Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

July 2022

August 31, 2022

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

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

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of July 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:

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 July 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 four readings of $PM_{2.5}$ above the 1-hr AAAQG in July:

Four 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
401601	Milner	July 19	06:00	07:00	130.1	18.7	246
403483	Milner	July 23	10:00	11:00	169.0	4.9	222
403483	Milner	July 23	23:00	00:00	156.7	4.3	268
401732	Poplar	July 21	16:00	17:00	96.9	15.6	11

One, 24-hr reading above the $PM_{2.5}$ AAAQG (80 µg/m³) was recorded as:

Reference Number	Site	Date	Daily average (µg/m³)	WS km/hr	WD degrees
403483	Milner	July 23	33.7	6.2	231

Operational times less than 90 percent:

THC analyzer was replaced at Poplar so CH_4 and NMHC were back online July 27

All other instruments reported above 90% operational times

Air Incidents

None were reported

Deviations from Authorized Monitoring Methods

Calibrations for SO_2 and $PM_{2.5}$ at Beaverlodge were performed in early August

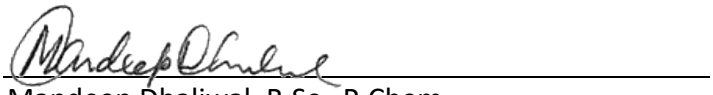
Passive Monitoring

- 49 Stations throughout the PAZA zone
  - Passive sample analyses were performed by Bureau Veritas Laboratories
- There were 17 duplicates sampled in the month of July;
- Seven SO_2 duplicates located at Webber Creek, Boone Creek, Smoky Heights, Duvernay 1, Little Smoky, Jayar5 Camp, Wanyandie; RPD ranging from 2% to 67% (one fail at Milner Powerline (difference between 0.1 and 0.2ppb))
  - Duplicate at Little Smoky had one of the two passives samples identified as missing
- One O_3 duplicate located at Kinuso; RPD 9% (no fails)
- Six NO_2 duplicates at Hythe, Clouston Creek, Spirit River, Eaglesham, Jayar3 Bone Yard, Pipeline; RPD ranging from 2% to 18% (no fails)
- Three H_2S duplicates, Girouxville 3, Duvernay 1, Jayar2 14-8; RPD 8% to 15% (no fails)
  - Duplicate at Girouxville 3 had one of the two passives samples identified as damaged
- The following notes were recorded from filter run:
  - Henry Pirker site, Lock combo changed on gates.
  - Girouxville 3, Sample filter torn on collection.
  - Girouxville 4, Head knocked down on collection.
- 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 July
  - RPD ranged from 22% to 23%
- Total dustfall ranged from 27.7 to 120.9 mg/100cm^2/30day

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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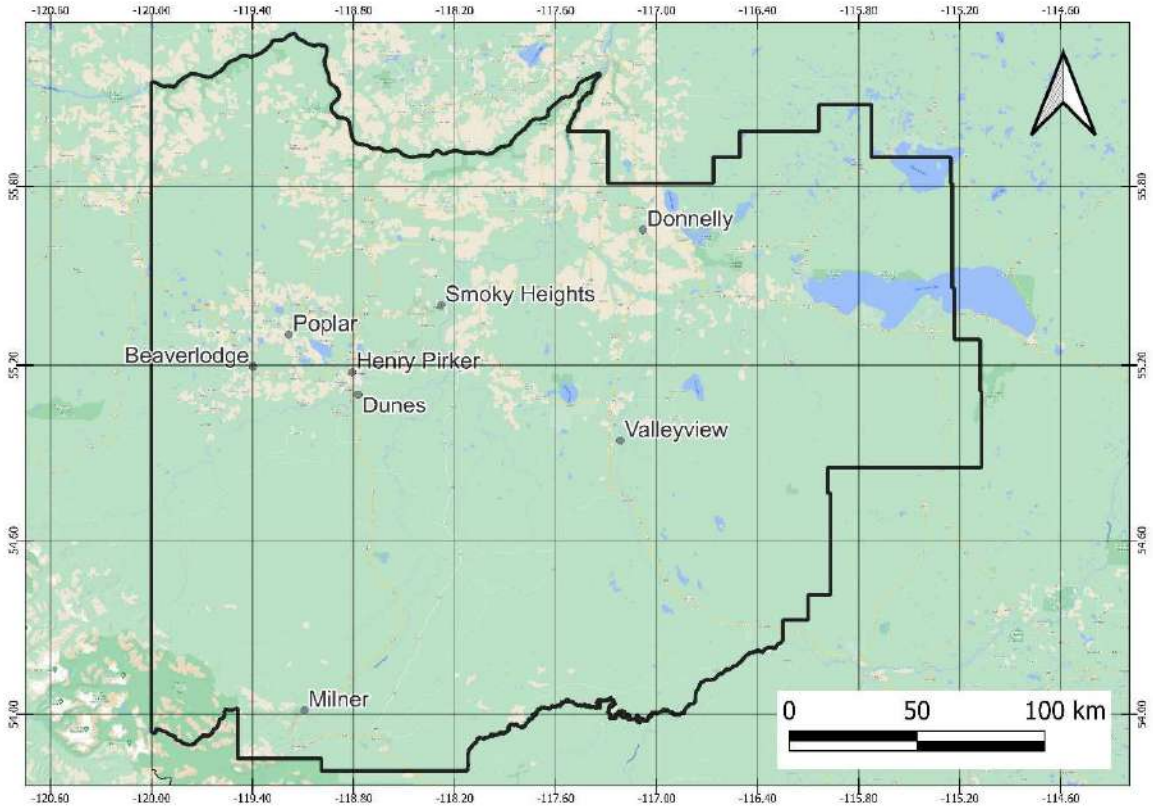
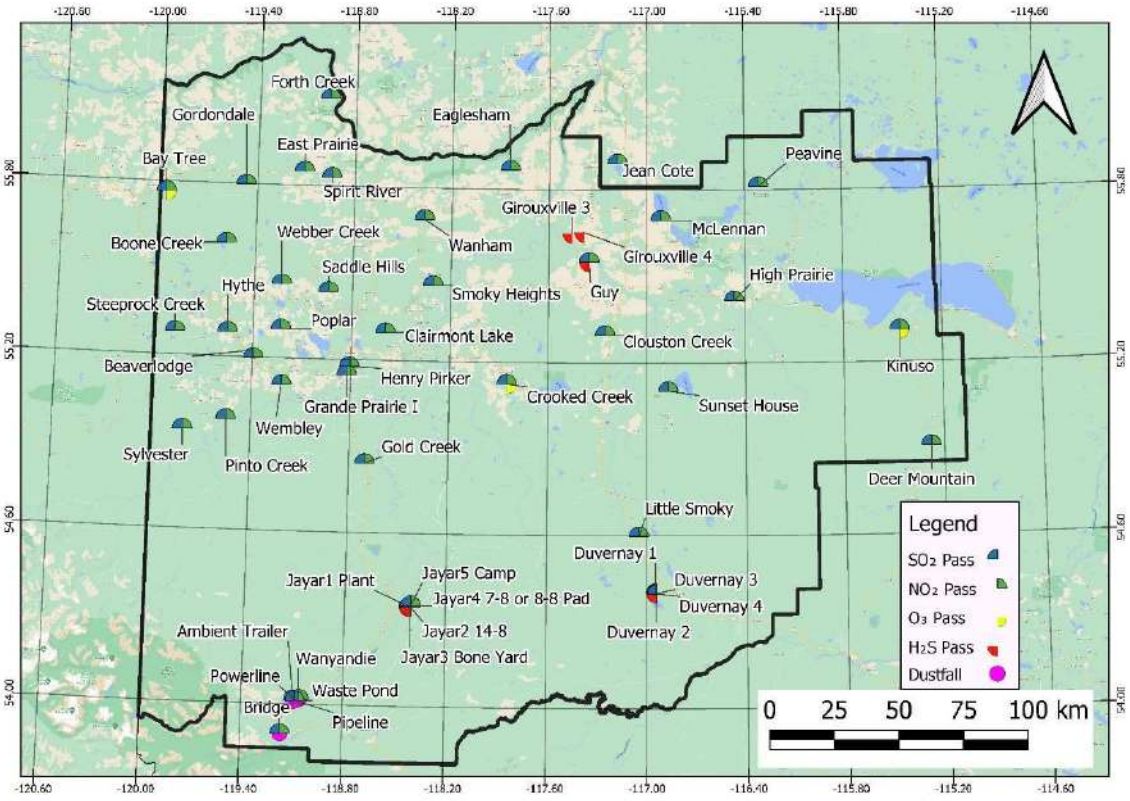
PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 July 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 - July 2022 Beaverlodge Station Report

Parameter	July 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)	0.3	0.0	91.5%	99.5%	12.5	-	Jul-22 07:00	1.6	-	Jul-22	-	-	-	-	Jul 13, 2022
NO_2 (ppb)	2.1	0.2	91.5%	99.5%	13.2	159	Jul-03 04:00	3.6	-	Jul-22	0	-	-	-	Jul 13, 2022
NO_x (ppb)	2.5	0.2	91.5%	99.5%	23.1	-	Jul-22 08:00	5.2	-	Jul-22	-	-	-	-	Jul 13, 2022
O_3 (ppb)	26.1	4.9	94.8%	99.5%	47.1	76	Jul-04 13:00	35.9	-	Jul-06	0	-	-	-	Jul 13, 2022
$PM_{2.5}$ (µg/m³)	5.8	0.2	99.5%	99.5%	46.9	80	Jul-29 07:00	28.8	29	Jul-29	0	-	0	-	Jun 02, 2022
SO_2 (ppb)	0.5	0.0	95.3%	99.5%	13.5	172	Jul-22 13:00	2.7	48	Jul-22	0	-	0	0	Jun 02, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	17.5	8.7	99.5%	99.5%	33.3
RH (%)	61.1	17.4	99.5%	99.5%	99.8
WS (km/hr)	11.7	0.4	99.5%	99.5%	42.4
WD (deg)	252	0.0	99.5%	99.5%	358.6

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

Average Wind Direction	252	WSW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	July 17, 4hrs missing data; Capital replacement of TEI 42i with 42iQ
O_3	Thermo	49iQ	July 17, 4hrs removed missing data
$PM_{2.5}$	Sharp	5030	July 17, 4hrs removed missing data, no calibration performed
SO_2	Thermo	43i-TLE	July 17, 4hrs removed missing data; no calibration performed
Met Equip	MetOne	50.5	July 17, 4hrs removed missing data

1.2 Dunes Air Monitoring Station

PAZA - July 2022 Dunes Station Report

Parameter	July Average	Minimum	Valid	Operational	1-hour Max	1-hour Objective	1-hour Max Day and Time	24-hour Max	24-hour Objective	24-hour Max Day	Exceedance 1hr	Exceedance 8hr	Exceedance 24hr	Exceedance 30d	Calibration Date
$PM_{2.5}$ (µg/m³)	5.2	0.0	99.9%	100.0%	38.7	80	Jul-29 07:00	21.1	29	Jul-29	0	-	0	-	Jul-15-2022
SO_2 (ppb)	0.3	0.0	95.3%	100.0%	5.8	172	Jul-21 15:00	0.9	48	Jul-21	0	-	0	0	Jul-15-2022
TRS (ppb)	0.2	0.0	95.2%	100.0%	1.8	-	Jul-28 05:00	0.4	-	Jul-30	-	-	-	-	Jul-15-2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	18.0	4.9	100.0%	100.0%	34.9
RH (%)	60.8	14.4	100.0%	100.0%	96.8
WS (km/hr)	4.1	0.1	100.0%	100.0%	13.5
WD (deg)	244	0.9	100.0%	100.0%	359.0

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

Average Wind Direction	244	WSW

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 - July 2022 Henry Pirker Station Report

Parameter	July 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)	0.7	0.0	94.5%	99.5%	13.6	-	Jul-26 09:00	1.9	-	Jul-27	-	-	-	-	Jul 08, 2022
NO_2 (ppb)	3.5	0.5	94.5%	99.5%	18.9	159	Jul-21 07:00	6.1	-	Jul-26	0	-	-	-	Jul 08, 2022
NO_x (ppb)	4.3	0.7	94.5%	99.5%	28.0	-	Jul-23 07:00	8.0	-	Jul-26	-	-	-	-	Jul 08, 2022
O_3 (ppb)	23.8	1.3	94.9%	99.5%	48.2	76	Jul-31 14:00	30.8	-	Jul-04	0	-	-	-	Jul 08, 2022
$PM_{2.5}$ (µg/m³)	5.8	0.0	98.9%	99.2%	36.4	80	Jul-29 07:00	22.6	29	Jul-29	0	-	0	-	Jul 20, 2022
SO_2 (ppb)	0.4	0.0	94.8%	99.5%	26.2	172	Jul-18 00:00	2.0	48	Jul-17	0	-	0	0	Jul 08, 2022
H_2S (ppb)	0.2	0.0	94.1%	98.9%	1.0	10	Jul-01 07:00	0.3	3	Jul-01	0	-	0	-	Jul 20, 2022
CH_4 (ppm)	2.1	2.0	94.8%	99.5%	2.7	-	Jul-26 06:00	2.2	-	Jul-26	-	-	-	-	Jul 11, 2022
THC (ppm)	2.1	2.0	94.8%	99.5%	2.7	-	Jul-26 06:00	2.2	-	Jul-26	-	-	-	-	Jul 11, 2022
NMHC (ppm)	0.0	0.0	94.8%	99.5%	0.1	-	Jul-28 05:00	0.0	-	Jul-28	-	-	-	-	Jul 11, 2022
CO (ppm)	0.1	0.1	94.6%	99.5%	0.4	13	Jul-03 01:00	0.2	5	Jul-29	0	0	-	-	Jul 11, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	19.2	4.9	99.5%	99.5%	36.6
RH (%)	56.5	13.1	99.5%	99.5%	90.6
SR (W/m²)	158.9	0.0	99.5%	99.5%	748.4
WS (km/hr)	8.0	0.3	99.5%	99.5%	27.9
WD (deg)	244	0.0	99.5%	99.5%	359.6

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

Average Wind Direction 244 WSW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42iQ	July 21, 4hrs missing data
O_3	TECO	49i	July 21, 4hrs missing data
$PM_{2.5}$	Sharp	5030	July 6, 2hrs removed due to negative drift; July 21, 4hrs missing data
SO_2	TEI	43i-TLE	July 21, 4hrs missing data
H_2S	TEI	450i	July 4, 4hrs maintenance (calibration); July 21, 4hrs missing data
$THC/CH_4/NMHC$	TEI	55i	July 21, 4hrs missing data
CO	TEI	48i-TLE	July 21, 4hrs missing data
Met Equip	MetOne	50.5	July 21, 4hrs missing data

1.4 Smoky Heights Air Monitoring Station

PAZA - July 2022 Smoky Heights Station Report

Parameter	July 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)	6.5	0.0	99.3%	99.6%	47.7	80	Jul-24 16:00	20.2	29	Jul-29	0	-	0	-	Jul 18, 2022
SO_2 (ppb)	0.3	0.0	95.0%	99.6%	8.8	172	Jul-19 19:00	1.1	48	Jul-20	0	-	0	0	Jul 18, 2022
TRS (ppb)	0.2	0.0	92.5%	97.9%	0.9	-	Jul-25 06:00	0.4	-	Jul-25	-	-	-	-	Jul 21, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	17.8	4.7	99.6%	99.6%	34.1
WS (km/hr)	11.7	0.3	99.6%	99.6%	42.1
WD (deg)	247	0.3	99.6%	99.6%	359.7

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

Average Wind Direction 247 WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Sharp	5030	July 29, 2hrs removed missing data;
SO_2	TECO	43i	July 29, 2hrs removed missing data;
TRS	TEI	43i APSAA	July 18, 6hrs maint.; July 21, 6hrs removed from good span to cal.; July 29, 2hrs removed missing data
Met Equip	MetOne	50.5	July 29, 2hrs removed missing data;

1.5 Valleyview Air Monitoring Station

PAZA - July 2022 Valleyview Station Report

Parameter	July 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%	3.2	172	Jul-19 13:00	0.3	48	Jul-24	0	-	0	0	Jul 12, 2022
H_2S (ppb)	0.1	0.0	95.3%	100.0%	0.8	10	Jul-06 04:00	0.4	3	Jul-29	0	-	0	-	Jul 12, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	18.3	5.4	100.0%	100.0%	35.5
RH (%)	67.9	17.8	100.0%	100.0%	100.2
WS (km/hr)	3.6	0.1	100.0%	100.0%	14.2
WD (deg)	277	0.2	100.0%	100.0%	359.9

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

Average Wind Direction	277	NW

Update Summary:

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

1.6 Donnelly Air Monitoring Station

PAZA - July 2022 Donnelly Station Report

Parameter	July 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	95.2%	100.0%	0.9	172	Jul-18 04:00	0.3	48	Jul-20	0	-	0	0	Jul 14, 2022
H_2S (ppb)	0.2	0.0	95.3%	100.0%	2.0	10	Jul-02 04:00	0.5	3	Jul-31	0	-	0	-	Jul 14, 2022

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	17.9	5.2	100.0%	100.0%	32.5
WS (km/hr)	8.8	0.0	100.0%	100.0%	34.8
WD (deg)	231	0.0	100.0%	100.0%	358.7

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

Average Wind Direction	231	SW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	Teco	43i	No Operational issues noted during the month
H2S	Thermo	45C	No Operational issues noted during the month
Met Equip	RMYoung	5103	No Operational issues noted during the month

1.7 Poplar Air Monitoring Station

PAZA - July 2022 Poplar Station Report

Parameter	July 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	94.6%	100.0%	20.8	-	Jul-03 02:00	4.4	-	Jul-15	-	-	-	-	Jul 05, 2022
NO_2 (ppb)	3.4	0.0	94.6%	100.0%	16.6	159	Jul-03 01:00	6.6	-	Jul-04	0	-	-	-	Jul 05, 2022
NO_x (ppb)	4.7	0.1	94.6%	100.0%	34.7	-	Jul-03 02:00	10.6	-	Jul-15	-	-	-	-	Jul 05, 2022
O_3 (ppb)	22.2	0.5	94.8%	100.0%	45.7	76	Jul-22 17:00	28.4	-	Jul-21	0	-	-	-	Jul 05, 2022
$PM_{2.5}$ (µg/m³)	3.7	0.0	93.7%	94.1%	96.9	80	Jul-21 17:00	9.0	29	Jul-21	1	-	0	-	Jul 04, 2022
SO_2 (ppb)	0.9	0.0	95.3%	100.0%	53.7	172	Jul-27 15:00	5.0	48	Jul-27	0	-	0	0	Jul 05, 2022
TRS (ppb)	0.5	0.0	95.3%	100.0%	7.8	-	Jul-04 06:00	1.5	-	Jul-31	-	-	-	-	Jul 04, 2022
CH4 (ppm)															
THC (ppm)	2.1	1.8	94.5%	100.0%	6.7	-	Jul-04 06:00	2.5	-	Jul-04	-	-	-	-	Jul 27, 2022
NMHC (ppm)															

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	17.3	4.6	100.0%	100.0%	34.0
WS (km/hr)	12.0	0.0	100.0%	100.0%	38.9
WD (deg)	254	0.4	100.0%	100.0%	358.7

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
$NO/NO_2/NO_x$	TEI	42i	No Operational issues noted during the month
O_3	TEI	49I	No Operational issues noted during the month
$PM_{2.5}$	Thermo	TEOM AB	Periods of data in negative drift (12hrs); Maintenance for PM2.5 (32hrs); sensor unit replaced
SO_2	TEI	43I	No Operational issues noted during the month
TRS	TEI	43I	No Operational issues noted during the month
THC	TEI	55I-A3PHAA	July 27 install calibration of THC/CH4/NMHC
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.8 Milner Air Monitoring Station

PAZA - July 2022 Milner Station Report

Parameter	July 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)	0.9	0.0	94.9%	99.6%	40.1	-	Jul-03 07:00	4.2	-	Jul-03	-	-	-	-	Jul 27, 2022
NO_2 (ppb)	1.8	0.0	94.9%	99.6%	17.0	159	Jul-24 07:00	3.9	-	Jul-24	0	-	-	-	Jul 27, 2022
NO_x (ppb)	2.7	0.0	94.9%	99.6%	46.4	-	Jul-03 07:00	5.5	-	Jul-03	-	-	-	-	Jul 27, 2022
$PM_{2.5}$ (µg/m³)	9.4	0.0	90.5%	91.1%	169.0	80	Jul-23 10:00	33.7	29	Jul-23	3	-	1	-	Jul 17, 2022

	Average	Minimum	Valid	Operational	Maximum
WS (km/hr)	6.4	0.0	99.7%	99.7%	28.1
WD (deg)	245	3.4	99.7%	99.7%	358.3

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

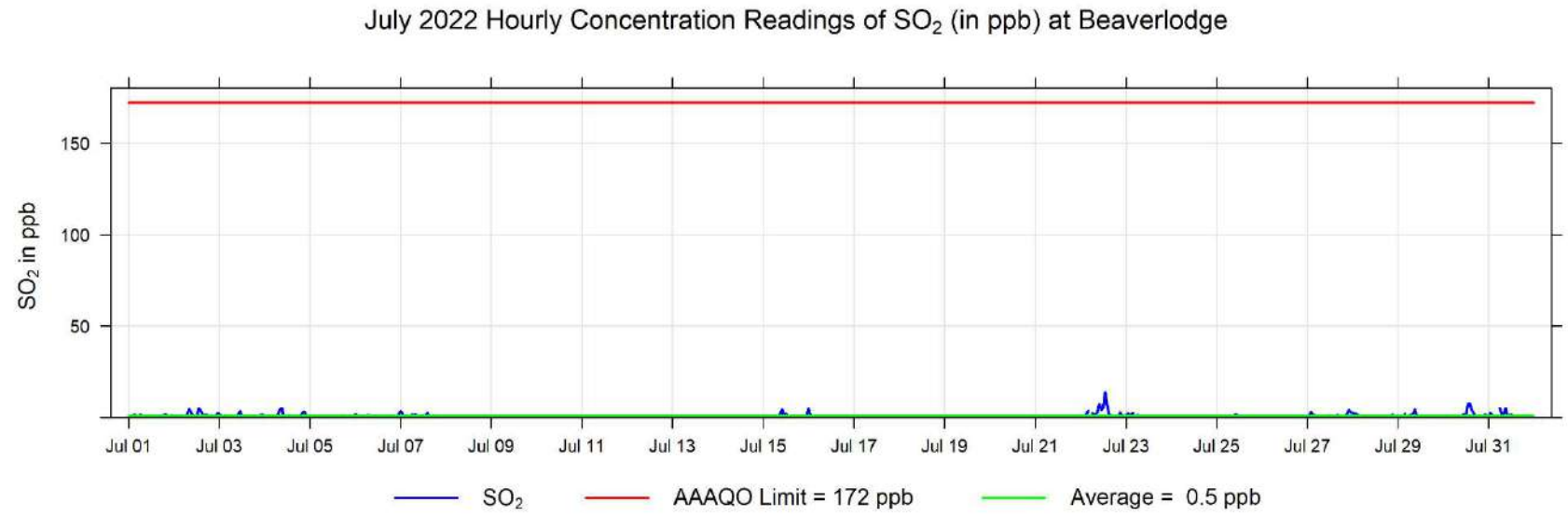
Average Wind Direction 245 WSW

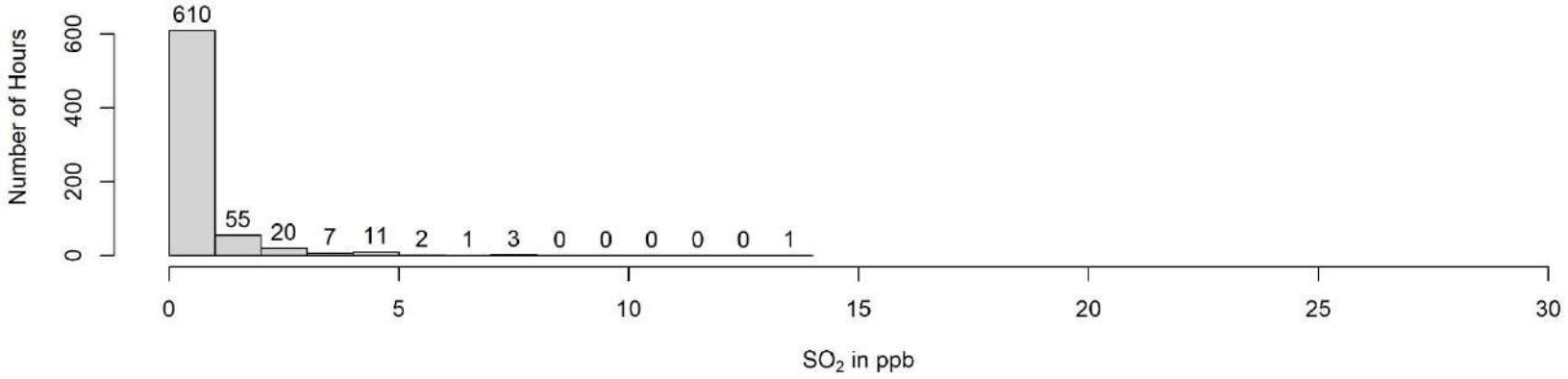
Update Summary:

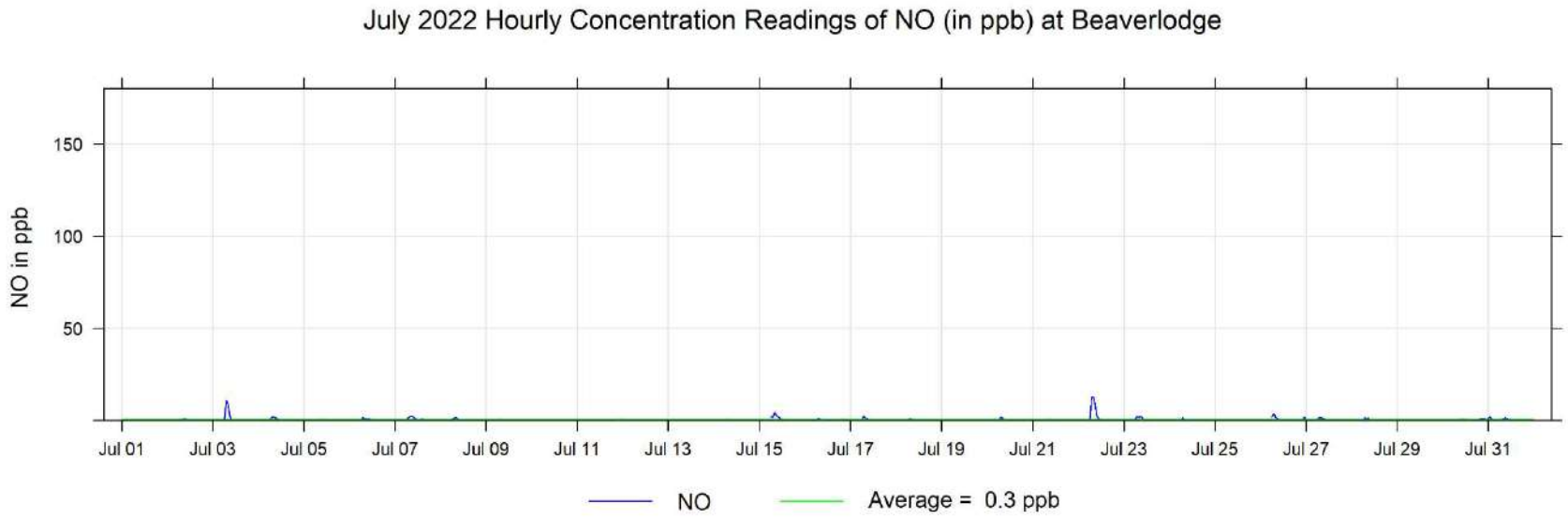
Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	July 2, 2hrs removed due to power failure
$PM_{2.5}$	TEOM	AB	July 2 power failure (3hrs); July 14 maintenance (5hrs); 58hrs negative drift; 3x1hr + 1x24hr exceedences
Met Equip	MetOne	50.5	July 2, 2hrs removed due to power failure

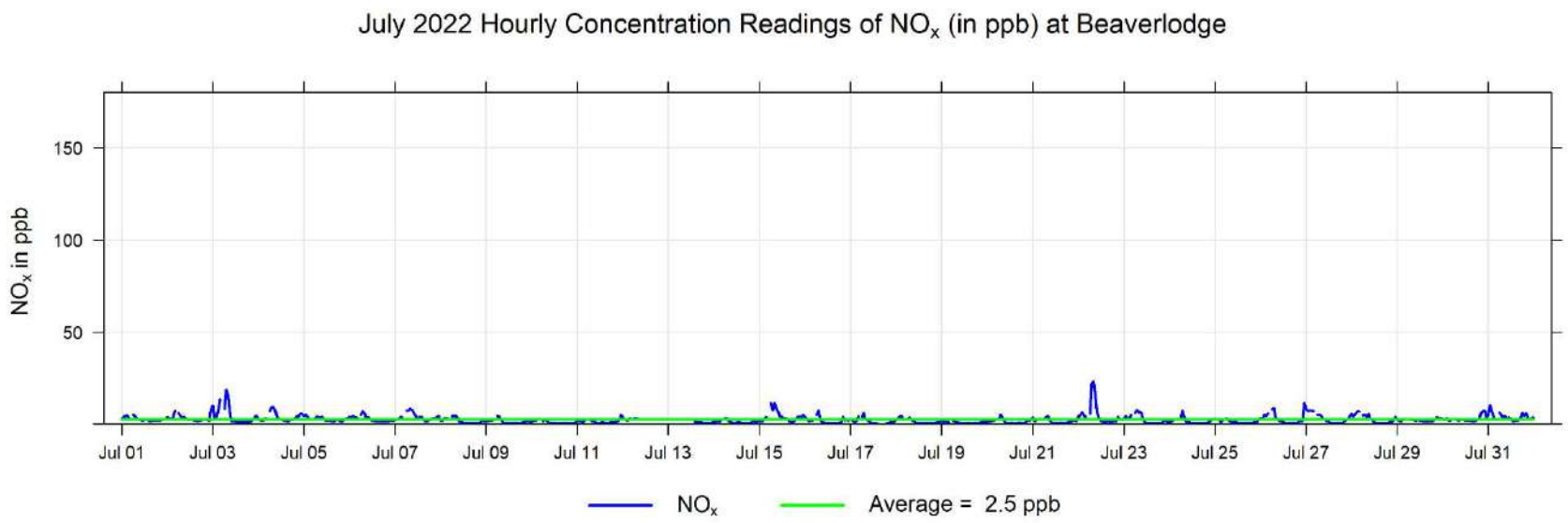
2 Beaverlodge Charts

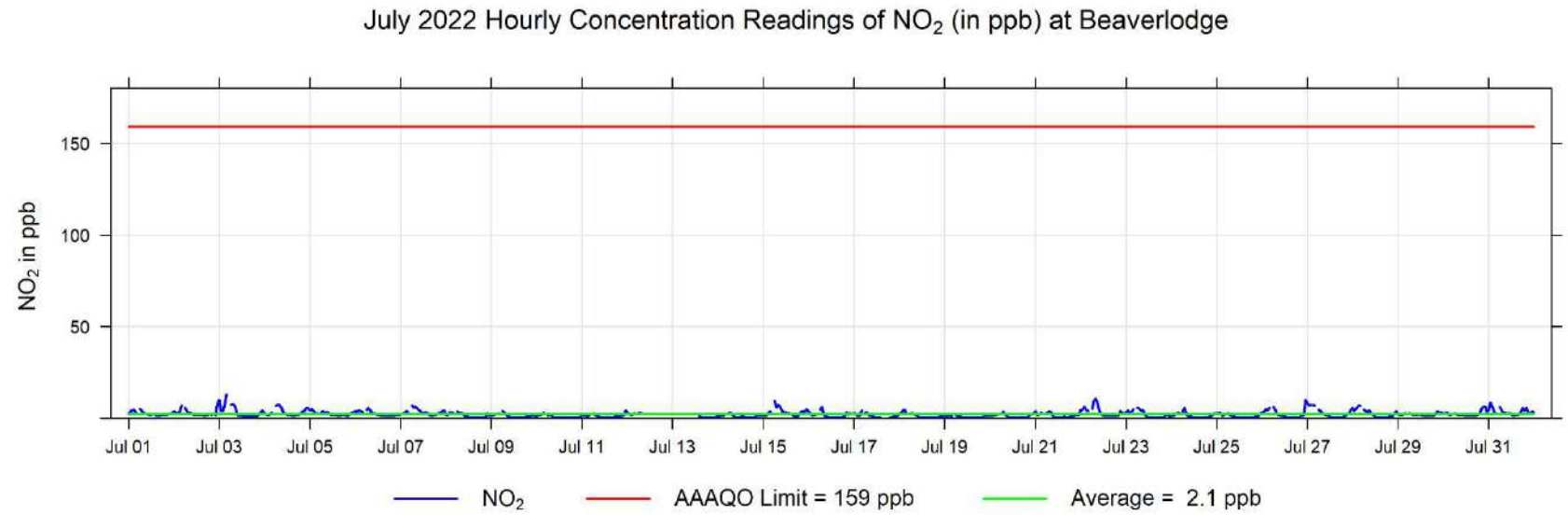
The following pages include the charts and histograms for Beaverlodge Station

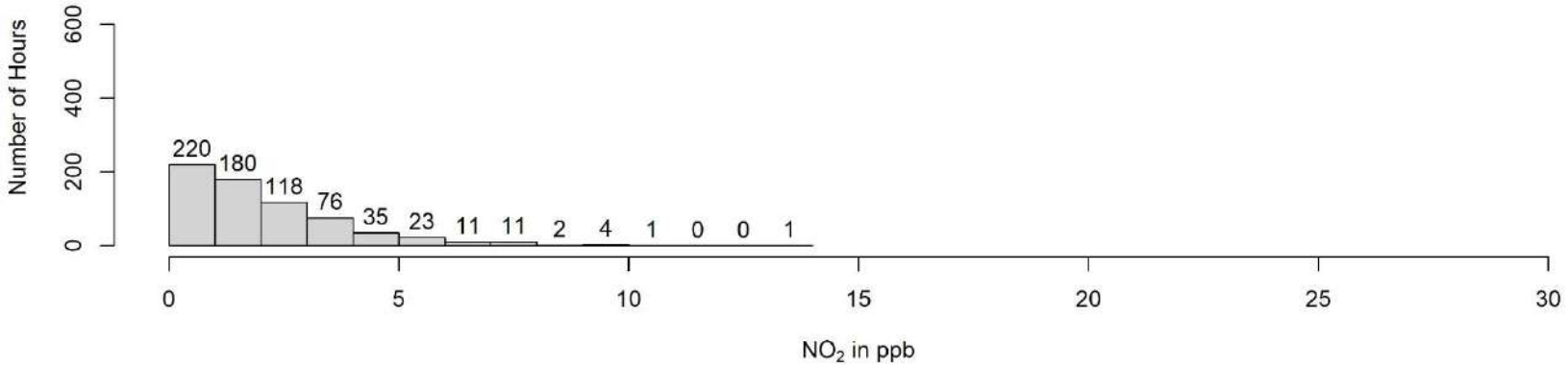

July 2022 Hourly Concentration Readings of SO_2 (in ppb) at Beaverlodge
SO_2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.5 ppb

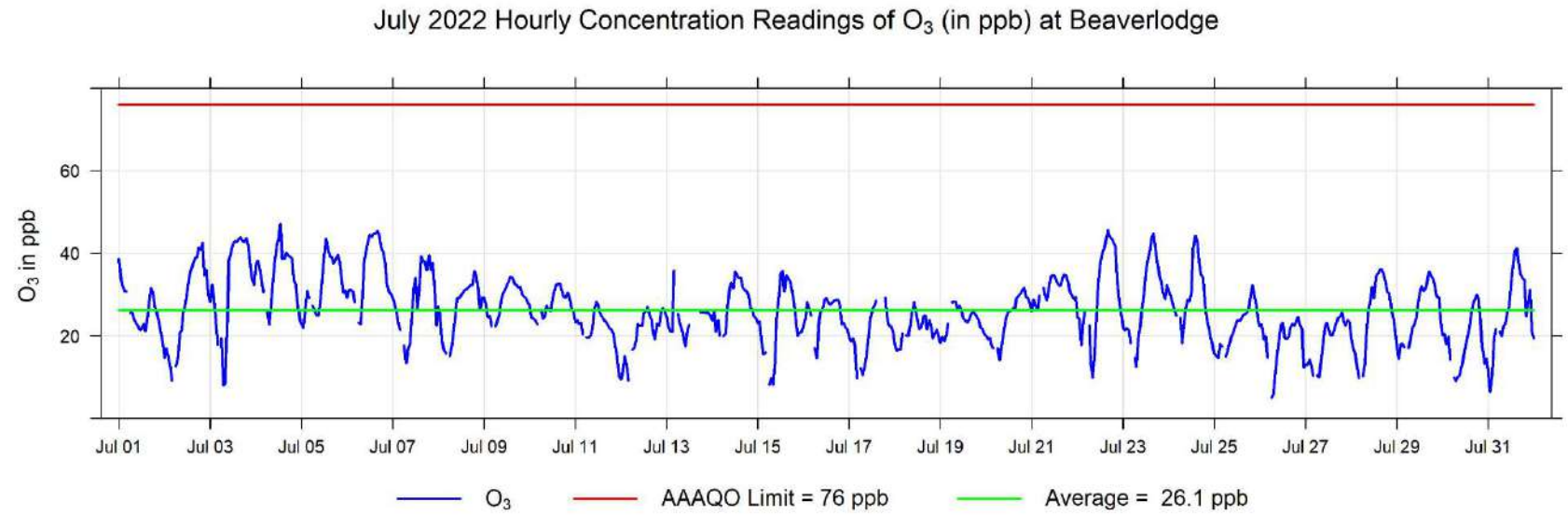

Number of Hours
0
200
400
600
610
55
20
7
11
2
1
3
0
0
0
0
0
1
0
5
10
15
20
25
30
SO_2 in ppb

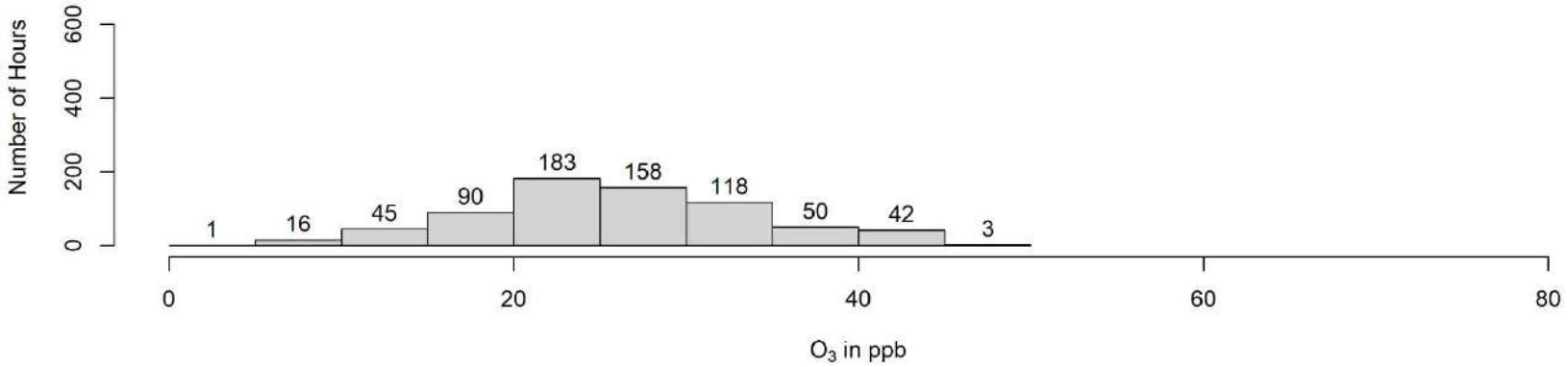

July 2022 Hourly Concentration Readings of NO (in ppb) at Beaverlodge
NO in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO
Average = 0.3 ppb

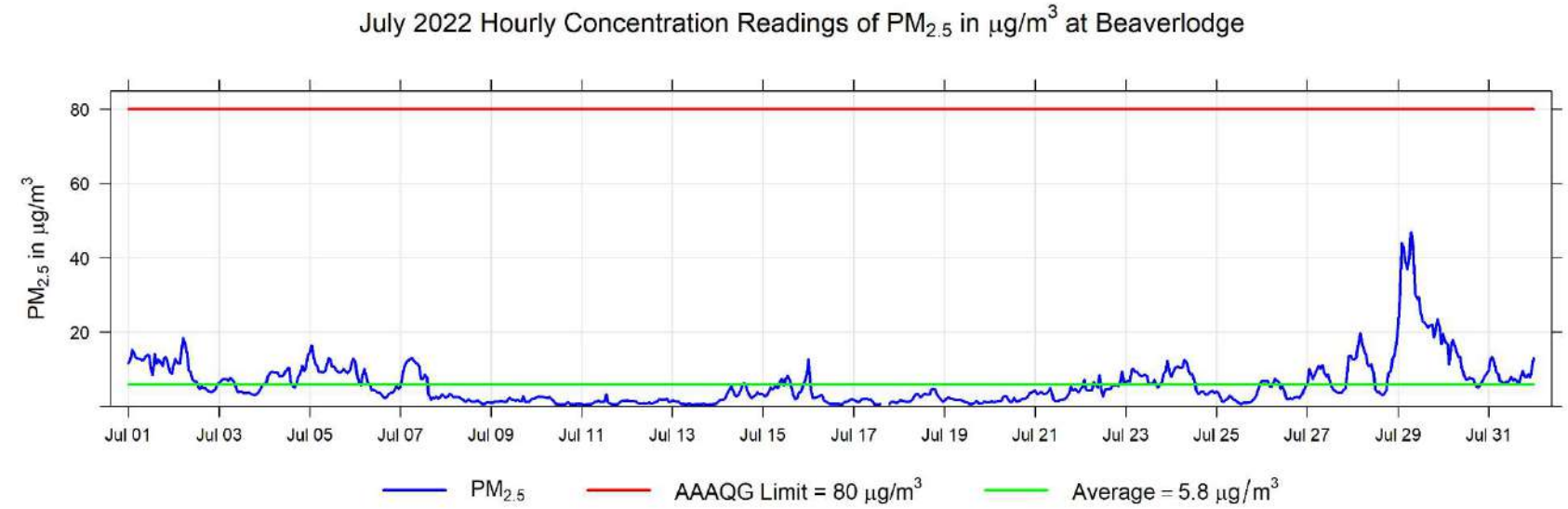

July 2022 Hourly Concentration Readings of NOx (in ppb) at Beaverlodge
NOx in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NOx
Average = 2.5 ppb

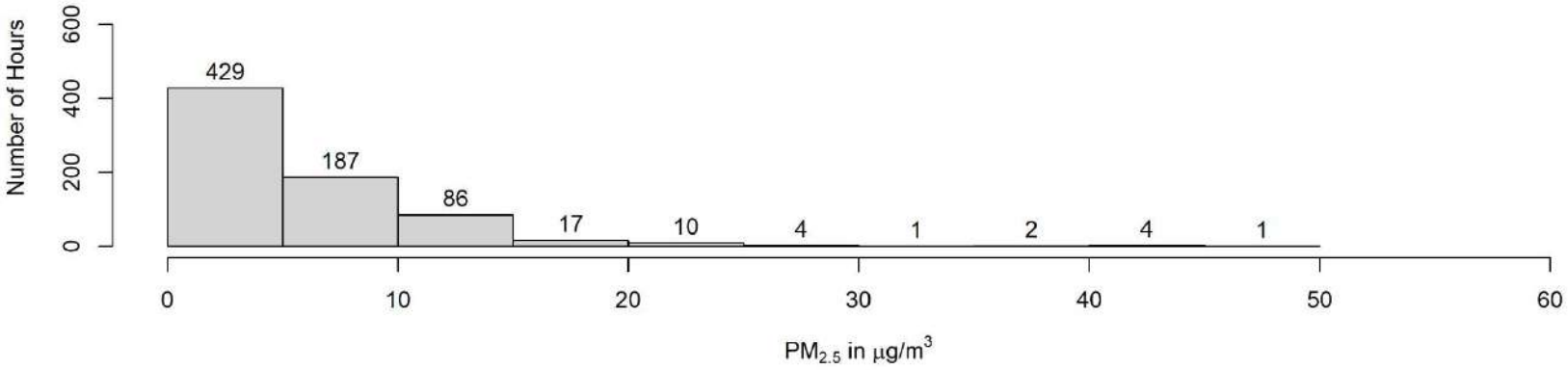

July 2022 Hourly Concentration Readings of NO2 (in ppb) at Beaverlodge
NO2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO2
AAAQO Limit = 159 ppb
Average = 2.1 ppb

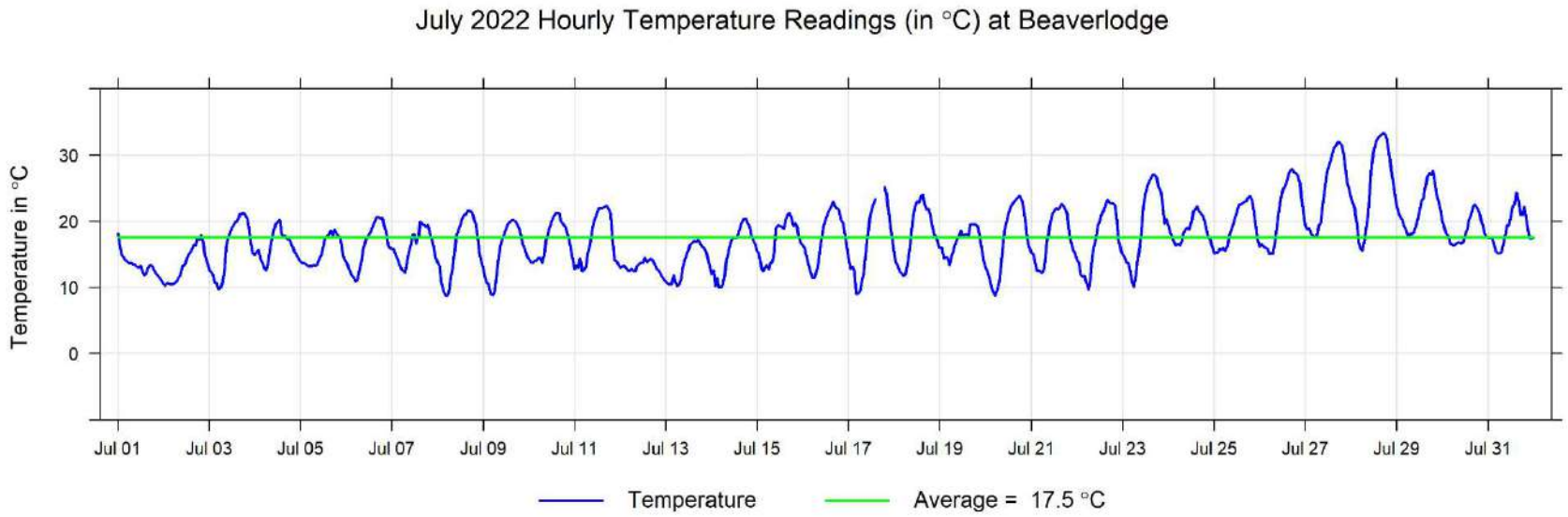

Number of Hours
0
200
400
600
220
180
118
76
35
23
11
11
2
4
1
0
0
1
0
5
10
15
20
25
30
NO2 in ppb

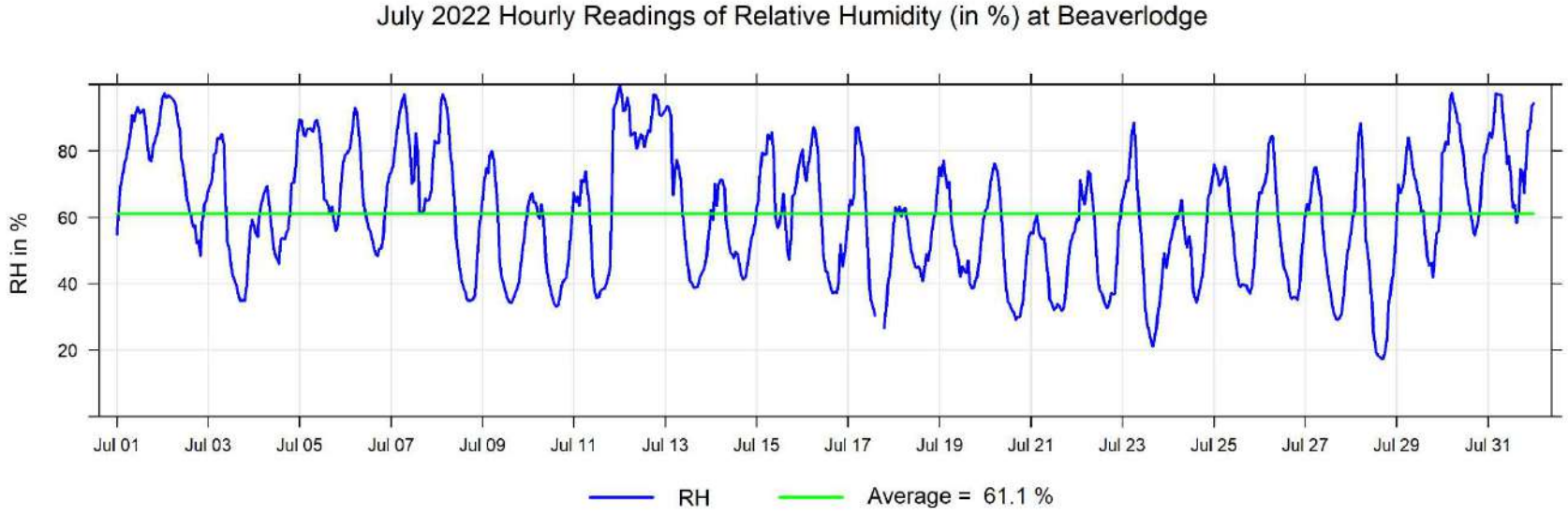

July 2022 Hourly Concentration Readings of O_3 (in ppb) at Beaverlodge
O_3 in ppb
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
O_3
AAAQO Limit = 76 ppb
Average = 26.1 ppb

