



Peace Airshed Zone Association

Ambient Air Monitoring Network Summary

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

Table of Contents	2
Cover Letter	3
Listing of Facilities	3
Calibration and Data Submission	5
Noted events during the month of February	
Beverlodge	5
Evergreen Park	5
Henry Pirker	6
Smoky Heights	6
Valleyview	6
Donnely	6
Portable-Wembley	6
Certification	7
Continuous Network Equipment and Results Summary	
Beverlodge	9
Evergreen Park	10
Henry Pirker	11
Smoky Heights	12
Valleyview	12
Donnely	13
Portable-Wembley	14
Charts of Recorded Data	
Beverlodge	15
Evergreen Park	30
Henry Pirker	40
Smoky Heights	62
Valleyview	71
Donnely	80
Portable-Wembley	88
Passive Monitoring Data	106
End of Report	109

March 31st, 2019

Alberta Environment and Parks

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

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

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

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

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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 February 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 February, the following events were noted:

Beaverlodge Station:

- ◆ The measured ambient air quality was within the AAAQO for the Beaverlodge station.
- ◆ The RH sensor returned an uptime of 84.2%. The cause of continued malfunction remains under investigation. All other analyzers and meteorological sensors at the Beaverlodge station had operational uptimes greater than 90% for the month of February.

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 February.

Henry Pirker Station:

- ◆ There were two (2) 1-hour exceedances of the AAAQG for PM_{2.5} in February.

Station Name	Date	Start Time	End Time	PM _{2.5} Concentration	Reference Number
		(MST)	(MST)	(µg/m ³)	
Henry Pirker	14-Feb-19	22:00	23:00	85.7	349527
Henry Pirker	27-Feb-19	22:00	23:00	137.8	349936

- ◆ Wind instrument at Henry Pirker returned an uptime of 80.4% due to repeated and extended cold weather interfering with instrument operation. All other analyzers and meteorological sensors at the Henry Pirker station had operational uptimes greater than 90% for the month of February.

Smoky Heights Station:

- ◆ There were two (2) 1-hour exceedances of the AAAQG for PM_{2.5} in February.

Station Name	Date	Start Time	End Time	PM _{2.5} Concentration	Reference Number
		(MST)	(MST)	(µg/m ³)	
Smoky Heights	01-Feb-19	16:00	17:00	126.3	349083
Smoky Heights	12-Feb-19	05:00	06:00	96.3	349437

- ◆ All analyzers and meteorological sensors at the Smoky Heights station had operational uptimes greater than 90% for the month of February.

Valleyview Station:

- ◆ There was one (1) 1-hour exceedance of the AAAQO for H₂S in February.

Station Name	Date	Start Time	End Time	H ₂ S Concentration	Reference Number
		(MST)	(MST)	(ppb)	
Valleyview	14-Feb-19	11:00	12:00	10.6	350583

- ◆ All analyzers and meteorological sensors at the Valleyview station had operational uptimes greater than 90% for the month of February.

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 February.

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 February.

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 - 32 Stations throughout the PAZA zone:

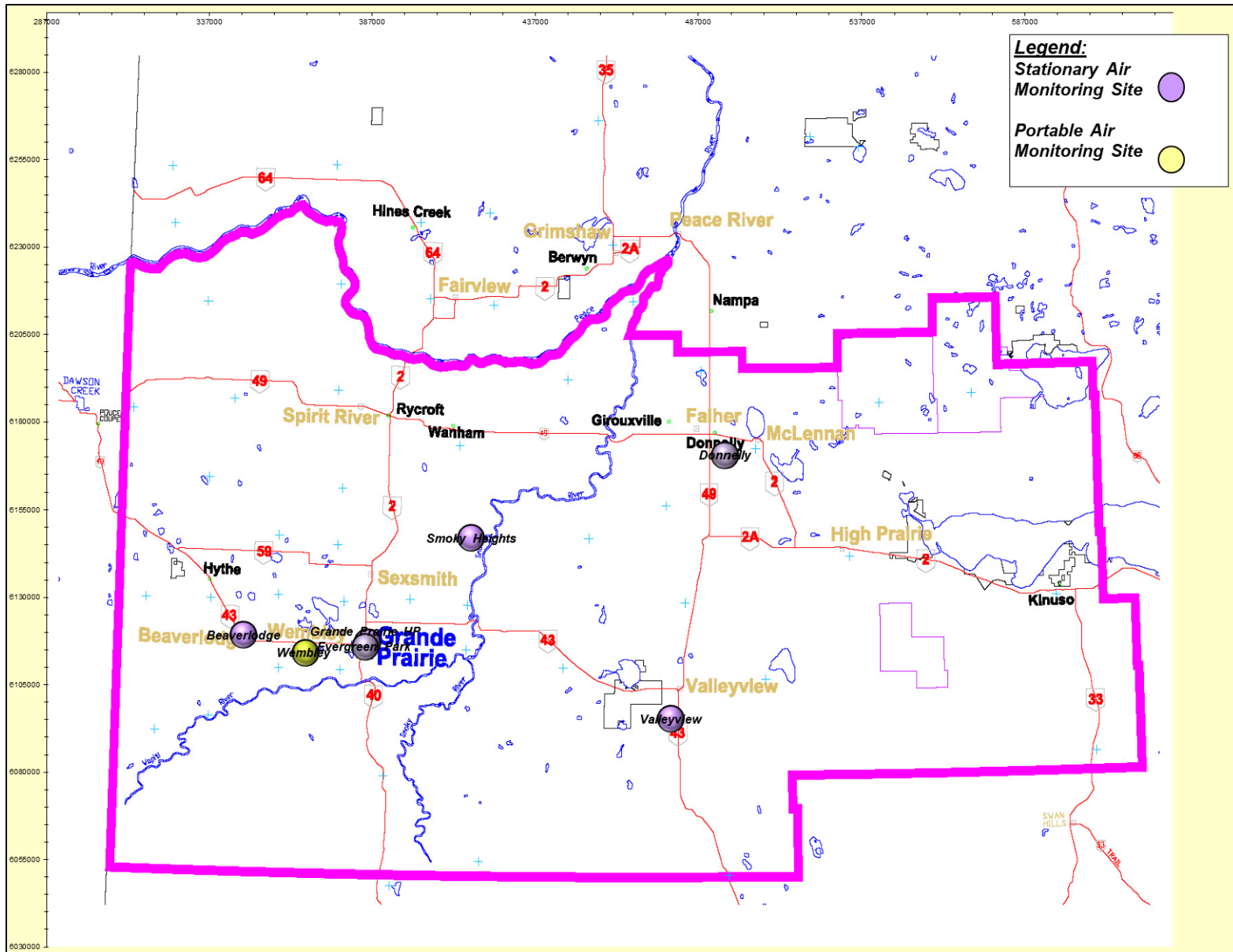
There were six duplicate sites sampled in the month of February: Sylvester, Wapiti, Kinuso (SO₂), Kinuso (O₃), Steeprock Creek, Crooked Creek, Kinuso (NO₂), and Girouxville 4 (H₂S). The passive sample analyses were performed by MAXXAM Analytics Inc. There were no exceedances of the AAAQOs for all monitored 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

Feb-2019Peace 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	Beaverlodge	1.0	0.0	0	0	0	8.1	Feb-16 21:00	2.3	Feb-08	100.0	Feb-05
NO (ppb)					3.8	0.0	-	-	-	54.6	Feb-13 13:00	17.5	Feb-06	100.0	Feb-05
NO ₂ (ppb)	159	106			10.2	0.7	0	0	-	38.6	Feb-06 23:00	28.1	Feb-06	100.0	Feb-05
NO _x (ppb)					14.0	0.7	-	-	-	84.0	Feb-13 13:00	45.5	Feb-06	100.0	Feb-05
O ₃ (ppb)	76				27.0	0.7	0	-	-	47.2	Feb-28 16:00	40.4	Feb-28	100.0	Feb-05
O ₃ (ppb) - 8-hr							-	-	-			45.6	Feb-28		-
PM _{2.5} (µg/m3)	80	29			4.6	0.0	0	0	-	25.4	Feb-07 02:00	14.4	Feb-06	96.6	Nov-20
RH (%)					74.5	40.3	-	-	-	99.3	Feb-24 20:00	84.3	Feb-01	84.2	-
Temp (°C)					-19.6	-39.0	-	-	-	0.5	Feb-19 16:00	-3.6	Feb-19	100.0	-
WSPD v (km/hr)					6.0	0.1	-	-	-	28.5	Feb-19 13:00	14.1	Feb-02	100.0	01/06/2017
WDIR				N		-	-	-	-	-	-	-	100.0	01/06/2017	

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Replacement AEP analyzer installation attempted Feb 5, analogue outputs would not respond. Installation aborted and analyzer currently in service retained and calibrated.
NO/NO ₂ /NO _x	TECO	42I	
O ₃	TECO	49I	
PM _{2.5}	SHARP	5030	Analyzer returned invalid data due to freezing temperatures on Feb 3,4,5,9,10
ET/RH			RH probe failed to return valid data in later part of the month
WS/WD	MetOne	50.5	

Evergreen Park Air Monitoring Station

Feb-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	0.6	0.0	0	0	0	24.0	Feb-07 14:00	2.7	Feb-07	98.7	Feb-18
TRS (ppb)					0.8	0.3	-	-	-	2.5	Feb-14 15:00	1.2	Feb-13	98.7	Feb-18
PM _{2.5} (µg/m3)	80	29			4.6	0.0	0	0	-	36.6	Feb-14 09:00	10.5	Feb-18	98.4	Dec-07
RH (%)					70.2	32.9	-	-	-	92.9	Feb-20 04:00	82.8	Feb-22	98.7	-
Temp (°C)					-21.6	-39.8	-	-	-	1.1	Feb-19 17:00	-5.1	Feb-19	98.7	-
WSPD v (km/hr)					6.3	0.0	-	-	-	30.4	Feb-19 12:00	14.9	Feb-02	91.5	-
WDIR					NW		-	-	-	-	-	-	-	91.5	-

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Data logger locked up Feb 10-11
TRS	TECO	43I	
PM _{2.5}	SHARP	5030	Heads checked, filter replaced Feb 18
ET/RH			
WS/WD	Gil	MetPak	Wind head failed to return valid data throughout February due to freezing conditions

Henry Pirker Air Monitoring Station

Feb-2019Peace 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	0.7	0.0	0	0	0	6.3	Feb-05 15:00	1.9	Feb-07	100.0	Feb-05
TRS (ppb)					0.6	0.0	-	-	-	13.3	Feb-05 06:00	2.3	Feb-05	100.0	Feb-01
NO (ppb)					16.1	0.0	-	-	-	109.3	Feb-12 21:00	40.6	Feb-21	100.0	Feb-05
NO ₂ (ppb)	159	106			23.6	1.2	0	0	-	56.2	Feb-12 21:00	38.5	Feb-12	100.0	Feb-05
NO _x (ppb)					40.0	1.6	-	-	-	166.2	Feb-12 21:00	78.1	Feb-21	100.0	Feb-05
O ₃ (ppb)	76				15.1	0.2	0	-	-	43.6	Feb-28 16:00	28.4	Feb-01	99.6	Feb-06
O ₃ (ppb) - 8-hr							-	-	-			39.7	Feb-28		-
CO (ppm)	13				0.28	0.0	0	0	-	0.9	Feb-14 07:00	0.6	Feb-14	96.0	Feb-19
CO (ppm) - 8-hr	5						0					0.8	Feb-14		-
THC (ppm)					2.4	1.9	-	-	-	3.4	Feb-06 10:00	2.9	Feb-04	100.0	Feb-01
CH ₄ (ppm)					2.3	1.9	-	-	-	3.0	Feb-09 13:00	2.7	Feb-04	100.0	Feb-01
NMHC (ppm)					0.1	0.0	-	-	-	0.5	Feb-24 07:00	0.2	Feb-04	100.0	Feb-01
PM _{2.5} (µg/m3)	80	29			9.1	0.4	2	0	-	137.8	Feb-26 23:00	17.2	Feb-06	94.5	Jan-04
RH (%)					61.3	34.6	-	-	-	82.2	Feb-20 04:00	69.8	Feb-22	95.7	-
SR (W/m ²)					70.9	0.0	-	-	-	482.1	Feb-28 14:00	121.3	Feb-28	95.7	-
Temp (°C)					-21.0	-41.7	-	-	-	1.8	Feb-19 16:00	-5.0	Feb-19	95.7	-
WSPD v (km/hr)					4.4	0.0	-	-	-	17.8	Feb-02 10:00	11.2	Feb-02	80.4	01/07/2017
WDIR					NW		-	-	-	-	-	-	-	80.4	01/07/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	
TRS	TECO	450I	
NO/NO ₂ /NO _x	TECO	42I	Daily spans below expected range Feb 3-5, possibly due to below normal station temperature.
			Analyzer replacement started Feb 5, AMOE replacement unit was found to be without span oven installed, old analyzer returned to service
O ₃	TECO	49I	Calibration started on Feb 5, aborted due to ozone lamp issue in calibrator. Calibration with new calibrator completed Feb 6.
CO	TECO	48I-TLE/48C-TLE	Maintenance on correlation wheel completed during Feb 6 calibration to attempt to resolve negative spiking in data. Feb 6 calibration
			successful but spiking increased in frequency afterward. Troubleshooting on Feb 8 determined probable cause, AEP notified for
			replacement parts to repair the unit. Temporary replacement unit (48C-TLE) from AEP installed Feb 19 and calibrated.
THC/CH ₄ /NMHC	TECO	55I	
PM _{2.5}	SHARP	5030	Analyzer returned invalid data due to freezing temperatures on Feb 3,4,5,6,9,10
ET/RH			Sensor failed to return valid data Feb 4-5, likely due to freezing temperatures
SR			Sensor failed to return valid data Feb 4-5, likely due to freezing temperatures
WS/WD	MetOne	50.5	Wind head failed to return valid data throughout February due to freezing conditions

Smoky Heights Air Monitoring Station

Feb-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	Smoky Heights	0.7	0.0	0	0	0	14.1	Feb-13 21:00	2.1	Feb-13	100.0	Feb-25
TRS (ppb)					0.6	0.3	-	-	-	2.8	Feb-25 10:00	0.9	Feb-25	100.0	Feb-25
PM _{2.5} (µg/m3)	80	29			7.4	0.0	2	0	-	126.3	Feb-01 17:00	15.1	Feb-14	93.6	Feb-25
Temp (°C)					-21.9	-41.0	-	-	-	-0.5	Feb-19 17:00	-6.4	Feb-19	100.0	-
WSPD v (km/hr)					8.5	0.1	-	-	-	25.8	Feb-19 01:00	16.5	Feb-01	99.3	01/04/2017
WDIR					WNW		-	-	-	-	-	-	-	99.3	01/04/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	
TRS	TECO	43I	
PM _{2.5}	SHARP	5030	Analyzer returned invalid data due to freezing temperatures on Feb 3,4,5,6,9,10,25
ET			
WS/WD	MetOne	50.5	Wind head failed to return valid data throughout February due to freezing conditions

Valleyview Air Monitoring Station

Feb-2019Peace 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	Valleyview	0.5	0.0	0	0	0	7.3	Feb-25 14:00	1.4	Feb-05	99.7	Feb-13
H ₂ S (ppb)	10	3			0.5	0.0	1	0	-	10.6	Feb-14 12:00	2.2	Feb-14	99.9	Feb-13
RH (%)					75.2	49.2	-	-	-	98.2	Feb-20 02:00	85.7	Feb-22	100.0	-
Temp (°C)					-15.2	-32.4	-	-	-	3.2	Feb-19 16:00	-1.5	Feb-19	100.0	-
WSPD v (km/hr)					3.4	0.0	-	-	-	21.7	Feb-28 21:00	8.1	Feb-02	99.1	-
WDIR					NNW		-	-	-	-	-	-	-	99.1	-

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	Zero-Span system not returned to proper operation after Feb 13 calibration, returning invalid zero-span responses on Feb 14. Technician reset system on Feb 15.
H ₂ S	TECO	450I	Zero-Span system not returned to proper operation after Feb 13 calibration, returning invalid zero-span responses on Feb 14. Technician reset system on Feb 15.
ET/RH			
WS/WD	Gil	MetPak	Wind head failed to return valid data throughout February due to freezing conditions

Donnelly Air Monitoring Station

Feb-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	0.4	0.0	0	0	0	1.8	Feb-07 22:00	0.9	Feb-11	100.0	Feb-12
H ₂ S (ppb)	10	3			0.2	0.0	0	0	-	0.9	Feb-12 13:00	0.4	Feb-12	100.0	Feb-12
Temp (°C)					-21.3	-40.8	-	-	-	-3.7	Feb-27 17:00	-7.1	Feb-19	100.0	-
WSPD v (km/hr)					7.5	0.1	-	-	-	22.9	Feb-28 21:00	15.9	Feb-21	100.0	01/06/2017
WDIR					S		-	-	-	-	-	-	-	100.0	01/06/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	
H ₂ S	TECO	450I	
ET/RH			
WS/WD	RMYoung	5103	

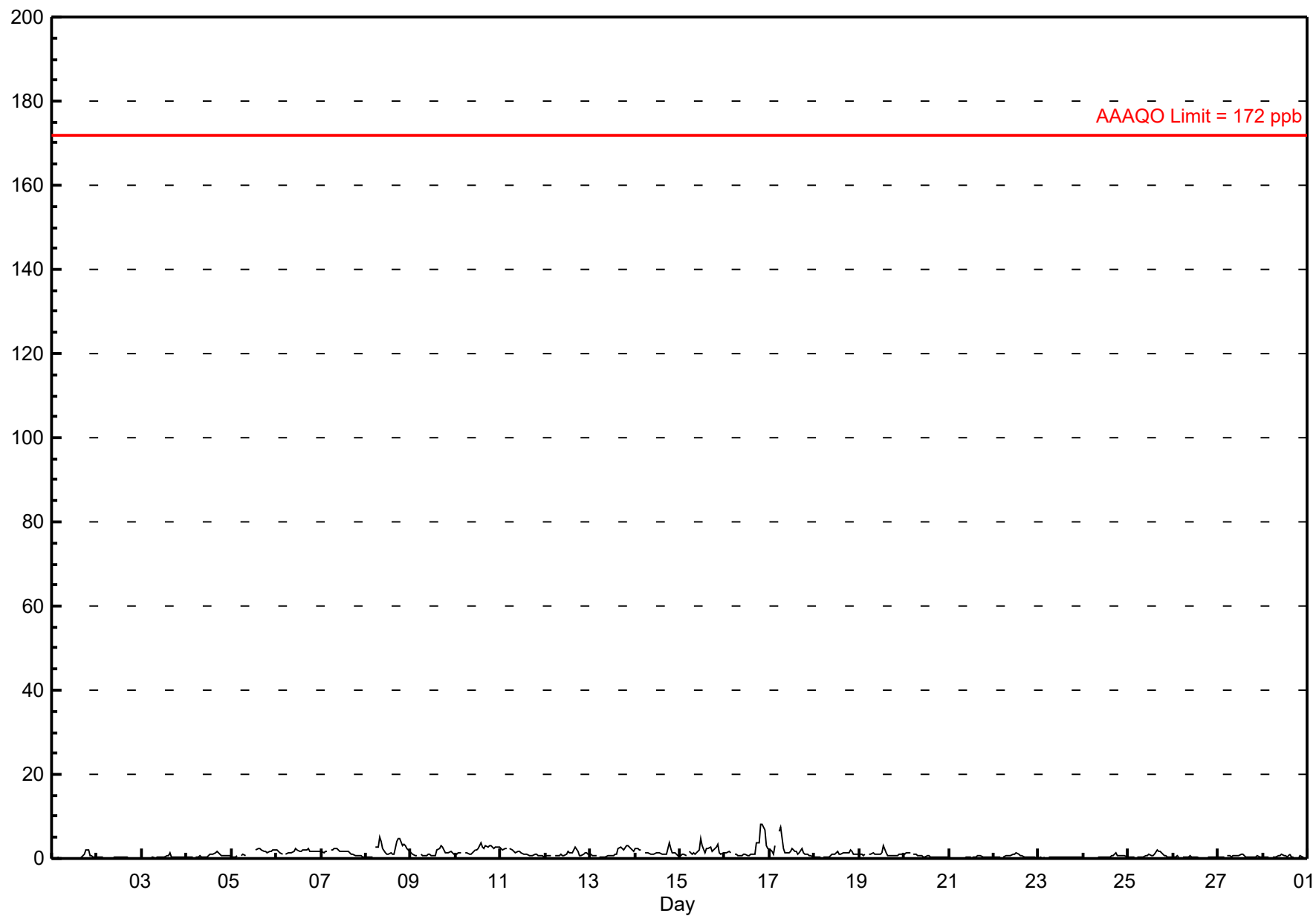
Wembley-Portable Air Monitoring Station

Feb-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	Wembley-Portable	0.5	0.0	0	0	0	6.4	Feb-20 12:00	1.4	Feb-16	100.0	Feb-08
TRS (ppb)					0.2	0.0	-	-	-	1.0	Feb-06 08:00	0.5	Feb-06	100.0	Feb-08
NO (ppb)					2.8	0.0	-	-	-	40.8	Feb-13 14:00	16.4	Feb-06	100.0	Feb-08
NO ₂ (ppb)	159	106			11.9	0.5	0	0	-	46.1	Feb-12 23:00	28.8	Feb-13	100.0	Feb-08
NO _x (ppb)					14.9	0.5	-	-	-	66.2	Feb-06 11:00	44.8	Feb-06	100.0	Feb-08
O ₃ (ppb)	76				25.0	0.0	0	-	-	49.6	Feb-02 21:00	41.7	Feb-28	100.0	Feb-08
O ₃ (ppb) - 8-hr							-	-	-			46.2	Feb-28		-
THC (ppm)					2.2	1.8	-	-	-	3.3	Feb-04 04:00	2.5	Feb-04	100.0	Feb-19
CH ₄ (ppm)					2.2	1.8	-	-	-	3.3	Feb-04 04:00	2.5	Feb-04	100.0	Feb-19
NMHC (ppm)					0.0	0.0	-	-	-	0.0	Feb-16 02:00	0.0	Feb-28	100.0	Feb-19
PM _{2.5} (µg/m3)	80	29			3.7	0.0	0	0	-	67.0	Feb-02 21:00	10.9	Feb-02	99.9	Dec-13
Temp (°C)					-21.6	-42.8	-	-	-	1.2	Feb-19 15:00	-4.7	Feb-19	100.0	-
WSPD v (km/hr)					6.5	0.2	-	-	-	26.8	Feb-04 18:00	13.8	Feb-28	95.5	01/03/2017
WDIR					NW		-	-	-	-	-	-	-	95.5	01/03/2017

Parameter	Analyzer		Notes
	Make	Model	
SO ₂	TECO	43I	
TRS	TECO	43I	
NO/NO ₂ /NO _x	TECO	42I	
O ₃	TECO	49I	
THC/CH ₄ /NMHC	TECO	55I	Negative spiking in data began appearing Feb 1, nitrogen tank replaced and carrier pressure adjusted and calibration successfully completed. Spiking reappeared Feb 13, increasing in frequency Feb 16. Adjustments made on Feb 19 and analyzer recalibrated, issue appears resolved
PM _{2.5}	TEOM		Heads checked, filter replaced Feb 8
ET/RH			
WS/WD	MetOne	50.5	Wind head failed to return valid data throughout February due to freezing conditions

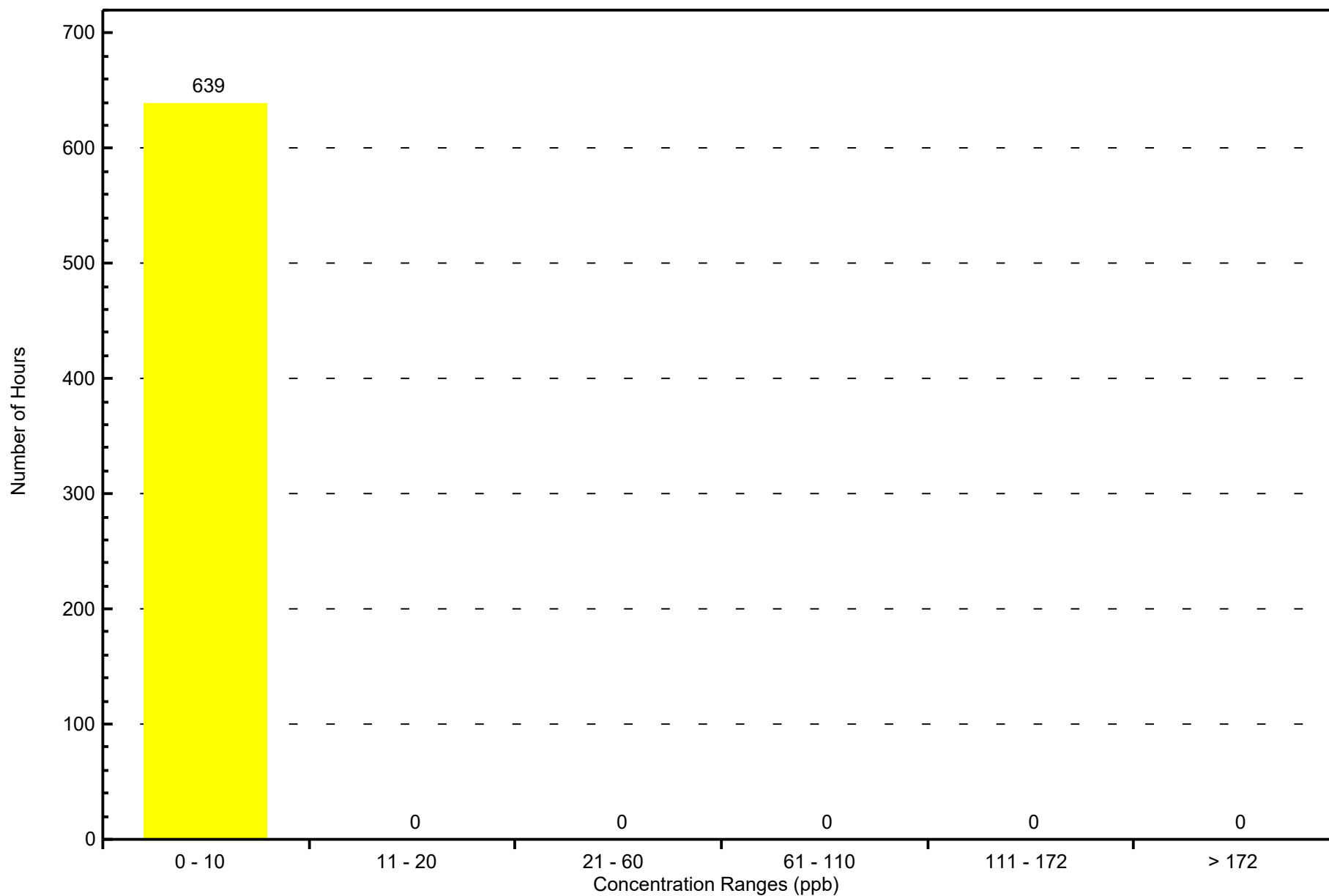
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - February 2019



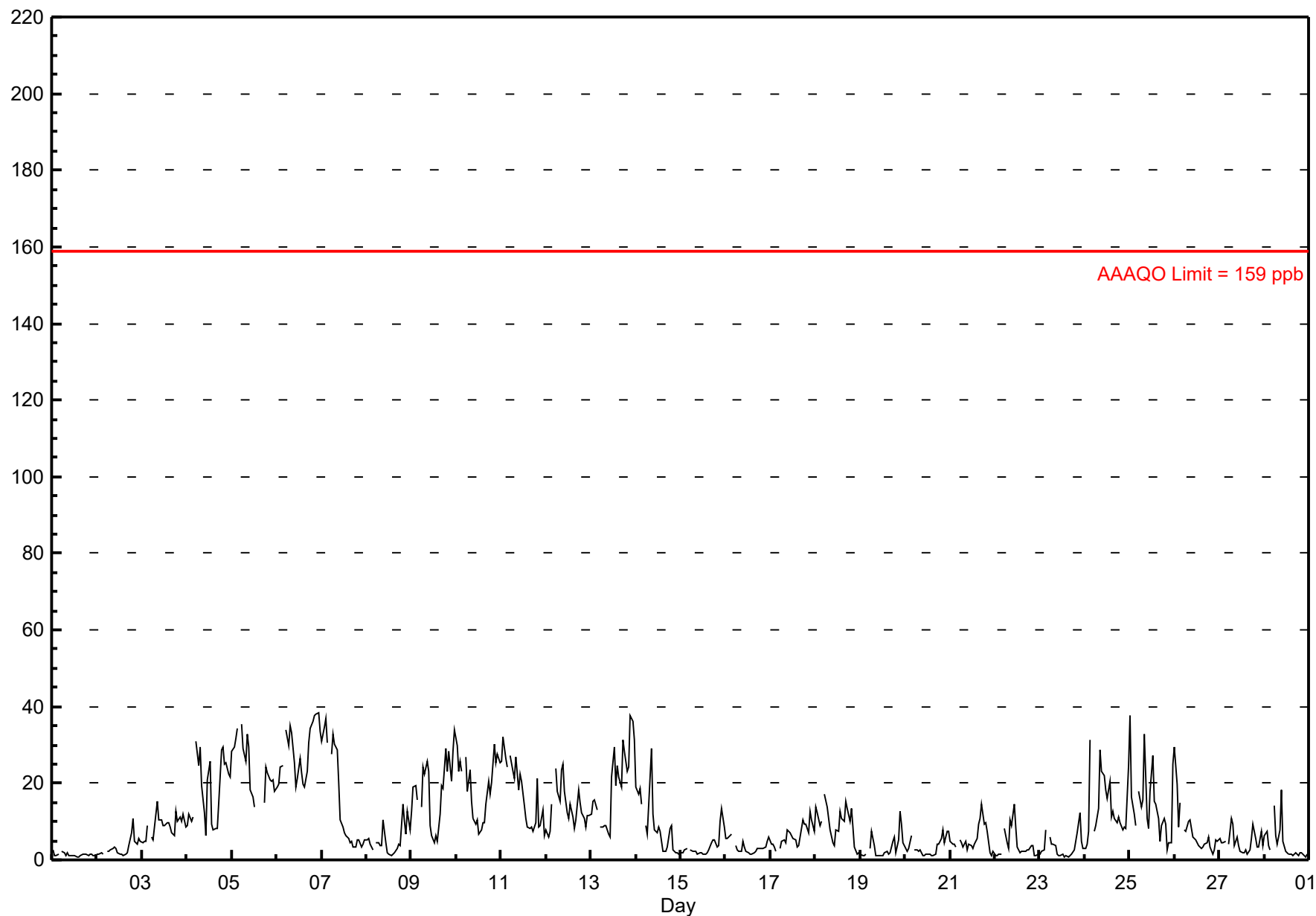
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge - February 2019



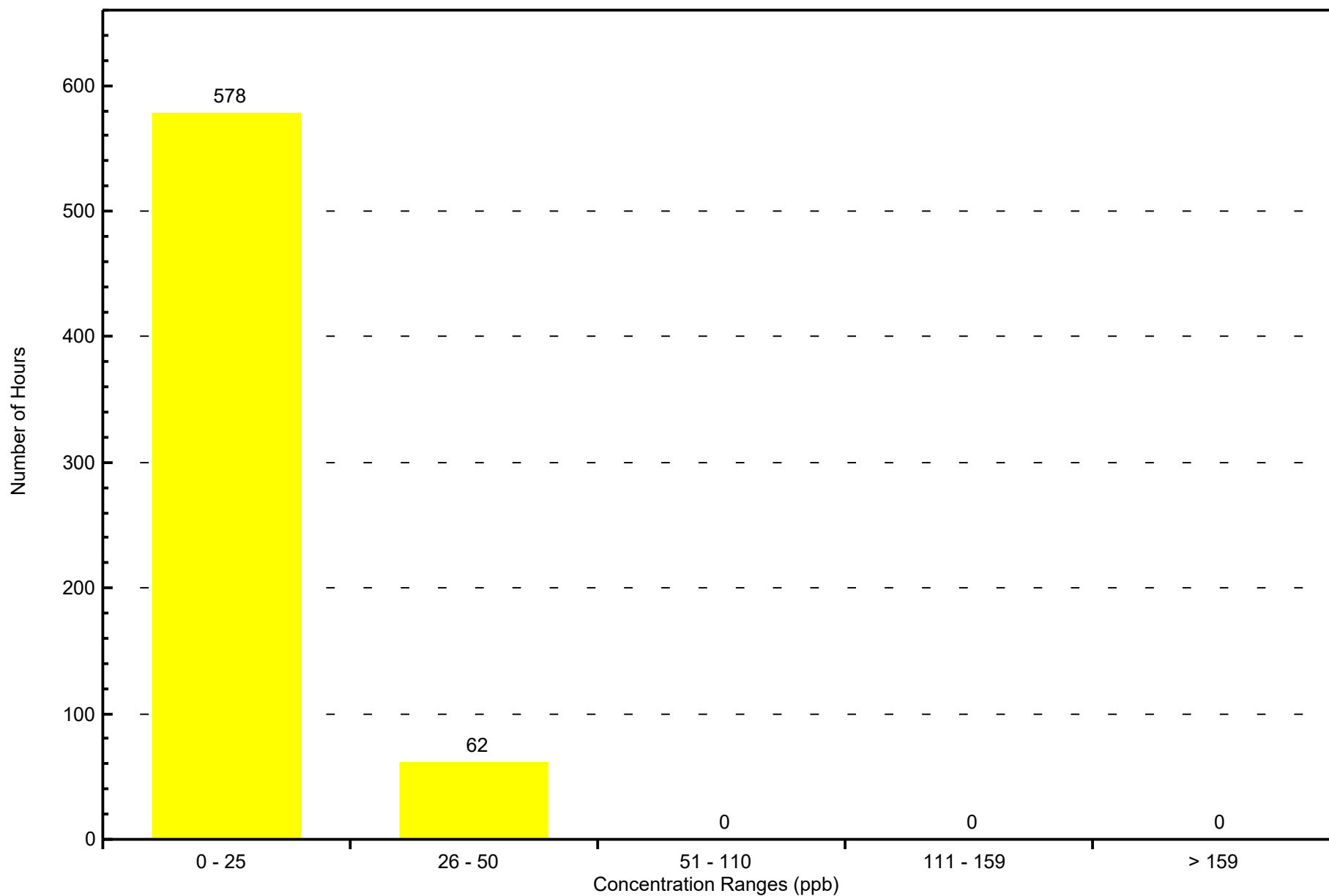
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - February 2019



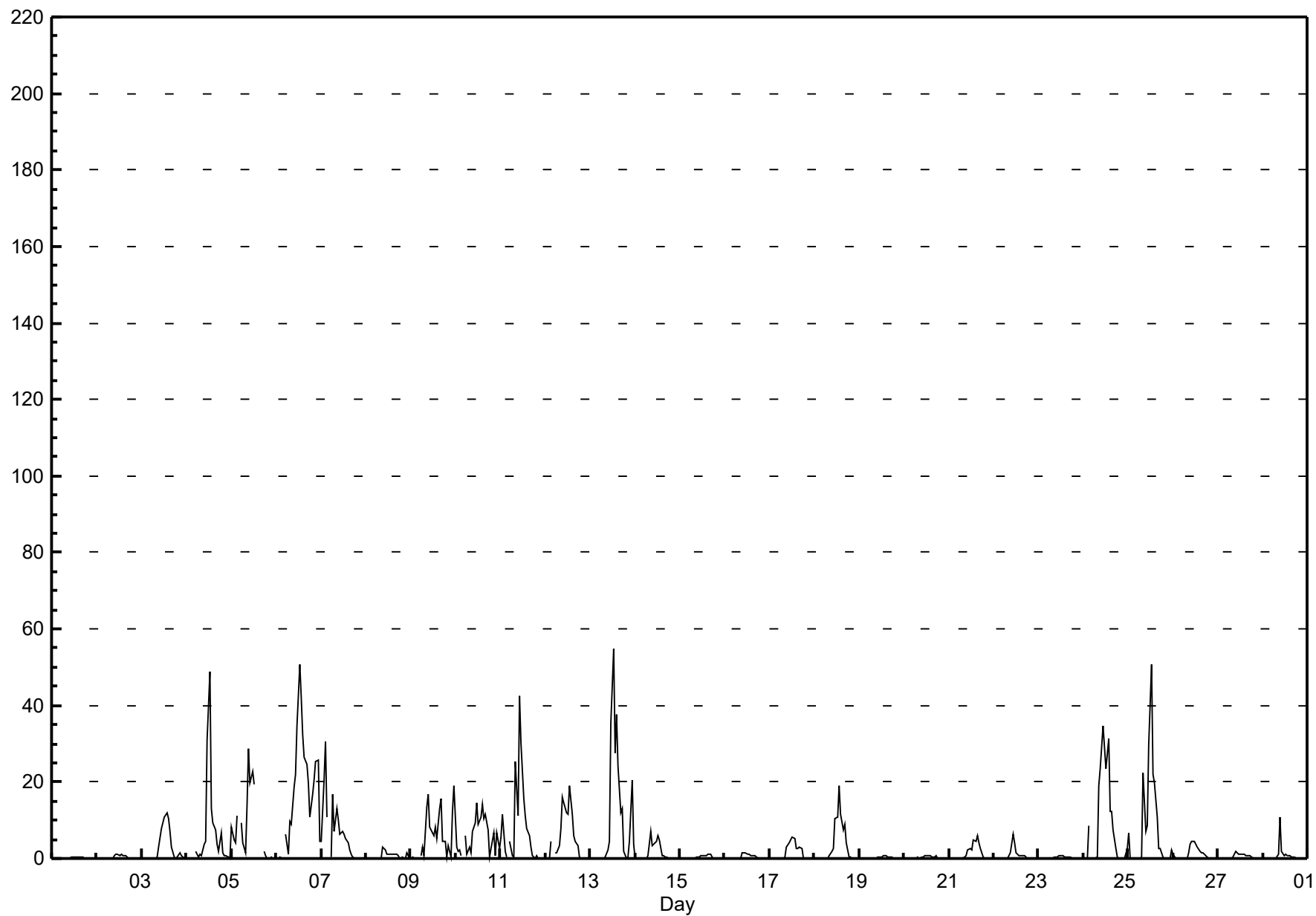
Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Beaverlodge - February 2019



