



# **Peace Airshed Zone Association**

## **Ambient Air Monitoring Network Summary**

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

|                                                                       |     |
|-----------------------------------------------------------------------|-----|
| Table of Contents                                                     | 2   |
| Cover Letter                                                          | 3   |
| Listing of Facilities                                                 | 3   |
| Calibration and Data Submission                                       | 5   |
| Concentrations in excess of the Clean Air (Maximum Levels) Regulation | 5   |
| Operational times less than 90 percent                                | 6   |
| Certification                                                         | 6   |
| Continuous Network Equipment and Results Summary                      |     |
| Beverlodge                                                            | 8   |
| Evergreen Park                                                        | 9   |
| Henry Pirker                                                          | 10  |
| Smoky Heights                                                         | 11  |
| Valleyview                                                            | 11  |
| Donnely                                                               | 12  |
| Portable-Wembley                                                      | 13  |
| Charts of Recorded Data                                               |     |
| Beverlodge                                                            | 14  |
| Evergreen Park                                                        | 29  |
| Henry Pirker                                                          | 39  |
| Smoky Heights                                                         | 62  |
| Valleyview                                                            | 71  |
| Donnely                                                               | 80  |
| Portable-Wembley                                                      | 88  |
| Passive Monitoring Data                                               | 106 |
| End of Report                                                         | 117 |

October 31<sup>st</sup>, 2019

**Alberta Environment and Parks**

11<sup>th</sup> Floor, Oxbridge Place  
9820-106 Street  
Edmonton Alberta T5K 2J6

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

Enclosed is the PAZA Ambient Air Quality Monitoring Network Report for the month of September 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:

| <b>Company</b>                                 | <b>Facility</b> | <b>LSD</b>      | <b>EPEA Approval Number</b> |
|------------------------------------------------|-----------------|-----------------|-----------------------------|
| Advantage Oil & Gas Ltd.                       | Glacier         | 05-02-076-13-W6 | 262479-00-00                |
| Alberta Power (2000) Ltd.<br>(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                |

| <b>Company</b>                           | <b>Facility</b>                | <b>LSD</b>      | <b>EPEA Approval Number</b> |
|------------------------------------------|--------------------------------|-----------------|-----------------------------|
| 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              |

| <b>Company</b>                       | <b>Facility</b>                    | <b>LSD</b>      | <b>EPEA Approval Number</b> |
|--------------------------------------|------------------------------------|-----------------|-----------------------------|
|                                      | 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 September 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

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

There were no exceedances of the AAAQO to report in September.

**Operational times less than 90 percent:**

There were no operational times less than 90 percent in September.

**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 eight duplicate sites sampled in the month of September: Wanham, Crooked Creek, McLennan (SO<sub>2</sub>), Kinuso (O<sub>3</sub>), Eaglesham, Wapiti, Jean Cote (NO<sub>2</sub>), and Girouxville 3 (H<sub>2</sub>S). 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.

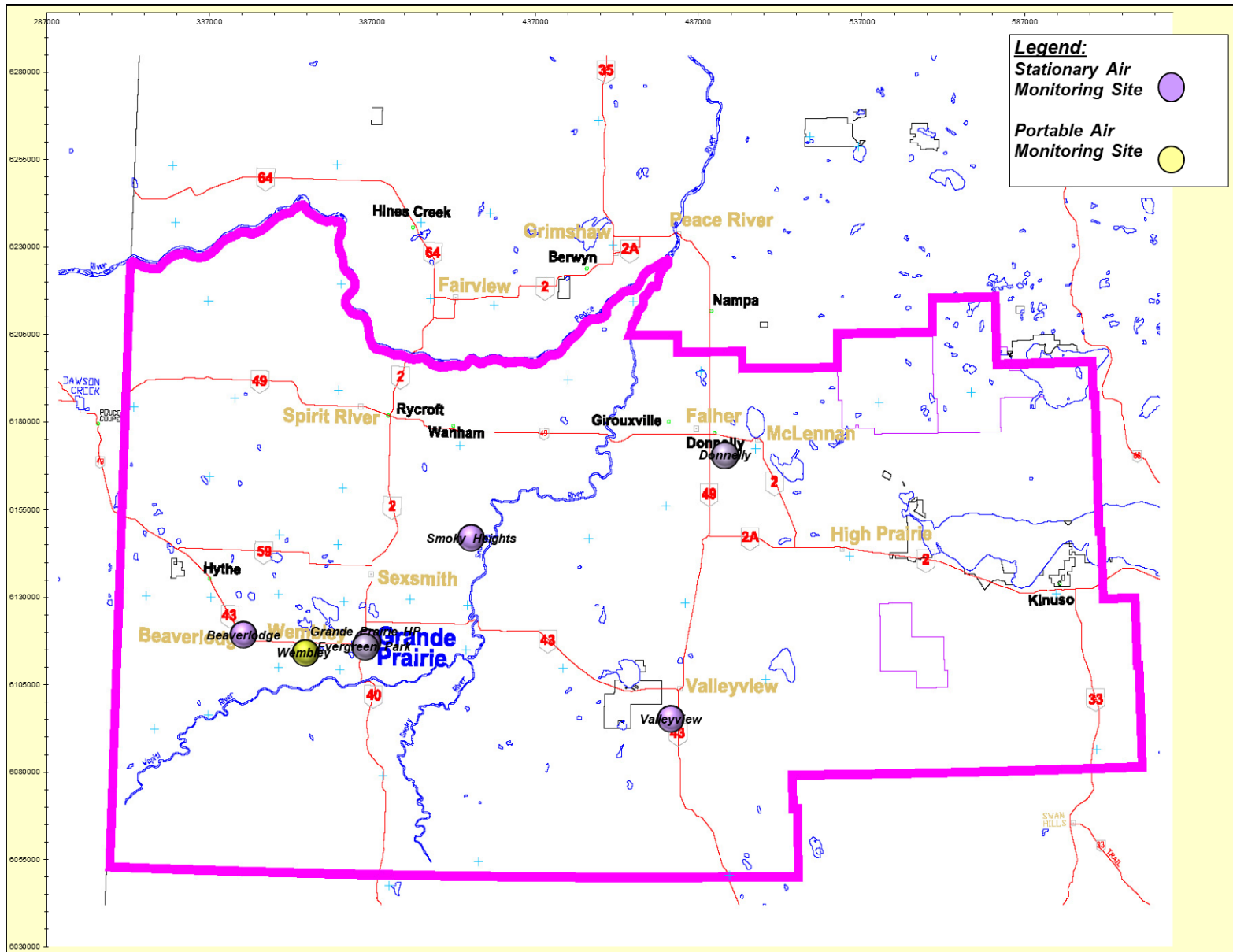
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Mandeep Dhaliwal, B.Sc., P.Chem.

Program Manager

## Location of PAZA Continuous Monitoring Stations



## Continuous Ambient Network Equipment and Results Summary

### Beaverlodge Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |             |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|-------------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station     | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |             |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Beaverlodge | 0.2                | 0.0  | 0          | 0     | 0      | 11.0                    | Sep-10 23:00 | 0.9          | Sep-30 | 100.0                   | Sep-10              |
| NO (ppb)                                |            |       |        |             | 0.5                | 0.0  | -          | -     | -      | 14.7                    | Sep-30 08:00 | 2.6          | Sep-17 | 97.5                    | Sep-10              |
| NO <sub>2</sub> (ppb)                   | 159        | 106   |        |             | 2.4                | 0.0  | 0          | 0     | -      | 17.2                    | Sep-30 08:00 | 5.1          | Sep-30 | 97.5                    | Sep-10              |
| NO <sub>x</sub> (ppb)                   |            |       |        |             | 2.9                | 0.0  | -          | -     | -      | 32.1                    | Sep-30 08:00 | 6.8          | Sep-30 | 97.5                    | Sep-10              |
| O <sub>3</sub> (ppb)                    | 76         |       |        |             | 20.0               | 1.0  | 0          | -     | -      | 43.7                    | Sep-06 17:00 | 28.2         | Sep-24 | 100.0                   | Sep-09              |
| O <sub>3</sub> (ppb) - 8-hr             |            |       |        |             |                    |      | -          | -     | -      |                         |              | 37.2         | Sep-06 |                         | -                   |
| PM <sub>2.5</sub> (µg/m3)               | 80         | 29    |        |             | 3.6                | 0.0  | 0          | 0     | -      | 37.6                    | Sep-05 22:00 | 10.3         | Sep-01 | 100.0                   | Sep-10              |
| RH (%)                                  |            |       |        |             | 76.5               | 34.5 | -          | -     | -      | 100.0                   | Sep-04 05:00 | 95.9         | Sep-09 | 99.9                    | -                   |
| Temp (°C)                               |            |       |        |             | 10.1               | -4.8 | -          | -     | -      | 25.4                    | Sep-03 16:00 | 17.9         | Sep-03 | 99.9                    | -                   |
| WSPD v (km/hr)                          |            |       |        |             | 1.8                | 0.1  | -          | -     | -      | 38.9                    | Sep-21 12:00 | 20.4         | Sep-24 | 100.0                   | 13/08/2019          |
| WDIR                                    |            |       |        |             | W                  |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 13/08/2019          |

| Parameter                           | Analyzer |       | Notes                                                              |
|-------------------------------------|----------|-------|--------------------------------------------------------------------|
|                                     | Make     | Model |                                                                    |
| SO <sub>2</sub>                     | TECO     | 43I   |                                                                    |
| NO/NO <sub>2</sub> /NO <sub>x</sub> | TECO     | 42I   | Analyzer swapped Sep 9, allowed to stabilize and calibrated Sep 10 |
| O <sub>3</sub>                      | TECO     | 49I   |                                                                    |
| PM <sub>2.5</sub>                   | SHARP    | 5030  |                                                                    |
| ET/RH                               |          |       | Logger programming updated Sep 10                                  |
| WS/WD                               | MetOne   | 50.5  |                                                                    |



## Evergreen Park Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |                |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|----------------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station        | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |                |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Evergreen Park | 0.3                | 0.0  | 0          | 0     | 0      | 11.2                    | Sep-25 13:00 | 1.9          | Sep-25 | 99.9                    | Sep-18              |
| TRS (ppb)                               |            |       |        |                | 0.4                | 0.1  | -          | -     | -      | 1.2                     | Sep-28 11:00 | 0.5          | Sep-22 | 97.8                    | Sep-18              |
| PM <sub>2.5</sub> (µg/m3)               | 80         | 29    |        |                | 2.8                | 0.0  | 0          | 0     | -      | 32.1                    | Sep-19 17:00 | 6.0          | Sep-03 | 99.9                    | Sep-17              |
| RH (%)                                  |            |       |        |                | 76.6               | 30.6 | -          | -     | -      | 99.3                    | Sep-17 11:00 | 97.3         | Sep-09 | 99.9                    | -                   |
| Temp (°C)                               |            |       |        |                | 10.3               | -6.2 | -          | -     | -      | 25.5                    | Sep-03 15:00 | 16.3         | Sep-03 | 99.9                    | -                   |
| WSPD v (km/hr)                          |            |       |        |                | 1.8                | 0.1  | -          | -     | -      | 31.7                    | Sep-04 14:00 | 11.9         | Sep-04 | 100.0                   | 18/09/2019          |
| WDIR                                    |            |       |        |                | WSW                |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 18/09/2019          |

| Parameter         | Analyzer    |                 | Notes                                                                                |
|-------------------|-------------|-----------------|--------------------------------------------------------------------------------------|
|                   | Make        | Model           |                                                                                      |
| SO <sub>2</sub>   | TECO        | 43I             | Manifold cleaning Sep 18                                                             |
| TRS               | TECO        | 43C/43I         | 43C removed Sep 17, 43I installed and allowed to stabilize before calibration Sep 18 |
| PM <sub>2.5</sub> | SHARP       | 5030            | Logger programming updated Sep 18                                                    |
| ET/RH             |             |                 | Logger programming updated Sep 18                                                    |
| WS/WD             | Gil/RMYoung | MetPak/RMY86004 | Wind system swapped for RMYoung Sep 18                                               |

# Henry Pirker Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |              |                    |      |            |       | Maximum Recorded Values |       |              |       |        |                         |                     |
|-----------------------------------------|------------|-------|--------|--------------|--------------------|------|------------|-------|-------------------------|-------|--------------|-------|--------|-------------------------|---------------------|
|                                         |            |       |        |              |                    |      |            |       | 1-hr                    |       | 24-hr / 8-hr |       |        |                         |                     |
| Parameter<br>(units)                    | Objectives |       |        | Station      | Monthly<br>Average | Min  | Exceedence |       |                         | Conc  | Day          | Conc  | Day    | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |              |                    |      | 1-hr       | 24-hr | 30-day                  |       |              |       |        |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Henry Pirker | 0.6                | 0.0  | 0          | 0     | 0                       | 38.8  | Sep-24 23:00 | 3.8   | Sep-24 | 100.0                   | Sep-11              |
| H <sub>2</sub> S (ppb)                  |            |       |        |              | 0.2                | 0.0  | 0          | 0     | -                       | 0.9   | Sep-15 09:00 | 0.4   | Sep-22 | 100.0                   | Sep-11              |
| NO (ppb)                                |            |       |        |              | 2.0                | 0.0  | -          | -     | -                       | 52.3  | Sep-12 09:00 | 12.0  | Sep-17 | 100.0                   | Sep-11              |
| NO <sub>2</sub> (ppb)                   | 159        | 106   |        |              | 5.1                | 0.9  | 0          | 0     | -                       | 23.2  | Sep-30 22:00 | 9.9   | Sep-30 | 100.0                   | Sep-11              |
| NO <sub>x</sub> (ppb)                   |            |       |        |              | 7.2                | 1.1  | -          | -     | -                       | 65.4  | Sep-12 09:00 | 20.8  | Sep-17 | 100.0                   | Sep-11              |
| O <sub>3</sub> (ppb)                    | 76         |       |        |              | 17.7               | 0.5  | 0          | -     | -                       | 38.3  | Sep-06 18:00 | 26.6  | Sep-24 | 100.0                   | Sep-11              |
| O <sub>3</sub> (ppb) - 8-hr             |            |       |        |              |                    |      | -          | -     | -                       |       |              | 33.8  | Sep-06 |                         | -                   |
| CO (ppm)                                | 13         |       |        |              | 0.17               | 0.1  | 0          | 0     | -                       | 0.5   | Sep-28 08:00 | 0.2   | Sep-12 | 100.0                   | Sep-09              |
| CO (ppm) - 8-hr                         | 5          |       |        |              |                    |      | 0          |       |                         |       |              | 0.3   | Sep-12 |                         | -                   |
| THC (ppm)                               |            |       |        |              | 2.1                | 1.9  | -          | -     | -                       | 3.4   | Sep-12 07:00 | 2.4   | Sep-12 | 91.0                    | Sep-09              |
| CH <sub>4</sub> (ppm)                   |            |       |        |              | 2.1                | 1.9  | -          | -     | -                       | 3.4   | Sep-12 07:00 | 2.4   | Sep-12 | 91.0                    | Sep-09              |
| NMHC (ppm)                              |            |       |        |              | 0.0                | 0.0  | -          | -     | -                       | 0.1   | Sep-18 06:00 | 0.0   | Sep-18 | 91.0                    | Sep-09              |
| PM <sub>2.5</sub> (µg/m3)               | 80         | 29    |        |              | 3.4                | 0.3  | 0          | 0     | -                       | 23.7  | Sep-12 01:00 | 6.7   | Sep-11 | 100.0                   | Sep-11              |
| RH (%)                                  |            |       |        |              | 69.2               | 32.9 | -          | -     | -                       | 90.9  | Sep-04 06:00 | 85.6  | Sep-09 | 100.0                   | -                   |
| SR (W/m <sup>2</sup> )                  |            |       |        |              | 102.0              | 0.0  | -          | -     | -                       | 621.6 | Sep-05 14:00 | 189.8 | Sep-02 | 100.0                   | -                   |
| Temp (°C)                               |            |       |        |              | 11.0               | -3.9 | -          | -     | -                       | 27.1  | Sep-03 15:00 | 18.0  | Sep-03 | 100.0                   | -                   |
| WSPD v (km/hr)                          |            |       |        |              | 1.9                | 0.5  | -          | -     | -                       | 28.0  | Sep-24 15:00 | 15.6  | Sep-24 | 100.0                   | 12/08/2019          |
| WDIR                                    |            |       |        |              | WSW                |      | -          | -     | -                       | -     | -            | -     | -      | 100.0                   | 12/08/2019          |

| Parameter                           | Analyzer |         | Notes                                                                                                                |
|-------------------------------------|----------|---------|----------------------------------------------------------------------------------------------------------------------|
|                                     | Make     | Model   |                                                                                                                      |
| SO <sub>2</sub>                     | TECO     | 43I     |                                                                                                                      |
| H <sub>2</sub> S                    | TECO     | 450I    |                                                                                                                      |
| NO/NO <sub>2</sub> /NO <sub>x</sub> | TECO     | 42I     | Irregular span Sep 9 believed to be due to loose rain cap noted during site visit. Repaired that day.                |
| O <sub>3</sub>                      | TECO     | 49I     |                                                                                                                      |
| CO                                  | TECO     | 48I-TLE |                                                                                                                      |
| THC/CH <sub>4</sub> /NMHC           | TECO     | 55I     | Analyzer returned irregular readings Sep 28-29. Troubleshooting and repair work continued for remainder of the month |
| PM <sub>2.5</sub>                   | SHARP    | 5030    |                                                                                                                      |
| ET/RH                               |          |         |                                                                                                                      |
| SR                                  |          |         |                                                                                                                      |
| WS/WD                               | MetOne   | 50.5    |                                                                                                                      |

## Smoky Heights Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |               |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|---------------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station       | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |               |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Smoky Heights | 0.3                | 0.0  | 0          | 0     | 0      | 3.4                     | Sep-24 06:00 | 0.8          | Sep-24 | 100.0                   | Sep-24              |
| TRS (ppb)                               |            |       |        |               | 0.4                | 0.0  | -          | -     | -      | 1.9                     | Sep-04 04:00 | 0.6          | Sep-04 | 100.0                   | Sep-24              |
| PM <sub>2.5</sub> (µg/m3)               | 80         | 29    |        |               | 2.8                | 0.0  | 0          | 0     | -      | 22.6                    | Sep-03 20:00 | 7.6          | Sep-01 | 100.0                   | Sep-24              |
| Temp (°C)                               |            |       |        |               | 9.9                | -4.6 | -          | -     | -      | 25.1                    | Sep-03 17:00 | 16.4         | Sep-03 | 99.6                    | -                   |
| WSPD v (km/hr)                          |            |       |        |               | 5.1                | 0.3  | -          | -     | -      | 46.5                    | Sep-21 13:00 | 22.3         | Sep-21 | 100.0                   | 04/06/2019          |
| WDIR                                    |            |       |        |               | WSW                |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 04/06/2019          |

| Parameter         | Analyzer |       | Notes                                                     |
|-------------------|----------|-------|-----------------------------------------------------------|
|                   | Make     | Model |                                                           |
| SO <sub>2</sub>   | TECO     | 43I   |                                                           |
| TRS               | TECO     | 43I   |                                                           |
| PM <sub>2.5</sub> | SHARP    | 5030  |                                                           |
| ET                |          |       | Temperature sensor returned invalid readings Sep 4 and 24 |
| WS/WD             | MetOne   | 50.5  |                                                           |

## Valleyview Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |            |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|------------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station    | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |            |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Valleyview | 0.3                | 0.0  | 0          | 0     | 0      | 19.4                    | Sep-18 14:00 | 1.8          | Sep-18 | 100.0                   | Sep-23              |
| H <sub>2</sub> S (ppb)                  | 10         | 3     |        |            | 0.1                | 0.0  | 0          | 0     | -      | 1.1                     | Sep-18 06:00 | 0.3          | Sep-18 | 100.0                   | Sep-23              |
| RH (%)                                  |            |       |        |            | 81.8               | 31.9 | -          | -     | -      | 100.0                   | Sep-01 02:00 | 98.1         | Sep-08 | 99.7                    | -                   |
| Temp (°C)                               |            |       |        |            | 12.9               | -3.2 | -          | -     | -      | 27.8                    | Sep-03 16:00 | 18.4         | Sep-03 | 99.7                    | -                   |
| WSPD v (km/hr)                          |            |       |        |            | 1.0                | 0.1  | -          | -     | -      | 17.4                    | Sep-04 16:00 | 6.0          | Sep-24 | 100.0                   | 23/09/2019          |
| WDIR                                    |            |       |        |            | W                  |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 23/09/2019          |

| Parameter        | Analyzer    |                 | Notes                                  |
|------------------|-------------|-----------------|----------------------------------------|
|                  | Make        | Model           |                                        |
| SO <sub>2</sub>  | TECO        | 43I             |                                        |
| H <sub>2</sub> S | TECO        | 450I            |                                        |
| ET/RH            |             |                 | Logger programming updated Sep 23      |
| WS/WD            | Gil/RMYoung | MetPak/RMY86004 | Wind system swapped for RMYoung Sep 23 |

## Donnelly Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |          |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|----------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station  | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |          |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Donnelly | 0.1                | 0.0  | 0          | 0     | 0      | 1.5                     | Sep-23 05:00 | 0.2          | Sep-12 | 99.6                    | Sep-20              |
| H <sub>2</sub> S (ppb)                  | 10         | 3     |        |          | 0.1                | 0.0  | 0          | 0     | -      | 1.2                     | Sep-15 23:00 | 0.3          | Sep-15 | 99.6                    | Sep-20              |
| Temp (°C)                               |            |       |        |          | 10.6               | -4.6 | -          | -     | -      | 24.8                    | Sep-03 19:00 | 17.0         | Sep-03 | 100.0                   | -                   |
| WSPD v (km/hr)                          |            |       |        |          | 3.9                | 0.1  | -          | -     | -      | 33.5                    | Sep-21 16:00 | 16.9         | Sep-21 | 100.0                   | 26/06/2019          |
| WDIR                                    |            |       |        |          | SW                 |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 26/06/2019          |

| Parameter        | Analyzer |          | Notes                                          |
|------------------|----------|----------|------------------------------------------------|
|                  | Make     | Model    |                                                |
| SO <sub>2</sub>  | TECO     | 43I      | Power outage affected ambient analyzers Sep 17 |
| H <sub>2</sub> S | TECO     | 450I/43C |                                                |
| ET/RH            |          |          |                                                |
| WS/WD            | RMYoung  | 5103     |                                                |

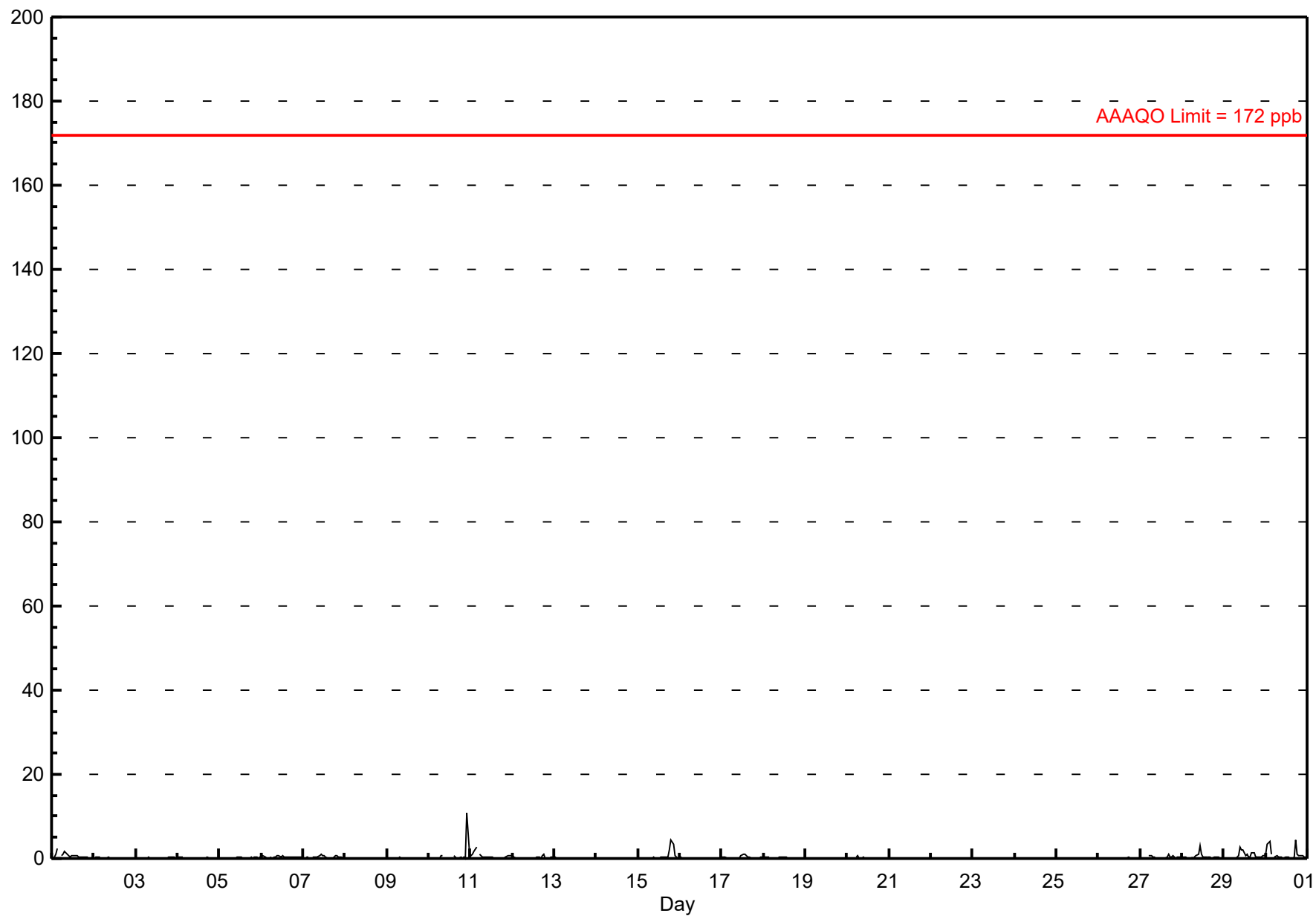
## Wembley-Portable Air Monitoring Station

| Sep-2019 Peace Airshed Zone Association |            |       |        |                  |                    |      |            |       |        | Maximum Recorded Values |              |              |        |                         |                     |
|-----------------------------------------|------------|-------|--------|------------------|--------------------|------|------------|-------|--------|-------------------------|--------------|--------------|--------|-------------------------|---------------------|
| Parameter<br>(units)                    | Objectives |       |        | Station          | Monthly<br>Average | Min  | Exceedence |       |        | 1-hr                    |              | 24-hr / 8-hr |        | Operational<br>Time (%) | Calibration<br>Date |
|                                         | 1-hr       | 24-hr | 30-day |                  |                    |      | 1-hr       | 24-hr | 30-day | Conc                    | Day          | Conc         | Day    |                         |                     |
| SO <sub>2</sub> (ppb)                   | 172        | 48    | 8      | Wembley-Portable | 0.4                | 0.0  | 0          | 0     | 0      | 51.1                    | Sep-15 16:00 | 4.0          | Sep-15 | 100.0                   | Sep-04              |
| TRS (ppb)                               |            |       |        |                  | 0.1                | 0.0  | -          | -     | -      | 0.8                     | Sep-15 01:00 | 0.2          | Sep-15 | 99.9                    | Sep-05              |
| NO (ppb)                                |            |       |        |                  | 0.4                | 0.0  | -          | -     | -      | 8.0                     | Sep-06 20:00 | 1.0          | Sep-17 | 98.9                    | Sep-06              |
| NO <sub>2</sub> (ppb)                   | 159        | 106   |        |                  | 1.8                | 0.1  | 0          | 0     | -      | 9.2                     | Sep-18 22:00 | 3.2          | Sep-18 | 98.9                    | Sep-06              |
| NO <sub>x</sub> (ppb)                   |            |       |        |                  | 2.2                | 0.2  | -          | -     | -      | 15.9                    | Sep-06 20:00 | 3.8          | Sep-30 | 98.9                    | Sep-06              |
| O <sub>3</sub> (ppb)                    | 76         |       |        |                  | 20.0               | 2.4  | 0          | -     | -      | 41.4                    | Sep-06 18:00 | 31.3         | Sep-24 | 100.0                   | Sep-05              |
| O <sub>3</sub> (ppb) - 8-hr             |            |       |        |                  |                    |      | -          | -     | -      |                         |              | 35.4         | Sep-06 |                         | -                   |
| THC (ppm)                               |            |       |        |                  | 2.0                | 1.8  | -          | -     | -      | 2.5                     | Sep-07 05:00 | 2.1          | Sep-01 | 99.9                    | Sep-05              |
| CH <sub>4</sub> (ppm)                   |            |       |        |                  | 2.0                | 1.8  | -          | -     | -      | 2.5                     | Sep-07 05:00 | 2.1          | Sep-01 | 99.9                    | Sep-05              |
| NMHC (ppm)                              |            |       |        |                  | 0.0                | 0.0  | -          | -     | -      | 0.1                     | Sep-15 02:00 | 0.0          | Sep-15 | 99.9                    | Sep-05              |
| PM <sub>2.5</sub> (µg/m3)               | 80         | 29    |        |                  | 1.4                | 0.0  | 0          | 0     | -      | 9.3                     | Sep-06 20:00 | 5.2          | Sep-01 | 99.9                    | Sep-05              |
| Temp (°C)                               |            |       |        |                  | 10.2               | -6.6 | -          | -     | -      | 25.2                    | Sep-03 16:00 | 16.7         | Sep-03 | 100.0                   | -                   |
| WSPD v (km/hr)                          |            |       |        |                  | 1.9                | 0.1  | -          | -     | -      | 24.2                    | Sep-26 16:00 | 13.5         | Sep-26 | 100.0                   | 07/08/2019          |
| WDIR                                    |            |       |        |                  | WSW                |      | -          | -     | -      | -                       | -            | -            | -      | 100.0                   | 07/08/2019          |

| Parameter                           | Analyzer |       | Notes                                                                                             |
|-------------------------------------|----------|-------|---------------------------------------------------------------------------------------------------|
|                                     | Make     | Model |                                                                                                   |
| SO <sub>2</sub>                     | TECO     | 43I   |                                                                                                   |
| TRS                                 | TECO     | 43I   | Manifold cleaning Sep 4                                                                           |
| NO/NO <sub>2</sub> /NO <sub>x</sub> | TECO     | 42I   | Analyzer calibrated Sep 4 and new perm tube installed. Recalibrated Sep 6 after analyzer settled. |
|                                     |          |       | Calibration check Sep 28 to verify analyzer after span failure                                    |
| O <sub>3</sub>                      | TECO     | 49I   | Manifold cleaning Sep 4                                                                           |
| THC/CH <sub>4</sub> /NMHC           | TECO     | 55I   | Manifold cleaning Sep 4                                                                           |
| PM <sub>2.5</sub>                   | TEOM     |       | Manifold cleaning Sep 4                                                                           |
| ET/RH                               |          |       |                                                                                                   |
| WS/WD                               | MetOne   | 50.5  |                                                                                                   |

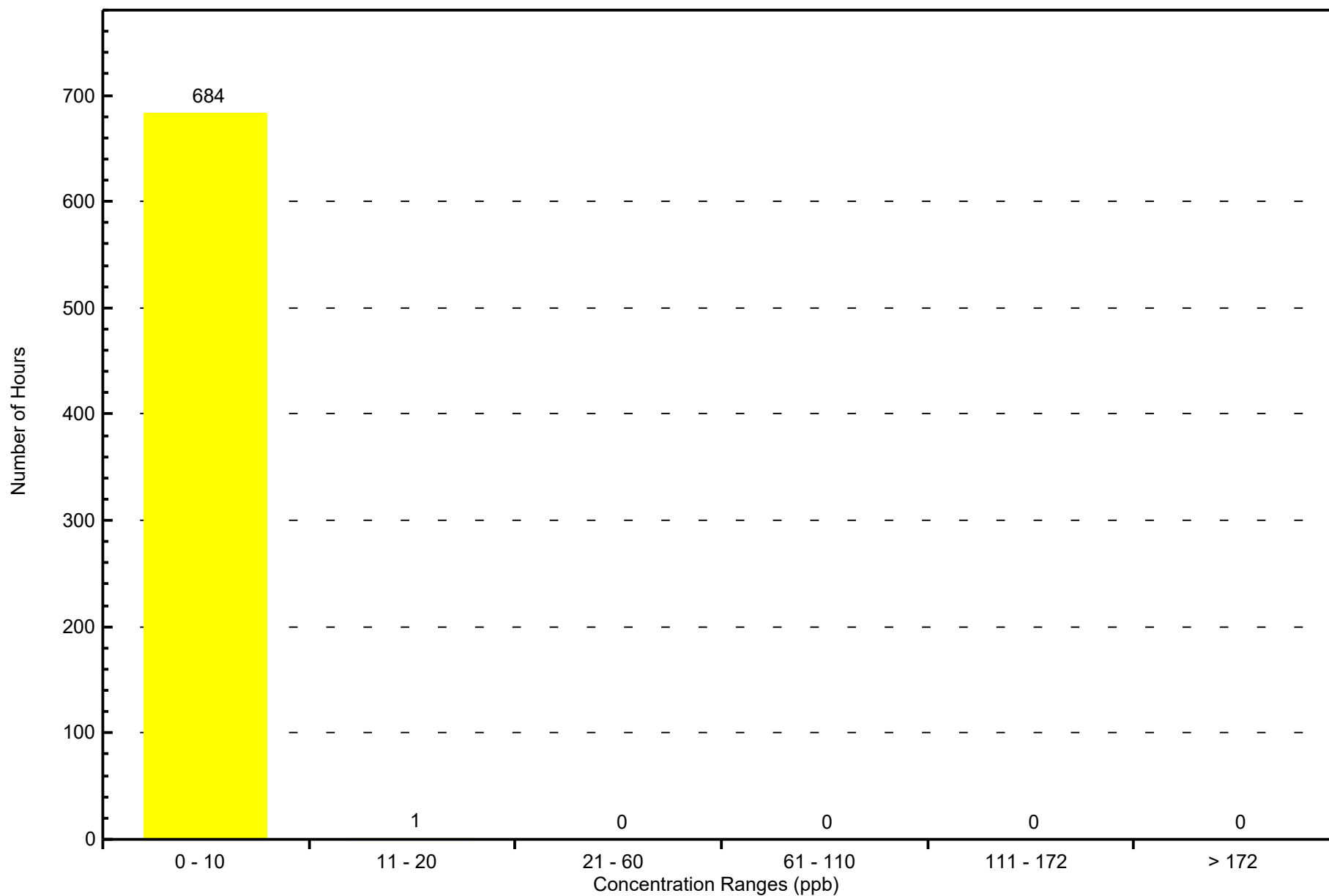
## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Beaverlodge - September 2019**



