



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

**Ambient Air Quality Monitoring Program
Monthly Report
April 2019**

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May 31st, 2019

Alberta Environment and Parks

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

RE: Peace Airshed Zone Association (PAZA) – April 2019 Ambient Air Quality Monitoring Report

Enclosed is the PAZA Ambient Air Quality Monitoring Network Report for the month of April 2019.

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

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

Program Manager

Box 21135

Grande Prairie, Alberta T8V 6W7

Email: Mandeep@paza.ca

Phone: 403-608-9697

This report was prepared by Andersen Science Consulting and reviewed by Mandeep Dhaliwal.

PAZA has retained the services of WSP Canada Inc. to conduct continuous ambient monitoring and Andersen Science Consulting to provide data validation and reporting on its behalf.

This report is submitted by PAZA on behalf of the industrial member companies to satisfy the requirements of the following facility Operating Approvals:

Company	Facility	LSD	EPEA Approval Number
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	16-31-78-11-W6M	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

Company	Facility	LSD	EPEA Approval Number
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
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

Company	Facility	LSD	EPEA Approval Number
	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

Included in this report is a summary of the monthly passive monitoring and continuous monitoring programs and detailed hourly average reports. Operational summaries can be found on the “Continuous Ambient Network Equipment and Results Summary” pages of the report.

Continuous Monitoring: **Seven (7) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Valleyview, Donnelly and Wembley-Portable.**

Calibration and Data Submission

Hourly data for April 2019 were submitted to Alberta’s Ambient Air Data Warehouse for all stations. This report and calibration reports were emailed to Air.Reporting@gov.ab.ca

During the month of April, the following events were noted:

Beaverlodge Station:

- ◆ The measured ambient air quality was within the AAAQO for the Beaverlodge station.
- ◆ All analyzers and meteorological sensors at the Beaverlodge station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 11

Evergreen Park Station:

- ◆ The measured ambient air quality was within the AAAQO for the Evergreen Park station.
- ◆ All analyzers and meteorological sensors at the Evergreen Park station had operational uptimes greater than 90% for the month of April with the exception of the TRS analyzer, which had data removed from March 24 to April 9 due to audit findings, with an uptime of 71.4%. **Ref#353763**
- ◆ Station was audited April 9

Henry Pirker Station:

- ◆ The measured ambient air quality was within the AAAQO for the Henry Pirker station.
- ◆ All analyzers and meteorological sensors at the Henry Pirker station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 9

Smoky Heights Station:

- ◆ The measured ambient air quality was within the AAAQO for the Smoky Heights station.
- ◆ All analyzers and meteorological sensors at the Smoky Heights station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 10

Valleyview Station:

- ◆ The measured ambient air quality was within the AAAQO for the Valleyview station.
- ◆ All analyzers and meteorological sensors at the Valleyview station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 8

Donnelly Station:

- ◆ The measured ambient air quality was within the AAAQO for the Donnelly station.
- ◆ All analyzers and meteorological sensors at the Donnelly station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 10

Wembley-Portable Station:

- ◆ The measured ambient air quality was within the AAAQO for the Wembley-Portable station.
- ◆ All analyzers and meteorological sensors at the Wembley-Portable station had operational uptimes greater than 90% for the month of April.
- ◆ Station was audited April 12

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 April 4, 2019.

Passive Monitoring - 32 Stations throughout the PAZA zone:

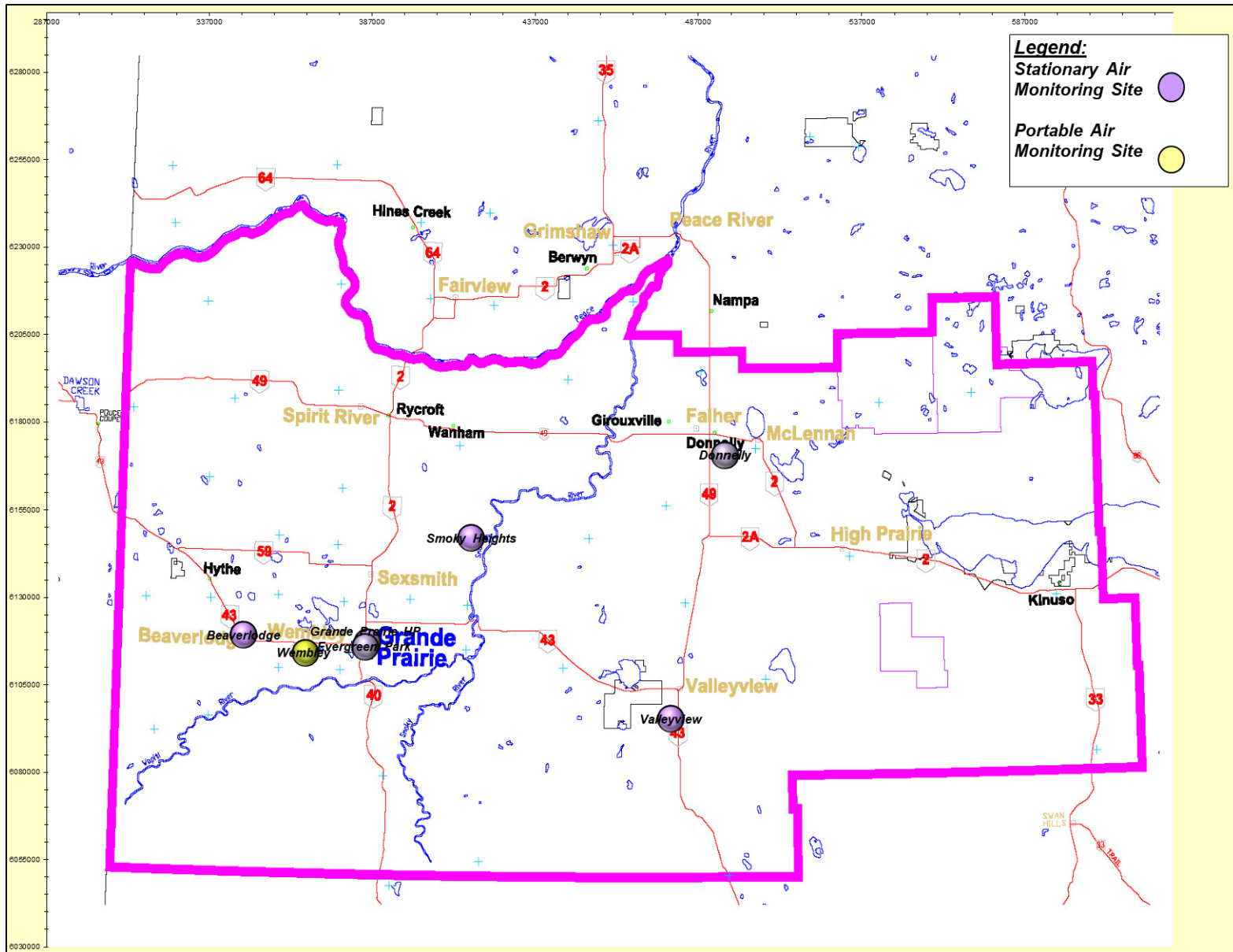
There were six duplicate sites sampled in the month of April: Spirit River, Poplar, Saddle Hills (SO₂), Bay Tree (O₃), Bay Tree, Wanham (NO₂), and Girouxville 3 (H₂S). The passive sample analyses were performed by MAXXAM Analytics Inc. There were no exceedances of the AAAQOs for all monitored parameters 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.

X

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

Location of PAZA Continuous Monitoring Stations



Continuous Ambient Network Equipment and Results Summary

Beaverlodge Air Monitoring Station

Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values						
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			Conc	1-hr		24-hr / 8-hr			Operational Time (%)
	1-hr	24-hr	30-day				1-hr	24-hr	30-day		Day	Conc	Day			
SO ₂ (ppb)	172	48	8	Beaverlodge	0.2	0.0	0	0	0	2.9	Apr-03 18:00	1.0	Apr-03	100.0	Apr-15	
NO (ppb)					0.2	0.0	-	-	-	4.6	Apr-09 09:00	0.5	Apr-09	100.0	Apr-15	
NO ₂ (ppb)	159	106			1.9	0.3	0	0	-	12.2	Apr-11 08:00	3.0	Apr-09	100.0	Apr-15	
NO _x (ppb)					2.1	0.3	-	-	-	16.0	Apr-11 08:00	3.4	Apr-09	100.0	Apr-15	
O ₃ (ppb)	76				40.0	12.6	0	-	-	62.2	Apr-21 16:00	51.2	Apr-23	100.0	Apr-15	
O ₃ (ppb) - 8-hr							-	-	-			56.7	Apr-21		-	
PM _{2.5} (µg/m3)	80	29			3.0	0.0	0	0	-	13.9	Apr-07 08:00	7.6	Apr-05	100.0	Mar-19	
RH (%)					57.7	16.9	-	-	-	100.0	Apr-15 02:00	90.4	Apr-05	100.0	-	
Temp (°C)					3.9	-5.2	-	-	-	14.8	Apr-22 16:00	8.6	Apr-22	100.0	-	
WSPD v (km/hr)					5.5	0.3	-	-	-	49.5	Apr-17 13:00	29.3	Apr-23	100.0	01/06/2017	
WDIR				W		-	-	-	-	-	-	-	100.0	01/06/2017		

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Station audited April 11
			Power bump during calibration forced calibration restart
NO/NO ₂ /NO _x	TECO	42I	
O ₃	TECO	49I	
PM _{2.5}	SHARP	5030	
ET/RH			
WS/WD	MetOne	50.5	

Evergreen Park Air Monitoring Station

Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values					
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			1-hr		24-hr / 8-hr		Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day	Conc	Day	Conc	Day		
SO ₂ (ppb)	172	48	8	Evergreen Park	0.2	0.0	0	0	0	4.7	Apr-30 14:00	0.4	Apr-30	99.7	Apr-21
TRS (ppb)					0.5	0.1	-	-	-	3.1	Apr-13 23:00	0.7	Apr-26	71.4	Apr-11
PM _{2.5} (µg/m3)	80	29			2.4	0.0	0	0	-	31.3	Apr-11 18:00	7.7	Apr-11	98.9	Apr-11
RH (%)					56.9	14.9	-	-	-	95.7	Apr-15 12:00	87.2	Apr-15	99.7	-
Temp (°C)					4.1	-5.9	-	-	-	16.2	Apr-22 17:00	9.0	Apr-23	99.7	-
WSPD v (km/hr)					6.8	0.0	-	-	-	51.1	Apr-17 14:00	30.5	Apr-23	99.7	-
WDIR					W		-	-	-	-	-	-	-	99.7	-

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Power outage April 1. Station audited April 9
TRS	TECO	43I	Analyzer data invalidated from March 24 to April 9 due to audit results
PM _{2.5}	SHARP	5030	Analyzer maintenance performed April 21
ET/RH			
WS/WD	Gil	MetPak	

Henry Pirker Air Monitoring Station

Apr-2019 Peace Airshed Zone Association									Maximum Recorded Values							
									1-hr			24-hr / 8-hr				
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			Conc	Day		Conc	Day	Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day							
SO ₂ (ppb)	172	48	8	Henry Pirker	0.2	0.0	0	0	0	3.4	Apr-21 12:00	0.4	Apr-06	100.0	Apr-23	
H ₂ S (ppb)					0.2	0.0	0	0	-	1.9	Apr-25 04:00	0.6	Apr-01	100.0	Apr-24	
NO (ppb)					0.9	0.0	-	-	-	44.3	Apr-16 08:00	4.7	Apr-16	100.0	Apr-23	
NO ₂ (ppb)	159	106			6.2	0.4	0	0	-	35.5	Apr-13 07:00	11.3	Apr-09	100.0	Apr-23	
NO _x (ppb)					7.1	0.4	-	-	-	64.7	Apr-16 08:00	14.0	Apr-16	100.0	Apr-23	
O ₃ (ppb)	76				35.3	0.8	0	-	-	60.0	Apr-21 18:00	48.5	Apr-23	99.9	Apr-23	
O ₃ (ppb) - 8-hr							-	-	-			57.1	Apr-21		-	
CO (ppm)	13				0.02	0.0	0	0	-	0.3	Apr-22 08:00	0.1	Apr-22	99.7	Apr-22	
CO (ppm) - 8-hr	5						0					0.3	Apr-22		-	
THC (ppm)					2.2	1.9	-	-	-	9.4	Apr-13 07:00	2.9	Apr-13	98.8	Apr-03	
CH ₄ (ppm)					2.2	1.9	-	-	-	7.9	Apr-13 07:00	2.7	Apr-13	98.8	Apr-03	
NMHC (ppm)					0.0	0.0	-	-	-	1.5	Apr-13 07:00	0.1	Apr-13	98.8	Apr-03	
PM _{2.5} (µg/m3)	80	29			4.1	0.2	0	0	-	34.9	Apr-09 07:00	8.4	Apr-06	99.7	Jan-04	
RH (%)					53.3	16.5	-	-	-	86.7	Apr-07 07:00	77.8	Apr-15	99.9	-	
SR (W/m ²)					173.2	0.0	-	-	-	781.7	Apr-20 13:00	264.3	Apr-23	99.9	-	
Temp (°C)					4.8	-5.9	-	-	-	17.2	Apr-21 15:00	9.2	Apr-23	99.9	-	
WSPD v (km/hr)					4.7	0.3	-	-	-	32.2	Apr-17 12:00	21.9	Apr-23	99.9	01/07/2017	
WDIR					W		-	-	-	-	-	-	-	99.9	01/07/2017	

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Station audited April 9
H ₂ S	TECO	450I	Perm tube changed April 23, allowed spans to stabilize and re-calibrated April 24
NO/NO ₂ /NO _x	TECO	42I	
O ₃	TECO	49I	Analyzer offline April 23 for manifold cleaning
CO	TECO	48I-TLE/48C-TLE	Analyzer offline April 23 for manifold cleaning
THC/CH ₄ /NMHC	TECO	55I	Hydrogen cylinder expired April 3, replaced and analyzer calibrated same day. Analyzer offline April 23 for manifold cleaning
PM _{2.5}	SHARP	5030	Analyzer offline April 23 for manifold cleaning
ET/RH			
SR			
WS/WD	MetOne	50.5	No data returned from logger for 1 hour on April 23

Smoky Heights Air Monitoring Station

Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values					
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			1-hr		24-hr / 8-hr		Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day	Conc	Day	Conc	Day		
SO ₂ (ppb)	172	48	8	Smoky Heights	0.3	0.0	0	0	0	2.9	Apr-19 23:00	0.7	Apr-19	96.8	Apr-24
TRS (ppb)					0.5	0.3	-	-	-	1.2	Apr-18 23:00	0.6	Apr-18	96.8	Apr-24
PM _{2.5} (µg/m3)	80	29			2.4	0.0	0	0	-	39.1	Apr-09 20:00	6.6	Apr-06	96.8	Feb-25
Temp (°C)					3.7	-6.2	-	-	-	15.5	Apr-22 17:00	8.2	Apr-22	96.8	-
WSPD v (km/hr)					6.9	0.1	-	-	-	44.1	Apr-24 15:00	26.9	Apr-23	96.7	01/04/2017
WDIR					W		-	-	-	-	-	-	-	96.7	01/04/2017

Parameter	Analyzer		Notes
	Make	Model	Power outage April 11-12. Station audited April 10
SO ₂	TECO	43I	
TRS	TECO	43I	
PM _{2.5}	SHARP	5030	
ET			
WS/WD	MetOne	50.5	Wind system returned invalid data for 1 hour on April 30

Valleyview Air Monitoring Station

Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values					
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			1-hr		24-hr / 8-hr		Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day	Conc	Day	Conc	Day		
SO ₂ (ppb)	172	48	8	Valleyview	0.4	0.0	0	0	0	8.8	Apr-20 06:00	1.5	Apr-20	100.0	Apr-09
H ₂ S (ppb)	10	3			0.2	0.0	0	0	-	6.4	Apr-29 05:00	1.3	Apr-29	100.0	Apr-09
RH (%)					65.3	18.7	-	-	-	100.0	Apr-01 01:00	97.2	Apr-15	100.0	-
Temp (°C)					7.2	-1.5	-	-	-	18.8	Apr-18 14:00	11.2	Apr-23	100.0	-
WSPD v (km/hr)					2.6	0.1	-	-	-	24.7	Apr-24 14:00	12.2	Apr-24	100.0	-
WDIR					WNW		-	-	-	-	-	-	-	100.0	-

Parameter	Analyzer		Notes
	Make	Model	Station audited April 8
SO ₂	TECO	43I	
H ₂ S	TECO	450I	
ET/RH			
WS/WD	Gil	MetPak	

Donnelly Air Monitoring Station

Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values					
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			1-hr		24-hr / 8-hr		Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day	Conc	Day	Conc	Day		
SO ₂ (ppb)	172	48	8	Donnelly	0.1	0.0	0	0	0	2.9	Apr-18 05:00	0.3	Apr-18	98.8	Apr-23
H ₂ S (ppb)	10	3			0.1	0.0	0	0	-	1.0	Apr-25 21:00	0.2	Apr-01	98.8	Apr-23
Temp (°C)					4.2	-5.9	-	-	-	15.2	Apr-18 16:00	9.4	Apr-22	100.0	-
WSPD v (km/hr)					12.5	0.8	-	-	-	41.0	Apr-24 13:00	24.6	Apr-24	99.6	01/06/2017
WDIR					W		-	-	-	-	-	-	-	99.6	01/06/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Station audited April 10. Power outage April 15
H ₂ S	TECO	450I	
ET/RH			
WS/WD	RMYoung	5103	

Wembley-Portable Air Monitoring Station

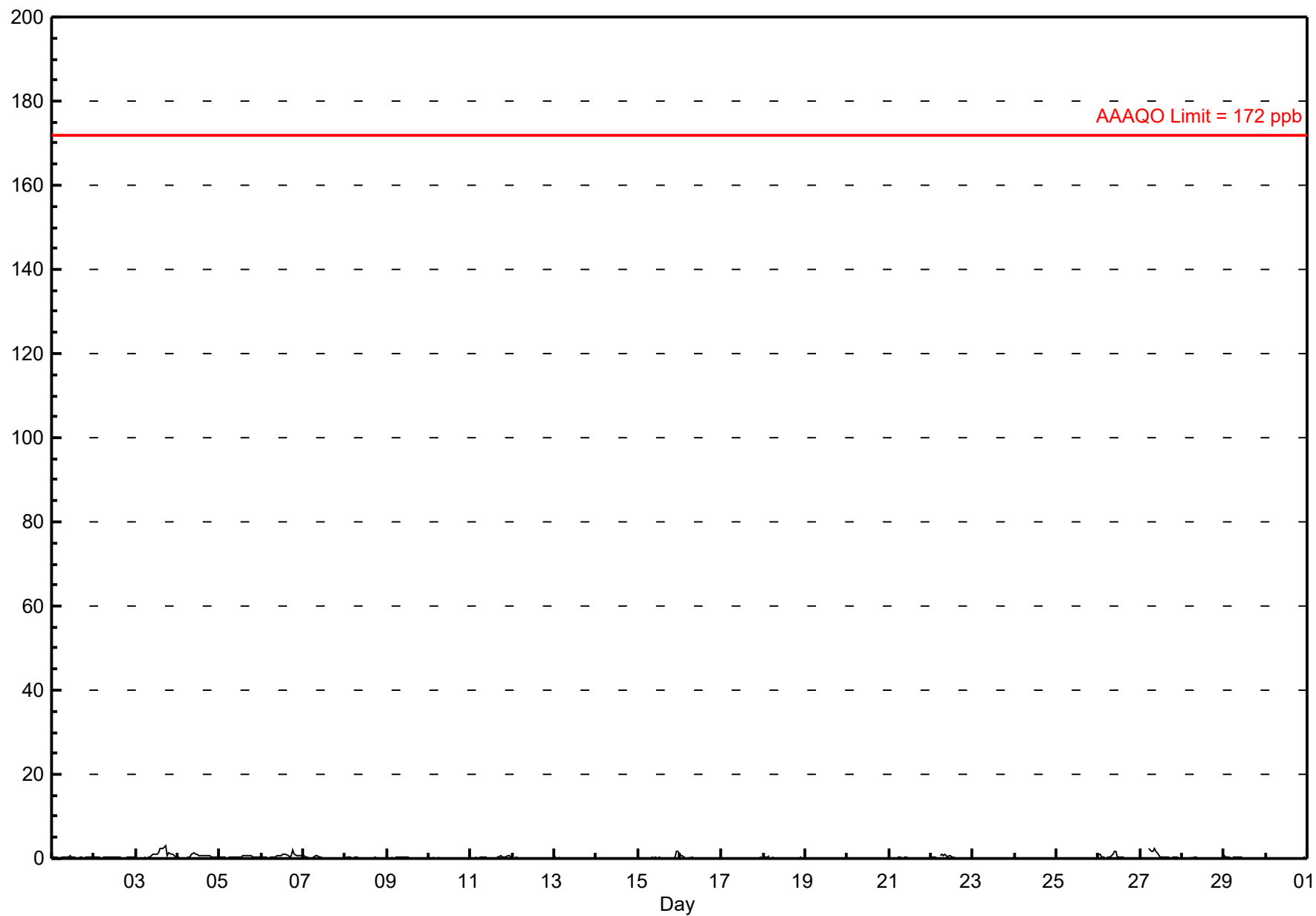
Apr-2019 Peace Airshed Zone Association										Maximum Recorded Values					
										1-hr			24-hr / 8-hr		
Parameter (units)	Objectives			Station	Monthly Average	Min	Exceedence			Conc	Day	Conc	Day	Operational Time (%)	Calibration Date
	1-hr	24-hr	30-day				1-hr	24-hr	30-day						
SO ₂ (ppb)	172	48	8	Wembley-Portable	0.2	0.0	0	0	0	2.7	Apr-30 22:00	0.4	Apr-11	98.5	Apr-24
TRS (ppb)					0.1	0.0	-	-	-	3.0	Apr-26 01:00	0.4	Apr-26	98.5	Apr-23
NO (ppb)					0.2	0.0	-	-	-	2.3	Apr-07 10:00	0.4	Apr-07	98.3	Apr-24
NO ₂ (ppb)	159	106			1.6	0.2	0	0	-	8.5	Apr-01 04:00	3.0	Apr-01	98.3	Apr-24
NO _x (ppb)					1.8	0.2	-	-	-	8.8	Apr-01 04:00	3.2	Apr-01	98.3	Apr-24
O ₃ (ppb)	76				39.0	10.9	0	-	-	61.5	Apr-21 16:00	51.0	Apr-23	98.5	Apr-24
O ₃ (ppb) - 8-hr							-	-	-			57.1	Apr-21		-
THC (ppm)					2.0	1.8	-	-	-	2.2	Apr-18 07:00	2.0	Apr-22	97.1	Apr-23
CH ₄ (ppm)					1.9	1.8	-	-	-	2.2	Apr-18 07:00	2.0	Apr-22	97.1	Apr-23
NMHC (ppm)					0.0	0.0	-	-	-	0.0	Apr-16 21:00	0.0	Apr-29	97.1	Apr-23
PM _{2.5} (µg/m3)	80	29			1.5	0.0	0	0	-	24.5	Apr-06 15:00	7.3	Apr-06	98.3	Mar-13
Temp (°C)					4.2	-5.2	-	-	-	16.8	Apr-22 16:00	8.8	Apr-23	98.5	-
WSPD v (km/hr)					9.4	0.4	-	-	-	29.2	Apr-24 14:00	19.8	Apr-23	100.0	01/03/2017
WDIR					W		-	-	-	-	-	-	-	100.0	01/03/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Power outages April 10, 16, 25. Station audited April 12
TRS	TECO	43I	Automatic span Apr 24 malformed
NO/NO ₂ /NO _x	TECO	42I	
O ₃	TECO	49I	Automatic span Apr 24 malformed
THC/CH ₄ /NMHC	TECO	55I	Nitrogen cylinder expired April 10, replaced and analyzer restarted. Carrier pressure after gas replacement unsatisfactory, Analyzer calibrated April 11 and adjustments made. Automatic span Apr 24 malformed
PM _{2.5}	TEOM		
ET/RH			
WS/WD	MetOne	50.5	

Hourly Averages

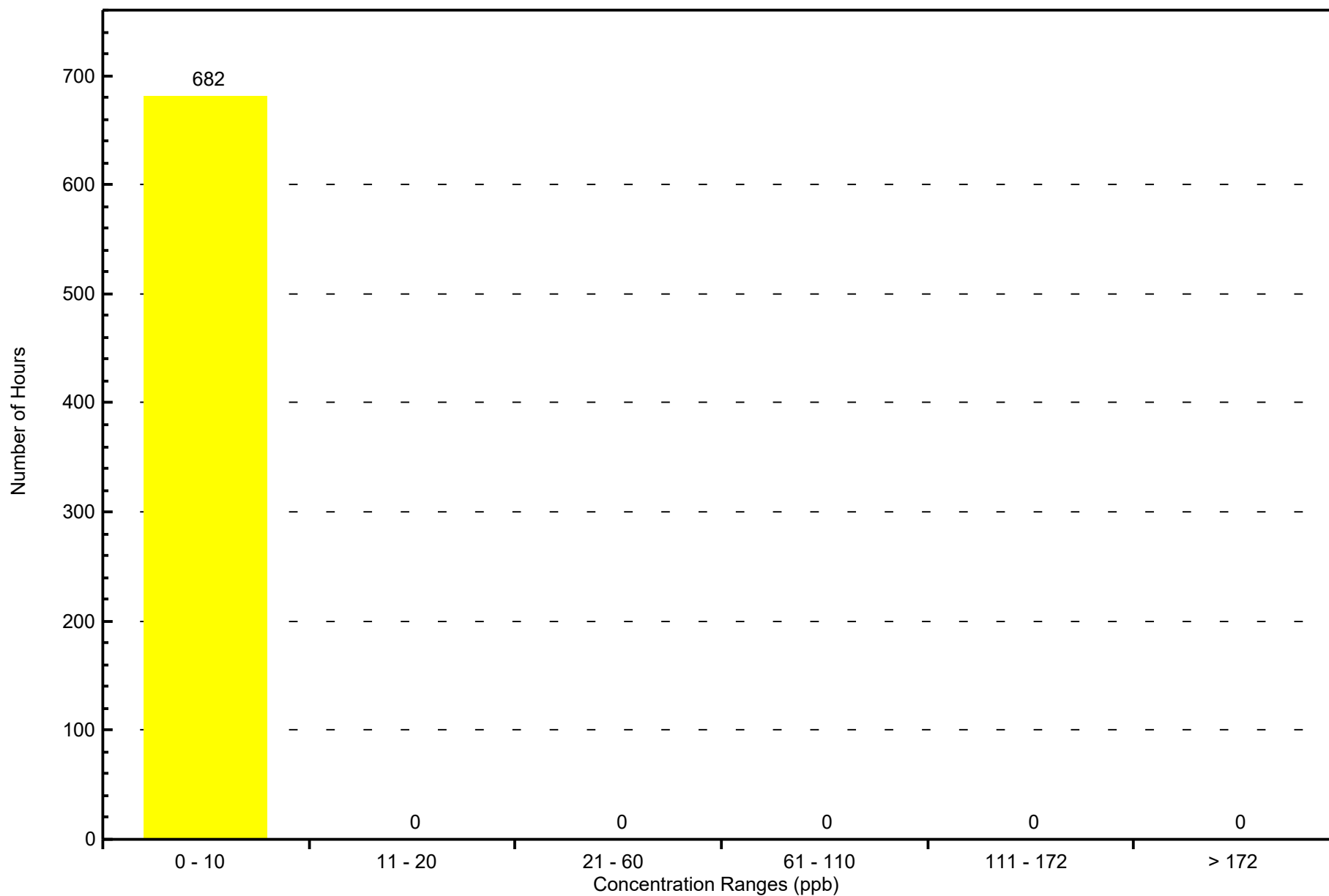
Sulphur Dioxide (SO₂) - ppb

Beaverlodge - April 2019



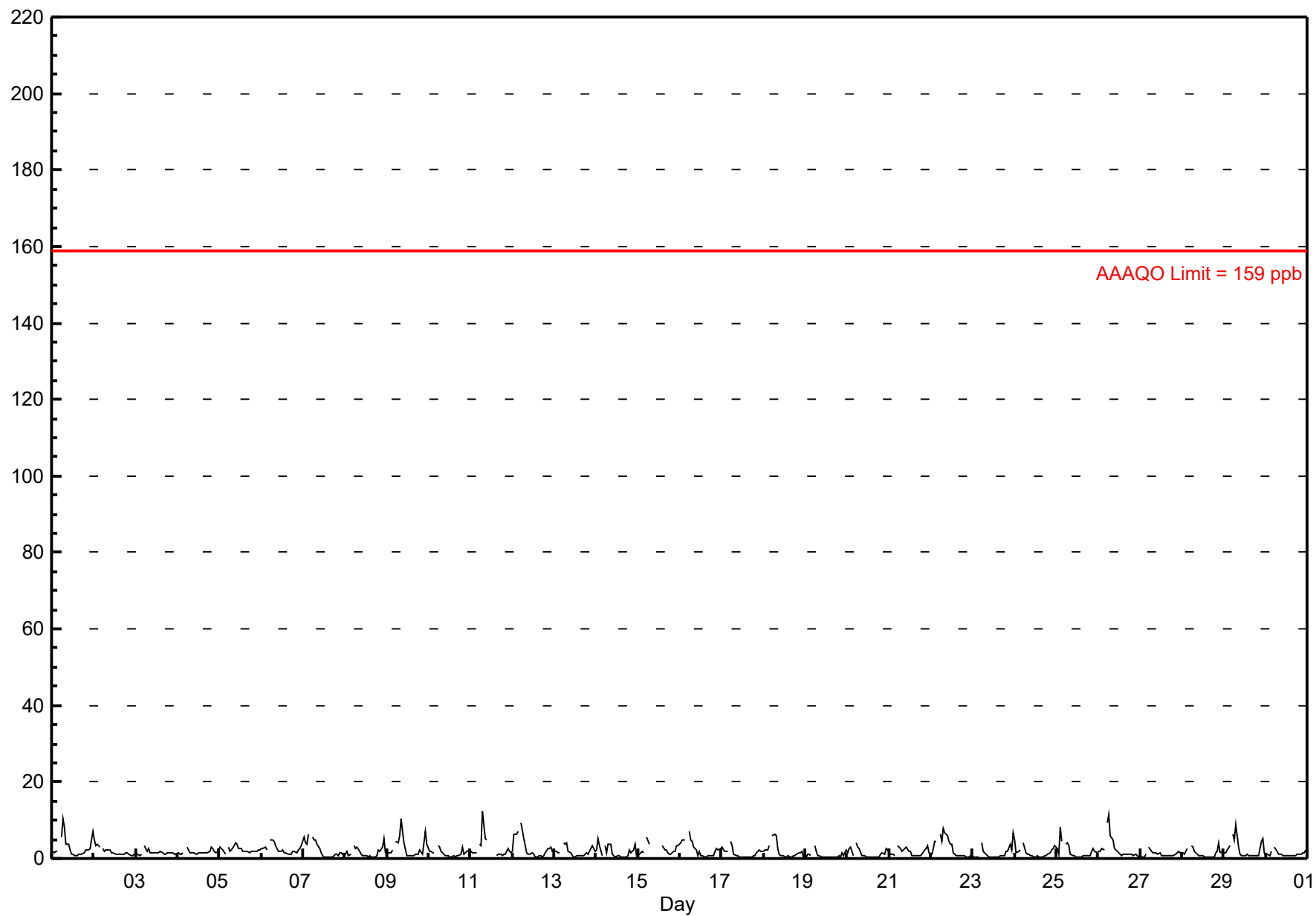
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - April 2019



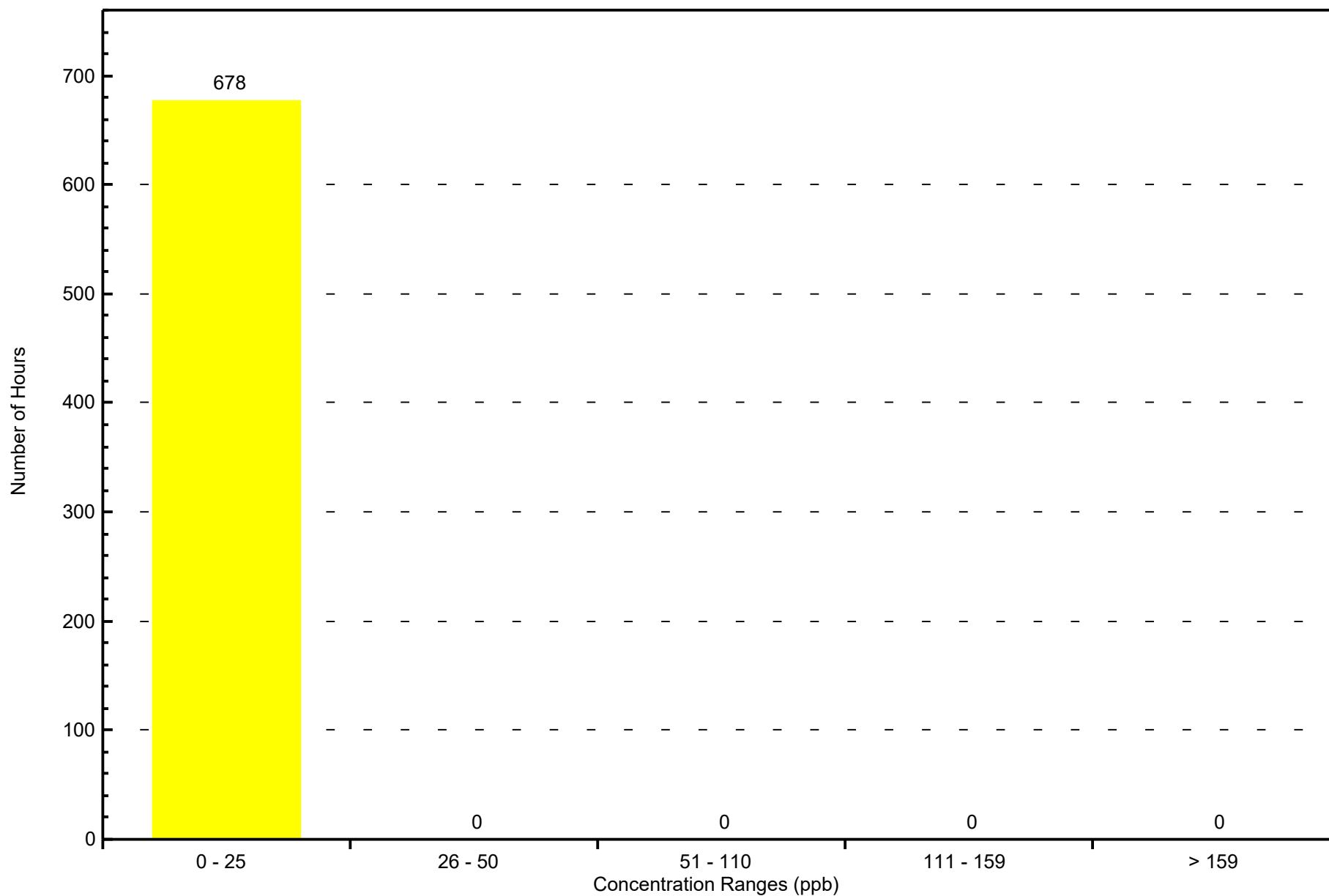
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - April 2019



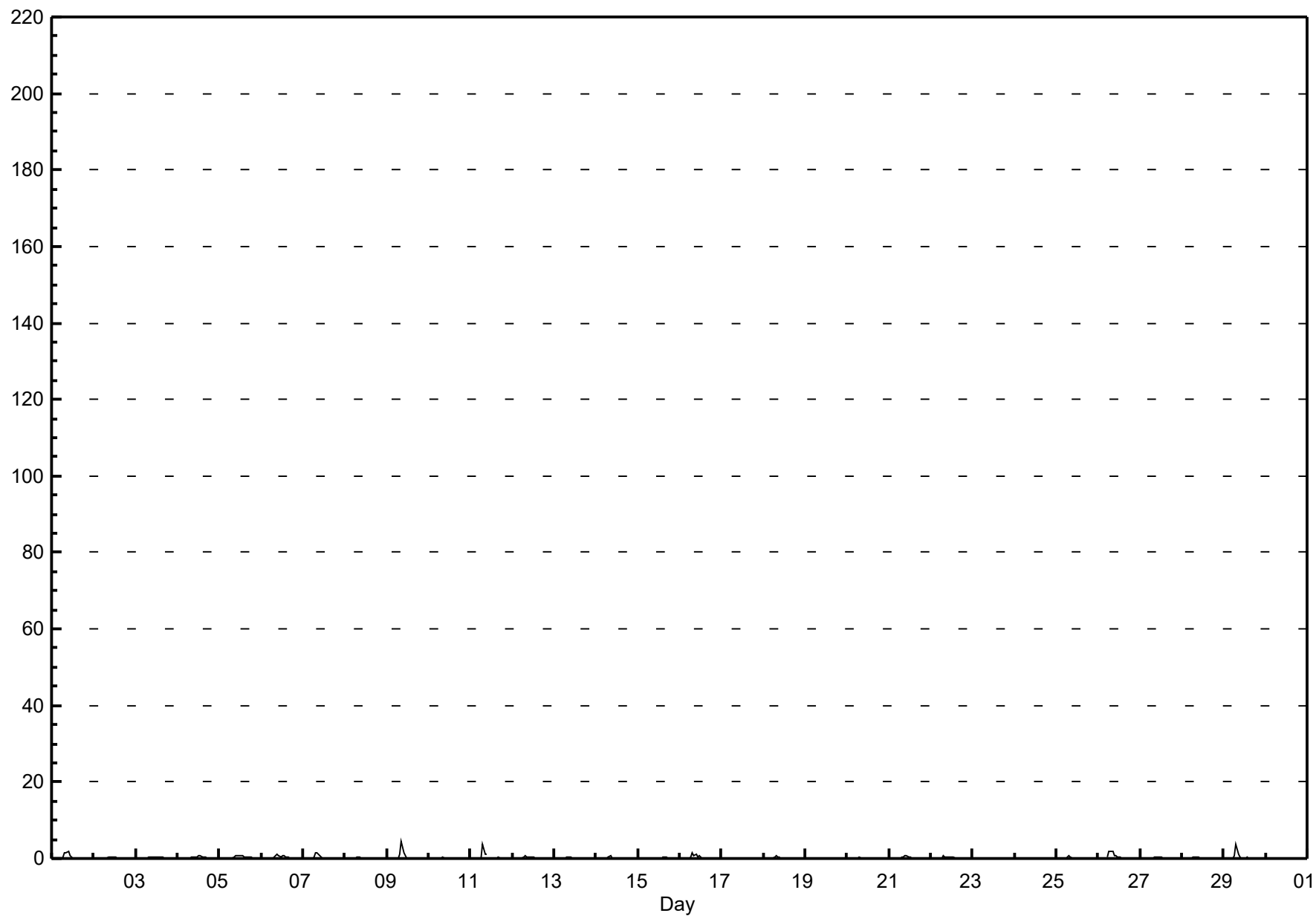
Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - April 2019



Hourly Averages

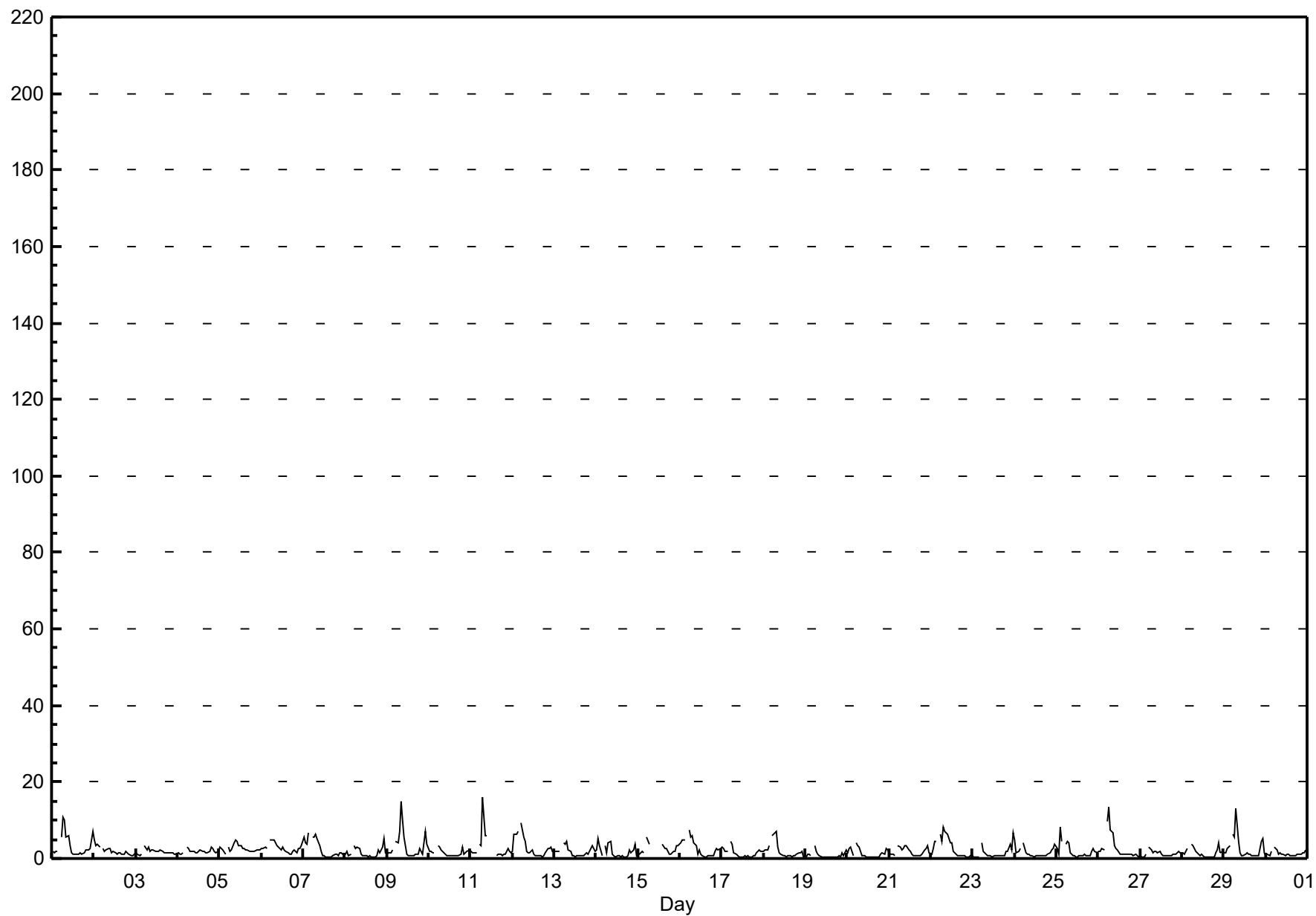
Nitrogen Oxide (NO) - ppb
Beaverlodge - April 2019