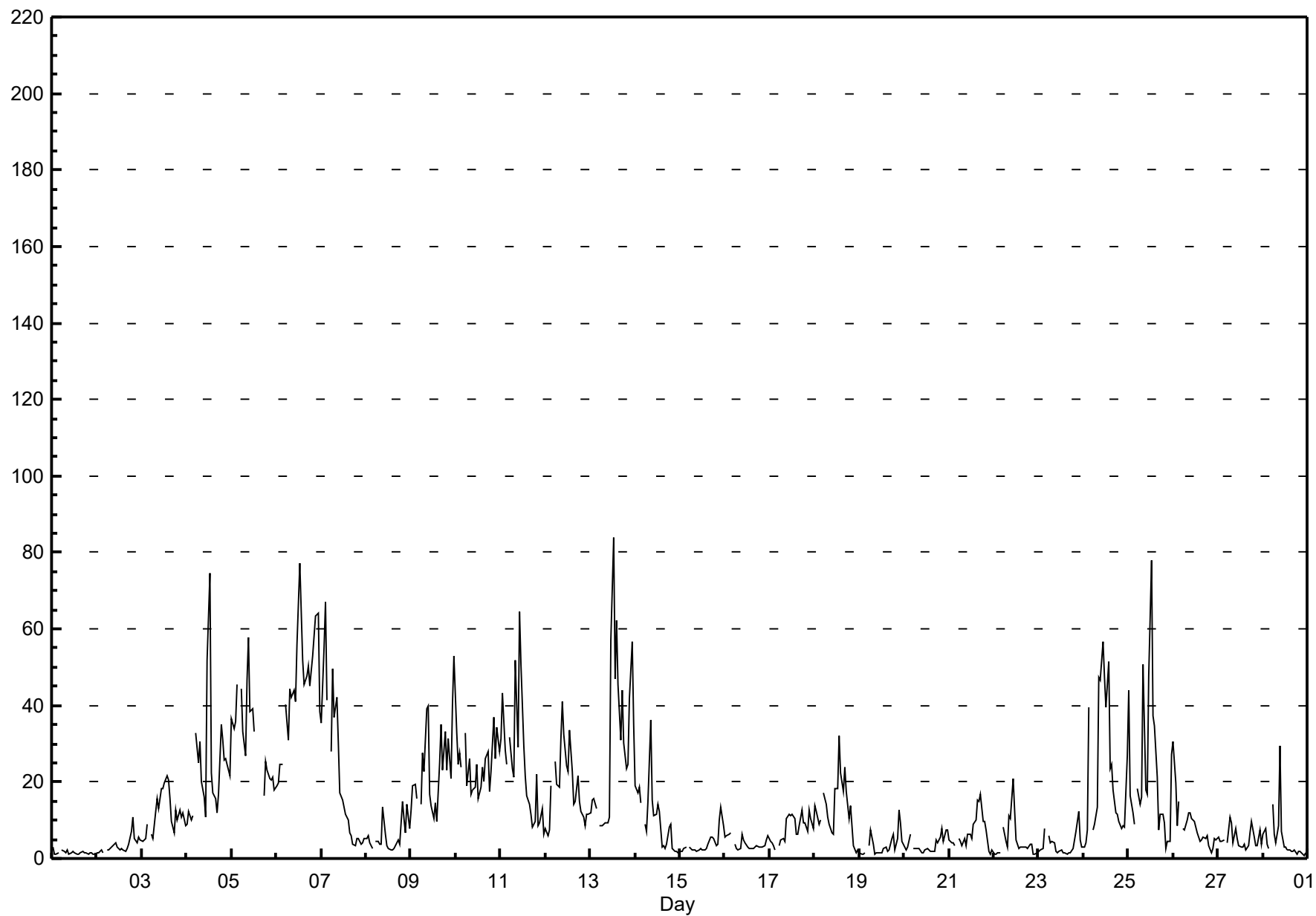
Hourly Averages

Nitrogen Oxide (NO) - ppb
Beaverlodge - February 2019



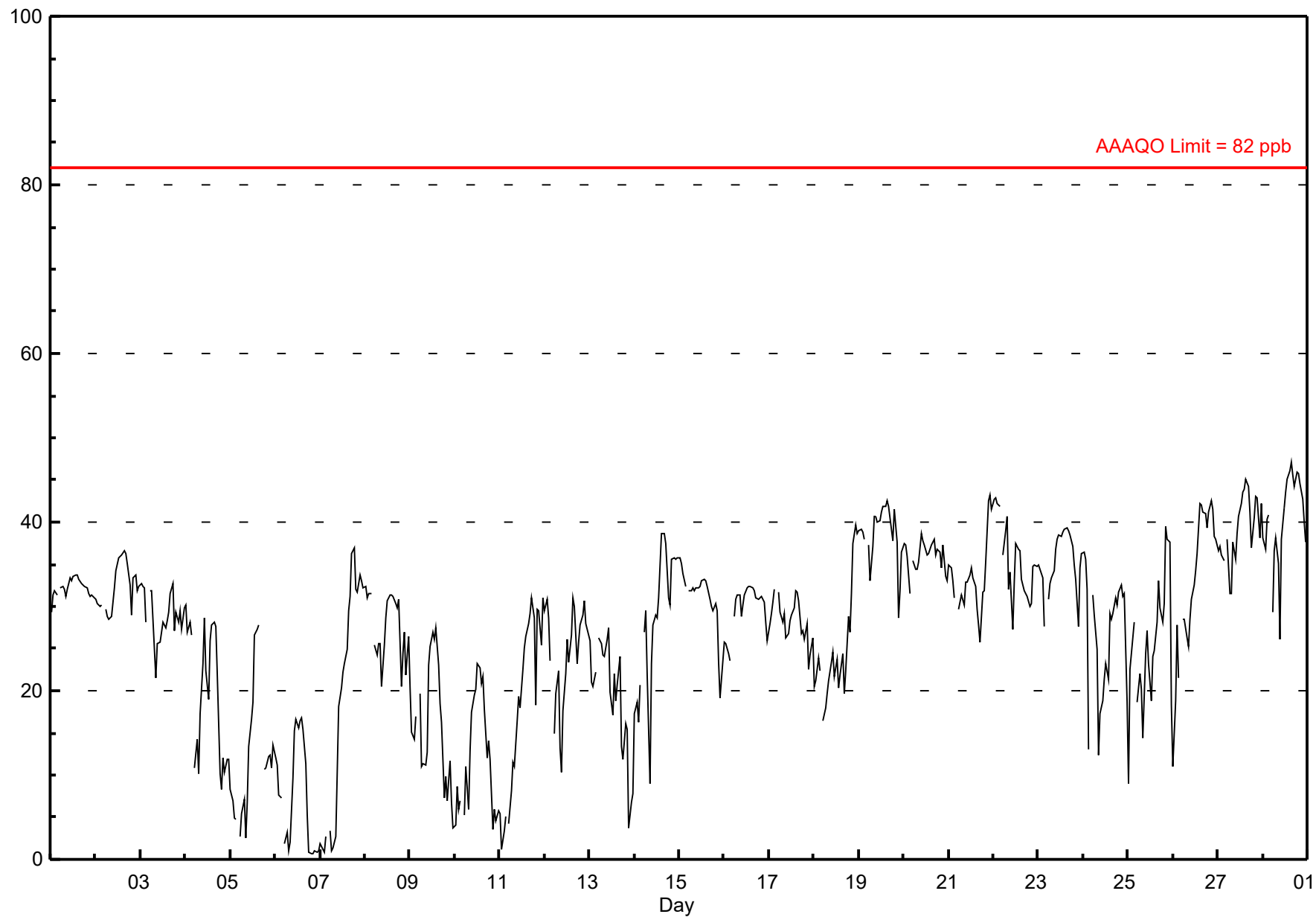
Hourly Averages

Oxides of Nitrogen (NO_x) - ppb
Beaverlodge - February 2019



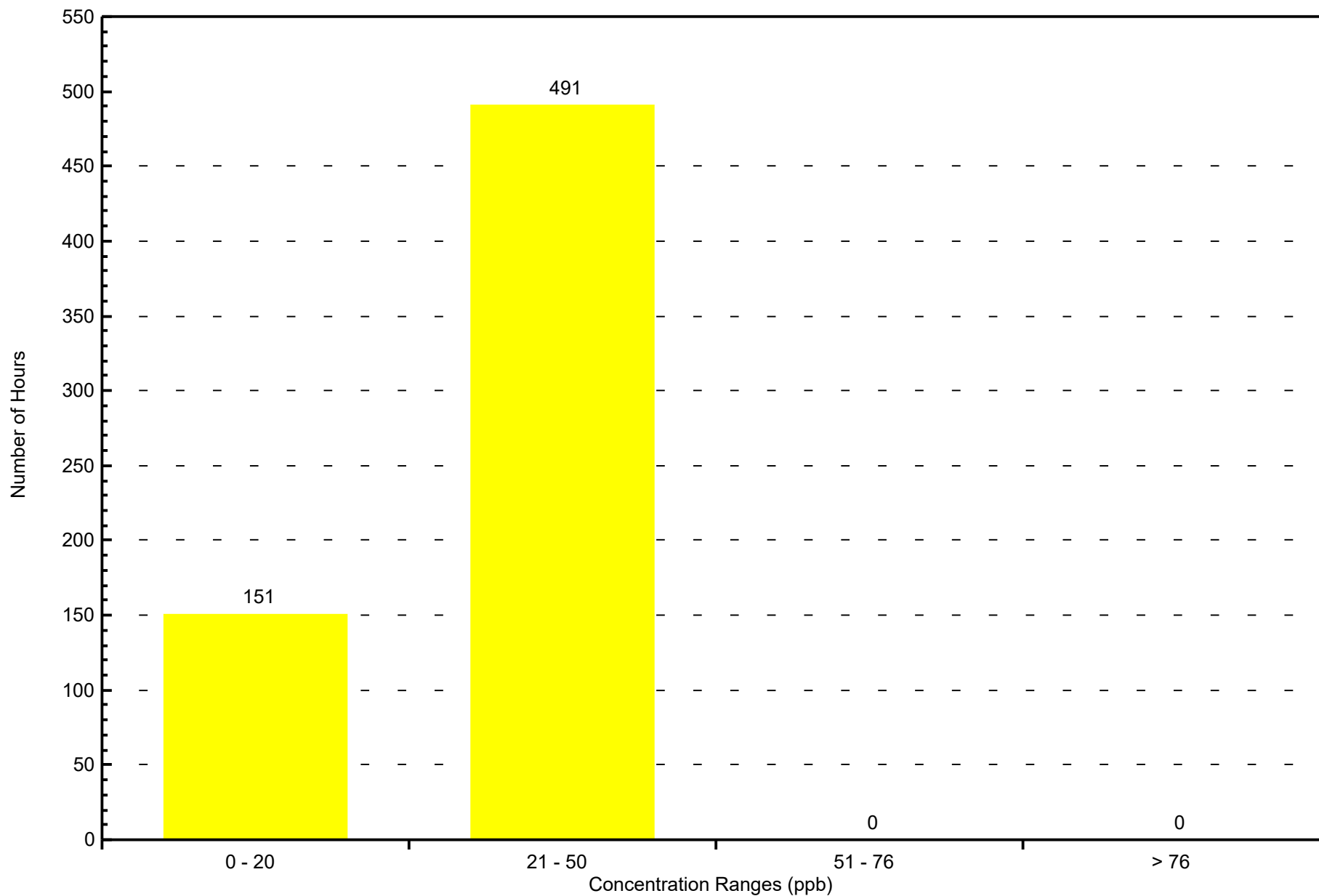
Hourly Averages

Ozone (O₃) - ppb
Beaverlodge - February 2019



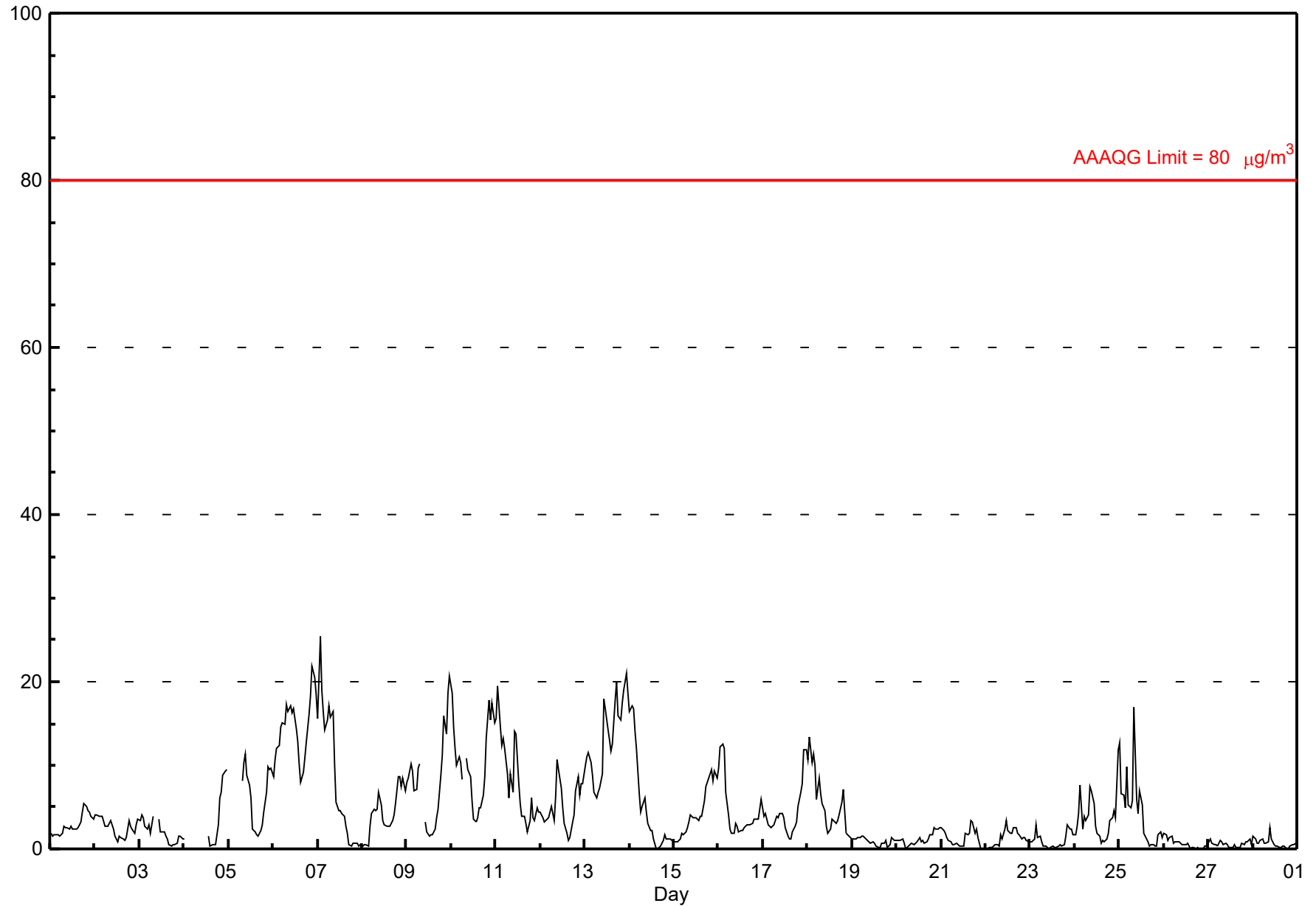
Histogram of Hourly Averages

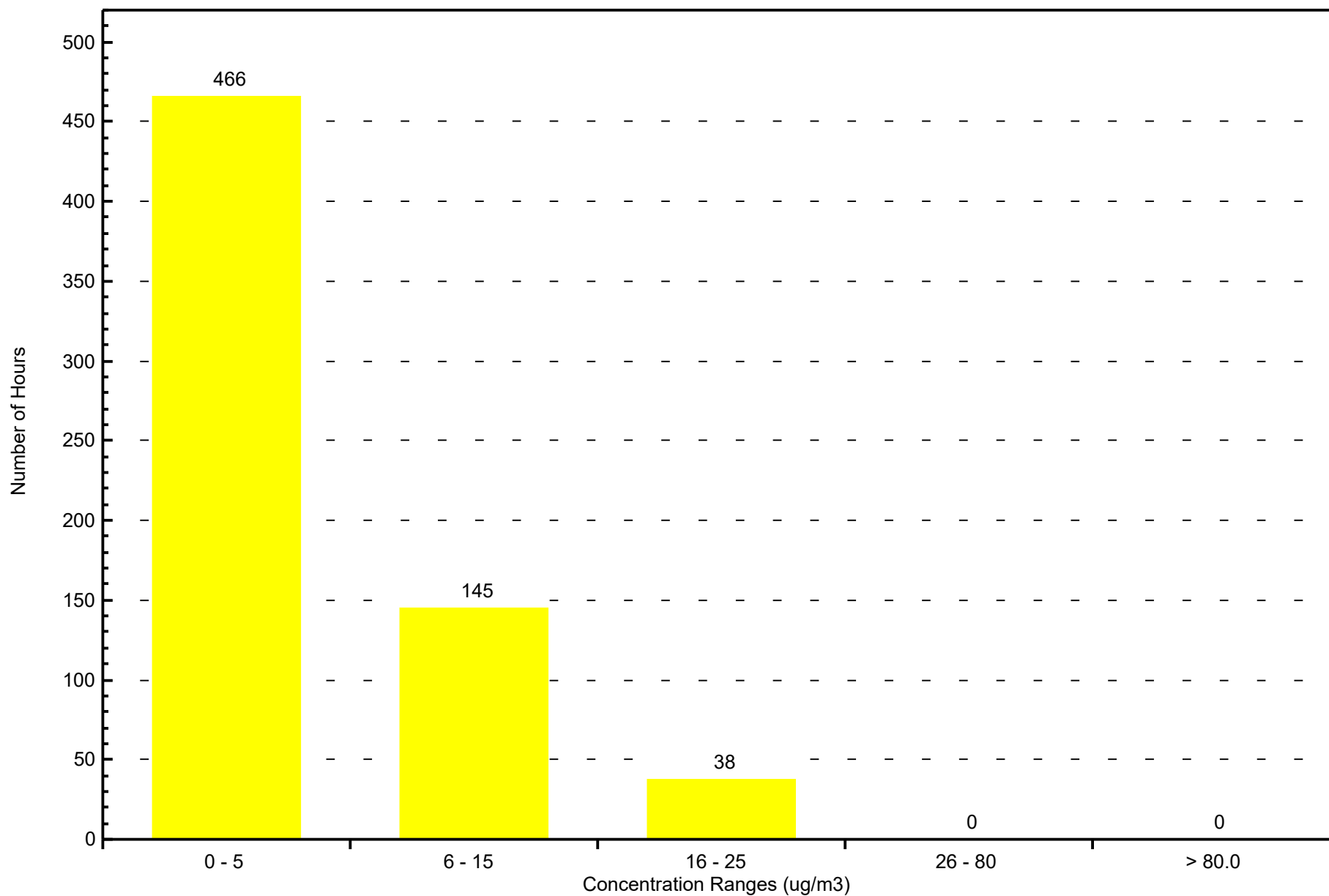
Ozone (O₃) - ppb
Beaverlodge - February 2019



Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Beaverlodge - February 2019

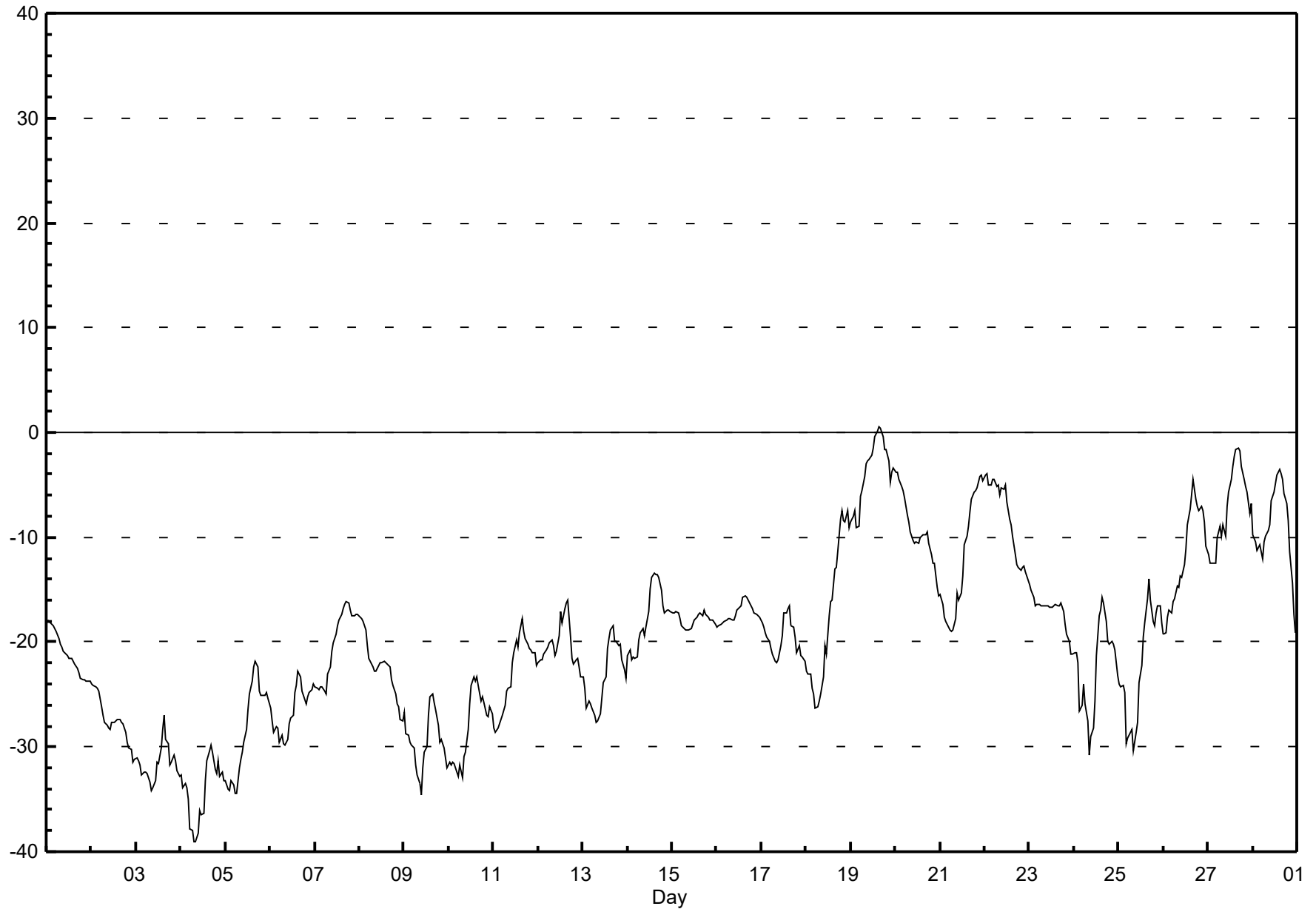




Hourly Averages

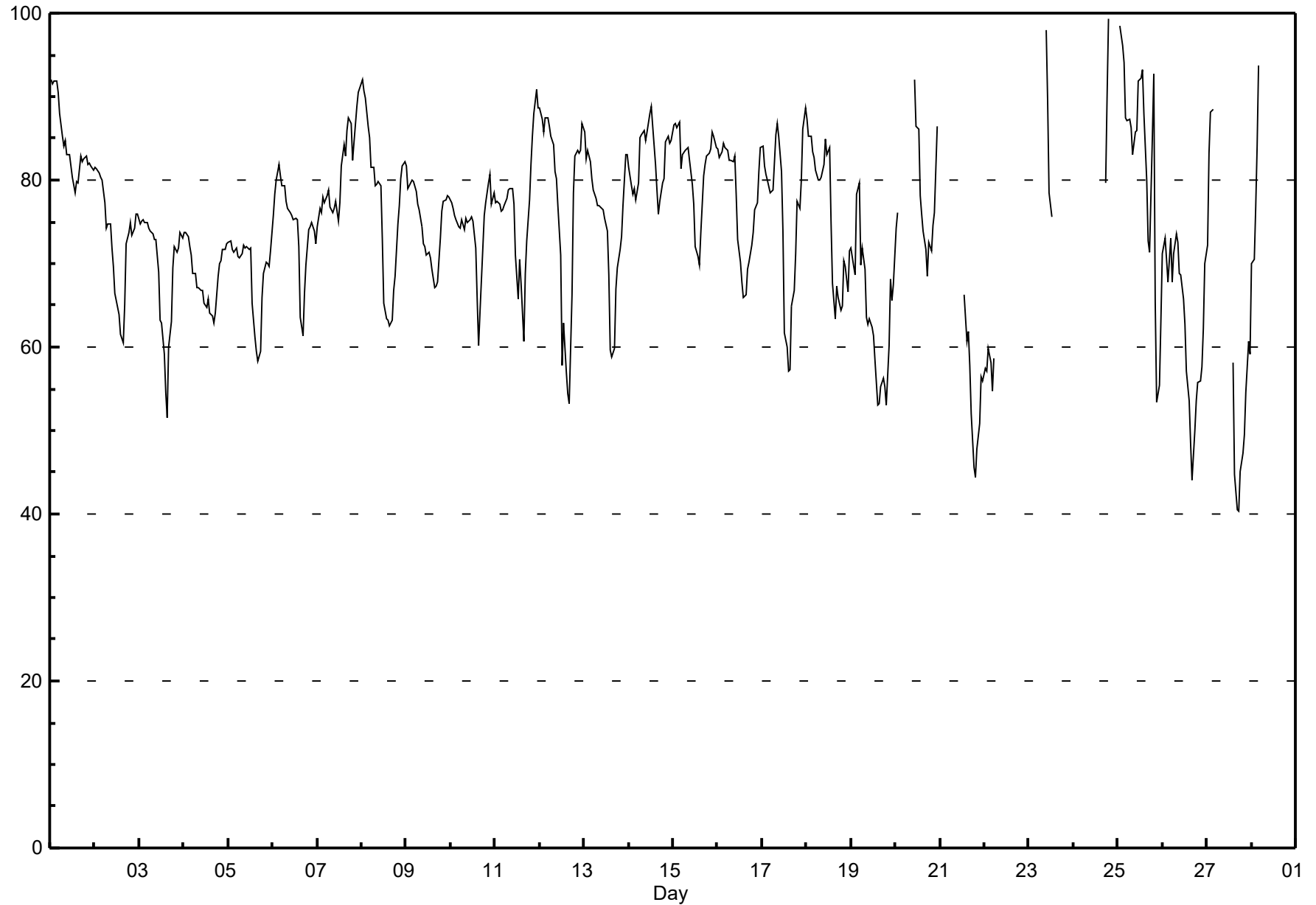
External Temperature (ET) - °C

Beaverlodge - February 2019



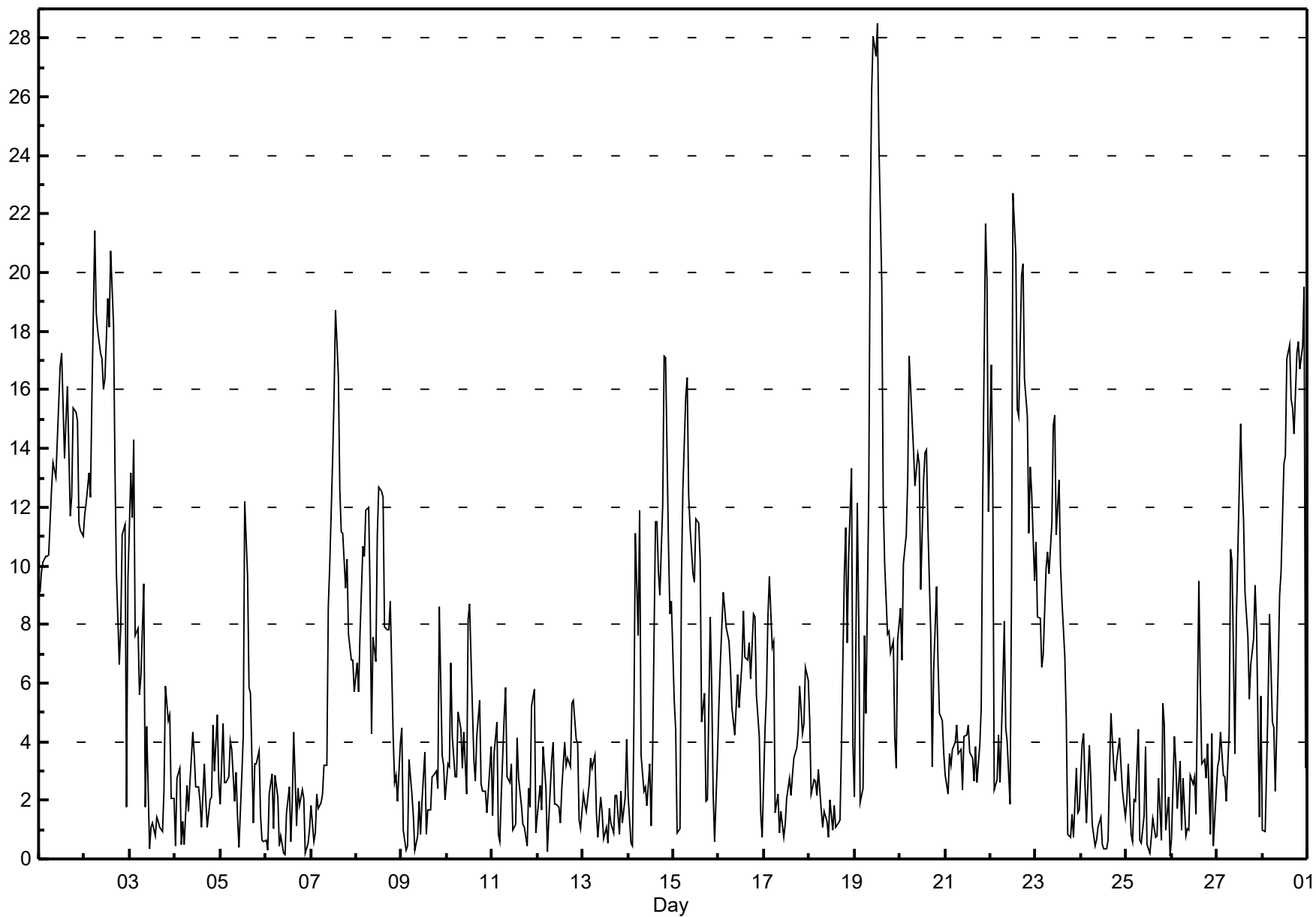
Hourly Averages

Relative Humidity (RH) - %
Beaverlodge - February 2019



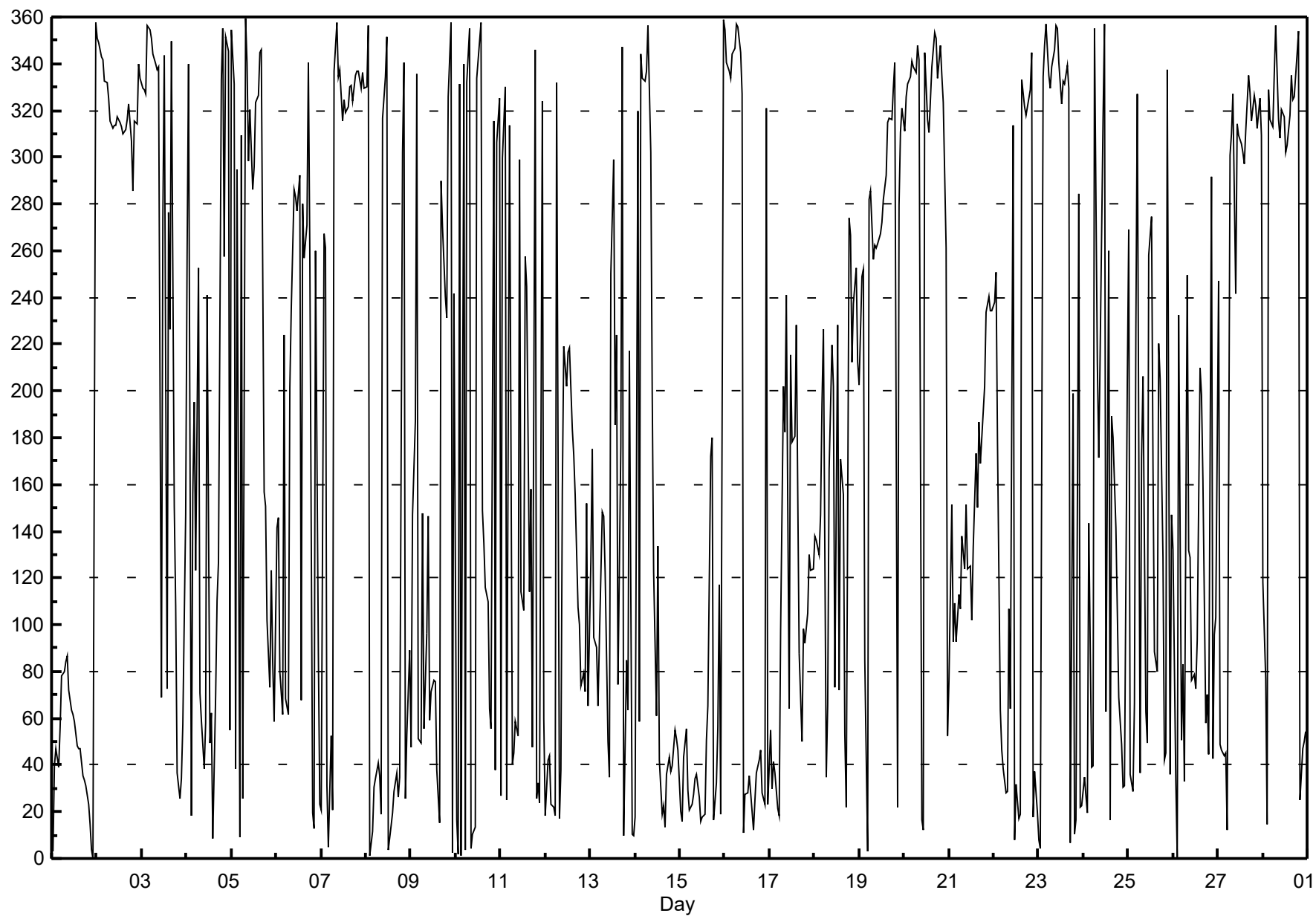
Hourly Averages

Wind Speed (WS) - km/h
Beaverlodge - February 2019



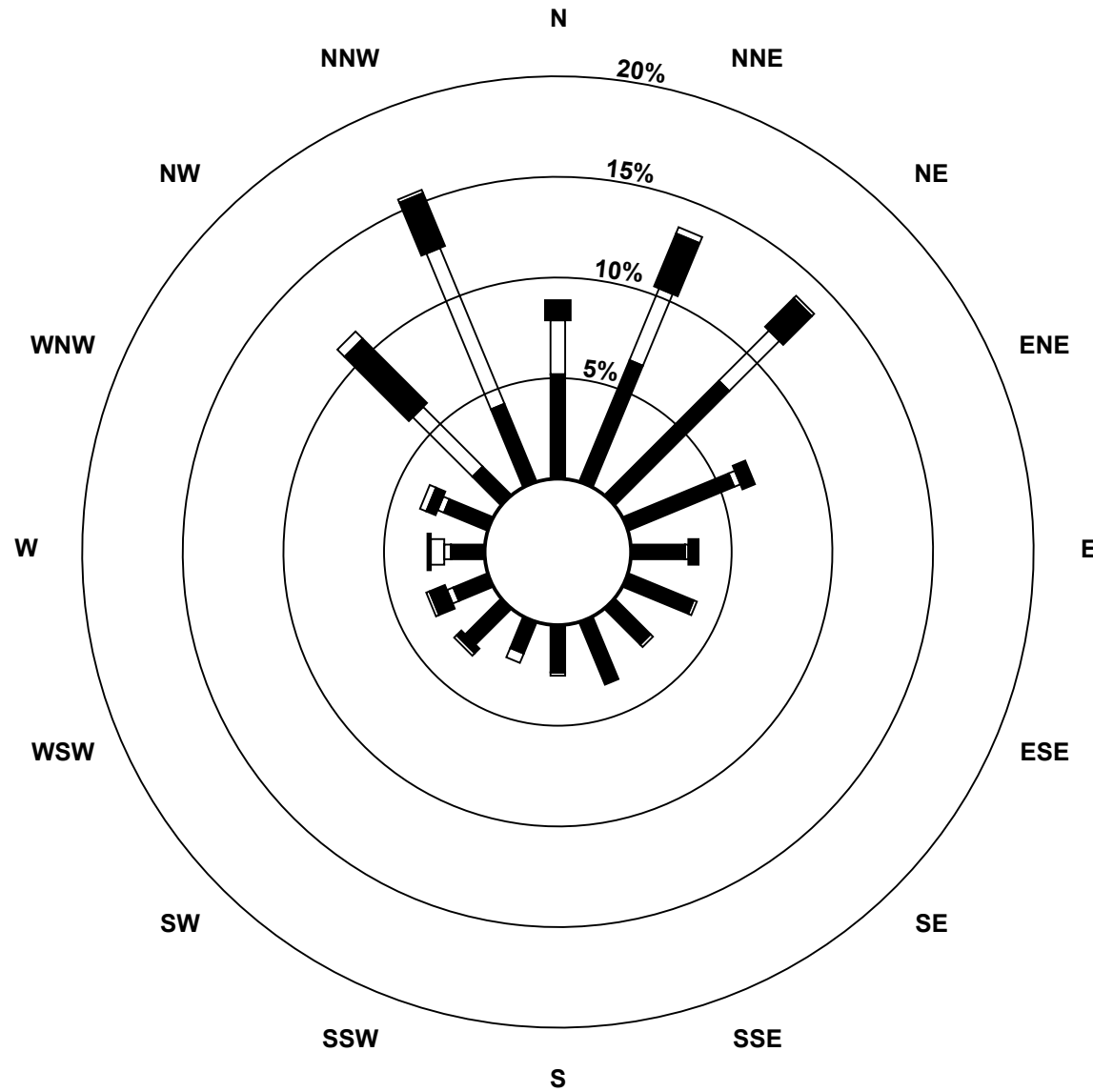
Hourly Averages

Wind Direction (WD) - deg
Beaverlodge - February 2019

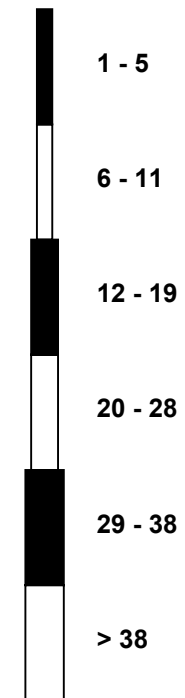


Wind Rose

Wind Speed (WS) (km/h)
Beaverlodge - February 2019

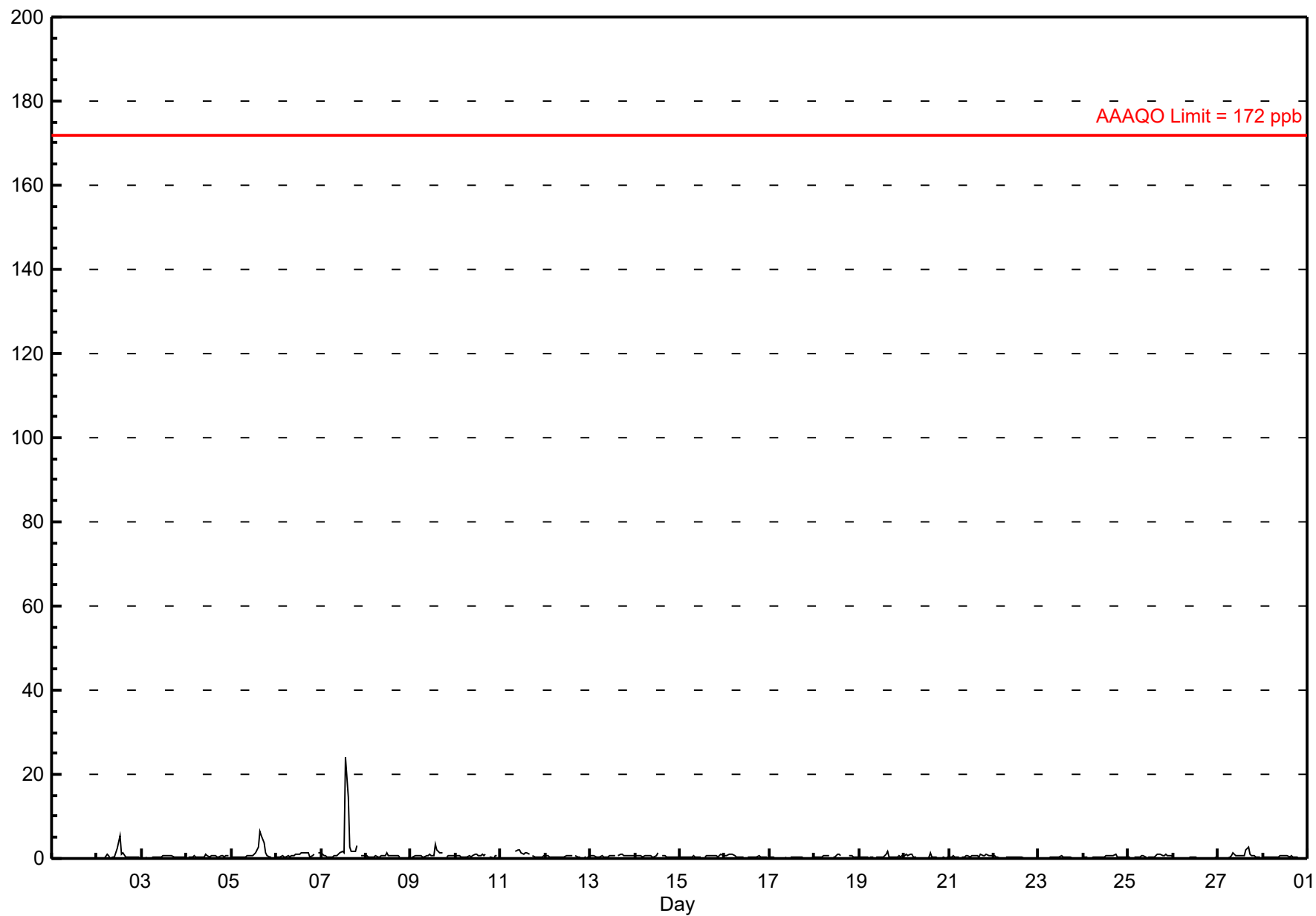


Wind Speed Classes (km/h)



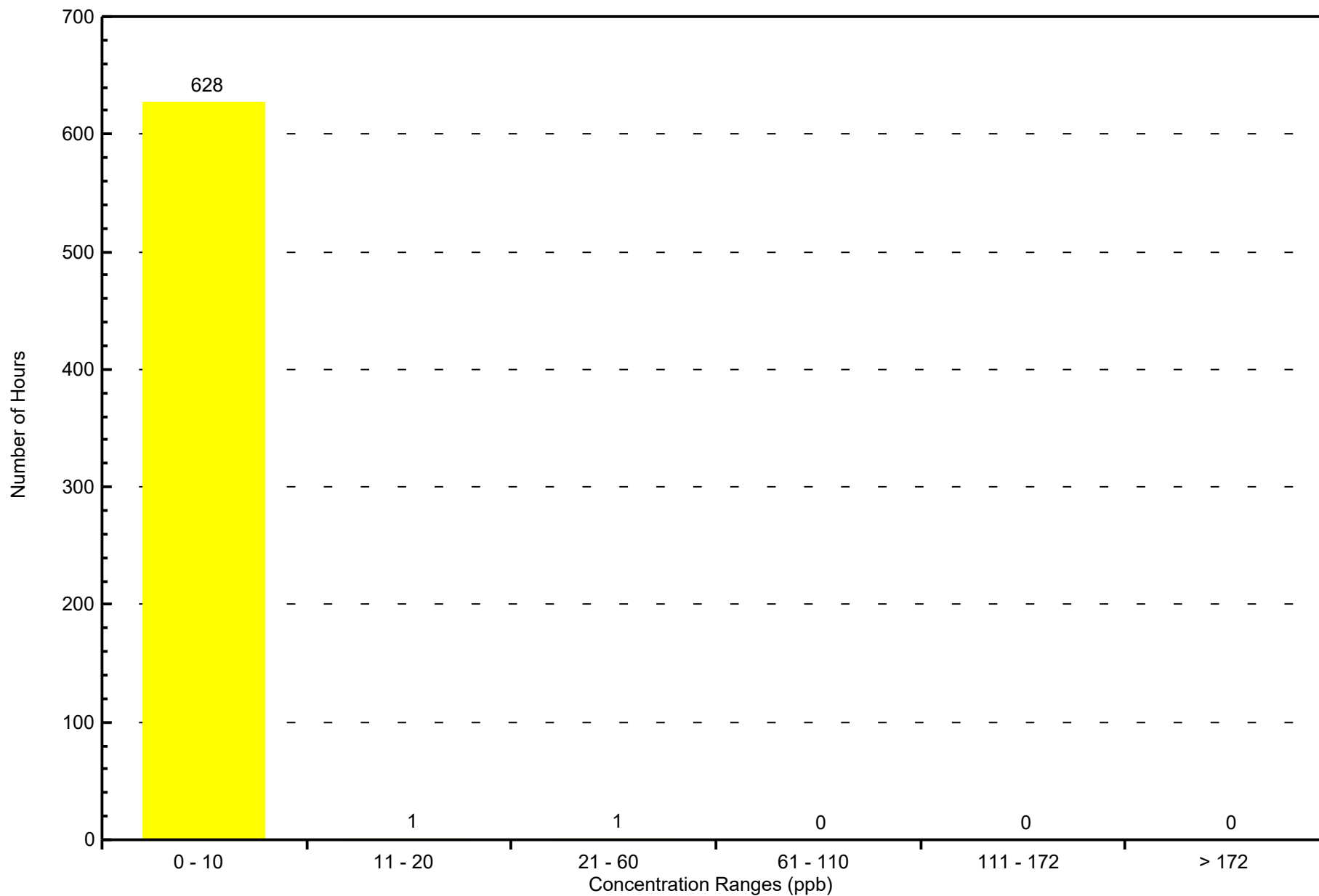
Hourly Averages

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



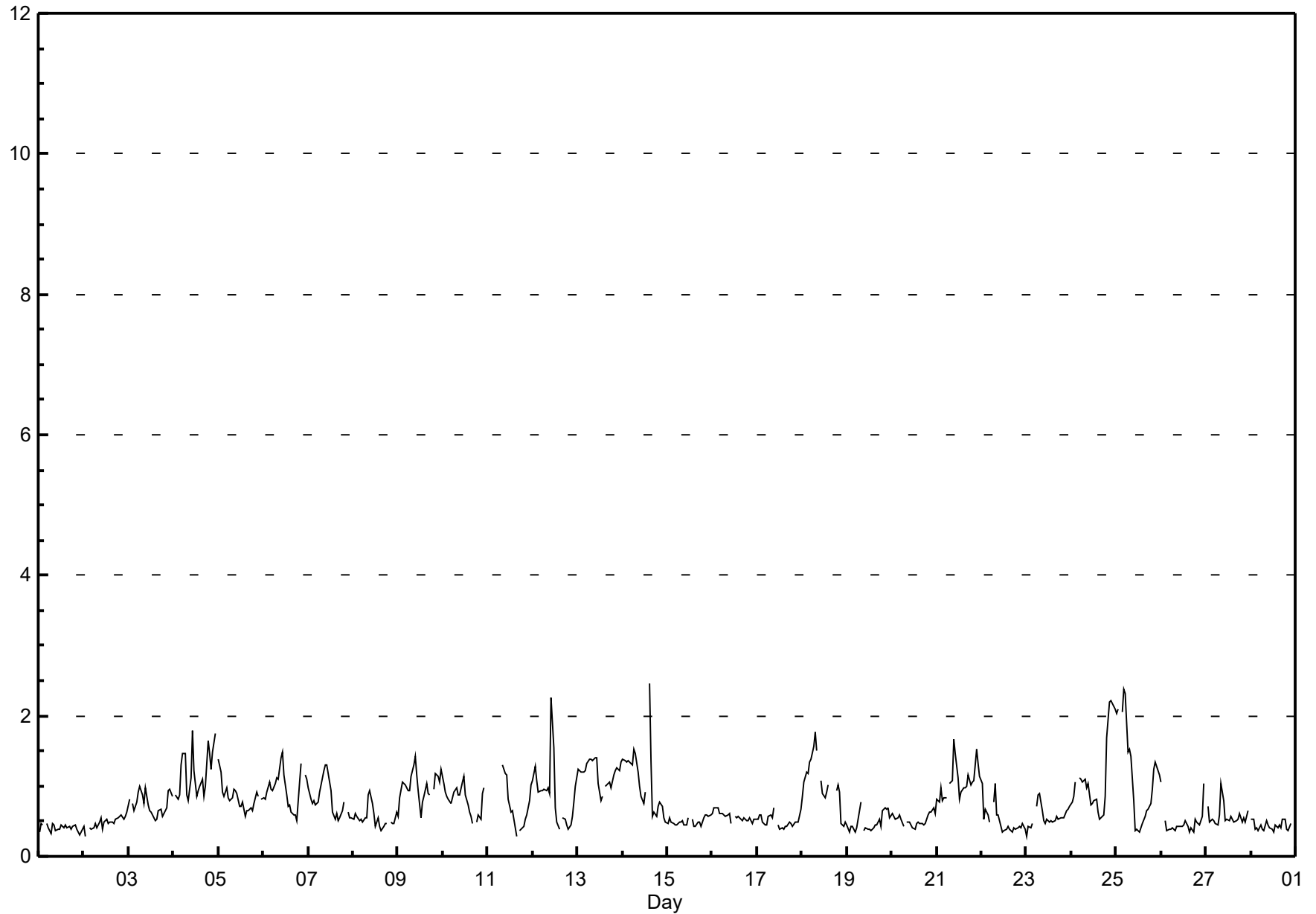
Histogram of Hourly Averages

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



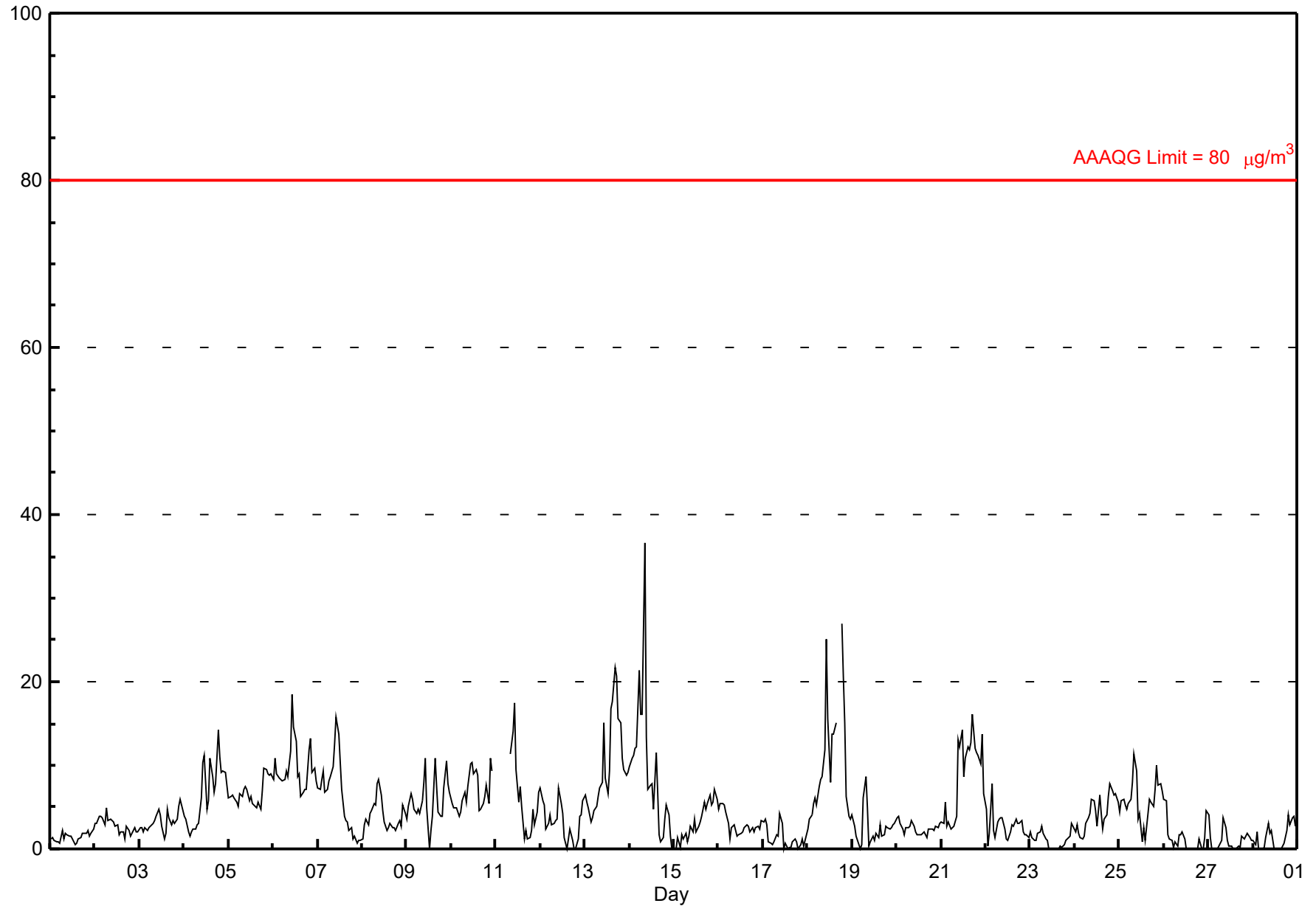
Hourly Averages

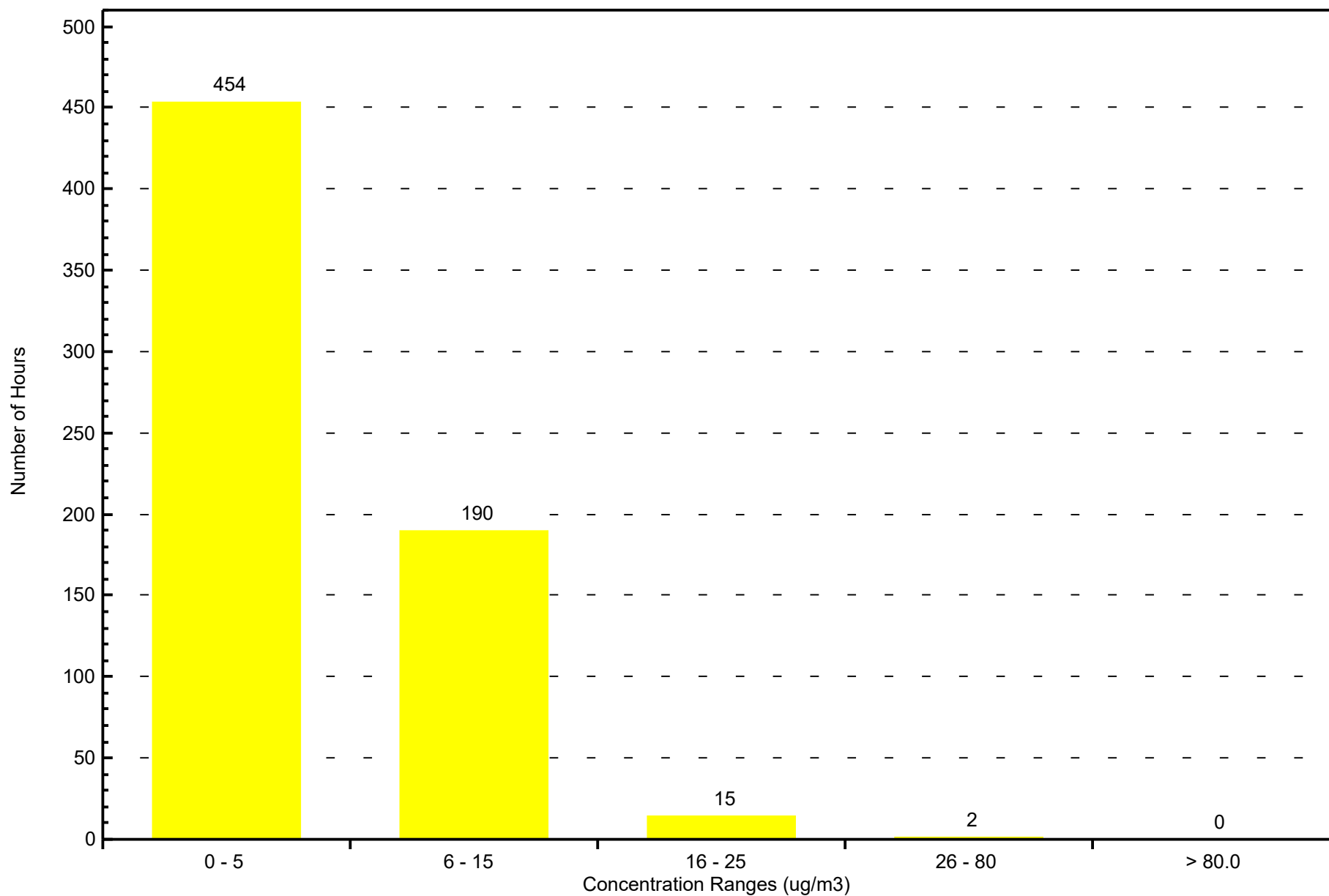
Total Reduced Sulphur (TRS) - ppb
Evergreen Park - February 2019