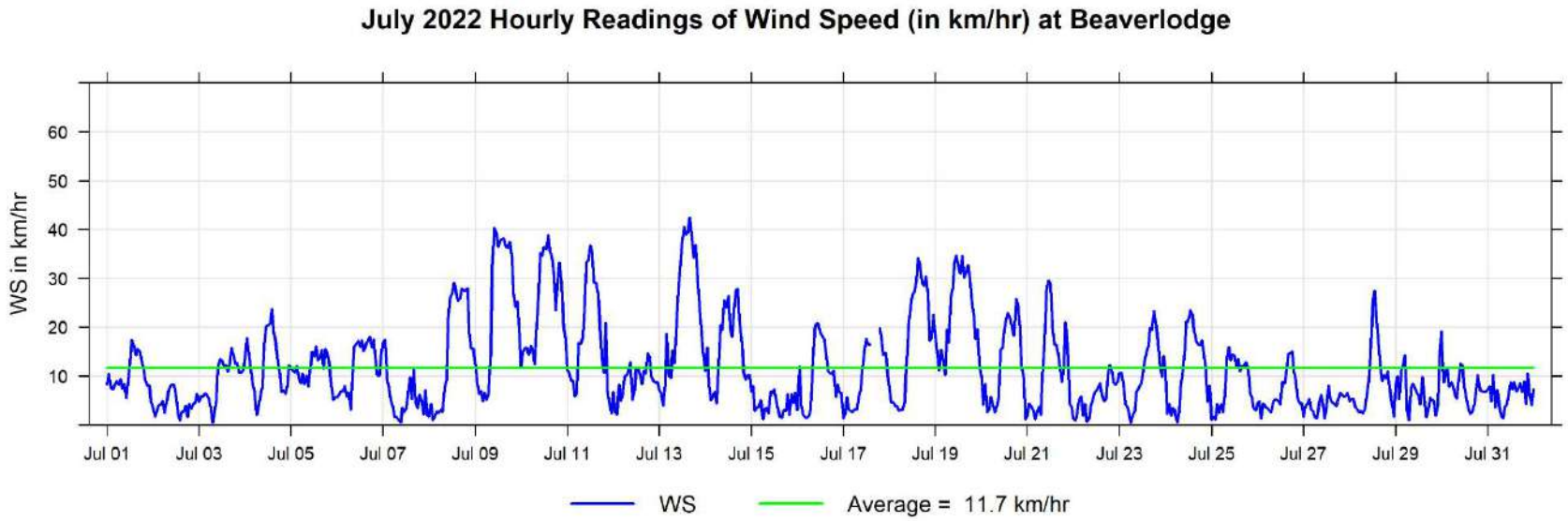

Number of Hours
0
200
400
600
1
16
45
90
183
158
118
50
42
3
0
20
40
60
80
O_3 in ppb

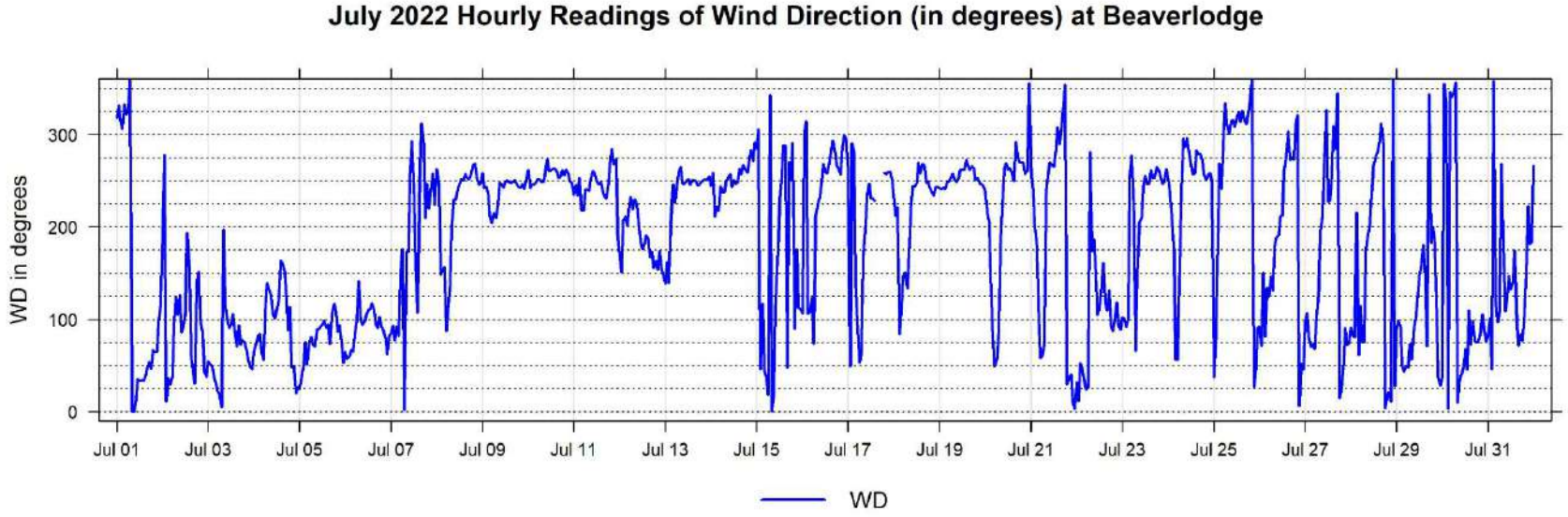

July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Beaverlodge
PM2.5 in µg/m3
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 5.8 µg/m3

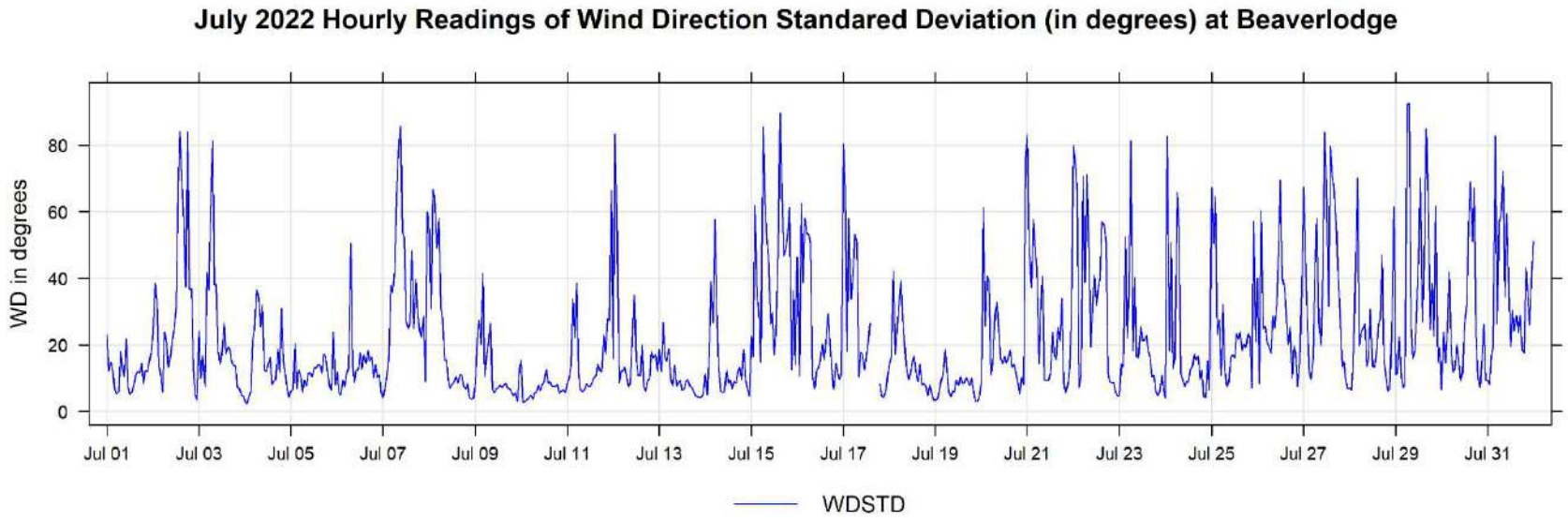

Number of Hours
0
200
400
600
429
187
86
17
10
4
1
2
4
1
0
10
20
30
40
50
60
PM2.5 in µg/m3

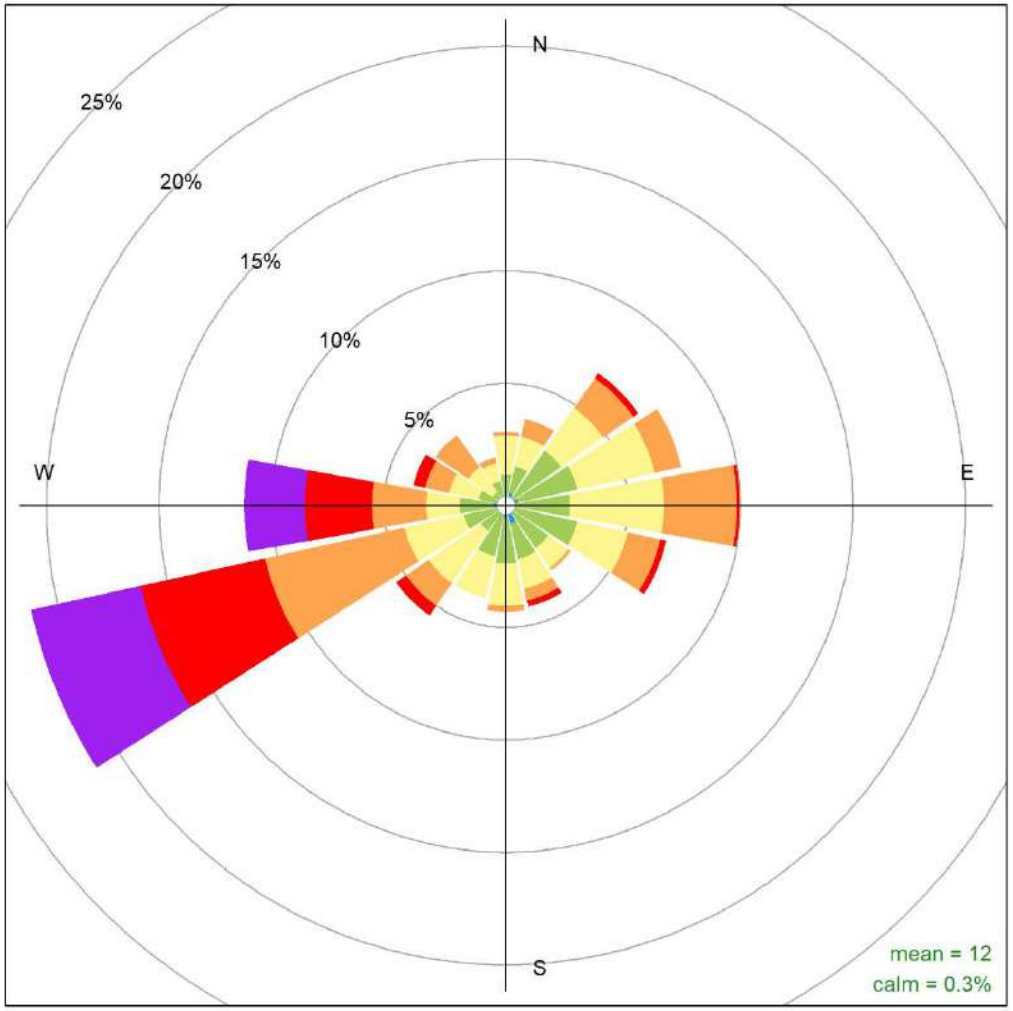

July 2022 Hourly Temperature Readings (in °C) at Beaverlodge
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 17.5 °C


July 2022 Hourly Readings of Relative Humidity (in %) at Beaverlodge
RH in %
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
RH
Average = 61.1 %


July 2022 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 11.7 km/hr


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


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

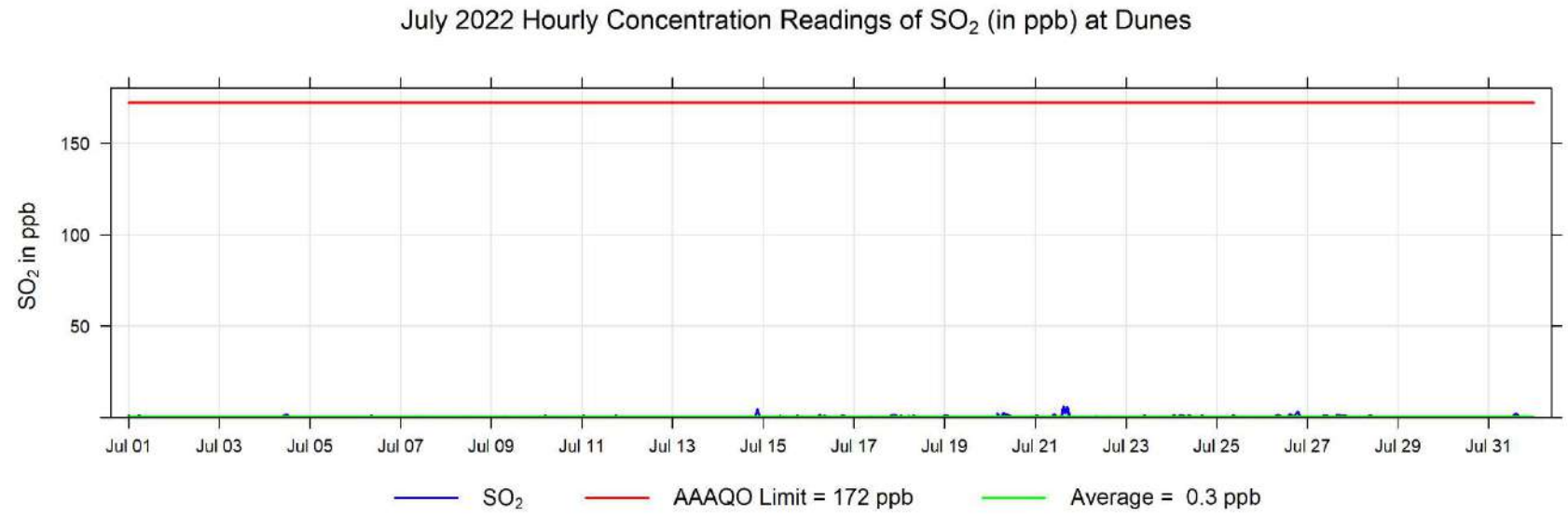


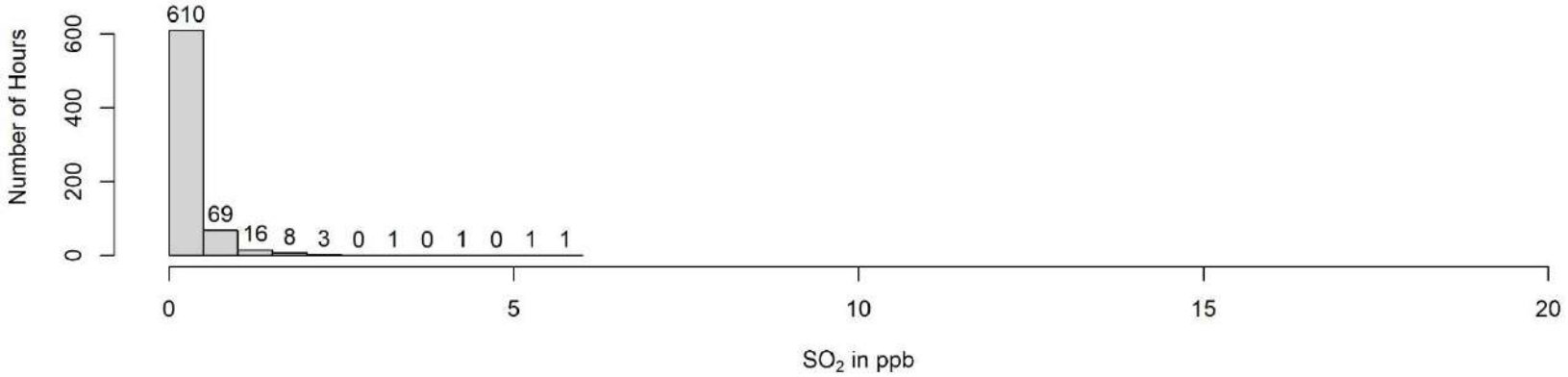
Beaverlodge July 2022 Wind Rose, wind speed in km/hr

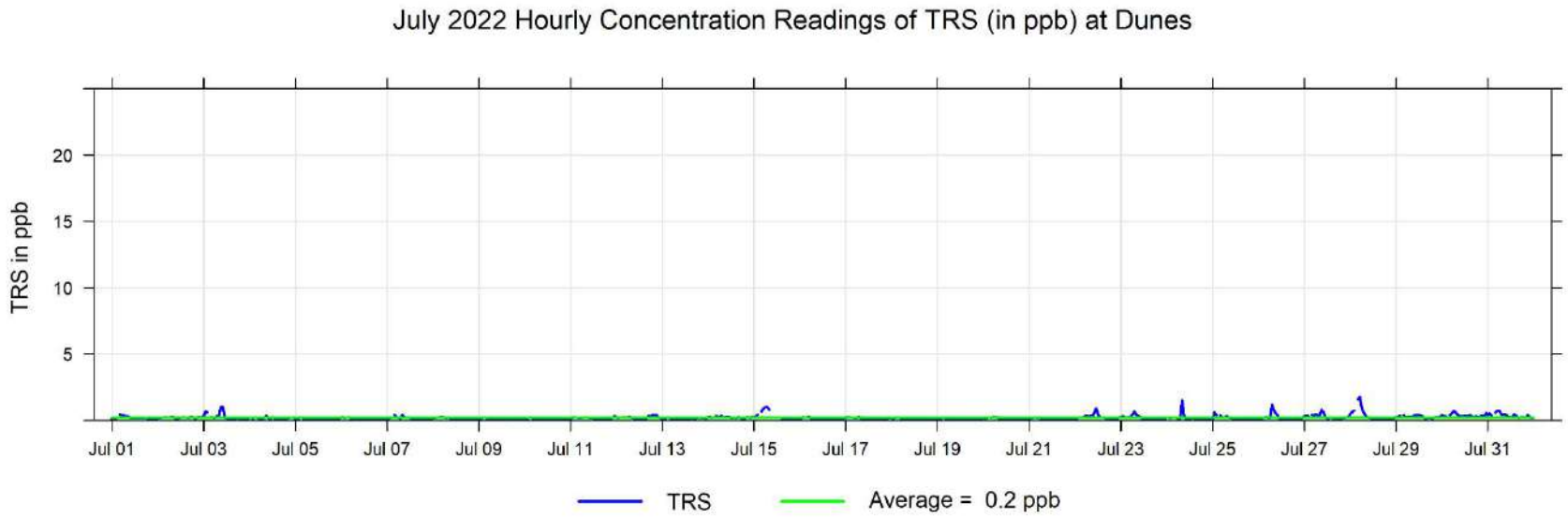
Frequency of counts by wind direction (%)

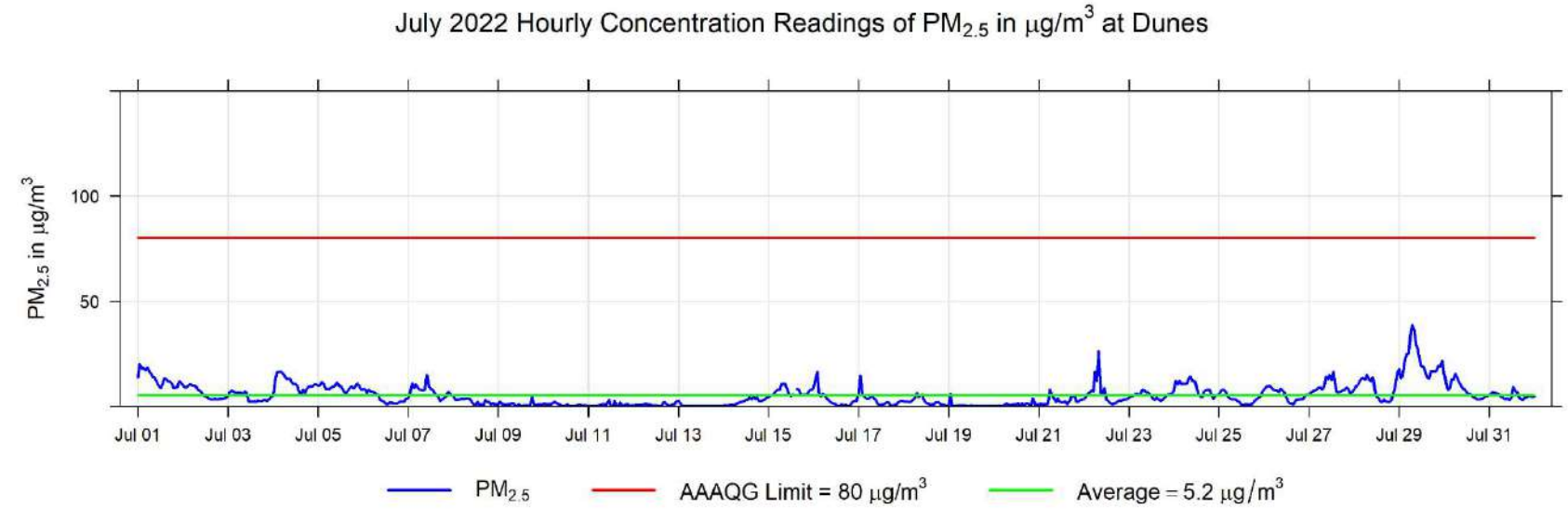
3 Dunes Charts

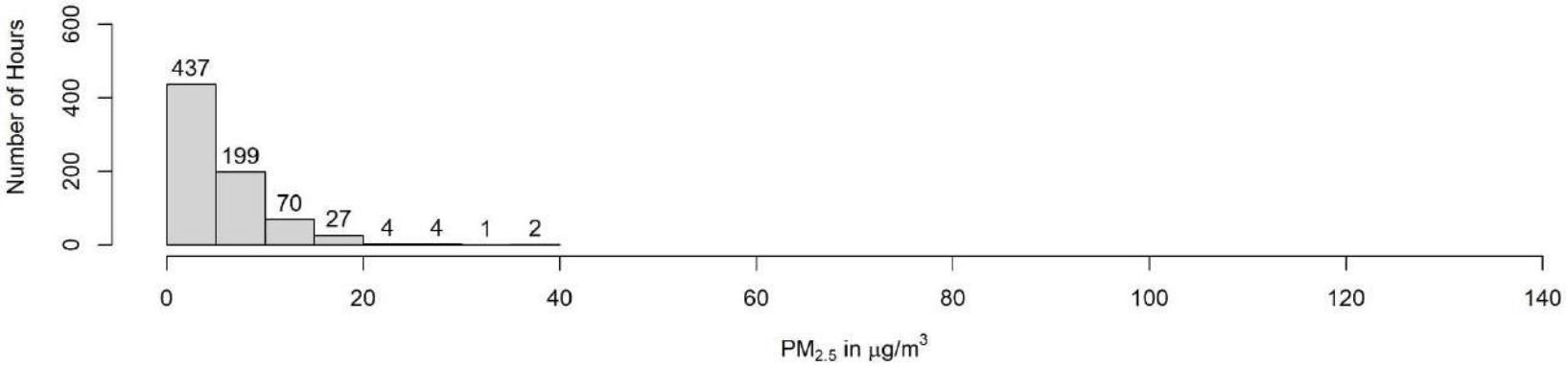
The following pages include the charts and histograms for Dunes Station

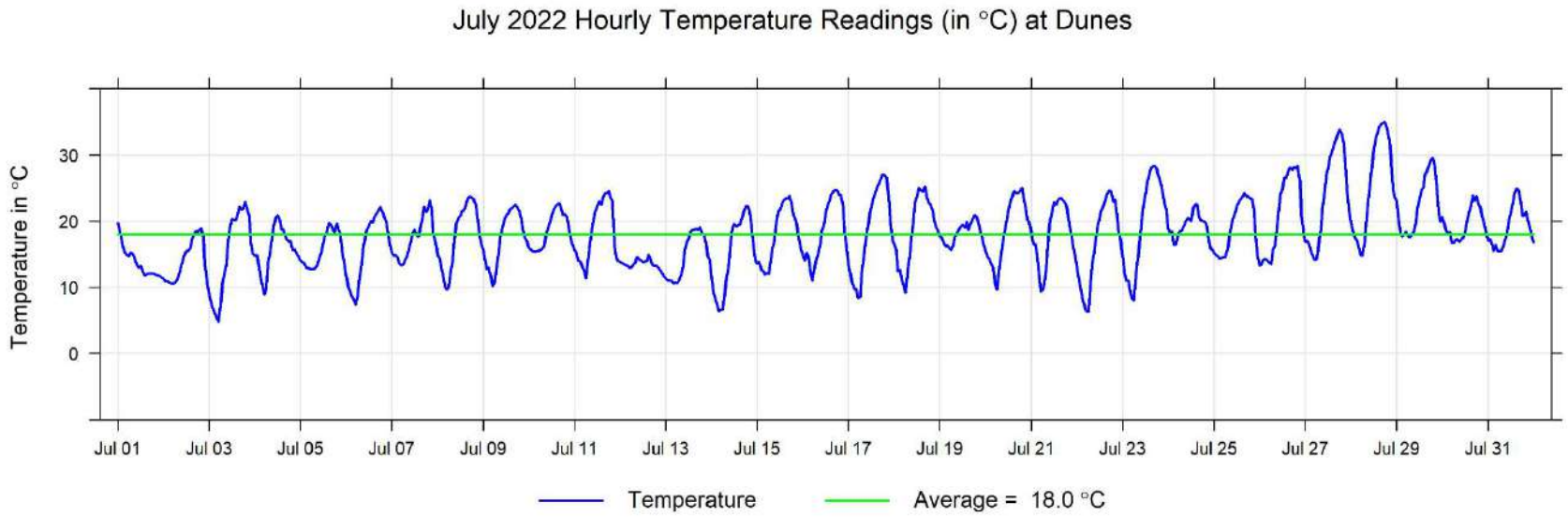

July 2022 Hourly Concentration Readings of SO_2 (in ppb) at Dunes
SO_2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.3 ppb

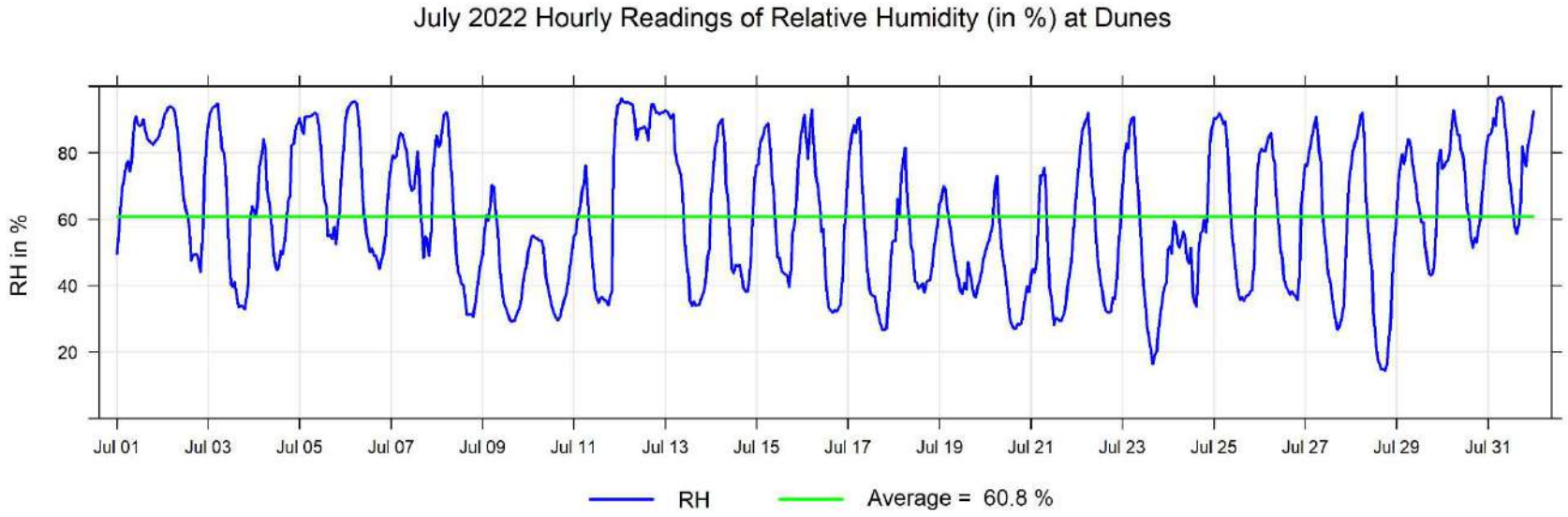

Number of Hours
0
200
400
600
610
69
16
8
3
0
1
0
1
0
1
1
0
5
10
15
20
SO_2 in ppb


July 2022 Hourly Concentration Readings of TRS (in ppb) at Dunes
TRS in ppb
20
15
10
5
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
TRS
Average = 0.2 ppb

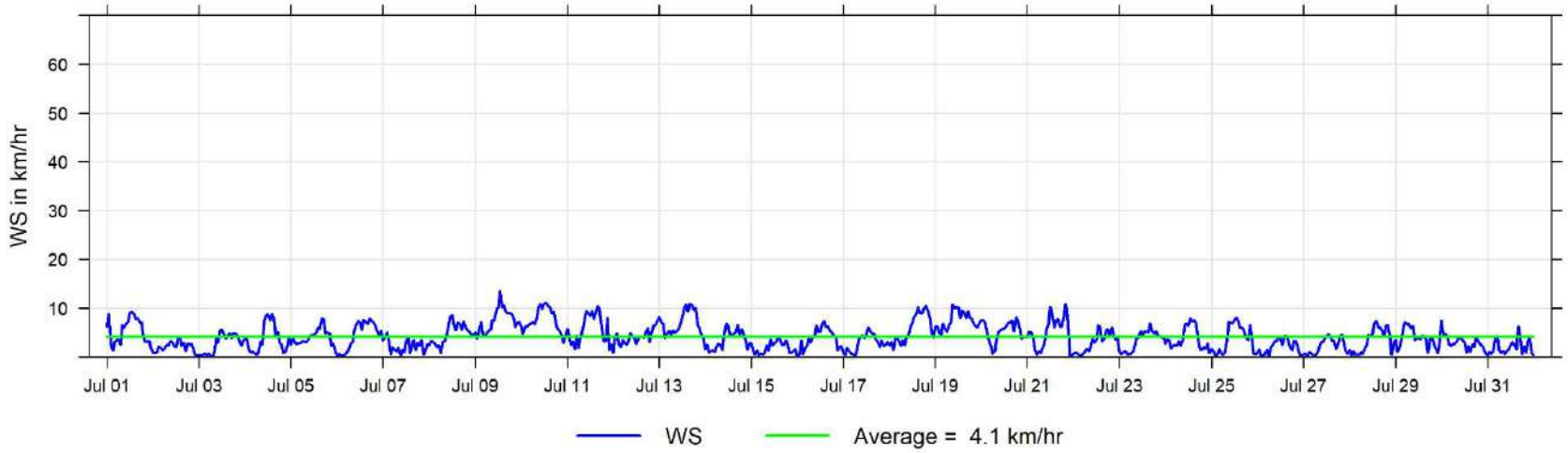

July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Dunes
PM2.5 in µg/m3
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 5.2 µg/m3


Number of Hours
0
200
400
600
437
199
70
27
4
4
1
2
0
20
40
60
80
100
120
140
PM2.5 in µg/m3

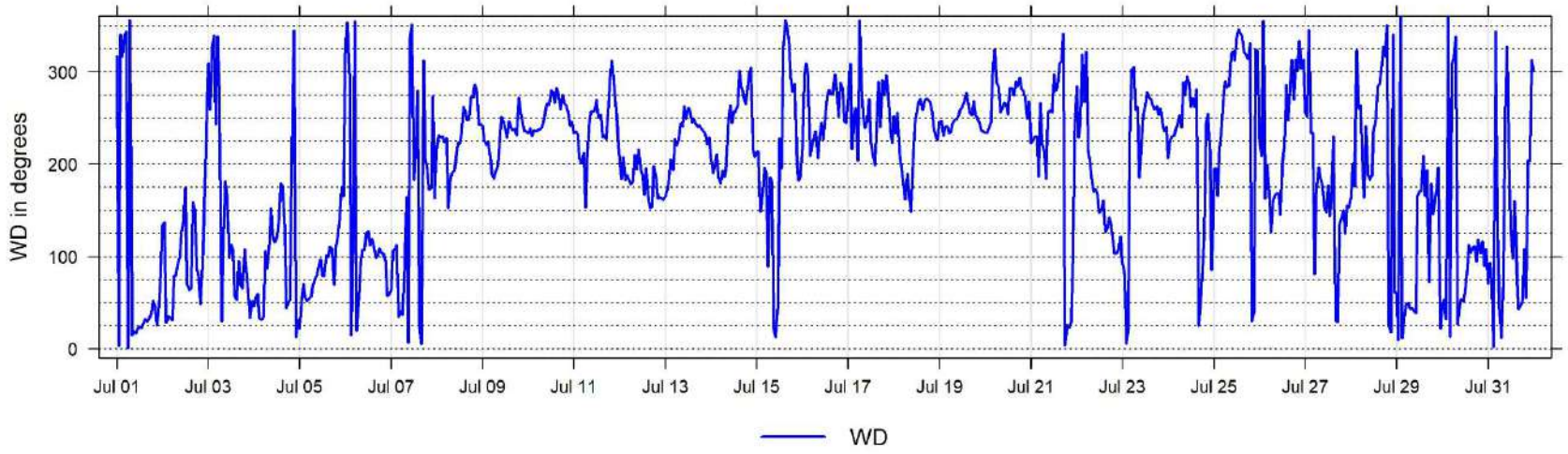

July 2022 Hourly Temperature Readings (in °C) at Dunes
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 18.0 °C

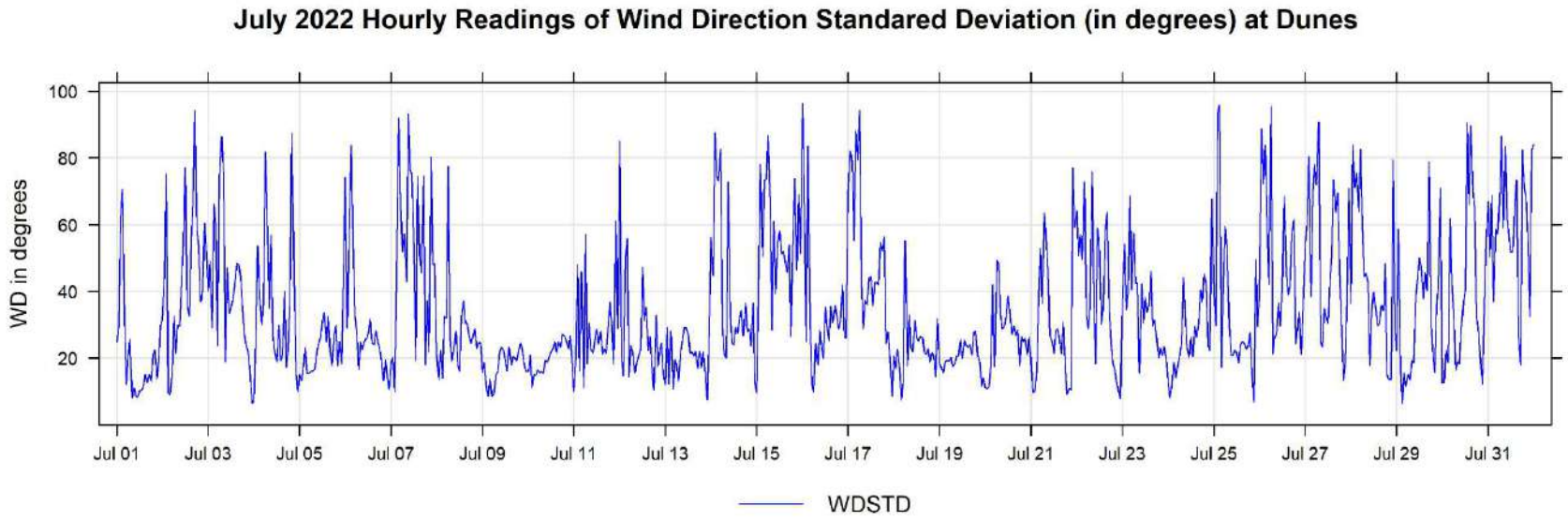

July 2022 Hourly Readings of Relative Humidity (in %) at Dunes
RH in %
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
RH
Average = 60.8 %

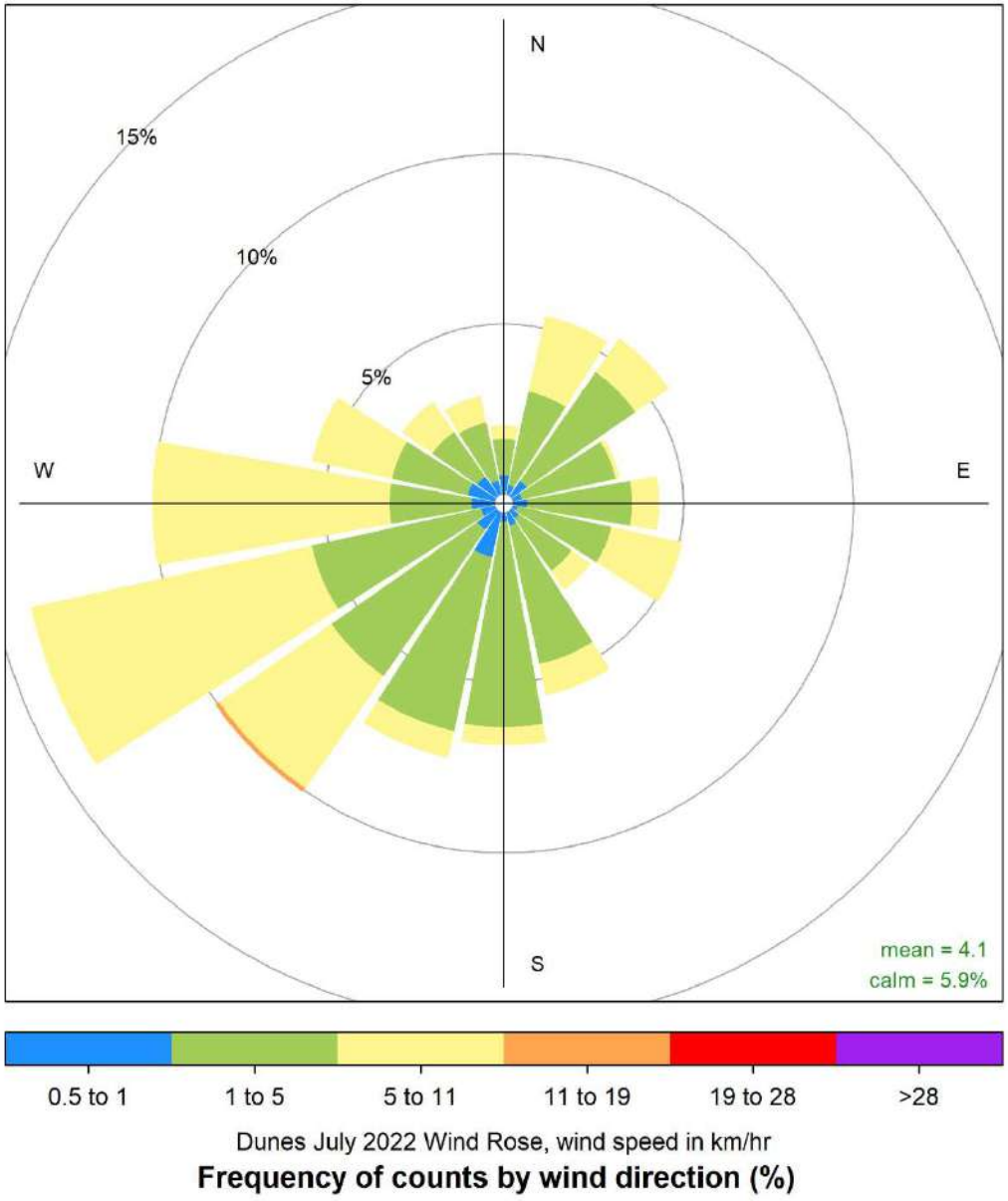
July 2022 Hourly Readings of Wind Speed (in km/hr) at Dunes



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




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

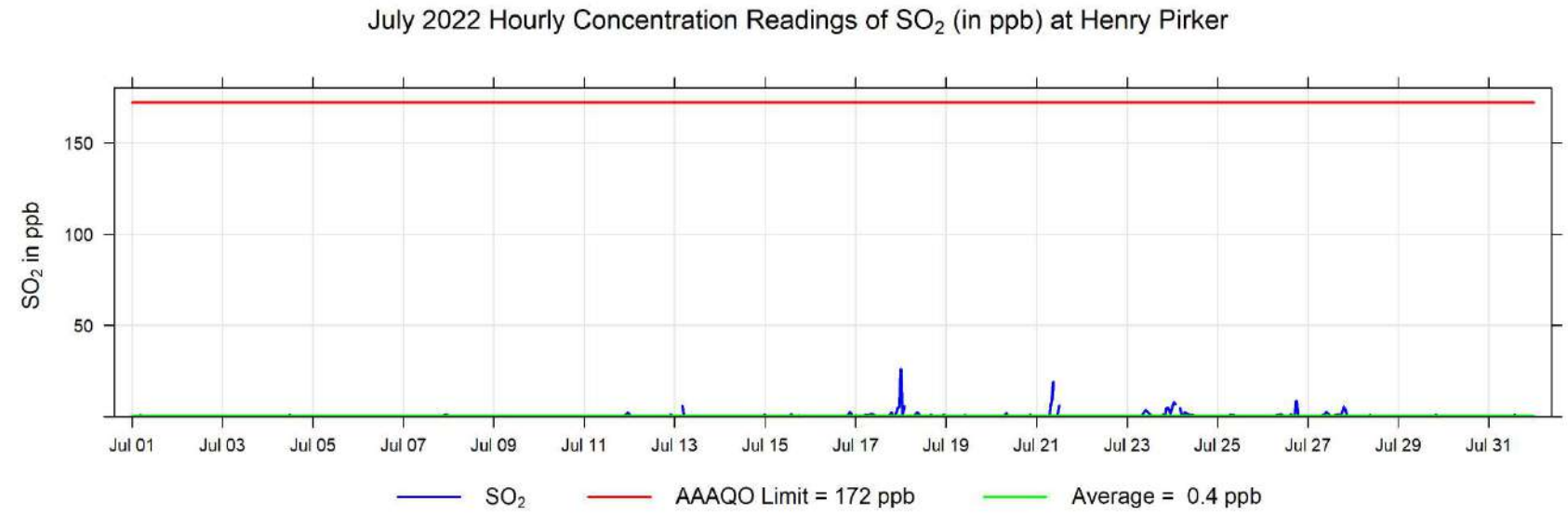


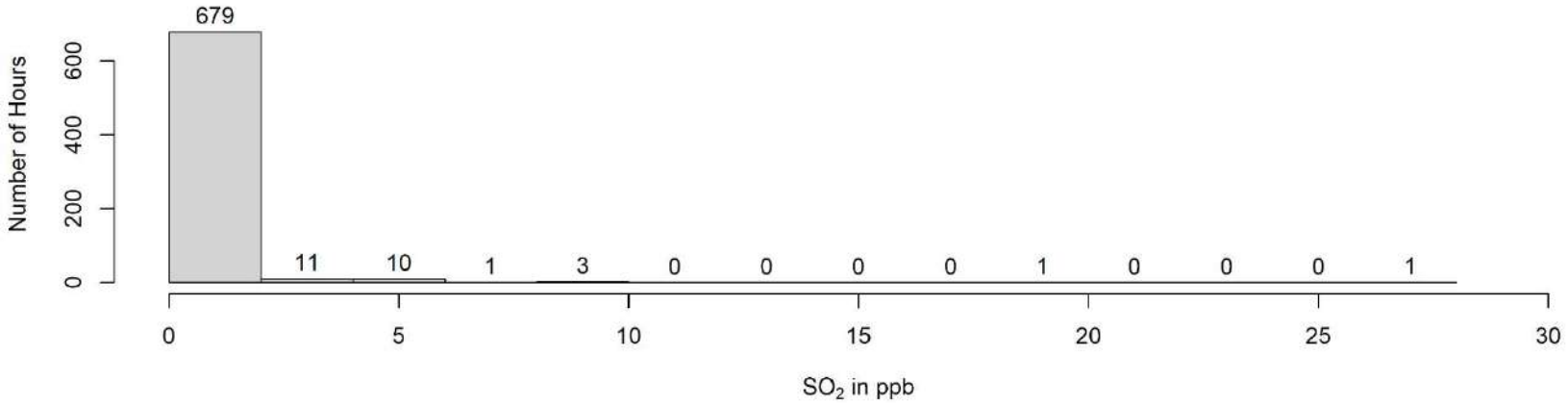
Dunes July 2022 Wind Rose, wind speed in km/hr

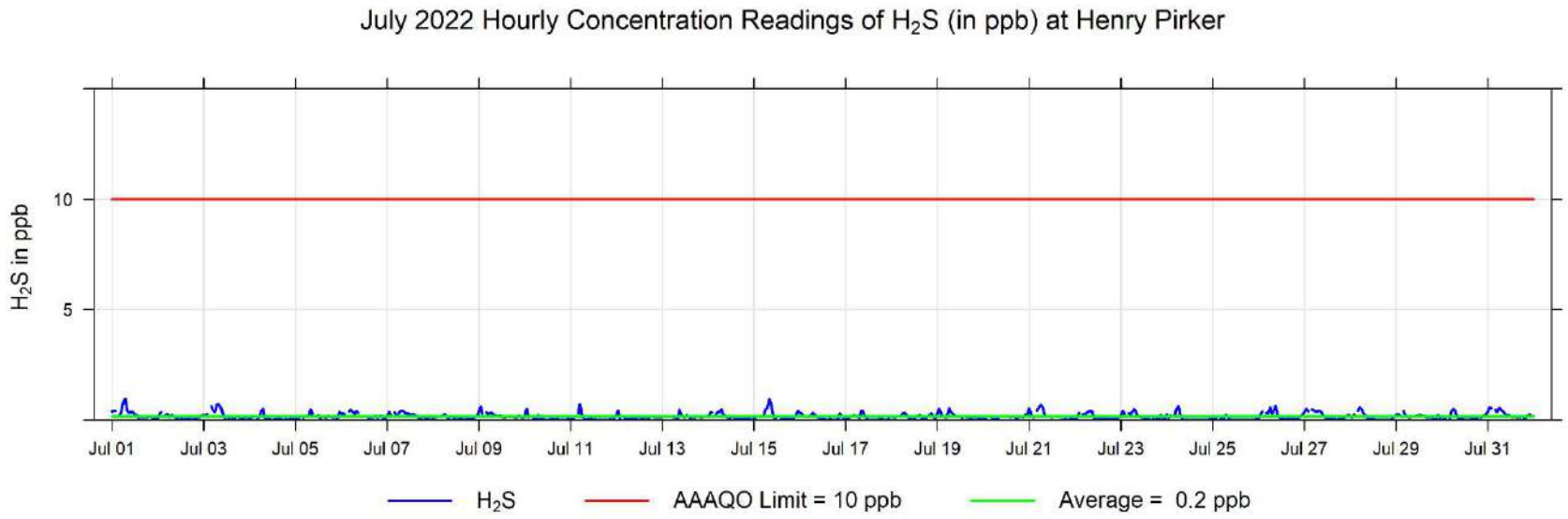
Frequency of counts by wind direction (%)