Hourly Averages

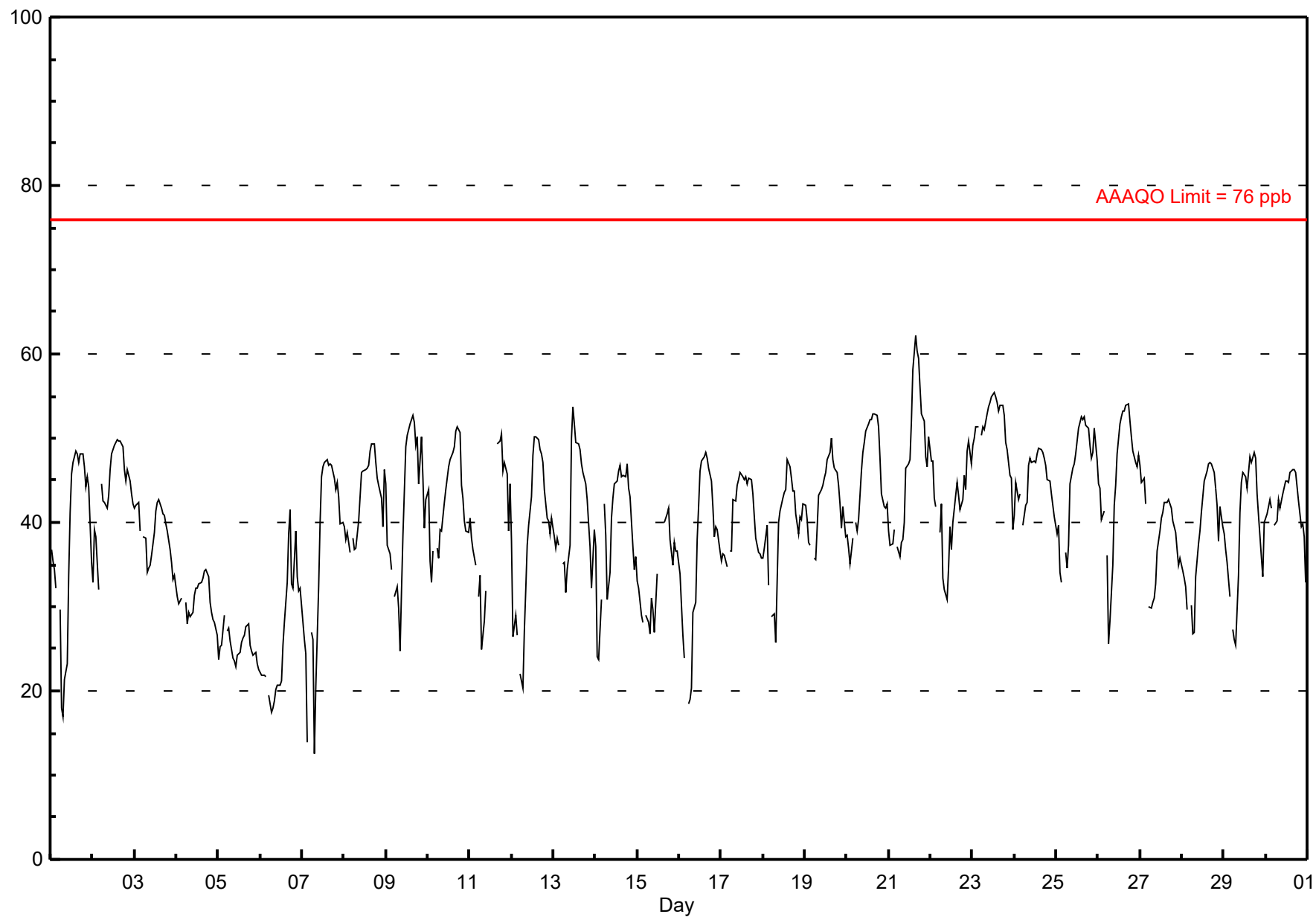
Oxides of Nitrogen (NO_x) - ppb

Beaverlodge - April 2019



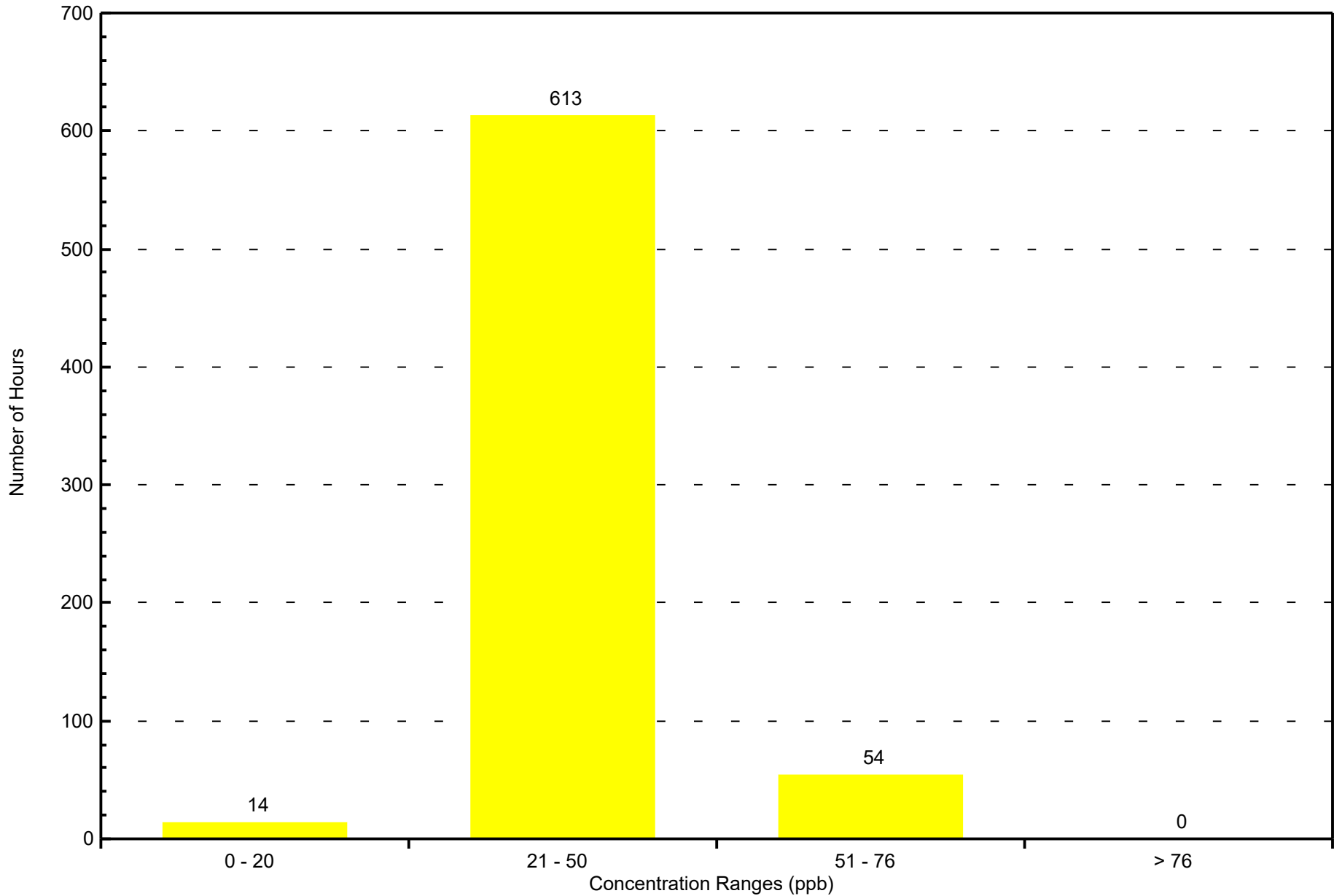
Hourly Averages

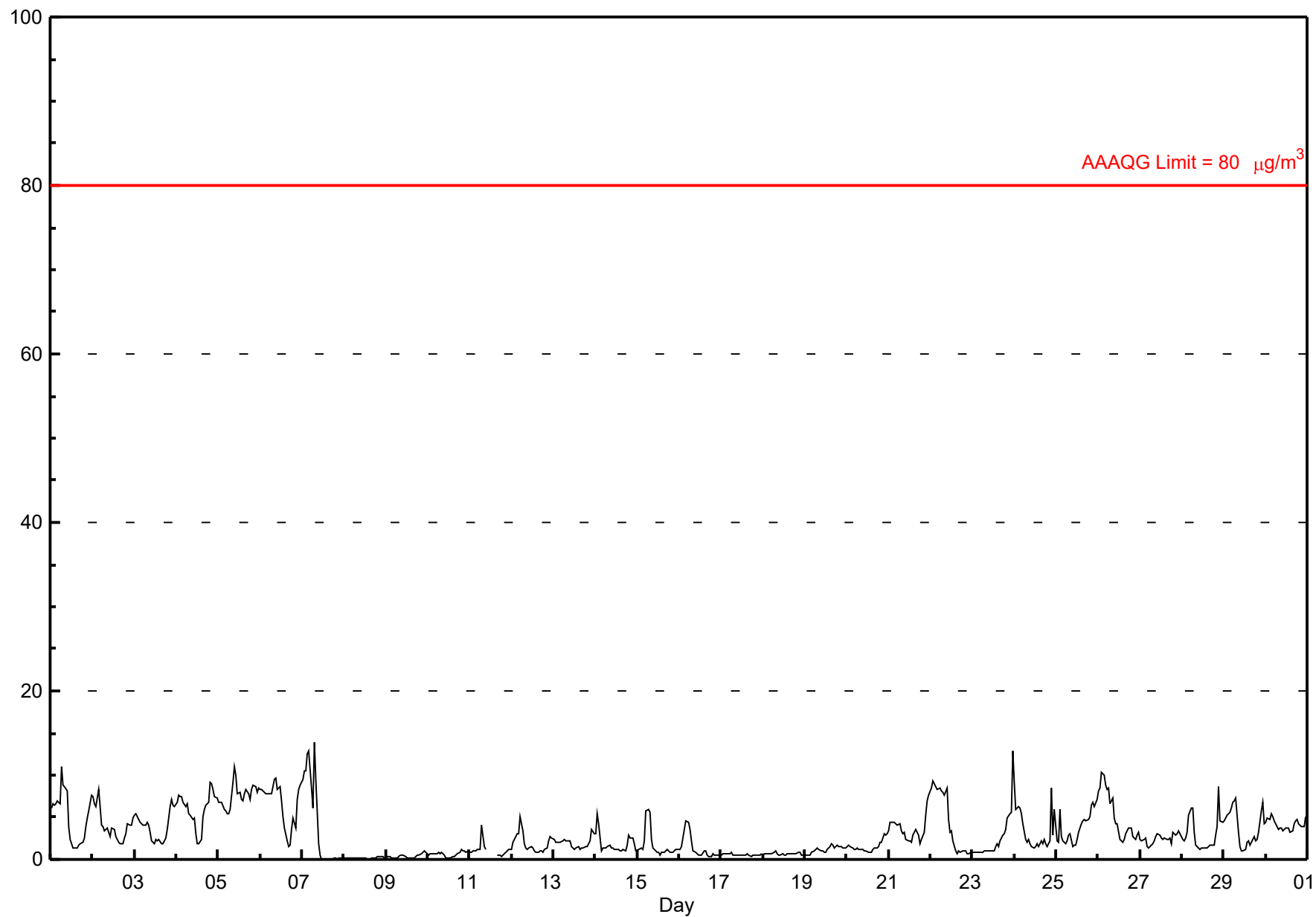
Ozone (O₃) - ppb
Beaverlodge - April 2019

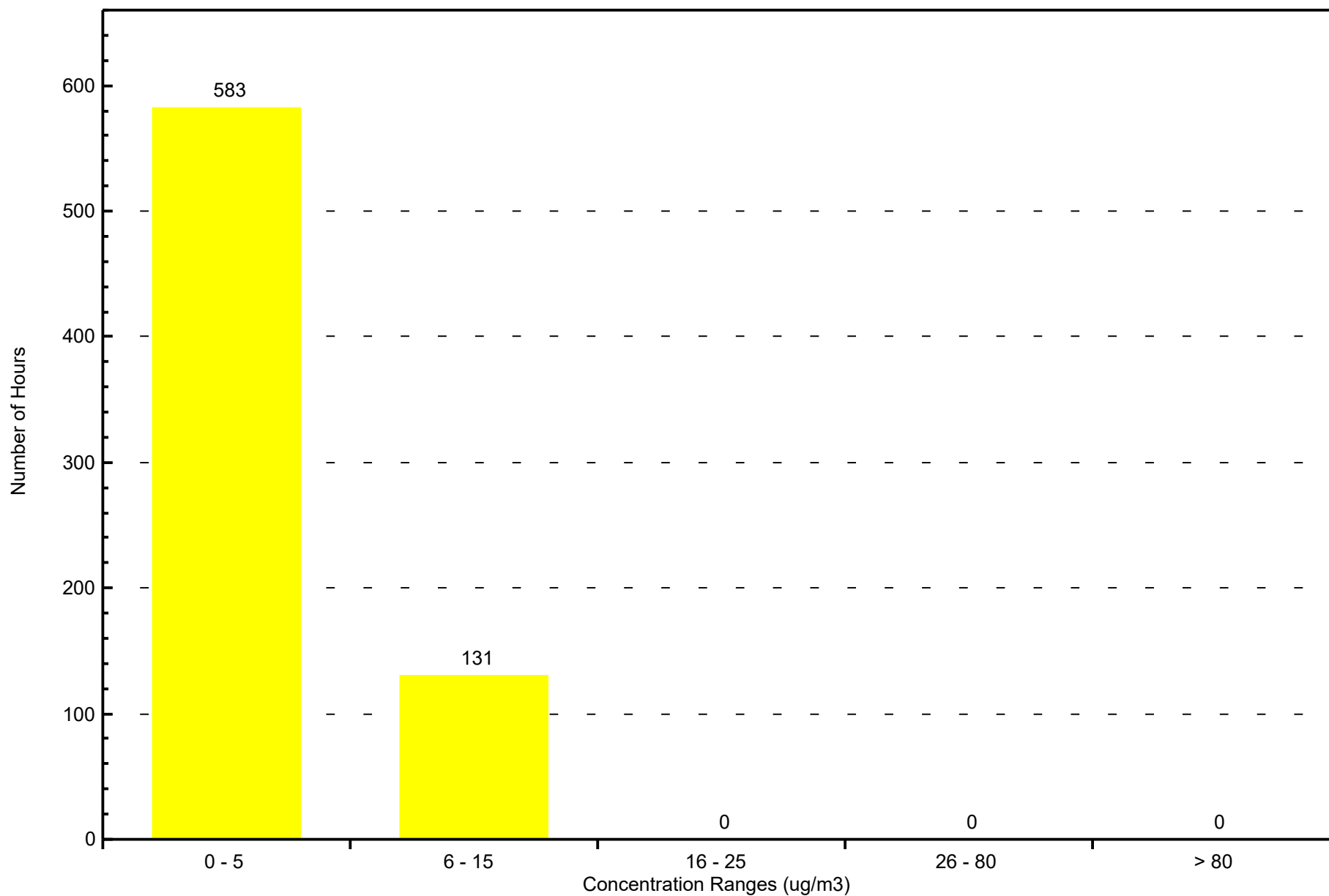


Histogram of Hourly Averages

Ozone (O₃) - ppb
Beaverlodge - April 2019



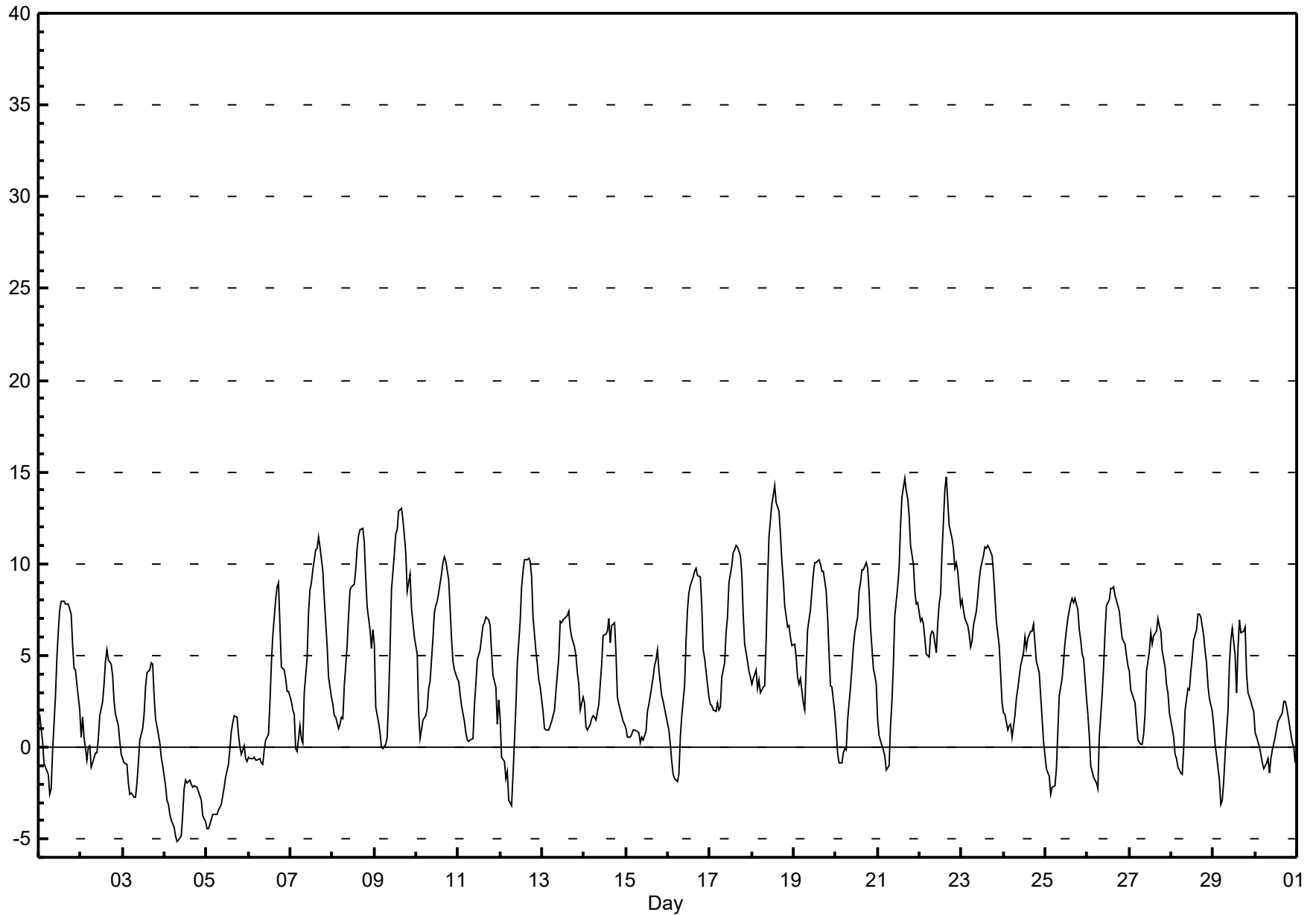




Hourly Averages

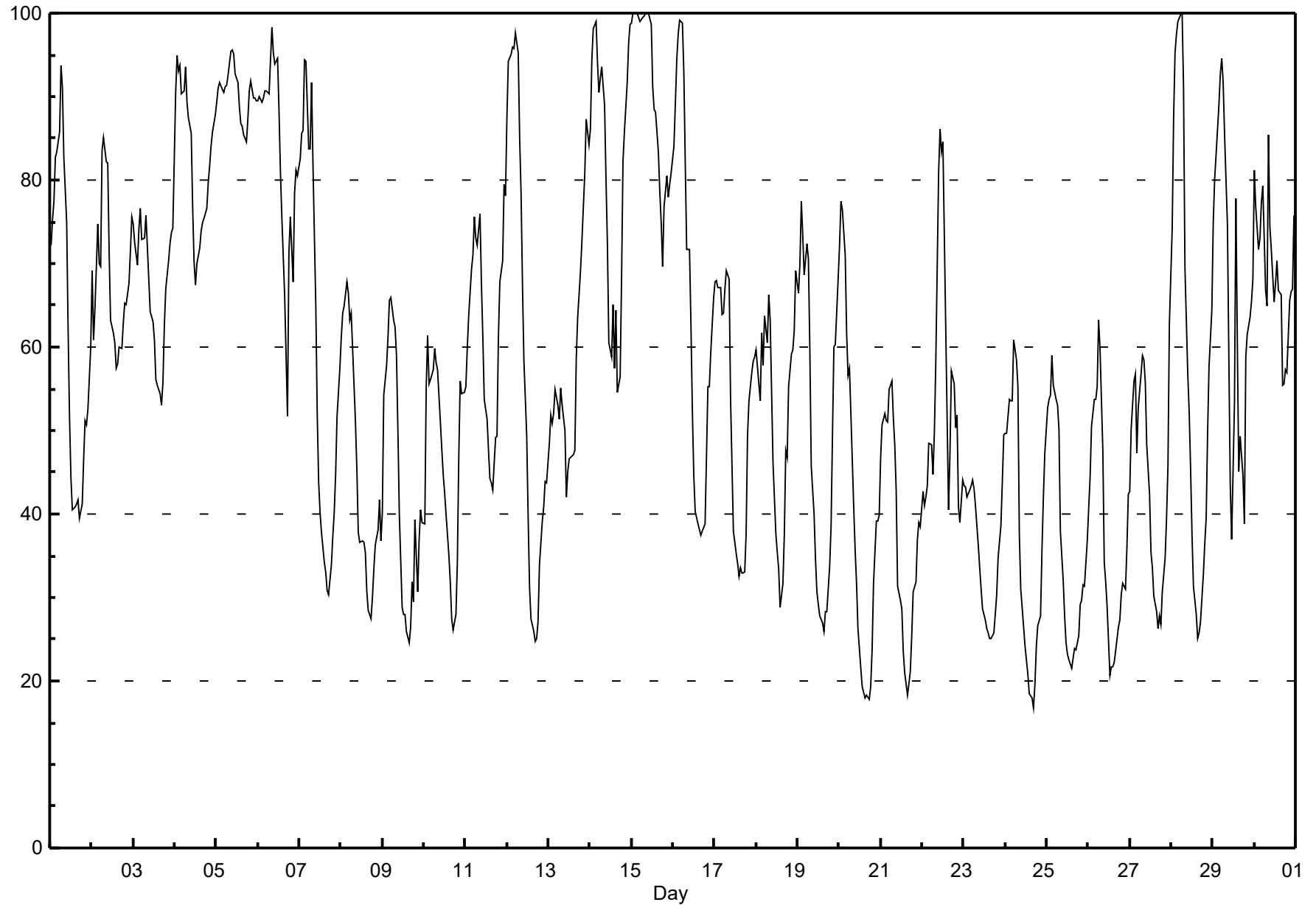
External Temperature (ET) - °C

Beaverlodge - April 2019



Hourly Averages

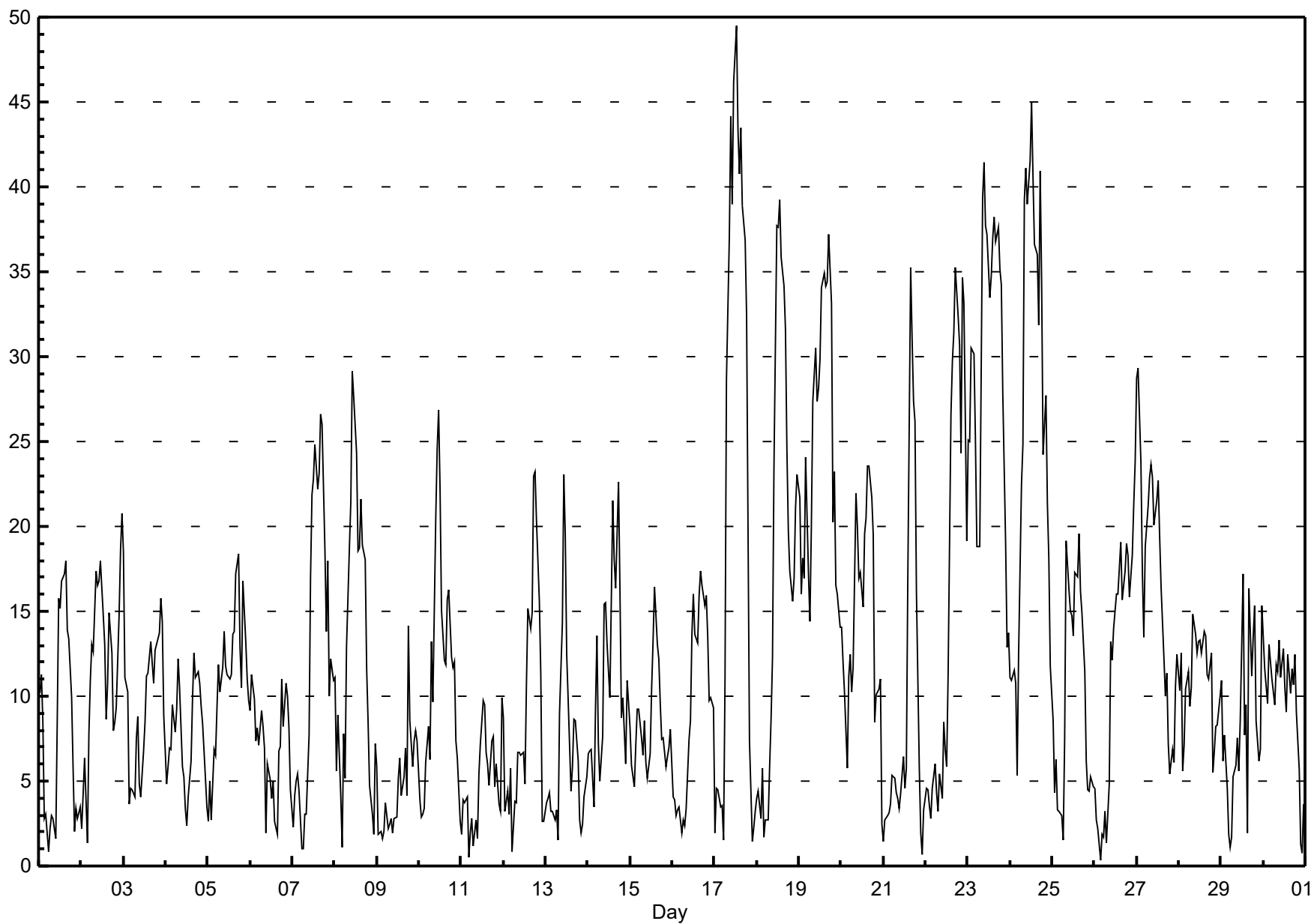
Relative Humidity (RH) - %
Beaverlodge - April 2019



Hourly Averages

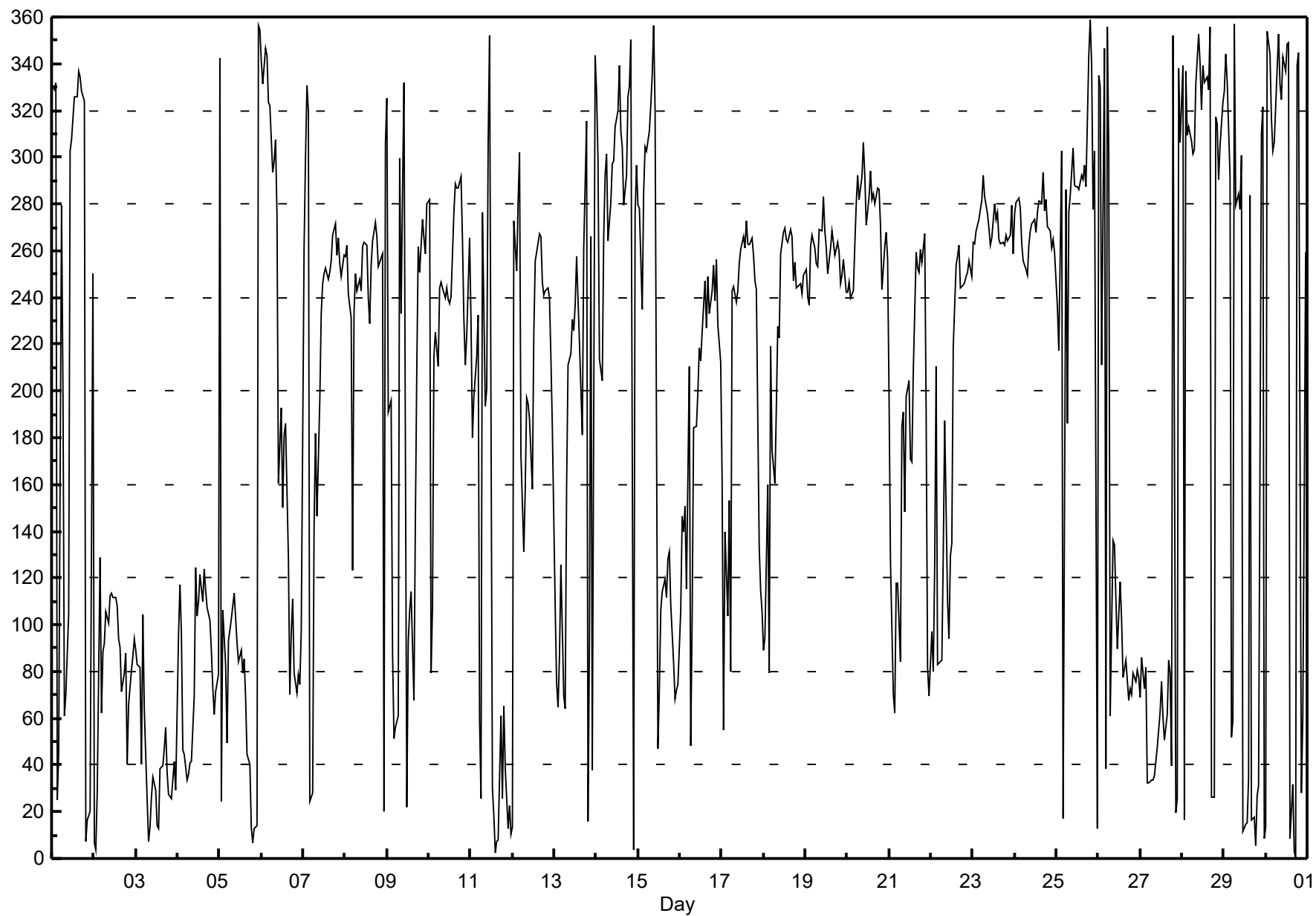
Wind Speed (WS) - km/h

Beaverlodge - April 2019



Hourly Averages

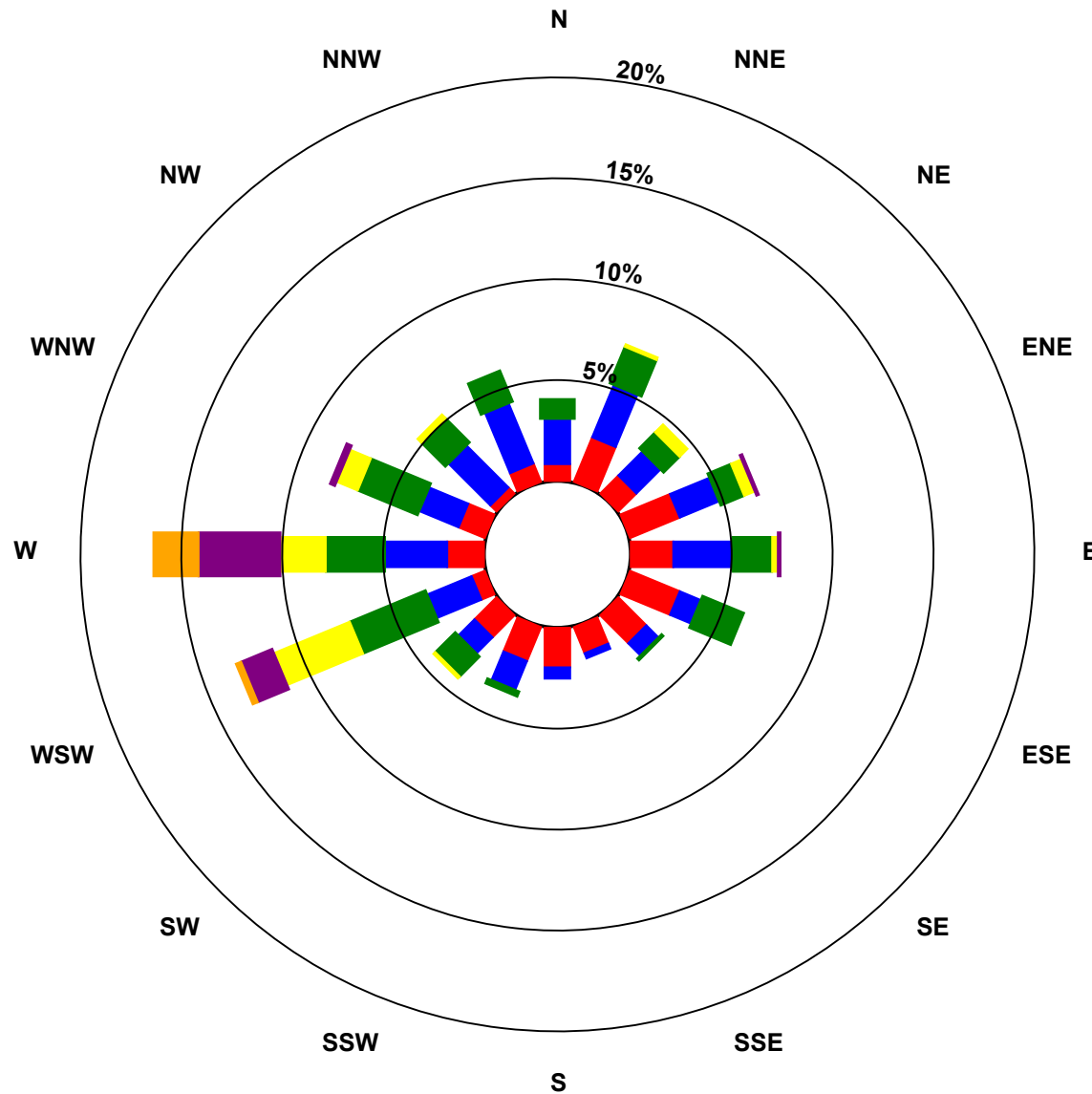
Wind Direction (WD) - deg
Beaverlodge - April 2019



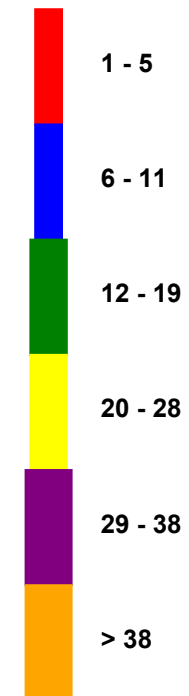
Wind Rose

Wind Speed (WS) (km/h)

Beaverlodge - April 2019

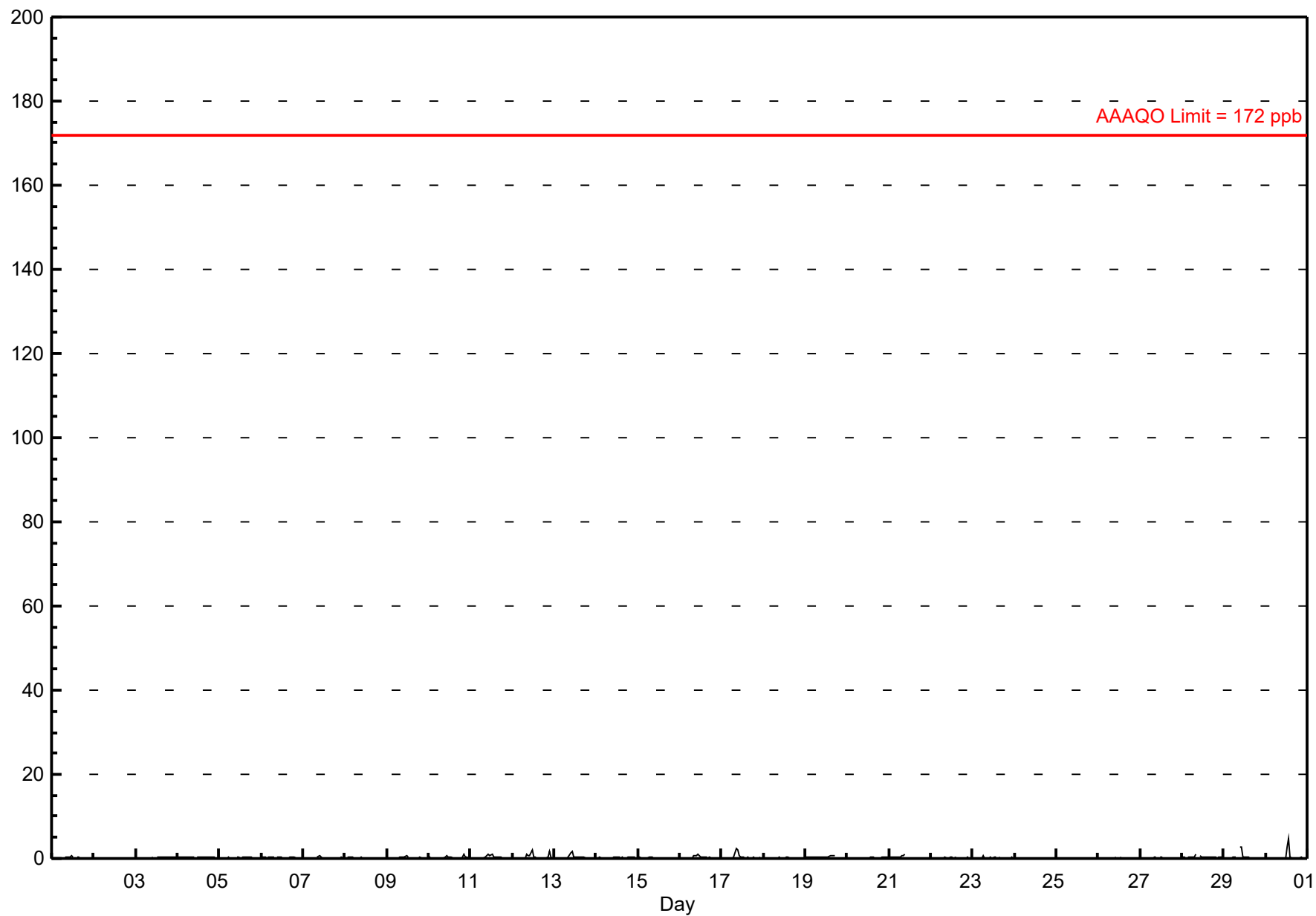


Wind Speed Classes (km/h)



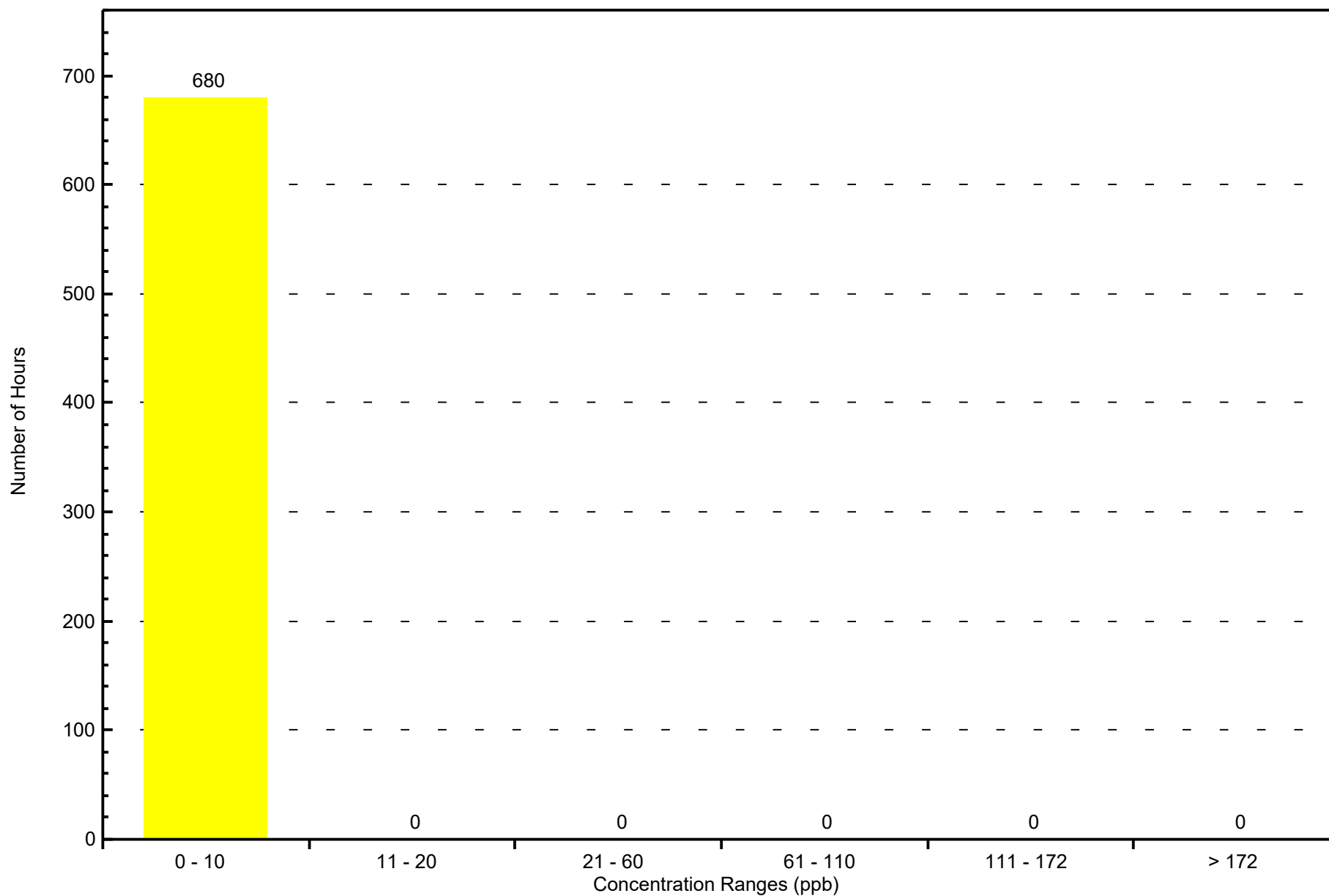
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Evergreen Park - April 2019



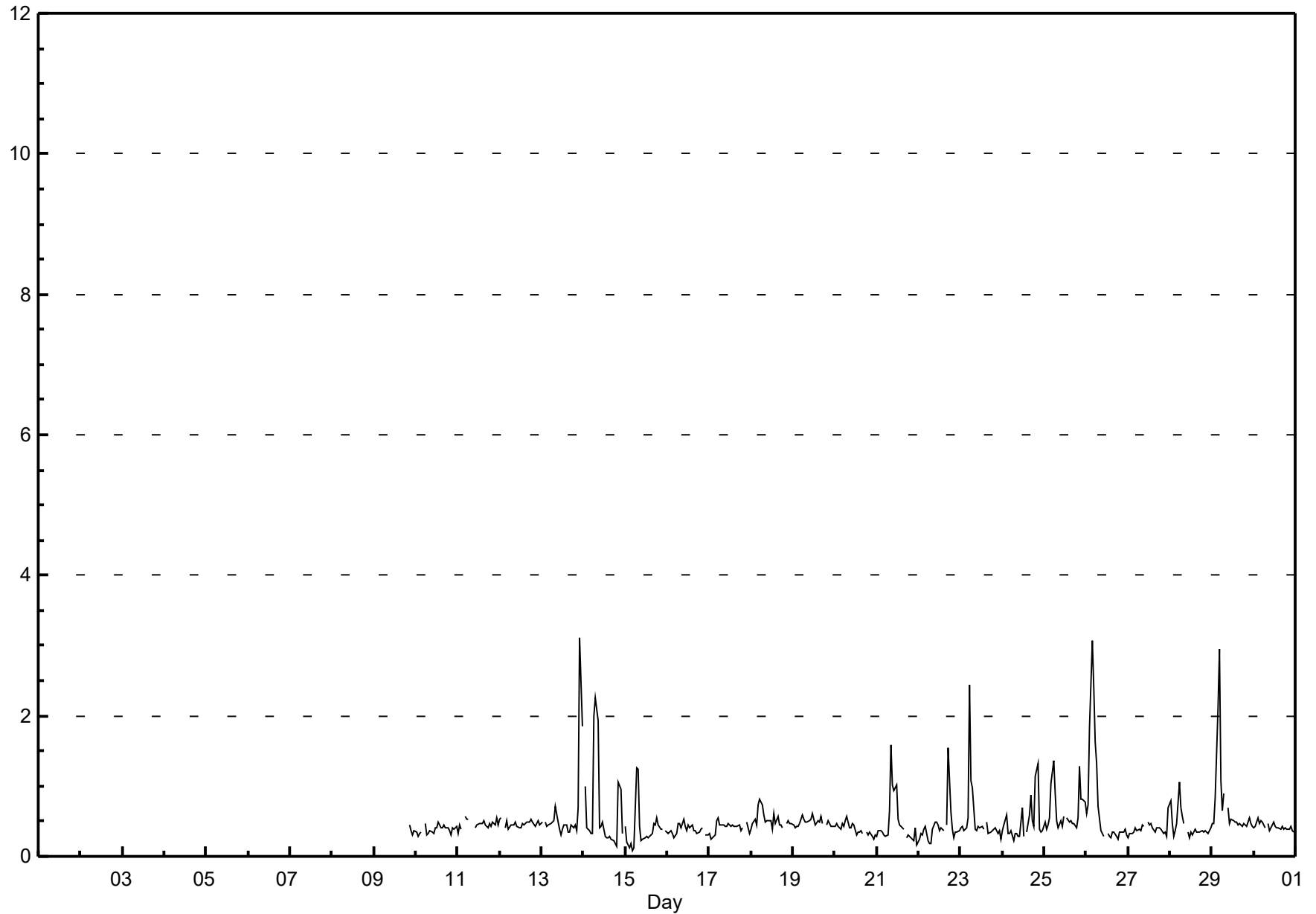
Histogram of Hourly Averages

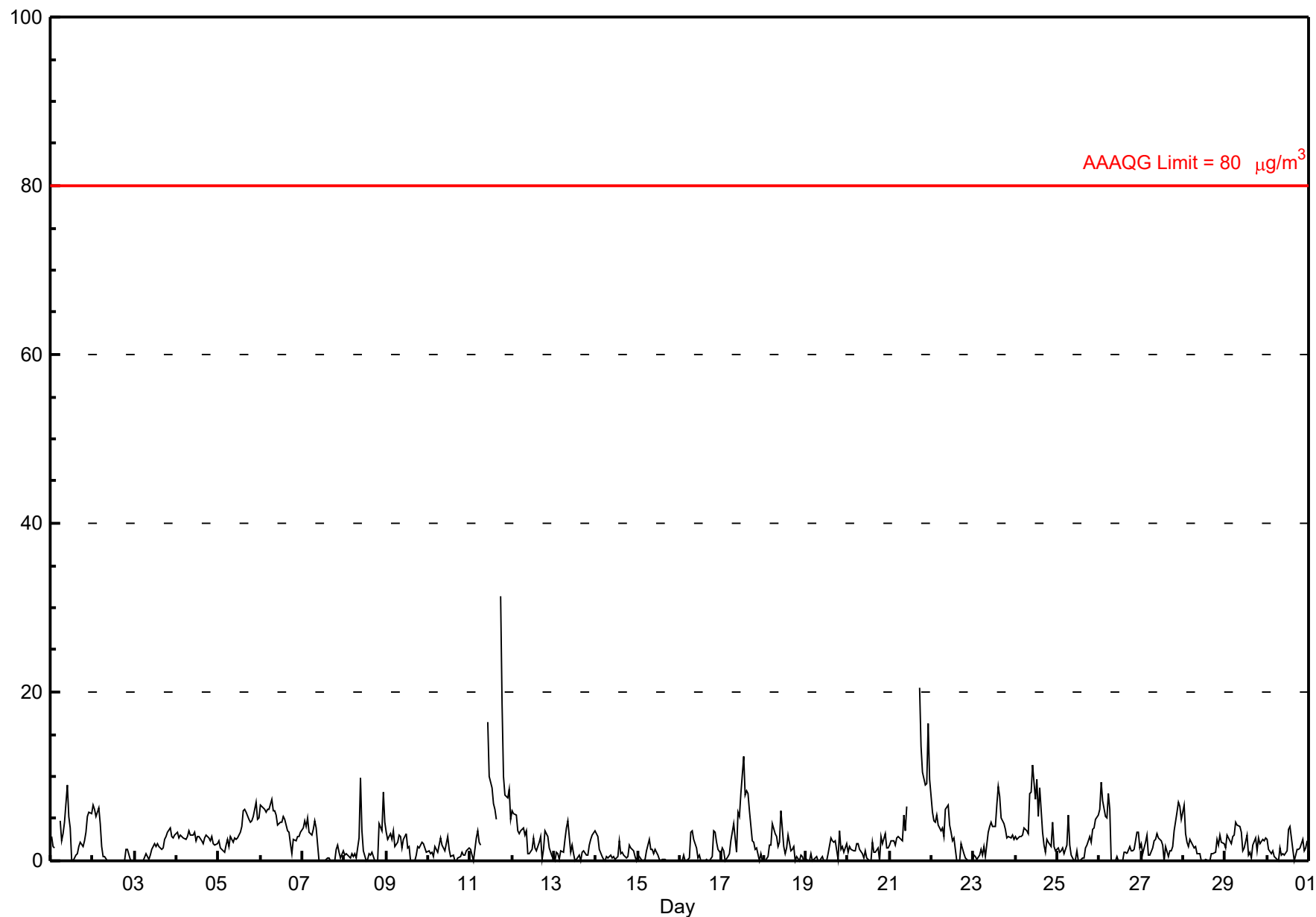
Sulphur Dioxide (SO₂) - ppb
Evergreen Park - April 2019

