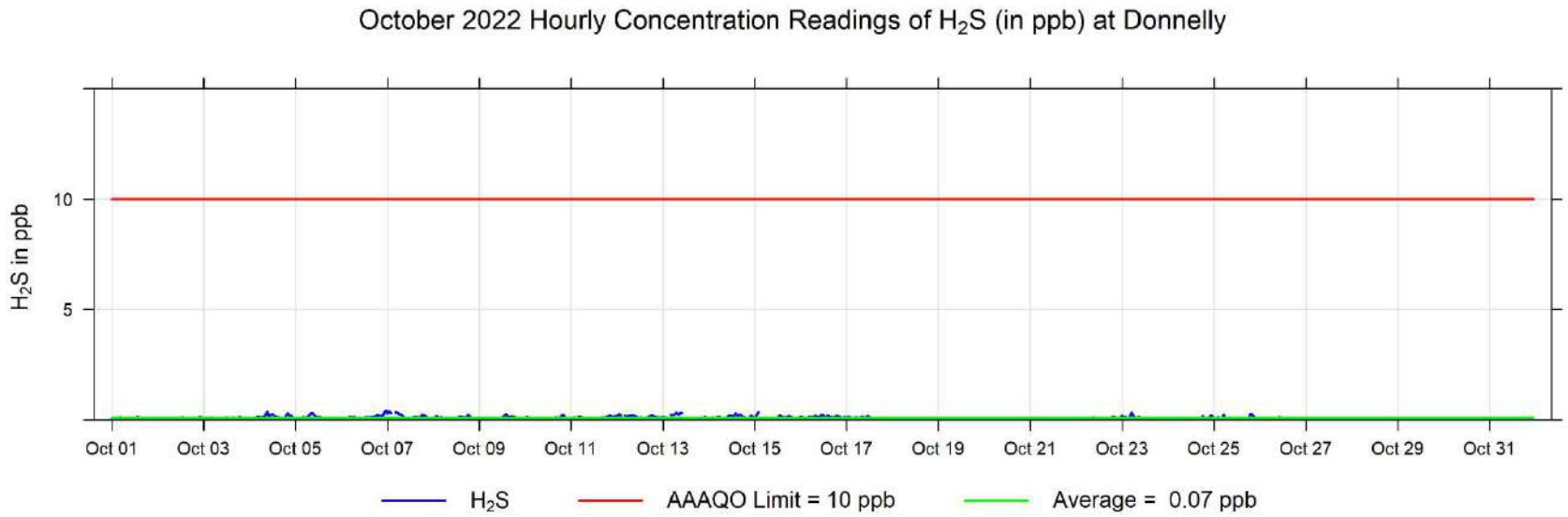
Frequency of counts by wind direction (%)

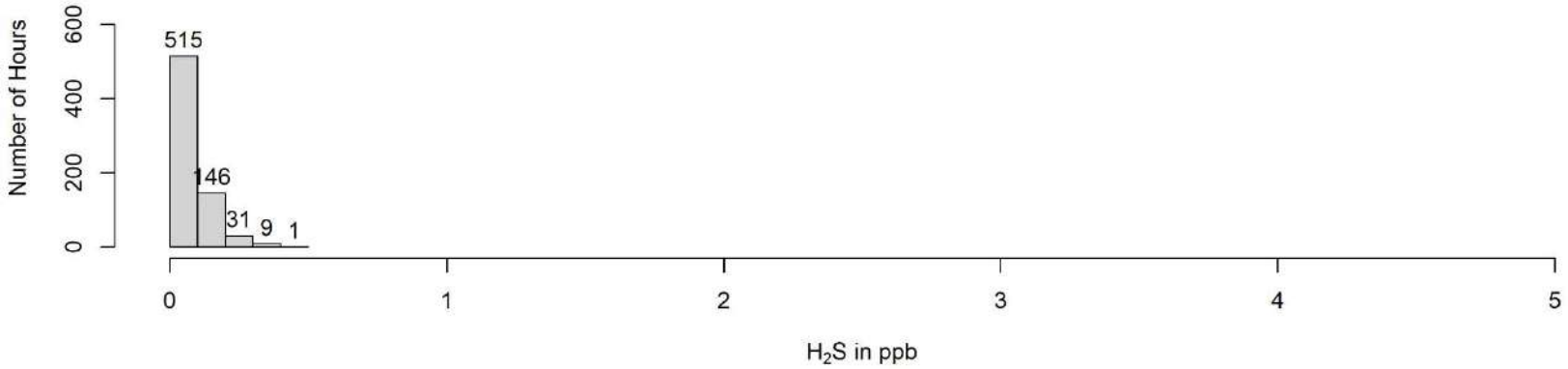
7 Donnelly Charts

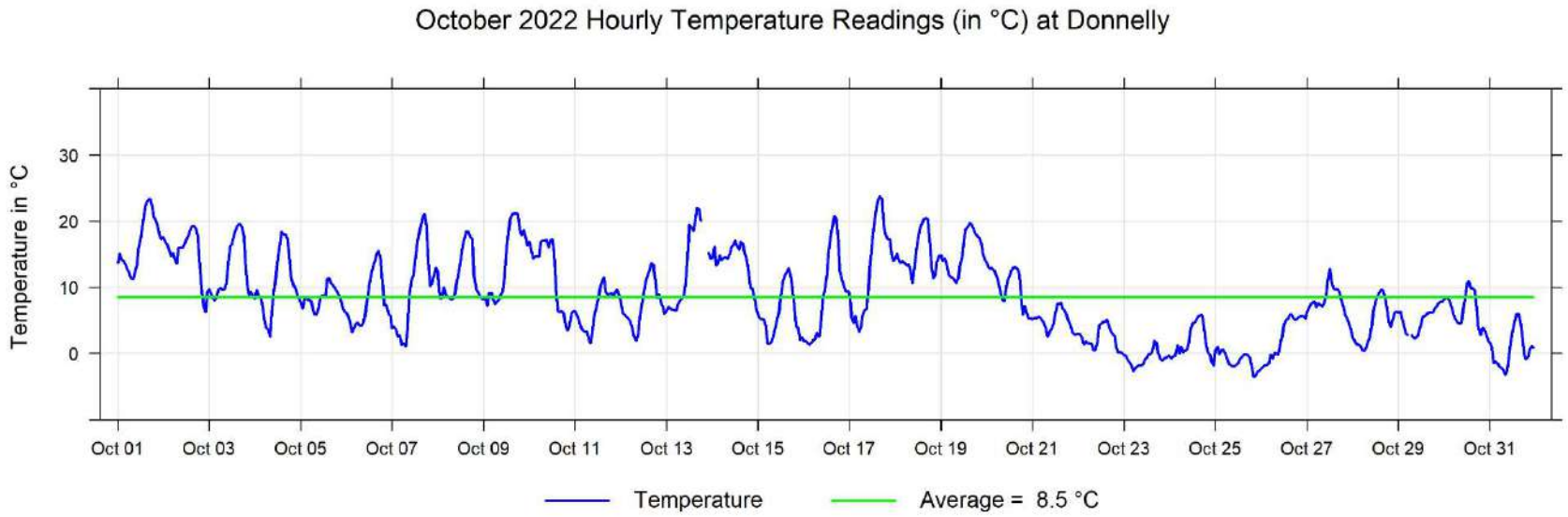
The following pages include the charts and histograms for Donnelly Station

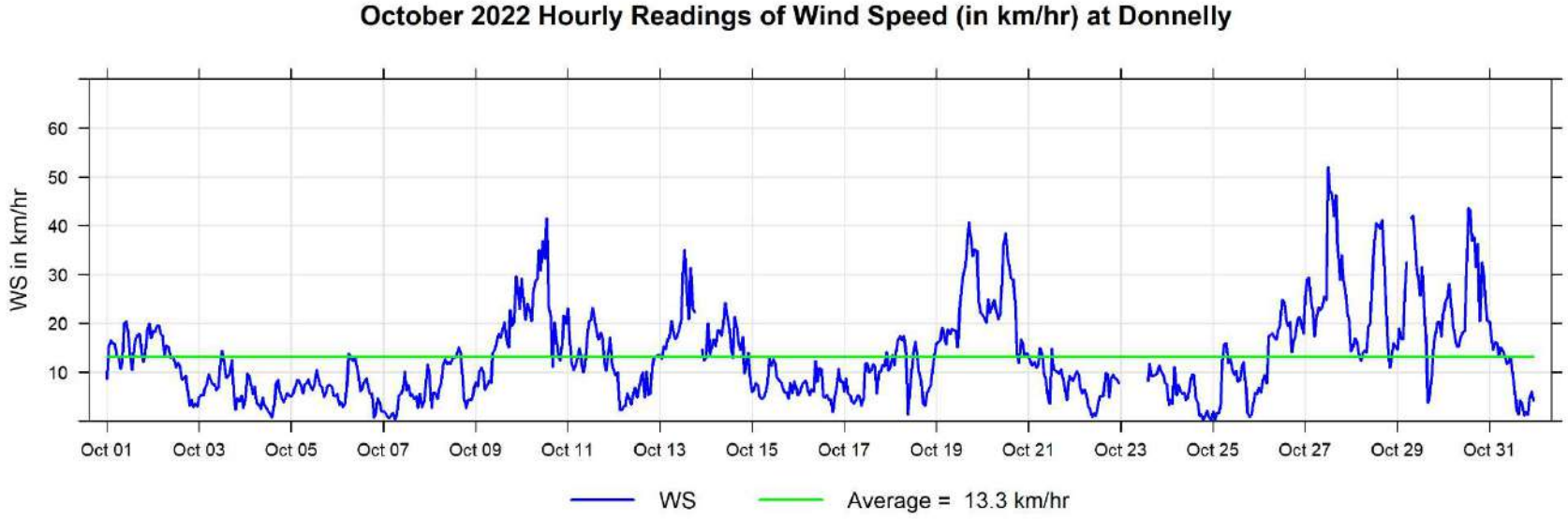

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Donnelly
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.2 ppb


Number of Hours
0
200
400
600
660
31
1
0
2
4
6
8
10
SO_2 in ppb


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

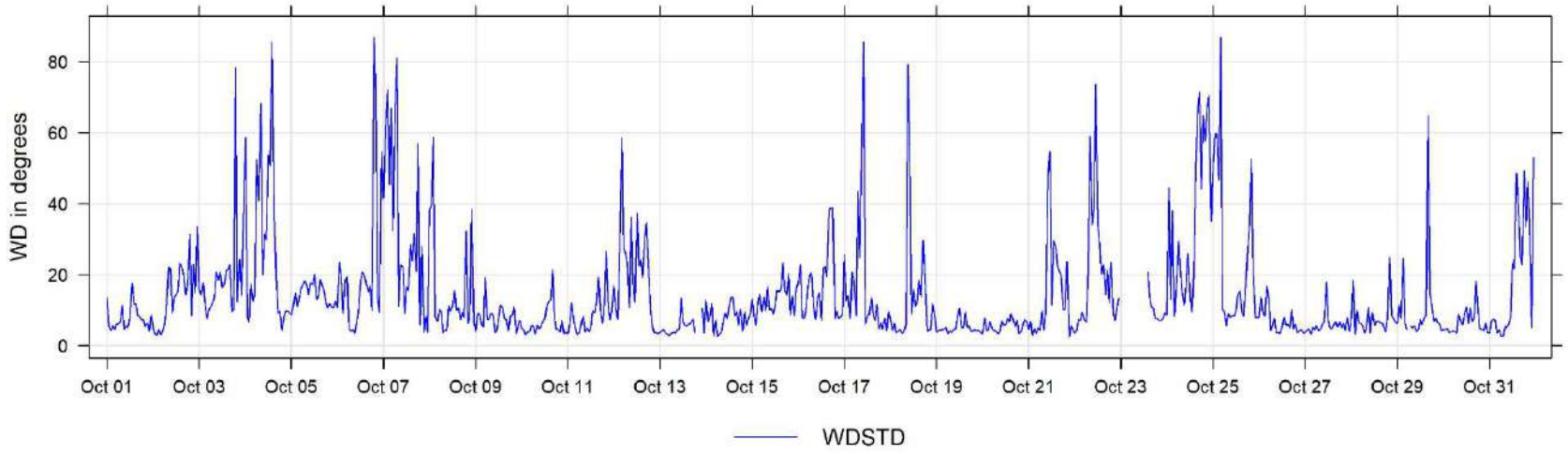

Number of Hours
0
200
400
600
515
146
31
9
1
0
1
2
3
4
5
H2S in ppb

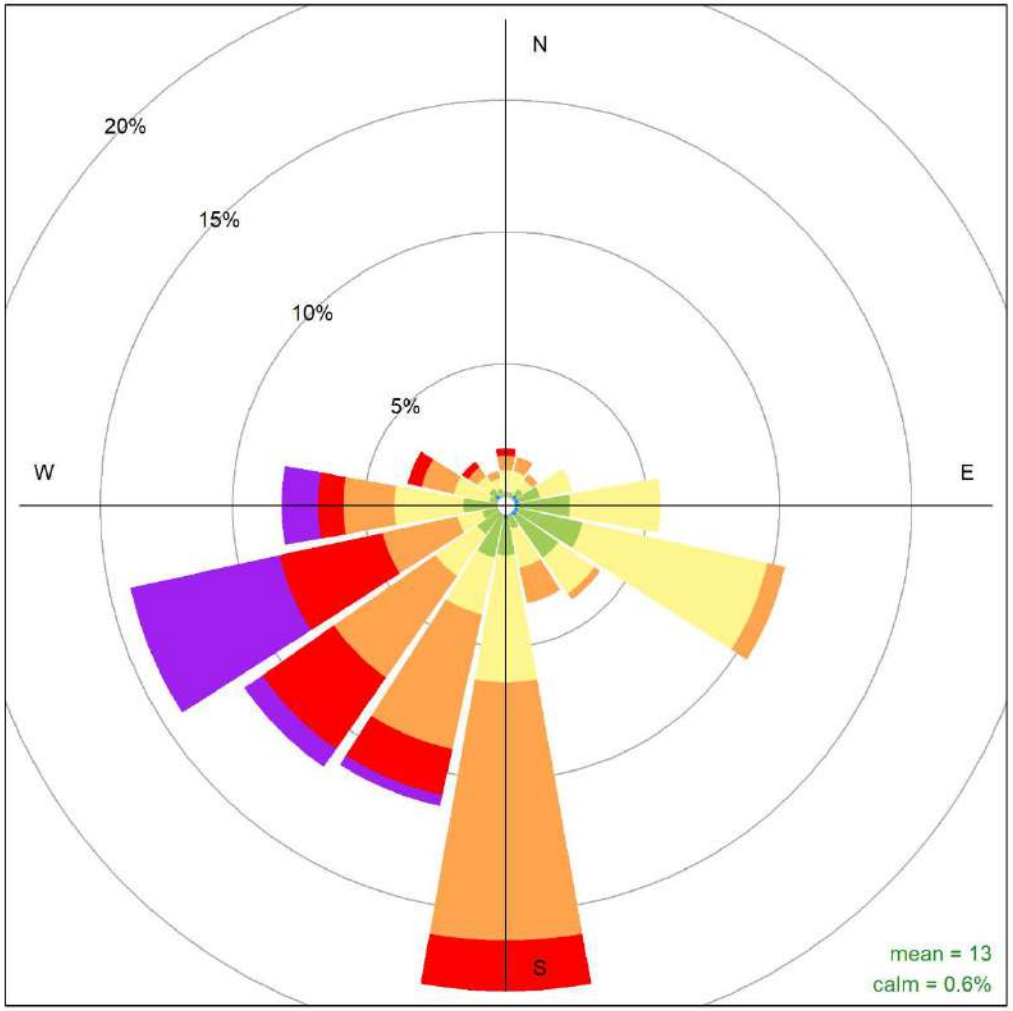

October 2022 Hourly Temperature Readings (in °C) at Donnelly
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 8.5 °C


October 2022 Hourly Readings of Wind Speed (in km/hr) at Donnelly
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 13.3 km/hr

October 2022 Hourly Readings of Wind Direction (in degrees) at Donnelly

October 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Donnelly



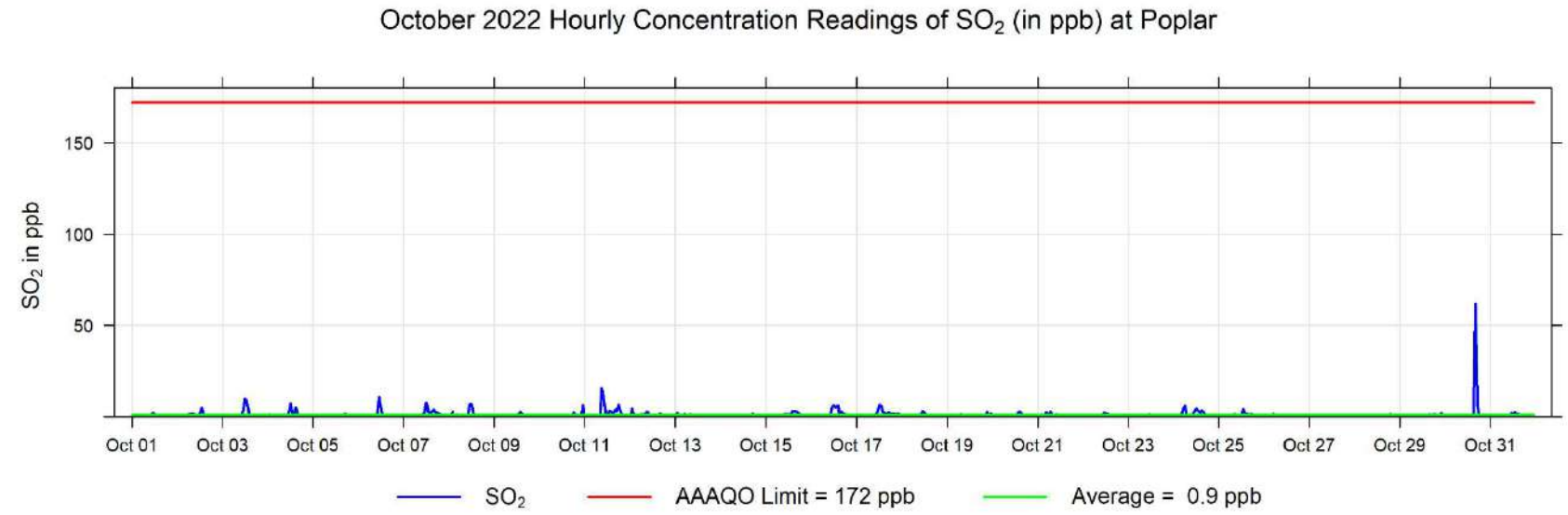


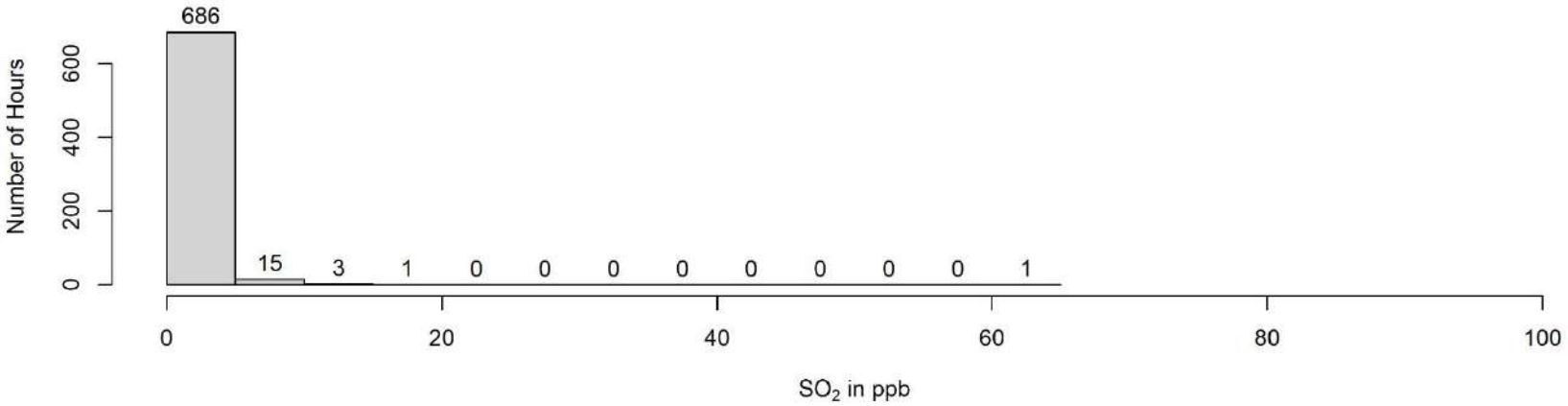
Donnelly October 2022 Wind Rose, wind speed in km/hr

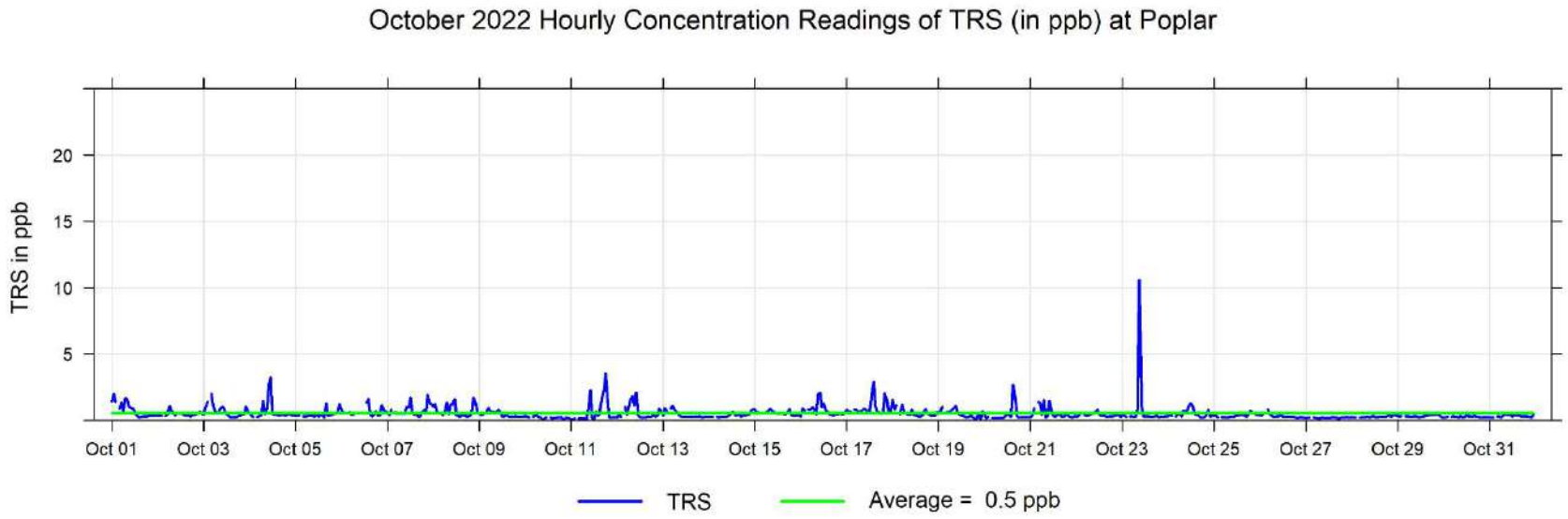
Frequency of counts by wind direction (%)

