



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

Ambient Air Quality Monitoring Program

**Monthly Report
January 2020**

February 28, 2020

Alberta Environment and Parks

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

Subject: **Peace Airshed Zone Association (PAZA)**
January 2020 Ambient Air Quality Monitoring Report

Please find enclosed the PAZA Ambient Air Quality Monitoring Network Report for the month of January 2020.

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

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

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

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

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

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

Calibration and Data Submission: Monthly report, hourly data and calibration reports for January 2020 were submitted to the ETS data system.

Table A. PAZA members with Facility Operating Approvals

Company	Facility	LSD	EPEA Approval No.
Advantage Oil & Gas Ltd.	Glacier	05-02-076-13-W6	262479-00-00
Alberta Power (2000) Ltd. (an ATCO company)	Sturgeon	SW-06-069-21-W5	10283-02-02
ATCO Power Canada	Poplar Hill	11-19-073-08-W6	67774-01-01
ATCO Power Canada	Valleyview	SW-06-069-21-W5	147709-01-01
AltaGas Ltd.	Pouce Coupe	03-03-081-13-W6	247673-00-00
	Ante Creek	02-26-068-25-W5	266694-00-00
	Gordondale	02-26-068-25-W5	287474-00-00
Apache Canada Ltd.	House Mountain	01-08-070-10-W5	10137-02-02
Birchcliff Energy Ltd.	Pouce Coupe	03-22-078-12-W6	252529-00-00
Canadian Natural Resources Limited	Bonanza	11-25-081-11-W6	00000029-01-00
	Progress/Gordondale	01-01-077-10-W6	00010036-02-00
	Gold Creek	13-26-067-05-W6	00010446-02-00
	Teepee Creek	SE-2-074-04-W6	00001635-02-00
	Sturgeon/Valleyview	02-02-069-22-W5	1633-02-00
Canfor Forest Products	Grande Prairie	SW-23-071-06-W6	152645-01-00
Conocophillips Canada Energy Partnership	Wembley	06-19-073-08-W6	00000212-01-00
Devon Canada	NW Belloy (Dunvegan)	16-36-079-03-W6	00009810-02-00
	Eaglesham (South)	02-14-077-25-W5	00047669-01-00
	North Normanville	03-36-079-23-W5	00047455-01-00
	West Culp	05-34-078-25-W6	00136284-00-00
	Cecil	08-15-084-08-W6	00010032-02-00
Encana Corporation	Sexsmith	04-08-075-07-W6	00010002-01-00
Enerplus Resources	Pouce Coupe	SW-06-069-21-W5	1464-02-03
Exshaw Oil Corporation	Spirit River	03-10-077-07-W6	344521-00-00
Grande Prairie Generation Inc.	Northern Prairie Power Project	04-19-073-08-W6	00238762-00-00
Inception Exploration Ltd.	Gold Creek	03-26-069-05-W6	00335317-00-02
Long Run Exploration	Eaglesham	01-25-076-01-W6	00241532-00-00
	Kakut	14-12-075-03-W6	00248469-00-00
	Donnelly	06-01-077-21-W5	00000087-02-00
	Puskwaskau	03-26-074-01-W6	00017524-01-00
Longview Oil Corp.	Sunset House	06-22-070-20-W5	138884-01-00
Penn West Petroleum Ltd.	Tangent	13-29-080-23-W5	00001746-02-00
	Pouce Coupe	16-07-078-11-W6	00000614-01-00
Petrus Resources	Rycroft	08-25-077-06-W6	11351-02-00
	Spirit River	08-34-077-06-W6	11096-02-00
Spectra Energy Midstream Corporation	Fourth Creek	16-11-082-09-W6	00000263-01-00
	Gordondale	11-26-079-09-W6	00011495-01-01
	Pouce Coupe/Bonanza	3-23-080-13-W6	00070203-01-01
Suncor Energy Inc.	Progress	07-22-078-09-W6	00011428-02-00
TAQA North Ltd.	Valhalla	13-21-076-09-W6	00017620-01-00
Veresen Energy	Hythe Brainard	11-18-074-12-W6	00010910-02-00
Weyerhaeuser Canada	Grande Prairie Pulp and Wood Plant	01-14-070-05-W6	00000113-02-00

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

There were no exceedances of the AAAQO in January 2020

Operational times less than 90 percent:

There were no operational times less than 90% in January 2020.

Air Incidents

None were reported to PAZA

Deviations from Authorized Monitoring Methods

Trees nearby to Valleyview air monitoring station exceed the height allowed under section 2.3 of the siting criteria in Chapter 3 of the AMD. This variance was authorized in writing by the director on February 4, 2019.

Passive Monitoring

33 Stations throughout the PAZA zone

The passive sample analyses were performed by Bureau Veritas Laboratories (formally Maxxam Analytics Inc.)

There were eight duplicate sites sampled in the month of January:

For sulphur dioxide duplicates at station Silver Valley, Gold Creek, and McLennan

For ozone duplicate at station Kinuso

For nitrogen dioxide duplicates at stations Pinto Creek and Gift Lake. There was a third duplicate at Valleyview but one of the duplicates was missing upon collection

For hydrogen sulphide duplicate at station Guy

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

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

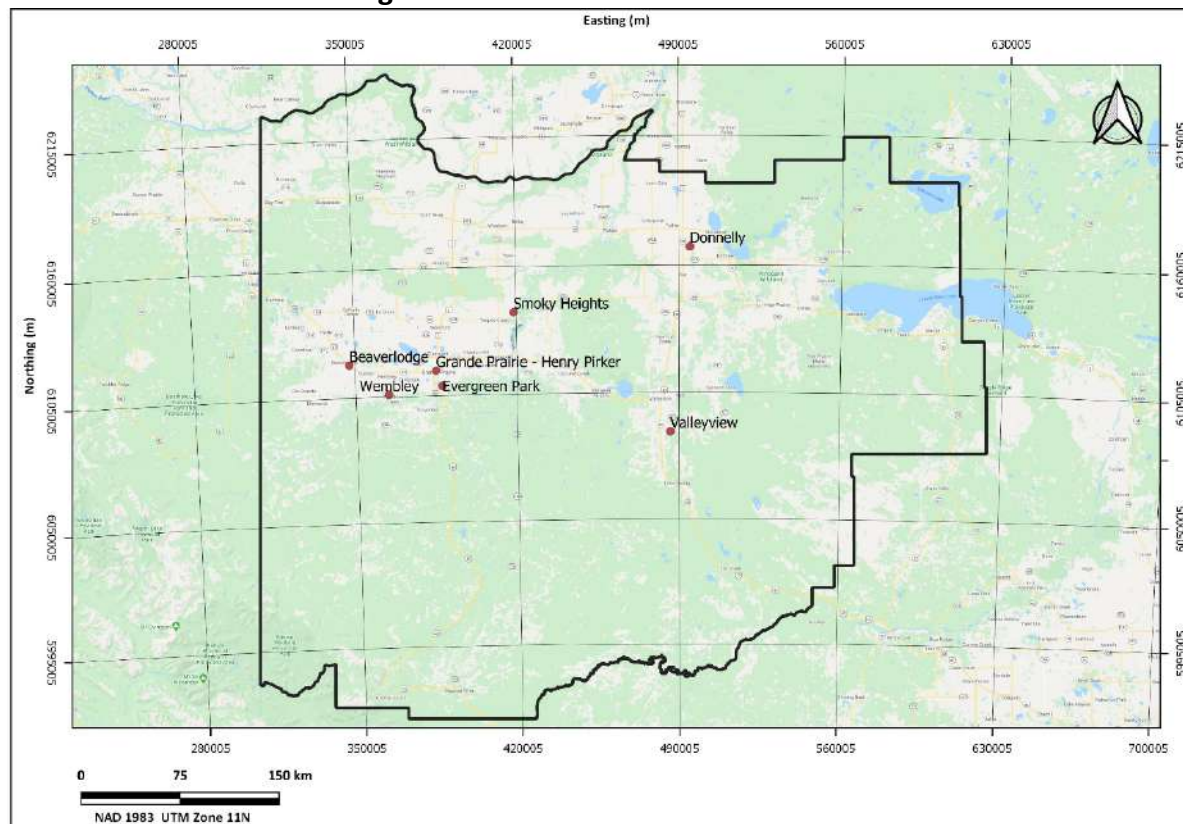


Mandeep Dhaliwal, B.Sc., P.Chem.
Program Manager

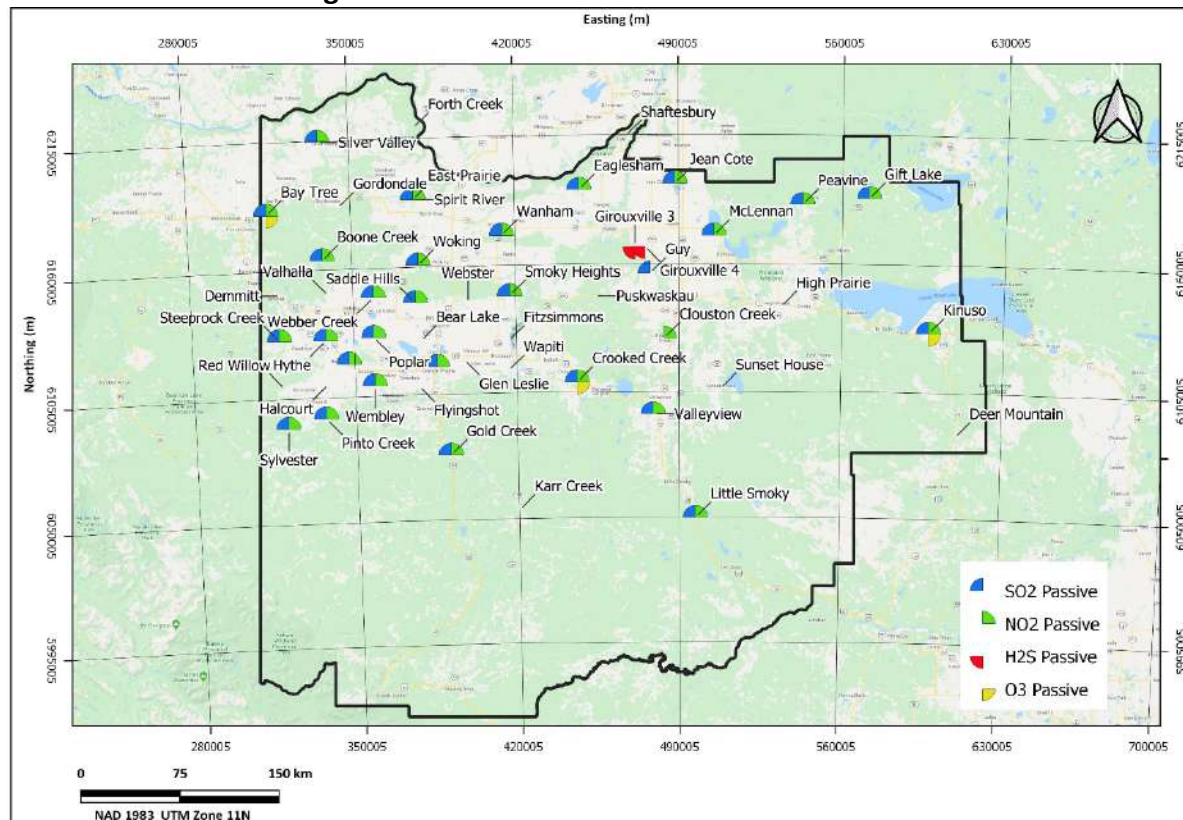
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PAZA Continuous Monitoring Station Locations



PAZA Passive Monitoring Station Locations



1 Monthly Station Summaries

The following summaries are for the equipment and data results from the continuous ambient monitoring network

1.1 Beaverlodge Air Monitoring Station

PAZA - January 2020 Beaverlodge Station Report

Parameter	January			Operational	Max	1-hour		24-hour			Exceedance				Calibration
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	3.4	0.0	95%	100%	62.6	-	Jan-07 12:00	20.1	-	Jan-20	-	-	-	Jan 09, 2020	
NO ₂ (ppb)	11.1	0.3	95%	100%	36.0	159	Jan-20 02:00	24.4	-	Jan-20	0	-	-	Jan 09, 2020	
NO _x (ppb)	14.6	0.3	95%	100%	92.1	-	Jan-07 12:00	44.7	-	Jan-20	-	-	-	Jan 09, 2020	
O ₃ (ppb)	23.3	0.4	95%	100%	43.4	76	Jan-30 20:00	37.7	-	Jan-30	0	-	-	Jan 09, 2020	
PM _{2.5} (µg/m³)	5.6	0.0	98%	99%	41.6	80	Jan-20 05:00	24.5	29	Jan-20	0	-	0	Jan 09, 2020	
SO ₂ (ppb)	1.3	0.0	95%	100%	17.2	172	Jan-04 15:00	3.9	48	Jan-19	0	-	0	Jan 09, 2020	
	Average	Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
Temp (°C)	-14.0	-34.8	100%	100%	3.7										
RH (%)	76.1	47.3	100%	100%	100.0										
WS (km/hr)	8.2	0.1	100%	100%	50.2										
WD (deg)	291	0.3	100%	100%	359.6										
						Average Wind Direction		291	WNW						

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TECO	42I	No Operational issues noted during the month
O ₃	TECO	49I	No Operational issues noted during the month
PM _{2.5}	Sharp	5030	Periods of freezing during the month resulted in lost data
SO ₂	TECO	43I	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.2 Evergreen Park Air Monitoring Station

PAZA - January 2020 Evergreen Park Station Report

Parameter	January		Valid	Operational	Max	1-hour		24-hour			Exceedance				Calibration
	Average	Minimum				Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
PM _{2.5} (µg/m³)	5.2	0.0	99%	99%	39.8	80	Jan-25 12:00	15.2	29	Jan-25	0	-	0	-	Jan-30-2020
SO ₂ (ppb)	1.1	0.0	95%	100%	44.1	172	Jan-12 13:00	5.5	48	Jan-12	0	-	0	0	Jan-30-2020
TRS (ppb)	0.8	0.3	95%	100%	2.6	-	Jan-24 23:00	1.6	-	Jan-25	-	-	-	-	Jan-30-2020
	Average	Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
Temp (°C)	-15.9	-39.3	100%	100%	6.0										
RH (%)	74.9	40.1	100%	100%	97.0										
WS (km/hr)	2.5	0.0	100%	100%	16.3										
WD (deg)	253	0.5	100%	100%	357.8										
Average Wind Direction										253	WSW				

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Thermo	TEOM AB	Periods of freezing during the month resulted in lost data
SO ₂	TECO	43I	No Operational issues noted during the month
TRS	TECO	43C	No Operational issues noted during the month
Met Equip	GI/RYYoung	MetPak/RMY86004	No Operational issues noted during the month

1.3 Grande Prairie - Henry Pirker Air Monitoring Station

PAZA - January 2020 Henry Pirker Station Report

F2A2 - January 2020 Henry Ficker Station Report															
Parameter	January				1-hour			8-hour / 24-hour			Exceedance				Calibration
	Average	Minimum	Valid	Operational	Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	19.1	0.0	93%	98%	203.4	-	Jan-21 09:00	54.8	-	Jan-24	-	-	-	-	Jan 03, 2020
NO ₂ (ppb)	22.1	1.4	93%	98%	65.1	159	Jan-21 09:00	33.4	-	Jan-28	0	-	-	-	Jan 03, 2020
NO _x (ppb)	41.6	1.5	93%	98%	269.4	-	Jan-21 09:00	85.8	-	Jan-24	-	-	-	-	Jan 03, 2020
O ₃ (ppb)	13.1	0.2	95%	100%	42.8	76	Jan-31 01:00	33.3	-	Jan-02	0	-	-	-	Jan 03, 2020
PM _{2.5} (µg/m³)	8.2	0.1	95%	96%	47.3	80	Jan-03 00:00	18.2	29	Jan-25	0	-	0	-	Jan 06, 2020
SO ₂ (ppb)	1.4	0.0	95%	100%	28.0	172	Jan-20 04:00	7.7	48	Jan-20	0	-	0	0	Jan 03, 2020
H ₂ S (ppb)	0.4	0.0	95%	100%	2.3	10	Jan-21 09:00	0.8	3	Jan-20	0	-	0	-	Jan 06, 2020
CH ₄ (ppm)	2.5	1.8	95%	100%	4.5	-	Jan-21 08:00	3.1	-	Jan-25	-	-	-	-	Jan 02, 2020
THC (ppm)	2.6	1.8	95%	100%	5.1	-	Jan-21 08:00	3.7	-	Jan-25	-	-	-	-	Jan 02, 2020
NMHC (ppm)	0.1	0.0	95%	100%	0.8	-	Jan-25 18:00	0.6	-	Jan-25	-	-	-	-	Jan 02, 2020
CO (ppm)	0.3	0.1	95%	100%	1.8	13	Jan-21 08:00	0.5	5	Jan-27	0	0	-	-	Jan 02, 2020
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	-15.5	-40.6	100%	100%	5.5	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
RH (%)	66.3	40.8	100%	100%	87.4										
SR (W/m²)	17.3	0.0	100%	100%	220.1										
WS (km/hr)	5.3	0.1	100%	100%	31.0										
WD (deg)	284	1.2	100%	100%	359.1										
Average Wind Direction										284	WNW				

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	Thermo	42i	Information in Feb found data correction needed on Jan31, data resubmitted based on data removal
O ₃	TECO	49i	No Operational issues noted during the month
PM _{2.5}	Sharp	5030	Periods of freezing during the month resulted in lost data
SO ₂	TEI	43i-TLE	No Operational issues noted during the month
H ₂ S	TEI	450i	No Operational issues noted during the month
THC/CH ₄ /NMHC	TEI	55i	No Operational issues noted during the month
CO	TEI	48i-TLE	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.4 Smoky Heights Air Monitoring Station

PAZA - January 2020 Smoky Heights Station Report

FZA - January 2020 Smoky Heights Station Report															
Parameter	January			Operational	1-hour			24-hour			Exceedance				Calibration Date
	Average	Minimum	Valid		Max	Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	
PM _{2.5} (µg/m³)	5.5	0.0	94%	95%	50.8	80	Jan-26 19:00	14.2	29	Jan-27	0	-	0	-	Jan 22, 2020
SO ₂ (ppb)	1.1	0.0	95%	100%	28.5	172	Jan-27 15:00	6.4	48	Jan-25	0	-	0	0	Jan 15, 2020
TRS (ppb)	0.2	0.0	95%	100%	1.4	-	Jan-27 11:00	0.4	-	Jan-28	-	-	-	-	Jan 15, 2020
	Average	Minimum	Valid	Operational	Maximum										
Temp (°C)	-15.5	-39.8	100%	100%	5.3										
WS (km/hr)	10.8	0.1	100%	100%	53.0										
WD (deg)	266	0.1	100%	100%	359.6										
Note: Valid hours must be greater than 75%															
Operational hours must be greater than 90%															
Average Wind Direction266W															

Update Summary:

Parameter	Make	Model	Equipment summary
PM _{2.5}	Sharp	5030	Periods of freezing during the month resulted in lost data
SO ₂	TECO	43i	No Operational issues noted during the month
TRS	TEI	43i APSAA	No Operational issues noted during the month
Met Equip	MetOne	50.5	No Operational issues noted during the month

1.5 Valleyview Air Monitoring Station

PAZA - January 2020 Valleyview Station Report

AZA - January 2020 Valleyview Station Report															
Parameter	January			Operational	Max	1-hour		24-hour			Exceedance				Calibration
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
SO ₂ (ppb)	0.3	0.0	95%	100%	6.3	172	Jan-13 15:00	1.5	48	Jan-13	0	-	0	0	Jan 27, 2020
H ₂ S (ppb)	0.2	0.0	95%	100%	3.0	10	Jan-21 11:00	0.4	3	Jan-15	0	-	0	-	Jan 27, 2020
	Average	Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90%									
Temp (°C)	-14.8	-44.5	100%	100%	4.6										
RH (%)	79.7	42.8	100%	100%	100.2										
WS (km/hr)	2.9	0.0	100%	100%	17.0										
WD (deg)	261	0.2	100%	100%	359.5										
						Average Wind Direction		261		W					

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	TEI	43i-APSCB	No Operational issues noted during the month
H ₂ S	TEI	450i-APHAA	No Operational issues noted during the month
Met Equip	RMYoung	RMY86004	No Operational issues noted during the month

1.6 Donnelly Air Monitoring Station

PAZA - January 2020 Donnelly Station Report

FEMA - January 2020 Donnelly Station Report															
Parameter	January			Operational	Max	1-hour		24-hour			Exceedance				Calibration
	Average	Minimum	Valid			Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
SO ₂ (ppb)	0.3	0.0	95%	100%	3.2	172	Jan-19 07:00	1.5	48	Jan-13	0	-	0	0	Jan 28, 2020
H ₂ S (ppb)	0.0	0.0	95%	100%	0.6	10	Jan-09 11:00	0.4	3	Jan-15	0	-	0	-	Jan 28, 2020
	Average	Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90% Average Wind Direction214SW									
Temp (°C)	-13.8	-40.3	100%	100%	5.2										
WS (km/hr)	10.2	0.2	100%	100%	48.9										
WD (deg)	214	0.5	100%	100%	359.9										

Update Summary:

Parameter	Make	Model	Equipment summary
SO ₂	Teco	43i	No Operational issues noted during the month
H ₂ S	Thermo	45C	No Operational issues noted during the month
Met Equip	RMYoung	5103	No Operational issues noted during the month

1.7 Wembley Air Monitoring Station

PAZA - January 2020 Wembley Station Report

January 2020 Windway Station Report															
Parameter	January		Valid	Operational	Max	1-hour		24-hour			Exceedance				Calibration
	Average	Minimum				Objective	Max Day and Time	Max	Objective	Max Day	1hr	8hr	24hr	30d	Date
NO (ppb)	2.1	0.0	95%	100%	30.1	-	Jan-07 16:00	7.2	-	Jan-29	-	-	-	-	Jan 08, 2020
NO ₂ (ppb)	10.4	0.3	95%	100%	37.9	159	Jan-23 20:00	21.2	-	Jan-23	0	-	-	-	Jan 08, 2020
NO _x (ppb)	12.6	0.4	95%	100%	57.7	-	Jan-23 20:00	27.7	-	Jan-29	-	-	-	-	Jan 08, 2020
O ₃ (ppb)	21.4	0.0	91%	96%	45.2	76	Jan-30 16:00	39.7	-	Jan-30	0	-	-	-	Jan 27, 2020
PM _{2.5} (µg/m ³)	3.3	0.0	98%	99%	14.9	80	Jan-25 00:00	8.3	29	Jan-25	0	-	0	-	Jan 24, 2020
SO ₂ (ppb)	1.0	0.0	95%	100%	11.9	172	Jan-31 00:00	3.0	48	Jan-19	0	-	0	0	Jan 08, 2020
TRS (ppb)	0.3	0.0	95%	100%	0.9	-	Jan-29 09:00	0.4	-	Jan-29	-	-	-	-	Jan 07, 2020
CH ₄ (ppm)	2.2	1.9	94%	99%	3.0	-	Jan-26 12:00	2.6	-	Jan-25	-	-	-	-	Jan 27, 2020
THC (ppm)	2.2	1.9	94%	99%	3.5	-	Jan-27 11:00	2.6	-	Jan-25	-	-	-	-	Jan 27, 2020
NMHC (ppm)	0.0	0.0	94%	99%	0.6	-	Jan-27 11:00	0.0	-	Jan-27	-	-	-	-	Jan 27, 2020
	Average	Minimum	Valid	Operational	Maximum	Note: Valid hours must be greater than 75% Operational hours must be greater than 90% Average Wind Direction287WNW									
Temp (°C)	-15.6	-38.8	100%	100%	6.1										
WS (km/hr)	7.1	0.2	99%	99%	30.5										
WD (deg)	287	1.2	100%	100%	358.7										

Update Summary:

Parameter	Make	Model	Equipment summary
NO/NO ₂ /NO _x	TEI	42i	No Operational issues noted during the month
O ₃	TEI	49i	Sample pump rebuilt, cells cleaned on Jan 27
PM _{2.5}	Thermo	TEOM AB	Periods of freezing during the month resulted in lost data
SO ₂	TEI	43i	No Operational issues noted during the month
TRS	TEI	43i	No Operational issues noted during the month
THC/CH ₄ /NMHC	TEI	55i-A3PHAA	Replaced Nitrogen cylinder Jan 7, Replaced Hydrogen cylinder Jan 24
Met Equip	MetOne	50.5	No Operational issues noted during the month

2 Beaverlodge Charts

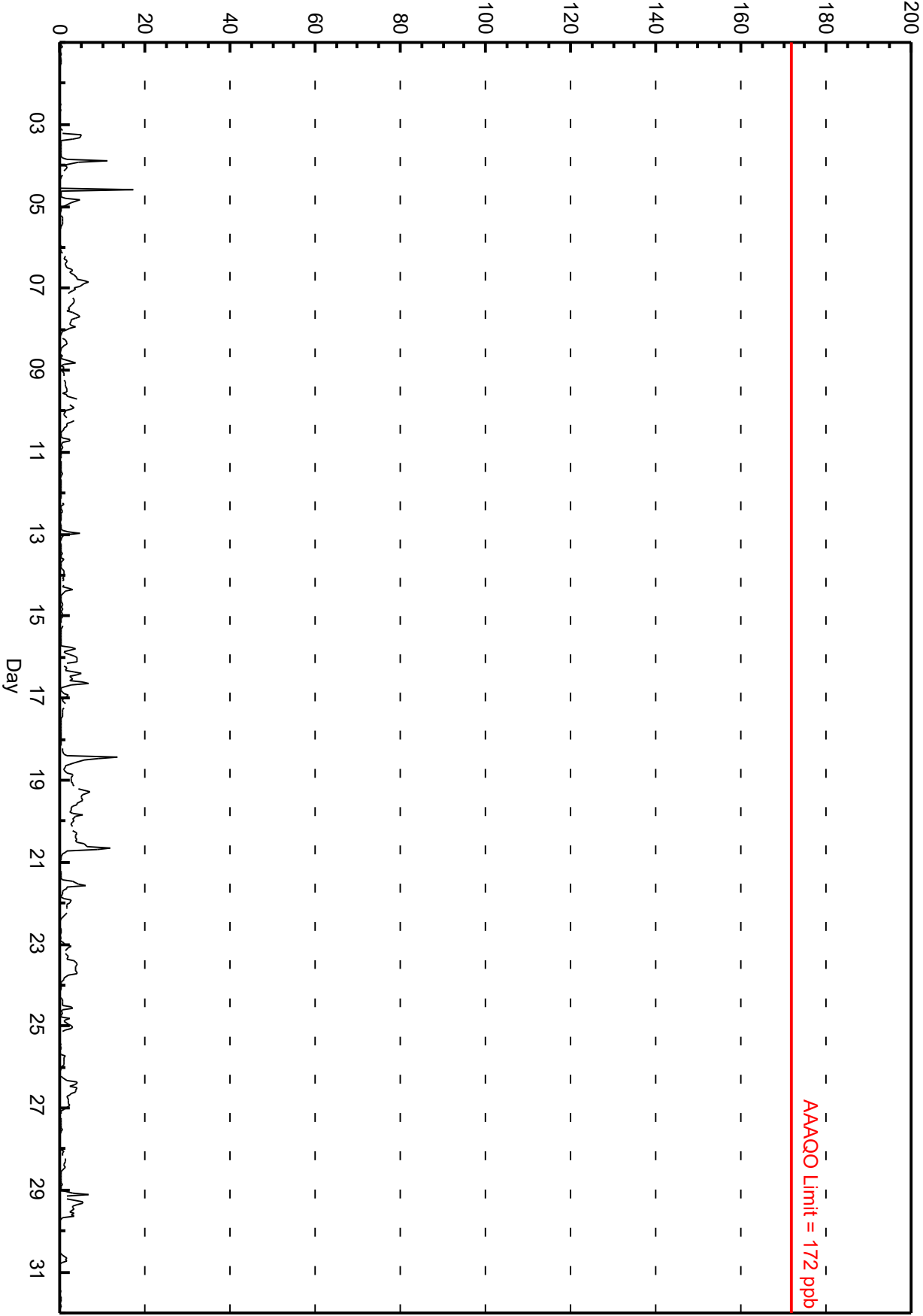
The following pages include the charts and histograms for Beaverlodge Station