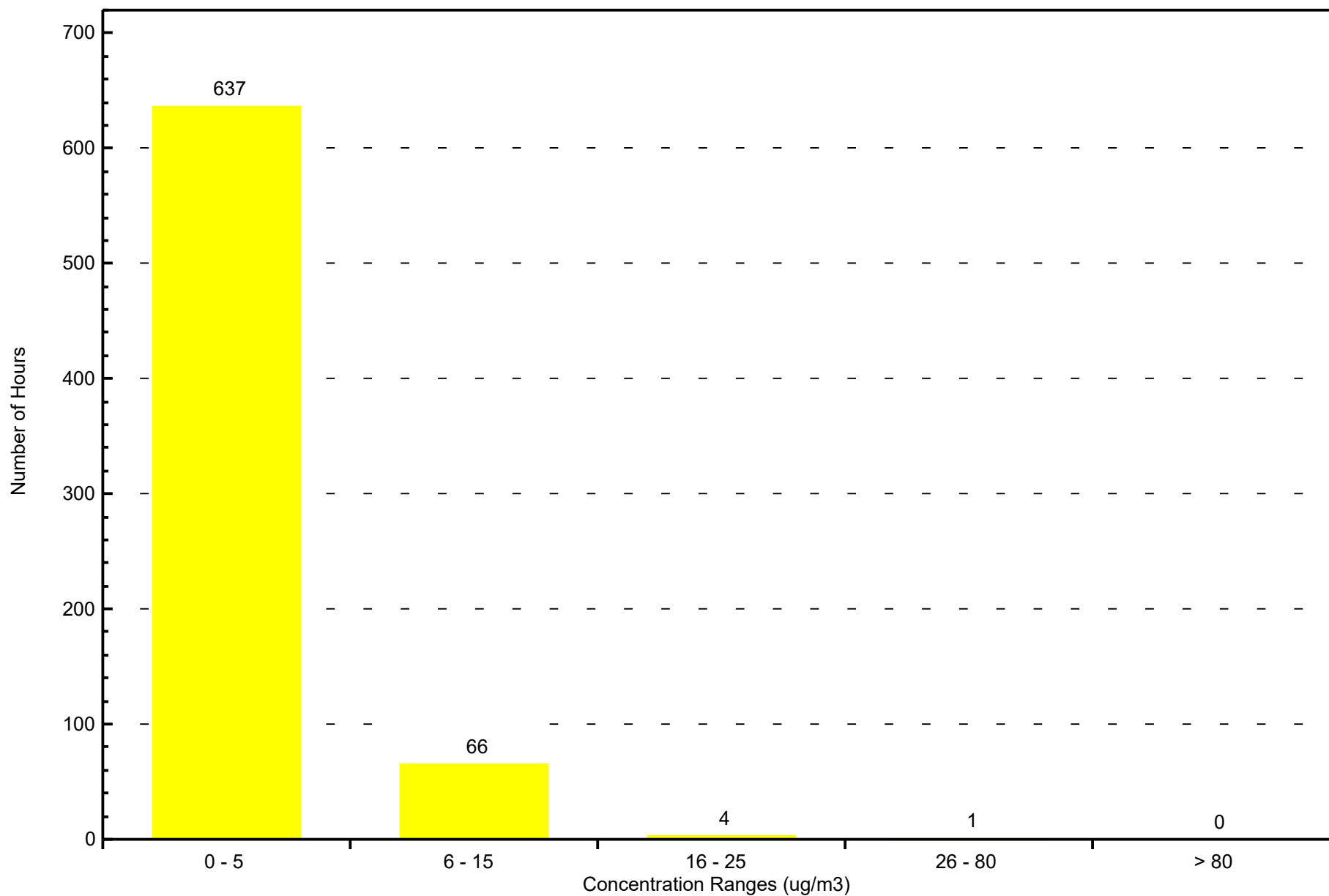


Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Evergreen Park - April 2019

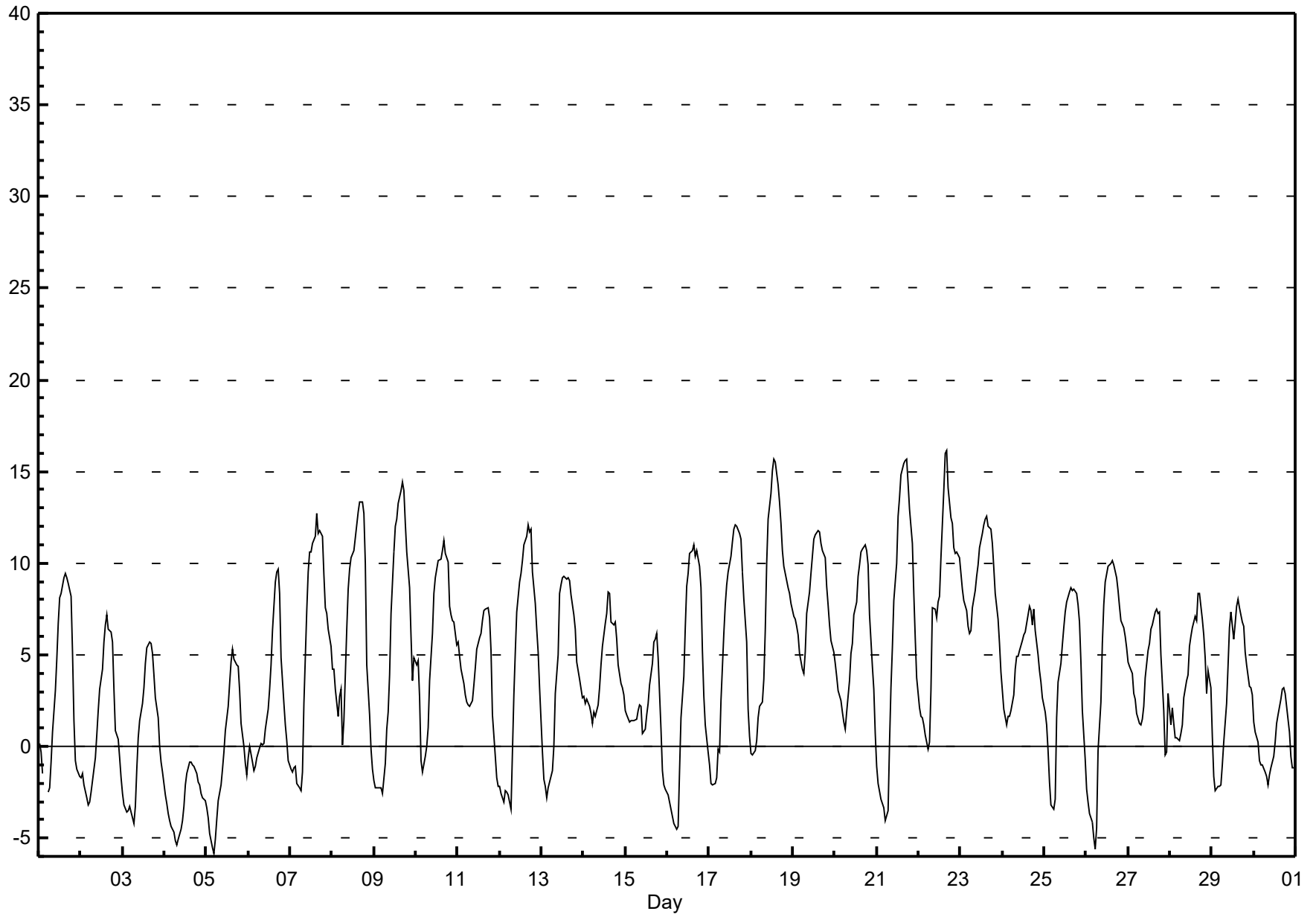






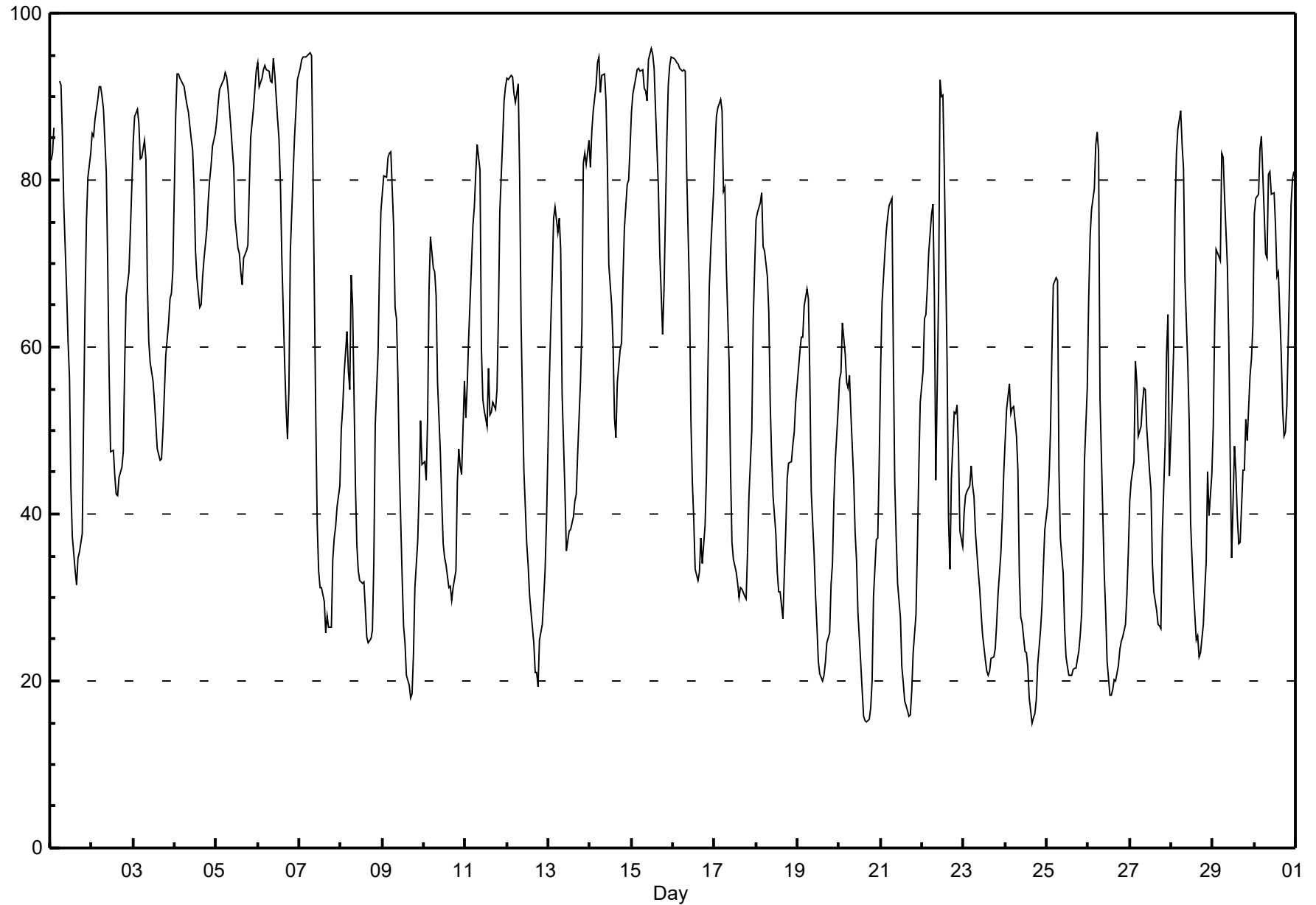
Hourly Averages

External Temperature (ET) - °C
Evergreen Park - April 2019



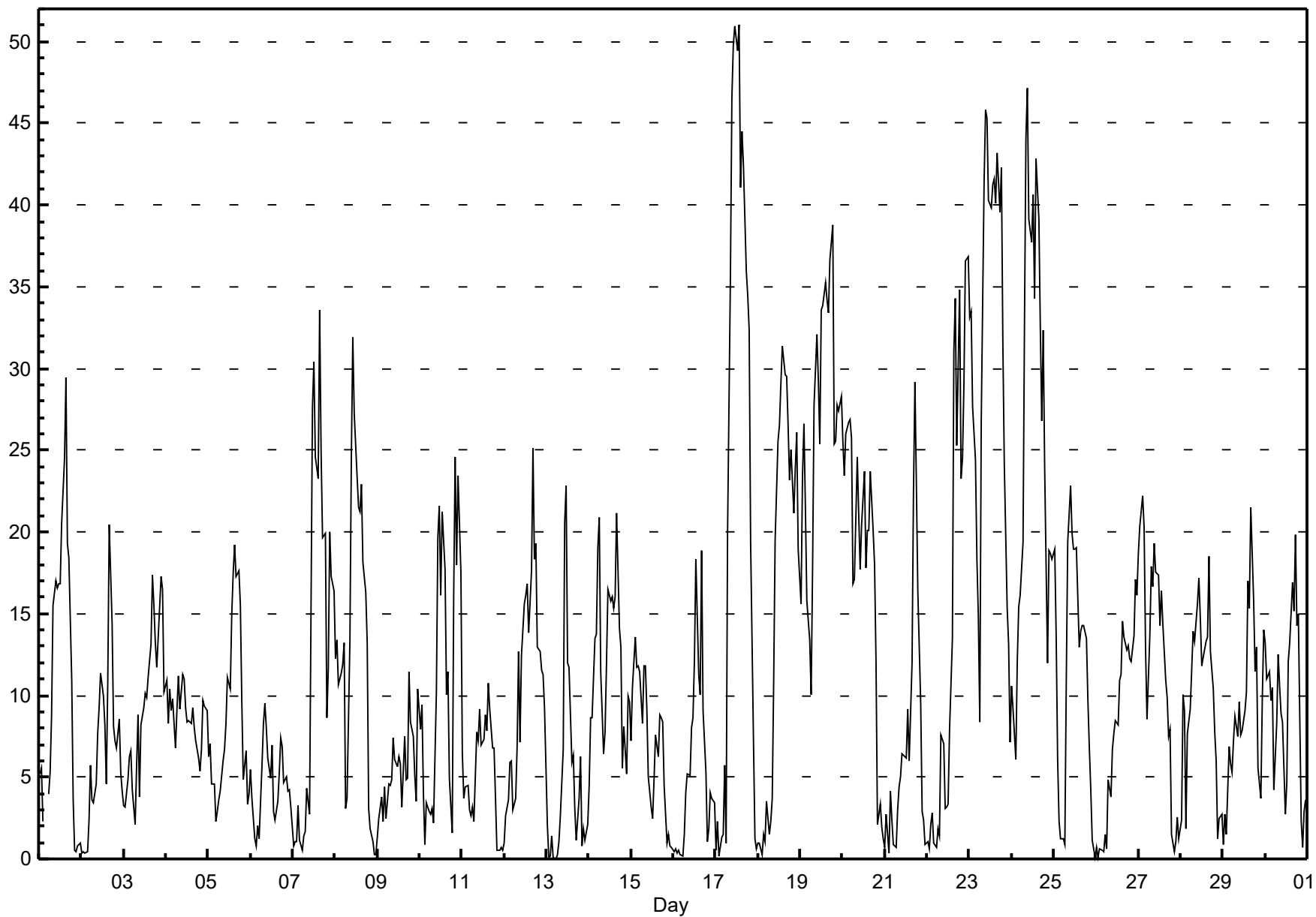
Hourly Averages

Relative Humidity (RH) - %
Evergreen Park - April 2019



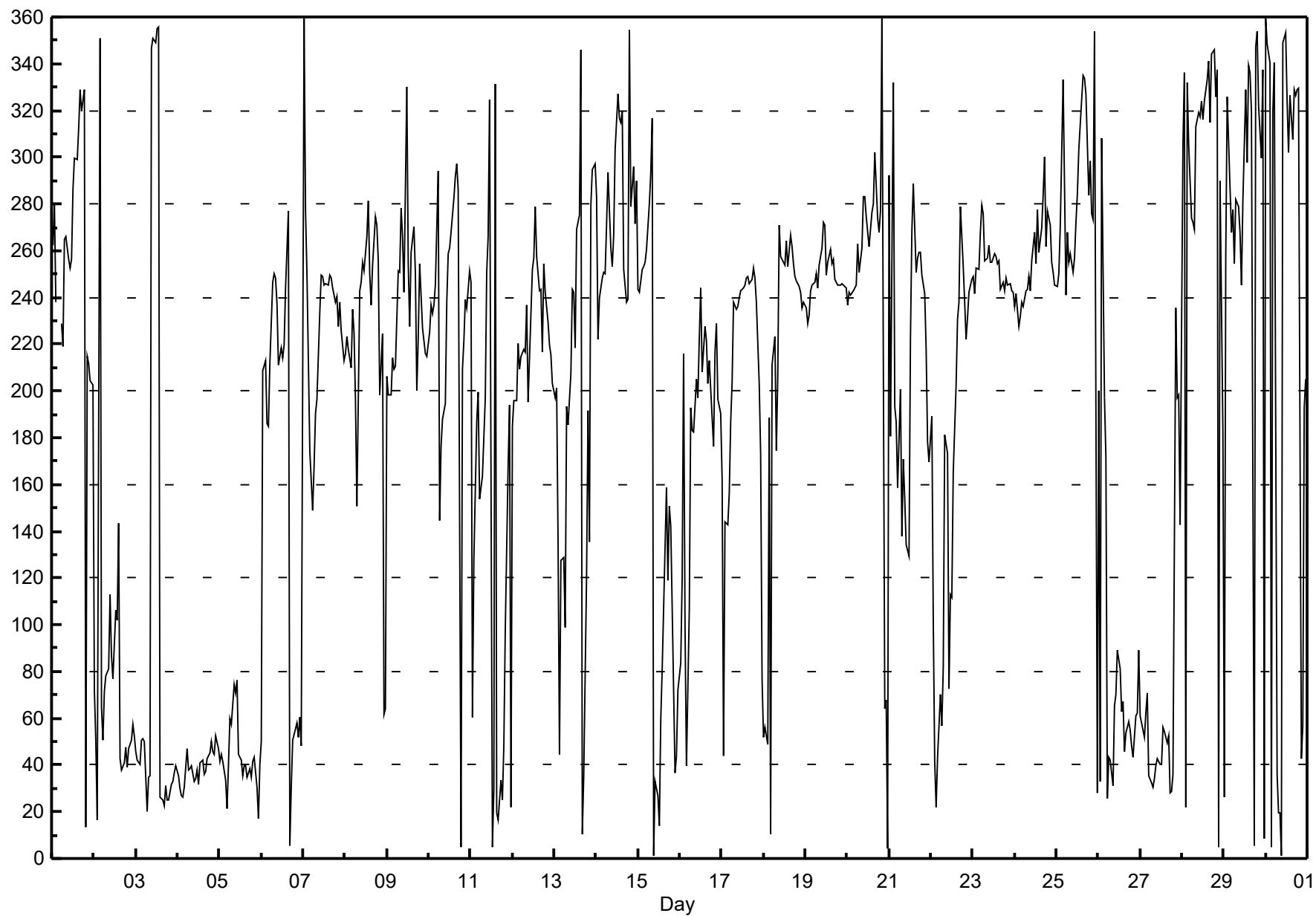
Hourly Averages

Wind Speed (WS) - km/h
Evergreen Park - April 2019



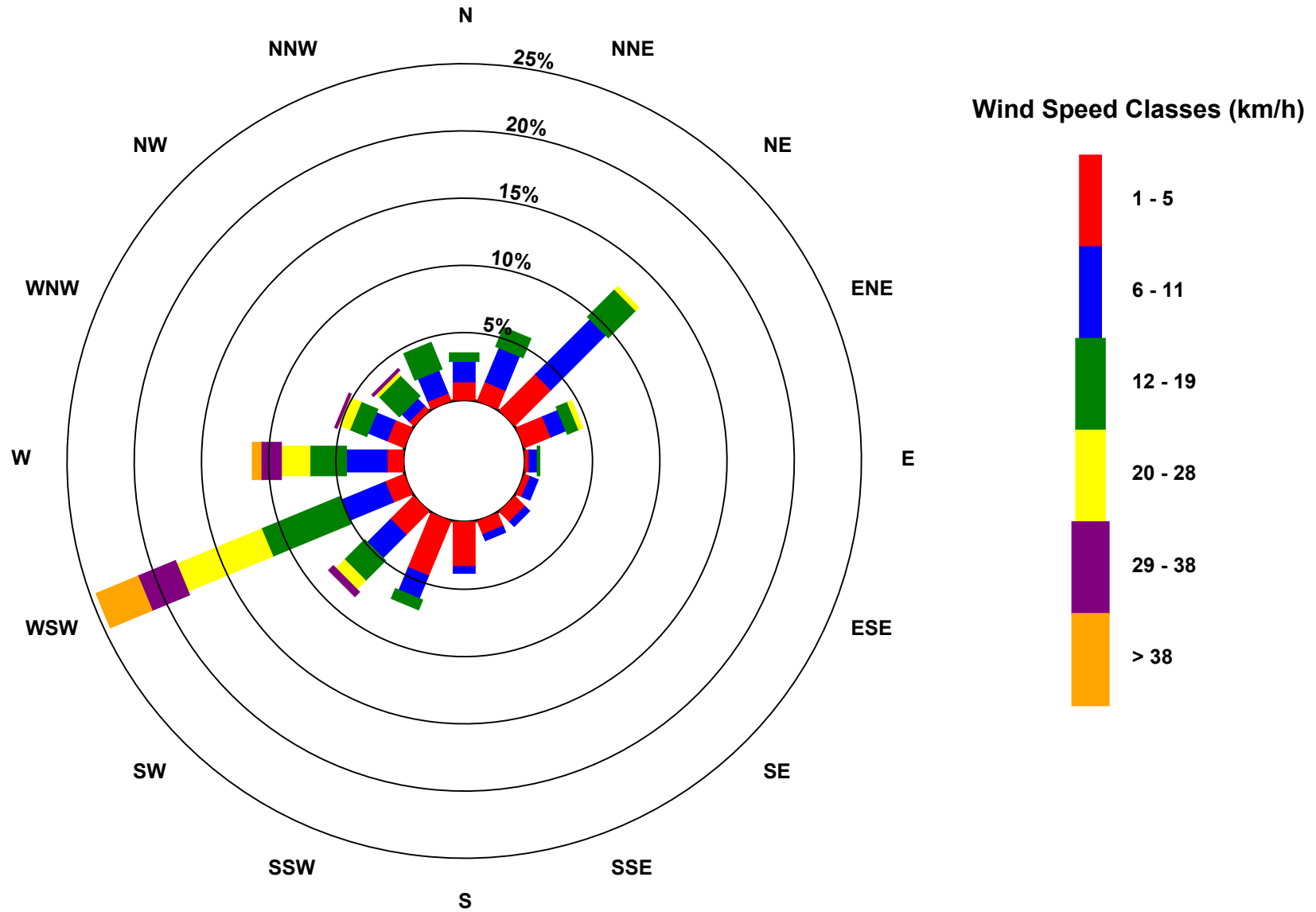
Hourly Averages

Wind Direction (WD) - deg
Evergreen Park - April 2019



Wind Rose

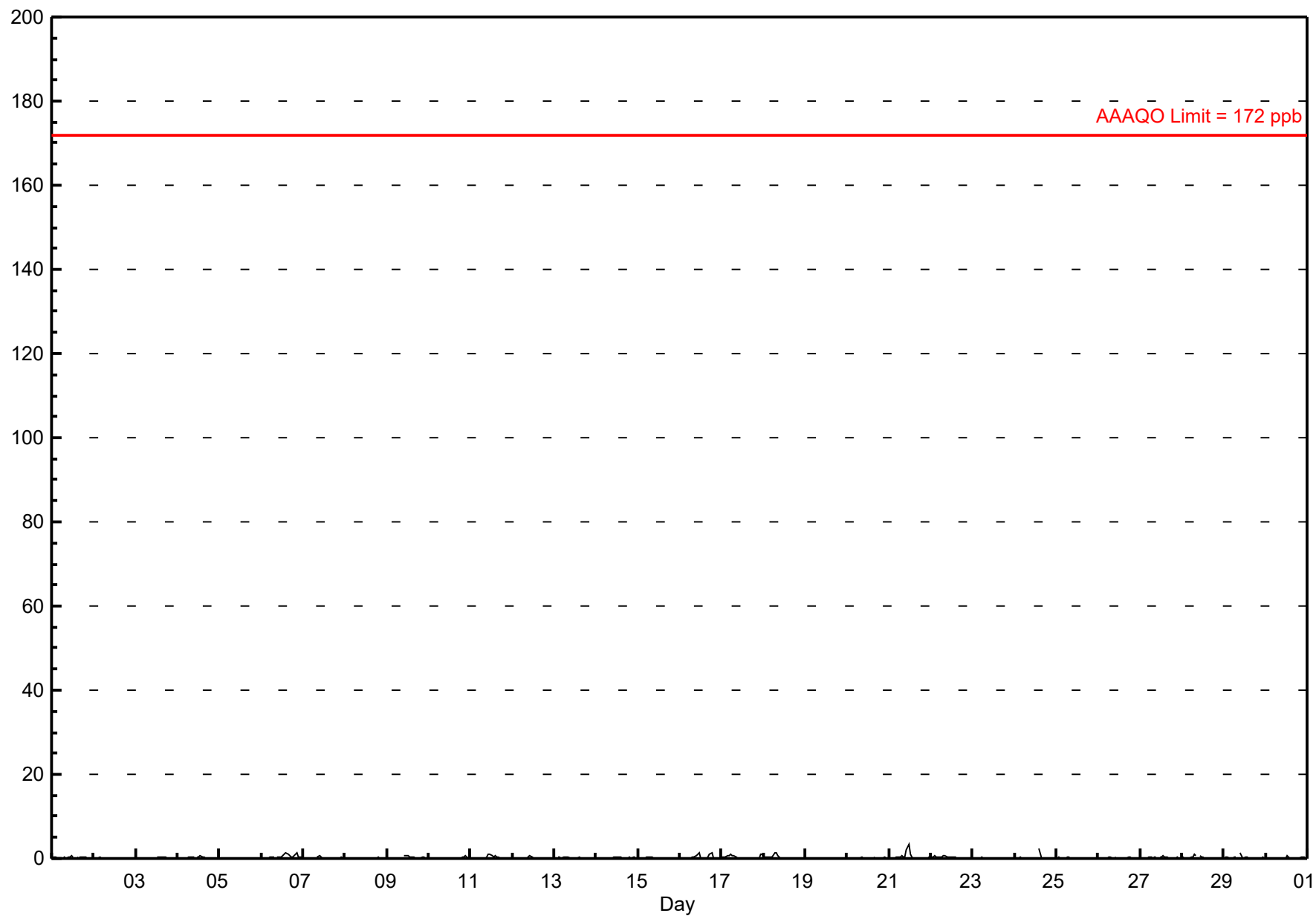
Wind Speed (WS) (km/h)
Evergreen Park - April 2019



Hourly Averages

Sulphur Dioxide (SO₂) - ppb

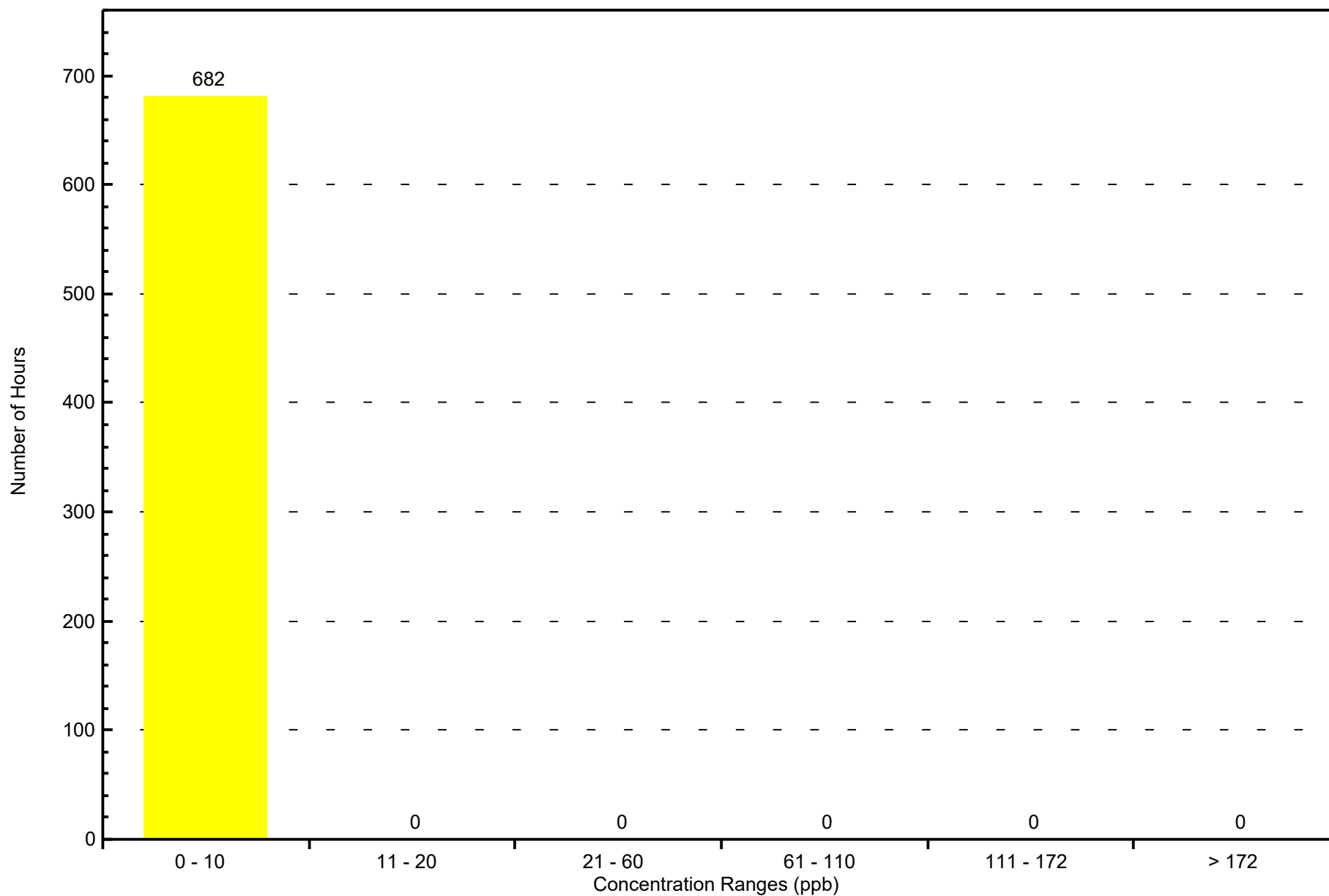
Henry Pirker - April 2019



Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb

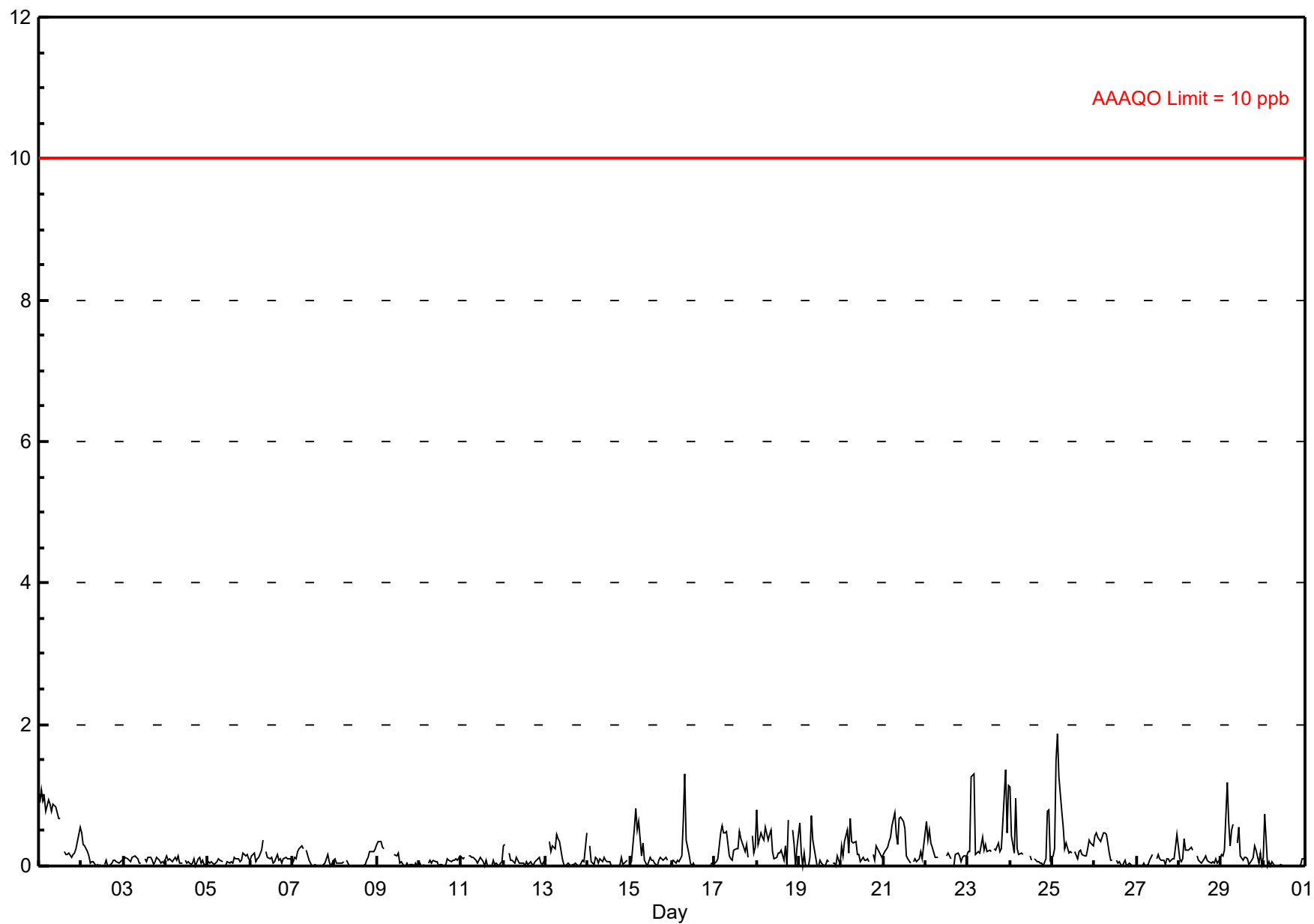
Henry Pirker - April 2019



Hourly Averages

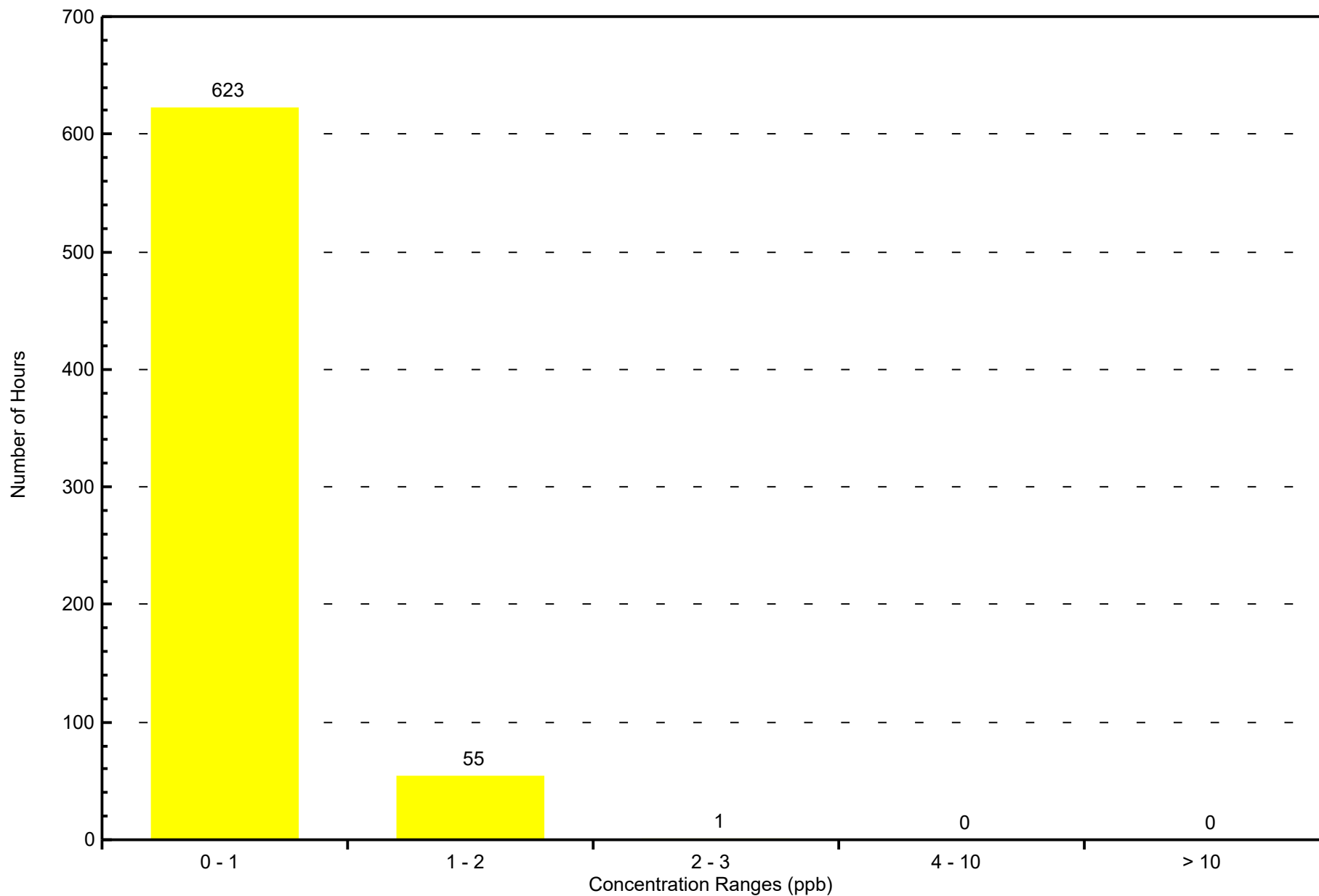
Hydrogen Sulphide (H₂S) - ppb

Henry Pirker - April 2019



Histogram of Hourly Averages

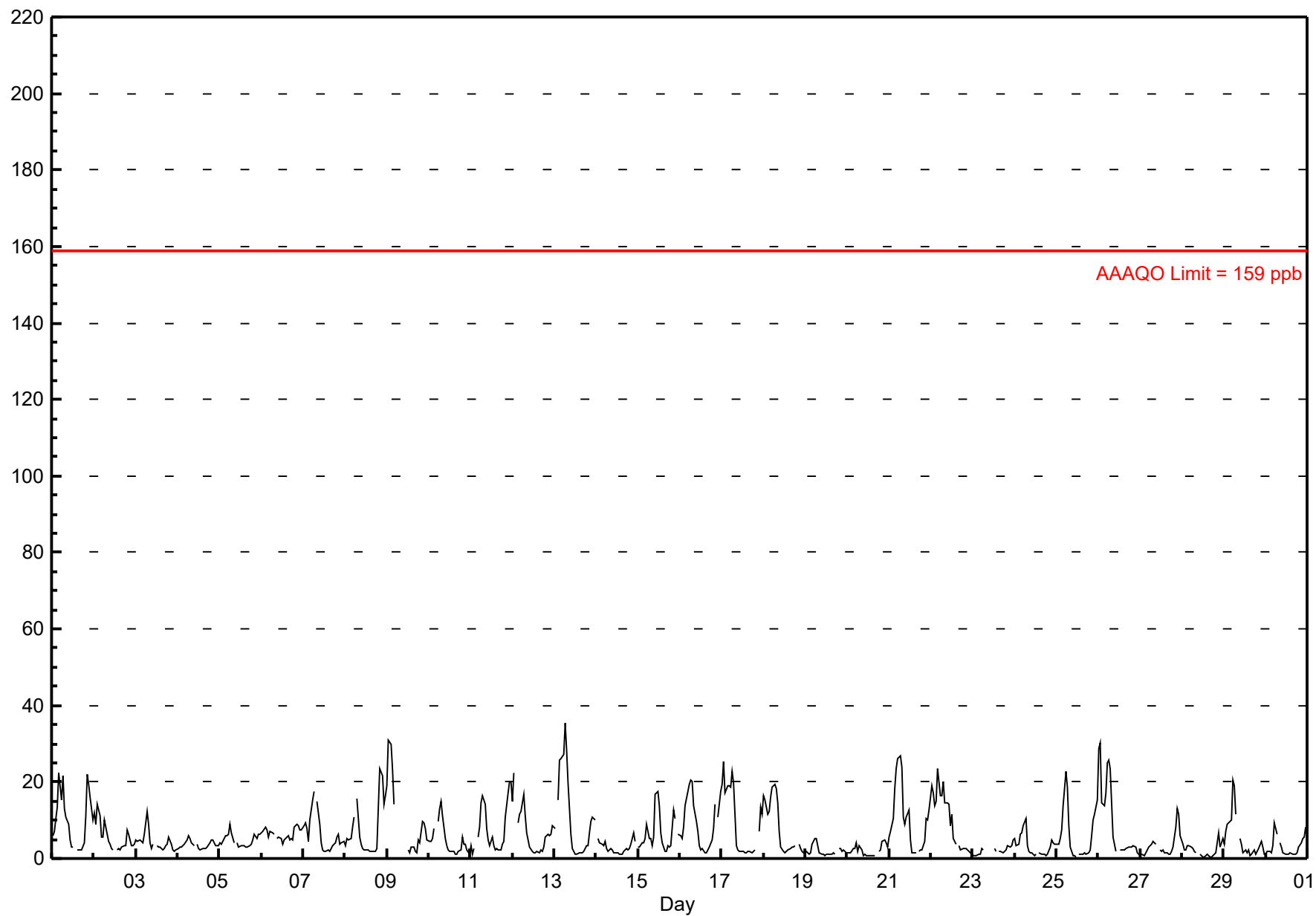
Hydrogen Sulphide (H₂S) - ppb
Henry Pirker - April 2019



Hourly Averages

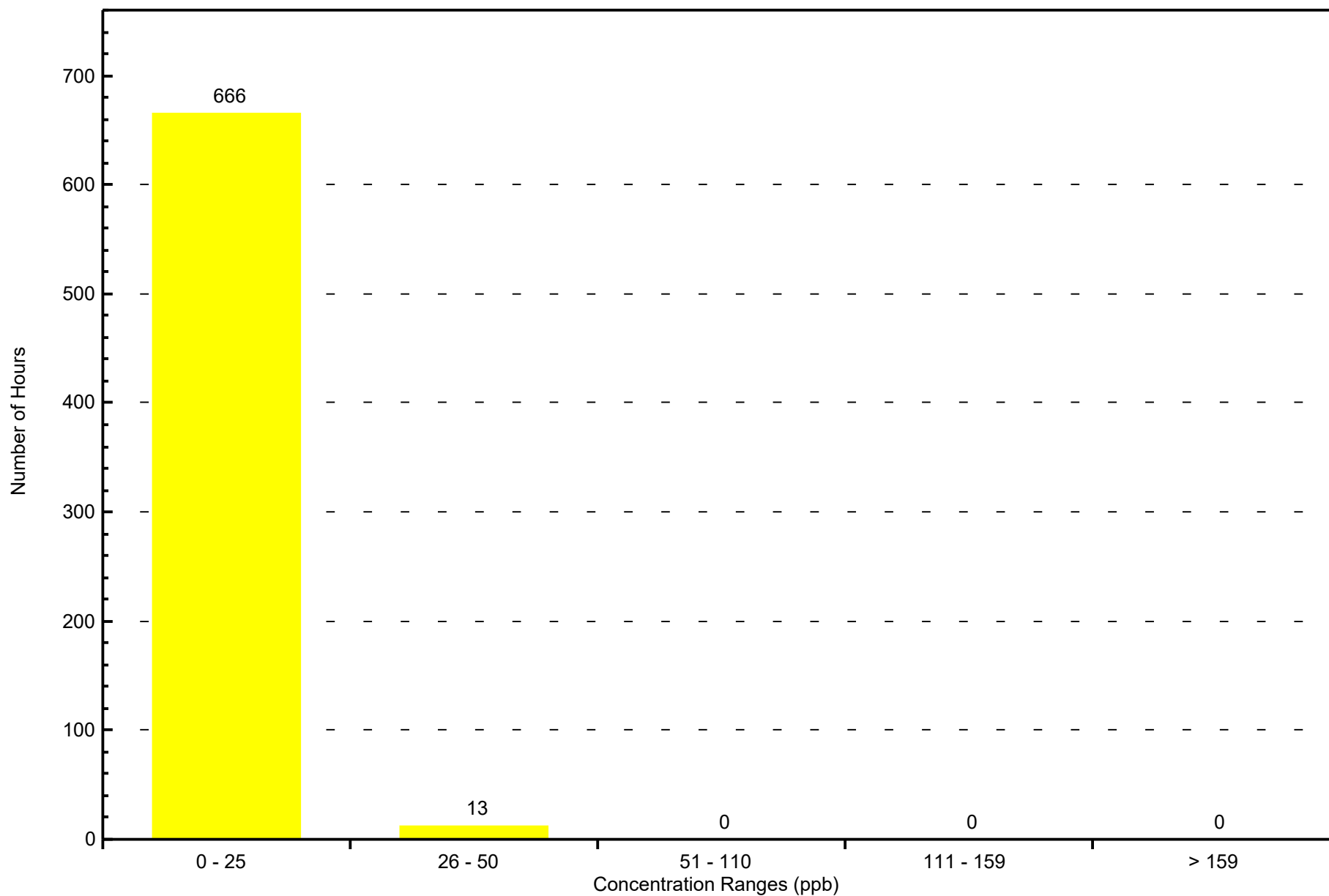
Nitrogen Dioxide (NO₂) - ppb

Henry Pirker - April 2019



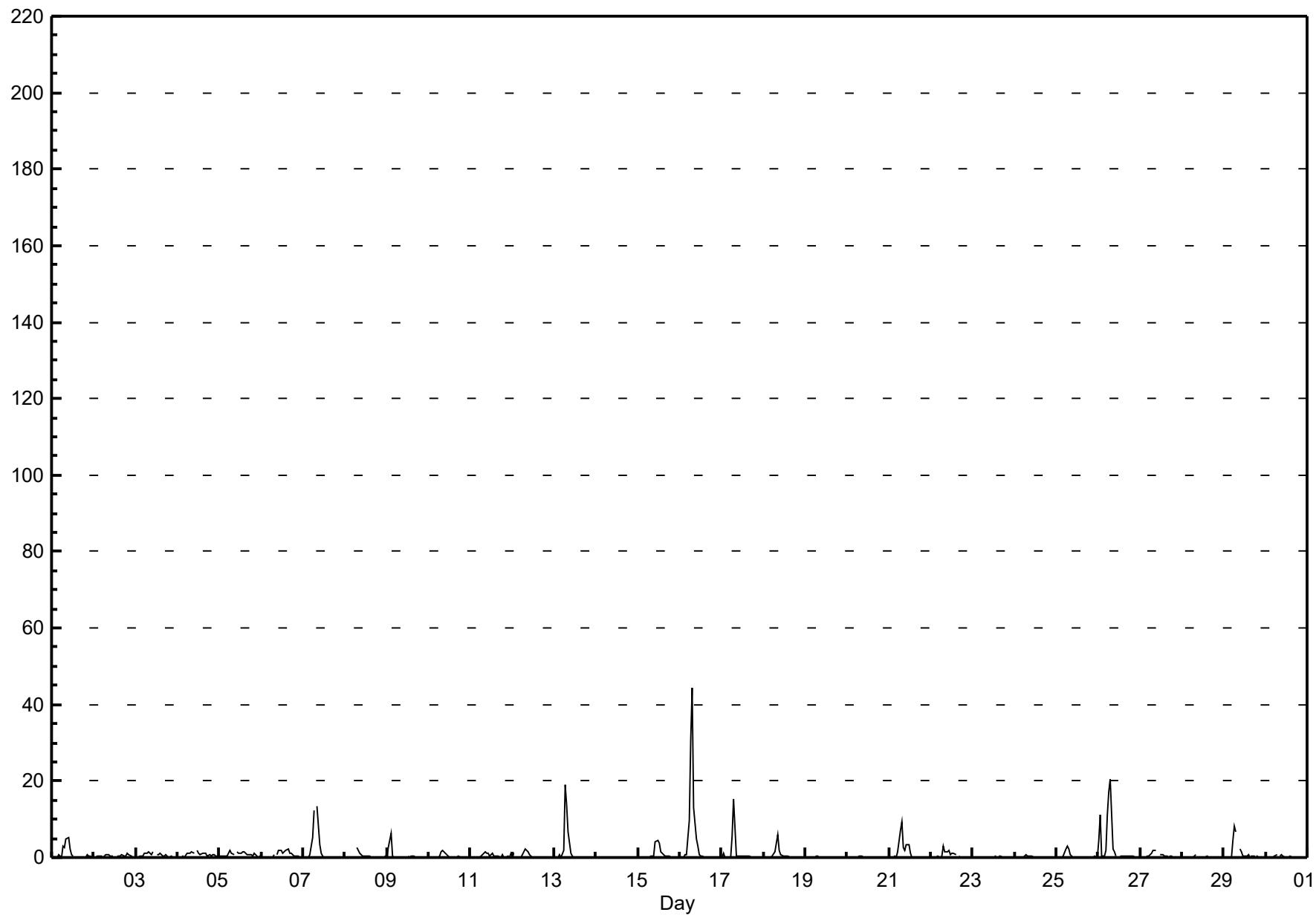
Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker - April 2019