Hourly Averages

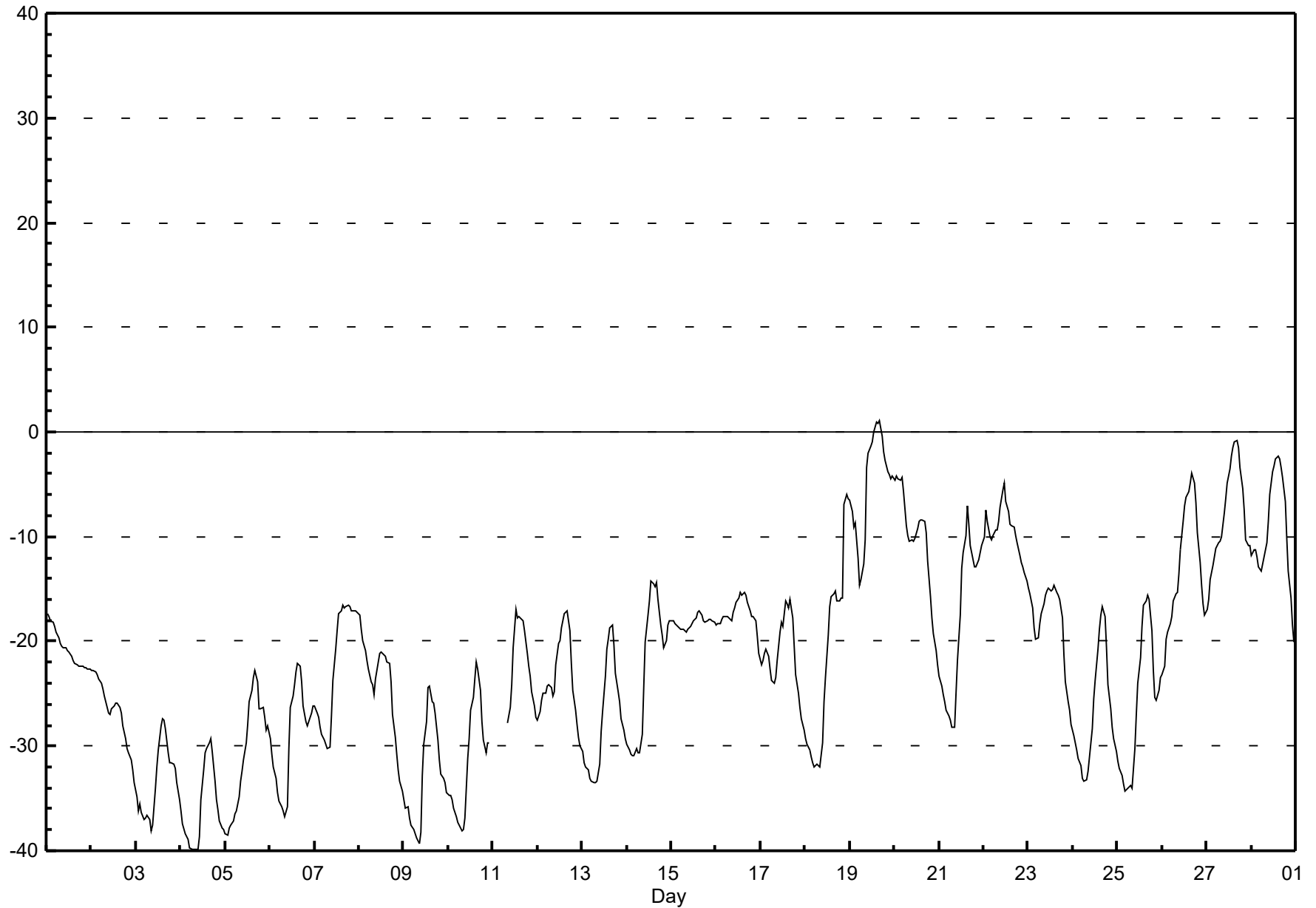
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Evergreen Park - February 2019





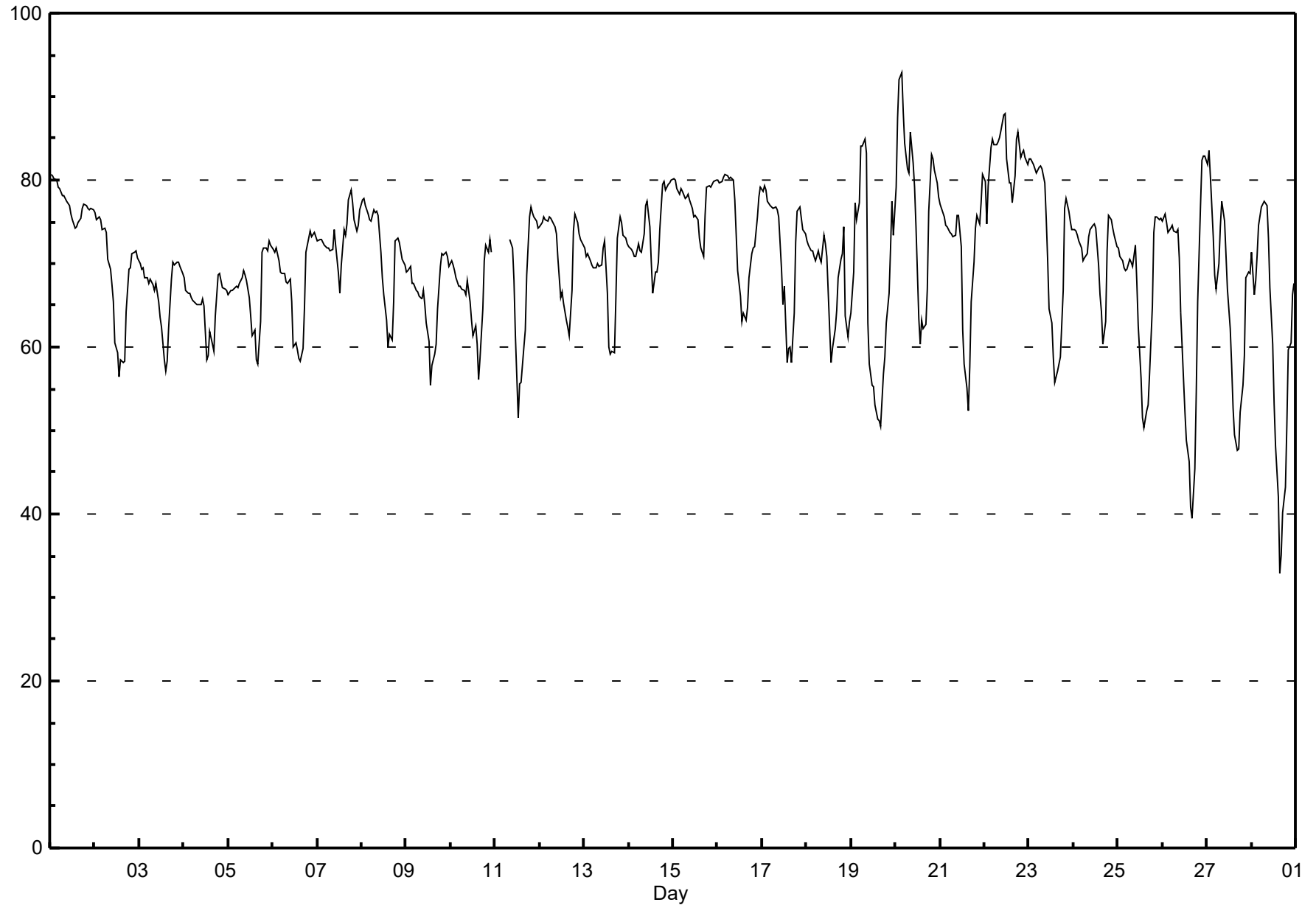
Hourly Averages

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



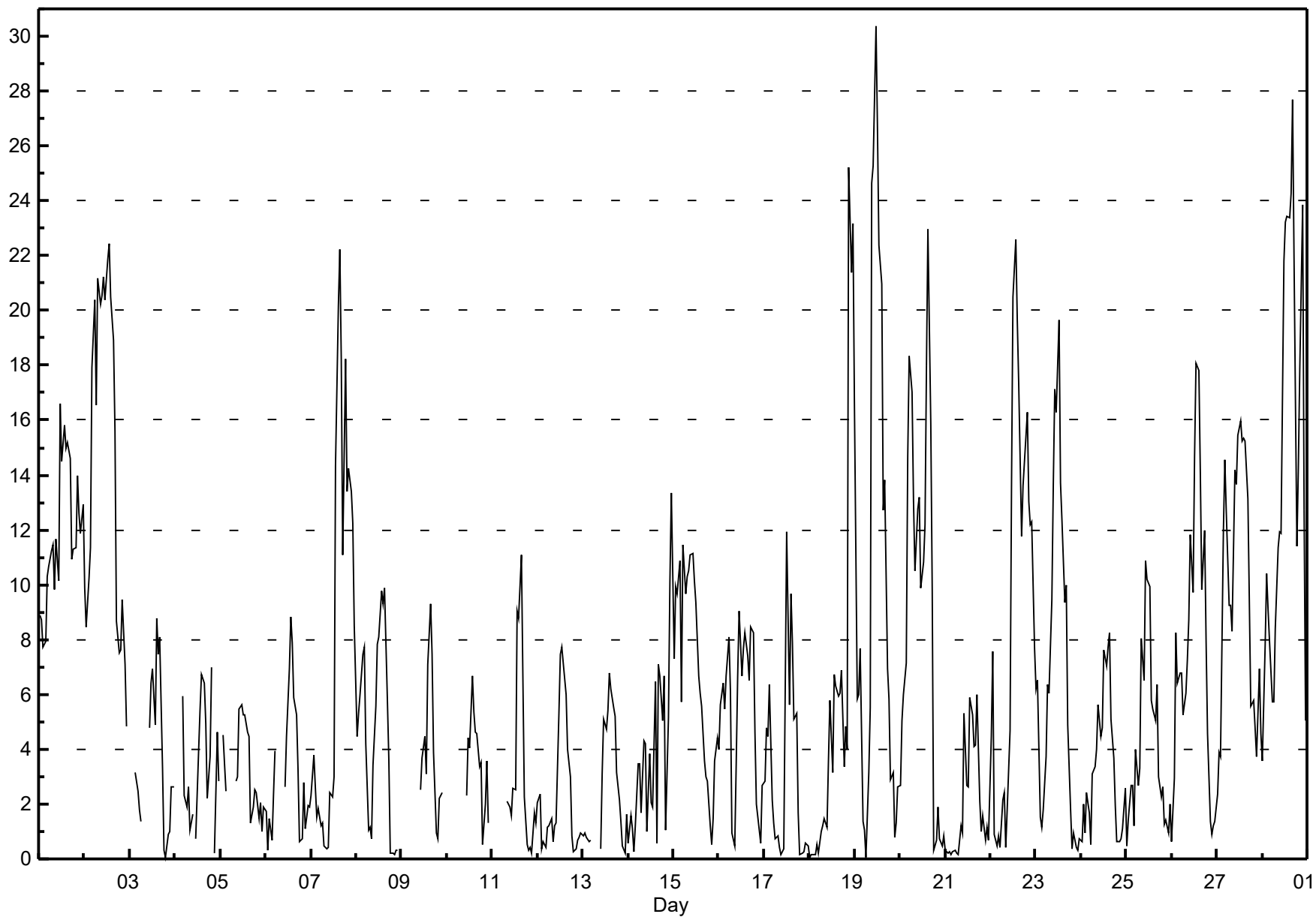
Hourly Averages

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



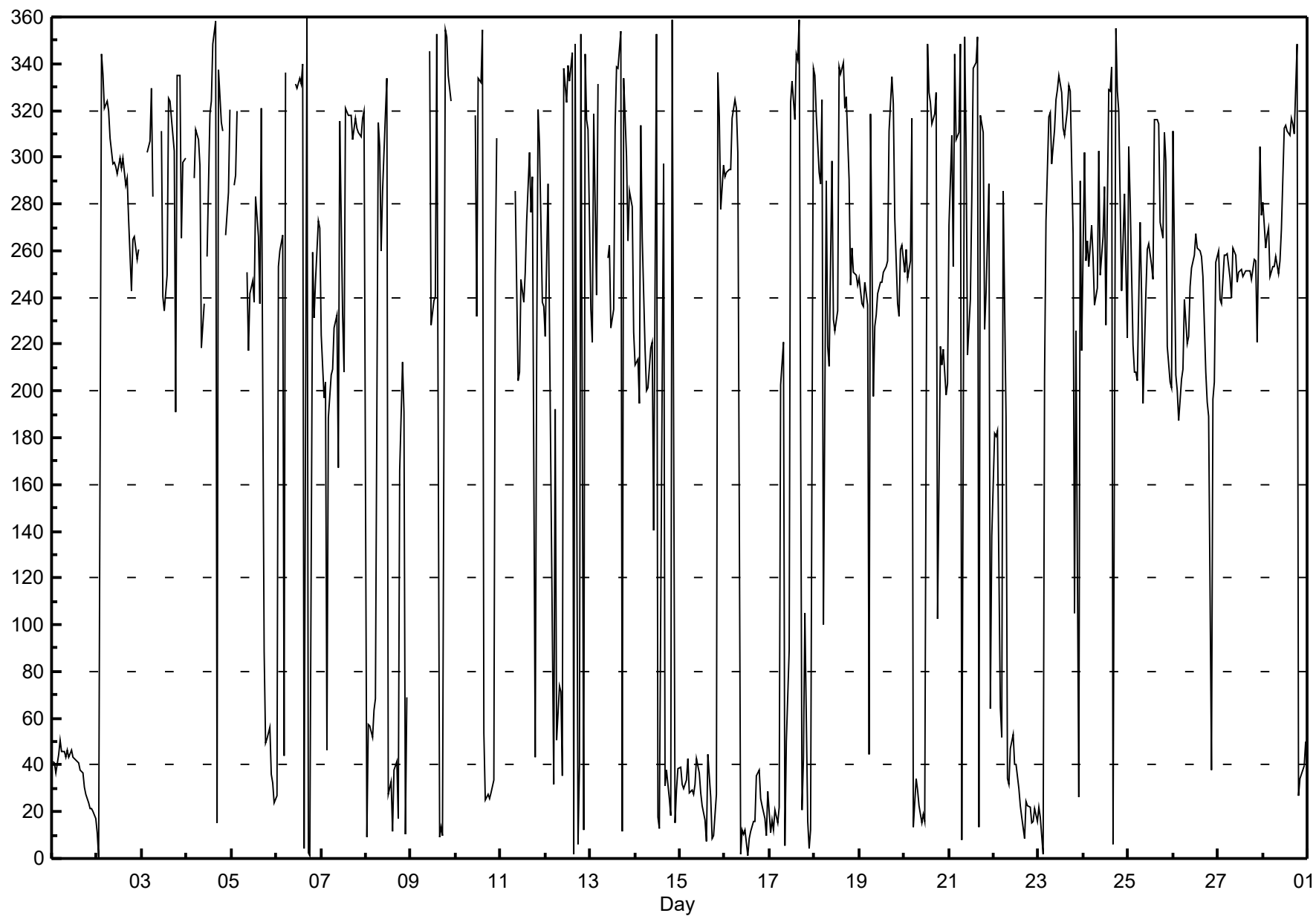
Hourly Averages

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



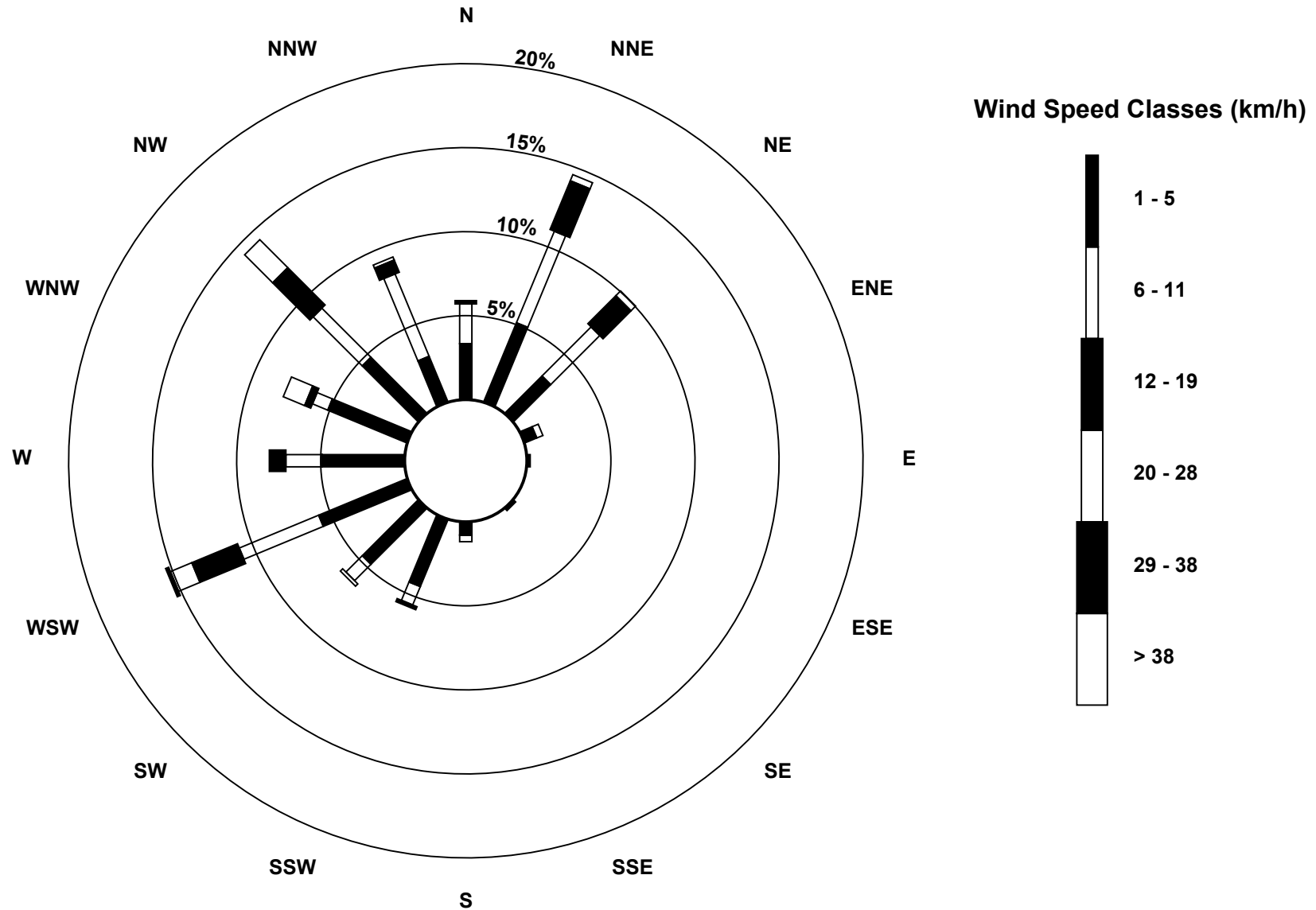
Hourly Averages

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



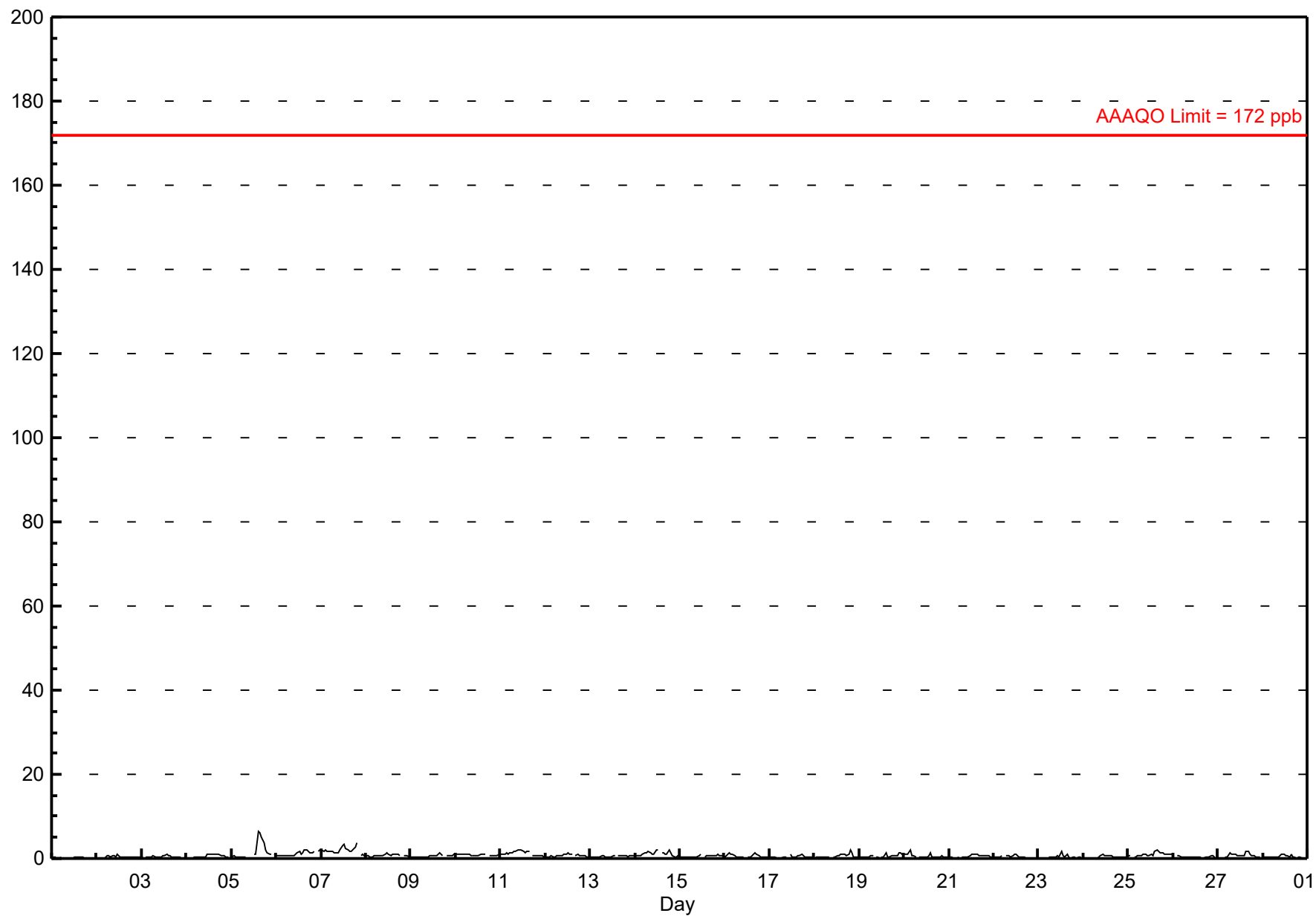
Wind Rose

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



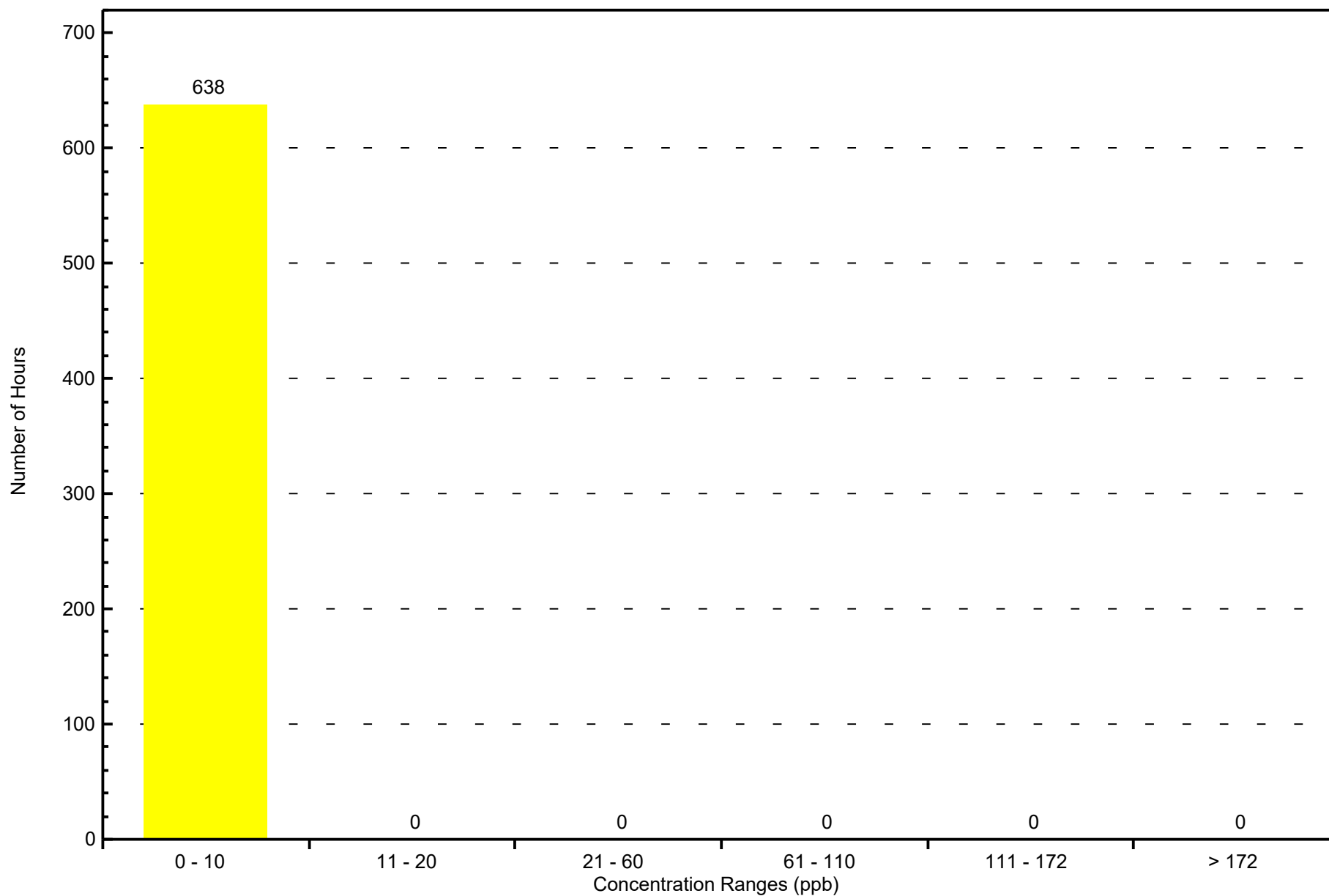
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - February 2019



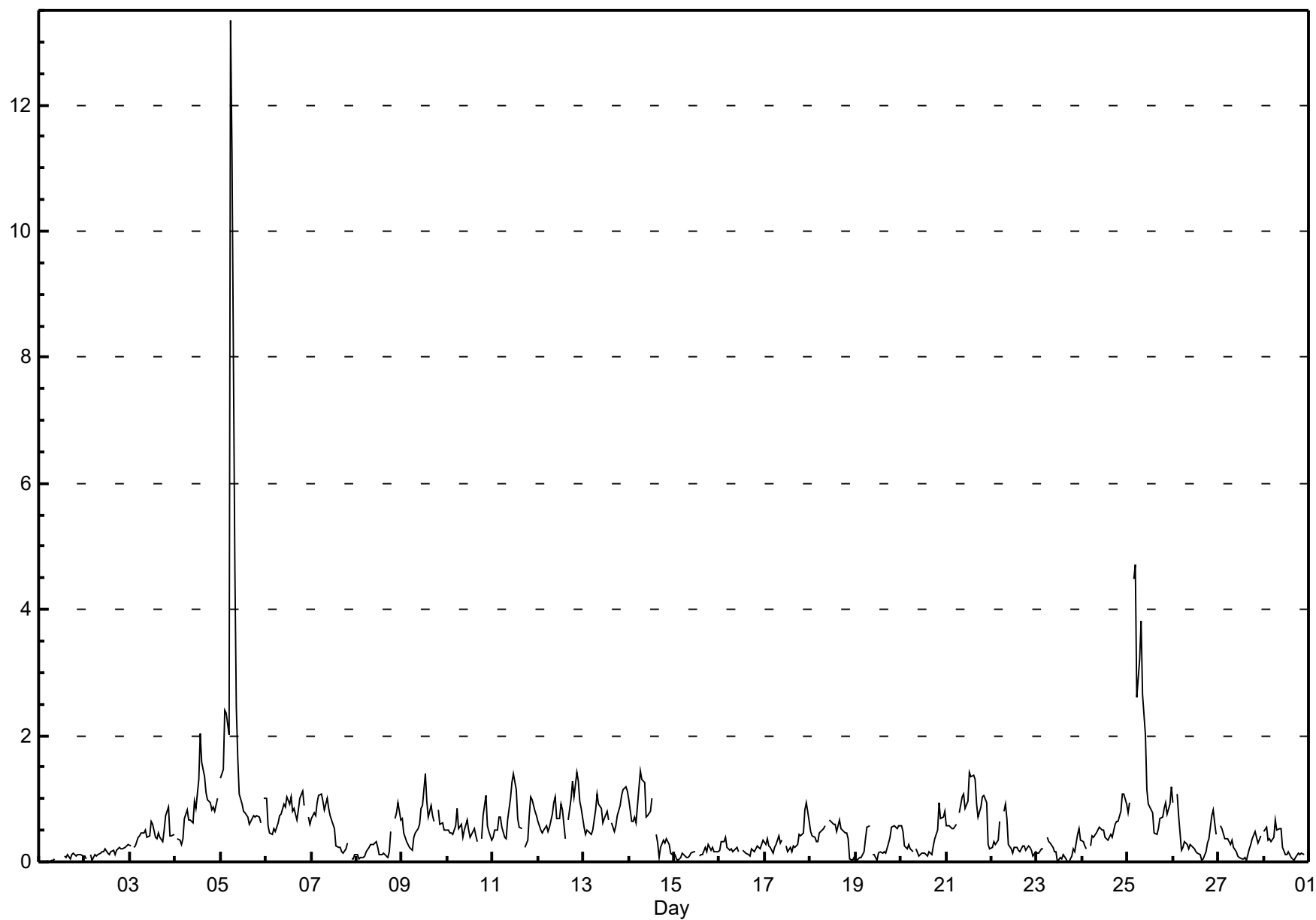
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Henry Pirker - February 2019



Hourly Averages

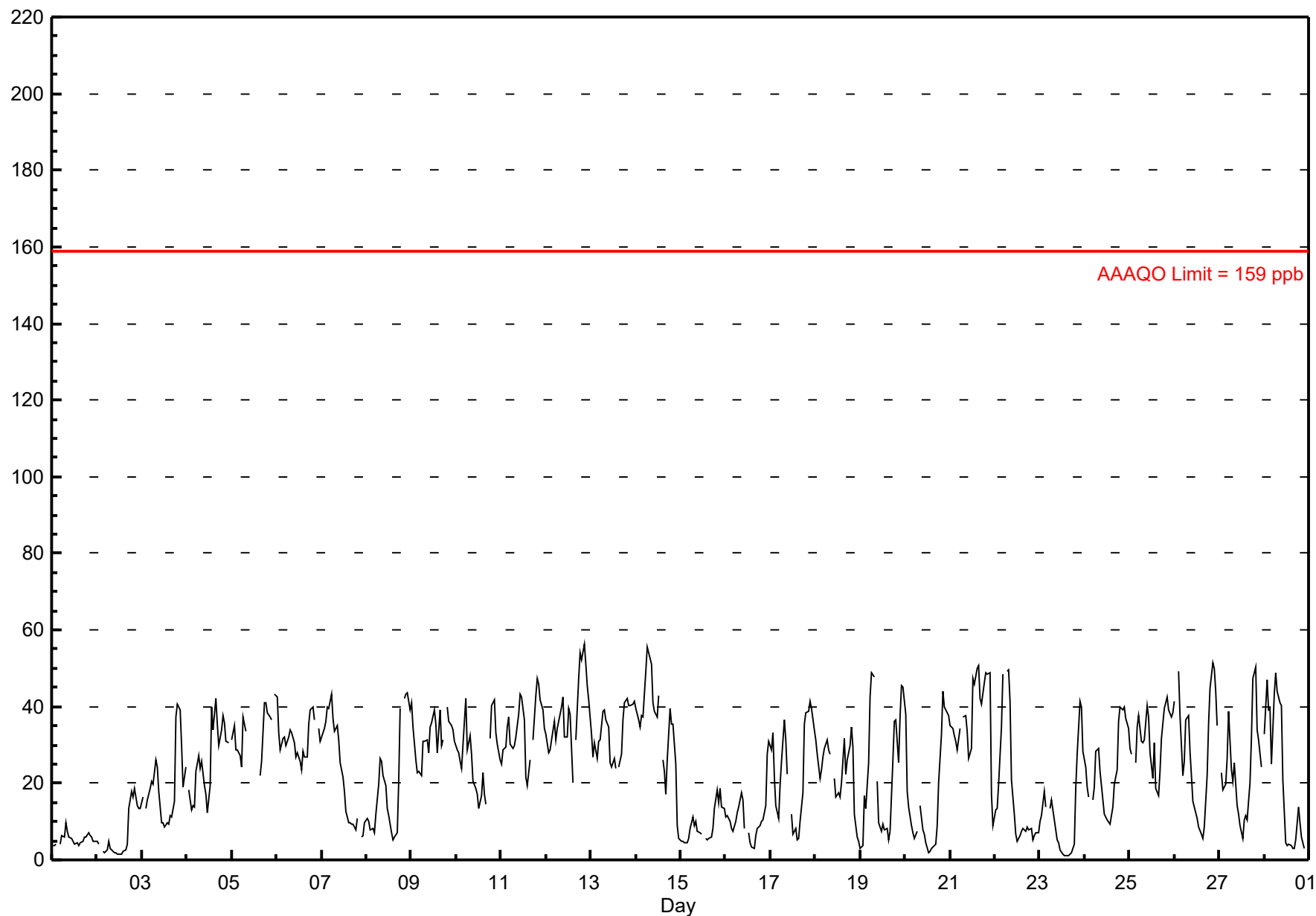
Total Reduced Sulphur (TRS) - ppb
Henry Pirker - February 2019



Hourly Averages

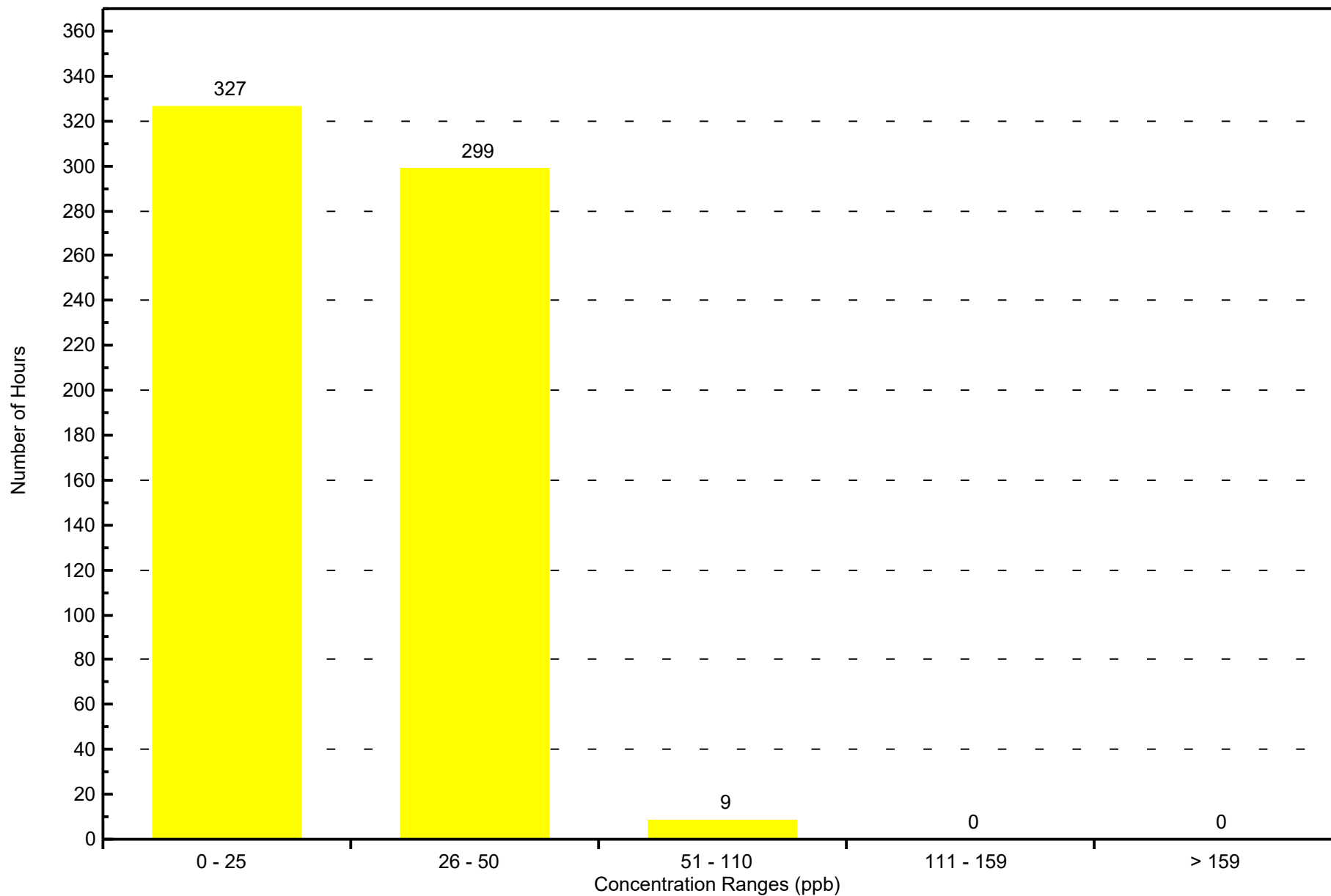
Nitrogen Dioxide (NO₂) - ppb

Henry Pirker - February 2019



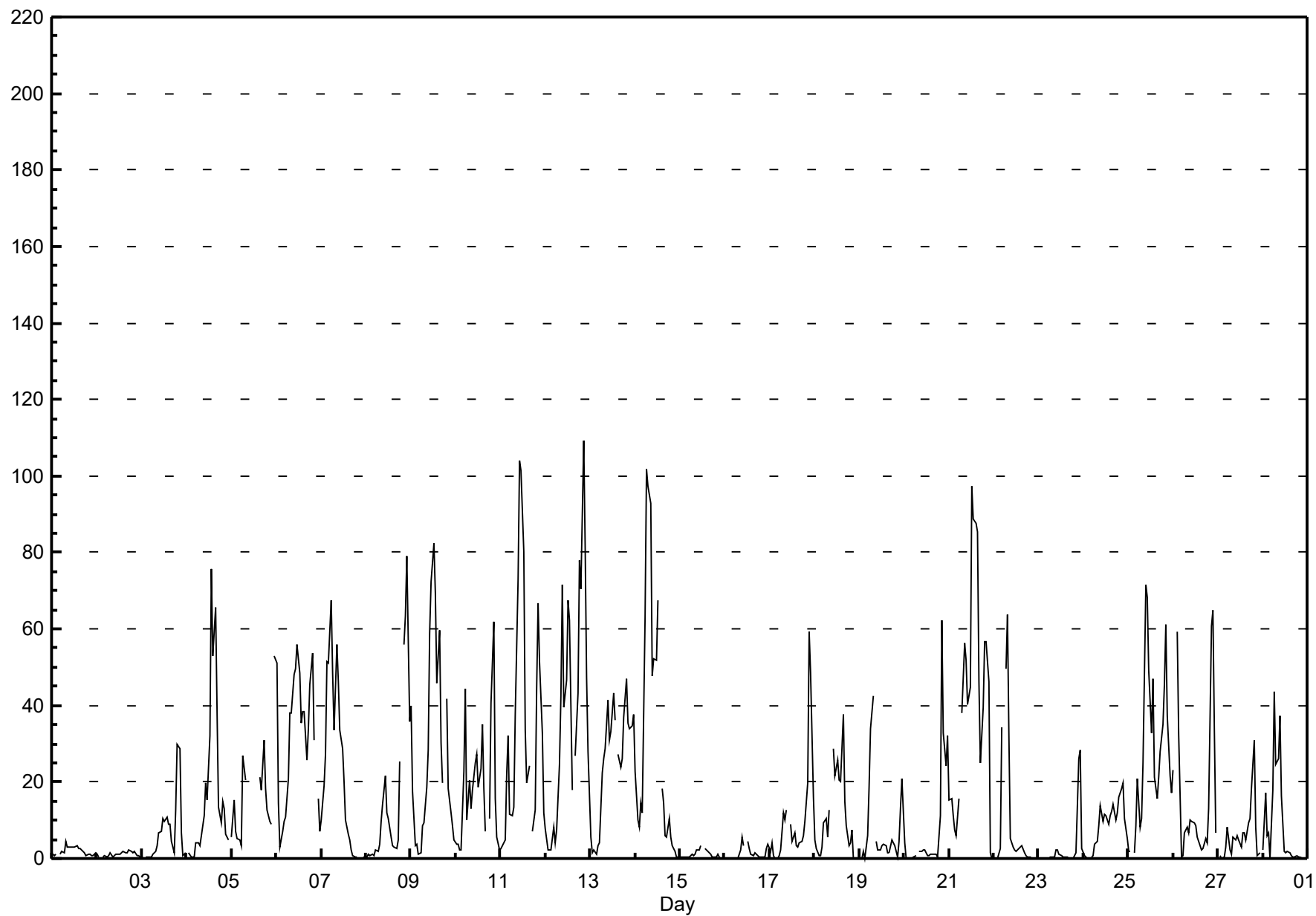
Histogram of Hourly Averages

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



Hourly Averages

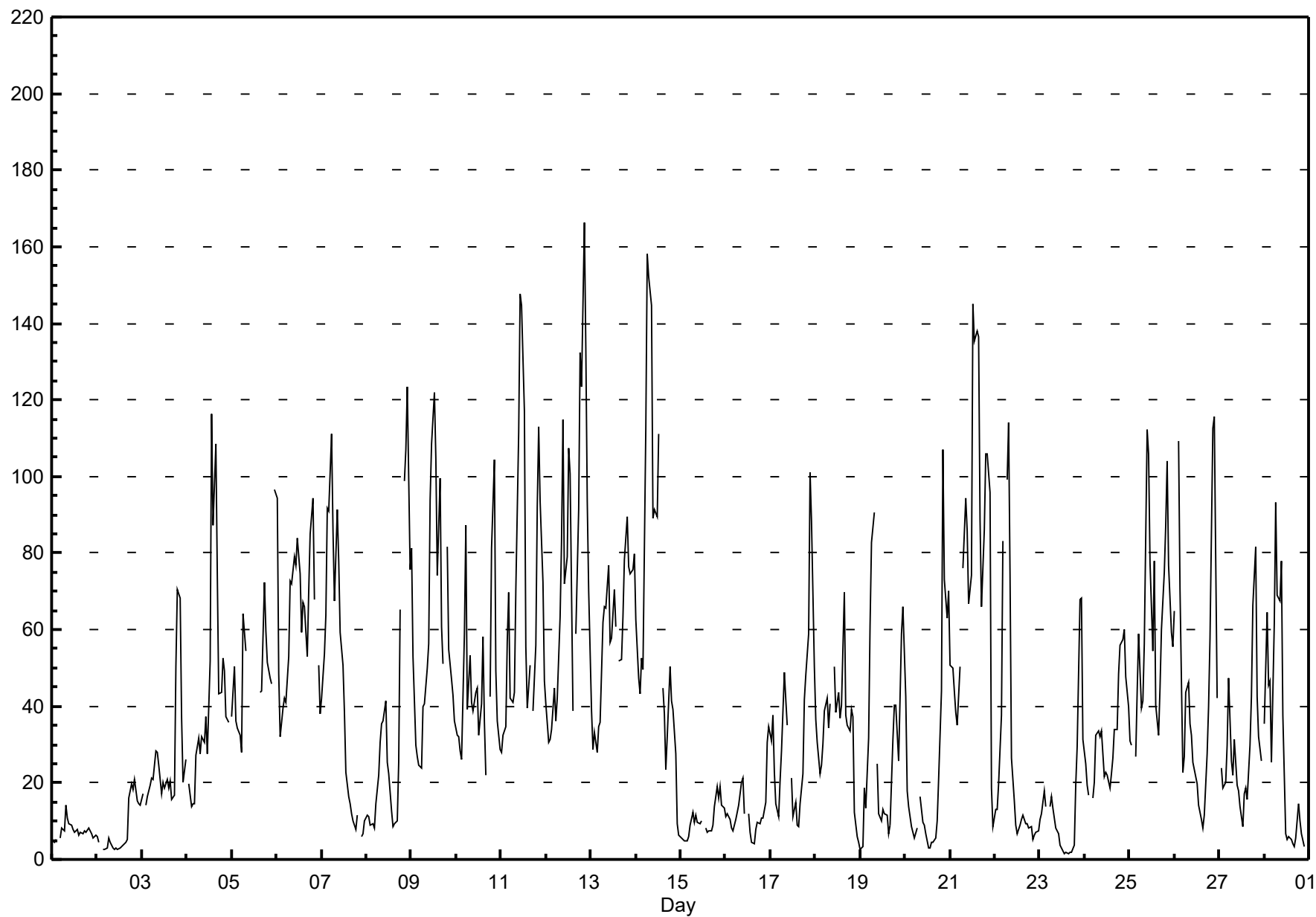
Nitrogen Oxide (NO) - ppb
Henry Pirker - February 2019