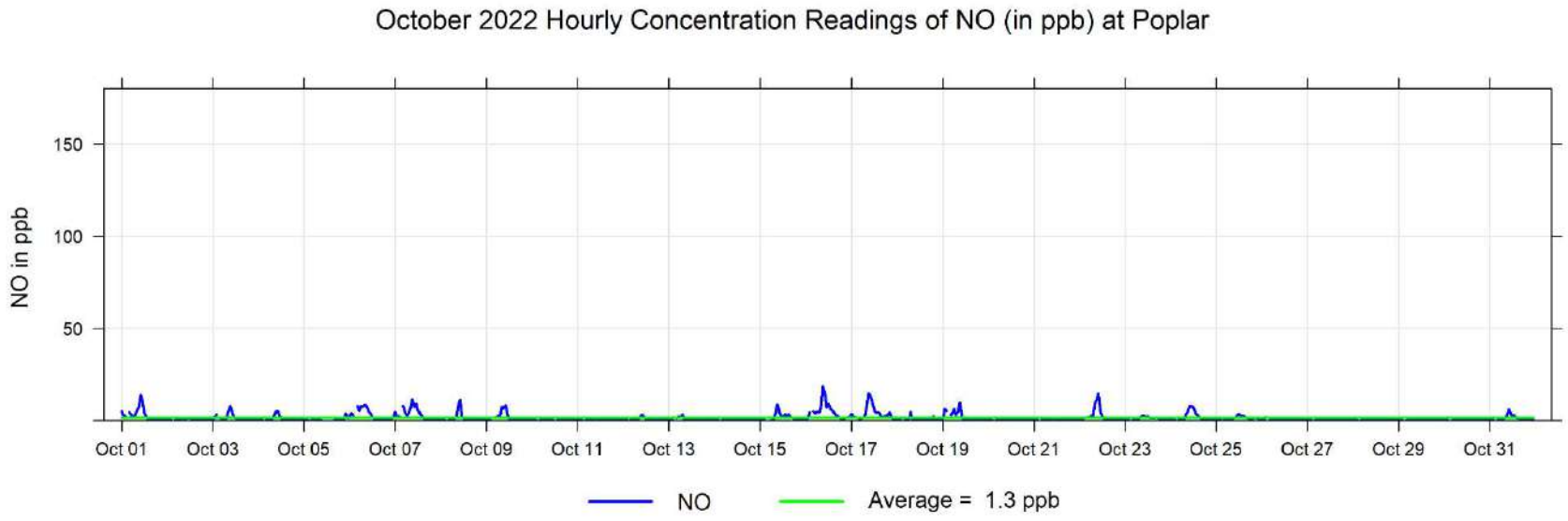
8 Poplar (Portable) Charts

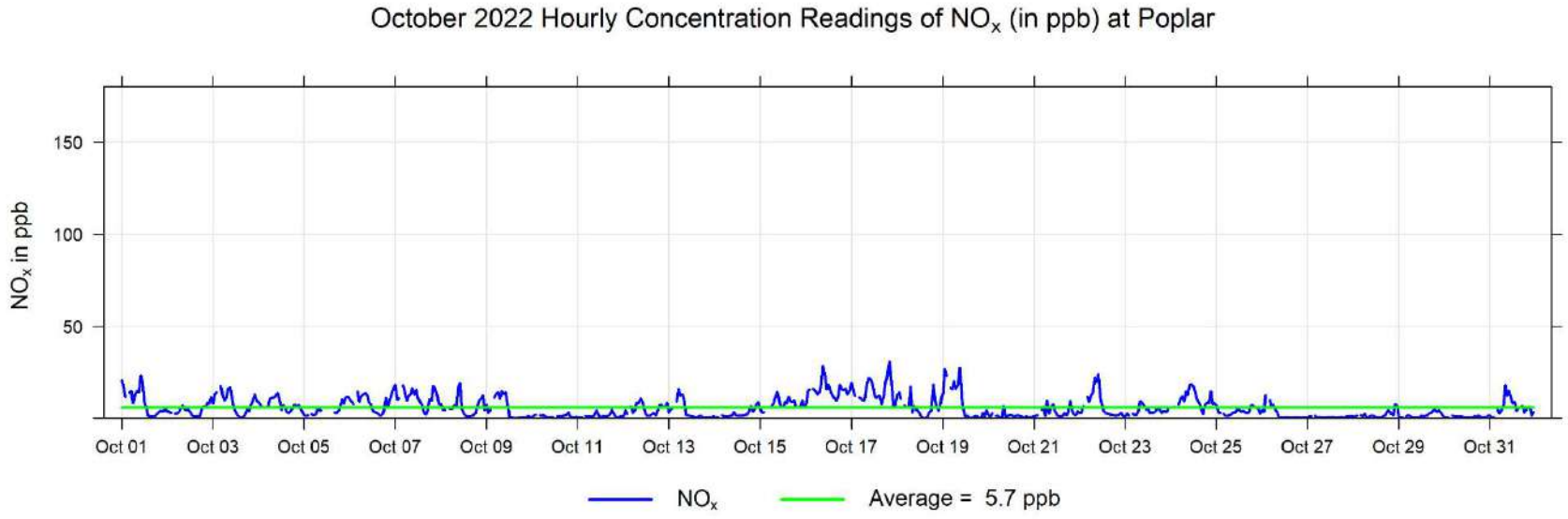
The following pages include the charts and histograms for Poplar Portable Station

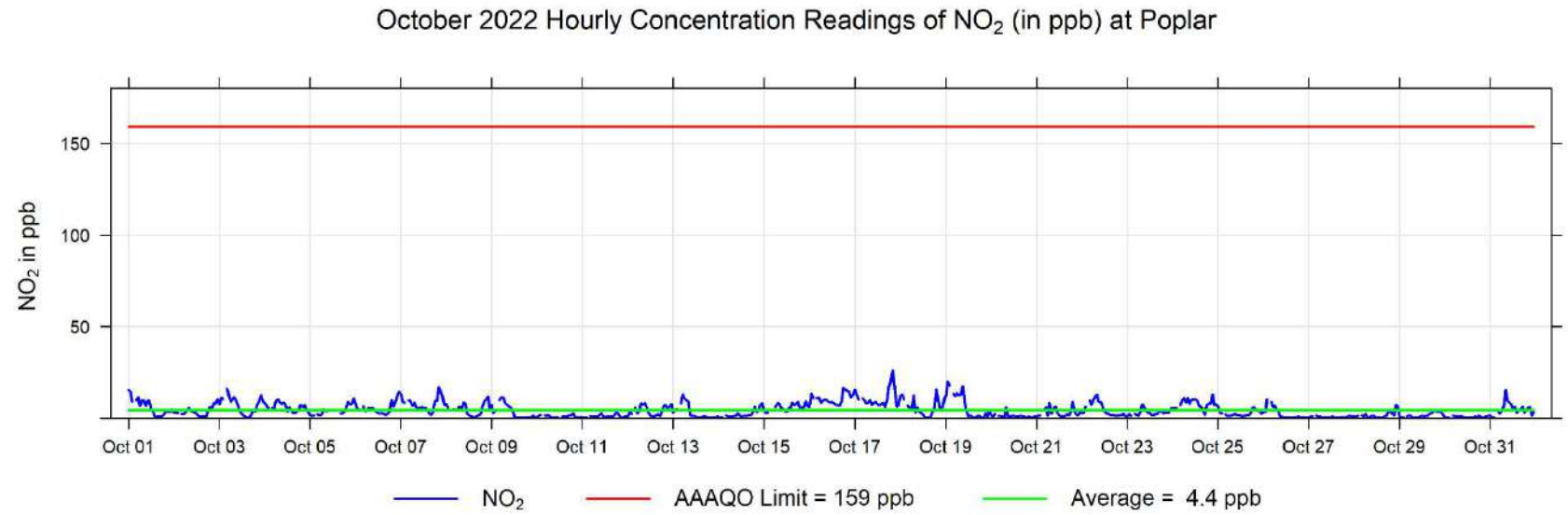

October 2022 Hourly Concentration Readings of SO_2 (in ppb) at Poplar
SO_2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.9 ppb

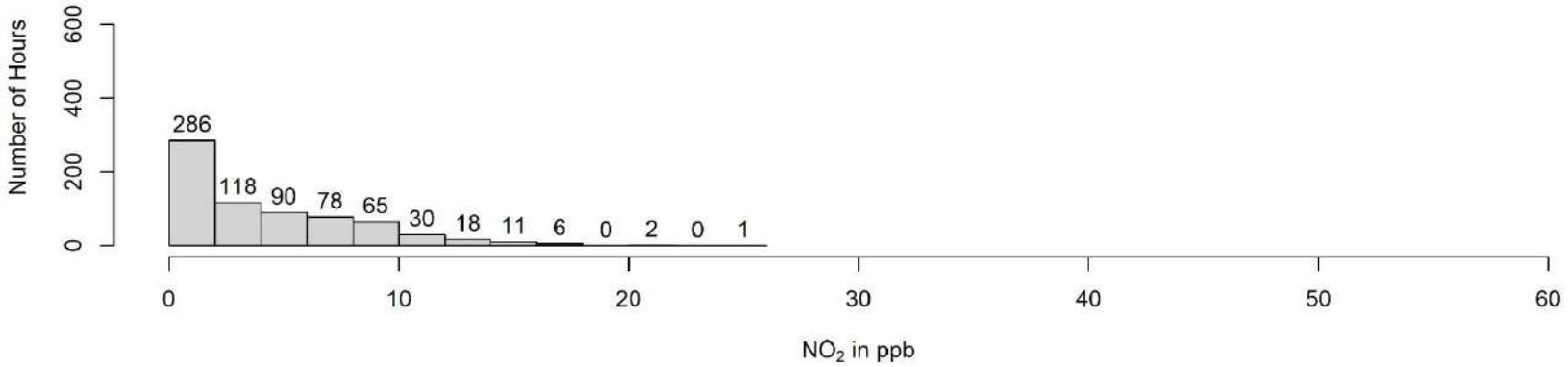

Number of Hours
0
200
400
600
686
15
3
1
0
0
0
0
0
0
0
0
1
0
20
40
60
80
100
SO_2 in ppb

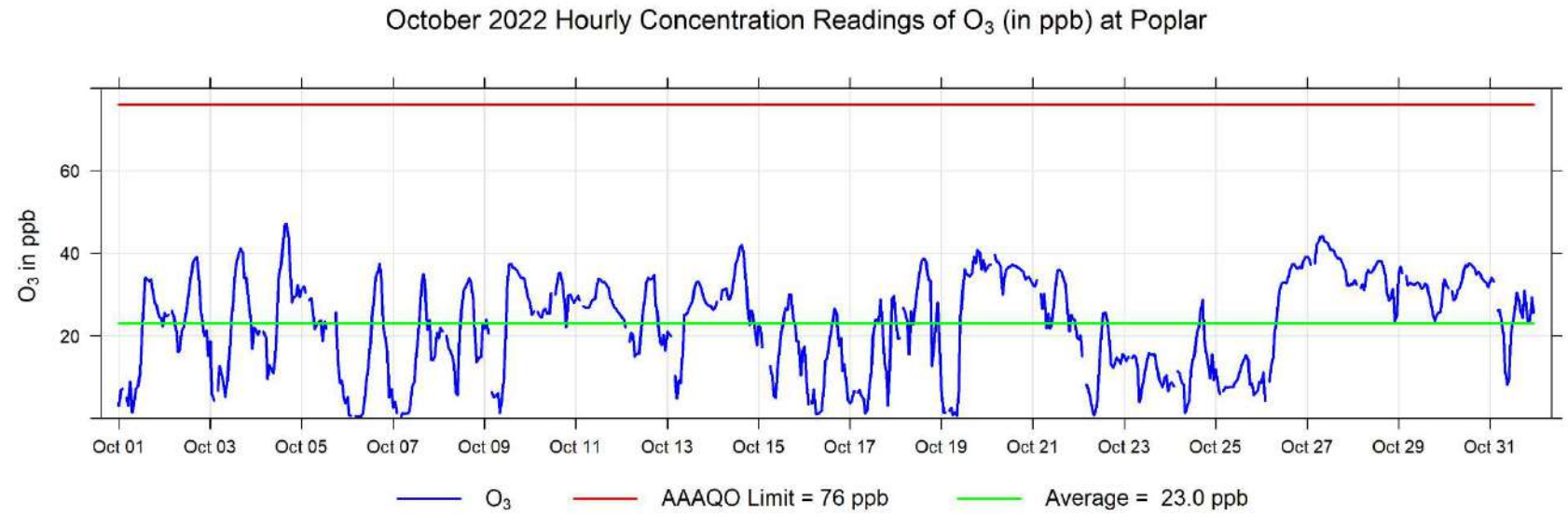

October 2022 Hourly Concentration Readings of TRS (in ppb) at Poplar
TRS in ppb
20
15
10
5
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
TRS
Average = 0.5 ppb

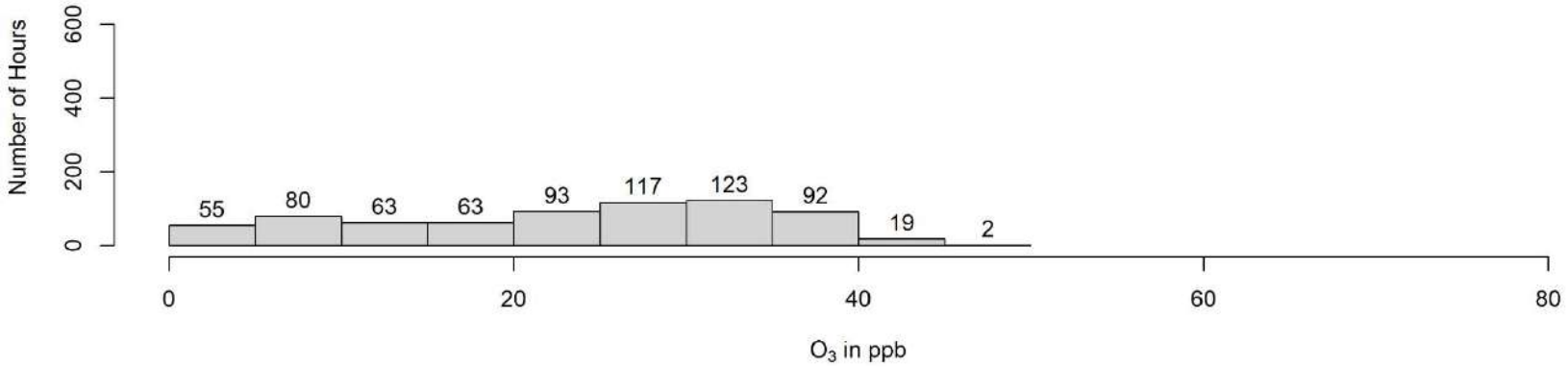

October 2022 Hourly Concentration Readings of NO (in ppb) at Poplar
NO in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO
Average = 1.3 ppb

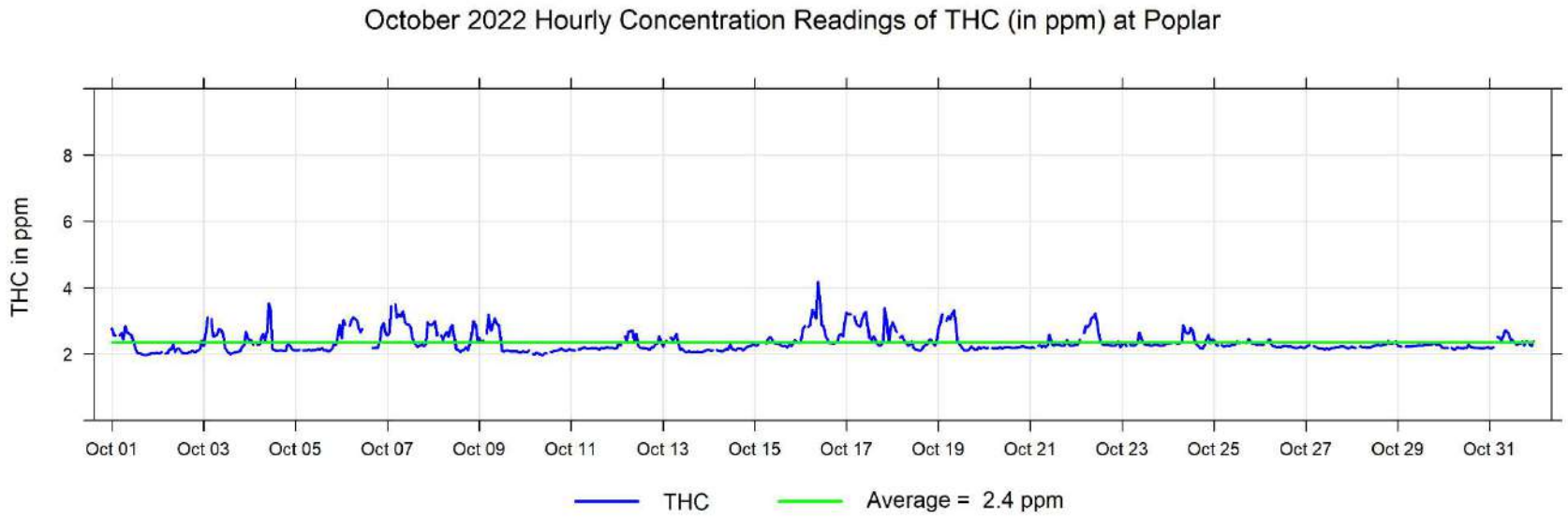

October 2022 Hourly Concentration Readings of NOx (in ppb) at Poplar
NOx in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NOx
Average = 5.7 ppb

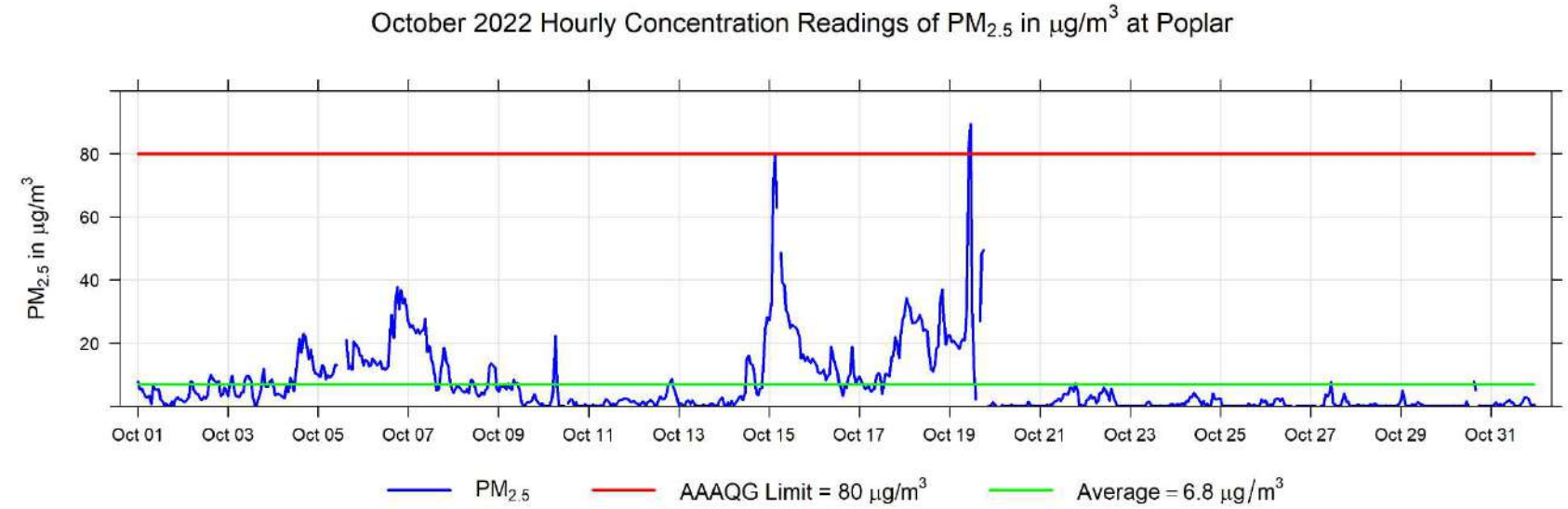

October 2022 Hourly Concentration Readings of NO2 (in ppb) at Poplar
NO2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO2
AAAQO Limit = 159 ppb
Average = 4.4 ppb

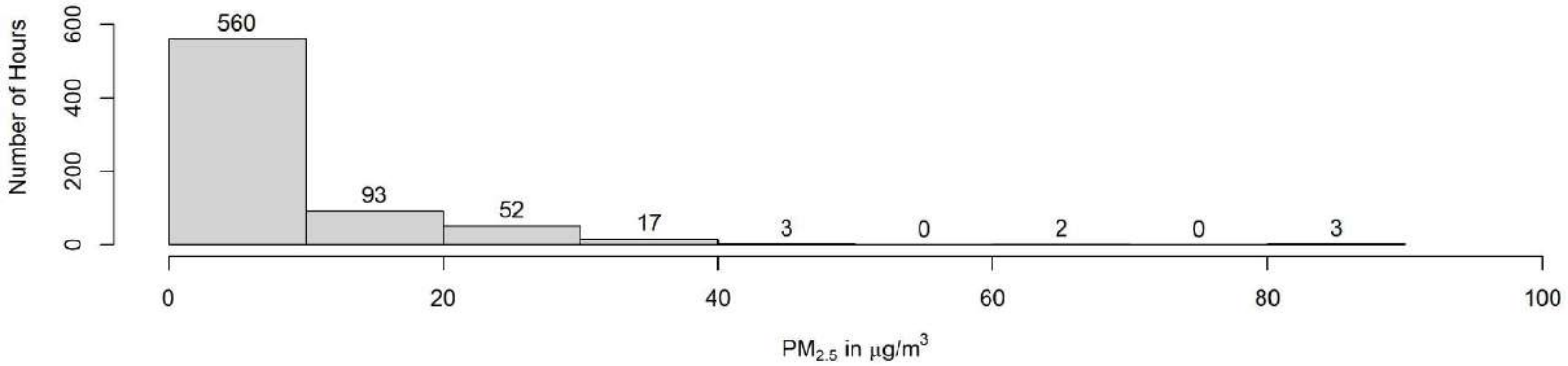

Number of Hours
0
200
400
600
286
118
90
78
65
30
18
11
6
0
2
0
1
0
10
20
30
40
50
60
NO2 in ppb