Hourly Averages

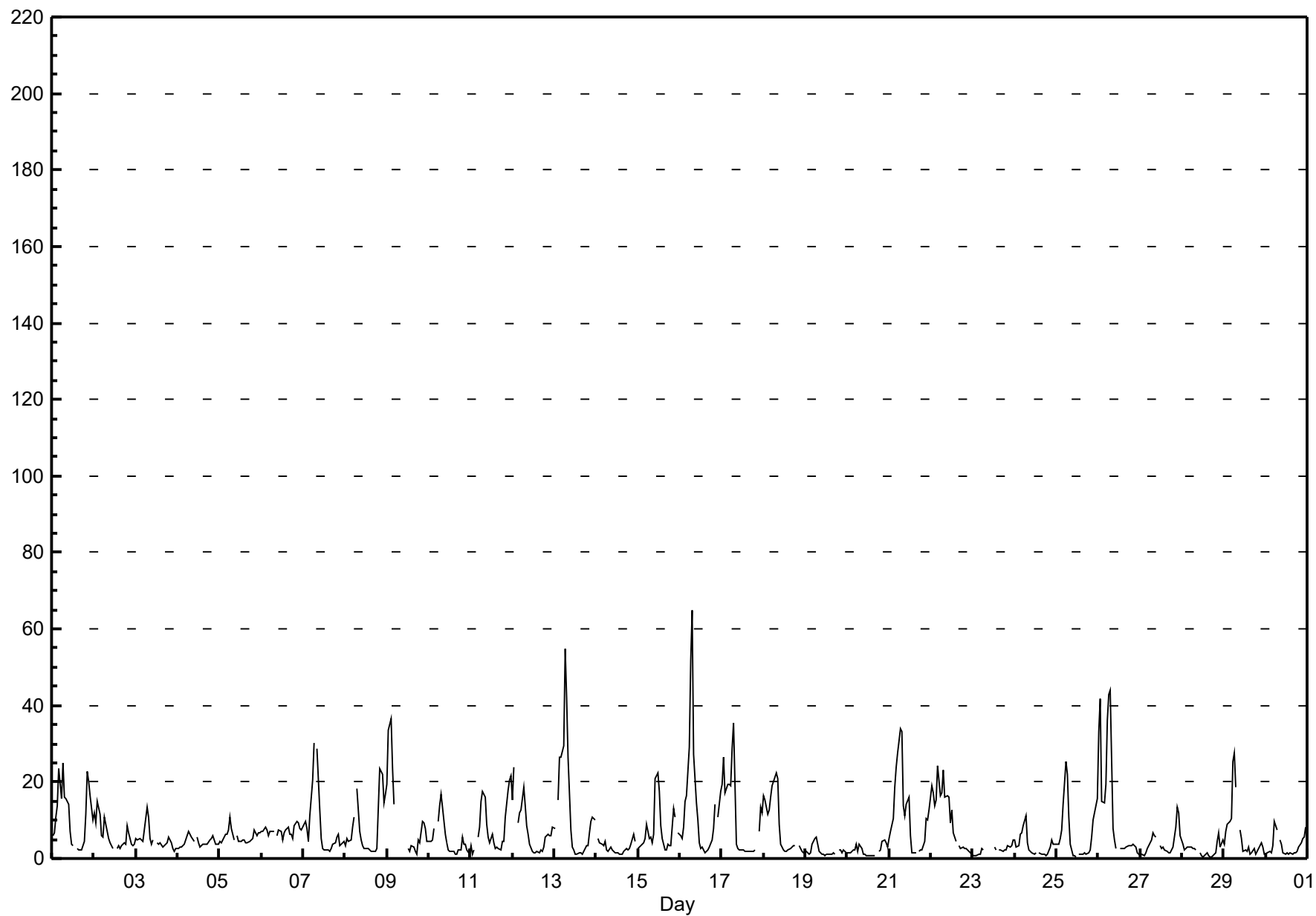
Nitrogen Oxide (NO) - ppb
Henry Pirker - April 2019



Hourly Averages

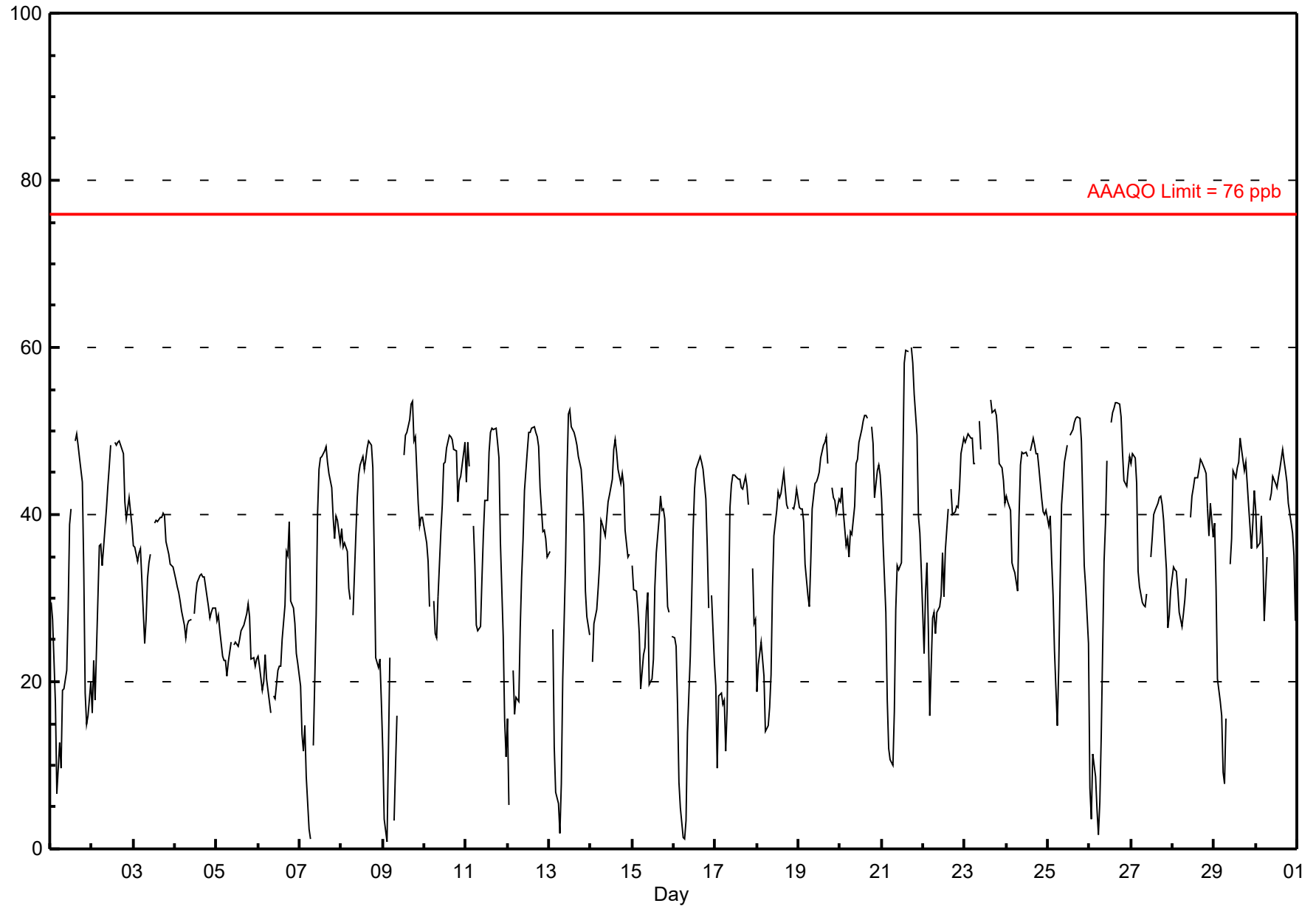
Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - April 2019



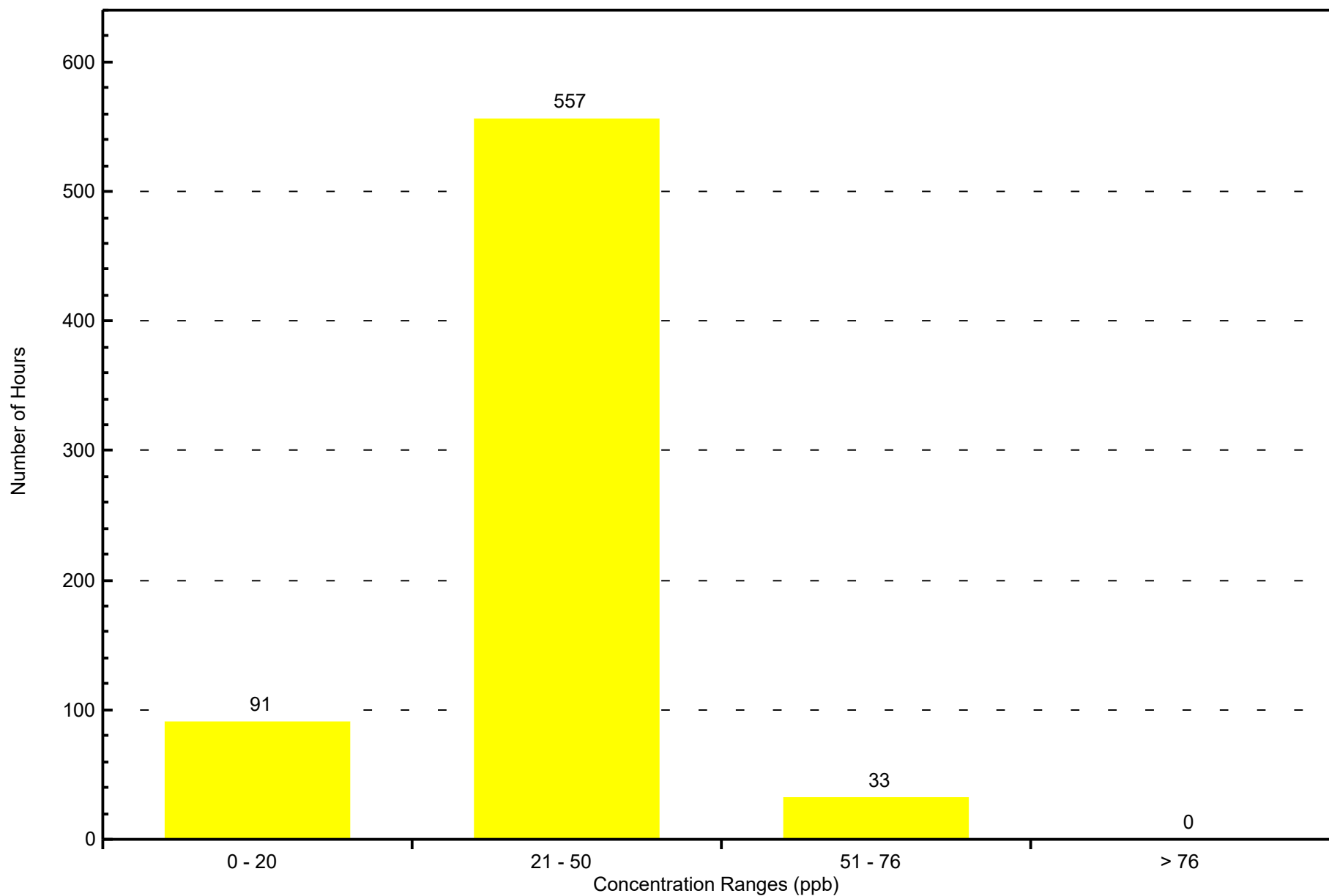
Hourly Averages

Ozone (O₃) - ppb
Henry Pirker - April 2019



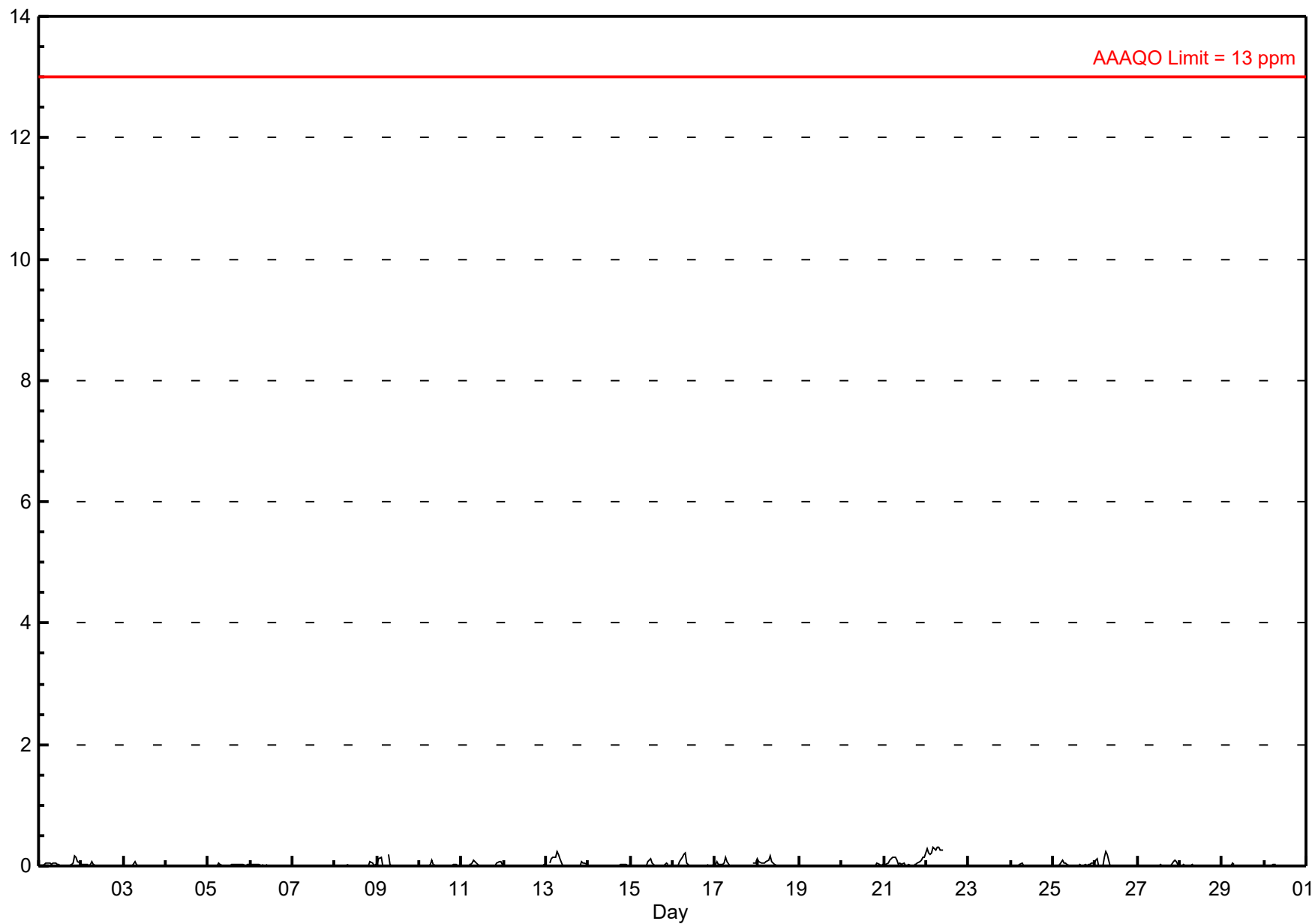
Histogram of Hourly Averages

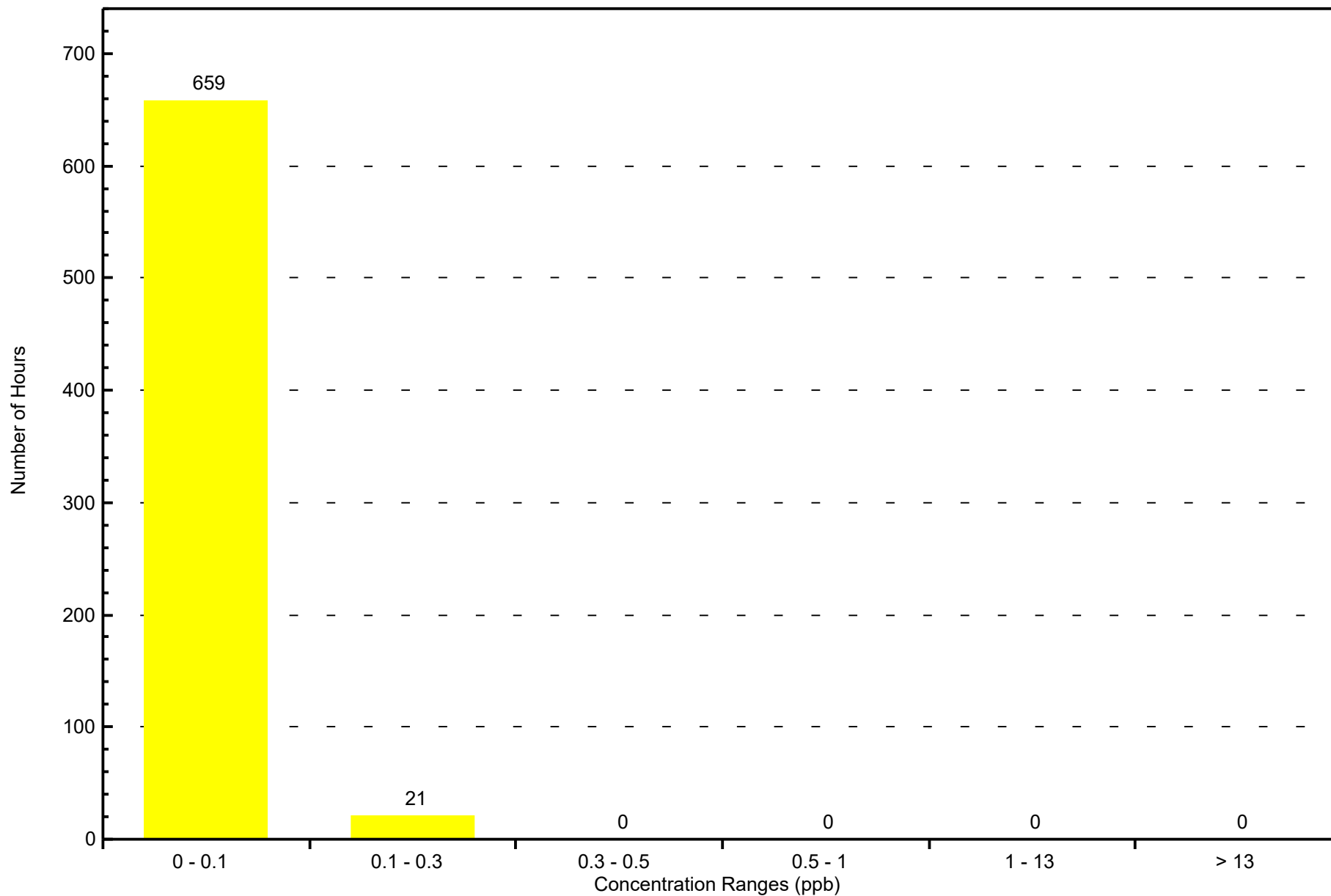
Ozone (O₃) - ppb
Henry Pirker - April 2019



Hourly Averages

Carbon Monoxide (CO) - ppm
Henry Pirker - April 2019

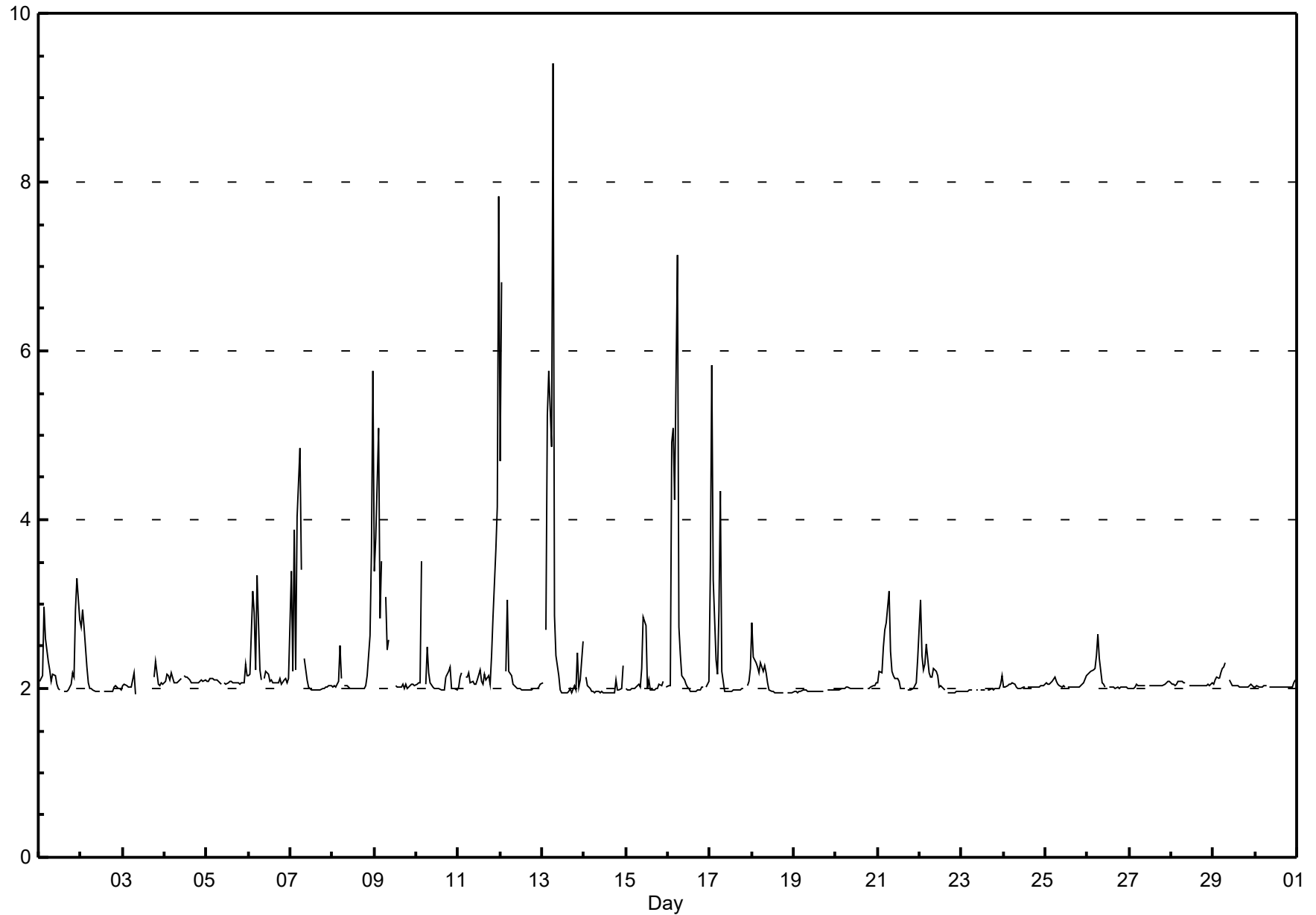




Hourly Averages

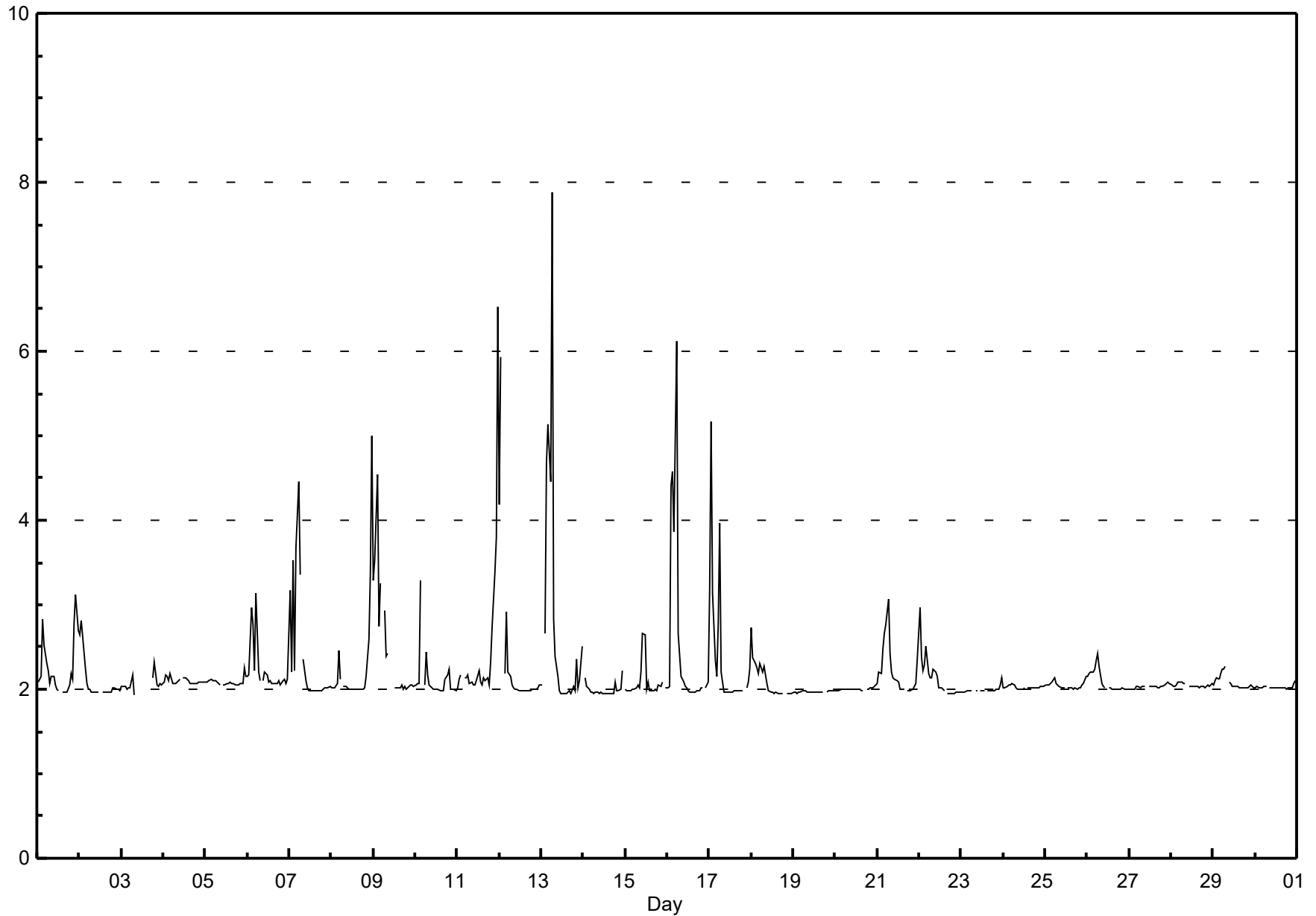
Total Hydrocarbons (THC) - ppm

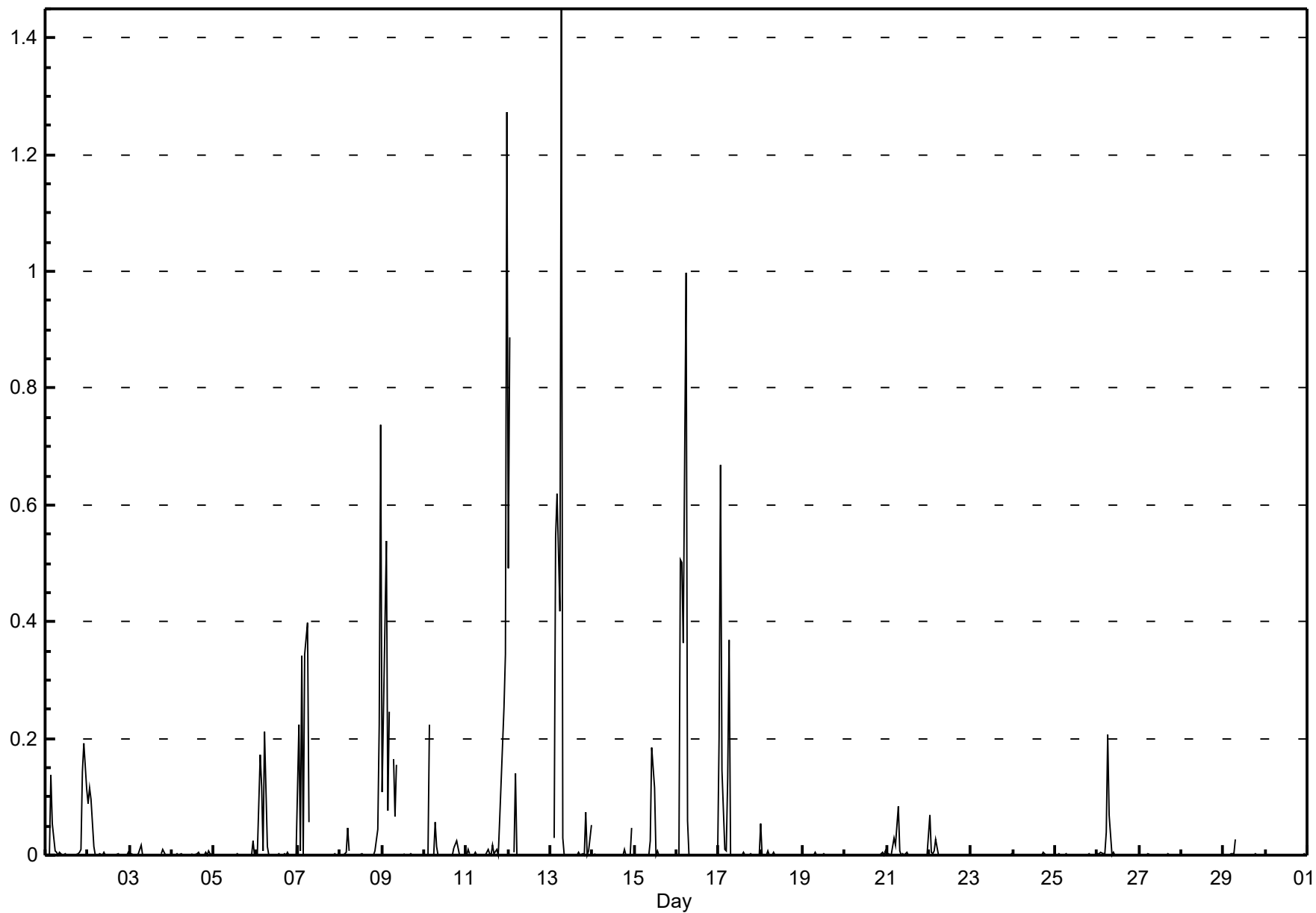
Henry Pirker - April 2019

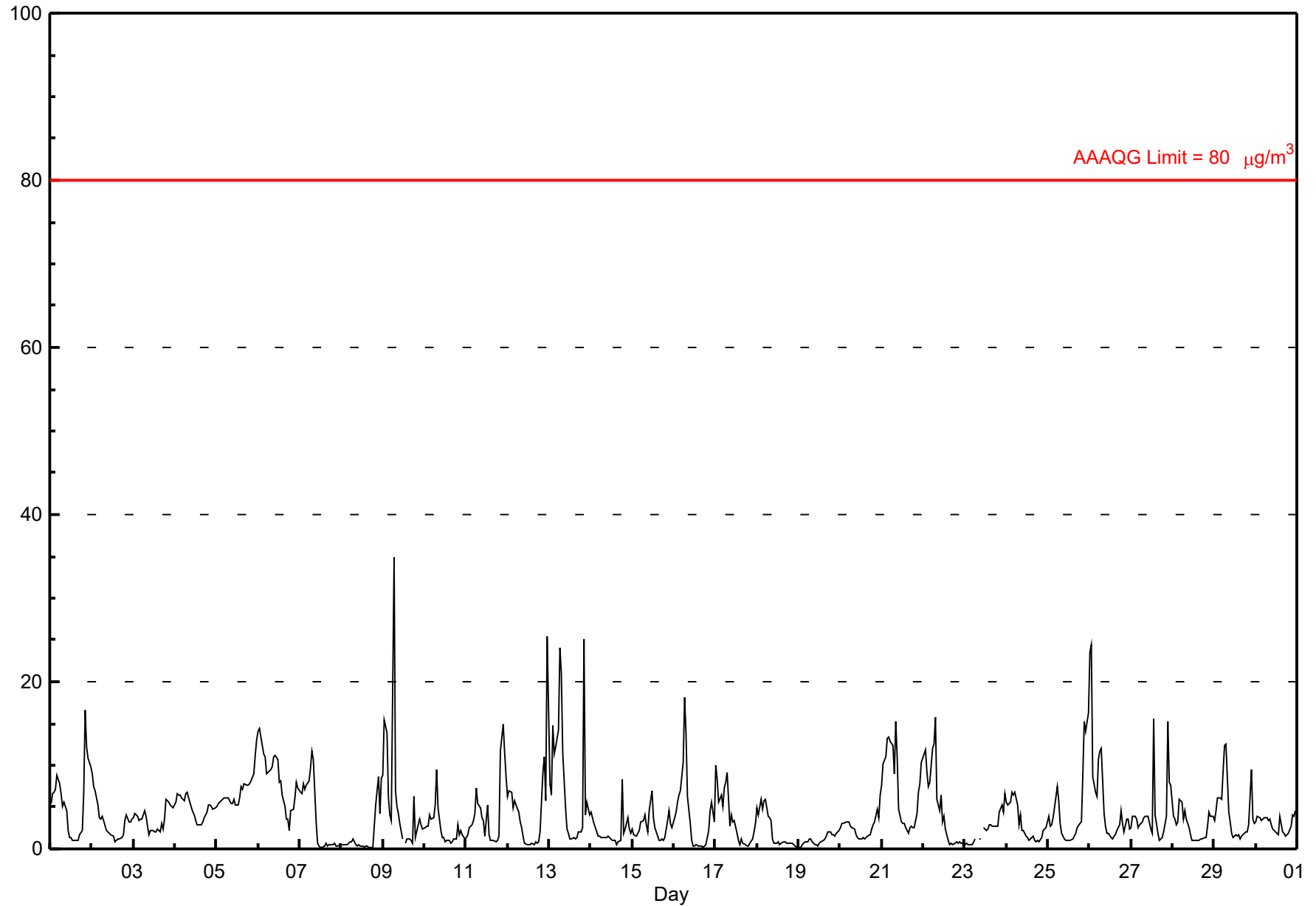


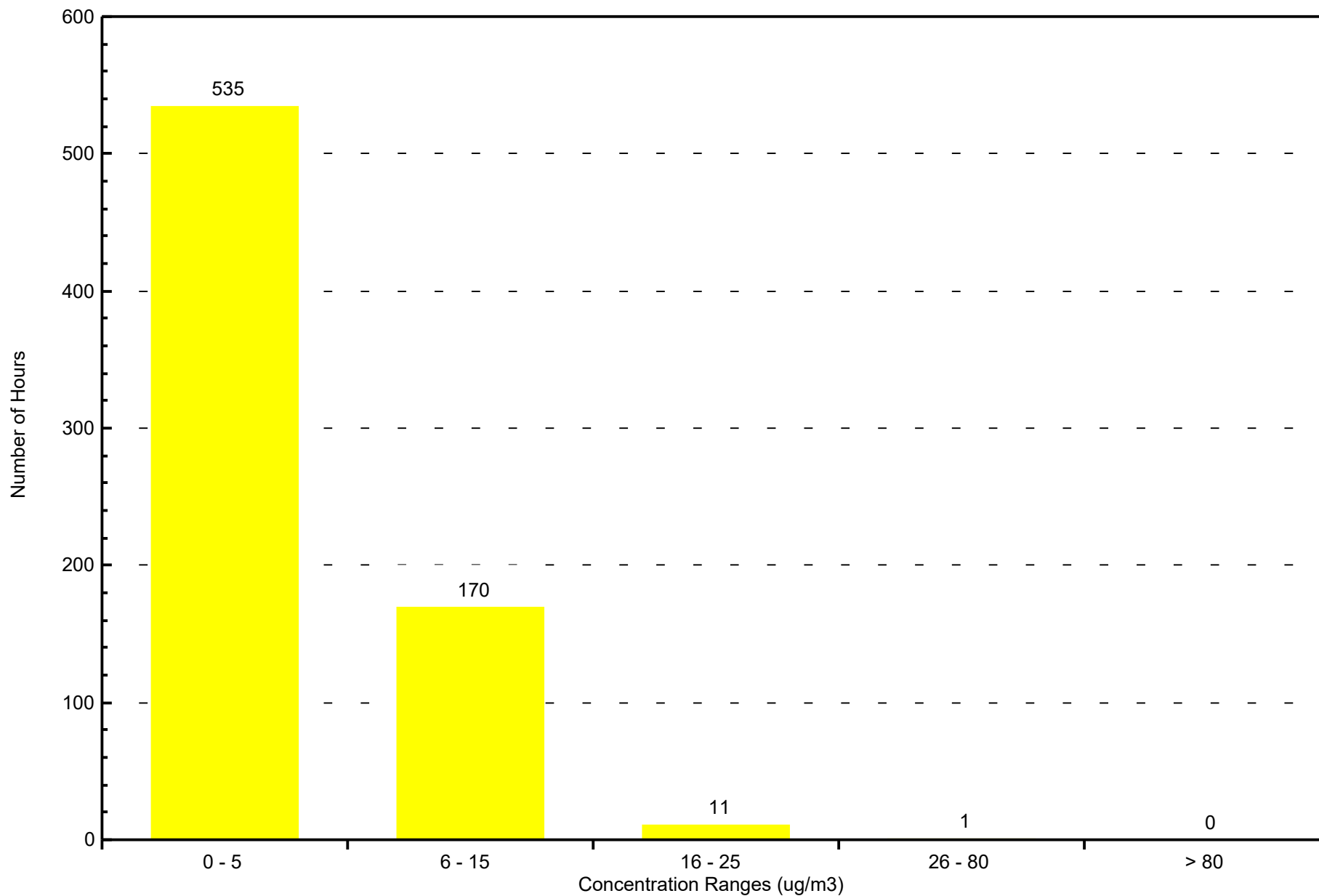
Hourly Averages

Methane (CH₄) - ppm
Henry Pirker - April 2019





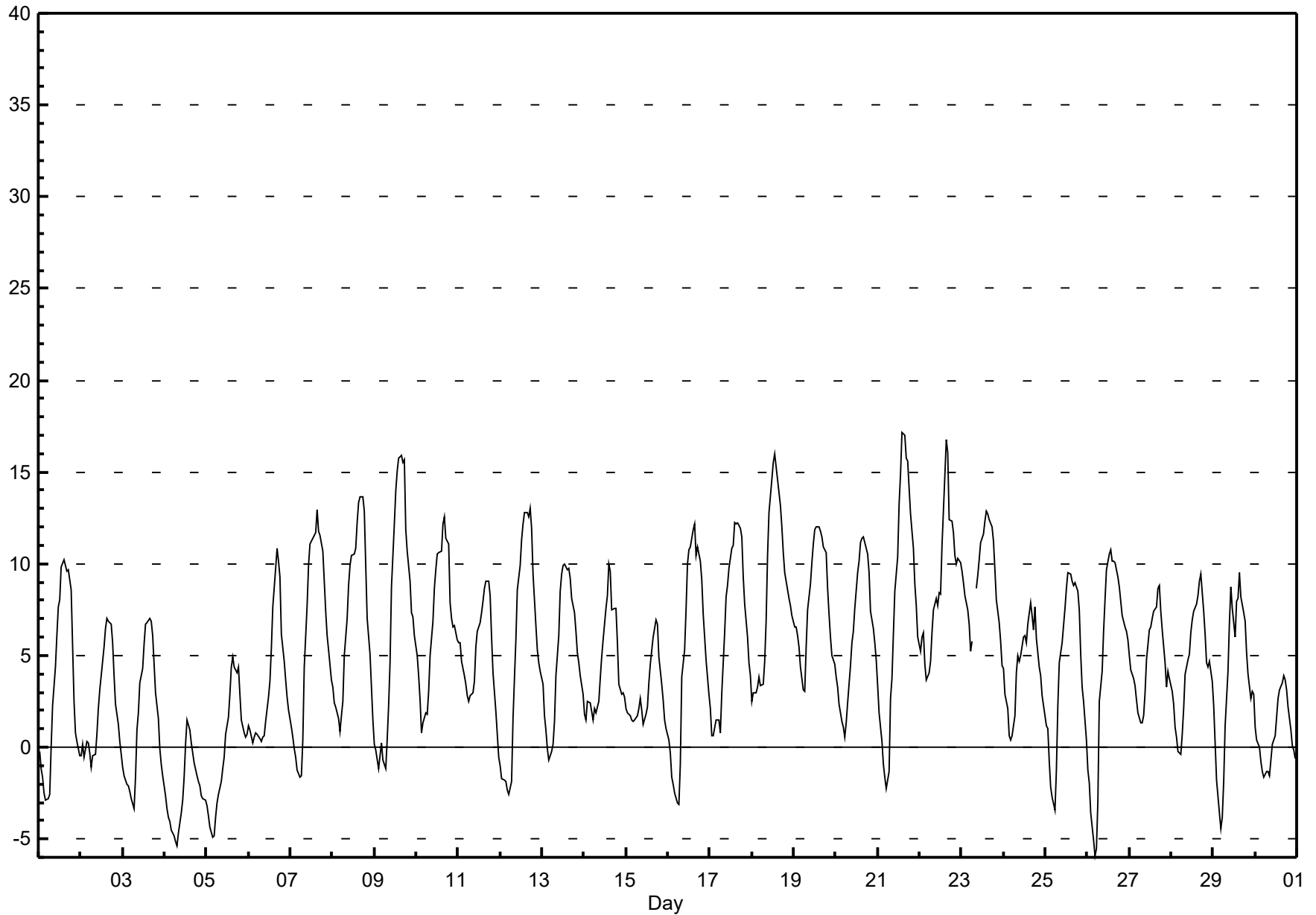




Hourly Averages

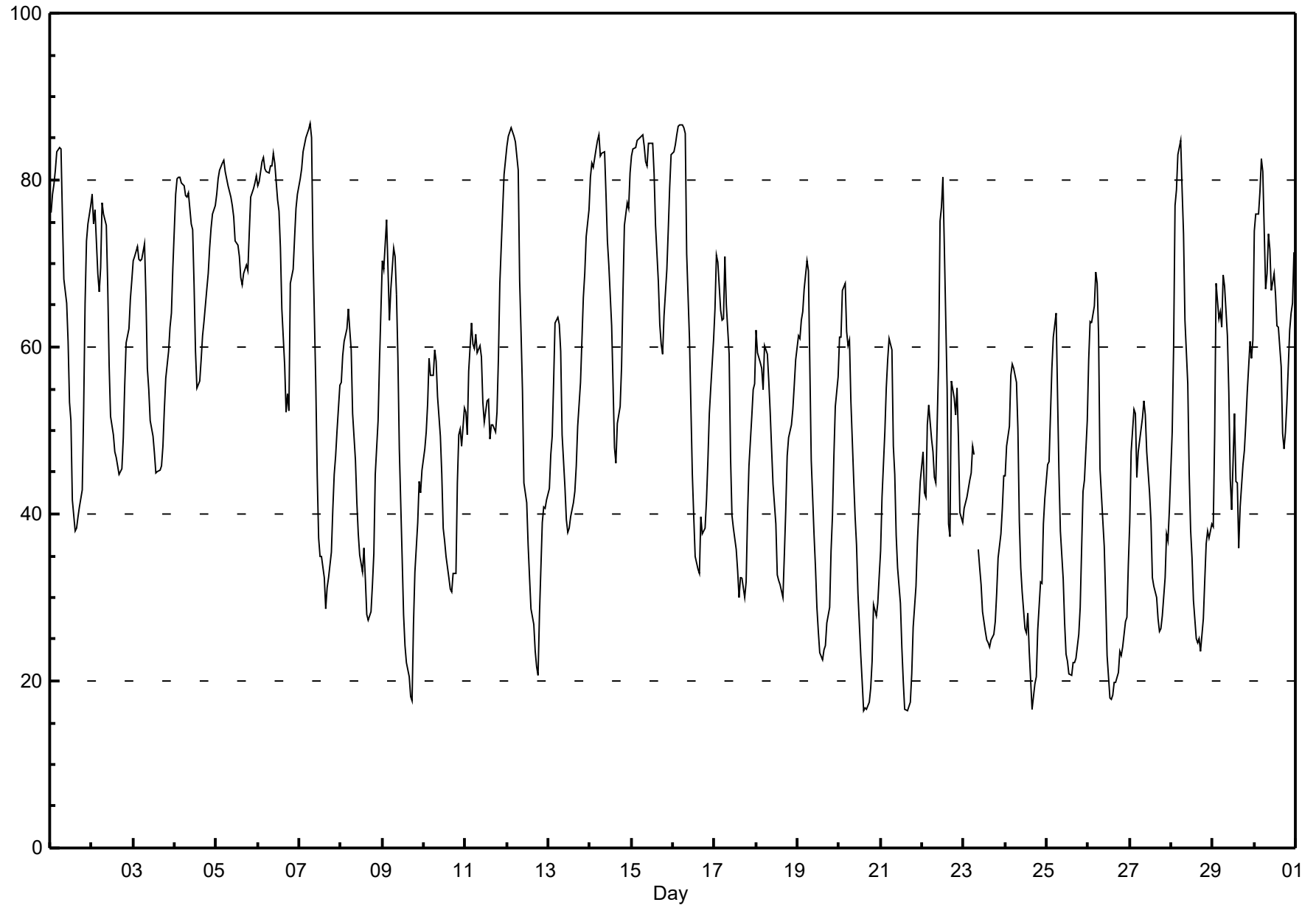
External Temperature (ET) - °C

Henry Pirker - April 2019



Hourly Averages

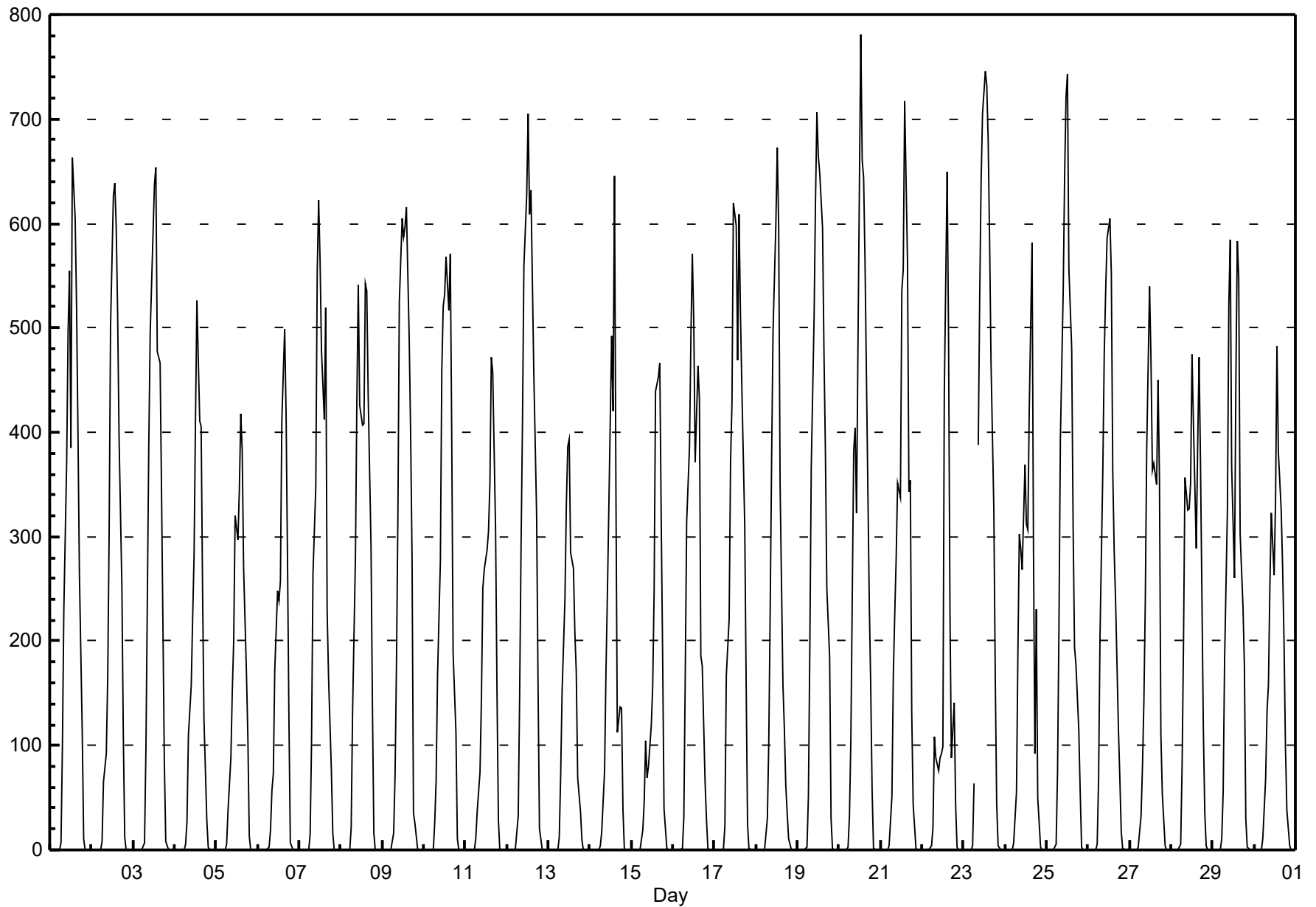
Relative Humidity (RH) - %
Henry Pirker - April 2019