Hourly Averages

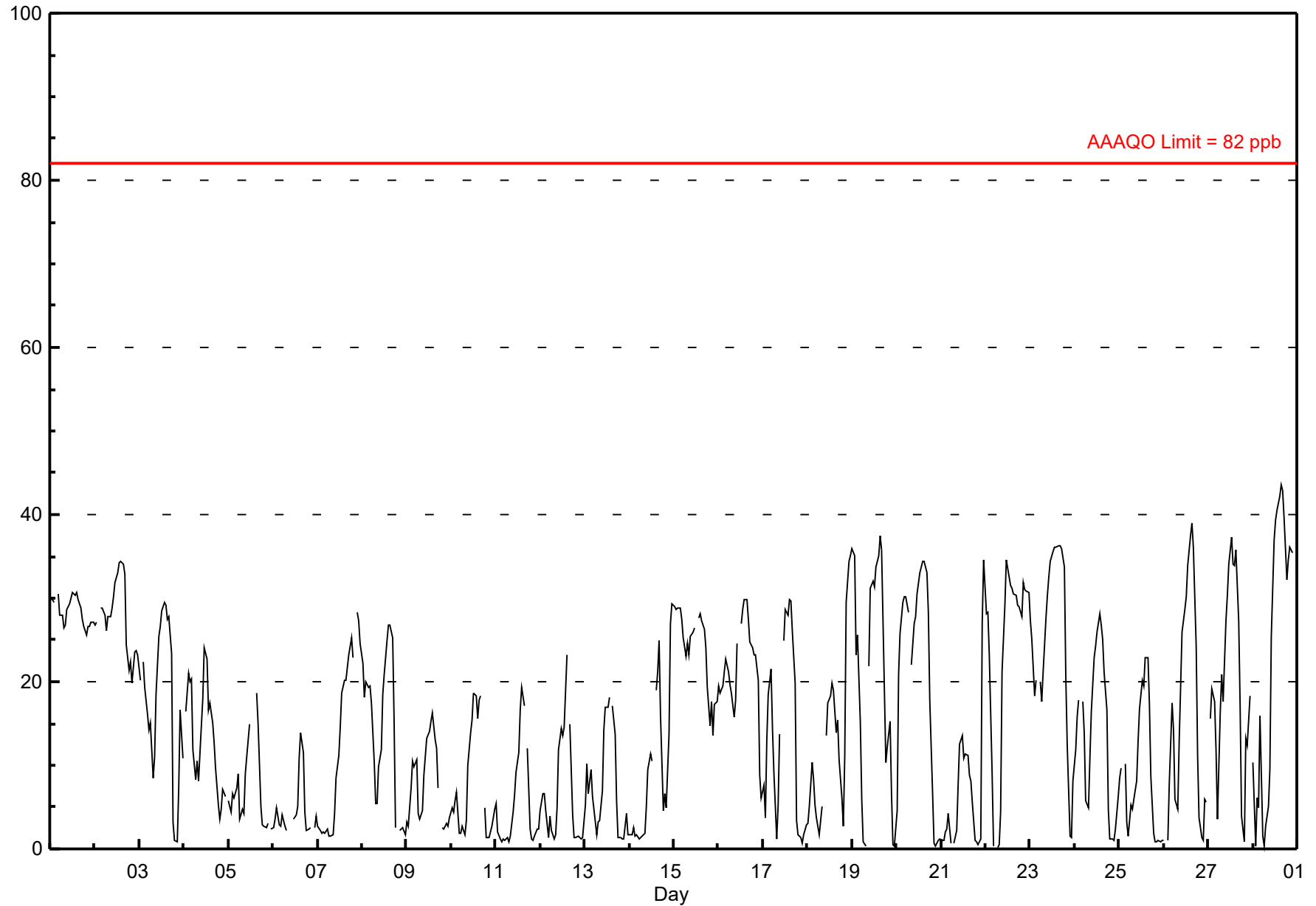
Oxides of Nitrogen (NO_x) - ppb

Henry Pirker - February 2019



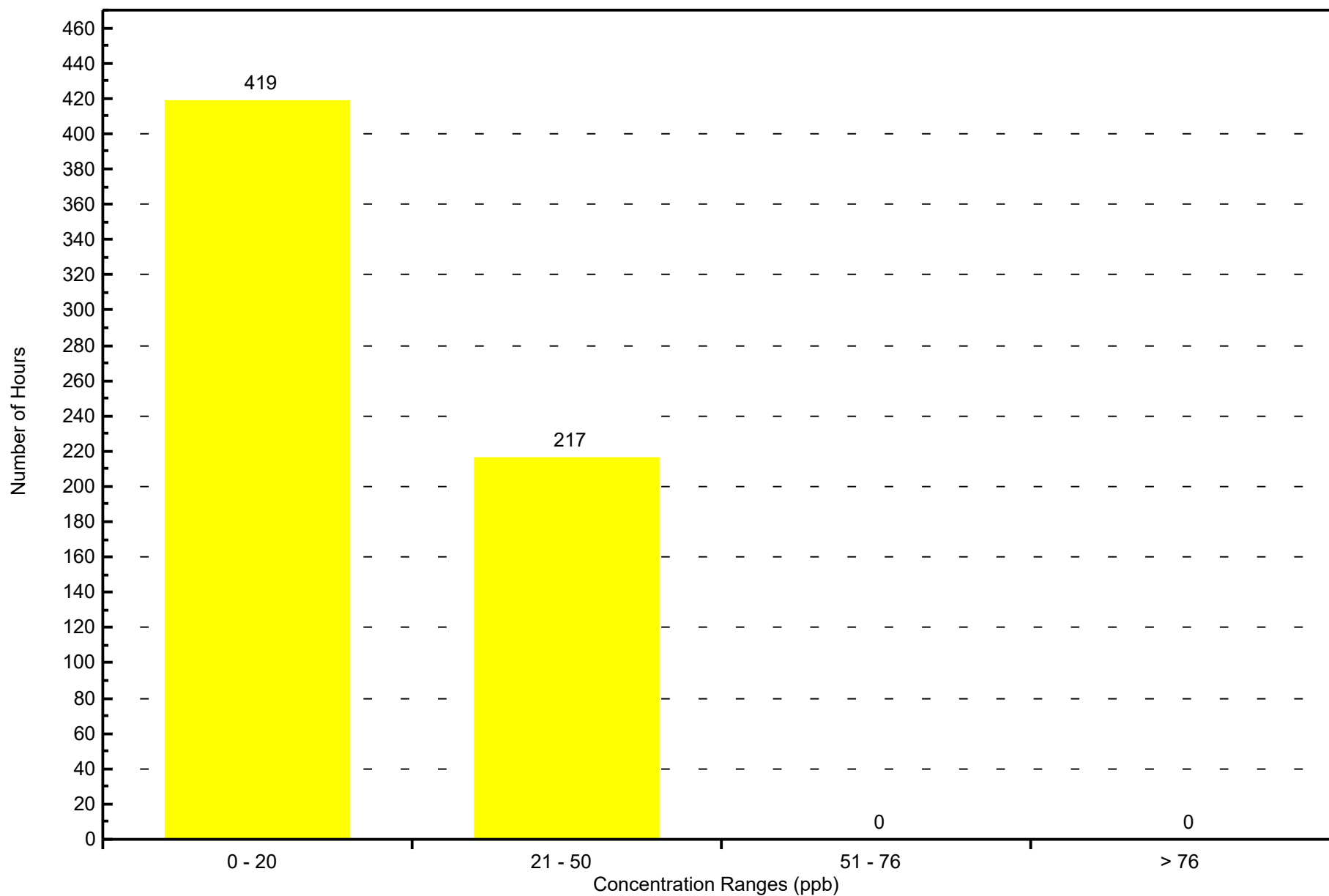
Hourly Averages

Ozone (O₃) - ppb
Henry Pirker - February 2019



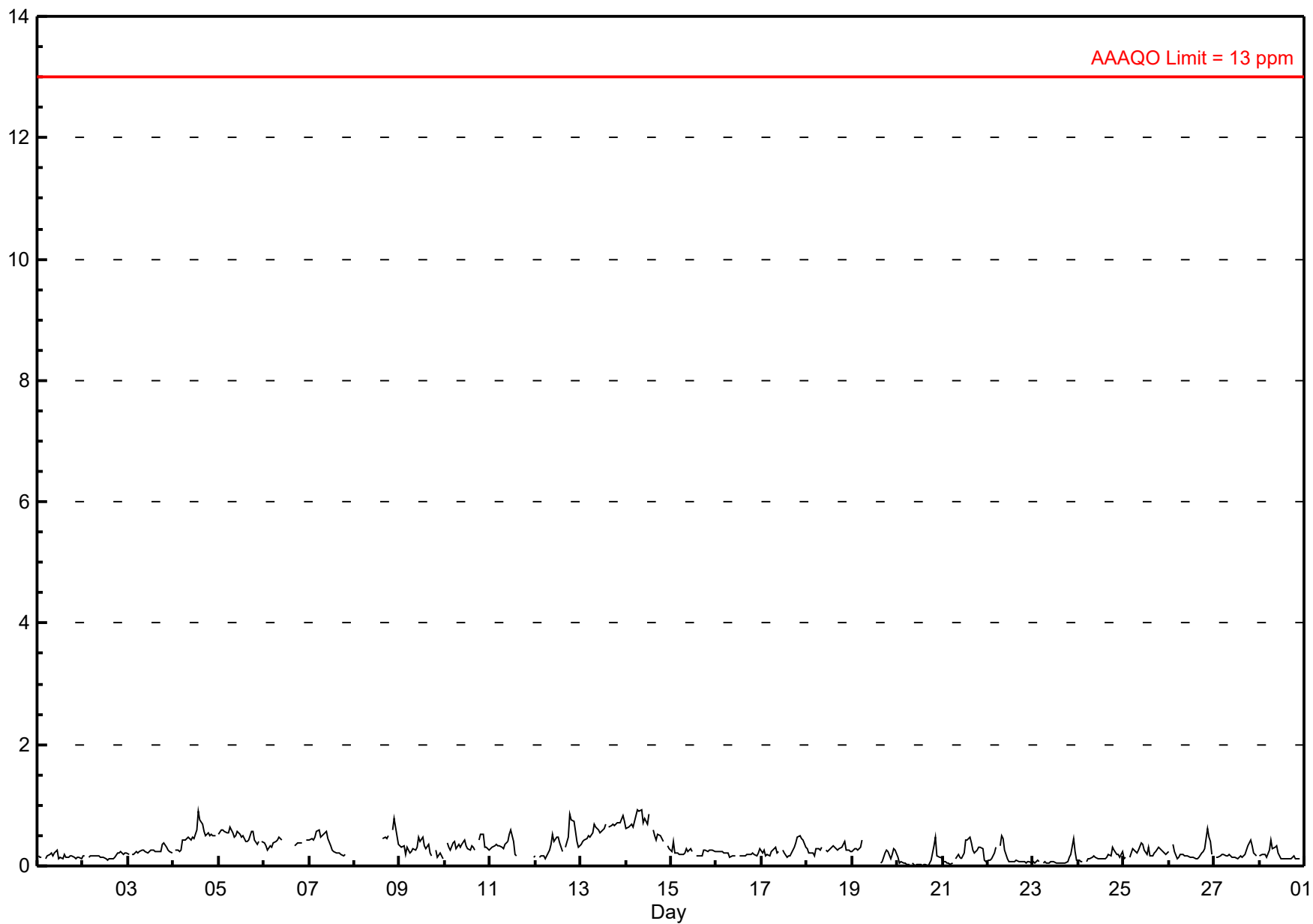
Histogram of Hourly Averages

Ozone (O₃) - ppb
Henry Pirker - February 2019



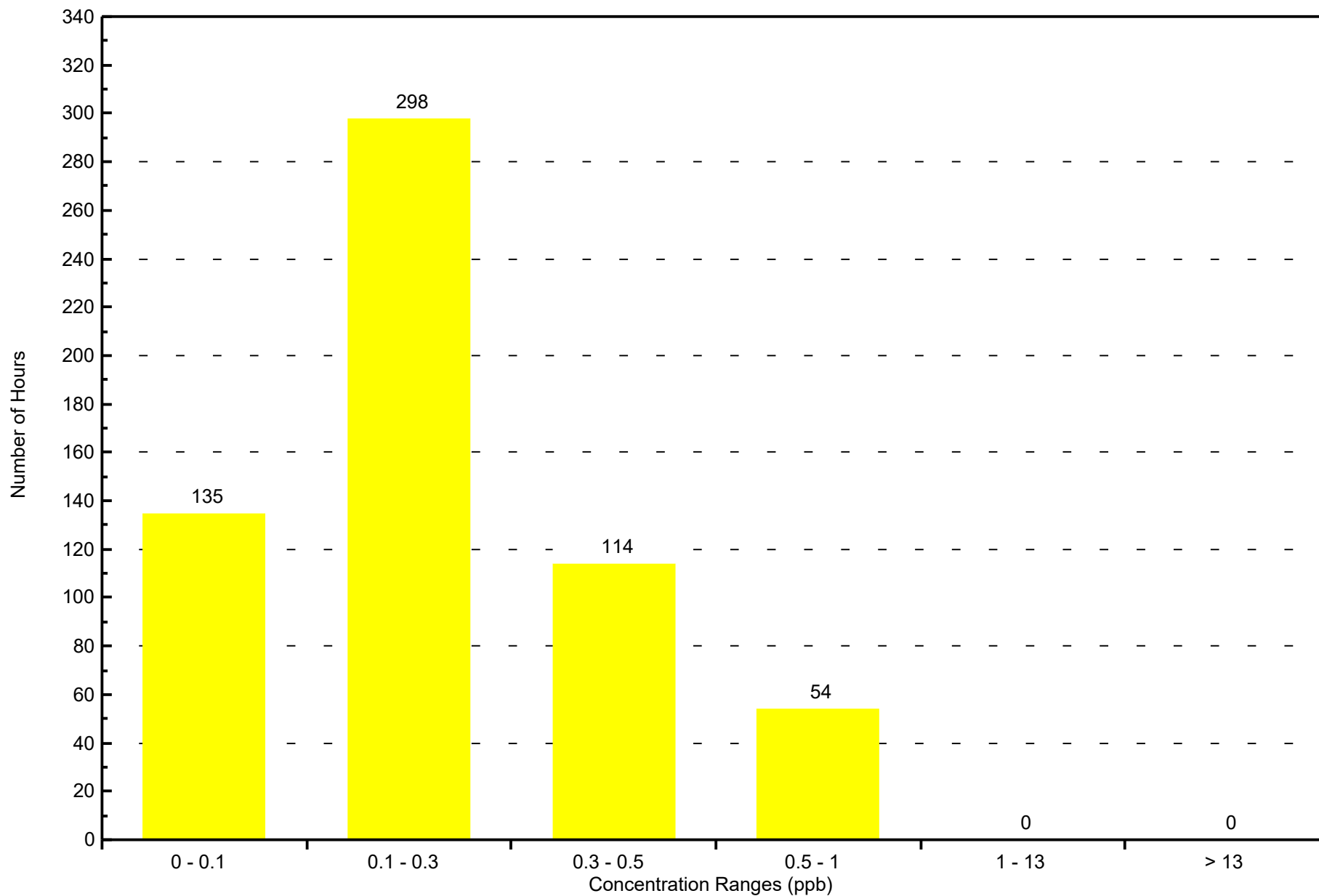
Hourly Averages

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



Histogram of Hourly Averages

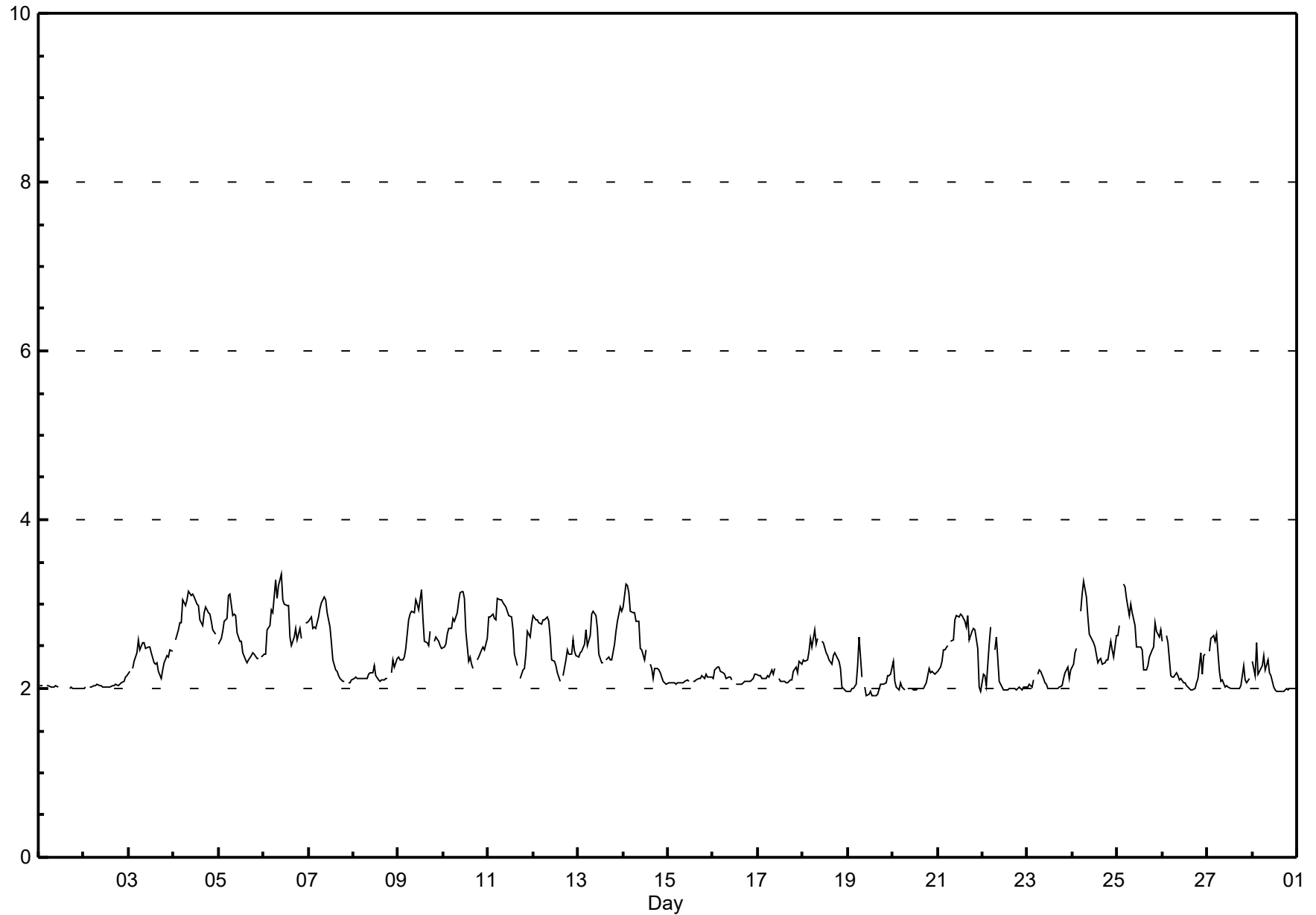
Carbon Monoxide (CO) - ppm
Henry Pirker - February 2019



