Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

April 2021

May 31, 2021

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

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

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

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

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This report was prepared by Matrix Solutions Inc. and reviewed by Mandeep Dhaliwal.

PAZA has retained the services of WSP Canada Inc. to conduct continuous ambient monitoring and Matrix Solutions Inc. to provide data validation and reporting.

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

The monthly summary report includes the operational summaries and hourly continuous monitoring and monthly passive results

Continuous Monitoring:

Seven (7) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview, Donnelly and Wembley-Portable. Detailed Summaries are included in the report

Calibration and Data Submission:

Monthly report, hourly data and calibration reports for April 2021 were submitted to the ETS data system.

Table A. PAZA members with Facility Operating Approvals

Company	Facility	LSD	EPEA Approval No.
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	262479-00-00
Alberta Power (2000) Ltd. (an ATCO company)	Sturgeon	SW-06-069-21-W5	10283-02-02
ATCO Power Canada	Poplar Hill	11-19-073-08-W6	67774-01-01
ATCO Power Canada	Valleyview	SW-06-069-21-W5	147709-01-01
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	247673-00-00
	Ante Creek	02-26-068-25-W5	266694-00-00
	Gordondale	02-26-068-25-W5	287474-00-00
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	10137-02-02
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	252529-00-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	00000029-01-00
	Progress/Gordondale	01-01-077-10-W6	00010036-02-00
	Gold Creek	13-26-067-05-W6	00010446-02-00
	Teepee Creek	SE-2-074-04-W6	00001635-02-00
	Sturgeon/Valleyview	02-02-069-22-W5	1633-02-00
Canfor Forest Products	Grande Prairie	SW-23-071-06-W6	152645-01-00
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	00000212-01-00
Devon Canada	NW Belloy (Dunvegan)	16-36-079-03-W6	00009810-02-00
	Eaglesham (South)	02-14-077-25-W5	00047669-01-00
	North Normanville	03-36-079-23-W5	00047455-01-00
	West Culp	05-34-078-25-W6	00136284-00-00
	Cecil	08-15-084-08-W6	00010032-02-00
Encana Corporation	Sexsmith	04-08-075-07-W6	00010002-01-00
Enerplus Resources	Pouce Coupe	SW-06-069-21-W5	1464-02-03
Exshaw Oil Corporation	Spirit River	03-10-077-07-W6	344521-00-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	00238762-00-00
Inception Exploration Ltd.	Gold Creek	03-26-069-05-W6	00335317-00-02
Long Run Exploration	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
	Donnelly	06-01-077-21-W5	00000087-02-00
	Puskwaskau	03-26-074-01-W6	00017524-01-00
Longview Oil Corp.	Sunset House	06-22-070-20-W5	138884-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	00001746-02-00
	Pouce Coupe	16-07-078-11-W6	00000614-01-00
Petrus Resources	Rycroft	08-25-077-06-W6	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
NorthRiver Midstream Inc.	Fourth Creek	16-11-082-09-W6	00000263-01-00
	Gordondale	11-26-079-09-W6	00011495-01-01
	Pouce Coupe/Bonanza	03-23-080-13-W6	00070203-01-01
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
Strathcona Resources Ltd.	Jayar Sour Gas Processing Plant	06-08-062-03 W6	3612040
TAQA North Ltd.	Valhalla	13-21-076-09-W6	00017620-01-00
Veresen Energy	Hythe Brainard	11-18-074-12-W6	00010910-02-00
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	00000113-02-00

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

There were no readings above the AAAQO or AAAQG

Operational times less than 90 percent:

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

Air Incidents

None were reported to PAZA

Deviations from Authorized Monitoring Methods

None to report.

Passive Monitoring

- 45 Stations throughout the PAZA zone
  - Addition of Fox Creek, 4 sites
  - Passive sample analyses were performed by Bureau Veritas Laboratories
- There were 13 duplicate sites sampled in the month of April
  - SO_2 duplicates at Poplar, Wembley, Flyingshot, Crooked Creek, Jayar3 Bone Yard, Fox Creek 3 stations; RPD ranging from 0 to 63% (1 fail)
  - O_3 duplicate Kinuso stations; RPD ranging from 23%
  - NO_2 duplicates at Spirit River, Wanham, Shaftesbury, Puskwaskau, Jayar3 Bone Yard stations; RPD ranging from 4 to 175% (2 fail)
  - H_2S duplicates Guy, Jayar5 Camp, Fox Creek 3 stations; RPD ranging from 9 to 24%
- The following field notes were listed of potential issues.
  - Site 63 (Girouxville 3) – On Collection found sample on the ground
  - Site 64 (Girouxville 4) – No access in April so Sample from March Deploy
- Milner Sites collected and reported separately.
- There were no exceedances of the AAAQOs for all monitored parameters at any of the passive monitoring stations during this month.

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

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

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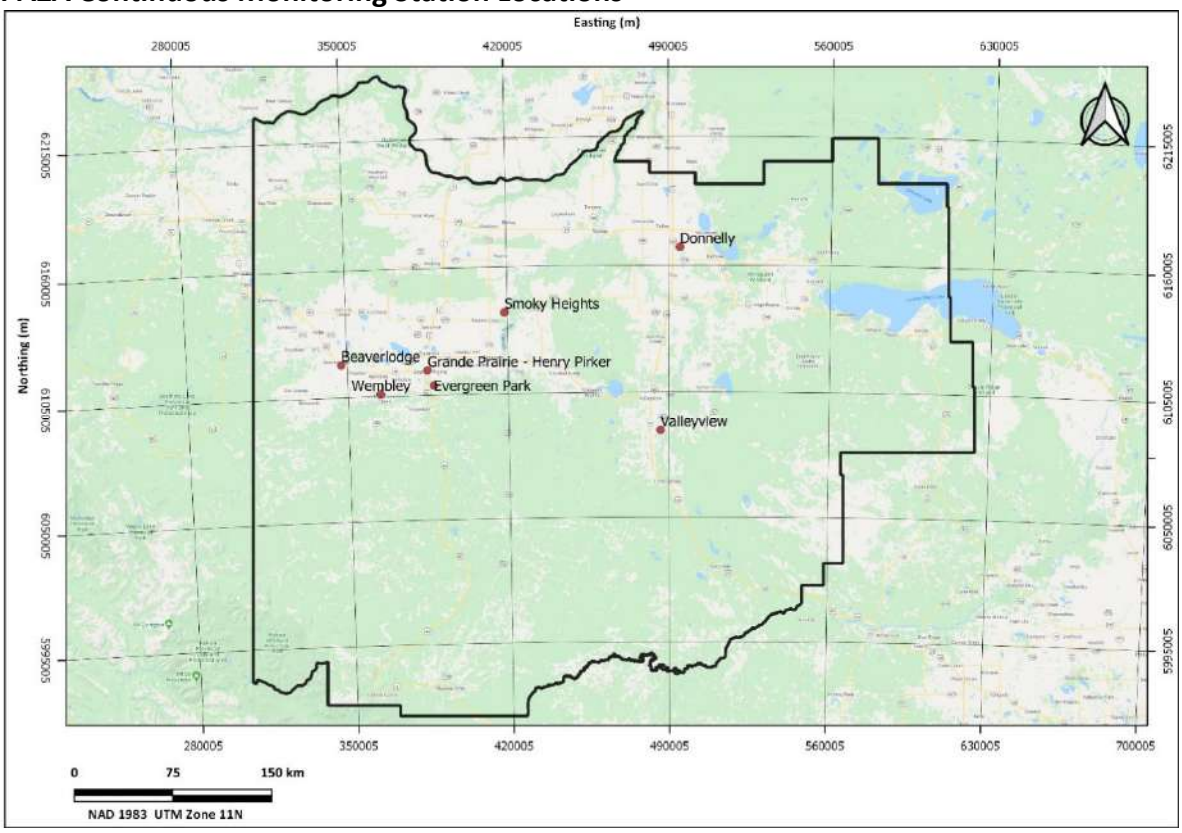
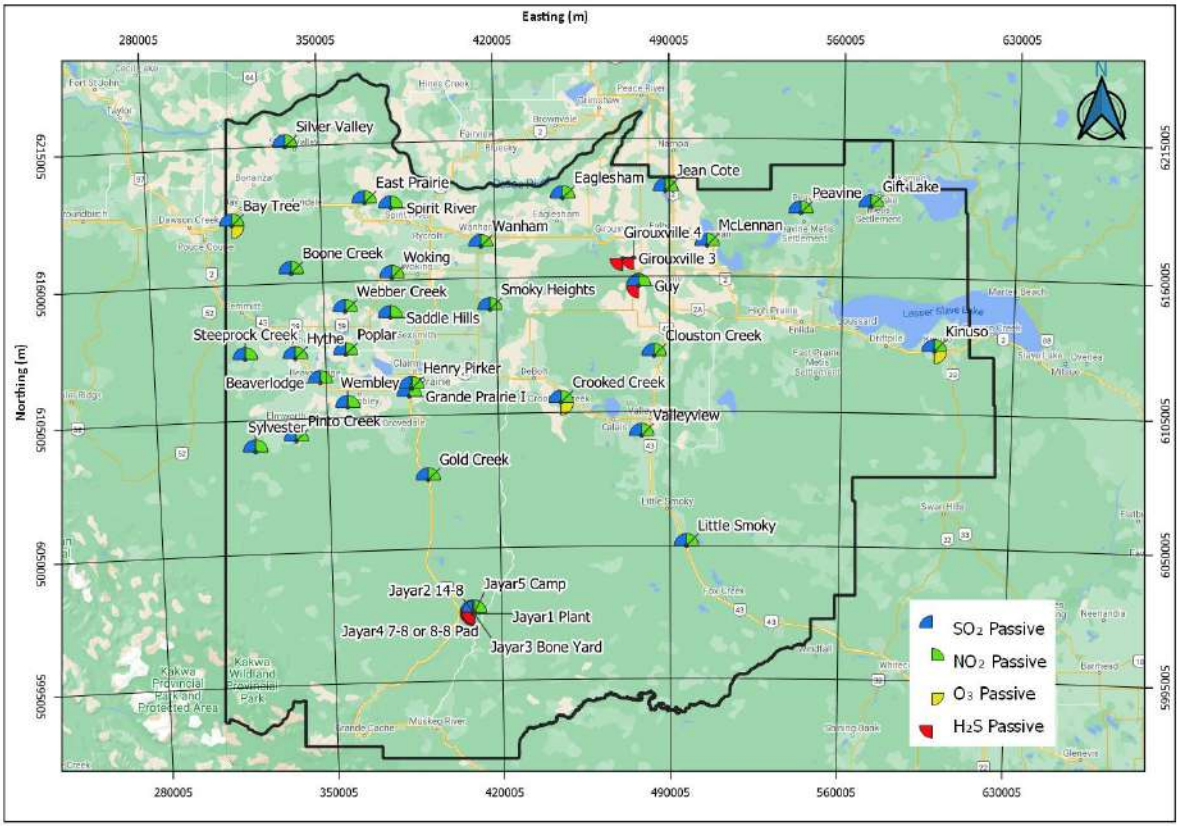
PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 April 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 - April 2021 Beaverlodge Station Report

Parameter	April 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	95.0%	100.0%	8.7	-	Apr-16 08:00	1.3	-	Apr-28	-	-	-	-	Apr 01, 2021
NO_2 (ppb)	2.1	0.3	95.0%	100.0%	11.2	159	Apr-20 06:00	3.7	-	Apr-28	0	-	-	-	Apr 01, 2021
NO_x (ppb)	2.4	0.3	95.0%	100.0%	19.9	-	Apr-16 08:00	5.0	-	Apr-28	-	-	-	-	Apr 01, 2021
O_3 (ppb)	38.0	9.6	95.3%	100.0%	56.0	76	Apr-16 16:00	47.3	-	Apr-25	0	-	-	-	Apr 01, 2021
$PM_{2.5}$ (µg/m³)	3.1	0.0	99.7%	100.0%	11.8	80	Apr-16 10:00	5.7	29	Apr-16	0	-	0	-	Apr 02, 2021
SO_2 (ppb)	0.5	0.0	95.3%	100.0%	10.7	172	Apr-15 12:00	1.5	48	Apr-15	0	-	0	0	Apr 02, 2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	3.4	-9.2	100.0%	100.0%	19.9
RH (%)	52.8	14.4	100.0%	100.0%	100.0
WS (km/hr)	11.4	0.2	100.0%	100.0%	54.6
WD (deg)	286	0.5	100.0%	100.0%	358.9

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

Average Wind Direction	286	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_x$	Thermo	42i	No Operational issues noted during the month
O_3	Thermo	49i	No Operational issues noted during the month
$PM_{2.5}$	Sharp	5030	No Operational issues noted during the month
SO_2	Thermo	43i-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.2 Evergreen Park Air Monitoring Station

PAZA - April 2021 Evergreen Park Station Report

Parameter	April 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)	2.3	0.0	98.5%	99.4%	13.7	80	Apr-24 02:00	4.9	29	Apr-17	0	-	0	-	Apr-22-2021
SO_2 (ppb)	0.3	0.0	94.9%	99.7%	5.8	172	Apr-22 17:00	1.1	48	Apr-20	0	-	0	0	Apr-22-2021
TRS (ppb)	0.5	0.0	94.9%	99.7%	4.4	-	Apr-25 04:00	1.1	-	Apr-25	-	-	-	-	Apr-22-2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	3.0	-11.9	99.6%	99.6%	21.0
RH (%)	56.1	12.1	99.7%	99.7%	97.6
WS (km/hr)	4.0	0.0	99.7%	99.7%	20.3
WD (deg)	278	0.4	99.7%	99.7%	359.6

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

Average Wind Direction	278	W

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Thermo	TEOM AB	Unstable readings, 3-hrs removed April 1, 24, 25 with one hour of maintenance on April 23
SO_2	TECO	43i	No Operational issues; Unstable readings resulted in 2 hours removed April 1, 24
TRS	TECO	43C	No Operational issues; Unstable readings resulted in 2 hours removed April 1, 24
Met Equip	Gil/RMYoung	MetPak/RMY86004	Unstable readings resulted in 2 hours removed April 1, 24; April 30 additional hour removed for Temperature

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - April 2021 Henry Pirker Station Report

	April				1-hour			8-hour / 24-hour			Exceedance				Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	1.2	0.0	95.1%	100.0%	24.7	-	Apr-15 08:00	3.6	-	Apr-20	-	-	-	-	**Apr 08, 2021**
NO_2 (ppb)	6.3	0.7	95.1%	100.0%	35.1	159	Apr-01 06:00	12.7	-	Apr-03	0	-	-	-	**Apr 08, 2021**
NO_X (ppb)	7.6	0.8	95.1%	100.0%	52.2	-	Apr-01 07:00	16.1	-	Apr-03	-	-	-	-	**Apr 08, 2021**
O_3 (ppb)	33.2	0.5	95.3%	100.0%	56.7	76	Apr-25 16:00	43.6	-	Apr-26	0	-	-	-	**Apr 08, 2021**
$PM_{2.5}$ (µg/m³)	3.8	0.0	99.6%	100.0%	30.4	80	Apr-20 02:00	8.1	29	Apr-16	0	-	0	-	**Apr 12, 2021**
SO_2 (ppb)	0.3	0.0	95.3%	100.0%	10.0	172	Apr-22 16:00	1.9	48	Apr-22	0	-	0	0	**Apr 08, 2021**
H_2S (ppb)	0.1	0.0	95.3%	100.0%	2.0	10	Apr-22 23:00	0.3	3	Apr-17	0	-	0	-	**Apr 12, 2021**
CH_4 (ppm)	2.1	1.9	95.3%	100.0%	3.3	-	Apr-17 06:00	2.3	-	Apr-25	-	-	-	-	**Apr 09, 2021**
THC (ppm)	2.1	1.9	95.3%	100.0%	3.3	-	Apr-17 06:00	2.3	-	Apr-17	-	-	-	-	**Apr 09, 2021**
NMHC (ppm)	0.0	0.0	95.3%	100.0%	0.1	-	Apr-17 08:00	0.0	-	Apr-17	-	-	-	-	**Apr 09, 2021**
CO (ppm)	0.2	0.1	95.3%	100.0%	0.7	13	Apr-13 07:00	0.3	5	Apr-03	0	0	-	-	**Apr 09, 2021**

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	4.2	-9.1	100.0%	100.0%	22.7
RH (%)	51.6	13.5	100.0%	100.0%	87.2
SR (W/m²)	181.9	0.0	100.0%	100.0%	762.4
WS (km/hr)	6.9	0.2	96.8%	96.8%	33.9
WD (deg)	282	0.8	96.8%	96.8%	359.5

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

Average Wind Direction	282	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_X$	Thermo	42i	No Operational issues noted during the month
O_3	TECO	49I	No Operational issues noted during the month
$PM_{2.5}$	Sharp	5030	No Operational issues noted during the month
SO_2	TEI	43I-TLE	No Operational issues noted during the month
H_2S	TEI	450i	No Operational issues noted during the month
THC/CH_4/NMHC	TEI	55i	No Operational issues noted during the month
CO	TEI	48I-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month; Wind head experienced a failure with 23 hours removed (April 9, 10, 21)

1.4 Smoky Heights Air Monitoring Station

PAZA - April 2021 Smoky Heights Station Report

	April				1-hour			24-hour			Exceedance				Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
$PM_{2.5}$ (µg/m³)	3.0	0.0	99.3%	99.9%	36.0	80	Apr-02 20:00	5.0	29	Apr-01	0	-	0	-	Apr 30, 2021
SO_2 (ppb)	0.3	0.0	95.1%	100.0%	5.4	172	Apr-20 18:00	1.0	48	Apr-20	0	-	0	0	Apr 30, 2021
TRS (ppb)	0.1	0.0	95.1%	100.0%	1.4	-	Apr-25 06:00	0.3	-	Apr-21	-	-	-	-	Apr 30, 2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	2.9	-9.3	100.0%	100.0%	20.2
WS (km/hr)	11.3	0.2	99.9%	99.9%	49.8
WD (deg)	278	0.1	99.9%	99.9%	359.6

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

Average Wind Direction	278	WNW

Update Summary:

Parameter	Make	Model	Equipment summary
$PM_{2.5}$	Sharp	5030	1 hour removed due to power issue causing negative drift on April 12
SO_2	TECO	43i	No Operational issues noted during the month
TRS	TEI	43I APSAA	No Operational issues noted during the month
Met Equip	MetOne	50.5	1 hour removed due to spikes in wind speed (April 19)

1.5 Valleyview Air Monitoring Station

PAZA - April 2021 Valleyview Station Report

Parameter	April 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	95.1%	100.0%	1.1	172	Apr-14 10:00	0.3	48	Apr-14	0	-	0	0	Apr 20, 2021
H_2S (ppb)	0.0	0.0	94.6%	99.4%	0.4	10	Apr-13 21:00	0.1	3	Apr-10	0	-	0	-	Apr 20, 2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	3.6	-9.0	100.0%	100.0%	22.9
RH (%)	62.1	14.9	100.0%	100.0%	100.1
WS (km/hr)	5.2	0.1	100.0%	100.0%	21.2
WD (deg)	320	0.1	100.0%	100.0%	359.9

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

Average Wind Direction	320	NW

Update Summary:

Parameter	Make	Model	Equipment summary
SO_2	TEI	43i-APSCB	No Operational issues noted during the month
H2S	TEI	450i-APHAA	No Operational issues noted during the month; second calibration flagged as maintenance
Met Equip	RMYoung	RMY86004	No Operational issues noted during the month

1.6 Donnelly Air Monitoring Station

PAZA - April 2021 Donnelly Station Report

Parameter	April 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	95.1%	100.0%	2.8	172	Apr-14 08:00	0.3	48	Apr-06	0	-	0	0	Apr 27, 2021
H_2S (ppb)	0.0	0.0	95.1%	100.0%	1.2	10	Apr-22 04:00	0.1	3	Apr-26	0	-	0	-	Apr 27, 2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	2.8	-11.8	100.0%	100.0%	19.2
WS (km/hr)	11.1	0.0	100.0%	100.0%	46.4
WD (deg)	264	0.5	100.0%	100.0%	359.5

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

Average Wind Direction	264	W

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 Wembley Air Monitoring Station

PAZA - April 2021 Wembley Station Report

Parameter	April 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	95.0%	100.0%	5.7	-	Apr-28 15:00	1.3	-	Apr-28	-	-	-	-	Apr 13, 2021
NO_2 (ppb)	2.2	0.1	95.0%	100.0%	12.8	159	Apr-04 21:00	3.6	-	Apr-23	0	-	-	-	Apr 13, 2021
NO_x (ppb)	2.5	0.1	95.0%	100.0%	15.0	-	Apr-15 10:00	4.7	-	Apr-28	-	-	-	-	Apr 13, 2021
O_3 (ppb)	36.9	11.3	95.3%	100.0%	55.2	76	Apr-16 17:00	44.5	-	Apr-01	0	-	-	-	Apr 13, 2021
$PM_{2.5}$ ($\mu g/m^3$)	1.6	0.0	99.4%	100.0%	9.6	80	Apr-13 20:00	3.8	29	Apr-17	0	-	0	-	Apr 14, 2021
SO_2 (ppb)	0.4	0.0	95.3%	100.0%	19.5	172	Apr-22 14:00	2.7	48	Apr-22	0	-	0	0	Apr 13, 2021
TRS (ppb)	0.3	0.0	95.1%	100.0%	1.3	-	Apr-25 05:00	0.5	-	Apr-25	-	-	-	-	Apr 14, 2021
CH4 (ppm)	2.0	1.9	95.0%	100.0%	2.3	-	Apr-25 05:00	2.1	-	Apr-12	-	-	-	-	Apr 14, 2021
THC (ppm)	2.0	1.9	95.0%	100.0%	2.4	-	Apr-25 05:00	2.1	-	Apr-12	-	-	-	-	Apr 14, 2021
NMHC (ppm)	0.0	0.0	95.0%	100.0%	0.0	-	Apr-05 05:00	0.0	-	Apr-05	-	-	-	-	Apr 14, 2021

	Average	Minimum	Valid	Operational	Maximum
Temp (°C)	3.5	-9.5	100.0%	100.0%	20.9
WS (km/hr)	9.3	0.5	100.0%	100.0%	41.9
WD (deg)	330	0.2	100.0%	100.0%	359.8

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

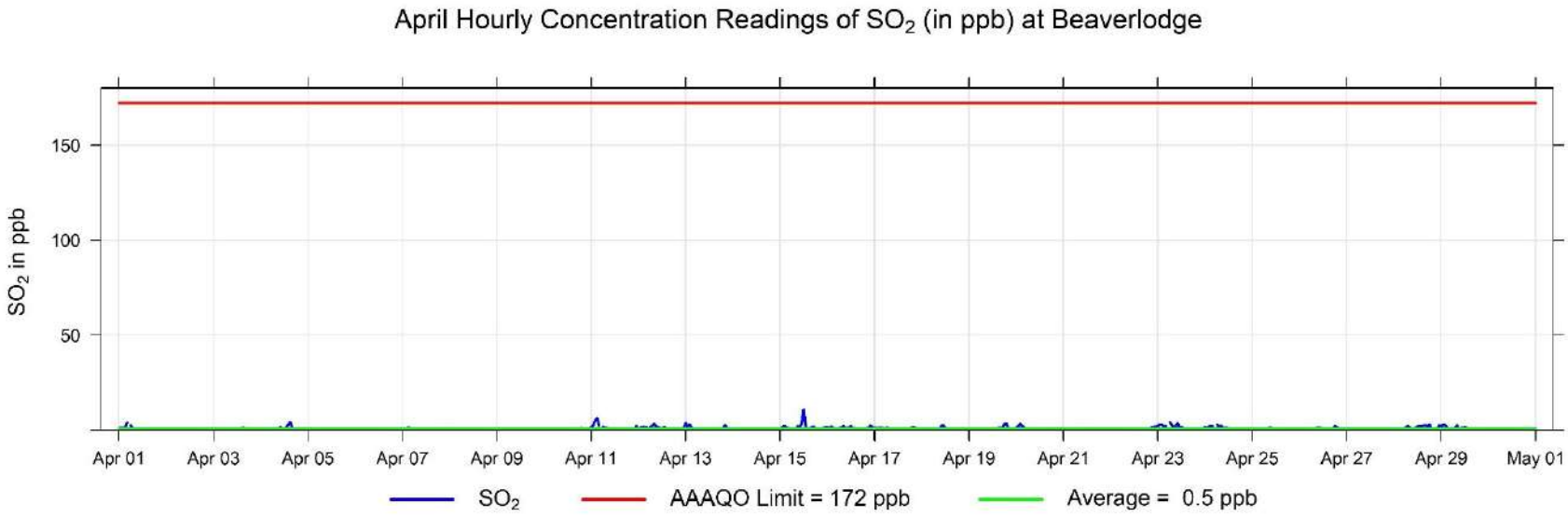
Average Wind Direction	330	NNW

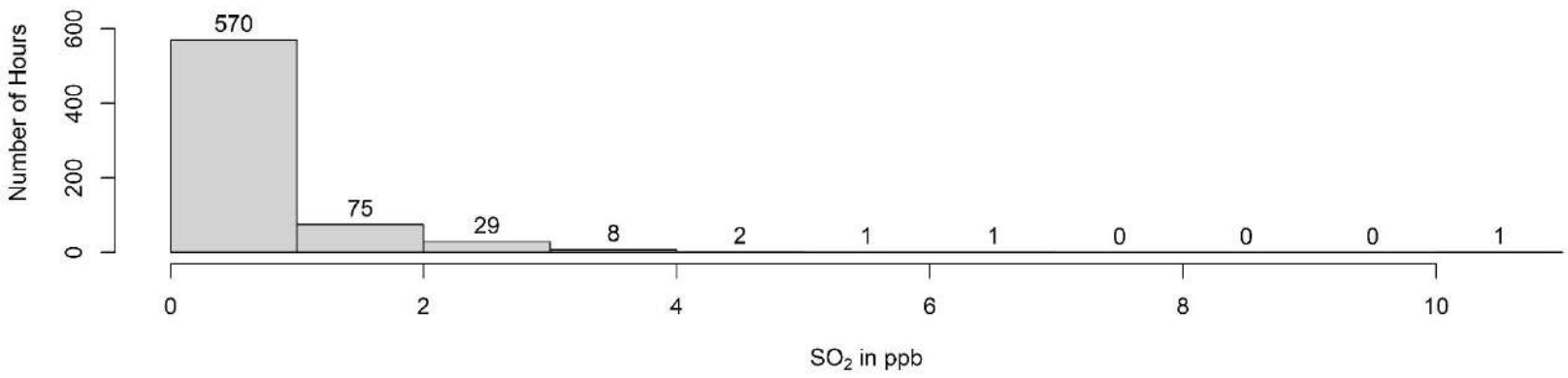
Update Summary:

Parameter	Make	Model	Equipment summary
$NO/NO_2/NO_X$	TEI	42i	No Operational issues noted
O_3	TEI	49I	No Operational issues noted
$PM_{2.5}$	Thermo	TEOM AB	No Operational issues noted
SO_2	TEI	43I	No Operational issues noted
TRS	TEI	43I	No Operational issues noted
THC/CH4/NMHC	TEI	55I-A3PHAA	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

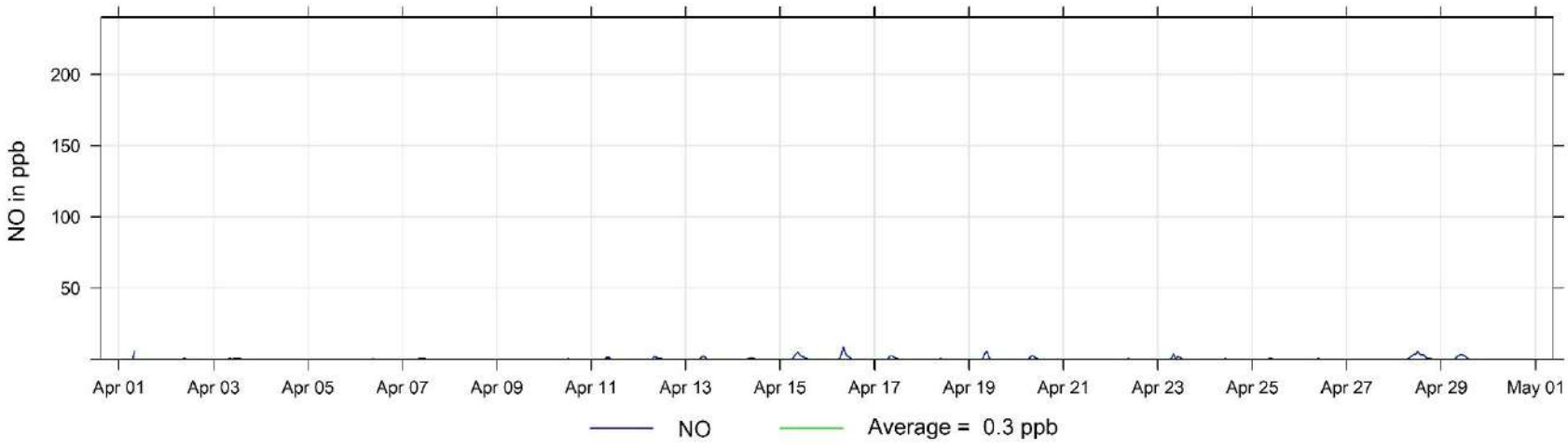
2 Beaverlodge Charts

The following pages include the charts and histograms for Beaverlodge Station

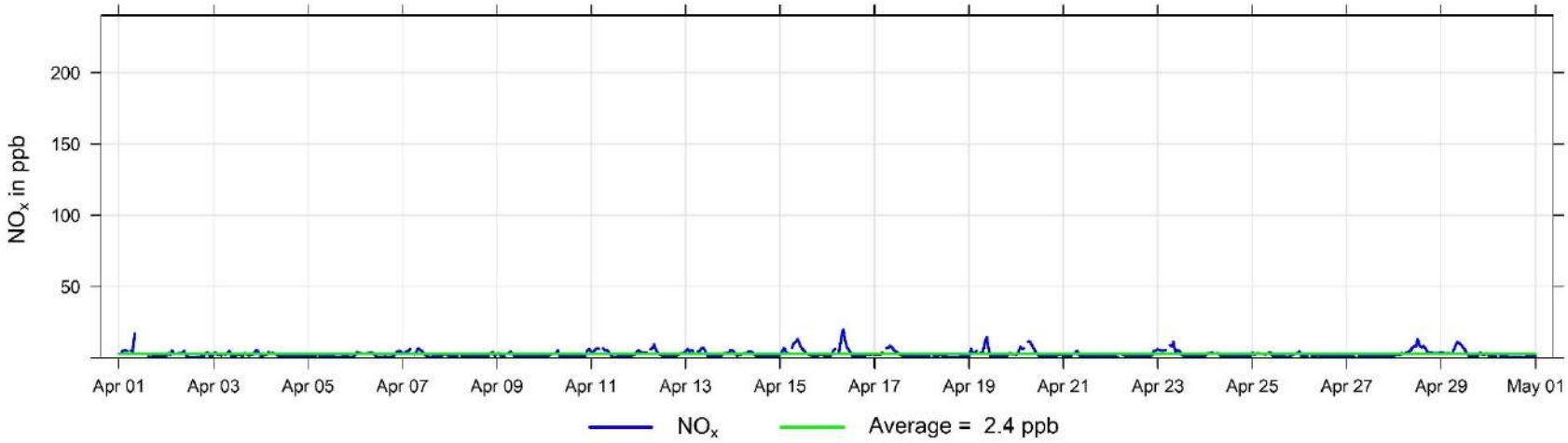

April Hourly Concentration Readings of SO_2 (in ppb) at Beaverlodge
SO_2 in ppb
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
SO_2
AAAQO Limit = 172 ppb
Average = 0.5 ppb

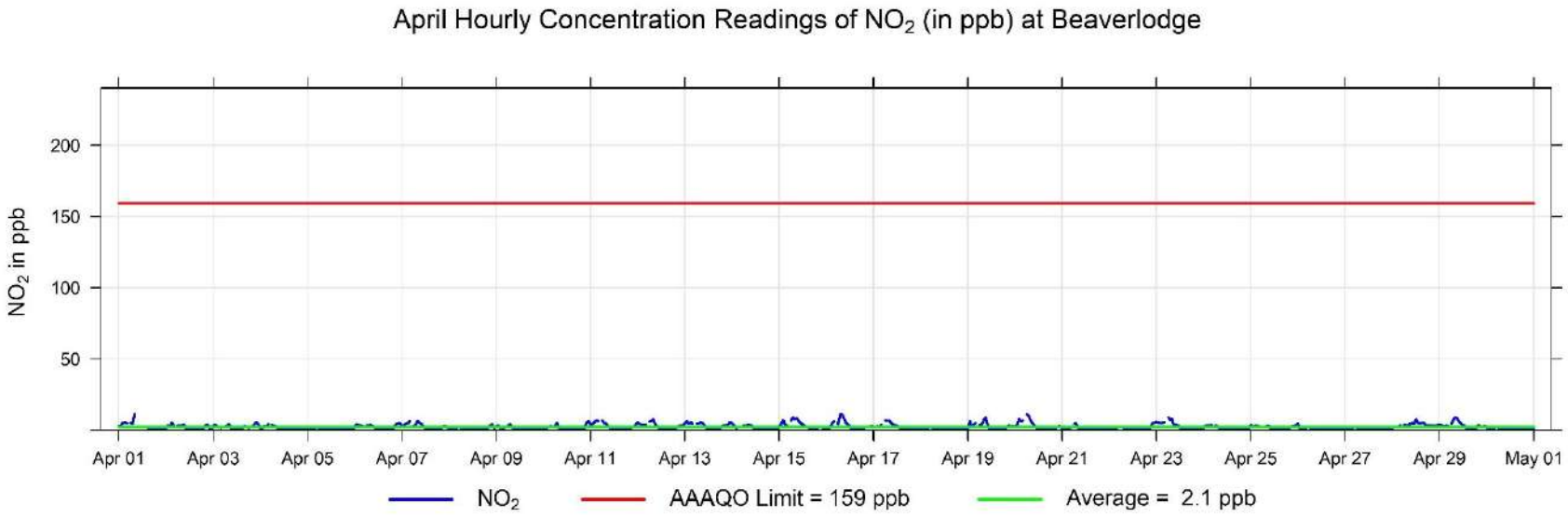

Number of Hours
0
200
400
600
570
75
29
8
2
1
1
0
0
0
1
0
2
4
6
8
10
SO_2 in ppb

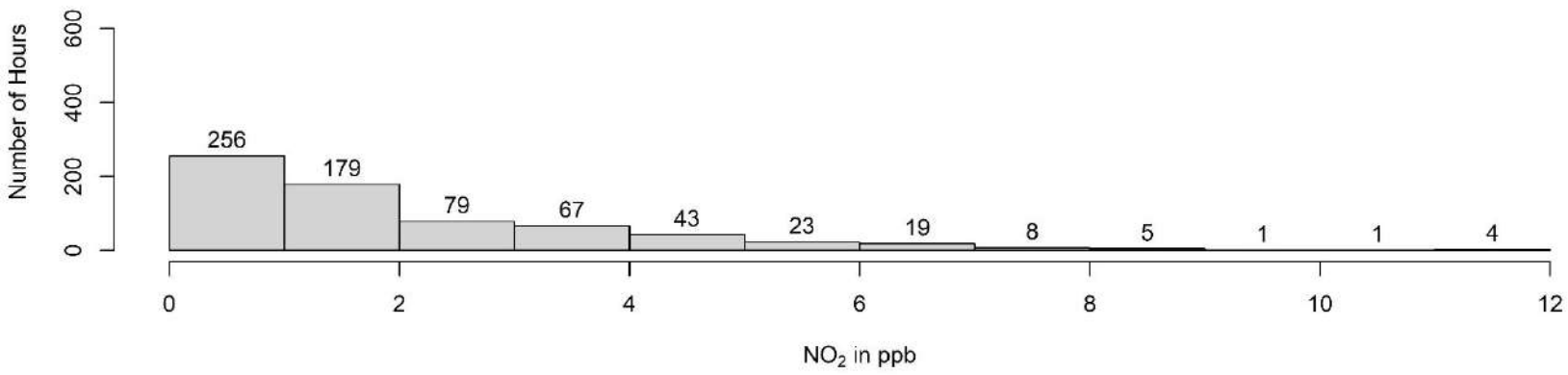
April Hourly Concentration Readings of NO (in ppb) at Beaverlodge

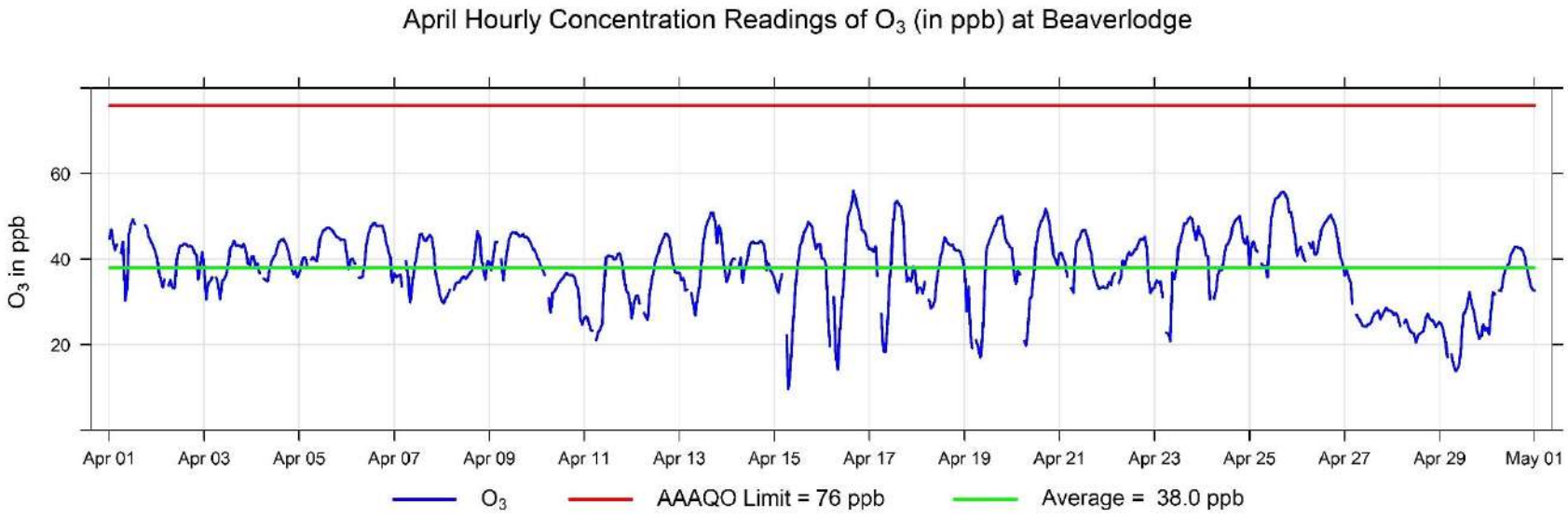


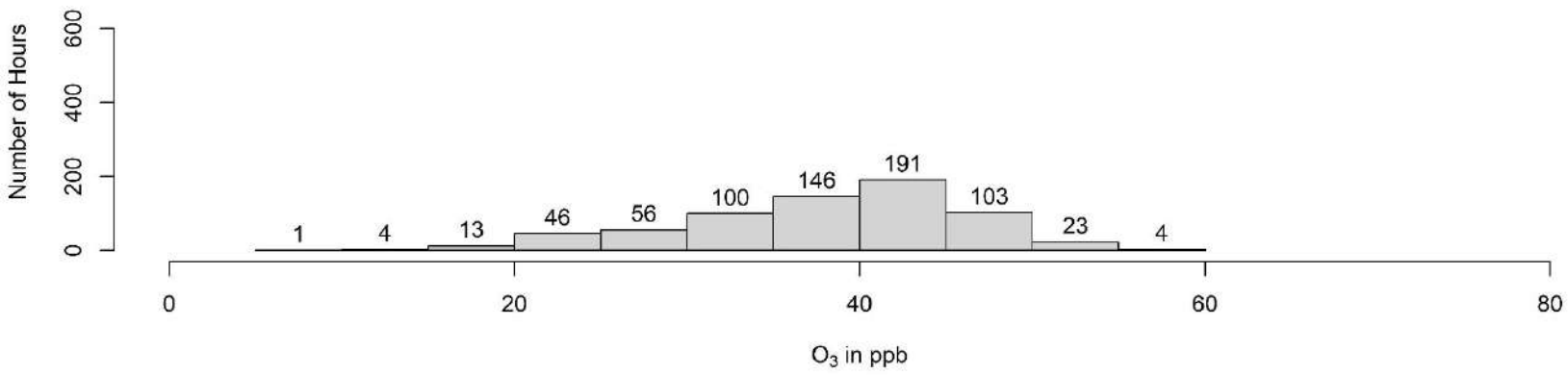
April Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge

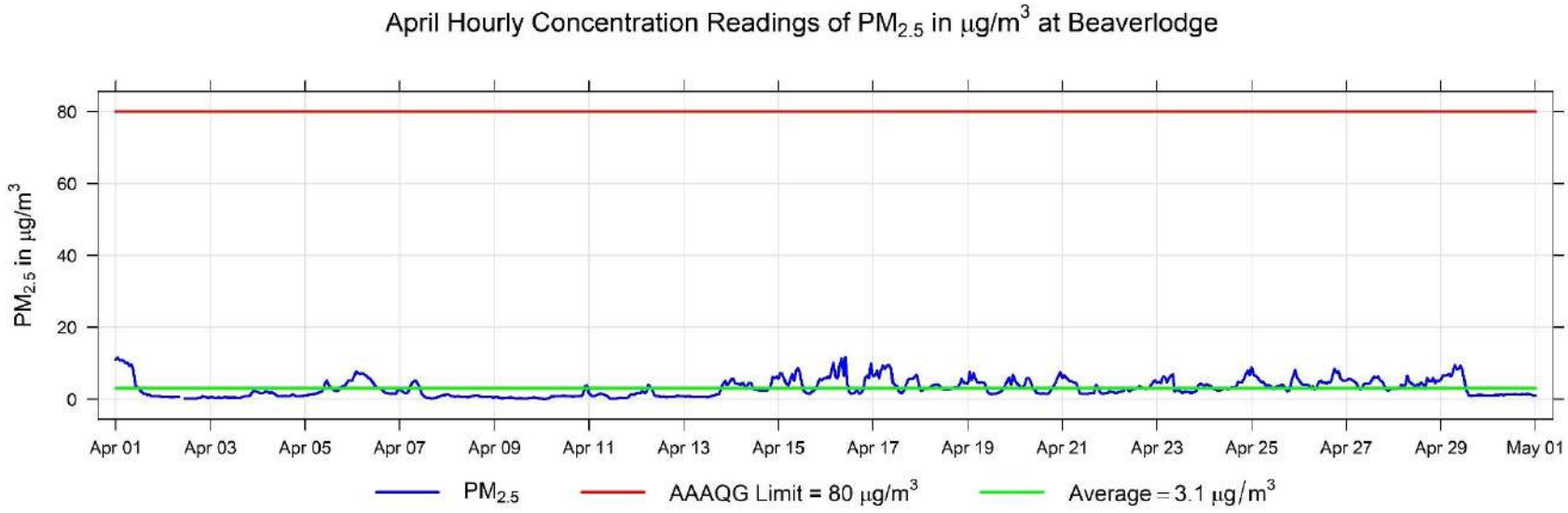


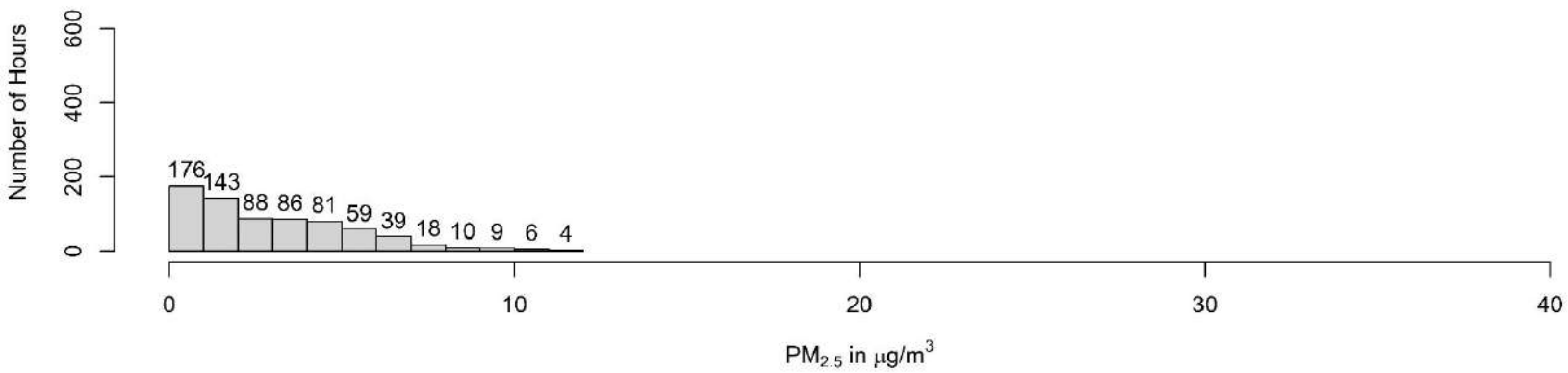

April Hourly Concentration Readings of NO_2 (in ppb) at Beaverlodge
NO_2 in ppb
200
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
NO_2
AAAQO Limit = 159 ppb
Average = 2.1 ppb