Hourly Averages

Solar Radiation (SR) - W/m²

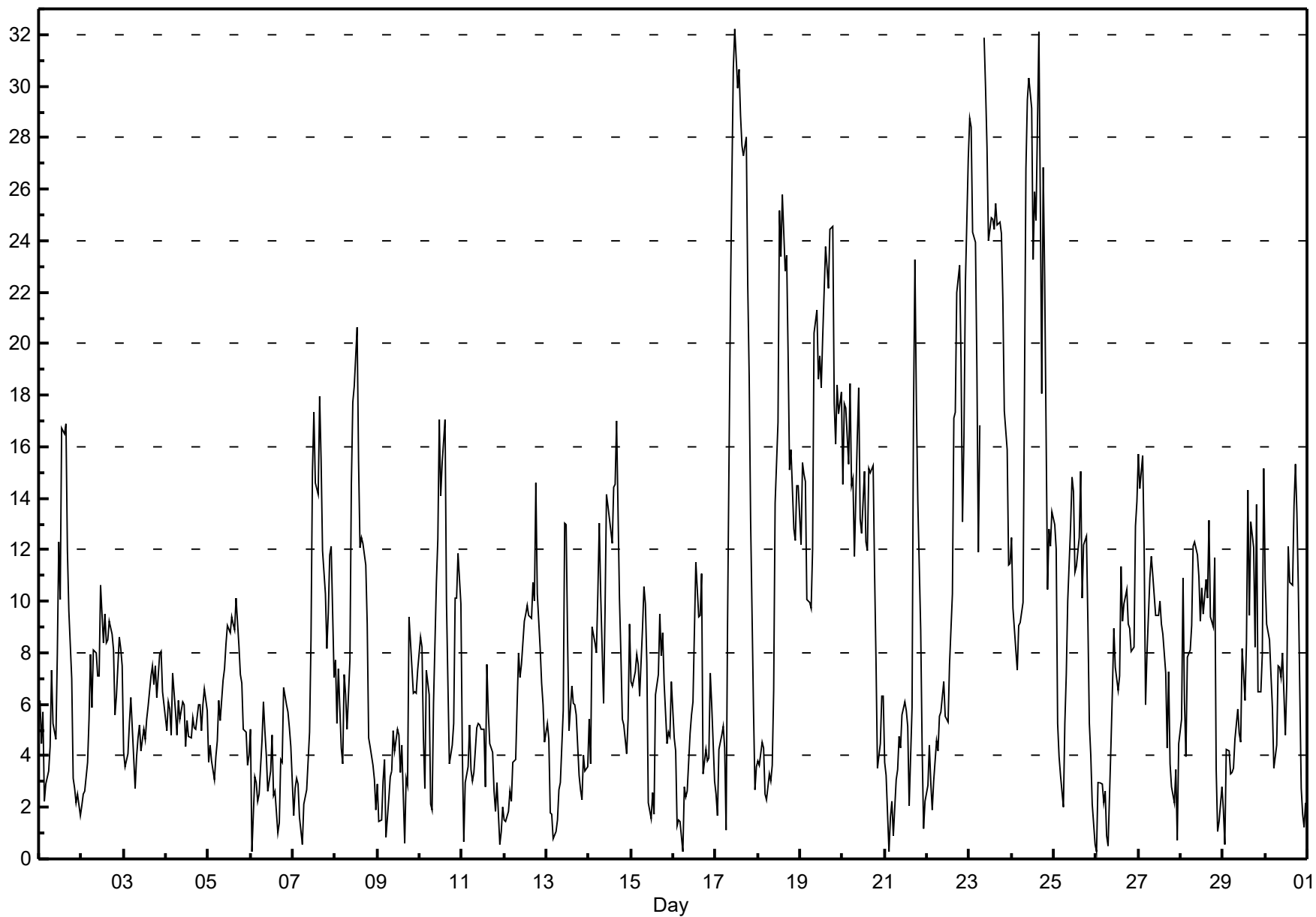
Henry Pirker - April 2019



Hourly Averages

Wind Speed (WS) - km/h

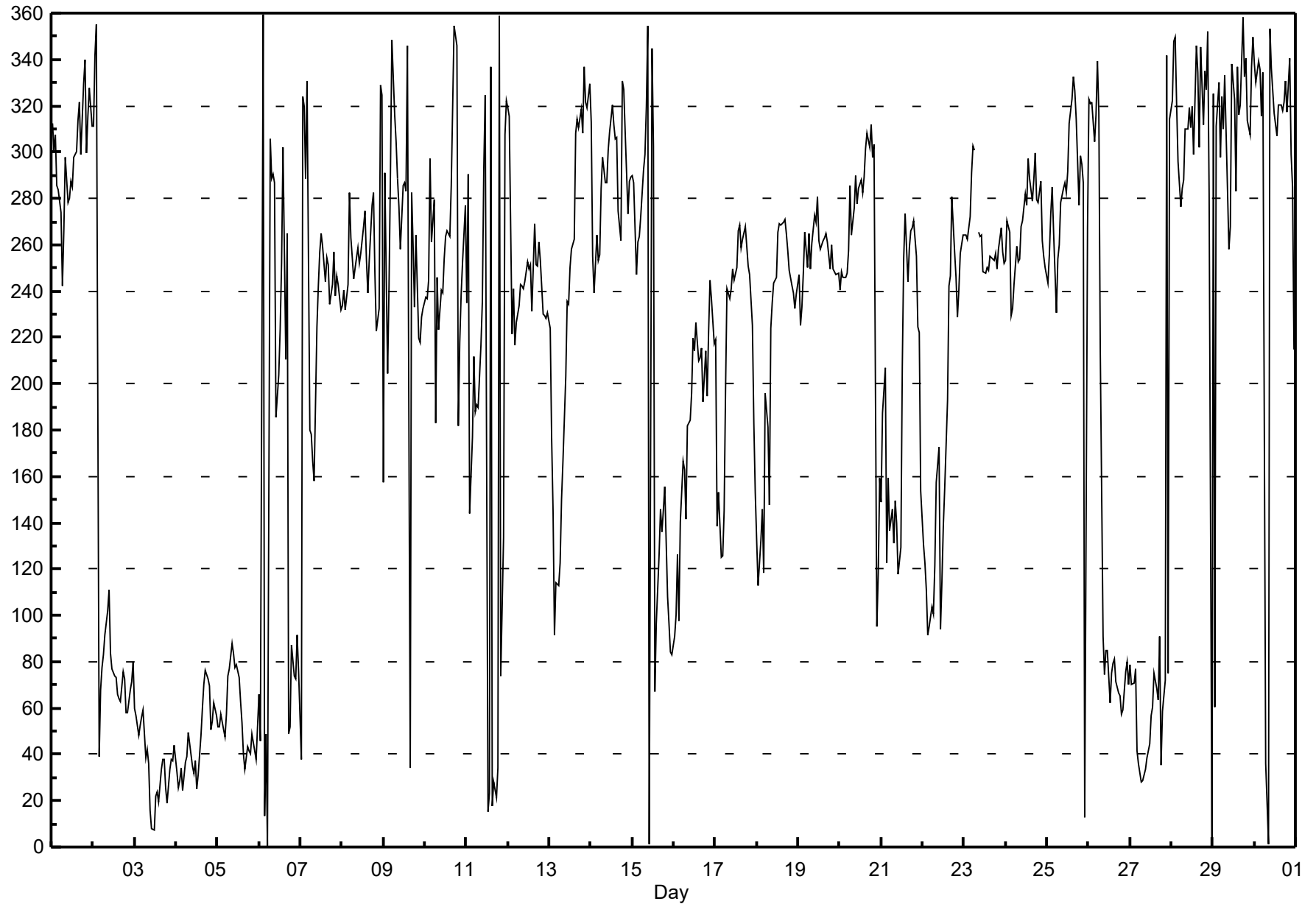
Henry Pirker - April 2019



Hourly Averages

Wind Direction (WD) - deg

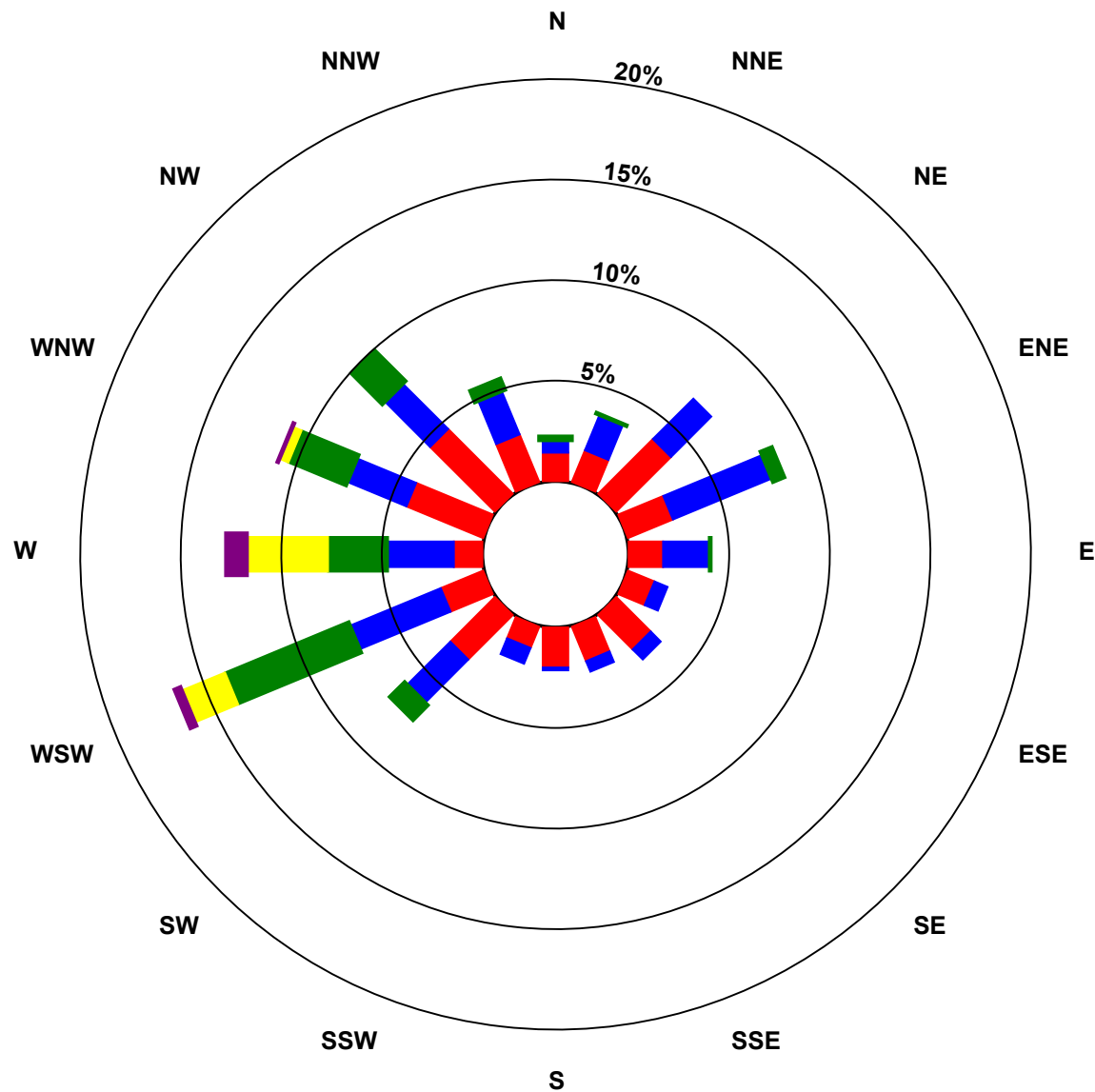
Henry Pirker - April 2019



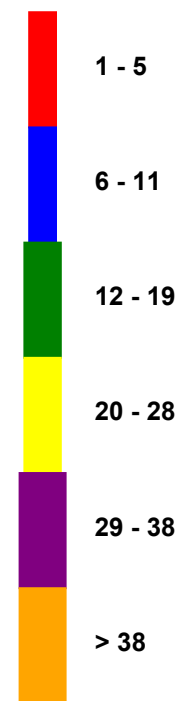
Wind Rose

Wind Speed (WS) (km/h)

Henry Pirker - April 2019

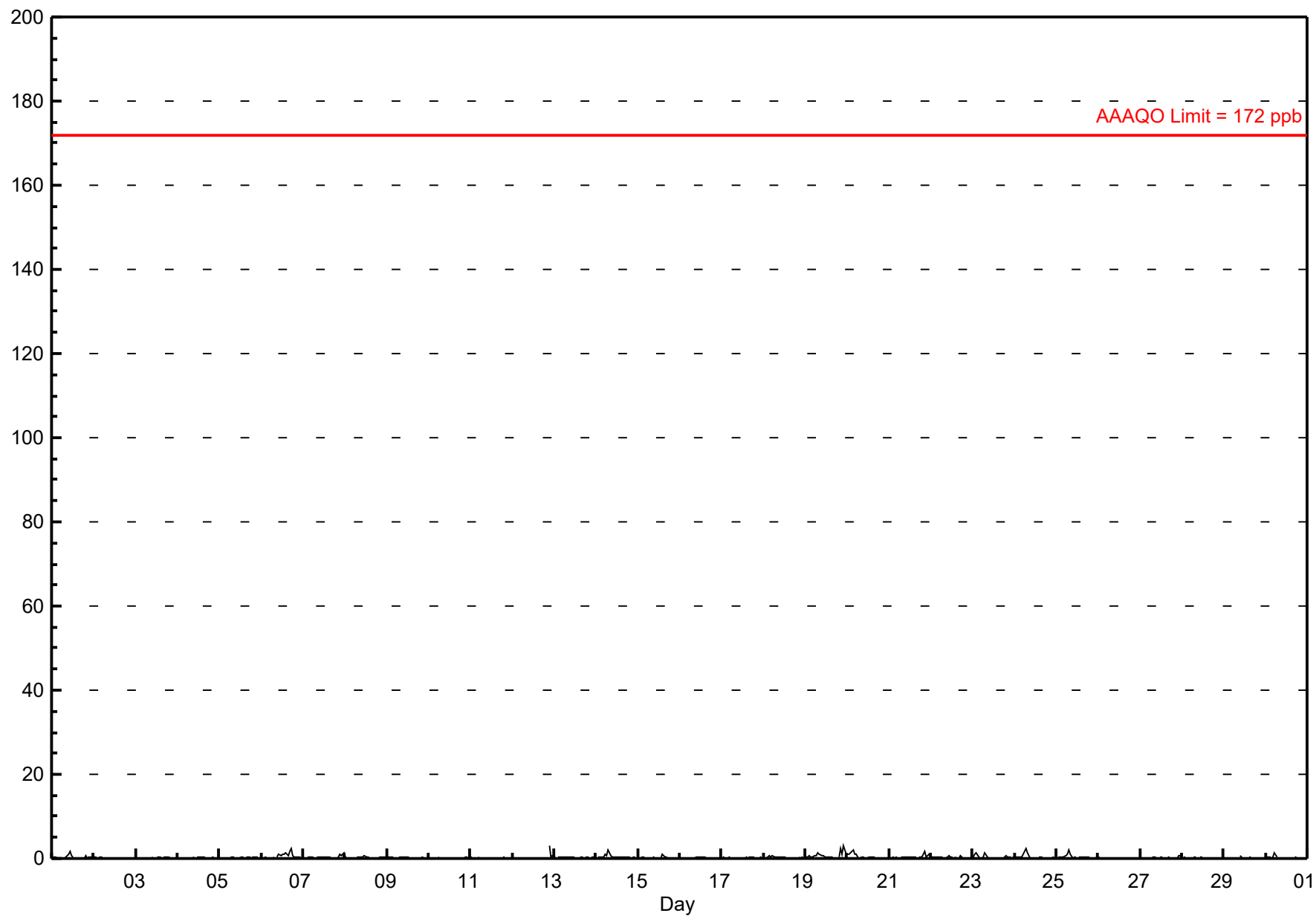


Wind Speed Classes (km/h)



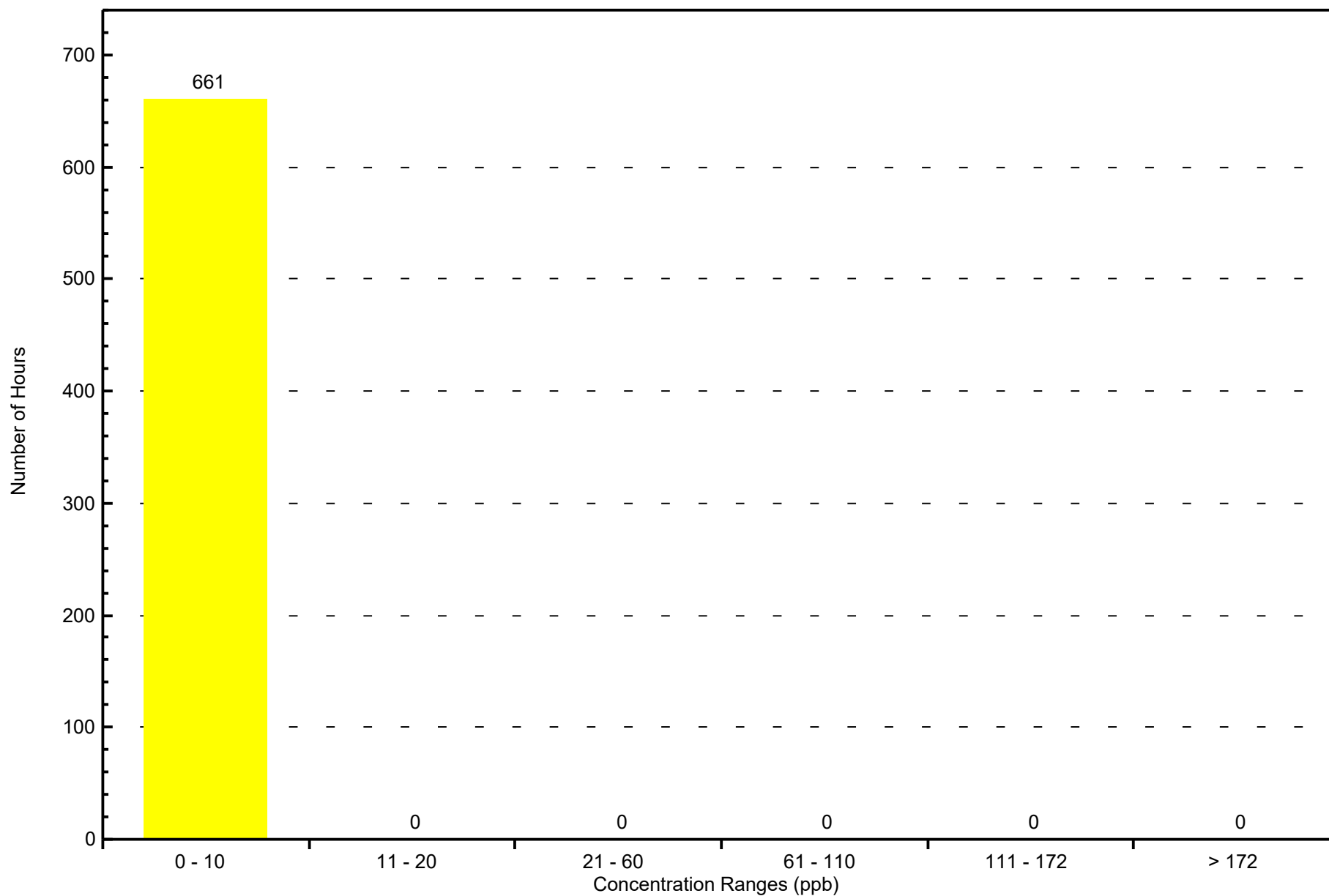
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights - April 2019



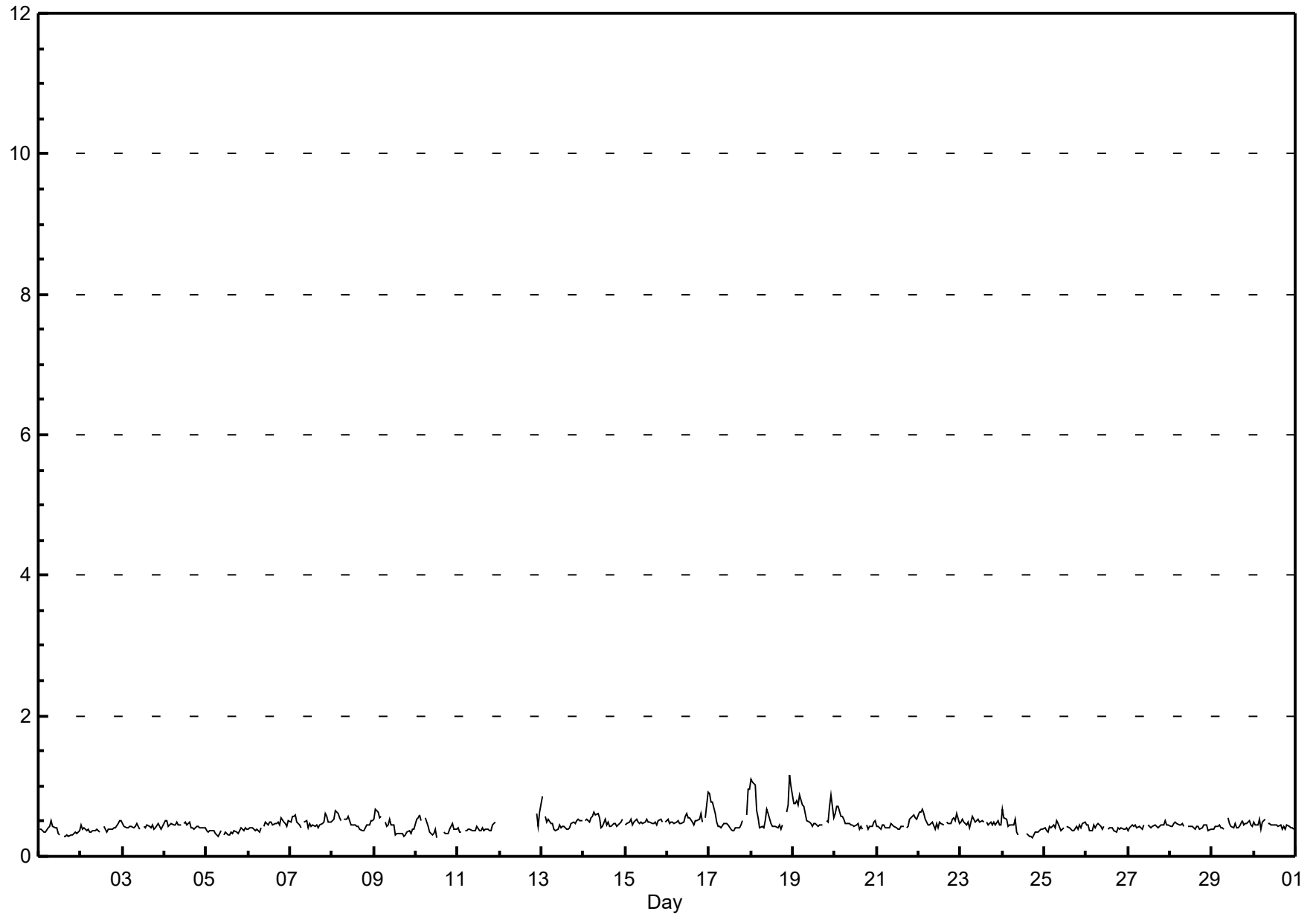
Histogram of Hourly Averages

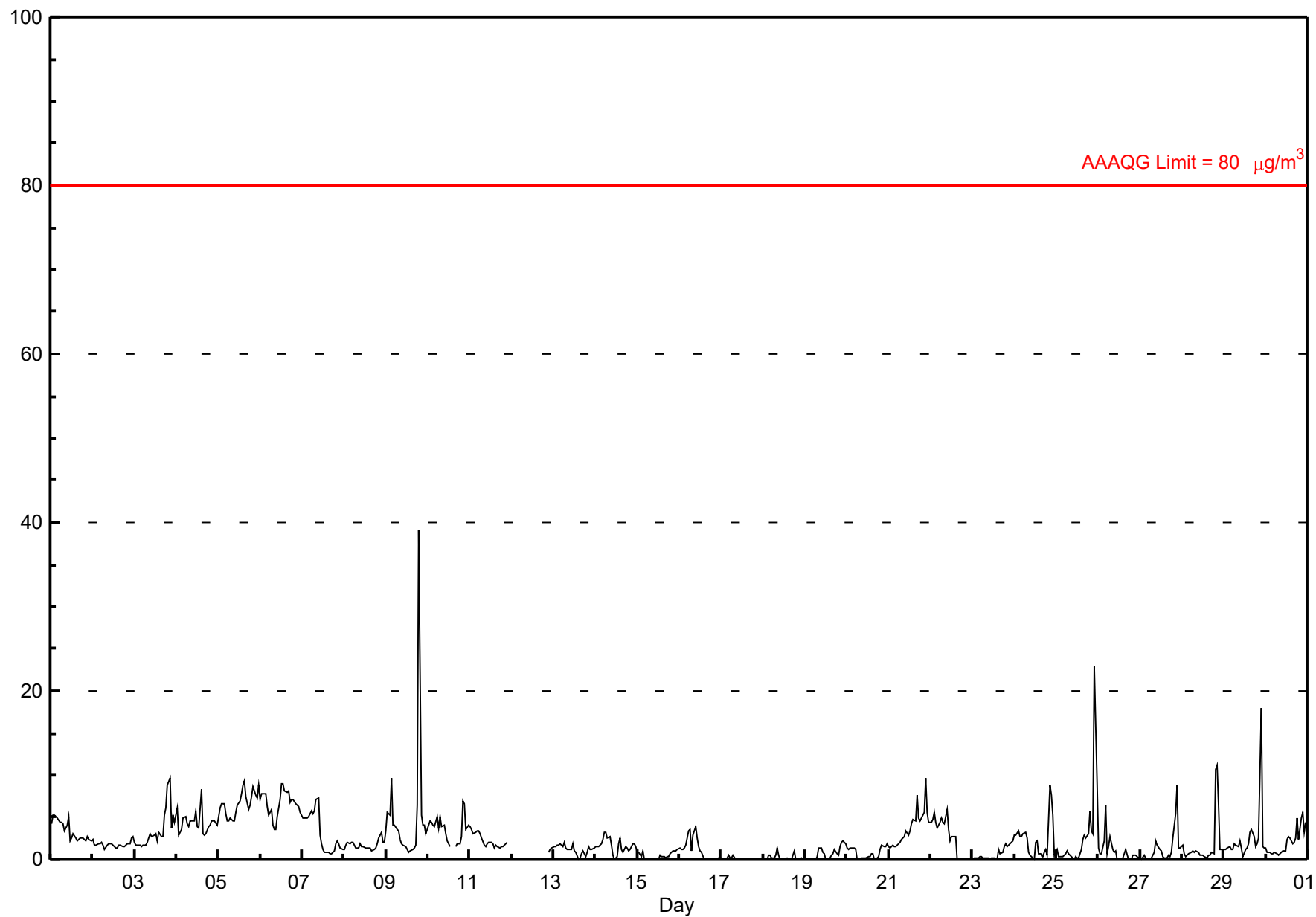
Sulphur Dioxide (SO₂) - ppb
Smoky Heights - April 2019

