



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

2021 Annual Report

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March 31, 2022

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

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

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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 annual summary report includes the operational summaries and hourly continuous monitoring results. This report was prepared by Dr. Kevin McCullum and reviewed by Mandeep Dhaliwal.

Continuous Monitoring:

Detailed Annual Summaries are included in the report for the following stations:

- Henry Pirker (Grande Prairie),
- Evergreen Park (Jan-Oct),
- Smoky Heights,
- Beaverlodge,
- Valleyview,
- Donnelly,
- Wembley (Jan-Sept),
- Dunes (Nov-Dec),
- Poplar (Oct-Dec).

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
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
KANATA Energy Group Ltd.	Valhalla	13-21-076-09-W6	00017620-02-02
Long Run Exploration	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
	Donnelly	06-01-077-21-W5	00000087-02-00
	Puskwaskau	03-26-074-01-W6	00017524-01-00
Longview Oil Corp.	Sunset House	06-22-070-20-W5	138884-01-00
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
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
Strathcona Resources Ltd.	Jayar Sour Gas Processing Plant	06-08-062-03 W6	3612040
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 Regulations (Summary by site in 2021):

Beaverlodge:

- 2, one-hour ozone readings above 76 ppb (O₃ AAAQO)
- 3, one-hour PM_{2.5} readings above 80 µg/m³ (PM_{2.5} AAAQG)
- 2, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

Donnelly:

- None to report

Dunes (Nov-Dec):

- None to report

Evergreen Park (Jan-Oct):

- 17, one-hour PM_{2.5} readings above 80 µg/m³ (PM_{2.5} AAAQG)
- 5, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

Henry Pirker:

- 7, one-hour ozone readings above 76 ppb (O₃ AAAQO)
- 14, one-hour PM_{2.5} readings above 80 µg/m³ (PM_{2.5} AAAQG)
- 8, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

Poplar (Oct-Dec):

- None to report

Smoky Heights:

- 13, one-hour PM_{2.5} readings above 80 µg/m³ (PM_{2.5} AAAQG)
- 7, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

Valleyview:

- None to report

Wembley (Jan-Sept):

- 4, one-hour ozone readings above 76 ppb (O₃ AAAQO)
- 14, one-hour PM_{2.5} readings above 80 µg/m³ (PM_{2.5} AAAQG)
- 4, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

2021 total summary:

- 13, one-hour ozone readings above 76 ppb (O₃ AAAQO)
- 61, one-hour PM_{2.5} reading above 80 µg/m³ (PM_{2.5} AAAQG)
- 26, 24-hour PM_{2.5} reading above 29 µg/m³ (PM_{2.5} AAAQO)

Summary of one-hour O₃ above the AAAQO (76 ppb)

Reference Number	Pollutant	Station	Date	From MST	To MST	Hour avg ppb	WS km/h	WD degrees
380664	O ₃	Beaverlodge	Jun 30, 2021	16:00	17:00	82.4	22.8	65.5
380664	O ₃	Beaverlodge	Jun 30, 2021	18:00	19:00	76.6	16.6	37
380523	O ₃	Henry Pirker	Jun 28, 2021	10:00	11:00	76.5	1.8	219.7
380523	O ₃	Henry Pirker	Jun 28, 2021	11:00	12:00	78.1	3.1	168.9
380523	O ₃	Henry Pirker	Jun 28, 2021	13:00	14:00	87.2	3.6	82.9
380646	O ₃	Henry Pirker	Jun 30, 2021	13:00	14:00	79.1	2.7	26.5
380647	O ₃	Wembley	Jun 30, 2021	13:00	14:00	82.1	1.3	120.6
380647	O ₃	Wembley	Jun 30, 2021	14:00	15:00	105.8	1.3	358.2
380647	O ₃	Wembley	Jun 30, 2021	15:00	16:00	95.9	3.4	135.6
380647	O ₃	Wembley	Jun 30, 2021	16:00	17:00	83.4	3.8	119.2
381144	O ₃	Henry Pirker	Jul 13, 2021	13:00	14:00	81.1	1.7	192.8
381144	O ₃	Henry Pirker	Jul 13, 2021	14:00	15:00	84.5	1.2	266.6
381144	O ₃	Henry Pirker	Jul 13, 2021	15:00	16:00	79.5	1.3	15.3

Summary of one-hour PM_{2.5} above the AAAQG (80 µg/m³)

Reference Number	Pollutant	Station	Date	From MST	To MST	Hour avg ppb	WS km/h	WD degrees
375473	PM _{2.5}	Smoky Heights	Jan 26, 2021	23:00	24:00	82.5	5.9	5.0
380177	PM _{2.5}	Evergreen	Jun 21, 2021	03:00	04:00	110.6	0.5	222.5
380432	PM _{2.5}	Evergreen	Jun 25, 2021	20:00	21:00	85.6	3.8	317.6
380444	PM _{2.5}	Evergreen	Jun 26, 2021	12:00	13:00	163.3	4.2	306.1
380434	PM _{2.5}	Henry Pirker	Jun 26, 2021	03:00	04:00	119.1	3.9	251.6
379915	PM _{2.5}	Smoky Heights	Jun 12, 2021	22:00	23:00	81.1	10.9	258.3
380631	PM _{2.5}	Smoky Heights	Jun 30, 2021	06:00	07:00	85.3	4.1	221.6
381192	PM _{2.5}	Beaverlodge	Jul 14, 2021	12:00	13:00	111.4	25.2	262.8
381192	PM _{2.5}	Beaverlodge	Jul 14, 2021	13:00	14:00	143.3	29.3	265.4
381192	PM _{2.5}	Beaverlodge	Jul 14, 2021	14:00	15:00	98.2	29.7	260.1
381210	PM _{2.5}	Evergreen Park	Jul 14, 2021	15:00	16:00	90.4	7.1	263.1
381210	PM _{2.5}	Evergreen Park	Jul 14, 2021	16:00	17:00	82.3	7.0	276.1
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	01:00	02:00	85.7	1.4	251.6
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	04:00	05:00	80.9	3.3	259.0
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	05:00	06:00	84.7	1.5	240.8
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	06:00	07:00	88.0	1.7	225.0
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	07:00	08:00	94.0	2.2	271.5
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	08:00	09:00	83.1	2.5	290.3
381209	PM _{2.5}	Wembley	Jul 14, 2021	15:00	16:00	99.5	14.1	297.5
381255	PM _{2.5}	Wembley	Jul 15, 2021	00:00	01:00	89.3	5.3	273.0
381255	PM _{2.5}	Wembley	Jul 15, 2021	01:00	02:00	95.7	6.1	257.6
381255	PM _{2.5}	Wembley	Jul 15, 2021	02:00	03:00	97.2	6.8	270.2
381255	PM _{2.5}	Wembley	Jul 15, 2021	03:00	04:00	99.9	6.5	276.8
381255	PM _{2.5}	Wembley	Jul 15, 2021	04:00	05:00	100.6	5.1	284.1
381255	PM _{2.5}	Wembley	Jul 15, 2021	05:00	06:00	100.3	5.4	259.9
381255	PM _{2.5}	Wembley	Jul 15, 2021	06:00	07:00	96.8	6.7	253.3
381255	PM _{2.5}	Wembley	Jul 15, 2021	07:00	08:00	92.9	4.1	280.3
381194	PM _{2.5}	Henry Pirker	Jul 14, 2021	13:00	14:00	108.6	10.9	265.5
381194	PM _{2.5}	Henry Pirker	Jul 14, 2021	15:00	16:00	131.8	9.6	251.6
381254	PM _{2.5}	Henry Pirker	Jul 15, 2021	05:00	06:00	81.3	4.7	224.9
381254	PM _{2.5}	Henry Pirker	Jul 15, 2021	06:00	07:00	106.0	5.8	225.8
381254	PM _{2.5}	Henry Pirker	Jul 15, 2021	07:00	08:00	93.8	6.6	252.5
381199	PM _{2.5}	Smoky Heights	Jul 14, 2021	14:00	15:00	115.6	23.5	261.7
381199	PM _{2.5}	Smoky Heights	Jul 14, 2021	15:00	16:00	119.6	20.6	257.0
381199	PM _{2.5}	Smoky Heights	Jul 14, 2021	16:00	17:00	80.5	29.3	265.7
382203	PM _{2.5}	Wembley	Aug 06, 2021	14:00	15:00	94.7	17.3	270.1
382465	PM _{2.5}	Smoky Heights	Aug 13, 2021	23:00	00:00	80.7	8.1	228.7
382465	PM _{2.5}	Smoky Heights	Aug 13, 2021	22:00	23:00	117.9	11.2	267.5
382465	PM _{2.5}	Smoky Heights	Aug 13, 2021	21:00	22:00	118.9	13.2	261.8
382465	PM _{2.5}	Smoky Heights	Aug 13, 2021	20:00	21:00	83.7	14.9	259.8
382466	PM _{2.5}	Henry Pirker	Aug 14, 2021	23:00	00:00	110.2	3.6	228.9
382466	PM _{2.5}	Henry Pirker	Aug 14, 2021	09:00	10:00	105.1	10.1	231.5
382466	PM _{2.5}	Henry Pirker	Aug 14, 2021	08:00	09:00	155.2	9.8	233.9
382466	PM _{2.5}	Henry Pirker	Aug 14, 2021	07:00	08:00	85.9	5.7	228.0
382466	PM _{2.5}	Henry Pirker	Aug 15, 2021	02:00	03:00	105.8	2.8	199.1
382466	PM _{2.5}	Henry Pirker	Aug 15, 2021	01:00	02:00	128.9	2.4	200.5
382466	PM _{2.5}	Henry Pirker	Aug 15, 2021	00:00	01:00	139.5	3.5	236.6
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	23:00	00:00	98	3.4	227.4
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	22:00	23:00	93.6	5.5	225.8
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	21:00	22:00	82.2	6.8	224.1
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	09:00	10:00	98.8	7.9	242.2
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	08:00	09:00	108.4	6.9	244.6
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	07:00	08:00	82.1	6.6	237.0
382468	PM _{2.5}	Wembley	Aug 14, 2021	23:00	00:00	113.4	8.5	231.5
382468	PM _{2.5}	Wembley	Aug 14, 2021	07:00	08:00	123.5	7.4	232.7
382468	PM _{2.5}	Wembley	Aug 14, 2021	06:00	07:00	108.7	6.8	217.3
382468	PM _{2.5}	Wembley	Aug 15, 2021	00:00	01:00	104.7	5.4	230.6
382499	PM _{2.5}	Smoky Heights	Aug 15, 2021	02:00	03:00	89.0	9.9	209.3
381039	PM _{2.5}	Smoky Heights	Sep 25, 2021	21:00	22:00	107.9	8.6	267.4
384866	PM _{2.5}	Smoky Heights	Oct 21, 2021	16:00	17:00	81.4	11.7	28.4
385212	PM _{2.5}	Henry Pirker	Nov 02, 2021	21:00	22:00	124.3	1.0	41.2

Summary of 24-hour PM_{2.5} above the AAAQO (29 µg/m³)

Reference Number	Pollutant	Station	Date	Day avg µg/m ³	WS km/h	WD degrees
380668	PM _{2.5}	Henry Pirker	Jun 30, 2021	29.6	4.5	138.1
380631	PM _{2.5}	Smoky Heights	Jun 30, 2021	35.3	19.3	141.8
381020	PM _{2.5}	Beaverlodge	Jul 09, 2021	30.3	10.4	204
381192	PM _{2.5}	Beaverlodge	Jul 14, 2021	29.0	15.9	225
381210	PM _{2.5}	Evergreen Park	Jul 14, 2021	29.9	4.1	227
381251	PM _{2.5}	Evergreen Park	Jul 15, 2021	45.4	3.8	201
381251	PM _{2.5}	Evergreen Park	Jul 20, 2021	32.4	1.8	192
381209	PM _{2.5}	Wembley	Jul 14, 2021	31.7	9.1	254
381255	PM _{2.5}	Wembley	Jul 15, 2021	39.5	9.8	213
380688	PM _{2.5}	Henry Pirker	Jul 01, 2021	29.8	10.7	292
381021	PM _{2.5}	Henry Pirker	Jul 09, 2021	30.7	5.1	257
381194	PM _{2.5}	Henry Pirker	Jul 14, 2021	31.5	6.2	193
381254	PM _{2.5}	Henry Pirker	Jul 15, 2021	35.7	9.5	219
381450	PM _{2.5}	Henry Pirker	Jul 19, 2021	31.6	3.7	110
381450	PM _{2.5}	Henry Pirker	Jul 20, 2021	42.6	4.3	194
380631	PM _{2.5}	Smoky Heights	Jun 30, 2021	35.1	7.7	149
381022	PM _{2.5}	Smoky Heights	Jul 09, 2021	31.7	12.0	238
381039	PM _{2.5}	Smoky Heights	Jul 10, 2021	36.0	14.7	243
381199	PM _{2.5}	Smoky Heights	Jul 14, 2021	31.1	15.4	234
381448	PM _{2.5}	Smoky Heights	Jul 19, 2021	41.7	4.8	88
382029	PM _{2.5}	Evergreen Park	Aug 02, 2021	34.4	1.3	246
382031	PM _{2.5}	Wembley	Aug 02, 2021	35.3	3.2	247
382465	PM _{2.5}	Smoky Heights	Aug 13, 2021	29.9	20.8	252
382467	PM _{2.5}	Evergreen Park	Aug 14, 2021	42.8	6.7	251
382466	PM _{2.5}	Henry Pirker	Aug 14, 2021	39.1	13.5	244
382468	PM _{2.5}	Wembley	Aug 14, 2021	33.0	12.0	257

Operational times less than 90 percent:

Beaverlodge:

- None

Donnelly:

- None

Dunes (Nov-Dec):

- None

Evergreen Park (Jan-Oct):

- None

Henry Pirker:

- June CO was 85.8% (reference 383035)

Poplar (Oct-Dec):

- None

Smoky Heights:

- None

Valleyview:

- None

Wembley (Jan-Sept):

- None

Air Incidents

From July to August Regional Wildfires impacted many stations within PAZA, bulk reporting of PM_{2.5} was authorized due to heavy smoke from wildfires. Wildfires resulted in elevated PM_{2.5}, ozone and carbon monoxide readings

Deviations from Authorized Monitoring Methods

None to report

Data deletions or resubmissions since monthly reports submitted.

None to report

Missed calibrations.

None to report

AEP Audits in 2021.

None to report

Passive Monitoring

Passive samples were analyzed by Bureau Veritas Laboratories

- 498 passive sulphur dioxide samples collected over 12 months at 43 sites in PAZA
 - Minimum annual average was 0.1ppb collected at Sylvester
 - Maximum annual average was 0.9ppb collected at Duvernay4
 - Maximum overall monthly average was 0.5ppb in February 2021
- 36 passive ozone samples collected over 12 months at 3 sites in PAZA
 - Minimum annual average was 32.2ppb collected at Kinuso
 - Maximum annual average was 32.4ppb collected at Bay Tree
 - Maximum overall monthly average was 42.4ppb in April 2021
- 462 passive nitrogen dioxide samples collected over 12 months at 39 sites in PAZA
 - Minimum annual average was 0.4ppb collected at Peavine
 - Maximum annual average was 5.8ppb collected at Grande Prairie
 - Maximum overall monthly average was 3.2ppb in December 2021
- 125 passive hydrogen sulphide samples collected over 12 months at 12 sites in PAZA
 - Minimum annual average was 0.1ppb collected at Duvernay4
 - Maximum annual average was 0.6ppb collected at Girouxville 3
 - Maximum overall monthly average was 0.3ppb in January 2021

There were no exceedances of the AAAQOs for all monitored parameters at any of the passive monitoring stations during 2021

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

1 Summary of Key Parameters monitored in 2021

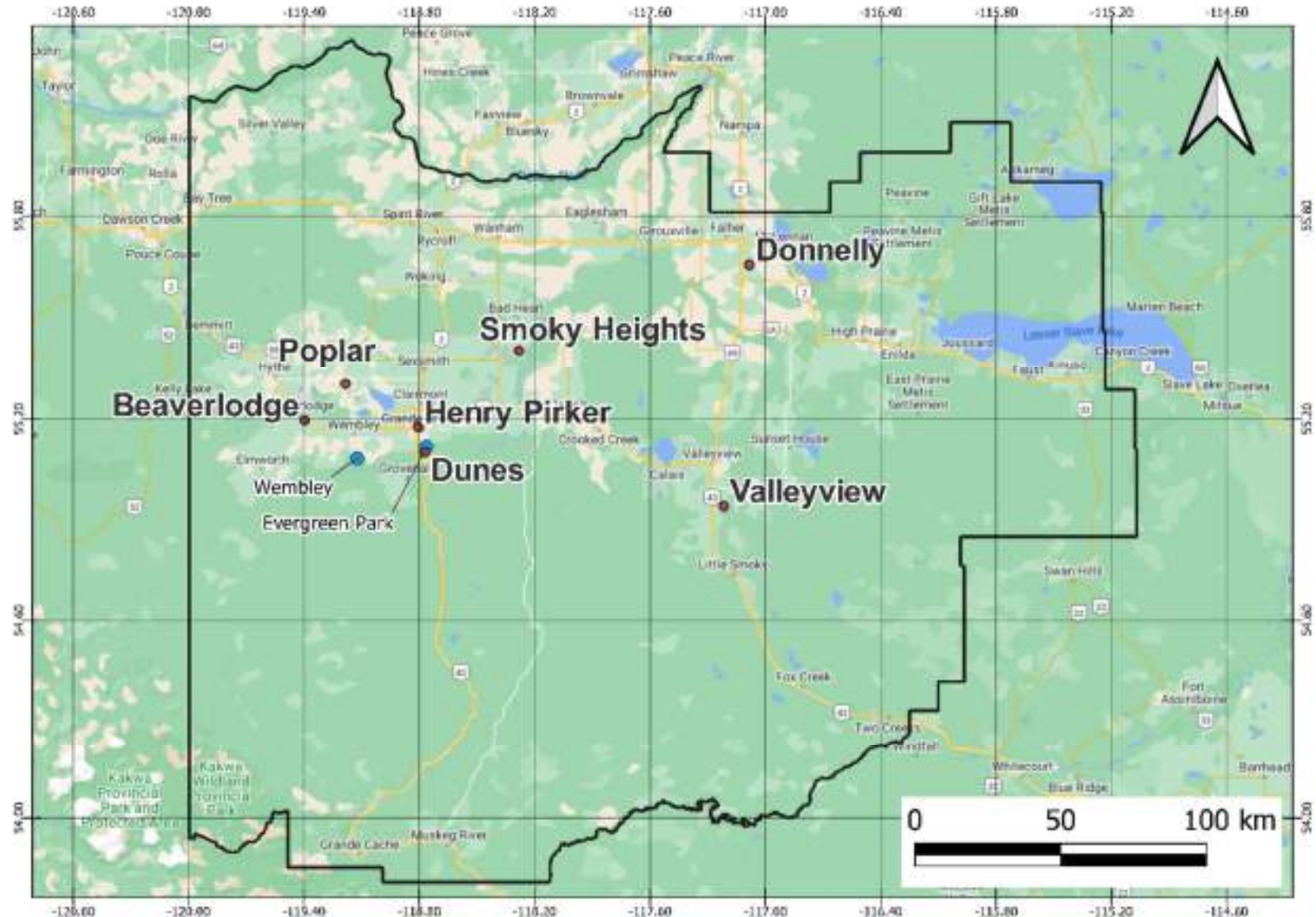
The PAZA air monitoring network in 2021 includes a continuous monitoring network and a passive network. The continuous monitoring network contains seven air monitoring stations (overall nine locations monitored due to station moves). Wembley station operated from January to September 2021 then moved to Poplar, which operated from October to December 2021. Evergreen Park operated from January to October 2021 then moved to Dunes, which operated from November to December 2021. The following figure illustrates the location of the monitoring stations.

The PAZA Passive monitoring network in 2021 included collection of NO₂, SO₂, and H₂S at 45 stations located throughout the region, the following figure also illustrates the locations of the passive monitoring stations.

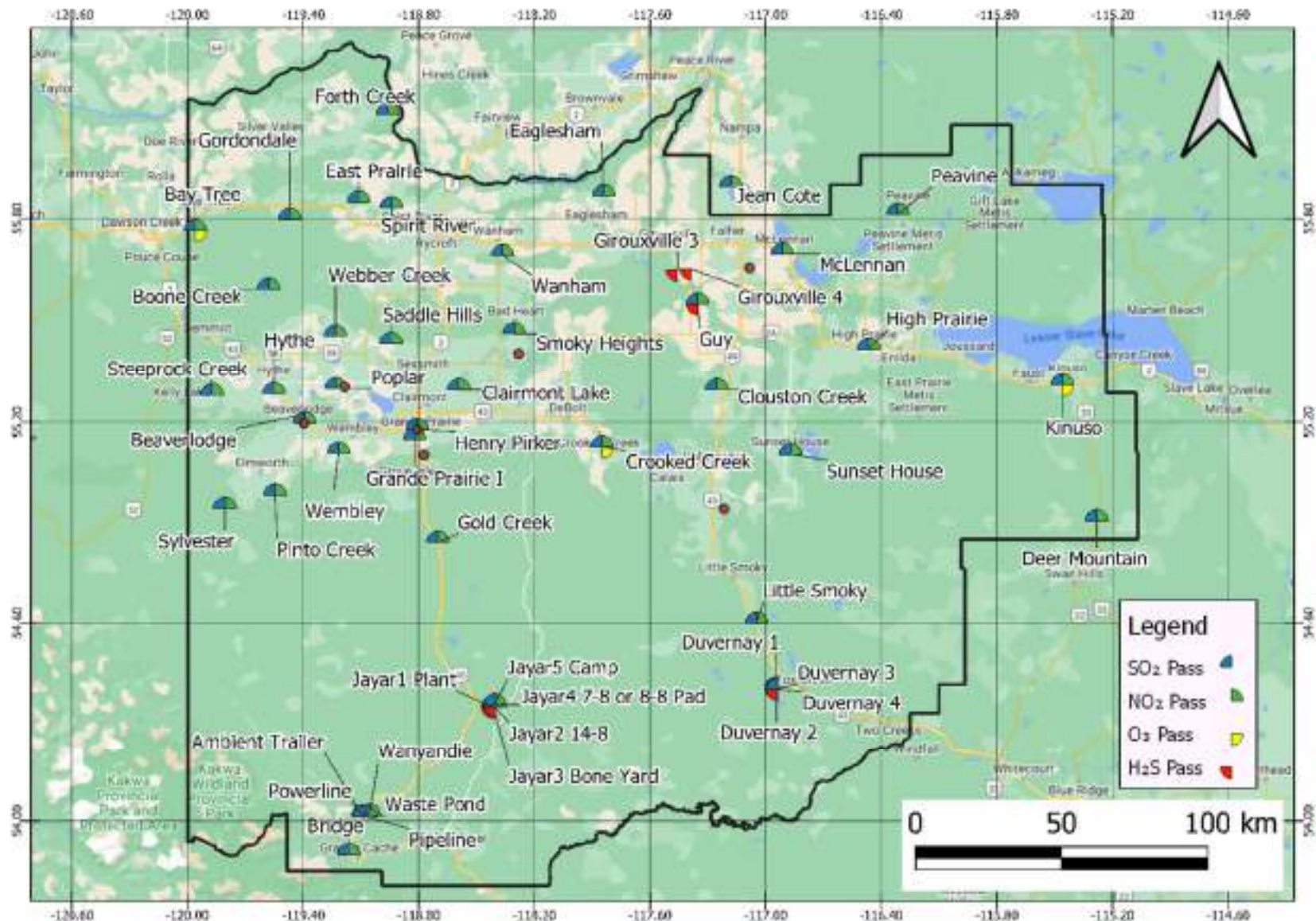
The continuous air monitoring stations in this report measured the following parameters in 2021:

STATION NAME	SO ₂	H ₂ S / TRS	NO / NO ₂ / NO _x	O ₃	CO	THC / CH ₄ / NMHC	PM _{2.5}	ET / SR	RH	WS / WD
	Sulphur Dioxide	Hydrogen Sulphide / Total Reduced Sulphur	Nitric Oxide / Nitrogen Dioxide / Nitrogen Oxides	Ozone	Carbon Monoxide	Total Hydrocarbons / Methane / Nonmethane Hydrocarbons	Fine Particulate Matter	Temperature / Solar Radiation	Relative Humidity	Wind Speed / Wind Direction
Beaverlodge	SO ₂		NO / NO ₂ / NO _x	O ₃			PM _{2.5}	ET	RH	WS / WD
Donnelly	SO ₂	H ₂ S						ET		WS / WD
Dunes (Nov-Dec)	SO ₂	TRS					PM _{2.5}	ET	RH	WS / WD
Evergreen Park (Jan-Oct)	SO ₂	TRS					PM _{2.5}	ET	RH	WS / WD
Henry Pirker	SO ₂	H ₂ S	NO / NO ₂ / NO _x	O ₃	CO	THC / CH ₄ / NMHC	PM _{2.5}	ET + SR	RH	WS / WD
Poplar (Oct-Dec)	SO ₂	TRS	NO / NO ₂ / NO _x	O ₃		THC / CH ₄ / NMHC	PM _{2.5}	ET		WS / WD
Smoky Heights	SO ₂	TRS					PM _{2.5}	ET		WS / WD
Valleyview	SO ₂	H ₂ S						ET	RH	WS / WD
Wembley (Jan-Sept)	SO ₂	TRS	NO / NO ₂ / NO _x	O ₃		THC / CH ₄ / NMHC	PM _{2.5}	ET		WS / WD

2 Map of PAZA Continuous Stations in 2021



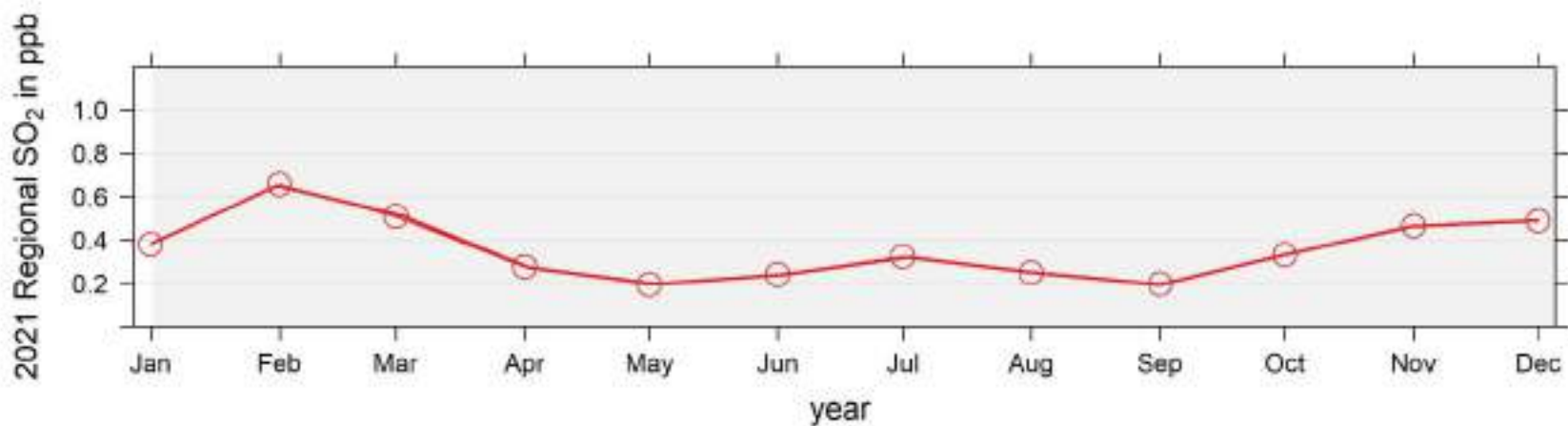
3 Map of PAZA Passive Stations in 2021



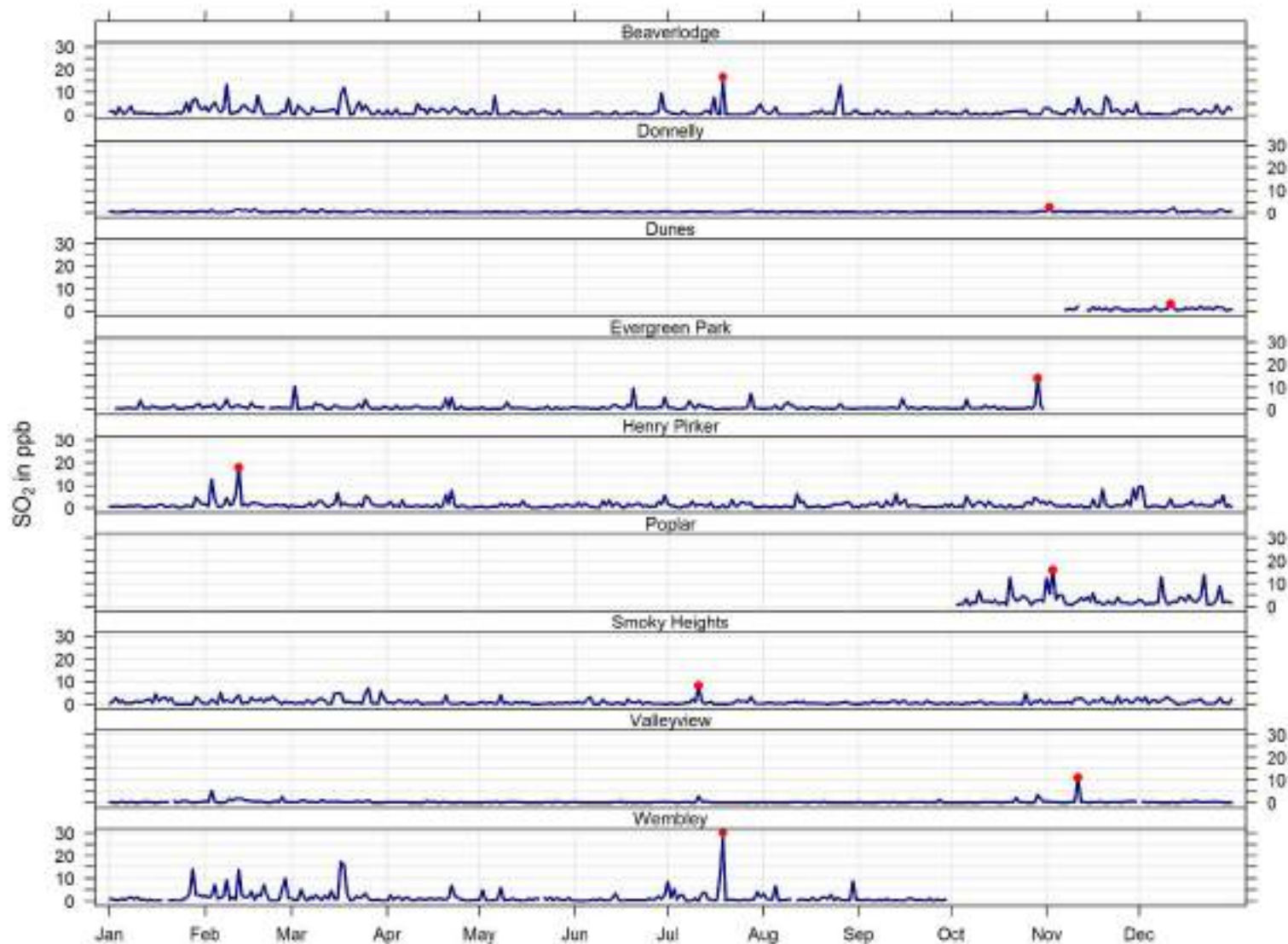
4 PAZA Key Parameters - 2021 Summary

4.1 Sulphur Dioxide (SO₂) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Sulphur Dioxide SO ₂ measured in ppb	-	6.1	Jul 19	41.6	Jul 19 11:00	74.7%	71.1%	0	0	0	0
Poplar (Oct-Dec)		-	3.4	Dec 08	26.0	Nov 12 16:00	24.9%	23.7%	0	0	0	0
Beaverlodge		0.5	4.6	Jul 19	29.3	Jul 19 11:00	99.9%	95.2%	0	0	0	0
Dunes (Nov-Dec)		-	0.9	Nov 16	9.3	Dec 11 17:00	15.1%	14.4%	0	0	0	0
Henry Pirker		0.4	4.4	Feb 12	56.5	Dec 02 12:00	100.0%	95.3%	0	0	0	0
Evergreen Park (Jan-Oct)		0.3	3.6	Oct 29	50.5	Oct 29 12:00	83.1%	79.1%	0	0	0	0
Valleyview		0.1	1.9	Nov 11	22.1	Nov 11 14:00	100.0%	95.2%	0	0	0	0
Smoky Heights		0.4	2.6	Jul 11	24.5	Jul 11 07:00	99.9%	95.2%	0	0	0	0
Donnelly		0.2	1.0	Feb 17	3.4	Nov 02 16:00	99.8%	95.1%	0	0	0	0

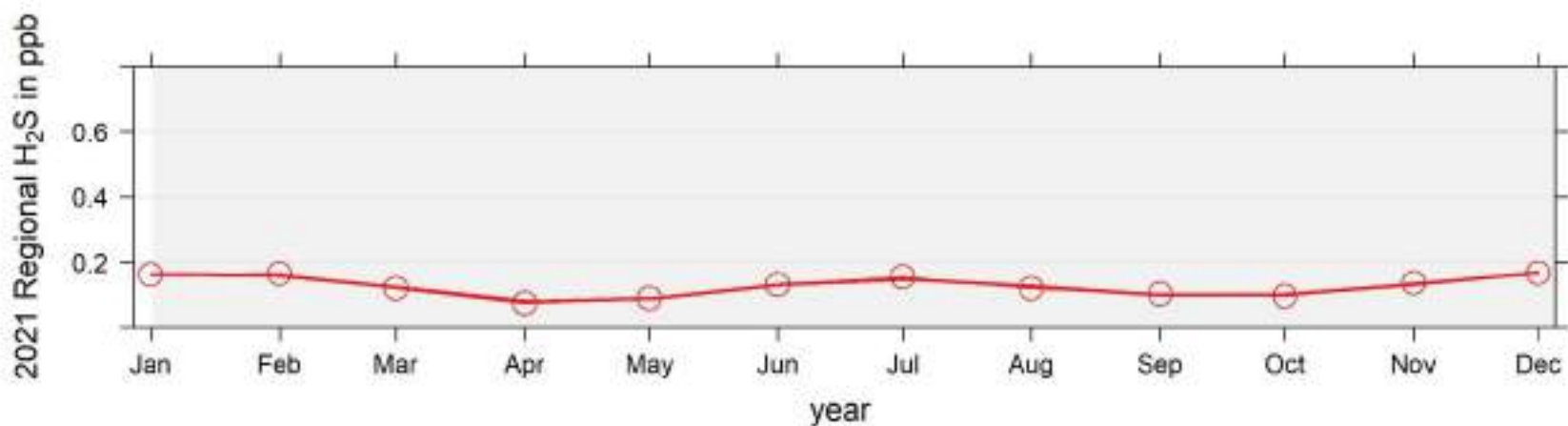


2021 Daily 95th percentile Concentration Readings at PAZA

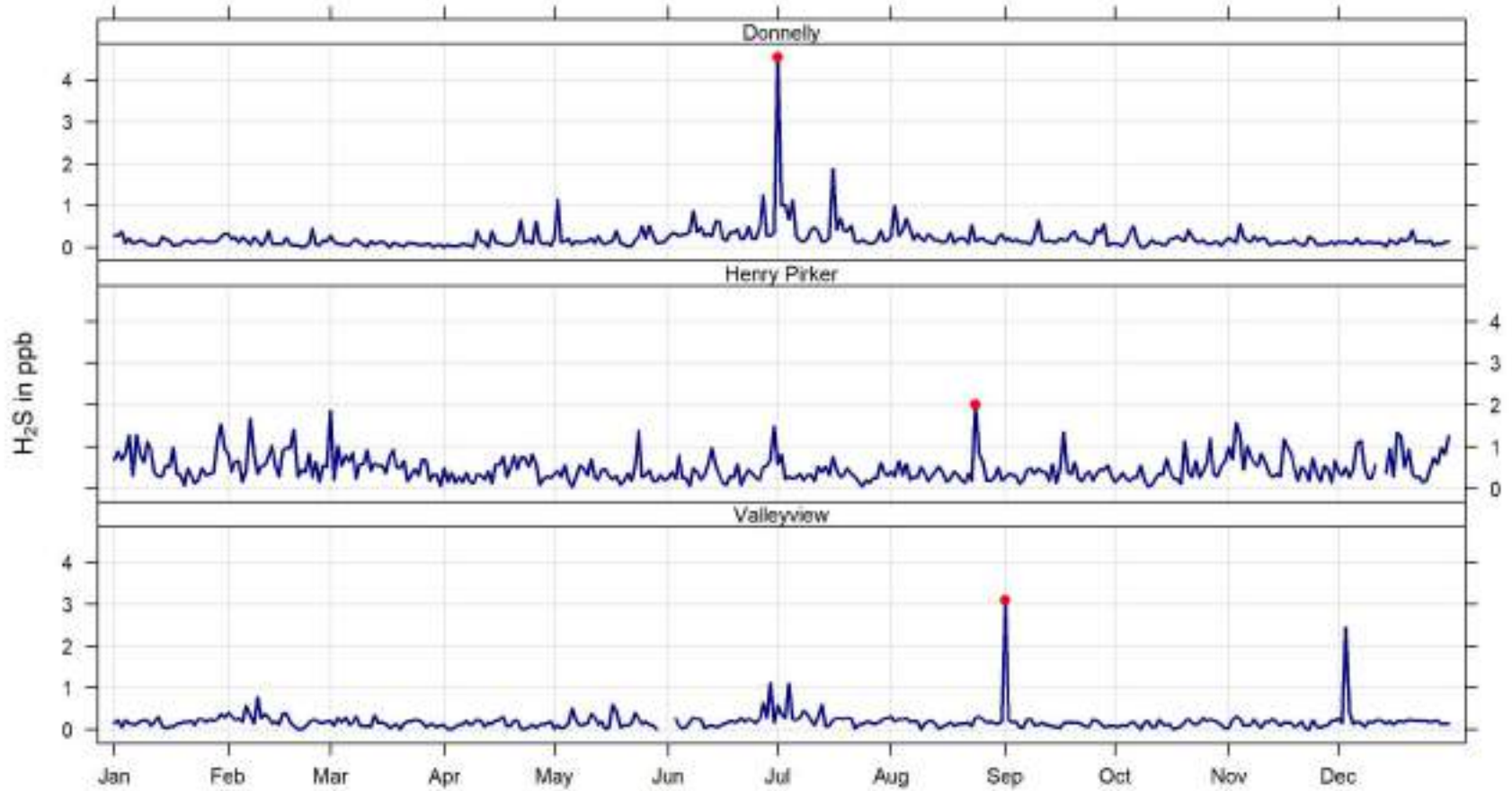


4.2 Hydrogen Sulphide (H₂S) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Henry Pirker	Hydrogen Sulphide H ₂ S measured in ppb	0.2	0.9	Dec 31	3.1	Dec 31 23:00	99.7%	94.9%	0	0	-	-
Valleyview		0.1	0.5	Sep 01	4.5	Sep 01 10:00	99.0%	94.3%	0	0	-	-
Donnelly		0.1	1.0	Jul 01	6.3	Jul 01 08:00	99.8%	95.1%	0	0	-	-

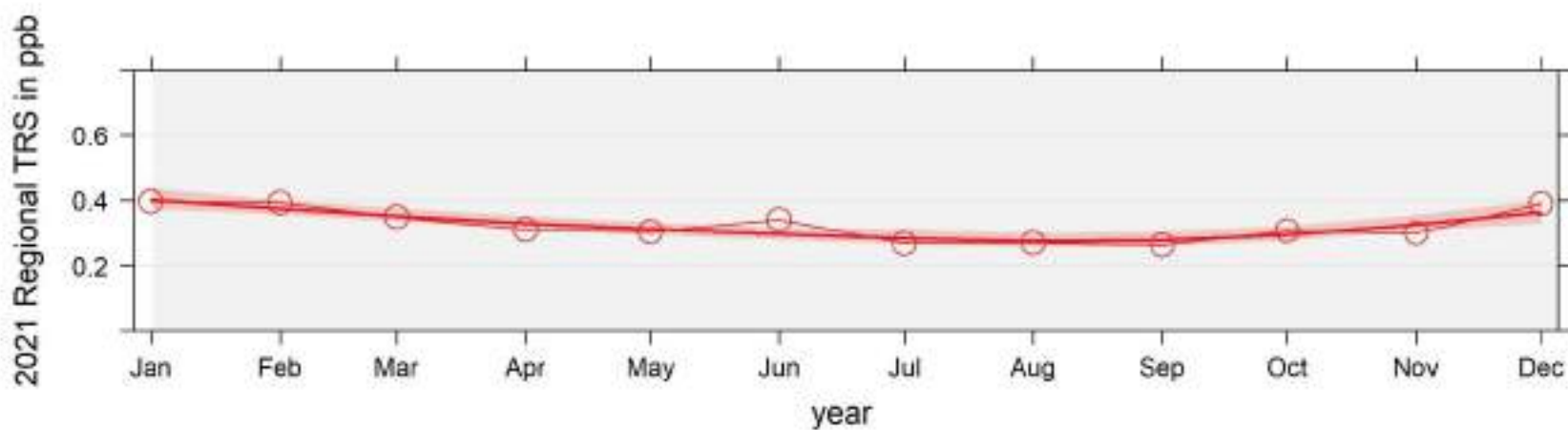


2021 Daily 95th percentile Concentration Readings at PAZA

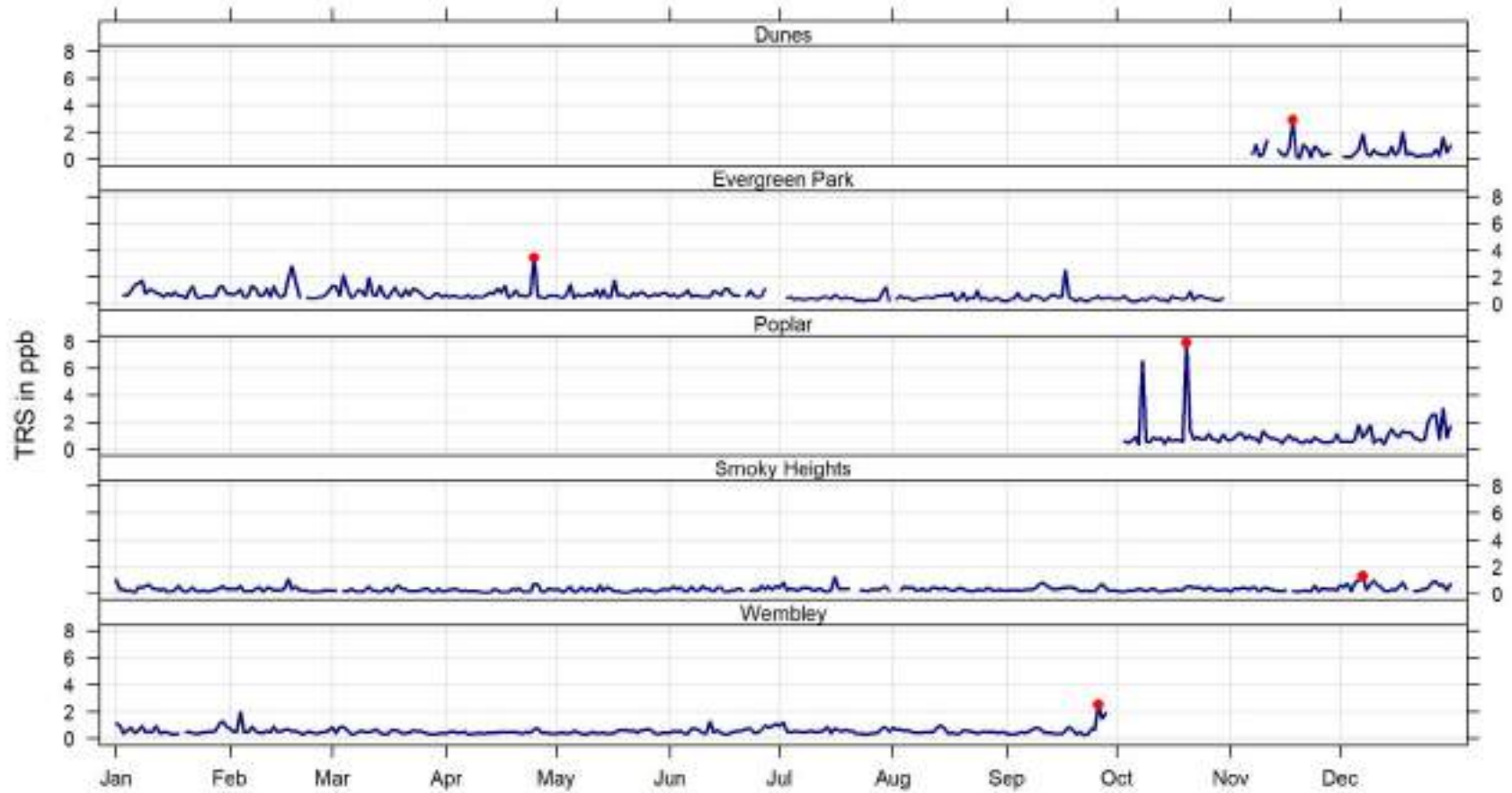


4.3 Total Reduced Sulphur (TRS) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Total Reduced Sulphur TRS measured in ppb	-	1.0	Sep 26	3.3	Feb 04 18:00	74.5%	70.9%	0	0	-	-
Poplar (Oct-Dec)		-	2.6	Oct 20	20.1	Oct 20 18:00	24.9%	23.8%	0	0	-	-
Evergreen Park (Jan-Oct)		0.4	1.4	Feb 18	4.4	Apr 25 04:00	82.0%	78.0%	0	0	-	-
Dunes (Nov-Dec)		-	1.1	Dec 18	5.4	Nov 18 04:00	14.6%	13.8%	-	-	-	-
Smoky Heights		0.2	0.7	Jul 16	1.9	Dec 26 19:00	99.2%	94.3%	0	0	-	-

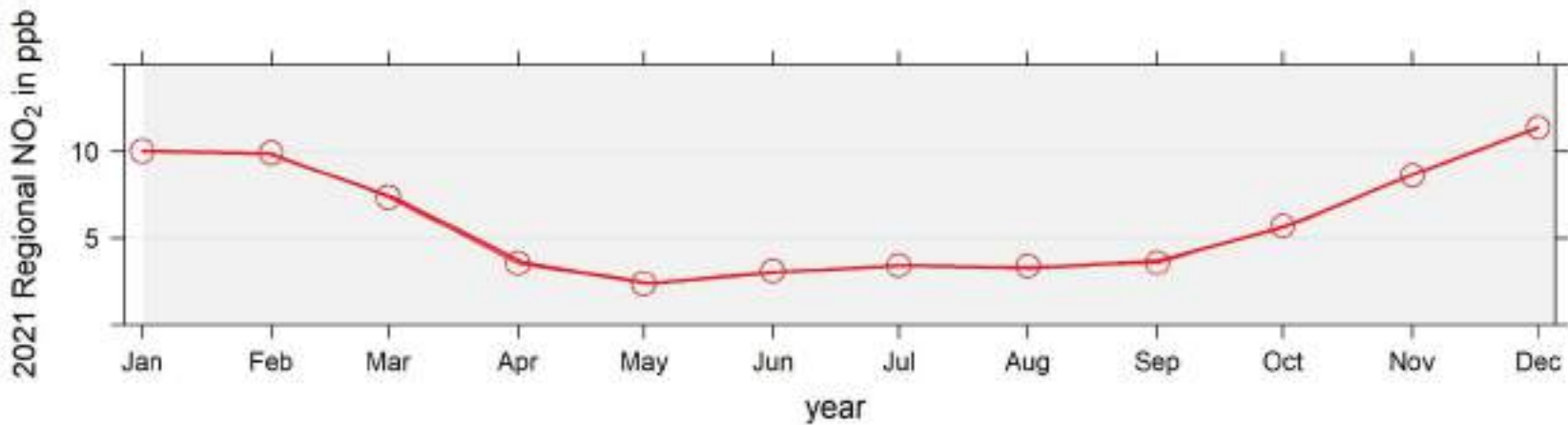


2021 Daily 95th percentile Concentration Readings at PAZA

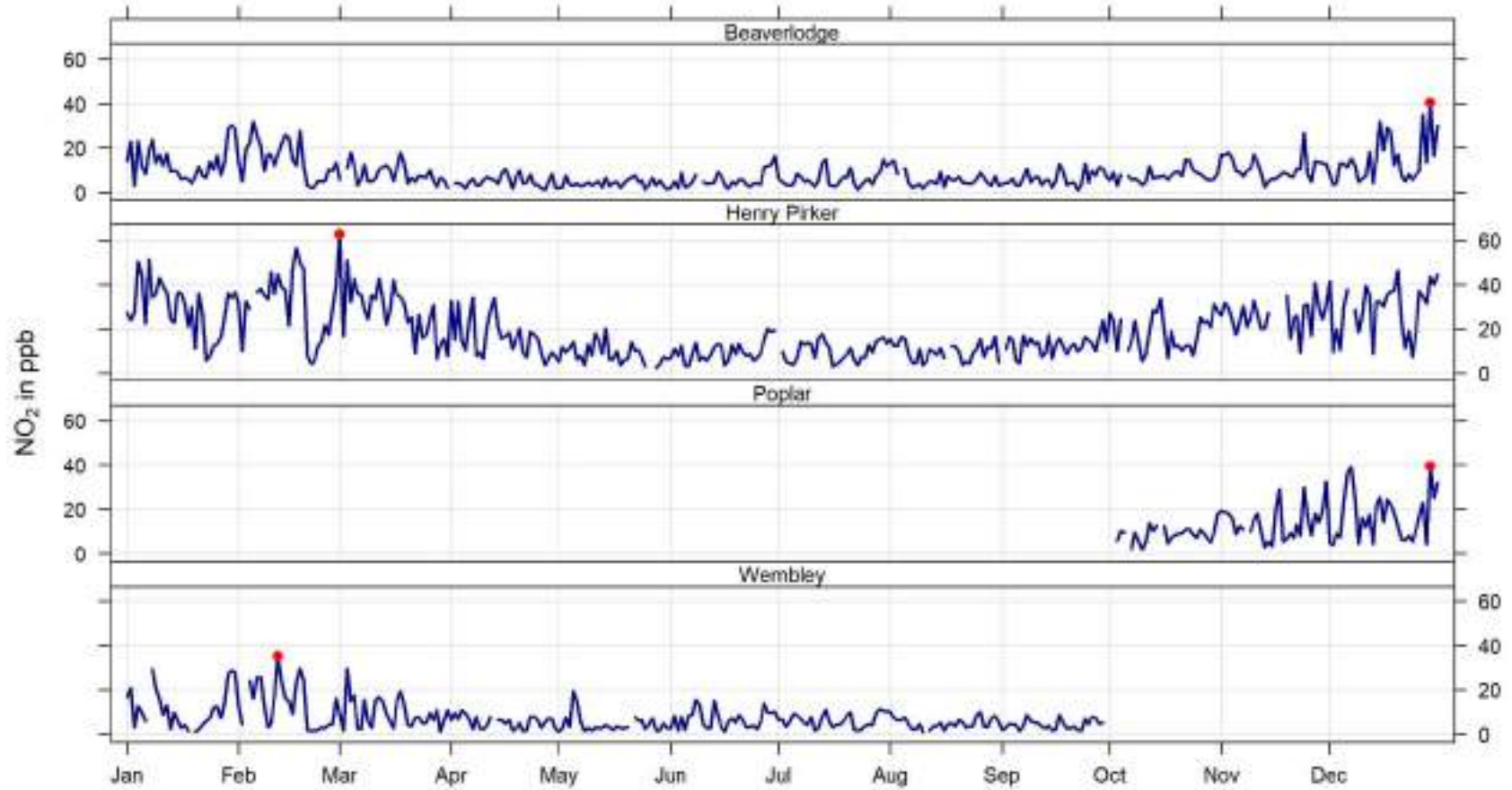


4.4 Nitrogen Dioxide (NO₂) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Nitric Oxide NO measured in ppb	-	8.3	Jan 30	35.5	Jun 24 20:00	74.6%	70.9%	-	-	-	-
Poplar (Oct-Dec)		-	11.4	Dec 06	44.4	Dec 06 17:00	24.8%	23.6%	-	-	-	-
Beaverlodge		0.9	13.3	Jan 30	57.0	Jan 30 12:00	99.8%	94.9%	-	-	-	-
Henry Pirker		4.4	44.3	Dec 31	191.1	Mar 01 10:00	99.7%	93.9%	-	-	-	-
Wembley (Jan-Sept)	Nitrogen Dioxide NO ₂ measured in ppb	-	20.4	Jan 30	36.7	Feb 12 22:00	74.6%	70.9%	0	-	-	0
Poplar (Oct-Dec)		-	29.9	Dec 07	40.1	Dec 29 18:00	24.8%	23.6%	0	-	-	0
Beaverlodge		4.2	24.5	Jan 30	41.3	Dec 29 22:00	99.8%	94.9%	0	-	-	0
Henry Pirker		9.5	39.0	Feb 18	67.3	Mar 01 11:00	99.7%	93.9%	0	-	-	0
Wembley (Jan-Sept)	Oxides of Nitrogen NO _x measured in ppb	-	29.0	Jan 30	66.5	Feb 17 18:00	74.6%	70.9%	-	-	-	-
Poplar (Oct-Dec)		-	38.4	Dec 07	83.0	Dec 06 17:00	24.8%	23.6%	-	-	-	-
Beaverlodge		5.0	38.0	Jan 30	79.9	Jan 30 12:00	99.8%	94.9%	-	-	-	-
Henry Pirker		14.1	81.0	Dec 31	255.0	Mar 01 10:00	99.7%	93.9%	-	-	-	-

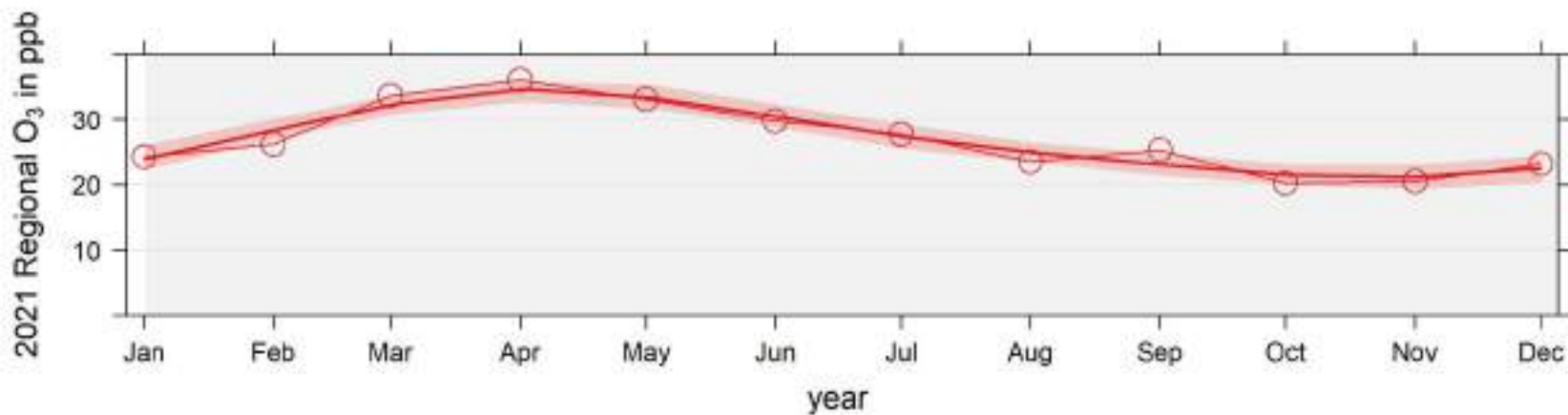


2021 Daily 95th percentile Concentration Readings at PAZA

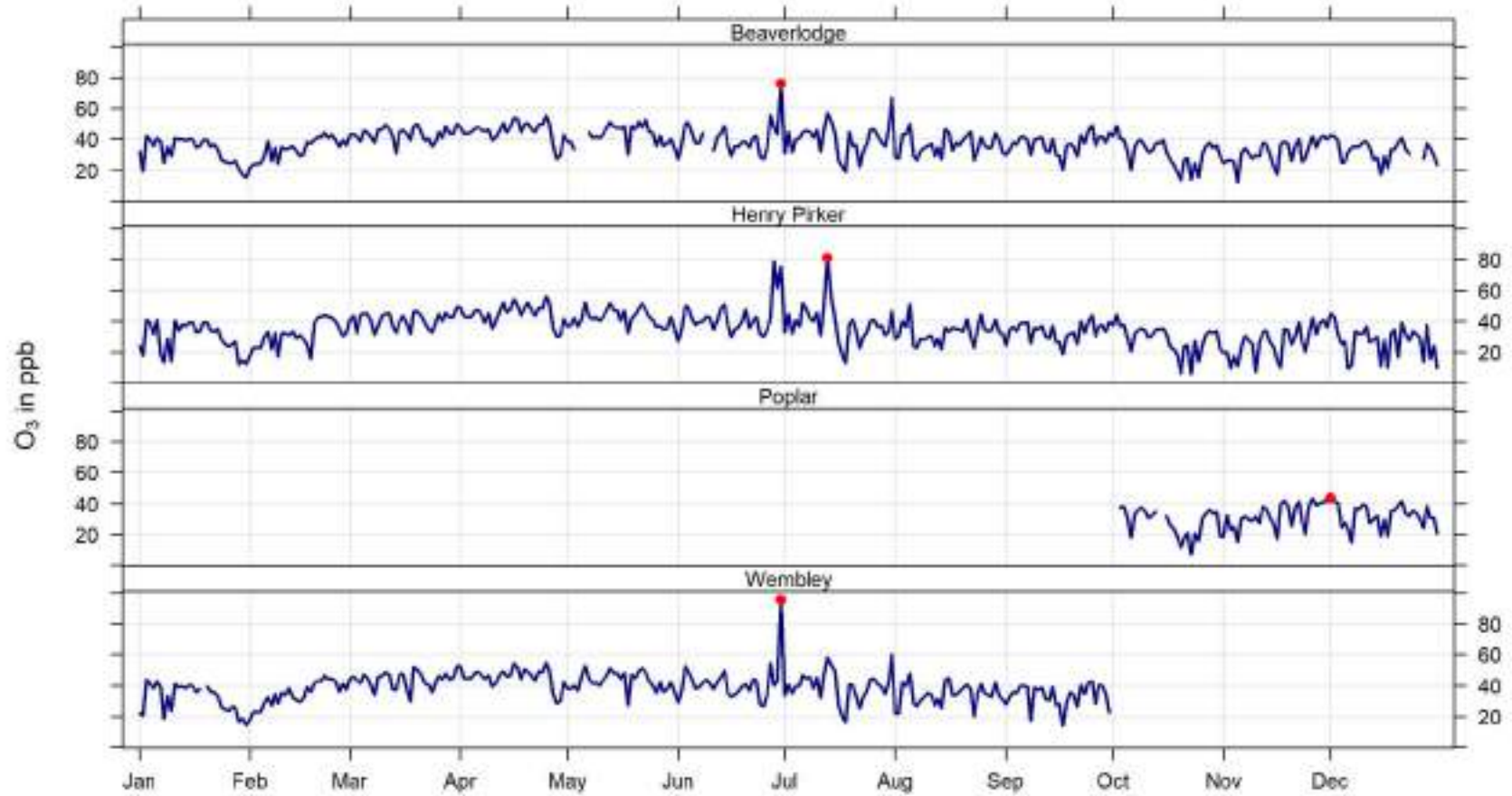


4.5 Ozone (O₃) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Ozone O ₃ measured in ppb	-	45.5	Mar 31	106.3	Jun 30 15:00	74.7%	71.1%	4	-	-	-
Poplar (Oct-Dec)		-	39.4	Nov 26	47.4	Oct 02 16:00	24.5%	23.3%	0	-	-	-
Beaverlodge		29.4	47.3	Apr 25	82.0	Jun 30 17:00	98.9%	94.2%	2	-	-	-
Henry Pirker		23.9	50.5	Jul 13	88.1	Jun 28 14:00	100.0%	95.3%	7	-	-	-

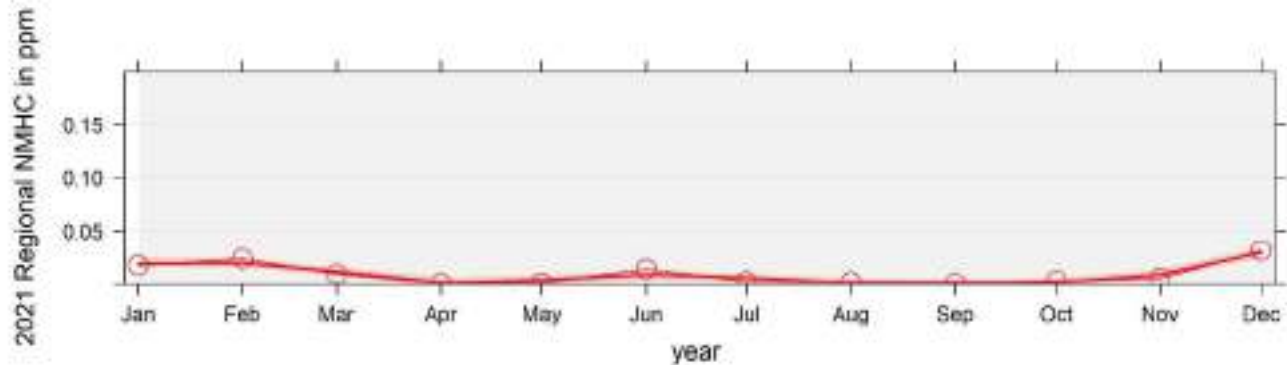
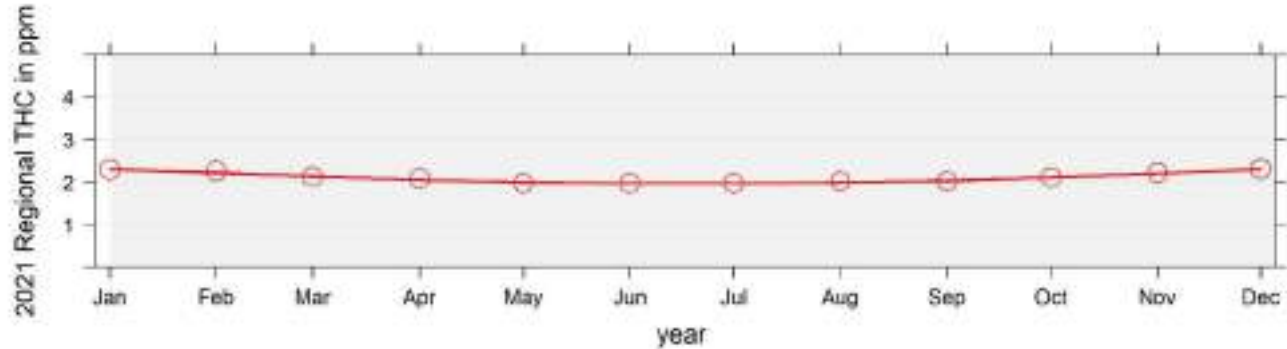


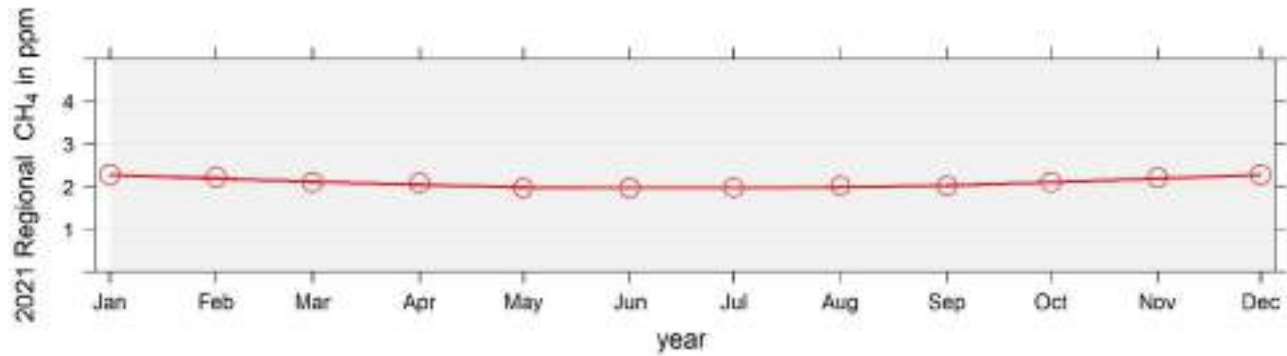
2021 Daily 95th percentile Concentration Readings at PAZA



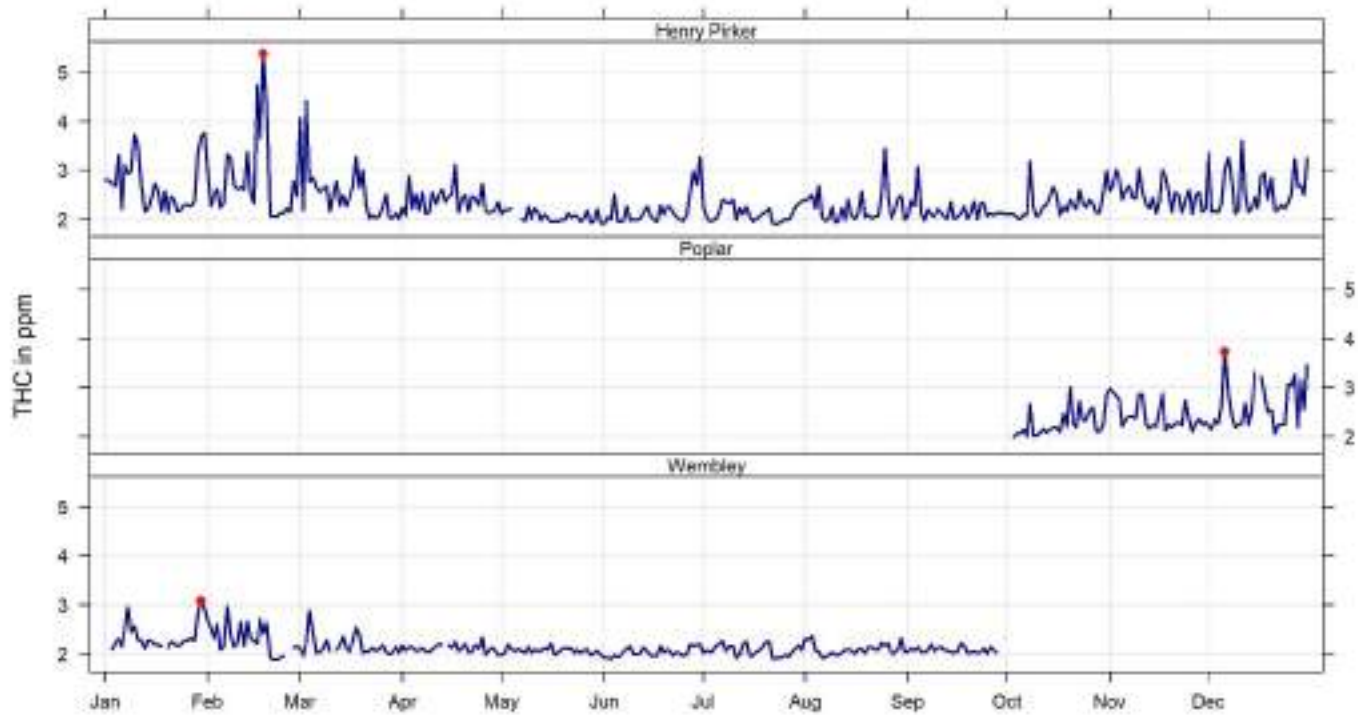
4.6 Total Hydrocarbons (THC / CH₄ / NMHC) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Methane CH ₄ measured in ppm	-	2.9	Jan 30	3.1	Jan 30 05:00	74.1%	70.5%	-	-	-	-
Poplar (Oct-Dec)		-	2.8	Dec 06	3.3	Dec 17 08:00	24.8%	23.7%	-	-	-	-
Henry Pirker		2.1	3.2	Feb 18	5.6	Feb 18 01:00	99.7%	95.0%	-	-	-	-
Wembley (Jan-Sept)	Non Methane Hydrocarbons NMHC measured in ppm	-	0.1	May 16	1.1	May 16 19:00	74.1%	70.5%	-	-	-	-
Poplar (Oct-Dec)		-	0.2	Dec 25	2.0	Dec 26 20:00	24.8%	23.7%	-	-	-	-
Henry Pirker		0.01	0.3	Jan 30	1.0	Feb 18 01:00	99.7%	95.0%	-	-	-	-
Wembley (Jan-Sept)	Total Hydrocarbons THC measured in ppm	-	2.9	Jan 30	3.4	Mar 04 10:00	74.1%	70.5%	-	-	-	-
Poplar (Oct-Dec)		-	3.0	Dec 06	4.3	Dec 26 20:00	24.8%	23.7%	-	-	-	-
Henry Pirker		2.1	3.5	Feb 18	6.6	Feb 18 01:00	99.7%	95.0%	-	-	-	-



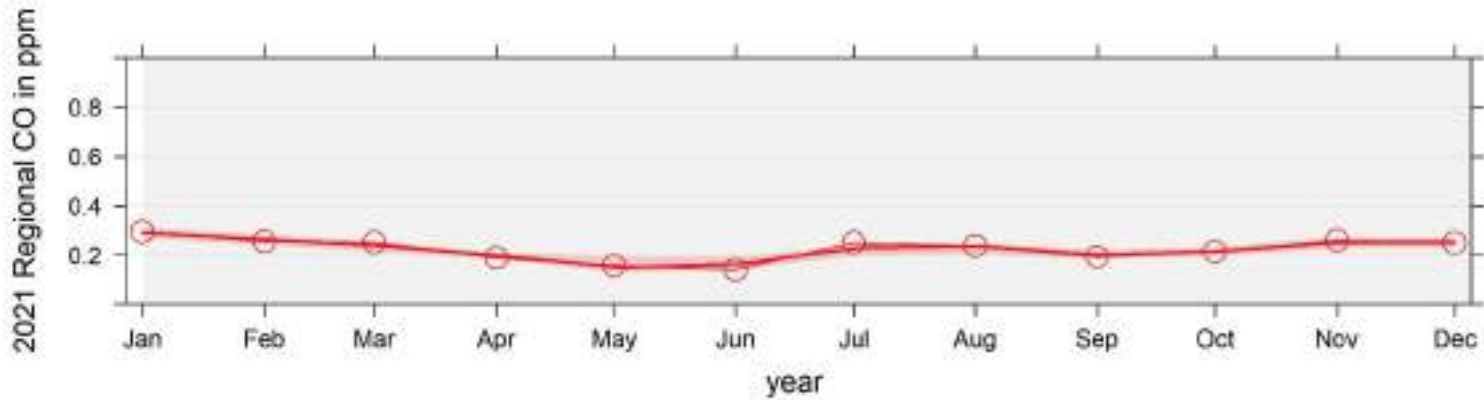


2021 Daily 95th percentile Concentration Readings at PAZA

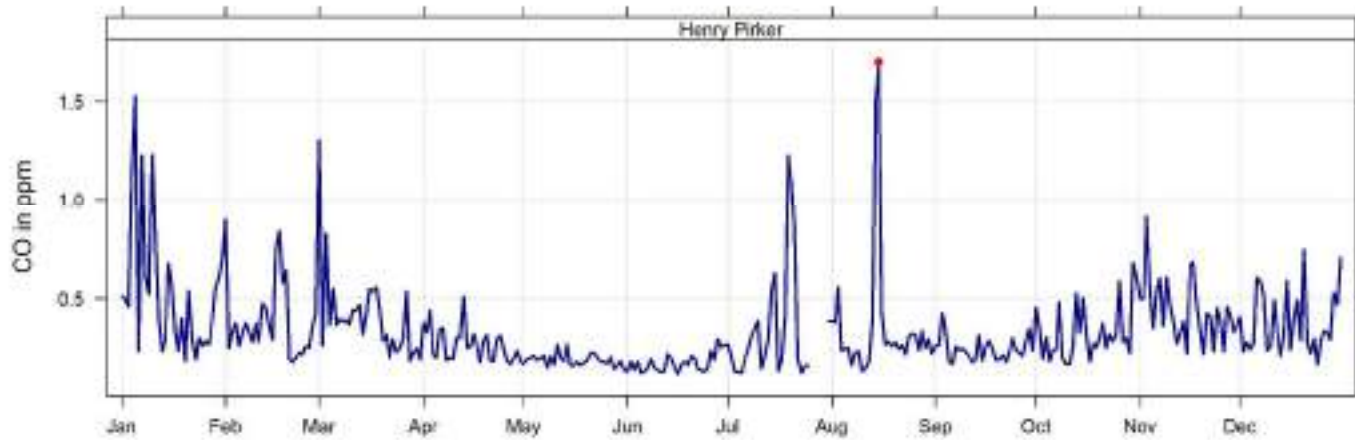


4.7 Carbon Monoxide (CO) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr	Date			1-hr	8-hr	24-hr	30-d	Annual
Henry Pirker	Carbon Monoxide CO measured in ppm	0.2	0.9	Jul 20	1.8	Aug 15 01:00	98.7%	94.0%	0	0	-	-	-

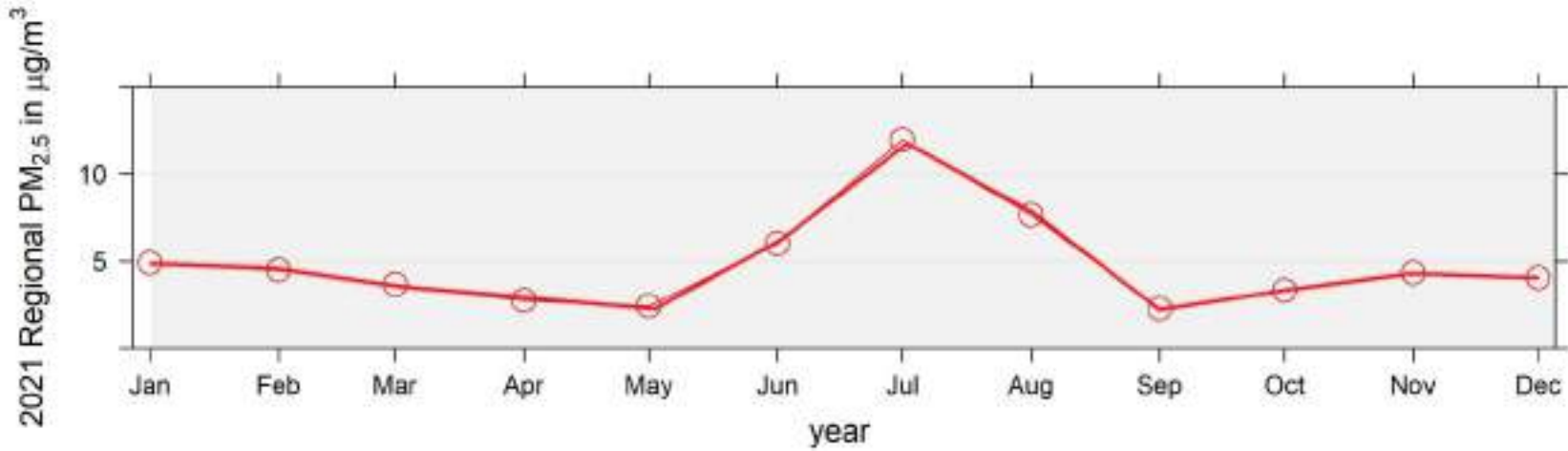


2021 Daily 95th percentile Concentration Readings at PAZA

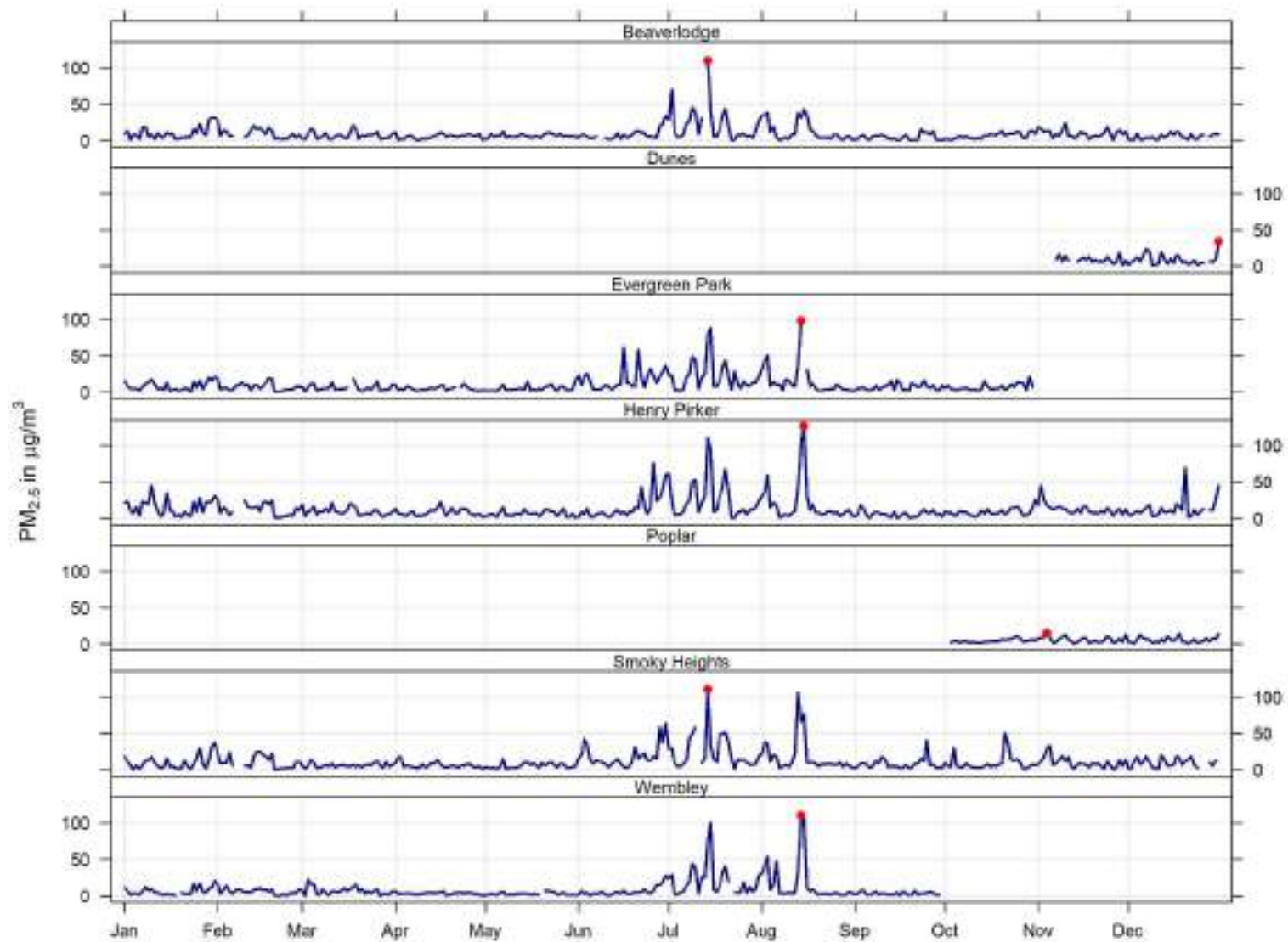


4.8 Particulate Matter (PM_{2.5}) 2021 Summary

Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Wembley (Jan-Sept)	Particulate Matter PM _{2.5} measured in µg/m ³	-	39.5	Jul 15	123.5	Aug 14 08:00	74.5%	74.1%	14	4	-	-
Poplar (Oct-Dec)		-	7.5	Dec 31	27.9	Dec 18 18:00	24.9%	24.7%	0	0	-	-
Beaverlodge		4.6	30.3	Jul 09	143.3	Jul 14 13:00	99.1%	98.8%	3	2	-	-
Henry Pirker		6.0	42.6	Jul 20	155.2	Aug 14 08:00	99.3%	98.9%	14	8	-	-
Dunes (Nov-Dec)		-	13.9	Dec 07	35.8	Dec 31 19:00	10.2%	10.1%	0	0	-	-
Evergreen Park (Jan-Oct)		4.7	45.4	Jul 15	163.3	Jun 26 13:00	82.7%	82.2%	17	5	-	-
Smoky Heights		5.4	44.3	Jul 20	119.6	Jul 14 15:00	98.5%	98.1%	13	7	-	-

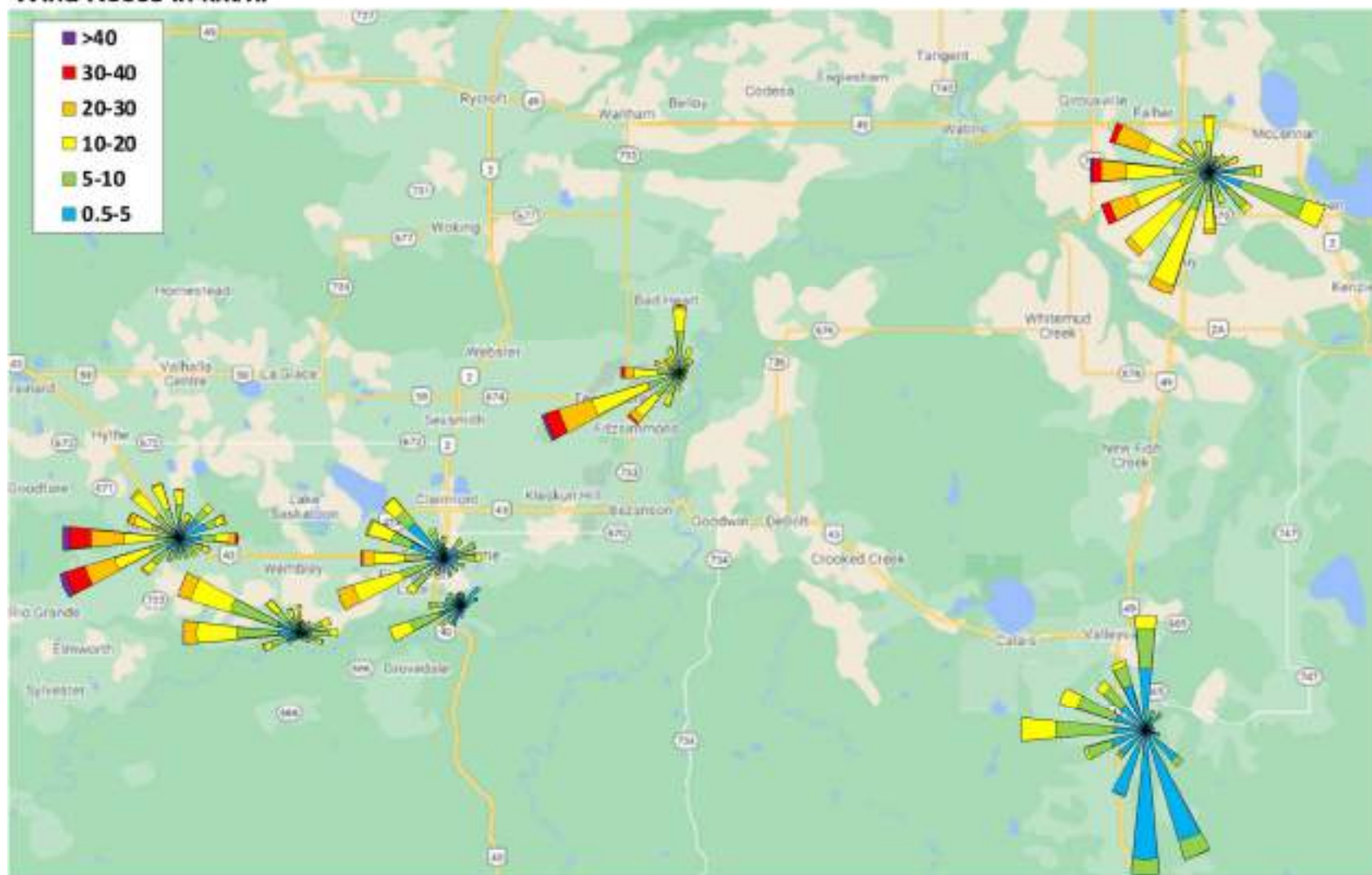


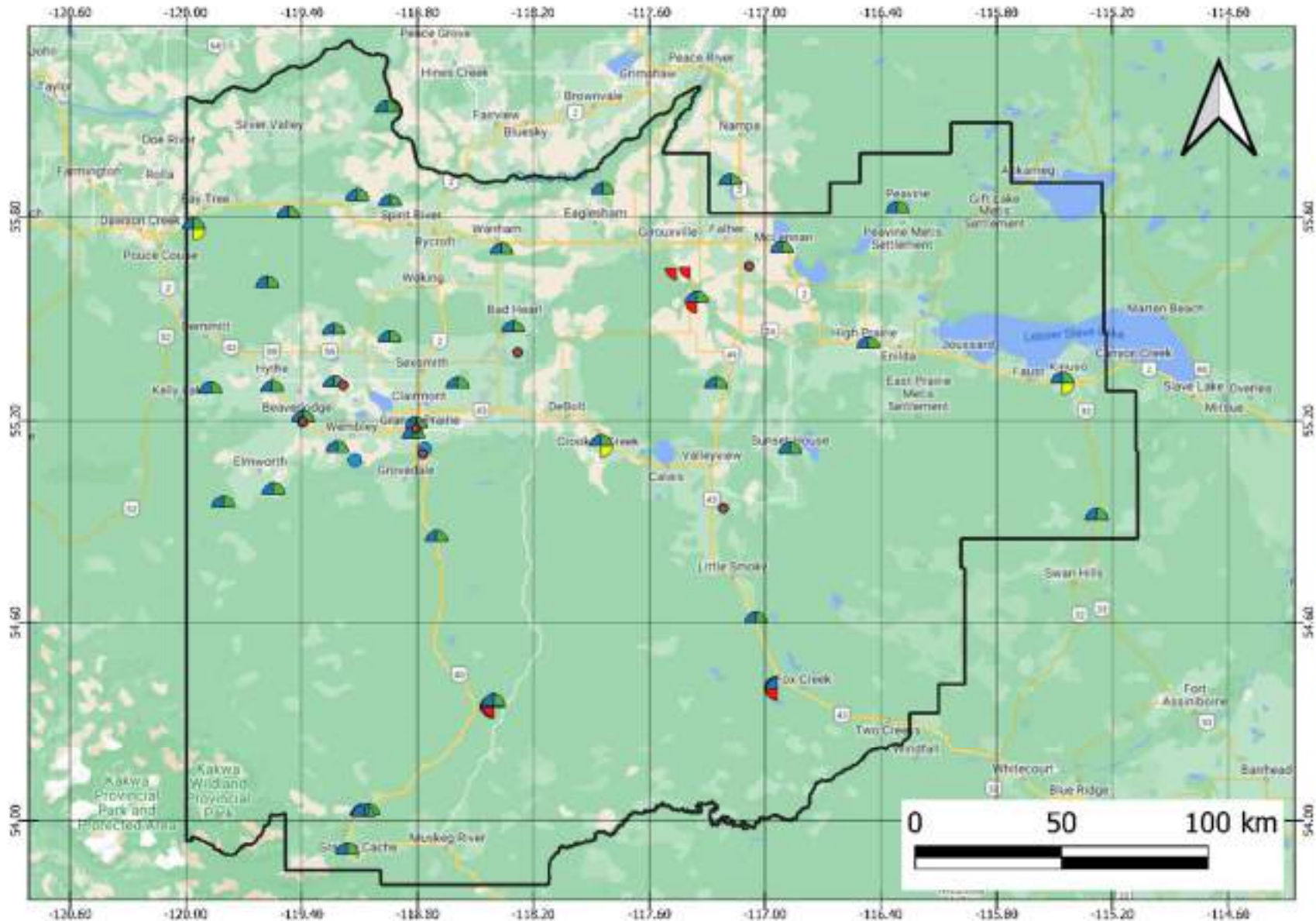
2021 Daily 95th percentile Concentration Readings at PAZA



4.9 Wind Profile (wind roses) 2021 Summary

Wind Roses in km/hr



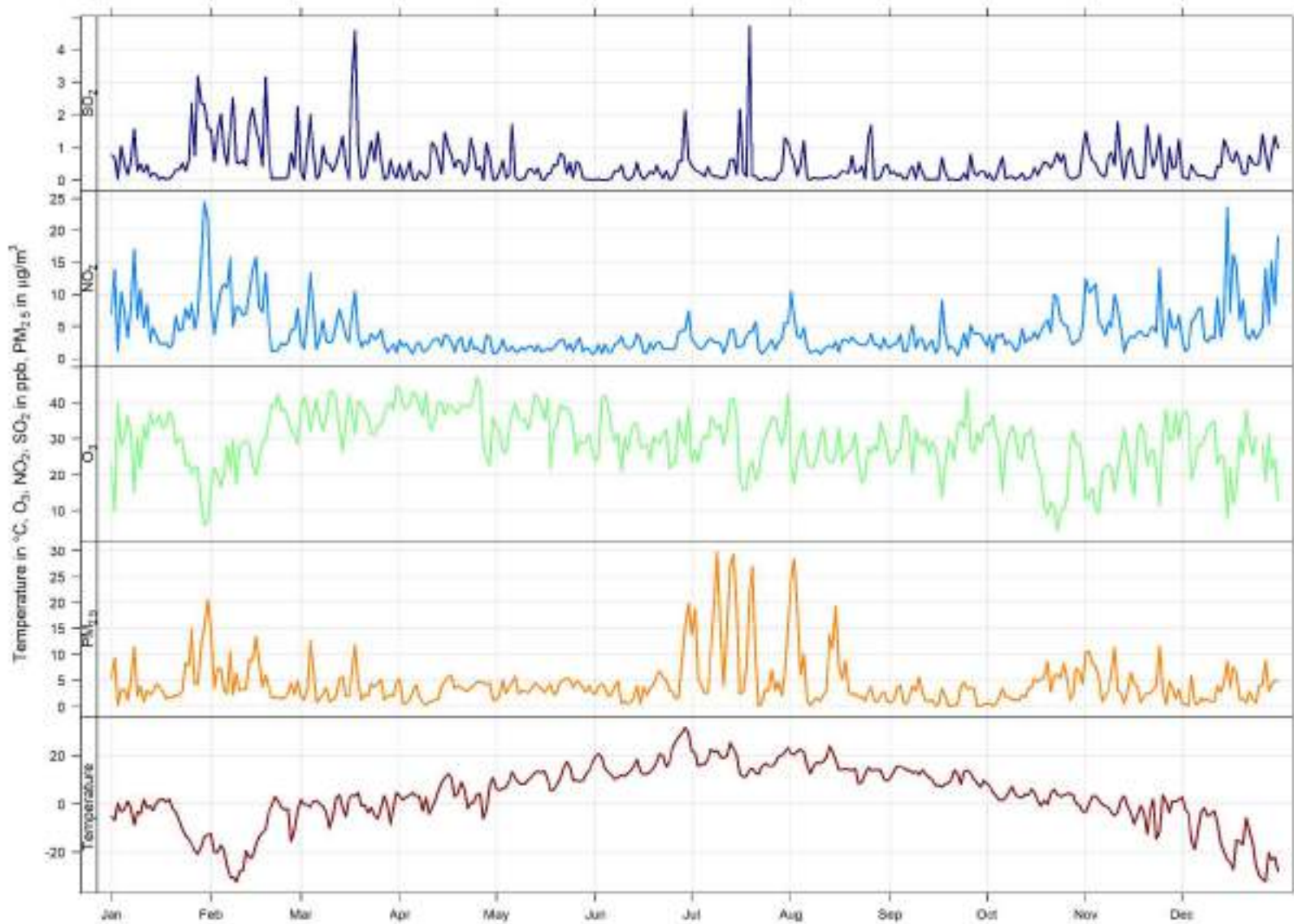


5 Beaverlodge Key Parameters - Continuous Monitoring Data - 2021 Summary

Beaverlodge Key Parameters - Continuous Monitoring Data - 2021 Summary

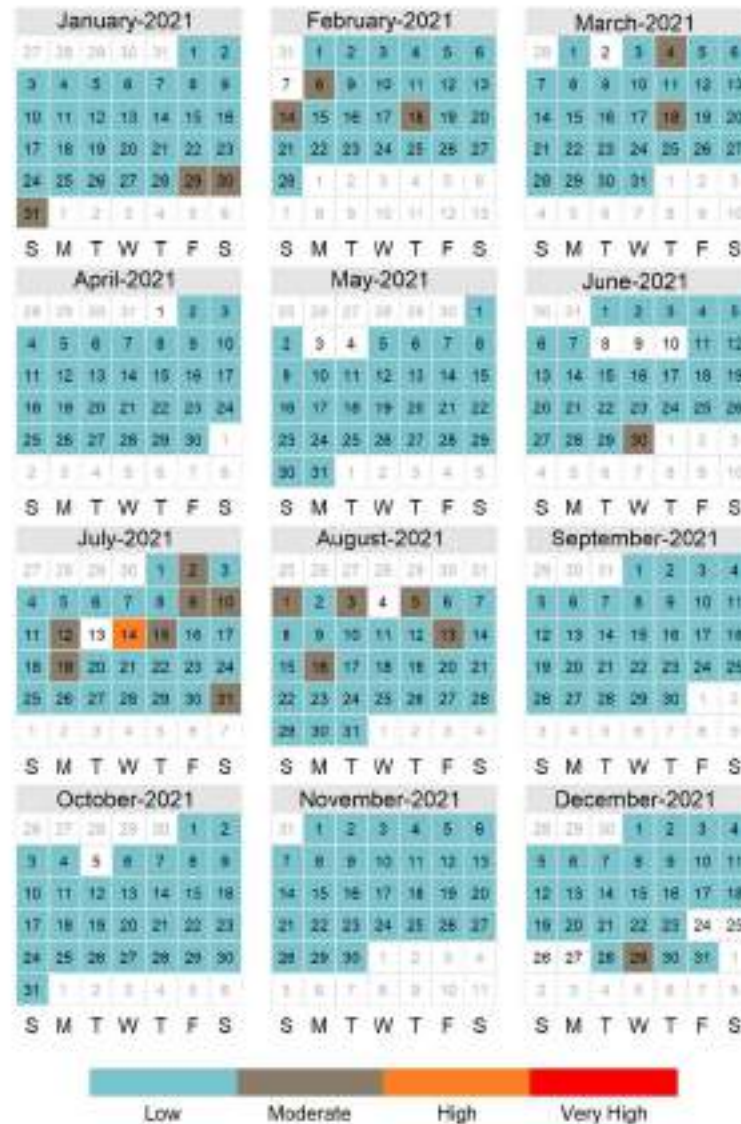
Beaverlodge Station	Parameter	Annual Average	Maximum Values			Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr			Date	1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.5	4.6	Jul 19	29.3	Jul 19 11:00	99.9%	95.2%	0	0	0	0
	Nitrogen Dioxide NO ₂ measured in ppb	4.2	24.5	Jan 30	41.3	Dec 29 22:00	99.8%	94.9%	0	-	-	0
	Nitrogen Oxides NO _x measured in ppb	5.0	38.0	Jan 30	79.9	Jan 30 12:00	99.8%	94.9%	-	-	-	-
	Nitric Oxide NO measured in ppb	0.9	13.3	Jan 30	57.0	Jan 30 12:00	99.8%	94.9%	-	-	-	-
	Ozone O ₃ measured in ppb	29.4	47.3	Apr 25	82.0	Jun 30 17:00	98.9%	94.2%	2	-	-	-
	Particulate Matter PM _{2.5} measured in µg/m ³	4.6	30.3	Jul 09	143.3	Jul 14 13:00	99.1%	98.8%	3	2	-	-

2021 Daily Concentration Readings at Beaverlodge



5.1 Beaverlodge AQHI Calendar Plot for 2021

Hourly Maximum AQHI for 2021 at Beaverlodge



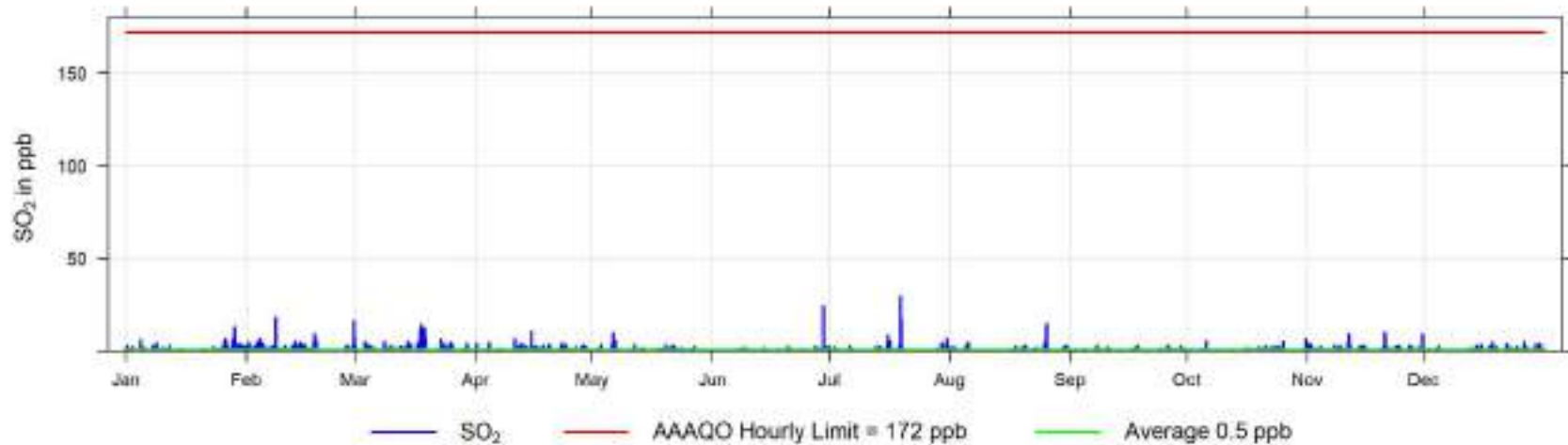
5.2 Sulphur Dioxide (SO₂) - Beaverlodge 2021 Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Beaverlodge

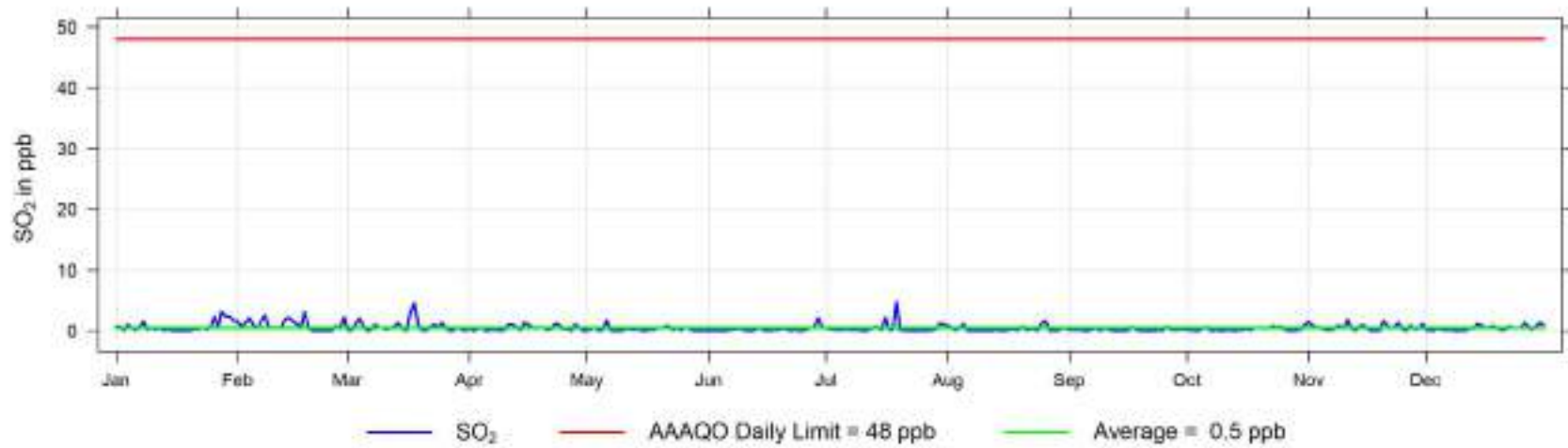
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	710	78.7%	19.6%	1.6%	0.1%	0.0%	0.0%	0.7	3.5	Jan 28	12.9	Jan 28 23:00	100.0%	95.4%	0	0	0
February 2021	640	67.8%	29.1%	2.5%	0.6%	0.0%	0.0%	1.0	3.3	Feb 18	17.9	Feb 08 15:00	100.0%	95.2%	0	0	0
March 2021	709	78.1%	19.3%	1.8%	0.7%	0.0%	0.0%	0.8	4.4	Mar 18	14.0	Mar 18 02:00	100.0%	95.3%	0	0	0
April 2021	686	82.8%	16.8%	0.3%	0.2%	0.0%	0.0%	0.5	1.5	Apr 15	10.7	Apr 15 12:00	100.0%	95.3%	0	0	0
May 2021	708	93.1%	6.5%	0.4%	0.0%	0.0%	0.0%	0.3	1.7	May 06	9.5	May 06 09:00	100.0%	95.2%	0	0	0
June 2021	683	95.8%	4.0%	0.0%	0.3%	0.0%	0.0%	0.3	2.1	Jun 29	24.1	Jun 29 13:00	99.6%	94.9%	0	0	0
July 2021	702	90.9%	7.8%	0.7%	0.6%	0.0%	0.0%	0.5	4.6	Jul 19	29.3	Jul 19 11:00	98.9%	94.4%	0	0	0
August 2021	709	93.0%	6.4%	0.4%	0.3%	0.0%	0.0%	0.3	1.9	Aug 25	14.7	Aug 26 01:00	100.0%	95.3%	0	0	0
September 2021	684	94.9%	5.1%	0.0%	0.0%	0.0%	0.0%	0.2	0.8	Sep 26	2.8	Sep 26 03:00	99.7%	95.0%	0	0	0
October 2021	709	93.4%	6.4%	0.3%	0.0%	0.0%	0.0%	0.3	1.0	Oct 31	6.3	Oct 31 19:00	100.0%	95.3%	0	0	0
November 2021	687	79.6%	18.8%	1.6%	0.0%	0.0%	0.0%	0.6	2.0	Nov 20	9.9	Nov 20 22:00	100.0%	95.4%	0	0	0
December 2021	708	84.8%	15.1%	0.1%	0.0%	0.0%	0.0%	0.5	1.5	Dec 26	5.0	Dec 26 21:00	100.0%	95.2%	0	0	0
Annual	8335	86.2%	12.8%	0.8%	0.2%	0.0%	0.0%	0.5	4.6	MAXIMUM VALUES		99.9%	95.2%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

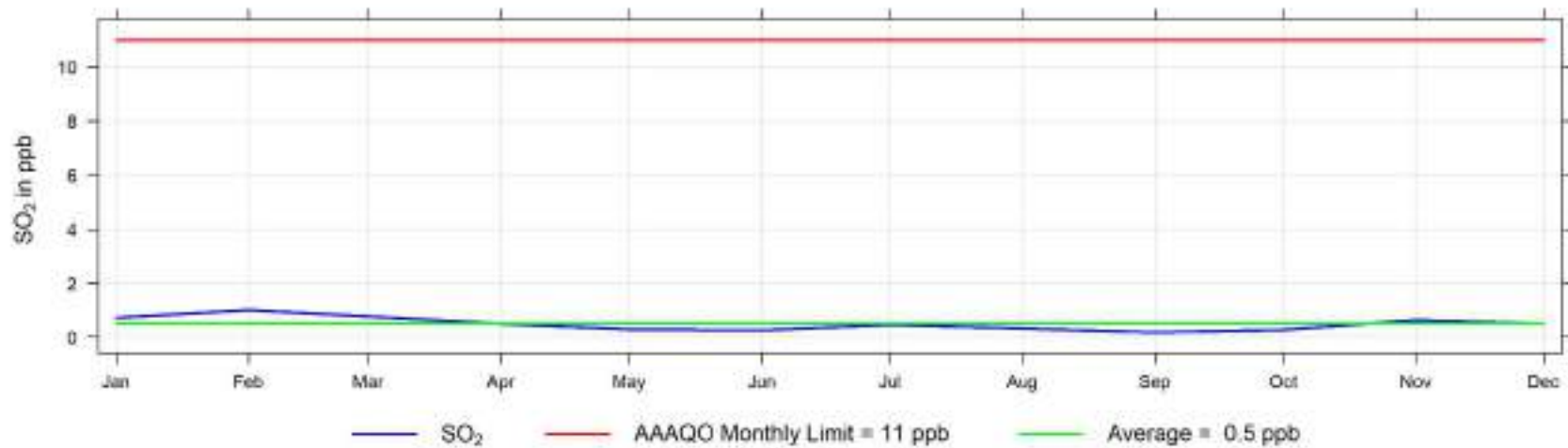
2021 Hourly Concentration Readings of SO₂ (in ppb) at Beaverlodge



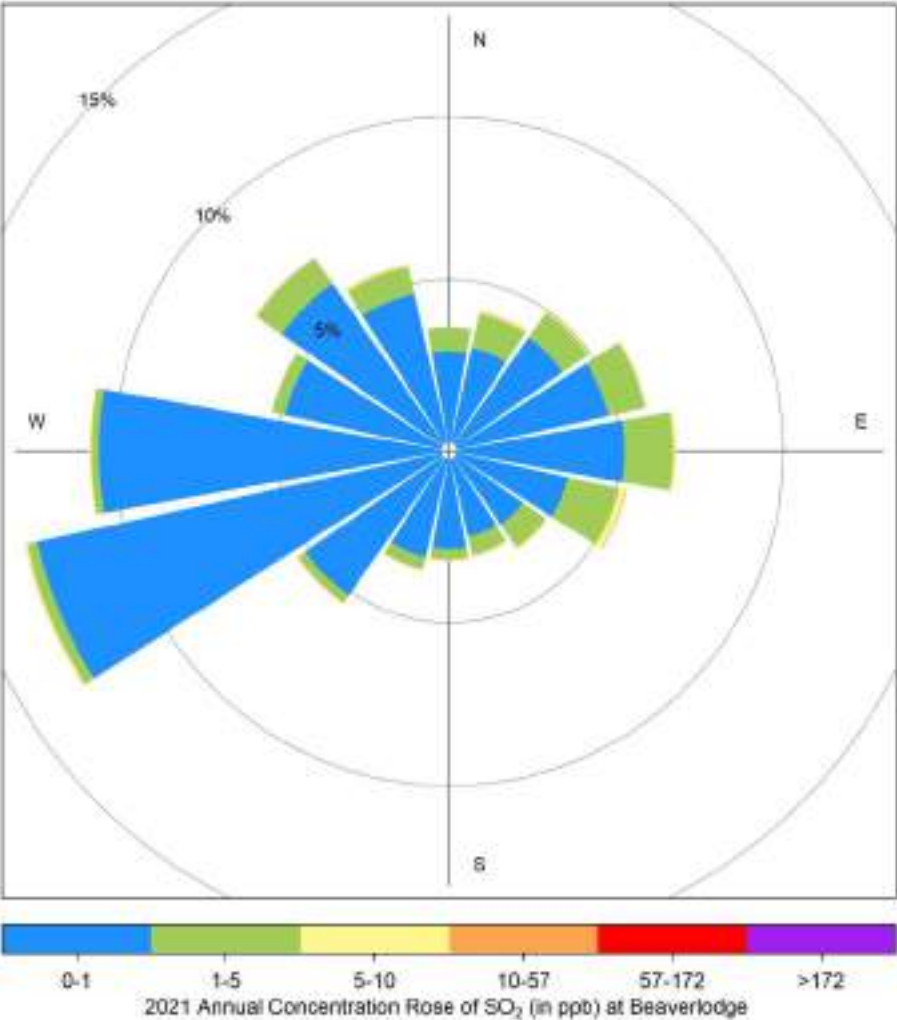
2021 Daily Concentration Readings of SO₂ (in ppb) at Beaverlodge



2021 Monthly Concentration Readings of SO₂ (in ppb) at Beaverlodge



Hourly Maximum SO₂ (in ppb) for 2021 at Beaverlodge



January-2021	February-2021	March-2021
27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8	28 29 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5	30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7	28 29 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4	29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
28 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11	29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S

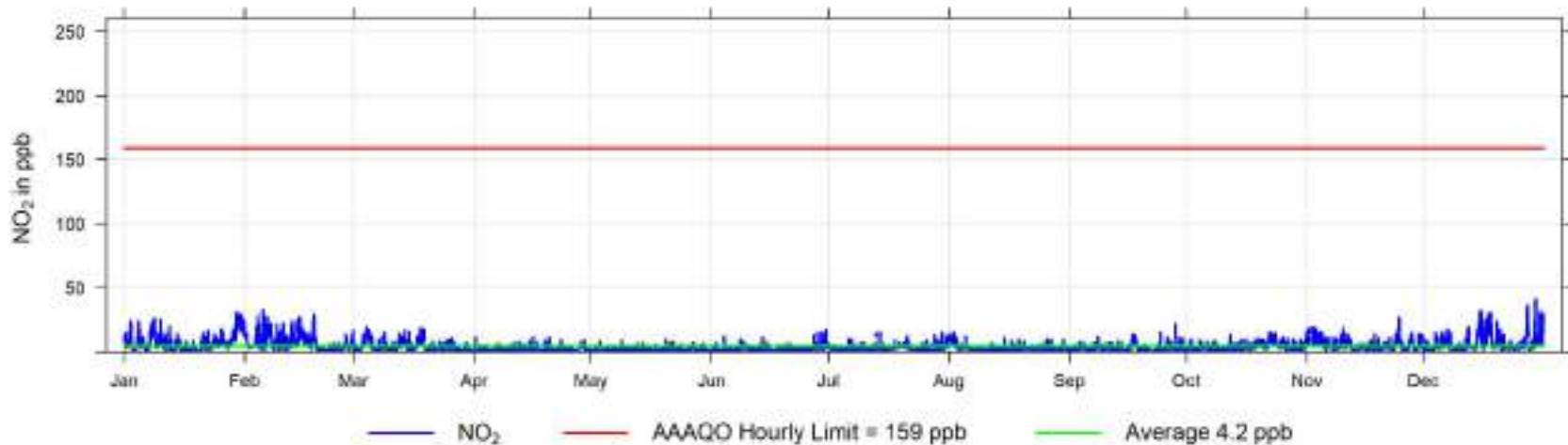
5.3 Nitrogen Dioxide (NO₂) - Beaverlodge 2021 Summary

Nitrogen Dioxide (NO₂) Frequency Distribution at Beaverlodge

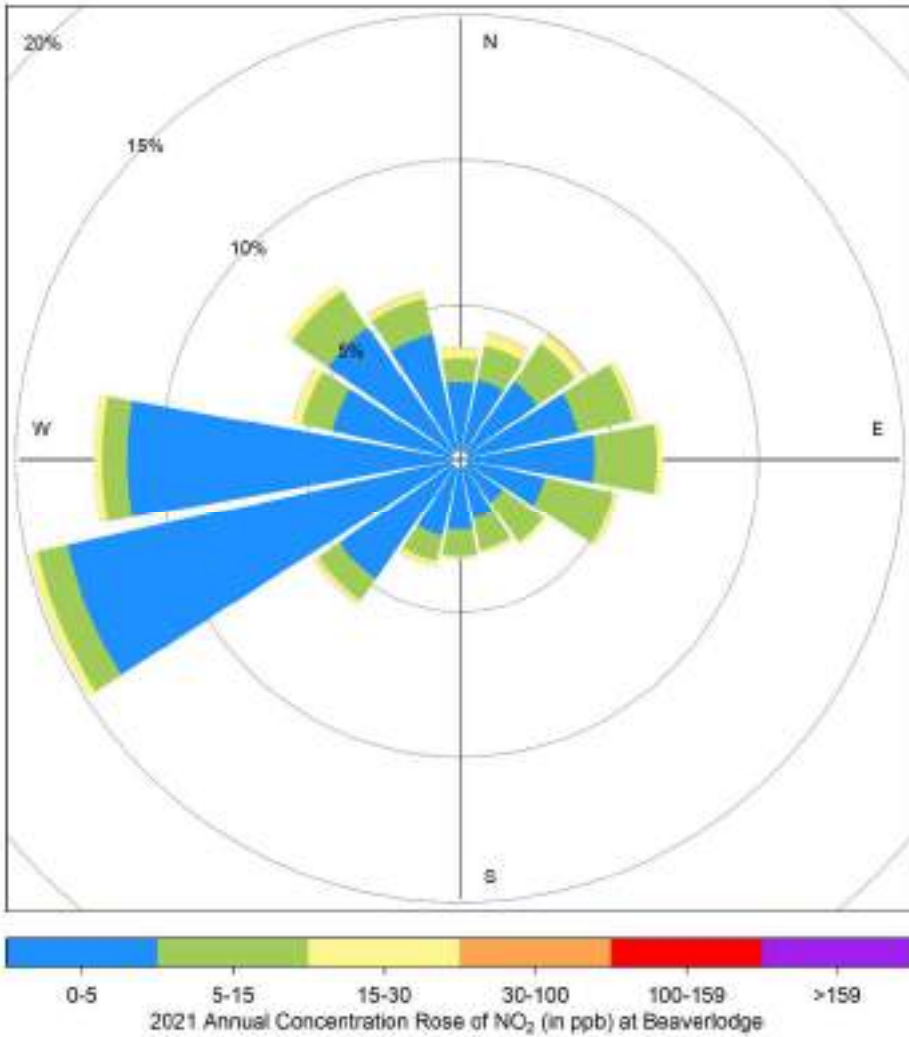
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 159 ppb
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			
January 2021	708	45.5%	39.6%	14.6%	0.4%	0.0%	0.0%	7.5	24.5	Jan 30	30.8	Jan 30 02:00	100.0%	95.2%	0
February 2021	639	49.0%	37.7%	13.0%	0.3%	0.0%	0.0%	7.4	15.7	Feb 07	32.8	Feb 05 20:00	100.0%	95.1%	0
March 2021	707	69.6%	28.3%	2.1%	0.0%	0.0%	0.0%	4.1	13.6	Mar 04	19.2	Mar 04 07:00	100.0%	95.0%	0
April 2021	684	91.1%	8.9%	0.0%	0.0%	0.0%	0.0%	2.1	3.7	Apr 28	11.2	Apr 20 06:00	100.0%	95.0%	0
May 2021	705	95.5%	4.5%	0.0%	0.0%	0.0%	0.0%	1.7	3.1	May 27	9.6	May 20 07:00	99.6%	94.8%	0
June 2021	682	90.6%	8.8%	0.6%	0.0%	0.0%	0.0%	2.3	7.6	Jun 30	17.6	Jun 30 08:00	99.9%	94.7%	0
July 2021	701	86.0%	13.4%	0.6%	0.0%	0.0%	0.0%	2.8	5.9	Jul 31	15.5	Jul 14 07:00	98.9%	94.2%	0
August 2021	707	86.3%	13.6%	0.1%	0.0%	0.0%	0.0%	2.7	10.3	Aug 01	15.5	Aug 02 06:00	100.0%	95.0%	0
September 2021	683	83.6%	16.3%	0.2%	0.0%	0.0%	0.0%	2.8	9.0	Sep 17	22.1	Sep 28 07:00	99.7%	94.9%	0
October 2021	707	70.6%	29.1%	0.3%	0.0%	0.0%	0.0%	3.9	10.3	Oct 22	15.3	Oct 22 19:00	100.0%	95.0%	0
November 2021	685	53.7%	41.5%	4.8%	0.0%	0.0%	0.0%	5.8	13.9	Nov 24	26.9	Nov 24 19:00	100.0%	95.1%	0
December 2021	708	56.9%	29.5%	10.6%	3.0%	0.0%	0.0%	7.3	23.5	Dec 15	41.3	Dec 29 22:00	100.0%	95.2%	0
Annual	8316	73.3%	22.5%	3.9%	0.3%	0.0%	0.0%	4.2	MAXIMUM VALUES				99.8%	94.9%	0

