

Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

Monthly Report

June 2022

July 31, 2022

Alberta Environment and Parks

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

Subject: **Peace Airshed Zone Association (PAZA)**

June 2022 Ambient Air Quality Monitoring Report

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of June 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 June 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
	Pouce Coupe	03-03-081-13-W6	00247673-00-00
AltaGas Ltd.	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
	Bonanza	11-25-081-11-W6	00000029-01-00
	Progress/Gordondale	01-01-077-10-W6	00010036-02-00
Canadian Natural	Gold Creek	13-26-067-05-W6	00010446-02-00
Resources Limited	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
	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
Long Run Exploration	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
'	Fourth Creek	16-11-082-09-W6	00000263-01-00
NorthRiver Midstream Inc.	Gordondale	11-26-079-09-W6	00011495-01-01
	Pouce Coupe/Bonanza	03-23-080-13-W6	00070203-01-01
D 14/ (D 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Tangent	13-29-080-23-W5	00001746-02-00
Penn West Petroleum Ltd.	Pouce Coupe	16-07-078-11-W6	00000614-01-00
D. I. D.	Rycroft	08-25-077-06-W6	00011351-02-00
Petrus Resources	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 June:

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

			- '	10, ,			
Reference	Site	Date	From	То	Hour average	WS	WD
Number	Site	Date	MST	MST	(μg/m³)	km/hr	degrees
391324	Dunes	June 04	04:00	05:00	139.5	0.2 (calm)	32
391343	Henry Pirker	June 04	22:00	23:00	133.6	5.4	107
400240	Henry Pirker	June 14	23:00	00:00	82.5	14.4	68
400241	Henry Pirker	June 15	00:00	01:00	82.0	13.6	72

Operational times less than 90 percent:

All stations reported above 90% operational times

Air Incidents

None were reported

Deviations from Authorized Monitoring Methods

None to report

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 June; Seven SO₂ duplicates located at Pinto Creek, Spirit River, High Prairie, Duvernay 4, Deer Mountain, Jayar5 Camp, Powerline; RPD ranging from 0% to 67% (one fail at Milner Powerline, 0.1 and 0.2ppb)
- One O₃ duplicate located at Bay Tree; RPD 13% (no fails)
- Six NO₂ duplicates at Wembley, East Prairie, Forth Creek, Jean Cote, Jayar3 Bone Yard, Wanyandie; RPD ranging from 0% to 25% (no fails)
- Three H₂S duplicates, Girouxville 4, Duvernay 4, Jayar2 14-8; RPD 0% to 40% (no fails)
- For the Eaglesham samples (SO₂ and NO₂) it was noted that the entire head broken on collection. No samples to connect.
- There were no exceedances of the AAAQOs for all monitored parameters at any of the passive monitoring stations during this month.

Dustfall Monitoring

- Five Stations collected Total Dustfall and Fixed Dustfall previously collected by Milner Power Limited
- There was one duplicate sampled collected for each in the month of June
 - RPD ranged from 4% to 8%
- Total dustfall ranged from 50.5 to 124.8 mg/100cm²/30day

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.

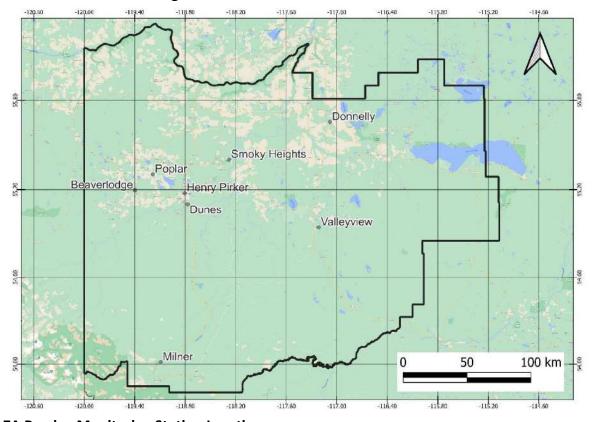
Mandeep Dhaliwal, B.Sc., P.Chem.

Program Manager

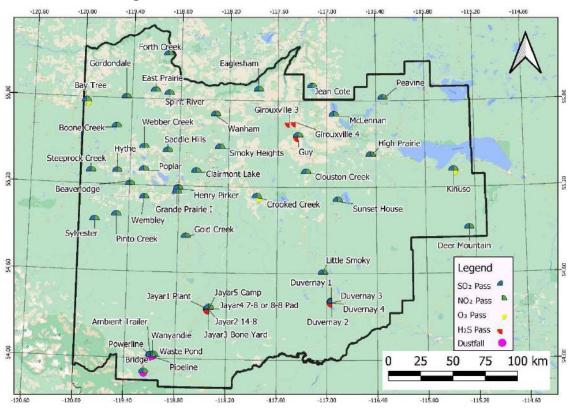
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PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 June 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 -	June 2022	Reaverlodge	Station	Report

	June				,	1-ho	our		24-hour		1	Excee	dance		Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	0.3	0.0	95.1%	100.0%	20.2		Jun-02 07:00	1.4		Jun-02	-		-	+	Jun 01, 2022
NO ₂ (ppb)	2.6	0.2	95.1%	100.0%	15.3	159	Jun-29 23:00	3.9	1 -	Jun-16	0	-	-	-	Jun 01, 2022
NO _x (ppb)	2.9	0.3	95.1%	100.0%	35.1	•	Jun-02 07:00	4.8		Jun-02	-				Jun 01, 2022
O _s (ppb)	33.1	6.4	95.3%	100.0%	65.8	76	Jun-03 16:00	50.2		Jun-03	0	-	-	-	Jun 01, 2022
PM _{2.5} (μg/m³)	5.4	0.0	99.7%	100.0%	21.4	80	Jun-16 15:00	11.3	29	Jun-16	0	-	0	-	Jun 02, 2022
SO ₂ (ppb)	0.3	0.0	95.3%	100.0%	7.5	172	Jun-09 21:00	1.2	48	Jun-28	0	-	0	0	Jun 02, 2022
	Average	Minimum	Valid	Operational	Maximum						100				
Temp (°C)	15.0	6.0	100.0%	100.0%	26.1		Note: Valid he	ours must	be greater than	1 75%					
RH (%)	58.4	18.3	100.0%	100.0%	99.9		Operati	onal hour	s must be great	er than 90%					
WS (km/hr)	11.1	0.1	100.0%	100.0%	39.2		Research Annual Manager	mussuuru – m	university and the second	er i die er een een een een een een een een een	t).				
WD (deg)	339	0.3	100.0%	100.0%	358.3		Average Wind Direct	ion	339	NNW					

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _X	Thermo	42i	No Operational issues noted
O ₃	Thermo	49iQ	No Operational issues noted
PM _{2.5}	Sharp	5030	No Operational issues noted
SO ₂	Thermo	43i-TLE	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.2 Dunes Air Monitoring Station

PAZA - June 2022 Dunes Station Report

	June					1-ho	our		24-hour			Excee	dance		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)	5.6	0.0	98.5%	99.0%	139.5	80	Jun-04 05:00	15.0	29	Jun-04	1	-	0	-	Jun-15-2022
SO ₂ (ppb)	0.4	0.0	95.1%	100.0%	11.4	172	Jun-08 17:00	1.6	48	Jun-19	0	-	0	0	Jun-16-2022
TRS (ppb)	0.2	0.0	95.3%	100.0%	3.0		Jun-25 22:00	0.4		Jun-25	-	-			Jun-16-2022
	Average	Minimum	Valid	Operational	Maximum						-				
Temp (°C)	15.4	2.8	100.0%	100.0%	27.5		Note: Valid ho	ours must	be greater tha	n 75%					
RH (%)	58.4	16.4	100.0%	100.0%	98.0		Operati	onal hour	s must be grea	ter than 90%					
WS (km/hr)	4.3	0.1	100.0%	100.0%	19.8				2000 P. P. P. C.		196 00				
WD (deg)	326	0.9	100.0%	100.0%	359.8		Average Wind Direct	ion	326	NW	1				

Parameter	Make	Model	Equipment summary
PM _{2,5}	Thermo	TEOM AB	7 hours removed due to equipment failure, 1hr above the AAAQG
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 - June	2022	Henry	Pirker	Station	Report

	June					1-ho	ur	8	-hour / 24-ho	our	6	Excee	dance		Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	0.7	0.0	91.5%	96.3%	19.8	-	Jun-02 07:00	2.6	-	Jun-02				-	Jun 06, 2022
NO ₂ (ppb)	4.2	0.5	91.5%	96.3%	17.2	159	Jun-13 08:00	7.9	-	Jun-13	0	-	-	-	Jun 06, 2022
NO _x (ppb)	5.1	0.7	91.5%	96.3%	36.1	-	Jun-02 07:00	10.4	-	Jun-13	-	-	15	-	Jun 06, 2022
O ₃ (ppb)	31.0	1.6	95.0%	100.0%	65.1	76	Jun-03 15:00	52.1	-	Jun-03	0	-		-	Jun 07, 2022
PM _{2.3} (μg/m³)	6.6	0.0	99.6%	100.0%	133.6	80	Jun-04 23:00	18.4	29	Jun-15	3	-	0	-	Jun 29, 2022
SO ₂ (ppb)	0.2	0.0	95.1%	100.0%	17.5	172	Jun-10 10:00	2.7	48	Jun-10	0	-	0	0	Jun 07, 2022
H₂S (ppb)	0.2	0.0	95.3%	100.0%	2.7	10	Jun-02 05:00	0.4	3	Jun-02	0	-	0	-	Jun 29, 2022
CH, (ppm)	2.1	2.0	95.0%	100.0%	3.1		Jun-26 00:00	2.2	-	Jun-25		-	31		Jun 03, 2022
THC (ppm)	2.1	2.0	95.0%	100.0%	3.2	-	Jun-26 00:00	2.2	-	Jun-25	-	-		-	Jun 03, 2022
NMHC (ppm)	0.0	0.0	95.0%	100.0%	0.3	-	Jun-07 01:00	0.0	-	Jun-07	-	-		-	Jun 03, 2022
CO (ppm)	0.1	0.1	95.3%	100.0%	0.3	13	Jun-26 02:00	0.2	5	Jun-26	0	0	-5	-	Jun 03, 2022
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	16.6	3.9	100.0%	100.0%	28.5		Note: Valid h	ours must	be greater than	75%					
RH (%)	54.6	15.3	100.0%	100.0%	89.6		Operati	onal hour	s must be great	ter than 90%					
SR (W/m²)	211.2	0.0	100.0%	100.0%	783.9						•				
WS (km/hr)	7.5	0.3	100.0%	100.0%	25.3										
WD (deg)	282	0.7	100.0%	100.0%	359.6		Average Wind Direct		282	WNW					

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	421Q	Analyzer replacement failed on June 6, original equipment returned to service, 18hrs, with 8hrs maintenance
03	TECO	491	No Operational issues noted
PM _{2.5}	Sharp	5030	No Operational Issues noted; three readings above the AAAQG, June 4, 14, 15
SO ₂	TEI	43I-TLE	No Operational issues noted
H₂S	TEI	4501	No Operational issues noted
THC/CH ₄ /NMHC	TEI	55i	No Operational issues noted
СО	TEI	48I-TLE	No Operational issues noted
Met Equip	MetOne	50.5	No Operational issues noted

1.4 Smoky Heights Air Monitoring Station

PAZA - June 2022 Smoky Heights Station Report

	June					1-ho	1-hour 24-hour						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)	6.2	0.0	99.7%	100.0%	56.4	80	Jun-14 18:00	16.3	29	Jun-30	0	-	0	-	Jun 09, 2022
SO ₂ (ppb)	0.2	0.0	95.3%	100.0%	3.5	172	Jun-19 10:00	0.6	48	Jun-19	0	-	0	0	Jun 09, 2022
TRS (ppb)	0.1	0.0	94.7%	100.0%	1.1	-	Jun-13 07:00	0.2		Jun-16	-	-	-	-	Jun 08, 2022
	Average	Minimum	Valid	Operational	Maximum										
Temp (*C)	15.5	2.4	100.0%	100.0%	26.5		Note: Valid ho	ours must	be greater tha	n 75%					
WS (km/hr)	10.1	0.3	100.0%	100.0%	38.4		Operati	onal hour	s must be grea	ter than 90%					
WD (deg)	273	0.2	100.0%	100.0%	359.8		Average Wind Direct	ion	273	WNW					

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	5030	No Operational issues noted
SO ₂	TECO	43i	No Operational issues noted
TRS	TEI	43I APSAA	No Operational issues noted
Met Equip	MetOne	50.5	No Operational Issues noted

1.5 Valleyview Air Monitoring Station

PAZA - June 2022 Valleyview Station Report

	June			1-hour			24-hour				Excee	Calibration			
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
SO ₂ (ppb)	0.1	0.0	94.7%	99.4%	0.7	172	Jun-30 09:00	0.3	48	Jun-04	0	-	0	0	Jun 15, 2022
H ₂ S (ppb)	0.1	0.0	94.6%	99.4%	0.3	10	Jun-16 06:00	0.2	3	Jun-19	0	-	0	-	Jun 15, 2022
	Average	Minimum	Valid	Operational	Maximum										
Temp (*C)	15.8	1.9	99.4%	99.4%	28.0		Note: Valid ho	urs must	be greater than	n 75%					
RH (%)	67.8	18.5	99.4%	99.4%	100.2		Operati	onal hour	s must be great	ter than 90%					
WS (km/hr)	3.6	0.1	99.4%	99.4%	13.8										
WD (deg)	316	0.1	99.4%	99.4%	359.5		Average Wind Direct	ion	316	NW					

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	TEI	43i-APSCB	Power failure Jun 27, 4hrs removed
H₂S	TEI	450i-APHAA	Power failure Jun 27, 4hrs removed
Met Equip	RMYoung	RMY86004	Power failure Jun 27, 4hrs removed

1.6 Donnelly Air Monitoring Station

PAZA - June 2022 Donnelly Station Report

	June				1-hour			24-hour				Excee	Calibration		
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
SO ₂ (ppb)	0.1	0.0	95.3%	100.0%	1.4	172	Jun-19 08:00	0.2	48	Jun-12	0	-	0	0	Jun 20, 2022
H ₂ S (ppb)	0.2	0.0	95.1%	100.0%	1.2	10	Jun-29 04:00	0.5	3	Jun-29	0	-	0	-	Jun 20, 2022
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	15.8	5.1	99.7%	100.0%	25.9		Note: Valid ho	urs must	be greater than	n 75%					
WS (km/hr)	8.8	0.0	99.7%	100.0%	30.5		Operati	onal hour	s must be great	ter than 90%					
WD (deg)	199	0.0	99.7%	100.0%	359.0	1	Average Wind Direct	ion	199	SSW					

Update Summary:

Parameter	Make	Model	Equipment summary	
SO ₂	Teco	431	No Operational issues noted during the month	
H2S	Thermo	45C	No Operational issues noted during the month	
Met Equip	RMYoung	5103	Wind calibration performed June 20, 2022	

1.7 Poplar Air Monitoring Station

PAZA - June 2022 Poplar Station Report

	June					1-ho	our		24-hour			Excee	dance		Calibration
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	3.0	0.0	94.7%	99.6%	87.2		Jun-16 06:00	14.1		Jun-13	-:	-	-	-	Jun 13, 2022
NO ₂ (ppb)	5.7	0.5	94.7%	99.6%	28.0	159	Jun-13 22:00	12.2	-	Jun-13	0	-	-	-	Jun 13, 2022
NO _x (ppb)	8.7	0.2	94.7%	99.6%	103.6		Jun-16 06:00	26.4		Jun-13	=:	:	20	-	Jun 13, 2022
O ₃ (ppb)	28.2	0.3	95.0%	99.7%	65.5	76	Jun-03 16:00	44.1		Jun-03	0	-	•	-	Jun 13, 2022
PM _{2.5} (μg/m ³)	3.3	0.0	97.9%	98.5%	63.4	80	Jun-04 13:00	11.5	29	Jun-04	0	-	0	-	Jun 14, 2022
SO ₂ (ppb)	0.6	0.0	95.0%	99.7%	7.4	172	Jun-18 13:00	1.4	48	Jun-23	0	-	0	0	Jun 13, 2022
TRS (ppb)	0.4	0.1	94.6%	99.7%	4.3		Jun-18 13:00	0.6		Jun-02	-	-	-	-	Jun 14, 2022
CH4 (ppm)													TO LEGAT		
THC (ppm)	2.2	1.9	94.6%	99.2%	3.5		Jun-01 05:00	2.4		Jun-01	8	-	-		Jun 08, 2022
NMHC (ppm)															
	Average	Minimum	Valid	Operational	Maximum		2				20			100	
Temp (°C)	15.1	3.6	99.7%	99.7%	26.7		Note: Valid he	ours must	be greater than	n 75%					
WS (km/hr)	13.7	0.2	99.7%	99.7%	48.2		Operati	onal hour	s must be great	ter than 90%	ļ.				
WD (deg)	305	0.0	99.7%	99.7%	359.5		Average Wind Direct	ion	305	NW					

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _X	TEI	42i	June 6 power failure (3hrs removed)
O ₃	TEI	491	June 6 power failure (2hrs removed)
PM _{2.5}	Thermo	TEOM AB	June 6 power failure (2hrs removed); Negative drift (<-3μg/m³, 8hrs)
SO ₂	TEI	431	June 6 power failure (2hrs removed)
TRS	TEI	431	June 6 power failure (2hrs removed)
THC	TEI	55I-A3PHAA	June 6 power failure (3hrs removed); Slow recovery of equipment (<1.5ppm, 3hrs removed)
Met Equip	MetOne	50.5	June 6 power failure (2hrs removed)