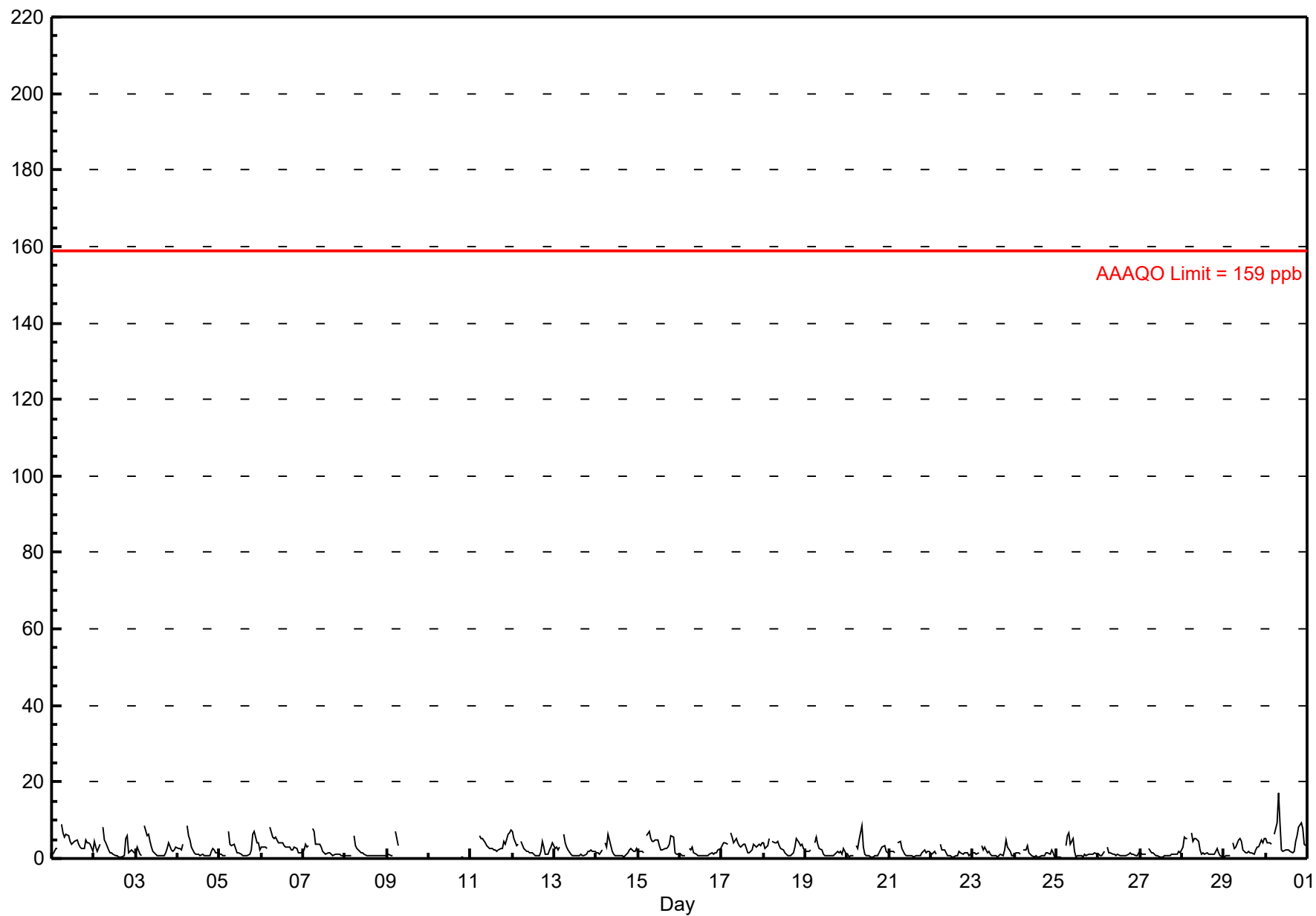
## Histogram of Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Beaverlodge - September 2019**



## Hourly Averages

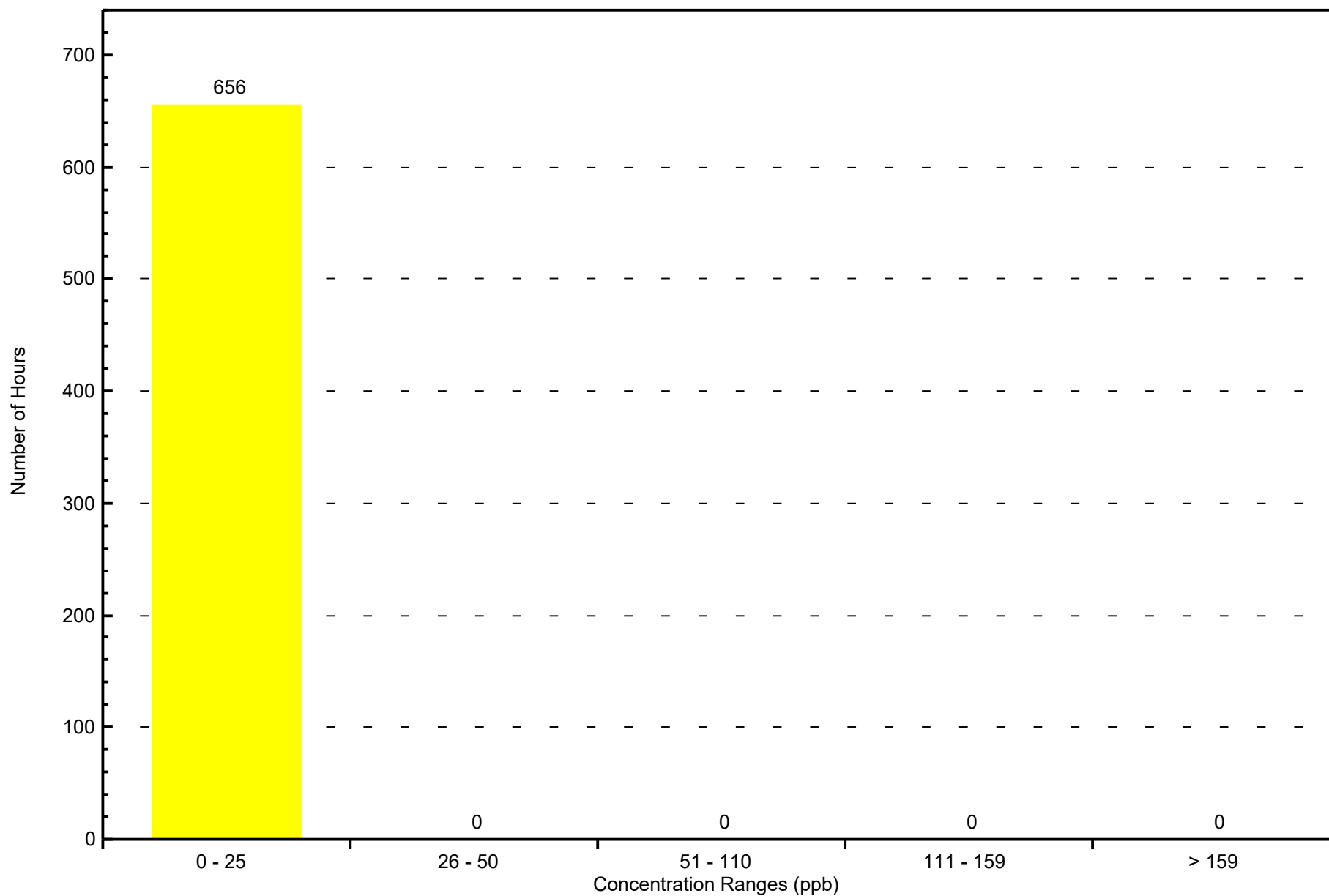
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Beaverlodge - September 2019





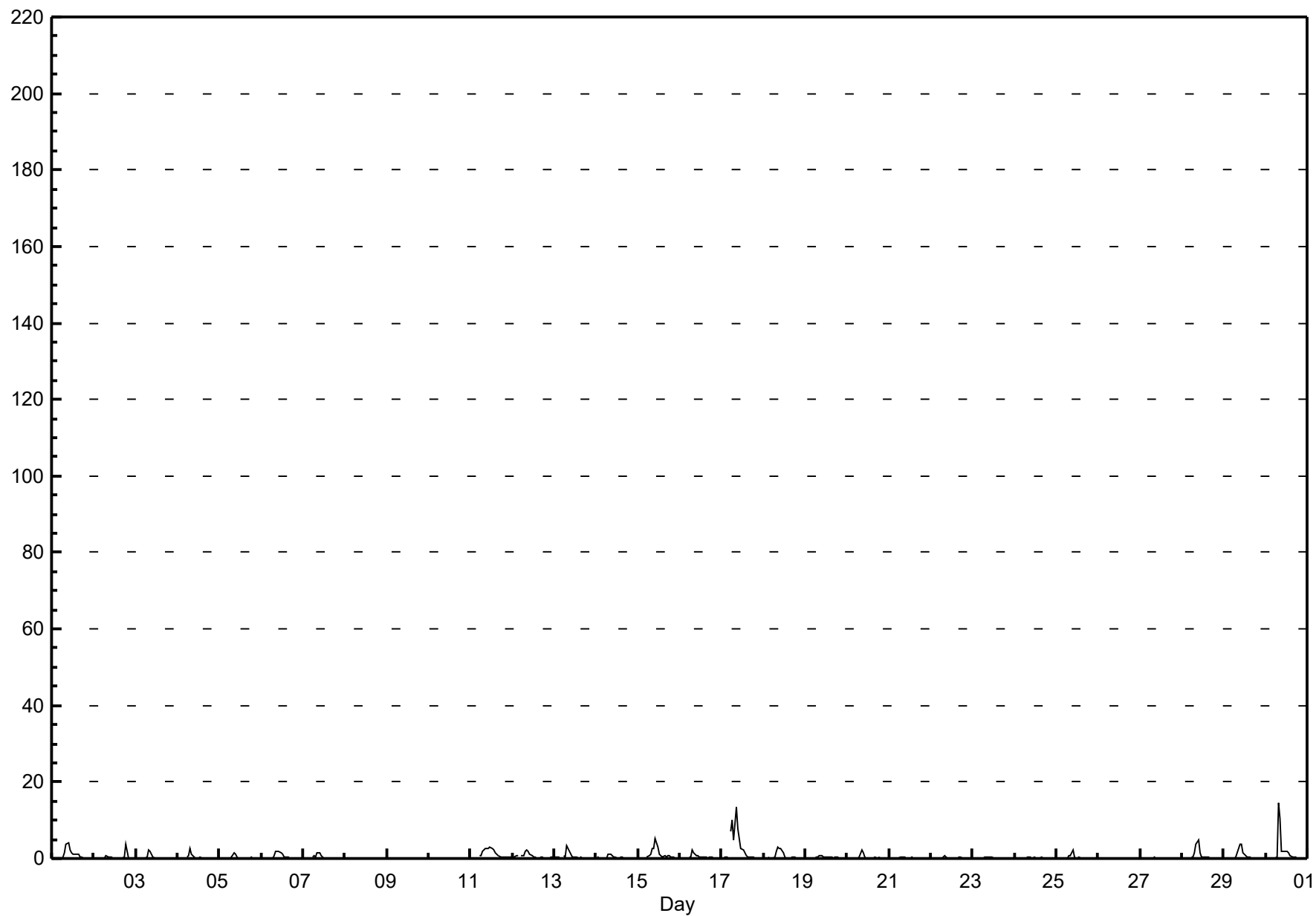
## Histogram of Hourly Averages

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Beaverlodge - September 2019**



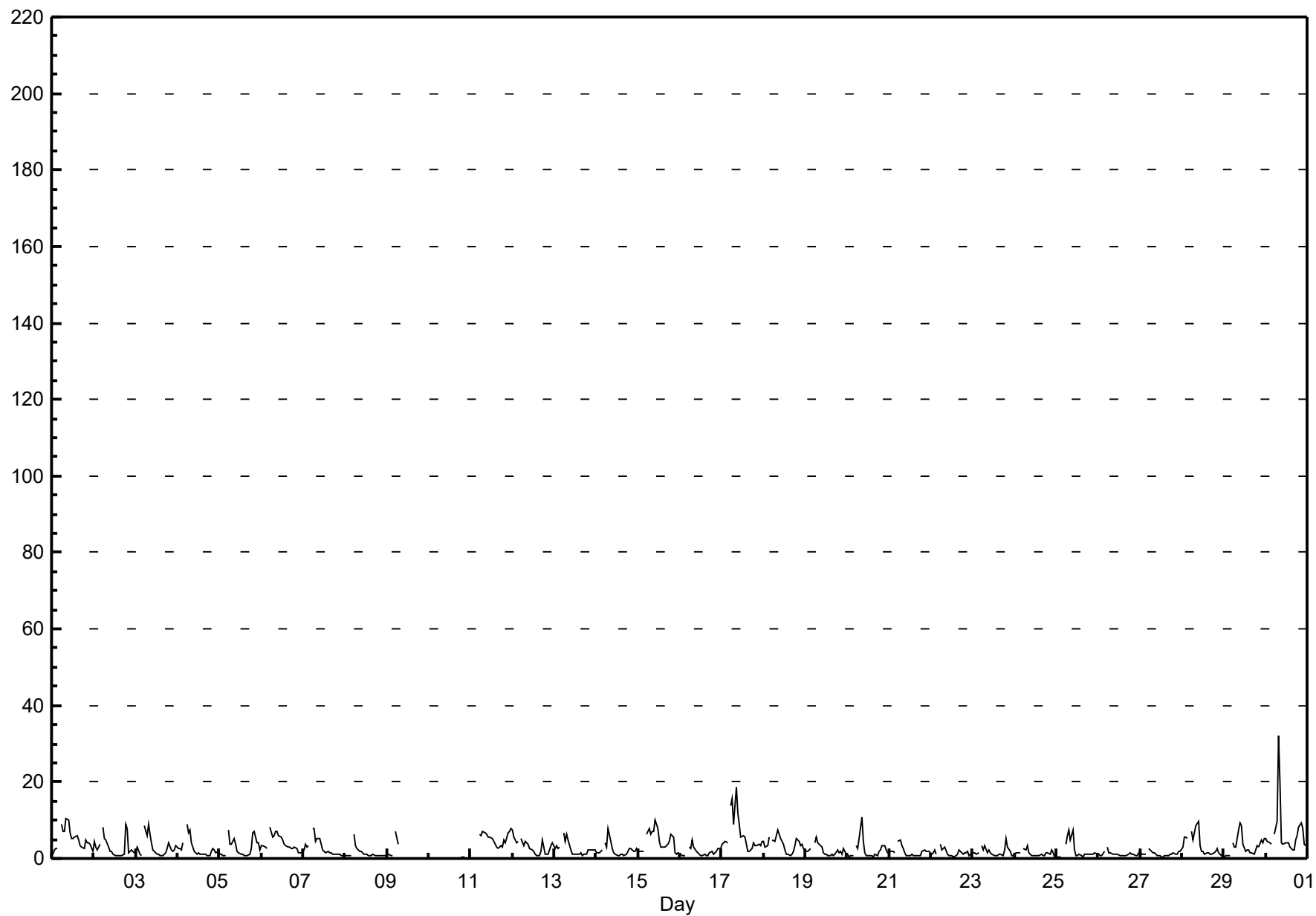
## Hourly Averages

**Nitrogen Oxide (NO) - ppb**  
**Beaverlodge - September 2019**



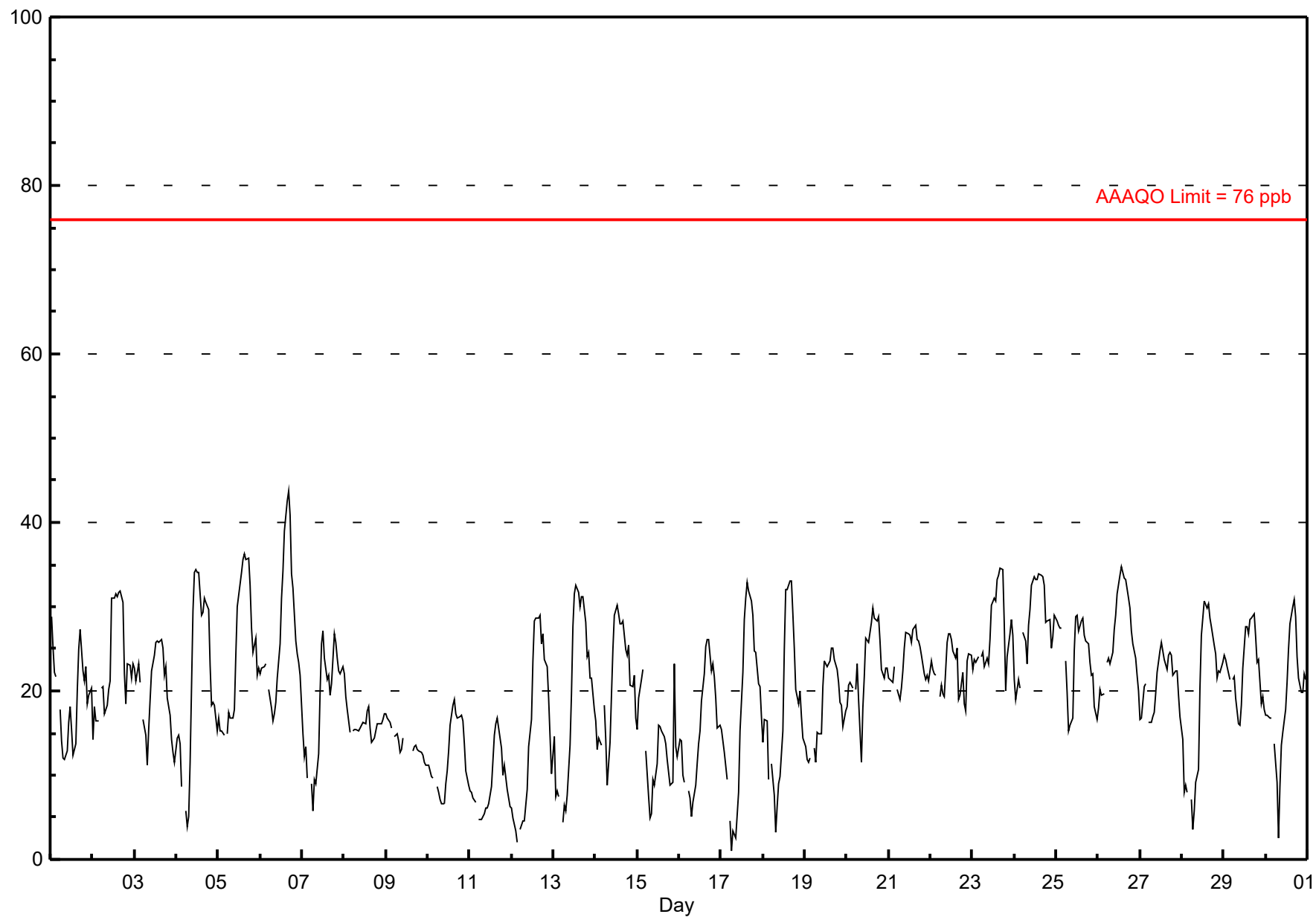
## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Beaverlodge - September 2019



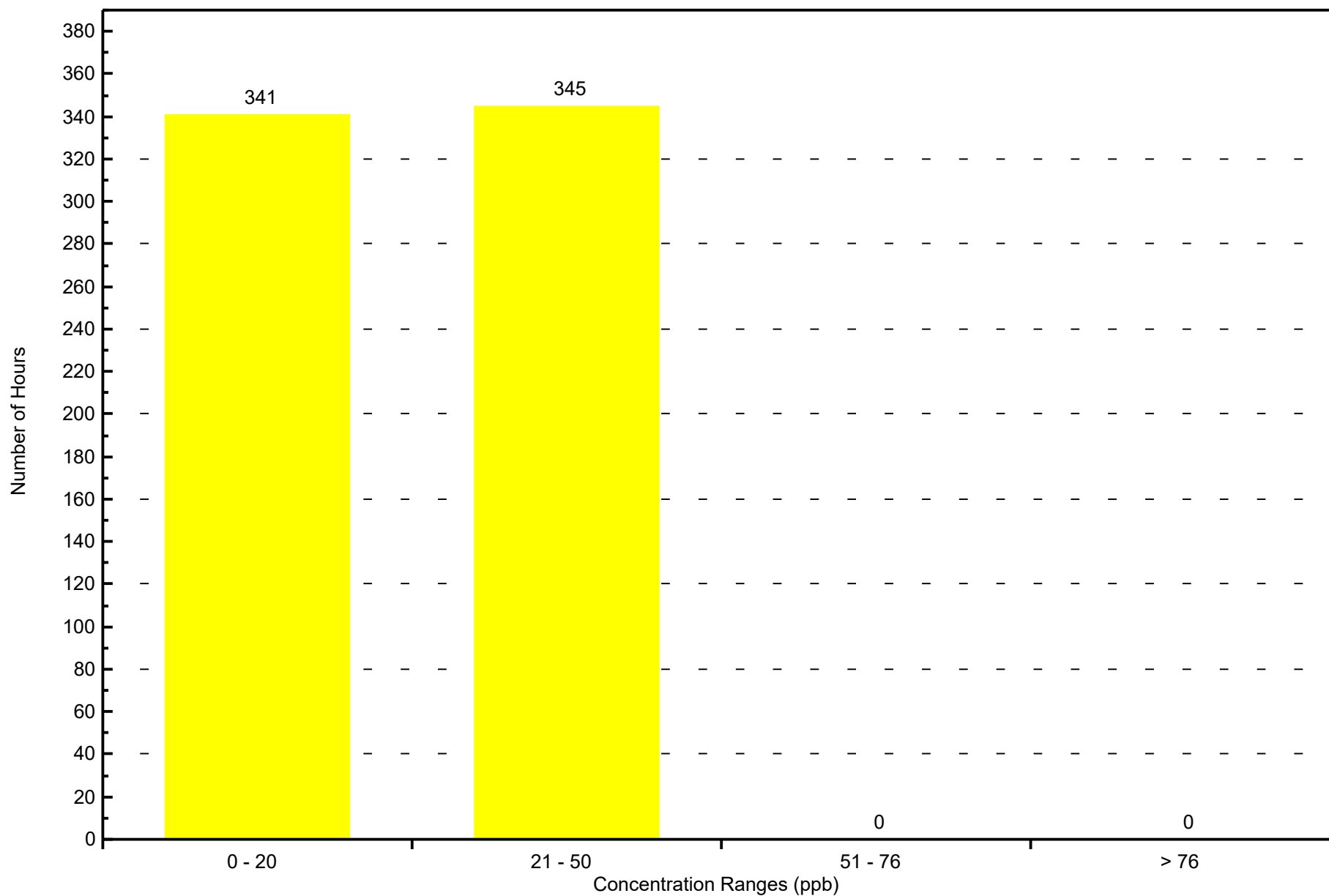
## Hourly Averages

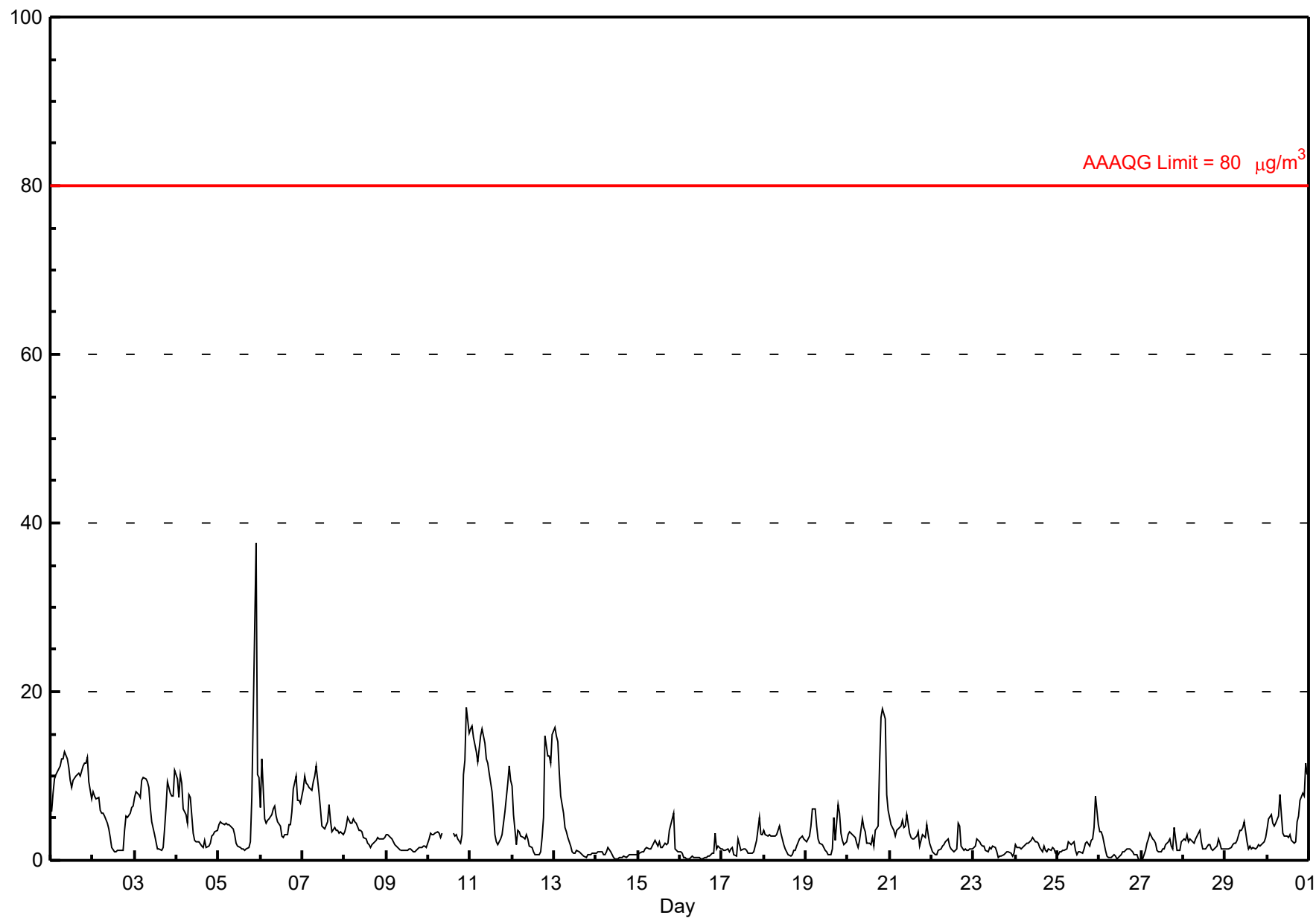
Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - September 2019

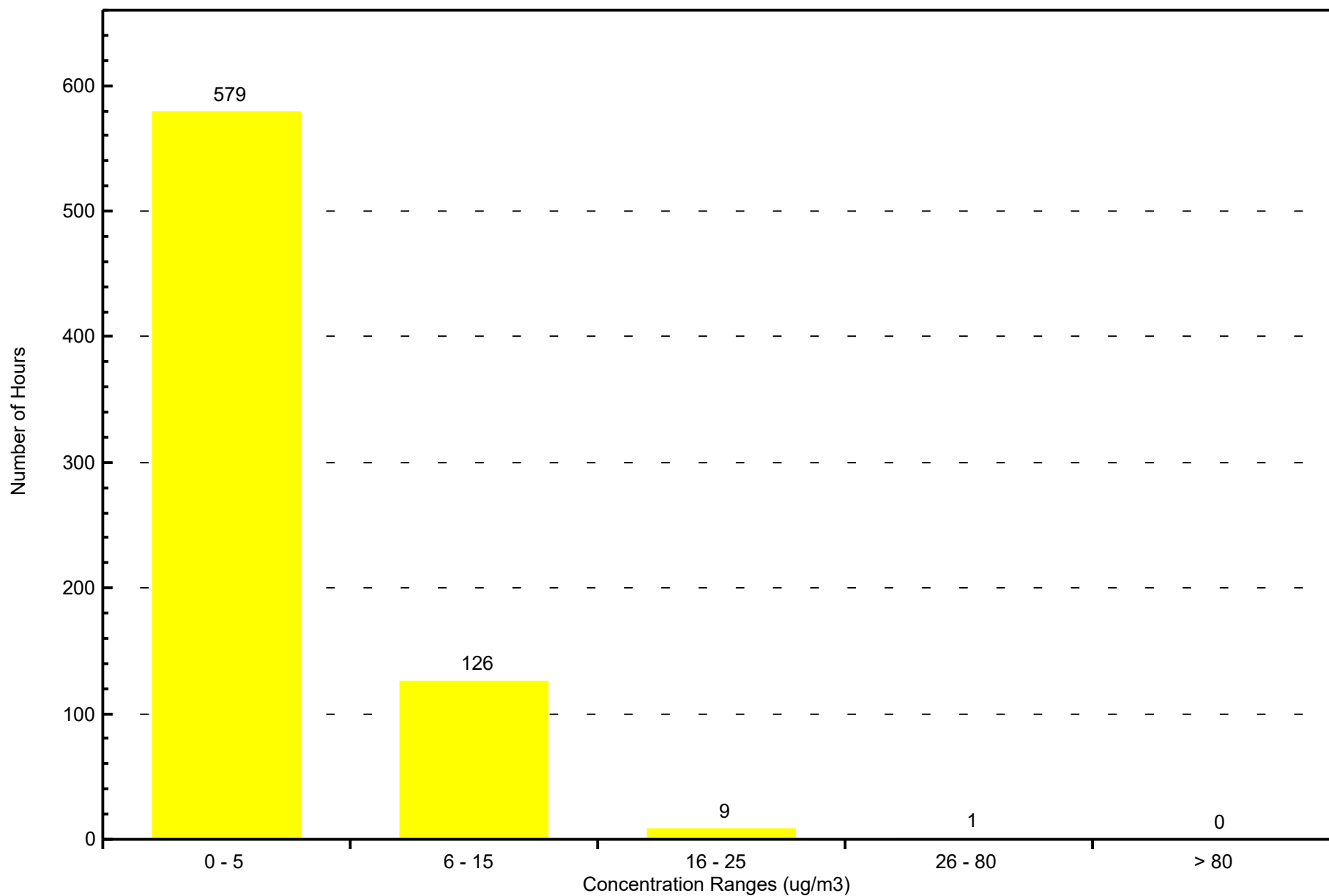


# Histogram of Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - September 2019

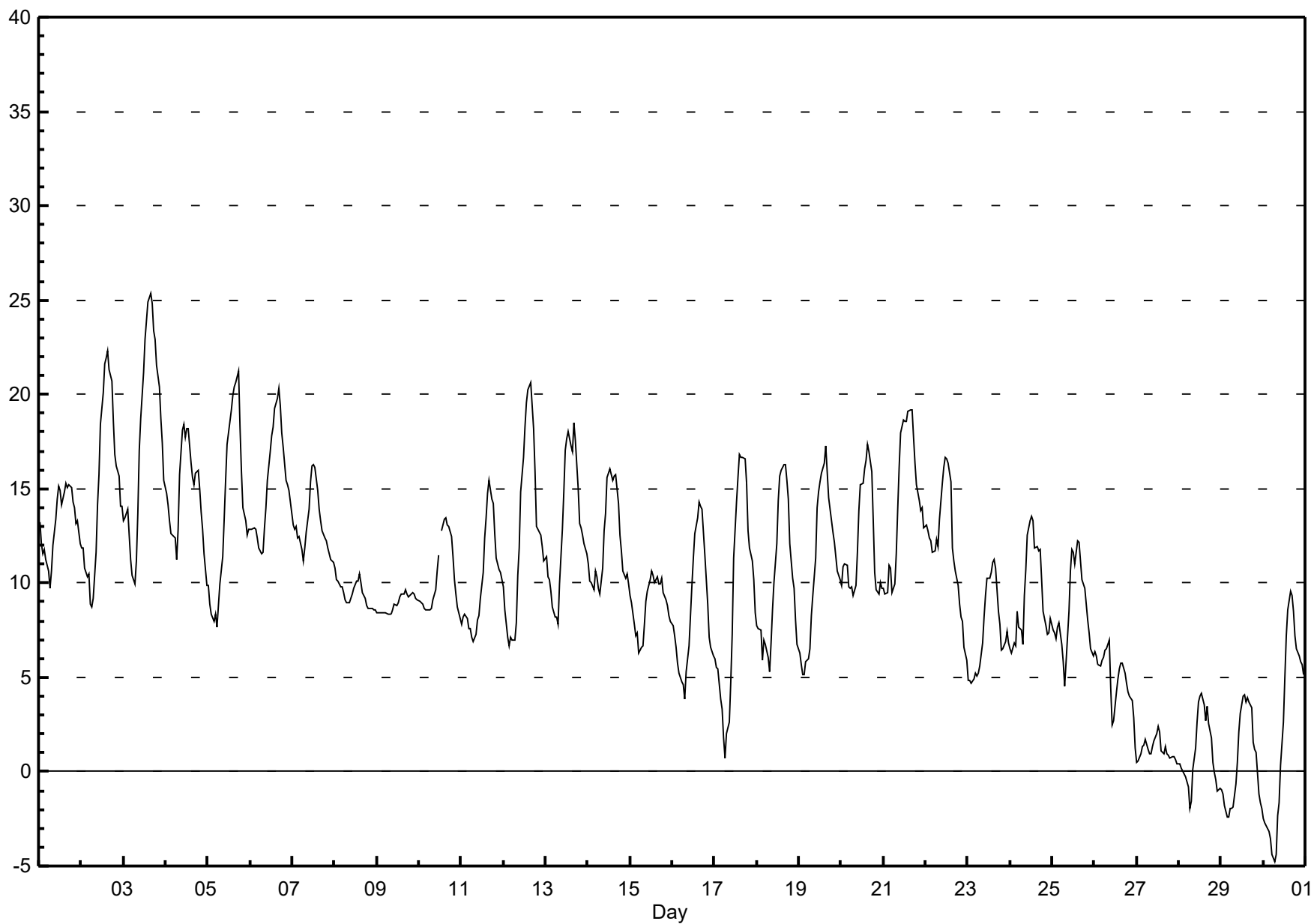






## Hourly Averages

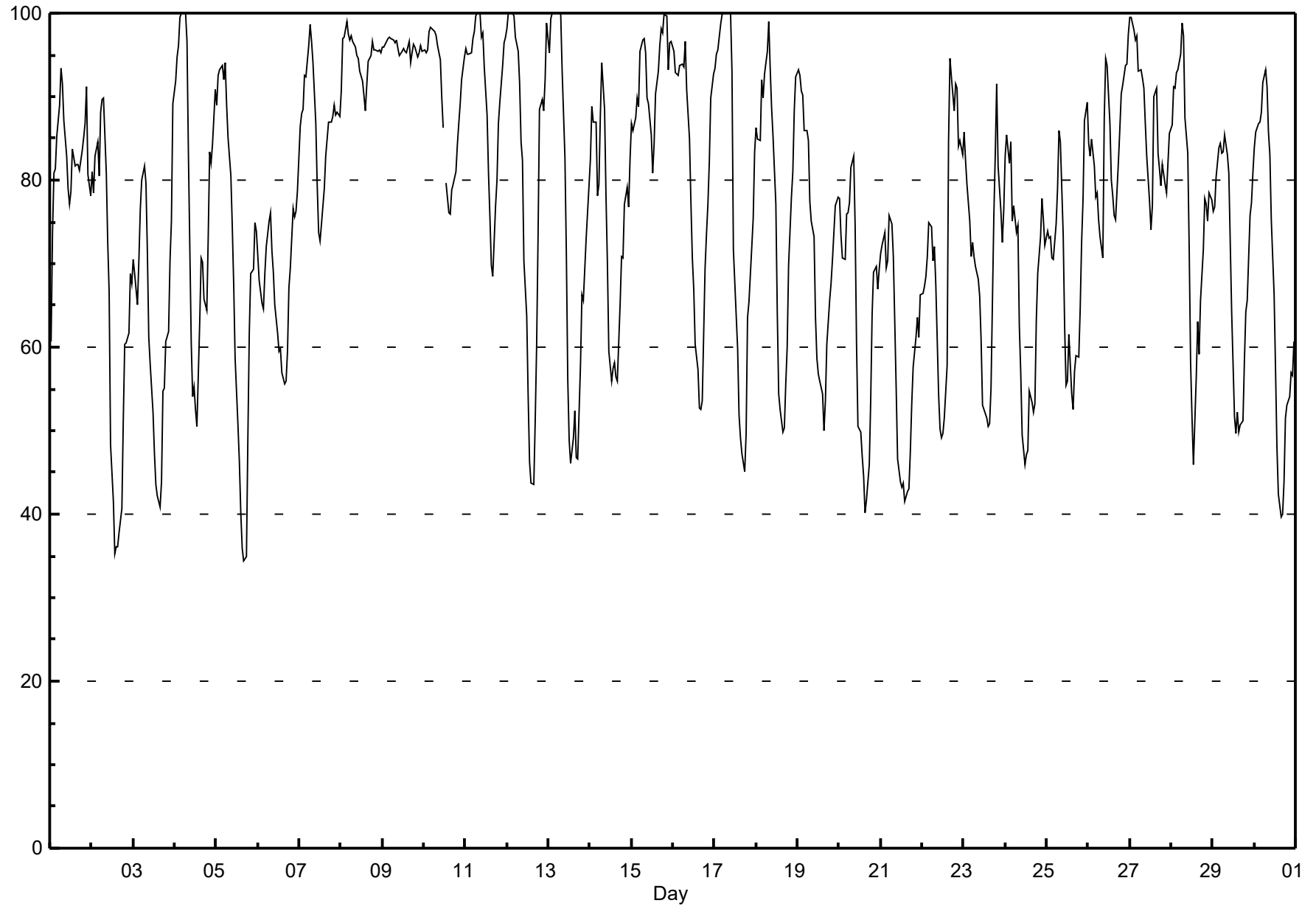
External Temperature (ET) - °C  
Beaverlodge - September 2019