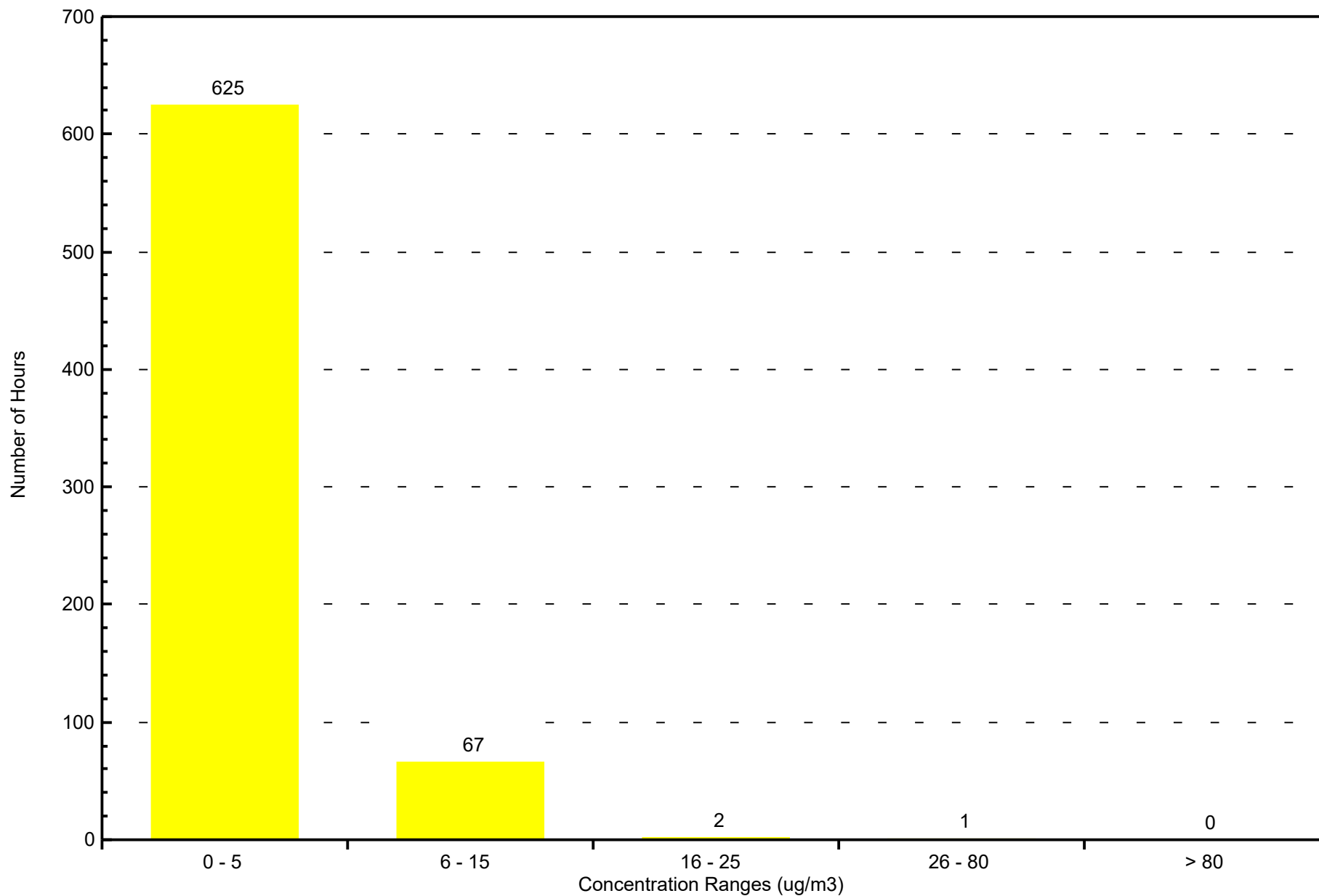


Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Smoky Heights - April 2019

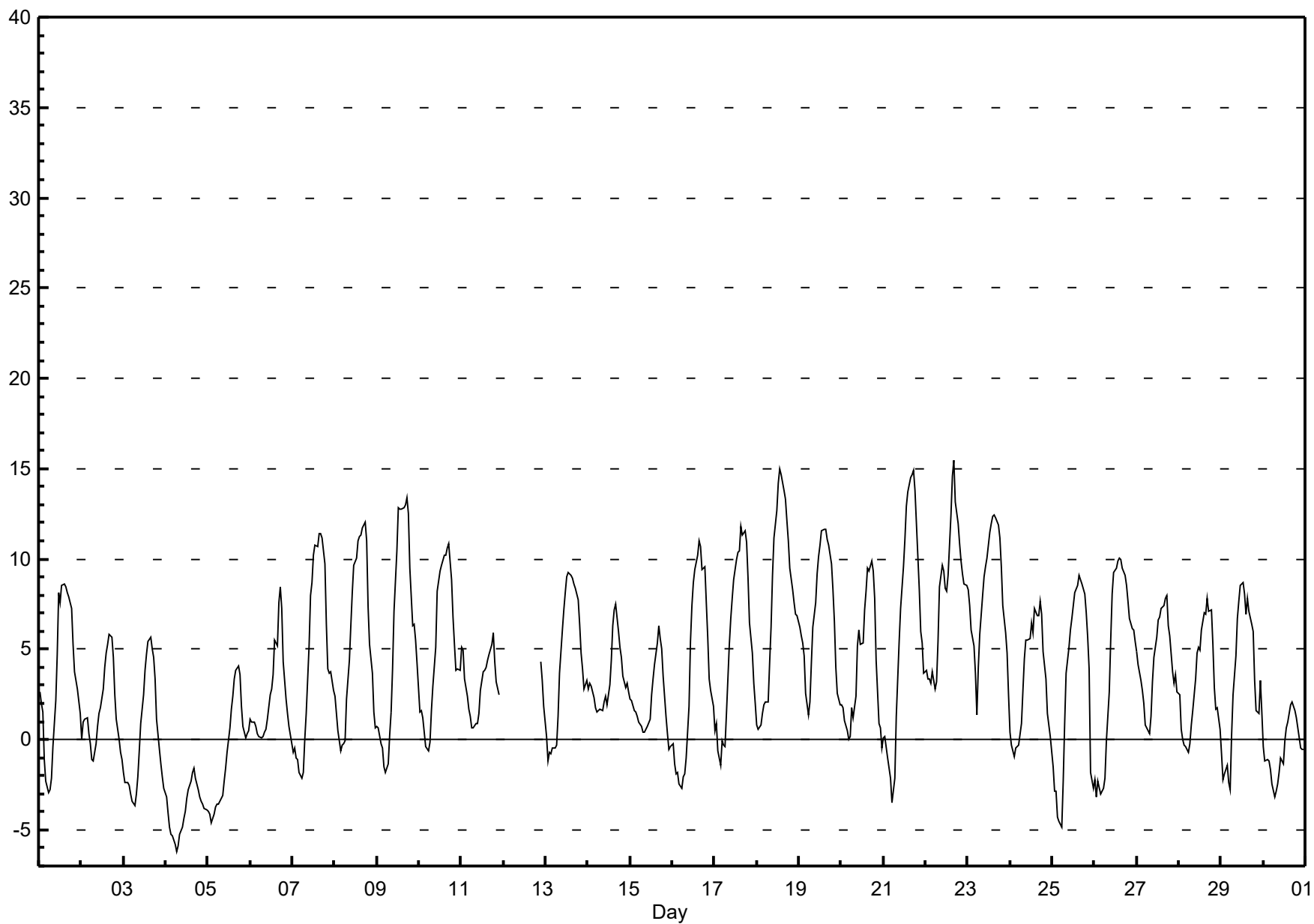






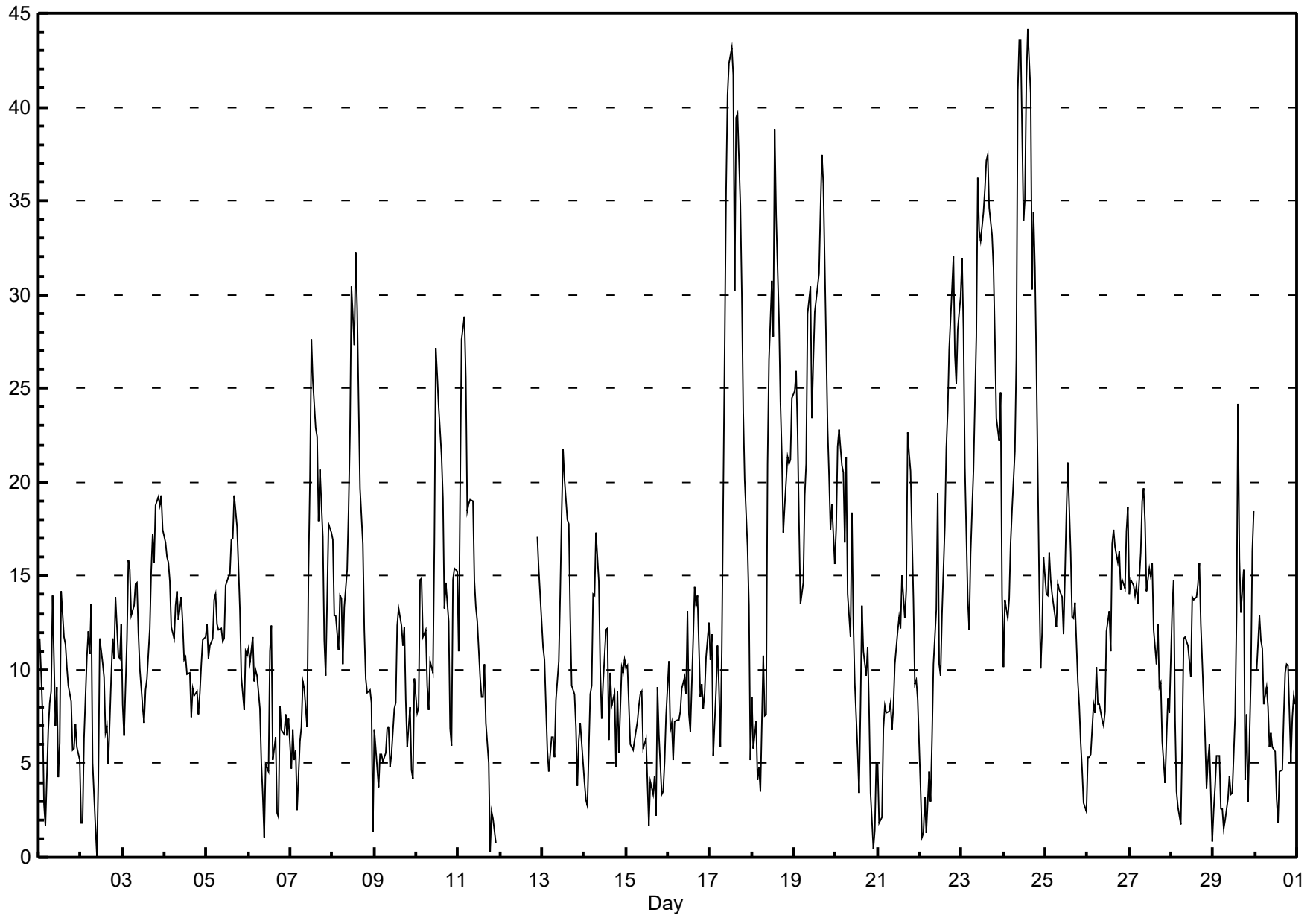
Hourly Averages

External Temperature (ET) - °C
Smoky Heights - April 2019



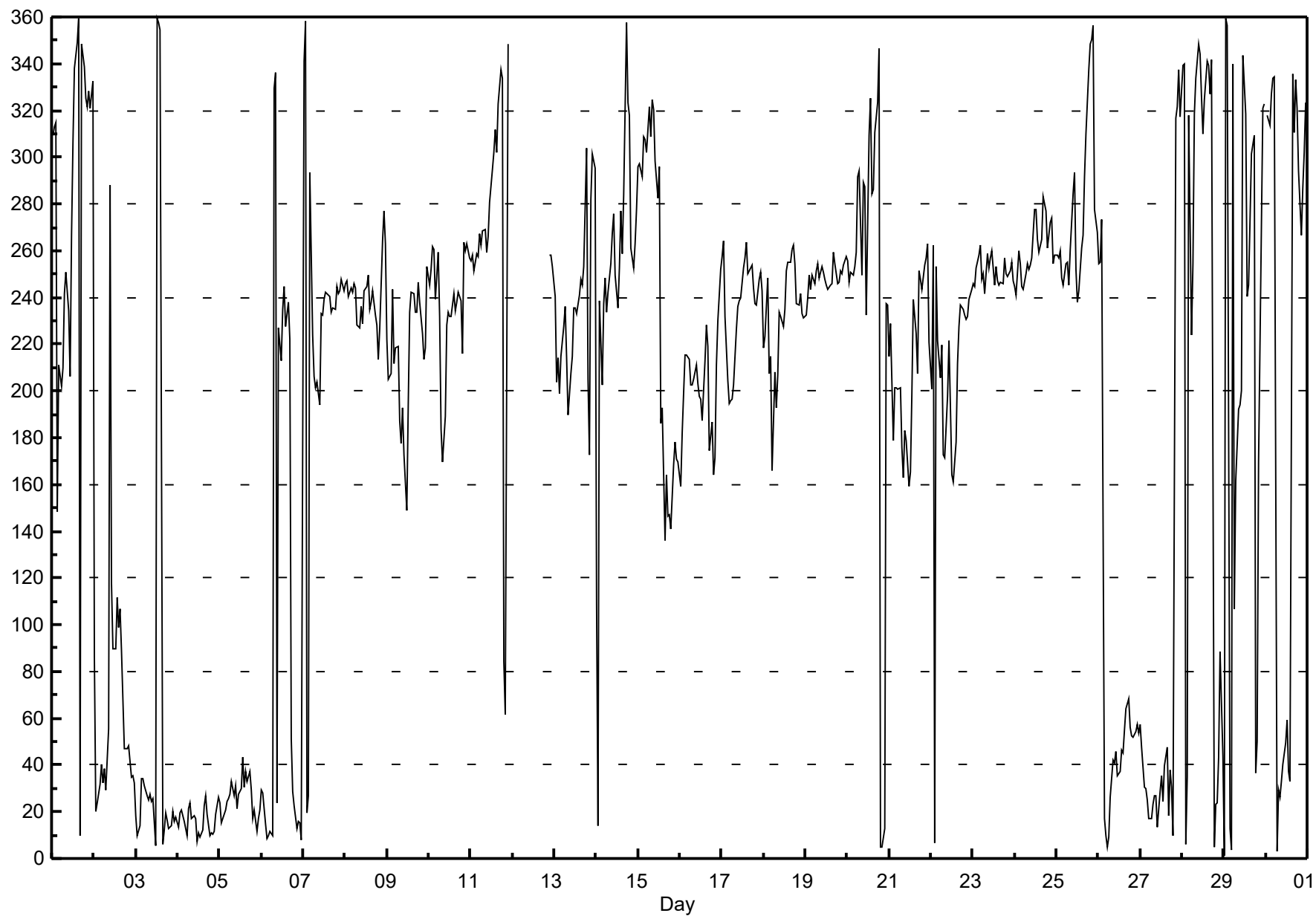
Hourly Averages

Wind Speed (WS) - km/h
Smoky Heights - April 2019



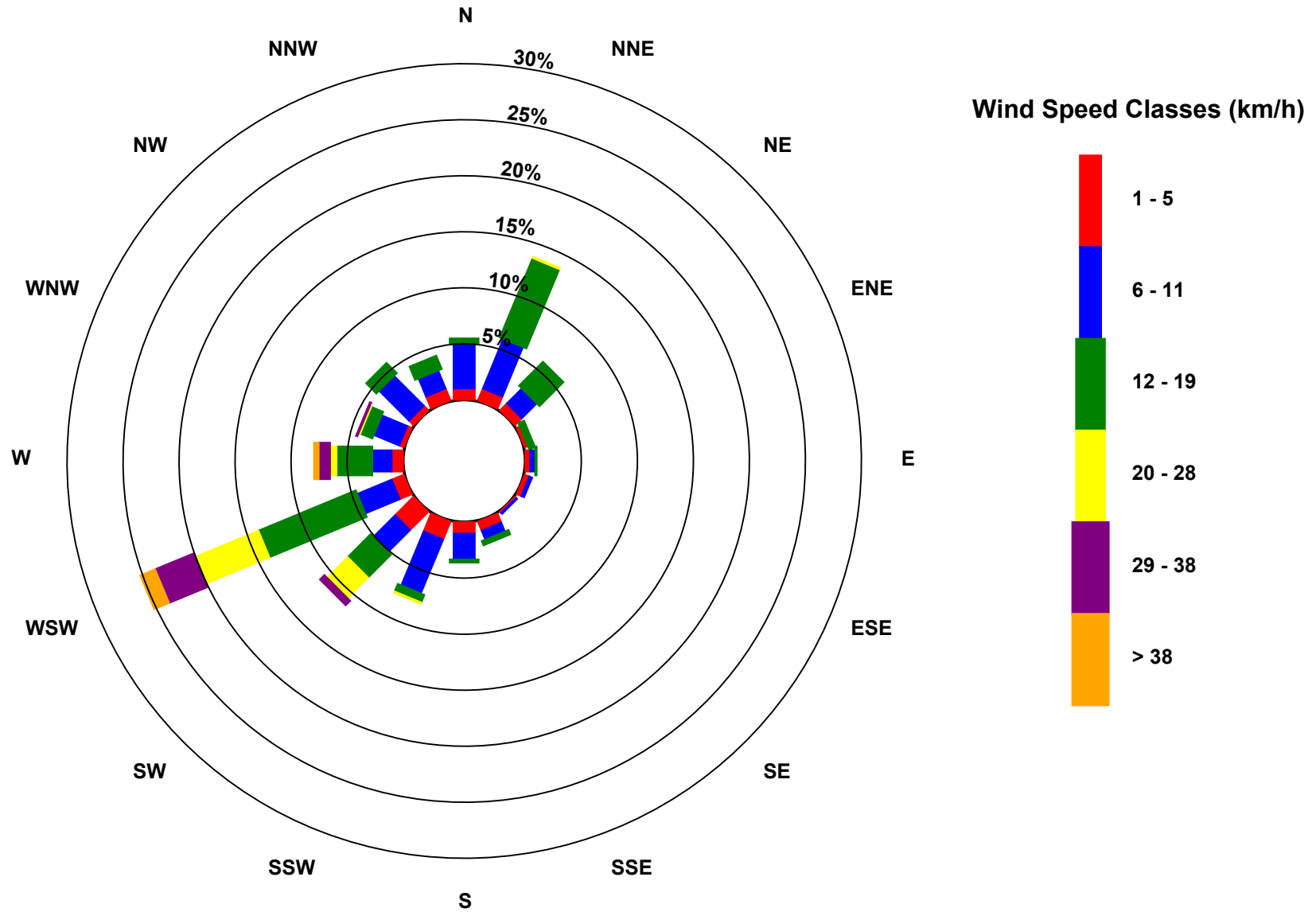
Hourly Averages

Wind Direction (WD) - deg
Smoky Heights - April 2019



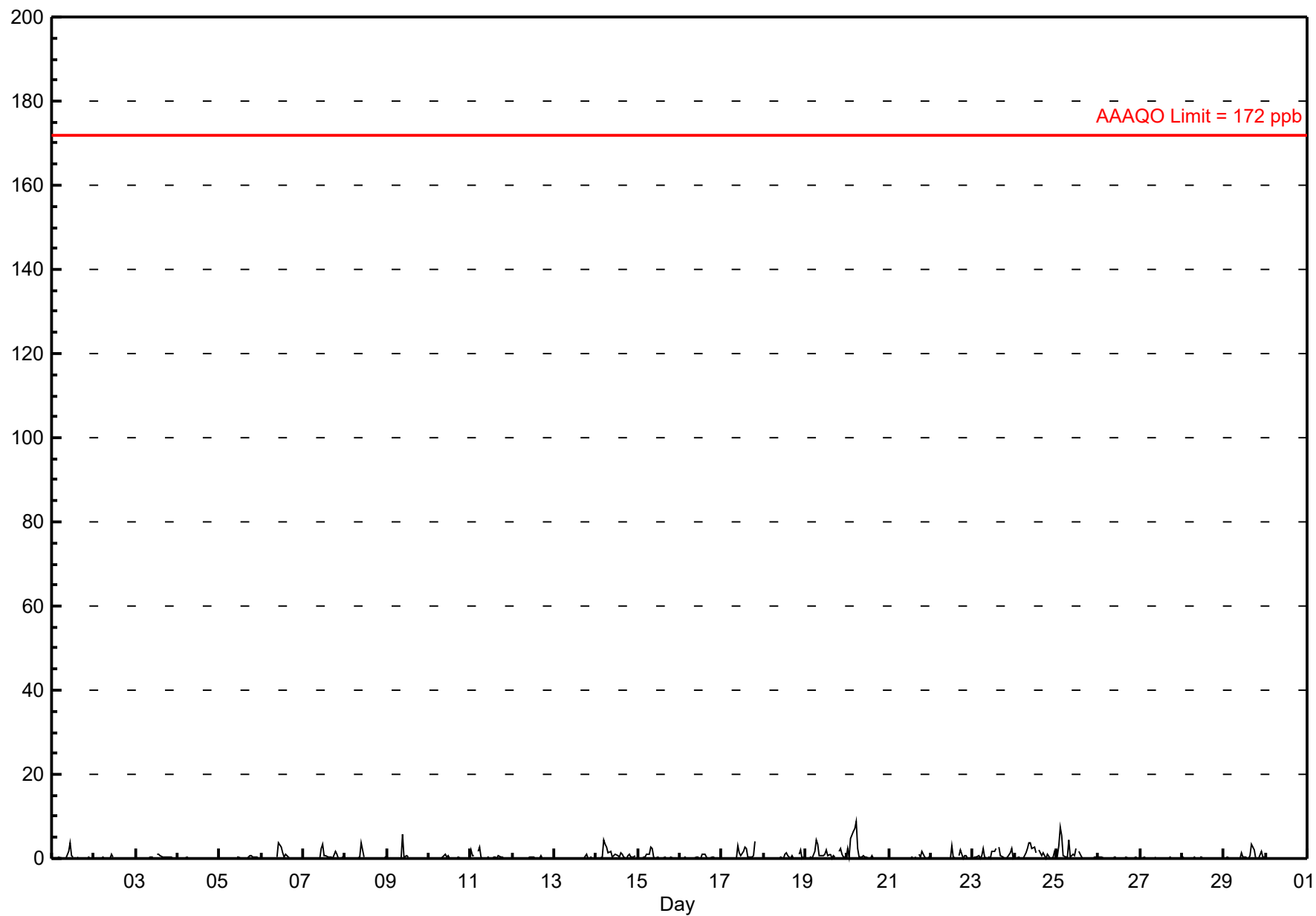
Wind Rose

Wind Speed (WS) (km/h)
Smoky Heights - April 2019



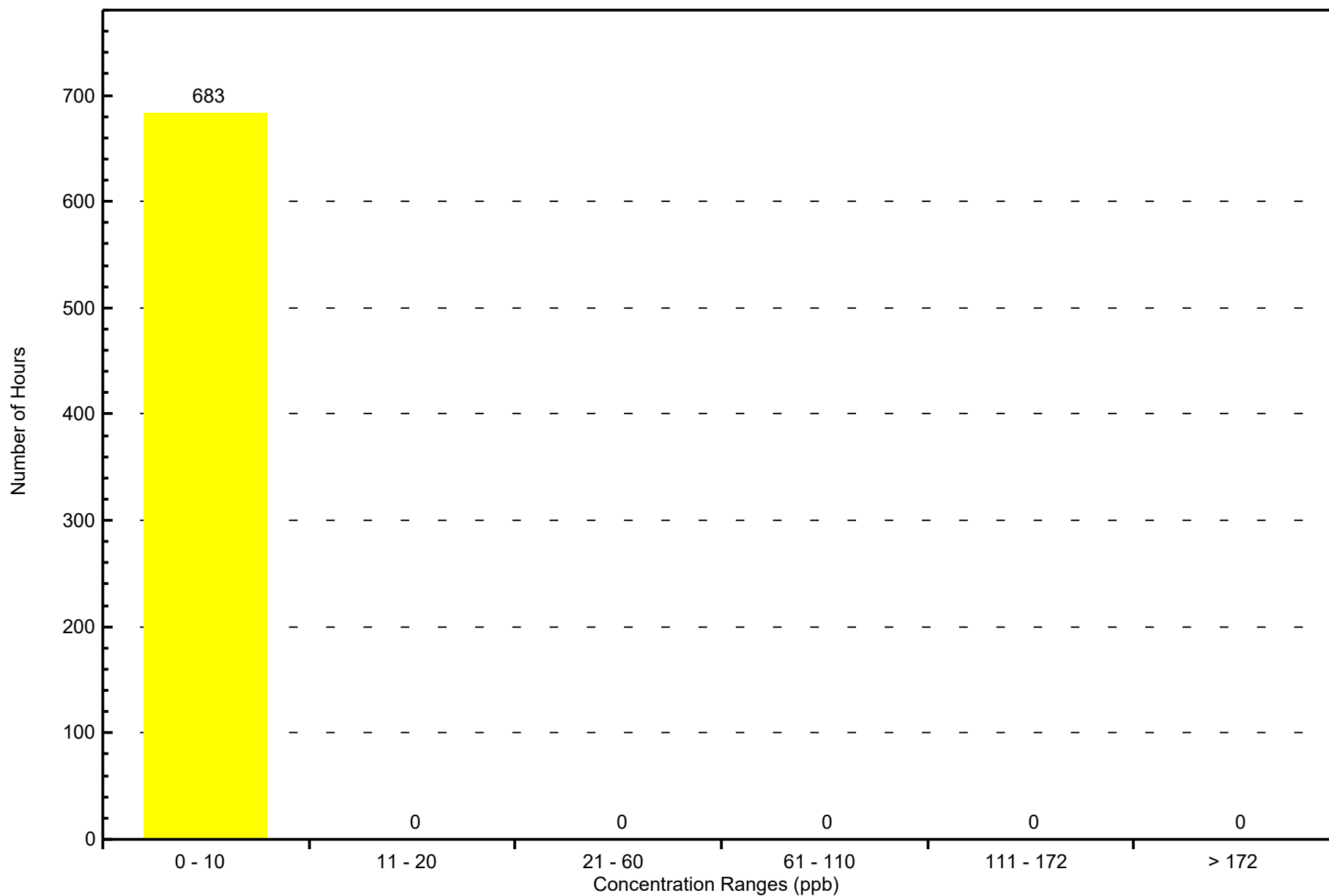
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - April 2019



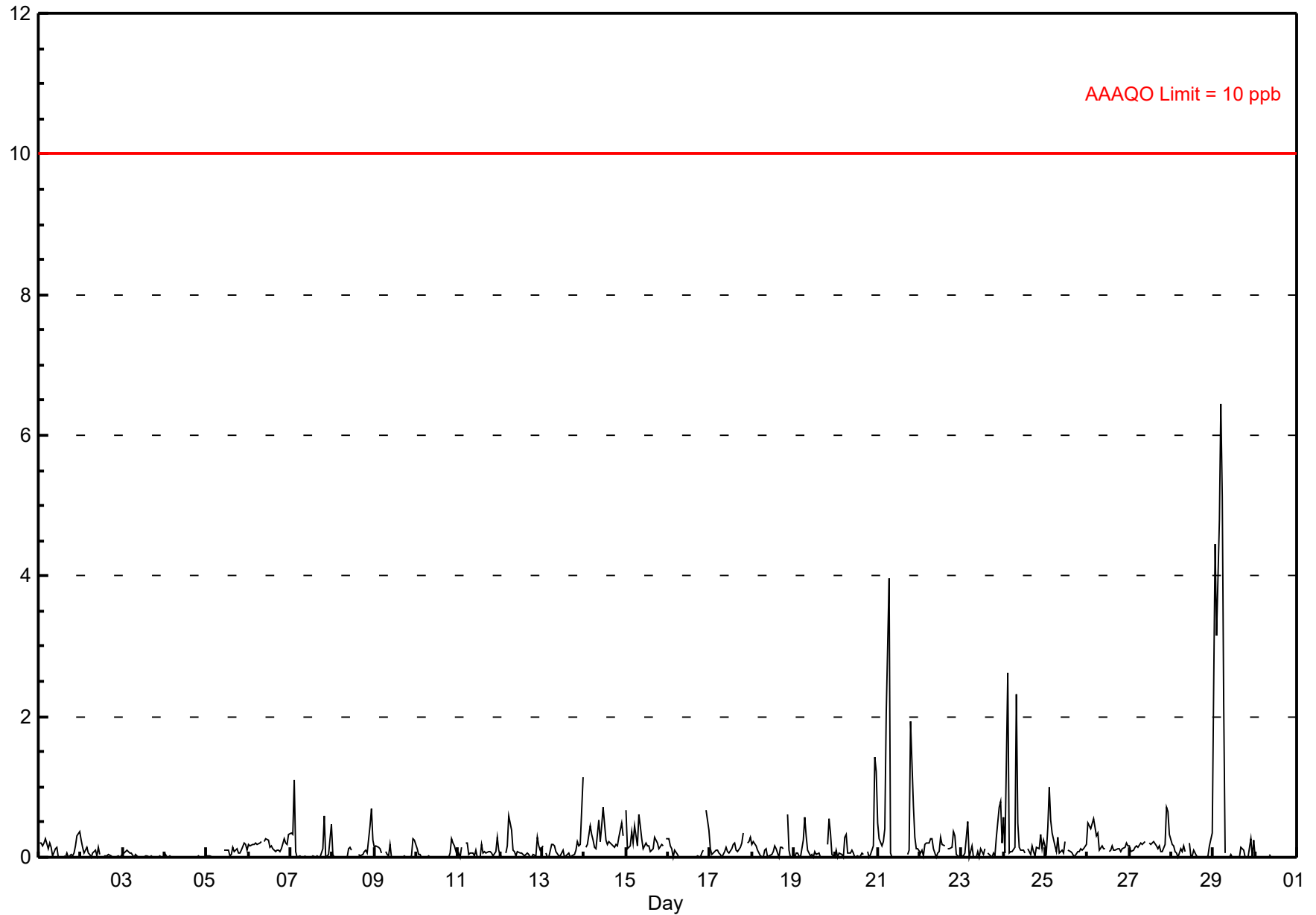
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - April 2019



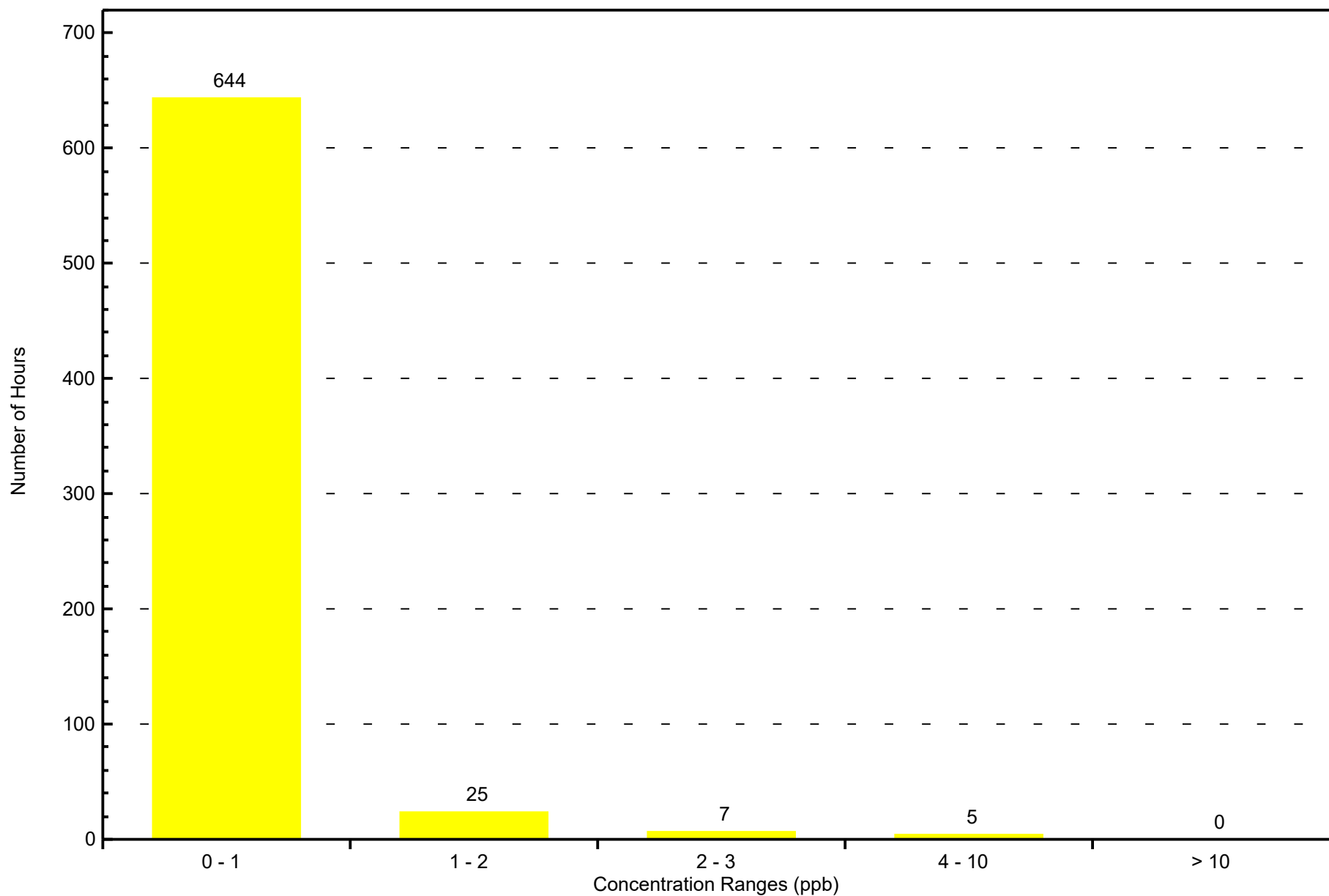
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Valleyview - April 2019



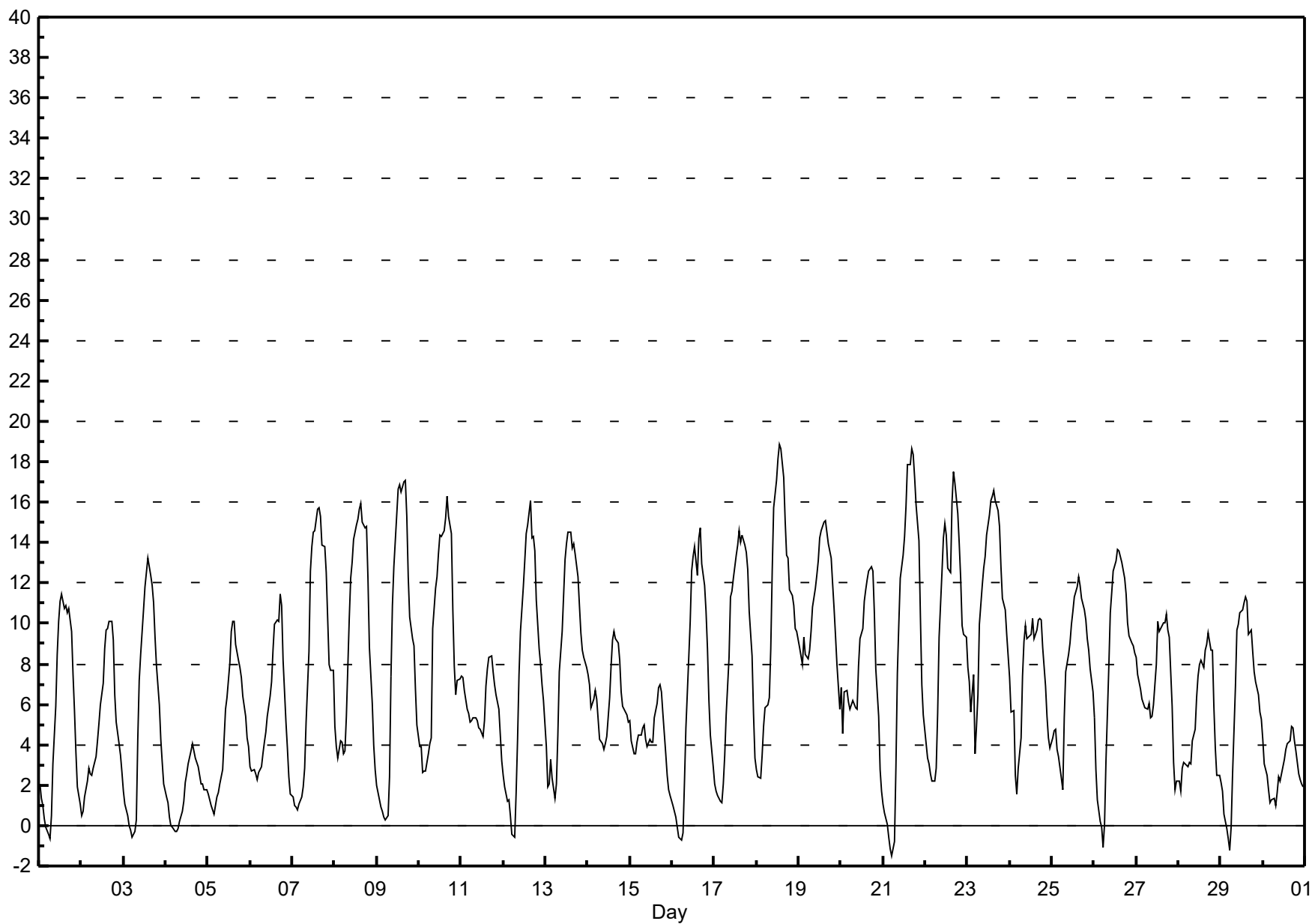
Histogram of Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Valleyview - April 2019



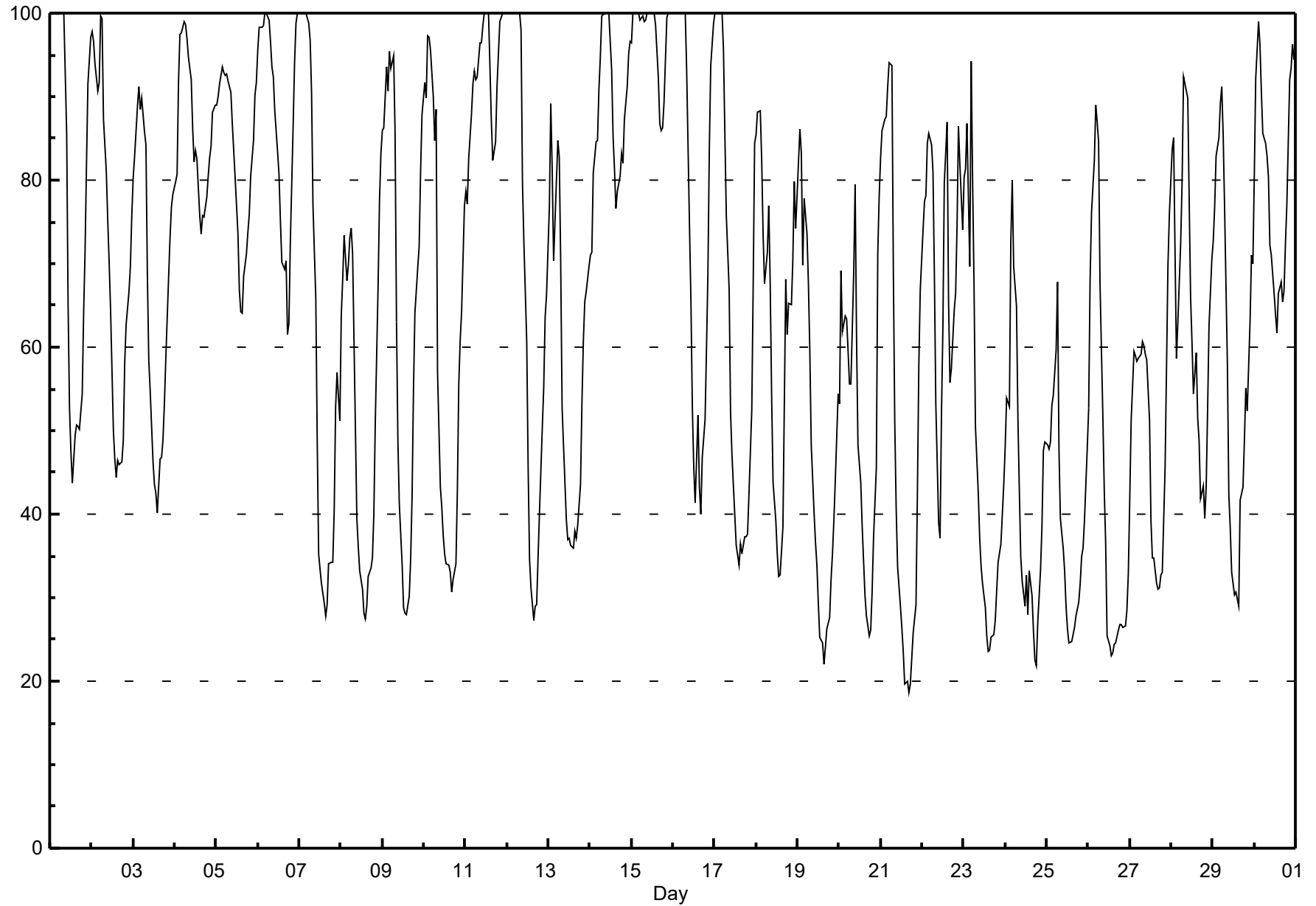
Hourly Averages

External Temperature (ET) - °C
Valleyview - April 2019



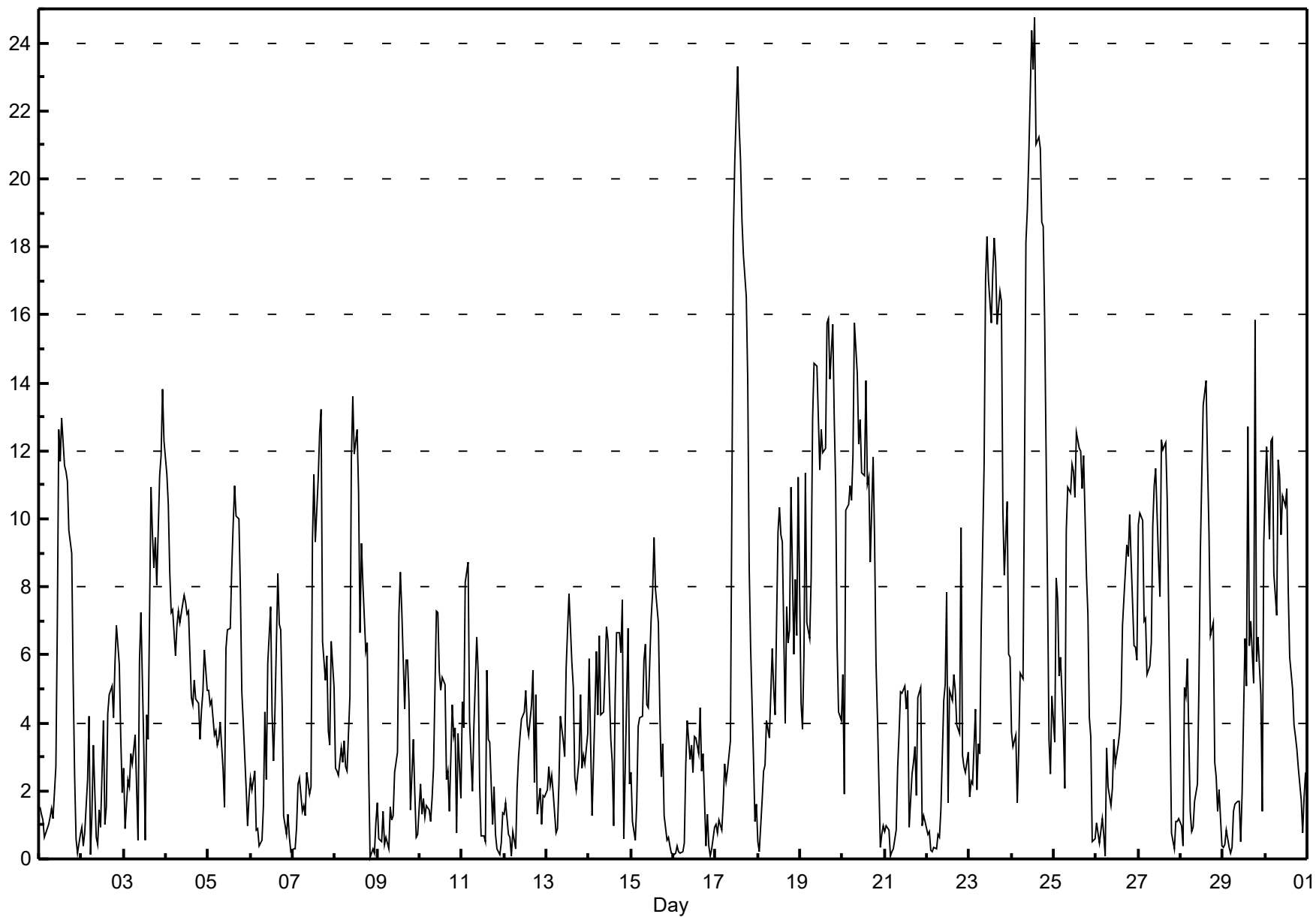
Hourly Averages

Relative Humidity (RH) - %
Valleyview - April 2019



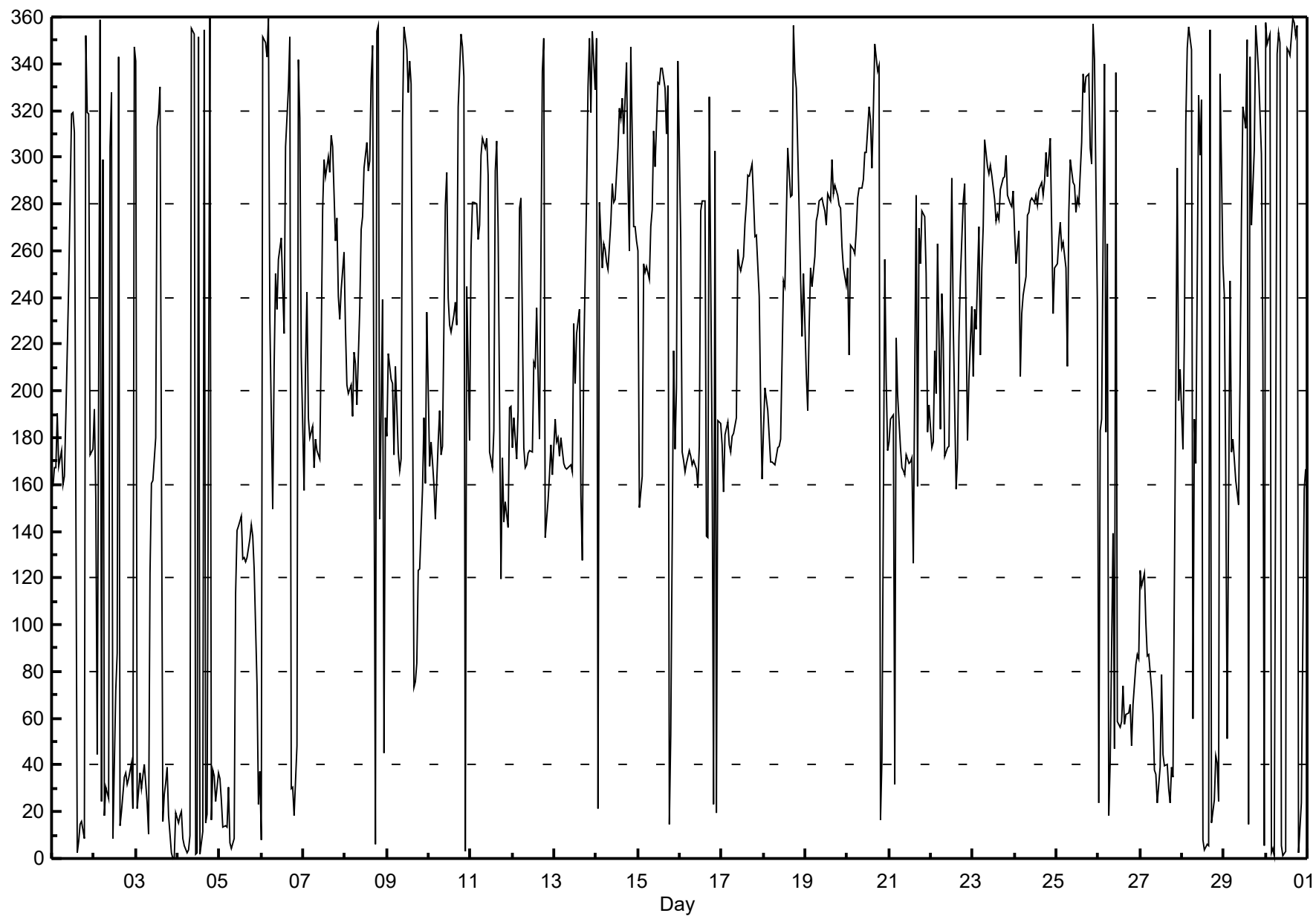
Hourly Averages

Wind Speed (WS) - km/h
Valleyview - April 2019



Hourly Averages

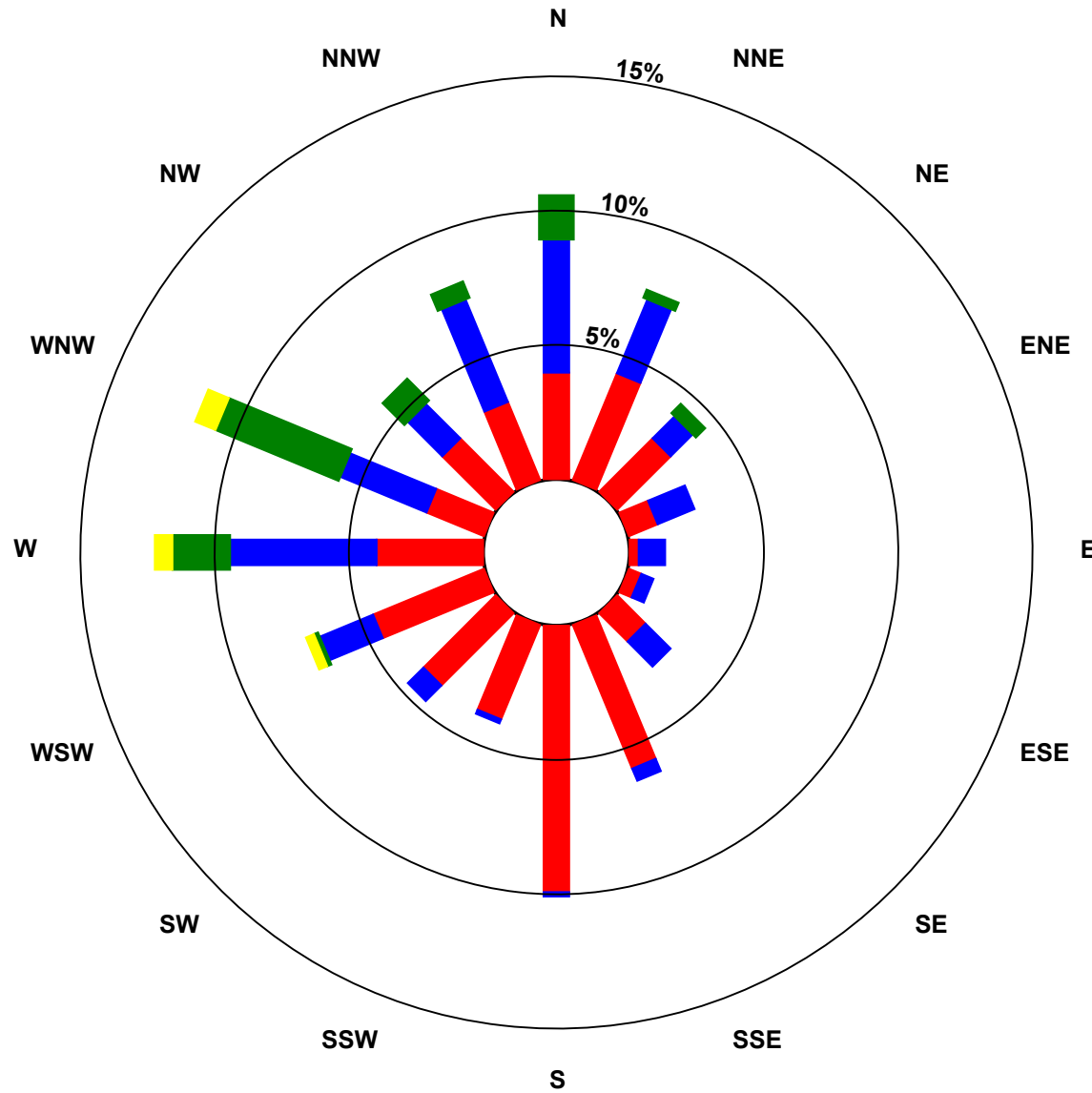
Wind Direction (WD) - deg
Valleyview - April 2019



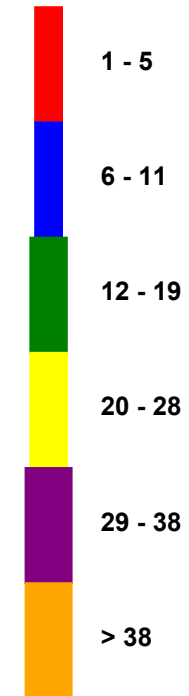
Wind Rose

Wind Speed (WS) (km/h)

Valleyview - April 2019



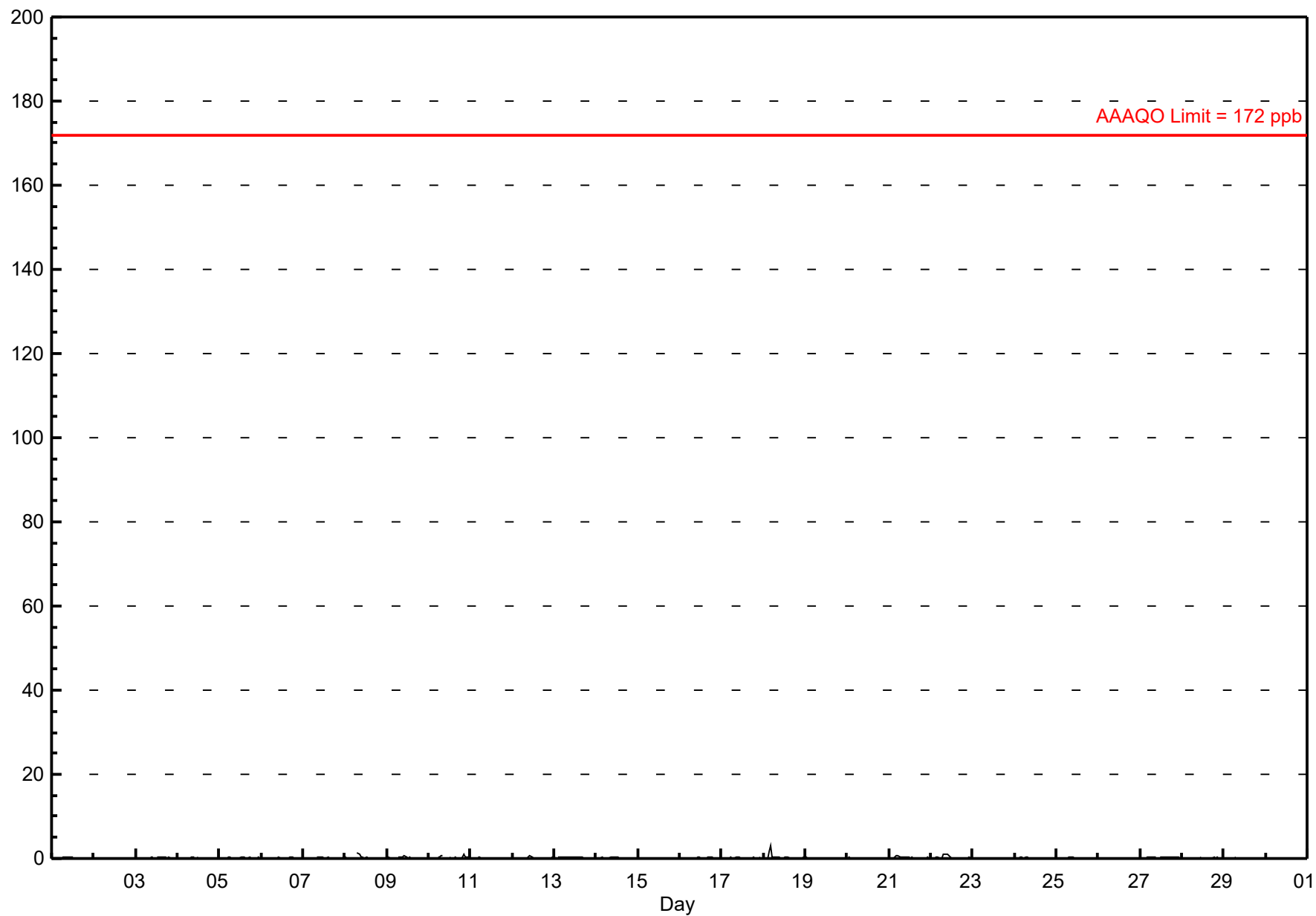
Wind Speed Classes (km/h)



Hourly Averages

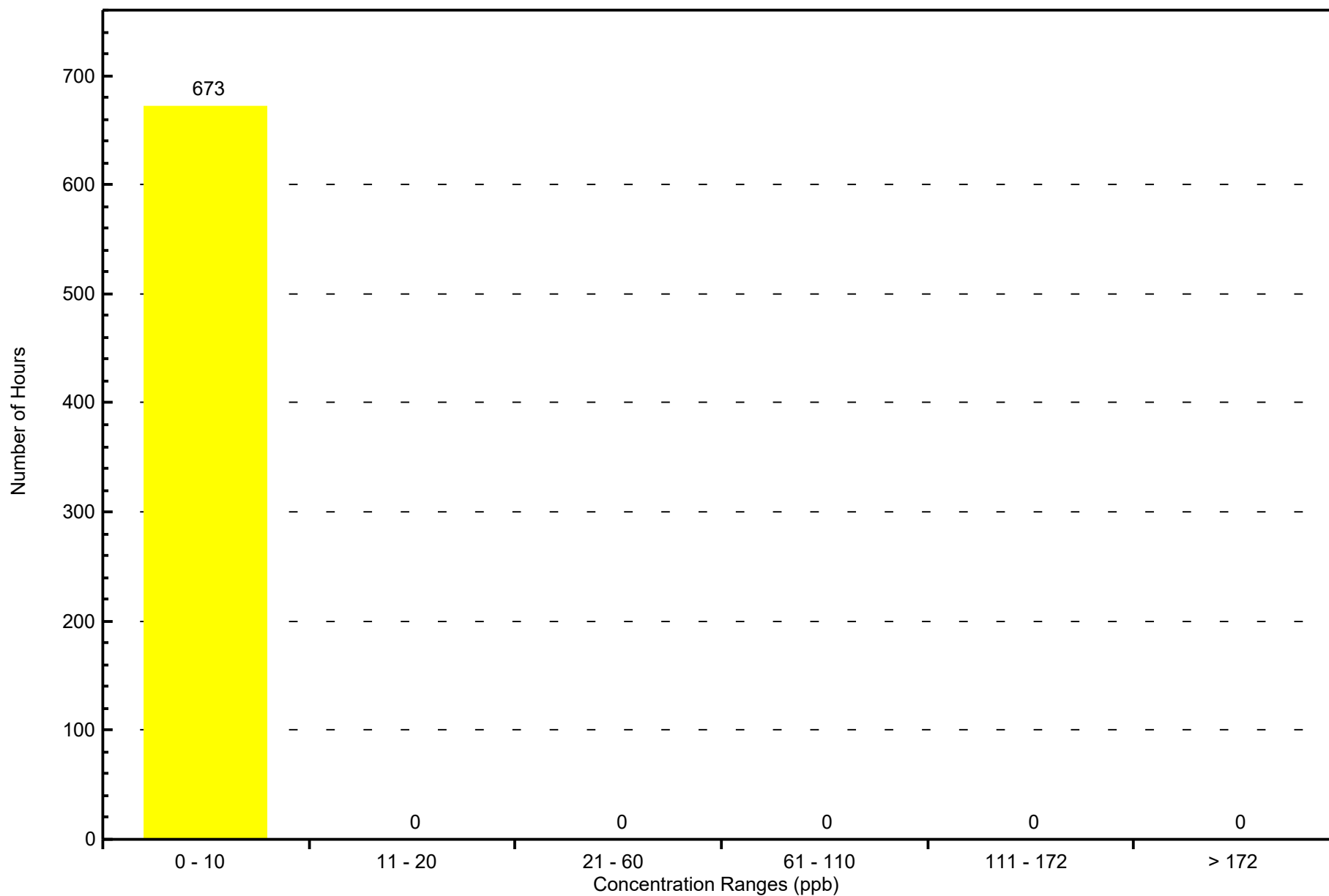
Sulphur Dioxide (SO₂) - ppb

Donnelly - April 2019



Histogram of Hourly Averages

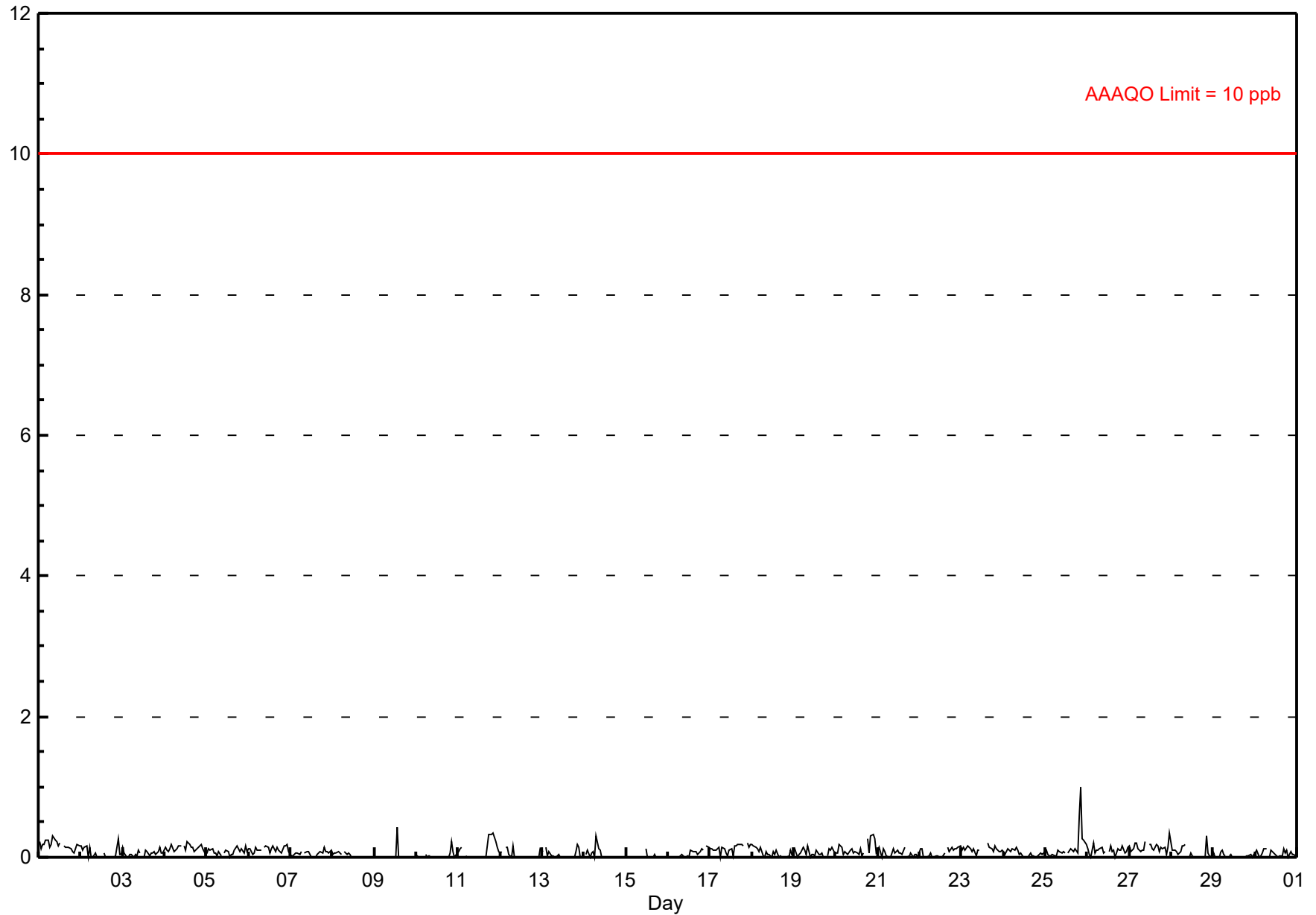
Sulphur Dioxide (SO₂) - ppb
Donnelly - April 2019