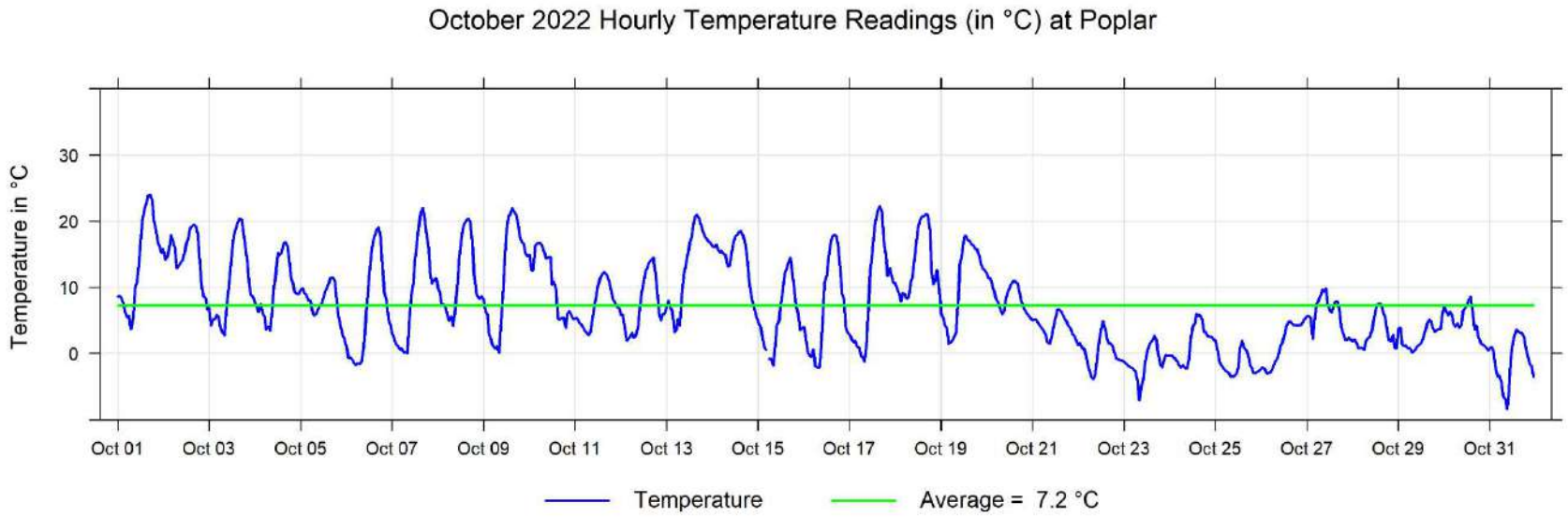

October 2022 Hourly Concentration Readings of O_3 (in ppb) at Poplar
O_3 in ppb
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
O_3
AAAQO Limit = 76 ppb
Average = 23.0 ppb

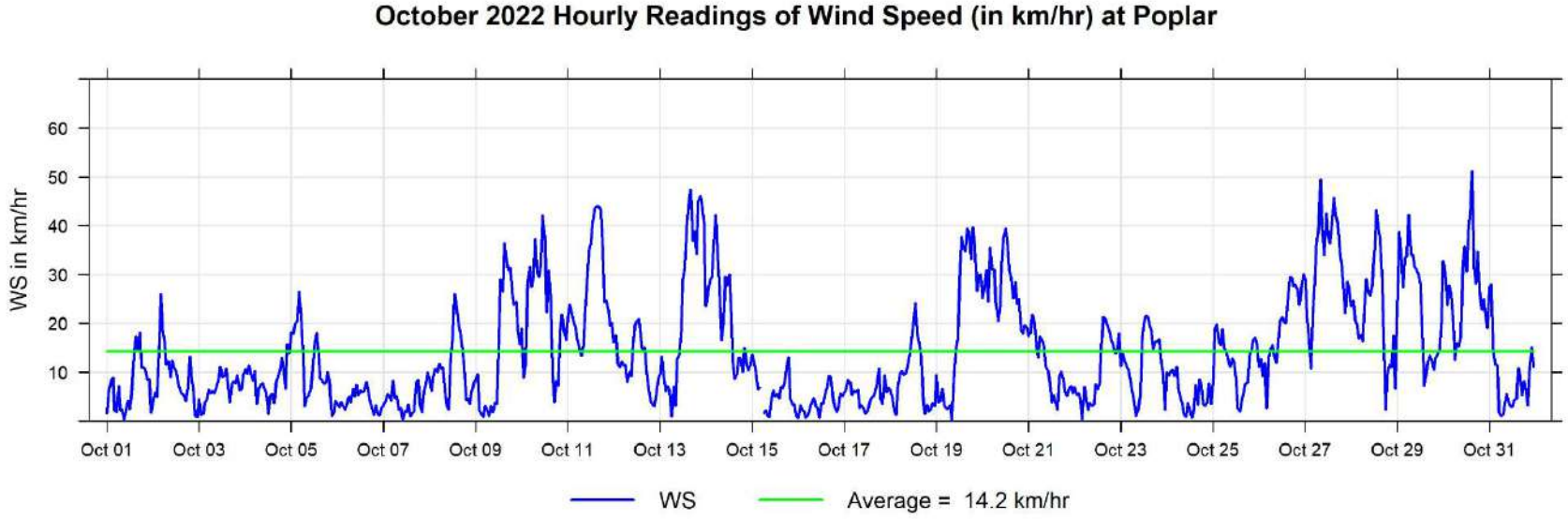

Number of Hours
0
200
400
600
55
80
63
63
93
117
123
92
19
2
0
20
40
60
80
O_3 in ppb

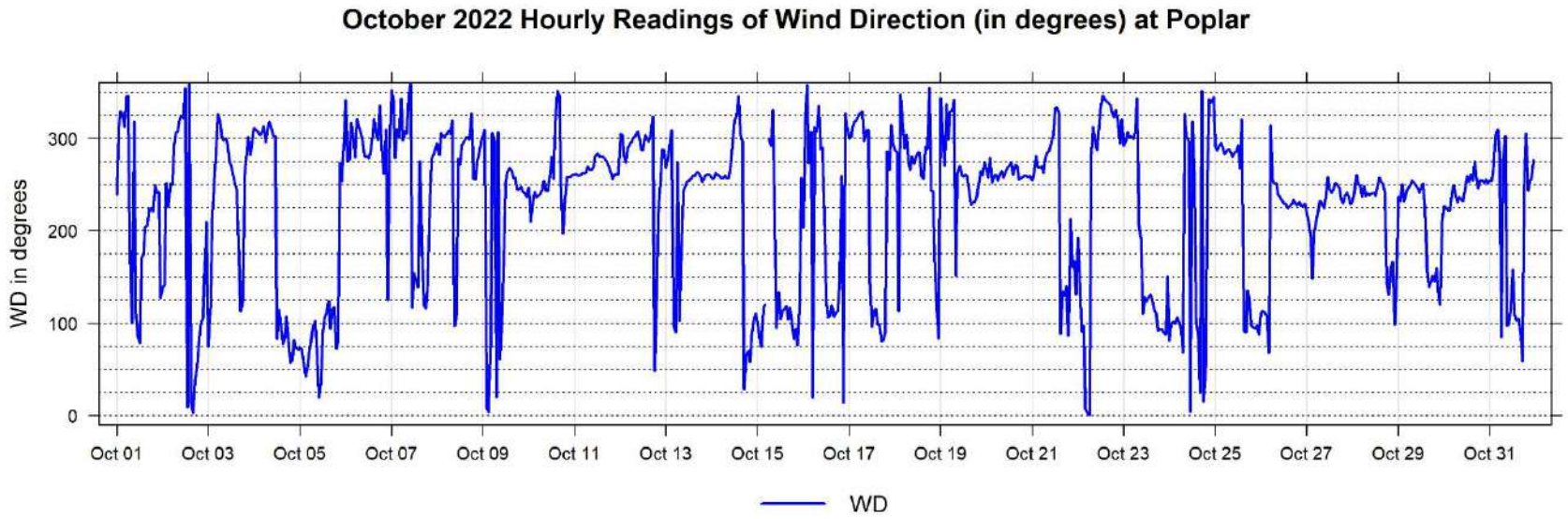

October 2022 Hourly Concentration Readings of THC (in ppm) at Poplar
THC in ppm
8
6
4
2
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
THC
Average = 2.4 ppm

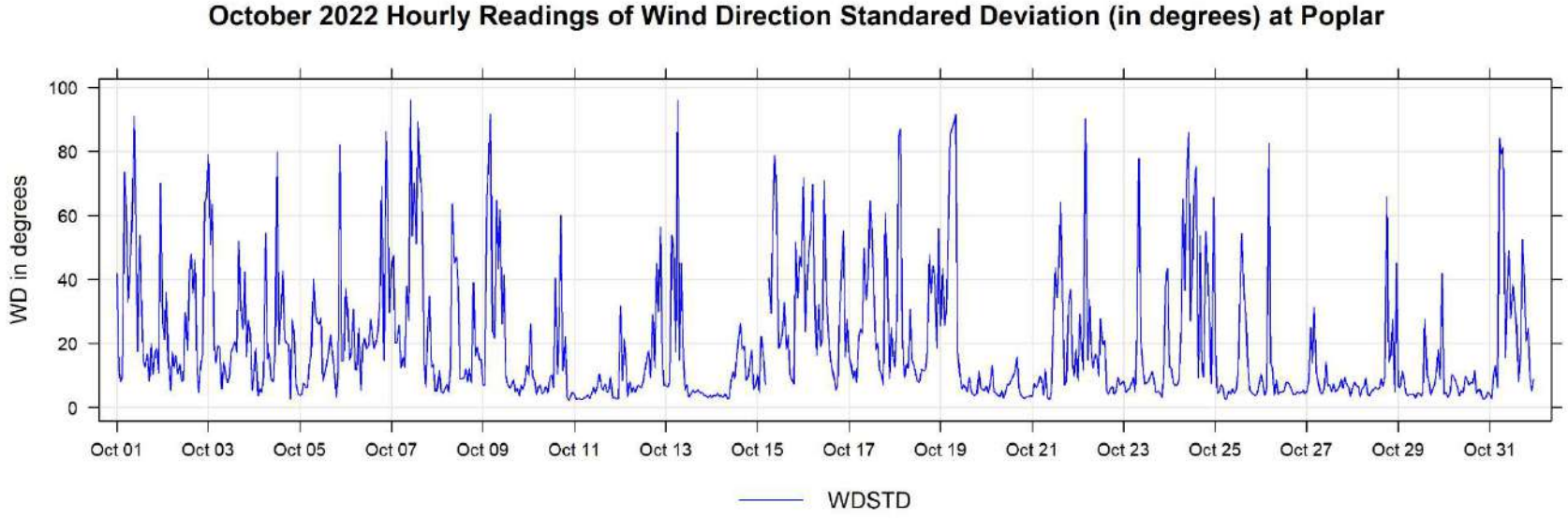

October 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Poplar
PM2.5 in µg/m3
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 6.8 µg/m3

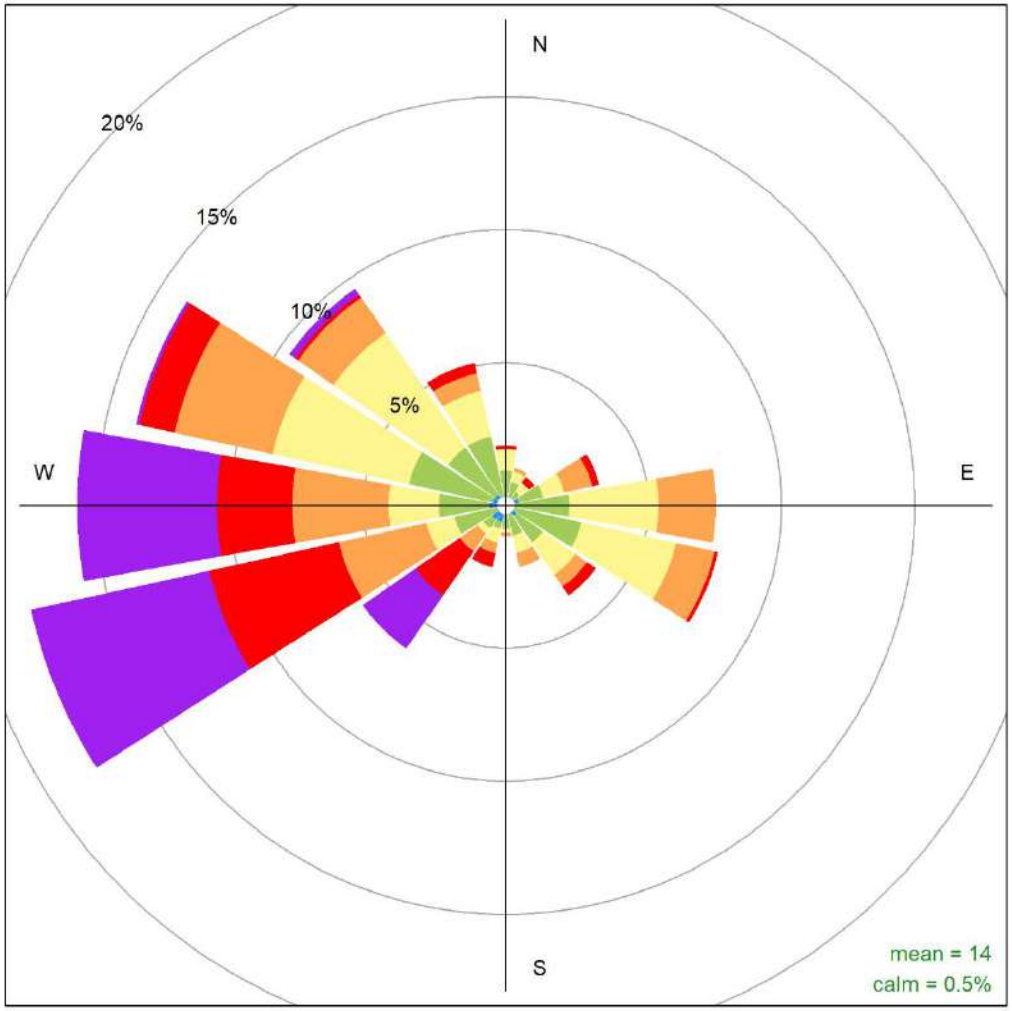

Number of Hours
0
200
400
600
560
93
52
17
3
0
2
0
3
0
20
40
60
80
100
PM2.5 in µg/m3


October 2022 Hourly Temperature Readings (in °C) at Poplar
Temperature in °C
30
20
10
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
Temperature
Average = 7.2 °C


October 2022 Hourly Readings of Wind Speed (in km/hr) at Poplar
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 14.2 km/hr


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


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

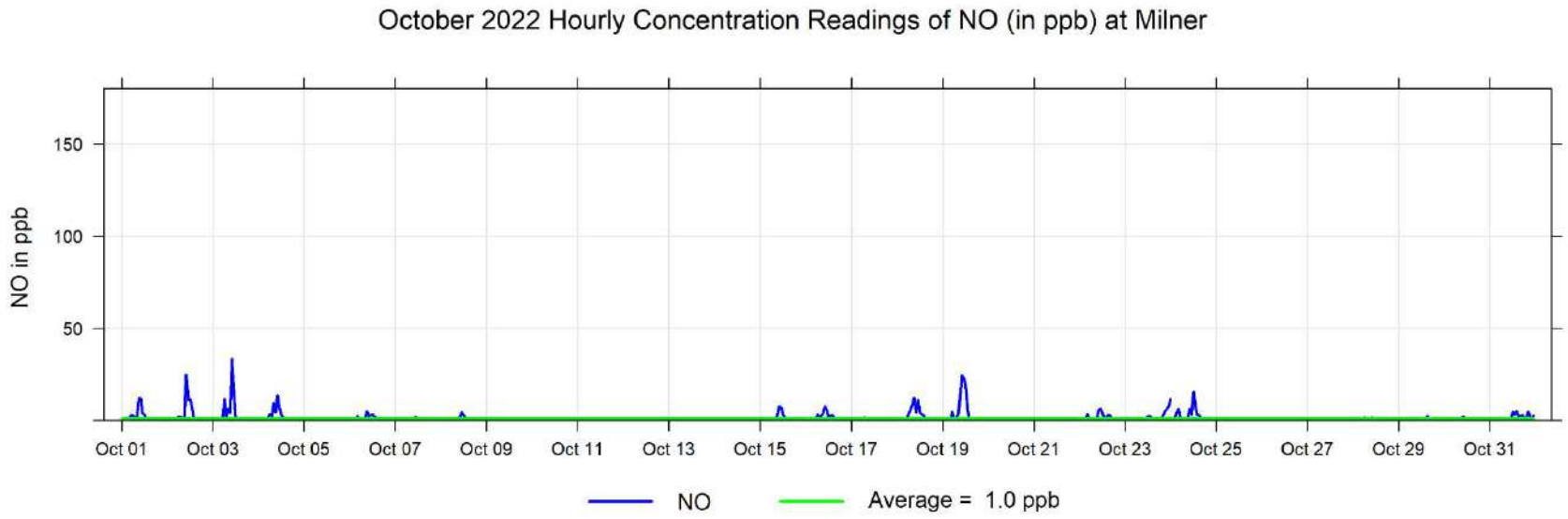


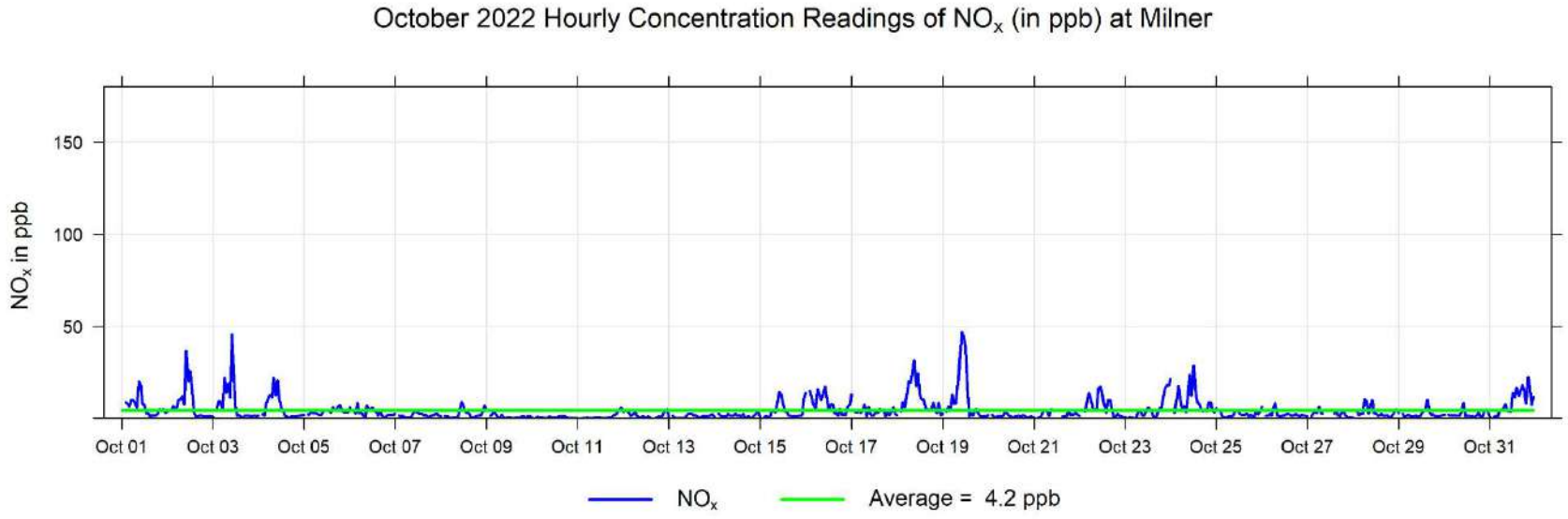
Poplar October 2022 Wind Rose, wind speed in km/hr

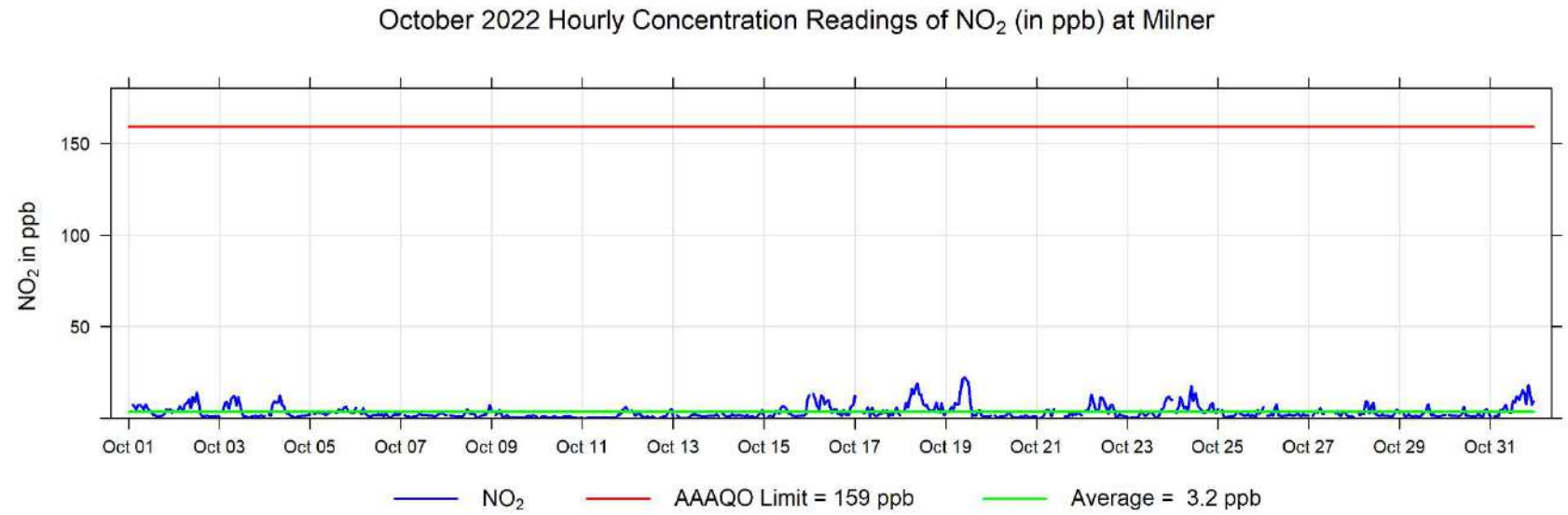
Frequency of counts by wind direction (%)