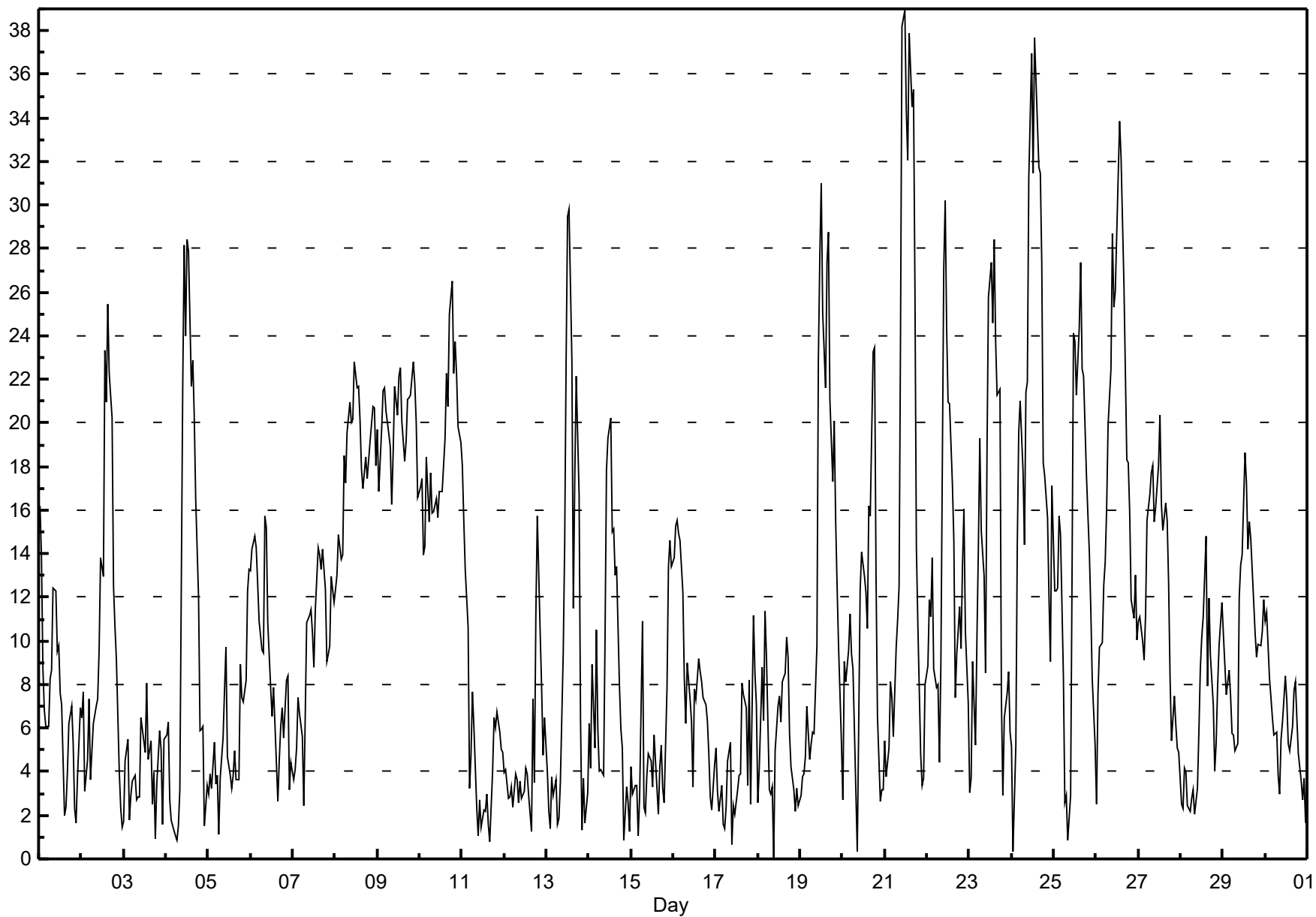
## Hourly Averages

Relative Humidity (RH) - %  
Beaverlodge - September 2019



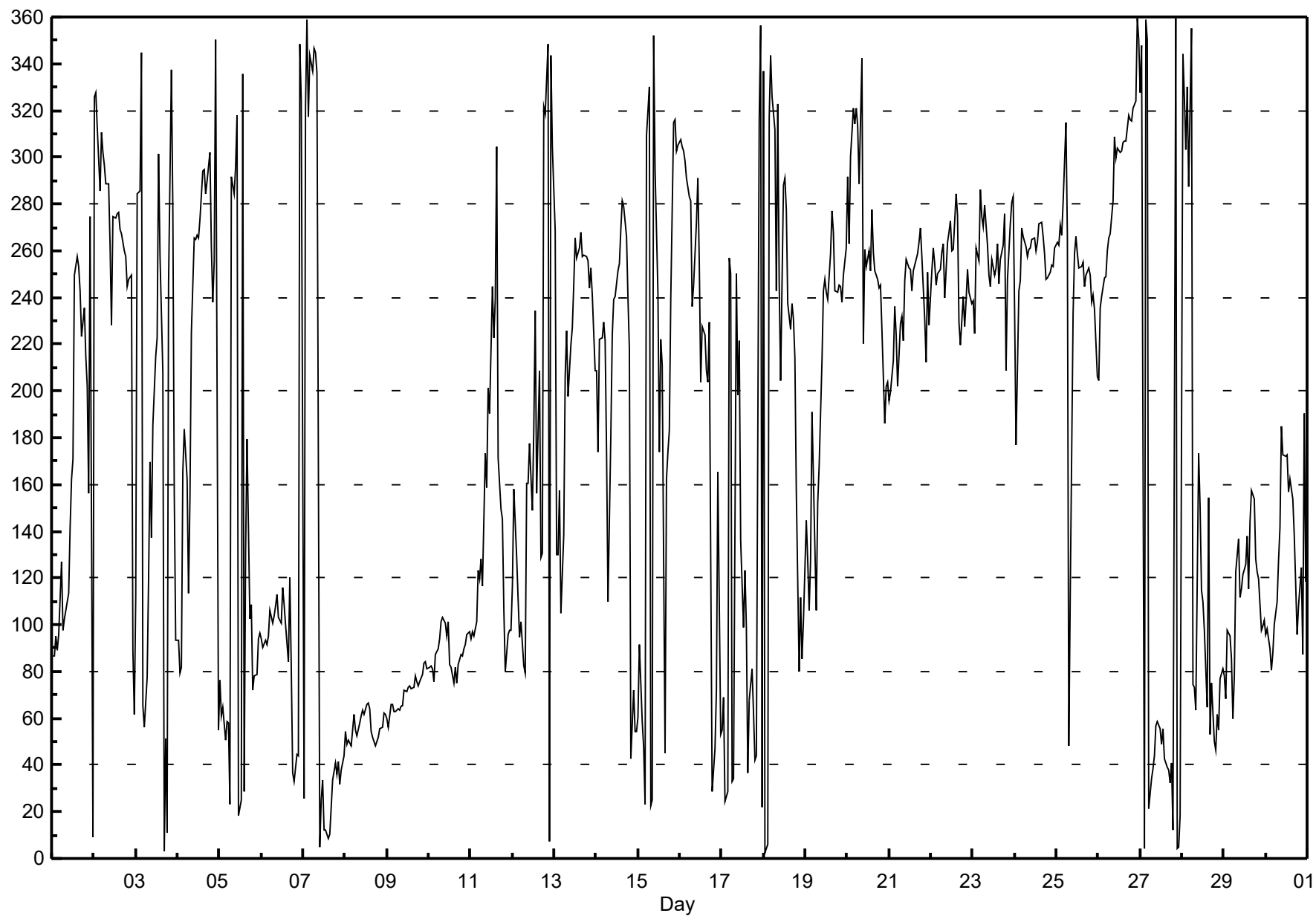
## Hourly Averages

**Wind Speed (WS) - km/h**  
**Beaverlodge - September 2019**



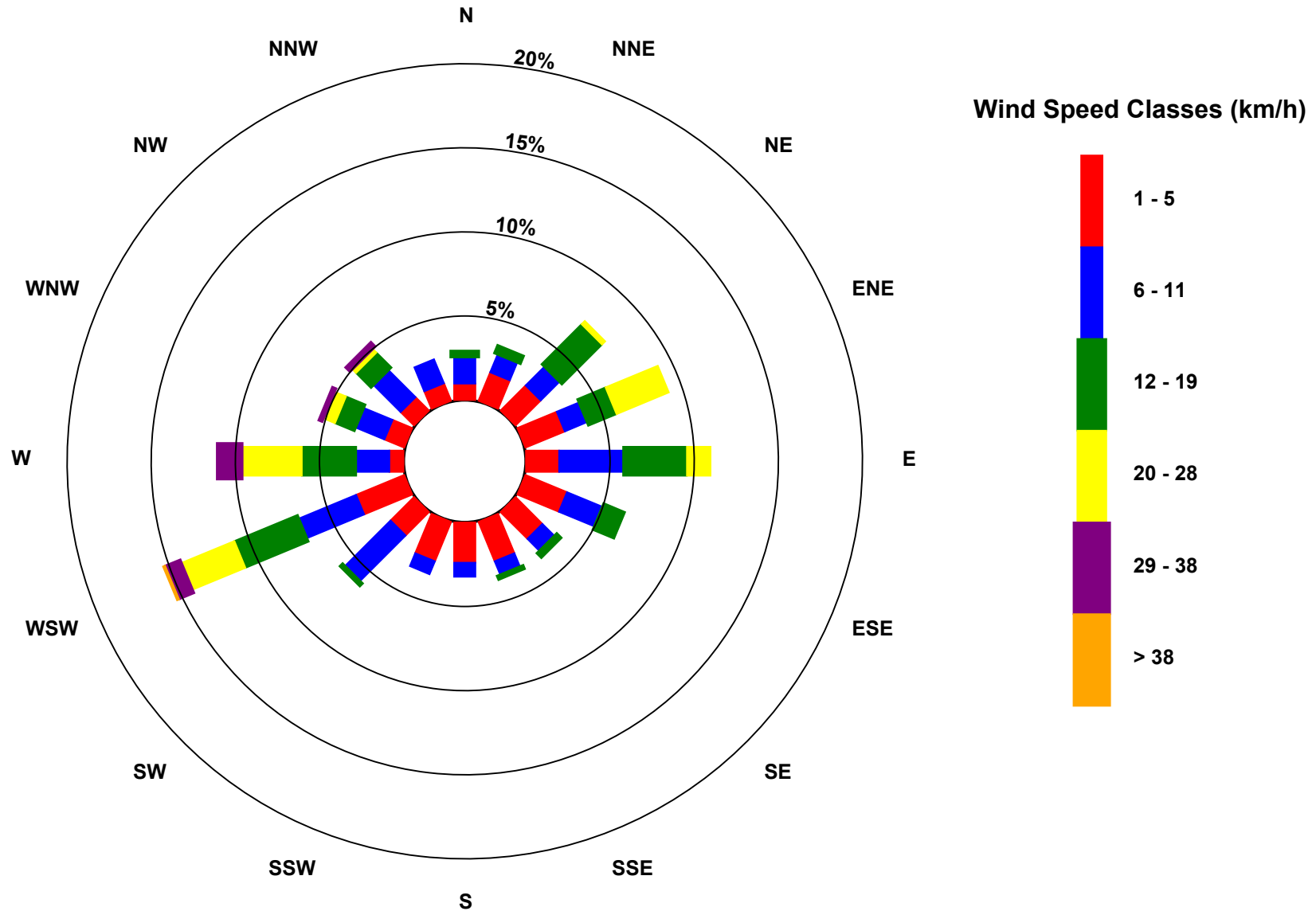
## Hourly Averages

Wind Direction (WD) - deg  
Beaverlodge - September 2019



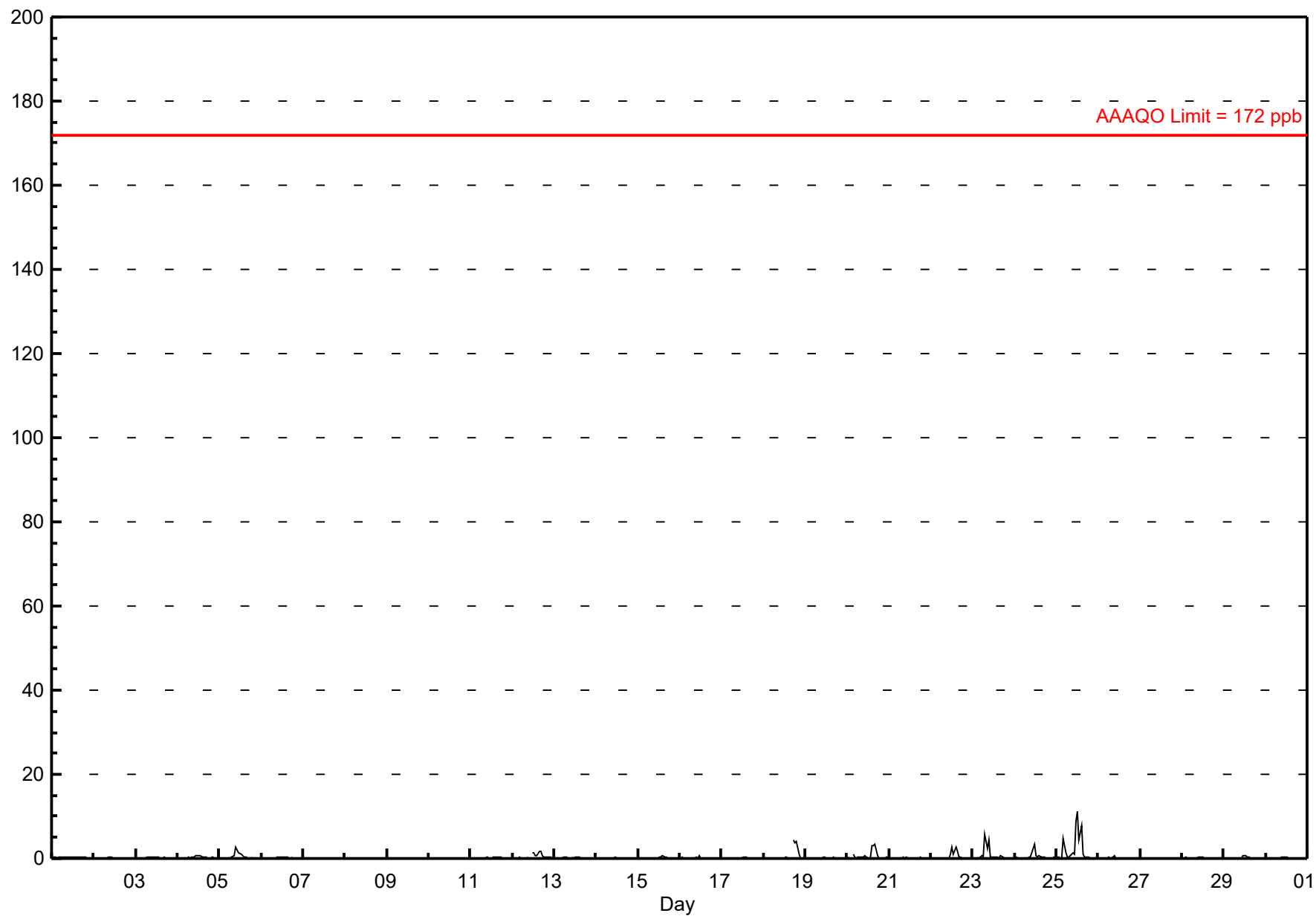
## Wind Rose

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



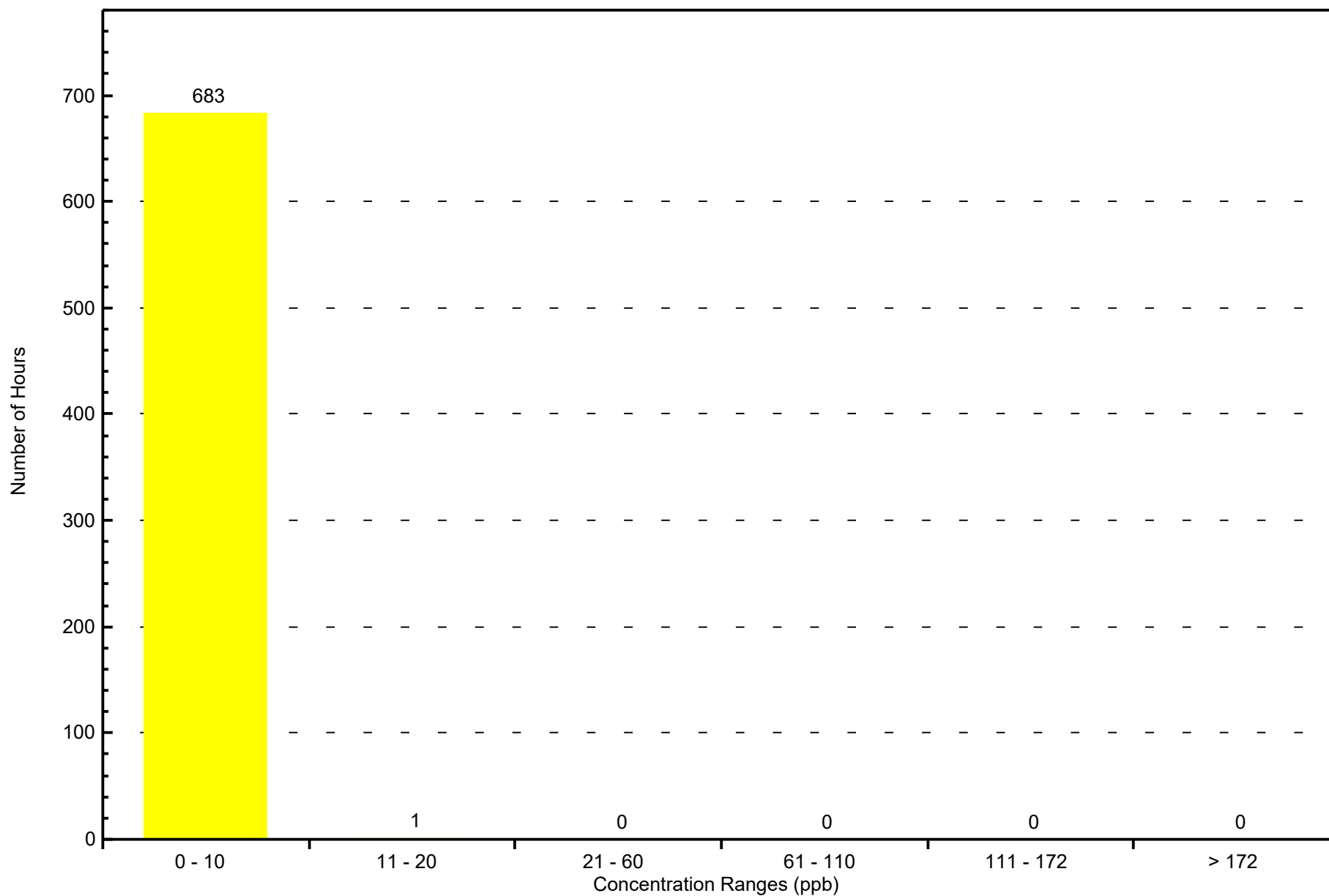
## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Evergreen Park - September 2019**



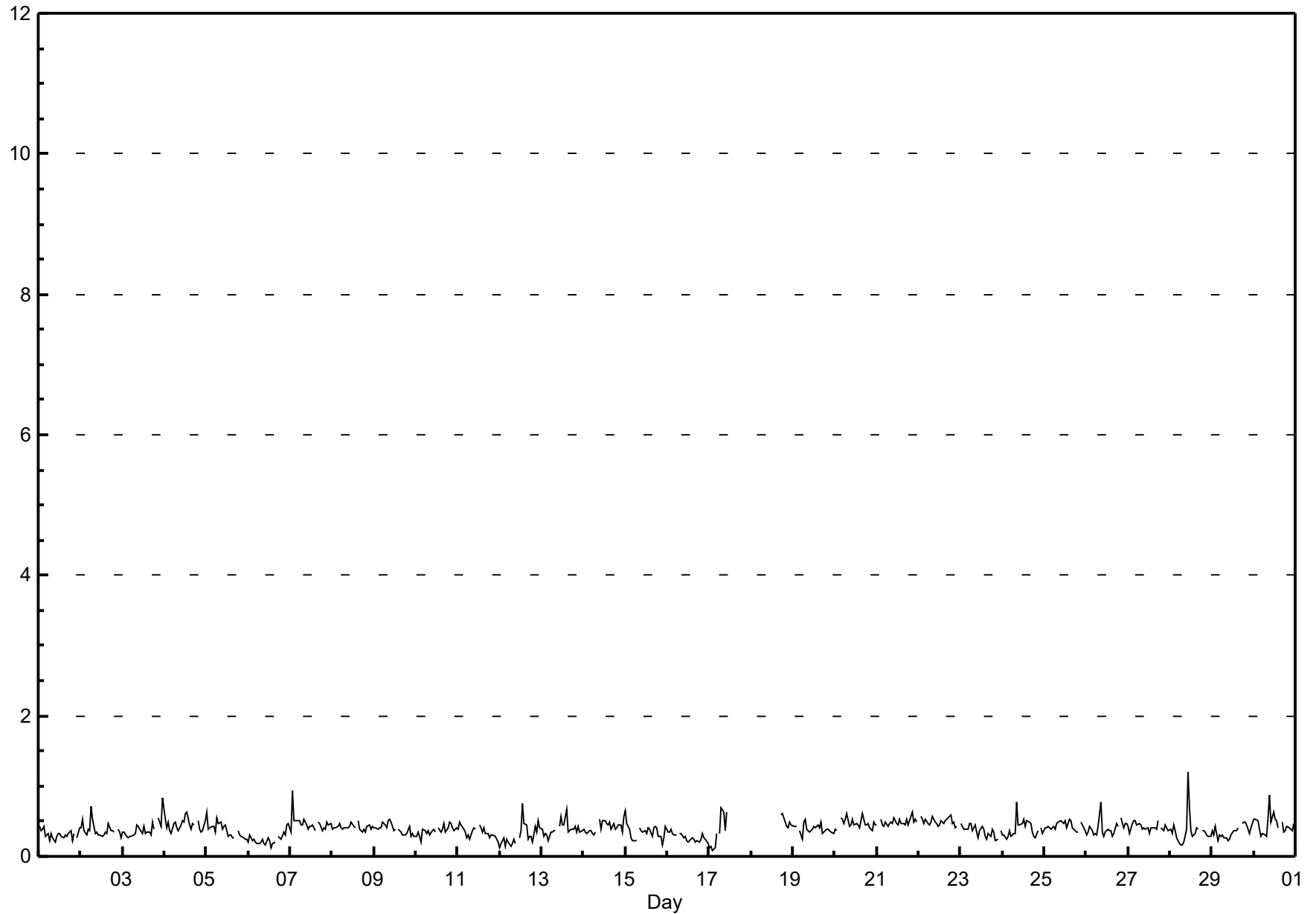
# Histogram of Hourly Averages

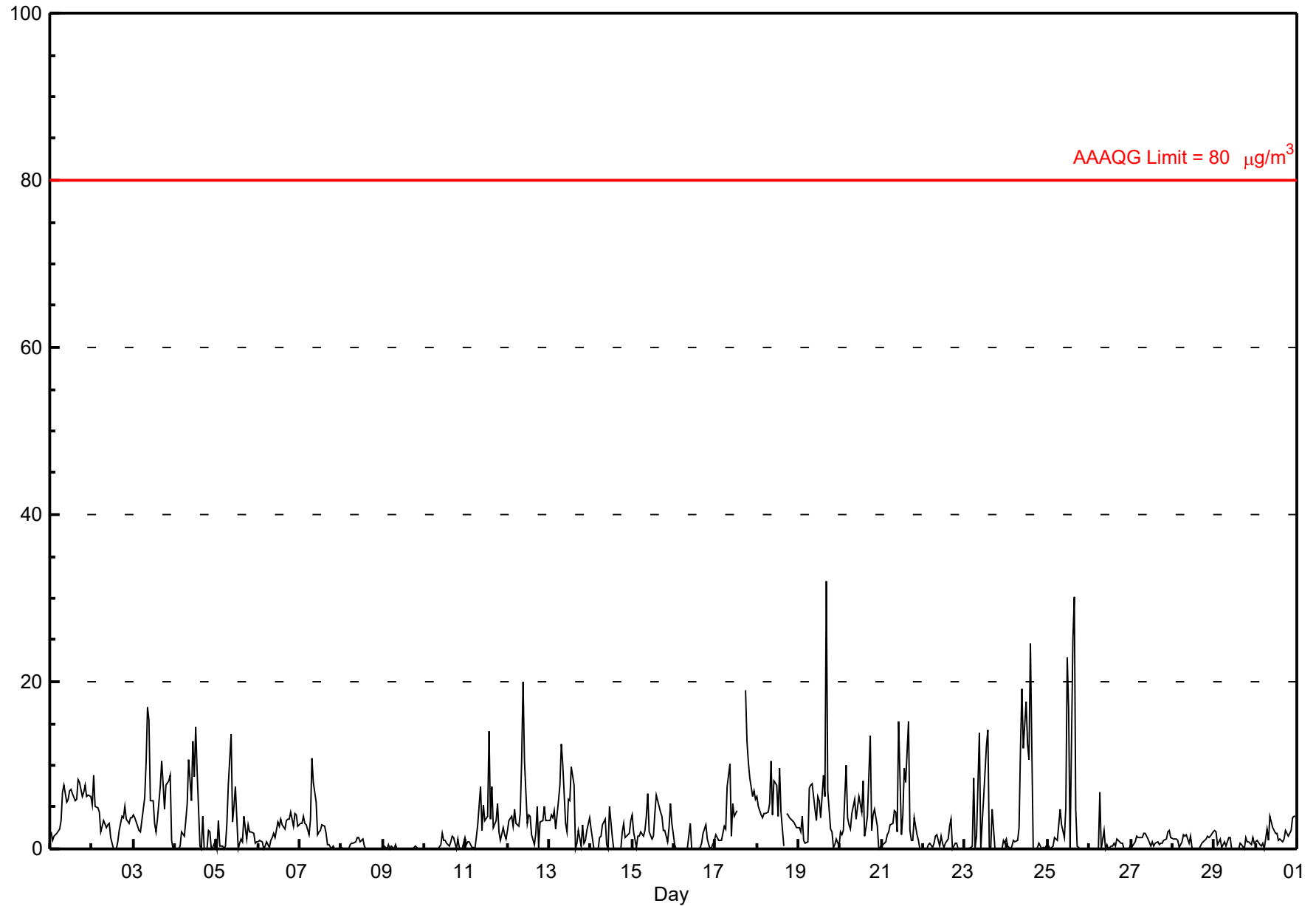
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Evergreen Park - September 2019**