AAAQO Objectives: Annual: 24ppb, 1-Hr: 159ppb

2021 Hourly Concentration Readings of NO₂ (in ppb) at Beaverlodge



Hourly Maximum NO₂ (in ppb) for 2021 at Beaverlodge



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	31 1 2 3 4 5 6	28 1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
28 29 30 31 1 2 3	28 29 30 31 1 2 3 4	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	28 29 30 31 1 2 3 4	29 30 31 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
25 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
28 29 30 31 1 2	31 1 2 3 4 5 6	28 29 30 1 2 3 4
3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
24 25 26 27 28 29 30	28 29 30 1 2 3 4	26 27 28 29 30 31 1
31 1 2 3 4 5 6	5 6 7 8 9 10 11	2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S

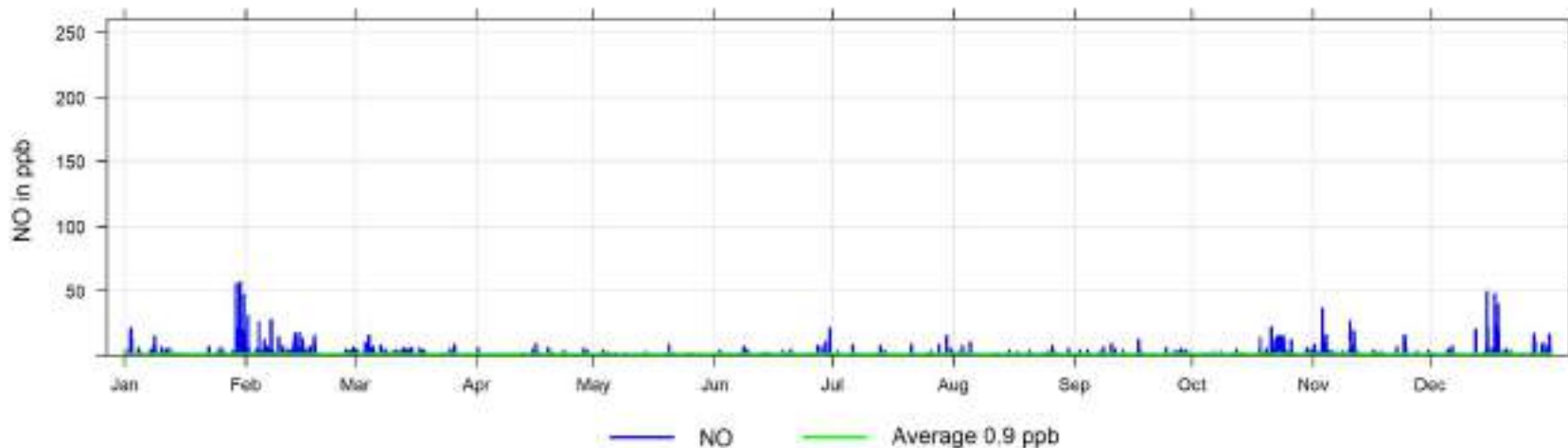
5.4 Nitric Oxide (NO) - Beaverlodge 2021 Summary

Nitric Oxide (NO) Frequency Distribution at Beaverlodge

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	708	91.2%	5.8%	2.0%	1.0%	0.0%	0.0%	1.7	13.3	Jan 30	57.0	Jan 30 12:00	100.0%	95.2%
February 2021	639	90.5%	7.7%	1.7%	0.2%	0.0%	0.0%	1.7	6.4	Feb 07	30.6	Feb 01 12:00	100.0%	95.1%
March 2021	707	96.9%	3.0%	0.1%	0.0%	0.0%	0.0%	0.8	3.8	Mar 04	15.6	Mar 04 12:00	100.0%	95.0%
April 2021	684	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.3	1.3	Apr 28	8.7	Apr 16 08:00	100.0%	95.0%
May 2021	705	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.9	May 20	8.3	May 20 07:00	99.6%	94.8%
June 2021	682	98.8%	1.0%	0.2%	0.0%	0.0%	0.0%	0.4	1.9	Jun 30	21.3	Jun 30 08:00	99.9%	94.7%
July 2021	701	98.6%	1.3%	0.1%	0.0%	0.0%	0.0%	0.4	2.1	Jul 30	15.3	Jul 30 08:00	98.9%	94.2%
August 2021	707	99.2%	0.9%	0.0%	0.0%	0.0%	0.0%	0.4	1.1	Aug 05	10.0	Aug 05 07:00	100.0%	95.0%
September 2021	683	98.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.4	2.8	Sep 17	12.3	Sep 17 09:00	99.7%	94.9%
October 2021	707	92.9%	6.4%	0.7%	0.0%	0.0%	0.0%	1.1	7.0	Oct 23	22.3	Oct 21 09:00	100.0%	95.0%
November 2021	685	94.3%	3.8%	1.8%	0.2%	0.0%	0.0%	1.2	6.9	Nov 10	36.3	Nov 03 10:00	100.0%	95.1%
December 2021	708	91.4%	5.8%	2.1%	0.7%	0.0%	0.0%	1.7	13.2	Dec 15	49.7	Dec 15 14:00	100.0%	95.2%
Annual	8316	96.0%	3.1%	0.7%	0.2%	0.0%	0.0%	0.9	MAXIMUM VALUES				99.8%	94.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO (in ppb) at Beaverlodge



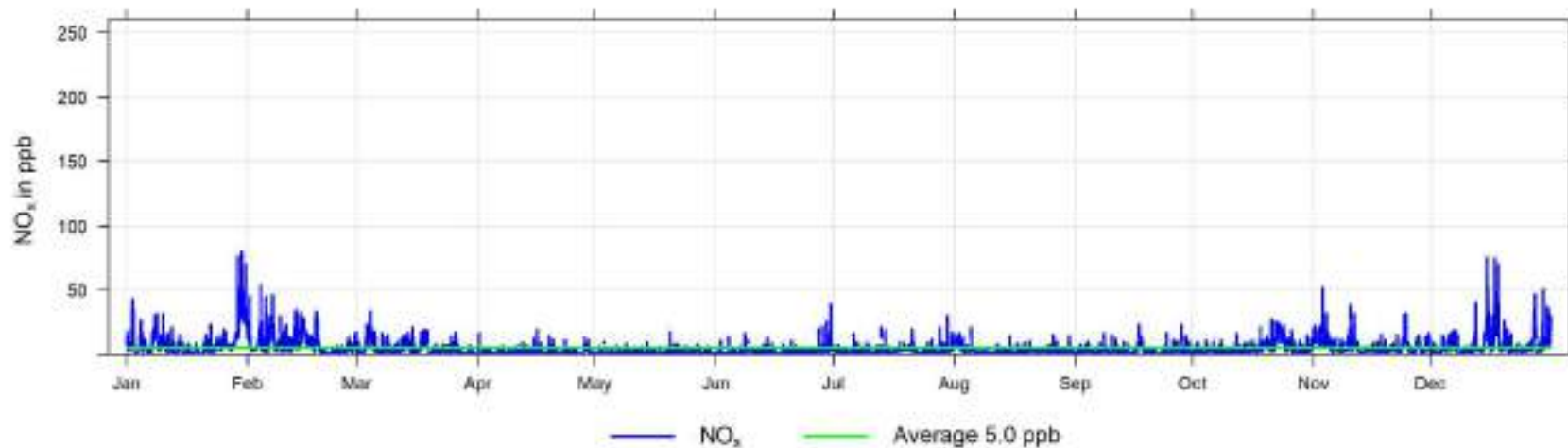
5.5 Oxides of Nitrogen (NO_x) - Beaverlodge 2021 Summary

Nitrogen Oxides (NO_x) Frequency Distribution at Beaverlodge

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	708	42.9%	38.7%	12.4%	5.9%	0.0%	0.0%	9.3	38.0	Jan 30	79.9	Jan 30 12:00	100.0%	95.2%
February 2021	639	40.9%	40.1%	15.5%	3.6%	0.0%	0.0%	9.1	22.1	Feb 07	54.3	Feb 04 06:00	100.0%	95.1%
March 2021	707	67.0%	28.3%	4.2%	0.4%	0.0%	0.0%	4.8	17.5	Mar 04	34.0	Mar 04 12:00	100.0%	95.0%
April 2021	684	88.6%	11.1%	0.3%	0.0%	0.0%	0.0%	2.4	5.0	Apr 28	19.9	Apr 16 08:00	100.0%	95.0%
May 2021	705	93.6%	6.2%	0.1%	0.0%	0.0%	0.0%	1.9	3.6	May 03	18.0	May 20 07:00	99.6%	94.8%
June 2021	682	88.1%	10.3%	1.5%	0.2%	0.0%	0.0%	2.7	9.5	Jun 30	39.1	Jun 30 08:00	99.9%	94.7%
July 2021	701	83.5%	14.6%	1.9%	0.1%	0.0%	0.0%	3.2	7.7	Jul 30	30.4	Jul 30 07:00	98.9%	94.2%
August 2021	707	84.0%	15.1%	0.9%	0.0%	0.0%	0.0%	3.0	10.9	Aug 01	21.2	Aug 05 07:00	100.0%	95.0%
September 2021	683	81.0%	17.3%	1.8%	0.0%	0.0%	0.0%	3.2	11.8	Sep 17	23.7	Sep 17 09:00	99.7%	94.9%
October 2021	707	65.4%	28.3%	6.4%	0.0%	0.0%	0.0%	5.0	16.5	Oct 23	27.7	Oct 21 09:00	100.0%	95.0%
November 2021	685	49.9%	39.9%	8.3%	1.9%	0.0%	0.0%	7.0	18.2	Nov 24	52.1	Nov 03 10:00	100.0%	95.1%
December 2021	708	52.8%	30.2%	10.6%	6.4%	0.0%	0.0%	9.0	36.9	Dec 15	75.6	Dec 15 14:00	100.0%	95.2%
Annual	8316	69.9%	23.3%	5.3%	1.5%	0.0%	0.0%	5.0	MAXIMUM VALUES				99.8%	94.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO_x (in ppb) at Beaverlodge



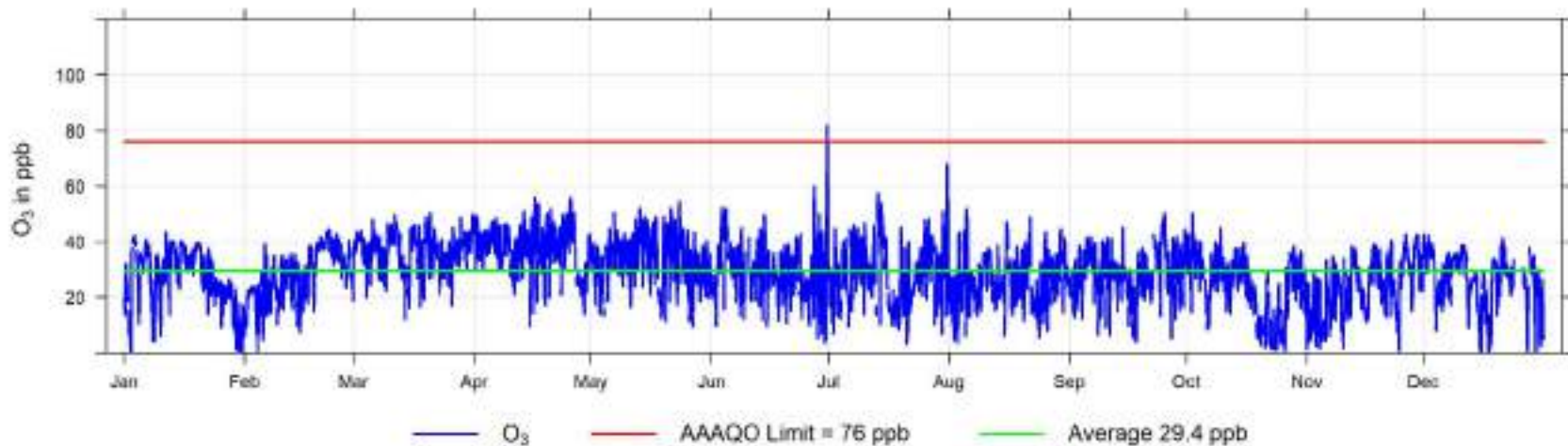
5.6 Ozone (O₃) - Beaverlodge 2021 Summary

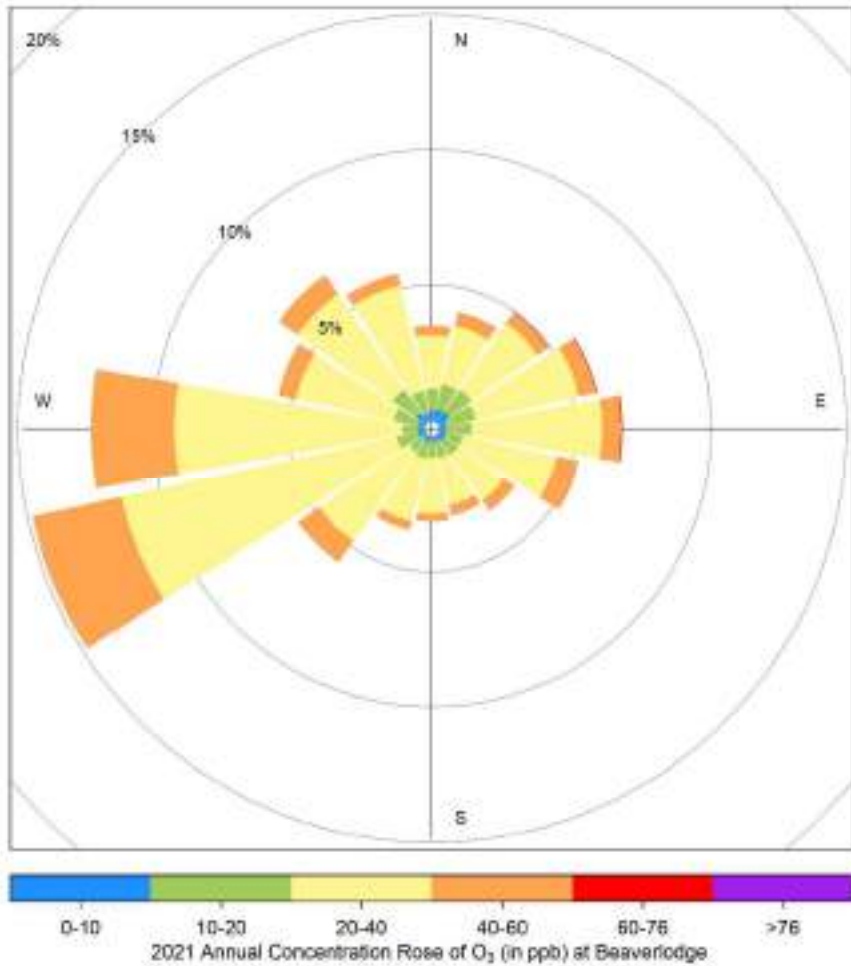
Ozone (O₃) Frequency Distribution at Beaverlodge

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 76 ppb
		0 to 10 (ppb)	10 to 20 (ppb)	20 to 40 (ppb)	40 to 60 (ppb)	60 to 76 (ppb)	> 76 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			
January 2021	710	9.2%	14.2%	71.8%	4.8%	0.0%	0.0%	27.0	40.2	Jan 03	43.7	Jan 11 16:00	100.0%	95.4%	0
February 2021	640	3.0%	14.1%	75.0%	8.0%	0.0%	0.0%	28.3	42.3	Feb 22	44.5	Feb 22 16:00	100.0%	95.2%	0
March 2021	709	0.0%	1.3%	62.3%	36.4%	0.0%	0.0%	37.0	45.3	Mar 31	50.3	Mar 20 15:00	100.0%	95.3%	0
April 2021	686	0.2%	2.5%	50.7%	46.7%	0.0%	0.0%	37.9	47.3	Apr 25	56.0	Apr 16 16:00	100.0%	95.3%	0
May 2021	694	0.1%	6.9%	64.4%	28.5%	0.0%	0.0%	34.0	42.7	May 13	54.3	May 23 20:00	98.1%	93.3%	0
June 2021	667	1.7%	13.2%	69.0%	15.1%	0.8%	0.3%	30.3	42.4	Jun 04	82.0	Jun 30 17:00	97.6%	92.6%	2
July 2021	697	2.4%	20.2%	58.8%	17.7%	0.9%	0.0%	29.5	42.8	Jul 31	67.9	Jul 31 15:00	98.3%	93.7%	0
August 2021	709	3.2%	21.2%	69.7%	5.9%	0.0%	0.0%	26.1	35.2	Aug 29	51.8	Aug 05 12:00	100.0%	95.3%	0
September 2021	684	2.9%	14.0%	72.2%	10.8%	0.0%	0.0%	28.7	43.6	Sep 25	50.5	Sep 25 13:00	99.9%	95.0%	0
October 2021	708	15.4%	15.8%	66.0%	2.8%	0.0%	0.0%	23.8	36.7	Oct 03	50.1	Oct 02 15:00	100.0%	95.2%	0
November 2021	686	10.8%	23.8%	61.8%	3.6%	0.0%	0.0%	23.7	38.3	Nov 26	42.8	Nov 26 11:00	100.0%	95.3%	0
December 2021	658	8.7%	13.4%	76.3%	1.7%	0.0%	0.0%	26.1	38.2	Dec 02	42.6	Dec 01 02:00	92.9%	88.4%	0
Annual	8248	4.8%	13.4%	66.4%	15.2%	0.1%	0.0%	29.4	47.3	MAXIMUM VALUES		98.9%	94.2%	2	

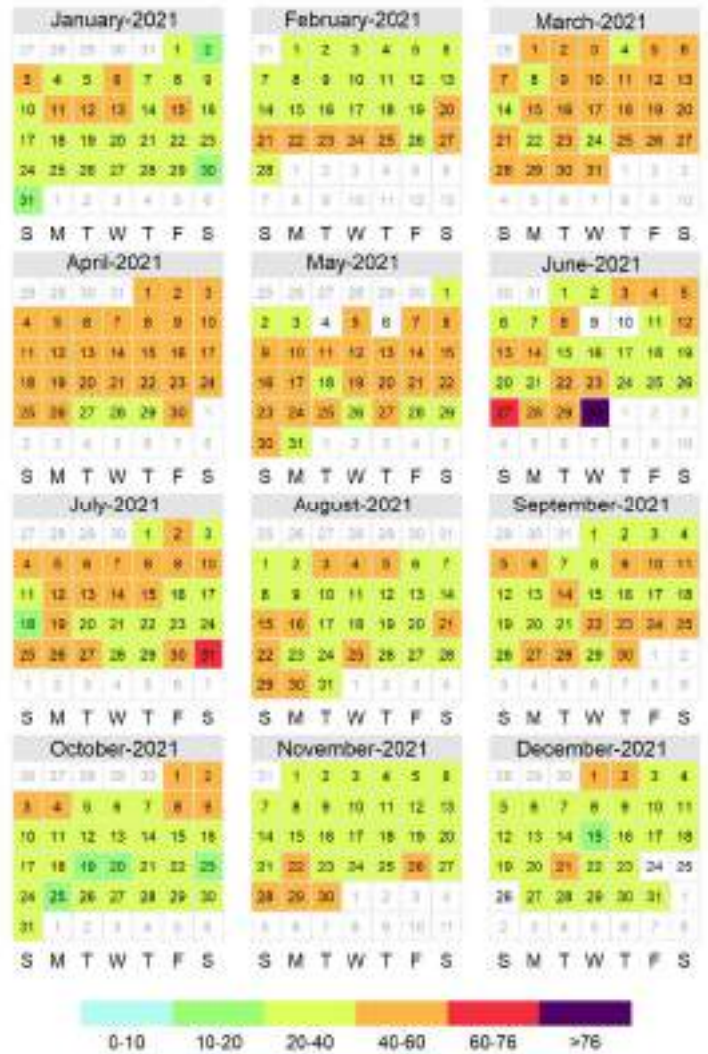
AAAQO Objectives: 1-Hr: 76ppb

2021 Hourly Concentration Readings of O₃ (in ppb) at Beaverlodge





Hourly Maximum O₃ (in ppb) for 2021 at Beaverlodge



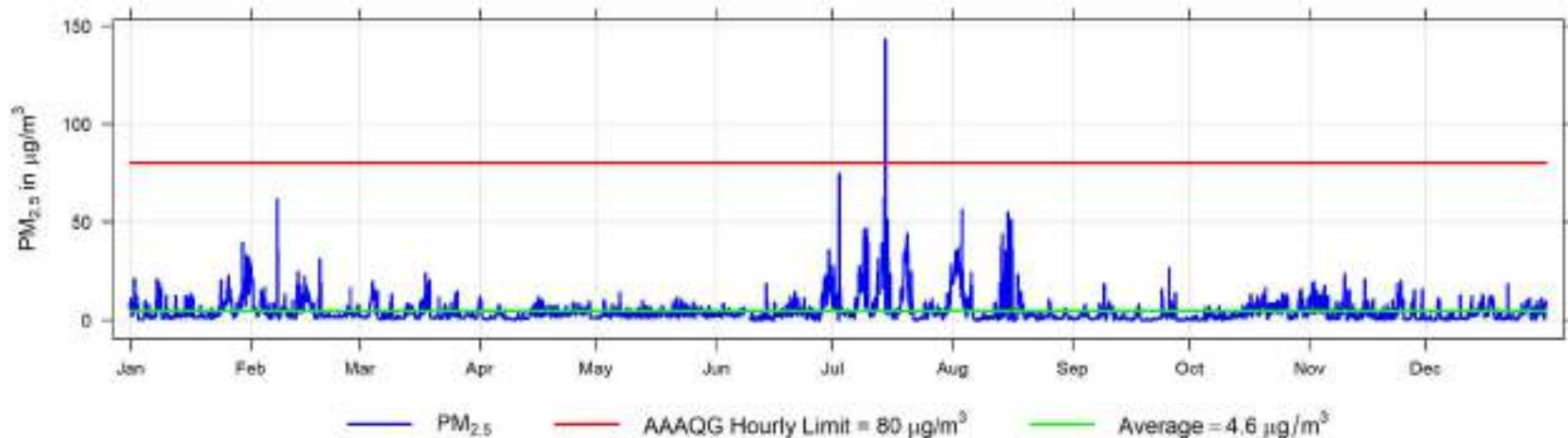
5.7 Particulate Matter (PM_{2.5}) - Beaverlodge 2021 Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Beaverlodge

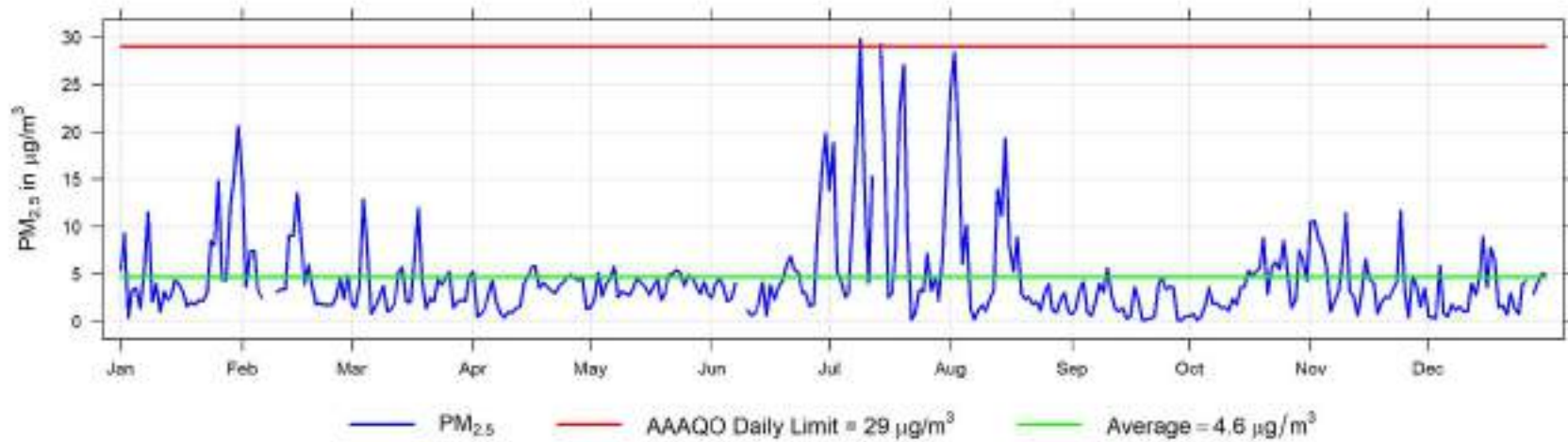
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)			Date	24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	742	64.8%	28.0%	6.3%	0.8%	0.0%	0.9%	5.4	20.8	Jan 31	39.1	Jan 29 22:00	100.0%	99.7%	0	0
February 2021	653	66.9%	27.7%	4.9%	0.3%	0.2%	0.5%	5.0	13.9	Feb 01	61.6	Feb 07 22:00	97.6%	97.2%	0	0
March 2021	742	76.0%	22.4%	1.6%	0.0%	0.0%	0.0%	3.6	12.9	Mar 04	23.9	Mar 18 02:00	100.0%	99.7%	0	0
April 2021	718	79.9%	20.1%	0.0%	0.0%	0.0%	0.0%	3.0	5.7	Apr 16	11.8	Apr 16 10:00	100.0%	99.7%	0	0
May 2021	742	75.1%	24.9%	0.0%	0.0%	0.0%	0.0%	3.7	5.6	May 07	14.0	May 07 04:00	100.0%	99.7%	0	0
June 2021	691	75.7%	19.0%	4.8%	0.6%	0.0%	0.6%	4.3	19.4	Jun 30	35.5	Jun 30 02:00	96.7%	96.0%	0	0
July 2021	726	47.1%	30.4%	13.6%	7.7%	0.7%	9.2%	10.6	30.3	Jul 09	143.3	Jul 14 13:00	97.9%	97.6%	2	3
August 2021	742	70.1%	17.1%	8.9%	3.5%	0.4%	4.0%	6.1	28.1	Aug 02	56.0	Aug 03 10:00	100.0%	99.7%	0	0
September 2021	713	89.8%	9.7%	0.6%	0.0%	0.0%	0.0%	2.0	5.6	Sep 10	26.4	Sep 25 21:00	99.4%	99.0%	0	0
October 2021	742	71.6%	28.2%	0.3%	0.0%	0.0%	0.0%	3.6	8.6	Oct 20	16.1	Oct 20 18:00	100.0%	99.7%	0	0
November 2021	717	66.3%	29.3%	4.5%	0.0%	0.0%	0.0%	4.4	11.5	Nov 24	24.0	Nov 10 02:00	100.0%	99.6%	0	0
December 2021	726	78.9%	20.9%	0.1%	0.0%	0.0%	0.0%	3.0	8.8	Dec 15	17.9	Dec 22 05:00	98.0%	97.6%	0	0
Annual	8654	71.8%	23.2%	3.8%	1.1%	0.1%	1.3%	4.6	MAXIMUM VALUES			99.1%	98.8%	2	3	

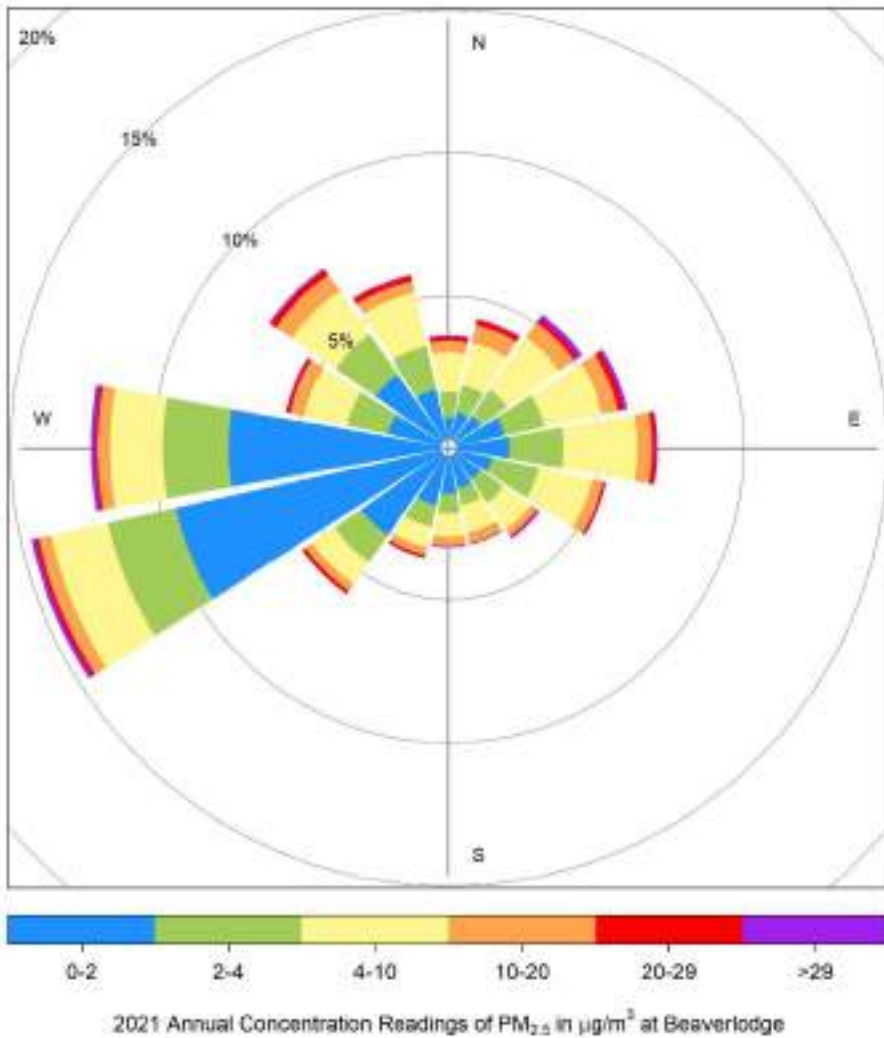
AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Beaverlodge

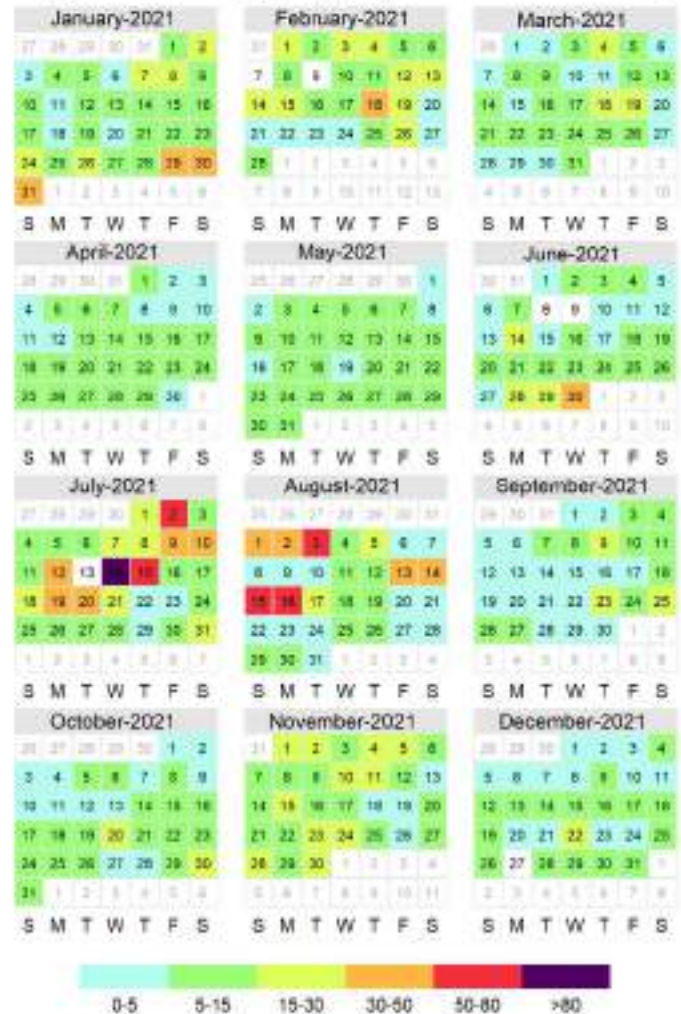


2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Beaverlodge





Hourly Maximum $PM_{2.5}$ (in $\mu g/m^3$) for 2021 at Beaverlodge

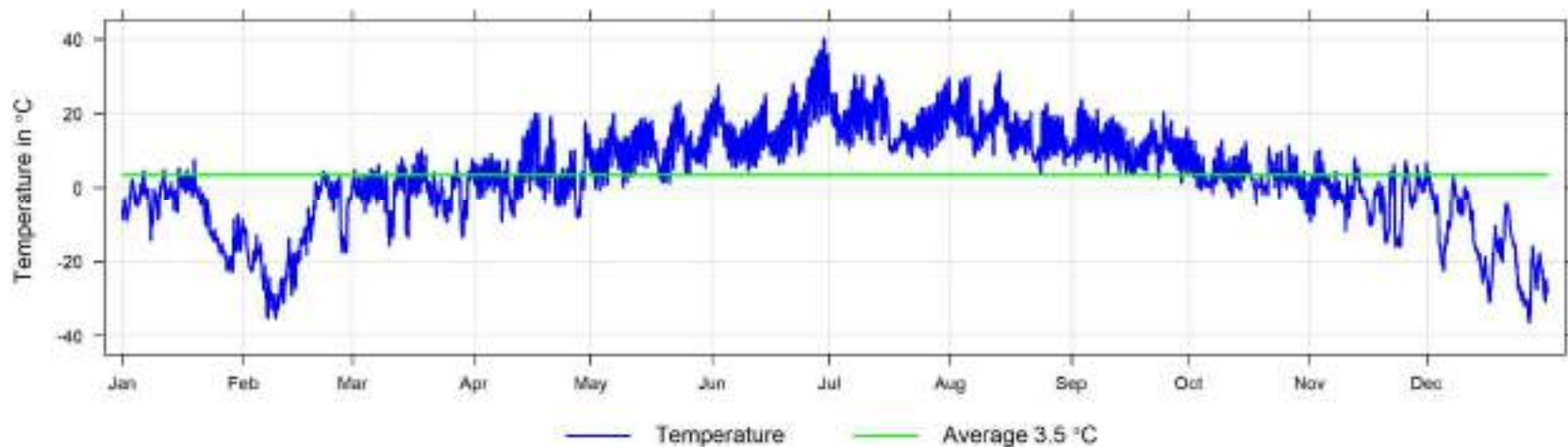


5.8 Temperature (ET) - Beaverlodge 2021 Summary

Temperature (ET) Frequency Distribution at Beaverlodge

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)			
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date	
January 2021	744	-5.9	2.1	Jan 17	7.5	Jan 19 12:00	-20.8	Jan 28	-23.0	Jan 29 05:00	100.0%	100.0%	
February 2021	672	-14.9	3.1	Feb 21	4.3	Feb 21 12:00	-32.4	Feb 09	-35.3	Feb 09 08:00	100.0%	100.0%	
March 2021	744	-0.9	4.7	Mar 31	10.5	Mar 18 17:00	-10.5	Mar 10	-15.9	Mar 10 08:00	100.0%	100.0%	
April 2021	720	3.5	12.4	Apr 16	19.9	Apr 16 18:00	-6.4	Apr 27	-9.2	Apr 08 07:00	100.0%	100.0%	
May 2021	744	10.5	17.7	May 23	23.1	May 23 18:00	5.1	May 18	-0.5	May 03 06:00	100.0%	100.0%	
June 2021	720	17.5	31.7	Jun 29	40.3	Jun 29 17:00	9.9	Jun 07	4.6	Jun 10 05:00	100.0%	100.0%	
July 2021	737	17.9	25.2	Jul 13	30.5	Jul 07 17:00	11.1	Jul 17	8.1	Jul 22 06:00	99.1%	99.1%	
August 2021	744	15.8	24.2	Aug 13	31.1	Aug 13 15:00	8.2	Aug 22	3.8	Aug 24 04:00	100.0%	100.0%	
September 2021	720	11.3	15.8	Sep 03	23.9	Sep 03 17:00	6.9	Sep 29	1.3	Sep 29 08:00	100.0%	100.0%	
October 2021	744	3.2	8.2	Oct 01	13.0	Oct 01 14:00	-3.2	Oct 31	-7.1	Oct 31 09:00	100.0%	100.0%	
November 2021	720	-2.0	3.8	Nov 25	10.3	Nov 03 16:00	-14.7	Nov 23	-16.2	Nov 24 06:00	100.0%	100.0%	
December 2021	744	-15.5	2.5	Dec 01	5.0	Dec 01 01:00	-31.6	Dec 27	-36.4	Dec 27 09:00	100.0%	100.0%	
8753		AVERAGE	31.7	MAXIMUM VALUES		40.3	Jun 29 17:00	MINIMUM VALUES		-36.4	Dec 27 09:00	99.9%	99.9%

2021 Hourly Temperature Readings (in °C) at Beaverlodge

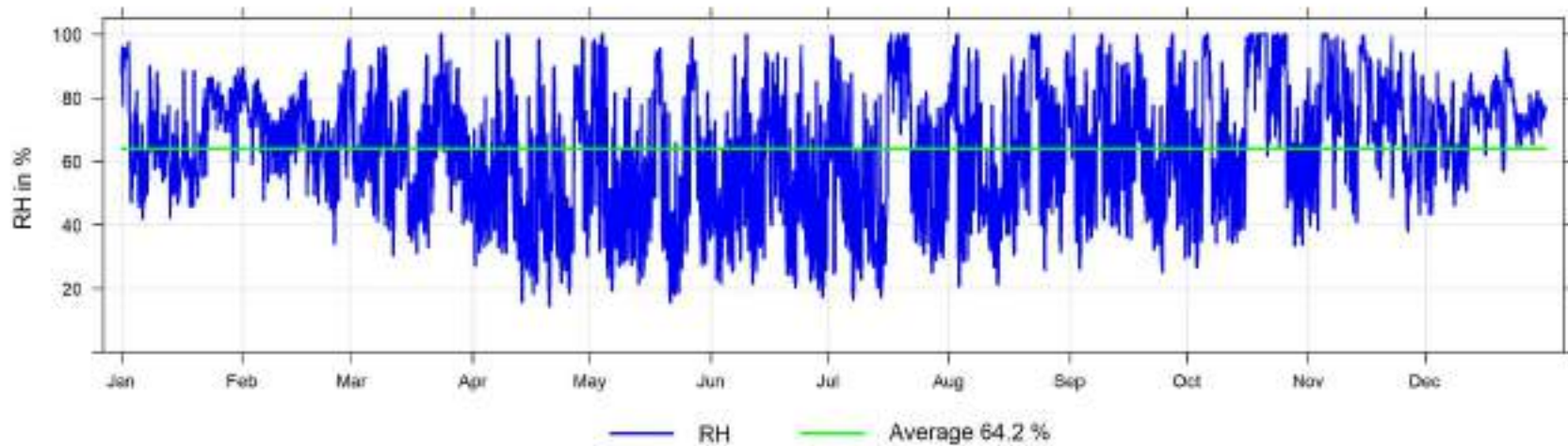


5.9 Relative Humidity (RH) - Beaverlodge 2021 Summary

Relative Humidity (RH) Frequency Distribution at Beaverlodge

Month	Valid Hours	Monthly Average (%)	Maximum Values			Operational time (%)	Valid time (%)		
			24-hr (%)	Date	1-hr (%)			Date	
January 2021	744	69.1	94.5	Jan 02	97.6	Jan 02 23:00	100.0%	100.0%	
February 2021	672	70.5	91.3	Feb 28	98.5	Feb 28 10:00	100.0%	100.0%	
March 2021	744	64.4	86.4	Mar 24	100.0	Mar 24 00:00	100.0%	100.0%	
April 2021	720	52.8	82.6	Apr 27	100.0	Apr 10 01:00	100.0%	100.0%	
May 2021	744	55.0	91.1	May 18	100.0	May 04 04:00	100.0%	100.0%	
June 2021	720	52.2	82.6	Jun 15	100.0	Jun 10 05:00	100.0%	100.0%	
July 2021	737	59.3	92.5	Jul 21	99.9	Jul 21 06:00	99.1%	99.1%	
August 2021	744	63.5	97.8	Aug 22	99.9	Aug 24 06:00	100.0%	100.0%	
September 2021	720	64.7	85.0	Sep 08	99.9	Sep 09 06:00	100.0%	100.0%	
October 2021	744	71.7	100.0	Oct 20	100.0	Oct 21 06:00	100.0%	100.0%	
November 2021	720	74.7	98.6	Nov 05	100.0	Nov 05 10:00	100.0%	100.0%	
December 2021	744	72.0	86.8	Dec 22	95.3	Dec 21 19:00	100.0%	100.0%	
		AVERAGE	MAXIMUM VALUES						
		8753	64.2	100.0	Oct 20	100.0	Mar 24 00:00	99.9%	99.9%

2021 Hourly Readings of Relative Humidity (in %) at Beaverlodge

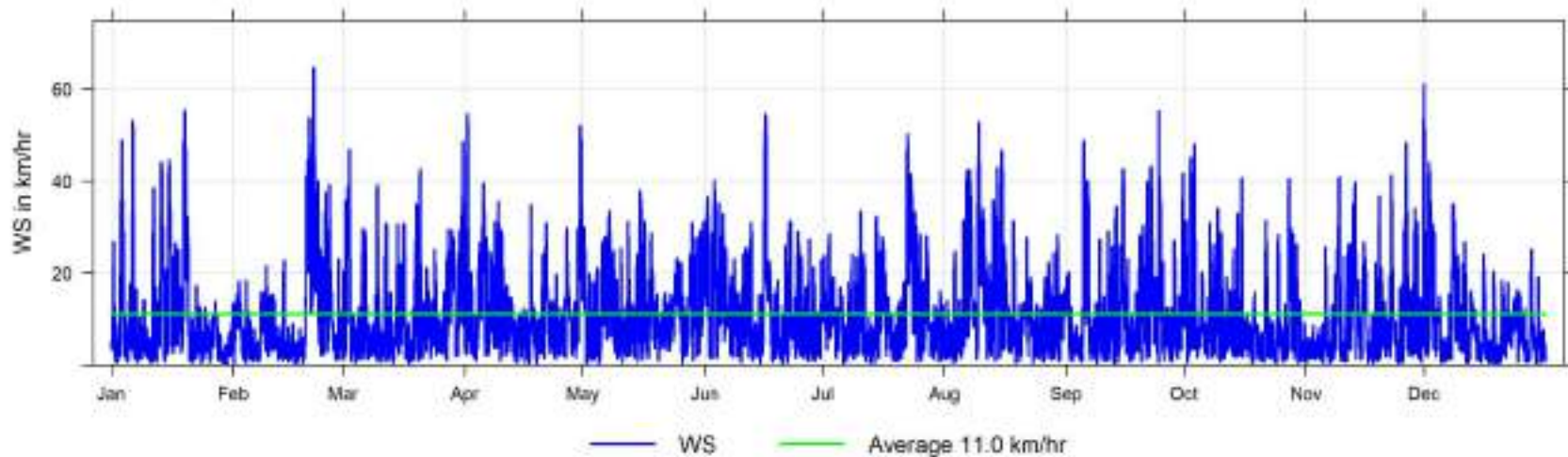


5.10 Wind Speed and Wind Direction (WS and WD) - Beaverlodge 2021 Summary

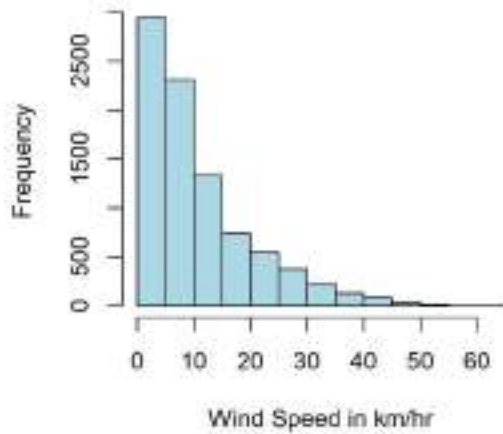
Wind Speed Frequency Distribution at Beaverlodge

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)		
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date				
January 2021	744	0.4%	40.1%	31.9%	11.6%	6.1%	10.1%	10.5	29.3	Jan 19	55.4	Jan 19 18:00	100.0%	100.0%		
February 2021	672	0.7%	40.9%	26.8%	17.3%	6.1%	8.2%	10.3	37.4	Feb 21	64.7	Feb 21 13:00	100.0%	100.0%		
March 2021	744	0.4%	36.4%	27.4%	14.3%	12.9%	8.6%	11.2	28.3	Mar 02	48.6	Mar 31 12:00	100.0%	100.0%		
April 2021	720	0.3%	25.4%	38.1%	19.0%	9.9%	7.4%	11.4	32.4	Apr 30	54.6	Apr 01 15:00	100.0%	100.0%		
May 2021	744	0.5%	22.5%	31.3%	25.1%	16.5%	4.0%	11.9	20.1	May 07	37.9	May 15 14:00	100.0%	100.0%		
June 2021	720	0.3%	26.7%	27.9%	22.8%	15.3%	7.1%	12.5	34.5	Jun 16	54.5	Jun 16 12:00	100.0%	100.0%		
July 2021	737	0.4%	25.1%	35.8%	20.1%	13.2%	5.4%	11.4	28.6	Jul 23	50.2	Jul 22 15:00	99.1%	99.1%		
August 2021	744	0.4%	26.1%	28.8%	24.5%	10.9%	9.4%	12.4	26.5	Aug 09	52.8	Aug 09 16:00	100.0%	100.0%		
September 2021	720	0.4%	29.6%	31.5%	19.2%	10.6%	8.8%	11.7	23.9	Sep 15	55.3	Sep 24 12:00	100.0%	100.0%		
October 2021	744	0.5%	38.4%	32.1%	13.6%	8.5%	6.9%	9.8	23.5	Oct 03	48.0	Oct 03 14:00	100.0%	100.0%		
November 2021	720	0.8%	43.3%	24.4%	16.1%	8.8%	6.5%	9.8	23.6	Nov 26	61.0	Dec 01 00:00	100.0%	100.0%		
December 2021	744	1.8%	42.2%	27.0%	18.4%	5.8%	4.8%	8.8	28.9	Dec 02	51.3	Dec 01 01:00	100.0%	100.0%		
Annual	8753	0.6%	33.0%	30.3%	18.5%	10.4%	7.3%	11.0	37.4	MAXIMUM VALUES		Feb 21	64.7	Feb 21 13:00	99.9%	99.9%

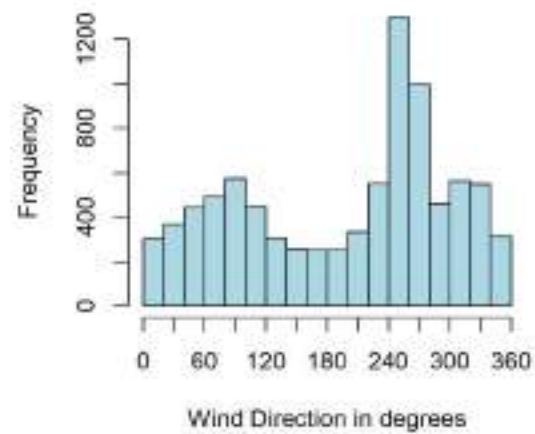
2021 Hourly Readings of Wind Speed (in km/hr) at Beaverlodge



2021 Wind Speed Histogram

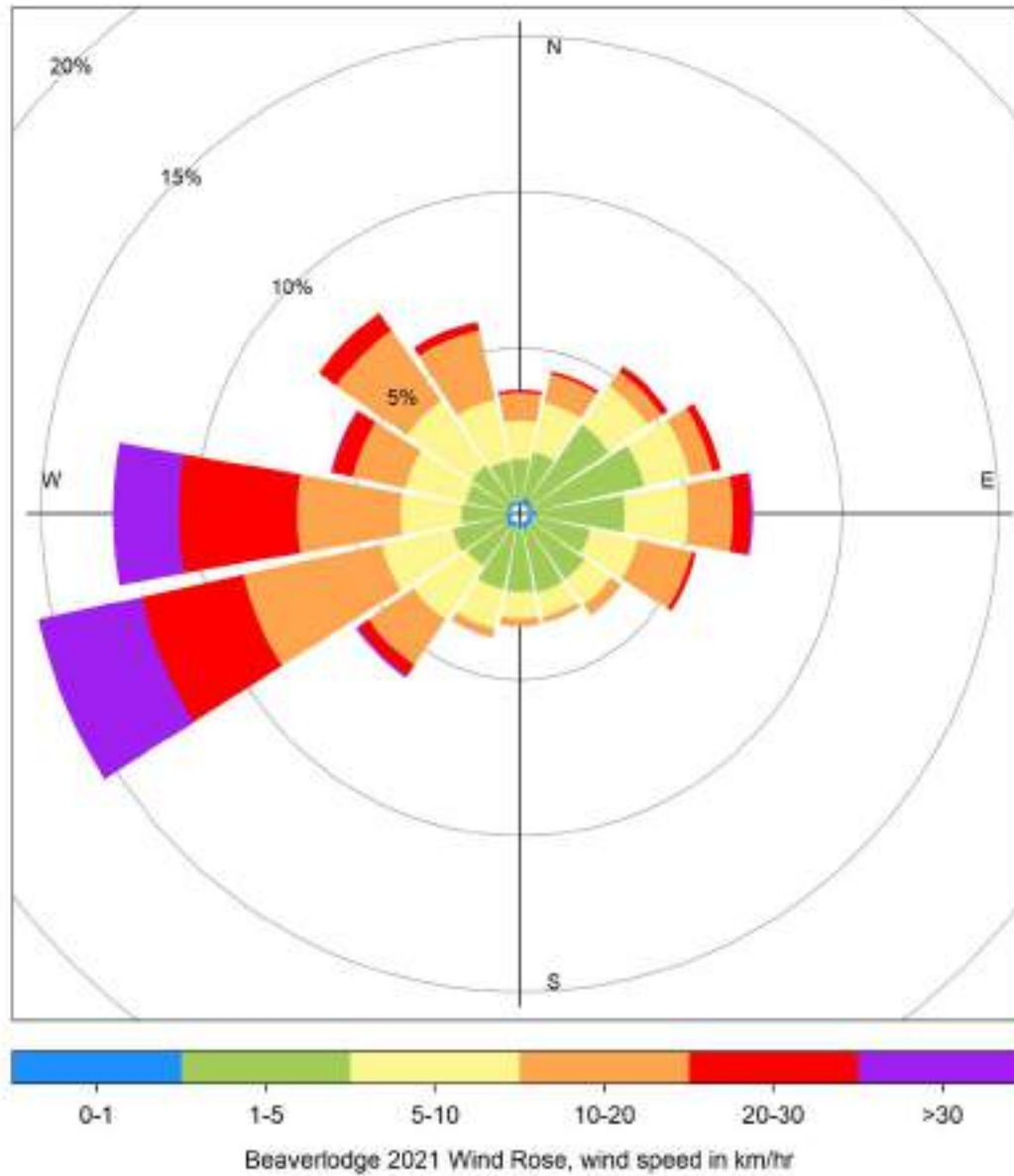


2021 Wind Direction Histogram



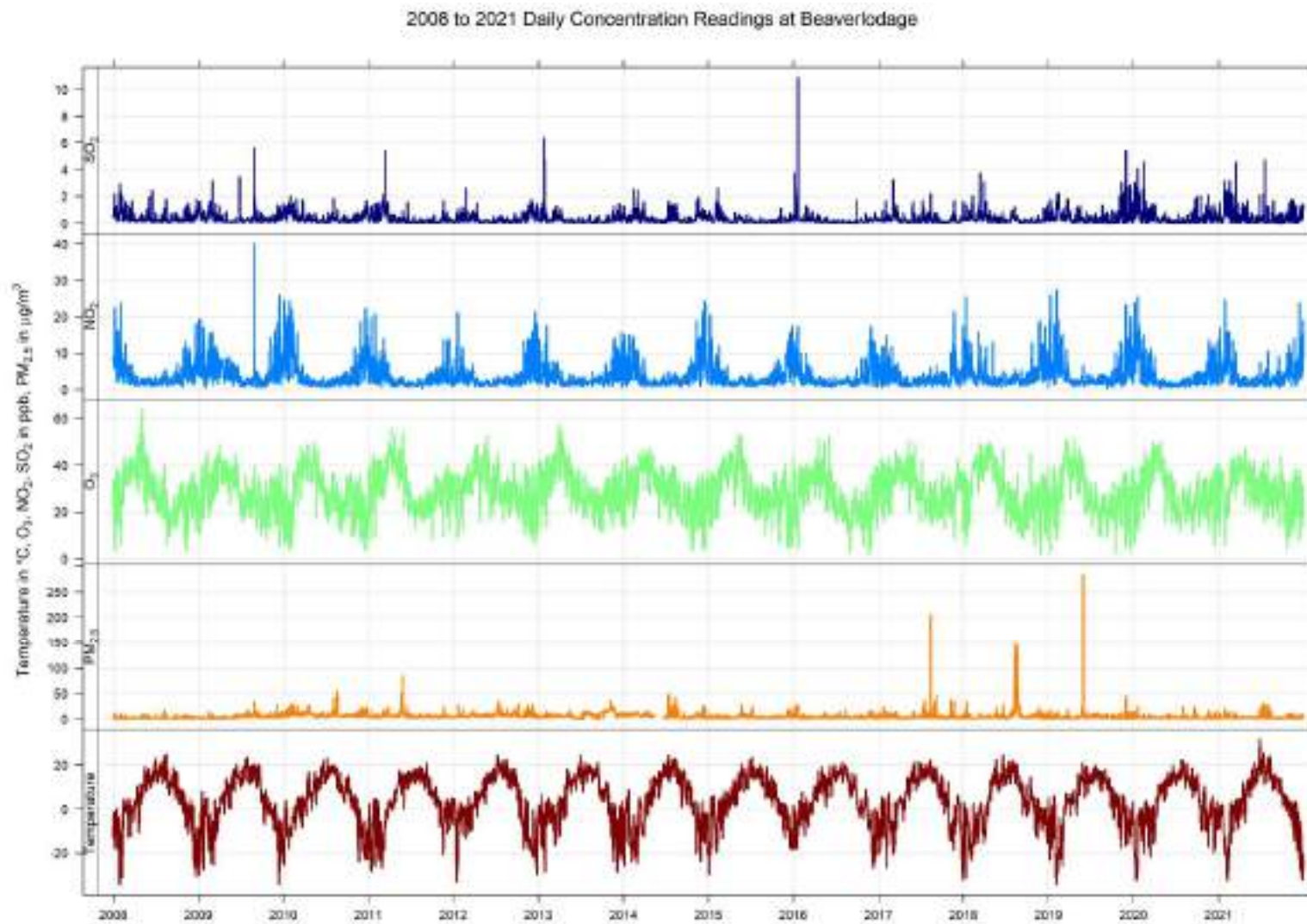
Wind Speed and Wind Direction Frequency Distribution at Beaverlodge

Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	319	0.0%	1.4%	1.4%	0.7%	0.1%	0.0%	3.6%
NNE	381	0.1%	1.7%	1.8%	0.7%	0.2%	0.0%	4.4%
NE	479	0.0%	3.1%	1.6%	0.4%	0.2%	0.0%	5.5%
ENE	550	0.0%	3.7%	1.6%	0.5%	0.3%	0.0%	6.3%
E	627	0.1%	3.0%	2.3%	1.1%	0.5%	0.1%	7.2%
ESE	479	0.0%	2.0%	1.9%	1.4%	0.2%	0.0%	5.5%
SE	321	0.1%	2.2%	1.2%	0.3%	0.0%	0.0%	3.7%
SSE	286	0.1%	2.2%	0.8%	0.2%	0.0%	0.0%	3.3%
S	288	0.0%	2.1%	1.0%	0.1%	0.0%	0.0%	3.3%
SSW	328	0.0%	2.1%	1.4%	0.2%	0.0%	0.0%	3.7%
SW	533	0.0%	1.7%	2.4%	1.4%	0.4%	0.1%	6.1%
WSW	1353	0.0%	1.9%	3.0%	3.6%	3.1%	4.0%	15.5%
W	1111	0.0%	1.5%	2.3%	2.6%	3.4%	2.8%	12.7%
WNW	513	0.0%	1.4%	2.3%	1.3%	0.8%	0.1%	5.9%
NW	660	0.0%	1.5%	3.0%	2.2%	0.8%	0.0%	7.5%
NNW	525	0.0%	1.4%	2.4%	1.8%	0.3%	0.1%	6.0%
Total	8753	0.6%	33.0%	30.3%	18.5%	10.4%	7.3%	100.0%

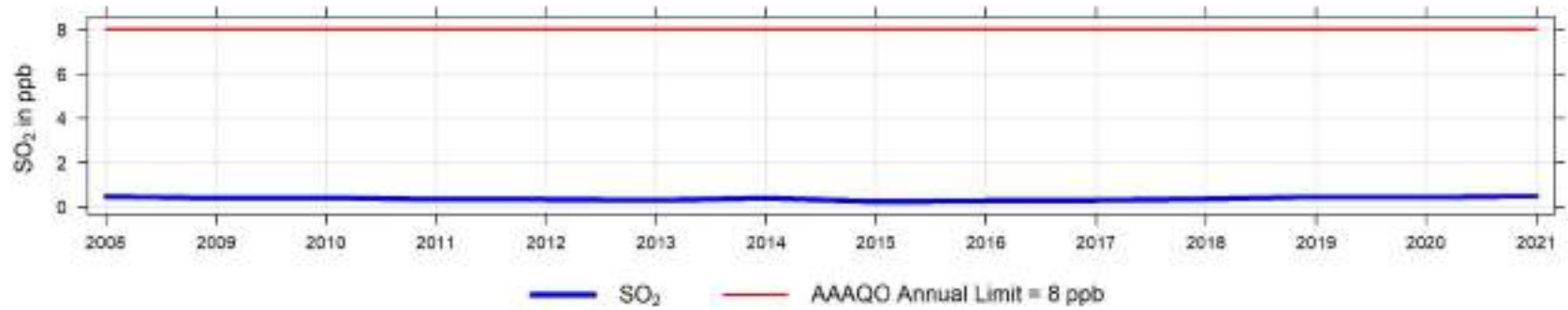


5.11 Beaverlodge Annual Trends, 2008 to 2021

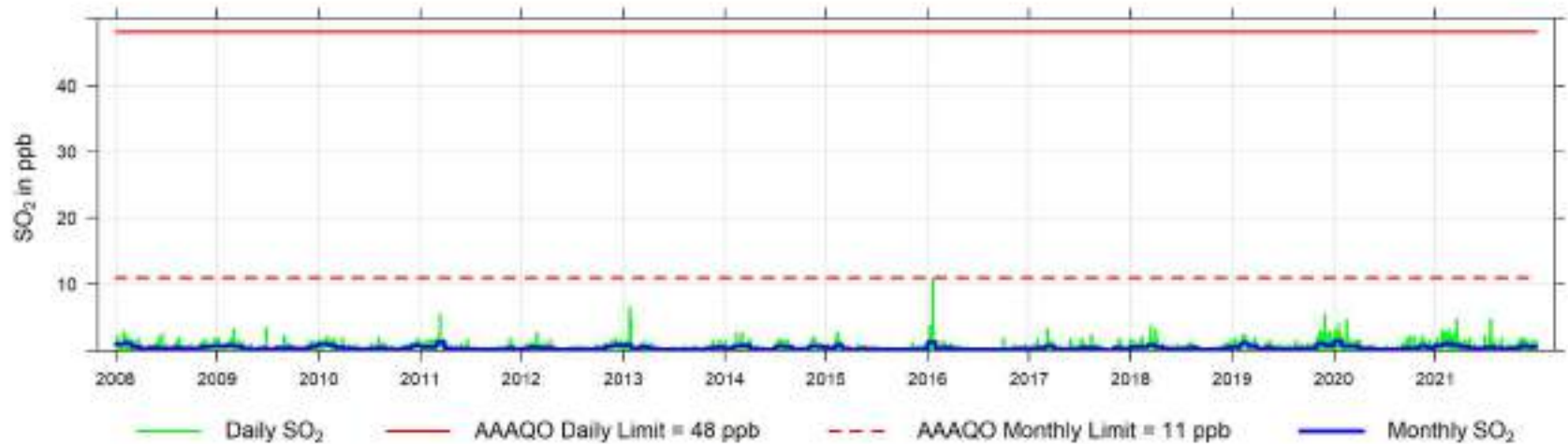
The following pages include historical annual charts collected between 2008 and 2021 at the Beaverlodge Station.



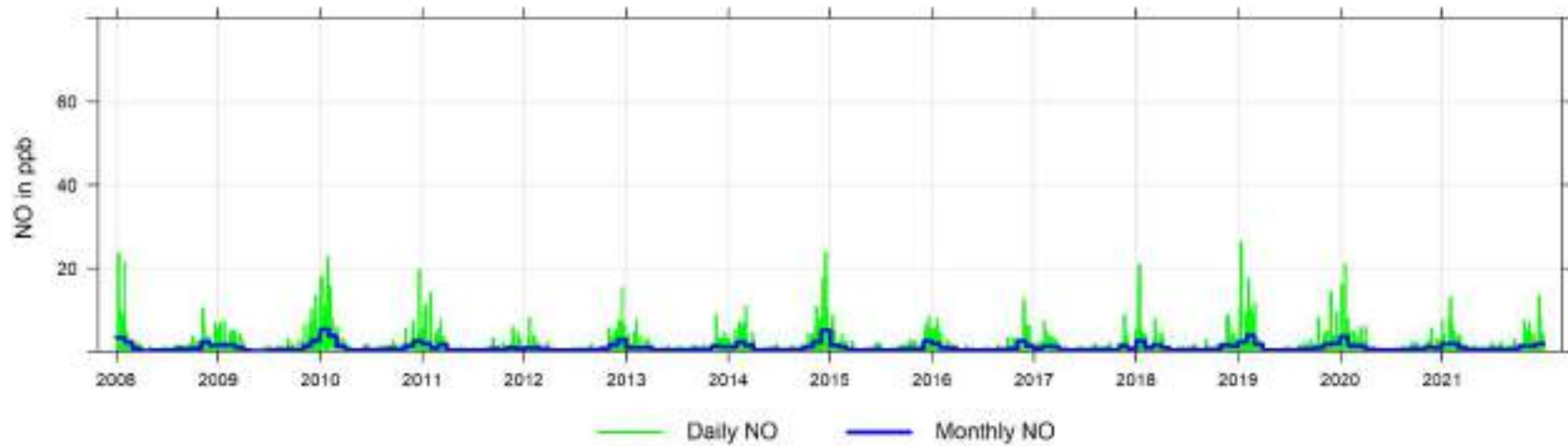
Years 2008 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Beaverlodge



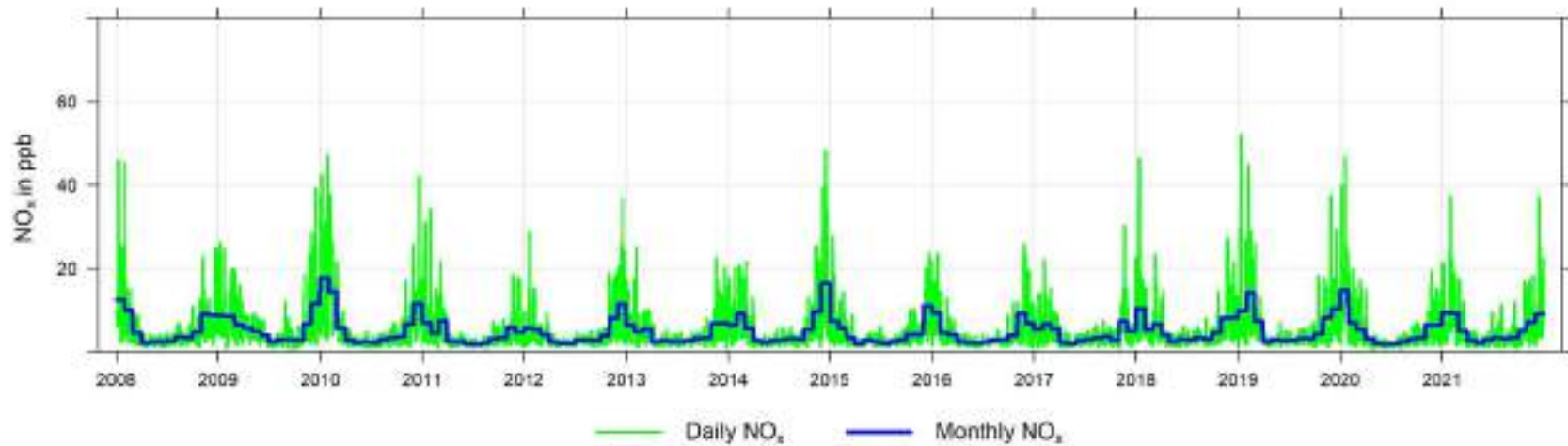
Years 2008 to 2021 Concentration Readings of SO₂ (in ppb) at Beaverlodge



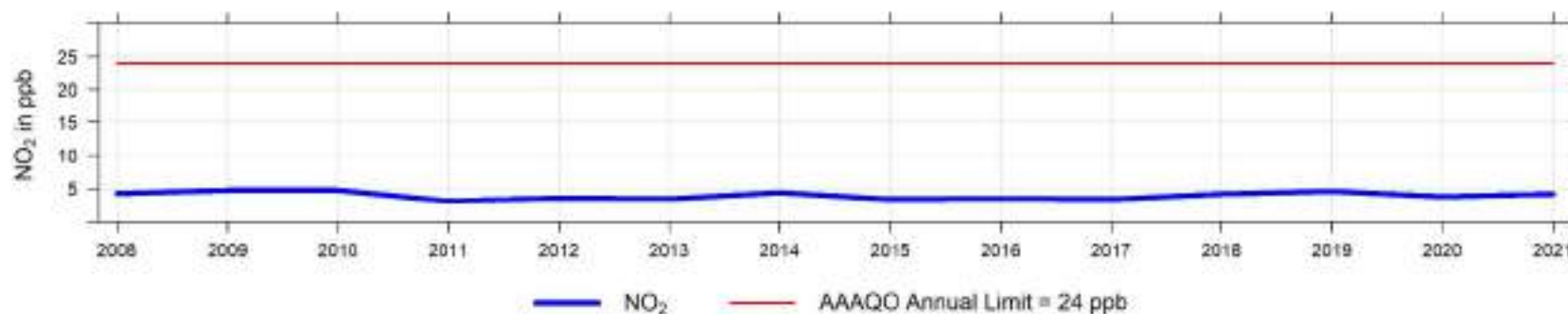
Years 2008 to 2021 Concentration Readings of NO (in ppb) at Beaverlodage



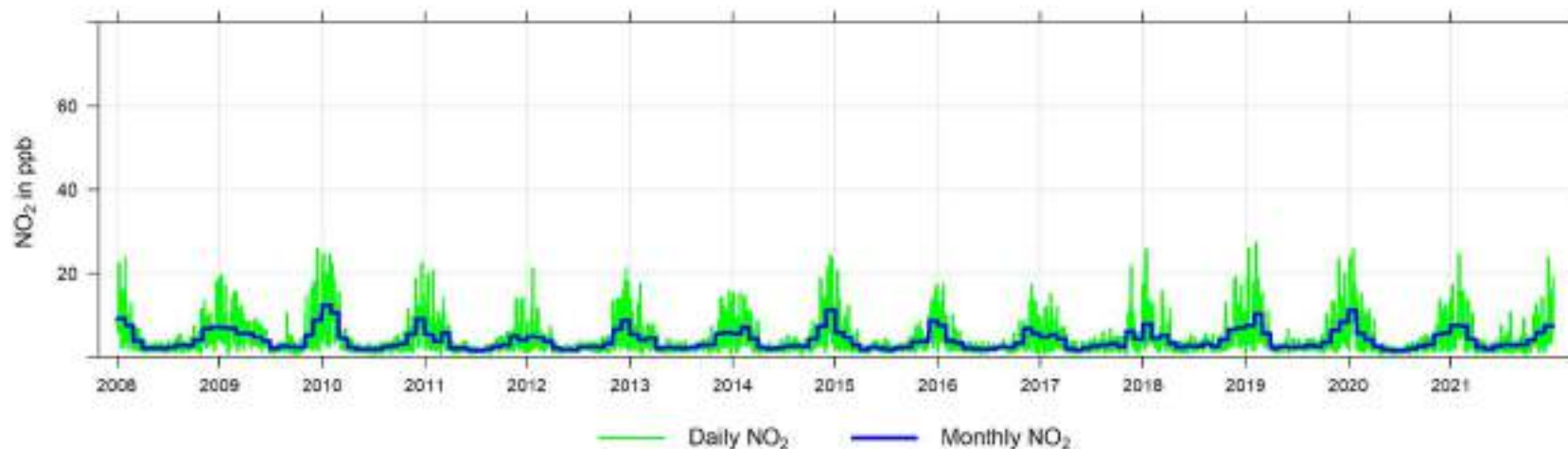
Years 2008 to 2021 Concentration Readings of NO_x (in ppb) at Beaverlodage



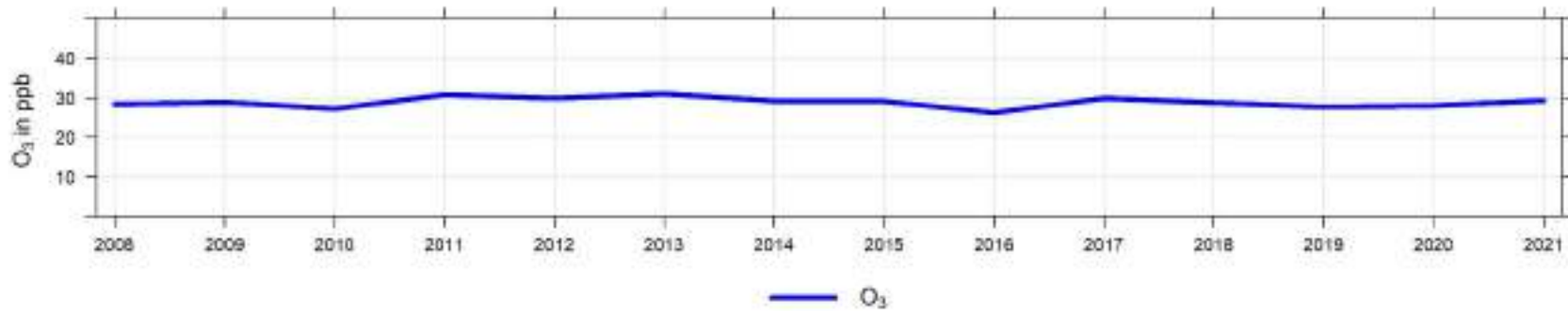
Years 2008 to 2021 Annual Concentration Readings of NO₂ (in ppb) at Beaverlodge



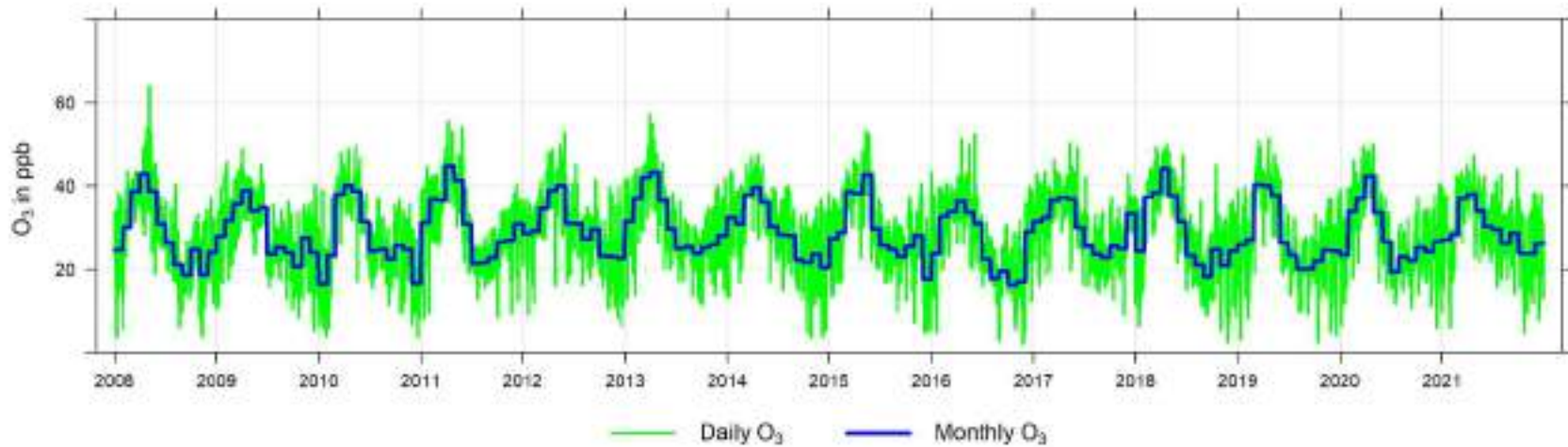
Years 2008 to 2021 Concentration Readings of NO₂ (in ppb) at Beaverlodge



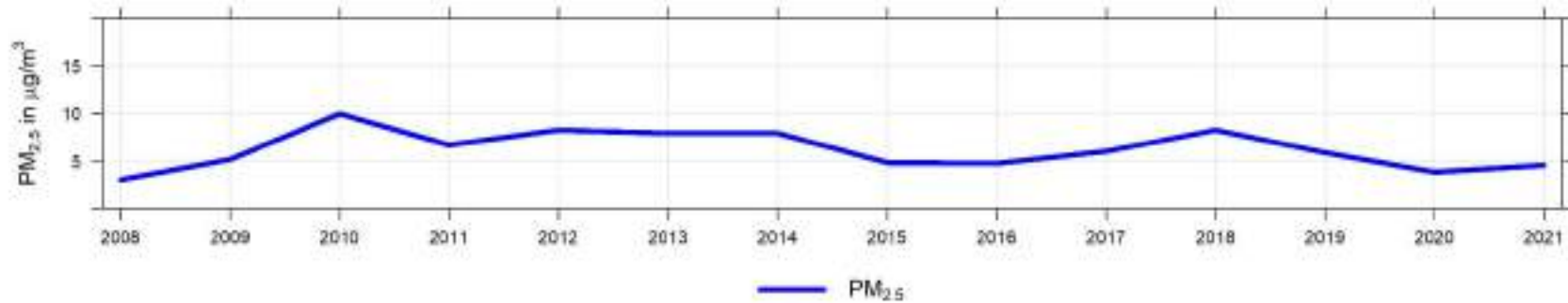
Years 2008 to 2021 Annual Concentration Readings of O₃ (in ppb) at Beaverlodge



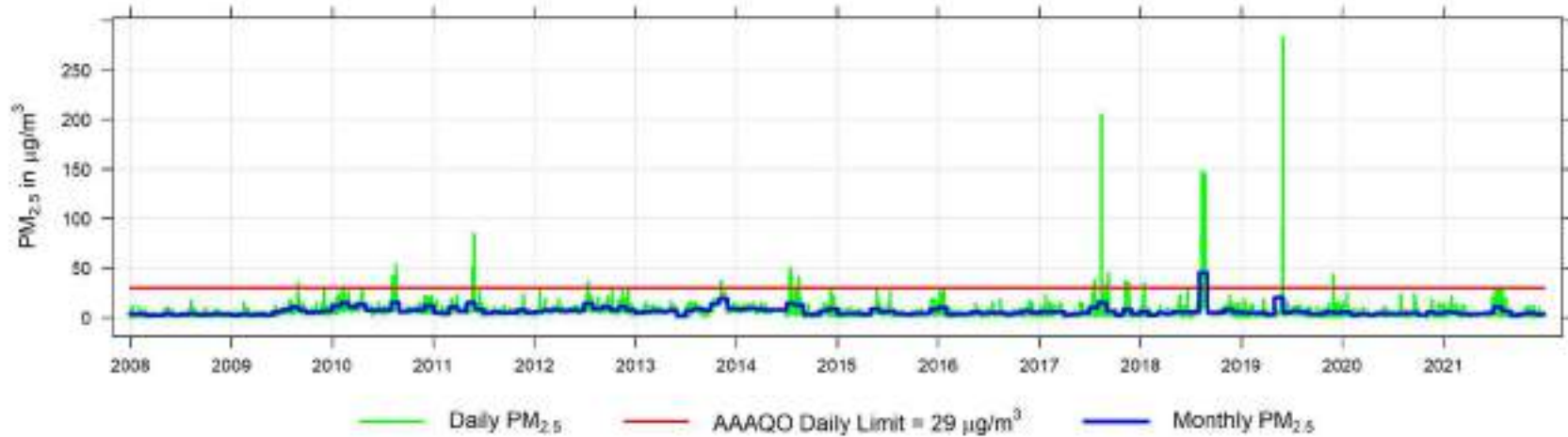
Years 2008 to 2021 Concentration Readings of O₃ (in ppb) at Beaverlodge



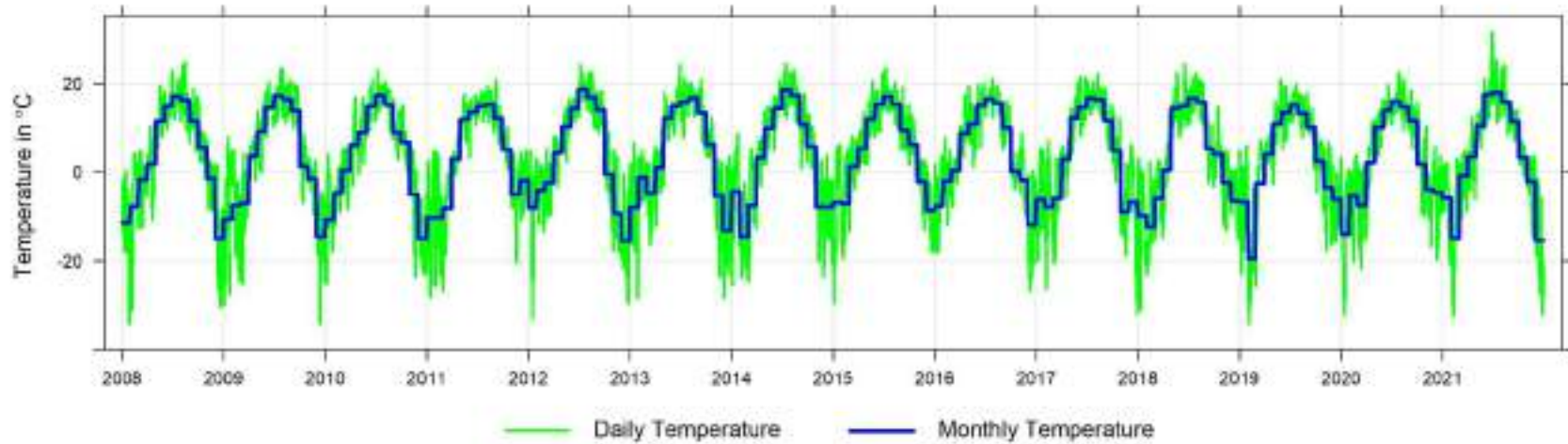
2008 to 2021 Annual Concentration Readings of PM_{2.5} in µg/m³ at Beaverlodge



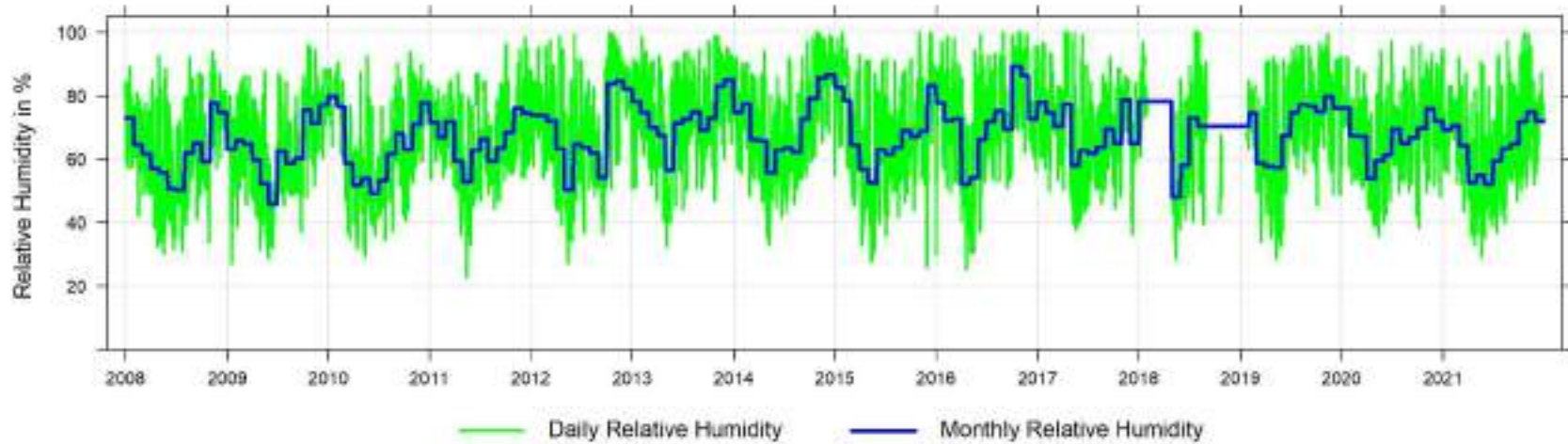
Years 2008 to 2021 Concentration Readings of PM_{2.5} in µg/m³ at Beaverlodge



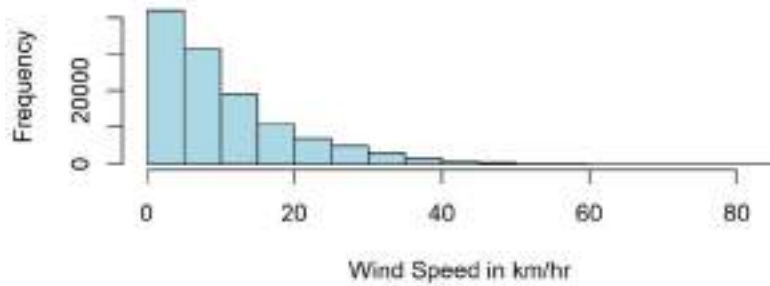
Years 2008 to 2021 Temperature Readings (in °C) at Beaverlodage



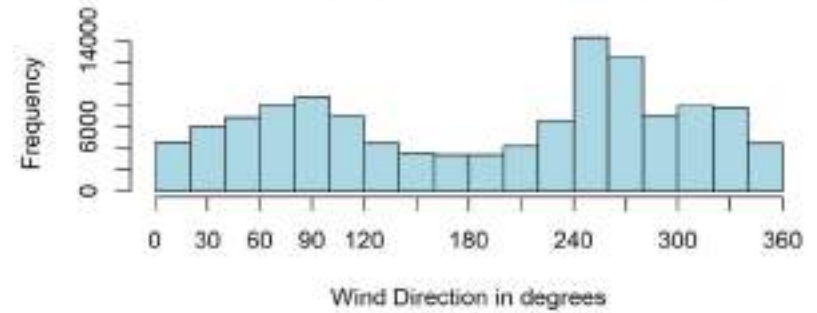
Years 2008 to 2021 Relative Humidity Readings (in %) at Beaverlodage



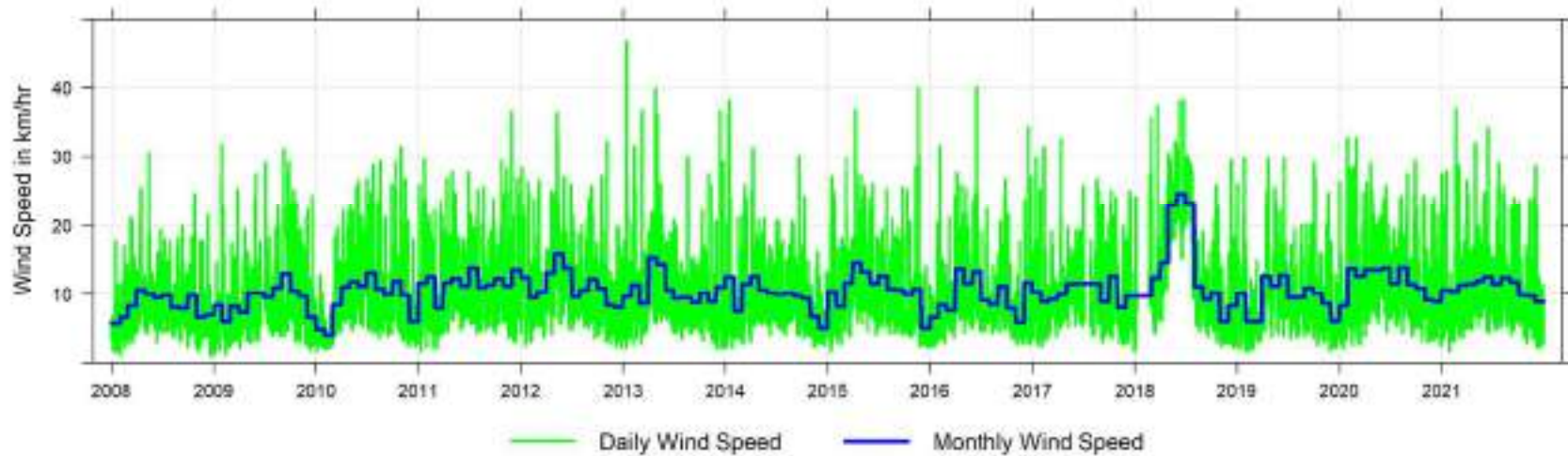
Years 2008 to 2021 Wind Speed Histogram

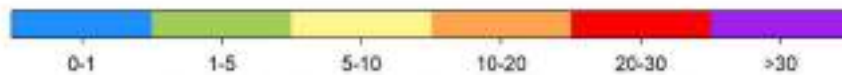
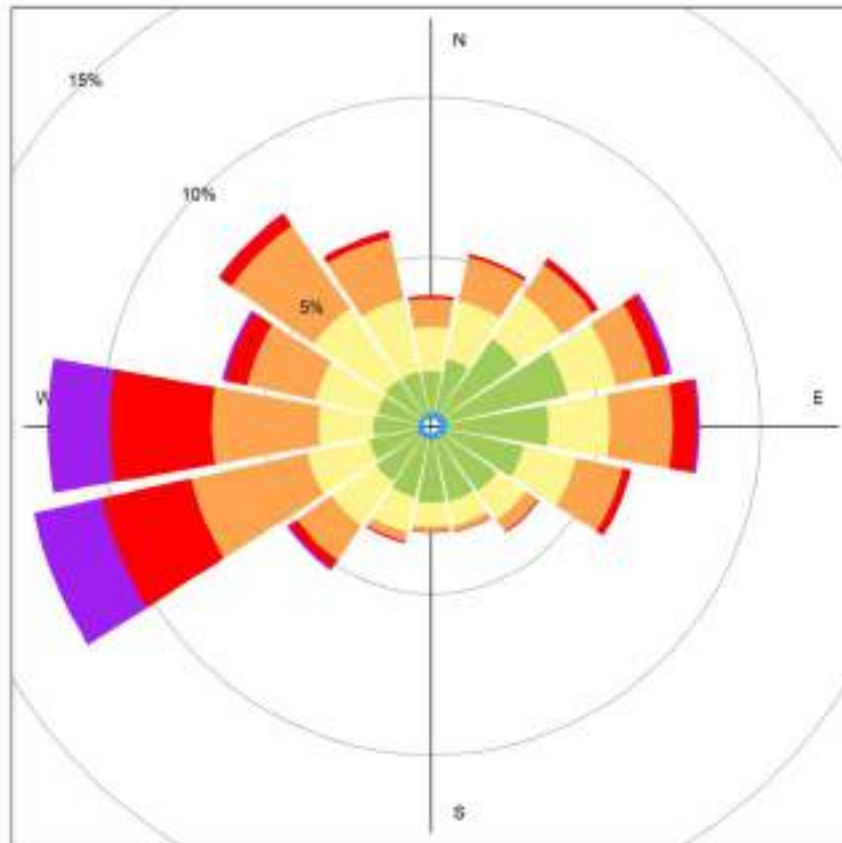


Years 2008 to 2021 Wind Direction Histogram

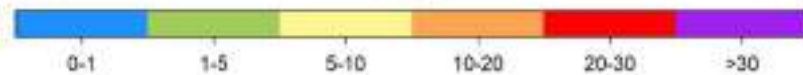
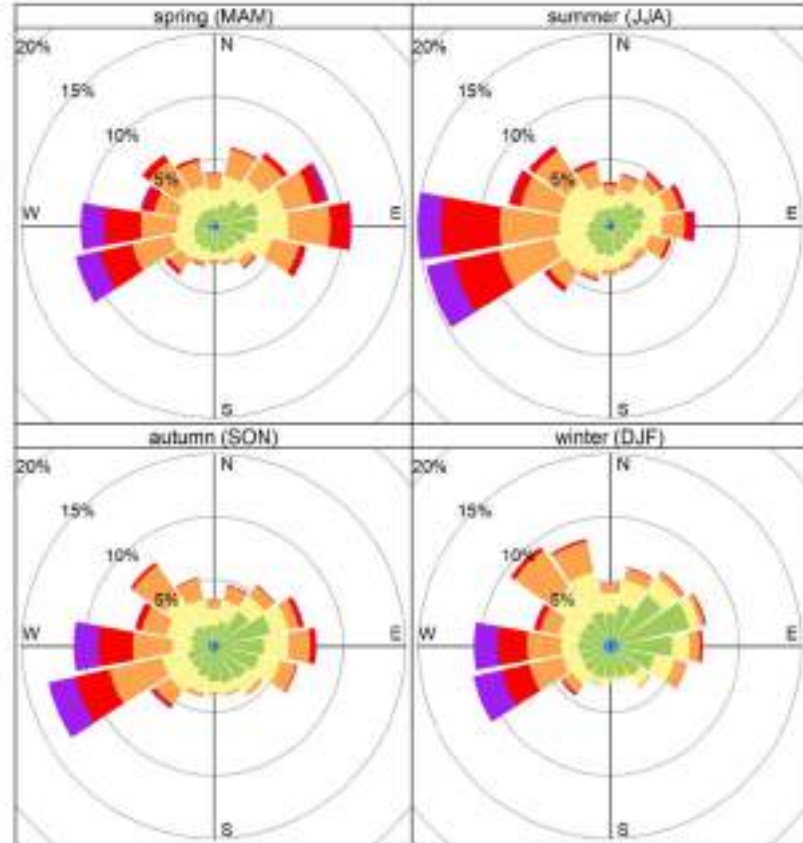


Years 2008 to 2021 Wind Speed Readings (in km/hr) at Beaverlodge





Beaverfodage 2008 to 2021 Wind Rose, wind speed in km/hr



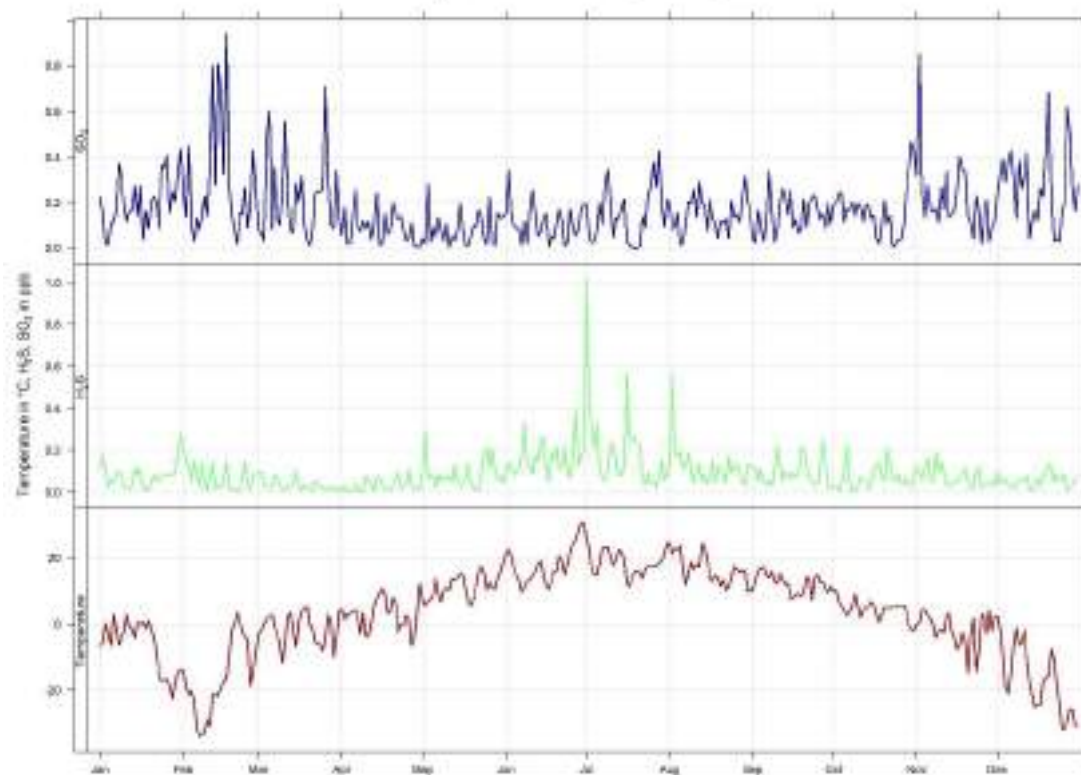
Beaverfodage 2008 to 2021 Seasonal Wind Rose, wind speed in km/hr

6 Donnelly Key Parameters - Continuous Monitoring Data - 2021 Summary

Donnelly Key Parameters - Continuous Monitoring Data - 2021 Summary

Donnelly Station	Parameter	Annual Average	Maximum Values			Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr			Date	1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.2	1.0	Feb 17	3.4	Nov 02 16:00	99.8%	95.1%	0	0	0	0
	Hydrogen Sulphide H ₂ S measured in ppb	0.1	1.0	Jul 01	6.3	Jul 01 08:00	99.8%	95.1%	0	0	-	-

2021 Daily Concentration Readings at Donnelly



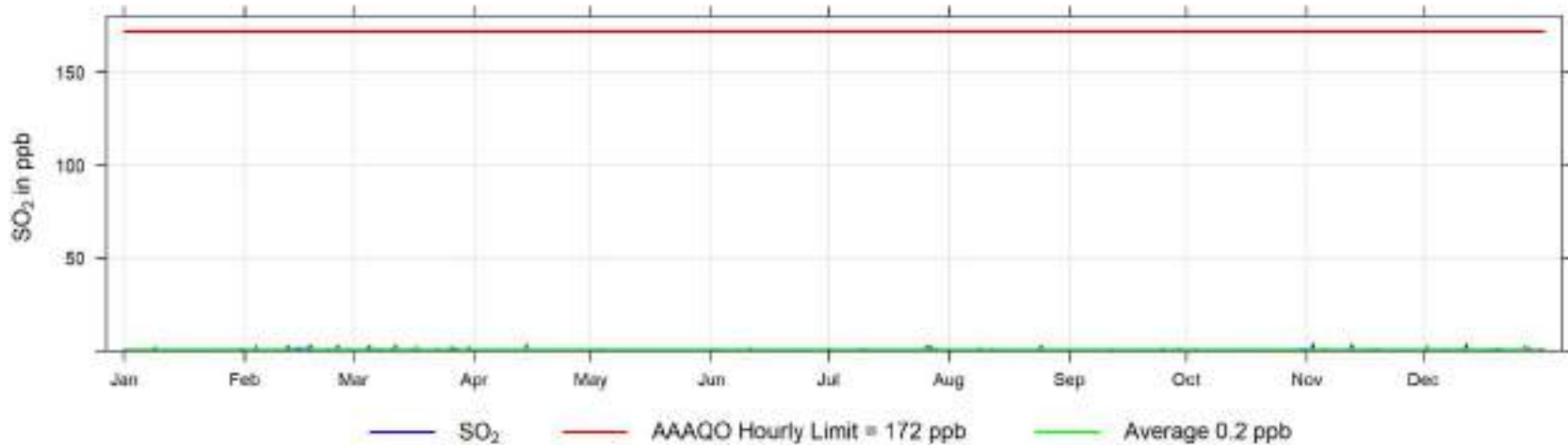
6.1 Sulphur Dioxide (SO₂) - Donnelly 2021 Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Donnelly

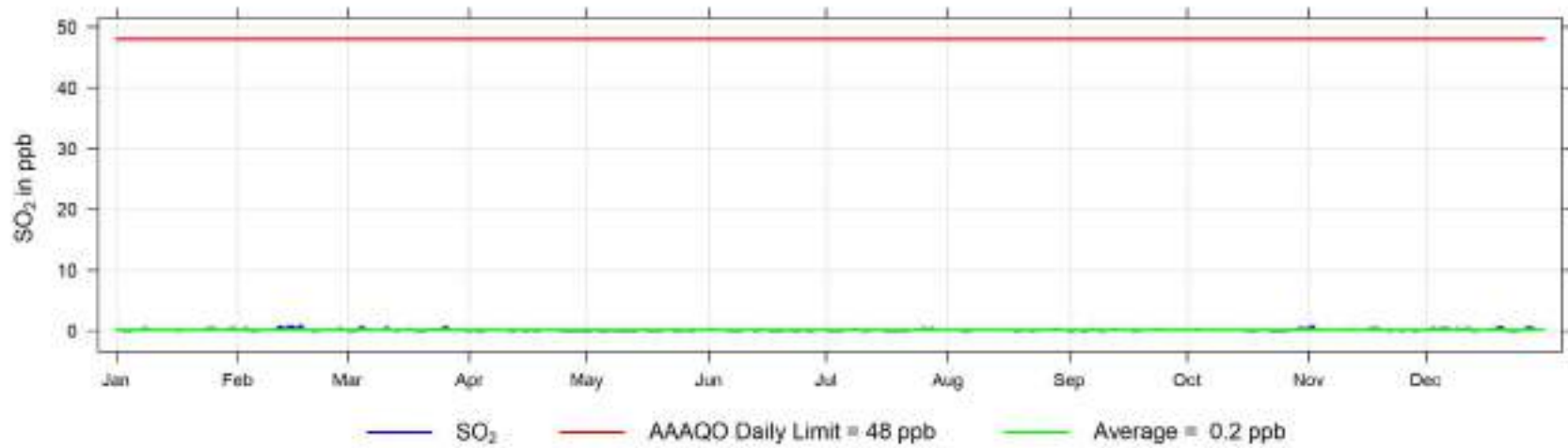
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	709	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Jan 31	1.6	Jan 09 02:00	100.0%	95.3%	0	0	0
February 2021	639	95.9%	4.1%	0.0%	0.0%	0.0%	0.0%	0.3	1.0	Feb 17	2.7	Feb 17 23:00	100.0%	95.1%	0	0	0
March 2021	709	97.7%	2.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.7	Mar 26	2.6	Mar 11 19:00	100.0%	95.3%	0	0	0
April 2021	685	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Apr 06	2.8	Apr 14 08:00	100.0%	95.1%	0	0	0
May 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	May 03	0.8	May 03 11:00	100.0%	95.3%	0	0	0
June 2021	685	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Jun 02	1.3	Jun 10 19:00	99.9%	95.1%	0	0	0
July 2021	704	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1	0.4	Jul 28	2.5	Jul 26 09:00	99.3%	94.6%	0	0	0
August 2021	709	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Aug 29	2.3	Aug 24 18:00	100.0%	95.3%	0	0	0
September 2021	687	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Sep 07	1.3	Sep 29 04:00	100.0%	95.4%	0	0	0
October 2021	704	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Oct 30	1.0	Oct 03 09:00	99.2%	94.6%	0	0	0
November 2021	685	98.7%	1.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.9	Nov 02	3.4	Nov 02 16:00	99.7%	95.1%	0	0	0
December 2021	708	97.7%	2.3%	0.0%	0.0%	0.0%	0.0%	0.3	0.7	Dec 20	3.2	Dec 12 01:00	100.0%	95.2%	0	0	0
Annual	8333	99.1%	1.0%	0.0%	0.0%	0.0%	0.0%	0.2	1.0	MAXIMUM VALUES		99.8%	95.1%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

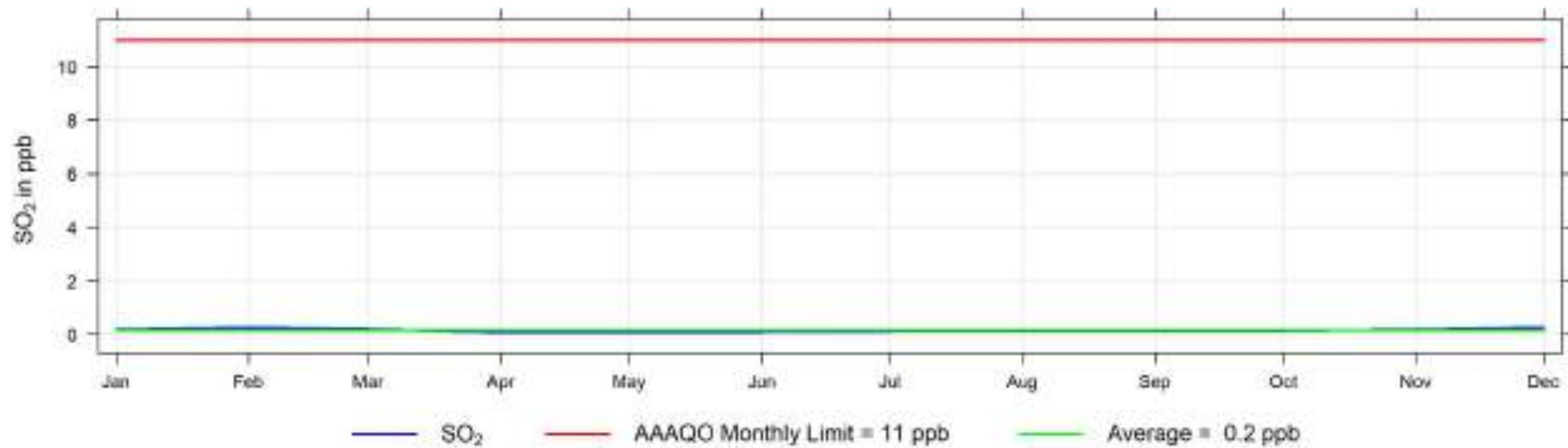
2021 Hourly Concentration Readings of SO₂ (in ppb) at Donnelly



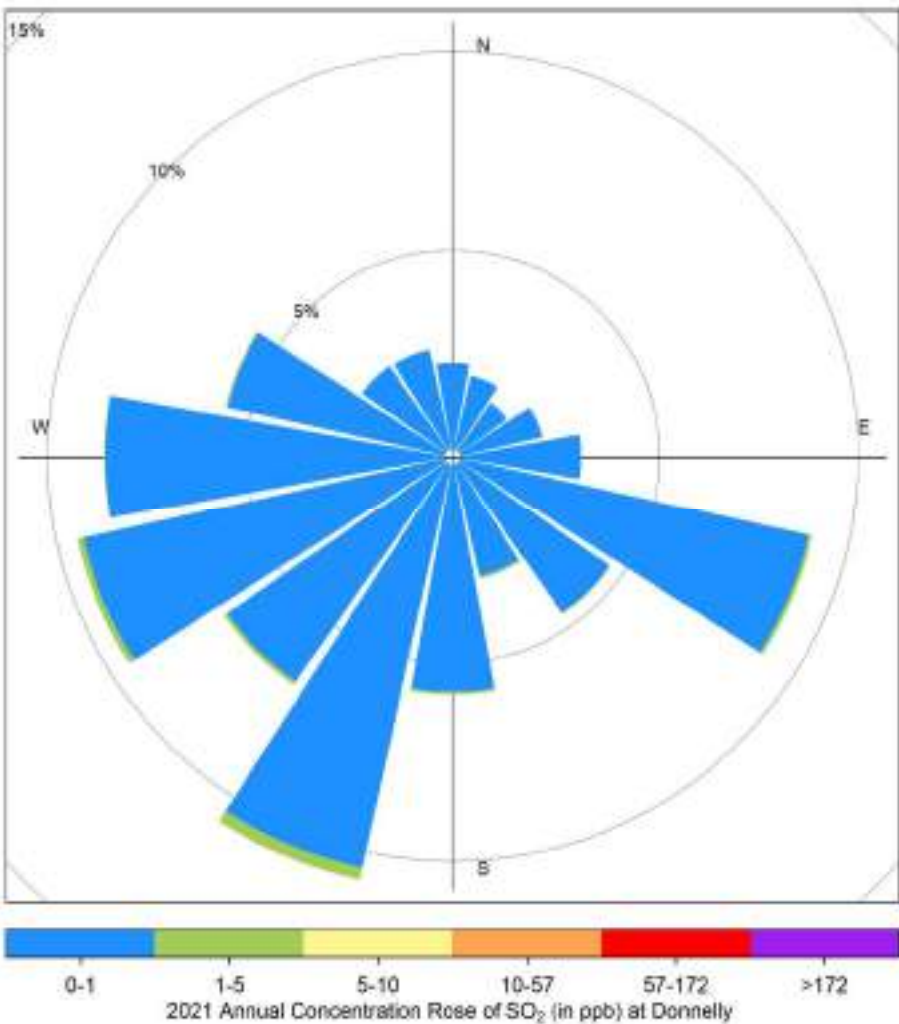
2021 Daily Concentration Readings of SO₂ (in ppb) at Donnelly



2021 Monthly Concentration Readings of SO₂ (in ppb) at Donnelly



Hourly Maximum SO₂ (in ppb) for 2021 at Donnelly



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	31 1 2 3 4 5 6	29 1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
30 31 1 2 3	28 29 30 1	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	6 7 8 9 10 11 12
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	25 26 27 28 29 30 31	29 30 31 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
25 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
28 29 30 31 1 2	31 1 2 3 4 5 6	28 29 30 1 2 3 4
3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
24 25 26 27 28 29 30	28 29 30 1 2 3 4	26 27 28 29 30 31 1
31 1 2 3 4 5 6	5 6 7 8 9 10 11	2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S

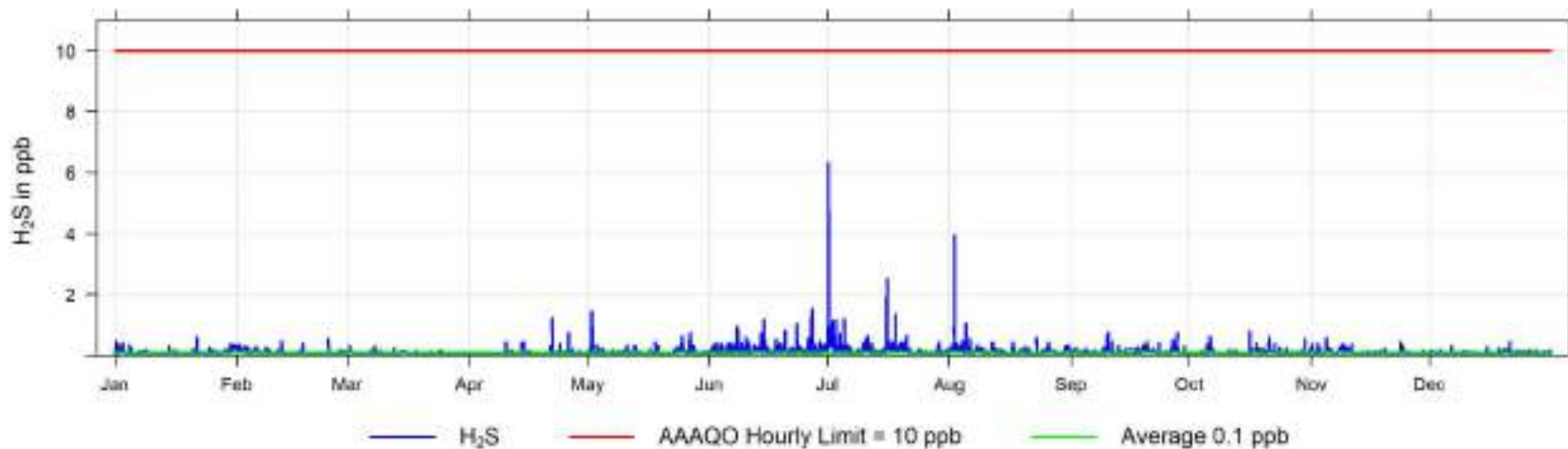
6.2 Hydrogen Sulphide (H₂S) - Donnelly 2021 Summary

Hydrogen Sulphide (H₂S) Frequency Distribution at Donnelly

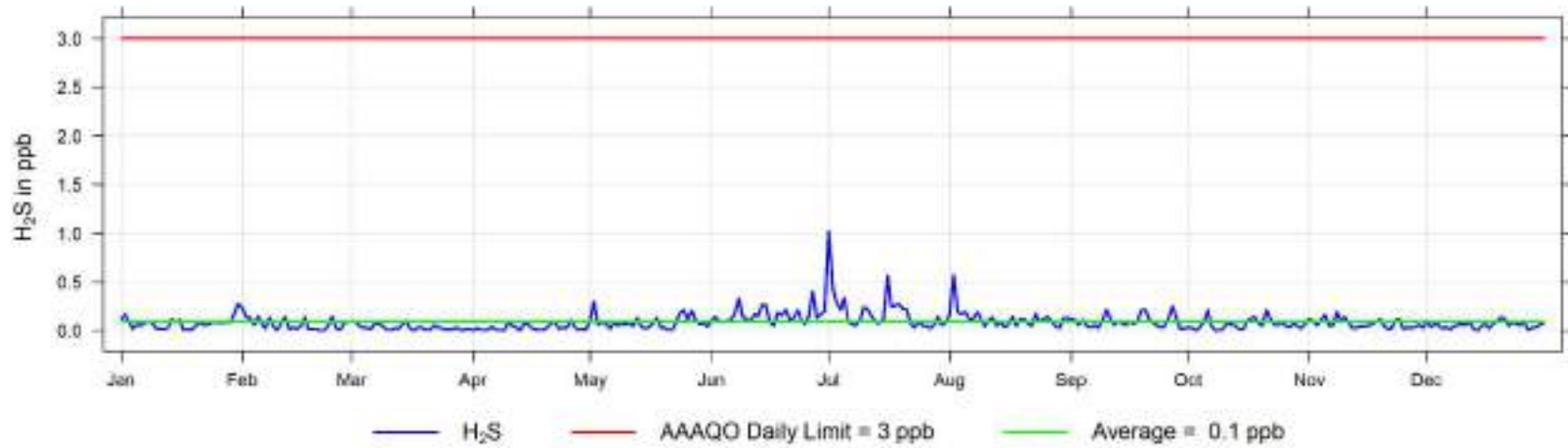
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Jan 31	0.6	Jan 21 20:00	100.0%	95.3%	0	0
February 2021	640	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Feb 01	0.5	Feb 24 04:00	100.0%	95.2%	0	0
March 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Mar 15	0.3	Mar 01 13:00	100.0%	95.2%	0	0
April 2021	685	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Apr 26	1.2	Apr 22 04:00	100.0%	95.1%	0	0
May 2021	709	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	May 02	1.4	May 02 06:00	100.0%	95.3%	0	0
June 2021	685	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Jun 27	1.5	Jun 27 08:00	99.9%	95.1%	0	0
July 2021	704	97.6%	2.0%	0.3%	0.1%	0.0%	0.0%	0.2	1.0	Jul 01	6.3	Jul 01 08:00	99.3%	94.6%	0	0
August 2021	708	99.6%	0.3%	0.1%	0.0%	0.0%	0.0%	0.1	0.6	Aug 02	3.9	Aug 02 09:00	100.0%	95.2%	0	0
September 2021	685	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Sep 27	0.8	Sep 10 09:00	100.0%	95.1%	0	0
October 2021	704	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Oct 06	0.8	Oct 16 07:00	99.2%	94.6%	0	0
November 2021	684	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Nov 08	0.6	Nov 04 20:00	99.7%	95.0%	0	0
December 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.1	Dec 20	0.4	Dec 21 11:00	100.0%	95.2%	0	0
Annual	8329	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	MAXIMUM VALUES				99.8%	95.1%	0	0

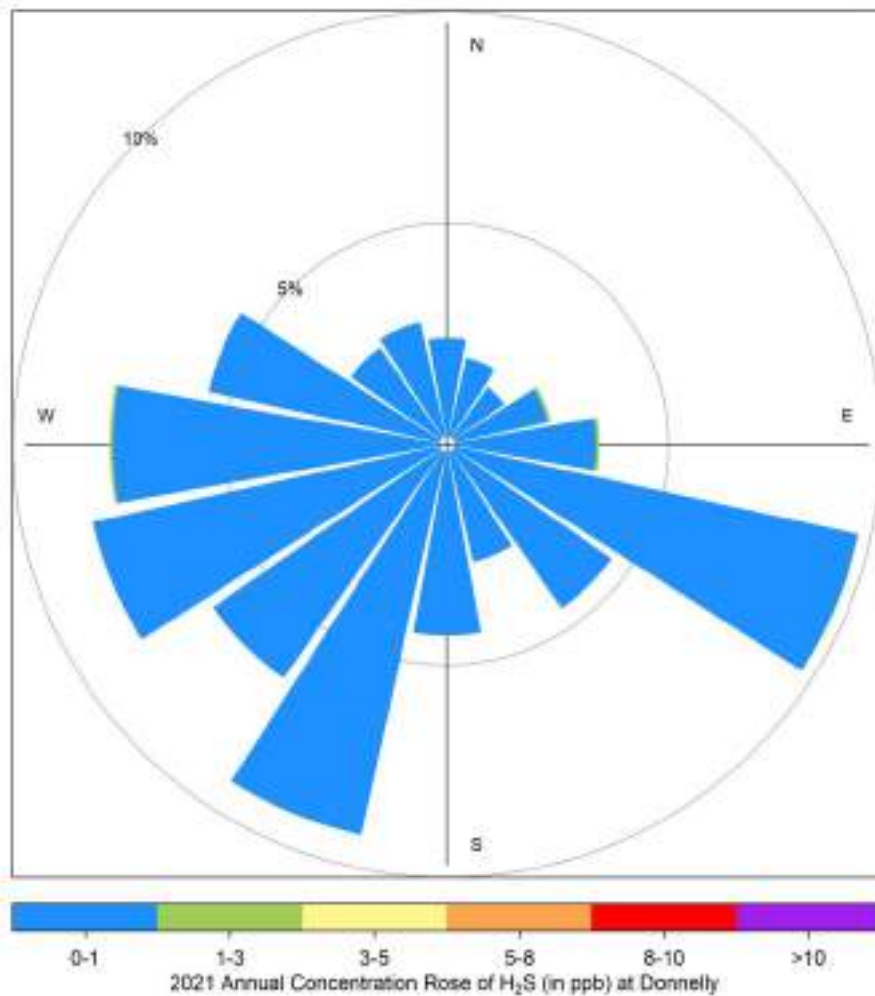
AAAQO Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of H₂S (in ppb) at Donnelly