Number of Hours
0
200
400
600
256
179
79
67
43
23
19
8
5
1
1
4
0
2
4
6
8
10
12
NO_2 in ppb

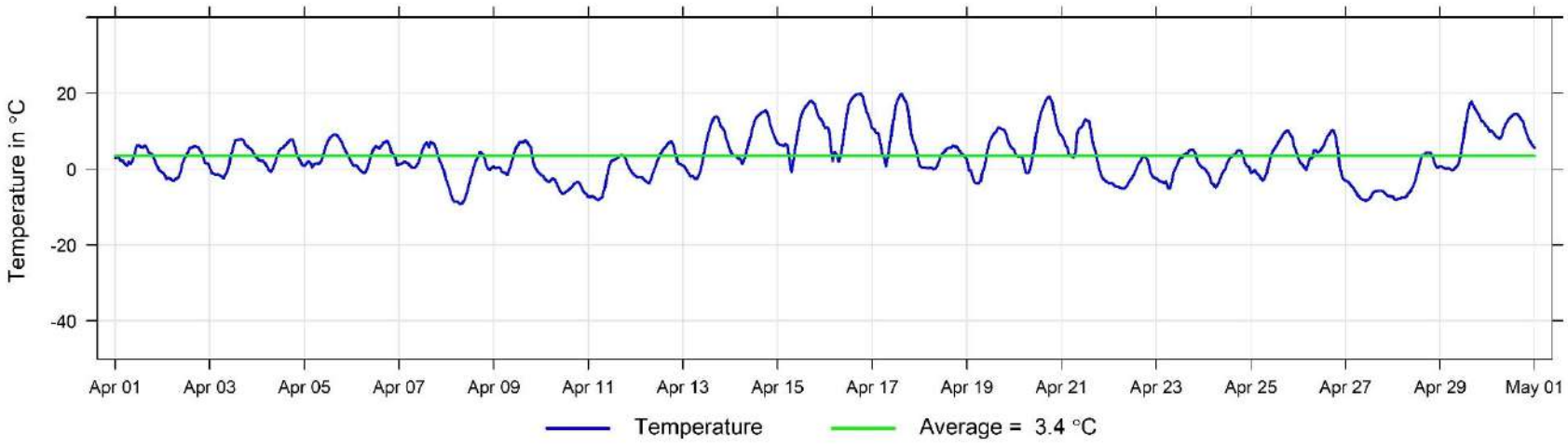

April Hourly Concentration Readings of O_3 (in ppb) at Beaverlodge
O_3 in ppb
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
O_3
AAAQO Limit = 76 ppb
Average = 38.0 ppb


Number of Hours
0
200
400
600
1
4
13
46
56
100
146
191
103
23
4
0
20
40
60
80
O_3 in ppb

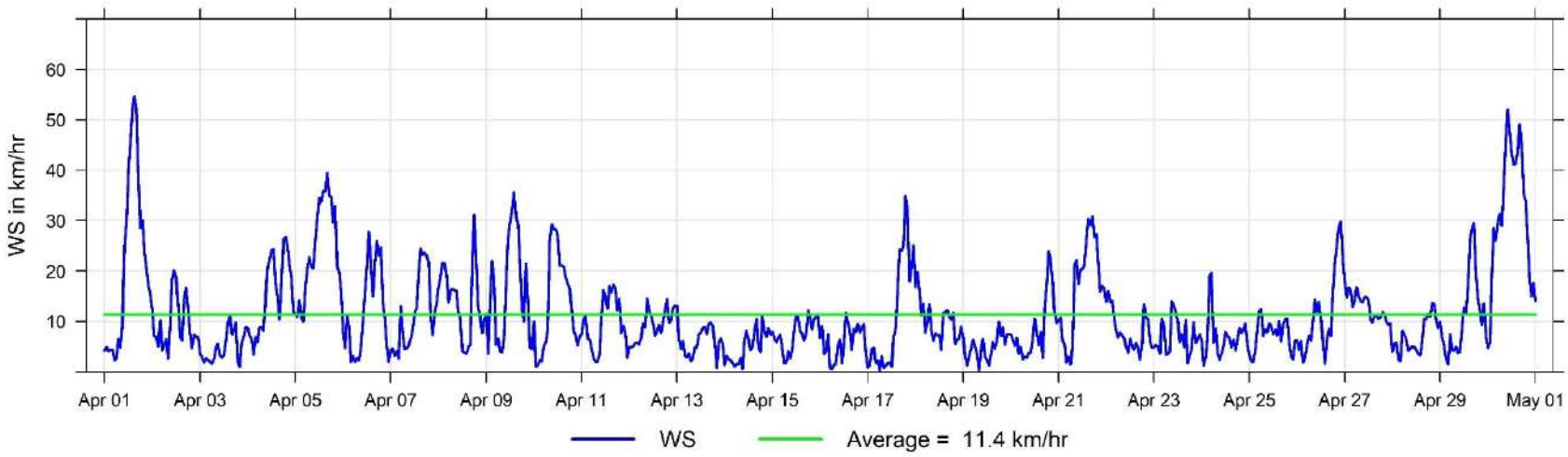

April Hourly Concentration Readings of PM2.5 in µg/m3 at Beaverlodge
PM2.5 in µg/m3
80
60
40
20
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
PM2.5
AAAQG Limit = 80 µg/m3
Average = 3.1 µg/m3

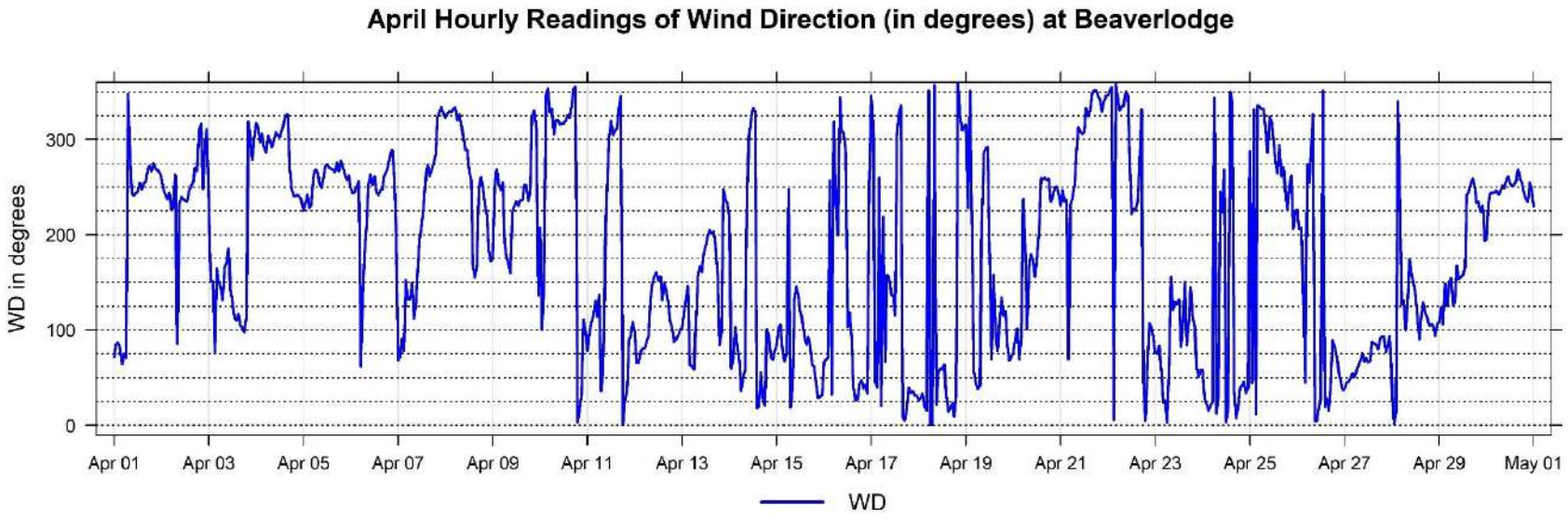

Number of Hours
0
200
400
600
176
143
88
86
81
59
39
18
10
9
6
4
0
10
20
30
40
PM2.5 in µg/m3

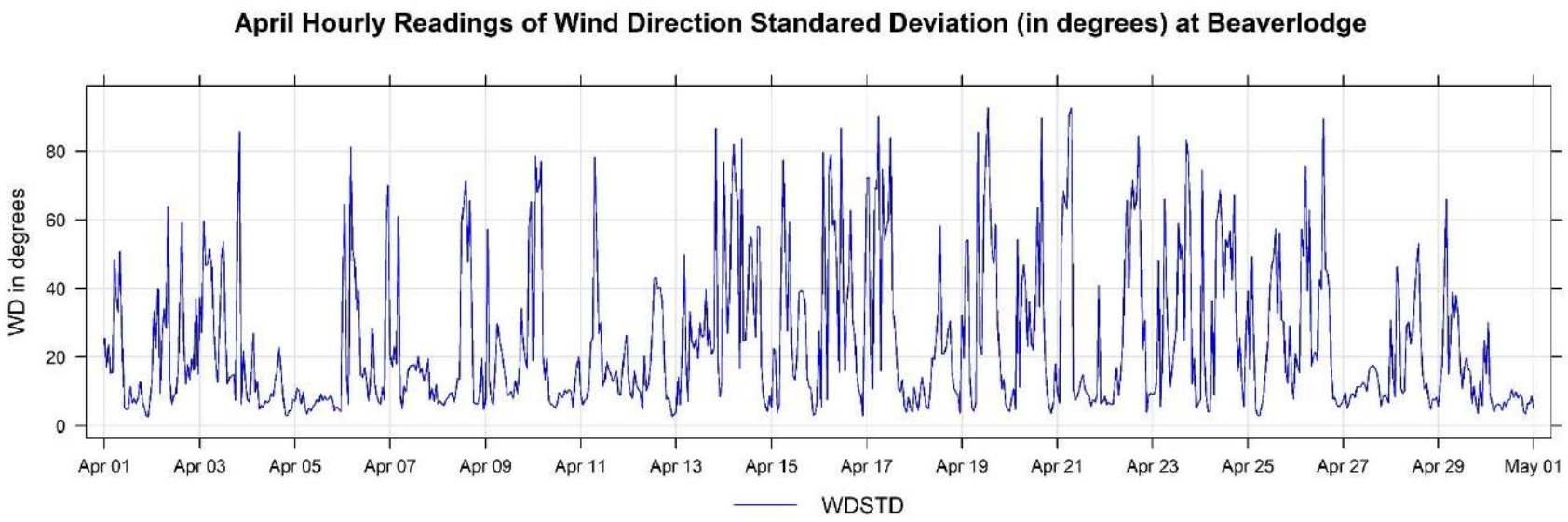
April Hourly Temperature Readings (in °C) at Beaverlodge

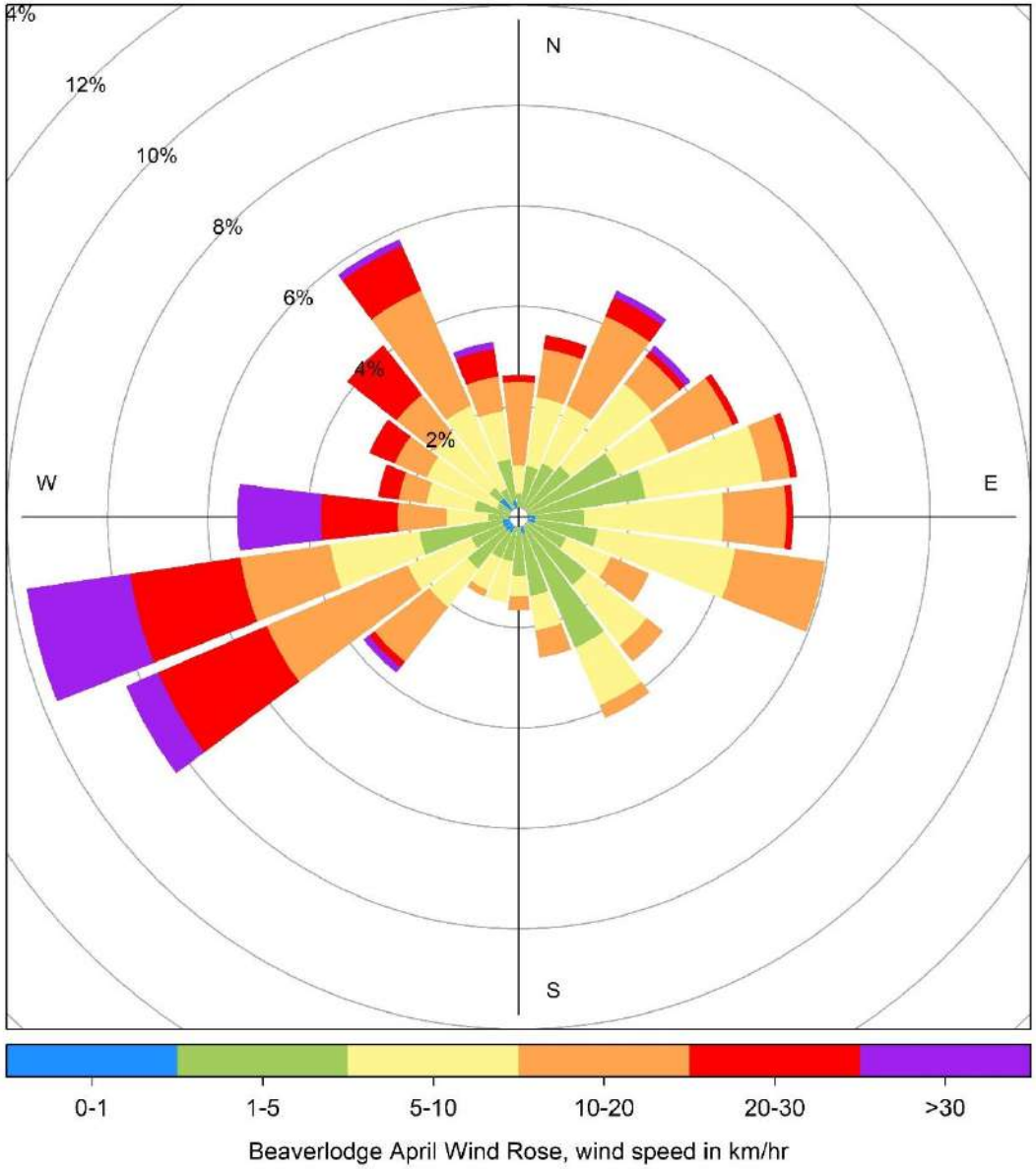


April Hourly Readings of Wind Speed (in km/hr) at Beaverlodge




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

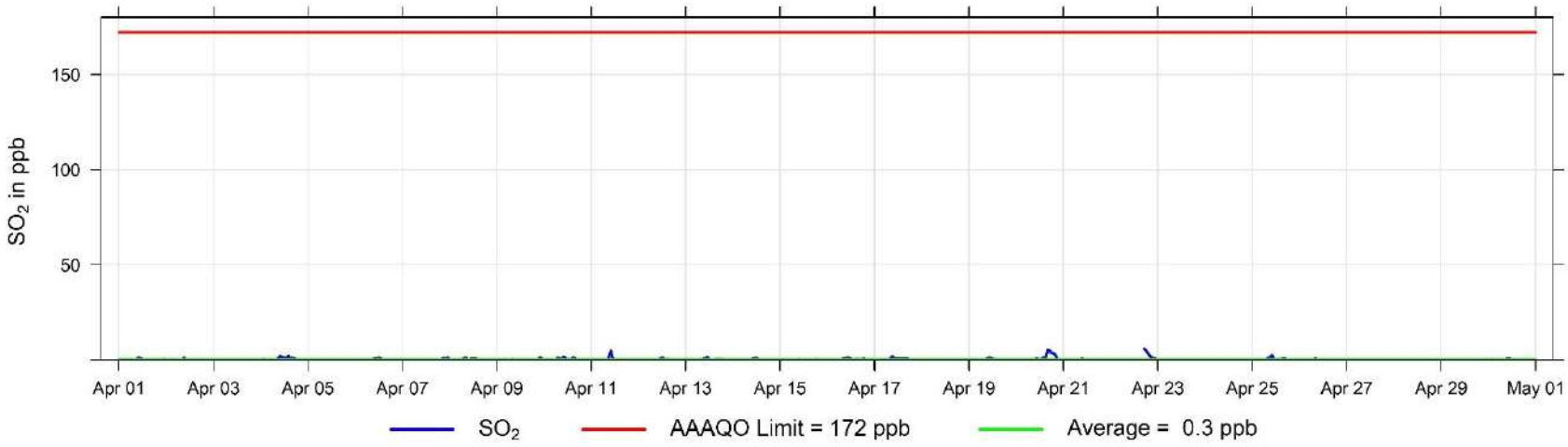

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Beaverlodge
WD in degrees
0
20
40
60
80
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

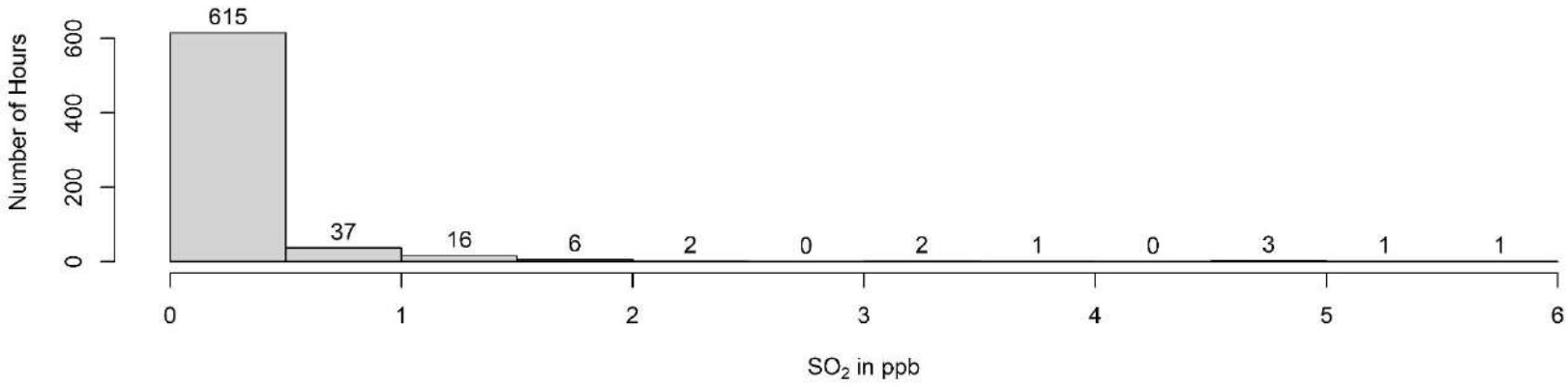

4%
12%
10%
8%
6%
4%
2%
N
W
E
S
0-1
1-5
5-10
10-20
20-30
>30
Beaverlodge April Wind Rose, wind speed in km/hr

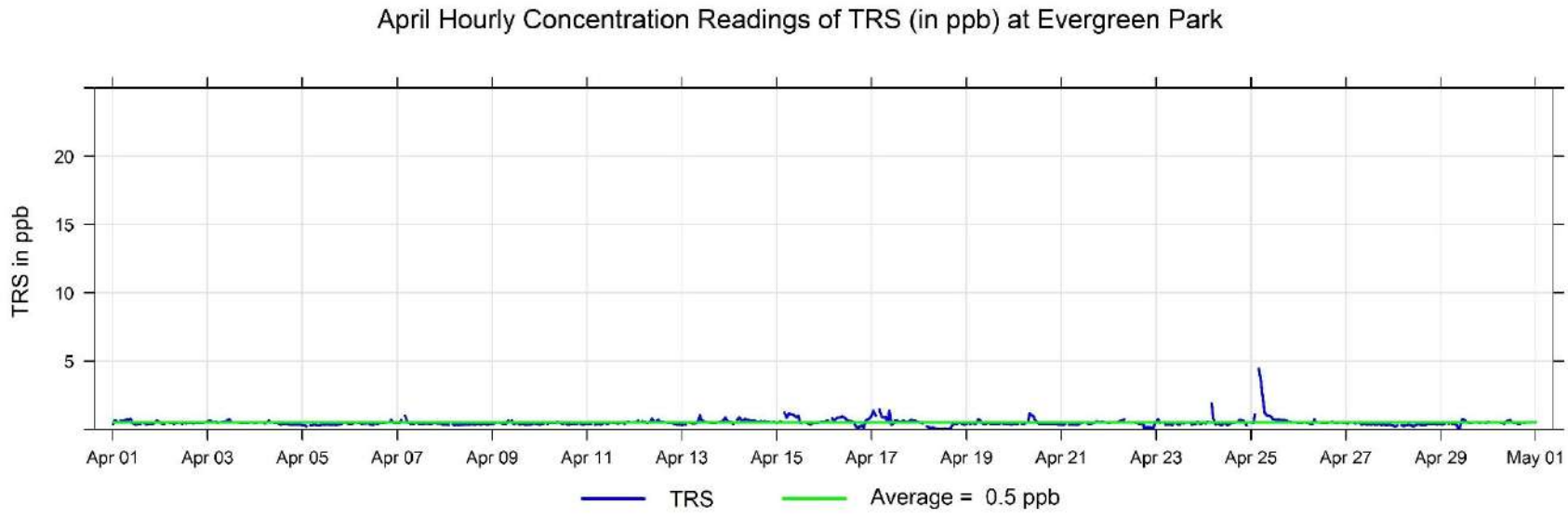
3 Evergreen Park Charts

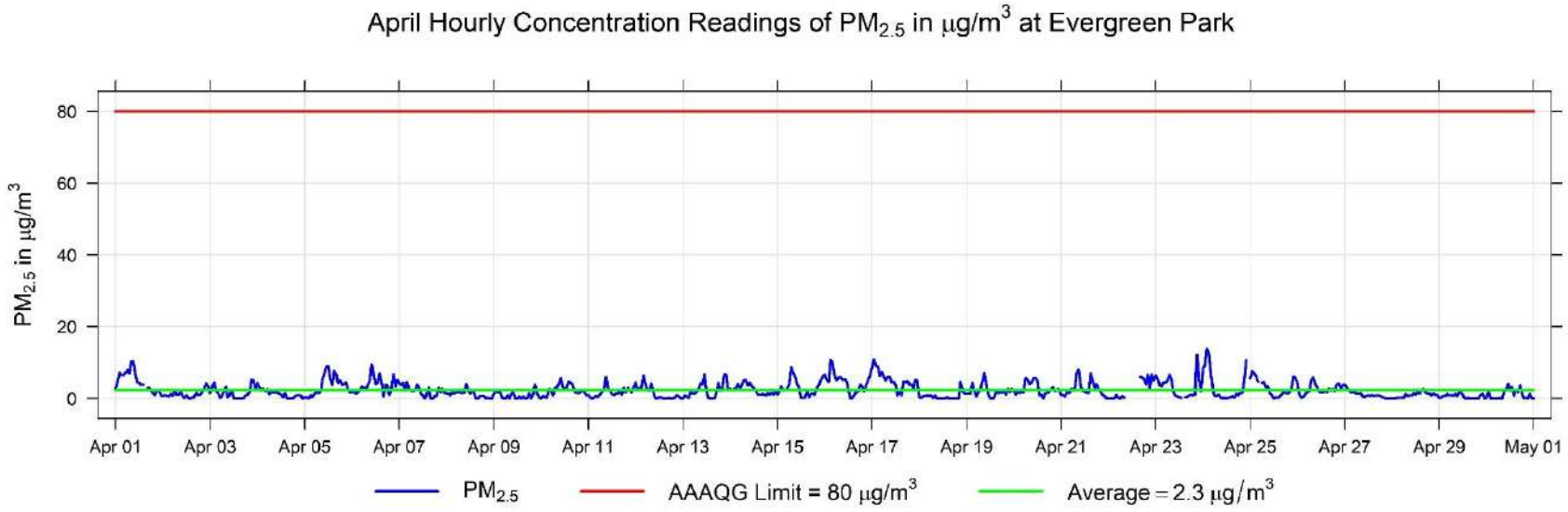
The following pages include the charts and histograms for Evergreen Park Station

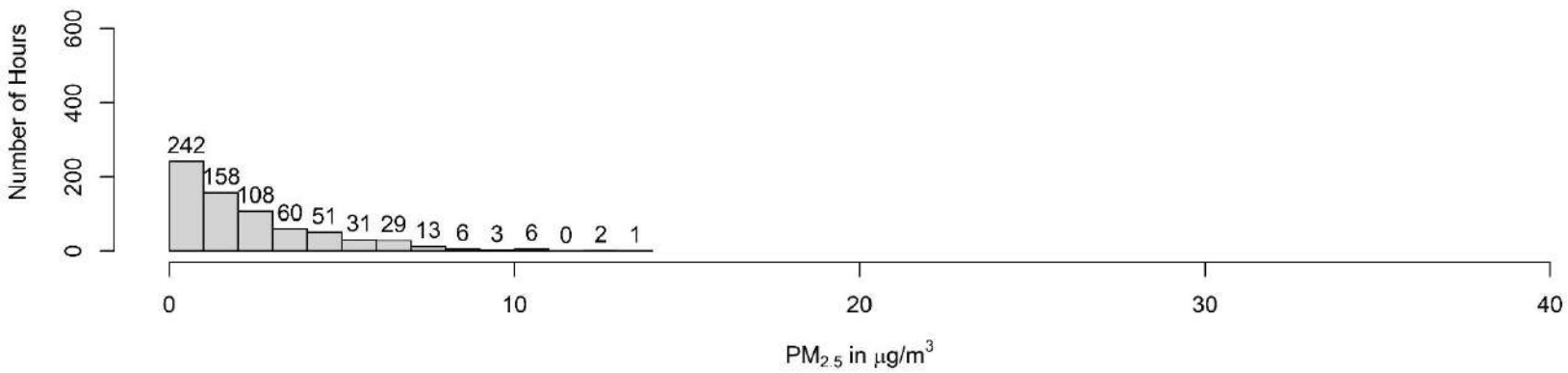
April Hourly Concentration Readings of SO_2 (in ppb) at Evergreen Park



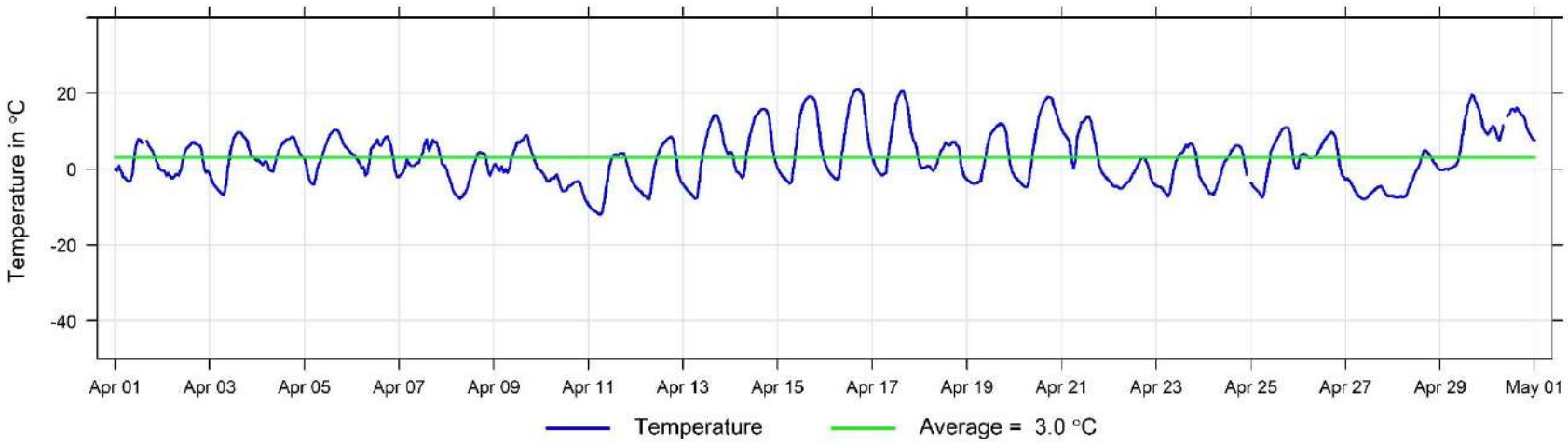



April Hourly Concentration Readings of TRS (in ppb) at Evergreen Park
TRS in ppb
20
15
10
5
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
TRS
Average = 0.5 ppb

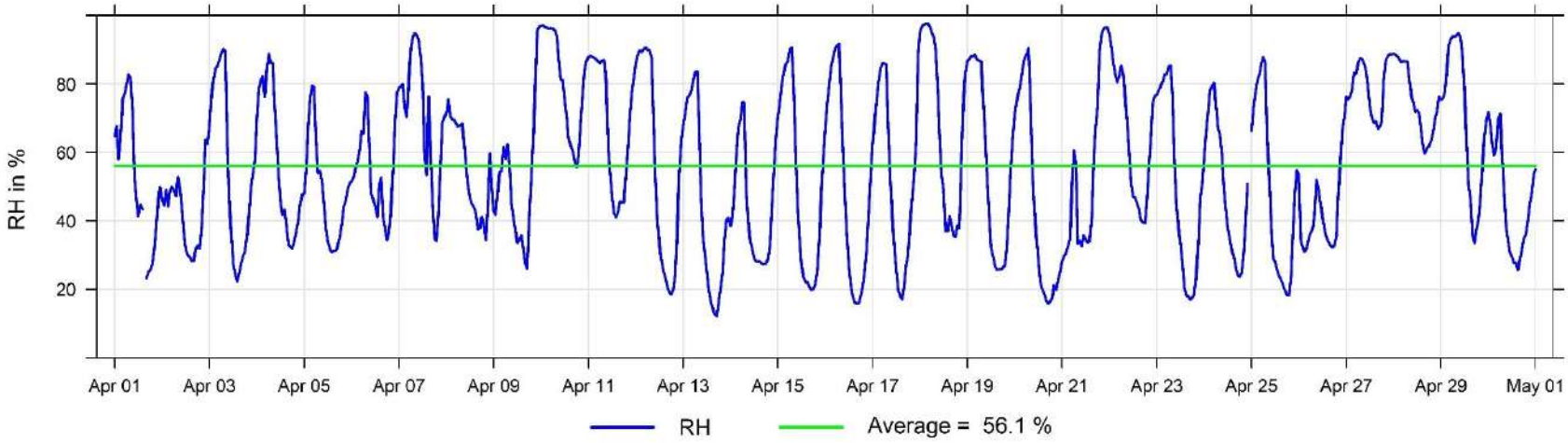

April Hourly Concentration Readings of PM2.5 in μg/m3 at Evergreen Park
PM2.5 in μg/m3
80
60
40
20
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
PM2.5
AAAQG Limit = 80 μg/m3
Average = 2.3 μg/m3

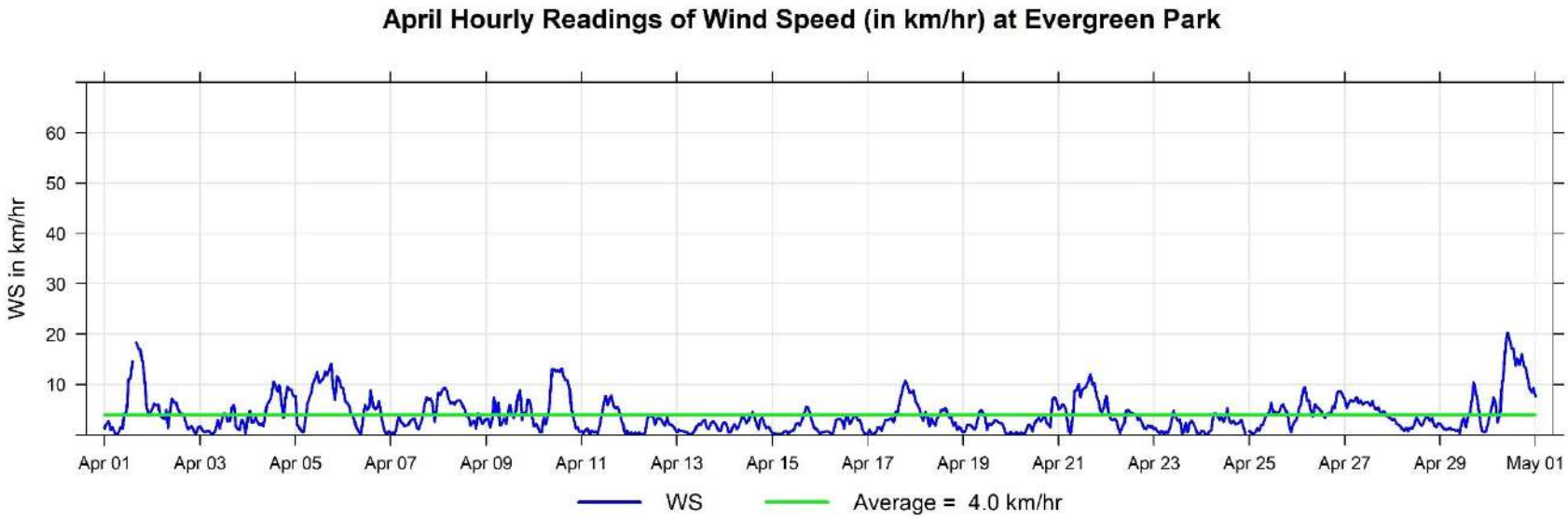

Number of Hours
0
200
400
600
242
158
108
60
51
31
29
13
6
3
6
0
2
1
0
10
20
30
40
PM2.5 in μg/m3

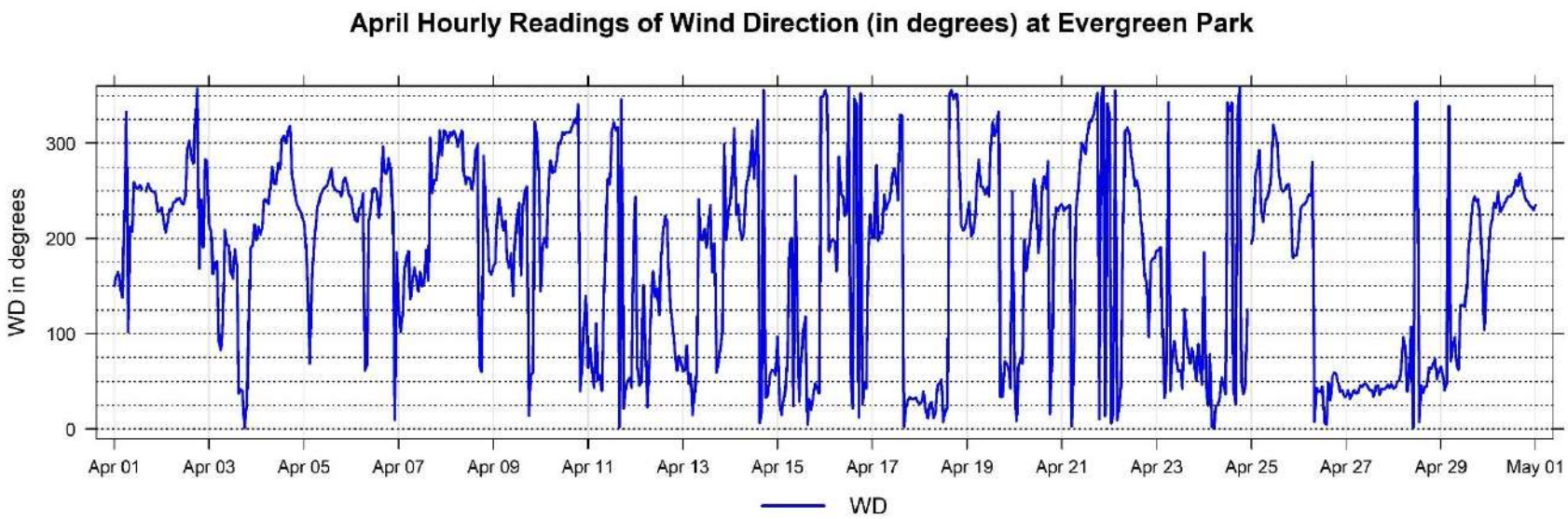
April Hourly Temperature Readings (in °C) at Evergreen Park

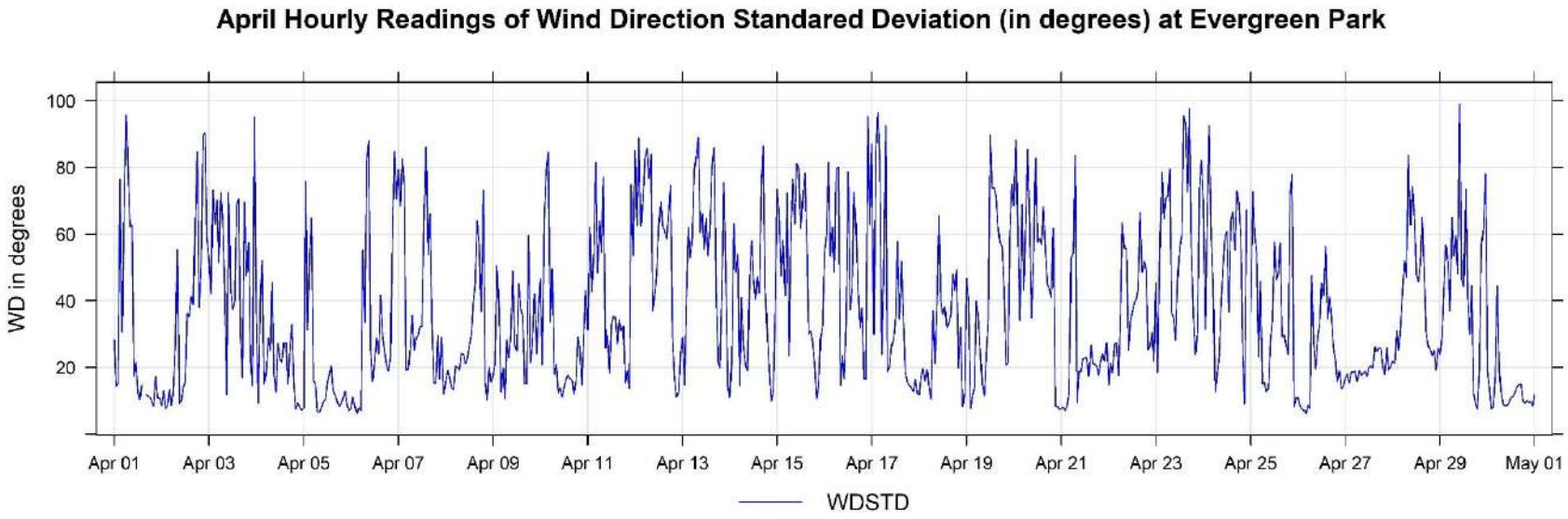


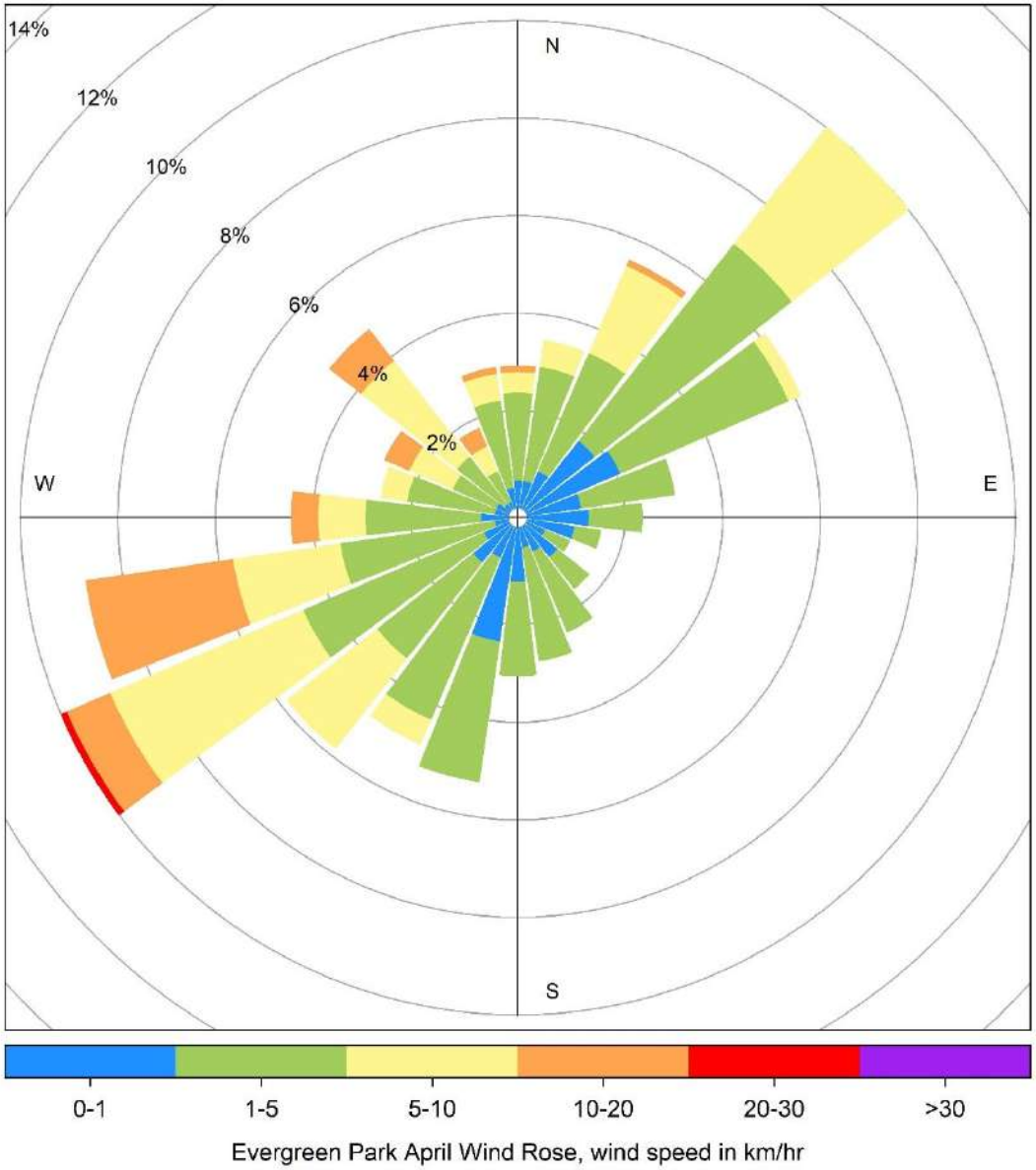
April Hourly Readings of Relative Humidity (in %) at Evergreen Park




April Hourly Readings of Wind Speed (in km/hr) at Evergreen Park
WS in km/hr
60
50
40
30
20
10
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WS
Average = 4.0 km/hr