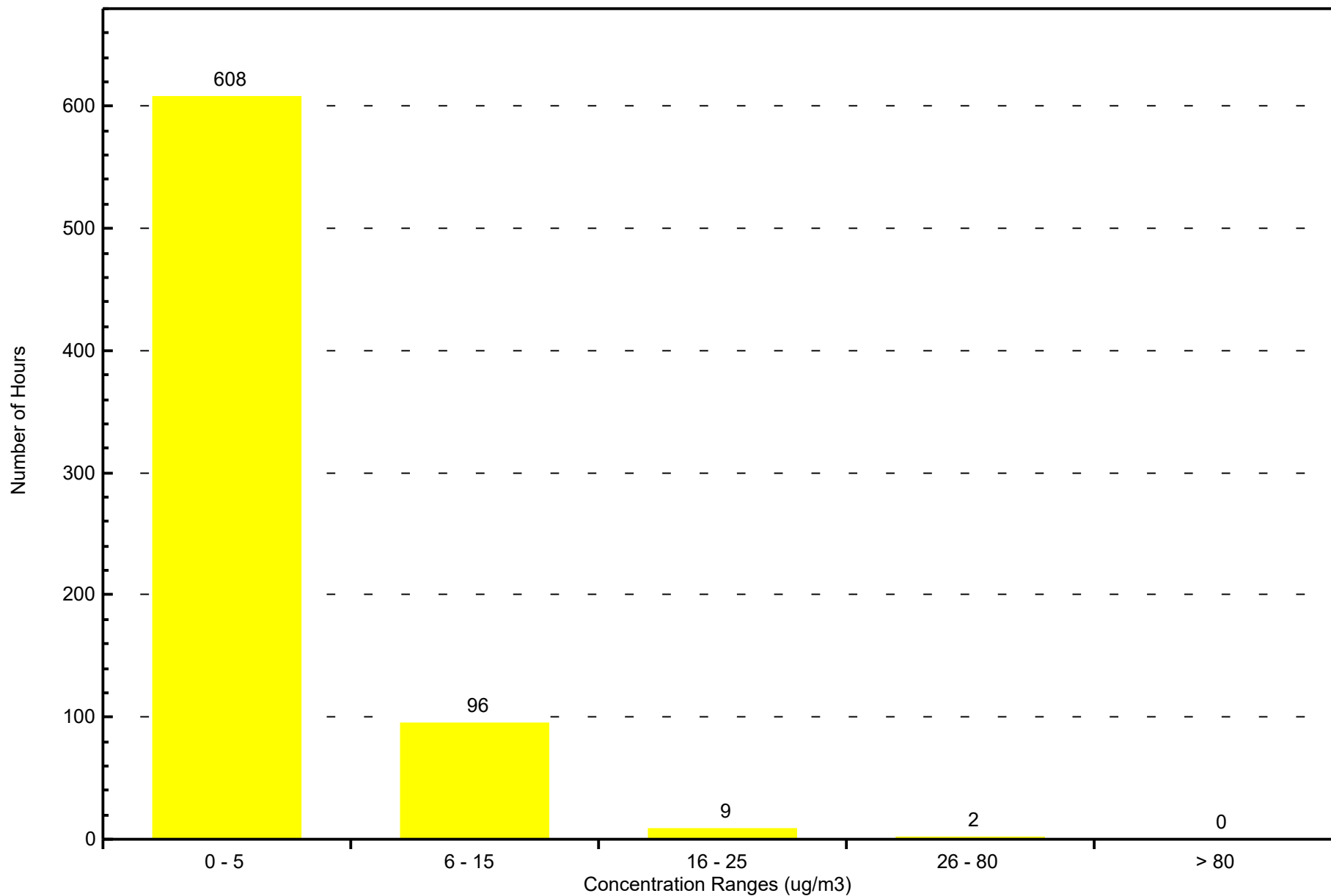
## Hourly Averages

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



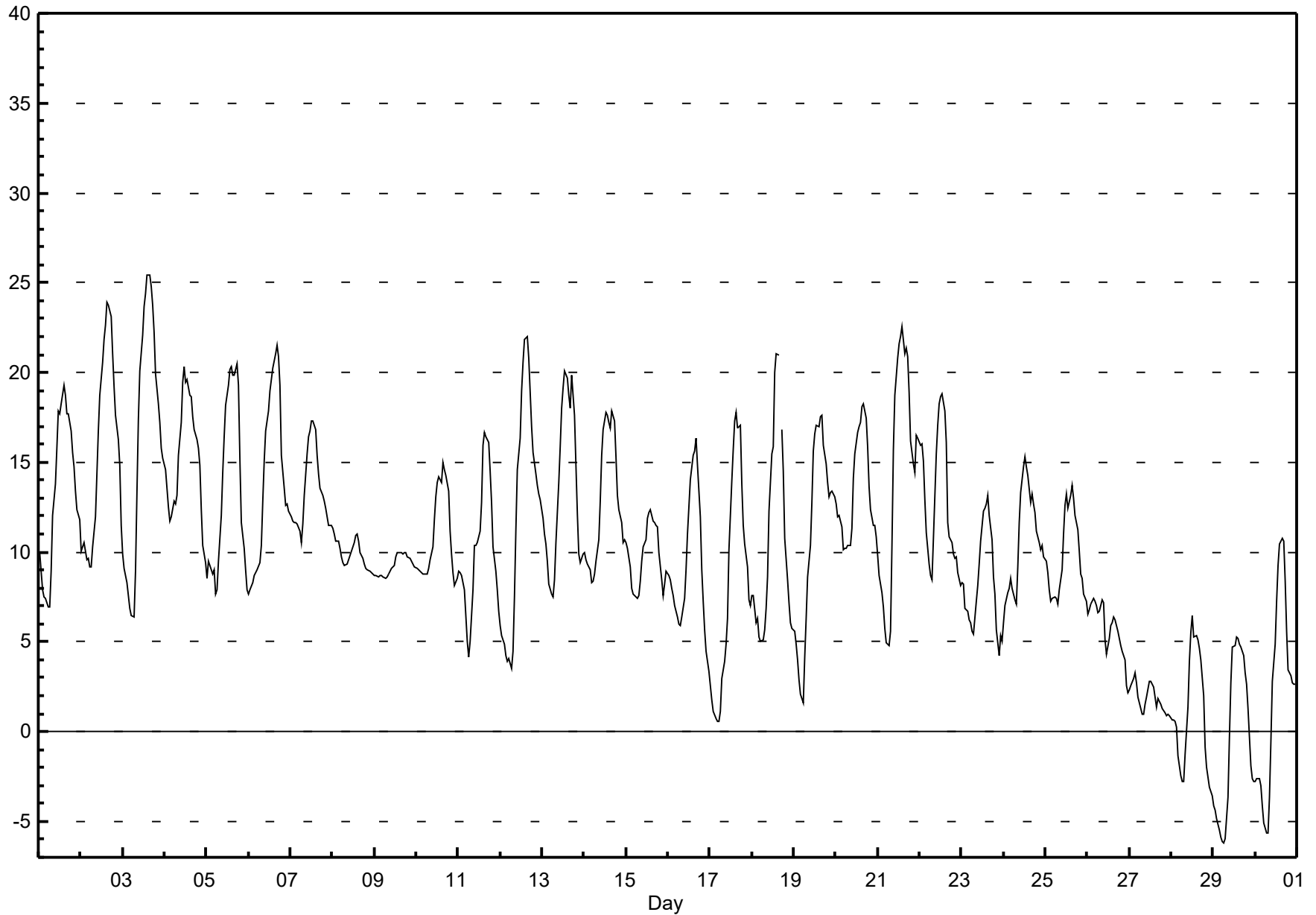






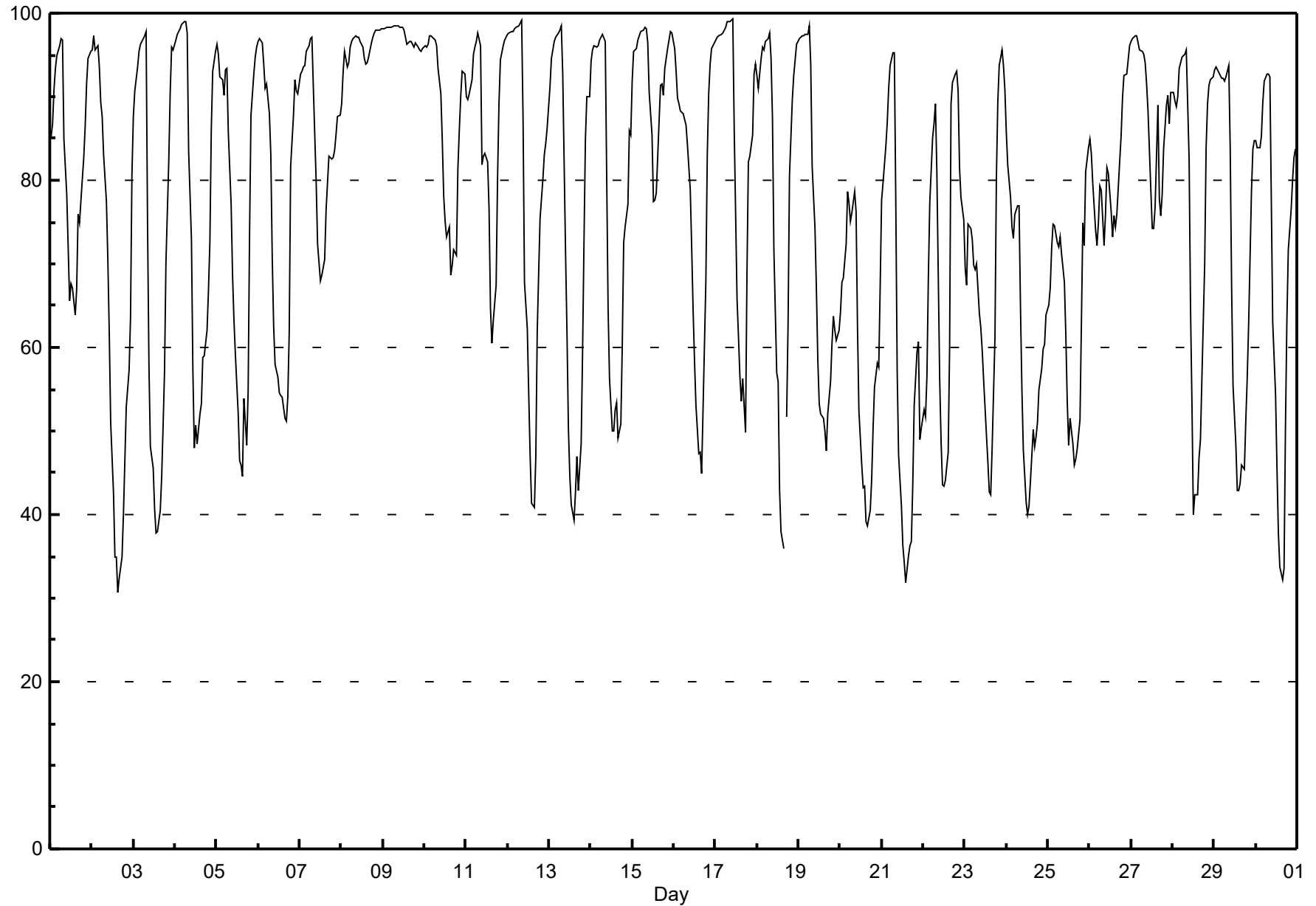
## Hourly Averages

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



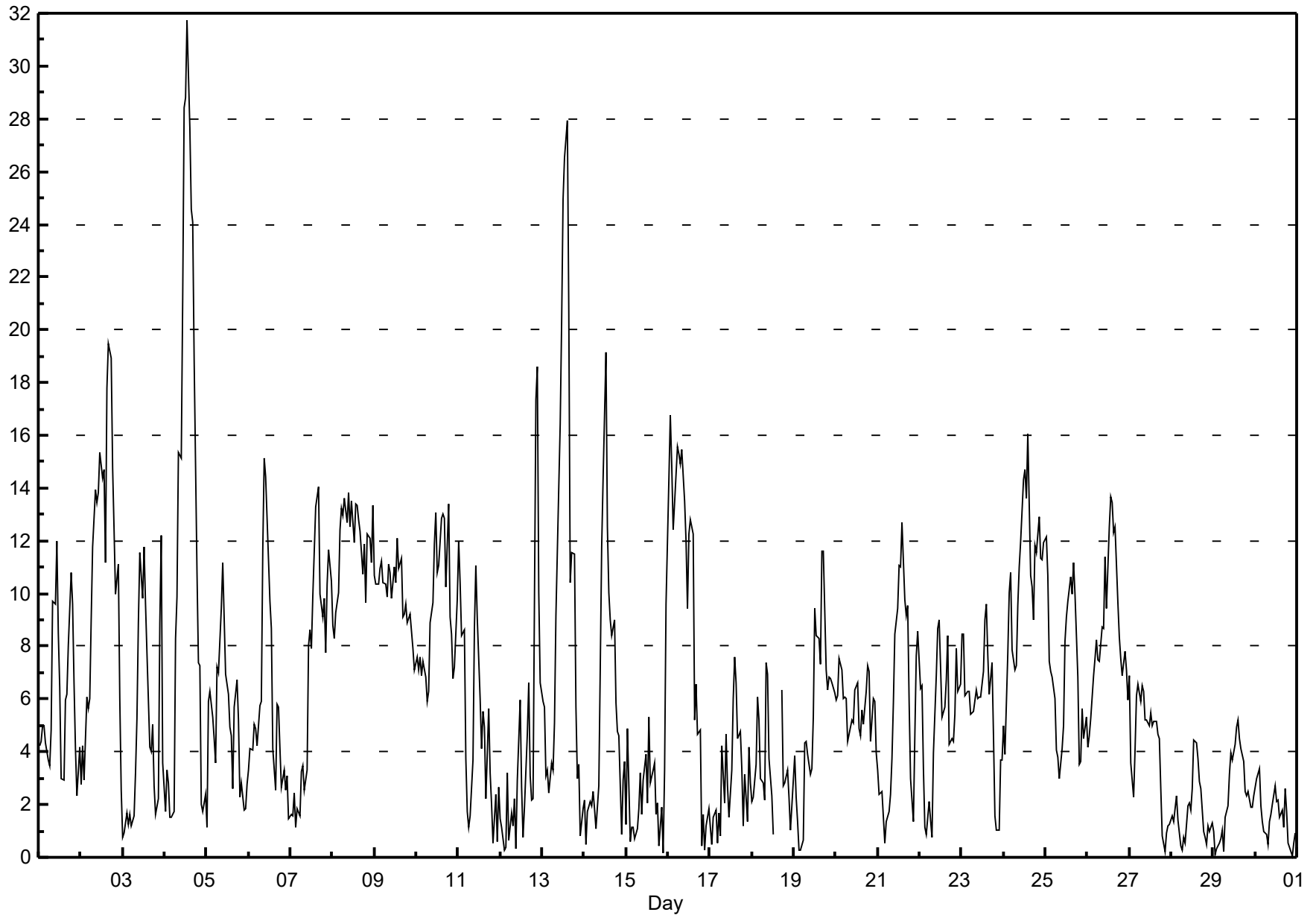
## Hourly Averages

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



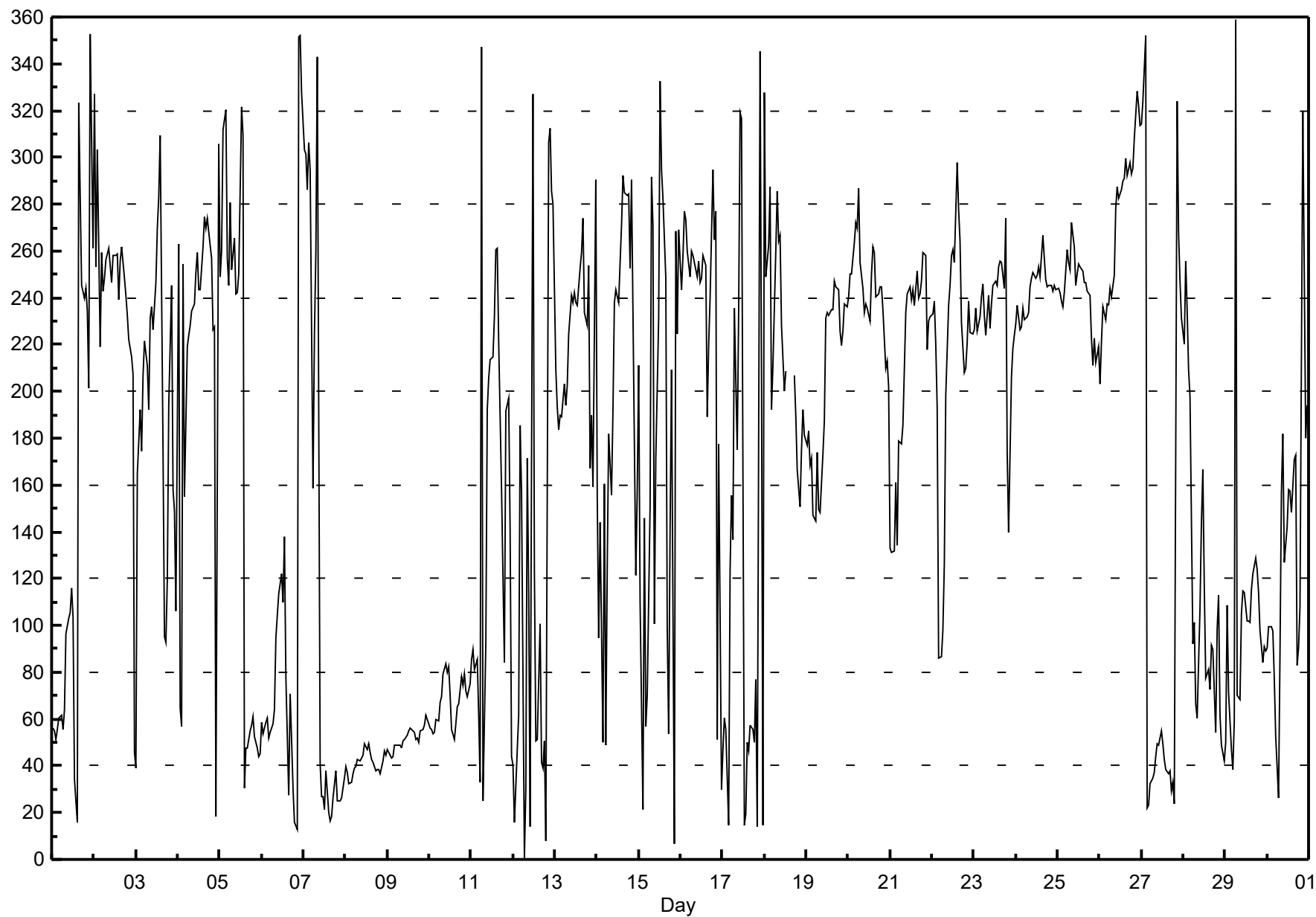
## Hourly Averages

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



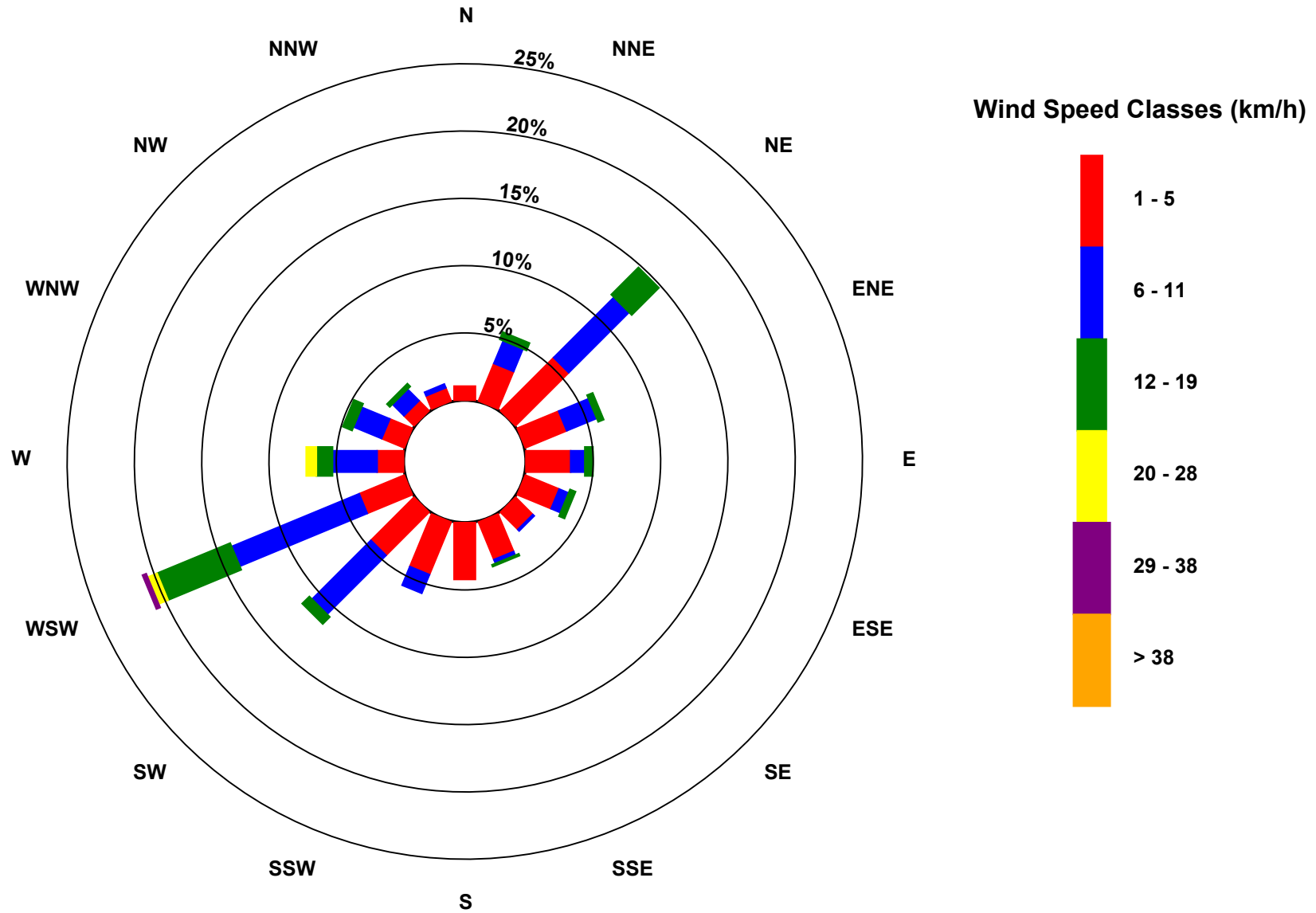
## Hourly Averages

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



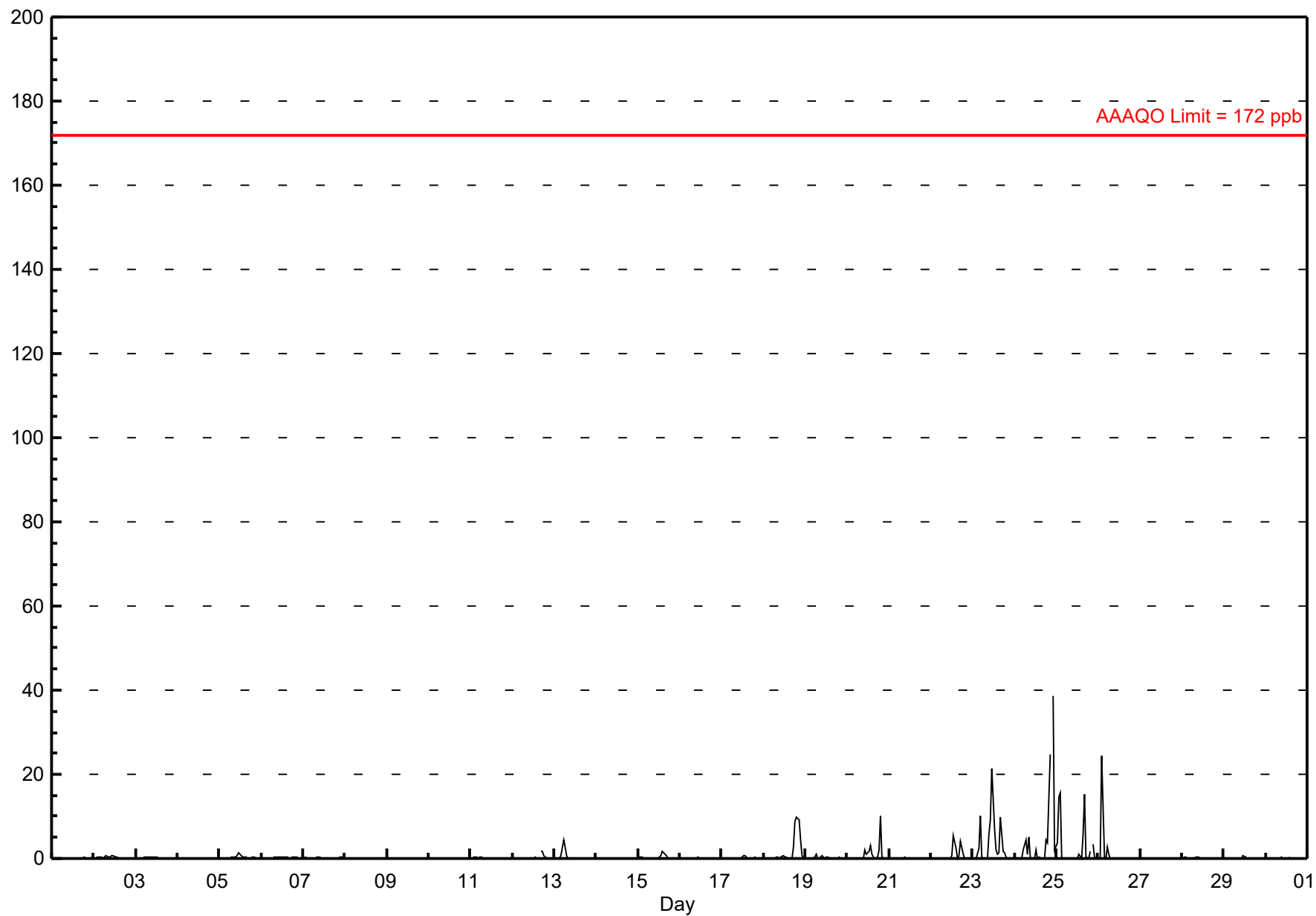
## Wind Rose

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



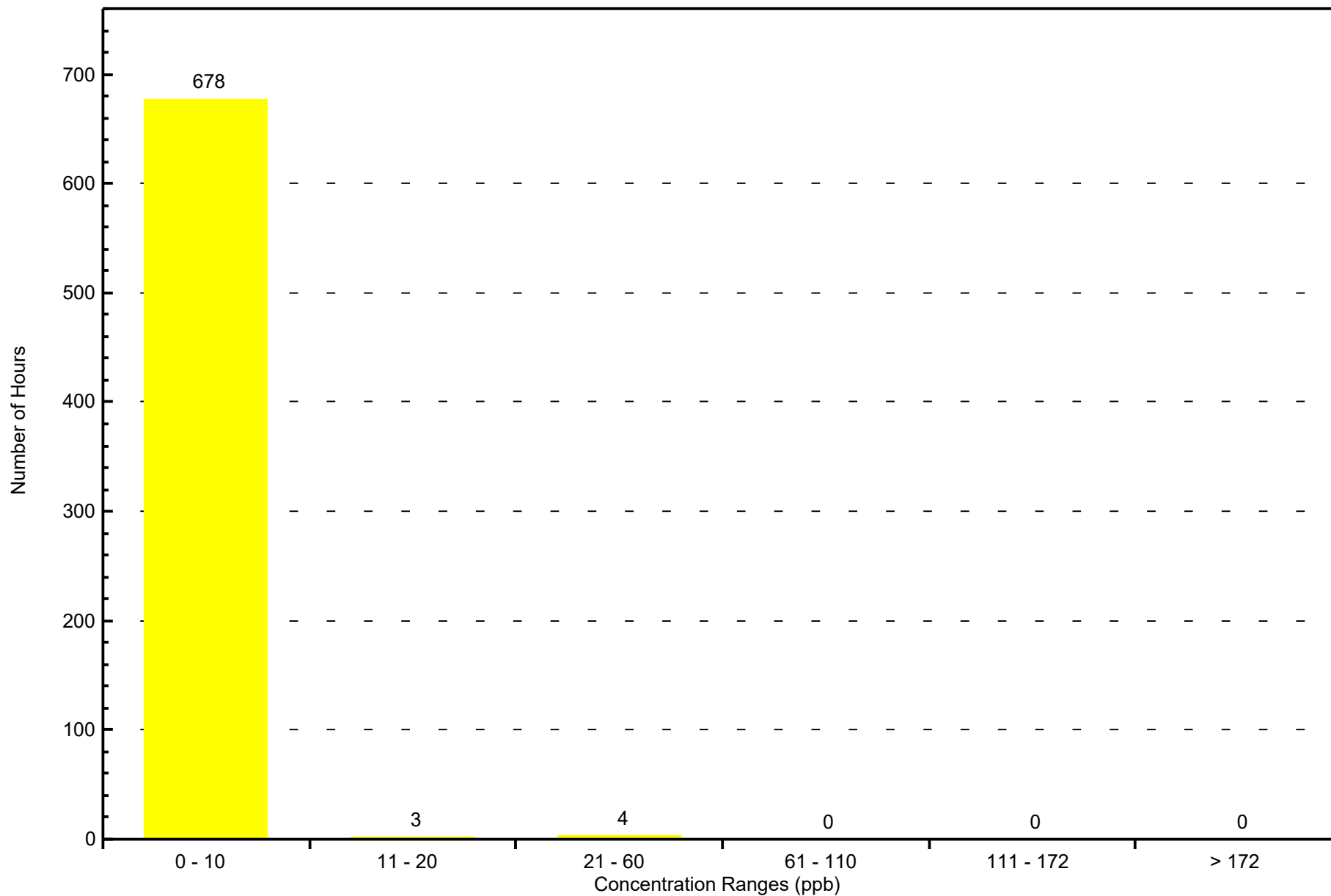
## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Henry Pirker - September 2019**



## Histogram of Hourly Averages

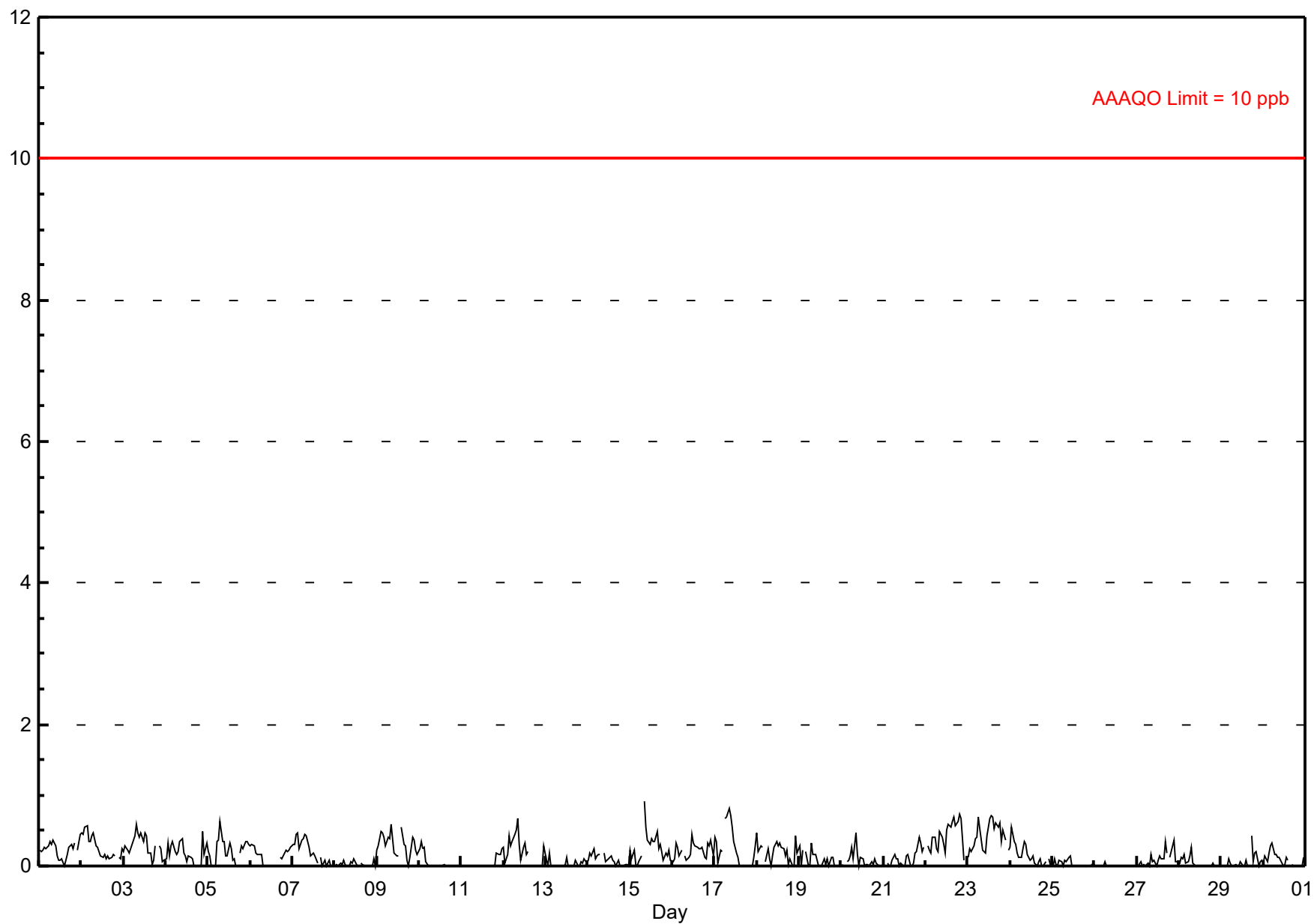
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Henry Pirker - September 2019**





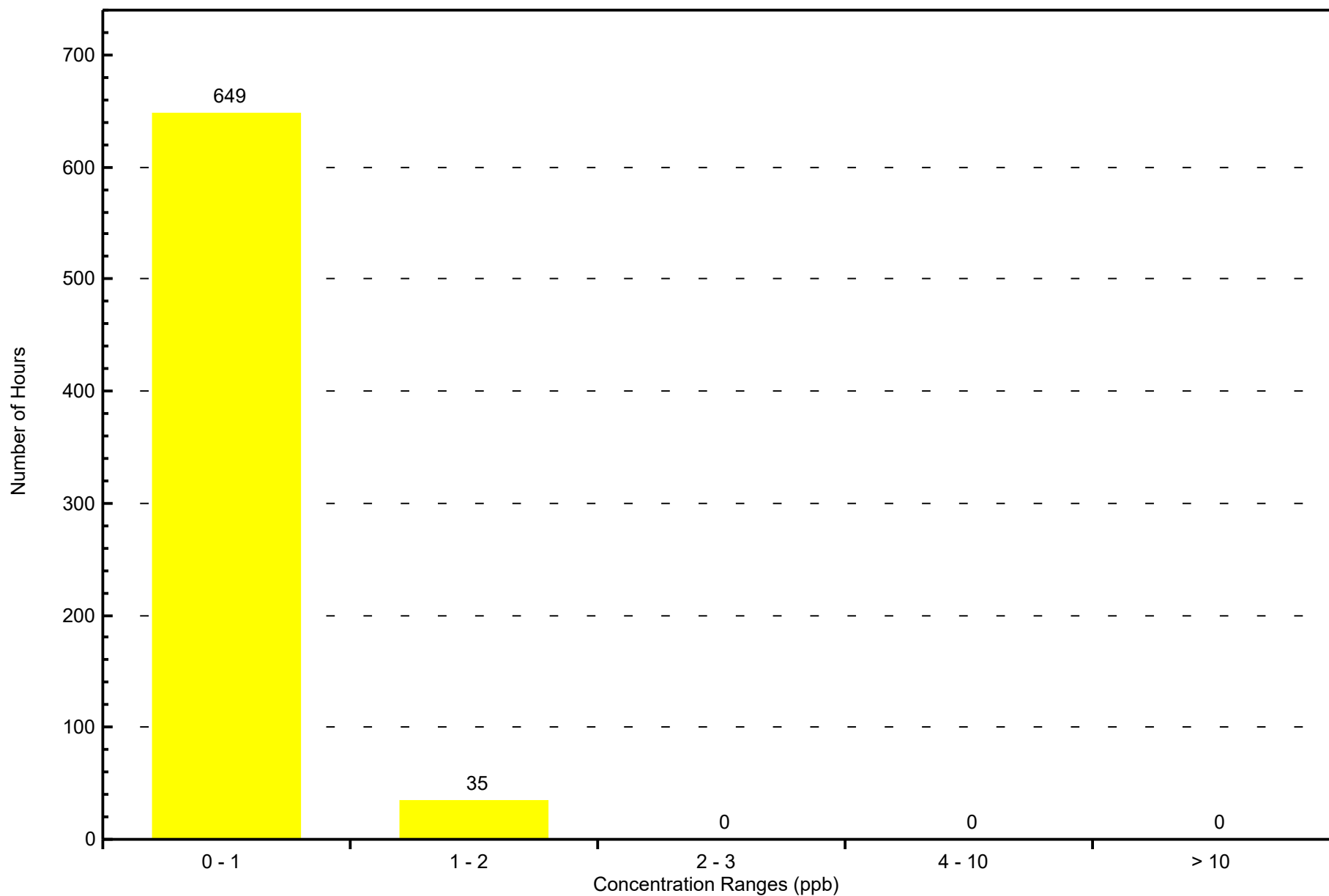
## Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Henry Pirker - September 2019



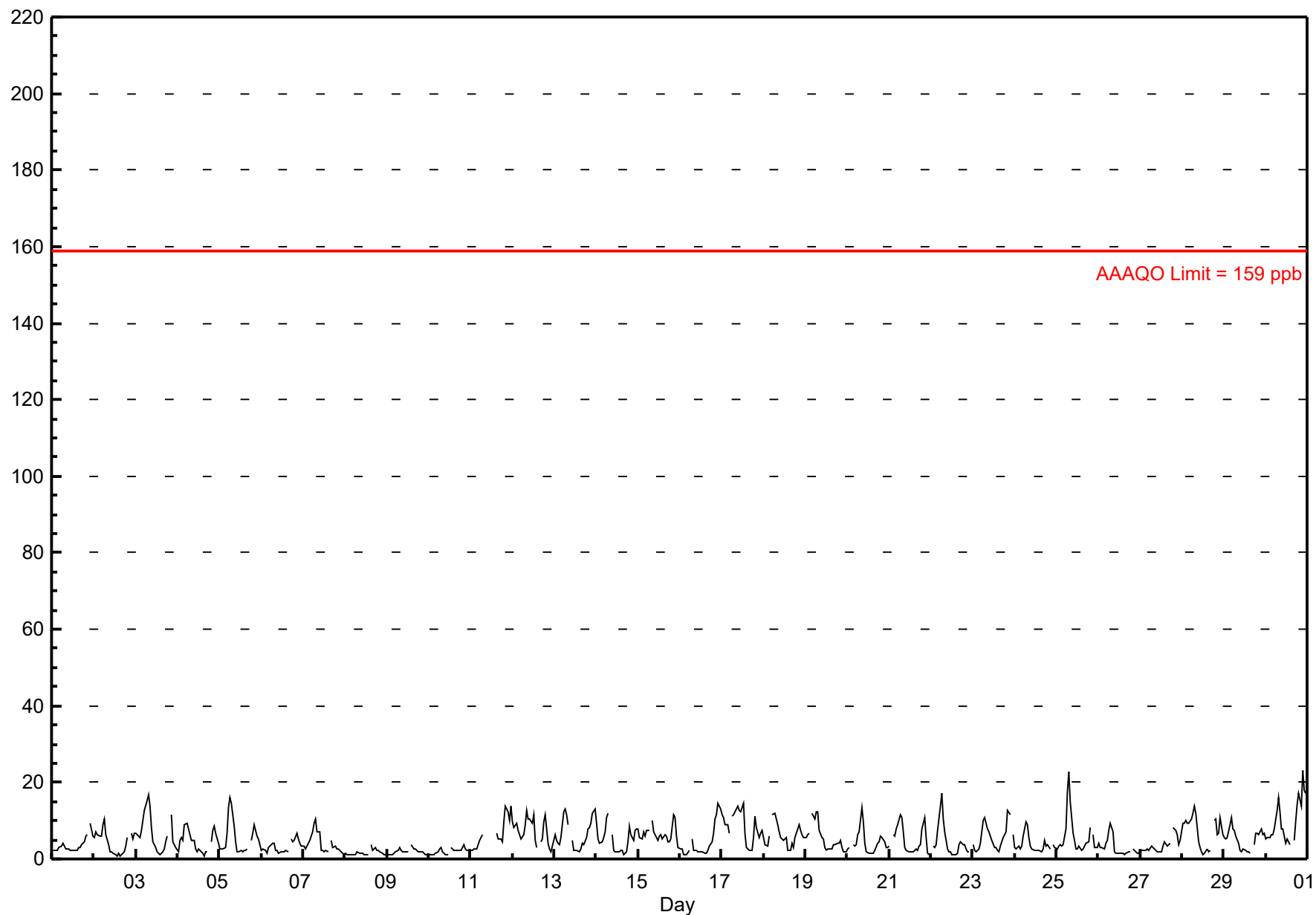
## Histogram of Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Henry Pirker - September 2019