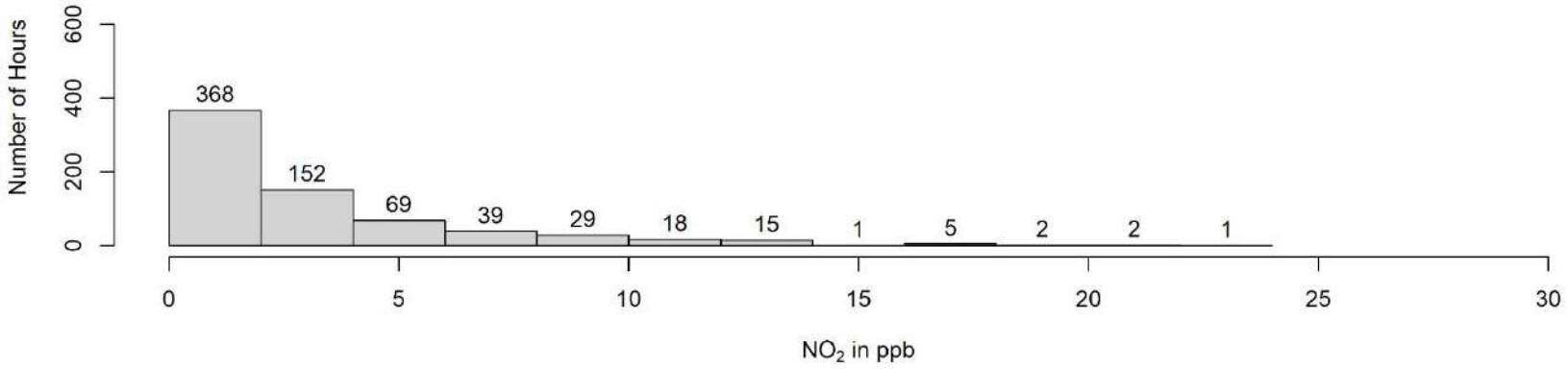
9 Milner Charts

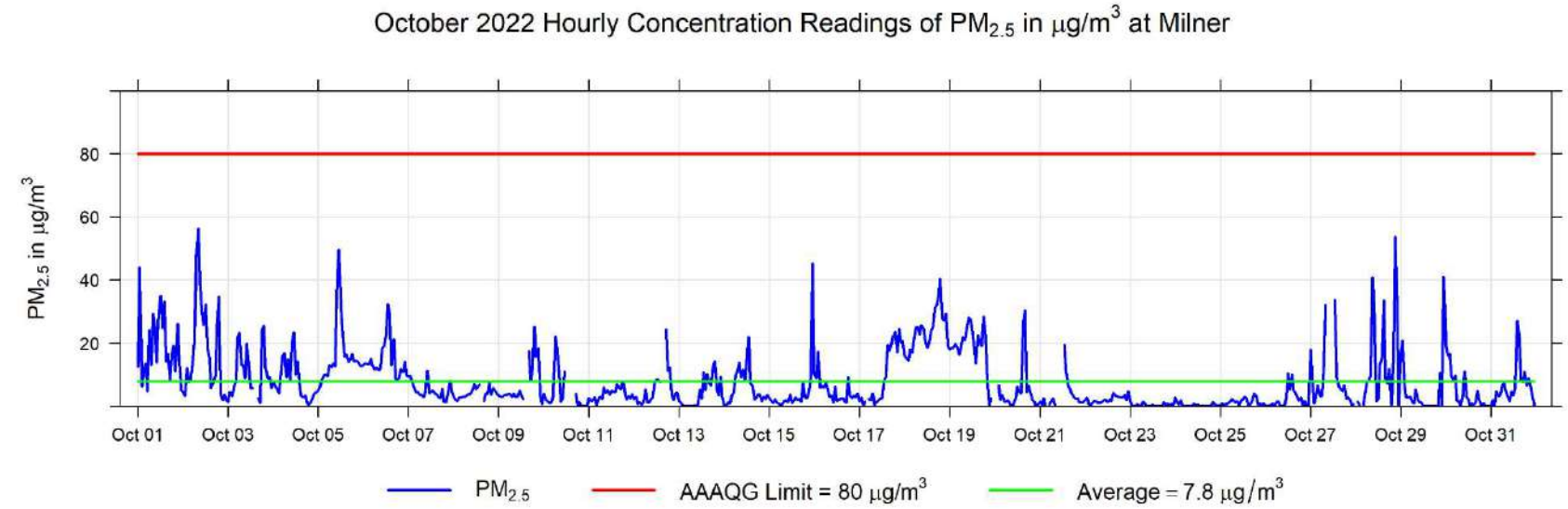
The following pages include the charts and histograms for Poplar Portable Station

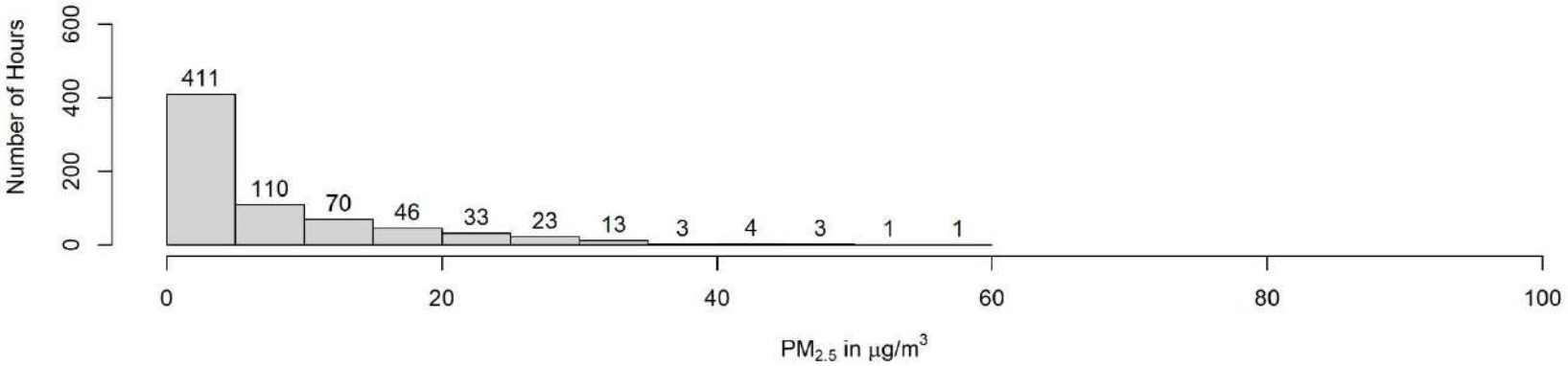

October 2022 Hourly Concentration Readings of NO (in ppb) at Milner
NO in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO
Average = 1.0 ppb

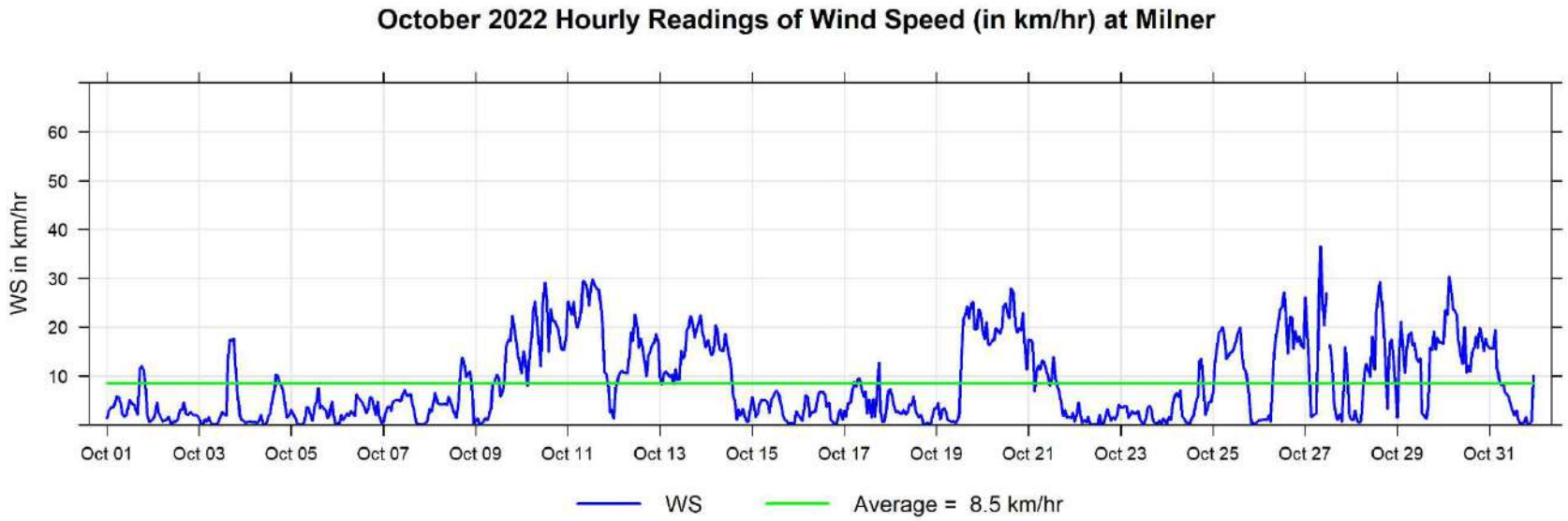

October 2022 Hourly Concentration Readings of NOx (in ppb) at Milner
NOx in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NOx
Average = 4.2 ppb

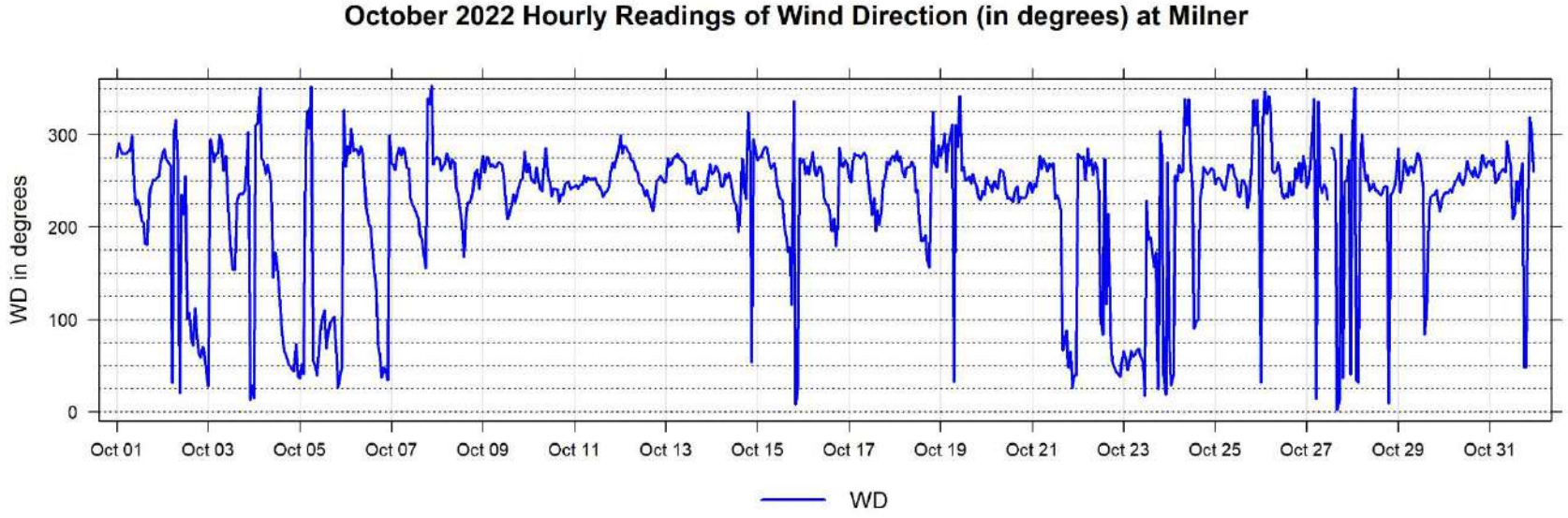

October 2022 Hourly Concentration Readings of NO2 (in ppb) at Milner
NO2 in ppb
150
100
50
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
NO2
AAAQO Limit = 159 ppb
Average = 3.2 ppb

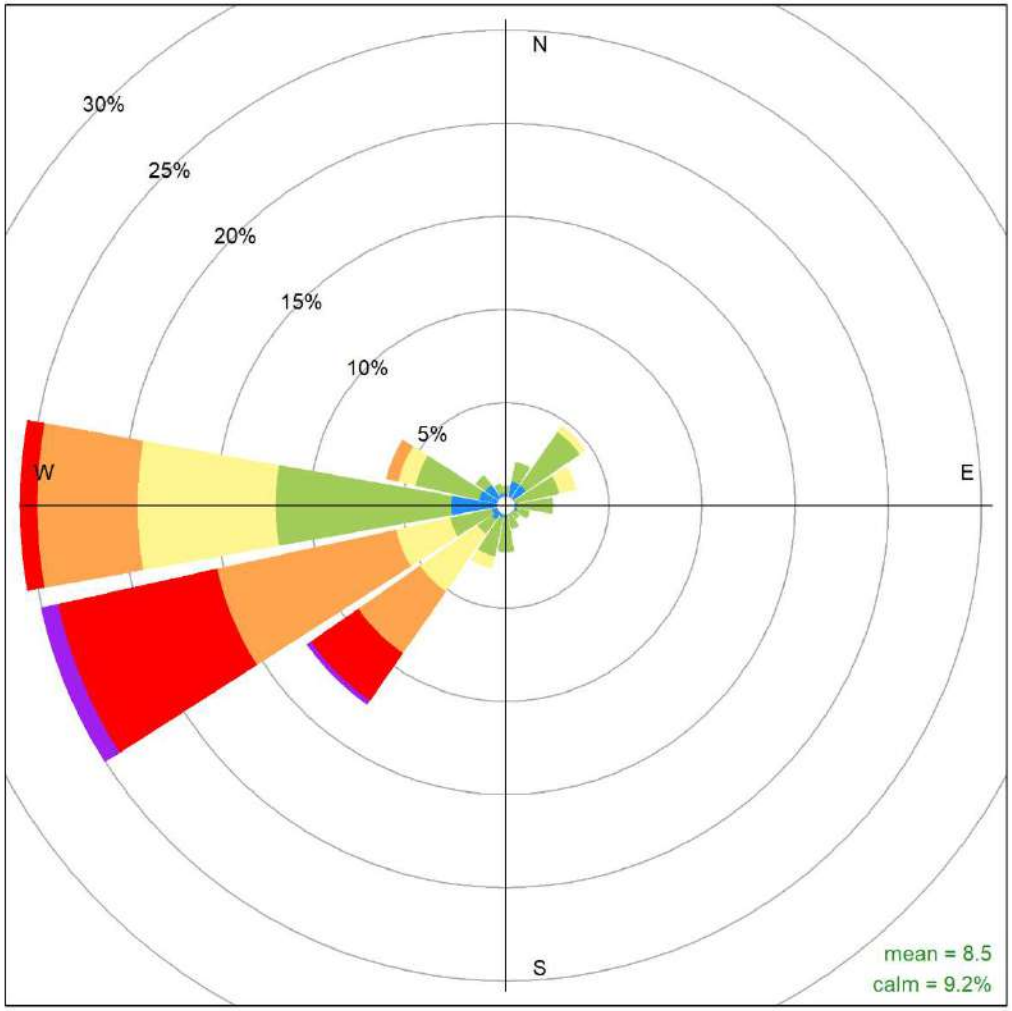

Number of Hours
0
200
400
600
368
152
69
39
29
18
15
1
5
2
2
1
0
5
10
15
20
25
30
NO2 in ppb


October 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Milner
PM2.5 in µg/m3
80
60
40
20
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 7.8 µg/m3


Number of Hours
0
200
400
600
411
110
70
46
33
23
13
3
4
3
1
1
0
20
40
60
80
100
PM2.5 in µg/m3


October 2022 Hourly Readings of Wind Speed (in km/hr) at Milner
WS in km/hr
60
50
40
30
20
10
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WS
Average = 8.5 km/hr

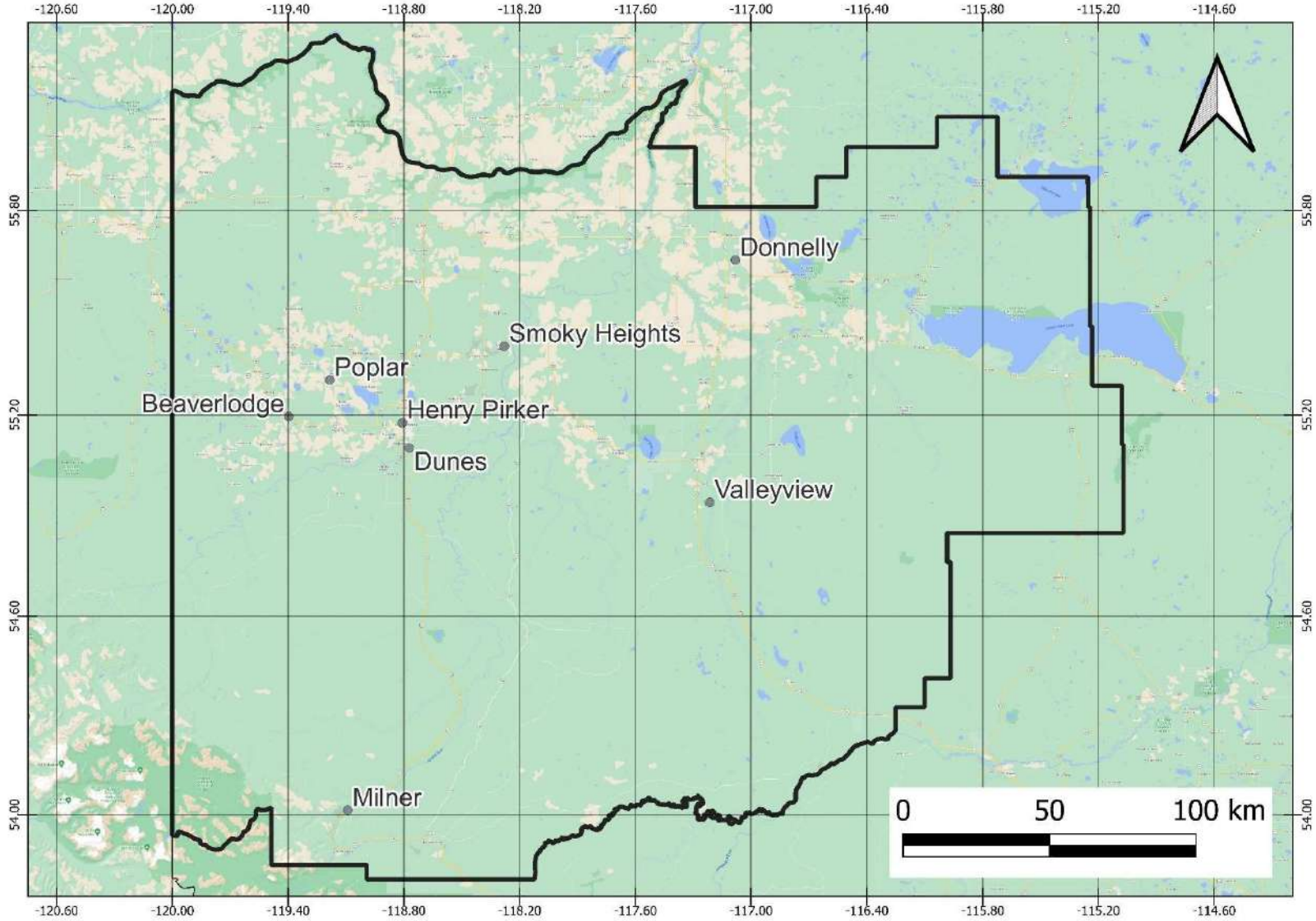

October 2022 Hourly Readings of Wind Direction (in degrees) at Milner
WD in degrees
300
200
100
0
Oct 01
Oct 03
Oct 05
Oct 07
Oct 09
Oct 11
Oct 13
Oct 15
Oct 17
Oct 19
Oct 21
Oct 23
Oct 25
Oct 27
Oct 29
Oct 31
WD



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

Frequency of counts by wind direction (%)

10 Concentration Summaries and Roses for PAZA



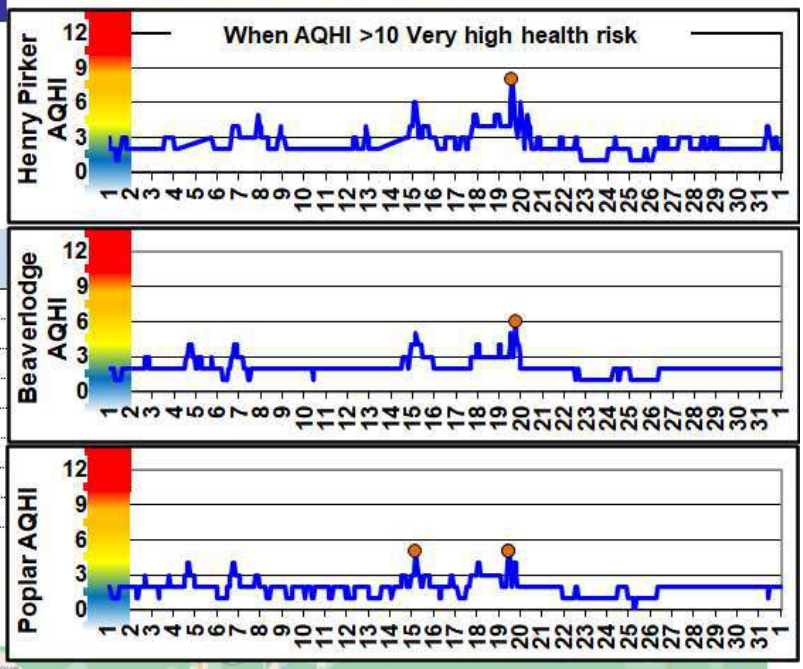
10.1 Air Quality Health Index (AQHI) Plots