Peace Airshed Zone Association

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - January 2020

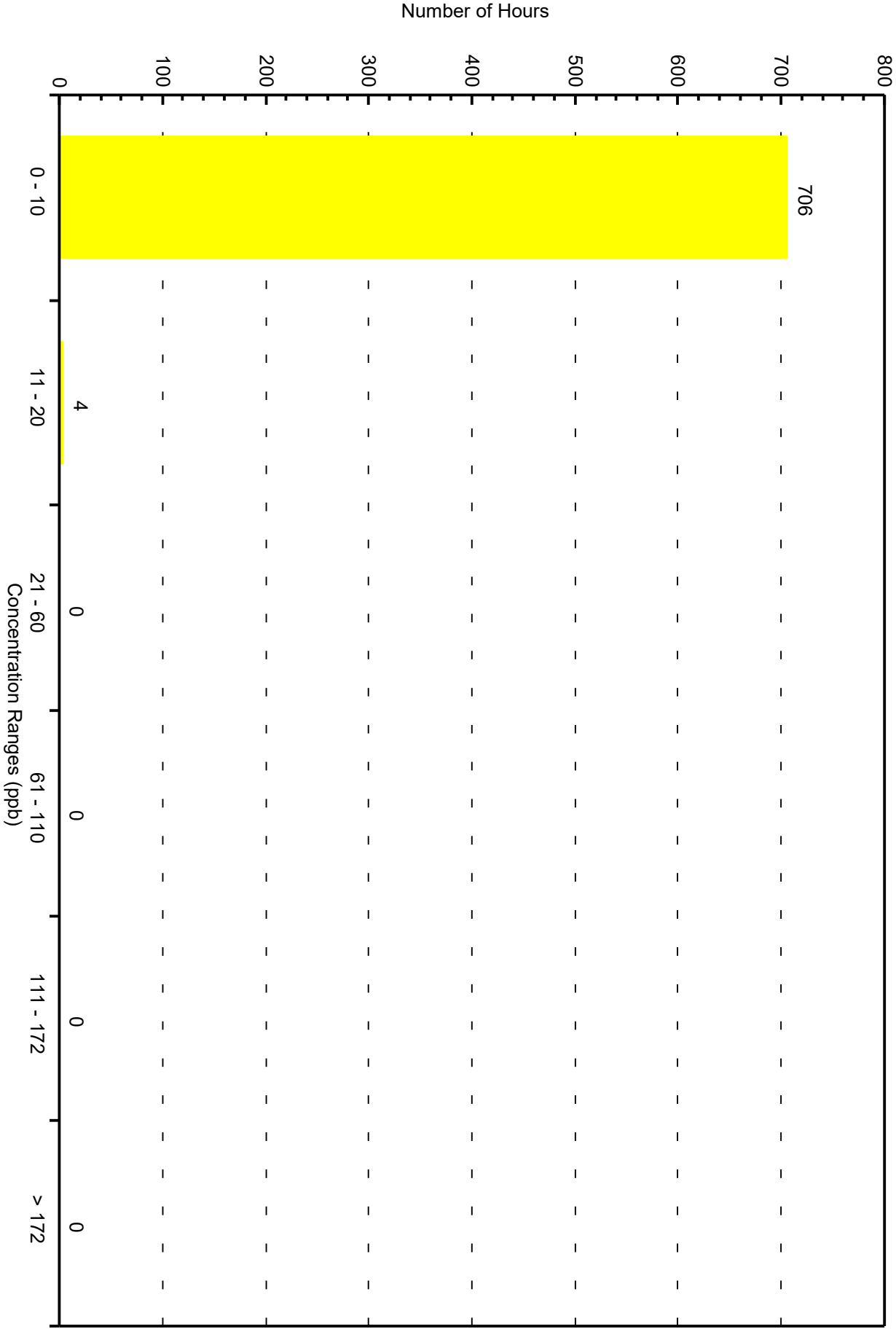




Peace Airshed Zone Association

Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - January 2020

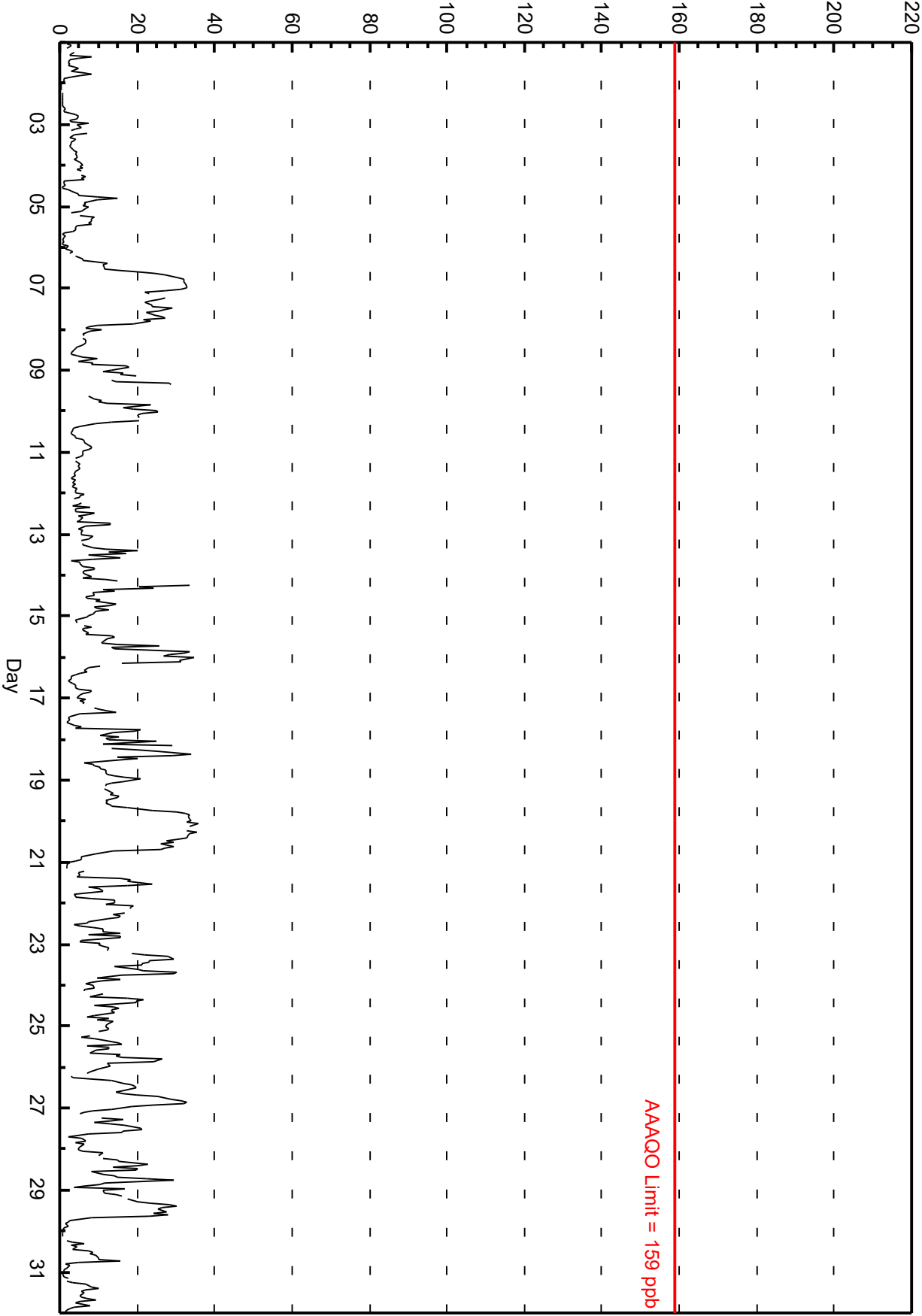




Peace Airshed Zone Association

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - January 2020



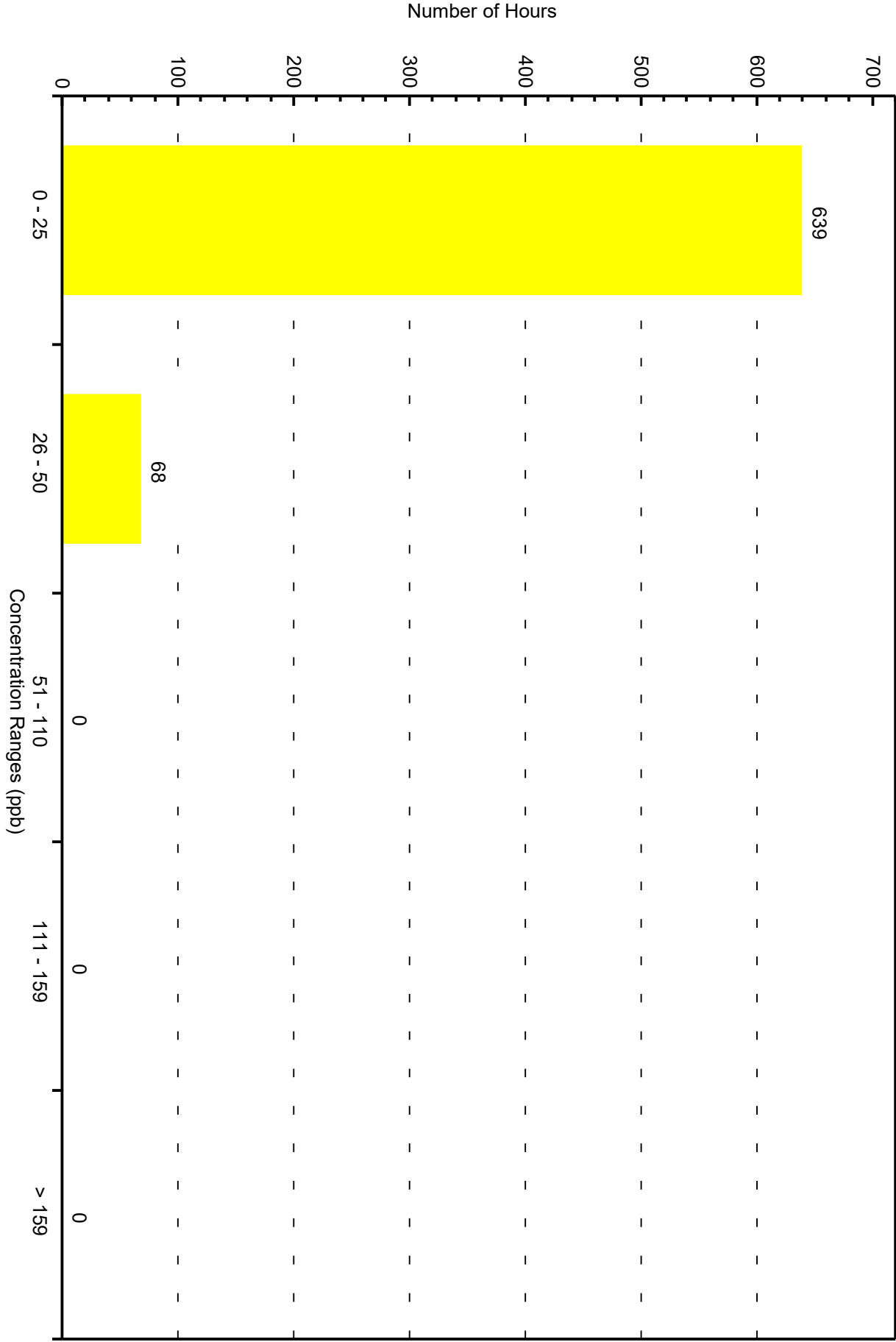


Peace Airshed Zone Association

Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb

Beaverlodge - January 2020

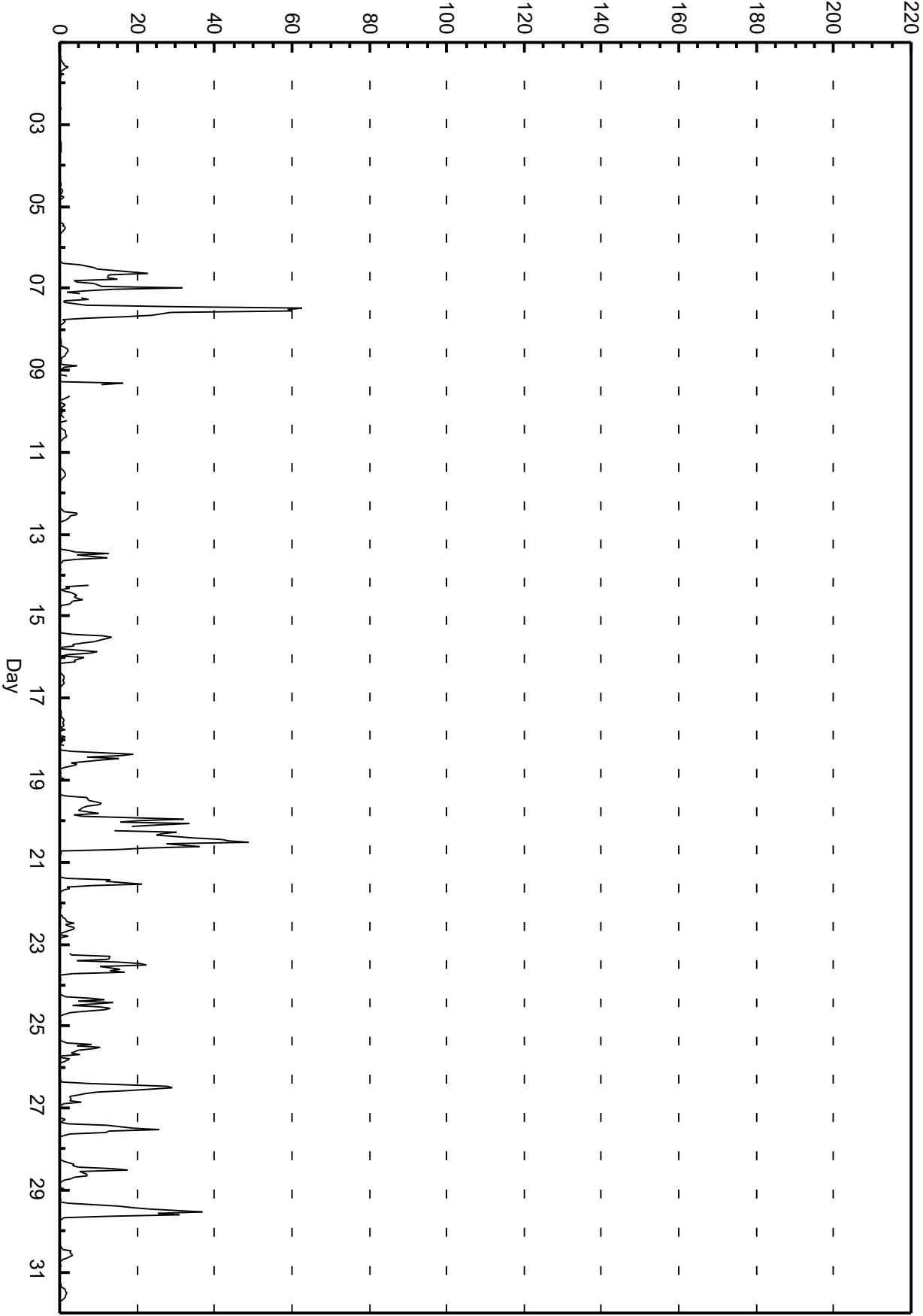




Peace Airshed Zone Association

Hourly Averages

Nitrogen Oxide (NO) - ppb
Beaverlodge - January 2020



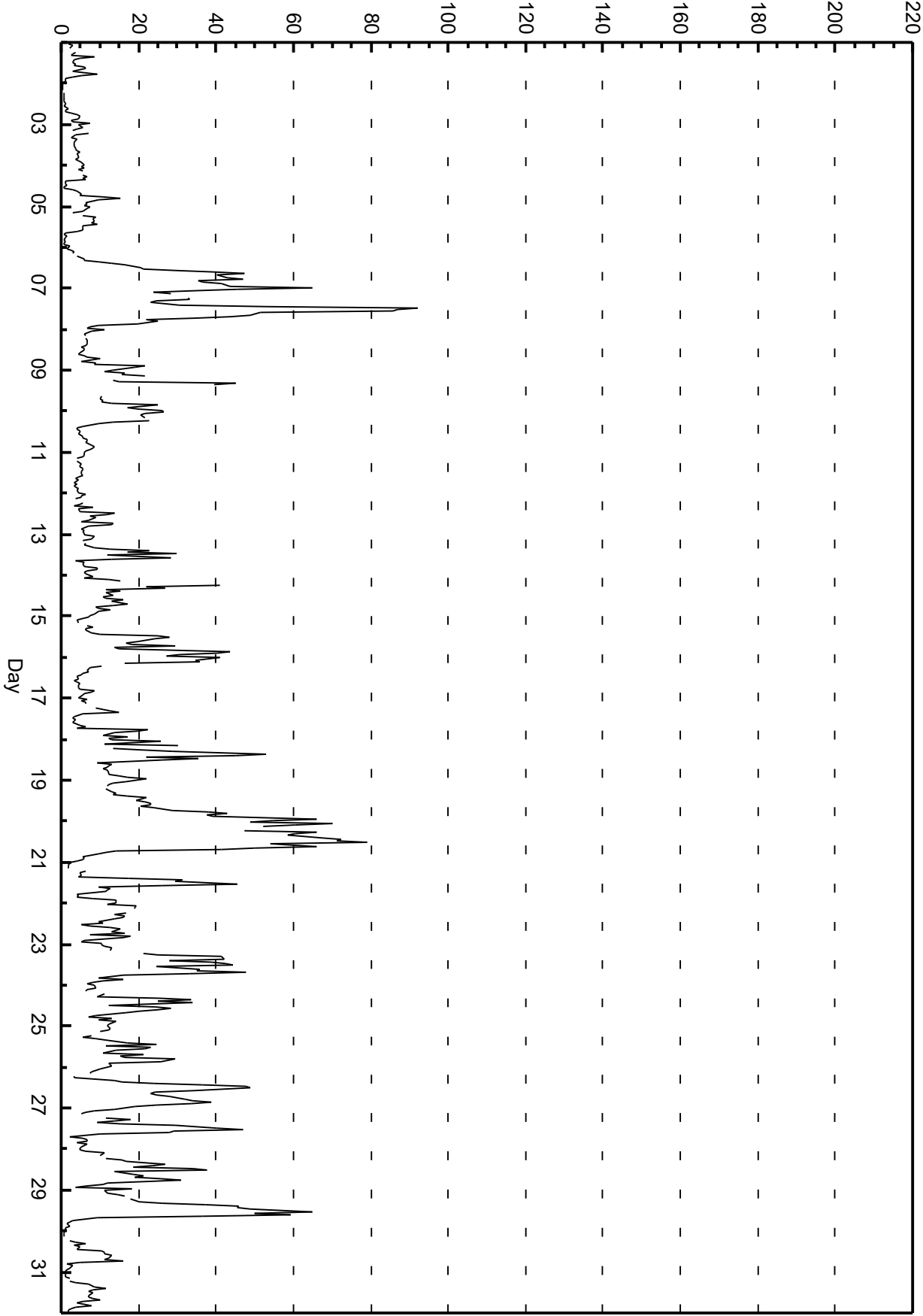


Peace Airshed Zone Association

Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Beaverlodge - January 2020



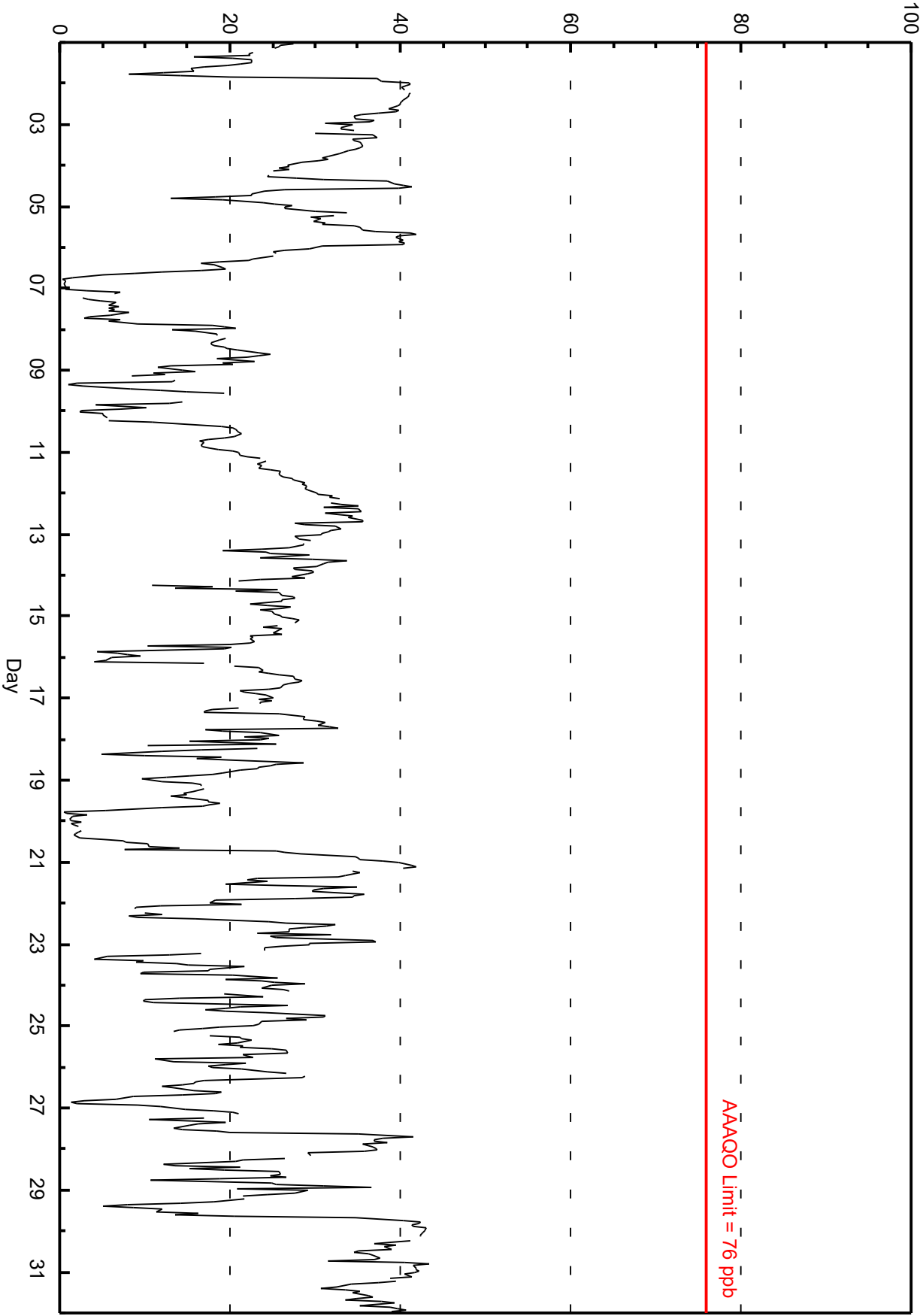


Peace Airshed Zone Association

Hourly Averages

Ozone (O_3) - ppb

Beaverlodge - January 2020



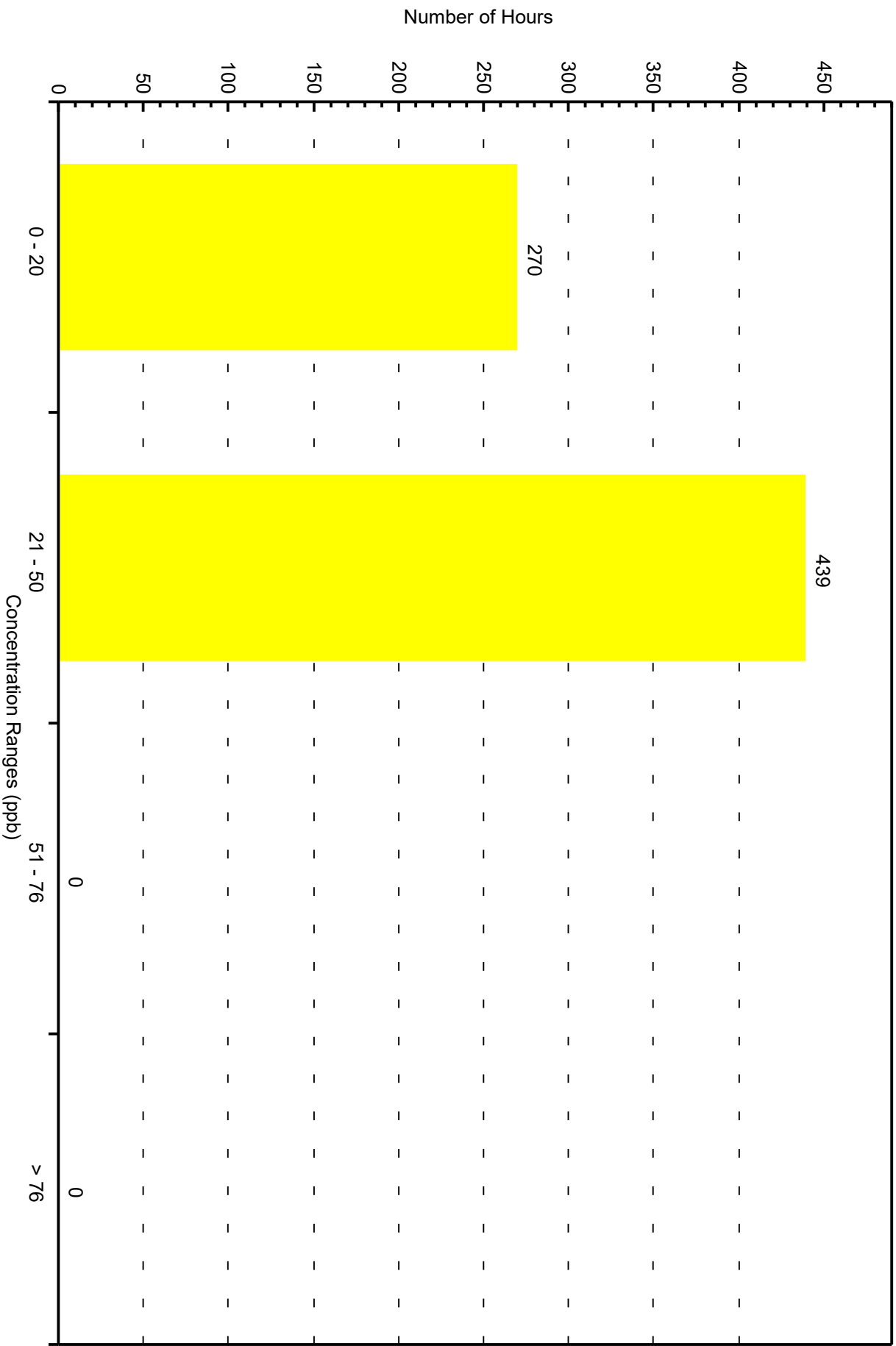


Peace Airshed Zone Association

Histogram of Hourly Averages

Ozone (O_3) - ppb

Beaverlodge - January 2020



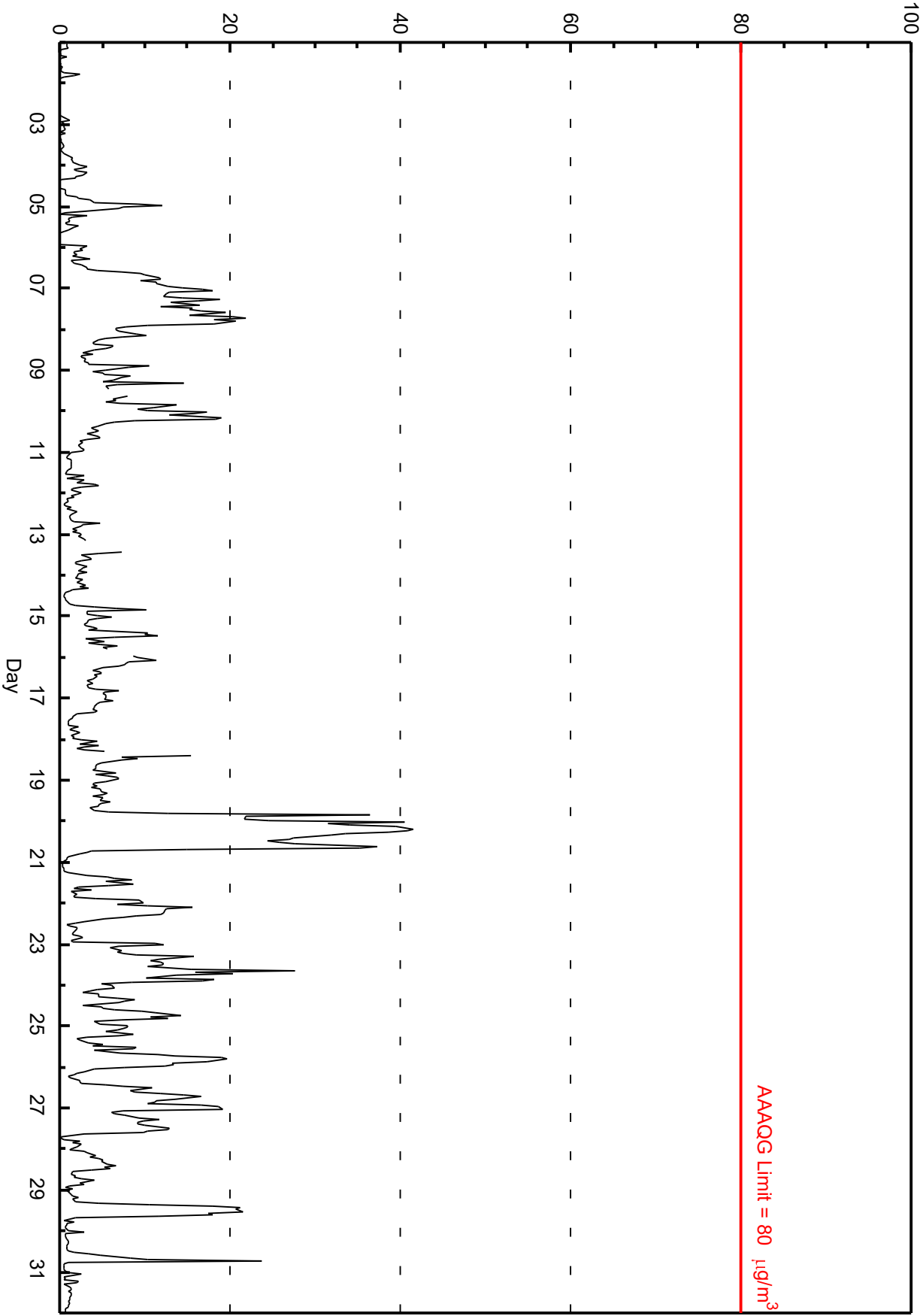


Peace Airshed Zone Association

Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Beaverlodge - January 2020



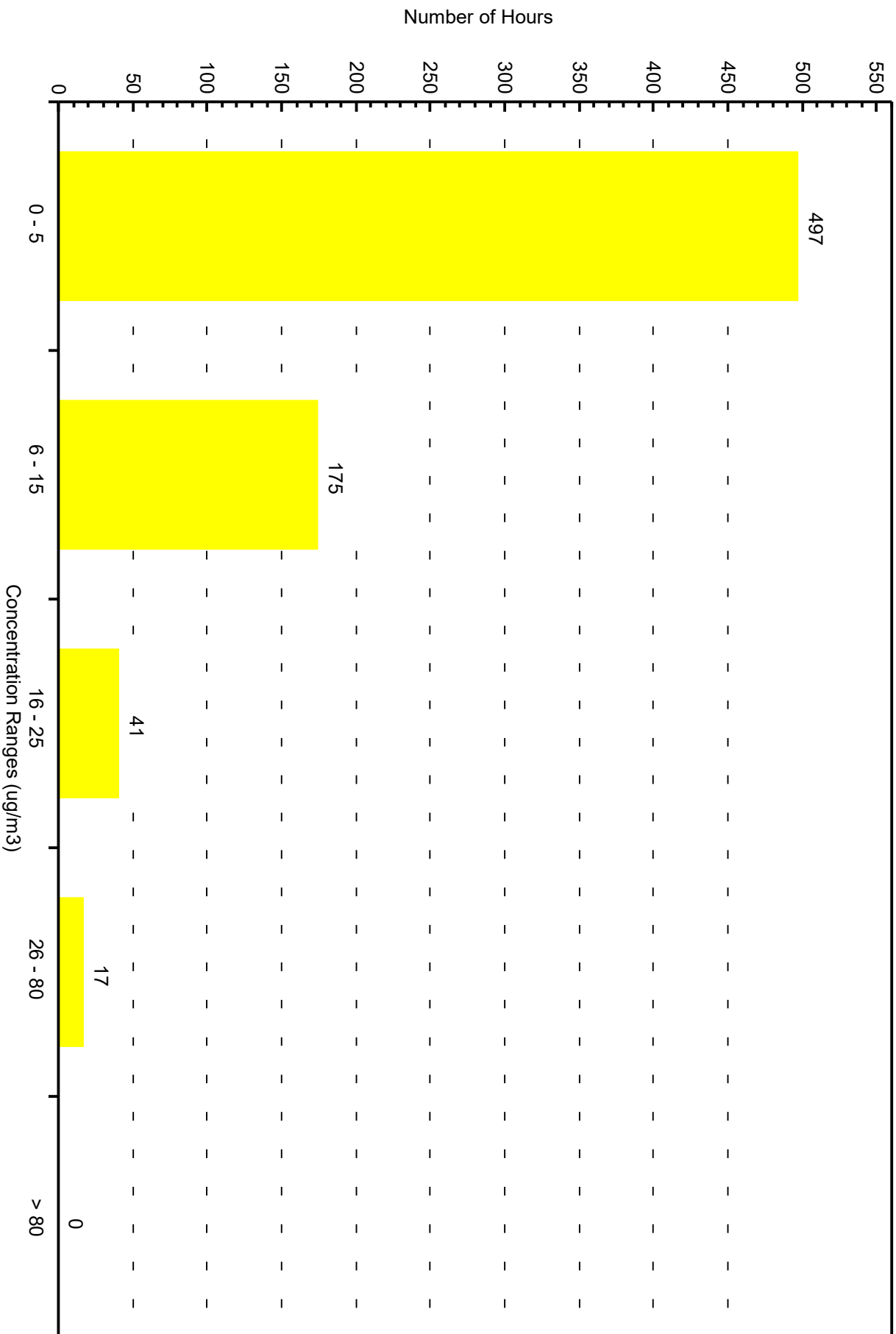


Peace Airshed Zone Association

Histogram of Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Beaverlodge - January 2020



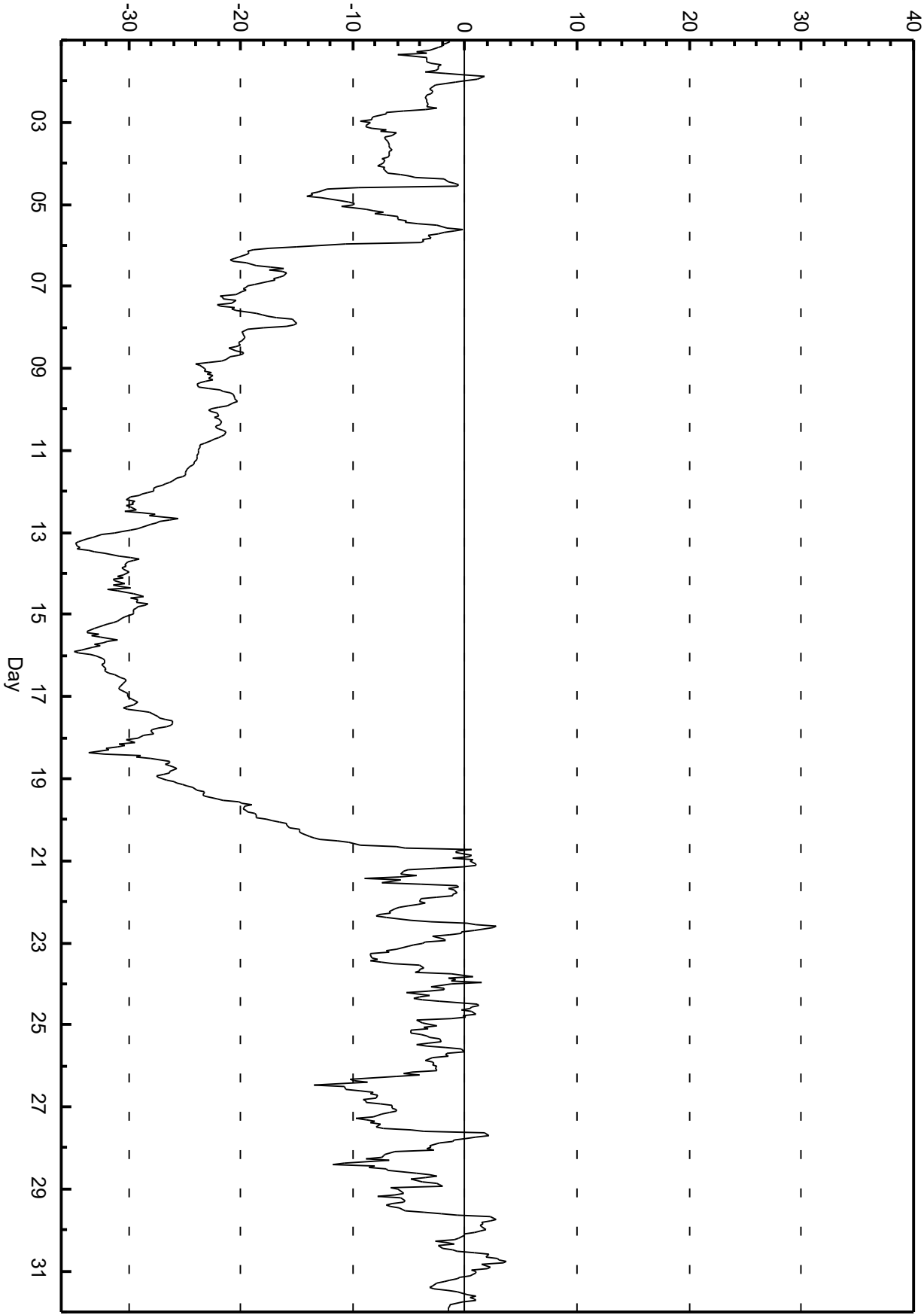


Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C

Beaverlodge - January 2020

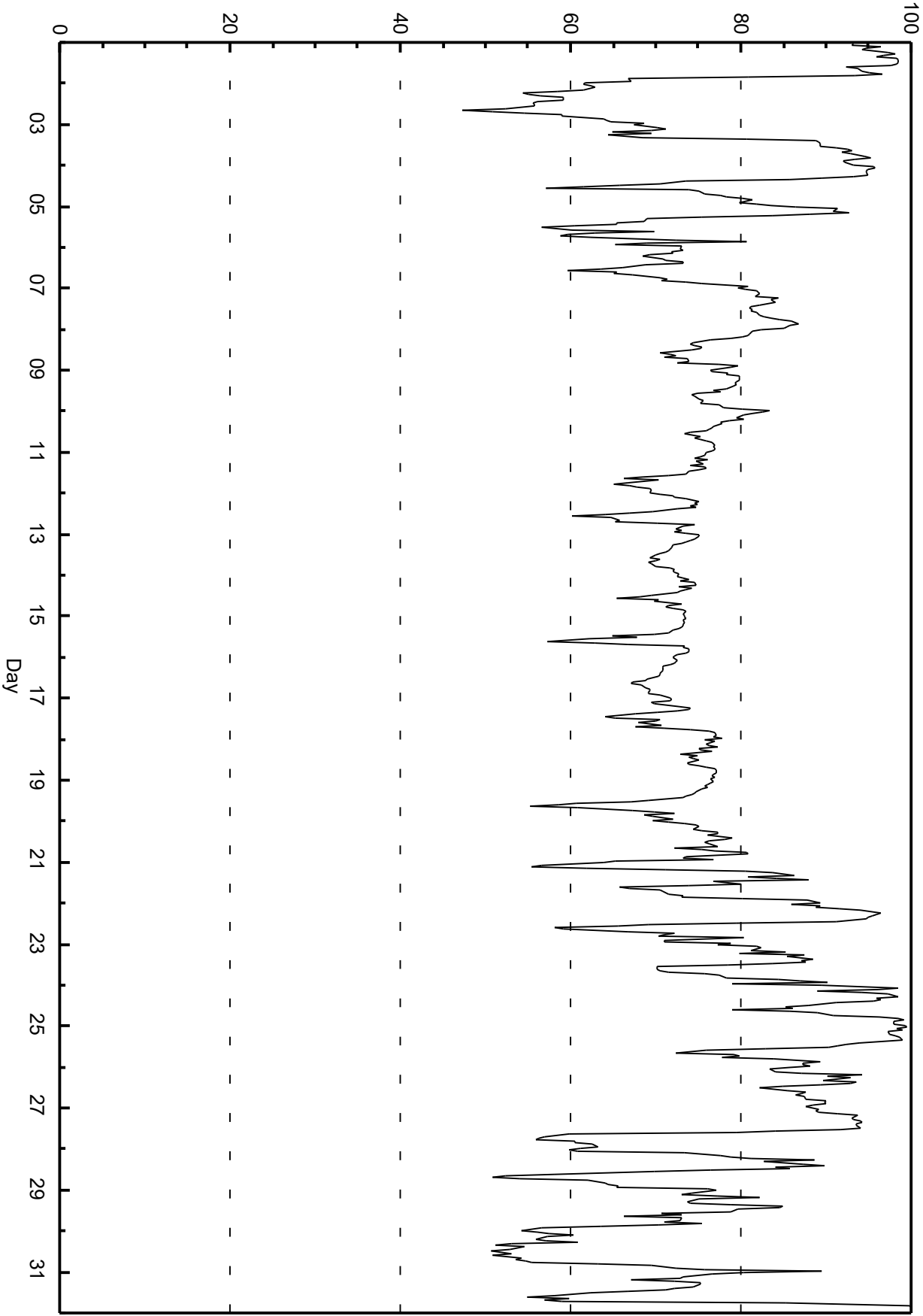




Peace Airshed Zone Association

Hourly Averages

Relative Humidity (RH) - %
Beaverlodge - January 2020

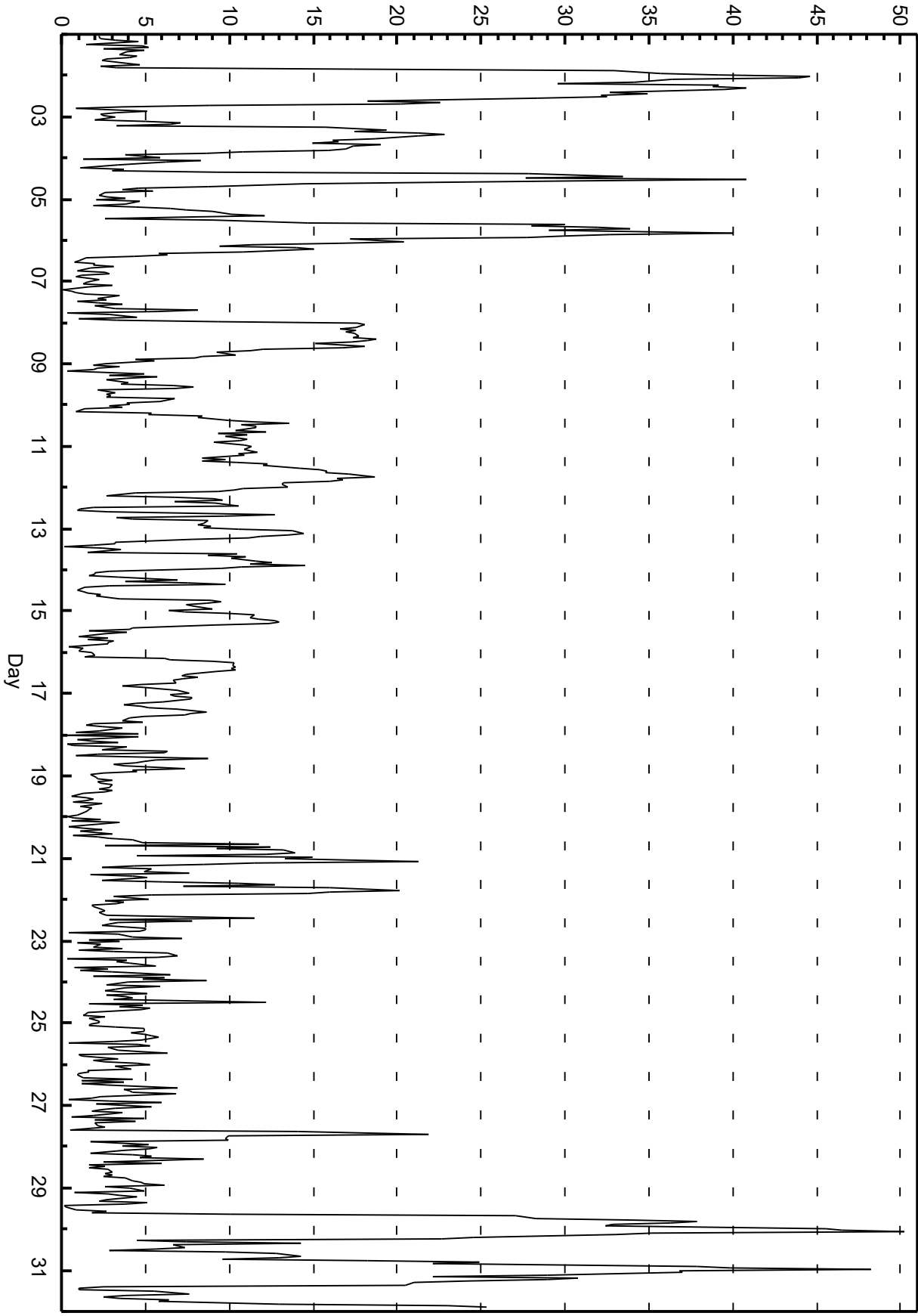




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Beaverlodge - January 2020



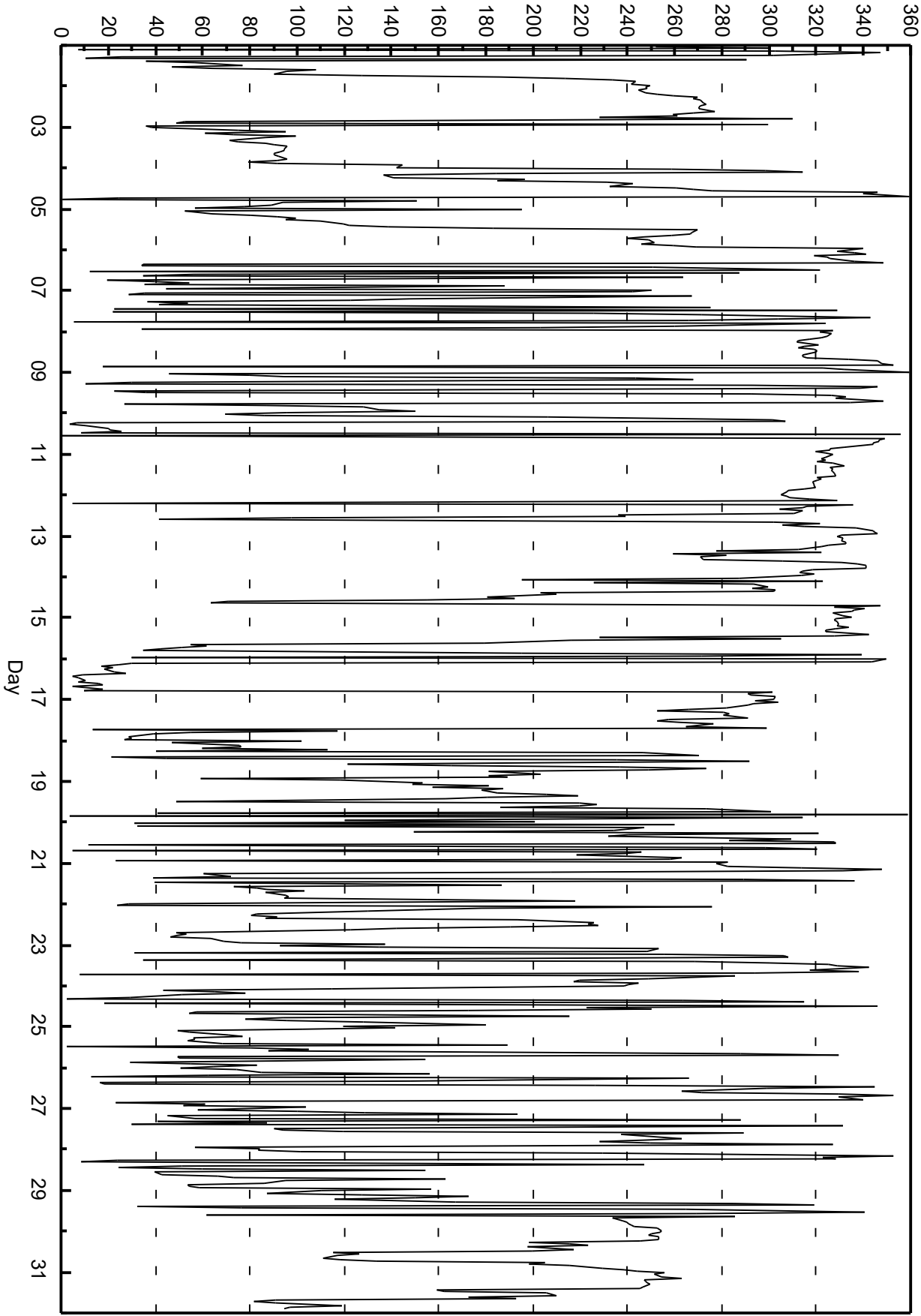


Peace Airshed Zone Association

Hourly Averages

Wind Direction (WD) - deg

Beaverlodge - January 2020

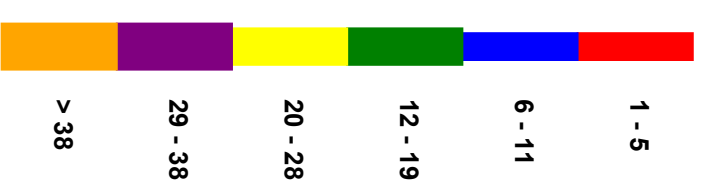
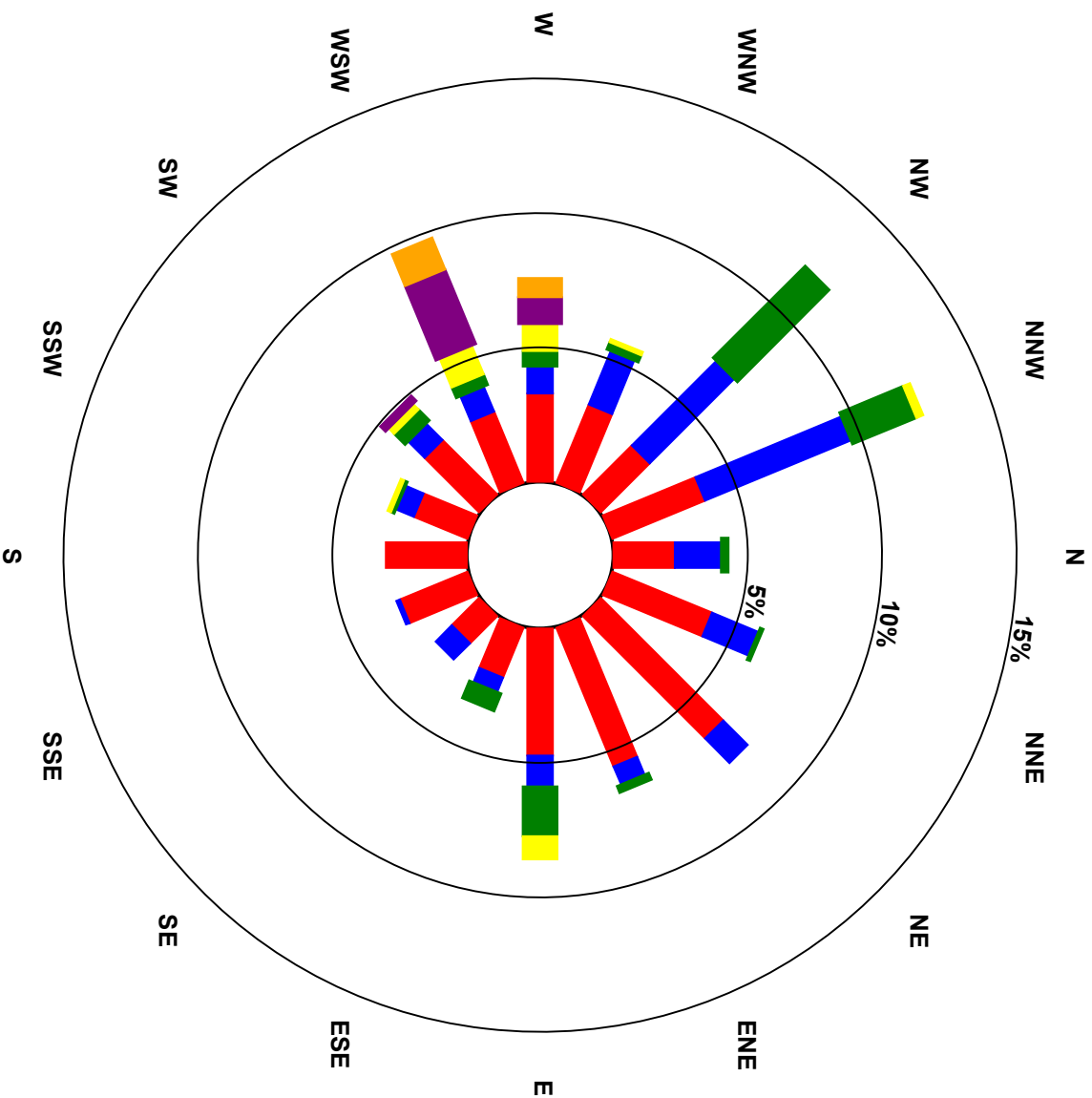




Peace Airshed Zone Association

Wind Rose

Wind Speed (WS) (km/h)
Beaverlodge - January 2020



3 **Evergreen Park Charts**

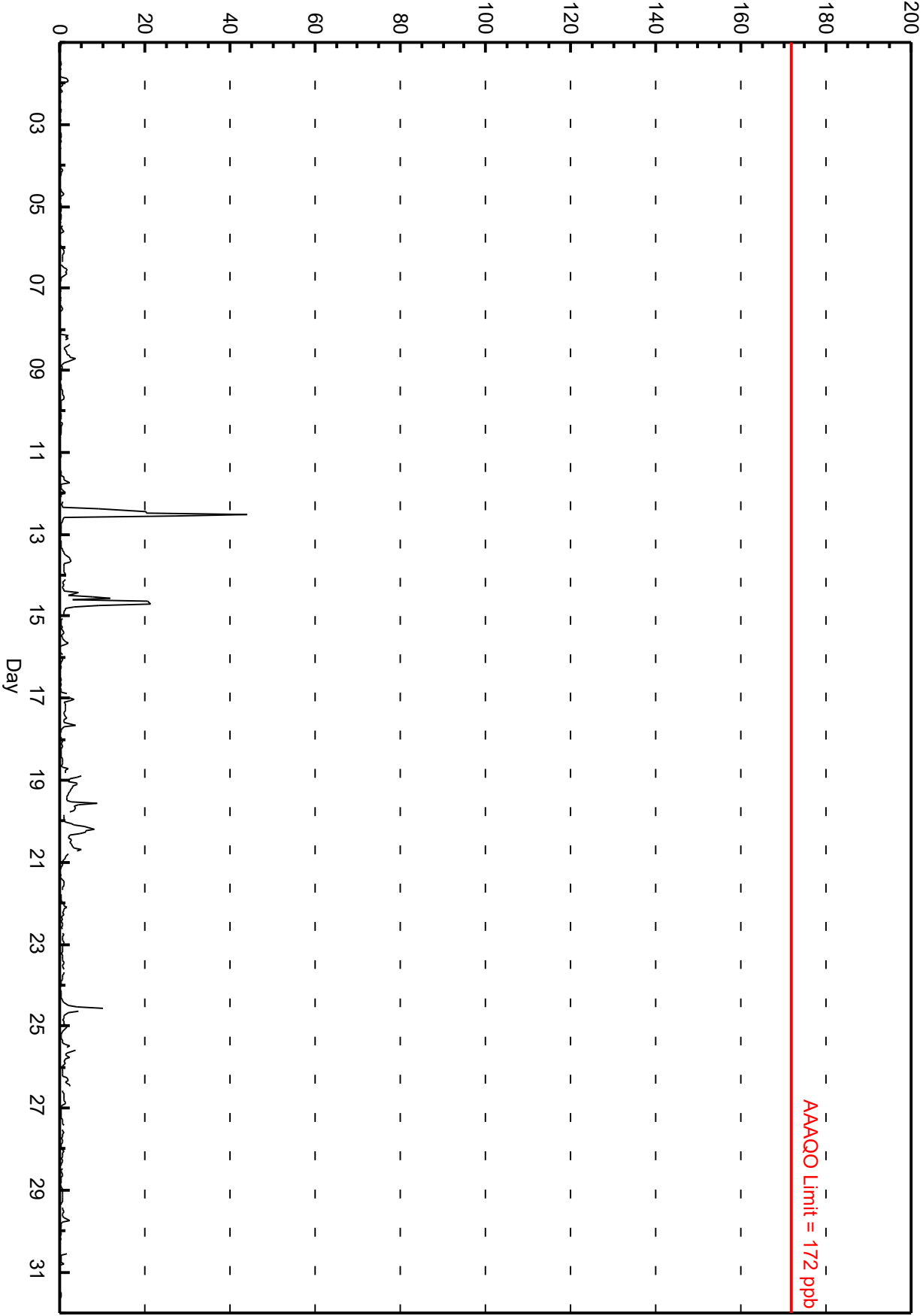
The following pages include the charts and histograms for Evergreen Park Station



Peace Airshed Zone Association

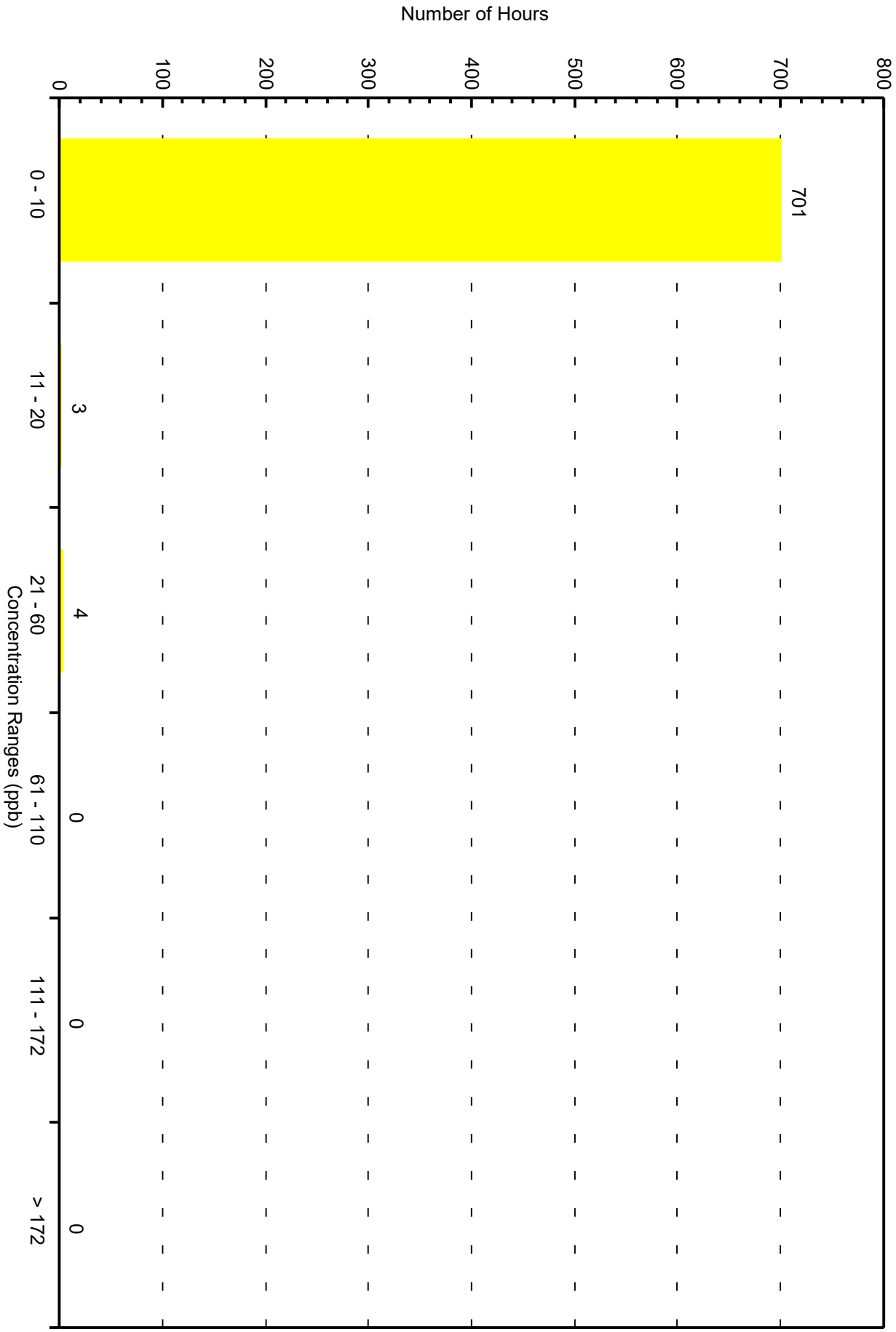
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - January 2020



Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - January 2020

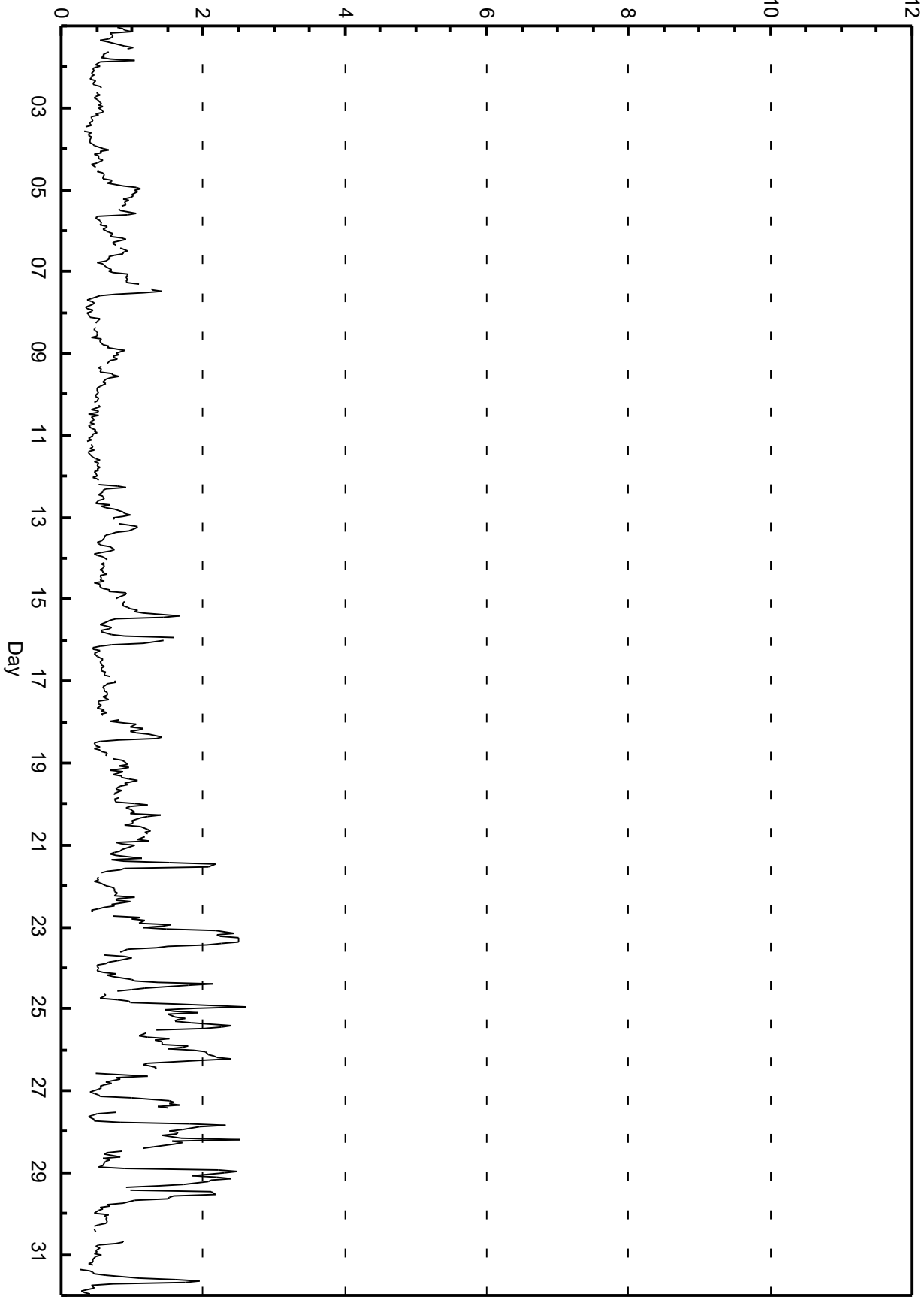




Peace Airshed Zone Association

Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - January 2020



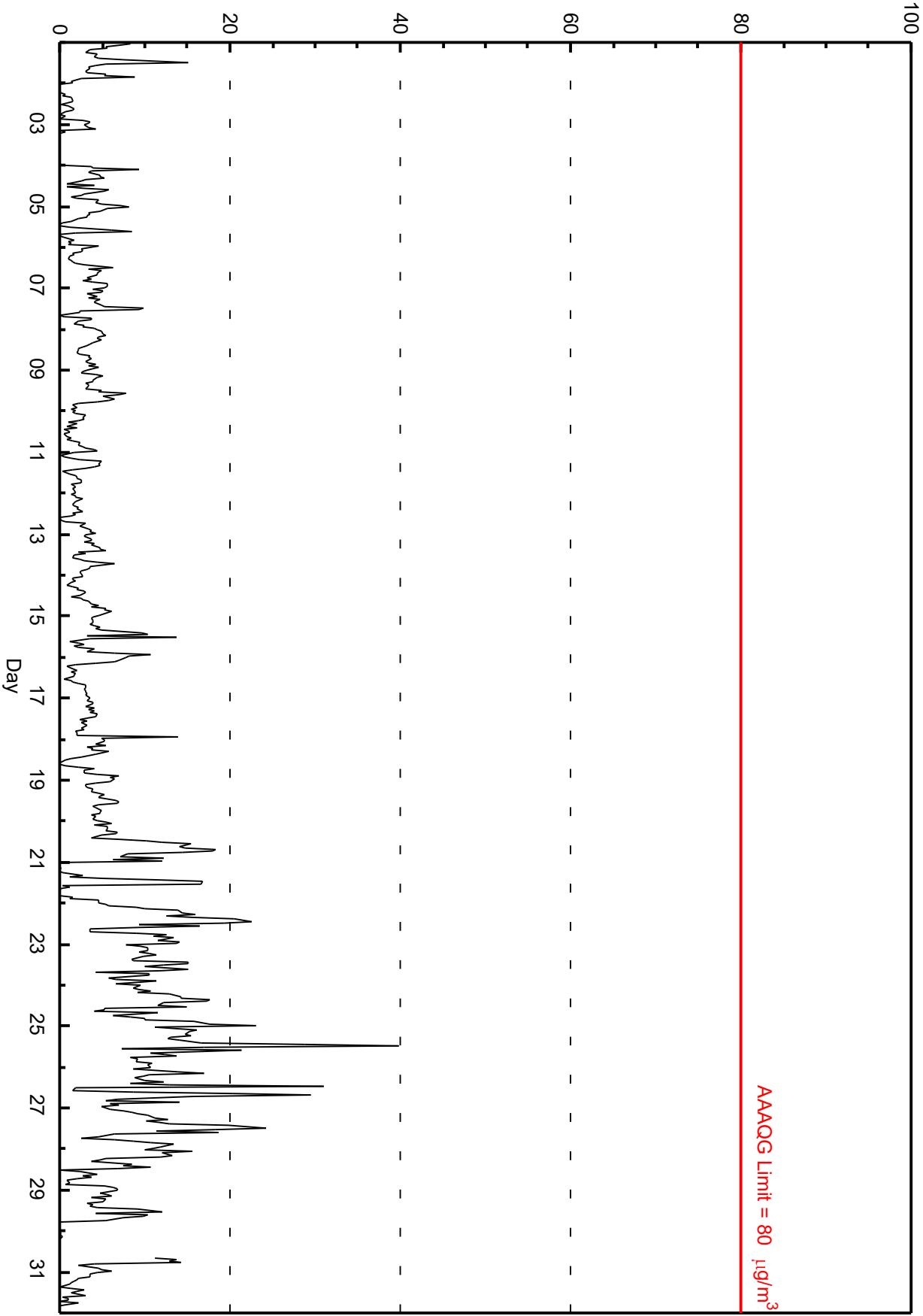


Peace Airshed Zone Association

Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Evergreen Park - January 2020



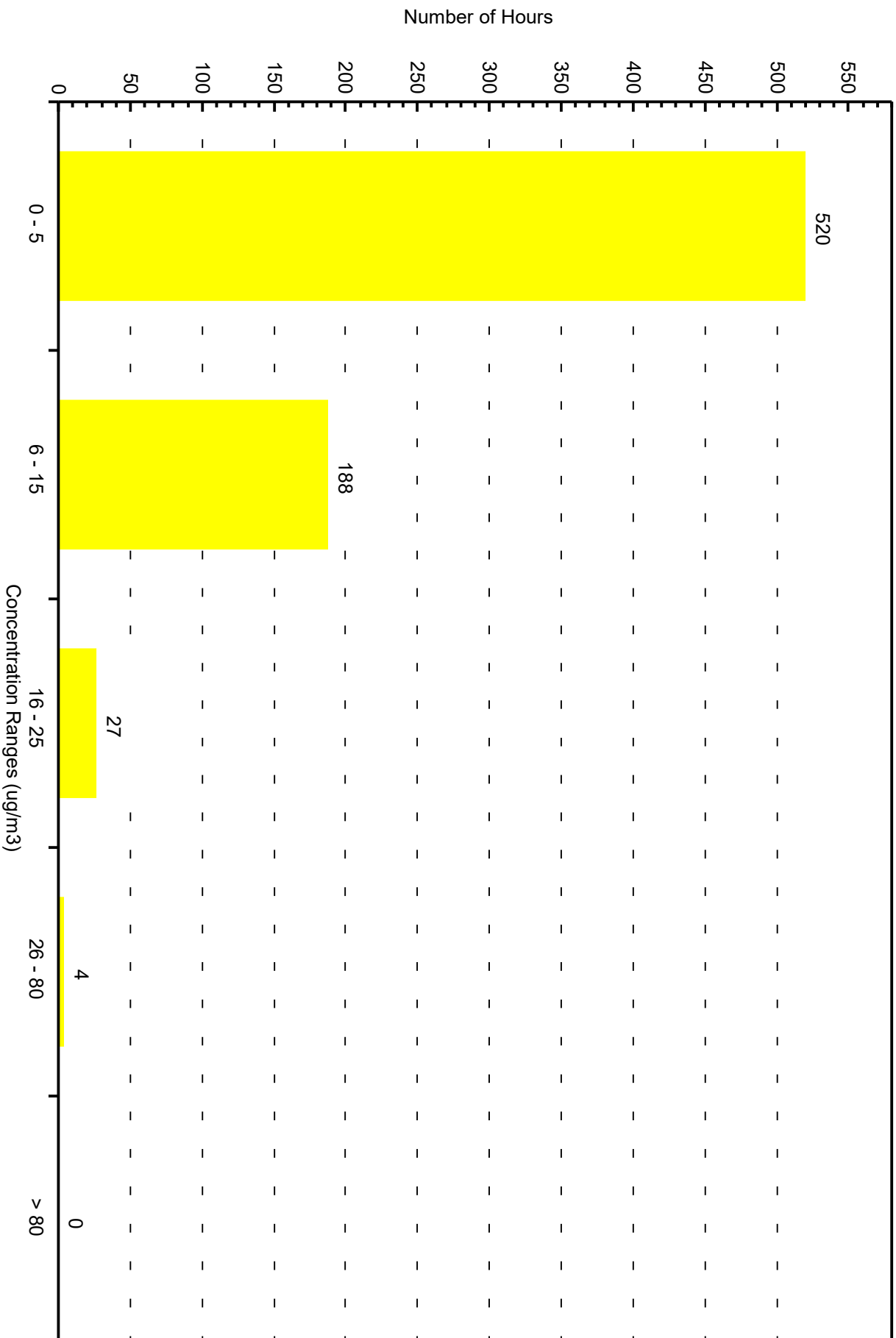


Peace Airshed Zone Association

Histogram of Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Evergreen Park - January 2020

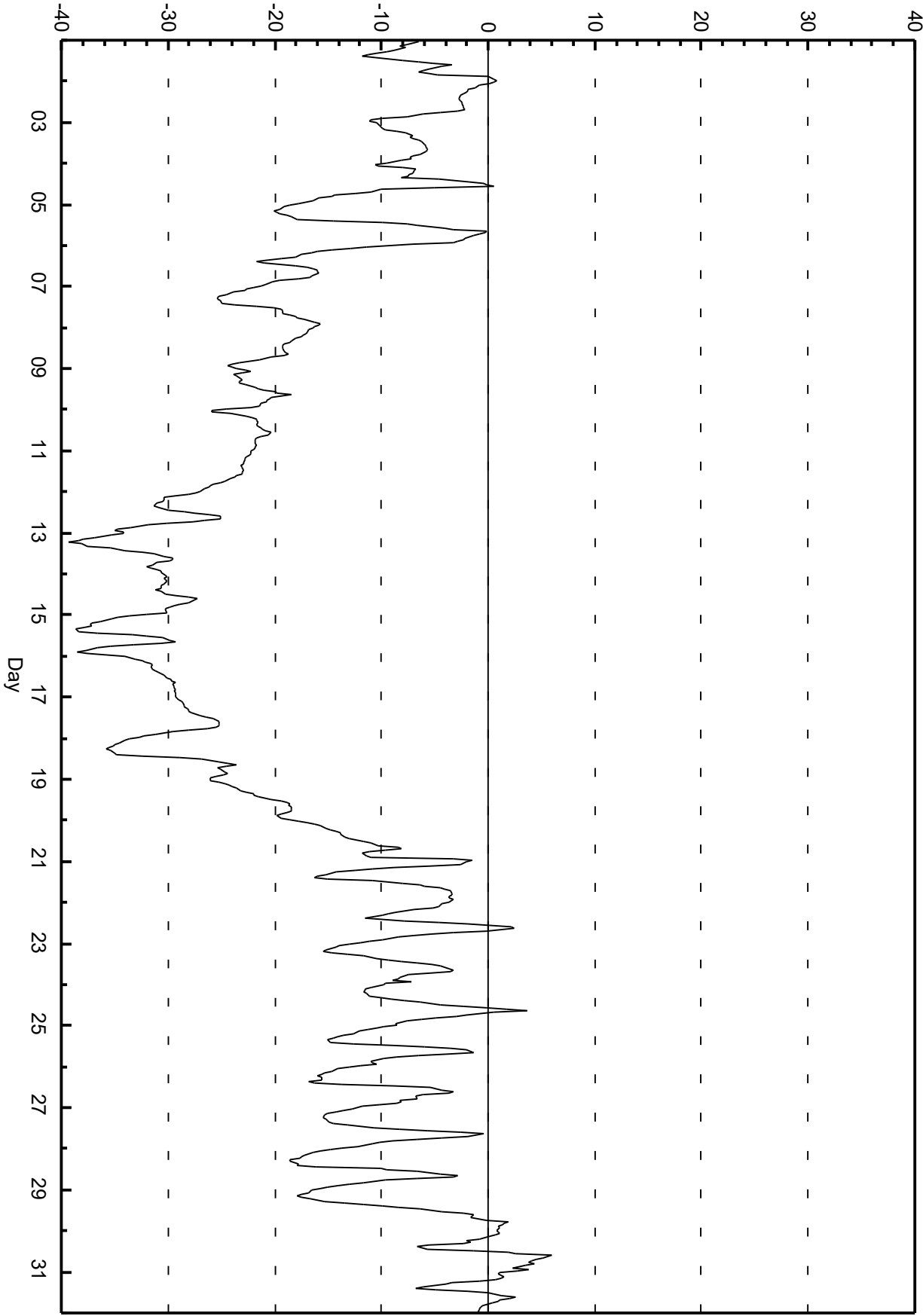




Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C
Evergreen Park - January 2020