1.8 Milner Air Monitoring Station

PAZA - June 2022 Milner Station Report

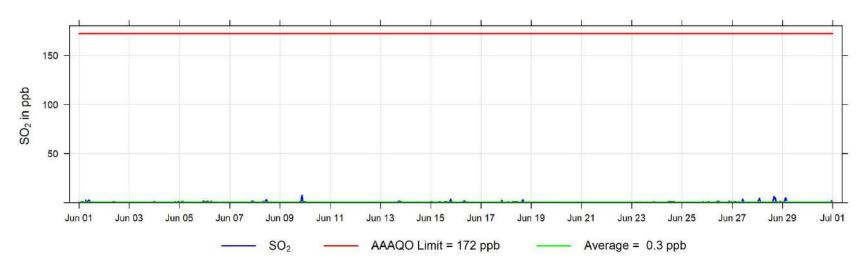
	June				1-hour			24-hour				Excee	Calibration		
Parameter	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	0.5	0.0	91.1%	96.5%	11.2	-	Jun-28 08:00	1.5		Jun-25		-		-	Jun 16, 2022
NO ₂ (ppb)	2.0	0.0	91.1%	96.5%	10.3	159	Jun-08 03:00	4.0	1 -	Jun-08	0	-	-	-	Jun 16, 2022
NO _x (ppb)	2.6	0.0	91.1%	96.5%	19.6		Jun-28 08:00	5.4	-	Jun-13	9.50	274	2.7	177	Jun 16, 2022
PM _{2.5} (μg/m³)	6.7	0.0	98.5%	98.8%	55.3	80	Jun-25 04:00	15.8	29	Jun-13	0	-	0		Jun 16, 2022
	Average	Minimum	Valid	Operational	Maximum	4	W				6	20			
							Note: Valid he	ours must	be greater than	75%					
WS (km/hr)	5.1	0.0	99.2%	99.2%	18.6		Operati	onal hour	s must be great	ter than 90%					
WD (deg)	249	0.0	99.2%	99.2%	359.7		Average Wind Direct	ion	249	wsw	Ī				

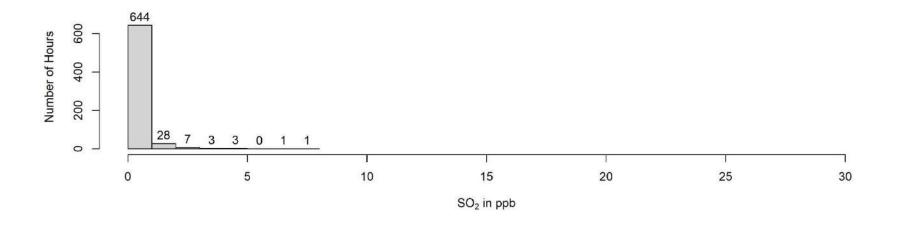
Parameter	Make	Model	Equipment summary
NO/NO₂/NO _x	Thermo	42i	June 9, 29 power failure (6hrs); June 9 UPS failure further 16hrs removed & 3hrs maintenance (June 10)
PM _{2.5}	TEOM	AB	June 9 and 29 power failures (7hrs); June 10, 1hr maintenance; June 29, 1 hour negative drift
Met Equip	MetOne	50.5	June 9 and 29 power failures (6hrs)

2 Beaverlodge Charts

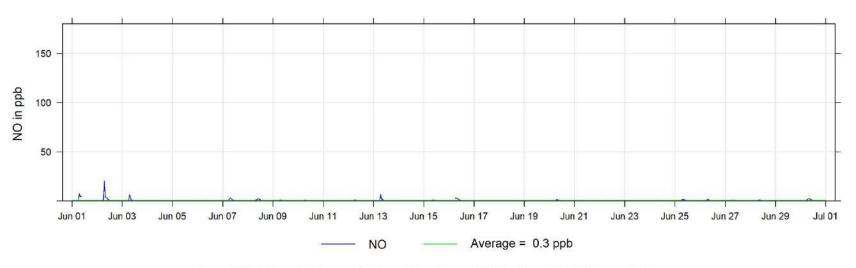
The following pages include the charts and histograms for Beaverlodge Station

June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge

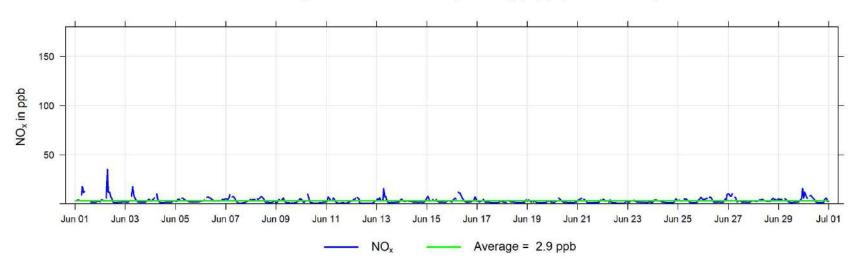




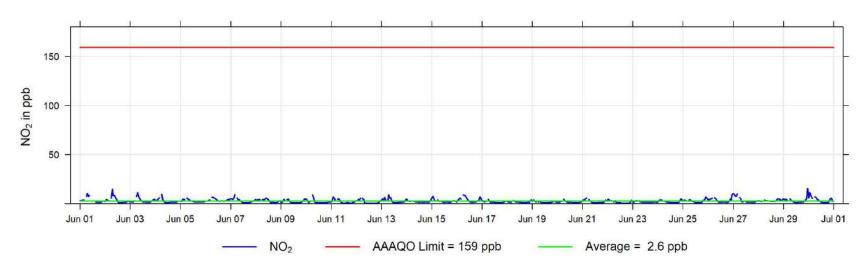
June 2022 Hourly Concentration Readings of NO (in ppb) at Beaverlodge

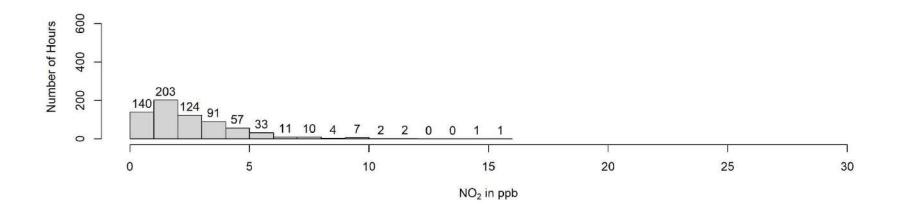


June 2022 Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge

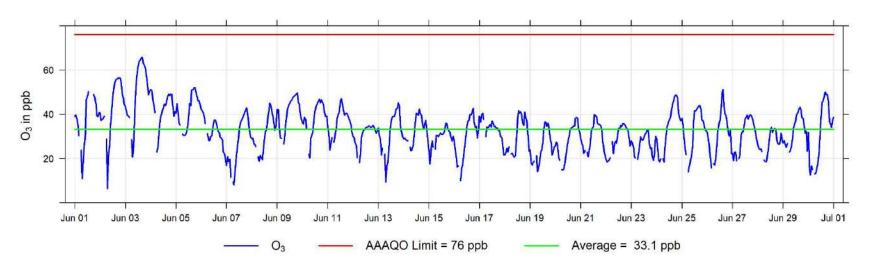


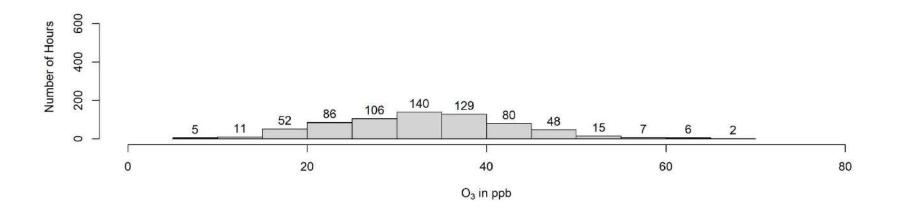
June 2022 Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge

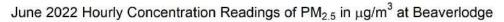


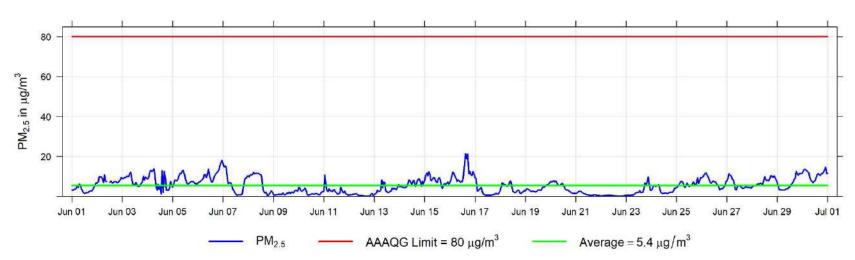


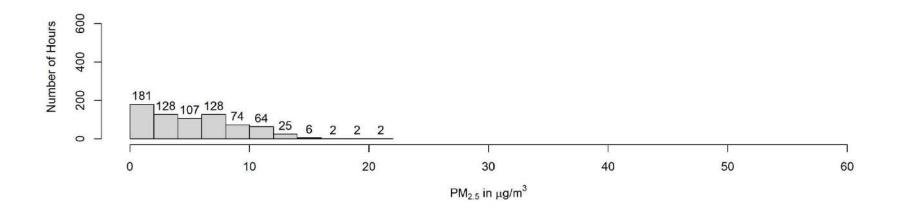
June 2022 Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge



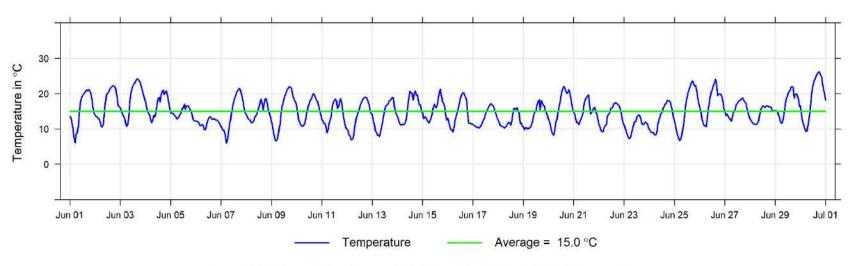




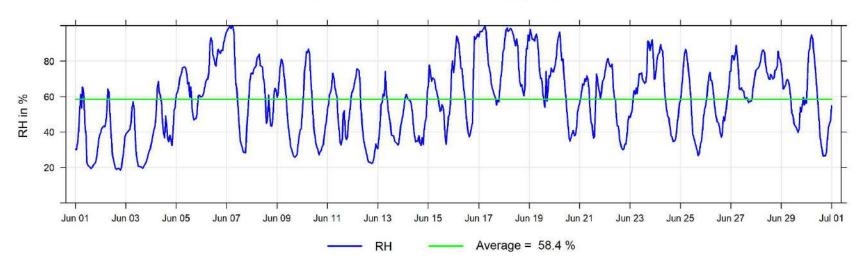




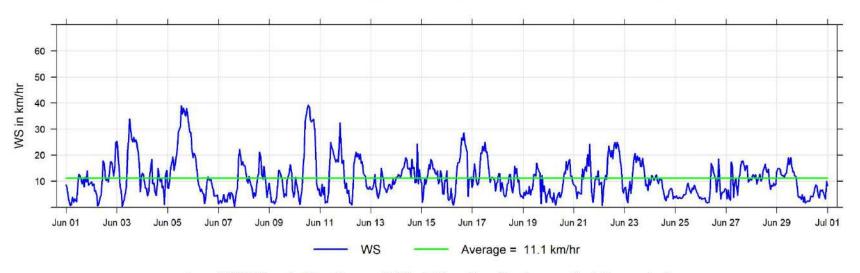
June 2022 Hourly Temperature Readings (in °C) at Beaverlodge



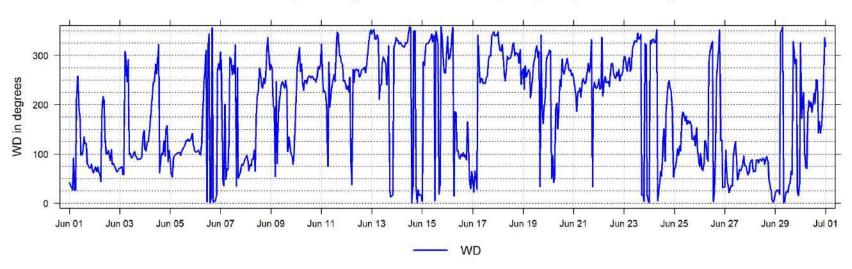
June 2022 Hourly Readings of Relative Humidity (in %) at Beaverlodge



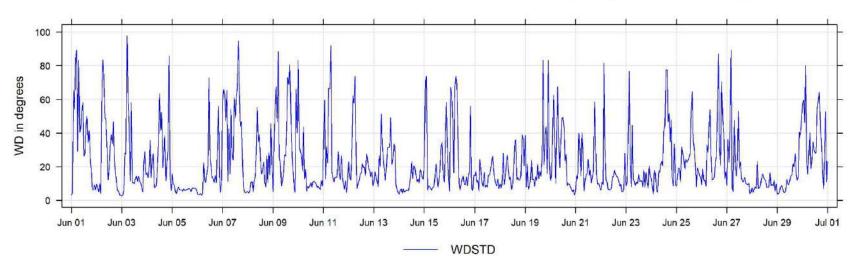
June 2022 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge

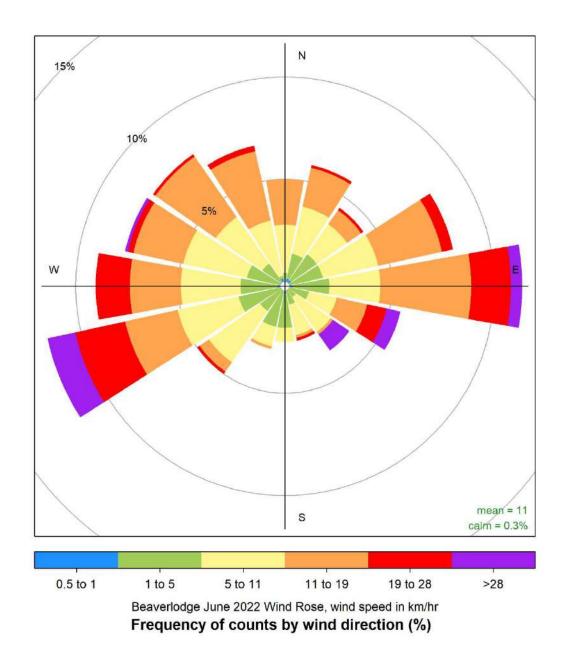


June 2022 Hourly Readings of Wind Direction (in degrees) at Beaverlodge



June 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Beaverlodge

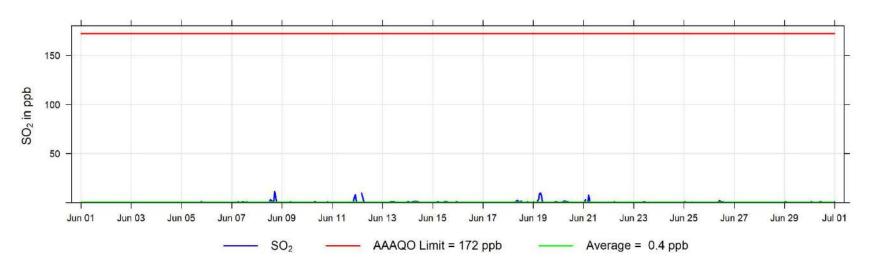


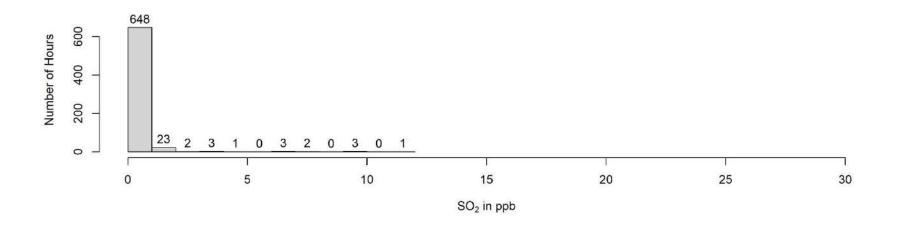


3 Dunes Charts

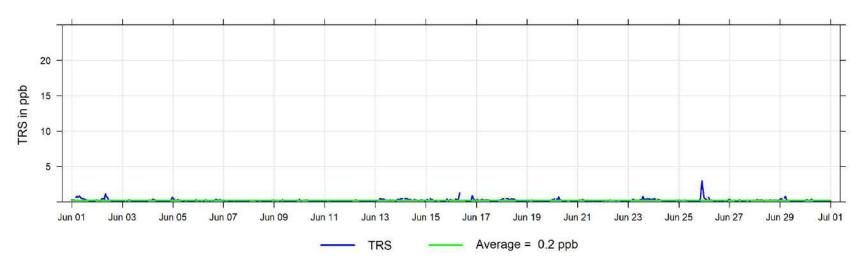
The following pages include the charts and histograms for Dunes Station

June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Dunes

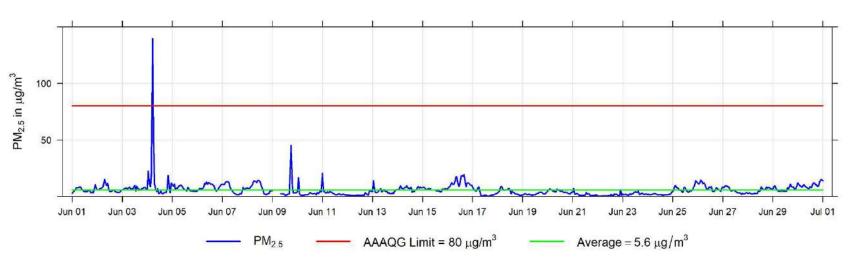


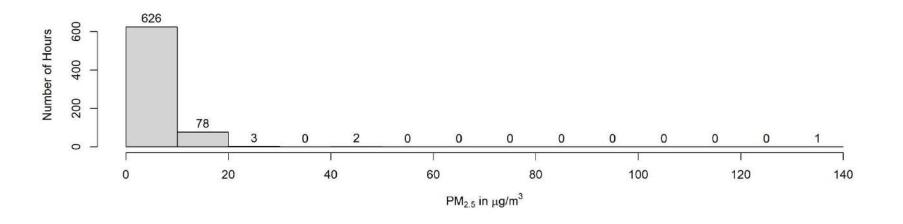


June 2022 Hourly Concentration Readings of TRS (in ppb) at Dunes

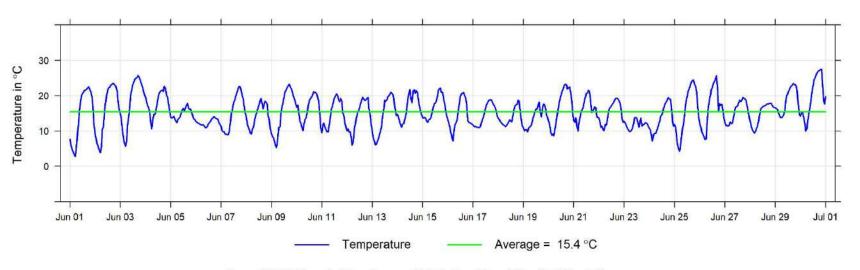




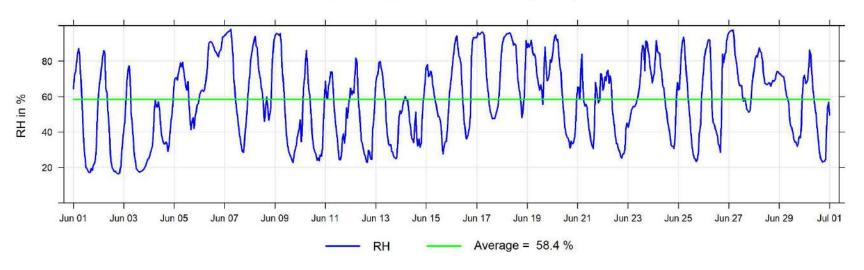




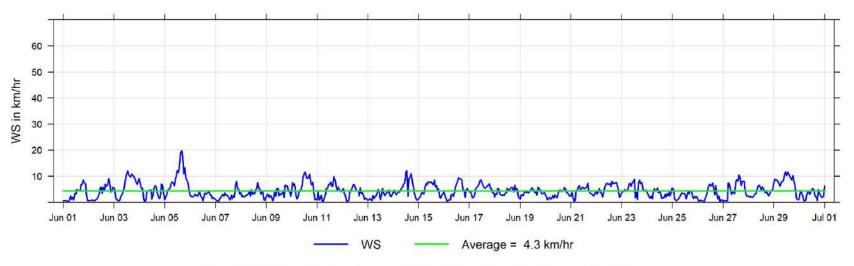
June 2022 Hourly Temperature Readings (in °C) at Dunes