Hourly Averages

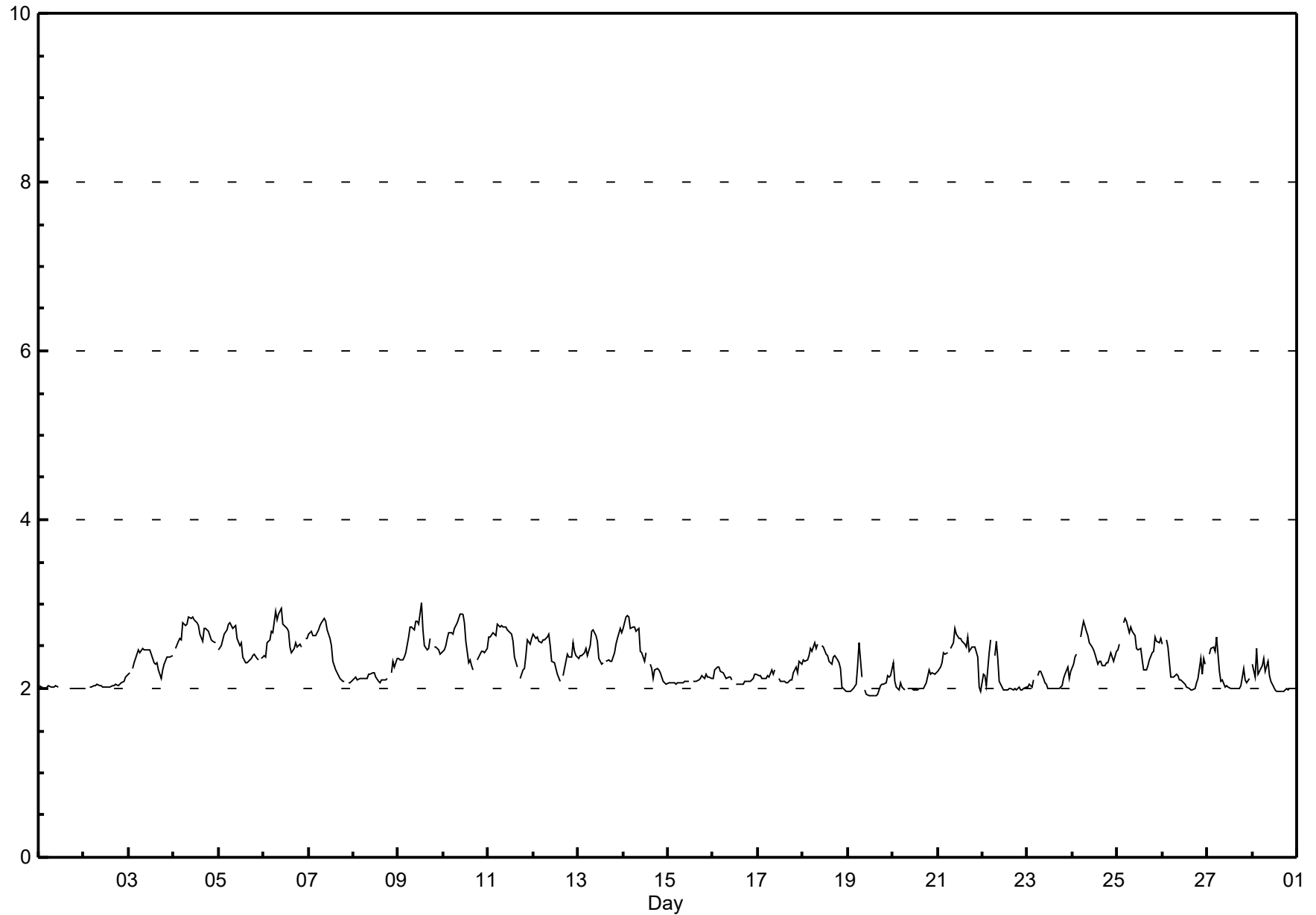
Total Hydrocarbons (THC) - ppm

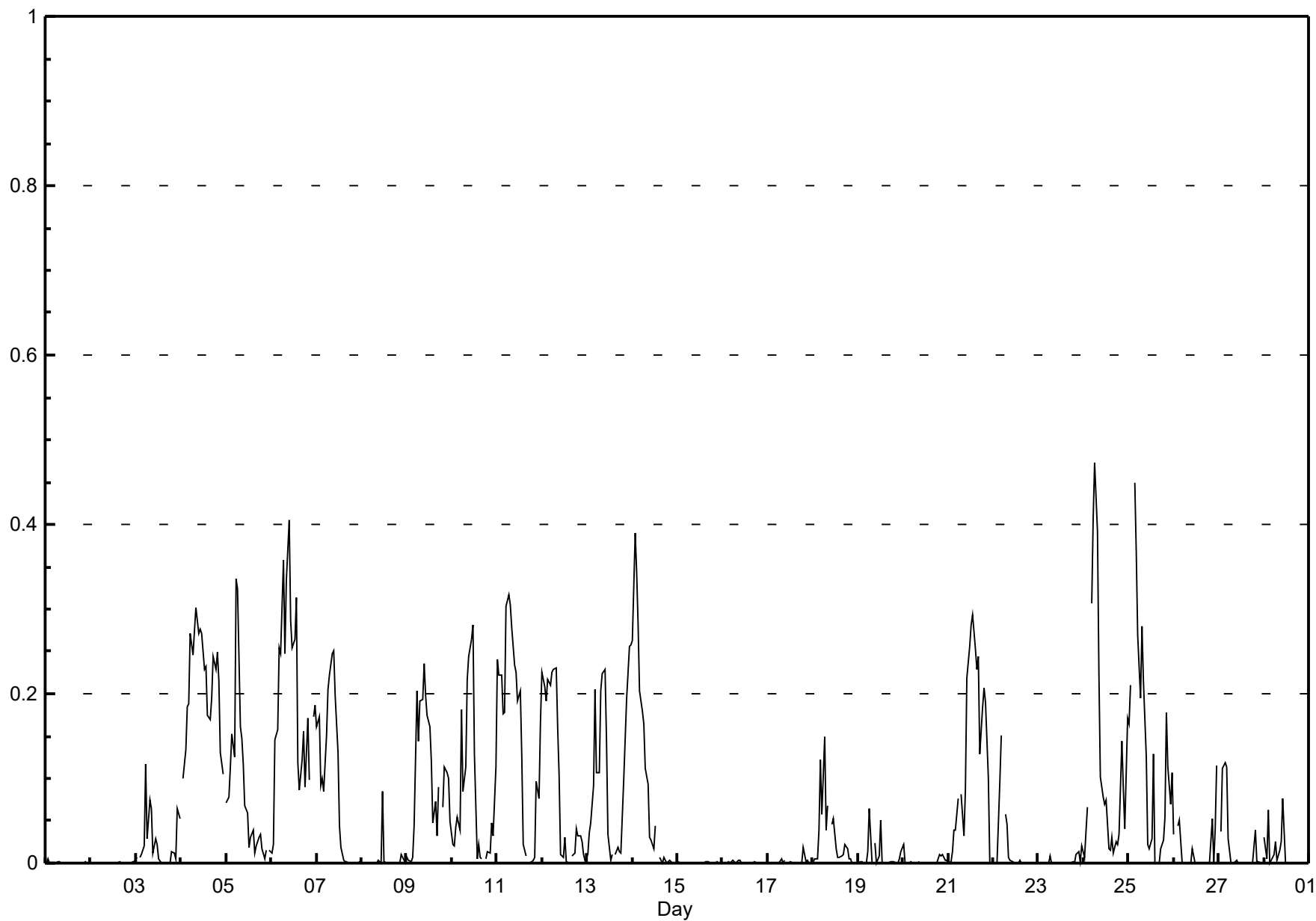
Henry Pirker - February 2019

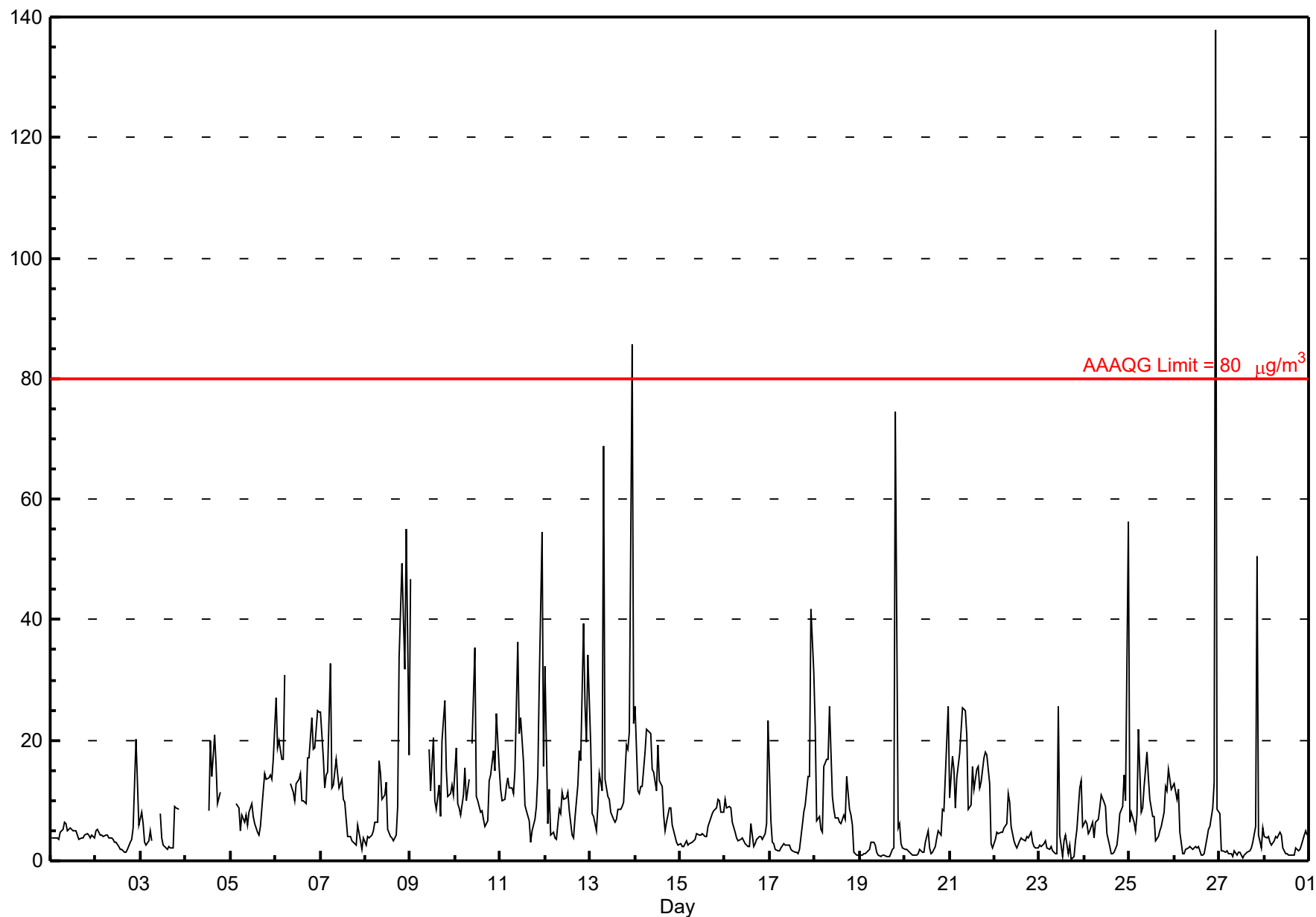


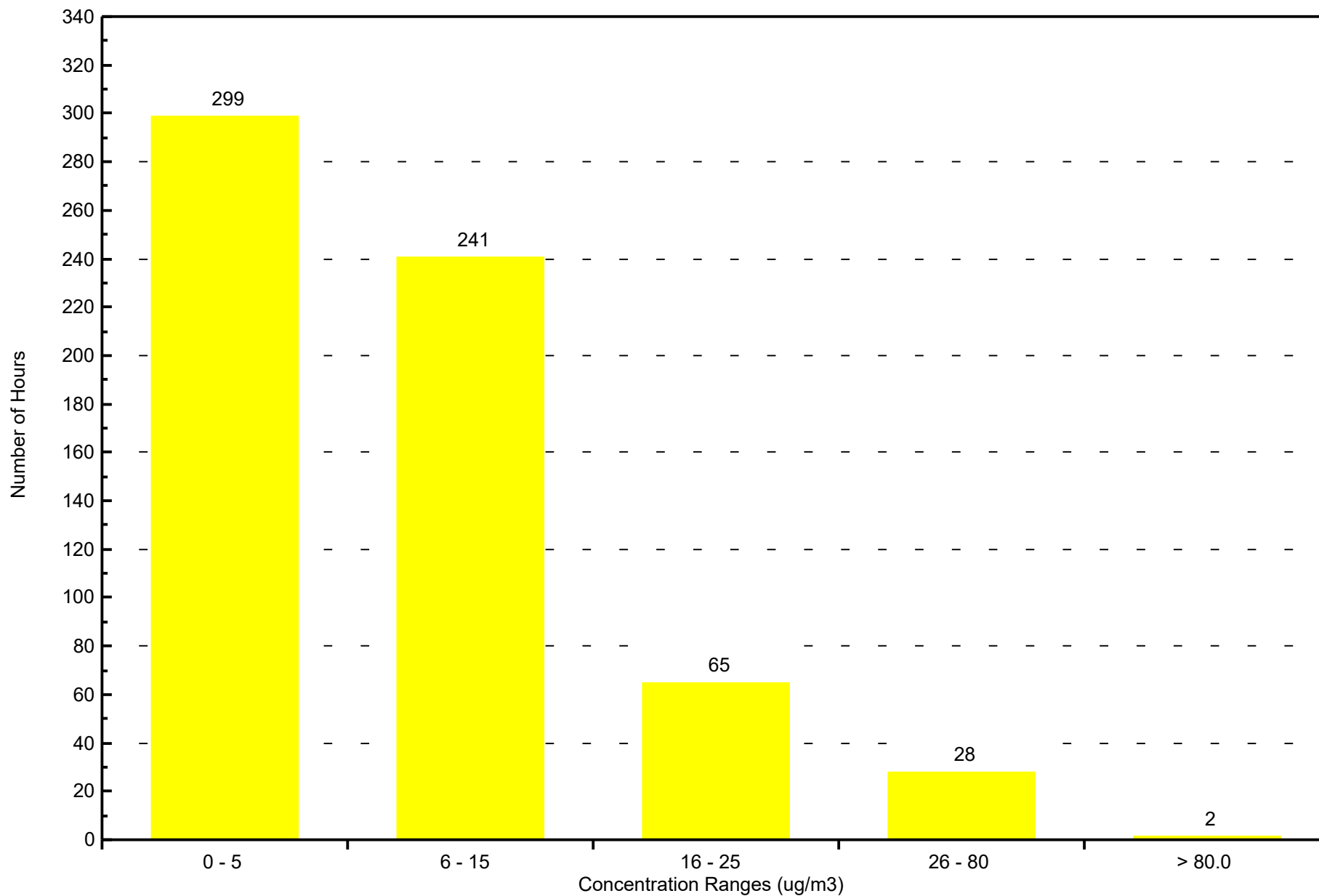
Hourly Averages

Methane (CH₄) - ppm
Henry Pirker - February 2019





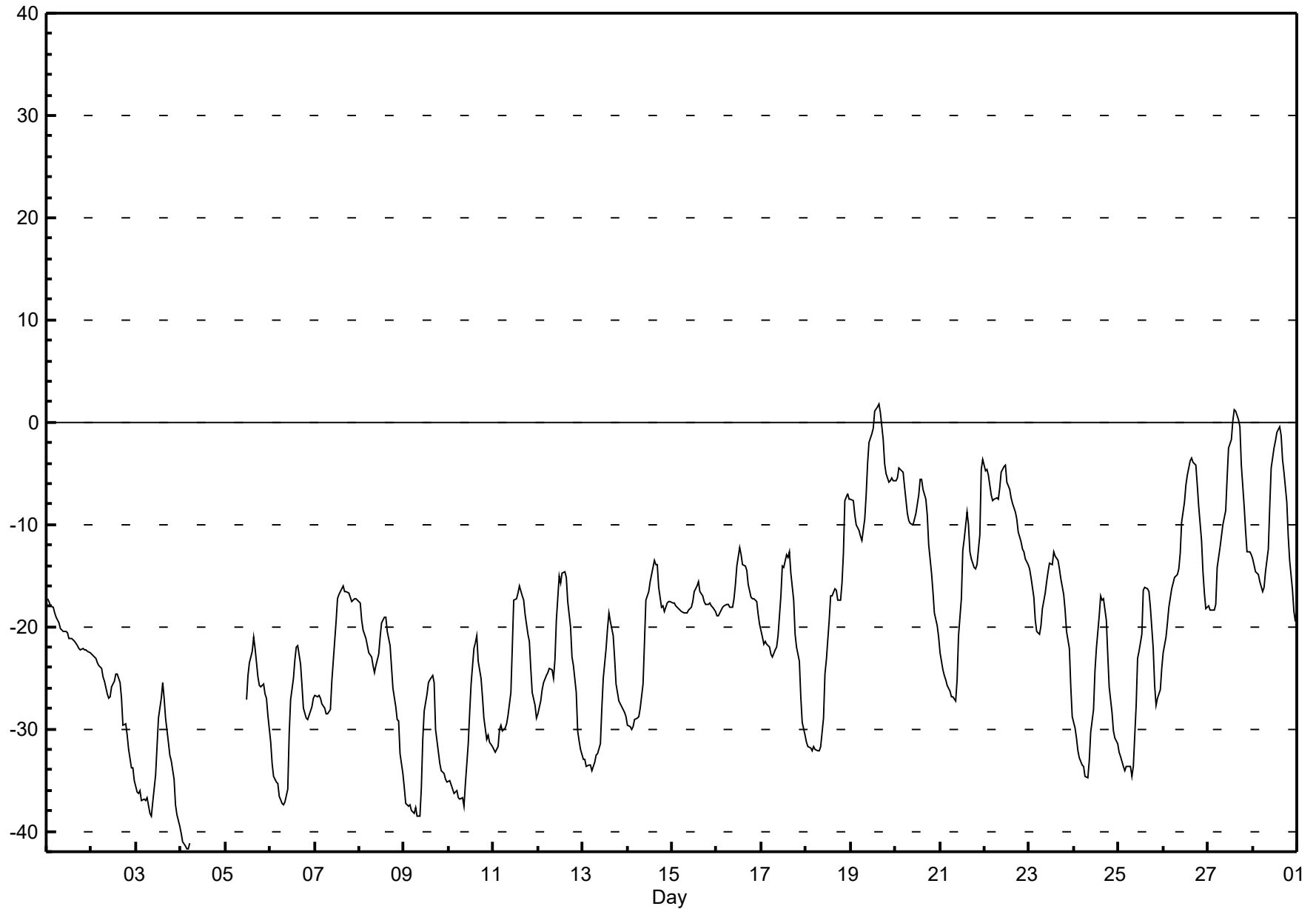




Hourly Averages

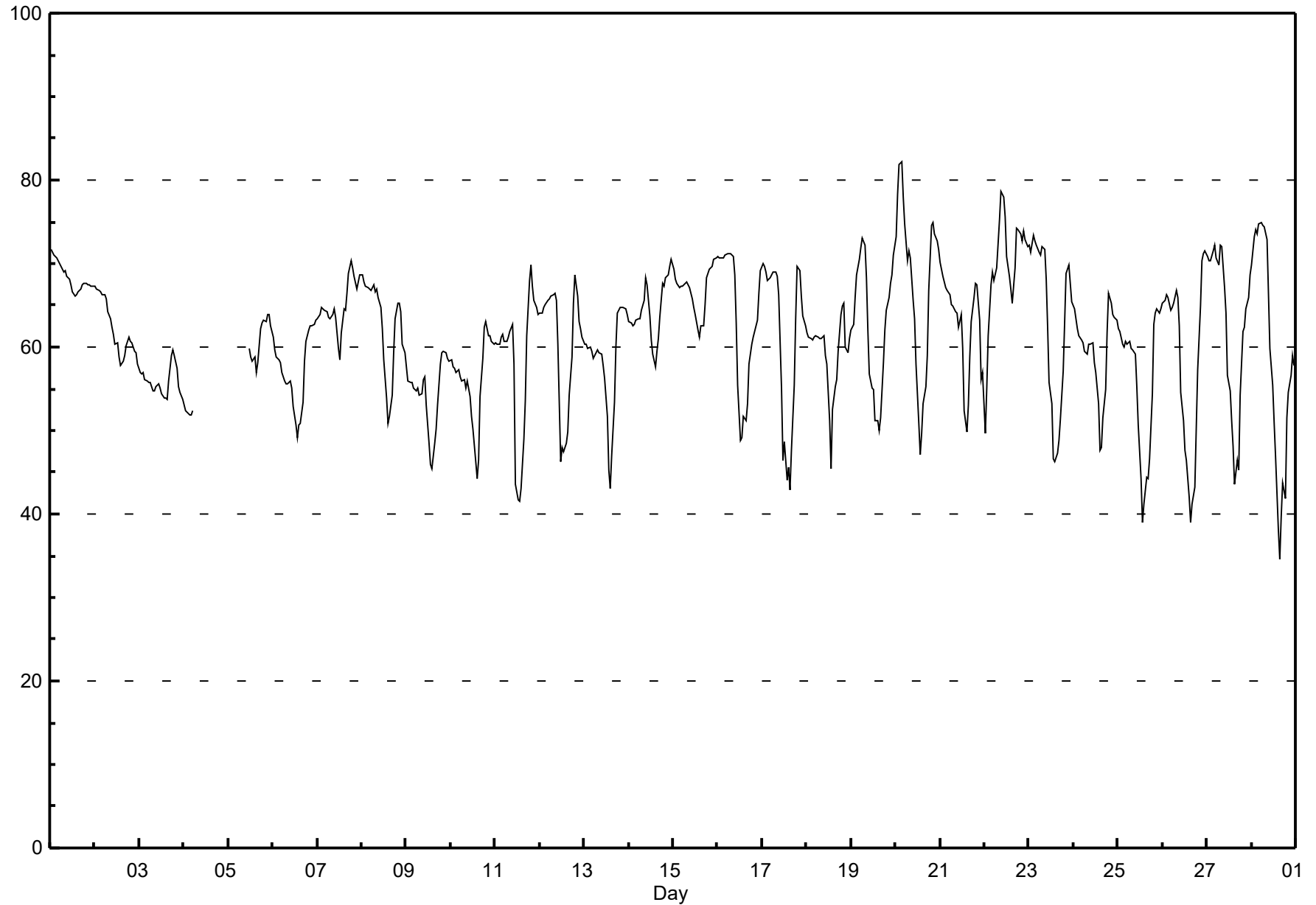
External Temperature (ET) - °C

Henry Pirker - February 2019



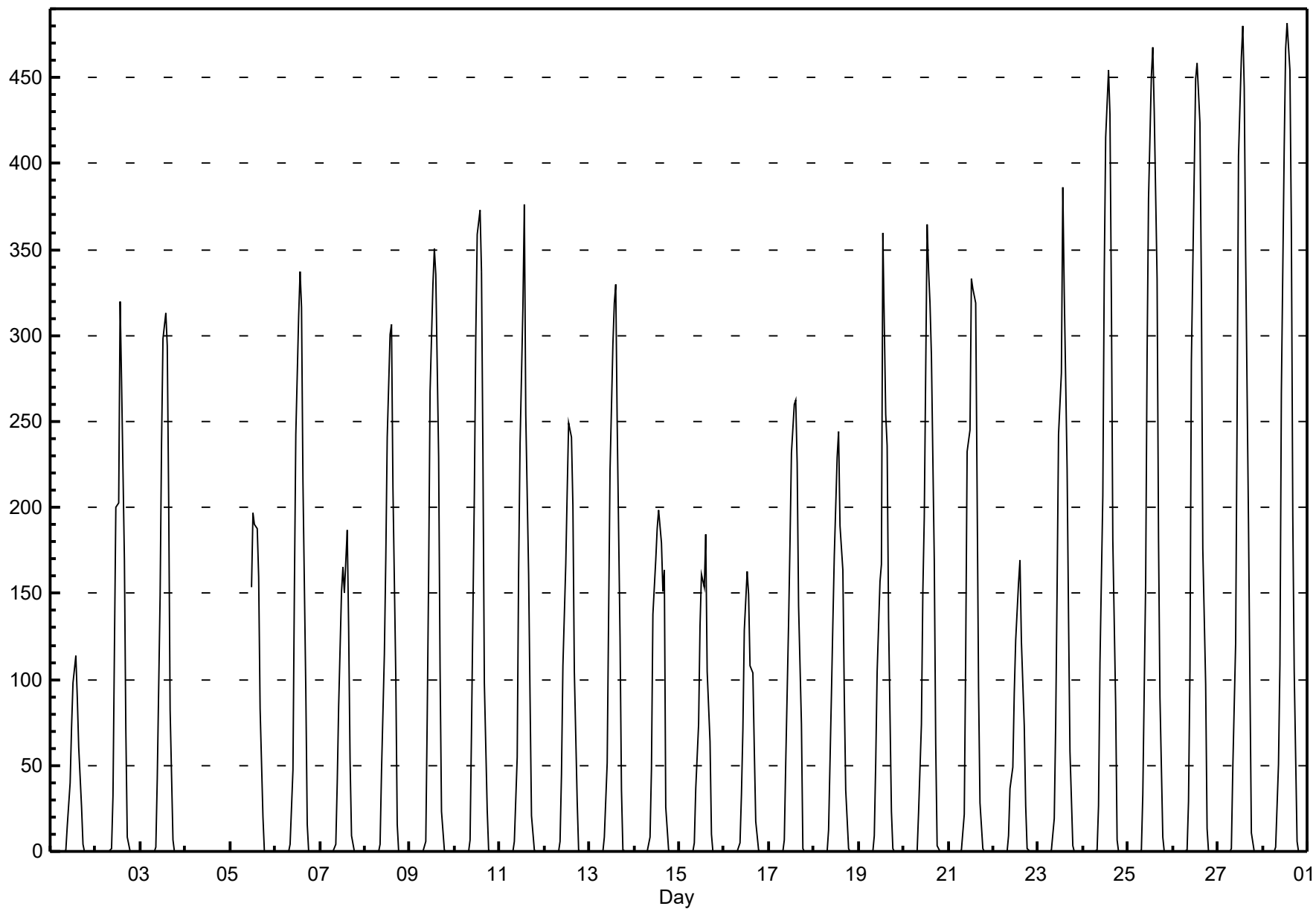
Hourly Averages

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



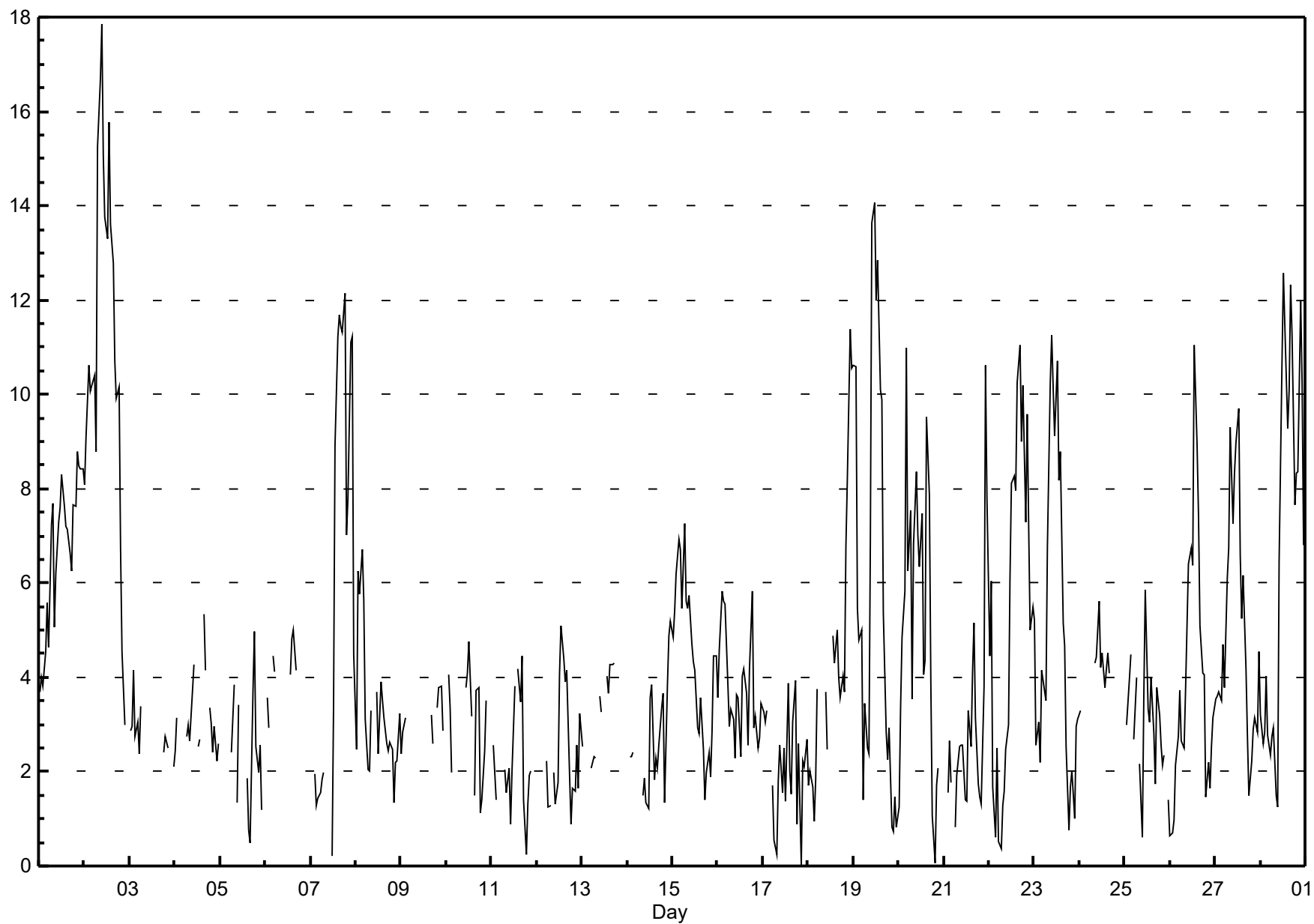
Hourly Averages

Solar Radiation (SR) - W/m²
Henry Pirker - February 2019



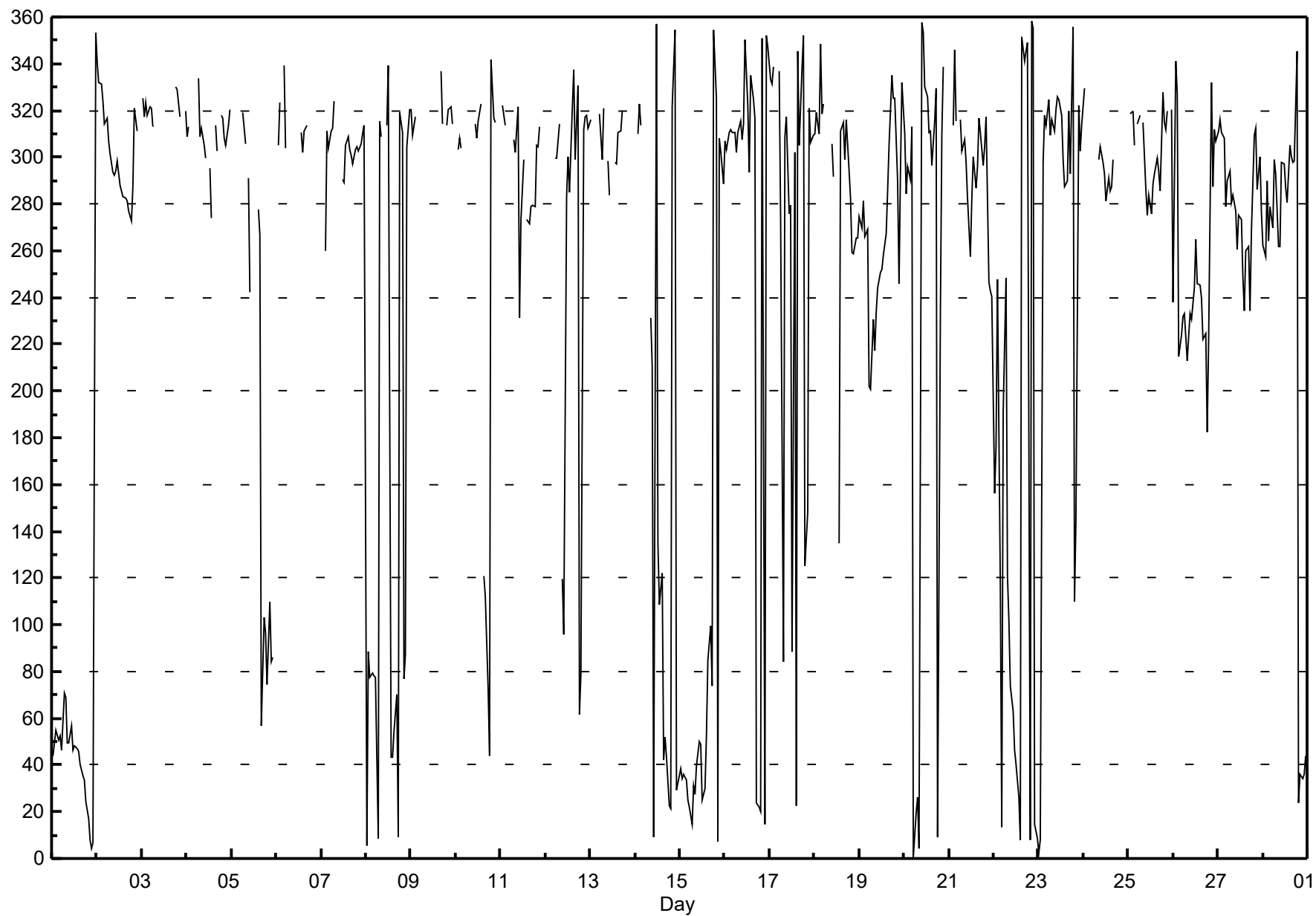
Hourly Averages

Wind Speed (WS) - km/h
Henry Pirker - February 2019



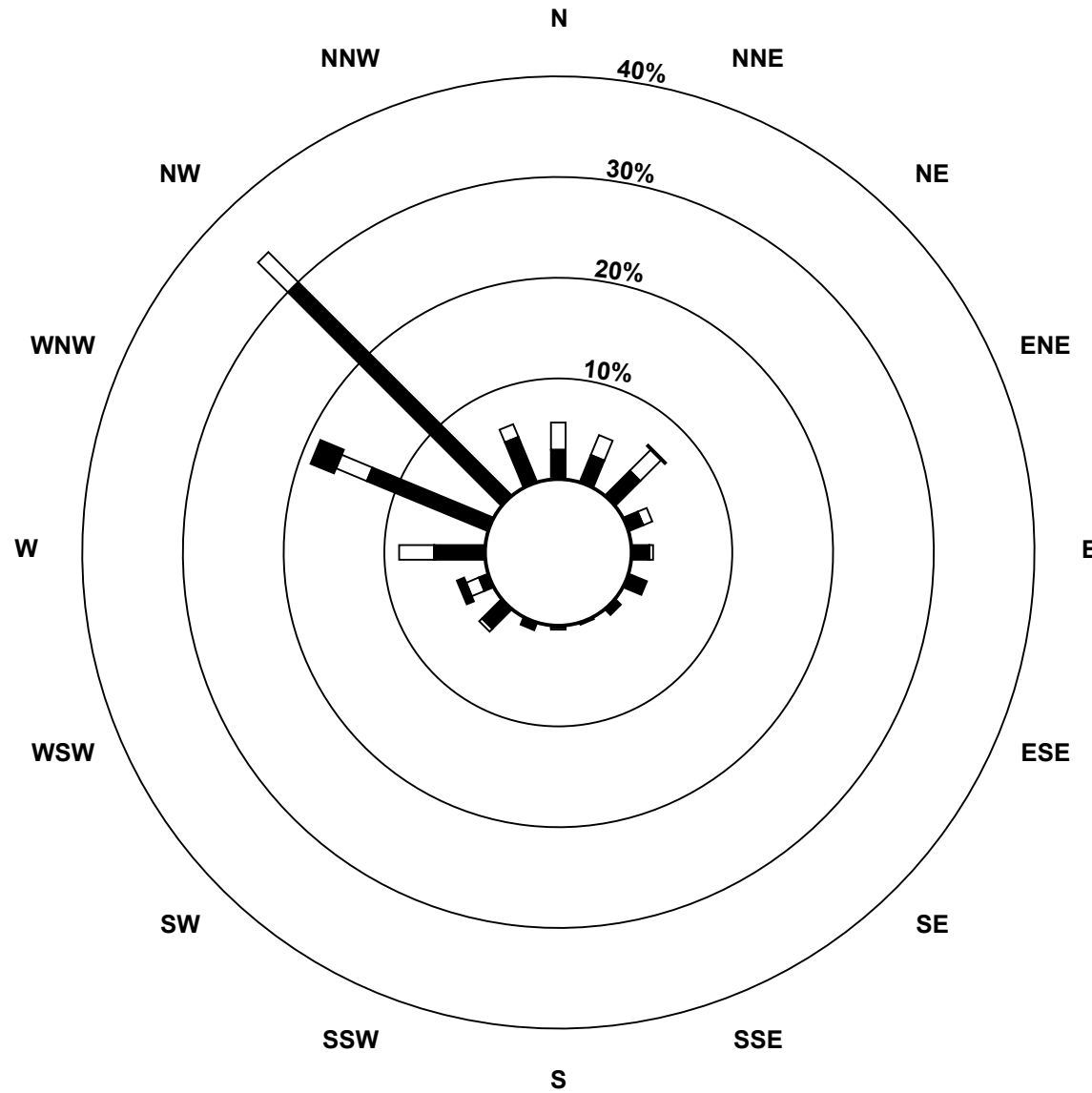
Hourly Averages

Wind Direction (WD) - deg
Henry Pirker - February 2019

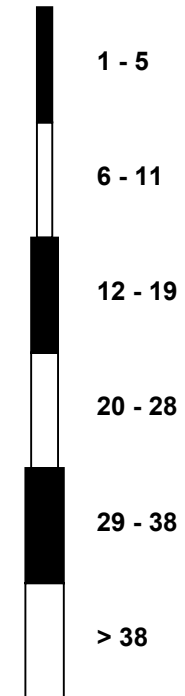


Wind Rose

Wind Speed (WS) (km/h)
Henry Pirker - February 2019

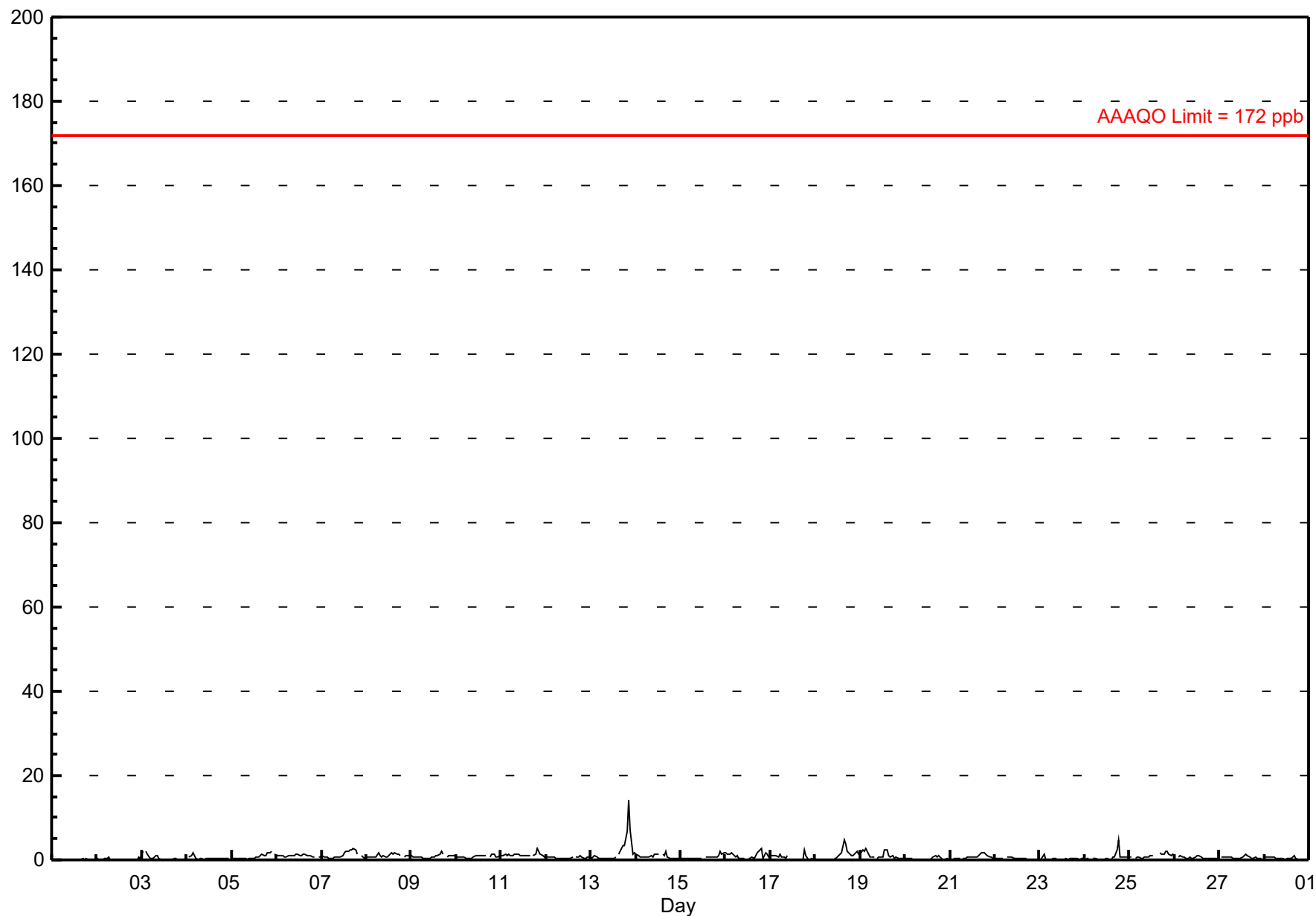


Wind Speed Classes (km/h)



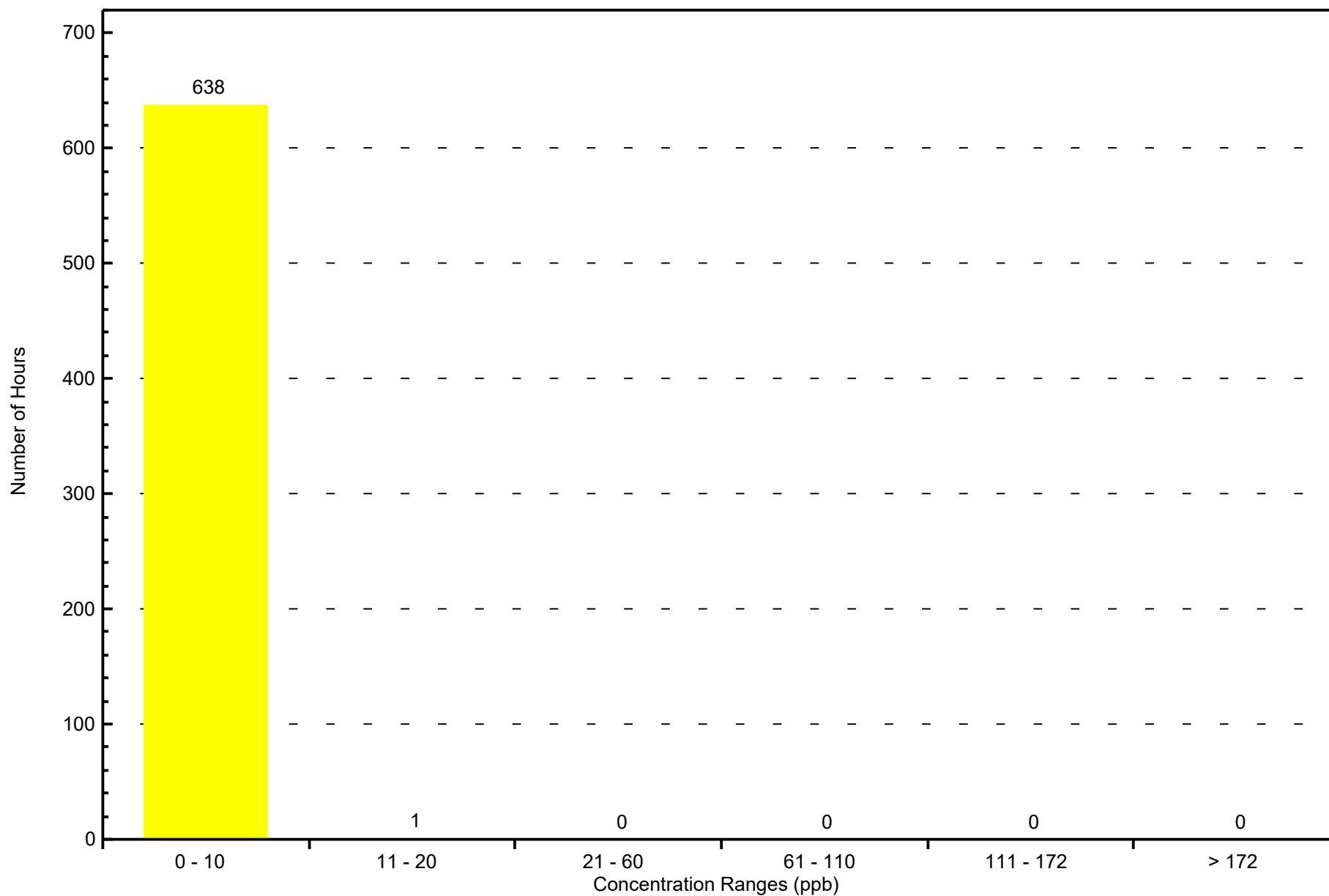
Hourly Averages

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



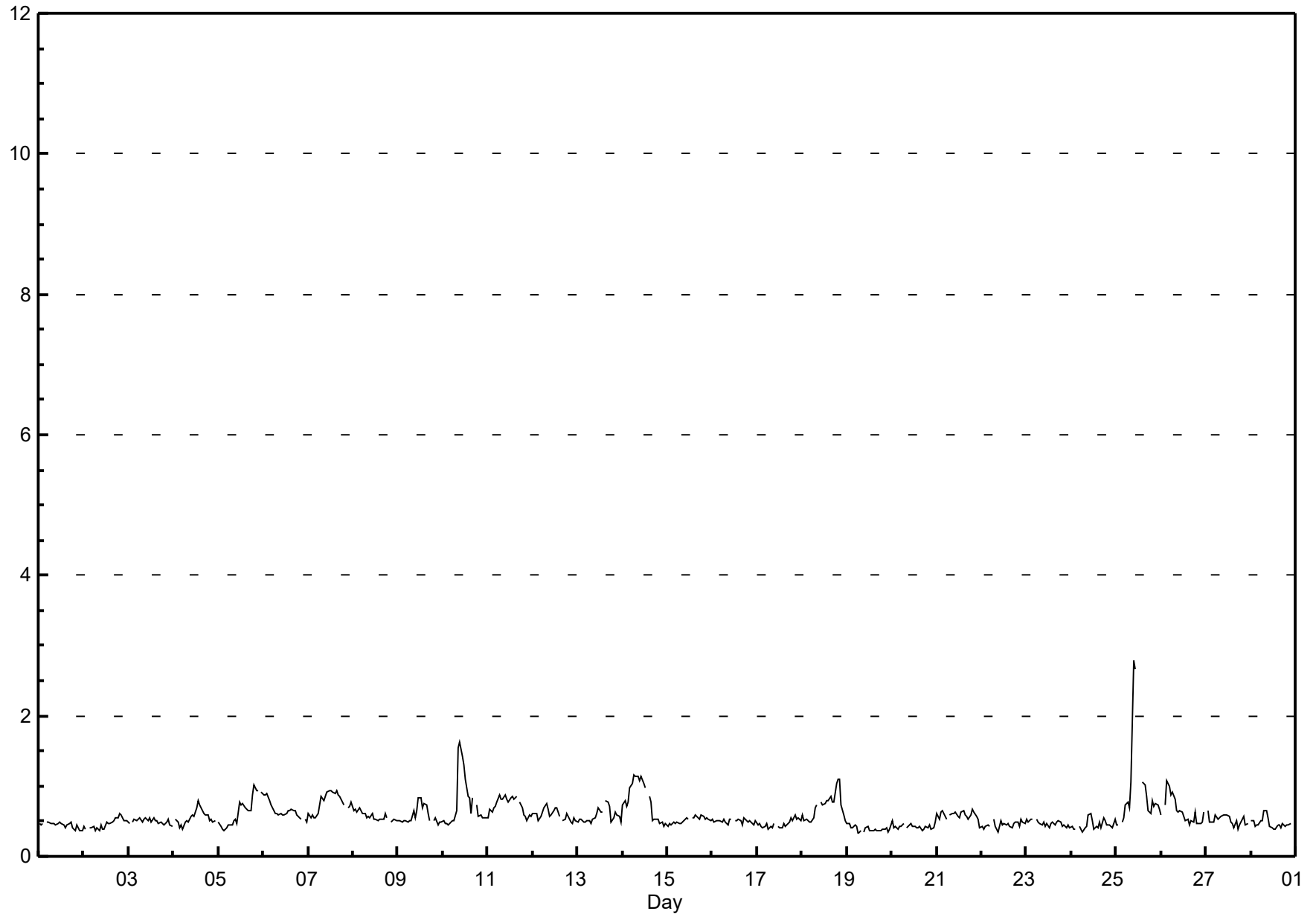
Histogram of Hourly Averages

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



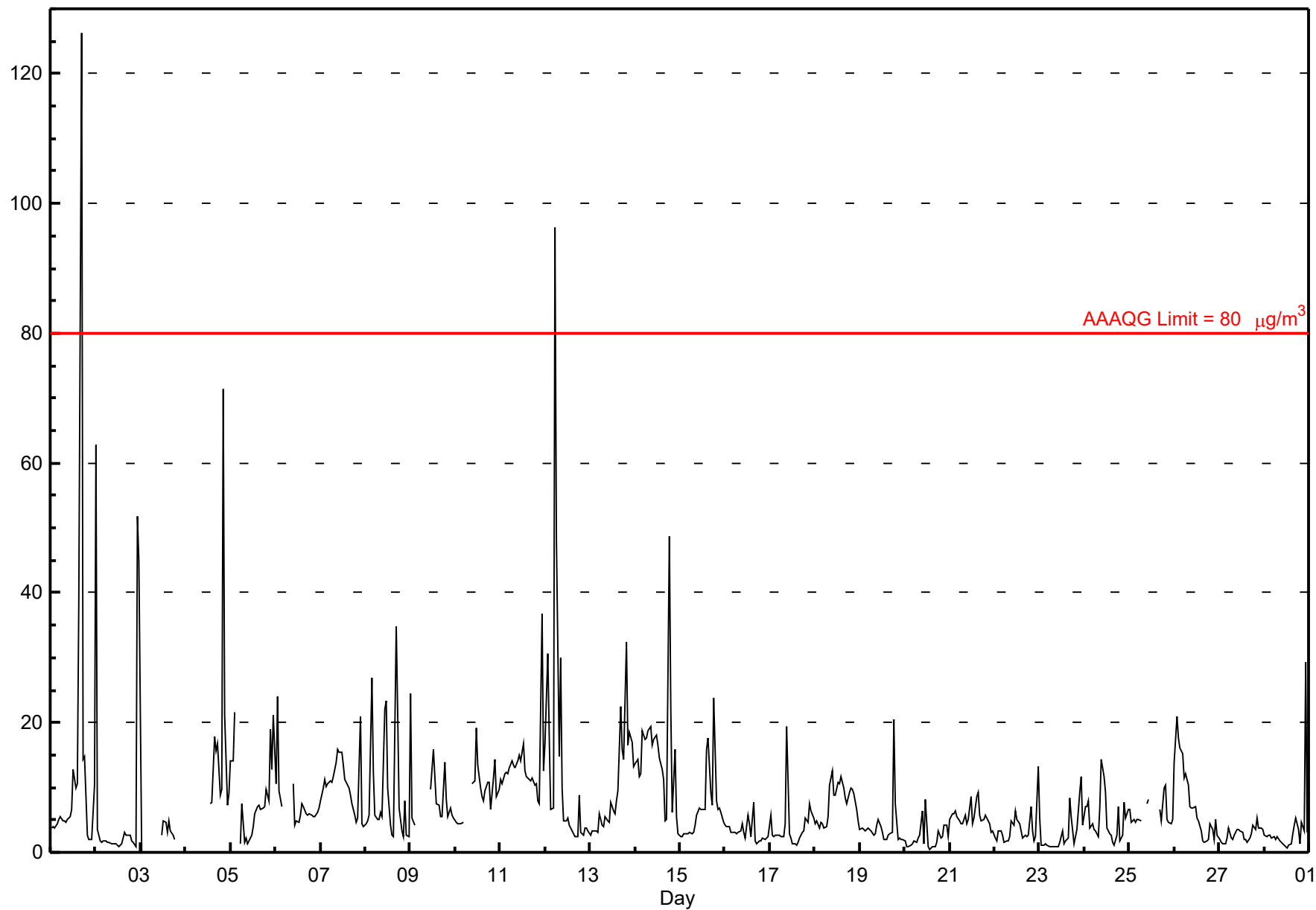
Hourly Averages

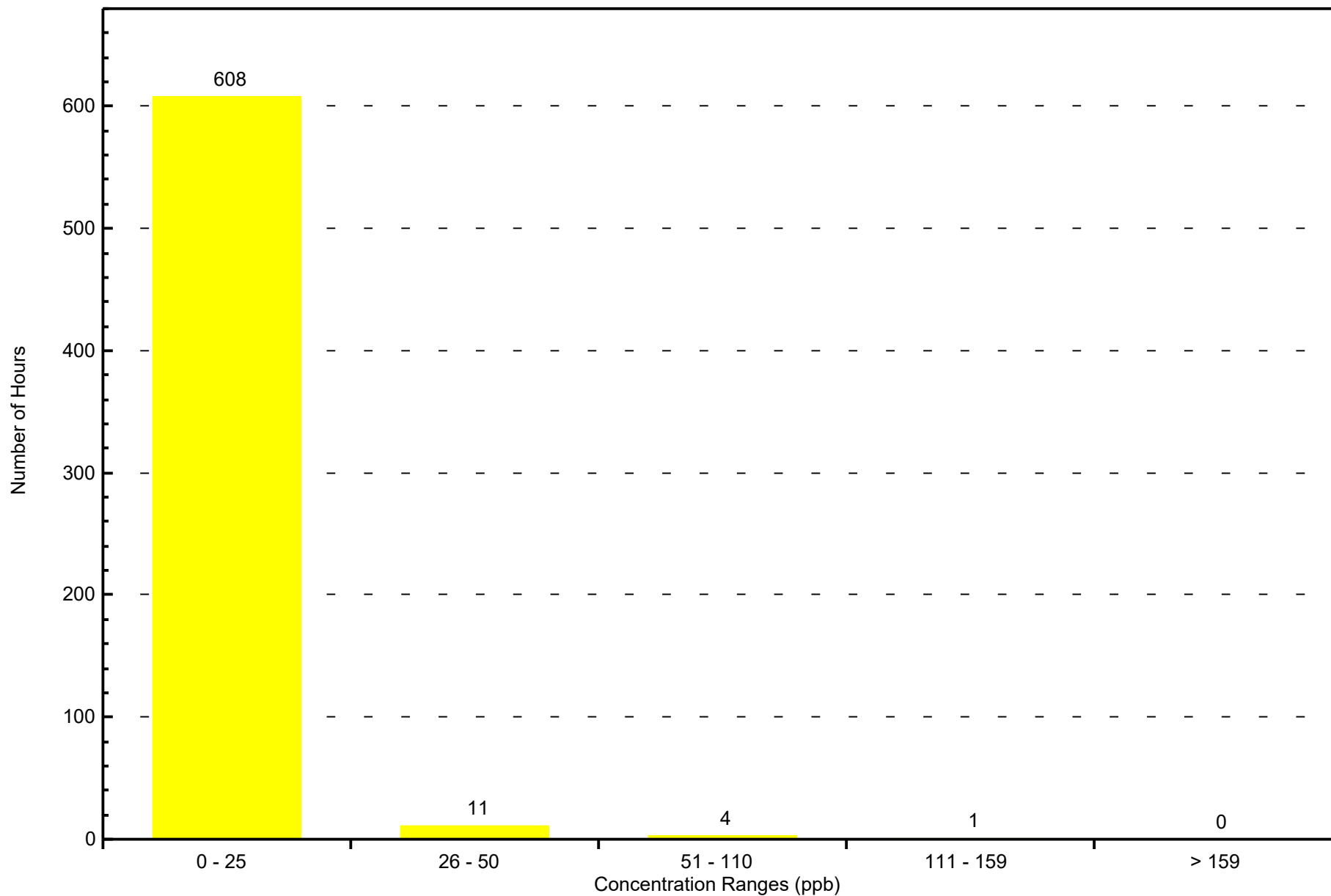
Total Reduced Sulphur (TRS) - ppb
Smoky Heights - February 2019



Hourly Averages

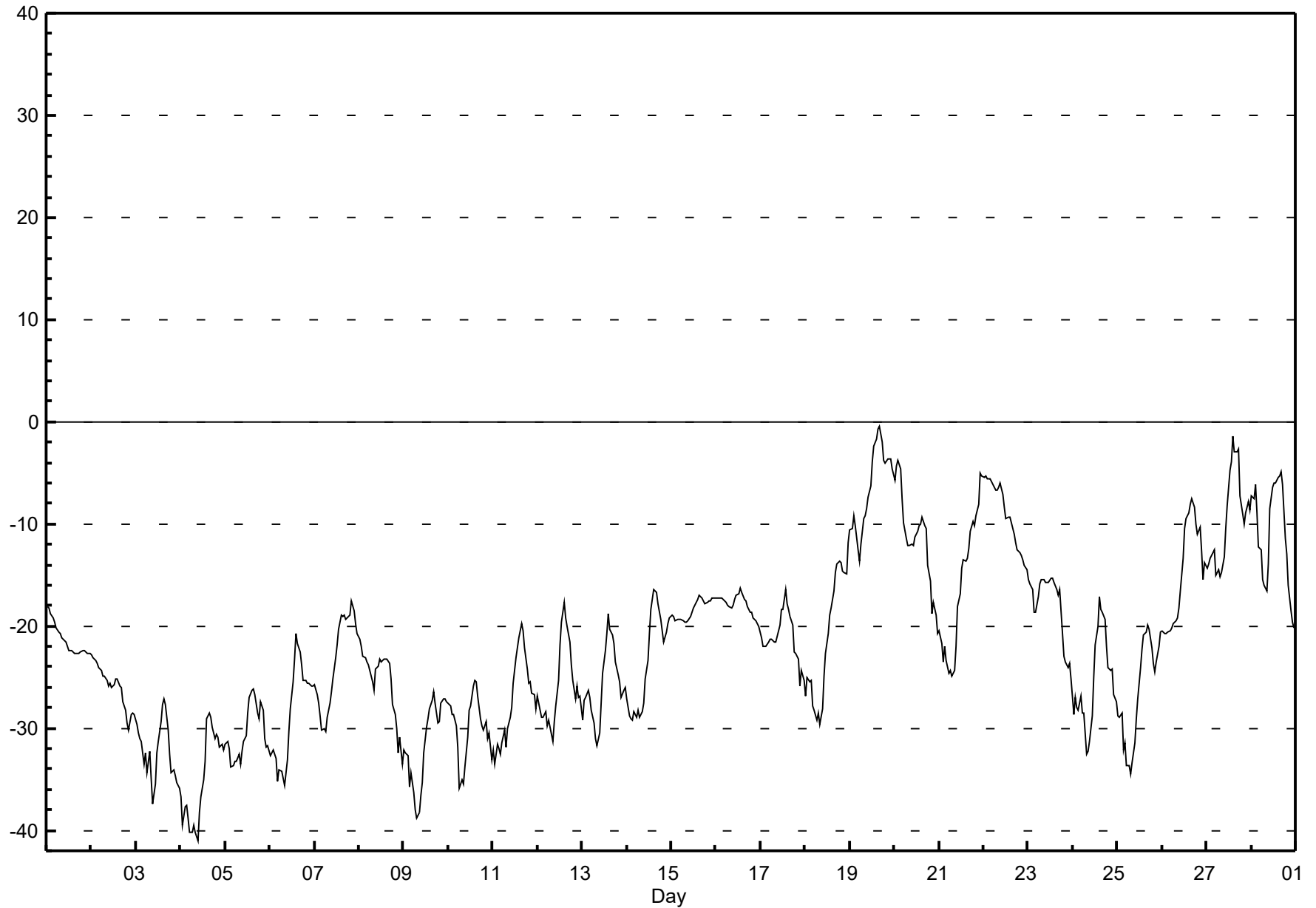
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Smoky Heights - February 2019





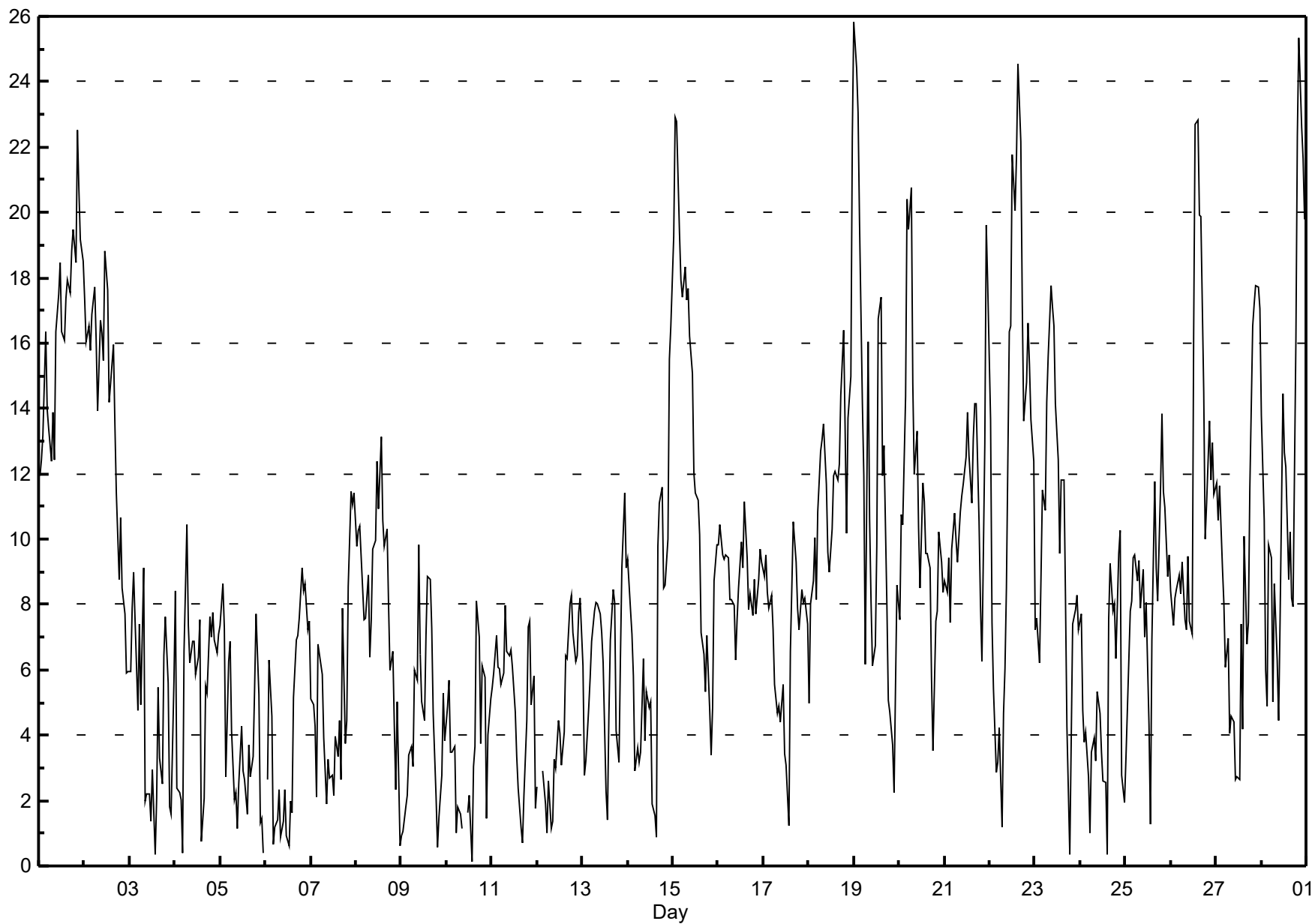
Hourly Averages

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



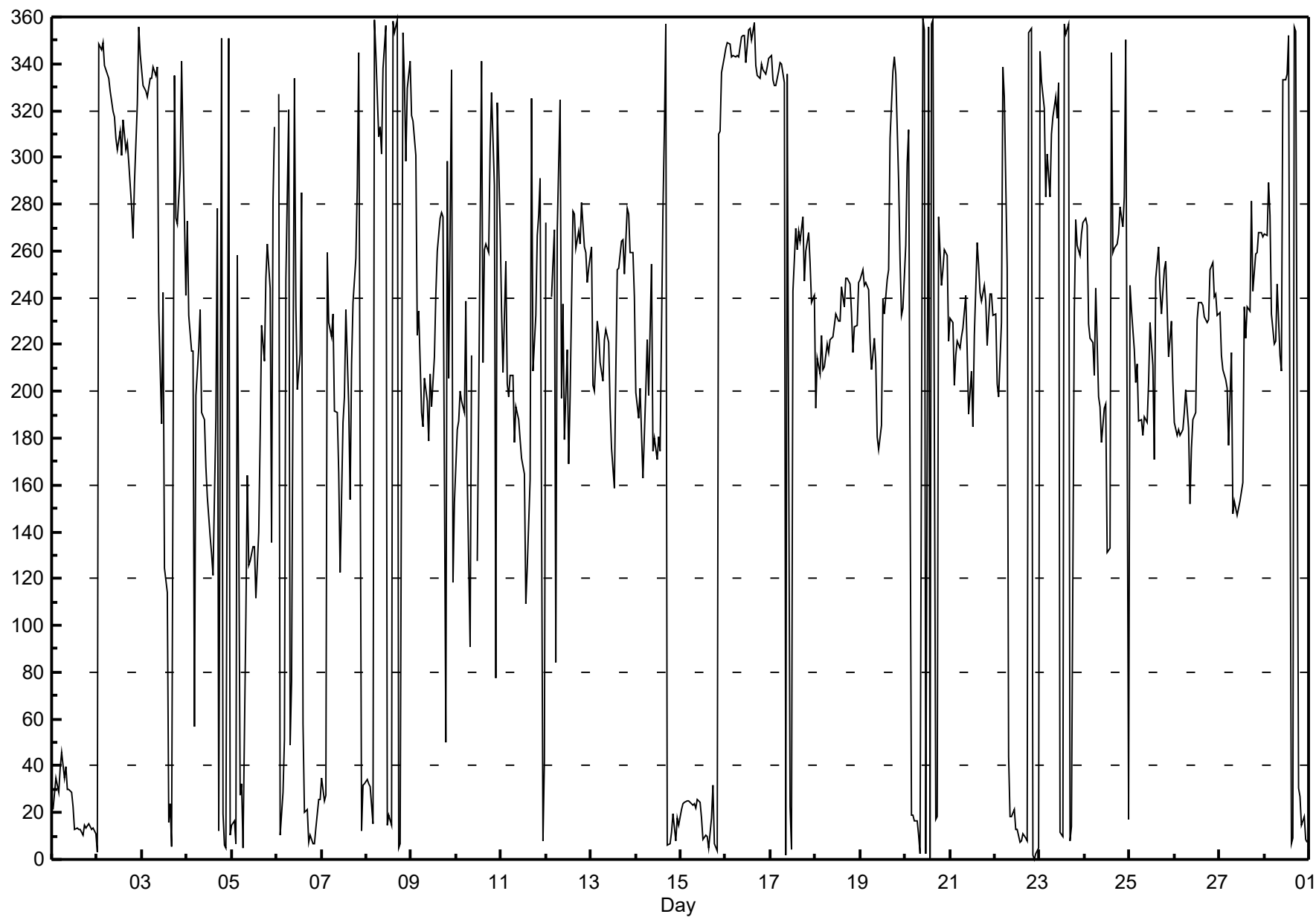
Hourly Averages

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



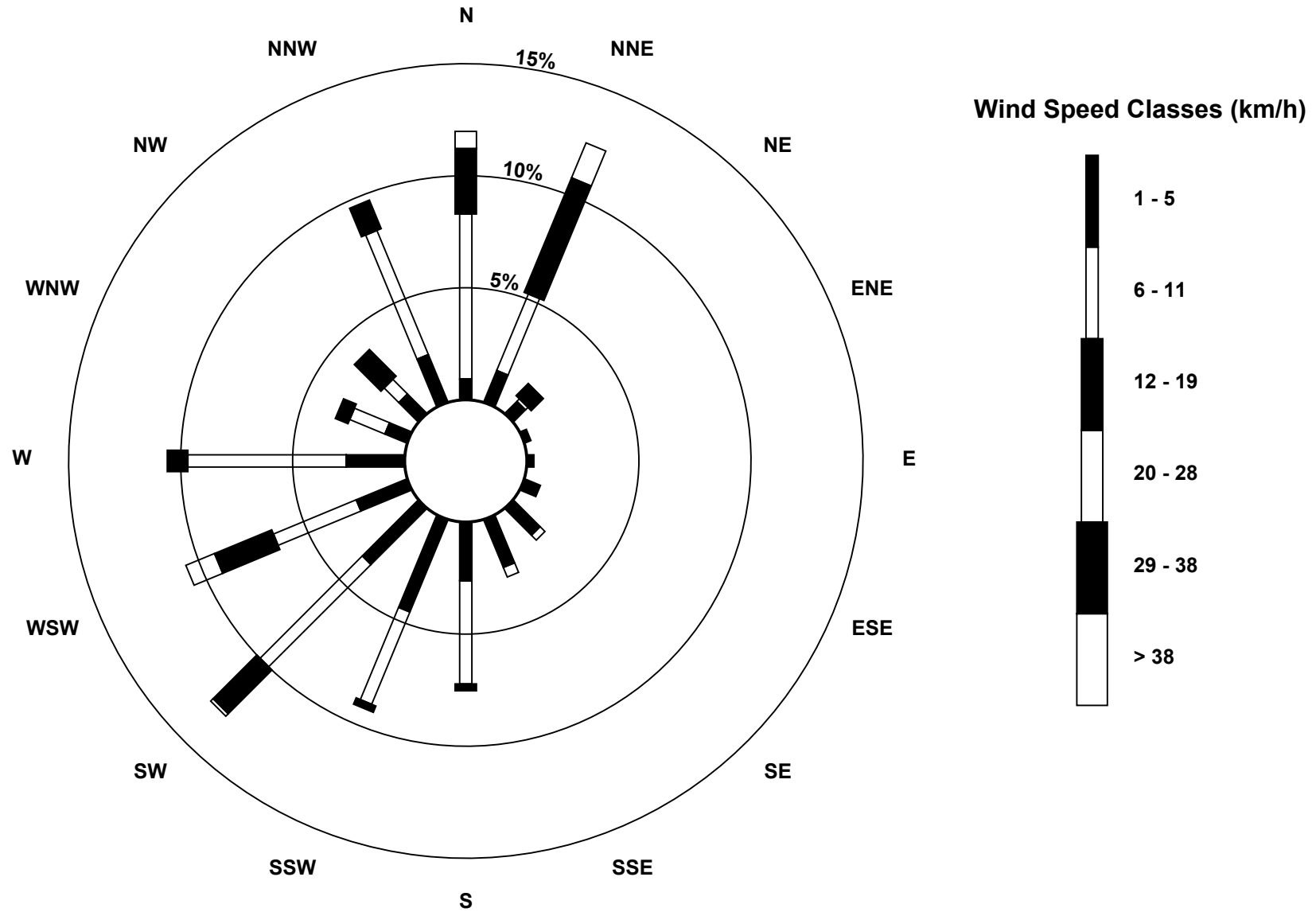
Hourly Averages

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



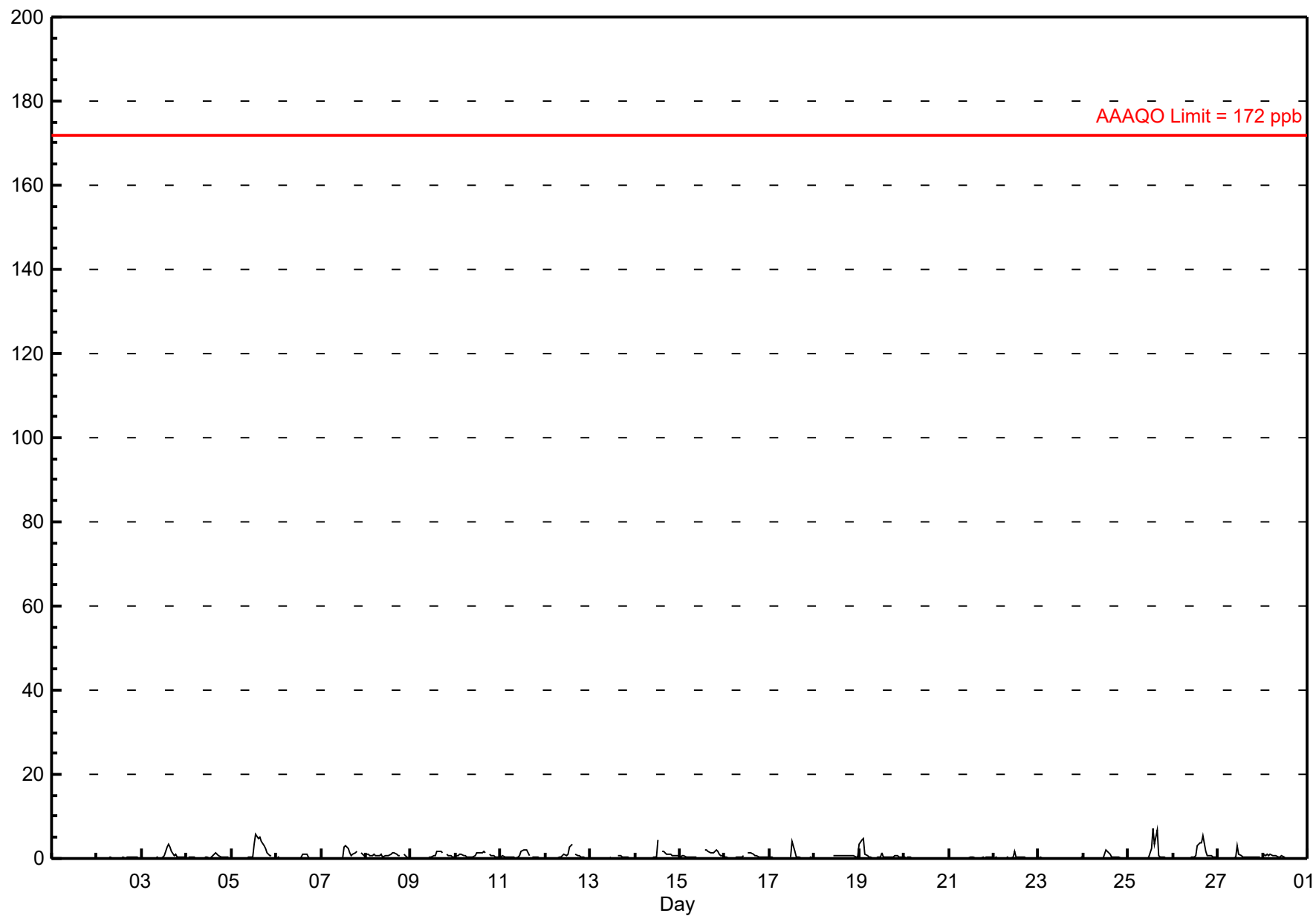
Wind Rose

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



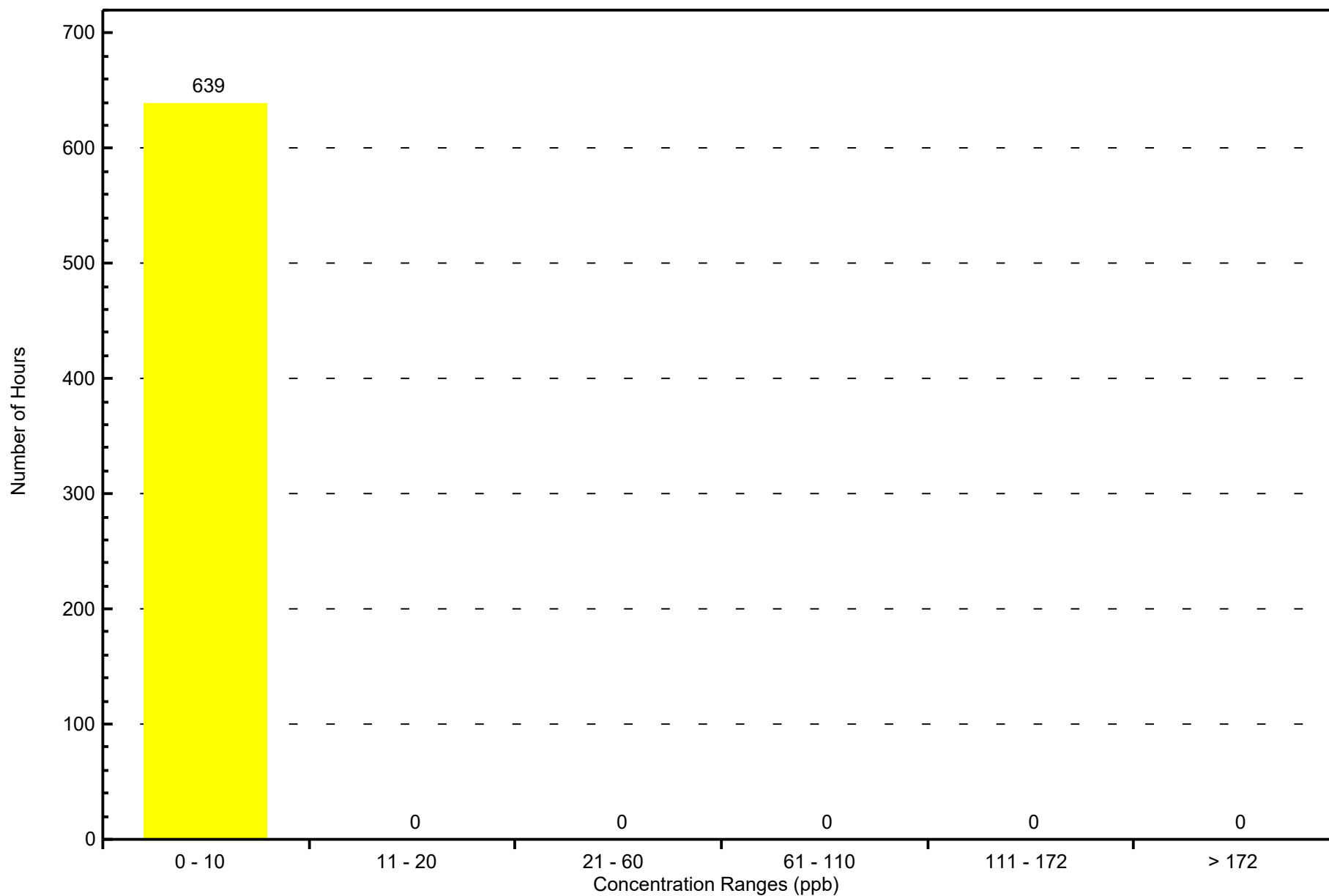
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Valleyview - February 2019