2021 Daily Concentration Readings of H₂S (in ppb) at Donnelly





Hourly Maximum H₂S (in ppb) for 2021 at Donnelly

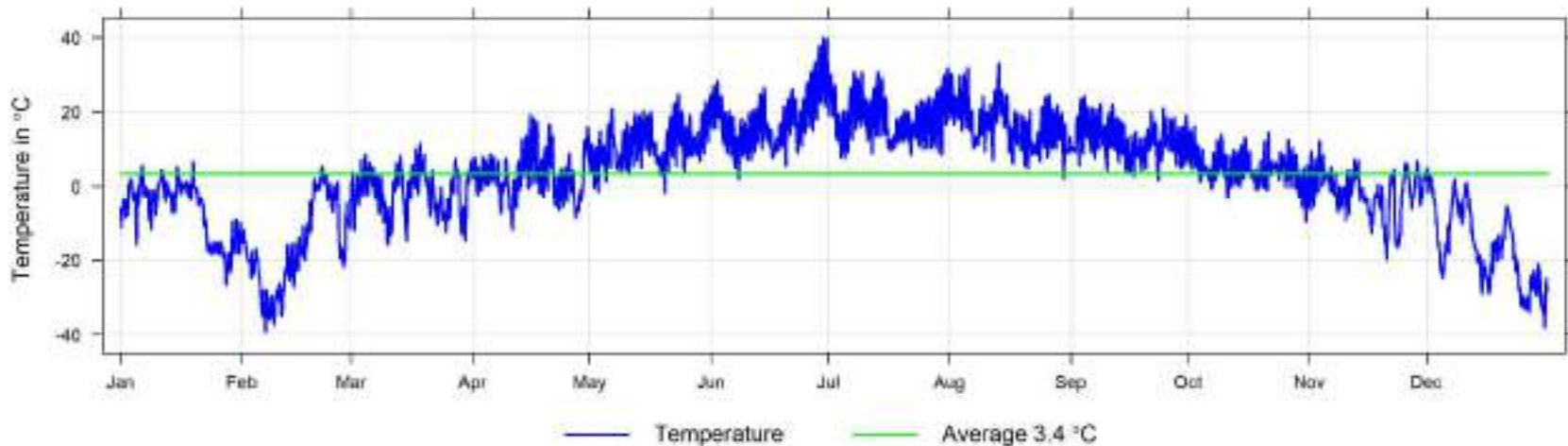


6.3 Temperature (ET) - Donnelly 2021 Summary

Temperature (ET) Frequency Distribution at Donnelly

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	744	-6.6	2.8	Jan 11	6.5	Jan 19 15:00	-22.6	Jan 28	-26.6	Jan 28 03:00	100.0%	100.0%
February 2021	672	-16.7	3.4	Feb 21	5.4	Feb 21 14:00	-34.0	Feb 07	-39.3	Feb 07 04:00	100.0%	100.0%
March 2021	744	-1.7	5.0	Mar 19	11.6	Mar 18 15:00	-11.9	Mar 10	-16.0	Mar 10 09:00	100.0%	100.0%
April 2021	720	2.8	12.1	Apr 30	19.2	Apr 15 19:00	-6.7	Apr 27	-11.8	Apr 11 05:00	100.0%	100.0%
May 2021	744	11.3	18.4	May 31	24.7	May 23 17:00	5.4	May 19	-1.7	May 20 05:00	100.0%	100.0%
June 2021	717	17.9	30.7	Jun 29	39.9	Jun 29 18:00	9.6	Jun 07	2.2	Jun 08 02:00	99.9%	99.6%
July 2021	744	18.3	25.2	Jul 01	31.7	Jul 31 17:00	11.3	Jul 17	7.4	Jul 05 04:00	100.0%	100.0%
August 2021	744	16.4	24.4	Aug 13	33.0	Aug 13 16:00	9.8	Aug 30	2.1	Aug 30 07:00	100.0%	100.0%
September 2021	720	12.2	17.0	Sep 04	24.4	Sep 04 15:00	7.3	Sep 23	1.6	Sep 23 08:00	100.0%	100.0%
October 2021	738	4.4	10.1	Oct 02	16.2	Oct 02 15:00	-2.0	Oct 31	-9.7	Oct 31 08:00	99.2%	99.2%
November 2021	718	-1.8	4.2	Nov 28	12.3	Nov 03 16:00	-14.9	Nov 20	-19.9	Nov 20 18:00	99.7%	99.7%
December 2021	744	-17.0	2.1	Dec 01	4.8	Dec 01 02:00	-31.8	Dec 25	-38.1	Dec 31 06:00	100.0%	100.0%
8749		AVERAGE	30.7	MAXIMUM VALUES			MINIMUM VALUES				99.9%	99.9%

2021 Hourly Temperature Readings (in °C) at Donnelly

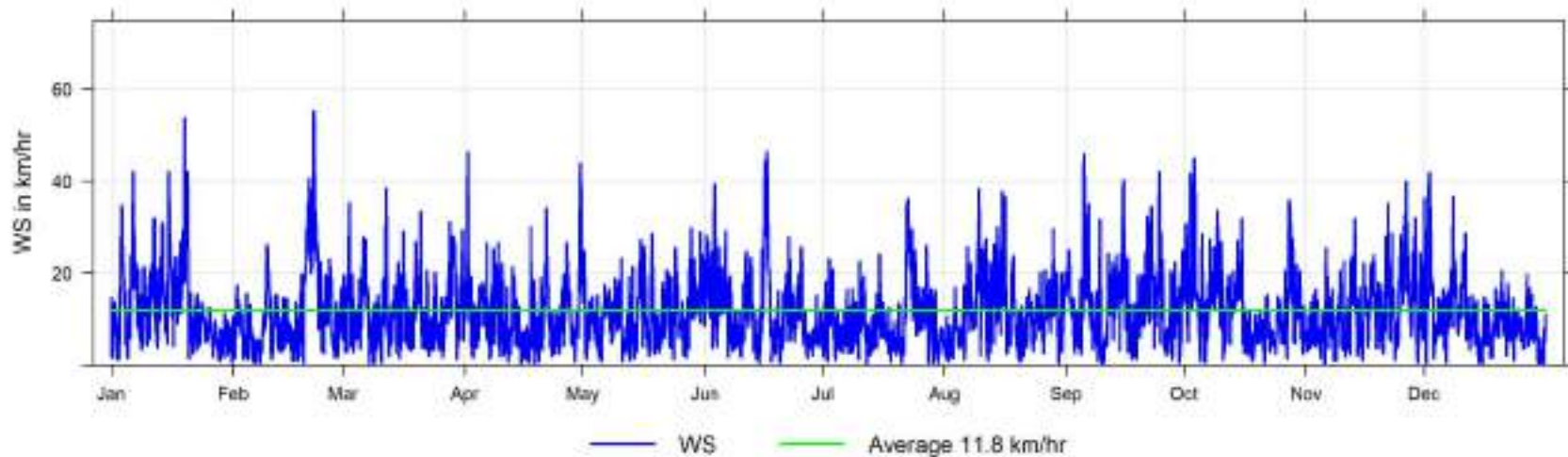


6.4 Wind Speed and Wind Direction (WS and WD) - Donnelly 2021 Summary

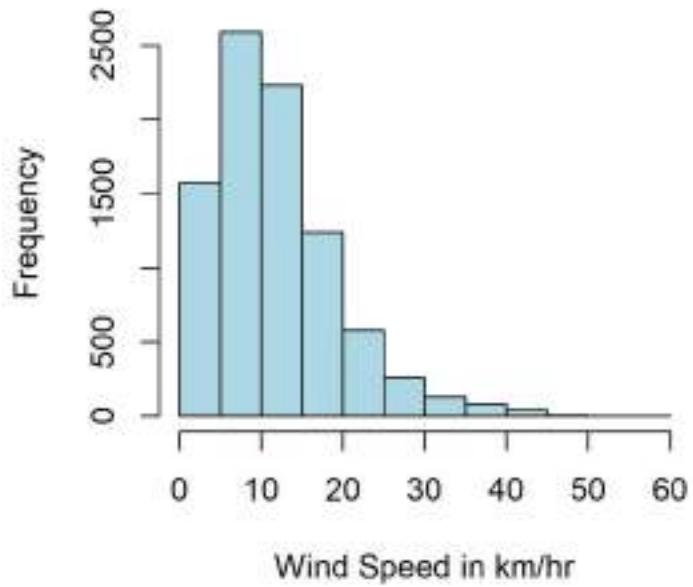
Wind Speed Frequency Distribution at Donnelly

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)		
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date				
January 2021	744	0.0%	13.4%	36.3%	28.8%	12.9%	8.6%	13.2	29.2	Jan 19	53.6	Jan 19 17:00	100.0%	100.0%		
February 2021	672	0.7%	23.4%	35.7%	23.5%	11.0%	5.7%	11.4	35.0	Feb 21	55.3	Feb 21 14:00	100.0%	100.0%		
March 2021	744	0.3%	14.8%	33.3%	35.9%	13.0%	2.7%	12.1	21.7	Mar 11	38.4	Mar 11 22:00	100.0%	100.0%		
April 2021	720	0.4%	20.0%	37.8%	30.0%	8.1%	3.8%	11.1	28.6	Apr 30	46.4	Apr 01 17:00	100.0%	100.0%		
May 2021	744	0.0%	16.7%	38.0%	34.4%	10.4%	0.5%	11.0	19.3	May 28	29.8	May 28 13:00	100.0%	100.0%		
June 2021	717	0.3%	19.4%	35.7%	26.8%	12.8%	5.0%	12.1	35.3	Jun 16	46.5	Jun 16 21:00	99.9%	99.6%		
July 2021	744	0.7%	25.7%	40.5%	24.5%	6.5%	2.3%	9.6	25.4	Jul 22	36.2	Jul 22 20:00	100.0%	100.0%		
August 2021	744	0.1%	17.9%	31.5%	35.9%	12.5%	2.2%	11.8	23.1	Aug 09	38.3	Aug 09 17:00	100.0%	100.0%		
September 2021	720	0.4%	15.7%	26.4%	36.5%	14.4%	6.5%	13.4	24.9	Sep 15	45.9	Sep 05 14:00	100.0%	100.0%		
October 2021	738	0.3%	13.1%	33.3%	36.2%	11.1%	6.0%	12.9	26.3	Oct 03	45.1	Oct 03 12:00	99.2%	99.2%		
November 2021	718	0.3%	15.7%	31.1%	35.7%	14.9%	2.4%	12.2	27.0	Nov 26	39.9	Nov 26 13:00	99.7%	99.7%		
December 2021	744	1.2%	16.7%	41.3%	33.7%	4.2%	3.0%	10.4	27.5	Dec 02	41.8	Dec 02 09:00	100.0%	100.0%		
Annual	8749	0.4%	17.7%	35.1%	31.9%	11.0%	4.0%	11.8	35.3	MAXIMUM VALUES		Jun 16	55.3	Feb 21 14:00	99.9%	99.9%

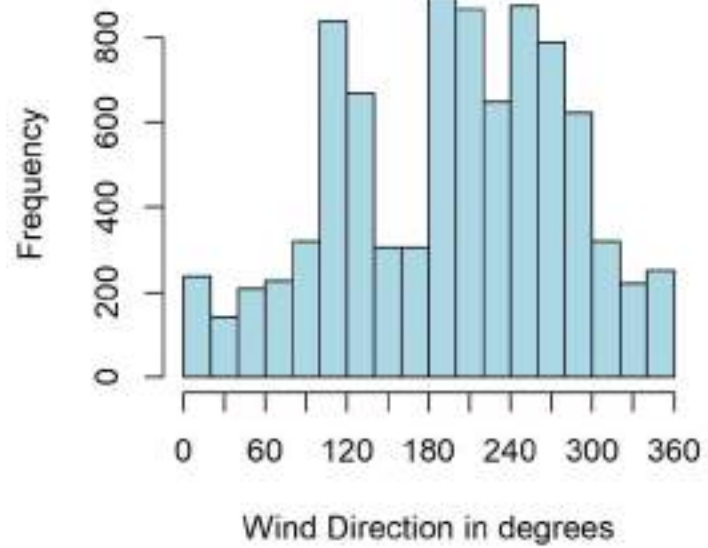
2021 Hourly Readings of Wind Speed (in km/hr) at Donnelly

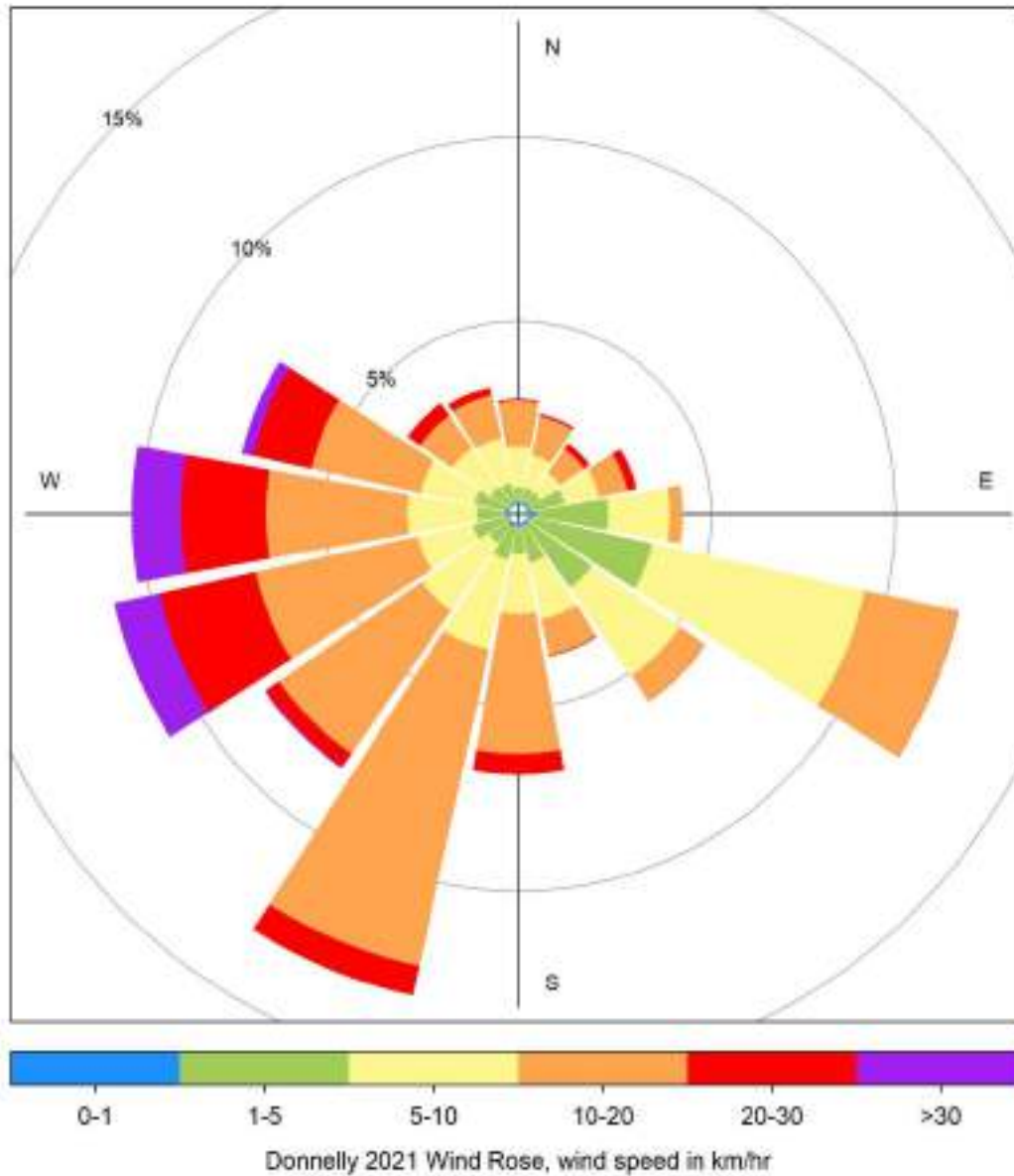


2021 Wind Speed Histogram



2021 Wind Direction Histogram

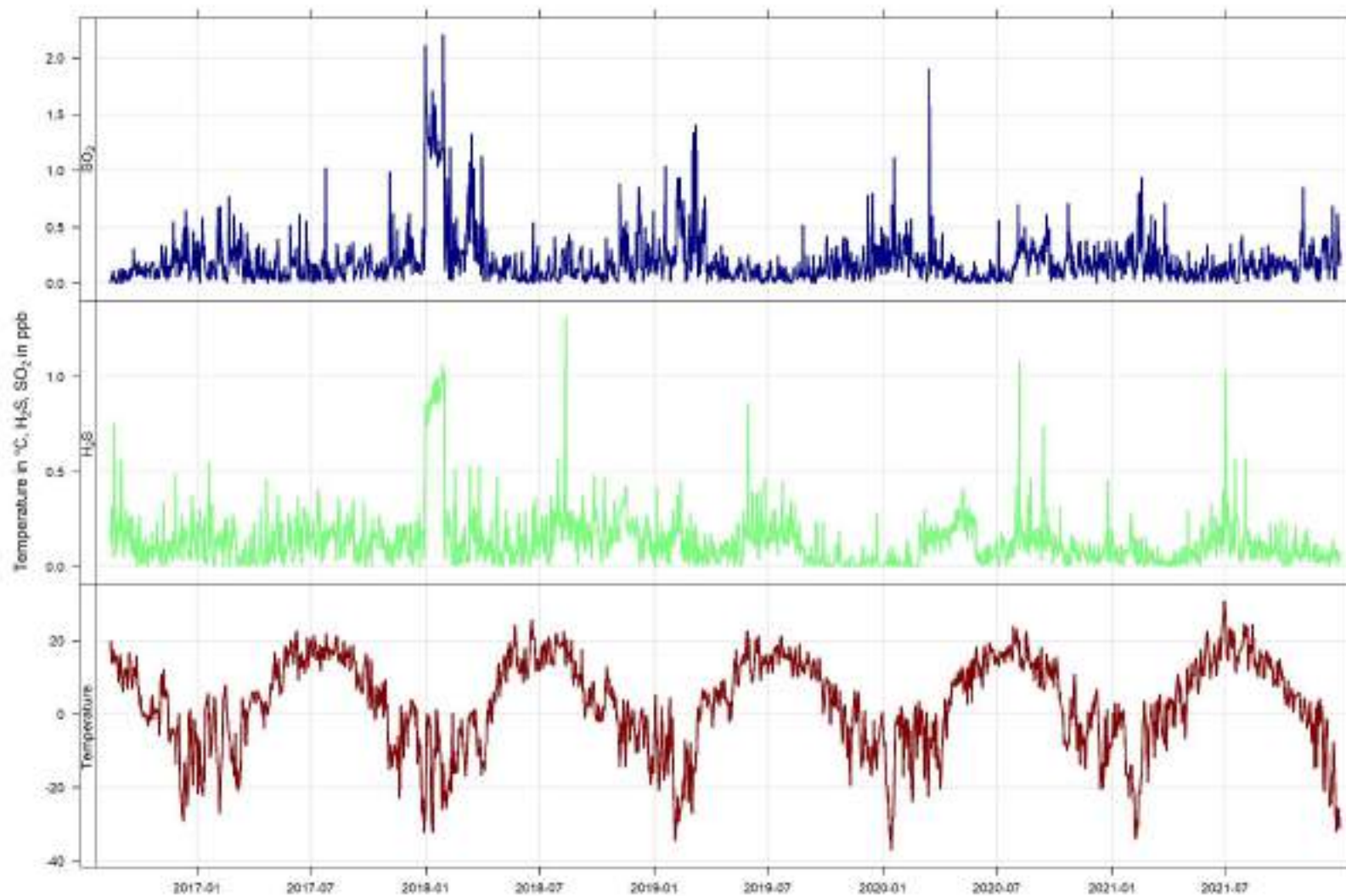




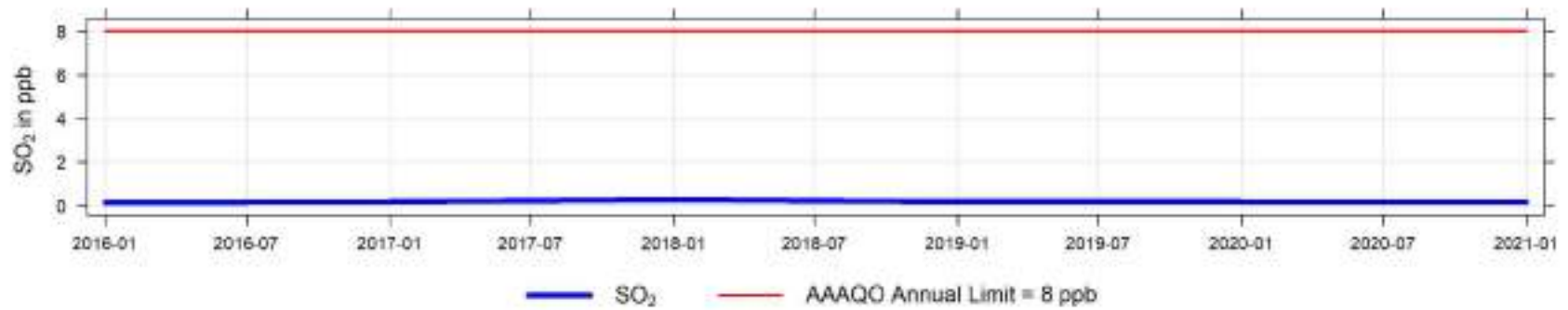
6.5 Donnelly Annual Trends, 2016 to 2021

The following pages include historical annual charts collected between 2016 and 2021 at the Donnelly Station.

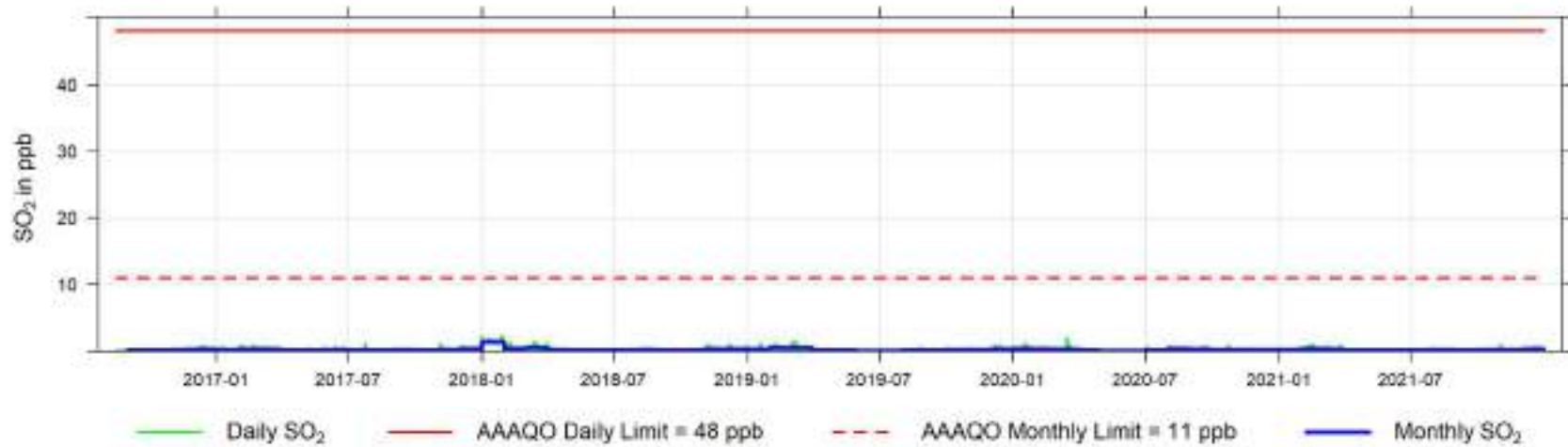
2016 to 2021 Daily Concentration Readings at Donnelly



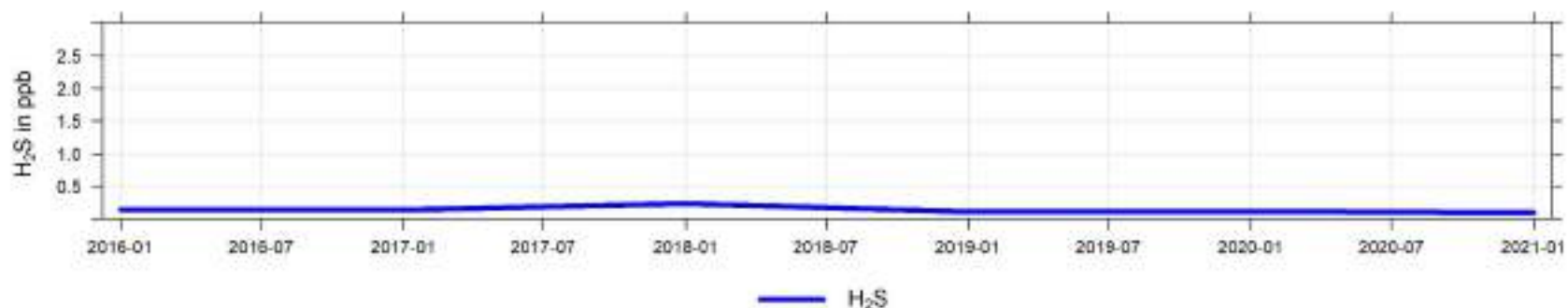
Years 2016 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Donnelly



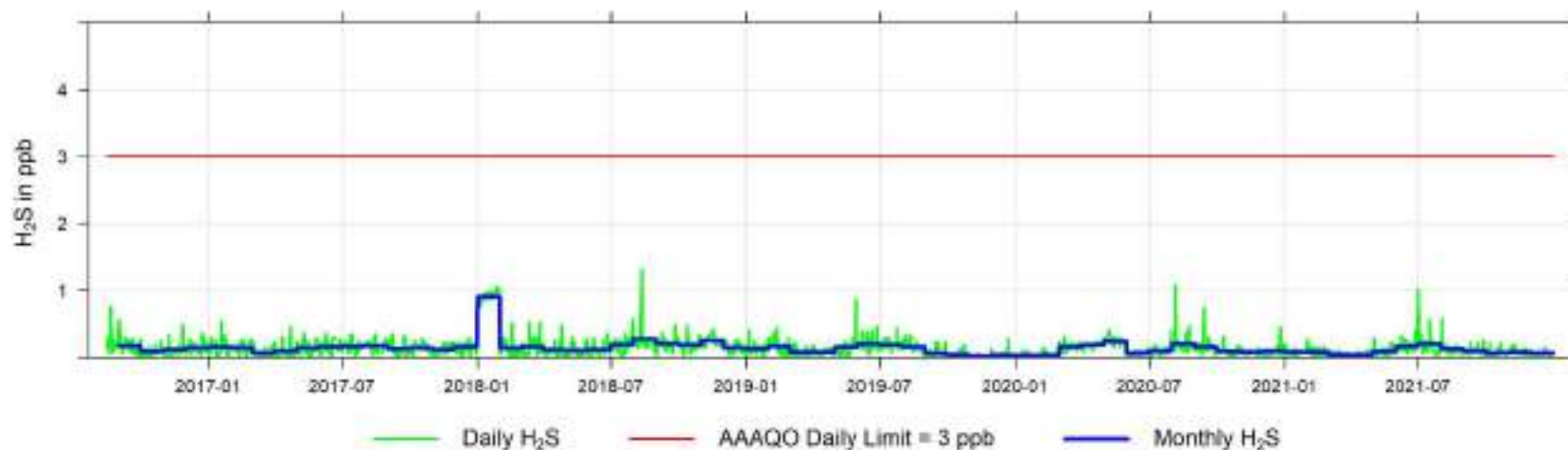
Years 2016 to 2021 Concentration Readings of SO₂ (in ppb) at Donnelly



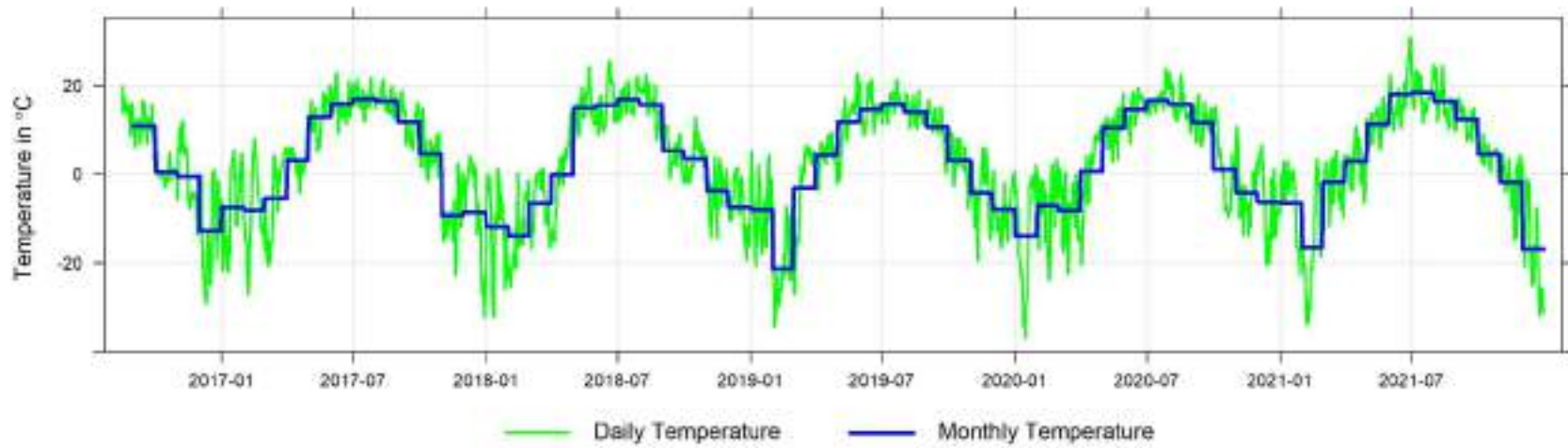
Years 2016 to 2021 Annual Concentration Readings of H₂S (in ppb) at Donnelly

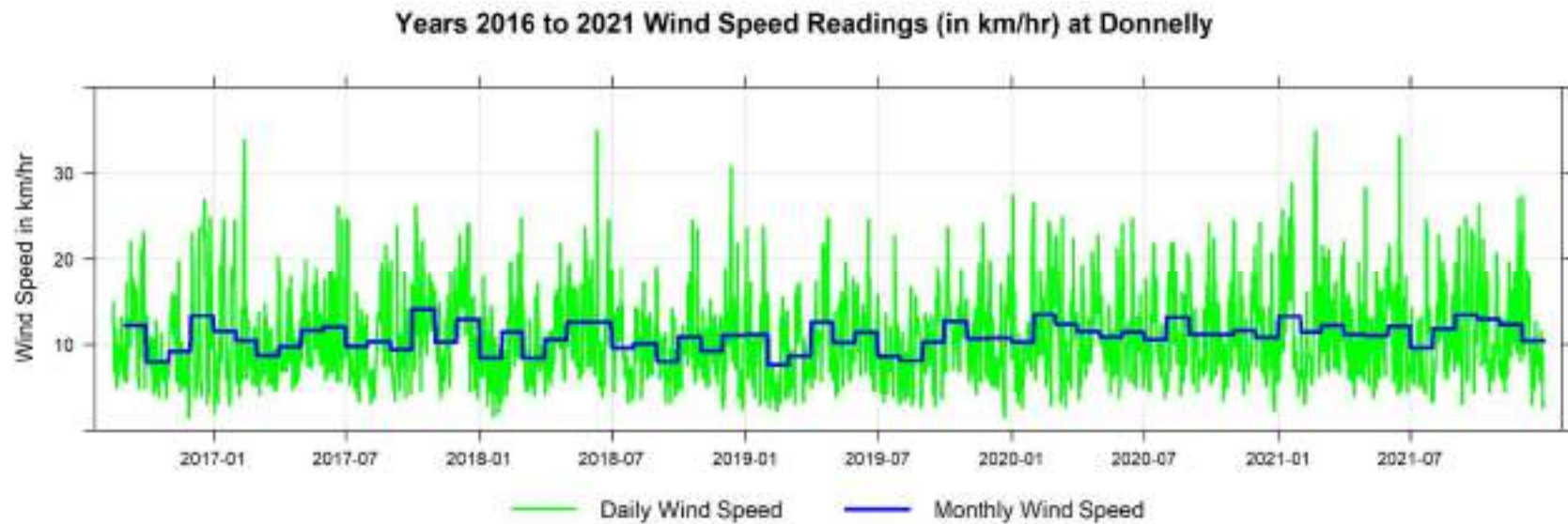
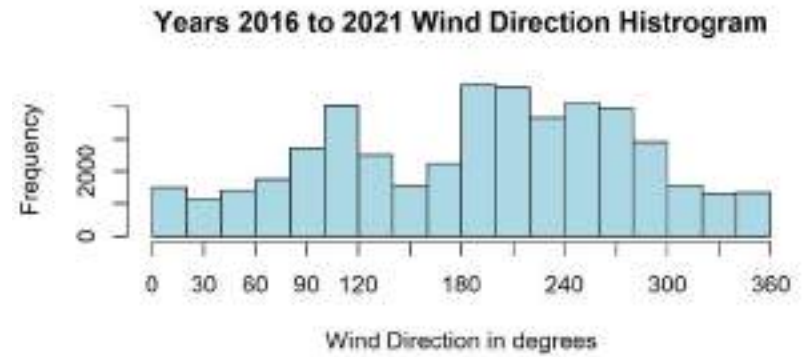


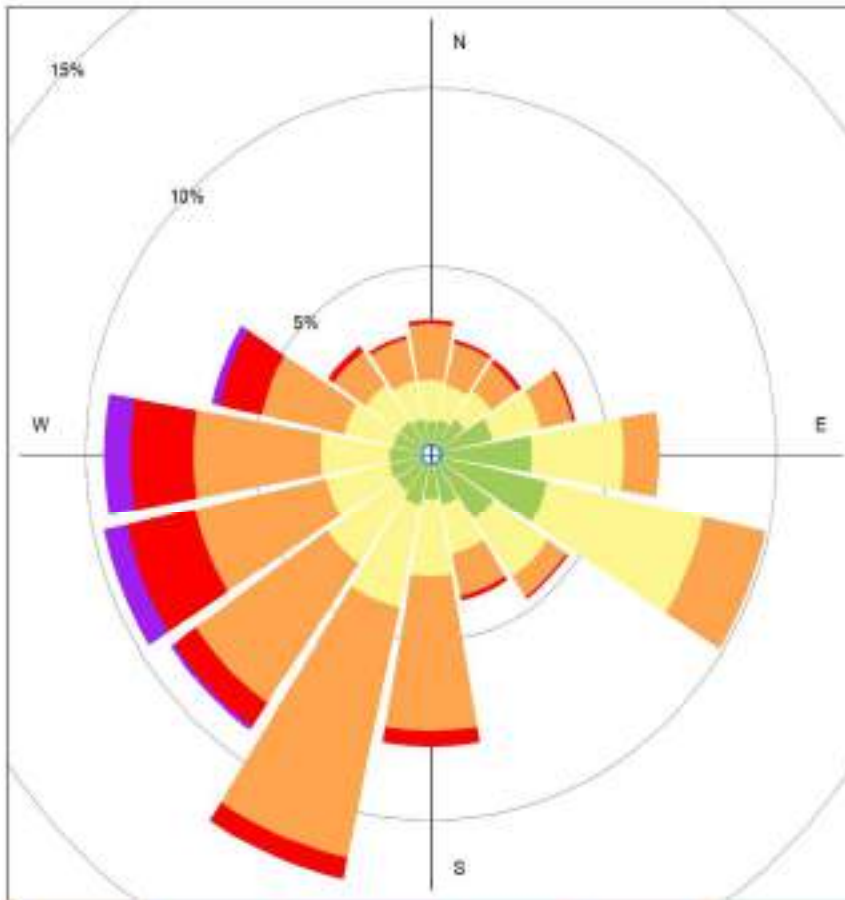
Years 2016 to 2021 Concentration Readings of H₂S (in ppb) at Donnelly



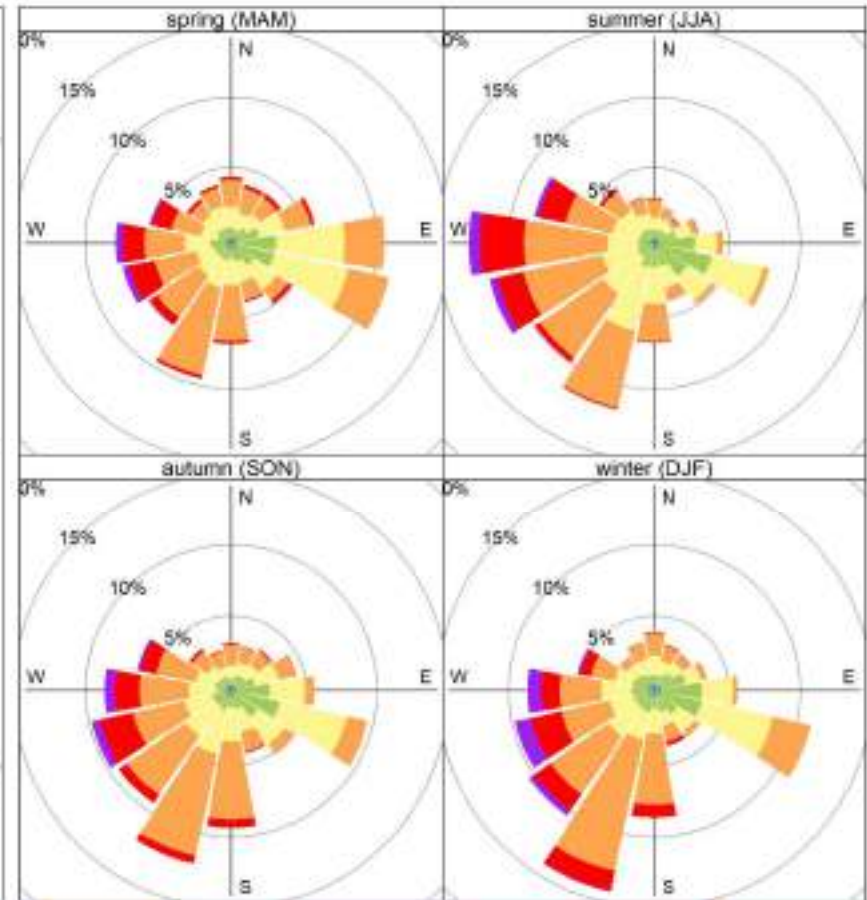
Years 2016 to 2021 Temperature Readings (in °C) at Donnelly







Donnelly 2018 to 2021 Wind Rose, wind speed in km/hr



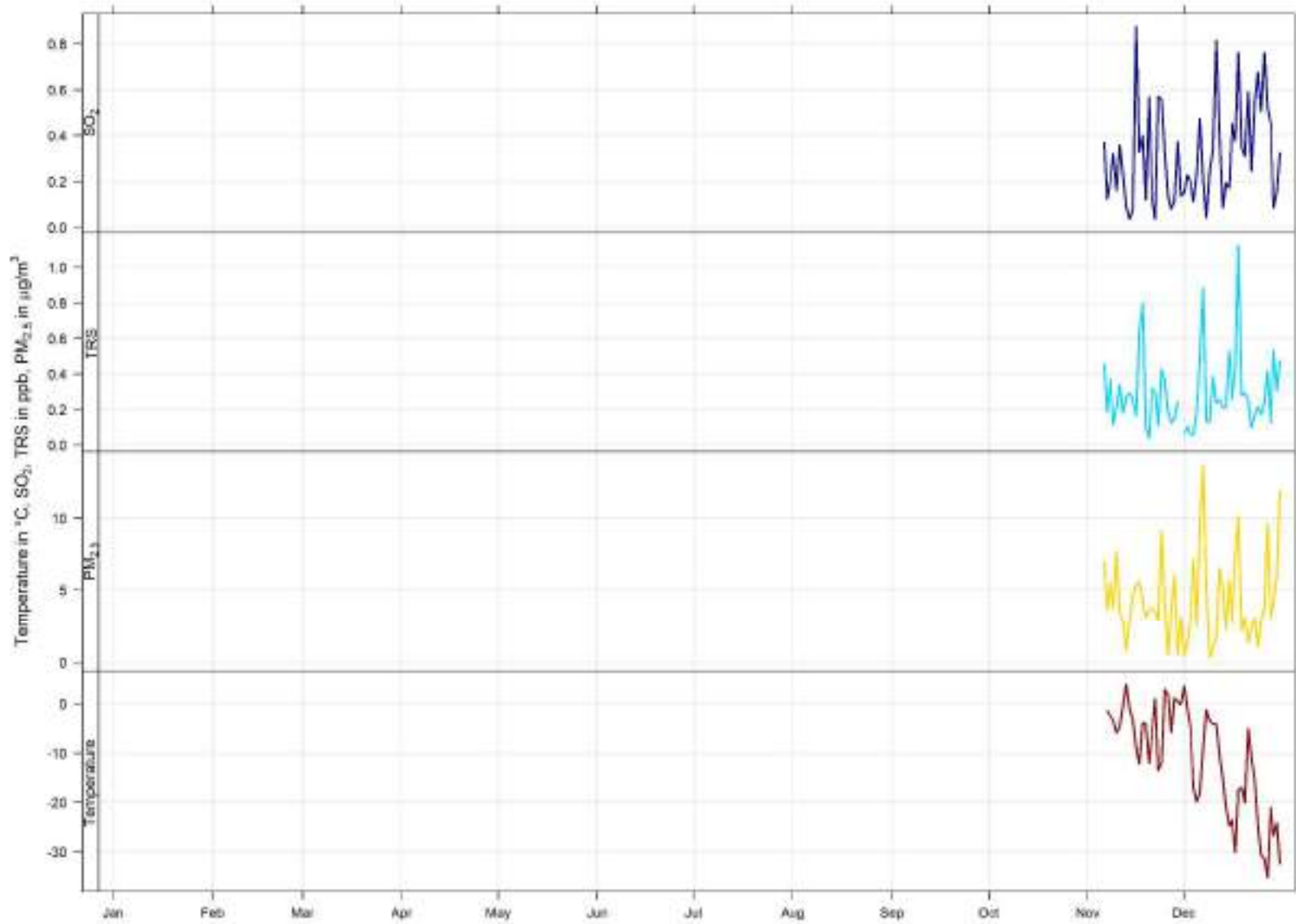
Donnelly 2018 to 2021 Seasonal Wind Rose, wind speed in km/hr

7 Dunes Key Parameters - Continuous Monitoring Data - 2021 (Nov-Dec) Summary

Dunes Key Parameters - Continuous Monitoring Data - 2021 Summary

Dunes Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
			24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	-	0.9	Nov 16	9.3	Dec 11 17:00	15.1%	14.4%	0	0	0	0
	Total Reduced Sulphur TRS measured in ppb	-	1.1	Dec 18	5.4	Nov 18 04:00	14.6%	13.8%	0	0	-	-
	Particulate Matter PM _{2.5} measured in µg/m ³	-	13.9	Dec 07	35.8	Dec 31 19:00	10.2%	10.1%	0	0	-	-

2021 Daily Concentration Readings at Dunes



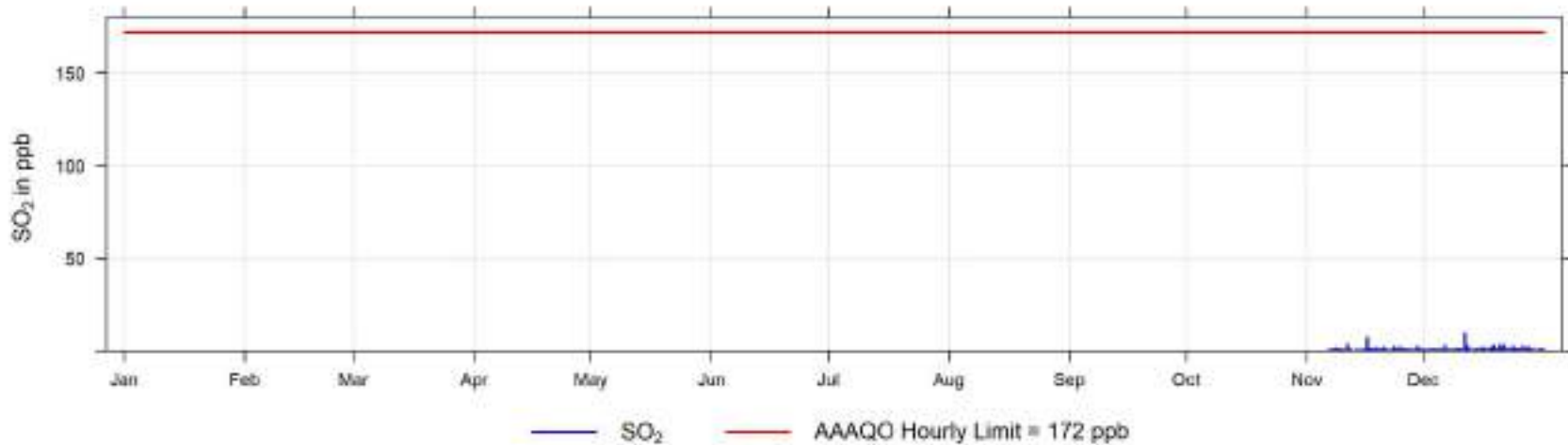
7.1 Sulphur Dioxide (SO₂) - Dunes 2021 (Nov-Dec) Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Dunes

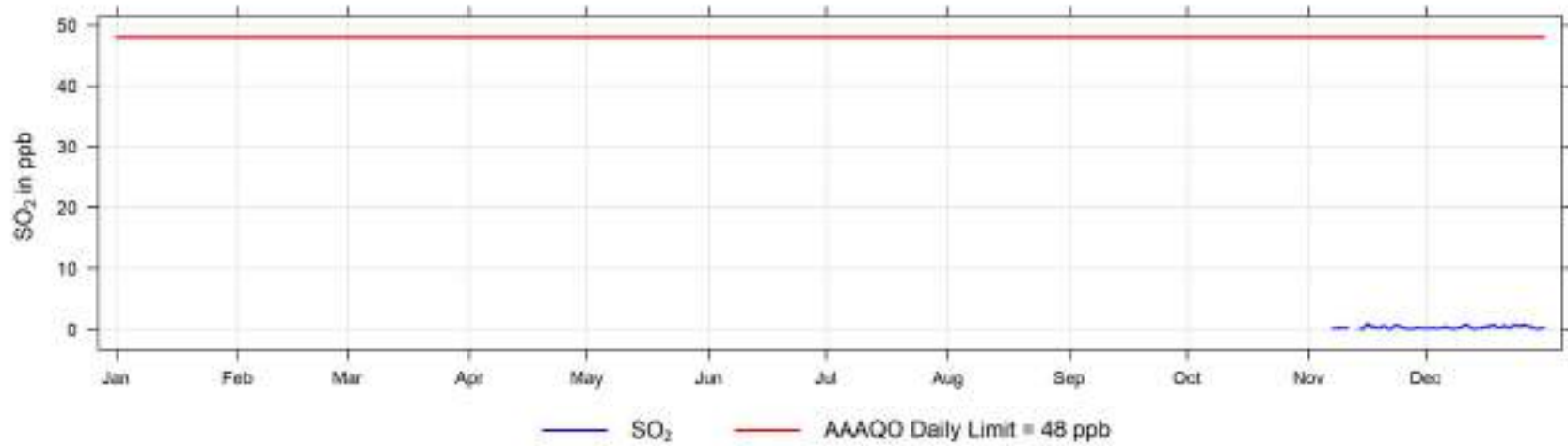
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	535	95.5%	4.3%	0.2%	0.0%	0.0%	0.0%	0.3	0.9	Nov 16	7.0	Nov 16 14:00	95.8%	91.0%	0	0	0
December 2021	707	93.6%	6.2%	0.1%	0.0%	0.0%	0.0%	0.4	0.8	Dec 11	9.3	Dec 11 17:00	99.9%	95.0%	0	0	0
Annual	1242	94.4%	5.4%	0.2%	0.0%	0.0%	0.0%	-	0.9	Nov 16	9.3	Dec 11 17:00	15.1%	14.4%	0	0	0

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

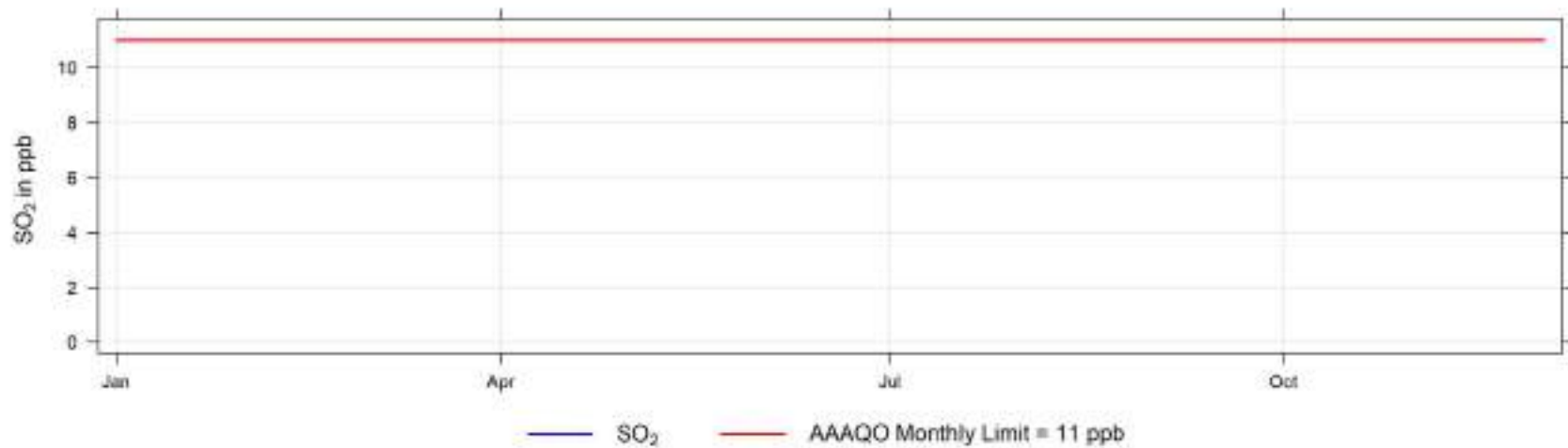
2021 Hourly Concentration Readings of SO₂ (in ppb) at Dunes



2021 Daily Concentration Readings of SO₂ (in ppb) at Dunes



2021 Monthly Concentration Readings of SO₂ (in ppb) at Dunes



Hourly Maximum SO₂ (in ppb) for 2021 at Dunes



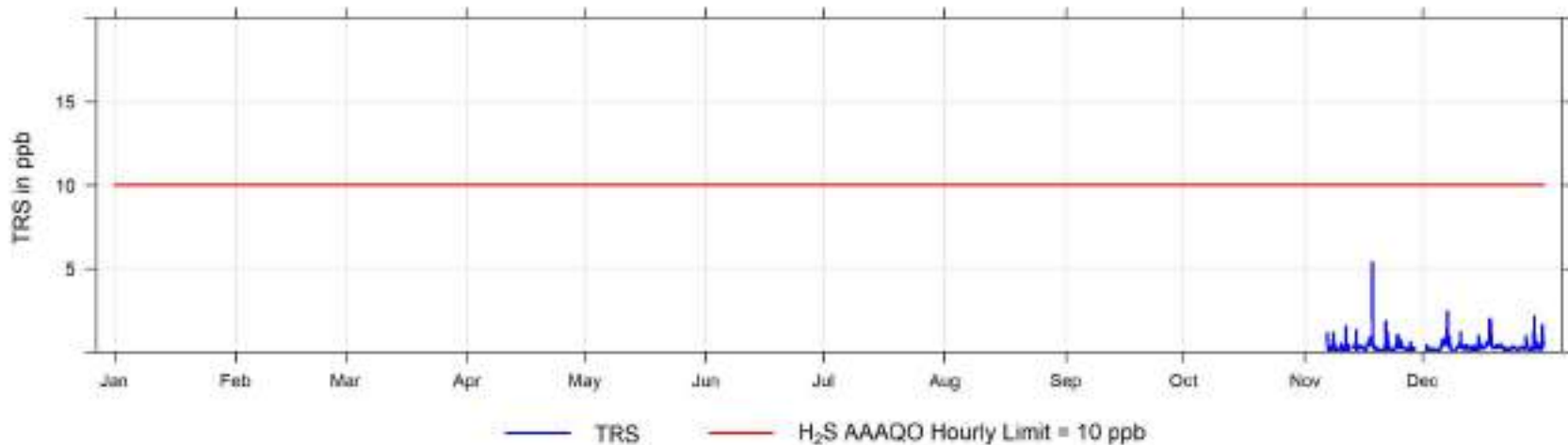
7.2 Total Reduced Sulphur (TRS) - Dunes 2021 (Nov-Dec) Summary

Total Reduced Sulphur (TRS) Frequency Distribution at Dunes

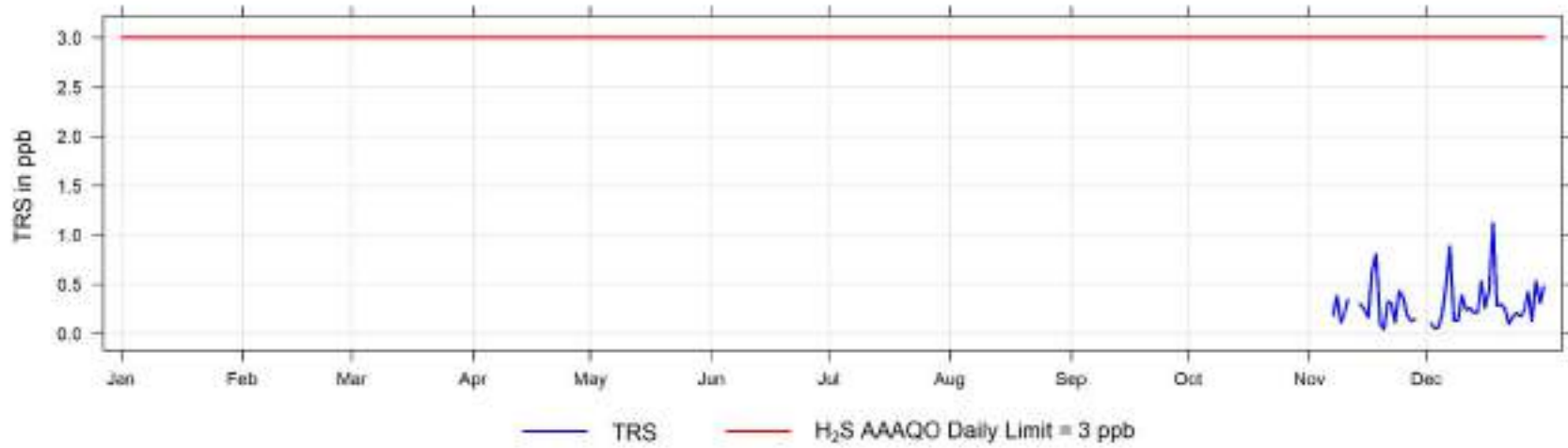
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	496	97.0%	2.6%	0.2%	0.2%	0.0%	0.0%	0.3	0.8	Nov 18	5.4	Nov 18 04:00	88.6%	84.1%	0	0
December 2021	698	96.3%	3.7%	0.0%	0.0%	0.0%	0.0%	0.3	1.1	Dec 18	2.4	Dec 07 10:00	98.5%	93.8%	0	0
Annual	1194	96.6%	3.2%	0.1%	0.1%	0.0%	0.0%	-	1.1	MAXIMUM VALUES			14.6%	13.8%	0	0

AAAQO H₂S Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of TRS (in ppb) at Dunes



2021 Daily Concentration Readings of TRS (in ppb) at Dunes



Hourly Maximum TRS (in ppb) for 2021 at Dunes



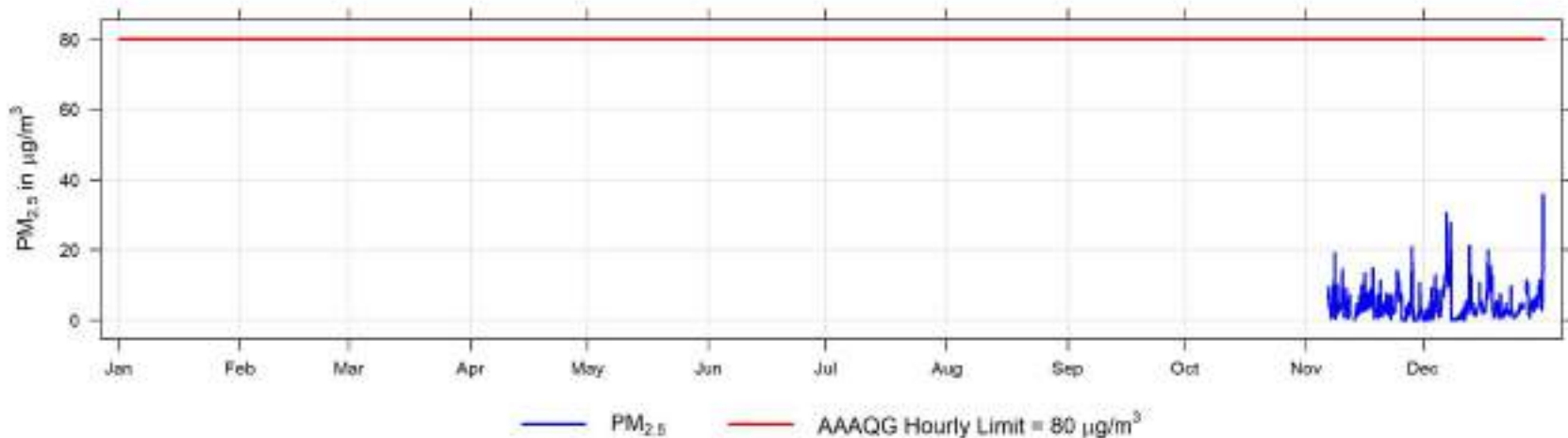
7.3 Particulate Matter (PM_{2.5}) - Dunes 2021 (Nov-Dec) Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Dunes

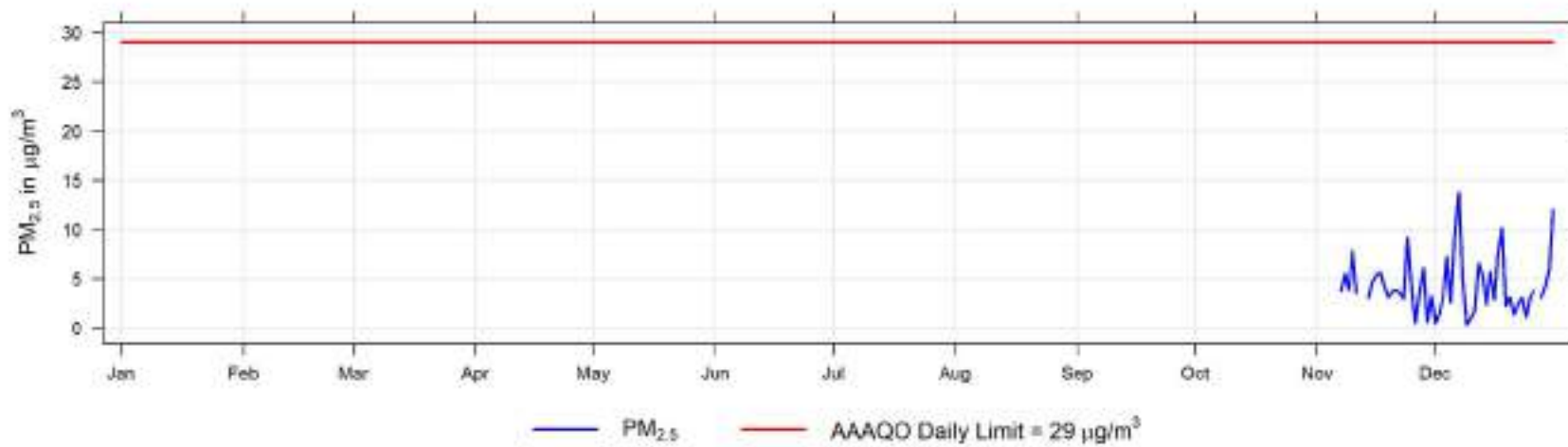
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)	Date			24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	560	76.4%	22.9%	0.7%	0.0%	0.0%	0.0%	3.2	8.8	Nov 24	20.8	Nov 28 04:00	95.9%	95.2%	0	0
December 2021	724	71.7%	24.9%	3.0%	0.4%	0.0%	0.6%	4.4	13.9	Dec 07	35.8	Dec 31 19:00	97.7%	97.3%	0	0
Annual	875	72.2%	24.6%	2.9%	0.3%	0.0%	0.5%	-	13.9	MAXIMUM VALUES		10.2%	10.1%	0	0	

AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Dunes



2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Dunes



Hourly Maximum PM_{2.5} (in µg/m³) for 2021 at Dunes

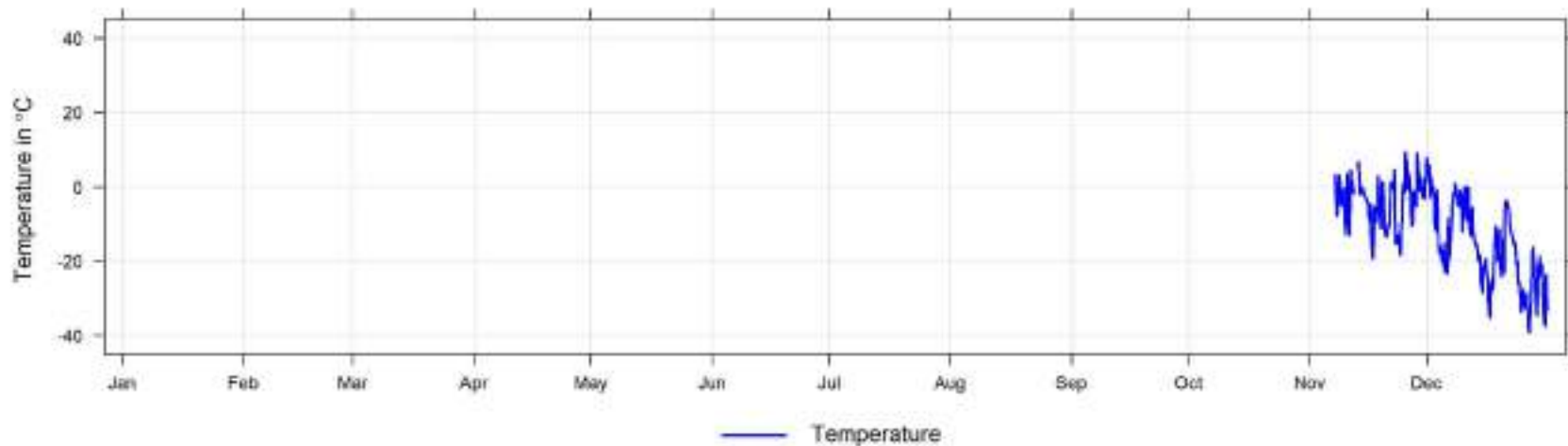


7.4 Temperature (ET) - Dunes 2021 (Nov-Dec) Summary

Temperature (ET) Frequency Distribution at Dunes

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	-	-	-	-	-	-	-	-	-	-		
February 2021	-	-	-	-	-	-	-	-	-	-		
March 2021	-	-	-	-	-	-	-	-	-	-		
April 2021	-	-	-	-	-	-	-	-	-	-		
May 2021	-	-	-	-	-	-	-	-	-	-		
June 2021	-	-	-	-	-	-	-	-	-	-		
July 2021	-	-	-	-	-	-	-	-	-	-		
August 2021	-	-	-	-	-	-	-	-	-	-		
September 2021	-	-	-	-	-	-	-	-	-	-		
October 2021	-	-	-	-	-	-	-	-	-	-		
November 2021	542	-4.1	3.1	Nov 25	9.6	Nov 25 15:00	-14.0	Nov 23	-19.3	Nov 17 05:00	95.6%	95.6%
December 2021	743	-16.8	3.2	Dec 01	7.2	Dec 01 01:00	-34.8	Dec 27	-39.2	Dec 27 07:00	99.9%	99.9%
	1285	AVERAGE -	3.2	MAXIMUM VALUES Dec 01 9.6 Nov 25 15:00			-34.8	MINIMUM VALUES Dec 27 -39.2 Dec 27 07:00			14.9%	14.9%

2021 Hourly Temperature Readings (in °C) at Dunes

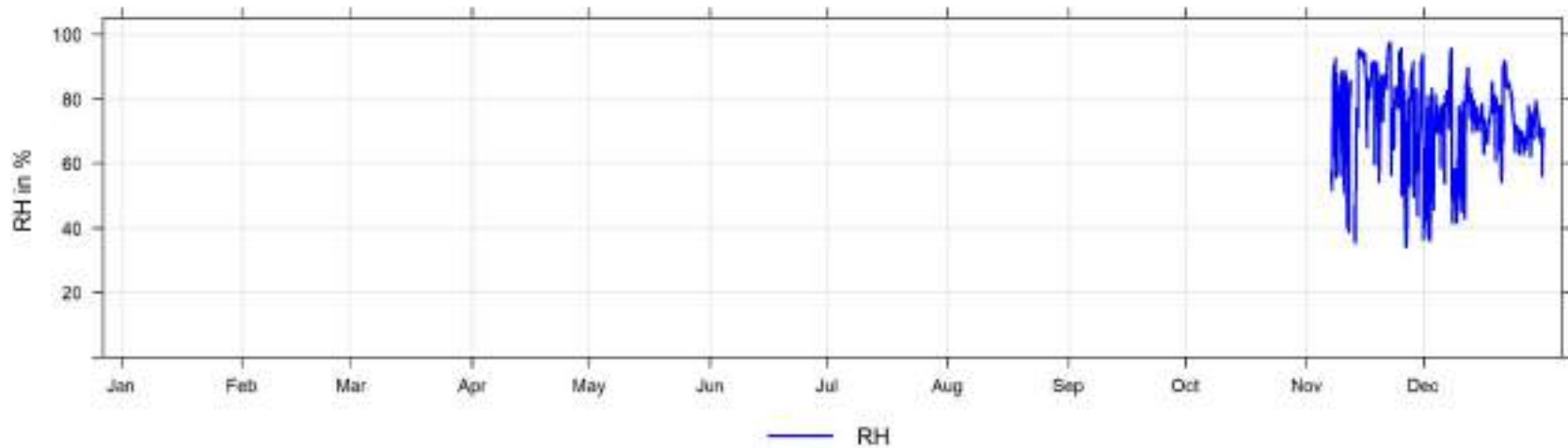


7.5 Relative Humidity (RH) - Dunes 2021 (Nov-Dec) Summary

Relative Humidity (RH) Frequency Distribution at Dunes

Month	Valid Hours	Monthly Average (%)	Maximum Values			Operational time (%)	Valid time (%)
			24-hr (%)	Date	1-hr (%)		
January 2021	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-
October 2021	-	-	-	-	-	-	-
November 2021	542	77.1	93.4	Nov 15	97.5	Nov 22 15:00	95.6%
December 2021	743	70.6	85.9	Dec 22	95.6	Dec 08 05:00	99.9%
	1285	AVERAGE	MAXIMUM VALUES				
		-	93.4	Nov 15	97.5	Nov 22 15:00	14.9%

2021 Hourly Readings of Relative Humidity (in %) at Dunes

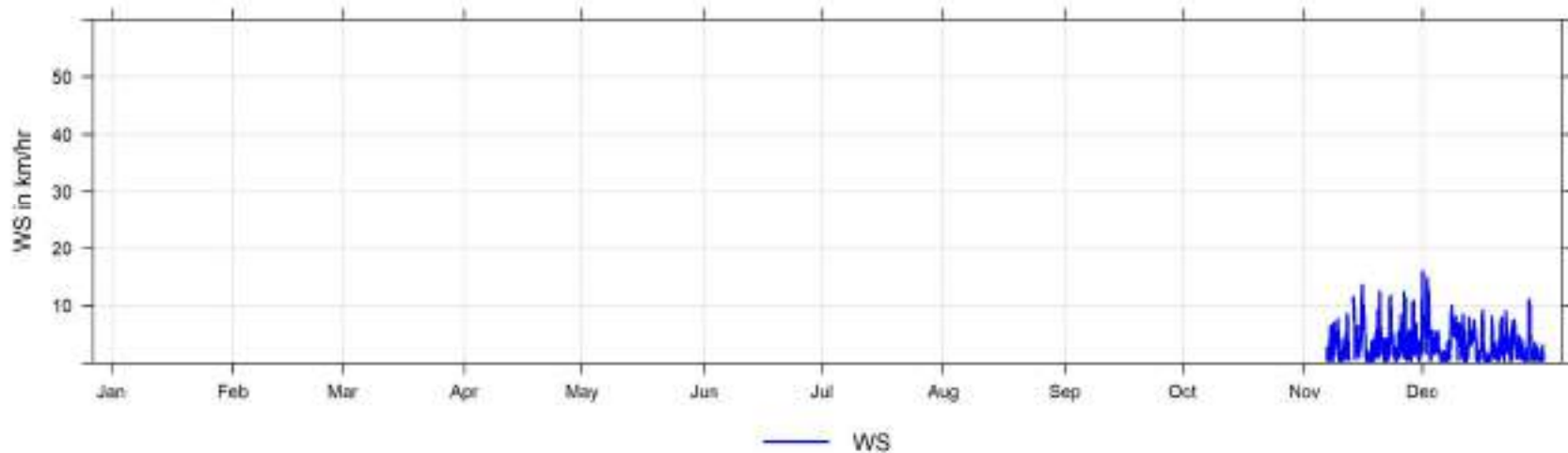


7.6 Wind Speed and Wind Direction (WS and WD) - Dunes 2021 (Nov-Dec) Summary

Wind Speed Frequency Distribution at Dunes

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	559	8.4%	67.6%	20.8%	3.2%	0.0%	0.0%	3.5	6.8	Nov 26	13.6	Nov 15 18:00	95.7%	95.7%
December 2021	743	10.2%	66.5%	21.1%	2.2%	0.0%	0.0%	3.3	8.8	Dec 02	15.9	Dec 01 01:00	99.9%	99.9%
Annual	1302	9.5%	67.0%	21.0%	2.6%	0.0%	0.0%	-	8.8	MAXIMUM VALUES		15.1%	15.1%	

2021 Hourly Readings of Wind Speed (in km/hr) at Dunes

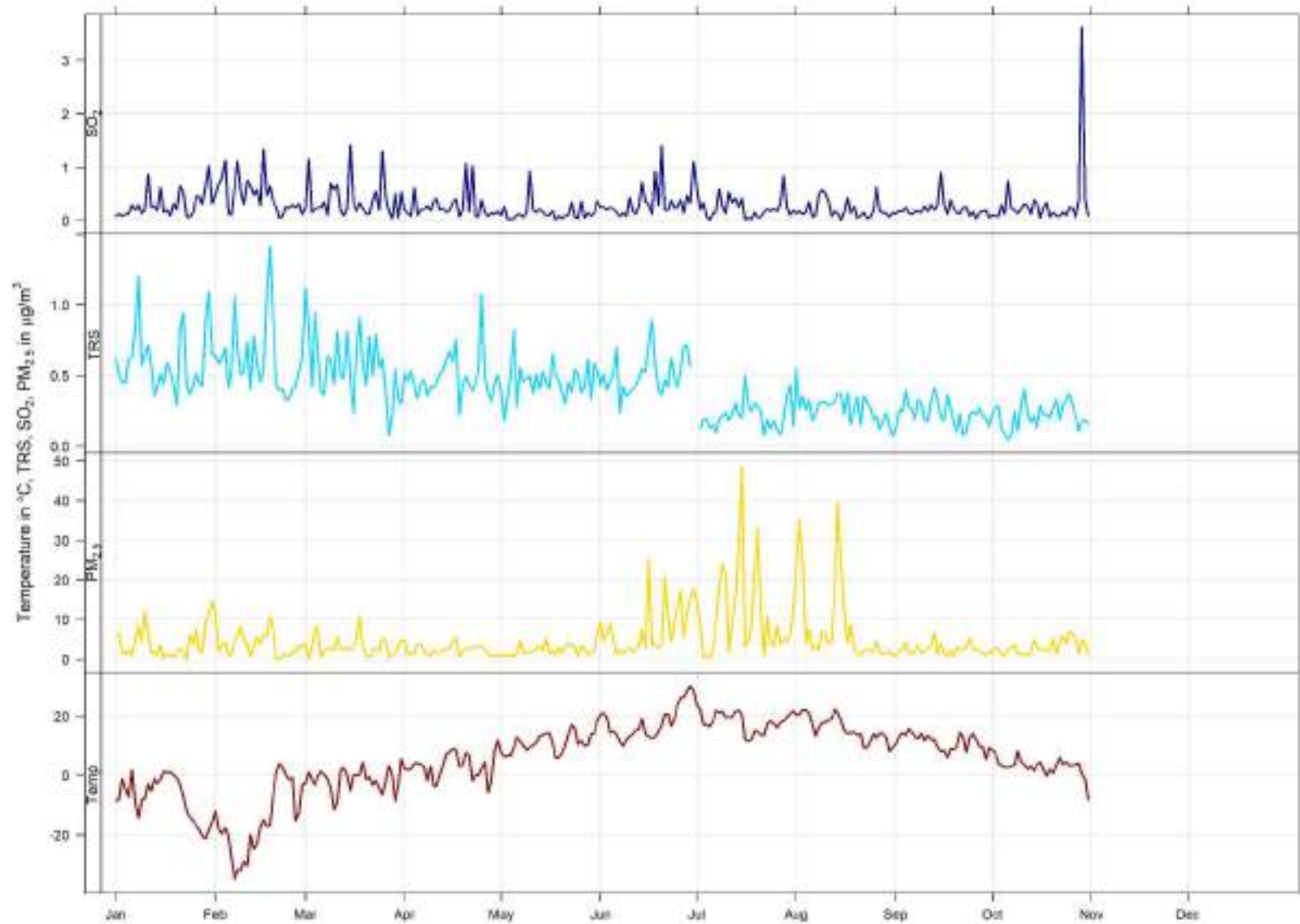


8 Evergreen Park Key Parameters - Continuous Monitoring Data - 2021 (Jan-Oct) Summary

Evergreen Park Key Parameters - Continuous Monitoring Data - 2021 Summary

Evergreen Park Station	Parameter	Annual Average	Maximum Values			Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr			Date	1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.3	3.6	Oct 29	50.5	Oct 29 12:00	83.1%	79.1%	0	0	0	0
	Total Reduced Sulphur TRS measured in ppb	0.4	1.4	Feb 18	4.4	Apr 25 04:00	82.0%	78.0%	0	0	-	-
	Particulate Matter PM _{2.5} measured in µg/m ³	4.7	45.4	Jul 15	163.3	Jun 26 13:00	82.7%	82.2%	17	5	-	-

2021 Daily Concentration Readings at Evergreen Park



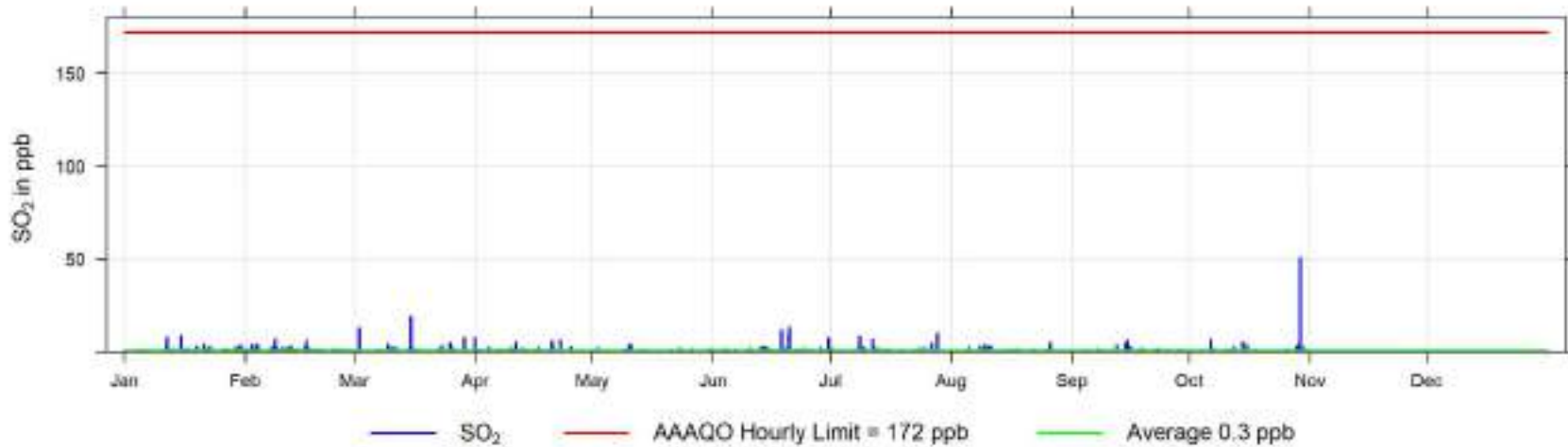
8.1 Sulphur Dioxide (SO₂) - Evergreen Park 2021 (Jan-Oct) Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Evergreen Park

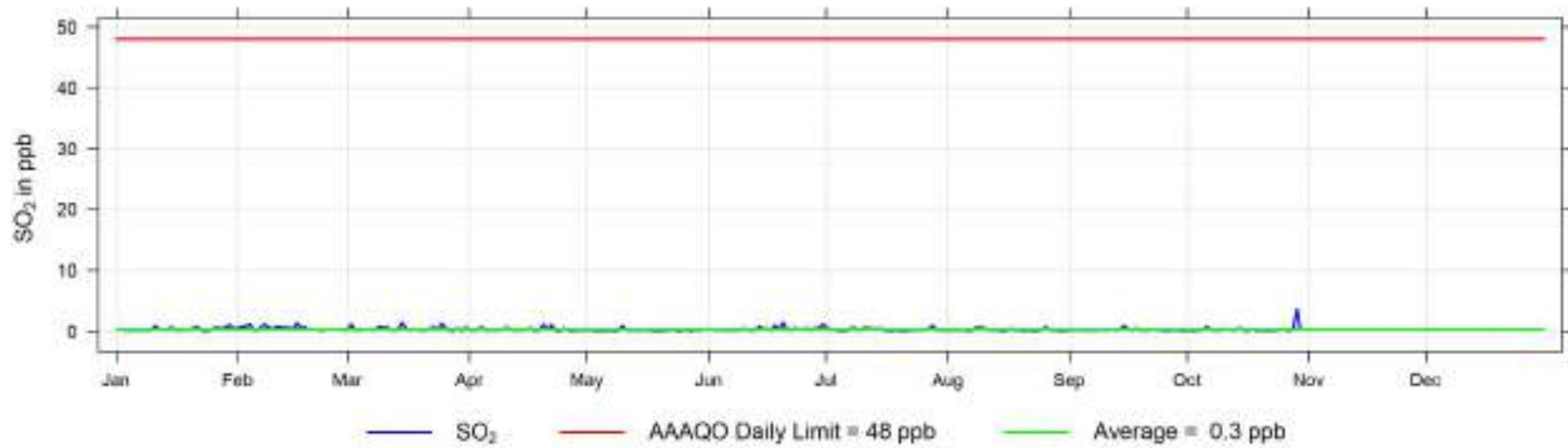
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	703	96.3%	3.4%	0.3%	0.0%	0.0%	0.0%	0.3	1.0	Jan 30	8.3	Jan 15 13:00	99.2%	94.5%	0	0	0
February 2021	632	89.7%	10.0%	0.3%	0.0%	0.0%	0.0%	0.5	1.3	Feb 16	6.4	Feb 08 17:00	98.8%	94.1%	0	0	0
March 2021	709	93.8%	5.5%	0.3%	0.4%	0.0%	0.0%	0.4	1.4	Mar 15	19.0	Mar 15 12:00	100.0%	95.3%	0	0	0
April 2021	683	95.3%	4.4%	0.3%	0.0%	0.0%	0.0%	0.3	1.1	Apr 20	5.8	Apr 22 17:00	99.7%	94.9%	0	0	0
May 2021	708	97.6%	2.4%	0.0%	0.0%	0.0%	0.0%	0.2	0.9	May 10	3.7	May 10 21:00	100.0%	95.2%	0	0	0
June 2021	686	94.5%	4.7%	0.4%	0.4%	0.0%	0.0%	0.3	1.4	Jun 20	13.2	Jun 20 11:00	100.0%	95.3%	0	0	0
July 2021	708	96.9%	2.5%	0.6%	0.0%	0.0%	0.0%	0.2	0.8	Jul 28	9.8	Jul 28 10:00	100.0%	95.2%	0	0	0
August 2021	709	96.6%	3.4%	0.0%	0.0%	0.0%	0.0%	0.2	0.6	Aug 26	4.9	Aug 26 10:00	100.0%	95.3%	0	0	0
September 2021	686	97.4%	2.5%	0.2%	0.0%	0.0%	0.0%	0.2	0.9	Sep 15	5.7	Sep 15 06:00	99.9%	95.3%	0	0	0
October 2021	698	96.7%	2.7%	0.3%	0.3%	0.0%	0.0%	0.3	3.6	Oct 29	50.5	Oct 29 12:00	99.9%	95.2%	0	0	0
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6922	95.5%	4.1%	0.3%	0.1%	0.0%	0.0%	0.3	3.6	MAXIMUM VALUES		83.1%	79.1%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

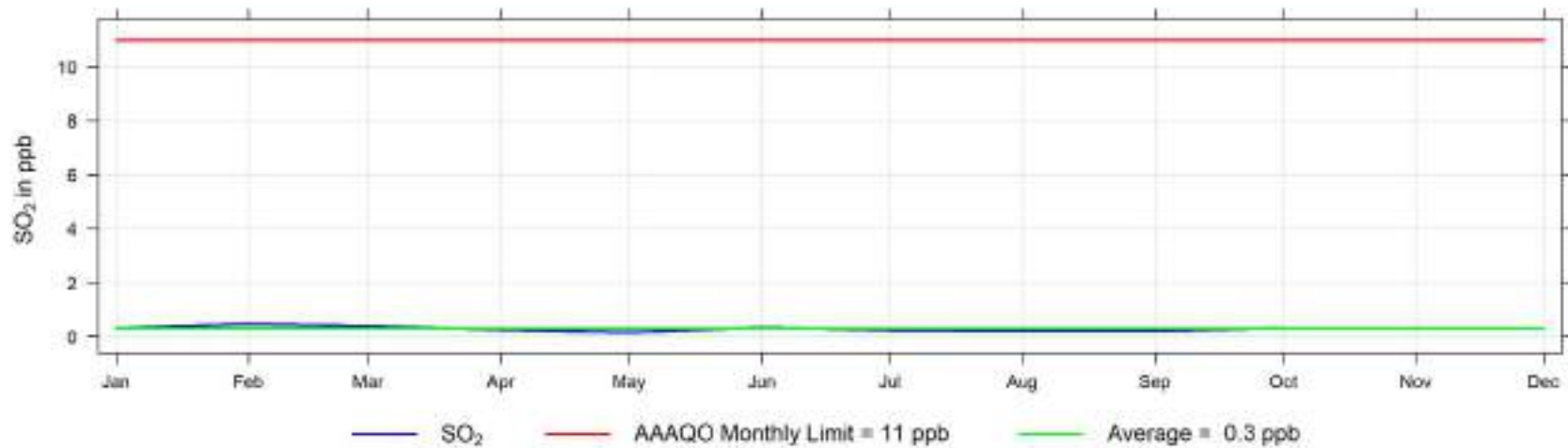
2021 Hourly Concentration Readings of SO₂ (in ppb) at Evergreen Park



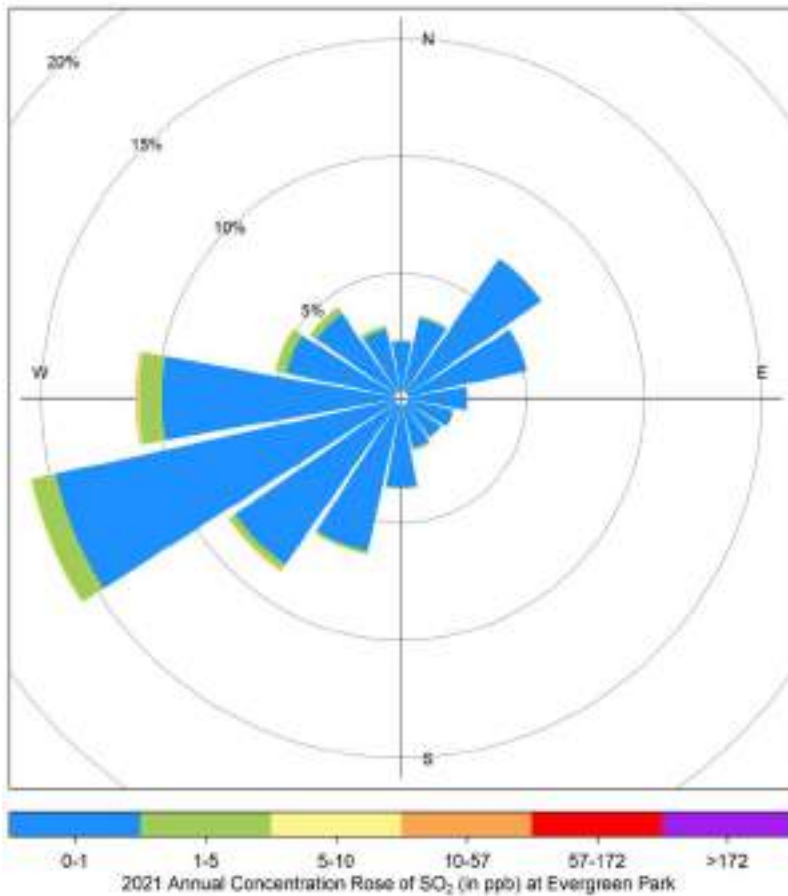
2021 Daily Concentration Readings of SO₂ (in ppb) at Evergreen Park



2021 Monthly Concentration Readings of SO₂ (in ppb) at Evergreen Park



Hourly Maximum SO₂ (in ppb) for 2021 at Evergreen Park



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	31 1 2 3 4 5 6	29 1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
29 29 30 31 1 2 3	25 26 27 28 29 30 1	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	25 26 27 28 29 30 31	29 30 31 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
26 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021		
29 27 28 29 30 1 2		
3 4 5 6 7 8 9		
10 11 12 13 14 15 16		
17 18 19 20 21 22 23		
24 25 26 27 28 29 30		
31 1 2 3 4 5 6		
S M T W T F S		



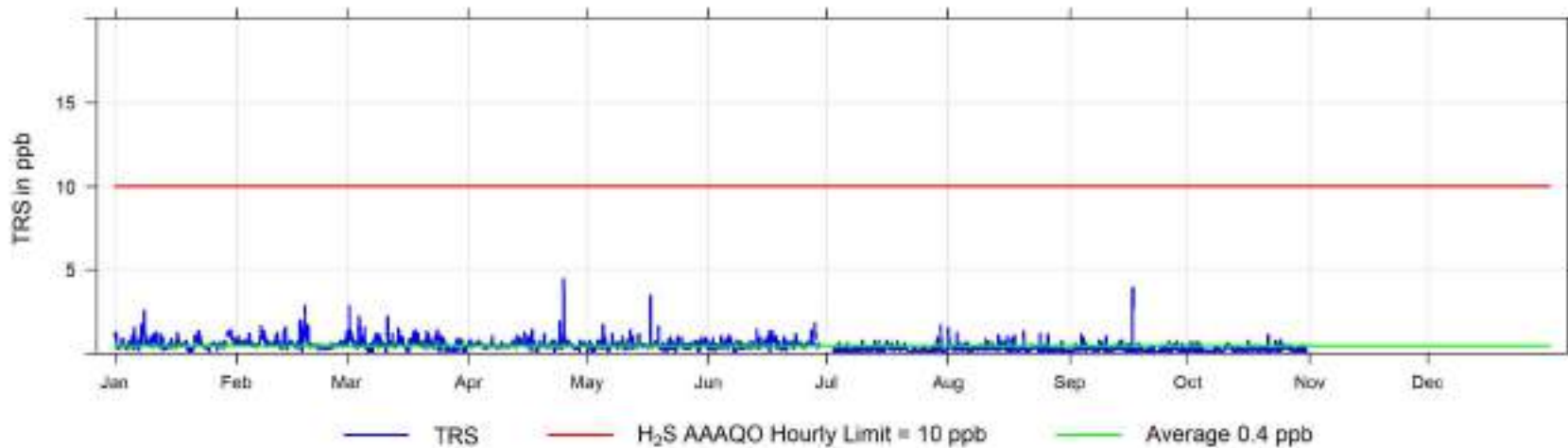
8.2 Total Reduced Sulphur (TRS) - Evergreen Park 2021 (Jan-Oct) Summary

Total Reduced Sulphur (TRS) Frequency Distribution at Evergreen Park

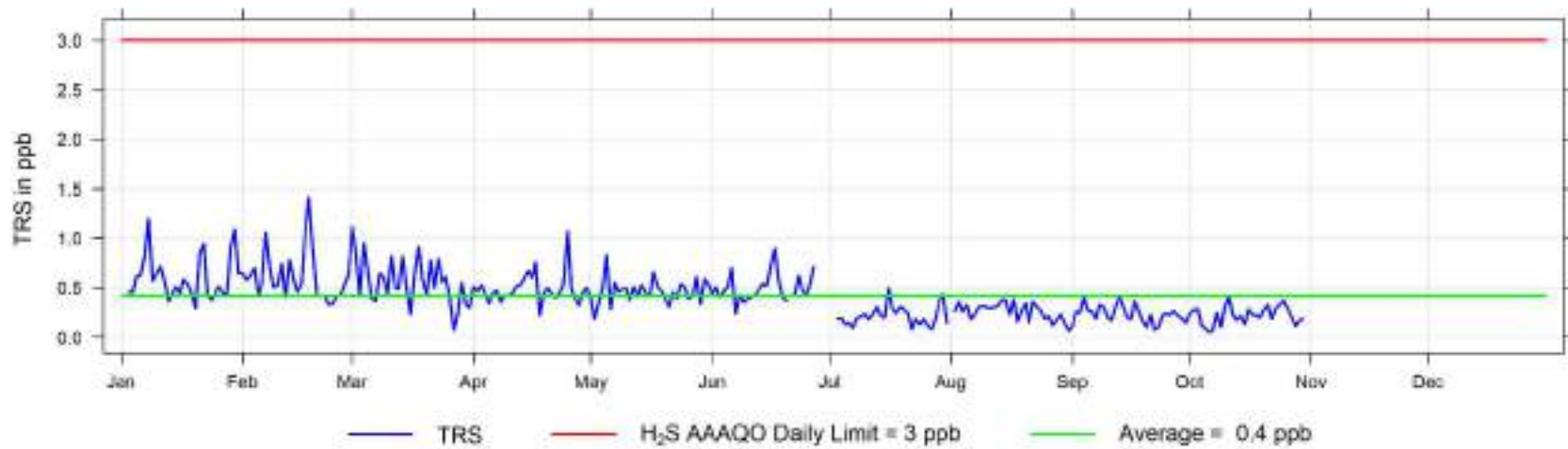
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	703	88.8%	11.2%	0.0%	0.0%	0.0%	0.0%	0.6	1.2	Jan 08	2.5	Jan 08 12:00	99.2%	94.5%	0	0
February 2021	631	87.8%	12.2%	0.0%	0.0%	0.0%	0.0%	0.6	1.4	Feb 18	2.9	Feb 18 10:00	98.8%	93.9%	0	0
March 2021	709	89.0%	11.0%	0.0%	0.0%	0.0%	0.0%	0.6	1.1	Mar 01	2.8	Mar 01 15:00	100.0%	95.3%	0	0
April 2021	683	97.4%	2.3%	0.3%	0.0%	0.0%	0.0%	0.5	1.1	Apr 25	4.4	Apr 25 04:00	99.7%	94.9%	0	0
May 2021	708	97.7%	2.1%	0.1%	0.0%	0.0%	0.0%	0.5	0.8	May 05	3.4	May 17 06:00	100.0%	95.2%	0	0
June 2021	630	96.4%	3.7%	0.0%	0.0%	0.0%	0.0%	0.5	0.9	Jun 17	1.8	Jun 28 05:00	92.4%	87.5%	0	0
July 2021	673	99.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Jul 16	1.7	Jul 30 04:00	95.2%	90.5%	0	0
August 2021	701	98.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0.3	0.4	Aug 14	1.5	Aug 01 02:00	99.3%	94.2%	0	0
September 2021	686	99.6%	0.3%	0.2%	0.0%	0.0%	0.0%	0.2	0.4	Sep 13	3.9	Sep 17 01:00	99.9%	95.3%	0	0
October 2021	696	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Oct 11	1.1	Oct 21 13:00	99.9%	95.0%	0	0
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6820	95.5%	4.4%	0.1%	0.0%	0.0%	0.0%	0.4	1.4	MAXIMUM VALUES		82.0%	78.0%	0	0	

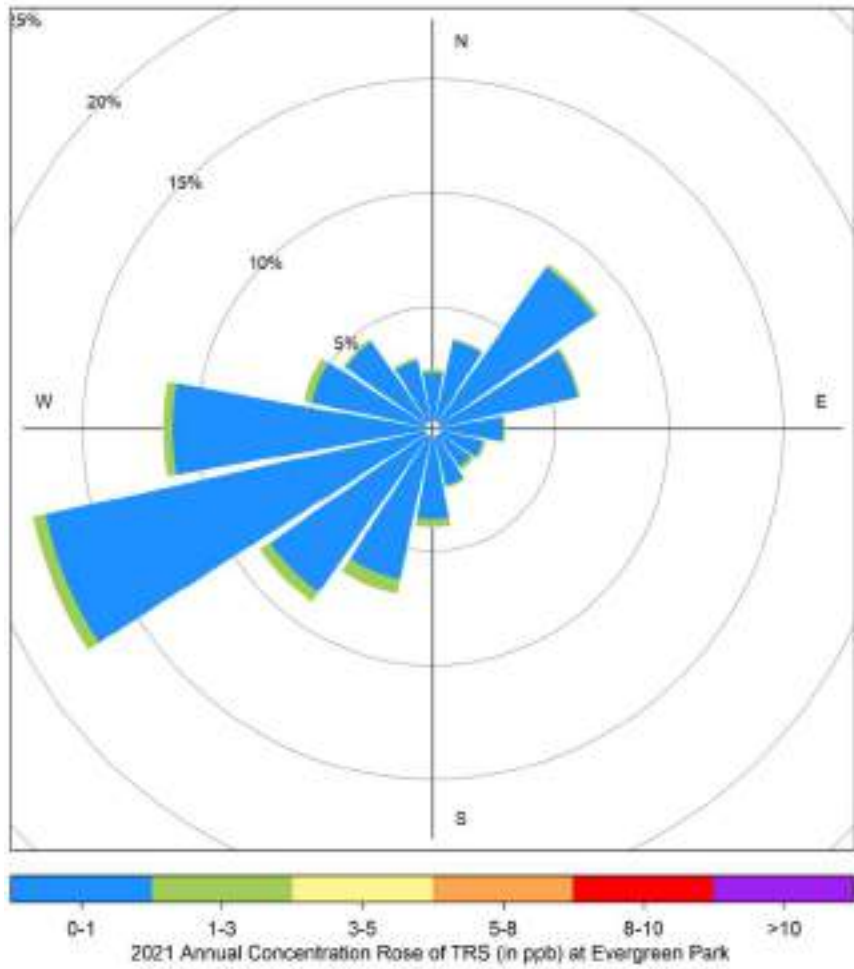
AAAQO H₂S Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of TRS (in ppb) at Evergreen Park



2021 Daily Concentration Readings of TRS (in ppb) at Evergreen Park





Hourly Maximum TRS (in ppb) for 2021 at Evergreen Park



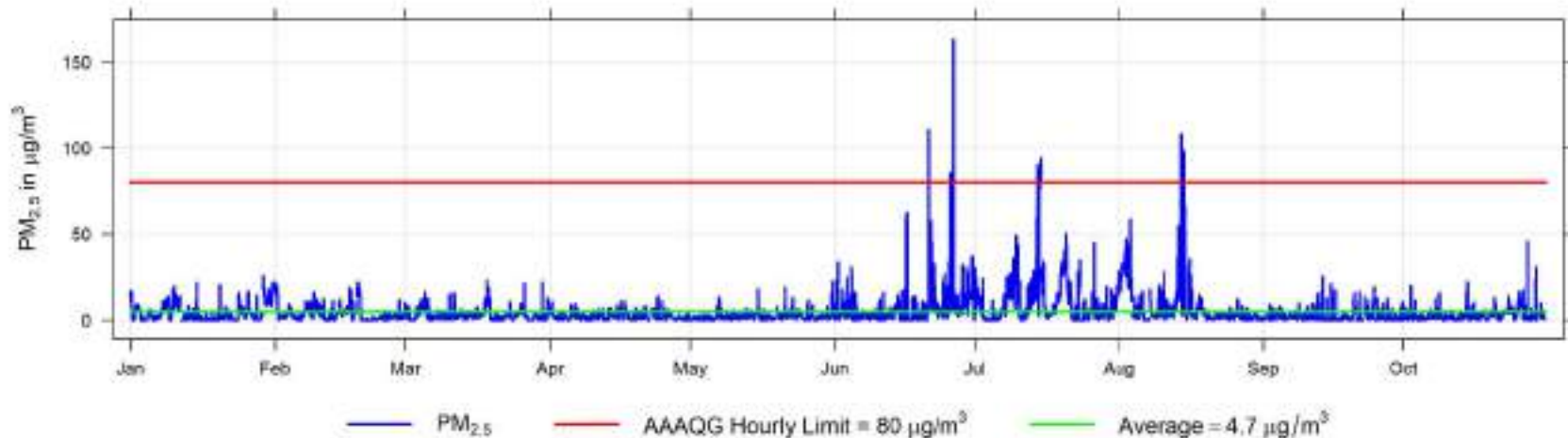
8.3 Particulate Matter (PM_{2.5}) - Evergreen Park 2021 (Jan-Oct) Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Evergreen Park

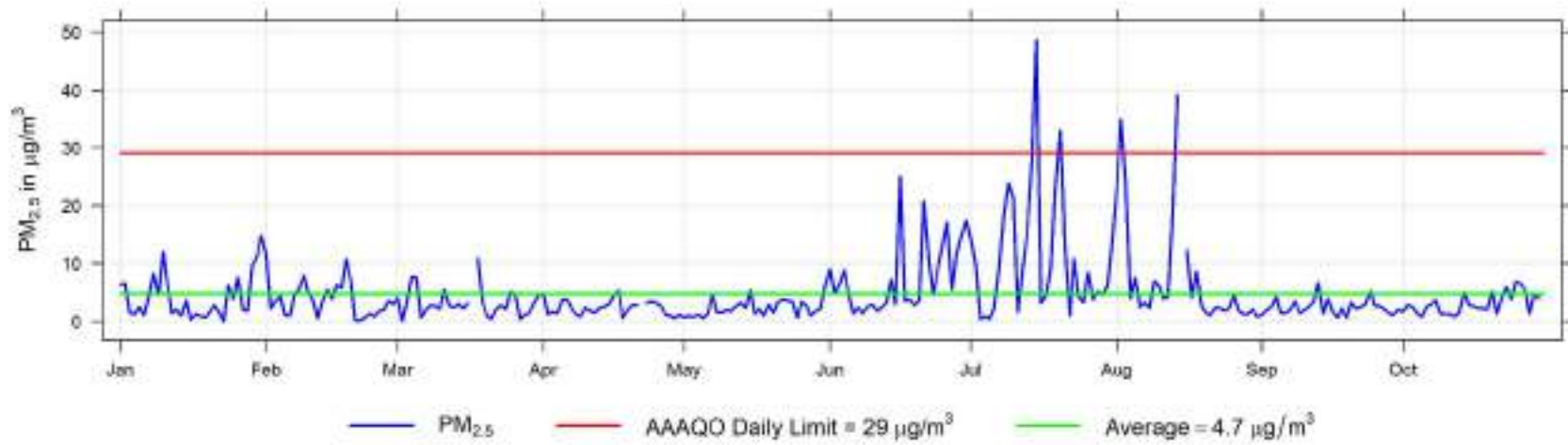
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)	Date			24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	734	69.1%	26.2%	4.8%	0.0%	0.0%	0.0%	4.1	15.3	Jan 31	25.7	Jan 29 13:00	99.1%	98.7%	0	0
February 2021	656	73.3%	22.4%	4.3%	0.0%	0.0%	0.0%	3.8	11.6	Feb 18	21.8	Feb 18 19:00	98.4%	97.6%	0	0
March 2021	737	81.1%	17.5%	1.4%	0.0%	0.0%	0.0%	3.2	10.9	Mar 18	23.2	Mar 18 13:00	100.0%	99.1%	0	0
April 2021	709	87.2%	12.8%	0.0%	0.0%	0.0%	0.0%	2.3	4.9	Apr 17	13.7	Apr 24 02:00	99.4%	98.5%	0	0
May 2021	739	90.0%	9.3%	0.7%	0.0%	0.0%	0.0%	2.3	6.1	May 31	22.6	May 31 14:00	100.0%	99.3%	0	0
June 2021	717	57.5%	29.9%	9.5%	2.0%	0.8%	3.2%	7.2	21.0	Jun 21	163.3	Jun 26 13:00	100.0%	99.6%	0	3
July 2021	738	44.4%	30.1%	17.1%	6.4%	1.0%	8.5%	11.0	45.4	Jul 15	94.0	Jul 15 07:00	99.6%	99.2%	3	8
August 2021	725	65.9%	18.1%	8.7%	5.8%	0.7%	8.3%	8.0	42.8	Aug 14	108.4	Aug 14 09:00	97.7%	97.5%	2	6
September 2021	715	86.9%	11.8%	1.4%	0.0%	0.0%	0.0%	2.4	6.1	Sep 13	25.4	Sep 13 18:00	100.0%	99.3%	0	0
October 2021	723	82.4%	16.3%	1.0%	0.3%	0.0%	0.3%	3.0	7.3	Oct 25	45.6	Oct 27 16:00	99.3%	98.6%	0	0
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	7193	73.7%	19.4%	4.9%	1.5%	0.3%	2.1%	4.7	45.4	MAXIMUM VALUES		82.7%	82.2%	5	17	

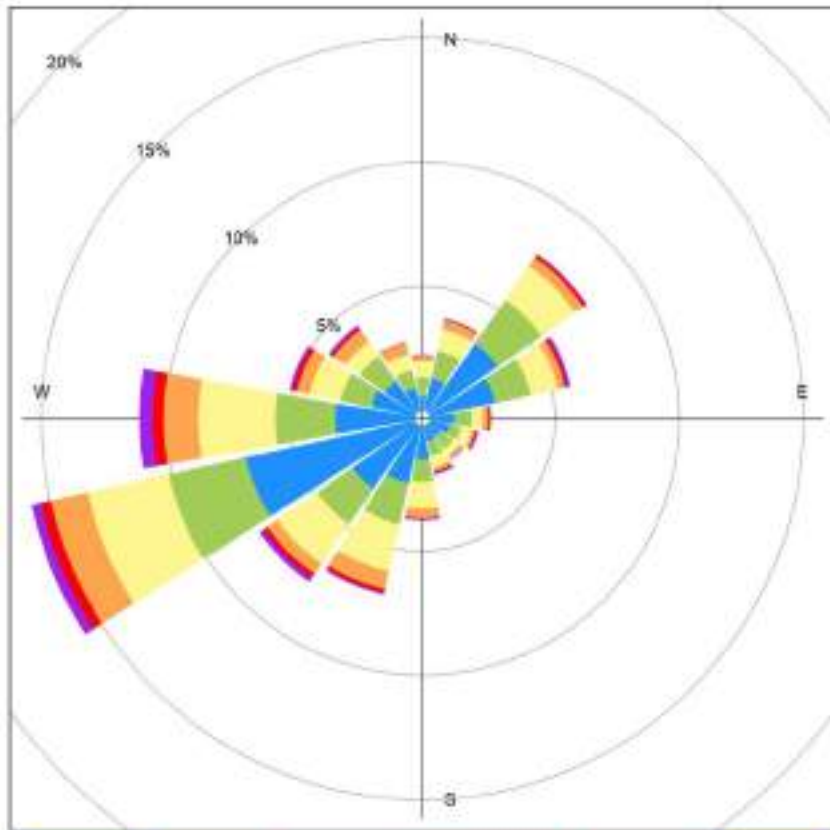
AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Evergreen Park

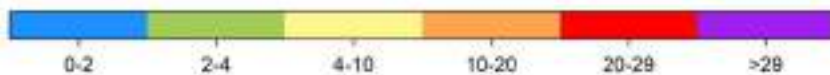


2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Evergreen Park





2021 Annual Concentration Readings of $PM_{2.5}$ in $\mu g/m^3$ at Evergreen Park



Hourly Maximum $PM_{2.5}$ (in $\mu g/m^3$) for 2021 at Evergreen Park

January-2021							February-2021							March-2021							
27	28	29	30	31	1	2	21	22	23	24	25	26	27	28	29	30	31	1	2	3	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	
24	25	26	27	28	29	30	28	29	30	31	1	2	3	28	29	30	31	1	2	3	
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
April-2021							May-2021							June-2021							
28	29	30	31	1	2	3	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3	
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
July-2021							August-2021							September-2021							
27	28	29	30	31	1	2	3	25	26	27	28	29	30	31	28	29	30	1	2	3	4
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11	
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18	
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25	
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2	
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
October-2021																					
30	31	1	2	3	4	5															
3	4	5	6	7	8	9															
10	11	12	13	14	15	16															
17	18	19	20	21	22	23															
24	25	26	27	28	29	30															
31	1	2	3	4	5	6															
S	M	T	W	T	F	S															

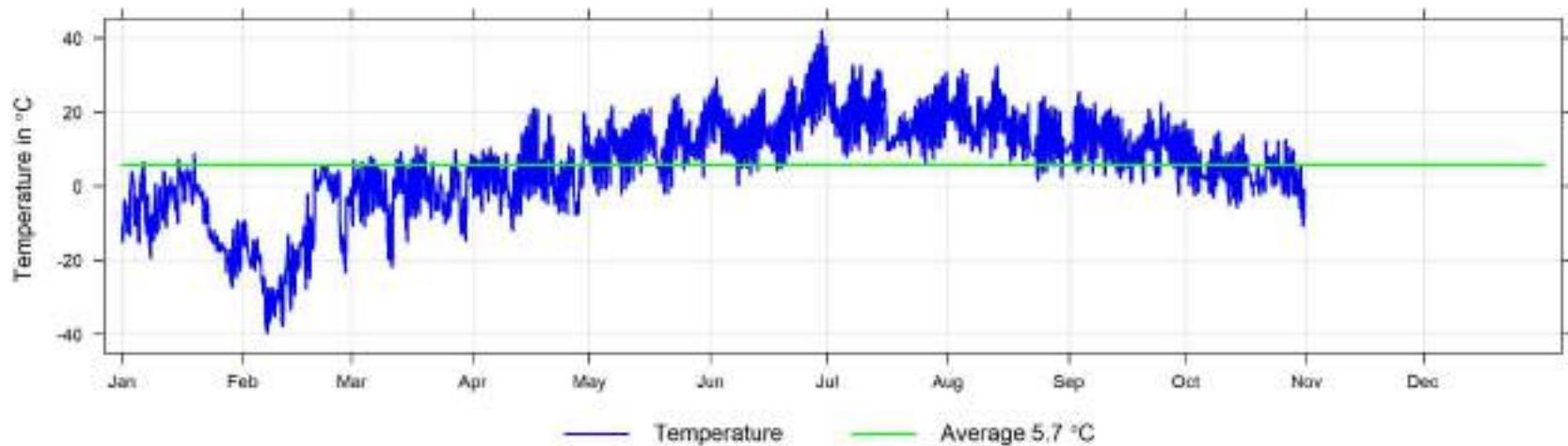


8.4 Temperature (ET) - Evergreen Park 2021 (Jan-Oct) Summary

Temperature (ET) Frequency Distribution at Evergreen Park

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	738	-7.8	1.4	Jan 06	8.8	Jan 19 14:00	-21.1	Jan 29	-27.2	Jan 29 07:00	99.2%	99.2%
February 2021	664	-15.9	4.3	Feb 21	6.7	Feb 21 16:00	-35.0	Feb 07	-39.6	Feb 07 09:00	98.8%	98.8%
March 2021	744	-1.6	5.6	Mar 31	11.0	Mar 17 17:00	-12.0	Mar 10	-21.8	Mar 11 06:00	100.0%	100.0%
April 2021	717	3.0	11.9	Apr 30	21.0	Apr 16 17:00	-5.9	Apr 27	-11.9	Apr 11 06:00	99.6%	99.6%
May 2021	743	11.1	18.5	May 31	24.7	May 23 17:00	5.8	May 18	-2.2	May 03 06:00	100.0%	99.9%
June 2021	720	18.0	30.2	Jun 29	42.0	Jun 29 17:00	10.1	Jun 08	0.3	Jun 08 05:00	100.0%	100.0%
July 2021	741	18.2	23.5	Jul 01	32.5	Jul 07 18:00	11.6	Jul 17	5.9	Jul 26 06:00	99.6%	99.6%
August 2021	744	15.8	22.6	Aug 13	32.4	Aug 13 14:00	8.3	Aug 30	1.8	Aug 24 04:00	100.0%	100.0%
September 2021	718	11.3	15.7	Sep 05	25.5	Sep 03 17:00	5.6	Sep 29	-2.1	Sep 29 07:00	99.7%	99.7%
October 2021	731	3.3	8.5	Oct 09	15.3	Oct 02 13:00	-1.6	Oct 30	-10.7	Oct 31 08:00	99.9%	99.9%
November 2021	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-
7260		AVERAGE 5.7	30.2	MAXIMUM VALUES Jun 29 42.0 Jun 29 17:00		MINIMUM VALUES -35.0 Feb 07 -39.6 Feb 07 09:00			83.0%	83.0%		

2021 Hourly Temperature Readings (in °C) at Evergreen Park

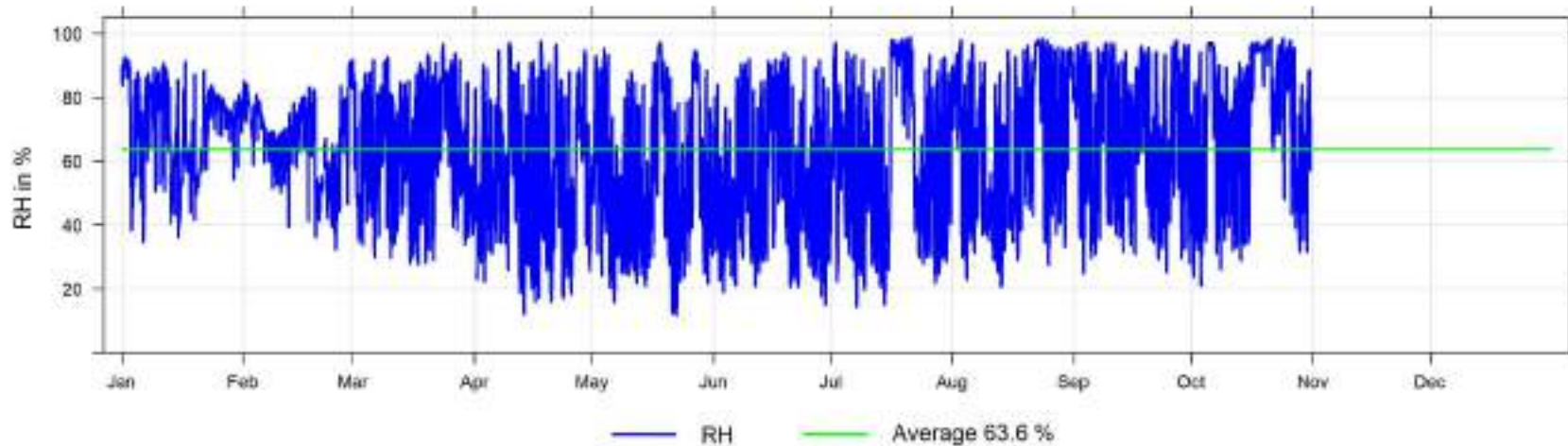


8.5 Relative Humidity (RH) - Evergreen Park 2021 (Jan-Oct) Summary

Relative Humidity (RH) Frequency Distribution at Evergreen Park

Month	Valid Hours	Monthly Average (%)	Maximum Values			Operational time (%)	Valid time (%)		
			24-hr (%)	Date	1-hr (%)			Date	
January 2021	738	70.8	89.6	Jan 01	92.8	Jan 01 18:00	99.2%	99.2%	
February 2021	664	67.1	88.4	Feb 28	91.1	Feb 28 05:00	98.8%	98.8%	
March 2021	744	65.5	86.6	Mar 24	96.6	Mar 24 04:00	100.0%	100.0%	
April 2021	718	56.1	80.1	Apr 10	97.6	Apr 18 04:00	99.7%	99.7%	
May 2021	743	54.5	93.2	May 18	97.2	May 18 10:00	100.0%	99.9%	
June 2021	720	52.9	81.2	Jun 15	94.0	Jun 19 04:00	100.0%	100.0%	
July 2021	741	61.5	95.1	Jul 18	98.8	Jul 21 09:00	99.6%	99.6%	
August 2021	744	66.3	94.7	Aug 22	98.3	Aug 24 08:00	100.0%	100.0%	
September 2021	718	68.4	87.5	Sep 08	97.8	Sep 27 09:00	99.7%	99.7%	
October 2021	731	73.1	96.3	Oct 17	98.6	Oct 24 12:00	99.9%	99.9%	
November 2021	-	-	-	-	-	-	-	-	
December 2021	-	-	-	-	-	-	-	-	
		AVERAGE	MAXIMUM VALUES						
		7261	63.6	96.3	Oct 17	98.8	Jul 21 09:00	83.0%	83.0%

2021 Hourly Readings of Relative Humidity (in %) at Evergreen Park

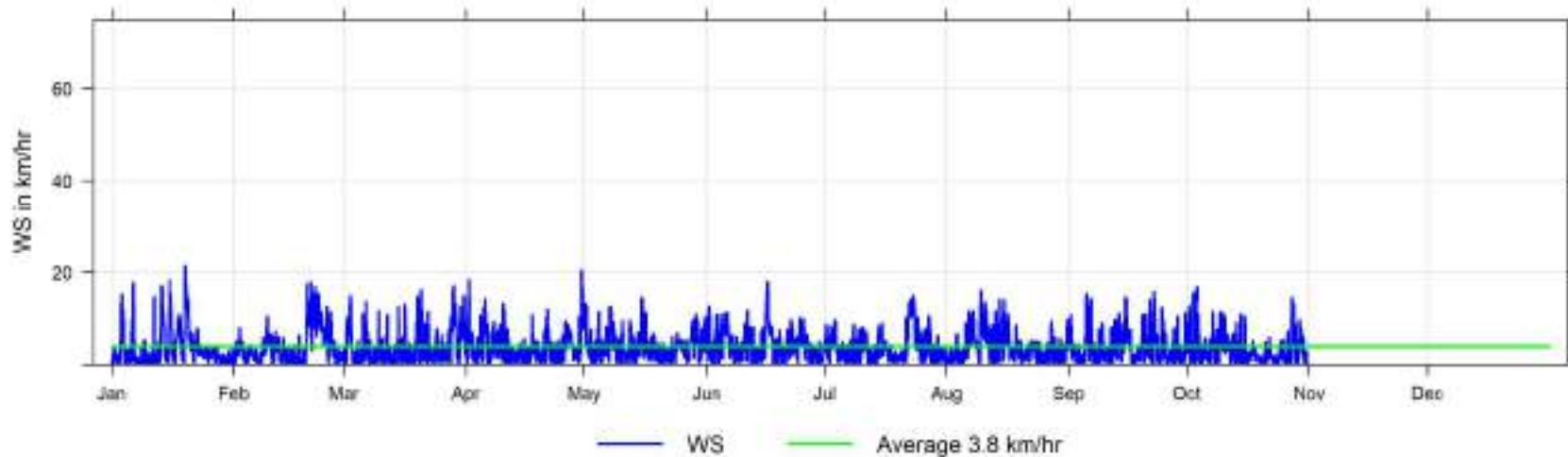


8.6 Wind Speed and Wind Direction (WS and WD) - Evergreen Park 2021 (Jan-Oct) Summary

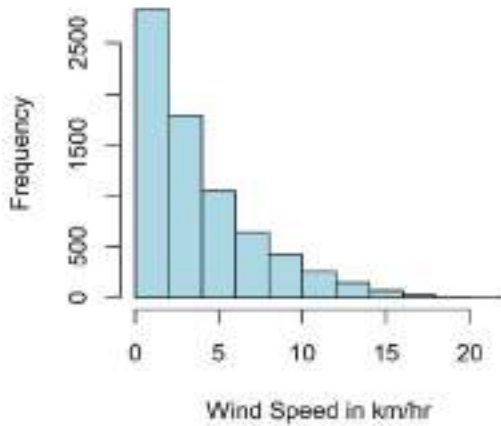
Wind Speed Frequency Distribution at Evergreen Park

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)			Date
January 2021	738	12.7%	64.0%	13.7%	9.4%	0.3%	0.0%	3.7	10.1	Jan 20	21.4	Jan 19 18:00	99.2%	99.2%
February 2021	664	11.9%	61.3%	20.0%	6.8%	0.0%	0.0%	3.9	12.1	Feb 21	18.0	Feb 20 14:00	98.8%	98.8%
March 2021	744	10.1%	61.6%	21.1%	7.3%	0.0%	0.0%	3.9	10.1	Mar 02	17.1	Mar 28 22:00	100.0%	100.0%
April 2021	718	9.2%	62.0%	23.5%	5.2%	0.1%	0.0%	4.0	11.5	Apr 30	20.3	Apr 30 10:00	99.7%	99.7%
May 2021	743	5.5%	65.6%	26.8%	2.2%	0.0%	0.0%	3.9	8.5	May 01	14.4	May 15 15:00	100.0%	99.9%
June 2021	720	8.1%	57.5%	31.5%	2.9%	0.0%	0.0%	4.3	12.2	Jun 16	18.1	Jun 16 12:00	100.0%	100.0%
July 2021	741	9.0%	64.5%	23.2%	3.2%	0.0%	0.0%	3.6	11.4	Jul 23	14.8	Jul 23 13:00	99.6%	99.6%
August 2021	744	10.0%	62.8%	22.9%	4.4%	0.0%	0.0%	3.8	8.7	Aug 10	16.1	Aug 09 15:00	100.0%	100.0%
September 2021	720	9.4%	60.6%	24.4%	5.6%	0.0%	0.0%	3.9	9.0	Sep 15	15.8	Sep 22 12:00	100.0%	100.0%
October 2021	731	11.2%	65.3%	20.0%	3.6%	0.0%	0.0%	3.4	7.8	Oct 03	16.8	Oct 03 12:00	99.9%	99.9%
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	7263	9.7%	62.5%	22.7%	5.0%	0.0%	0.0%	3.8	12.2	Jun 16	21.4	Jan 19 18:00	83.1%	83.0%

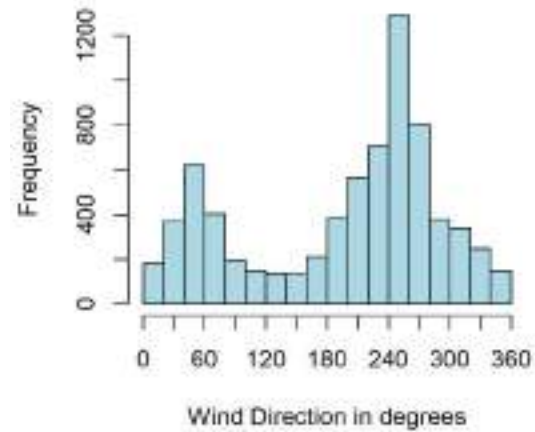
2021 Hourly Readings of Wind Speed (in km/hr) at Evergreen Park



2021 Wind Speed Histogram

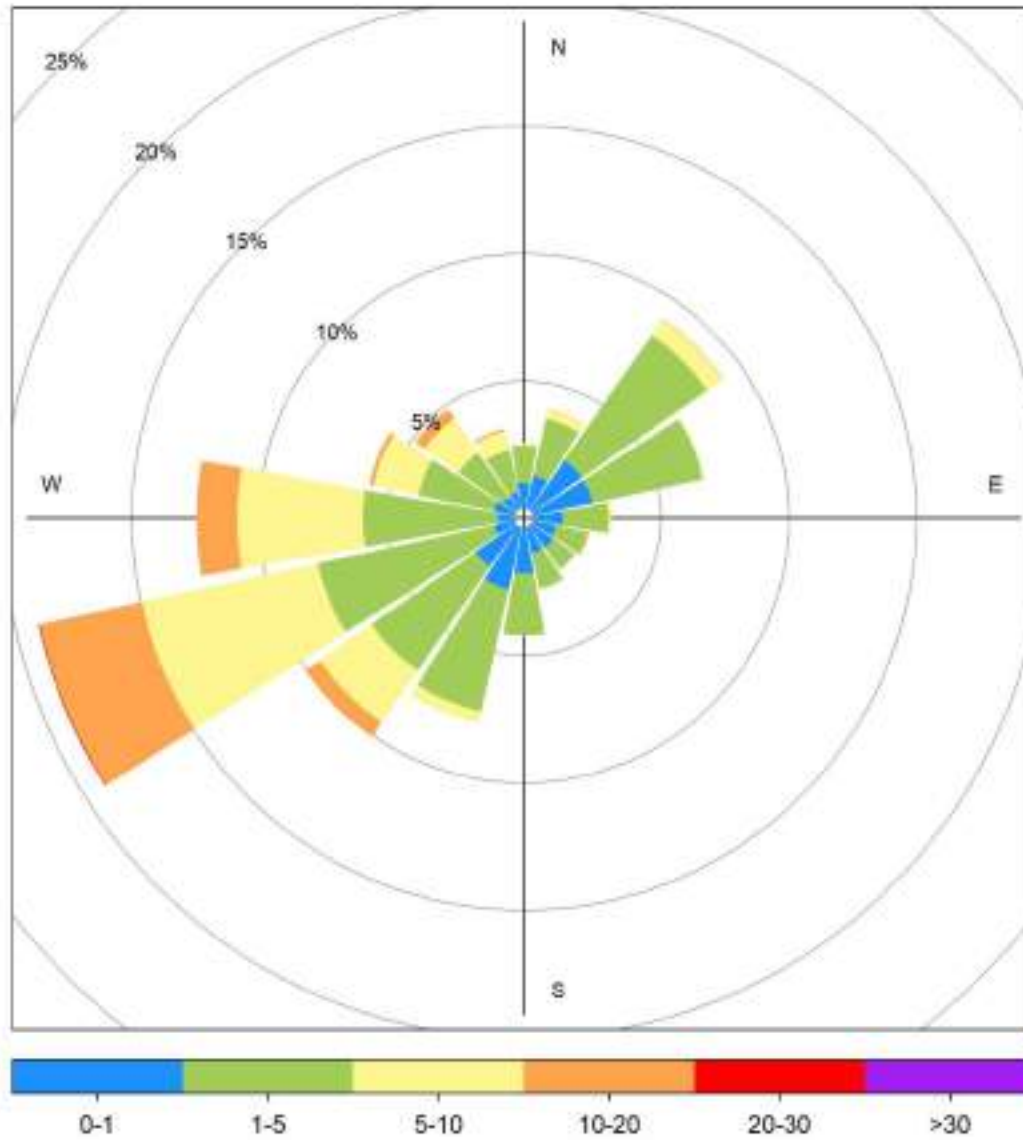


2021 Wind Direction Histogram



Wind Speed and Wind Direction Frequency Distribution at Evergreen Park

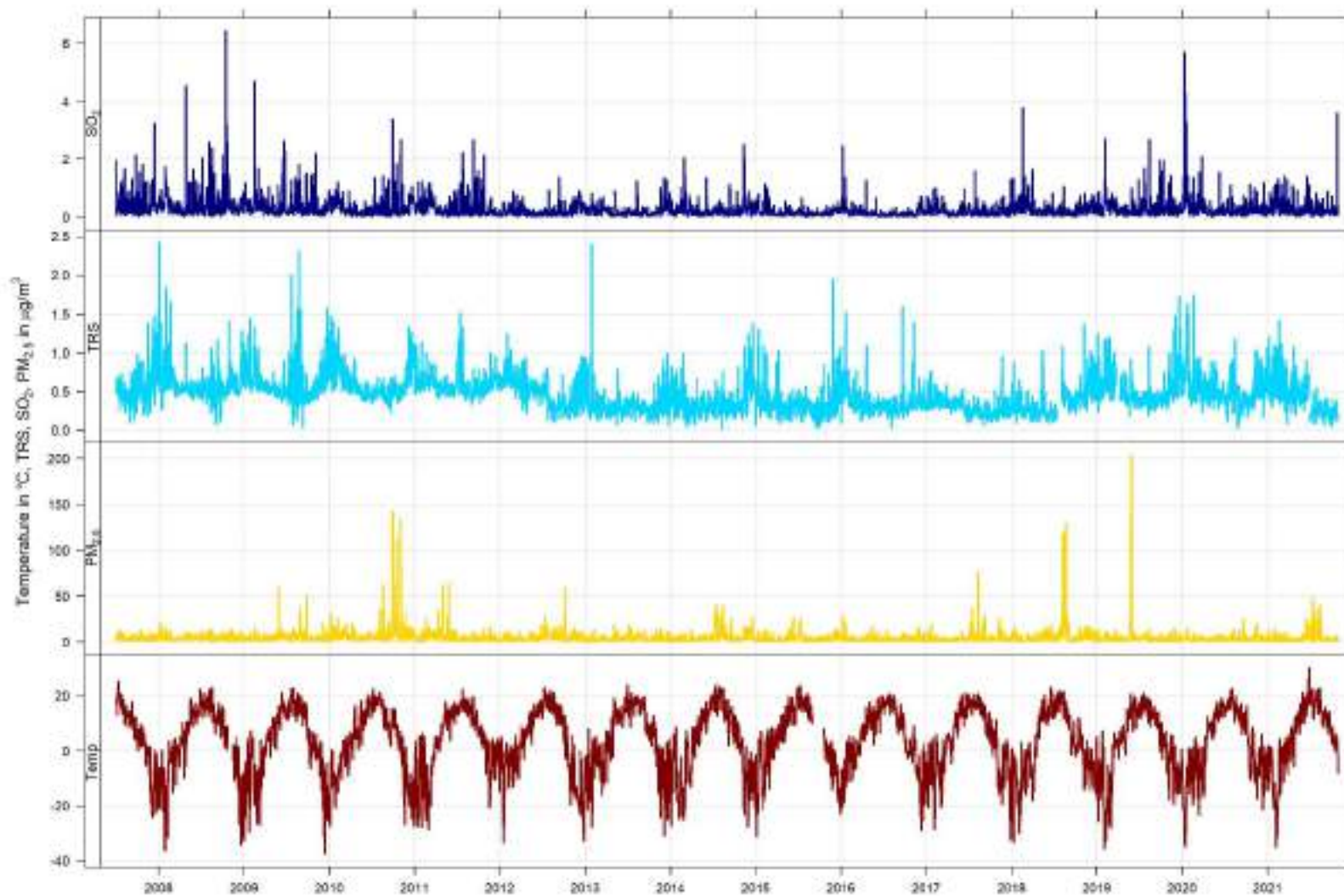
Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	185	0.5%	1.9%	0.1%	0.0%	0.0%	0.0%	2.5%
NNE	292	0.7%	2.9%	0.4%	0.0%	0.0%	0.0%	4.0%
NE	665	1.0%	7.4%	0.8%	0.0%	0.0%	0.0%	9.2%
ENE	498	0.8%	6.0%	0.0%	0.0%	0.0%	0.0%	6.9%
E	224	0.7%	2.3%	0.1%	0.0%	0.0%	0.0%	3.1%
ESE	166	0.6%	1.6%	0.1%	0.0%	0.0%	0.0%	2.3%
SE	151	0.7%	1.3%	0.0%	0.0%	0.0%	0.0%	2.1%
SSE	179	0.6%	1.9%	0.0%	0.0%	0.0%	0.0%	2.5%
S	308	0.8%	3.5%	0.0%	0.0%	0.0%	0.0%	4.2%
SSW	570	0.8%	6.6%	0.5%	0.0%	0.0%	0.0%	7.8%
SW	731	0.8%	6.1%	2.7%	0.5%	0.0%	0.0%	10.1%
WSW	1387	0.4%	7.5%	8.0%	3.1%	0.0%	0.0%	19.1%
W	903	0.3%	5.6%	5.5%	1.0%	0.0%	0.0%	12.4%
WNW	422	0.3%	3.5%	1.9%	0.1%	0.0%	0.0%	5.8%
NW	350	0.3%	2.5%	1.7%	0.3%	0.0%	0.0%	4.8%
NNW	232	0.4%	2.0%	0.8%	0.0%	0.0%	0.0%	3.2%
Total	7263	9.7%	62.5%	22.7%	5.0%	0.0%	0.0%	100.0%



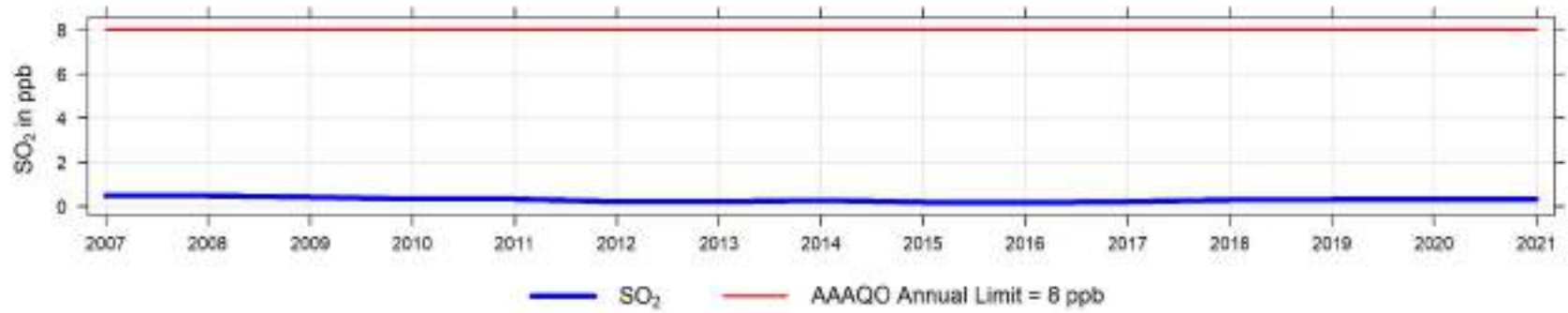
8.7 Evergreen Park Annual Trends, 2007 to 2021

The following pages include historical annual charts collected between 2007 and 2021 at the Evergreen Park Station.