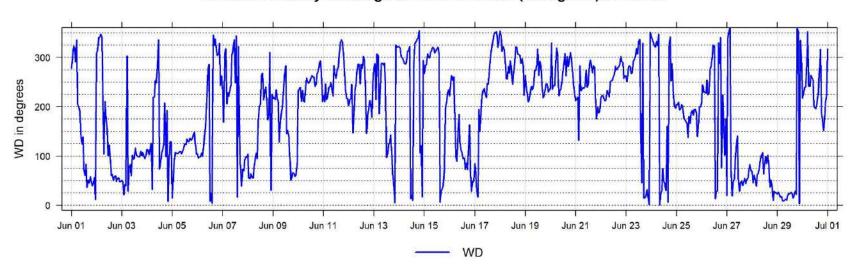
June 2022 Hourly Readings of Relative Humidity (in %) at Dunes



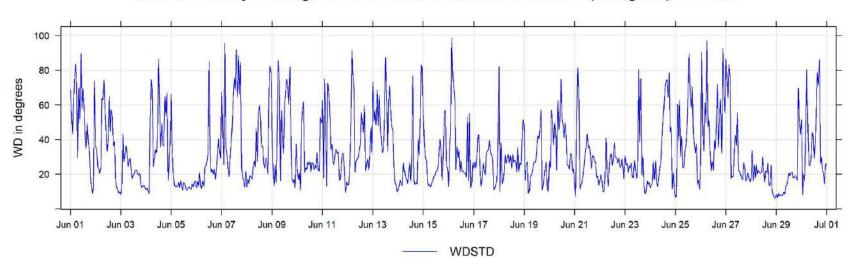
June 2022 Hourly Readings of Wind Speed (in km/hr) at Dunes

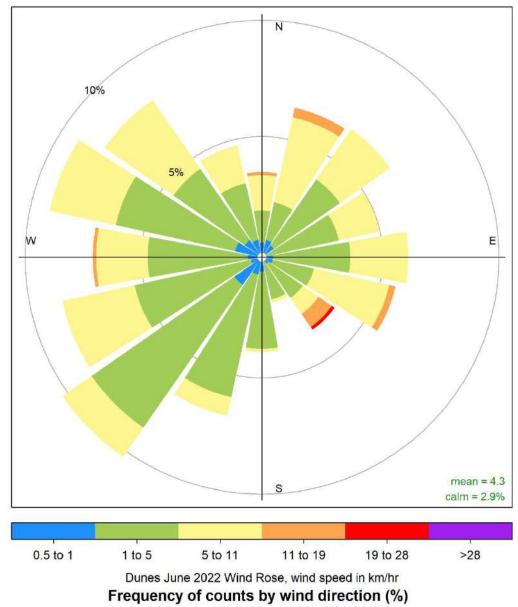


June 2022 Hourly Readings of Wind Direction (in degrees) at Dunes



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



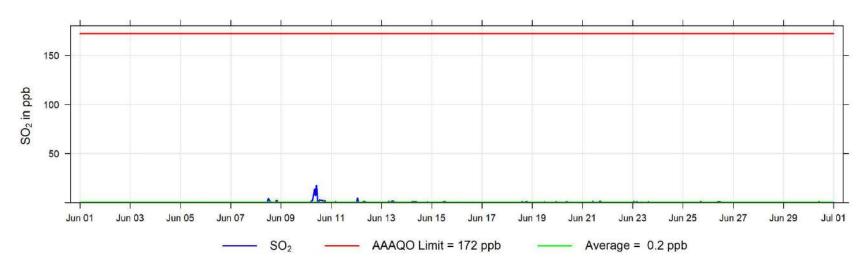


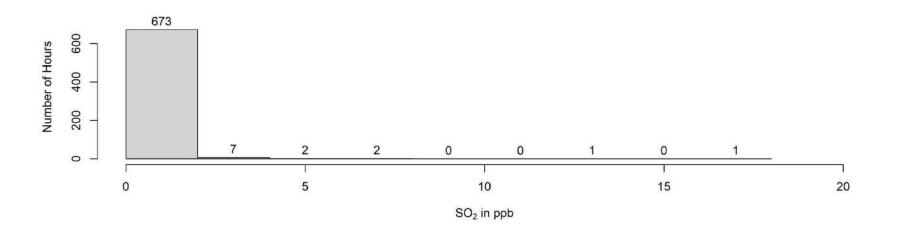
200 AN 1991 AN 200 AN

4 Grande Prairie - Henry Pirker Charts

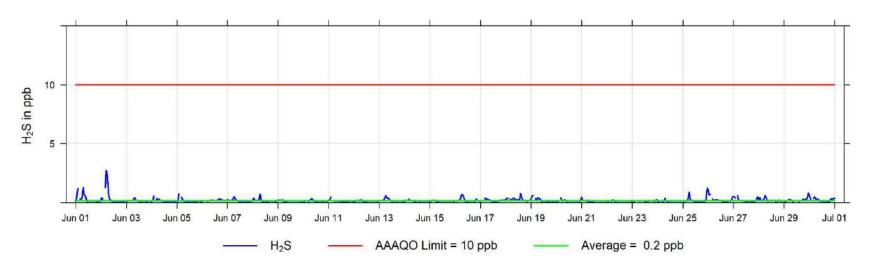
The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie

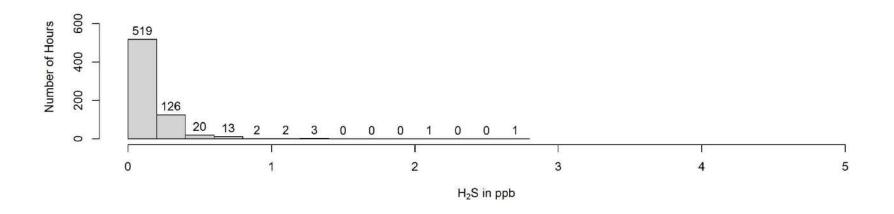
June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



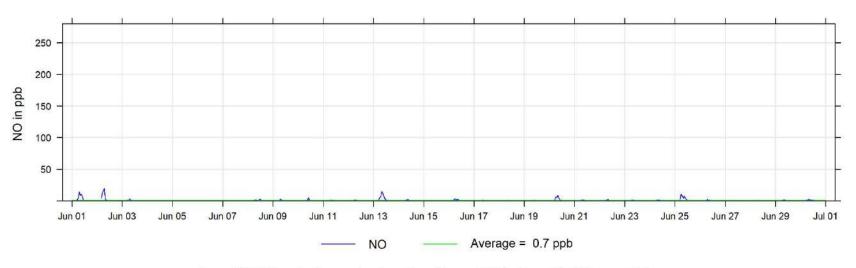


June 2022 Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker

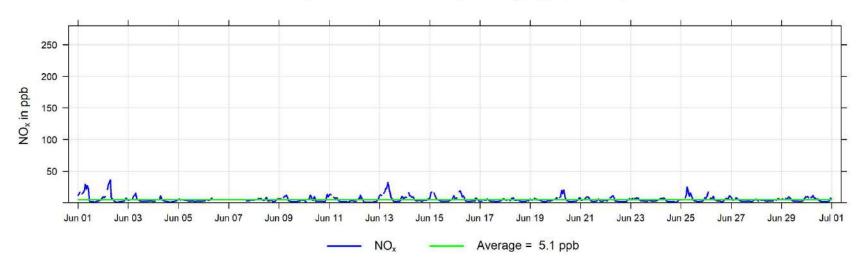




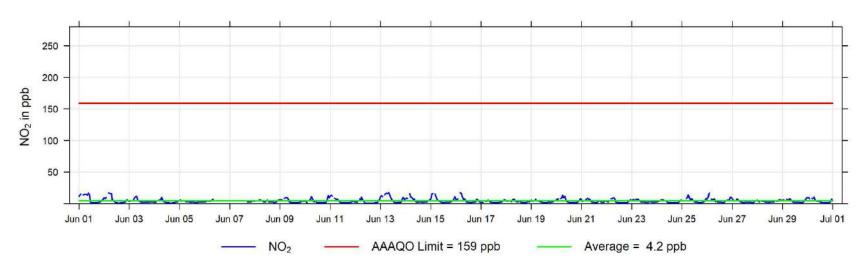
June 2022 Hourly Concentration Readings of NO (in ppb) at Henry Pirker

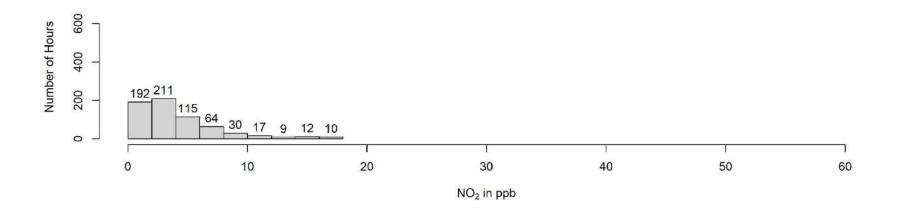


June 2022 Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker

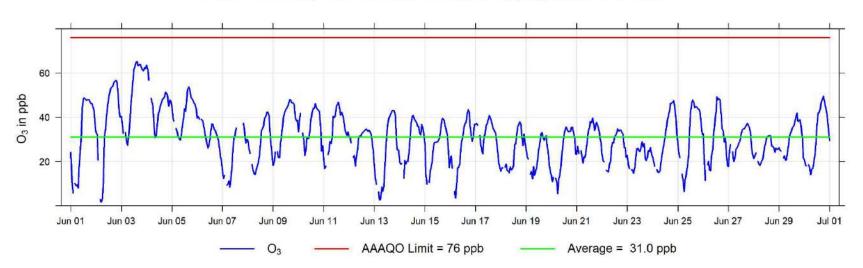


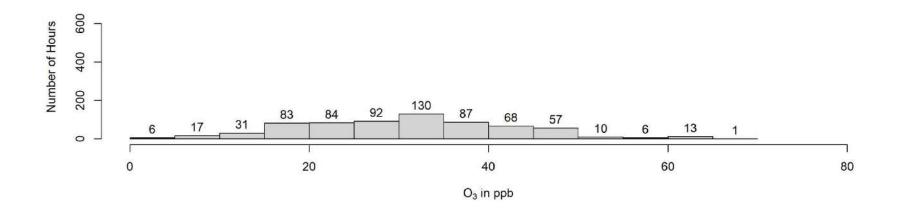
June 2022 Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



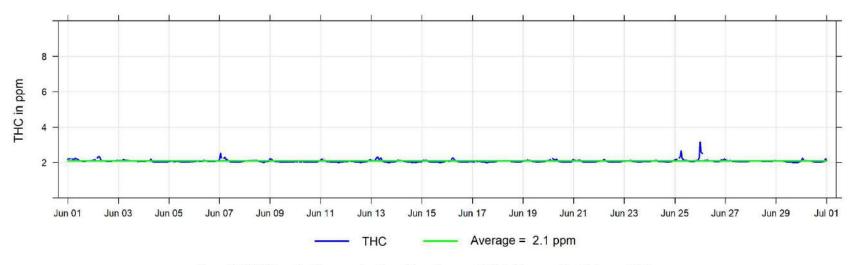


June 2022 Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker

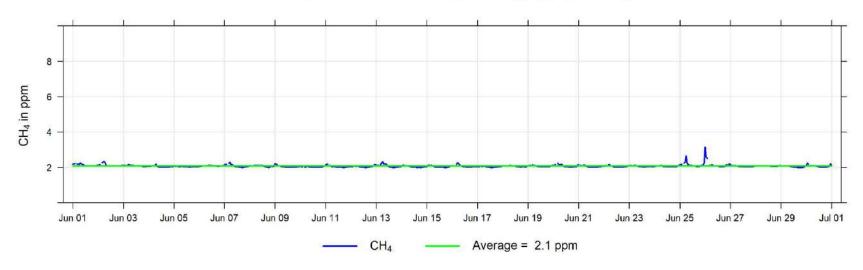




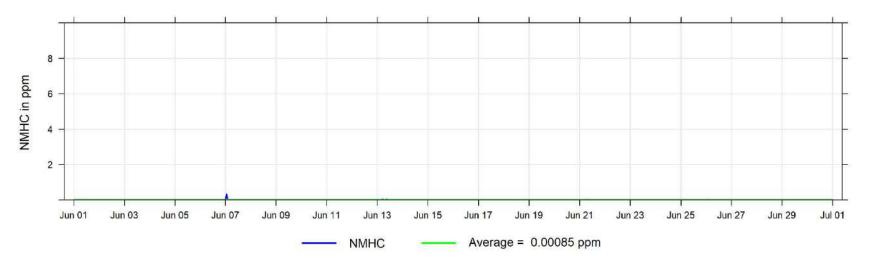




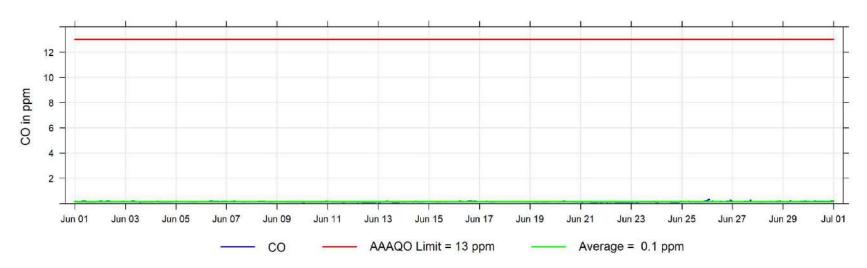
June 2022 Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker

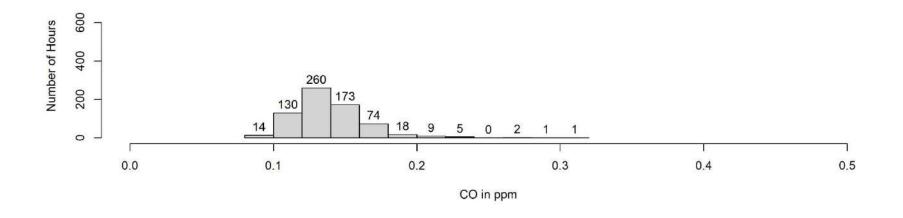


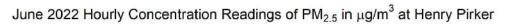
June 2022 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker

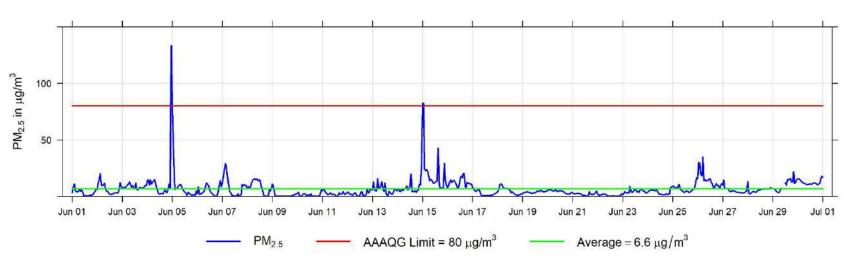


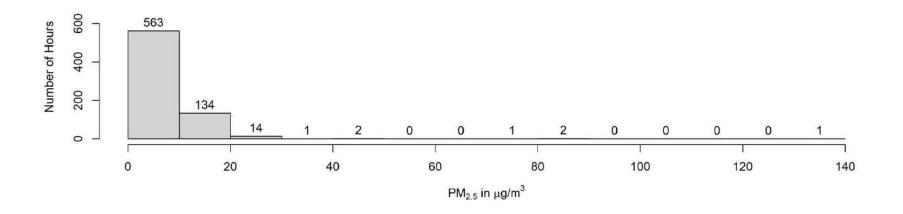
June 2022 Hourly Concentration Readings of CO (in ppm) at Henry Pirker