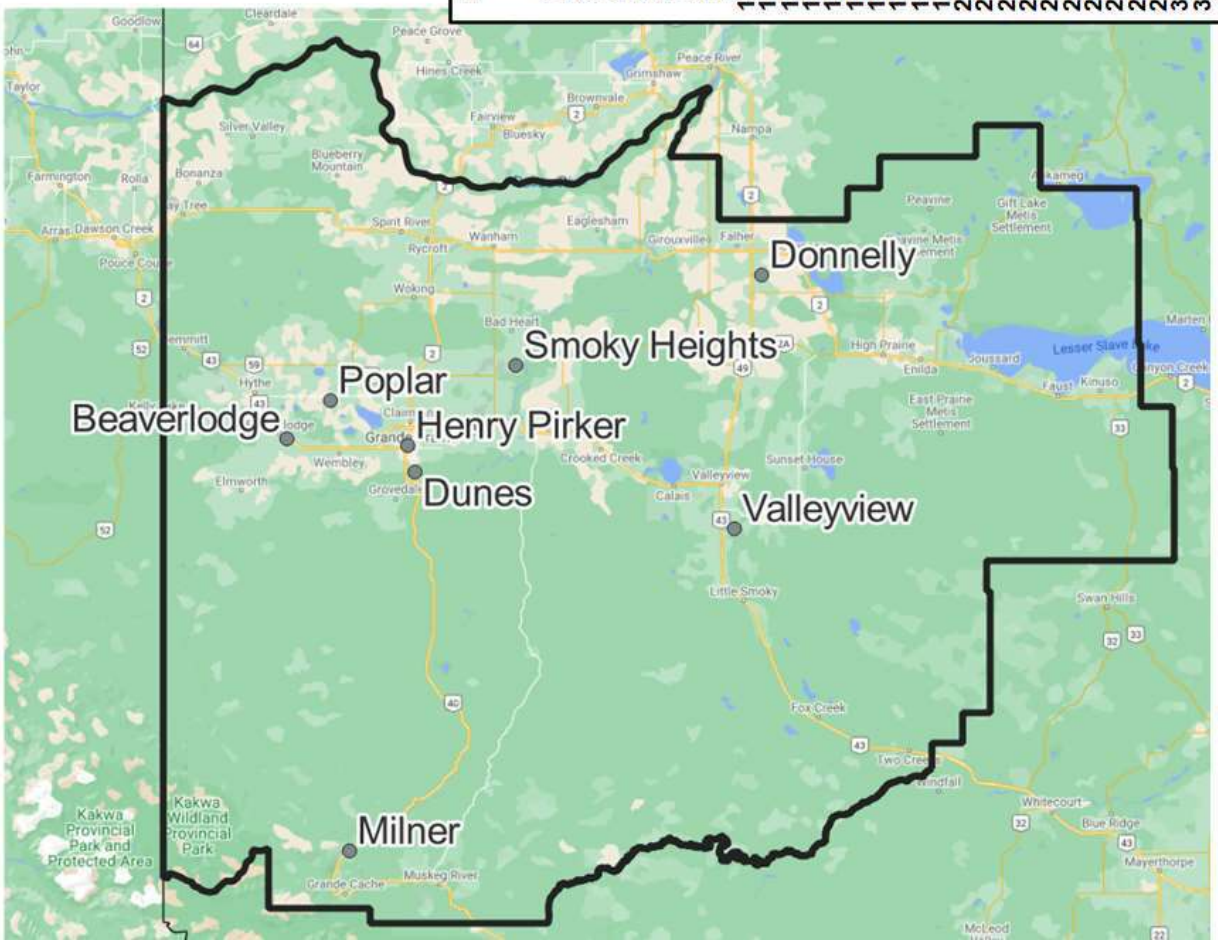
PAZA - October 2022 Continuous Station Summary

October 2022 AQHI Station Summary

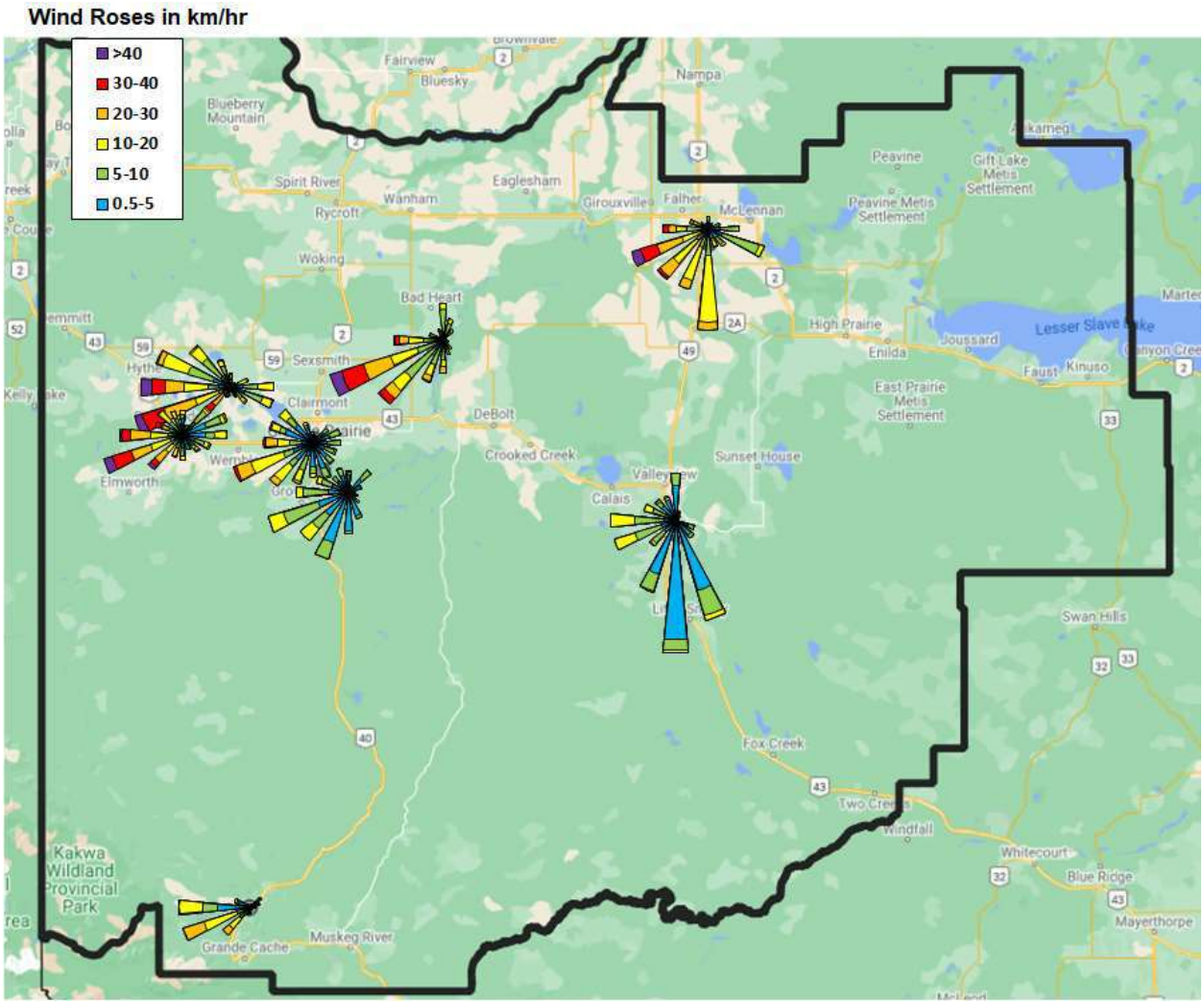
PAZA
Peace Airshed Zone Association

Station	Average AQHI	Max AQHI
Dunes	-	-
Henry Pirker AQHI	2.5	8
Smoky Heights	-	-
Beaverlodge AQHI	2.1	6
Valleyview	-	-
Donnelly	-	-
Poplar AQHI	1.9	5
Milner	-	-



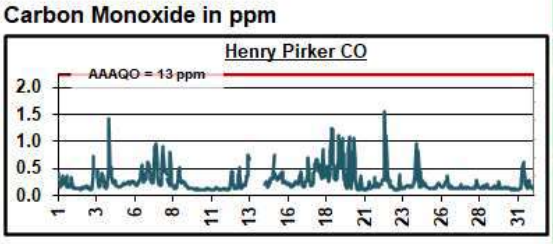


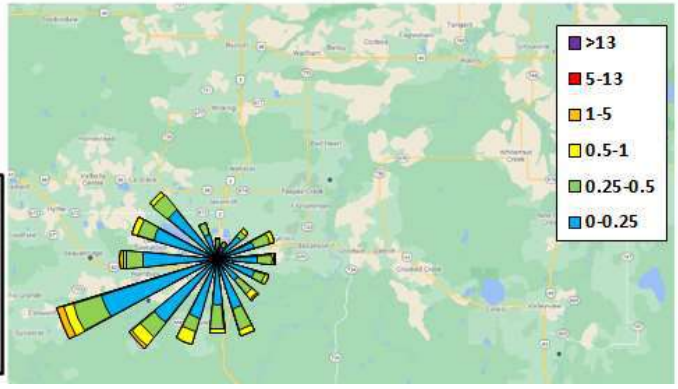
10.2 Wind Roses



10.3 Carbon Monoxide (CO) Plots

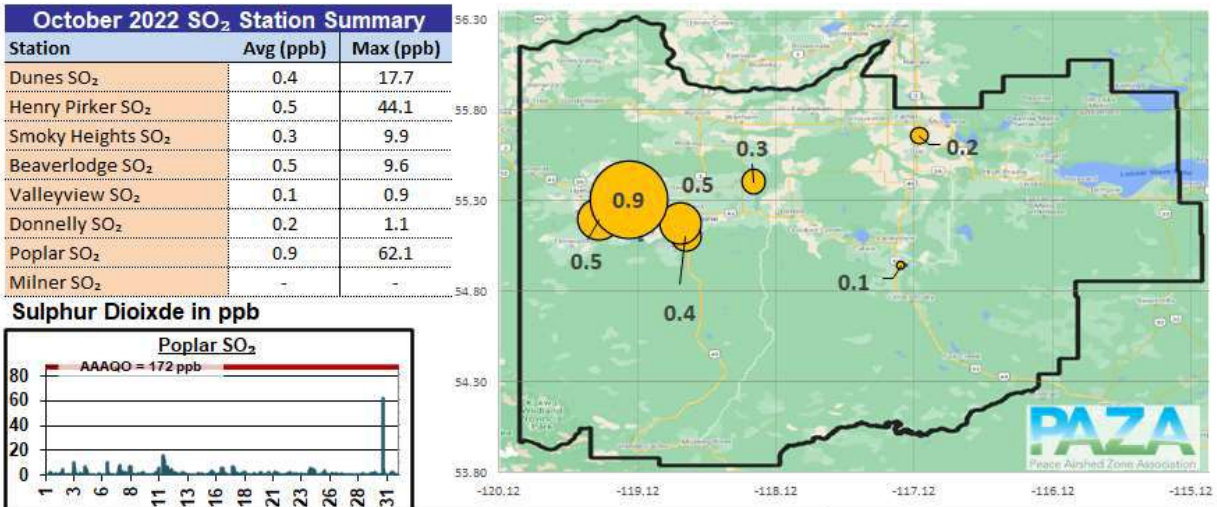
October 2022 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.25	1.56



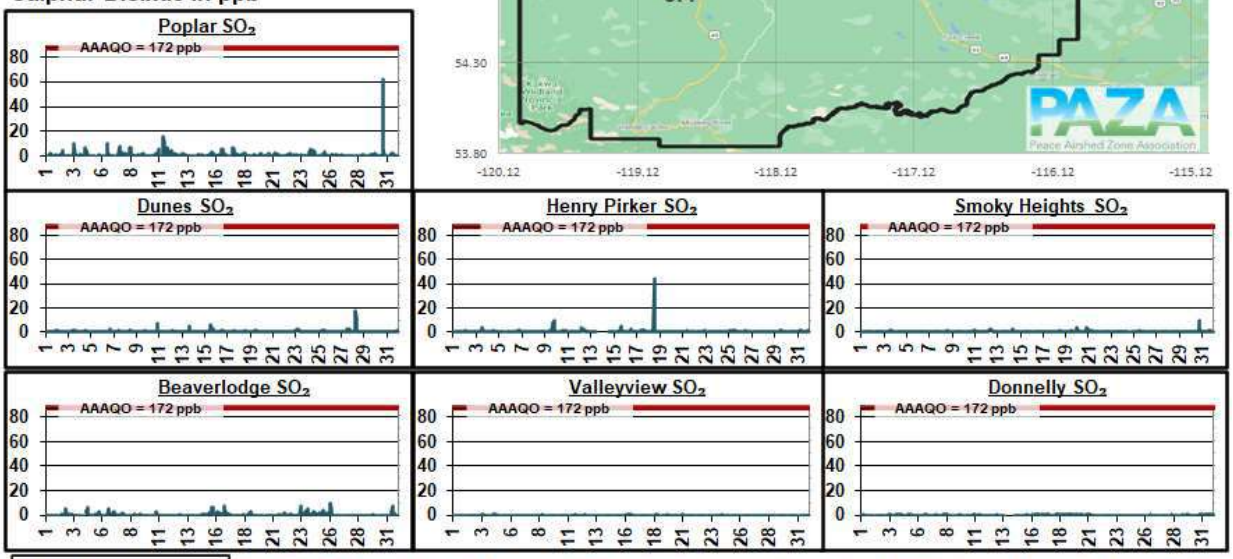


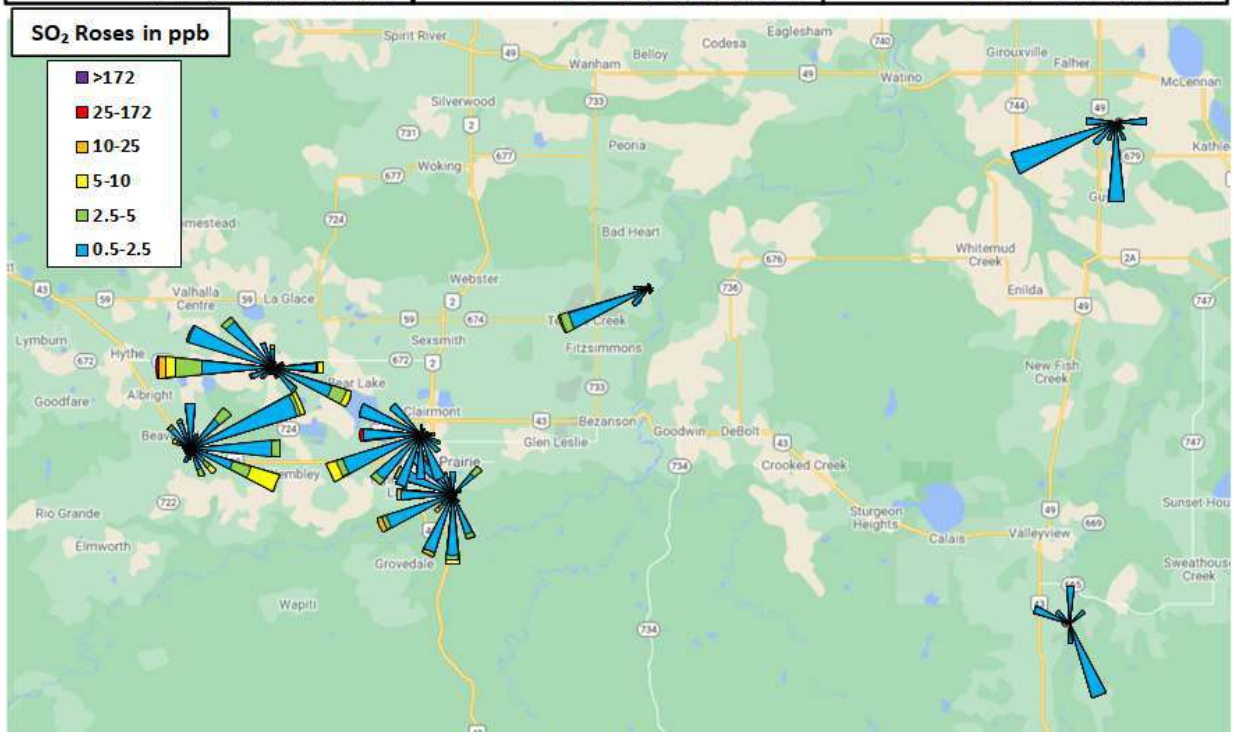
10.4 Sulphur Dioxide (SO_2) Plots

October 2022 SO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes SO_2	0.4	17.7
Henry Pirker SO_2	0.5	44.1
Smoky Heights SO_2	0.3	9.9
Beaverlodge SO_2	0.5	9.6
Valleyview SO_2	0.1	0.9
Donnelly SO_2	0.2	1.1
Poplar SO_2	0.9	62.1
Milner SO_2	-	-



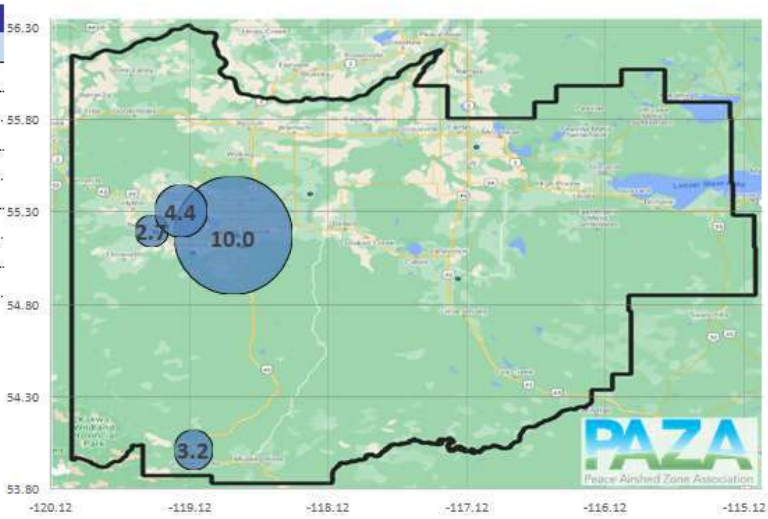
Sulphur Dioixde in ppb

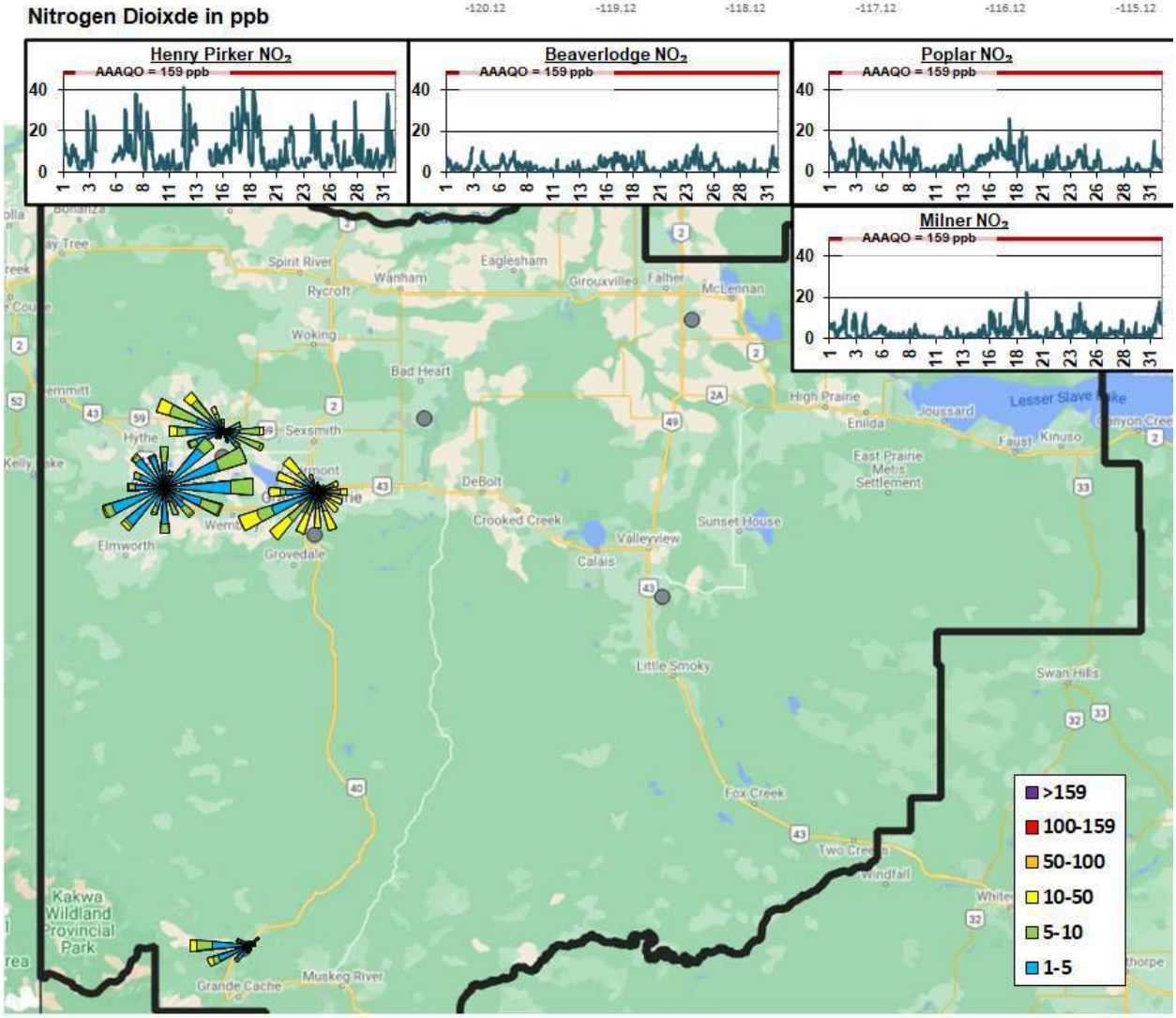




10.5 Nitrogen Dioxide (NO_2) Plots

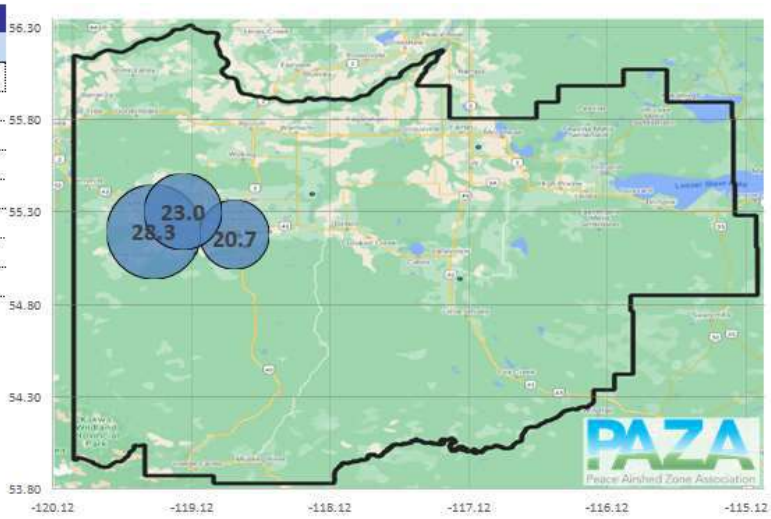
October 2022 NO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes NO_2	-	-
Henry Pirker NO_2	10.0	41.0
Smoky Heights NO_2	-	-
Beaverlodge NO_2	2.7	13.5
Valleyview NO_2	-	-
Donnelly NO_2	-	-
Poplar NO_2	4.4	25.9
Milner NO_2	3.2	22.3