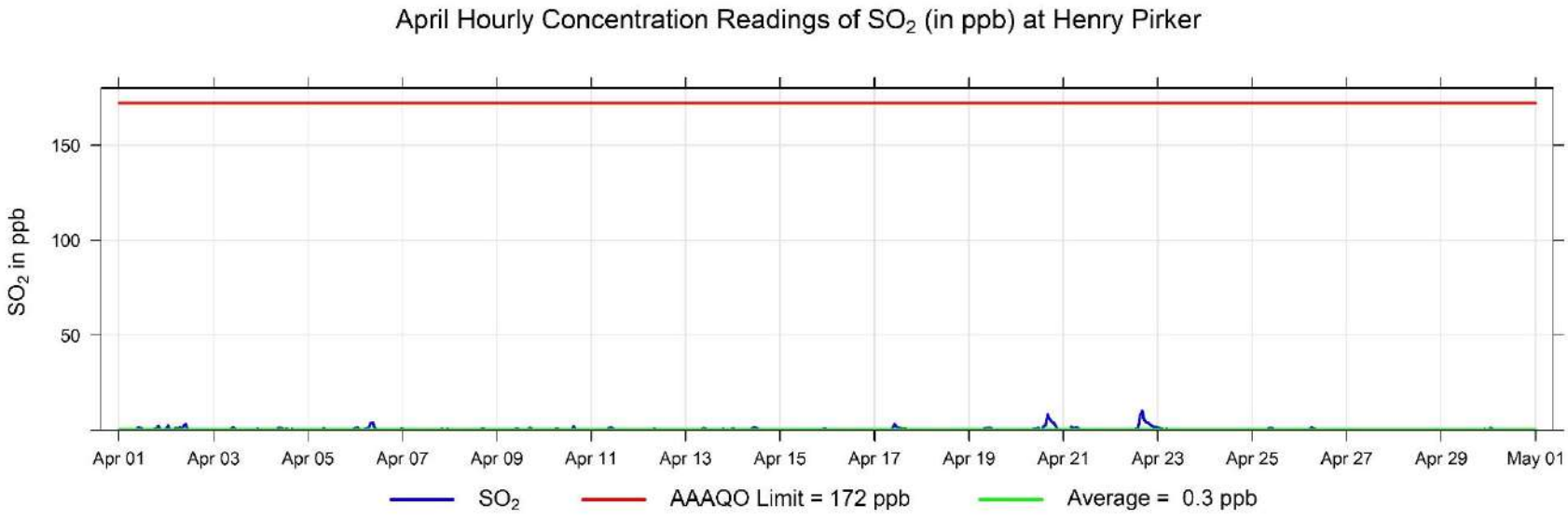

April Hourly Readings of Wind Direction (in degrees) at Evergreen Park
WD in degrees
300
200
100
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WD

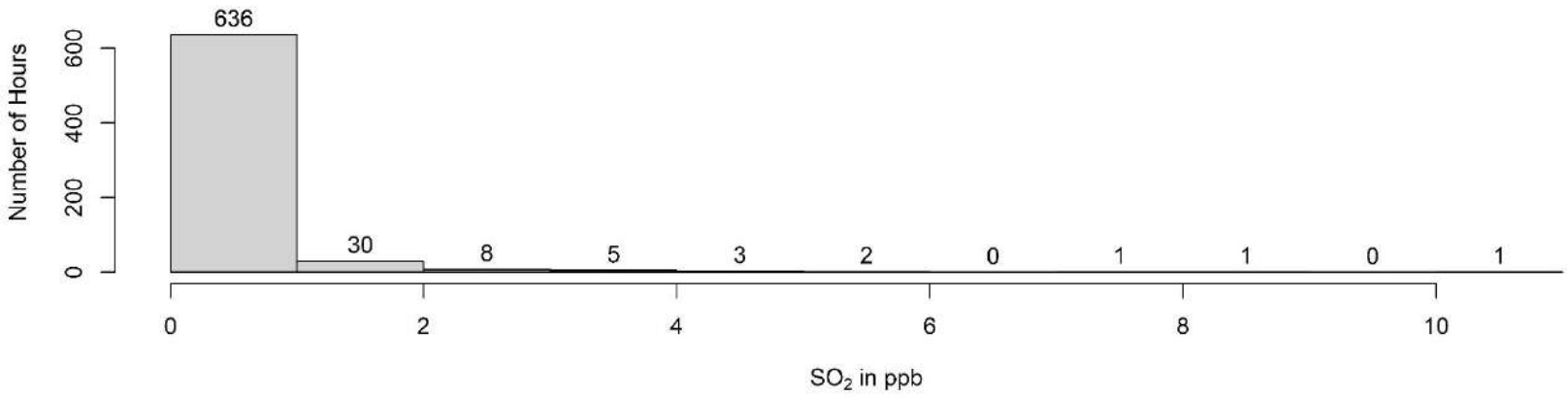

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Evergreen Park
WD in degrees
100
80
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD


14%
12%
10%
8%
6%
4%
2%
N
W
E
S
0-1
1-5
5-10
10-20
20-30
>30
Evergreen Park April Wind Rose, wind speed in km/hr

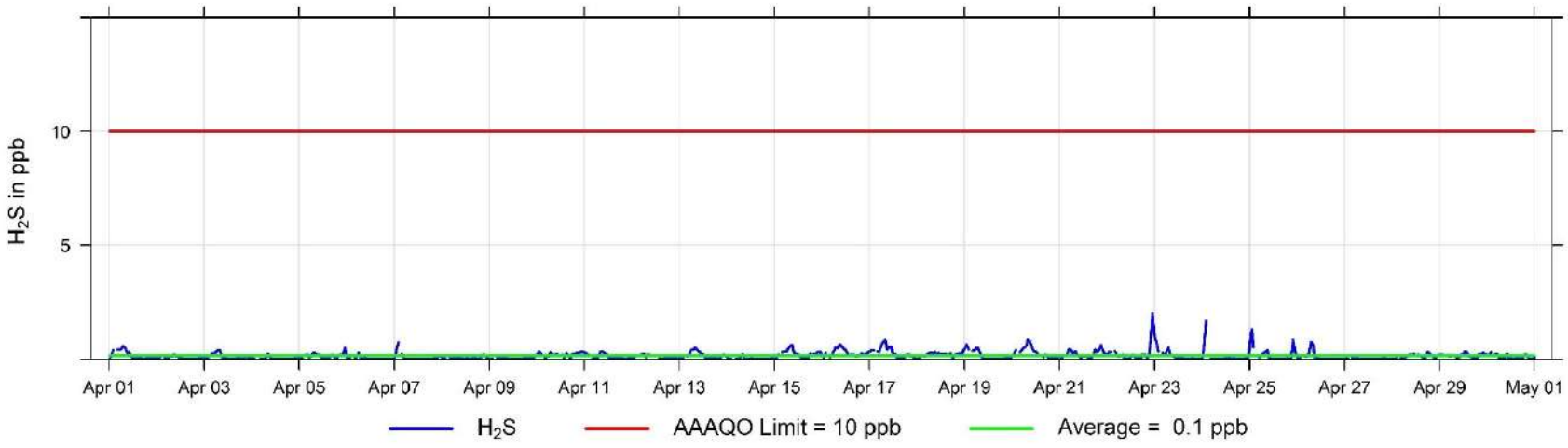
4 Grande Prairie - Henry Pirker Charts

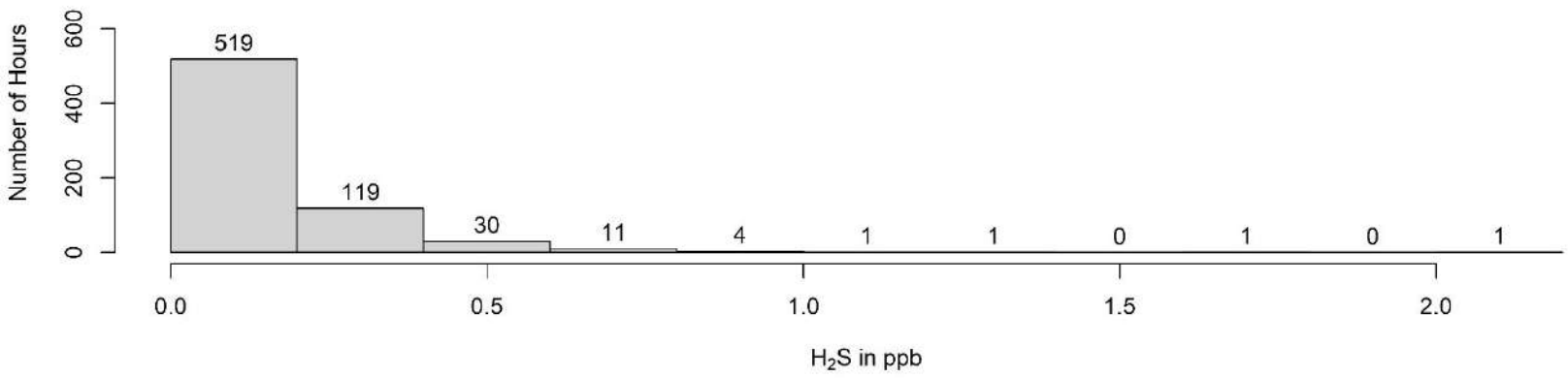
The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie


April Hourly Concentration Readings of SO_2 (in ppb) at Henry Pirker
SO_2 in ppb
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
SO_2
AAAQO Limit = 172 ppb
Average = 0.3 ppb

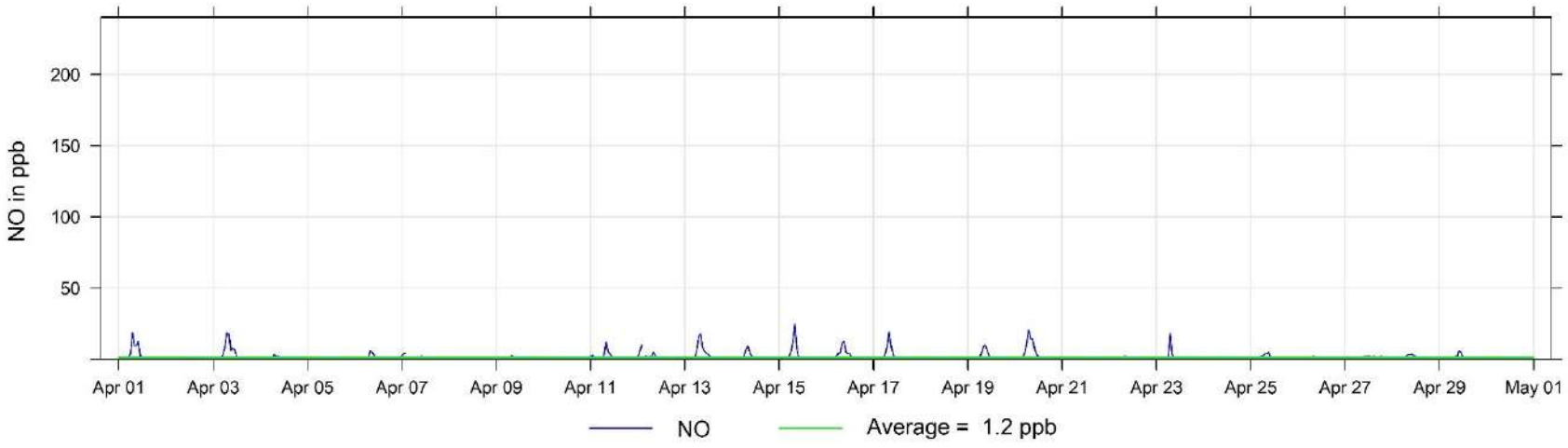

Number of Hours
0
200
400
600
636
30
8
5
3
2
0
1
1
0
1
0
2
4
6
8
10
SO_2 in ppb

April Hourly Concentration Readings of H_2S (in ppb) at Henry Pirker

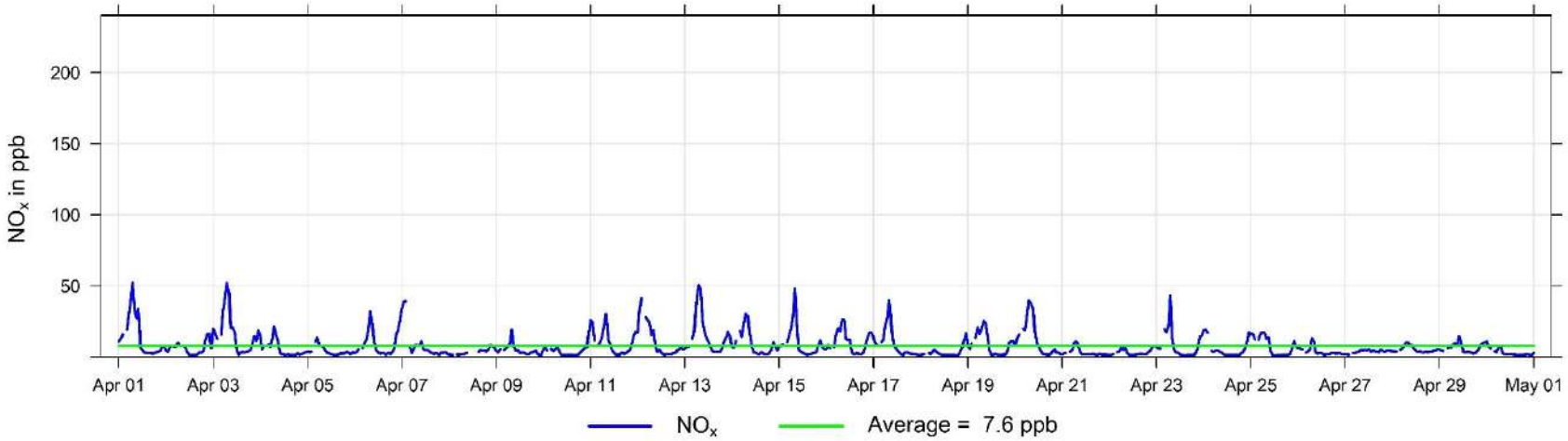


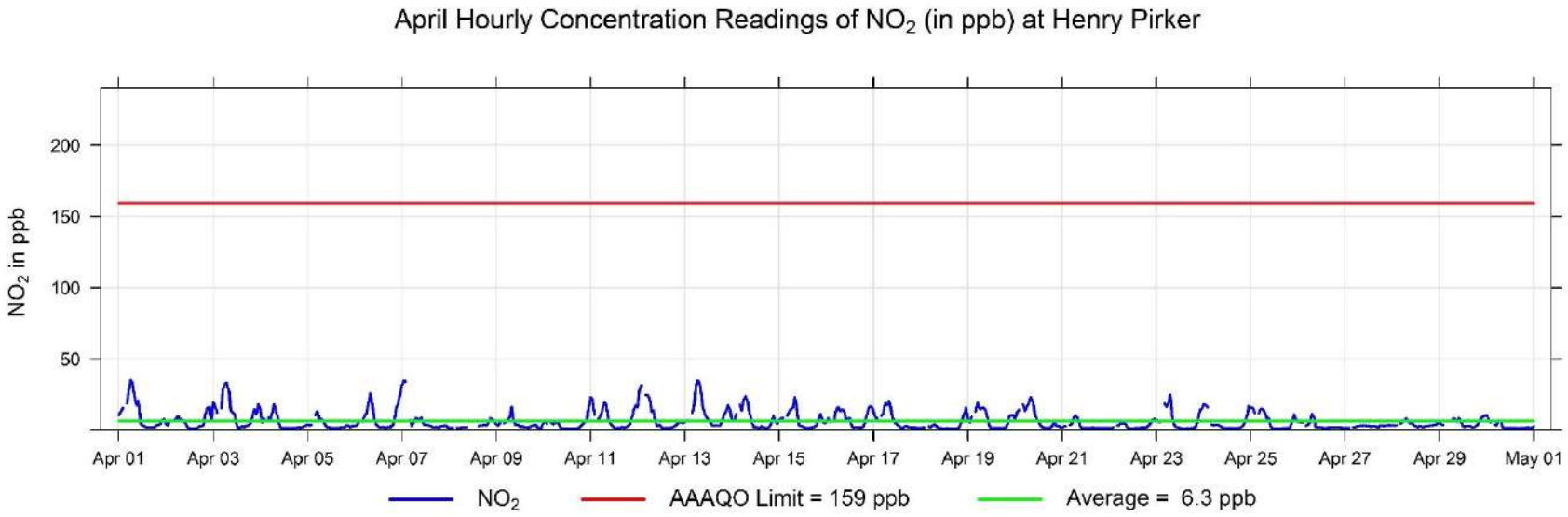


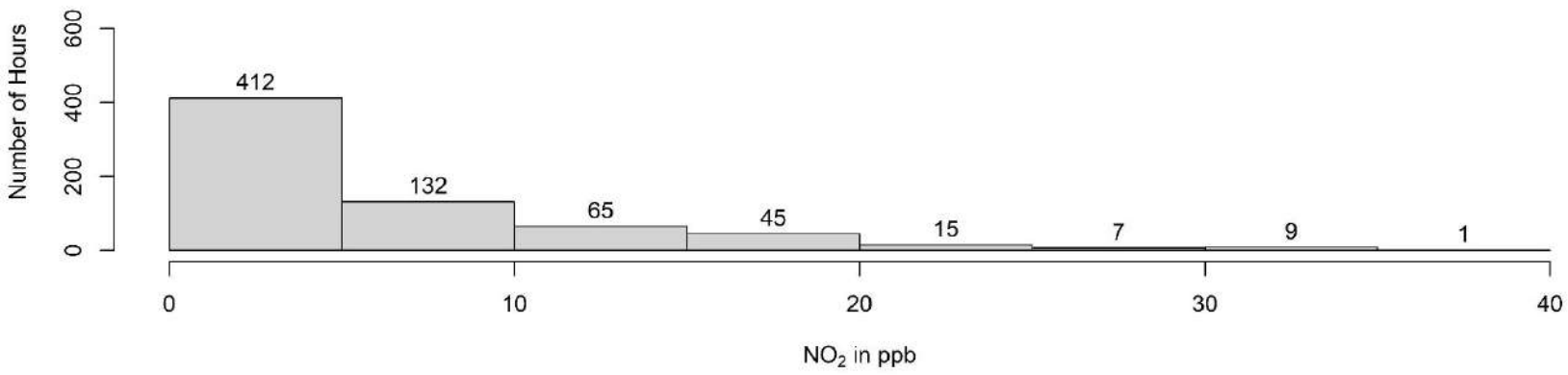
April Hourly Concentration Readings of NO (in ppb) at Henry Pirker

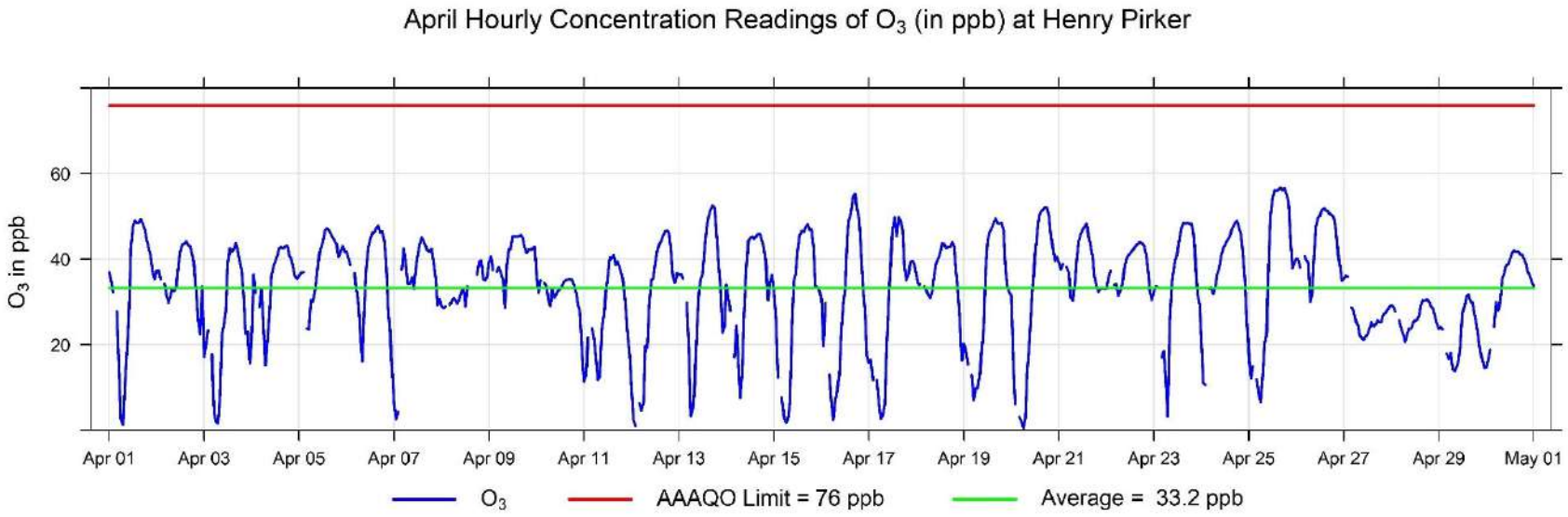


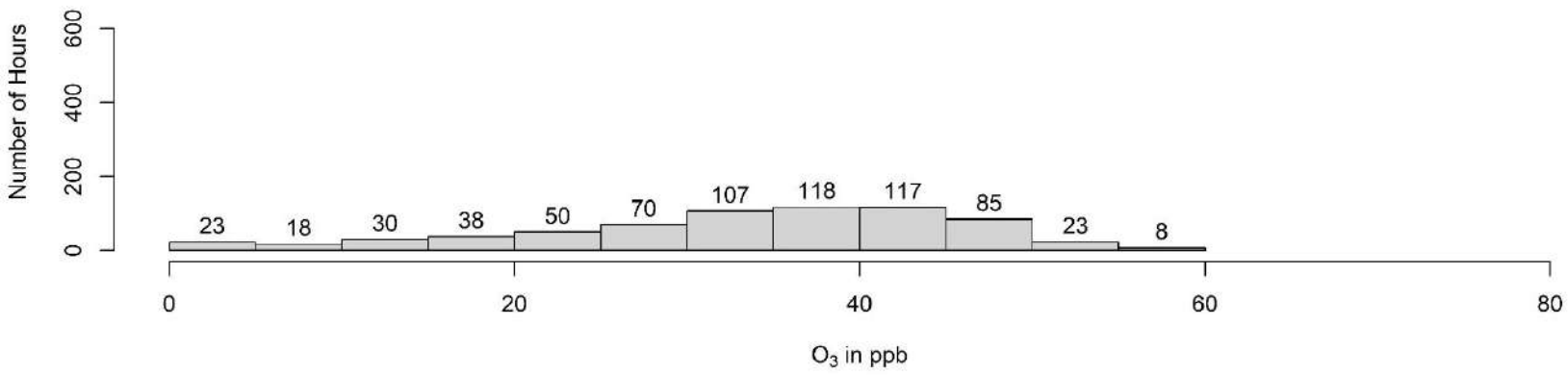
April Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



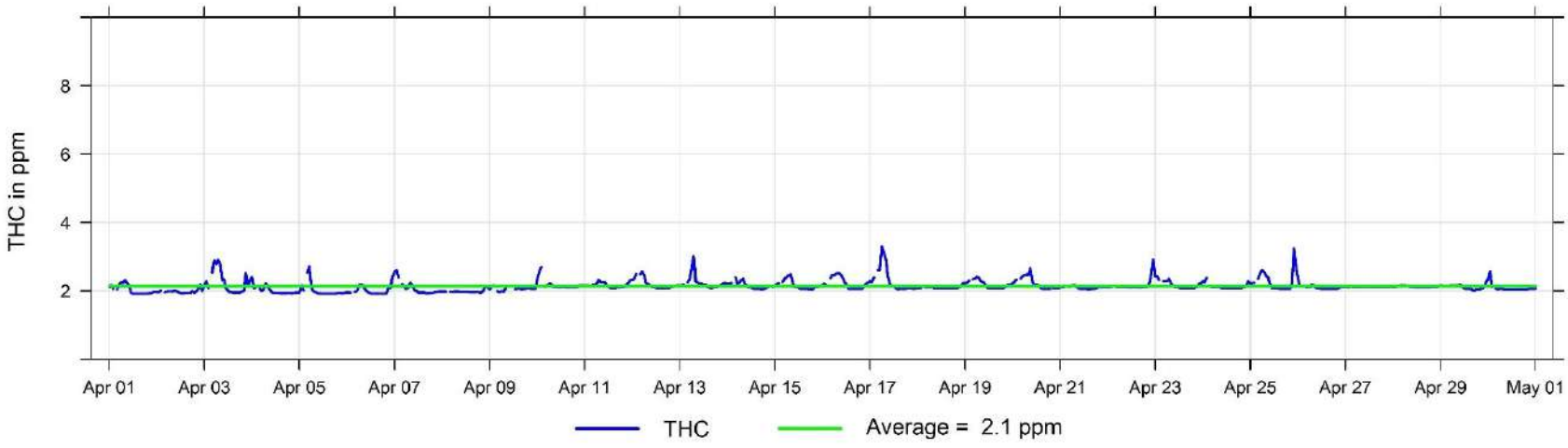

April Hourly Concentration Readings of NO_2 (in ppb) at Henry Pirker
NO_2 in ppb
200
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
NO_2
AAAQO Limit = 159 ppb
Average = 6.3 ppb


Number of Hours
0
200
400
600
412
132
65
45
15
7
9
1
0
10
20
30
40
NO_2 in ppb

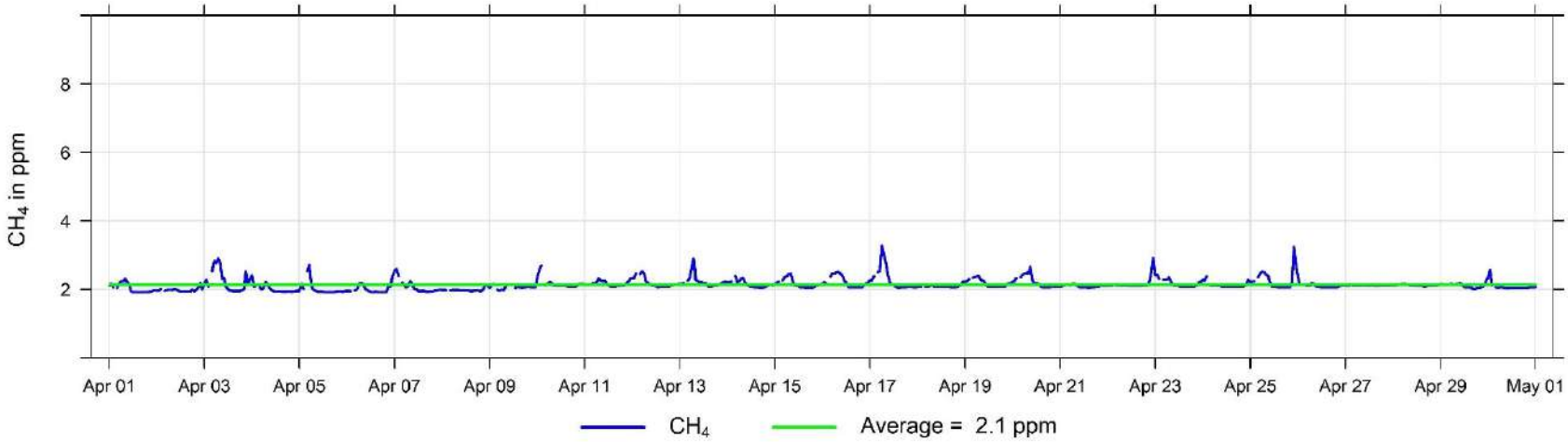

April Hourly Concentration Readings of O_3 (in ppb) at Henry Pirker
O_3 in ppb
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
O_3
AAAQO Limit = 76 ppb
Average = 33.2 ppb

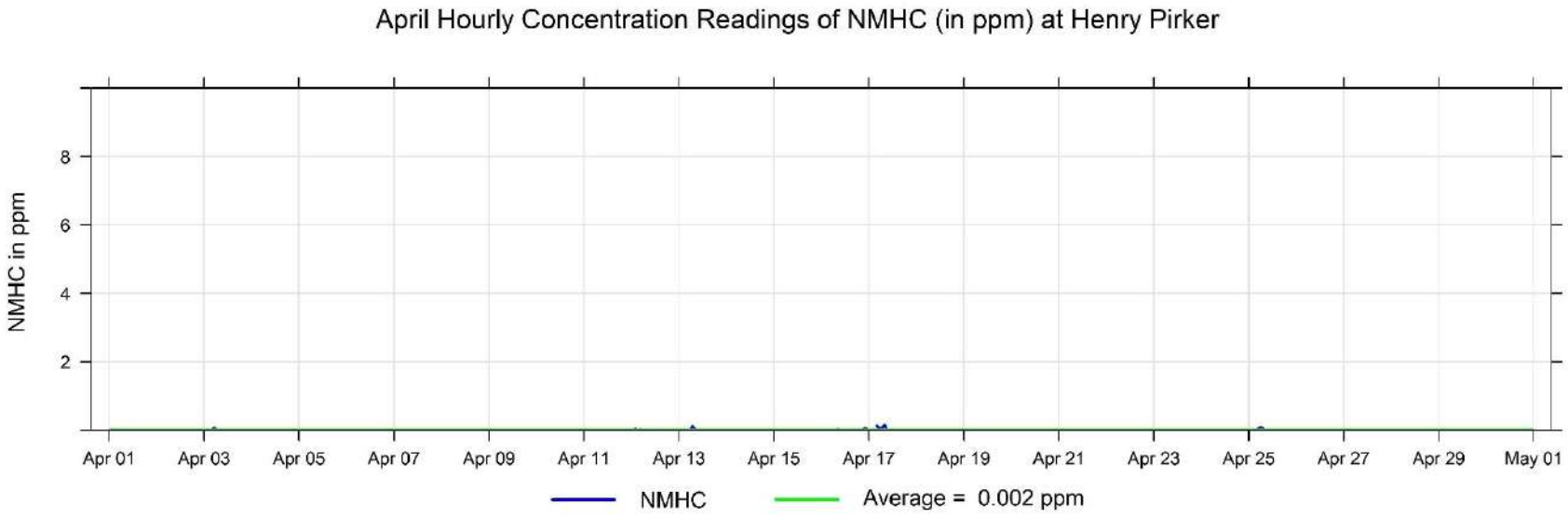

Number of Hours
0
200
400
600
23
18
30
38
50
70
107
118
117
85
23
8
0
20
40
60
80
O_3 in ppb

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

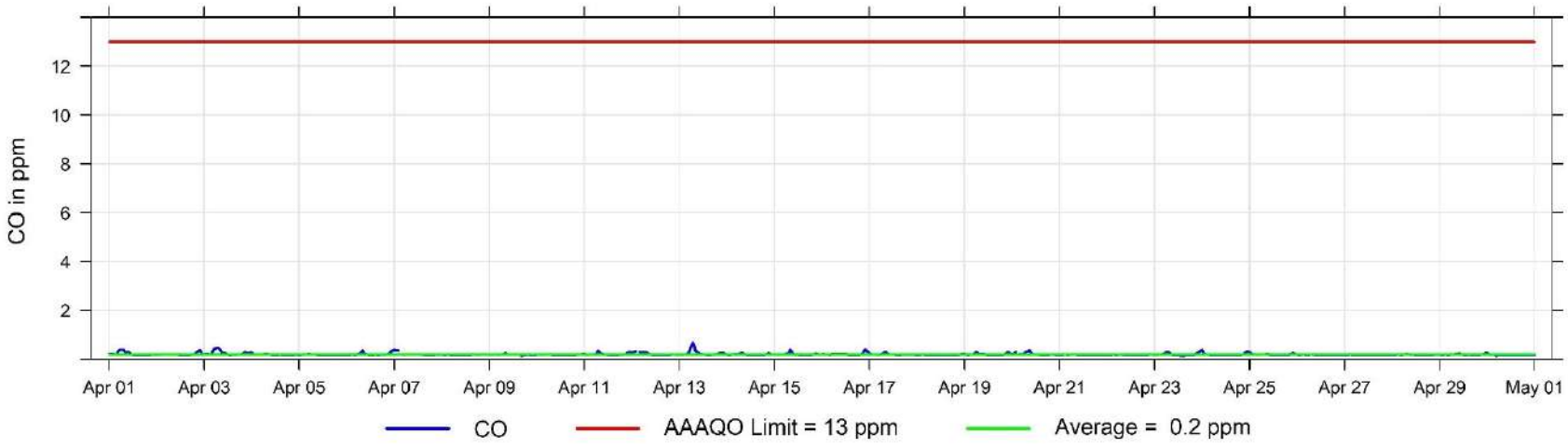


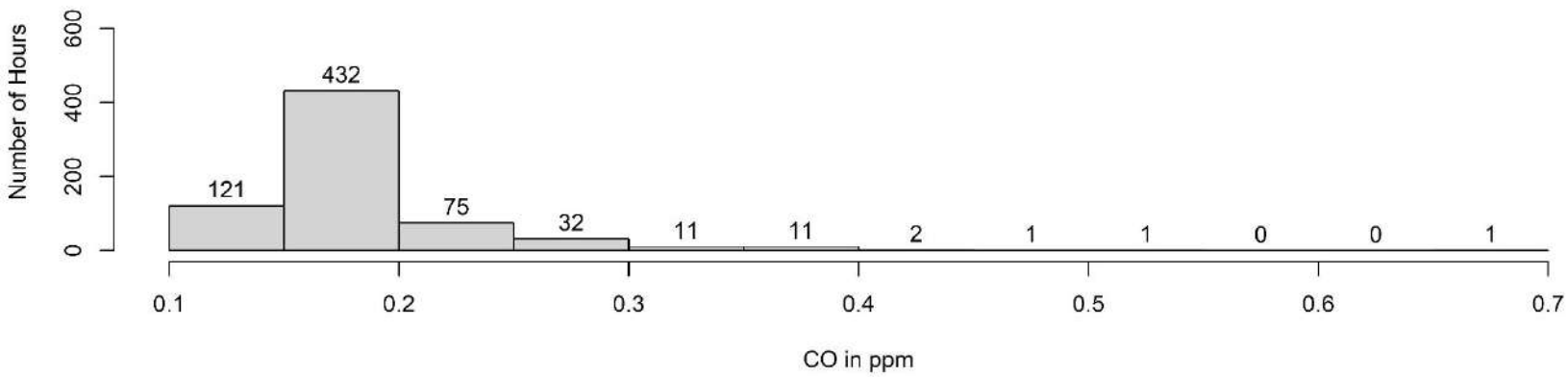
April Hourly Concentration Readings of CH_4 (in ppm) at Henry Pirker

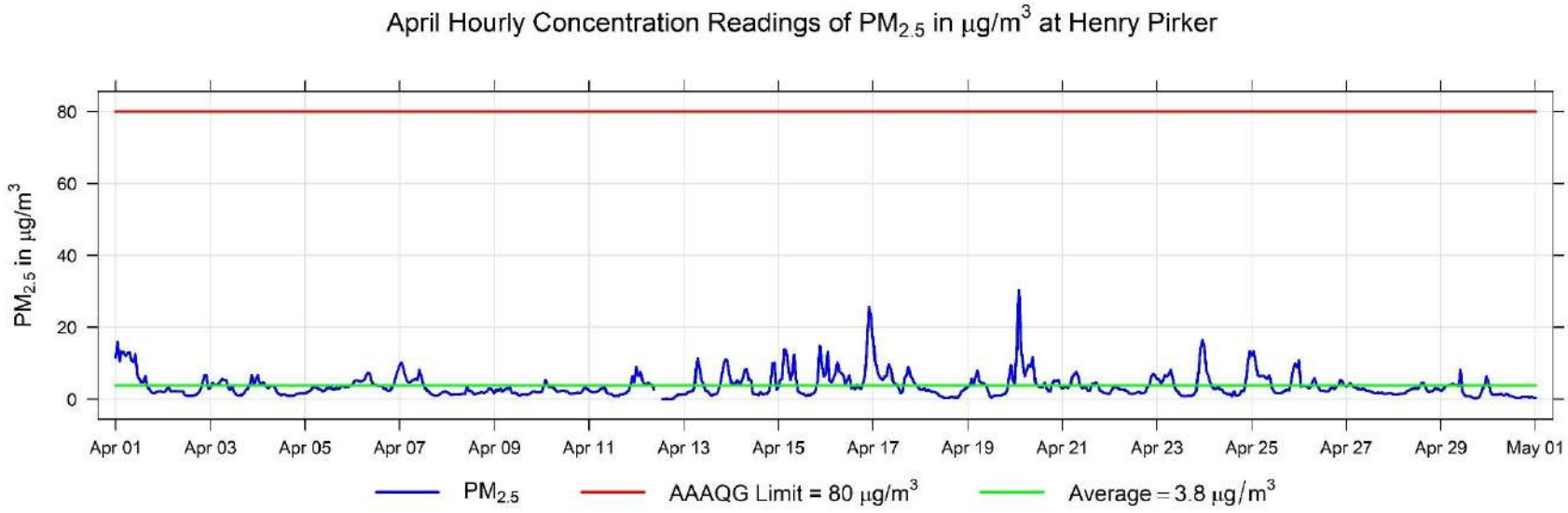


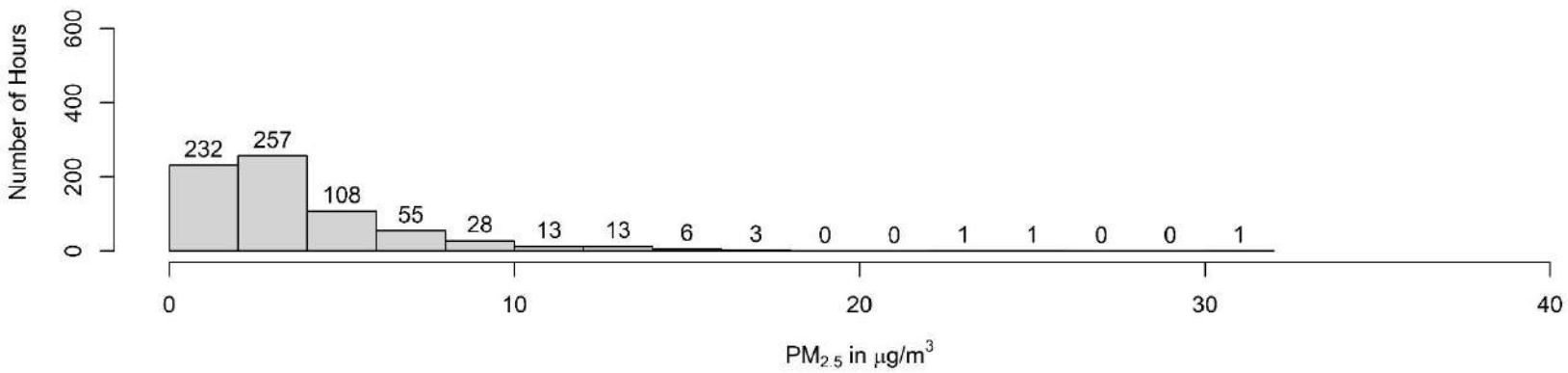

April Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker
NMHC in ppm
8
6
4
2
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
NMHC
Average = 0.002 ppm

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

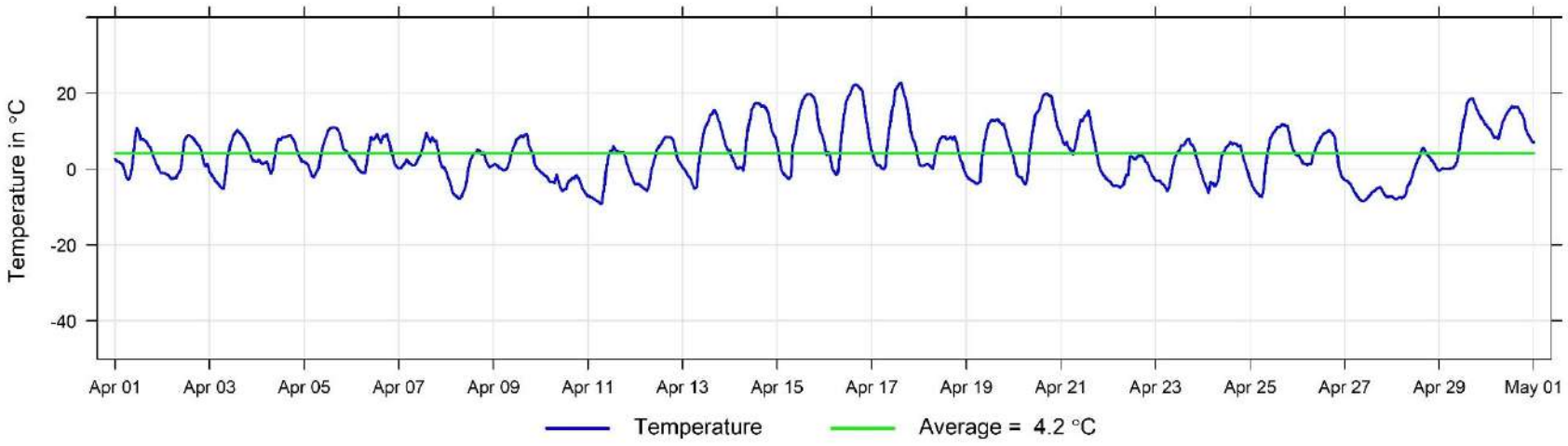




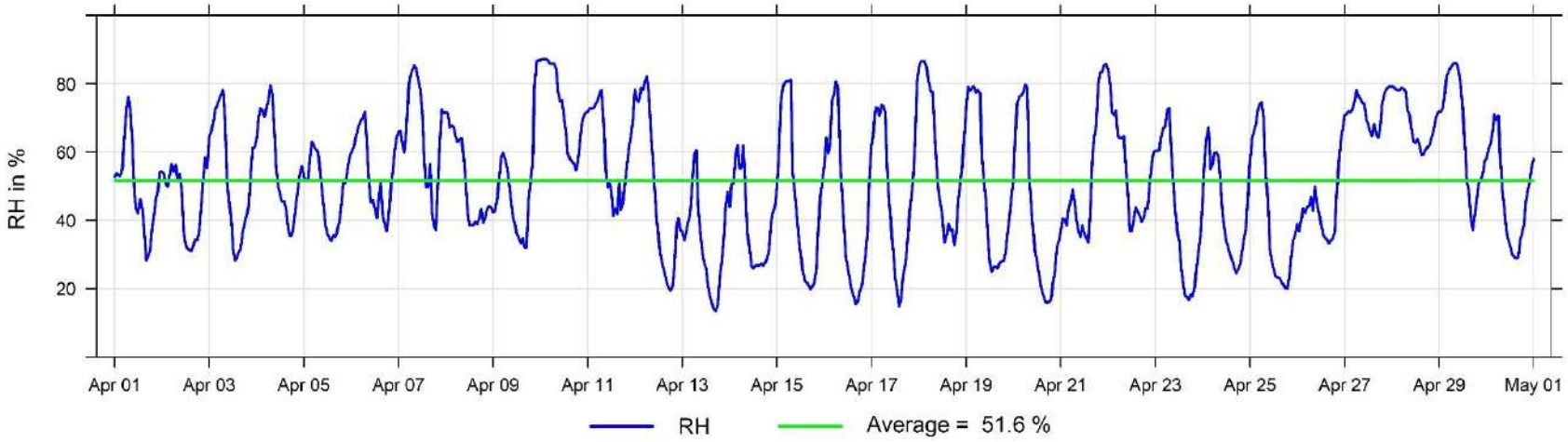

April Hourly Concentration Readings of PM2.5 in µg/m3 at Henry Pirker
PM2.5 in µg/m3
80
60
40
20
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
PM2.5
AAAQG Limit = 80 µg/m3
Average = 3.8 µg/m3

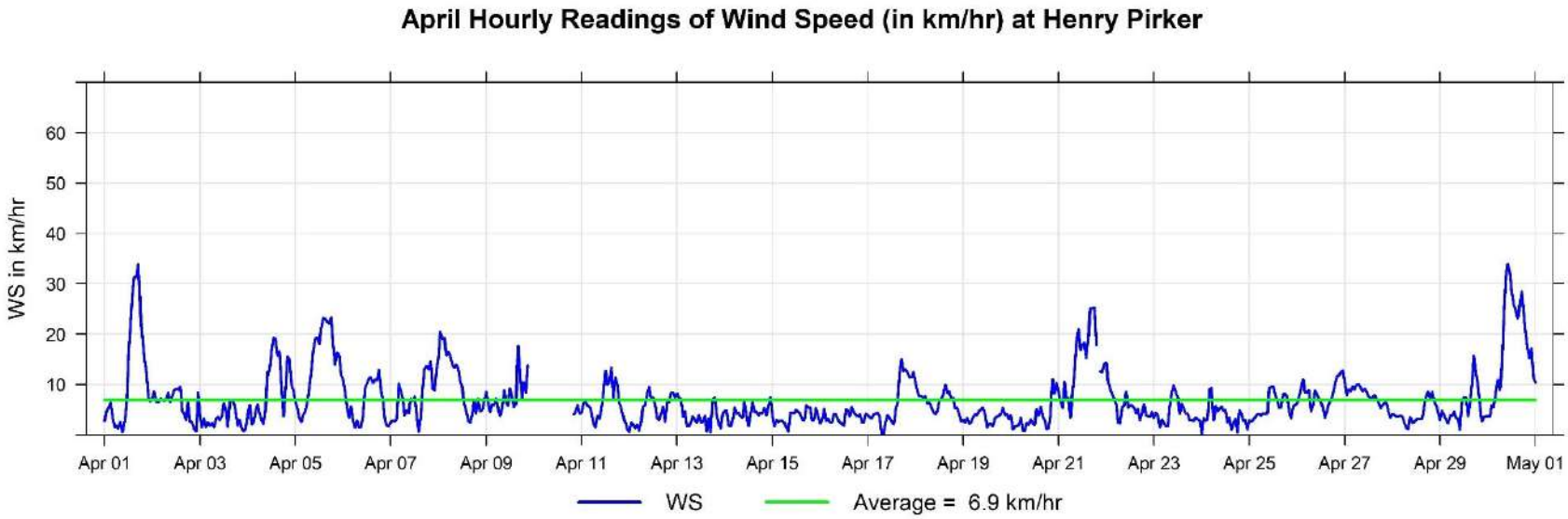

Number of Hours
0
200
400
600
232
257
108
55
28
13
13
6
3
0
0
1
1
0
0
1
0
10
20
30
40
PM2.5 in µg/m3