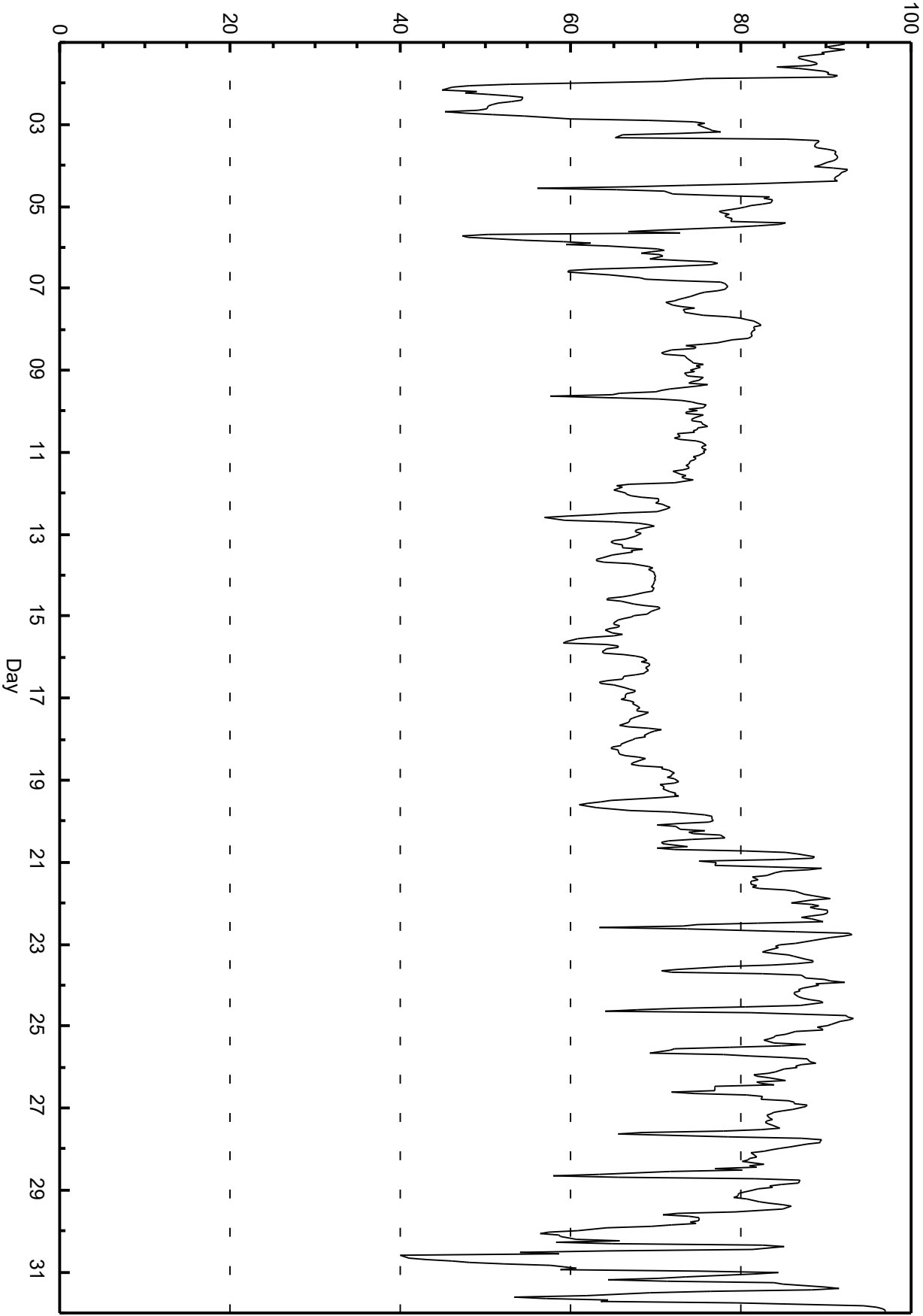




Peace Airshed Zone Association

Hourly Averages

Relative Humidity (RH) - %
Evergreen Park - January 2020

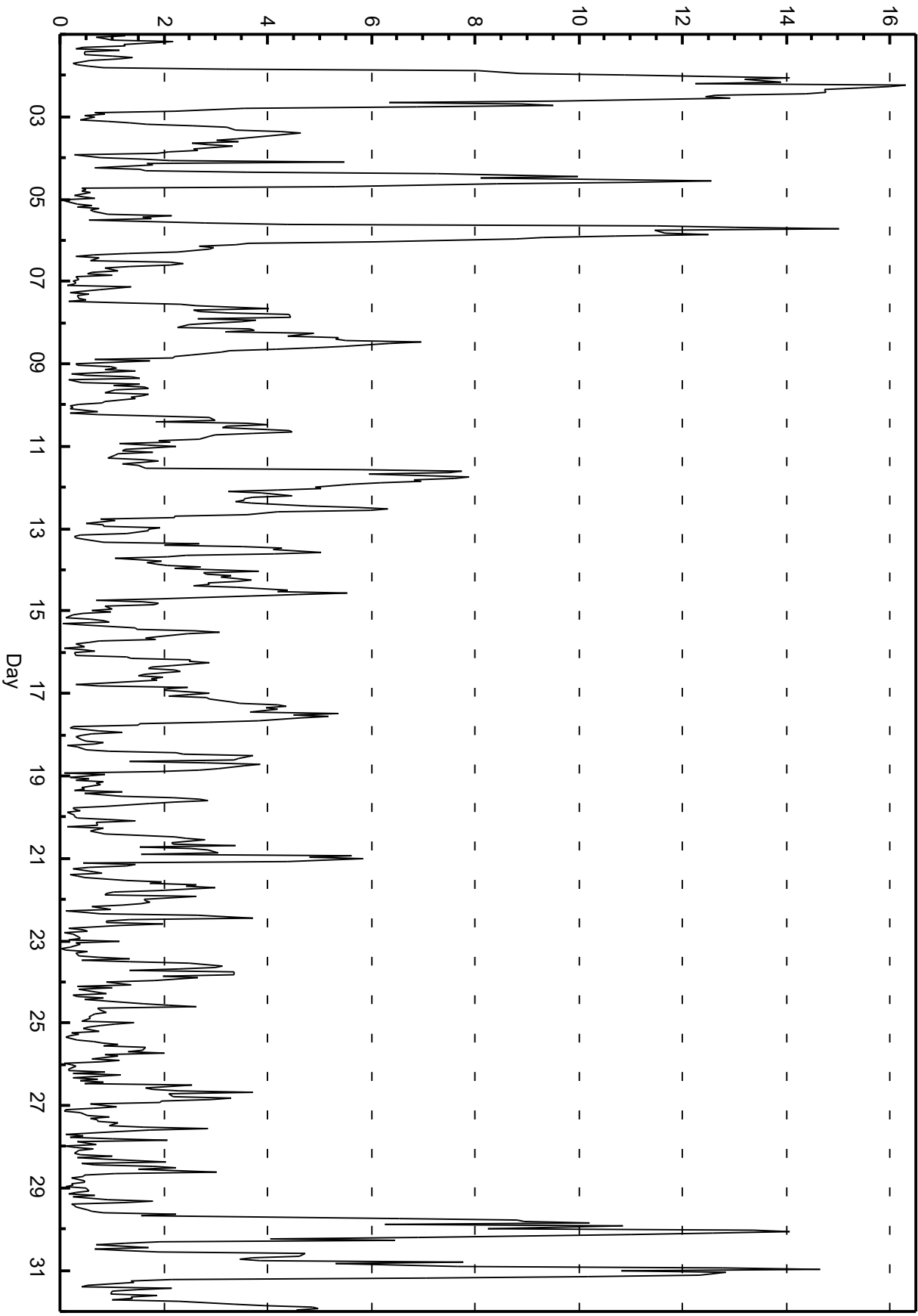




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Evergreen Park - January 2020

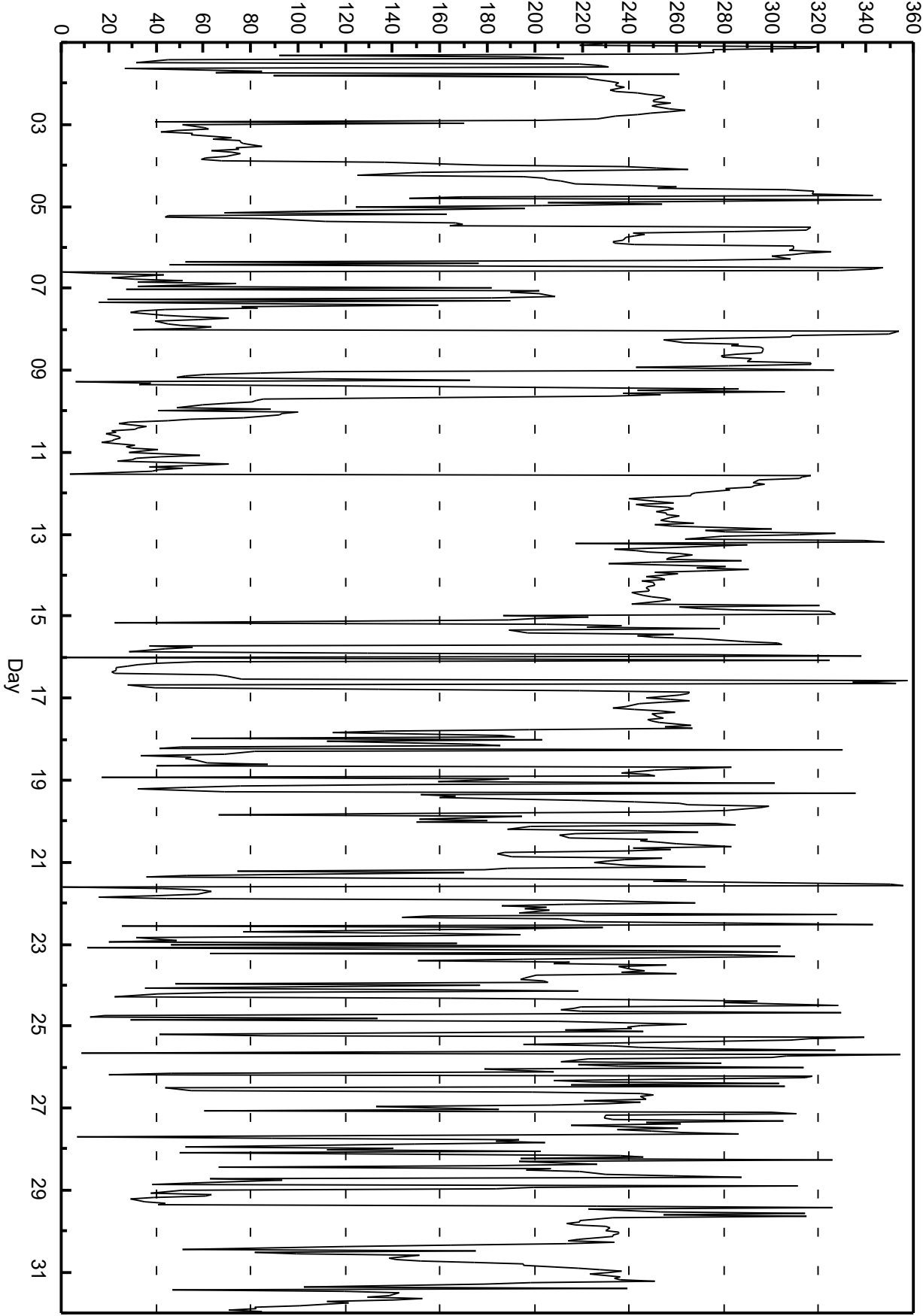




Peace Airshed Zone Association

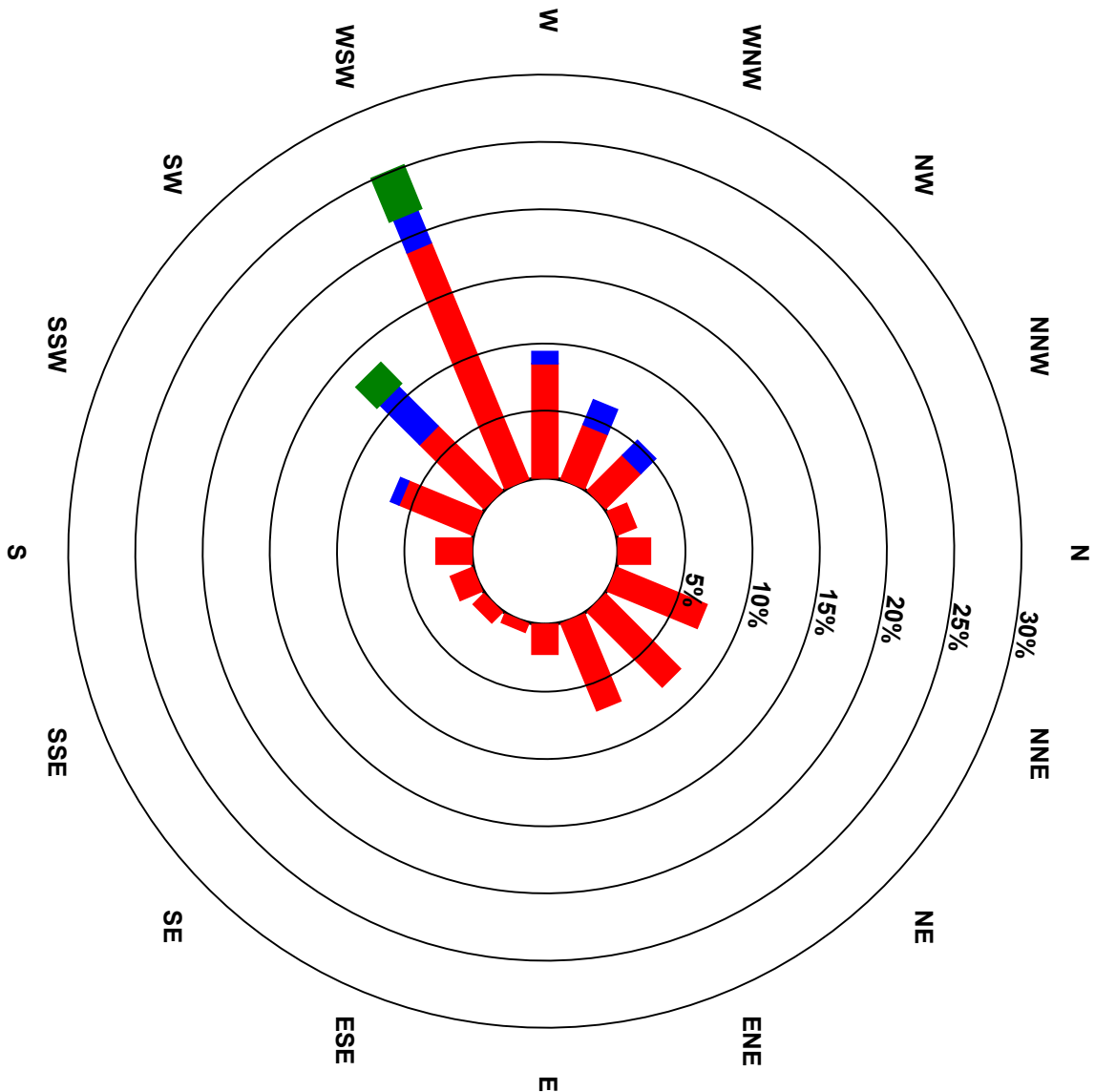
Hourly Averages

Wind Direction (WD) - deg
Evergreen Park - January 2020

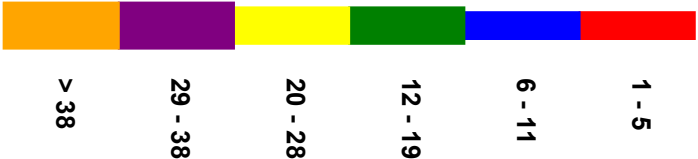


Wind Rose

Wind Speed (WS) (km/h)
 Evergreen Park - January 2020



Wind Speed Classes (km/h)



4 Grande Prairie - Henry Pirker Charts

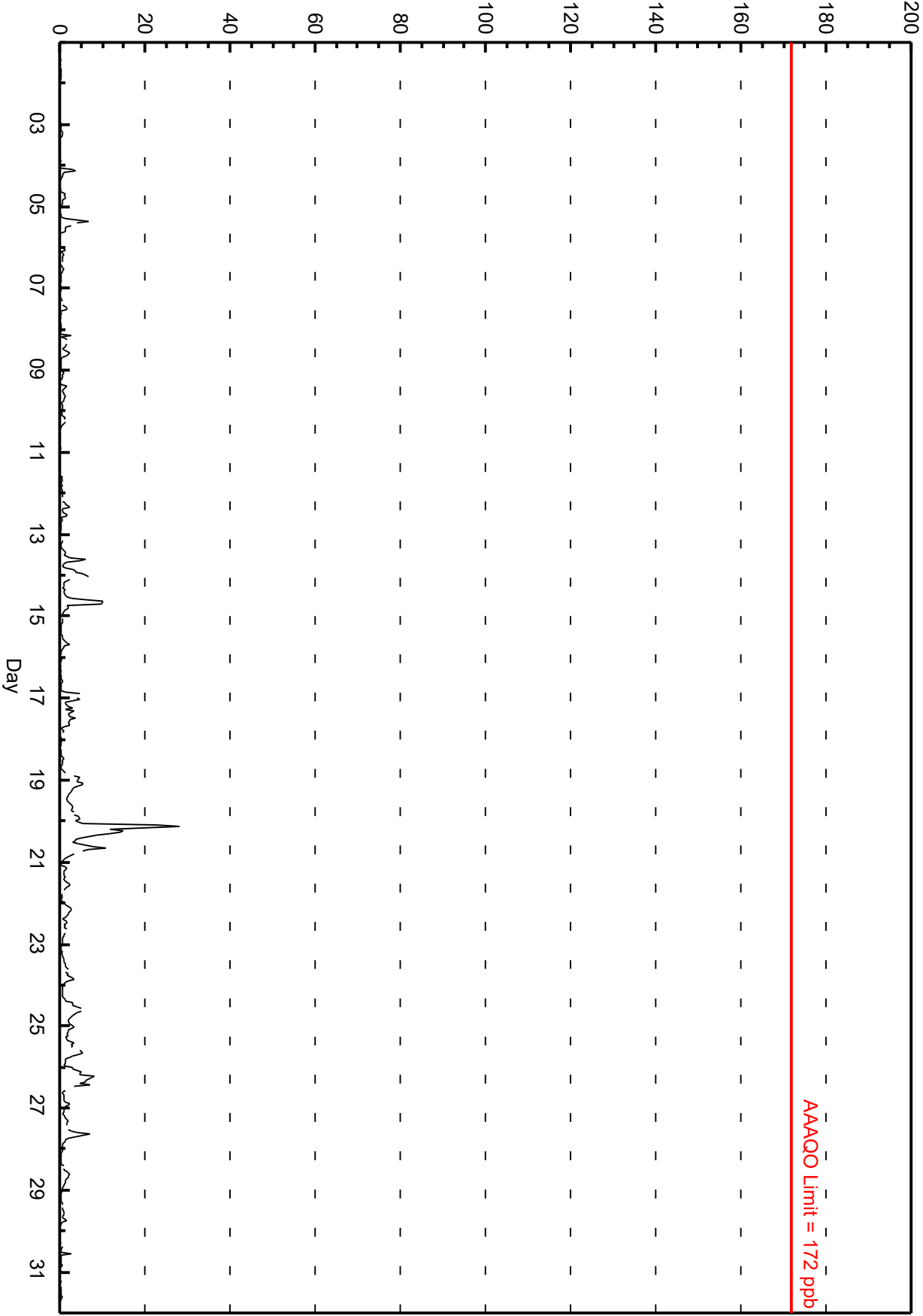
The following pages include the charts and histograms for Henry Pirker Station in Grande Prairie