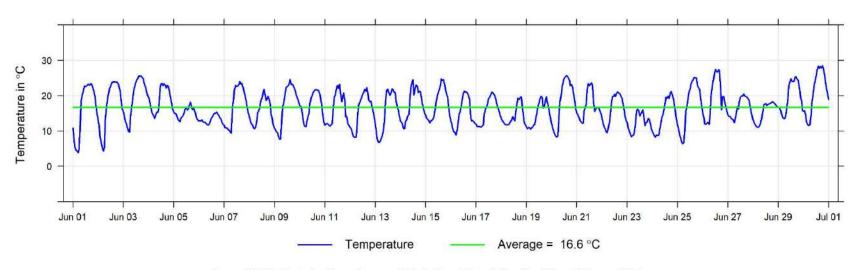




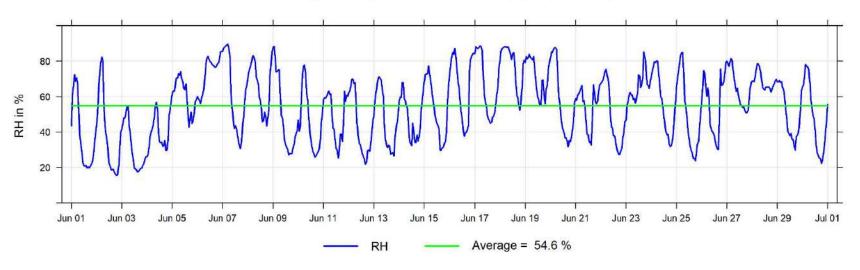




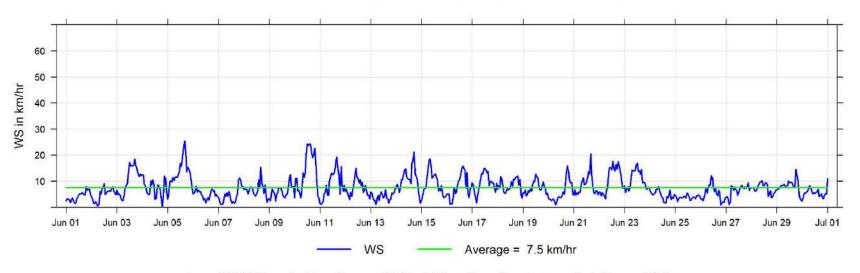
June 2022 Hourly Temperature Readings (in °C) at Henry Pirker



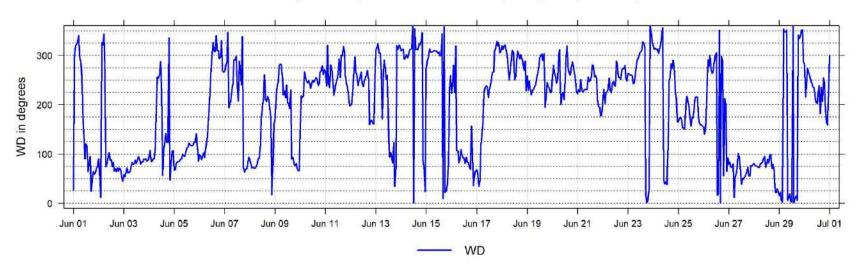
June 2022 Hourly Readings of Relative Humidity (in %) at Henry Pirker



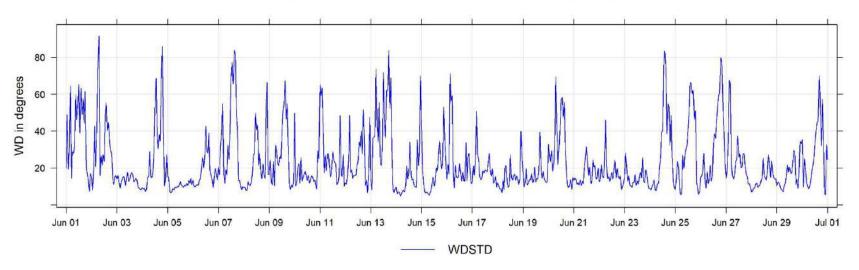
June 2022 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker

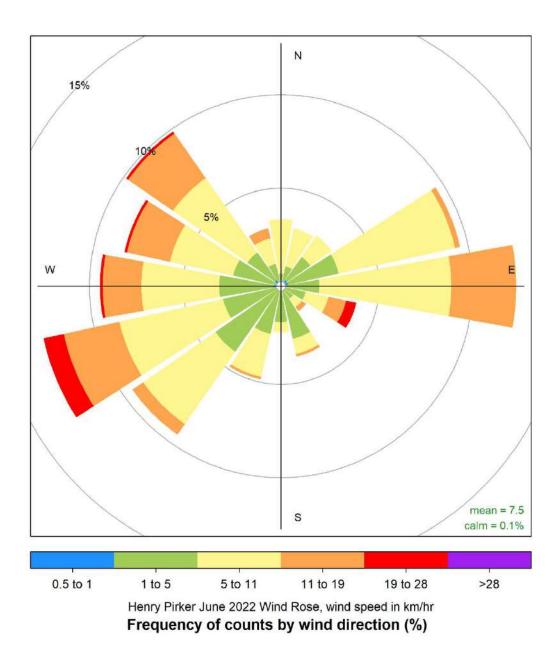


June 2022 Hourly Readings of Wind Direction (in degrees) at Henry Pirker



June 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Henry Pirker

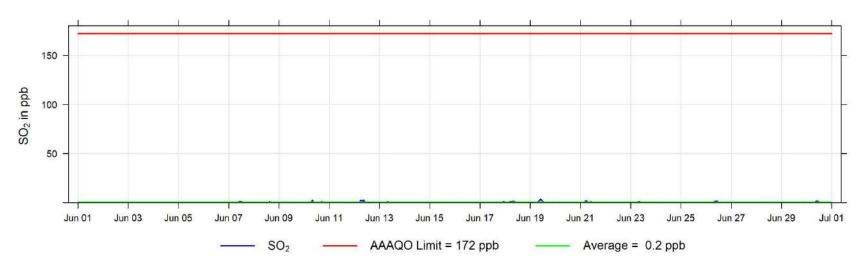


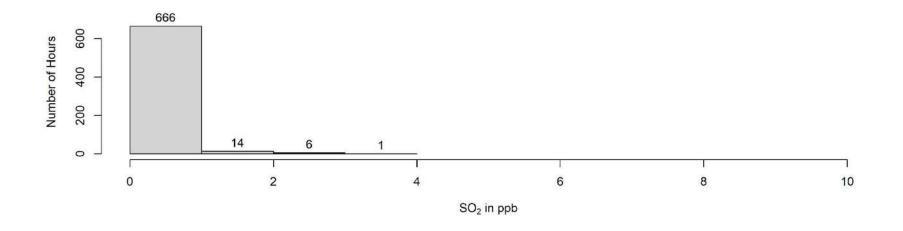


5 Smoky Heights Charts

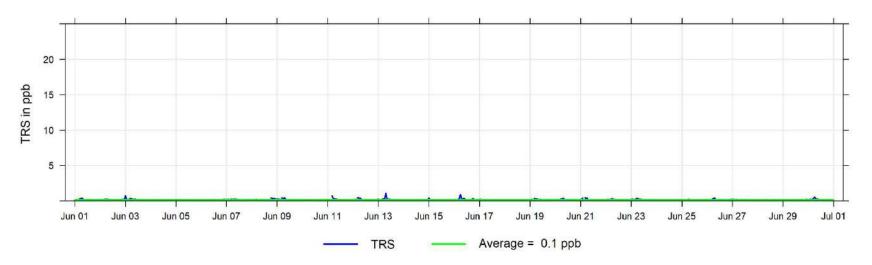
The following pages include the charts and histograms for Smoky Heights Station

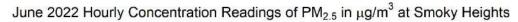
June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights

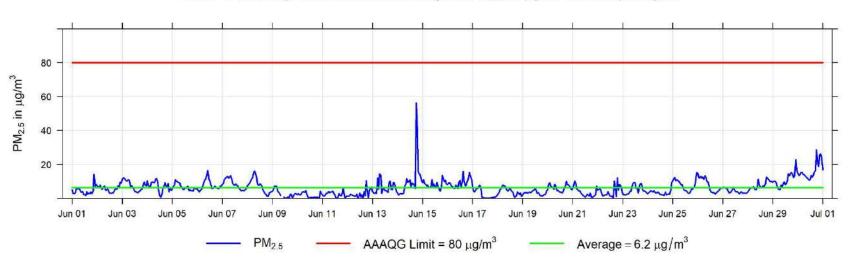


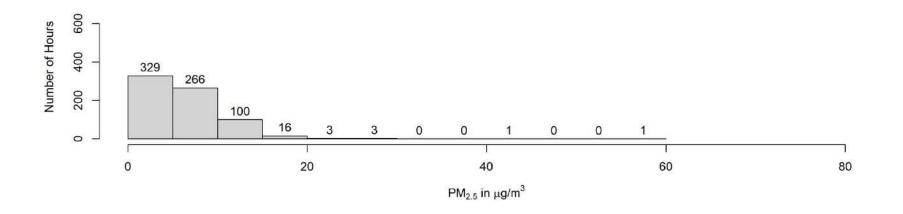


June 2022 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights

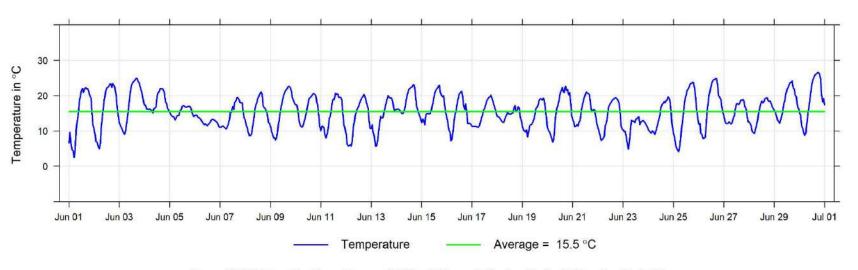




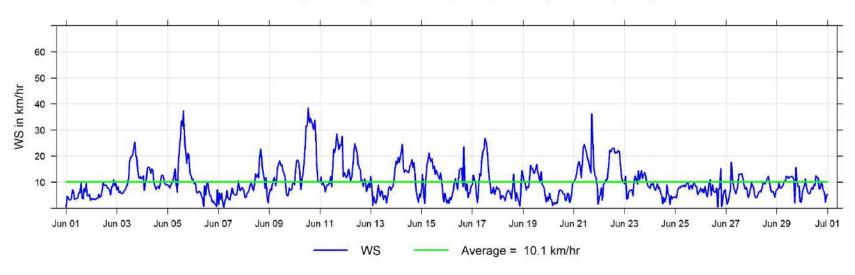




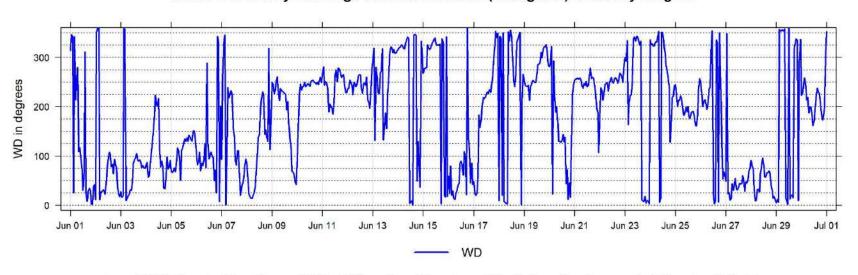
June 2022 Hourly Temperature Readings (in °C) at Smoky Heights



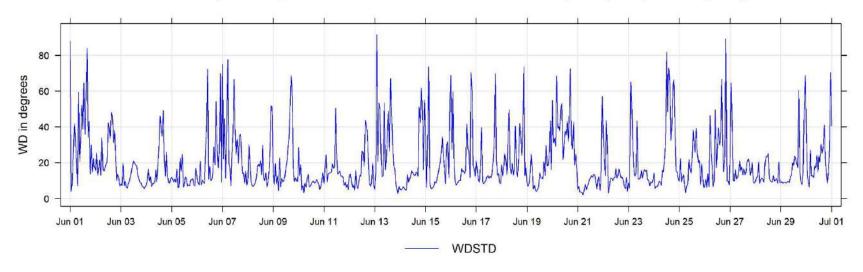
June 2022 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights

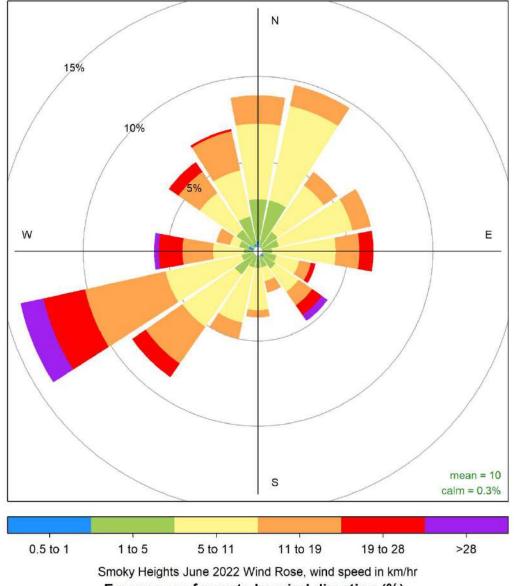


June 2022 Hourly Readings of Wind Direction (in degrees) at Smoky Heights



June 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Smoky Heights



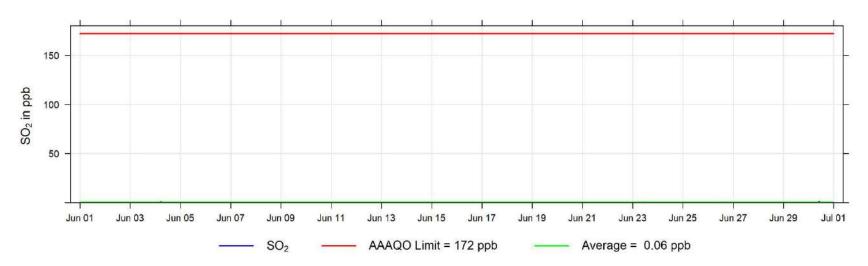


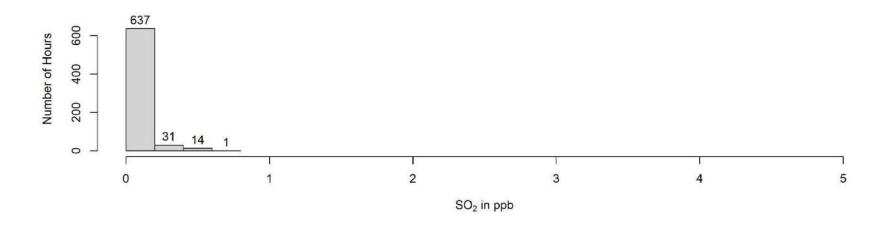
Frequency of counts by wind direction (%)

6 Valleyview Charts

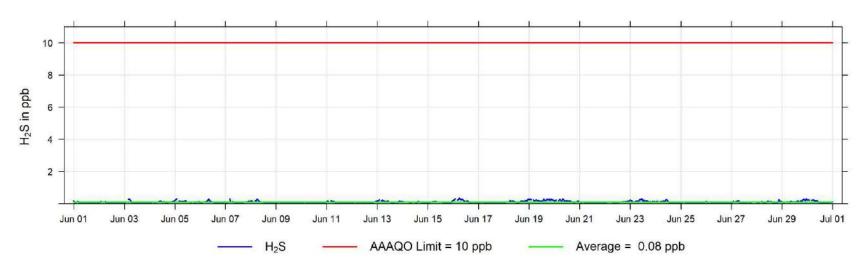
The following pages include the charts and histograms for Valleyview Station

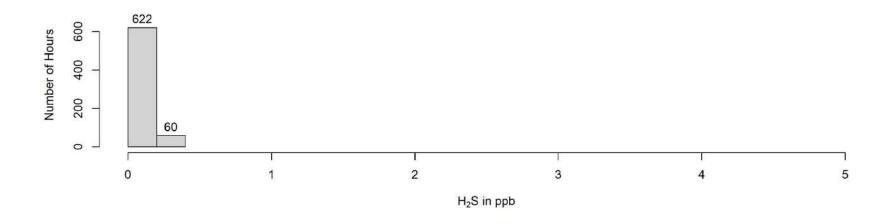
June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Valleyview



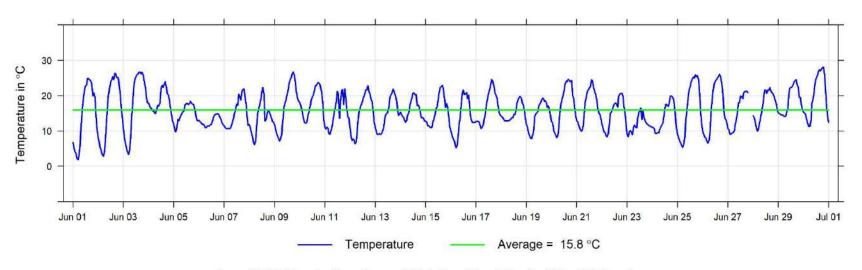


June 2022 Hourly Concentration Readings of H₂S (in ppb) at Valleyview

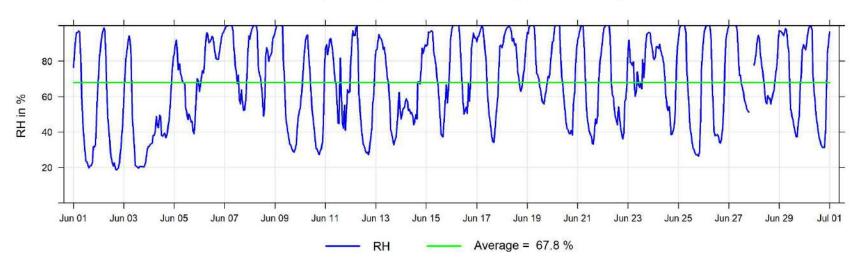




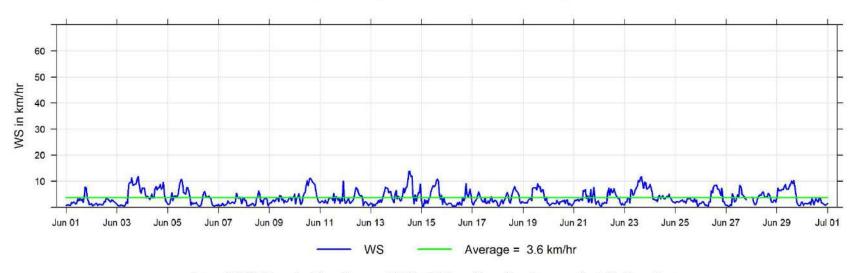
June 2022 Hourly Temperature Readings (in °C) at Valleyview