Hourly Averages

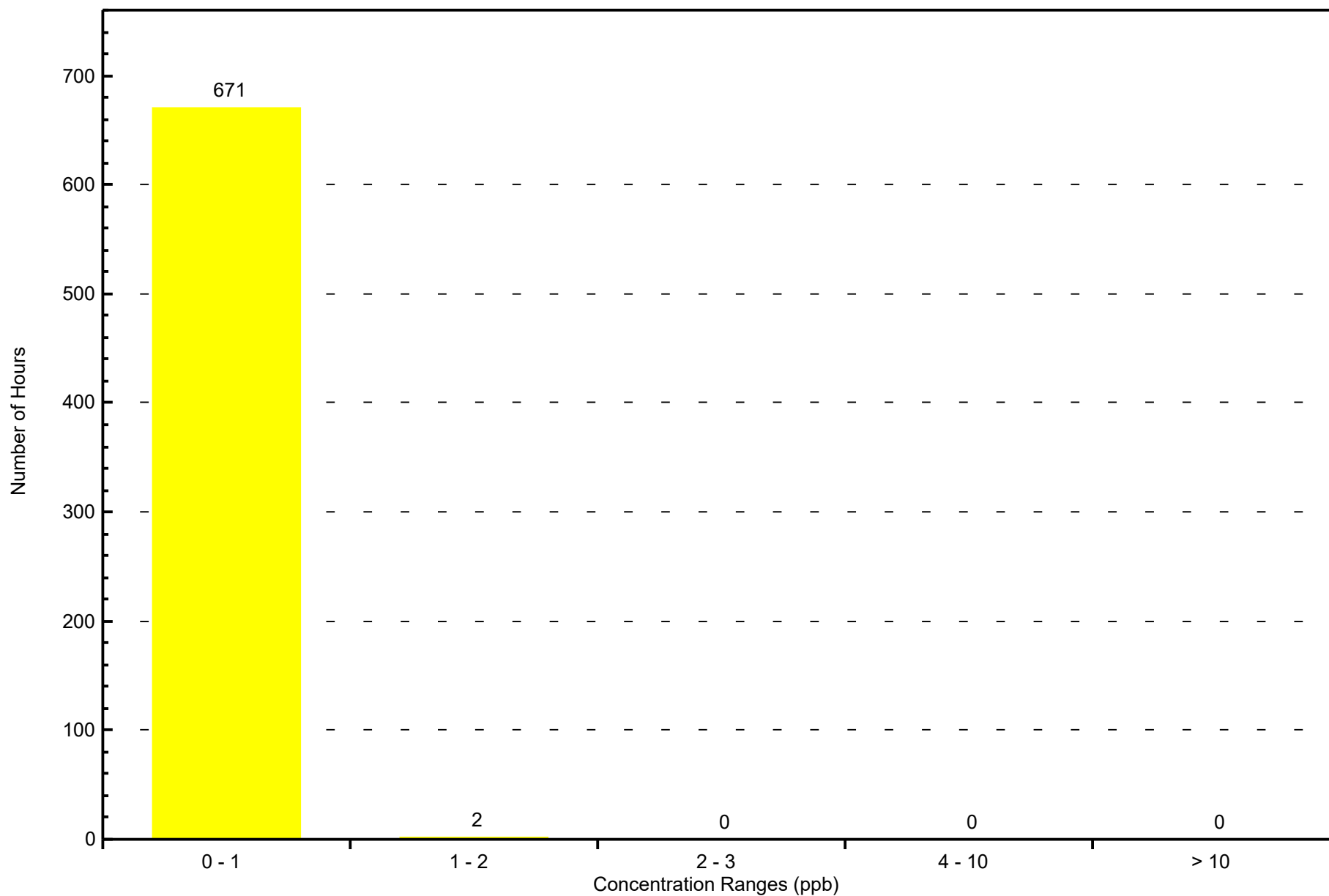
Hydrogen Sulphide (H₂S) - ppb

Donnelly - April 2019



Histogram of Hourly Averages

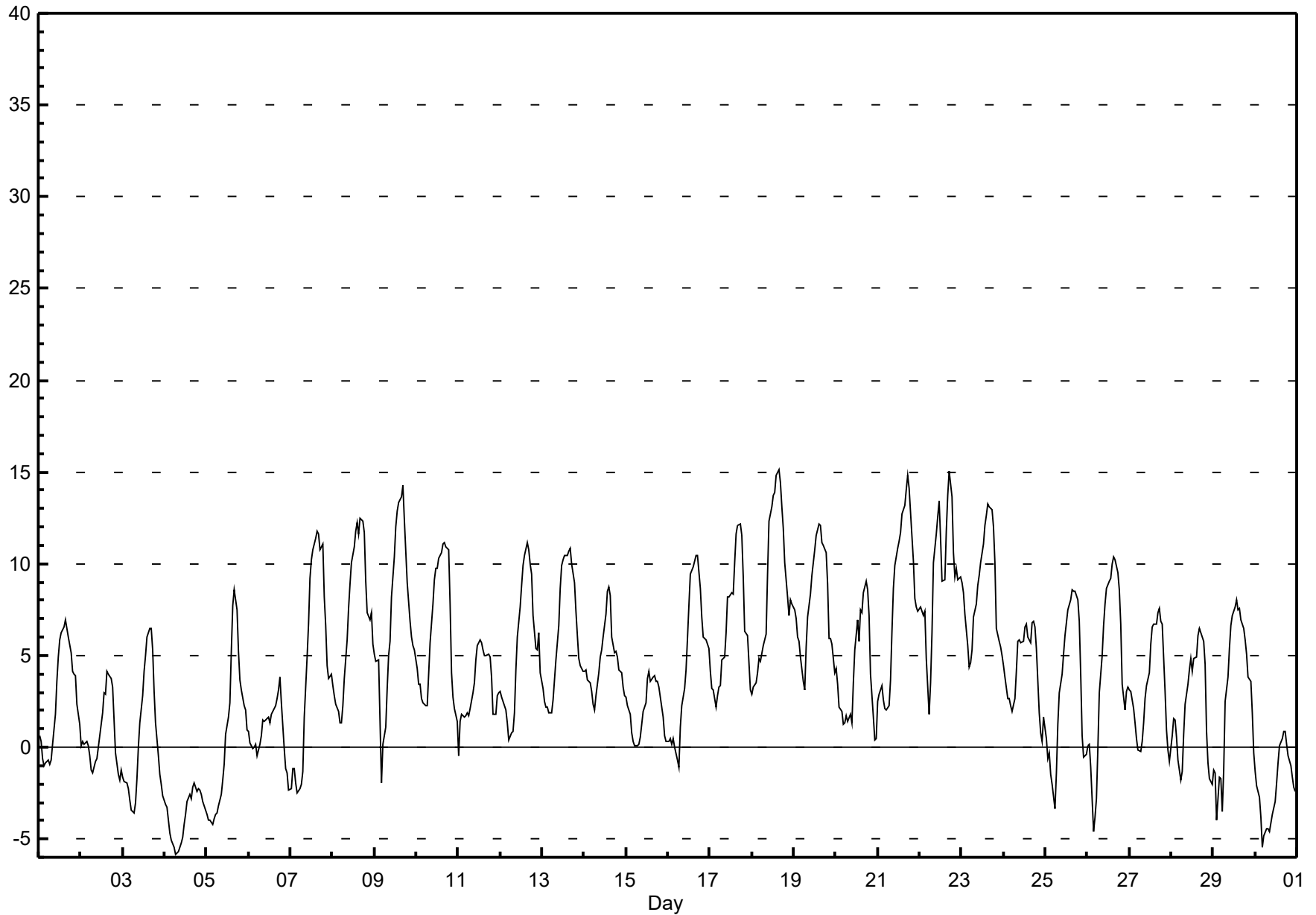
Hydrogen Sulphide (H₂S) - ppb
Donnelly - April 2019



Hourly Averages

External Temperature (ET) - °C

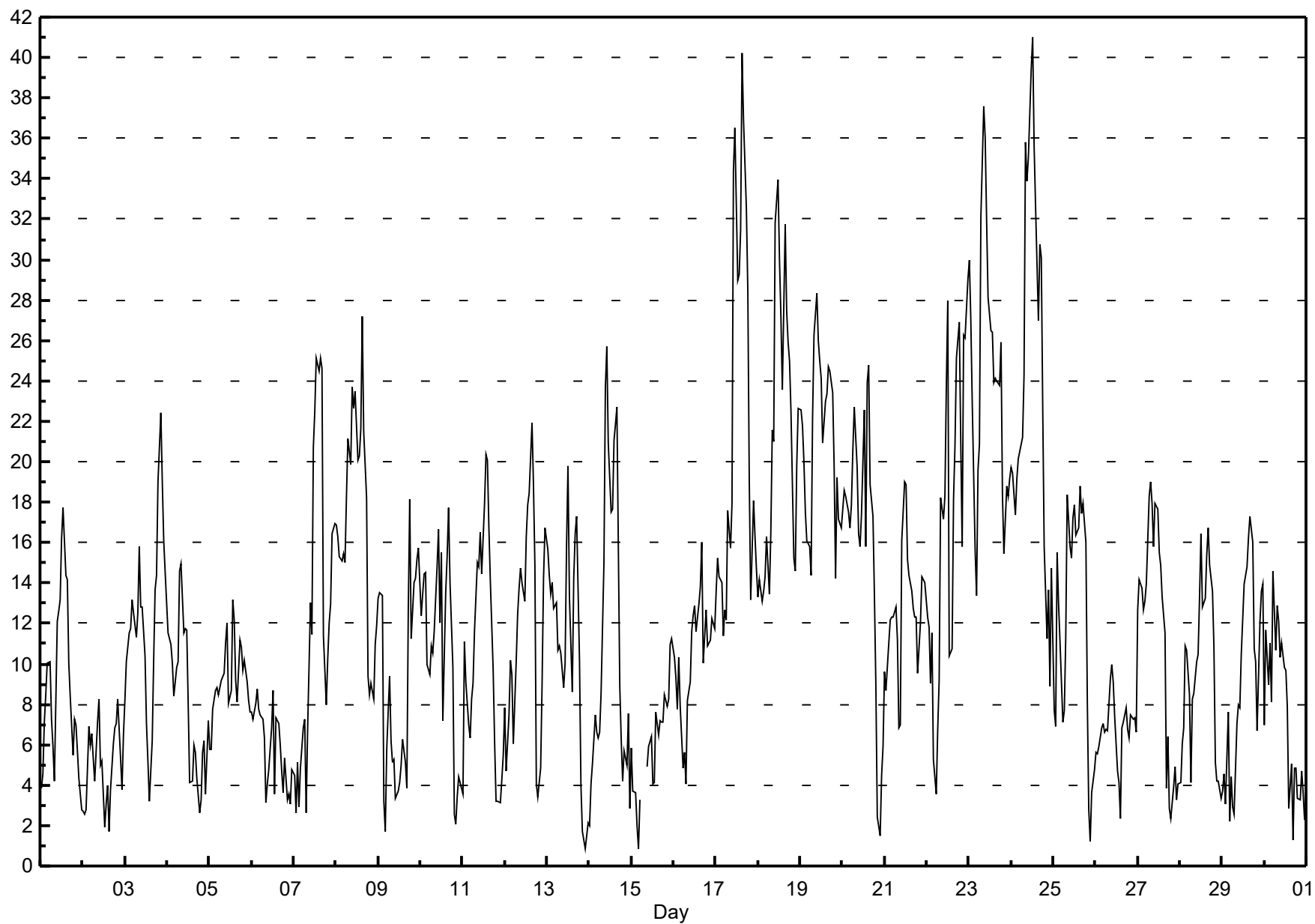
Donnelly - April 2019



Hourly Averages

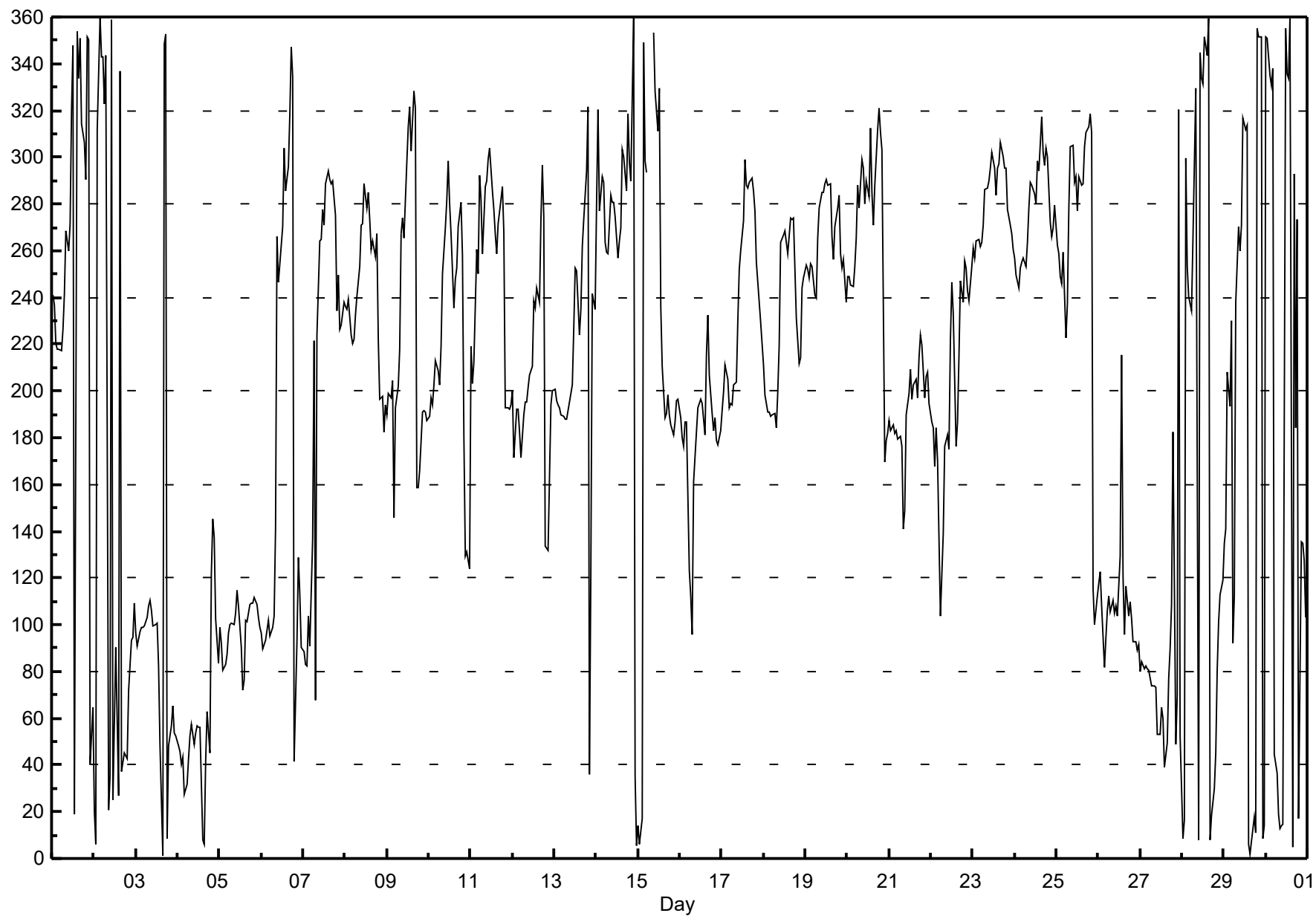
Wind Speed (WS) - km/h

Donnelly - April 2019



Hourly Averages

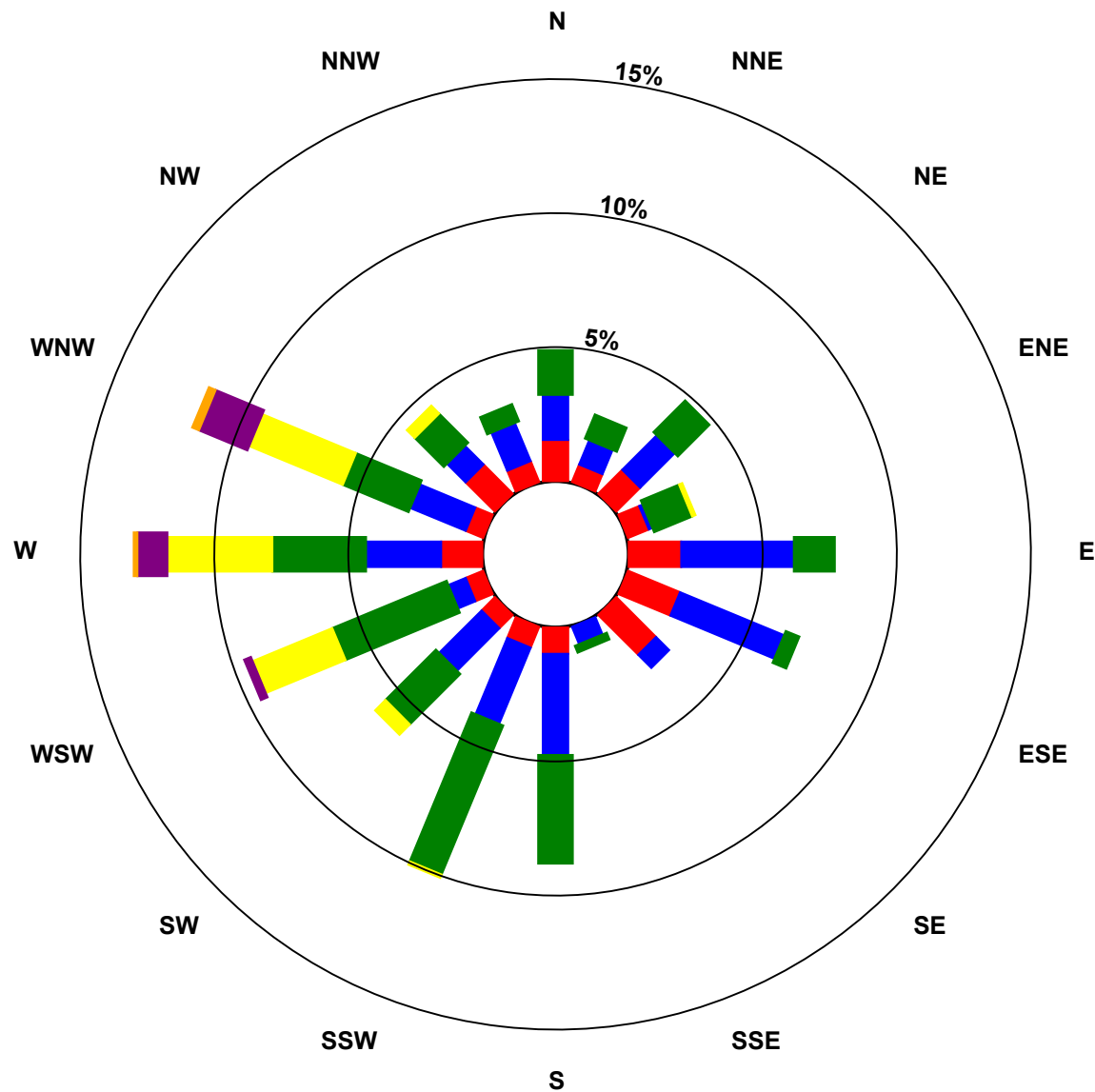
Wind Direction (WD) - deg
Donnelly - April 2019



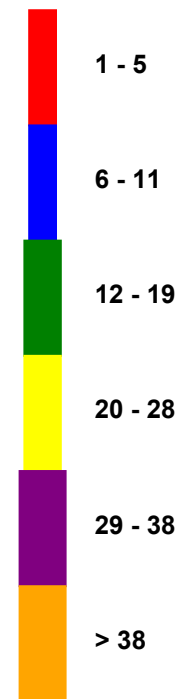
Wind Rose

Wind Speed (WS) (km/h)

Donnelly - April 2019



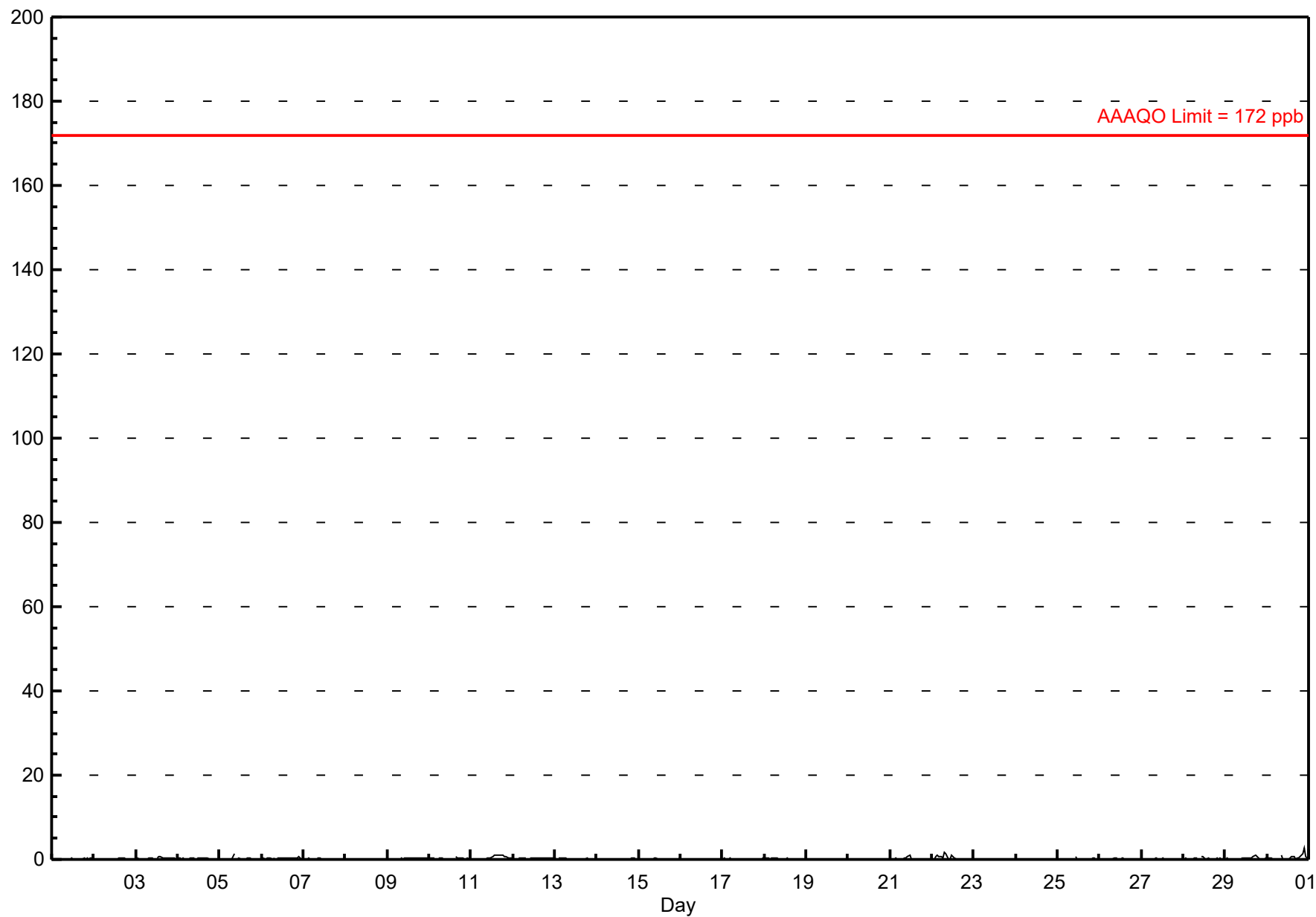
Wind Speed Classes (km/h)



Hourly Averages

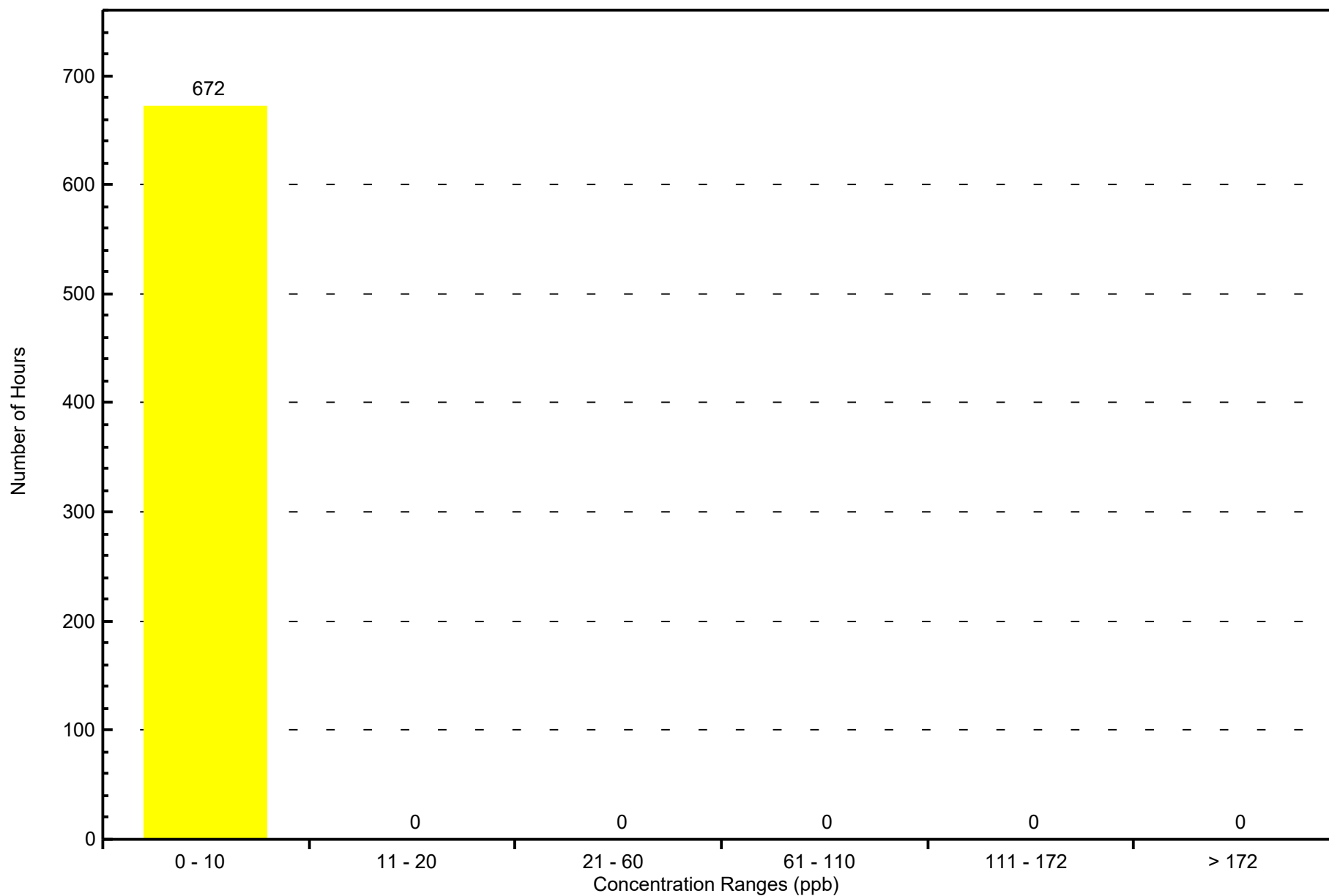
Sulphur Dioxide (SO₂) - ppb

Wembley - April 2019



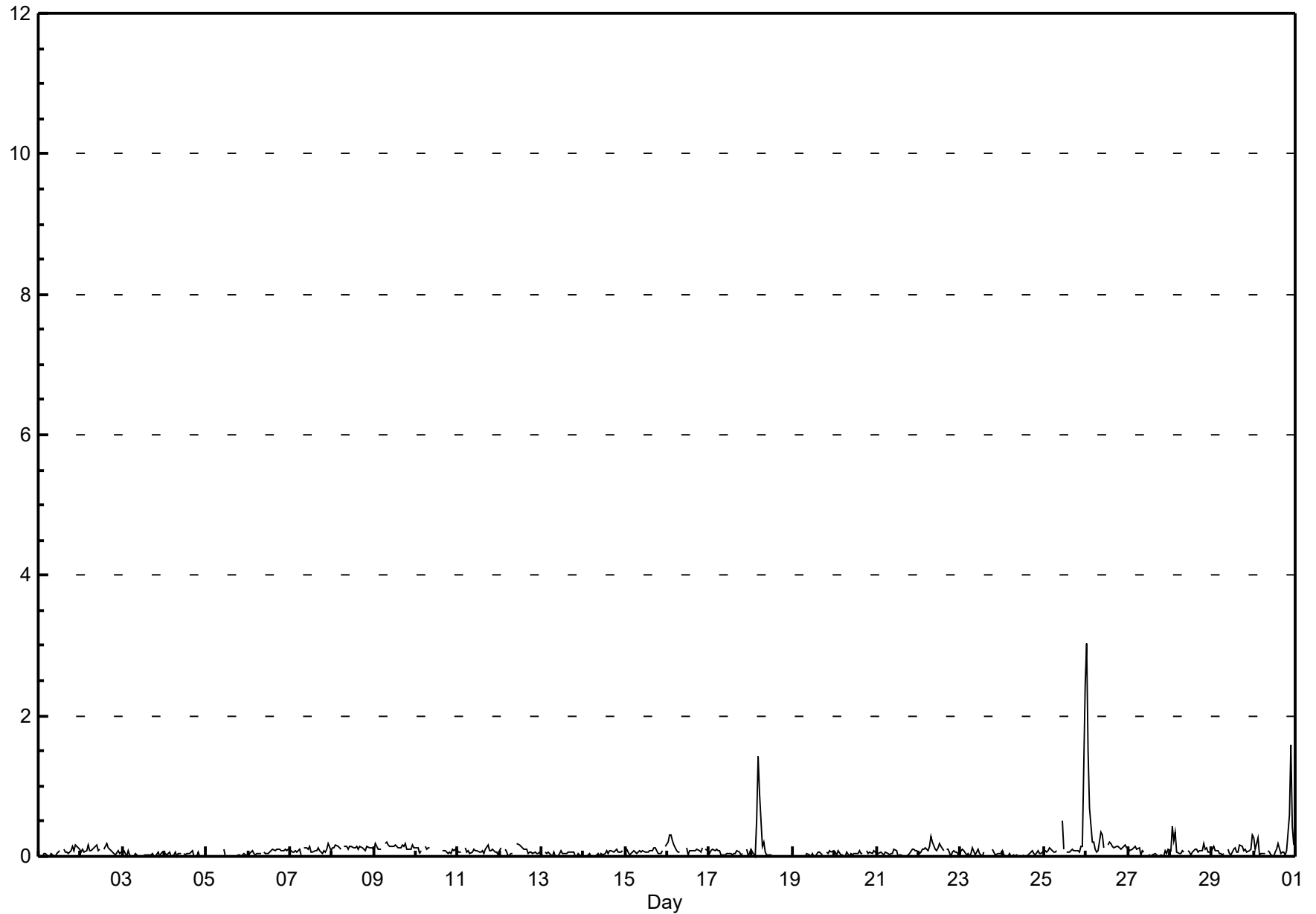
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wembley - April 2019



Hourly Averages

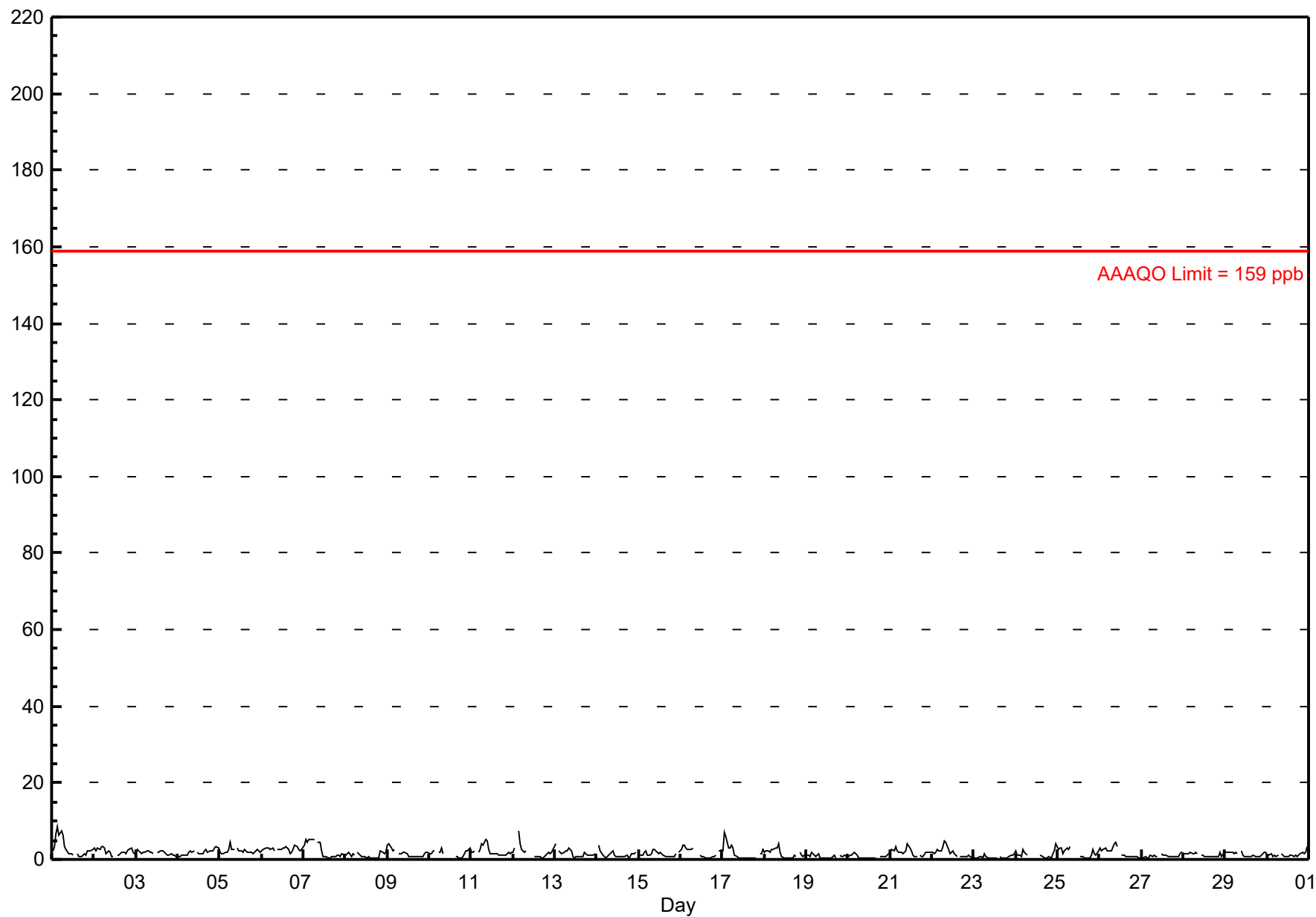
Total Reduced Sulphur (TRS) - ppb
Wembley - April 2019



Hourly Averages

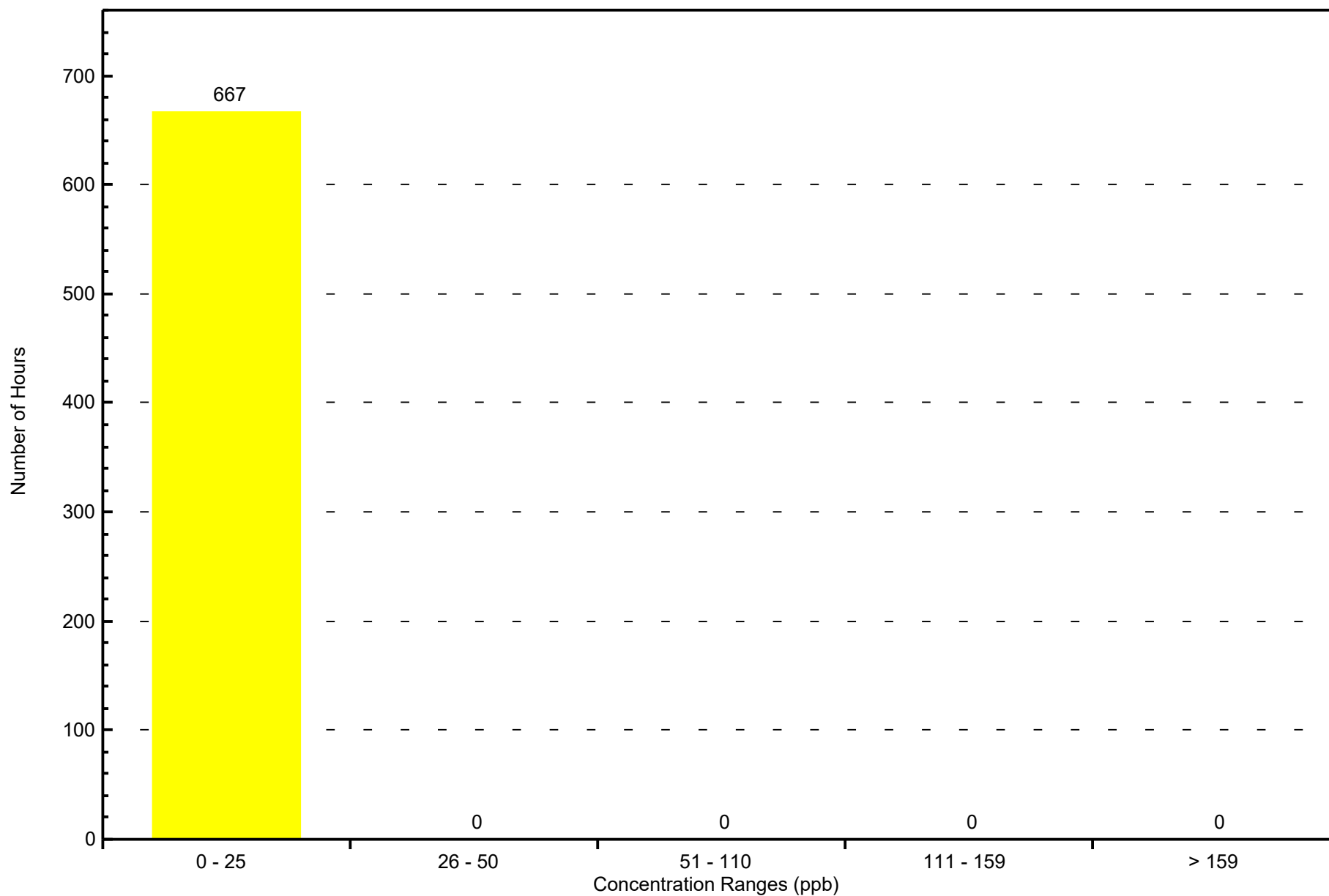
Nitrogen Dioxide (NO₂) - ppb

Wembley - April 2019



Histogram of Hourly Averages

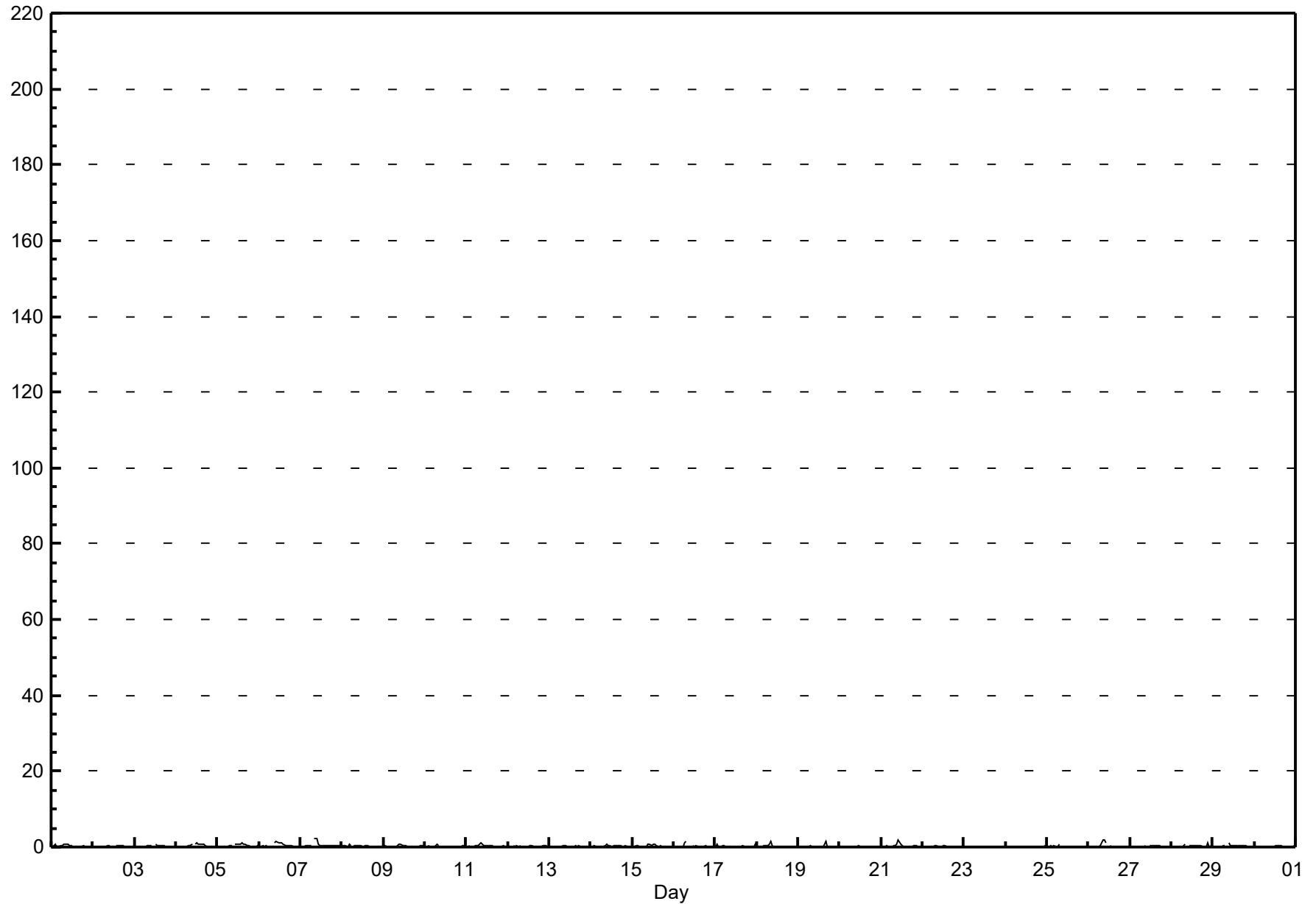
Nitrogen Dioxide (NO₂) - ppb
Wembley - April 2019