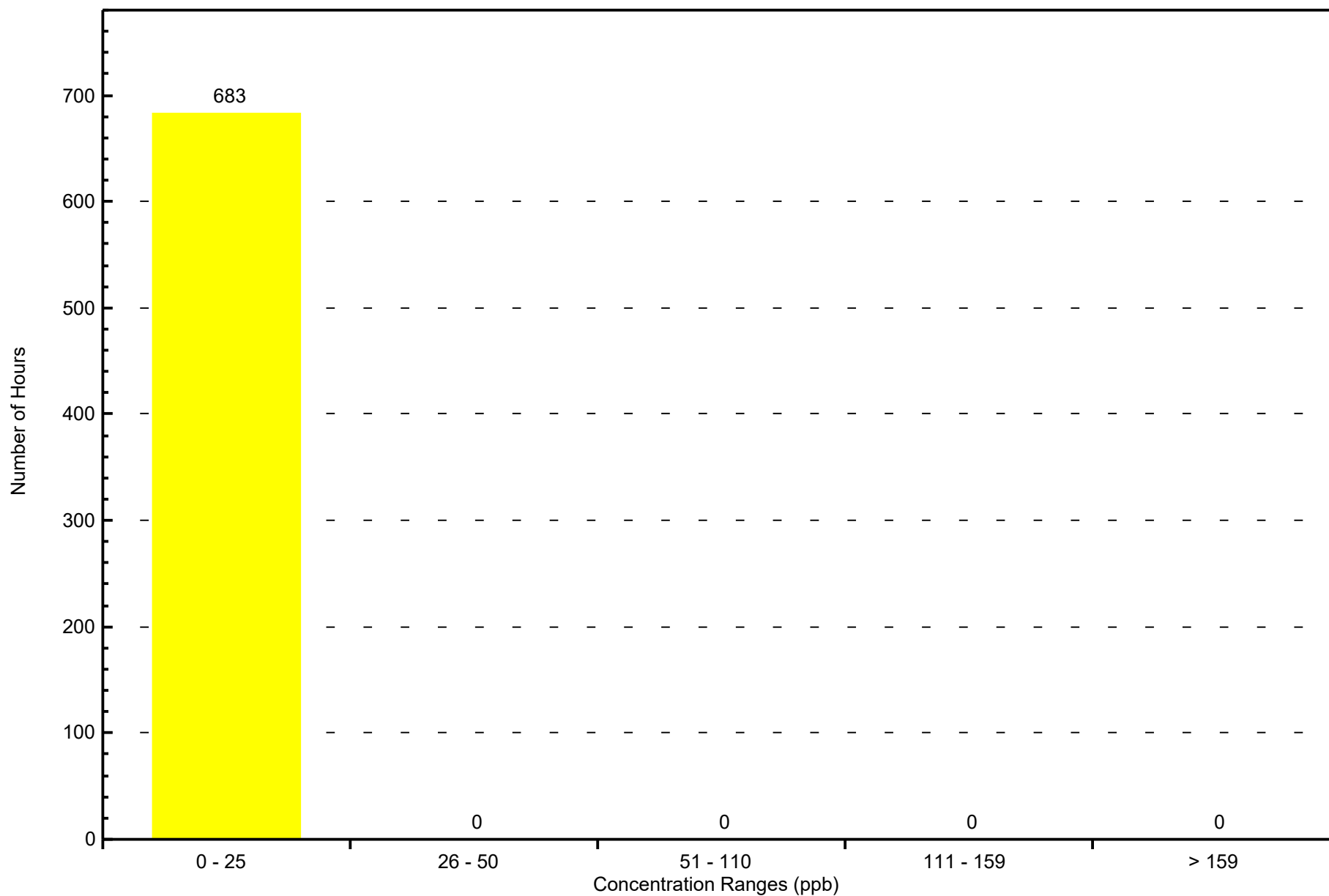
## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Henry Pirker - September 2019



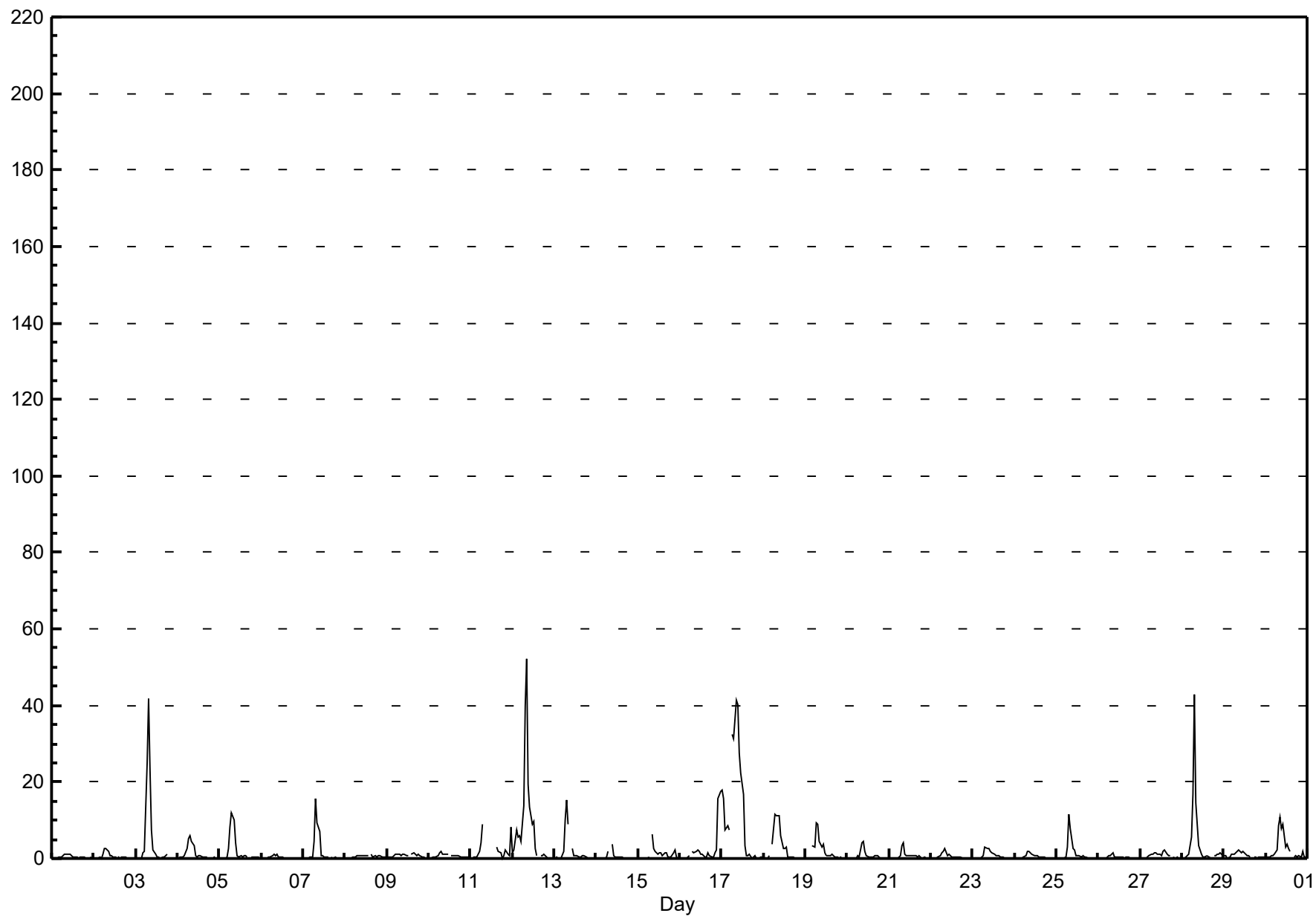
## Histogram of Hourly Averages

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Henry Pirker - September 2019**



## Hourly Averages

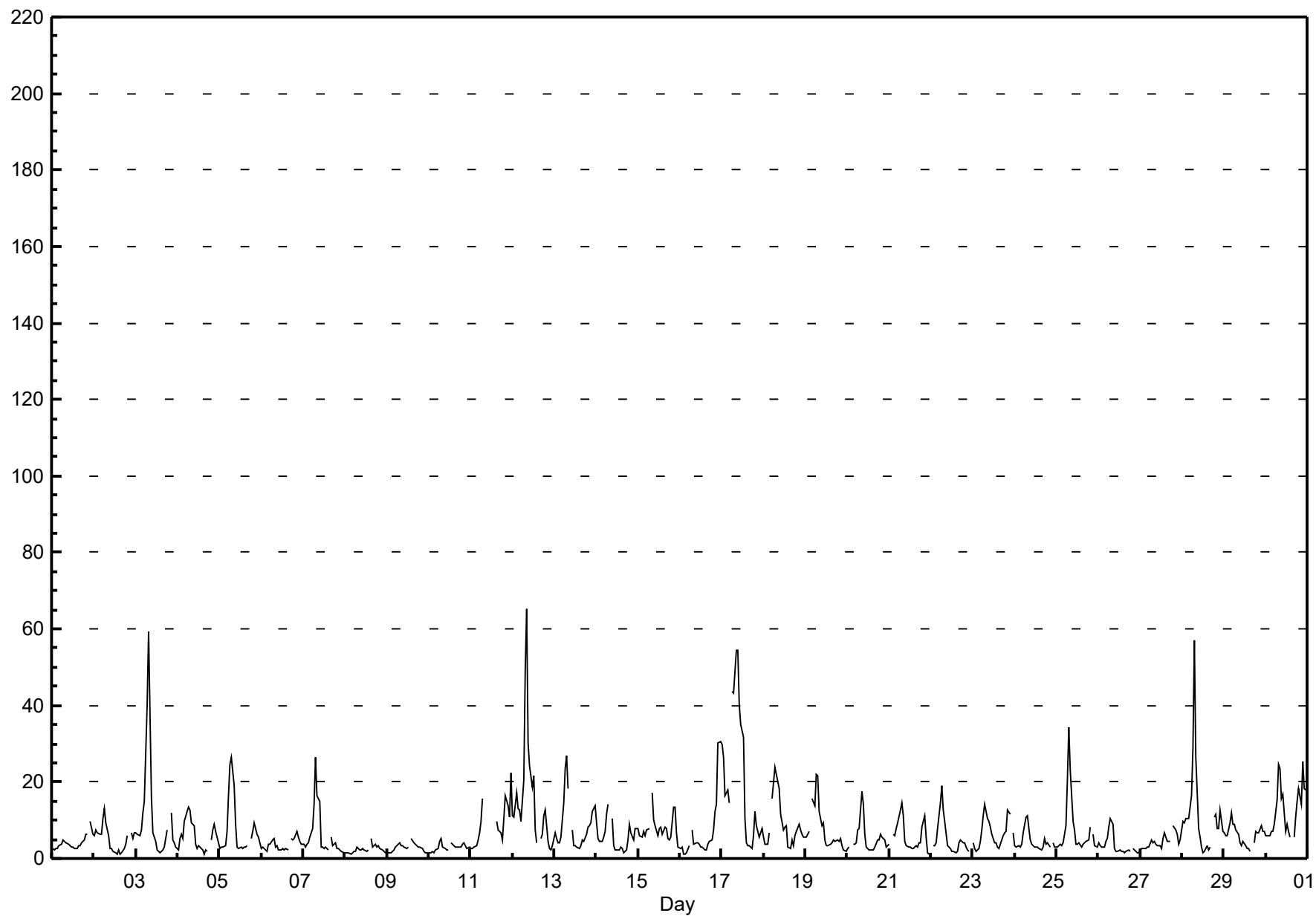
**Nitrogen Oxide (NO) - ppb**  
**Henry Pirker - September 2019**



## Hourly Averages

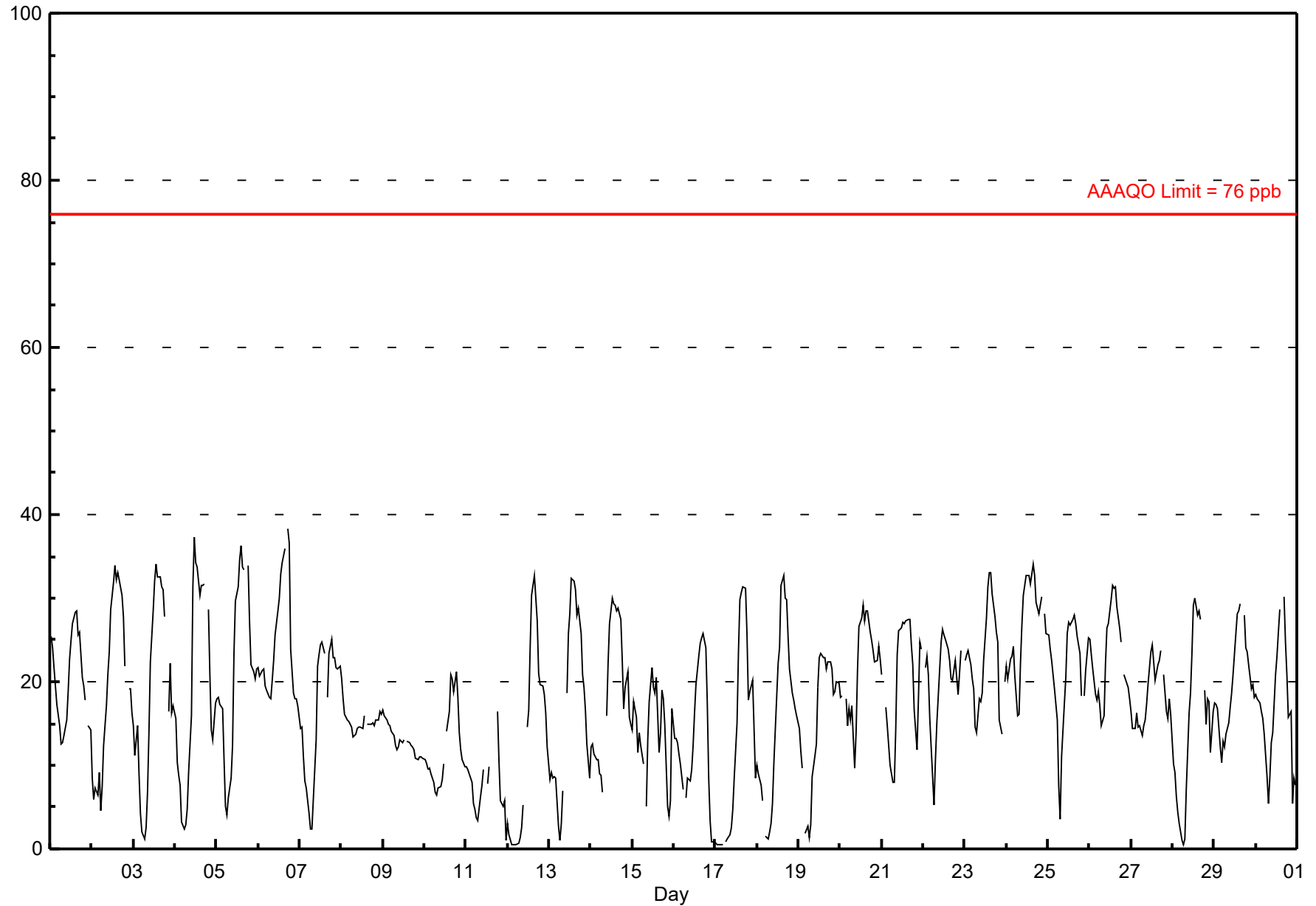
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - September 2019



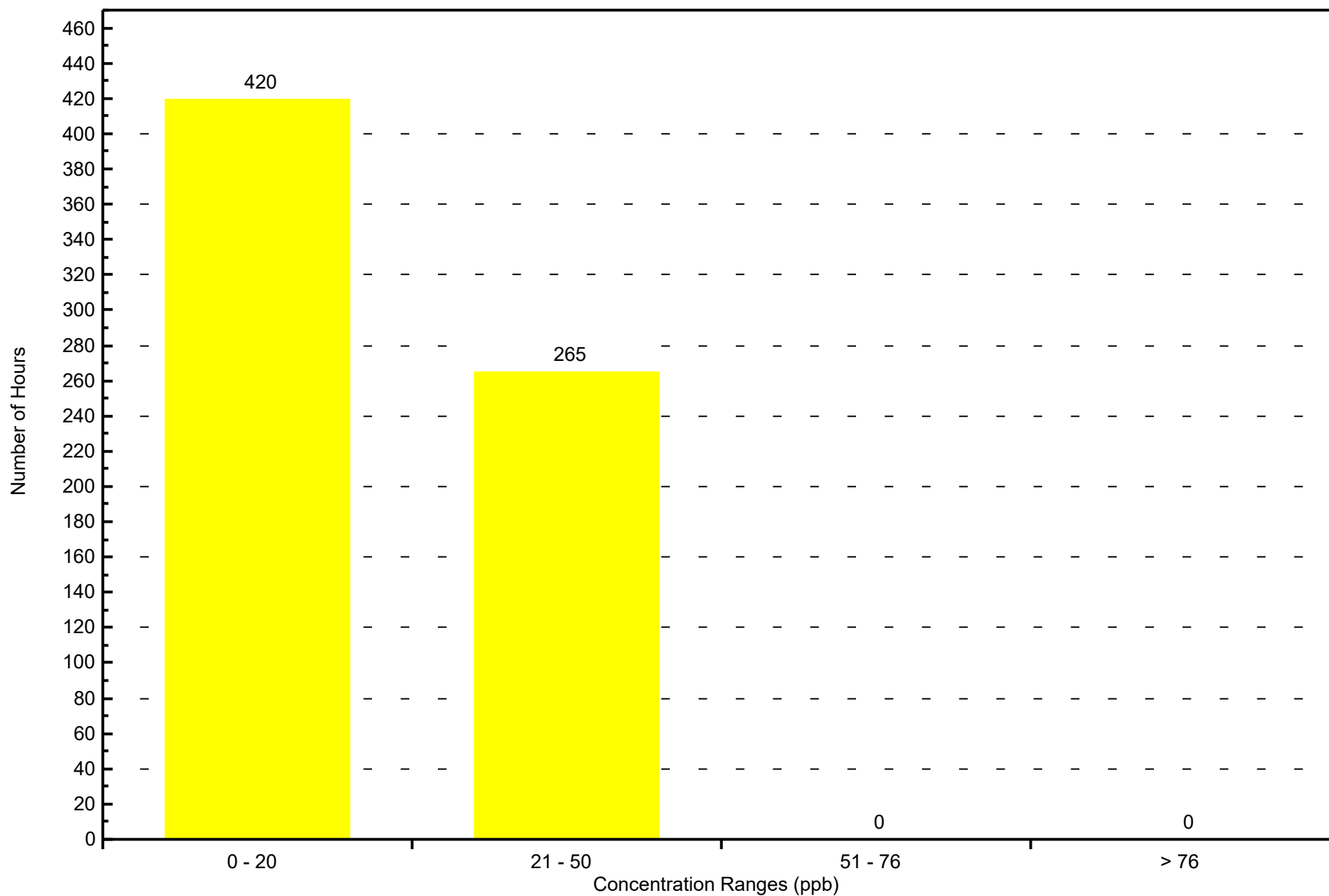
## Hourly Averages

Ozone ( $O_3$ ) - ppb  
Henry Pirker - September 2019



## Histogram of Hourly Averages

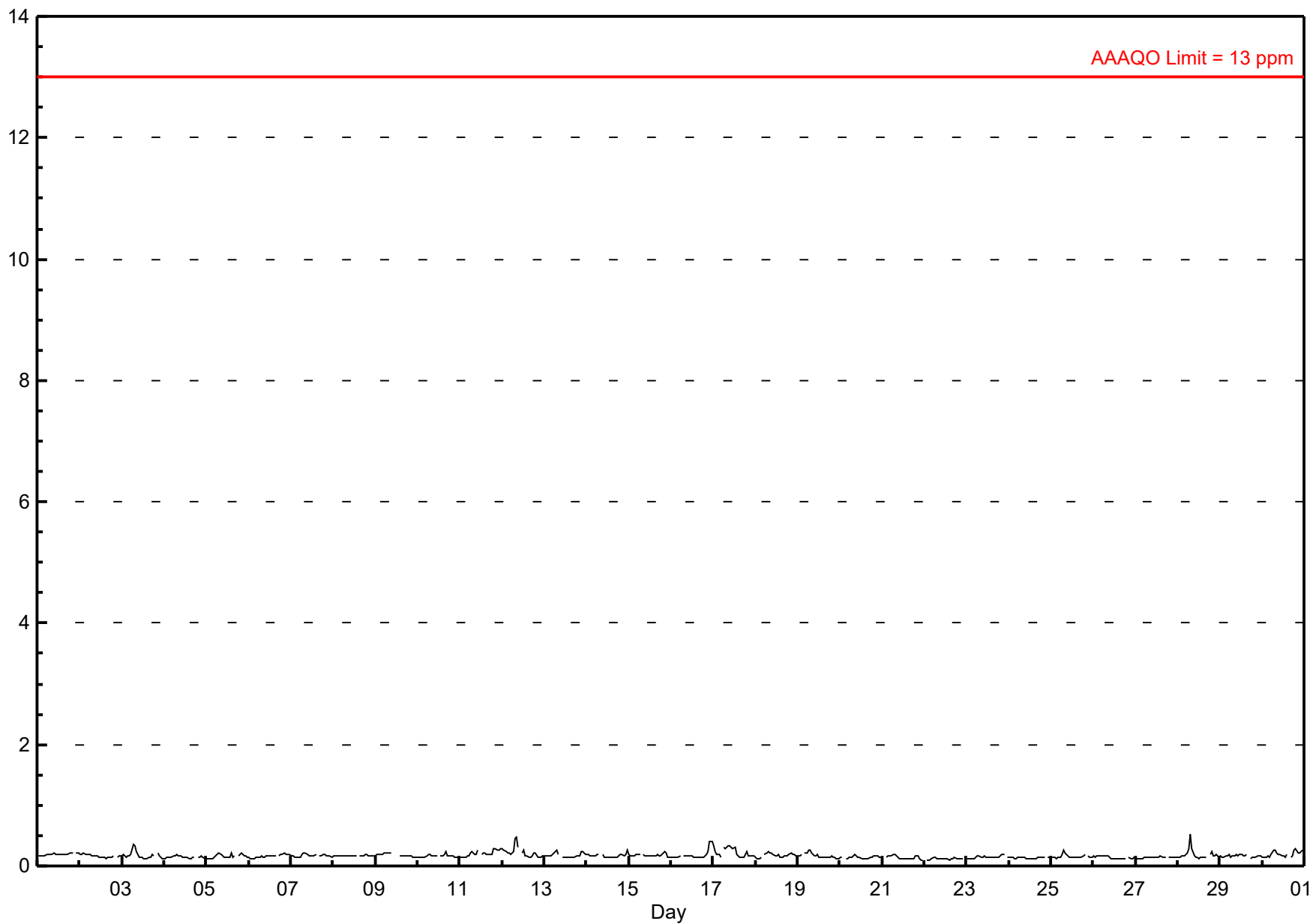
Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - September 2019





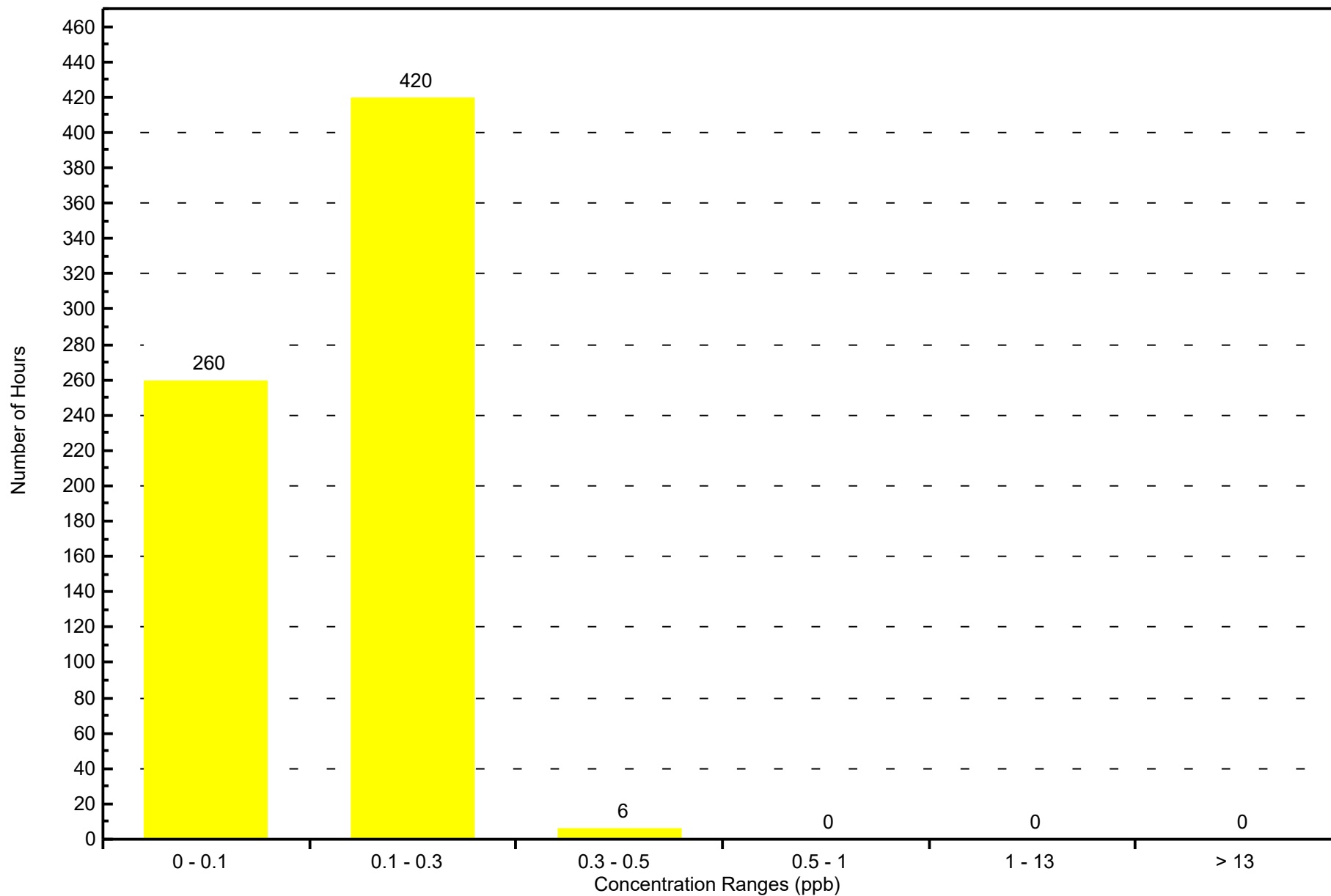
## Hourly Averages

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



## Histogram of Hourly Averages

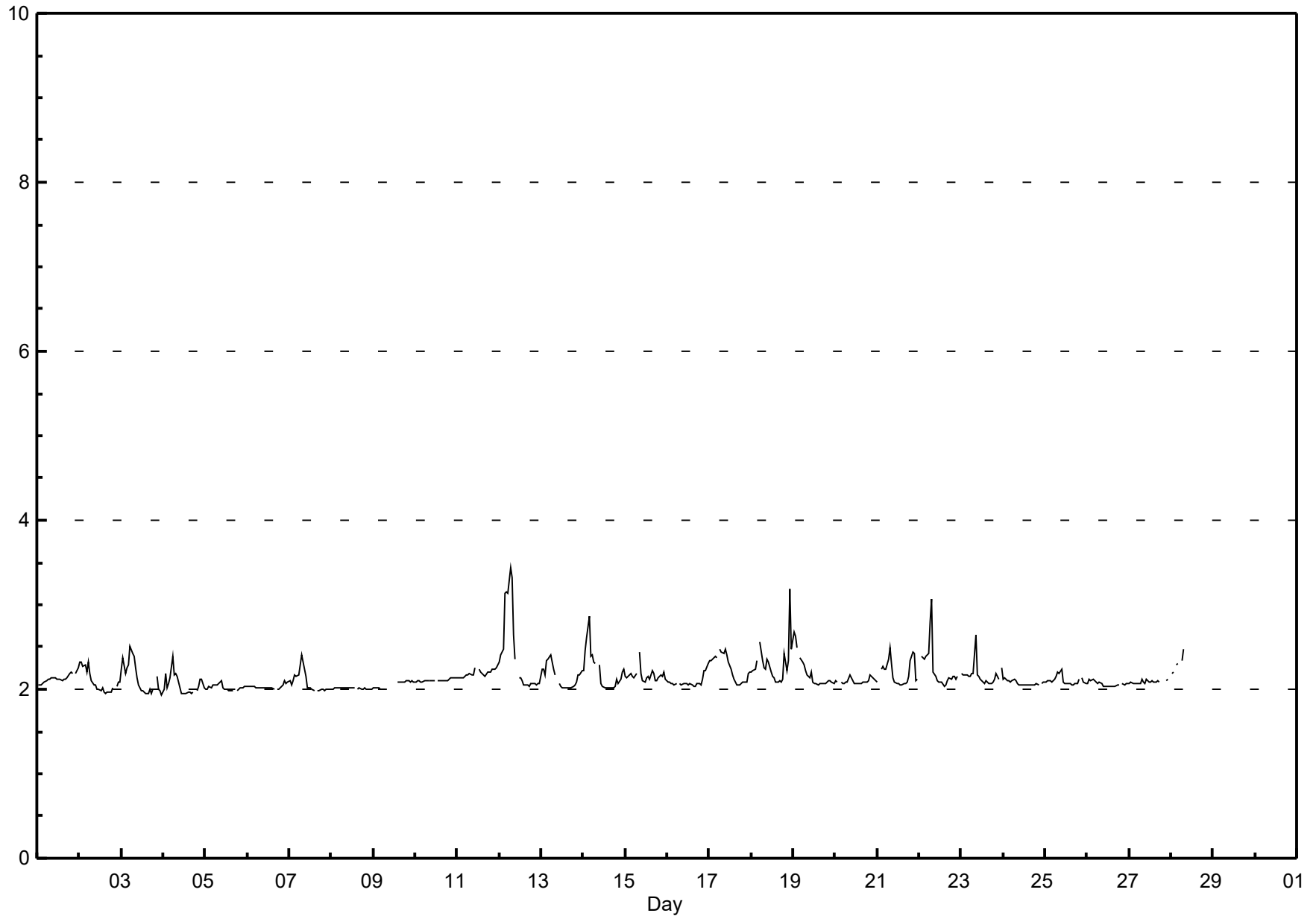
**Carbon Monoxide (CO) - ppm**  
**Henry Pirker - September 2019**