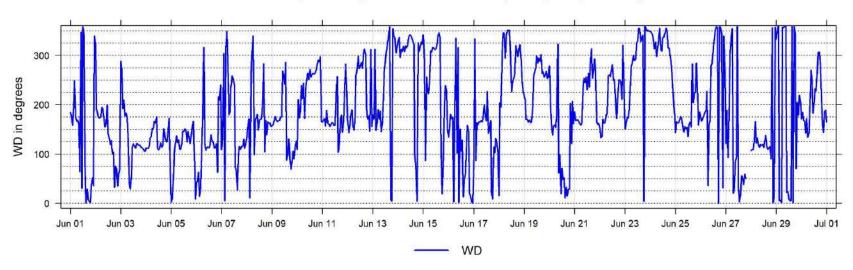
June 2022 Hourly Readings of Relative Humidity (in %) at Valleyview



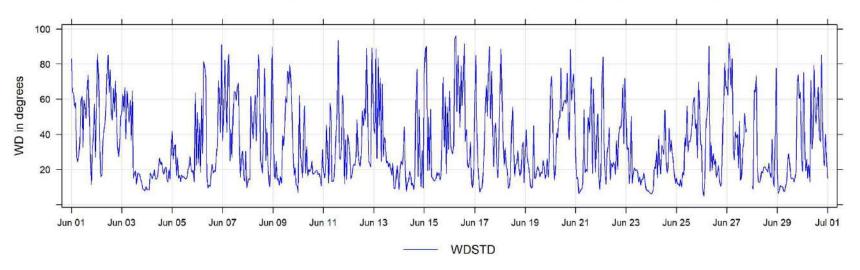
June 2022 Hourly Readings of Wind Speed (in km/hr) at Valleyview

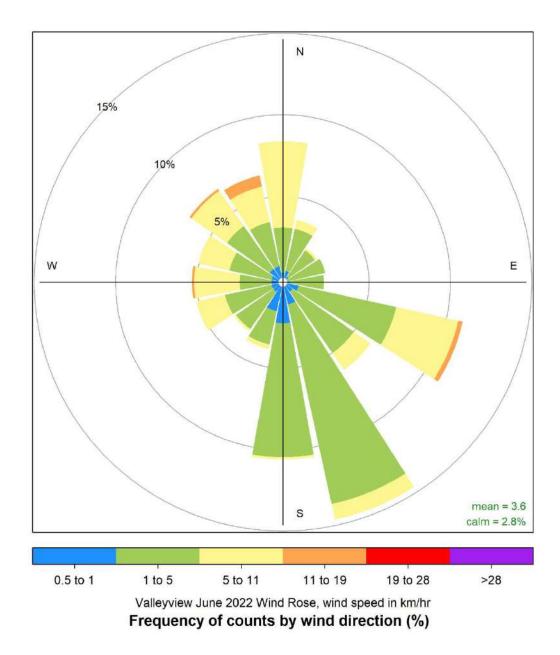


June 2022 Hourly Readings of Wind Direction (in degrees) at Valleyview



June 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Valleyview

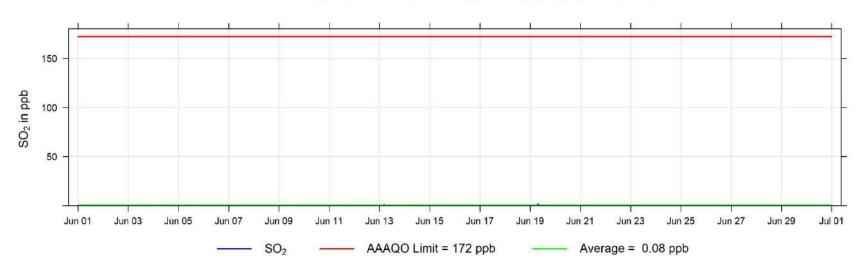


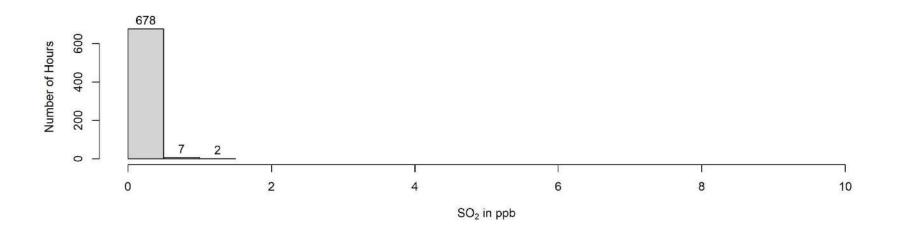


7 Donnelly Charts

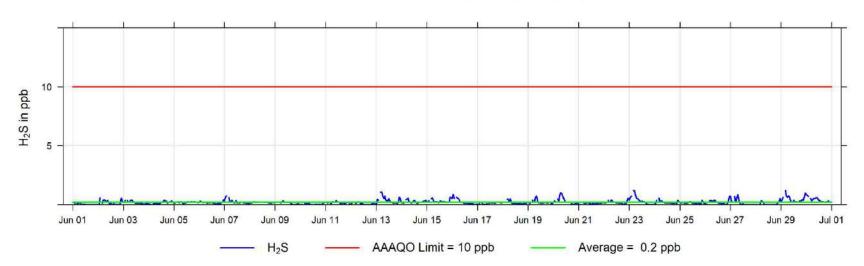
The following pages include the charts and histograms for Donnelly Station

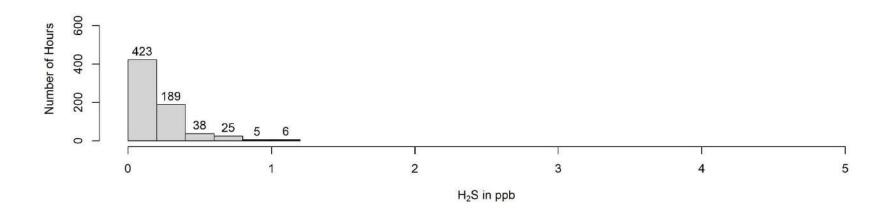
June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Donnelly



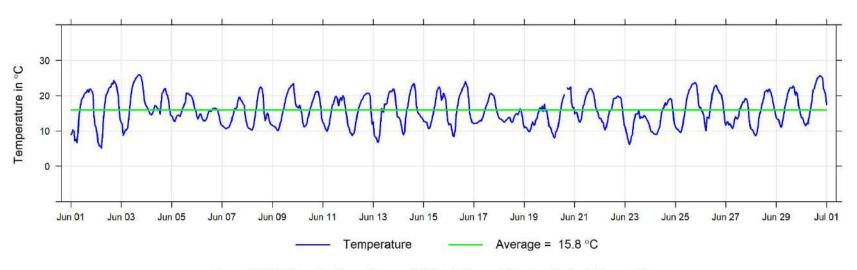


June 2022 Hourly Concentration Readings of H₂S (in ppb) at Donnelly

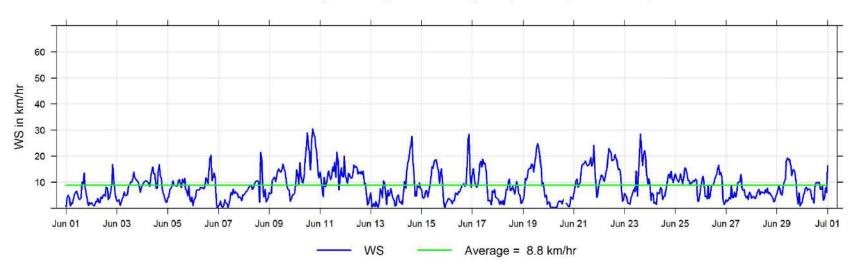




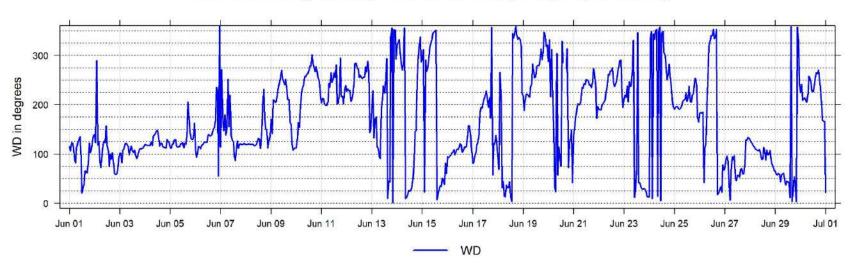
June 2022 Hourly Temperature Readings (in °C) at Donnelly



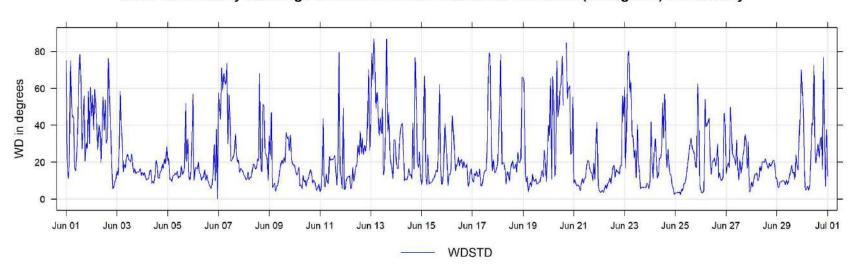
June 2022 Hourly Readings of Wind Speed (in km/hr) at Donnelly

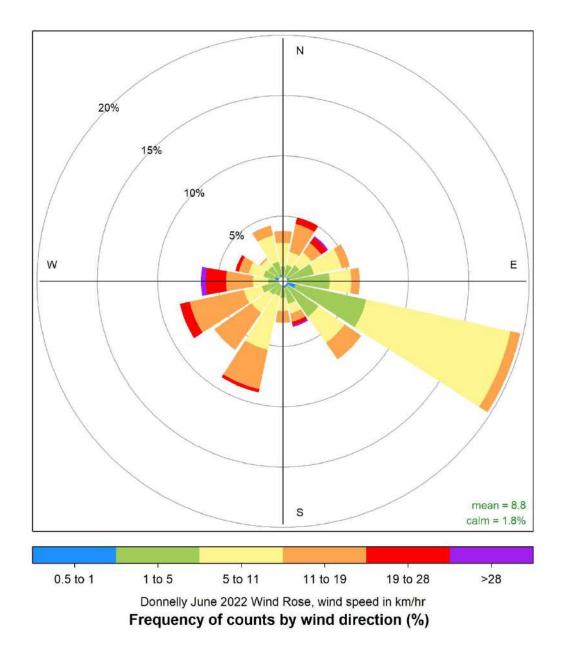


June 2022 Hourly Readings of Wind Direction (in degrees) at Donnelly



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



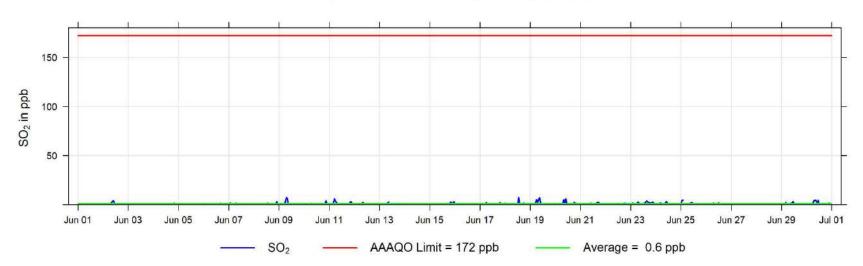


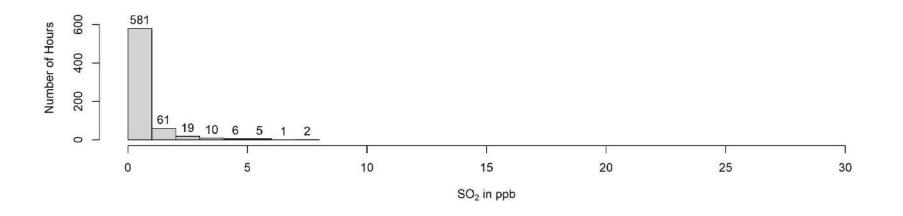
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8 Poplar (Portable) Charts

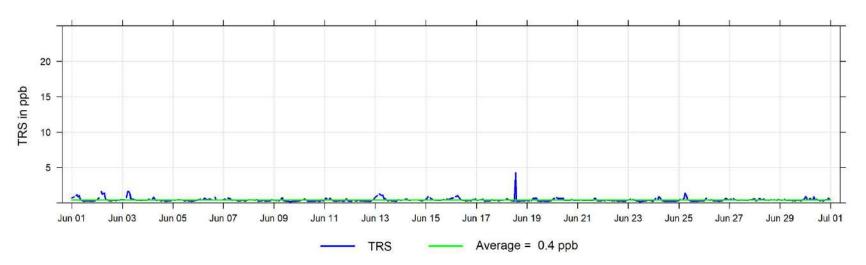
The following pages include the charts and histograms for Poplar Portable Station

June 2022 Hourly Concentration Readings of SO₂ (in ppb) at Poplar

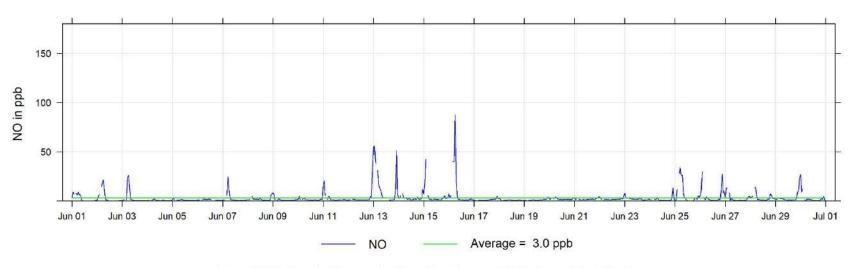




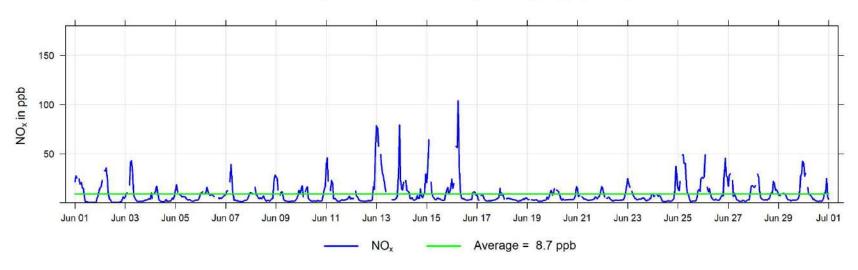
June 2022 Hourly Concentration Readings of TRS (in ppb) at Poplar



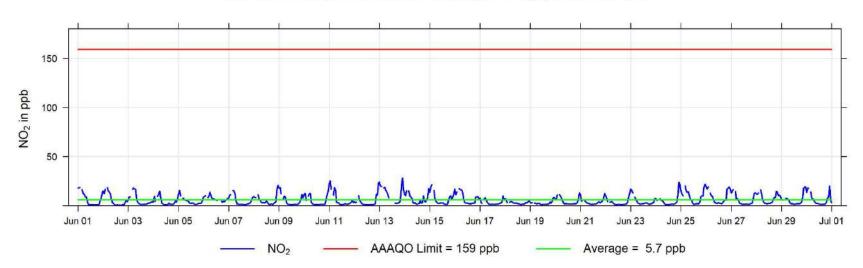
June 2022 Hourly Concentration Readings of NO (in ppb) at Poplar

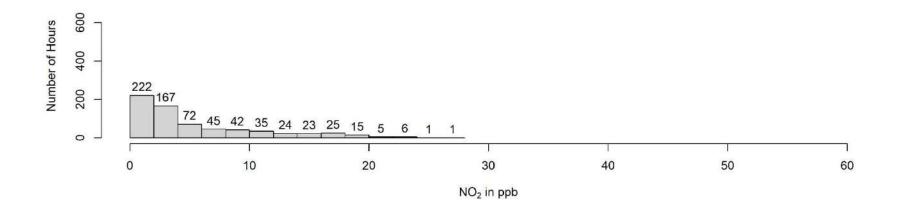


June 2022 Hourly Concentration Readings of NO_x (in ppb) at Poplar

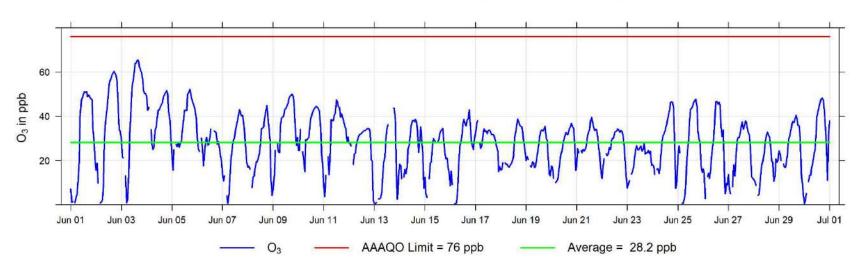


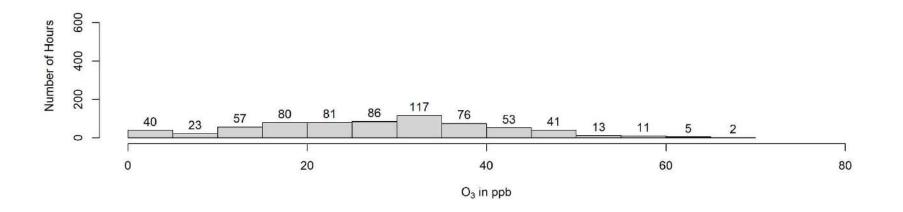
June 2022 Hourly Concentration Readings of NO₂ (in ppb) at Poplar