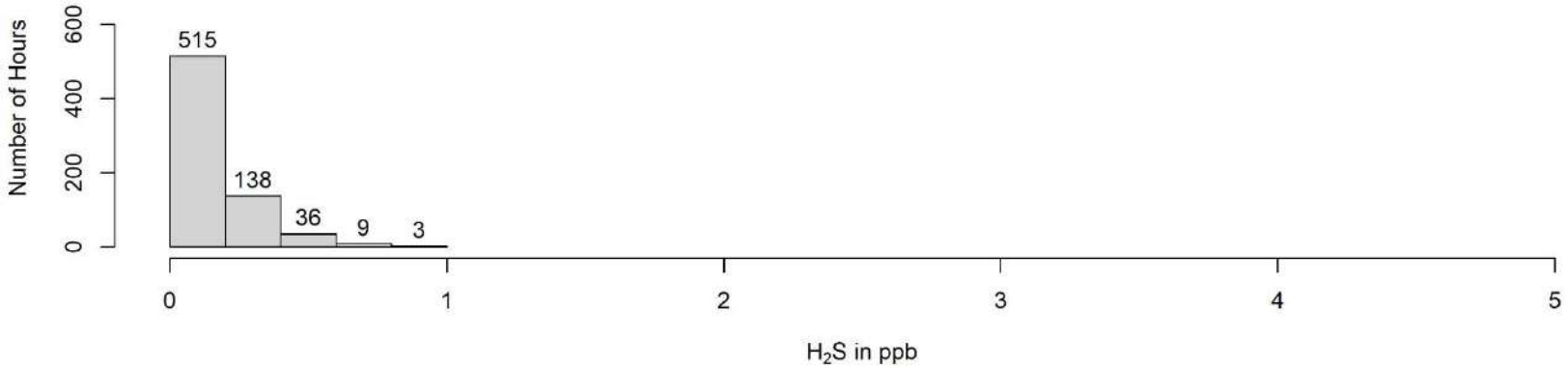
4 Grande Prairie - Henry Pirker Charts

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

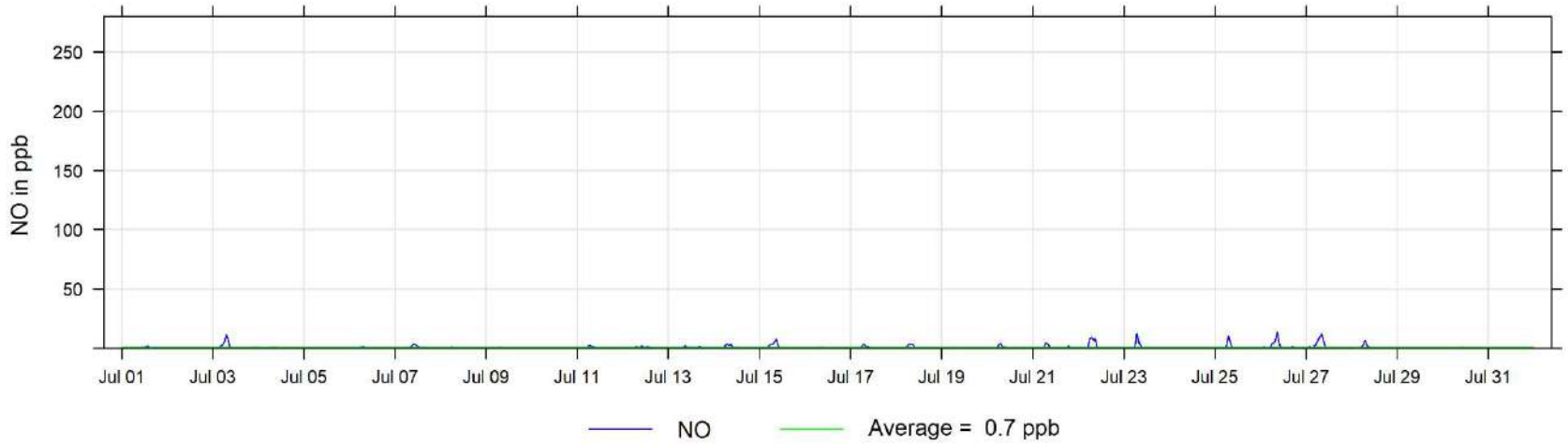

July 2022 Hourly Concentration Readings of SO2 (in ppb) at Henry Pirker
SO2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO2
AAAQO Limit = 172 ppb
Average = 0.4 ppb


Number of Hours
0
200
400
600
679
11
10
1
3
0
0
0
0
1
0
0
0
1
0
5
10
15
20
25
30
SO2 in ppb

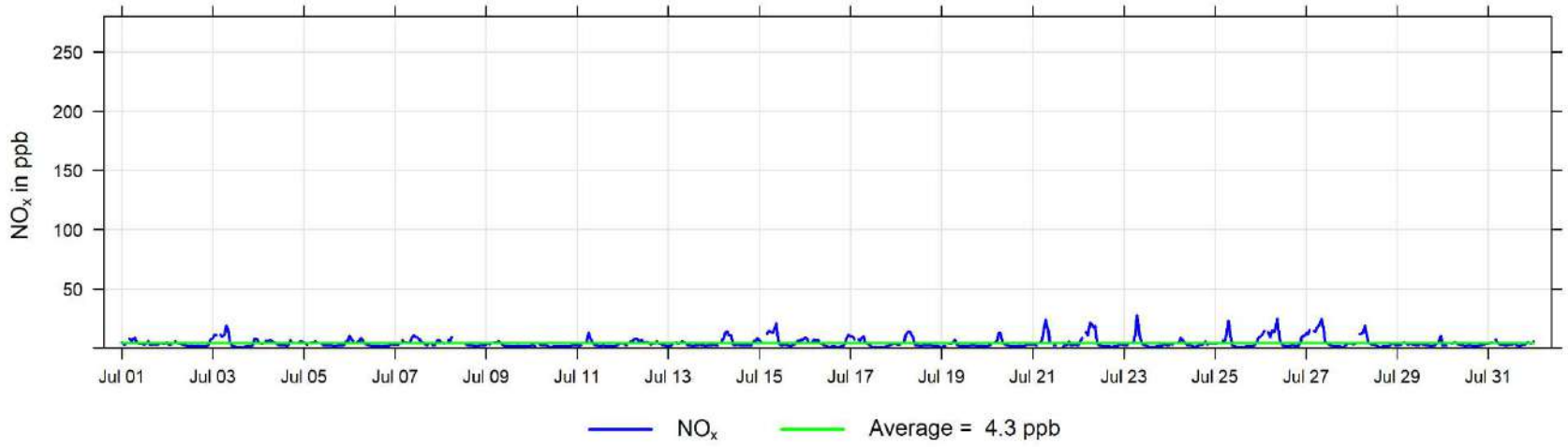

July 2022 Hourly Concentration Readings of H2S (in ppb) at Henry Pirker
H2S in ppb
10
5
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
H2S
AAAQO Limit = 10 ppb
Average = 0.2 ppb

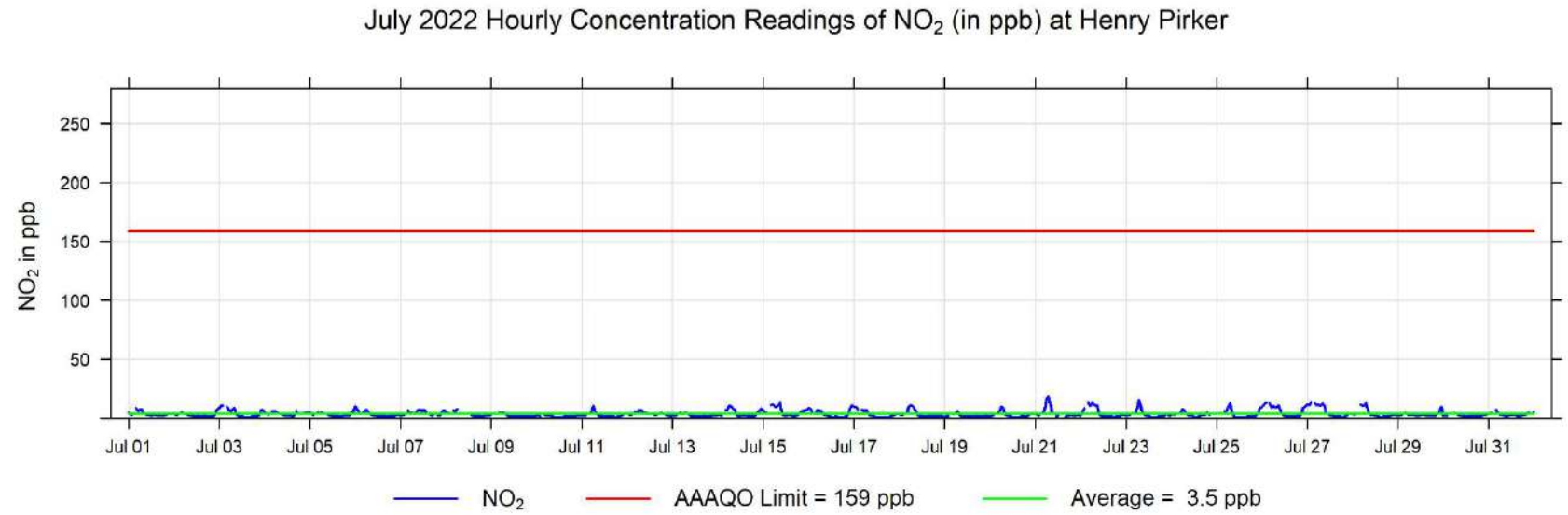

Number of Hours
0
200
400
600
515
138
36
9
3
0
1
2
3
4
5
H2S in ppb

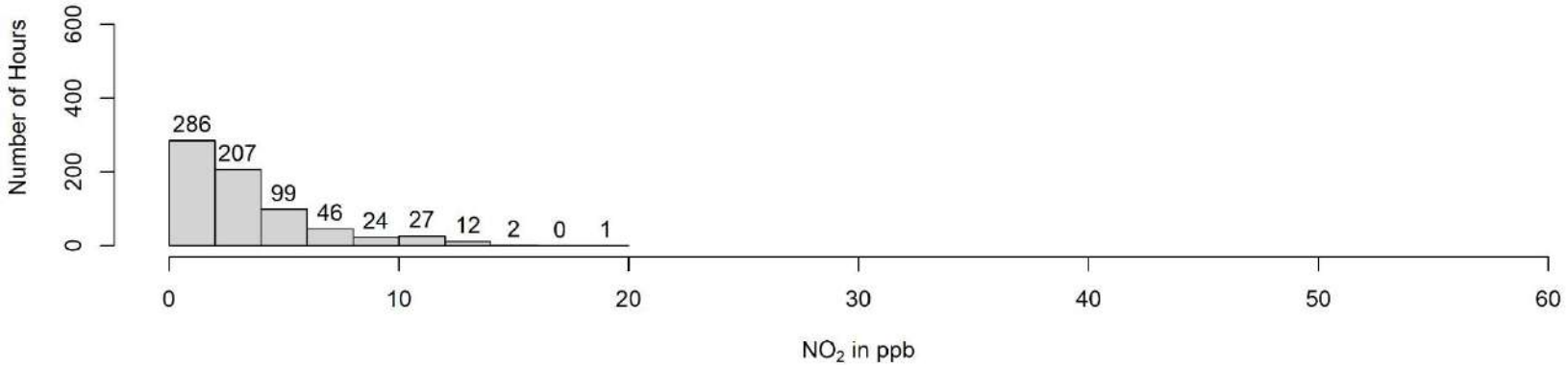
July 2022 Hourly Concentration Readings of NO (in ppb) at Henry Pirker

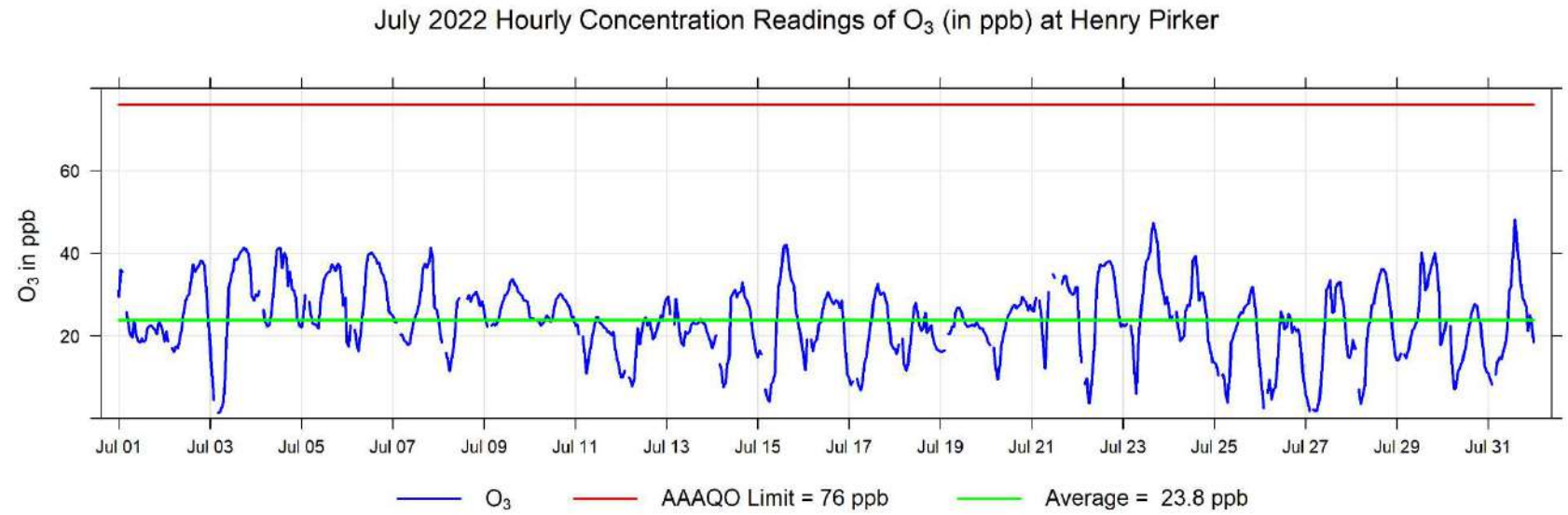


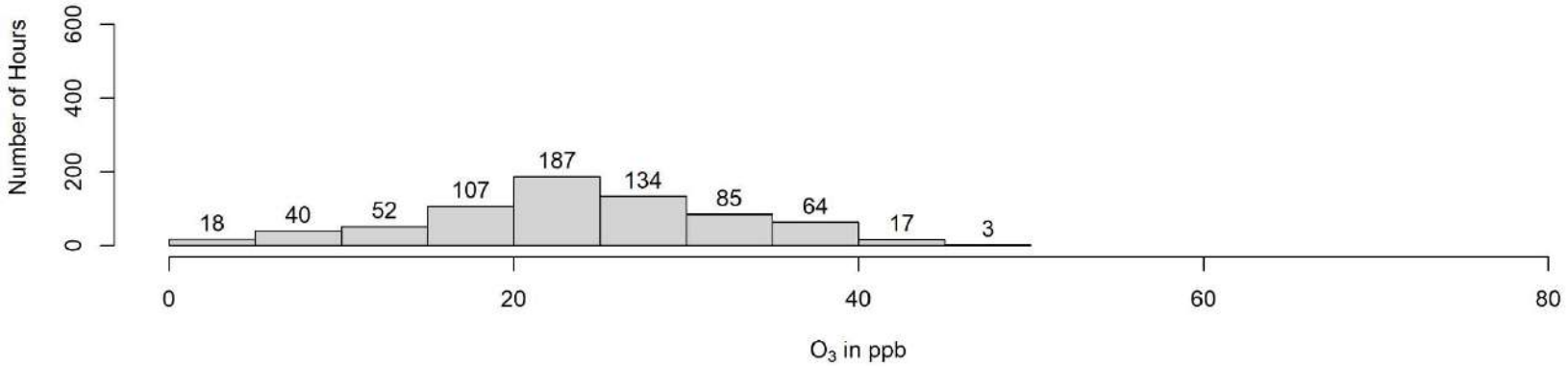
July 2022 Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



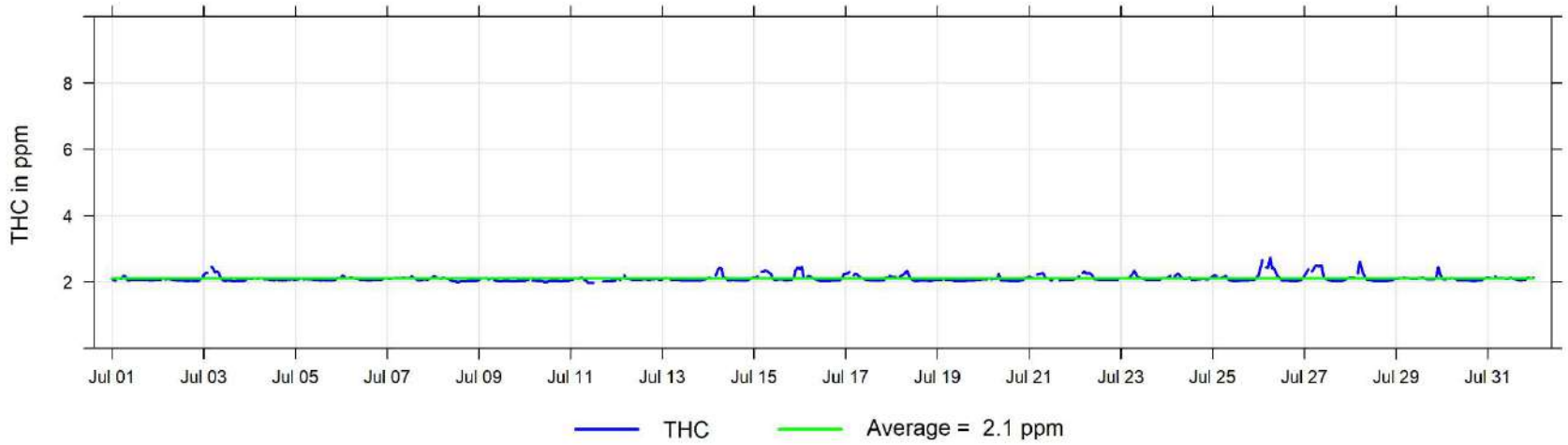

July 2022 Hourly Concentration Readings of NO2 (in ppb) at Henry Pirker
NO2 in ppb
250
200
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO2
AAAQO Limit = 159 ppb
Average = 3.5 ppb


Number of Hours
0
200
400
600
286
207
99
46
24
27
12
2
0
1
0
10
20
30
40
50
60
NO2 in ppb

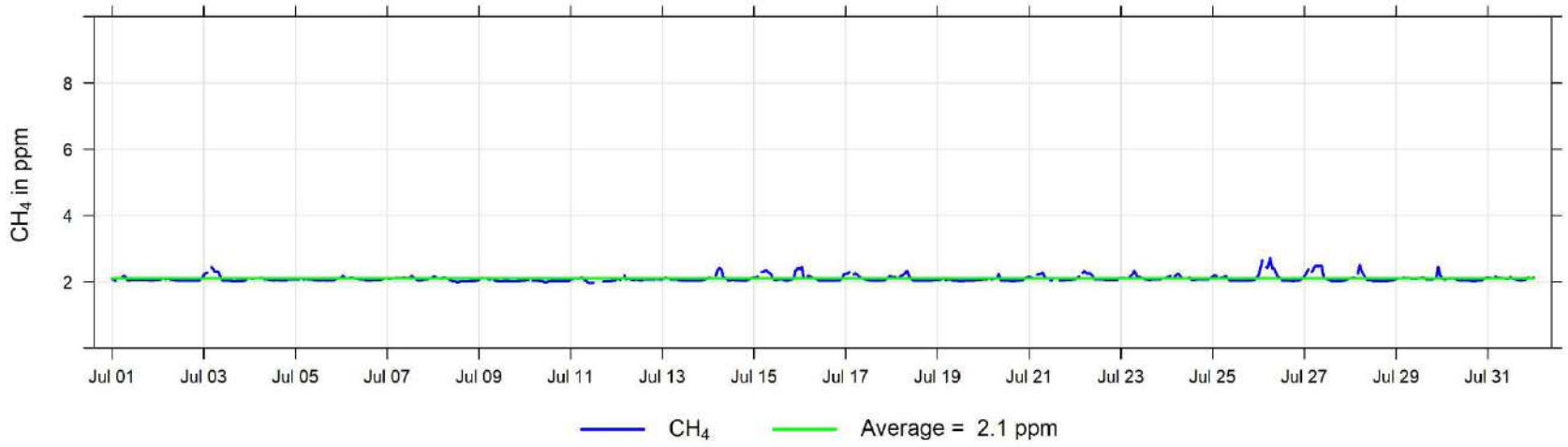

July 2022 Hourly Concentration Readings of O_3 (in ppb) at Henry Pirker
O_3 in ppb
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
O_3
AAAQO Limit = 76 ppb
Average = 23.8 ppb

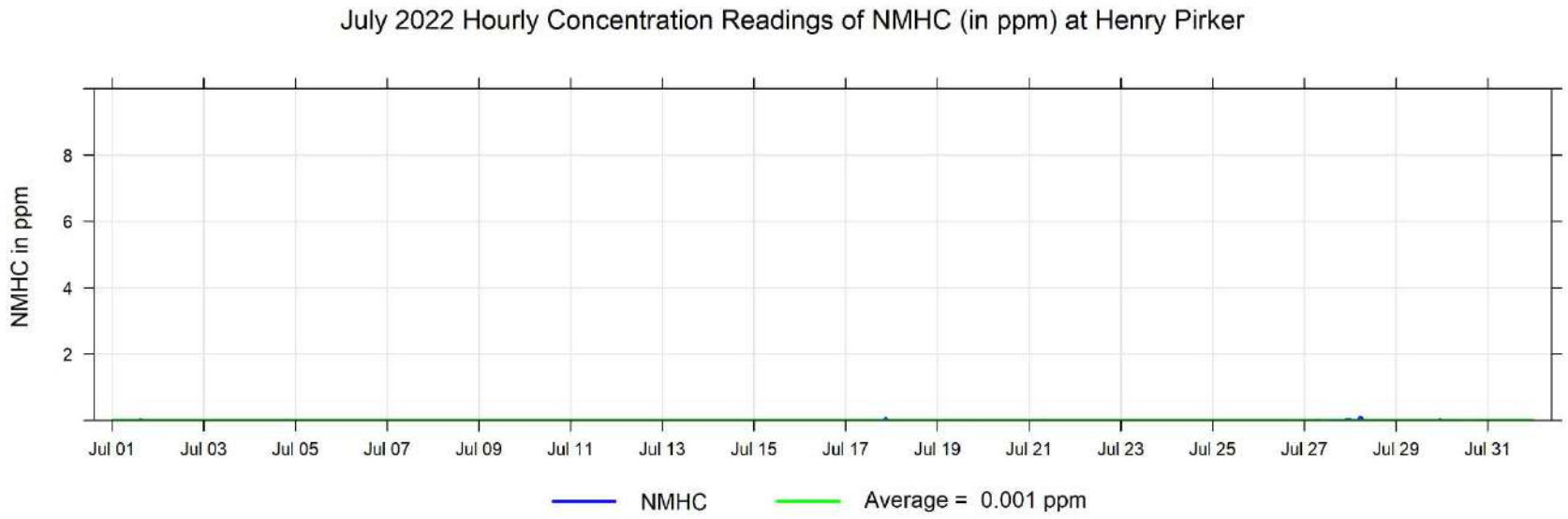

Number of Hours
0
200
400
600
18
40
52
107
187
134
85
64
17
3
0
20
40
60
80
O_3 in ppb

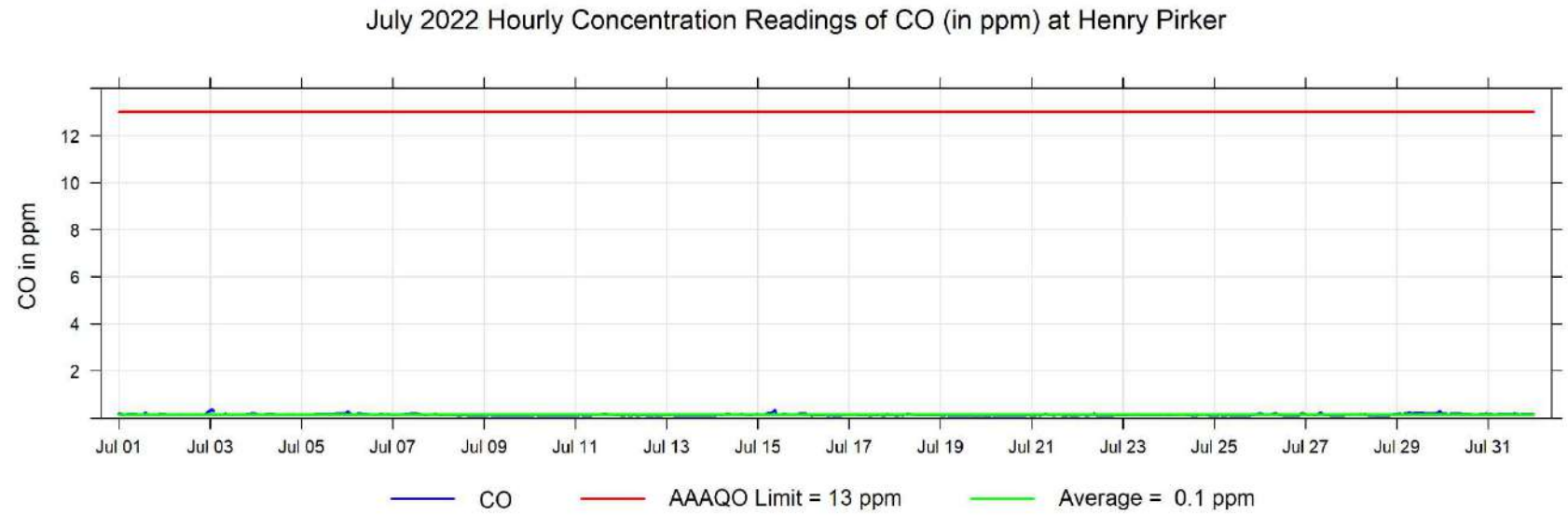
July 2022 Hourly Concentration Readings of THC (in ppm) at Henry Pirker

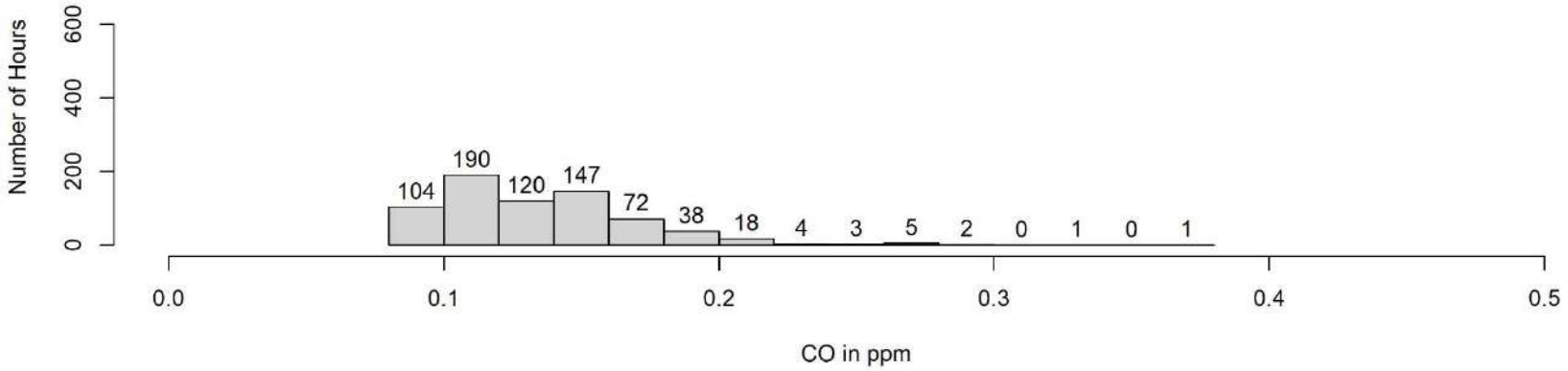


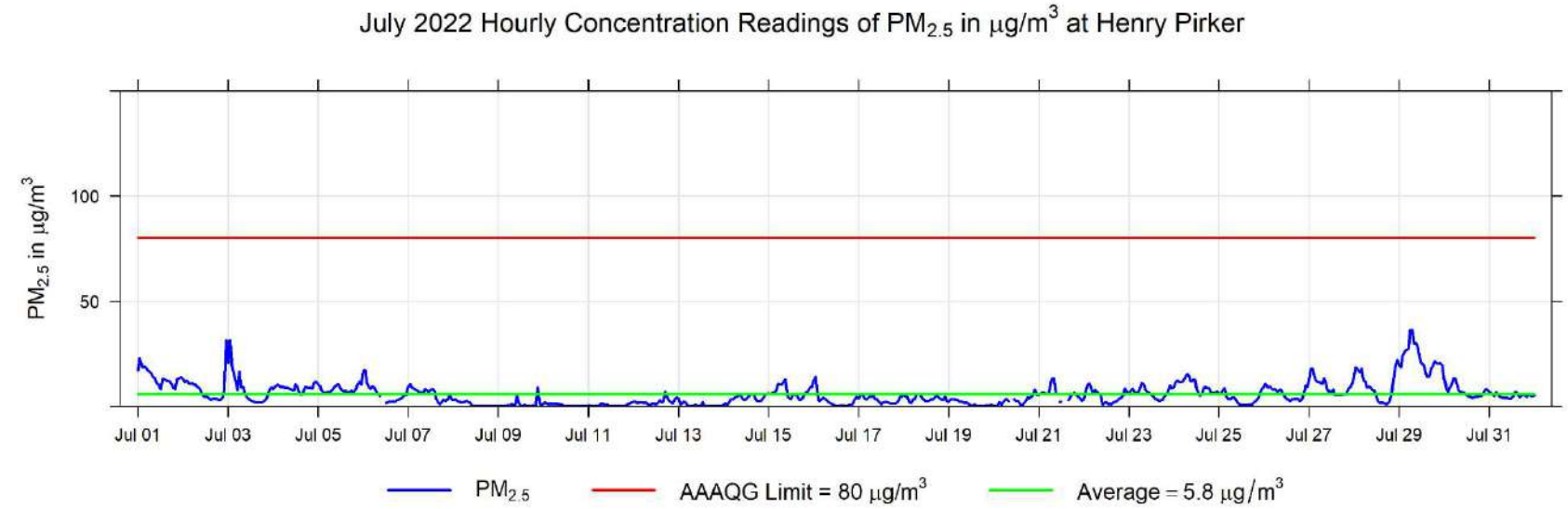
July 2022 Hourly Concentration Readings of CH_4 (in ppm) at Henry Pirker

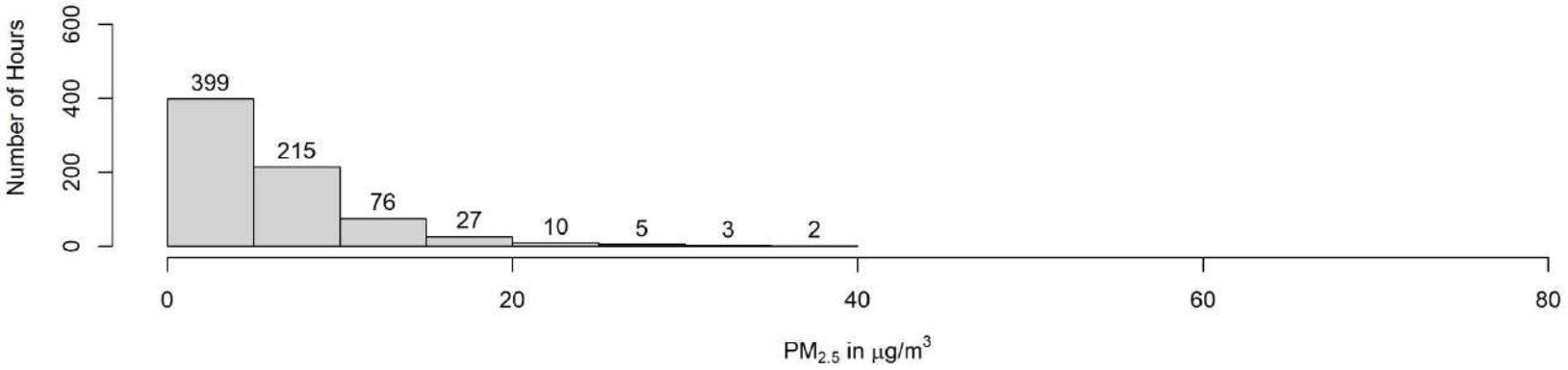


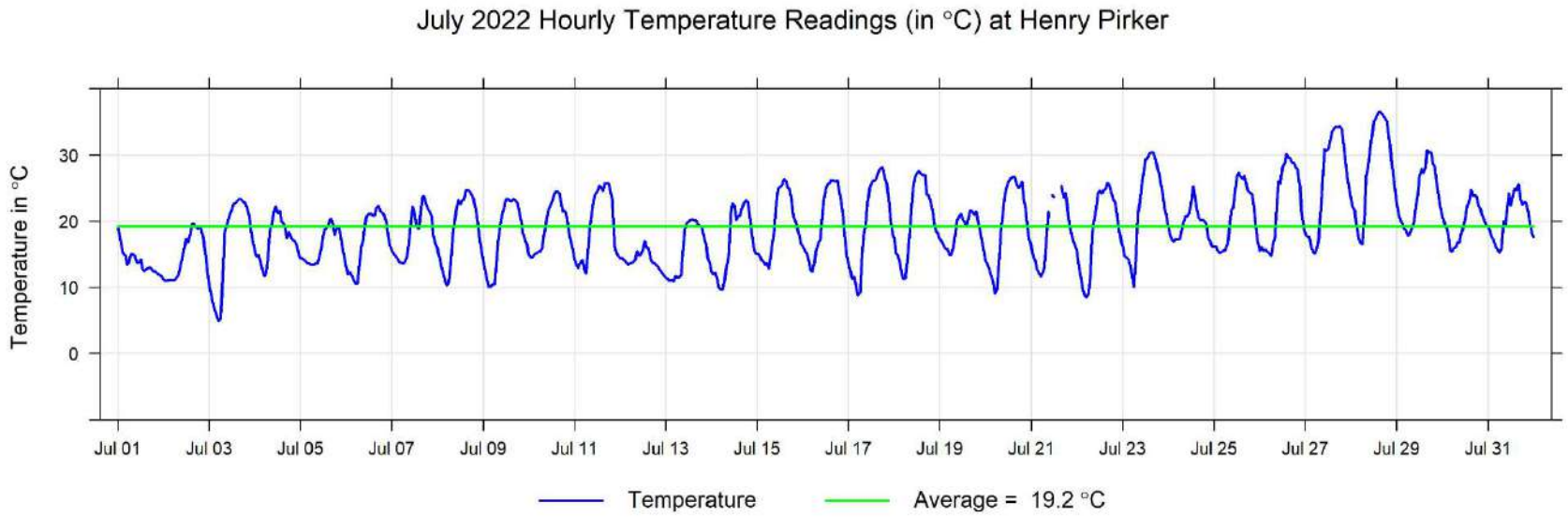

July 2022 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker
NMHC in ppm
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NMHC
Average = 0.001 ppm

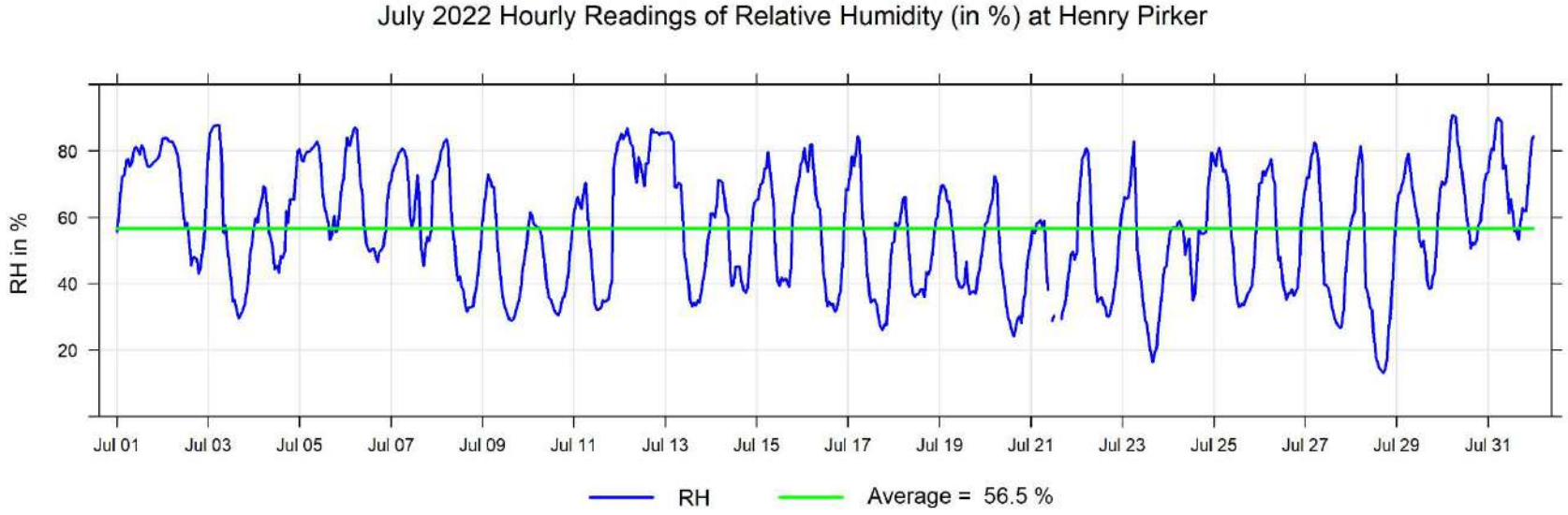

July 2022 Hourly Concentration Readings of CO (in ppm) at Henry Pirker
CO in ppm
12
10
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
CO
AAAQO Limit = 13 ppm
Average = 0.1 ppm

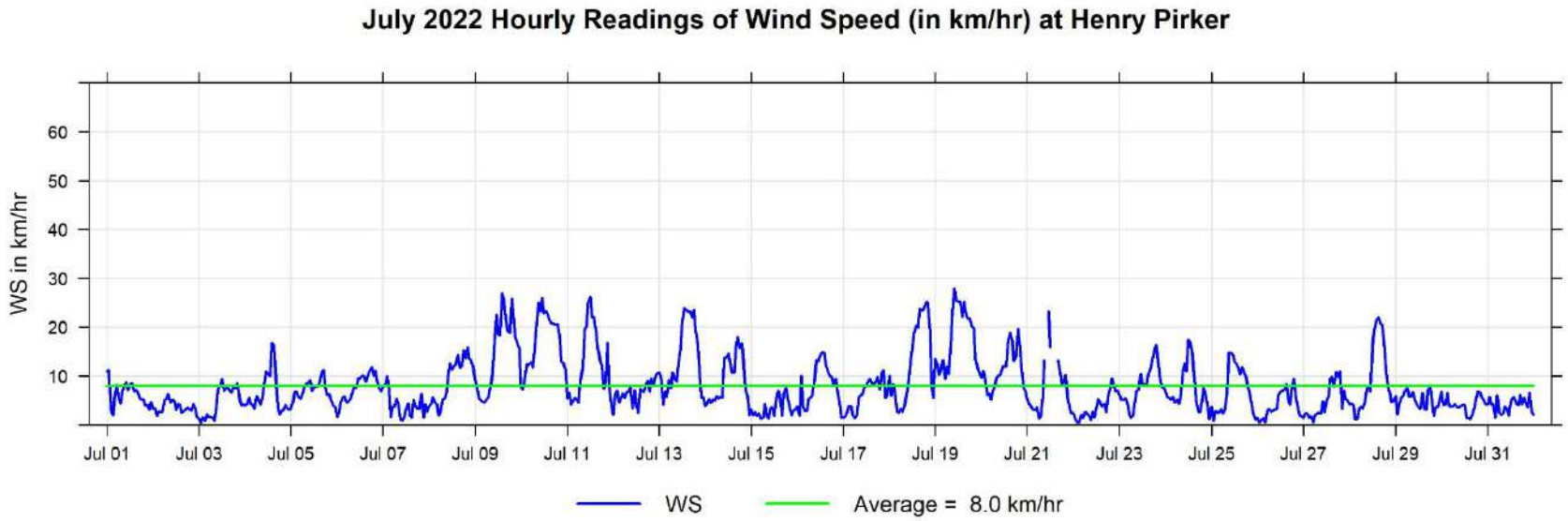

Number of Hours
0
200
400
600
104
190
120
147
72
38
18
4
3
5
2
0
1
0
1
0.0
0.1
0.2
0.3
0.4
0.5
CO in ppm

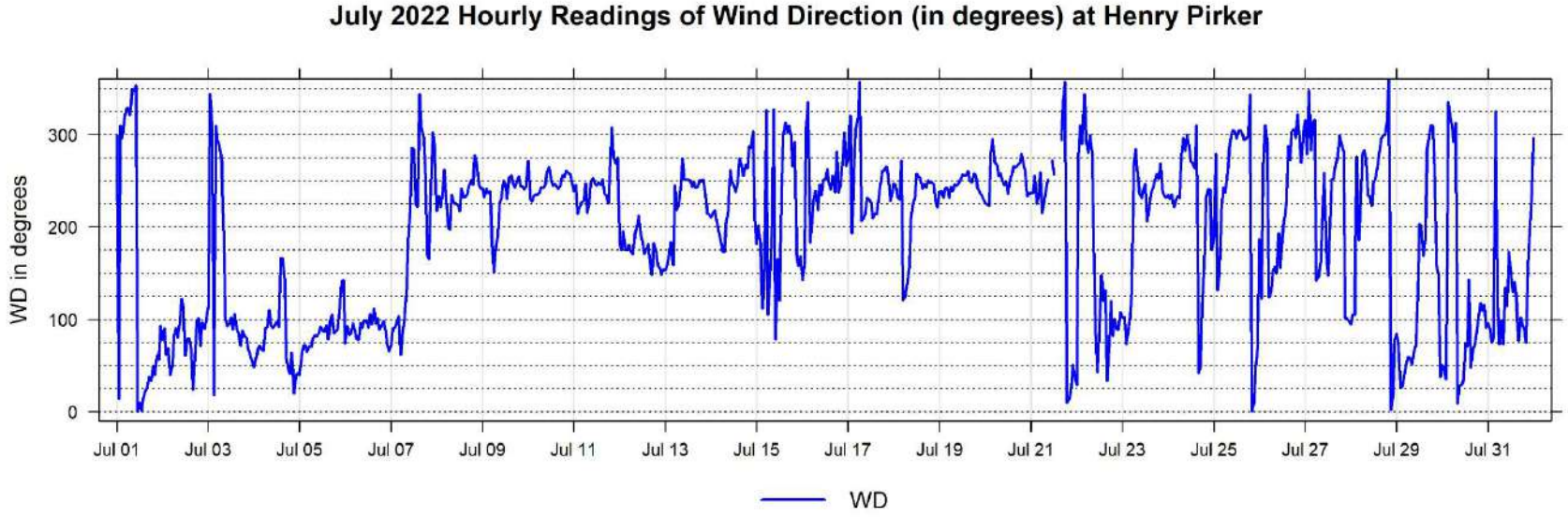

July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Henry Pirker
PM2.5 in µg/m3
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 5.8 µg/m3

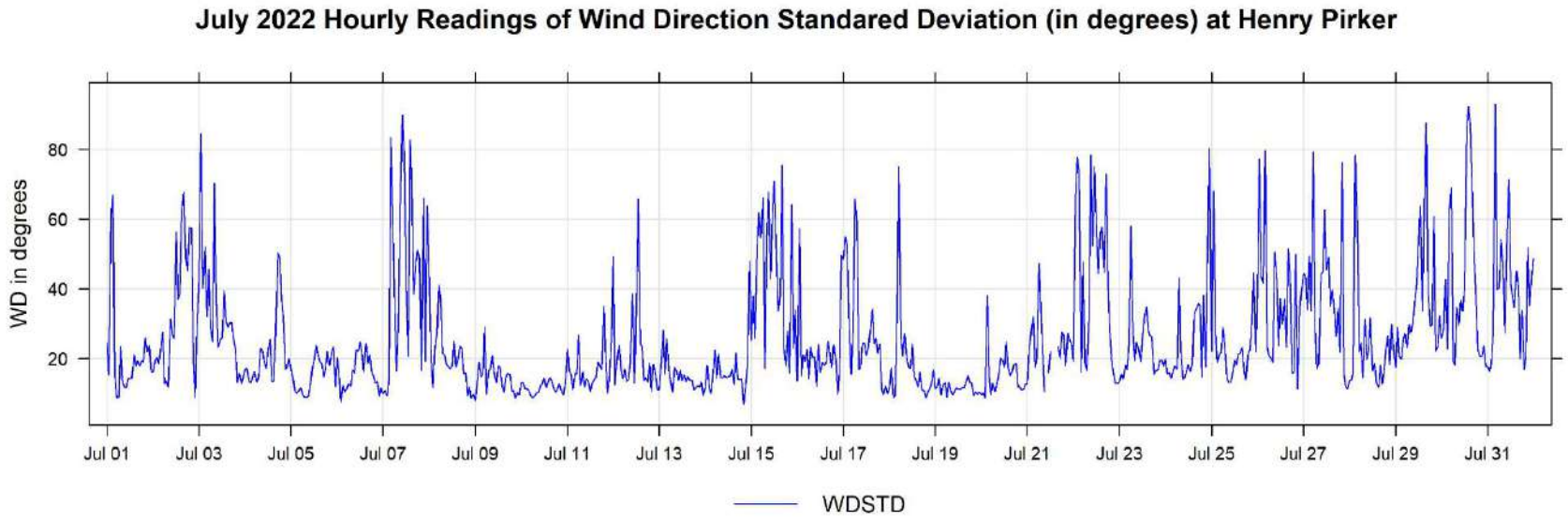

Number of Hours
0
200
400
600
399
215
76
27
10
5
3
2
0
20
40
60
80
PM2.5 in µg/m3

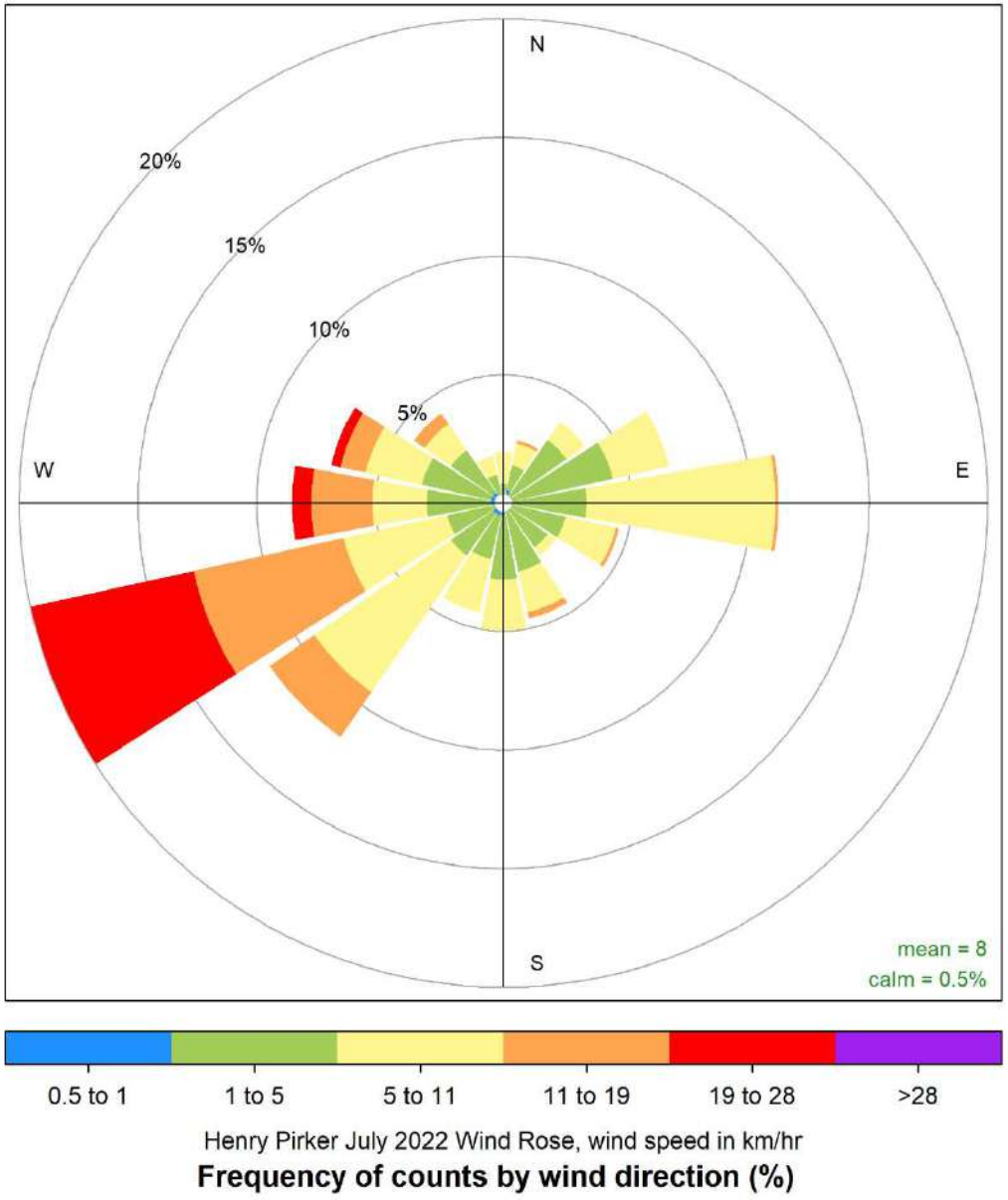

July 2022 Hourly Temperature Readings (in °C) at Henry Pirker
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 19.2 °C