## Hourly Averages

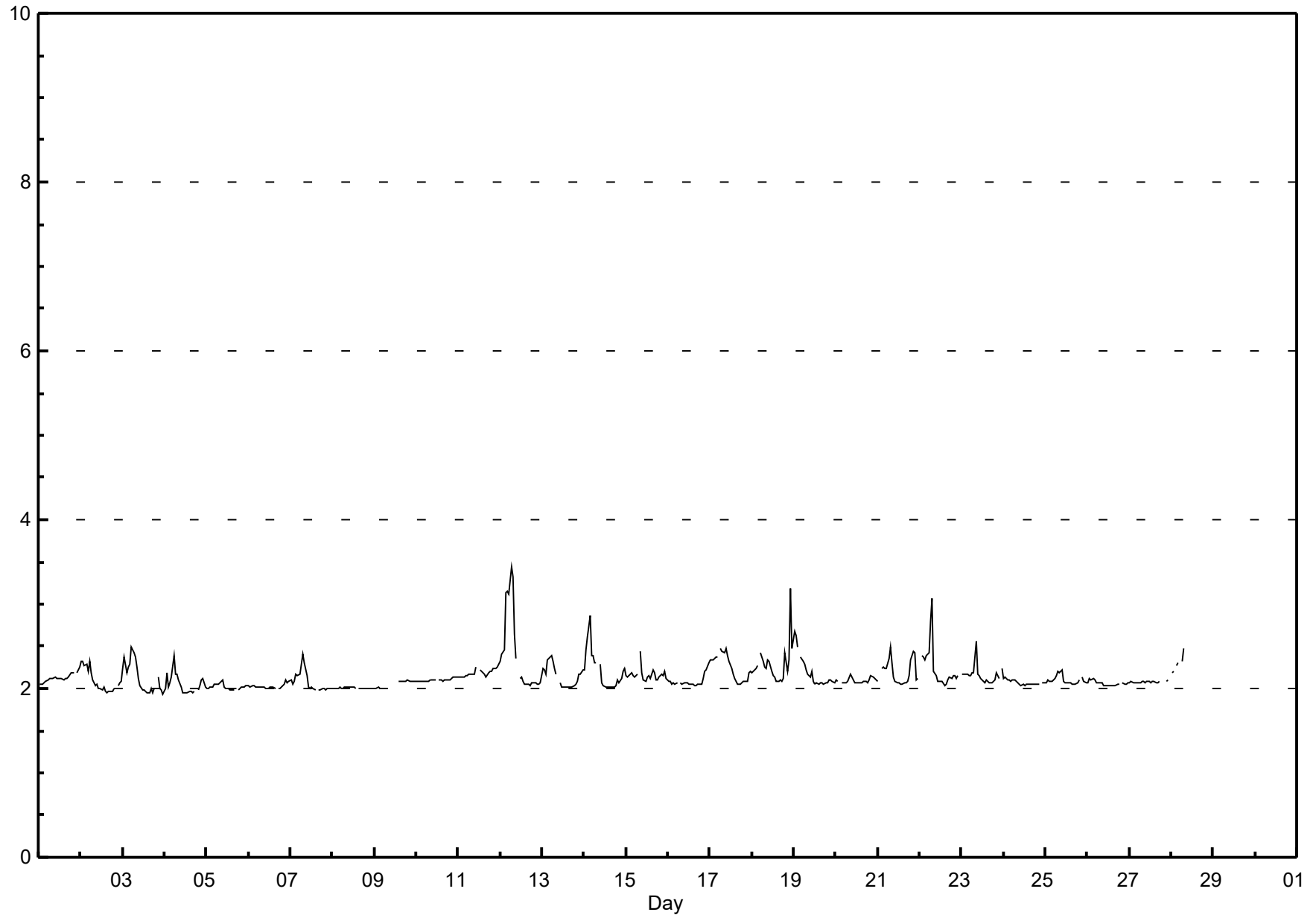
Total Hydrocarbons (THC) - ppm

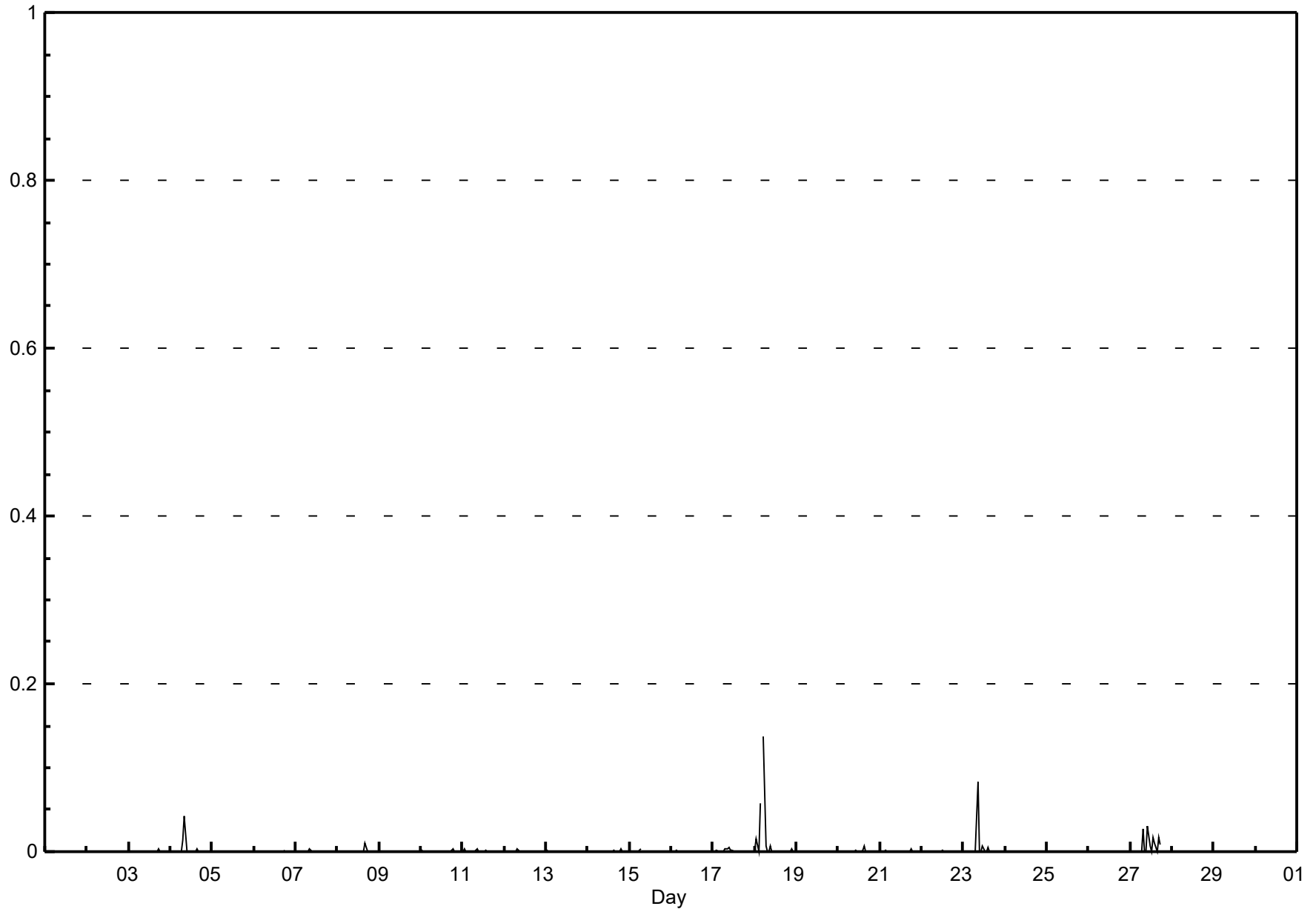
Henry Pirker - September 2019

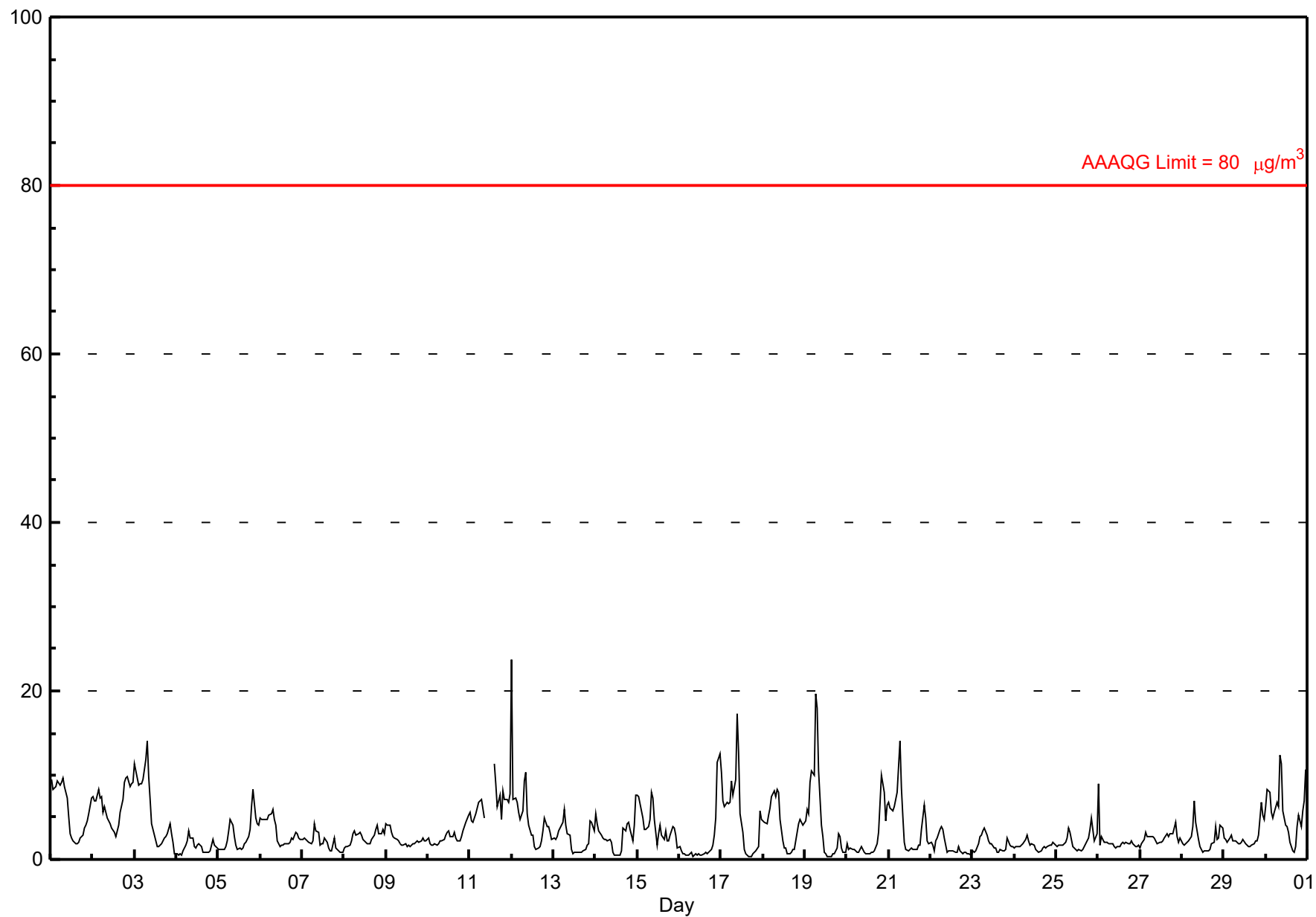


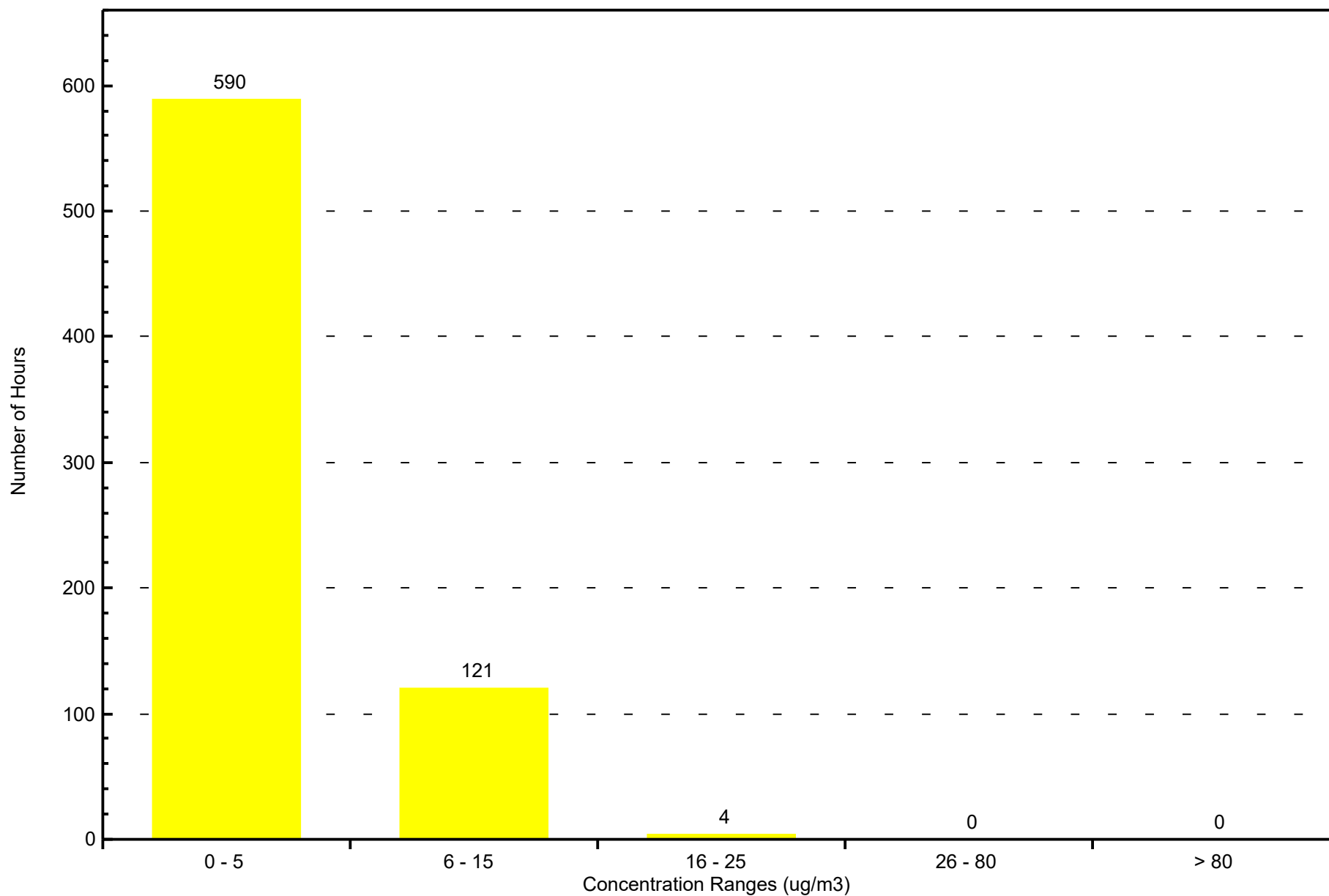
## Hourly Averages

Methane (CH<sub>4</sub>) - ppm  
Henry Pirker - September 2019





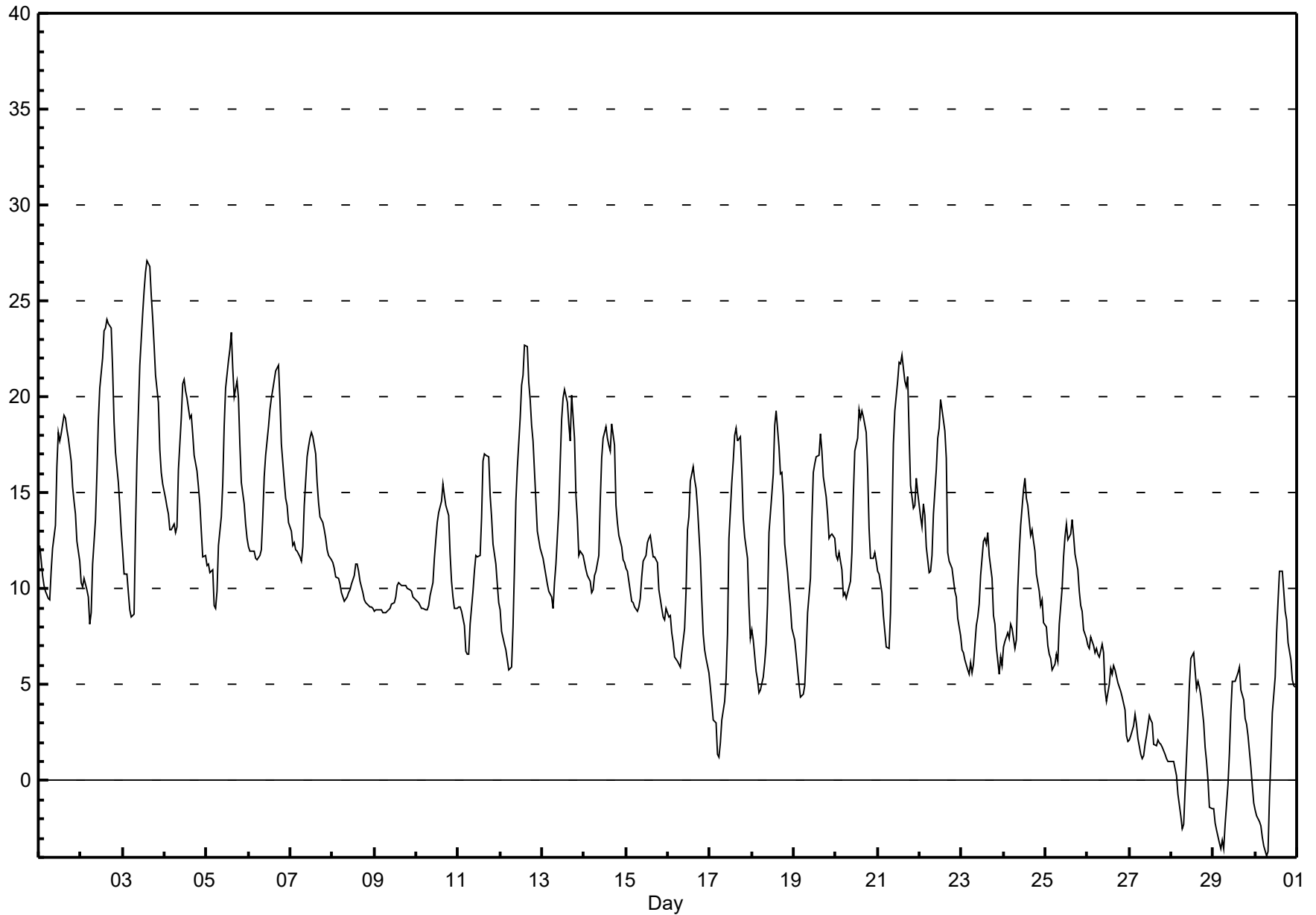




## Hourly Averages

External Temperature (ET) - °C

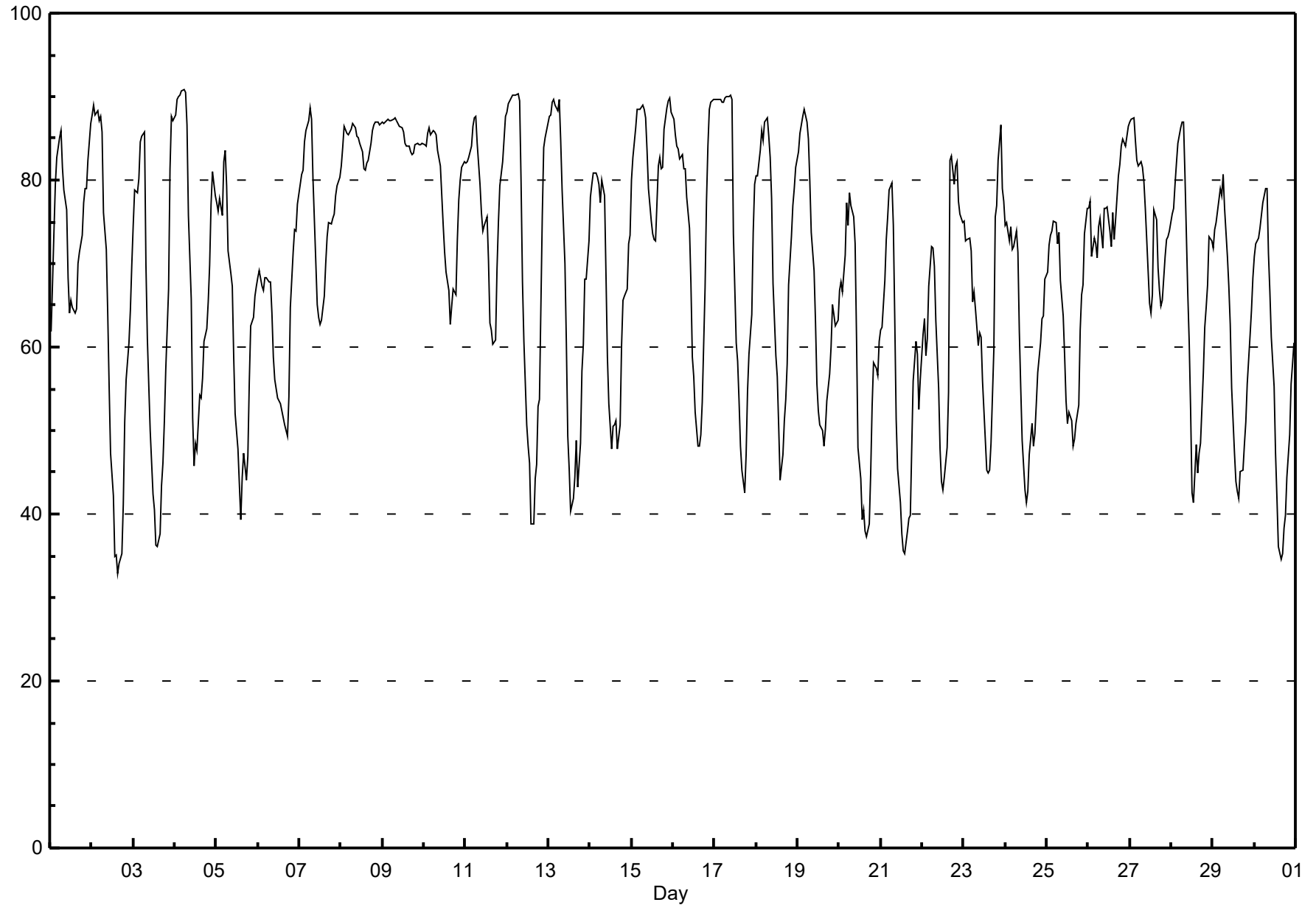
Henry Pirker - September 2019





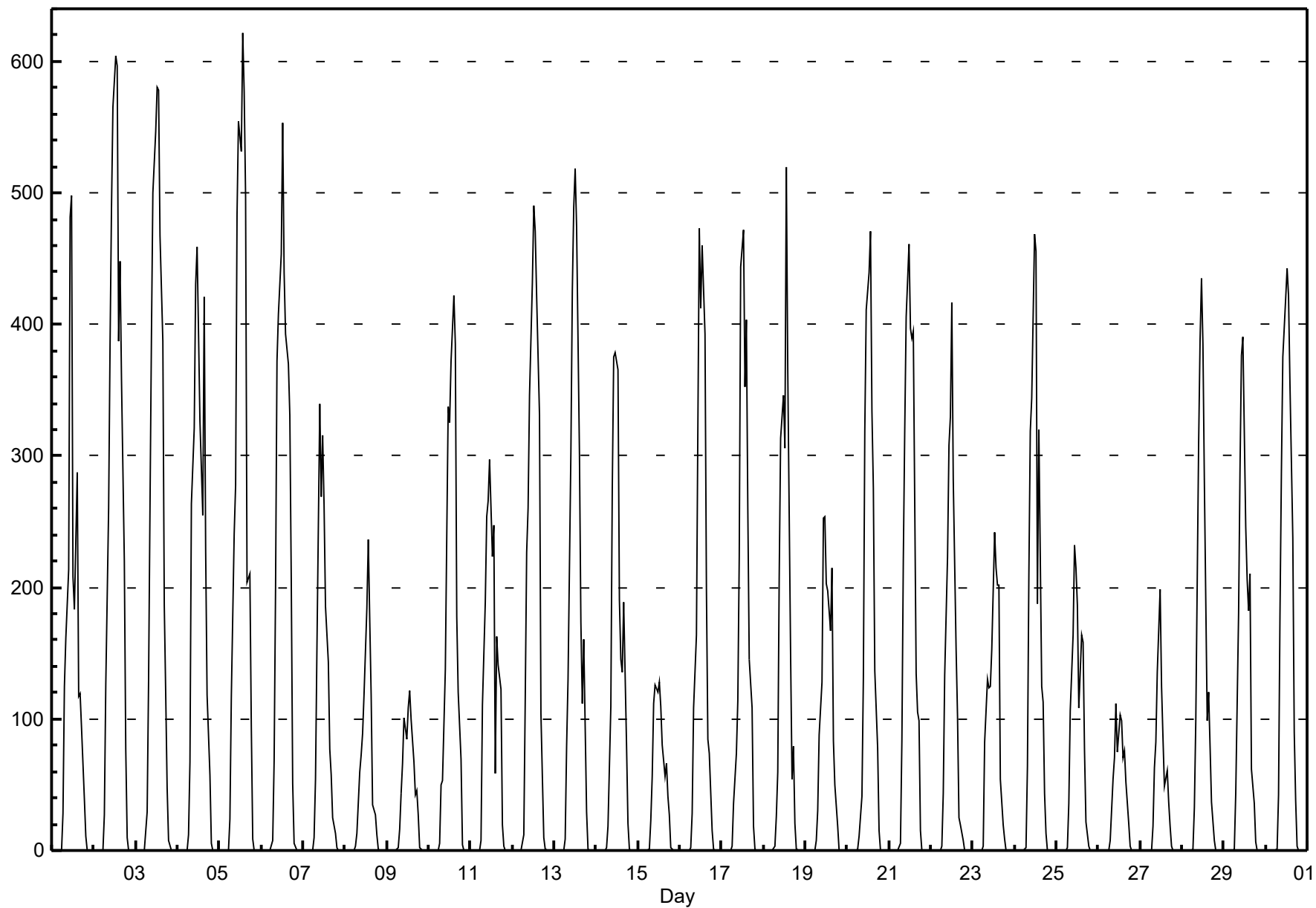
## Hourly Averages

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



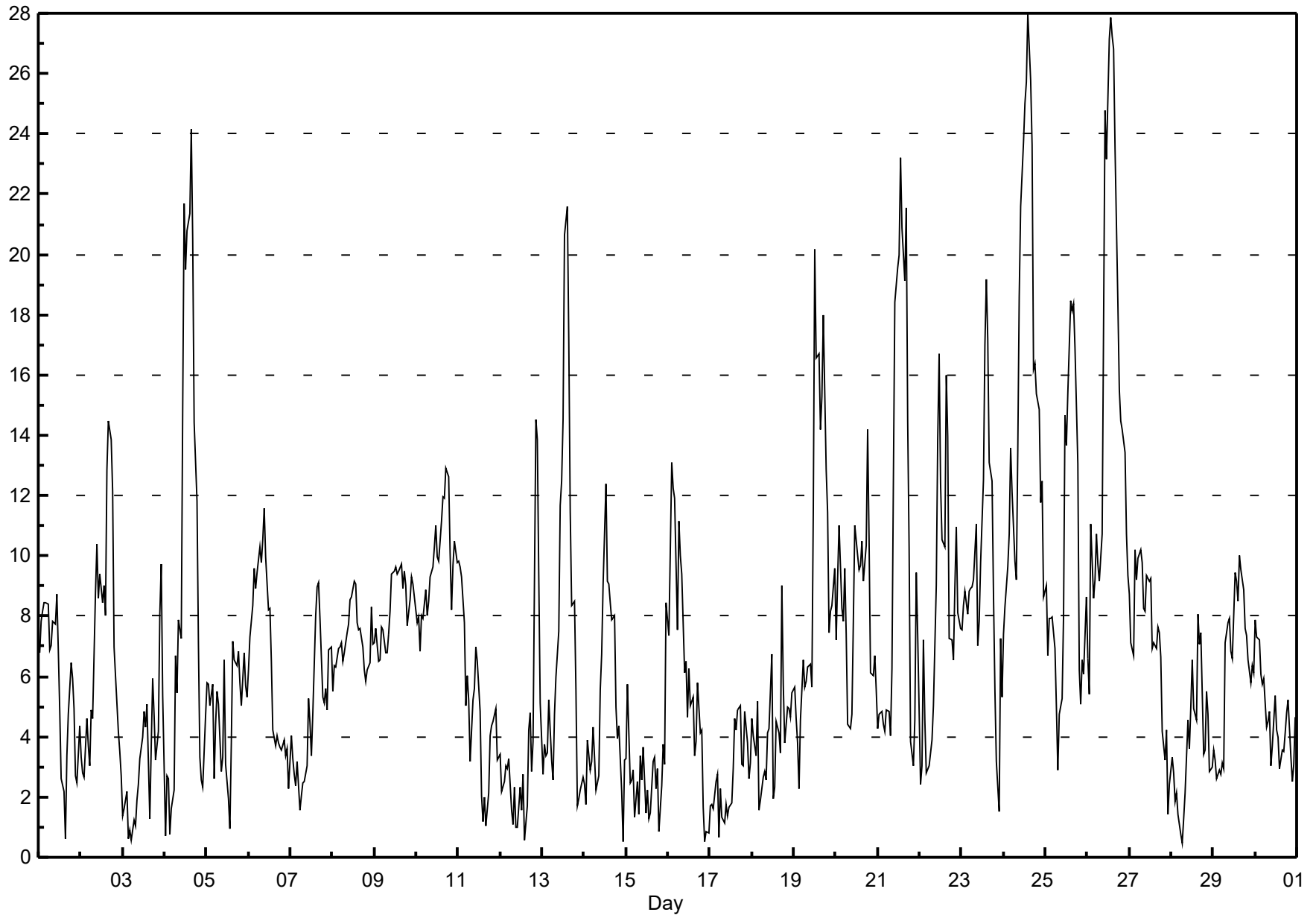
## Hourly Averages

Solar Radiation (SR) - W/m<sup>2</sup>  
Henry Pirker - September 2019



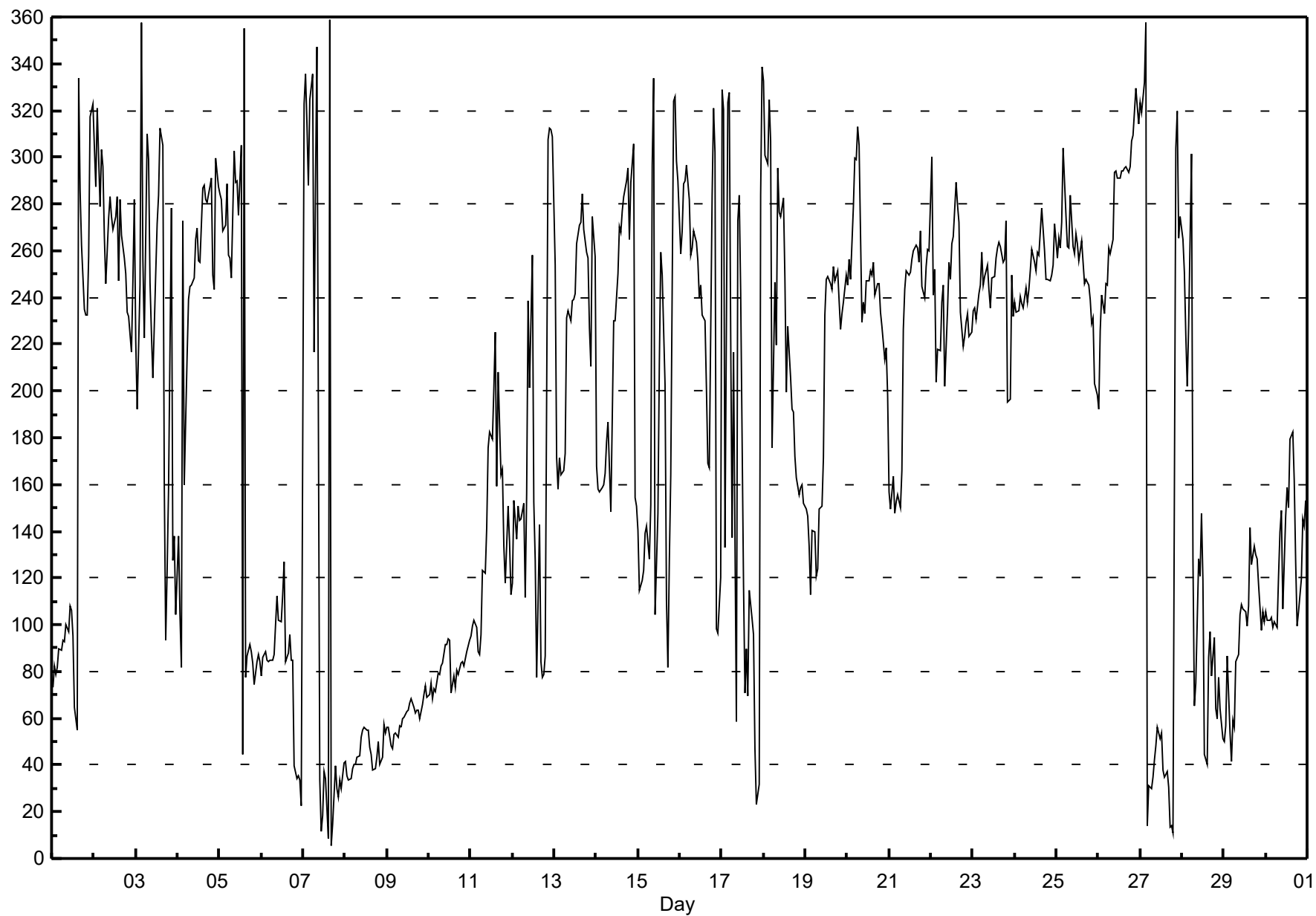
## Hourly Averages

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



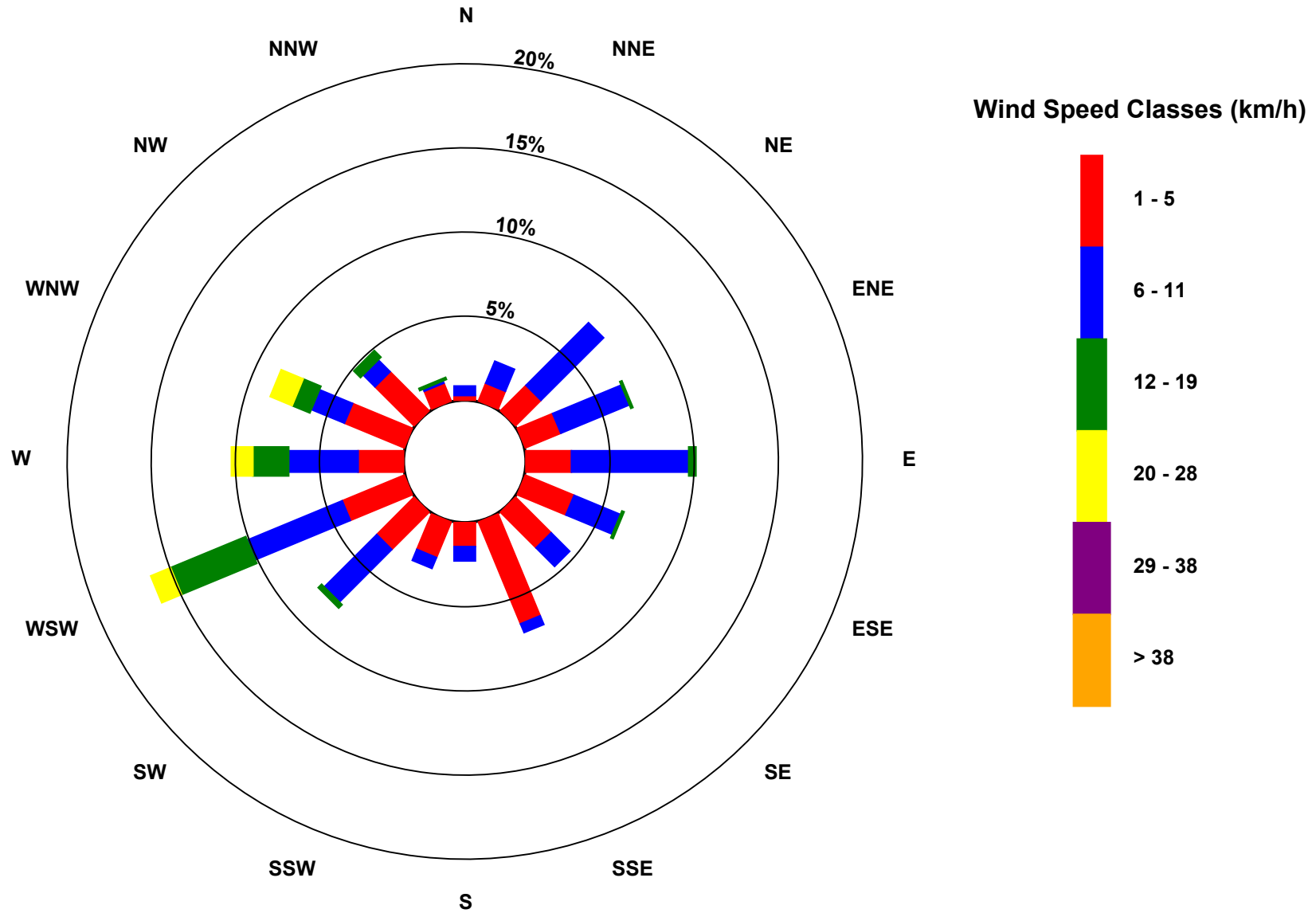
## Hourly Averages

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



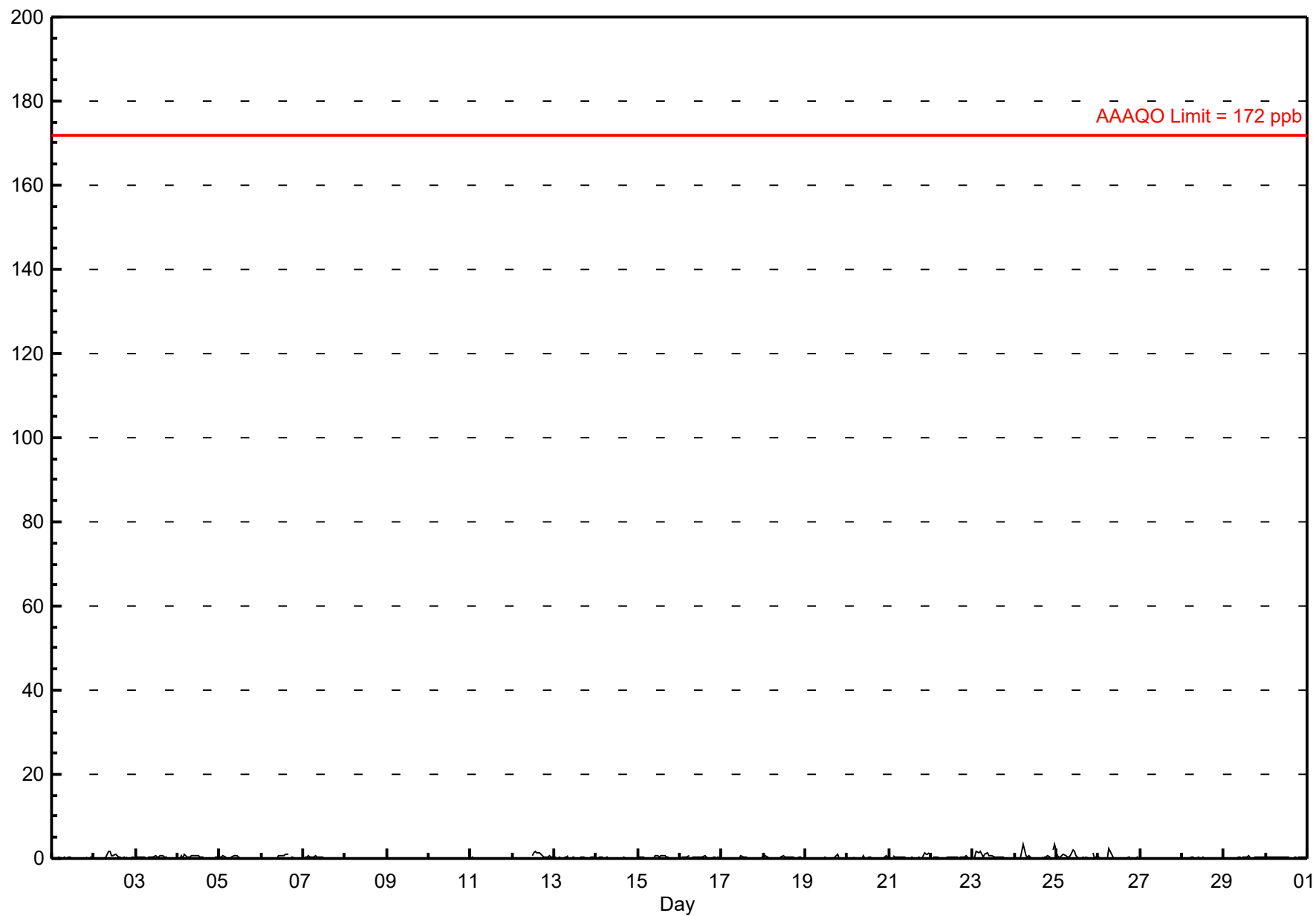
## Wind Rose

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



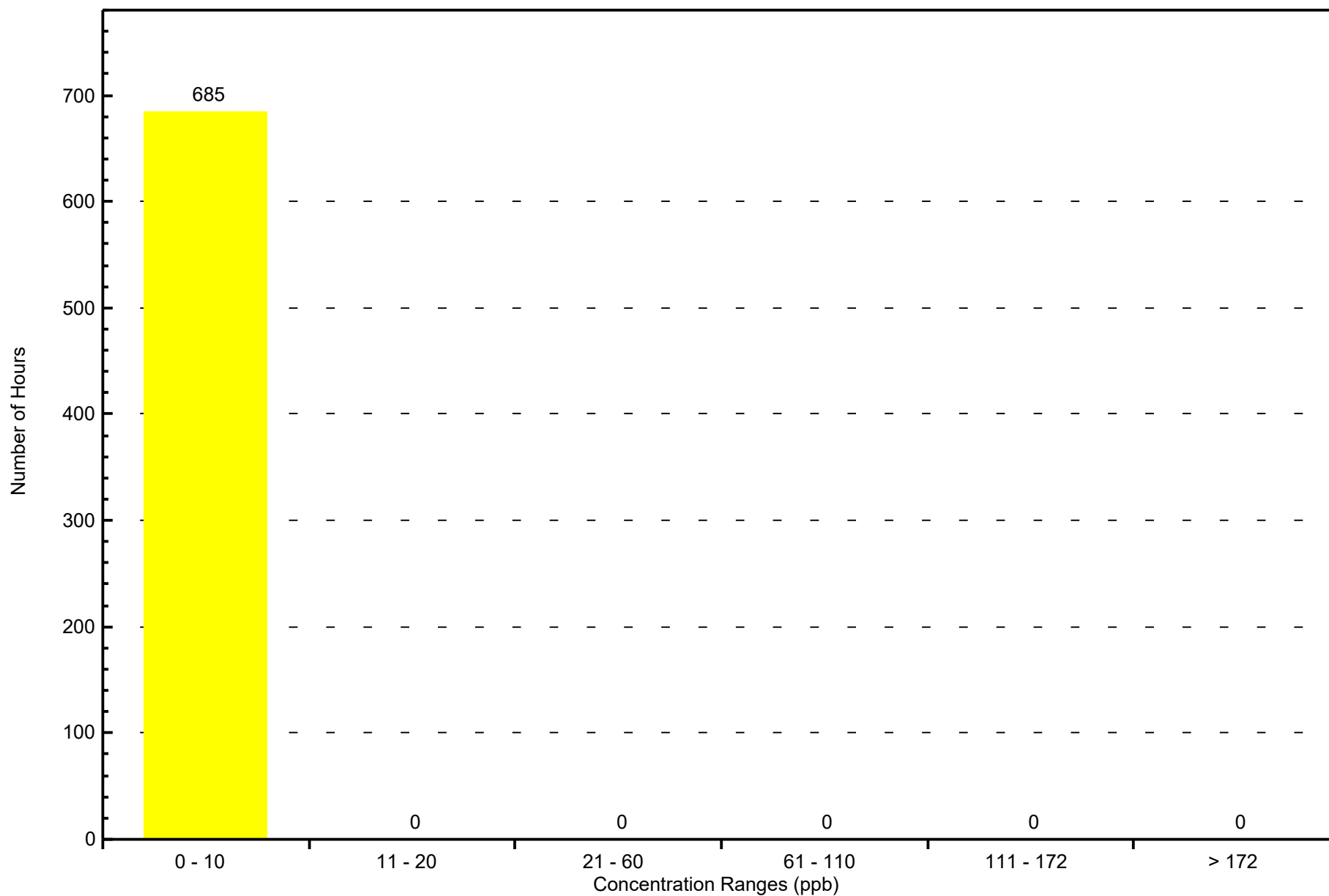
## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - September 2019



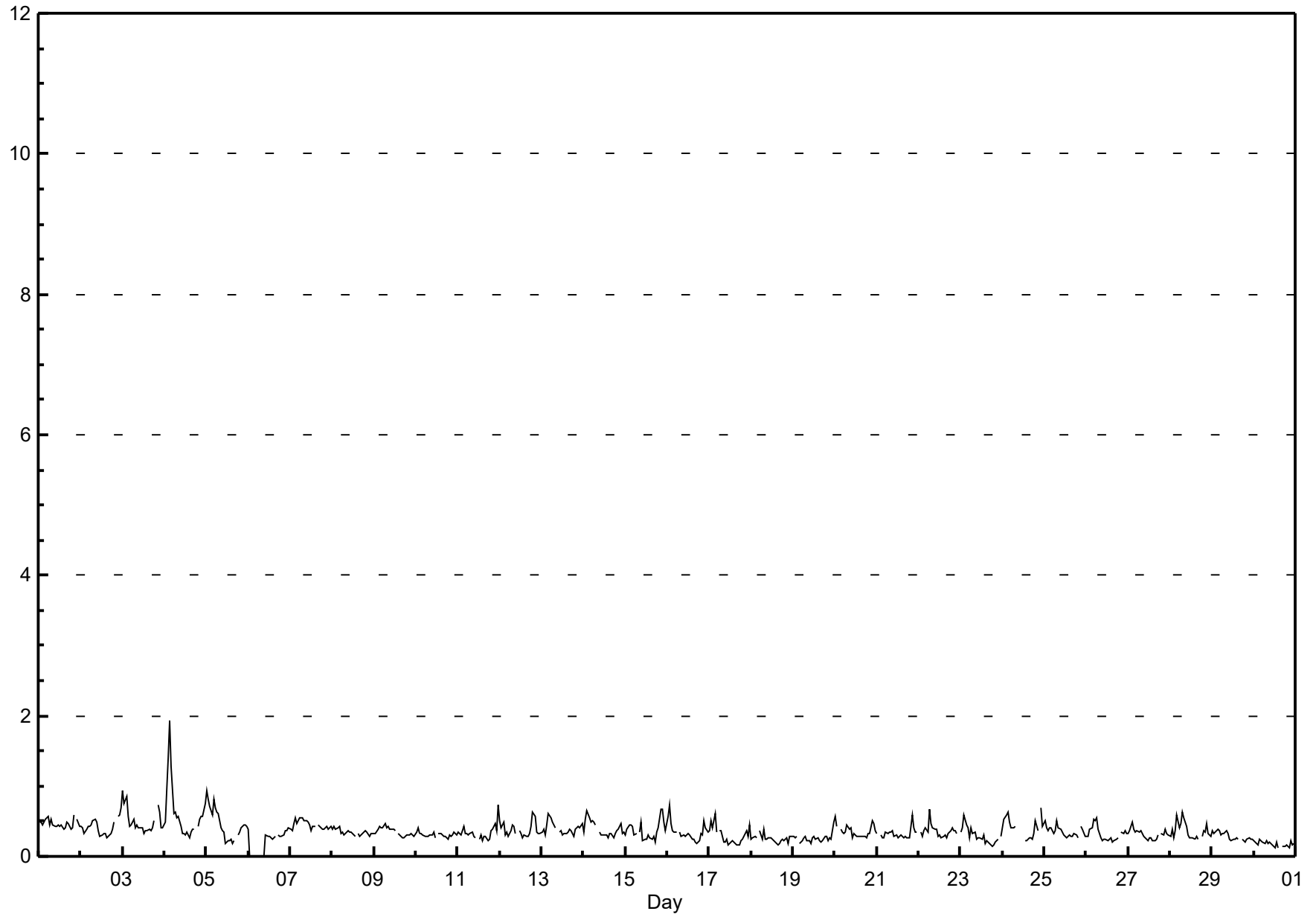
# Histogram of Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - September 2019



## Hourly Averages

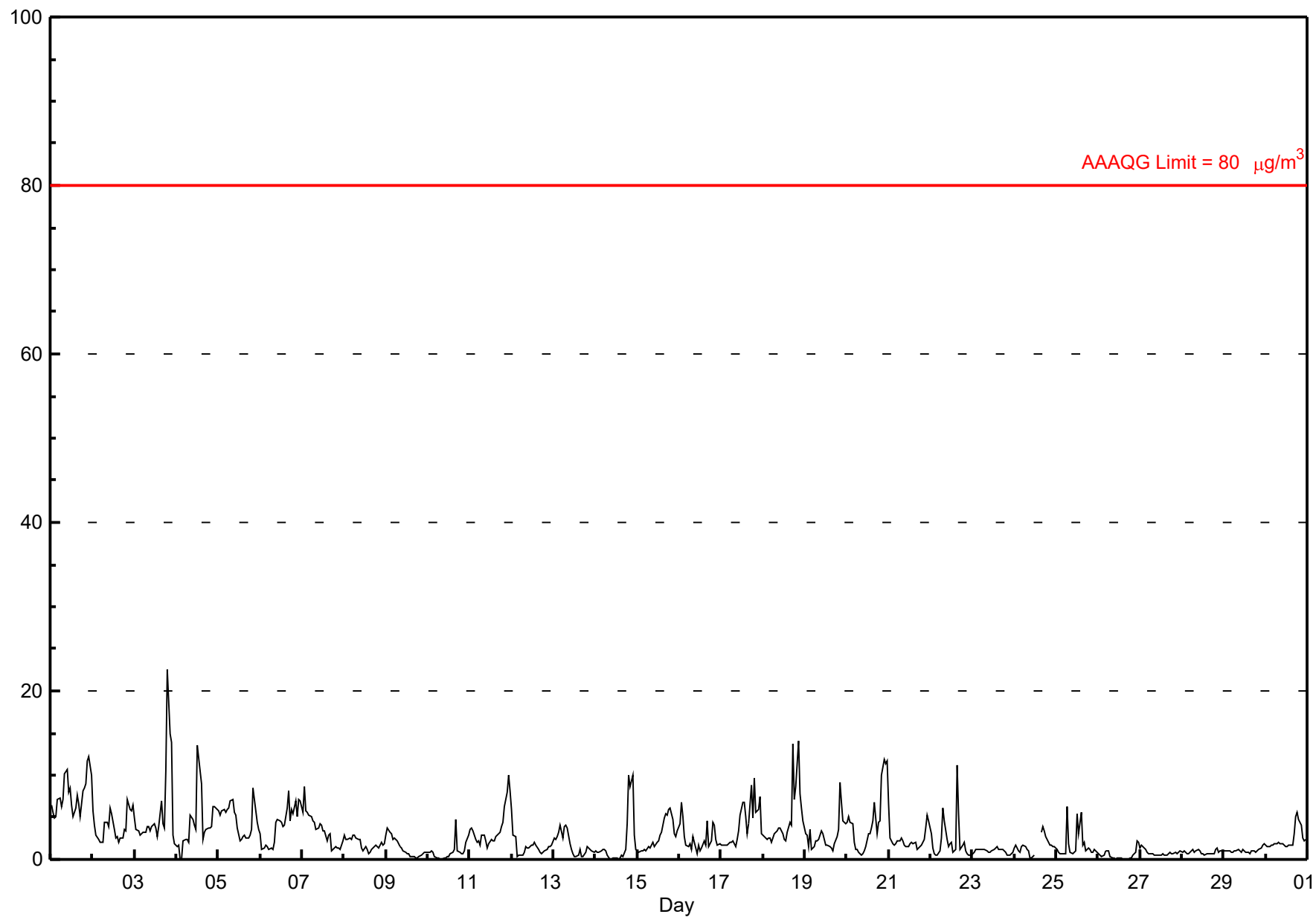
**Total Reduced Sulphur (TRS) - ppb**  
**Smoky Heights - September 2019**

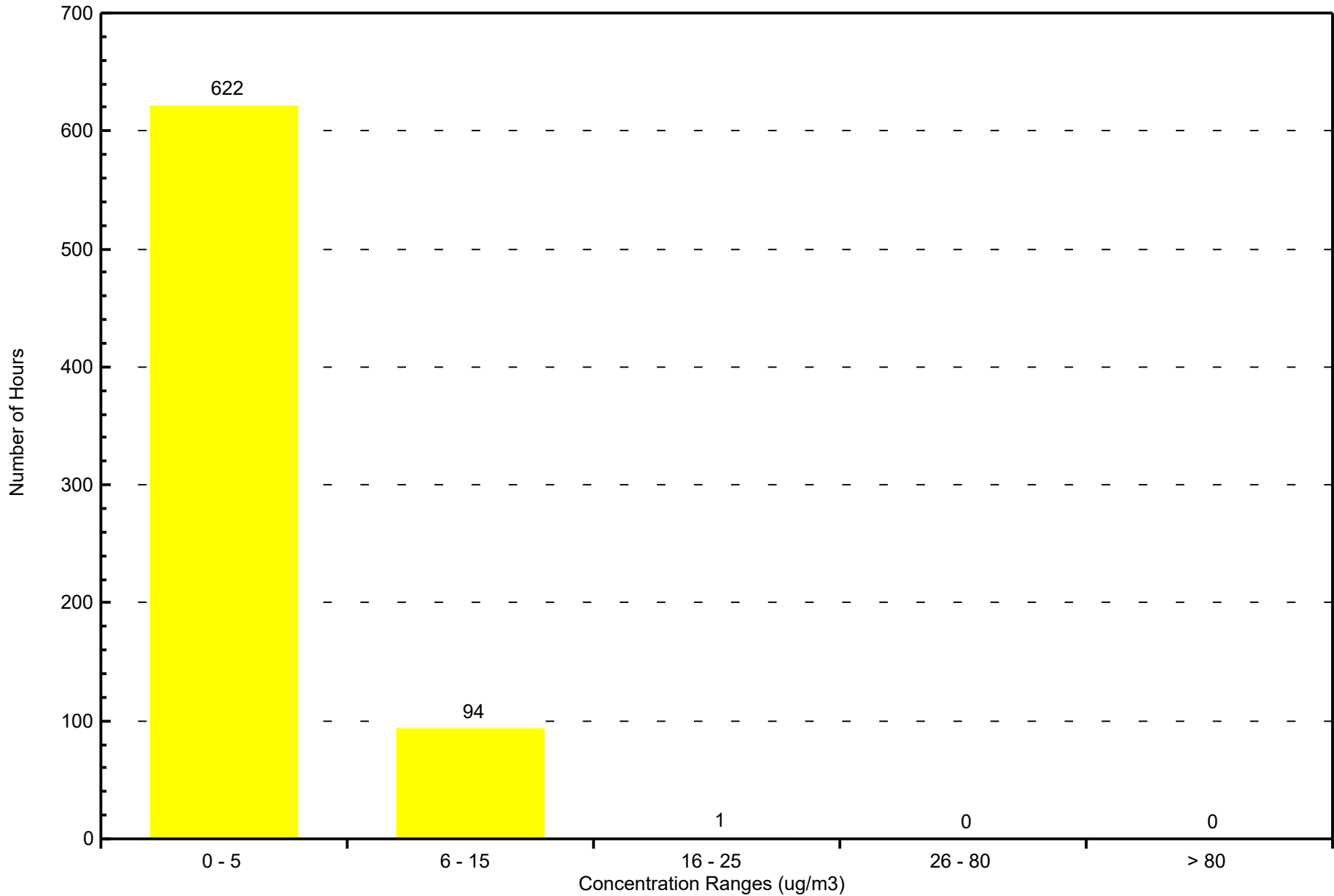




## Hourly Averages

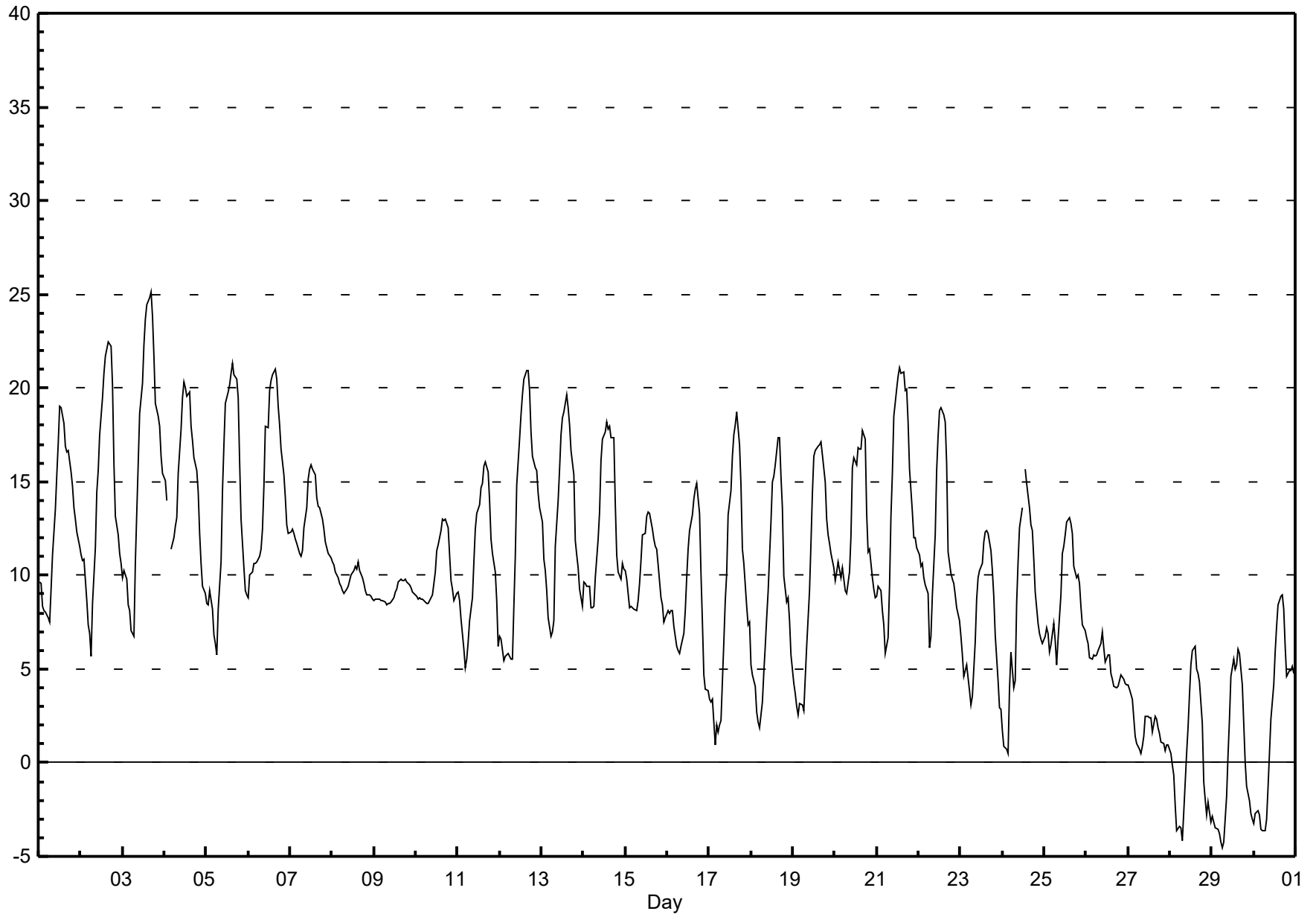
Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Smoky Heights - September 2019





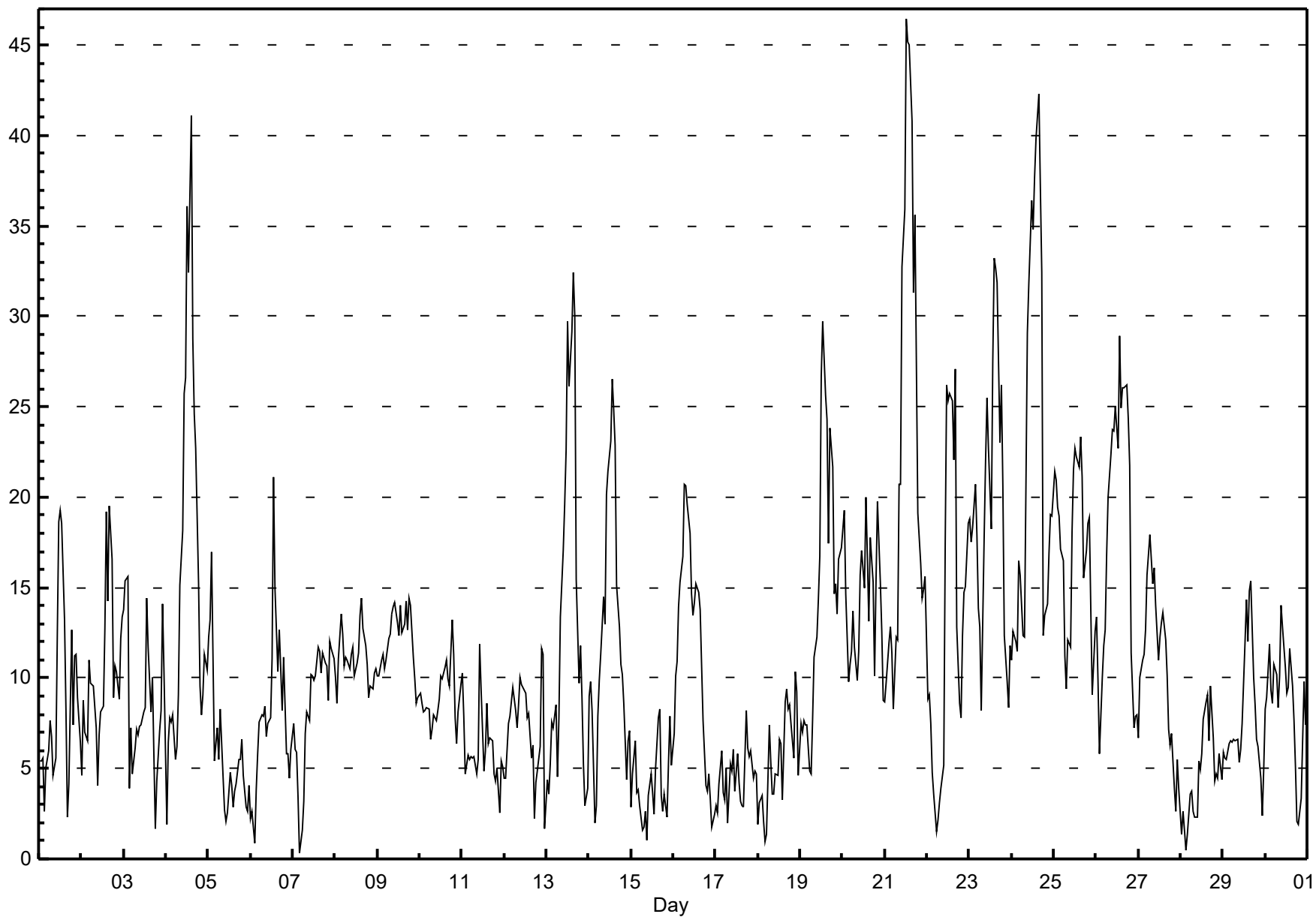
## Hourly Averages

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



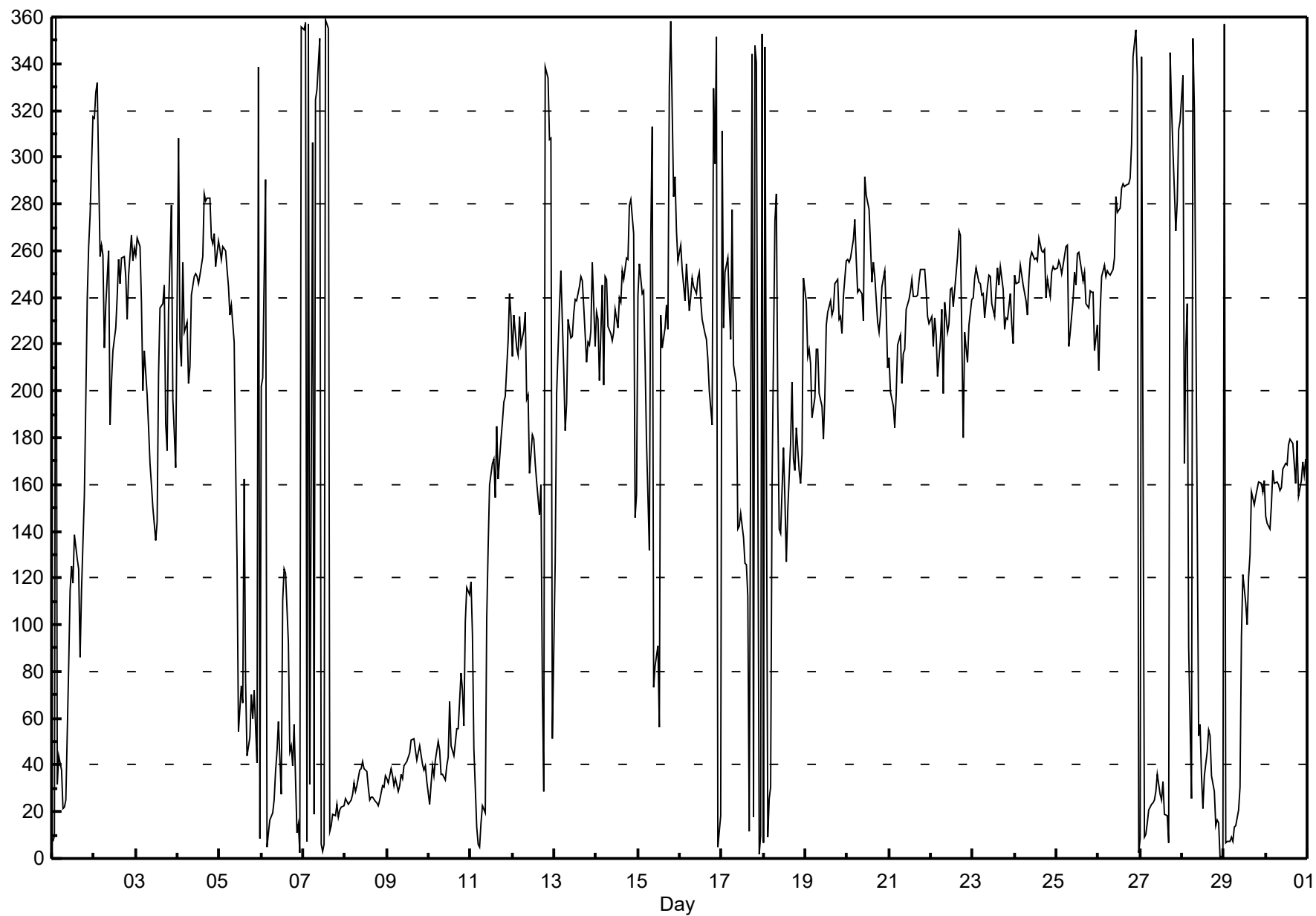
## Hourly Averages

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



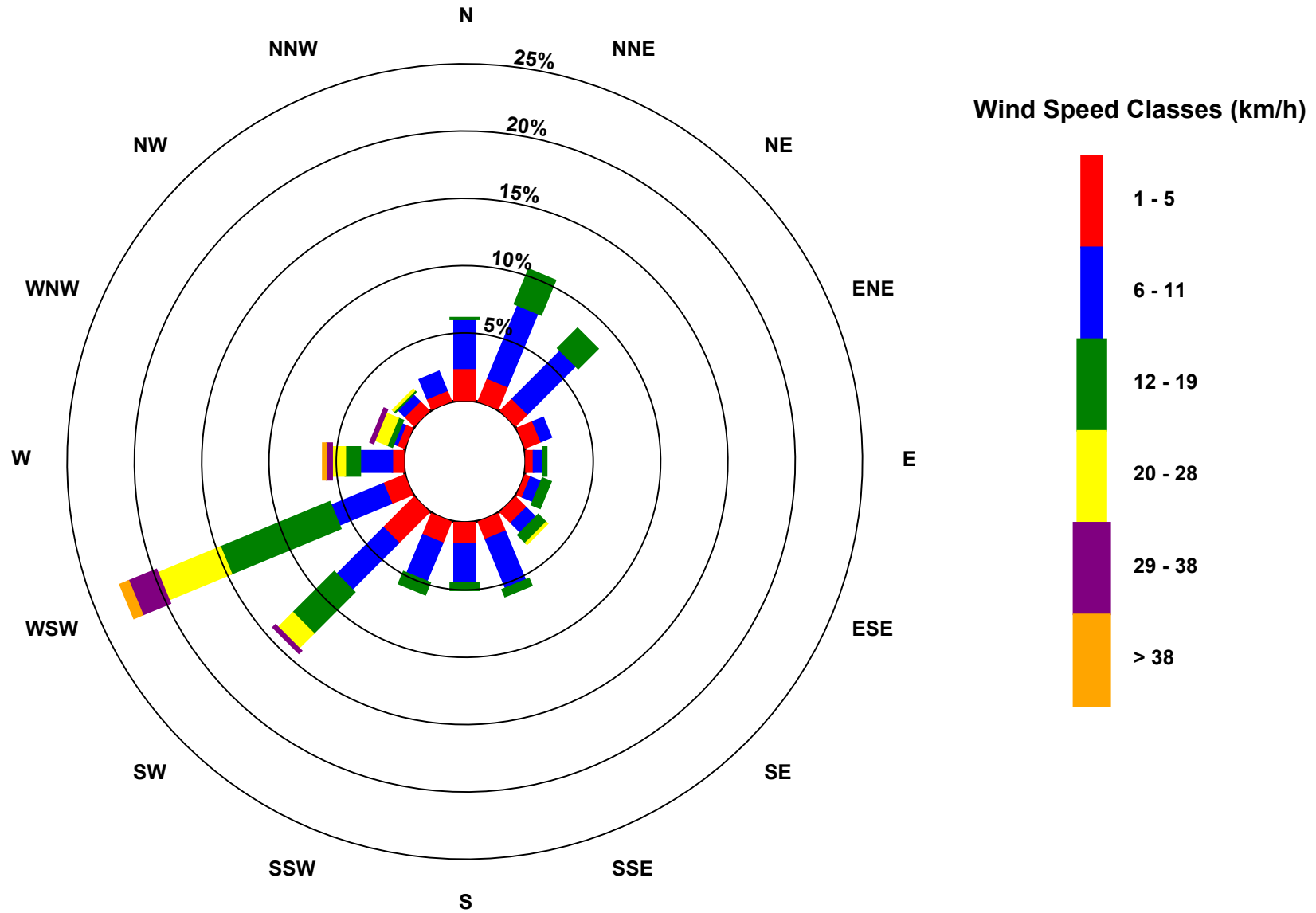
## Hourly Averages

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



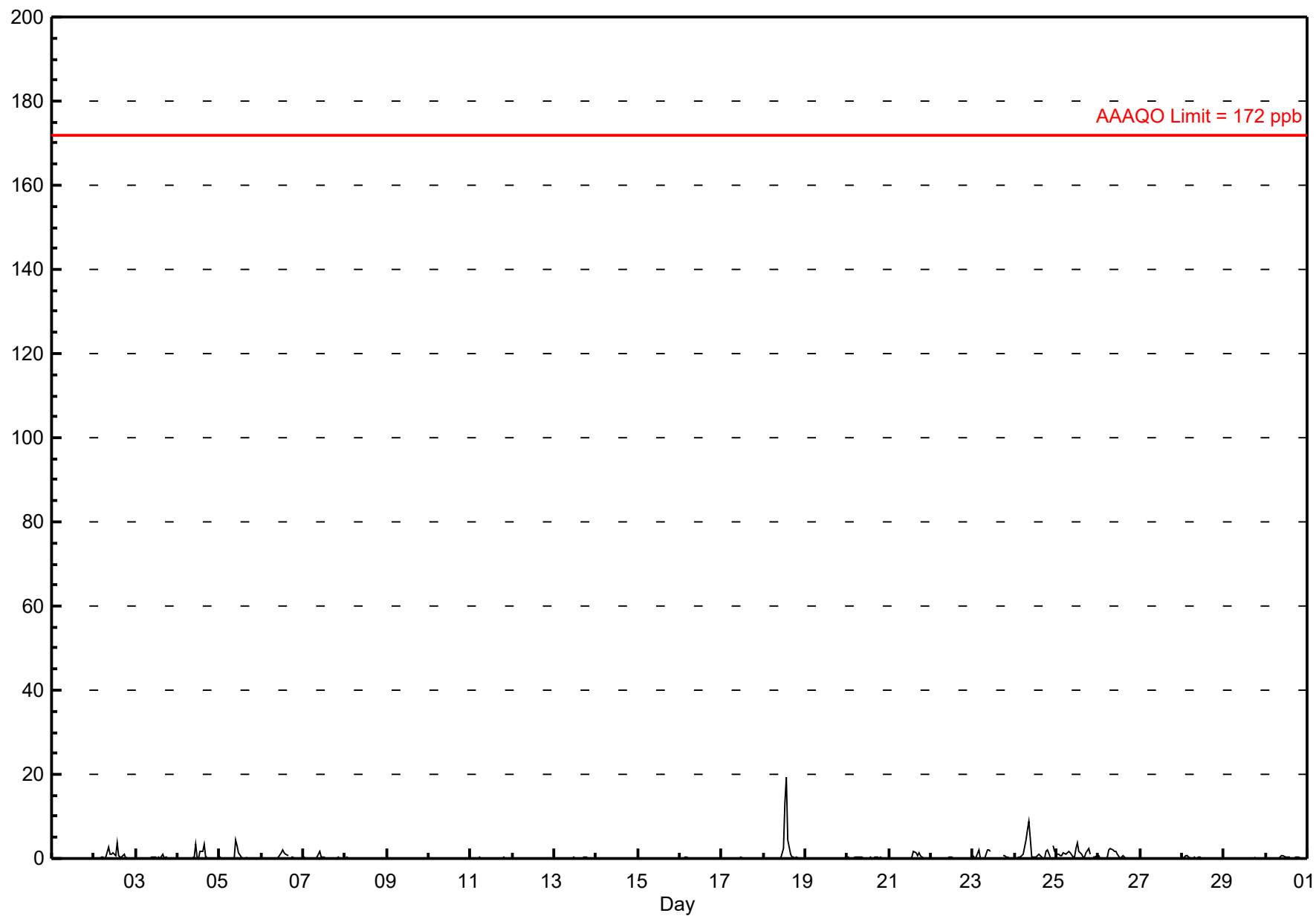
## Wind Rose

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



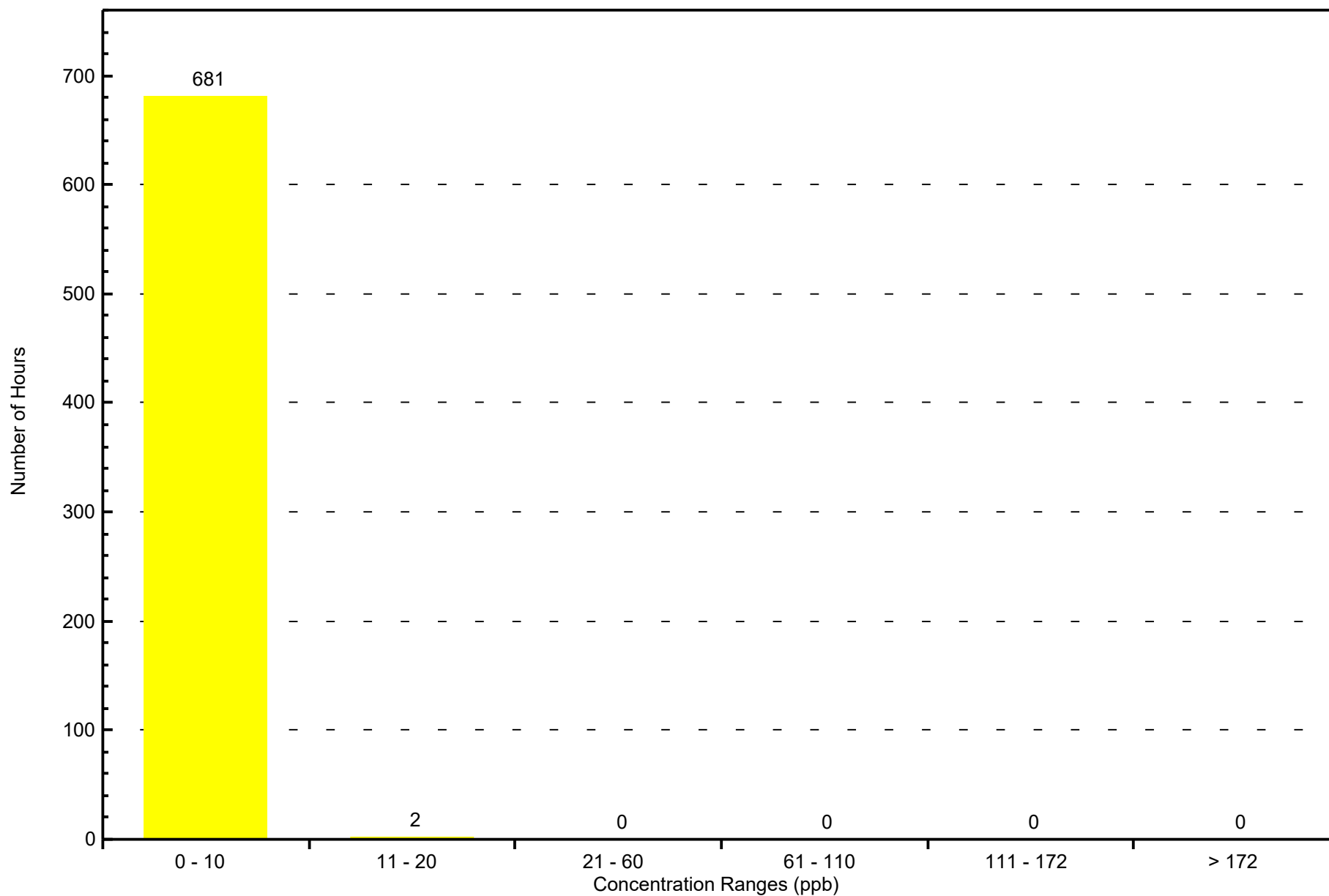
## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Valleyview - September 2019**