2007 to 2021 Daily Concentration Readings at Evergreen Park



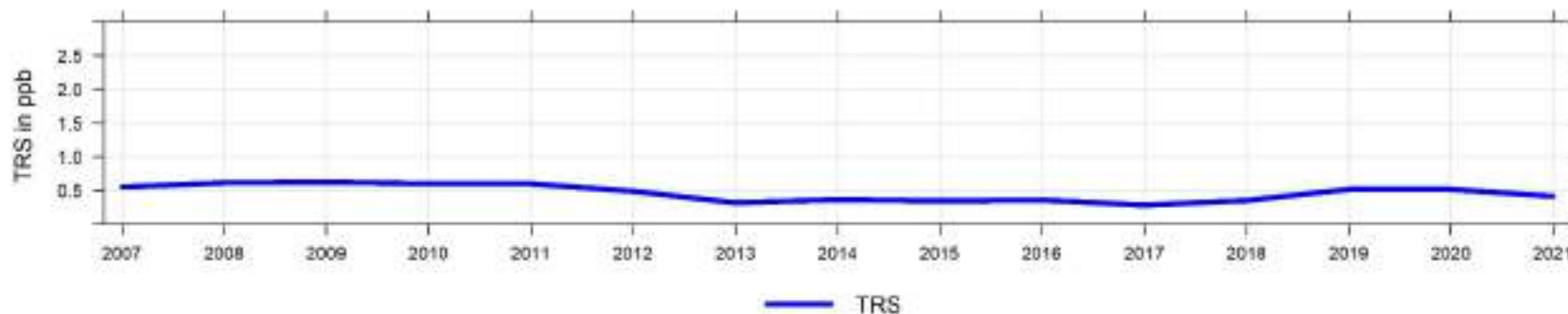
Years 2007 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Evergreen Park



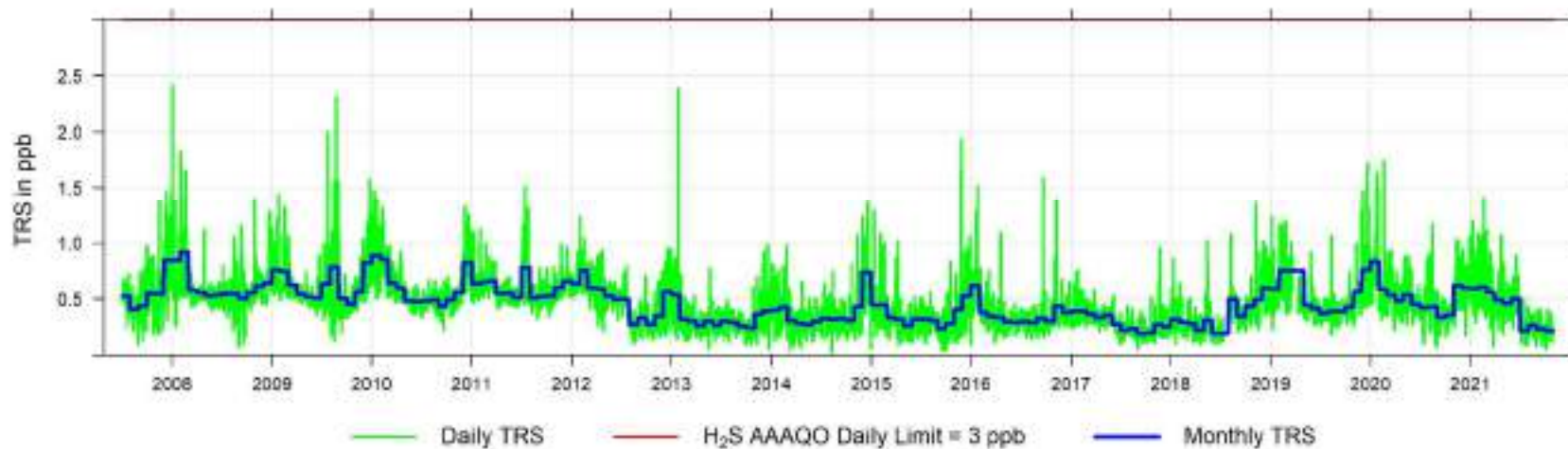
Years 2007 to 2021 Concentration Readings of SO₂ (in ppb) at Evergreen Park



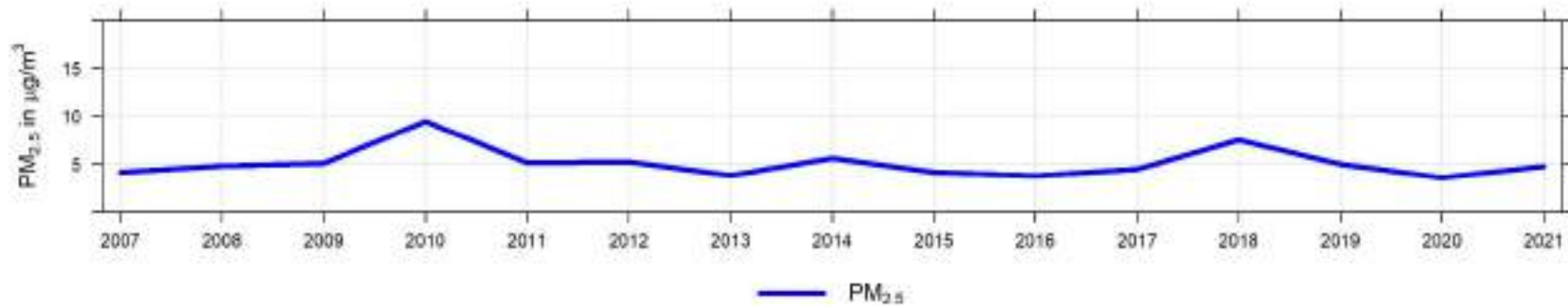
Years 2007 to 2021 Annual Concentration Readings of TRS (in ppb) at Evergreen Park



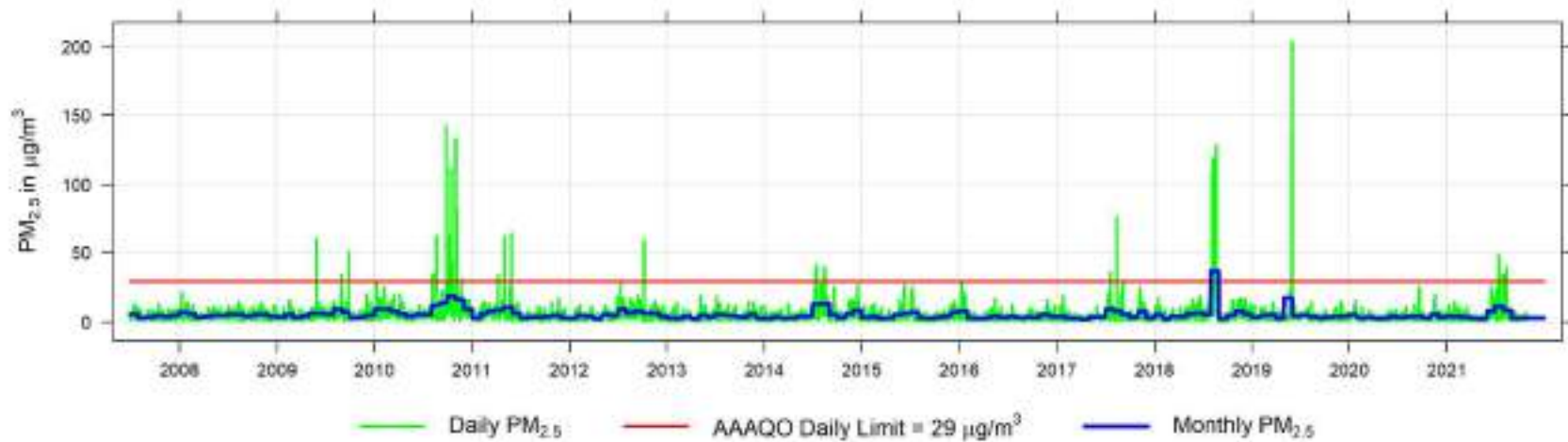
Years 2007 to 2021 Concentration Readings of TRS (in ppb) at Evergreen Park



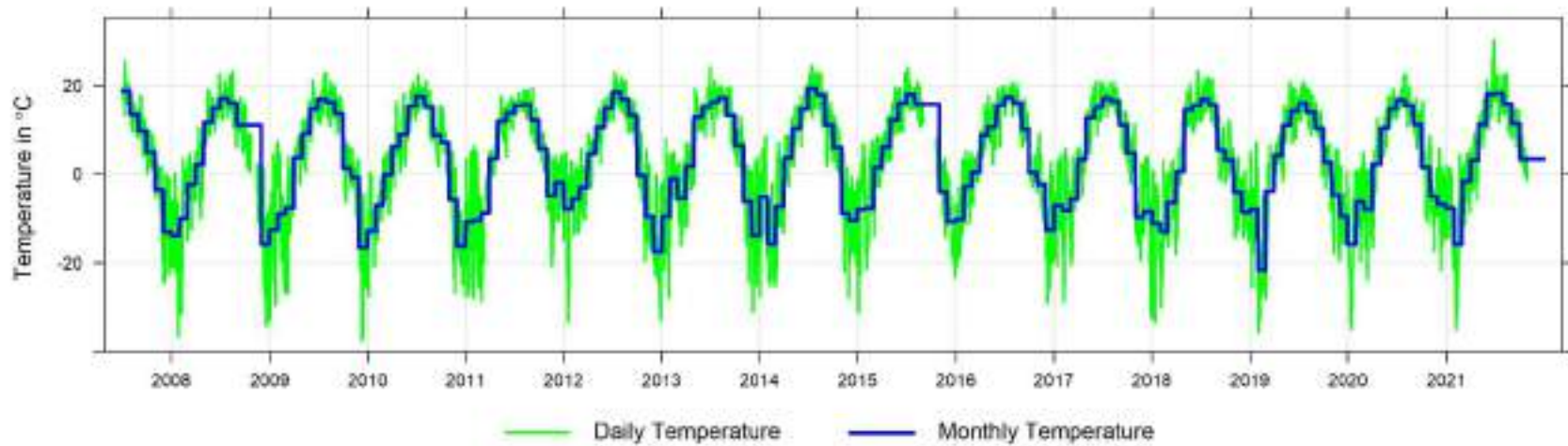
2007 to 2021 Annual Concentration Readings of PM_{2.5} in µg/m³ at Evergreen Park



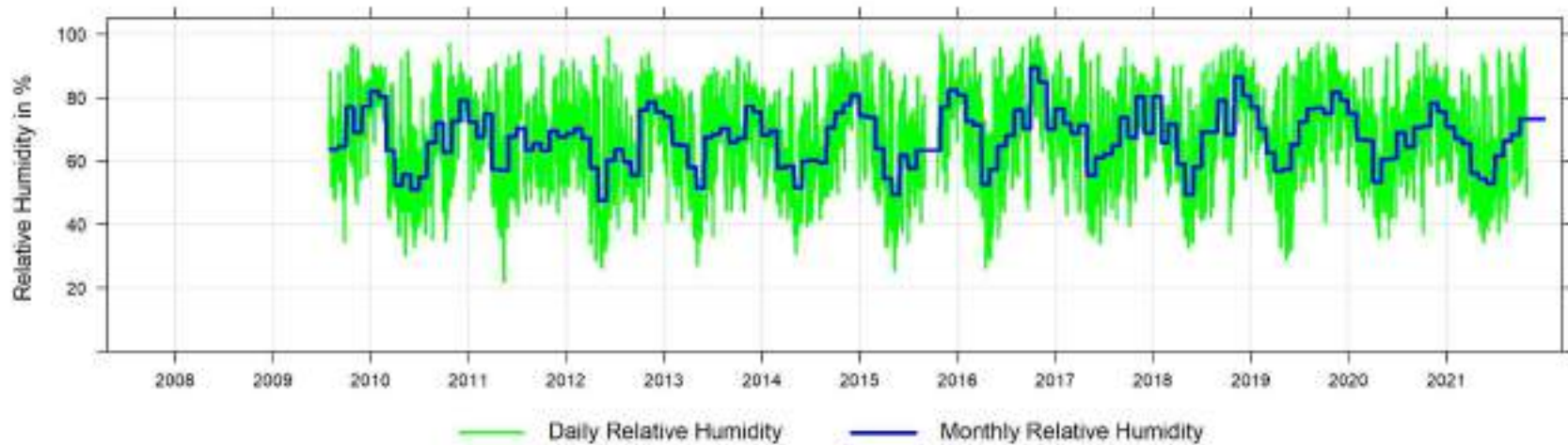
Years 2007 to 2021 Concentration Readings of PM_{2.5} in µg/m³ at Evergreen Park



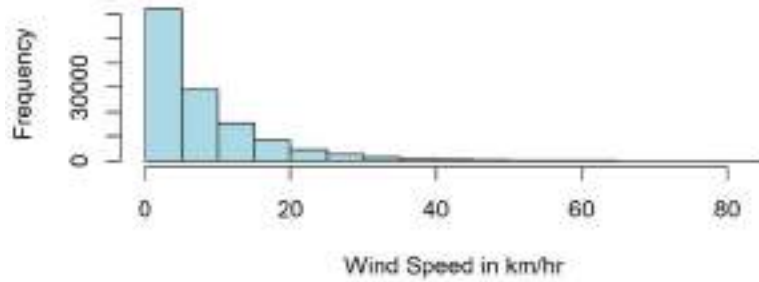
Years 2007 to 2021 Temperature Readings (in °C) at Evergreen Park



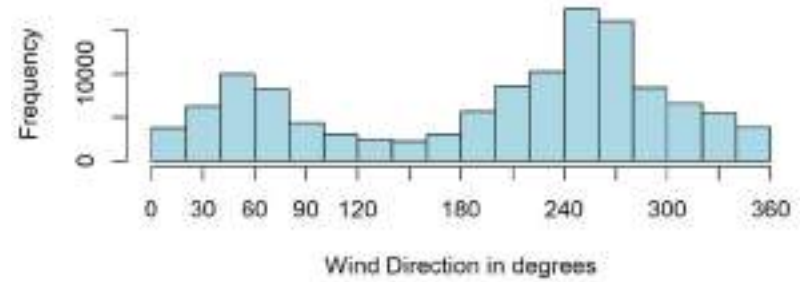
Years 2007 to 2021 Relative Humidity Readings (in %) at Evergreen Park



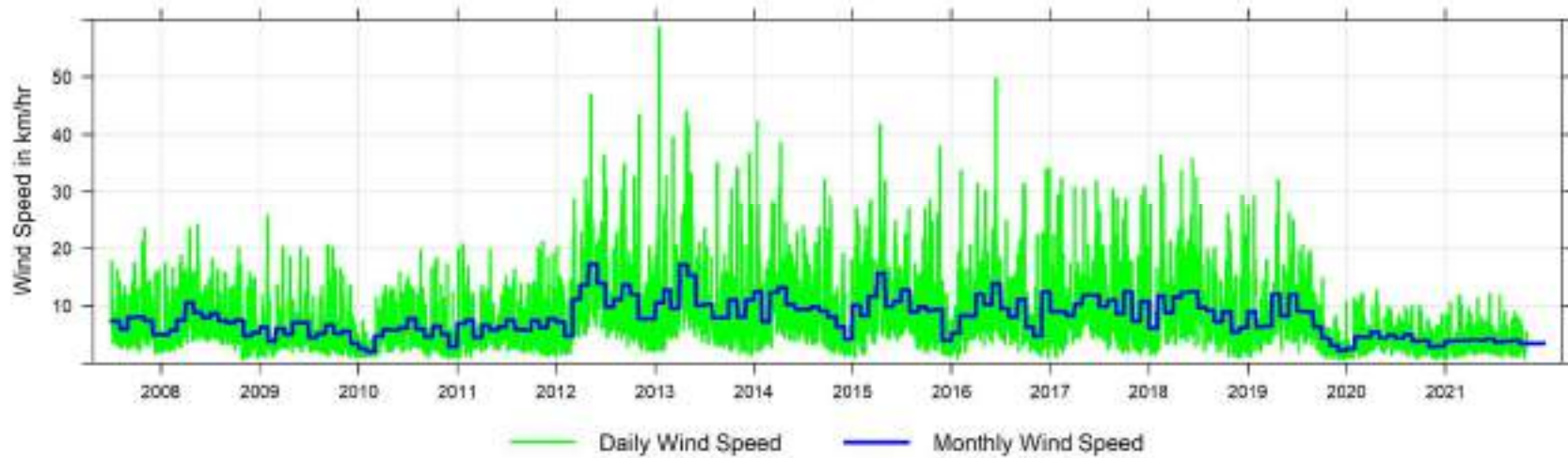
Years 2007 to 2021 Wind Speed Histogram

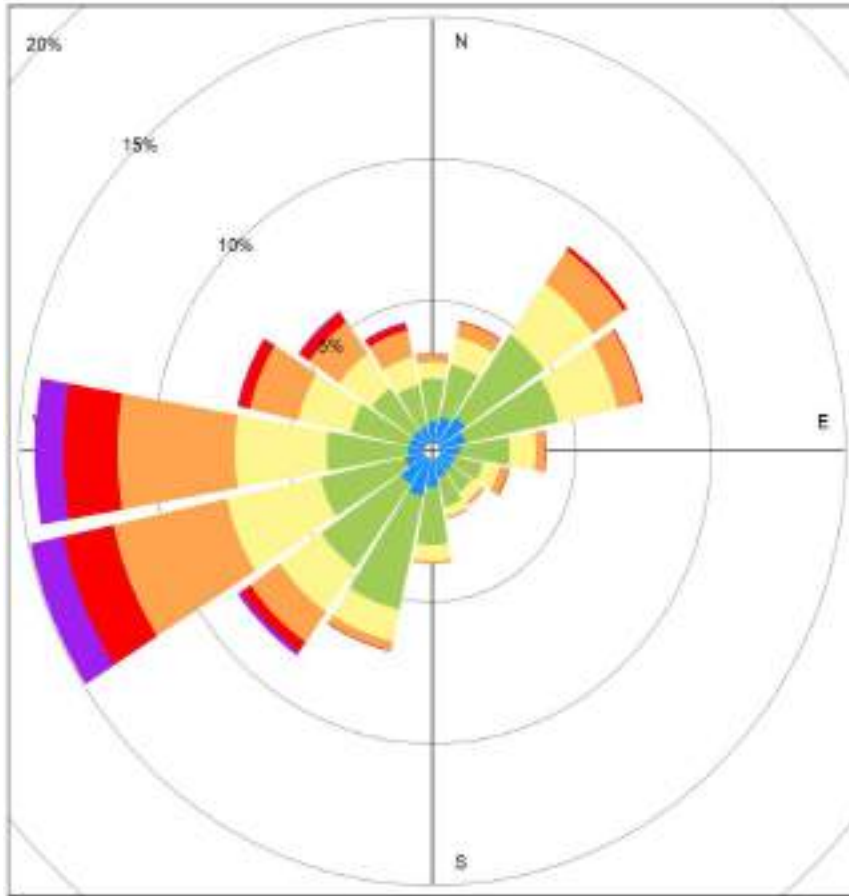


Years 2007 to 2021 Wind Direction Histogram

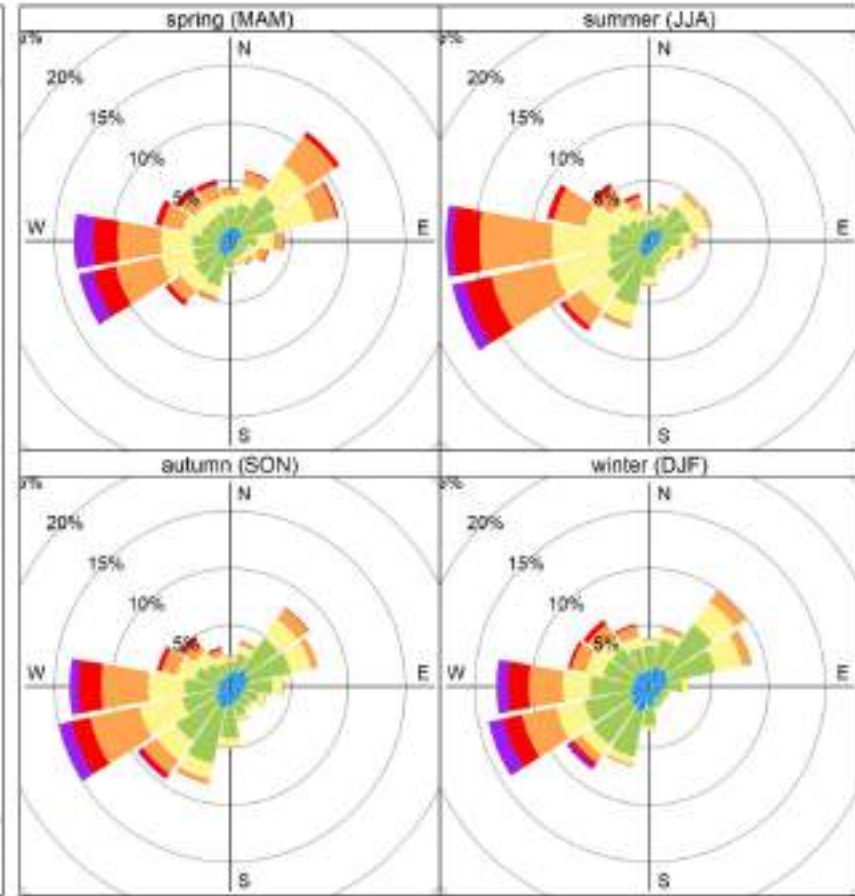


Years 2007 to 2021 Wind Speed Readings (in km/hr) at Evergreen Park





Evergreen Park 2007 to 2021 Wind Rose, wind speed in km/hr



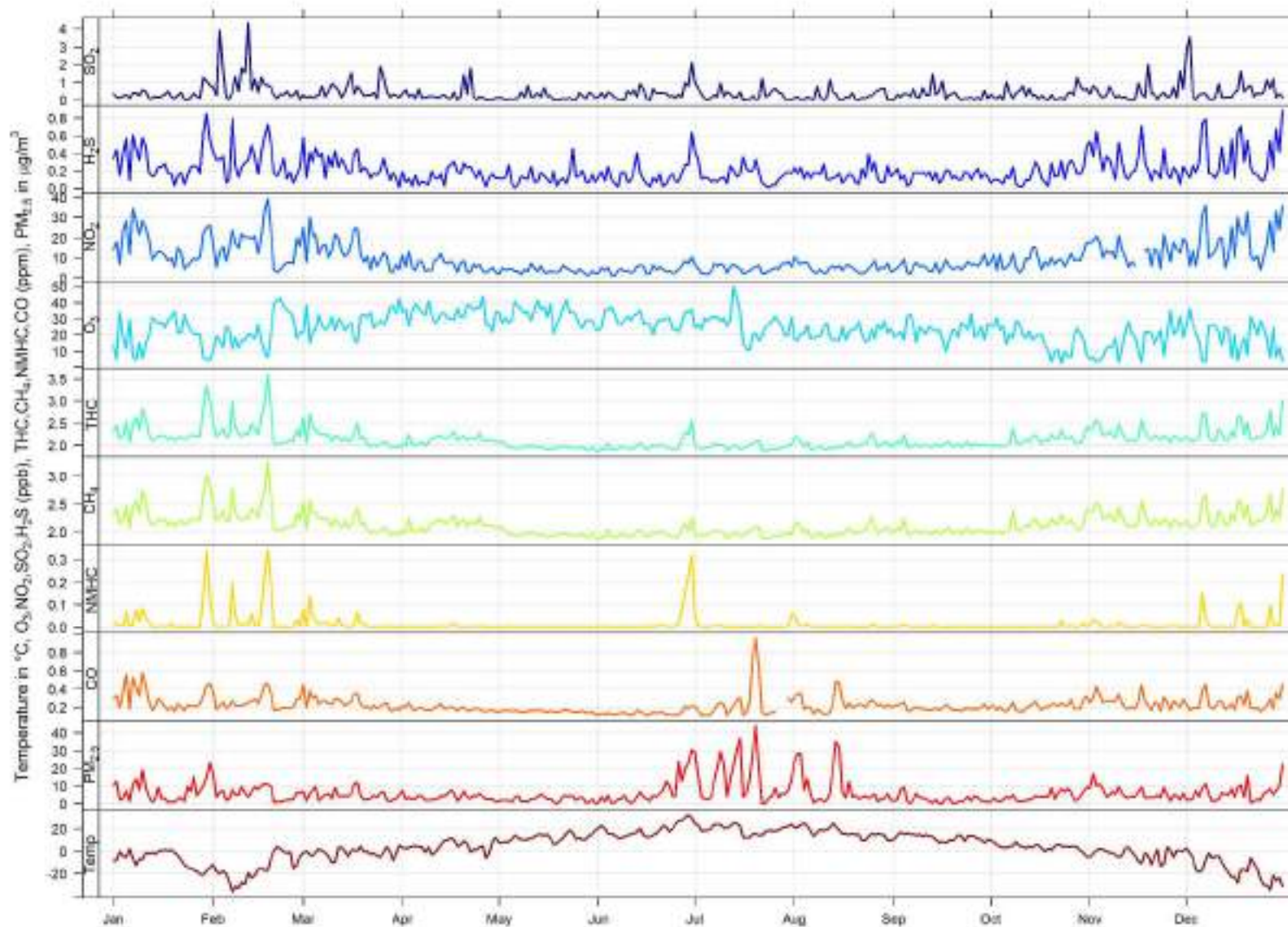
Evergreen Park 2007 to 2021 Seasonal Wind Rose, wind speed in km/hr

9 Henry Pirker Key Parameters - Continuous Monitoring Data - 2021 Summary

Henry Pirker Key Parameters - Continuous Monitoring Data - 2021 Summary

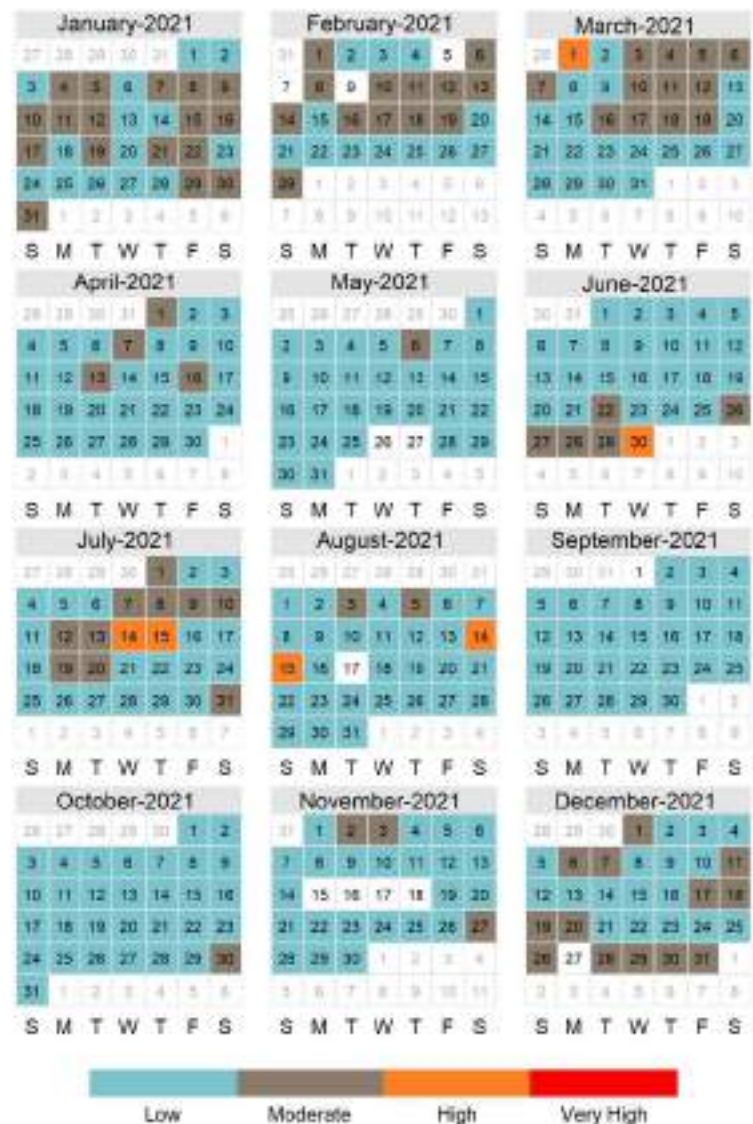
Henry Pirker Station	Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr	Date			1-hr	8-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.4	4.4	Feb 12	56.5	Dec 02 12:00	100.0%	95.3%	0	-	0	0	0
	Hydrogen Sulphide H ₂ S measured in ppb	0.2	0.9	Dec 31	3.1	Dec 31 23:00	99.7%	94.9%	0	-	0	-	-
	Nitrogen Dioxide NO ₂ measured in ppb	9.5	39.0	Feb 18	67.3	Mar 01 11:00	99.7%	93.9%	0	-	-	-	0
	Nitrogen Oxides NO _x measured in ppb	14.1	81.0	Dec 31	255.0	Mar 01 10:00	99.7%	93.9%	-	-	-	-	-
	Nitric Oxide NO measured in ppb	4.4	44.3	Dec 31	191.1	Mar 01 10:00	99.7%	93.9%	-	-	-	-	-
	Ozone O ₃ measured in ppb	23.9	50.5	Jul 13	88.1	Jun 28 14:00	100.0%	95.3%	7	-	-	-	-
	Carbon Monoxide CO measured in ppm	0.22	0.9	Jul 20	1.8	Aug 15 01:00	98.7%	94.0%	0	0	-	-	-
	Total Hydrocarbons THC measured in ppm	2.14	3.5	Feb 18	6.6	Feb 18 01:00	99.7%	95.0%	-	-	-	-	-
	Methane CH ₄ measured in ppm	2.12	3.2	Feb 18	5.6	Feb 18 01:00	99.7%	95.0%	-	-	-	-	-
	Non Methane Hydrocarbons NMHC measured in ppm	0.01	0.3	Jan 30	1.0	Feb 18 01:00	99.7%	95.0%	-	-	-	-	-
	Particulate Matter PM _{2.5} measured in µg/m ³	6.0	42.6	Jul 20	155.2	Aug 14 08:00	99.3%	98.9%	14	-	8	-	-

2021 Daily Concentration Readings at Henry Pirker



9.1 Henry Pirker AQHI Calendar Plot for 2021

Hourly Maximum AQHI for 2021 at Henry Pirker



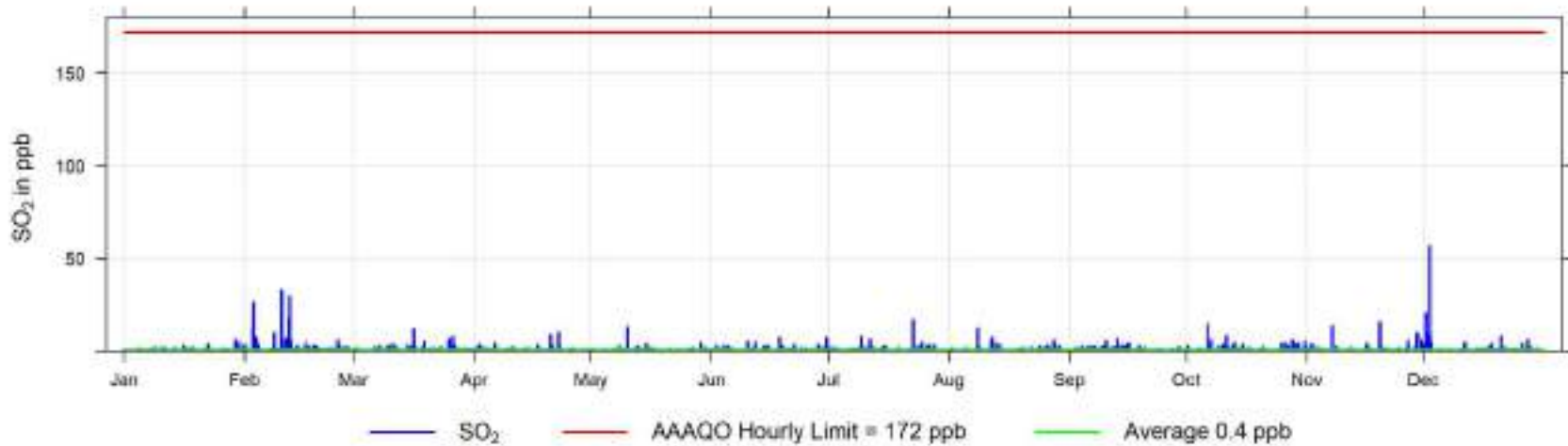
9.2 Sulphur Dioxide (SO₂) - Henry Pirker 2021 Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Henry Pirker

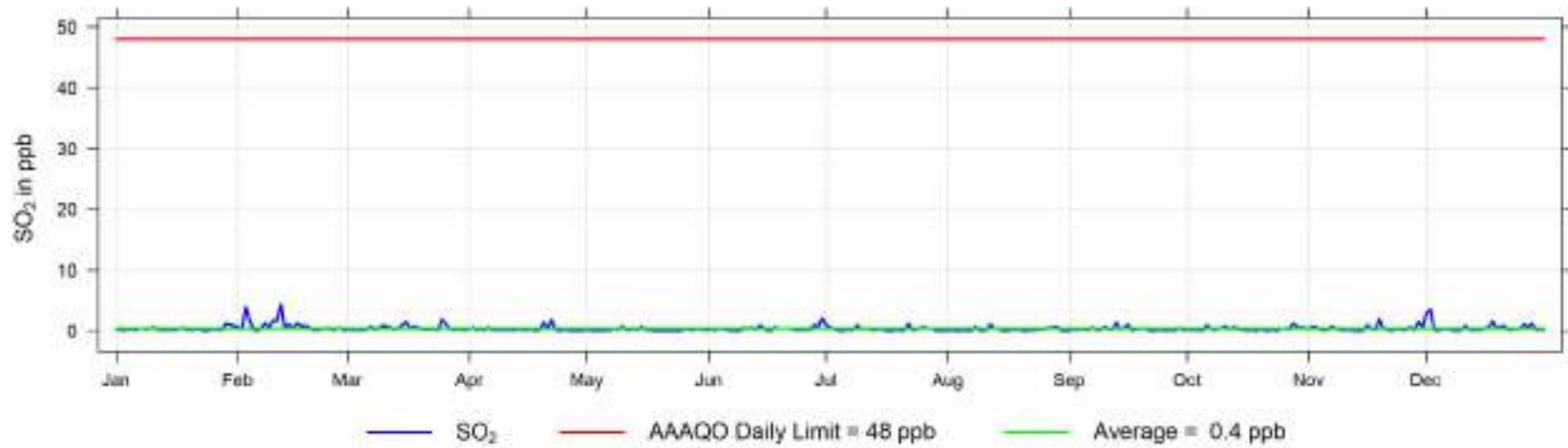
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	709	93.9%	5.9%	0.1%	0.0%	0.0%	0.0%	0.3	1.3	Jan 29	5.9	Jan 29 15:00	100.0%	95.3%	0	0	0
February 2021	640	78.6%	18.6%	1.9%	0.9%	0.0%	0.0%	0.9	4.4	Feb 12	32.8	Feb 10 12:00	100.0%	95.2%	0	0	0
March 2021	709	86.6%	12.6%	0.7%	0.1%	0.0%	0.0%	0.5	1.9	Mar 25	12.2	Mar 16 11:00	100.0%	95.3%	0	0	0
April 2021	686	92.4%	6.9%	0.6%	0.2%	0.0%	0.0%	0.3	1.9	Apr 22	10.0	Apr 22 16:00	100.0%	95.3%	0	0	0
May 2021	708	95.5%	4.4%	0.0%	0.1%	0.0%	0.0%	0.2	0.8	May 10	12.8	May 10 12:00	100.0%	95.2%	0	0	0
June 2021	686	88.2%	11.2%	0.6%	0.0%	0.0%	0.0%	0.4	2.1	Jun 30	7.3	Jun 18 11:00	100.0%	95.3%	0	0	0
July 2021	709	90.7%	8.9%	0.3%	0.1%	0.0%	0.0%	0.3	1.2	Jul 22	16.9	Jul 22 20:00	100.0%	95.3%	0	0	0
August 2021	709	93.2%	6.1%	0.6%	0.1%	0.0%	0.0%	0.2	0.9	Aug 12	12.4	Aug 08 09:00	100.0%	95.3%	0	0	0
September 2021	686	90.8%	8.5%	0.7%	0.0%	0.0%	0.0%	0.3	1.4	Sep 13	6.5	Sep 13 05:00	100.0%	95.3%	0	0	0
October 2021	709	91.0%	8.3%	0.6%	0.1%	0.0%	0.0%	0.4	1.3	Oct 28	14.5	Oct 06 11:00	100.0%	95.3%	0	0	0
November 2021	685	91.0%	7.7%	1.0%	0.3%	0.0%	0.0%	0.4	2.0	Nov 19	15.7	Nov 19 19:00	100.0%	95.1%	0	0	0
December 2021	709	88.9%	9.6%	1.1%	0.4%	0.0%	0.0%	0.6	3.6	Dec 02	56.5	Dec 02 12:00	100.0%	95.3%	0	0	0
Annual	8345	90.1%	9.0%	0.7%	0.2%	0.0%	0.0%	0.4	4.4	MAXIMUM VALUES		100.0%	95.3%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

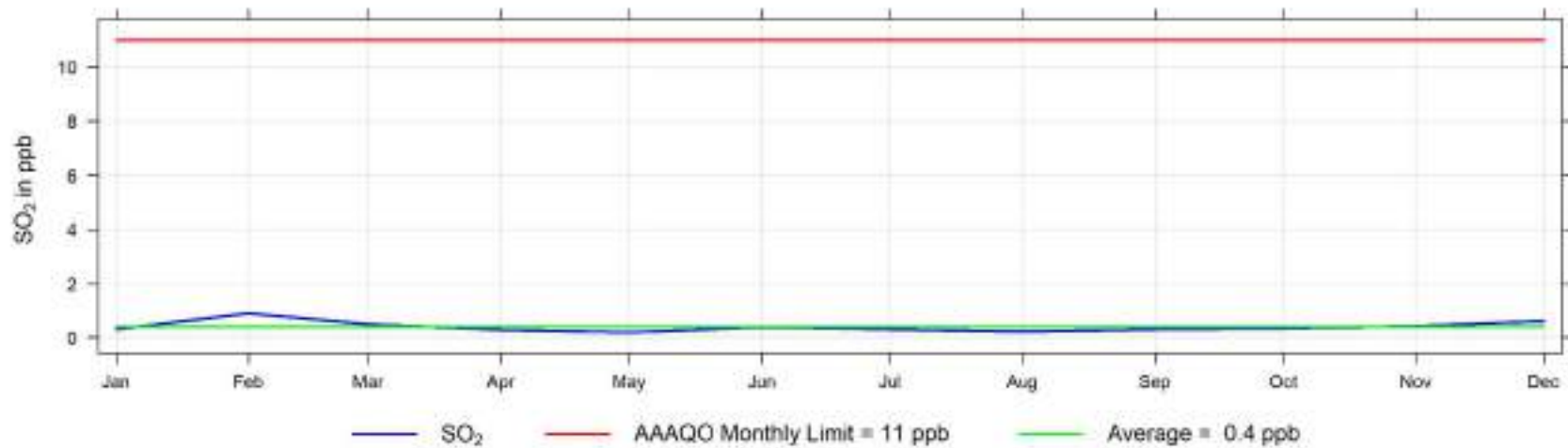
2021 Hourly Concentration Readings of SO₂ (in ppb) at Henry Pirker



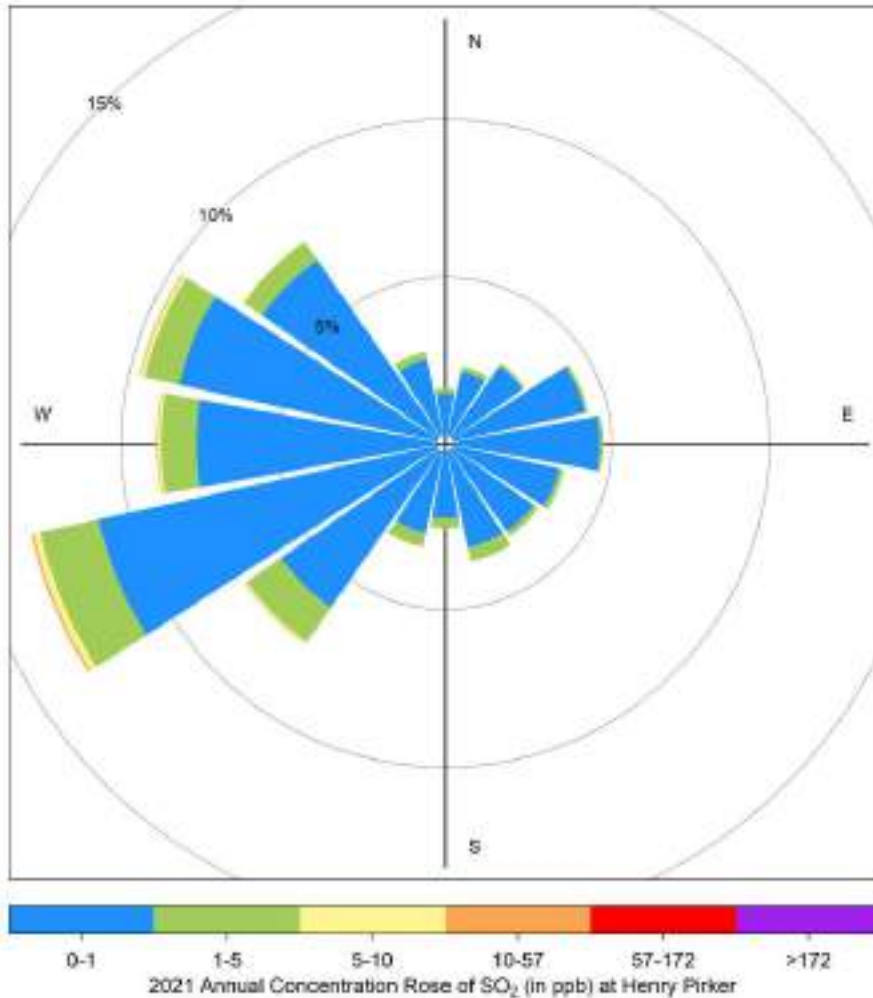
2021 Daily Concentration Readings of SO₂ (in ppb) at Henry Pirker



2021 Monthly Concentration Readings of SO₂ (in ppb) at Henry Pirker



Hourly Maximum SO₂ (in ppb) for 2021 at Henry Pirker



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	1 2 3 4 5 6	1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
28 29 30 31 1 2 3	29 30 31 1 2 3 4	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	28 29 30 31 1 2 3 4	29 30 31 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
25 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
28 29 30 31 1 2	31 1 2 3 4 5 6	28 29 30 1 2 3 4
3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
24 25 26 27 28 29 30	28 29 30 1 2 3 4	26 27 28 29 30 31 1
31 1 2 3 4 5 6	5 6 7 8 9 10 11	2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S

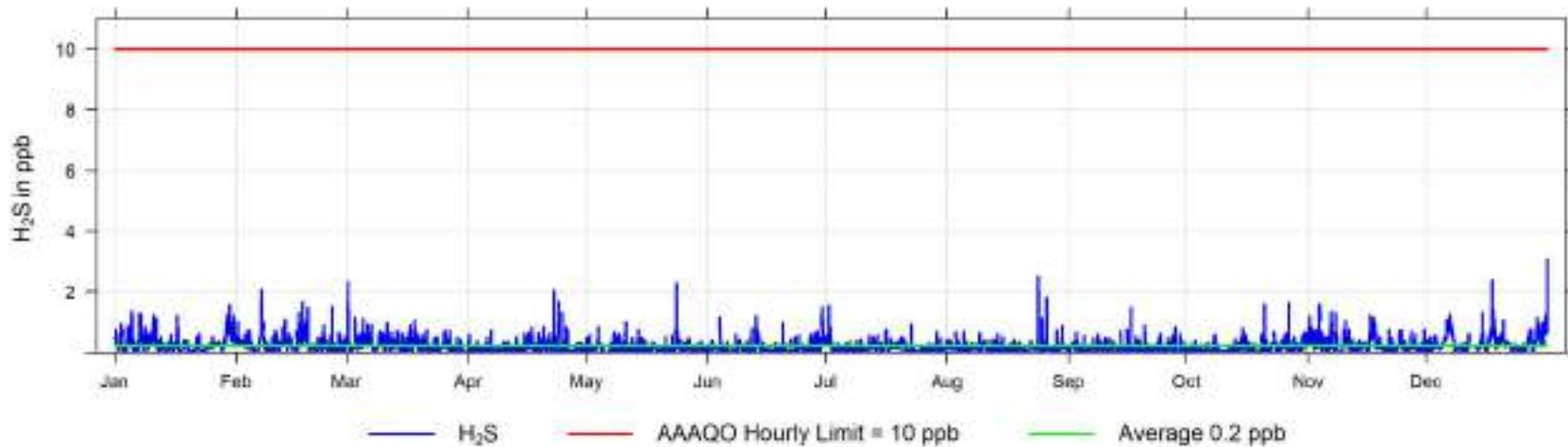
9.3 Hydrogen Sulphide (H₂S) - Henry Pirker 2021 Summary

Hydrogen Sulphide (H₂S) Frequency Distribution at Henry Pirker

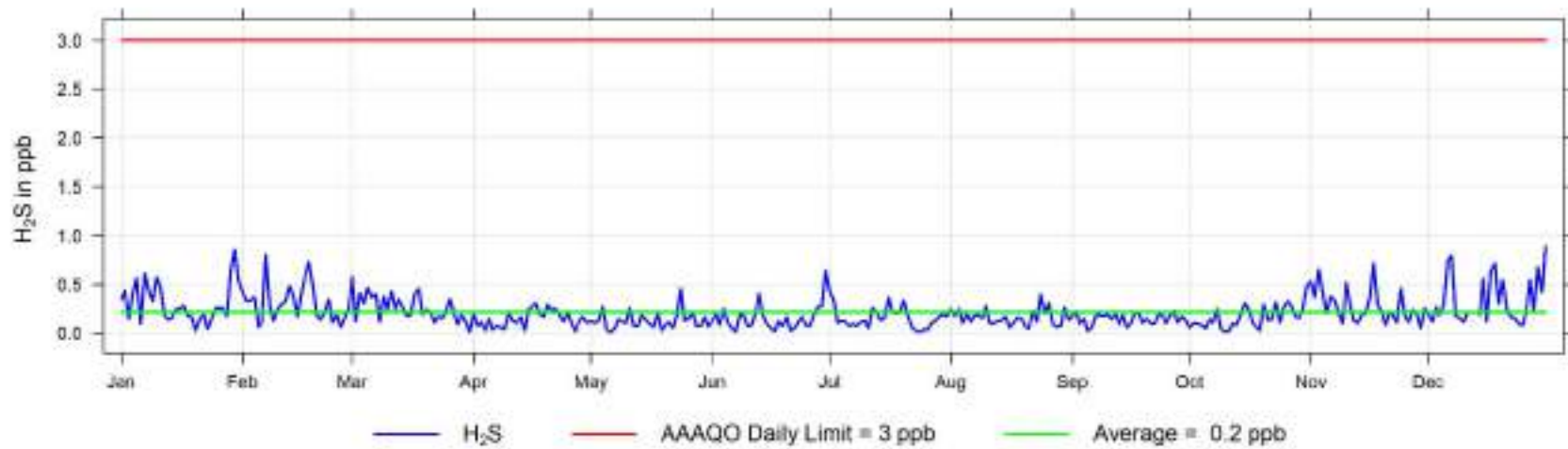
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)			Date	24-hr 3 ppb	1-hr 10 ppb
January 2021	709	96.8%	3.2%	0.0%	0.0%	0.0%	0.0%	0.3	0.8	Jan 30	1.6	Jan 30 09:00	100.0%	95.3%	0	0
February 2021	639	97.3%	2.7%	0.0%	0.0%	0.0%	0.0%	0.3	0.8	Feb 07	2.0	Feb 07 12:00	100.0%	95.1%	0	0
March 2021	709	98.9%	1.1%	0.0%	0.0%	0.0%	0.0%	0.3	0.6	Mar 01	2.3	Mar 01 10:00	100.0%	95.3%	0	0
April 2021	686	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Apr 17	2.0	Apr 22 23:00	100.0%	95.3%	0	0
May 2021	709	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.1	0.4	May 24	2.3	May 24 06:00	100.0%	95.3%	0	0
June 2021	685	99.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.2	0.6	Jun 30	1.5	Jun 30 07:00	100.0%	95.1%	0	0
July 2021	709	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Jul 01	1.5	Jul 01 23:00	100.0%	95.3%	0	0
August 2021	708	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Aug 24	2.5	Aug 24 08:00	100.0%	95.2%	0	0
September 2021	686	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Sep 02	1.5	Sep 17 02:00	100.0%	95.3%	0	0
October 2021	708	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Oct 31	1.6	Oct 27 00:00	100.0%	95.2%	0	0
November 2021	686	97.2%	2.8%	0.0%	0.0%	0.0%	0.0%	0.3	0.7	Nov 17	1.6	Nov 03 22:00	100.0%	95.3%	0	0
December 2021	679	95.7%	4.1%	0.2%	0.0%	0.0%	0.0%	0.3	0.9	Dec 31	3.1	Dec 31 23:00	95.8%	91.3%	0	0
Annual	8313	98.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.2	0.9	MAXIMUM VALUES			99.7%	94.9%	0	0

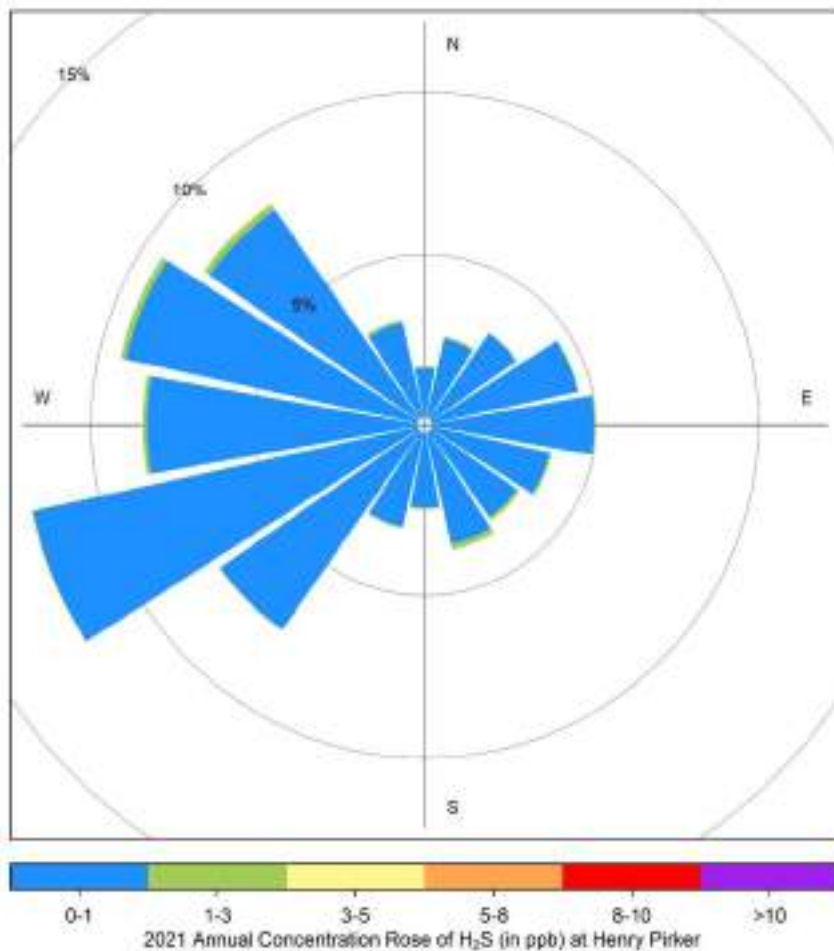
AAAQO Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of H₂S (in ppb) at Henry Pirker



2021 Daily Concentration Readings of H₂S (in ppb) at Henry Pirker





Hourly Maximum H₂S (in ppb) for 2021 at Henry Pirker



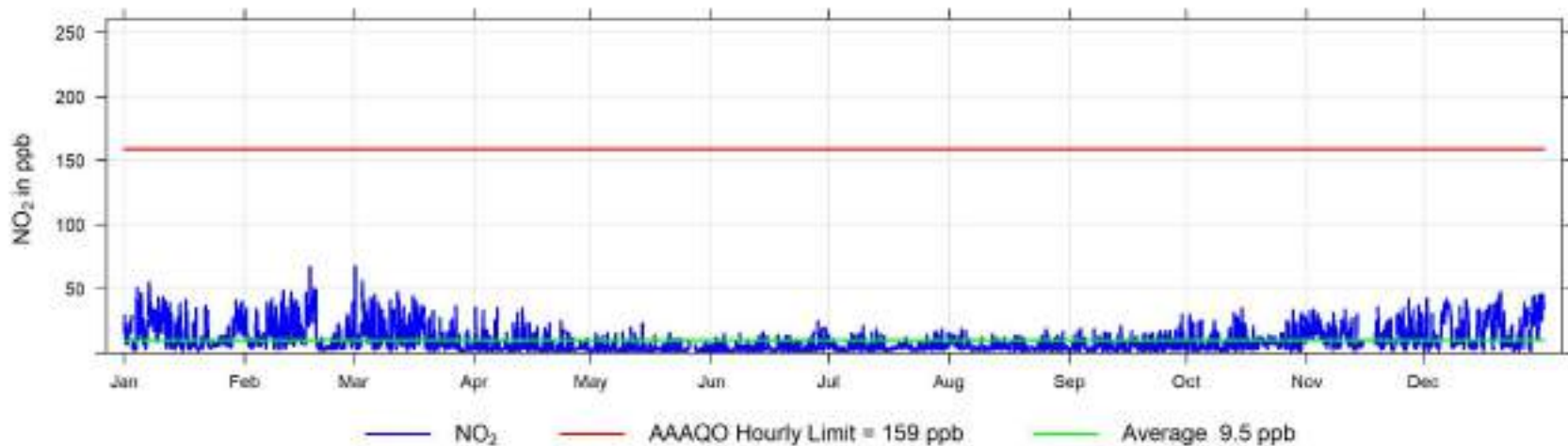
9.4 Nitrogen Dioxide (NO₂) - Henry Pirker 2021 Summary

Nitrogen Dioxide (NO₂) Frequency Distribution at Henry Pirker

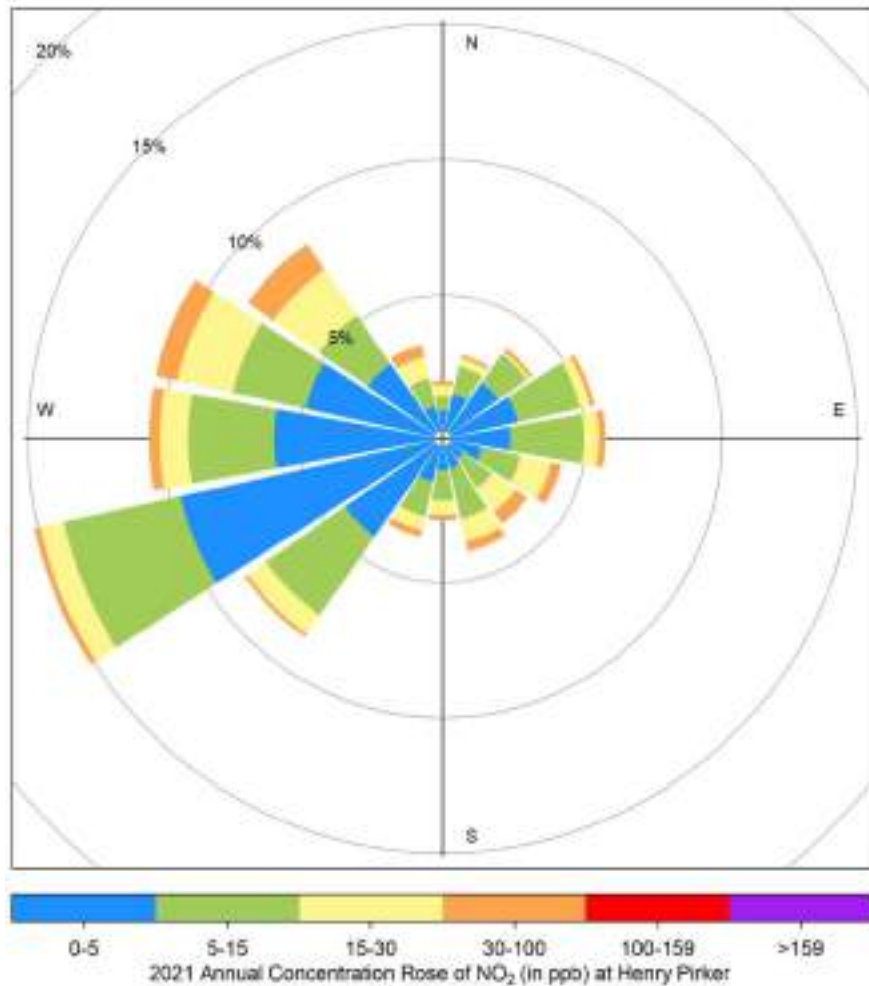
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 159 ppb
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			
January 2021	708	19.4%	37.7%	27.4%	15.5%	0.0%	0.0%	15.8	35.1	Jan 07	55.1	Jan 07 10:00	100.0%	95.2%	0
February 2021	636	22.6%	38.2%	23.0%	16.2%	0.0%	0.0%	15.7	39.0	Feb 18	67.0	Feb 17 20:00	100.0%	94.6%	0
March 2021	708	30.2%	34.3%	24.7%	10.7%	0.0%	0.0%	13.4	30.5	Mar 03	67.3	Mar 01 11:00	100.0%	95.2%	0
April 2021	685	60.2%	28.6%	9.8%	1.5%	0.0%	0.0%	6.3	12.7	Apr 03	35.1	Apr 01 06:00	100.0%	95.1%	0
May 2021	682	77.6%	20.5%	1.9%	0.0%	0.0%	0.0%	3.6	7.1	May 11	23.2	May 14 06:00	96.9%	91.7%	0
June 2021	685	68.8%	29.2%	2.0%	0.0%	0.0%	0.0%	4.4	10.2	Jun 30	25.0	Jun 28 09:00	100.0%	95.1%	0
July 2021	702	66.5%	31.5%	2.0%	0.0%	0.0%	0.0%	4.7	8.0	Jul 30	21.3	Jul 10 00:00	99.3%	94.4%	0
August 2021	706	61.2%	36.7%	2.1%	0.0%	0.0%	0.0%	5.1	10.8	Aug 01	18.5	Aug 26 00:00	100.0%	94.9%	0
September 2021	684	54.7%	39.6%	5.7%	0.0%	0.0%	0.0%	5.8	12.0	Sep 29	29.8	Sep 29 22:00	100.0%	95.0%	0
October 2021	707	39.8%	42.7%	16.6%	1.0%	0.0%	0.0%	8.8	16.9	Oct 31	34.4	Oct 15 07:00	100.0%	95.0%	0
November 2021	618	18.6%	41.8%	35.4%	4.2%	0.0%	0.0%	13.5	21.7	Nov 24	41.7	Nov 27 06:00	100.0%	85.8%	0
December 2021	707	19.1%	32.0%	24.9%	24.1%	0.0%	0.0%	17.8	36.3	Dec 31	47.0	Dec 20 19:00	100.0%	95.0%	0
Annual	8228	45.0%	34.3%	14.5%	6.1%	0.0%	0.0%	9.5	MAXIMUM VALUES				99.7%	93.9%	0

AAAQO Objectives: Annual: 24ppb, 1-Hr: 159ppb

2021 Hourly Concentration Readings of NO₂ (in ppb) at Henry Pirker



Hourly Maximum NO₂ (in ppb) for 2021 at Henry Pirker



January-2021							February-2021							March-2021							
27	28	29	30	31	1	2	31	1	2	3	4	5	6	31	1	2	3	4	5	6	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3	
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
April-2021							May-2021							June-2021							
28	29	30	31	1	2	3	25	26	27	28	29	30	1	30	31	1	2	3	4	5	
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3	
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
July-2021							August-2021							September-2021							
27	28	29	30	1	2	3	25	26	27	28	29	30	31	28	29	30	31	1	2	3	4
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11	
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18	
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25	
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2	
1	2	3	4	5	6	7	28	30	31	1	2	3	4	3	4	5	6	7	8	9	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
October-2021							November-2021							December-2021							
28	29	30	31	1	2	31	1	2	3	4	5	6	28	29	30	1	2	3	4		
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	
24	25	26	27	28	29	30	28	29	30	1	2	3	4	26	27	28	29	30	31	1	
31	1	2	3	4	5	6	5	6	7	8	9	10	11	2	3	4	5	6	7	8	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	

0-5 5-15 15-30 30-100 100-159 >159

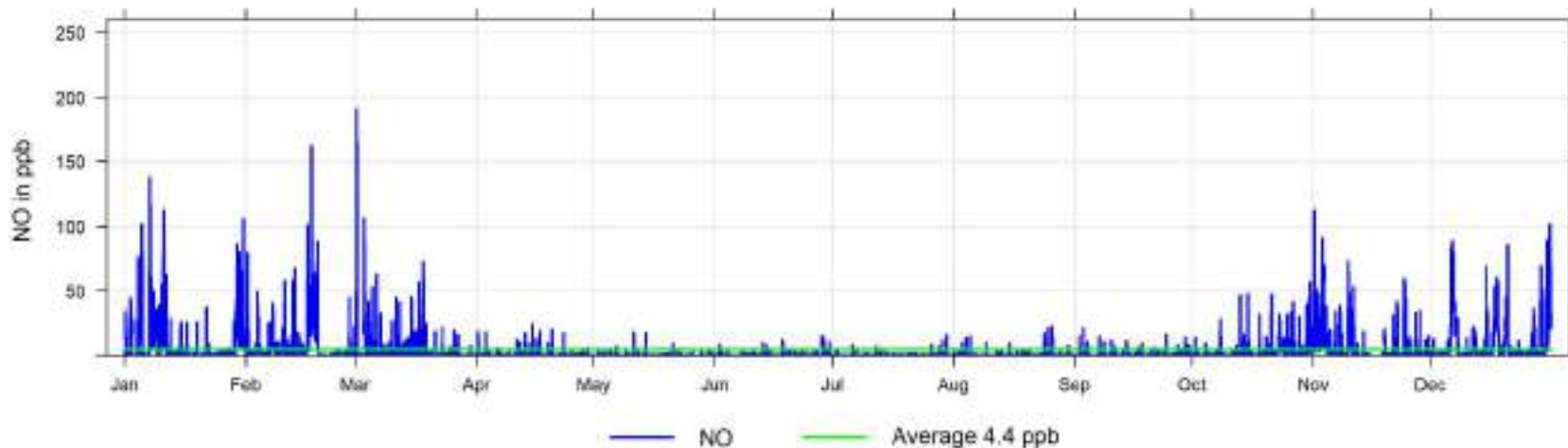
9.5 Nitric Oxide (NO) - Henry Pirker 2021 Summary

Nitric Oxide (NO) Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	708	69.2%	9.5%	9.8%	10.9%	0.7%	0.0%	10.2	34.5	Jan 10	137.9	Jan 07 10:00	100.0%	95.2%
February 2021	636	68.9%	14.8%	7.7%	8.3%	0.2%	0.2%	8.5	37.4	Feb 18	162.4	Feb 17 20:00	100.0%	94.6%
March 2021	708	79.1%	8.9%	5.8%	5.5%	0.4%	0.3%	6.1	33.1	Mar 01	191.1	Mar 01 10:00	100.0%	95.2%
April 2021	685	94.3%	4.4%	1.3%	0.0%	0.0%	0.0%	1.2	3.6	Apr 20	24.7	Apr 15 08:00	100.0%	95.1%
May 2021	682	98.7%	0.9%	0.4%	0.0%	0.0%	0.0%	0.6	2.4	May 11	18.6	May 11 07:00	96.9%	91.7%
June 2021	685	96.4%	3.5%	0.2%	0.0%	0.0%	0.0%	0.8	5.3	Jun 28	15.3	Jun 28 11:00	100.0%	95.1%
July 2021	702	98.0%	1.9%	0.1%	0.0%	0.0%	0.0%	0.6	2.7	Jul 30	16.5	Jul 30 09:00	99.3%	94.4%
August 2021	706	95.6%	3.8%	0.6%	0.0%	0.0%	0.0%	0.9	3.8	Aug 26	22.6	Aug 26 08:00	100.0%	94.9%
September 2021	684	93.1%	6.6%	0.3%	0.0%	0.0%	0.0%	1.2	3.7	Sep 29	21.7	Sep 03 08:00	100.0%	95.0%
October 2021	707	77.9%	13.7%	4.5%	3.8%	0.0%	0.0%	4.3	17.4	Oct 31	57.0	Oct 31 08:00	100.0%	95.0%
November 2021	618	66.8%	14.6%	8.9%	9.6%	0.2%	0.0%	8.8	39.4	Nov 03	112.3	Nov 01 10:00	100.0%	85.8%
December 2021	707	65.9%	12.9%	9.9%	11.2%	0.1%	0.0%	9.8	44.3	Dec 31	101.9	Dec 31 14:00	100.0%	95.0%
Annual	8228	83.8%	7.9%	4.1%	4.1%	0.1%	0.0%	4.4	MAXIMUM VALUES				99.7%	93.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO (in ppb) at Henry Pirker



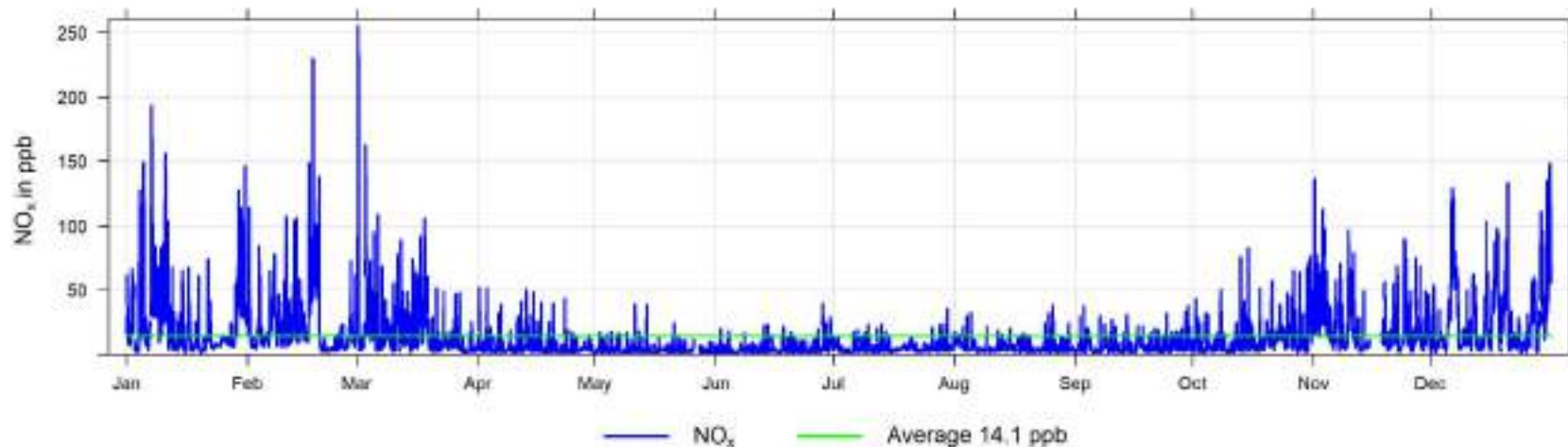
9.6 Oxides of Nitrogen (NO_x) - Henry Pirker 2021 Summary

Nitrogen Oxides (NO_x) Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	708	15.5%	38.7%	14.7%	27.0%	3.8%	0.3%	26.2	69.1	Jan 07	193.6	Jan 07 10:00	100.0%	95.2%
February 2021	636	14.3%	37.1%	23.1%	22.5%	2.8%	0.2%	24.4	76.9	Feb 18	230.1	Feb 17 20:00	100.0%	94.6%
March 2021	708	24.6%	36.0%	20.2%	17.9%	0.6%	0.7%	19.7	58.2	Mar 01	255.0	Mar 01 10:00	100.0%	95.2%
April 2021	685	57.4%	27.9%	11.1%	3.7%	0.0%	0.0%	7.6	16.1	Apr 03	52.2	Apr 01 07:00	100.0%	95.1%
May 2021	682	74.2%	22.6%	2.8%	0.4%	0.0%	0.0%	4.3	9.6	May 11	39.0	May 11 07:00	96.9%	91.7%
June 2021	685	64.8%	28.0%	6.7%	0.4%	0.0%	0.0%	5.2	13.9	Jun 28	39.3	Jun 28 09:00	100.0%	95.1%
July 2021	702	63.7%	31.9%	4.3%	0.1%	0.0%	0.0%	5.5	10.8	Jul 30	35.4	Jul 30 09:00	99.3%	94.4%
August 2021	706	58.1%	35.8%	5.4%	0.7%	0.0%	0.0%	6.2	12.1	Aug 26	38.1	Aug 26 08:00	100.0%	94.9%
September 2021	684	50.7%	37.4%	10.8%	1.0%	0.0%	0.0%	7.1	15.8	Sep 29	37.8	Sep 29 22:00	100.0%	95.0%
October 2021	707	33.4%	36.9%	19.2%	10.5%	0.0%	0.0%	13.3	34.7	Oct 31	82.2	Oct 15 07:00	100.0%	95.0%
November 2021	618	14.2%	37.7%	22.8%	24.6%	0.7%	0.0%	22.5	60.9	Nov 03	136.3	Nov 01 10:00	100.0%	85.8%
December 2021	707	14.3%	33.2%	16.0%	34.1%	2.4%	0.0%	27.7	81.0	Dec 31	148.1	Dec 31 14:00	100.0%	95.0%
Annual	8228	40.6%	33.6%	13.0%	11.9%	0.9%	0.1%	14.1	81.0	Dec 31	255.0	Mar 01 10:00	99.7%	93.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO_x (in ppb) at Henry Pirker



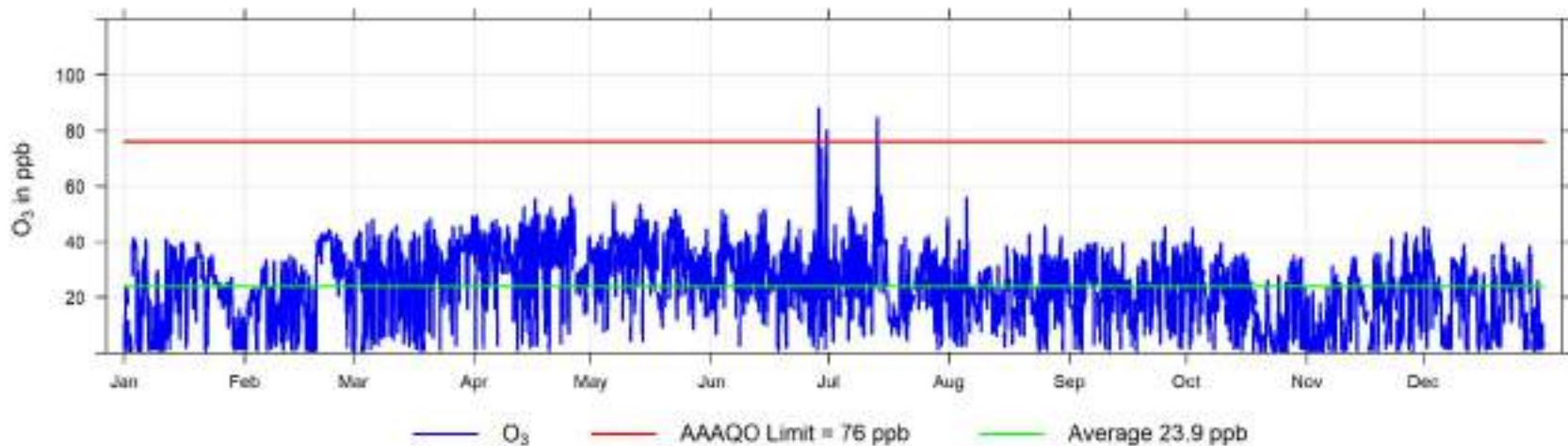
9.7 Ozone (O₃) - Henry Pirker 2021 Summary

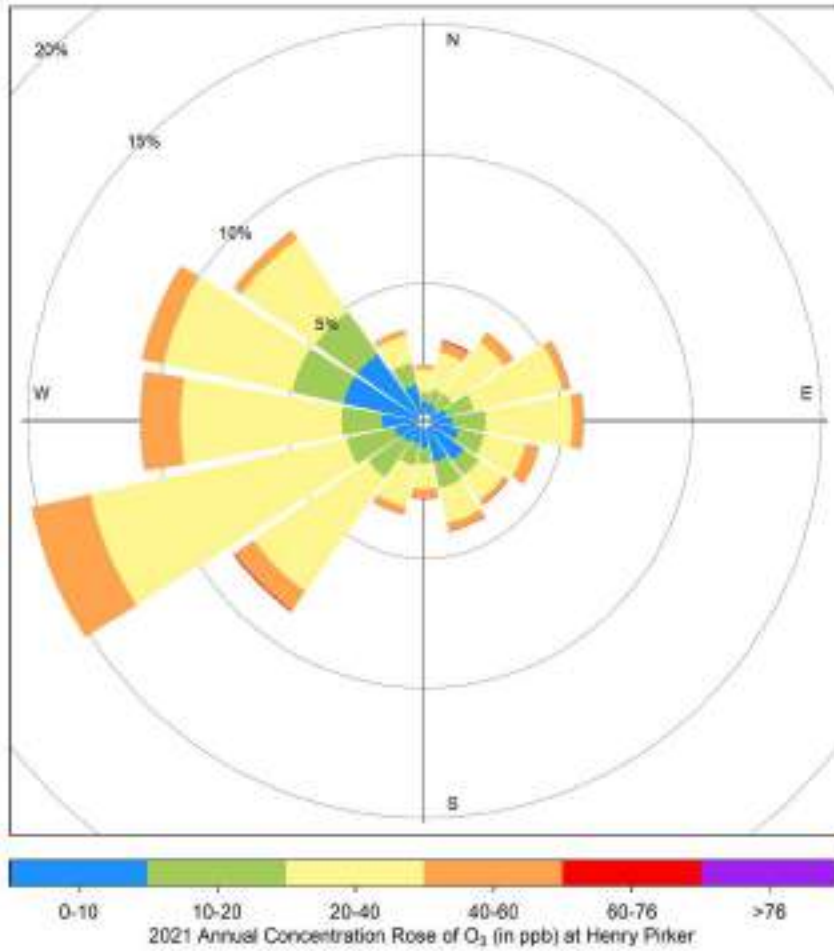
Ozone (O₃) Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	24-hr (ppb)	MAXIMUM VALUES		Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 76 ppb			
		0 to 10 (ppb)	10 to 20 (ppb)	20 to 40 (ppb)	40 to 60 (ppb)	60 to 76 (ppb)	> 76 (ppb)			Date	1-hr (ppb) Date						
January 2021	709	29.3%	15.7%	53.2%	1.8%	0.0%	0.0%	19.8	35.8	Jan 03	41.3	Jan 03 10:00	100.0%	95.3%	0		
February 2021	640	21.7%	20.6%	46.1%	11.6%	0.0%	0.0%	22.2	42.5	Feb 22	44.4	Feb 22 15:00	100.0%	95.2%	0		
March 2021	709	12.4%	14.1%	56.1%	17.4%	0.0%	0.0%	28.0	42.5	Mar 31	49.3	Mar 31 15:00	100.0%	95.3%	0		
April 2021	686	6.0%	9.9%	50.2%	34.0%	0.0%	0.0%	33.2	43.6	Apr 26	56.7	Apr 25 16:00	100.0%	95.3%	0		
May 2021	709	2.0%	12.0%	60.9%	25.1%	0.0%	0.0%	32.3	41.7	May 13	53.9	May 06 18:00	100.0%	95.3%	0		
June 2021	686	5.3%	15.3%	64.4%	13.3%	1.2%	0.6%	29.4	37.1	Jun 05	88.1	Jun 28 14:00	100.0%	95.3%	4		
July 2021	709	8.6%	25.1%	52.5%	12.7%	0.7%	0.4%	26.4	50.5	Jul 13	84.5	Jul 13 14:00	100.0%	95.3%	3		
August 2021	708	15.7%	29.1%	52.8%	2.4%	0.0%	0.0%	21.1	28.7	Aug 21	55.8	Aug 05 13:00	100.0%	95.2%	0		
September 2021	686	14.4%	25.8%	58.3%	1.5%	0.0%	0.0%	22.5	32.9	Sep 06	45.5	Sep 25 14:00	100.0%	95.3%	0		
October 2021	710	32.1%	24.2%	42.8%	0.9%	0.0%	0.0%	17.3	30.9	Oct 03	44.9	Oct 02 16:00	100.0%	95.4%	0		
November 2021	686	37.2%	22.2%	39.4%	1.3%	0.0%	0.0%	15.9	34.6	Nov 26	44.9	Dec 01 00:00	100.0%	95.3%	0		
December 2021	710	33.5%	14.7%	50.6%	1.3%	0.0%	0.0%	18.2	37.2	Dec 02	45.2	Dec 01 01:00	100.0%	95.4%	0		
Annual	8348	18.3%	19.1%	52.1%	10.2%	0.2%	0.1%	23.9	MAXIMUM VALUES		50.5	Jul 13	88.1	Jun 28 14:00	100.0%	95.3%	7

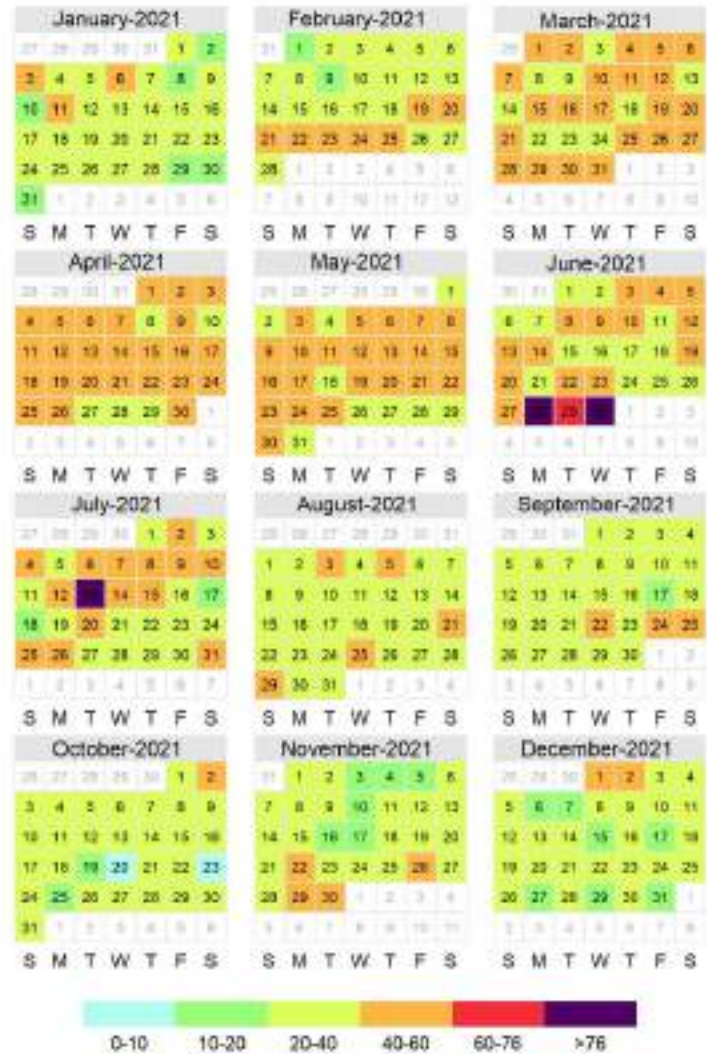
AAAQO Objectives: 1-Hr: 76ppb

2021 Hourly Concentration Readings of O₃ (in ppb) at Henry Pirker





Hourly Maximum O₃ (in ppb) for 2021 at Henry Pirker



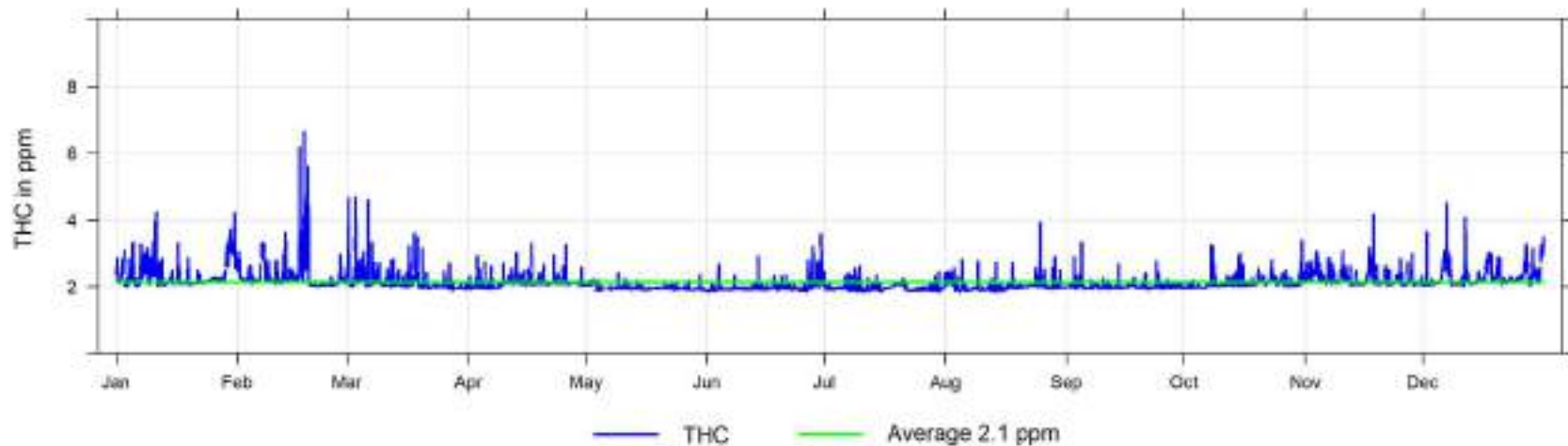
9.8 Total Hydrocarbons (THC) - Henry Pirker 2021 Summary

Total Hydrocarbons (THC) Frequency Distribution at Henry Pirker

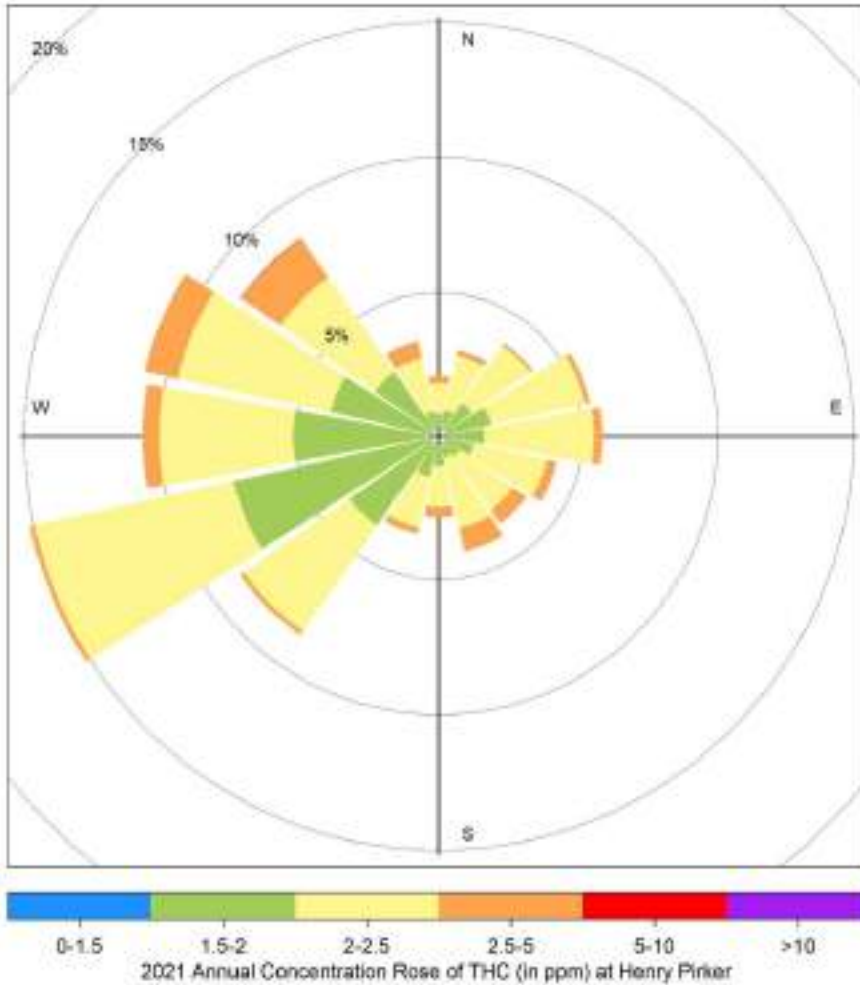
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	710	0.0%	0.0%	76.3%	23.7%	0.0%	0.0%	2.4	3.3	Jan 30	4.2	Jan 11 06:00	100.0%	95.4%
February 2021	640	0.0%	0.0%	78.8%	20.6%	0.6%	0.0%	2.4	3.5	Feb 18	6.6	Feb 18 01:00	100.0%	95.2%
March 2021	708	0.0%	29.2%	60.2%	10.6%	0.0%	0.0%	2.2	2.7	Mar 03	4.7	Mar 03 07:00	100.0%	95.2%
April 2021	686	0.0%	18.1%	77.6%	4.4%	0.0%	0.0%	2.1	2.3	Apr 17	3.3	Apr 17 06:00	100.0%	95.3%
May 2021	683	0.0%	80.1%	19.9%	0.0%	0.0%	0.0%	2.0	2.1	May 02	2.4	May 09 07:00	96.5%	91.8%
June 2021	686	0.0%	73.9%	21.9%	4.2%	0.0%	0.0%	2.0	2.6	Jun 30	3.6	Jun 30 05:00	100.0%	95.3%
July 2021	709	0.0%	74.1%	25.7%	0.3%	0.0%	0.0%	2.0	2.1	Jul 21	2.6	Jul 10 04:00	100.0%	95.3%
August 2021	710	0.0%	62.7%	35.2%	2.1%	0.0%	0.0%	2.0	2.3	Aug 25	3.9	Aug 25 07:00	100.0%	95.4%
September 2021	686	0.0%	61.8%	37.5%	0.7%	0.0%	0.0%	2.0	2.2	Sep 04	3.3	Sep 04 22:00	100.0%	95.3%
October 2021	708	0.0%	13.0%	83.2%	3.8%	0.0%	0.0%	2.1	2.4	Oct 31	3.4	Oct 31 06:00	100.0%	95.2%
November 2021	686	0.0%	0.0%	88.3%	11.7%	0.0%	0.0%	2.2	2.6	Nov 17	4.2	Nov 18 10:00	100.0%	95.3%
December 2021	710	0.0%	0.0%	79.4%	20.6%	0.0%	0.0%	2.3	3.1	Dec 31	4.5	Dec 07 05:00	100.0%	95.4%
Annual	8322	0.0%	34.5%	56.9%	8.5%	0.1%	0.0%	2.1	3.5	MAXIMUM VALUES		99.7%	95.0%	

AAAQO Objectives: none

2021 Hourly Concentration Readings of THC (in ppm) at Henry Pirker



Hourly Maximum THC (in ppm) for 2021 at Henry Pirker



January-2021							February-2021							March-2021						
27	28	29	30	31	1	2	31	1	2	3	4	5	6	27	1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
April-2021							May-2021							June-2021						
28	29	30	31	1	2	3	28	29	30	31	1	2	3	30	31	1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
July-2021							August-2021							September-2021						
07	08	09	10	1	2	3	28	29	30	31	1	2	3	28	29	30	1	2	3	4
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
October-2021							November-2021							December-2021						
28	29	30	31	1	2	31	1	2	3	4	5	6	28	29	30	1	2	3	4	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25
24	25	26	27	28	29	30	28	29	30	1	2	3	4	26	27	28	29	30	31	1
31	1	2	3	4	5	6	5	6	7	8	9	10	11	2	3	4	5	6	7	8
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

0-1.5 1.5-2 2-2.5 2.5-5 5-10 >10

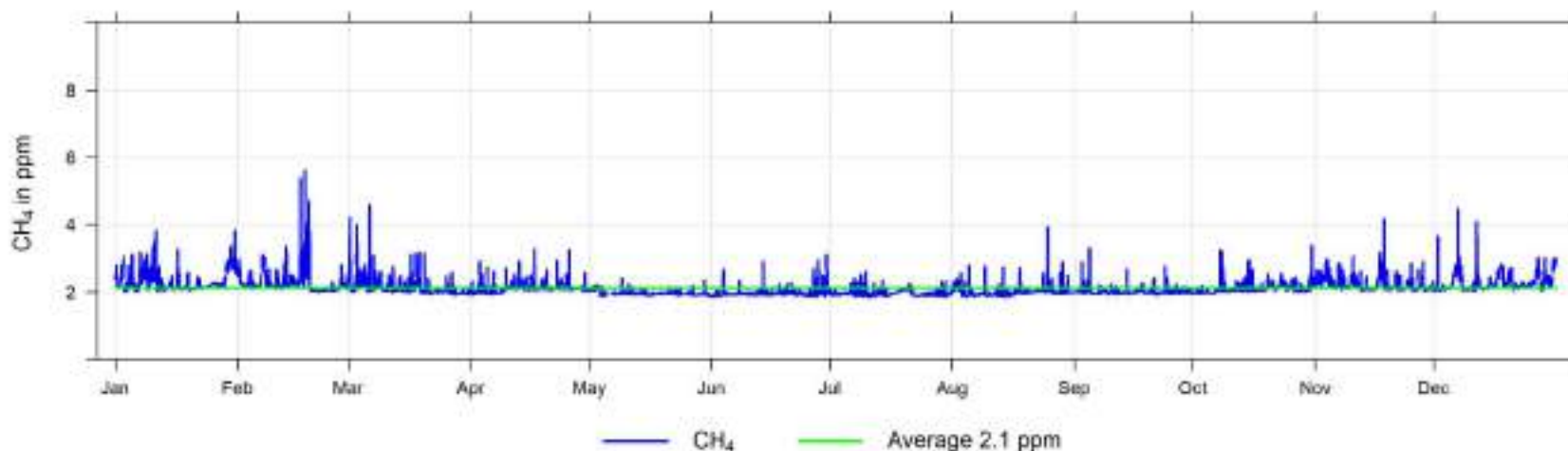
9.9 Methane (CH₄) - Henry Pirker 2021 Summary

Methane (CH₄) Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	710	0.0%	0.0%	77.9%	22.1%	0.0%	0.0%	2.3	3.0	Jan 30	3.8	Jan 11 06:00	100.0%	95.4%
February 2021	640	0.0%	0.0%	81.1%	18.6%	0.3%	0.0%	2.3	3.2	Feb 18	5.6	Feb 18 01:00	100.0%	95.2%
March 2021	708	0.0%	29.4%	62.3%	8.3%	0.0%	0.0%	2.2	2.6	Mar 03	4.6	Mar 06 11:00	100.0%	95.2%
April 2021	686	0.0%	18.1%	78.1%	3.8%	0.0%	0.0%	2.1	2.3	Apr 25	3.3	Apr 17 06:00	100.0%	95.3%
May 2021	683	0.0%	80.1%	19.9%	0.0%	0.0%	0.0%	2.0	2.1	May 02	2.4	May 09 07:00	96.5%	91.8%
June 2021	686	0.0%	79.2%	19.0%	1.9%	0.0%	0.0%	2.0	2.2	Jun 30	3.1	Jun 30 05:00	100.0%	95.3%
July 2021	709	0.0%	74.9%	24.8%	0.3%	0.0%	0.0%	2.0	2.1	Jul 21	2.6	Jul 10 04:00	100.0%	95.3%
August 2021	710	0.0%	63.8%	34.4%	1.8%	0.0%	0.0%	2.0	2.3	Aug 25	3.9	Aug 25 07:00	100.0%	95.4%
September 2021	686	0.0%	62.5%	36.7%	0.7%	0.0%	0.0%	2.0	2.2	Sep 04	3.3	Sep 04 22:00	100.0%	95.3%
October 2021	708	0.0%	13.0%	83.8%	3.3%	0.0%	0.0%	2.1	2.4	Oct 31	3.4	Oct 31 06:00	100.0%	95.2%
November 2021	686	0.0%	0.0%	89.5%	10.5%	0.0%	0.0%	2.2	2.6	Nov 17	4.2	Nov 18 10:00	100.0%	95.3%
December 2021	710	0.0%	0.0%	81.0%	19.0%	0.0%	0.0%	2.3	2.8	Dec 31	4.4	Dec 07 05:00	100.0%	95.4%
Annual	8322	0.0%	35.2%	57.3%	7.5%	0.0%	0.0%	2.1	3.2	MAXIMUM VALUES		99.7%	95.0%	

AAAQO Objectives: none

2021 Hourly Concentration Readings of CH₄ (in ppm) at Henry Pirker



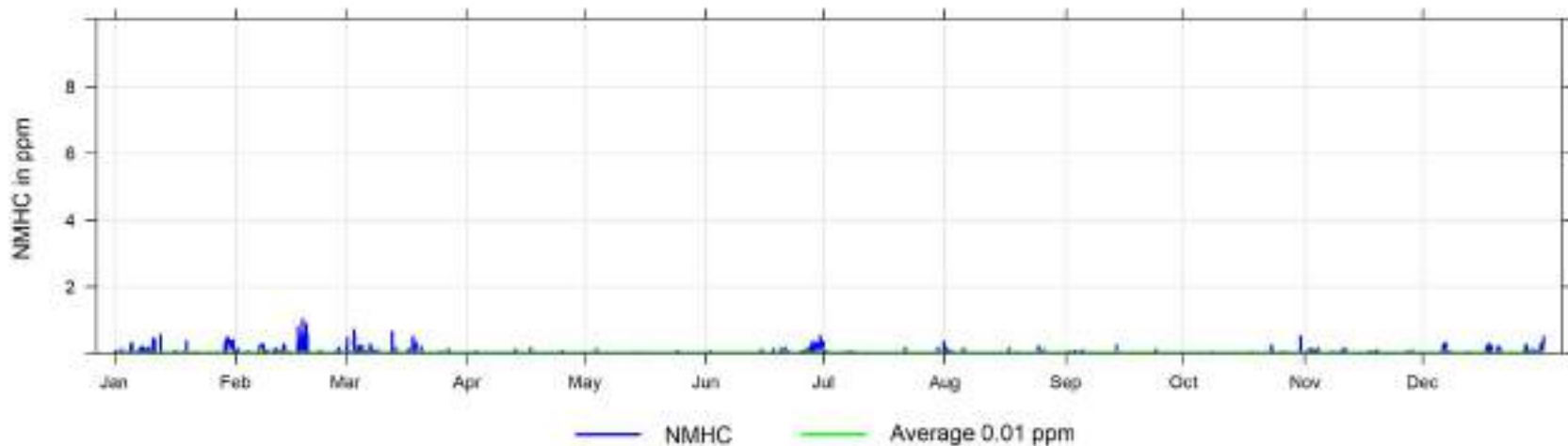
9.10 Nonmethane Hydrocarbons (NMHC) - Henry Pirker 2021 Summary

Nonmethane Hydrocarbons (NMHC) Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	710	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.3	Jan 30	0.5	Jan 12 19:00	100.0%	95.4%
February 2021	640	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.3	Feb 18	1.0	Feb 18 01:00	100.0%	95.2%
March 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Mar 03	0.7	Mar 03 07:00	100.0%	95.2%
April 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	Apr 17	0.1	Apr 17 08:00	100.0%	95.3%
May 2021	683	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	May 04	0.1	May 04 01:00	96.5%	91.8%
June 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.3	Jun 30	0.5	Jun 30 04:00	100.0%	95.3%
July 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Jul 31	0.3	Jul 31 22:00	100.0%	95.3%
August 2021	710	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Aug 01	0.2	Aug 25 02:00	100.0%	95.4%
September 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	Sep 13	0.2	Sep 13 21:00	100.0%	95.3%
October 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	Oct 23	0.5	Oct 30 22:00	100.0%	95.2%
November 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	Nov 02	0.1	Nov 11 08:00	100.0%	95.3%
December 2021	710	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.3	Dec 31	0.5	Dec 31 23:00	100.0%	95.4%
Annual	8322	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.3	MAXIMUM VALUES		99.7%	95.0%	

AAAQO Objectives: none

2021 Hourly Concentration Readings of NMHC (in ppm) at Henry Pirker



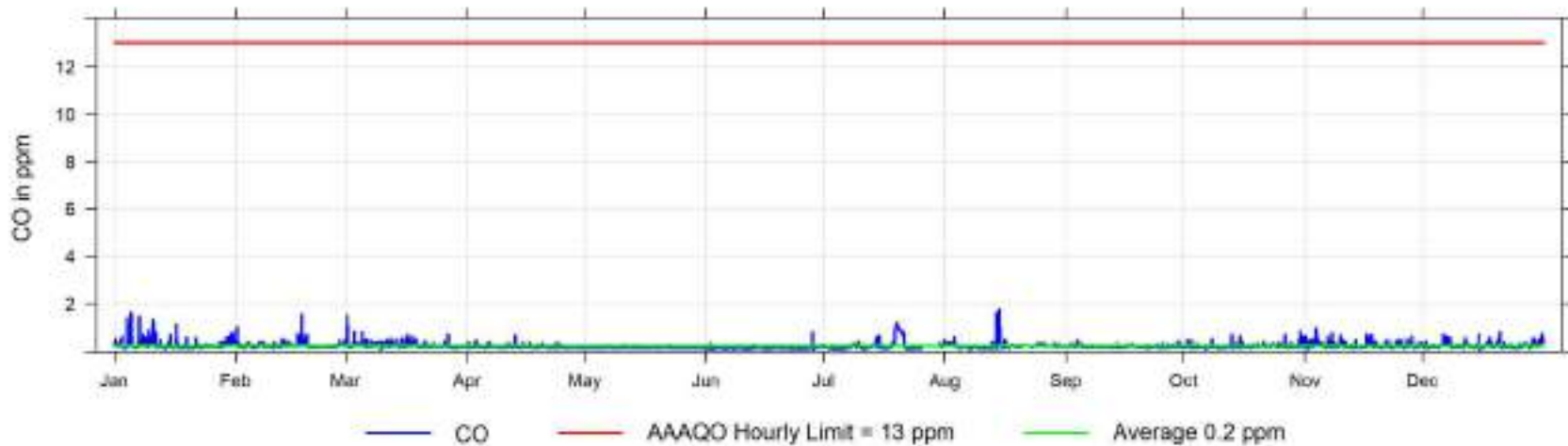
9.11 Carbon Monoxide (CO) - Henry Pirker 2021 Summary

Carbon Monoxide (CO) Frequency Distribution at Henry Pirker

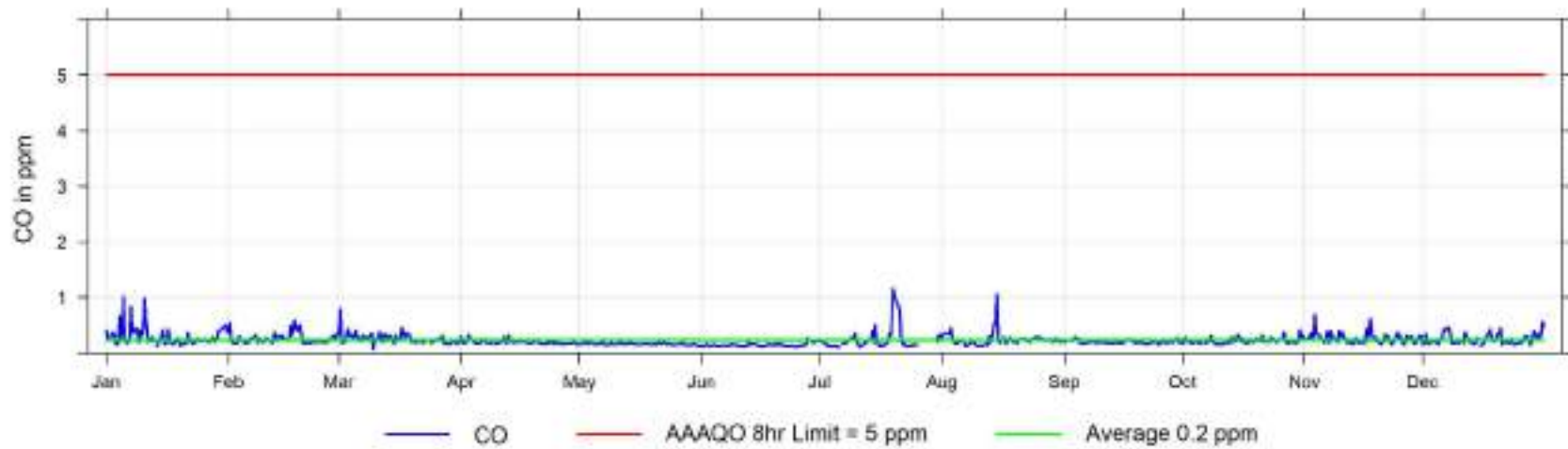
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 0.1 (ppm)	0.1 to 1 (ppm)	1 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 13 (ppm)	> 13 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date			8-hr 5 ppm	1-hr 13 ppm
January 2021	709	0.1%	97.7%	2.1%	0.0%	0.0%	0.0%	0.3	0.6	Jan 10	1.7	Jan 05 08:00	100.0%	95.3%	0	0
February 2021	639	0.0%	99.7%	0.3%	0.0%	0.0%	0.0%	0.3	0.5	Feb 17	1.6	Feb 17 20:00	100.0%	95.1%	0	0
March 2021	709	0.7%	98.7%	0.6%	0.0%	0.0%	0.0%	0.3	0.4	Mar 01	1.5	Mar 01 10:00	100.0%	95.3%	0	0
April 2021	686	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Apr 03	0.7	Apr 13 07:00	100.0%	95.3%	0	0
May 2021	709	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.2	May 22	0.3	May 11 06:00	100.0%	95.3%	0	0
June 2021	683	1.3%	98.7%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Jun 30	0.8	Jun 28 07:00	99.6%	94.9%	0	0
July 2021	604	1.2%	96.2%	2.7%	0.0%	0.0%	0.0%	0.3	0.9	Jul 20	1.2	Jul 19 23:00	85.8%	81.2%	0	0
August 2021	704	0.4%	98.4%	1.1%	0.0%	0.0%	0.0%	0.2	0.5	Aug 14	1.8	Aug 15 01:00	99.5%	94.6%	0	0
September 2021	686	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.2	Sep 03	0.5	Sep 03 23:00	100.0%	95.3%	0	0
October 2021	709	0.4%	99.6%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Oct 31	0.9	Oct 30 20:00	100.0%	95.3%	0	0
November 2021	686	0.3%	99.6%	0.2%	0.0%	0.0%	0.0%	0.3	0.5	Nov 17	1.0	Nov 03 20:00	100.0%	95.3%	0	0
December 2021	709	0.1%	99.9%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Dec 31	0.9	Dec 20 19:00	100.0%	95.3%	0	0
Annual	8233	0.4%	99.1%	0.6%	0.0%	0.0%	0.0%	0.2	MAXIMUM VALUES				98.7%	94.0%	0	0