July 2022 Hourly Readings of Relative Humidity (in %) at Henry Pirker
RH in %
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
RH
Average = 56.5 %


July 2022 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 8.0 km/hr

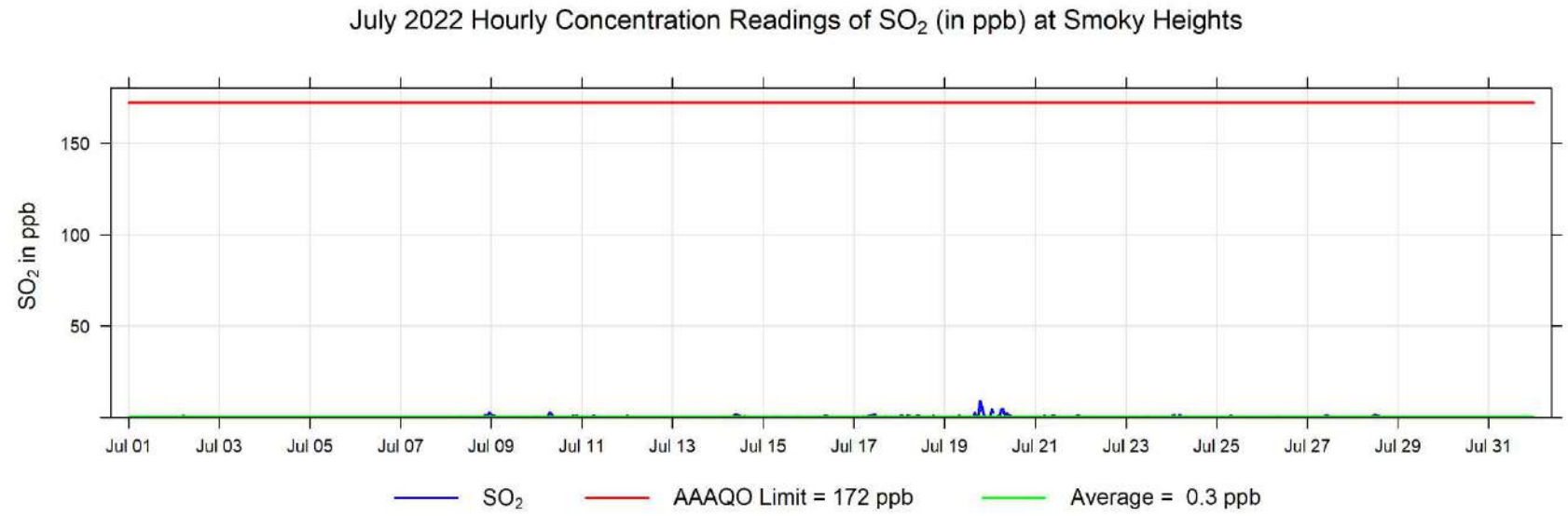

July 2022 Hourly Readings of Wind Direction (in degrees) at Henry Pirker
WD in degrees
300
200
100
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WD

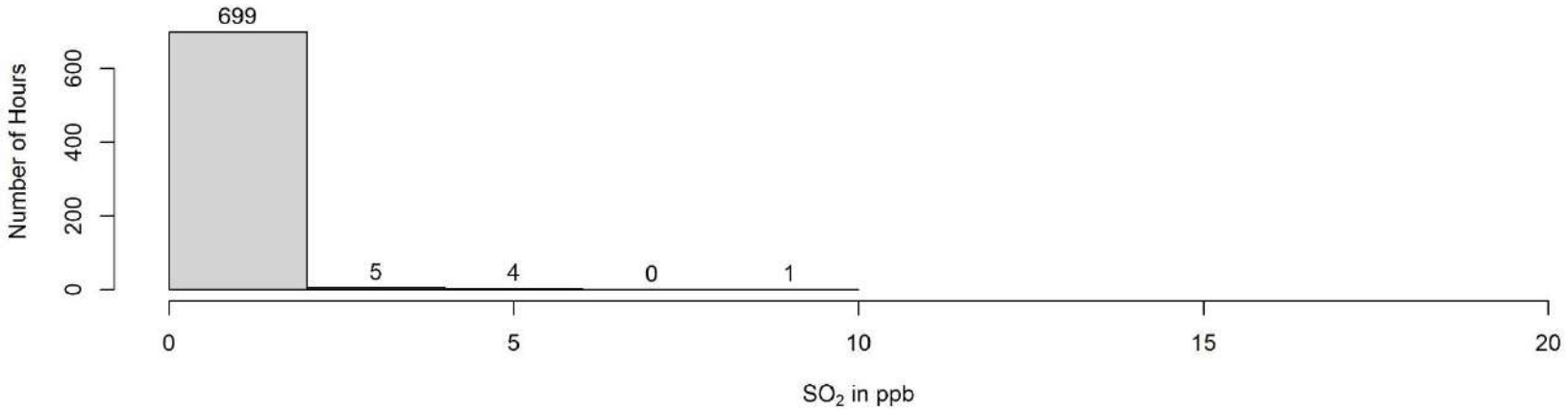

July 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Henry Pirker
WD in degrees
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WDSTD

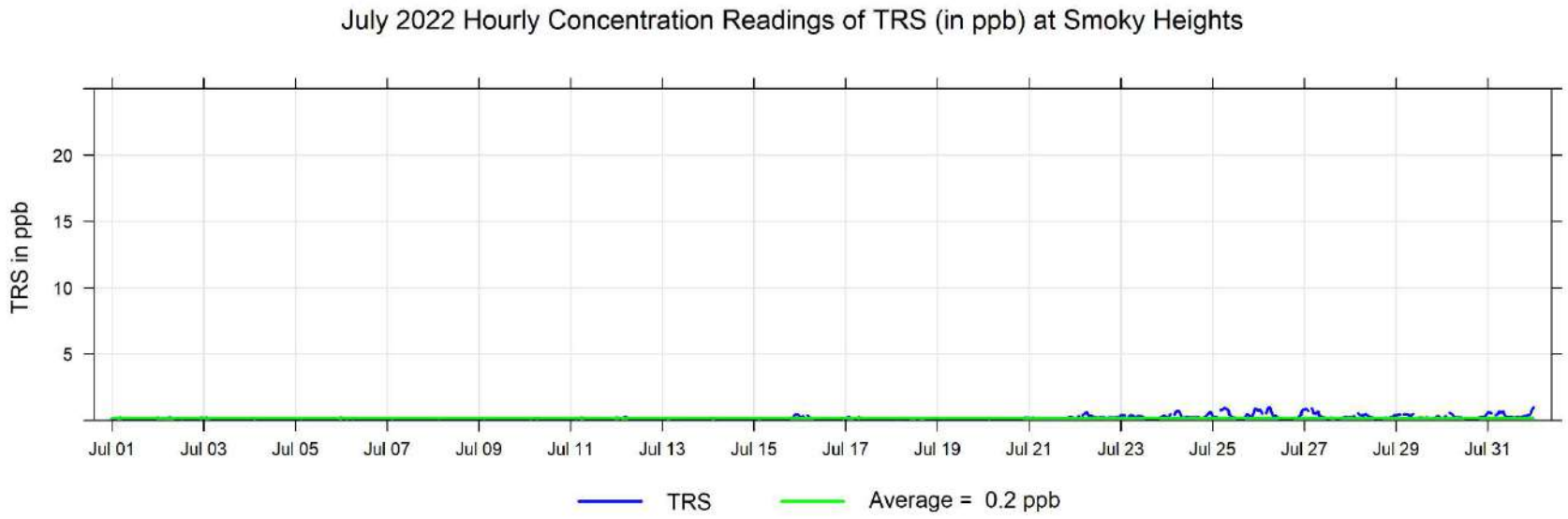

N
20%
15%
10%
5%
W
E
S
mean = 8
calm = 0.5%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Henry Pirker July 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

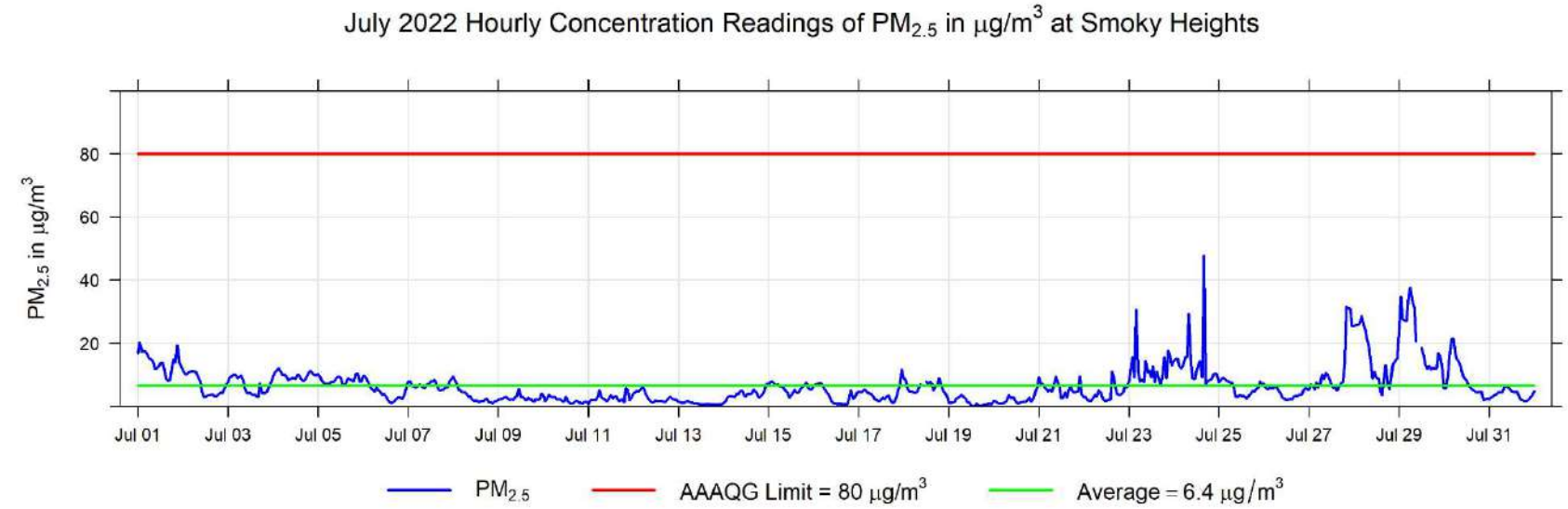
5 Smoky Heights Charts

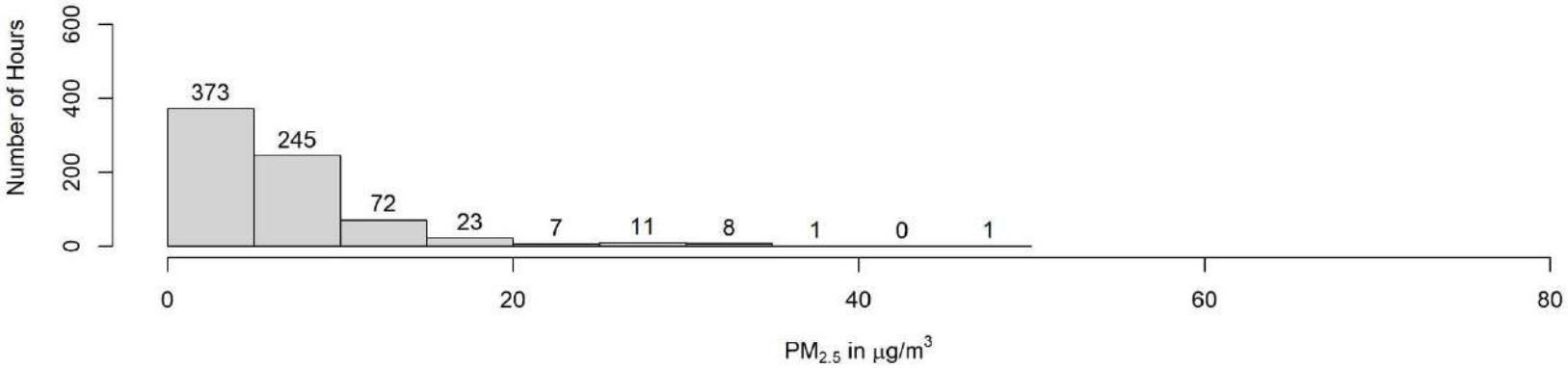
The following pages include the charts and histograms for Smoky Heights Station

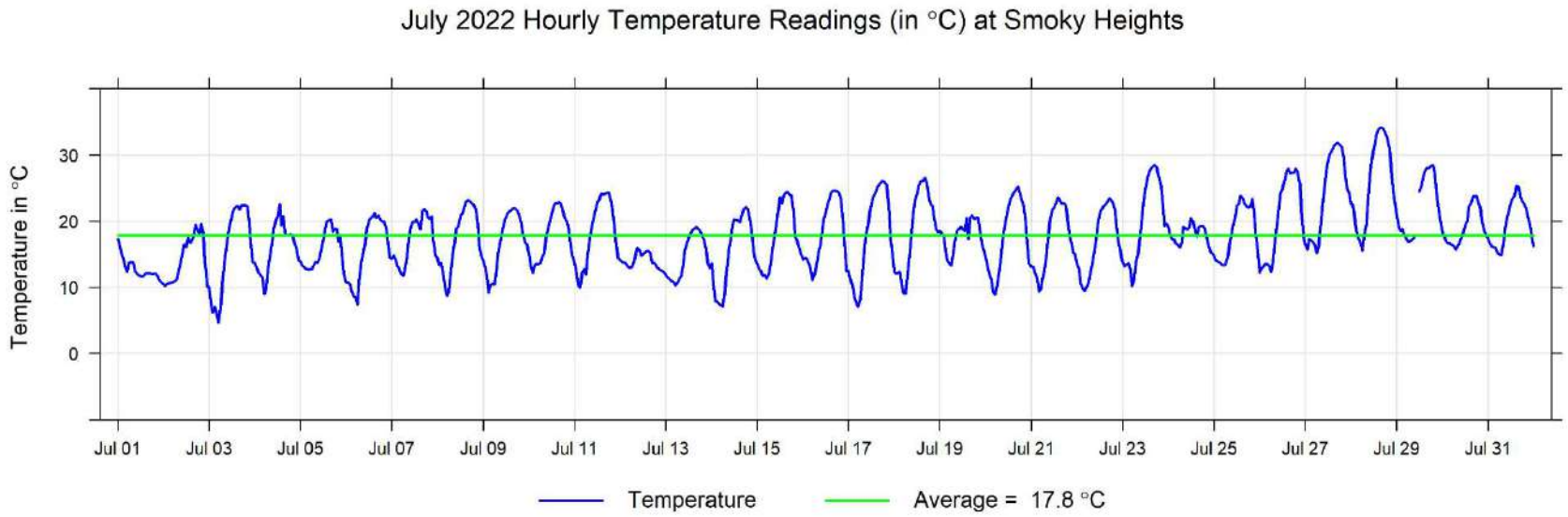

July 2022 Hourly Concentration Readings of SO_2 (in ppb) at Smoky Heights
SO_2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.3 ppb

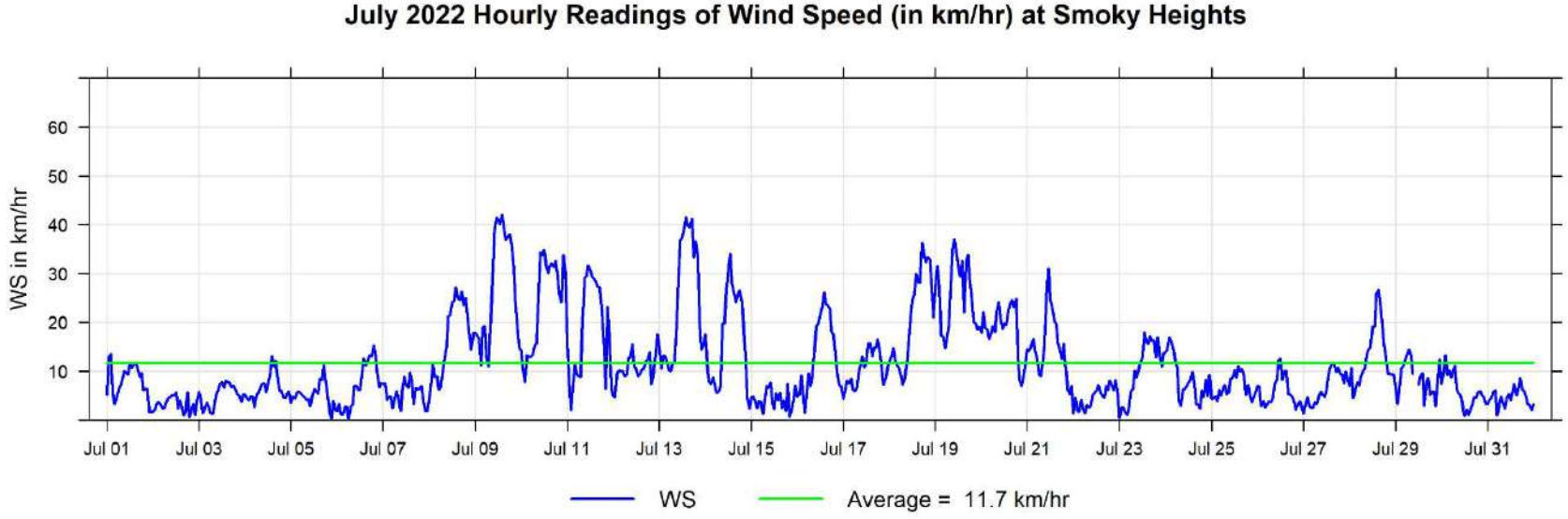

Number of Hours
0
200
400
600
699
5
4
0
1
0
5
10
15
20
SO_2 in ppb

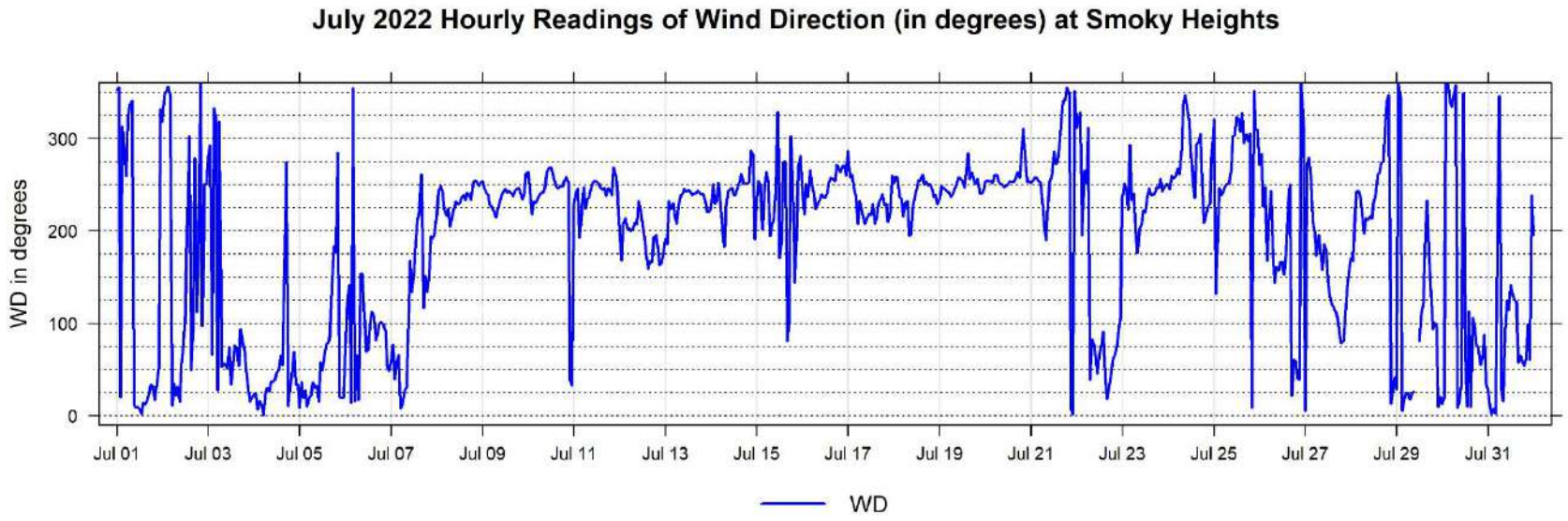

July 2022 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights
TRS in ppb
20
15
10
5
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
TRS
Average = 0.2 ppb

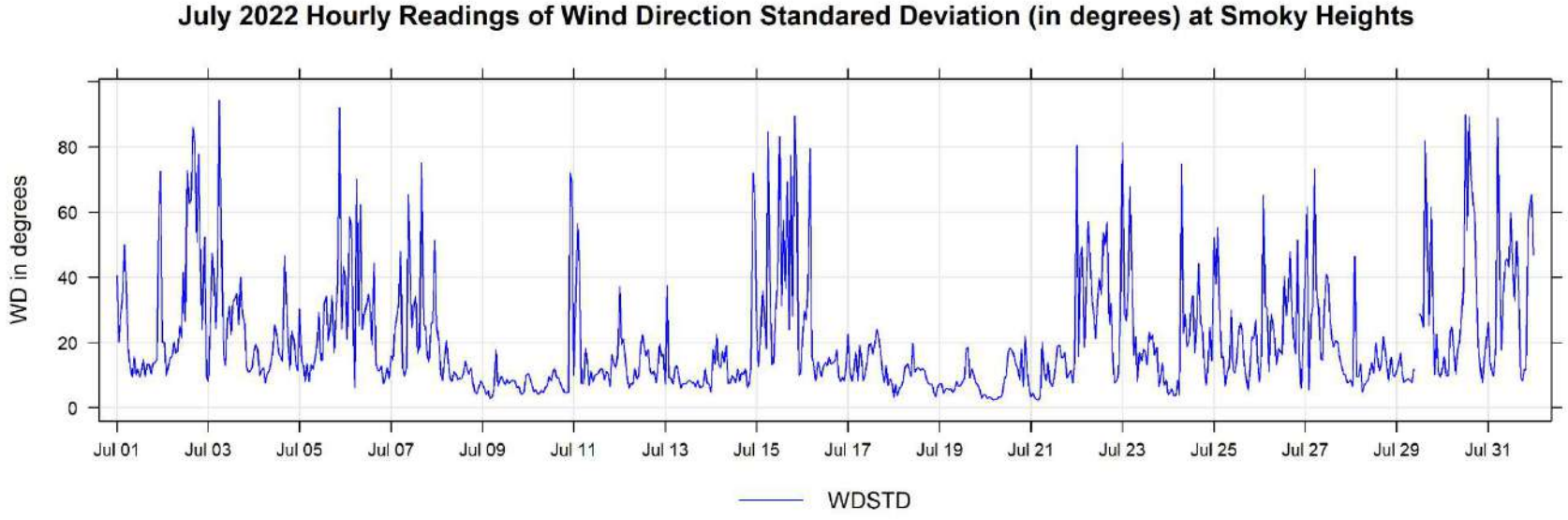

July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Smoky Heights
PM2.5 in µg/m3
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 6.4 µg/m3

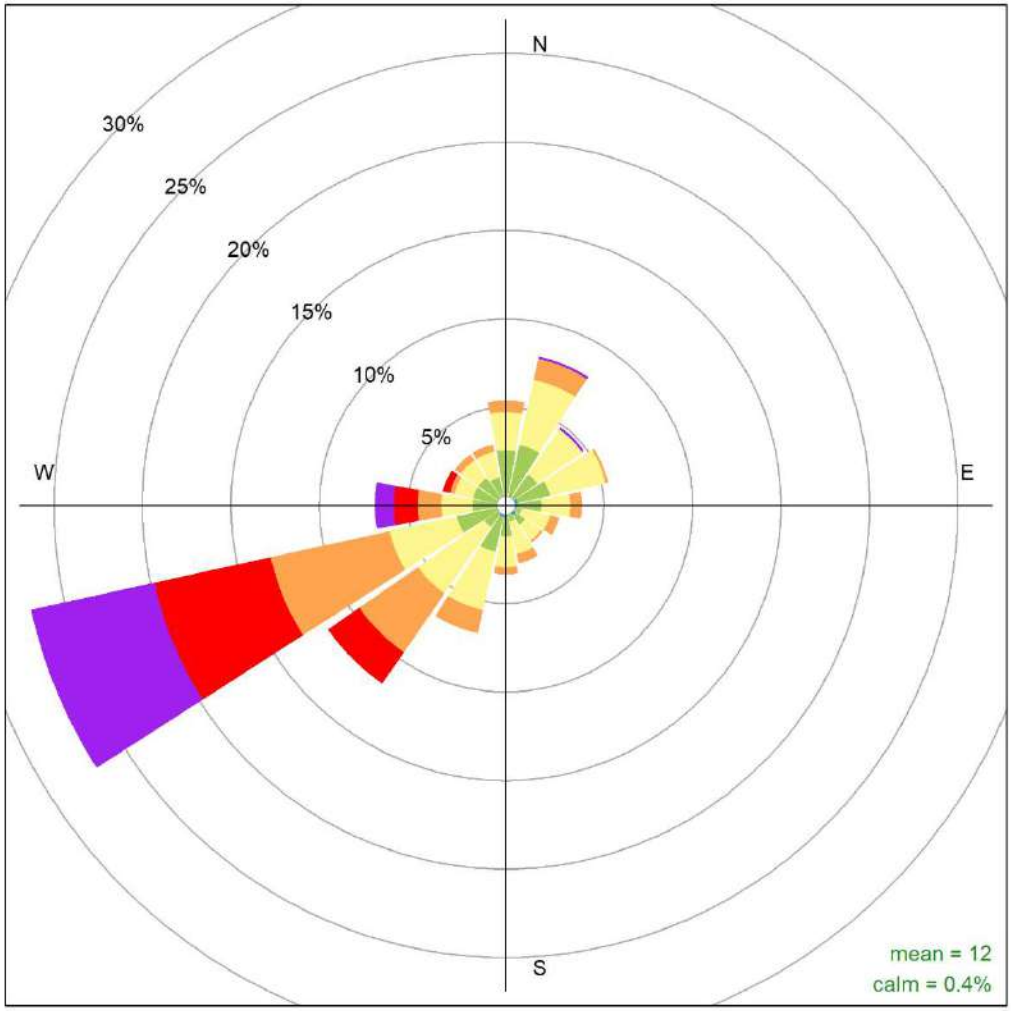

Number of Hours
0
200
400
600
373
245
72
23
7
11
8
1
0
1
0
20
40
60
80
PM2.5 in µg/m3


July 2022 Hourly Temperature Readings (in °C) at Smoky Heights
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 17.8 °C


July 2022 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 11.7 km/hr


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


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

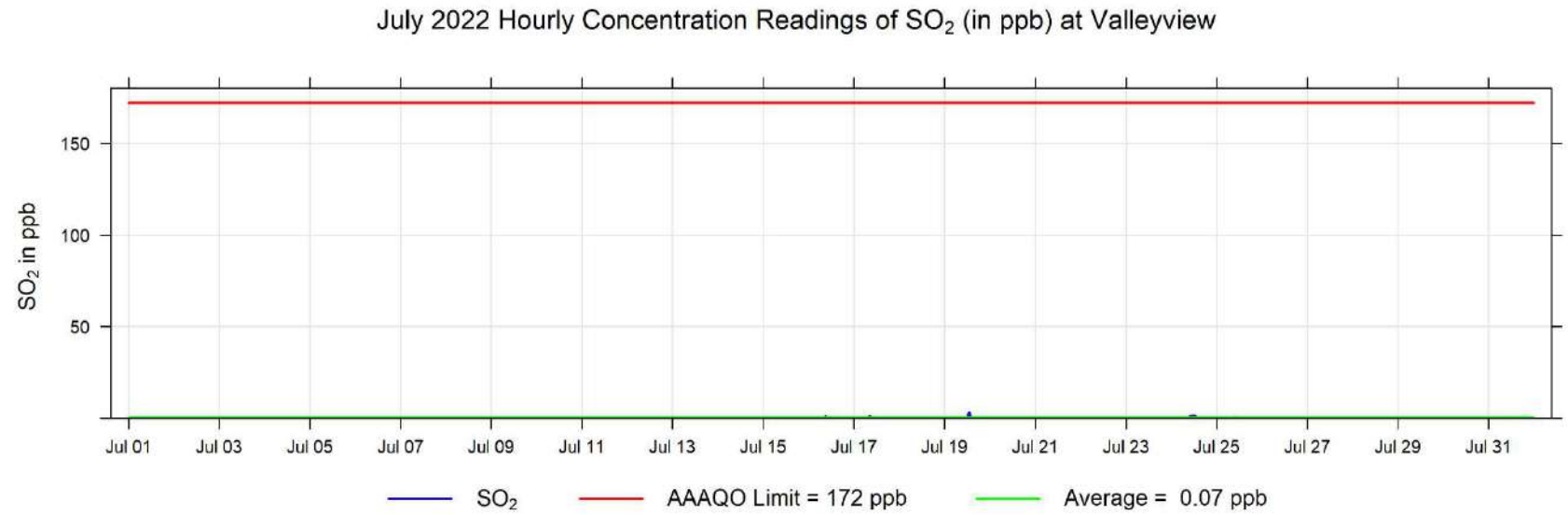


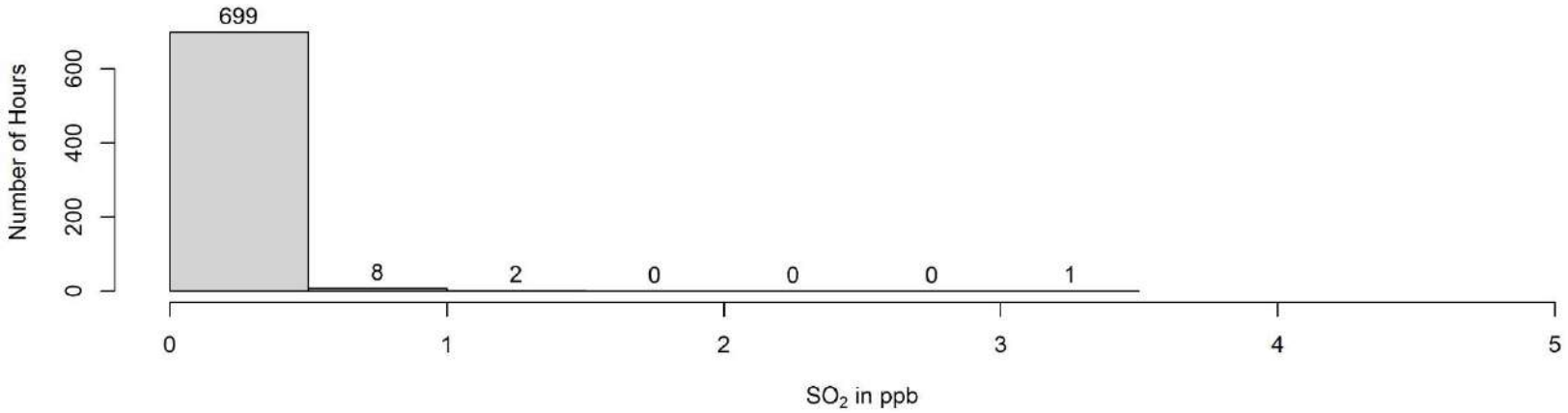
Smoky Heights July 2022 Wind Rose, wind speed in km/hr

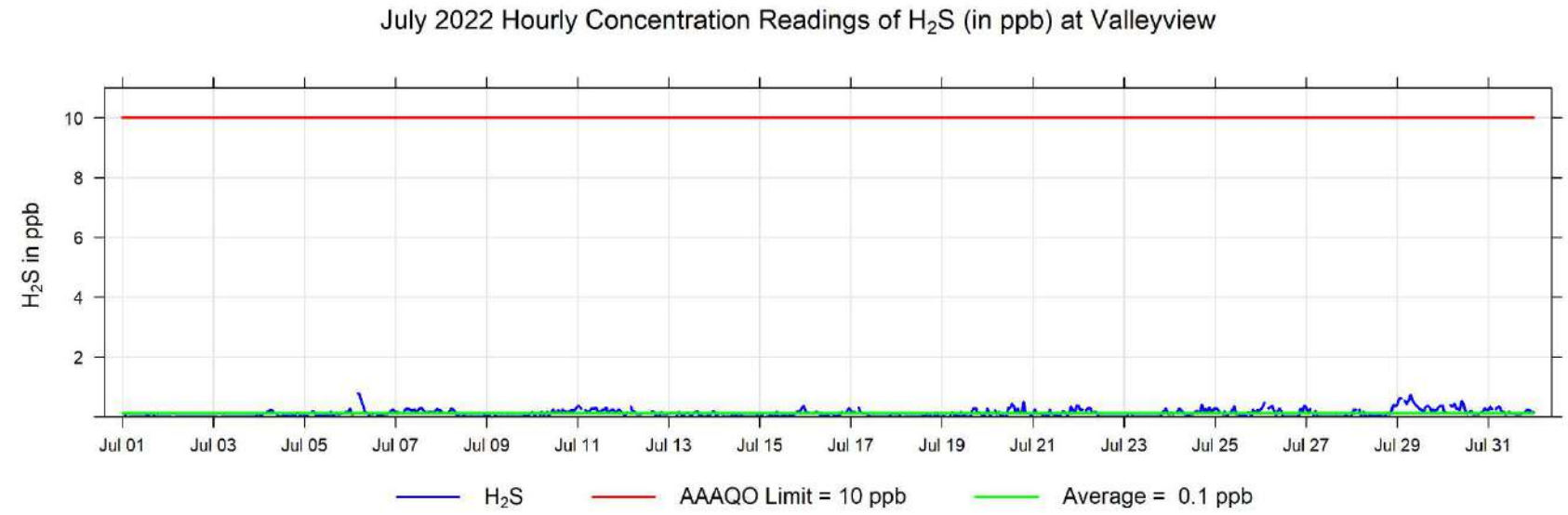
Frequency of counts by wind direction (%)

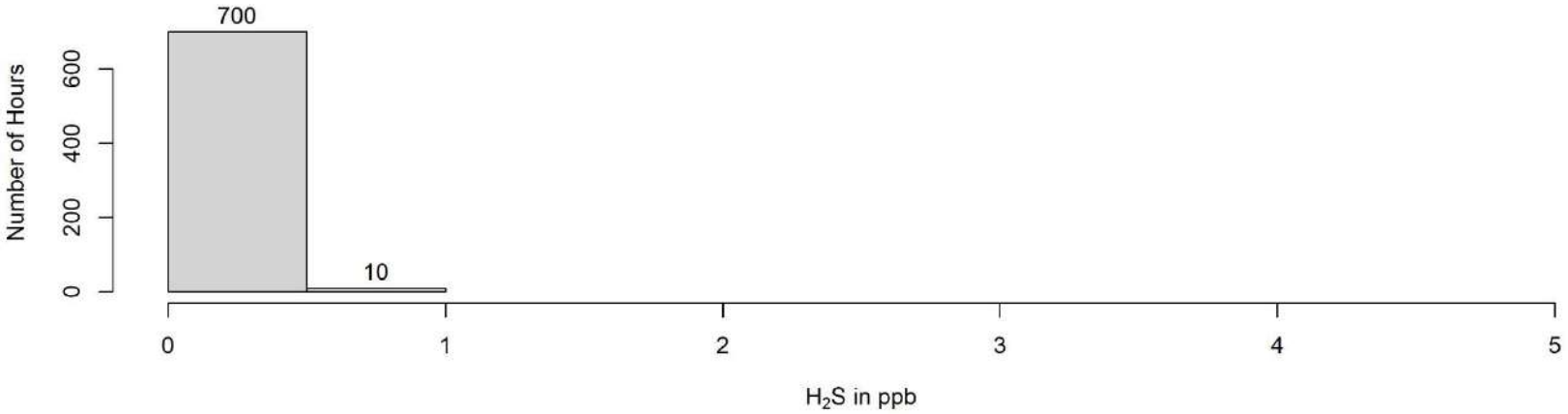
6 Valleyview Charts

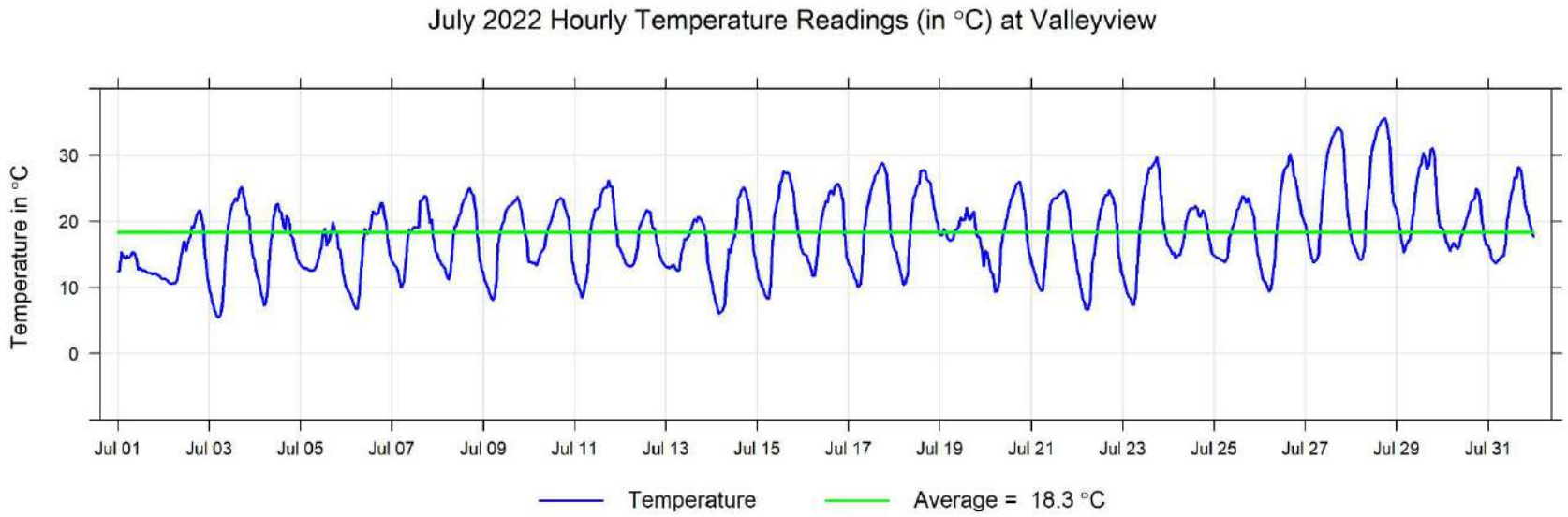
The following pages include the charts and histograms for Valleyview Station

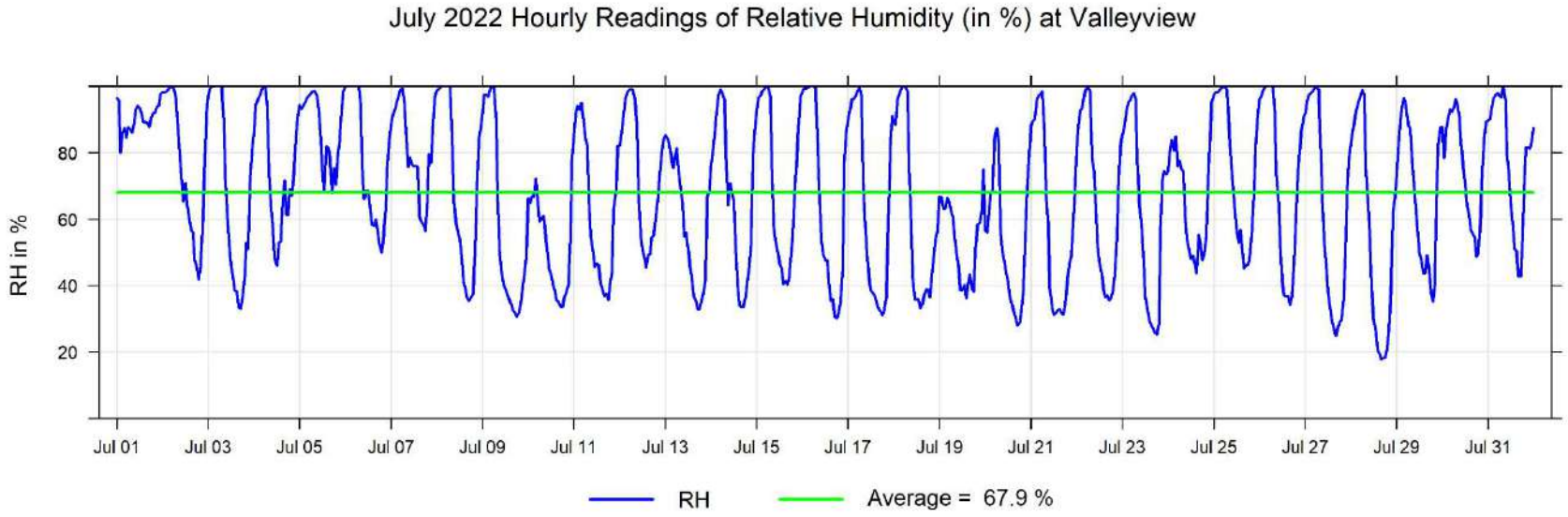

July 2022 Hourly Concentration Readings of SO2 (in ppb) at Valleyview
SO2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO2
AAAQO Limit = 172 ppb
Average = 0.07 ppb

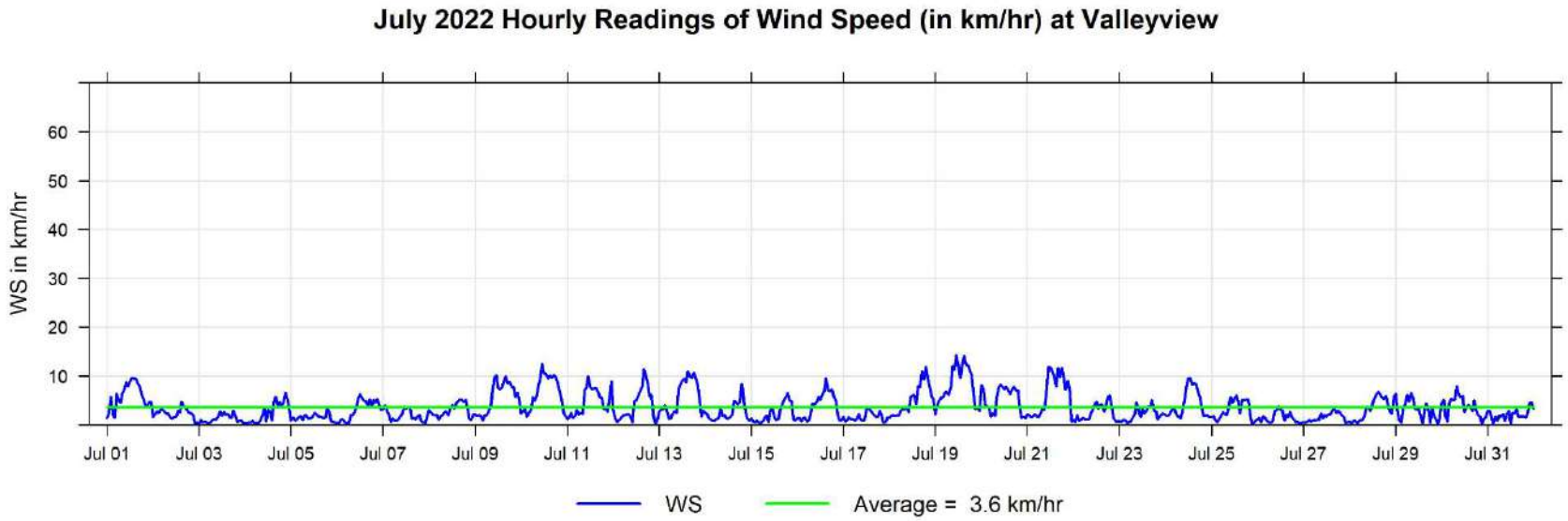

Number of Hours
0
200
400
600
699
8
2
0
0
0
1
0
1
2
3
4
5
SO2 in ppb

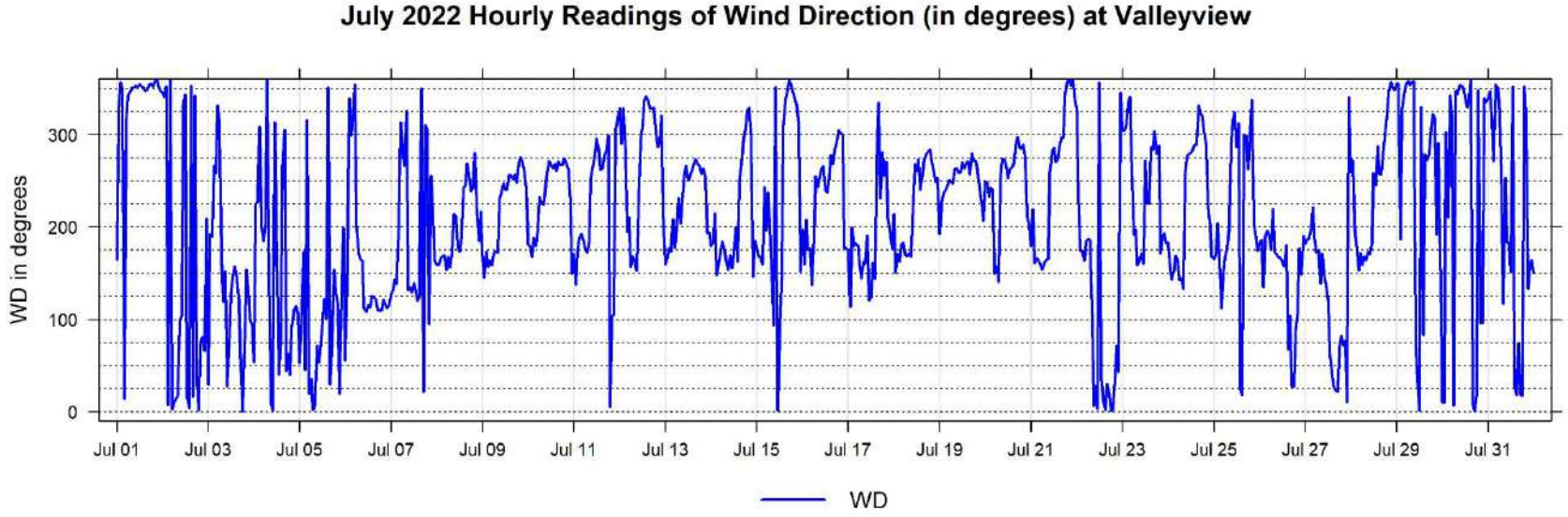

July 2022 Hourly Concentration Readings of H2S (in ppb) at Valleyview
H2S in ppb
10
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
H2S
AAAQO Limit = 10 ppb
Average = 0.1 ppb