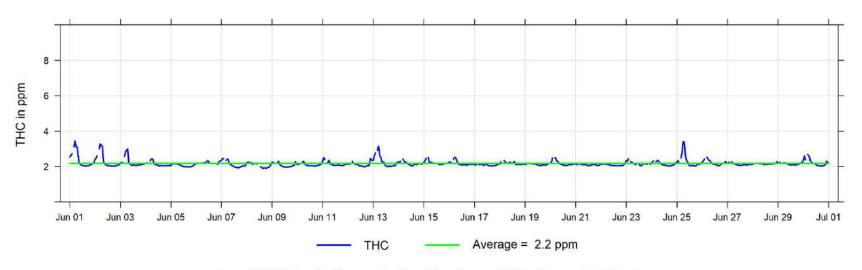


June 2022 Hourly Concentration Readings of O₃ (in ppb) at Poplar

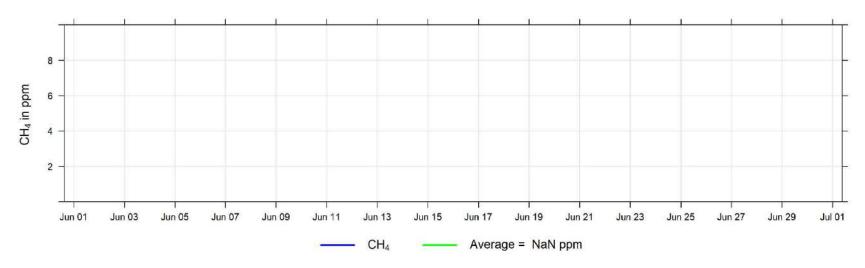




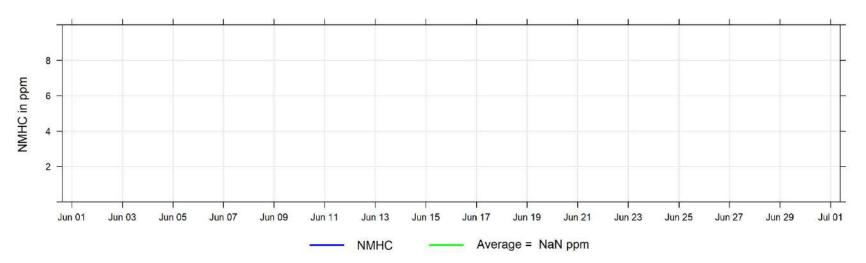
June 2022 Hourly Concentration Readings of THC (in ppm) at Poplar



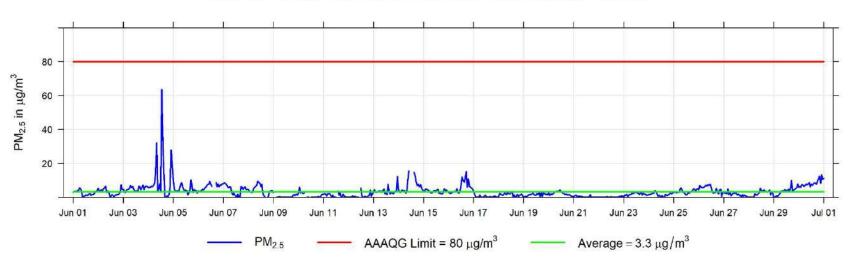
June 2022 Hourly Concentration Readings of CH₄ (in ppm) at Poplar

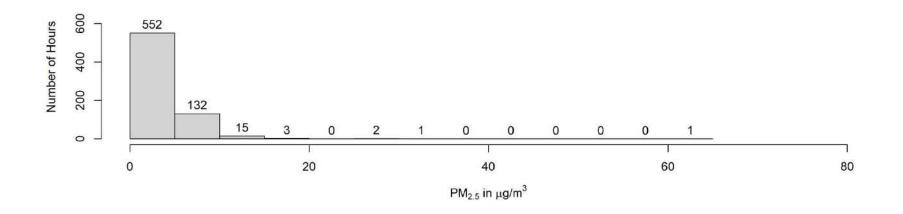


June 2022 Hourly Concentration Readings of NMHC (in ppm) at Poplar

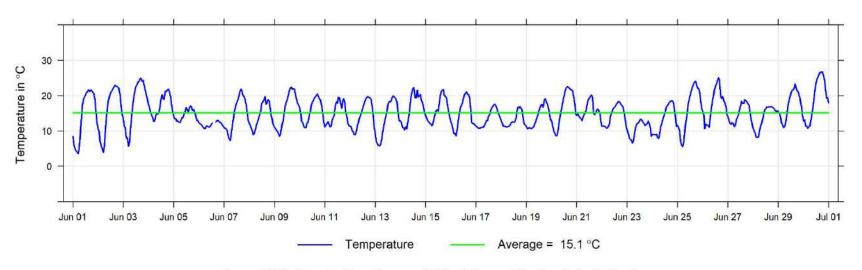




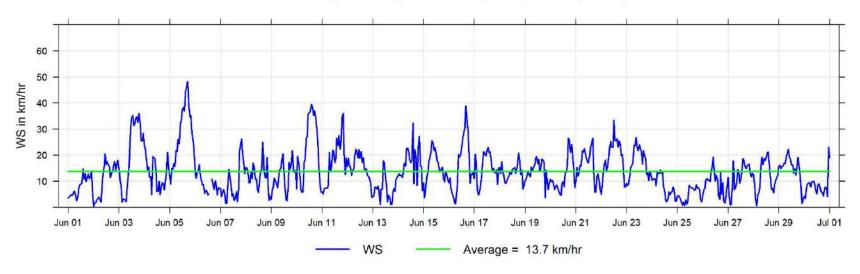




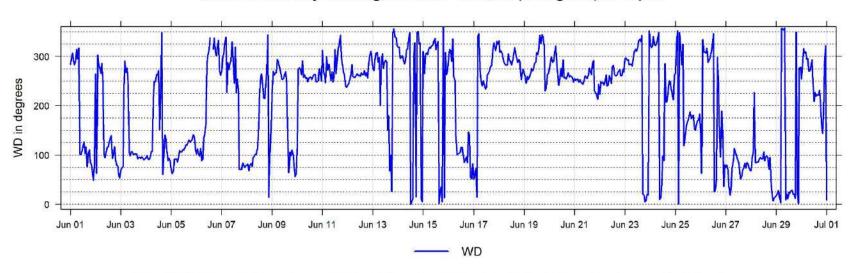
June 2022 Hourly Temperature Readings (in °C) at Poplar



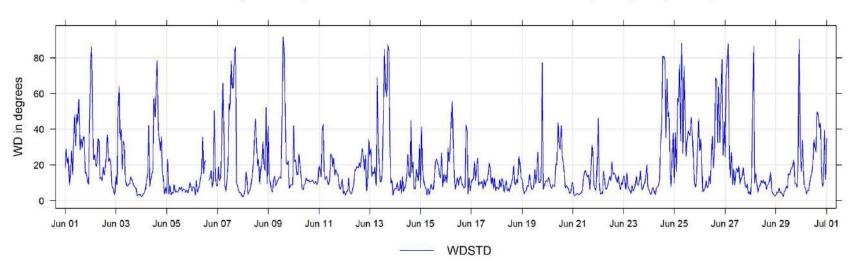
June 2022 Hourly Readings of Wind Speed (in km/hr) at Poplar

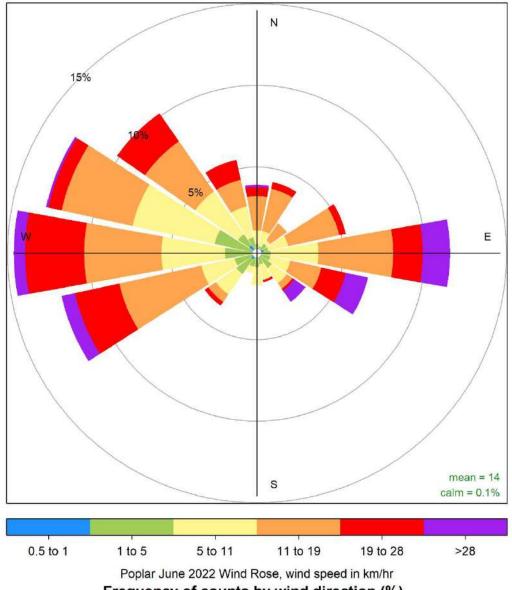


June 2022 Hourly Readings of Wind Direction (in degrees) at Poplar



June 2022 Hourly Readings of Wind Direction Standared Deviation (in degrees) at Poplar



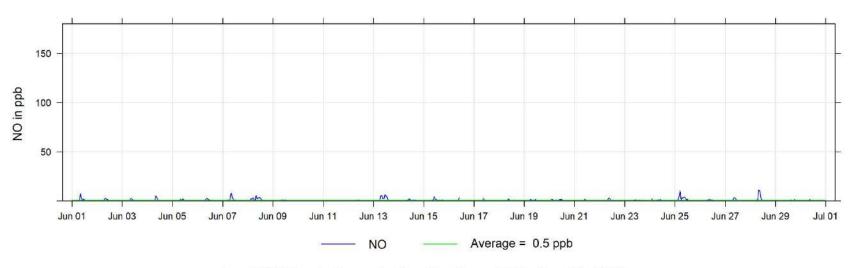


Frequency of counts by wind direction (%)

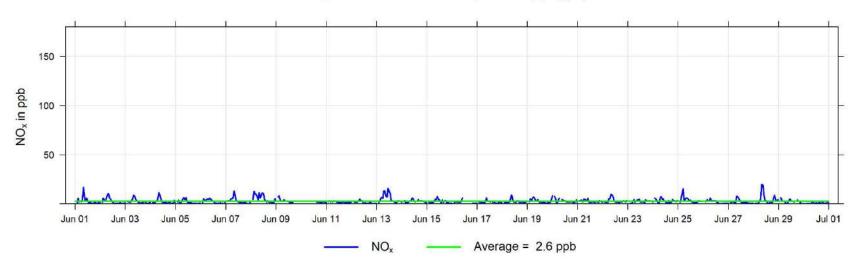
9 Milner Charts

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

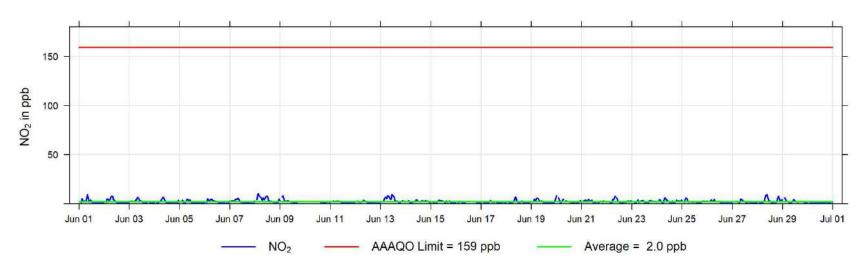
June 2022 Hourly Concentration Readings of NO (in ppb) at Milner

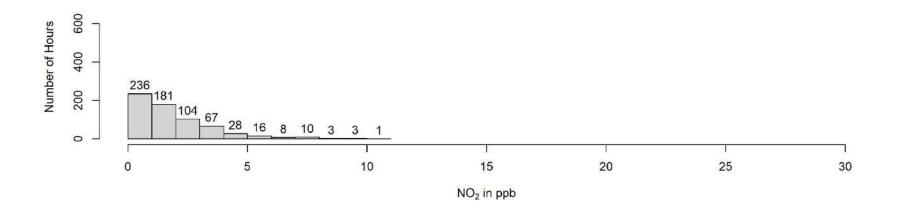


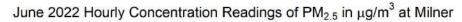
June 2022 Hourly Concentration Readings of NO_x (in ppb) at Milner

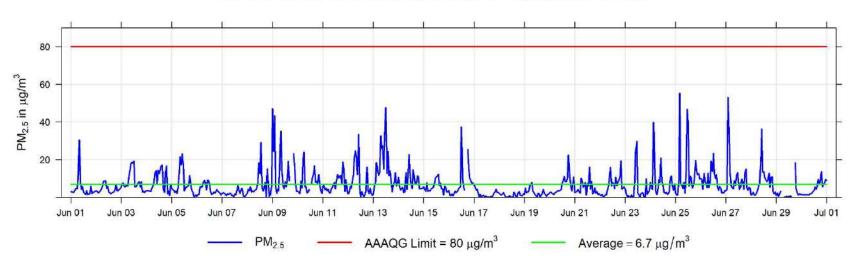


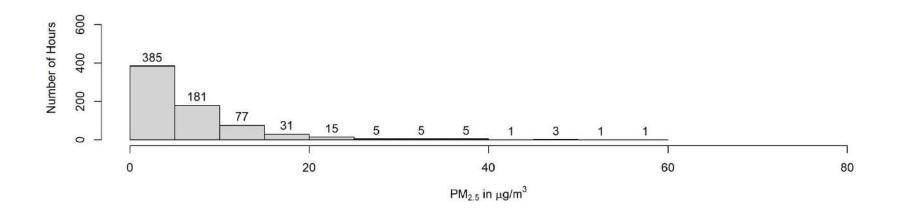
June 2022 Hourly Concentration Readings of NO₂ (in ppb) at Milner



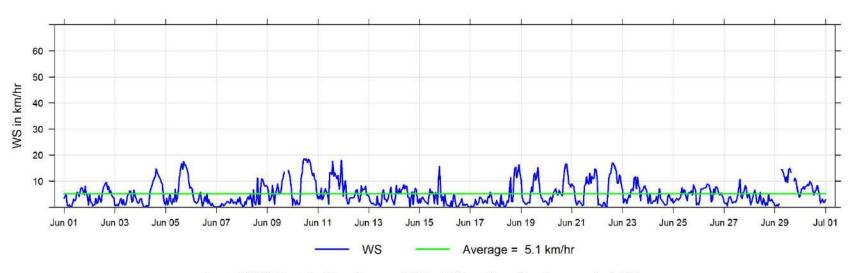




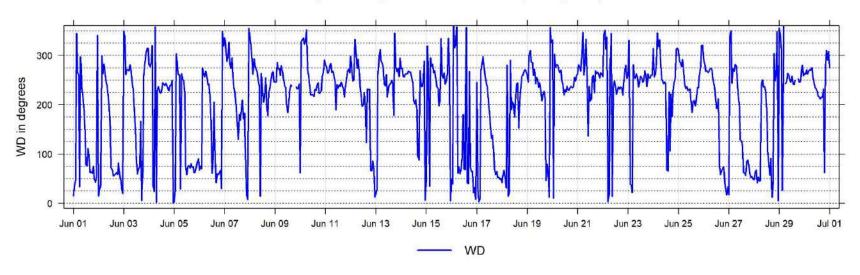


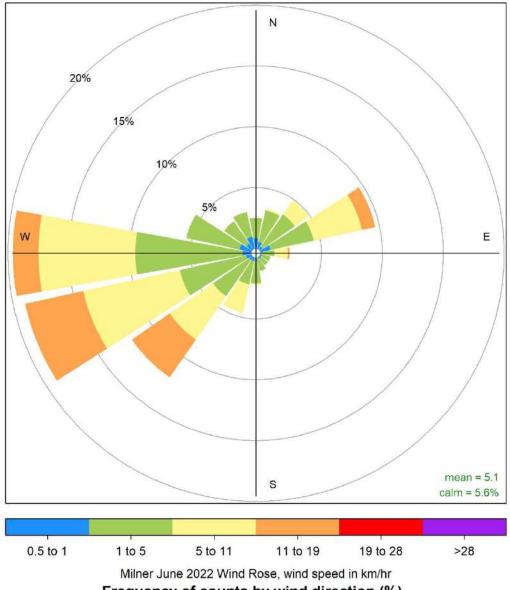


June 2022 Hourly Readings of Wind Speed (in km/hr) at Milner



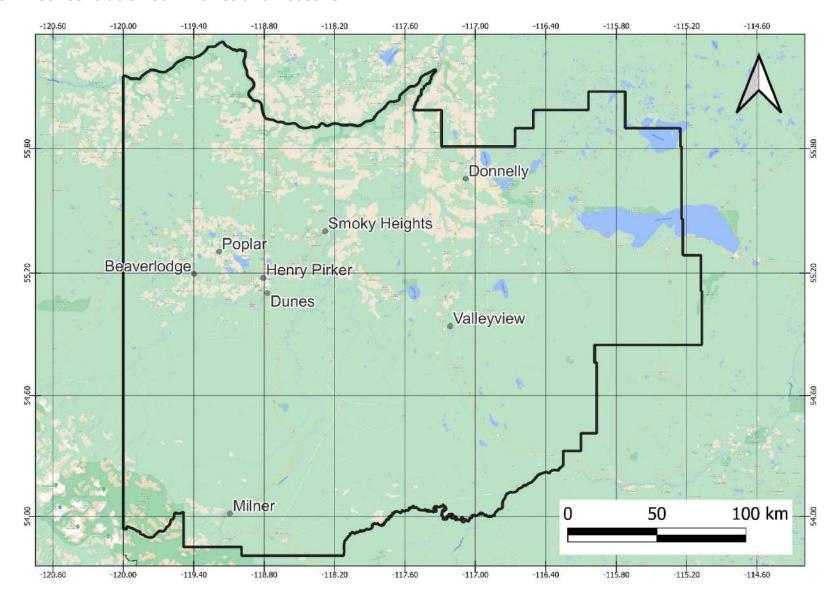
June 2022 Hourly Readings of Wind Direction (in degrees) at Milner



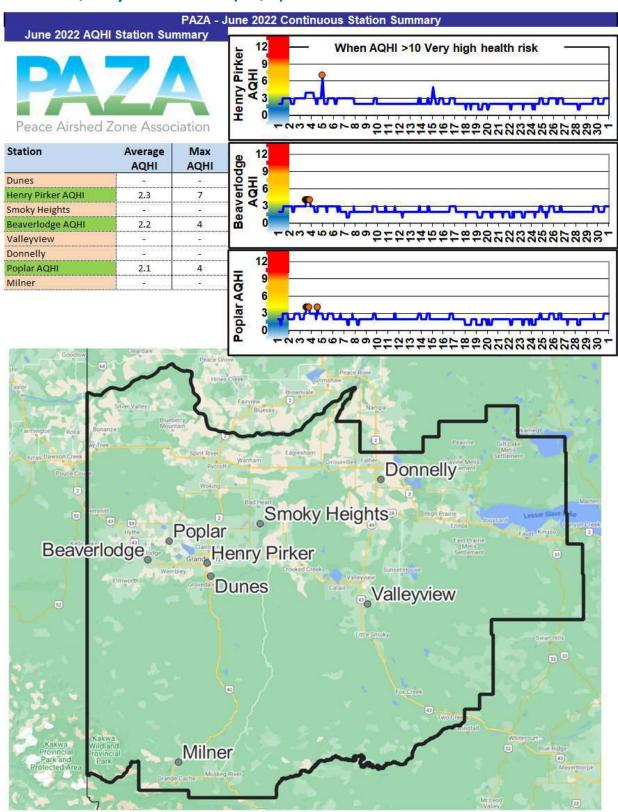


Frequency of counts by wind direction (%)