AAAQO Objectives: 8-Hr: 5ppm, 1-Hr: 13ppm

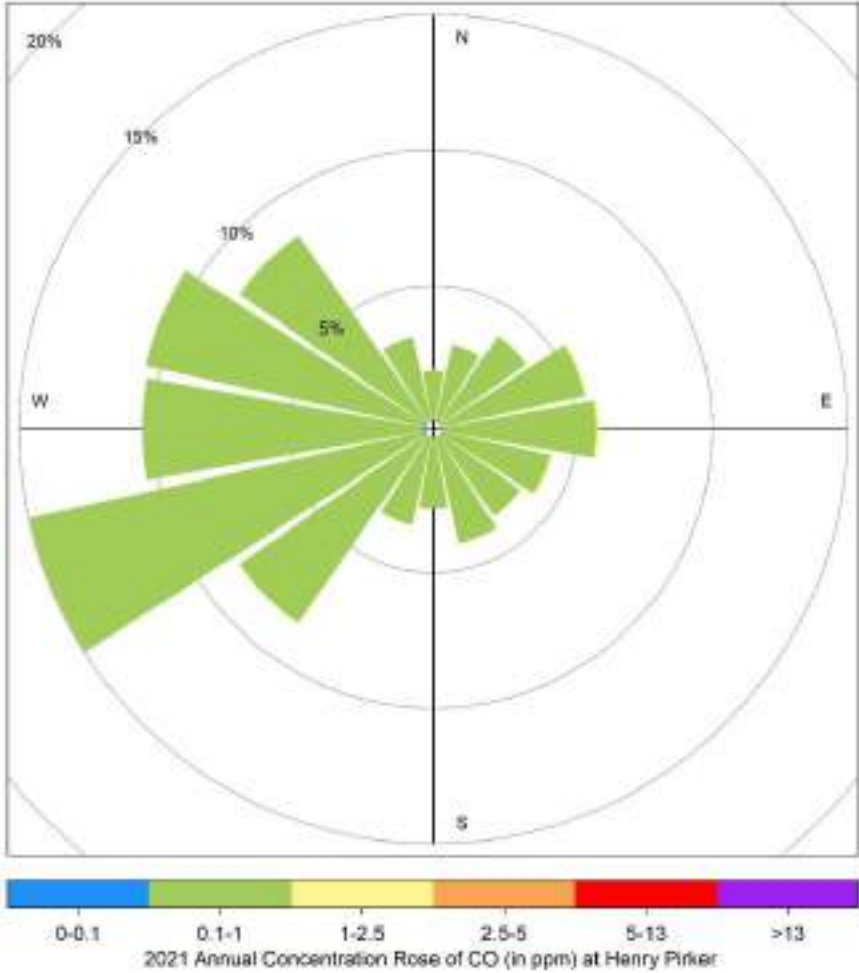
2021 Hourly Concentration Readings of CO (in ppm) at Henry Pirker



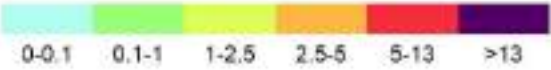
2021 8hr Concentration Readings of CO (in ppm) at Henry Pirker



Hourly Maximum CO (in ppm) for 2021 at Henry Pirker



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	31 1 2 3 4 5 6	30 1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
28 29 30 31 1 2 3	29 30 31 1 2 3 4	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	29 30 31 1 2 3 4	30 31 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
25 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
28 27 26 25 24 23 22	31 1 2 3 4 5 6	28 29 30 1 2 3 4
3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
24 25 26 27 28 29 30	28 29 30 1 2 3 4	26 27 28 29 30 31 1
31 1 2 3 4 5 6	5 6 7 8 9 10 11	2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S



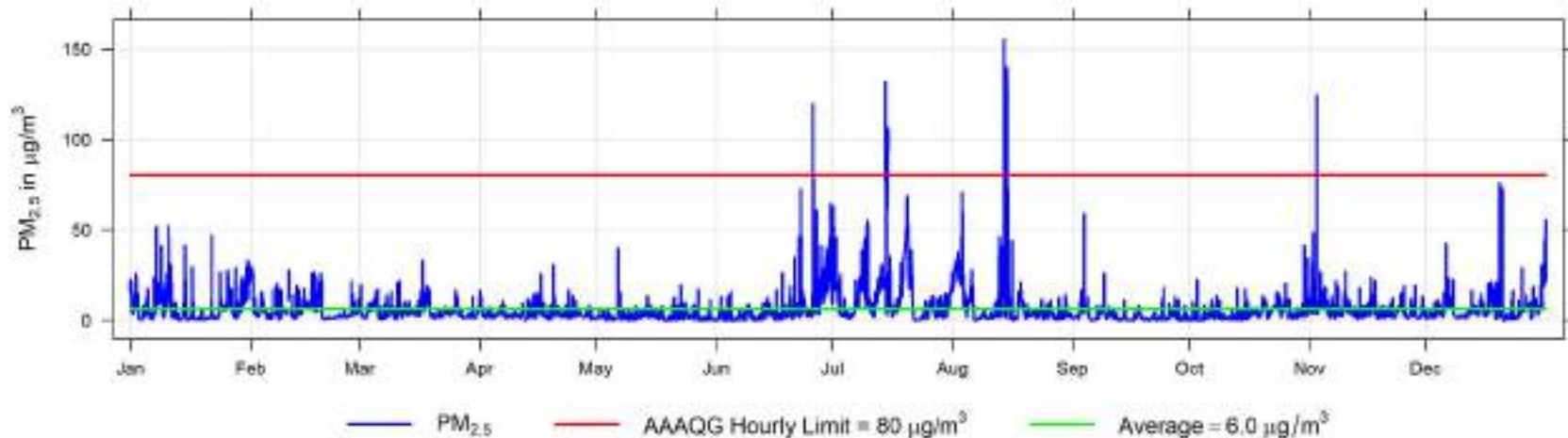
9.12 Particulate Matter (PM_{2.5}) - Henry Pirker 2021 Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Henry Pirker

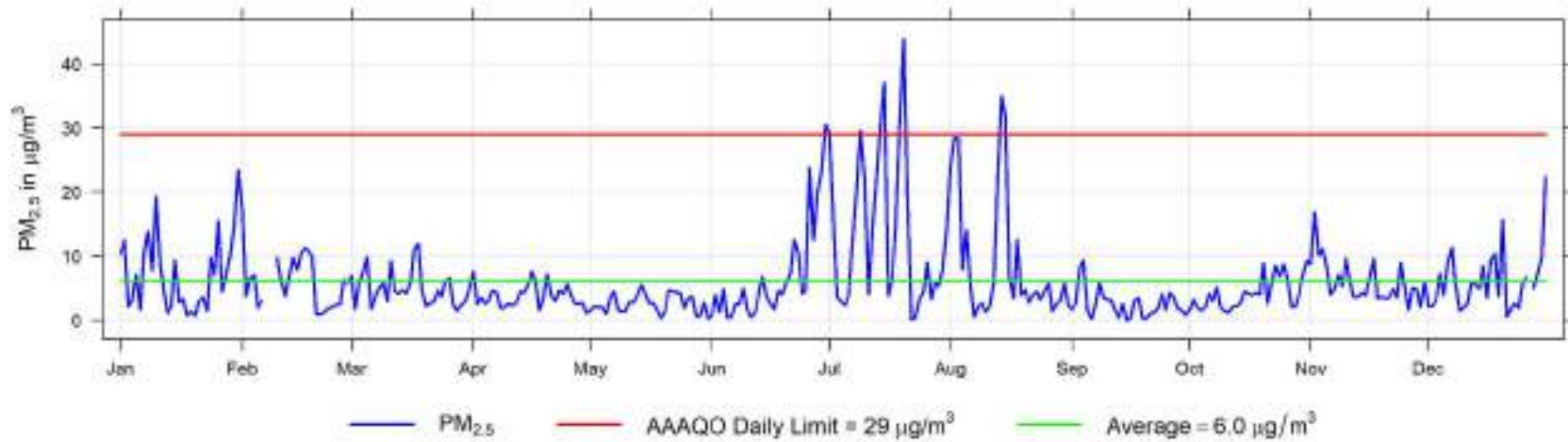
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)			Date	24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	740	53.1%	31.6%	13.2%	1.8%	0.3%	2.4%	7.2	23.8	Jan 31	51.9	Jan 10 22:00	100.0%	99.5%	0	0
February 2021	635	59.1%	31.7%	9.3%	0.0%	0.0%	0.0%	5.9	16.3	Feb 01	28.0	Feb 01 09:00	95.1%	94.5%	0	0
March 2021	740	64.9%	31.8%	3.2%	0.1%	0.0%	0.1%	4.9	12.3	Mar 18	32.7	Mar 17 07:00	100.0%	99.5%	0	0
April 2021	717	76.9%	22.2%	0.8%	0.1%	0.0%	0.1%	3.8	8.1	Apr 16	30.4	Apr 20 02:00	100.0%	99.6%	0	0
May 2021	740	83.2%	16.1%	0.5%	0.1%	0.0%	0.1%	2.6	5.6	May 14	39.6	May 06 17:00	100.0%	99.5%	0	0
June 2021	719	61.5%	26.6%	7.9%	3.1%	0.8%	4.3%	6.9	29.6	Jun 30	119.1	Jun 26 02:00	100.0%	99.9%	1	1
July 2021	739	37.4%	31.0%	21.0%	6.4%	3.7%	11.1%	13.5	42.6	Jul 20	131.8	Jul 14 15:00	99.9%	99.3%	6	5
August 2021	741	58.7%	24.4%	10.7%	4.3%	0.9%	7.0%	9.0	39.1	Aug 14	155.2	Aug 14 08:00	100.0%	99.6%	1	7
September 2021	716	83.7%	15.5%	0.7%	0.0%	0.1%	0.1%	2.4	10.8	Sep 03	58.7	Sep 04 00:00	100.0%	99.4%	0	0
October 2021	740	69.1%	29.2%	1.5%	0.3%	0.0%	0.3%	4.1	9.1	Oct 31	41.0	Oct 30 20:00	100.0%	99.5%	0	0
November 2021	712	53.9%	41.6%	4.1%	0.3%	0.0%	0.4%	6.0	16.6	Nov 02	124.3	Nov 02 22:00	99.3%	98.9%	0	1
December 2021	723	55.9%	38.3%	4.4%	0.8%	0.6%	1.4%	6.0	22.6	Dec 31	75.9	Dec 20 03:00	97.5%	97.2%	0	0
Annual	8662	63.0%	28.4%	6.5%	1.5%	0.6%	2.3%	6.0	42.6	MAXIMUM VALUES			99.3%	98.9%	8	14

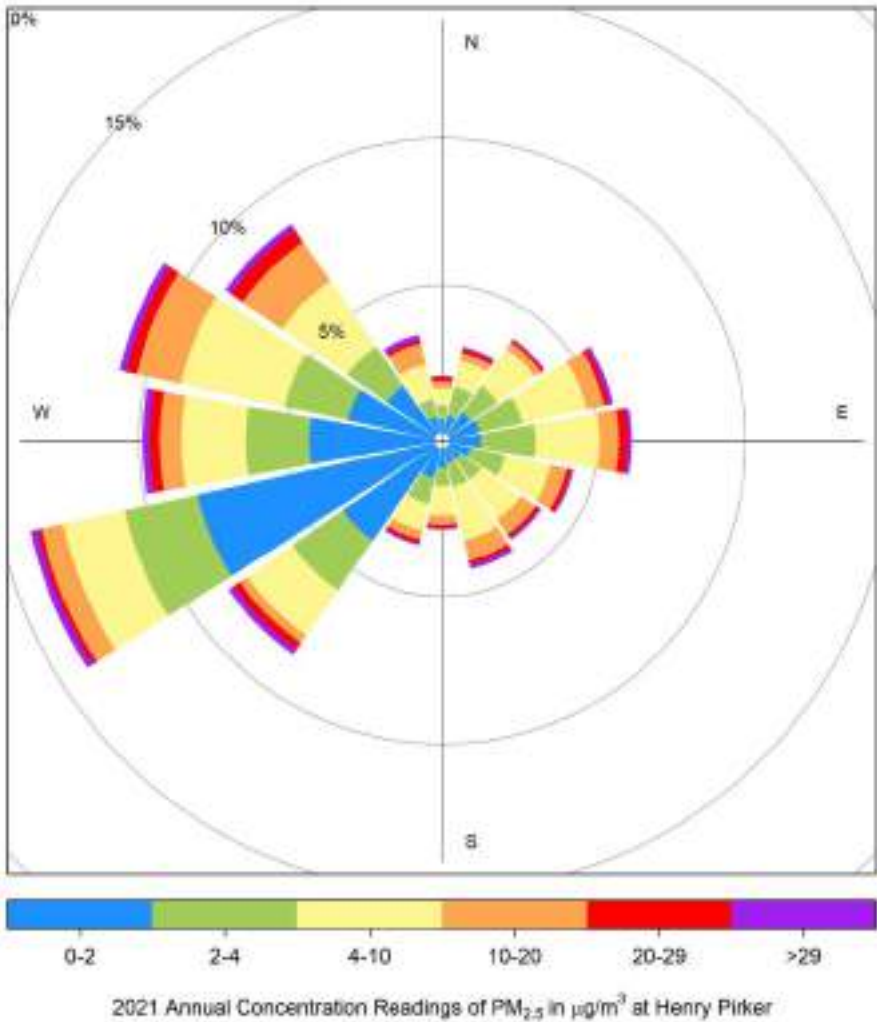
AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Henry Pirker



2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker





Hourly Maximum PM_{2.5} (in µg/m³) for 2021 at Henry Pirker

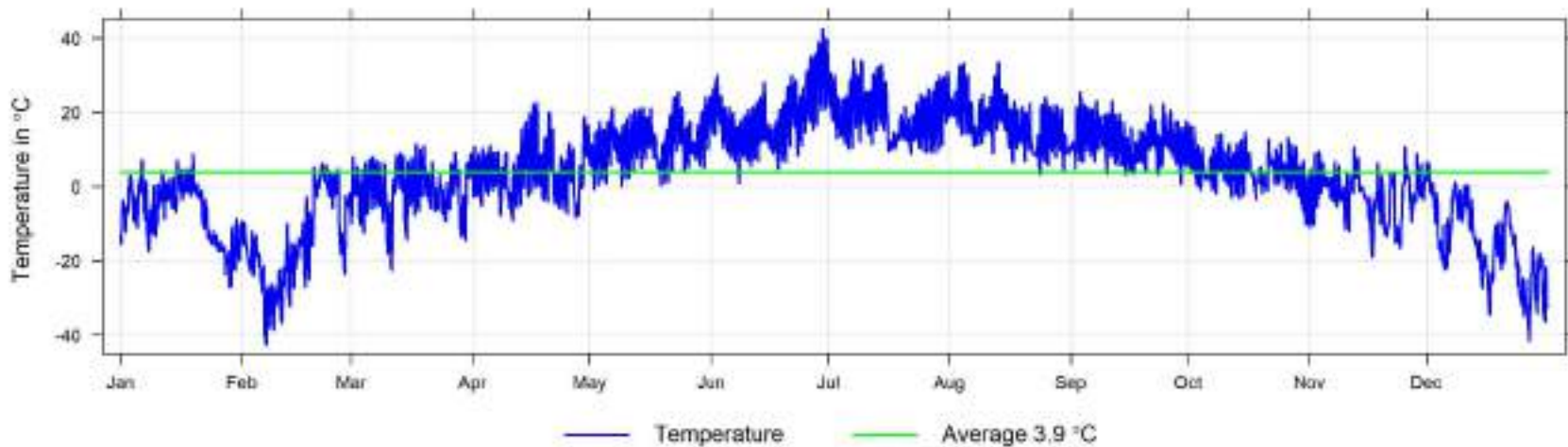


9.13 Temperature (ET) - Henry Pirker 2021 Summary

Temperature (ET) Frequency Distribution at Henry Pirker

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	744	-7.1	2.1	Jan 06	8.7	Jan 19 14:00	-21.0	Jan 29	-27.1	Jan 29 01:00	100.0%	100.0%
February 2021	672	-15.6	4.4	Feb 21	6.1	Feb 21 14:00	-36.2	Feb 07	-42.8	Feb 07 09:00	100.0%	100.0%
March 2021	744	-1.2	5.3	Mar 31	11.5	Mar 17 16:00	-10.1	Mar 10	-22.6	Mar 11 07:00	100.0%	100.0%
April 2021	720	4.2	12.0	Apr 30	22.7	Apr 17 15:00	-6.3	Apr 27	-9.1	Apr 11 07:00	100.0%	100.0%
May 2021	744	12.0	19.1	May 23	25.4	May 23 17:00	6.0	May 18	-0.7	May 02 06:00	100.0%	100.0%
June 2021	720	19.1	32.9	Jun 29	42.5	Jun 29 15:00	11.4	Jun 08	0.9	Jun 08 05:00	100.0%	100.0%
July 2021	744	19.6	25.2	Jul 13	34.3	Jul 07 13:00	12.0	Jul 17	8.8	Jul 22 06:00	100.0%	100.0%
August 2021	744	16.9	25.3	Aug 13	33.7	Aug 13 14:00	9.4	Aug 22	3.2	Aug 24 07:00	100.0%	100.0%
September 2021	717	12.3	17.0	Sep 03	25.5	Sep 03 14:00	7.4	Sep 15	0.6	Sep 29 07:00	100.0%	99.6%
October 2021	744	3.9	9.3	Oct 01	16.3	Oct 01 14:00	-4.6	Oct 31	-10.2	Oct 31 08:00	100.0%	100.0%
November 2021	720	-2.5	3.8	Nov 25	10.7	Nov 25 14:00	-13.4	Nov 23	-19.0	Nov 17 04:00	100.0%	100.0%
December 2021	744	-16.3	2.5	Dec 01	6.0	Dec 01 14:00	-34.2	Dec 27	-41.8	Dec 27 07:00	100.0%	100.0%
8757		AVERAGE	MAXIMUM VALUES			MINIMUM VALUES						
		3.9	32.9	Jun 29	42.5	Jun 29 15:00	-36.2	Feb 07	-42.8	Feb 07 09:00	100.0%	100.0%

2021 Hourly Temperature Readings (in °C) at Henry Pirker

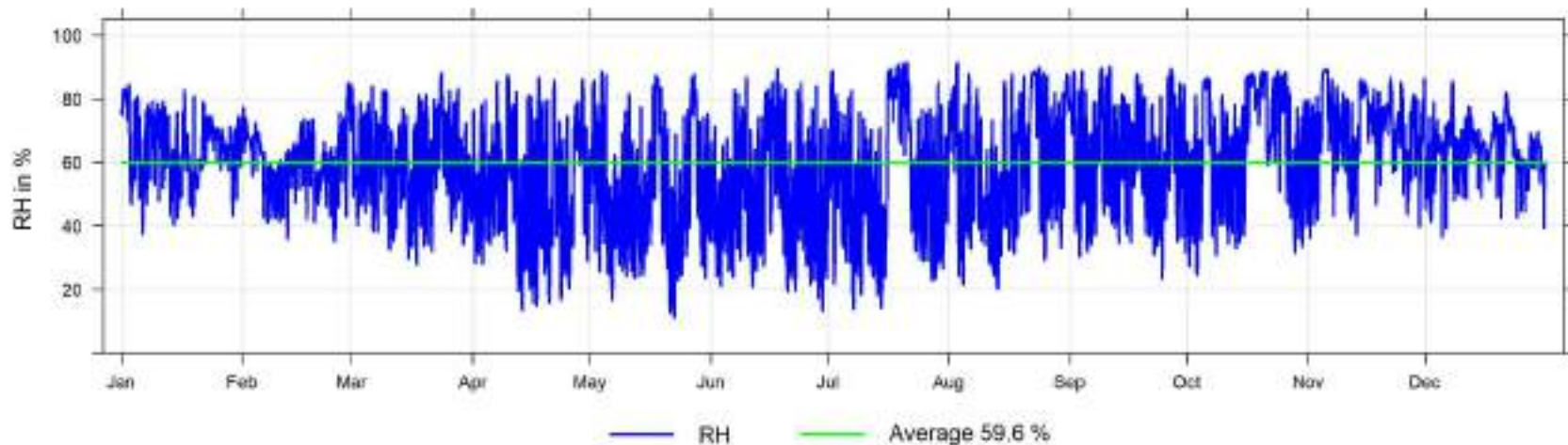


9.14 Relative Humidity (RH) - Henry Pirker 2021 Summary

Relative Humidity (RH) Frequency Distribution at Henry Pirker

Month	Valid Hours	Monthly Average (%)	Maximum Values			Operational time (%)	Valid time (%)		
			24-hr (%)	Date	1-hr (%)			Date	
January 2021	744	64.7	80.1	Jan 02	84.5	Jan 03 03:00	100.0%	100.0%	
February 2021	672	60.4	79.5	Feb 28	85.0	Feb 28 05:00	100.0%	100.0%	
March 2021	744	60.5	75.4	Mar 24	88.1	Mar 24 04:00	100.0%	100.0%	
April 2021	720	51.6	72.5	Apr 10	87.2	Apr 10 03:00	100.0%	100.0%	
May 2021	744	51.1	81.8	May 27	88.6	May 04 06:00	100.0%	100.0%	
June 2021	720	49.6	75.3	Jun 15	89.4	Jun 18 06:00	100.0%	100.0%	
July 2021	744	55.3	85.2	Jul 18	91.5	Jul 21 09:00	100.0%	100.0%	
August 2021	744	60.0	86.4	Aug 22	91.3	Aug 03 05:00	100.0%	100.0%	
September 2021	717	62.2	79.6	Sep 01	90.1	Sep 11 07:00	100.0%	99.6%	
October 2021	744	66.1	86.6	Oct 17	88.7	Oct 24 11:00	100.0%	100.0%	
November 2021	720	70.6	88.8	Nov 05	89.3	Nov 05 21:00	100.0%	100.0%	
December 2021	744	63.5	74.6	Dec 22	85.5	Dec 08 03:00	100.0%	100.0%	
		AVERAGE	MAXIMUM VALUES						
		8757	59.6	88.8	Nov 05	91.5	Jul 21 09:00	100.0%	100.0%

2021 Hourly Readings of Relative Humidity (in %) at Henry Pirker

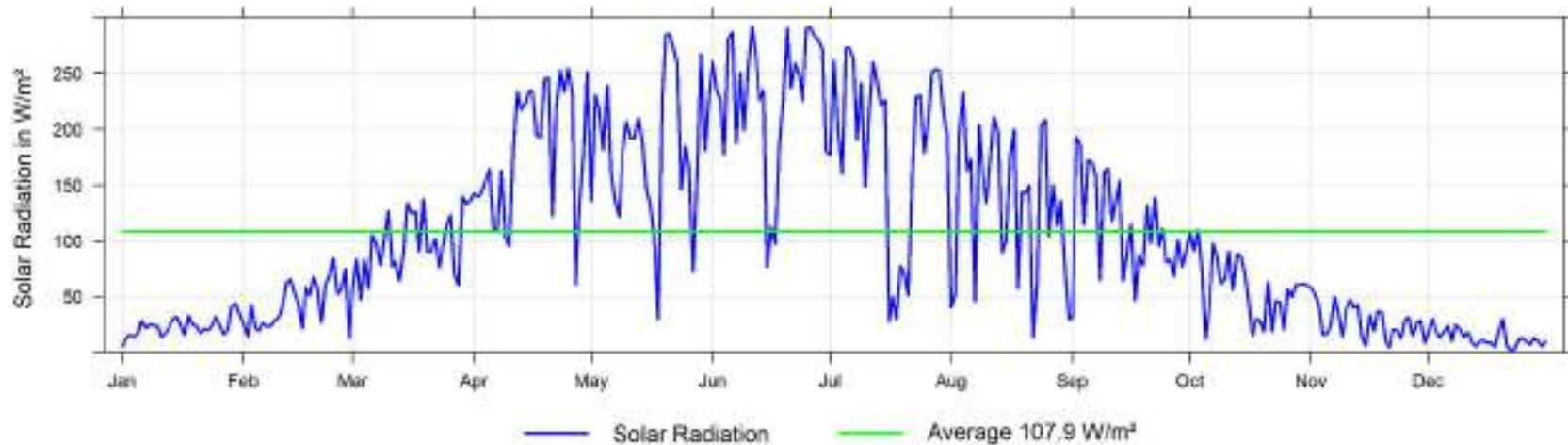


9.15 Solar Radiation (SR) - Henry Pirker 2021 Summary

Solar Radiation (SR) Frequency Distribution at Henry Pirker

Month	Valid Hours	Monthly Average (W/m ²)	Maximum Values		Date	Operational time (%)	Valid time (%)		
			24-hr (W/m ²)	1-hr (W/m ²)					
January 2021	744	22.9	43.4	230.4	Jan 30	Jan 30 14:00	100.0%	100.0%	
February 2021	672	43.2	84.0	381.3	Feb 24	Feb 23 14:00	100.0%	100.0%	
March 2021	744	96.1	139.3	506.3	Mar 29	Mar 29 12:00	100.0%	100.0%	
April 2021	720	182.2	254.4	762.4	Apr 25	Apr 23 13:00	100.0%	100.0%	
May 2021	744	185.4	285.6	809.8	May 21	May 11 13:00	100.0%	100.0%	
June 2021	720	231.2	291.5	828.1	Jun 11	Jun 12 14:00	100.0%	100.0%	
July 2021	744	188.1	273.0	728.8	Jul 05	Jul 02 14:00	100.0%	100.0%	
August 2021	744	133.3	233.0	658.0	Aug 04	Aug 08 13:00	100.0%	100.0%	
September 2021	717	112.4	192.6	577.6	Sep 02	Sep 13 13:00	100.0%	99.6%	
October 2021	744	58.3	109.7	432.1	Oct 03	Oct 03 13:00	100.0%	100.0%	
November 2021	720	27.2	57.6	270.0	Nov 01	Nov 01 13:00	100.0%	100.0%	
December 2021	744	12.8	30.1	188.2	Dec 20	Dec 20 15:00	100.0%	100.0%	
		AVERAGE	MAXIMUM VALUES						
		8757	107.9	291.5	828.1	Jun 11	Jun 12 14:00	100.0%	100.0%

2021 Daily Solar Radiation Readings (in W/m²) at Henry Pirker

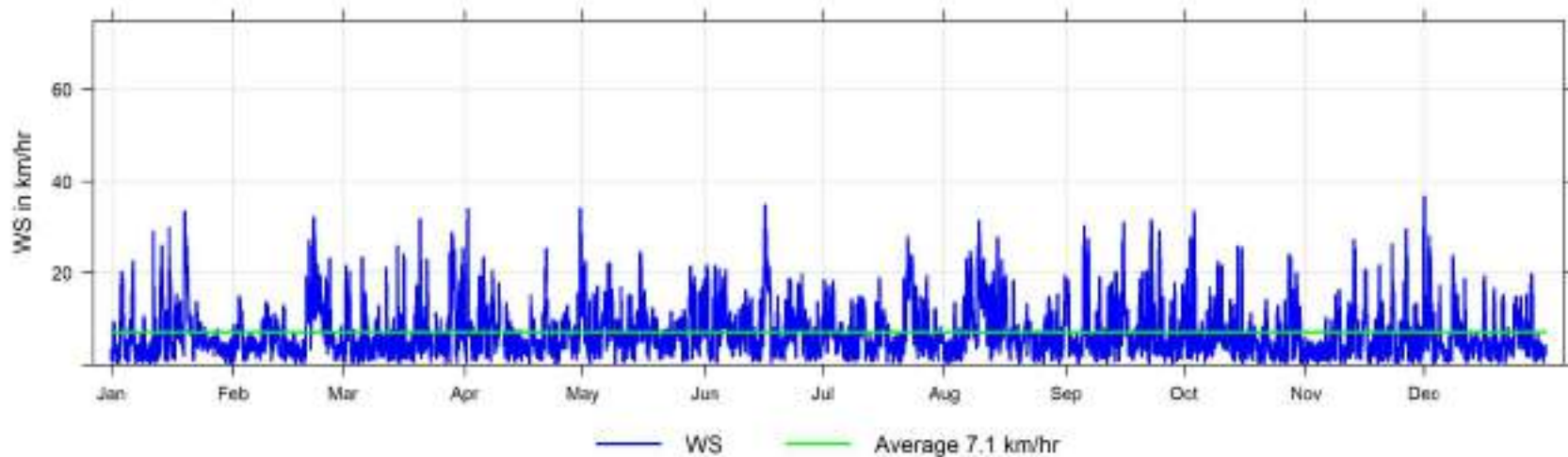


9.16 Wind Speed and Wind Direction (WS and WD) - Henry Pirker 2021 Summary

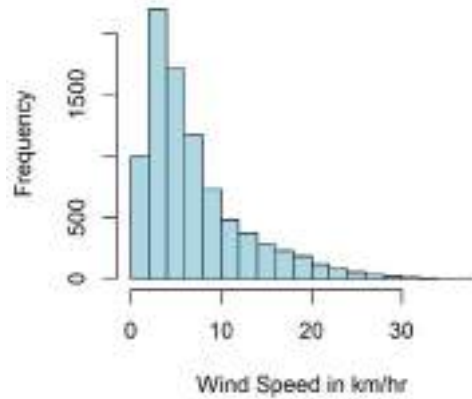
Wind Speed Frequency Distribution at Henry Pirker

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)		
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date				
January 2021	744	1.5%	55.0%	28.2%	9.5%	5.0%	0.8%	6.4	16.6	Jan 20	33.2	Jan 19 19:00	100.0%	100.0%		
February 2021	672	0.5%	52.7%	27.8%	14.7%	3.7%	0.6%	6.9	20.1	Feb 21	31.9	Feb 21 14:00	100.0%	100.0%		
March 2021	730	1.1%	53.2%	28.2%	10.6%	6.4%	0.6%	6.8	15.9	Mar 28	31.7	Mar 20 14:00	98.1%	98.1%		
April 2021	697	0.6%	46.9%	36.9%	10.6%	3.7%	1.3%	6.9	18.8	Apr 30	33.9	Apr 30 10:00	96.8%	96.8%		
May 2021	744	0.3%	33.6%	45.7%	17.7%	2.7%	0.0%	7.6	14.9	May 15	24.3	May 15 15:00	100.0%	100.0%		
June 2021	720	0.3%	36.7%	38.1%	20.4%	3.5%	1.1%	8.1	22.9	Jun 16	34.9	Jun 16 12:00	100.0%	100.0%		
July 2021	744	0.3%	42.5%	38.3%	15.7%	3.2%	0.0%	7.1	19.0	Jul 23	27.7	Jul 22 15:00	100.0%	100.0%		
August 2021	744	1.1%	40.1%	35.5%	16.3%	6.7%	0.4%	7.9	17.7	Aug 10	31.2	Aug 09 17:00	100.0%	100.0%		
September 2021	717	1.0%	47.4%	29.3%	15.1%	5.9%	1.4%	7.6	16.0	Sep 22	31.4	Sep 22 14:00	100.0%	99.6%		
October 2021	744	1.6%	46.8%	35.1%	11.7%	4.4%	0.4%	6.7	15.0	Oct 03	33.3	Oct 03 11:00	100.0%	100.0%		
November 2021	720	2.1%	52.4%	30.6%	11.1%	3.3%	0.6%	6.2	15.0	Nov 26	36.6	Dec 01 00:00	100.0%	100.0%		
December 2021	744	0.7%	56.3%	25.3%	14.0%	3.5%	0.3%	6.3	17.5	Dec 02	36.7	Dec 01 01:00	100.0%	100.0%		
Annual	8720	0.9%	46.9%	33.3%	14.0%	4.4%	0.6%	7.1	22.9	MAXIMUM VALUES		Jun 16	36.7	Dec 01 01:00	99.6%	99.5%

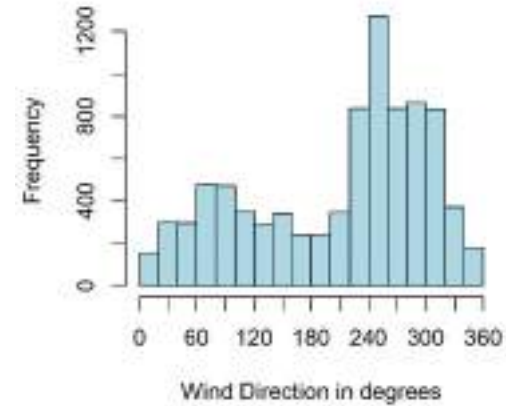
2021 Hourly Readings of Wind Speed (in km/hr) at Henry Pirker



2021 Wind Speed Histogram

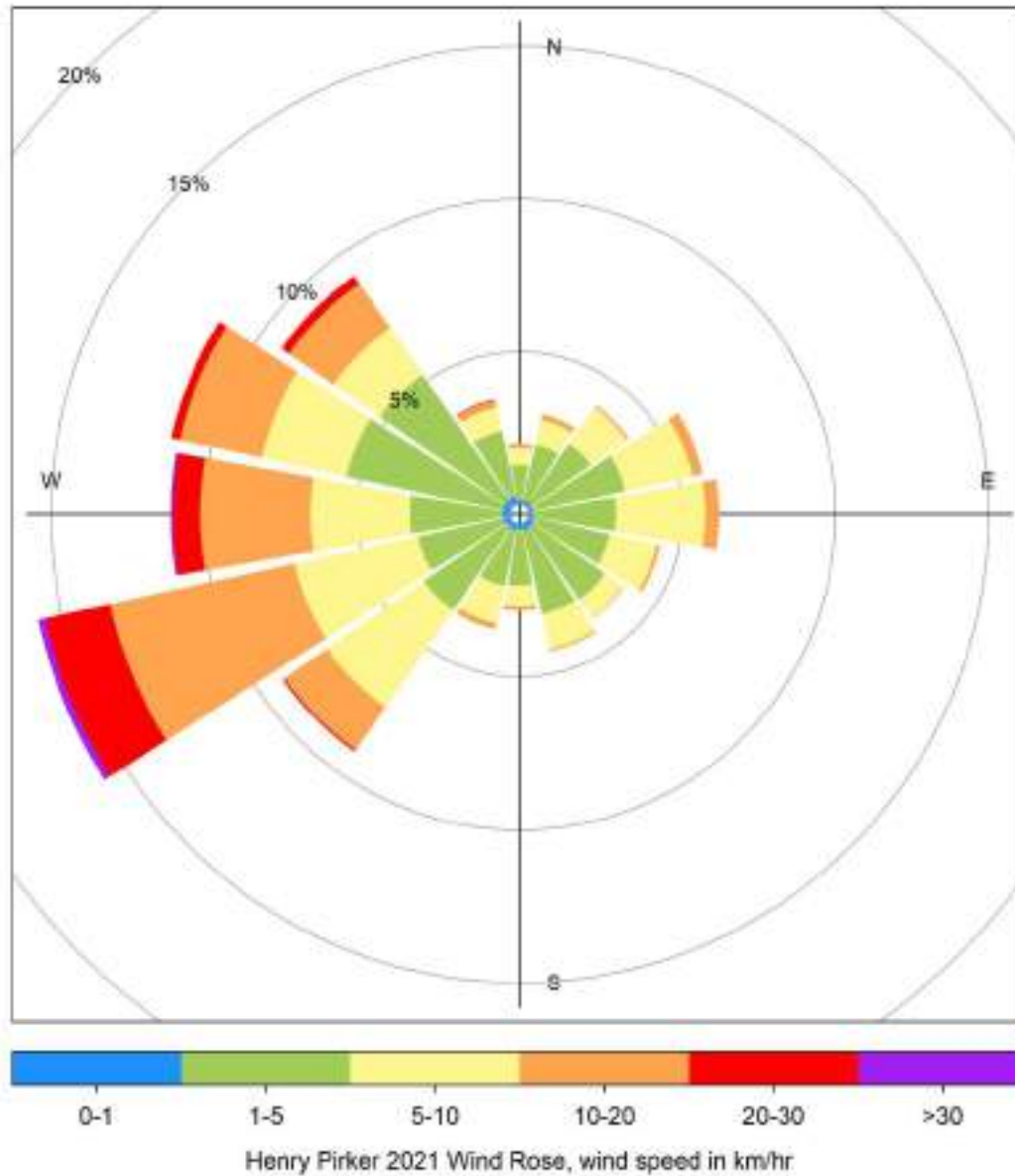


2021 Wind Direction Histogram



Wind Speed and Wind Direction Frequency Distribution at Henry Pirker

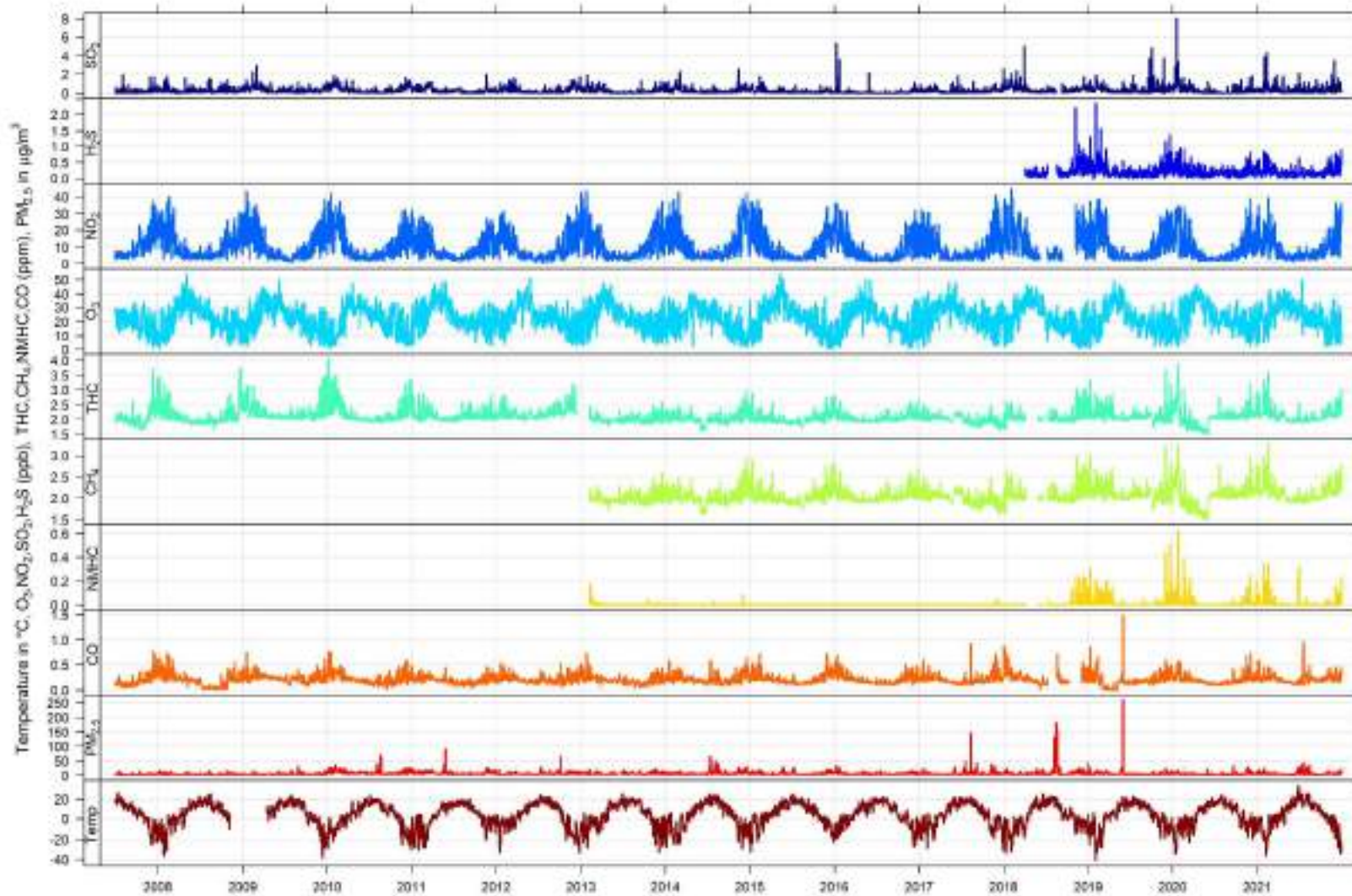
Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	174	0.1%	1.2%	0.6%	0.1%	0.0%	0.0%	2.0%
NNE	264	0.0%	2.0%	0.9%	0.1%	0.0%	0.0%	3.0%
NE	351	0.0%	2.5%	1.5%	0.0%	0.0%	0.0%	4.0%
ENE	507	0.1%	3.1%	2.4%	0.2%	0.0%	0.0%	5.8%
E	541	0.0%	2.8%	3.1%	0.2%	0.0%	0.0%	6.2%
ESE	384	0.0%	2.7%	1.6%	0.1%	0.0%	0.0%	4.4%
SE	336	0.1%	3.0%	0.7%	0.0%	0.0%	0.0%	3.9%
SSE	373	0.0%	3.0%	1.2%	0.0%	0.0%	0.0%	4.3%
S	247	0.1%	1.9%	0.7%	0.1%	0.0%	0.0%	2.8%
SSW	308	0.1%	2.0%	1.3%	0.2%	0.0%	0.0%	3.5%
SW	796	0.1%	3.4%	4.3%	1.2%	0.1%	0.0%	9.1%
WSW	1377	0.1%	3.0%	5.1%	4.8%	2.4%	0.4%	15.8%
W	967	0.1%	3.2%	3.6%	3.0%	1.0%	0.2%	11.1%
WNW	989	0.0%	5.5%	3.2%	2.2%	0.4%	0.0%	11.3%
NW	799	0.1%	5.2%	2.1%	1.4%	0.4%	0.0%	9.2%
NNW	307	0.1%	2.4%	0.8%	0.2%	0.0%	0.0%	3.5%
Total	8720	0.9%	46.9%	33.3%	14.0%	4.3%	0.6%	100.0%



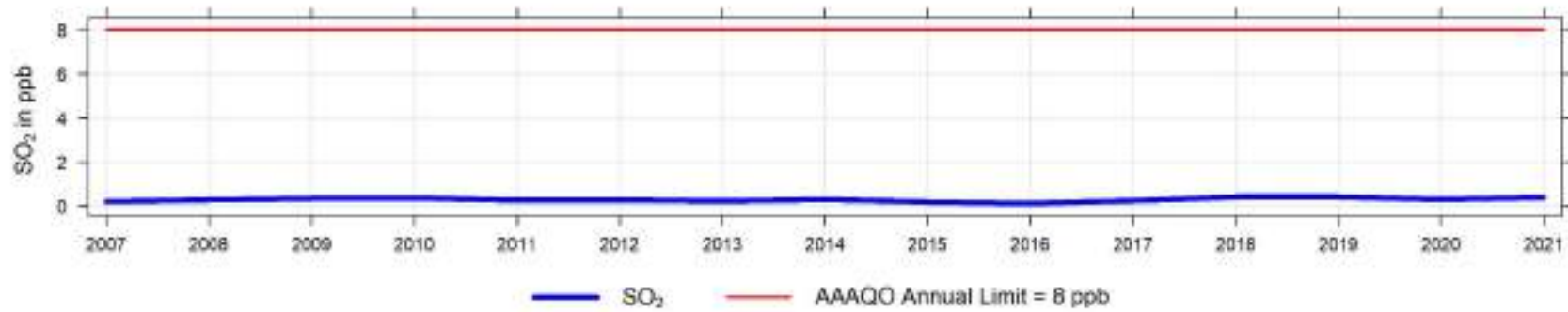
9.17 Henry Pirker Annual Trends, 2007 to 2021

The following pages include historical annual charts collected between 2007 and 2021 at the Henry Pirker Station.

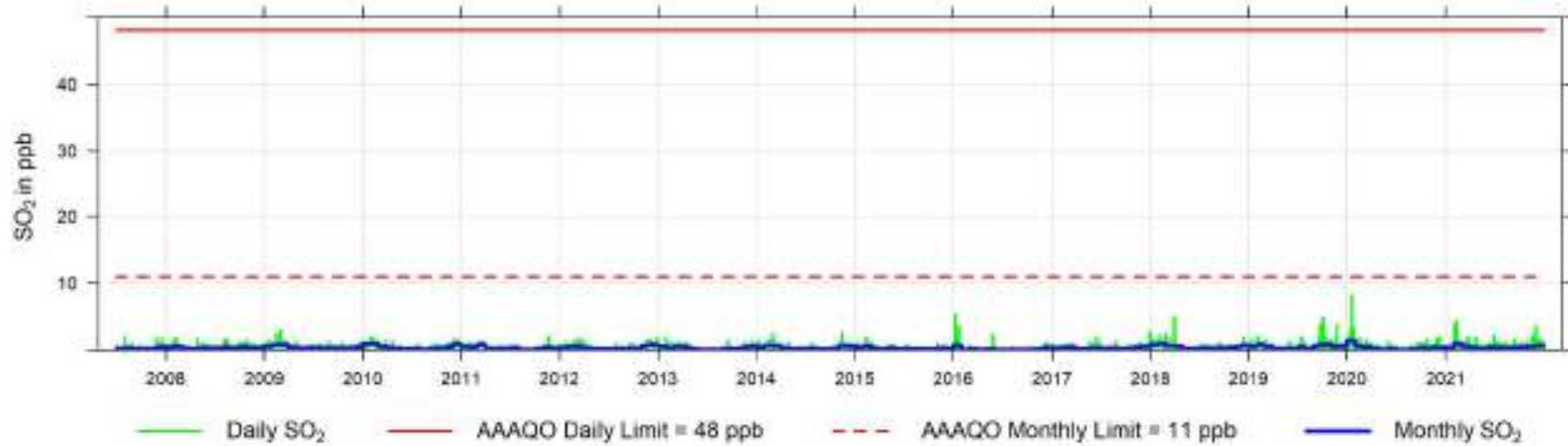
2007 to 2021 Daily Concentration Readings at Henry Pirker



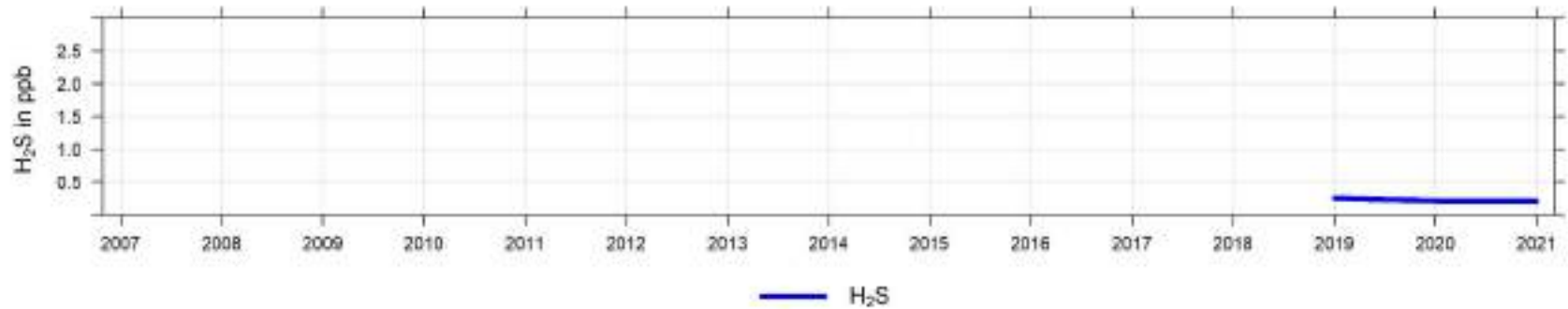
Years 2007 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Henry Pirker



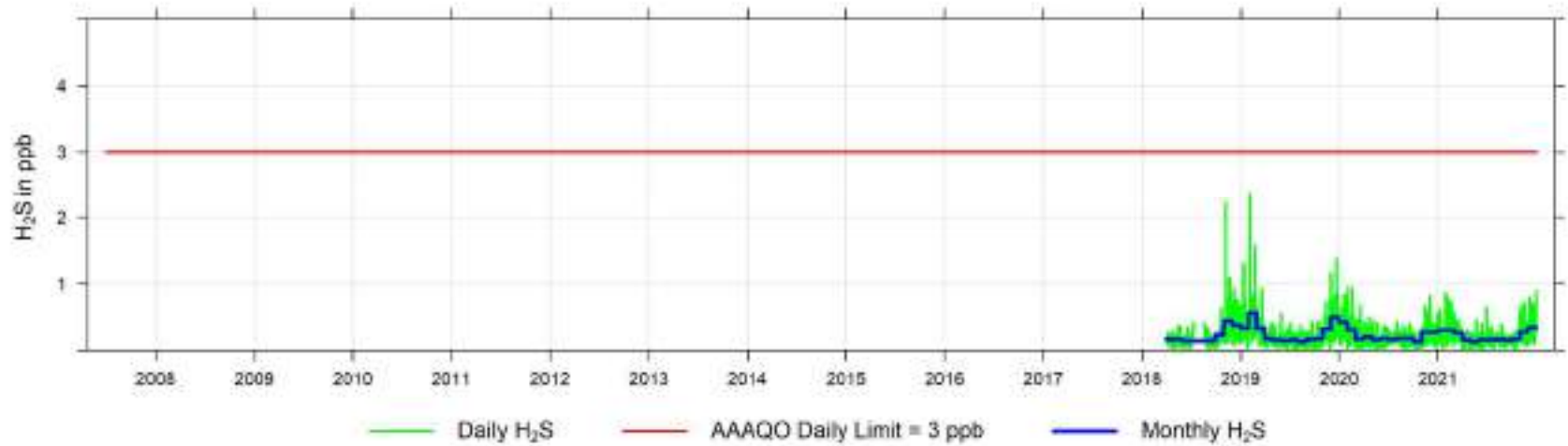
Years 2007 to 2021 Concentration Readings of SO₂ (in ppb) at Henry Pirker



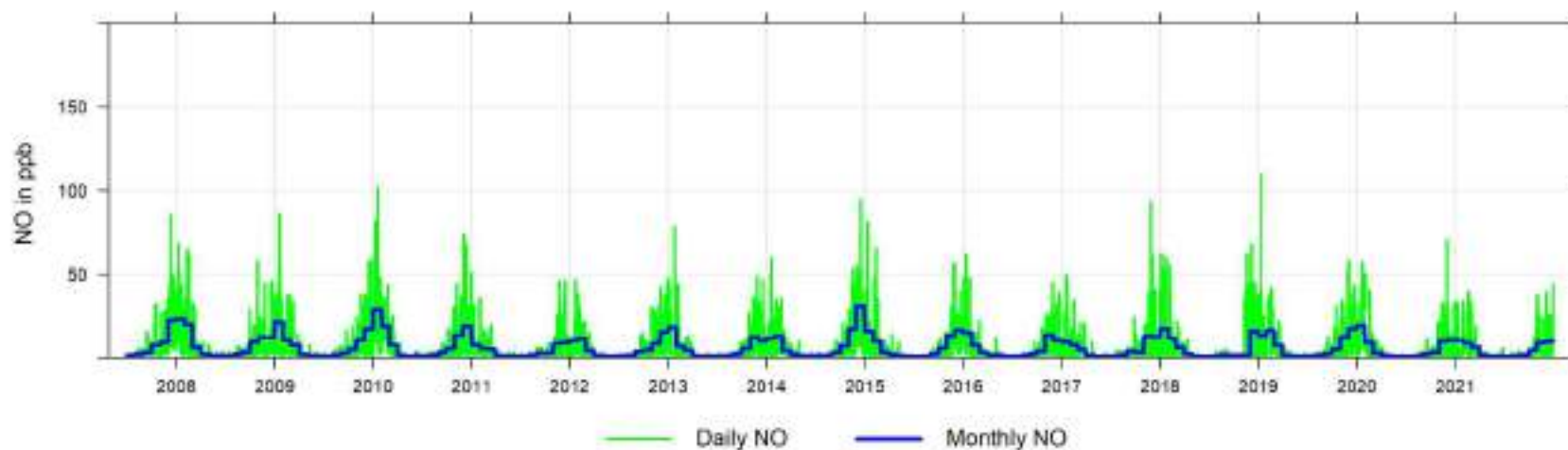
Years 2007 to 2021 Annual Concentration Readings of H₂S (in ppb) at Henry Pirker



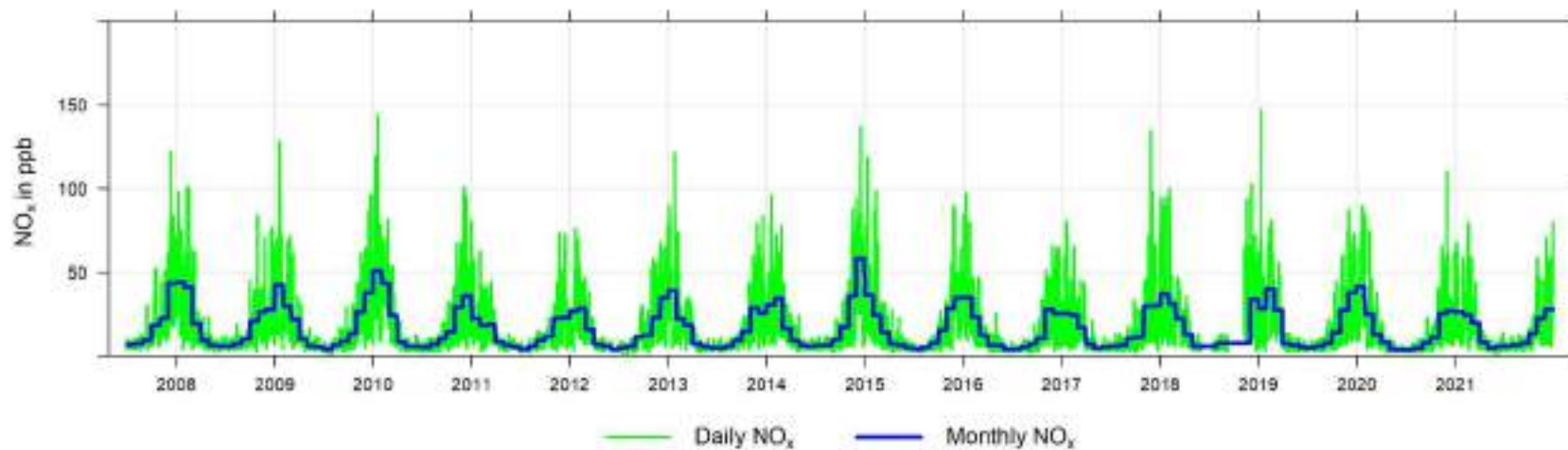
Years 2007 to 2021 Concentration Readings of H₂S (in ppb) at Henry Pirker



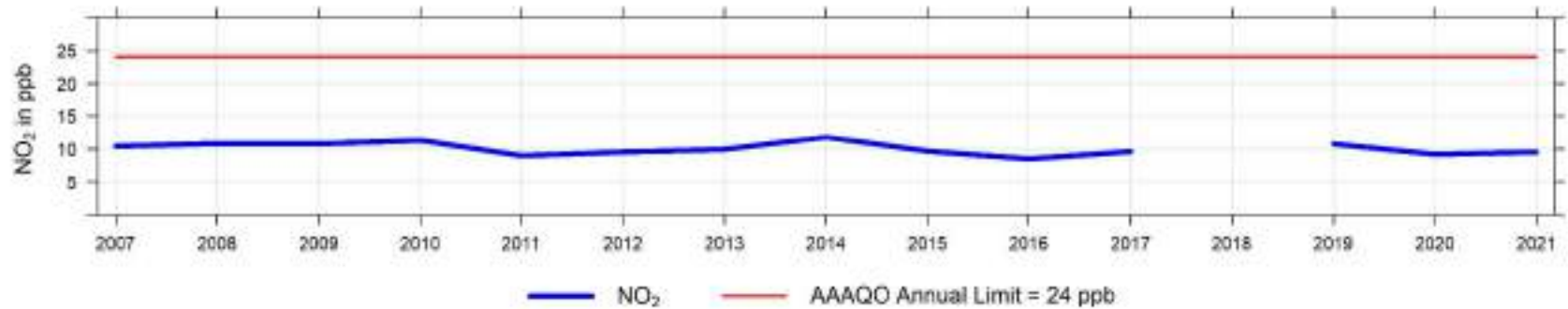
Years 2007 to 2021 Concentration Readings of NO (in ppb) at Henry Pirker



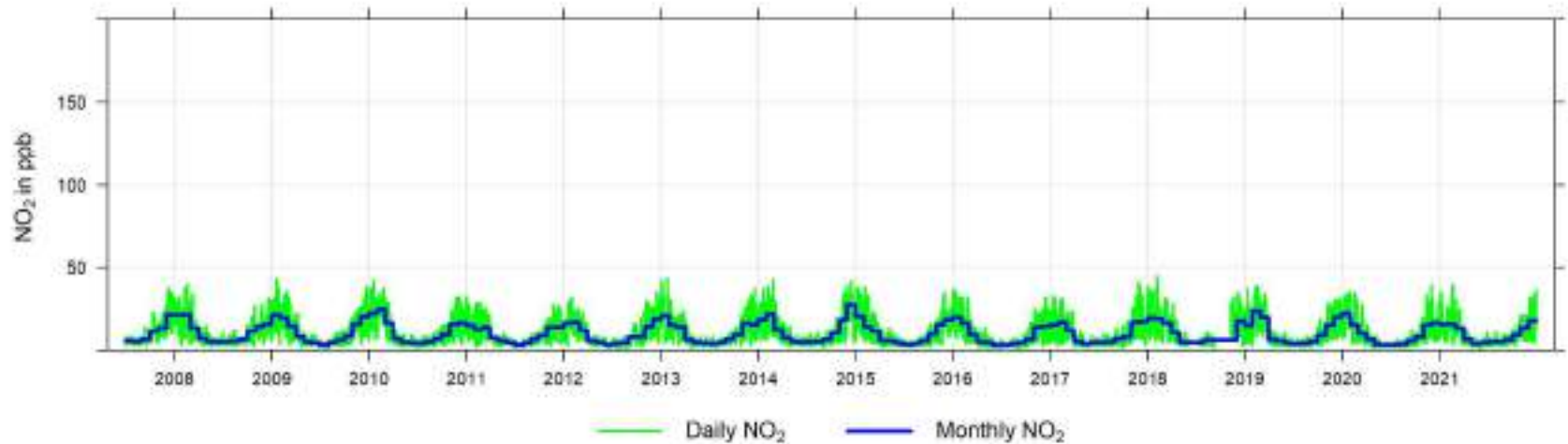
Years 2007 to 2021 Concentration Readings of NO_x (in ppb) at Henry Pirker



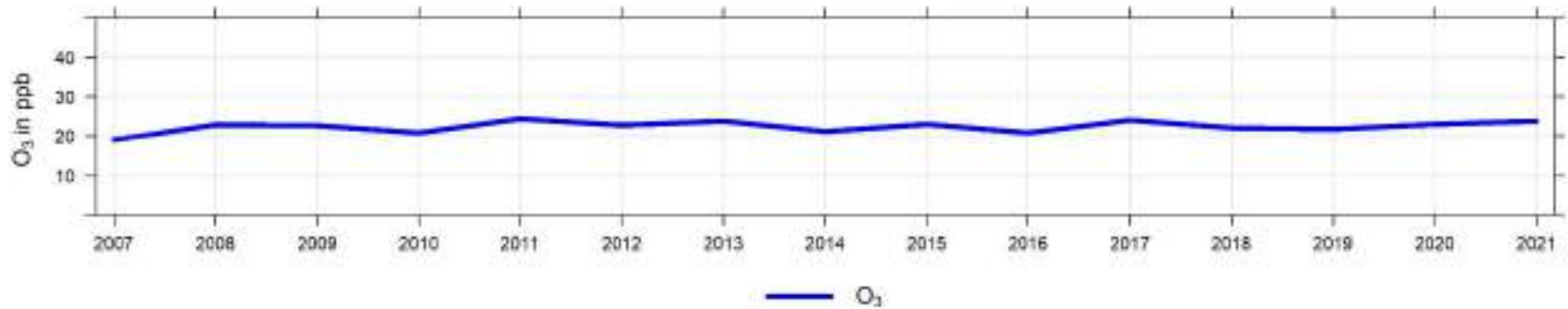
Years 2007 to 2021 Annual Concentration Readings of NO₂ (in ppb) at Henry Pirker



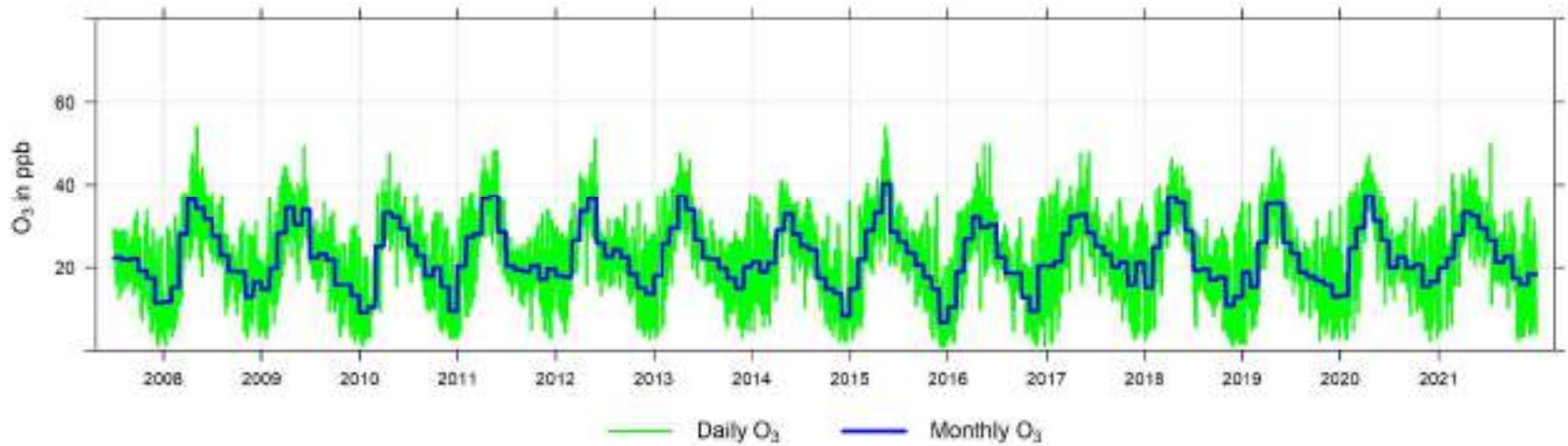
Years 2007 to 2021 Concentration Readings of NO₂ (in ppb) at Henry Pirker



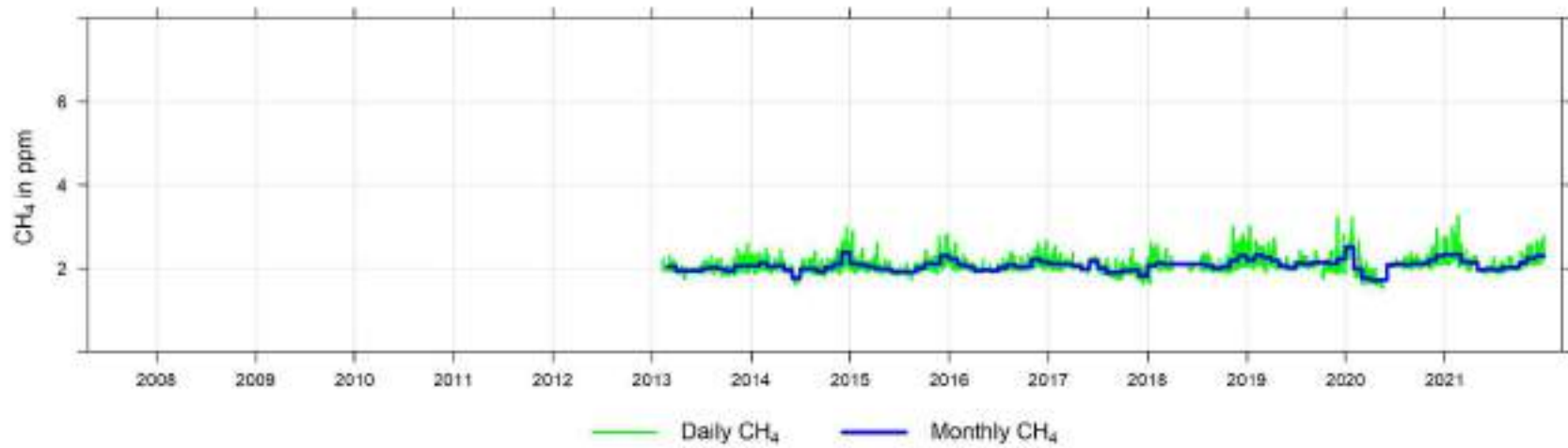
Years 2007 to 2021 Annual Concentration Readings of O₃ (in ppb) at Henry Pirker



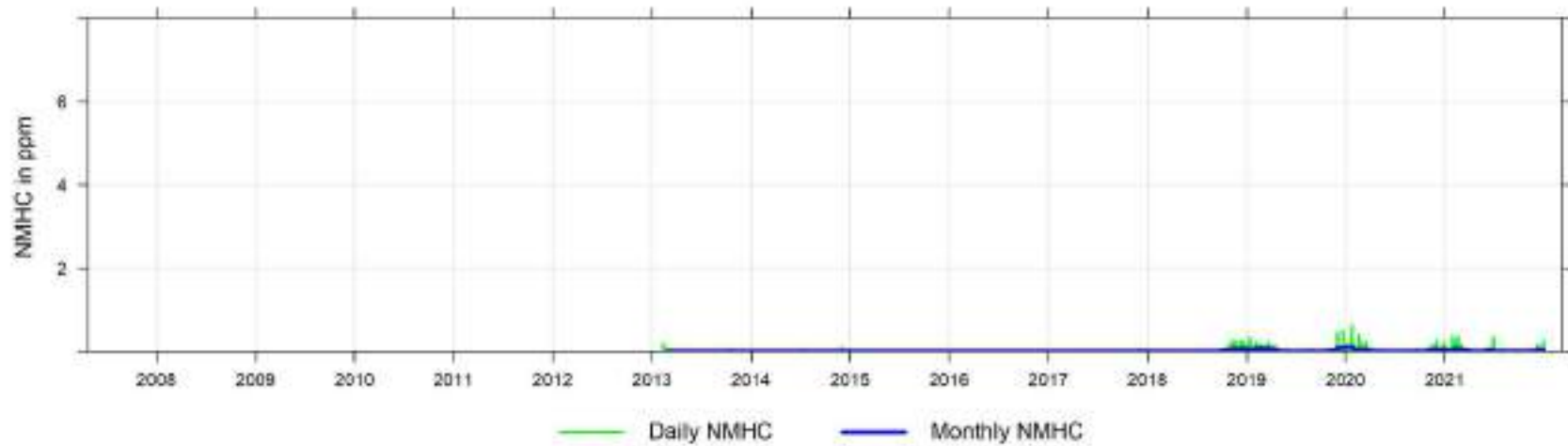
Years 2007 to 2021 Concentration Readings of O₃ (in ppb) at Henry Pirker



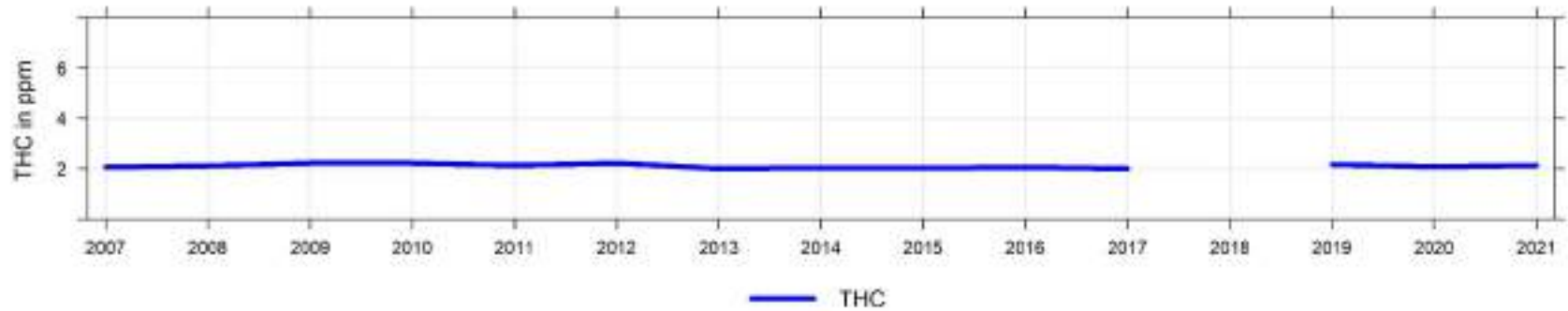
Years 2007 to 2021 Concentration Readings of CH₄ (in ppm) at Henry Pirker



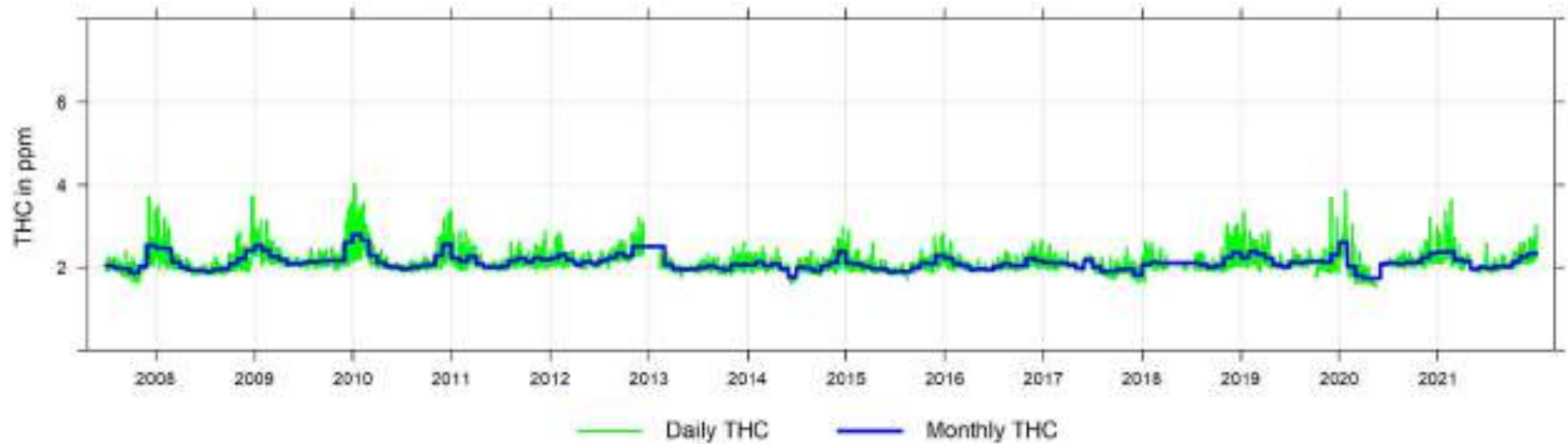
Years 2007 to 2021 Concentration Readings of NMHC (in ppm) at Henry Pirker



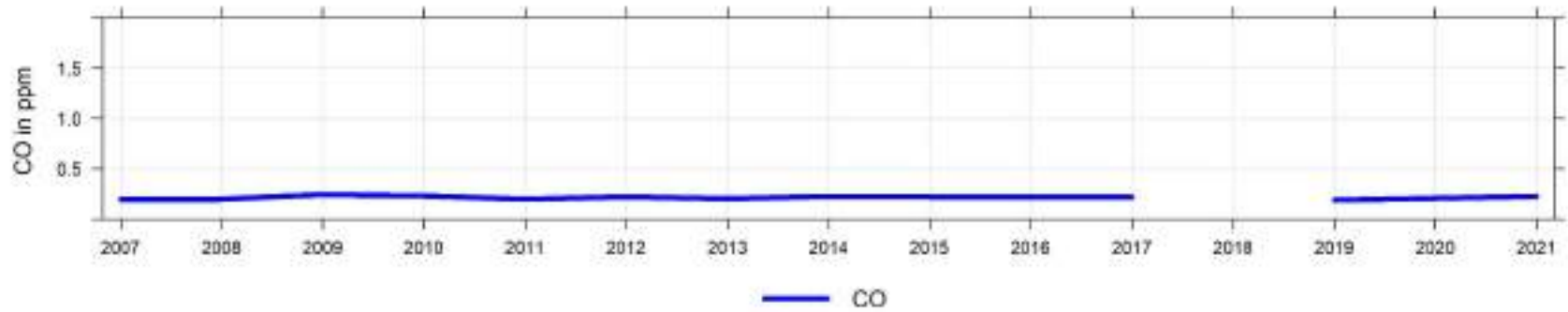
Years 2021 Annual Concentration Readings of THC (in ppm) at Henry Pirker



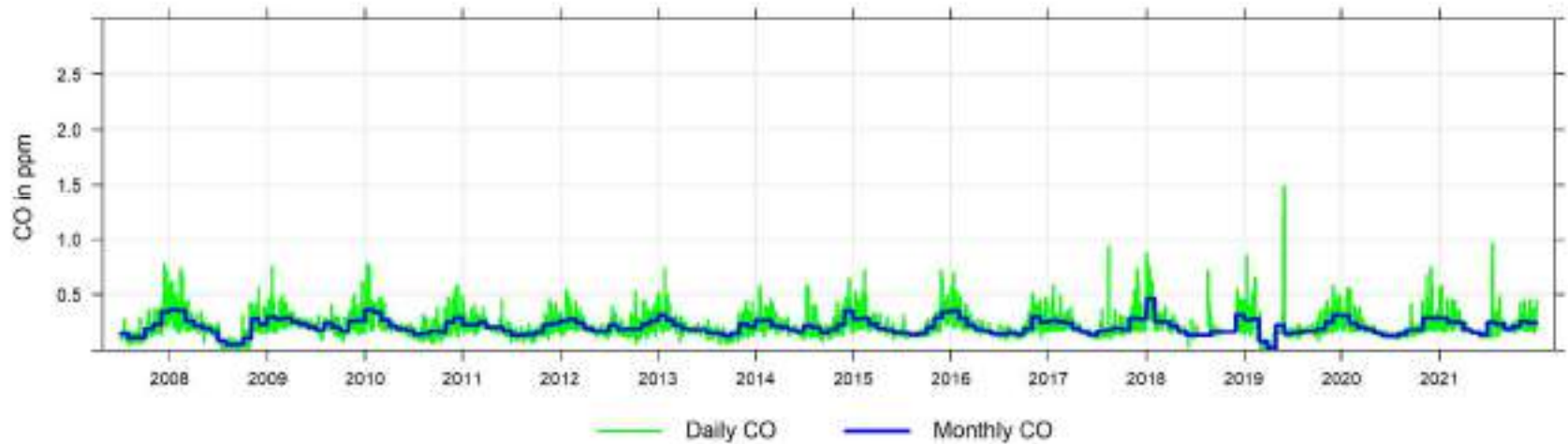
Years 2007 to 2021 Concentration Readings of THC (in ppm) at Henry Pirker



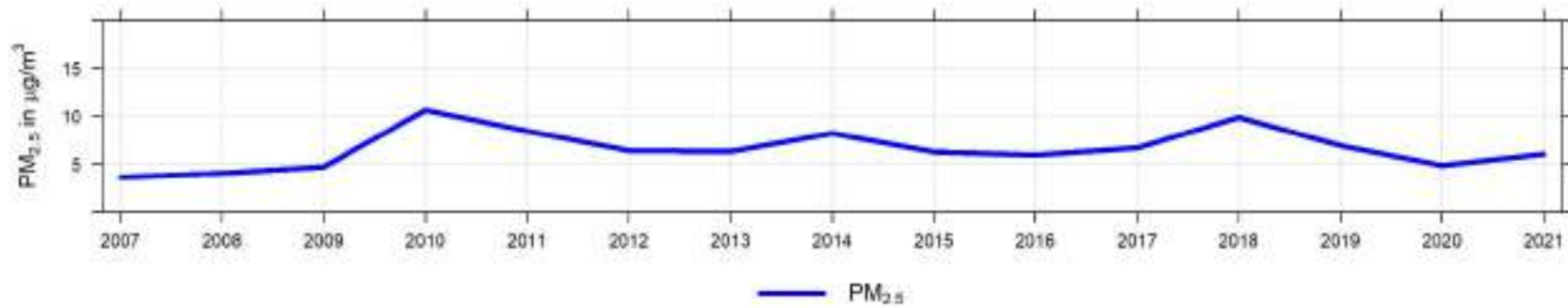
Years 2021 Annual Concentration Readings of CO (in ppm) at Henry Pirker



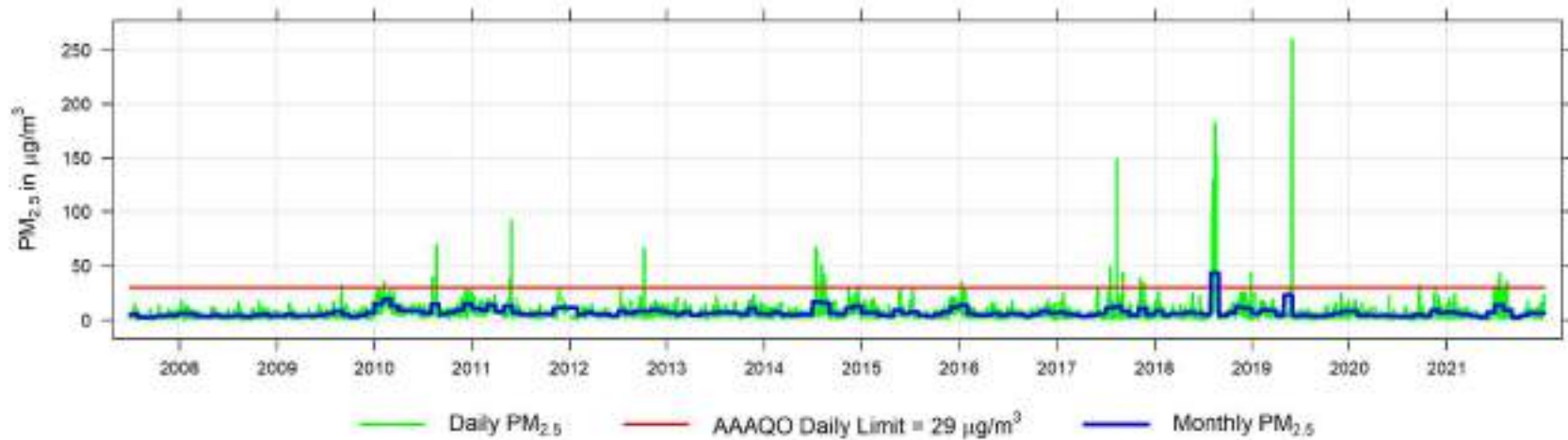
Years 2007 to 2021 Concentration Readings of CO (in ppm) at Henry Pirker



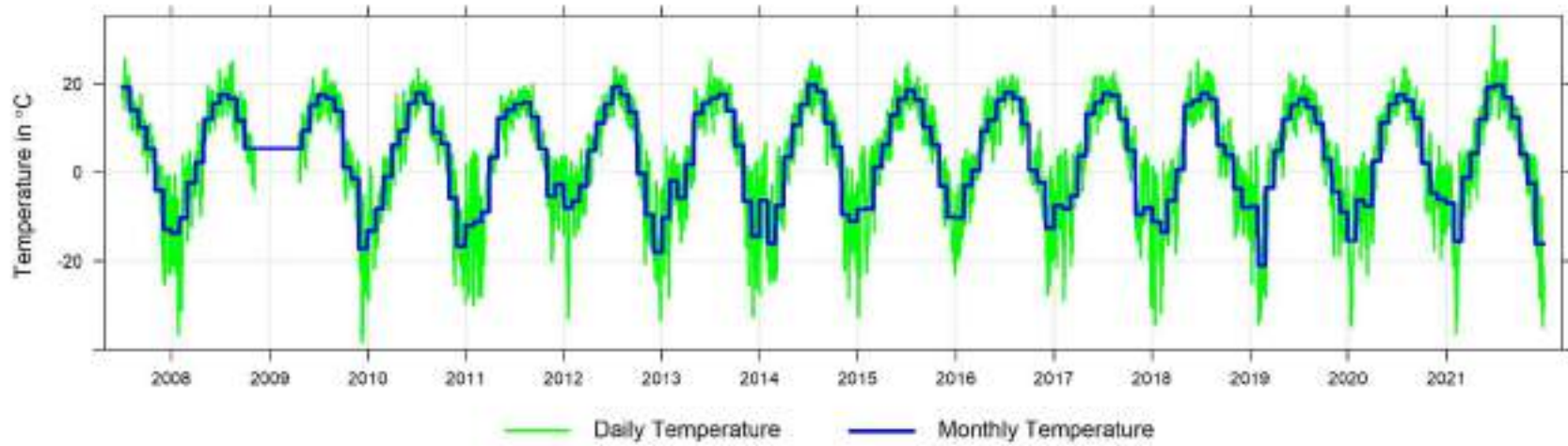
2007 to 2021 Annual Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker



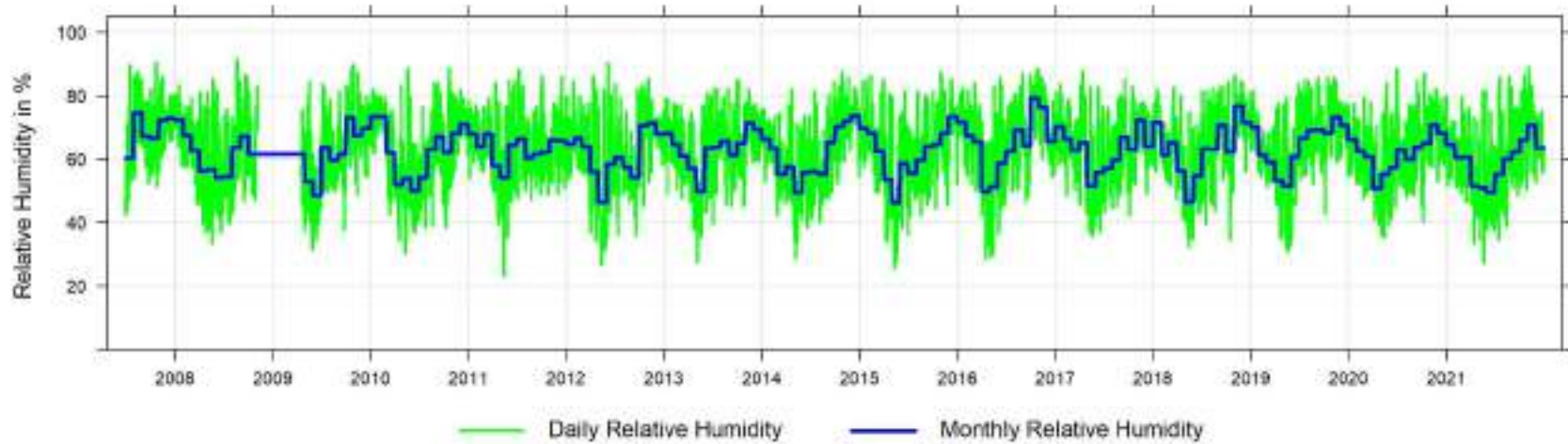
Years 2007 to 2021 Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Henry Pirker



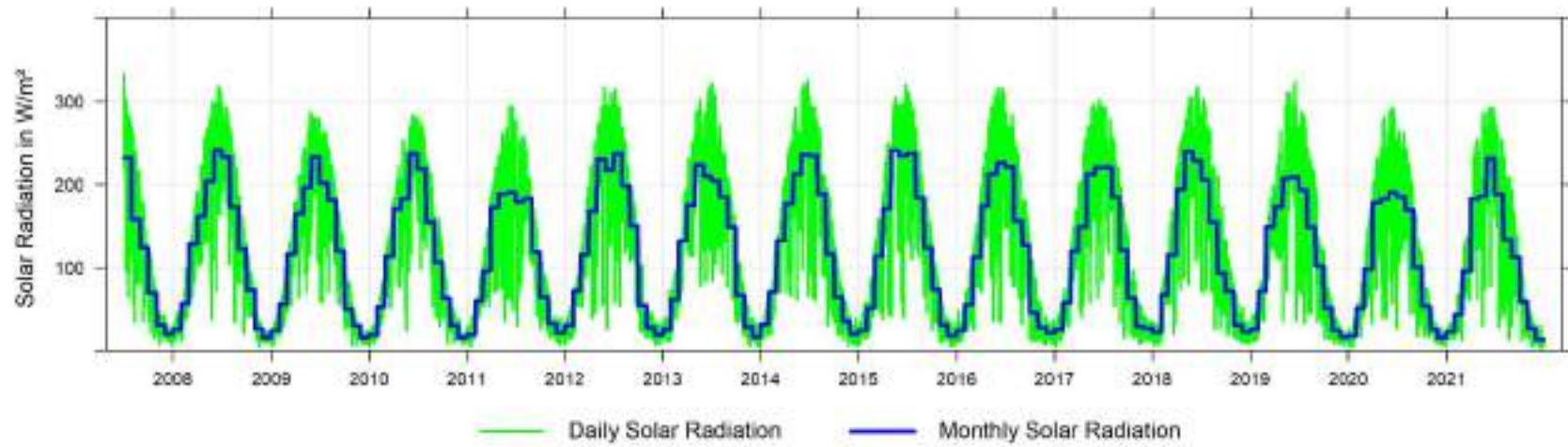
Years 2007 to 2021 Temperature Readings (in °C) at Henry Pirker

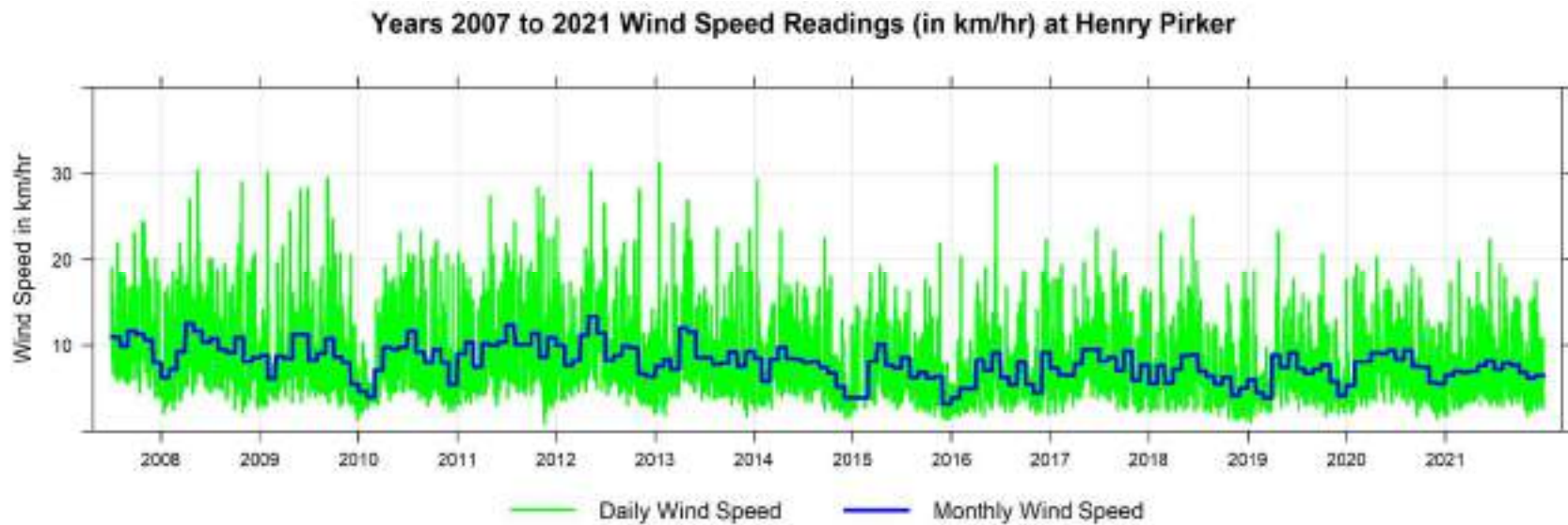
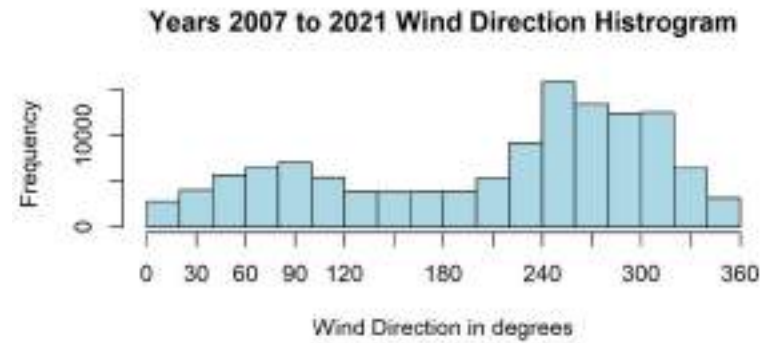
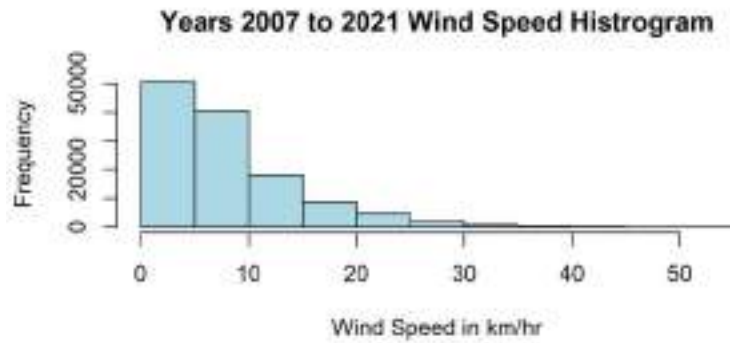


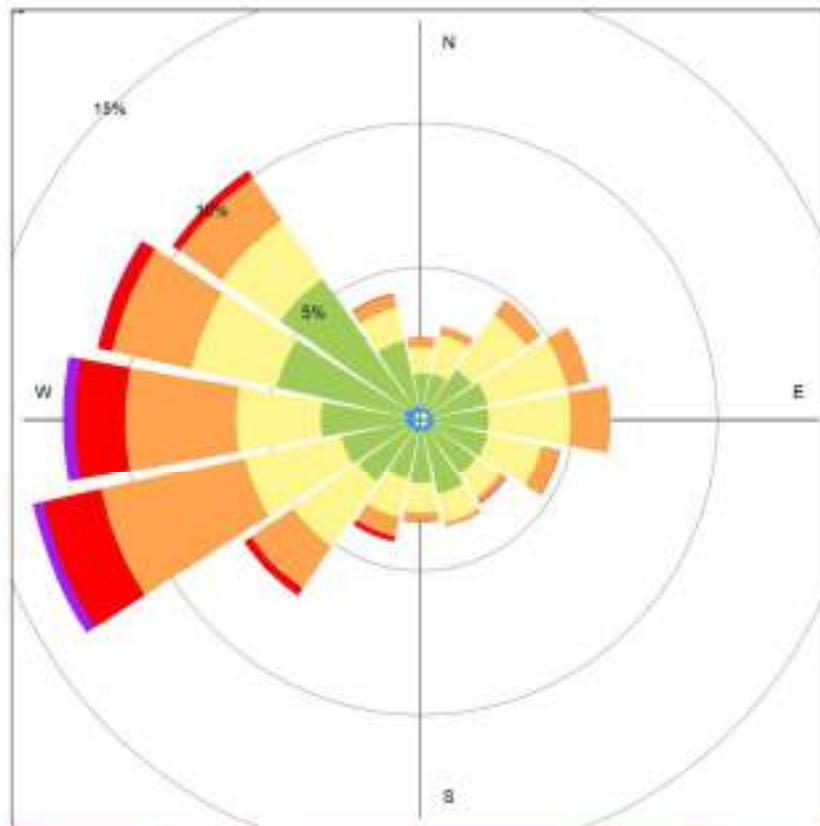
Years 2007 to 2021 Relative Humidity Readings (in %) at Henry Pirker



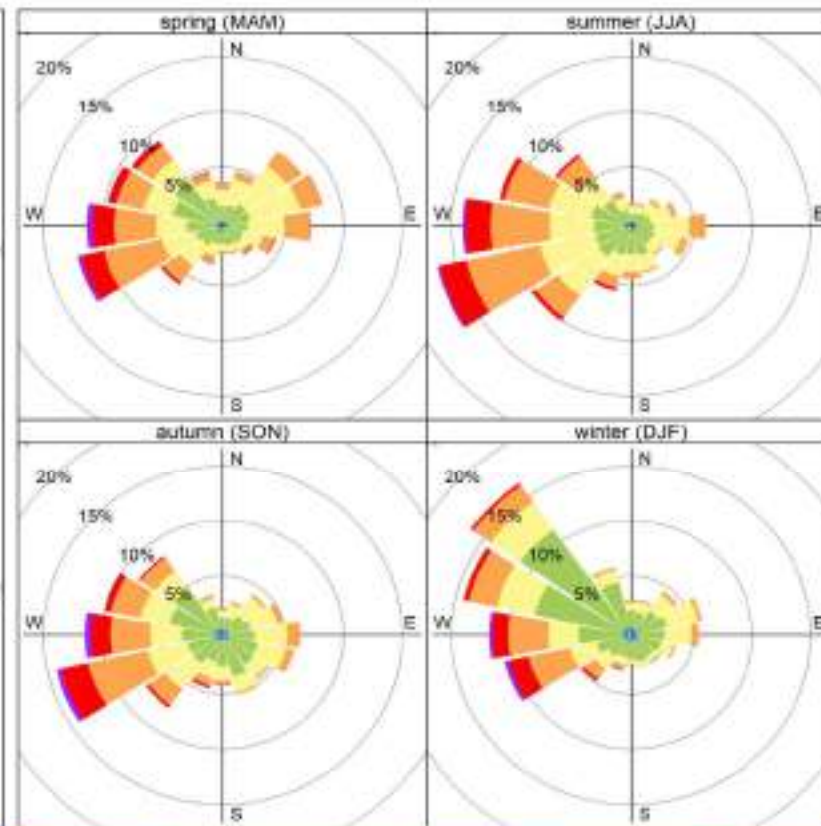
Years 2007 to 2021 Solar Radiation Readings (in W/m^2) at Henry Pirker







Henry Pirker 2007 to 2021 Wind Rose, wind speed in km/hr



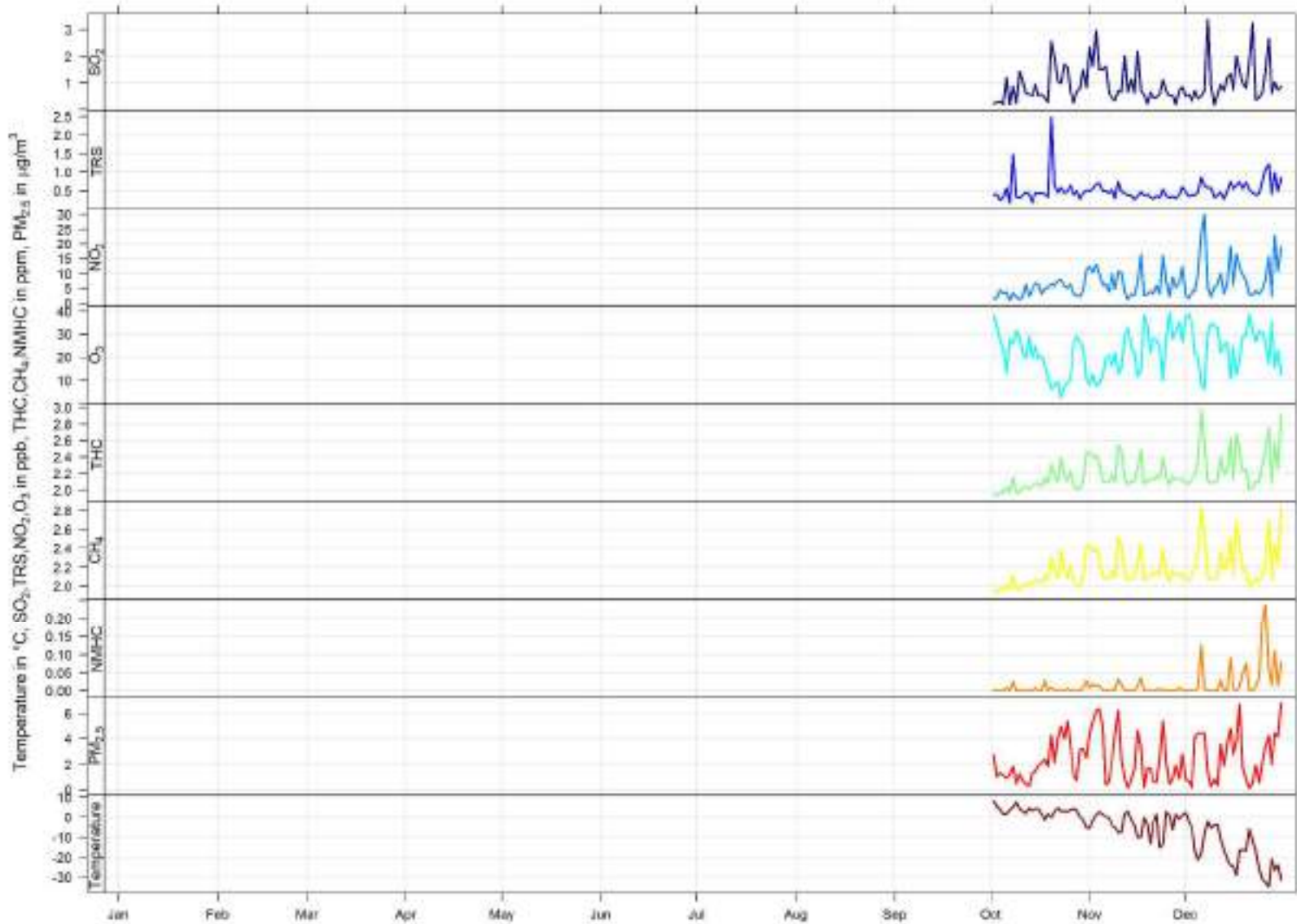
Henry Pirker 2007 to 2021 Seasonal Wind Rose, wind speed in km/hr

10 Poplar Key Parameters - Continuous Monitoring Data - 2021 (Oct-Dec) Summary

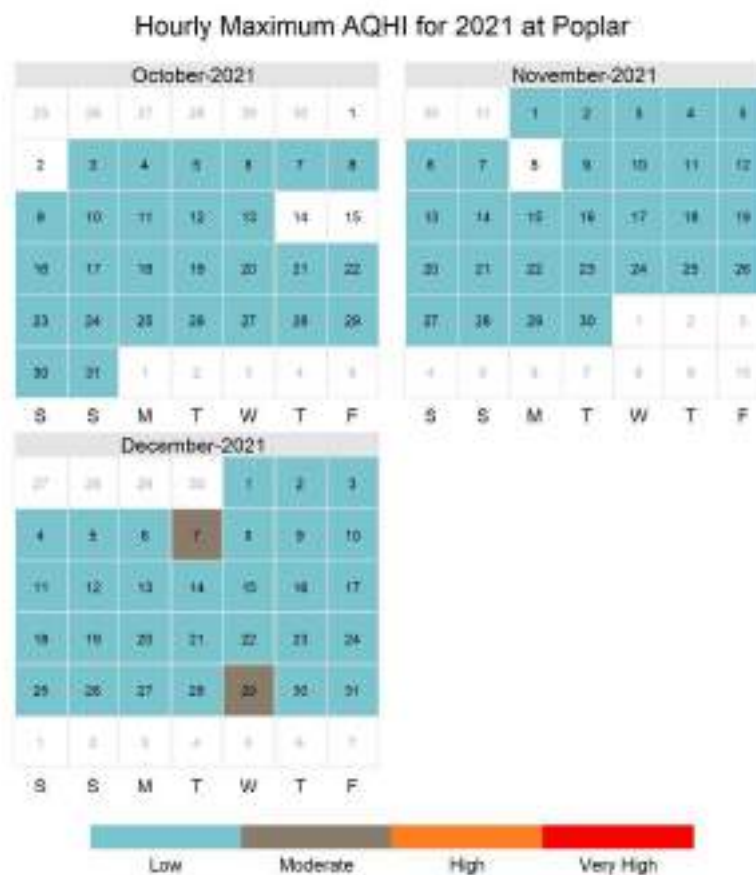
Poplar Key Parameters - Continuous Monitoring Data - 2021 Summary

Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
		24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Sulphur Dioxide SO ₂ measured in ppb	-	3.4	Dec 08	26.0	Nov 12 16:00	24.9%	23.7%	0	0	0	0
Total Reduced Sulphur TRS measured in ppb	-	2.6	Oct 20	20.1	Oct 20 18:00	24.9%	23.8%	0	0	-	-
Nitrogen Dioxide NO ₂ measured in ppb	-	29.9	Dec 07	40.1	Dec 29 18:00	24.8%	23.6%	0	-	-	0
Nitrogen Oxides NO _x measured in ppb	-	38.4	Dec 07	83.0	Dec 06 17:00	24.8%	23.6%	-	-	-	-
Nitric Oxide NO measured in ppb	-	11.4	Dec 06	44.4	Dec 06 17:00	24.8%	23.6%	-	-	-	-
Ozone O ₃ measured in ppb	-	39.4	Nov 26	47.4	Oct 02 16:00	24.5%	23.3%	0	-	-	-
Total Hydrocarbons THC measured in ppm	-	3.0	Dec 06	4.3	Dec 26 20:00	24.8%	23.7%	-	-	-	-
Methane CH ₄ measured in ppm	-	2.8	Dec 06	3.3	Dec 17 08:00	24.8%	23.7%	-	-	-	-
Non Methane Hydrocarbons NMHC measured in ppm	-	0.2	Dec 25	2.0	Dec 26 20:00	24.8%	23.7%	-	-	-	-
Particulate Matter PM _{2.5} measured in µg/m ³	-	7.5	Dec 31	27.9	Dec 18 18:00	24.9%	24.7%	0	0	-	-

2021 Daily Concentration Readings at Poplar



10.1 Poplar AQHI Calendar Plot for 2021 (Oct-Dec)



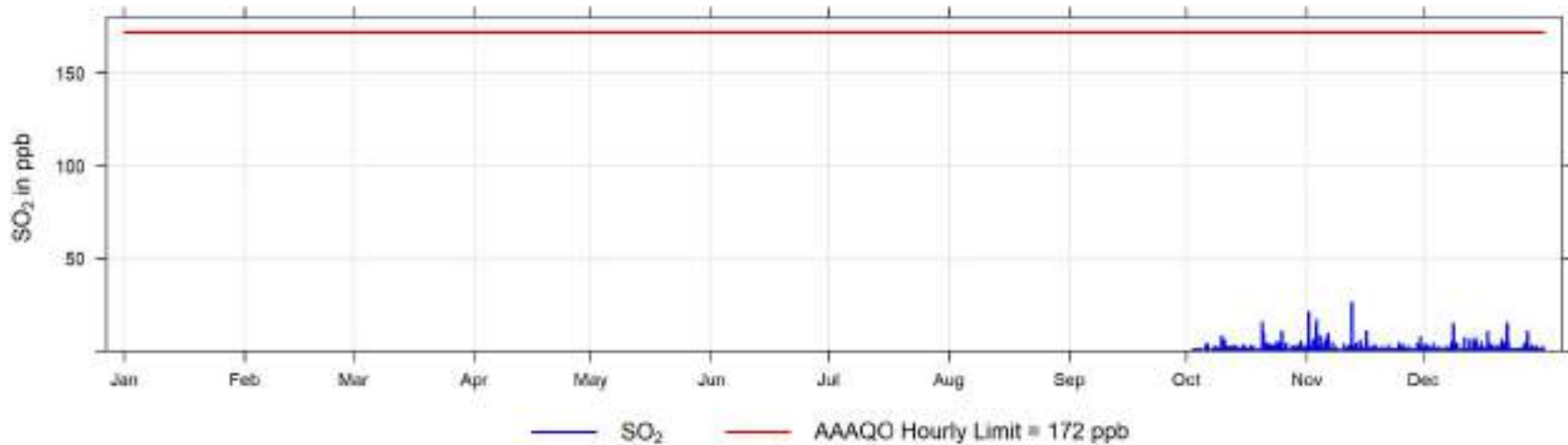
10.2 Sulphur Dioxide (SO₂) - Poplar 2021 (Oct-Dec) Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Poplar

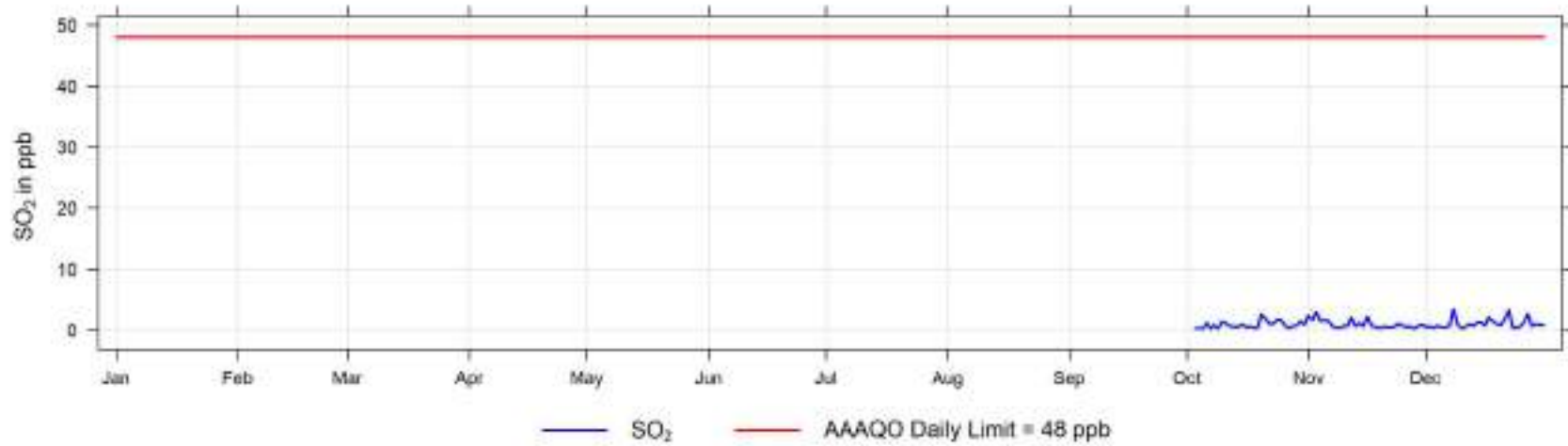
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	677	75.3%	23.0%	1.0%	0.6%	0.0%	0.0%	0.8	2.9	Oct 20	15.5	Oct 20 14:00	99.6%	95.1%	0	0	0
November 2021	685	76.1%	21.3%	1.6%	1.0%	0.0%	0.0%	1.0	3.0	Nov 03	26.0	Nov 12 16:00	100.0%	95.1%	0	0	0
December 2021	709	69.1%	27.9%	2.0%	1.0%	0.0%	0.0%	1.1	3.4	Dec 08	15.1	Dec 22 12:00	100.0%	95.3%	0	0	0
Annual	2071	73.4%	24.1%	1.6%	0.9%	0.0%	0.0%	-	3.4	Dec 08	26.0	Nov 12 16:00	24.9%	23.7%	0	0	0

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

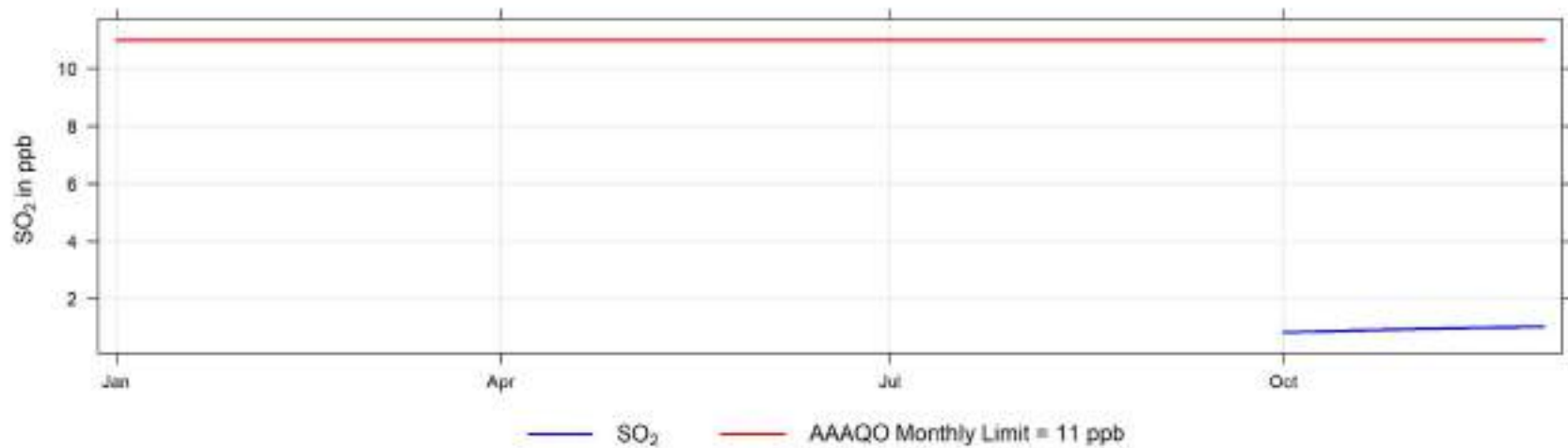
2021 Hourly Concentration Readings of SO₂ (in ppb) at Poplar



2021 Daily Concentration Readings of SO₂ (in ppb) at Poplar



2021 Monthly Concentration Readings of SO₂ (in ppb) at Poplar



Hourly Maximum SO₂ (in ppb) for 2021 at Poplar



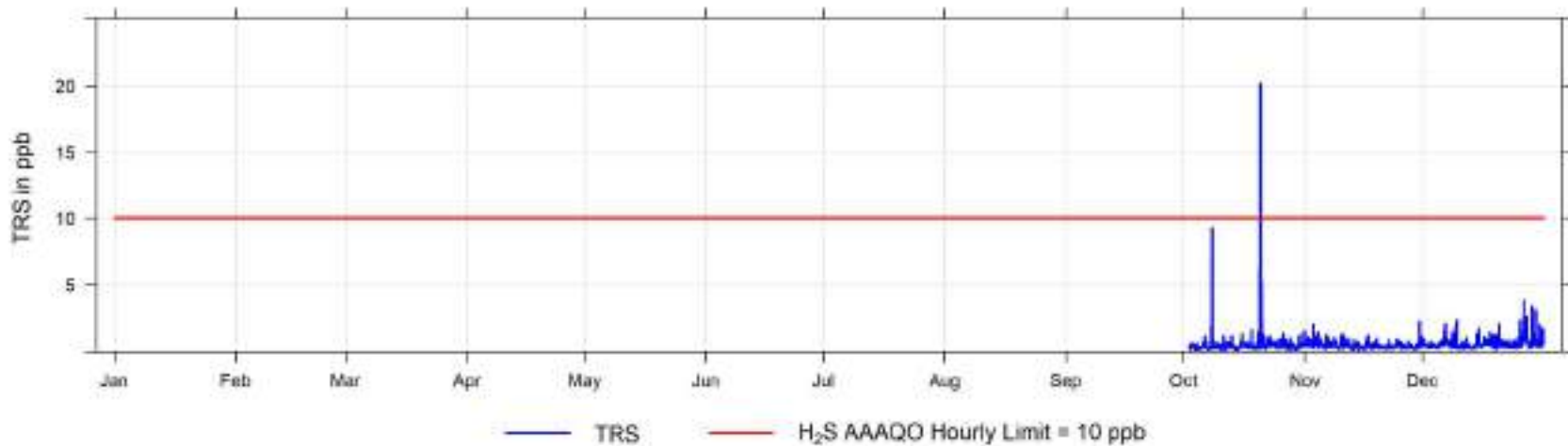
10.3 Total Reduced Sulphur (TRS) - Poplar 2021 (Oct-Dec) Summary

Total Reduced Sulphur (TRS) Frequency Distribution at Poplar

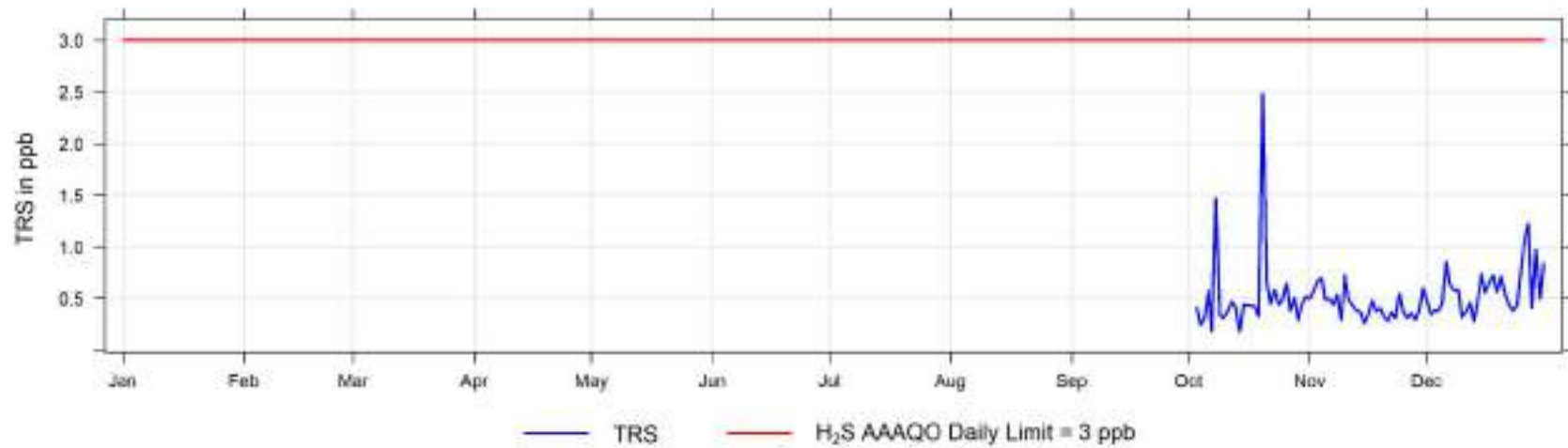
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	678	95.7%	3.0%	0.4%	0.4%	0.3%	0.2%	0.5	2.6	Oct 20	20.1	Oct 20 18:00	99.6%	95.1%	0	0
November 2021	686	96.7%	3.4%	0.0%	0.0%	0.0%	0.0%	0.4	0.8	Nov 10	2.3	Nov 30 04:00	100.0%	95.3%	0	0
December 2021	708	90.8%	8.8%	0.4%	0.0%	0.0%	0.0%	0.6	1.2	Dec 27	3.8	Dec 26 20:00	100.0%	95.2%	0	0
Annual	2072	94.3%	5.1%	0.3%	0.2%	0.1%	0.1%	-	2.6	Oct 20	20.1	Oct 20 18:00	24.9%	23.8%	0	0