Peace Airshed Zone Association

Hourly Averages

Sulphur Dioxide (SO_2) - ppb
Henry Pirkler - January 2020

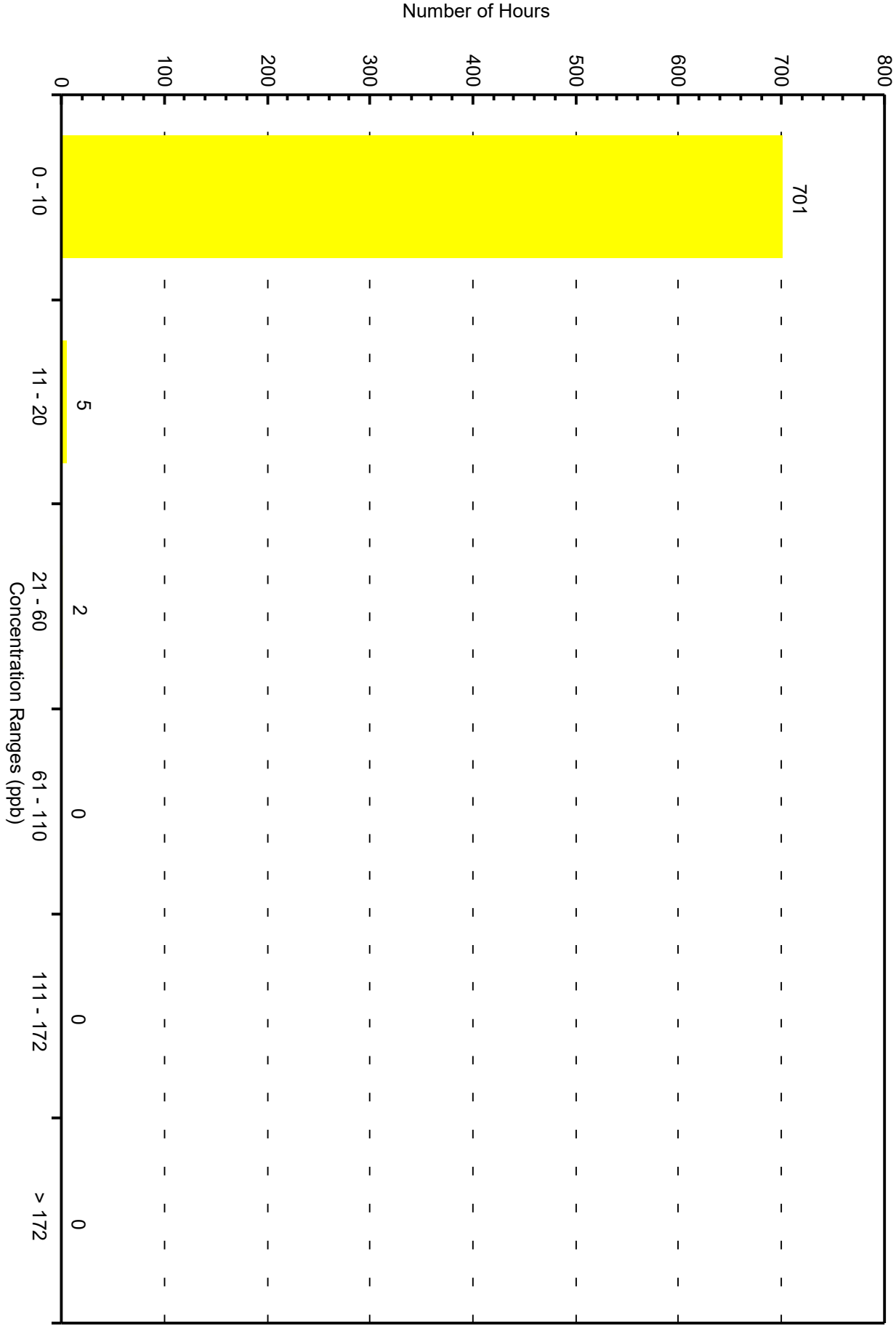




Peace Airshed Zone Association

Histogram of Hourly Averages

Sulphur Dioxide (SO_2) - ppb
Henry Pirker - January 2020



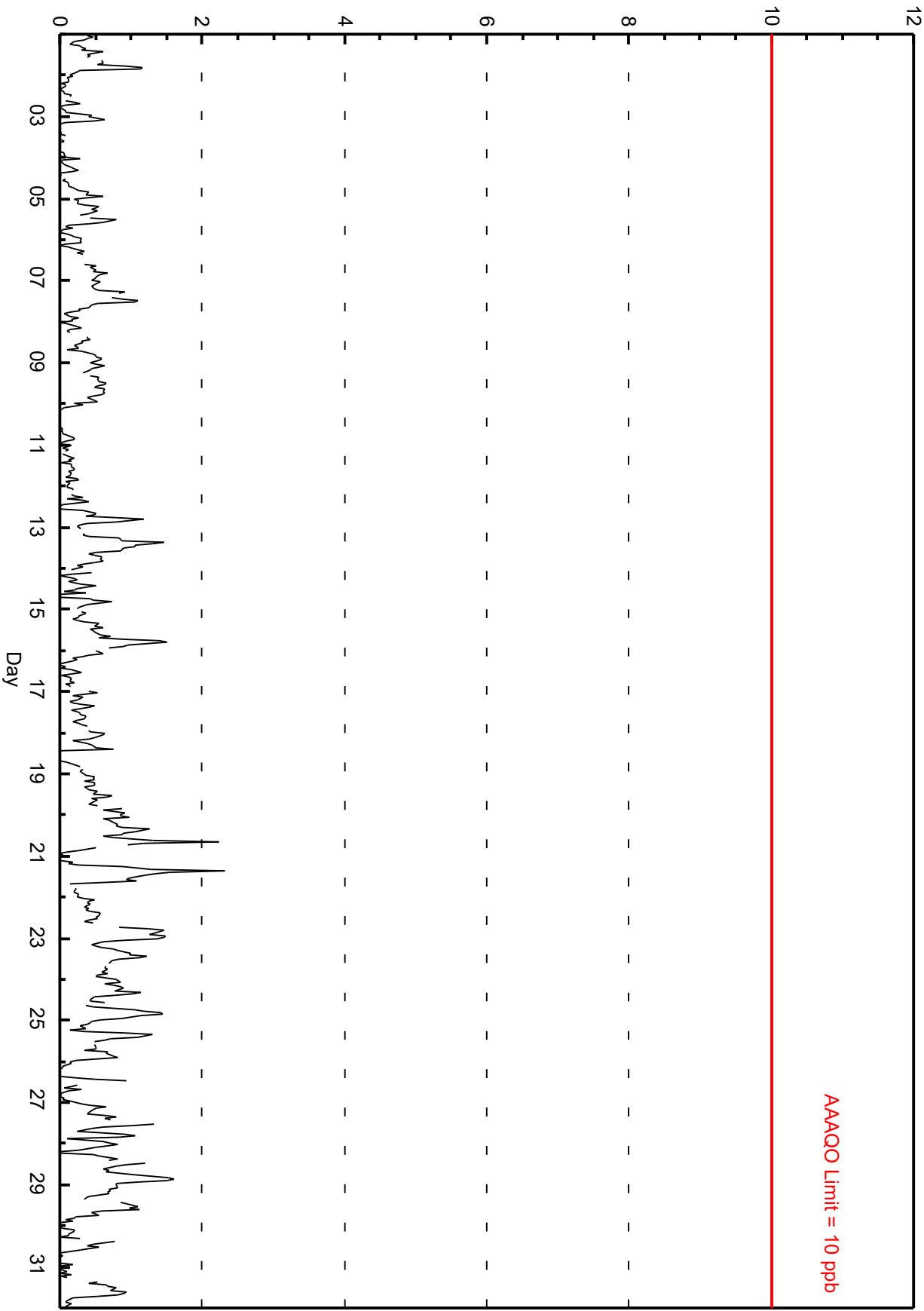


Peace Airshed Zone Association

Hourly Averages

Hydrogen Sulphide (H_2S) - ppb

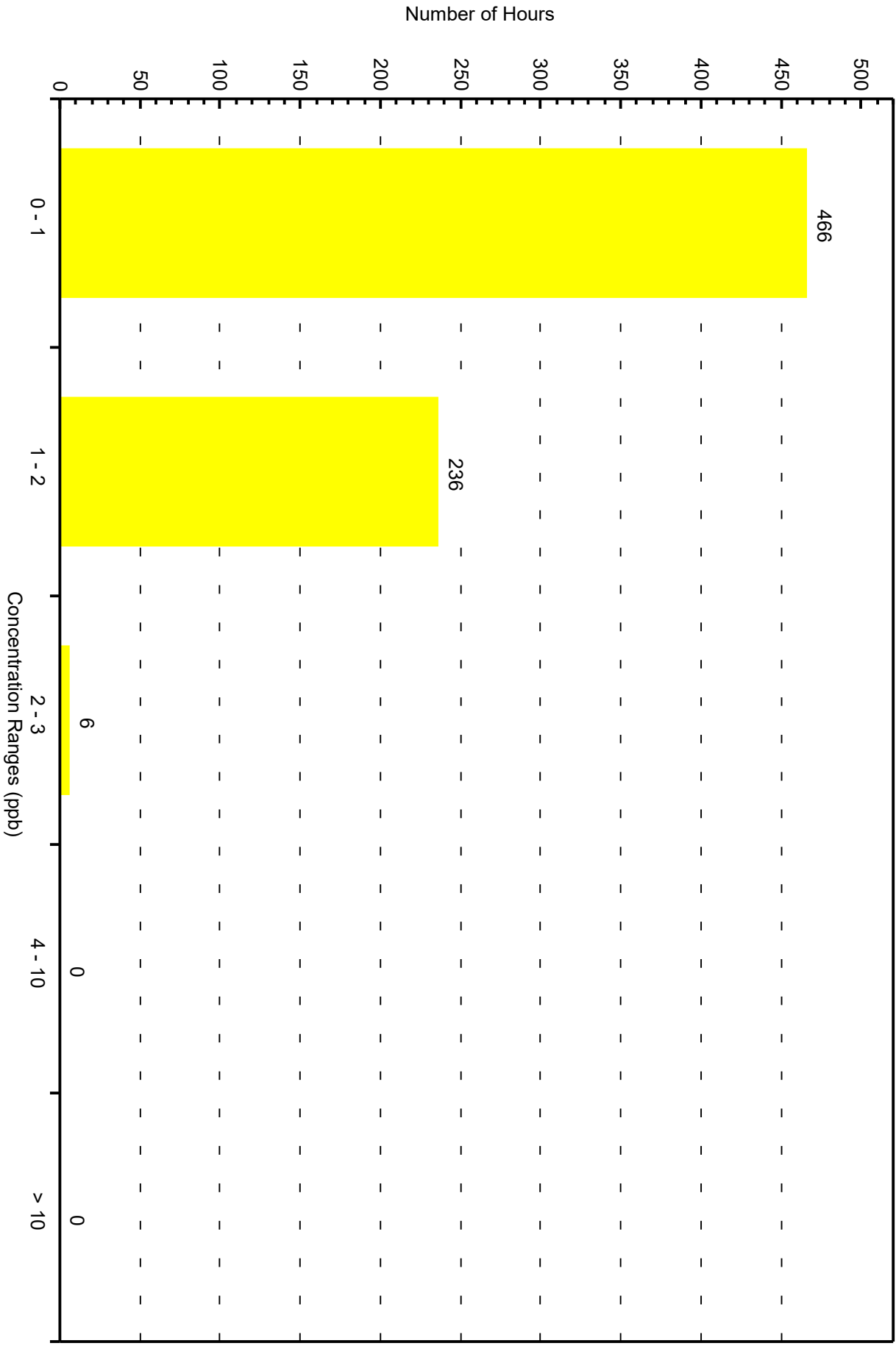
Henry Pirker - January 2020



Histogram of Hourly Averages

Hydrogen Sulphide (H_2S) - ppb

Henry Pirker - January 2020



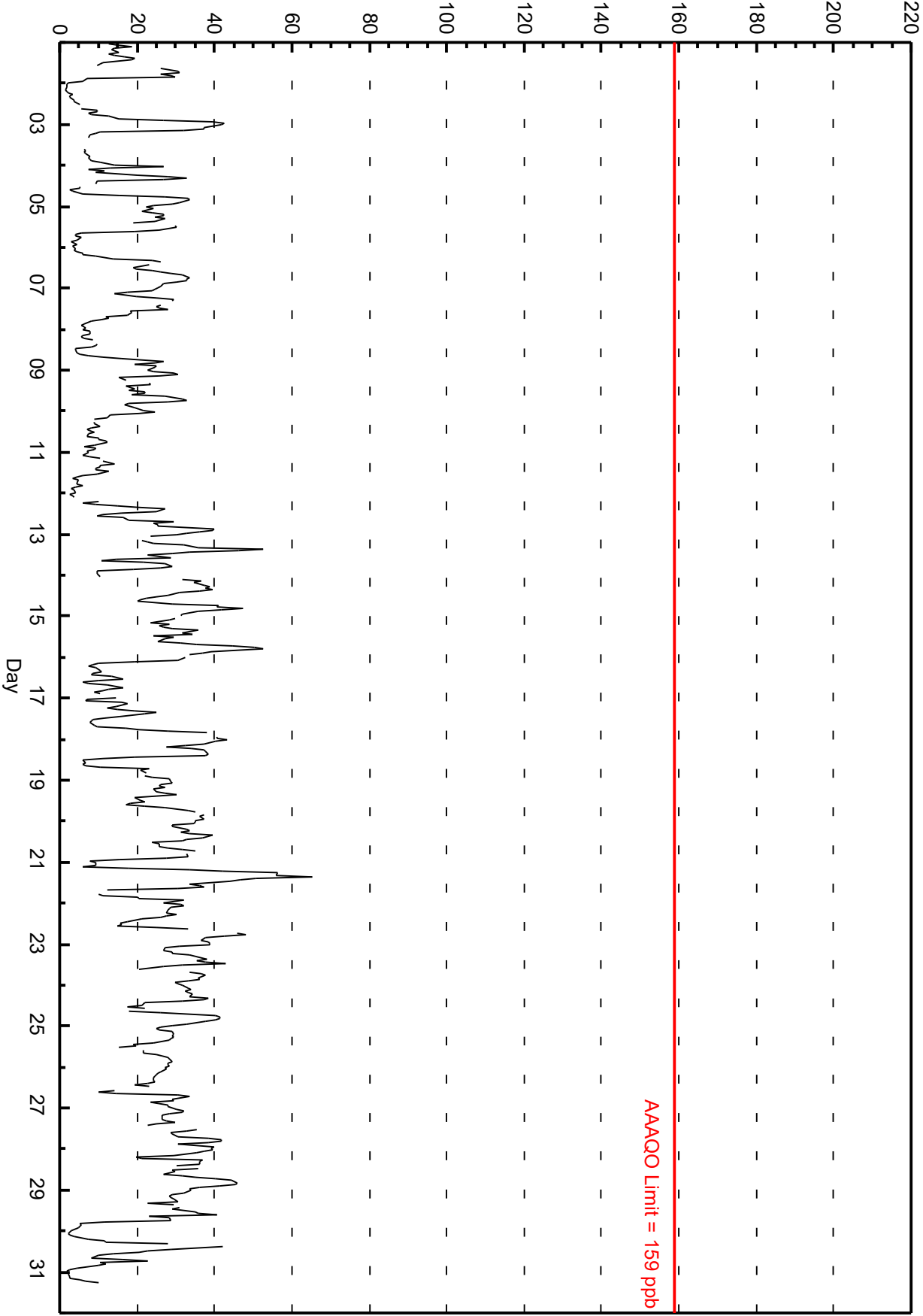


Peace Airshed Zone Association

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb

Henry Pirkner - January 2020



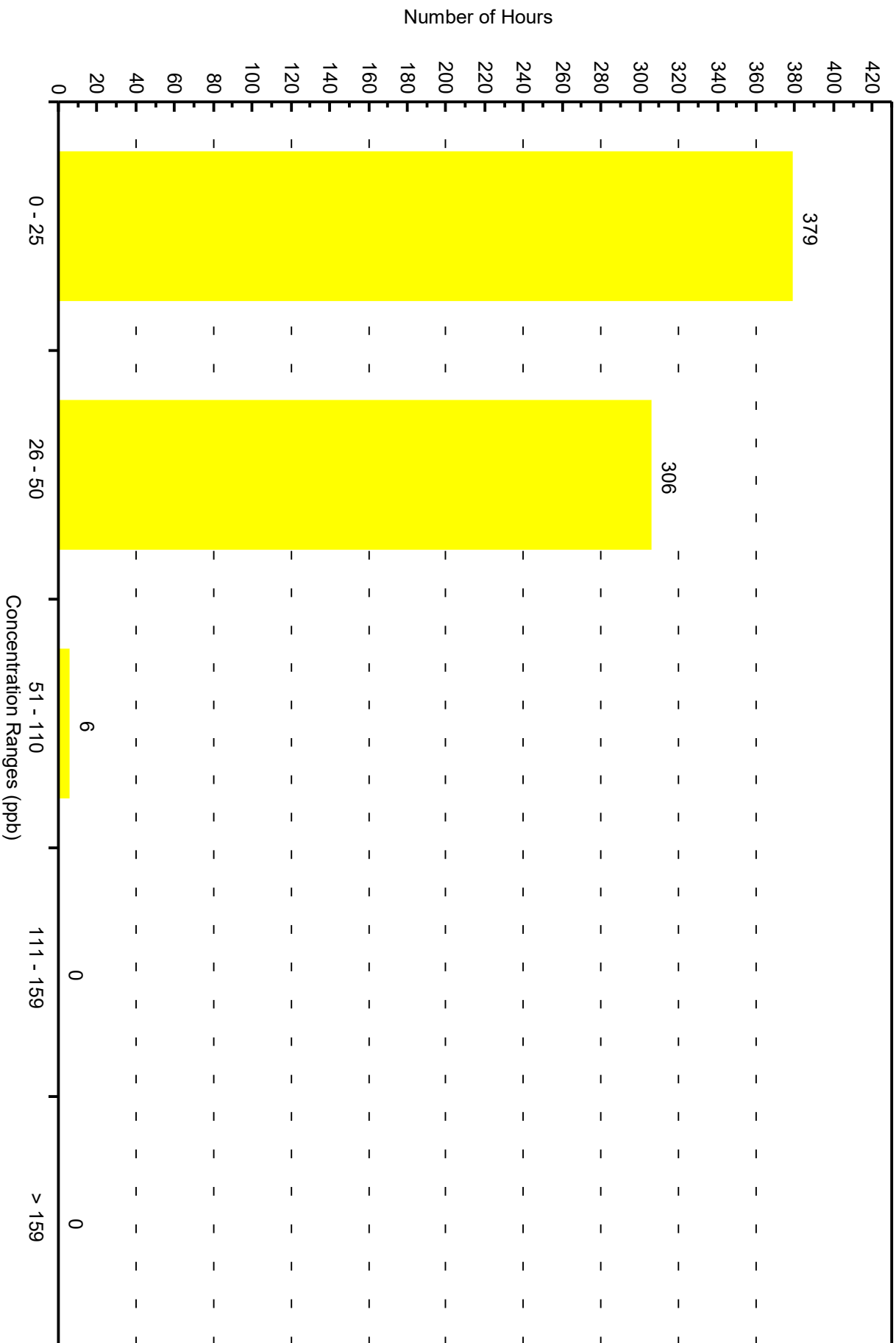


Peace Airshed Zone Association

Histogram of Hourly Averages

Nitrogen Dioxide (NO_2) - ppb

Henry Pirkner - January 2020

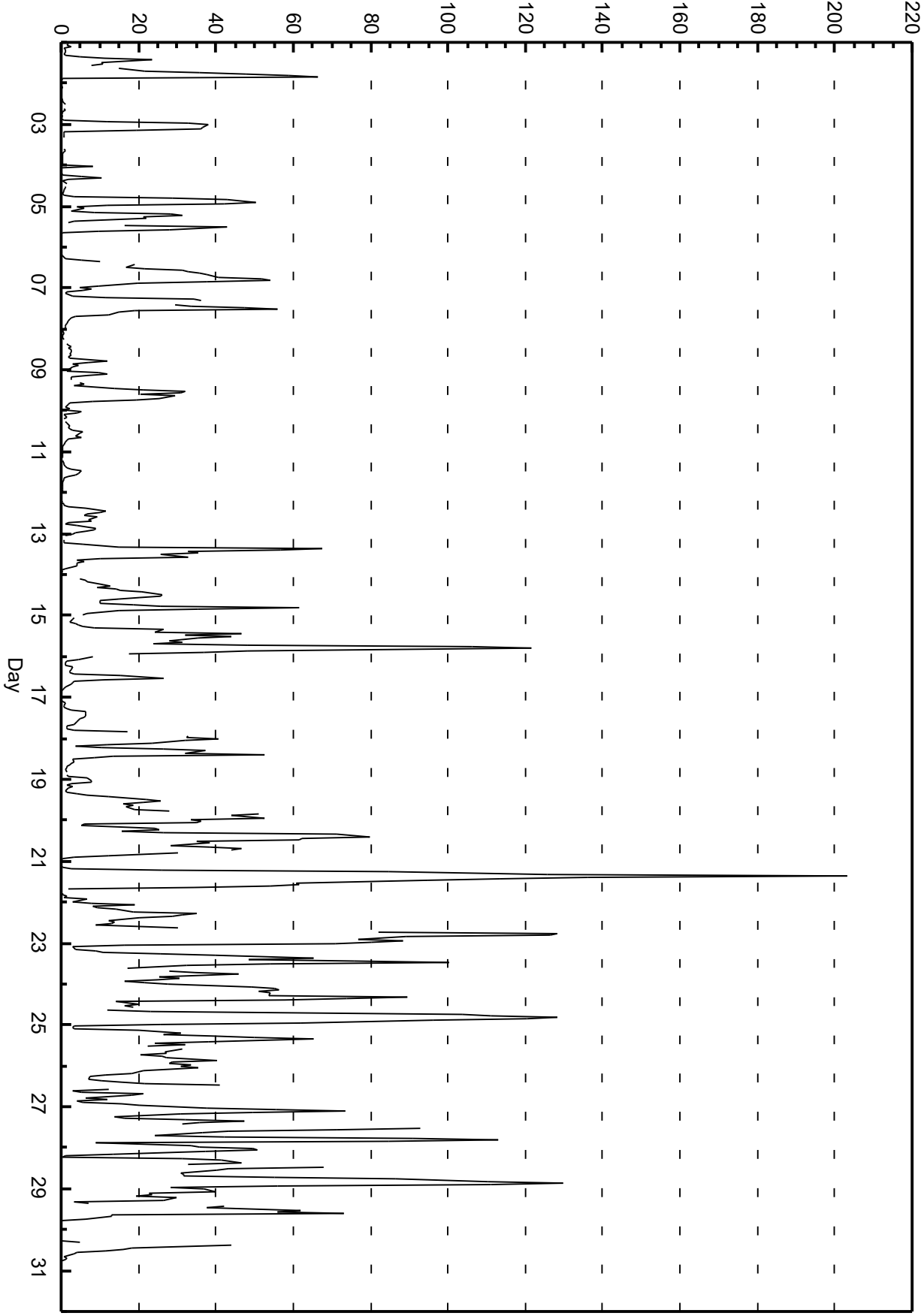




Peace Airshed Zone Association

Hourly Averages

Nitrogen Oxide (NO) - ppb
Henry Pirkner - January 2020



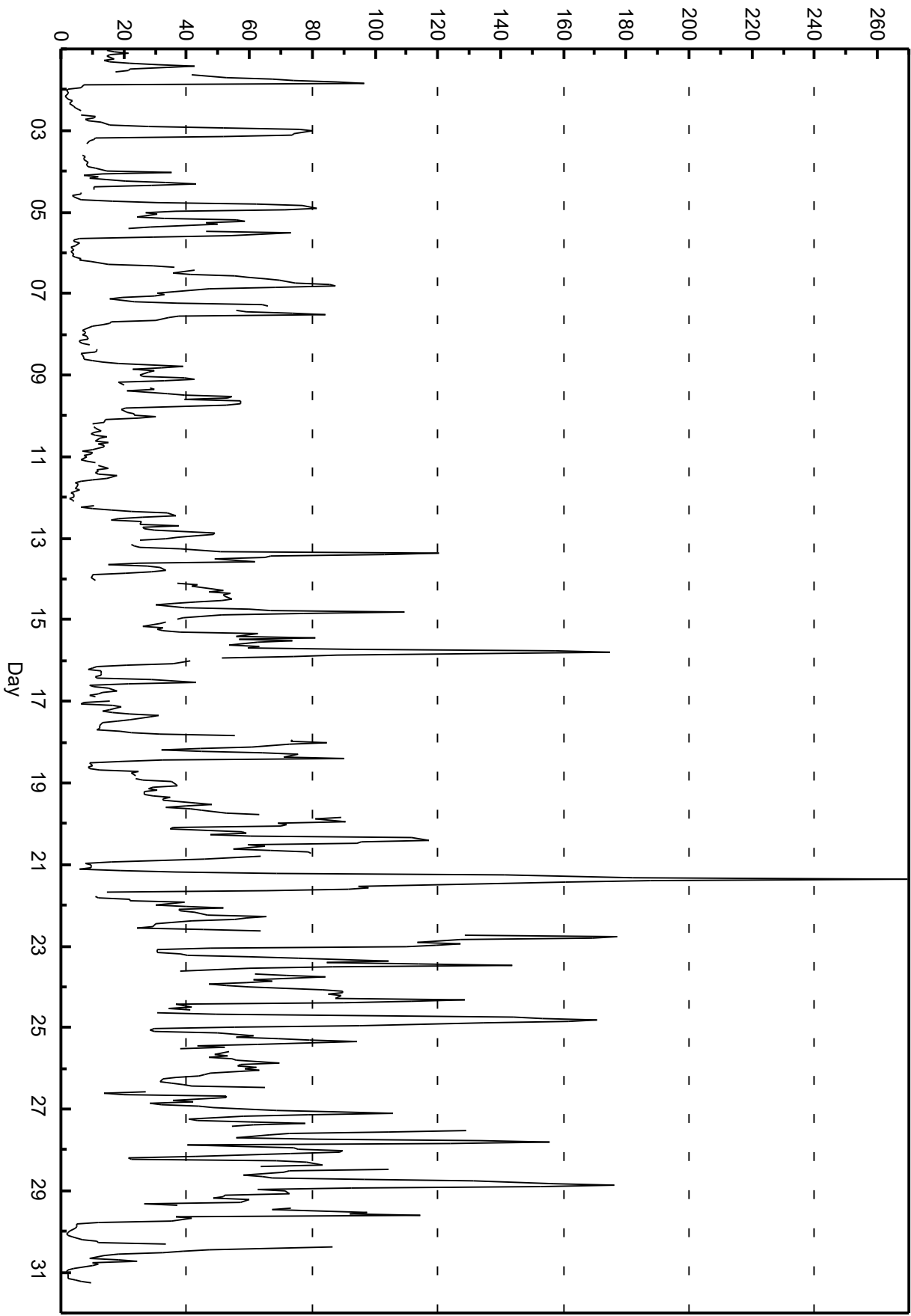


Peace Airshed Zone Association

Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - January 2020



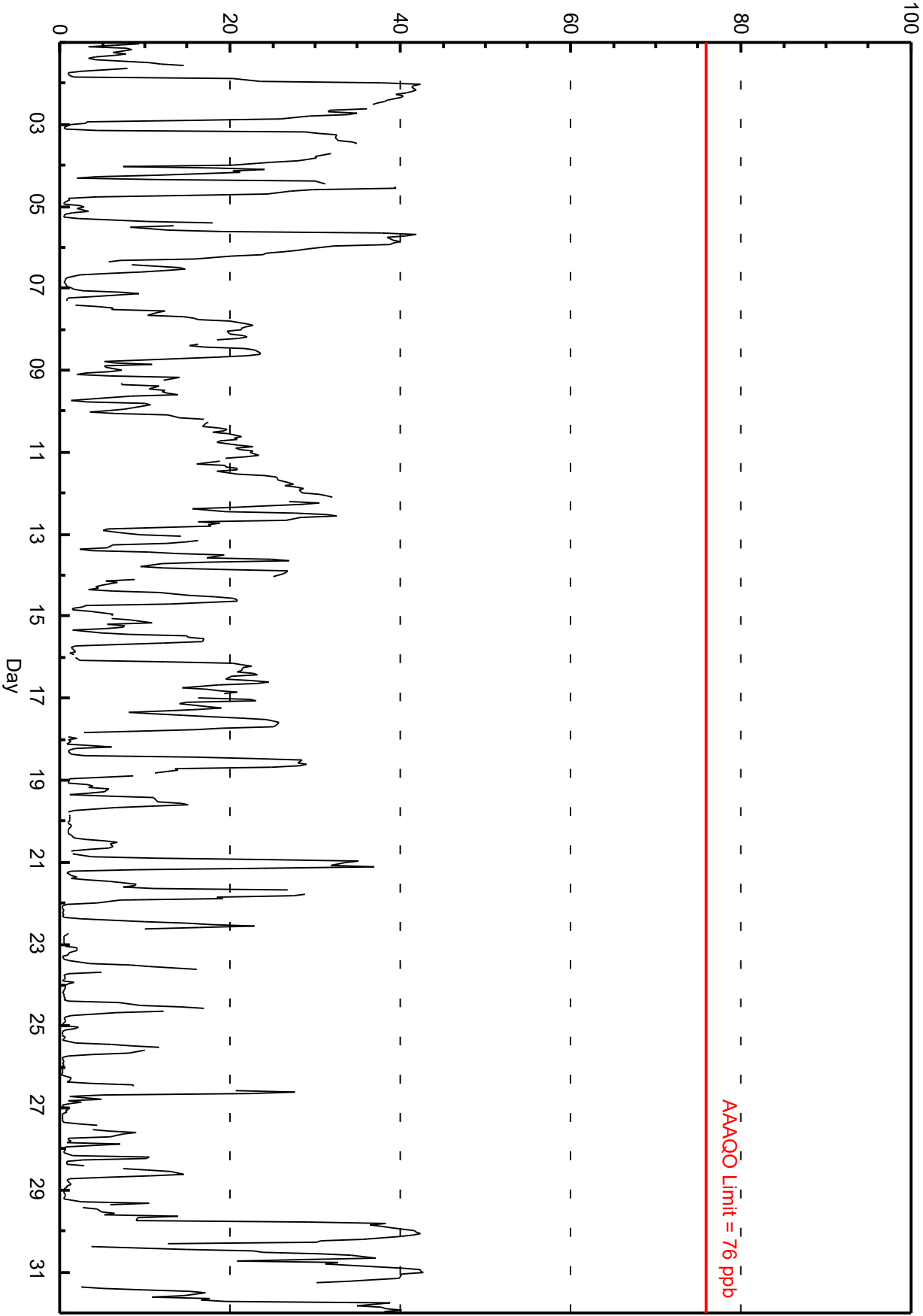


Peace Airshed Zone Association

Hourly Averages

Ozone (O₃) - ppb

Henry Pirkner - January 2020



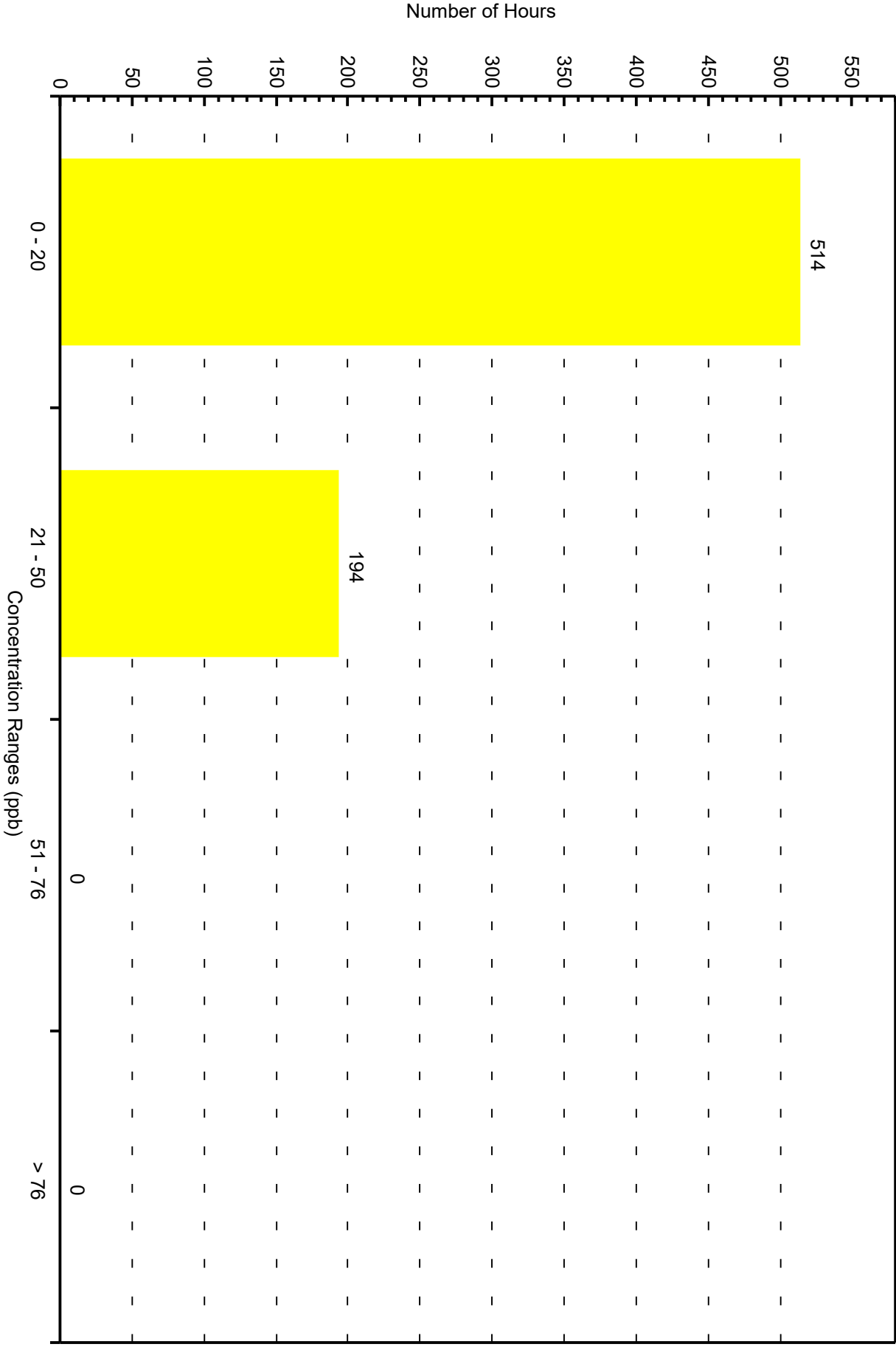


Peace Airshed Zone Association

Histogram of Hourly Averages

Ozone (O₃) - ppb

Henry Pirkner - January 2020

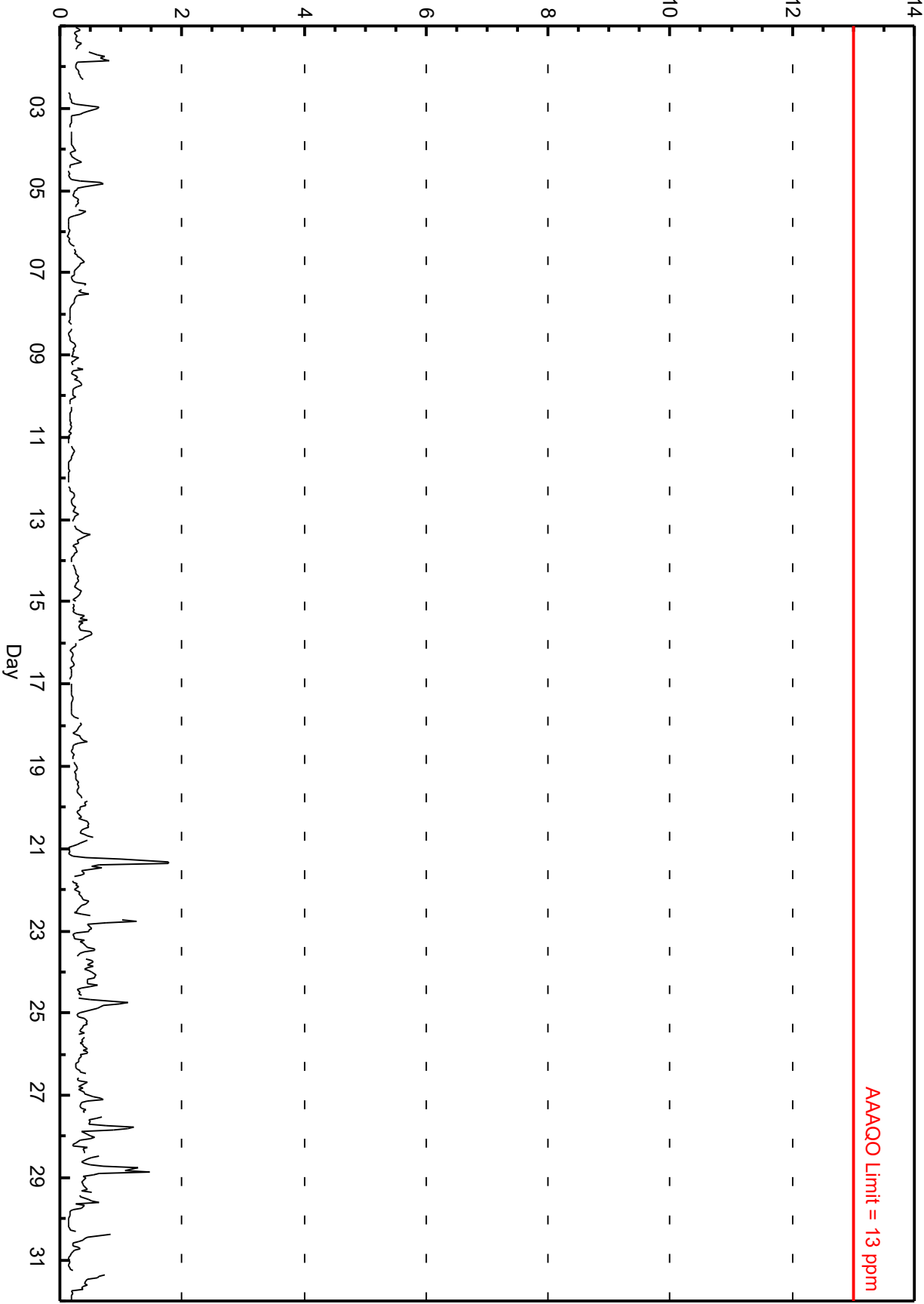




Peace Airshed Zone Association

Hourly Averages

Carbon Monoxide (CO) - ppm
Henry Pirkner - January 2020



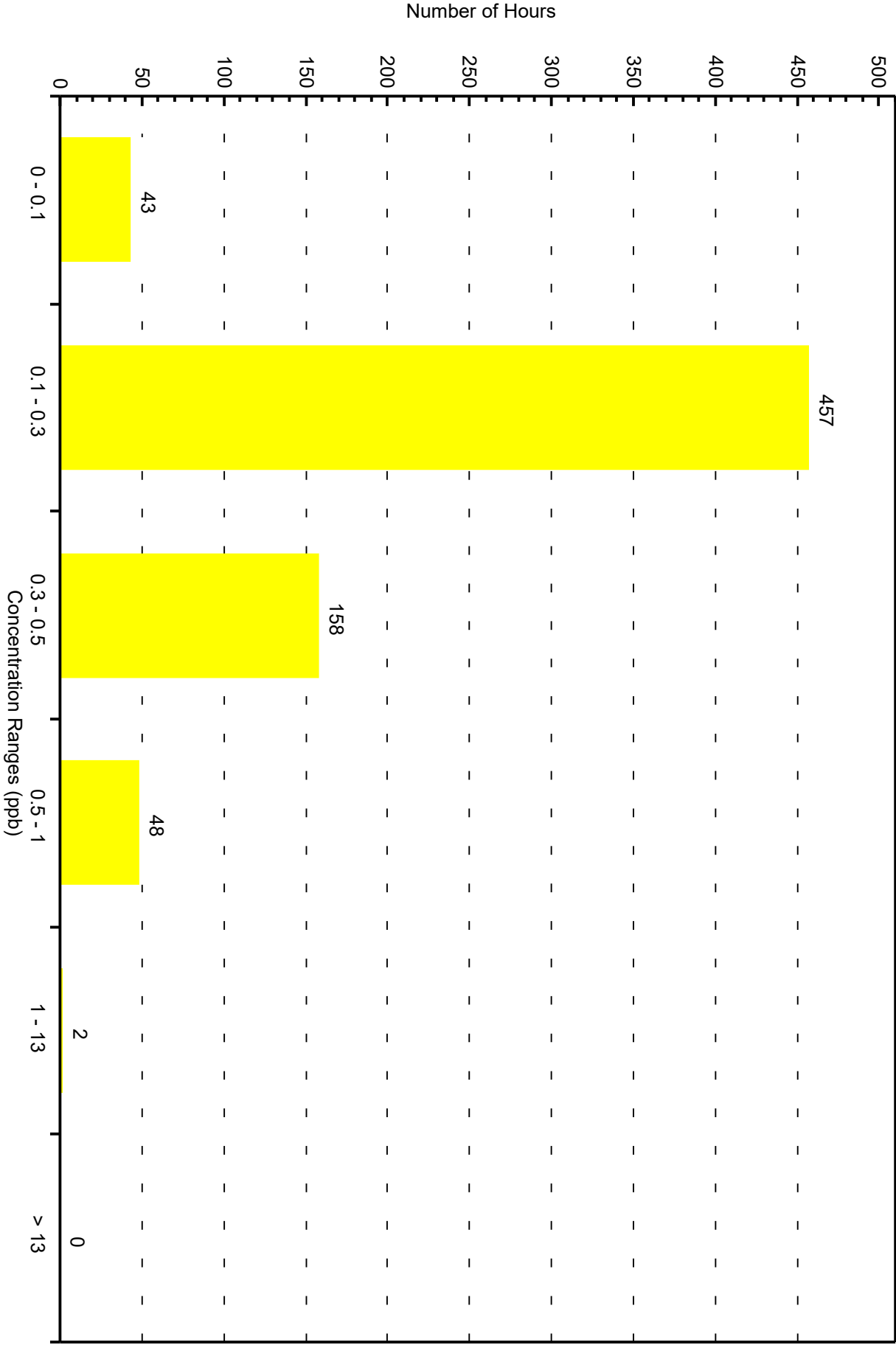


Peace Airshed Zone Association

Histogram of Hourly Averages

Carbon Monoxide (CO) - ppm

Henry Pirker - January 2020



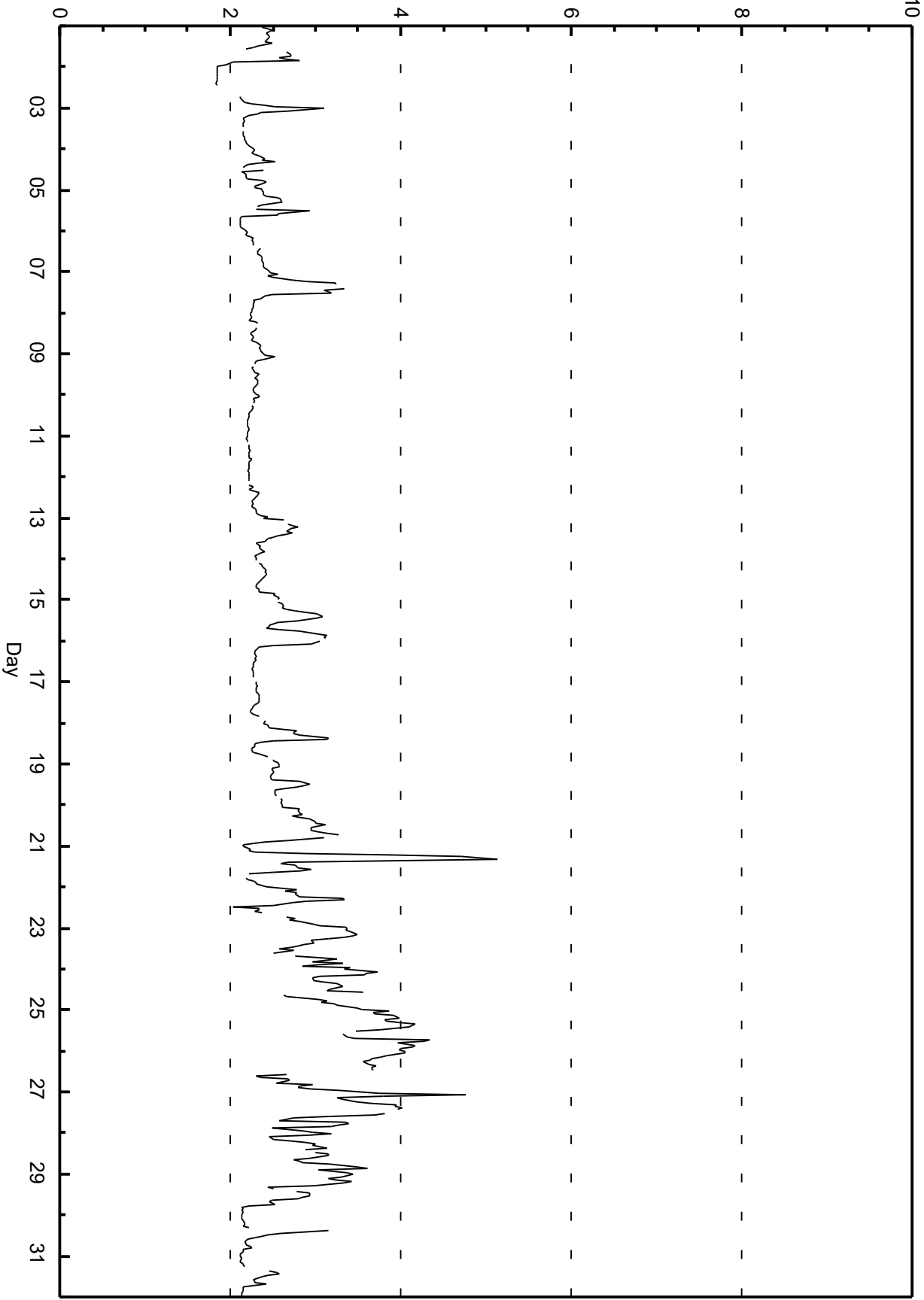


Peace Airshed Zone Association

Hourly Averages

Total Hydrocarbons (THC) - ppm

Henry Pirker - January 2020



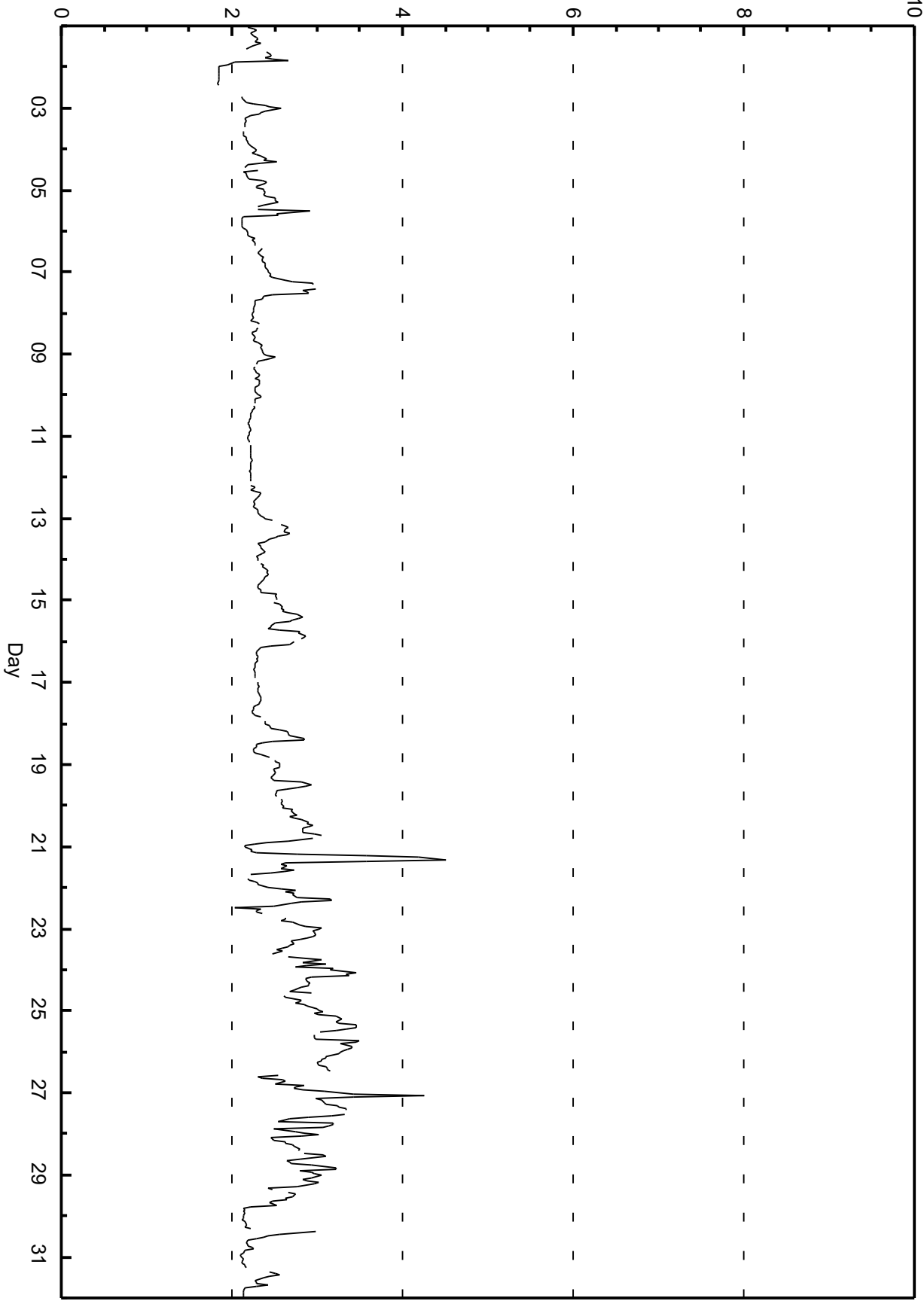


Peace Airshed Zone Association

Hourly Averages

Methane (CH_4) - ppm

Henry Pirker - January 2020



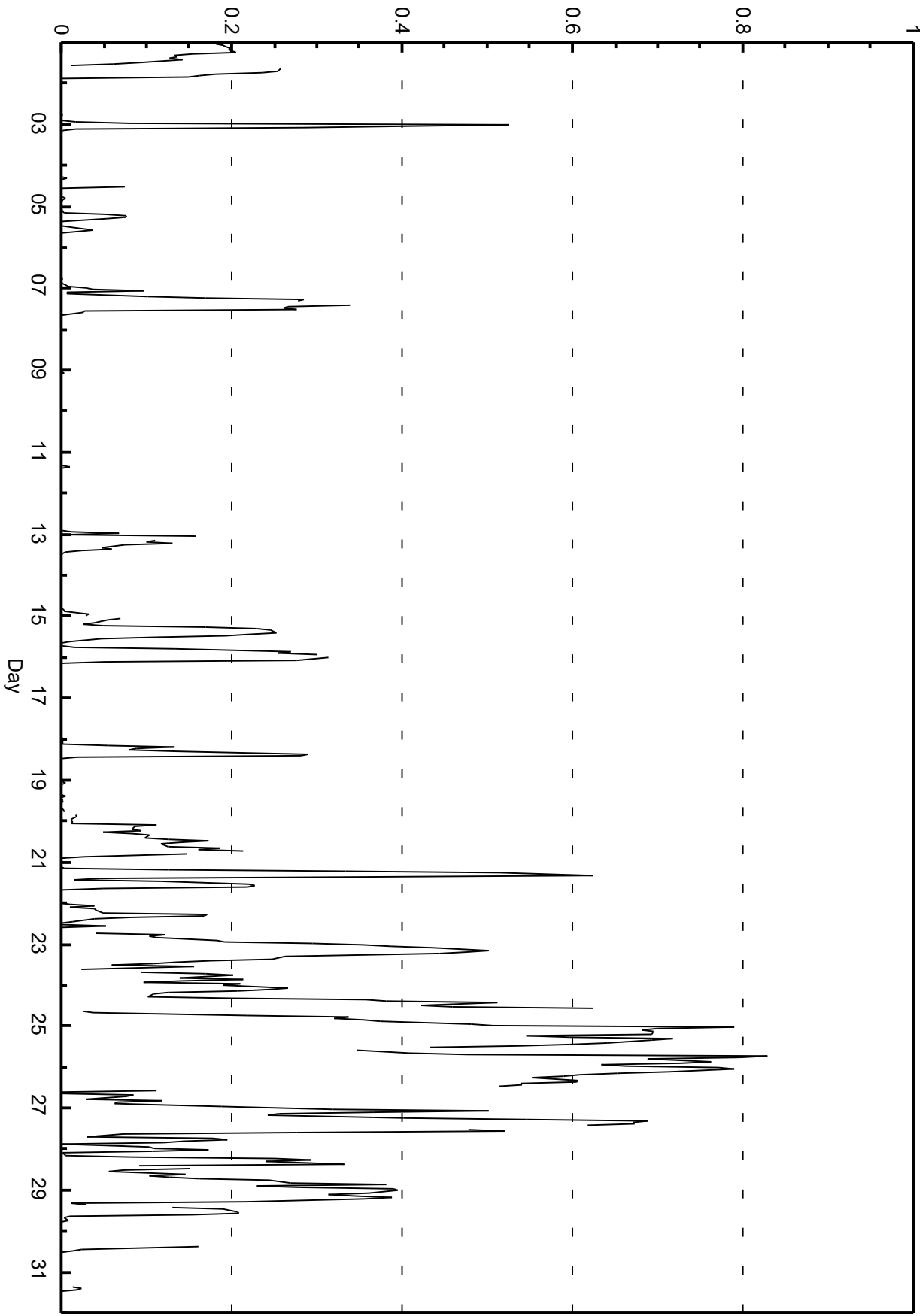


Peace Airshed Zone Association

Hourly Averages

Non Methane Hydrocarbon (NMHC) - ppm

Henry Pirker - January 2020



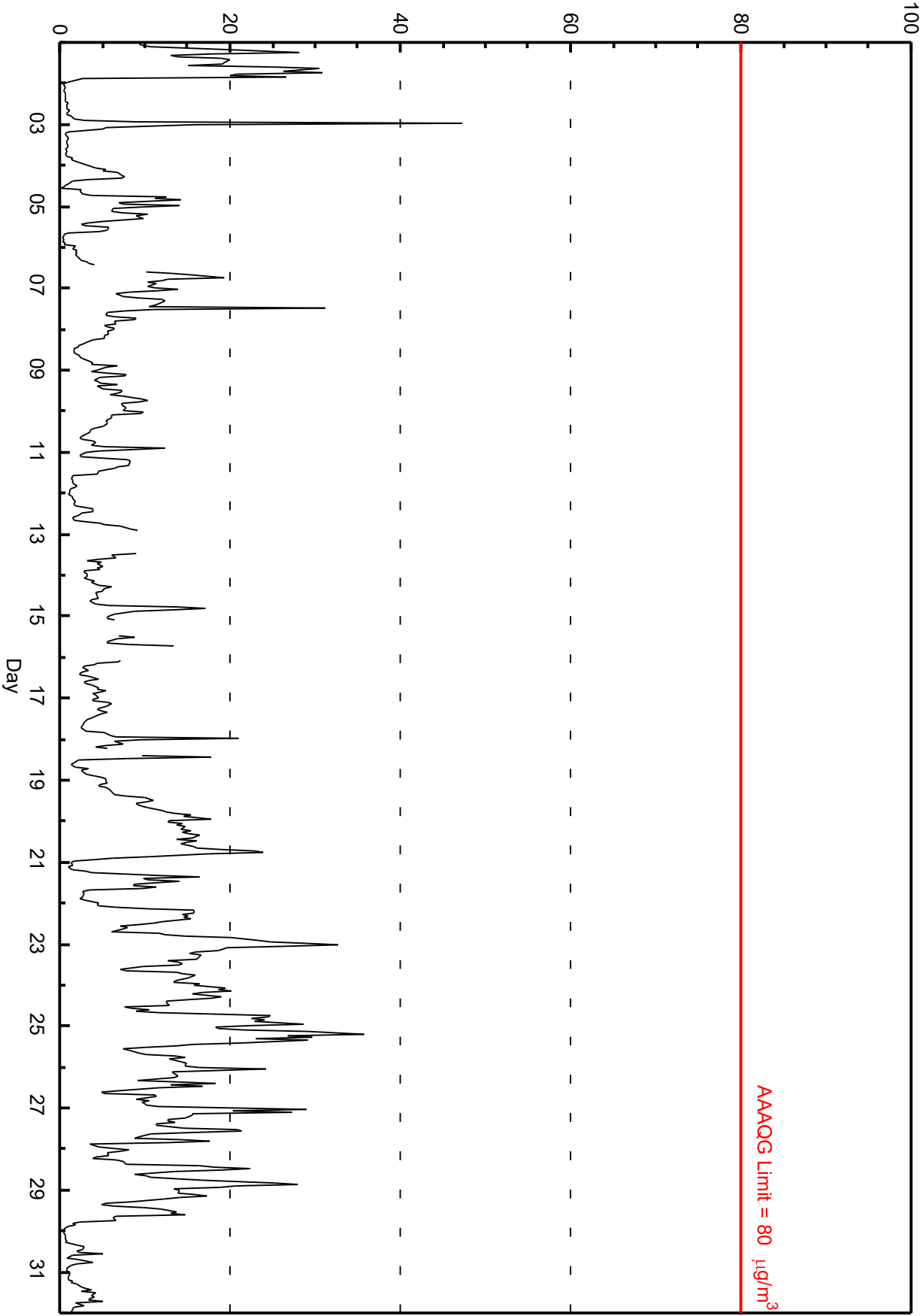


Peace Airshed Zone Association

Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Henry Pirker - January 2020



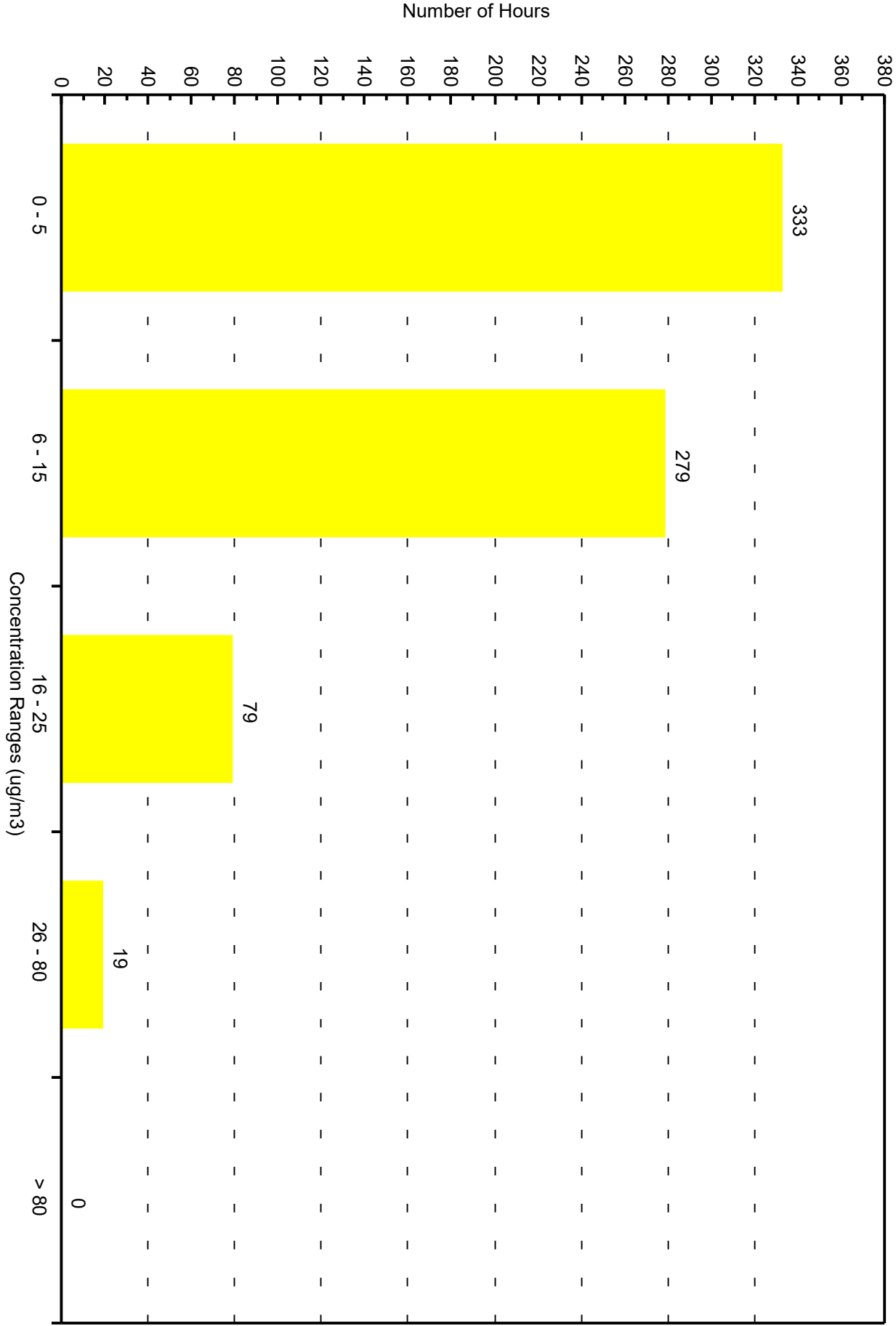


Peace Airshed Zone Association

Histogram of Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Henry Pirkner - January 2020



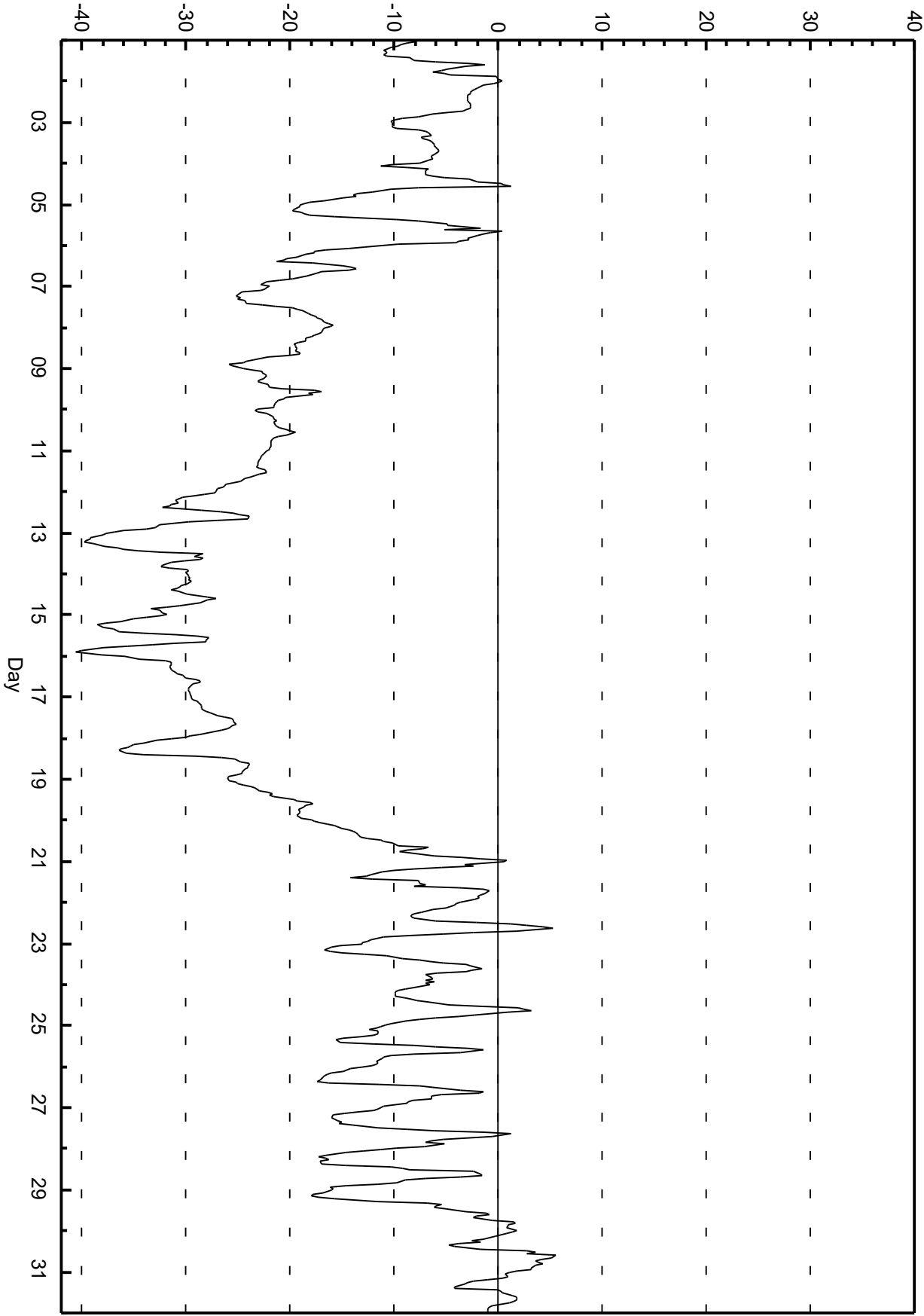


Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C

Henry Pirker - January 2020

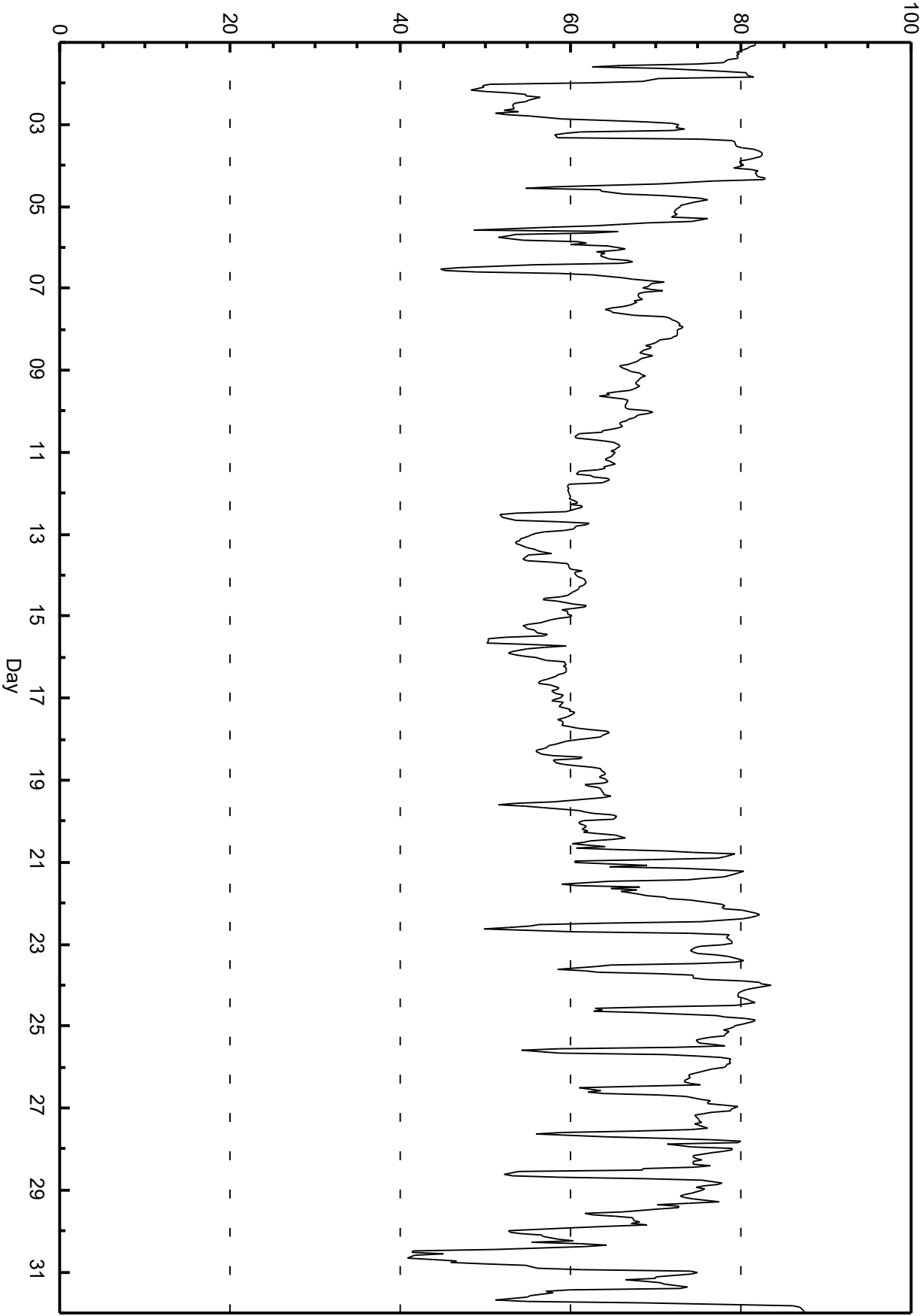




Peace Airshed Zone Association

Hourly Averages

Relative Humidity (RH) - %
Henry Pirker - January 2020

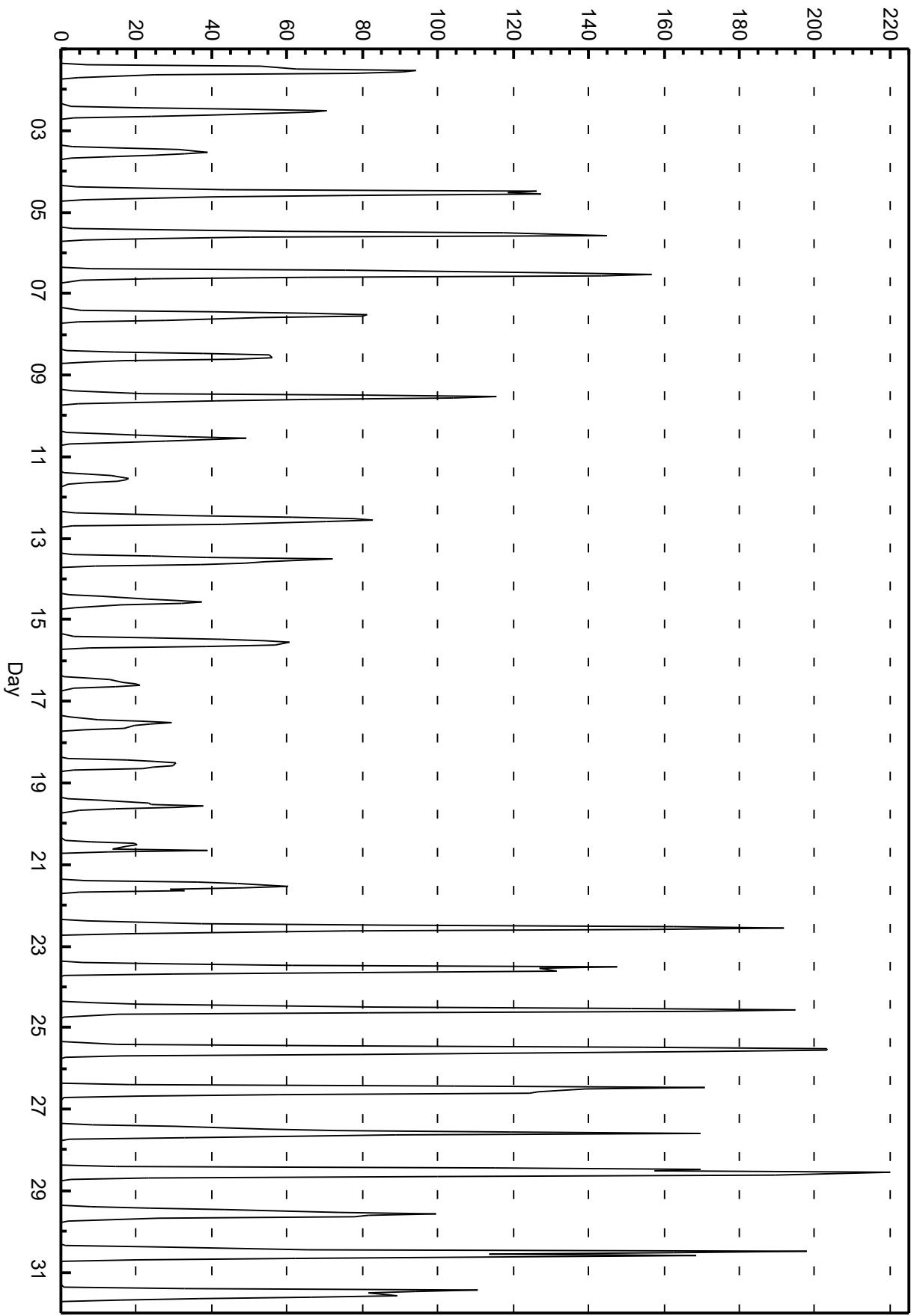




Peace Airshed Zone Association

Hourly Averages

Solar Radiation (SR) - W/m²
Henry Pirker - January 2020

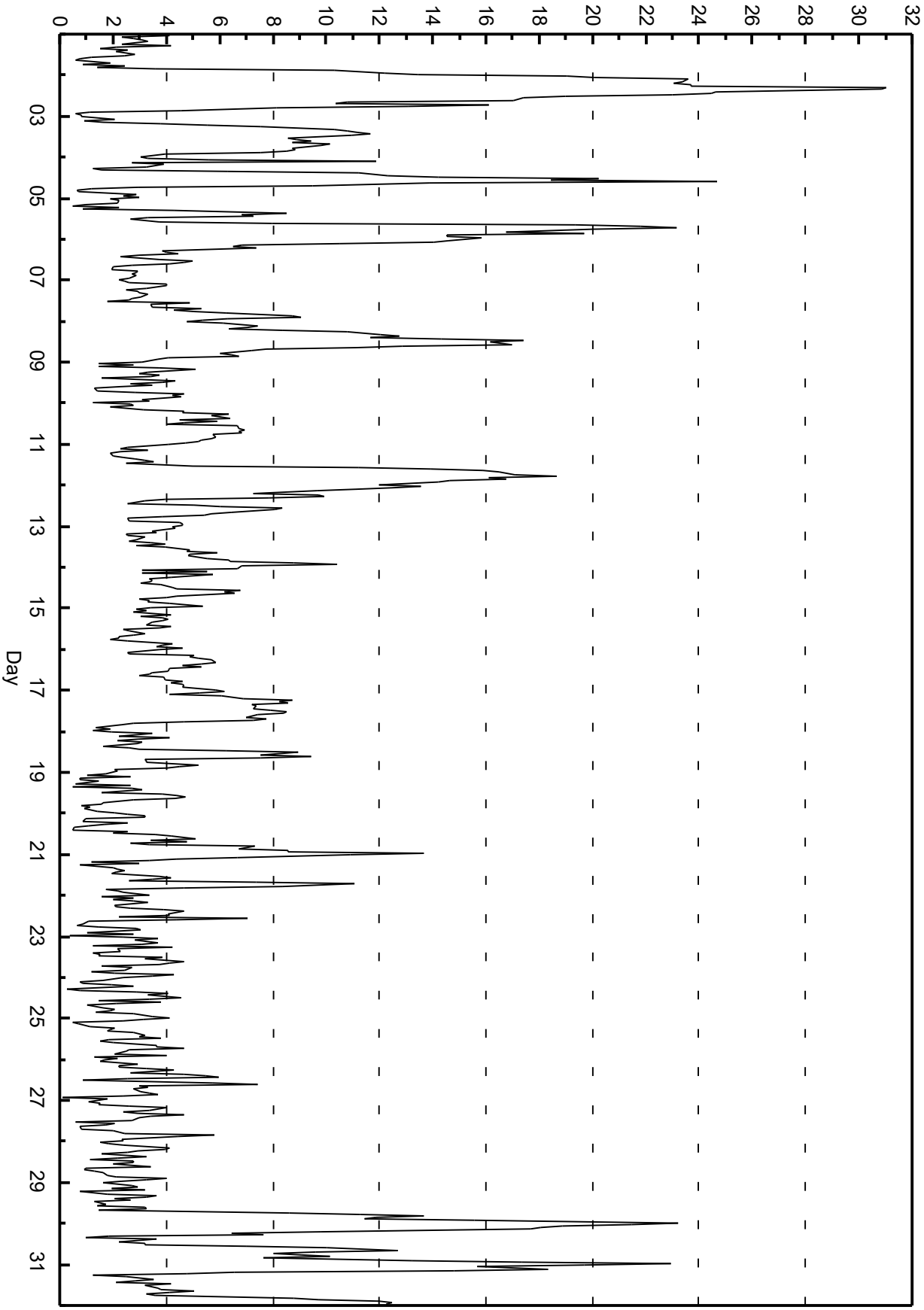




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Henry Pirkner - January 2020

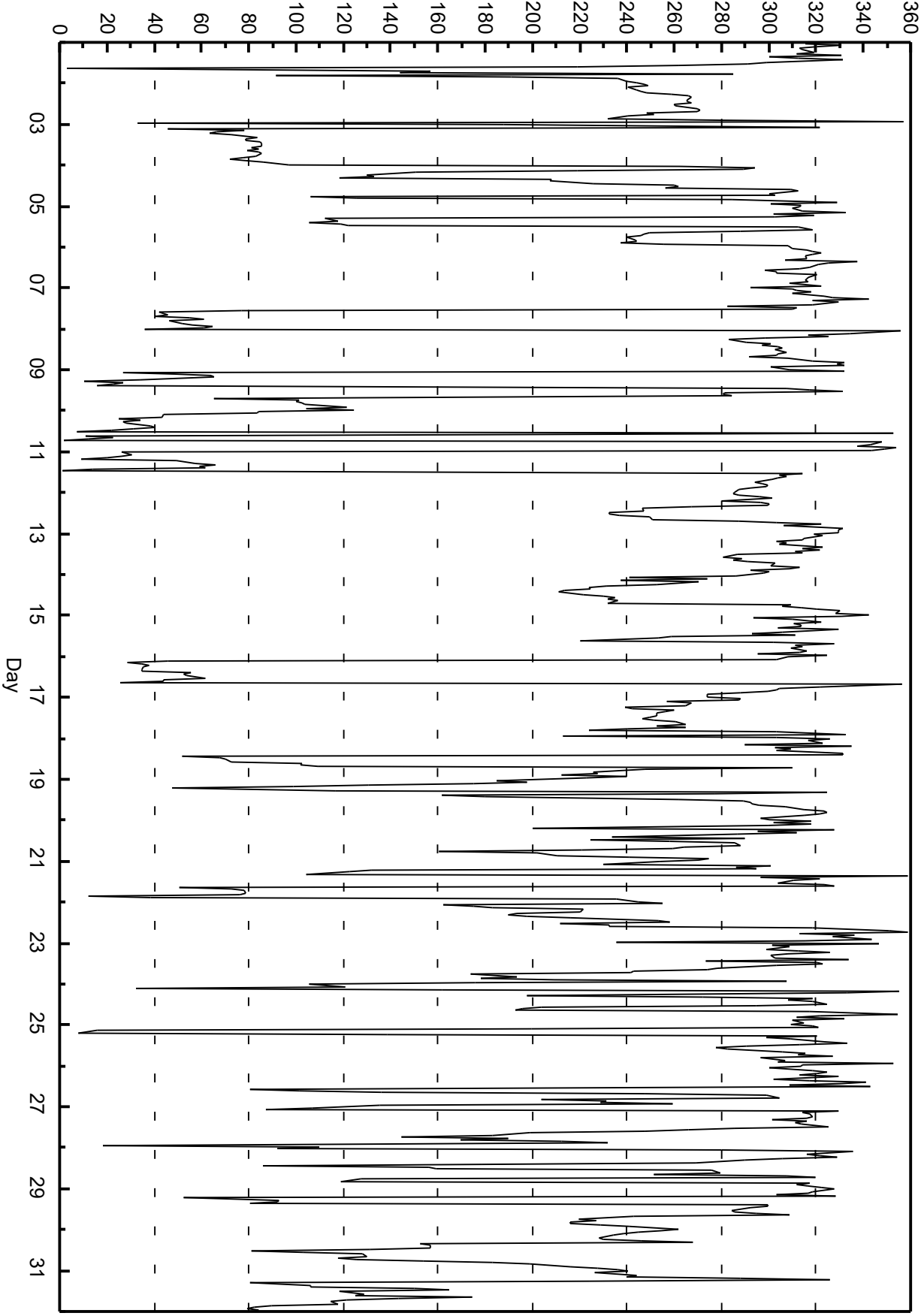




Peace Airshed Zone Association

Hourly Averages

Wind Direction (WD) - deg
Henry Pirkler - January 2020

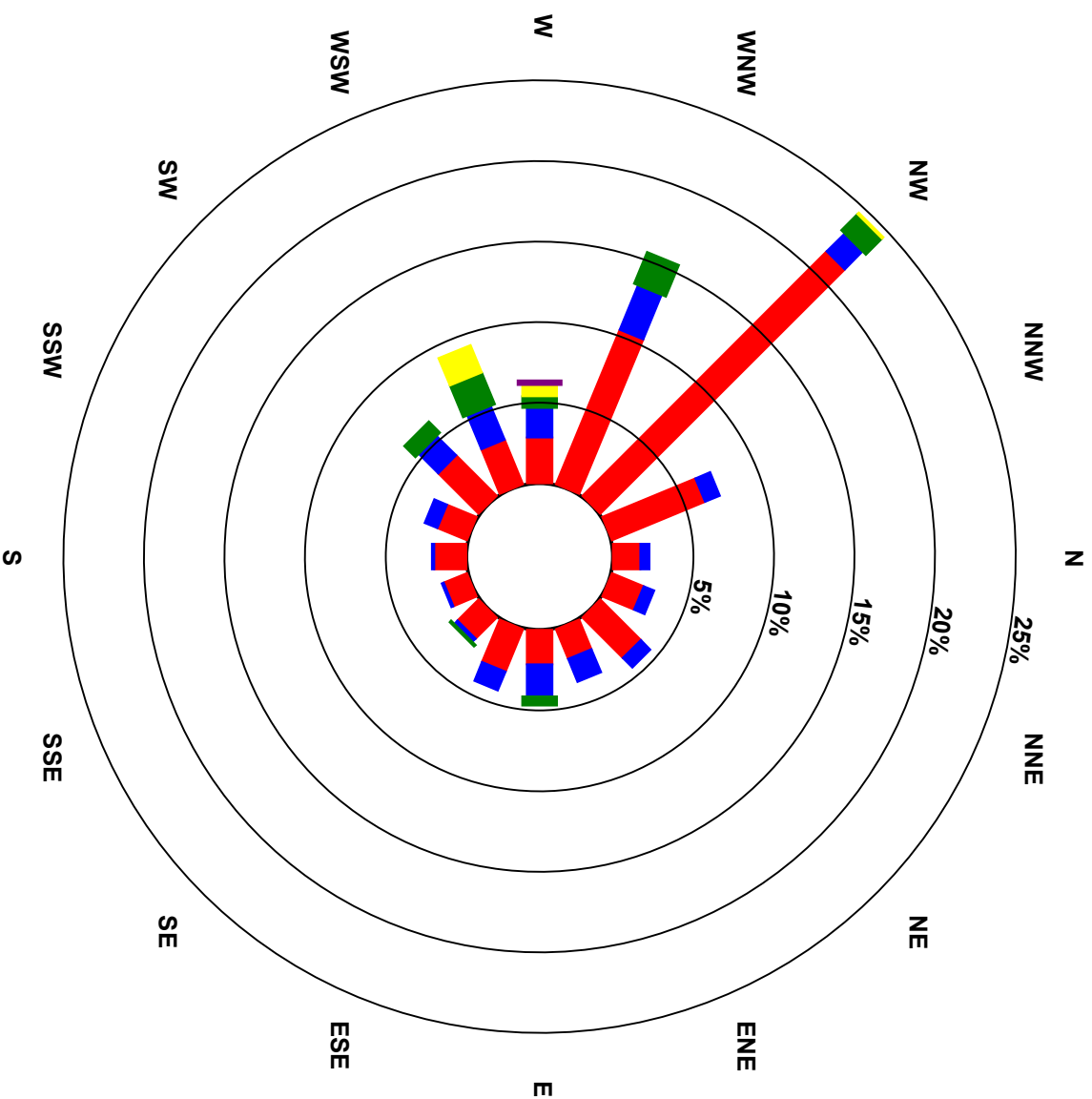




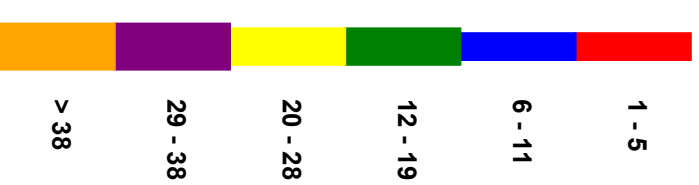
Peace Airshed Zone Association

Wind Rose

Wind Speed (WS) (km/h)
Henry Pirker - January 2020



Wind Speed Classes (km/h)



5 Smoky Heights Charts

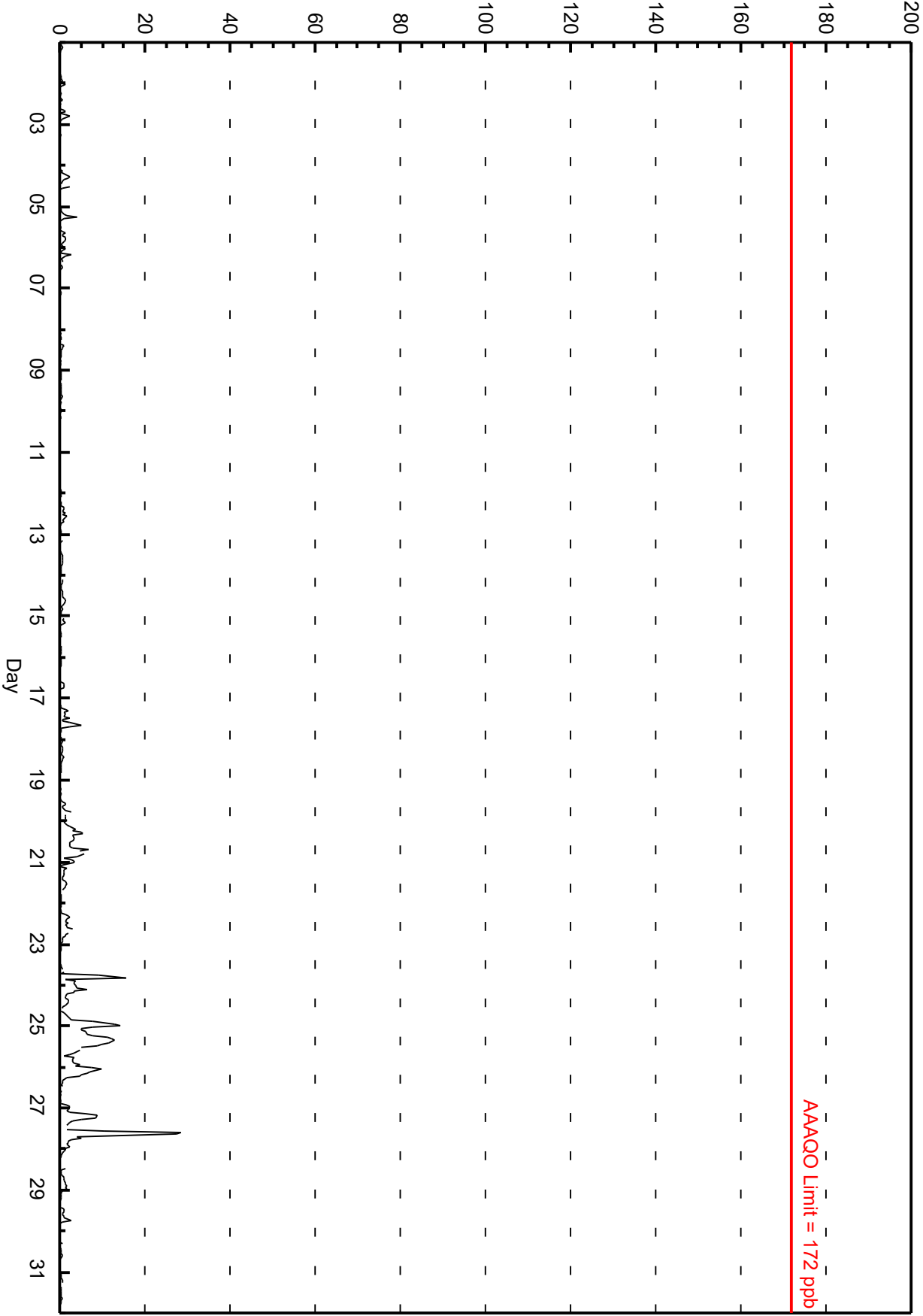
The following pages include the charts and histograms for Smoky Heights Station