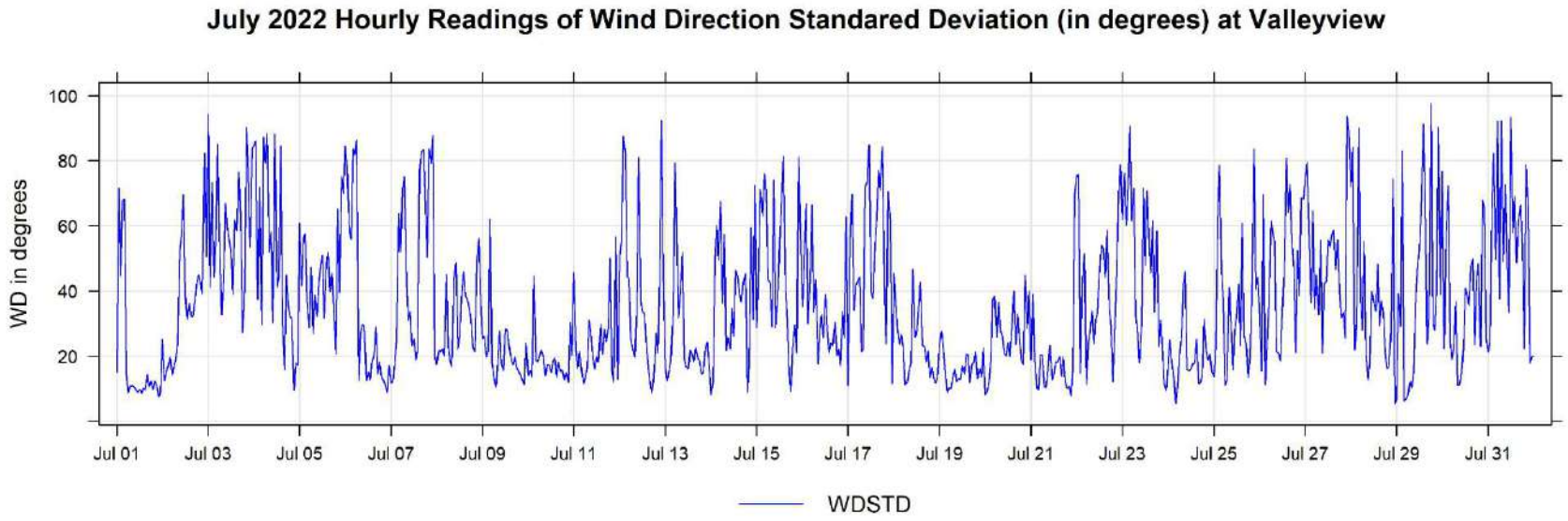

Number of Hours
0
200
400
600
700
10
0
1
2
3
4
5
H2S in ppb

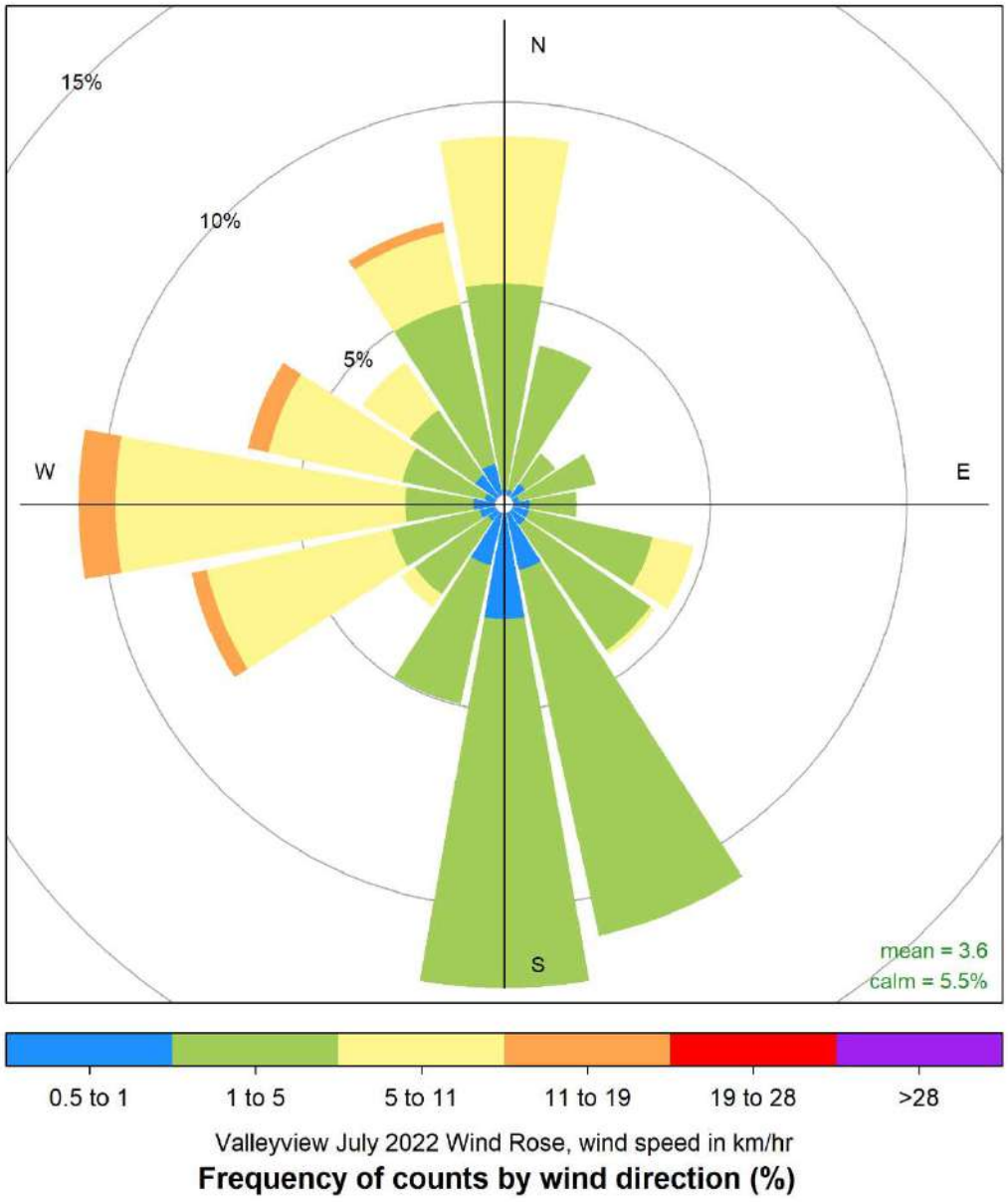

July 2022 Hourly Temperature Readings (in °C) at Valleyview
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 18.3 °C


July 2022 Hourly Readings of Relative Humidity (in %) at Valleyview
RH in %
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
RH
Average = 67.9 %


July 2022 Hourly Readings of Wind Speed (in km/hr) at Valleyview
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 3.6 km/hr

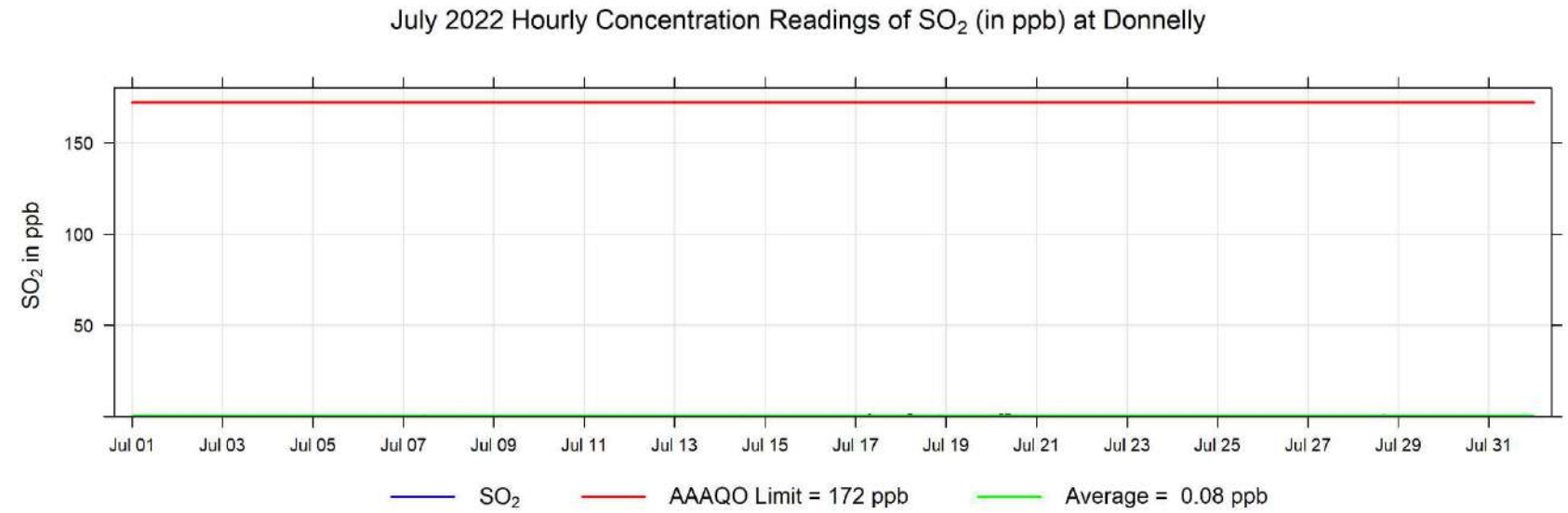

July 2022 Hourly Readings of Wind Direction (in degrees) at Valleyview
WD in degrees
300
200
100
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WD

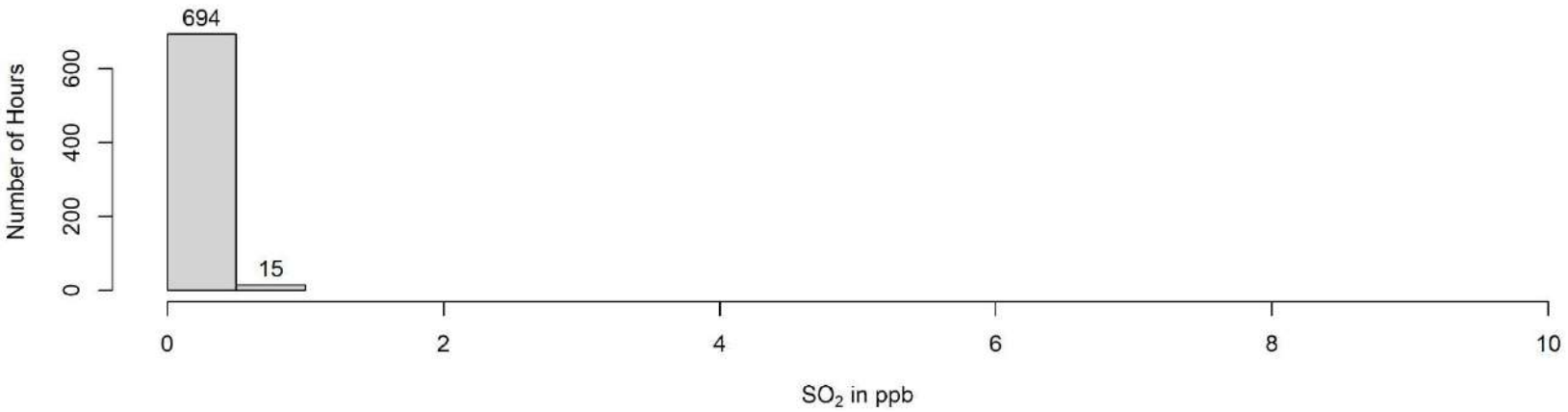

July 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Valleyview
WD in degrees
100
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WDSTD

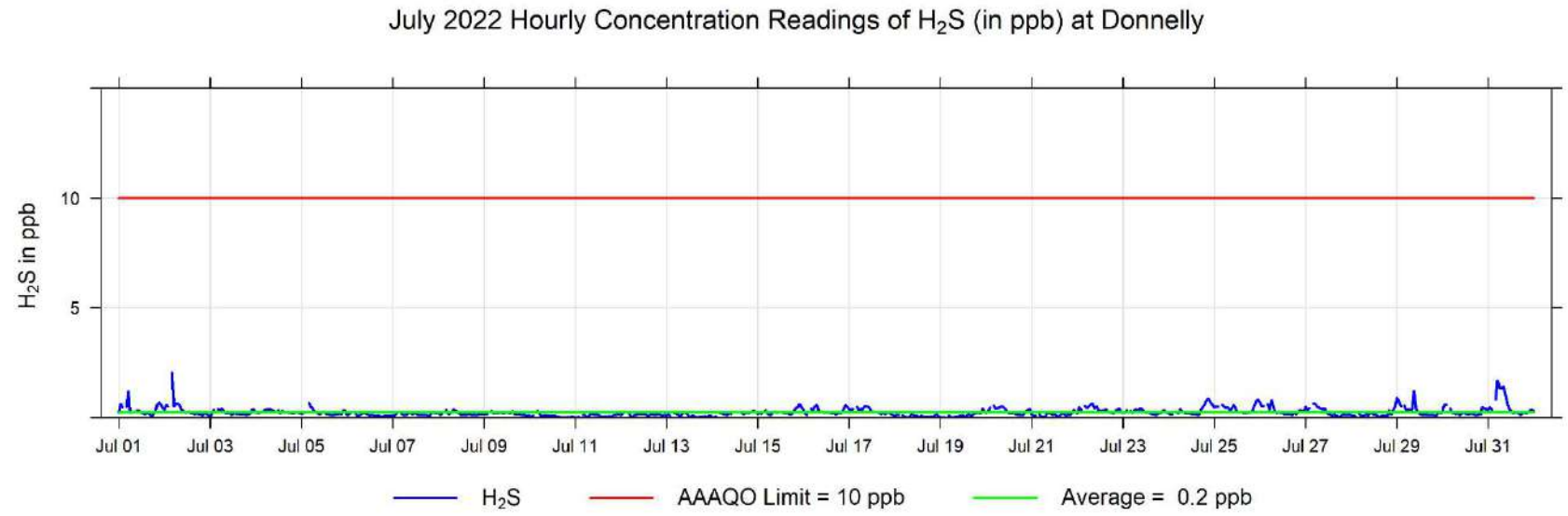

N
15%
10%
5%
W
E
S
mean = 3.6
calm = 5.5%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Valleyview July 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

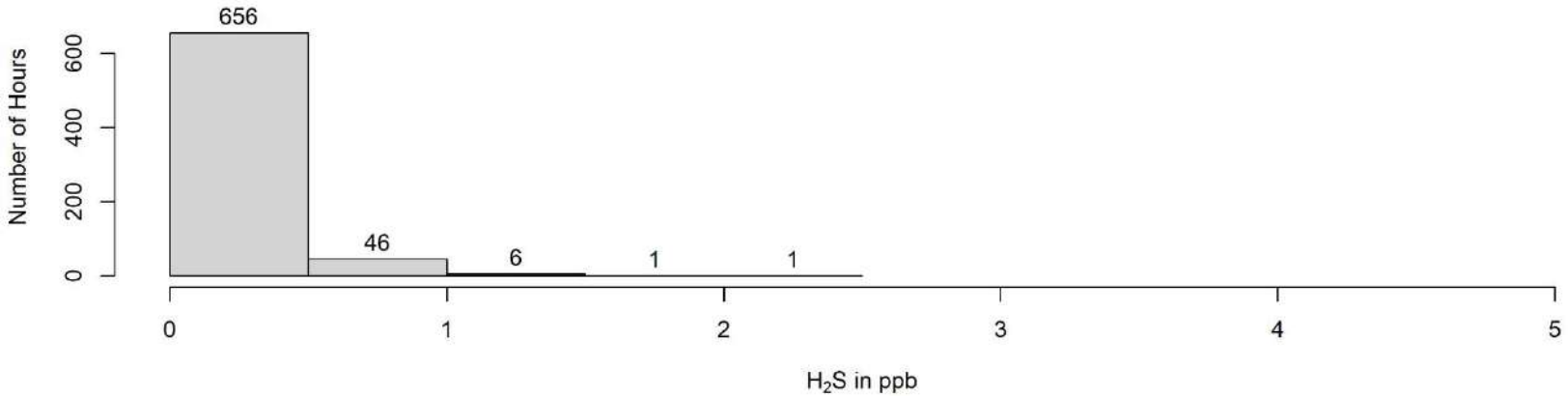
7 Donnelly Charts

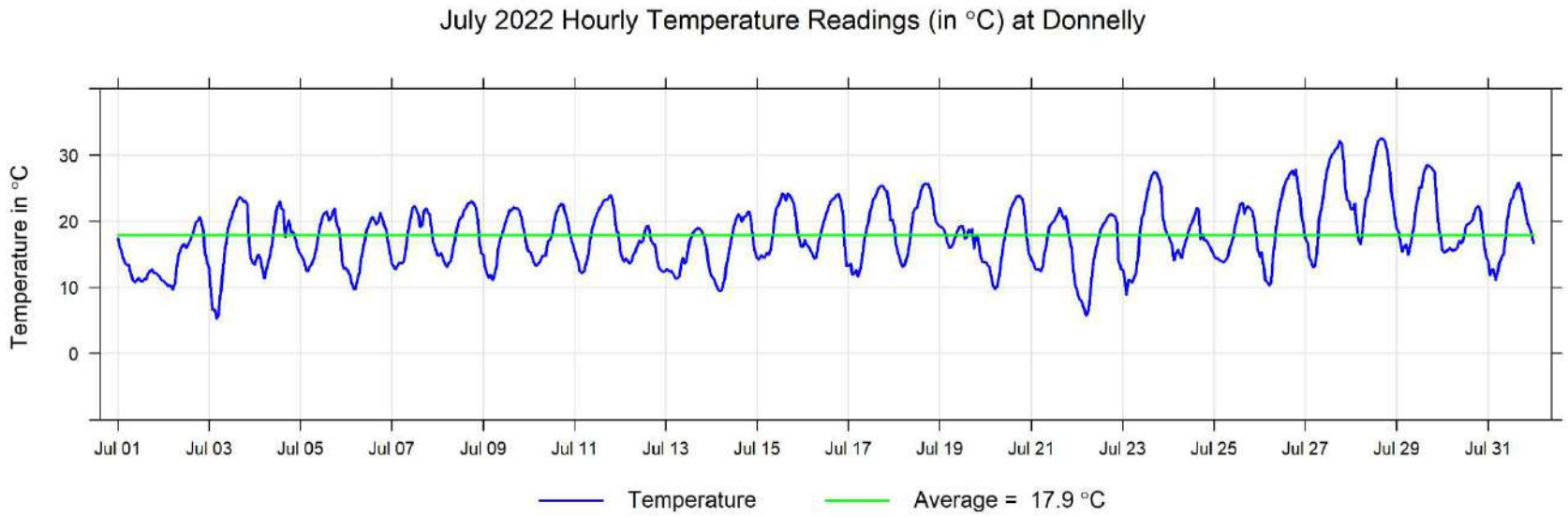
The following pages include the charts and histograms for Donnelly Station

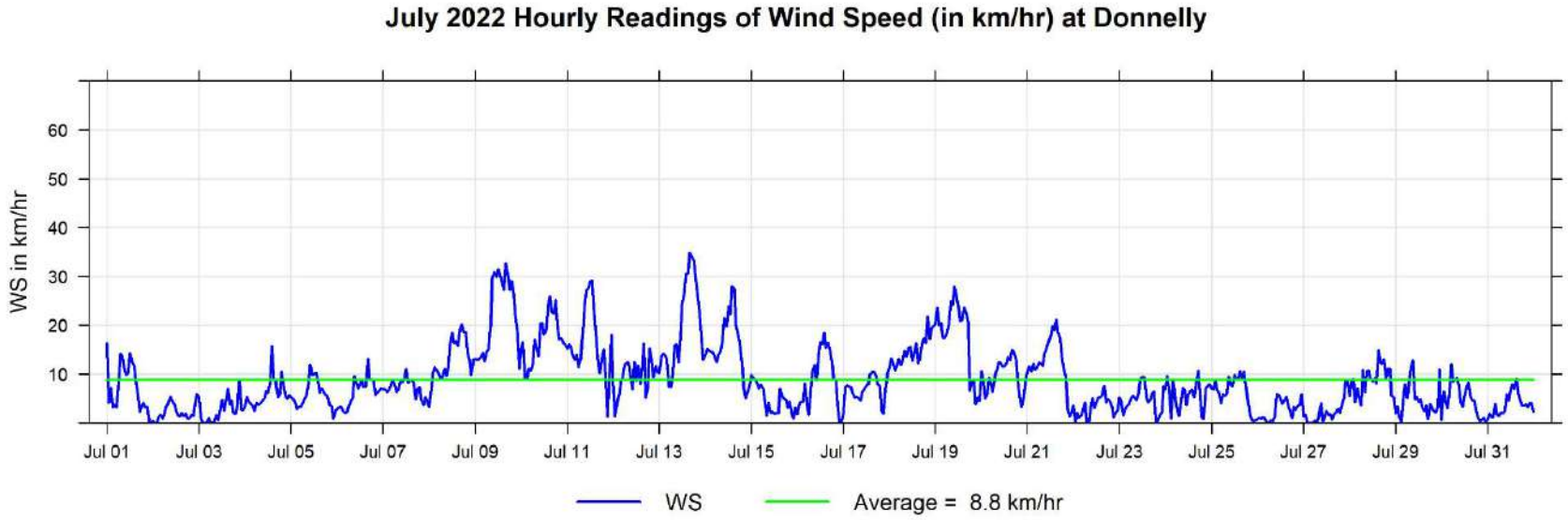

July 2022 Hourly Concentration Readings of SO_2 (in ppb) at Donnelly
SO_2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.08 ppb

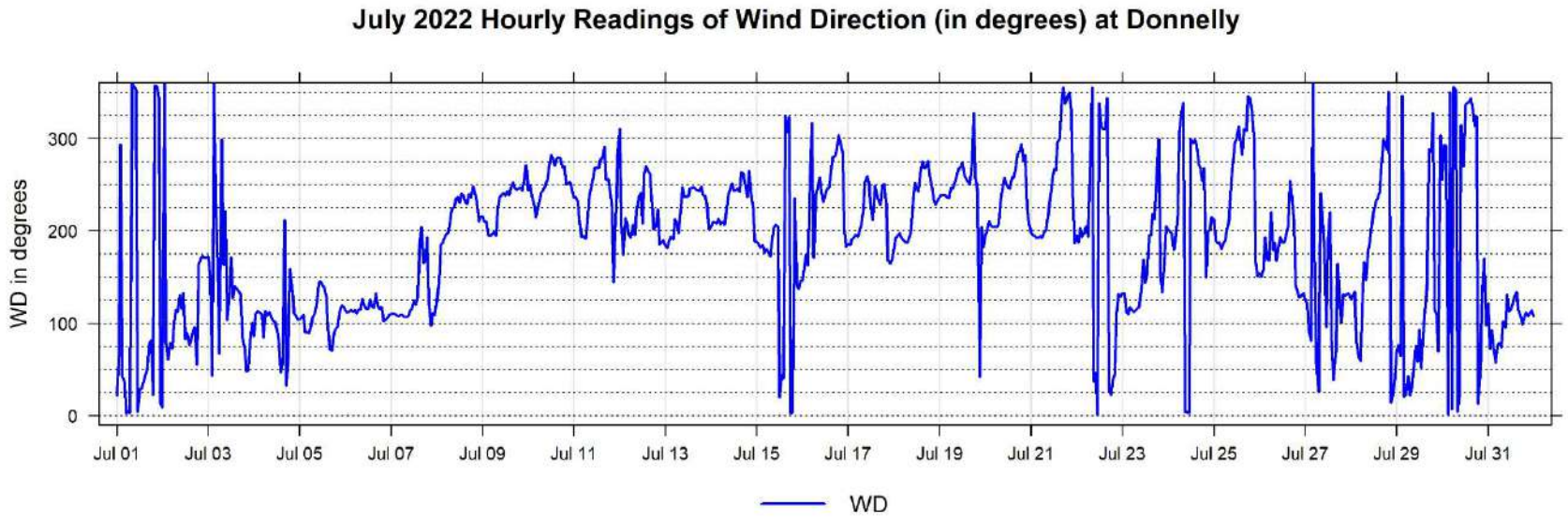

Number of Hours
0
200
400
600
694
15
0
2
4
6
8
10
SO_2 in ppb

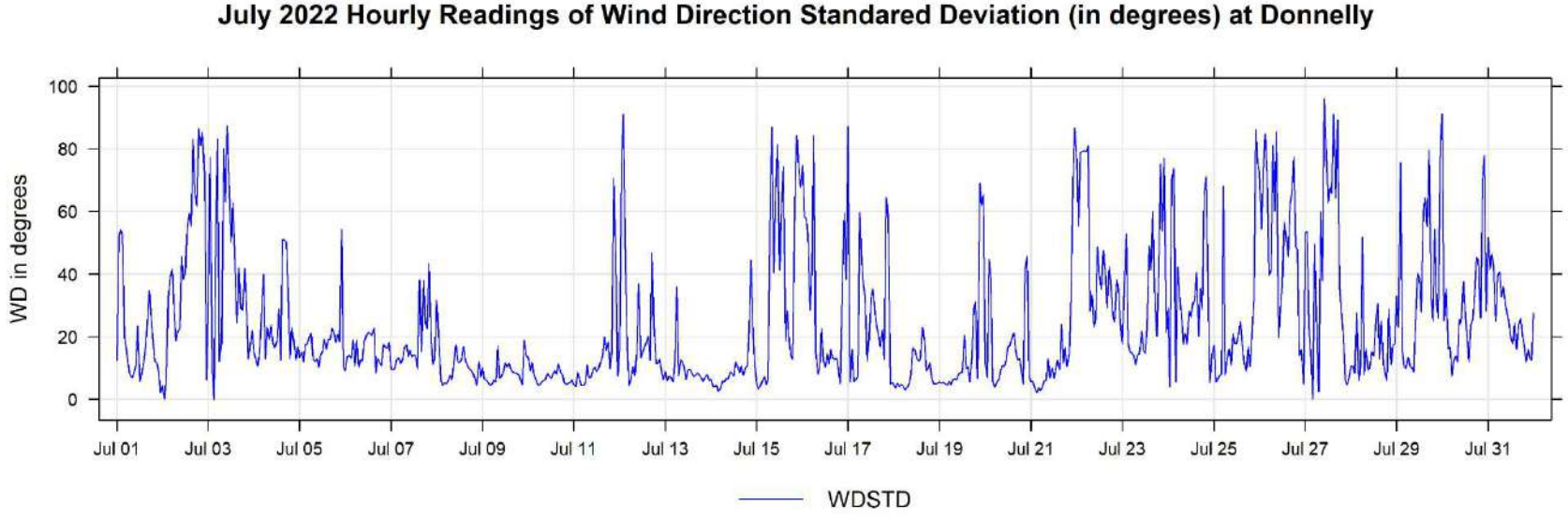

July 2022 Hourly Concentration Readings of H2S (in ppb) at Donnelly
H2S in ppb
10
5
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
H2S
AAAQO Limit = 10 ppb
Average = 0.2 ppb

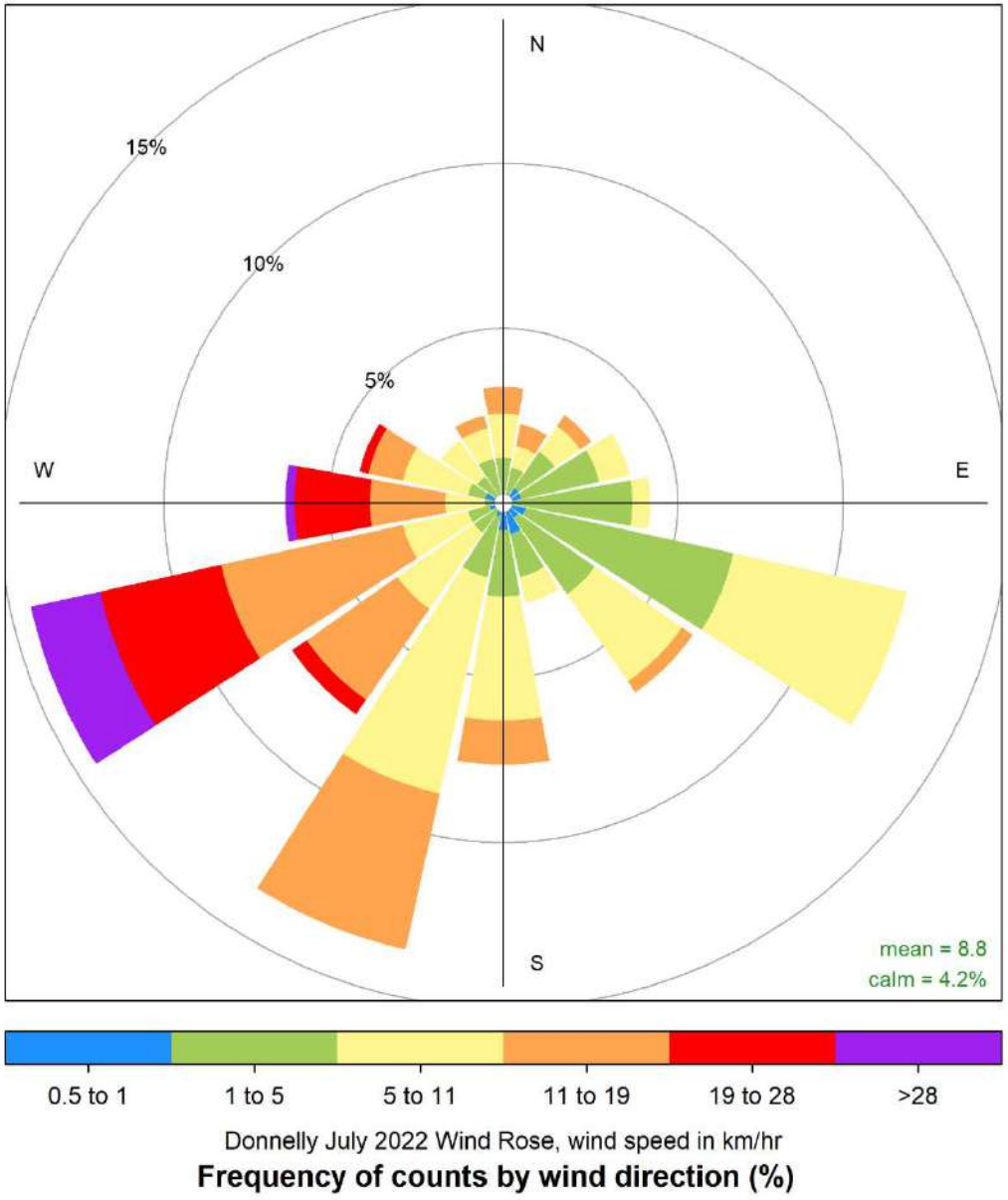

Number of Hours
0
200
400
600
656
46
6
1
1
0
1
2
3
4
5
H2S in ppb


July 2022 Hourly Temperature Readings (in °C) at Donnelly
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 17.9 °C


July 2022 Hourly Readings of Wind Speed (in km/hr) at Donnelly
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 8.8 km/hr

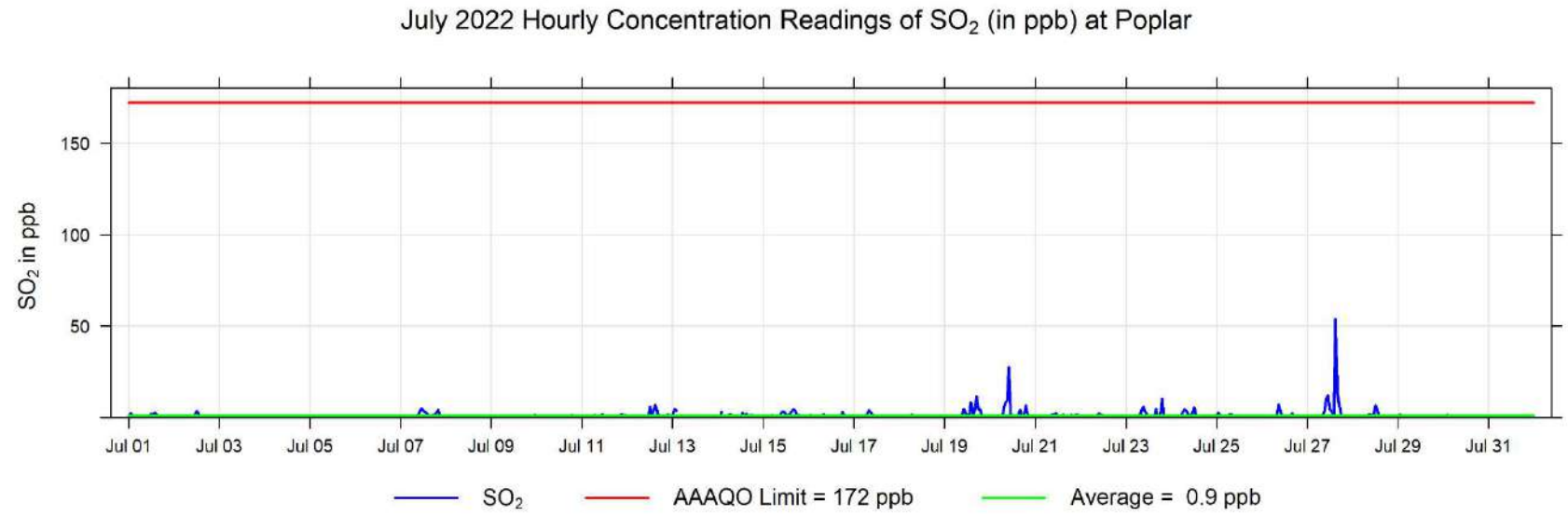

July 2022 Hourly Readings of Wind Direction (in degrees) at Donnelly
WD in degrees
0
100
200
300
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WD

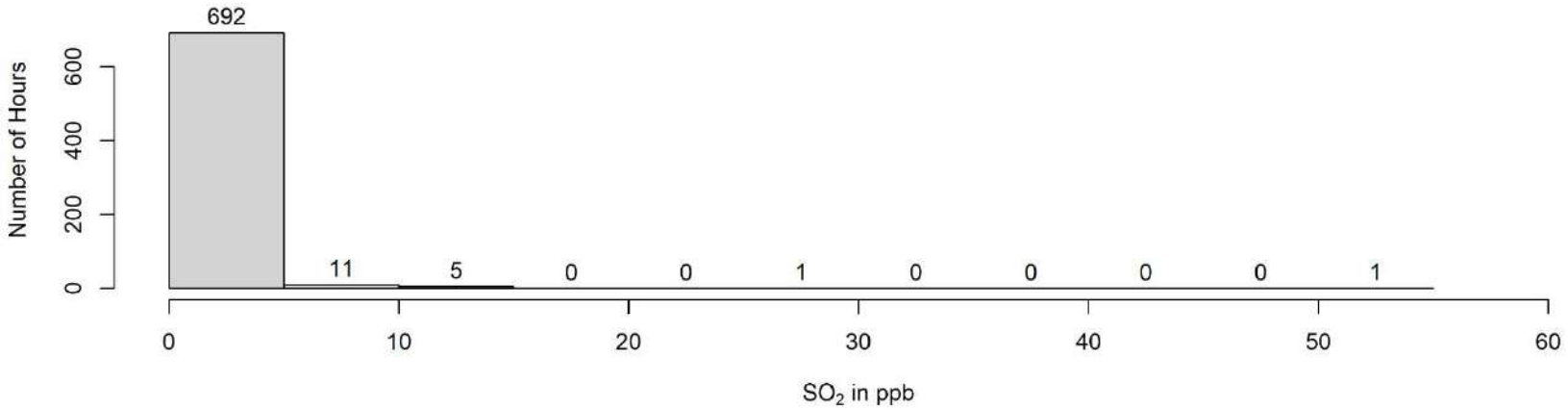

July 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Donnelly
WD in degrees
0
20
40
60
80
100
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WDSTD

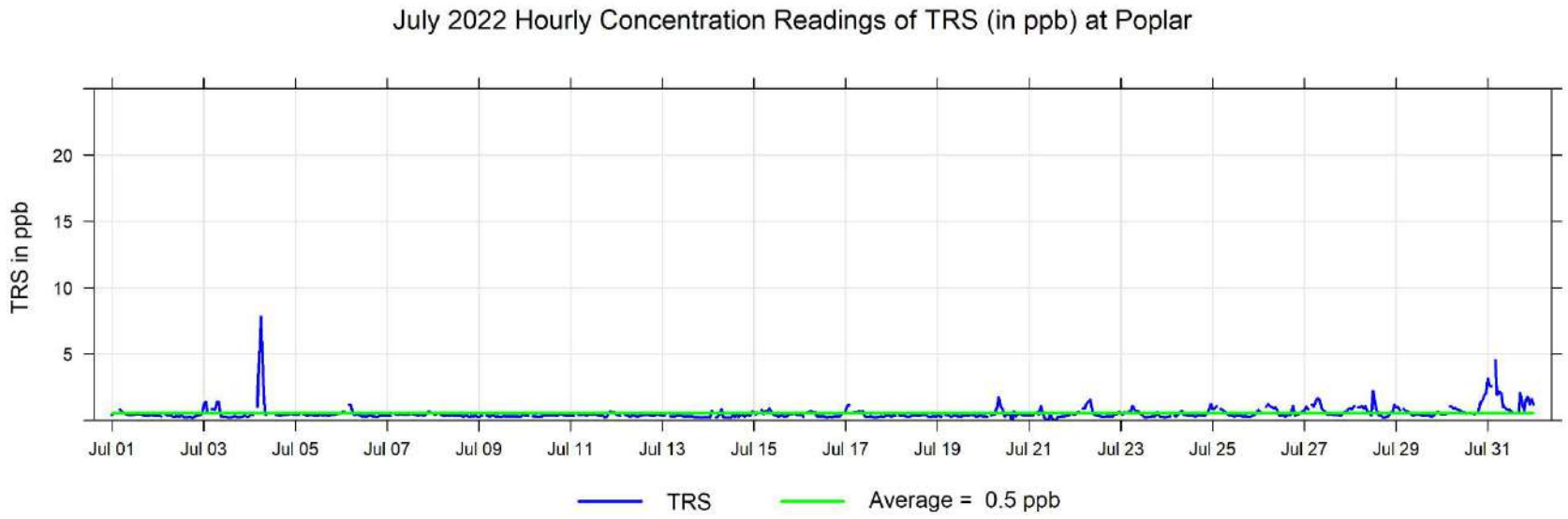

N
15%
10%
5%
W
E
S
mean = 8.8
calm = 4.2%
0.5 to 1
1 to 5
5 to 11
11 to 19
19 to 28
>28
Donnelly July 2022 Wind Rose, wind speed in km/hr
Frequency of counts by wind direction (%)

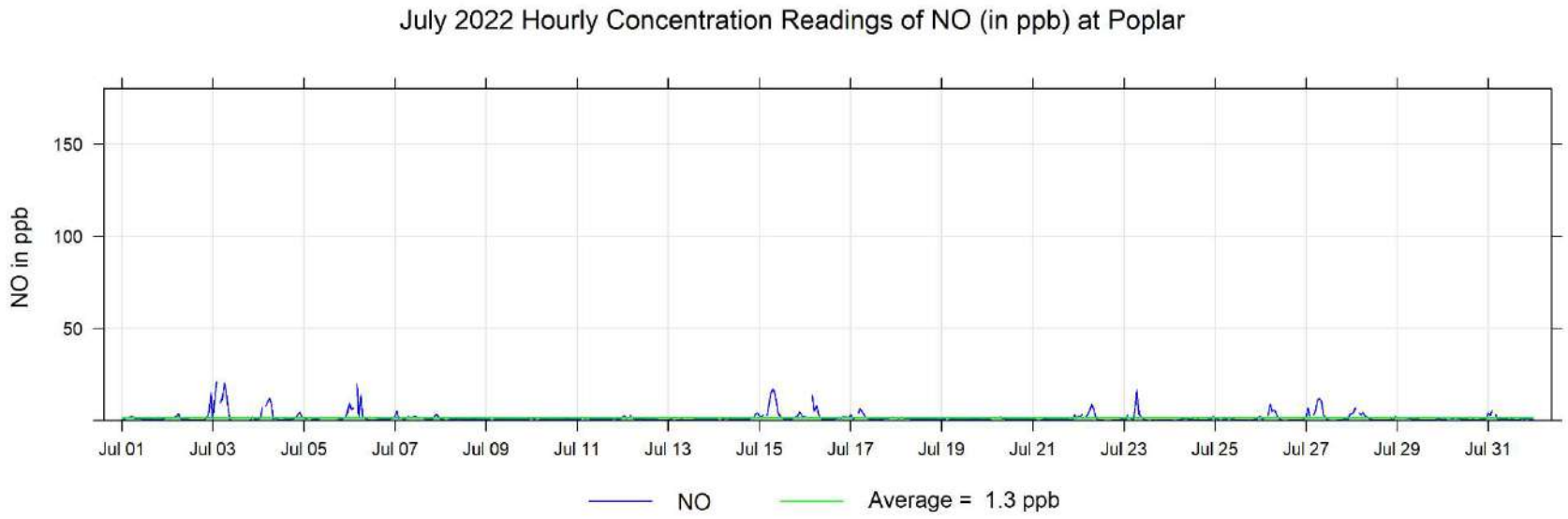
8 Poplar (Portable) Charts

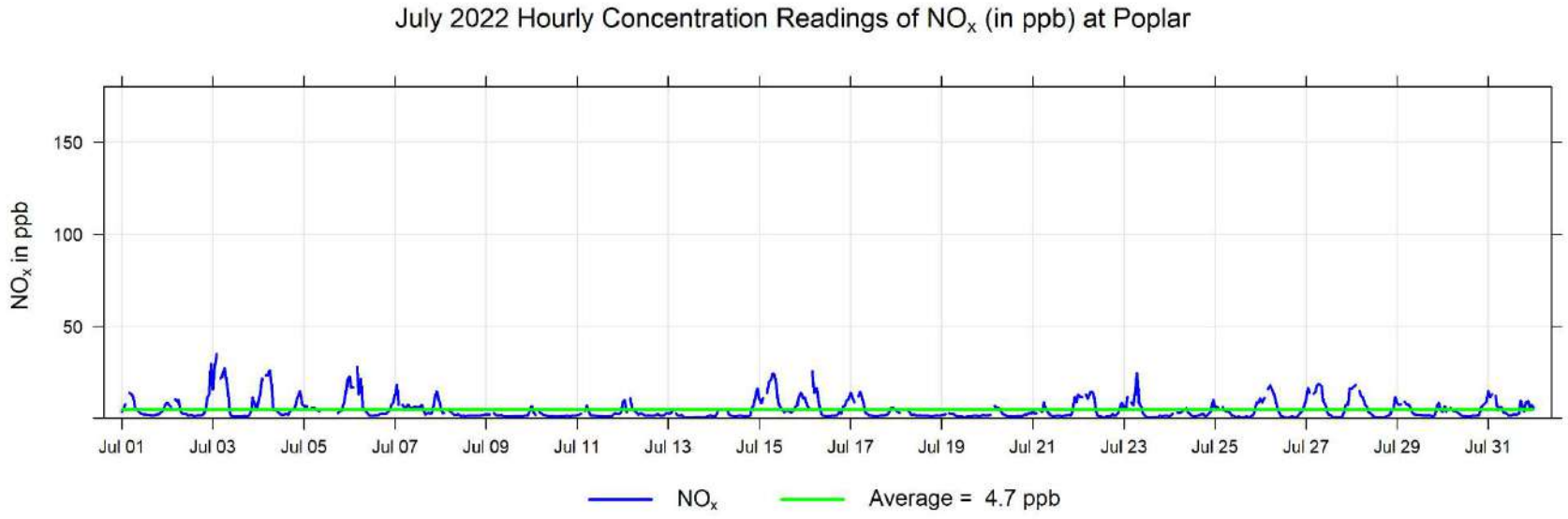
The following pages include the charts and histograms for Poplar Portable Station

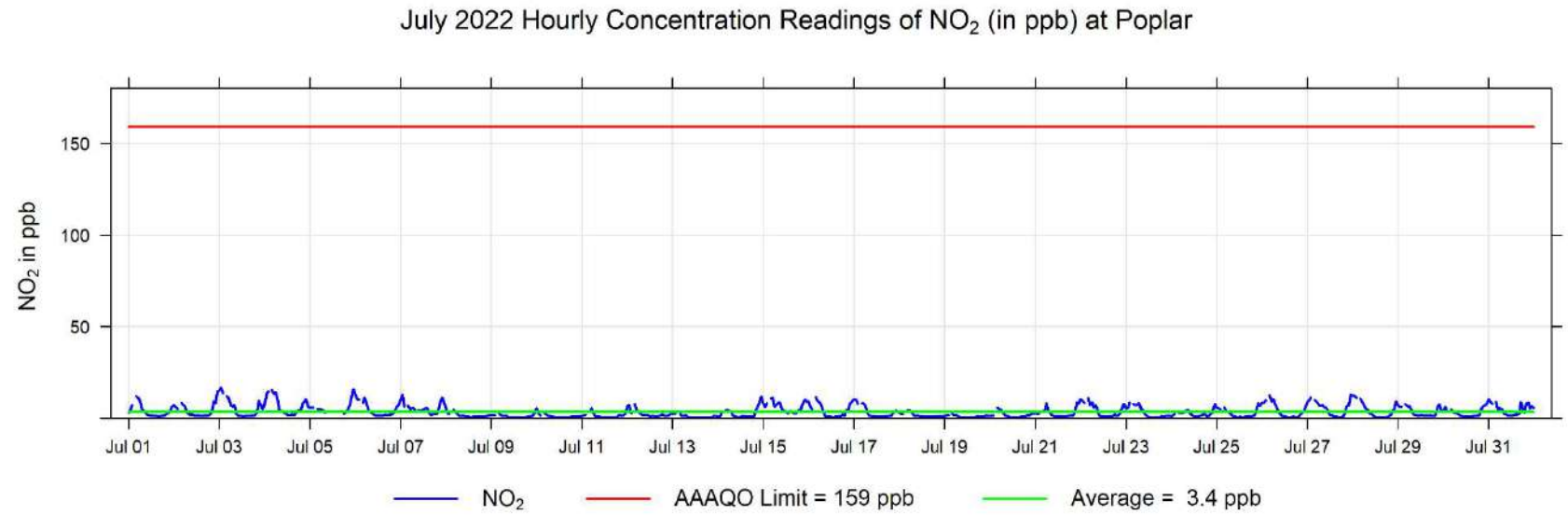

July 2022 Hourly Concentration Readings of SO_2 (in ppb) at Poplar
SO_2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
SO_2
AAAQO Limit = 172 ppb
Average = 0.9 ppb

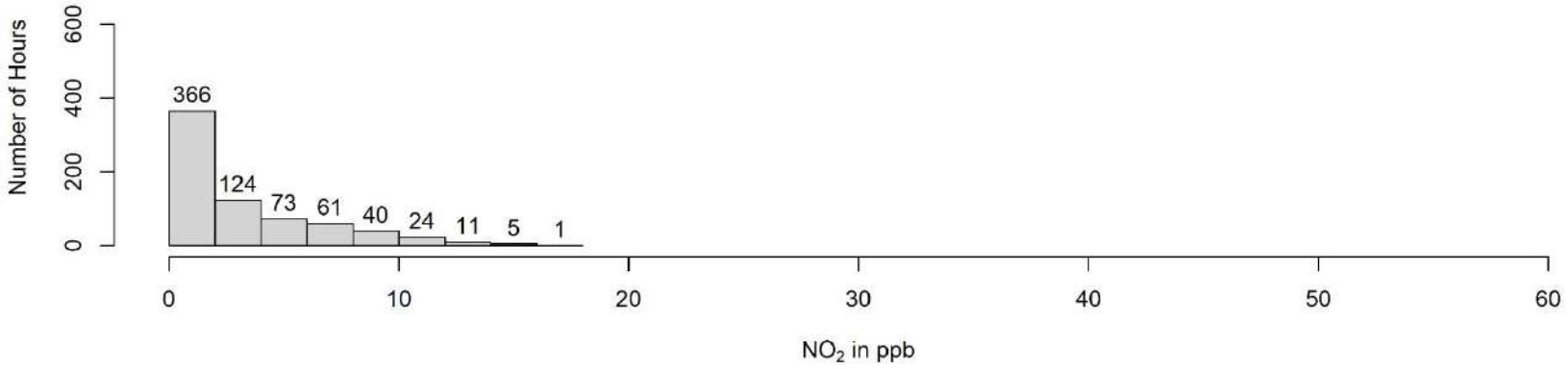

Number of Hours
0
200
400
600
692
11
5
0
0
1
0
0
0
0
1
0
10
20
30
40
50
60
SO_2 in ppb

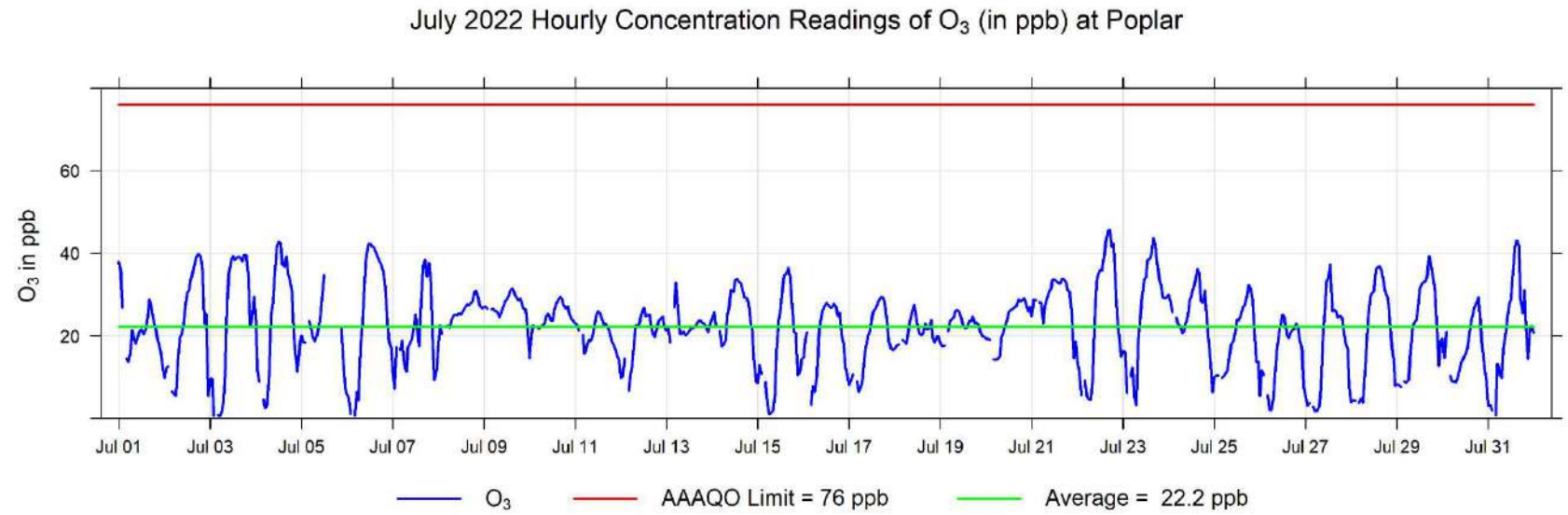

July 2022 Hourly Concentration Readings of TRS (in ppb) at Poplar
TRS in ppb
20
15
10
5
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
TRS
Average = 0.5 ppb