AAAQO H₂S Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of TRS (in ppb) at Poplar



2021 Daily Concentration Readings of TRS (in ppb) at Poplar



Hourly Maximum TRS (in ppb) for 2021 at Poplar



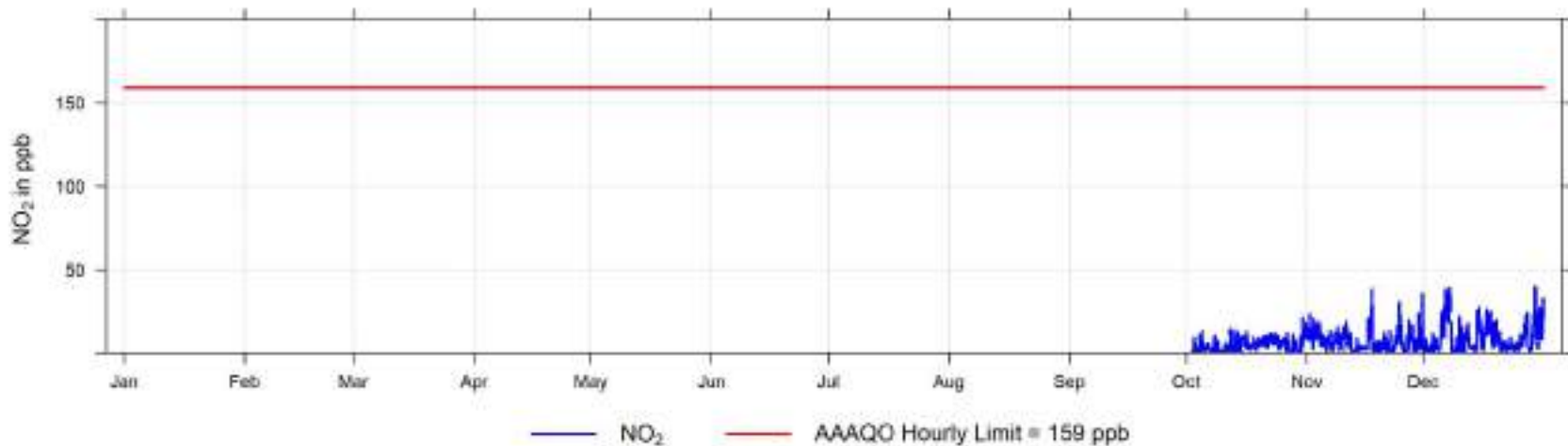
10.4 Nitrogen Dioxide (NO₂) - Poplar 2021 (Oct-Dec) Summary

Nitrogen Dioxide (NO₂) Frequency Distribution at Poplar

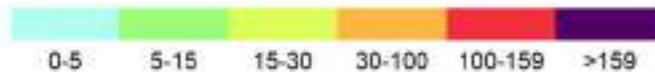
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 159 ppb	
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date				
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	666	61.6%	38.0%	0.5%	0.0%	0.0%	0.0%	4.4	11.6	Oct 31	21.1	Oct 31 02:00	98.3%	93.5%	0	
November 2021	684	48.3%	42.0%	9.1%	0.7%	0.0%	0.0%	7.0	16.5	Nov 24	38.3	Nov 17 17:00	100.0%	95.0%	0	
December 2021	708	49.9%	27.4%	19.2%	3.5%	0.0%	0.0%	9.1	29.9	Dec 07	40.1	Dec 29 18:00	100.0%	95.2%	0	
Annual	2058	52.7%	35.9%	9.9%	1.5%	0.0%	0.0%	-	29.9	Dec 07	40.1	Dec 29 18:00	24.8%	23.6%	0	

AAAQO Objectives: Annual: 24ppb, 1-Hr: 159ppb

2021 Hourly Concentration Readings of NO₂ (in ppb) at Poplar



Hourly Maximum NO₂ (in ppb) for 2021 at Poplar



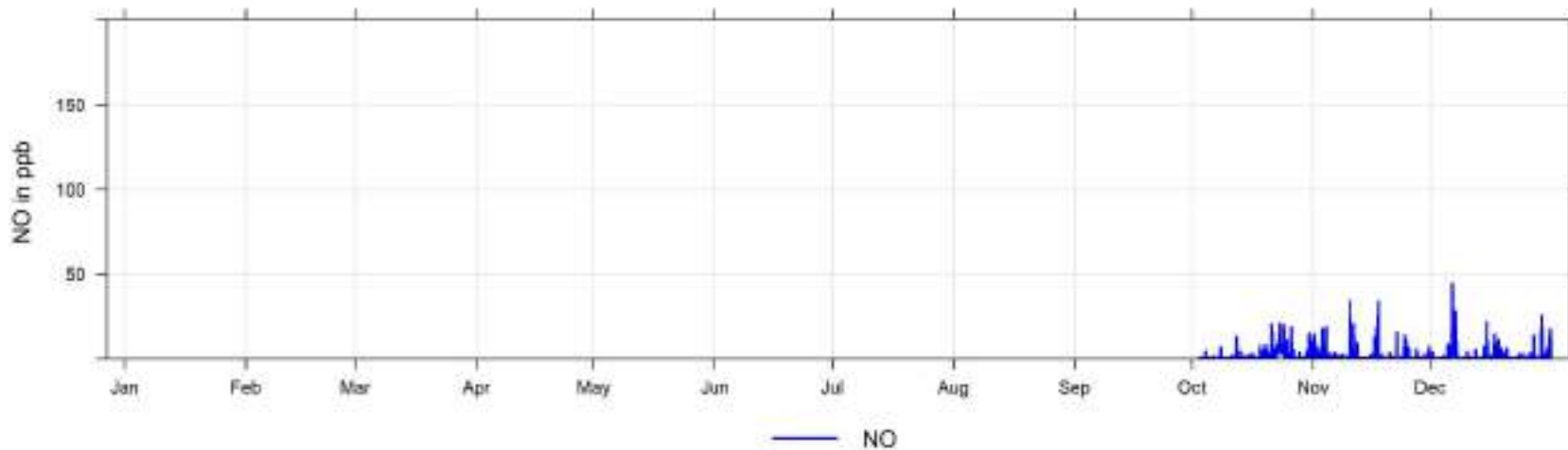
10.5 Nitric Oxide (NO) - Poplar 2021 (Oct-Dec) Summary

Nitric Oxide (NO) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	666	89.3%	9.2%	1.5%	0.0%	0.0%	0.0%	1.6	8.5	Oct 23	20.8	Oct 23 13:00	98.3%	93.5%
November 2021	684	88.3%	9.1%	2.3%	0.3%	0.0%	0.0%	1.9	8.0	Nov 17	33.9	Nov 10 12:00	100.0%	95.0%
December 2021	708	88.6%	8.5%	2.5%	0.4%	0.0%	0.0%	1.9	11.4	Dec 06	44.4	Dec 06 17:00	100.0%	95.2%
Annual	2058	88.8%	8.9%	2.1%	0.3%	0.0%	0.0%	-	11.4	Dec 06	44.4	Dec 06 17:00	24.8%	23.6%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO (in ppb) at Poplar



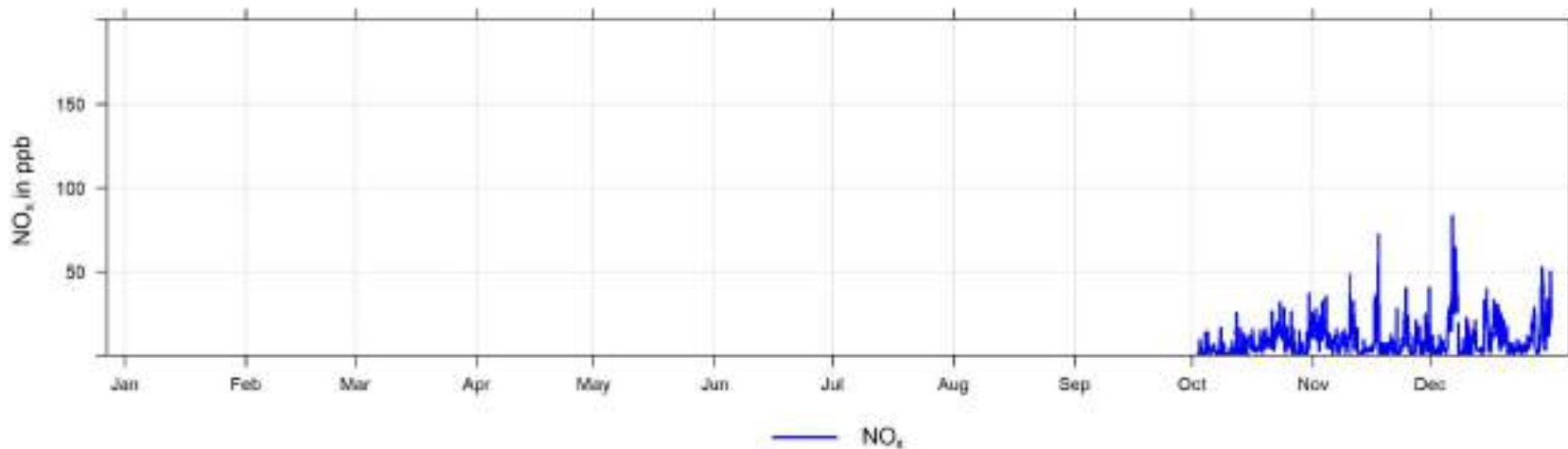
10.6 Oxides of Nitrogen (NO_x) - Poplar 2021 (Oct-Dec) Summary

Nitrogen Oxides (NO_x) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	666	57.1%	34.5%	8.1%	0.3%	0.0%	0.0%	6.1	16.7	Oct 31	36.6	Oct 31 02:00	98.3%	93.5%
November 2021	684	44.4%	35.8%	15.2%	4.5%	0.0%	0.0%	9.0	24.2	Nov 17	72.3	Nov 17 17:00	100.0%	95.0%
December 2021	708	46.9%	24.9%	20.5%	7.8%	0.0%	0.0%	11.1	38.4	Dec 07	83.0	Dec 06 17:00	100.0%	95.2%
Annual	2058	49.1%	31.7%	14.8%	4.4%	0.0%	0.0%	-	38.4	Dec 07	83.0	Dec 06 17:00	24.8%	23.6%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO_x (in ppb) at Poplar



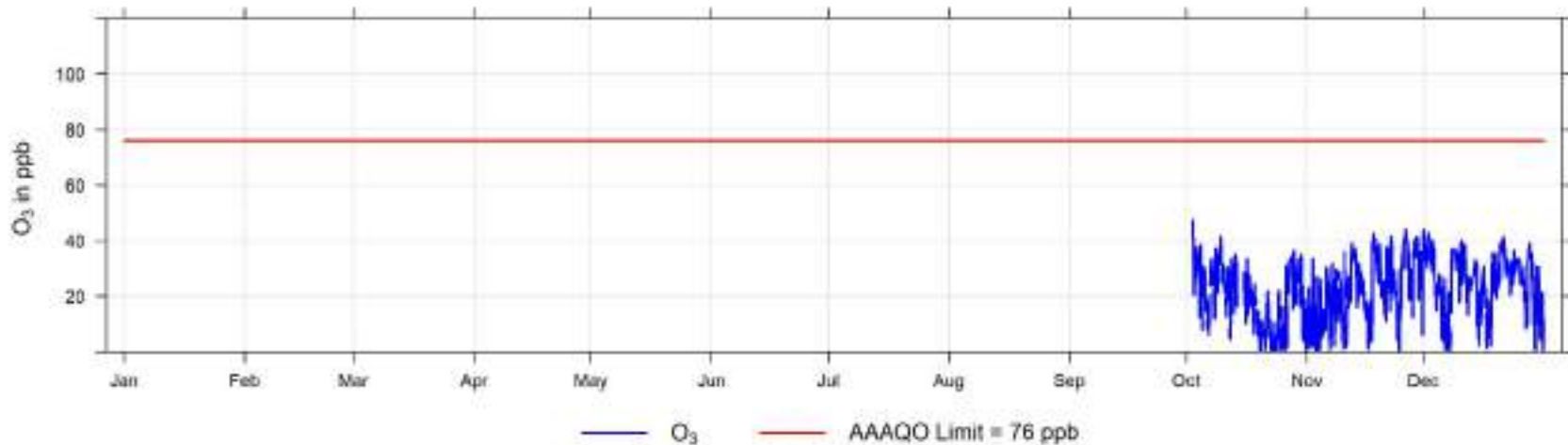
10.7 Ozone (O₃) - Poplar 2021 (Oct-Dec) Summary

Ozone (O₃) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 76 ppb	
		0 to 10 (ppb)	10 to 20 (ppb)	20 to 40 (ppb)	40 to 60 (ppb)	60 to 76 (ppb)	> 76 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date				
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	637	23.7%	27.6%	47.9%	0.8%	0.0%	0.0%	19.4	33.4	Oct 03	47.4	Oct 02 16:00	94.5%	89.8%	0	
November 2021	686	18.7%	23.3%	52.6%	5.4%	0.0%	0.0%	22.1	39.4	Nov 26	44.1	Dec 01 00:00	100.0%	95.3%	0	
December 2021	709	11.6%	15.4%	70.0%	3.1%	0.0%	0.0%	25.3	38.6	Dec 02	43.5	Dec 01 01:00	100.0%	95.3%	0	
Annual	2032	17.6%	21.3%	57.9%	3.2%	0.0%	0.0%	-	39.4	Nov 26	47.4	Oct 02 16:00	24.5%	23.3%	0	

AAAQO Objectives: 1-Hr: 76ppb

2021 Hourly Concentration Readings of O₃ (in ppb) at Poplar



Hourly Maximum O₃ (in ppb) for 2021 at Poplar



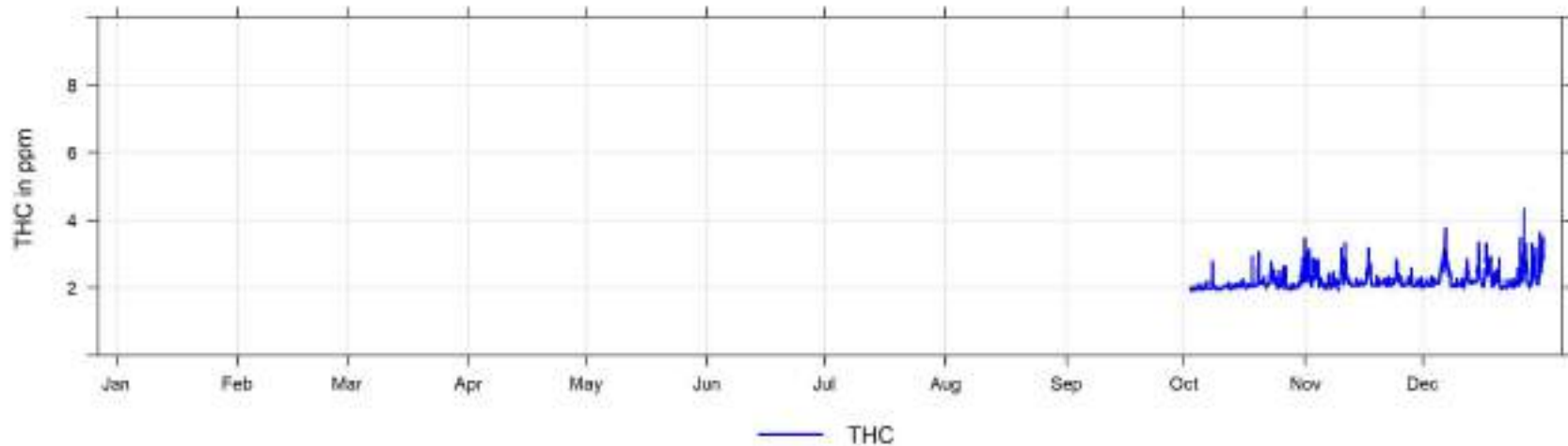
10.8 Total Hydrocarbons (THC) - Poplar 2021 (Oct-Dec) Summary

Total Hydrocarbons (THC) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	676	0.0%	35.1%	60.8%	4.1%	0.0%	0.0%	2.1	2.5	Oct 31	3.5	Oct 31 22:00	99.6%	95.2%
November 2021	686	0.0%	3.9%	85.9%	10.2%	0.0%	0.0%	2.2	2.5	Nov 10	3.3	Nov 11 05:00	100.0%	95.3%
December 2021	702	0.0%	6.1%	71.4%	22.5%	0.0%	0.0%	2.3	3.0	Dec 06	4.3	Dec 26 20:00	99.2%	94.4%
Annual	2064	0.0%	14.4%	73.0%	12.6%	0.0%	0.0%	-	3.0	Dec 06	4.3	Dec 26 20:00	24.8%	23.7%

AAAQO Objectives: none

2021 Hourly Concentration Readings of THC (in ppm) at Poplar



Hourly Maximum THC (in ppm) for 2021 at Poplar



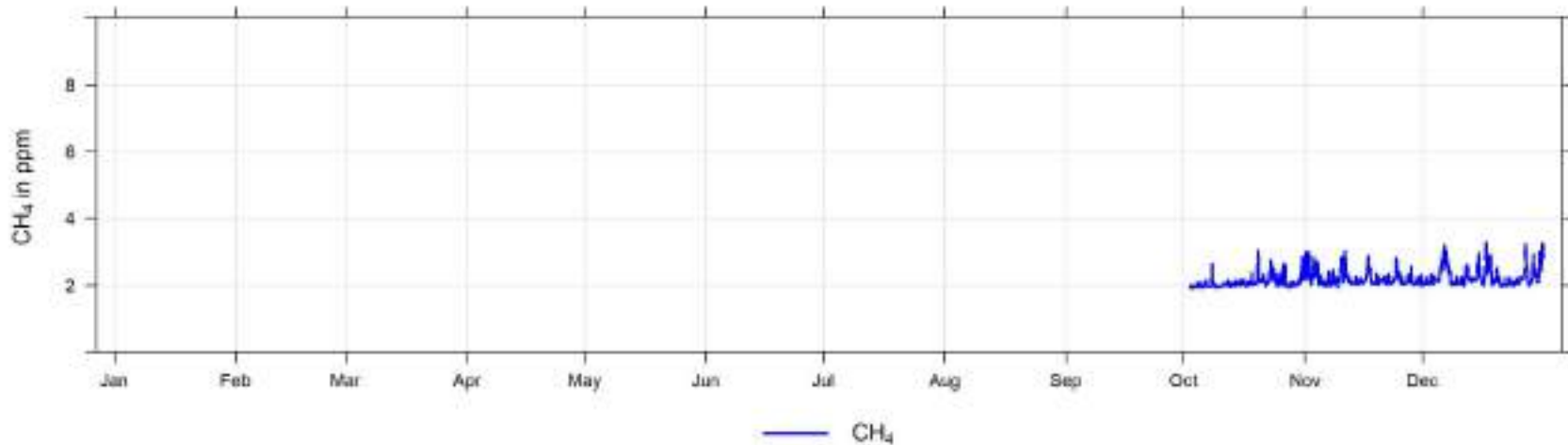
10.9 Methane (CH₄) - Poplar 2021 (Oct-Dec) Summary

Methane (CH₄) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	676	0.0%	39.1%	57.3%	3.7%	0.0%	0.0%	2.1	2.4	Oct 31	3.0	Oct 20 02:00	99.6%	95.2%
November 2021	686	0.0%	4.1%	86.6%	9.3%	0.0%	0.0%	2.2	2.5	Nov 10	3.0	Nov 11 05:00	100.0%	95.3%
December 2021	702	0.0%	7.6%	73.5%	19.0%	0.0%	0.0%	2.3	2.8	Dec 06	3.3	Dec 17 08:00	99.2%	94.4%
Annual	2064	0.0%	16.2%	72.8%	11.0%	0.0%	0.0%	-	2.8	Dec 06	3.3	Dec 17 08:00	24.8%	23.7%

AAAQO Objectives: none

2021 Hourly Concentration Readings of CH₄ (in ppm) at Poplar



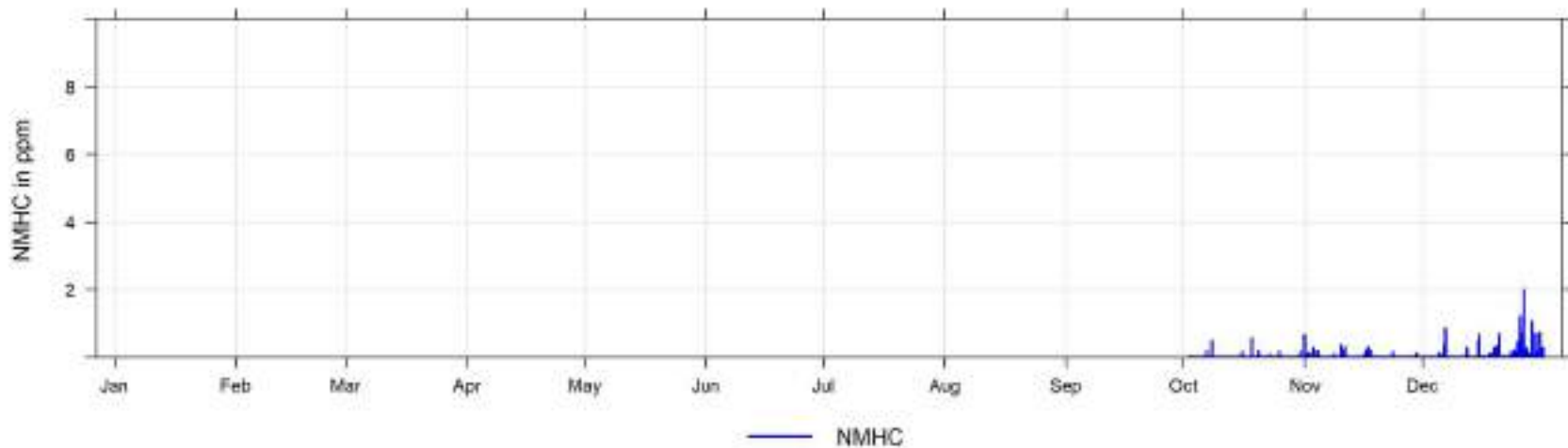
10.10 Nonmethane Hydrocarbons (NMHC) - Poplar 2021 (Oct-Dec) Summary

Nonmethane Hydrocarbons (NMHC) Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	676	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.0	Oct 31	0.7	Oct 31 22:00	99.6%	95.2%
November 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.01	0.0	Nov 17	0.3	Nov 10 02:00	100.0%	95.3%
December 2021	702	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.04	0.2	Dec 25	2.0	Dec 26 20:00	99.2%	94.4%
Annual	2064	100.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-	0.2	MAXIMUM VALUES Dec 25	2.0	Dec 26 20:00	24.8%	23.7%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NMHC (in ppm) at Poplar



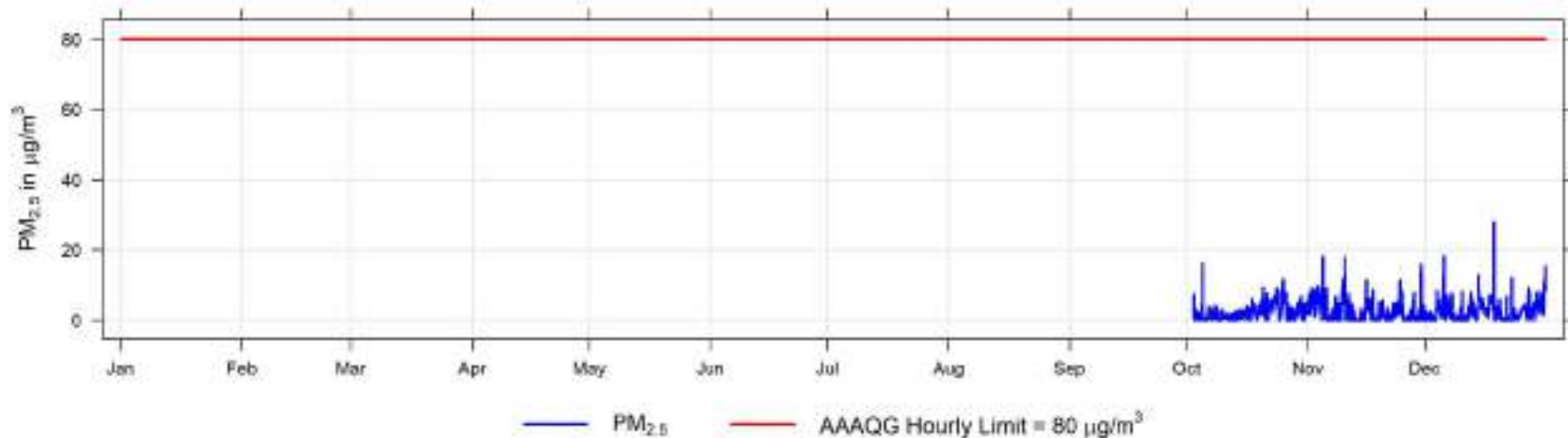
10.11 Particulate Matter (PM_{2.5}) - Poplar 2021 (Oct-Dec) Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Poplar

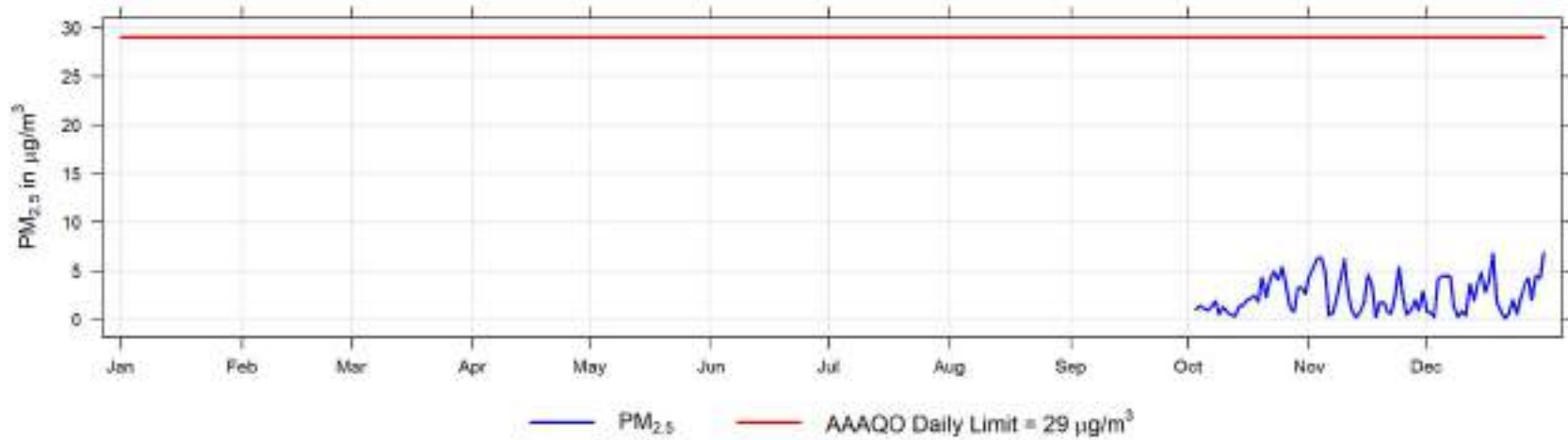
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)	Date			24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	701	89.2%	10.7%	0.1%	0.0%	0.0%	0.0%	2.1	5.4	Oct 25	16.1	Oct 05 02:00	99.6%	98.5%	0	0
November 2021	717	80.8%	18.8%	0.4%	0.0%	0.0%	0.0%	2.5	6.6	Nov 04	18.1	Nov 04 23:00	100.0%	99.6%	0	0
December 2021	739	82.5%	16.8%	0.7%	0.0%	0.0%	0.0%	2.7	7.5	Dec 31	27.9	Dec 18 18:00	99.7%	99.3%	0	0
Annual	2157	83.9%	15.7%	0.4%	0.0%	0.0%	0.0%	-	7.5	MAXIMUM VALUES		24.9%	24.7%	0	0	

AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

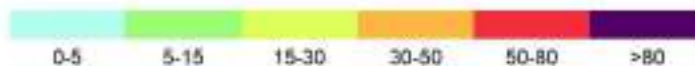
2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Poplar



2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Poplar



Hourly Maximum PM_{2.5} (in µg/m³) for 2021 at Poplar

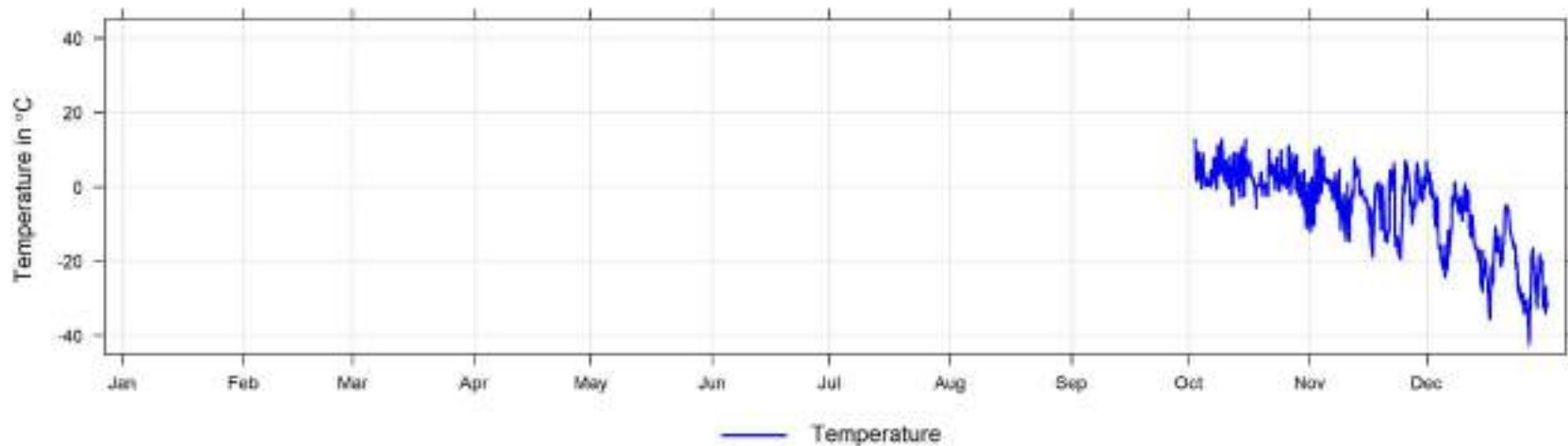


10.12 Temperature (ET) - Poplar 2021 (Oct-Dec) Summary

Temperature (ET) Frequency Distribution at Poplar

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	-	-	-	-	-	-	-	-	-	-		
February 2021	-	-	-	-	-	-	-	-	-	-		
March 2021	-	-	-	-	-	-	-	-	-	-		
April 2021	-	-	-	-	-	-	-	-	-	-		
May 2021	-	-	-	-	-	-	-	-	-	-		
June 2021	-	-	-	-	-	-	-	-	-	-		
July 2021	-	-	-	-	-	-	-	-	-	-		
August 2021	-	-	-	-	-	-	-	-	-	-		
September 2021	-	-	-	-	-	-	-	-	-	-		
October 2021	702	2.7	7.6	Oct 09	12.9	Oct 09 14:00	-5.6	Oct 31	-11.0	Oct 31 08:00	99.6%	98.7%
November 2021	720	-3.2	3.0	Nov 25	10.7	Nov 03 15:00	-15.4	Nov 23	-19.5	Nov 24 08:00	100.0%	100.0%
December 2021	744	-16.9	2.1	Dec 01	5.1	Dec 01 01:00	-33.9	Dec 27	-42.7	Dec 27 06:00	100.0%	100.0%
	2166	AVERAGE	7.6	MAXIMUM VALUES			MINIMUM VALUES			24.9%	24.8%	

2021 Hourly Temperature Readings (in °C) at Poplar

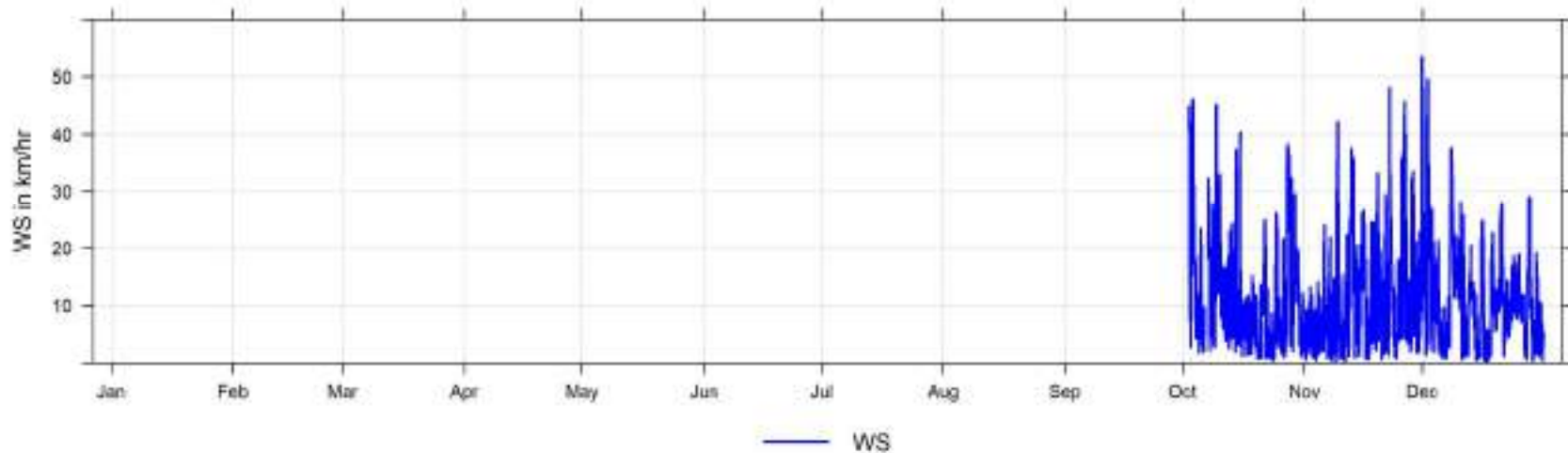


10.13 Wind Speed and Wind Direction (WS and WD) - Poplar 2021 (Oct-Dec) Summary

Wind Speed Frequency Distribution at Poplar

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date		
January 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
February 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
April 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
August 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
October 2021	664	0.3%	27.4%	28.8%	24.1%	11.9%	7.5%	12.0	26.7	Oct 03	46.1	Oct 03 12:00	94.2%	93.4%
November 2021	720	0.6%	30.3%	25.6%	23.9%	12.5%	7.2%	11.6	26.6	Nov 26	53.5	Nov 30 23:00	100.0%	100.0%
December 2021	744	1.2%	25.4%	29.6%	28.9%	10.6%	4.3%	11.3	27.8	Dec 02	49.5	Dec 02 08:00	100.0%	100.0%
Annual	2128	0.7%	27.7%	28.0%	25.7%	11.7%	6.3%	-	27.8	Dec 02	53.5	Nov 30 23:00	24.5%	24.4%

2021 Hourly Readings of Wind Speed (in km/hr) at Poplar

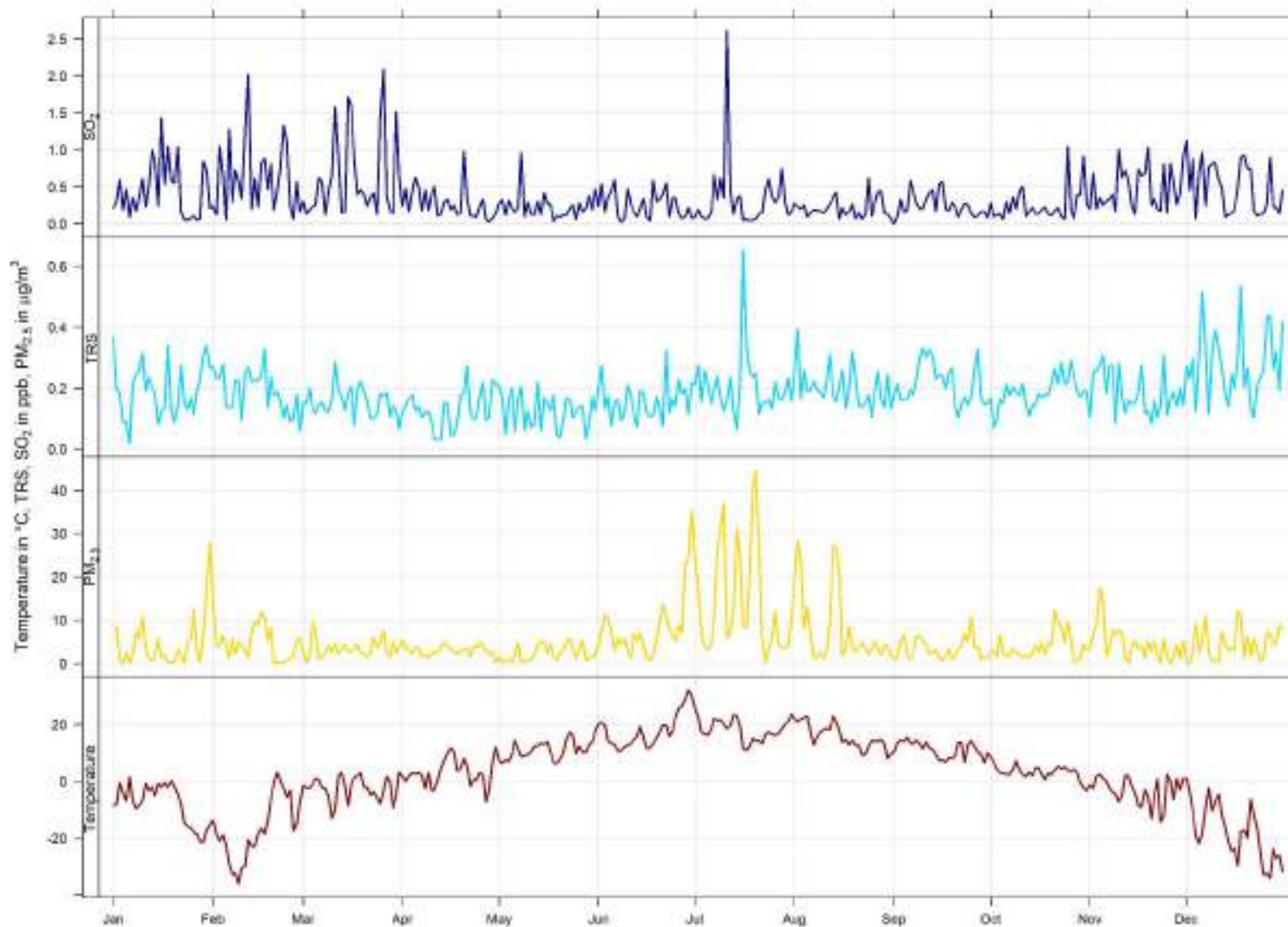


11 Smoky Heights Key Parameters - Continuous Monitoring Data - 2021 Summary

Smoky Heights Key Parameters - Continuous Monitoring Data - 2021 Summary

Smoky Heights Station	Parameter	Annual Average	Maximum Values			Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr			Date	1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.4	2.6	Jul 11	24.5	Jul 11 07:00	99.9%	95.2%	0	0	0	0
	Total Reduced Sulphur TRS measured in ppb	0.2	0.7	Jul 16	1.9	Dec 26 19:00	99.2%	94.3%	0	0	-	-
	Particulate Matter PM _{2.5} measured in µg/m ³	5.4	44.3	Jul 20	119.6	Jul 14 15:00	98.5%	98.1%	13	7	-	-

2021 Daily Concentration Readings at Smoky Heights



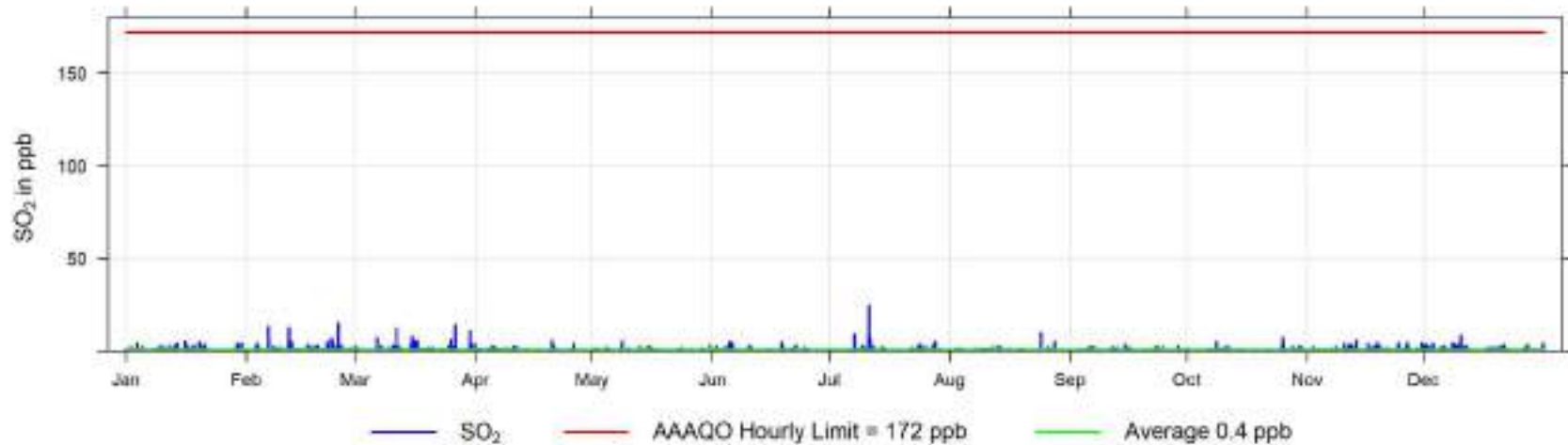
11.1 Sulphur Dioxide (SO₂) - Smoky Heights 2021 Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Smoky Heights

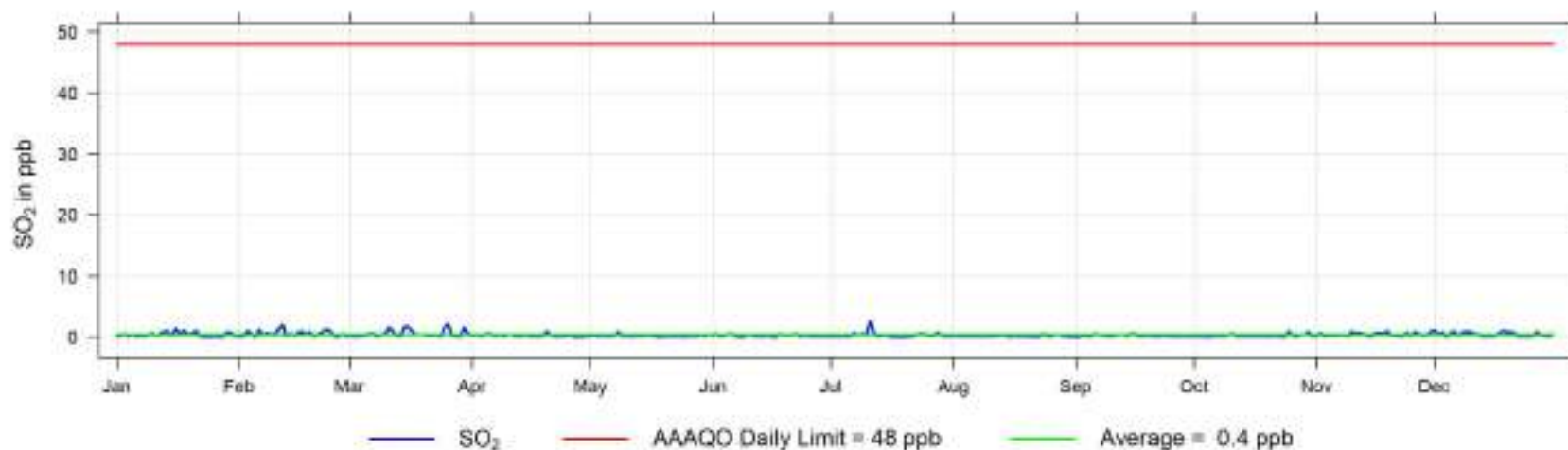
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	710	86.3%	13.7%	0.0%	0.0%	0.0%	0.0%	0.4	1.5	Jan 16	4.9	Jan 16 06:00	100.0%	95.4%	0	0	0
February 2021	640	83.0%	16.3%	0.3%	0.5%	0.0%	0.0%	0.6	1.9	Feb 12	15.1	Feb 24 16:00	100.0%	95.2%	0	0	0
March 2021	709	85.3%	12.8%	1.4%	0.4%	0.0%	0.0%	0.6	2.1	Mar 26	14.2	Mar 26 20:00	100.0%	95.3%	0	0	0
April 2021	685	95.6%	4.2%	0.2%	0.0%	0.0%	0.0%	0.3	1.0	Apr 20	5.4	Apr 20 18:00	100.0%	95.1%	0	0	0
May 2021	709	96.5%	3.4%	0.1%	0.0%	0.0%	0.0%	0.2	0.9	May 08	5.2	May 08 20:00	100.0%	95.3%	0	0	0
June 2021	686	96.1%	3.9%	0.0%	0.0%	0.0%	0.0%	0.3	0.6	Jun 06	4.6	Jun 18 19:00	100.0%	95.3%	0	0	0
July 2021	704	94.6%	4.6%	0.7%	0.1%	0.0%	0.0%	0.3	2.6	Jul 11	24.5	Jul 11 07:00	99.3%	94.6%	0	0	0
August 2021	709	97.0%	2.8%	0.1%	0.0%	0.0%	0.0%	0.2	0.6	Aug 24	9.8	Aug 24 14:00	100.0%	95.3%	0	0	0
September 2021	686	94.9%	5.1%	0.0%	0.0%	0.0%	0.0%	0.3	0.6	Sep 16	3.1	Sep 15 05:00	100.0%	95.3%	0	0	0
October 2021	707	95.6%	4.2%	0.1%	0.0%	0.0%	0.0%	0.3	1.0	Oct 25	6.9	Oct 25 18:00	99.6%	95.0%	0	0	0
November 2021	686	88.2%	11.7%	0.2%	0.0%	0.0%	0.0%	0.5	1.0	Nov 10	5.5	Nov 13 18:00	100.0%	95.3%	0	0	0
December 2021	709	86.5%	13.4%	0.1%	0.0%	0.0%	0.0%	0.5	1.2	Dec 01	8.3	Dec 10 15:00	100.0%	95.3%	0	0	0
Annual	8340	91.7%	8.0%	0.3%	0.1%	0.0%	0.0%	0.4	2.6	MAXIMUM VALUES		99.9%	95.2%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

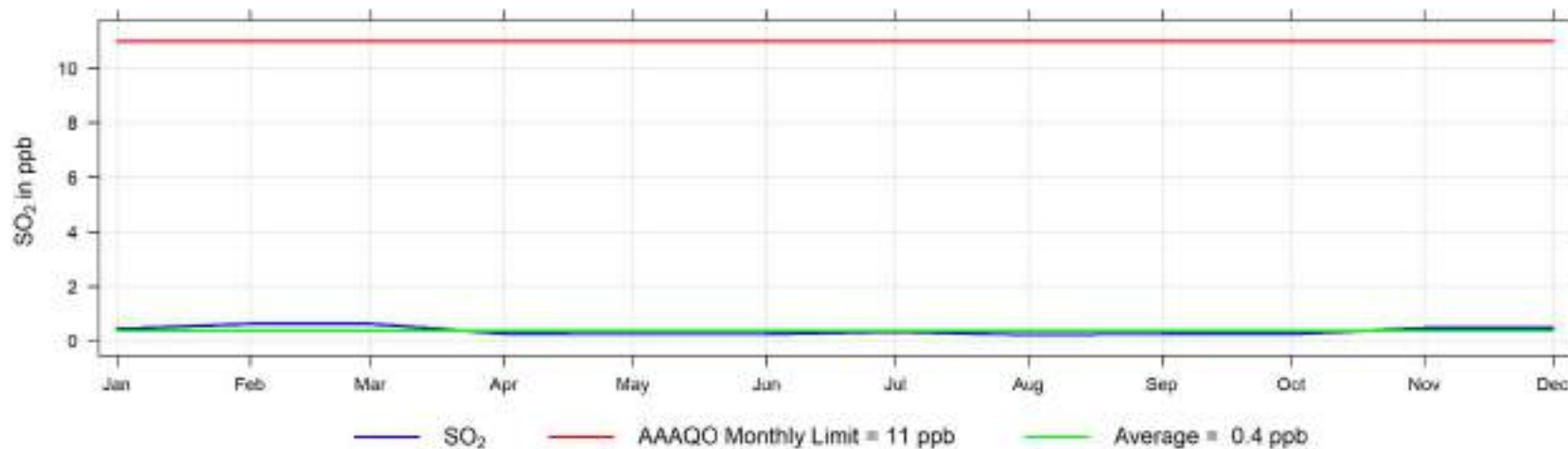
2021 Hourly Concentration Readings of SO₂ (in ppb) at Smoky Heights



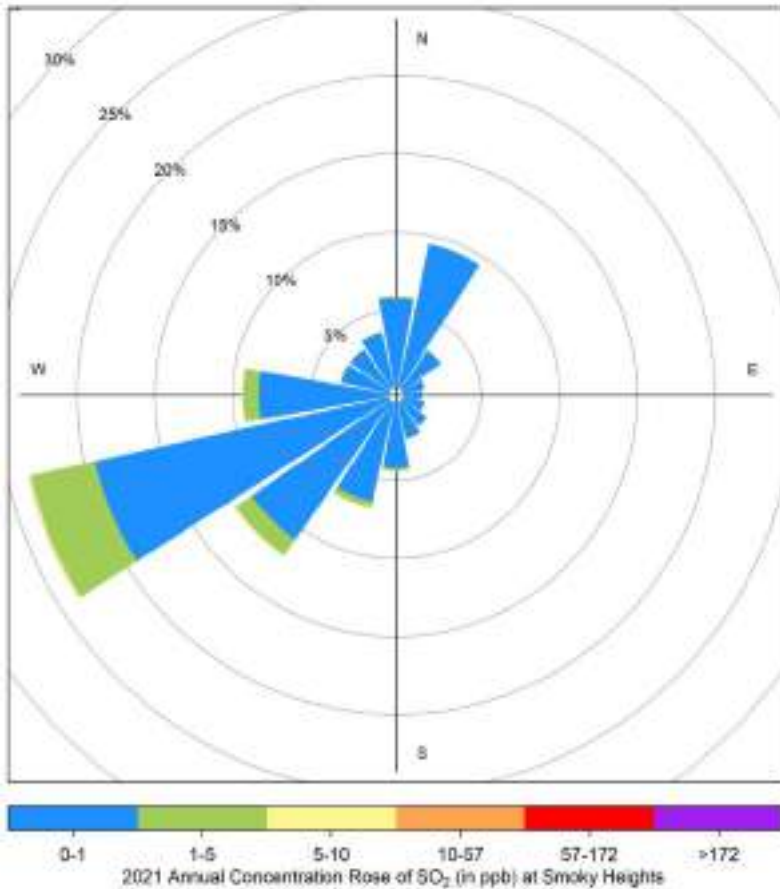
2021 Daily Concentration Readings of SO₂ (in ppb) at Smoky Heights



2021 Monthly Concentration Readings of SO₂ (in ppb) at Smoky Heights



Hourly Maximum SO₂ (in ppb) for 2021 at Smoky Heights



January-2021	February-2021	March-2021
27 28 29 30 31 1 2	31 1 2 3 4 5 6	25 1 2 3 4 5 6
3 4 5 6 7 8 9	7 8 9 10 11 12 13	7 8 9 10 11 12 13
10 11 12 13 14 15 16	14 15 16 17 18 19 20	14 15 16 17 18 19 20
17 18 19 20 21 22 23	21 22 23 24 25 26 27	21 22 23 24 25 26 27
24 25 26 27 28 29 30	28 1 2 3 4 5 6	28 29 30 31 1 2 3
31 1 2 3 4 5 6	7 8 9 10 11 12 13	3 4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
April-2021	May-2021	June-2021
30 31 1 2 3	25 26 27 28 29 30 1	30 31 1 2 3 4 5
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26
25 26 27 28 29 30 1	23 24 25 26 27 28 29	27 28 29 30 1 2 3
2 3 4 5 6 7 8	30 31 1 2 3 4 5	4 5 6 7 8 9 10
S M T W T F S	S M T W T F S	S M T W T F S
July-2021	August-2021	September-2021
27 28 29 30 1 2 3	25 26 27 28 29 30 31	28 29 30 1 2 3 4
4 5 6 7 8 9 10	1 2 3 4 5 6 7	5 6 7 8 9 10 11
11 12 13 14 15 16 17	8 9 10 11 12 13 14	12 13 14 15 16 17 18
18 19 20 21 22 23 24	15 16 17 18 19 20 21	19 20 21 22 23 24 25
25 26 27 28 29 30 31	22 23 24 25 26 27 28	26 27 28 29 30 1 2
1 2 3 4 5 6 7	29 30 31 1 2 3 4	3 4 5 6 7 8 9
S M T W T F S	S M T W T F S	S M T W T F S
October-2021	November-2021	December-2021
26 27 28 29 30 1 2	31 1 2 3 4 5 6	29 30 31 1 2 3 4
3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
24 25 26 27 28 29 30	28 29 30 1 2 3 4	26 27 28 29 30 31 1
31 1 2 3 4 5 6	5 6 7 8 9 10 11	2 3 4 5 6 7 8
S M T W T F S	S M T W T F S	S M T W T F S

Legend: 0-1, 1-5, 5-10, 10-57, 57-172, >172

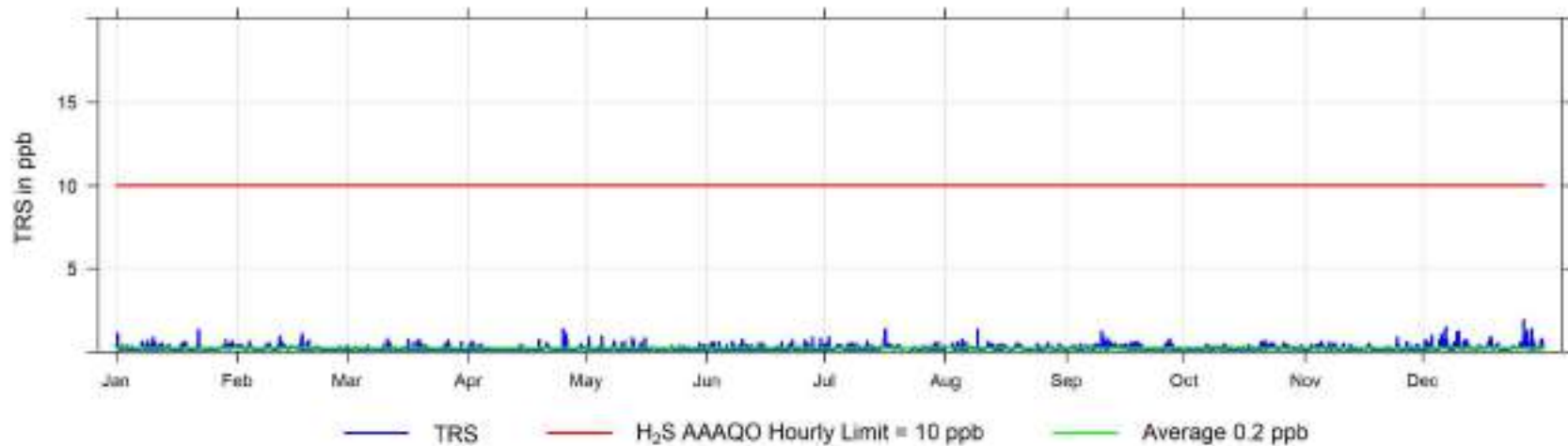
11.2 Total Reduced Sulphur (TRS) - Smoky Heights 2021 Summary

Total Reduced Sulphur (TRS) Frequency Distribution at Smoky Heights

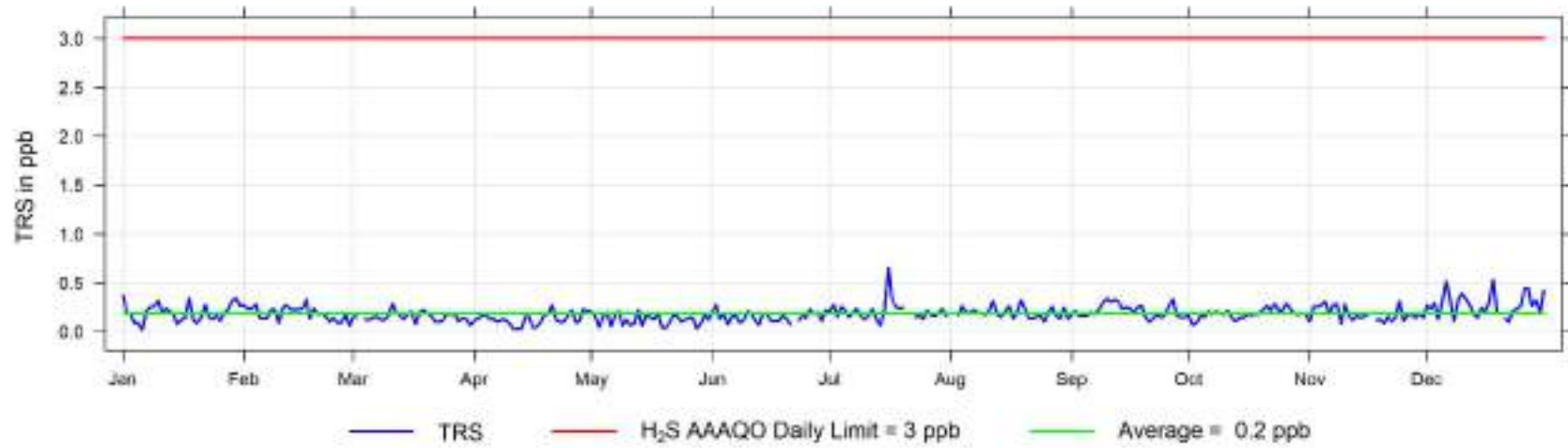
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)			Date	24-hr 3 ppb	1-hr 10 ppb
January 2021	709	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.2	0.4	Jan 01	1.3	Jan 22 01:00	100.0%	95.3%	0	0
February 2021	639	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Feb 17	1.1	Feb 17 11:00	100.0%	95.1%	0	0
March 2021	707	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Mar 11	0.7	Mar 11 06:00	100.0%	95.0%	0	0
April 2021	685	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Apr 21	1.4	Apr 25 06:00	100.0%	95.1%	0	0
May 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	May 01	0.9	May 05 05:00	100.0%	95.2%	0	0
June 2021	680	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Jun 02	0.8	Jun 28 04:00	100.0%	94.4%	0	0
July 2021	675	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.2	0.7	Jul 16	1.4	Jul 16 13:00	95.6%	90.7%	0	0
August 2021	672	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Aug 19	1.3	Aug 09 04:00	95.3%	90.3%	0	0
September 2021	686	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Sep 27	1.2	Sep 09 23:00	100.0%	95.3%	0	0
October 2021	706	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Oct 23	0.6	Oct 21 18:00	99.6%	94.9%	0	0
November 2021	683	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2	0.3	Nov 24	0.8	Nov 24 13:00	100.0%	94.9%	0	0
December 2021	707	98.6%	1.4%	0.0%	0.0%	0.0%	0.0%	0.3	0.5	Dec 18	1.9	Dec 26 19:00	100.0%	95.0%	0	0
Annual	8257	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.2	0.7	MAXIMUM VALUES			99.2%	94.3%	0	0

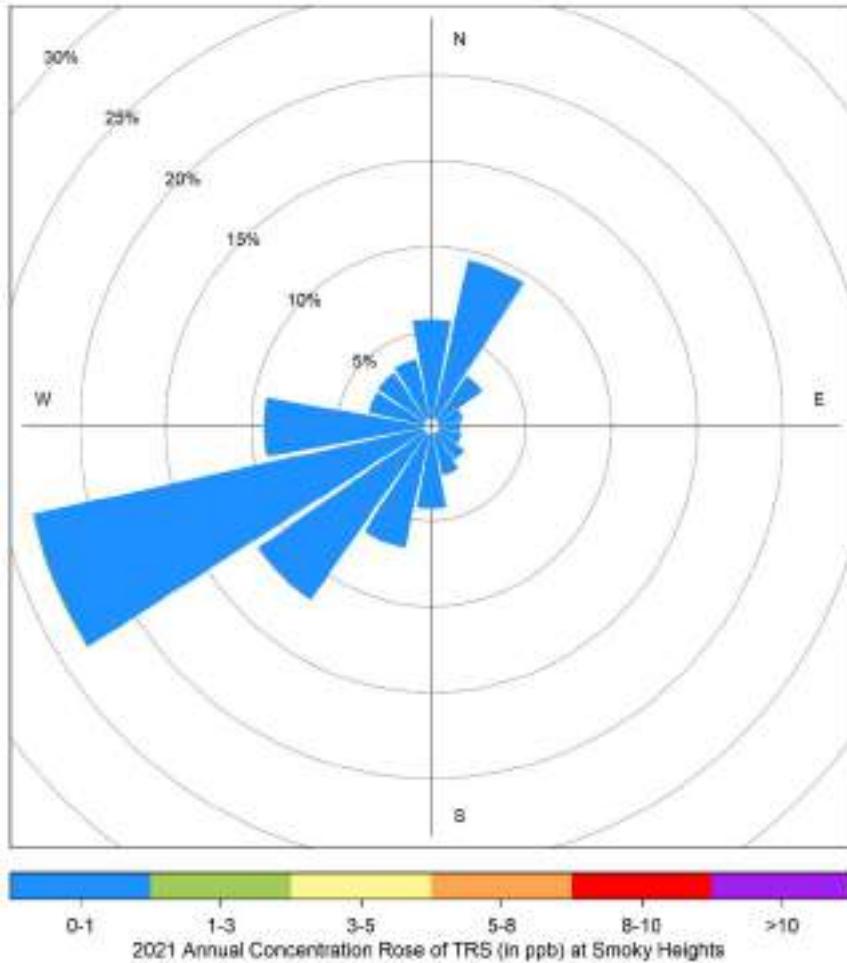
AAAQO H₂S Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of TRS (in ppb) at Smoky Heights

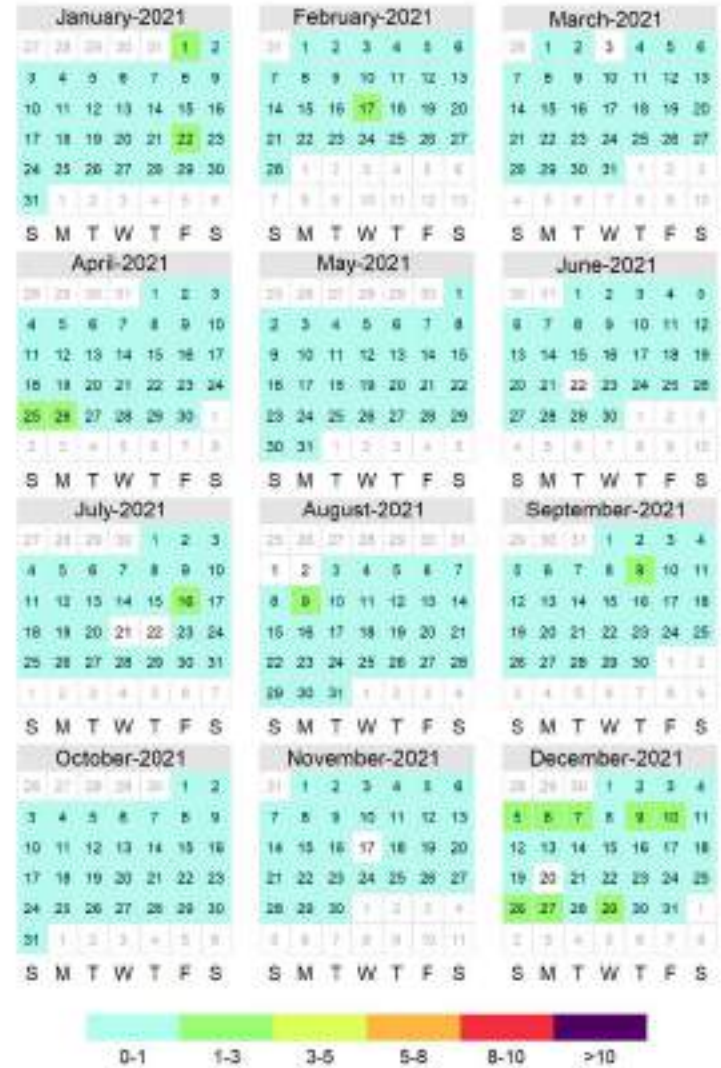


2021 Daily Concentration Readings of TRS (in ppb) at Smoky Heights





Hourly Maximum TRS (in ppb) for 2021 at Smoky Heights



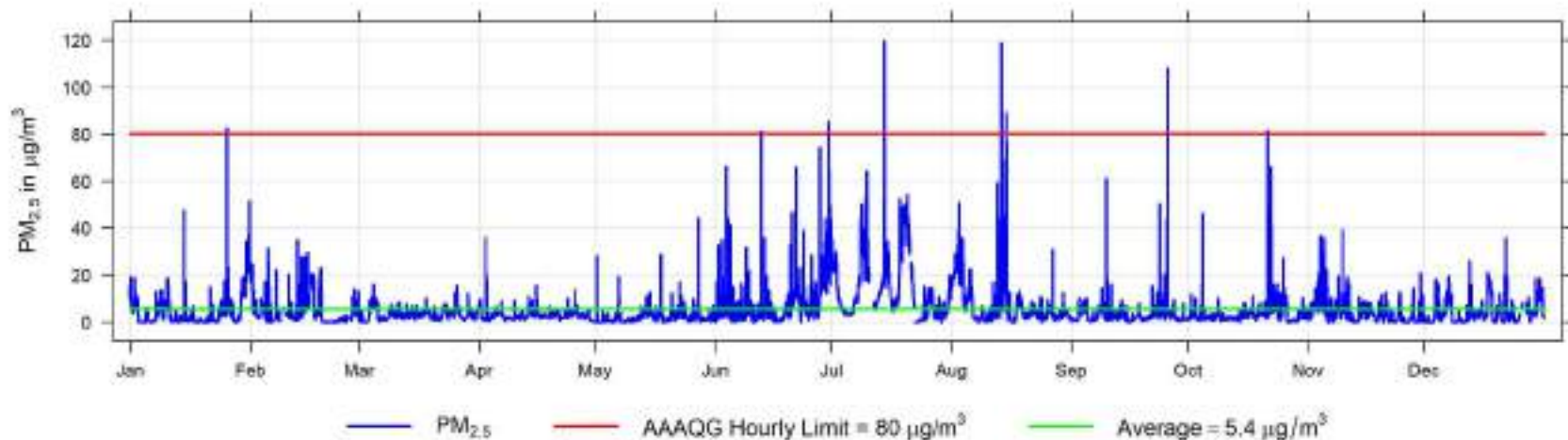
11.3 Particulate Matter (PM_{2.5}) - Smoky Heights 2021 Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Smoky Heights

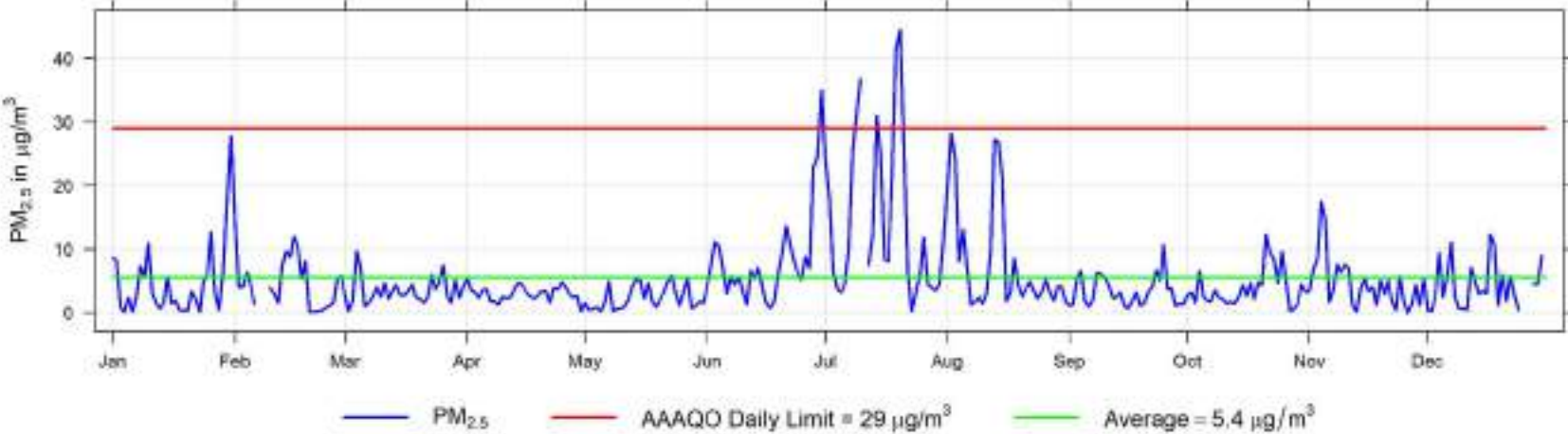
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)			Date	24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	741	70.7%	21.1%	6.1%	1.9%	0.1%	2.3%	4.7	27.8	Jan 31	82.5	Jan 26 00:00	100.0%	99.6%	0	1
February 2021	618	68.8%	22.8%	8.1%	0.3%	0.0%	0.5%	4.7	13.8	Feb 01	34.7	Feb 13 02:00	92.7%	92.0%	0	0
March 2021	741	80.7%	19.0%	0.3%	0.0%	0.0%	0.0%	3.4	9.7	Mar 04	15.9	Mar 04 19:00	100.0%	99.6%	0	0
April 2021	715	89.1%	10.1%	0.7%	0.1%	0.0%	0.1%	2.9	5.0	Apr 01	36.0	Apr 02 20:00	99.9%	99.3%	0	0
May 2021	742	88.1%	11.1%	0.7%	0.1%	0.0%	0.1%	2.3	5.7	May 23	44.1	May 27 16:00	100.0%	99.7%	0	0
June 2021	716	52.5%	33.4%	8.9%	4.1%	0.8%	5.2%	8.2	35.3	Jun 30	85.3	Jun 30 07:00	100.0%	99.4%	1	2
July 2021	716	29.2%	37.7%	19.3%	11.2%	2.2%	15.6%	14.4	44.3	Jul 20	119.6	Jul 14 15:00	96.4%	96.2%	5	3
August 2021	743	59.9%	23.8%	12.0%	2.6%	1.1%	4.3%	8.1	29.9	Aug 13	118.9	Aug 13 22:00	100.0%	99.9%	1	5
September 2021	716	84.4%	14.0%	1.1%	0.1%	0.3%	0.7%	3.3	10.9	Sep 25	107.9	Sep 25 21:00	100.0%	99.4%	0	1
October 2021	737	79.5%	18.9%	0.7%	0.7%	0.1%	1.0%	3.7	12.0	Oct 21	81.4	Oct 21 17:00	99.6%	99.1%	0	1
November 2021	717	65.3%	30.3%	3.9%	0.6%	0.0%	1.0%	4.6	17.1	Nov 04	39.1	Nov 09 23:00	100.0%	99.6%	0	0
December 2021	691	69.3%	25.6%	4.9%	0.1%	0.0%	0.1%	4.3	12.8	Dec 17	35.7	Dec 22 01:00	93.3%	92.9%	0	0
Annual	8593	69.9%	22.3%	5.5%	1.8%	0.4%	2.6%	5.4	MAXIMUM VALUES			98.5%	98.1%	7	13	

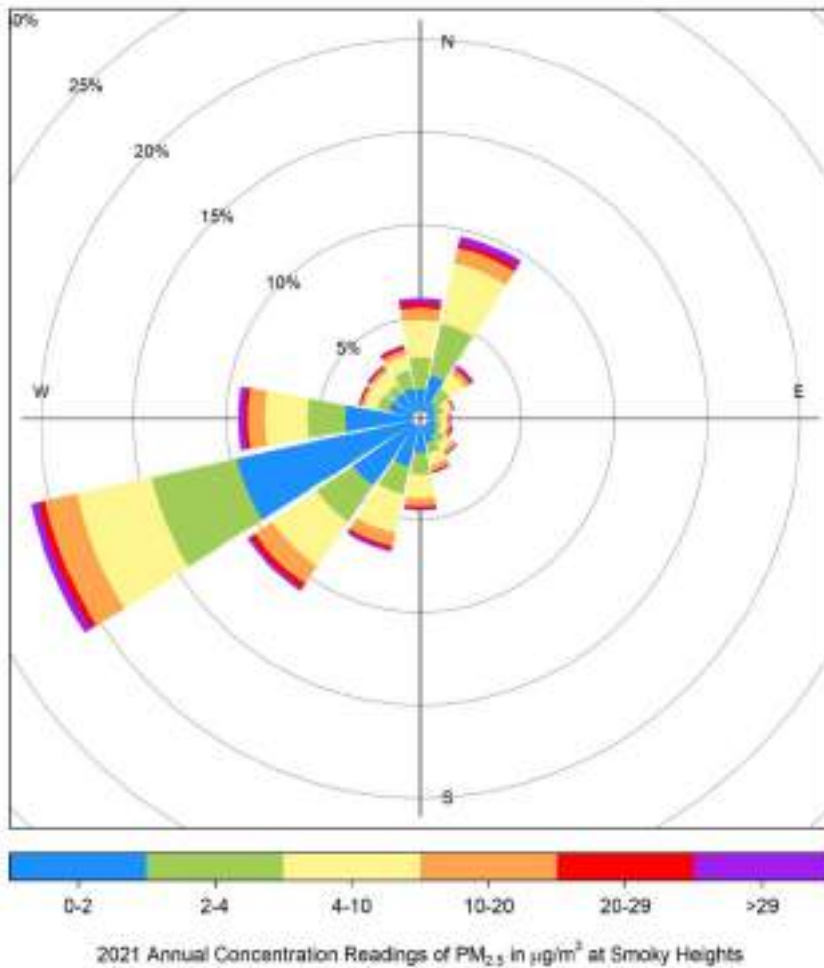
AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQG Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Smoky Heights

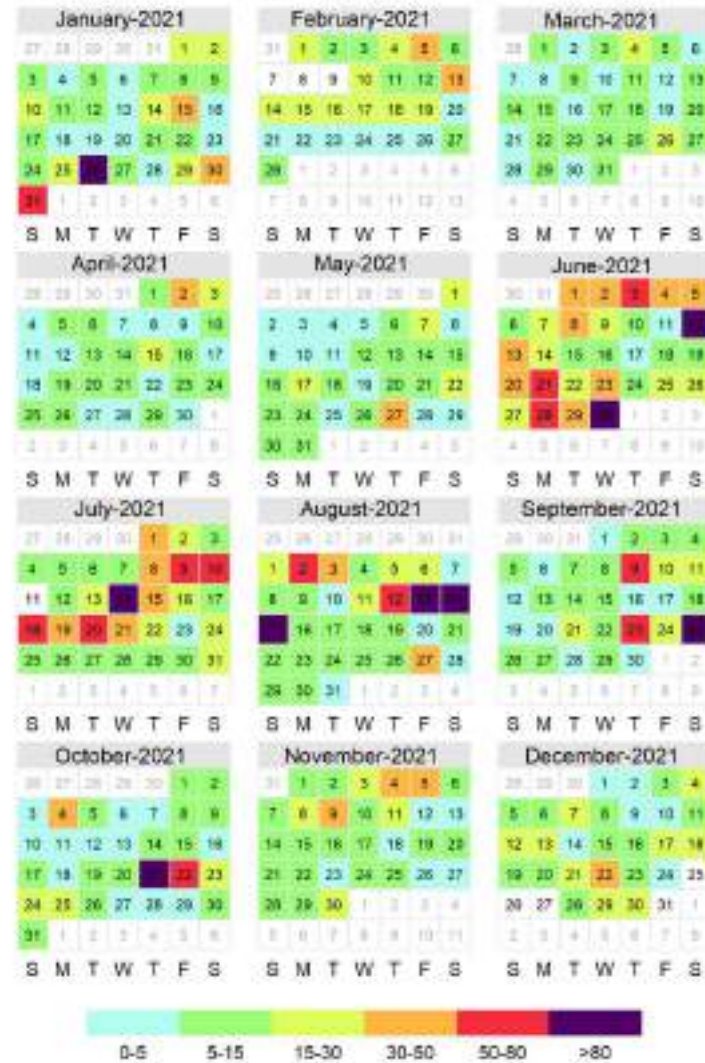


2021 Daily Concentration Readings of PM_{2.5} in µg/m³ at Smoky Heights





Hourly Maximum PM_{2.5} (in µg/m³) for 2021 at Smoky Heights

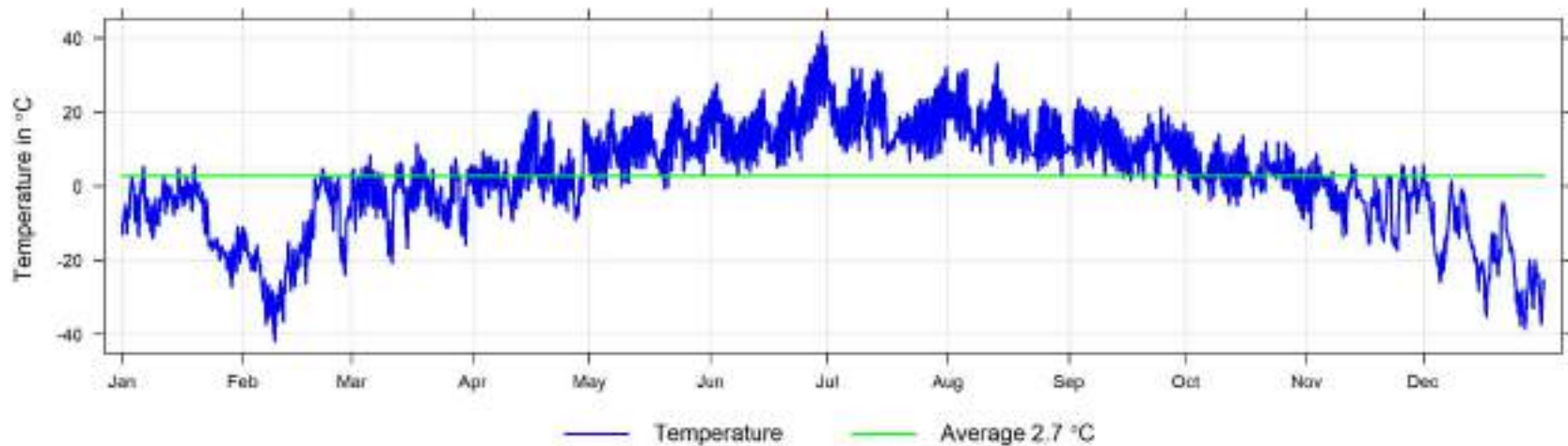


11.4 Temperature (ET) - Smoky Heights 2021 Summary

Temperature (ET) Frequency Distribution at Smoky Heights

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	744	-8.0	1.1	Jan 06	5.6	Jan 19 14:00	-21.3	Jan 28	-27.2	Jan 29 04:00	100.0%	100.0%
February 2021	672	-16.9	3.1	Feb 21	4.7	Feb 21 13:00	-35.8	Feb 09	-41.9	Feb 09 08:00	100.0%	100.0%
March 2021	744	-2.5	3.1	Mar 31	11.5	Mar 17 18:00	-13.2	Mar 10	-20.8	Mar 11 07:00	100.0%	100.0%
April 2021	720	2.9	11.9	Apr 30	20.2	Apr 16 16:00	-7.3	Apr 27	-9.3	Apr 11 05:00	100.0%	100.0%
May 2021	744	11.0	17.4	May 31	24.0	May 23 18:00	6.2	May 19	-1.1	May 03 05:00	100.0%	100.0%
June 2021	720	17.8	32.1	Jun 29	41.7	Jun 29 17:00	10.4	Jun 07	2.9	Jun 08 03:00	100.0%	100.0%
July 2021	739	18.2	25.4	Jul 01	32.1	Jul 31 17:00	10.9	Jul 17	6.6	Jul 22 06:00	99.3%	99.3%
August 2021	744	15.8	23.2	Aug 13	33.1	Aug 13 16:00	8.2	Aug 30	2.7	Aug 30 03:00	100.0%	100.0%
September 2021	720	11.2	15.4	Sep 05	23.7	Sep 03 17:00	6.6	Sep 29	-1.1	Sep 29 06:00	100.0%	100.0%
October 2021	741	3.2	8.4	Oct 01	14.5	Oct 01 15:00	-3.1	Oct 31	-8.9	Oct 31 09:00	99.6%	99.6%
November 2021	720	-3.3	2.6	Nov 25	8.6	Nov 03 15:00	-14.6	Nov 23	-17.4	Nov 24 09:00	100.0%	100.0%
December 2021	744	-18.0	0.5	Dec 01	5.1	Dec 01 01:00	-33.8	Dec 27	-38.6	Dec 27 05:00	100.0%	100.0%
8752		AVERAGE 2.7	32.1	MAXIMUM VALUES Jun 29 41.7		Jun 29 17:00	MINIMUM VALUES -35.8 Feb 09 -41.9 Feb 09 08:00			99.9%	99.9%	

2021 Hourly Temperature Readings (in °C) at Smoky Heights

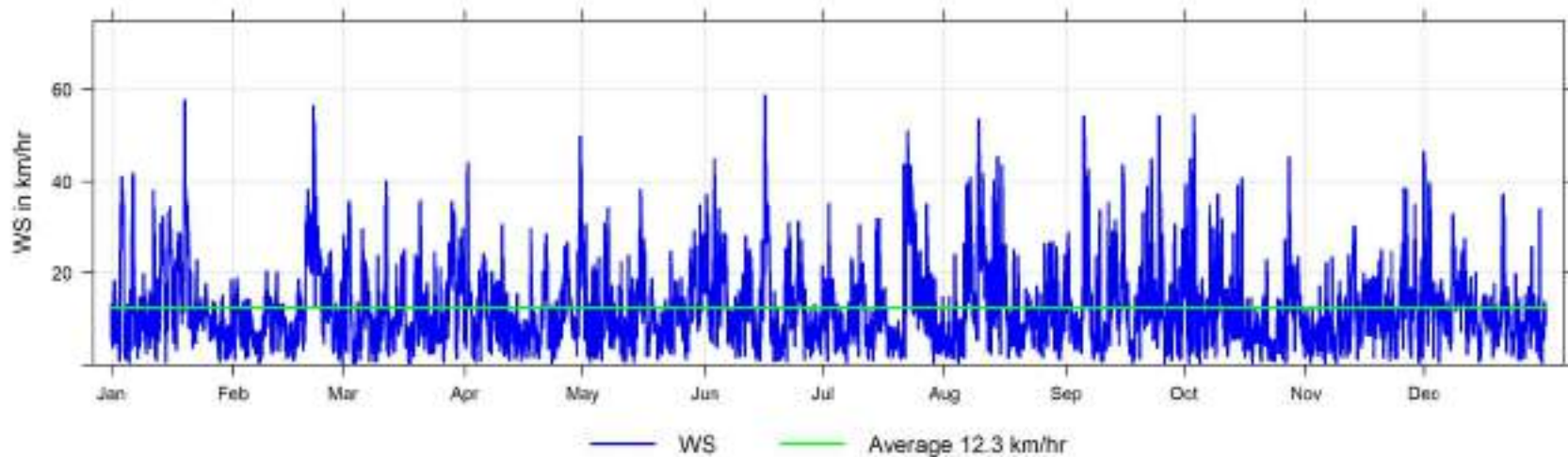


11.5 Wind Speed and Wind Direction (WS and WD) - Smoky Heights 2021 Summary

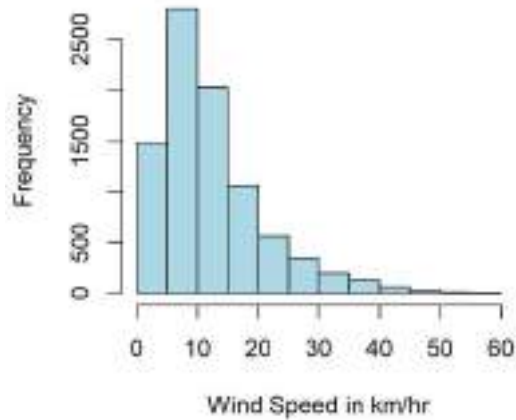
Wind Speed Frequency Distribution at Smoky Heights

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date			
January 2021	743	0.1%	12.0%	38.4%	27.7%	10.6%	11.2%	13.6	31.6	Jan 03	57.7	Jan 19 19:00	99.9%	99.9%	
February 2021	672	0.3%	18.3%	40.8%	23.8%	10.9%	6.0%	11.8	33.9	Feb 21	56.5	Feb 21 13:00	100.0%	100.0%	
March 2021	744	0.5%	16.5%	38.2%	26.6%	13.3%	4.8%	12.1	25.5	Mar 02	40.0	Mar 11 22:00	100.0%	100.0%	
April 2021	719	0.1%	18.1%	42.4%	25.9%	10.0%	3.5%	11.3	33.0	Apr 30	49.8	Apr 30 10:00	99.9%	99.9%	
May 2021	744	0.0%	15.6%	39.9%	30.5%	10.9%	3.1%	11.6	22.7	May 15	38.2	May 15 16:00	100.0%	100.0%	
June 2021	720	0.0%	16.9%	34.9%	25.4%	14.9%	7.9%	13.1	34.9	Jun 16	58.7	Jun 16 11:00	100.0%	100.0%	
July 2021	739	0.3%	18.9%	38.7%	27.5%	7.4%	7.2%	11.8	31.2	Jul 23	51.0	Jul 22 16:00	99.3%	99.3%	
August 2021	743	0.1%	16.8%	34.9%	25.7%	13.2%	9.3%	13.3	28.1	Aug 10	53.4	Aug 09 15:00	99.9%	99.9%	
September 2021	720	0.4%	18.2%	32.1%	27.6%	10.7%	11.0%	13.7	27.4	Sep 05	54.2	Sep 24 13:00	100.0%	100.0%	
October 2021	741	0.7%	20.0%	36.4%	25.9%	9.0%	8.0%	12.1	24.0	Oct 03	54.4	Oct 03 11:00	99.6%	99.6%	
November 2021	720	0.4%	17.9%	36.8%	32.4%	9.9%	2.6%	11.3	24.4	Nov 26	46.6	Nov 30 23:00	100.0%	100.0%	
December 2021	744	0.1%	12.1%	41.8%	34.4%	7.4%	4.2%	11.8	24.5	Dec 02	44.1	Dec 01 04:00	100.0%	100.0%	
Annual	8749	0.3%	16.8%	37.9%	27.8%	10.7%	6.6%	12.3	34.9	MAXIMUM VALUES		58.7	Jun 16 11:00	99.9%	99.9%

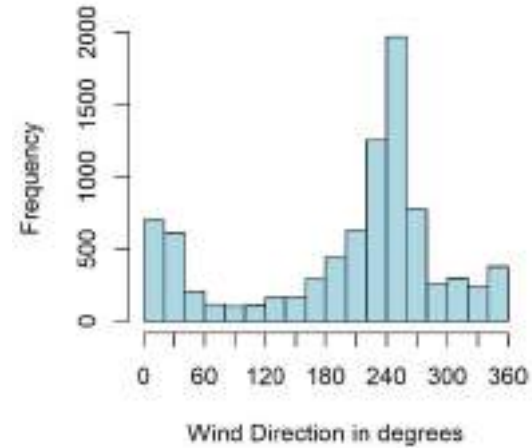
2021 Hourly Readings of Wind Speed (in km/hr) at Smoky Heights



2021 Wind Speed Histogram

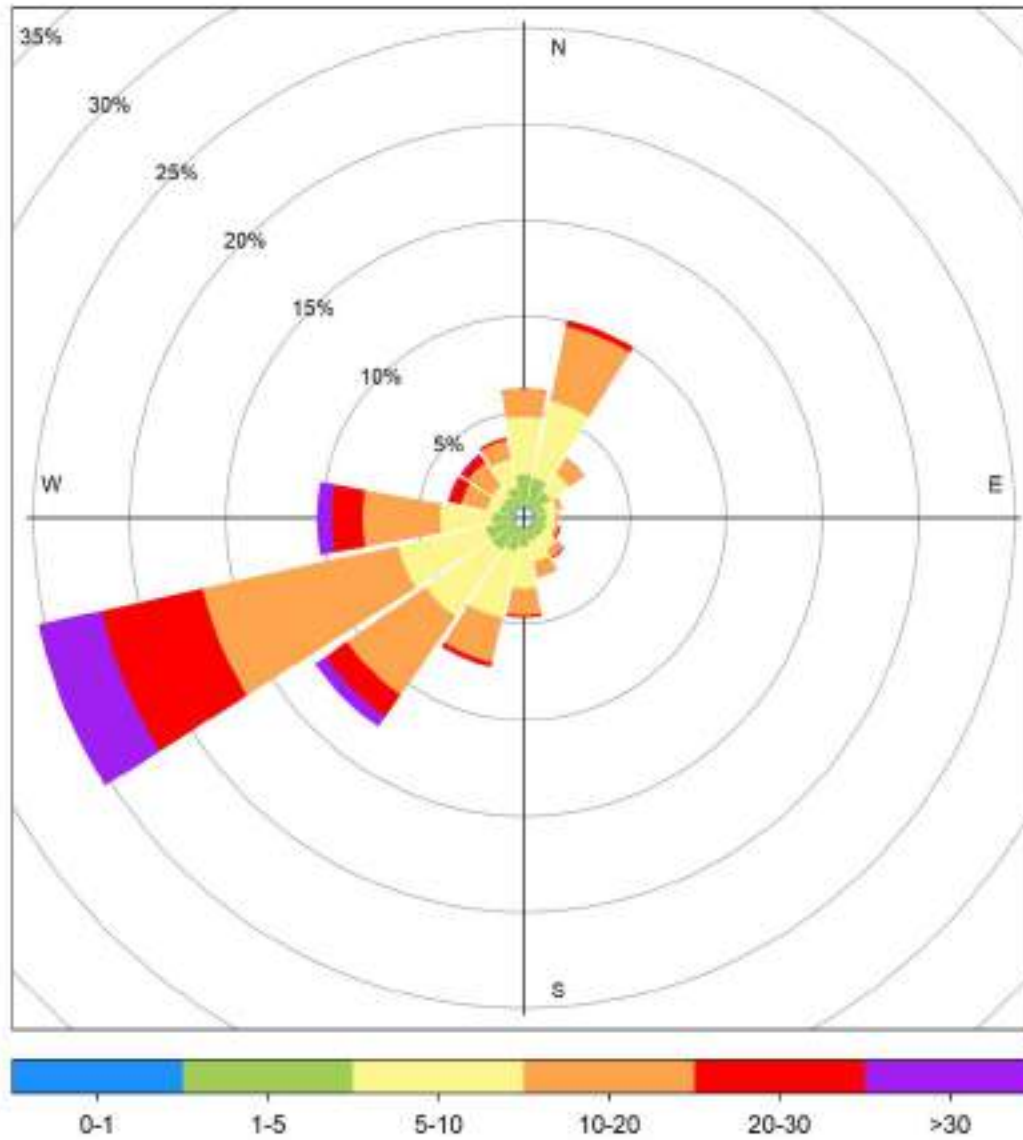


2021 Wind Direction Histogram



Wind Speed and Wind Direction Frequency Distribution at Smoky Heights

Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	547	0.0%	1.7%	3.3%	1.1%	0.0%	0.0%	6.3%
NNE	879	0.0%	1.6%	4.9%	3.1%	0.4%	0.0%	10.0%
NE	291	0.0%	1.2%	1.4%	0.7%	0.0%	0.0%	3.3%
ENE	135	0.0%	0.6%	0.7%	0.2%	0.0%	0.0%	1.5%
E	113	0.0%	0.6%	0.5%	0.1%	0.0%	0.0%	1.3%
ESE	129	0.0%	0.7%	0.5%	0.1%	0.1%	0.0%	1.5%
SE	183	0.0%	0.6%	0.9%	0.4%	0.1%	0.0%	2.1%
SSE	234	0.0%	0.7%	1.4%	0.6%	0.0%	0.0%	2.7%
S	411	0.0%	0.9%	2.6%	0.9%	0.2%	0.0%	4.7%
SSW	650	0.0%	1.2%	4.1%	1.7%	0.3%	0.1%	7.4%
SW	1116	0.0%	1.5%	5.1%	3.9%	1.4%	0.8%	12.8%
WSW	2216	0.0%	1.5%	5.8%	8.4%	5.4%	4.2%	25.3%
W	897	0.0%	1.1%	3.1%	3.4%	1.3%	1.2%	10.3%
WNW	308	0.0%	0.8%	0.8%	1.1%	0.7%	0.1%	3.5%
NW	308	0.0%	0.8%	0.9%	1.2%	0.5%	0.1%	3.5%
NNW	332	0.0%	1.1%	1.7%	0.8%	0.2%	0.0%	3.8%
Total	8749	0.3%	16.8%	37.9%	27.8%	10.7%	6.6%	100.0%

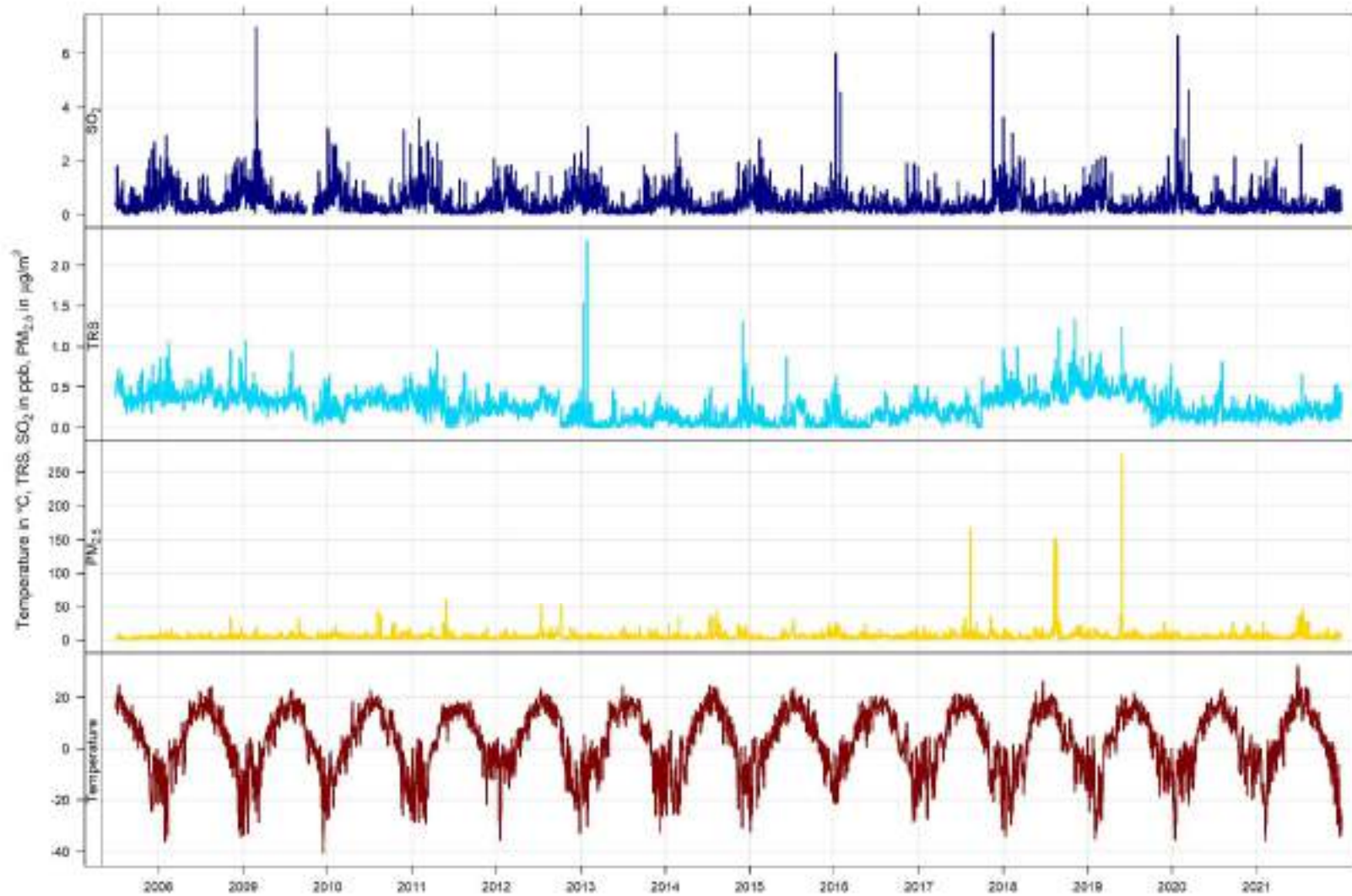


Smoky Heights 2021 Wind Rose, wind speed in km/hr

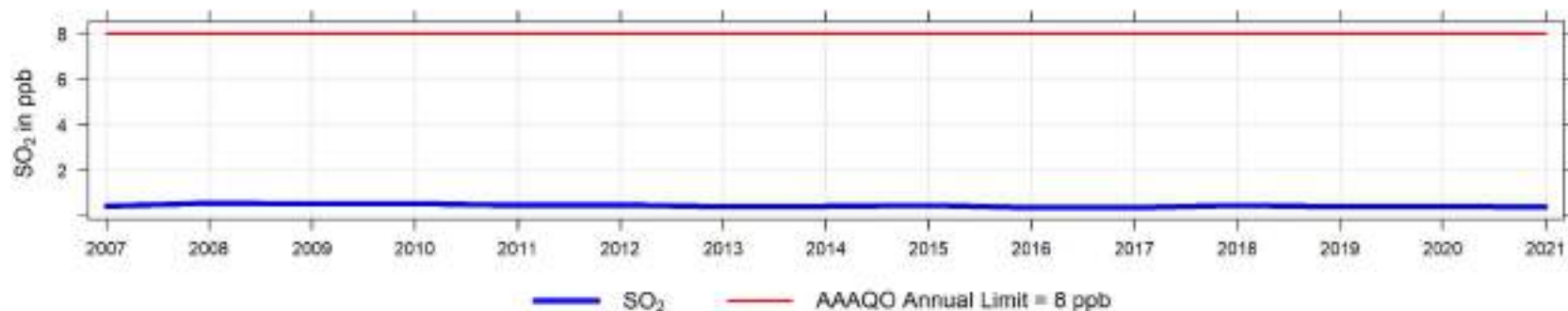
11.6 Smoky Heights Annual Trends, 2007 to 2021

The following pages include historical annual charts collected between 2007 and 2021 at the Smoky Heights Station.