Peace Airshed Zone Association

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - January 2020

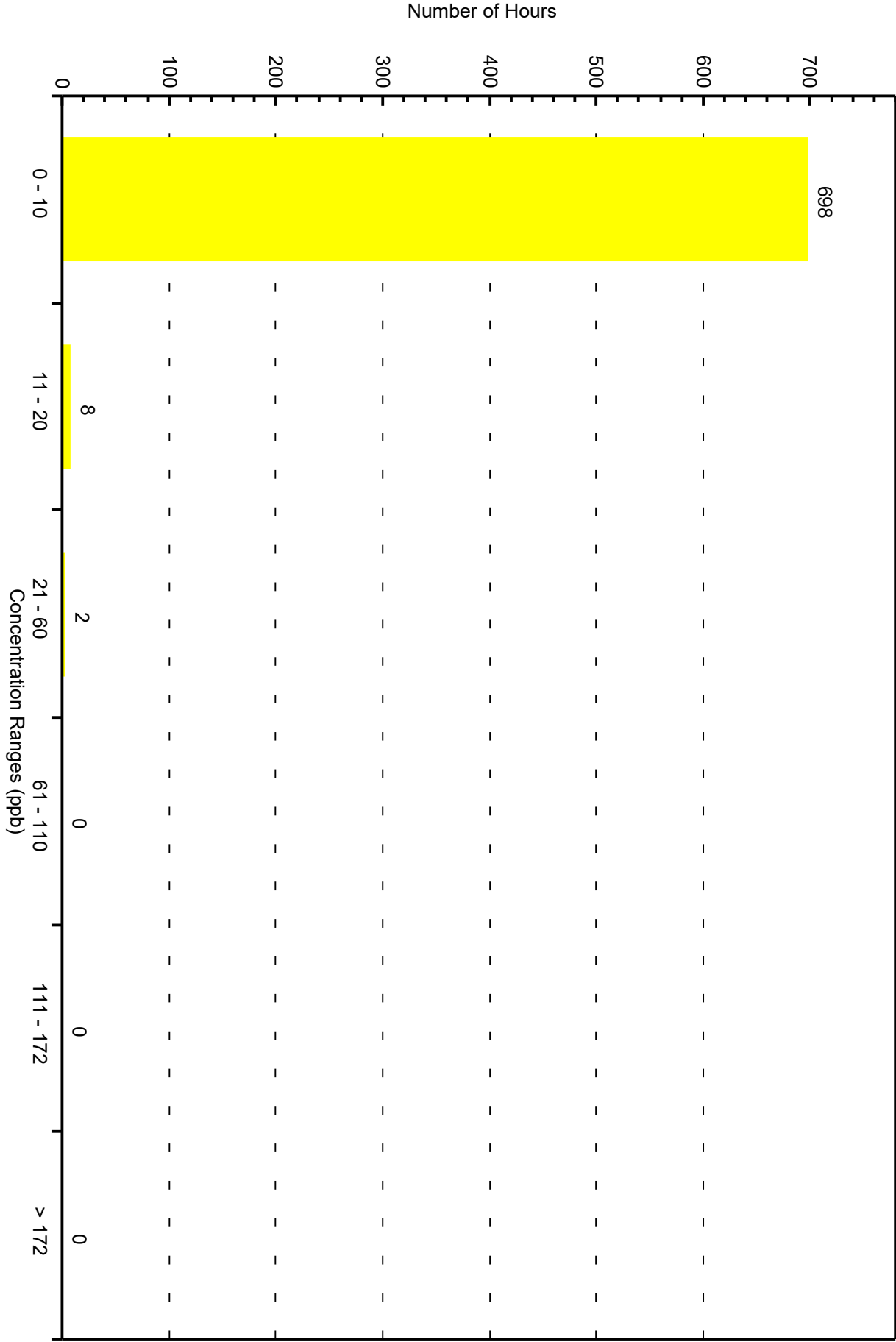




Peace Airshed Zone Association

Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - January 2020

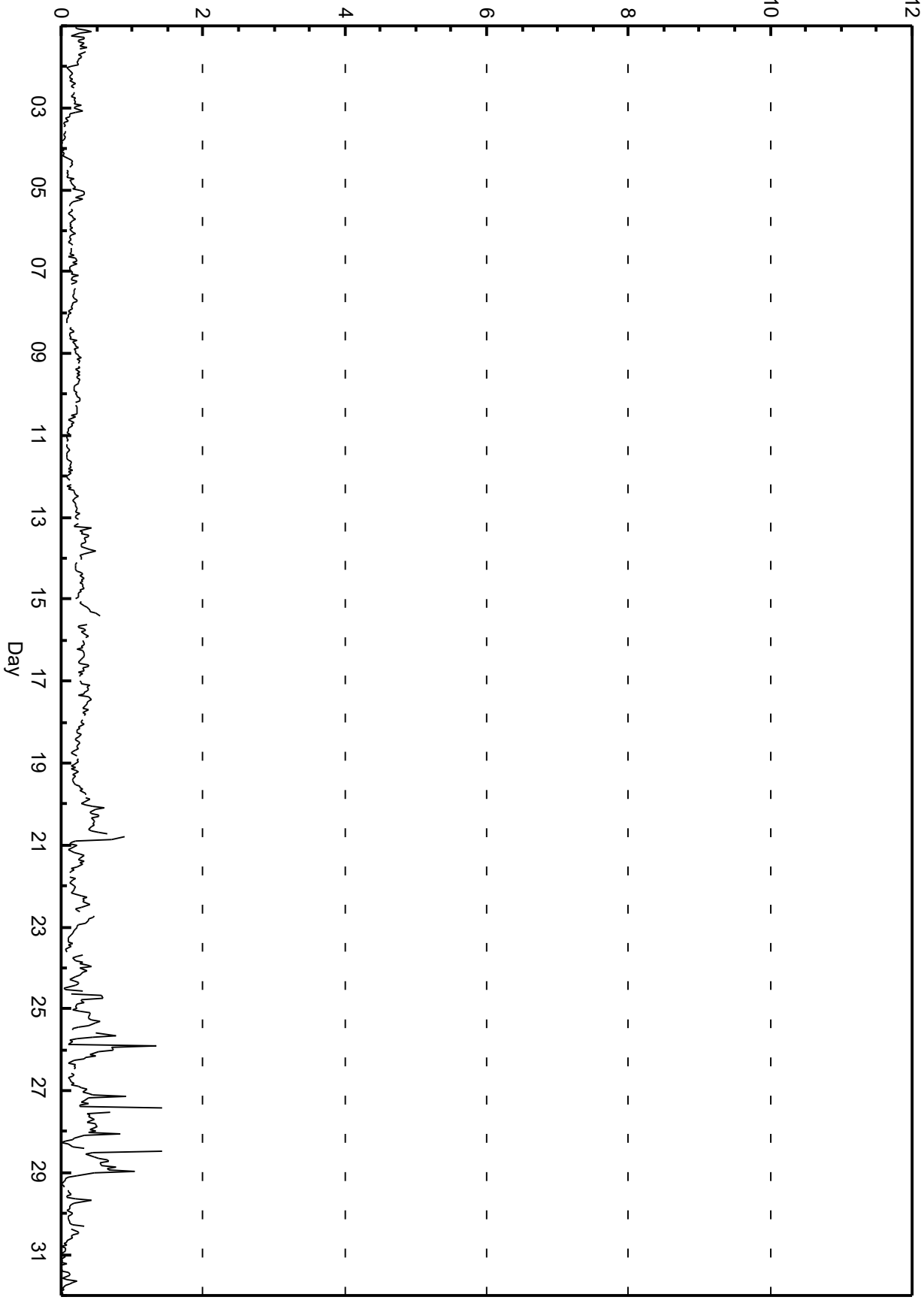




Peace Airshed Zone Association

Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - January 2020



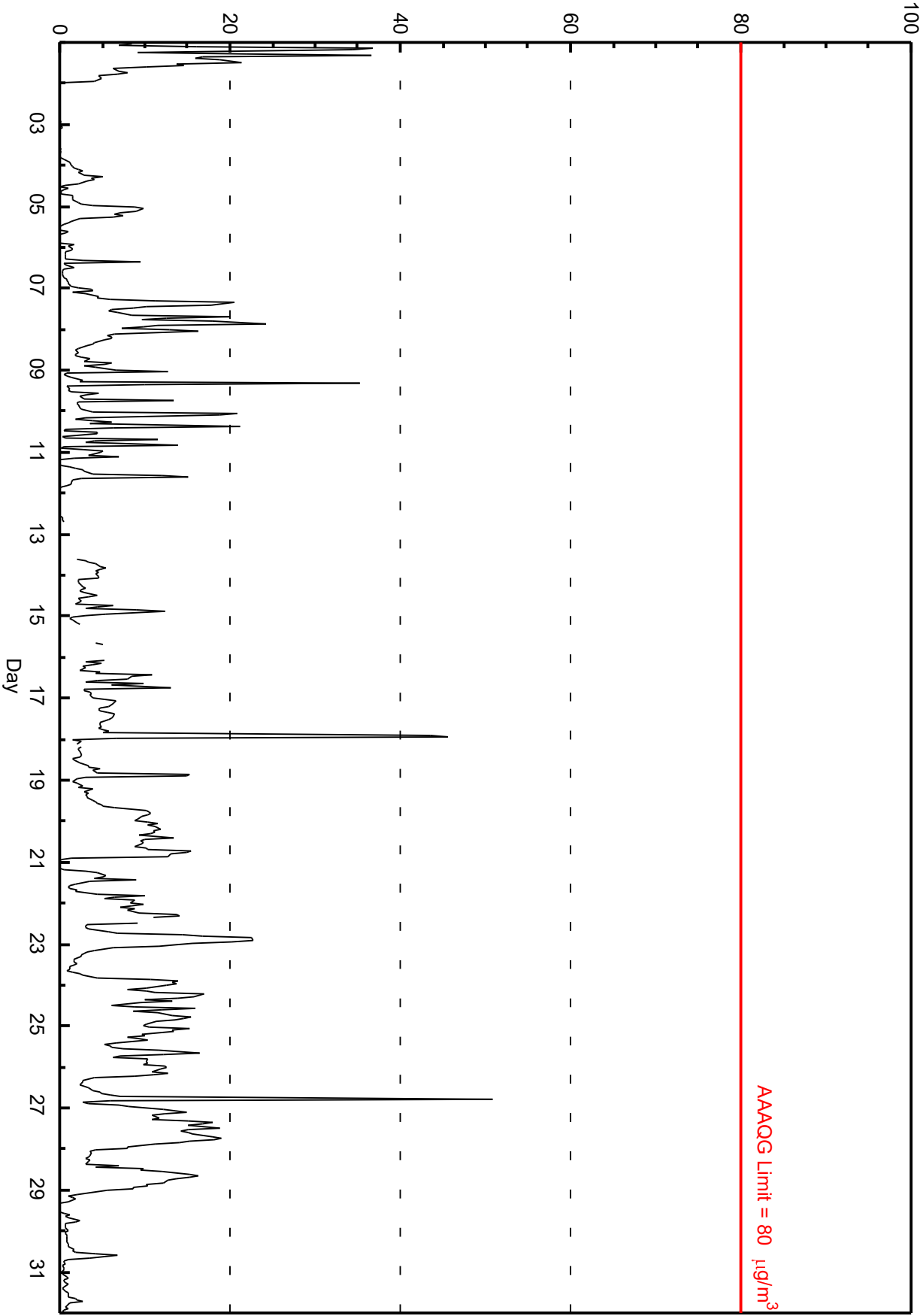


Peace Airshed Zone Association

Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Smoky Heights - January 2020



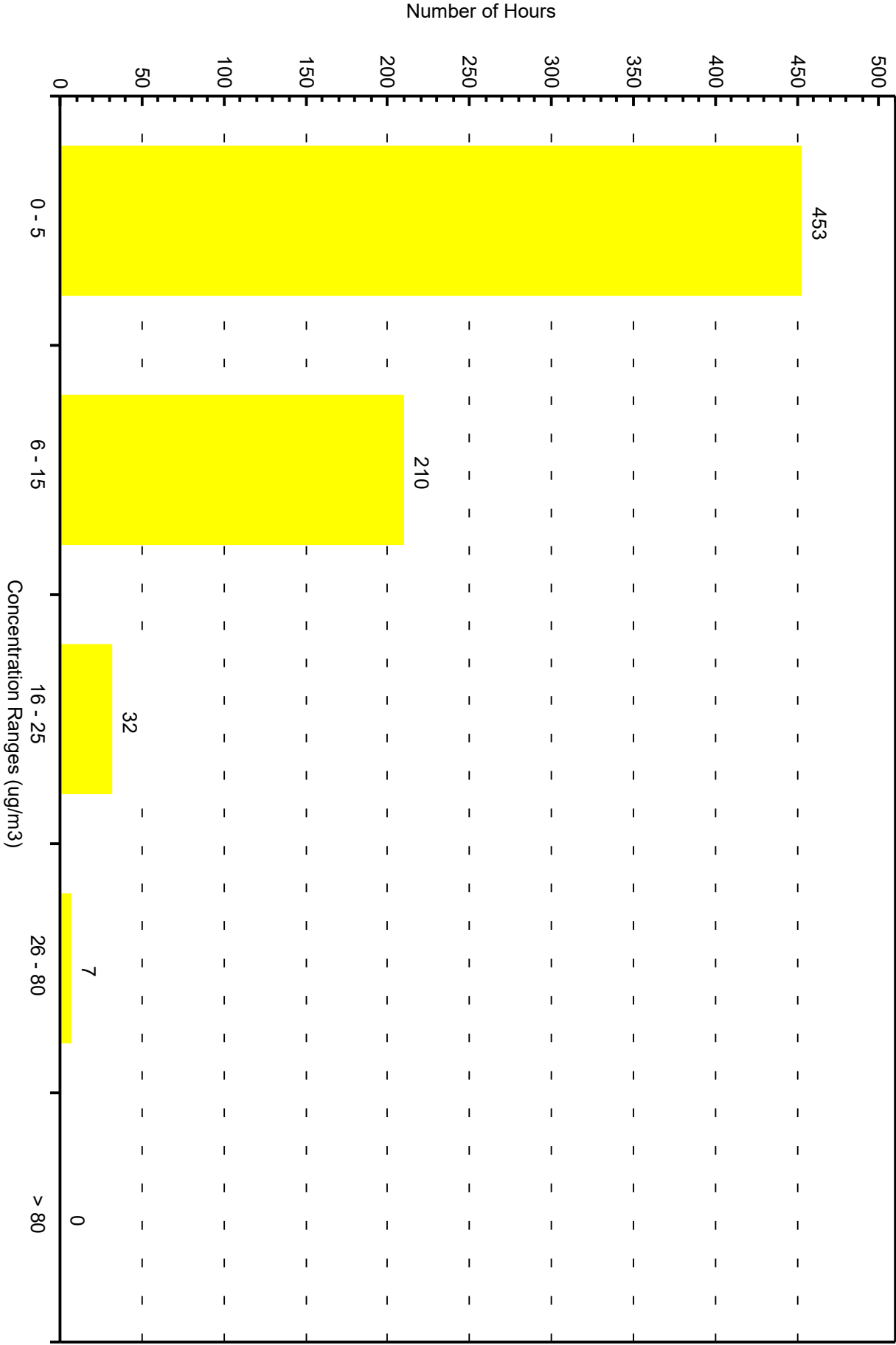


Peace Airshed Zone Association

Histogram of Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Smoky Heights - January 2020

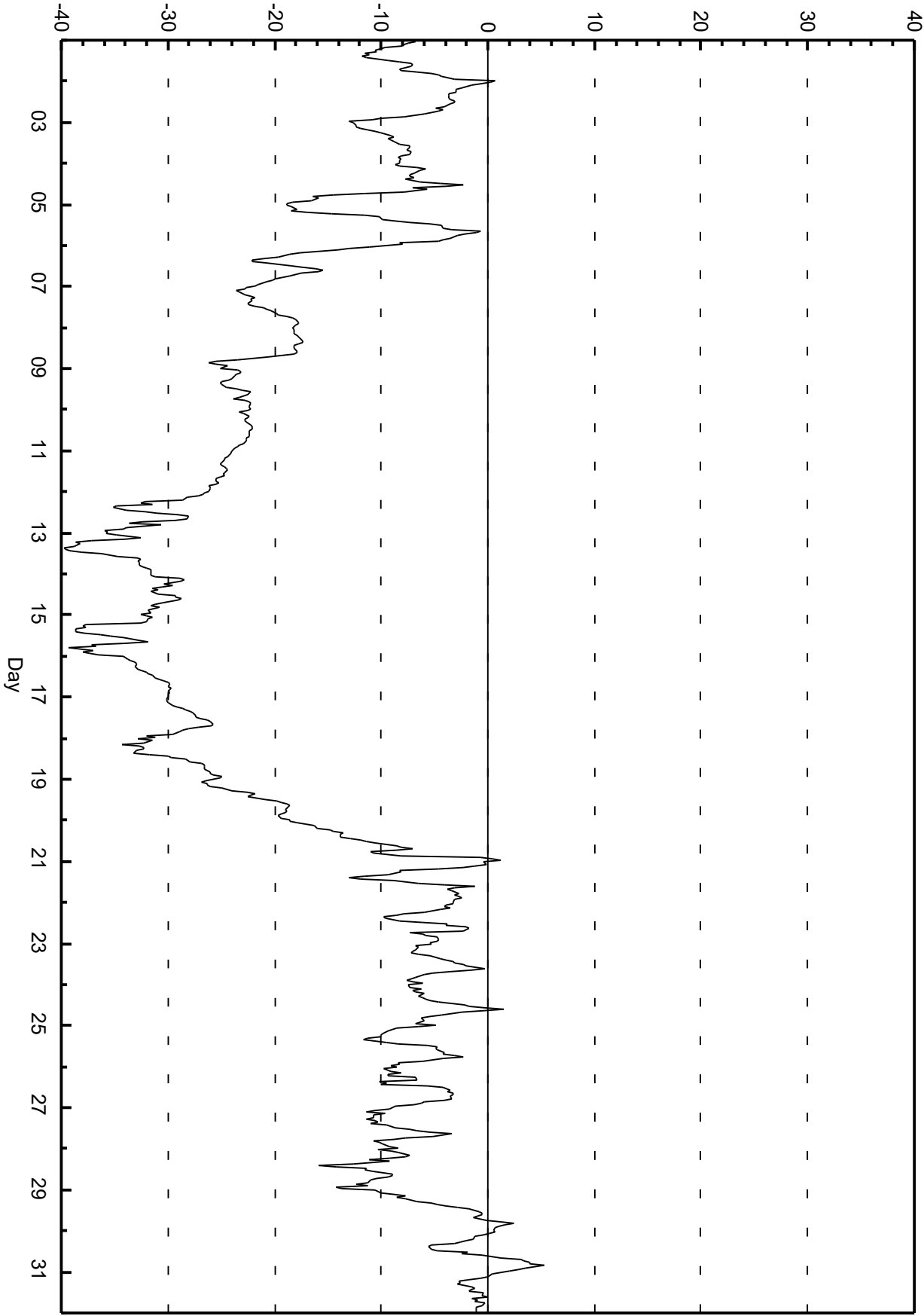




Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C
Smoky Heights - January 2020

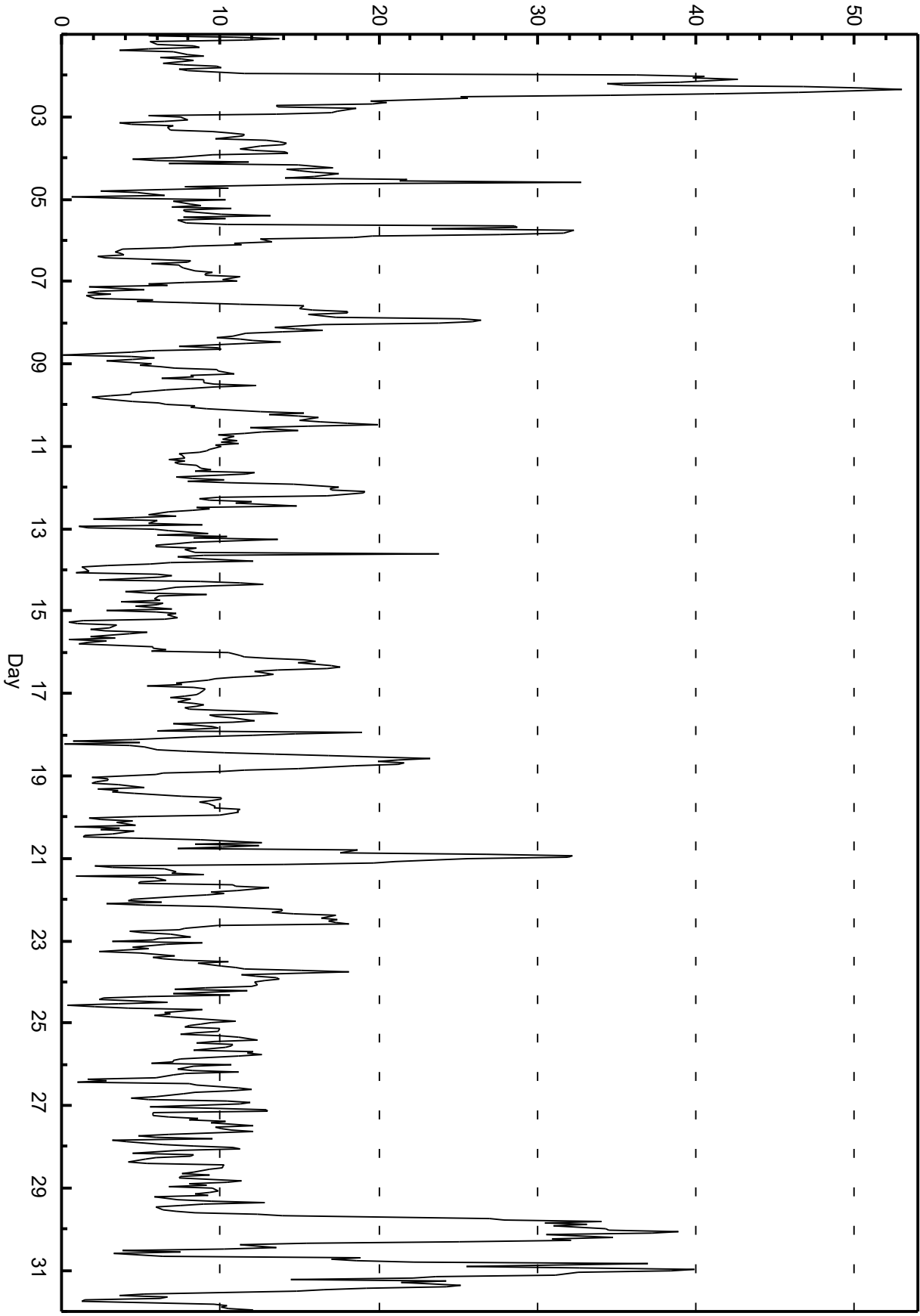




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Smoky Heights - January 2020

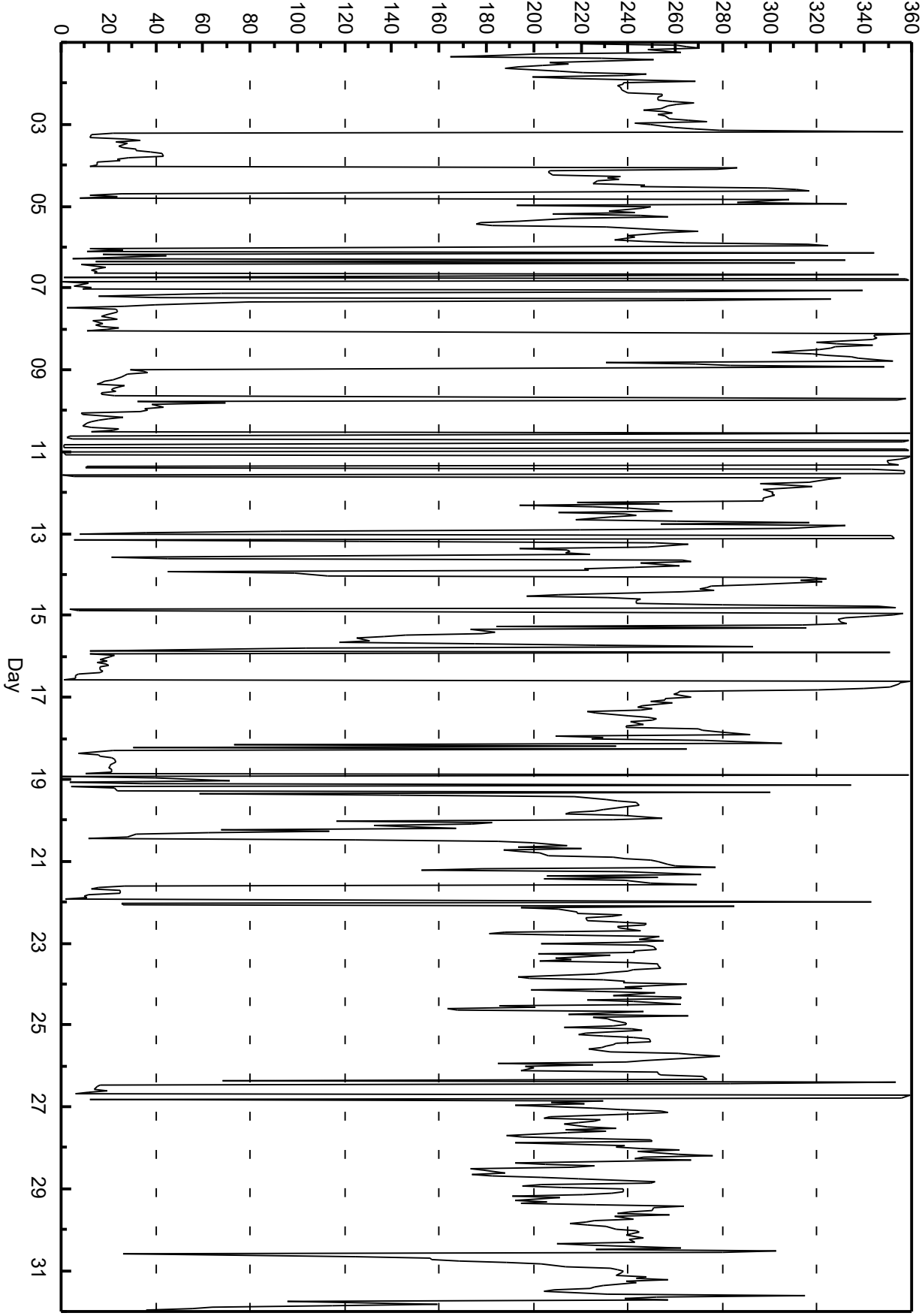




Peace Airshed Zone Association

Hourly Averages

Wind Direction (WD) - deg
Smoky Heights - January 2020

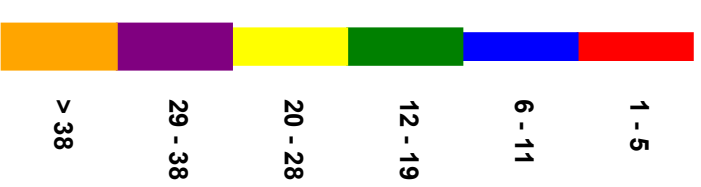
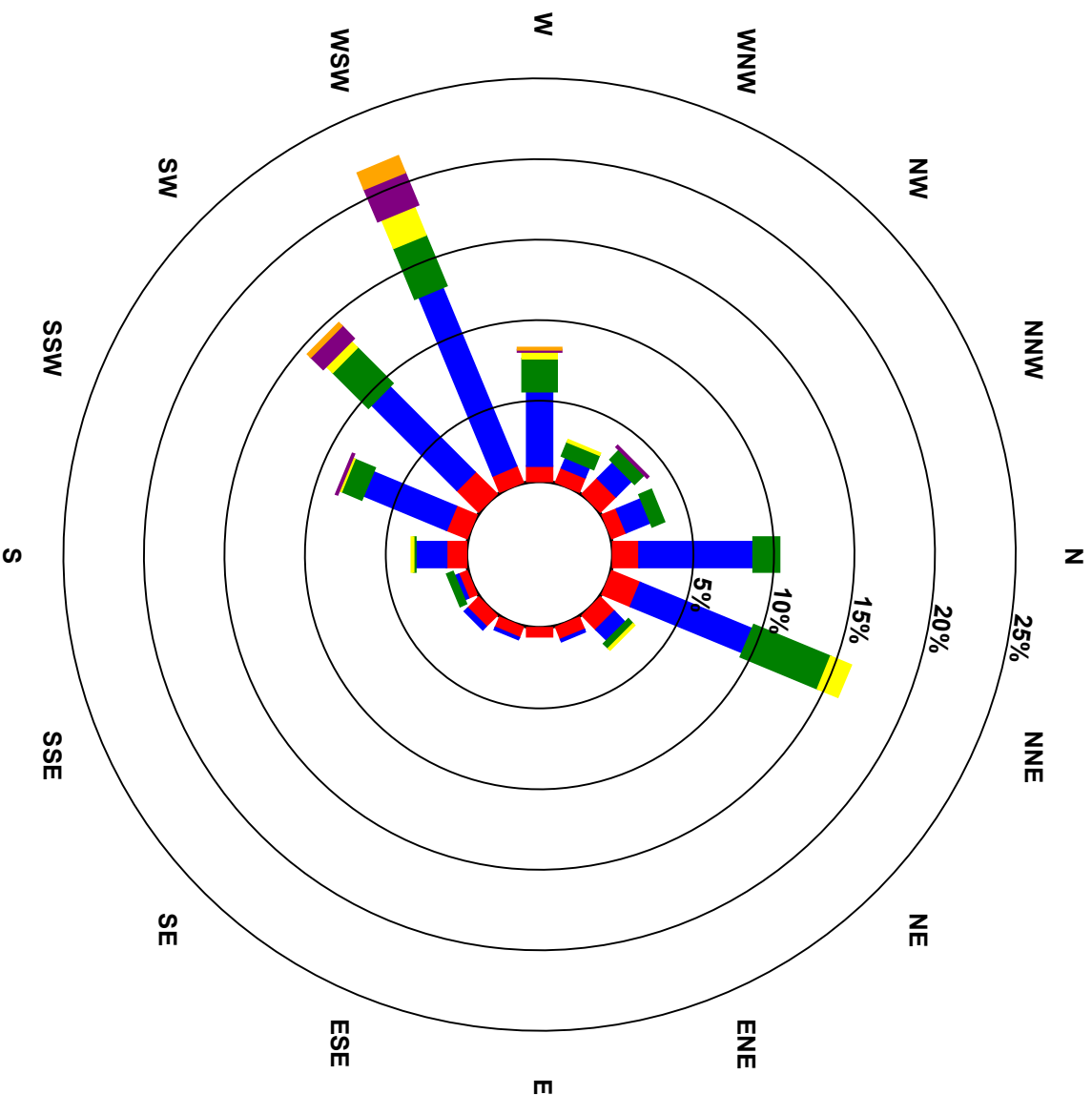




Peace Airshed Zone Association

Wind Rose

Wind Speed (WS) (km/h)
Smoky Heights - January 2020



6 Valleyview Charts

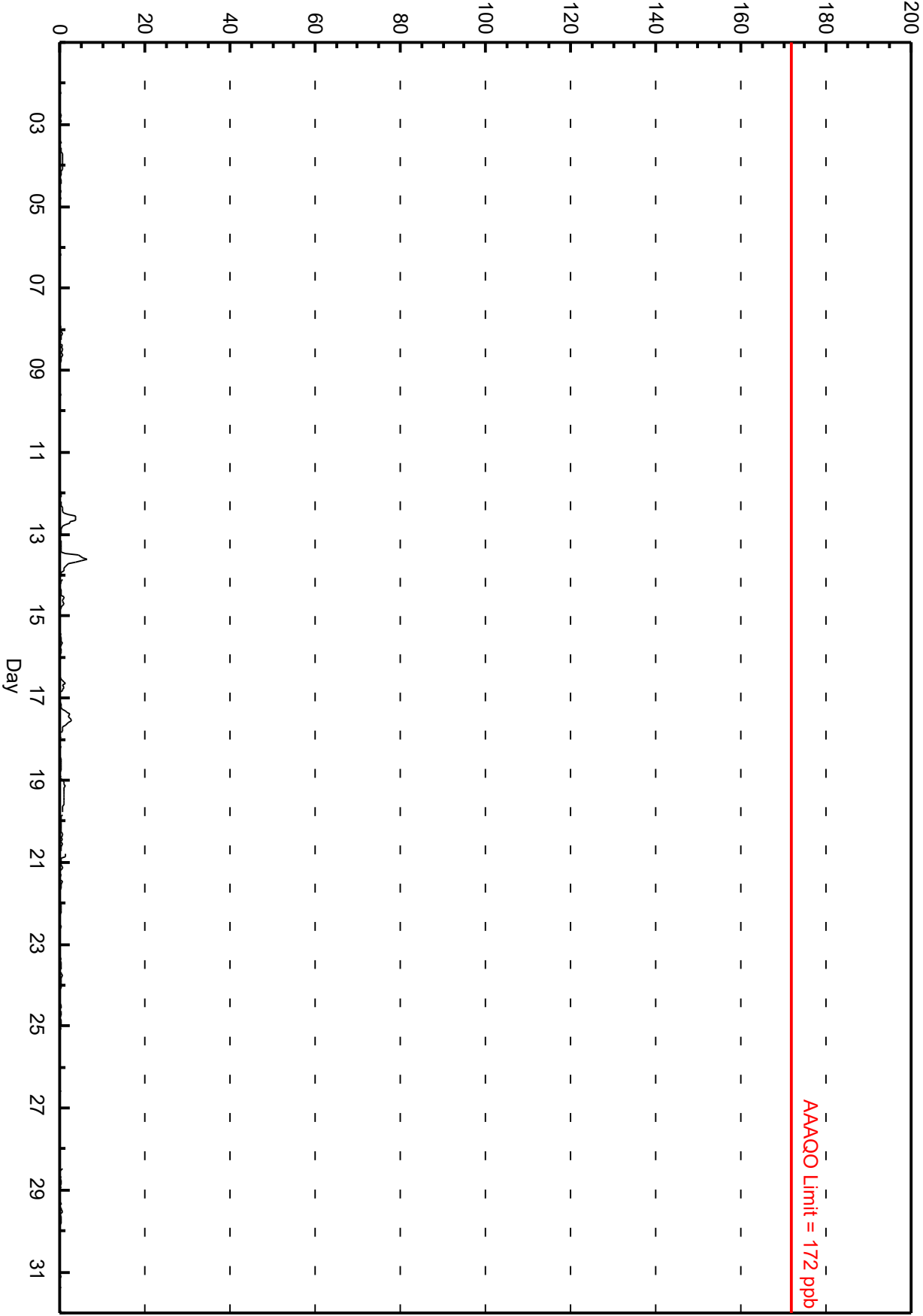
The following pages include the charts and histograms for Valleyview Station