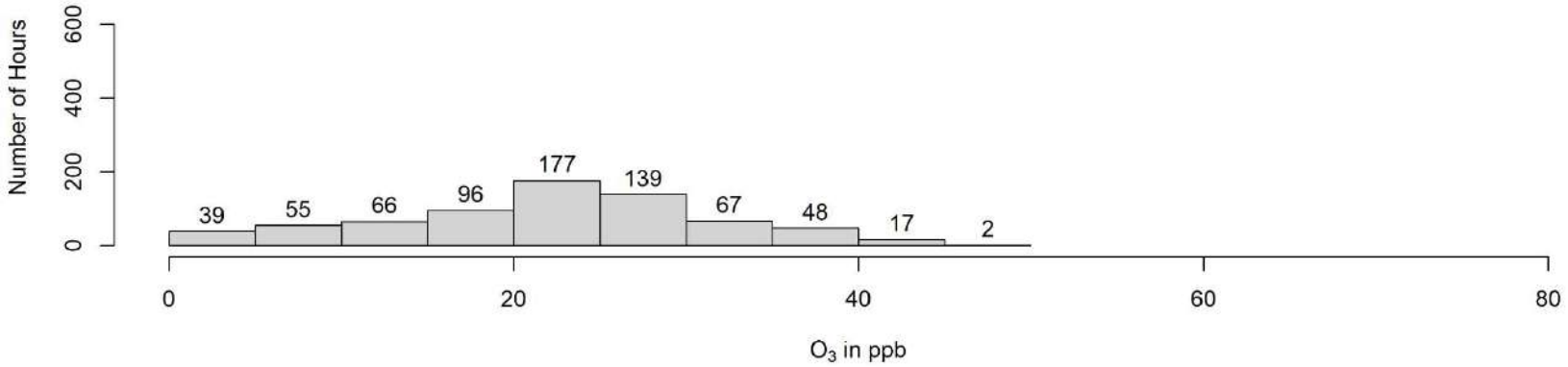

July 2022 Hourly Concentration Readings of NO (in ppb) at Poplar
NO in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO
Average = 1.3 ppb

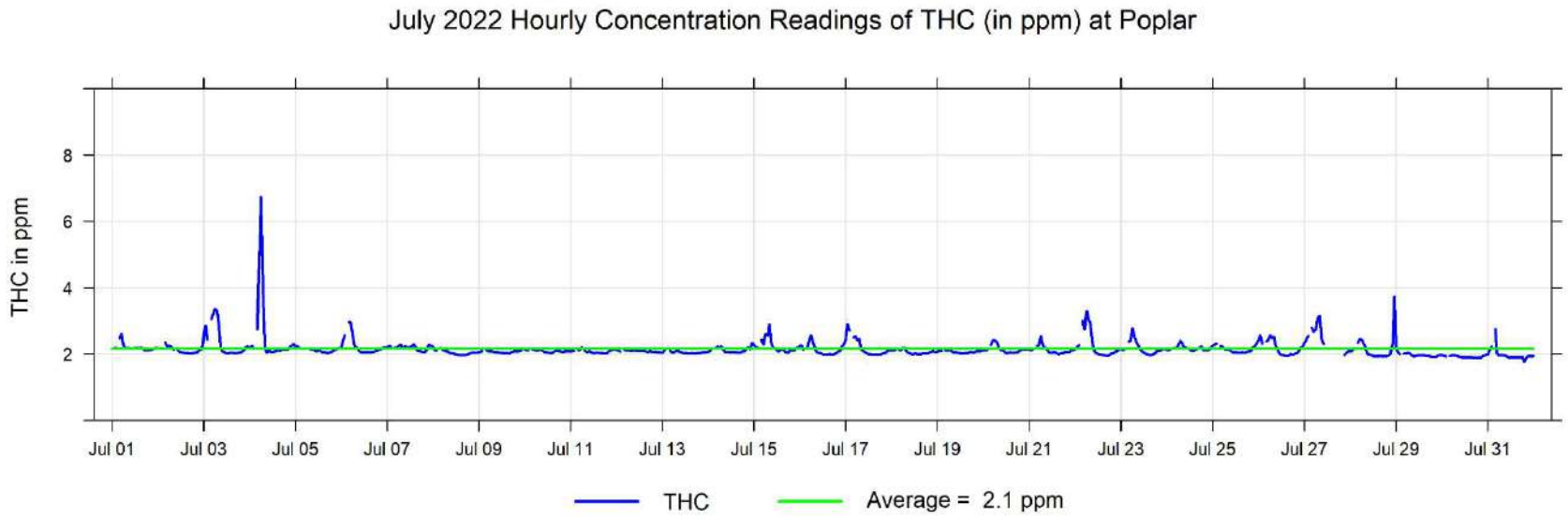

July 2022 Hourly Concentration Readings of NOx (in ppb) at Poplar
NOx in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NOx
Average = 4.7 ppb

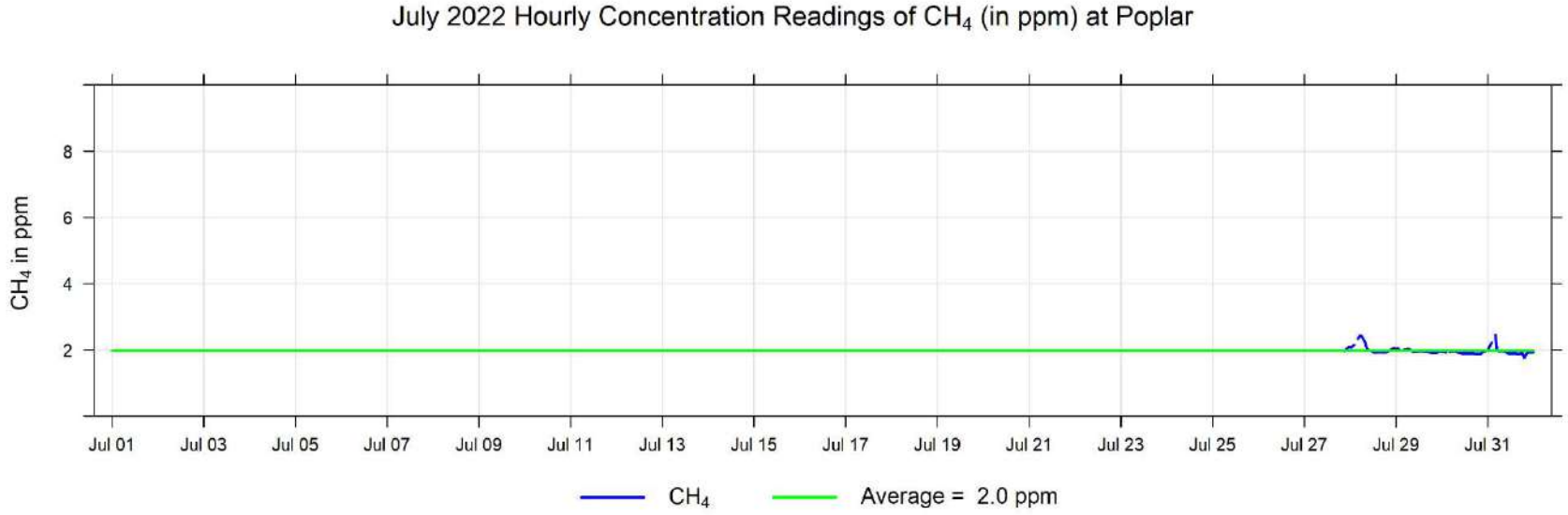

July 2022 Hourly Concentration Readings of NO2 (in ppb) at Poplar
NO2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO2
AAAQO Limit = 159 ppb
Average = 3.4 ppb

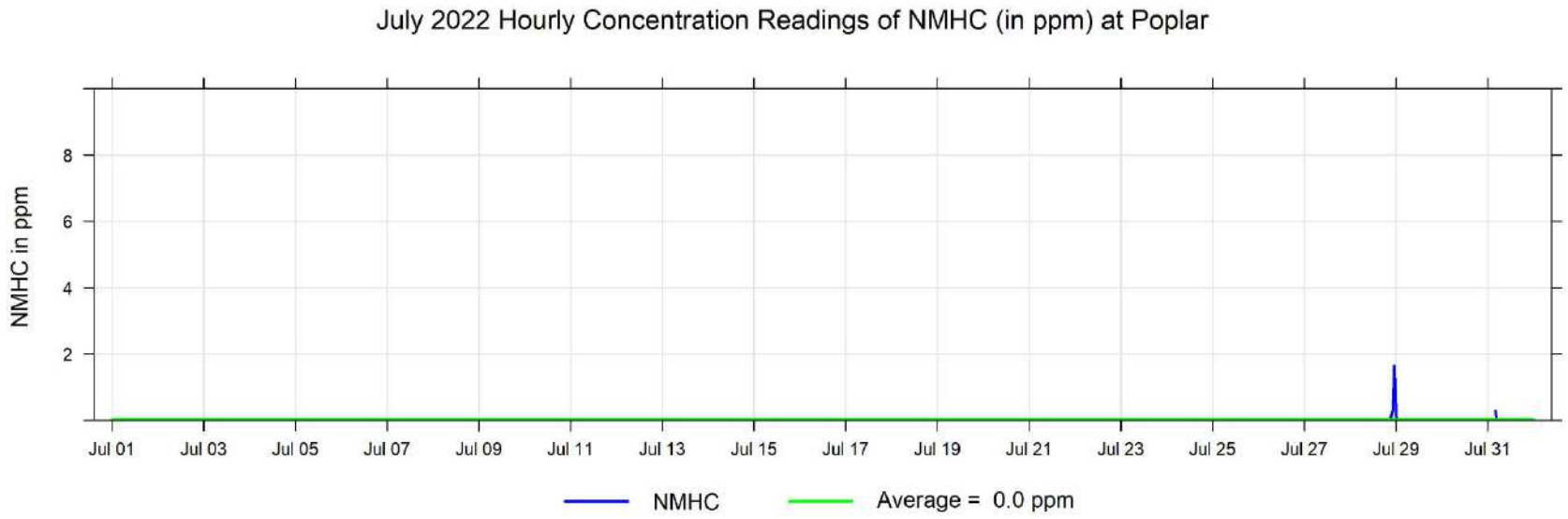

Number of Hours
0
200
400
600
366
124
73
61
40
24
11
5
1
0
10
20
30
40
50
60
NO2 in ppb

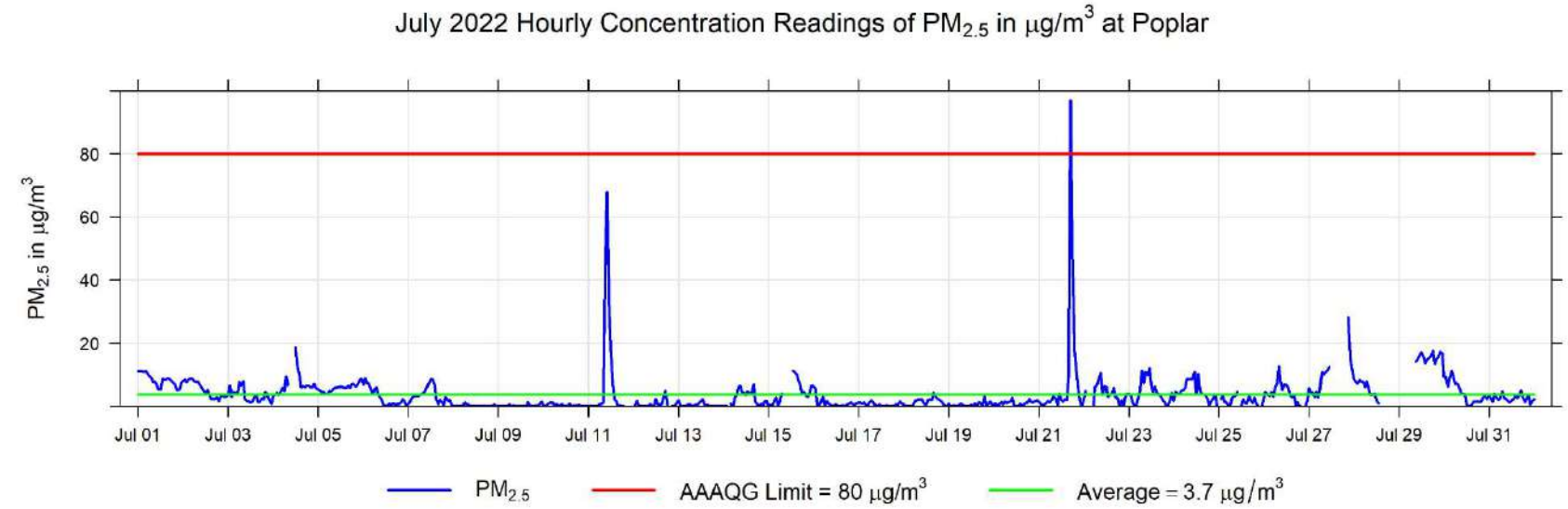

July 2022 Hourly Concentration Readings of O_3 (in ppb) at Poplar
O_3 in ppb
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
O_3
AAAQO Limit = 76 ppb
Average = 22.2 ppb

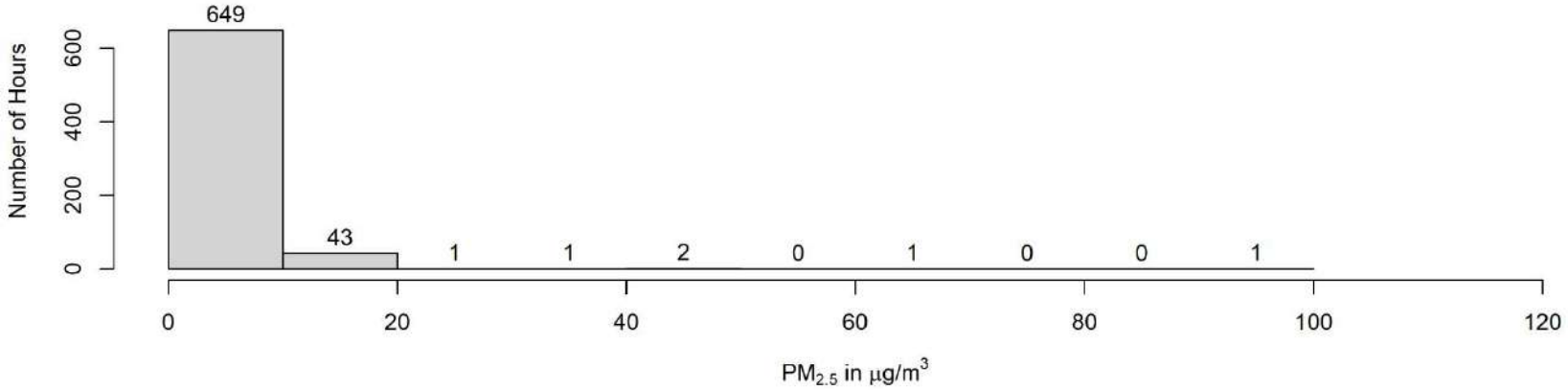

Number of Hours
0
200
400
600
39
55
66
96
177
139
67
48
17
2
0
20
40
60
80
O_3 in ppb

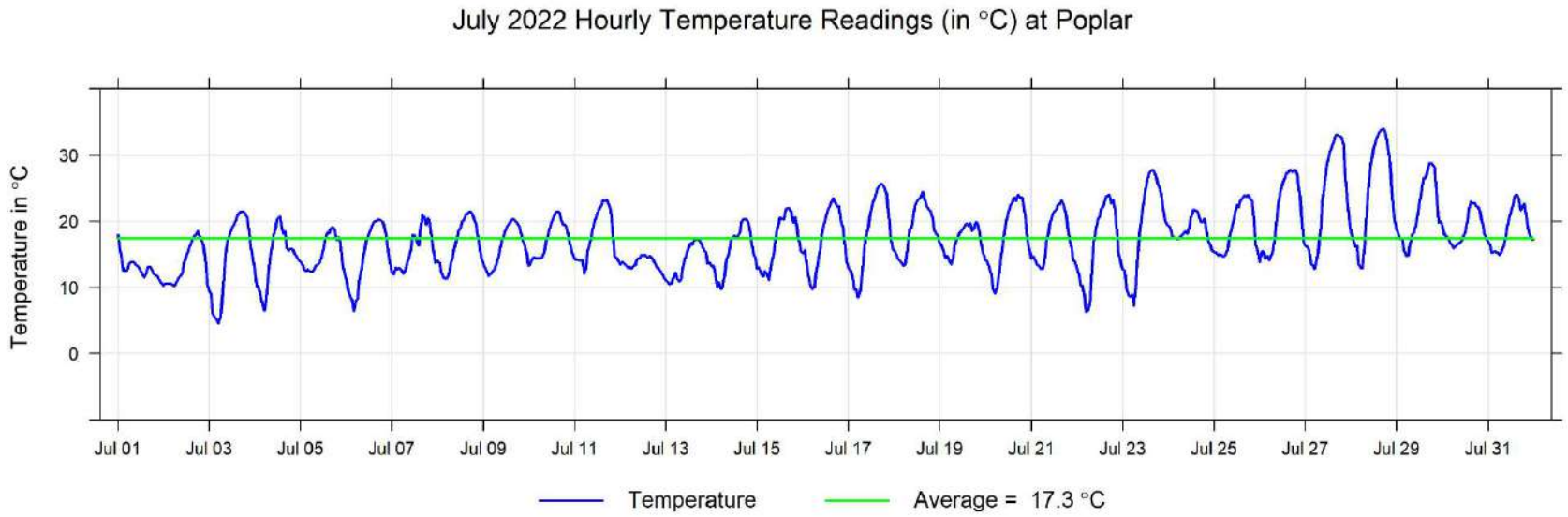

July 2022 Hourly Concentration Readings of THC (in ppm) at Poplar
THC in ppm
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
THC
Average = 2.1 ppm

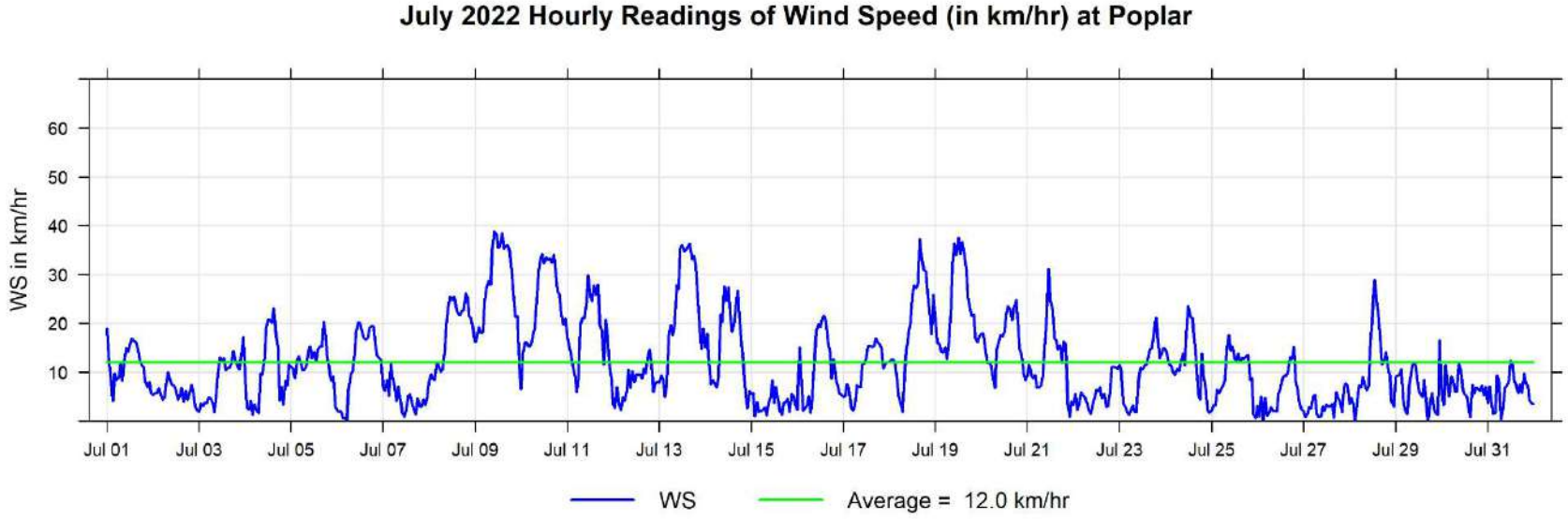

July 2022 Hourly Concentration Readings of CH4 (in ppm) at Poplar
CH4 in ppm
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
CH4
Average = 2.0 ppm

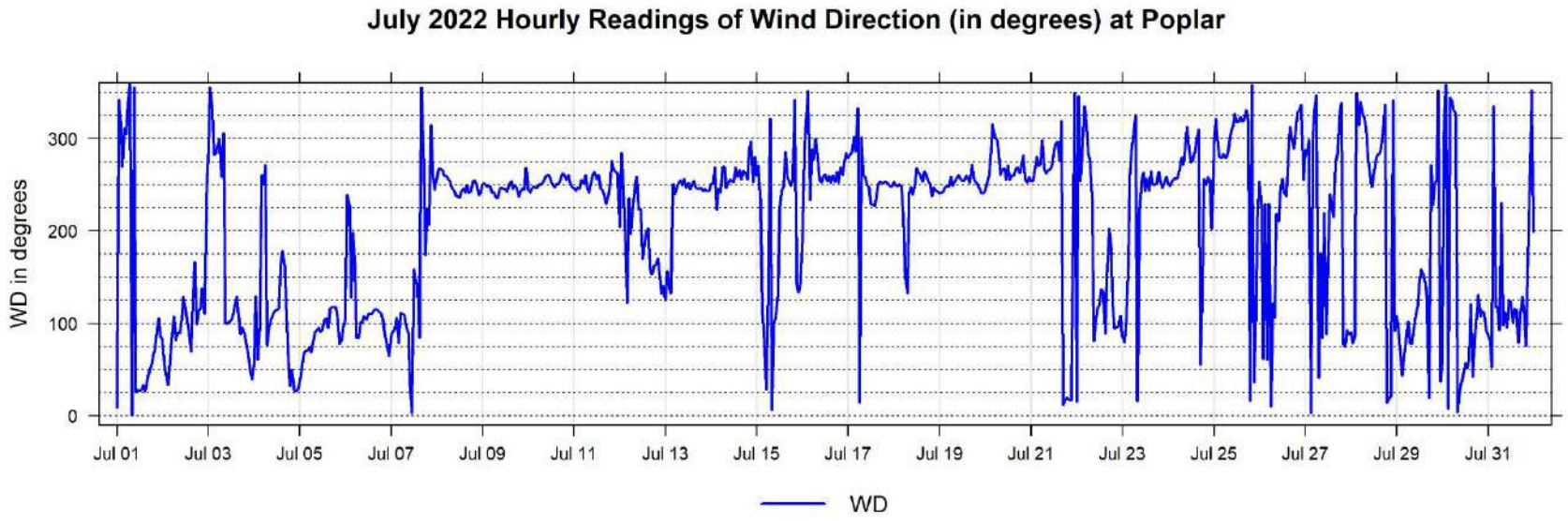

July 2022 Hourly Concentration Readings of NMHC (in ppm) at Poplar
NMHC in ppm
8
6
4
2
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NMHC
Average = 0.0 ppm

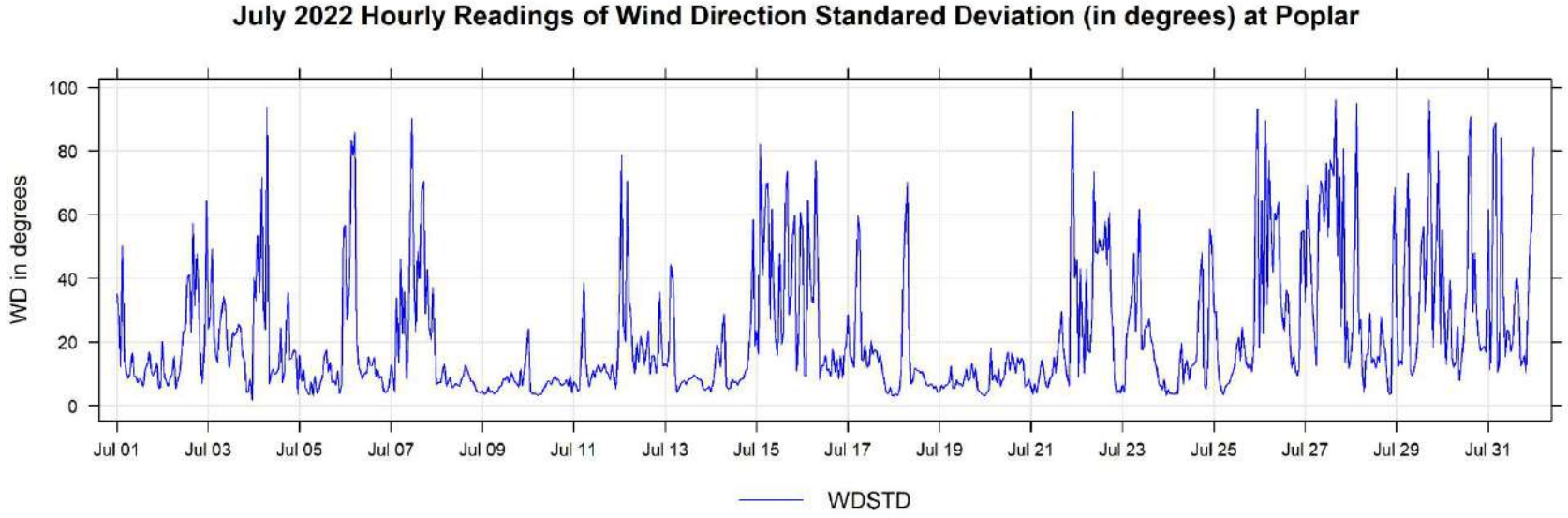

July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Poplar
PM2.5 in µg/m3
80
60
40
20
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 3.7 µg/m3

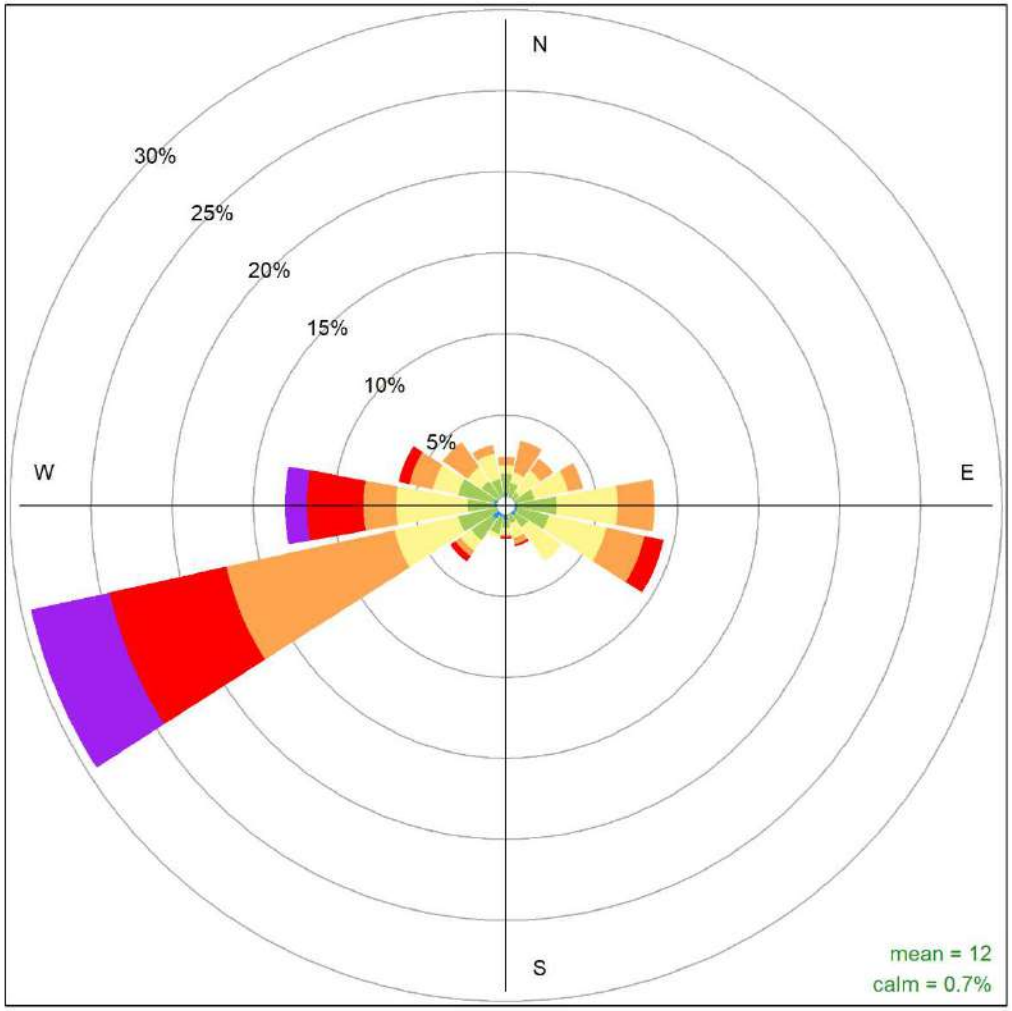

Number of Hours
0
200
400
600
649
43
1
1
2
0
1
0
0
1
0
20
40
60
80
100
120
PM2.5 in µg/m3


July 2022 Hourly Temperature Readings (in °C) at Poplar
Temperature in °C
30
20
10
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
Temperature
Average = 17.3 °C


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


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


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

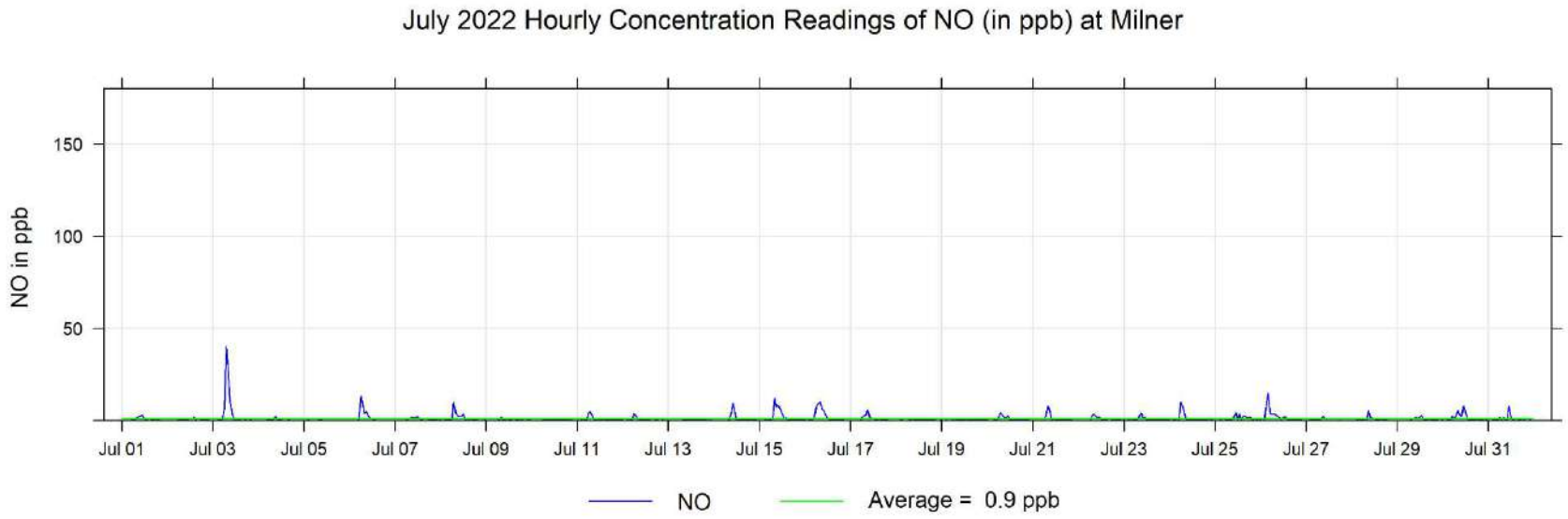


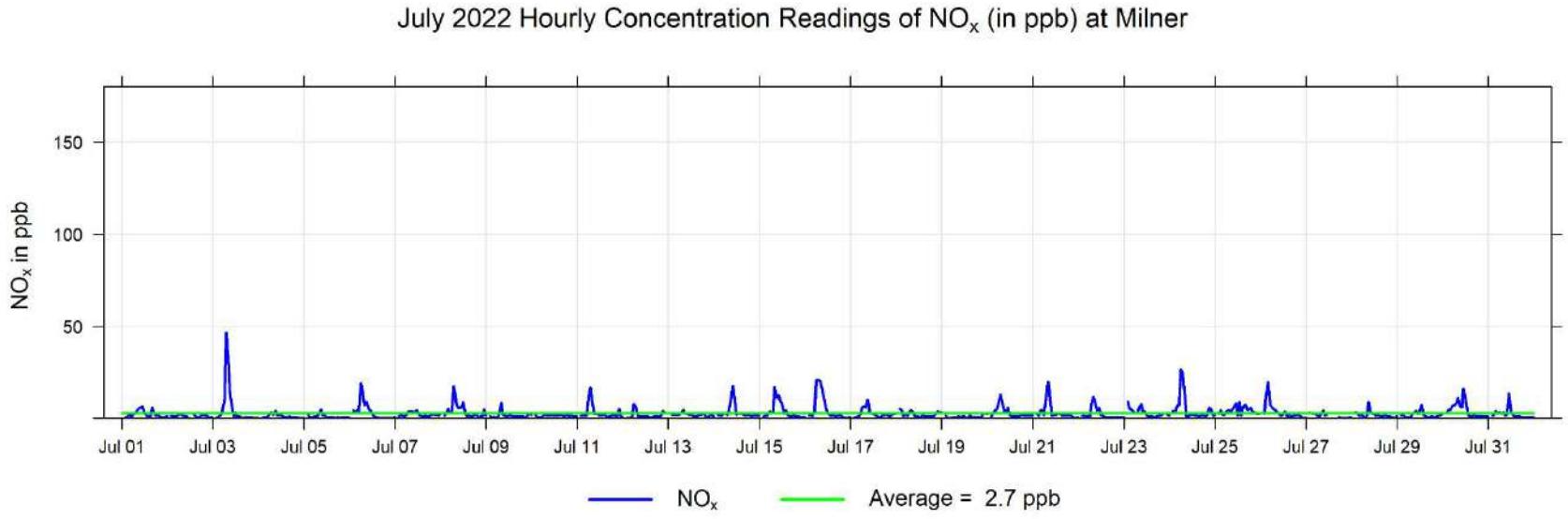
Poplar July 2022 Wind Rose, wind speed in km/hr

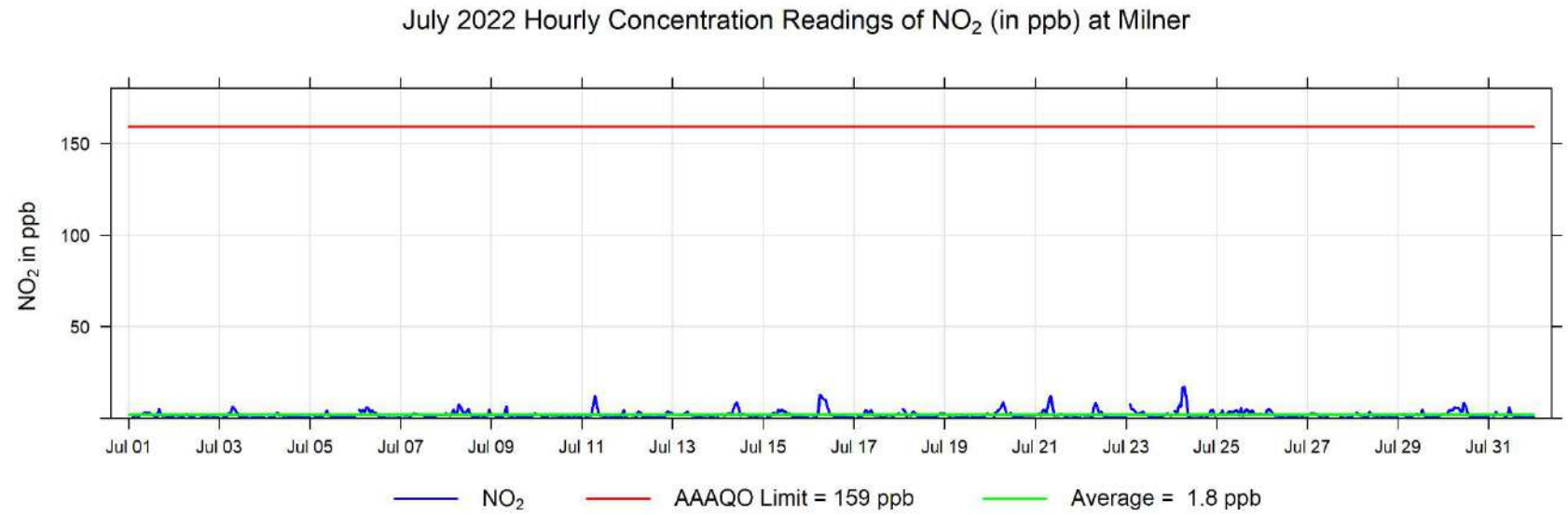
Frequency of counts by wind direction (%)

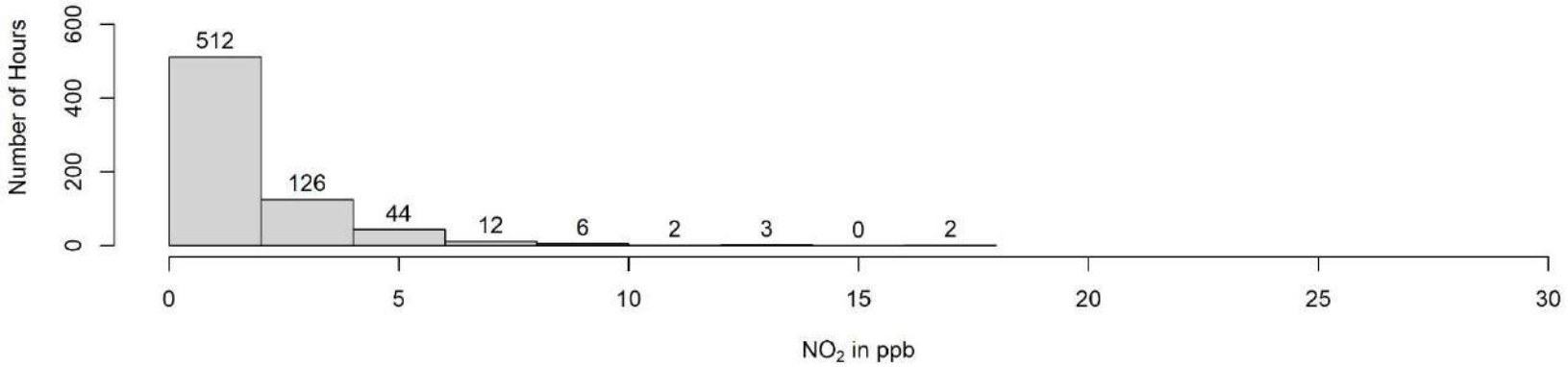
9 Milner Charts

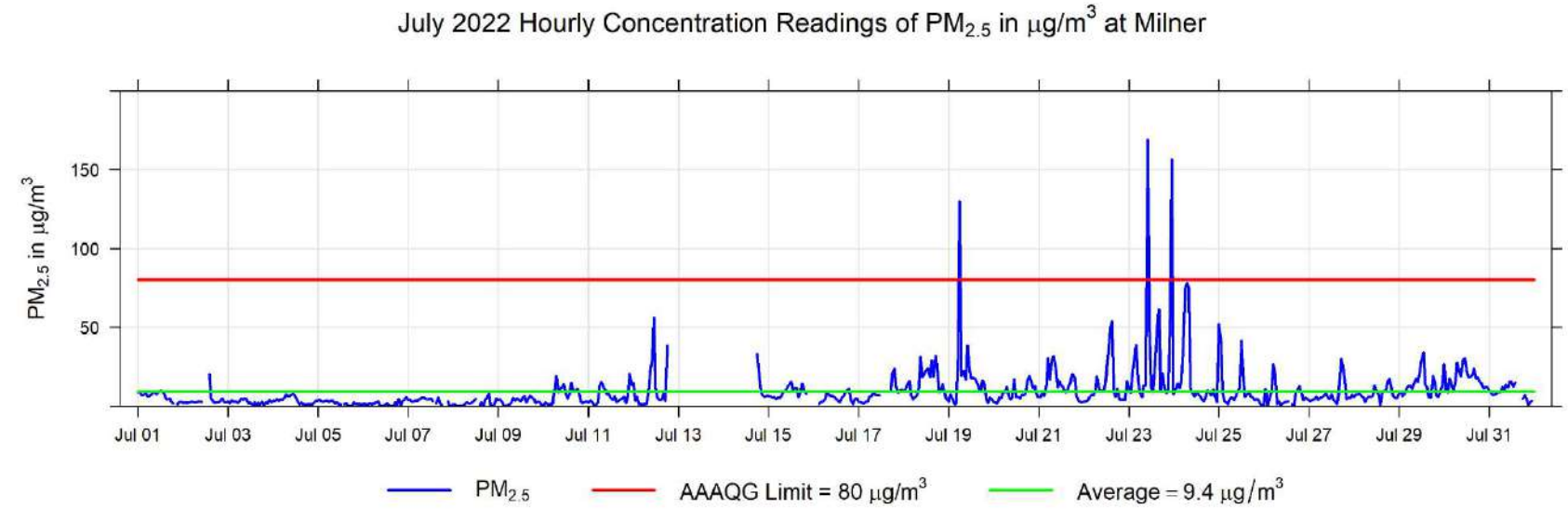
The following pages include the charts and histograms for Poplar Portable Station

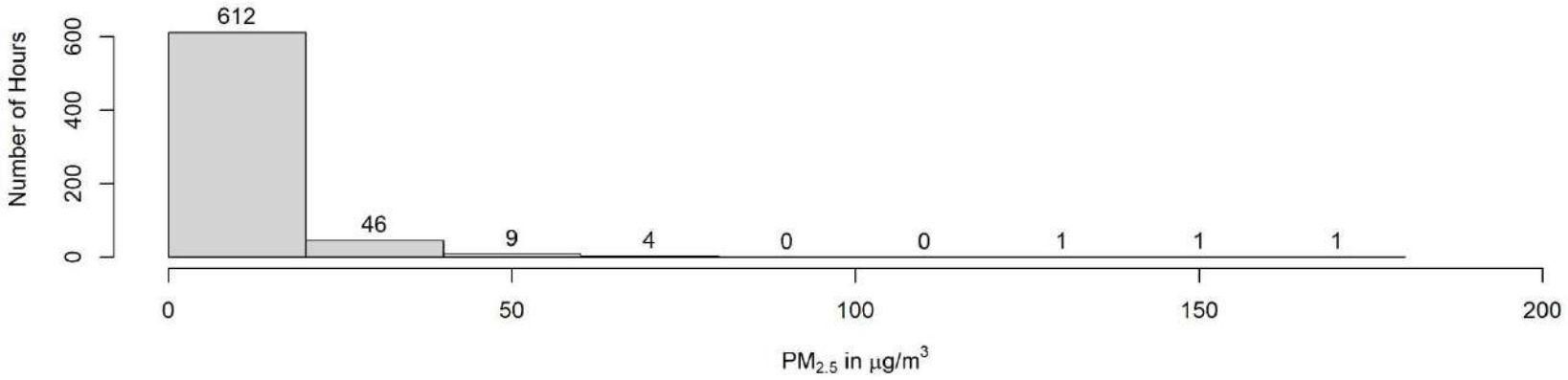

July 2022 Hourly Concentration Readings of NO (in ppb) at Milner
NO in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO
Average = 0.9 ppb

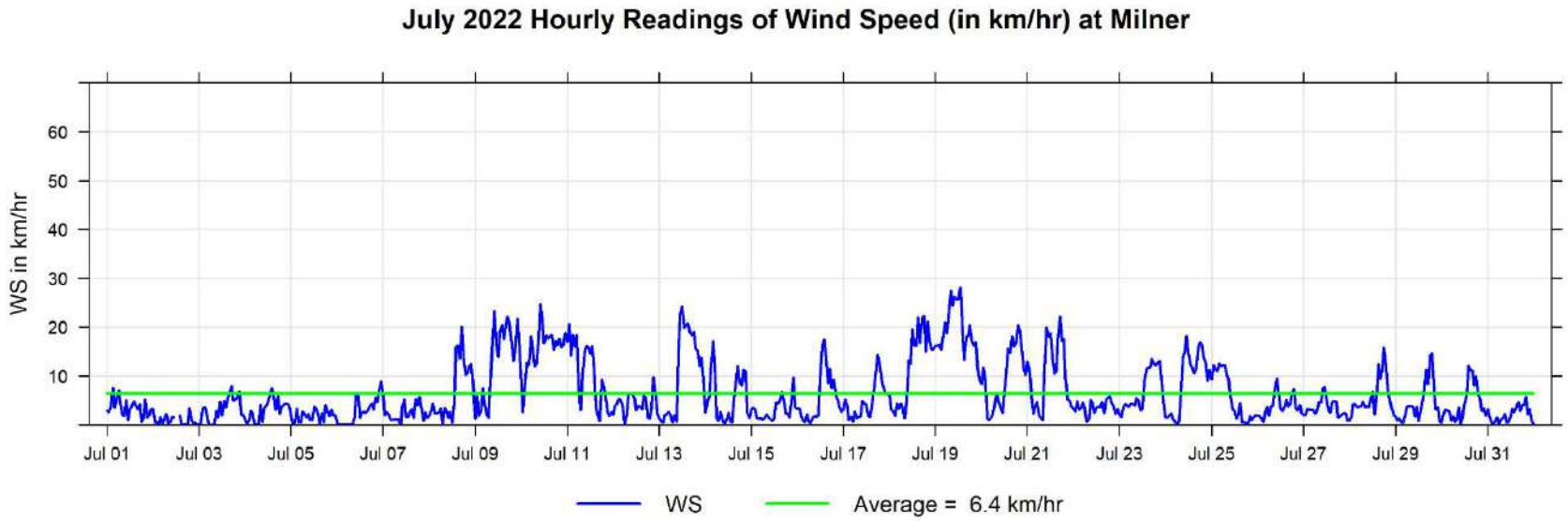

July 2022 Hourly Concentration Readings of NOx (in ppb) at Milner
NOx in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NOx
Average = 2.7 ppb

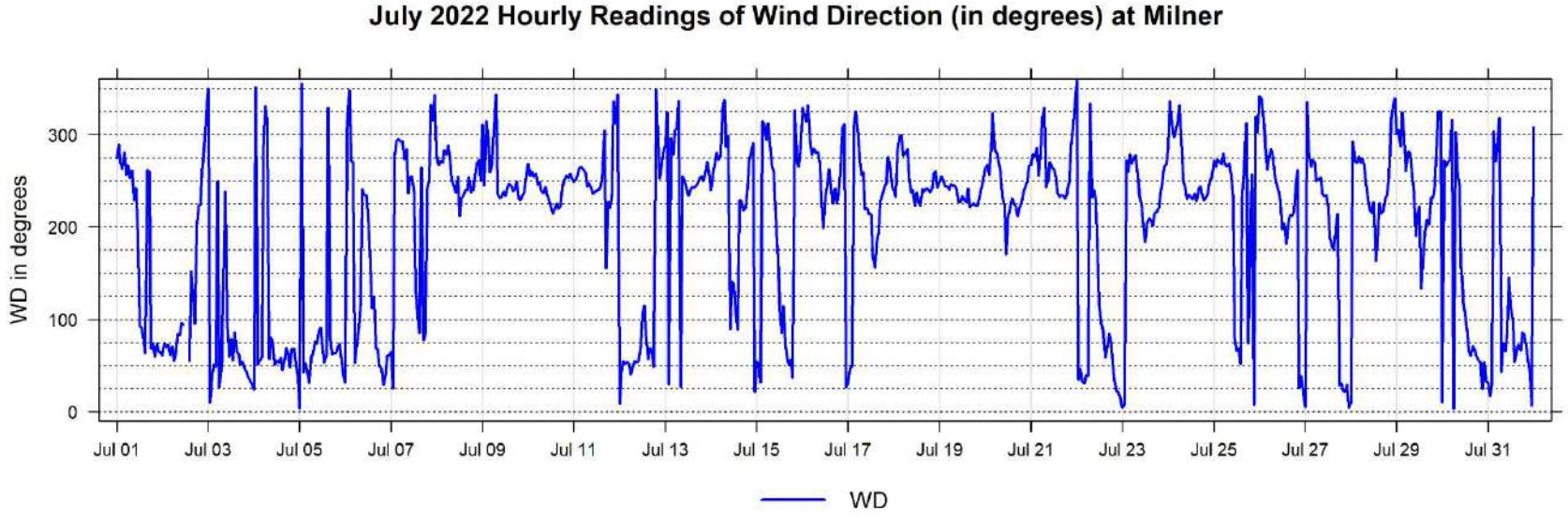

July 2022 Hourly Concentration Readings of NO2 (in ppb) at Milner
NO2 in ppb
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
NO2
AAAQO Limit = 159 ppb
Average = 1.8 ppb