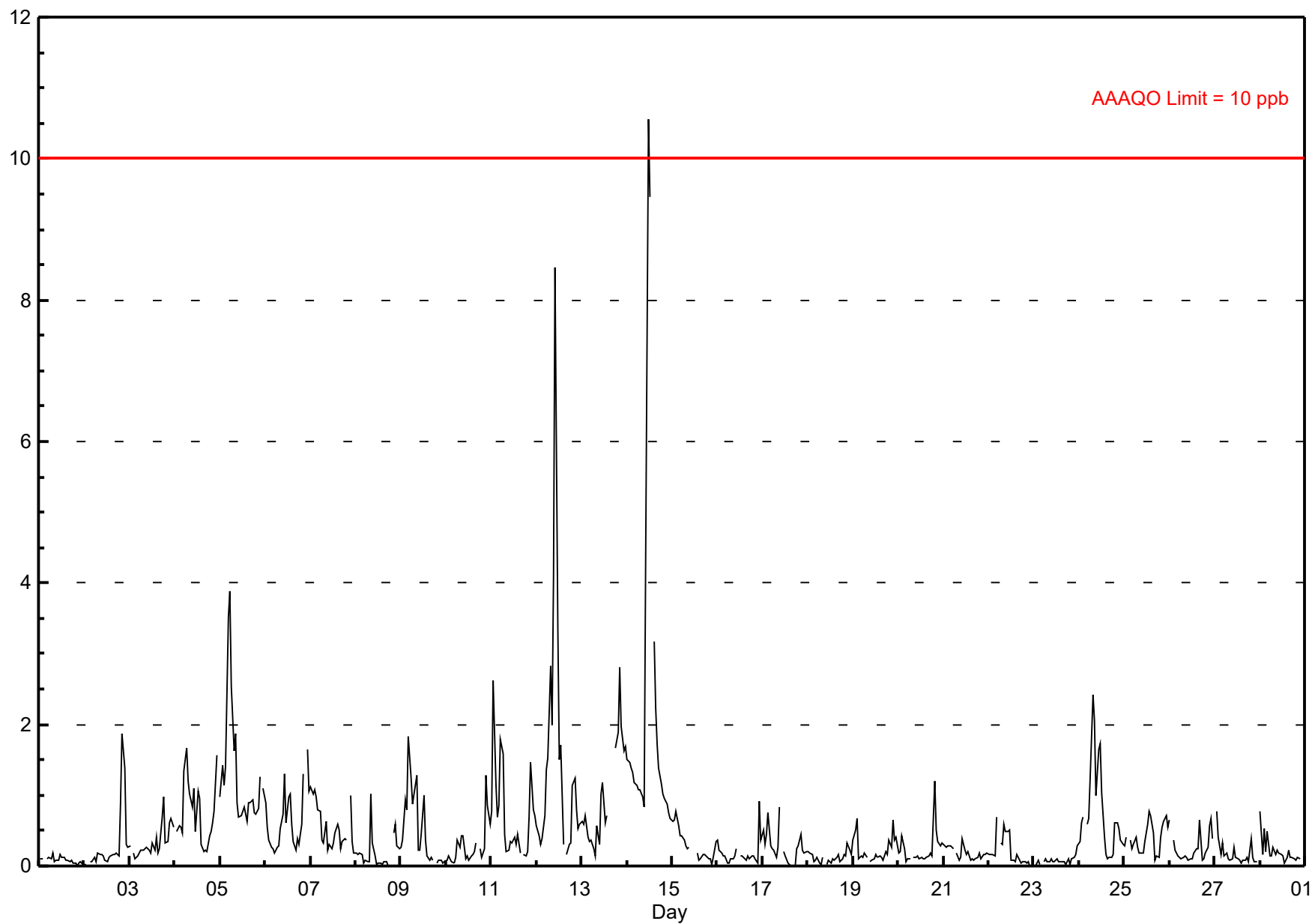
Histogram of Hourly Averages

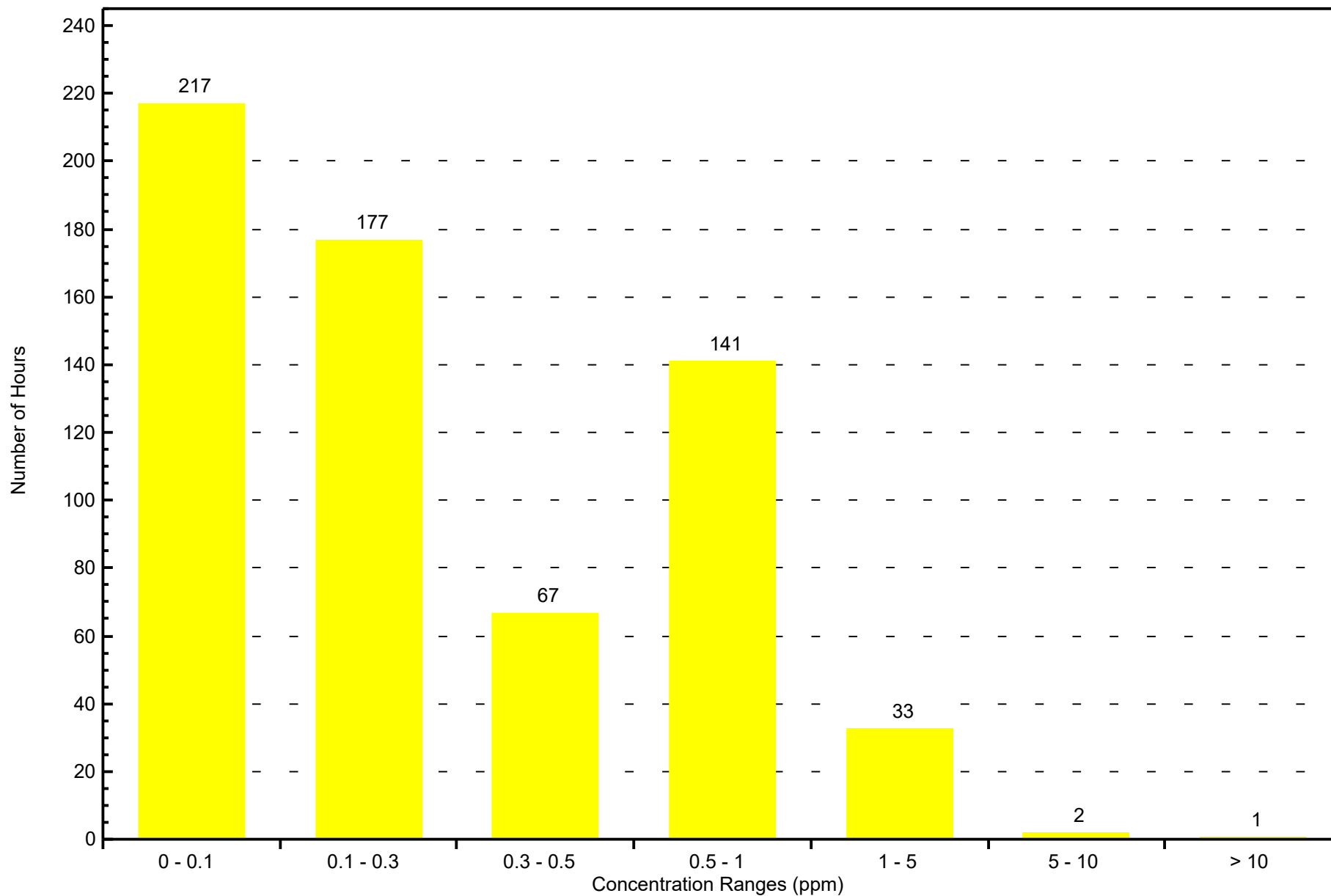
Sulphur Dioxide (SO₂) - ppb
Valleyview - February 2019



Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Valleyview - February 2019

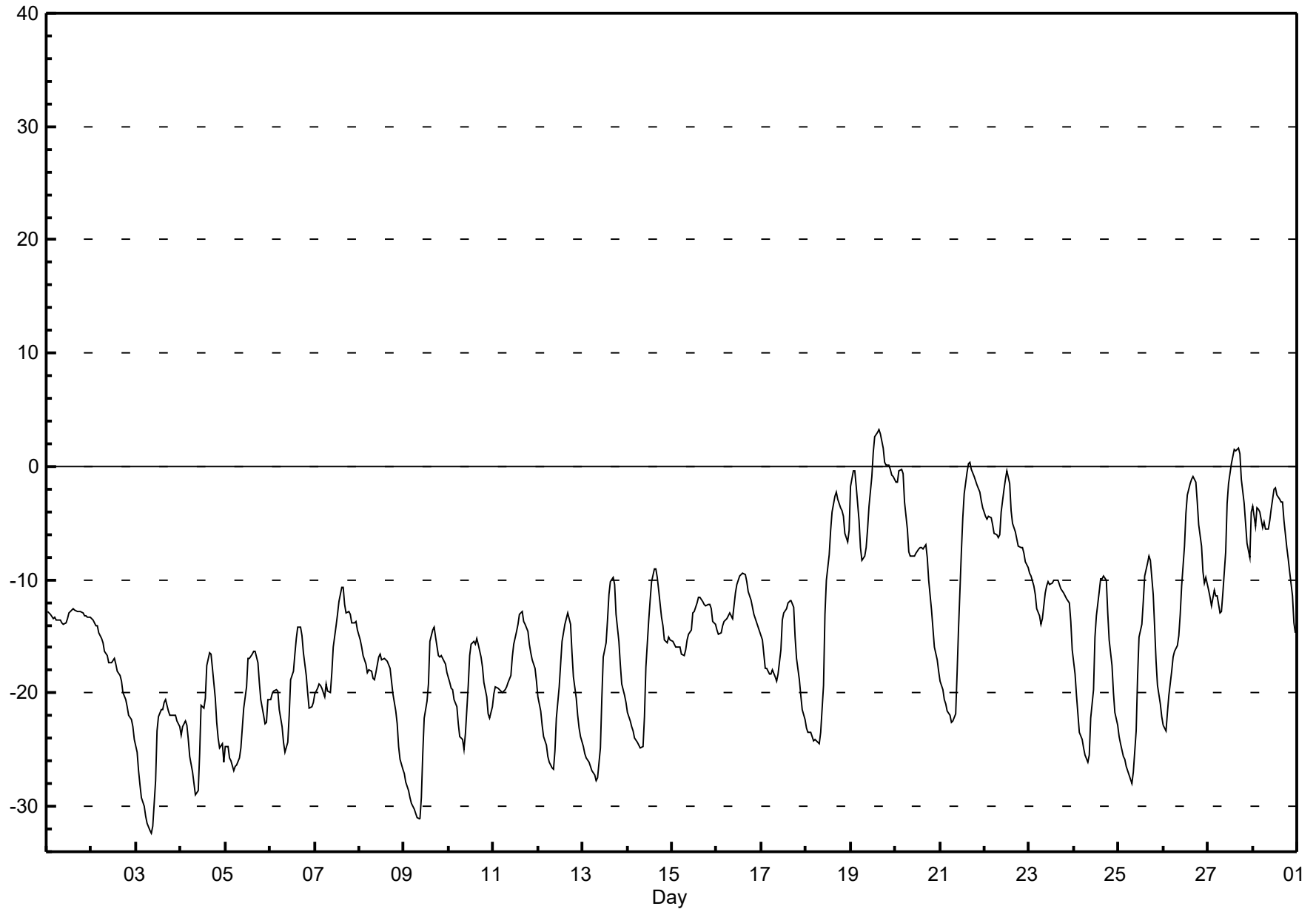




Hourly Averages

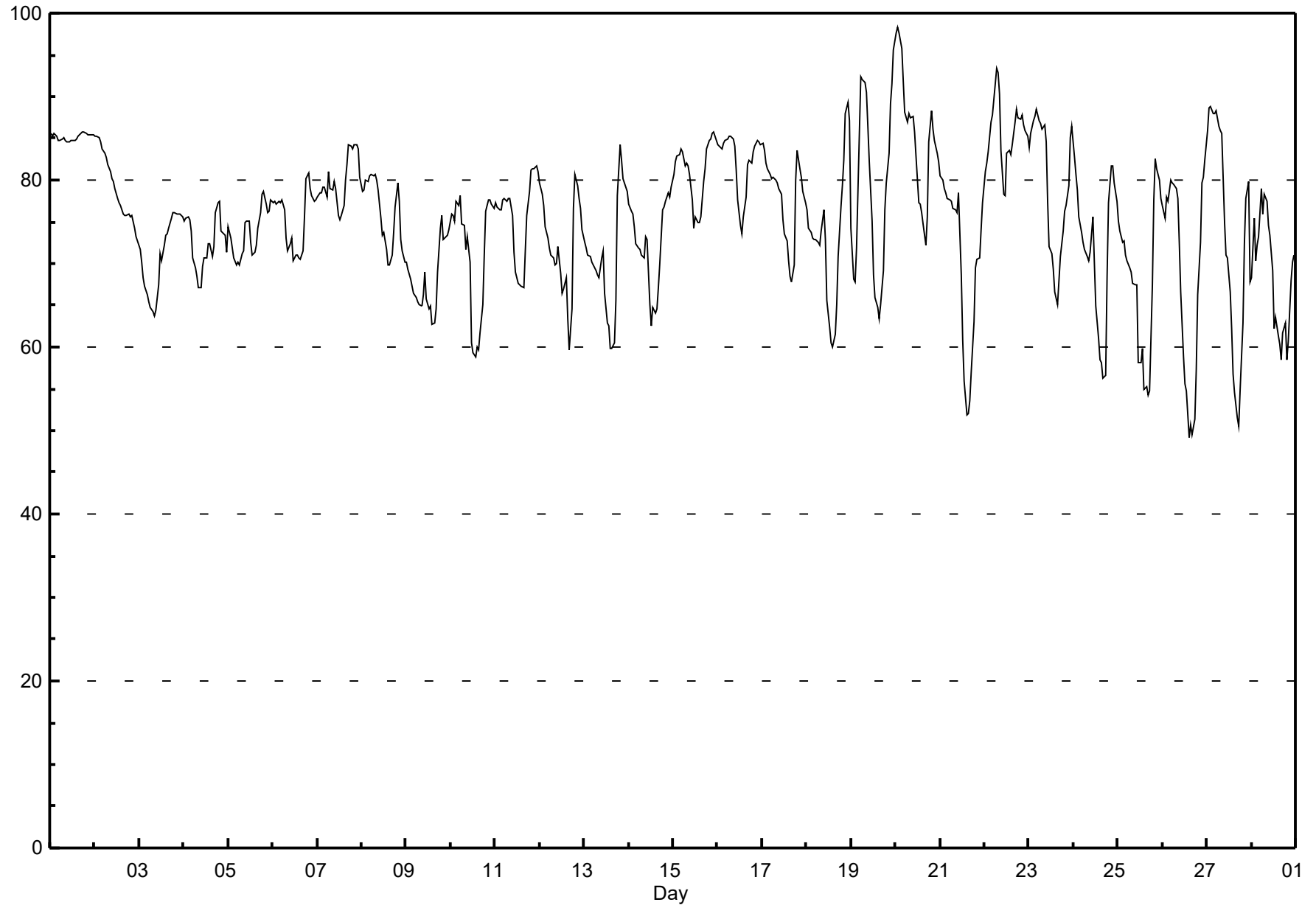
External Temperature (ET) - °C

Valleyview - February 2019



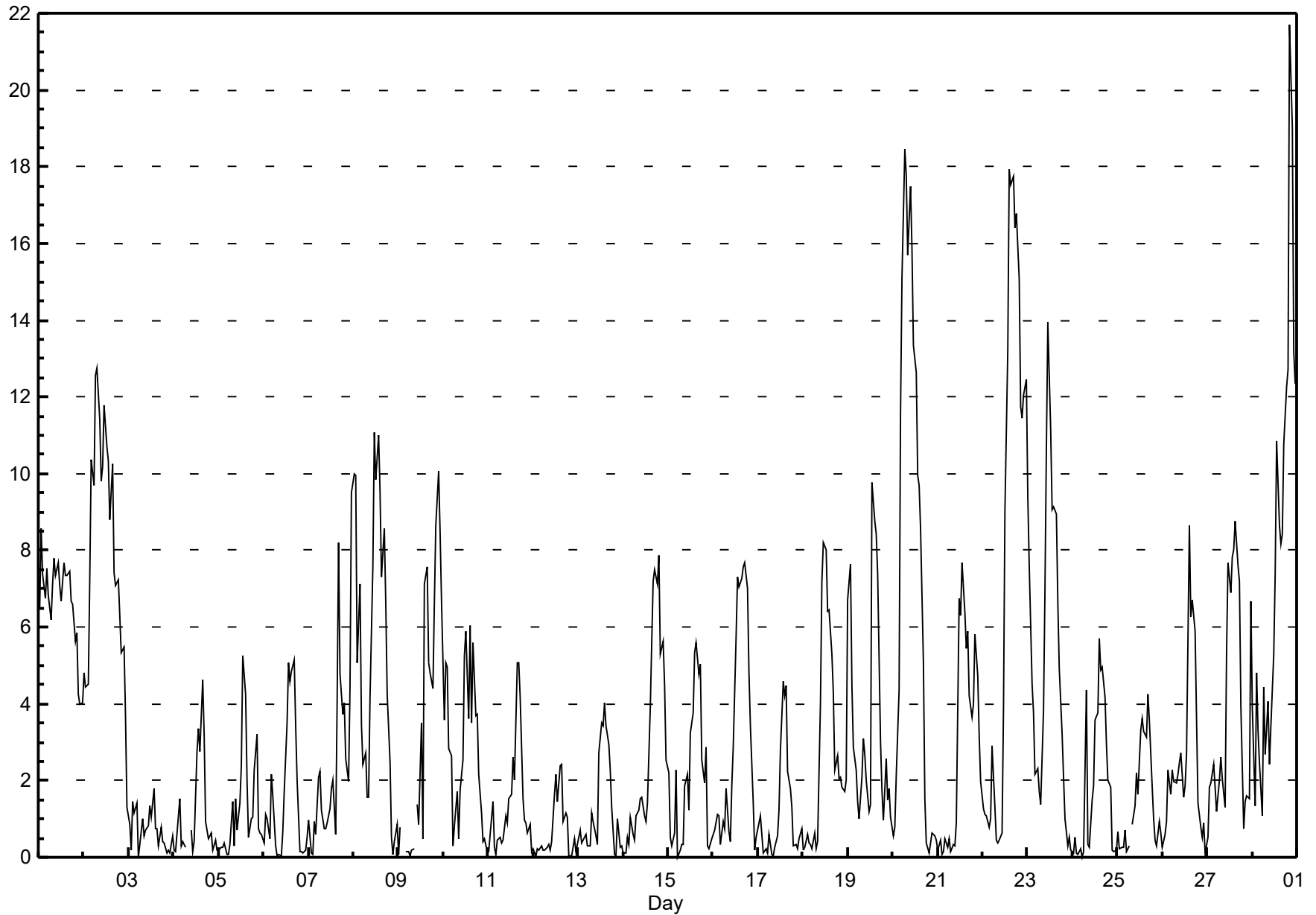
Hourly Averages

Relative Humidity (RH) - %
Valleyview - February 2019



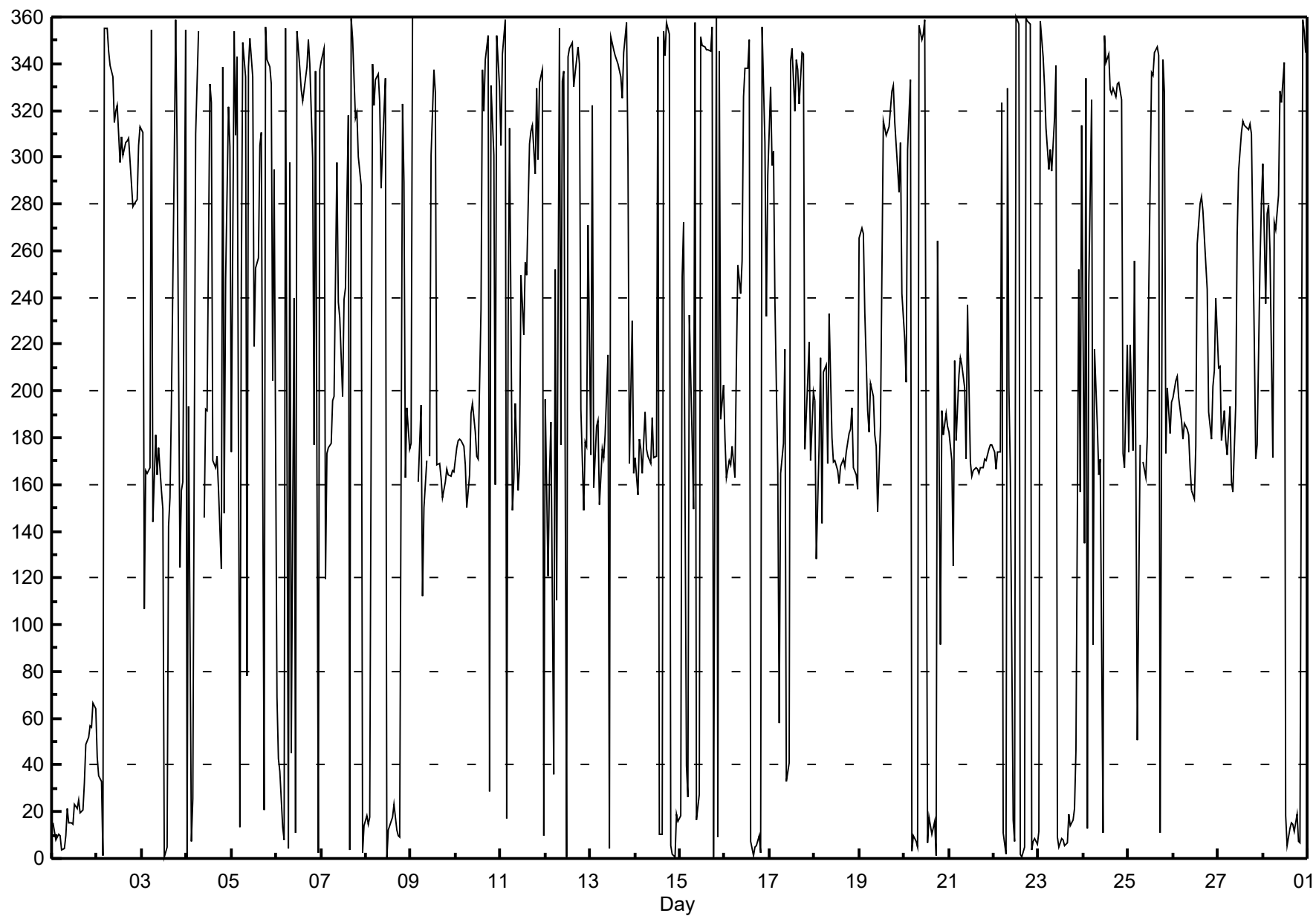
Hourly Averages

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



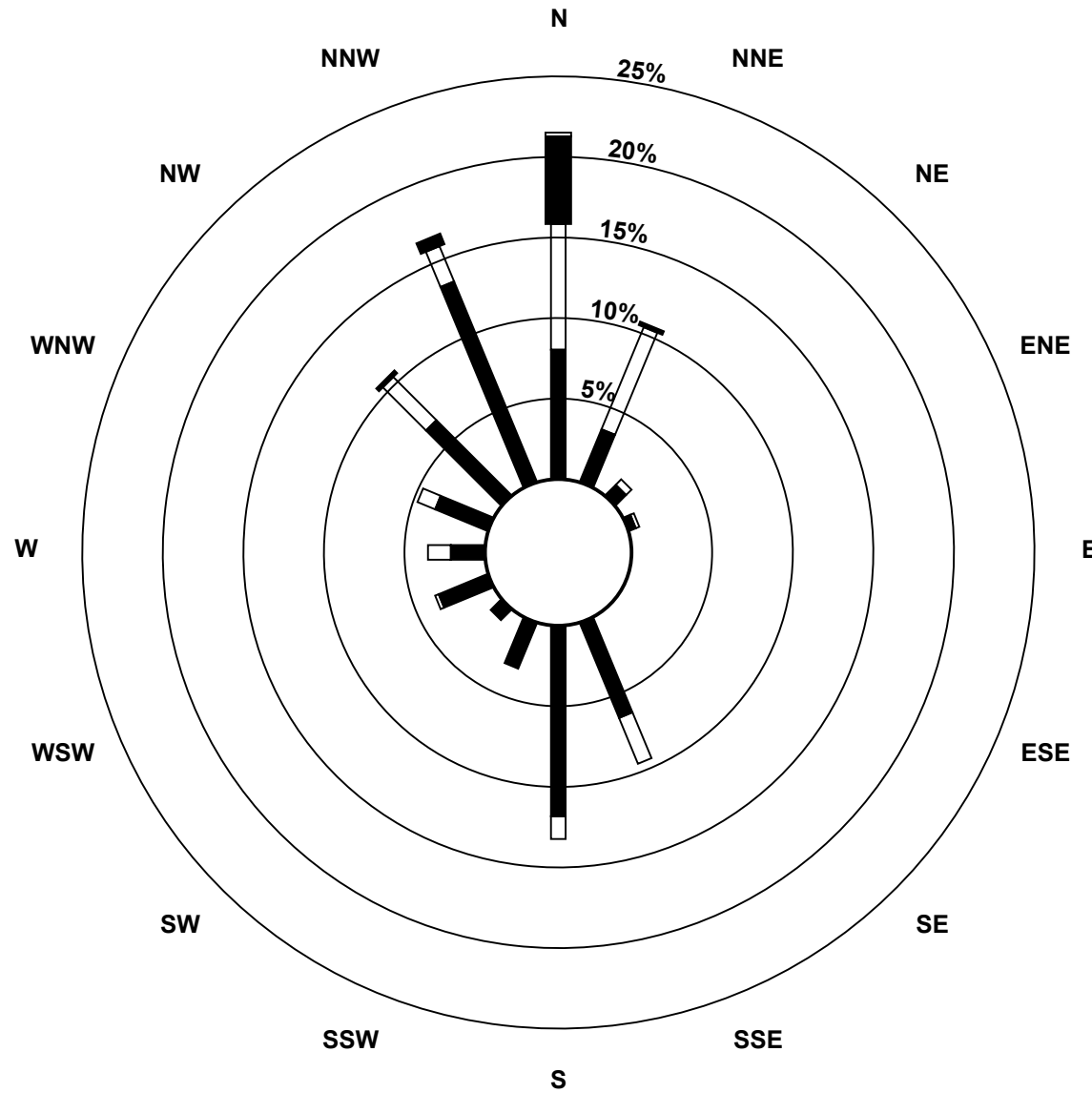
Hourly Averages

Wind Direction (WD) - deg
Valleyview - February 2019

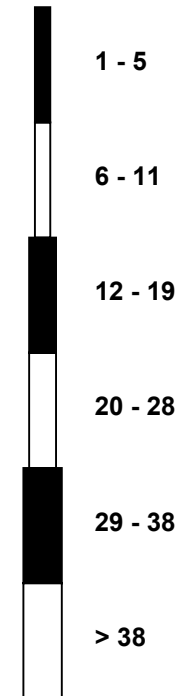


Wind Rose

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



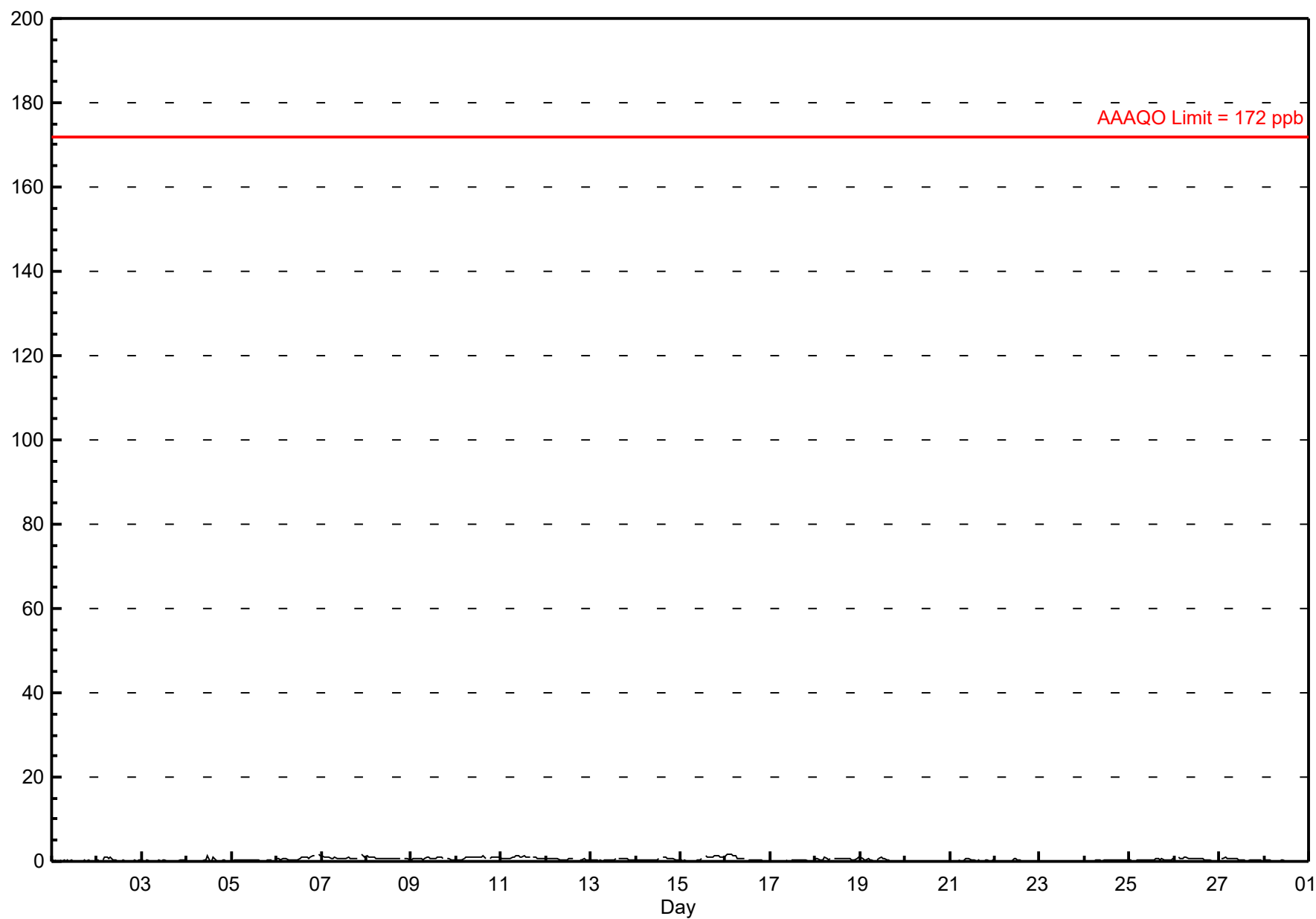
Wind Speed Classes (km/h)



Hourly Averages

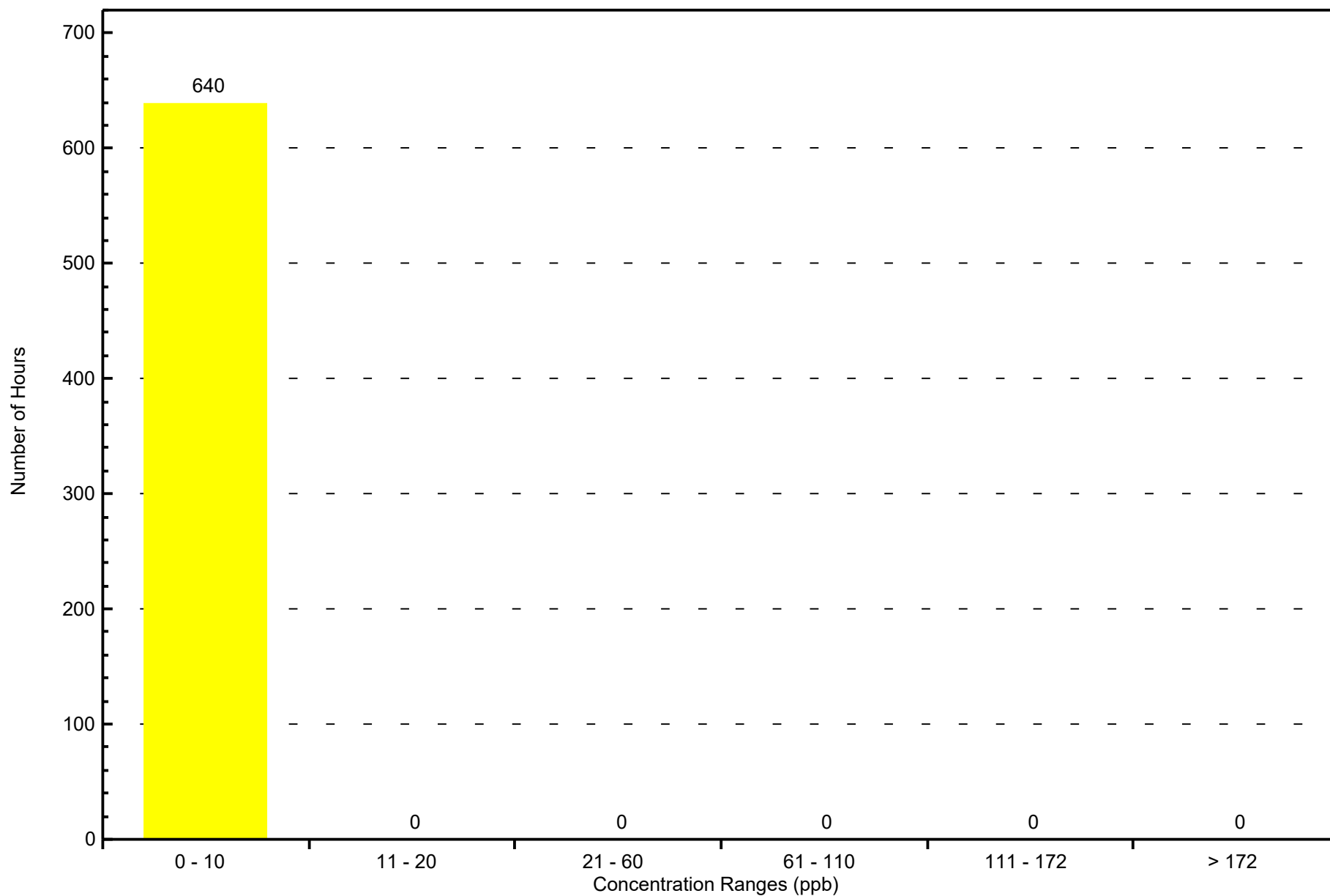
Sulphur Dioxide (SO₂) - ppb

Donnelly - February 2019



Histogram of Hourly Averages

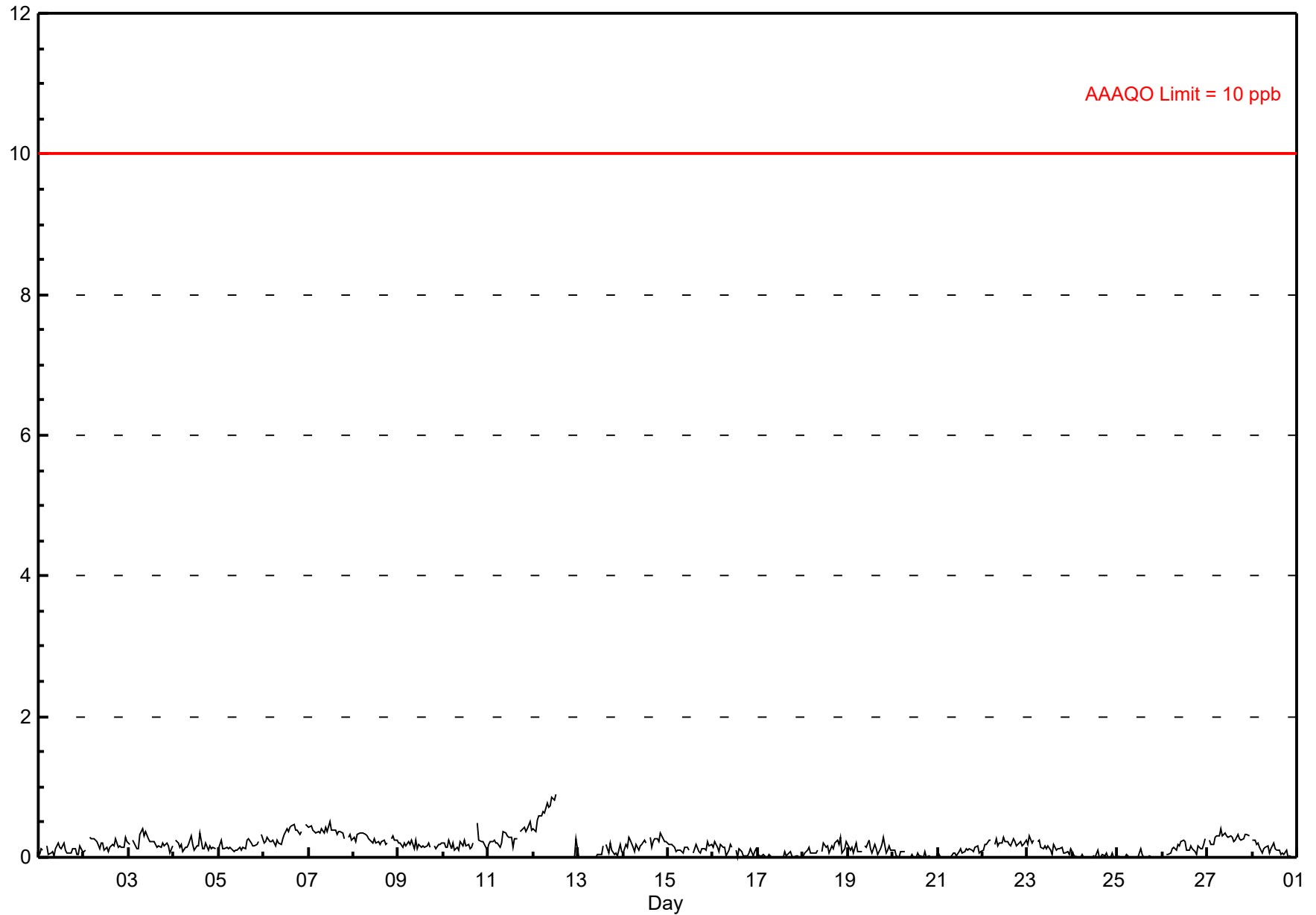
Sulphur Dioxide (SO₂) - ppb
Donnelly - February 2019