Peace Airshed Zone Association

Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - January 2020

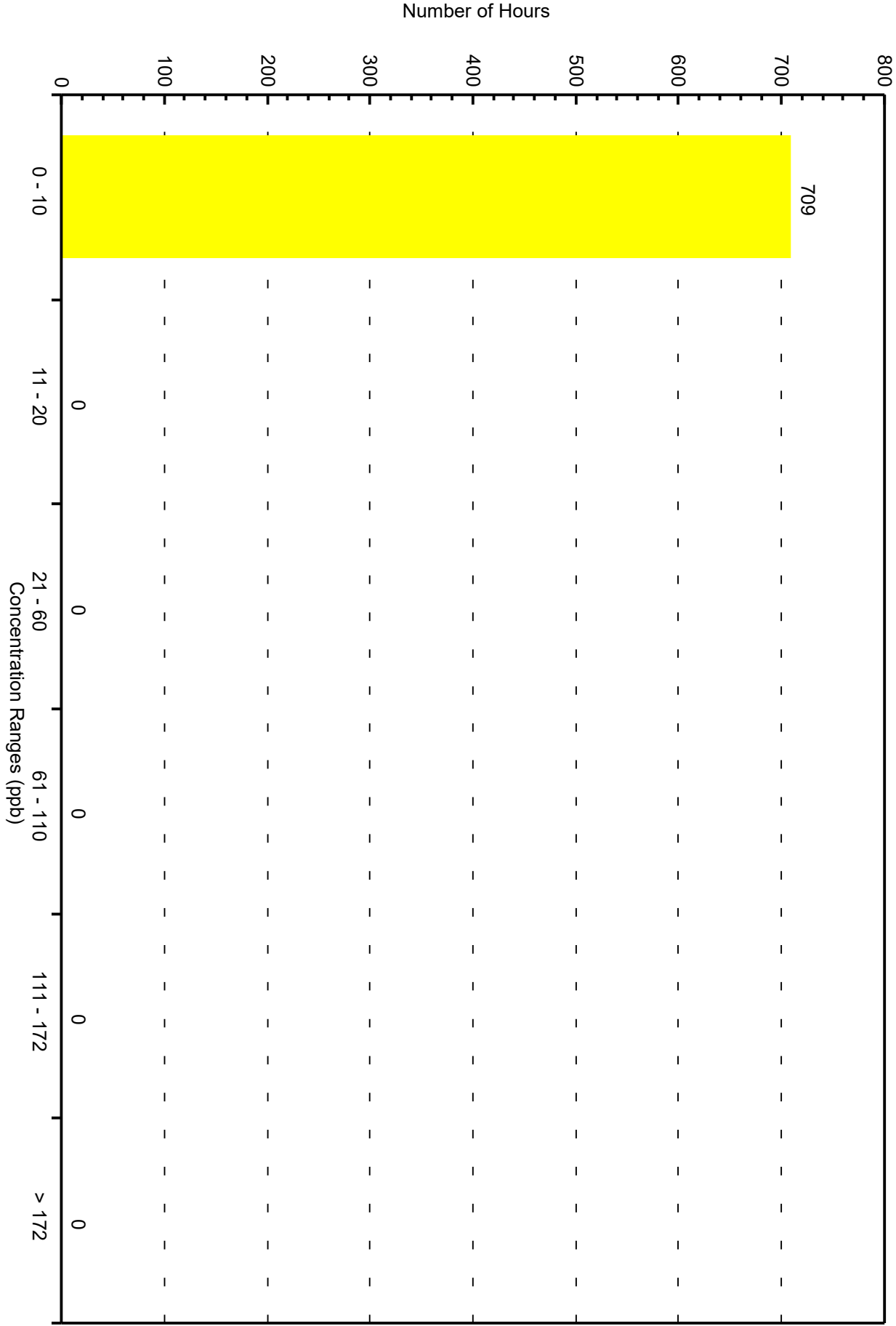




Peace Airshed Zone Association

Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - January 2020

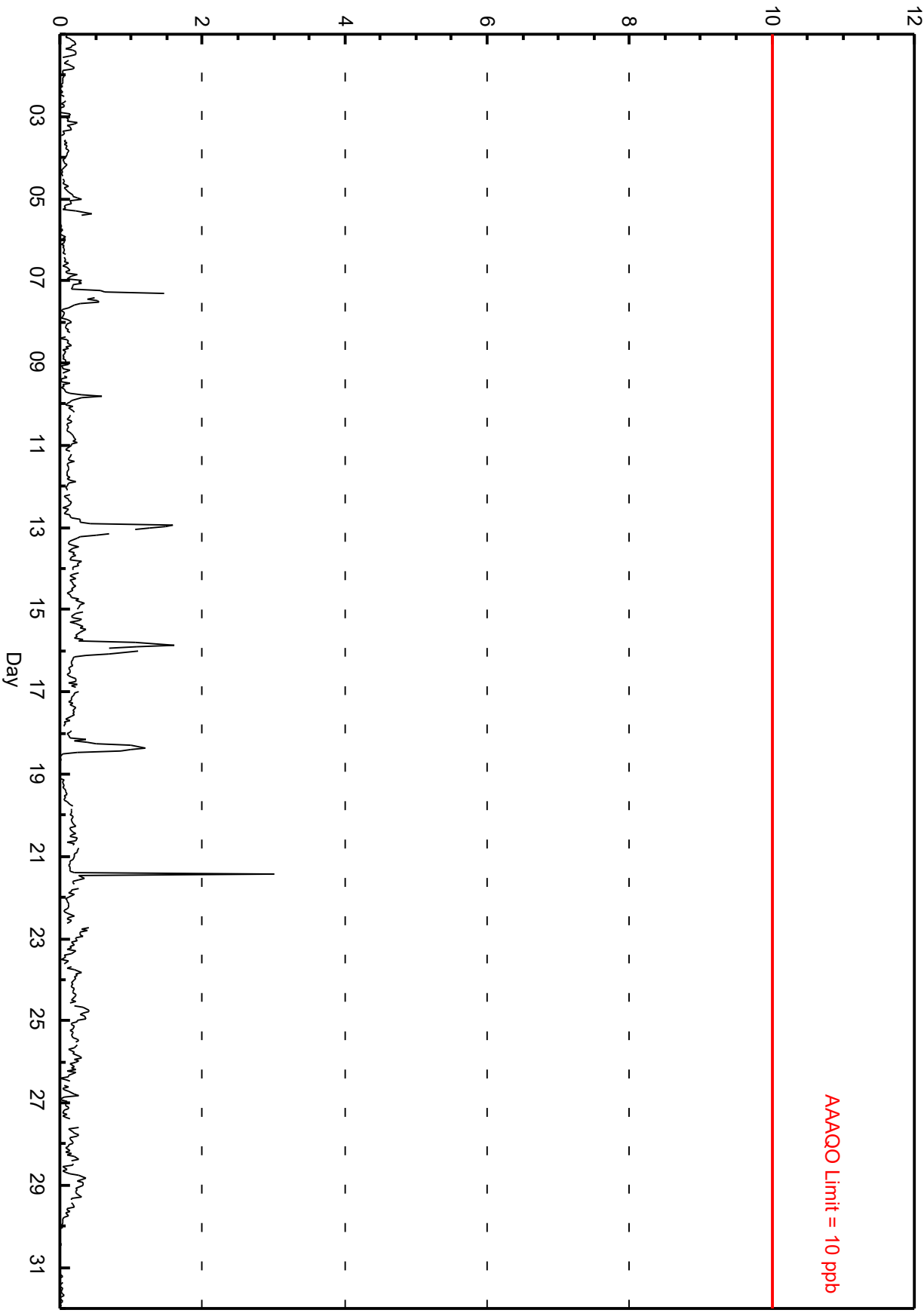




Peace Airshed Zone Association

Hourly Averages

Hydrogen Sulphide (H_2S) - ppb
Valleyview - January 2020



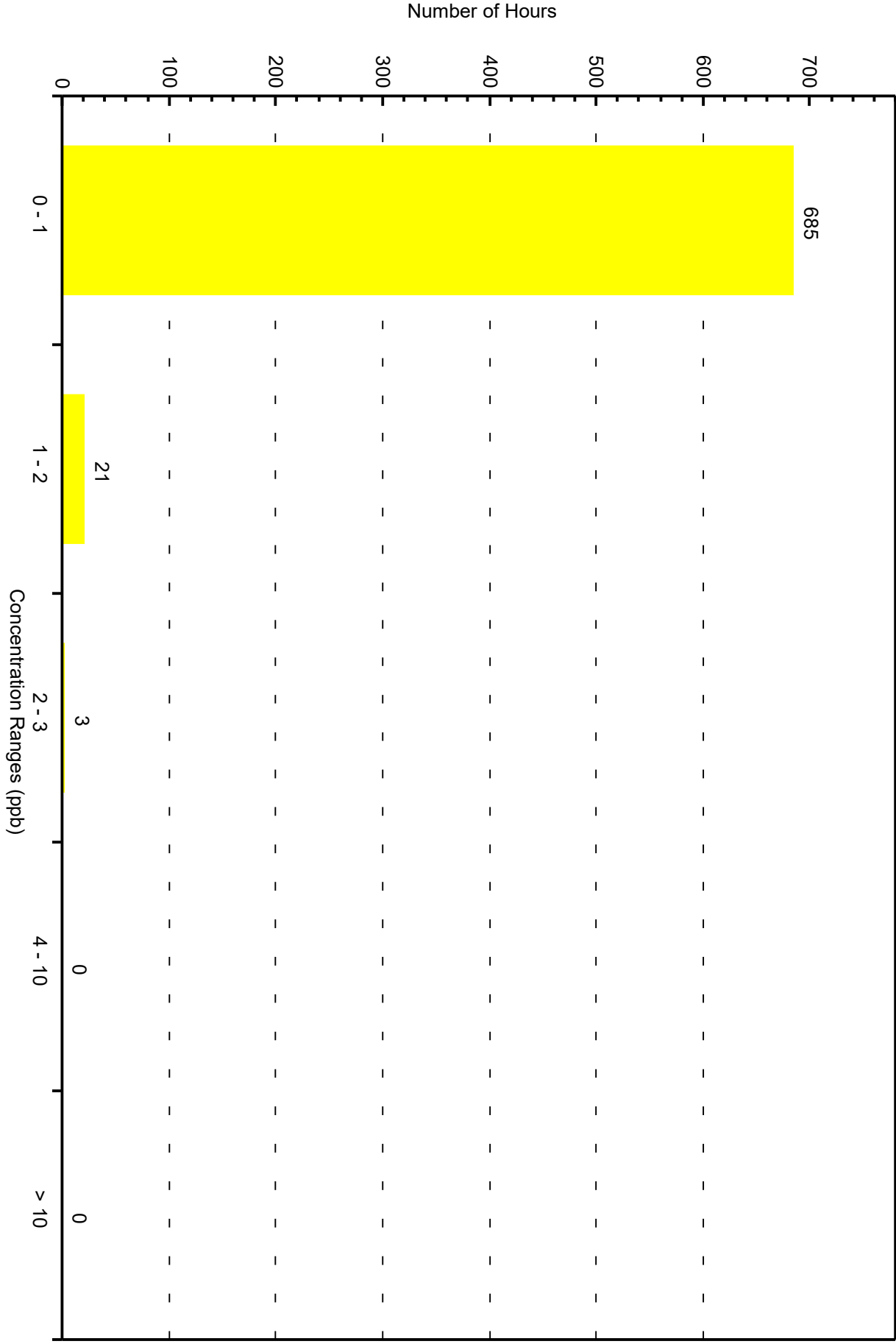


Peace Airshed Zone Association

Histogram of Hourly Averages

Hydrogen Sulphide (H_2S) - ppb

Valleyview - January 2020

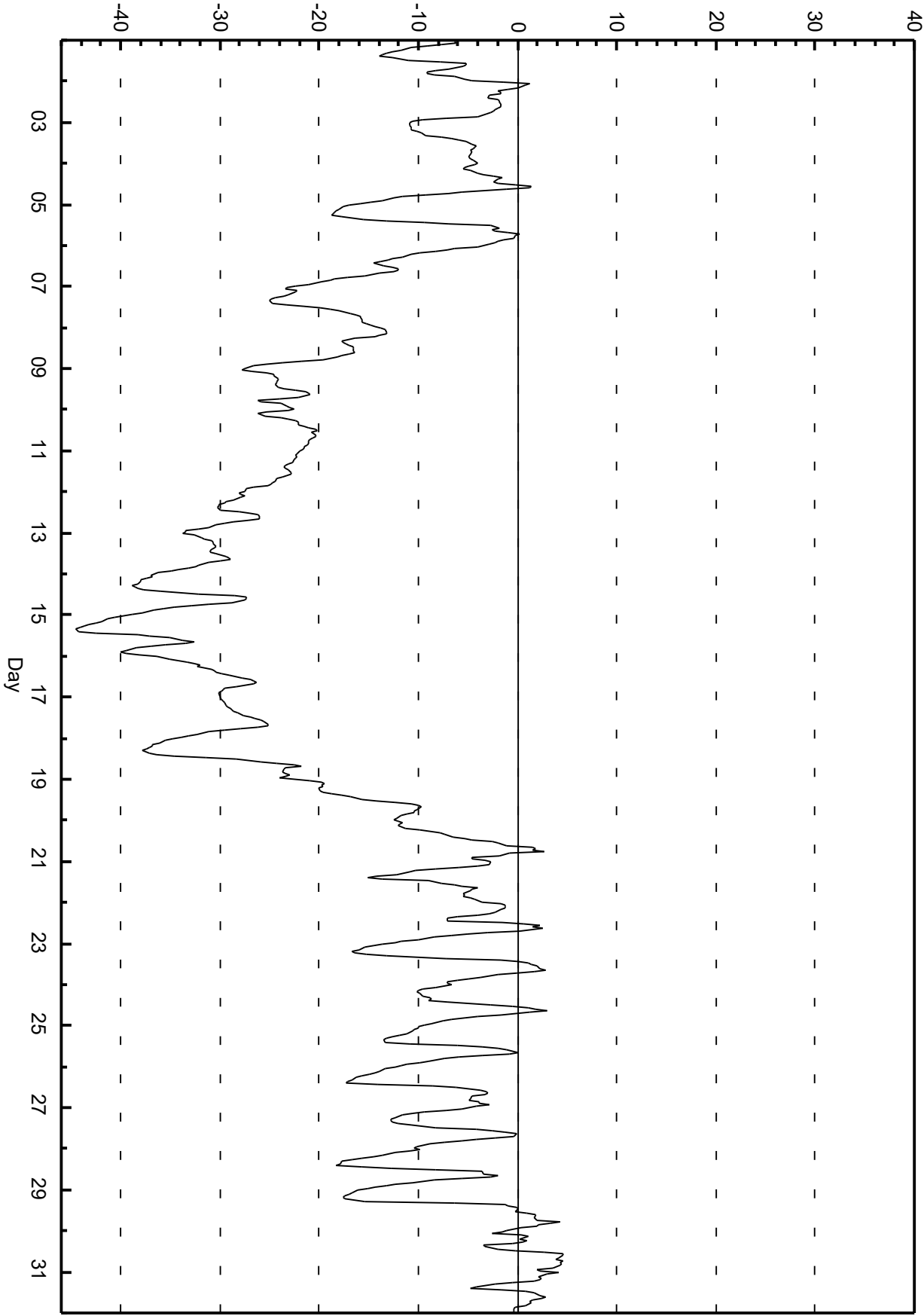




Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C
Valleyview - January 2020

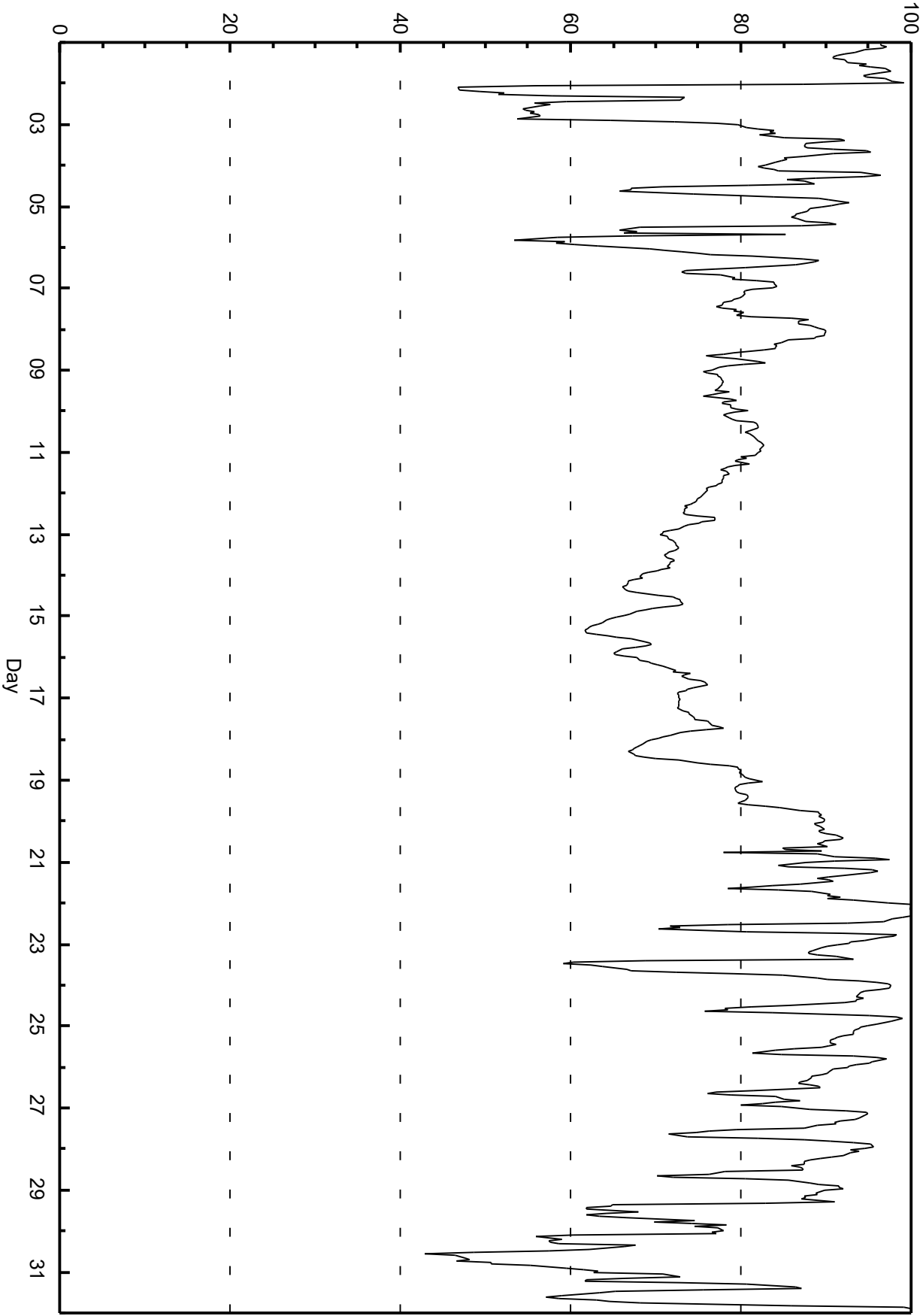




Peace Airshed Zone Association

Hourly Averages

Relative Humidity (RH) - %
Valleyview - January 2020

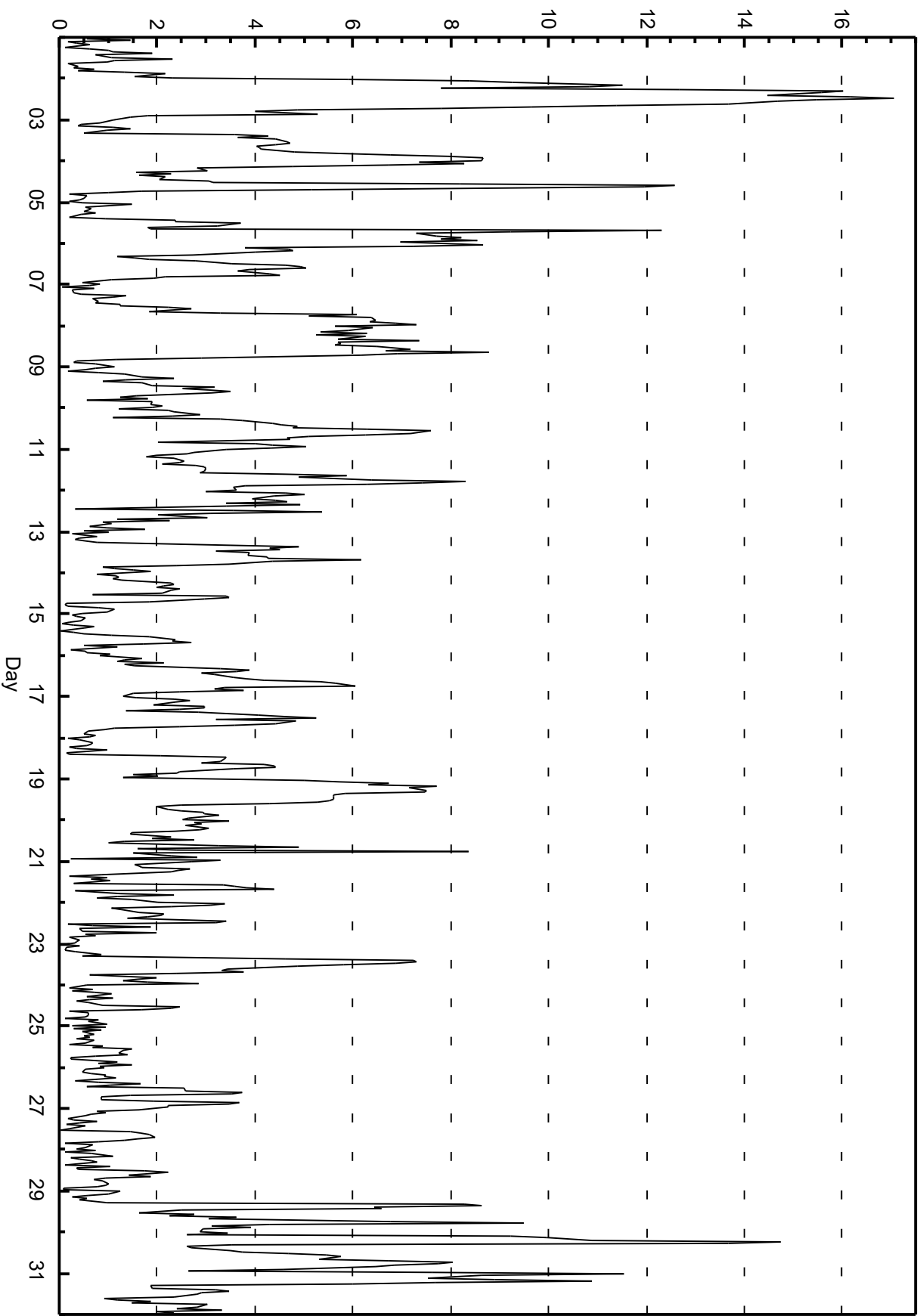




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Valleyview - January 2020

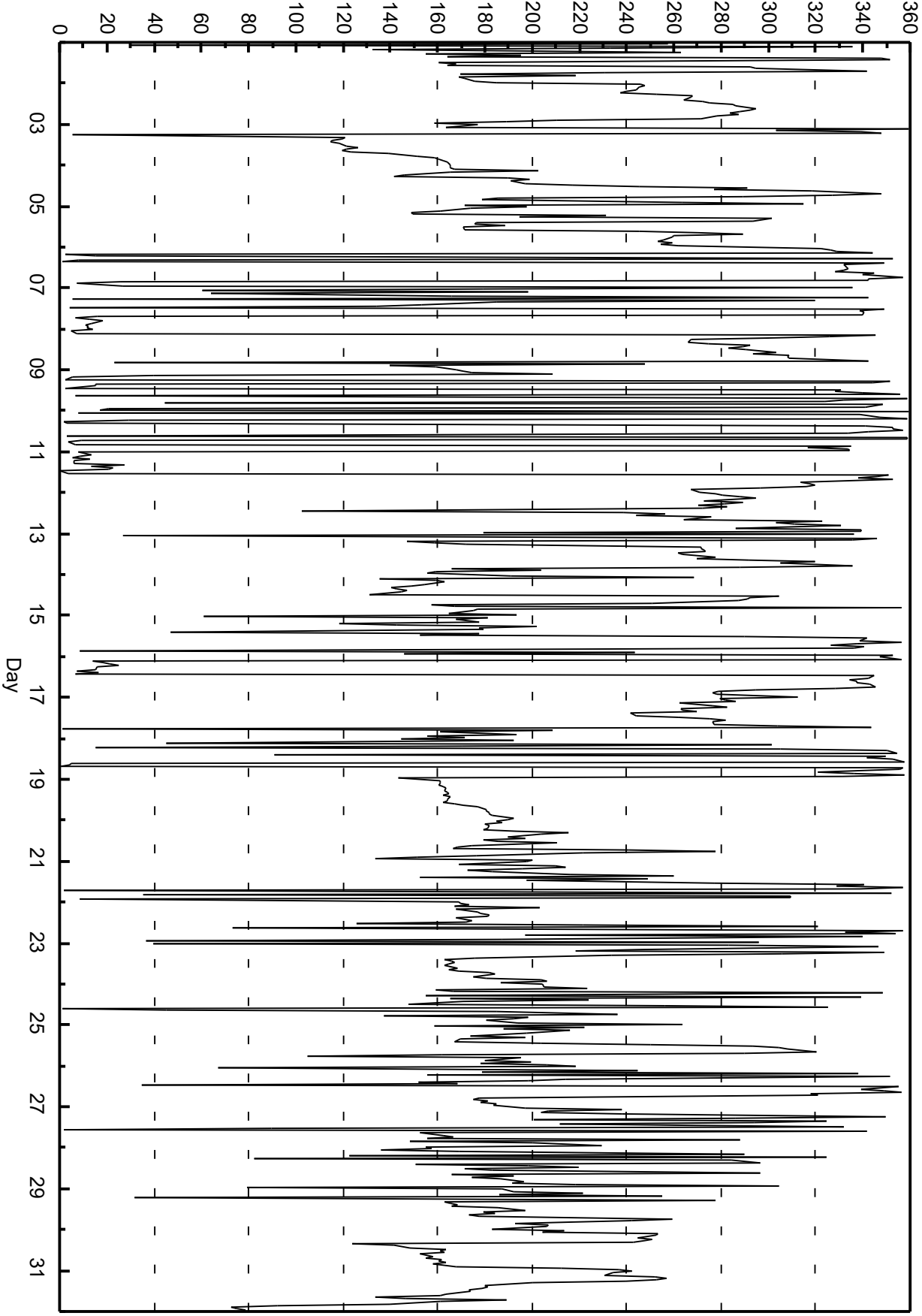




Peace Airshed Zone Association

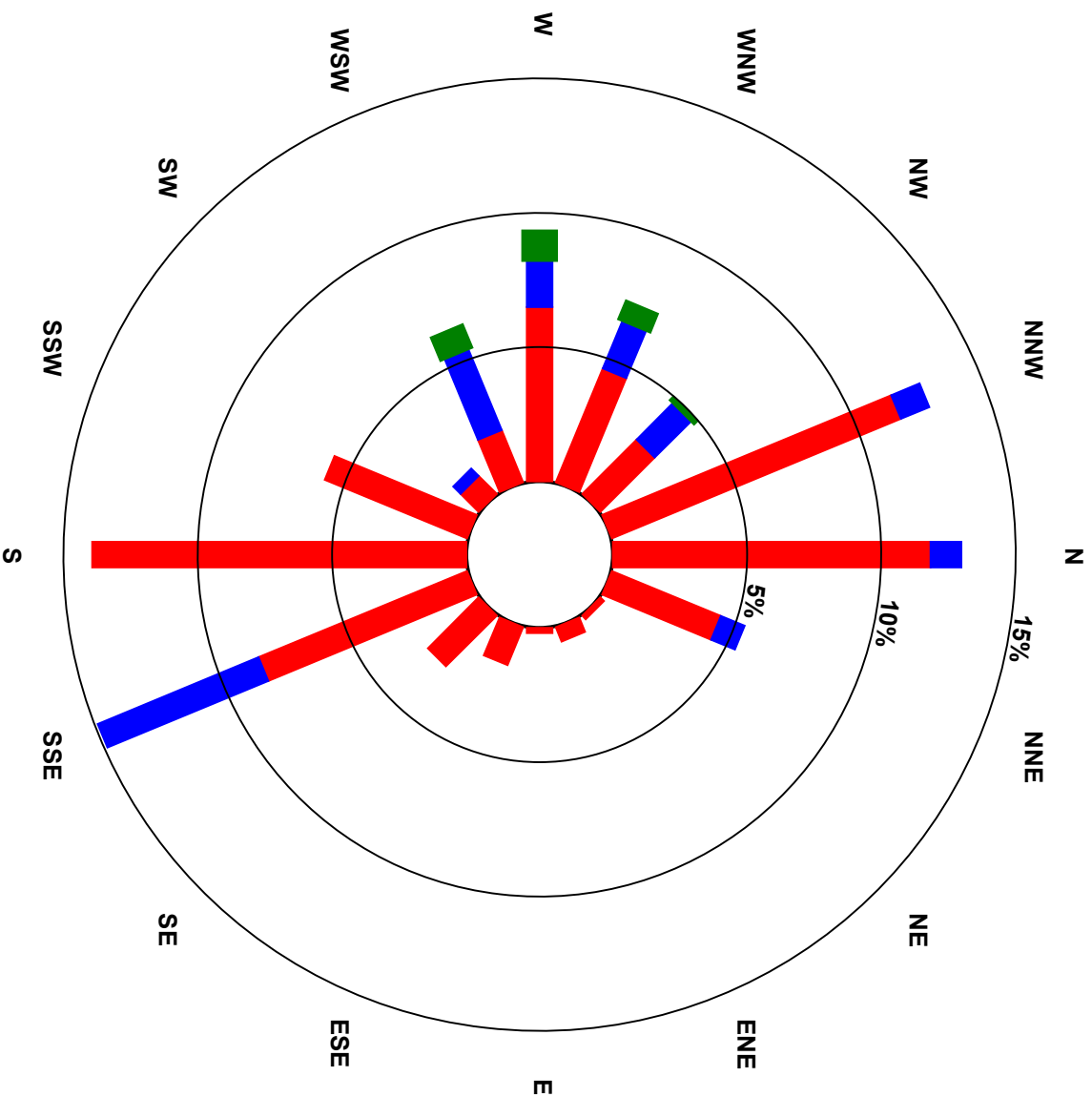
Hourly Averages

Wind Direction (WD) - deg
Valleyview - January 2020

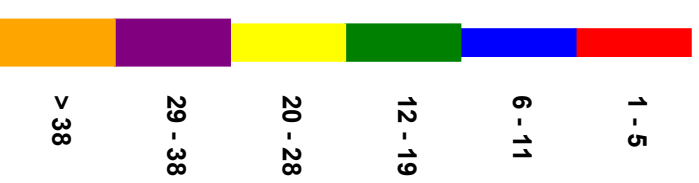


Wind Rose

Wind Speed (WS) (km/h)
Valleyview - January 2020



Wind Speed Classes (km/h)



7 Donnelly Charts

The following pages include the charts and histograms for Donnelly Station

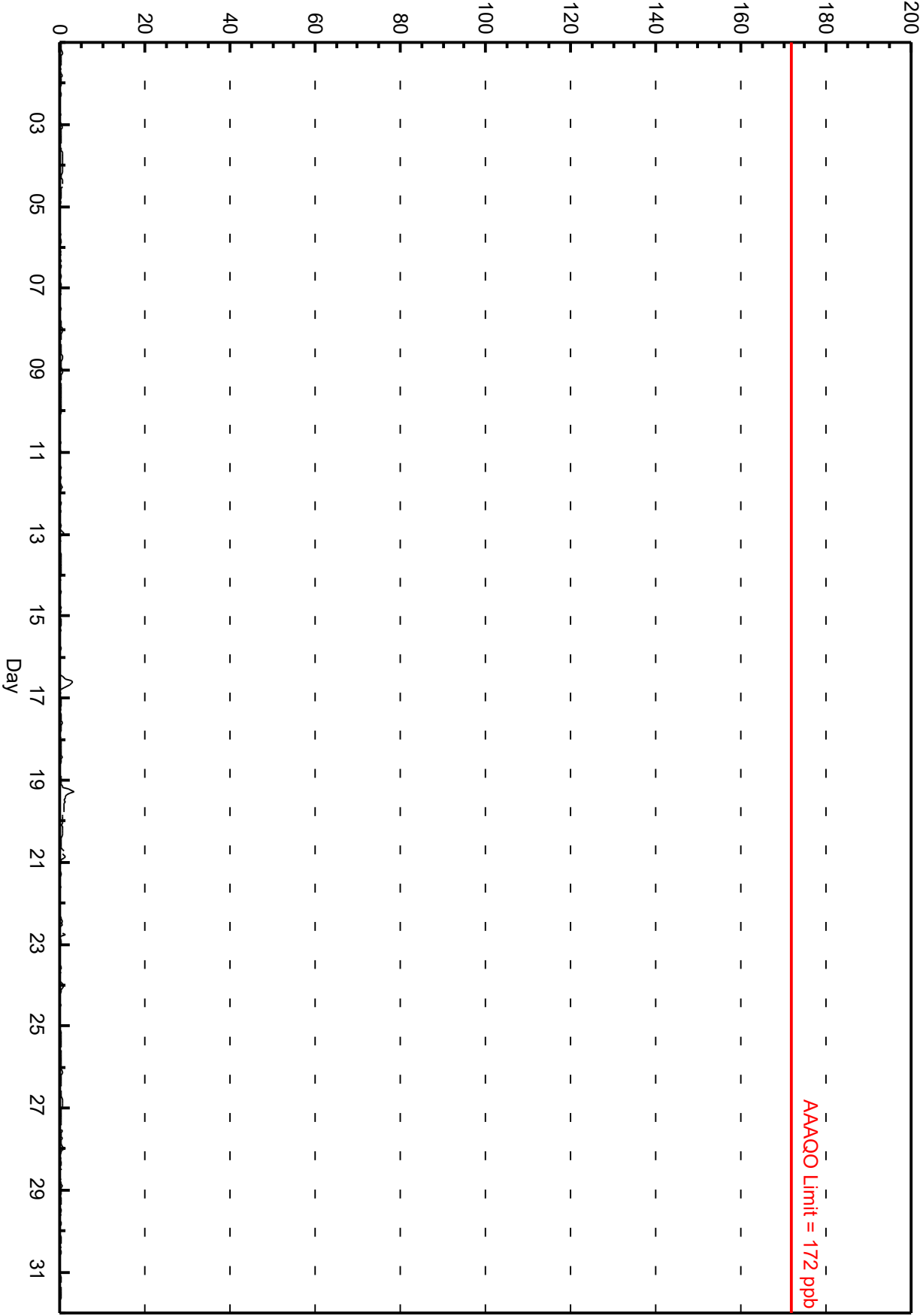


Peace Airshed Zone Association

Hourly Averages

Sulphur Dioxide (SO₂) - ppb

Donnelly - January 2020



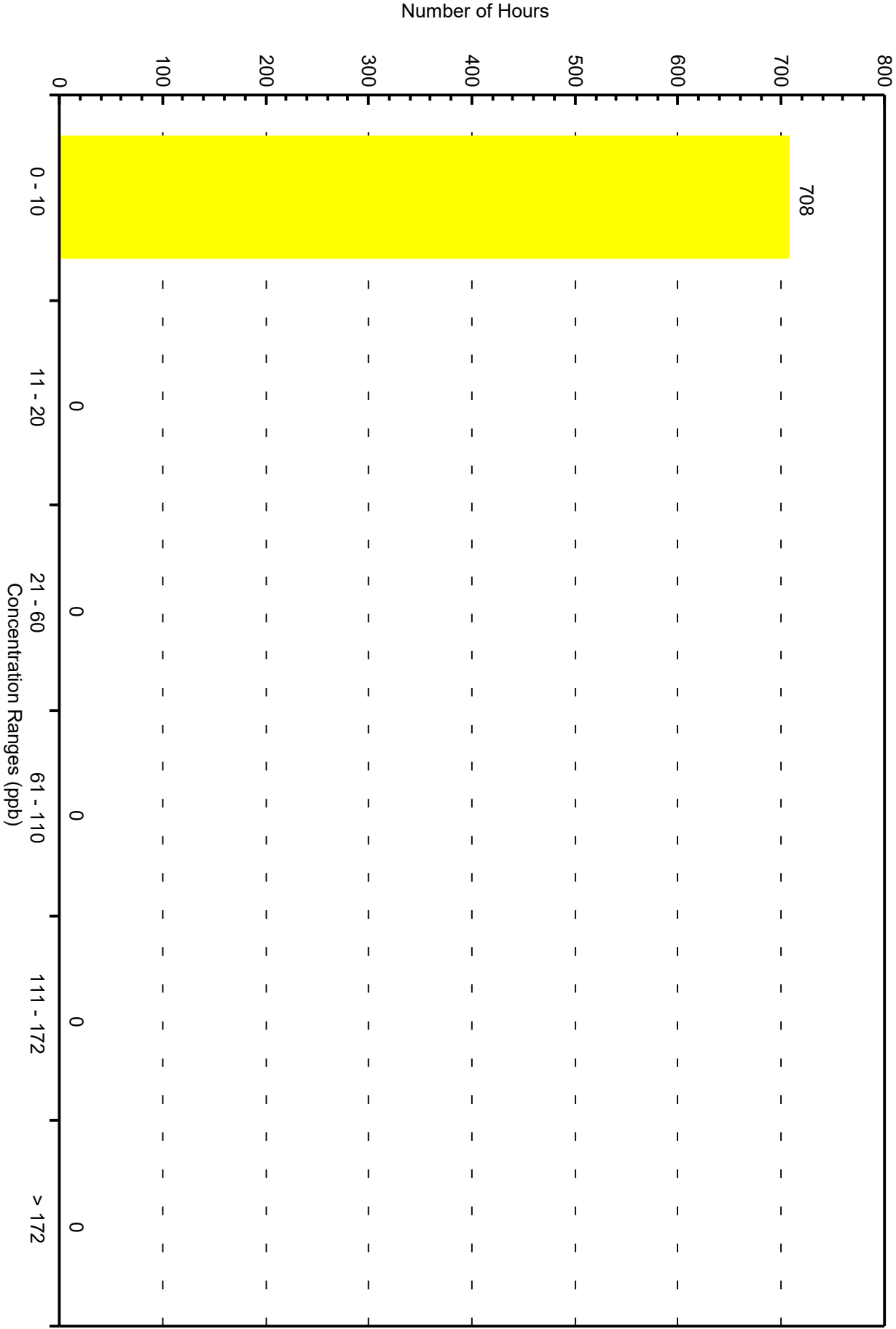


Peace Airshed Zone Association

Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb

Donnelly - January 2020



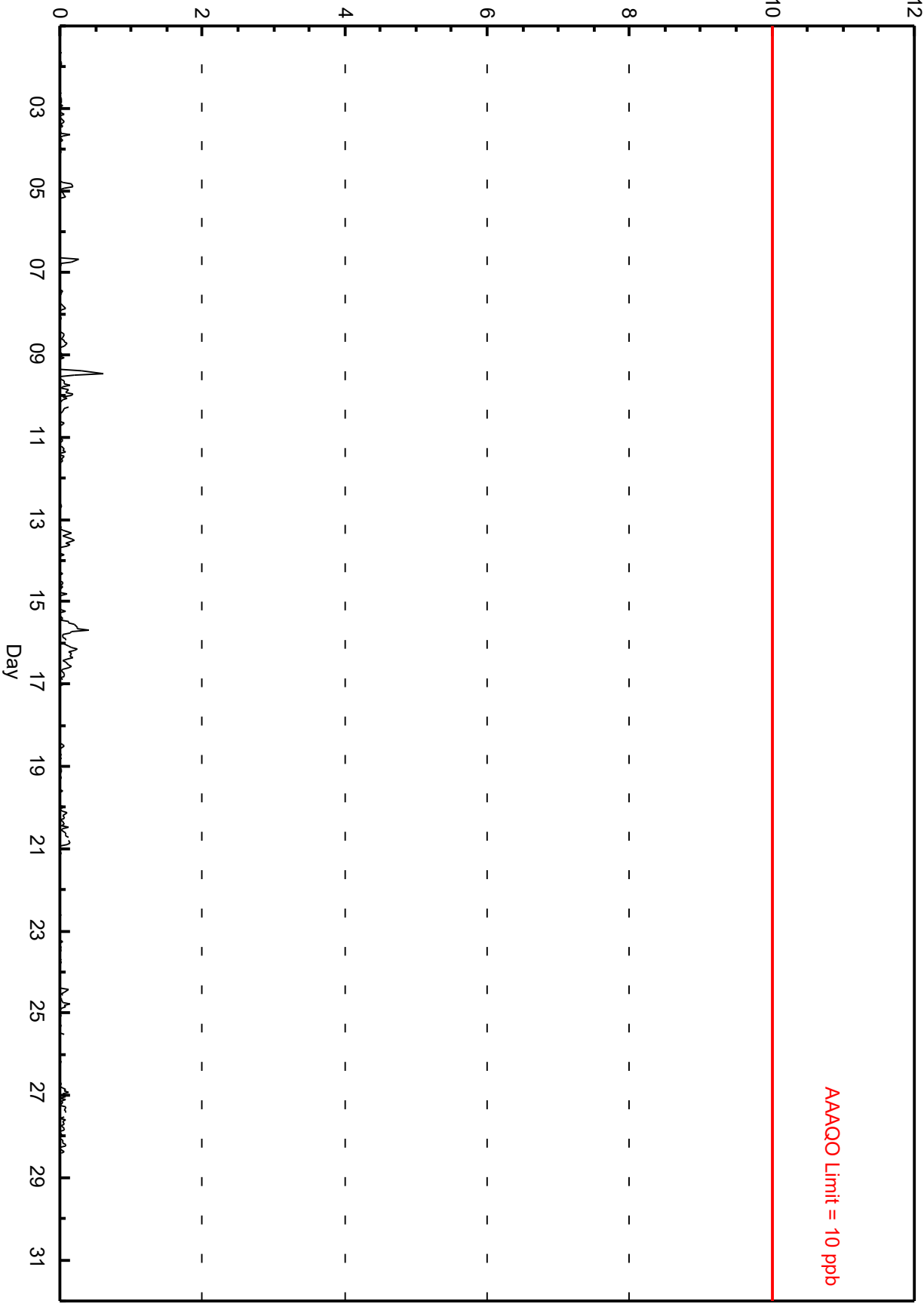


Peace Airshed Zone Association

Hourly Averages

Hydrogen Sulphide (H_2S) - ppb

Donnelly - January 2020



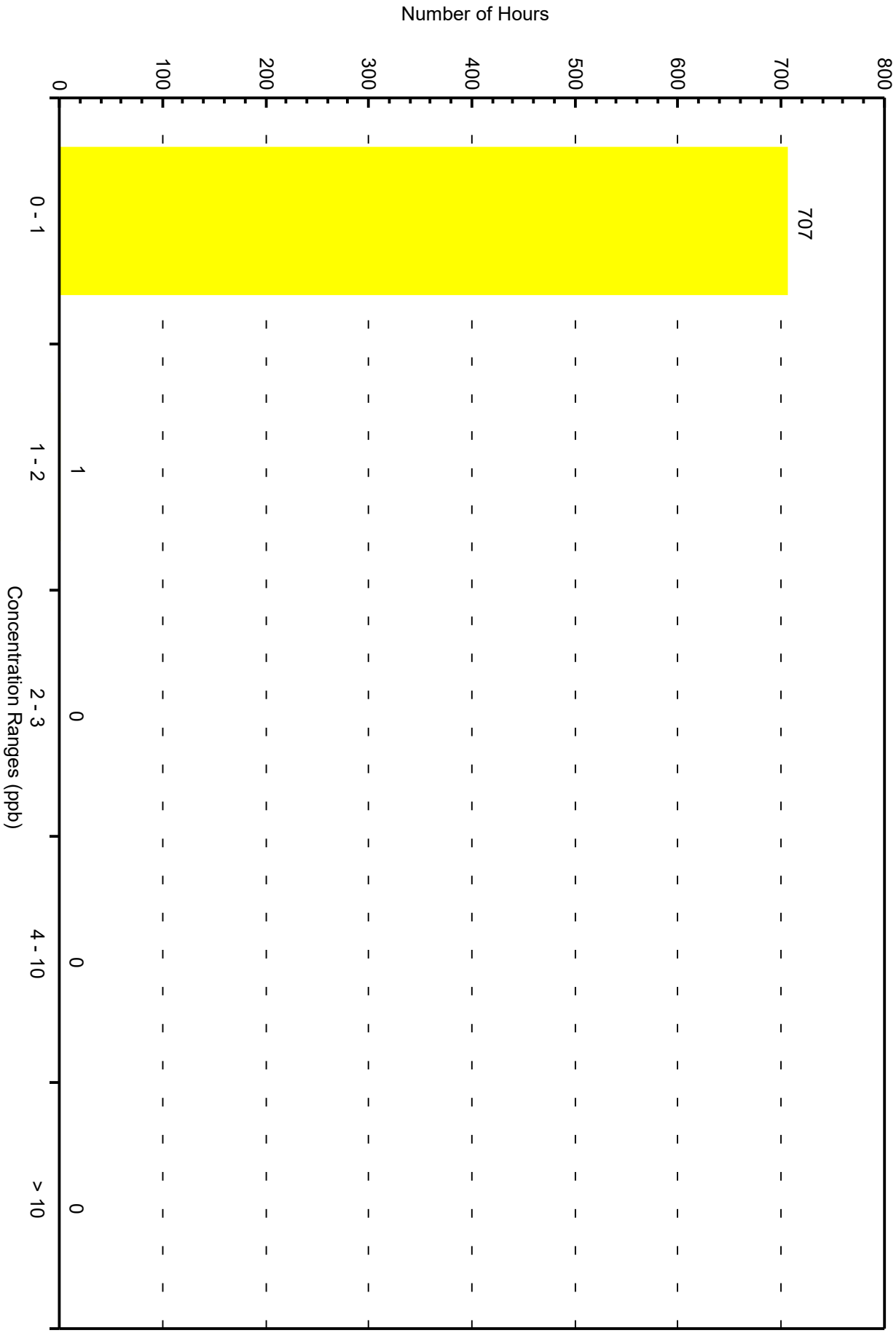


Peace Airshed Zone Association

Histogram of Hourly Averages

Hydrogen Sulphide (H₂S) - ppb

Donnelly - January 2020



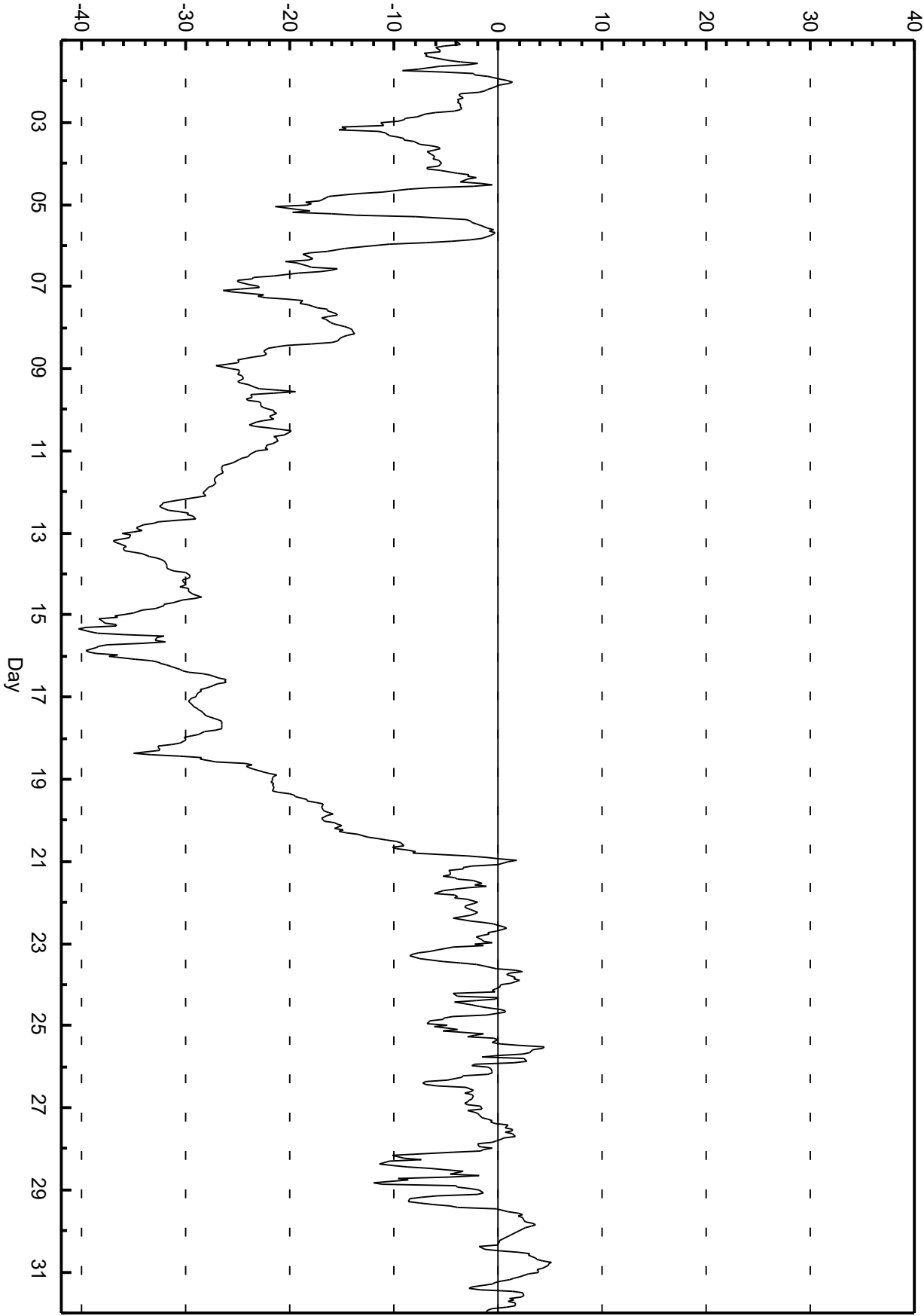


Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C

Donnelly - January 2020

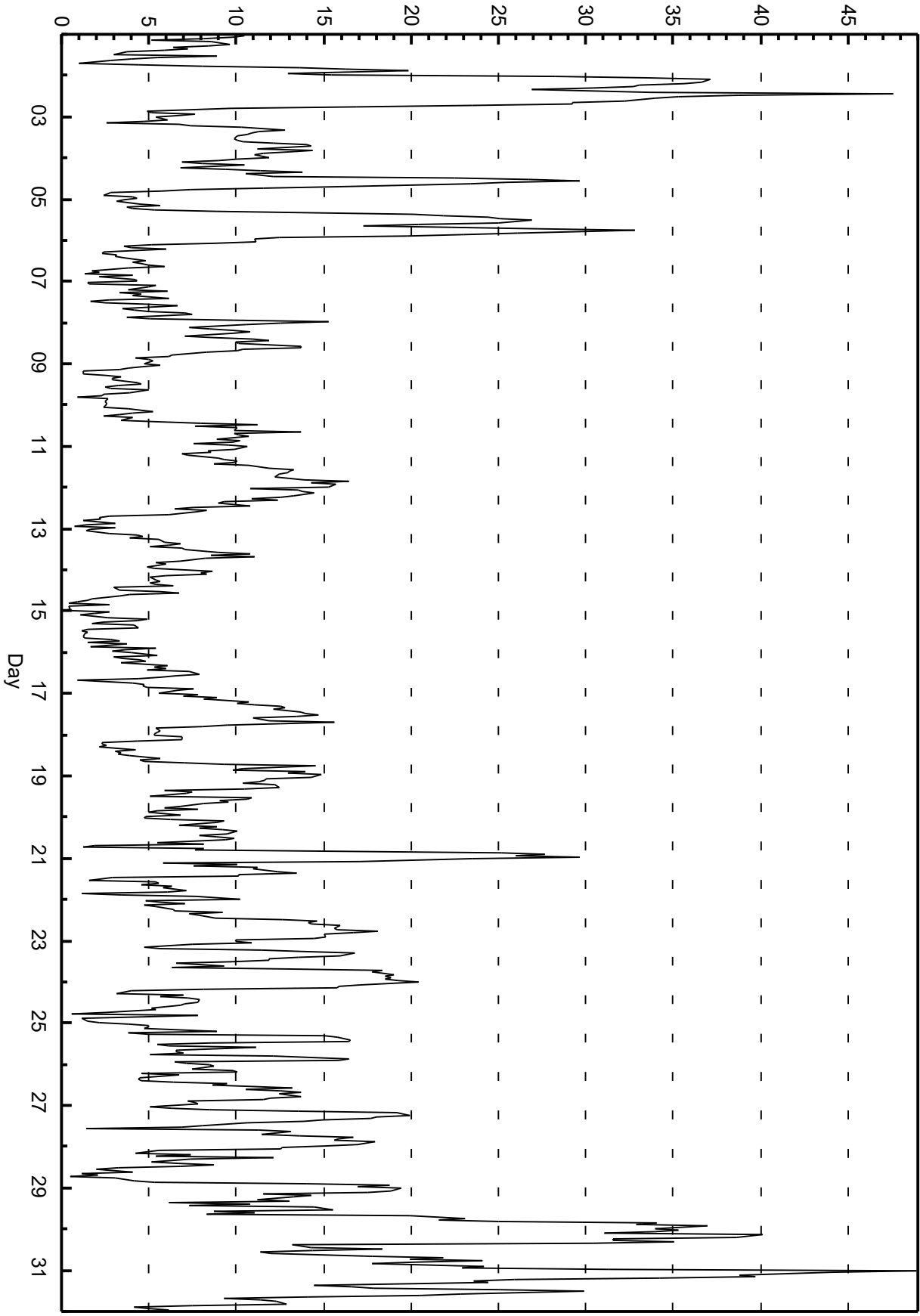




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Donnelly - January 2020



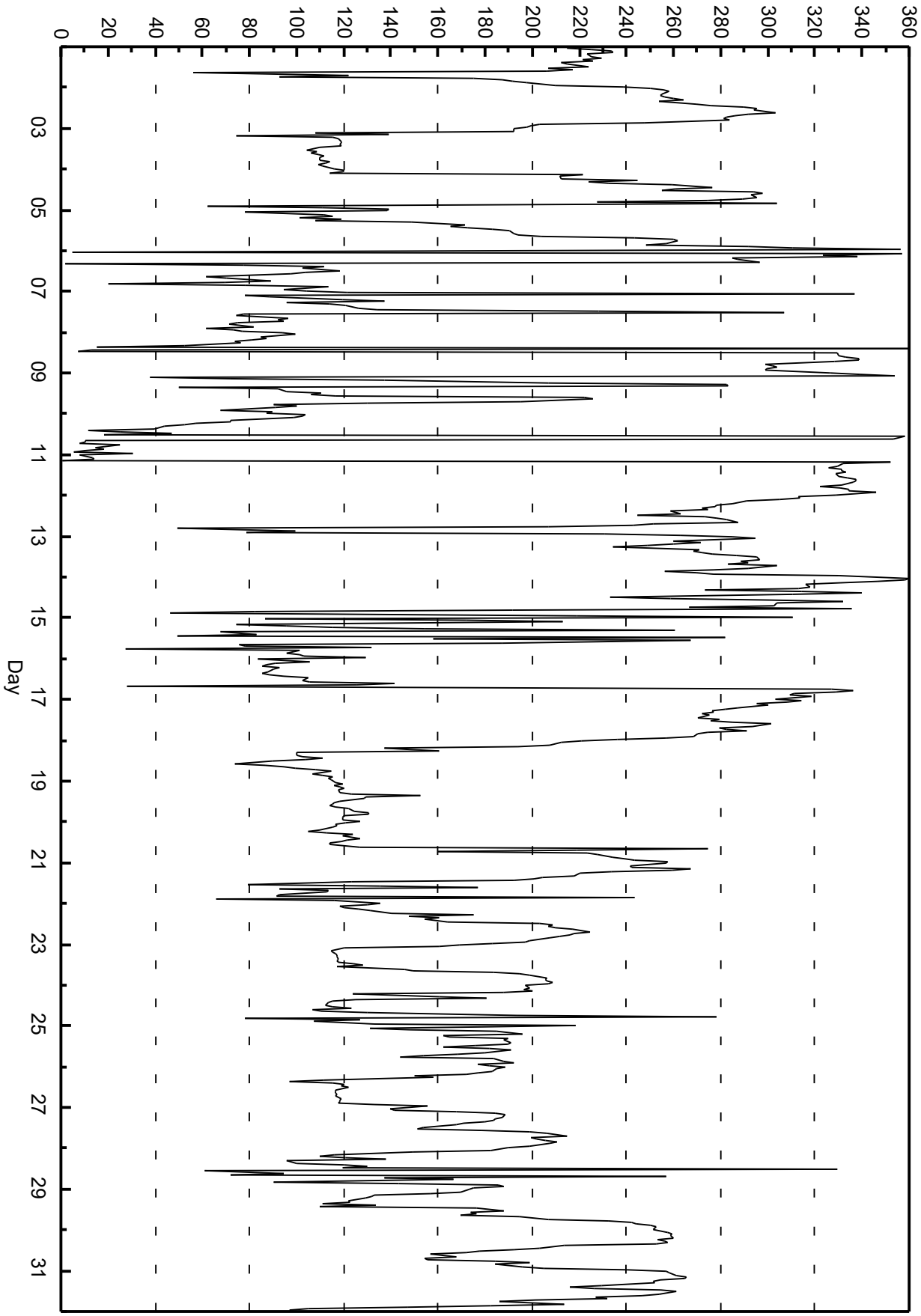


Peace Airshed Zone Association

Hourly Averages

Wind Direction (WD) - deg

Donnelly - January 2020

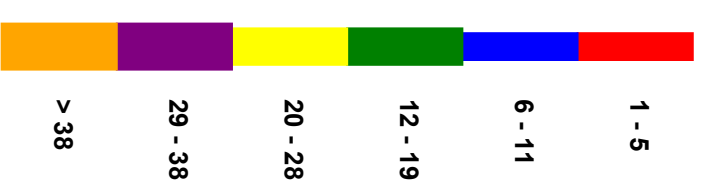
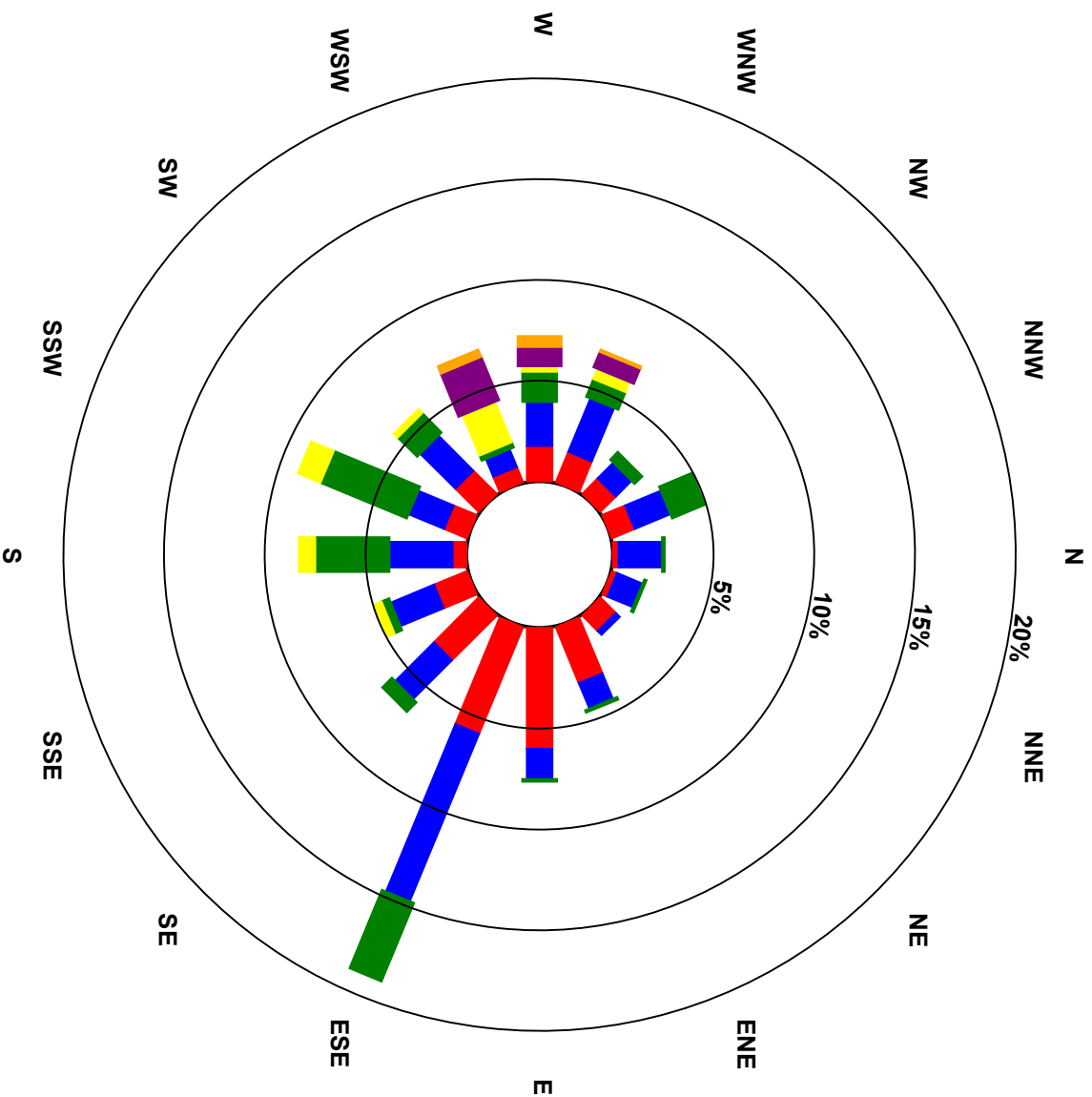




Peace Airshed Zone Association

Wind Rose

Wind Speed (WS) (km/h)
Donnelly - January 2020



8 Wembley (Portable) Charts

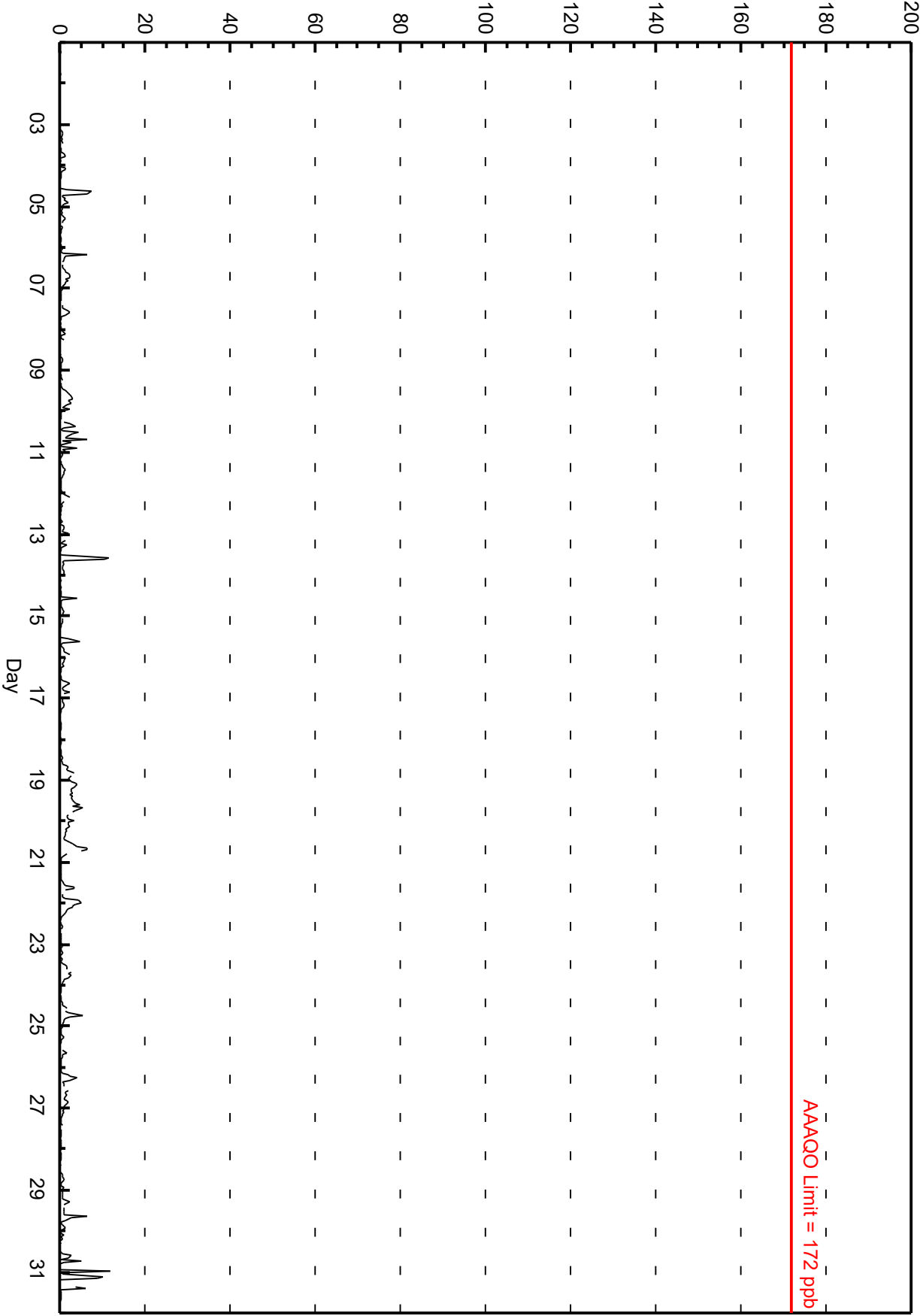
The following pages include the charts and histograms for Wembley Portable Station



Peace Airshed Zone Association

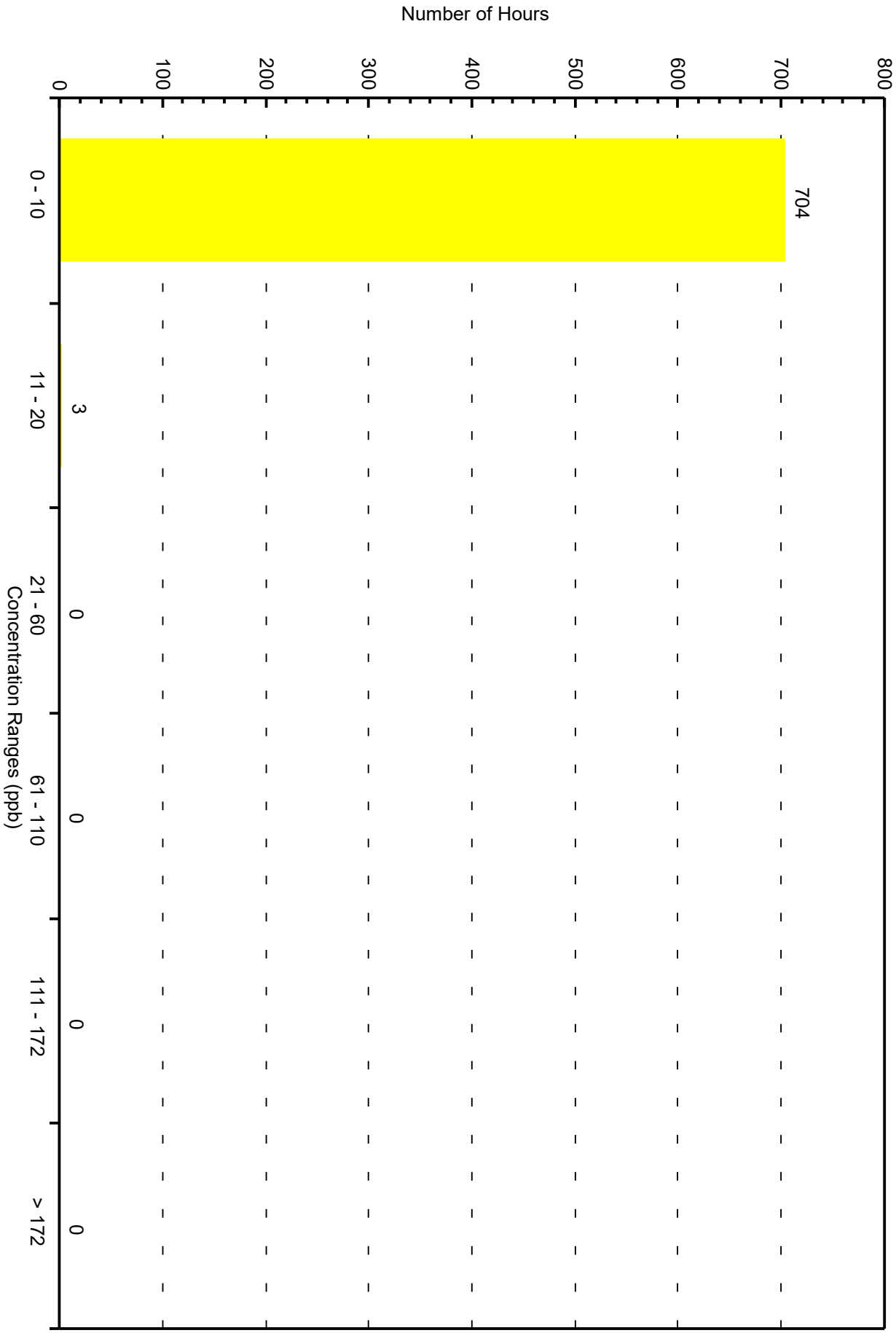
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wembley - January 2020



Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wembley - January 2020



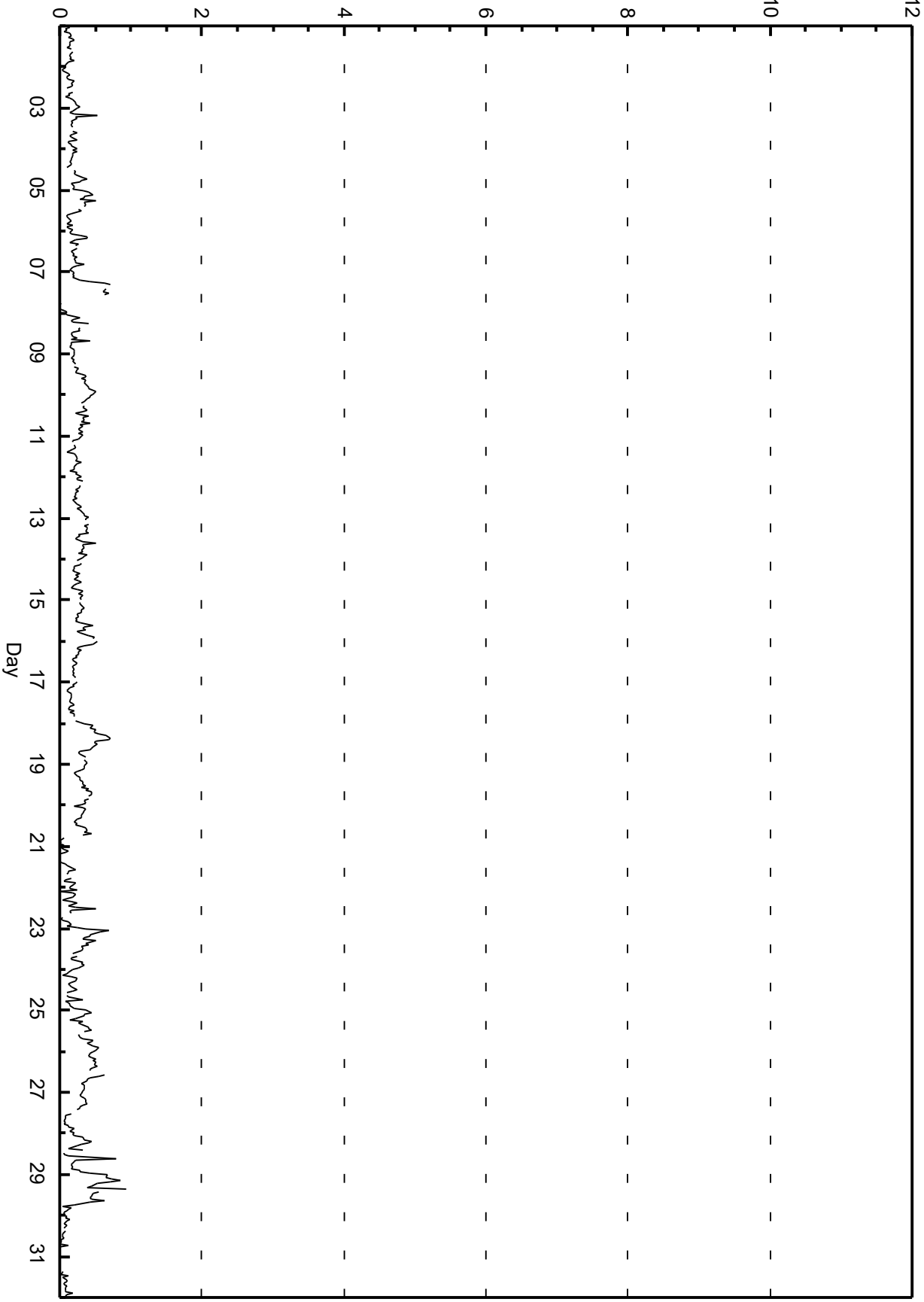


Peace Airshed Zone Association

Hourly Averages

Total Reduced Sulphur (TRS) - ppb

Wembley - January 2020



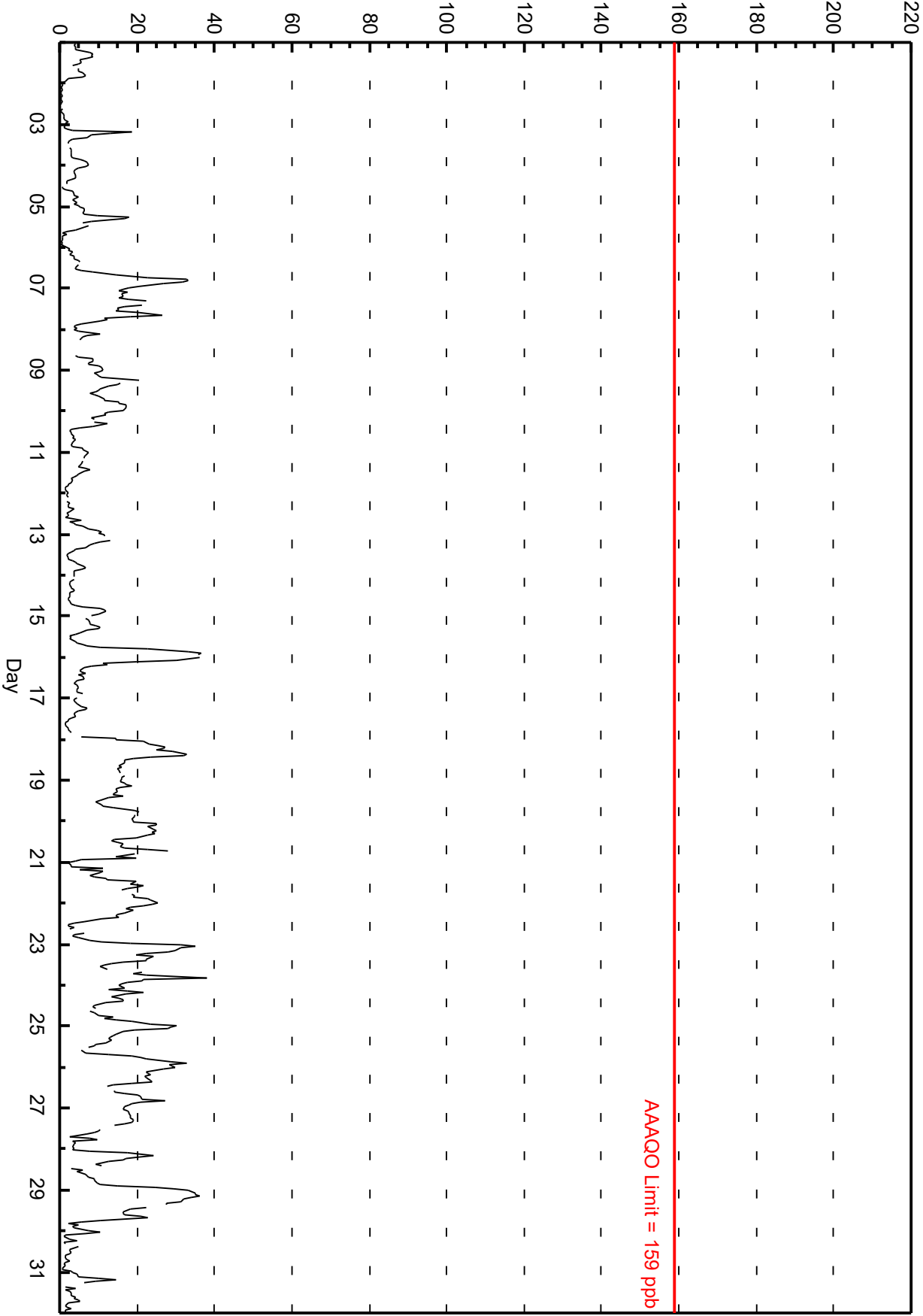


Peace Airshed Zone Association

Hourly Averages

Nitrogen Dioxide (NO₂) - ppb

Wembley - January 2020

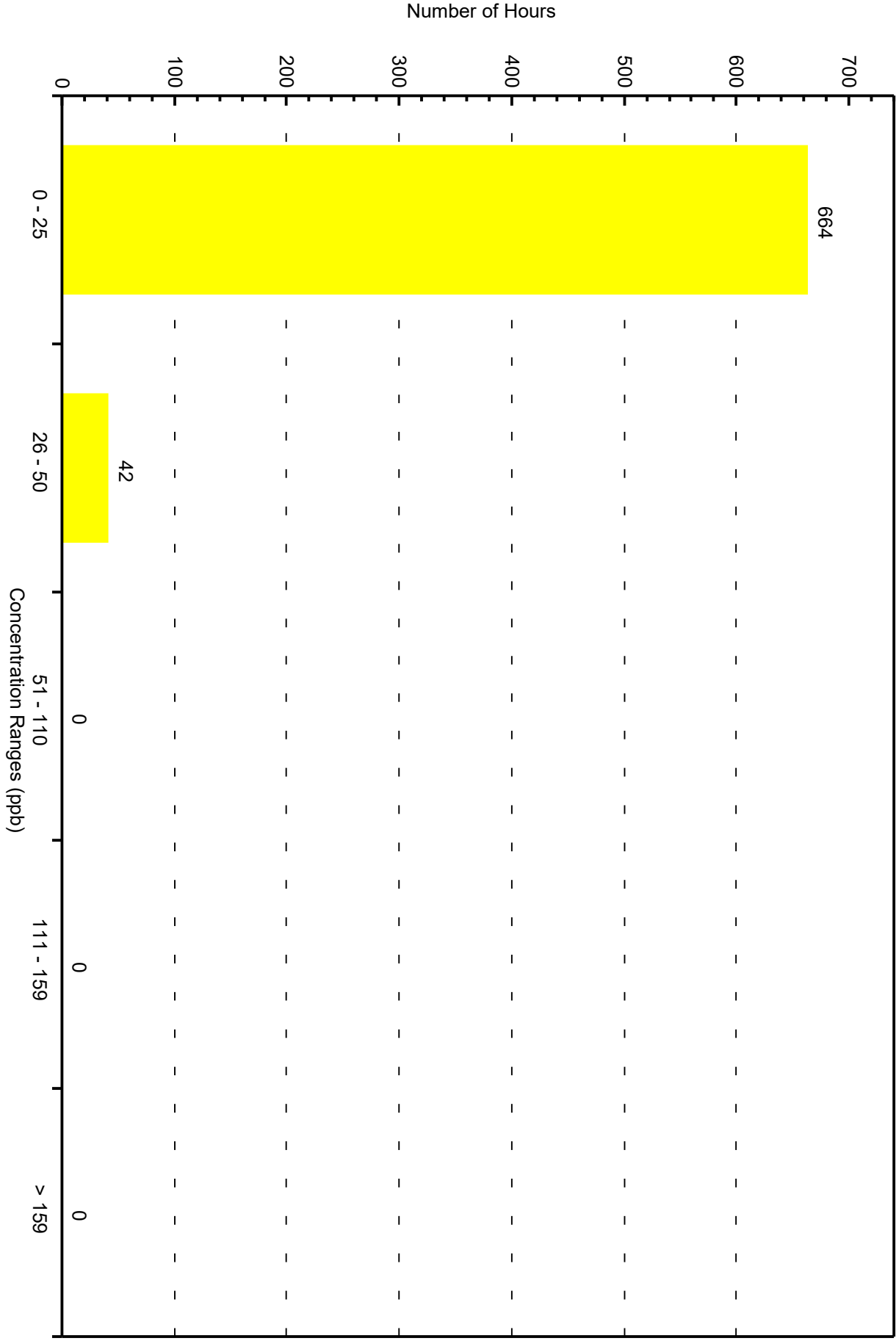




Peace Airshed Zone Association

Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Wembley - January 2020

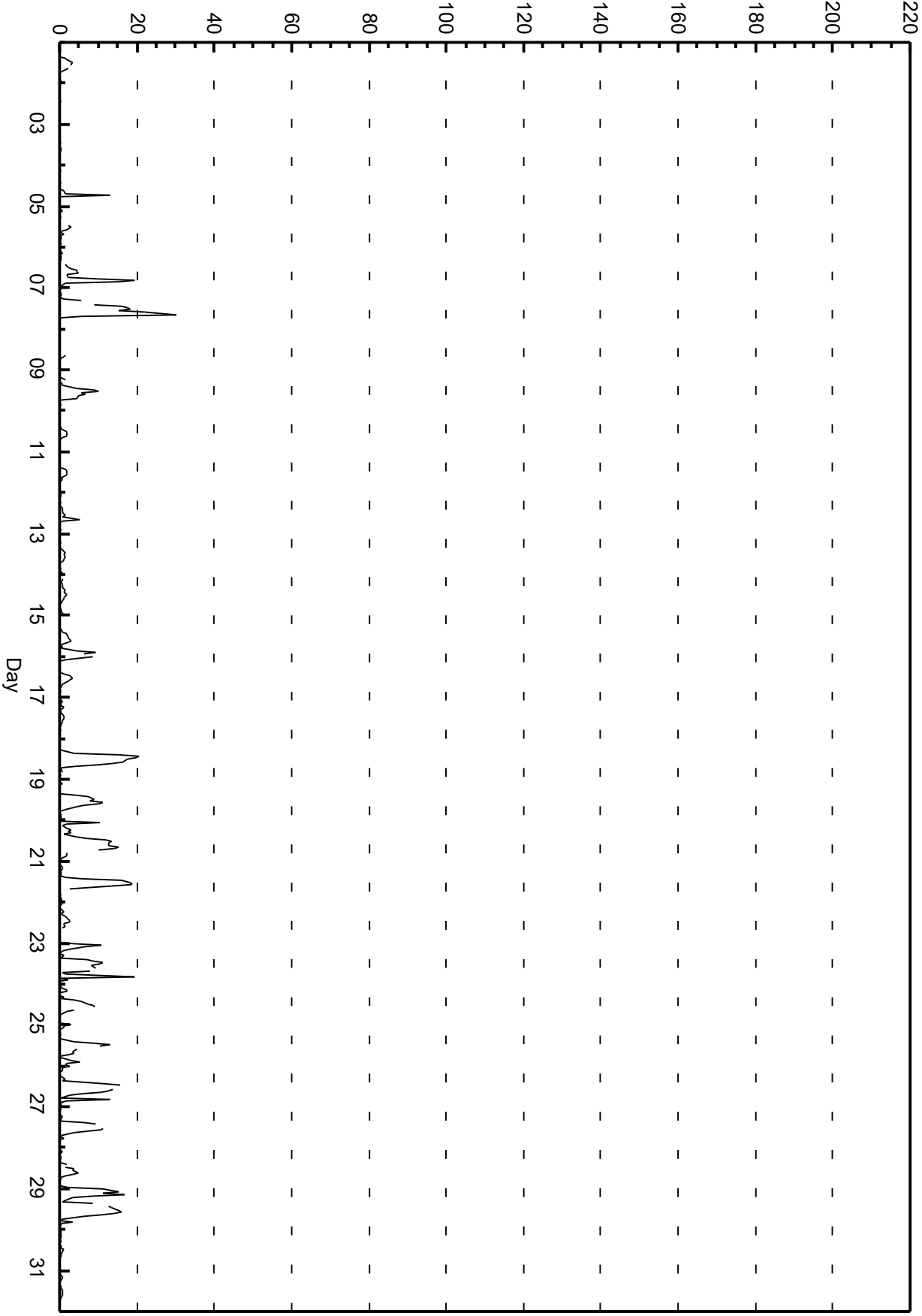




Peace Airshed Zone Association

Hourly Averages

Nitrogen Oxide (NO) - ppb
Wembley - January 2020



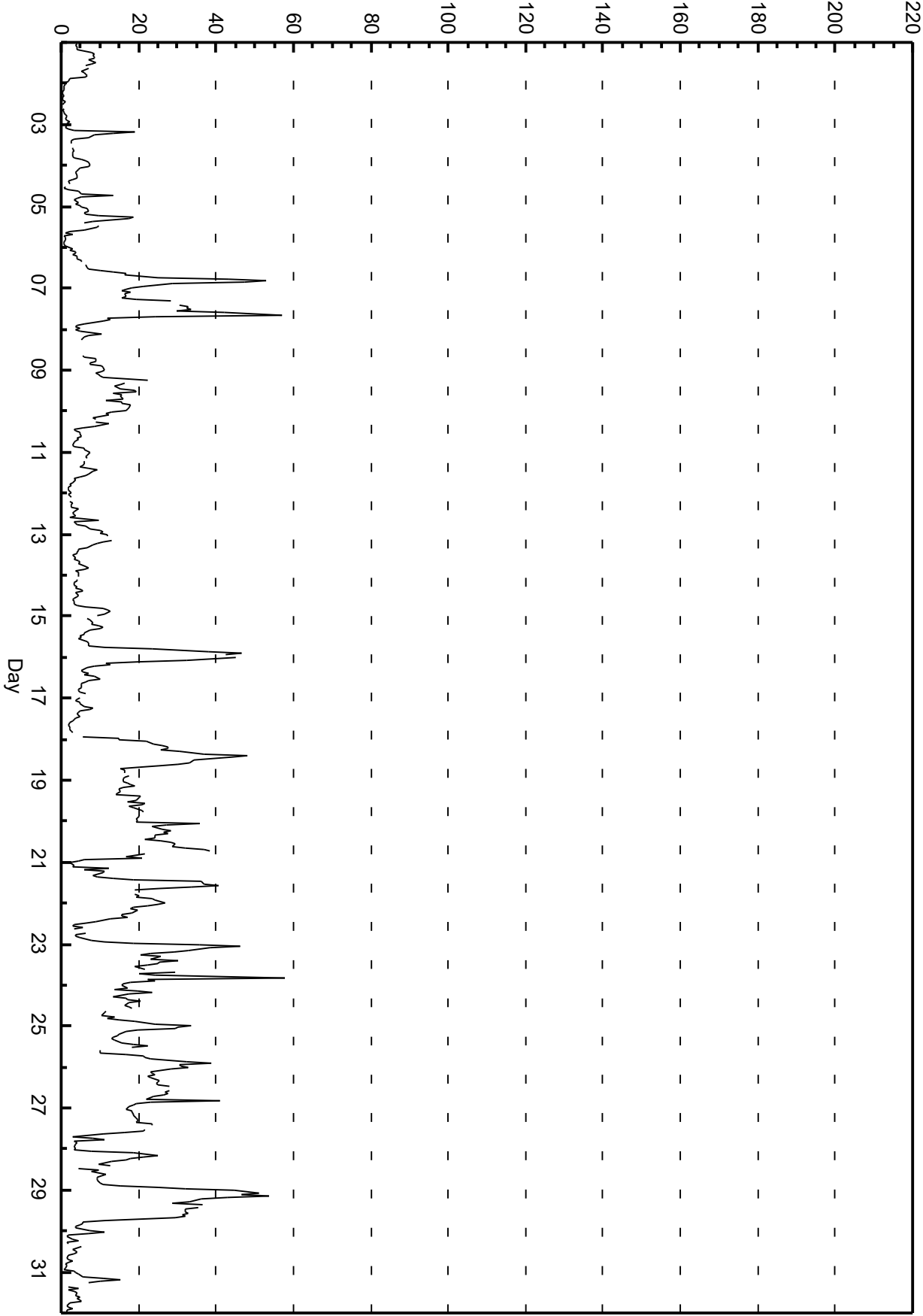


Peace Airshed Zone Association

Hourly Averages

Oxides of Nitrogen (NO_x) - ppb

Wembley - January 2020



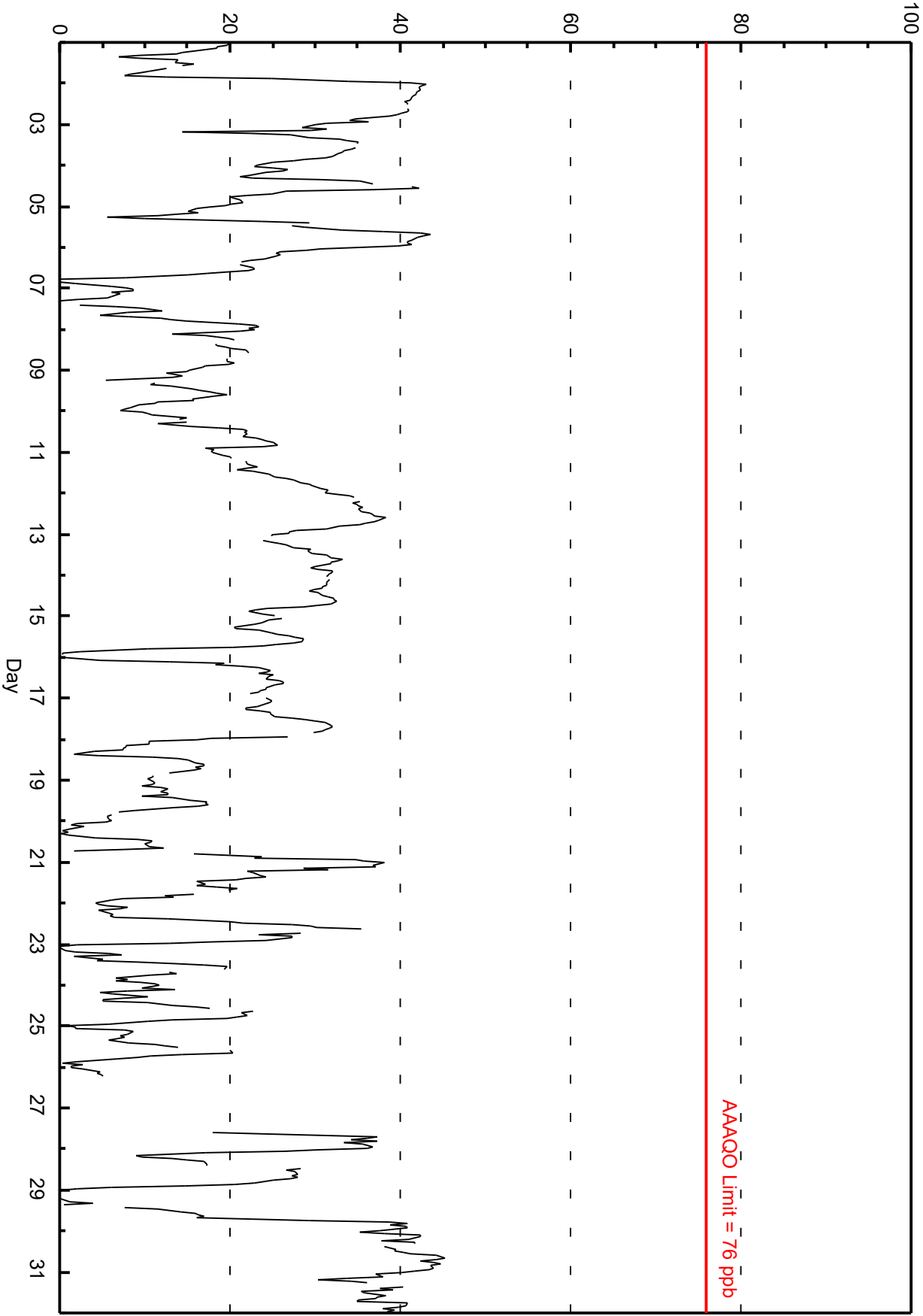


Peace Airshed Zone Association

Hourly Averages

Ozone (O_3) - ppb

Wembley - January 2020

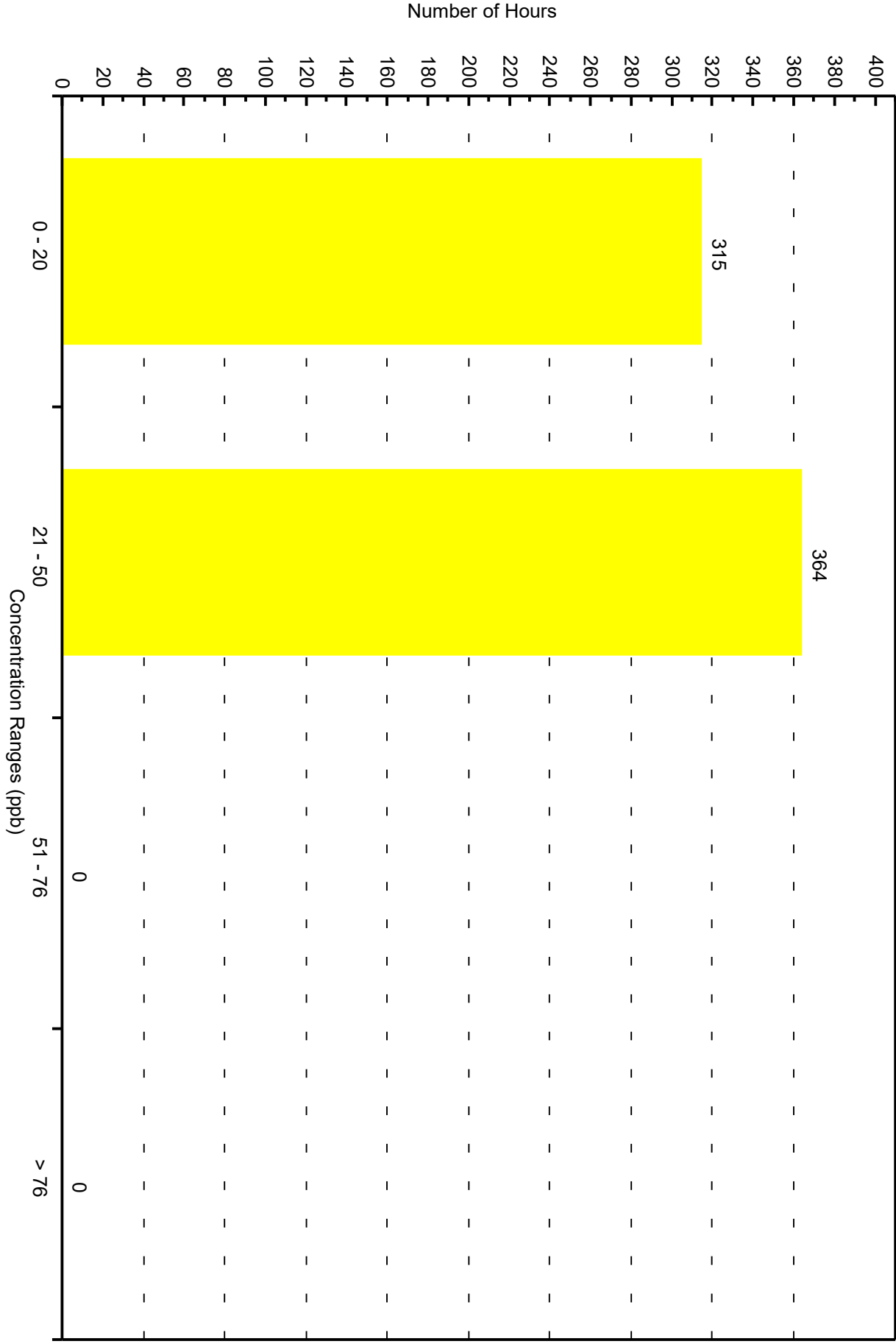




Peace Airshed Zone Association

Histogram of Hourly Averages

Ozone (O₃) - ppb
Wembley - January 2020



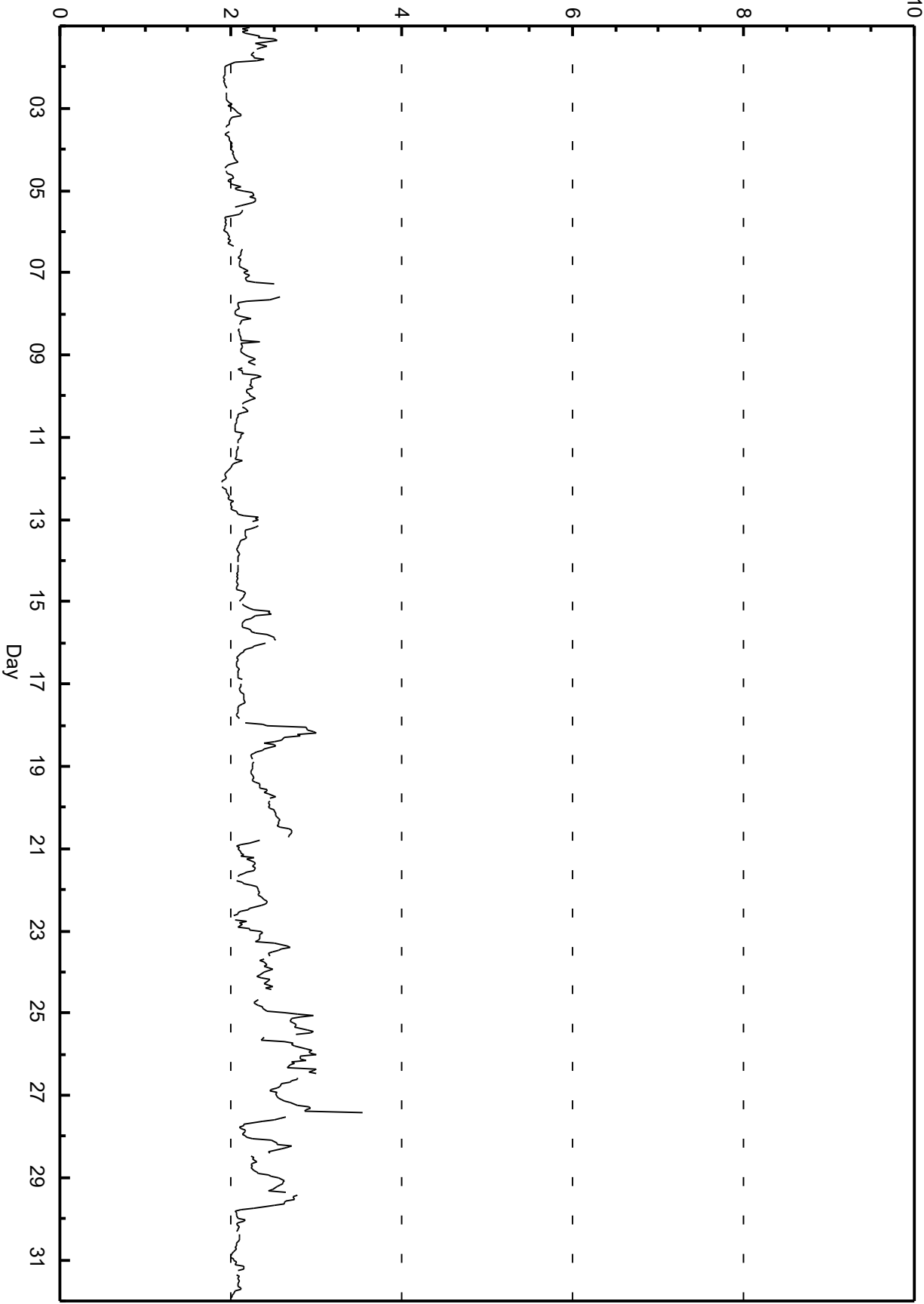


Peace Airshed Zone Association

Hourly Averages

Total Hydrocarbons (THC) - ppm

Wembley - January 2020

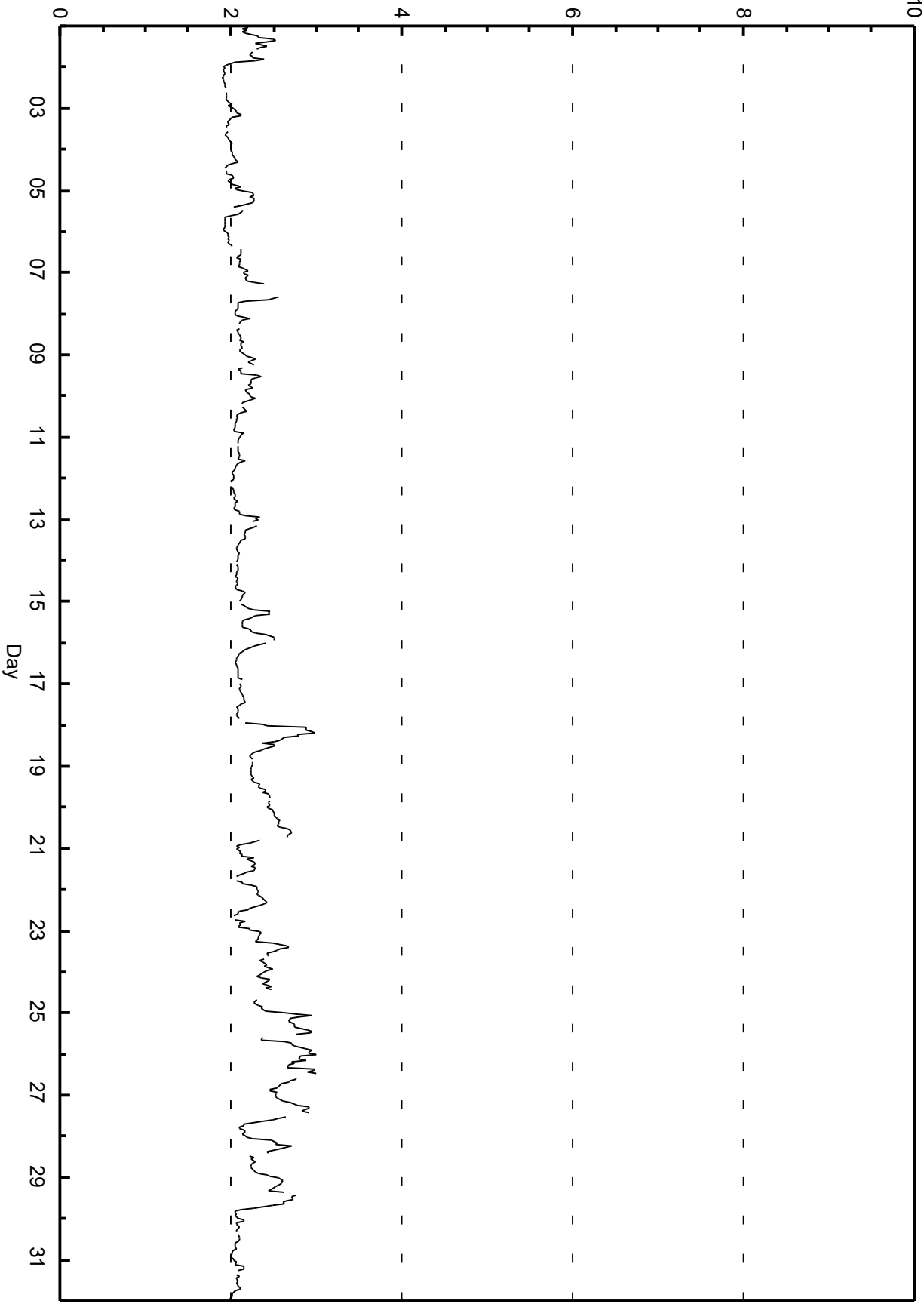




Peace Airshed Zone Association

Hourly Averages

Methane (CH_4) - ppm
Wembley - January 2020



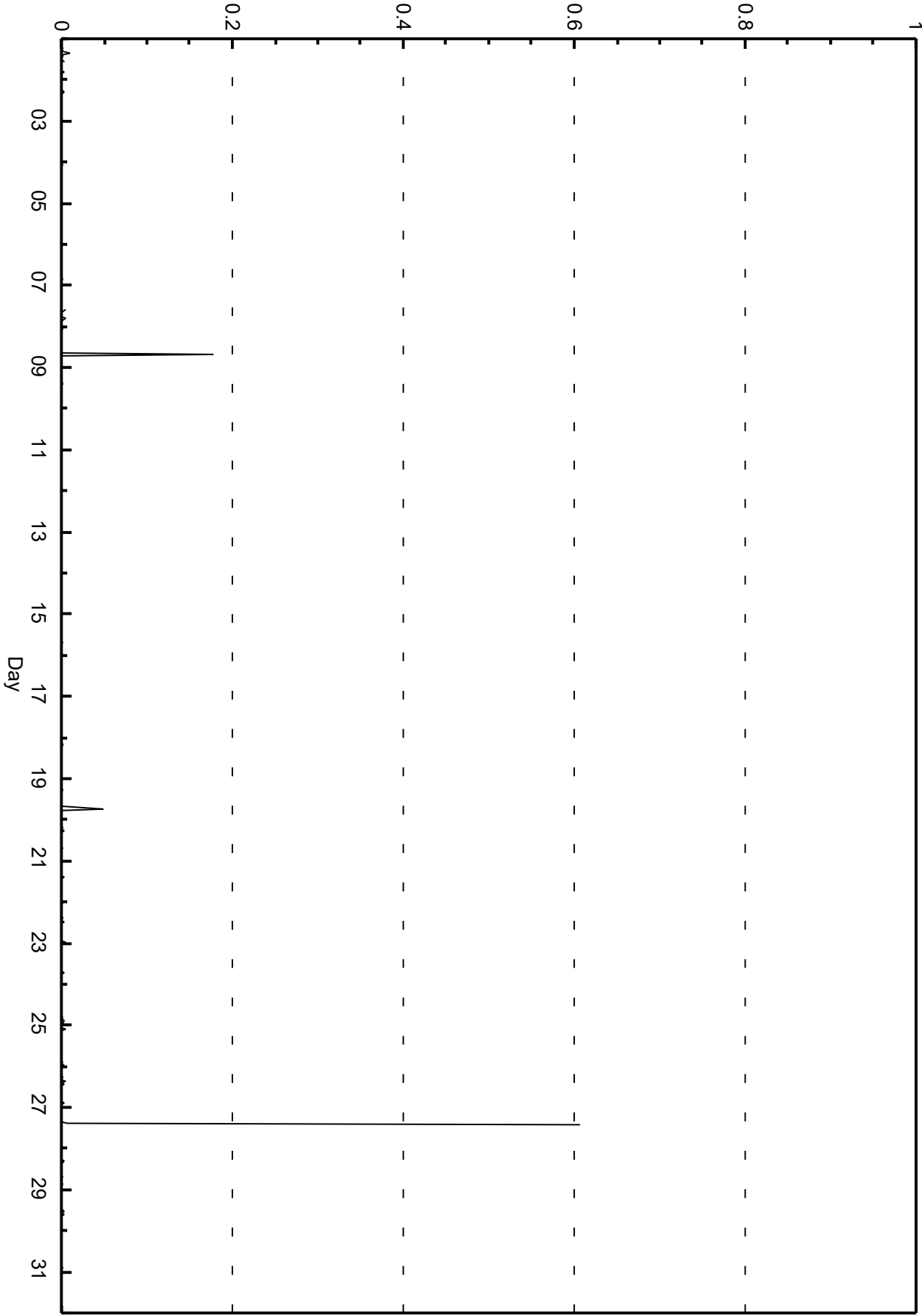


Peace Airshed Zone Association

Hourly Averages

Non Methane Hydrocarbon (NMHC) - ppm

Wembley - January 2020



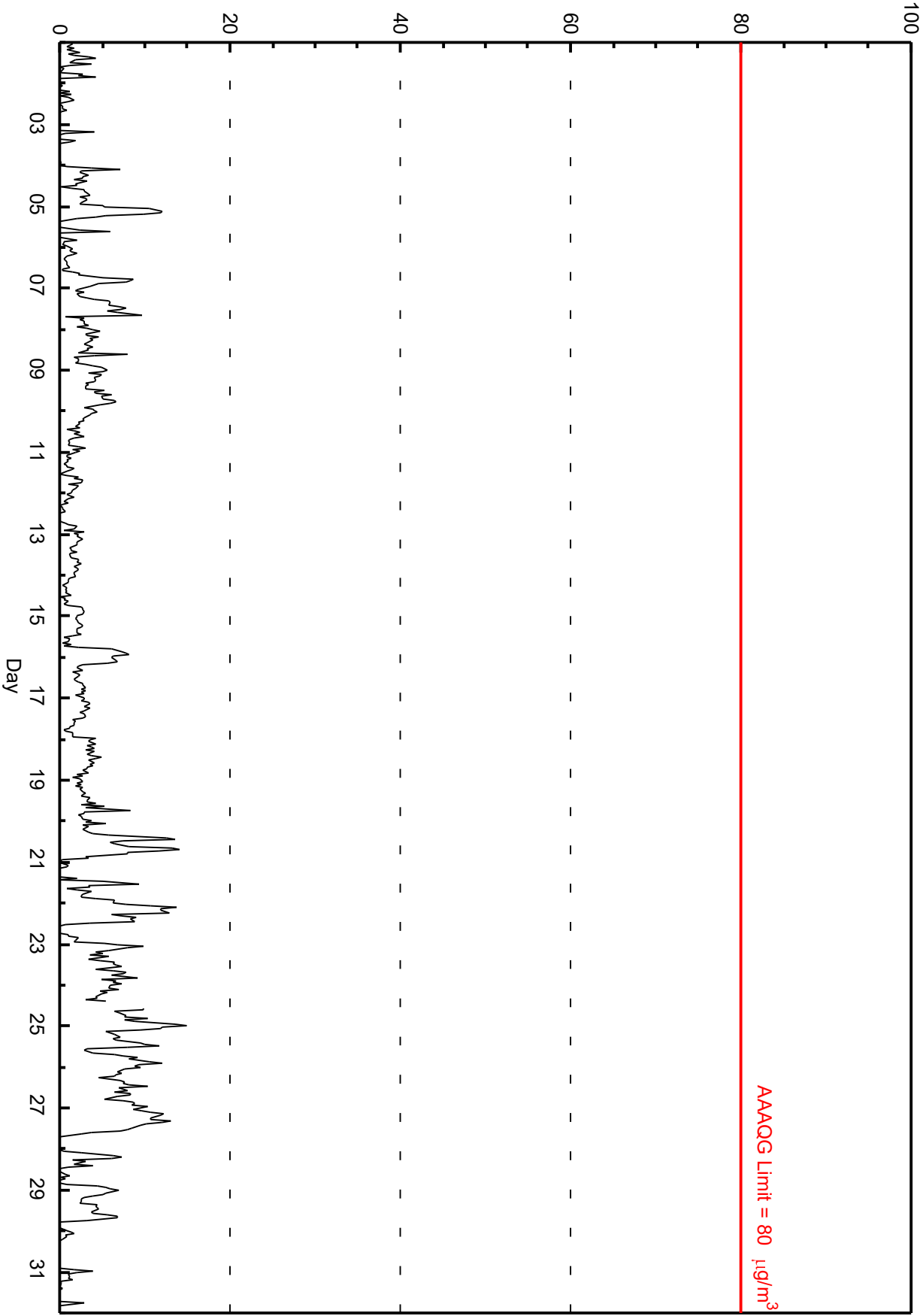


Peace Airshed Zone Association

Hourly Averages

PM_{2.5} (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Wembley - January 2020



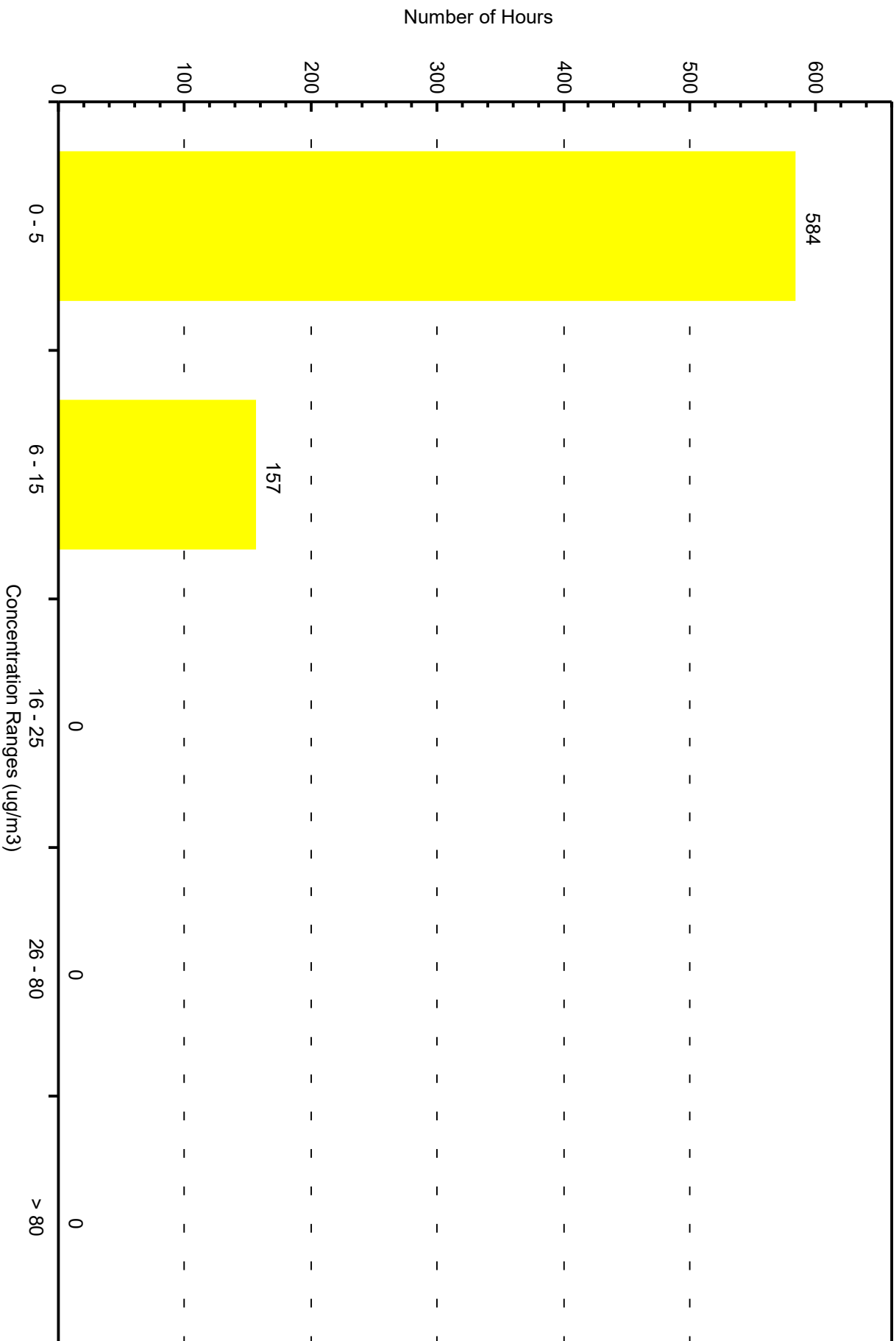


Peace Airshed Zone Association

Histogram of Hourly Averages

PM_{2.5} (PM_{2.5}) - $\mu\text{g}/\text{m}^3$

Wembley - January 2020

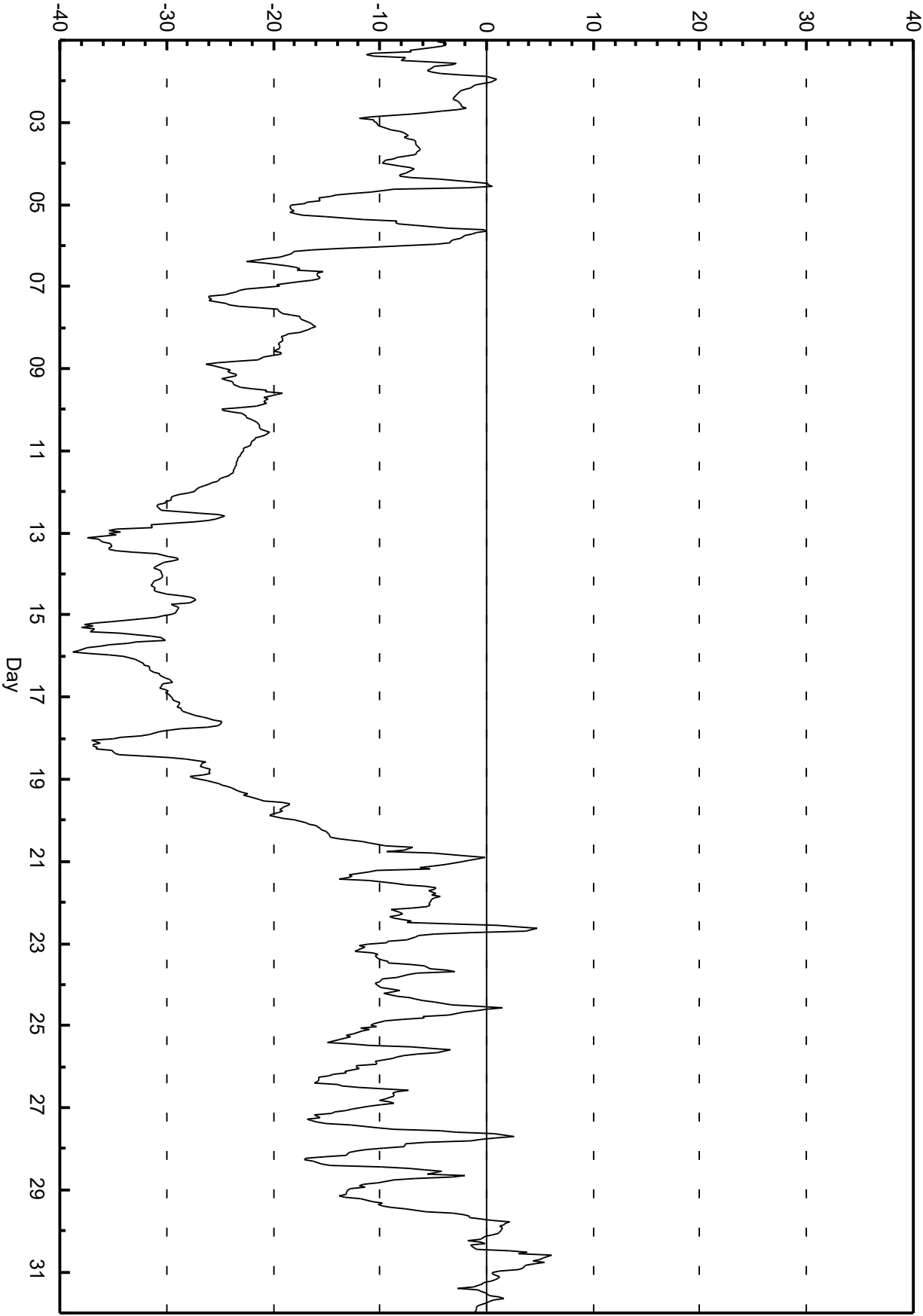




Peace Airshed Zone Association

Hourly Averages

External Temperature (ET) - °C
Wembley - January 2020

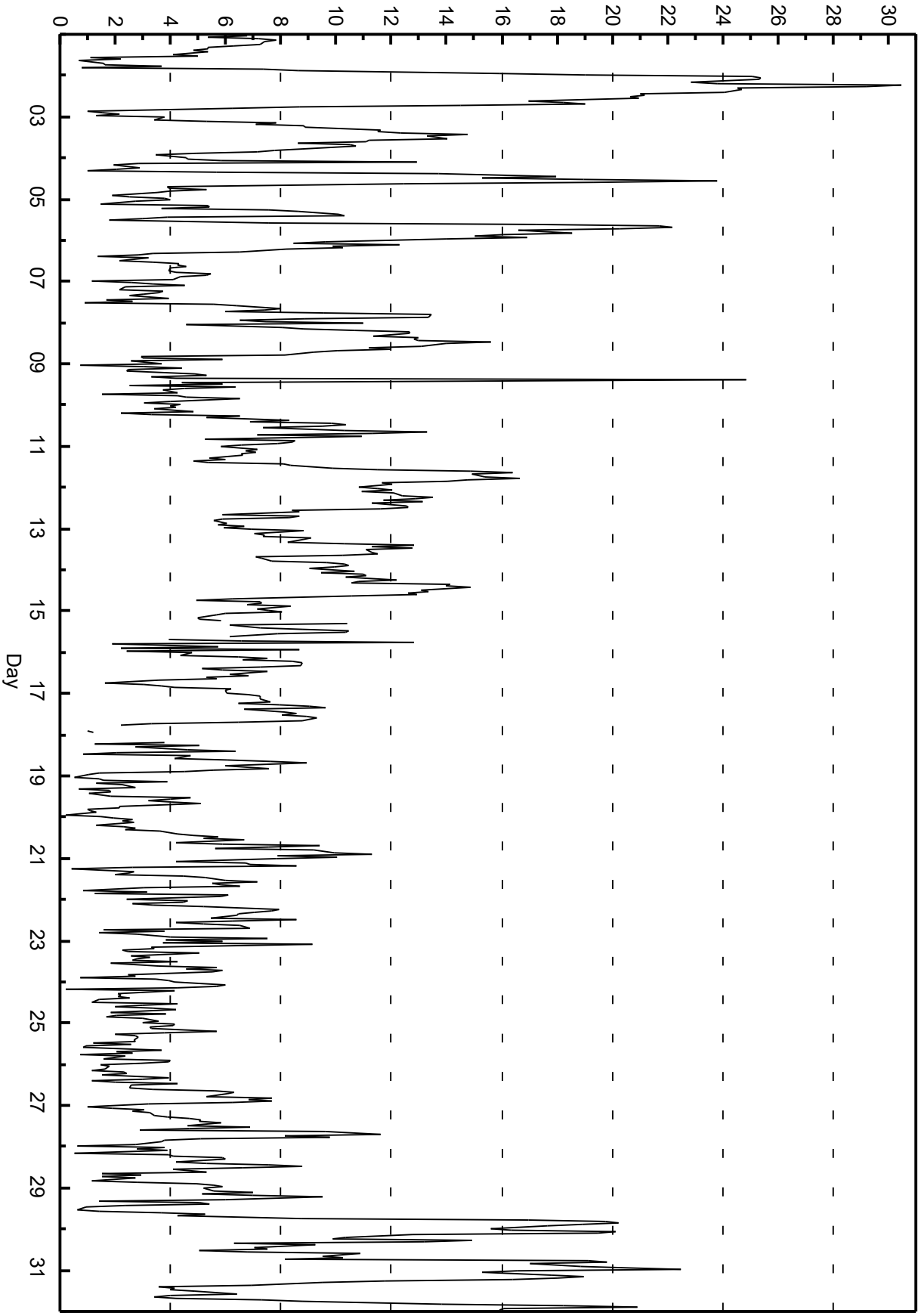




Peace Airshed Zone Association

Hourly Averages

Wind Speed (WS) - km/h
Wembley - January 2020

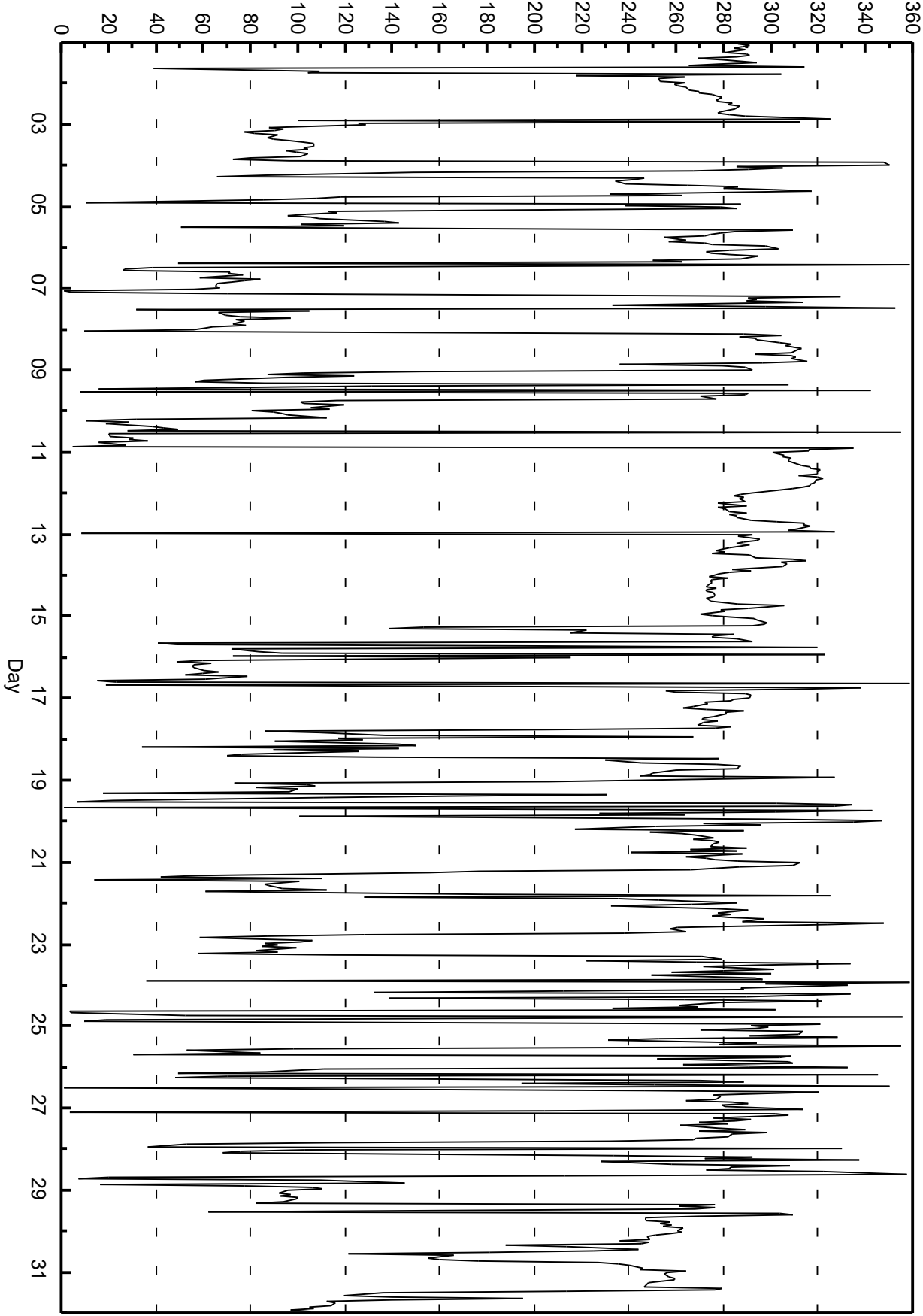




Peace Airshed Zone Association

Hourly Averages

Wind Direction (WD) - deg
Wembley - January 2020

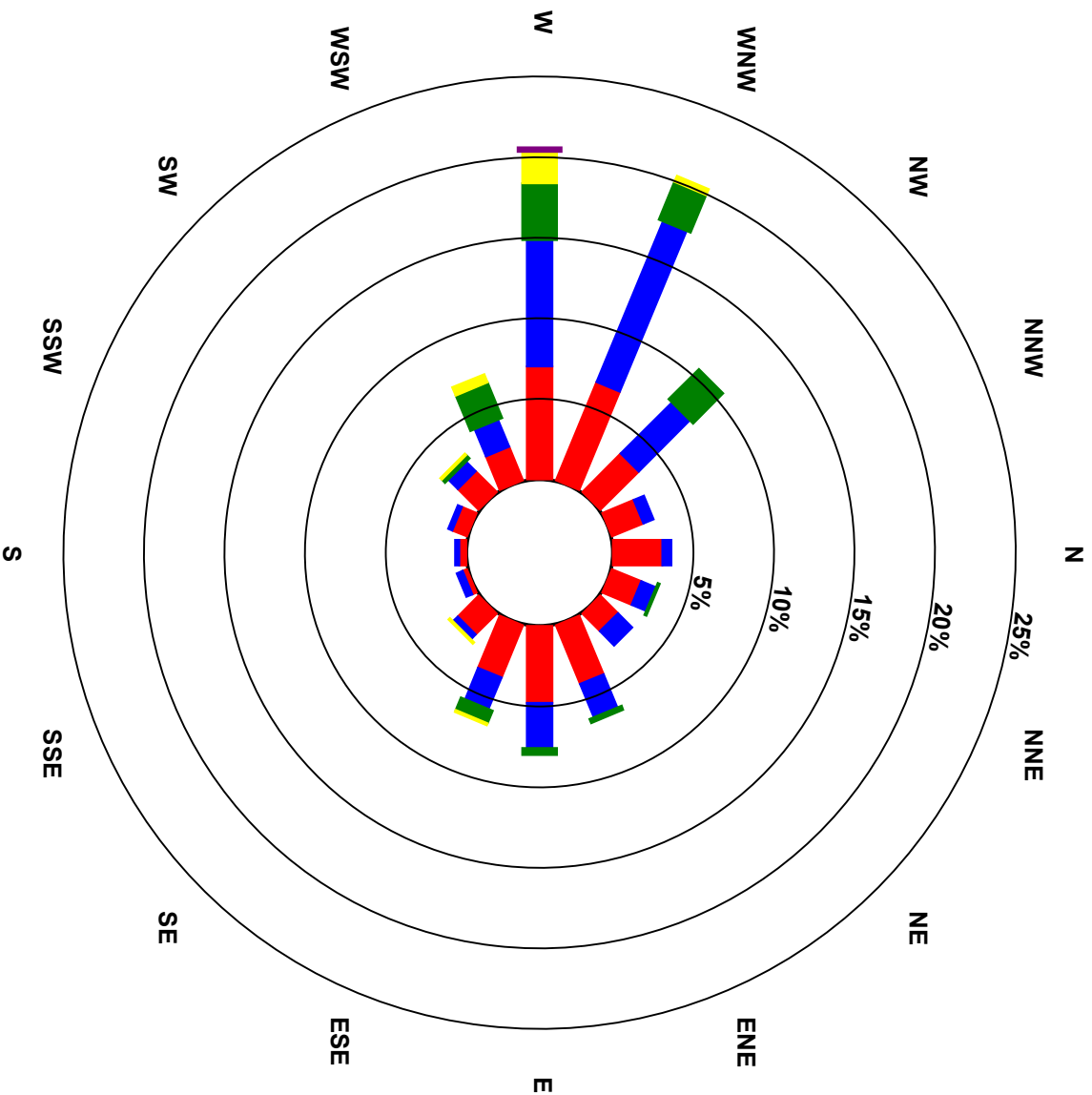




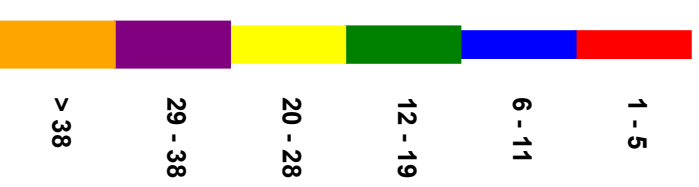
Peace Airshed Zone Association

Wind Rose

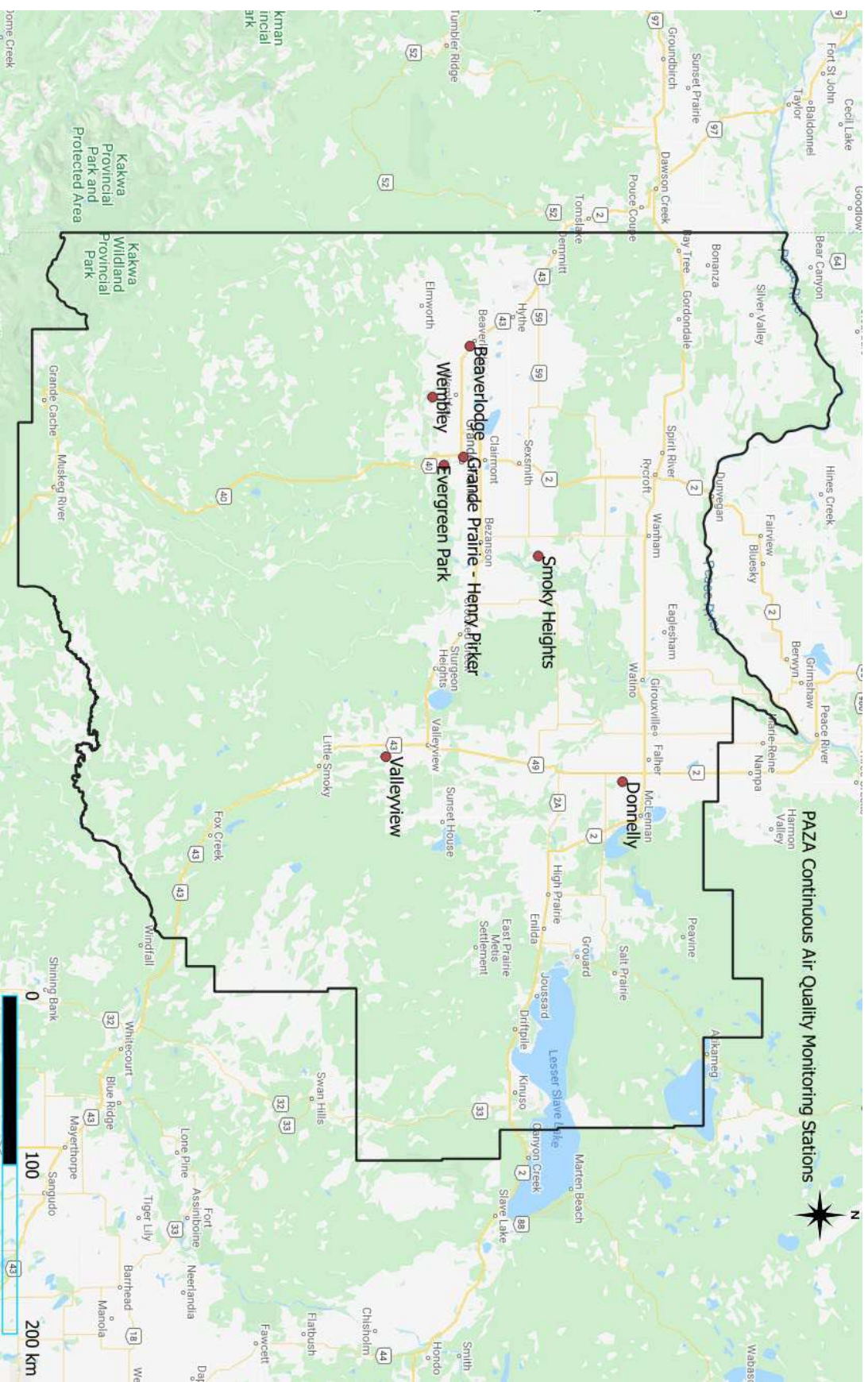
Wind Speed (WS) (km/h)
Wembley - January 2020