Hourly Averages

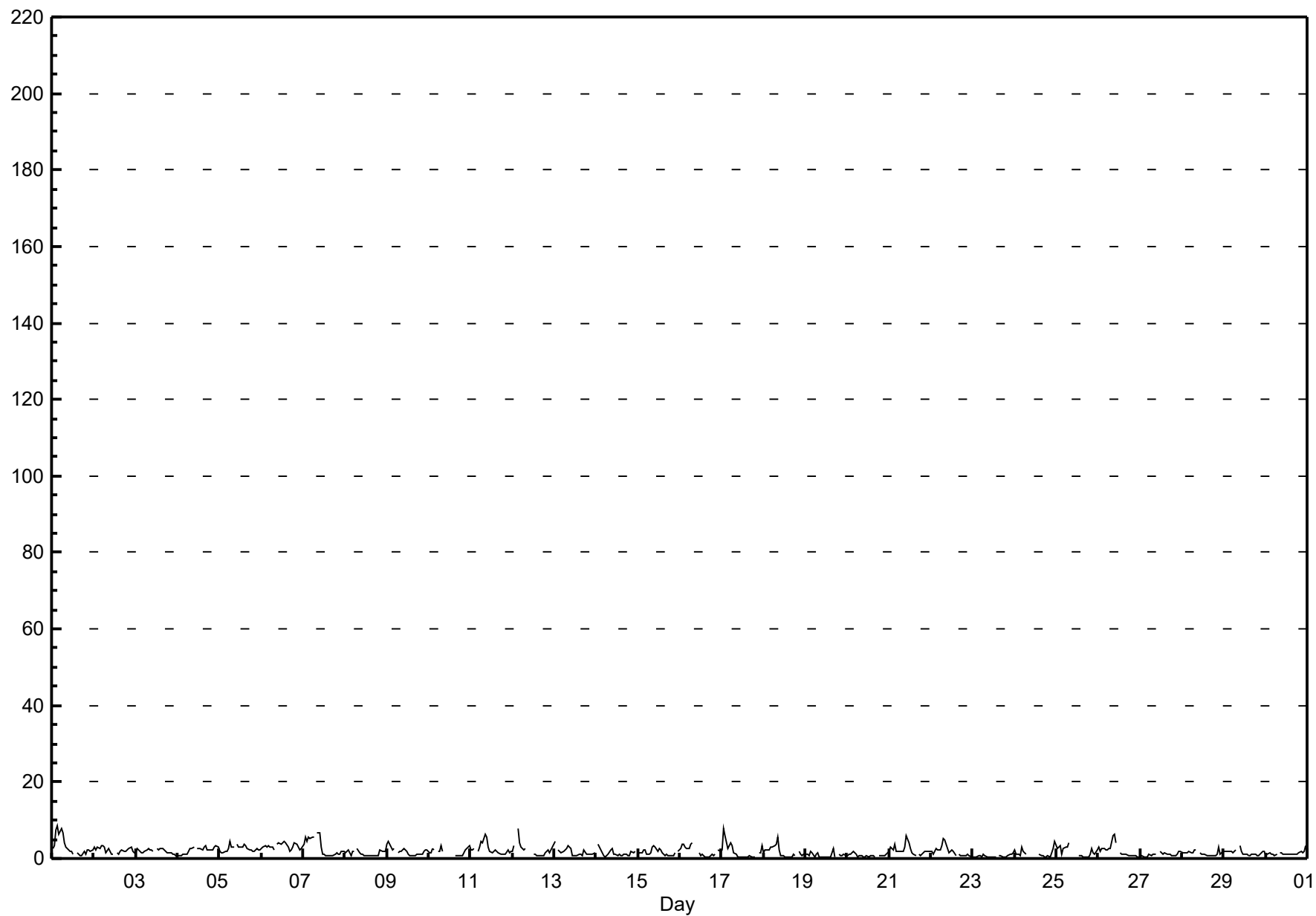
Nitrogen Oxide (NO) - ppb

Wembley - April 2019



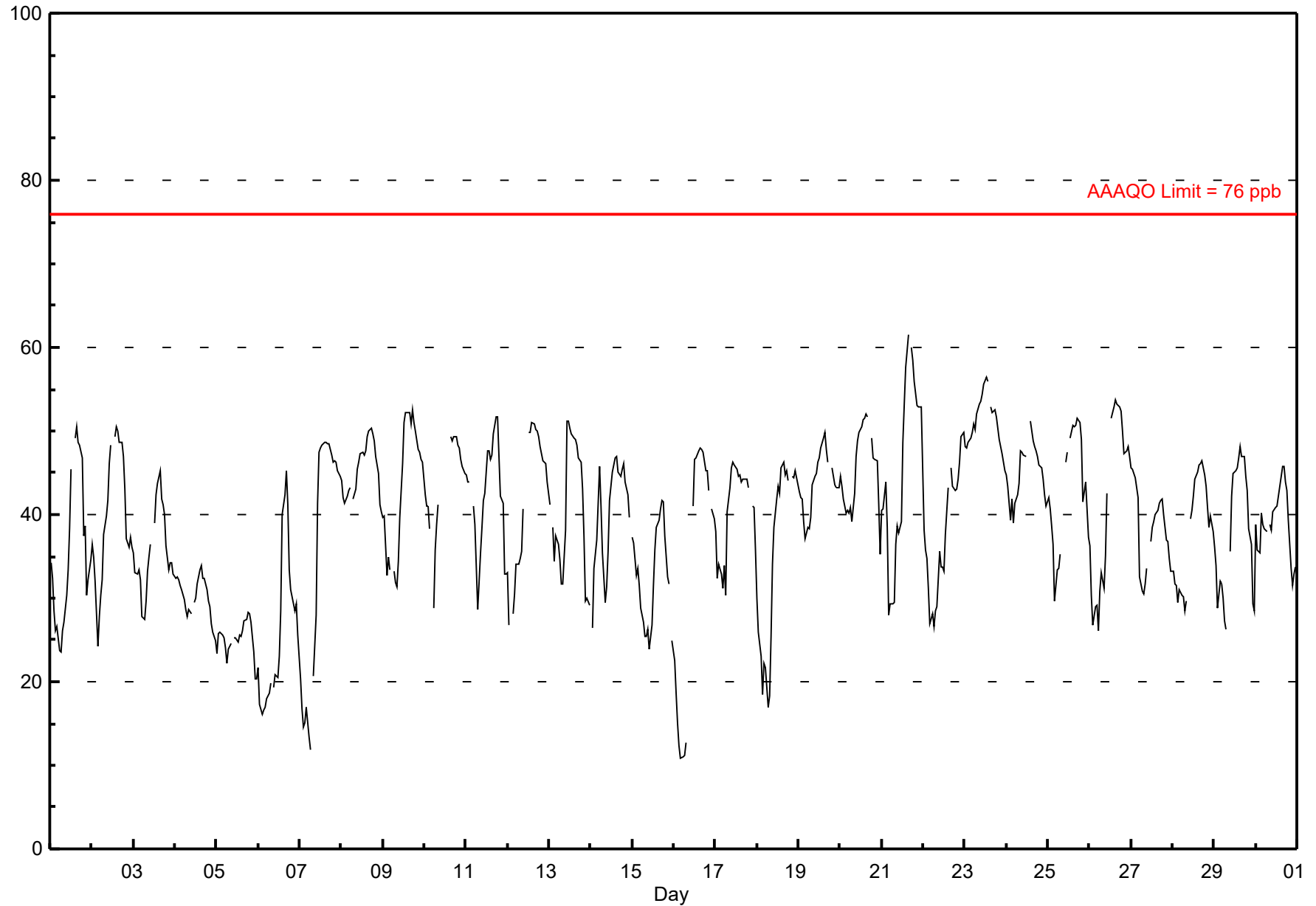
Hourly Averages

Oxides of Nitrogen (NO_x) - ppb
Wembley - April 2019



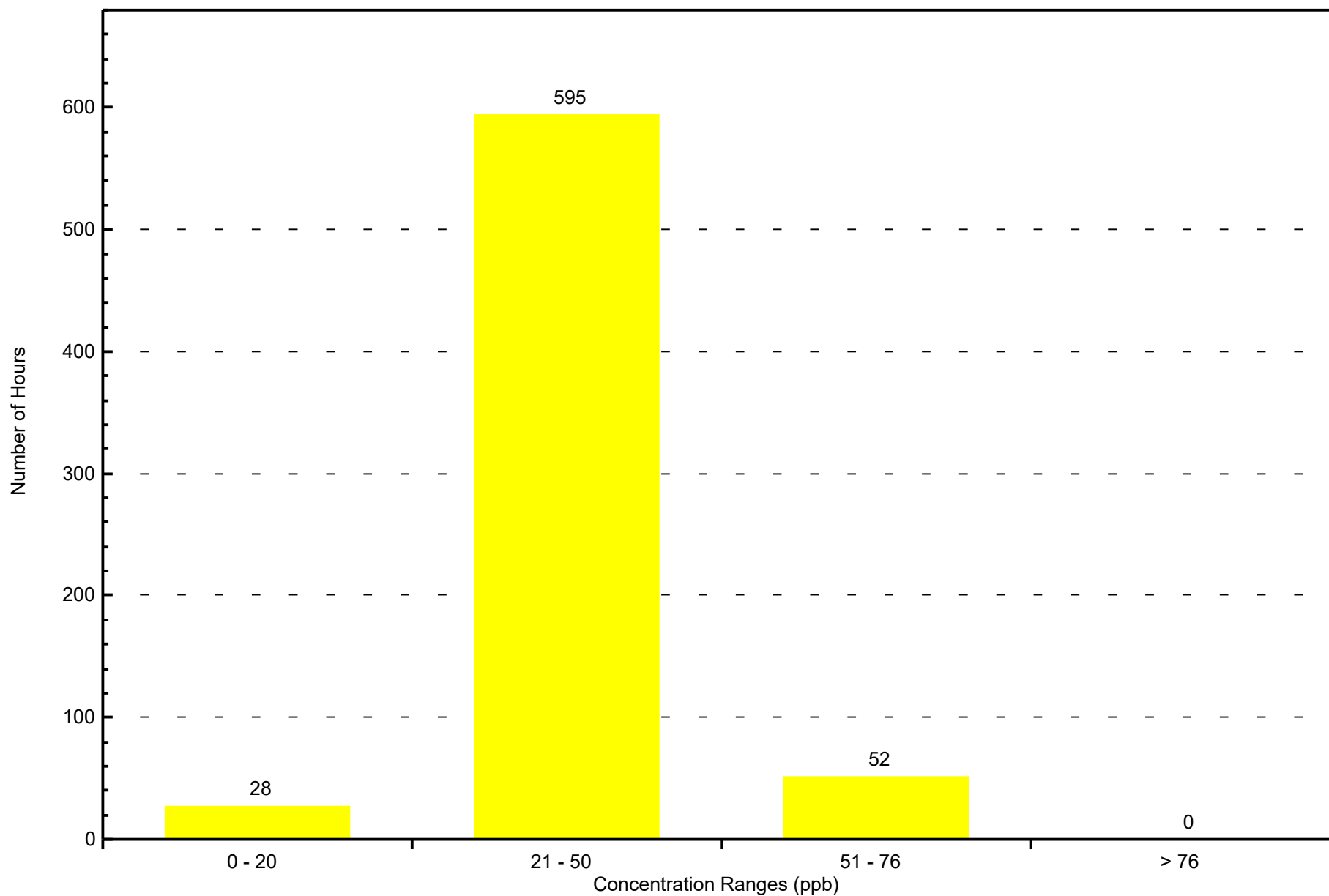
Hourly Averages

Ozone (O₃) - ppb
Wembley - April 2019



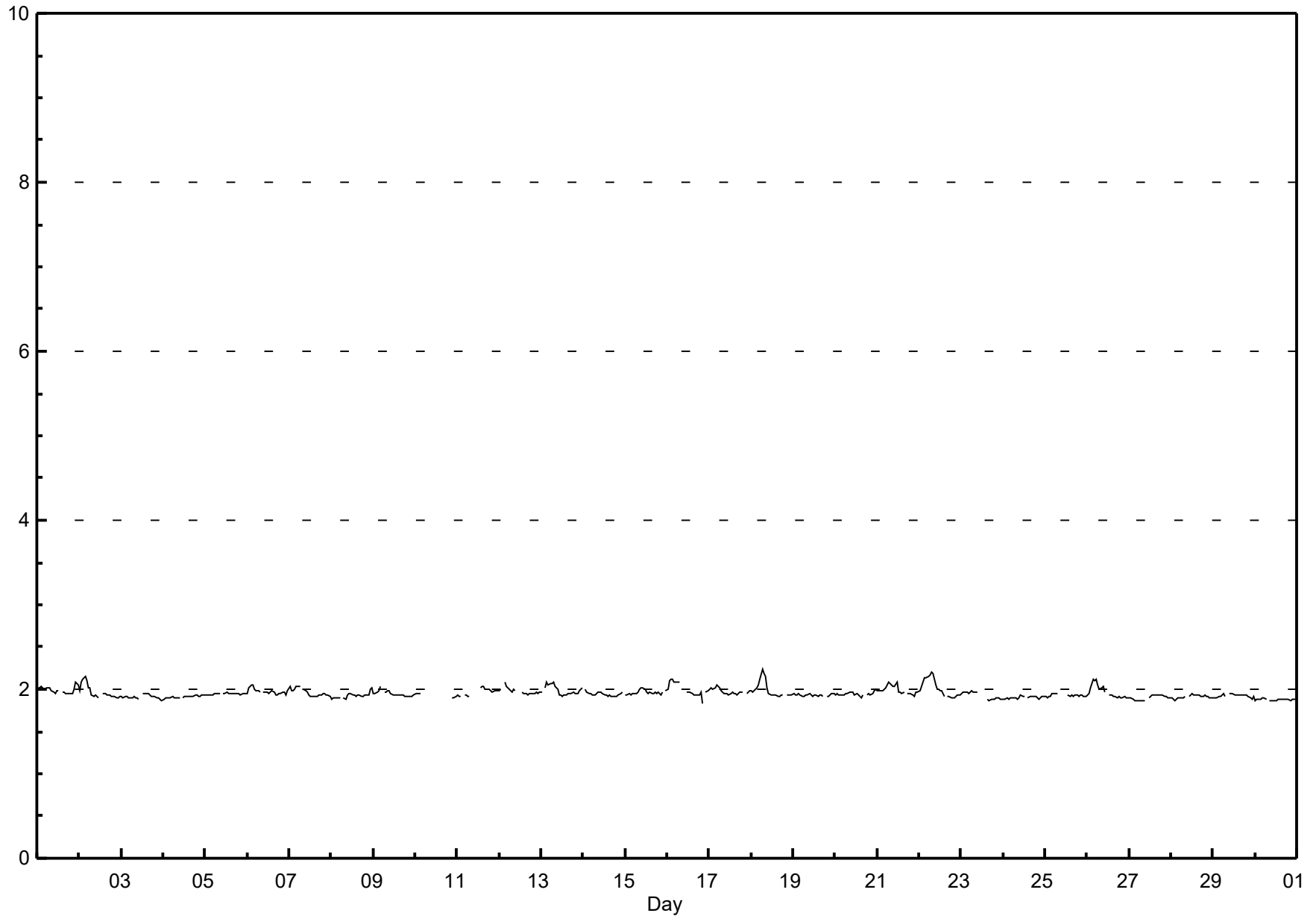
Histogram of Hourly Averages

Ozone (O₃) - ppb
Wembley - April 2019



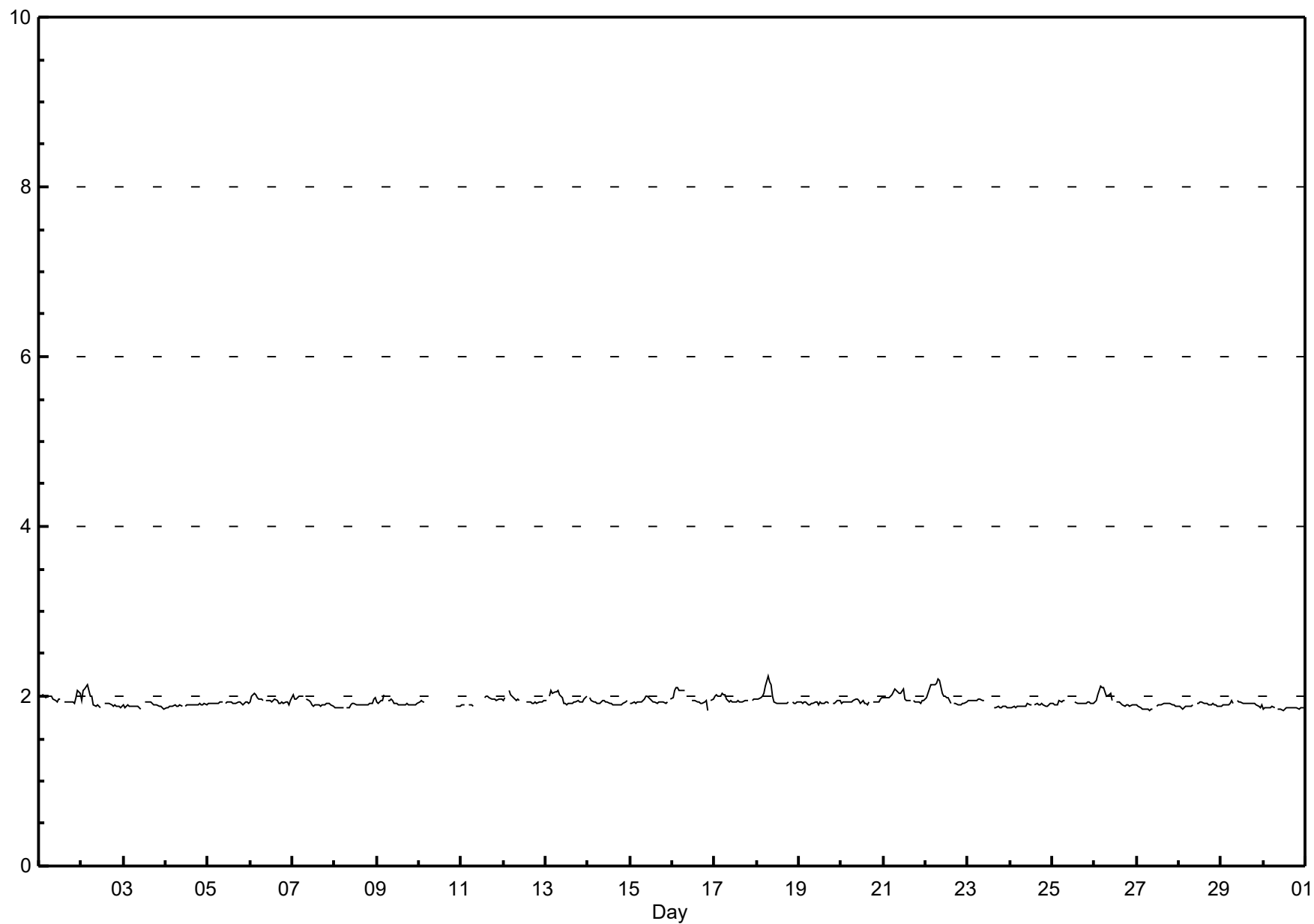
Hourly Averages

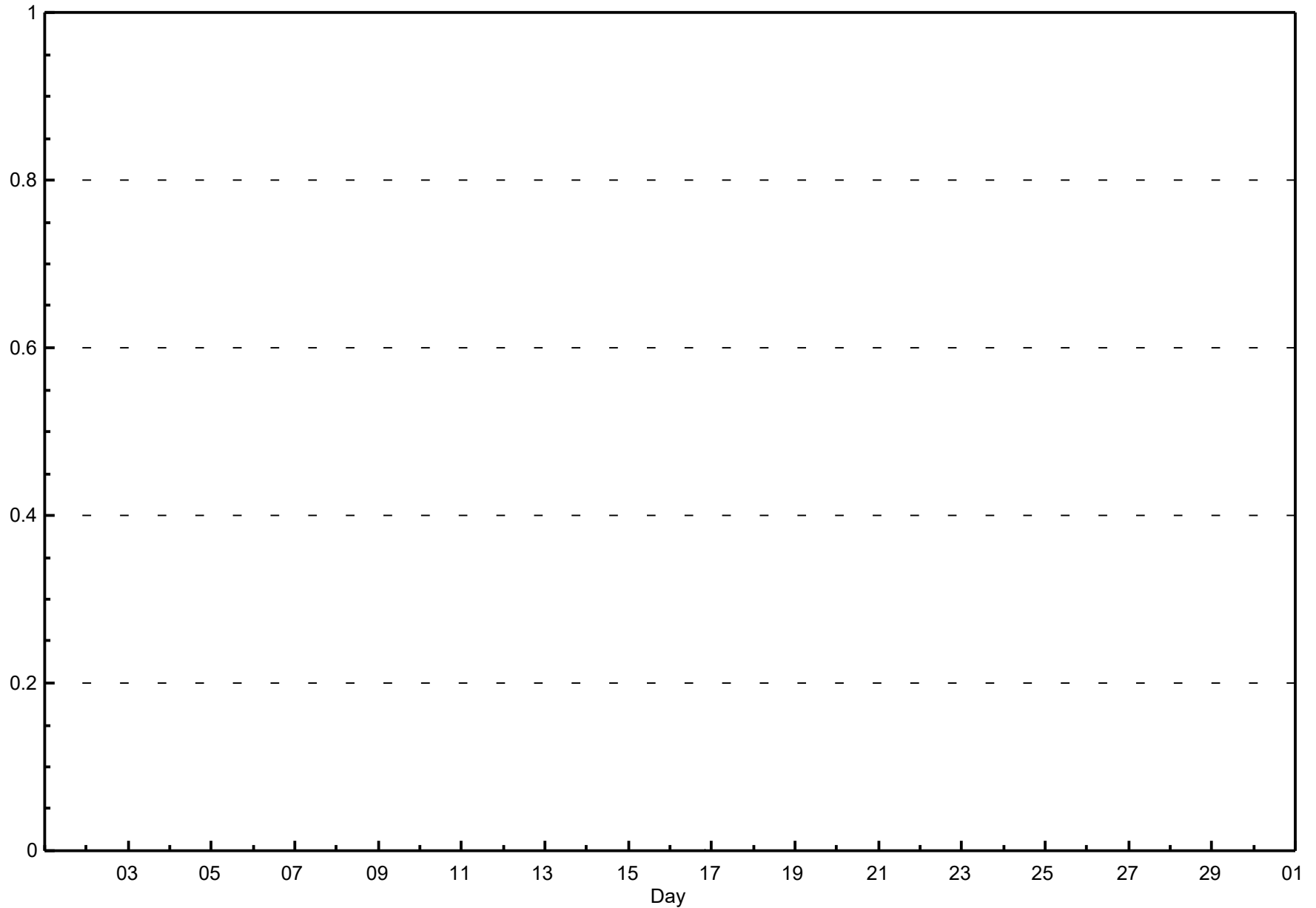
Total Hydrocarbons (THC) - ppm
Wembley - April 2019



Hourly Averages

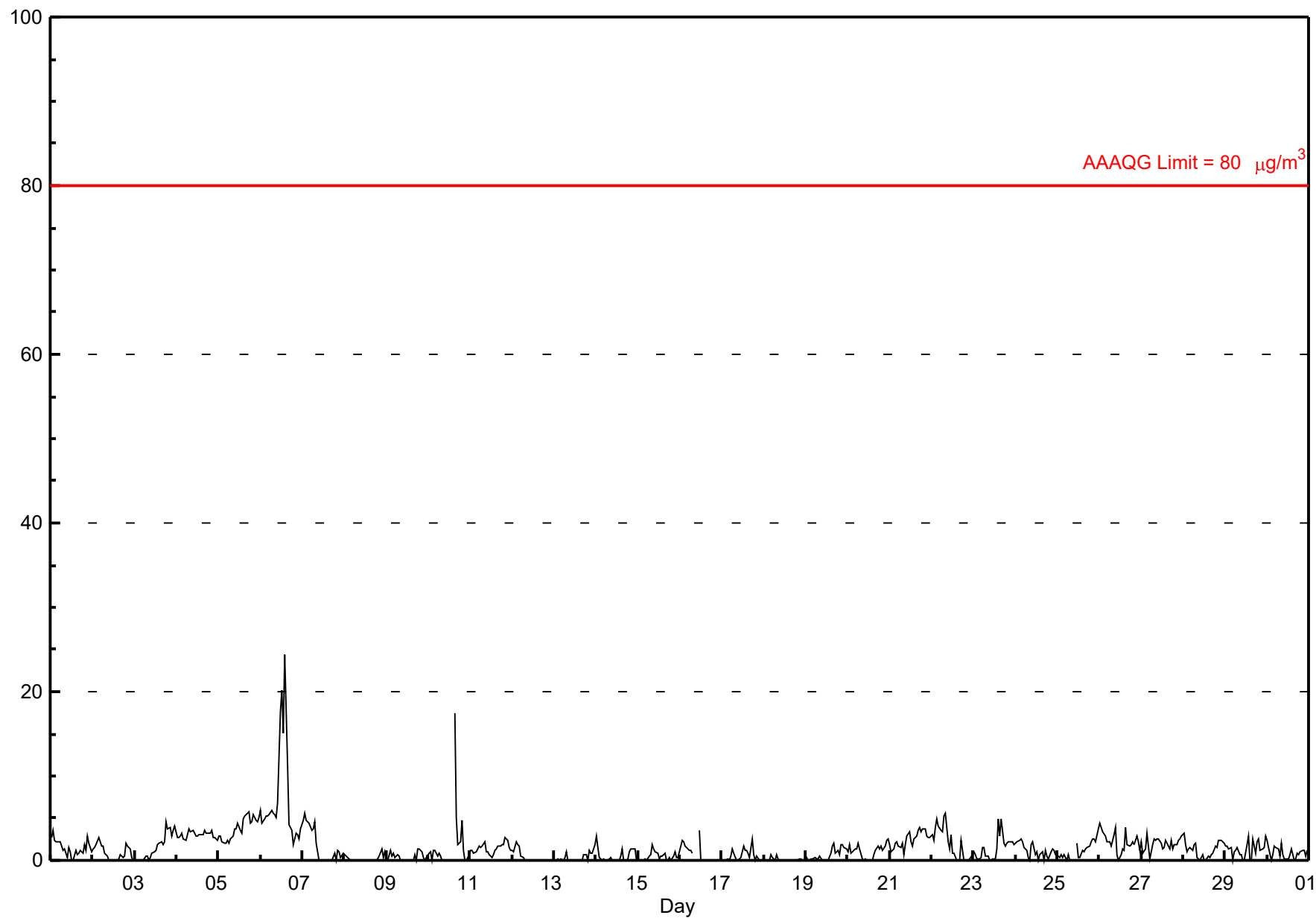
Methane (CH₄) - ppm
Wembley - April 2019





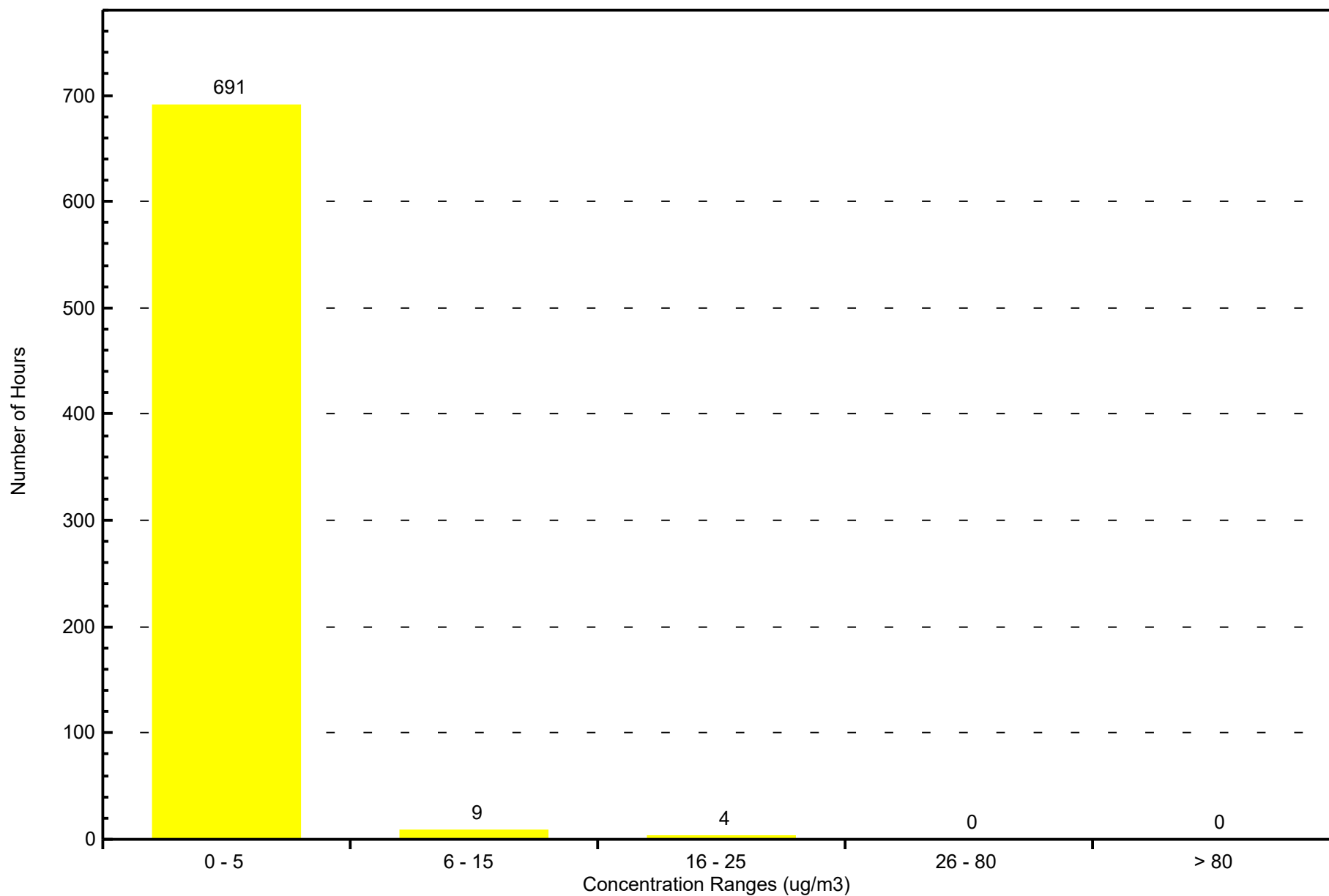
Hourly Averages

PM_{2.5} (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Wembley - April 2019



Histogram of Hourly Averages

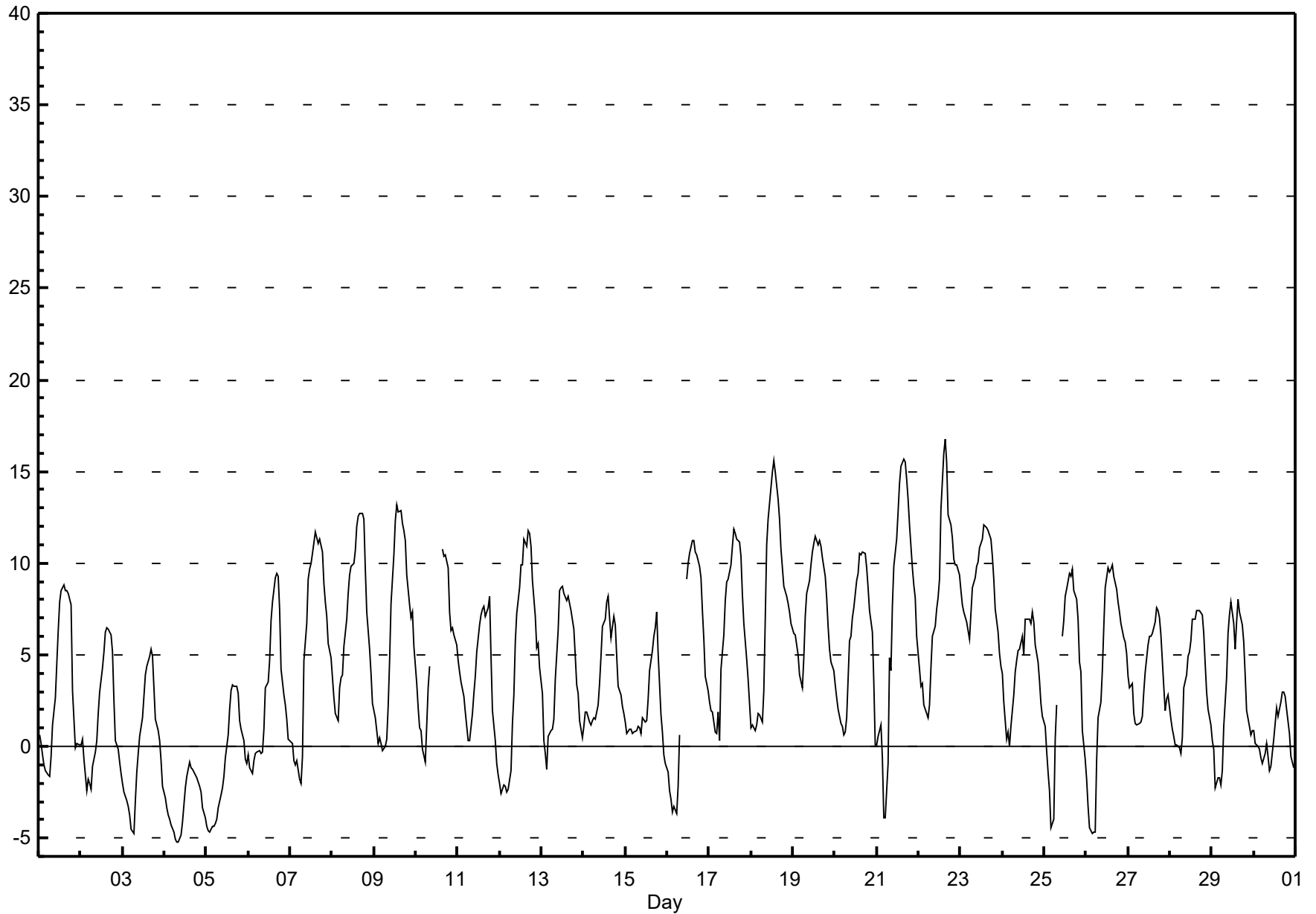
PM2.5 (PM_{2.5}) - µg/m³
Wembley - April 2019



Hourly Averages

External Temperature (ET) - °C

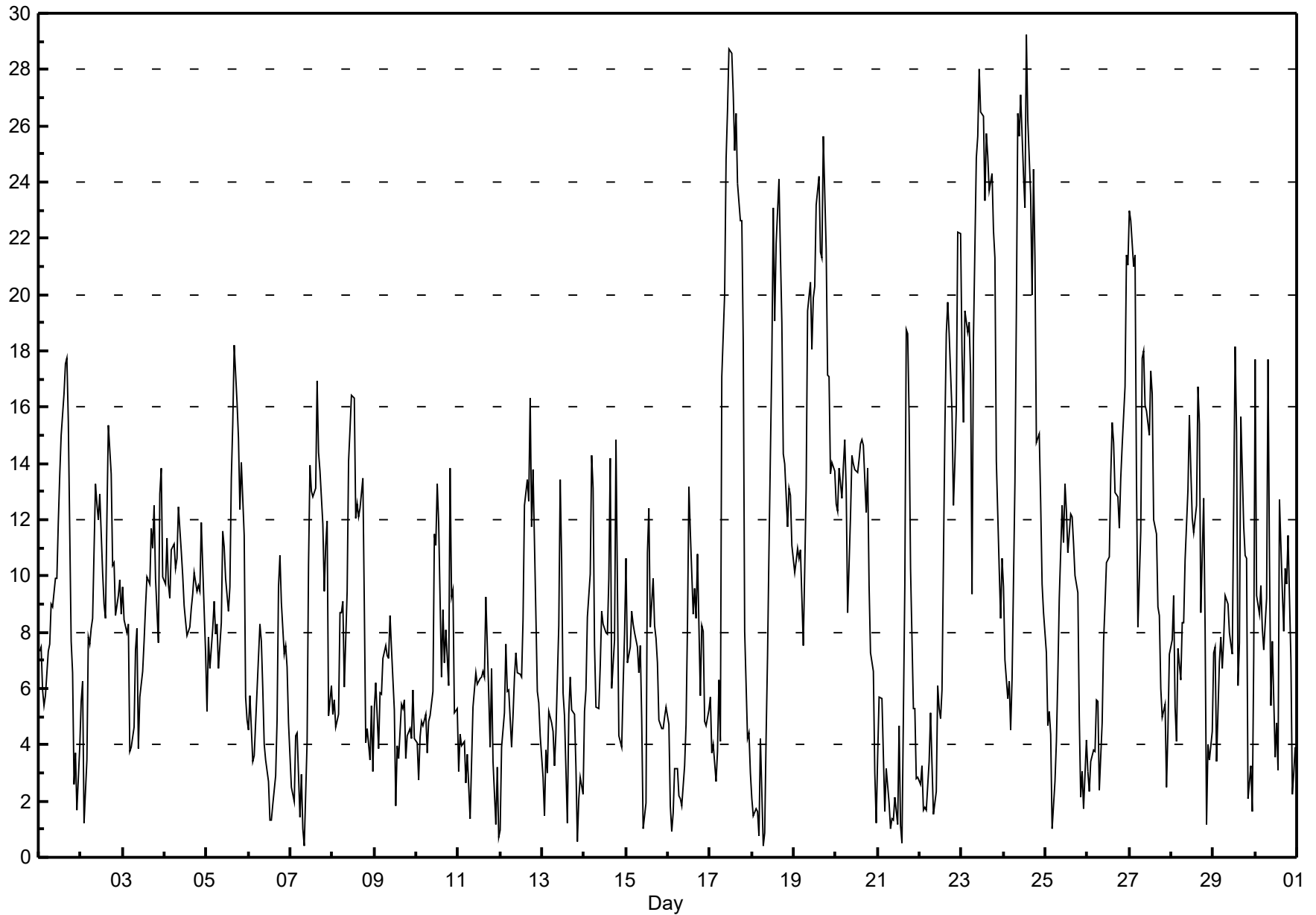
Wembley - April 2019



Hourly Averages

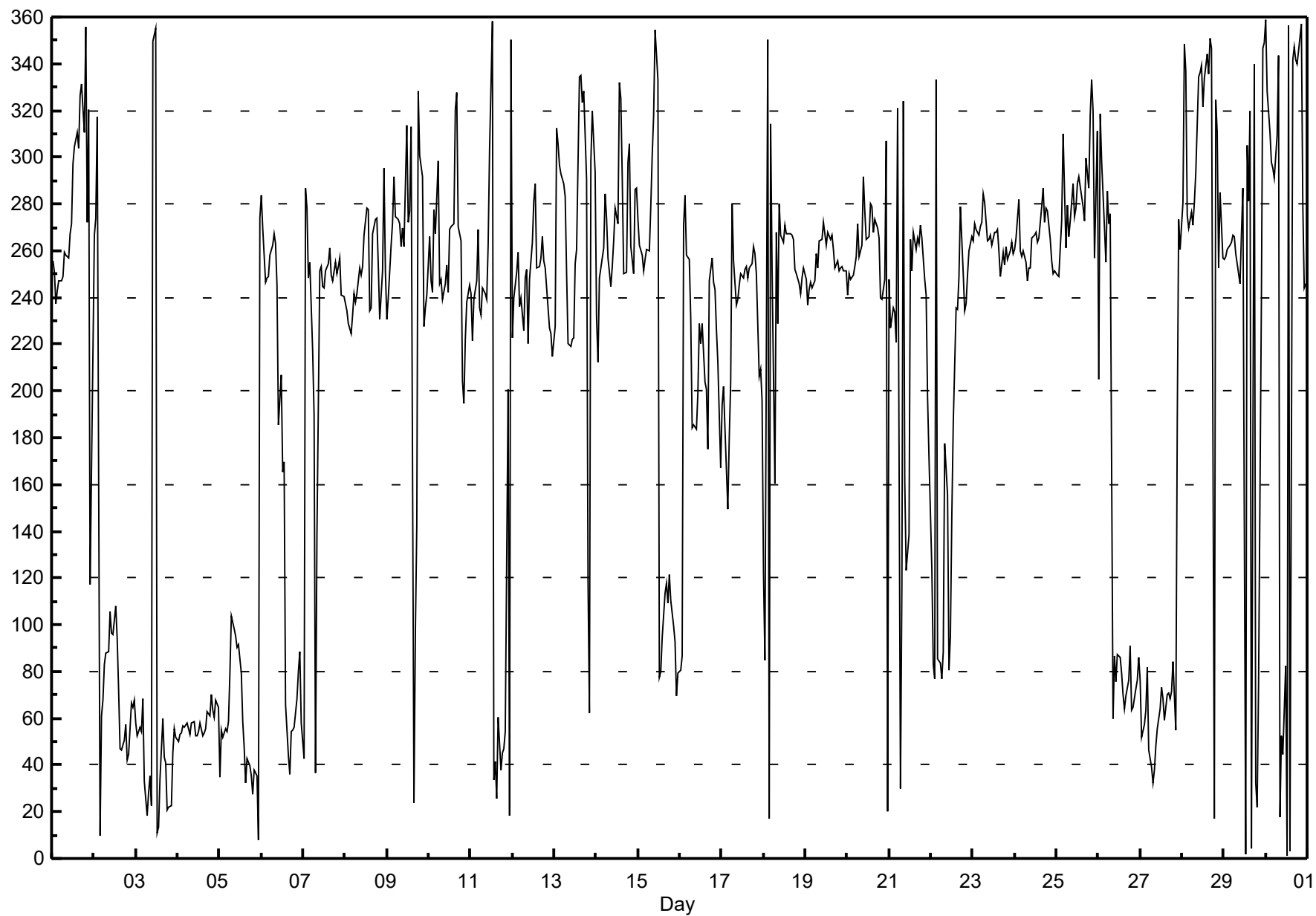
Wind Speed (WS) - km/h

Wembley - April 2019



Hourly Averages

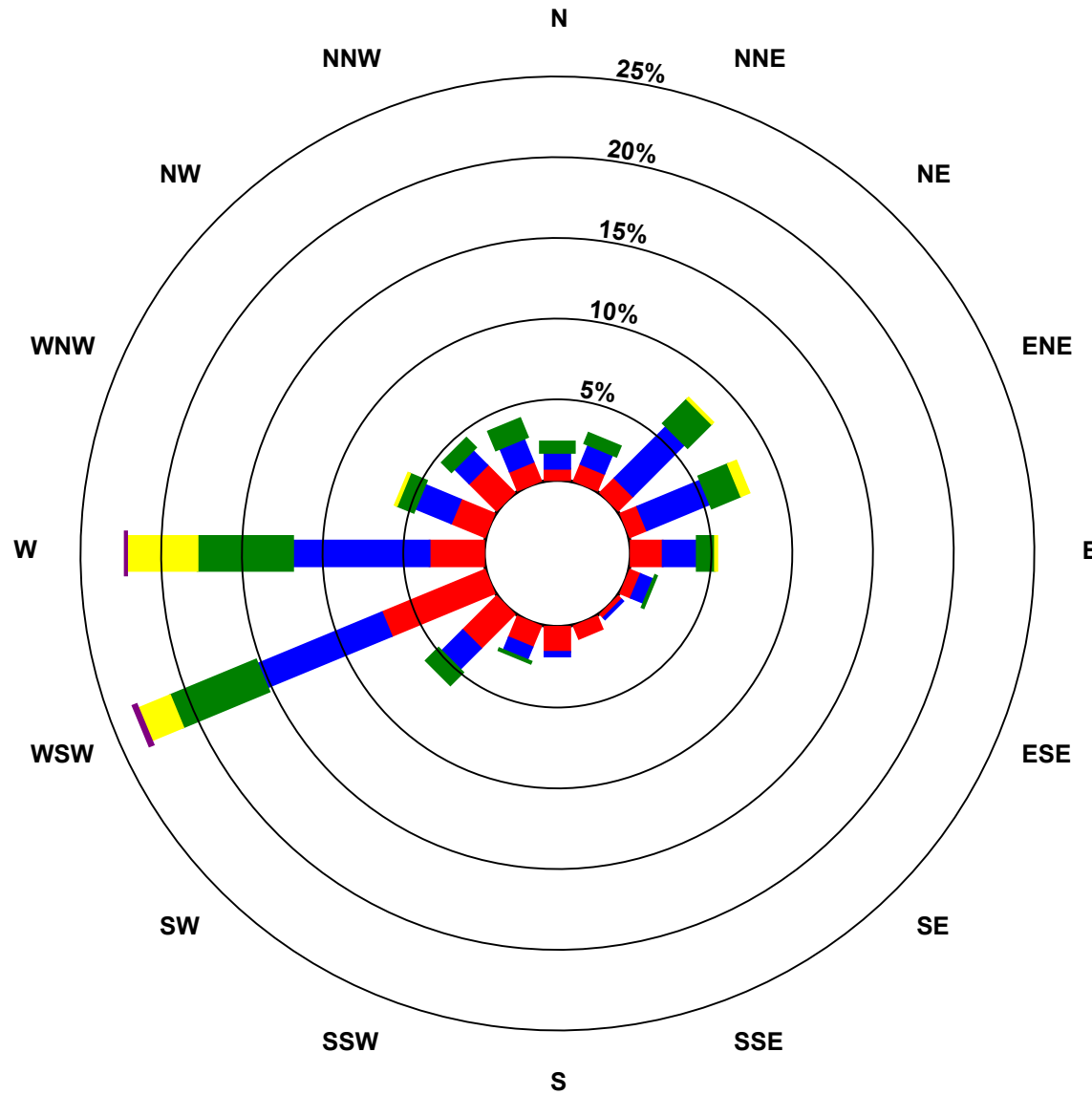
Wind Direction (WD) - deg
Wembley - April 2019



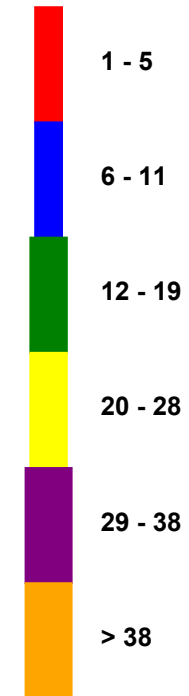
Wind Rose

Wind Speed (WS) (km/h)

Wembley - April 2019



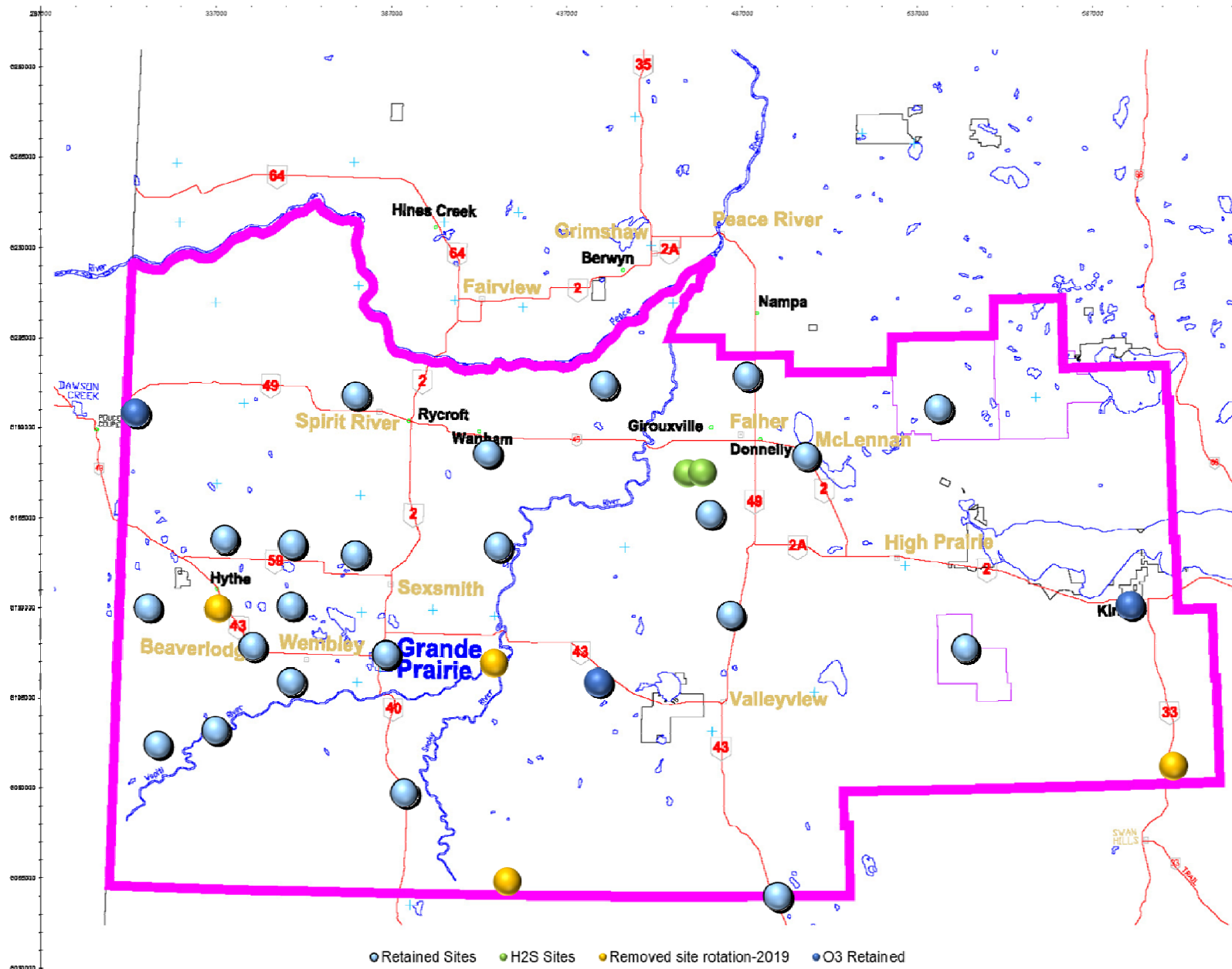
Wind Speed Classes (km/h)



PAZA

Monthly Passive Data Summary

Location of PAZA Passive Monitoring Stations



Peace Airshed Zone Association - PAZA Passive Stations
April 2019

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	Site Legal
Duplicates						
7a	Steepprock Creek	0.1				
7b	Steepprock Creek	0.1				
12a	Hythe			0.6		
12b	Hythe			0.7		
18a	Saddle Hills			0.4		
18b	Saddle Hills			0.5		
21a	Eaglesham	0.1				
21b	Eaglesham	0.1				
36a	Guy	0.2				
36b	Guy	0.1				
39a	Clouston Creek			0.3		
39b	Clouston Creek			0.4		
47a	Kinuso		41.8			
47b	Kinuso		43.5			
64a	Girouxville 4				0.2	
64b	Girouxville 4				0.2	
2	Bay Tree	0.2	47.6	0.4		13-16-078-13 W6M
5	Boone Creek	0.2		0.2		16-36-074-11 W6M
7	Steepprock Creek	0.1		0.4		09-35-072-13 W6M
9	Spirit River	0.2		0.2		08-12-079-07 W6M
11	Webber Creek	0.2		0.2		09-36-074-09 W6M
12	Hythe	0.2		0.6		14-36-072-11 W6M
14	Sylvester	0.1		0.1		08-06-069-12 W6M
16	Beaverlodge	0.3		0.8		15-36-071-10 W6M
17	Poplar	0.5		0.9		13-06-073-08 W6M
18	Saddle Hills	0.2		0.5		04-25-074-07 W6M
19	Wanham	0.2		0.4		16-22-077-03 W6M
21	Eaglesham	0.1		0.4		16-21-079-25 W5M
24	Wembley	0.2		0.9		12-31-070-08 W6M
25	Pinto Creek	0.1		0.6		04-24-069-11 W6M
27	Grande Prairie I	0.2		2.9		08-15-071-06 W6M
29	Smoky Heights	0.2		0.2		04-06-075-02 W6M
32	Gold Creek	0.4		1.8		06-33-067-05 W6M
33	Wapiti	0.1		0.6		02-25-071-03 W6M
35	Jean Cote	0.1		0.5		12-35-079-21 W5M
36	Guy	0.1		0.3	0.1	03-04-076-22 W5M
37	Crooked Creek	0.1	47.2	0.5		16-01-071-26 W5M
38	Karr Creek	0.1		0.7		10-16-065-02 W6M
39	Clouston Creek	0.1		0.3		12-01-073-22 W5M
40	McLennan	0.1		0.9		03-29-077-19 W5M
44	Peavine	0.1		0.2		03-05-079-15 W5M
46	Little Smoky	0.1		1.5		12-01-065-21 W5M
47	Kinuso	0.1	42.6	0.3		12-10-073-10 W5M
48	Deer Mountain 2	0.1		0.3		*
49	Grande Prairie HP	0.2		2.8		17-26-071-06 W6M
50	East Prairie	0.1		0.2		13-02-072-15 W5M
63	Girouxville 3				BDL	14-02-077-23 W5M
64	Girouxville 4				0.2	4-08-077-22 W5M

*BDL = Below Detection Level

*N/S - No sample

**End of Report
PAZA
April 2019
Ambient Air Monitoring Report**