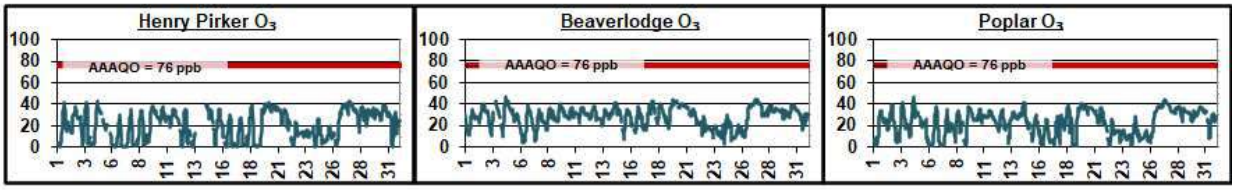


10.6 Ozone (O_3) Plots

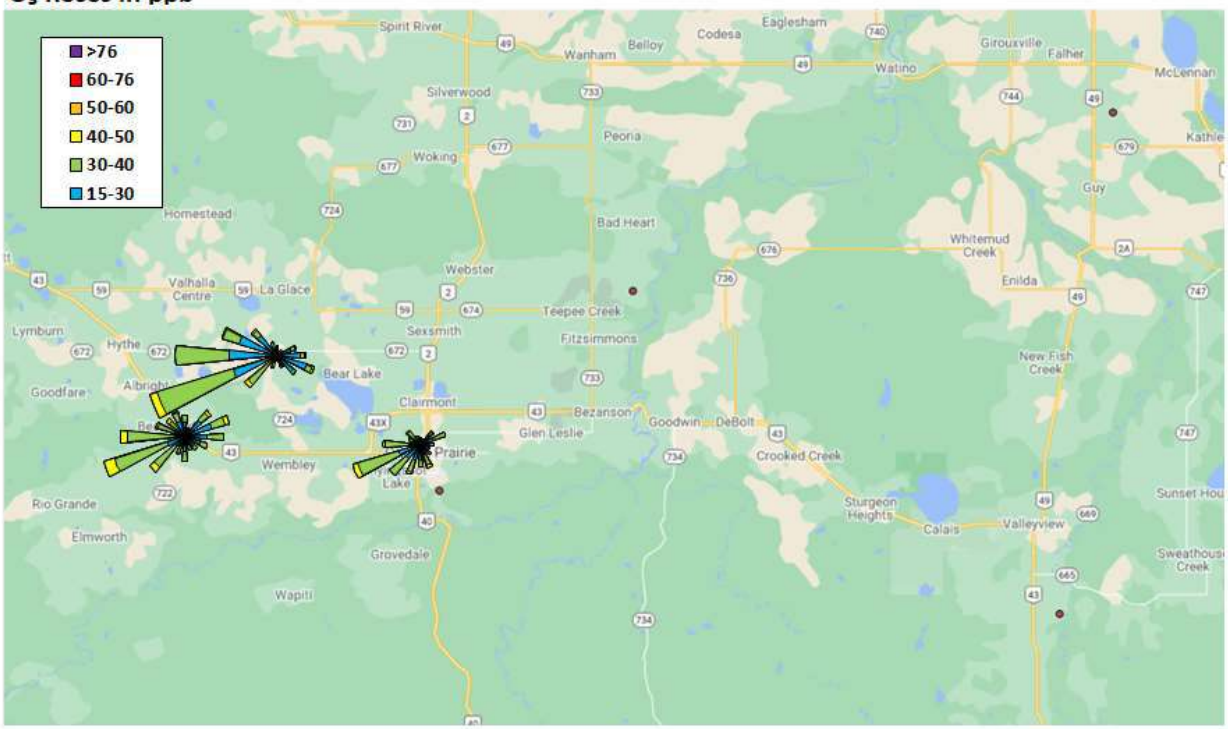
October 2022 O_3 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes O_3	-	-
Henry Pirker O_3	20.7	43.4
Smoky Heights O_3	-	-
Beaverlodge O_3	28.3	46.9
Valleyview O_3	-	-
Donnelly O_3	-	-
Poplar O_3	23.0	47.1
Milner O_3	-	-



Ozone in ppb

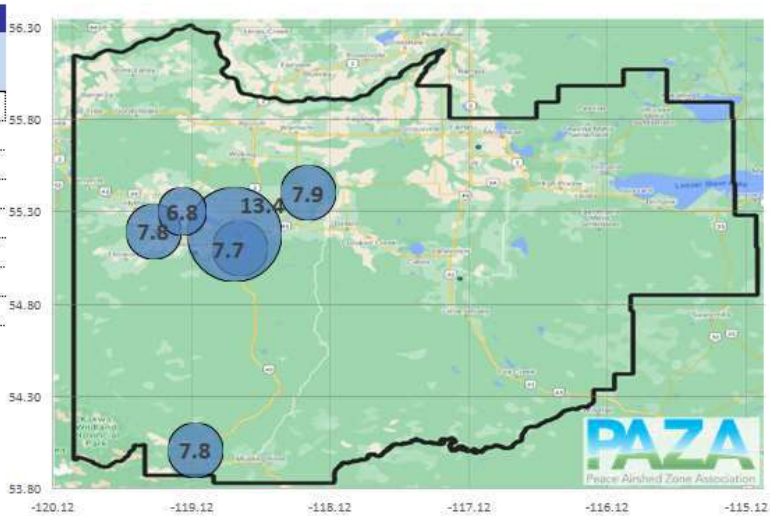


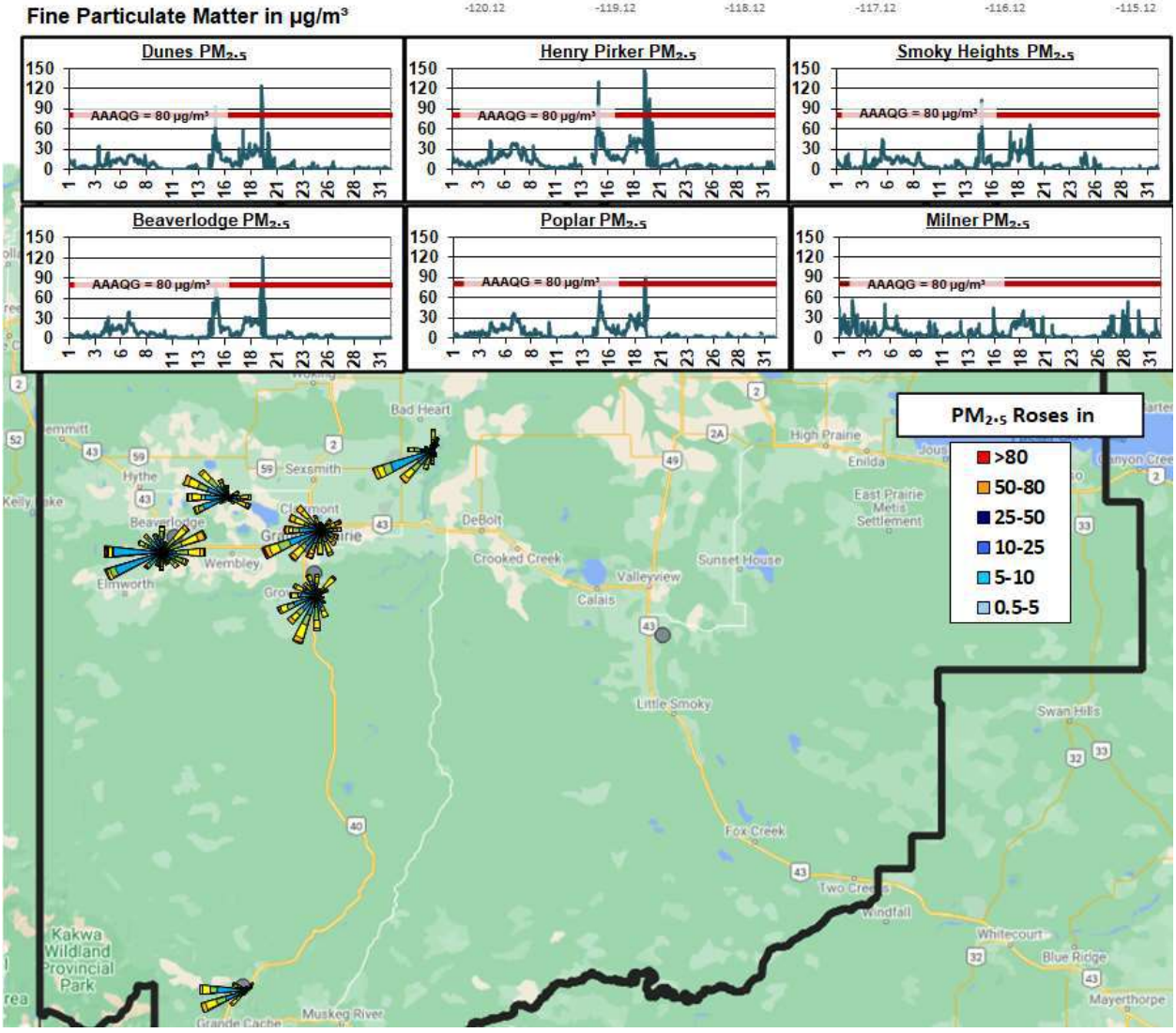
O_3 Roses in ppb



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

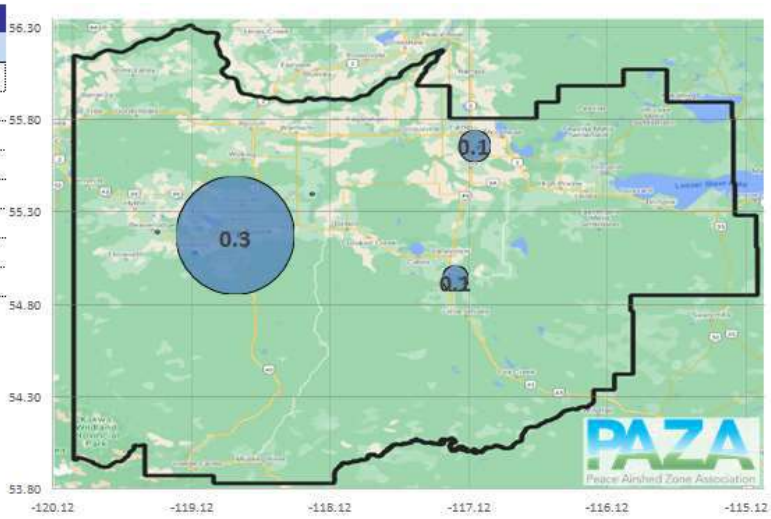
October 2022 $PM_{2.5}$ Station Summary		
Station	Avg µg/m³	Max µg/m³
Dunes $PM_{2.5}$	7.7	125.2
Henry Pirker $PM_{2.5}$	13.4	147.0
Smoky Heights $PM_{2.5}$	7.9	103.8
Beaverlodge $PM_{2.5}$	7.8	121.5
Valleyview $PM_{2.5}$	-	-
Donnelly $PM_{2.5}$	-	-
Poplar $PM_{2.5}$	6.8	89.5
Milner $PM_{2.5}$	7.8	56.3



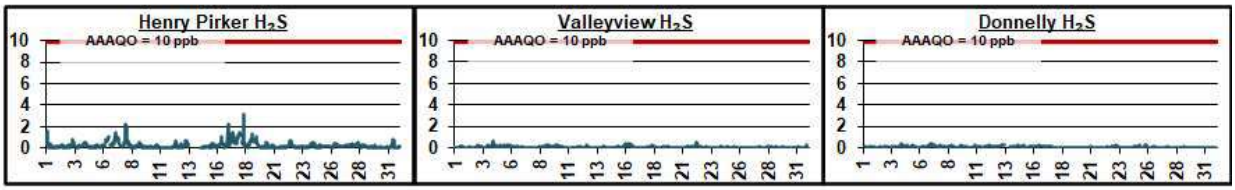


10.8 Hydrogen Sulphide (H_2S) Plots

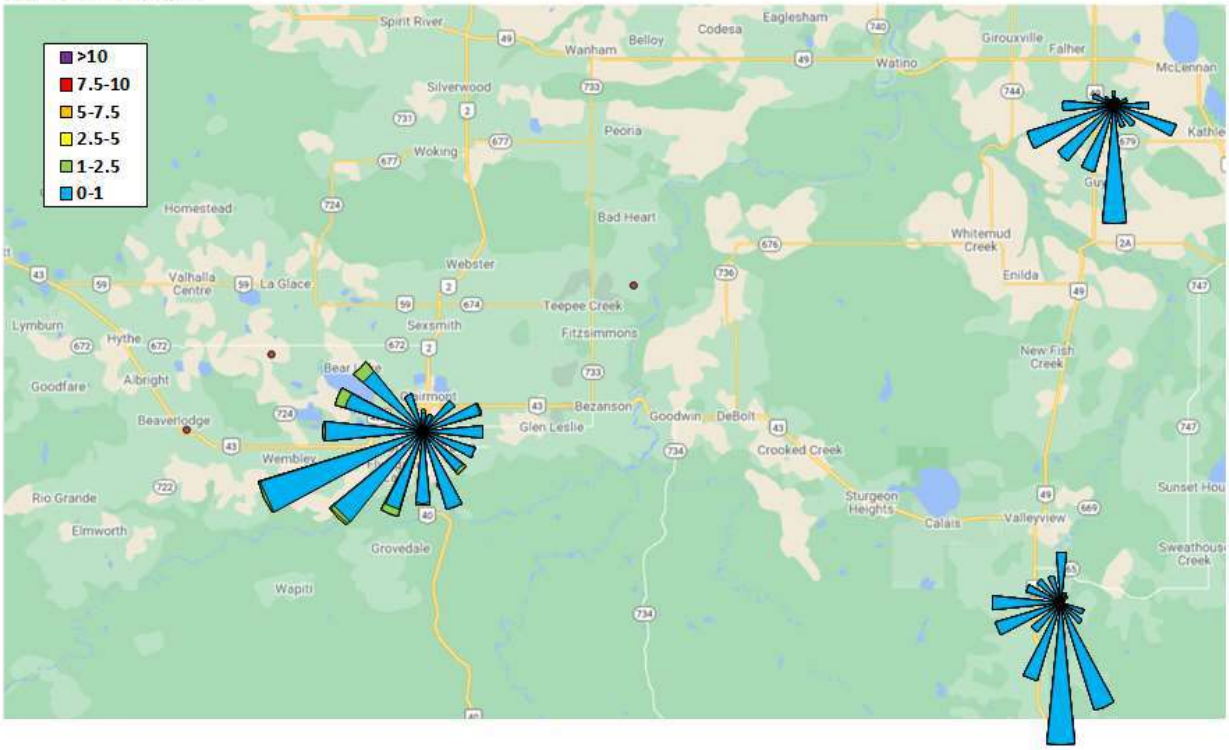
October 2022 H_2S Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes H_2S	-	-
Henry Pirker H_2S	0.3	3.1
Smoky Heights H_2S	-	-
Beaverlodge H_2S	-	-
Valleyview H_2S	0.1	0.6
Donnelly H_2S	0.1	0.4
Poplar H_2S	-	-
Milner H_2S	-	-



Hydrogen Sulphide in ppb

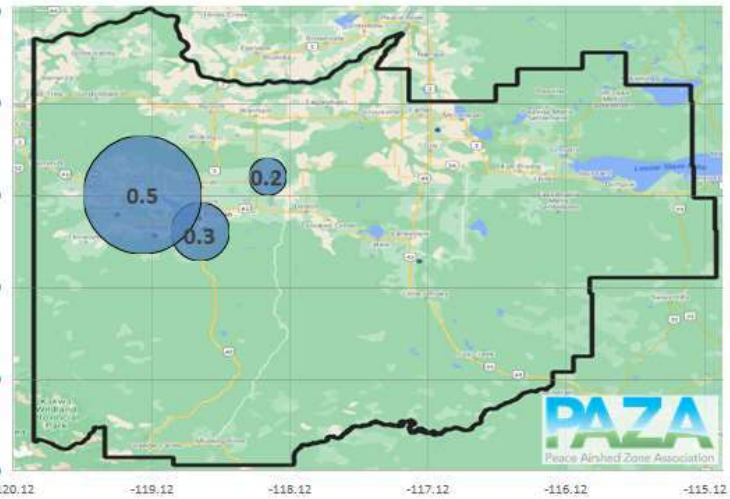


H_2S Roses in ppb

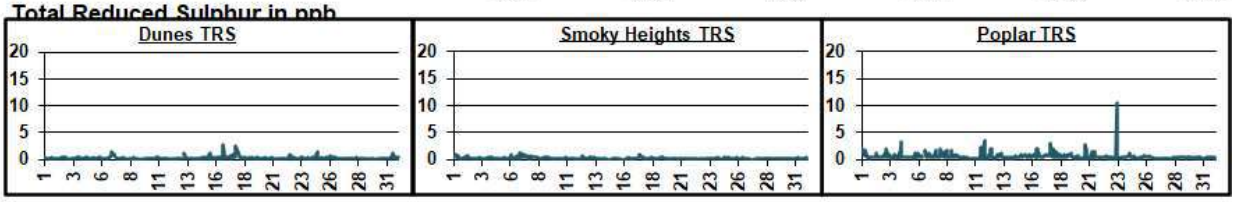


10.9 Total Reduced Sulphur (TRS) Plots

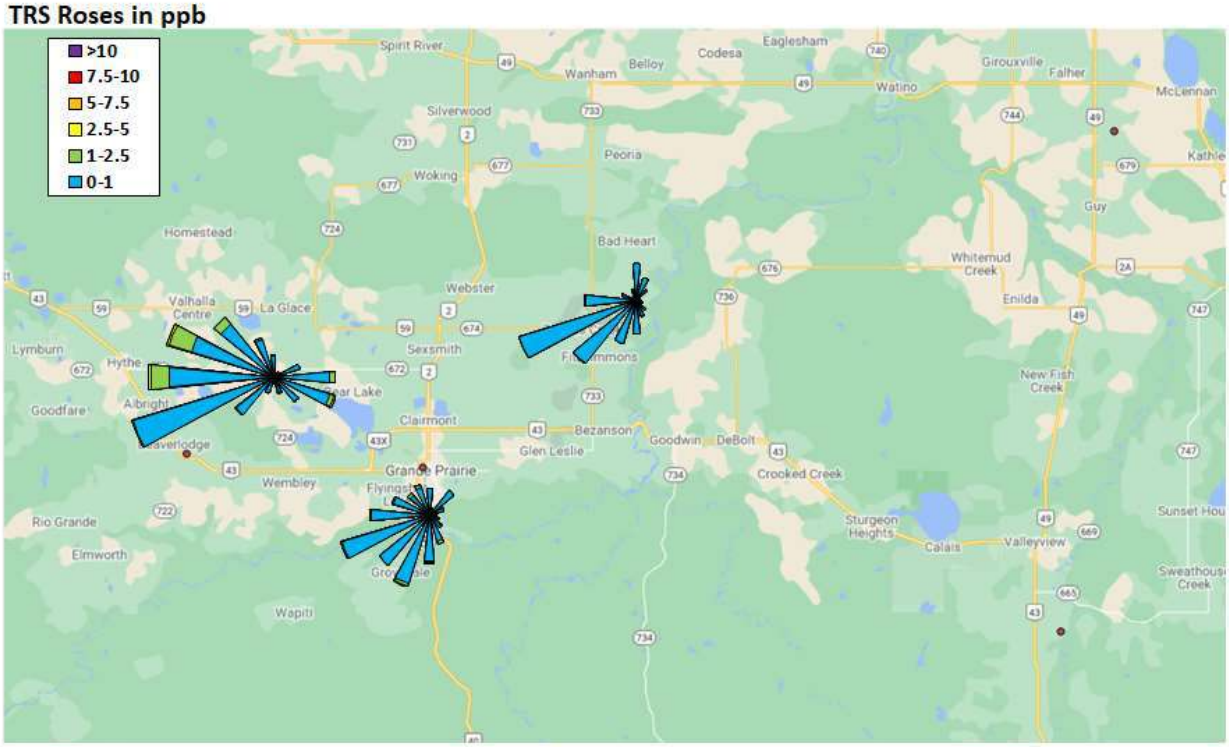
October 2022 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes TRS	0.3	2.8
Henry Pirker TRS	-	-
Smoky Heights TRS	0.2	1.3
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Poplar TRS	0.5	10.6
Milner TRS	-	-