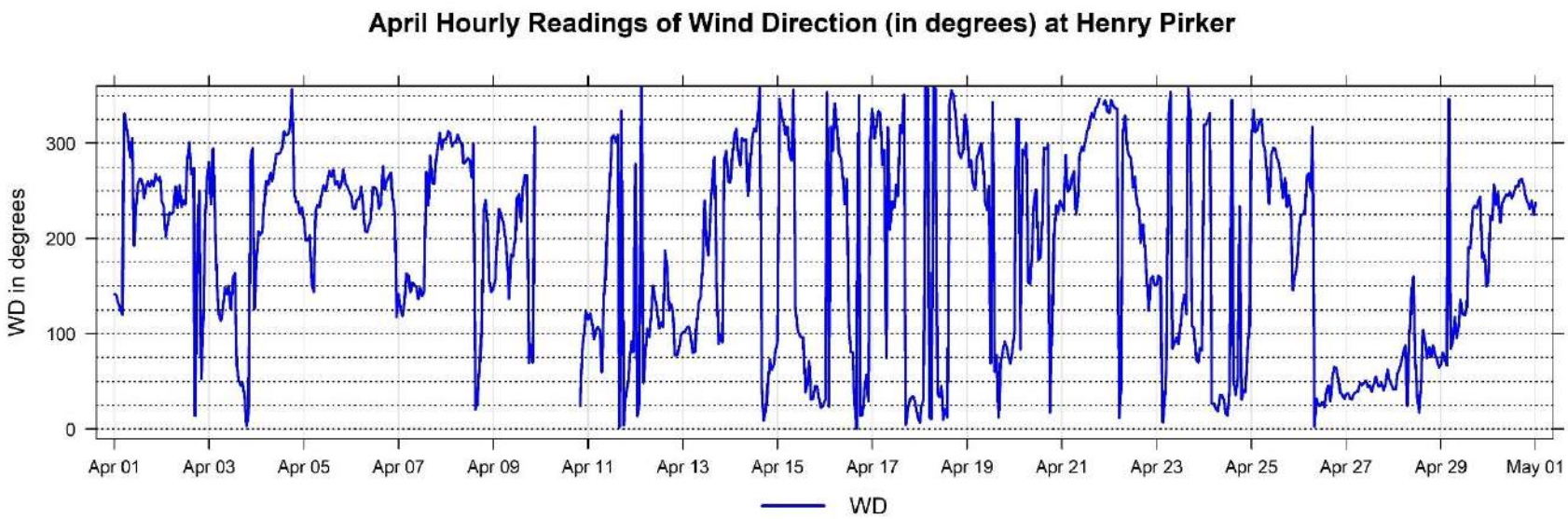
April Hourly Temperature Readings (in °C) at Henry Pirker

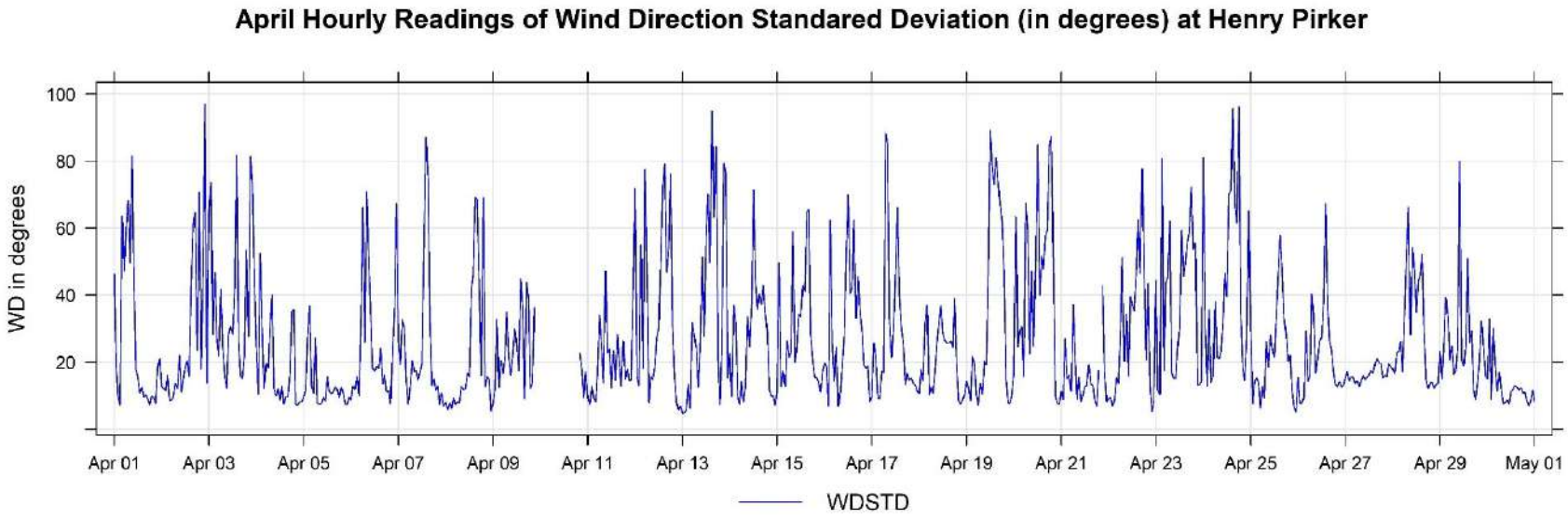


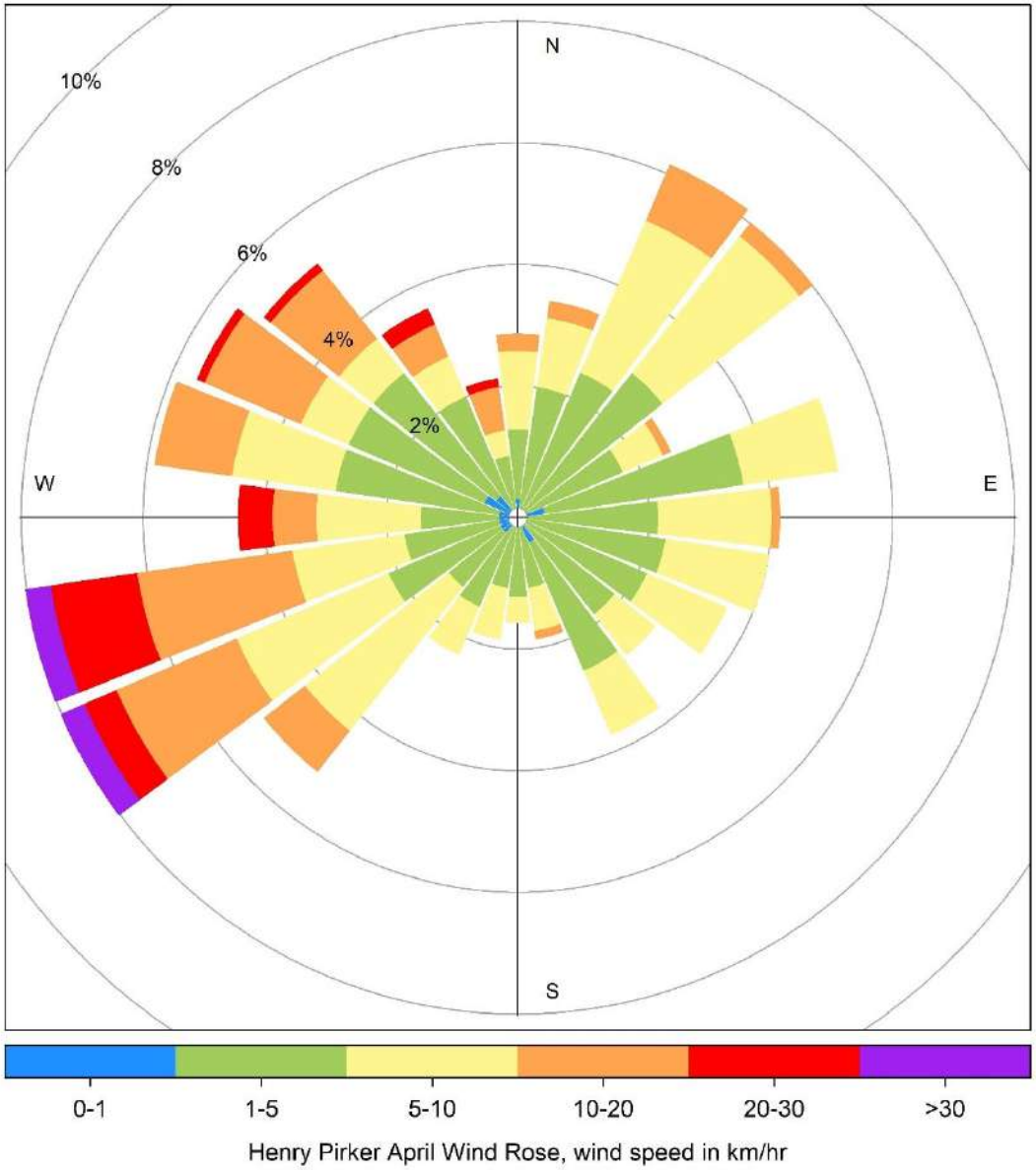
April Hourly Readings of Relative Humidity (in %) at Henry Pirker




April Hourly Readings of Wind Speed (in km/hr) at Henry Pirker
WS in km/hr
60
50
40
30
20
10
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WS
Average = 6.9 km/hr

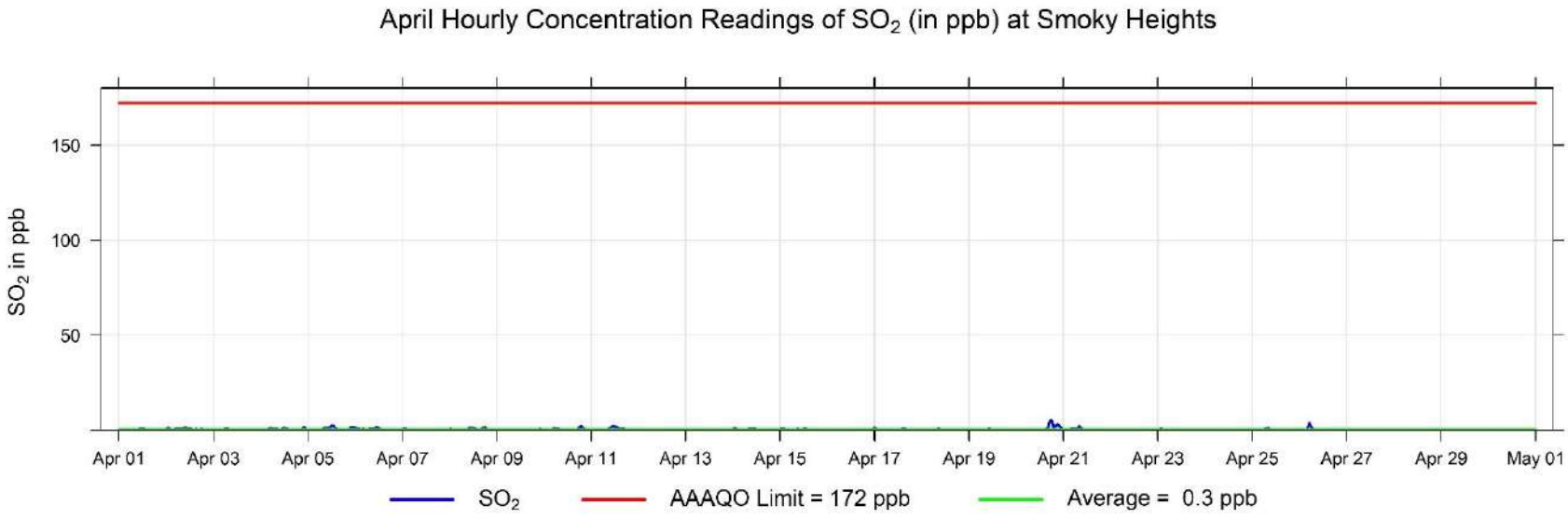

April Hourly Readings of Wind Direction (in degrees) at Henry Pirker
WD in degrees
300
200
100
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WD

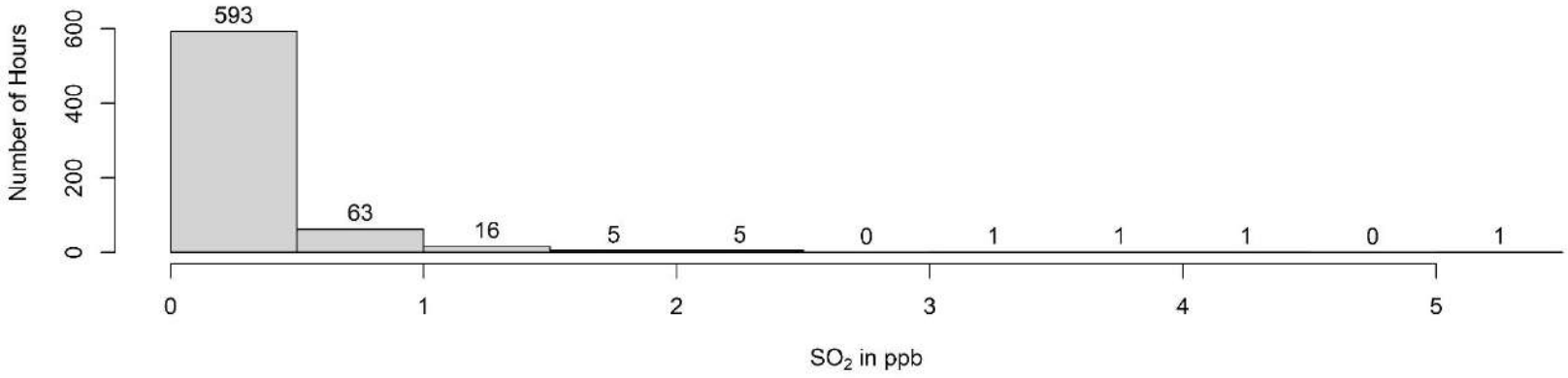

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Henry Pirker
WD in degrees
100
80
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

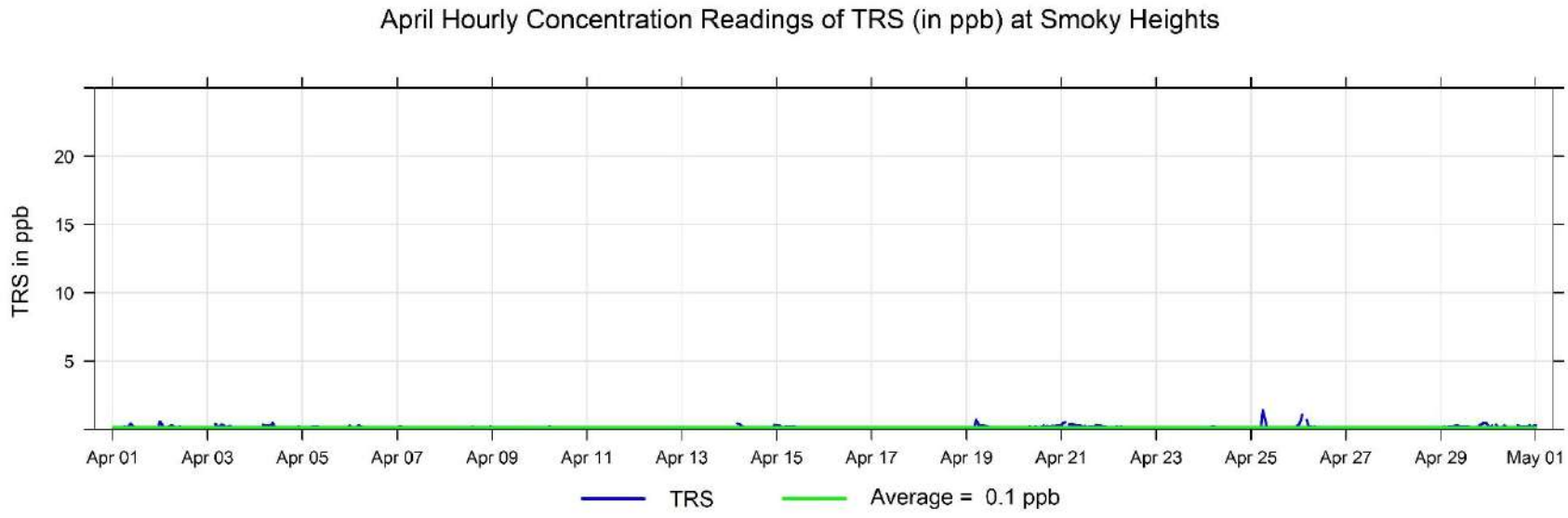

N
E
S
W
10%
8%
6%
4%
2%
0-1
1-5
5-10
10-20
20-30
>30
Henry Pirker April Wind Rose, wind speed in km/hr

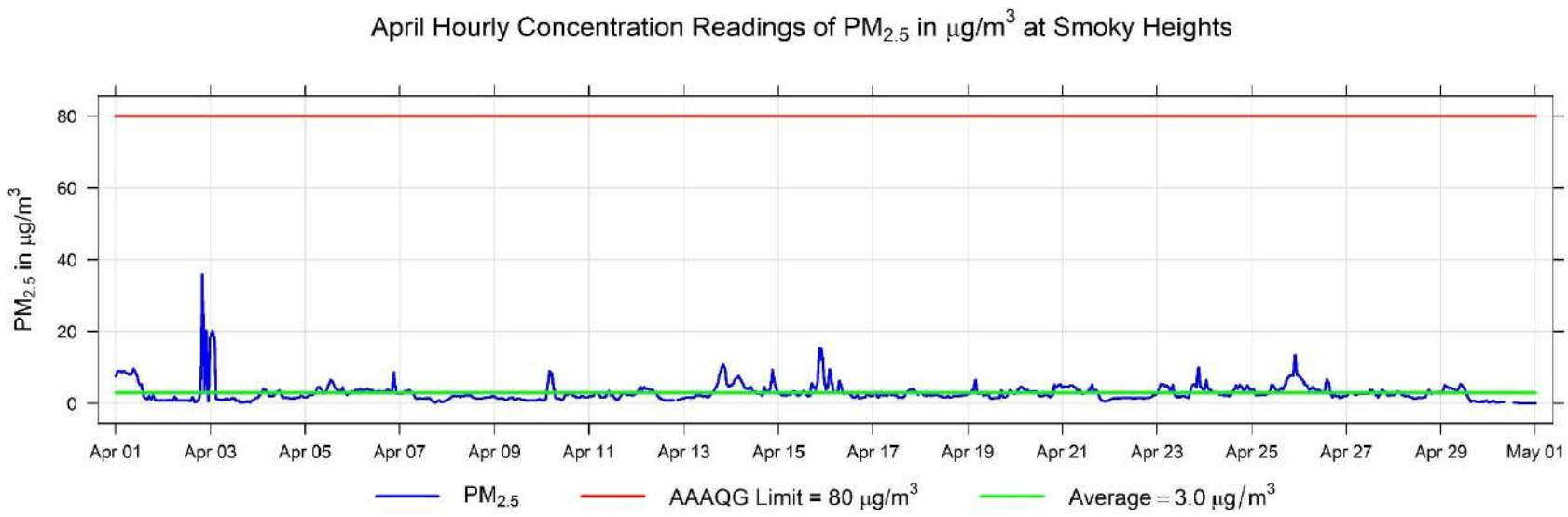
5 Smoky Heights Charts

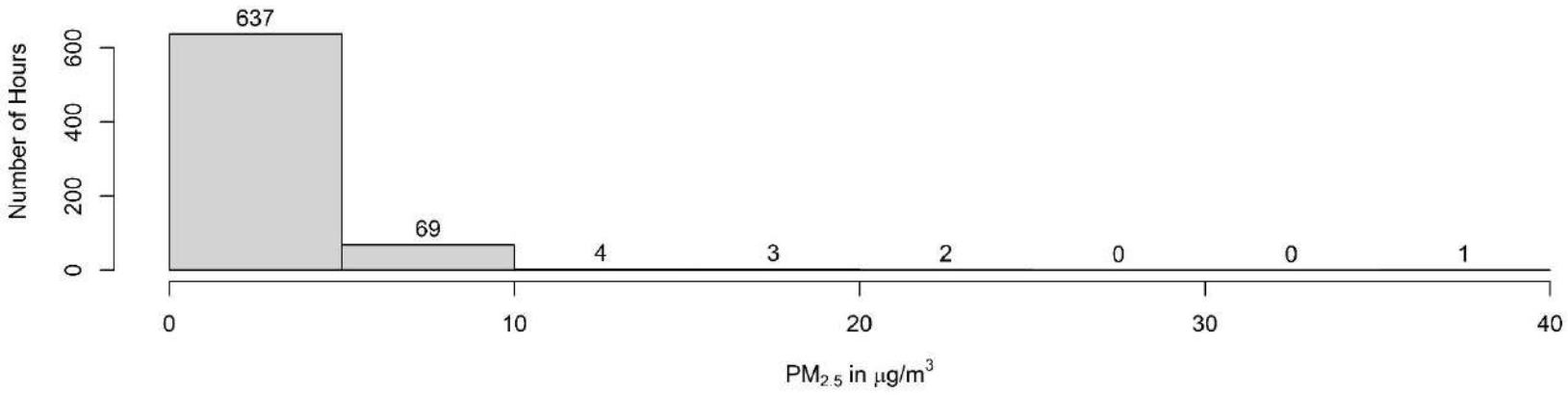
The following pages include the charts and histograms for Smoky Heights Station


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

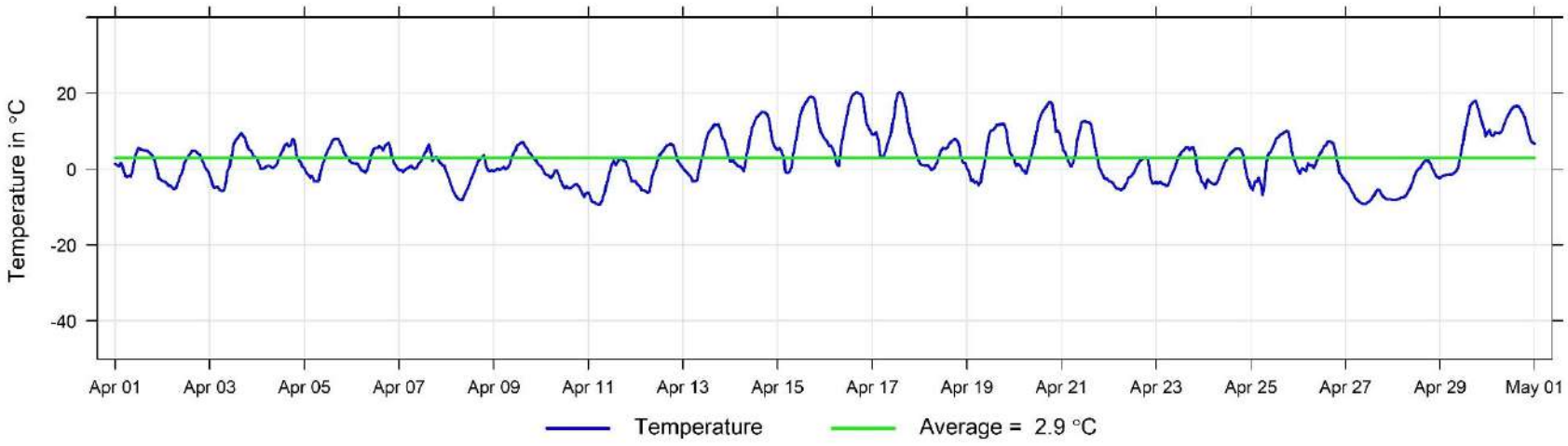

Number of Hours
0
200
400
600
593
63
16
5
5
0
1
1
1
0
1
0
1
2
3
4
5
SO_2 in ppb


April Hourly Concentration Readings of TRS (in ppb) at Smoky Heights
TRS in ppb
20
15
10
5
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
TRS
Average = 0.1 ppb

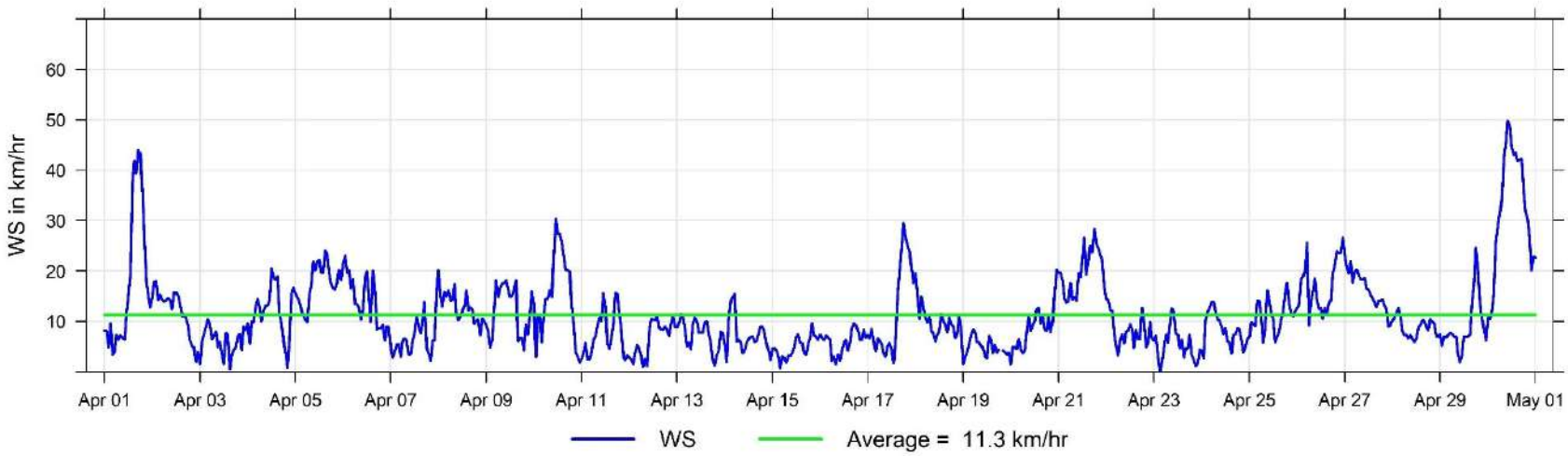

April Hourly Concentration Readings of PM2.5 in μg/m3 at Smoky Heights
PM2.5 in μg/m3
80
60
40
20
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
PM2.5
AAAQG Limit = 80 μg/m3
Average = 3.0 μg/m3

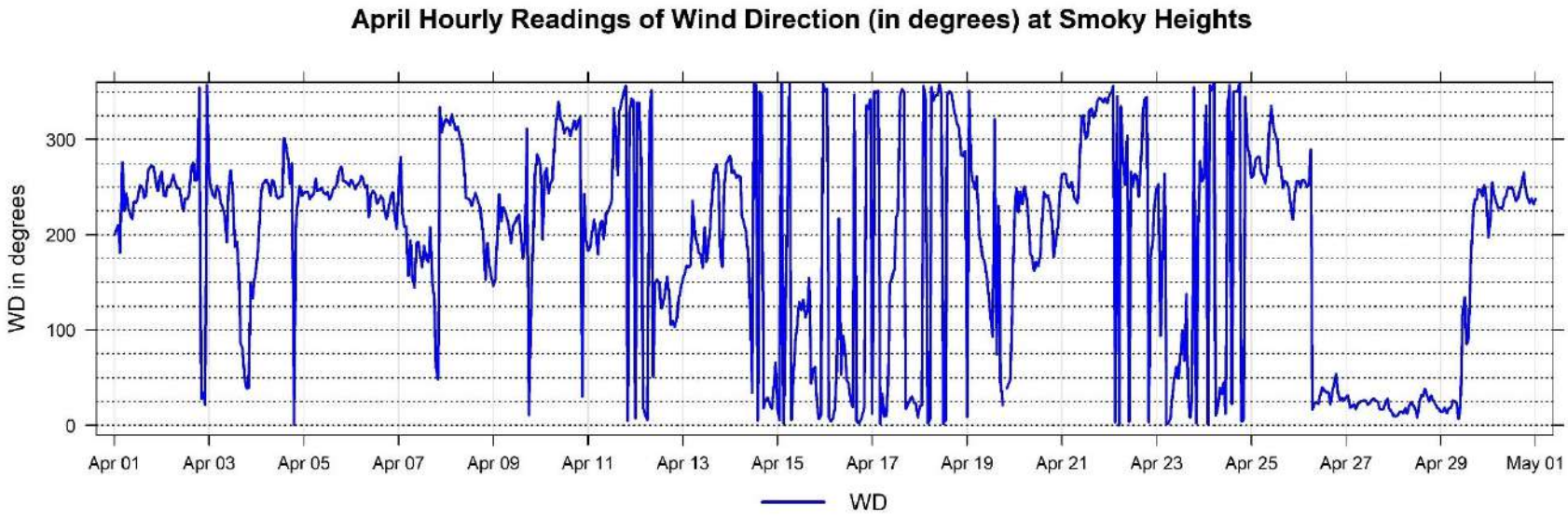

Number of Hours
0
200
400
600
637
69
4
3
2
0
0
1
0
10
20
30
40
PM2.5 in μg/m3

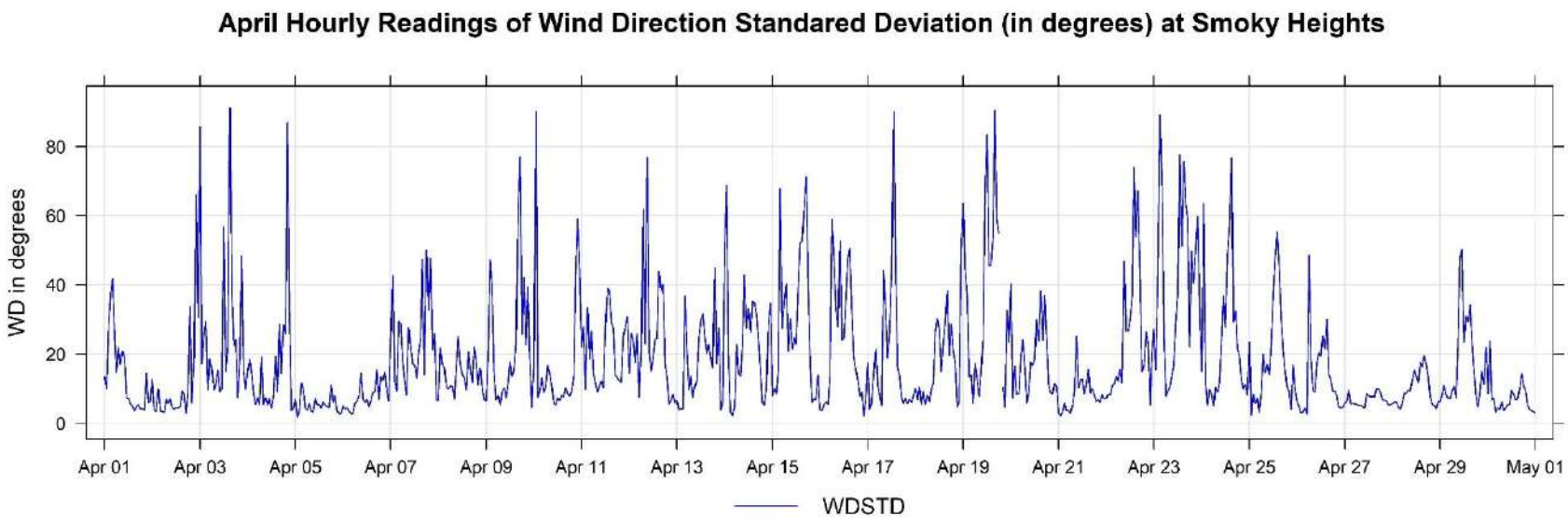
April Hourly Temperature Readings (in °C) at Smoky Heights

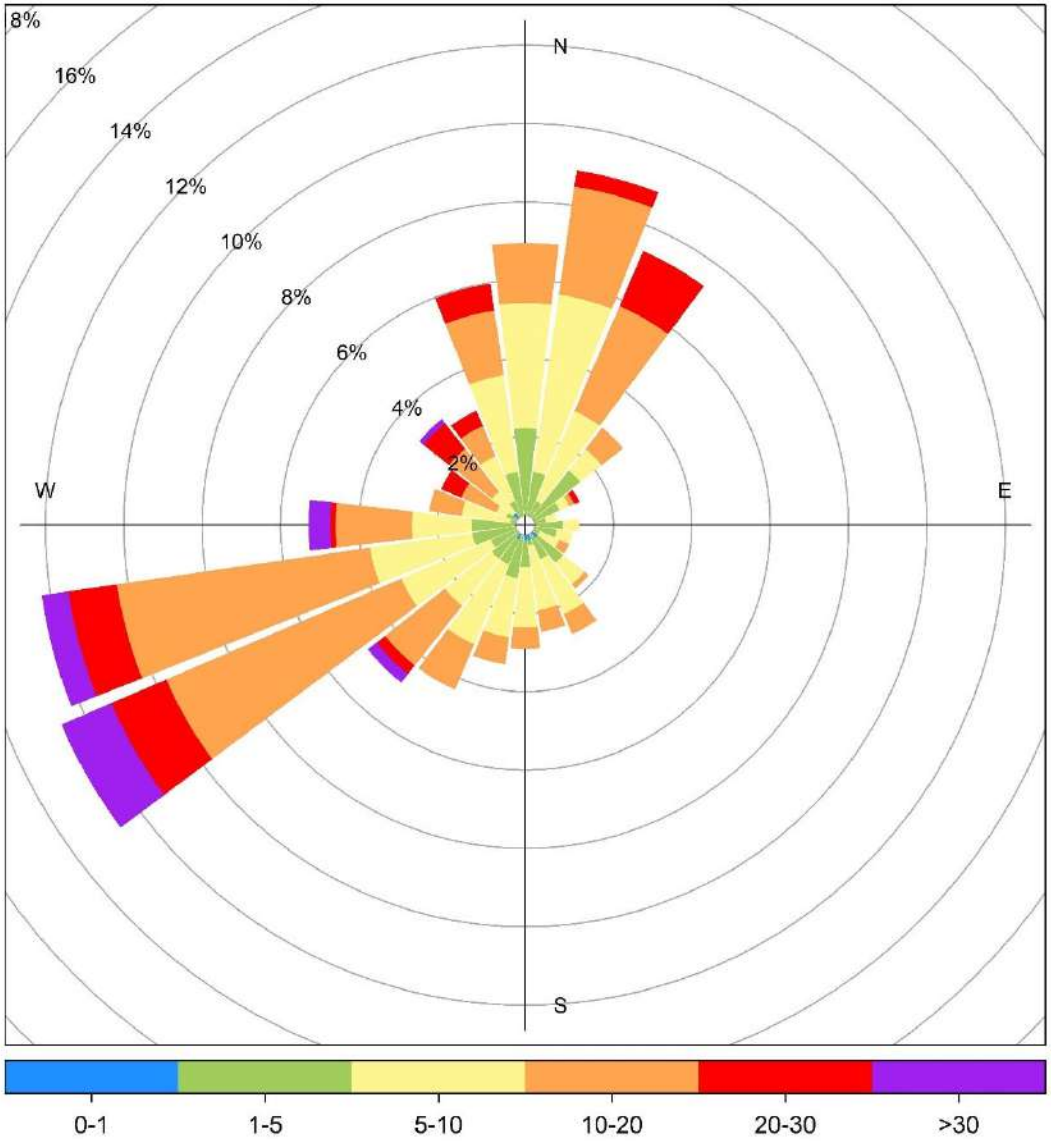


April Hourly Readings of Wind Speed (in km/hr) at Smoky Heights




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

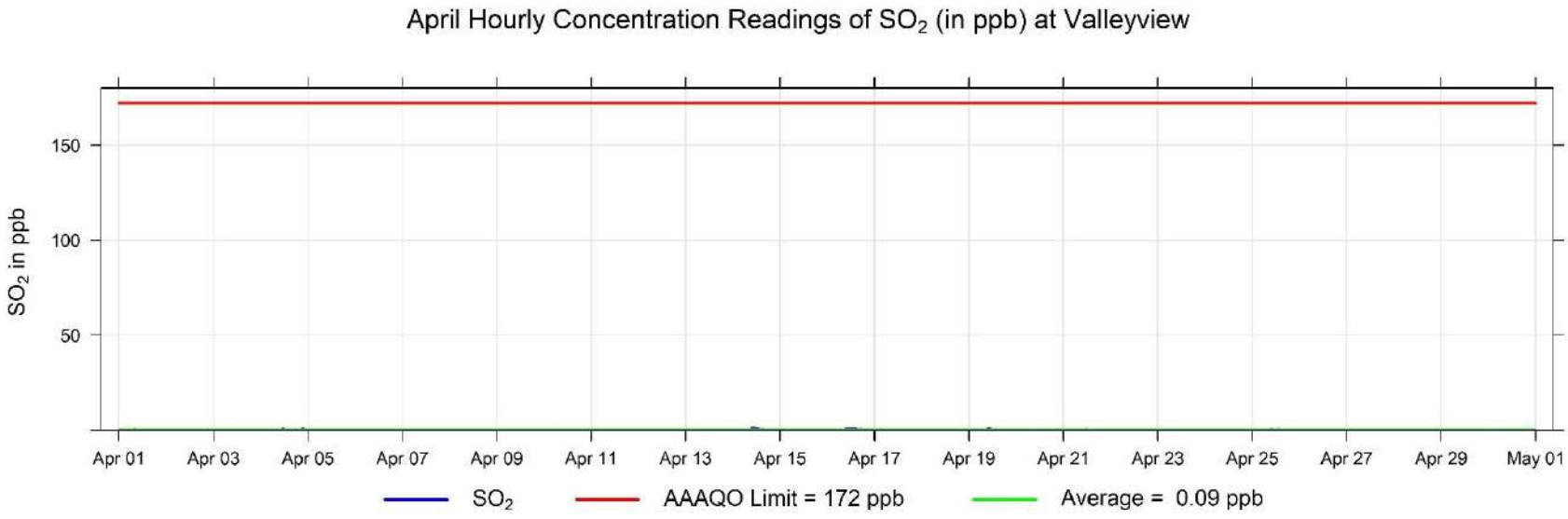

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Smoky Heights
WD in degrees
0
20
40
60
80
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

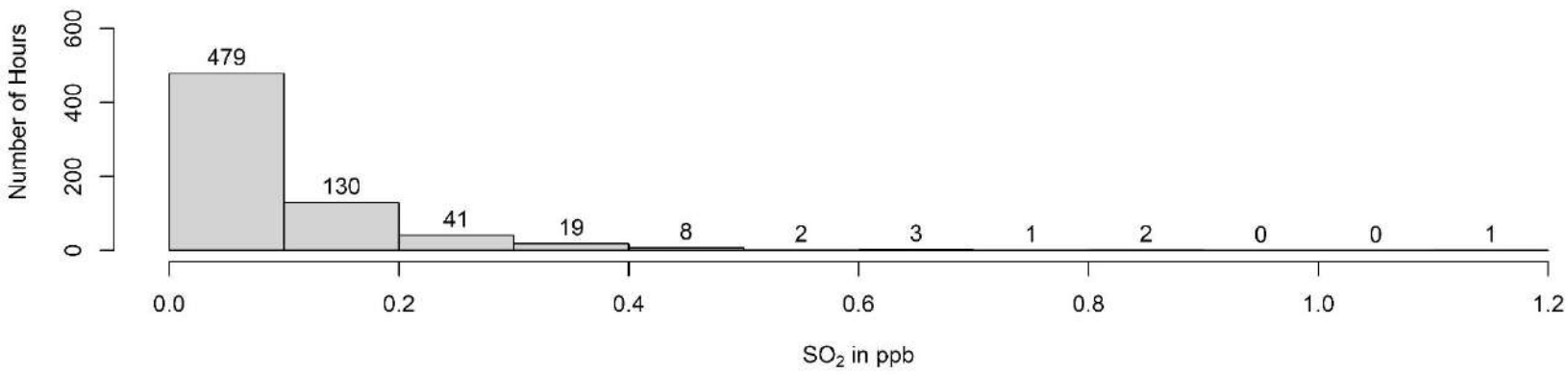


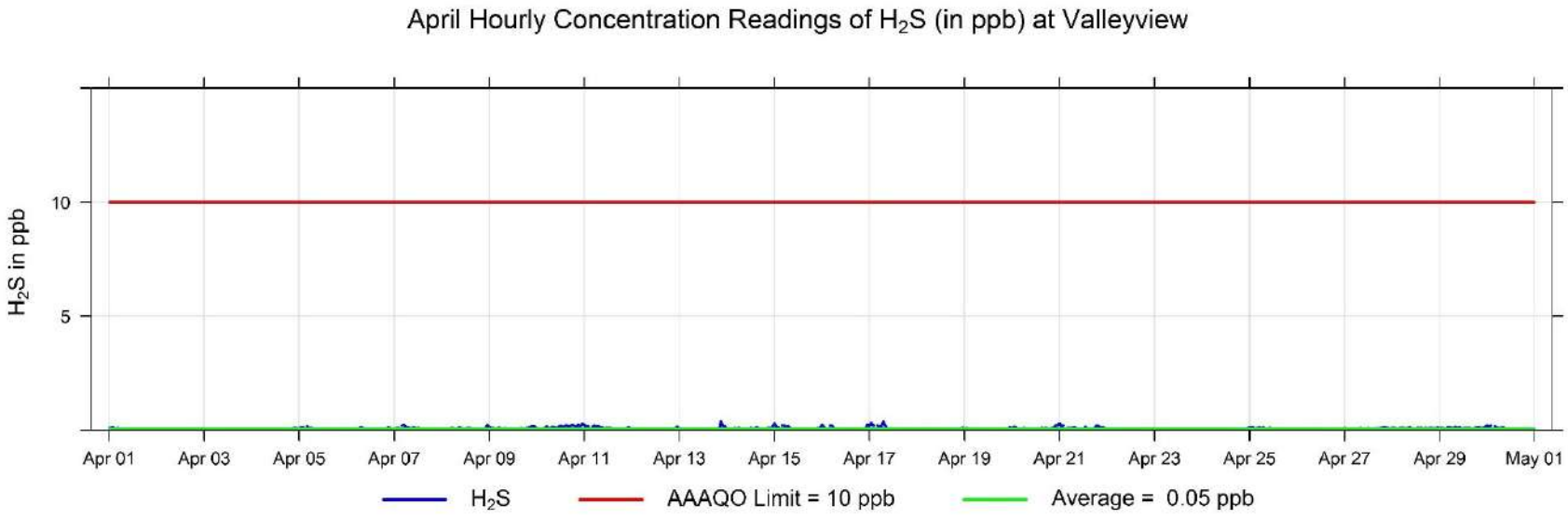
Smoky Heights April Wind Rose, wind speed in km/hr