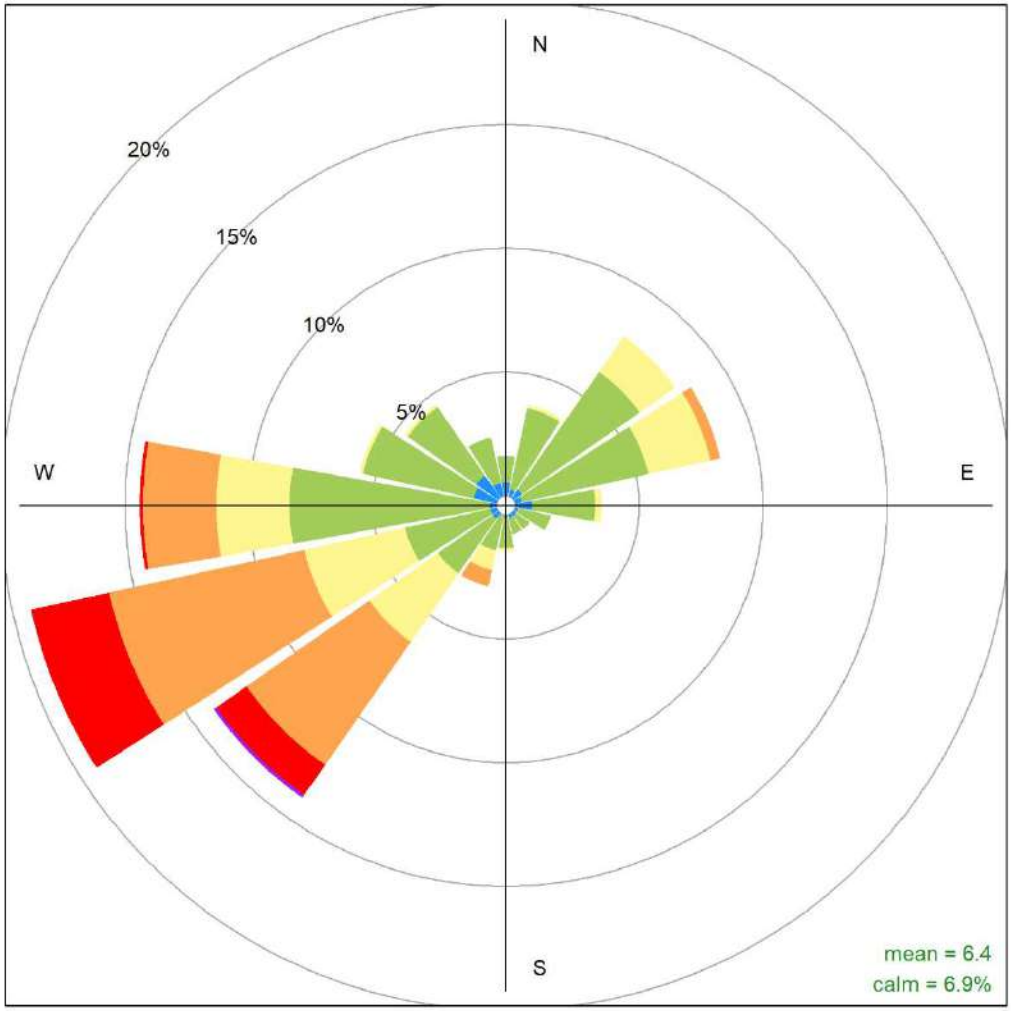

Number of Hours
0
200
400
600
512
126
44
12
6
2
3
0
2
0
5
10
15
20
25
30
NO2 in ppb


July 2022 Hourly Concentration Readings of PM2.5 in µg/m3 at Milner
PM2.5 in µg/m3
150
100
50
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
PM2.5
AAAQG Limit = 80 µg/m3
Average = 9.4 µg/m3


Number of Hours
0
200
400
600
612
46
9
4
0
0
1
1
1
0
50
100
150
200
PM2.5 in µg/m3


July 2022 Hourly Readings of Wind Speed (in km/hr) at Milner
WS in km/hr
60
50
40
30
20
10
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WS
Average = 6.4 km/hr

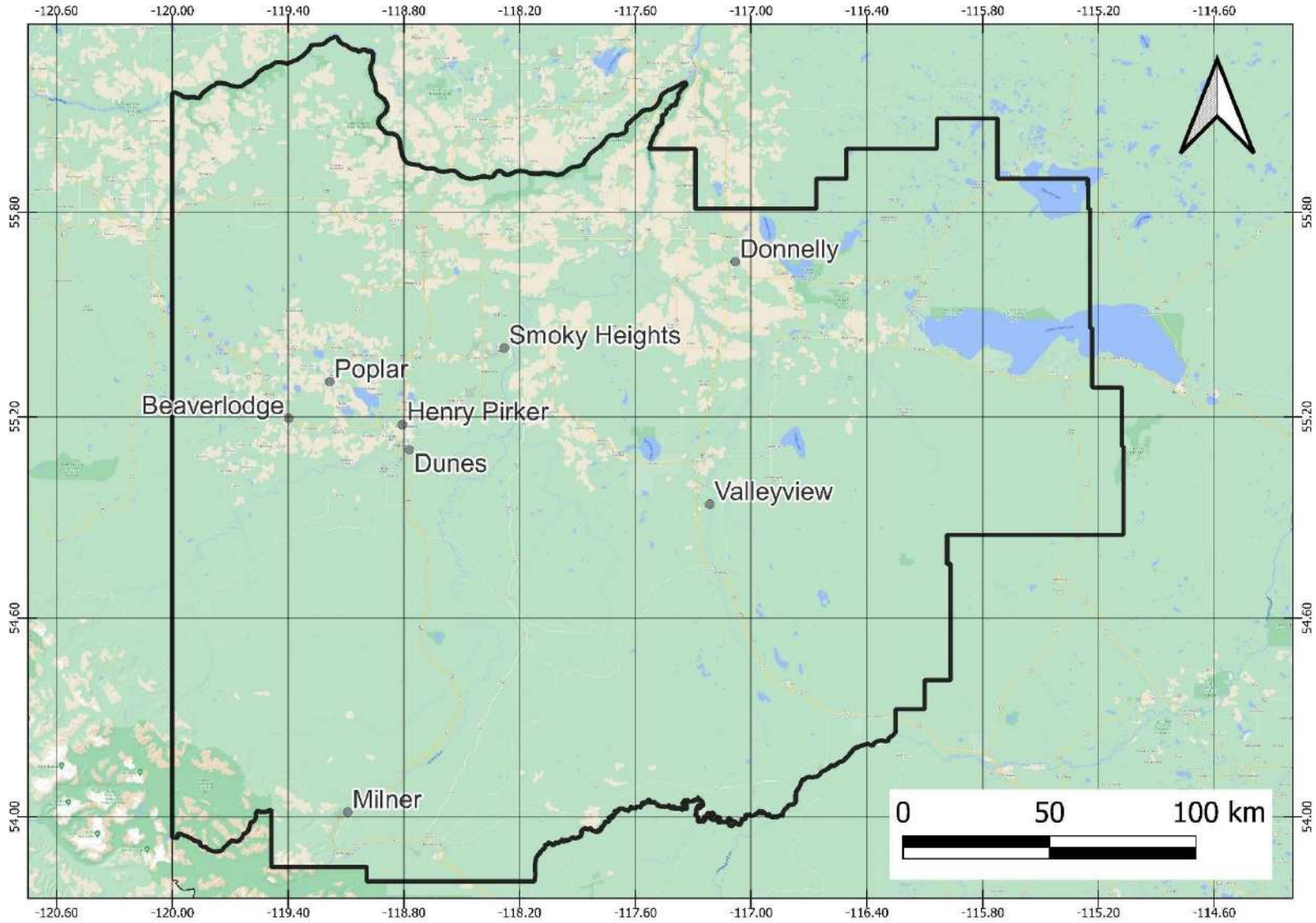

July 2022 Hourly Readings of Wind Direction (in degrees) at Milner
WD in degrees
300
200
100
0
Jul 01
Jul 03
Jul 05
Jul 07
Jul 09
Jul 11
Jul 13
Jul 15
Jul 17
Jul 19
Jul 21
Jul 23
Jul 25
Jul 27
Jul 29
Jul 31
WD



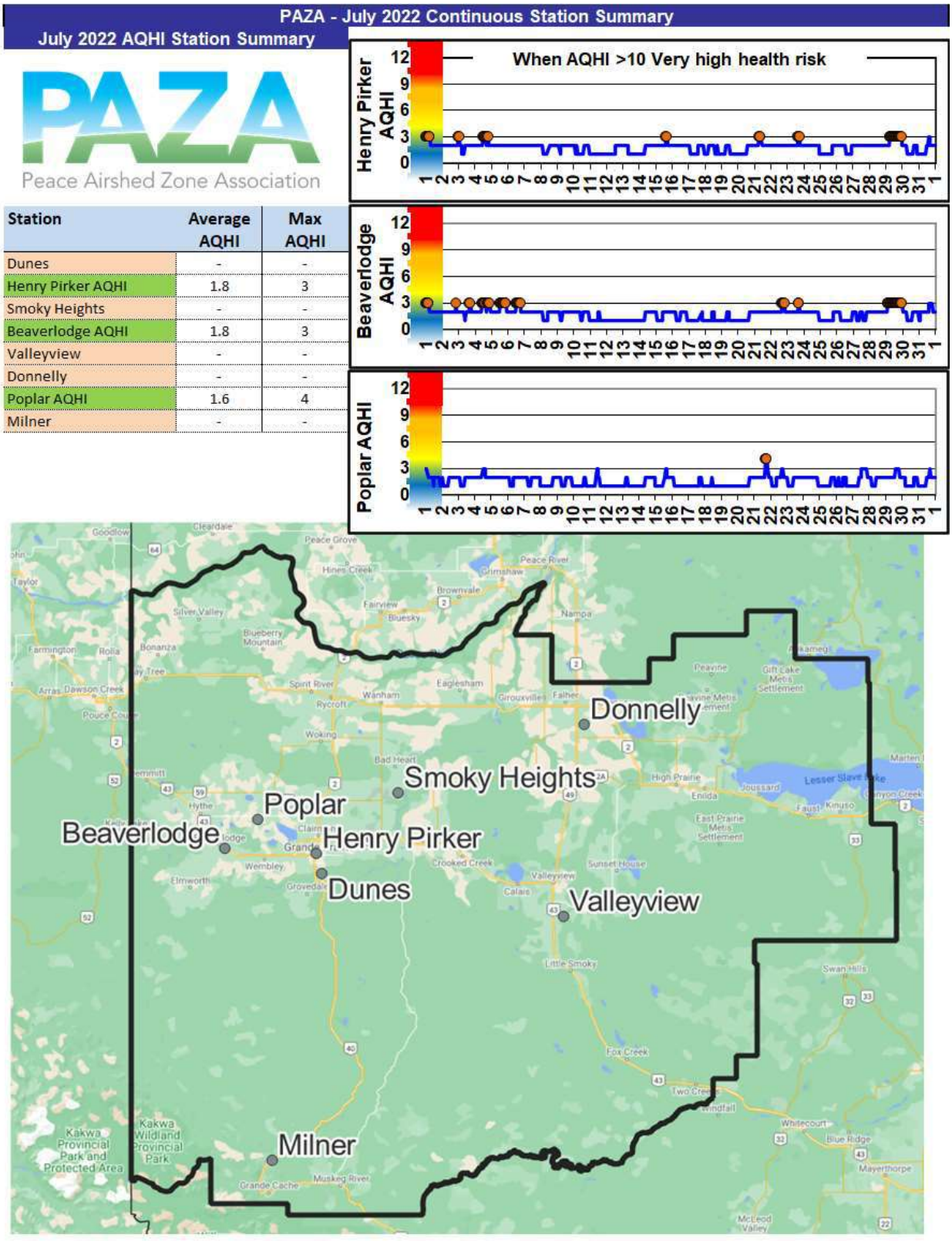
Milner July 2022 Wind Rose, wind speed in km/hr

Frequency of counts by wind direction (%)

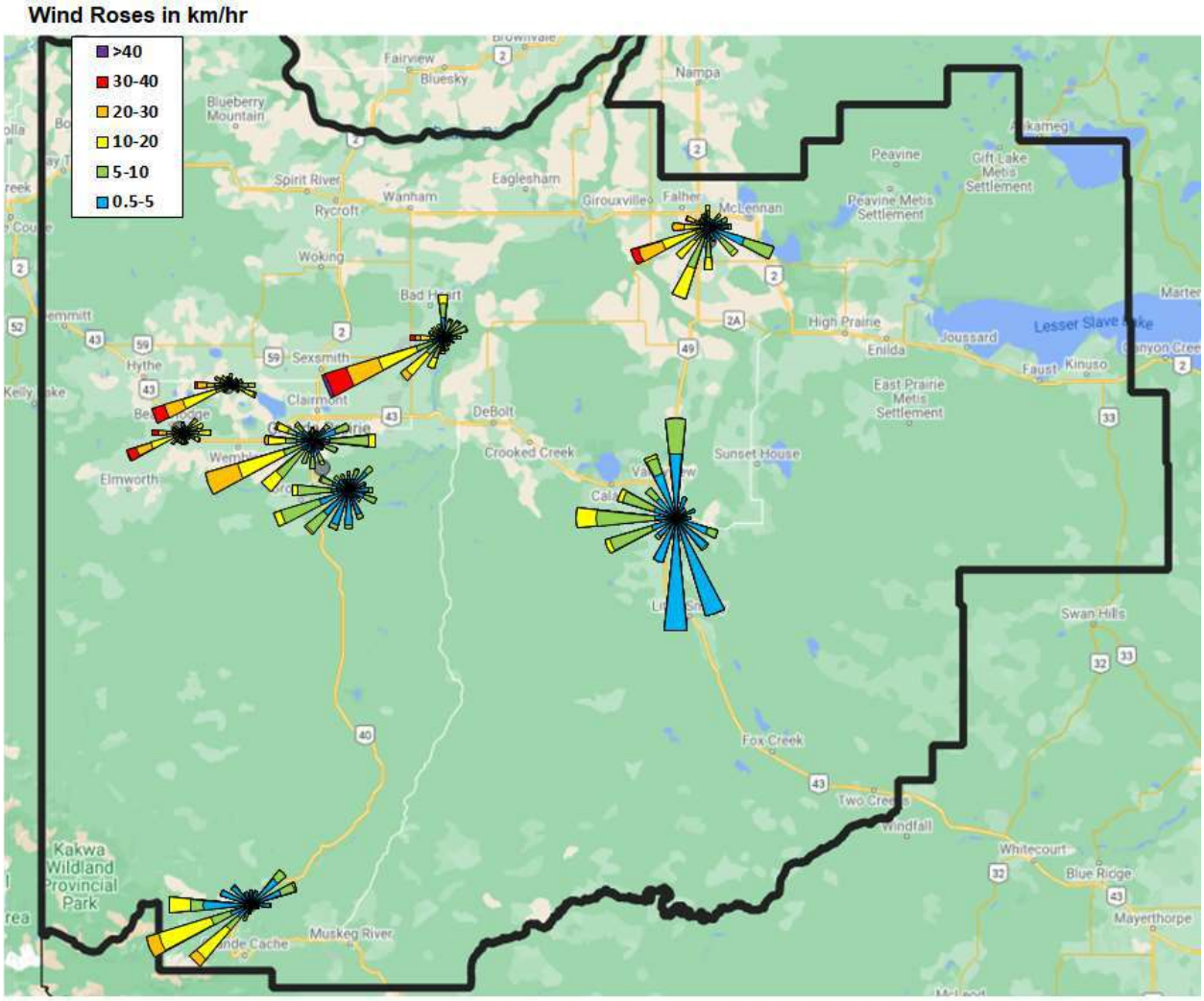
10 Concentration Summaries and Roses for PAZA



10.1 Air Quality Health Index (AQHI) Plots



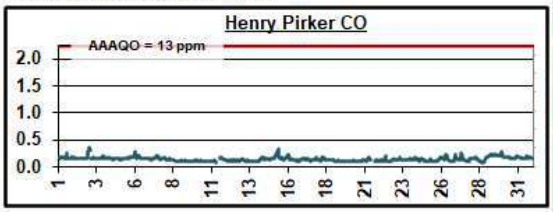
10.2 Wind Roses

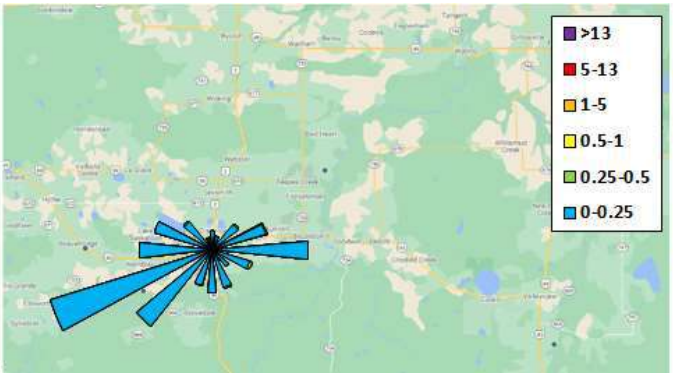


10.3 Carbon Monoxide (CO) Plots

July 2022 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.14	0.37

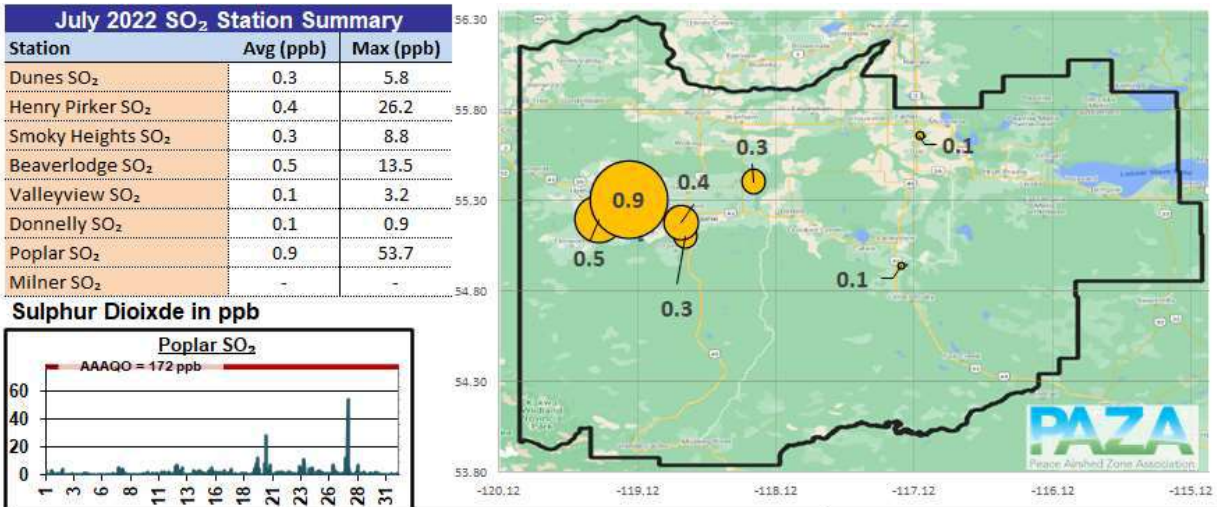
Carbon Monoxide in ppm

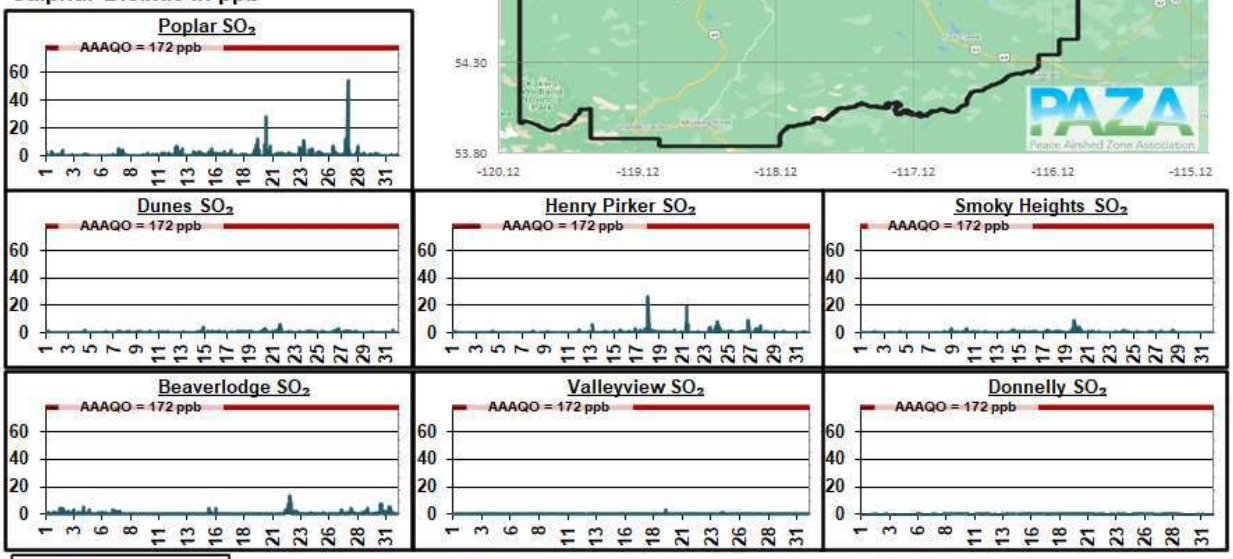


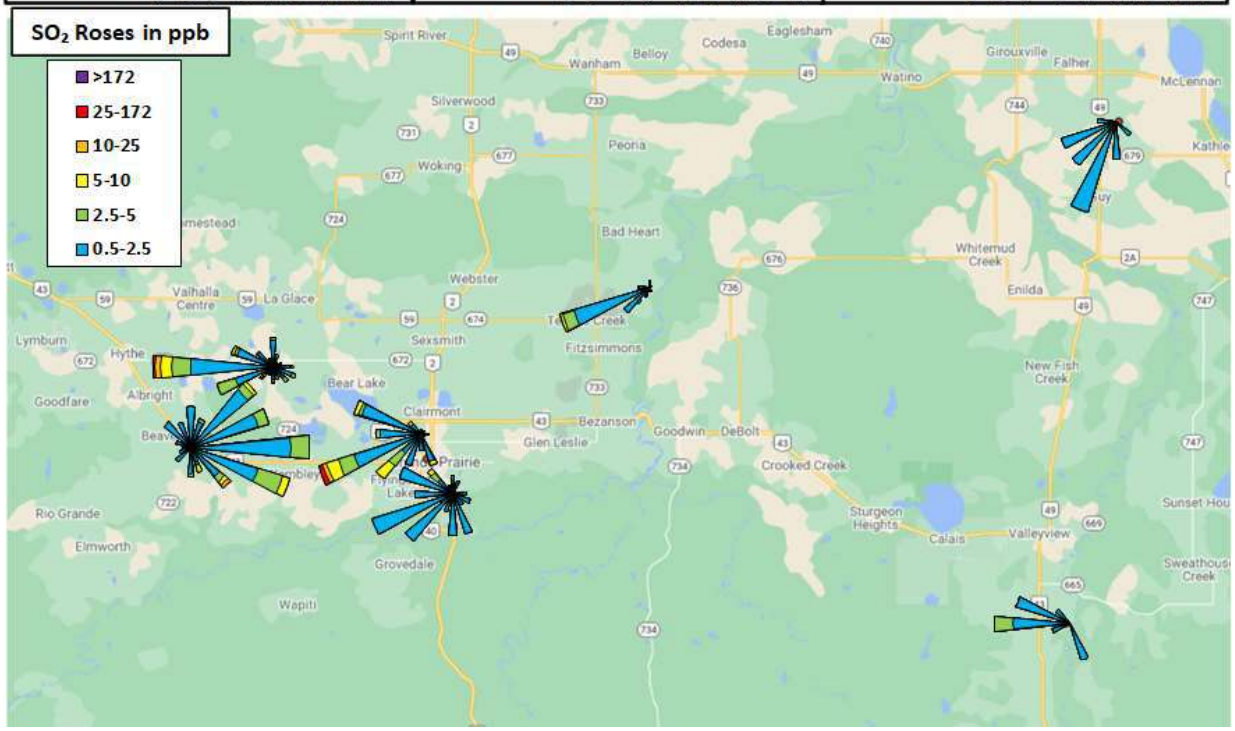


10.4 Sulphur Dioxide (SO_2) Plots

July 2022 SO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes SO_2	0.3	5.8
Henry Pirker SO_2	0.4	26.2
Smoky Heights SO_2	0.3	8.8
Beaverlodge SO_2	0.5	13.5
Valleyview SO_2	0.1	3.2
Donnelly SO_2	0.1	0.9
Poplar SO_2	0.9	53.7
Milner SO_2	-	-

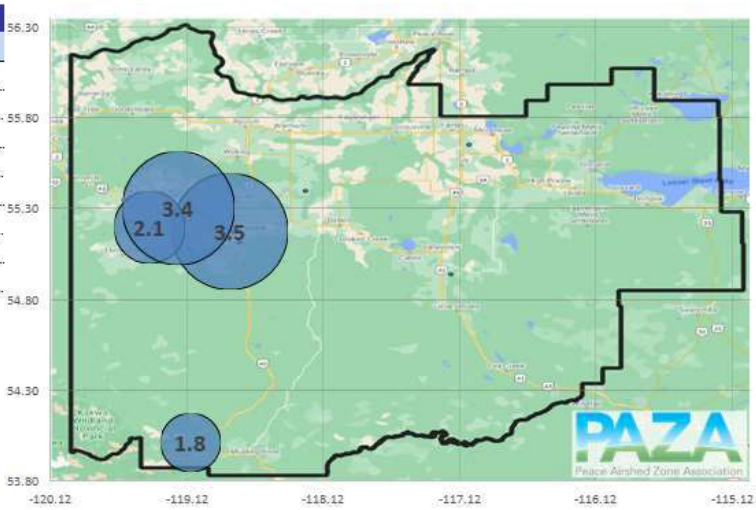


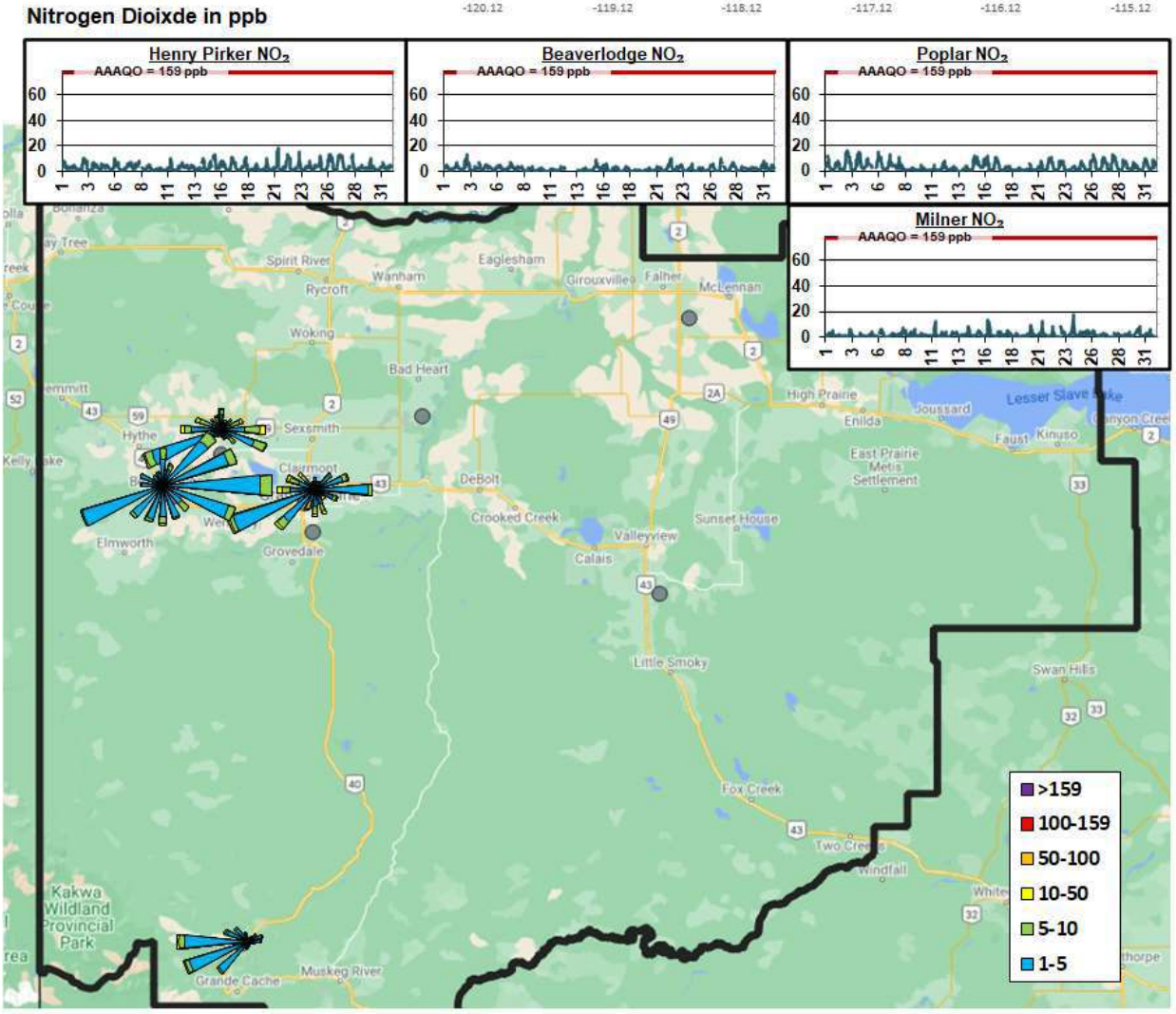




10.5 Nitrogen Dioxide (NO_2) Plots

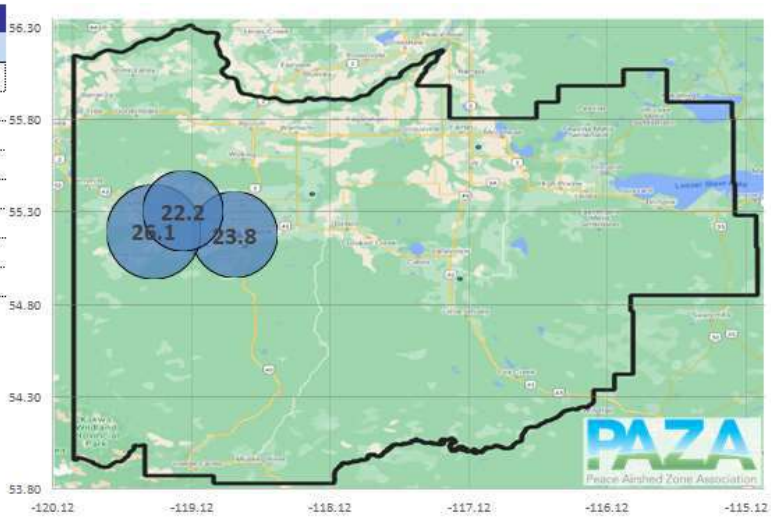
July 2022 NO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes NO_2	-	-
Henry Pirker NO_2	3.5	18.9
Smoky Heights NO_2	-	-
Beaverlodge NO_2	2.1	13.2
Valleyview NO_2	-	-
Donnelly NO_2	-	-
Poplar NO_2	3.4	16.6
Milner NO_2	1.8	17.0



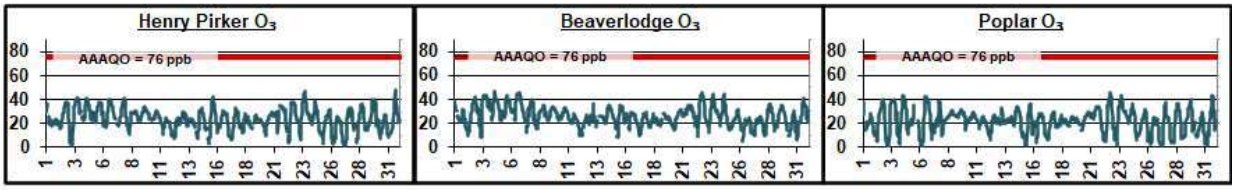


10.6 Ozone (O_3) Plots

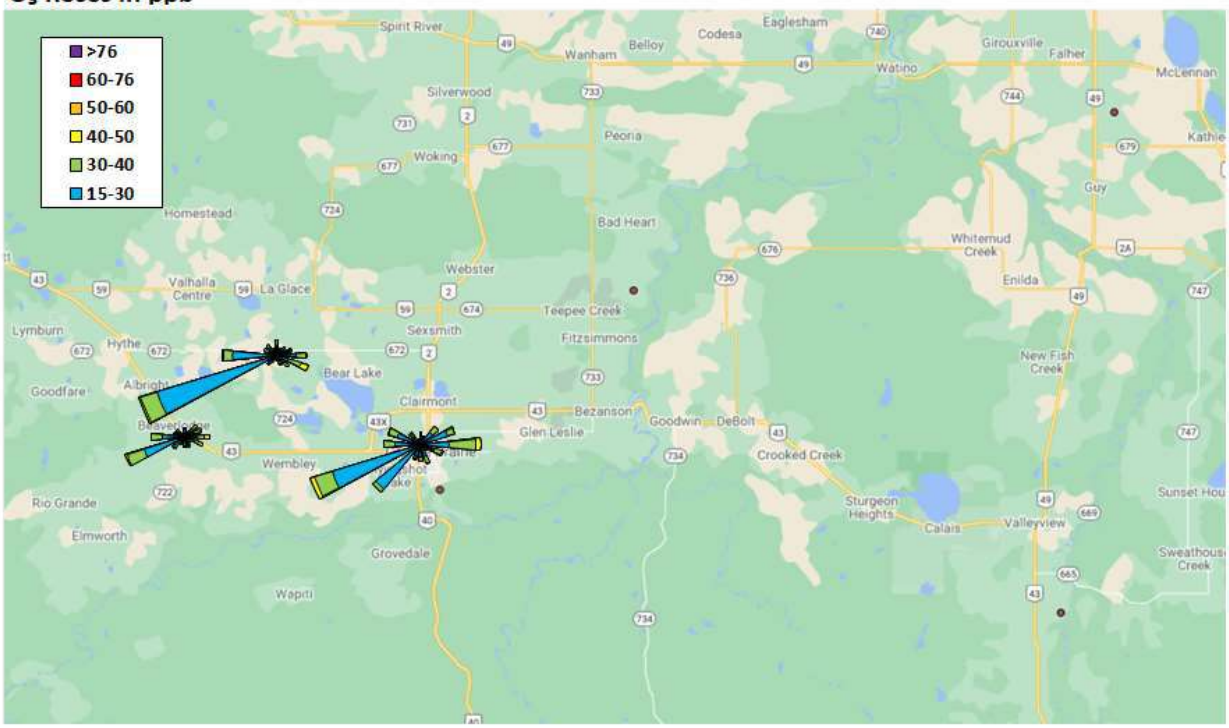
July 2022 O_3 Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes O_3	-	-
Henry Pirker O_3	23.8	48.2
Smoky Heights O_3	-	-
Beaverlodge O_3	26.1	47.1
Valleyview O_3	-	-
Donnelly O_3	-	-
Poplar O_3	22.2	45.7
Milner O_3	-	-



Ozone in ppb

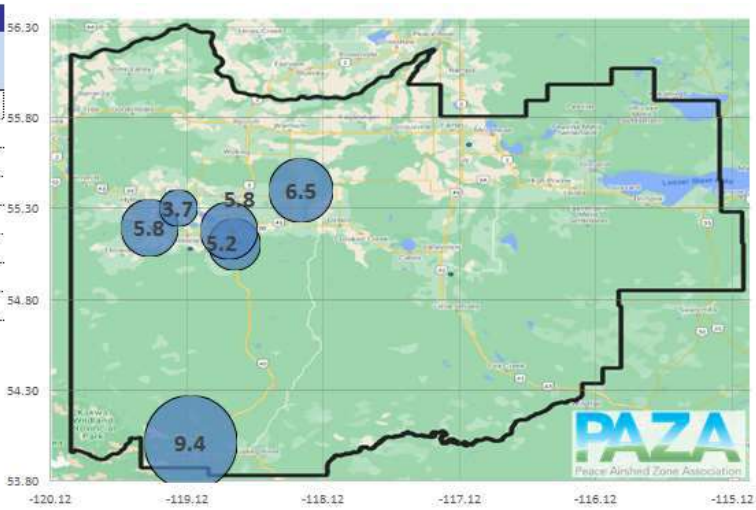


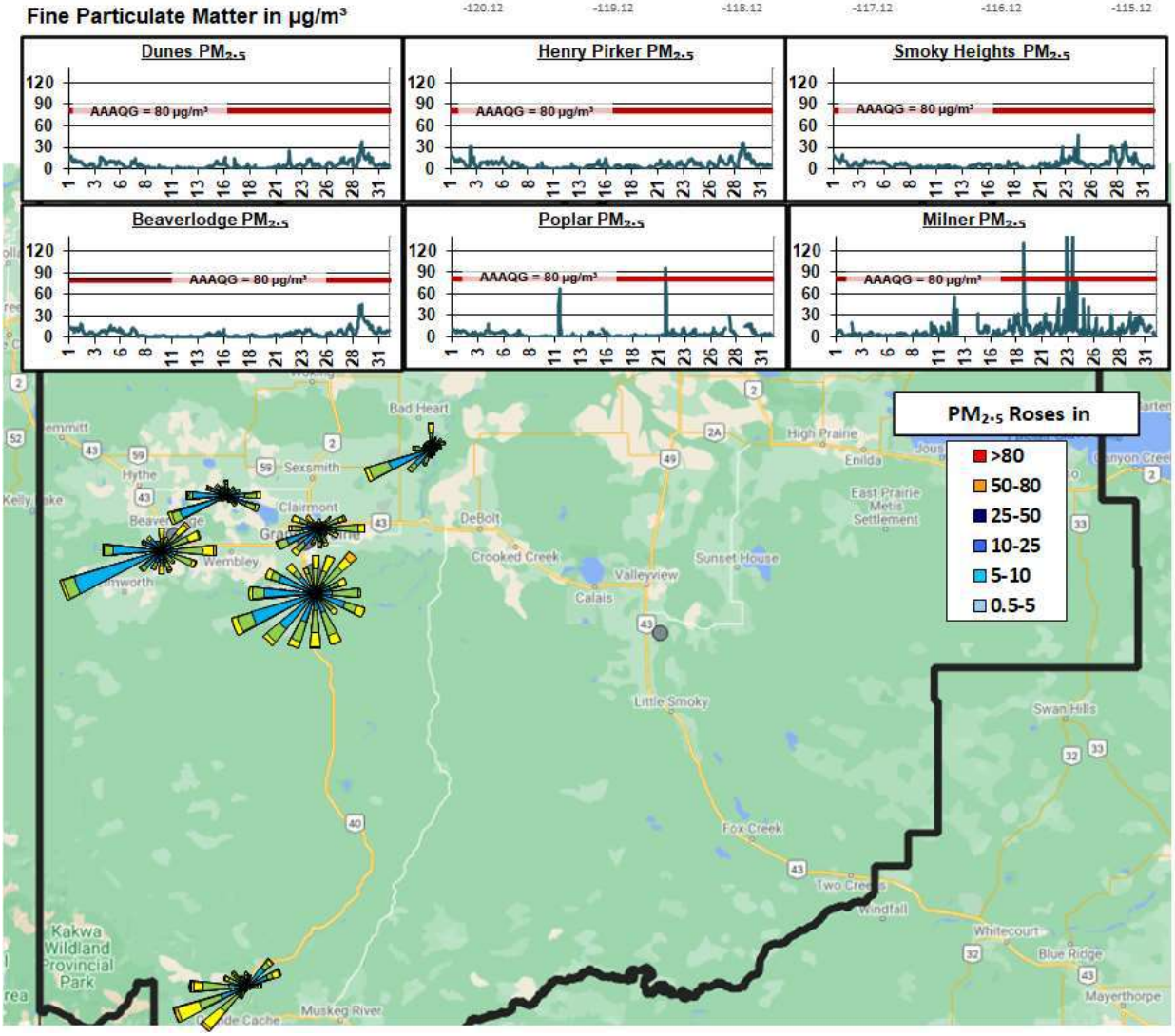
O_3 Roses in ppb



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

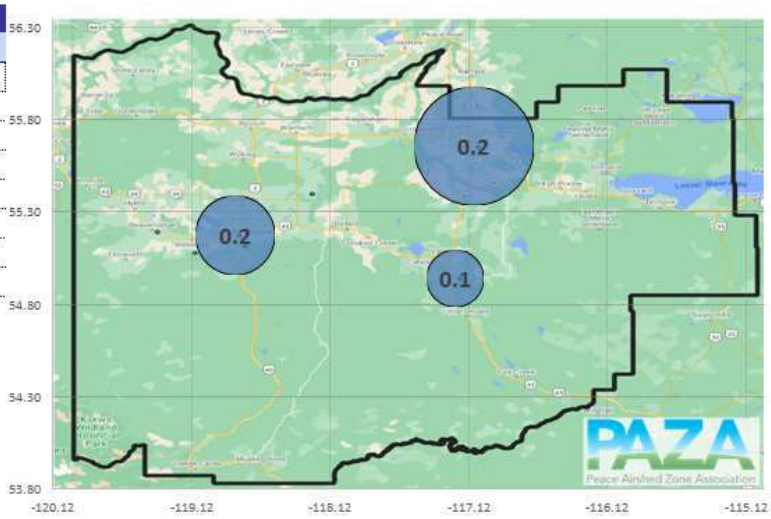
July 2022 $PM_{2.5}$ Station Summary		
Station	Avg µg/m³	Max µg/m³
Dunes $PM_{2.5}$	5.2	38.7
Henry Pirker $PM_{2.5}$	5.8	36.4
Smoky Heights $PM_{2.5}$	6.5	47.7
Beaverlodge $PM_{2.5}$	5.8	46.9
Valleyview $PM_{2.5}$	-	-
Donnelly $PM_{2.5}$	-	-
Poplar $PM_{2.5}$	3.7	96.9
Milner $PM_{2.5}$	9.4	169.0



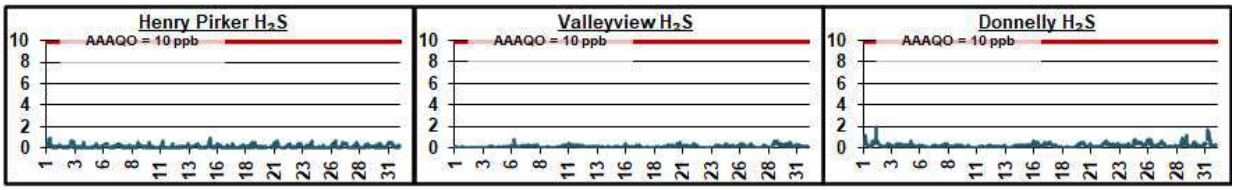


10.8 Hydrogen Sulphide (H_2S) Plots

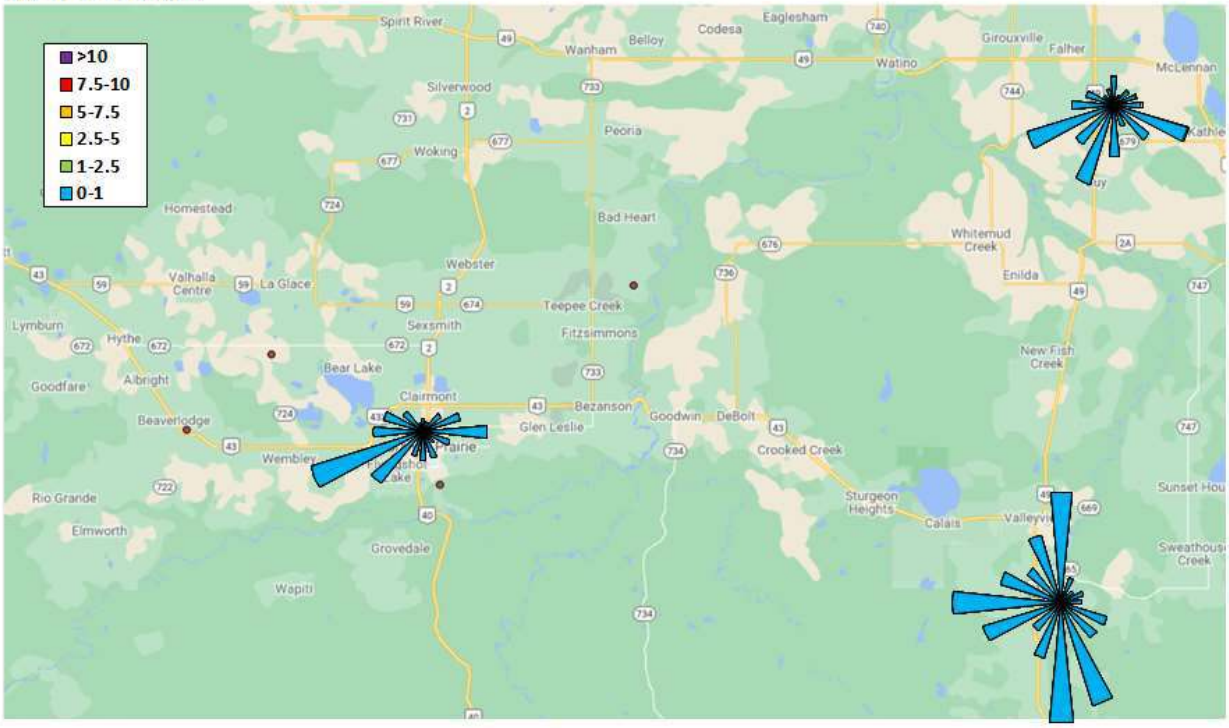
July 2022 H_2S Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes H_2S	-	-
Henry Pirker H_2S	0.2	1.0
Smoky Heights H_2S	-	-
Beaverlodge H_2S	-	-
Valleyview H_2S	0.1	0.8
Donnelly H_2S	0.2	2.0
Poplar H_2S	-	-
Milner H_2S	-	-



Hydrogen Sulphide in ppb

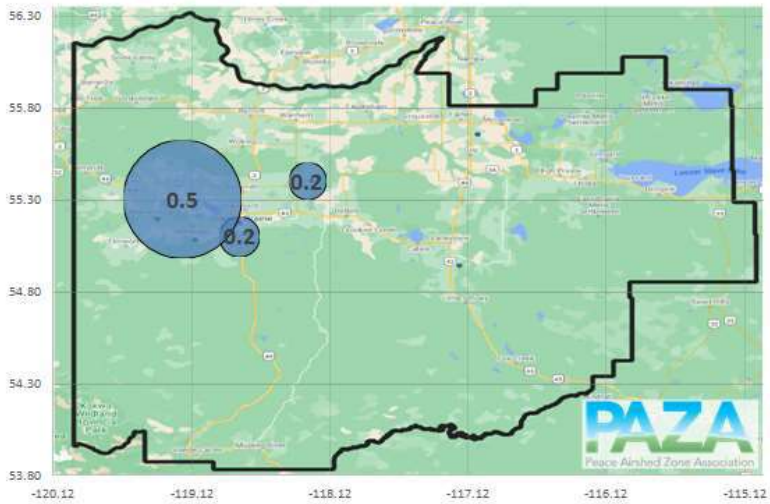


H_2S Roses in ppb

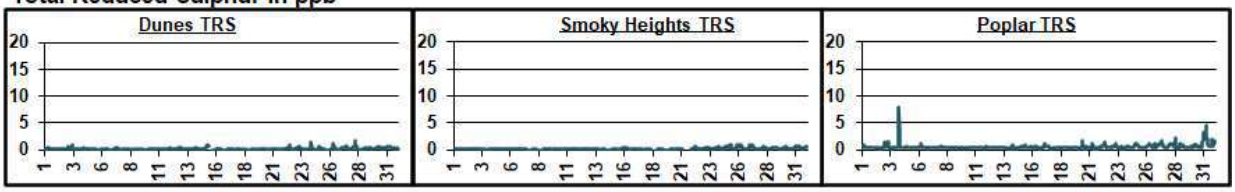


10.9 Total Reduced Sulphur (TRS) Plots

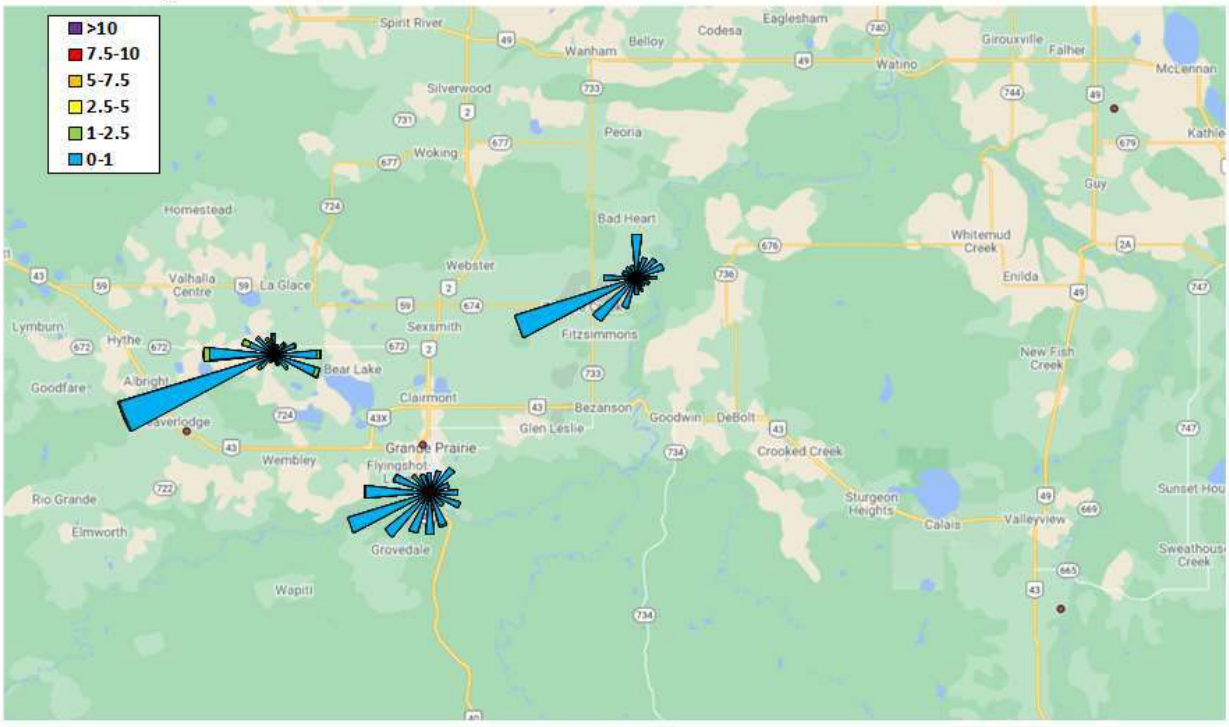
July 2022 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Dunes TRS	0.2	1.8
Henry Pirker TRS	-	-
Smoky Heights TRS	0.2	0.9
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Poplar TRS	0.5	7.8
Milner TRS	-	-