Total Reduced Sulphur in ppb

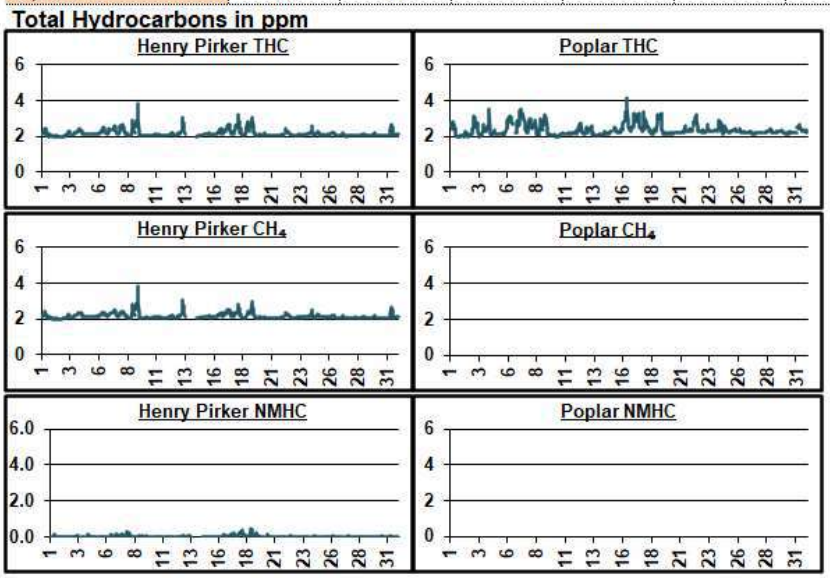


TRS Roses in ppb



10.10 Total Hydrocarbon (THC) Plots

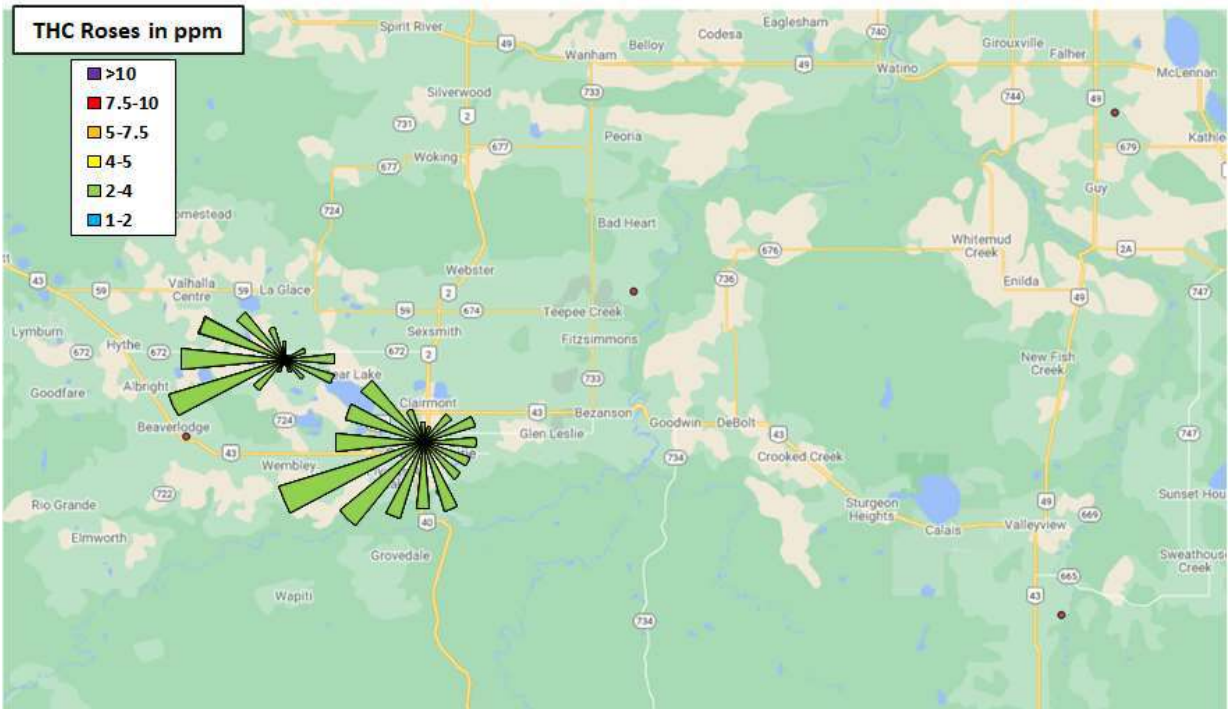
October 2022 THC Station Summary						
Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Dunes THC	-	-	-	-	-	-
Henry Pirker THC	2.2	3.9	2.1	3.9	0.0	0.4
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Poplar THC	2.4	4.2	-	-	-	-



Total Hydrocarbons (THC)

Methane (CH_4)

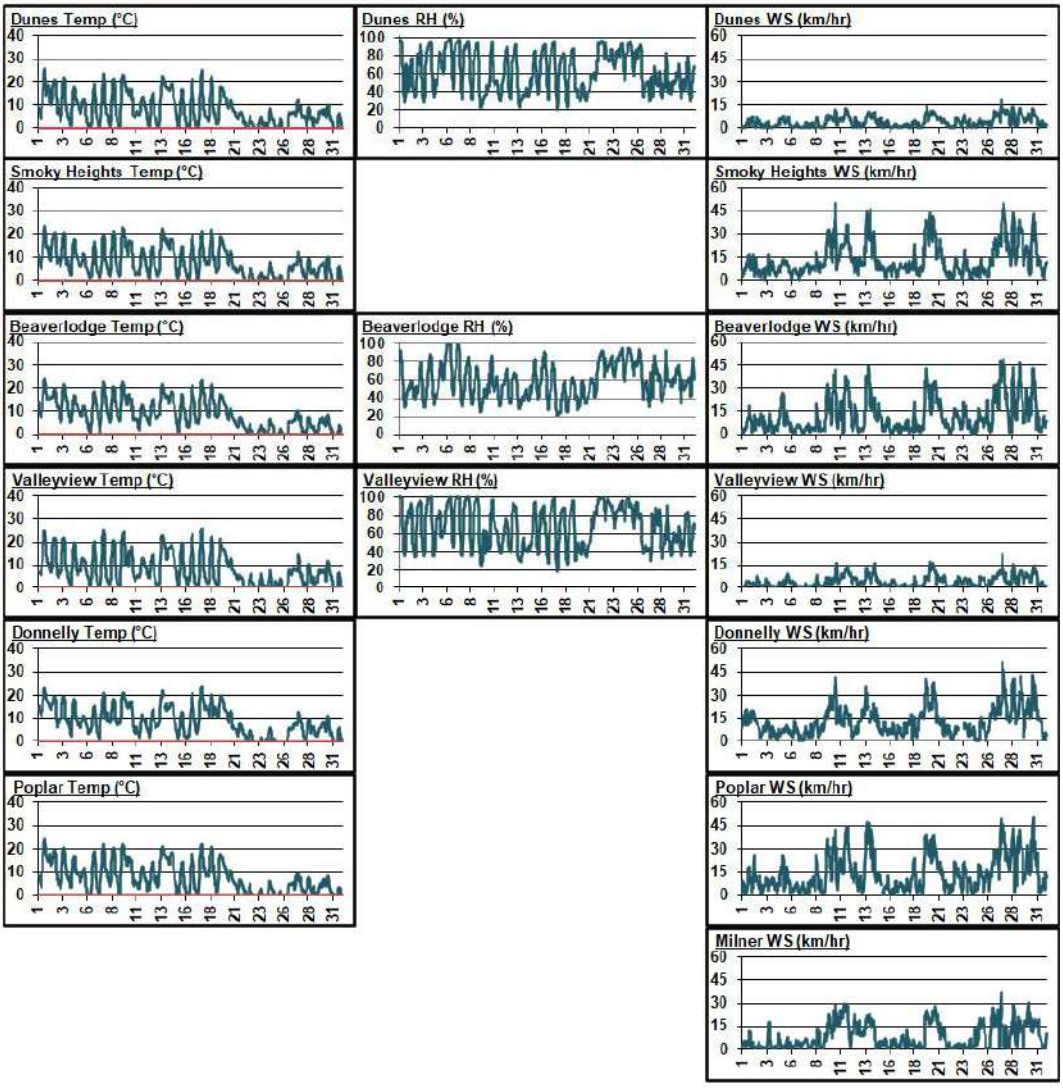
Non-Methane Hydrocarbons (NMHC)

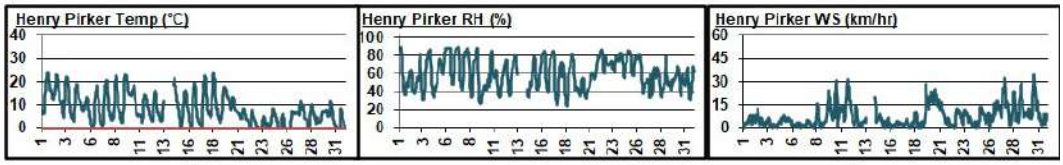


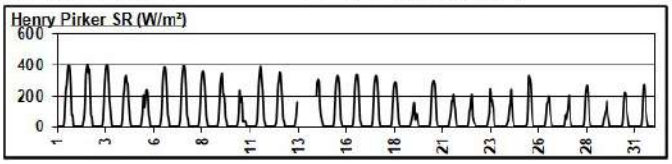
10.11 Meteorology Summary

October 2022 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Dunes	7.8	62.5	-	4.2	245	WSW
Henry Pirker	8.2	59.7	65.6	7.4	242	WSW
Smoky Heights	7.5	-	-	13.7	241	WSW
Beaverlodge	8.6	58.7	-	12.2	254	WSW
Valleyview	7.9	68.0	-	4.5	232	SW
Donnelly	8.5	-	-	13.3	221	SW
Poplar	7.2	-	-	14.2	259	W
Milner	-	-	-	8.5	248	WSW

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

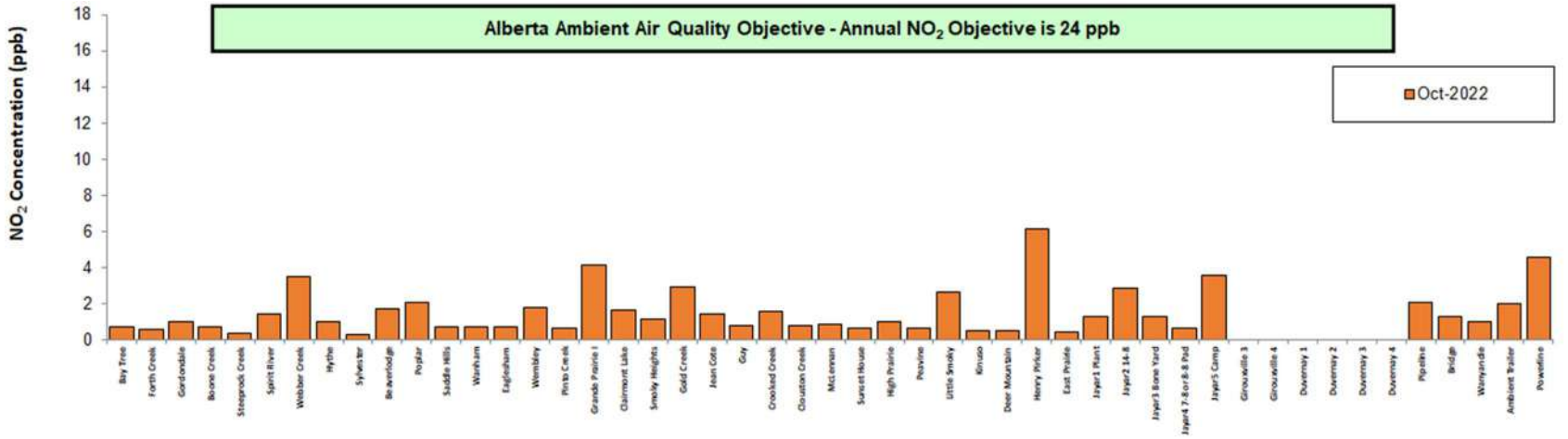
Peace Airshed Zone Association - PAZA Passive Stations for October 2022

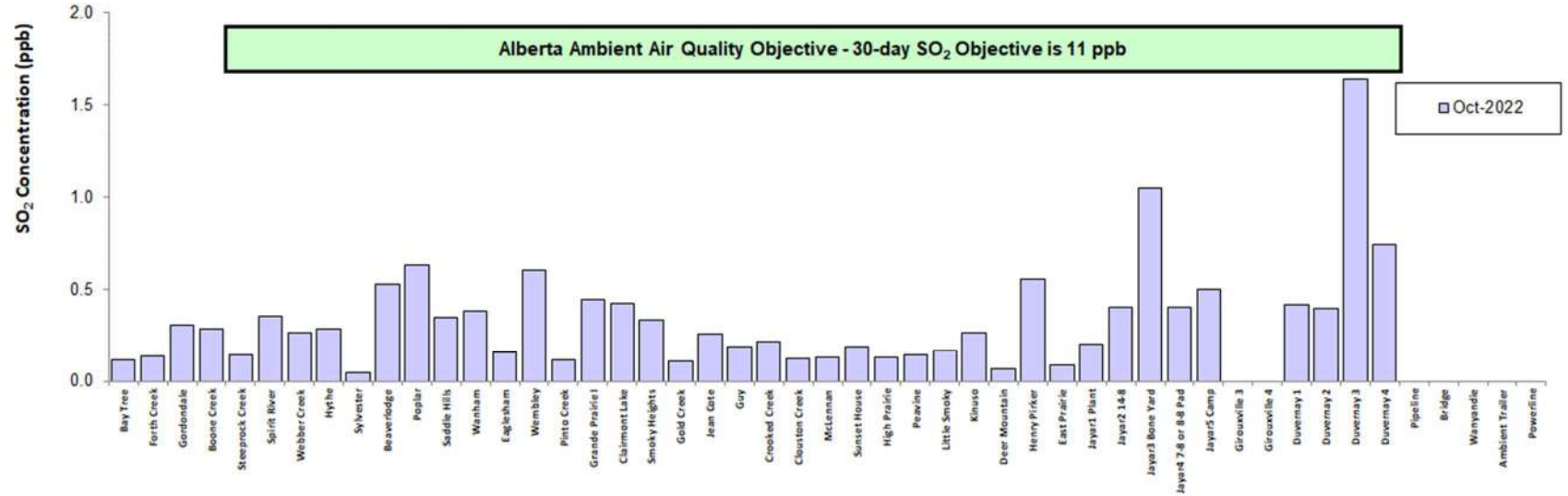
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
2a	Bay Tree			**0.8**		13-16-078-13 W6M
2b	Bay Tree			**0.6**		
3a	Forth Creek			**0.6**		04-13-082-07 W6M
3b	Forth Creek			**0.6**		
4a	Gordondale	**0.3**				04-34-078-10 W6M
4b	Gordondale	**0.3**				
9a	Spirit River	**0.4**				08-12-079-07 W6M
9b	Spirit River	**0.3**				
12a	Hythe			**1.0**		14-36-072-11 W6M
12b	Hythe			**1.1**		
24a	Wembley	**0.6**				12-31-070-08 W6M
24b	Wembley	**0.6**				
37a	Crooked Creek	**0.1**				16-01-071-26 W5M
37b	Crooked Creek	**0.3**				
39a	Clouston Creek			**0.8**		12-01-073-22 W5M
39b	Clouston Creek			**0.8**		
47a	Kinuso		**27.8**			12-10-073-10 W5M
47b	Kinuso		**34.0**			
G4a	Girouxville 4				**0.35**	04-08-077-22 W5M
G4b	Girouxville 4				**0.34**	
D1a	Duvernay 1	**0.5**			**0.08**	04-33-062-20 W5M
D1b	Duvernay 1	**0.3**			**0.09**	
J3a	Jayar3 Bone Yard	**1.1**				14-08-062-03 W6M
J3b	Jayar3 Bone Yard	**1.0**				
J4a	Jayar4 7-8 or 8-8 Pad				**0.05**	10-08-062-03 W6M
J4b	Jayar4 7-8 or 8-8 Pad				**0.05**	
J5a	Jayar5 Camp			**3.4**		11-08-062-03 W6M
J5b	Jayar5 Camp			**3.8**		
M7a	Wanyandie			**1.1**		11-13-058-08 W6M
M7b	Wanyandie			**0.9**		
M9Ba	Ambient Trailer	**<0.1**				09-15-058-08 W6M
M9Bb	Ambient Trailer	**<0.1**				

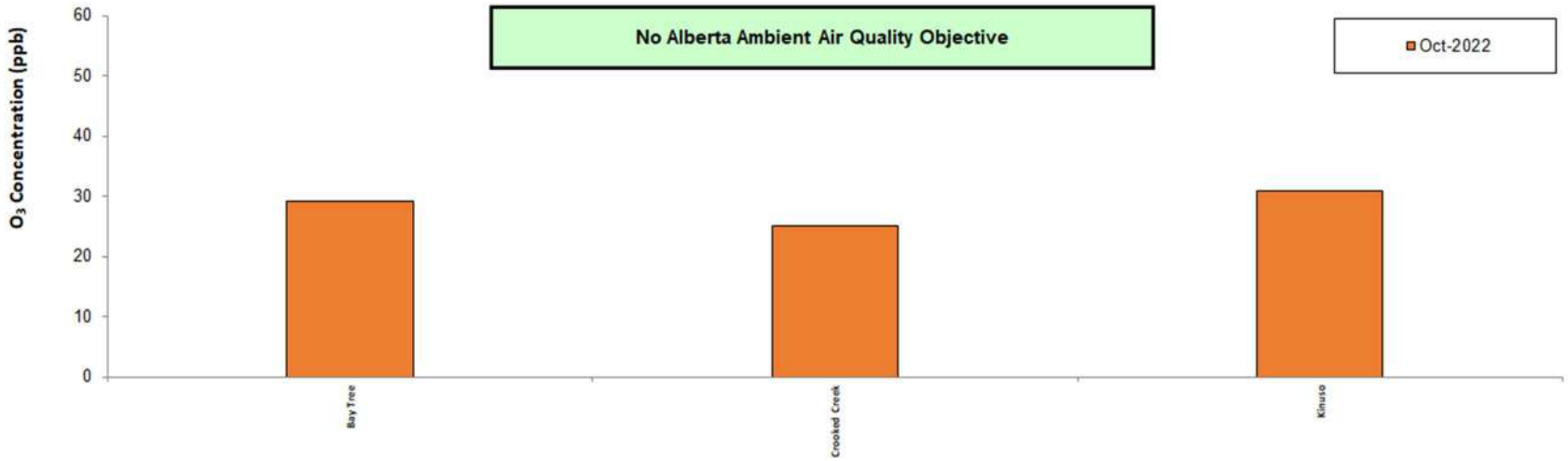
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.1	29.1	0.7	-	13-16-078-13 W6M
3	Forth Creek	0.1	-	0.6	-	04-13-082-07 W6M
4	Gordondale	0.3	-	1.0	-	04-34-078-10 W6M
5	Boone Creek	0.3	-	0.7	-	01-23-076-11 W6M
7	Steeprock Creek	0.1	-	0.4	-	09-35-072-13 W6M
9	Spirit River	0.4	-	1.5	-	08-12-079-07 W6M
11	Webber Creek	0.3	-	3.5	-	09-36-074-09 W6M
12	Hythe	0.3	-	1.0	-	14-36-072-11 W6M
14	Sylvester	0.1	-	0.3	-	08-06-069-12 W6M
16	Beaverlodge	0.5	-	1.7	-	15-36-071-10 W6M
17	Poplar	0.6	-	2.1	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	0.8	-	04-25-074-07 W6M
19	Wanham	0.4	-	0.7	-	16-22-077-03 W6M
21	Eaglesham	0.2	-	0.7	-	16-21-079-25 W5M
24	Wembley	0.6	-	1.8	-	12-31-070-08 W6M
25	Pinto Creek	0.1	-	0.7	-	04-24-069-11 W6M
27	Grande Prairie I	0.4	-	4.2	-	08-15-071-06 W6M
28	Clairmont Lake	0.4	-	1.7	-	09-06-073-04 W6M
29	Smoky Heights	0.3	-	1.2	-	04-06-075-02 W6M
32	Gold Creek	0.1	-	2.9	-	06-33-067-05 W6M
35	Jean Cote	0.3	-	1.4	-	12-35-079-21 W5M
36	Guy	0.2	-	0.8	0.1	03-04-076-22 W5M
37	Crooked Creek	0.2	25.0	1.6	-	16-01-071-26 W5M
39	Clouston Creek	0.1	-	0.8	-	12-01-073-22 W5M
40	McLennan	0.1	-	0.9	-	03-29-077-19 W5M
42	Sunset House	0.2	-	0.6	-	05-32-070-19 W5M
43	High Prairie	0.1	-	1.0	-	16-13-074-17 W5M
44	Peavine	0.1	-	0.7	-	03-05-079-15 W5M
46	Little Smoky	0.2	-	2.6	-	12-01-065-21 W5M
47	Kinuso	0.3	30.9	0.5	-	12-10-073-10 W5M
48	Deer Mountain	0.1	-	0.5	-	15-22-068-09 W5M
49	Henry Pirker	0.6	-	6.2	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.5	-	11-13-079-08 W6M
57	Jayar1 Plant	0.2	-	1.3	0.06	06-08-062-03 W6M
58	Jayar2 14-8	0.4	-	2.9	0.06	07-08-062-03 W6M
59	Jayar3 Bone Yard	1.1	-	1.3	0.05	14-08-062-03 W6M
60	Jayar4 7-8 or 8-8 Pad	0.4	-	0.7	0.05	10-08-062-03 W6M
61	Jayar5 Camp	0.5	-	3.6	0.08	11-08-062-03 W6M
G3	Girouxville 3	-	-	-	-	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	0.34	04-08-077-22 W5M
D1	Duvernay 1	0.4	-	-	0.09	04-33-062-20 W5M
D2	Duvernay 2	0.4	-	-	0.09	04-33-062-20 W5M
D3	Duvernay 3	1.6	-	-	0.05	04-33-062-20 W5M
D4	Duvernay 4	0.7	-	-	0.09	04-33-062-20 W5M
M1	Pipeline	<0.1	-	2.1		12-14-058-08 W6M
M2	Bridge	<0.1	-	1.3		08-06-057-08 W6M
M3	Wanyandie	<0.1	-	1.0		11-13-058-08 W6M
M4	Ambient Trailer	<0.1	-	2.0		09-15-058-08 W6M
M5	Powerline	<0.1	-	4.6		06-14-058-08 W6M