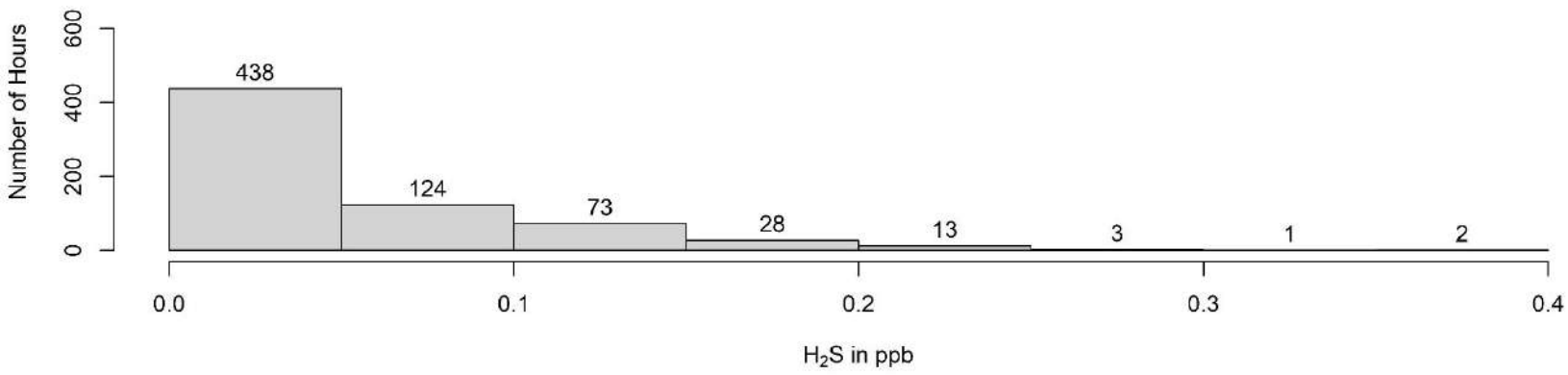
6 Valleyview Charts

The following pages include the charts and histograms for Valleyview Station

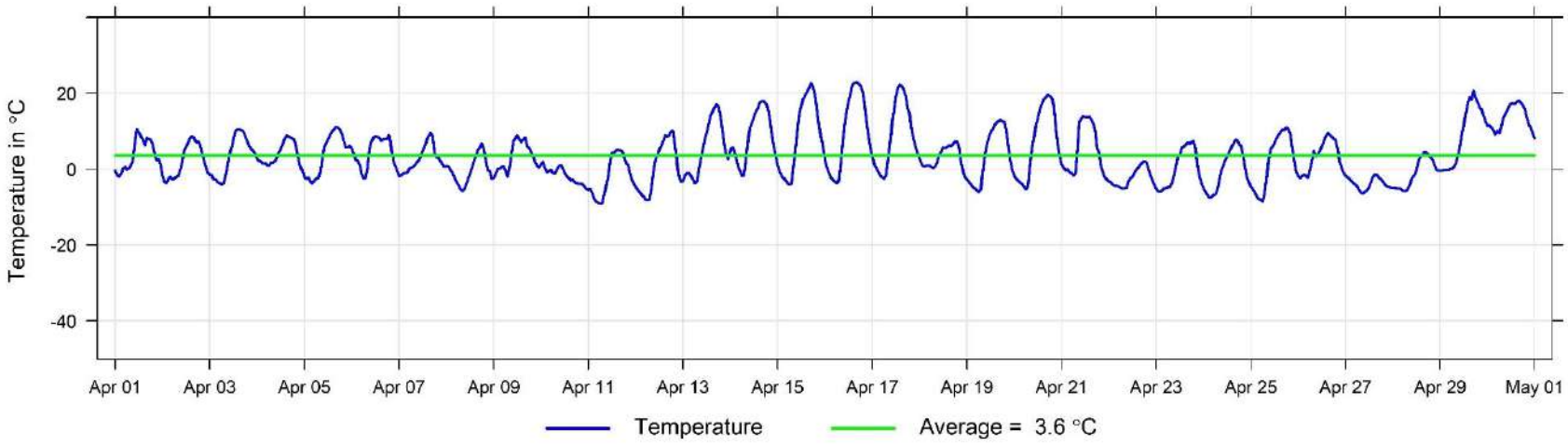

April Hourly Concentration Readings of SO_2 (in ppb) at Valleyview
SO_2 in ppb
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
SO_2
AAAQO Limit = 172 ppb
Average = 0.09 ppb


Number of Hours
0
200
400
600
479
130
41
19
8
2
3
1
2
0
0
1
0.0
0.2
0.4
0.6
0.8
1.0
1.2
SO_2 in ppb

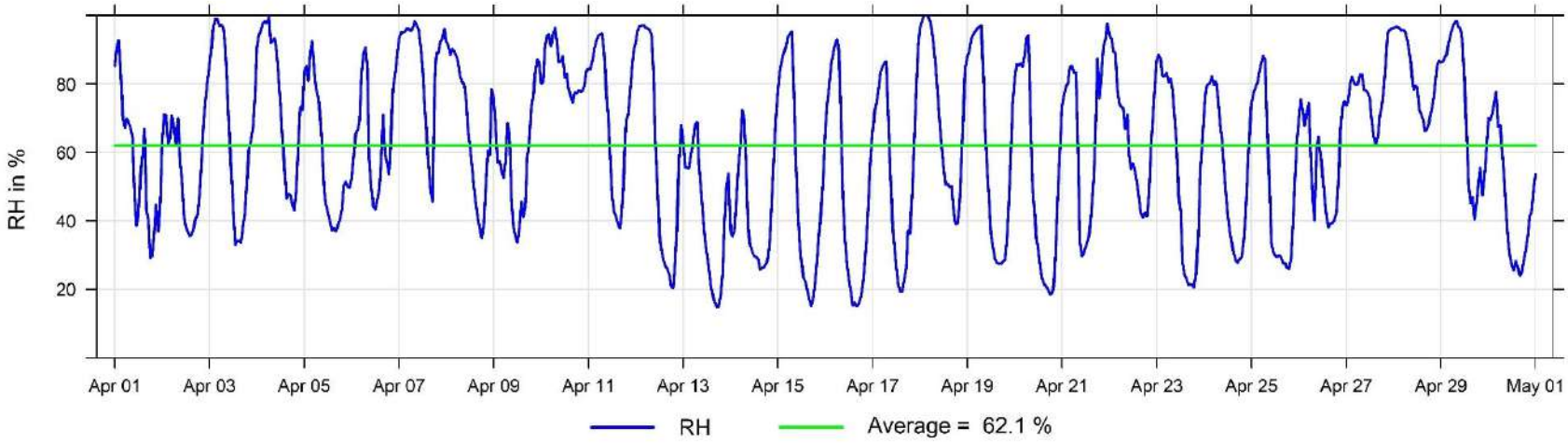

April Hourly Concentration Readings of H_2S (in ppb) at Valleyview
H_2S in ppb
10
5
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
H_2S
AAAQO Limit = 10 ppb
Average = 0.05 ppb

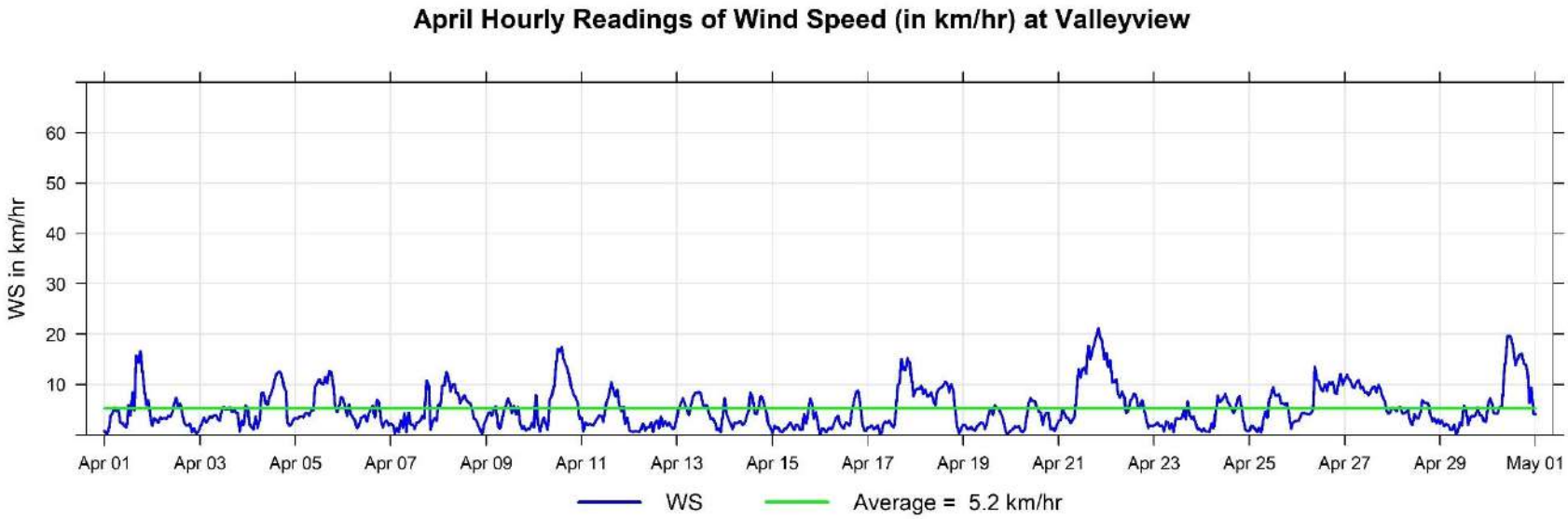

Number of Hours
0
200
400
600
438
124
73
28
13
3
1
2
0.0
0.1
0.2
0.3
0.4
H_2S in ppb

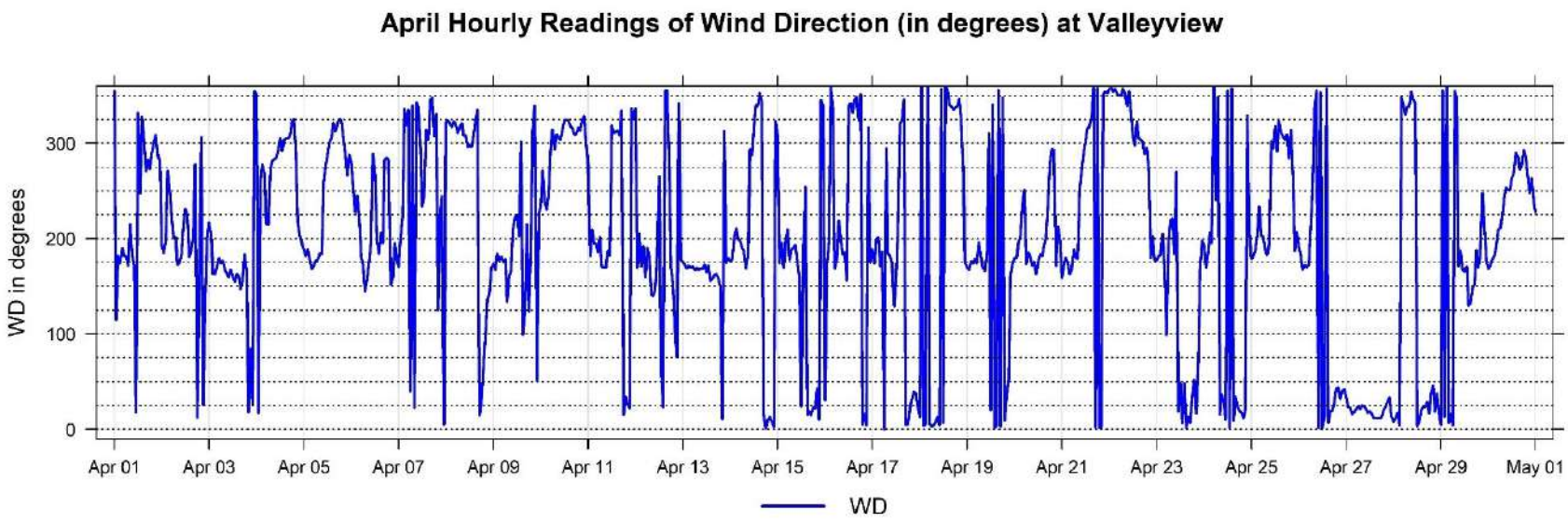
April Hourly Temperature Readings (in °C) at Valleyview

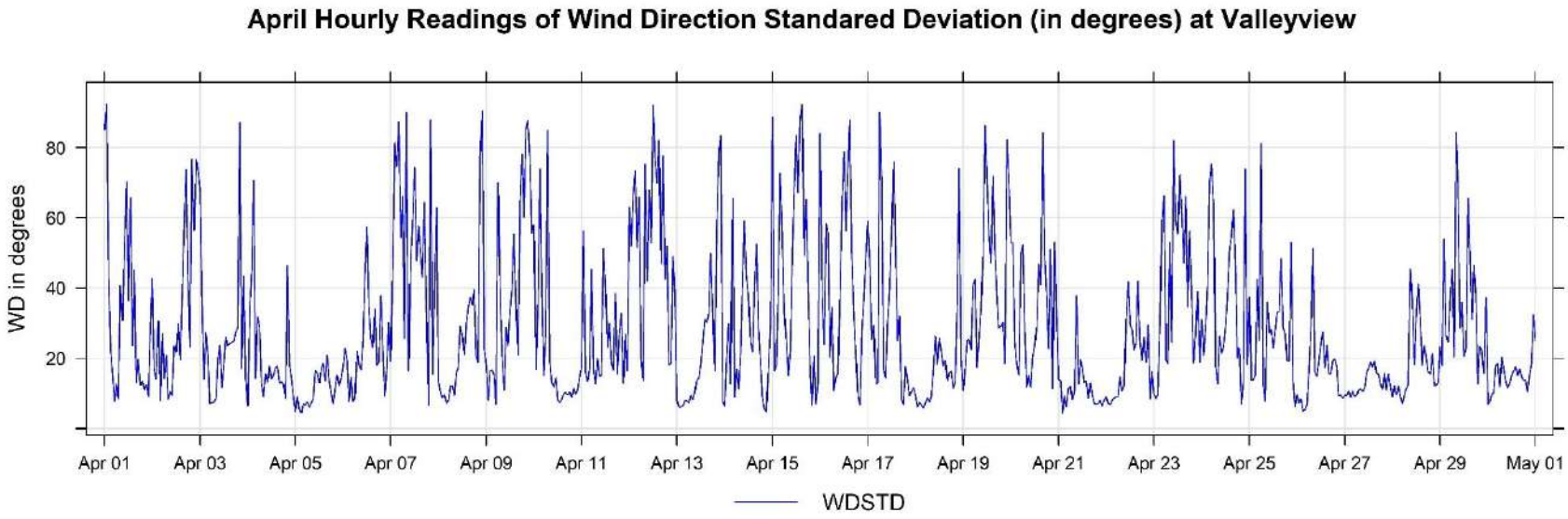


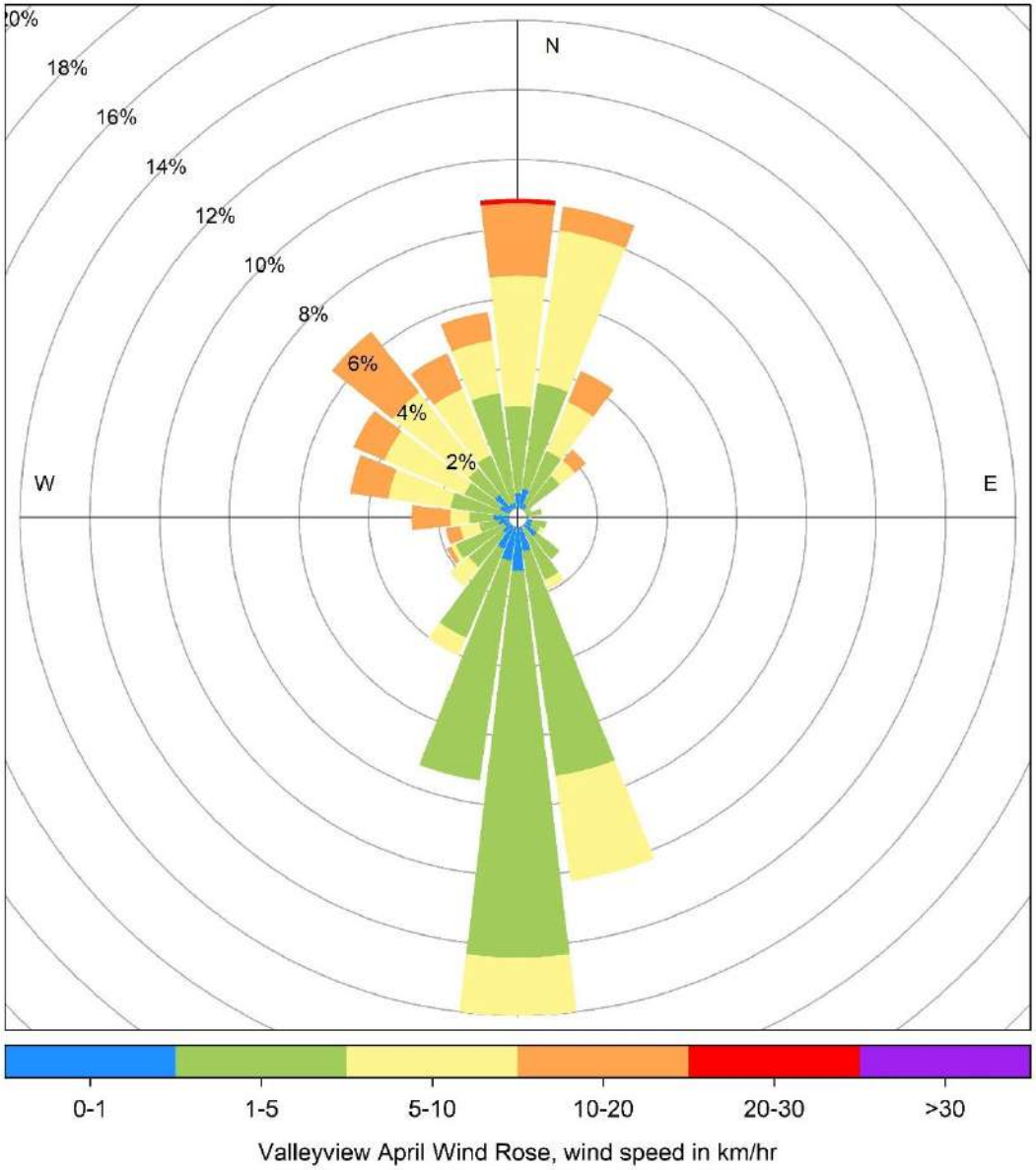
April Hourly Readings of Relative Humidity (in %) at Valleyview




April Hourly Readings of Wind Speed (in km/hr) at Valleyview
WS in km/hr
60
50
40
30
20
10
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WS
Average = 5.2 km/hr

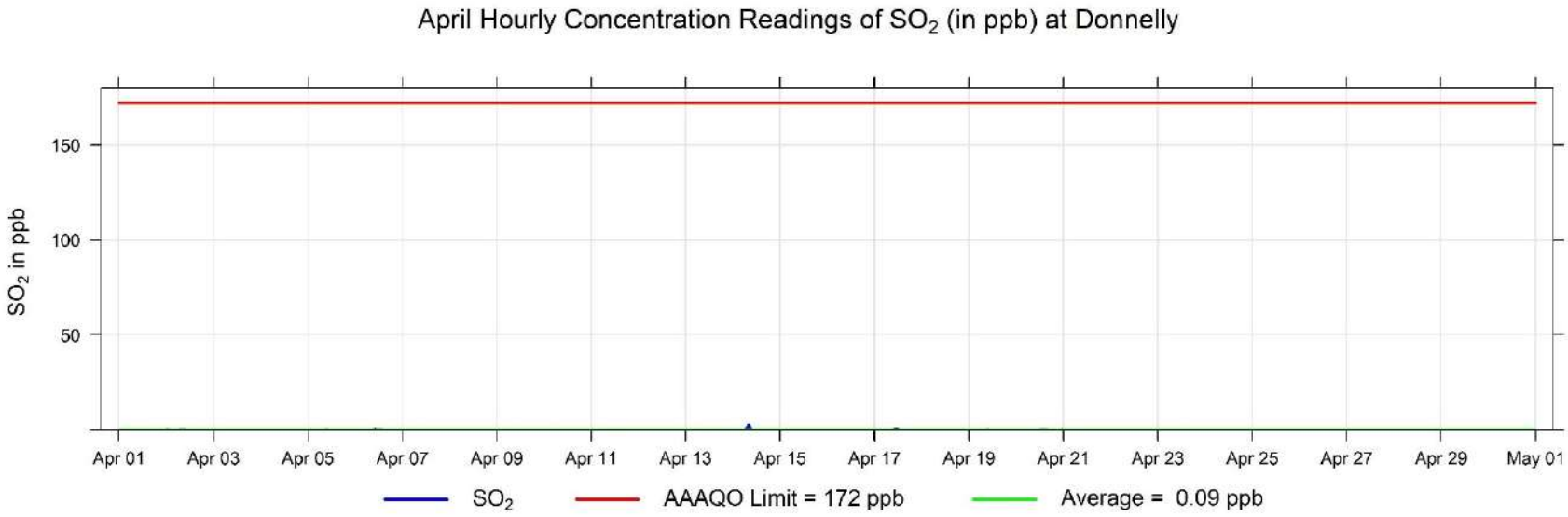

April Hourly Readings of Wind Direction (in degrees) at Valleyview
WD in degrees
300
200
100
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WD

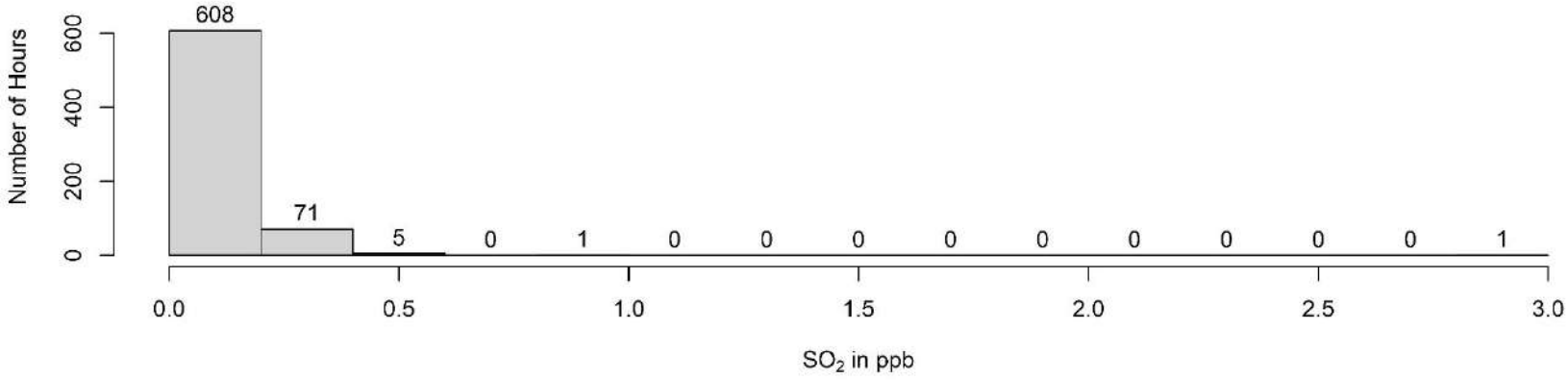

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Valleyview
WD in degrees
80
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

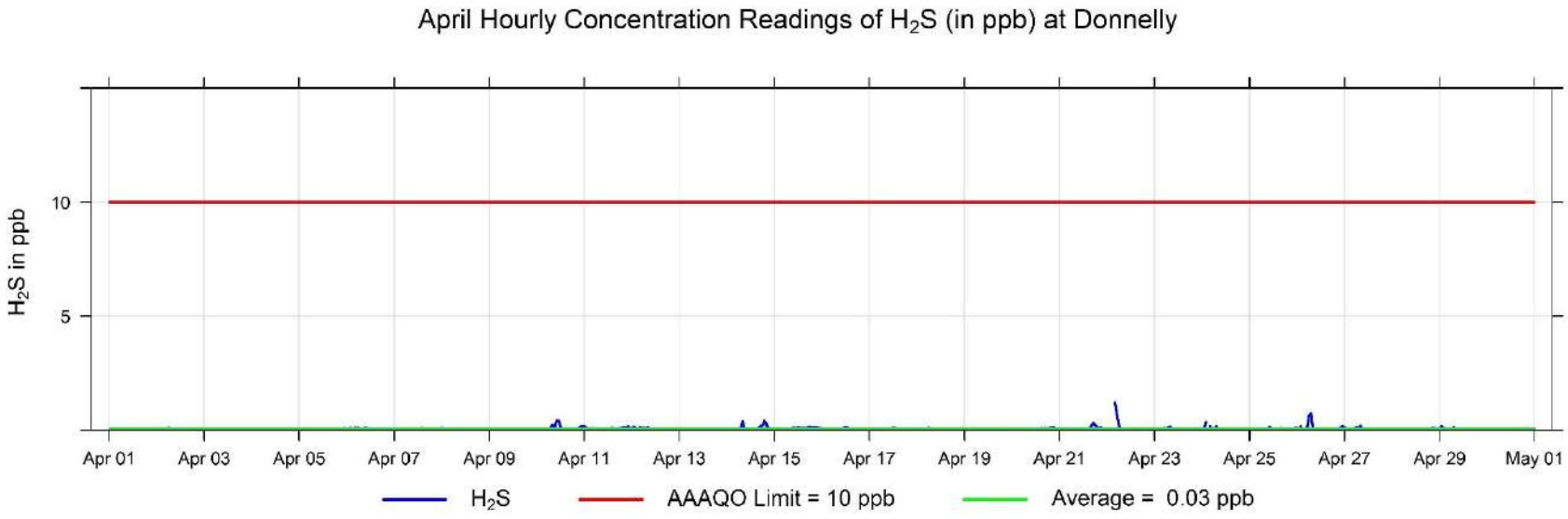

20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
N
W
E
0-1
1-5
5-10
10-20
20-30
>30
Valleyview April Wind Rose, wind speed in km/hr

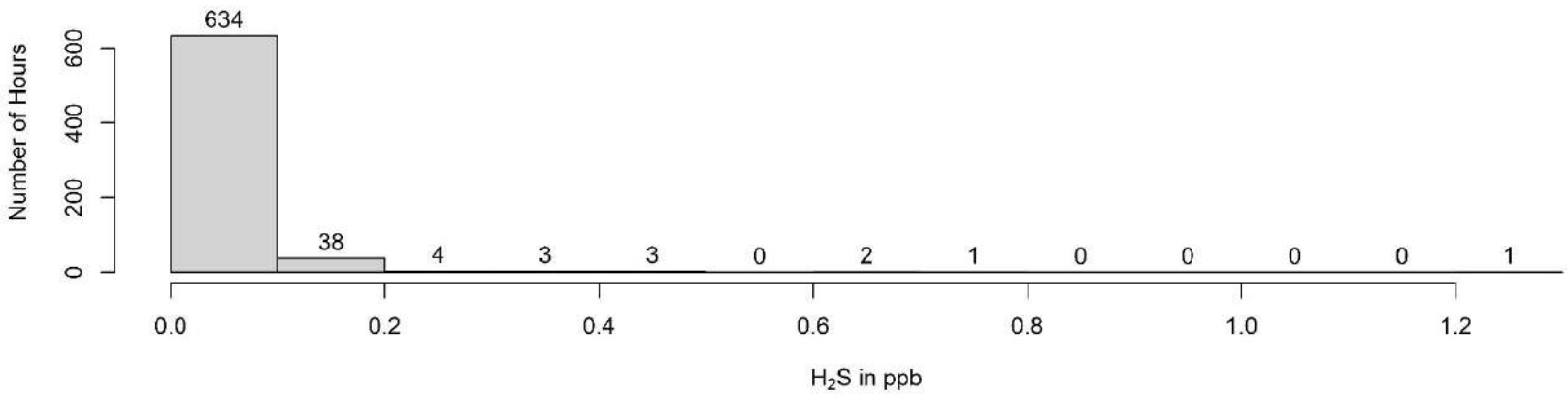
7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

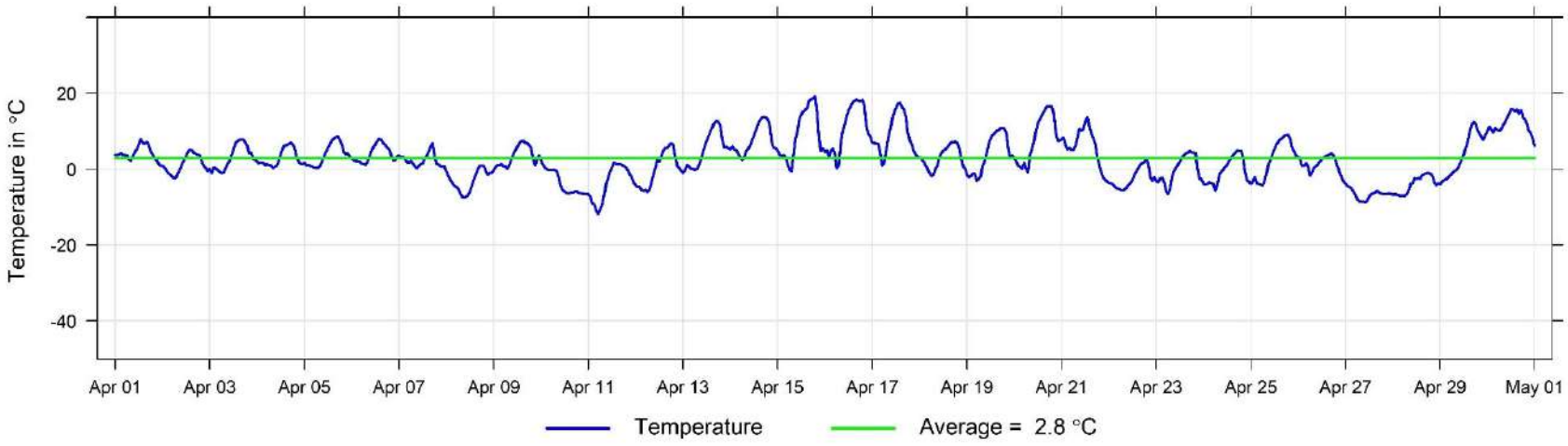

April Hourly Concentration Readings of SO_2 (in ppb) at Donnelly
SO_2 in ppb
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
SO_2
AAAQO Limit = 172 ppb
Average = 0.09 ppb


Number of Hours
0
200
400
600
608
71
5
0
1
0
0
0
0
0
0
0
0
0
1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
SO_2 in ppb

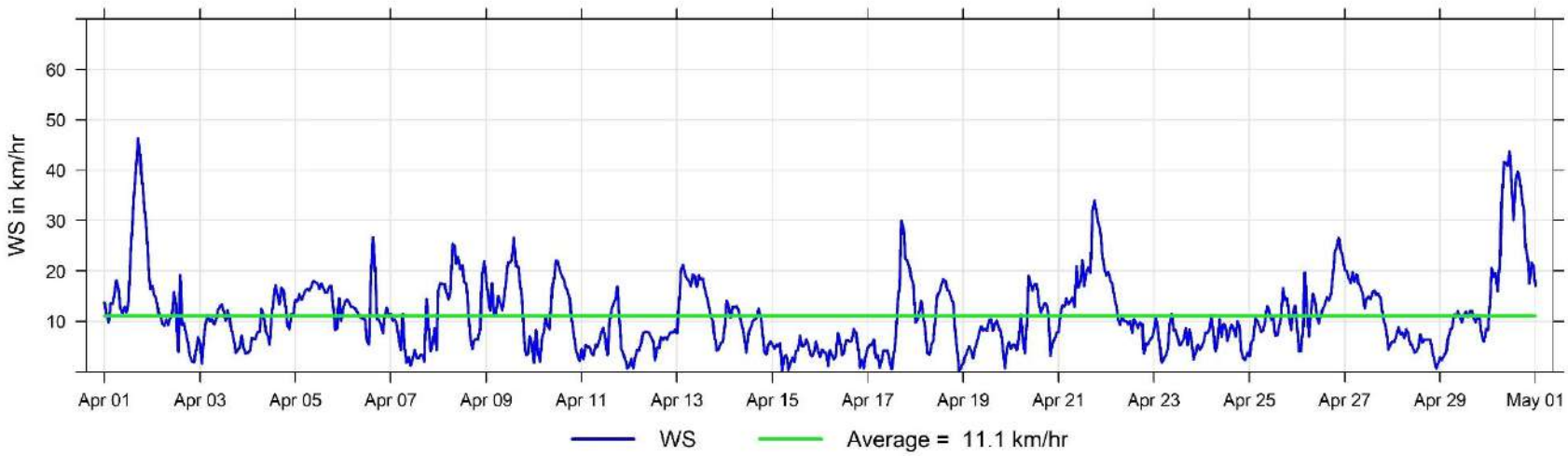

April Hourly Concentration Readings of H_2S (in ppb) at Donnelly
H_2S in ppb
10
5
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
H_2S
AAAQO Limit = 10 ppb
Average = 0.03 ppb

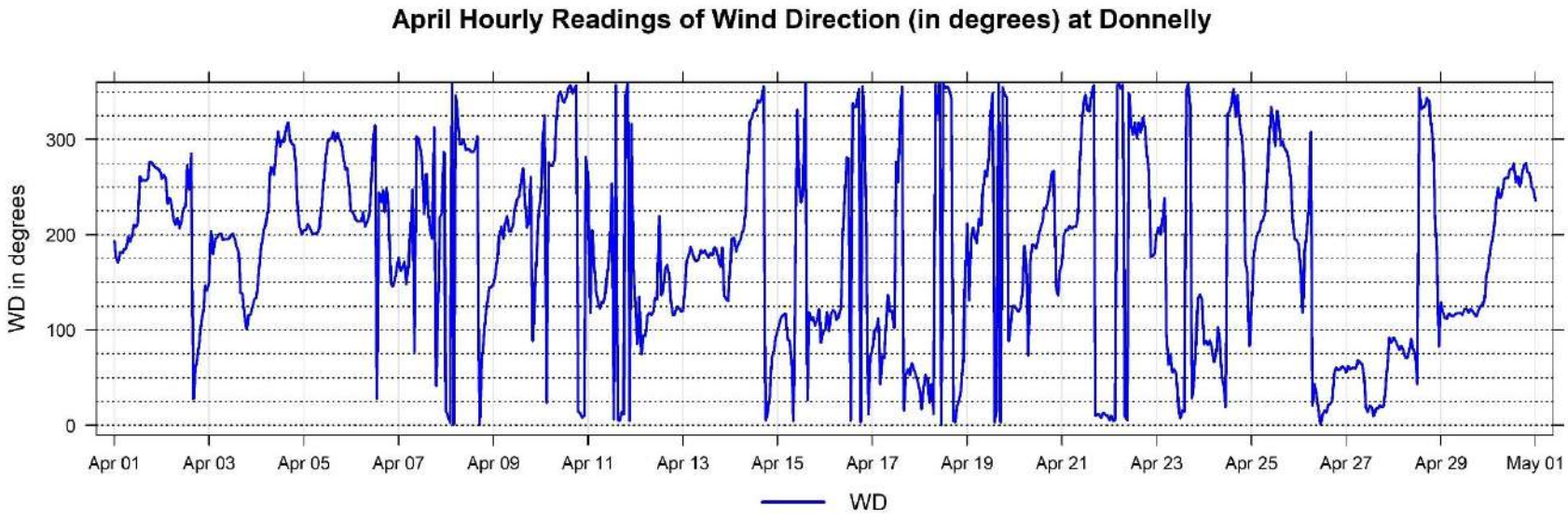

Number of Hours
0
200
400
600
634
38
4
3
3
0
2
1
0
0
0
0
1
0.0
0.2
0.4
0.6
0.8
1.0
1.2
H_2S in ppb

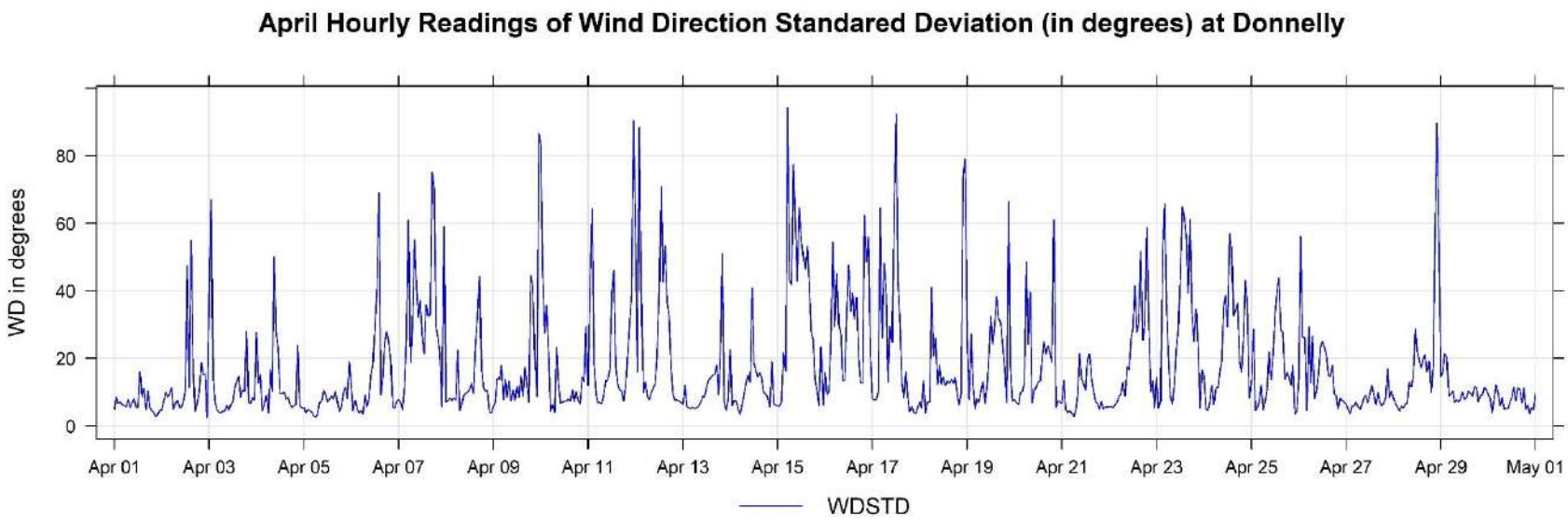
April Hourly Temperature Readings (in °C) at Donnelly

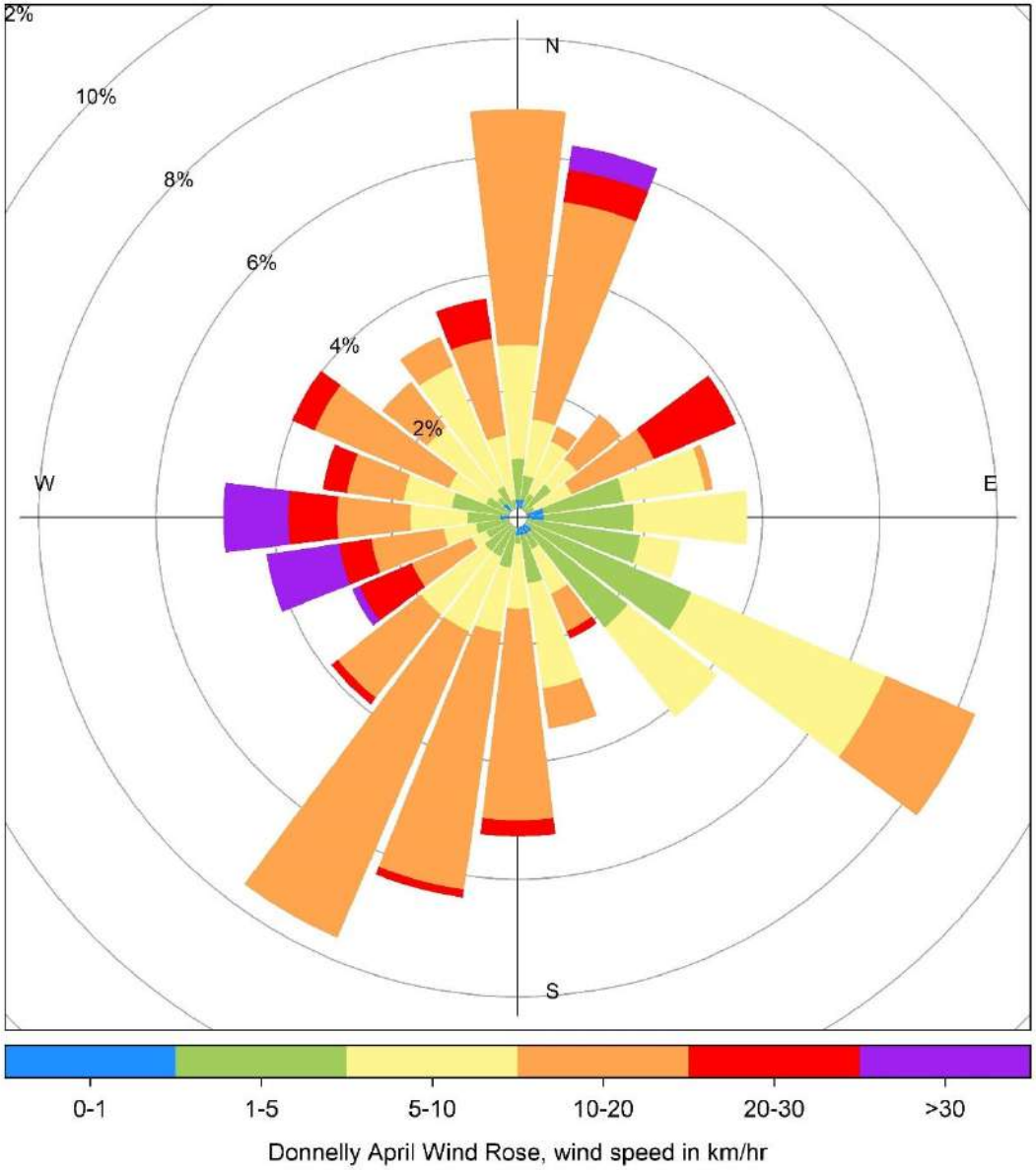


April Hourly Readings of Wind Speed (in km/hr) at Donnelly



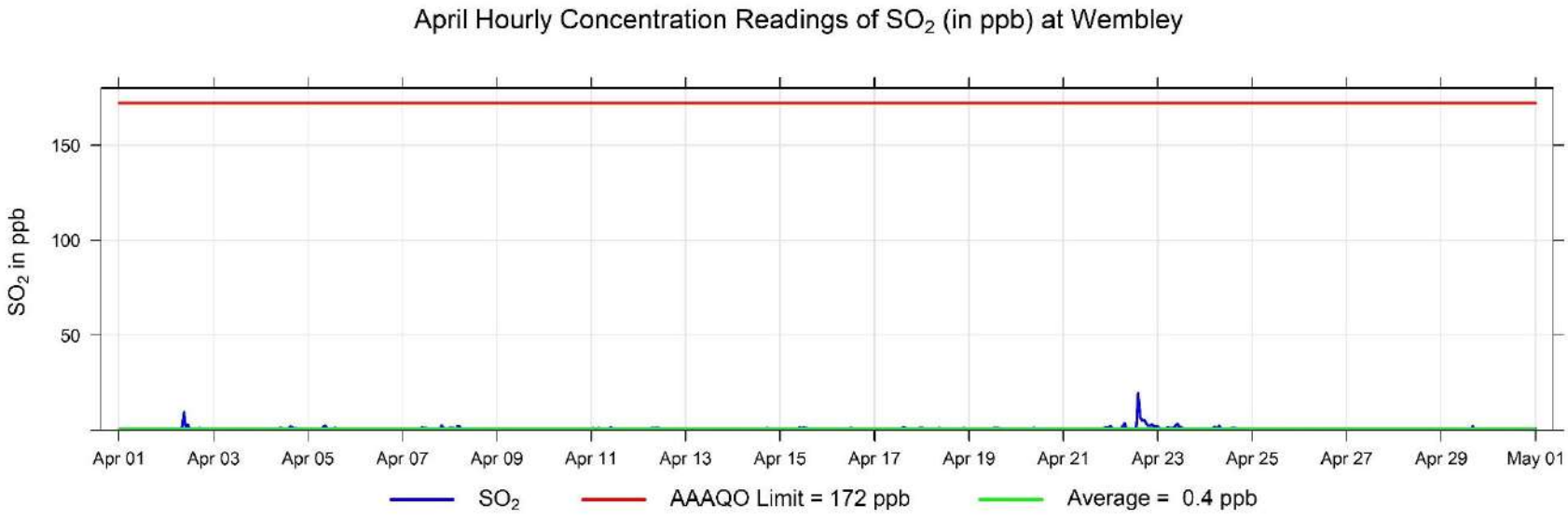

April Hourly Readings of Wind Direction (in degrees) at Donnelly
WD in degrees
0
100
200
300
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WD