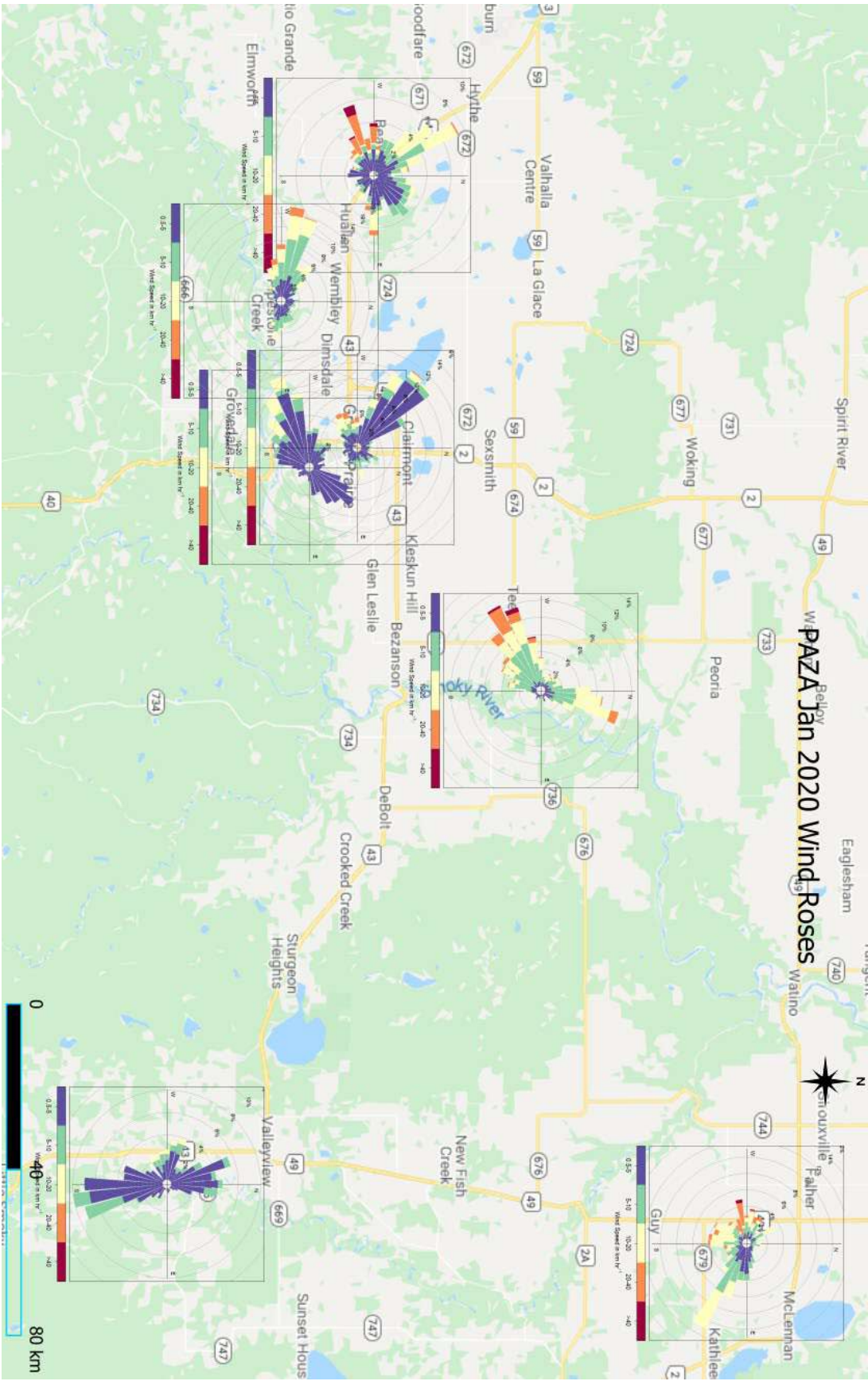
Wind Speed Classes (km/h)



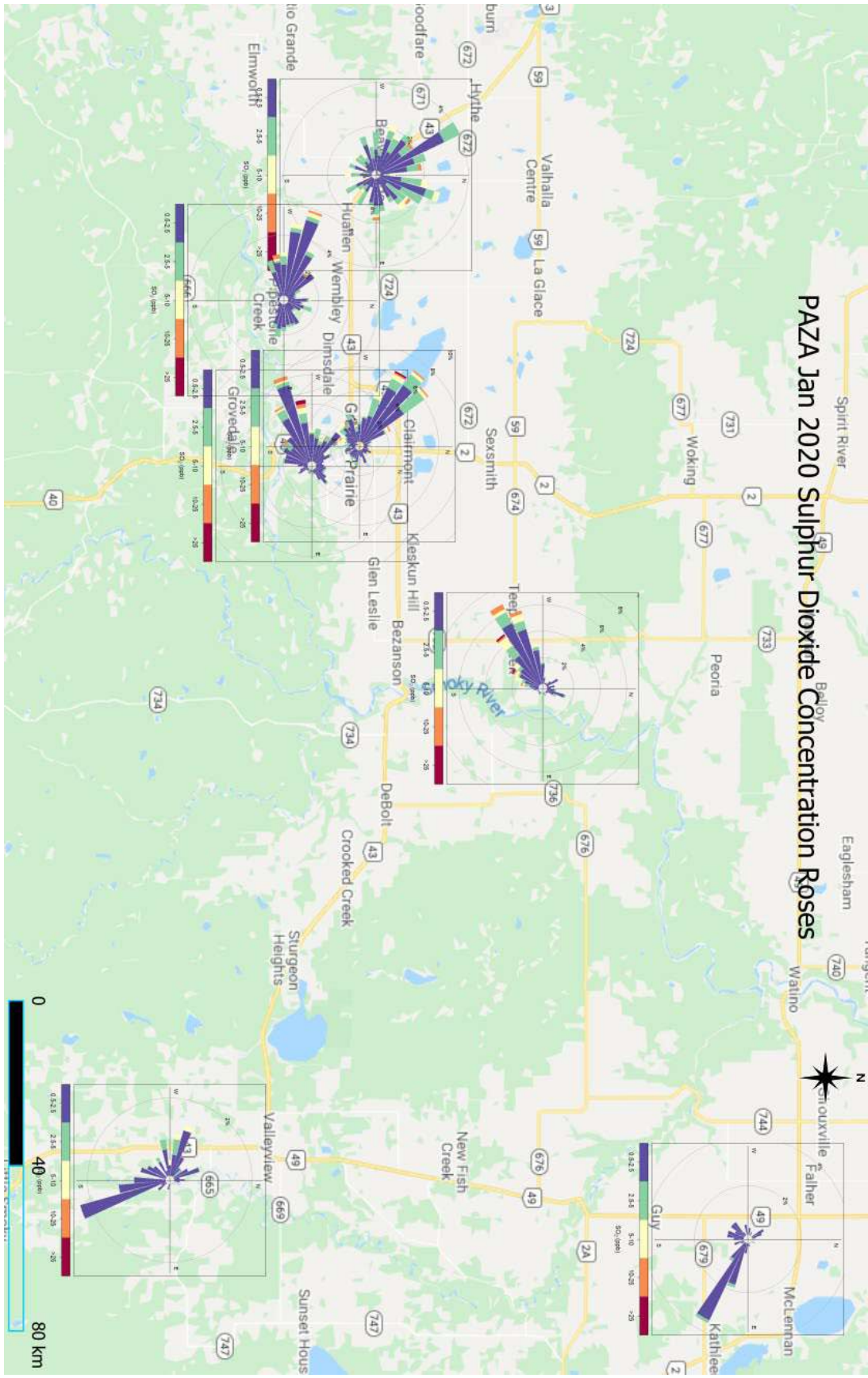
9 Concentration Roses for PAZA



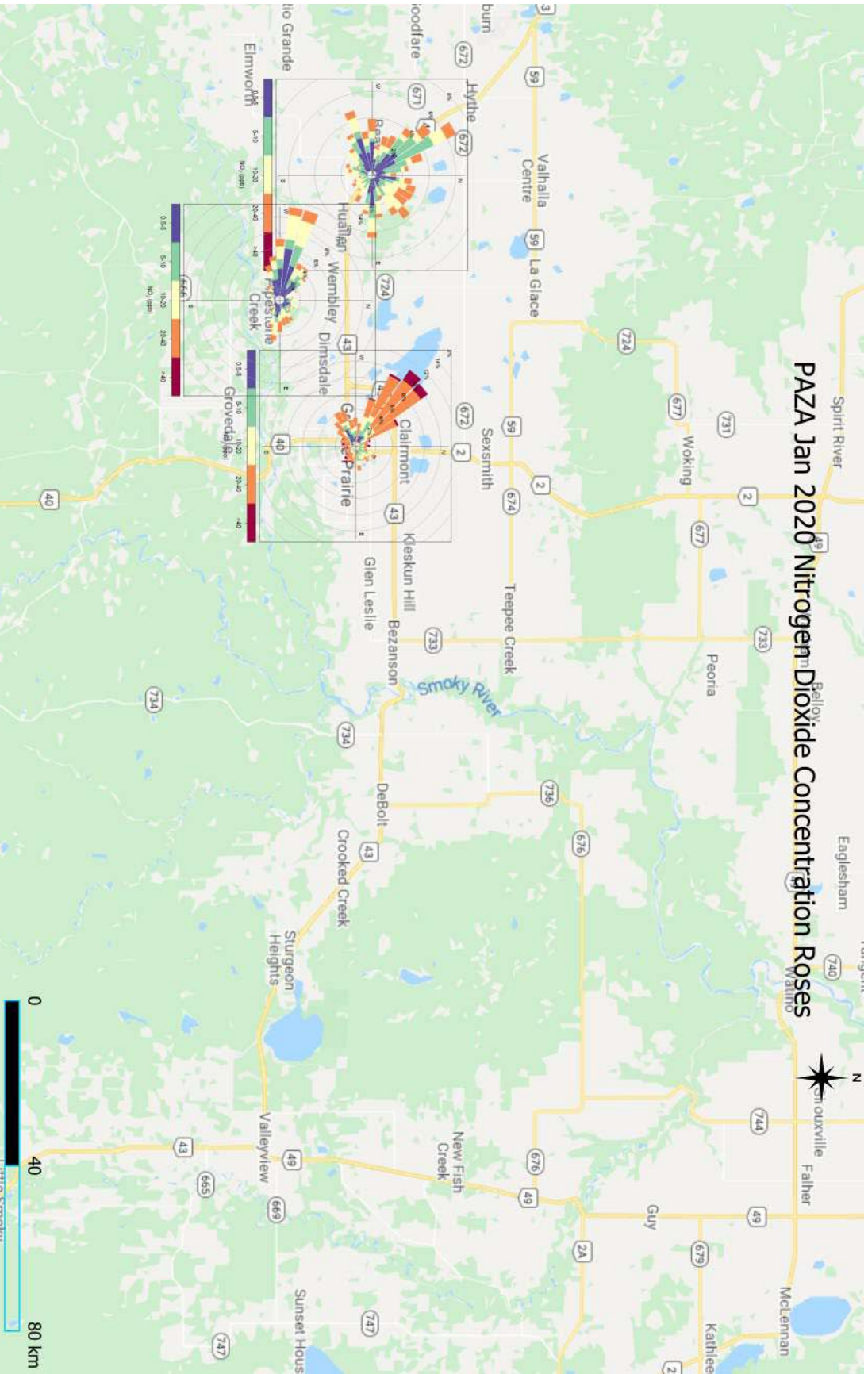
9.1 Wind Roses



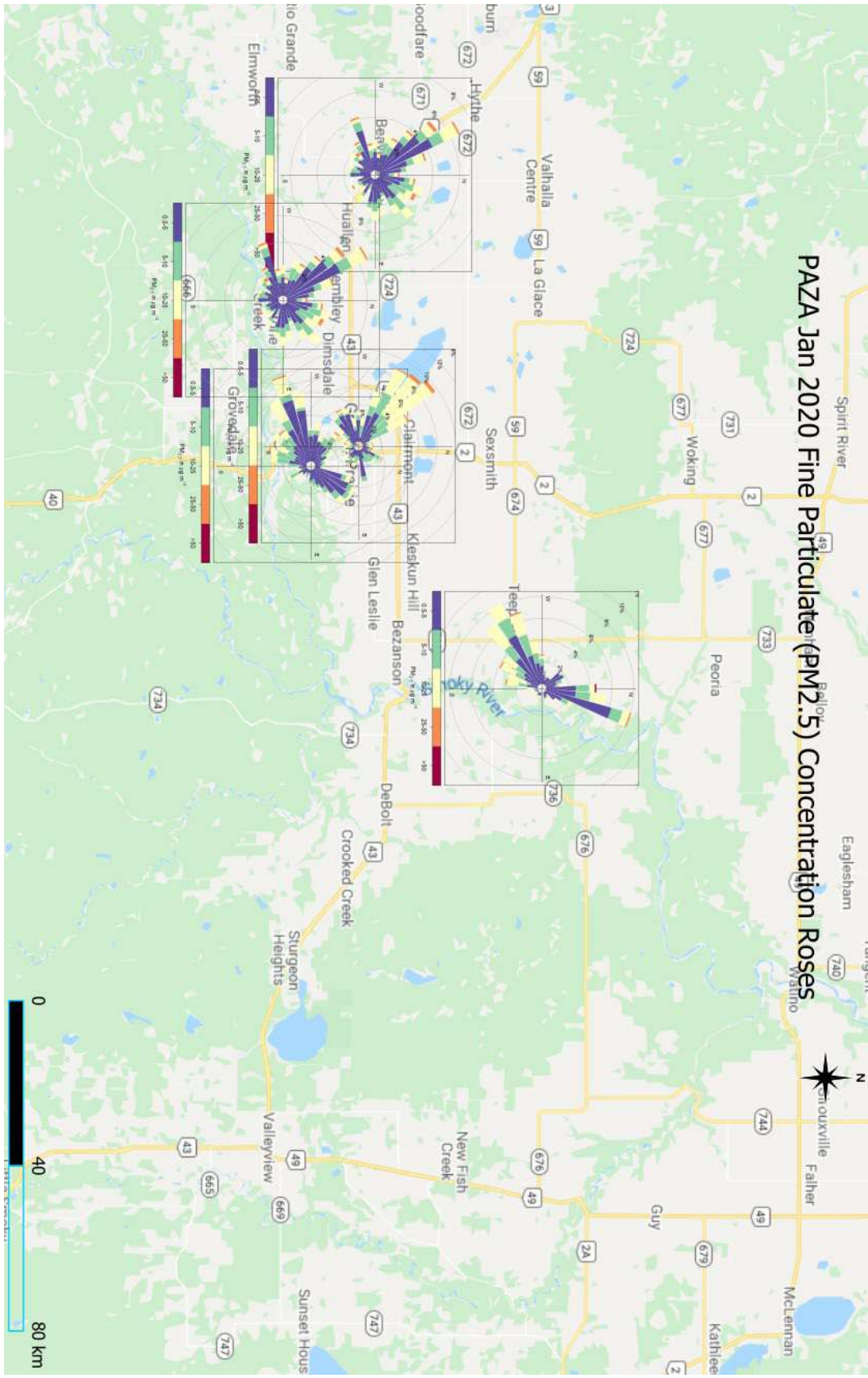
9.2 Sulphur Dioxide Roses



9.3 Nitrogen Dioxide Roses



9.4 Fine Particulate Matter (PM_{2.5}) Roses



10 Passive Monitoring Data

Peace Airshed Zone Association - PAZA Passive Stations for January 2020

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	LSD
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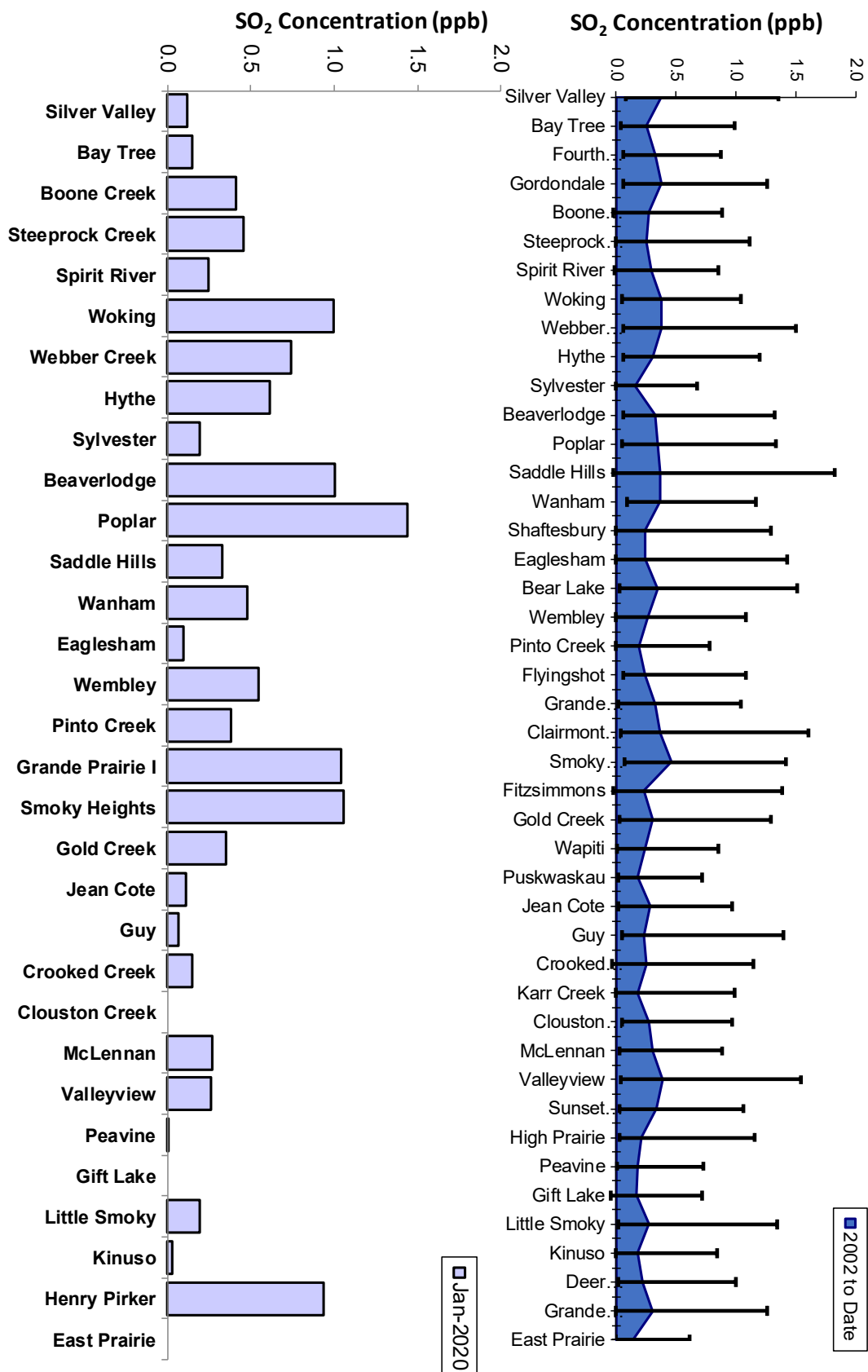
Duplicates

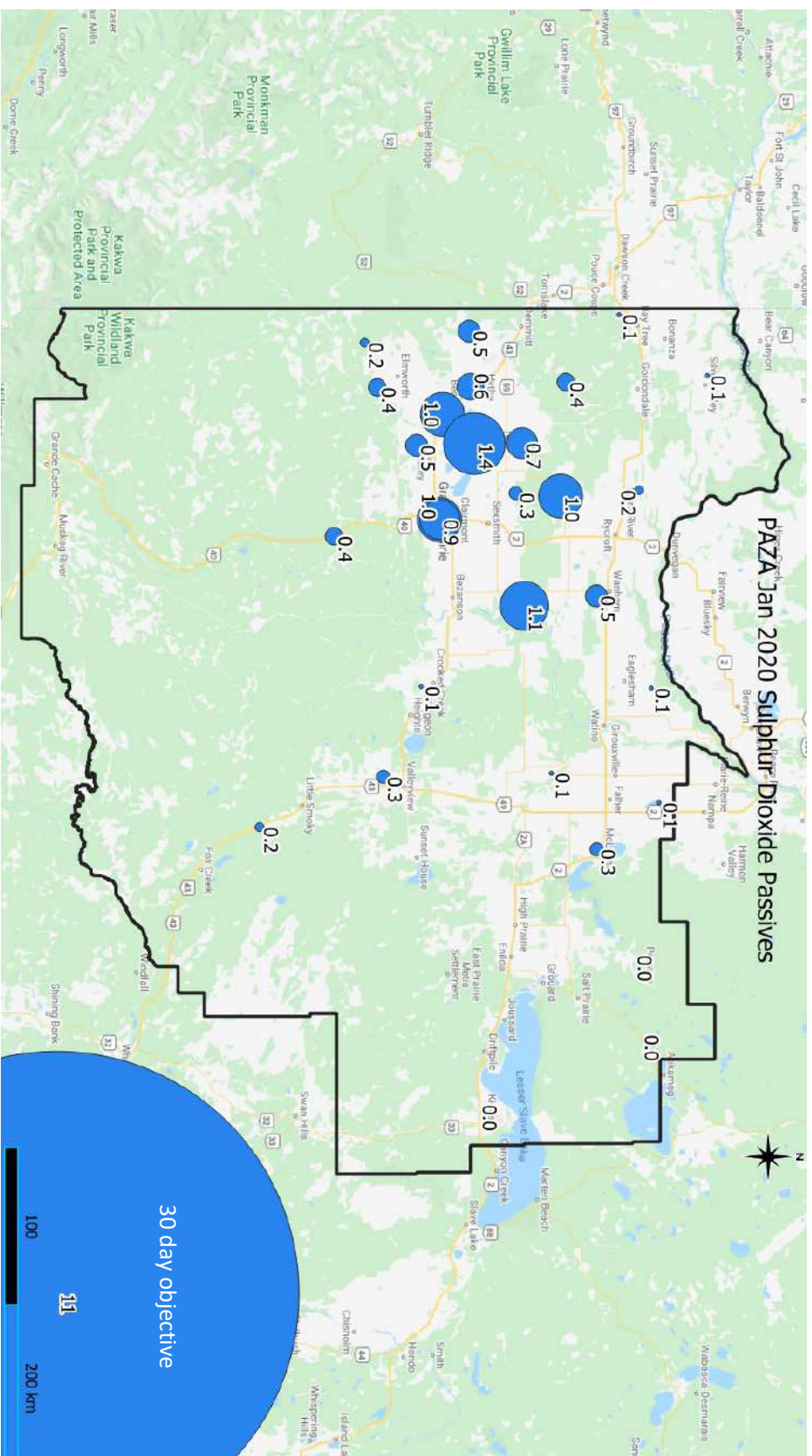
1a	Silver Valley	0.1				
1b	Silver Valley	0.1				
25a	Pinto Creek			1.5		
25b	Pinto Creek			1.2		
32a	Gold Creek	0.3				
32b	Gold Creek	0.4				
36a	Guy				0.2	
36b	Guy				0.2	
40a	McLennan	0.3				
40b	McLennan	0.2				
41a	Valleyview			1.2		
41b	Valleyview			-		
45a	Gift Lake			0.2		
45b	Gift Lake			0.2		
47a	Kinuso		36.3			
47b	Kinuso		34.0			

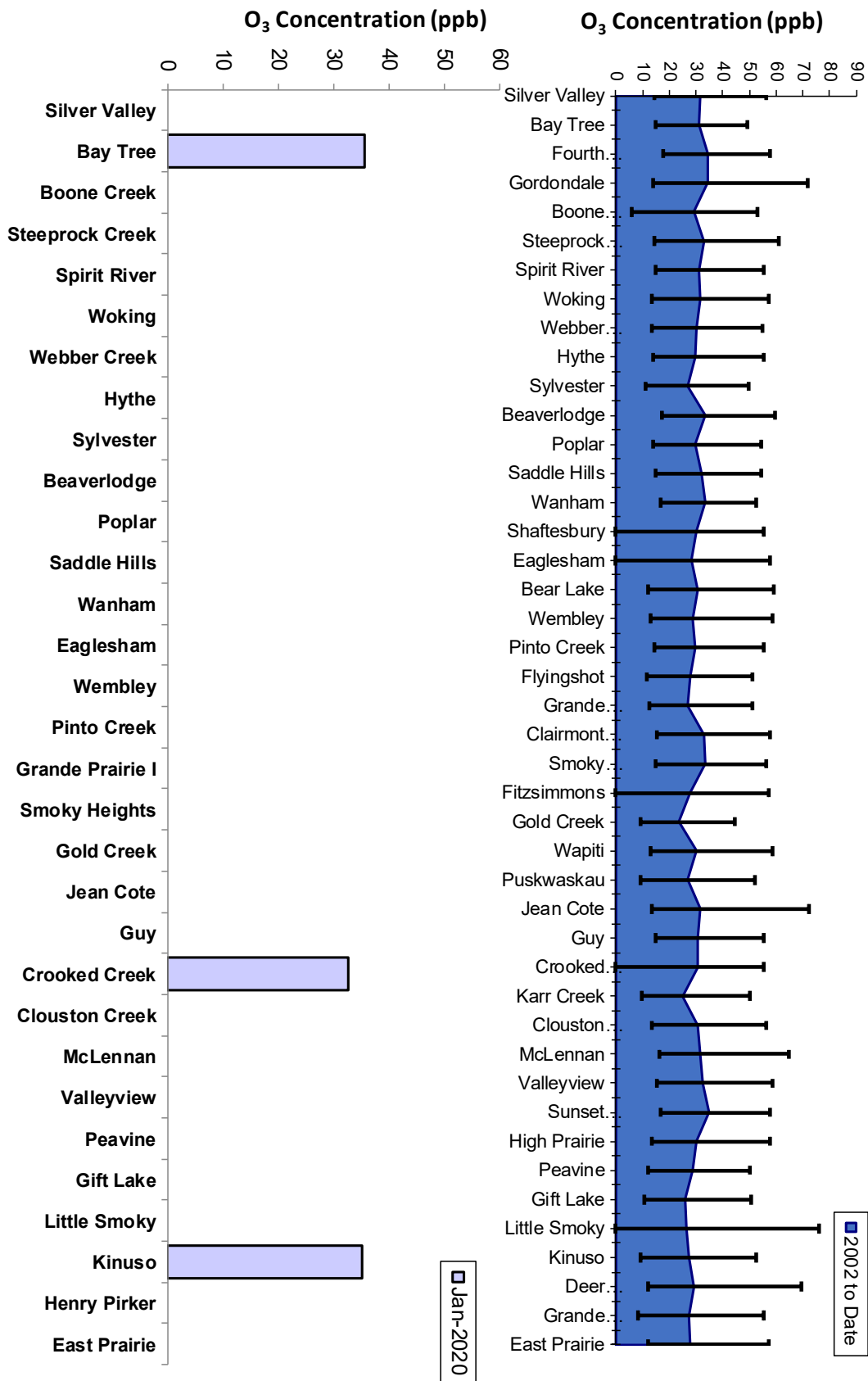
1	Silver Valley	0.1	-	0.3	-	08-27-081-11 W6M
2	Bay Tree	0.1	35.6	0.4	-	13-16-078-13 W6M
5	Boone Creek	0.4	-	0.7	-	01-23-076-11 W6M
7	Steeprock Creek	0.5	-	0.4	-	09-35-072-13 W6M
9	Spirit River	0.2	-	0.2	-	08-12-079-07 W6M
10	Woking	1.0	-	0.5	-	01-13-076-07 W6M
11	Webber Creek	0.7	-	4.7	-	09-36-074-09 W6M
12	Hythe	0.6	-	2.0	-	14-36-072-11 W6M
14	Sylvester	0.2	-	0.6	-	08-06-069-12 W6M
16	Beaverlodge	1.0	-	4.3	-	15-36-071-10 W6M
17	Poplar	1.4	-	3.8	-	13-06-073-08 W6M
18	Saddle Hills	0.3	-	0.4	-	04-25-074-07 W6M
19	Wanham	0.5	-	0.0	-	16-22-077-03 W6M
21	Eaglesham	0.1	-	0.0	-	16-21-079-25 W5M
24	Wembley	0.5	-	5.2	-	12-31-070-08 W6M
25	Pinto Creek	0.4	-	1.4	-	04-24-069-11 W6M
27	Grande Prairie I	1.0	-	15.1	-	08-15-071-06 W6M
29	Smoky Heights	1.1	-	2.2	-	04-06-075-02 W6M
32	Gold Creek	0.4	-	6.1	-	06-33-067-05 W6M
35	Jean Cote	0.1	-	0.0	-	12-35-079-21 W5M
36	Guy	0.1	-	-	0.2	03-04-076-22 W5M
37	Crooked Creek	0.1	32.5	2.2	-	16-01-071-26 W5M
39	Clouston Creek	-	-	0.5	-	12-01-073-22 W5M
40	McLennan	0.3	-	0.0	-	03-29-077-19 W5M
41	Valleyview	0.3	-	1.2	-	09-30-069-22 W5M
44	Peavine	0.0	-	0.0	-	03-05-079-15 W5M
45	Gift Lake	0.0	-	0.2	-	10-07-079-12 W5M
46	Little Smoky	0.2	-	3.8	-	12-01-065-21 W5M
47	Kinuso	0.0	35.1	1.3	-	12-10-073-10 W5M
49	Henry Pirker	0.9	-	20.8	-	17-26-071-06 W6M
50	East Prairie	0.0	-	0.0	-	11-13-079-08 W6M
63	Grouxville 3	-	-	-	0.6	14-02-077-23 W5M
64	Grouxville 4	-	-	-	0.2	04-08-077-22 W5M

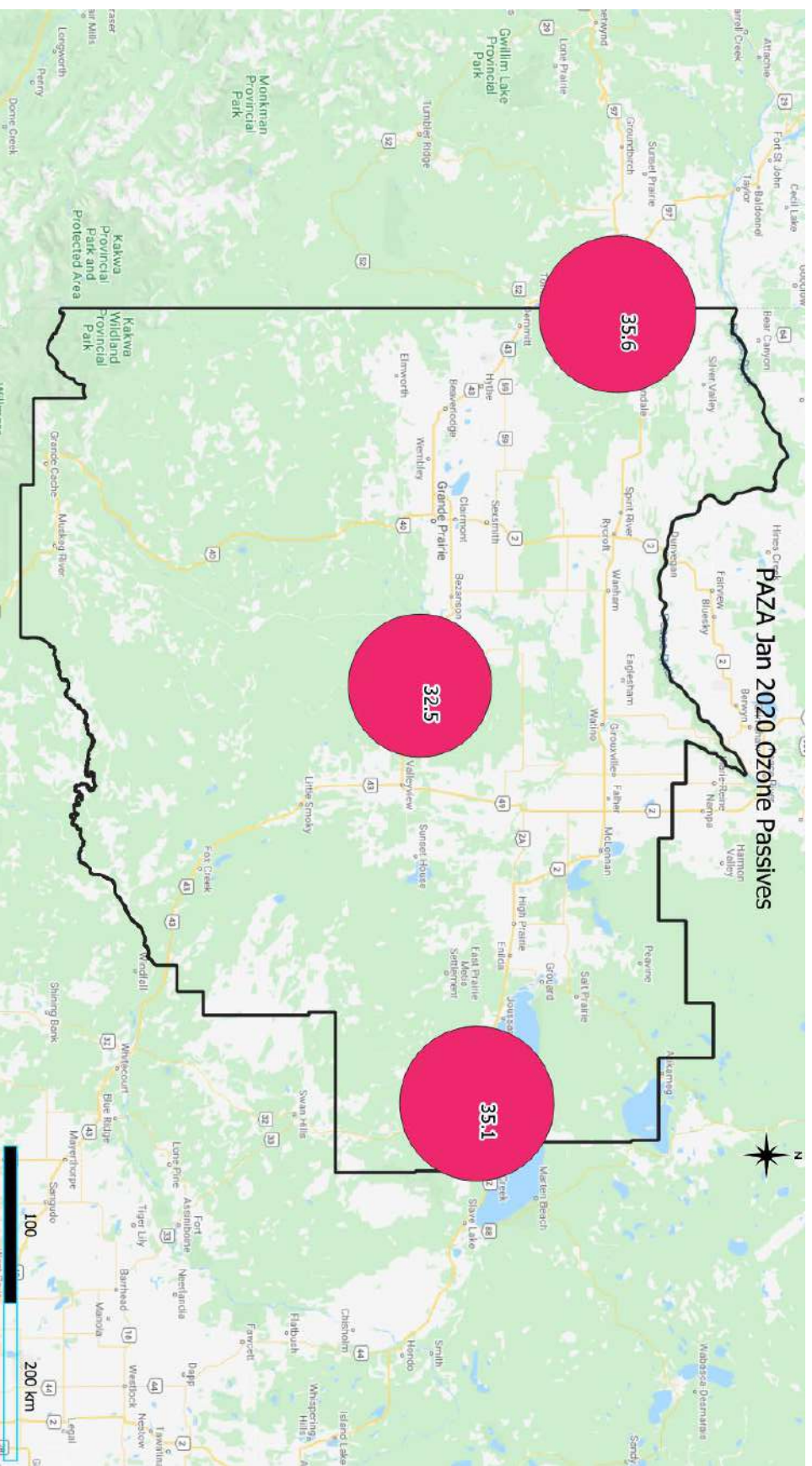
Passive Summary for January 2020

Stats	Sulphur Dioxide	Ozone	Nitrogen Dioxide	Hydrogen Sulphide
	SO ₂	O ₃	NO ₂	H ₂ S
	ppb	ppb	ppb	ppb
Passive Summary for Jan 2020 (PAZA)				
Mean	0.4	34.4	2.6	0.4
Standard Deviation	0.4	1.7	4.6	0.2
Minimum	0.0	32.5	0.0	0.2
	Gift Lake (#45)	Crooked Creek (#37)	Peavine (#44)	Guy (#36)
Maximum	1.4	35.6	20.8	0.6
	Poplar (#17)	Bay Tree (#2)	Henry Pirker (#49)	Girouxville 3 (#63)
Continuous and Passive Monitoring Comparision				
PAZA Beaverlodge Station	1.3	23.3	11.1	-
Beaverlodge Passive (#16)	1.0	-	4.3	-
PAZA Henry Pirker Station	1.4	13.1	22.1	0.4
Henry Pirker passive (#49)	0.9	-	20.8	-

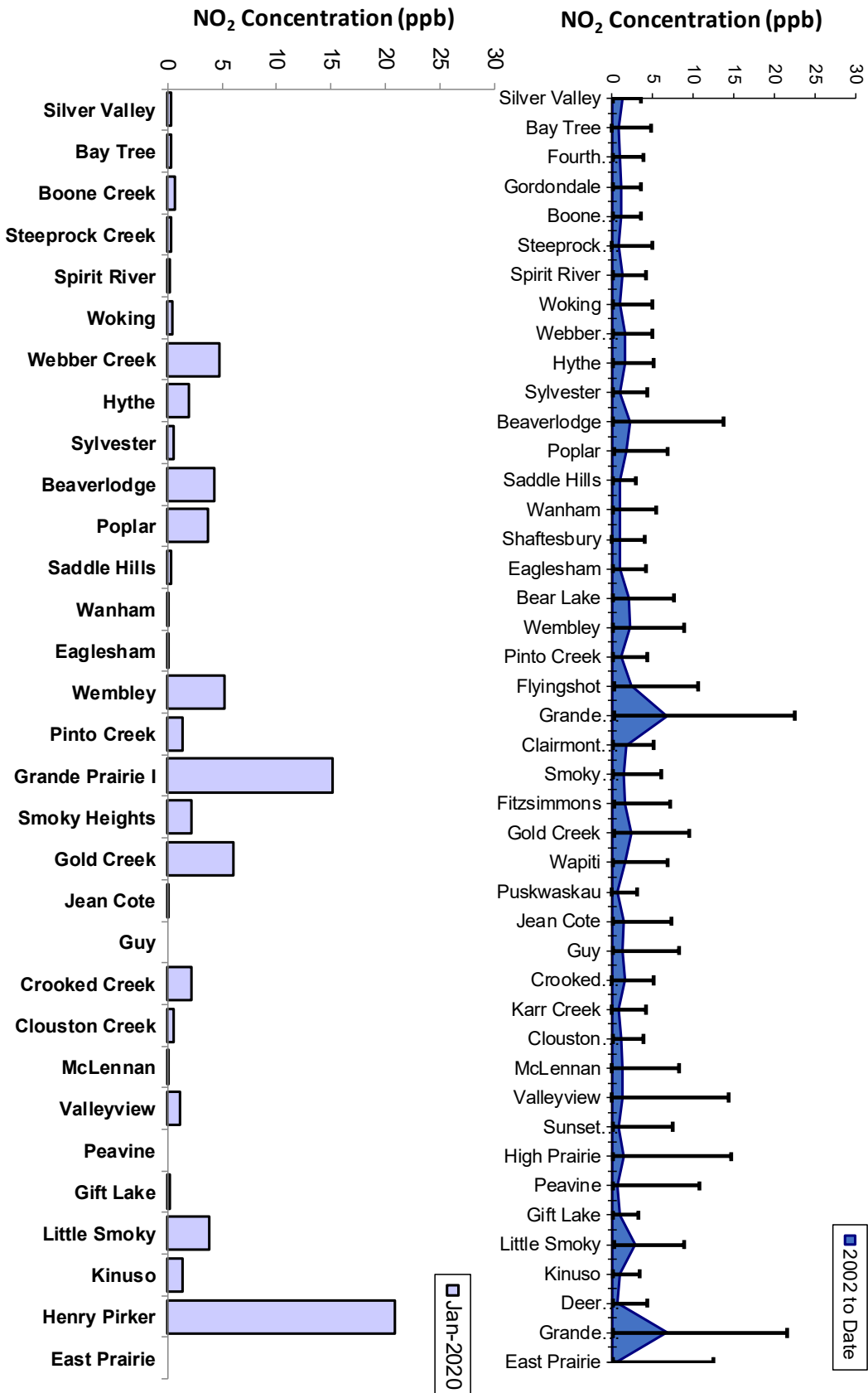


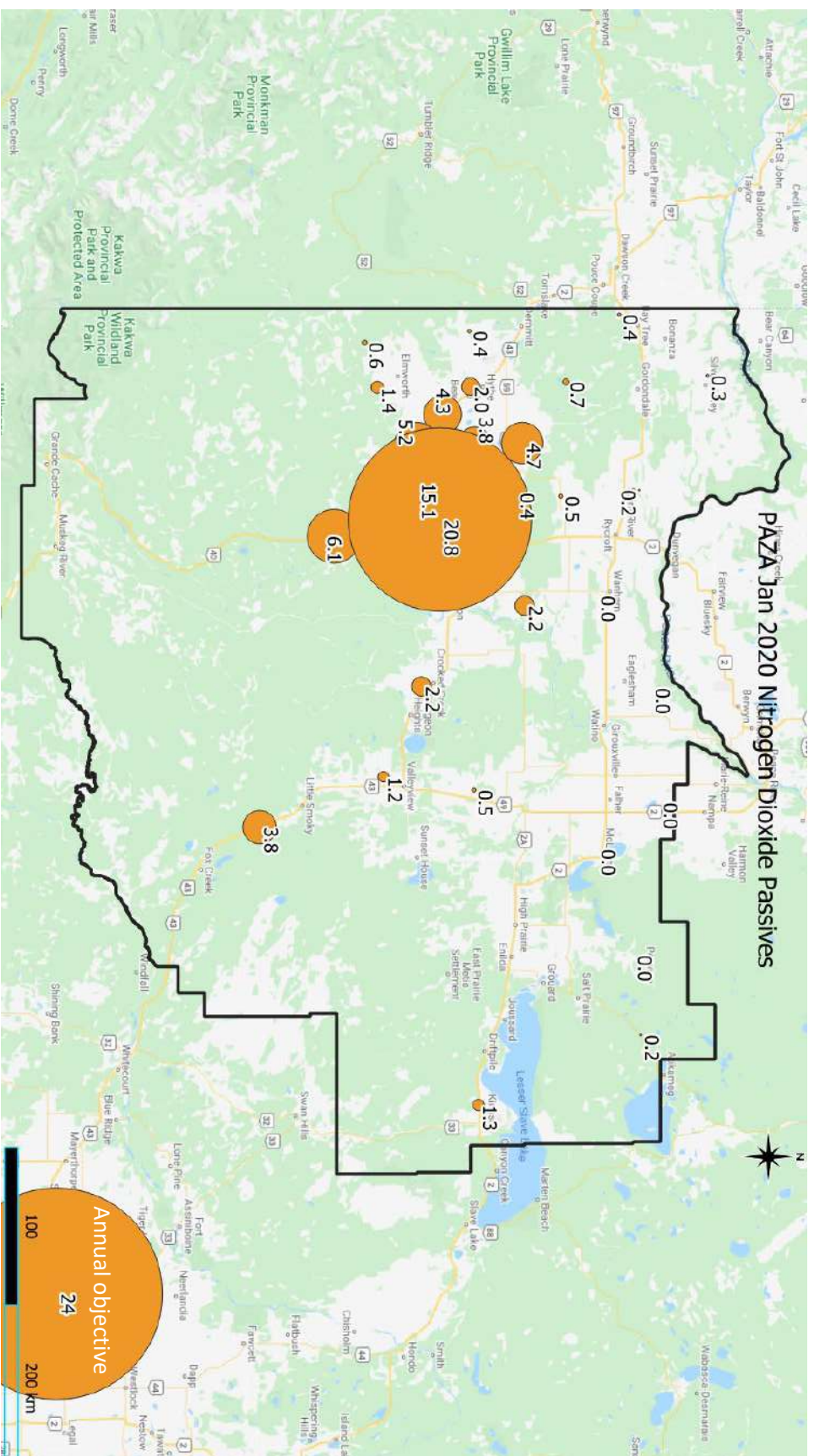




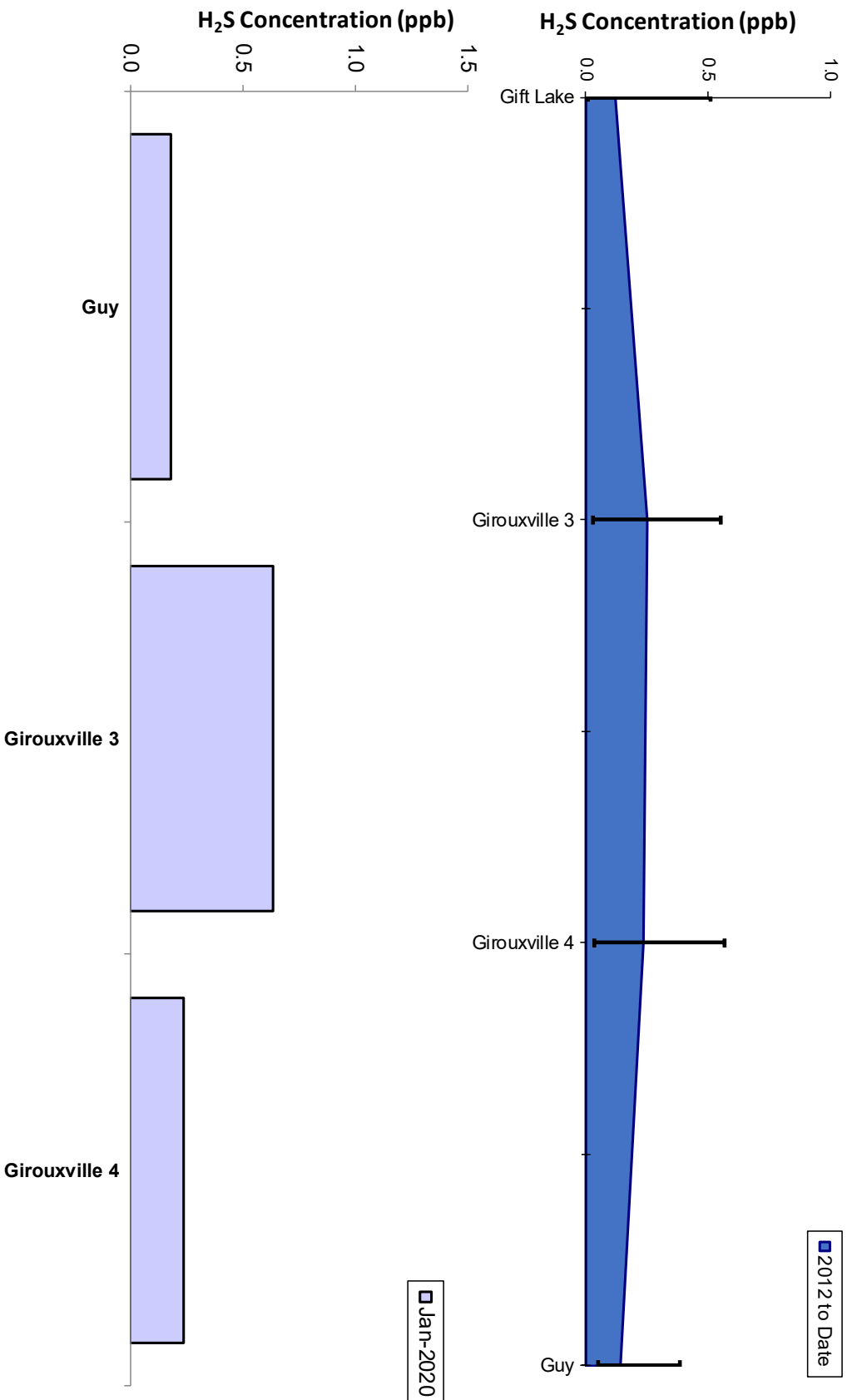


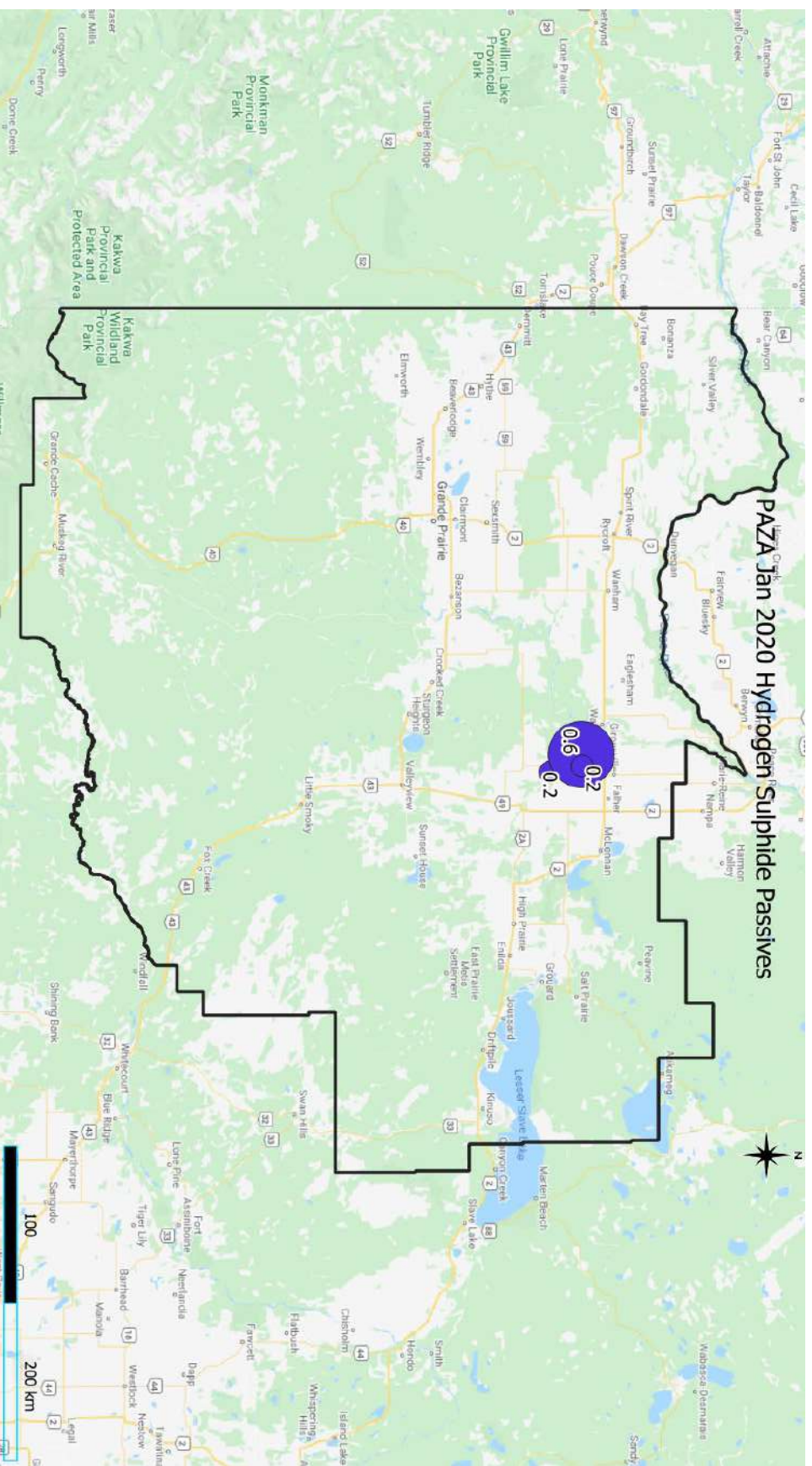
Alberta Ambient Air Quality Objective - Annual NO₂ Objective is 24 ppb





No Monthly or Annual Alberta Ambient Air Quality Objective for H₂S





End of Report



Peace Airshed Zone Association

Ambient Air Monitoring Report

January 2020