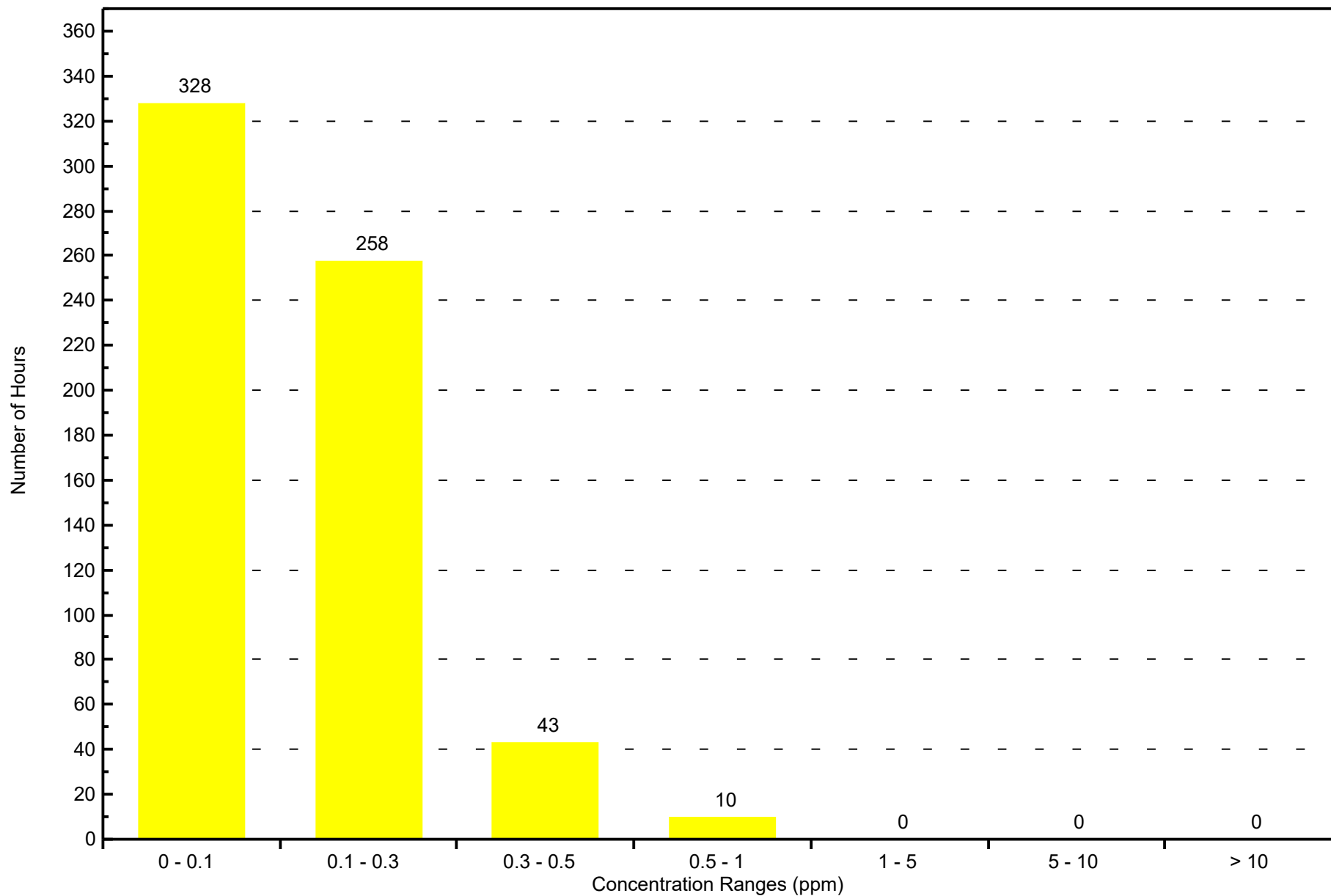


Hourly Averages

Hydrogen Sulphide (H₂S) - ppb

Donnelly - February 2019

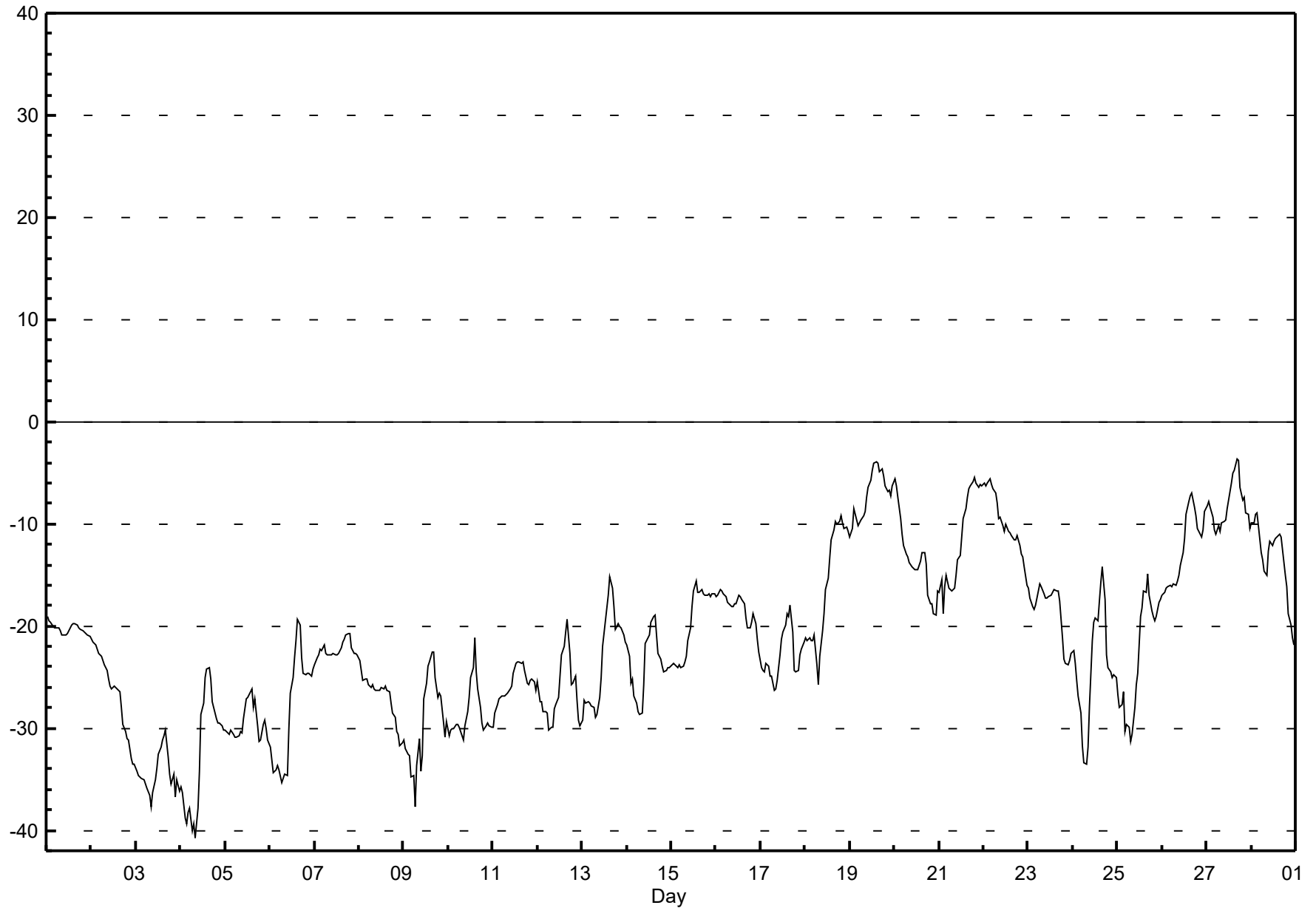




Hourly Averages

External Temperature (ET) - °C

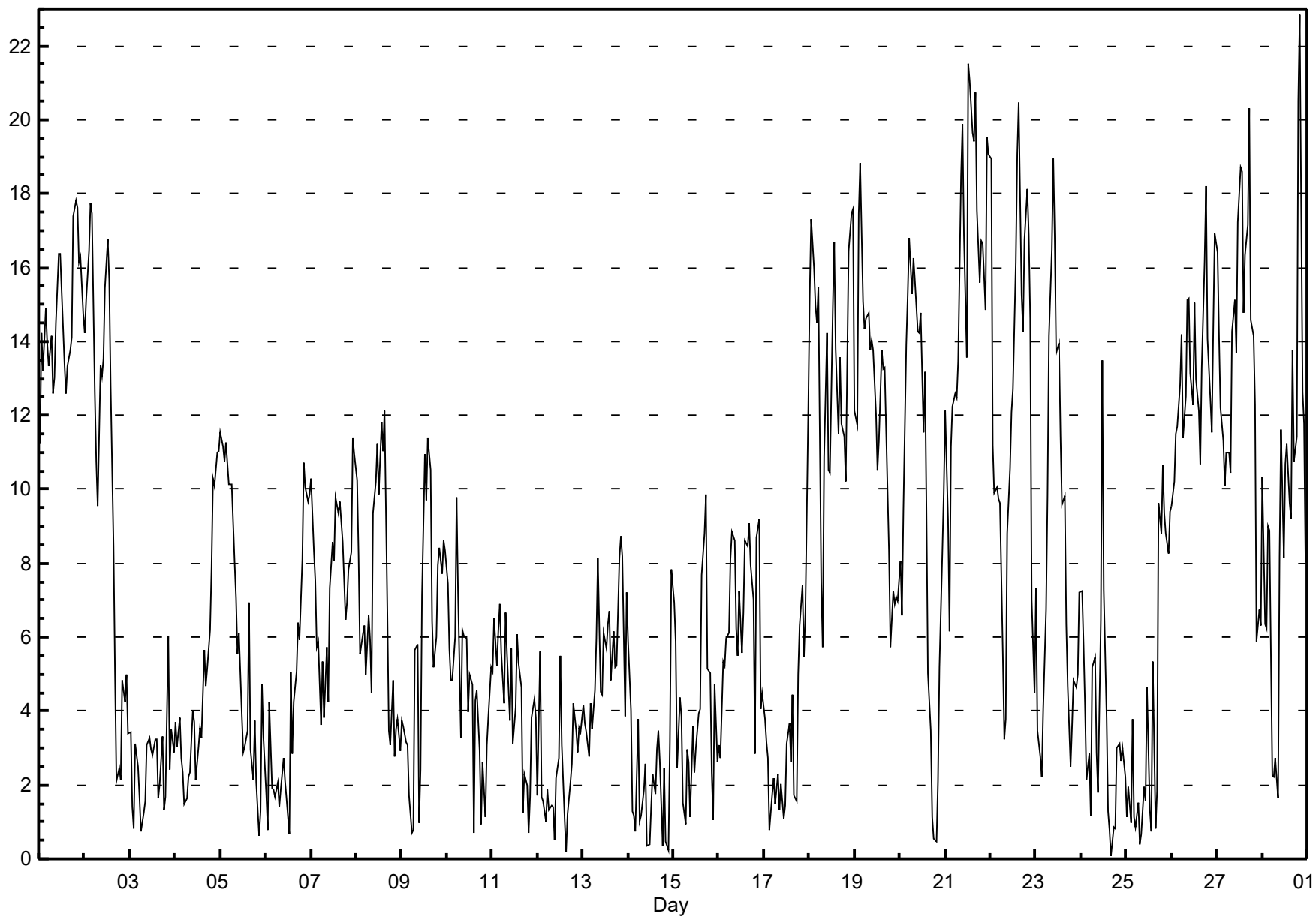
Donnelly - February 2019



Hourly Averages

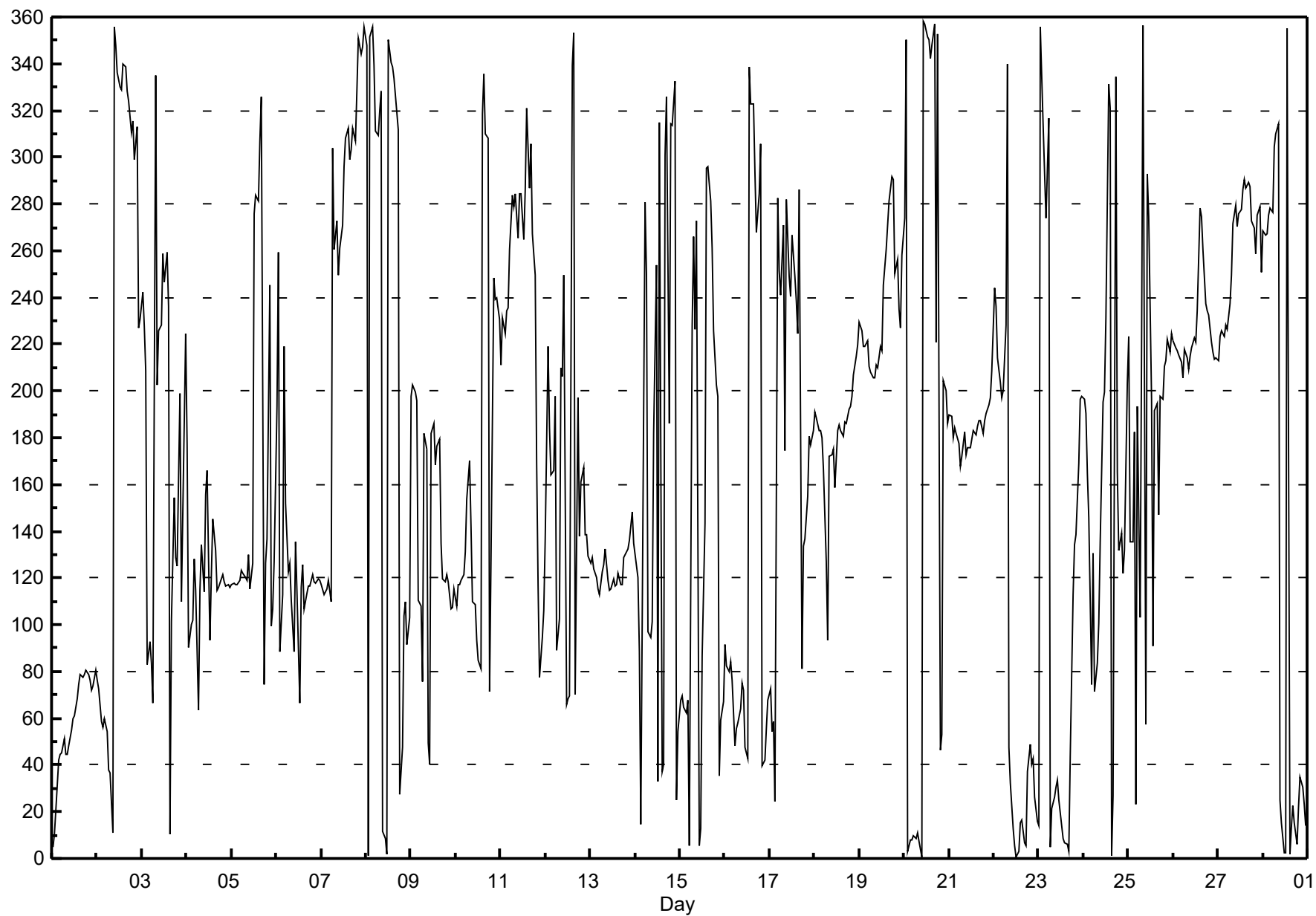
Wind Speed (WS) - km/h

Donnelly - February 2019



Hourly Averages

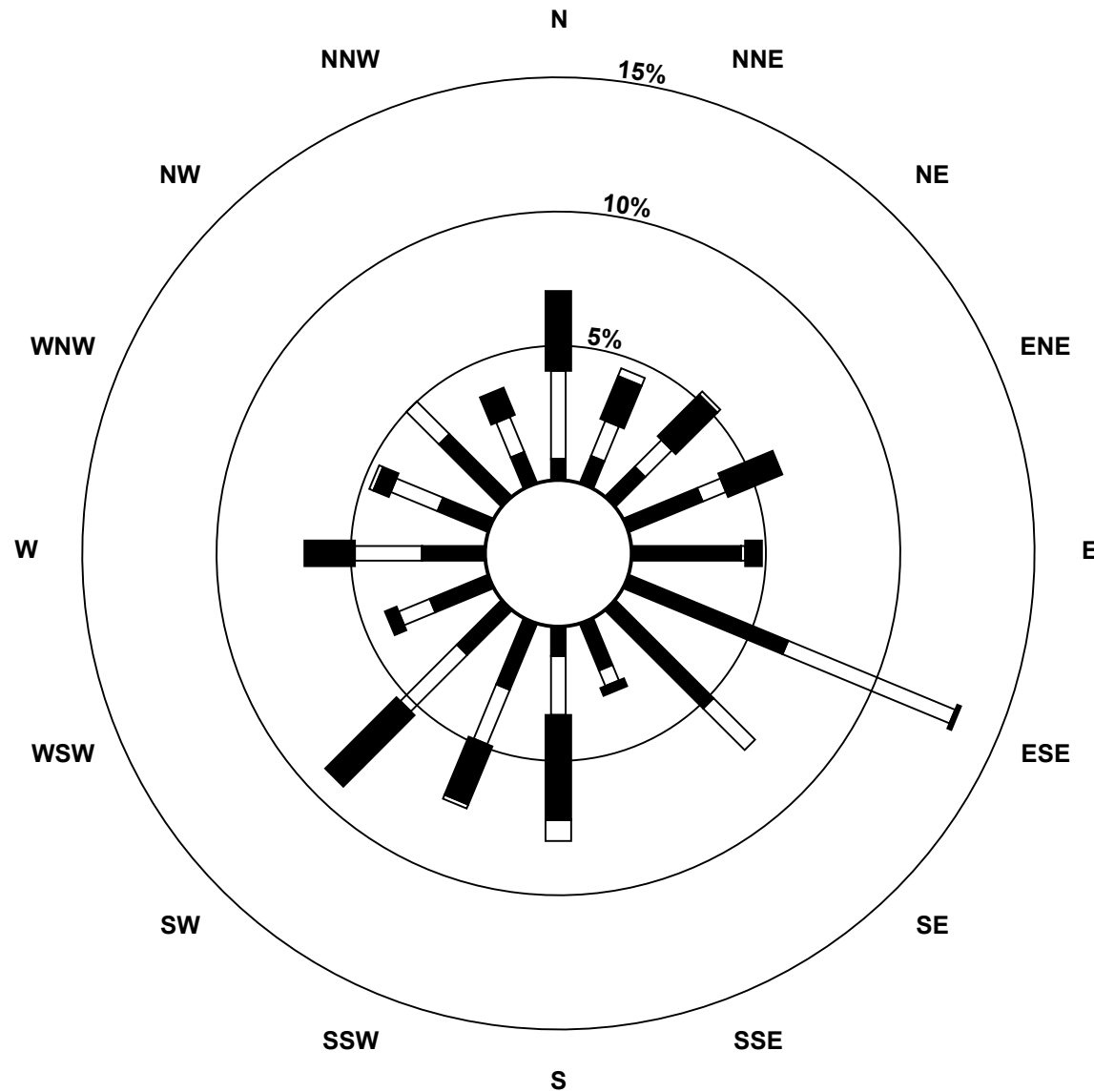
Wind Direction (WD) - deg
Donnelly - February 2019



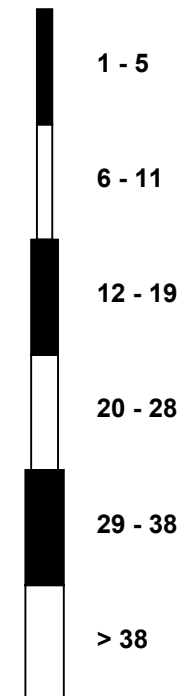
Wind Rose

Wind Speed (WS) (km/h)

Donnelly - February 2019

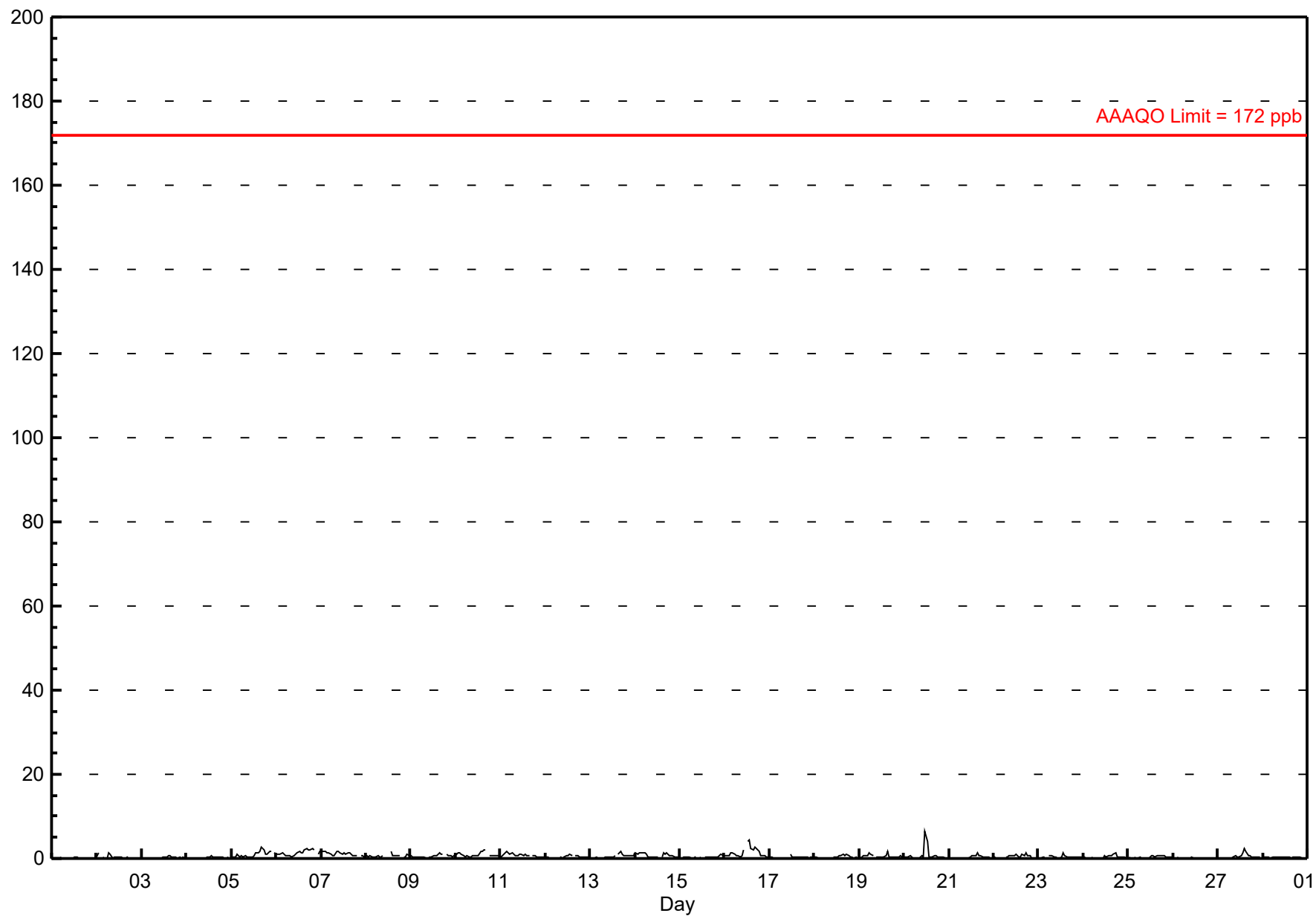


Wind Speed Classes (km/h)



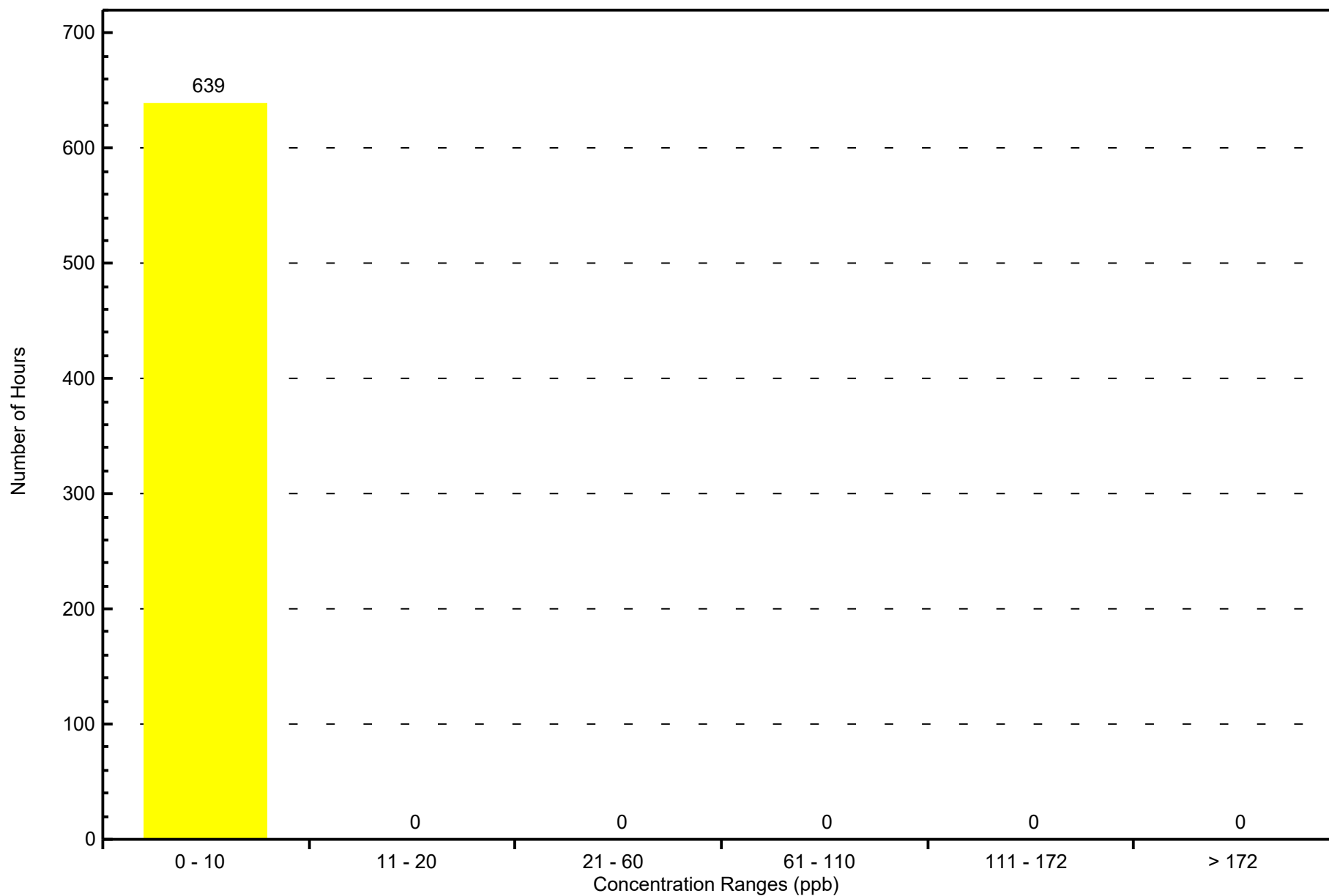
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wembley - February 2019



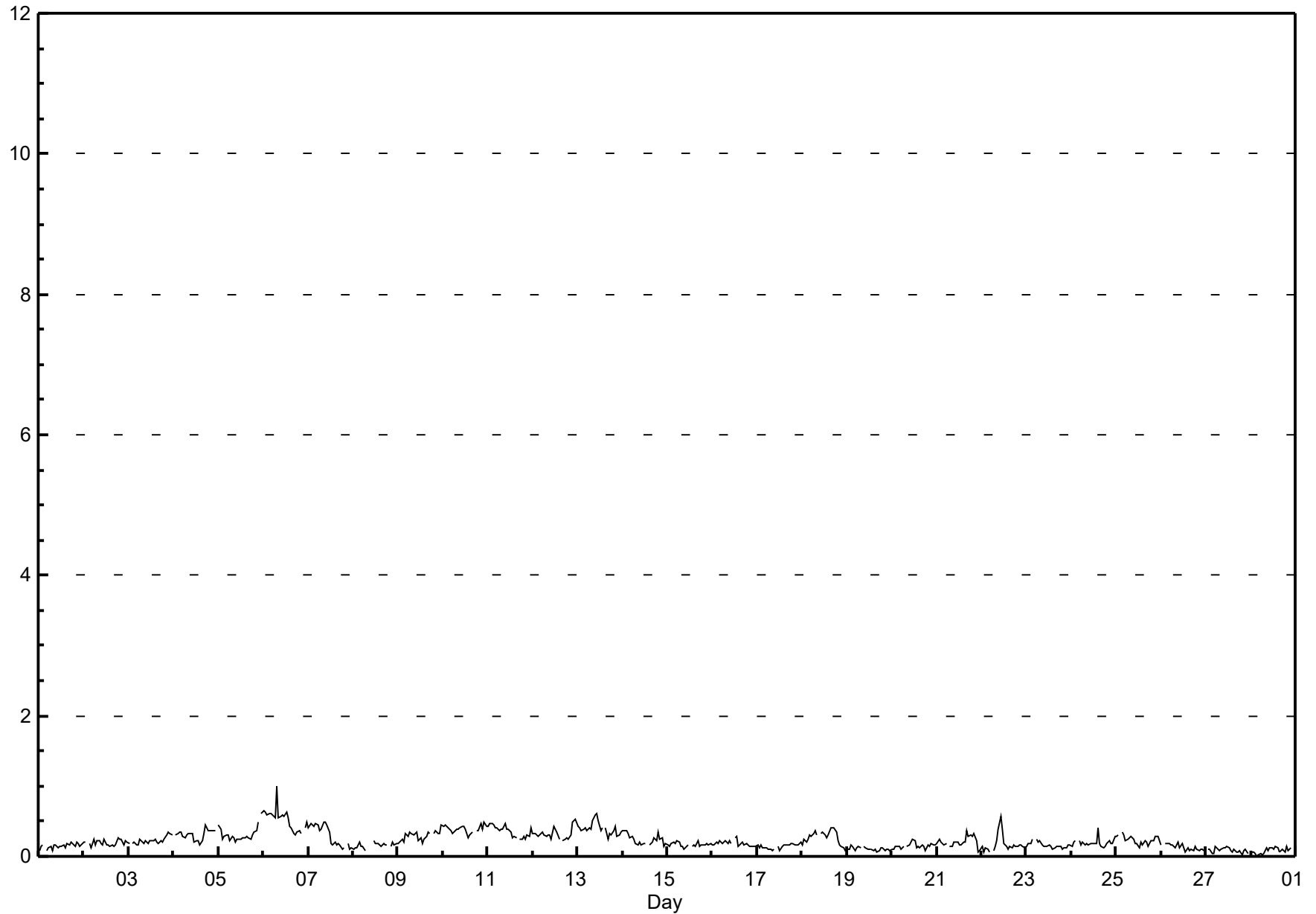
Histogram of Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wembley - February 2019



Hourly Averages

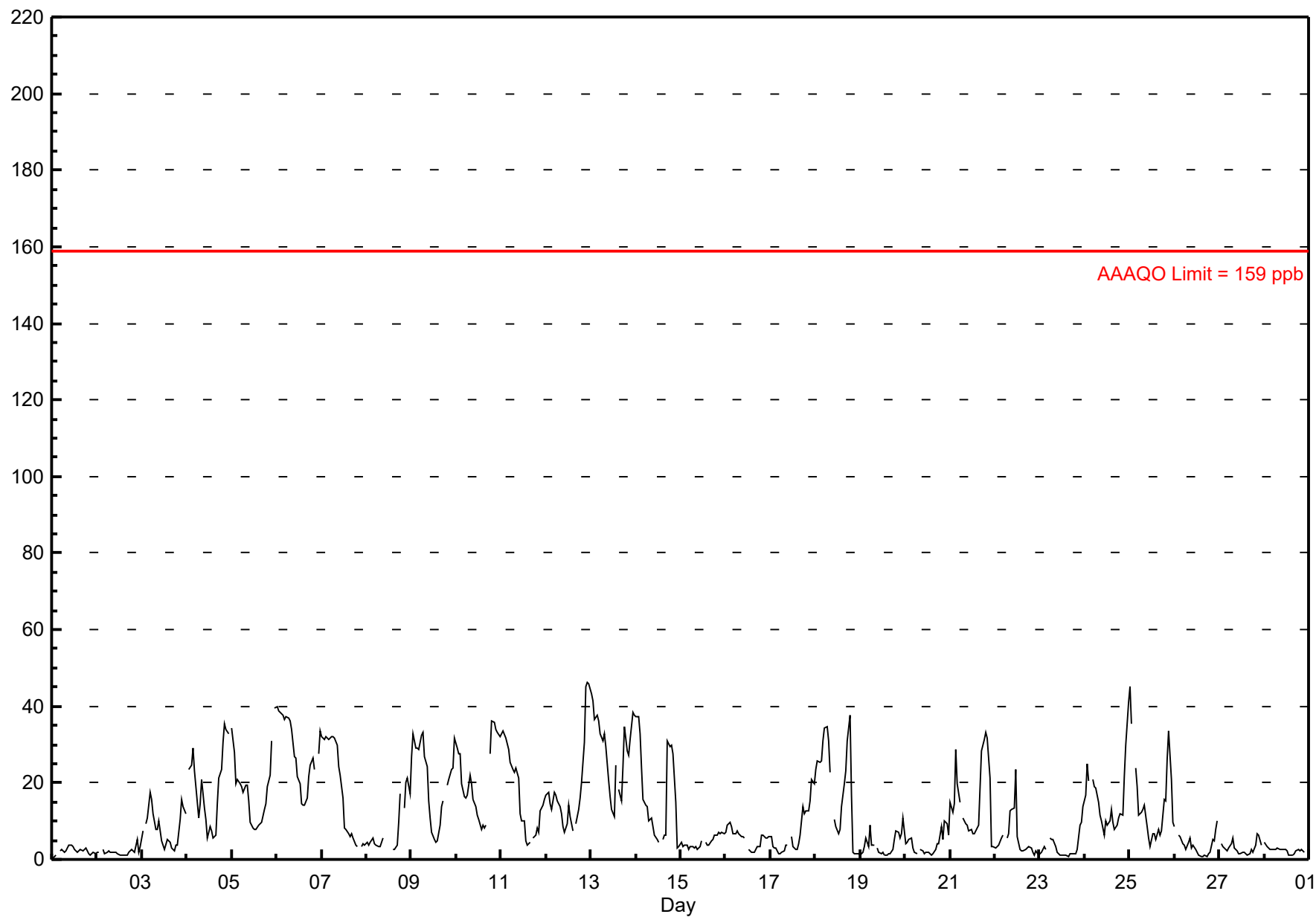
Total Reduced Sulphur (TRS) - ppb
Wembley - February 2019



Hourly Averages

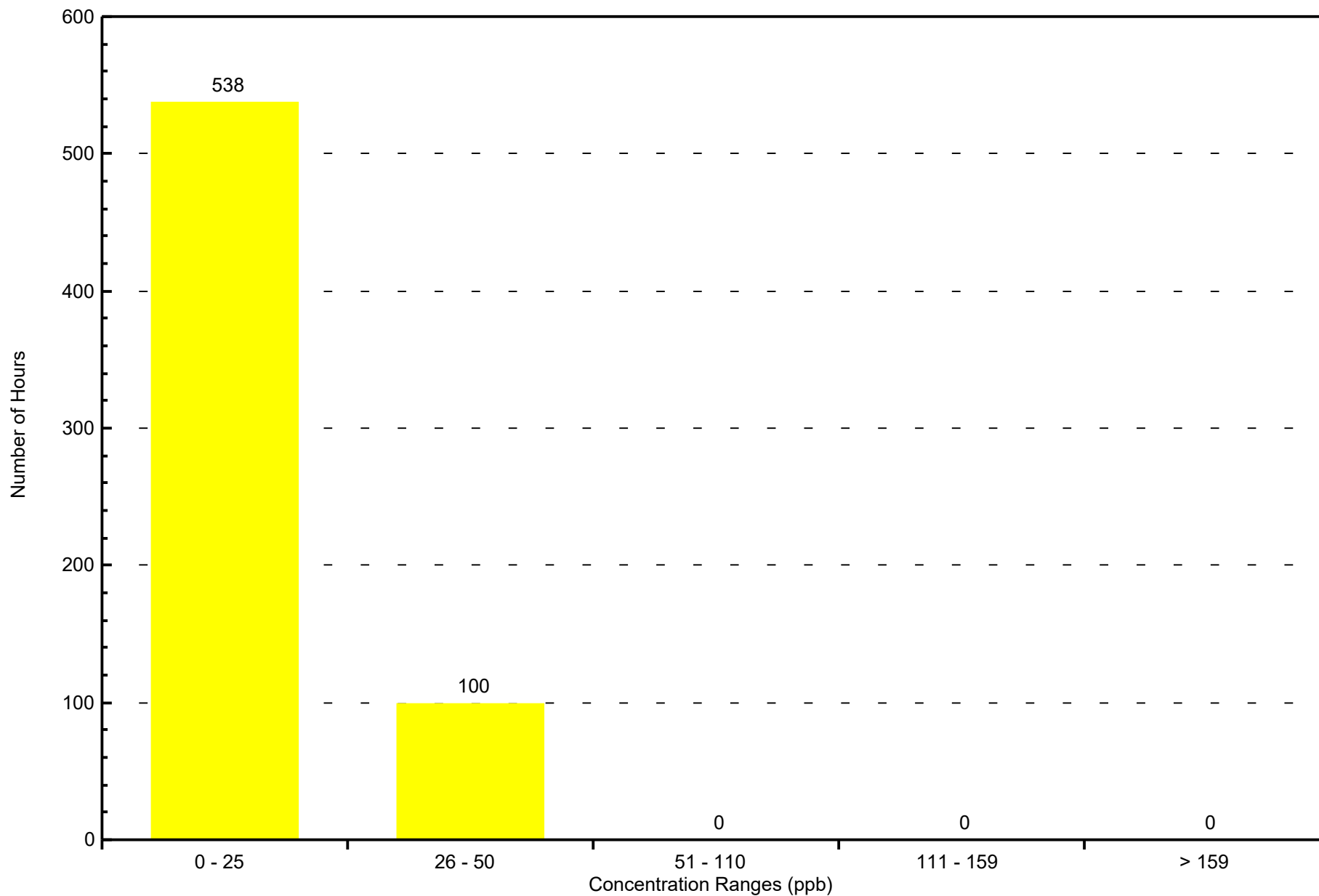
Nitrogen Dioxide (NO₂) - ppb

Wembley - February 2019



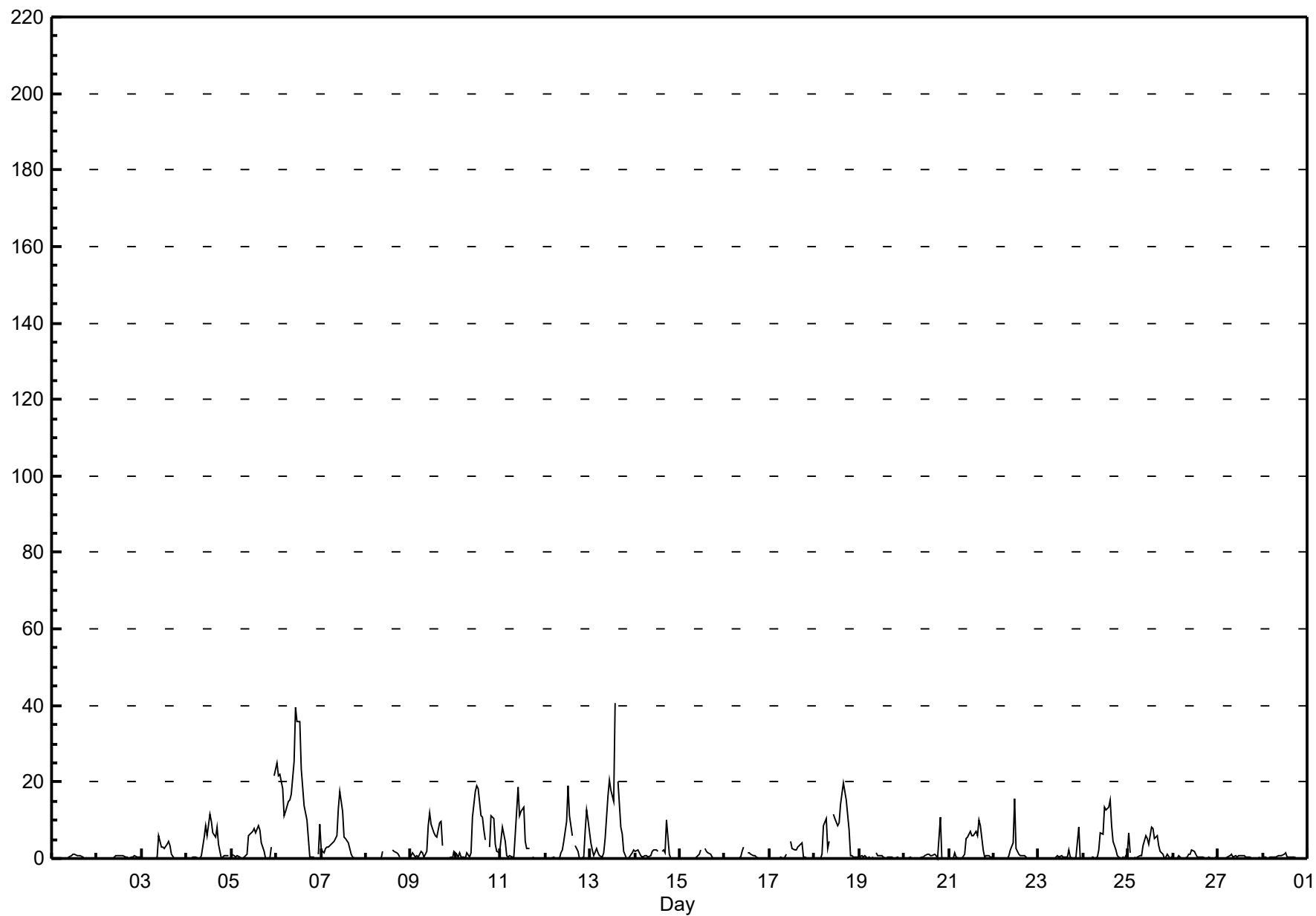
Histogram of Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Wembley - February 2019



Hourly Averages

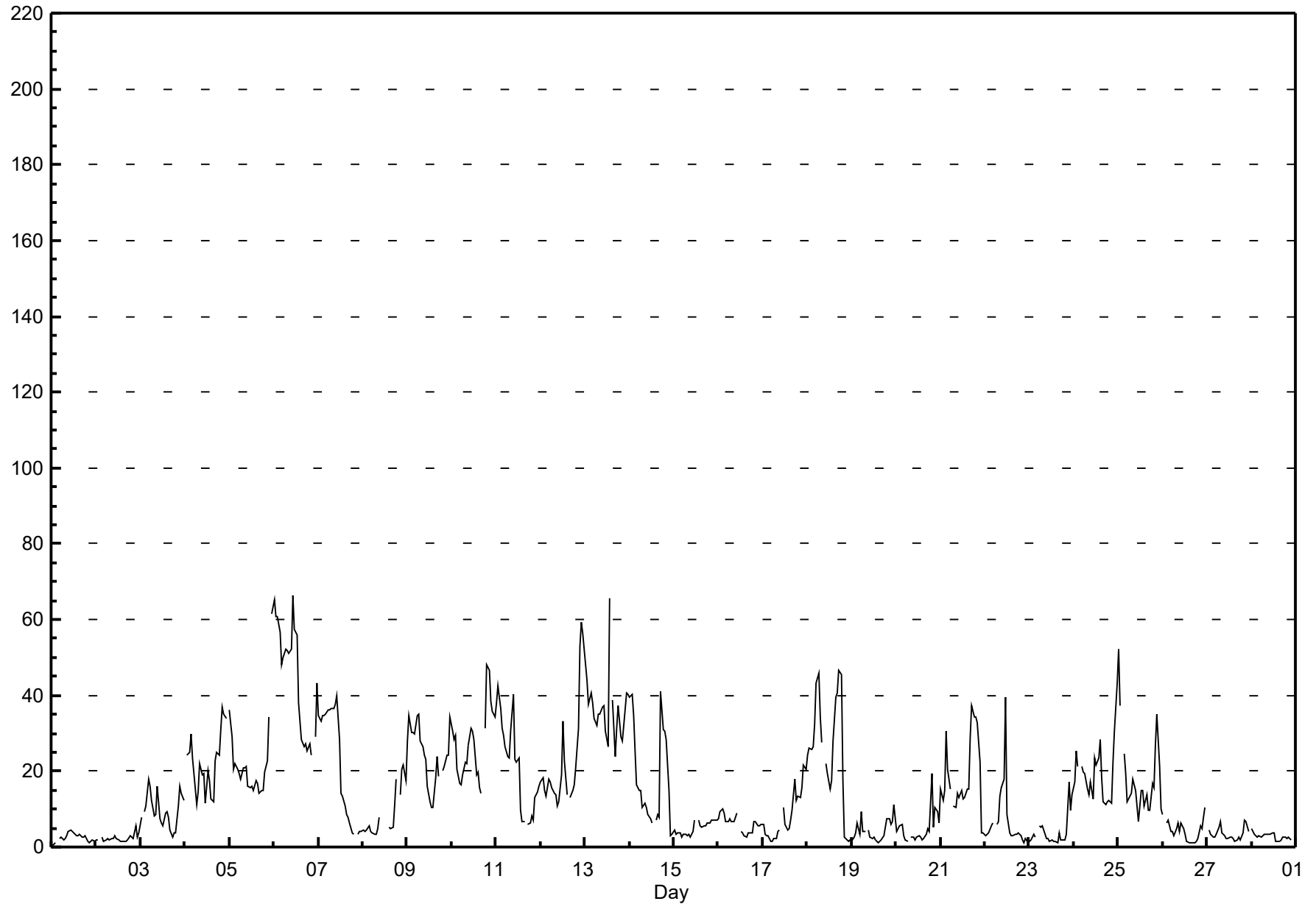
Nitrogen Oxide (NO) - ppb
Wembley - February 2019