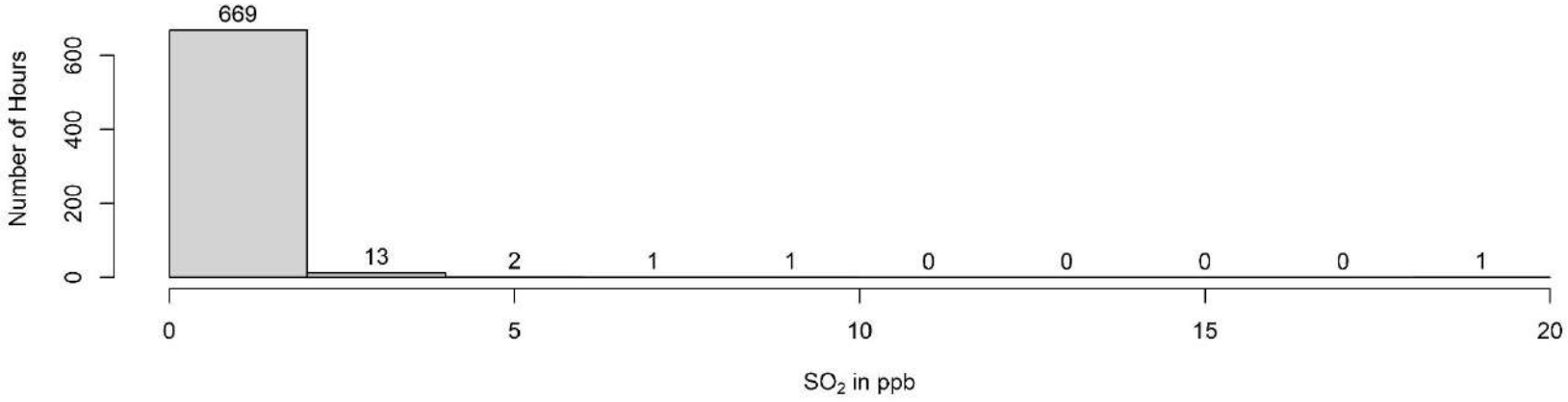

April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Donnelly
WD in degrees
0
20
40
60
80
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

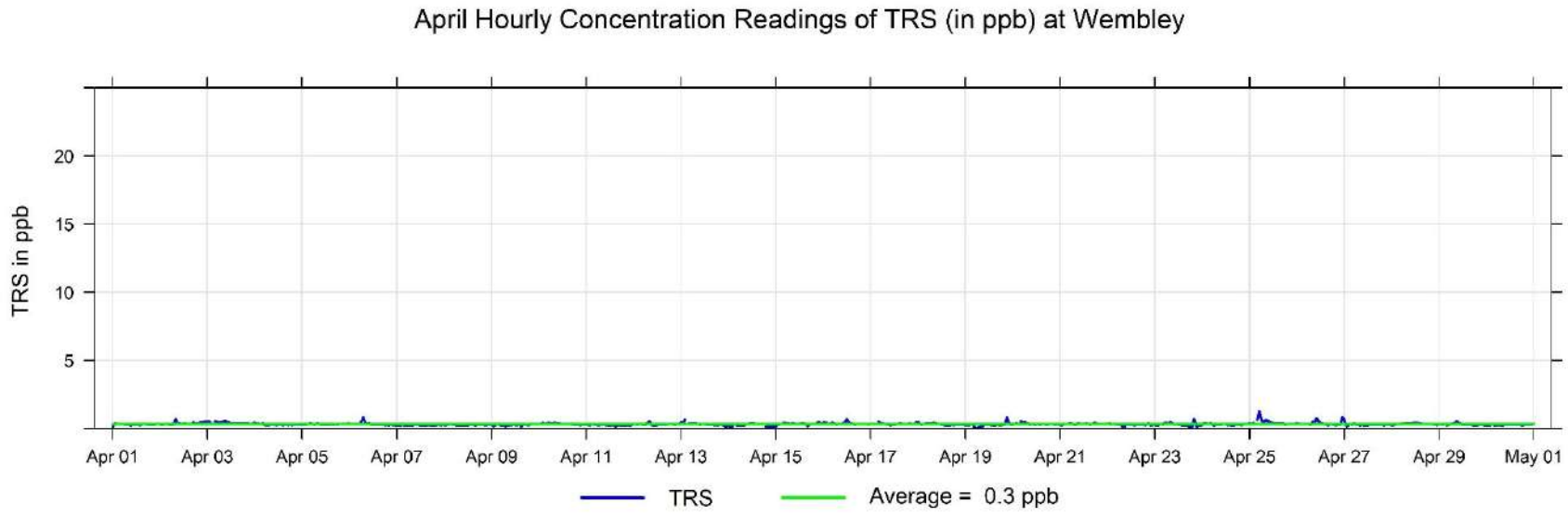

2%
10%
8%
6%
4%
2%
N
W
E
S
0-1
1-5
5-10
10-20
20-30
>30
Donnelly April Wind Rose, wind speed in km/hr

8 Wembley (Portable) Charts

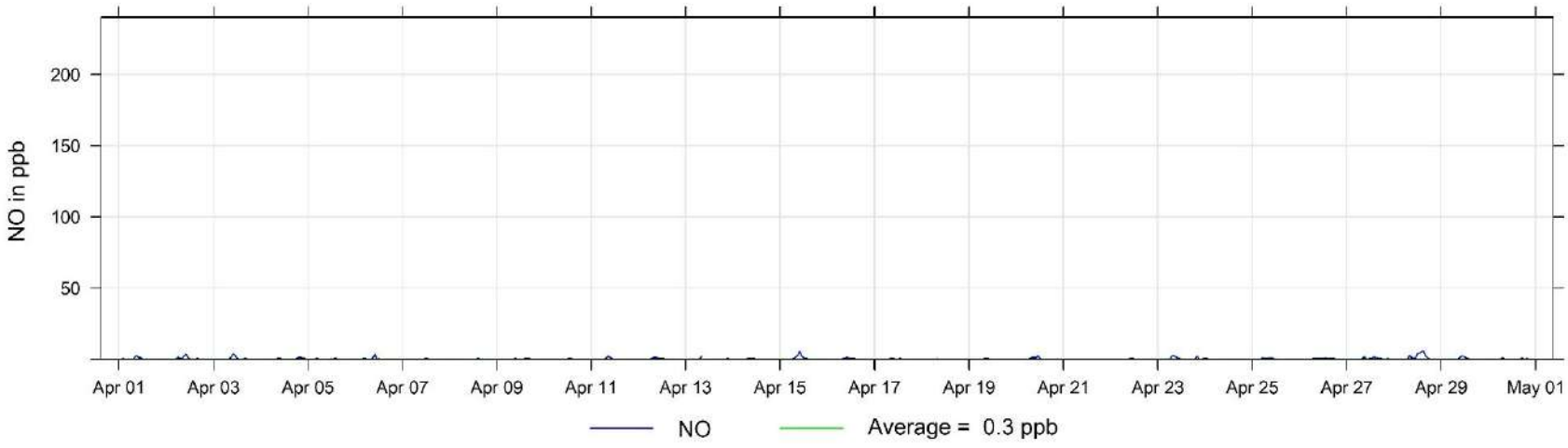
The following pages include the charts and histograms for Wembley Portable Station


April Hourly Concentration Readings of SO_2 (in ppb) at Wembley
SO_2 in ppb
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
SO_2
AAAQO Limit = 172 ppb
Average = 0.4 ppb

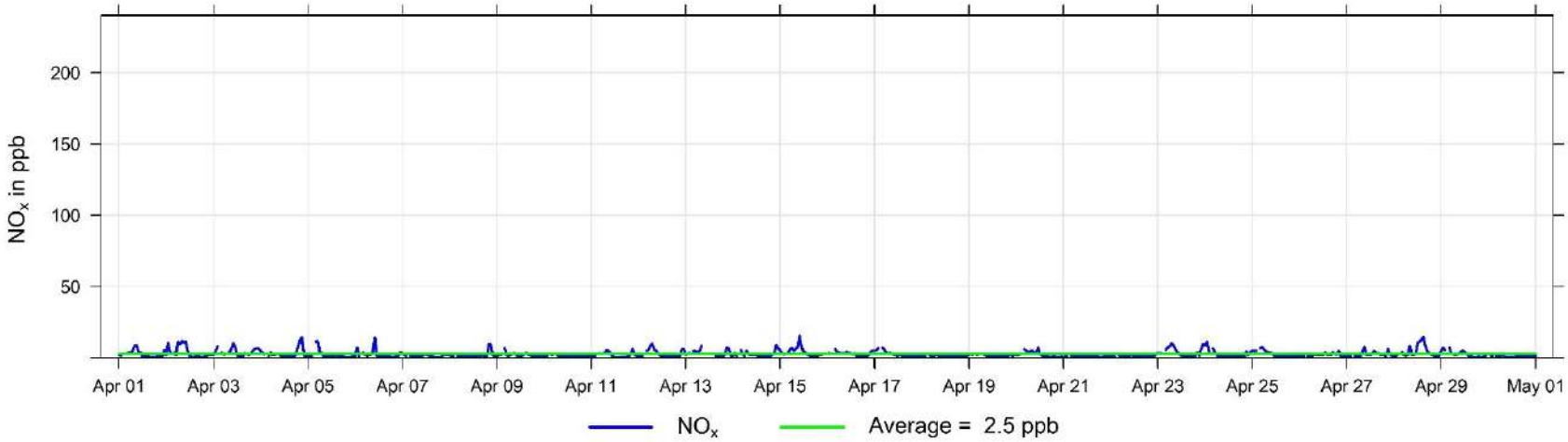

Number of Hours
0
200
400
600
669
13
2
1
1
0
0
0
0
1
0
5
10
15
20
SO_2 in ppb

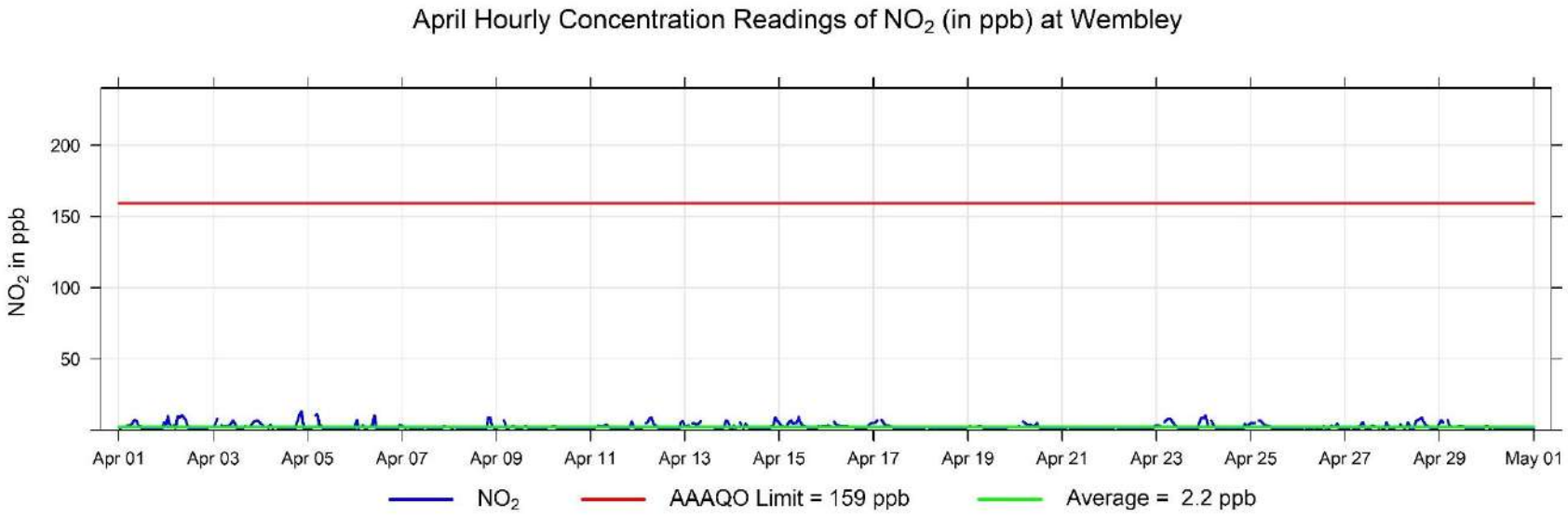

April Hourly Concentration Readings of TRS (in ppb) at Wembley
TRS in ppb
20
15
10
5
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
TRS
Average = 0.3 ppb

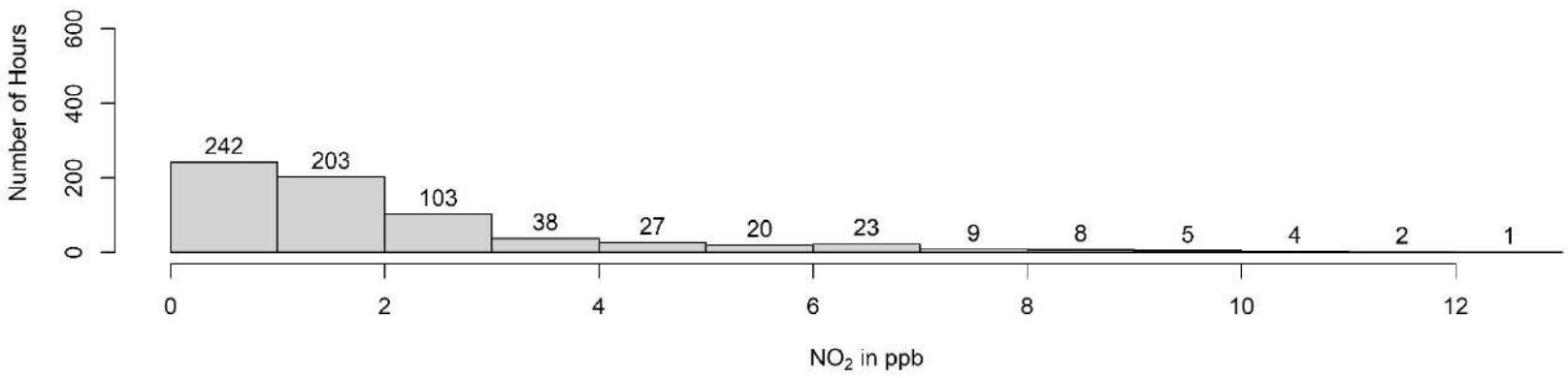
April Hourly Concentration Readings of NO (in ppb) at Wembley

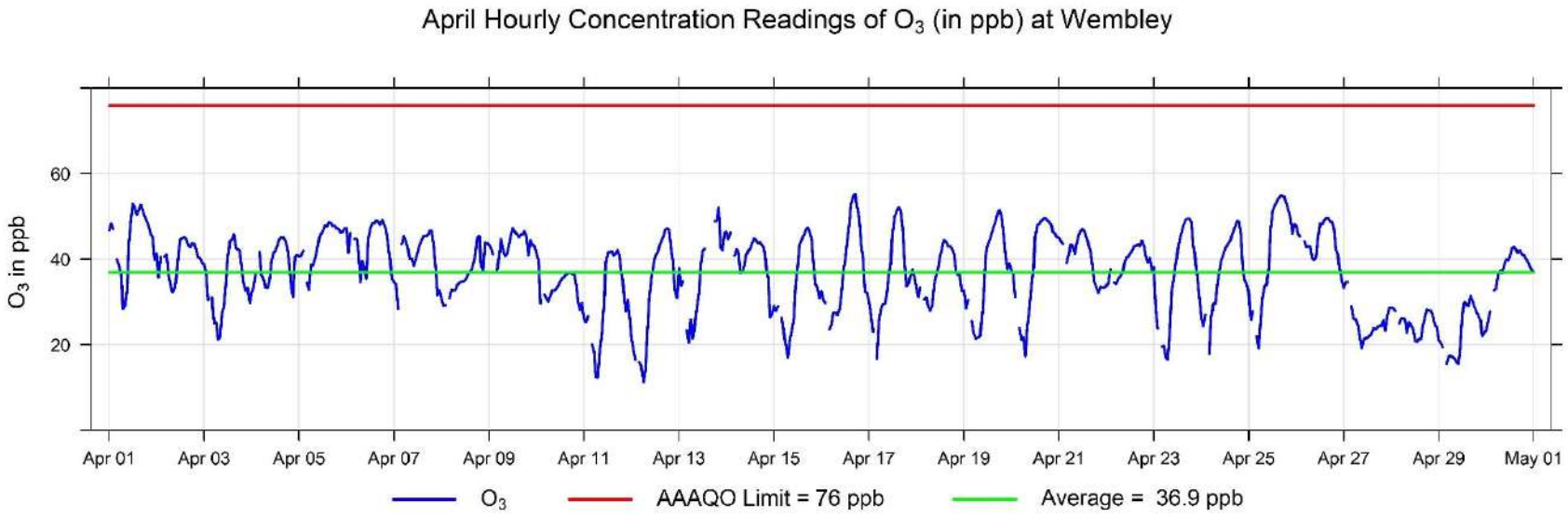


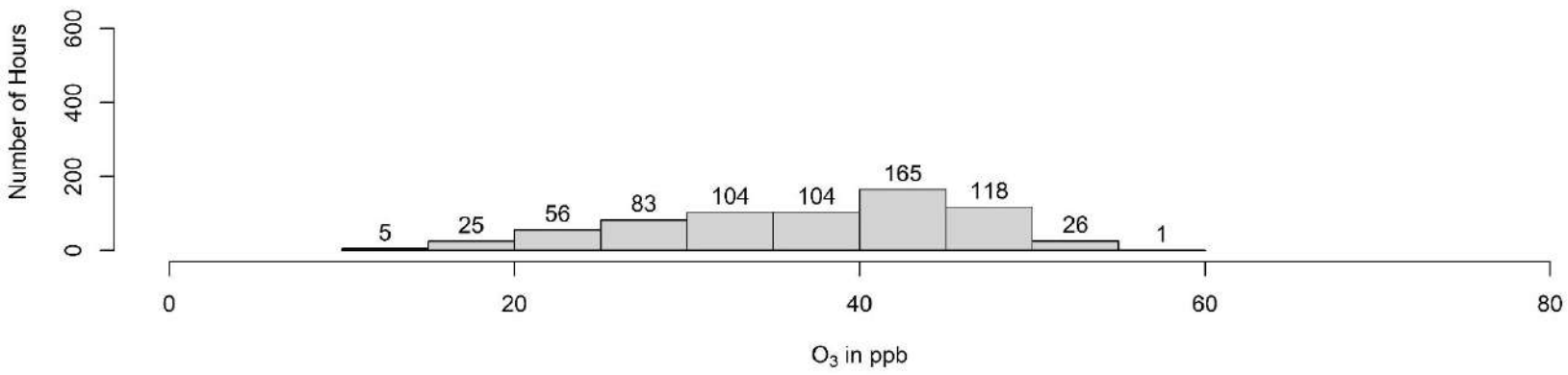
April Hourly Concentration Readings of NO_x (in ppb) at Wembley



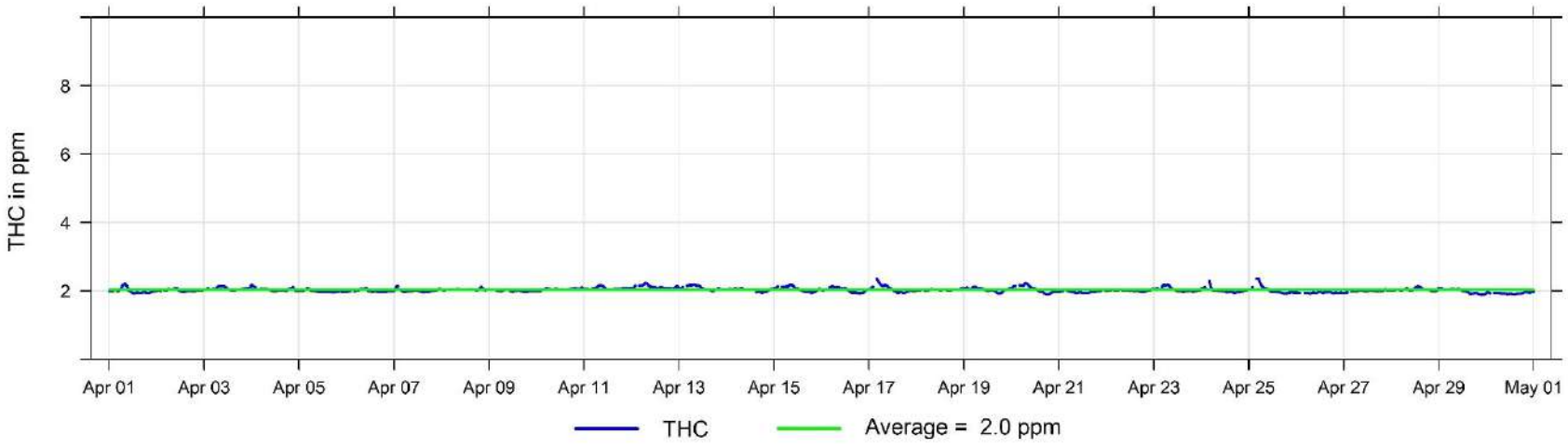

April Hourly Concentration Readings of NO_2 (in ppb) at Wembley
NO_2 in ppb
200
150
100
50
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
NO_2
AAAQO Limit = 159 ppb
Average = 2.2 ppb


Number of Hours
0
200
400
600
242
203
103
38
27
20
23
9
8
5
4
2
1
0
2
4
6
8
10
12
NO_2 in ppb

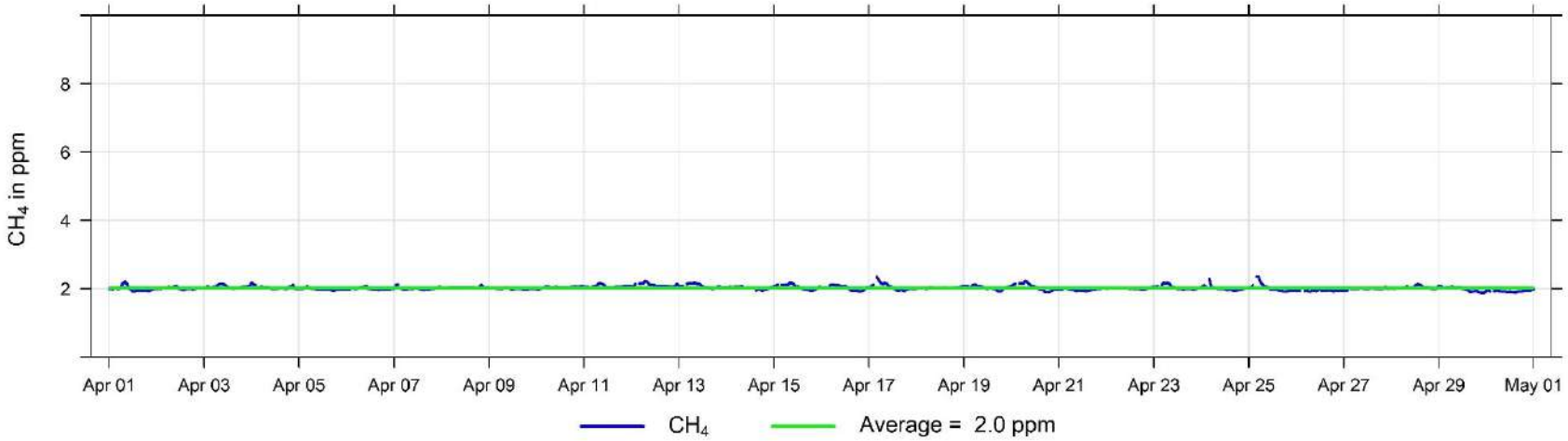

April Hourly Concentration Readings of O3 (in ppb) at Wembley
O3 in ppb
60
40
20
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
O3
AAAQO Limit = 76 ppb
Average = 36.9 ppb

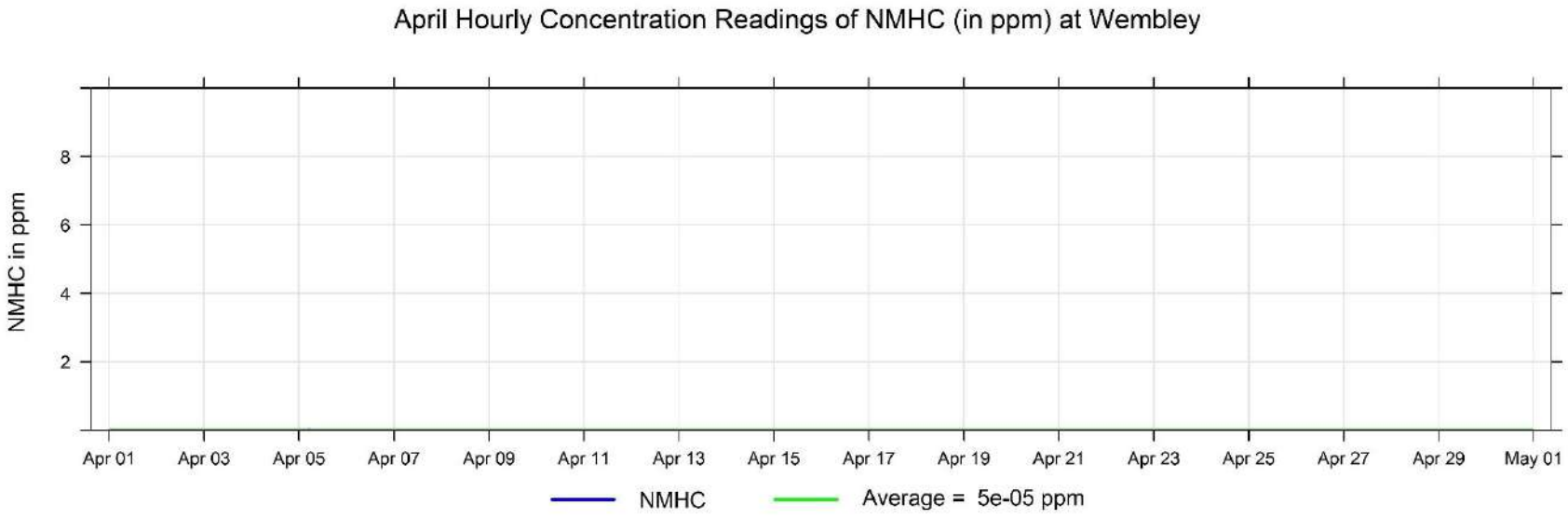

Number of Hours
0
200
400
600
5
25
56
83
104
104
165
118
26
1
0
20
40
60
80
O3 in ppb

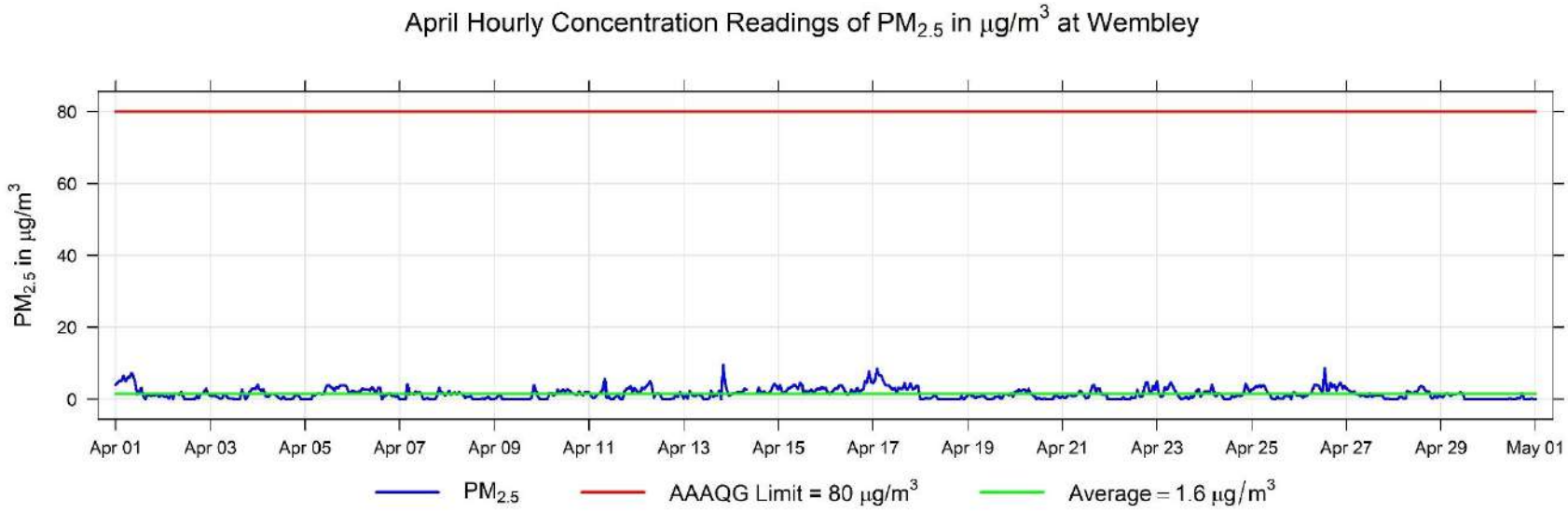
April Hourly Concentration Readings of THC (in ppm) at Wembley

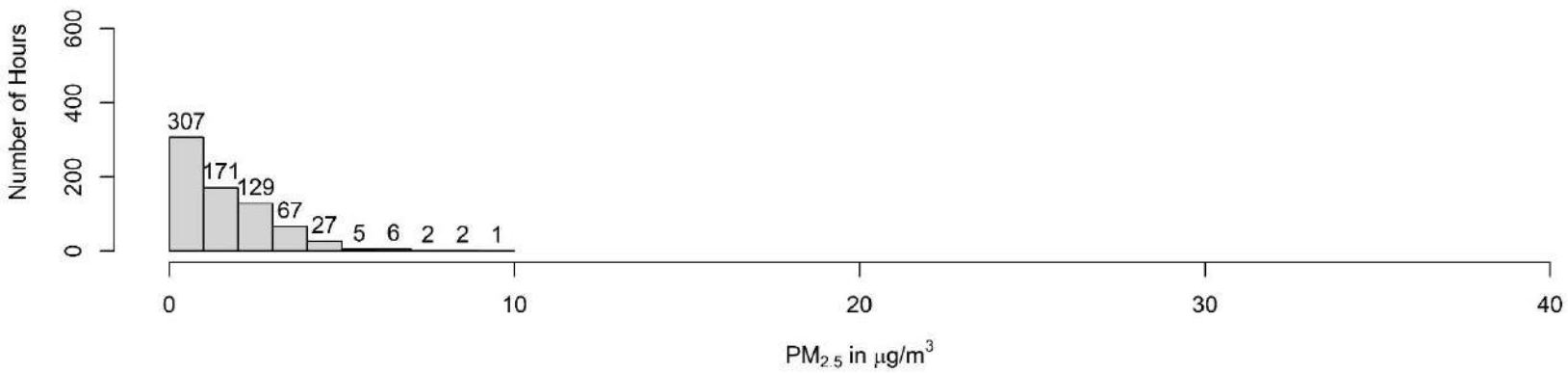


April Hourly Concentration Readings of CH_4 (in ppm) at Wembley

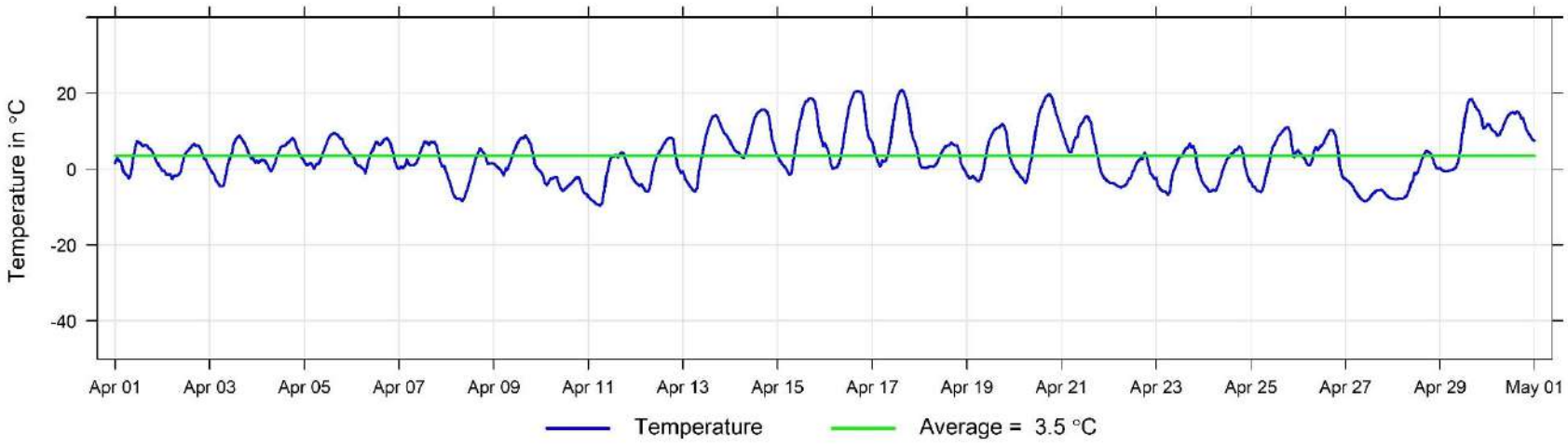



April Hourly Concentration Readings of NMHC (in ppm) at Wembley
NMHC in ppm
8
6
4
2
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
NMHC
Average = 5e-05 ppm

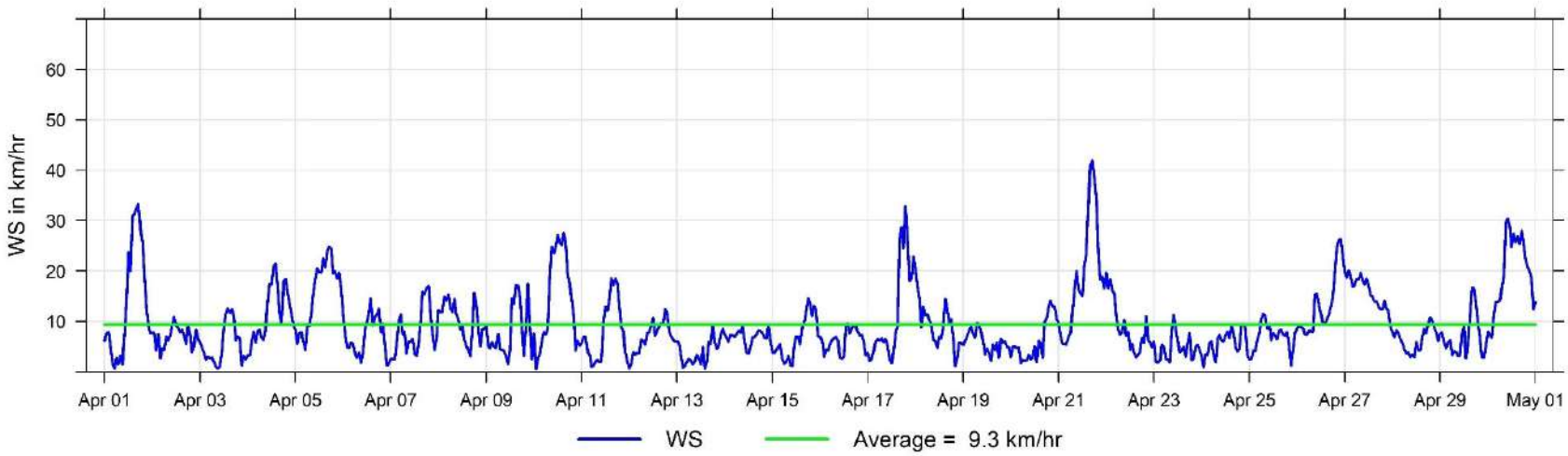

April Hourly Concentration Readings of PM2.5 in µg/m3 at Wembley
PM2.5 in µg/m3
80
60
40
20
0
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
PM2.5
AAAQG Limit = 80 µg/m3
Average = 1.6 µg/m3

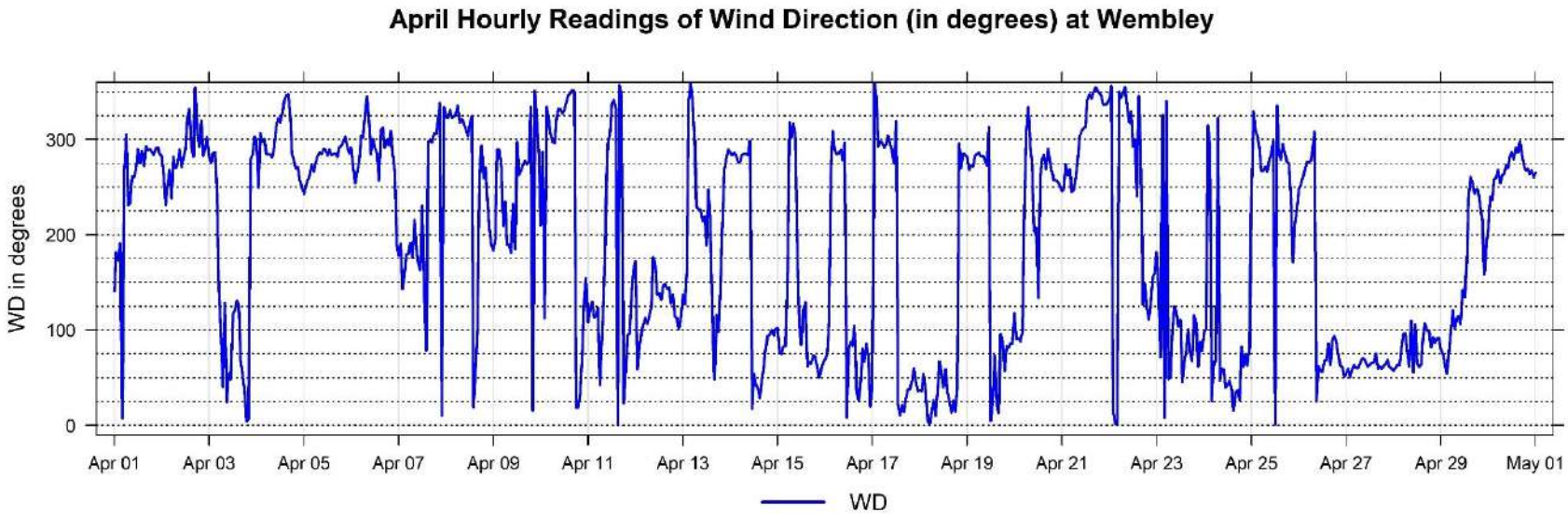

Number of Hours
0
200
400
600
307
171
129
67
27
5
6
2
2
1
0
10
20
30
40
PM2.5 in µg/m3

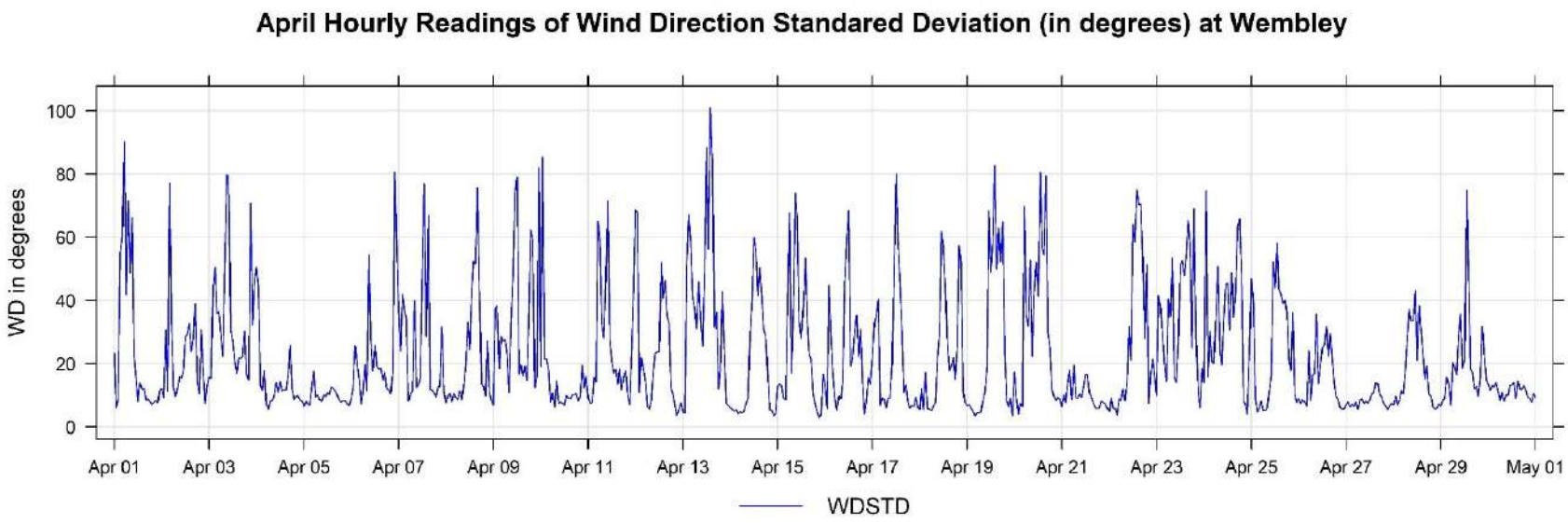
April Hourly Temperature Readings (in °C) at Wembley

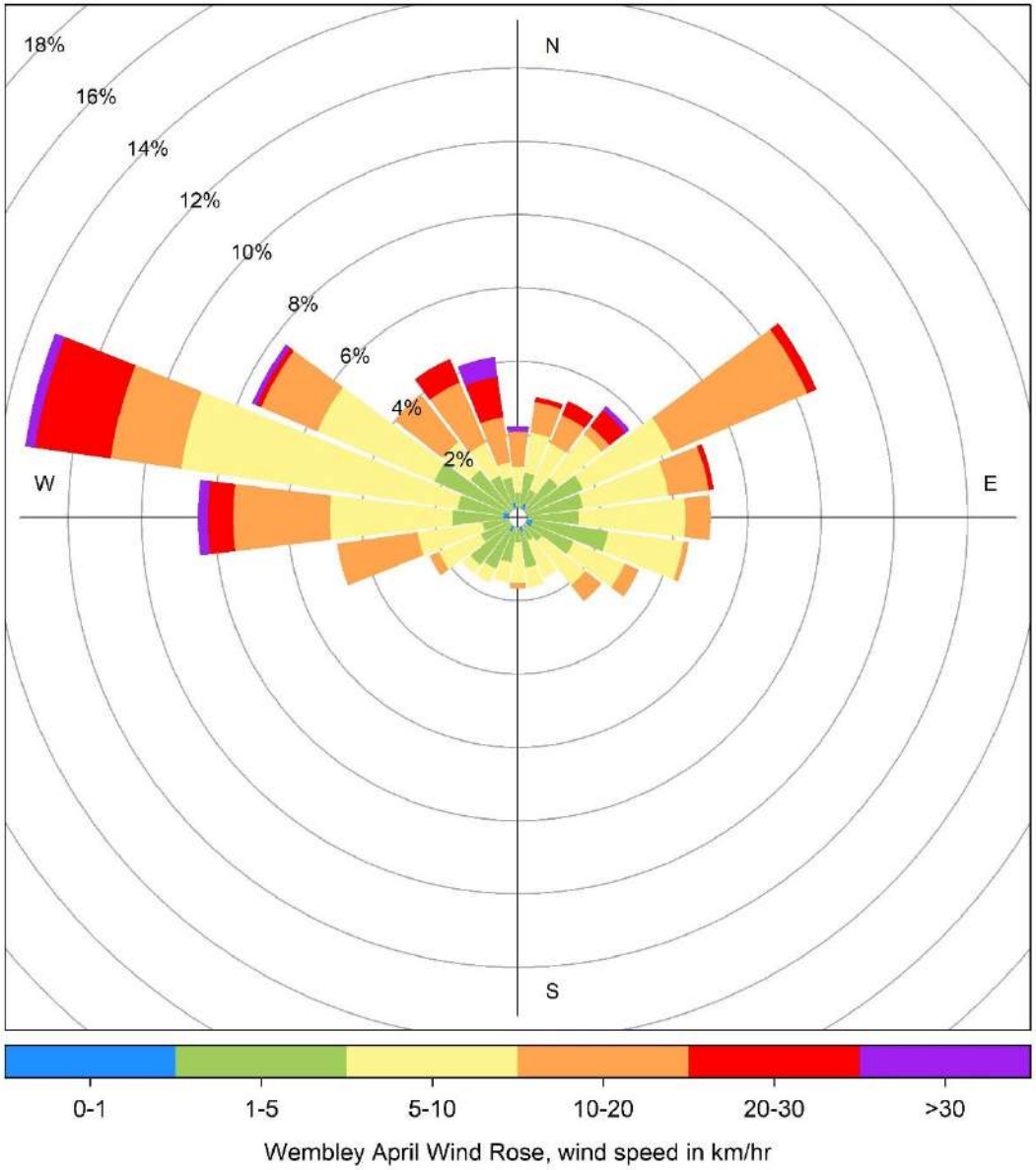


April Hourly Readings of Wind Speed (in km/hr) at Wembley

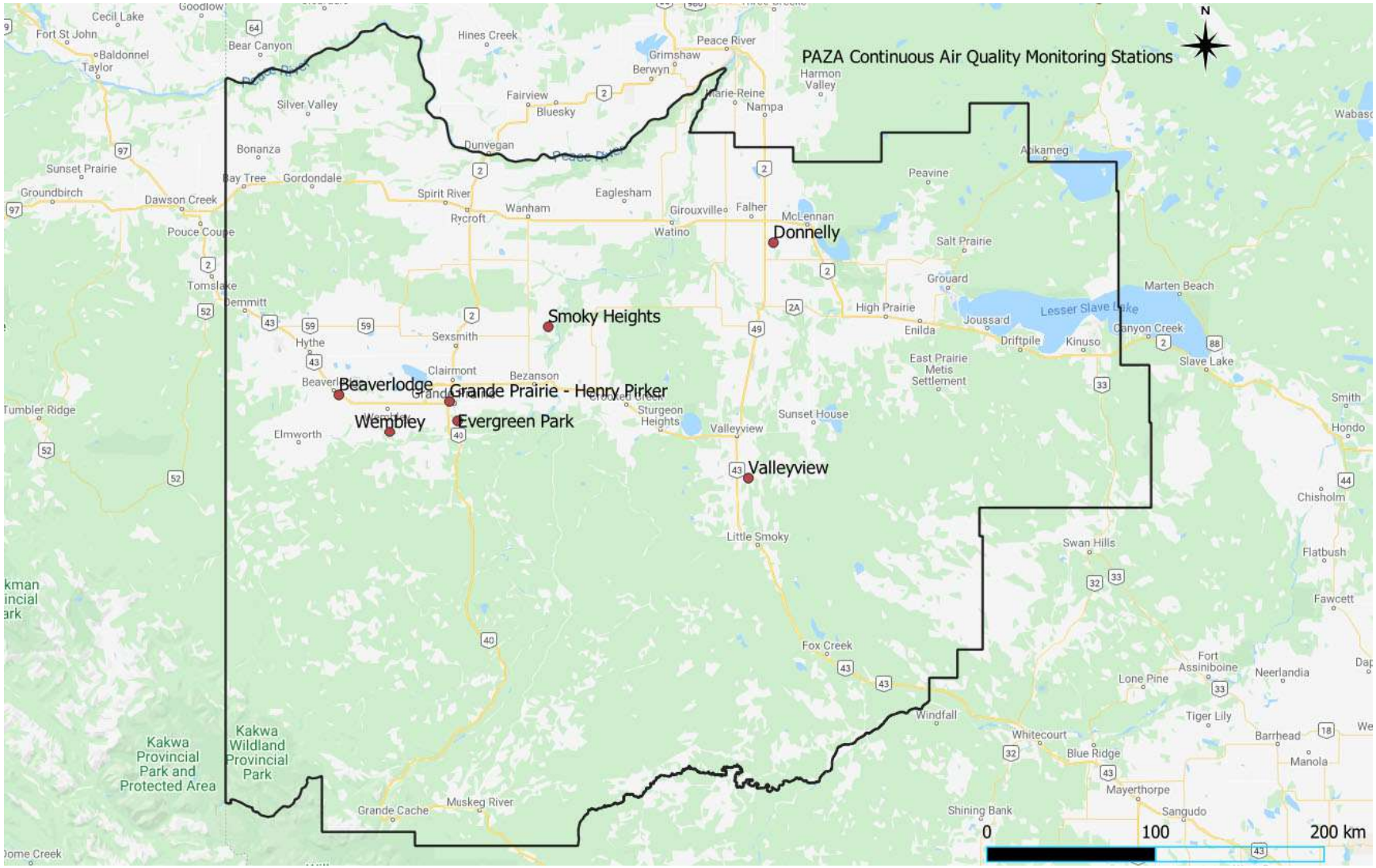



April Hourly Readings of Wind Direction (in degrees) at Wembley
WD in degrees
0
100
200
300
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WD