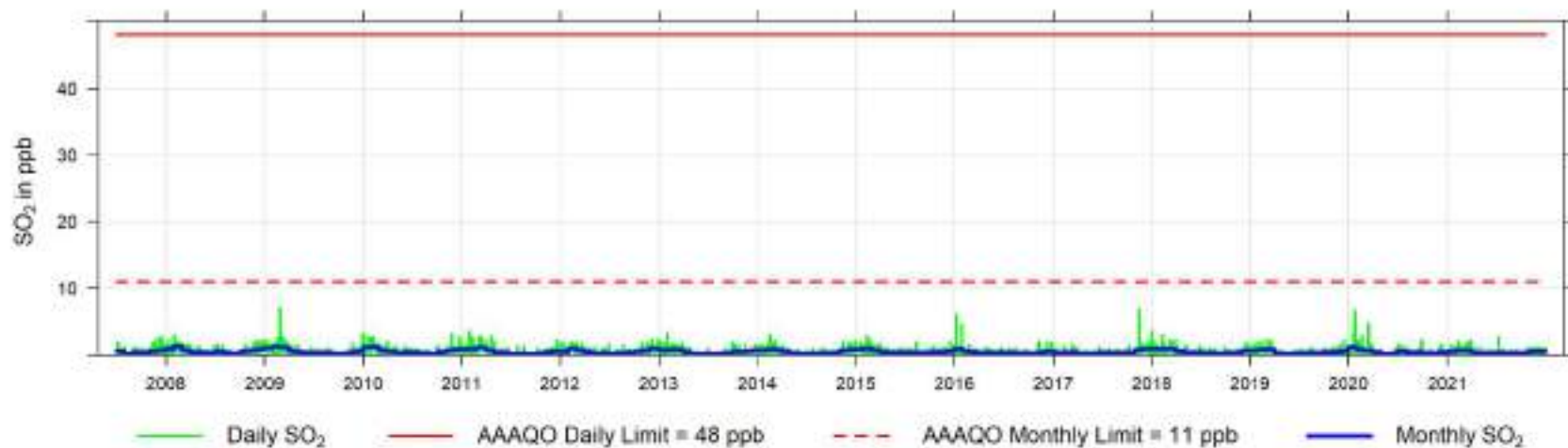
2007 to 2021 Daily Concentration Readings at Smoky Heights



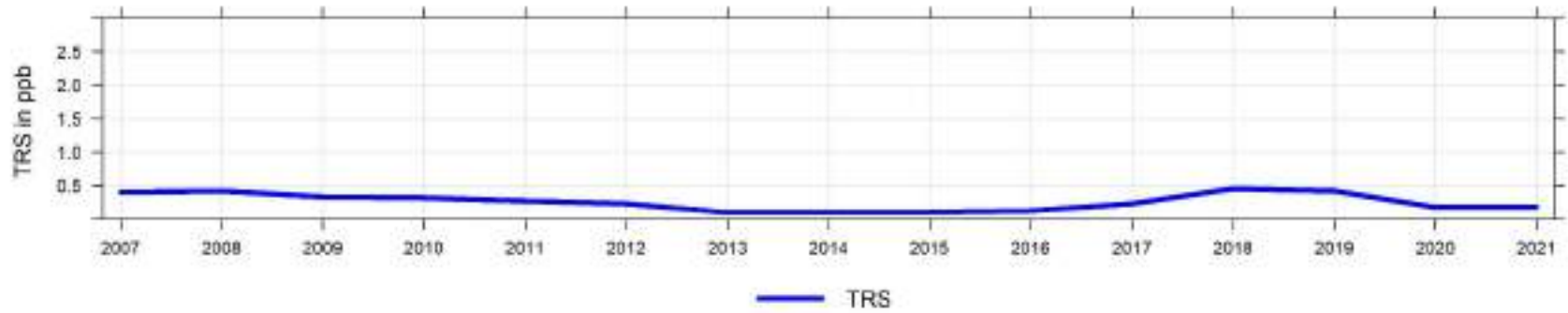
Years 2007 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Smoky Heights



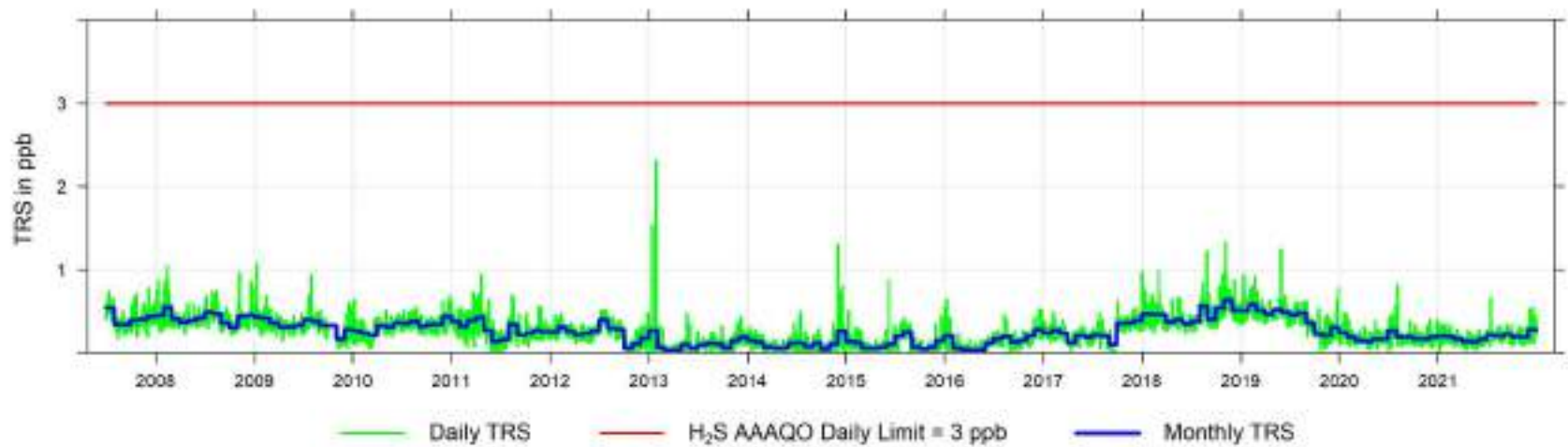
Years 2007 to 2021 Concentration Readings of SO₂ (in ppb) at Smoky Heights



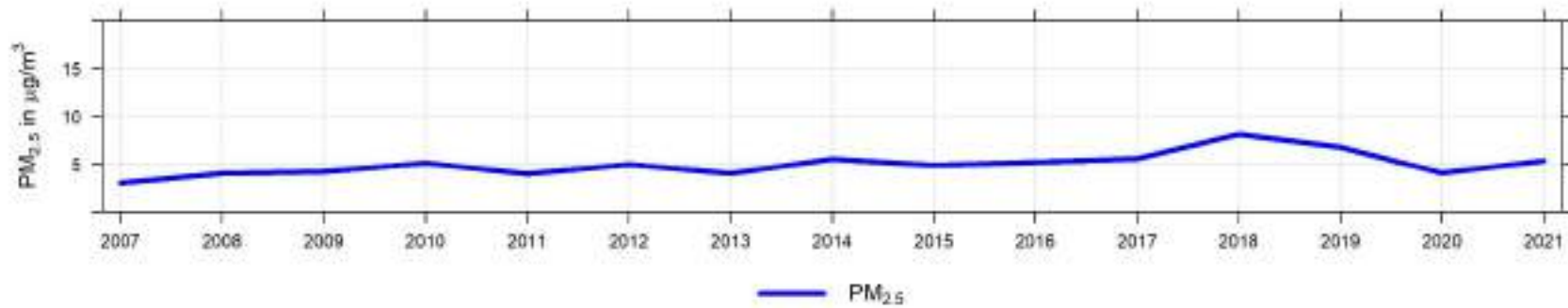
Years 2007 to 2021 Annual Concentration Readings of TRS (in ppb) at Smoky Heights



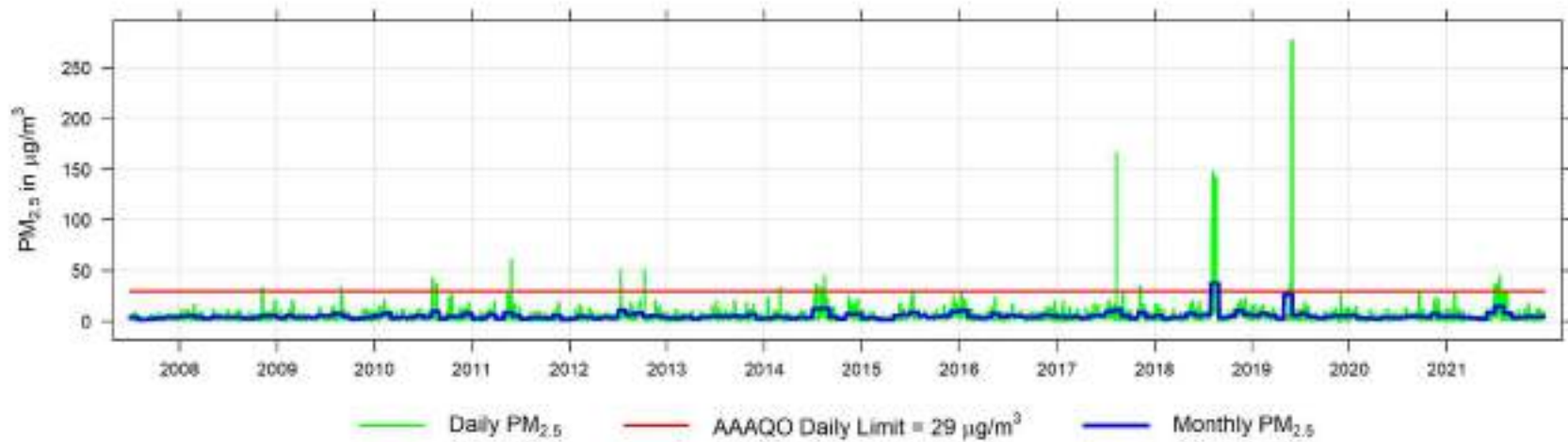
Years 2007 to 2021 Concentration Readings of TRS (in ppb) at Smoky Heights



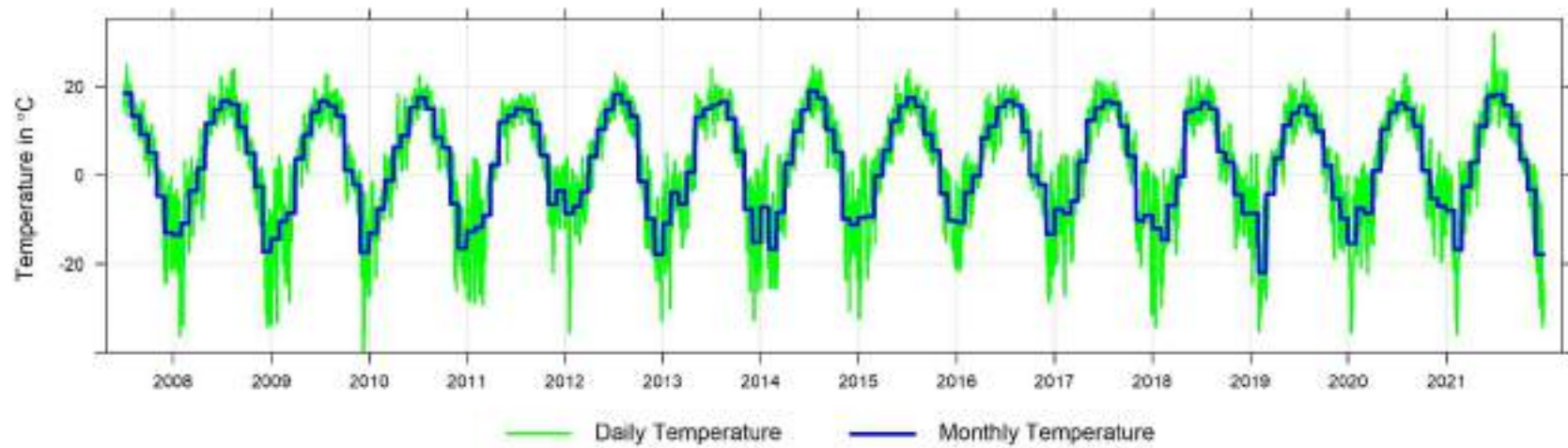
2007 to 2021 Annual Concentration Readings of PM_{2.5} in µg/m³ at Smoky Heights



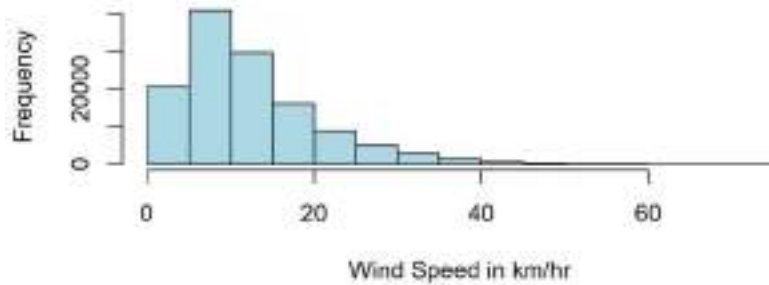
Years 2007 to 2021 Concentration Readings of PM_{2.5} in µg/m³ at Smoky Heights



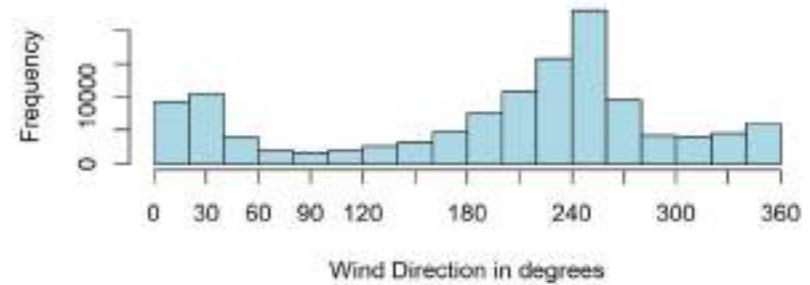
Years 2007 to 2021 Temperature Readings (in °C) at Smoky Heights



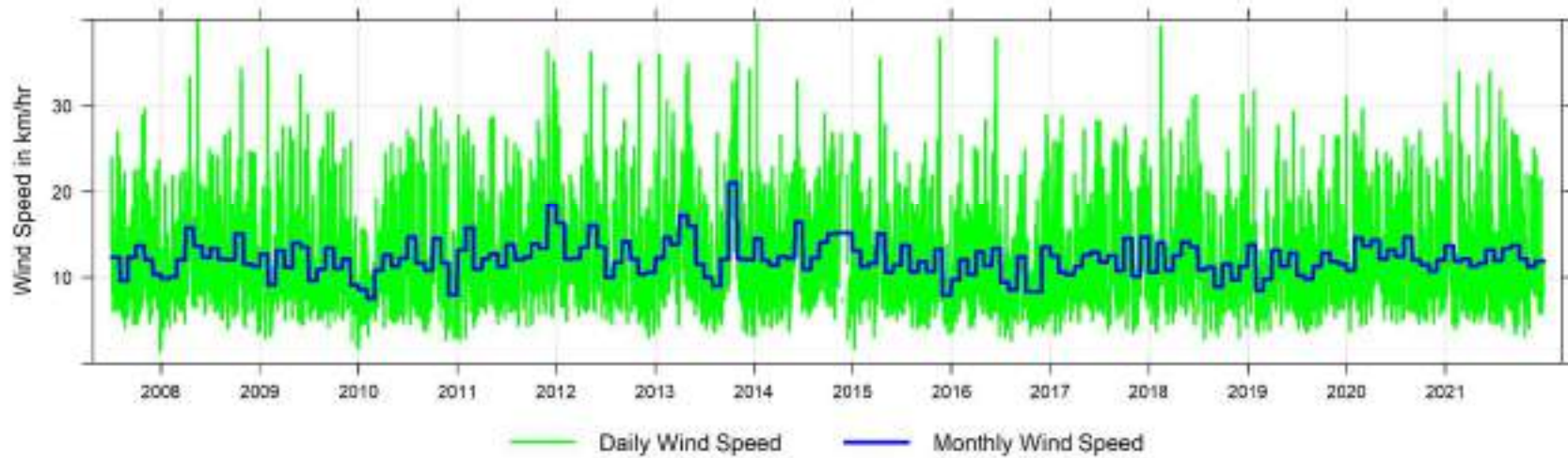
Years 2007 to 2021 Wind Speed Histogram

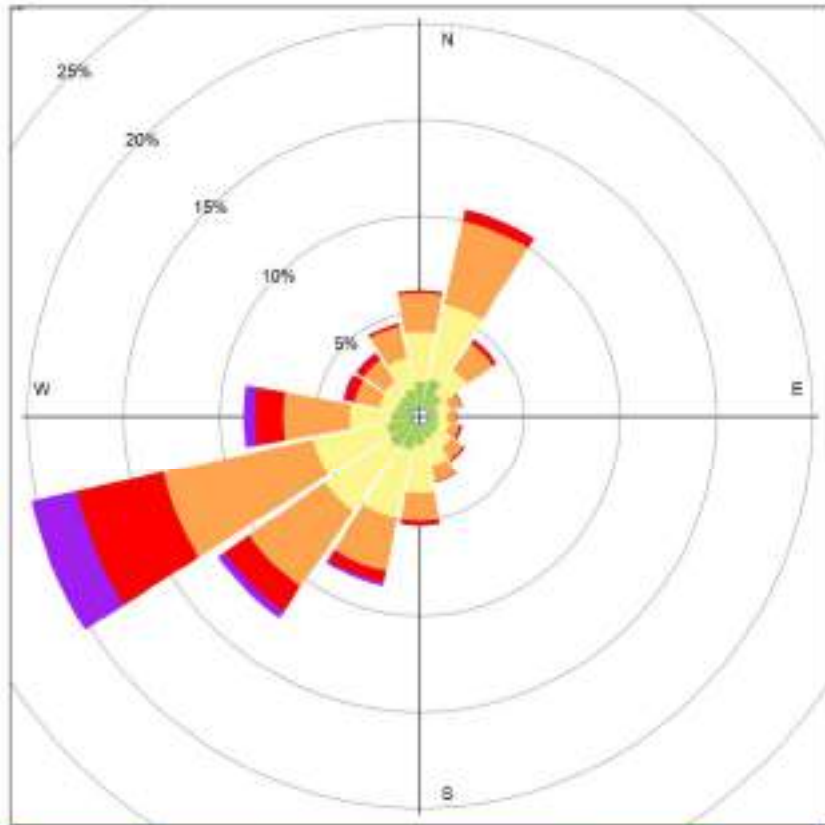


Years 2007 to 2021 Wind Direction Histogram

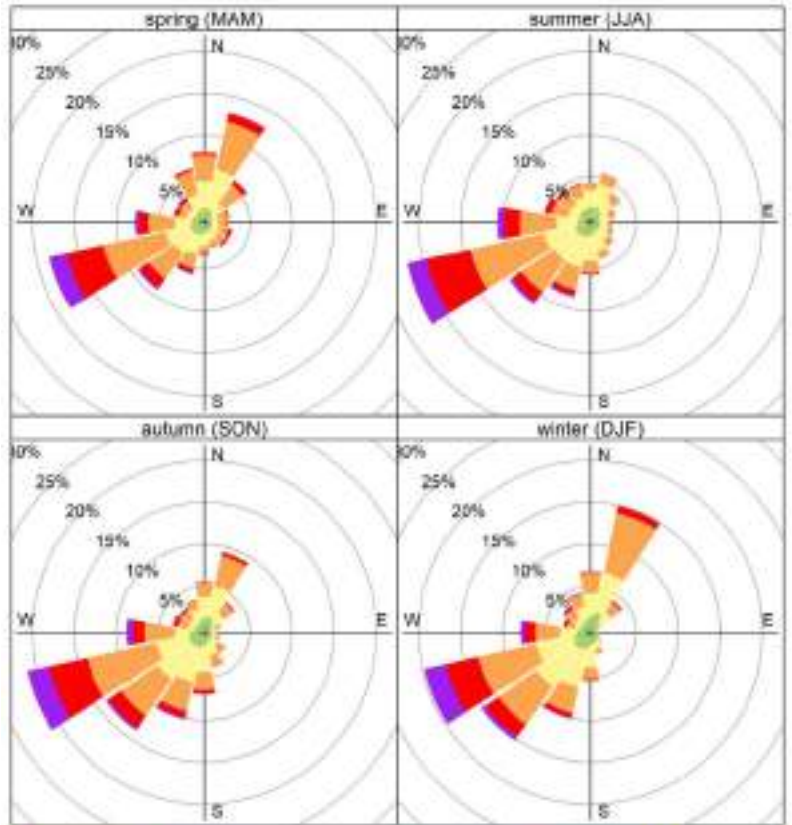


Years 2007 to 2021 Wind Speed Readings (in km/hr) at Smoky Heights





0-1 1-5 5-10 10-20 20-30 >30
 Smoky Heights 2007 to 2021 Wind Rose, wind speed in km/hr



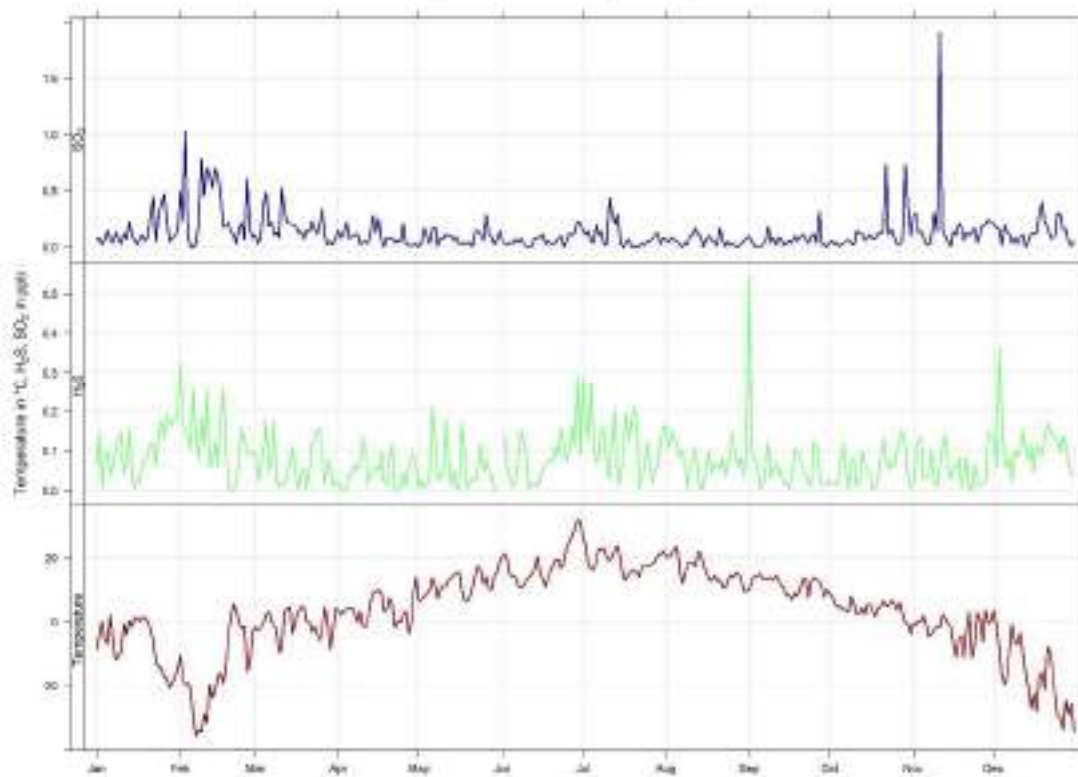
0-1 1-5 5-10 10-20 20-30 >30
 Smoky Heights 2007 to 2021 Seasonal Wind Rose, wind speed in km/hr

12 Valleyview Key Parameters - Continuous Monitoring Data - 2021 Summary

Valleyview Key Parameters - Continuous Monitoring Data - 2021 Summary

Valleyview Station	Parameter	Annual Average	Maximum Values			Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG				
			24-hr	Date	1-hr			Date	1-hr	24-hr	30-d	Annual
	Sulphur Dioxide SO ₂ measured in ppb	0.1	1.9	Nov 11	22.1	Nov 11 14:00	100.0%	95.2%	0	0	0	0
	Hydrogen Sulphide H ₂ S measured in ppb	0.1	0.5	Sep 01	4.5	Sep 01 10:00	99.0%	94.3%	0	0	-	-

2021 Daily Concentration Readings at Valleyview



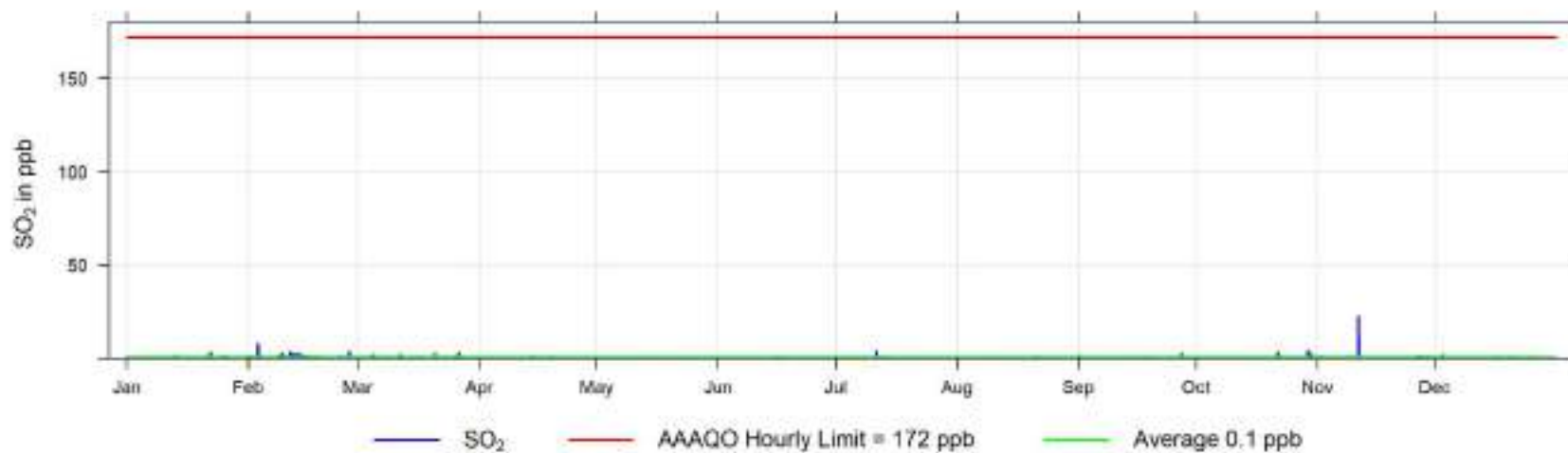
12.1 Sulphur Dioxide (SO₂) - Valleyview 2021 Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Valleyview

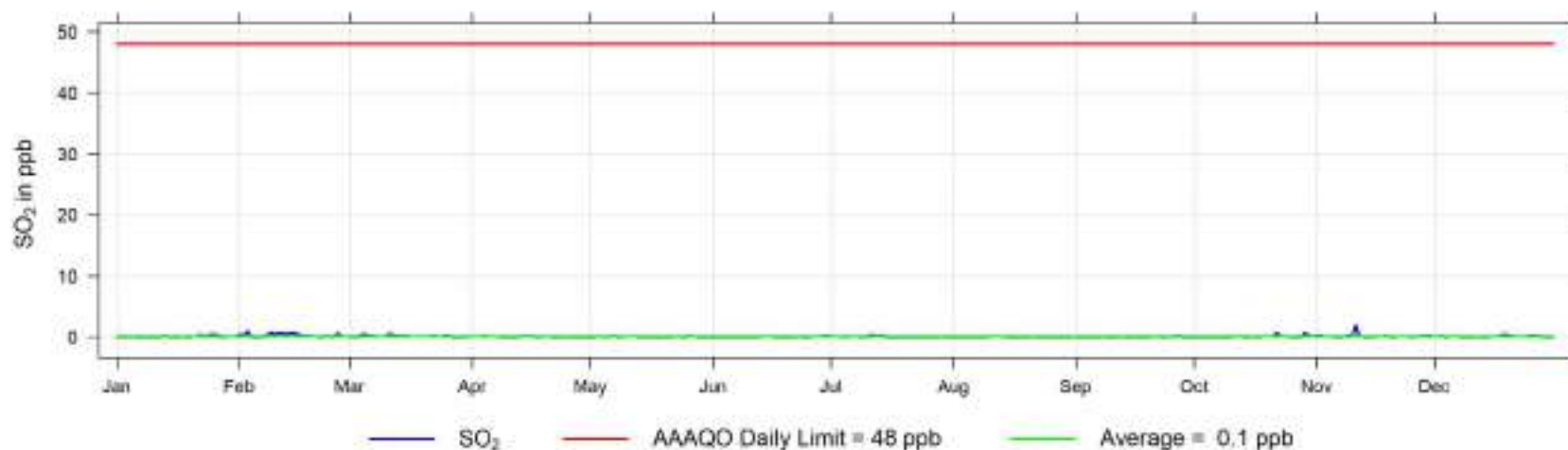
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	707	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.5	Jan 26	2.7	Jan 22 07:00	100.0%	95.0%	0	0	0
February 2021	640	93.3%	6.4%	0.3%	0.0%	0.0%	0.0%	0.3	1.0	Feb 03	7.5	Feb 03 09:00	100.0%	95.2%	0	0	0
March 2021	708	98.3%	1.7%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Mar 11	2.6	Mar 26 20:00	100.0%	95.2%	0	0	0
April 2021	685	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Apr 14	1.1	Apr 14 10:00	100.0%	95.1%	0	0	0
May 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	May 26	0.7	May 26 04:00	100.0%	95.2%	0	0	0
June 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Jun 29	0.9	Jun 16 14:00	100.0%	95.3%	0	0	0
July 2021	709	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.4	Jul 11	3.6	Jul 11 10:00	100.0%	95.3%	0	0	0
August 2021	709	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Aug 21	1.0	Aug 21 12:00	100.0%	95.3%	0	0	0
September 2021	686	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Sep 27	2.0	Sep 27 10:00	100.0%	95.3%	0	0	0
October 2021	709	98.2%	1.8%	0.0%	0.0%	0.0%	0.0%	0.1	0.7	Oct 29	3.8	Oct 29 16:00	100.0%	95.3%	0	0	0
November 2021	685	99.1%	0.4%	0.2%	0.3%	0.0%	0.0%	0.2	1.9	Nov 11	22.1	Nov 11 14:00	99.9%	95.1%	0	0	0
December 2021	705	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.4	Dec 19	1.6	Dec 02 22:00	99.9%	94.8%	0	0	0
Annual	8337	99.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.1	1.9	MAXIMUM VALUES		100.0%	95.2%	0	0	0	

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

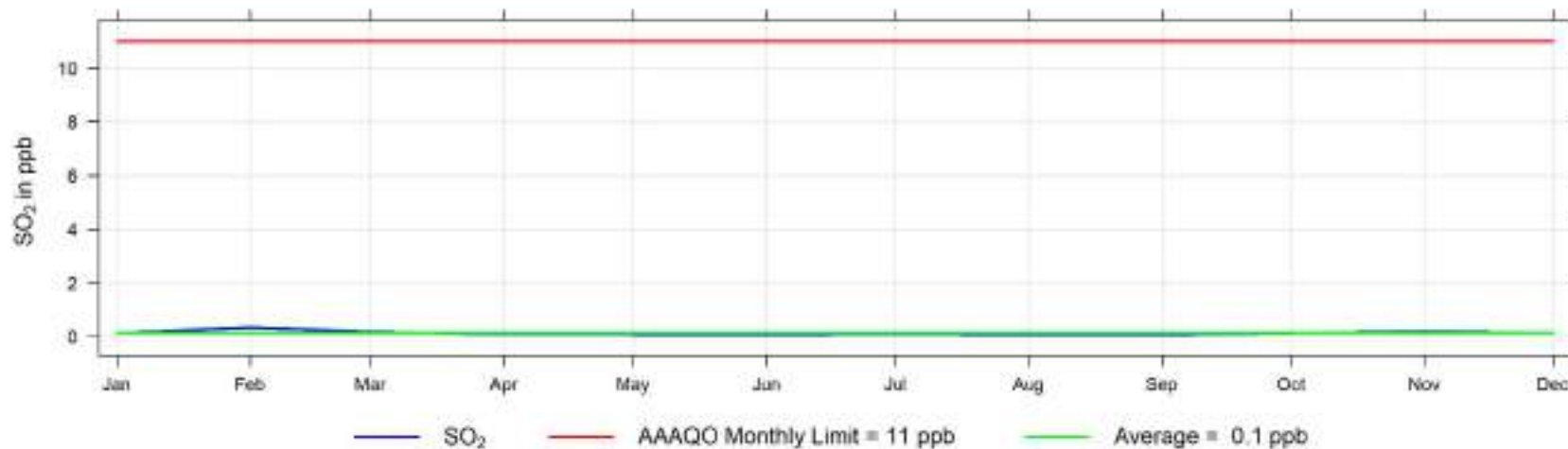
2021 Hourly Concentration Readings of SO₂ (in ppb) at Valleyview



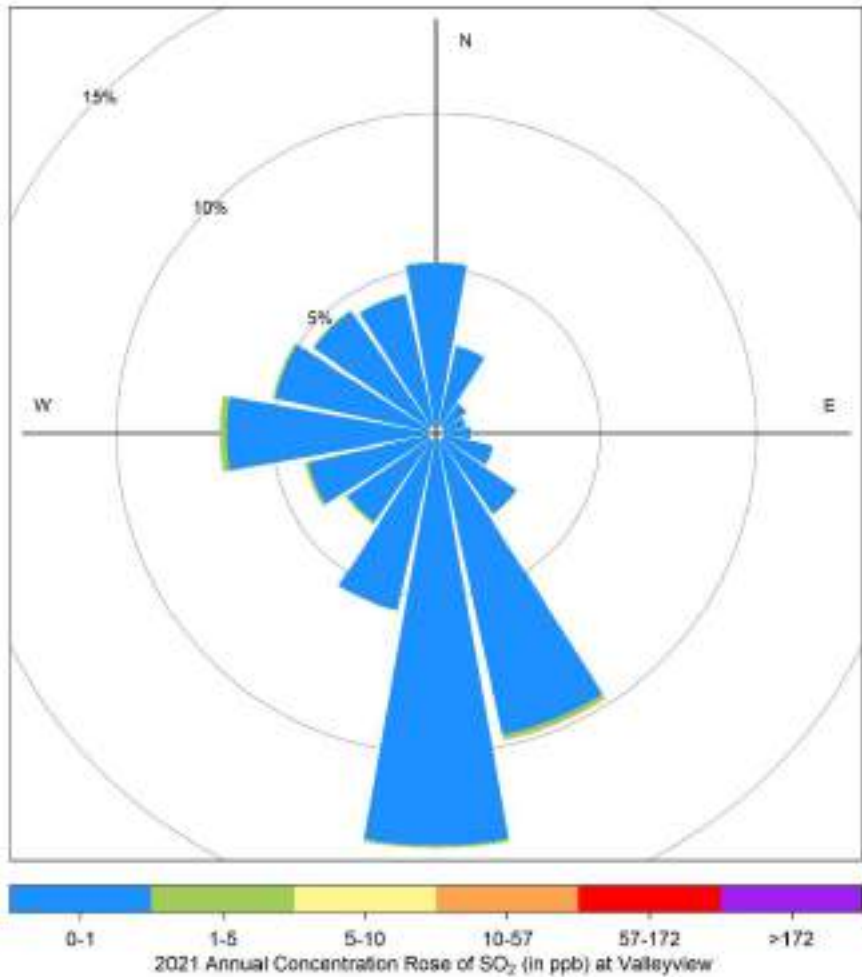
2021 Daily Concentration Readings of SO₂ (in ppb) at Valleyview



2021 Monthly Concentration Readings of SO₂ (in ppb) at Valleyview



Hourly Maximum SO₂ (in ppb) for 2021 at Valleyview



January-2021							February-2021							March-2021						
27	28	29	30	31	1	2	31	1	2	3	4	5	6	29	1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
April-2021							May-2021							June-2021						
28	29	30	31	1	2	3	28	29	30	31	1	2	3	30	31	1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
July-2021							August-2021							September-2021						
27	28	29	30	1	2	3	25	26	27	28	29	30	31	29	30	31	1	2	3	4
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
October-2021							November-2021							December-2021						
28	27	26	25	24	23	22	31	1	2	3	4	5	6	28	29	30	1	2	3	4
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25
24	25	26	27	28	29	30	28	29	30	1	2	3	4	26	27	28	29	30	31	1
31	1	2	3	4	5	6	5	6	7	8	9	10	11	2	3	4	5	6	7	8
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

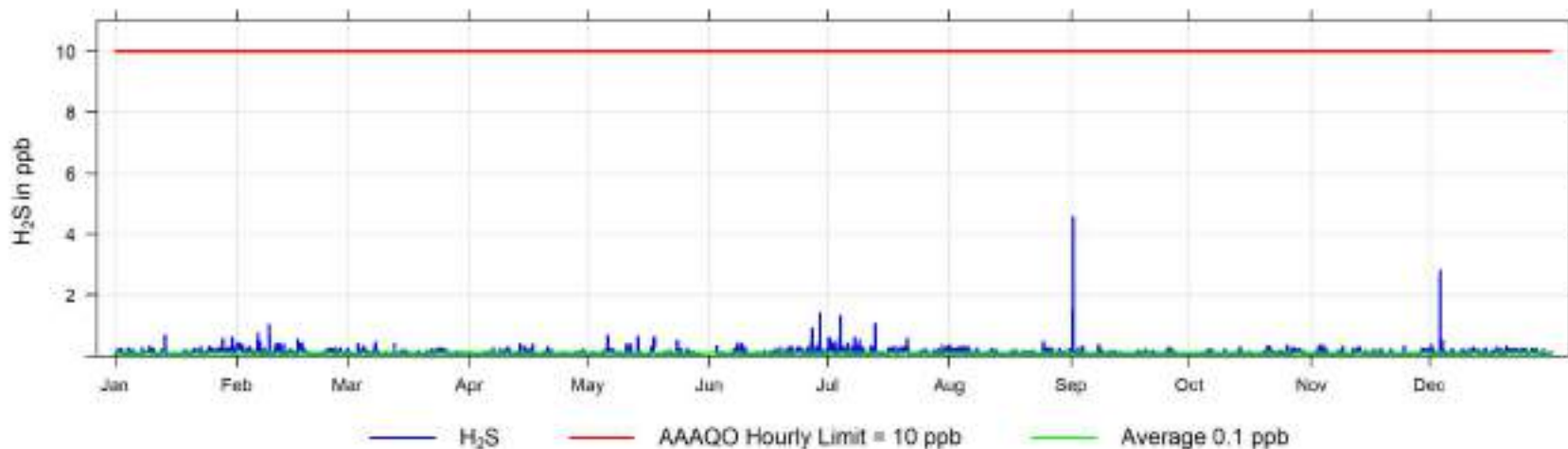
12.2 Hydrogen Sulphide (H₂S) - Valleyview 2021 Summary

Hydrogen Sulphide (H₂S) Frequency Distribution at Valleyview

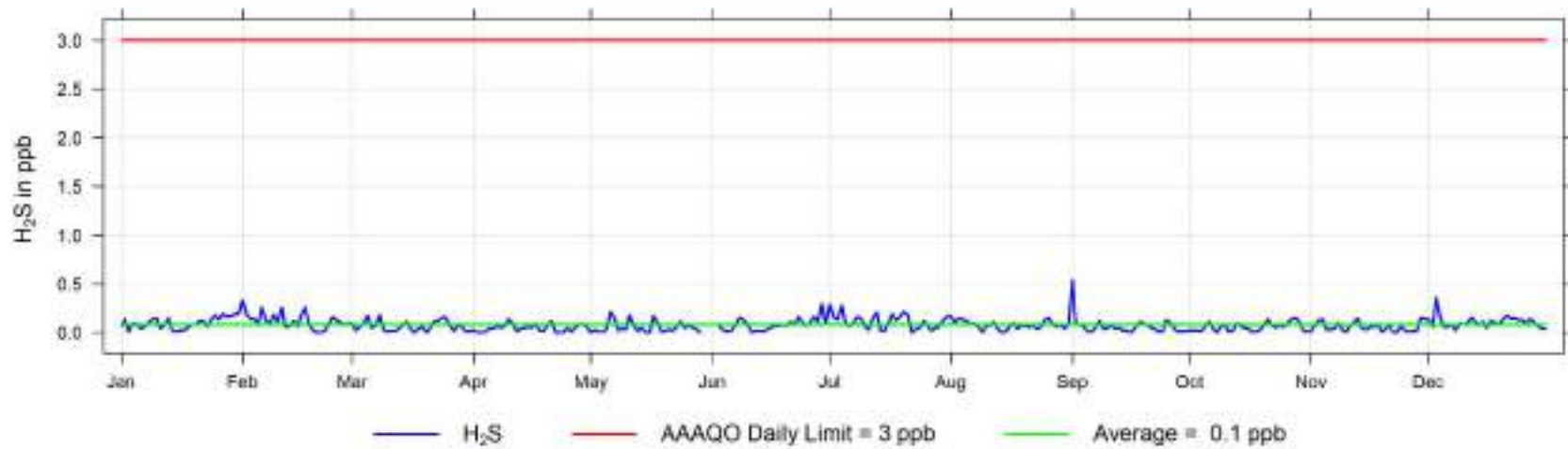
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Jan 27	0.7	Jan 13 17:00	100.0%	95.2%	0	0
February 2021	640	99.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Feb 01	1.0	Feb 09 04:00	100.0%	95.2%	0	0
March 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Mar 05	0.4	Mar 08 05:00	100.0%	95.2%	0	0
April 2021	681	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.1	Apr 10	0.4	Apr 13 21:00	99.4%	94.6%	0	0
May 2021	665	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	May 06	0.7	May 06 05:00	94.0%	89.4%	0	0
June 2021	653	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Jun 29	1.4	Jun 29 04:00	95.3%	90.7%	0	0
July 2021	708	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.1	0.3	Jul 01	1.3	Jul 04 07:00	100.0%	95.2%	0	0
August 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Aug 01	0.4	Aug 25 00:00	100.0%	95.3%	0	0
September 2021	686	99.6%	0.2%	0.3%	0.0%	0.0%	0.0%	0.1	0.5	Sep 01	4.5	Sep 01 10:00	100.0%	95.3%	0	0
October 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.2	Oct 28	0.3	Oct 25 22:00	100.0%	95.3%	0	0
November 2021	684	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1	0.1	Nov 29	0.3	Nov 04 01:00	99.9%	95.0%	0	0
December 2021	708	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1	0.4	Dec 03	2.8	Dec 03 18:00	100.0%	95.2%	0	0
Annual	8259	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1	MAXIMUM VALUES				99.0%	94.3%	0	0
									0.5	Sep 01	4.5	Sep 01 10:00				

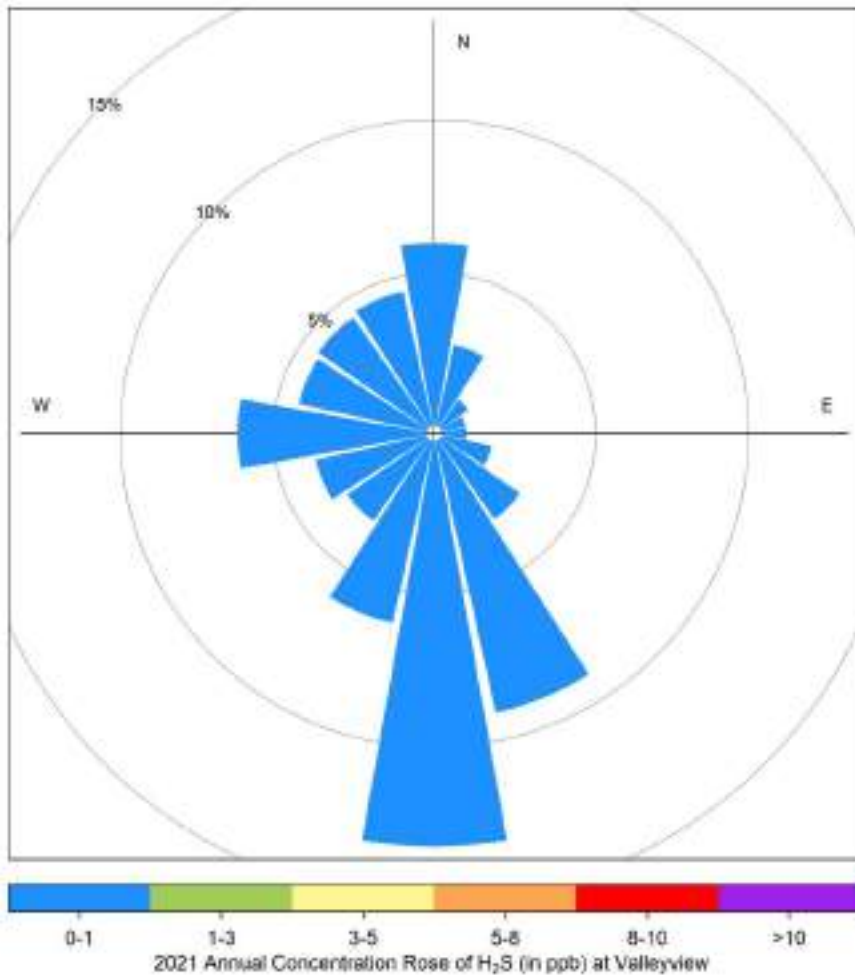
AAAQO Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of H₂S (in ppb) at Valleyview



2021 Daily Concentration Readings of H₂S (in ppb) at Valleyview





Hourly Maximum H₂S (in ppb) for 2021 at Valleyview

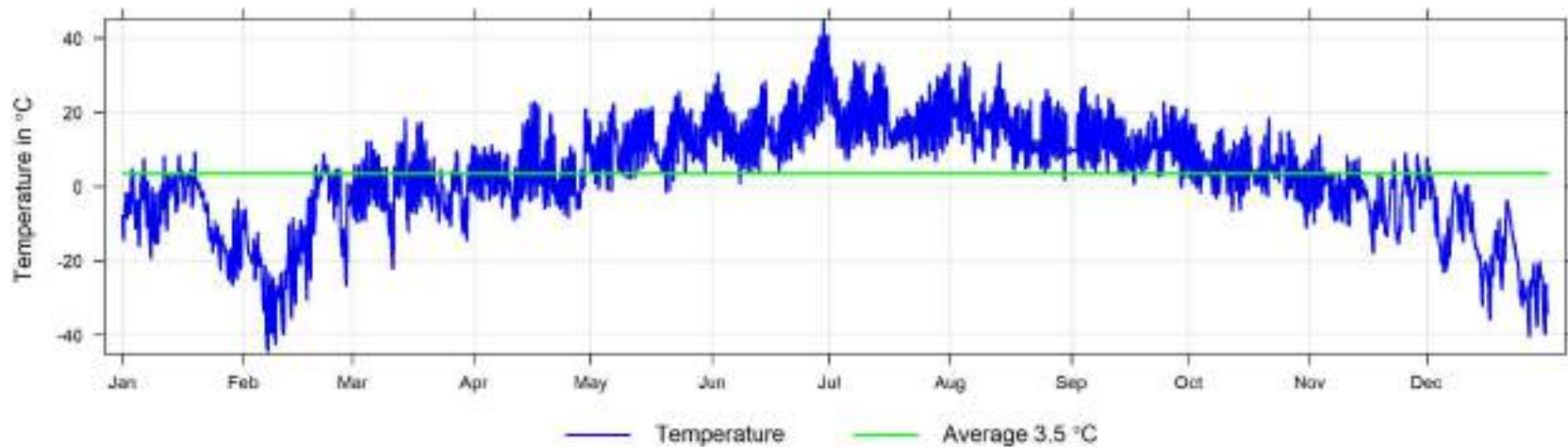


12.3 Temperature (ET) - Valleyview 2021 Summary

Temperature (ET) Frequency Distribution at Valleyview

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	744	-7.1	1.7	Jan 06	9.3	Jan 19 15:00	-20.9	Jan 28	-26.4	Jan 29 07:00	100.0%	100.0%
February 2021	672	-15.8	5.6	Feb 21	8.8	Feb 21 16:00	-35.5	Feb 07	-44.3	Feb 07 09:00	100.0%	100.0%
March 2021	744	-0.7	4.9	Mar 27	18.3	Mar 14 14:00	-10.2	Mar 10	-22.1	Mar 11 06:00	100.0%	100.0%
April 2021	720	3.6	13.5	Apr 30	22.9	Apr 16 16:00	-3.9	Apr 27	-9.0	Apr 11 06:00	100.0%	100.0%
May 2021	744	11.6	19.0	May 31	25.8	May 23 15:00	6.3	May 19	-1.5	May 20 05:00	100.0%	100.0%
June 2021	720	18.0	31.6	Jun 29	44.7	Jun 29 16:00	10.5	Jun 08	1.0	Jun 08 05:00	100.0%	100.0%
July 2021	743	18.8	26.2	Jul 01	33.9	Jul 07 16:00	13.0	Jul 17	6.7	Jul 28 06:00	99.9%	99.9%
August 2021	744	15.7	23.4	Aug 05	33.5	Aug 04 18:00	9.5	Aug 31	1.7	Aug 30 07:00	100.0%	100.0%
September 2021	718	11.5	14.7	Sep 05	27.0	Sep 04 15:00	7.1	Sep 17	0.0	Sep 29 06:00	100.0%	99.7%
October 2021	744	4.1	8.9	Oct 01	18.5	Oct 21 16:00	-3.9	Oct 31	-11.0	Oct 31 08:00	100.0%	100.0%
November 2021	720	-2.4	3.8	Nov 28	13.8	Nov 03 15:00	-12.0	Nov 23	-17.9	Nov 17 06:00	100.0%	100.0%
December 2021	744	-17.1	3.1	Dec 01	7.7	Dec 01 02:00	-34.3	Dec 31	-40.5	Dec 27 10:00	100.0%	100.0%
8757		AVERAGE	MAXIMUM VALUES			MINIMUM VALUES						
		3.5	31.6	Jun 29	44.7	Jun 29 16:00	-35.5	Feb 07	-44.3	Feb 07 09:00	100.0%	100.0%

2021 Hourly Temperature Readings (in °C) at Valleyview

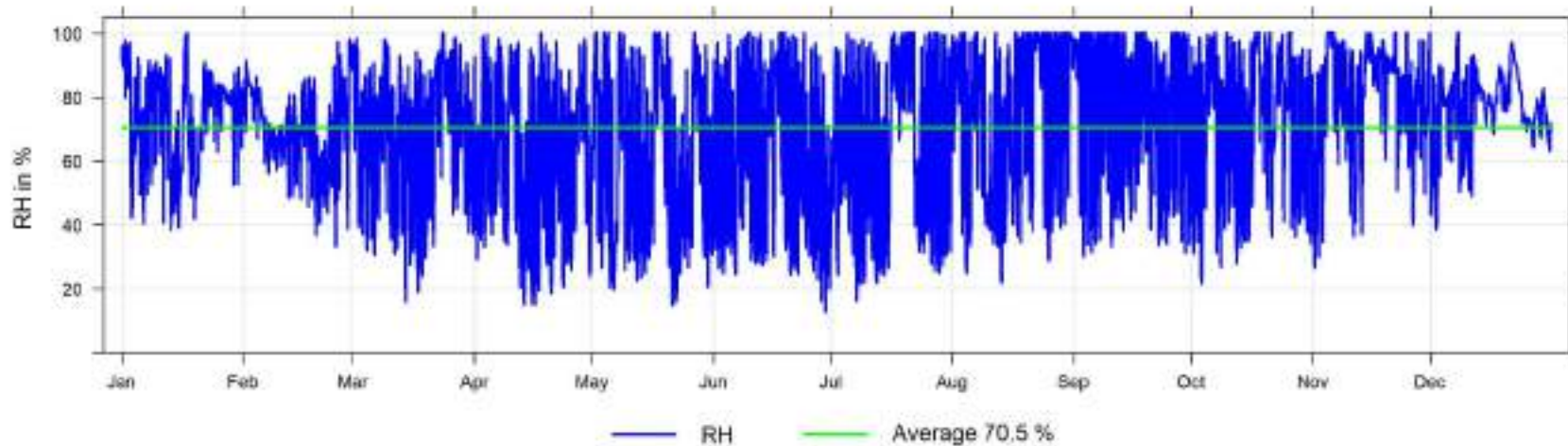


12.4 Relative Humidity (RH) - Valleyview 2021 Summary

Relative Humidity (RH) Frequency Distribution at Valleyview

Month	Valid Hours	Monthly Average (%)	Maximum Values			Operational time (%)	Valid time (%)		
			24-hr (%)	Date	1-hr (%)			Date	
January 2021	744	73.9	92.1	Jan 01	100.0	Jan 17 20:00	100.0%	100.0%	
February 2021	672	69.8	93.2	Feb 28	98.1	Feb 28 06:00	100.0%	100.0%	
March 2021	744	69.0	91.9	Mar 24	100.0	Mar 23 21:00	100.0%	100.0%	
April 2021	720	62.0	85.8	Apr 07	100.0	Apr 18 02:00	100.0%	100.0%	
May 2021	744	60.8	94.4	May 18	100.0	May 02 04:00	100.0%	100.0%	
June 2021	720	61.2	88.6	Jun 17	100.0	Jun 10 00:00	100.0%	100.0%	
July 2021	743	66.0	93.5	Jul 20	100.0	Jul 05 05:00	99.9%	99.9%	
August 2021	744	75.1	98.5	Aug 22	100.0	Aug 03 06:00	100.0%	100.0%	
September 2021	718	76.6	94.1	Sep 01	100.0	Sep 02 23:00	100.0%	99.7%	
October 2021	744	73.9	97.3	Oct 17	100.0	Oct 07 01:00	100.0%	100.0%	
November 2021	720	80.9	99.4	Nov 05	100.0	Nov 04 19:00	100.0%	100.0%	
December 2021	744	76.8	92.4	Dec 22	100.0	Dec 08 03:00	100.0%	100.0%	
		AVERAGE	MAXIMUM VALUES						
		8757	70.5	99.4	Nov 05	100.0	Jan 17 20:00	100.0%	100.0%

2021 Hourly Readings of Relative Humidity (in %) at Valleyview

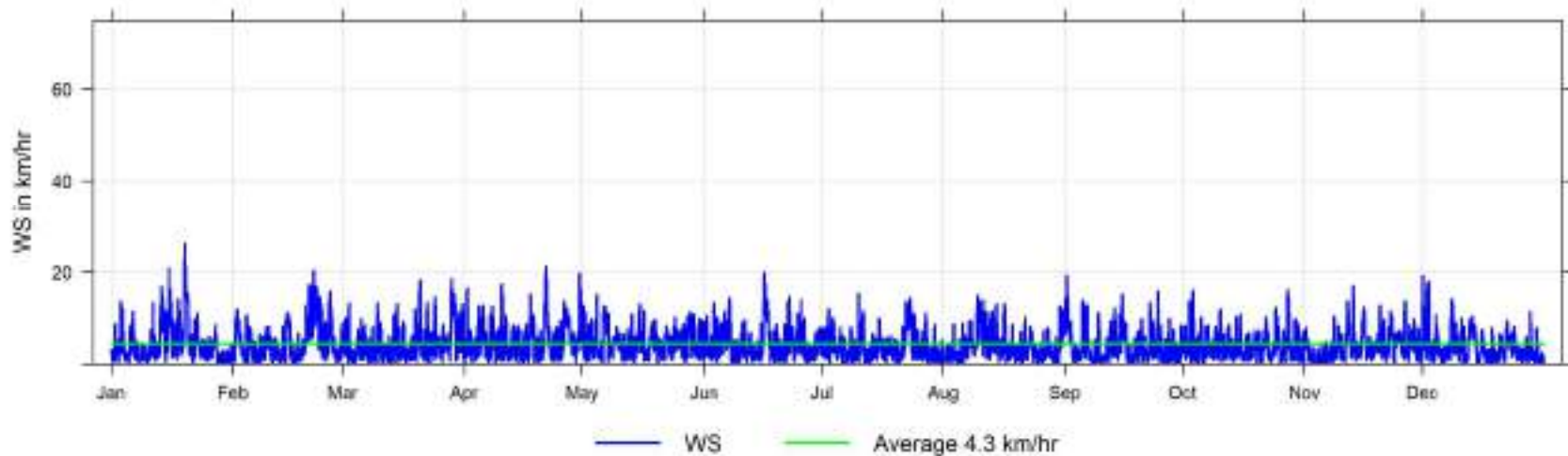


12.5 Wind Speed and Wind Direction (WS and WD) - Valleyview 2021 Summary

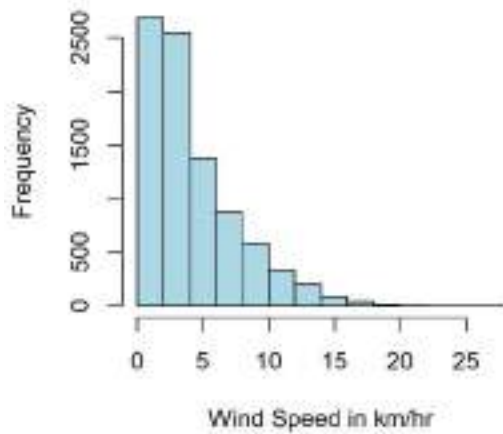
Wind Speed Frequency Distribution at Valleyview

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (km/hr)	MAXIMUM VALUES			Operational time (%)	Valid time (%)	
		Calm	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)			Date
January 2021	744	5.9%	64.5%	19.9%	8.6%	1.1%	0.0%	4.5	11.5	Jan 19	26.2	Jan 19 20:00	100.0%	100.0%
February 2021	672	4.0%	57.9%	30.1%	7.9%	0.2%	0.0%	4.8	12.5	Feb 22	20.3	Feb 21 16:00	100.0%	100.0%
March 2021	744	3.5%	67.7%	20.8%	7.9%	0.0%	0.0%	4.4	10.3	Mar 29	18.5	Mar 28 20:00	100.0%	100.0%
April 2021	720	1.8%	57.4%	32.1%	8.1%	0.7%	0.0%	5.2	11.6	Apr 21	21.2	Apr 21 20:00	100.0%	100.0%
May 2021	743	1.5%	60.6%	35.0%	3.0%	0.0%	0.0%	4.6	8.3	May 28	15.1	May 04 18:00	99.9%	99.9%
June 2021	720	2.8%	62.4%	28.9%	5.7%	0.3%	0.0%	4.4	12.1	Jun 16	19.9	Jun 16 13:00	100.0%	100.0%
July 2021	743	5.0%	68.8%	22.9%	3.4%	0.0%	0.0%	3.8	10.0	Jul 23	15.3	Jul 10 10:00	99.9%	99.9%
August 2021	744	5.0%	67.5%	21.6%	5.9%	0.0%	0.0%	3.9	9.1	Aug 10	14.9	Aug 09 17:00	100.0%	100.0%
September 2021	718	6.7%	65.6%	22.3%	5.3%	0.1%	0.0%	3.8	11.5	Sep 01	19.2	Sep 01 08:00	100.0%	99.7%
October 2021	744	3.0%	68.3%	25.4%	3.4%	0.0%	0.0%	4.0	8.0	Oct 27	16.2	Oct 27 17:00	100.0%	100.0%
November 2021	720	3.8%	67.2%	24.9%	4.2%	0.0%	0.0%	3.9	7.6	Nov 12	17.0	Nov 13 12:00	100.0%	100.0%
December 2021	744	5.9%	68.3%	22.0%	3.6%	0.1%	0.0%	3.7	10.1	Dec 02	19.2	Dec 01 02:00	100.0%	100.0%
Annual	8756	4.1%	64.7%	25.4%	5.6%	0.2%	0.0%	4.3	12.5	Feb 22	26.2	Jan 19 20:00	100.0%	100.0%

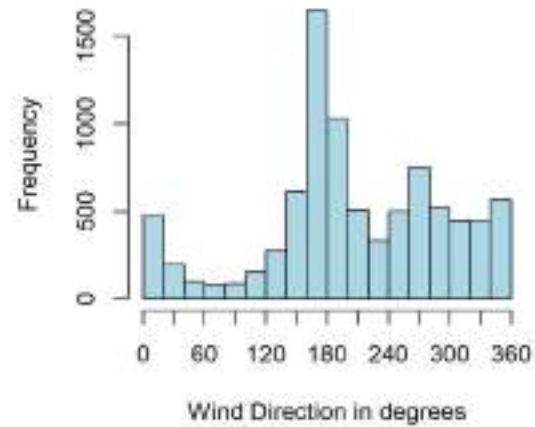
2021 Hourly Readings of Wind Speed (in km/hr) at Valleyview



2021 Wind Speed Histogram

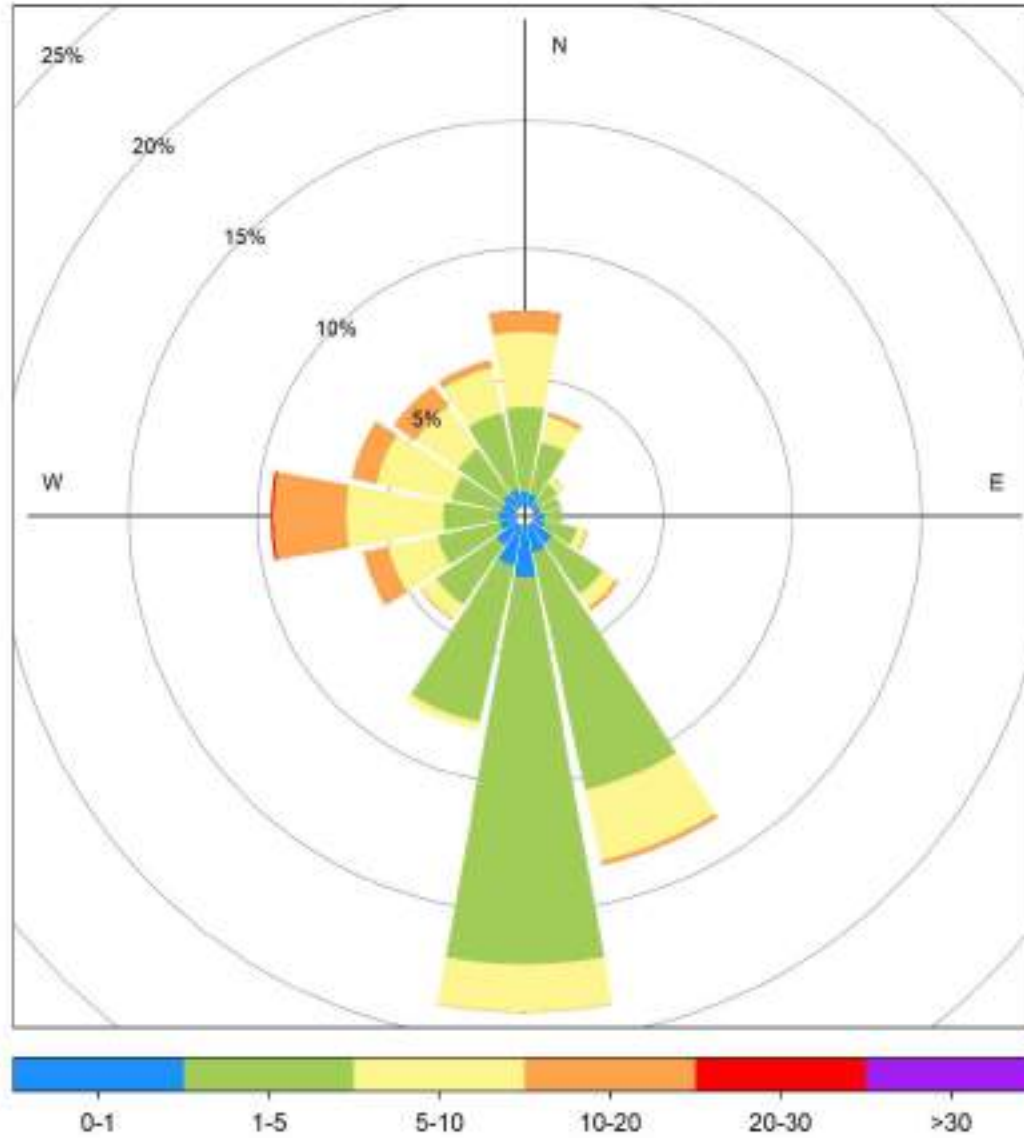


2021 Wind Direction Histogram



Wind Speed and Wind Direction Frequency Distribution at Valleyview

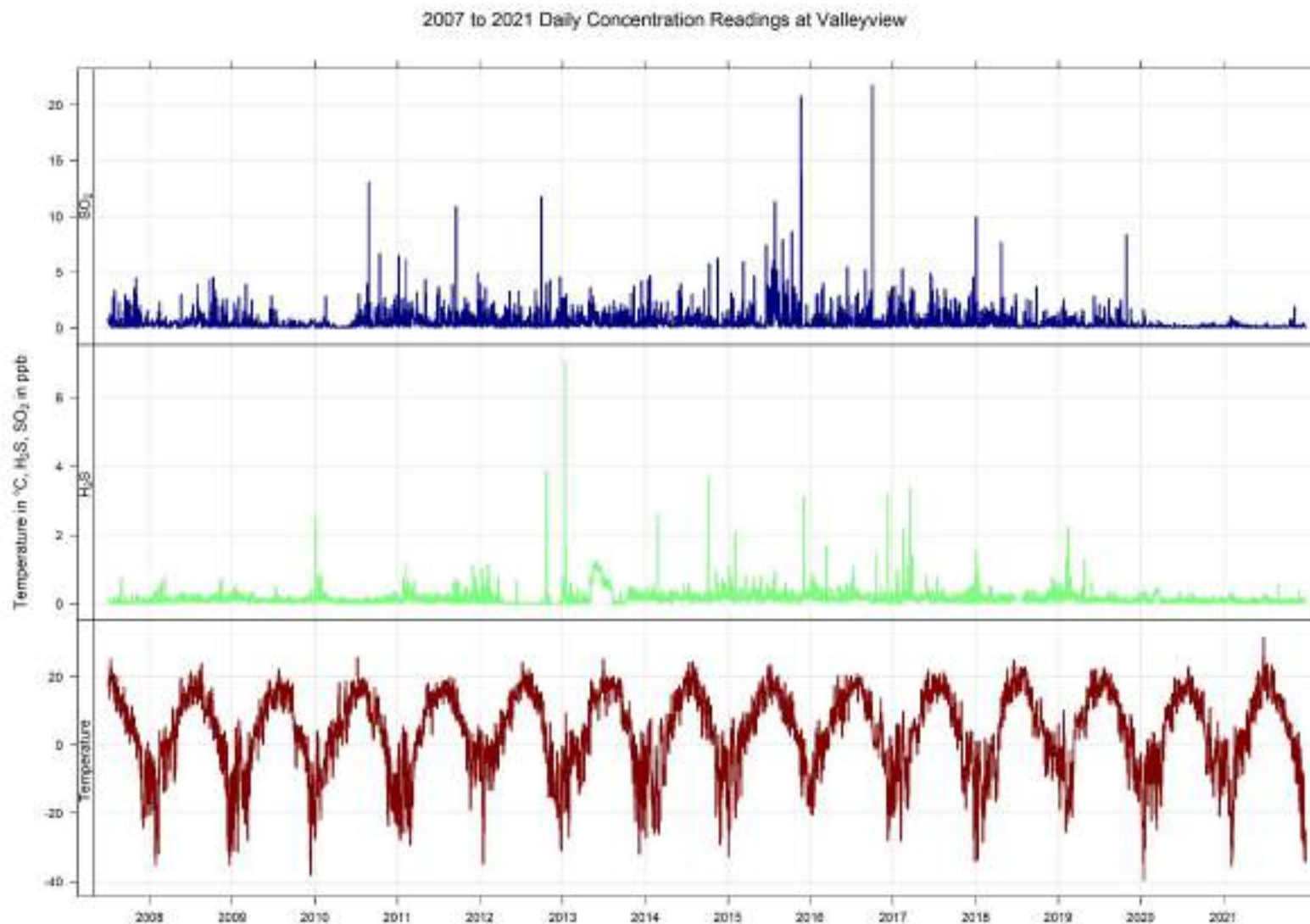
Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	667	0.2%	3.7%	3.2%	0.5%	0.0%	0.0%	7.6%
NNE	328	0.2%	2.4%	1.1%	0.1%	0.0%	0.0%	3.7%
NE	128	0.1%	1.1%	0.3%	0.0%	0.0%	0.0%	1.5%
ENE	93	0.1%	0.9%	0.0%	0.0%	0.0%	0.0%	1.1%
E	95	0.2%	0.9%	0.0%	0.0%	0.0%	0.0%	1.1%
ESE	187	0.2%	1.5%	0.4%	0.0%	0.0%	0.0%	2.1%
SE	358	0.4%	3.0%	0.7%	0.1%	0.0%	0.0%	4.1%
SSE	1184	0.4%	10.2%	2.9%	0.1%	0.0%	0.0%	13.5%
S	1656	0.4%	16.6%	1.9%	0.0%	0.0%	0.0%	18.9%
SSW	713	0.4%	7.4%	0.3%	0.0%	0.0%	0.0%	8.1%
SW	399	0.4%	3.4%	0.7%	0.0%	0.0%	0.0%	4.6%
WSW	529	0.3%	2.8%	2.2%	0.8%	0.0%	0.0%	6.0%
W	831	0.3%	2.5%	4.4%	2.2%	0.1%	0.0%	9.5%
WNW	569	0.3%	2.3%	3.3%	0.7%	0.0%	0.0%	6.5%
NW	509	0.2%	2.6%	2.2%	0.8%	0.0%	0.0%	5.8%
NNW	510	0.2%	3.6%	1.9%	0.2%	0.0%	0.0%	5.8%
Total	8756	4.1%	64.7%	25.4%	5.6%	0.2%	0.0%	100.0%



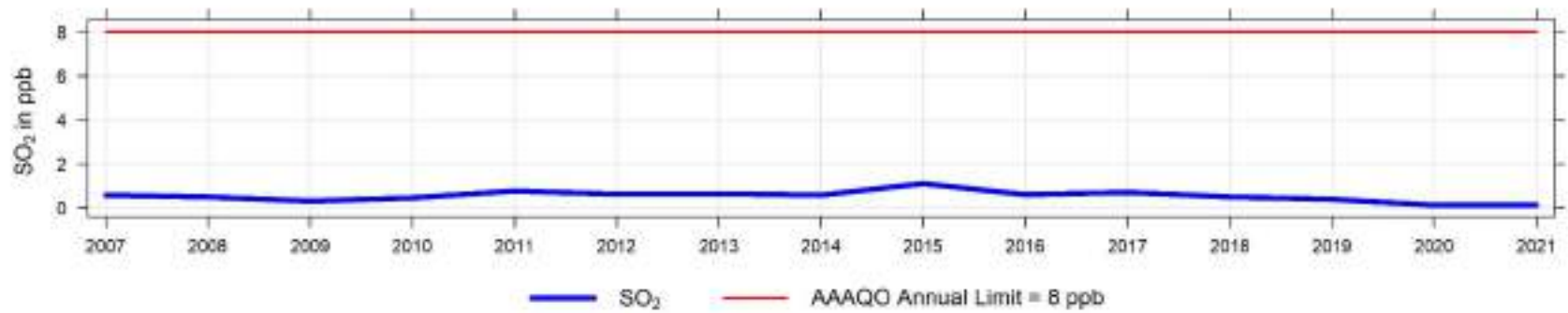
Valleyview 2021 Wind Rose, wind speed in km/hr

12.6 Valleyview Annual Trends, 2007 to 2021

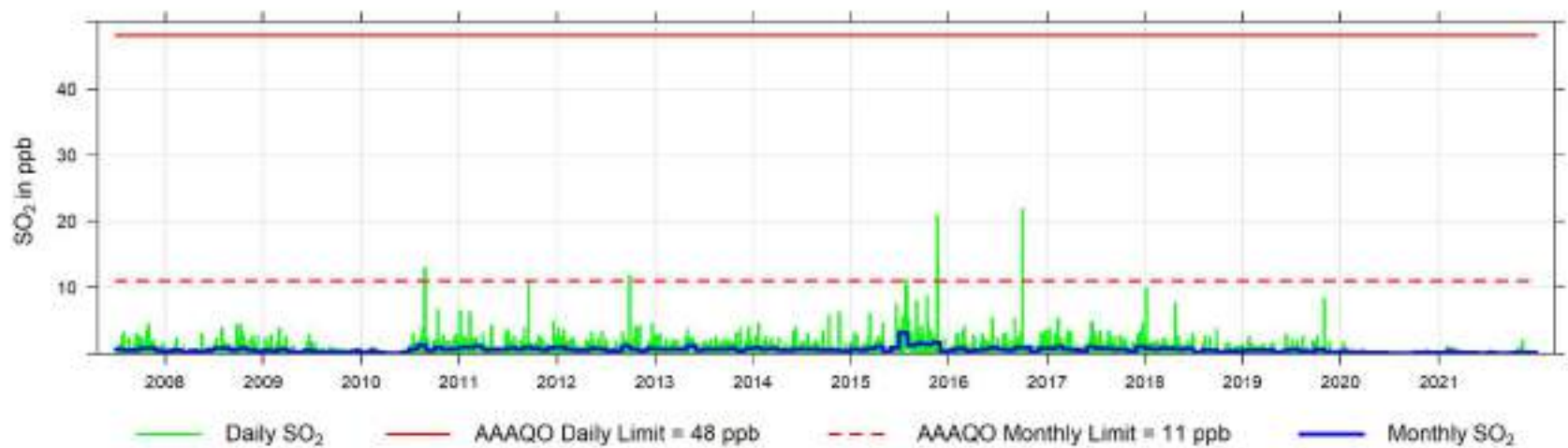
The following pages include historical annual charts collected between 2007 and 2021 at the Valleyview Station.



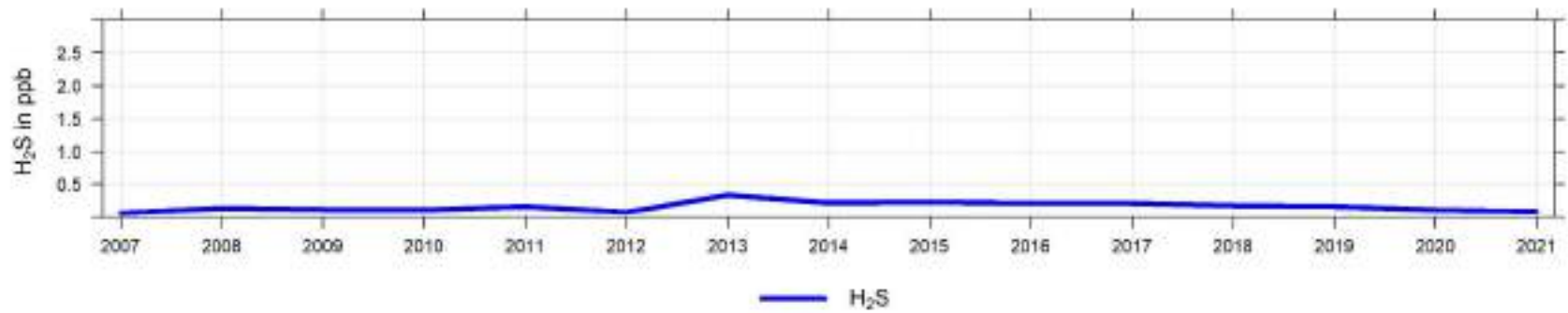
Years 2007 to 2021 Annual Concentration Readings of SO₂ (in ppb) at Valleyview



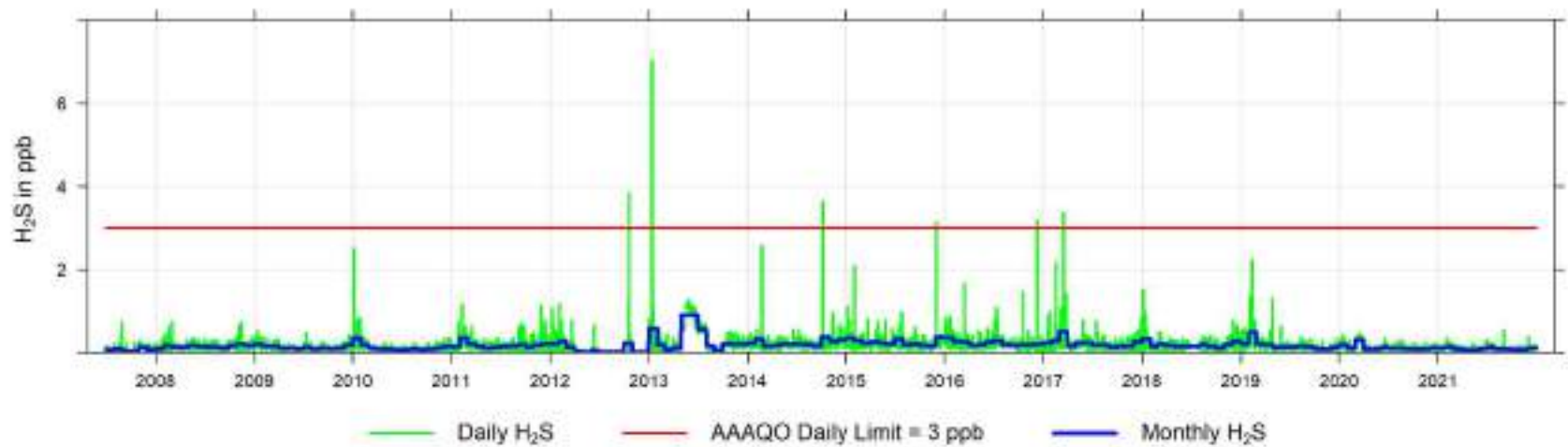
Years 2007 to 2021 Concentration Readings of SO₂ (in ppb) at Valleyview



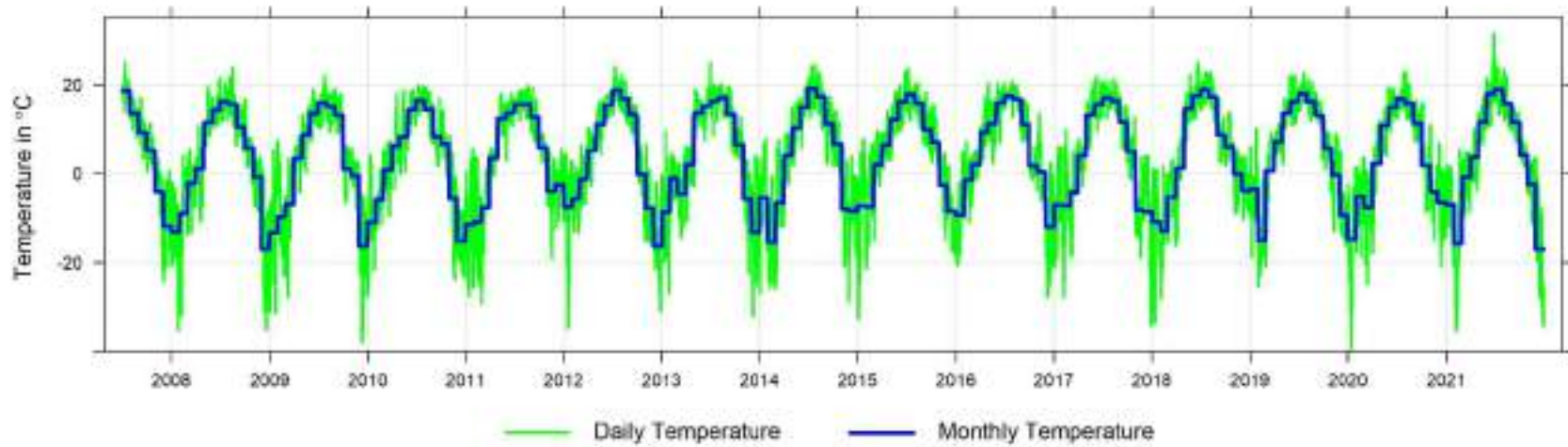
Years 2007 to 2021 Annual Concentration Readings of H₂S (in ppb) at Valleyview



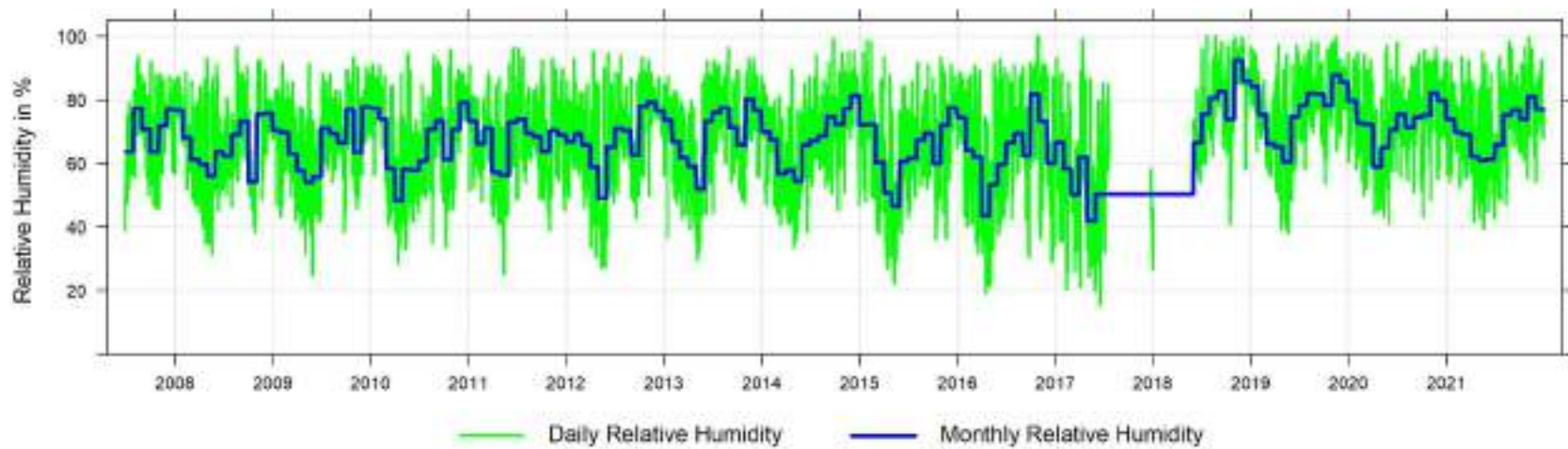
Years 2007 to 2021 Concentration Readings of H₂S (in ppb) at Valleyview



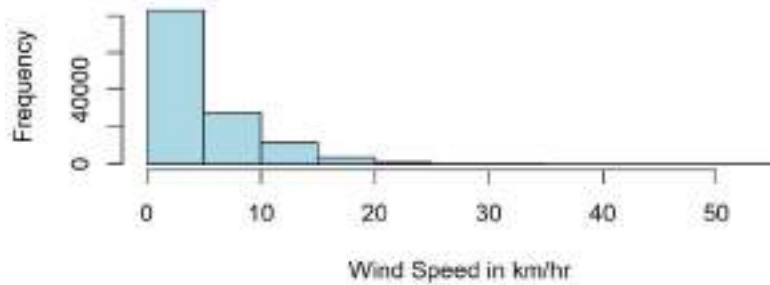
Years 2007 to 2021 Temperature Readings (in °C) at Valleyview



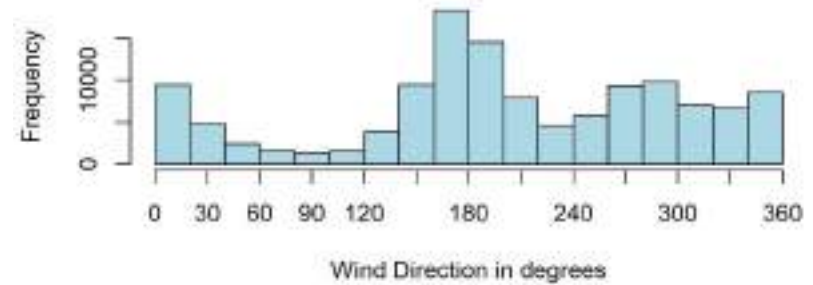
Years 2007 to 2021 Relative Humidity Readings (in %) at Valleyview



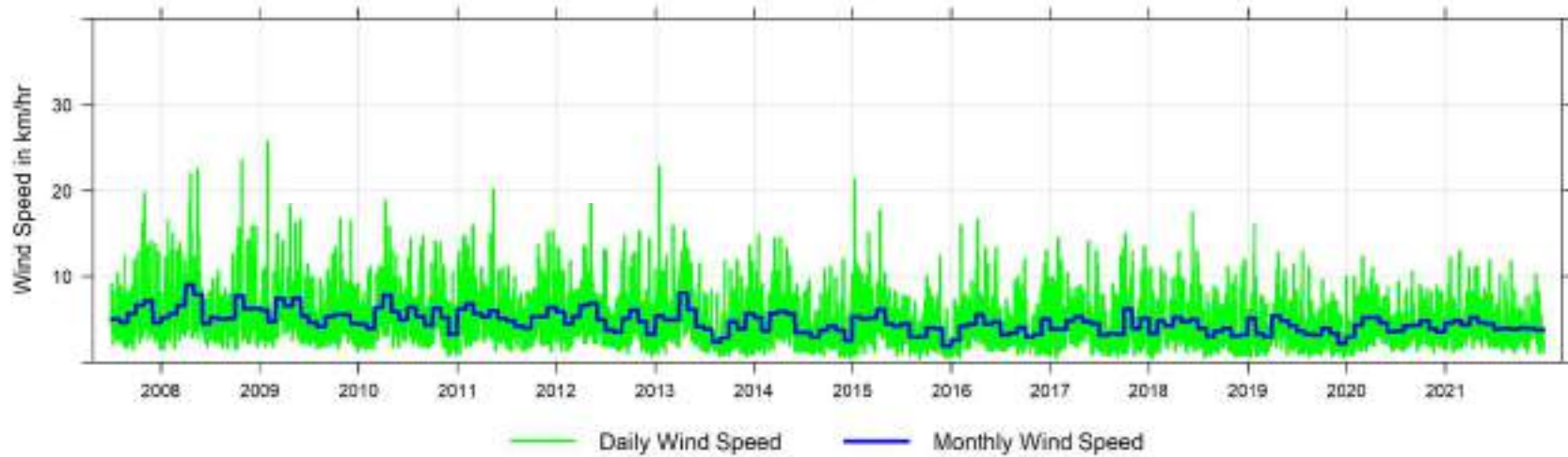
Years 2007 to 2021 Wind Speed Histogram

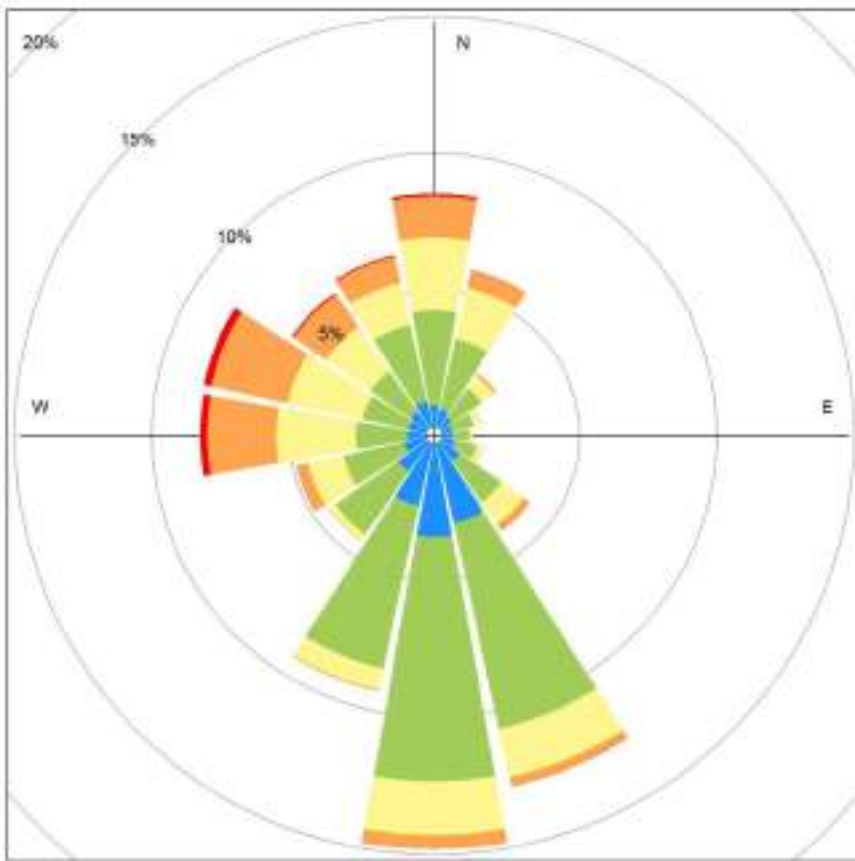


Years 2007 to 2021 Wind Direction Histogram

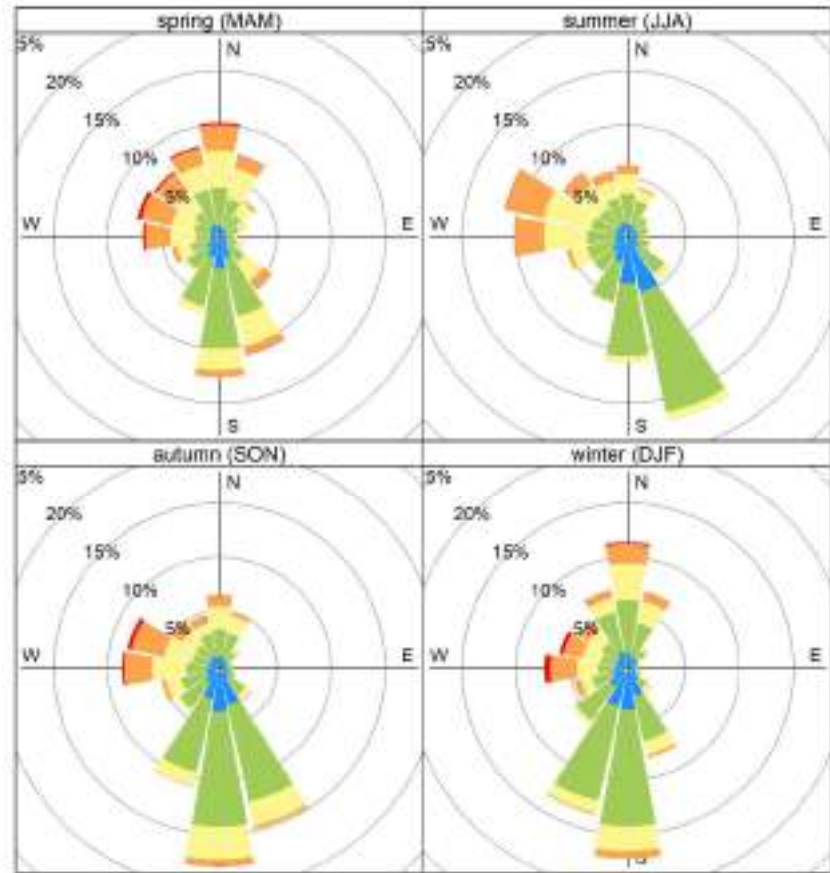


Years 2007 to 2021 Wind Speed Readings (in km/hr) at Valleyview





Valleyview 2007 to 2021 Wind Rose, wind speed in km/hr



Valleyview 2007 to 2021 Seasonal Wind Rose, wind speed in km/hr

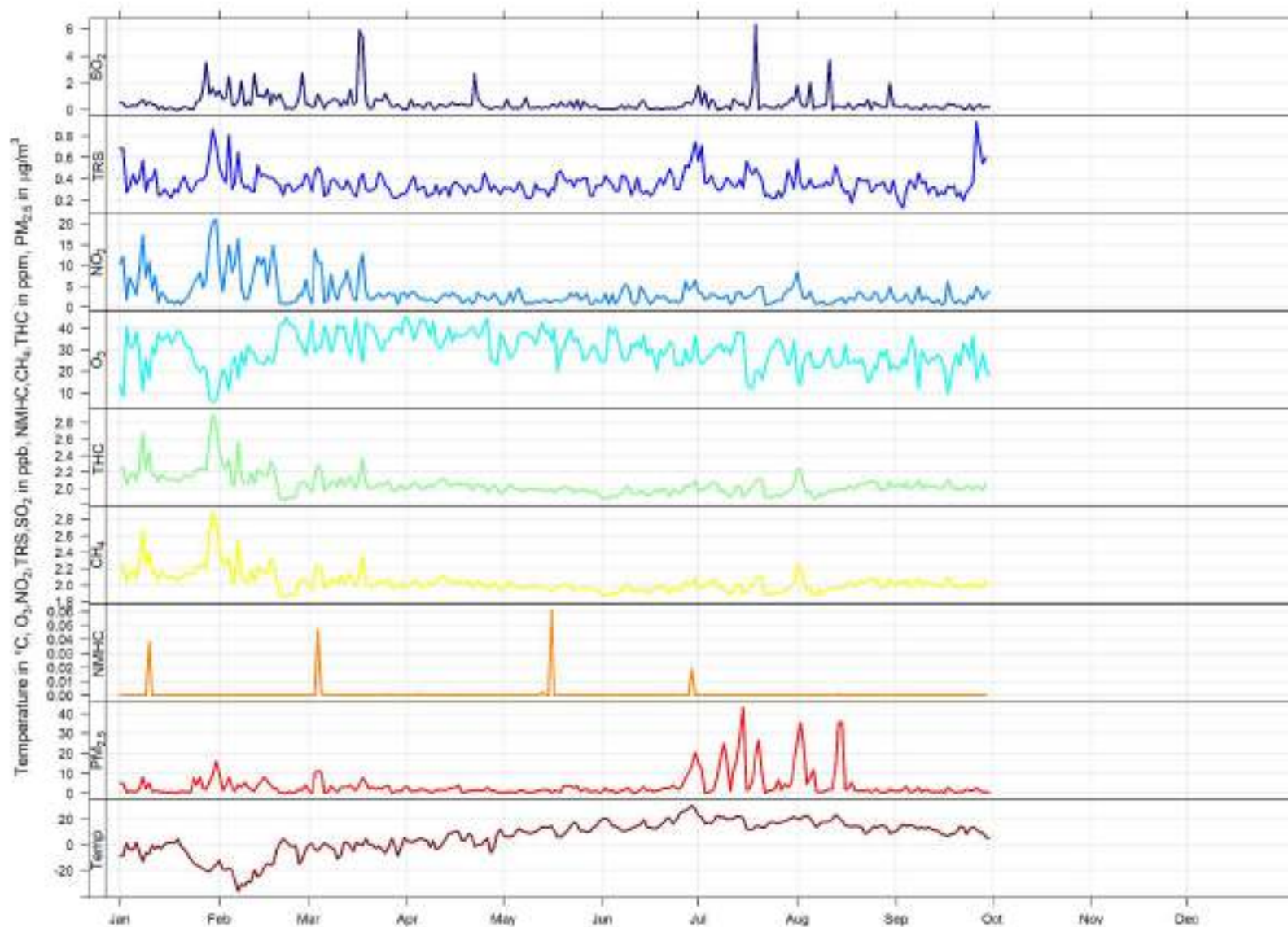
13 Wembley Key Parameters - Continuous Monitoring Data - 2021 (Jan-Sept) Summary

Wembley Key Parameters - Continuous Monitoring Data - 2021 Summary

Parameter	Annual Average	Maximum Values				Operational Time (%)	Valid Time (%)	Readings above AAAQO & AAAQG			
		24-hr	Date	1-hr	Date			1-hr	24-hr	30-d	Annual
Sulphur Dioxide SO ₂ measured in ppb	-	6.1	Jul 19	41.6	Jul 19 11:00	74.7%	71.1%	0	0	0	0
Total Reduced Sulphur TRS measured in ppb	-	1.0	Sep 26	3.3	Feb 04 18:00	74.5%	70.9%	0	0	-	-
Nitrogen Dioxide NO ₂ measured in ppb	-	20.4	Jan 30	36.7	Feb 12 22:00	74.6%	70.9%	0	-	-	0
Nitrogen Oxides NO _x measured in ppb	-	29.0	Jan 30	66.5	Feb 17 18:00	74.6%	70.9%	-	-	-	-
Nitric Oxide NO measured in ppb	-	8.3	Jan 30	35.5	Jun 24 20:00	74.6%	70.9%	-	-	-	-
Ozone O ₃ measured in ppb	-	45.5	Mar 31	106.3	Jun 30 15:00	74.7%	71.1%	4	-	-	-
Total Hydrocarbons THC measured in ppm	-	2.9	Jan 30	3.4	Mar 04 10:00	74.1%	70.5%	-	-	-	-
Methane CH ₄ measured in ppm	-	2.9	Jan 30	3.1	Jan 30 05:00	74.1%	70.5%	-	-	-	-
Non Methane Hydrocarbons NMHC measured in ppm	-	0.1	May 16	1.1	May 16 19:00	74.1%	70.5%	-	-	-	-
Particulate Matter PM _{2.5} measured in µg/m ³	-	39.5	Jul 15	123.5	Aug 14 08:00	74.5%	74.1%	14	4	-	-

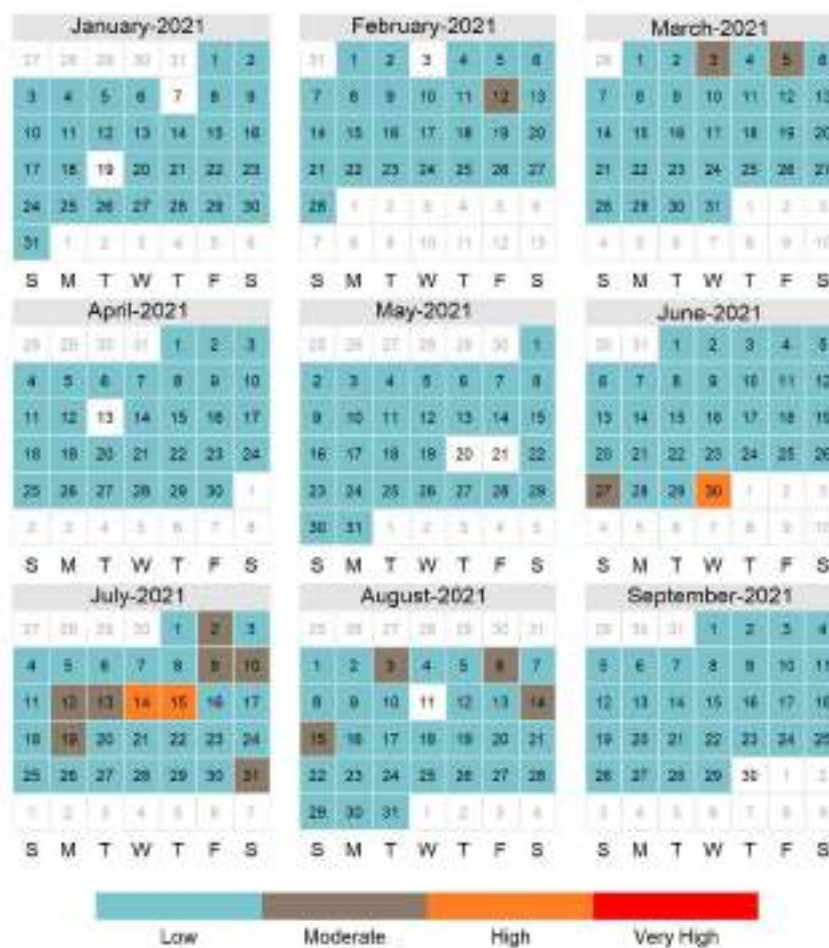
Wembley Station

2021 Daily Concentration Readings at Wembley



13.1 Wembley AQHI Calendar Plot for 2021 (Jan-Sept)

Hourly Maximum AQHI for 2021 at Wembley



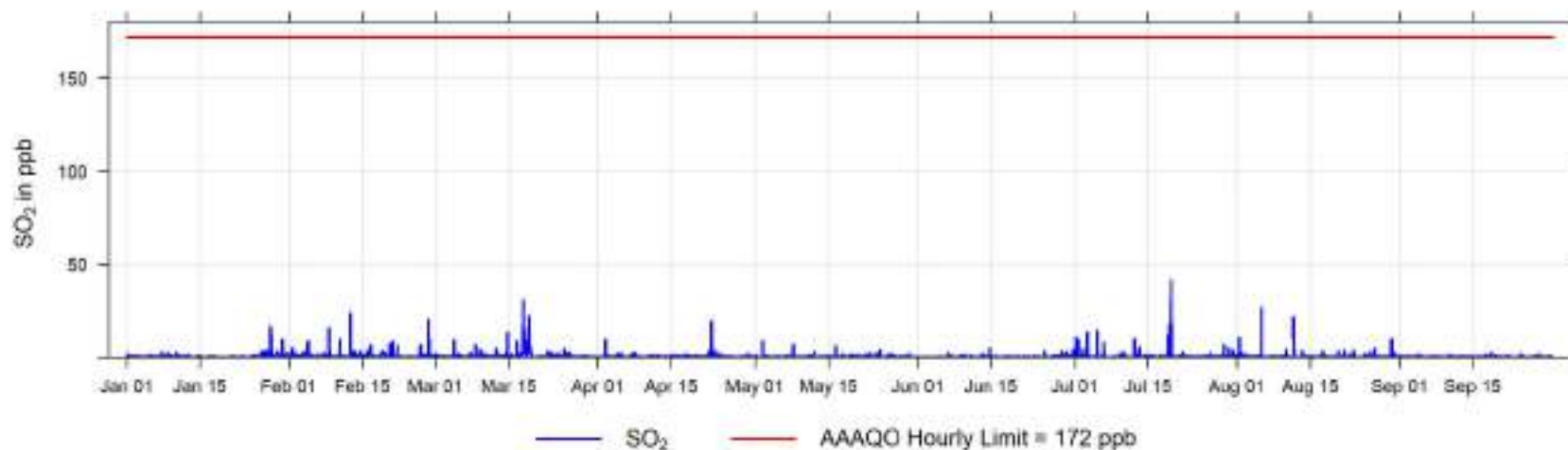
13.2 Sulphur Dioxide (SO₂) - Wembley 2021 (Jan-Sept) Summary

Sulphur Dioxide (SO₂) Frequency Distribution at Wembley

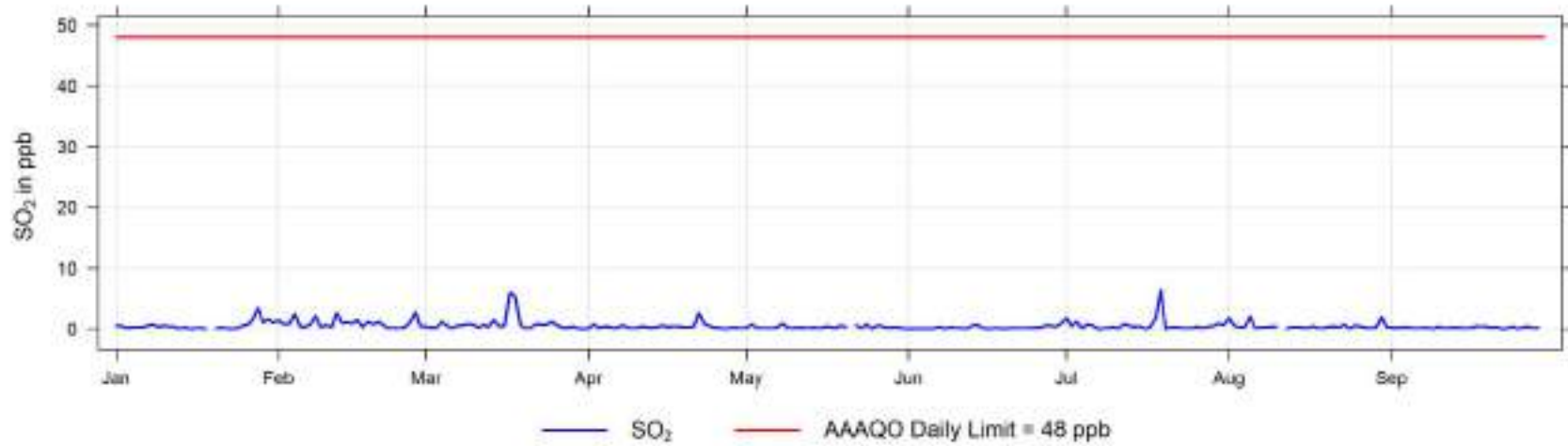
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents		
		0 to 1 (ppb)	1 to 5 (ppb)	5 to 10 (ppb)	10 to 57 (ppb)	57 to 172 (ppb)	> 172 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			30-d 11 ppb	24-hr 48 ppb	1-hr 172 ppb
January 2021	702	87.2%	12.0%	0.3%	0.6%	0.0%	0.0%	0.5	3.5	Jan 28	16.5	Jan 28 12:00	99.1%	94.4%	0	0	0
February 2021	639	75.3%	21.4%	2.7%	0.6%	0.0%	0.0%	0.9	2.7	Feb 12	23.5	Feb 12 15:00	100.0%	95.1%	0	0	0
March 2021	710	82.8%	14.1%	1.6%	1.6%	0.0%	0.0%	0.9	6.1	Mar 17	30.4	Mar 17 17:00	100.0%	95.4%	0	0	0
April 2021	686	91.1%	8.2%	0.6%	0.2%	0.0%	0.0%	0.4	2.7	Apr 22	19.5	Apr 22 14:00	100.0%	95.3%	0	0	0
May 2021	707	93.4%	5.9%	0.7%	0.0%	0.0%	0.0%	0.3	0.9	May 08	8.8	May 02 11:00	100.0%	95.0%	0	0	0
June 2021	686	96.2%	3.8%	0.0%	0.0%	0.0%	0.0%	0.2	0.9	Jun 30	4.7	Jun 14 20:00	100.0%	95.3%	0	0	0
July 2021	708	91.4%	6.2%	1.0%	1.4%	0.0%	0.0%	0.7	6.1	Jul 19	41.6	Jul 19 11:00	99.9%	95.2%	0	0	0
August 2021	707	91.8%	6.8%	0.9%	0.6%	0.0%	0.0%	0.5	2.0	Aug 05	26.6	Aug 05 18:00	100.0%	95.0%	0	0	0
September 2021	670	98.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0.2	0.5	Sep 17	2.3	Sep 18 15:00	99.9%	94.8%	0	0	0
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6215	89.8%	8.8%	0.8%	0.6%	0.0%	0.0%	-	6.1	Jul 19	41.6	Jul 19 11:00	74.7%	71.1%	0	0	0

AAAQO Objectives: Annual: 8ppb, 30-Day: 11ppb, 24-Hr: 48ppb, 1-Hr: 172ppb

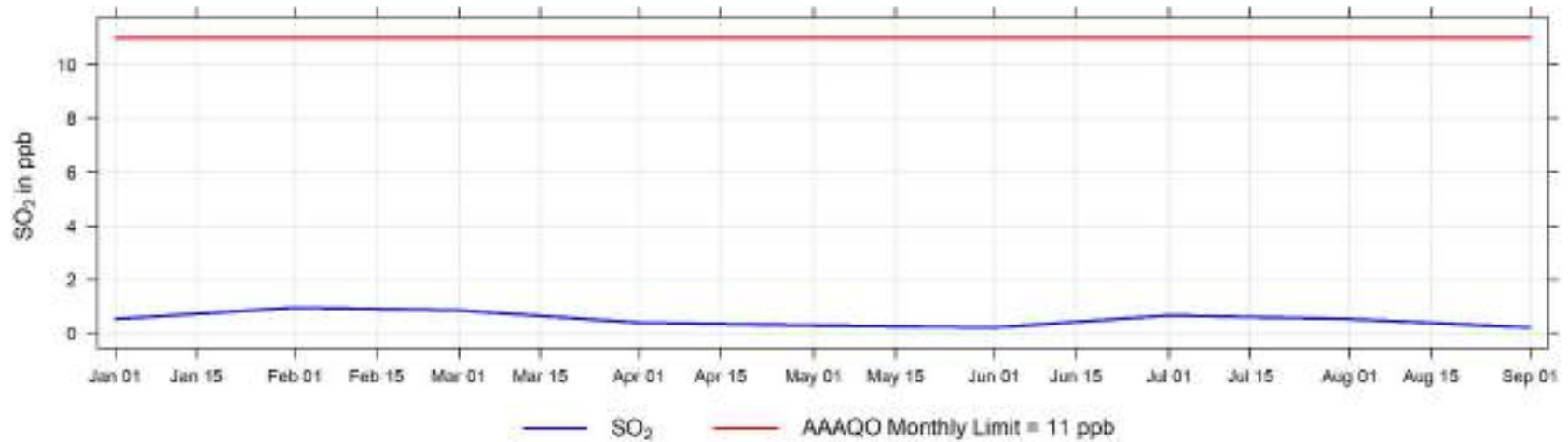
2021 Hourly Concentration Readings of SO₂ (in ppb) at Wembley

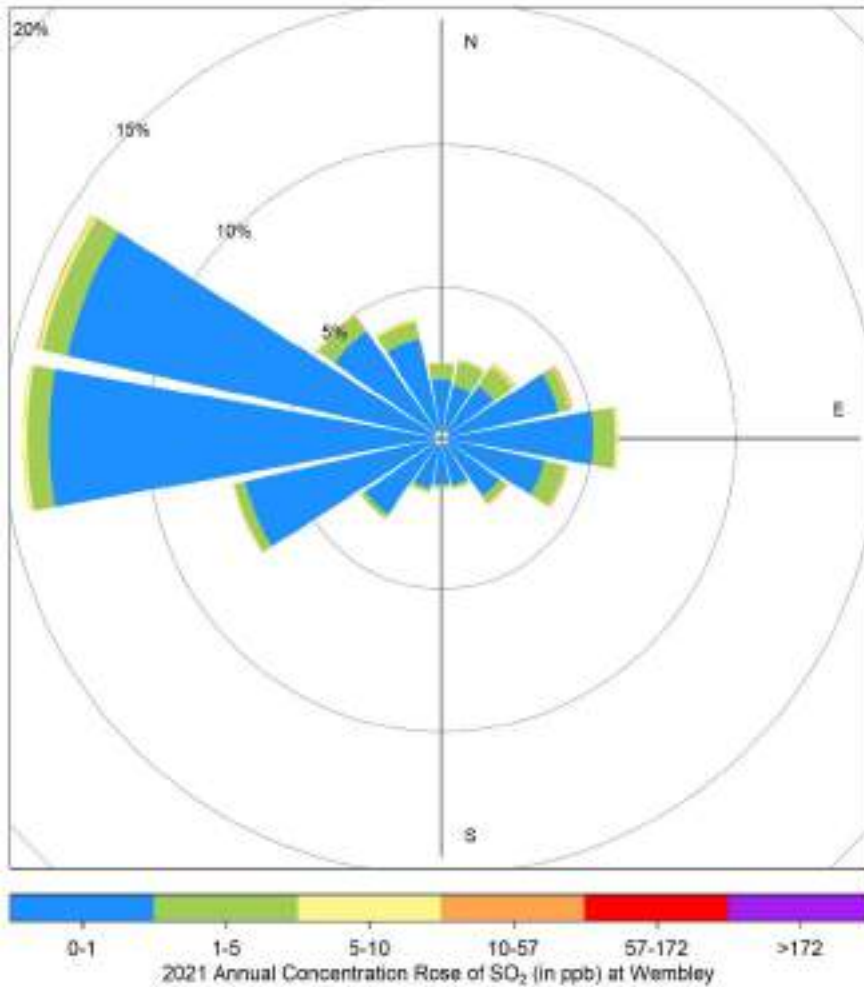


2021 Daily Concentration Readings of SO₂ (in ppb) at Wembley



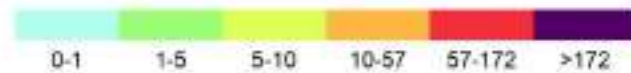
2021 Monthly Concentration Readings of SO₂ (in ppb) at Wembley





Hourly Maximum SO₂ (in ppb) for 2021 at Wembley

January-2021							February-2021							March-2021						
27	28	29	30	31	1	2	31	1	2	3	4	5	6	28	1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
April-2021							May-2021							June-2021						
28	29	30	31	1	2	3	25	26	27	28	29	30	1	30	31	1	2	3	4	5
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
July-2021							August-2021							September-2021						
27	28	29	30	1	2	3	28	29	30	31	28	30	31	1	2	3	4			
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S



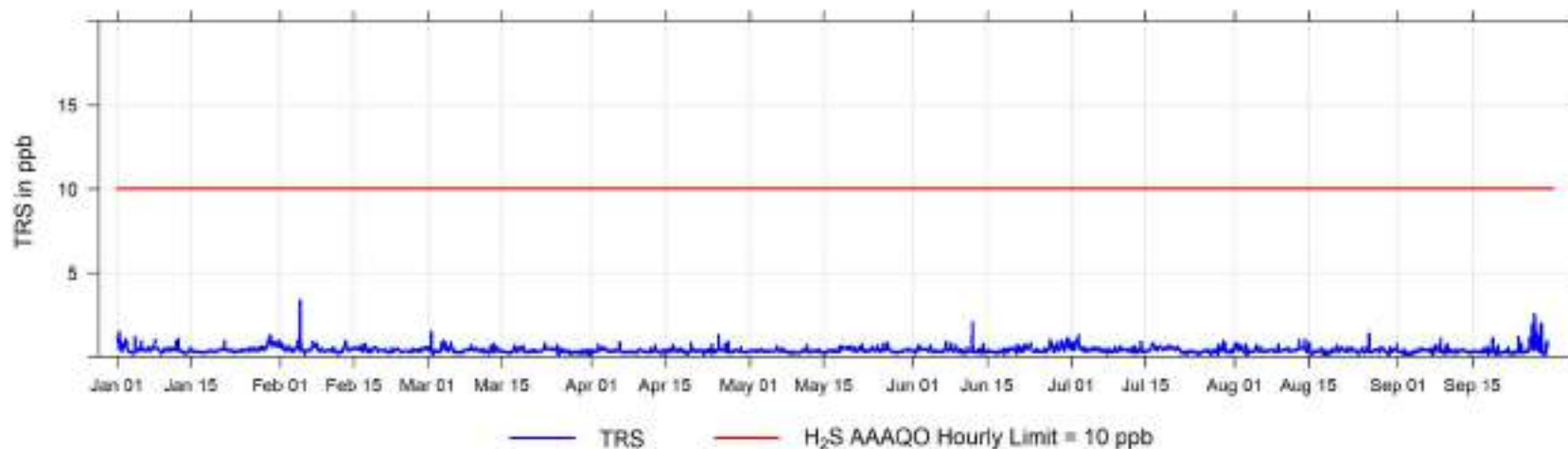
13.3 Total Reduced Sulphur (TRS) - Wembley 2021 (Jan-Sept) Summary

Total Reduced Sulphur (TRS) Frequency Distribution at Wembley

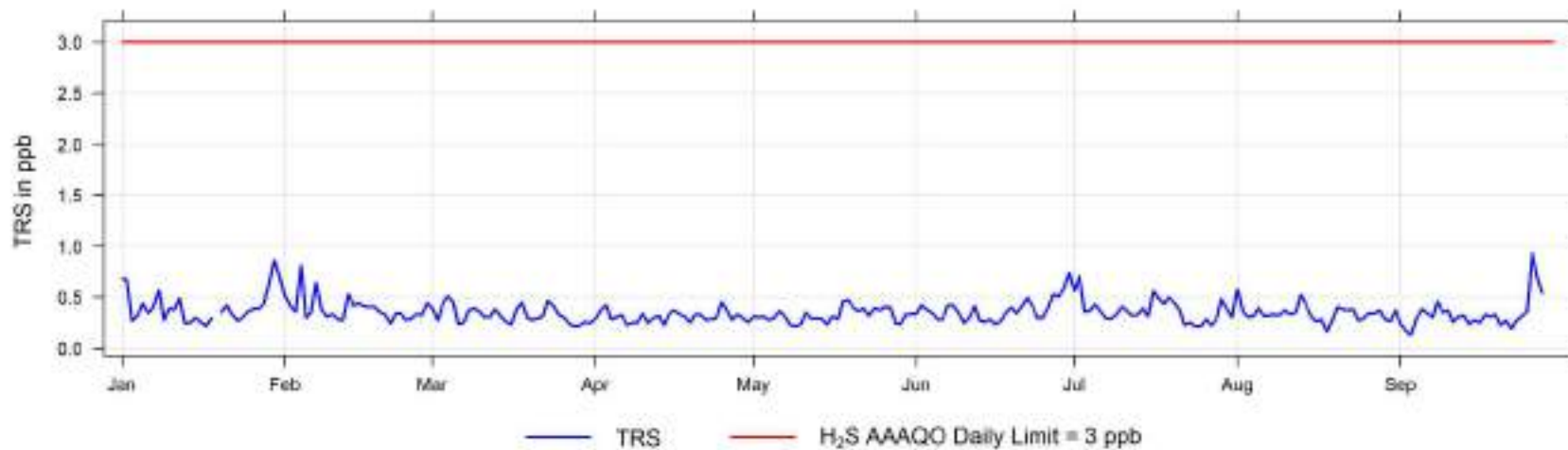
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 1 (ppb)	1 to 3 (ppb)	3 to 5 (ppb)	5 to 8 (ppb)	8 to 10 (ppb)	> 10 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date			24-hr 3 ppb	1-hr 10 ppb
January 2021	701	98.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.4	0.9	Jan 30	1.5	Jan 01 09:00	99.1%	94.2%	0	0
February 2021	639	99.7%	0.2%	0.2%	0.0%	0.0%	0.0%	0.4	0.8	Feb 04	3.3	Feb 04 18:00	100.0%	95.1%	0	0
March 2021	709	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3	0.5	Mar 04	1.5	Mar 01 15:00	100.0%	95.3%	0	0
April 2021	685	99.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.3	0.5	Apr 25	1.3	Apr 25 05:00	100.0%	95.1%	0	0
May 2021	708	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3	0.5	May 19	0.8	May 27 00:00	100.0%	95.2%	0	0
June 2021	685	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.4	0.7	Jun 30	2.0	Jun 12 06:00	100.0%	95.1%	0	0
July 2021	708	99.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.4	0.7	Jul 02	1.3	Jul 02 08:00	100.0%	95.2%	0	0
August 2021	703	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3	0.6	Aug 01	1.4	Aug 26 12:00	99.3%	94.5%	0	0
September 2021	651	96.8%	3.2%	0.0%	0.0%	0.0%	0.0%	0.3	1.0	Sep 26	2.5	Sep 26 20:00	99.9%	95.0%	0	0
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6189	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	-	1.0	MAXIMUM VALUES			74.5%	70.9%	0	0

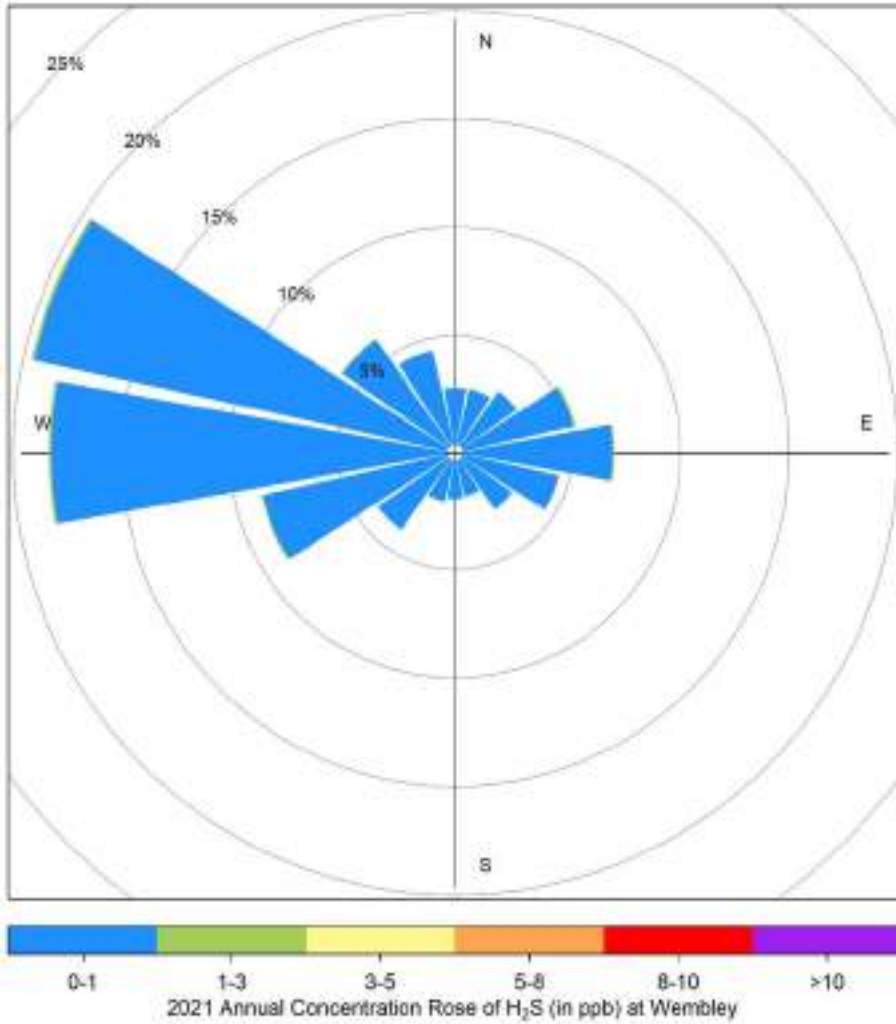
AAAQO H₂S Objectives: 24-Hr: 3ppb, 1-Hr: 10ppb

2021 Hourly Concentration Readings of TRS (in ppb) at Wembley



2021 Daily Concentration Readings of TRS (in ppb) at Wembley





Hourly Maximum TRS (in ppb) for 2021 at Wembley



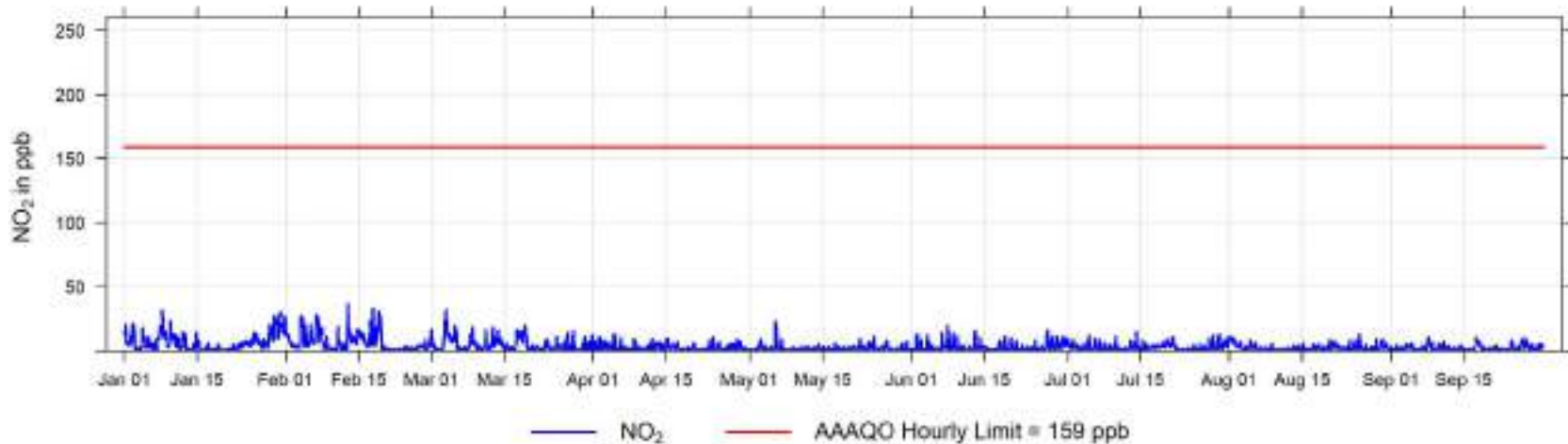
13.4 Nitrogen Dioxide (NO₂) - Wembley 2021 (Jan-Sept) Summary

Nitrogen Dioxide (NO₂) Frequency Distribution at Wembley

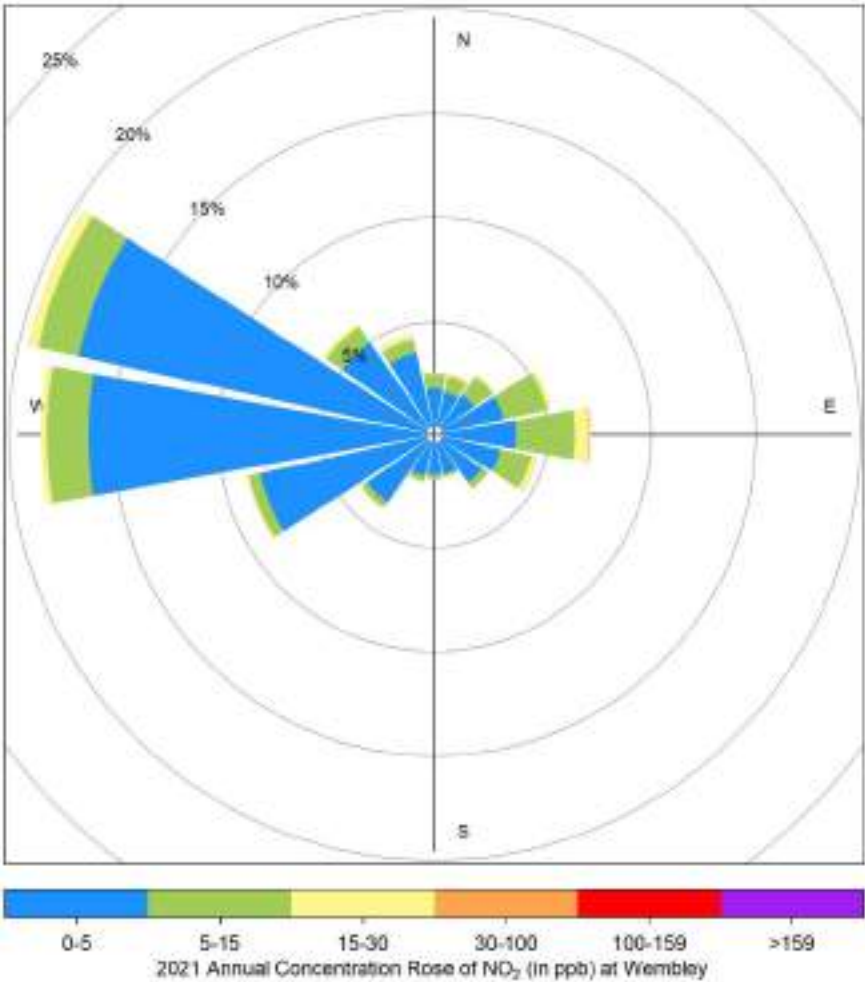
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	24-hr (ppb)	MAXIMUM VALUES		Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 159 ppb	
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)			Date	1-hr (ppb) Date				
January 2021	700	54.7%	33.4%	11.6%	0.3%	0.0%	0.0%	6.6	20.4	Jan 30	31.6	Jan 08 04:00	99.1%	94.1%	0
February 2021	638	56.4%	30.7%	11.9%	0.9%	0.0%	0.0%	6.7	15.9	Feb 07	36.7	Feb 12 22:00	100.0%	94.9%	0
March 2021	708	69.8%	25.3%	4.7%	0.3%	0.0%	0.0%	4.5	14.8	Mar 03	31.8	Mar 03 20:00	100.0%	95.2%	0
April 2021	684	89.3%	10.7%	0.0%	0.0%	0.0%	0.0%	2.2	3.6	Apr 23	12.8	Apr 04 21:00	100.0%	95.0%	0
May 2021	707	93.9%	5.5%	0.6%	0.0%	0.0%	0.0%	1.8	4.1	May 06	23.1	May 05 23:00	100.0%	95.0%	0
June 2021	685	83.2%	16.1%	0.7%	0.0%	0.0%	0.0%	2.6	6.5	Jun 30	20.0	Jun 08 01:00	100.0%	95.1%	0
July 2021	707	85.7%	14.3%	0.0%	0.0%	0.0%	0.0%	2.7	5.8	Jul 31	14.6	Jul 14 05:00	99.9%	95.0%	0
August 2021	706	88.8%	11.2%	0.0%	0.0%	0.0%	0.0%	2.3	8.3	Aug 01	12.8	Aug 26 01:00	100.0%	94.9%	0
September 2021	669	90.1%	9.9%	0.0%	0.0%	0.0%	0.0%	2.1	6.3	Sep 17	10.5	Sep 08 05:00	99.7%	94.6%	0
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6204	79.5%	17.3%	3.0%	0.2%	0.0%	0.0%	-	20.4	Jan 30	36.7	Feb 12 22:00	74.6%	70.9%	0

AAAQO Objectives: Annual: 24ppb, 1-Hr: 159ppb

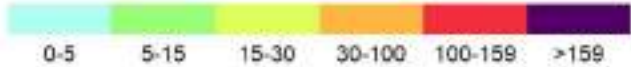
2021 Hourly Concentration Readings of NO₂ (in ppb) at Wembley



Hourly Maximum NO₂ (in ppb) for 2021 at Wembley



January-2021							February-2021							March-2021							
27	28	29	30	31	1	2	31	1	2	3	4	5	6	20	1	2	3	4	5	6	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3	
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
April-2021							May-2021							June-2021							
28	29	30	31	1	2	3	25	26	27	28	29	30	1	30	31	1	2	3	4	5	
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3	
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
July-2021							August-2021							September-2021							
27	28	29	30	1	2	3	25	26	27	28	29	30	31	29	30	31	1	2	3	4	
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11	
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18	
18	19	20	21	22	23	24	15	16	17	18	19	20	21	18	19	20	21	22	23	24	25
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2	
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	



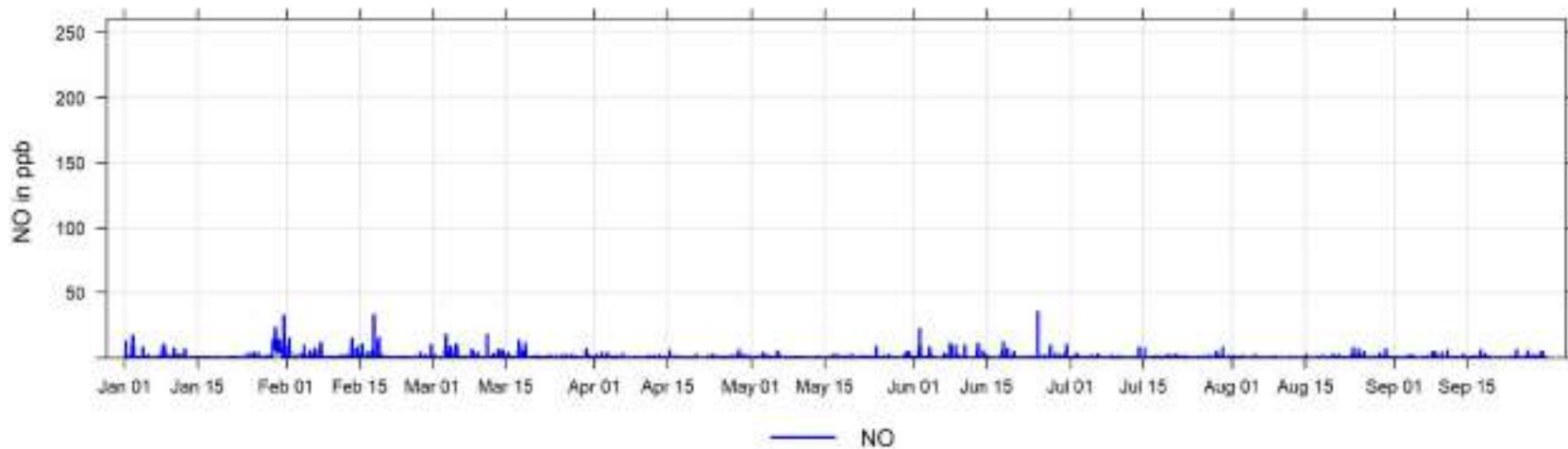
13.5 Nitric Oxide (NO) - Wembley 2021 (Jan-Sept) Summary