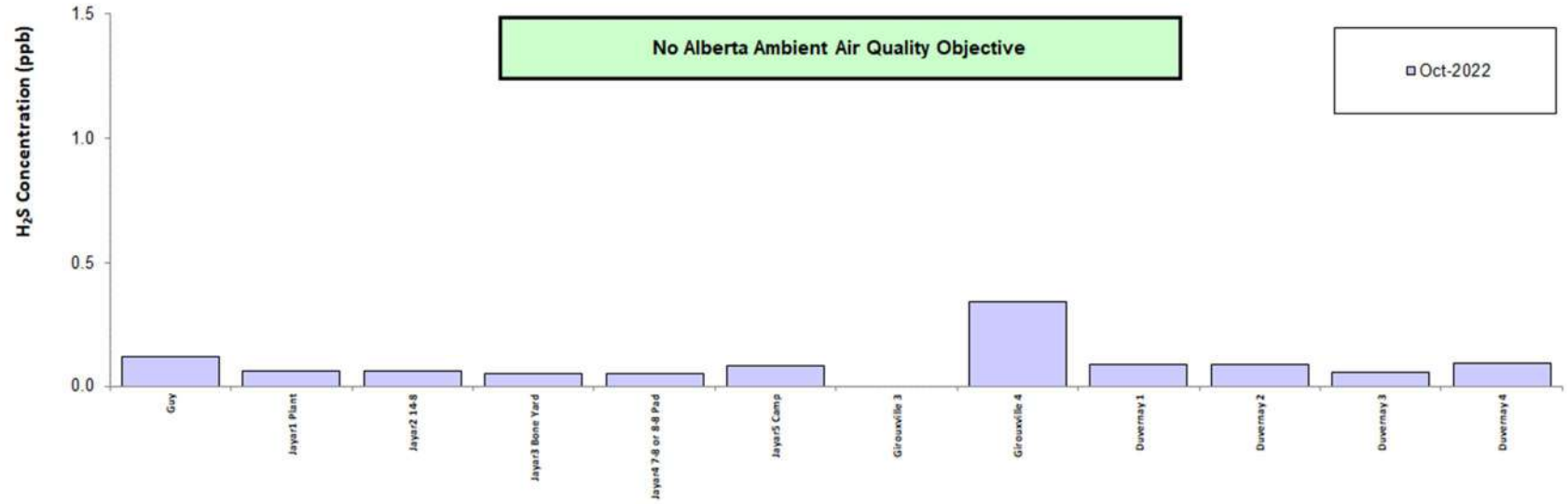
Passive Summary for October 2022

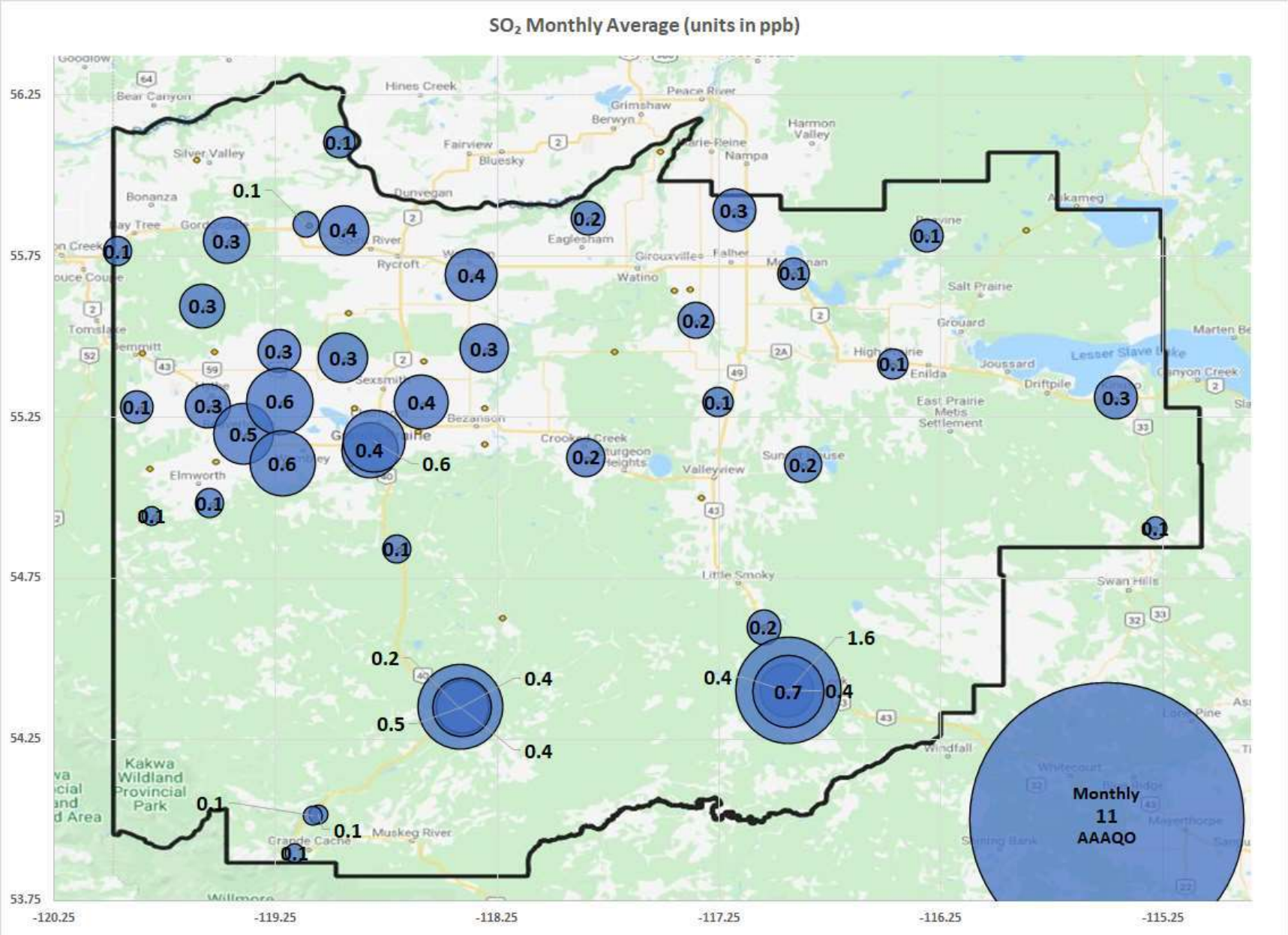
Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2	Hydrogen Sulphide H_2S
	ppb	ppb	ppb	ppb
Passive Summary for October 2022 (PAZA)				
Mean	0.3	29.5	1.6	0.1
Standard Deviation	0.3	4.5	1.3	0.1
Minimum	0.1 Sylvester (#14)	25.0 Crooked Creek (#37)	0.3 Sylvester (#14)	0.1 Jayar3 Bone Yard (#59)
Maximum	1.6 Duvernay 3 (#D3)	34.0 Kinuso (#47)	6.2 Henry Pirker (#49)	0.3 Girouxville 4 (#G4)
Continuous and Passive Monitoring Comparision				
PAZA Beaverlodge Station	**0.5**	**28.3**	**2.7**	**-**
Beaverlodge Passive (#16)	**0.5**	**-**	**1.7**	**-**
PAZA Henry Pirker Station	**0.5**	**20.7**	**10.0**	**0.3**
Henry Pirker passive (#49)	**0.6**	**-**	**6.2**	**-**
Milner Station	**-**	**-**	**3.2**	**-**
Henry Pirker passive (#49)	**<0.1**	**-**	**2.0**	**-**

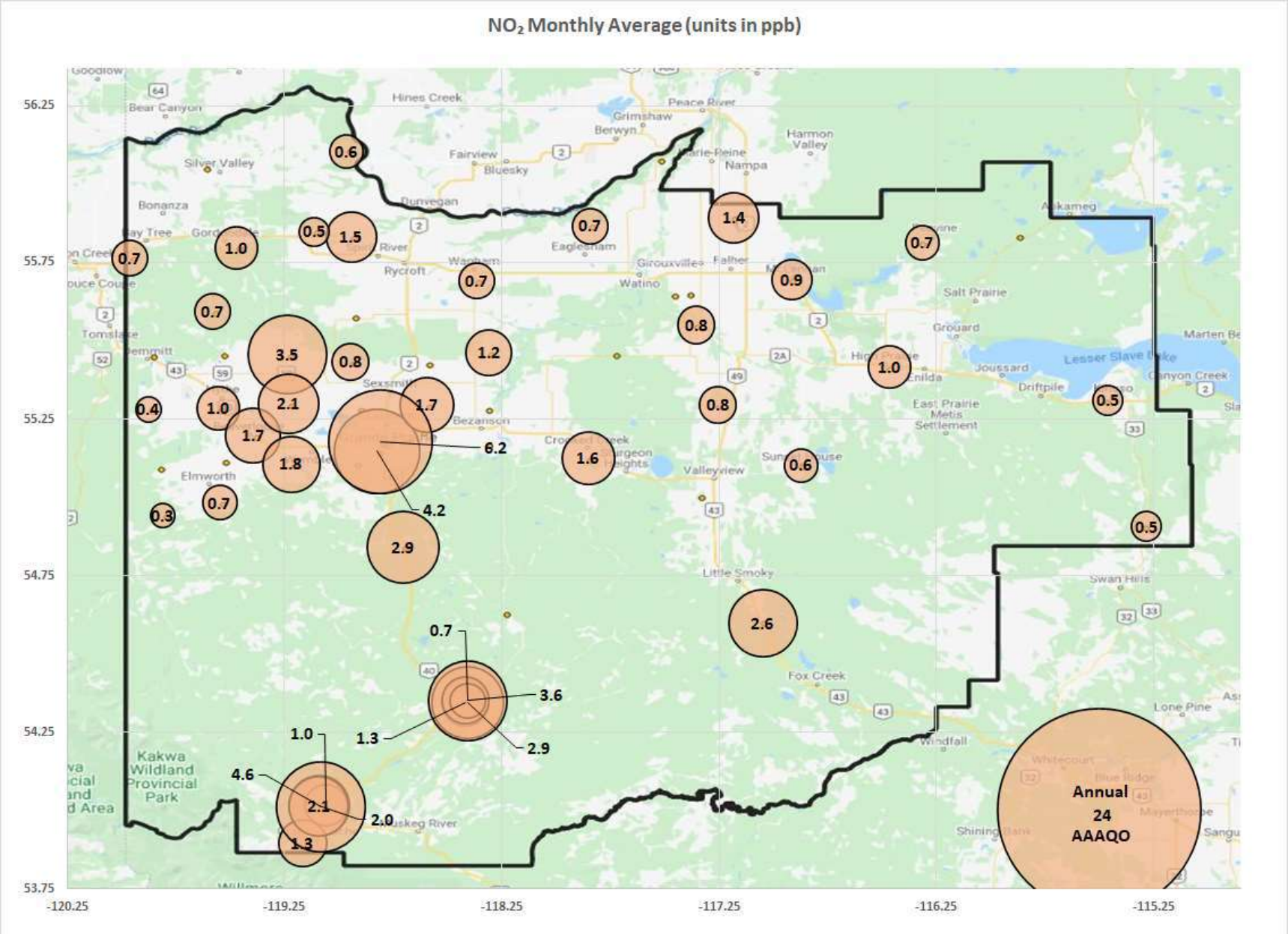

Alberta Ambient Air Quality Objective - Annual NO2 Objective is 24 ppb
NO2 Concentration (ppb)
Oct-2022
0
2
4
6
8
10
12
14
16
18
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande 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

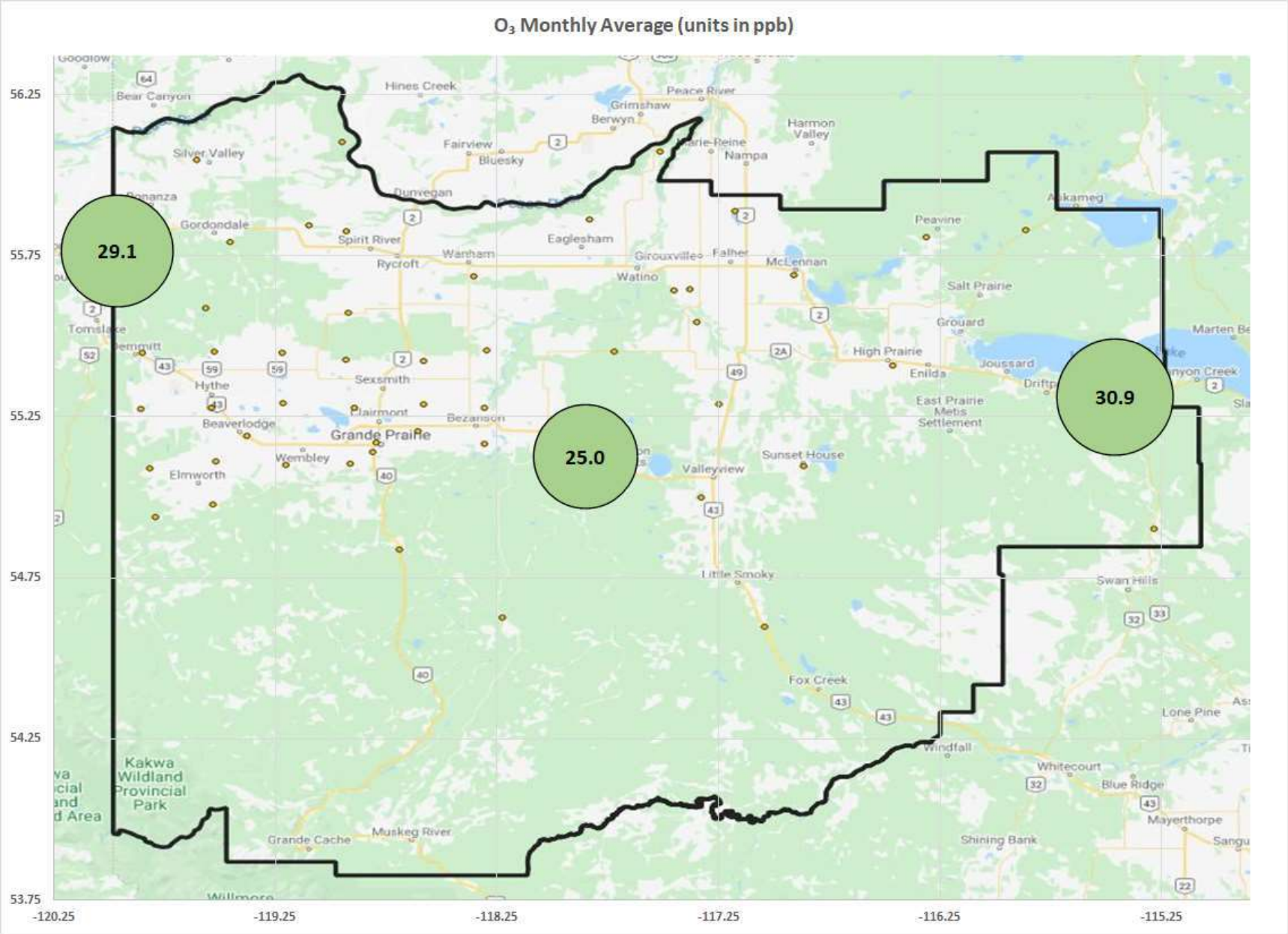

Alberta Ambient Air Quality Objective - 30-day SO2 Objective is 11 ppb
SO2 Concentration (ppb)
Oct-2022
0.0
0.5
1.0
1.5
2.0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande 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

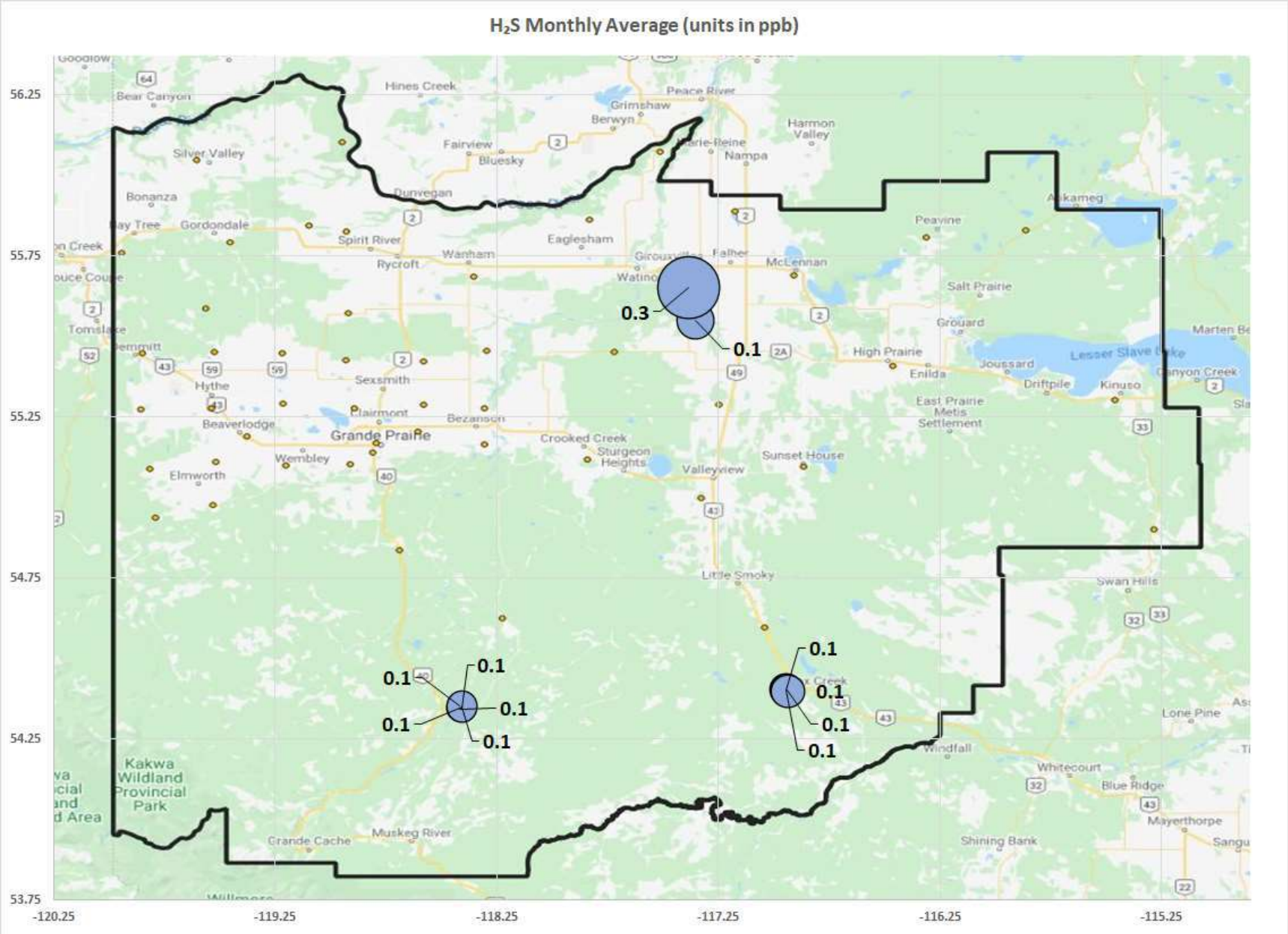

No Alberta Ambient Air Quality Objective
Oct-2022
O3 Concentration (ppb)
60
50
40
30
20
10
0
Bay Tree
Crooked Creek
Kinuso


No Alberta Ambient Air Quality Objective
Oct-2022
H2S Concentration (ppb)
1.5
1.0
0.5
0.0
Guy
Jayar1 Plant
Jayar2 148
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
0.6
0.7
1.0
0.5
1.5
0.7
1.4
0.7
0.7
0.7
0.9
0.8
3.5
0.8
1.2
1.0
0.4
1.0
2.1
1.7
1.7
6.2
0.8
0.5
1.8
1.6
0.6
0.7
0.3
4.2
2.9
0.5
2.6
0.7
3.6
1.0
1.3
2.9
4.6
2.1
2.0
1.3
Annual
24
AAAQO
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Silver Valley
Fairview
Bluesky
Nampa
Bonanza
Dunvegan
Eaglesham
Rycroft
Watino
Girouxville
Falher
Salt Prairie
Grouard
Joussard
Lesser Slave Lake
Driftpile
East Prairie Metis Settlement
Elmworth
Bezanson
Valleyview
Little Smoky
Swan Hills
Fox Creek
Windfall
Lone Pine
Kakwa Wildland Provincial Park

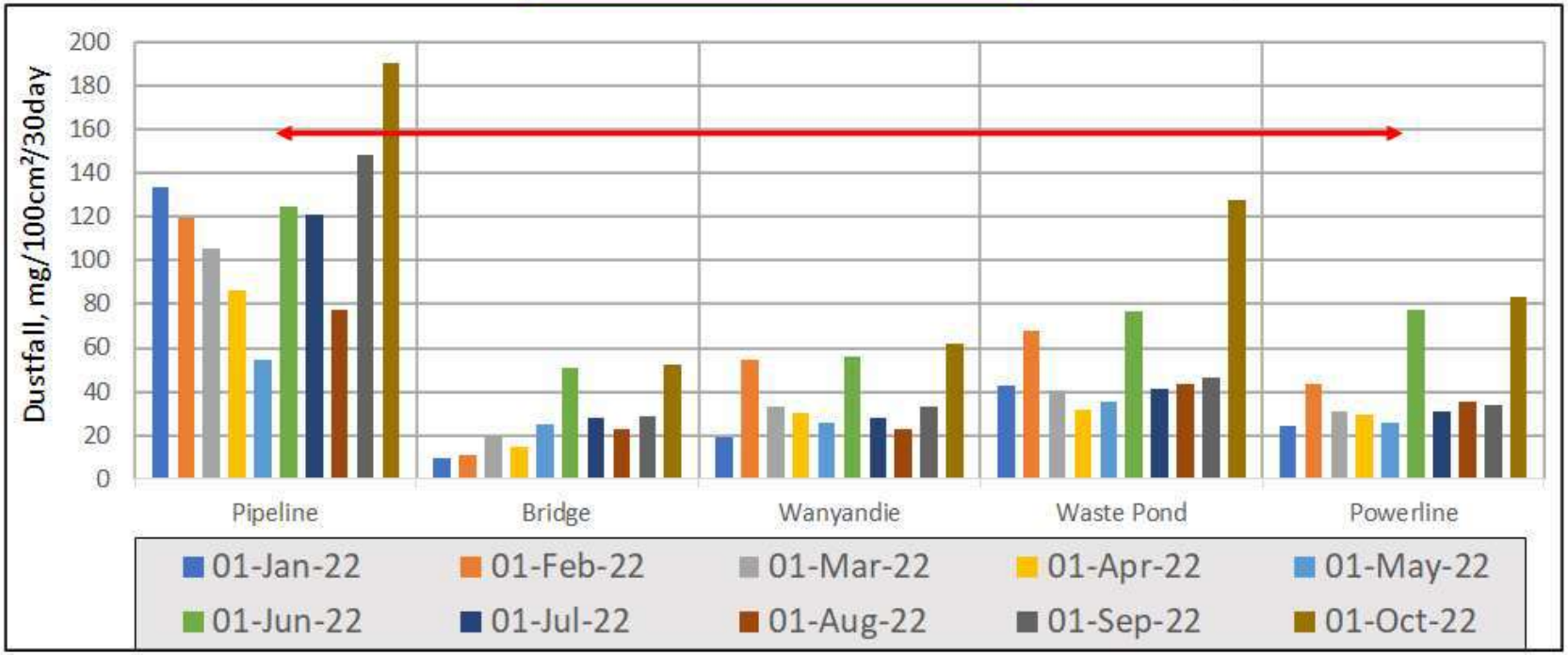

O3 Monthly Average (units in ppb)
29.1
25.0
30.9
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Silver Valley
Bear Canyon
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
Watino
Girouxville
Falher
McLennan
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Clairmont
Bezanson
Wembley
Elmworth
Valleyview
Sunset House
Little Smoky
Swan Hills
Fox Creek
Windfall
Whitecourt
Blue Ridge
Mayerthorpe
Lone Pine
Shining Bank
Grande Cache
Muskeg River
Kakwa Wildland Provincial Park


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
0.3
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
Hines Creek
Bear Canyon
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Marie-Reine
Nampa
Silver Valley
Bonanza
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
Peavine
McLennan
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Lesser Slave Lake
Driftpile
Kinuso
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Clairmont
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 October 2022

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm²/30day	Fixed Dustfall (30 day) mg/100cm²/30day	Exposure days	Field Notes
October	2022	Pipeline	**190.3**	80.1	30	>158mg/100cm²/30day, ref 407025
October	2022	Bridge	52.2	38.2	30	
October	2022	Wanyandie	**61.7**	36.1	30	>53mg/100cm²/30day, ref 407026
October	2022	Waste Pond	127.8	50.7	30	
October	2022	Powerline	83.0	40.4	30	
October	2022	Powerline Dup	80.1	40.4	30	RPD= 4% / 0%



13 End of Report

End of Report

Peace Airshed Zone Association

Ambient Air Monitoring Report

October 2022