April Hourly Readings of Wind Direction Standared Deviation (in degrees) at Wembley
WD in degrees
0
20
40
60
80
100
Apr 01
Apr 03
Apr 05
Apr 07
Apr 09
Apr 11
Apr 13
Apr 15
Apr 17
Apr 19
Apr 21
Apr 23
Apr 25
Apr 27
Apr 29
May 01
WDSTD

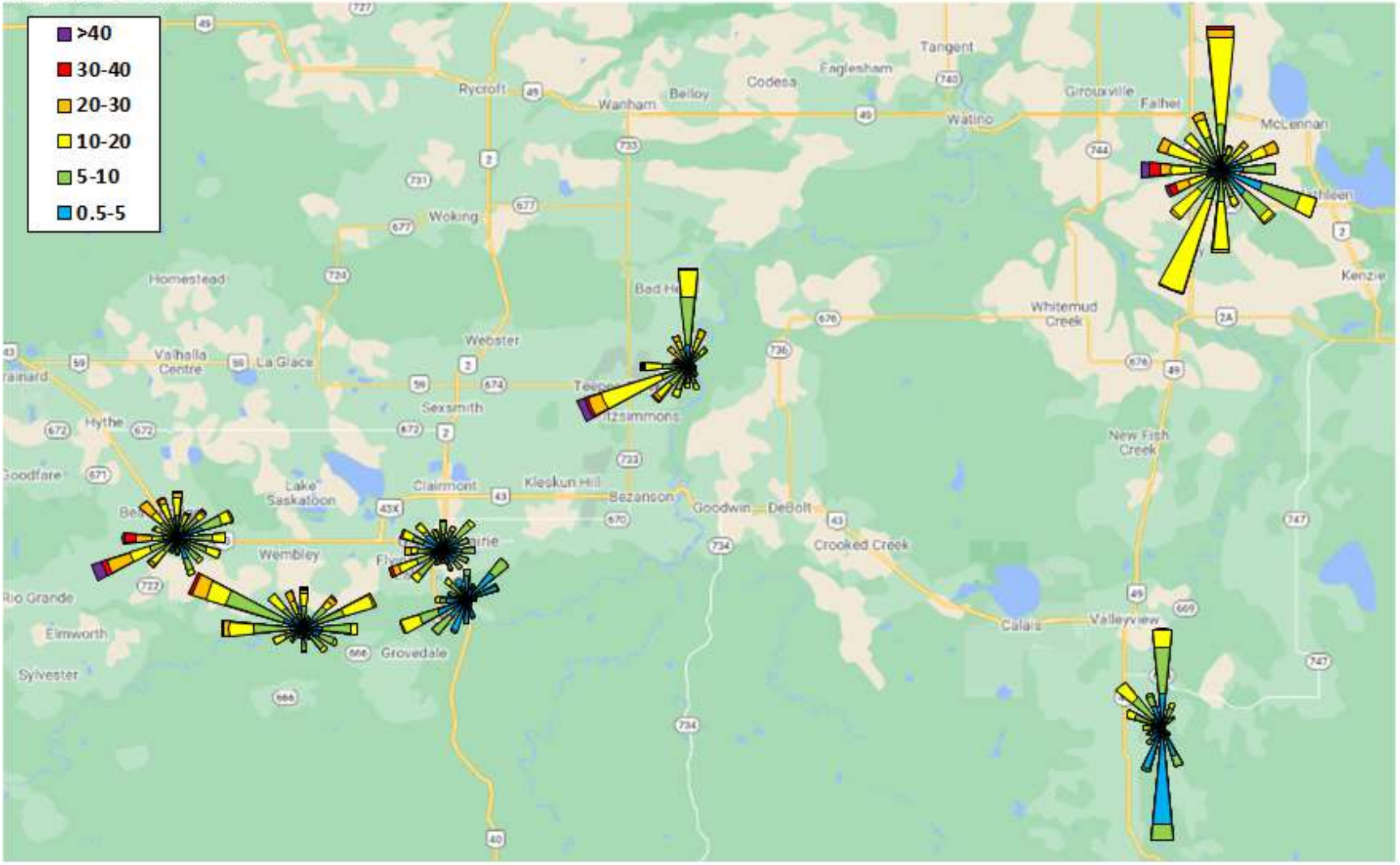

18%
16%
14%
12%
10%
8%
6%
4%
2%
N
W
E
S
0-1
1-5
5-10
10-20
20-30
>30
Wembley April Wind Rose, wind speed in km/hr

9 Concentration Summaries and Roses for PAZA



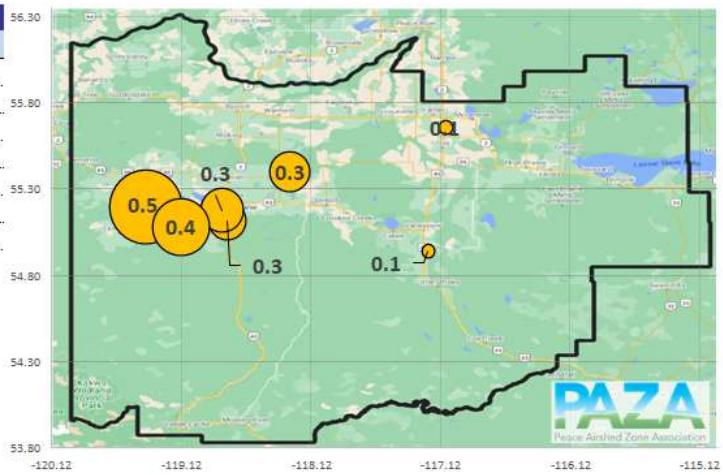
9.1 Wind Roses

Wind Roses in km/hr

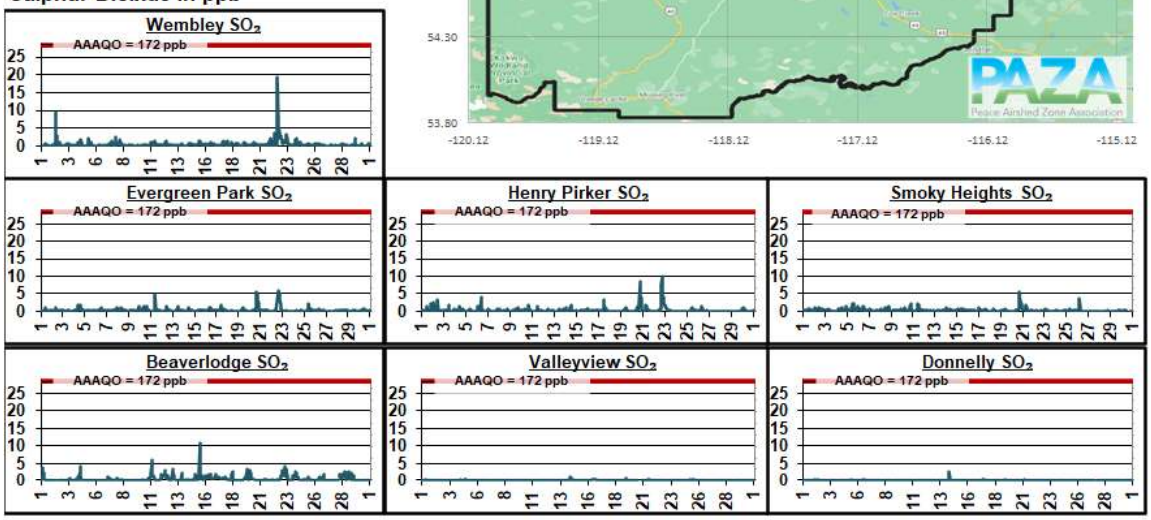


9.2 Sulphur Dioxide (SO_2) Plots

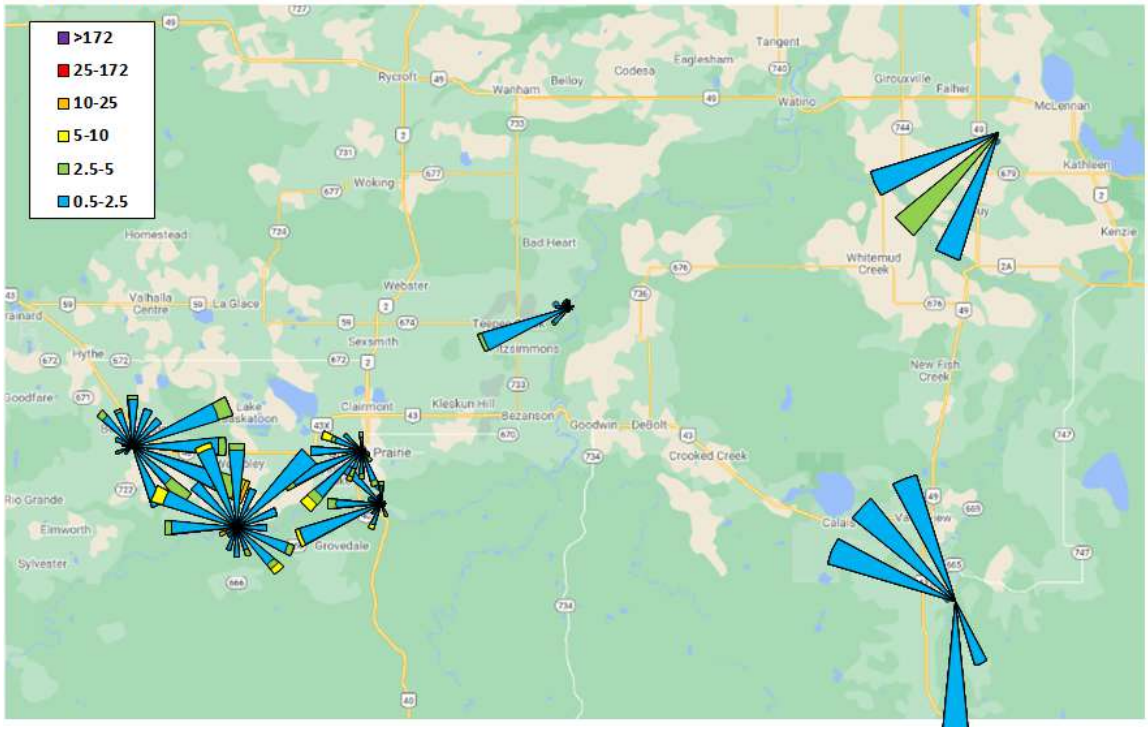
April 2021 SO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park SO_2	0.3	5.8
Henry Pirker SO_2	0.3	10.0
Smoky Heights SO_2	0.3	5.4
Beaverlodge SO_2	0.5	10.7
Valleyview SO_2	0.1	1.1
Donnelly SO_2	0.1	2.8
Wembley SO_2	0.4	19.5



Sulphur Dioixde in ppb

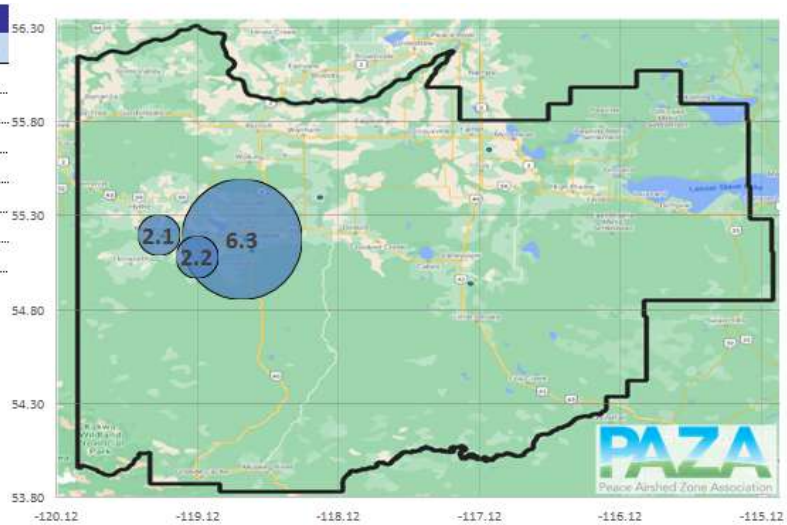


SO_2 Roses in ppb

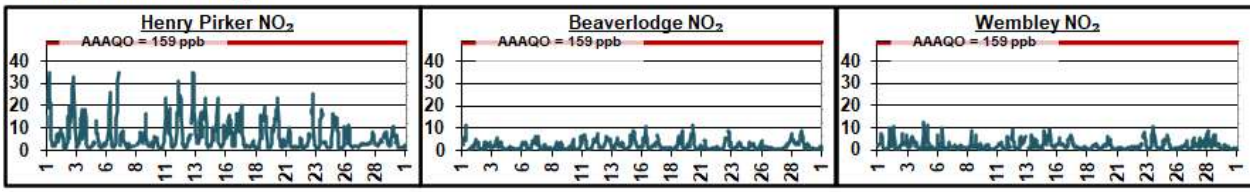


9.3 Nitrogen Dioxide (NO_2) Plots

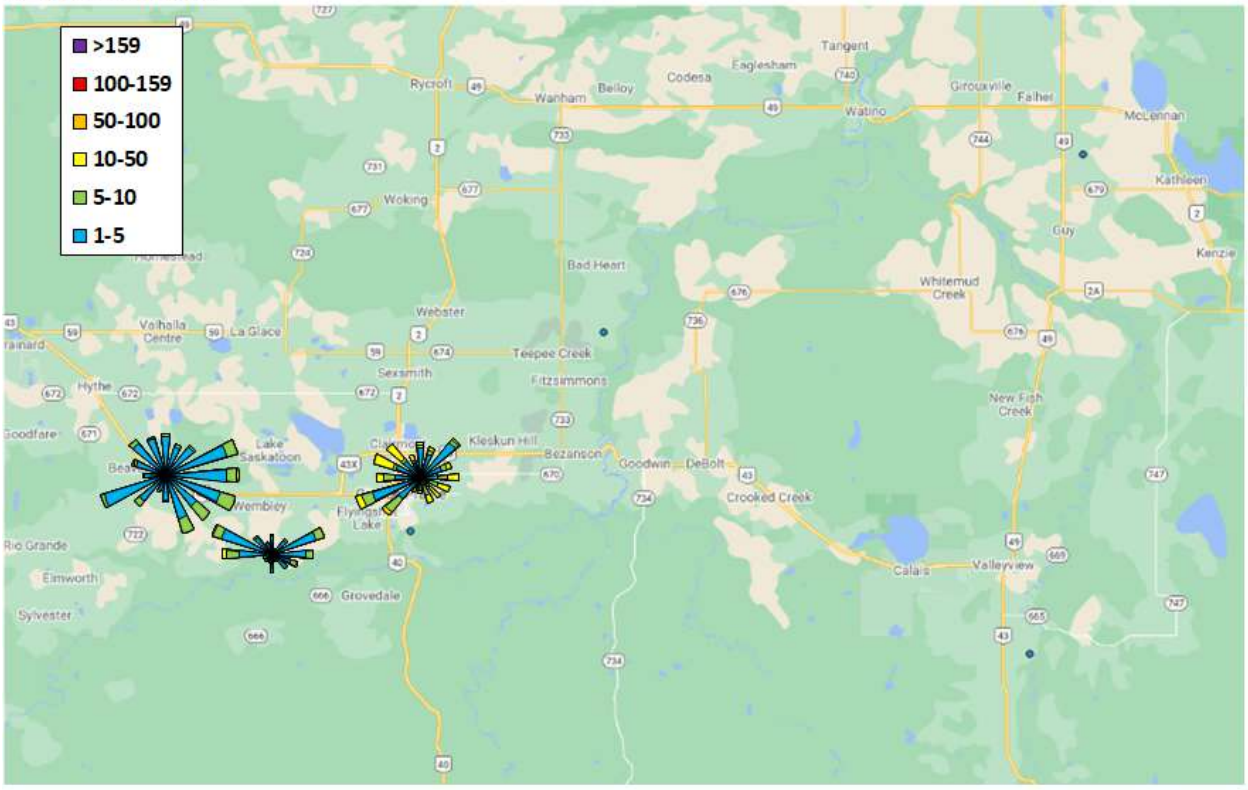
April 2021 NO_2 Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park NO_2	-	-
Henry Pirker NO_2	6.3	35.1
Smoky Heights NO_2	-	-
Beaverlodge NO_2	2.1	11.2
Valleyview NO_2	-	-
Donnelly NO_2	-	-
Wembley NO_2	2.2	12.8



Nitrogen Dioixde in ppb

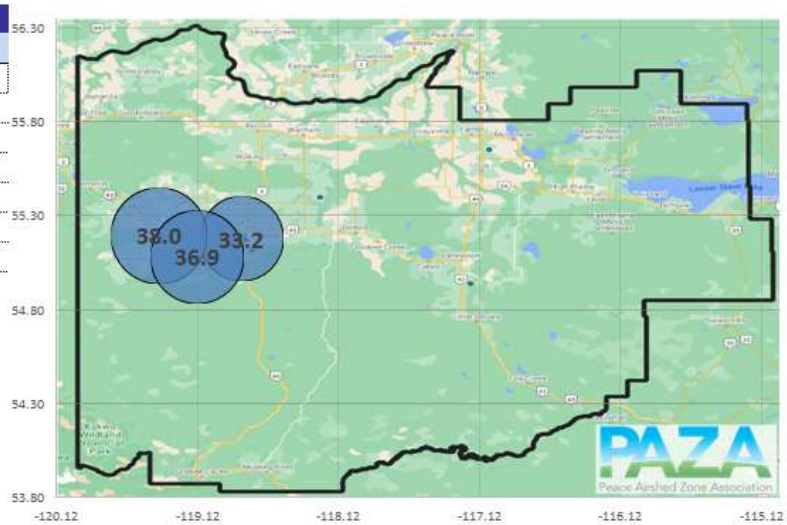


NO_2 Roses in ppb

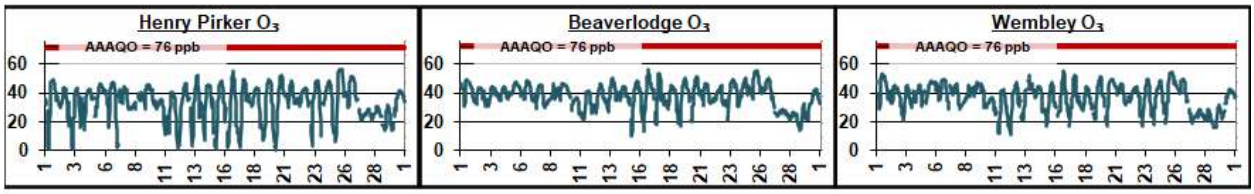


9.4 Ozone (O_3) Plots

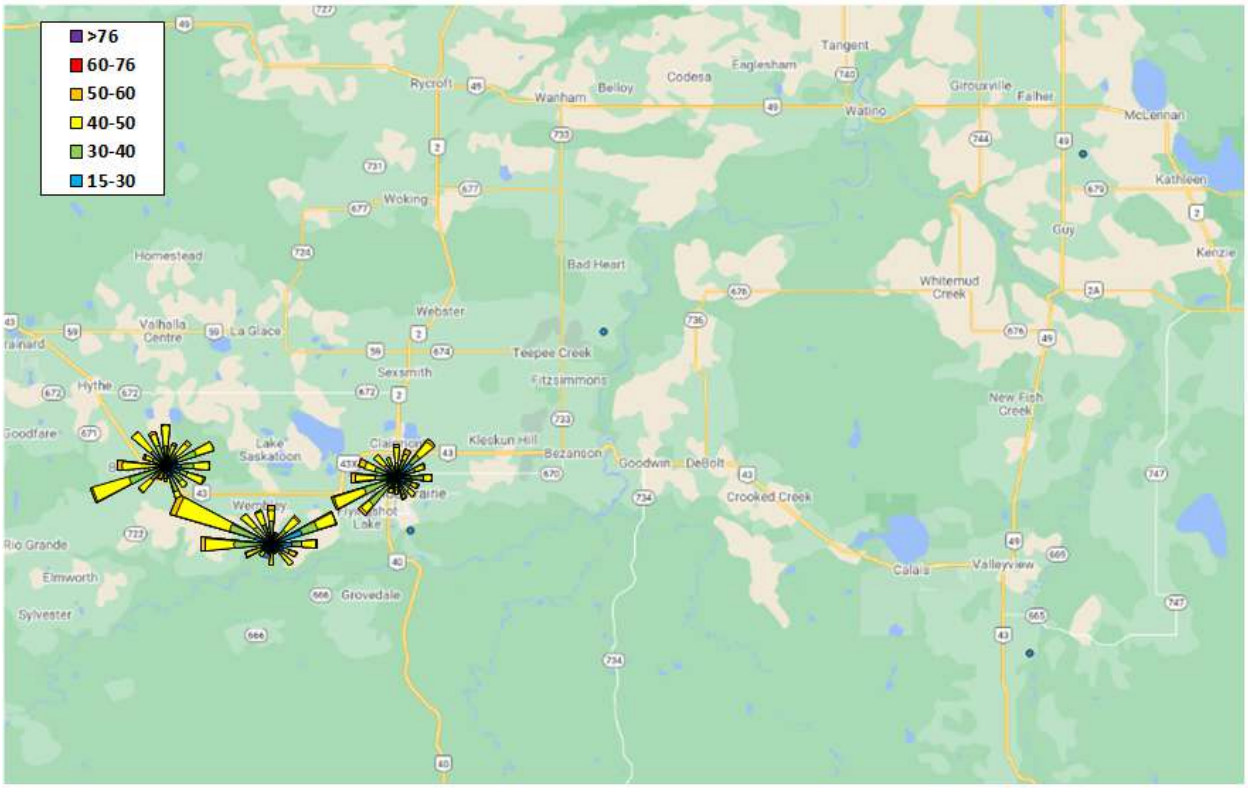
April 2021 O_3 Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park O_3	-	-
Henry Pirker O_3	33.2	56.7
Smoky Heights O_3	-	-
Beaverlodge O_3	38.0	56.0
Valleyview O_3	-	-
Donnelly O_3	-	-
Wembley O_3	36.9	55.2



Ozone in ppb

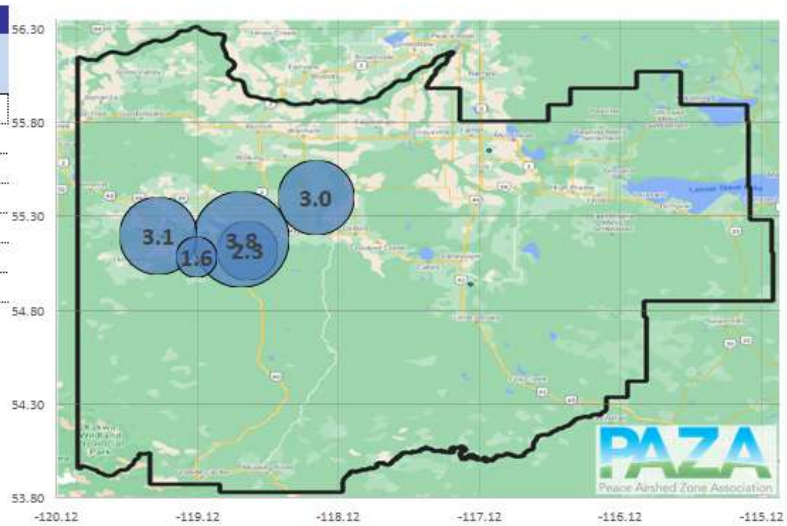


O_3 Roses in ppb

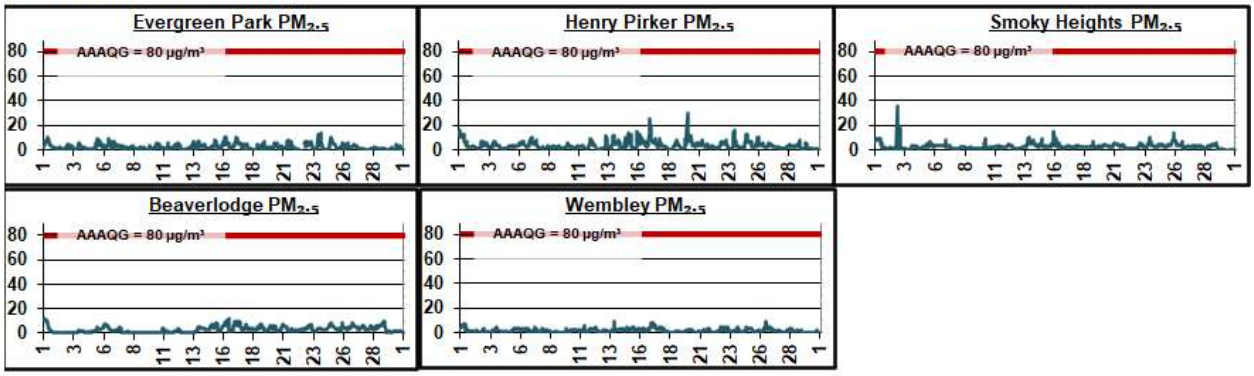


9.5 Fine Particulate Matter ($PM_{2.5}$) Plots

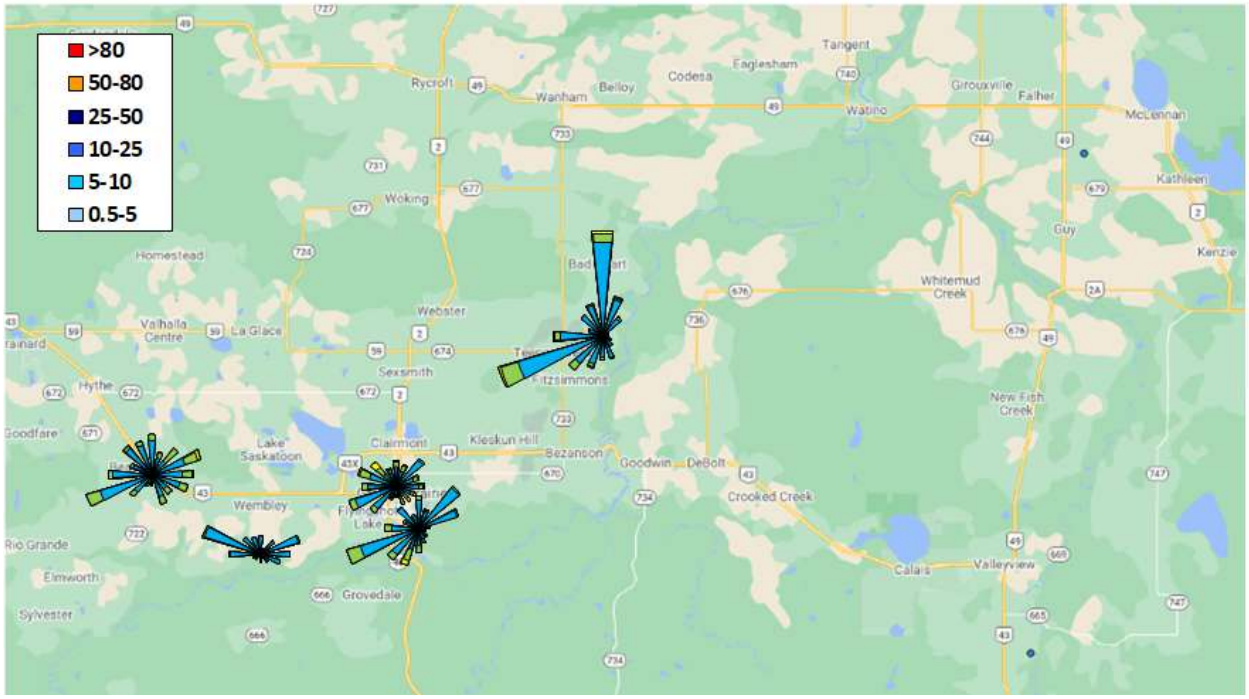
April 2021 $PM_{2.5}$ Station Summary		
Station	Avg µg/m³	Max µg/m³
Evergreen Park $PM_{2.5}$	2.3	13.7
Henry Pirker $PM_{2.5}$	3.8	30.4
Smoky Heights $PM_{2.5}$	3.0	36.0
Beaverlodge $PM_{2.5}$	3.1	11.8
Valleyview $PM_{2.5}$	-	-
Donnelly $PM_{2.5}$	-	-
Wembley $PM_{2.5}$	1.6	9.6



Fine Particulate Matter in µg/m³

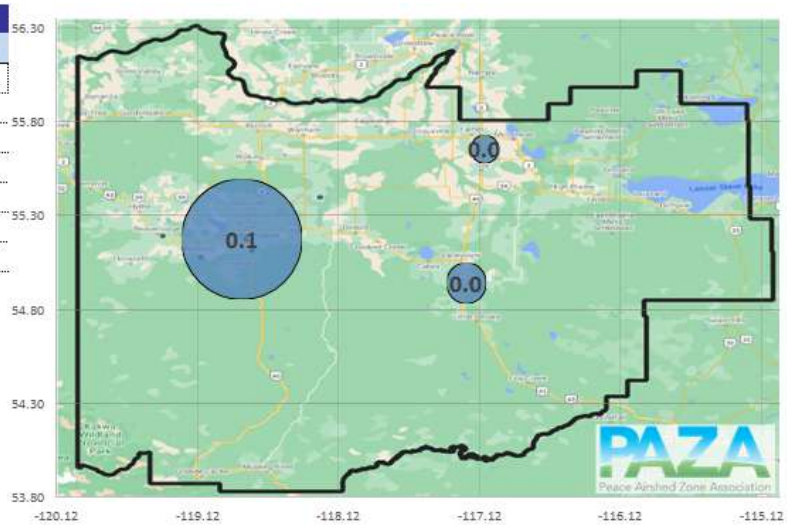


$PM_{2.5}$ Roses in µg/m³

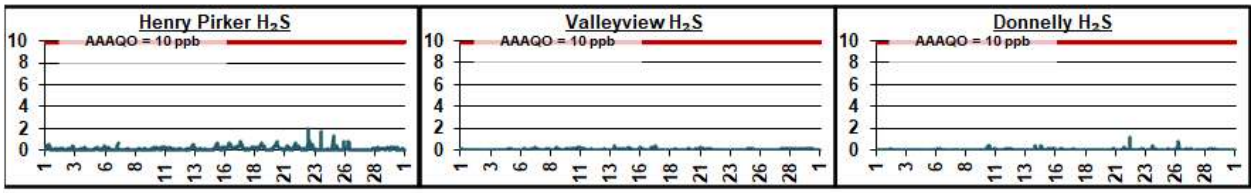


9.6 Hydrogen Sulphide (H_2S) Plots

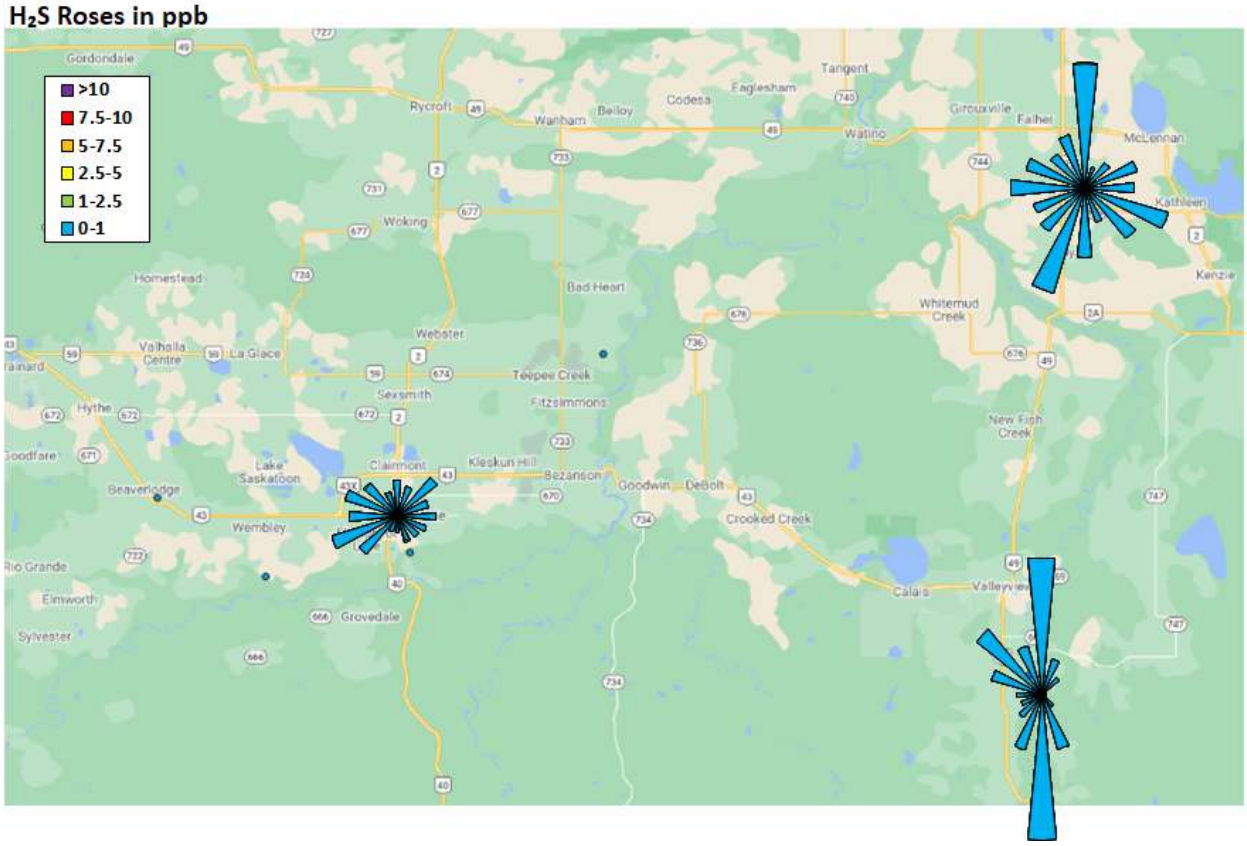
April 2021 H_2S Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park H_2S	-	-
Henry Pirker H_2S	0.1	2.0
Smoky Heights H_2S	-	-
Beaverlodge H_2S	-	-
Valleyview H_2S	0.0	0.4
Donnelly H_2S	0.0	1.2
Wembley H_2S	-	-



Hydrogen Sulphide in ppb

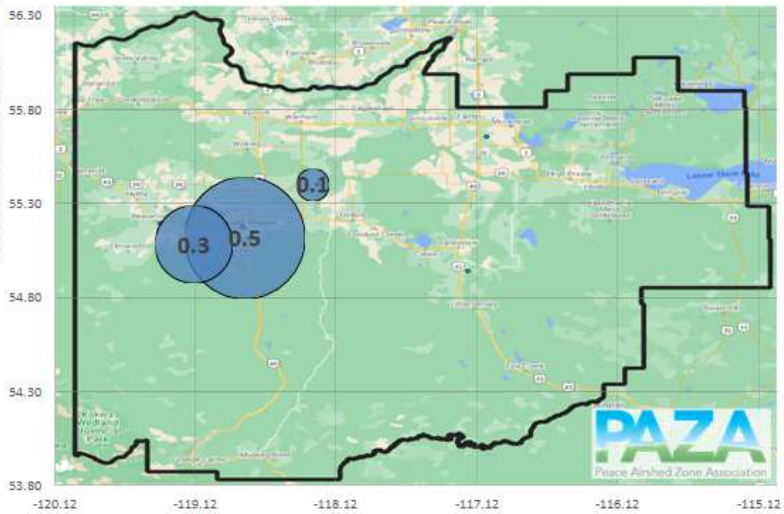


H_2S Roses in ppb

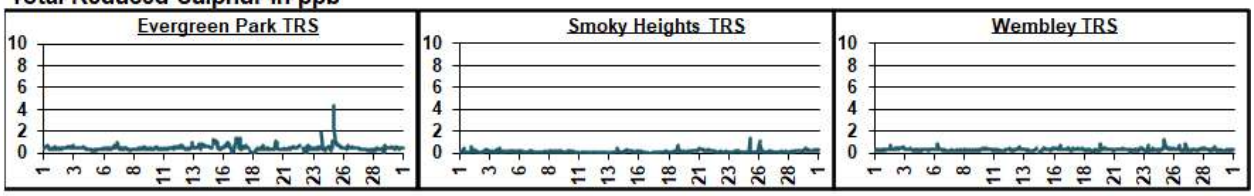


9.7 Total Reduced Sulphur (TRS) Plots

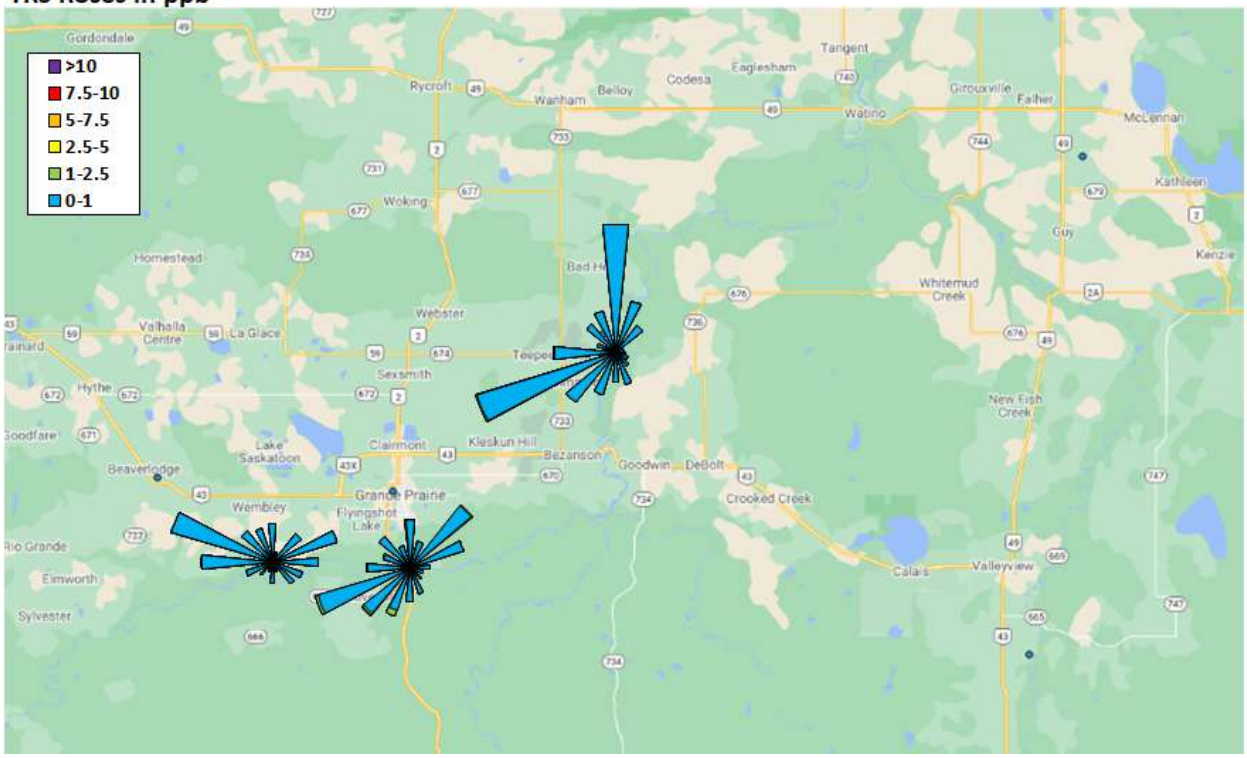
April 2021 TRS Station Summary		
Station	Avg (ppb)	Max (ppb)
Evergreen Park TRS	0.5	4.4
Henry Pirker TRS	-	-
Smoky Heights TRS	0.1	1.4
Beaverlodge TRS	-	-
Valleyview TRS	-	-
Donnelly TRS	-	-
Wembley TRS	0.3	1.3



Total Reduced Sulphur in ppb



TRS Roses in ppb

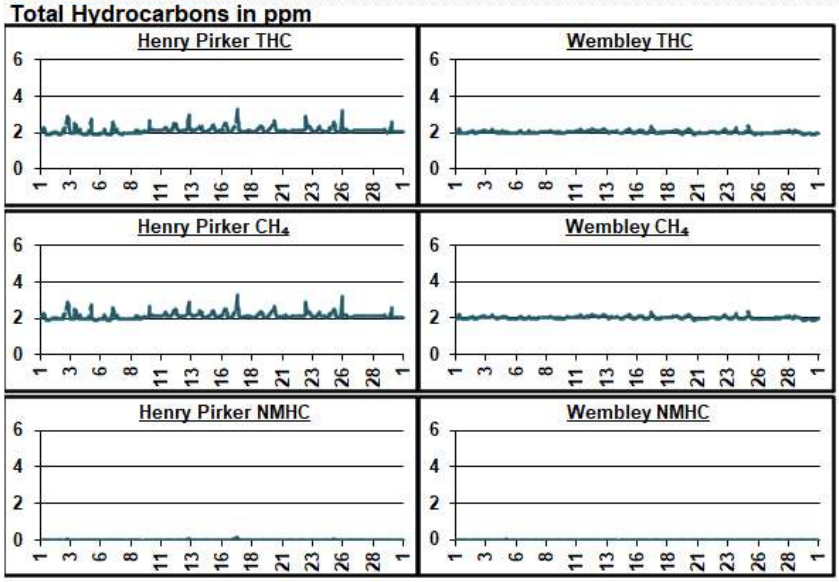


9.8 Total Hydrocarbon (THC) Plots

April 2021 THC Station Summary

Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Evergreen Park THC	-	-	-	-	-	-
Henry Pirker THC	2.1	3.3	3.3	3.3	0.1	0.1
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	-	-	-	-	-	-
Valleyview THC	-	-	-	-	-	-
Donnelly THC	-	-	-	-	-	-
Wembley THC	2.0	2.4	2.3	2.3	0.0	0.0