Total Reduced Sulphur in ppb

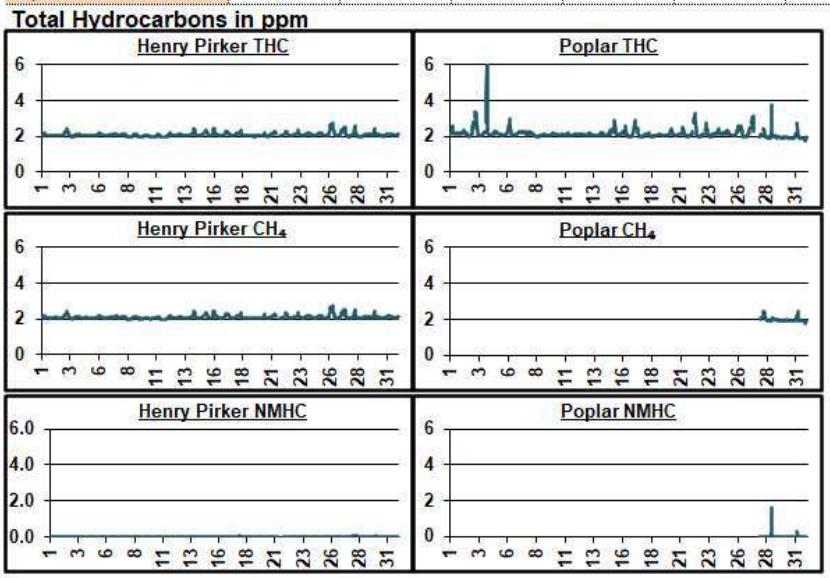


TRS Roses in ppb



10.10 Total Hydrocarbon (THC) Plots

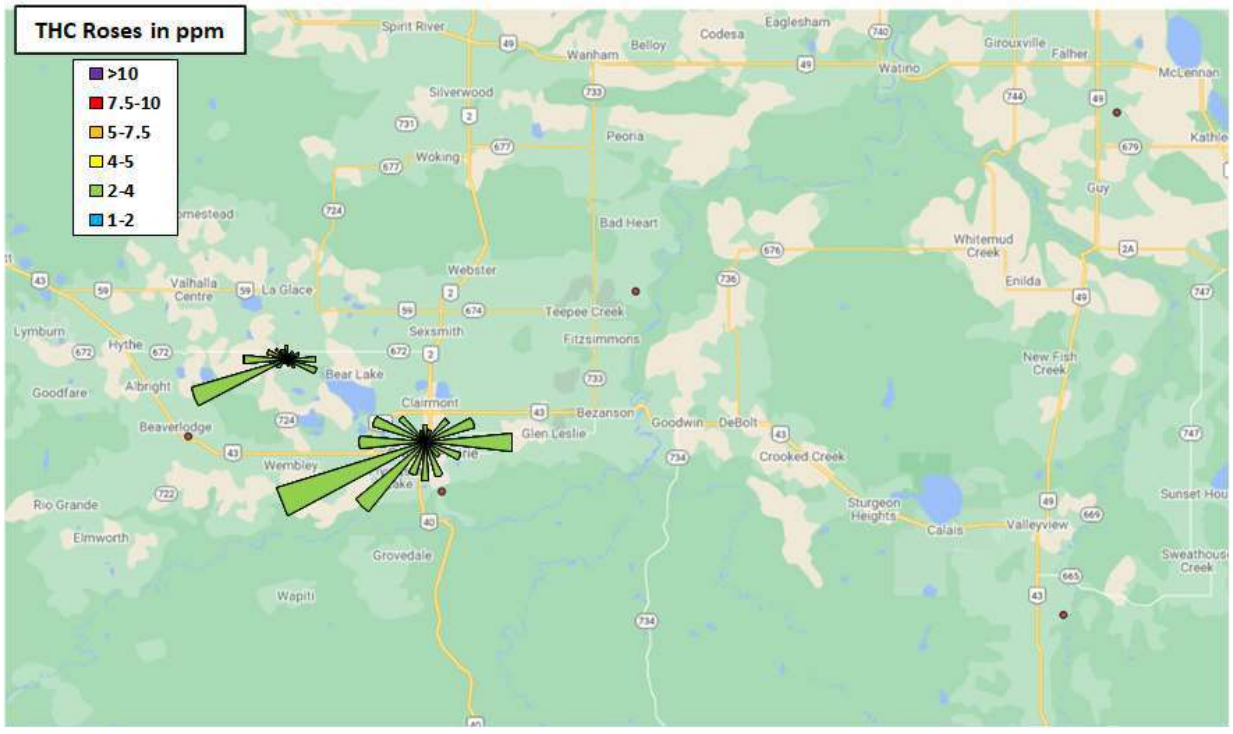
July 2022 THC Station Summary						
Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Dunes THC	-	-	-	-	-	-
Henry Pirker THC	2.1	2.7	2.1	2.7	0.0	0.1
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Poplar THC	2.1	6.7	-	-	-	-



Total Hydrocarbons (THC)

Methane (CH_4)

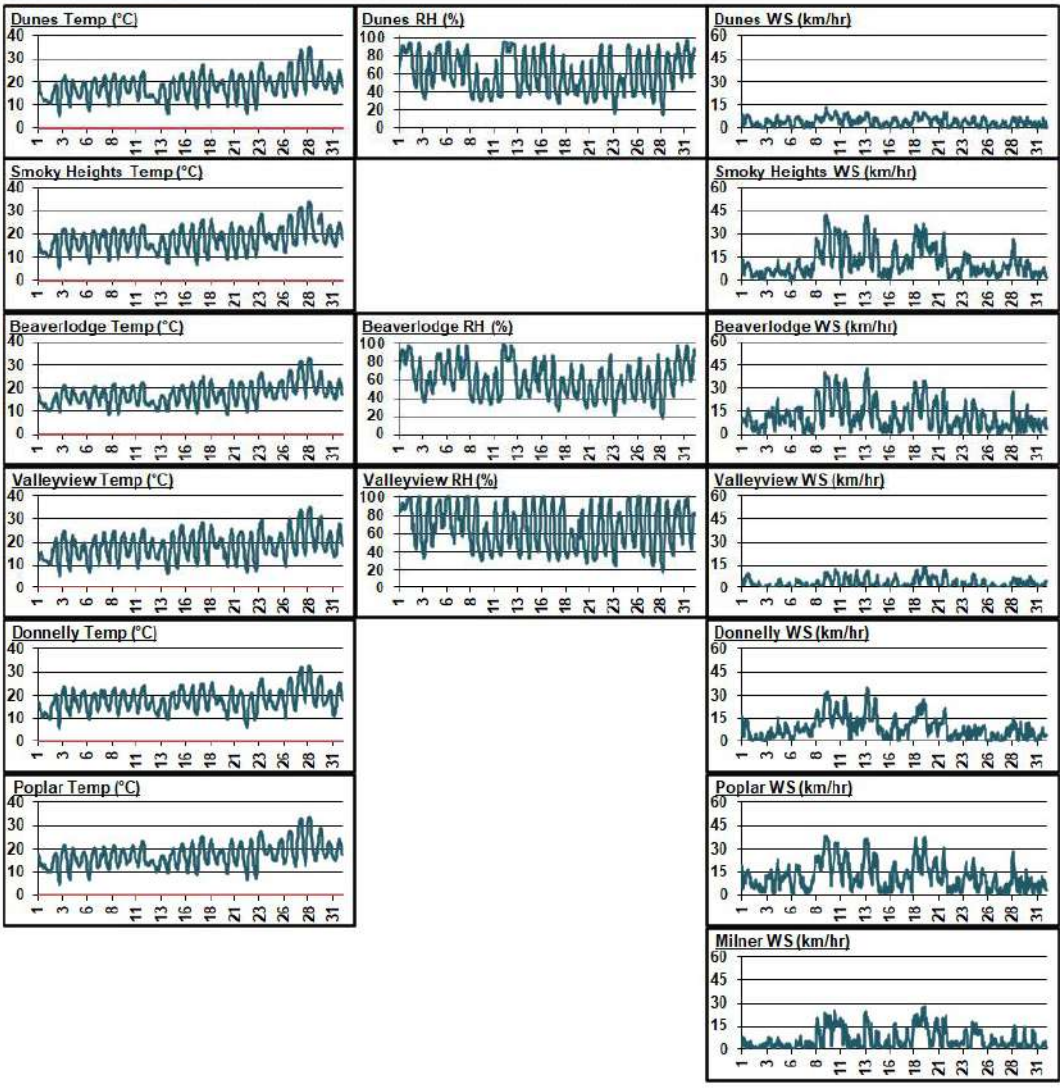
Non-Methane Hydrocarbons (NMHC)

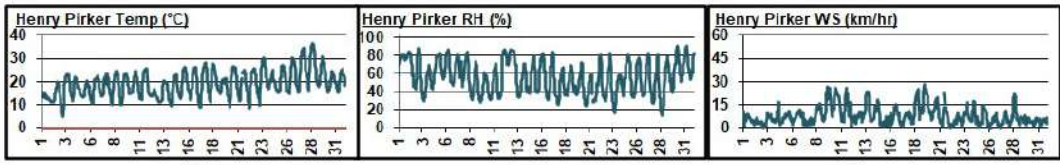


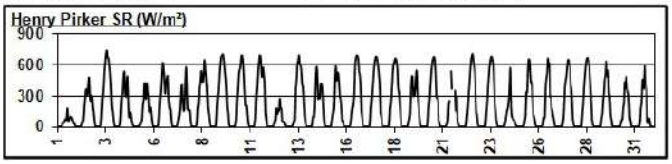
10.11 Meteorology Summary

July 2022 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Dunes	18.0	60.8	-	4.1	244	WSW
Henry Pirker	19.2	56.5	198.9	8.0	244	WSW
Smoky Heights	17.8	-	-	11.7	247	WSW
Beaverlodge	17.5	61.1	-	11.7	252	WSW
Valleyview	18.3	67.9	-	3.6	277	W
Donnelly	17.9	-	-	8.8	231	SW
Poplar	17.3	-	-	12.0	254	WSW
Milner	-	-	-	6.4	215	245.4

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

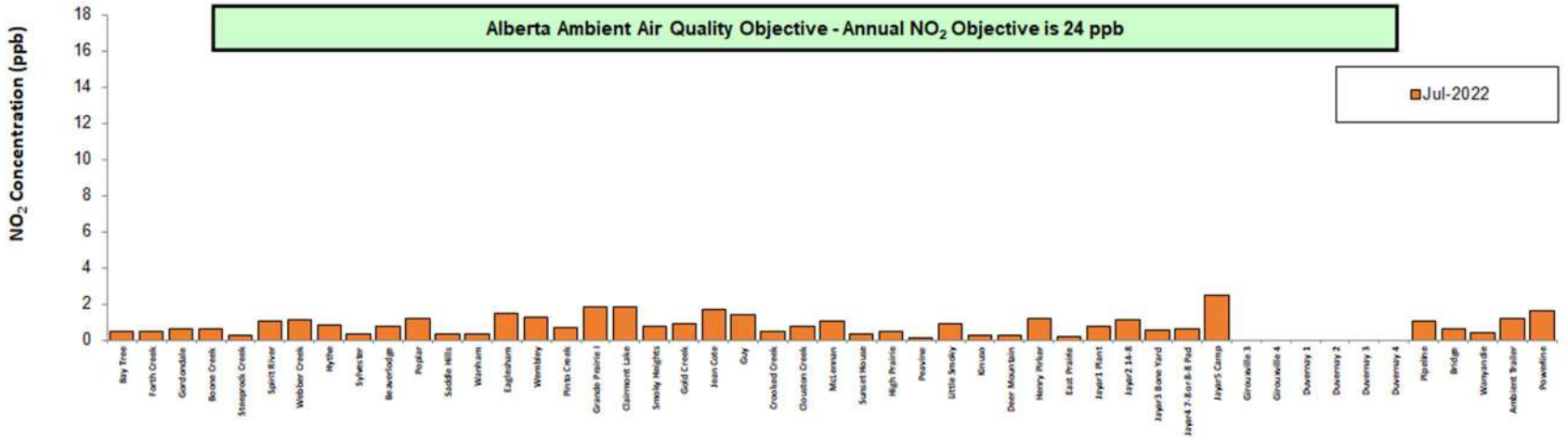
Peace Airshed Zone Association - PAZA Passive Stations for July 2022

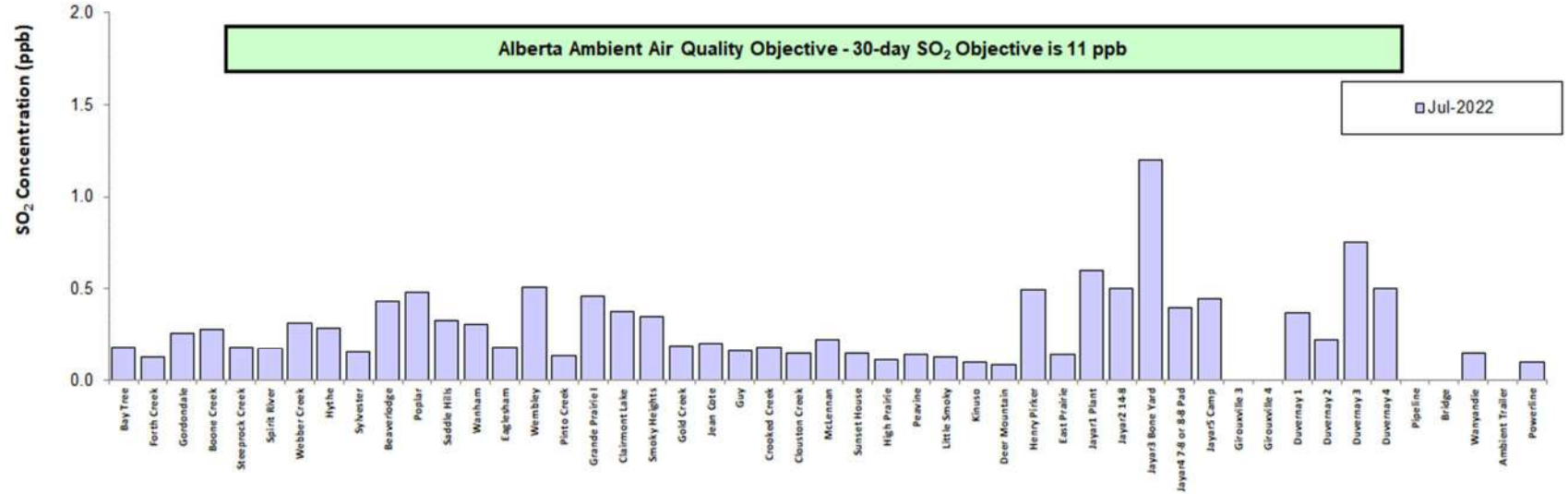
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
5a	Boone Creek	**0.3**				01-23-076-11 W6M
5b	Boone Creek	**0.3**				
9a	Spirit River			**1.0**		08-12-079-07 W6M
9b	Spirit River			**1.1**		
11a	Webber Creek	**0.2**				09-36-074-09 W6M
11b	Webber Creek	**0.4**				
12a	Hythe			**0.8**		14-36-072-11 W6M
12b	Hythe			**0.8**		
21a	Eaglesham			**1.5**		16-21-079-25 W5M
21b	Eaglesham			**1.5**		
29a	Smoky Heights	**0.3**				04-06-075-02 W6M
29b	Smoky Heights	**0.4**				
39a	Clouston Creek			**0.7**		12-01-073-22 W5M
39b	Clouston Creek			**0.8**		
46a	Little Smoky	**missing**				12-01-065-21 W5M
46b	Little Smoky	**0.1**				
47a	Kinuso		**21.6**			12-10-073-10 W5M
47b	Kinuso		**19.8**			
G3a	Girouxville 3				**damaged**	14-02-077-23 W5M
G3b	Girouxville 3				**0.9**	
D1a	Duvernay 1	**0.4**			**0.1**	04-33-062-20 W5M
D1b	Duvernay 1	**0.4**			**0.1**	
J2a	Jayar2 14-8				**0.1**	07-08-062-03 W6M
J2b	Jayar2 14-8				**0.1**	
J3a	Jayar3 Bone Yard			**0.6**		14-08-062-03 W6M
J3b	Jayar3 Bone Yard			**0.5**		
J5a	Jayar5 Camp	**0.4**				11-08-062-03 W6M
J5b	Jayar5 Camp	**0.5**				
M5a	Pipeline			**1.0**		12-14-058-08 W6M
M5b	Pipeline			**1.1**		
M3a	Wanyandie	**0.2**				11-13-058-08 W6M
M3b	Wanyandie	**0.1**				

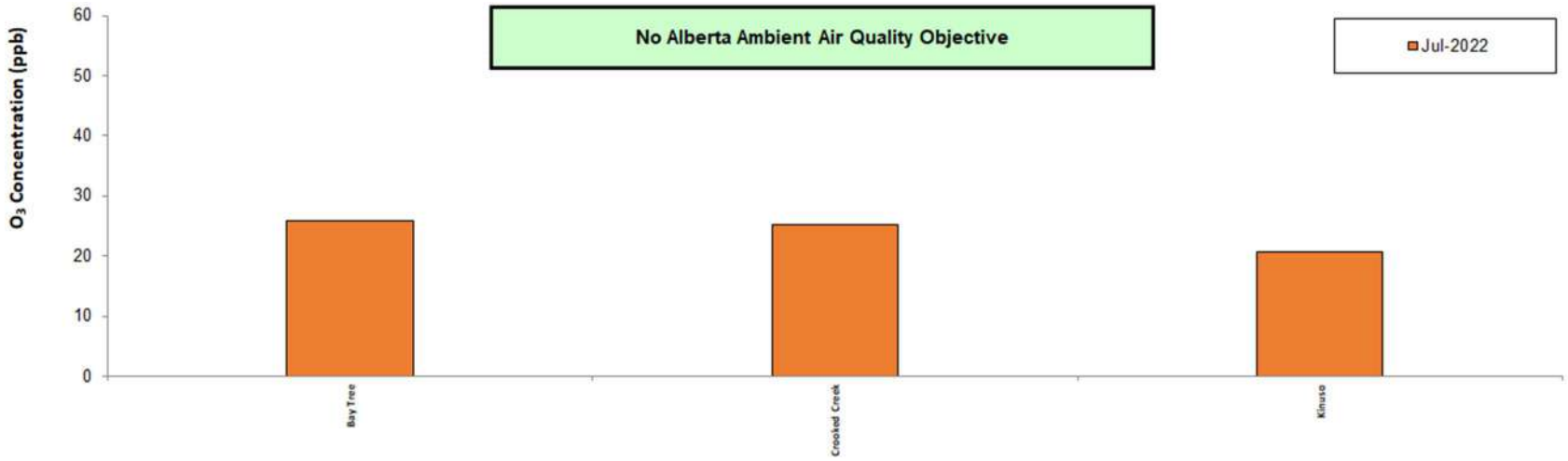
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
2	Bay Tree	0.2	25.8	0.5	-	13-16-078-13 W6M
3	Forth Creek	0.1	-	0.5	-	04-13-082-07 W6M
4	Gordondale	0.3	-	0.6	-	04-34-078-10 W6M
5	Boone Creek	0.3	-	0.6	-	01-23-076-11 W6M
7	Steeprock Creek	0.2	-	0.3	-	09-35-072-13 W6M
9	Spirit River	0.2	-	1.1	-	08-12-079-07 W6M
11	Webber Creek	0.3	-	1.1	-	09-36-074-09 W6M
12	Hythe	0.3	-	0.8	-	14-36-072-11 W6M
14	Sylvester	0.2	-	0.3	-	08-06-069-12 W6M
16	Beaverlodge	0.4	-	0.7	-	15-36-071-10 W6M
17	Poplar	0.5	-	1.2	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	0.3	-	04-25-074-07 W6M
19	Wanham	0.3	-	0.4	-	16-22-077-03 W6M
21	Eaglesham	0.2	-	1.5	-	16-21-079-25 W5M
24	Wembley	0.5	-	1.3	-	12-31-070-08 W6M
25	Pinto Creek	0.1	-	0.7	-	04-24-069-11 W6M
27	Grande Prairie I	0.5	-	1.8	-	08-15-071-06 W6M
28	Clairmont Lake	0.4	-	1.9	-	09-06-073-04 W6M
29	Smoky Heights	0.4	-	0.8	-	04-06-075-02 W6M
32	Gold Creek	0.2	-	0.9	-	06-33-067-05 W6M
35	Jean Cote	0.2	-	1.7	-	12-35-079-21 W5M
36	Guy	0.2	-	1.4	0.2	03-04-076-22 W5M
37	Crooked Creek	0.2	25.2	0.5	-	16-01-071-26 W5M
39	Clouston Creek	0.1	-	0.7	-	12-01-073-22 W5M
40	McLennan	0.2	-	1.0	-	03-29-077-19 W5M
42	Sunset House	0.1	-	0.4	-	05-32-070-19 W5M
43	High Prairie	0.1	-	0.5	-	16-13-074-17 W5M
44	Peavine	0.1	-	0.1	-	03-05-079-15 W5M
46	Little Smoky	0.1	-	0.9	-	12-01-065-21 W5M
47	Kinuso	0.1	20.7	0.2	-	12-10-073-10 W5M
48	Deer Mountain	0.1	-	0.2	-	15-22-068-09 W5M
49	Henry Pirker	0.5	-	1.2	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.2	-	11-13-079-08 W6M
57	Jayar1 Plant	0.6	-	0.8	0.1	06-08-062-03 W6M
58	Jayar2 14-8	0.5	-	1.1	0.1	07-08-062-03 W6M
59	Jayar3 Bone Yard	1.2	-	0.6	0.1	14-08-062-03 W6M
60	Jayar4 7-8 or 8-8 Pad	0.4	-	0.6	0.1	10-08-062-03 W6M
61	Jayar5 Camp	0.5	-	2.5	0.1	11-08-062-03 W6M
G3	Girouxville 3	-	-	-	0.9	14-02-077-23 W5M
G4	Girouxville 4	-	-	-	0.6	04-08-077-22 W5M
D1	Duvernay 1	0.4	-	-	0.1	04-33-062-20 W5M
D2	Duvernay 2	0.2	-	-	0.1	04-33-062-20 W5M
D3	Duvernay 3	0.8	-	-	0.1	04-33-062-20 W5M
D4	Duvernay 4	0.5	-	-	0.1	04-33-062-20 W5M
M1	Pipeline	<0.1	-	1.1		12-14-058-08 W6M
M2	Bridge	<0.1	-	0.6		08-06-057-08 W6M
M3	Wanyandie	0.2	-	0.4		11-13-058-08 W6M
M4	Ambient Trailer	<0.1	-	1.2		09-15-058-08 W6M
M5	Powerline	0.1	-	1.6		06-14-058-08 W6M

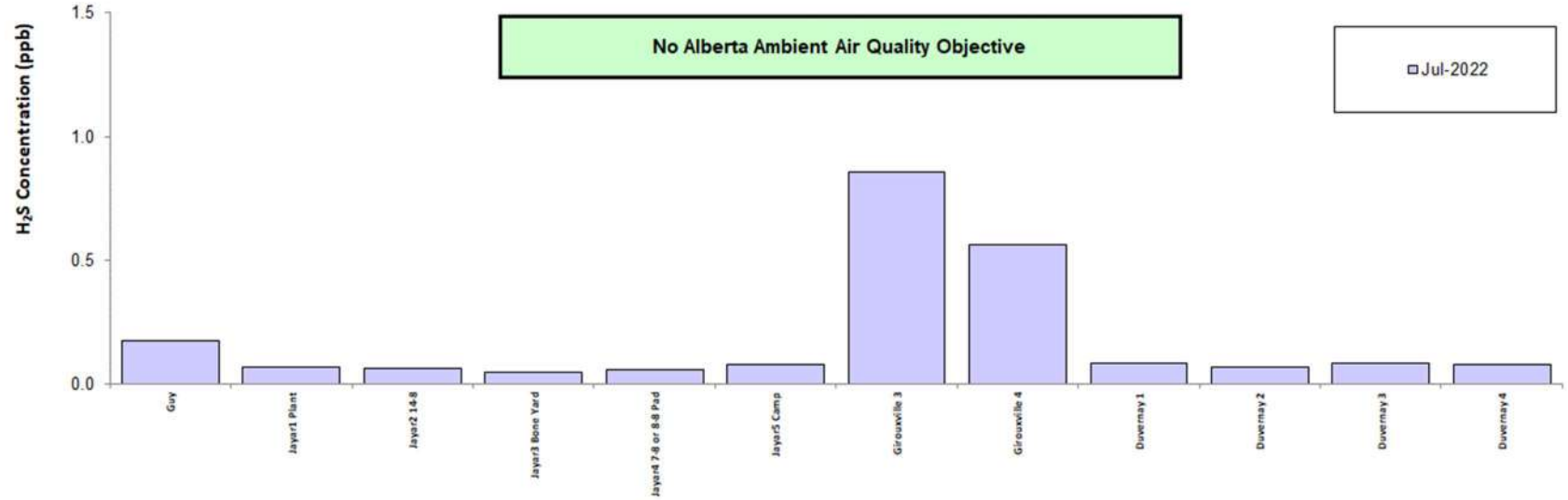
Passive Summary for July 2022

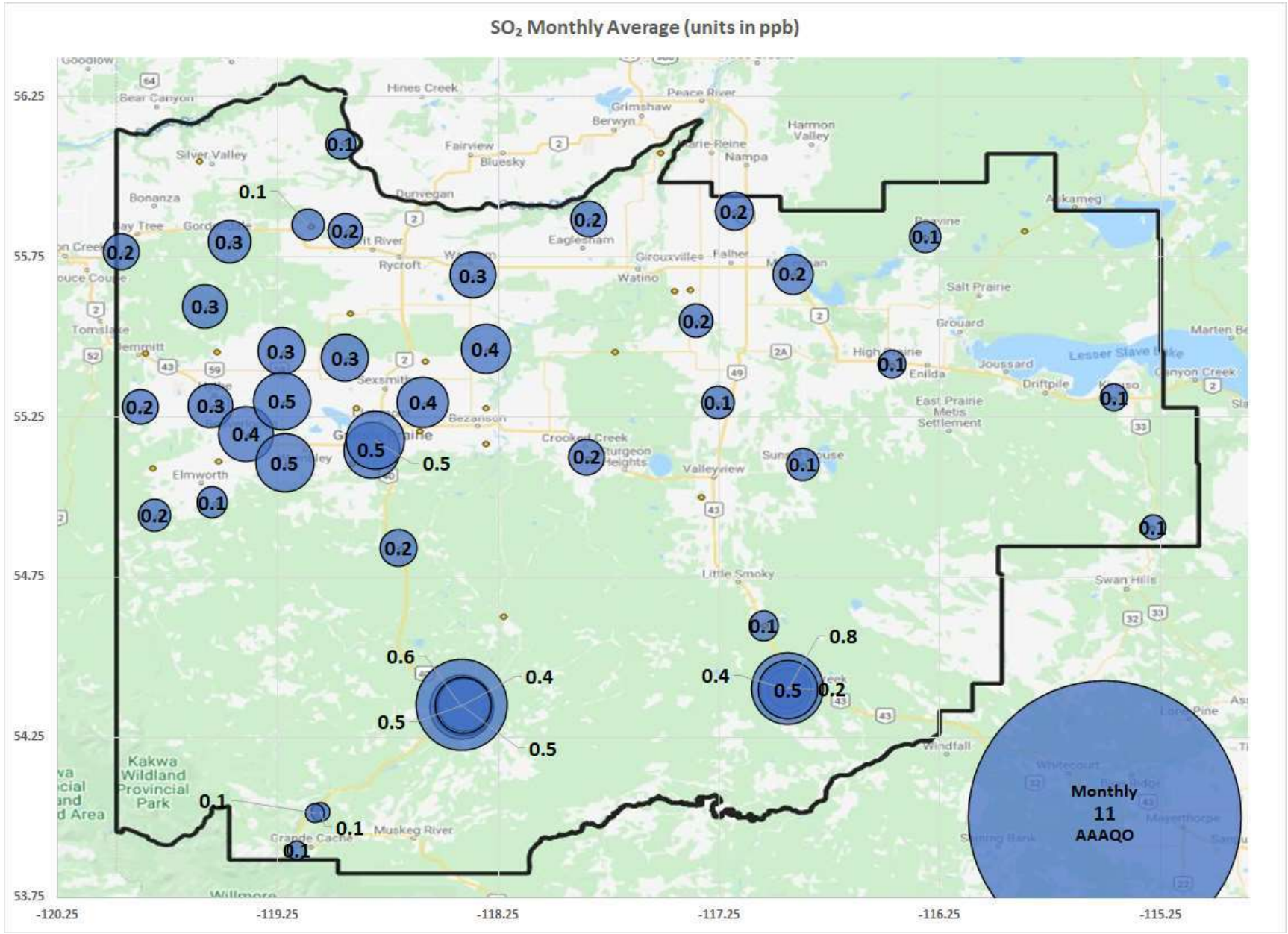
Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2	Hydrogen Sulphide H_2S
	ppb	ppb	ppb	ppb
Passive Summary for July 2022 (PAZA)				
Mean	0.3	23.9	0.9	0.2
Standard Deviation	0.2	2.8	0.5	0.3
Minimum	0.1 Deer Mountain (#48)	20.7 Kinuso (#47)	0.1 Peavine (#44)	0.1 Jayar3 Bone Yard (#59)
Maximum	1.2 Jayar3 Bone Yard (#59)	25.8 Bay Tree (#2)	2.5 Jayar5 Camp (#61)	0.9 Girouxville 3 (#G3)
Continuous and Passive Monitoring Comparision				
PAZA Beaverlodge Station	**0.5**	**26.1**	**2.1**	**-**
Beaverlodge Passive (#16)	**0.4**	**-**	**0.7**	**-**
PAZA Henry Pirker Station	**0.4**	**23.8**	**3.5**	**0.2**
Henry Pirker passive (#49)	**0.5**	**-**	**1.2**	**-**
Milner Station	**-**	**-**	**1.8**	**-**
Henry Pirker passive (#49)	**<0.1**	**-**	**1.2**	**-**

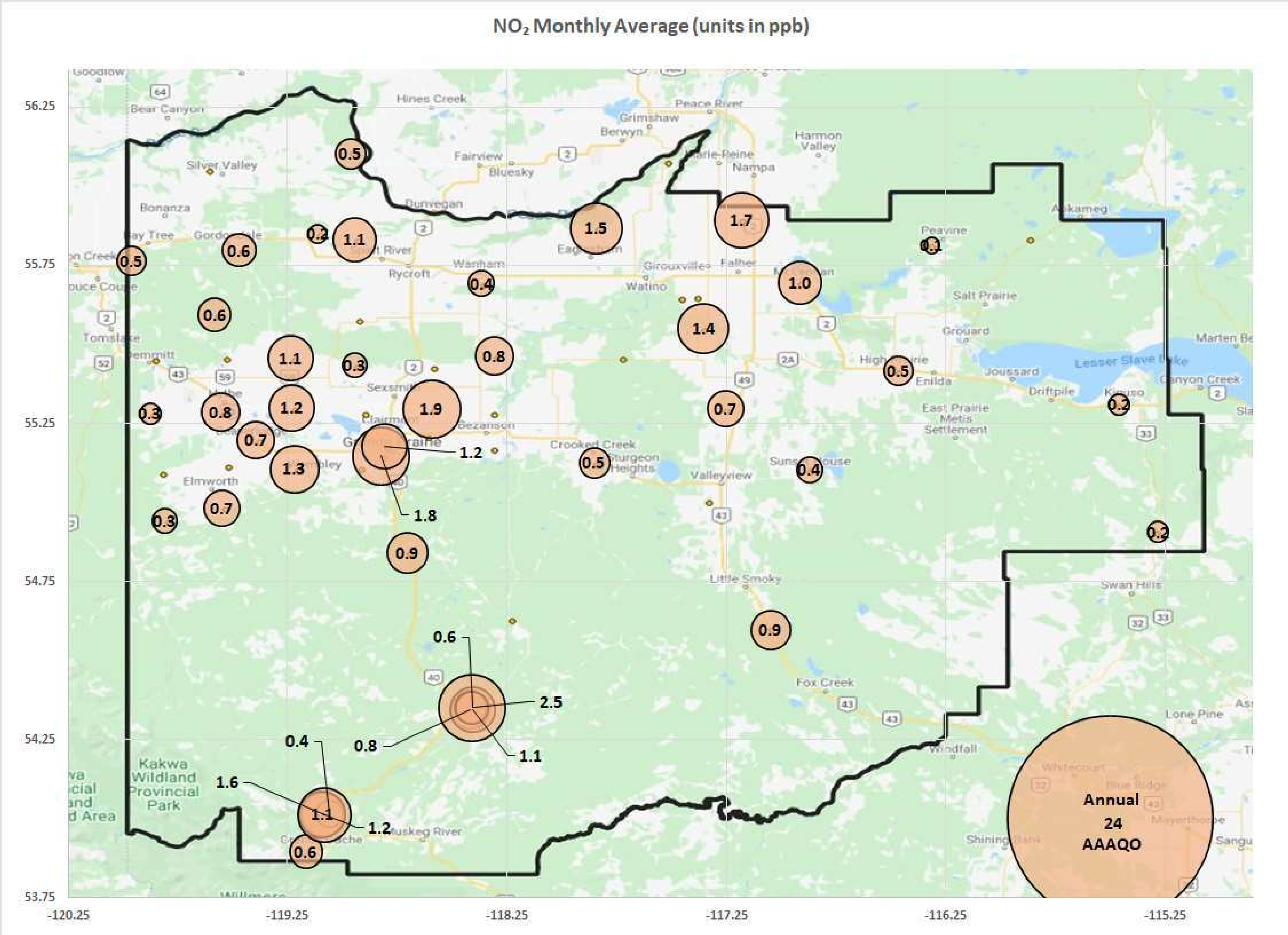

Alberta Ambient Air Quality Objective - Annual NO2 Objective is 24 ppb
NO2 Concentration (ppb)
Jul-2022
18
16
14
12
10
8
6
4
2
0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande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


Alberta Ambient Air Quality Objective - 30-day SO2 Objective is 11 ppb
SO2 Concentration (ppb)
Jul-2022
2.0
1.5
1.0
0.5
0.0
Bay Tree
Forth Creek
Gordondale
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Eaglesham
Wembley
Pinto Creek
Grande Prairie I
Clairmont Lake
Smoky Heights
Gold Creek
Jean Cote
Guy
Crooked Creek
Clouston Creek
McLennan
Sunset House
High Prairie
Peavine
Little Smoky
Kinuso
Deer Mountain
Henry Pirker
East Prairie
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Duvernay 1
Duvernay 2
Duvernay 3
Duvernay 4
Pipeline
Bridge
Wanyandie
Ambient Trailer
Powerline

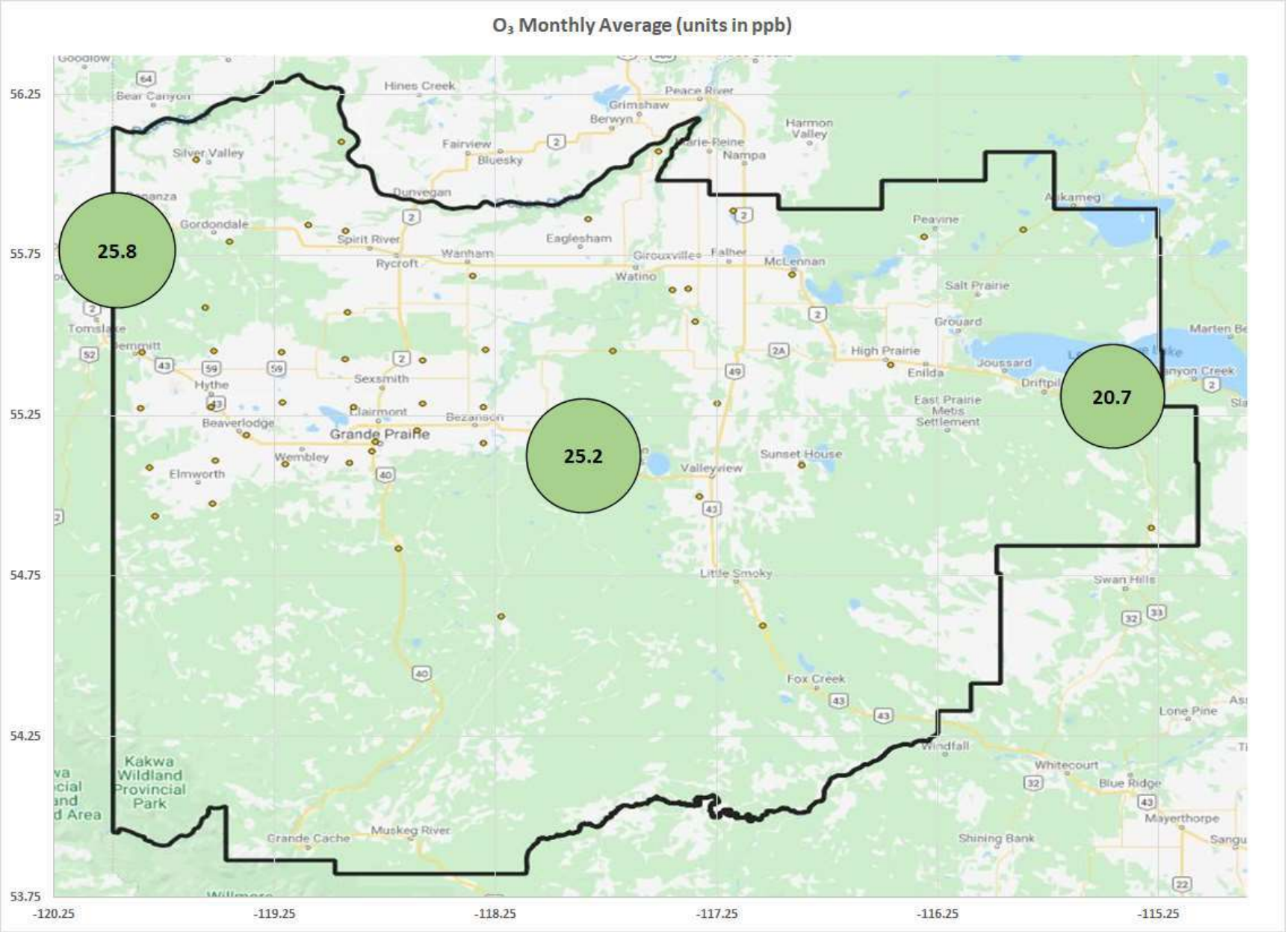

No Alberta Ambient Air Quality Objective
Jul-2022
O3 Concentration (ppb)
60
50
40
30
20
10
0
Bay Tree
Crooked Creek
Kinuso

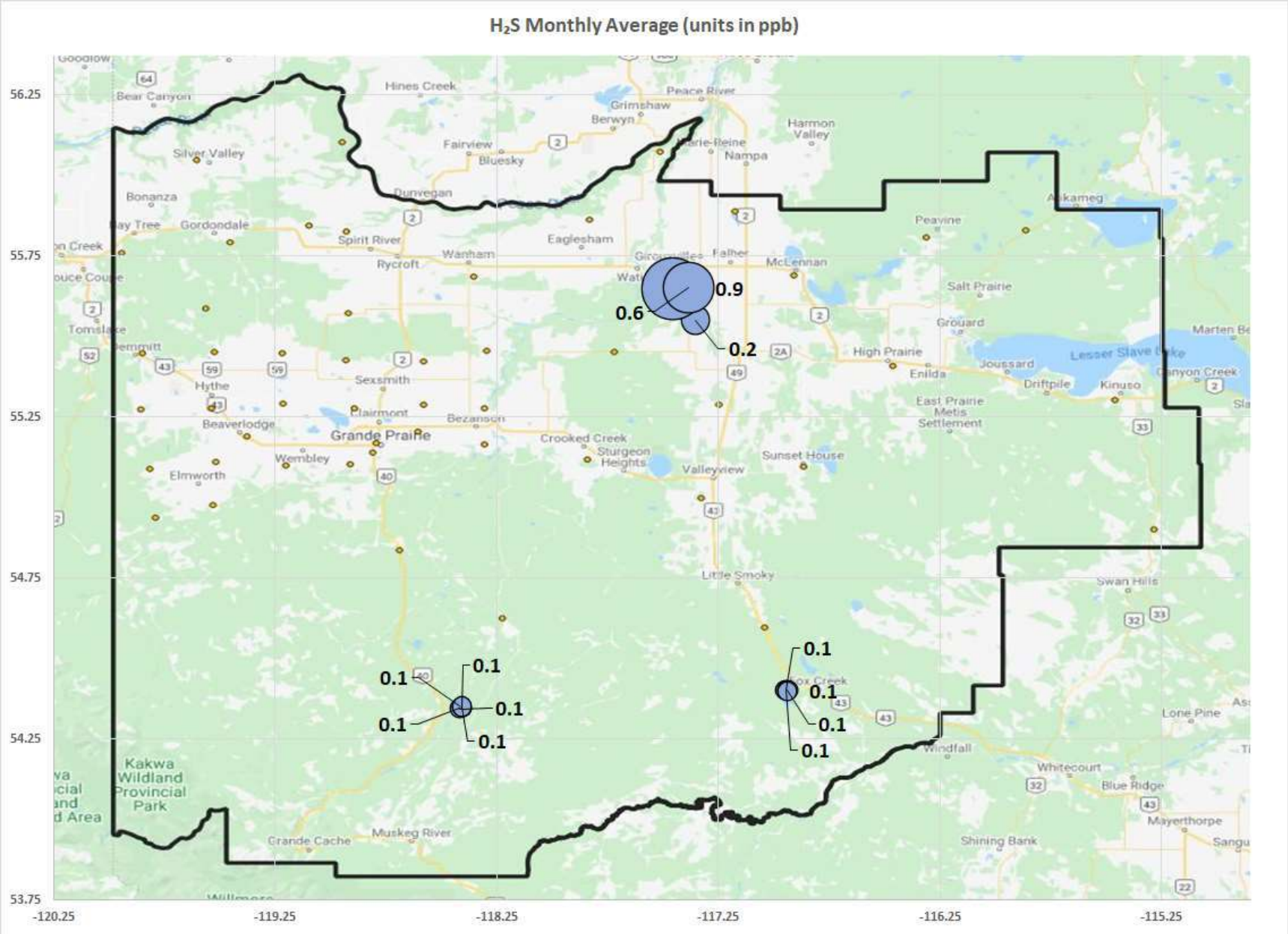

No Alberta Ambient Air Quality Objective
Jul-2022
H2S Concentration (ppb)
1.5
1.0
0.5
0.0
Guy
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Duvernay 1
Duvernay 2
Duvernay 3
Duvernay 4


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



NO_2 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
Annual
24
AAAQO

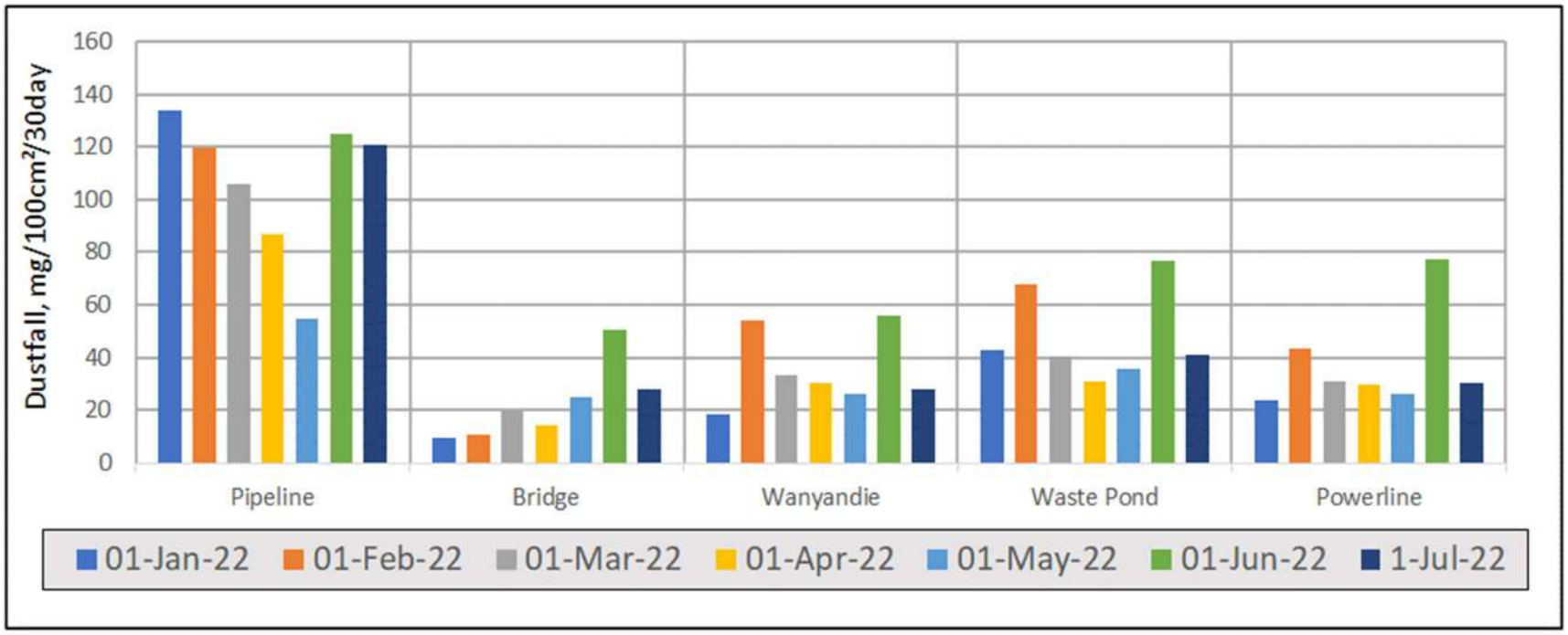

O3 Monthly Average (units in ppb)
25.8
25.2
20.7
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Marie-Reine
Nampa
Silver Valley
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
Girouxville
Watino
McLennan
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
East Prairie Metis Settlement
Sexsmith
Hythe
Beaverlodge
Clairmont
Bezanson
Grande Prairie
Wembley
Elmworth
Valleyview
Sunset House
Little Smoky
Swan Hills
Fox Creek
Windfall
Whitecourt
Blue Ridge
Mayerthorpe
Lone Pine
Shining Bank
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River


H2S Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
0.9
0.6
0.2
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.1
Hines Creek
Peace River
Grimshaw
Berwyn
Harmon Valley
Fairview
Bluesky
Nampa
Silver Valley
Bear Canyon
Bonanza
Dunvegan
Gordondale
Spirit River
Eaglesham
Wanham
Rycroft
McLennan
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Driftpile
Kinuso
East Prairie Metis Settlement
Lesser Slave Lake
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Clairmont
Bezanson
Crooked Creek
Sturgeon Heights
Valleyview
Sunset House
Wembley
Elmworth
Little Smoky
Swan Hills
Windfall
Whitecourt
Blue Ridge
Mayerthorpe
Lone Pine
Shining Bank
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River

12 Dustfall Monitoring Data

Milner Dustfall Samples July 2022

Exposure Month	Year	Sample	Total Dustfall (30 day) mg/100cm²/30day	Fixed Dustfall (30 day) mg/100cm²/30day	Exposure days	Field Notes
July	2022	Pipeline	120.9	55.5	31	
July	2022	Bridge	27.7	12.8	31	
July	2022	Wanyandie	27.7	13.5	31	
July	2022	Waste Pond	41.2	19.9	31	
July	2022	Powerline	30.6	14.9	31	
July	2022	Powerline Dup	38.4	18.5	31	RPD= 23% / 22%



13 End of Report

End of Report

Peace Airshed Zone Association

Ambient Air Monitoring Report

July 2022