Hourly Averages

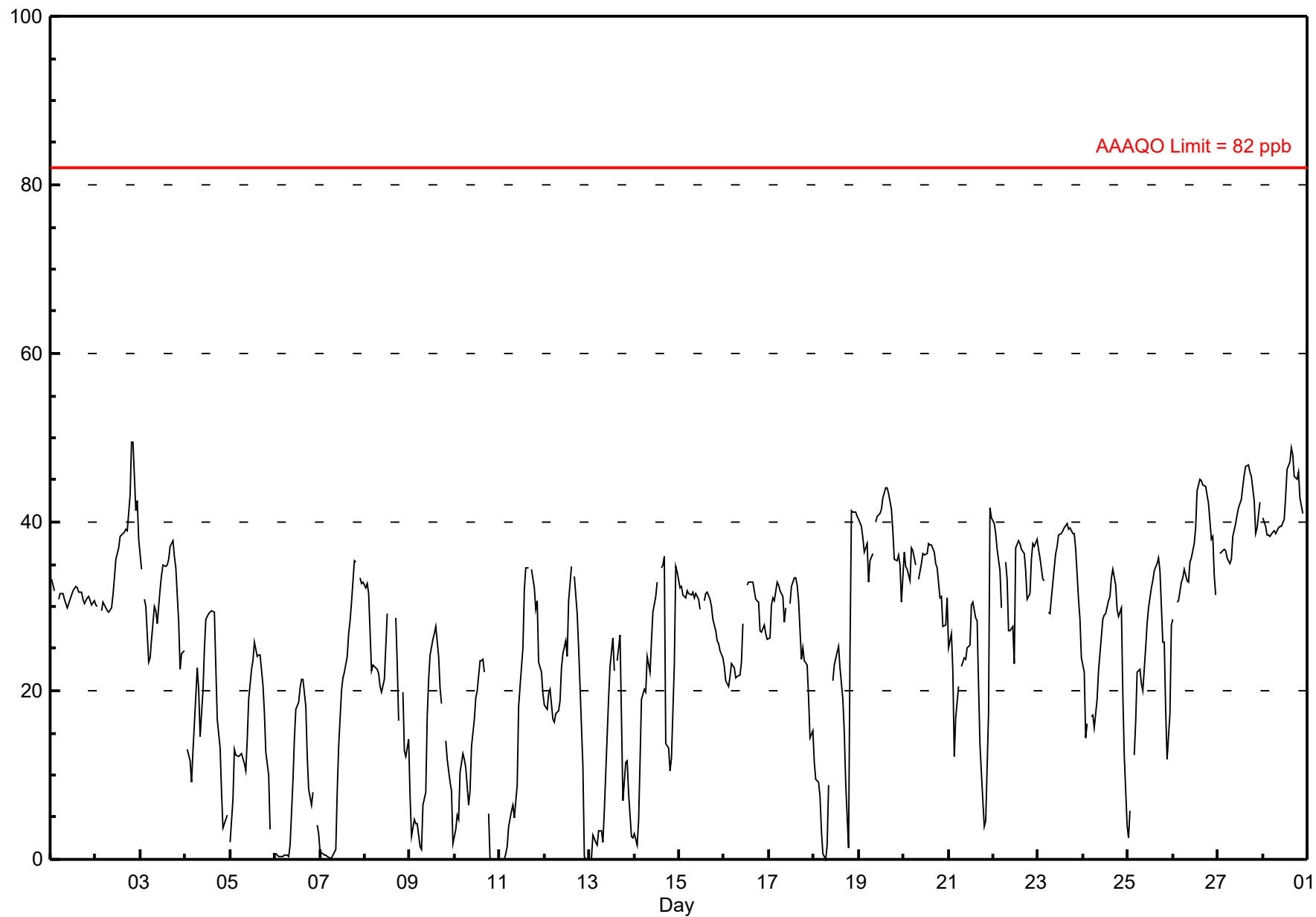
Oxides of Nitrogen (NO_x) - ppb

Wembley - February 2019



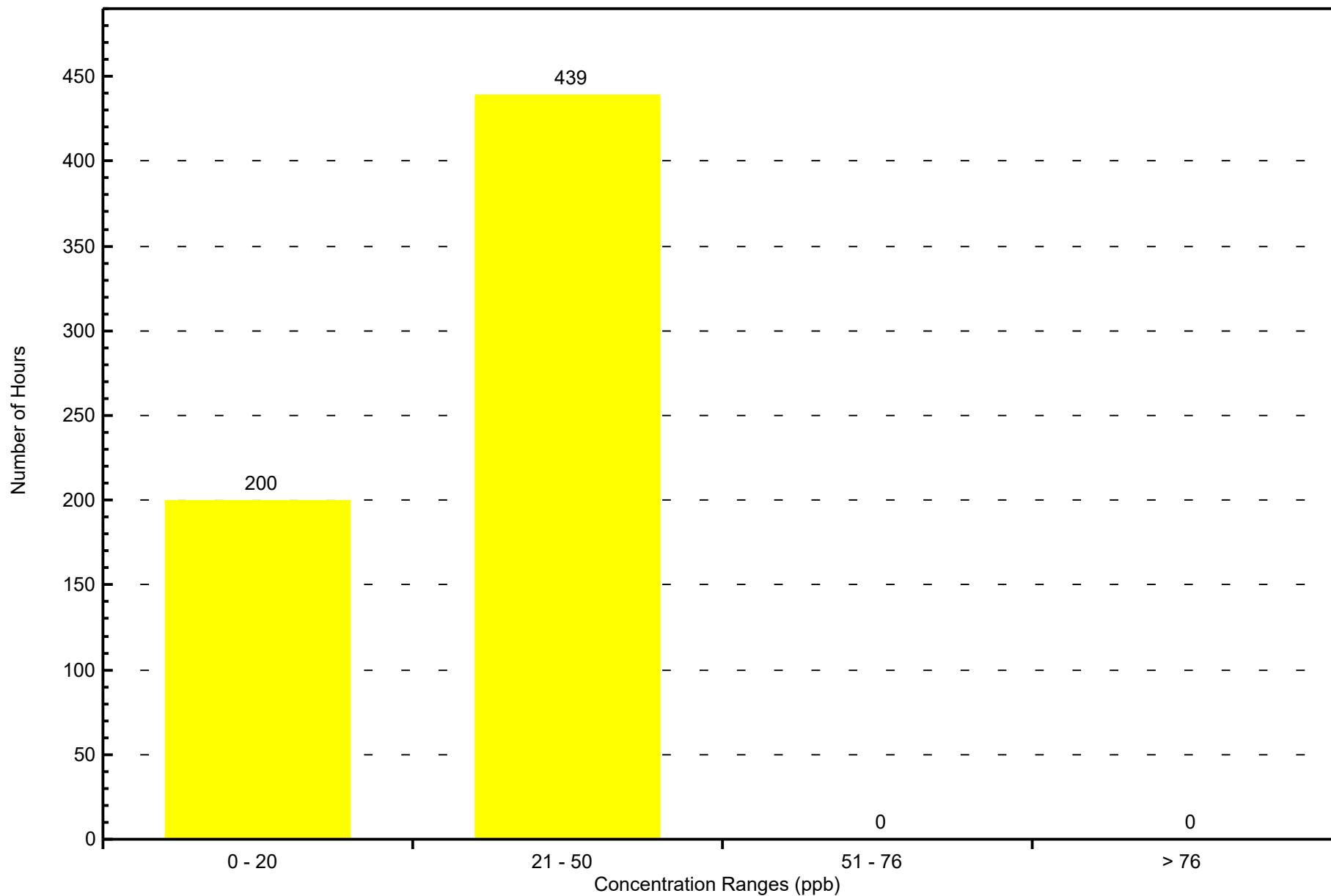
Hourly Averages

Ozone (O₃) - ppb
Wembley - February 2019



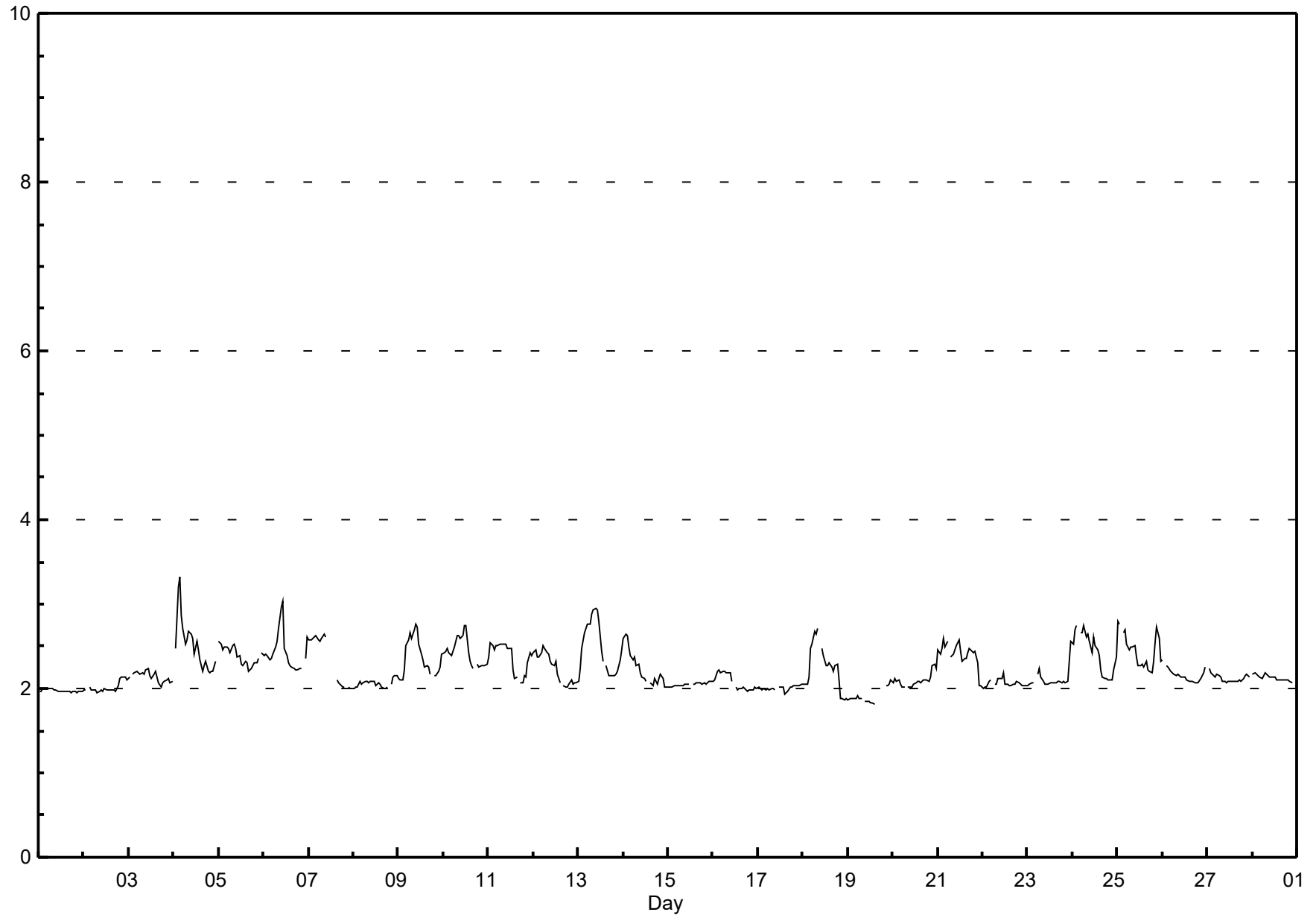
Histogram of Hourly Averages

Ozone (O₃) - ppb
Wembley - February 2019



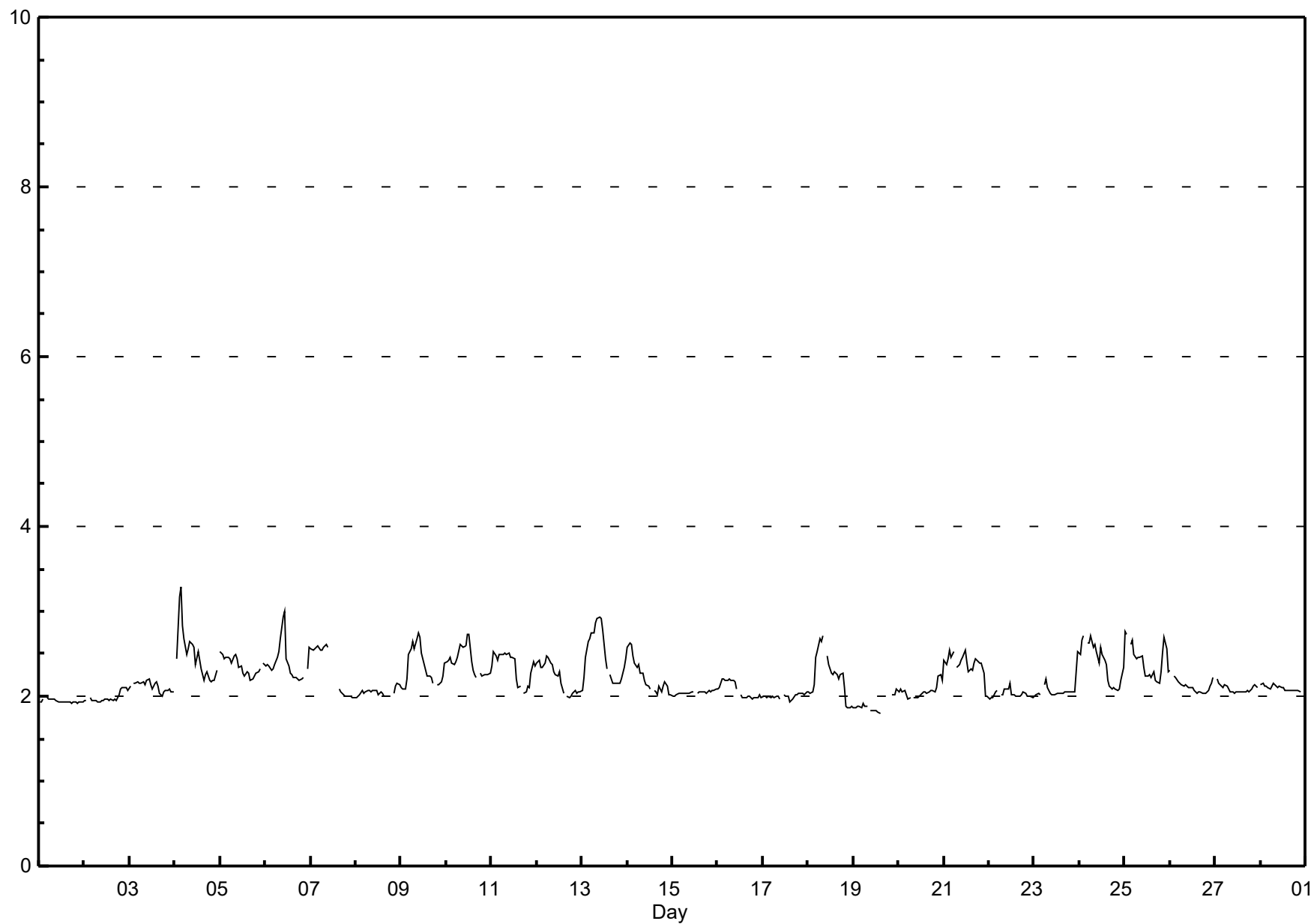
Hourly Averages

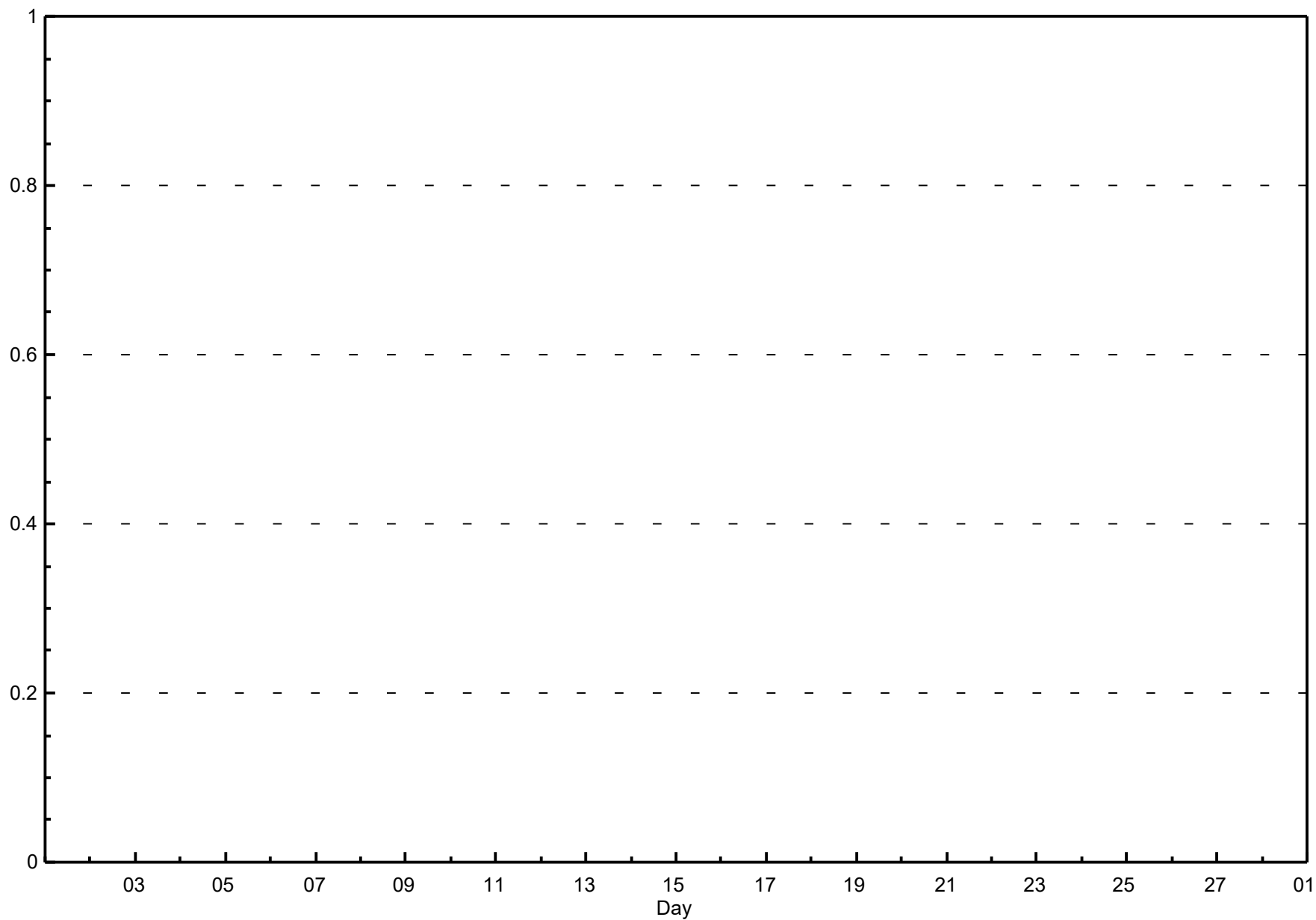
Total Hydrocarbons (THC) - ppm
Wembley - February 2019



Hourly Averages

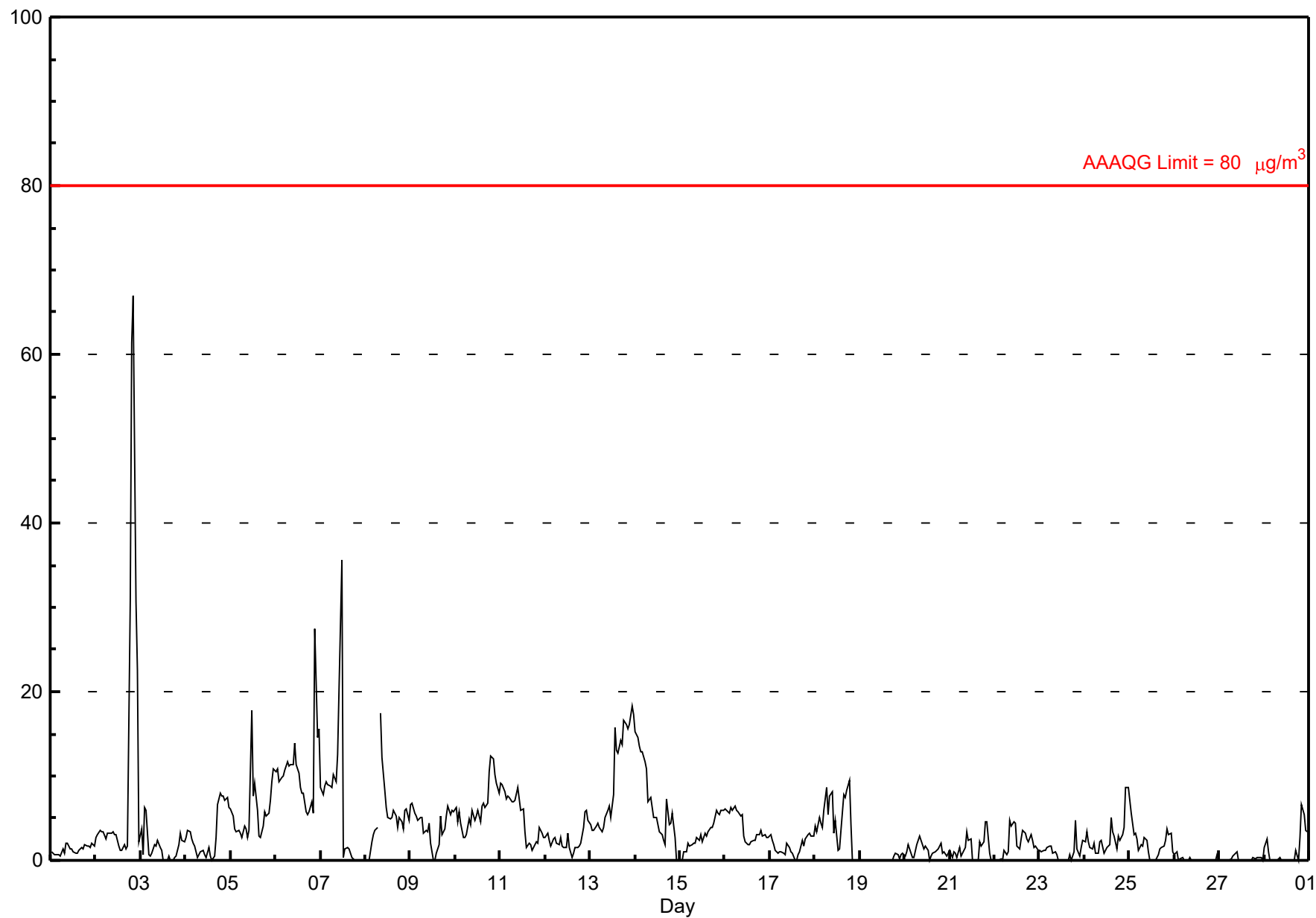
Methane (CH₄) - ppm
Wembley - February 2019





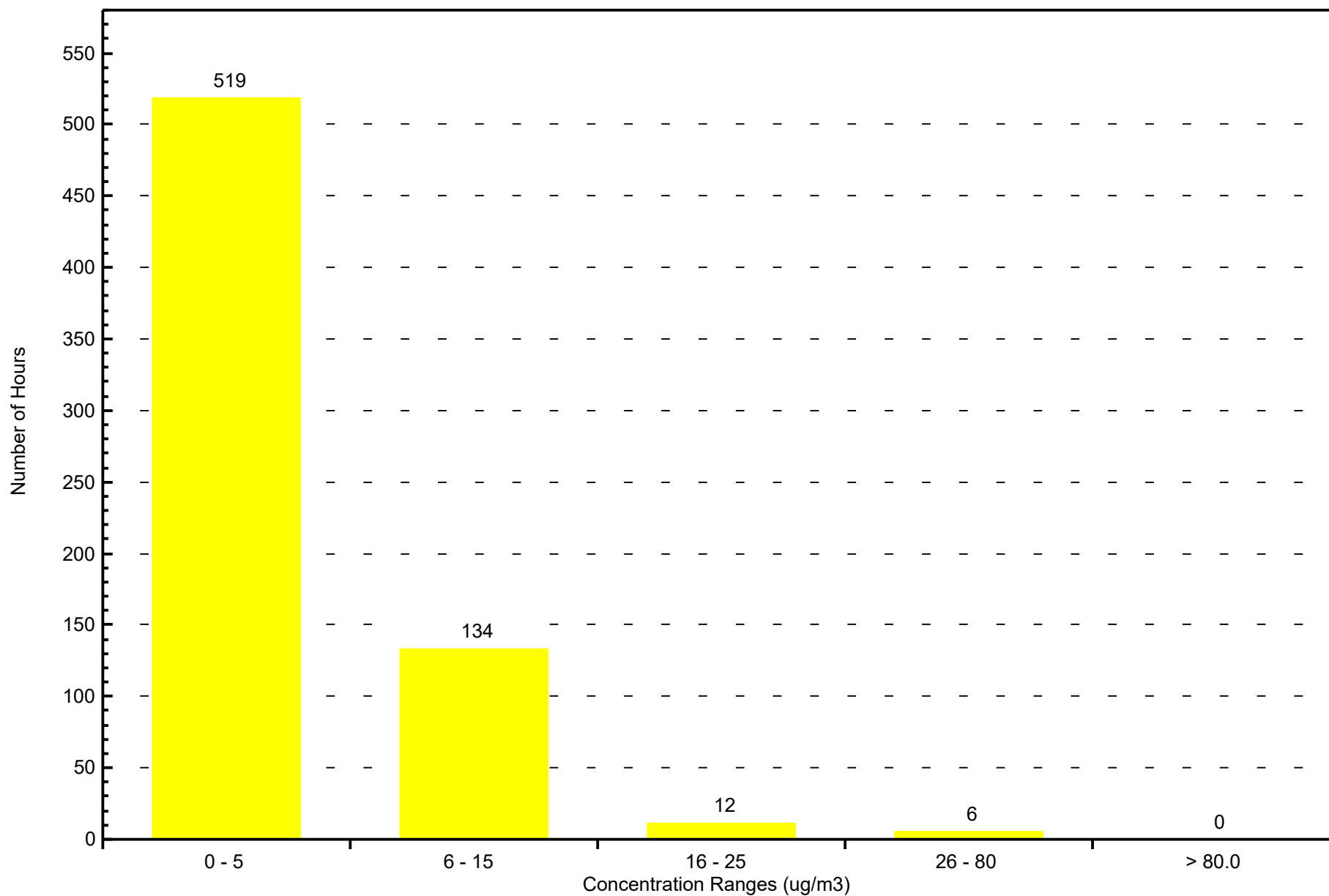
Hourly Averages

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



Histogram of Hourly Averages

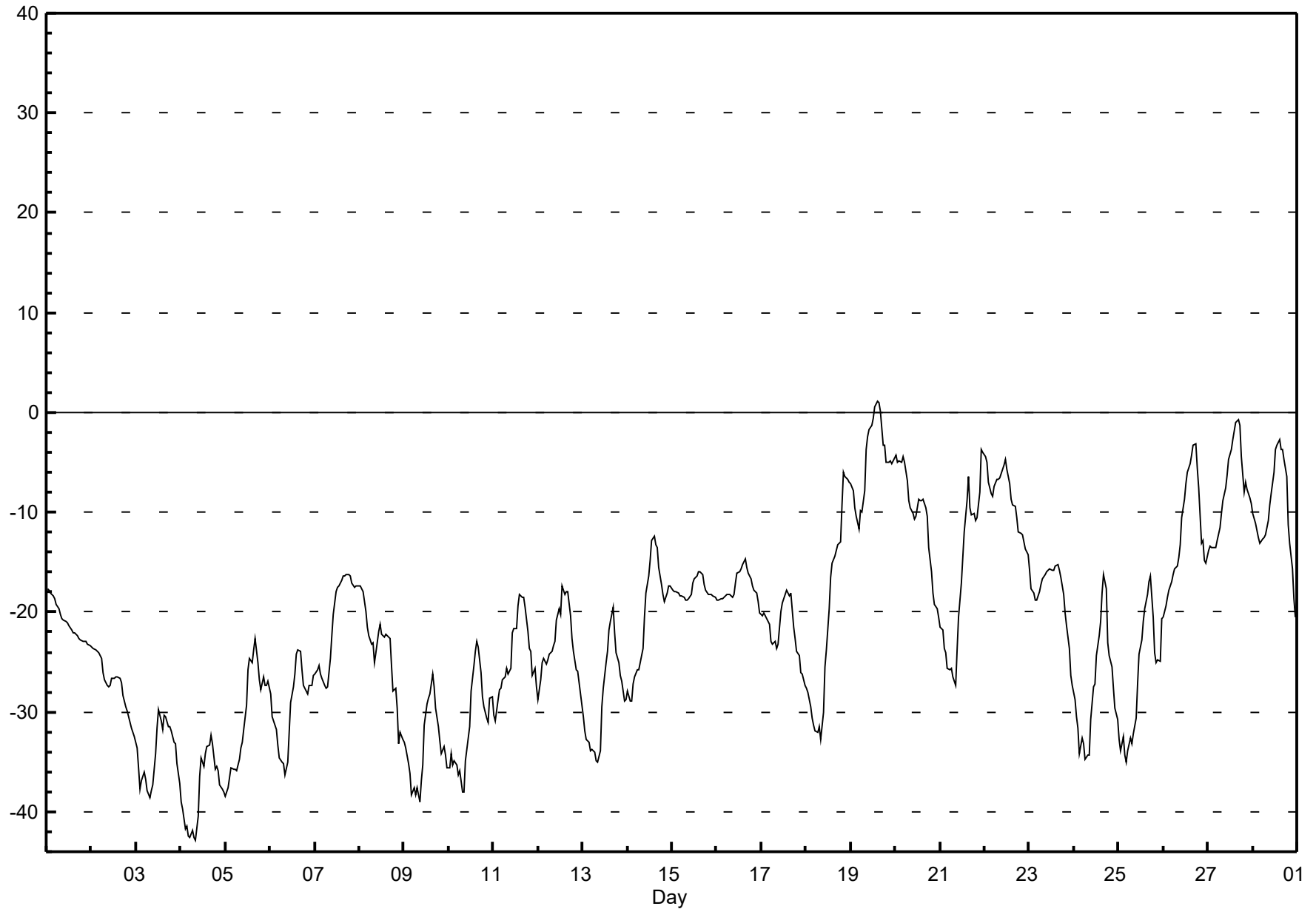
PM2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Wembley - February 2019



Hourly Averages

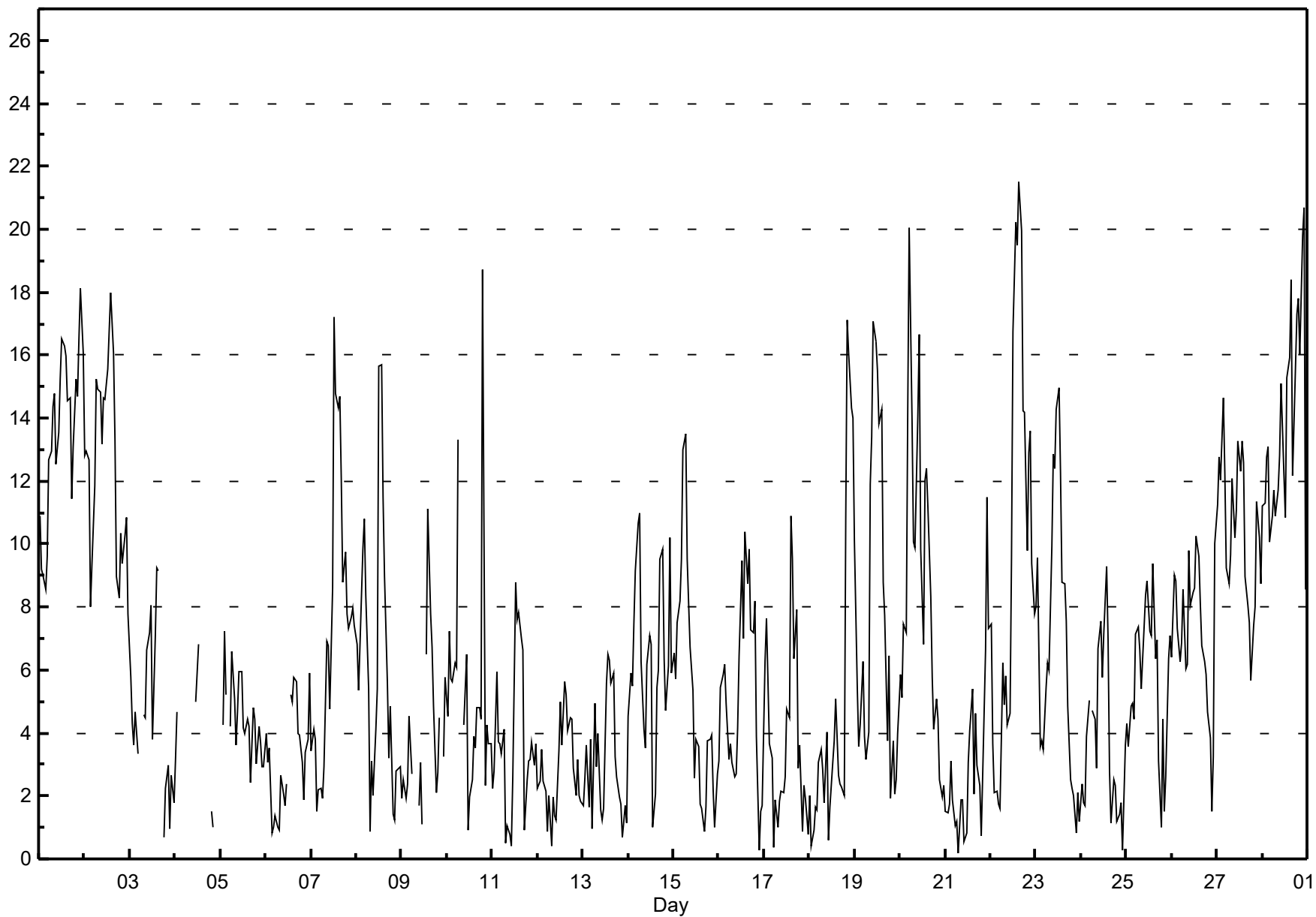
External Temperature (ET) - °C

Wembley - February 2019



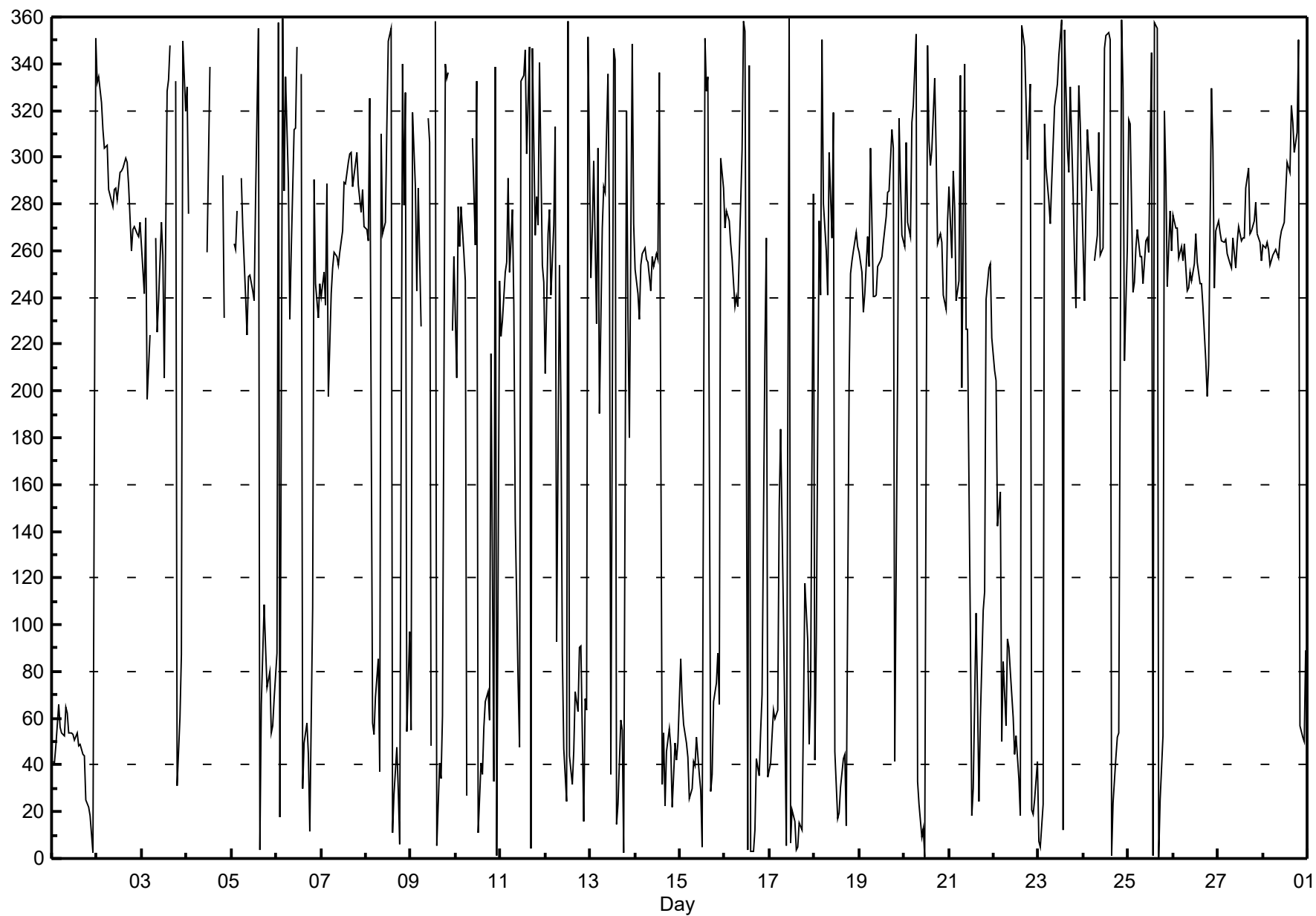
Hourly Averages

Wind Speed (WS) - km/h
Wembley - February 2019



Hourly Averages

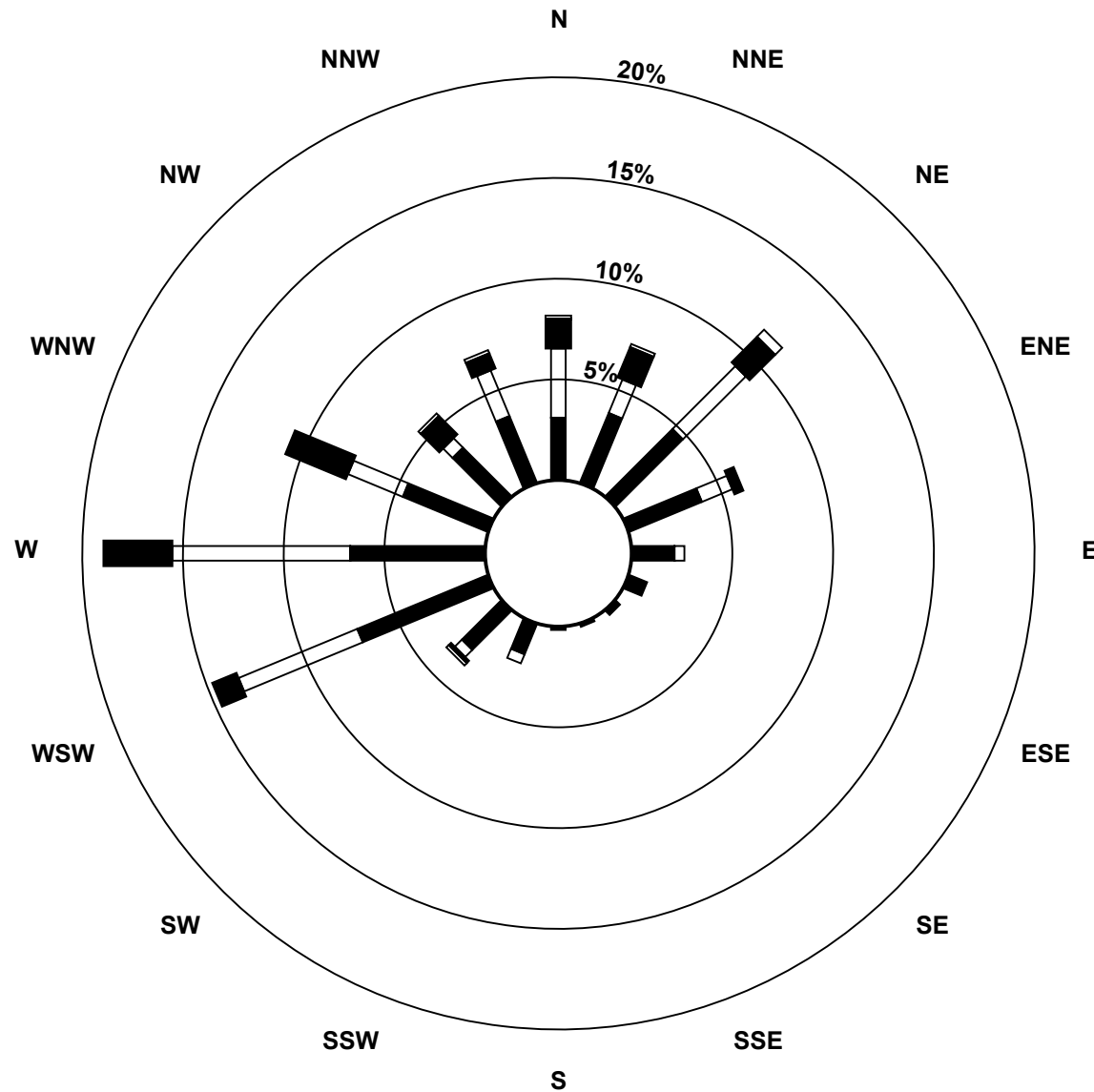
Wind Direction (WD) - deg
Wembley - February 2019



Wind Rose

Wind Speed (WS) (km/h)

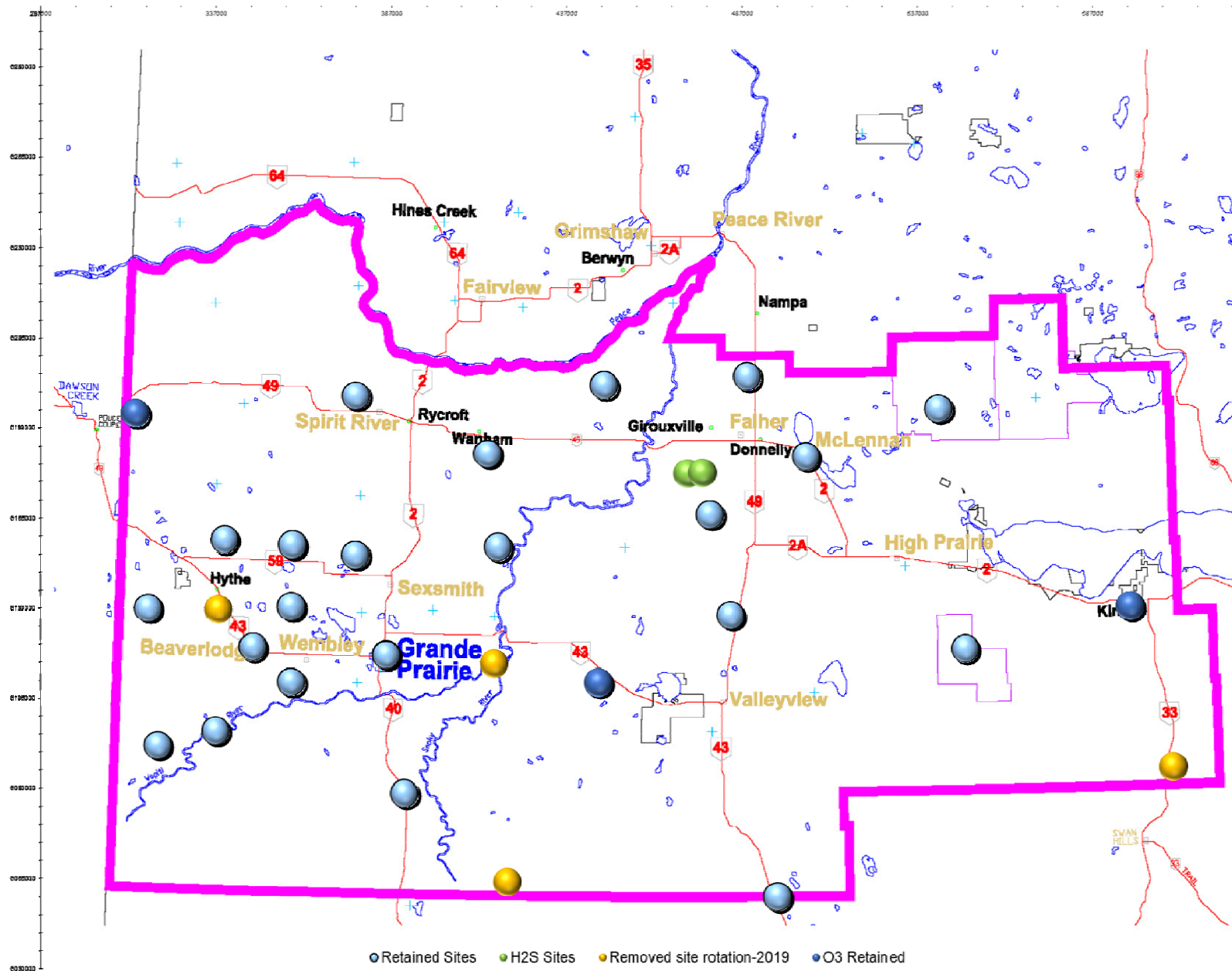
Wembley - February 2019



PAZA

Monthly Passive Data Summary

Location of PAZA Passive Monitoring Stations



Peace Airshed Zone Association - PAZA Passive Stations
February 2019

Station Number	Station Name	SO2 ppb	O3 ppb	NO2 ppb	H2S ppb	Site Legal
Duplicates						
7a	Steeprock Creek			0.8		
7b	Steeprock Creek			0.8		
14a	Sylvester	0.3				
14b	Sylvester	0.2				
33a	Wapiti	0.4				
33b	Wapiti	0.4				
37a	Crooked Creek			3.8		
37b	Crooked Creek			3.5		
47a	Kinuso	0.2	38.8	1.6		
47b	Kinuso	0.3	41.7	3.8		
64a	Girouxville 4				0.2	
64b	Girouxville 4				0.2	
2	Bay Tree	0.6	44.1	0.6		13-16-078-13 W6M
5	Boone Creek	0.7		0.7		16-36-074-11 W6M
7	Steeprock Creek	0.3		0.8		09-35-072-13 W6M
9	Spirit River	0.4		0.4		08-12-079-07 W6M
11	Webber Creek	0.7		0.7		09-36-074-09 W6M
12	Hythe	0.6		0.6		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	1.2		2.6		13-06-073-08 W6M
18	Saddle Hills	0.6		1.0		04-25-074-07 W6M
19	Wanham	0.8		N/S		16-22-077-03 W6M
21	Eaglesham	0.3		0.7		16-21-079-25 W5M
24	Wembley	0.6		4.4		12-31-070-08 W6M
25	Pinto Creek	0.4		1.1		04-24-069-11 W6M
27	Grande Prairie I	0.6		18.9		08-15-071-06 W6M
29	Smoky Heights	0.6		0.6		04-06-075-02 W6M
32	Gold Creek	0.8		5.0		06-33-067-05 W6M
33	Wapiti	0.4		4.2		02-25-071-03 W6M
35	Jean Cote	0.4		1.2		12-35-079-21 W5M
36	Guy	0.3		1.1	0.2	03-04-076-22 W5M
37	Crooked Creek	0.4	40.2	3.7		16-01-071-26 W5M
38	Karr Creek	0.5		1.9		10-16-065-02 W6M
39	Clouston Creek	0.3		1.4		12-01-073-22 W5M
40	McLennan	0.6		1.5		03-29-077-19 W5M
44	Peavine	0.3		0.7		03-05-079-15 W5M
46	Little Smoky	0.4		5.5		12-01-065-21 W5M
47	Kinuso	0.3	40.3	2.7		12-10-073-10 W5M
48	Deer Mountain 2	0.3		1.1		*
49	Grande Prairie HP	0.5		15.0		17-26-071-06 W6M
50	East Prairie	0.2		0.8		13-02-072-15 W5M
63	Girouxville 3				0.4	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
February 2019
Ambient Air Monitoring Report**