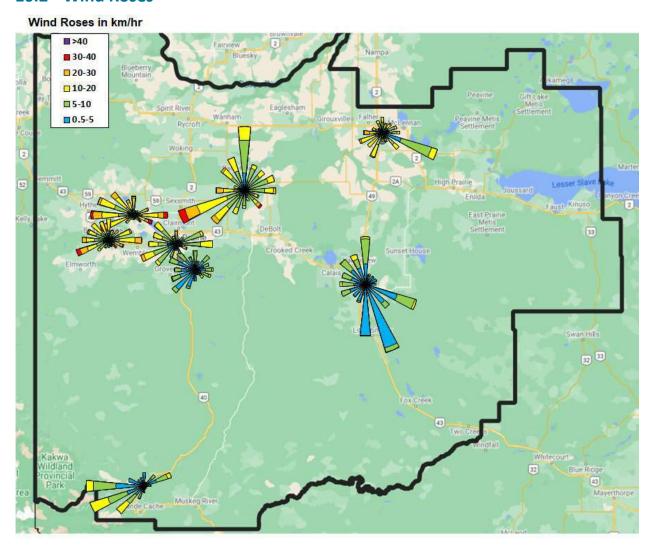
10 Concentration Summaries and Roses for PAZA



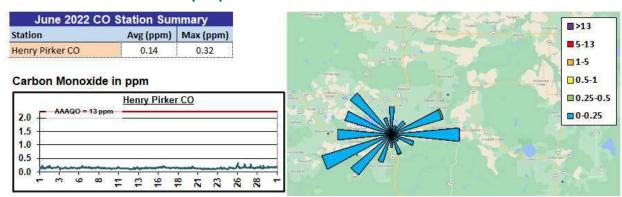
10.1 Air Quality Health Index (AQHI) Plots



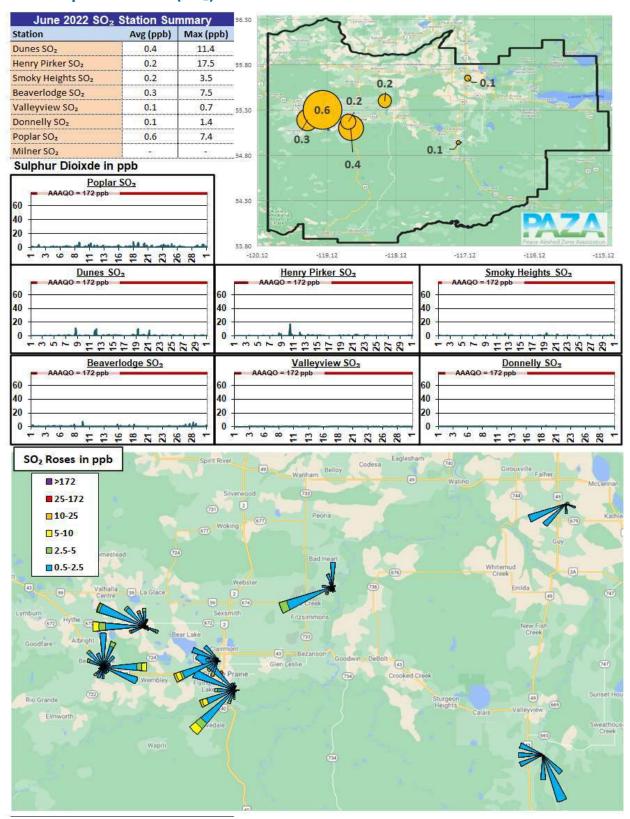
10.2 Wind Roses



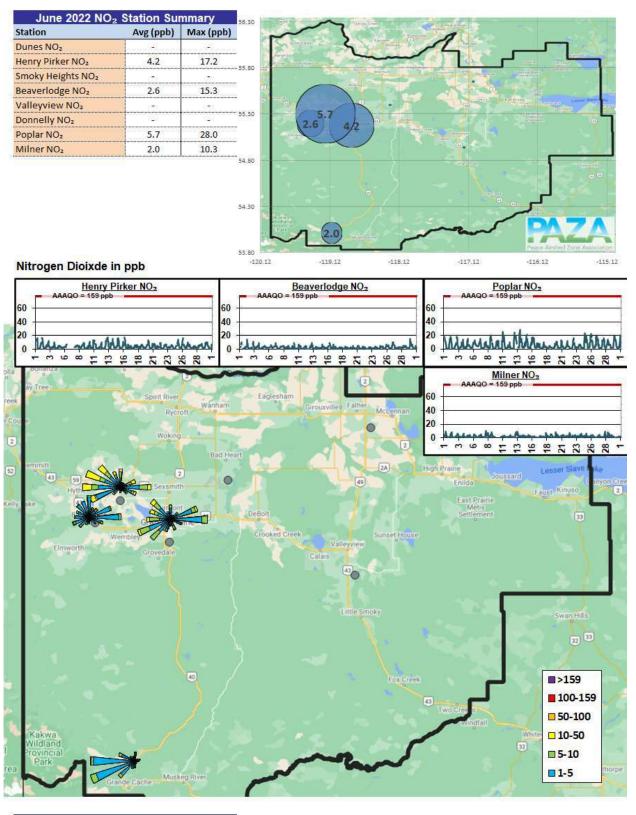
10.3 Carbon Monoxide (CO) Plots



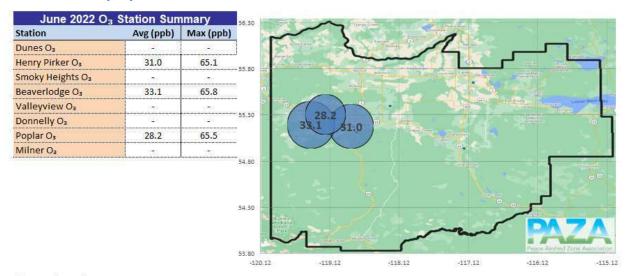
10.4 Sulphur Dioxide (SO₂) Plots



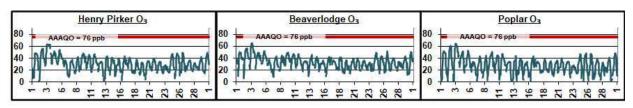
10.5 Nitrogen Dioxide (NO₂) Plots

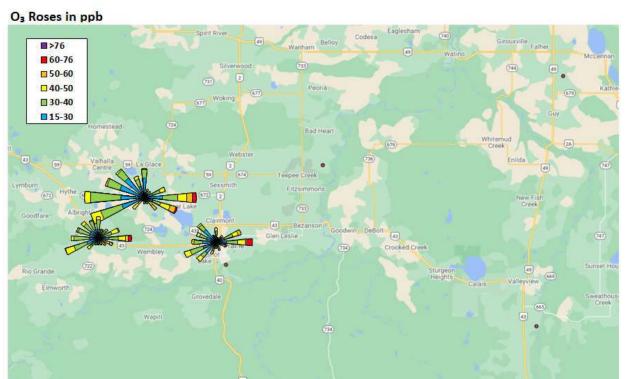


10.6 Ozone (O₃) Plots

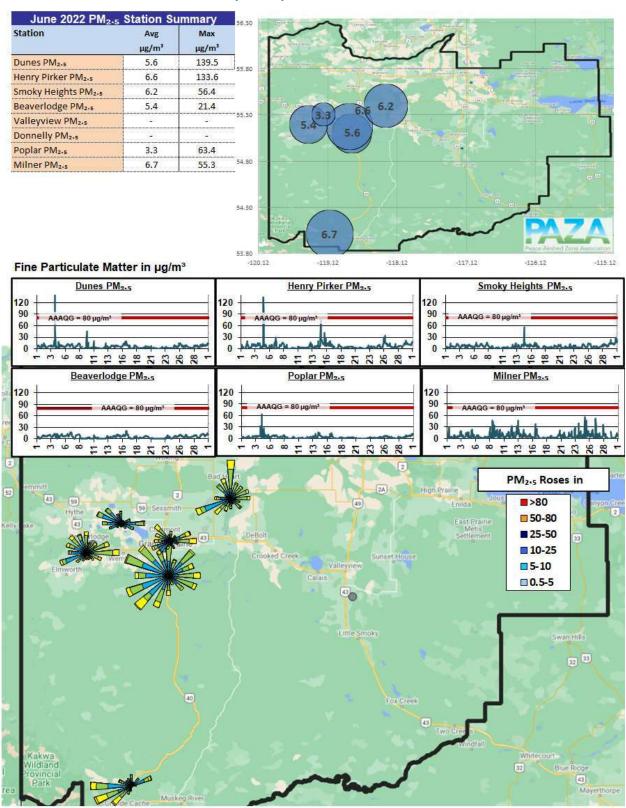


Ozone in ppb

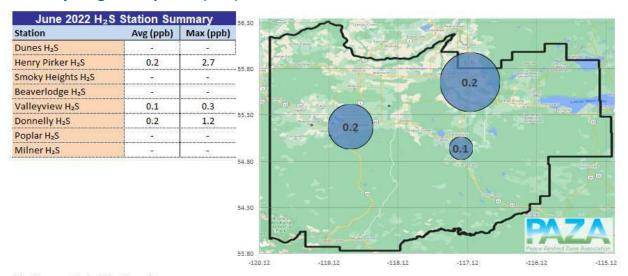




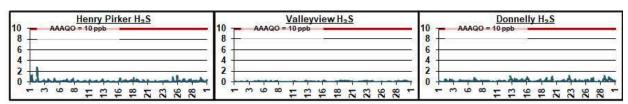
10.7 Fine Particulate Matter (PM_{2.5}) Plots



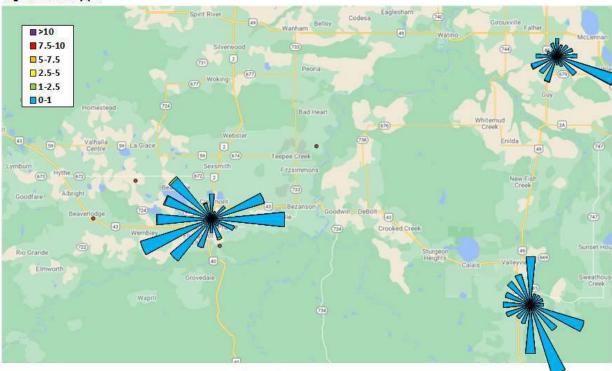
10.8 Hydrogen Sulphide (H₂S) Plots



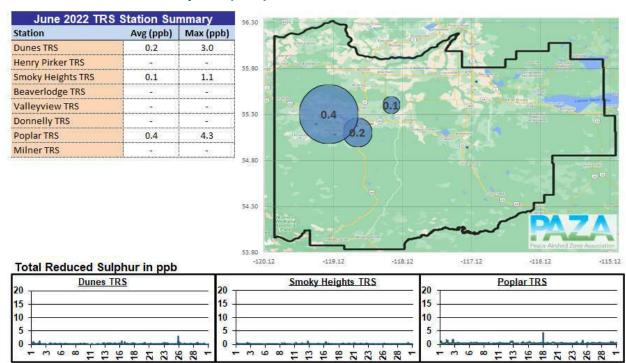
Hydrogen Sulphide in ppb



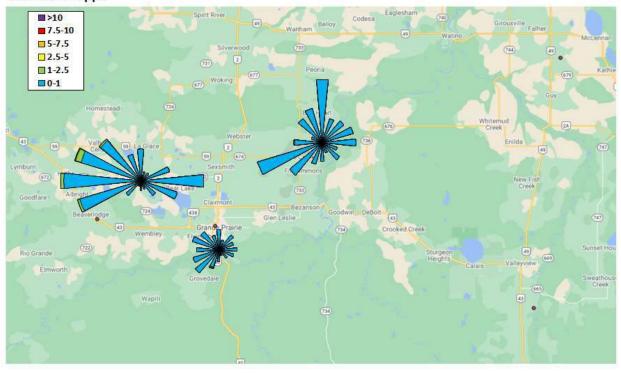
H₂S Roses in ppb



10.9 Total Reduced Sulphur (TRS) Plots

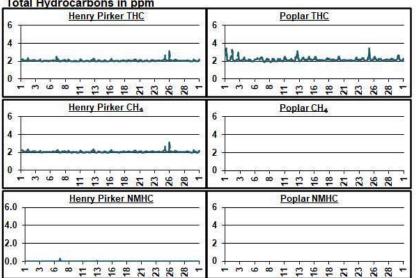


TRS Roses in ppb



10.10 Total Hydrocarbon (THC) Plots

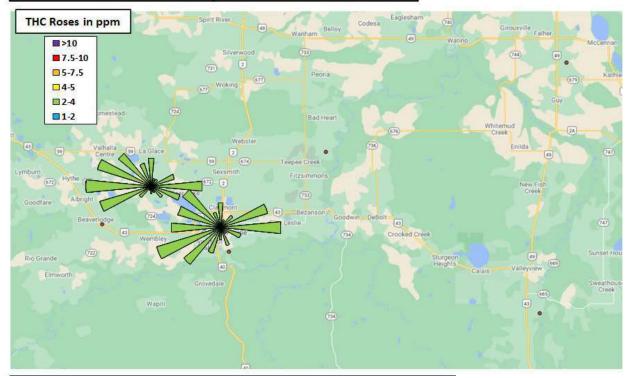
Station	Total Hydrocarbons		Methane		Non-Methane HCs	
	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)	Avg (ppm)	Max (ppm)
Dunes THC		1=1	-			-
Henry Pirker THC	2.1	3.2	2.1	3.1	0.0	0.3
Smoky Heights THC	-	-	-	-	-	-
Beaverlodge THC	e - 0	(- 8)	(-)	(=1)	(- 0	6 - 71
Valleyview THC	120	121	121	120	121	121
Donnelly THC		-	-	-	-	-
Poplar THC	2.2	3.5	-	-	9-3	37.1
Total Hydrocarbo	ns in ppm					
The state of the s	Pirker THC			Poplar THC		



Total Hydrocarbons (THC)

Methane (CH₄)

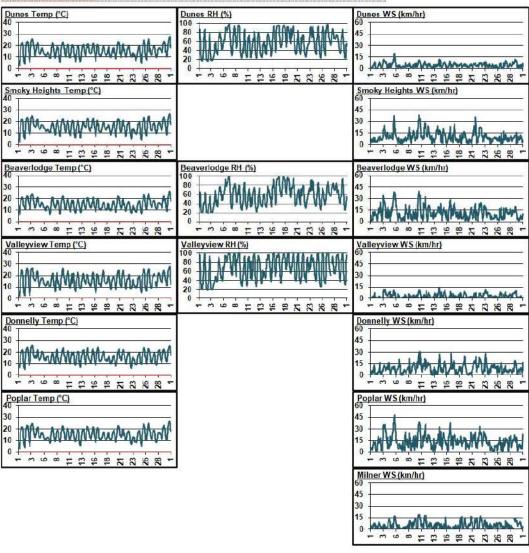
Non-Methane Hydrocarbons (NMHC)

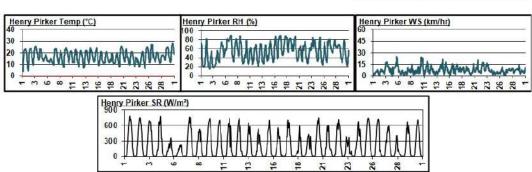


10.11 Meteorology Summary

June 2022 Meterological Summary						
Station	Temp (°C)	RH (%)	SR (W/m²)	WS (km/hr)	WD (deg)	WD
Dunes	15.4	58.4	-	4.3	326	NW
Henry Pirker	16.6	54.6	211.2	7.5	282	WNW
Smoky Heights	15.5	-	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	10.1	273	W
Beaverlodge	15.0	58.4	-	11.1	339	NNW
Valleyview	15.8	67.8		3.6	316	NW
Donnelly	15.8	-	-	8.8	199	SSW
Poplar	15.1	-	-	13.7	305	NW
Milner				5.1	248	248.2

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 June 2022

Station	Station	S02	03	NO2	H2S	
Number	Name	ppb	ppb	ppb	ppb	LSD
Duplicates				1		
2a	Bay Tree		24.8			13-16-078-13 W6M
2b	Bay Tree		28.1	0-1 MM		_
3a	Forth Creek			0.4		04-13-082-07 W6M
3b	Forth Creek			0.5		
9a	Spirit River	0.2				08-12-079-07 W6M
9b	Spirit River	0.2				
24a	Wembley			1.5		12-31-070-08 W6M
24b	Wembley			1.7		
25a	Pinto Creek	0.1				04-24-069-11 W6M
25b	Pinto Creek	0.2				
35a	Jean Cote			5.3		12-35-079-21 W5M
35b	Jean Cote			4.6		
43a	High Prairie	0.2				16-13-074-17 W5M
43b	High Prairie	0.1				
48a	Deer Mountain	0.1				15-22-068-09 W5M
48b	Deer Mountain	0.1				
50a	East Prairie			0.1		11-13-079-08 W6M
50b	East Prairie			0.1		
G4a	Girouxville 4			3,000	0.4	04-08-077-22 W5M
G4b	Girouxville 4				0.5	
D4a	Duvernay 4	0.7			0.1	04-33-062-20 W5M
D4b	Duvernay 4	0.7			0.1	
J2a	Jayar2 14-8				0.1	07-08-062-03 W6M
J2b	Jayar2 14-8				0.1	Babo Baro Lacces Address Research
J3a	Jayar3 Bone Yard			0.7		14-08-062-03 W6M
J3b	Jayar3 Bone Yard			0.9		
J5a	Jayar5 Camp	0.5				11-08-062-03 W6M
J5b	Jayar5 Camp	0.5				
M5a	Powerline	0.2				06-14-058-08 W6M
M5b	Powerline	0.1				
M3a	Wanyandie			0.6		11-13-058-08 W6M
M3b	Wanyandie			0.5		1, 10 000 00 11011