Nitric Oxide (NO) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	700	90.6%	8.3%	1.0%	0.1%	0.0%	0.0%	1.4	8.3	Jan 30	32.3	Jan 31 12:00	99.1%	94.1%
February 2021	638	92.6%	7.1%	0.2%	0.2%	0.0%	0.0%	1.2	4.1	Feb 18	35.4	Feb 17 18:00	100.0%	94.9%
March 2021	708	93.9%	5.8%	0.3%	0.0%	0.0%	0.0%	1.0	3.9	Mar 03	18.0	Mar 11 10:00	100.0%	95.2%
April 2021	684	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.3	1.3	Apr 28	5.7	Apr 28 15:00	100.0%	95.0%
May 2021	707	99.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.3	0.9	May 03	8.1	May 24 20:00	100.0%	95.0%
June 2021	685	96.2%	3.5%	0.2%	0.2%	0.0%	0.0%	0.7	2.4	Jun 02	35.5	Jun 24 20:00	100.0%	95.1%
July 2021	707	99.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.3	0.8	Jul 30	8.0	Jul 14 05:00	99.9%	95.0%
August 2021	706	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.3	1.3	Aug 30	7.4	Aug 24 05:00	100.0%	94.9%
September 2021	669	99.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.4	1.6	Sep 17	5.9	Sep 17 13:00	99.7%	94.6%
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6204	96.9%	2.9%	0.2%	0.1%	0.0%	0.0%	-	8.3	Jan 30	35.5	Jun 24 20:00	74.6%	70.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO (in ppb) at Wembley



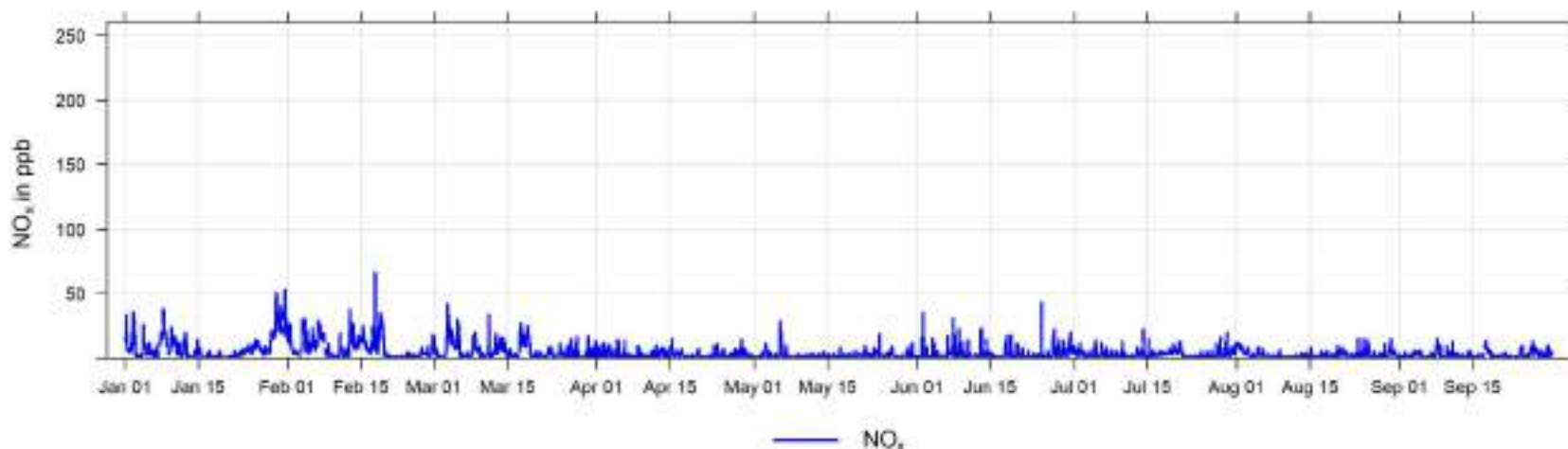
13.6 Oxides of Nitrogen (NO_x) - Wembley 2021 (Jan-Sept) Summary

Nitrogen Oxides (NO_x) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
		0 to 5 (ppb)	5 to 15 (ppb)	15 to 30 (ppb)	30 to 100 (ppb)	100 to 159 (ppb)	> 159 (ppb)		24-hr (ppb)	Date	1-hr (ppb)	Date		
January 2021	700	52.9%	28.7%	13.9%	4.6%	0.0%	0.0%	8.1	29.0	Jan 30	53.3	Jan 31 12:00	99.1%	94.1%
February 2021	638	51.7%	29.6%	16.8%	1.9%	0.0%	0.0%	7.9	20.0	Feb 18	66.5	Feb 17 18:00	100.0%	94.9%
March 2021	708	66.4%	23.3%	9.0%	1.3%	0.0%	0.0%	5.5	18.9	Mar 03	42.0	Mar 03 14:00	100.0%	95.2%
April 2021	684	87.7%	12.1%	0.2%	0.0%	0.0%	0.0%	2.5	4.7	Apr 28	15.0	Apr 15 10:00	100.0%	95.0%
May 2021	707	92.2%	6.9%	0.9%	0.0%	0.0%	0.0%	2.1	4.6	May 06	28.7	May 05 23:00	100.0%	95.0%
June 2021	685	80.6%	15.6%	3.4%	0.4%	0.0%	0.0%	3.4	7.8	Jun 30	43.0	Jun 24 20:00	100.0%	95.1%
July 2021	707	82.2%	17.3%	0.6%	0.0%	0.0%	0.0%	3.0	6.1	Jul 31	22.7	Jul 14 05:00	99.9%	95.0%
August 2021	706	86.0%	13.7%	0.3%	0.0%	0.0%	0.0%	2.6	8.9	Aug 01	15.5	Aug 24 05:00	100.0%	94.9%
September 2021	669	86.3%	13.6%	0.2%	0.0%	0.0%	0.0%	2.5	8.0	Sep 17	15.2	Sep 08 05:00	99.7%	94.6%
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6204	76.6%	17.9%	4.6%	0.9%	0.0%	0.0%	-	MAXIMUM VALUES				74.6%	70.9%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NO_x (in ppb) at Wembley



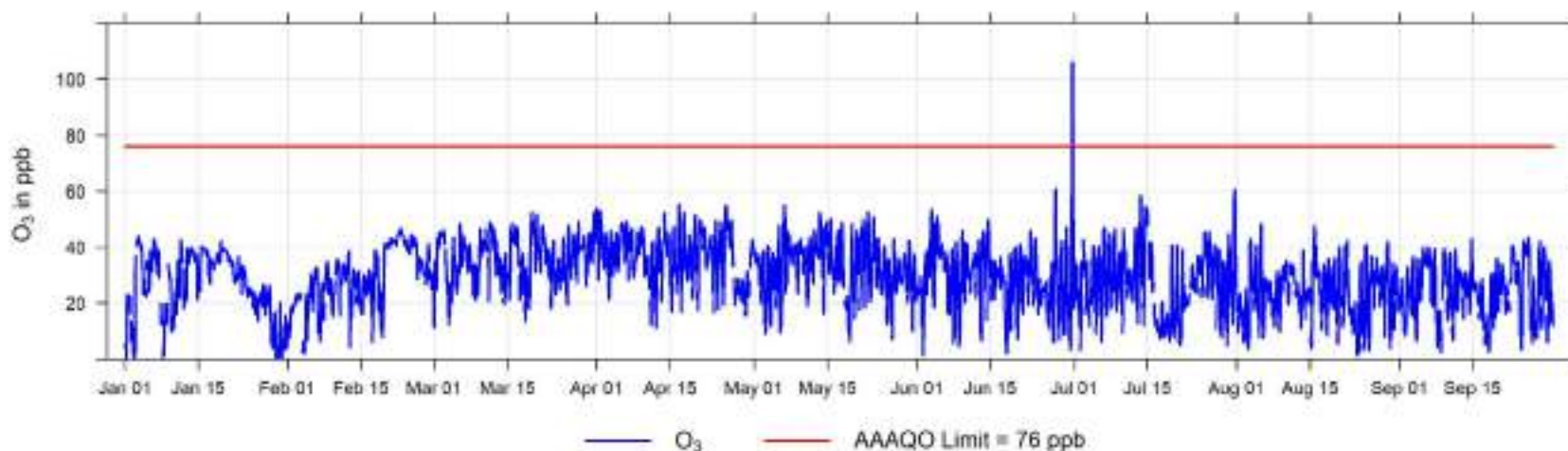
13.7 Ozone (O₃) - Wembley 2021 (Jan-Sept) Summary

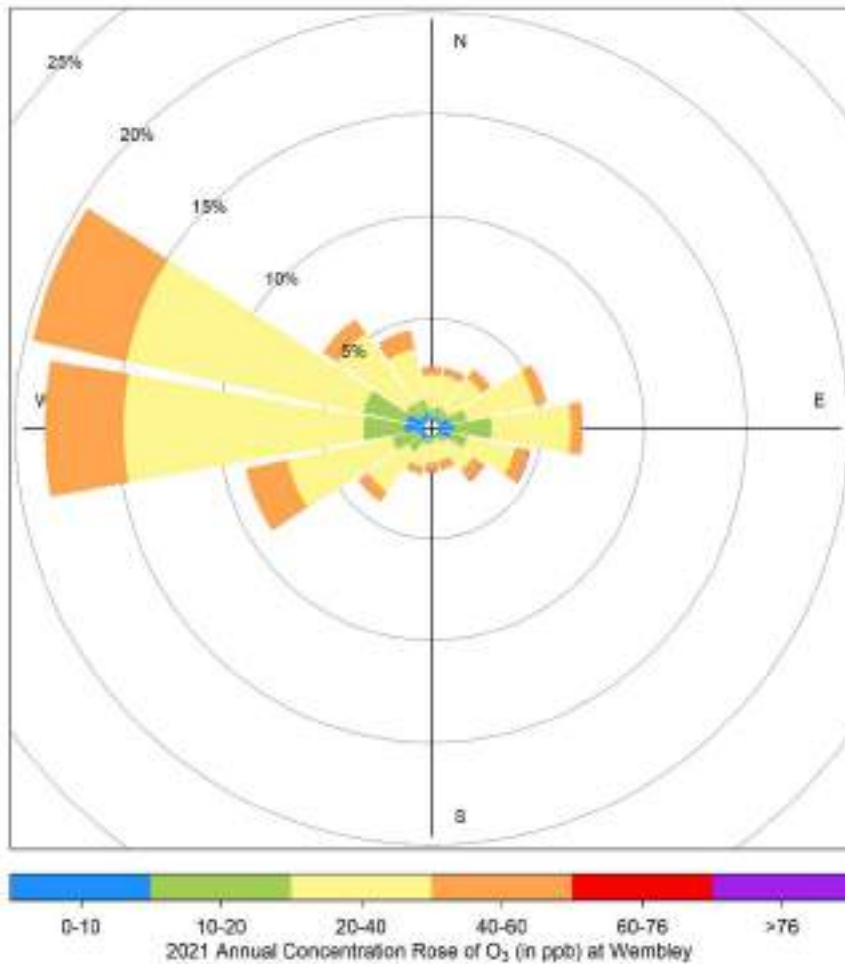
Ozone (O₃) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppb)	24-hr (ppb)	MAXIMUM VALUES		Operational time (%)	Valid time (%)	Reportable Incidents 1-hr 76 ppb	
		0 to 10 (ppb)	10 to 20 (ppb)	20 to 40 (ppb)	40 to 60 (ppb)	60 to 76 (ppb)	> 76 (ppb)			Date	1-hr (ppb)				Date
January 2021	702	11.4%	15.7%	66.1%	6.8%	0.0%	0.0%	26.2	41.5	Jan 03	44.0	Jan 03 15:00	99.1%	94.4%	0
February 2021	640	5.6%	16.3%	58.0%	20.2%	0.0%	0.0%	28.4	45.2	Feb 22	46.8	Feb 22 17:00	100.0%	95.2%	0
March 2021	709	0.0%	2.8%	60.7%	36.5%	0.0%	0.0%	36.2	45.5	Mar 31	53.7	Mar 31 22:00	100.0%	95.3%	0
April 2021	686	0.0%	4.4%	50.4%	45.2%	0.0%	0.0%	36.9	44.5	Apr 01	55.2	Apr 16 17:00	100.0%	95.3%	0
May 2021	708	1.7%	8.5%	65.7%	24.2%	0.0%	0.0%	32.9	42.6	May 13	54.9	May 06 18:00	100.0%	95.2%	0
June 2021	686	6.0%	13.0%	65.7%	14.4%	0.3%	0.6%	29.6	40.6	Jun 03	106.3	Jun 30 15:00	100.0%	95.3%	4
July 2021	708	7.9%	22.3%	54.8%	14.7%	0.3%	0.0%	27.3	38.4	Jul 14	60.6	Jul 31 17:00	99.9%	95.2%	0
August 2021	709	10.0%	26.1%	58.5%	5.4%	0.0%	0.0%	23.5	31.3	Aug 16	48.4	Aug 05 19:00	100.0%	95.3%	0
September 2021	673	10.0%	23.3%	63.0%	3.7%	0.0%	0.0%	24.7	36.1	Sep 06	43.7	Sep 25 13:00	99.9%	95.2%	0
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6221	5.8%	14.6%	60.4%	19.1%	0.1%	0.1%	-	45.5	Mar 31	106.3	Jun 30 15:00	74.7%	71.1%	4

AAAQO Objectives: 1-Hr: 76ppb

2021 Hourly Concentration Readings of O₃ (in ppb) at Wembley





Hourly Maximum O₃ (in ppb) for 2021 at Wembley



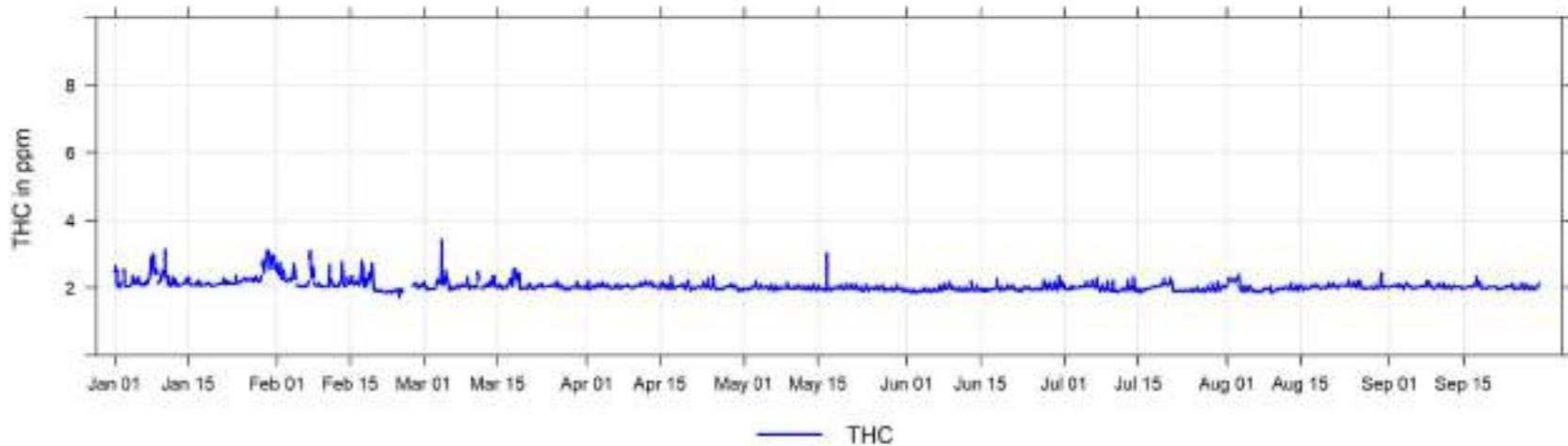
13.8 Total Hydrocarbons (THC) - Wembley 2021 (Jan-Sept) Summary

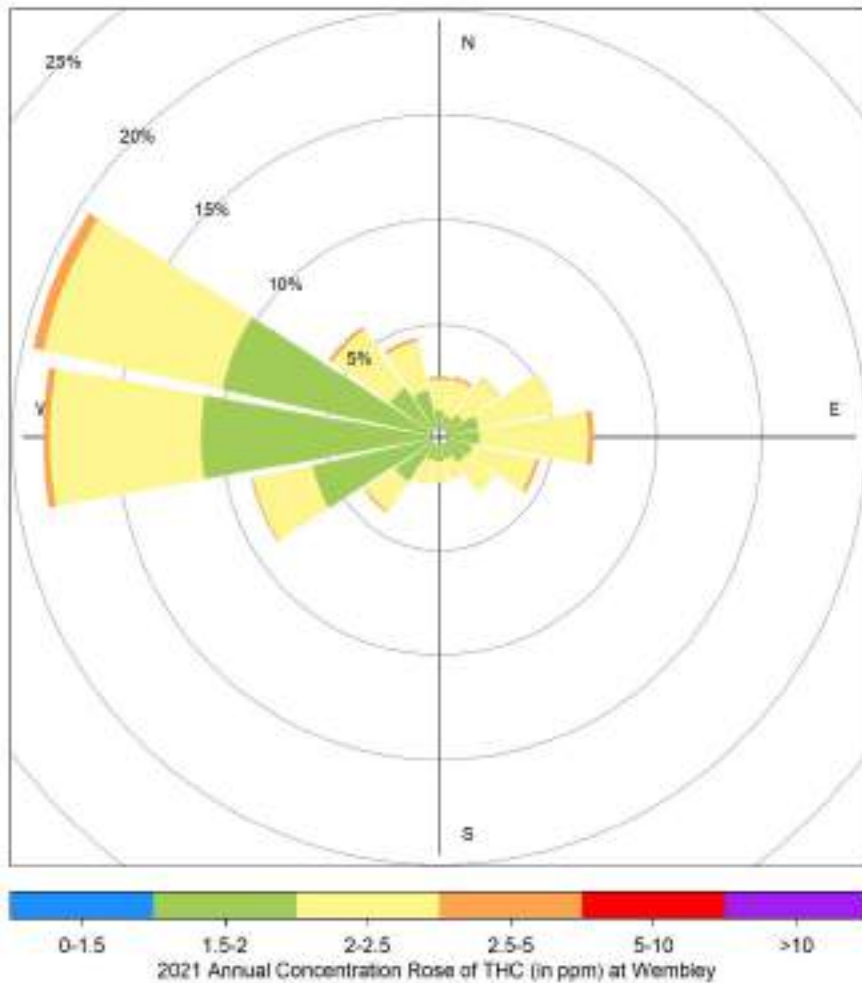
Total Hydrocarbons (THC) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date			
January 2021	697	0.0%	0.4%	85.9%	13.6%	0.0%	0.0%	2.2	2.9	Jan 30	3.1	Jan 10 15:00	98.3%	93.7%	
February 2021	601	0.0%	23.5%	69.4%	7.2%	0.0%	0.0%	2.1	2.6	Feb 07	3.1	Feb 07 09:00	94.1%	89.4%	
March 2021	707	0.0%	37.2%	61.8%	1.0%	0.0%	0.0%	2.1	2.4	Mar 18	3.4	Mar 04 10:00	100.0%	95.0%	
April 2021	684	0.0%	37.6%	62.4%	0.0%	0.0%	0.0%	2.0	2.1	Apr 12	2.4	Apr 25 05:00	100.0%	95.0%	
May 2021	709	0.0%	71.9%	27.9%	0.1%	0.0%	0.0%	2.0	2.0	May 03	3.0	May 16 19:00	100.0%	95.3%	
June 2021	686	0.0%	81.3%	18.7%	0.0%	0.0%	0.0%	2.0	2.1	Jun 30	2.4	Jun 29 23:00	100.0%	95.3%	
July 2021	709	0.0%	64.6%	35.4%	0.0%	0.0%	0.0%	2.0	2.1	Jul 20	2.3	Jul 14 05:00	100.0%	95.3%	
August 2021	709	0.0%	54.2%	45.8%	0.0%	0.0%	0.0%	2.0	2.2	Aug 01	2.5	Aug 30 09:00	100.0%	95.3%	
September 2021	653	0.0%	39.7%	60.3%	0.0%	0.0%	0.0%	2.0	2.1	Sep 17	2.3	Sep 17 12:00	99.7%	94.9%	
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Annual	6155	0.0%	46.2%	51.6%	2.2%	0.0%	0.0%	-	2.9	MAXIMUM VALUES		3.4	Mar 04 10:00	74.1%	70.5%

AAAQO Objectives: none

2021 Hourly Concentration Readings of THC (in ppm) at Wembley





Hourly Maximum THC (in ppm) for 2021 at Wembley

January-2021							February-2021							March-2021						
27	28	29	30	31	1	2	31	1	2	3	4	5	6	28	1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	1	2	3	4	5	6	28	29	30	31	1	2	3
31	1	2	3	4	5	6	7	8	9	10	11	12	13	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
April-2021							May-2021							June-2021						
28	29	30	31	1	2	3	28	29	30	31	1	2	3	30	31	1	2	3	4	5
4	5	6	7	8	9	10	4	5	6	7	8	9	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3
2	3	4	5	6	7	8	30	31	1	2	3	4	5	4	5	6	7	8	9	10
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
July-2021							August-2021							September-2021						
27	28	29	30	1	2	3	28	29	30	31	29	30	31	1	2	3	4			
4	5	6	7	8	9	10	1	2	3	4	5	6	7	5	6	7	8	9	10	11
11	12	13	14	15	16	17	8	9	10	11	12	13	14	12	13	14	15	16	17	18
18	19	20	21	22	23	24	15	16	17	18	19	20	21	19	20	21	22	23	24	25
25	26	27	28	29	30	31	22	23	24	25	26	27	28	26	27	28	29	30	1	2
1	2	3	4	5	6	7	29	30	31	1	2	3	4	3	4	5	6	7	8	9
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S



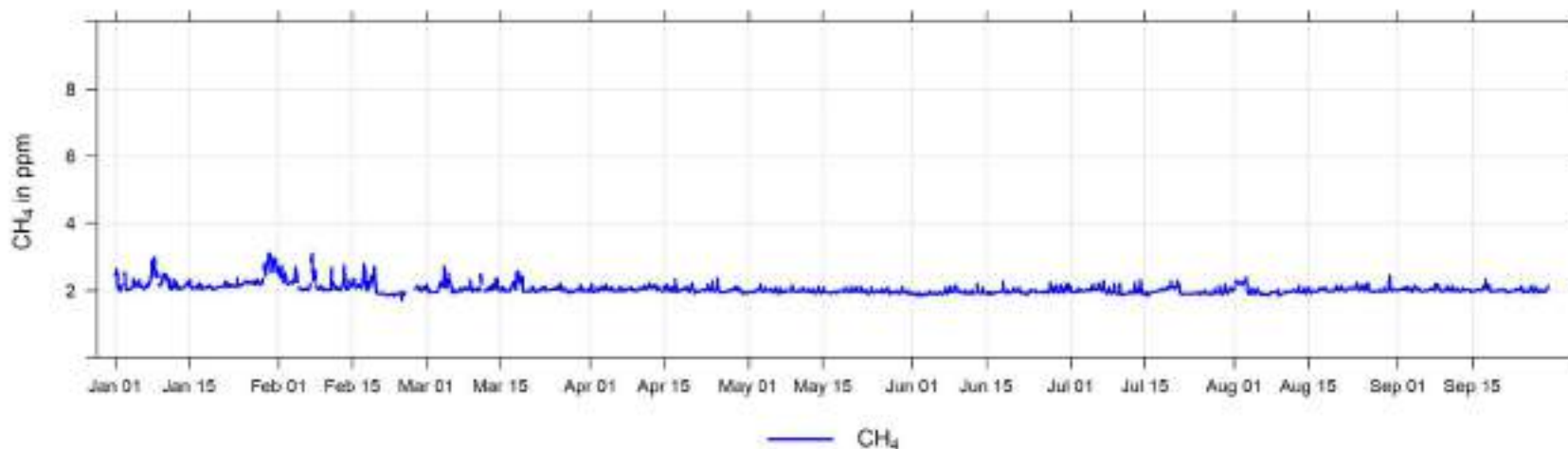
13.9 Methane (CH₄) - Wembley 2021 (Jan-Sept) Summary

Methane (CH₄) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date			
January 2021	697	0.0%	0.4%	86.5%	13.1%	0.0%	0.0%	2.2	2.9	Jan 30	3.1	Jan 30 05:00	98.3%	93.7%	
February 2021	601	0.0%	24.0%	68.9%	7.2%	0.0%	0.0%	2.1	2.6	Feb 07	3.1	Feb 07 09:00	94.1%	89.4%	
March 2021	707	0.0%	41.6%	57.6%	0.9%	0.0%	0.0%	2.1	2.4	Mar 18	2.7	Mar 04 09:00	100.0%	95.0%	
April 2021	684	0.0%	41.2%	58.8%	0.0%	0.0%	0.0%	2.0	2.1	Apr 12	2.3	Apr 25 05:00	100.0%	95.0%	
May 2021	709	0.0%	75.5%	24.5%	0.0%	0.0%	0.0%	2.0	2.0	May 03	2.2	May 03 05:00	100.0%	95.3%	
June 2021	686	0.0%	82.7%	17.4%	0.0%	0.0%	0.0%	1.9	2.1	Jun 30	2.3	Jun 18 05:00	100.0%	95.3%	
July 2021	709	0.0%	66.2%	33.9%	0.0%	0.0%	0.0%	2.0	2.1	Jul 20	2.3	Jul 14 05:00	100.0%	95.3%	
August 2021	709	0.0%	56.7%	43.3%	0.0%	0.0%	0.0%	2.0	2.2	Aug 01	2.4	Aug 30 09:00	100.0%	95.3%	
September 2021	653	0.0%	44.0%	56.1%	0.0%	0.0%	0.0%	2.0	2.1	Sep 17	2.3	Sep 17 12:00	99.7%	94.9%	
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Annual	6155	0.0%	48.6%	49.3%	2.1%	0.0%	0.0%	-	2.9	MAXIMUM VALUES		3.1	Jan 30 05:00	74.1%	70.5%

AAAQO Objectives: none

2021 Hourly Concentration Readings of CH₄ (in ppm) at Wembley



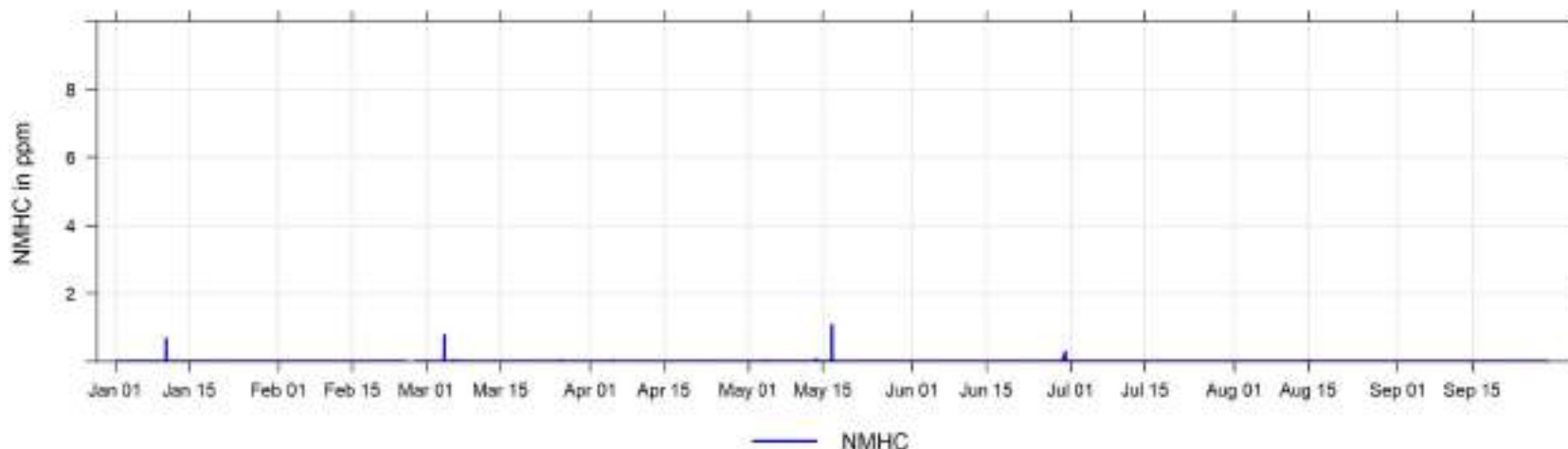
13.10 Nonmethane Hydrocarbons (NMHC) - Wembley 2021 (Jan-Sept) Summary

Nonmethane Hydrocarbons (NMHC) Frequency Distribution at Wembley

Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (ppm)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	
		0 to 1.5 (ppm)	1.5 to 2 (ppm)	2 to 2.5 (ppm)	2.5 to 5 (ppm)	5 to 10 (ppm)	> 10 (ppm)		24-hr (ppm)	Date	1-hr (ppm)	Date			
January 2021	697	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.001	0.0	Jan 10	0.7	Jan 10 15:00	98.3%	93.7%	
February 2021	601	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.000	0.0	Feb 22	0.0	Feb 22 07:00	94.1%	89.4%	
March 2021	707	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.002	0.0	Mar 04	0.8	Mar 04 10:00	100.0%	95.0%	
April 2021	684	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.000	0.0	Apr 05	0.0	Apr 05 05:00	100.0%	95.0%	
May 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.002	0.1	May 16	1.1	May 16 19:00	100.0%	95.3%	
June 2021	686	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.001	0.0	Jun 29	0.3	Jun 29 23:00	100.0%	95.3%	
July 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.000	0.0	Jul 19	0.0	Jul 19 08:00	100.0%	95.3%	
August 2021	709	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.000	0.0	Aug 14	0.0	Aug 14 21:00	100.0%	95.3%	
September 2021	653	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.000	0.0	Sep 21	0.0	Sep 29 12:00	99.7%	94.9%	
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Annual	6155	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.1	MAXIMUM VALUES		1.1	May 16 19:00	74.1%	70.5%

AAAQO Objectives: none

2021 Hourly Concentration Readings of NMHC (in ppm) at Wembley



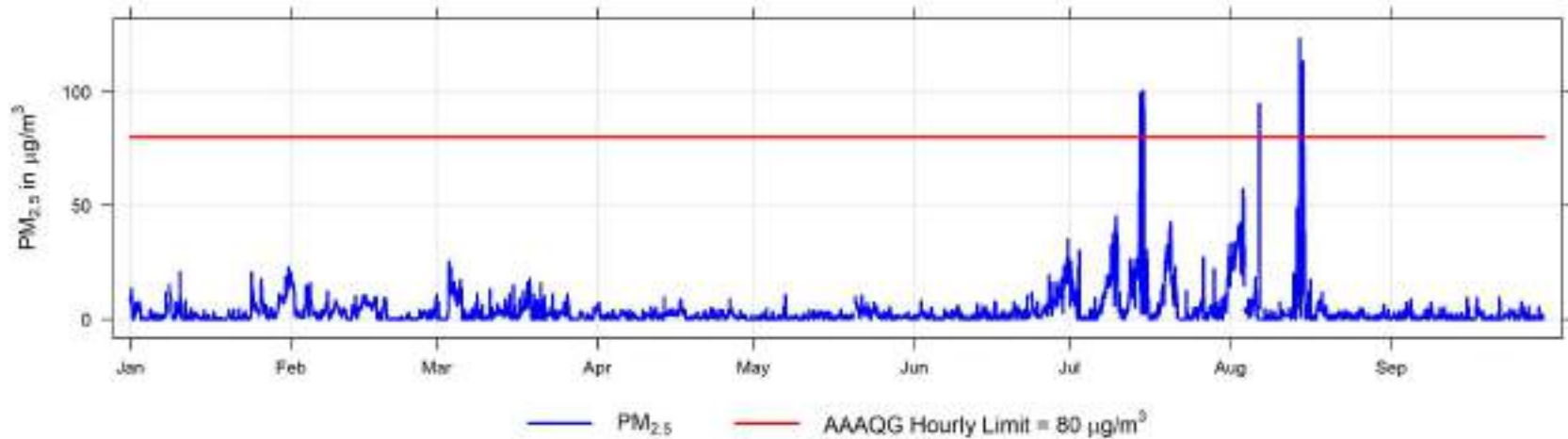
13.11 Particulate Matter (PM_{2.5}) - Wembley 2021 (Jan-Sept) Summary

Particulate Matter (PM_{2.5}) Frequency Distribution at Wembley

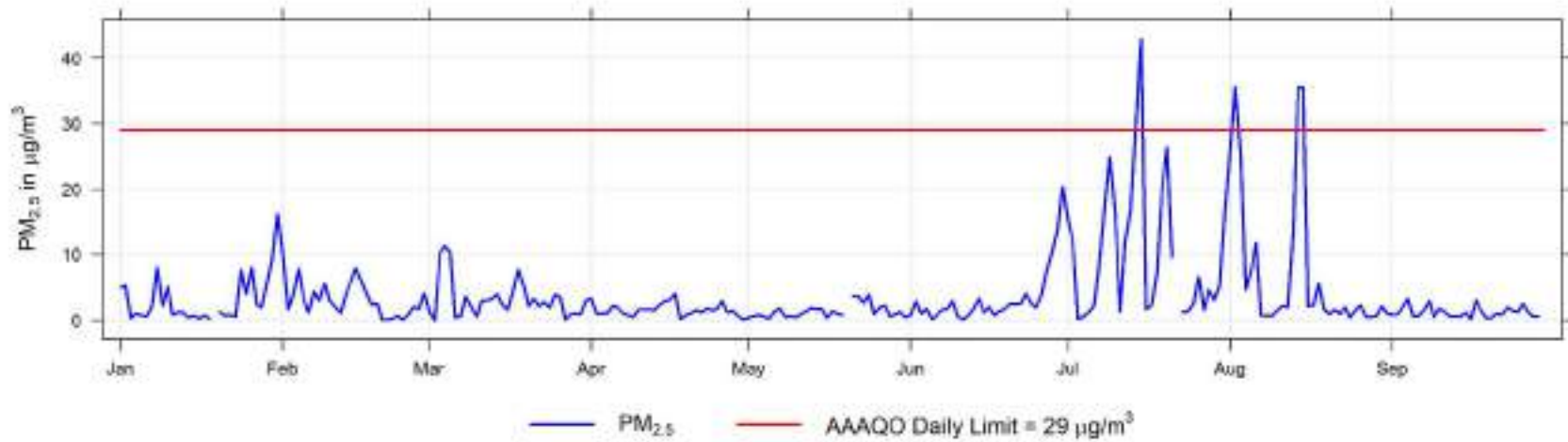
Month	Valid Hours	% of Readings in Concentration Range						Monthly Average (µg/m ³)	MAXIMUM VALUES				Operational time (%)	Valid time (%)	Reportable Incidents	
		0 to 5 (µg/m ³)	5 to 15 (µg/m ³)	15 to 30 (µg/m ³)	30 to 50 (µg/m ³)	50 to 80 (µg/m ³)	> 80 (µg/m ³)		24-hr (µg/m ³)	Date	1-hr (µg/m ³)	Date			24-hr 29 µg/m ³	1-hr 80 µg/m ³
January 2021	734	78.8%	18.1%	3.1%	0.0%	0.0%	0.0%	3.0	16.2	Jan 31	22.8	Jan 31 12:00	99.1%	98.7%	0	0
February 2021	671	75.4%	23.7%	0.9%	0.0%	0.0%	0.0%	3.2	9.8	Feb 01	17.6	Feb 01 02:00	100.0%	99.9%	0	0
March 2021	738	77.5%	20.5%	2.0%	0.0%	0.0%	0.0%	3.2	11.1	Mar 04	25.5	Mar 03 11:00	100.0%	99.2%	0	0
April 2021	716	97.8%	2.2%	0.0%	0.0%	0.0%	0.0%	1.6	3.8	Apr 17	9.6	Apr 13 20:00	100.0%	99.4%	0	0
May 2021	736	96.1%	3.9%	0.0%	0.0%	0.0%	0.0%	1.4	3.8	May 24	10.5	May 07 05:00	100.0%	98.9%	0	0
June 2021	717	82.7%	12.0%	5.2%	0.1%	0.0%	0.1%	3.3	20.5	Jun 30	35.0	Jun 30 14:00	100.0%	99.6%	0	0
July 2021	739	51.7%	25.0%	16.8%	4.6%	0.7%	6.9%	9.9	39.5	Jul 15	100.6	Jul 15 04:00	99.9%	99.3%	2	9
August 2021	733	76.5%	9.8%	6.3%	5.3%	1.4%	7.8%	6.8	35.3	Aug 02	123.5	Aug 14 08:00	98.8%	98.5%	2	5
September 2021	699	96.0%	4.0%	0.0%	0.0%	0.0%	0.0%	1.2	3.3	Sep 04	9.5	Sep 21 19:00	99.7%	98.9%	0	0
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6483	81.4%	13.2%	3.9%	1.1%	0.2%	1.7%	-	39.5	MAXIMUM VALUES		74.5%	74.1%	4	14	

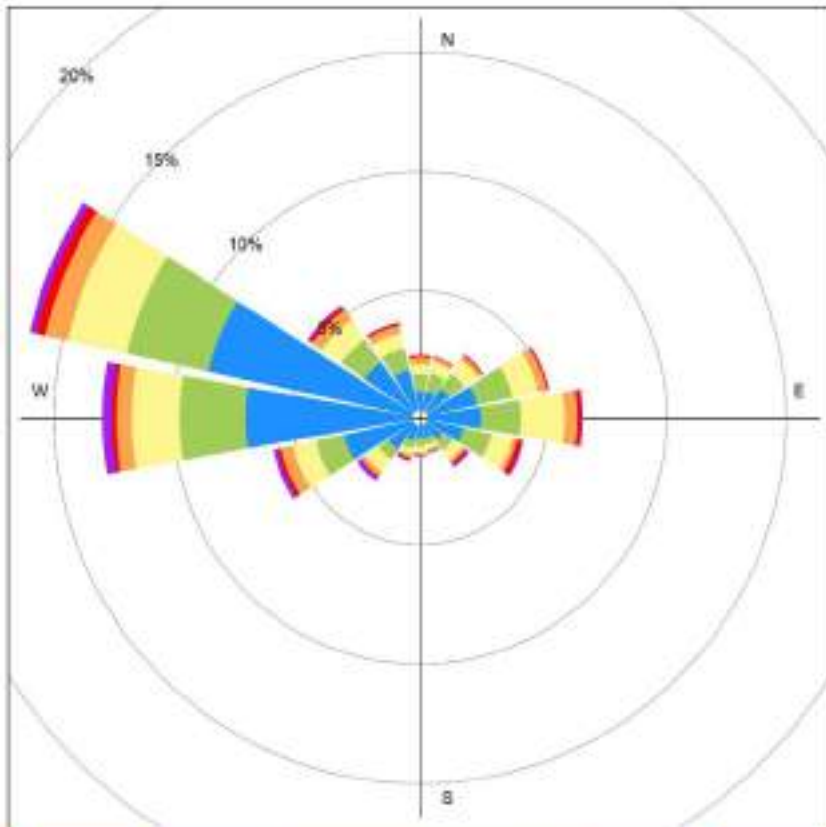
AAAQO Objectives: 24-Hr: 29 µg/m³, AAAQO Guideline: 1-Hr: 80 µg/m³

2021 Hourly Concentration Readings of PM_{2.5} in µg/m³ at Wembley



2021 Daily Concentration Readings of PM_{2.5} in $\mu\text{g}/\text{m}^3$ at Wembley





2021 Annual Concentration Readings of PM_{2.5} in µg/m³ at Wembley

Hourly Maximum PM_{2.5} (in µg/m³) for 2021 at Wembley

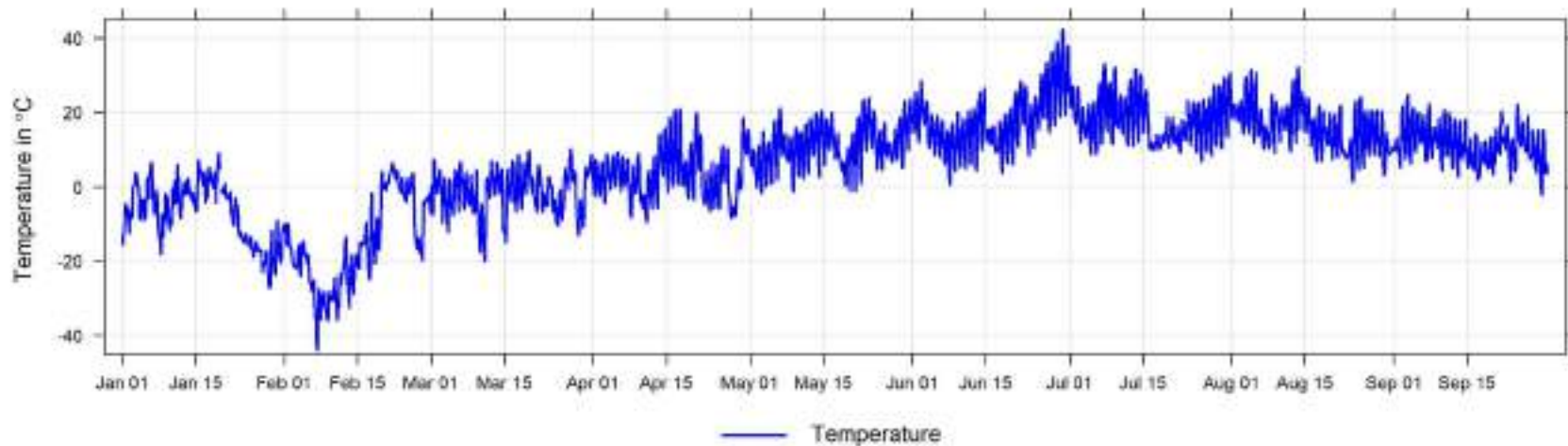


13.12 Temperature (ET) - Wembley 2021 (Jan-Sept) Summary

Temperature (ET) Frequency Distribution at Wembley

Month	Valid Hours	Monthly Average (°C)	Maximum Values			Minimum Values			Operational time (%)	Valid time (%)		
			24-hr (°C)	Date	1-hr (°C)	Date	24-hr (°C)	Date			1-hr (°C)	Date
January 2021	737	-7.0	2.1	Jan 17	9.1	Jan 19 13:00	-21.2	Jan 29	-27.2	Jan 29 04:00	99.1%	99.1%
February 2021	672	-15.5	4.6	Feb 21	6.4	Feb 21 14:00	-36.3	Feb 07	-44.1	Feb 07 09:00	100.0%	100.0%
March 2021	744	-1.4	5.5	Mar 31	10.3	Mar 27 16:00	-10.9	Mar 10	-20.1	Mar 11 04:00	100.0%	100.0%
April 2021	720	3.5	11.6	Apr 30	20.9	Apr 17 15:00	-6.4	Apr 27	-9.5	Apr 11 06:00	100.0%	100.0%
May 2021	744	10.9	17.8	May 31	23.9	May 23 18:00	5.5	May 18	-1.6	May 03 06:00	100.0%	100.0%
June 2021	720	17.8	30.8	Jun 29	42.4	Jun 29 16:00	10.3	Jun 08	0.6	Jun 08 05:00	100.0%	100.0%
July 2021	742	18.2	22.9	Jul 07	33.1	Jul 07 17:00	11.8	Jul 17	6.8	Jul 26 05:00	99.7%	99.7%
August 2021	744	16.0	23.6	Aug 13	32.1	Aug 13 16:00	8.6	Aug 22	1.3	Aug 24 06:00	100.0%	100.0%
September 2021	704	11.3	15.8	Sep 03	24.8	Sep 03 17:00	5.4	Sep 29	-2.0	Sep 29 08:00	99.6%	99.6%
October 2021	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-
6527		AVERAGE	30.8	MAXIMUM VALUES			MINIMUM VALUES			74.6%	74.6%	

2021 Hourly Temperature Readings (in °C) at Wembley

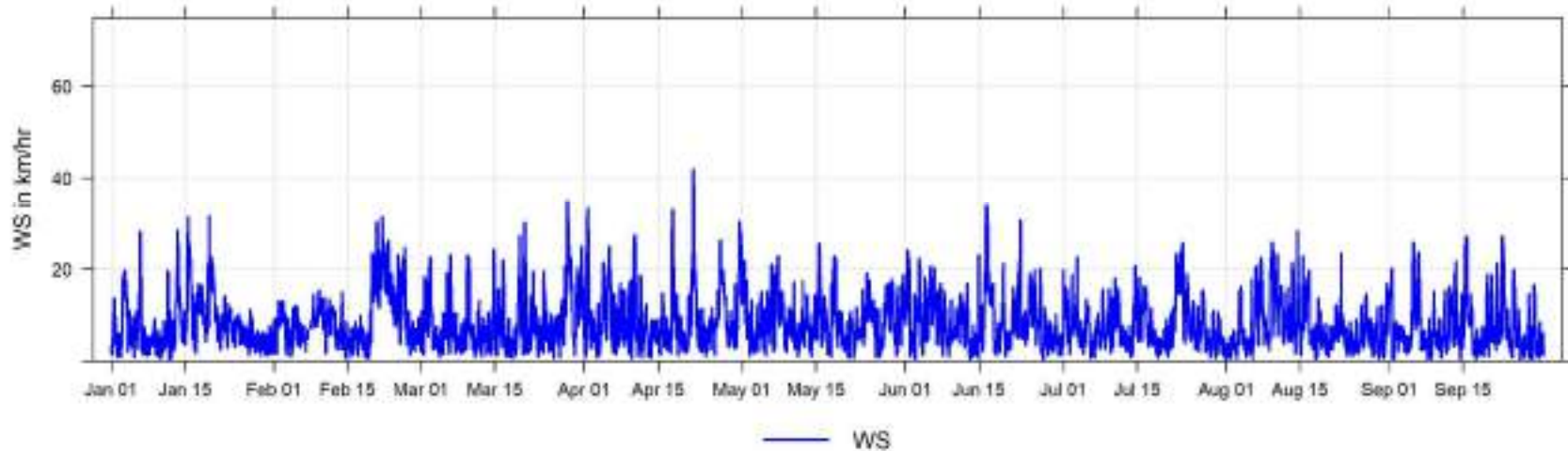


13.13 Wind Speed and Wind Direction (WS and WD) - Wembley 2021 (Jan-Sept) Summary

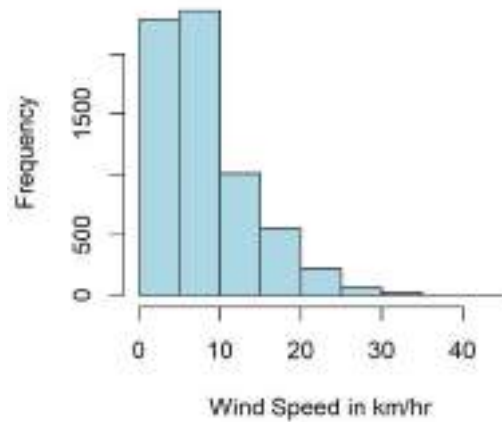
Wind Speed Frequency Distribution at Wembley

Month	Valid Hours	Calm	% of Readings in Concentration Range					Monthly Average (km/hr)	MAXIMUM VALUES				Operational time (%)	Valid time (%)
			0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)		24-hr (km/hr)	Date	1-hr (km/hr)	Date		
January 2021	737	0.1%	36.0%	42.5%	15.6%	5.2%	0.7%	8.0	16.1	Jan 15	31.6	Jan 19 14:00	99.1%	99.1%
February 2021	654	0.2%	28.8%	43.6%	18.2%	8.4%	0.9%	9.0	22.4	Feb 21	31.4	Feb 21 13:00	97.3%	97.3%
March 2021	744	0.0%	36.7%	39.4%	15.1%	8.1%	0.8%	8.2	18.4	Mar 28	34.9	Mar 28 17:00	100.0%	100.0%
April 2021	720	0.0%	27.2%	44.2%	18.9%	7.6%	2.1%	9.4	20.1	Apr 30	41.9	Apr 21 17:00	100.0%	100.0%
May 2021	744	0.0%	25.9%	46.9%	23.3%	3.9%	0.0%	8.5	14.0	May 18	25.7	May 15 15:00	100.0%	100.0%
June 2021	720	0.4%	31.5%	38.5%	23.3%	4.9%	1.4%	8.7	23.0	Jun 16	33.9	Jun 16 11:00	100.0%	100.0%
July 2021	742	0.1%	38.4%	39.2%	18.7%	3.5%	0.0%	7.6	18.2	Jul 23	25.8	Jul 23 17:00	99.7%	99.7%
August 2021	744	0.5%	40.5%	36.8%	16.5%	5.5%	0.1%	7.6	15.7	Aug 09	28.4	Aug 14 13:00	100.0%	100.0%
September 2021	704	1.3%	46.9%	30.8%	16.5%	4.6%	0.0%	7.2	15.2	Sep 15	27.2	Sep 15 14:00	99.6%	99.6%
October 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
November 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
December 2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annual	6509	0.3%	34.7%	40.2%	18.5%	5.7%	0.7%	-	23.0	Jun 16	41.9	Apr 21 17:00	74.4%	74.4%

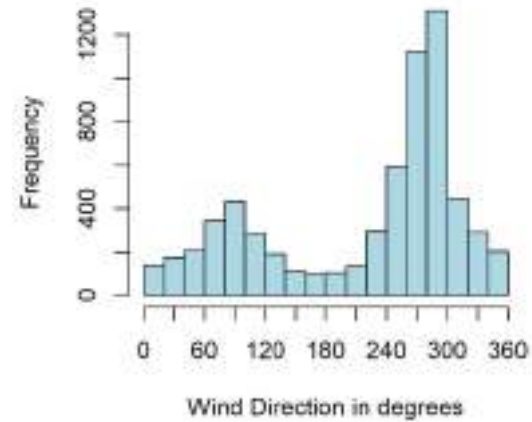
2021 Hourly Readings of Wind Speed (in km/hr) at Wembley



2021 Wind Speed Histogram

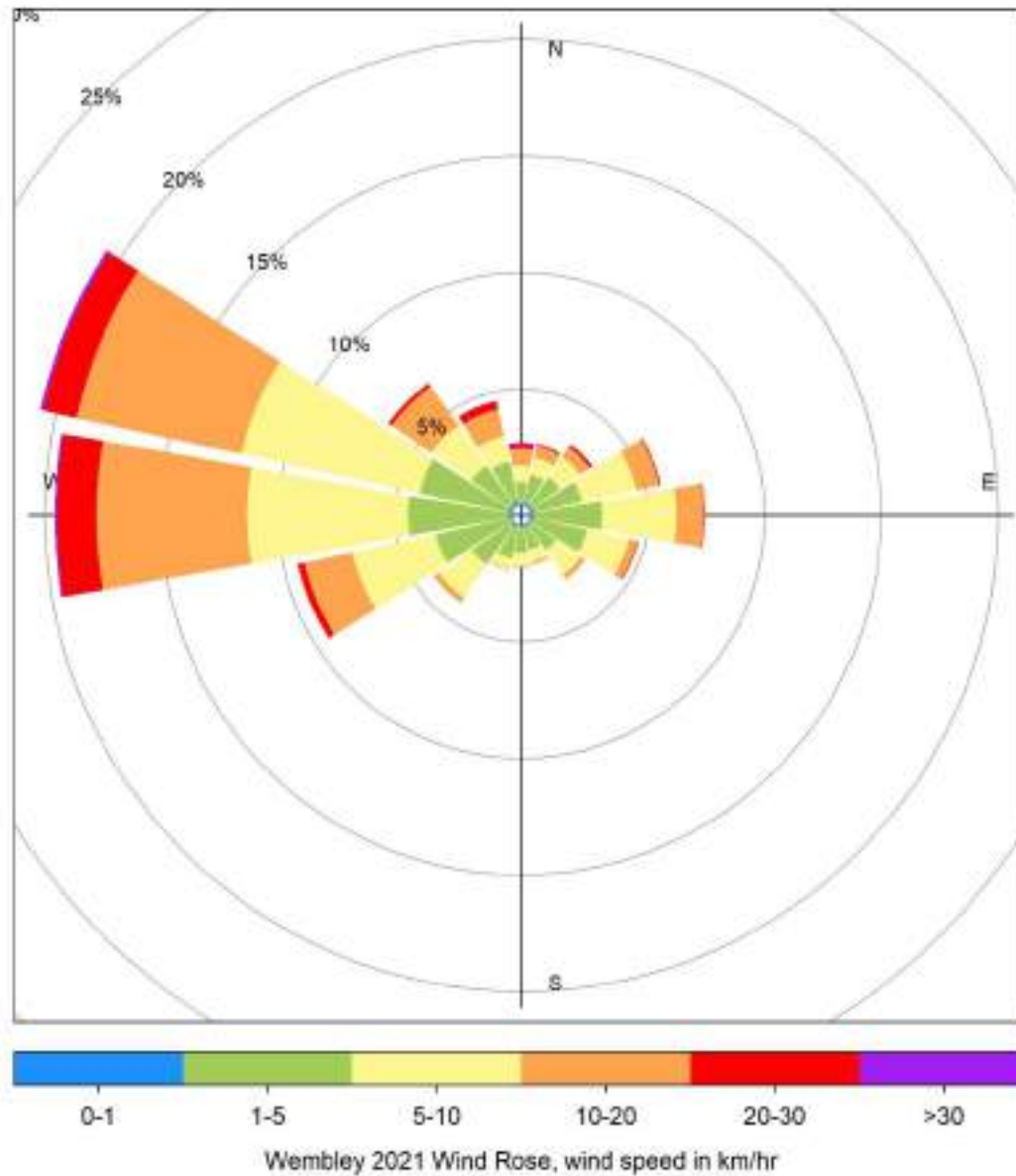


2021 Wind Direction Histogram



Wind Speed and Wind Direction Frequency Distribution at Wembley

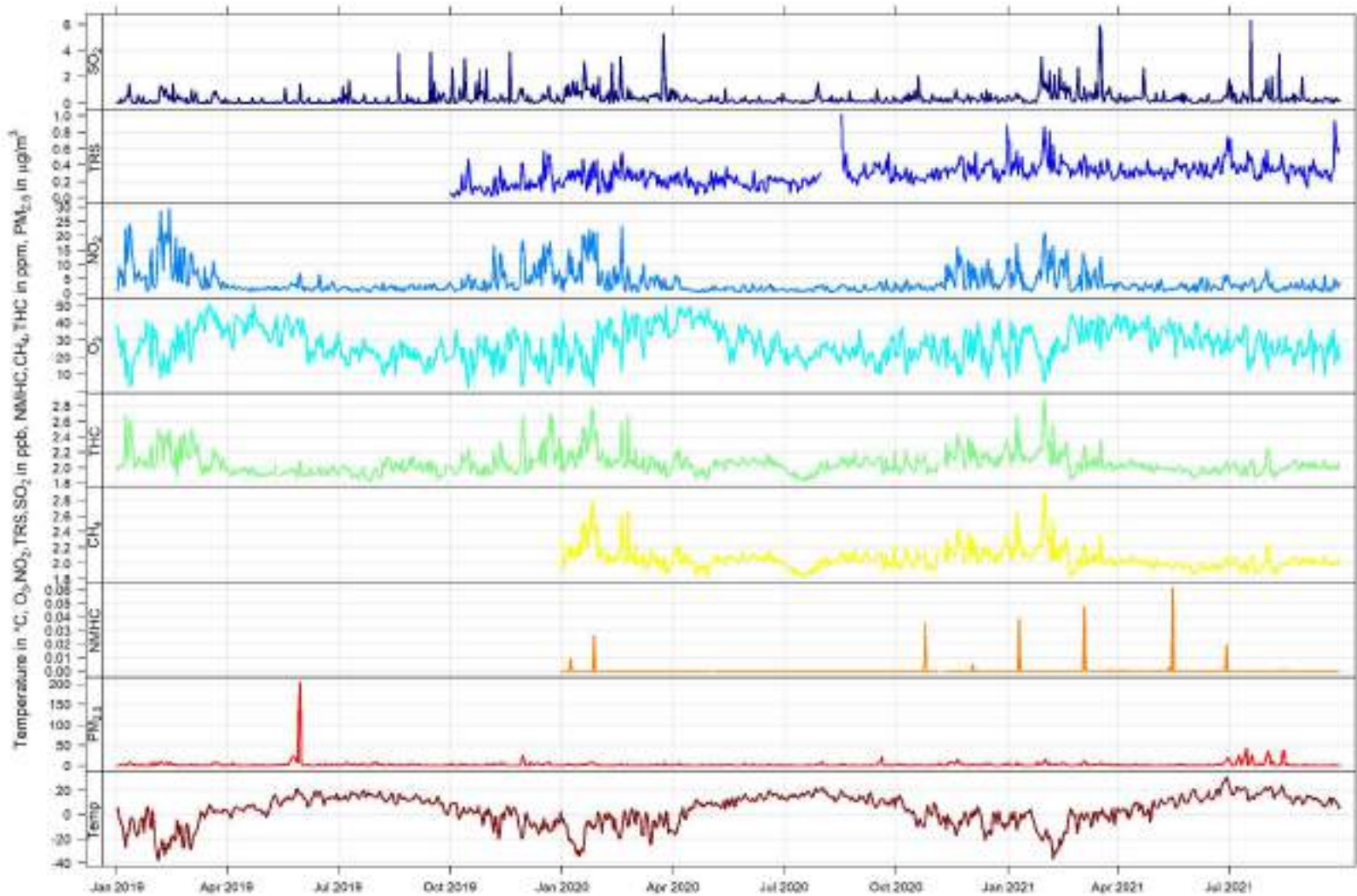
Direction	Number of Readings	% of wind speed range						Total %
		Calm (<0.5) (km/hr)	0.5 to 5 (km/hr)	5 to 11 (km/hr)	11 to 19 (km/hr)	19 to 28 (km/hr)	>28 (km/hr)	
N	176	0.0%	1.0%	0.9%	0.4%	0.2%	0.1%	2.7%
NNE	177	0.0%	1.4%	0.9%	0.4%	0.0%	0.0%	2.7%
NE	214	0.1%	1.5%	1.2%	0.4%	0.2%	0.0%	3.3%
ENE	372	0.0%	2.2%	2.5%	0.8%	0.1%	0.0%	5.7%
E	486	0.0%	3.0%	3.6%	0.8%	0.1%	0.0%	7.5%
ESE	307	0.0%	2.5%	2.0%	0.2%	0.1%	0.0%	4.7%
SE	191	0.0%	1.4%	1.4%	0.2%	0.0%	0.0%	2.9%
SSE	115	0.0%	1.0%	0.7%	0.0%	0.0%	0.0%	1.8%
S	119	0.0%	1.2%	0.6%	0.1%	0.0%	0.0%	1.8%
SSW	131	0.0%	1.5%	0.5%	0.0%	0.0%	0.0%	2.0%
SW	270	0.0%	2.2%	1.8%	0.1%	0.0%	0.0%	4.1%
WSW	610	0.0%	3.3%	4.1%	1.6%	0.4%	0.0%	9.4%
W	1273	0.0%	4.4%	7.8%	5.0%	2.1%	0.2%	19.6%
WNW	1346	0.0%	4.0%	8.9%	5.6%	1.9%	0.2%	20.7%
NW	423	0.0%	2.2%	2.3%	1.8%	0.2%	0.0%	6.5%
NNW	299	0.0%	1.9%	1.2%	1.0%	0.4%	0.0%	4.6%
Total	6509	0.3%	34.7%	40.2%	18.5%	5.7%	0.7%	100.0%



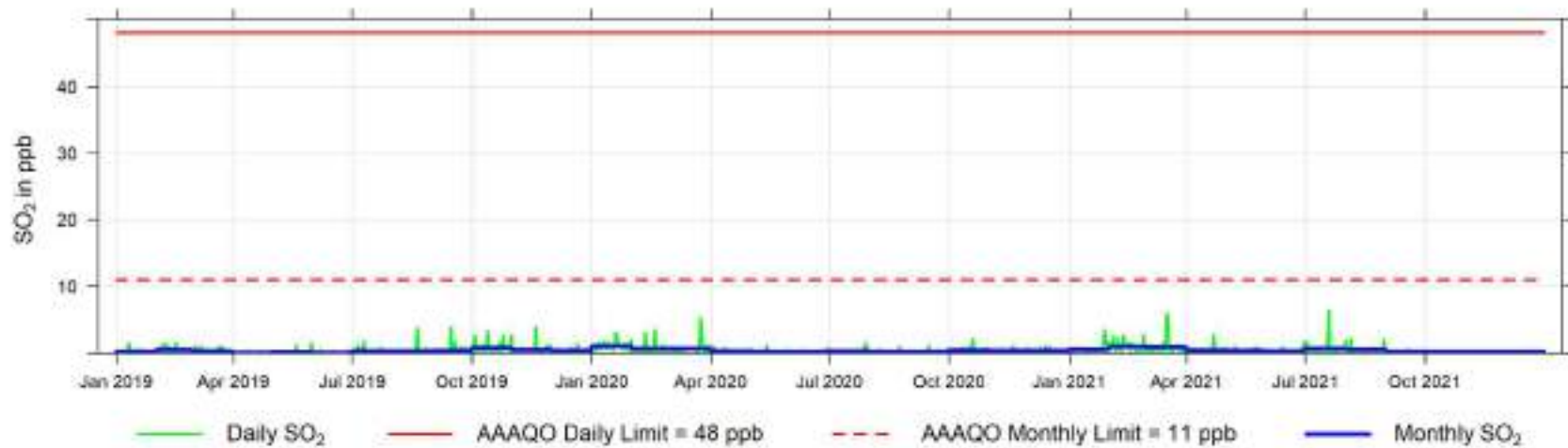
13.14 Wembley Annual Trends, 2019 to 2021 (Jan-Sept)

The following pages include historical annual charts collected between 2019 and 2021 (Jan-Sept) at the Wembley Station.

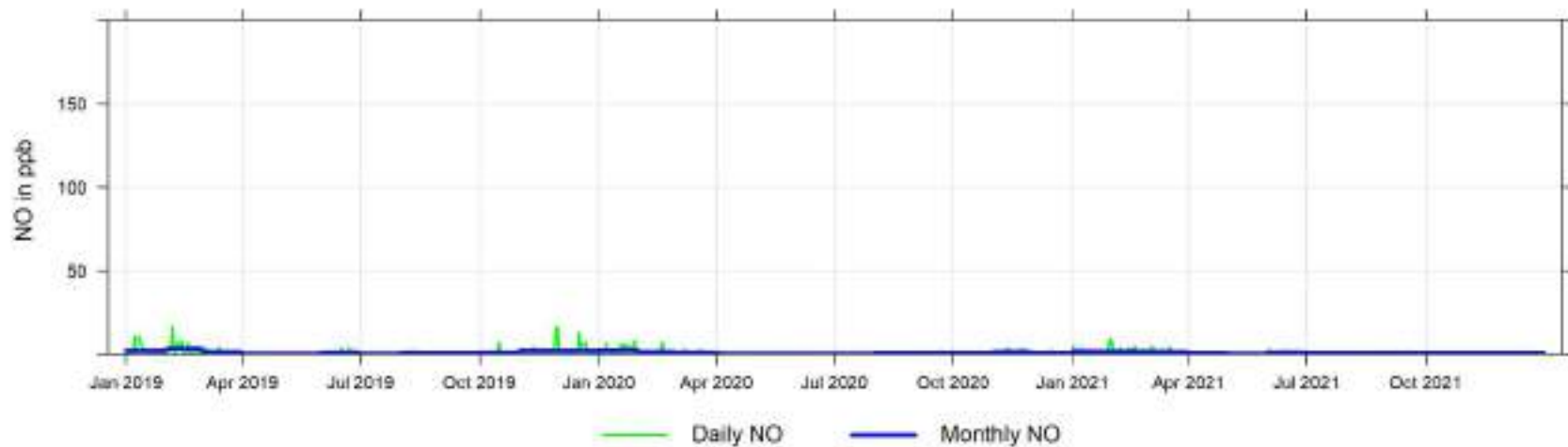
2019 to 2021 Daily Concentration Readings at Wembley



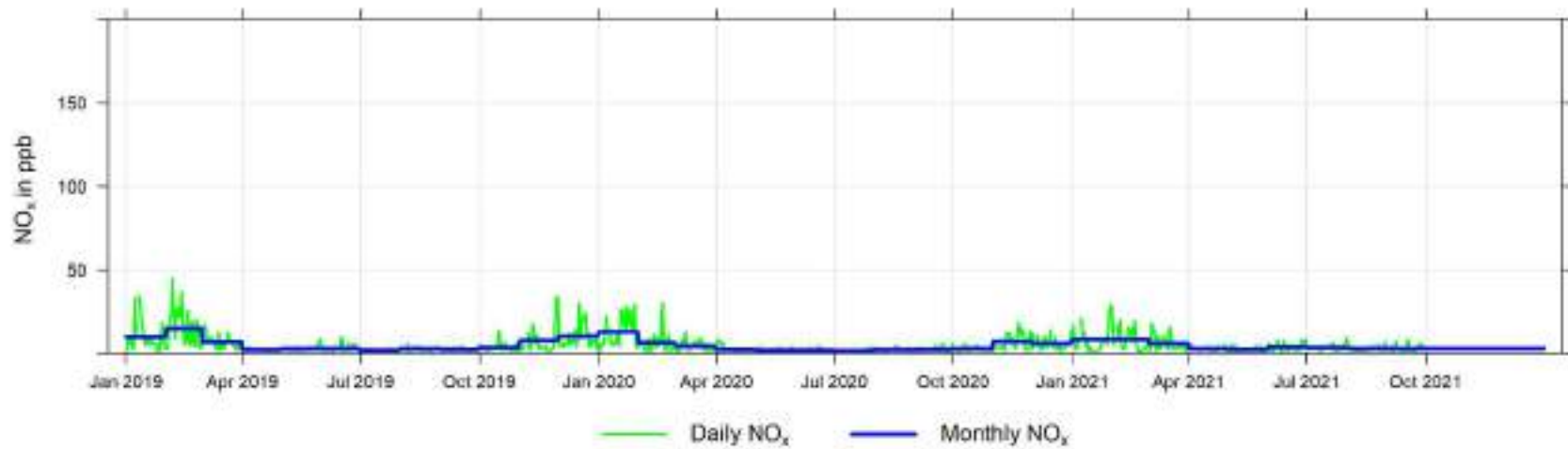
Years 2019 to 2021 Concentration Readings of SO₂ (in ppb) at Wembley



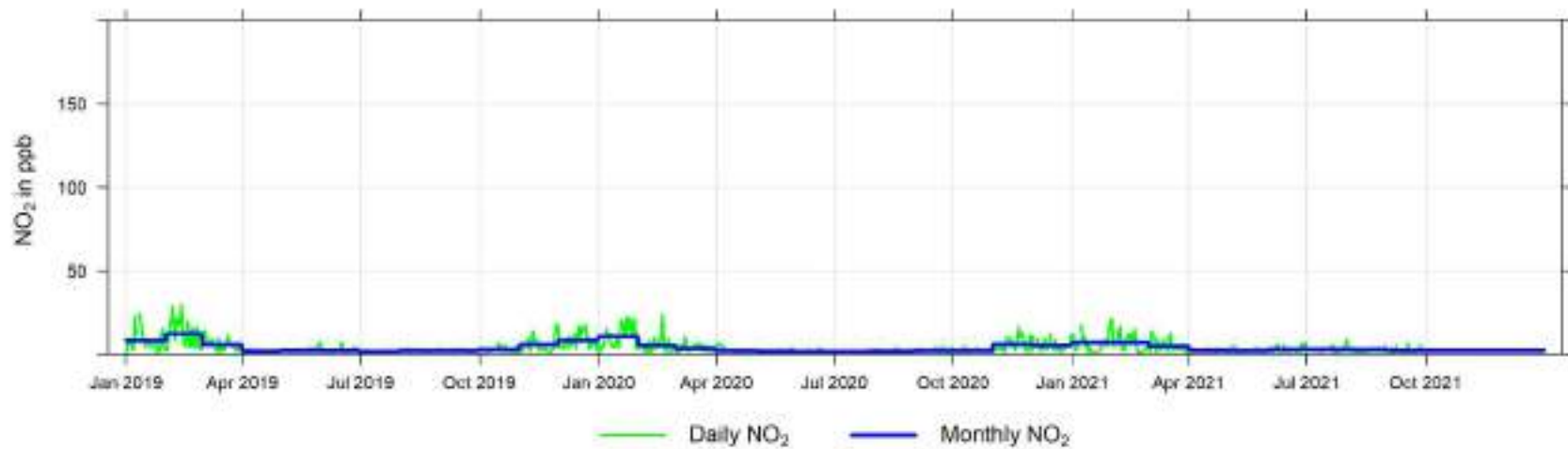
Years 2019 to 2021 Concentration Readings of NO (in ppb) at Wembley



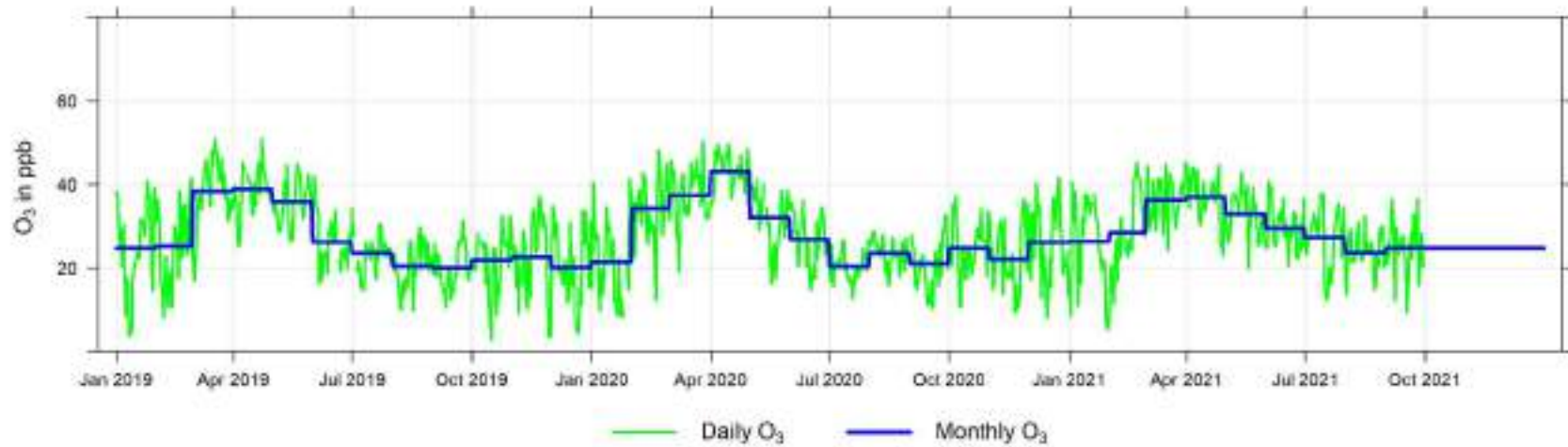
Years 2019 to 2021 Concentration Readings of NO_x (in ppb) at Wembley



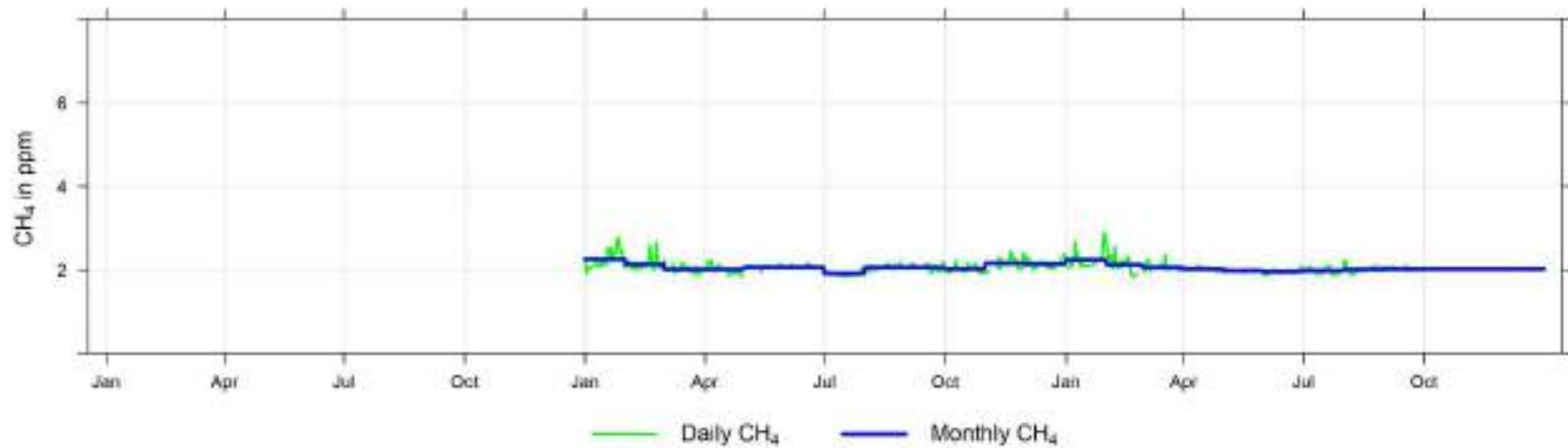
Years 2019 to 2021 Concentration Readings of NO₂ (in ppb) at Wembley



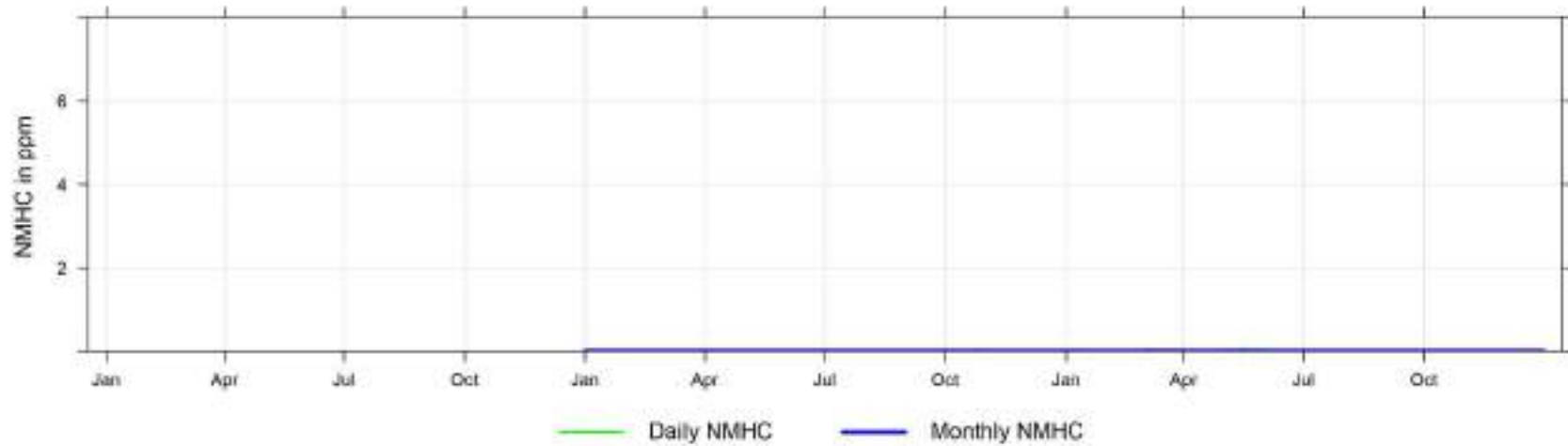
Years 2019 to 2021 Concentration Readings of O₃ (in ppb) at Wembley



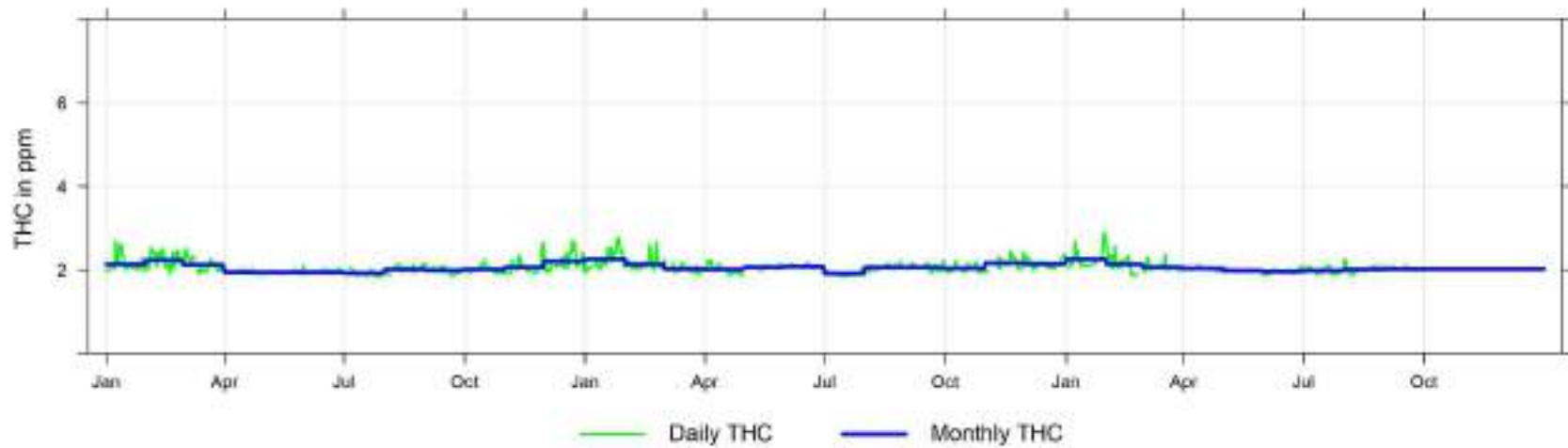
Years 2019 to 2021 Concentration Readings of CH₄ (in ppm) at Wembley



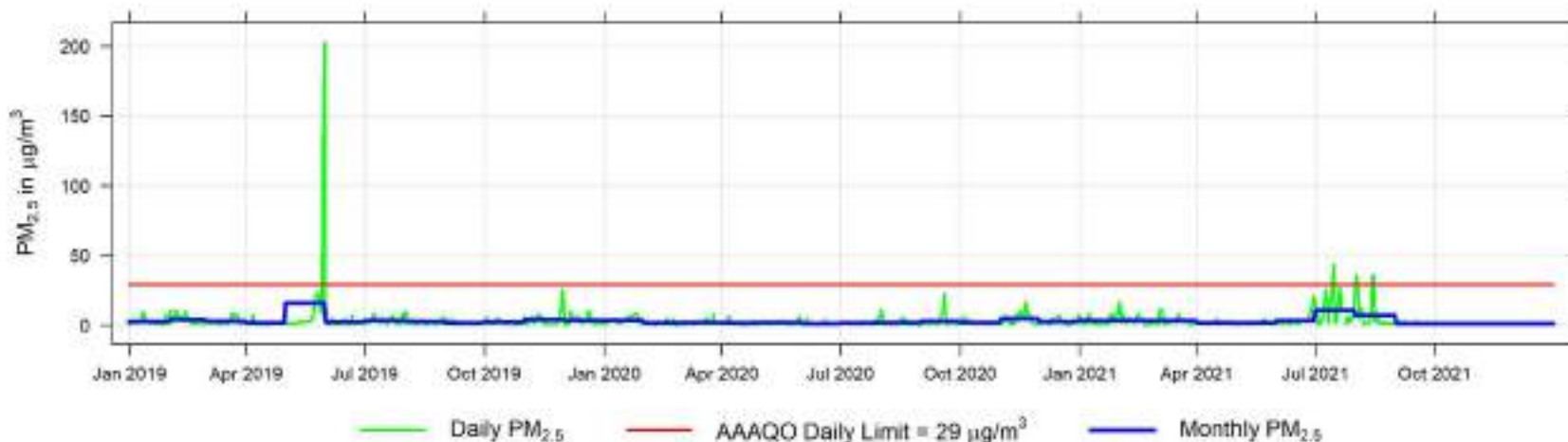
Years 2019 to 2021 Concentration Readings of NMHC (in ppm) at Wembley



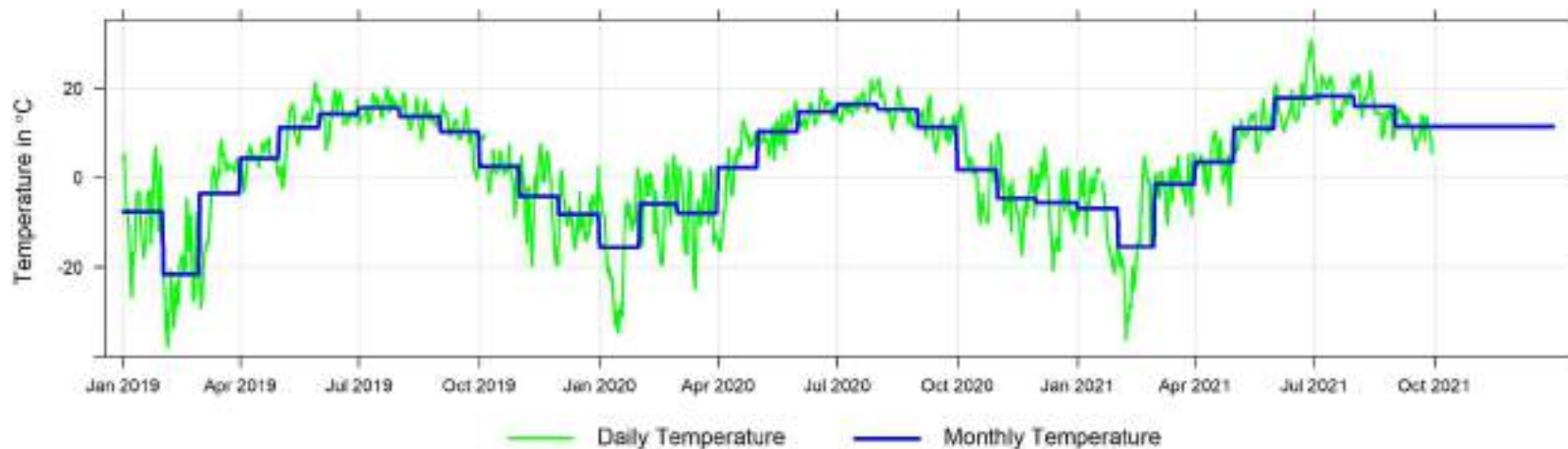
Years 2019 to 2021 Concentration Readings of THC (in ppm) at Wembley



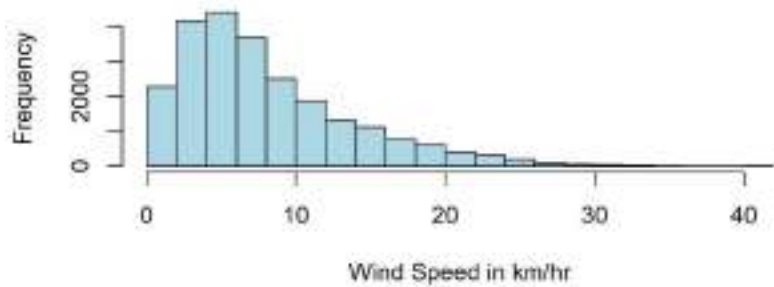
Years 2019 to 2021 Concentration Readings of PM_{2.5} in µg/m³ at Wembley



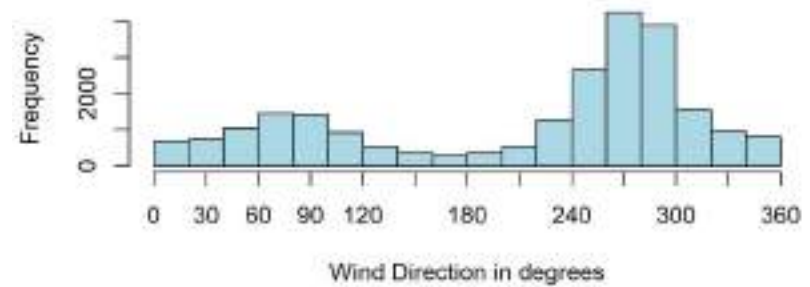
Years 2019 to 2021 Temperature Readings (in °C) at Wembley



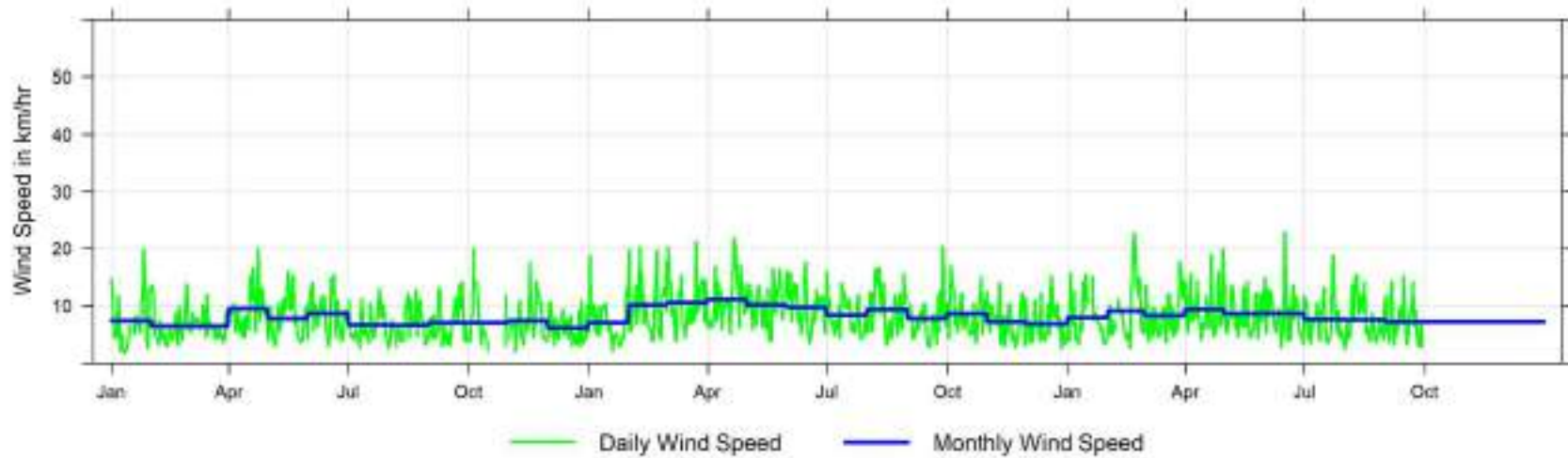
Years 2019 to 2021 Wind Speed Histogram

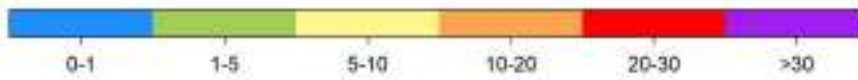
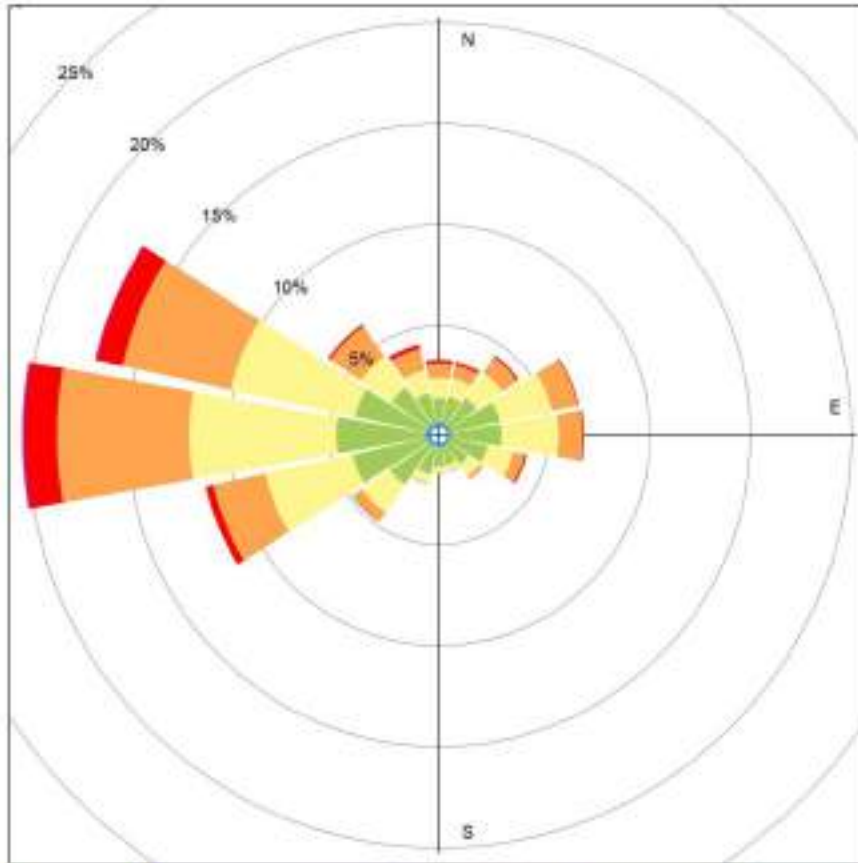


Years 2019 to 2021 Wind Direction Histogram

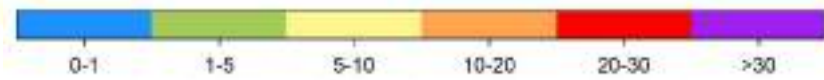
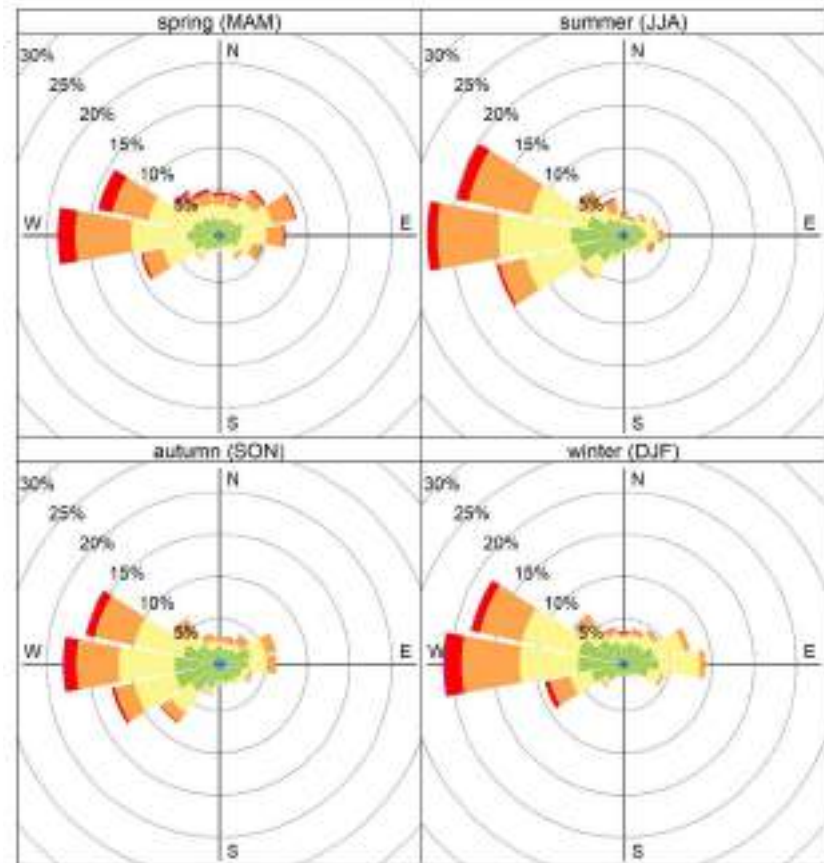


Years 2019 to 2021 Wind Speed Readings (in km/hr) at Wembley





Wembley 2019 to 2021 Wind Rose, wind speed in km/hr



Wembley 2019 to 2021 Seasonal Wind Rose, wind speed in km/hr

14 Passive Monitoring Data - 2021 Summary

14.1 O₃ Monitoring Passive Data - 2021 Summary

Ozone (O₃) passive summaries for 2021 are tabulated as follows

O ₃ in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Bay Tree	32.2	36.0	42.2	46.7	37.5	31.5	28.2	23.9	25.8	18.1	37.8	28.7
Crooked Creek	36.5	34.2	43.7	38.6	35.1	30.4	32.4	24.9	28.9	20.7	33.5	28.8
Kinuso	37.1	35.1	39.8	41.9	30.9	35.1	31.5	21.7	26.2	22.4	33.8	31.3

36 passive ozone samples collected over 12 months at 3 sites in PAZA

- Minimum annual average was 32.2ppb collected at Kinuso
- Maximum annual average was 32.4ppb collected at Bay Tree
- Maximum overall monthly average was 42.4ppb in April 2021

14.2 H₂S Monitoring Passive Data - 2021 Summary

Hydrogen Sulphide (H₂S) passive summaries for 2021 are tabulated as follows

H ₂ S in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Guy	0.2	0.2	0.1	0.2	0.2	0.7	0.3	0.2	0.1	0.1	0.2	0.2
Jayar1 Plant	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2
Jayar2 14-8	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Jayar3 Bone Yard	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Jayar4 7-8 or 8-8 Pad	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Jayar5 Camp	0.2	0.2	0.0	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2
Girouville 3	0.8	0.9	0.4	NA	0.3	0.3	0.8	NA	0.3	NA	0.5	NA
Girouville 4	0.6	0.4	NA	0.3	NA	0.3	0.5	NA	0.1	1.3	0.4	0.3
Duvernay 1	NA	NA	NA	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Duvernay 2	NA	NA	NA	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Duvernay 3	NA	NA	NA	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Duvernay 4	NA	NA	NA	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2

125 passive hydrogen sulphide samples collected over 12 months at 12 sites in PAZA

- Minimum annual average was 0.1ppb collected at Duvernay4
- Maximum annual average was 0.6ppb collected at Girouville 3
- Maximum overall monthly average was 0.3ppb in January 2021

14.3 NO₂ Monitoring Data - 2021 Summary

Nitrogen Dioxide (NO₂) passive summaries for 2021 are tabulated as follows

NO ₂ in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Bay Tree	1.7	1.3	0.5	0.4	0.7	0.5	0.5	0.6	0.4	1.0	1.7	1.4
Forth Creek	NA	0.4	0.2	0.0	0.2	0.6	0.3	0.3	0.8	1.7	0.8	0.9
Boone Creek	1.6	0.8	0.3	0.3	0.7	0.4	0.4	0.3	0.5	0.9	1.4	1.8
Steepprock Creek	0.7	0.4	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.6	0.9	0.8
Spirit River	1.0	1.1	0.7	0.4	1.4	2.2	1.4	1.0	1.3	1.3	1.1	1.3
Webber Creek	2.1	3.2	0.9	2.1	1.7	2.1	1.4	1.3	1.8	2.6	3.6	6.5
Hythe	2.3	1.1	0.4	0.6	0.9	1.5	1.2	0.7	0.7	1.5	2.2	2.5
Sylvester	10.8	0.4	0.2	0.3	0.3	0.3	0.4	0.2	0.2	0.5	1.1	0.9
Beaverlodge	1.7	NA	1.2	0.7	0.6	0.8	0.9	1.0	1.3	2.5	4.4	4.4
Poplar	3.6	1.7	1.0	0.8	1.0	1.9	1.3	1.2	1.3	2.0	2.8	4.0
Saddle Hills	1.2	0.7	0.2	0.1	0.8	0.5	0.3	0.5	0.5	1.2	1.0	1.0
Wanham	0.8	0.3	0.3	0.7	0.7	0.7	0.5	0.4	0.5	0.8	1.2	1.8
Shaftesbury	0.7	0.4	0.0	0.1	0.4	1.2	0.7	0.5	0.5	0.7	1.1	1.3
Eaglesham	1.5	0.4	0.0	0.1	1.0	2.8	0.9	0.6	0.7	0.7	0.9	0.9
Bear Lake	1.9	1.6	0.6	0.9	1.6	1.7	1.5	1.4	1.6	2.6	3.8	4.2
Wembley	3.8	2.4	2.0	1.3	1.3	1.8	1.5	1.5	1.9	3.8	3.2	4.1
Pinto Creek	7.9	0.6	0.6	0.2	0.2	0.2	0.3	0.3	0.4	0.6	1.1	1.5
Flyingshot	3.5	2.4	1.1	0.6	0.8	0.9	0.9	0.9	0.9	1.6	3.6	5.0
Grande Prairie I	9.8	9.9	6.5	2.7	1.7	1.7	1.8	2.5	3.2	5.2	9.7	14.3
Smoky Heights	9.8	1.4	0.0	0.2	0.7	1.2	0.8	0.8	1.2	1.3	3.3	2.8
Gold Creek	1.3	2.7	2.3	1.3	1.3	1.0	0.9	1.0	1.2	3.0	5.0	5.3
Puskwaskau	0.8	0.4	0.2	0.0	0.3	0.3	0.1	0.4	0.4	0.9	1.1	0.9
Jean Cote	0.8	0.4	0.2	0.2	1.8	1.3	1.4	1.3	1.3	1.2	1.4	1.3
Guy	1.1	0.4	0.2	0.2	1.5	5.9	2.0	1.6	1.5	1.1	1.1	1.1
Crooked Creek	6.1	1.1	0.5	0.2	1.2	0.7	0.4	0.6	0.7	1.3	1.8	2.2
Clouston Creek	1.4	0.6	0.4	0.2	1.2	1.2	0.7	0.6	0.7	0.8	1.4	1.8
McLennan	0.7	0.5	0.2	0.4	1.1	3.5	1.7	1.4	1.2	1.1	1.1	1.3
Sunset House	1.0	0.3	0.3	0.1	0.3	0.3	0.2	0.3	0.9	0.7	0.9	1.4
Peavine	1.2	0.3	0.1	0.0	0.3	0.3	0.0	0.2	0.3	0.5	0.8	0.6
Little Smoky	2.0	2.1	2.2	1.4	0.8	0.7	0.9	1.1	1.4	2.2	4.0	4.4
Kinuso	6.9	0.6	0.5	0.1	0.2	0.4	0.1	0.2	0.3	0.6	1.2	NA
Deer Mountain	3.7	NA	0.5	0.1	0.4	0.1	0.2	0.1	0.3	0.5	0.9	0.9
Henry Pirker	2.3	NA	5.0	2.1	1.4	1.3	1.3	1.8	2.7	5.6	8.5	13.8
East Prairie	1.7	NA	0.6	0.1	0.5	0.1	0.0	0.1	0.2	0.4	0.9	1.2
Jayar1 Plant	1.2	1.2	1.2	0.6	0.8	0.6	0.9	0.7	0.5	0.9	1.0	2.1
Jayar2 14-8	1.0	3.0	3.0	2.9	1.6	1.3	2.3	2.6	3.3	4.3	7.9	9.8
Jayar3 Bone Yard	3.2	1.3	0.0	0.9	0.6	0.5	0.7	0.7	1.2	1.6	2.1	2.5

NO ₂ in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Jayar4 7-8 or 8-8 Pad	1.7	0.0	0.0	0.7	0.7	0.7	0.7	0.9	0.5	1.0	1.3	3.7
Jayar5 Camp	3.9	6.8	0.9	4.8	3.9	3.4	2.8	2.9	4.9	3.4	5.6	5.5

462 passive nitrogen dioxide samples collected over 12 months at 39 sites in PAZA

- Minimum annual average was 0.4ppb collected at Peavine
- Maximum annual average was 5.8ppb collected at Grande Prairie
- Maximum overall monthly average was 3.2ppb in December 2021

14.4 SO₂ Monitoring Data - 2021 Summary

Sulphur Dioxide (SO₂) passive summaries for 2021 are tabulated as follows

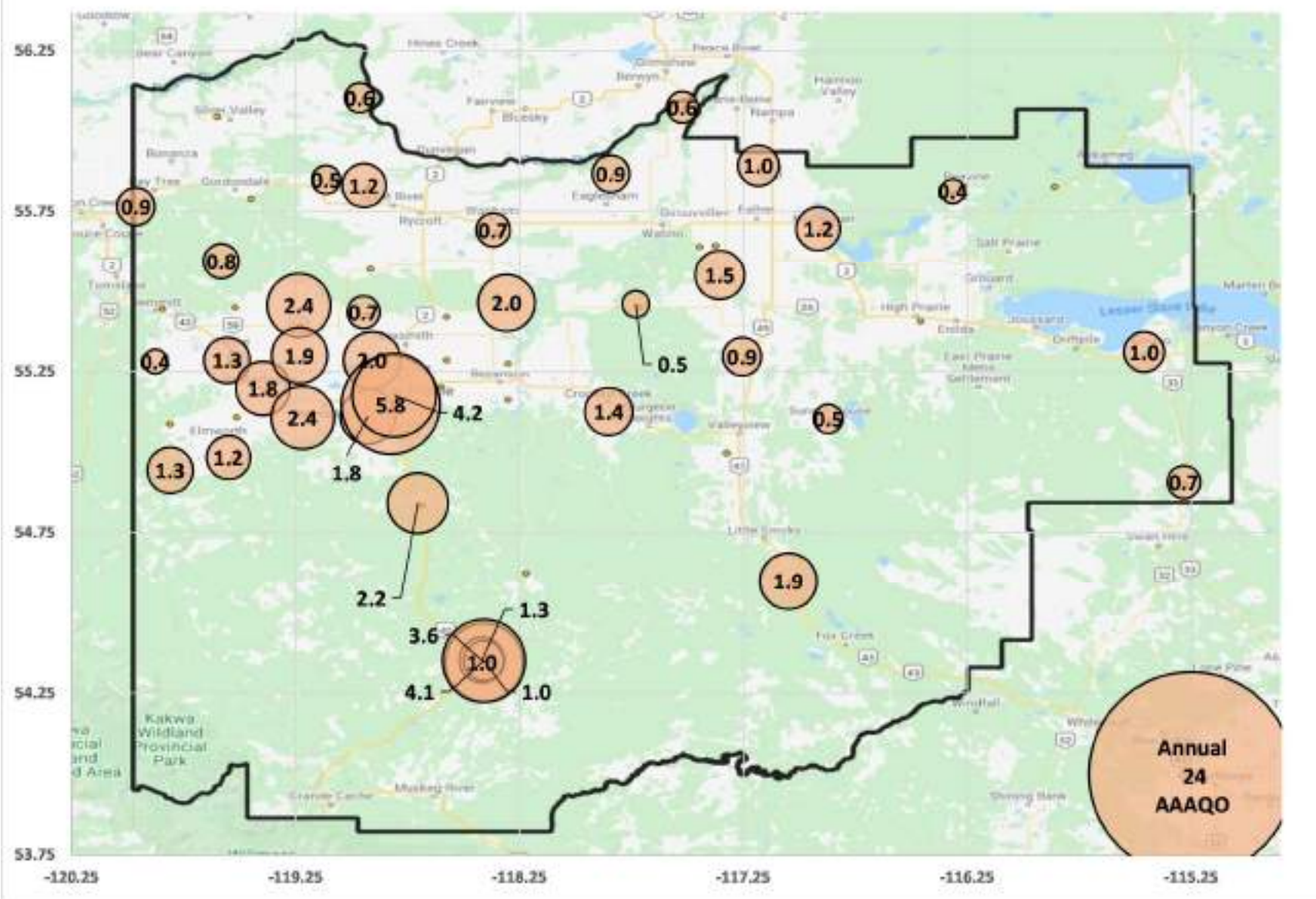
SO ₂ in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Bay Tree	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.1
Forth Creek	NA	0.2	0.3	0.1	0.5	0.2	0.1	0.1	0.4	0.2	0.1	0.1
Boone Creek	0.4	0.6	0.7	0.2	0.5	0.2	0.2	0.3	0.2	0.3	0.5	0.4
Steepprock Creek	0.5	0.6	0.2	0.3	0.5	0.2	0.2	0.1	0.1	0.2	0.2	0.2
Spirit River	0.3	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.8	0.3	0.4
Webber Creek	0.4	0.6	0.5	0.3	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.3
Hythe	0.5	0.8	0.4	0.3	0.2	0.3	0.3	0.2	0.1	0.3	0.3	0.4
Sylvester	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Beaverlodge	0.7	NA	0.7	0.5	0.3	0.4	0.5	0.4	0.2	0.3	0.5	0.5
Poplar	0.7	0.8	0.8	0.8	0.5	0.5	0.4	0.6	0.2	0.4	0.5	0.7
Saddle Hills	0.3	0.6	0.5	0.3	0.3	0.4	0.4	0.3	0.2	0.4	0.3	0.3
Wanham	0.4	0.5	0.5	0.2	0.8	0.3	0.4	0.3	0.3	0.4	0.4	0.4
Shaftesbury	0.3	0.3	0.0	0.1	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.2
Eaglesham	0.2	0.3	0.0	0.1	0.5	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Bear Lake	0.5	0.9	0.7	0.5	0.5	0.4	0.4	0.4	0.2	0.7	0.4	0.4
Wembley	0.7	0.7	0.7	0.3	0.2	0.4	1.8	0.6	0.5	0.5	0.9	0.7
Pinto Creek	0.2	0.4	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4
Flyingshot	0.3	0.6	0.4	0.4	0.2	0.6	0.4	0.3	0.1	0.5	0.3	0.4
Grande Prairie I	0.6	0.9	0.5	0.4	0.7	0.6	0.5	0.4	0.4	0.8	0.5	0.6
Smoky Heights	0.5	0.7	0.0	0.3	0.5	0.3	0.4	0.2	0.3	0.4	0.5	0.4
Gold Creek	0.3	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.3
Puskaskau	0.2	0.3	0.2	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Jean Cote	0.2	0.3	0.3	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Guy	0.2	0.3	0.2	0.1	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.2
Crooked Creek	0.2	0.5	0.3	0.1	0.0	0.2	0.2	0.1	0.1	0.2	0.2	0.1
Clouston Creek	0.2	0.3	0.2	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.1

SO ₂ in ppb	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
McLennan	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.2	0.1	0.1	0.2	0.2
Sunset House	0.2	0.4	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.2
Peavine	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Little Smoky	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Kinuso	0.2	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	NA
Deer Mountain	0.2	NA	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.0
Henry Pirker	0.5	NA	0.6	0.4	0.2	0.4	0.4	0.4	0.3	0.3	0.5	0.6
East Prairie	0.1	NA	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1
Jayar1 Plant	0.1	0.5	0.5	0.4	0.3	0.3	0.6	0.4	0.1	0.2	0.1	0.3
Jayar2 14-8	0.4	0.5	0.5	0.4	0.4	0.3	0.5	0.6	0.4	0.4	0.5	0.5
Jayar3 Bone Yard	0.8	0.9	0.2	1.0	1.2	0.6	0.7	1.0	1.6	0.9	1.2	0.7
Jayar4 7-8 or 8-8 Pad	0.2	0.9	0.9	0.7	0.5	0.5	0.4	0.8	0.3	0.6	0.3	0.6
Jayar5 Camp	0.2	0.6	0.6	0.4	0.4	0.3	0.3	0.6	0.2	0.2	0.2	0.2
Duvernay 1	NA	NA	NA	0.7	1.3	0.3	0.6	0.3	0.3	0.2	0.5	0.1
Duvernay 2	NA	NA	NA	0.9	0.8	0.4	0.4	0.2	0.7	0.2	0.3	0.1
Duvernay 3	NA	NA	NA	1.3	0.7	1.0	0.3	0.9	1.5	0.5	1.7	0.4
Duvernay 4	NA	NA	NA	1.9	0.8	0.3	0.8	1.7	0.6	0.5	0.8	0.9

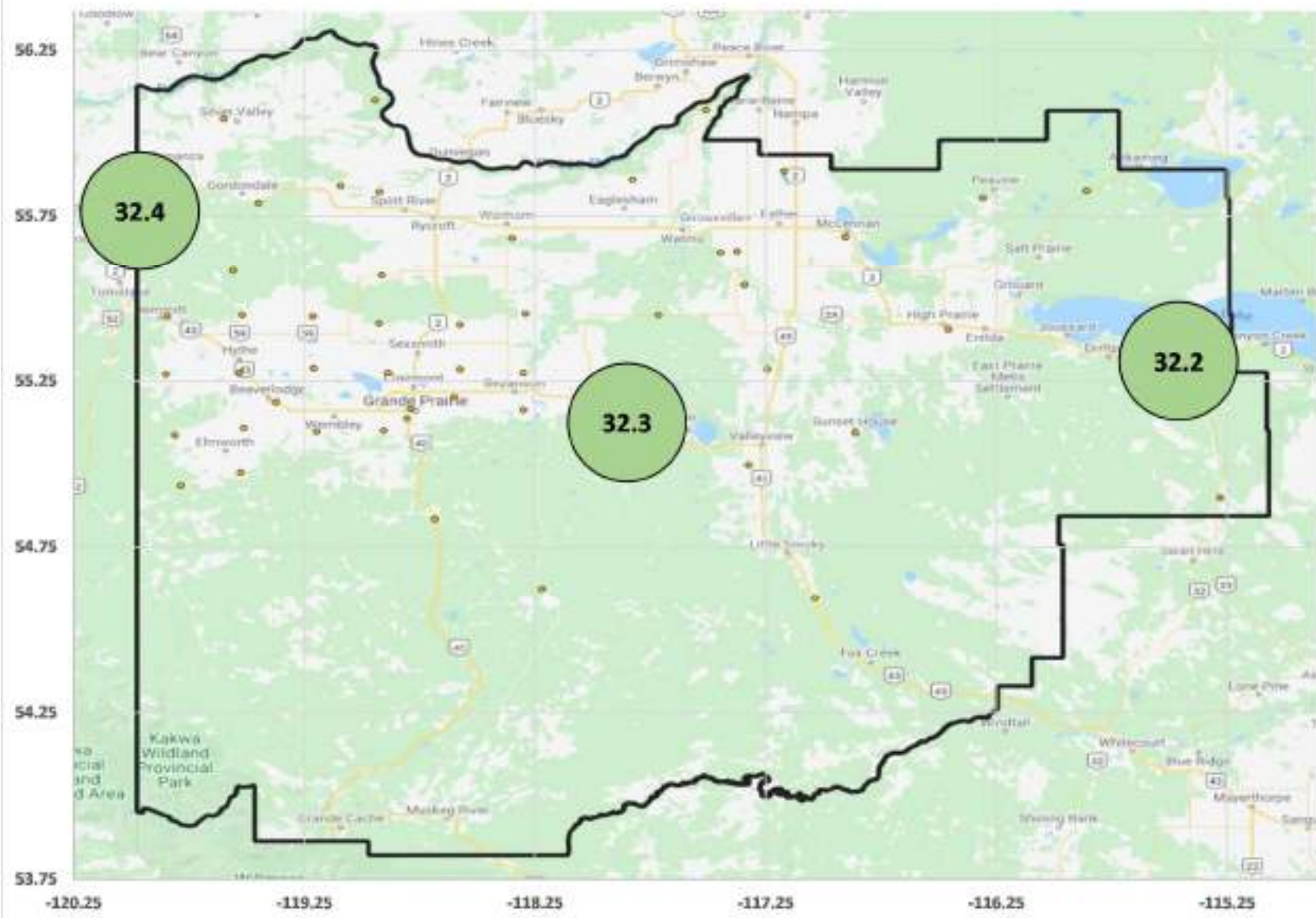
498 passive sulphur dioxide samples collected over 12 months at 43 sites in PAZA

- Minimum annual average was 0.1ppb collected at Sylvester
- Maximum annual average was 0.9ppb collected at Duvernay4
- Maximum overall monthly average was 0.5ppb in February 2021

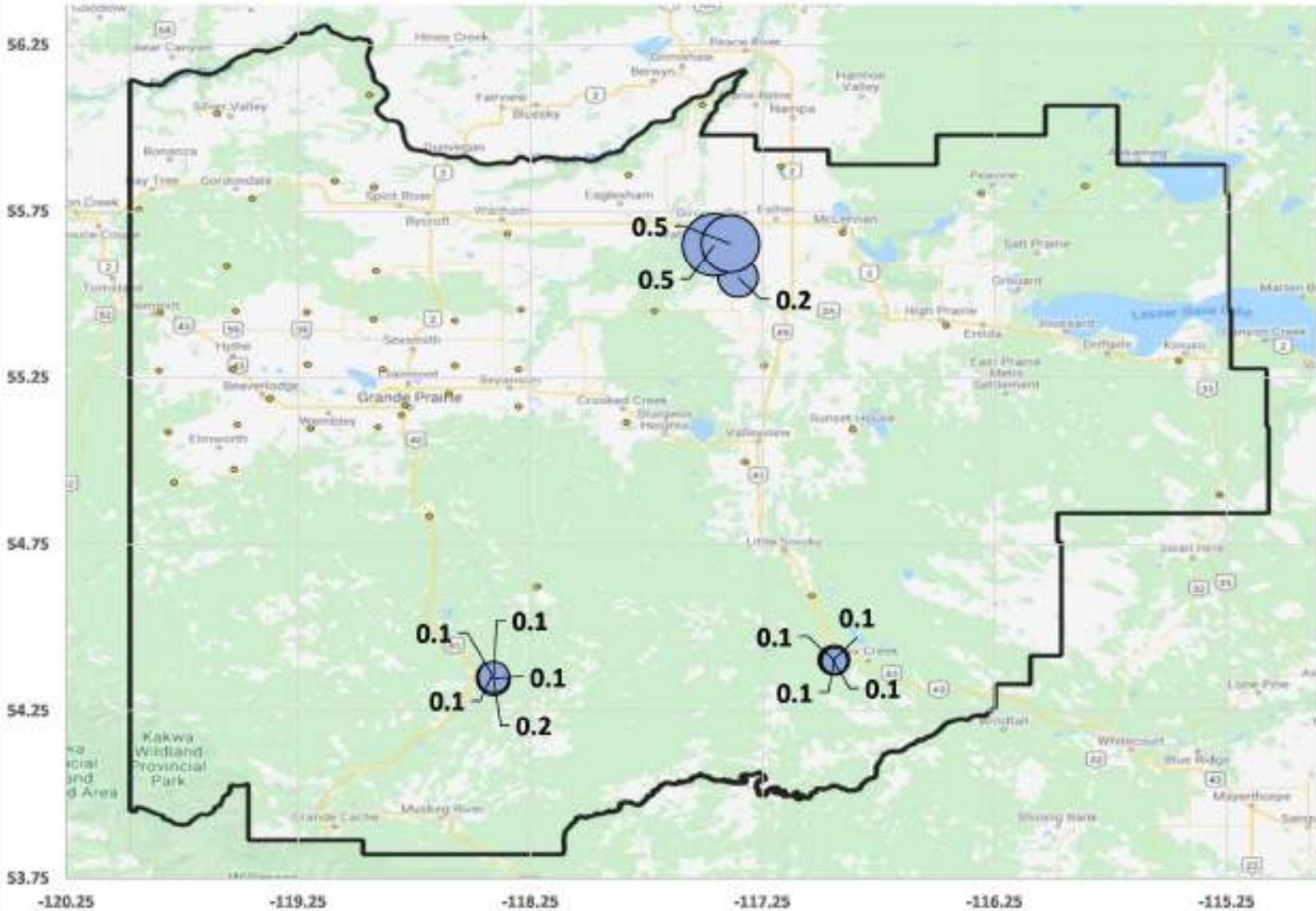
NO₂ Annual Average (units in ppb)



O₃ Annual Average (units in ppb)



H₂S Annual Average (units in ppb)



End of Report



Peace Airshed Zone Association

Ambient Annual Air Monitoring Report

2021 Annual