Total Hydrocarbons in ppm

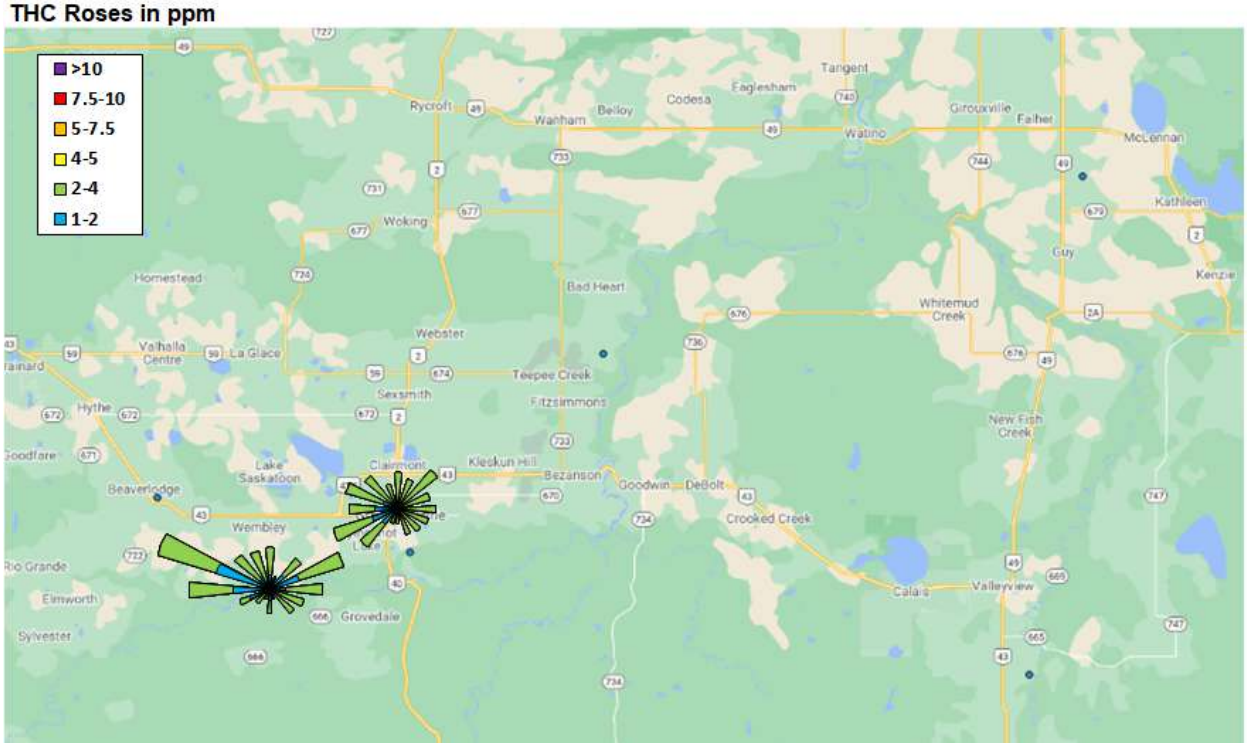


Total Hydrocarbons (THC)

Methane (CH_4)

Non-Methane Hydrocarbons (NMHC)

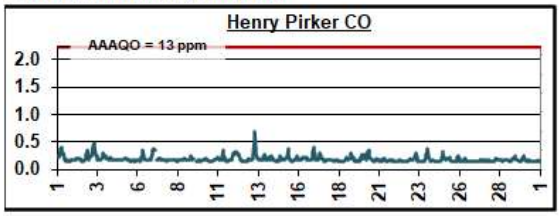
THC Roses in ppm

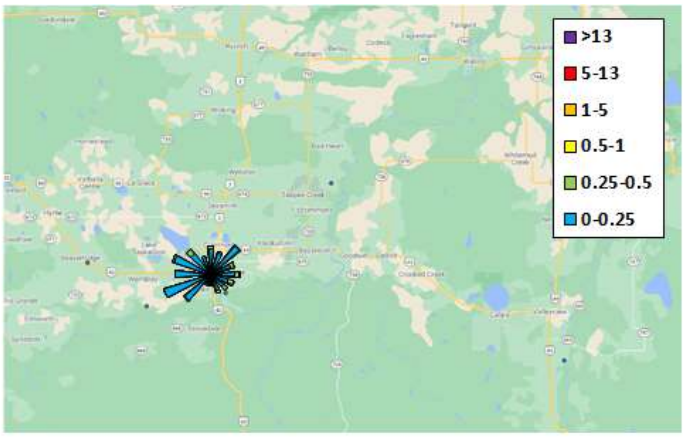


9.9 Carbon Monoxide (CO) Plots

April 2021 CO Station Summary		
Station	Avg (ppm)	Max (ppm)
Henry Pirker CO	0.19	0.68

Carbon Monoxide in ppm

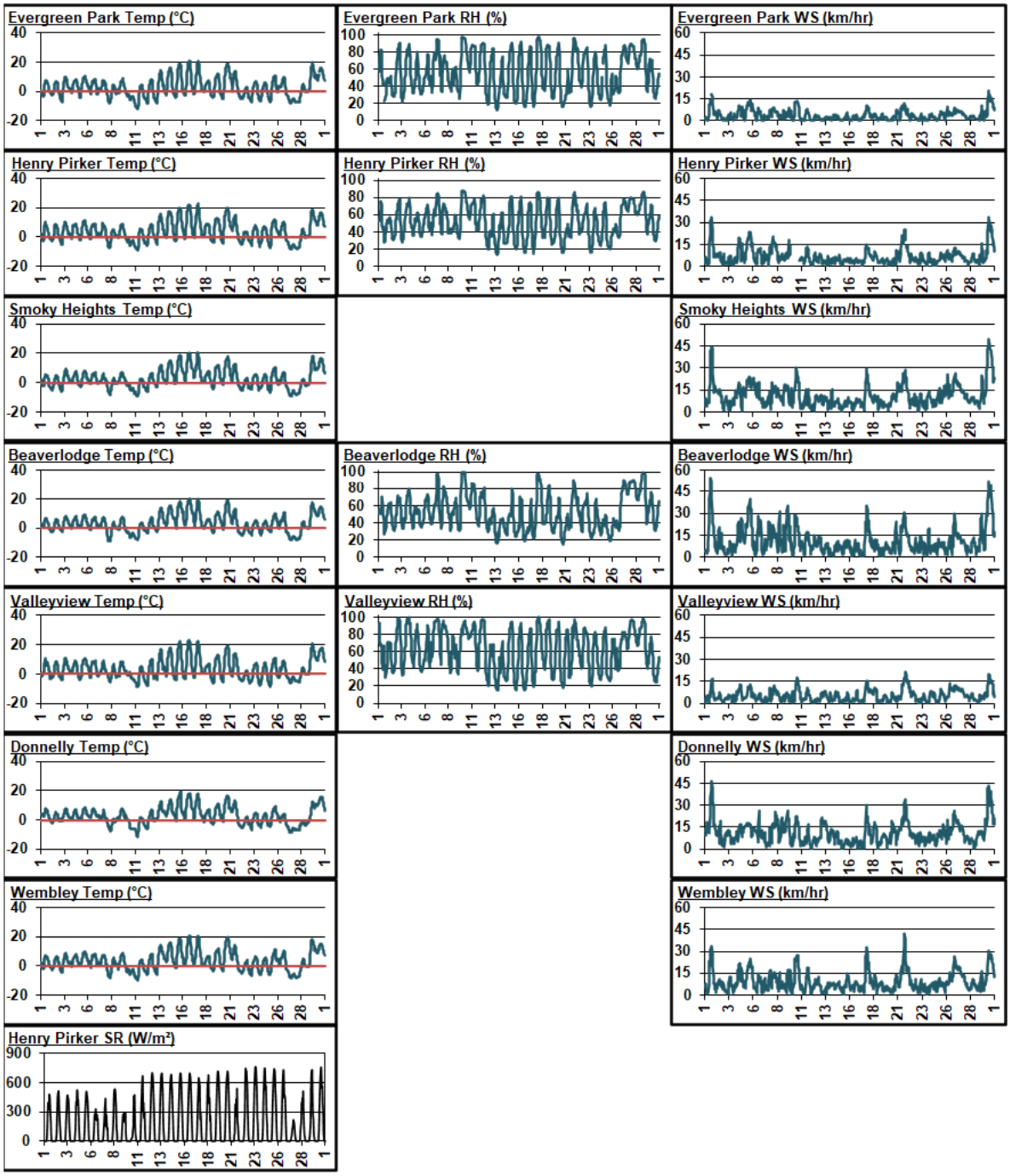




9.10 Meteorology Summary

April 2021 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Evergreen Park	3.0	56.1	-	4.0	277.9	WSW
Henry Pirker	4.2	51.6	181.9	6.9	282	WSW
Smoky Heights	2.9	-	-	11.3	278	WSW
Beaverlodge	3.4	52.8	-	11.4	286	W
Valleyview	3.6	62.1	-	5.2	320	WSW
Donnelly	2.8	-	-	11.1	264	SW
Wembley	3.5	-	-	9.3	330	WNW

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



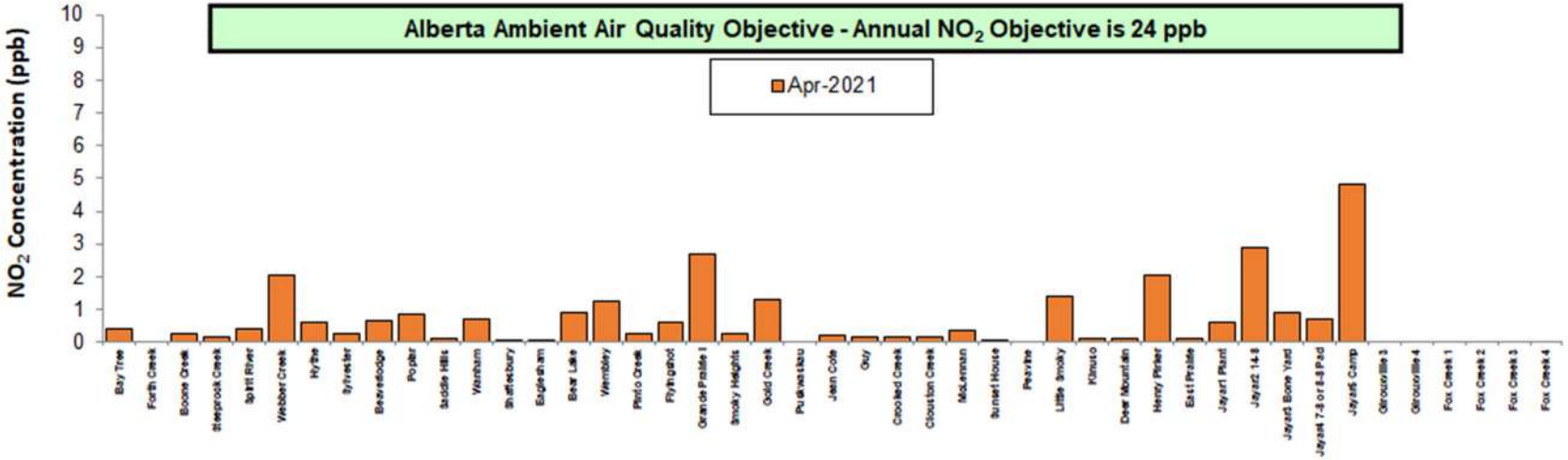
10 Passive Monitoring Data

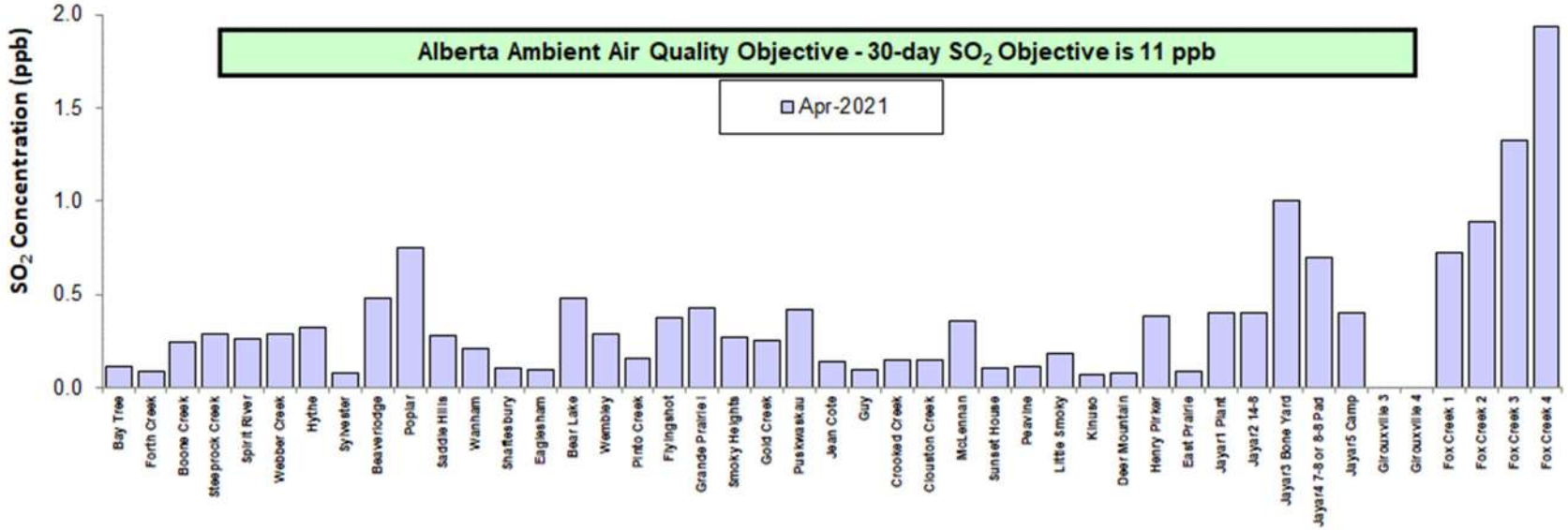
Peace Airshed Zone Association - PAZA Passive Stations for April 2021

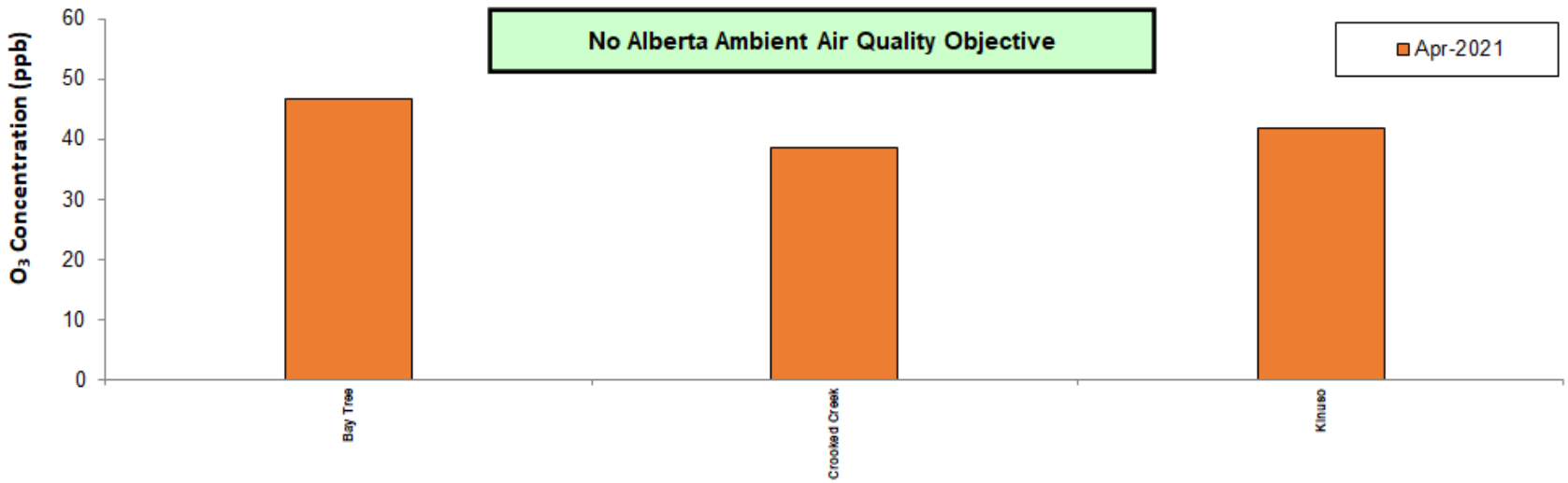
Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
Duplicates						
9a	Spirit River			0.7		
9b	Spirit River			0.2		
17a	Poplar	0.8				
17b	Poplar	0.7				
19a	Wanham			0.1		
19b	Wanham			1.3		
20a	Shaftesbury			0.1		
20b	Shaftesbury			0.1		
24a	Wembley	0.4				
24b	Wembley	0.2				
26a	Flyingshot	0.3				
26b	Flyingshot	0.4				
34a	Puskwaskau			0.0		
34b	Puskwaskau			0.0		
36a	Guy				0.2	
36b	Guy				0.1	
37a	Crooked Creek	0.1				
37b	Crooked Creek	0.2				
47a	Kinuso		46.7			
47b	Kinuso		37.2			
59a	Jayar3 Bone Yard	1.0		1.0		
59b	Jayar3 Bone Yard	1.0		0.8		
61a	Jayar5 Camp				0.2	
61b	Jayar5 Camp				0.2	
F3a	Fox Creek 3	1.6			0.1	
F3b	Fox Creek 3	1.1			0.1	
2	Bay Tree	0.1	46.7	0.4	-	13-16-078-13 W6M
3	Forth Creek	0.1	-	0.0	-	04-13-082-07 W6M
5	Boone Creek	0.2	-	0.3	-	01-23-076-11 W6M
7	Steeprock Creek	0.3	-	0.2	-	09-35-072-13 W6M
9	Spirit River	0.3	-	0.4	-	08-12-079-07 W6M
11	Webber Creek	0.3	-	2.1	-	09-36-074-09 W6M
12	Hythe	0.3	-	0.6	-	14-36-072-11 W6M
14	Sylvester	0.1	-	0.3	-	08-06-069-12 W6M
16	Beaverlodge	0.5	-	0.7	-	15-36-071-10 W6M
17	Poplar	0.8	-	0.8	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	0.1	-	04-25-074-07 W6M
19	Wanham	0.2	-	0.7	-	16-22-077-03 W6M
20	Shaftesbury	0.1	-	0.1	-	04-03-082-23 W5M
21	Eaglesham	0.1	-	0.1	-	16-21-079-25 W5M
23	Bear Lake	0.5	-	0.9	-	15-31-072-06 W6M
24	Wembley	0.3	-	1.3	-	12-31-070-08 W6M
25	Pinto Creek	0.2	-	0.2	-	04-24-069-11 W6M
26	Flyingshot	0.4	-	0.6	-	15-36-070-07 W6M
27	Grande Prairie I	0.4	-	2.7	-	08-15-071-06 W6M
29	Smoky Heights	0.3	-	0.2	-	04-06-075-02 W6M
32	Gold Creek	0.3	-	1.3	-	06-33-067-05 W6M
34	Puskwaskau	0.4	-	0.0	-	15-35-074-25 W5M
35	Jean Cote	0.1	-	0.2	-	12-35-079-21 W5M
36	Guy	0.1	-	0.2	0.2	03-04-076-22 W5M
37	Crooked Creek	0.1	38.6	0.2	-	16-01-071-26 W5M
39	Clouston Creek	0.1	-	0.2	-	12-01-073-22 W5M
40	McLennan	0.4	-	0.4	-	03-29-077-19 W5M
42	Sunset House	0.1	-	0.1	-	05-32-070-19 W5M
44	Peavine	0.1	-	0.0	-	03-05-079-15 W5M
46	Little Smoky	0.2	-	1.4	-	12-01-065-21 W5M
47	Kinuso	0.1	41.9	0.1	-	12-10-073-10 W5M
48	Deer Mountain	0.1	-	0.1	-	15-22-068-09 W5M
49	Henry Pirker	0.4	-	2.1	-	17-26-071-06 W6M
50	East Prairie	0.1	-	0.1	-	11-13-079-08 W6M
57	Jayar1 Plant	0.4	-	0.6	0.1	06-08-062-03 W6M
58	Jayar2 14-8	0.4	-	2.9	0.1	07-08-062-03 W6M
59	Jayar3 Bone Yard	1.0	-	0.9	0.1	14-08-062-03 W6M
60	Jayar4 7-8 or 8-8 Pad	0.7	-	0.7	0.1	10-08-062-03 W6M
61	Jayar5 Camp	0.4	-	4.8	0.2	11-08-062-03 W6M
63	Girouxville 3	-	-	-	damaged	14-02-077-23 W5M
64	Girouxville 4	-	-	-	0.3	04-08-077-22 W5M
F1	Fox Creek 1	0.7	-	-	0.1	
F2	Fox Creek 2	0.9	-	-	0.1	
F3	Fox Creek 3	1.3	-	-	0.1	
F4	Fox Creek 4	1.9	-	-	0.1	

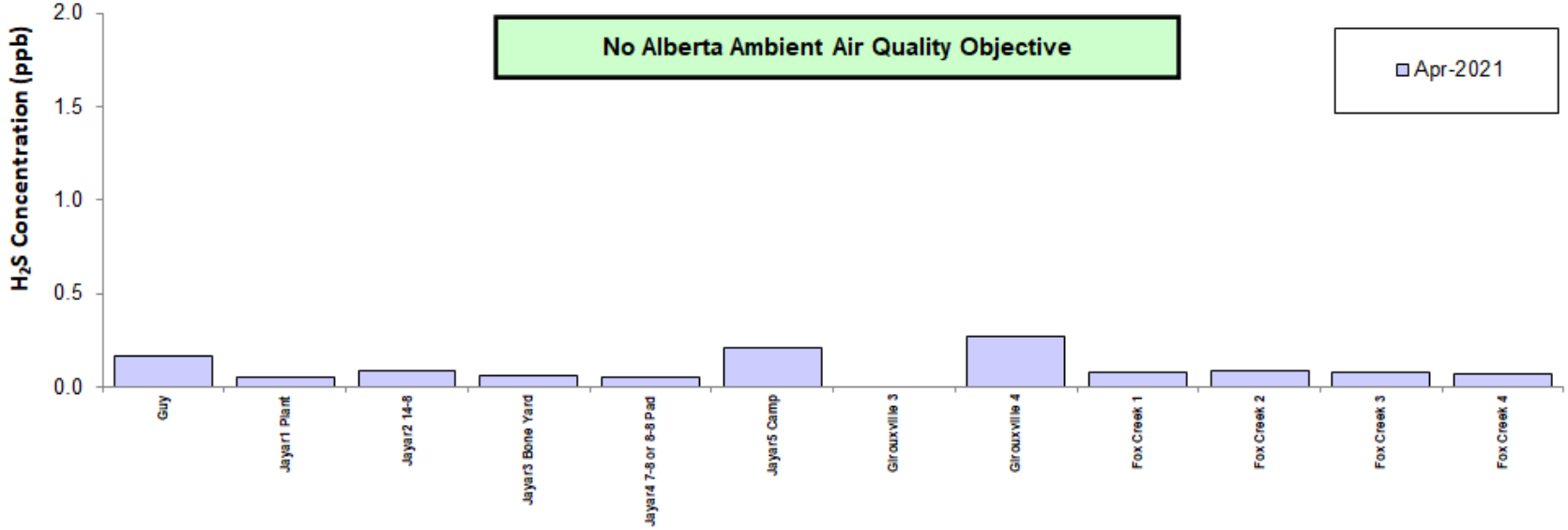
Passive Summary for April 2021

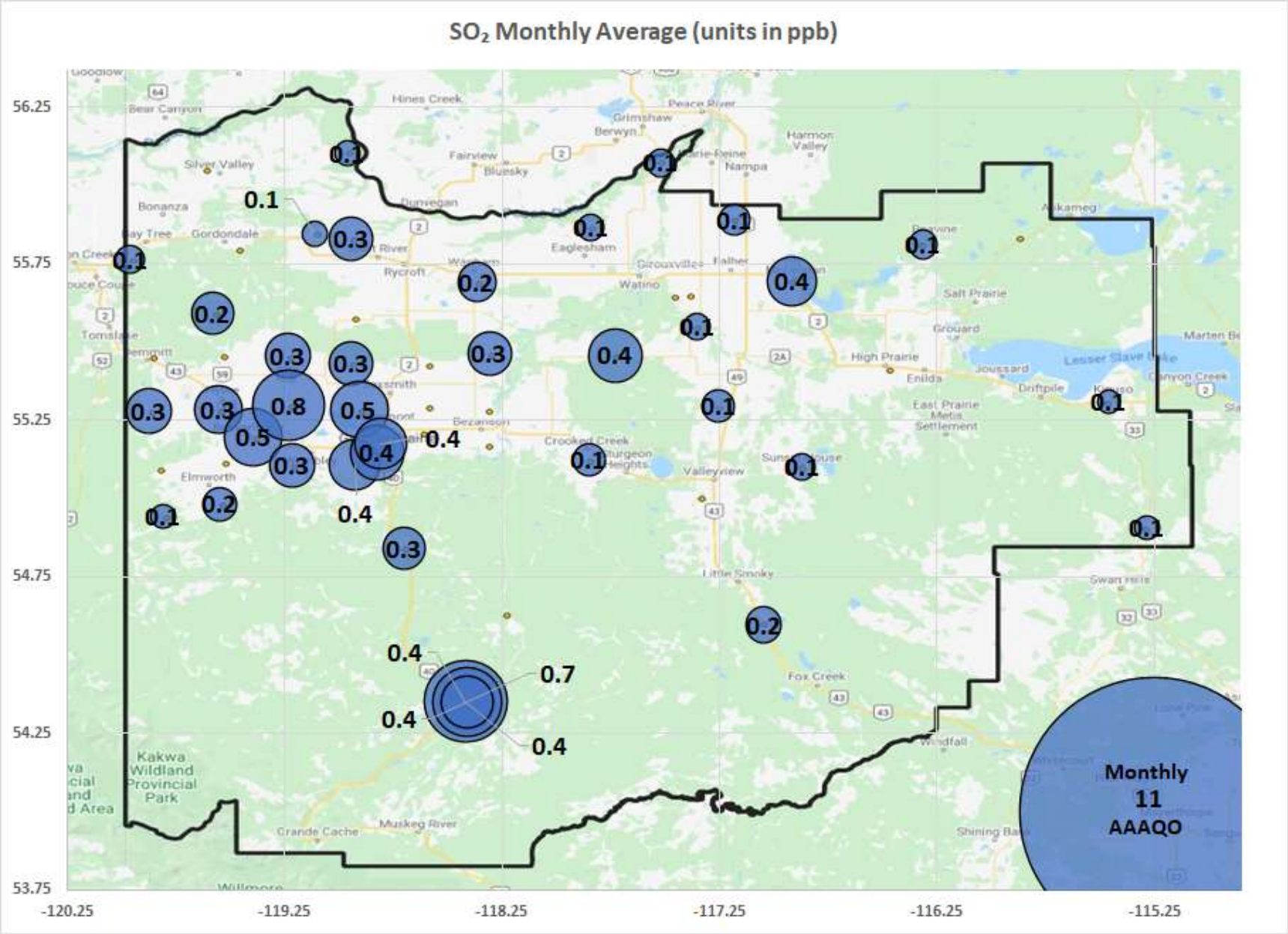
Stats	Sulphur Dioxide SO_2	Ozone O_3	Nitrogen Dioxide NO_2	Hydrogen Sulphide H_2S
	ppb	ppb	ppb	ppb
	Passive Summary for March 2021 (PAZA)			
Mean	0.3	42.4	0.7	0.1
Standard Deviation	0.2	4.1	1.0	0.1
Minimum	0.1	38.6	0.0	0.1
	Kinuso (#47)	Crooked Creek (#37)	Forth Creek (#3)	Jayar1 Plant (#57)
Maximum	1.0	46.7	4.8	0.3
	Jayar3 Bone Yard (#59)	Bay Tree (#2)	Jayar5 Camp (#61)	Girouxville 4 (#64)
	Continuous and Passive Monitoring Comparision			
PAZA Beaverlodge Station	**0.5**	**38.0**	**11.2**	**-**
Beaverlodge Passive (#16)	**0.5**	**-**	**0.7**	**-**
PAZA Henry Pirker Station	**0.3**	**33.2**	**35.1**	**0.1**
Henry Pirker passive (#49)	**0.4**	**-**	**2.7**	**-**

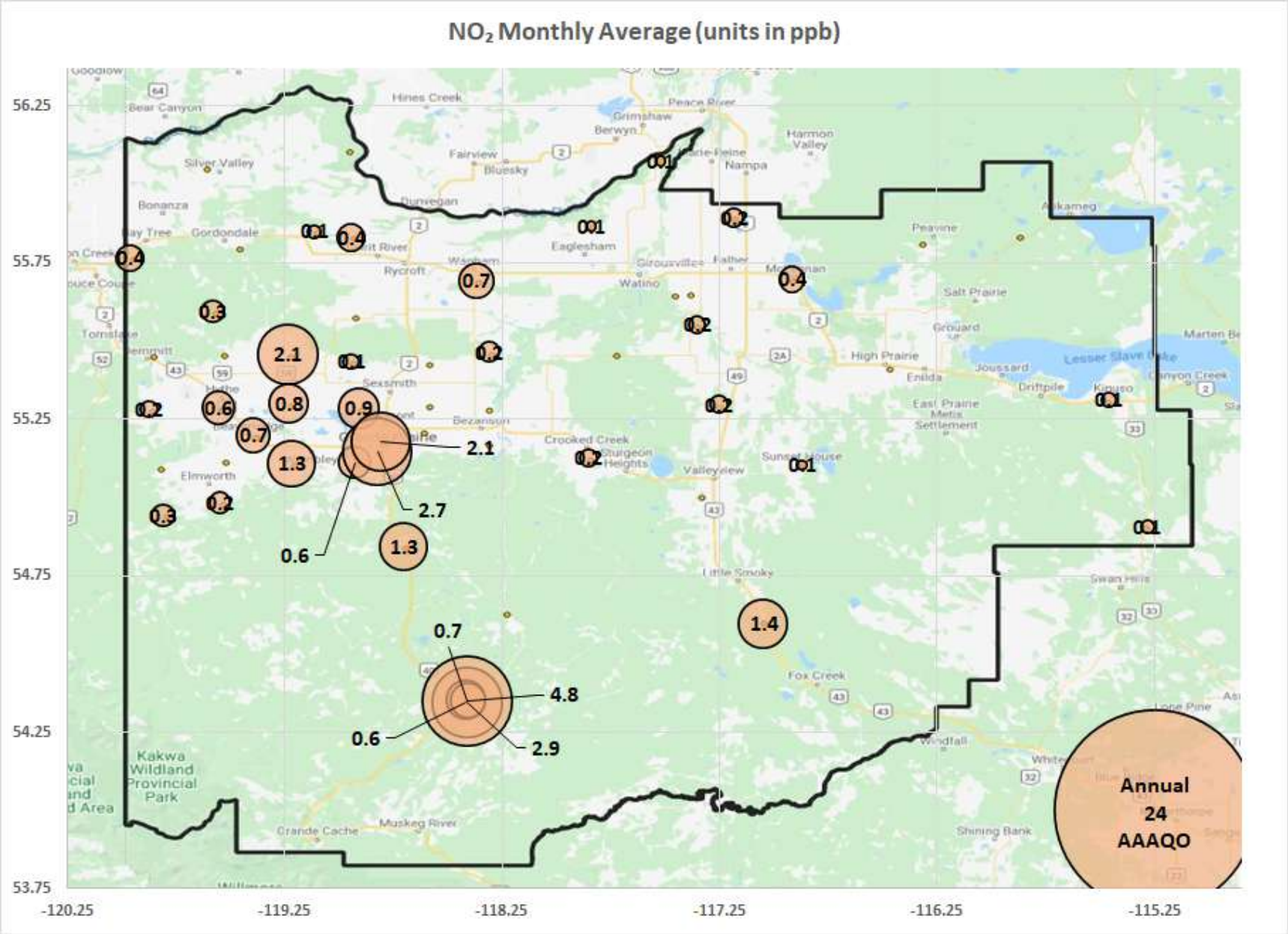

Alberta Ambient Air Quality Objective - Annual NO_2 Objective is 24 ppb
Apr-2021
NO_2 Concentration (ppb)
0
1
2
3
4
5
6
7
8
9
10
Bay Tree
Forth Creek
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Shaftesbury
Eaglesham
Bear Lake
Wembley
Pinto Creek
Flyingshot
Grande Prairie I
Smoky Heights
Gold Creek
Puskwaskau
Jean Cote
Guy
Crooked Creek
Clouston Creek
McLennan
Sunset House
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
Fox Creek 1
Fox Creek 2
Fox Creek 3
Fox Creek 4

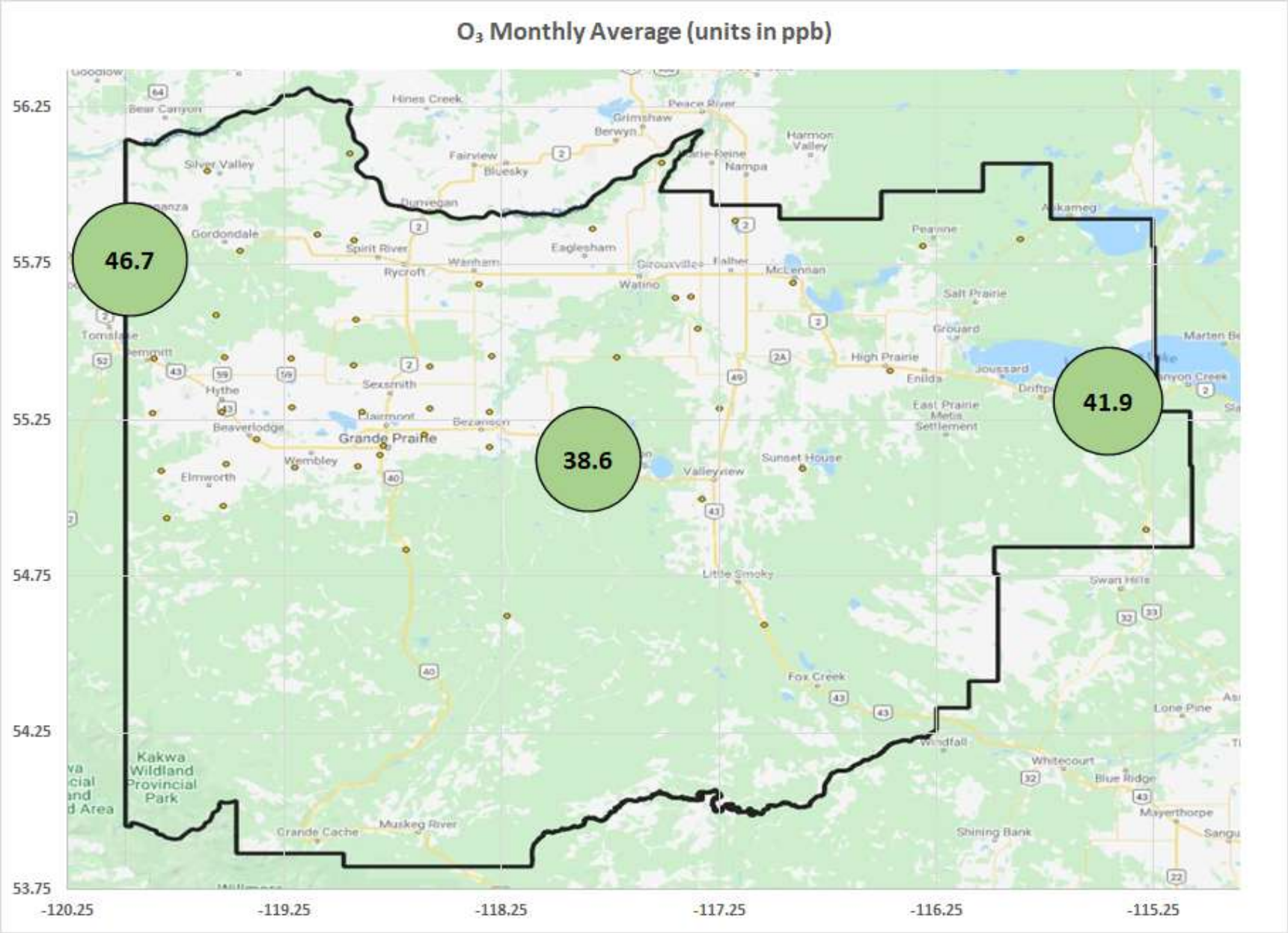

Alberta Ambient Air Quality Objective - 30-day SO_2 Objective is 11 ppb
Apr-2021
SO_2 Concentration (ppb)
0.0
0.5
1.0
1.5
2.0
Bay Tree
Forth Creek
Boone Creek
Steeprock Creek
Spirit River
Webber Creek
Hythe
Sylvester
Beaverlodge
Poplar
Saddle Hills
Wanham
Shaftesbury
Eaglesham
Bear Lake
Wembley
Pinto Creek
Flyingshot
Grande Prairie I
Smoky Heights
Gold Creek
Puskwaskau
Jean Cote
Guy
Crooked Creek
Clouston Creek
McLennan
Sunset House
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
Fox Creek 1
Fox Creek 2
Fox Creek 3
Fox Creek 4

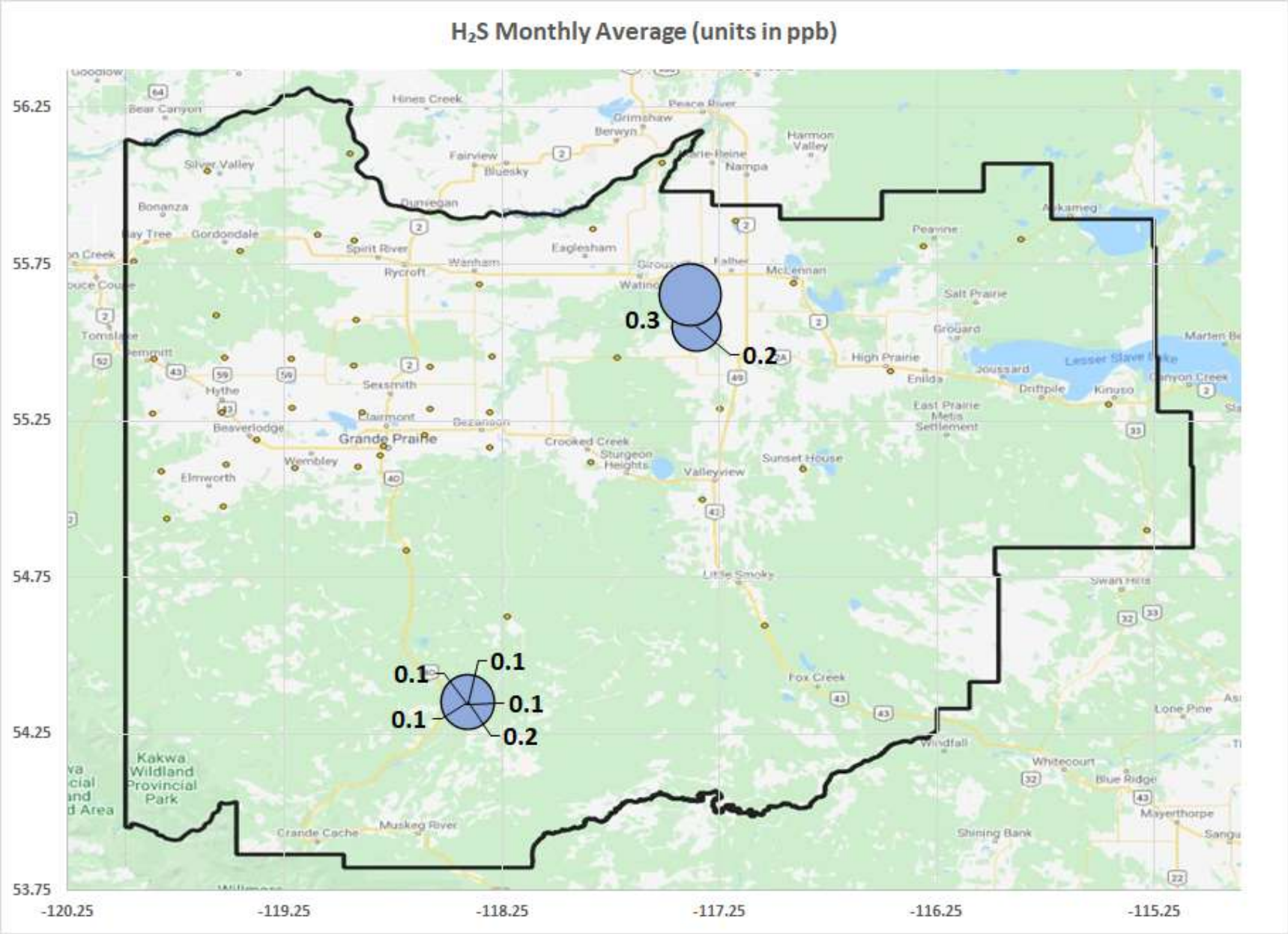

No Alberta Ambient Air Quality Objective
Apr-2021
O3 Concentration (ppb)
60
50
40
30
20
10
0
Bay Tree
Crooked Creek
Kinuso


No Alberta Ambient Air Quality Objective
Apr-2021
H2S Concentration (ppb)
2.0
1.5
1.0
0.5
0.0
Guy
Jayar1 Plant
Jayar2 14-8
Jayar3 Bone Yard
Jayar4 7-8 or 8-8 Pad
Jayar5 Camp
Girouxville 3
Girouxville 4
Fox Creek 1
Fox Creek 2
Fox Creek 3
Fox Creek 4


SO₂ Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
Monthly
11
AAAQO
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River
Fox Creek
Valleyview
Elmworth
Rycroft
Watino
Eaglesham
Fairview
Bluesky
Grimshaw
Berwyn
Peace River
Hines Creek
Bear Canyon
Silver Valley
Bonanza
Gordondale
Dunvegan
Girouxville
Falher
Donnelly
Nampa
Harmon Valley
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Lesser Slave Lake
Driftpile
East Prairie Metis Settlement
Little Smoky
Windfall
Shining Bank
Crooked Creek
Bezanson
Tomslake
Bezanson
0.1
0.2
0.3
0.4
0.5
0.7
0.8


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
Annual
24
AAAQO
2.1
2.7
1.3
0.6
0.7
4.8
2.9
1.4
0.8
0.9
0.4
0.3
0.2
0.1
Hines Creek
Peace River
Grimshaw
Berwyn
Fairview
Bluesky
Nampa
Harmon Valley
Silver Valley
Bonanza
Gordondale
Dunvegan
Eaglesham
Rycroft
Watino
Girouxville
Peavine
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Lesser Slave Lake
Driftpile
Kinuso
East Prairie Metis Settlement
Sexsmith
Bezanson
Crooked Creek
Valleyview
Sunset House
Elmworth
Little Smoky
Fox Creek
Swan Hills
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River
Shining Bank
Windfall


O₃ Monthly Average (units in ppb)
46.7
38.6
41.9
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
Dunvegan
Gordondale
Spirit River
Eaglesham
Warburg
Rycroft
Girouxville
Falher
McLennan
Watino
Peerless
Salt Prairie
Grouard
High Prairie
Enilda
Joussard
Sexsmith
Hythe
Beaverlodge
Grande Prairie
Bezanson
Wembley
Elmworth
Valleyview
Sunset House
East Prairie Metis Settlement
Little Smoky
Swan Hills
Fox Creek
Lone Pine
Whitecourt
Blue Ridge
Mayerthorpe
Shining Bank
Kakwa Wildland Provincial Park
Grande Cache
Muskeg River


H2S Monthly Average (units in ppb)
56.25
55.75
55.25
54.75
54.25
53.75
-120.25
-119.25
-118.25
-117.25
-116.25
-115.25
0.3
0.2
0.1
0.1
0.1
0.1
0.2
Grande Prairie
Kakwa Wildland Provincial Park

11 End of Report

End of Report

Peace Airshed Zone Association

Ambient Air Monitoring Report

April 2021