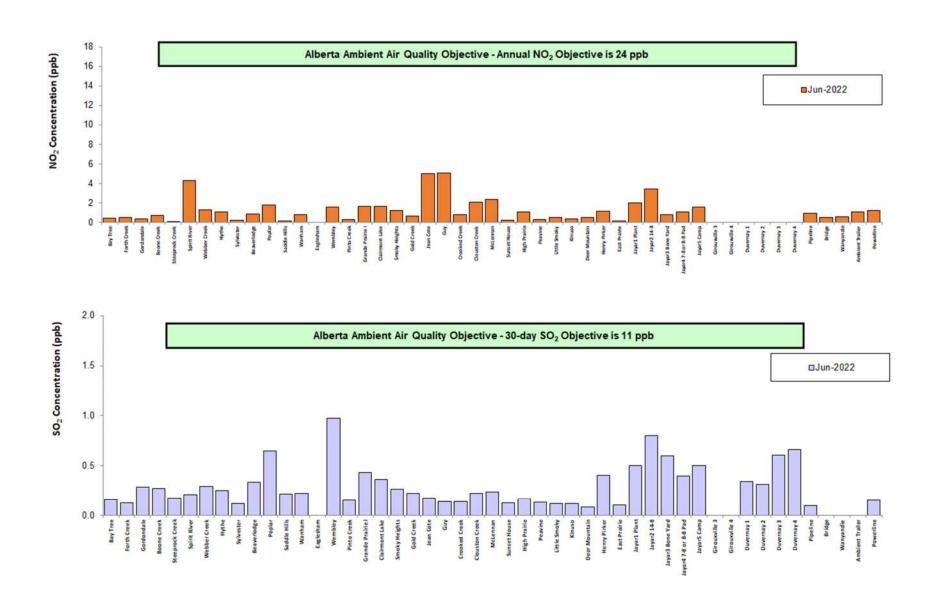
Station	Station	S02	03	NO2	H2S	100
Number	Name	ppb	ppb	ppb	ppb	LSD
2	Bay Tree	0.2	26.5	0.4		13-16-078-13 W6N
3	Forth Creek	0.1		0.5	-	04-13-082-07 W6N
4	Gordondale	0.3		0.4	-	04-34-078-10 W6N
5	Boone Creek	0.3	-	0.7	-	01-23-076-11 W6M
7	Steeprock Creek	0.2		0.1		09-35-072-13 W6N
9	Spirit River	0.2	-	4.3	-	08-12-079-07 W6N
11	Webber Creek	0.3	-	1.3	-	09-36-074-09 W6M
12	Hythe	0.3		1.0		14-36-072-11 W6N
14	Sylvester	0.1	-	0.2		08-06-069-12 W6N
16	Beaverlodge	0.3	-	0.8	-	15-36-071-10 W6N
17	Poplar	0.6	(9 7)	1.8	-	13-06-073-08 W6N
18	Saddle Hills	0.2	-	0.1	-	04-25-074-07 W6N
19	Wanham	0.2		0.8	•	16-22-077-03 W6N
21	Eaglesham	missing	-	missing	-	16-21-079-25 W5N
24	Wembley	1.0	-	1.6	-	12-31-070-08 W6N
25	Pinto Creek	0.2	(*)	0.3		04-24-069-11 W6N
27	Grande Prairie I	0.4	-	1.7	-	08-15-071-06 W6N
28	Clairmont Lake	0.4	-	1.6		09-06-073-04 W6N
29	Smoky Heights	0.3	(-)	1.2	(=)	04-06-075-02 W6N
32	Gold Creek	0.2	1.	0.7	-	06-33-067-05 W6N
35	Jean Cote	0.2		5.0		12-35-079-21 W5N
36	Guy	0.1	-	5.1	0.2	03-04-076-22 W5N
37	Crooked Creek	0.1	27.5	0.8		16-01-071-26 W5N
39	Clouston Creek	0.2		2.0	-	12-01-073-22 W5N
40	McLennan	0.2	-	2.4		03-29-077-19 W5N
42	Sunset House	0.1		0.2	-	05-32-070-19 W5M
43	High Prairie	0.2	-	1.1	-	16-13-074-17 W5N
44	Peavine	0.1	-	0.3	-	03-05-079-15 W5N
46	Little Smoky	0.1	-	0.5	-	12-01-065-21 W5N
47	Kinuso	0.1	26.6	0.3	-	12-10-073-10 W5N
48	Deer Mountain	0.1	-	0.5	-	15-22-068-09 W5N
49	Henry Pirker	0.4	•	1.2	-	17-26-071-06 W6N
50	East Prairie	0.1		0.1	-	11-13-079-08 W6N
57	Jayar1 Plant	0.5		2.0	0.1	06-08-062-03 W6M
58	Jayar2 14-8	0.8		3.4	0.1	07-08-062-03 W6N
59	Jayar3 Bone Yard	0.6	-	0.8	0.1	14-08-062-03 W6N
60	Jayar4 7-8 or 8-8 Pad	0.4		1.1	0.1	10-08-062-03 W6M
61	Jayar5 Camp	0.5		1.6	0.1	11-08-062-03 W6N
G3	Girouxville 3		-		0.4	14-02-077-23 W5N
G4	Girouxville 4	(■):			0.5	04-08-077-22 W5M
D1	Duvernay 1	0.3			0.1	04-33-062-20 W5N
D2	Duvernay 2	0.3		•	0.1	04-33-062-20 W5N
D3	Duvernay 3	0.6		-	0.1	04-33-062-20 W5N
D3	Duvernay 4	0.7			0.1	04-33-062-20 W5N
M1	Pipeline	0.7		0.9	93	12-14-058-08 W6N
M2	Bridge	<0.1		0.5		08-06-057-08 W6N
M3	Wanyandie	<0.1	-	0.6		11-13-058-08 W6N
M4 M5	Ambient Trailer Powerline	<0.1 0.2		1.1 1.2		09-15-058-08 W6N 06-14-058-08 W6N

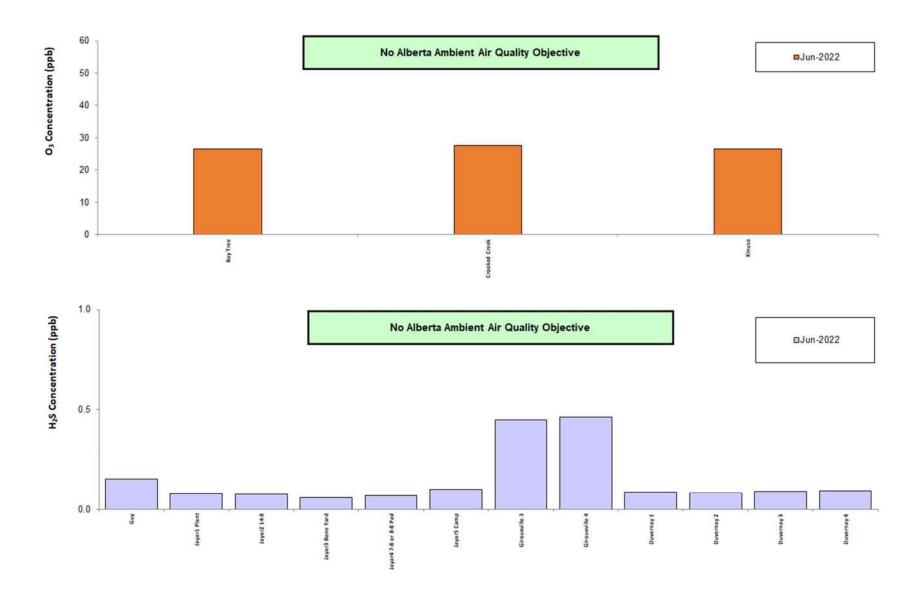
Passive Summary for June 2022

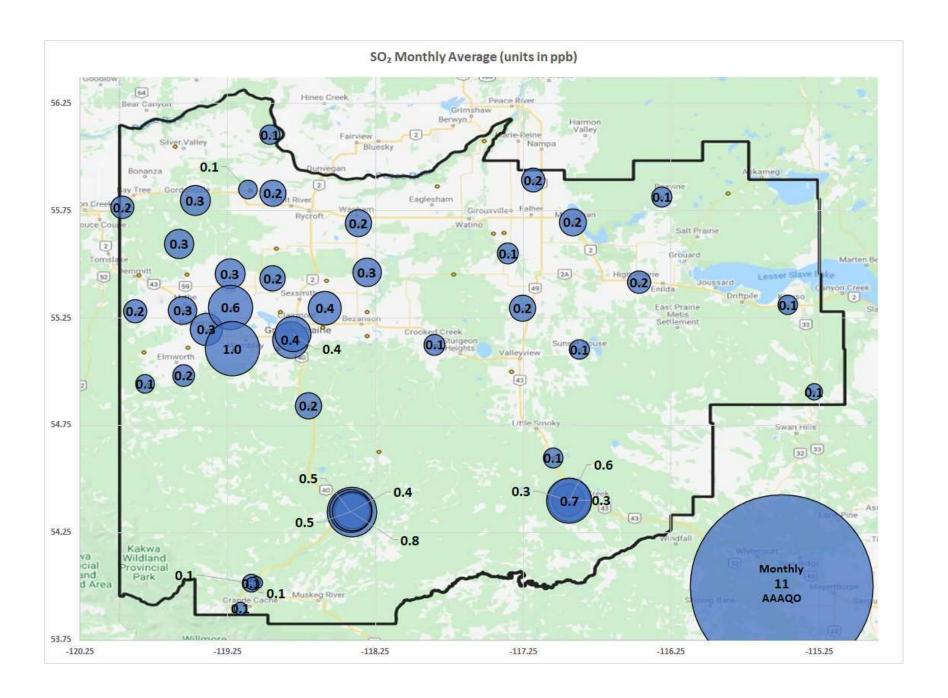
	Sulphur Dioxide	Ozone	Nitrogen Dioxide	Hydrogen Sulphide
Stats	SO ₂	O ₃	NO ₂	H ₂ S
	ppb	ppb	ppb	ppb

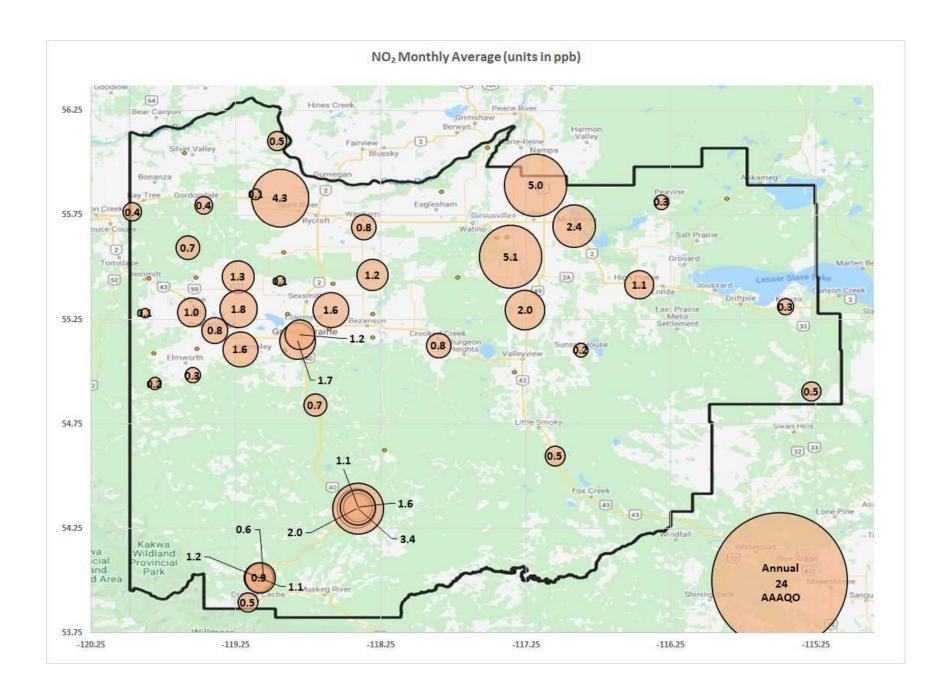
	Passive Summary for June 2022 (PAZA)					
Mean	0.3	26.9	1.2	0.2		
Standard Deviation	0.2	0.6	1.2	0.1		
Minimum	0.1	26.5	0.1	0.1		
	Deer Mountain (#48)	Bay Tree (#2)	Steeprock Creek (#7)	Jayar3 Bone Yard (#59)		
Maximum	1.0	27.5	5.1	0.5		
L	Wembley (#24)	Crooked Creek (#37)	Guy (#36)	Girouxville 4 (#G4)		

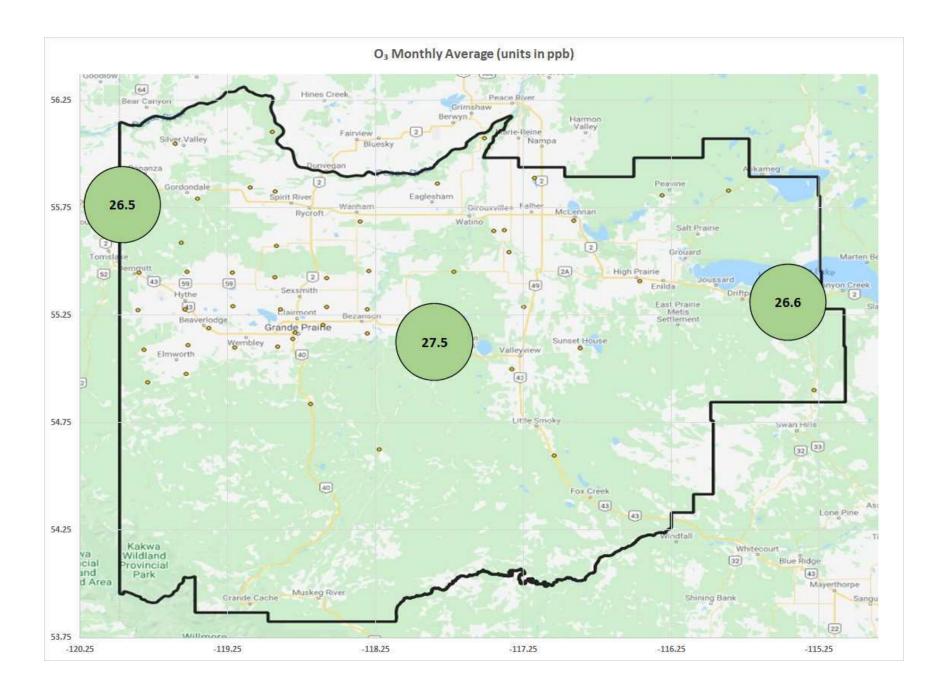
	Continuous and Passive Monitoring Comparision					
PAZA Beaverlodge Station	0.3	33.1	2.6	-		
Beaverlodge Passive (#16)	0.3	-	0.8	-		
PAZA Henry Pirker Station	0.2	31.0	12	0.2		
Henry Pirker passive (#49)	0.4	-	1.2	-		
Milner Station	 ()	-	2.0	: -		
Henry Pirker passive (#49)	<0.1	•	1.1	•		

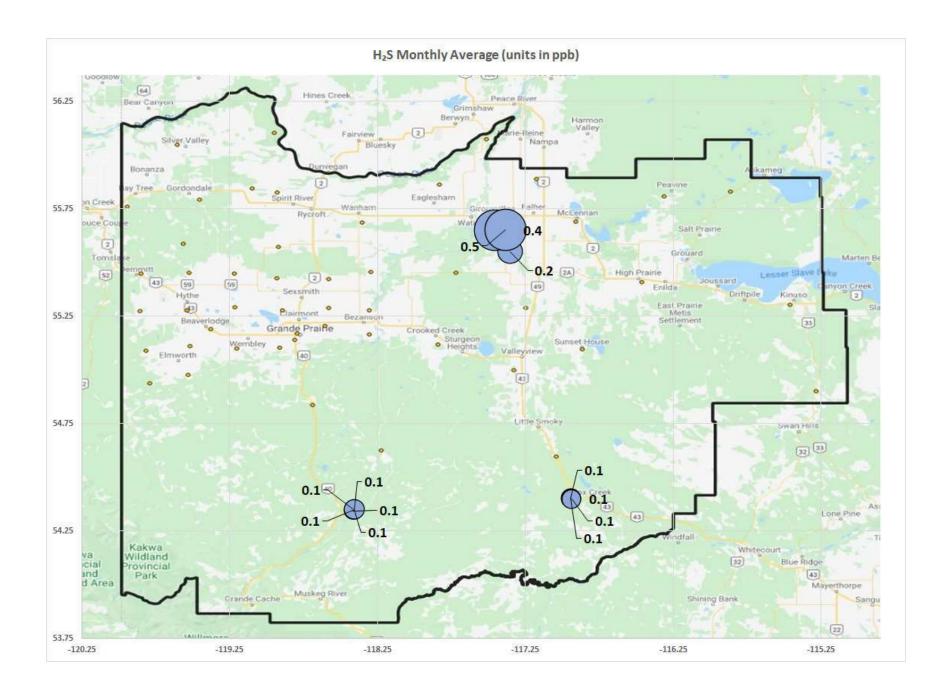








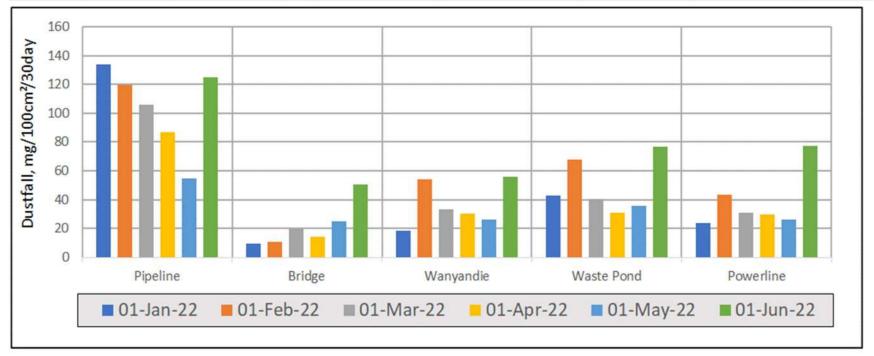




12 **Dustfall Monitoring Data**

Milner Dustfall Samples June 2022

Exposure Month	Year	Sample	Total Dustfall (30 day)	Fixed Dustfall (30 day)	Exposure	Field Notes
			mg/100cm ² /30day	mg/100cm ² /30day	days	
June	2022	Pipeline	124.8	49.6	28	
June	2022	Bridge	50.5	15.9	28	
June	2022	Wanyandie	55.8	17.8	28	
June	2022	Waste Pond	76.5	24.5	28	
June	2022	Powerline	77.4	30.2	28	
June	2022	Powerline Dup	83.7	28.9	28	RPD= 8% / 4%



End of Report



Peace Airshed Zone Association

Ambient Air Monitoring Report

June 2022