# Histogram of Hourly Averages

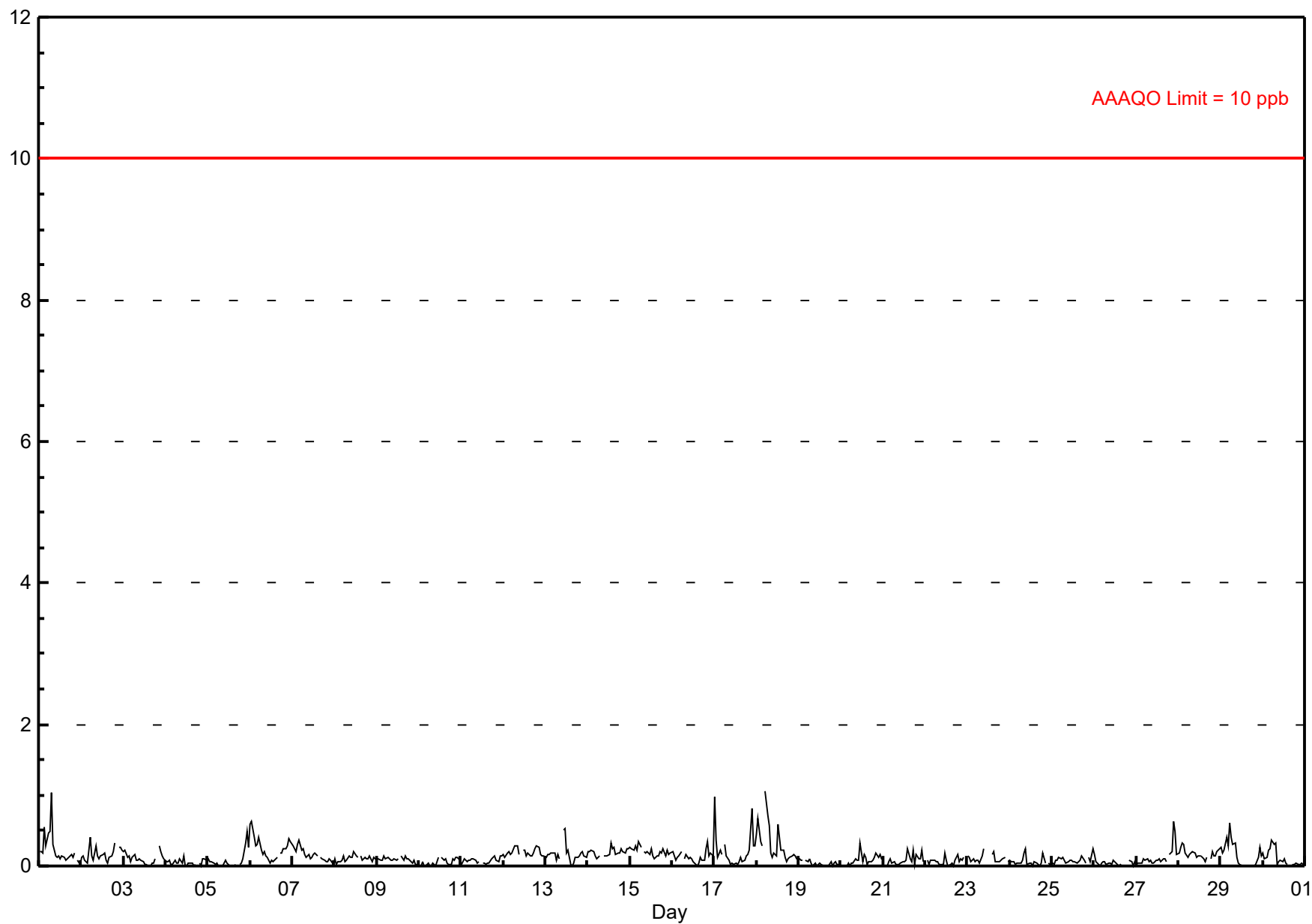
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Valleyview - September 2019**





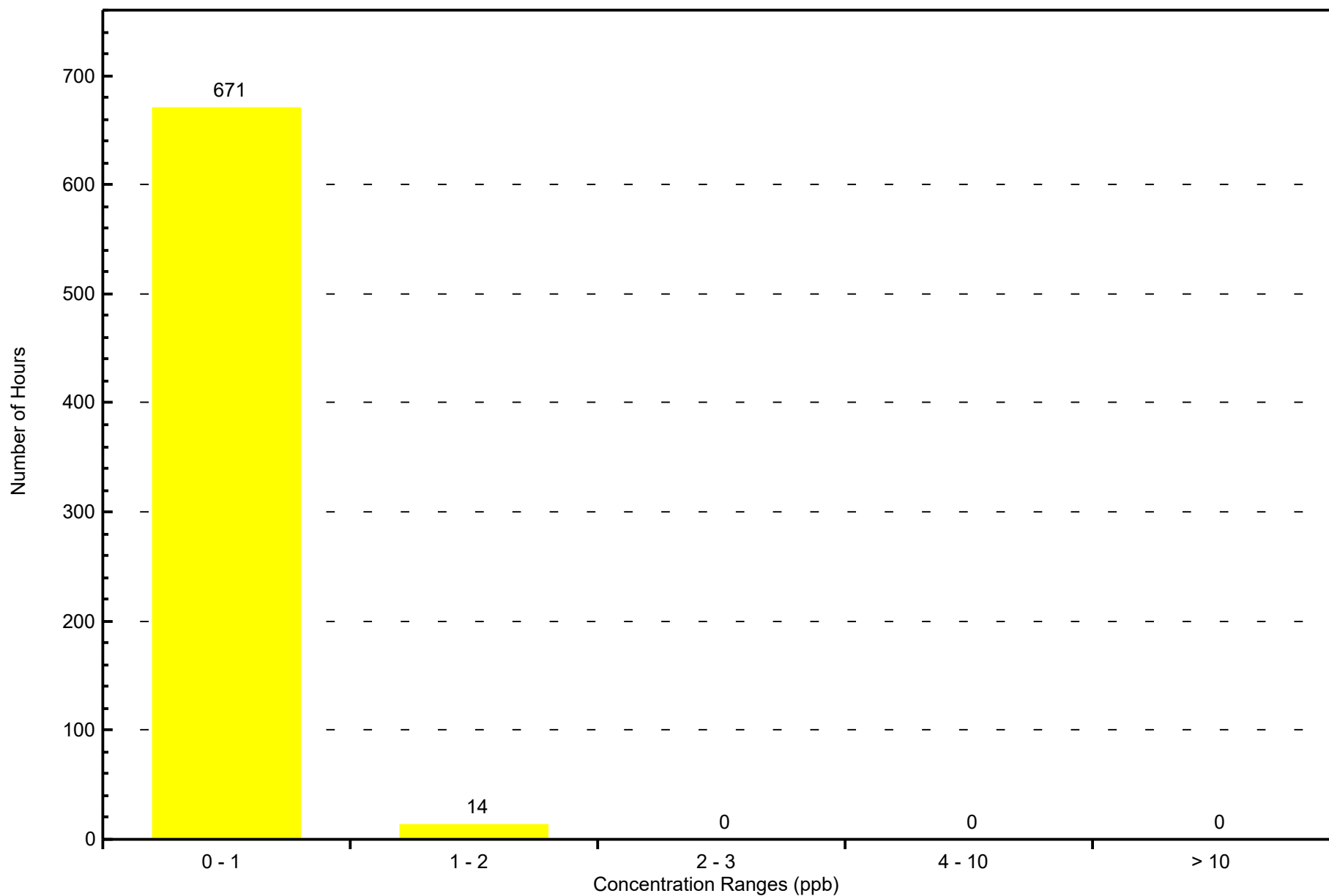
## Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - September 2019



# Histogram of Hourly Averages

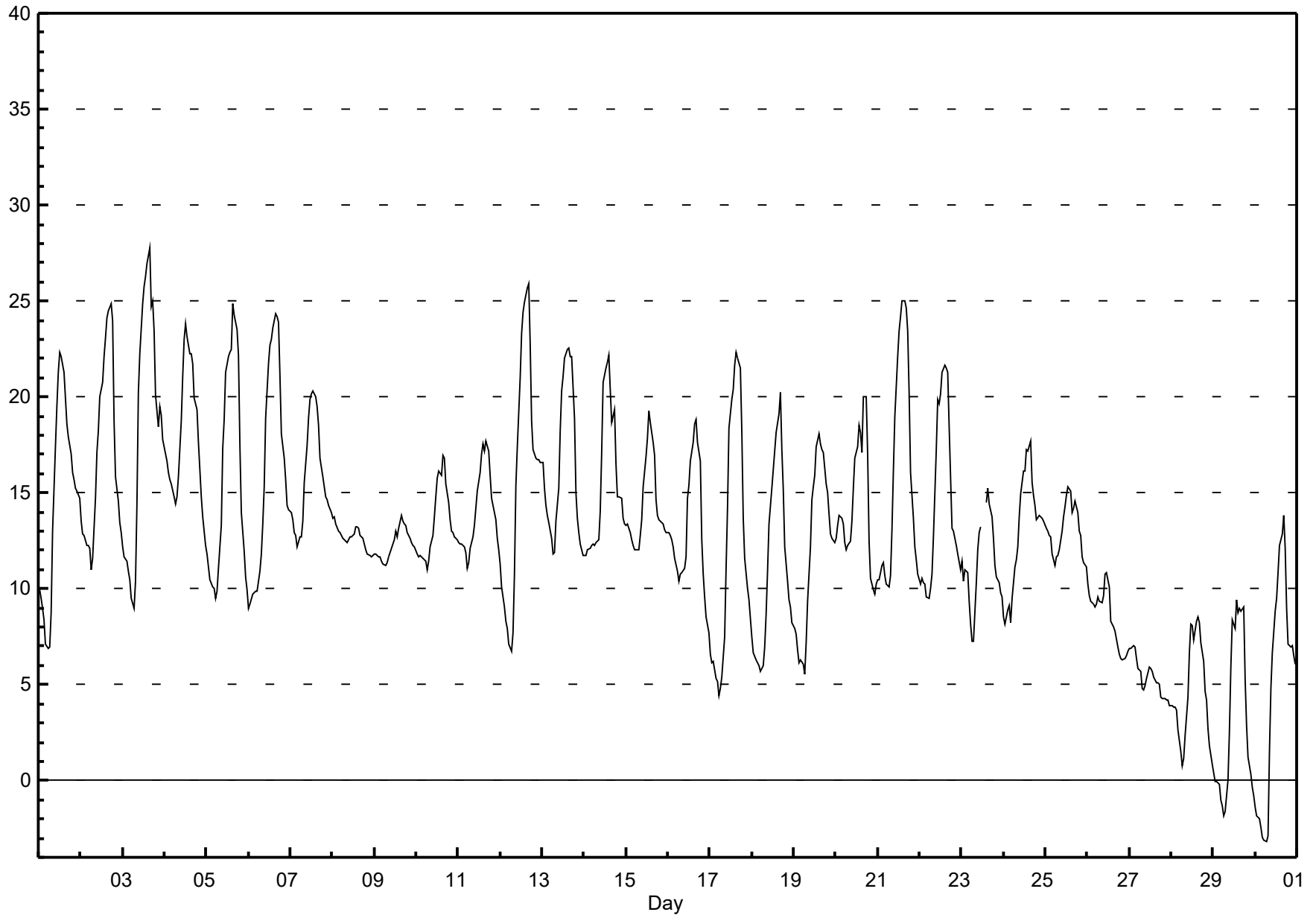
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - September 2019



## Hourly Averages

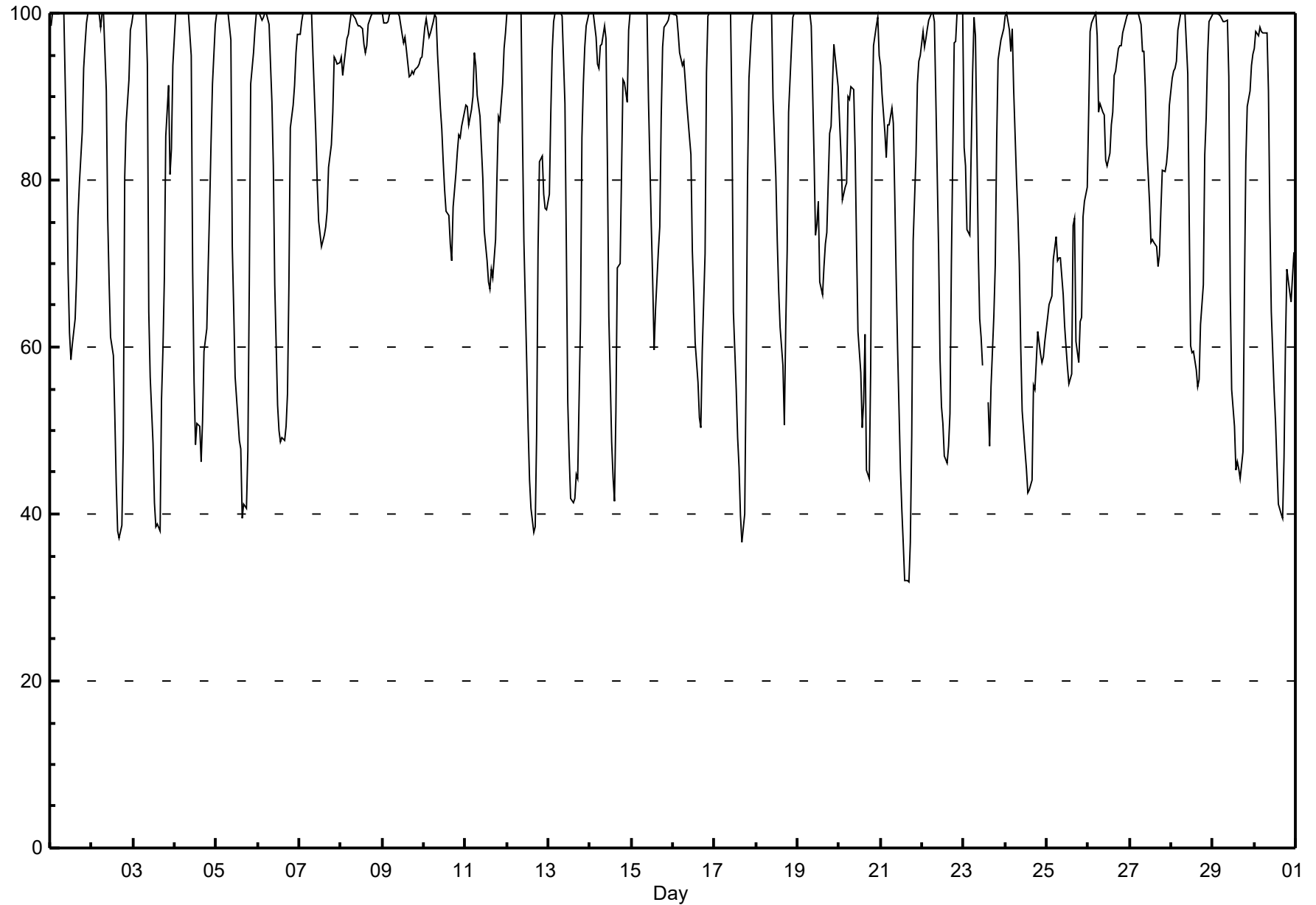
External Temperature (ET) - °C

Valleyview - September 2019



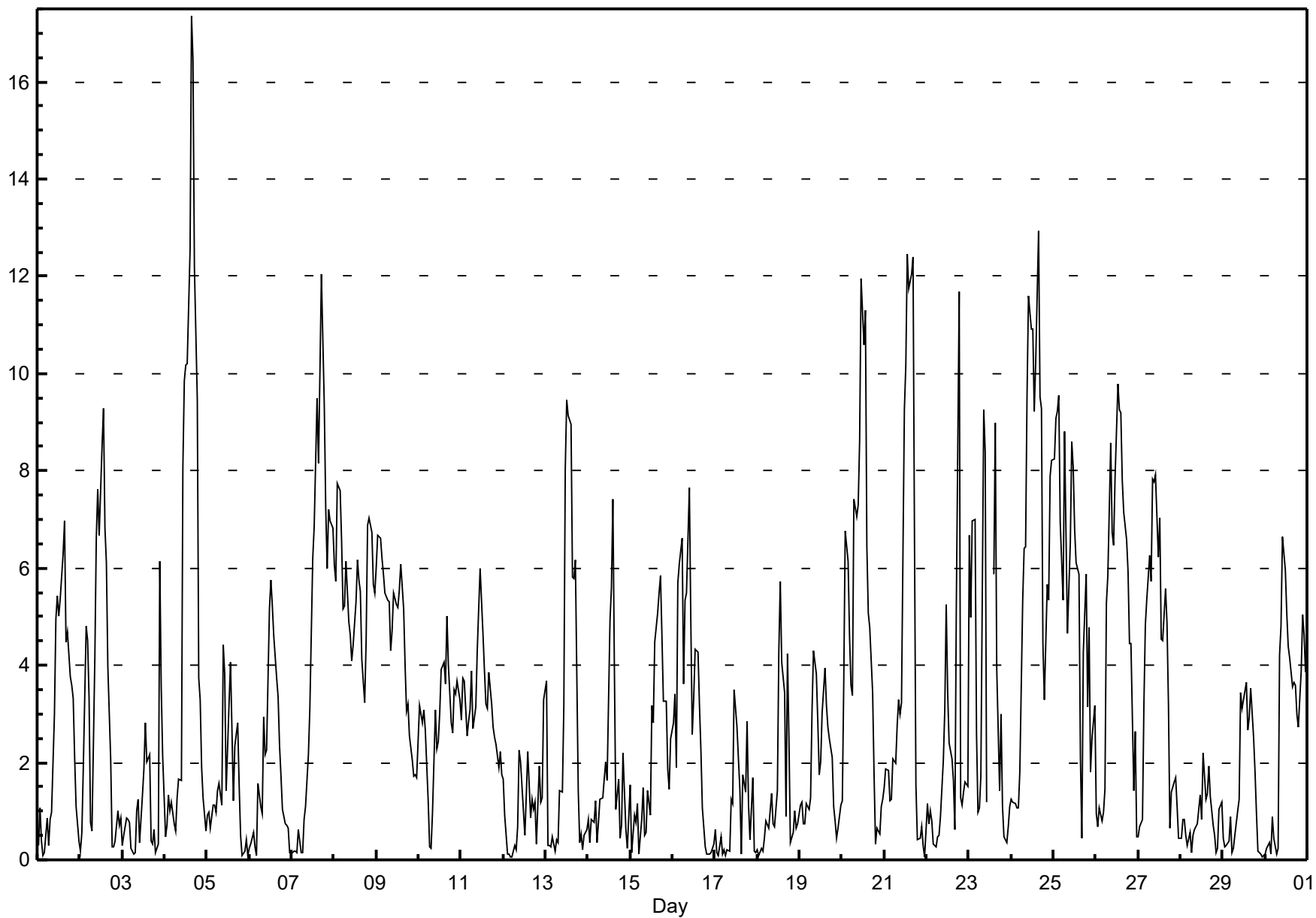
## Hourly Averages

Relative Humidity (RH) - %  
Valleyview - September 2019



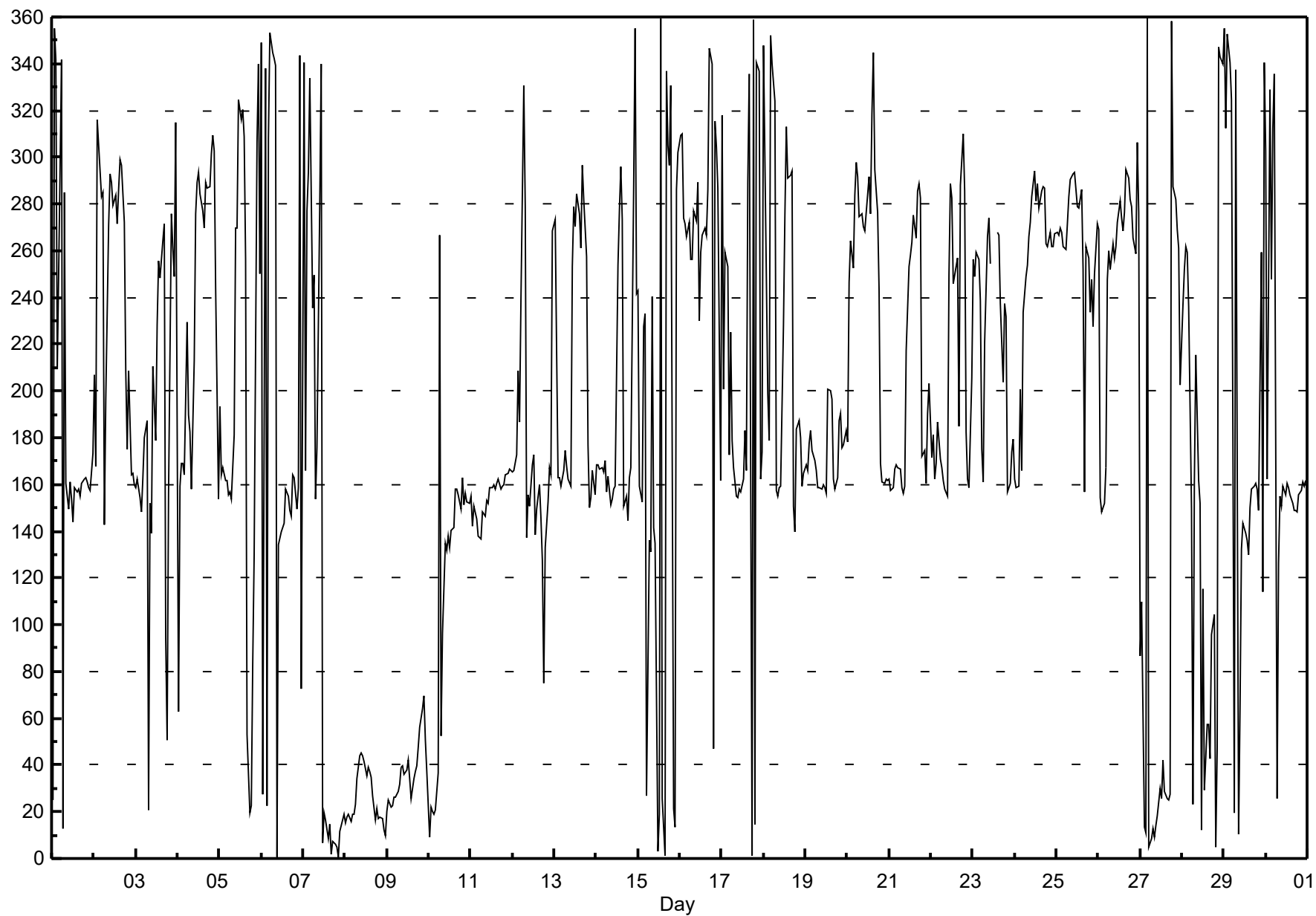
## Hourly Averages

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



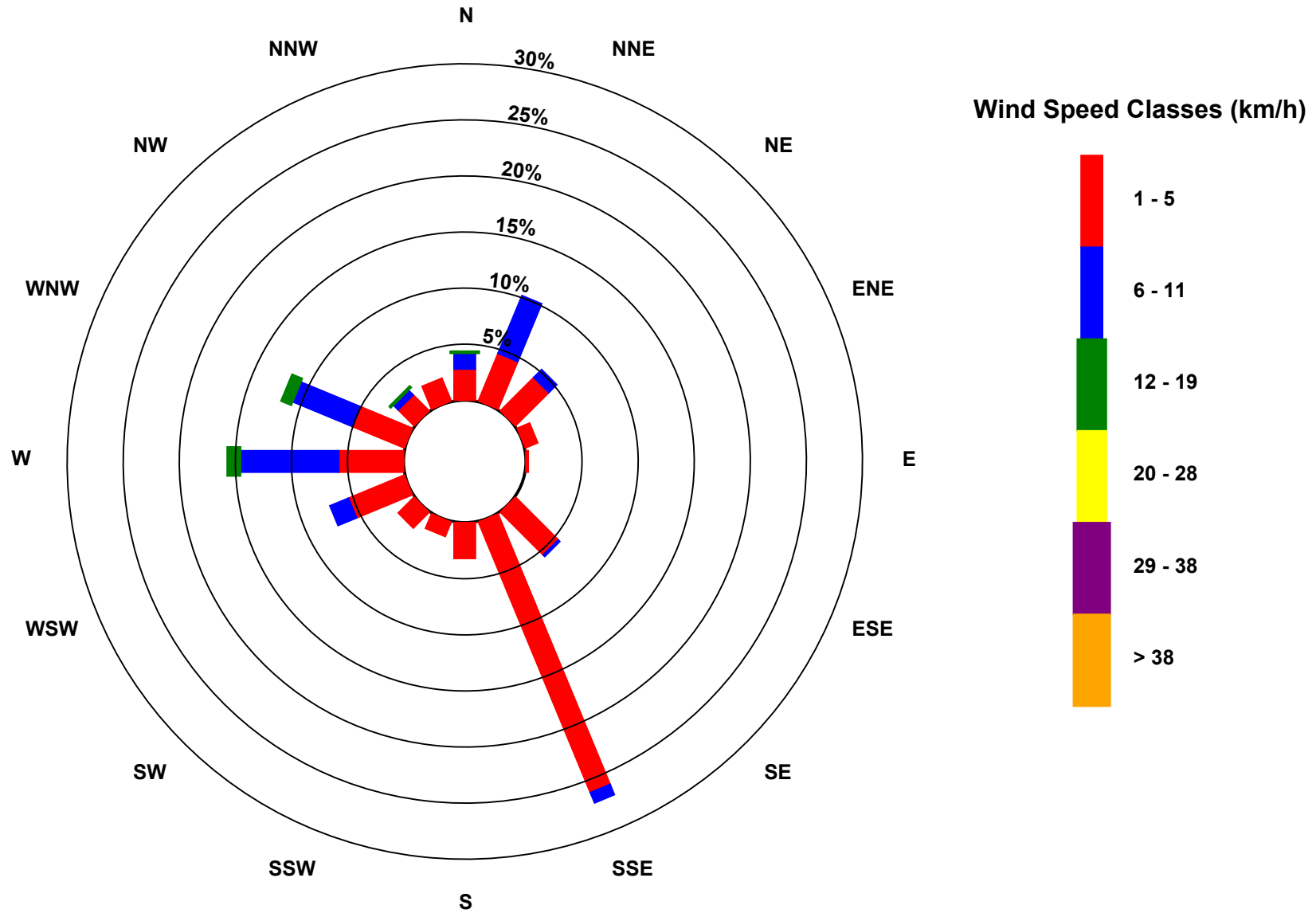
## Hourly Averages

Wind Direction (WD) - deg  
Valleyview - September 2019



## Wind Rose

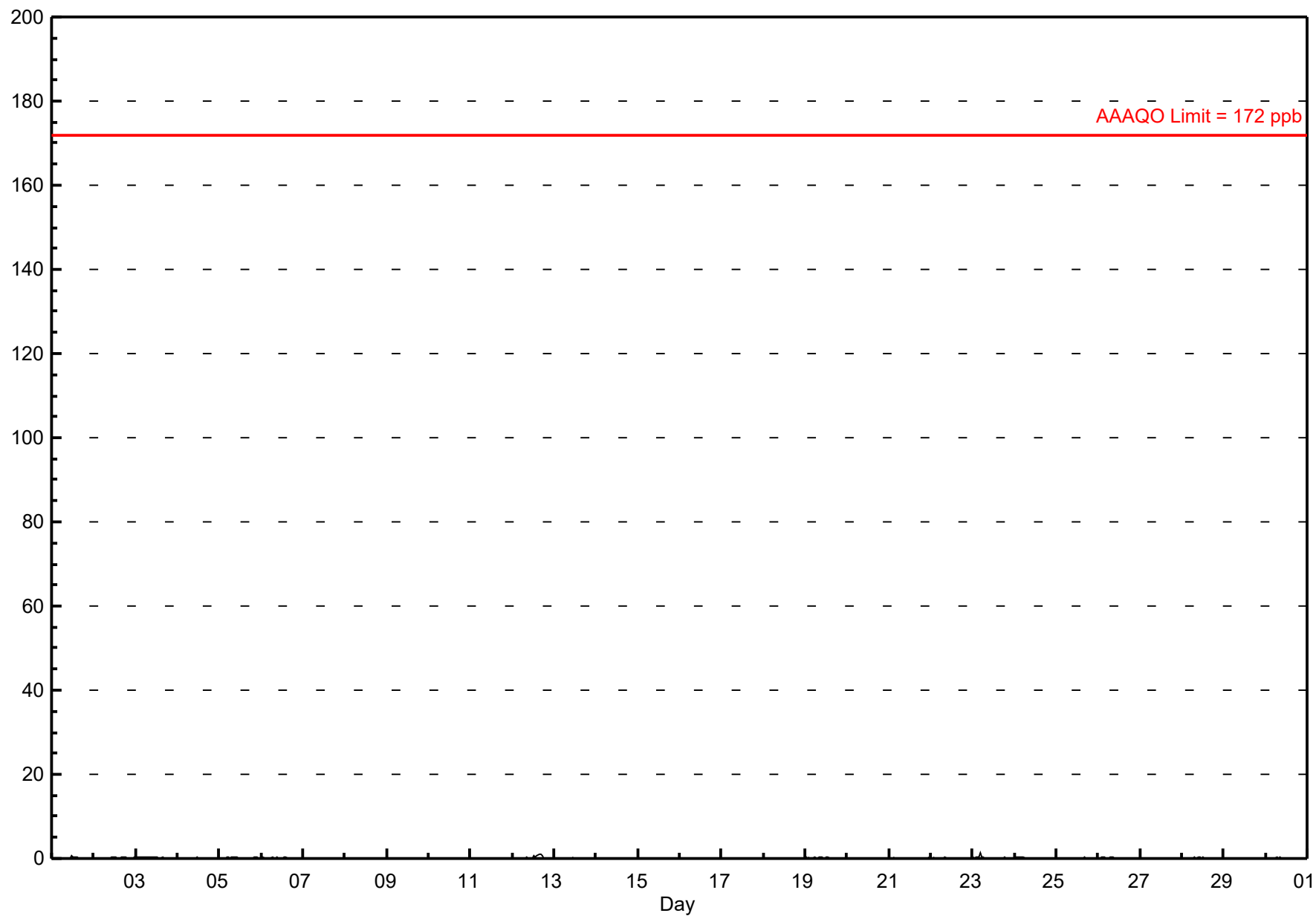
Wind Speed (WS) (km/h)  
Valleyview - September 2019



## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

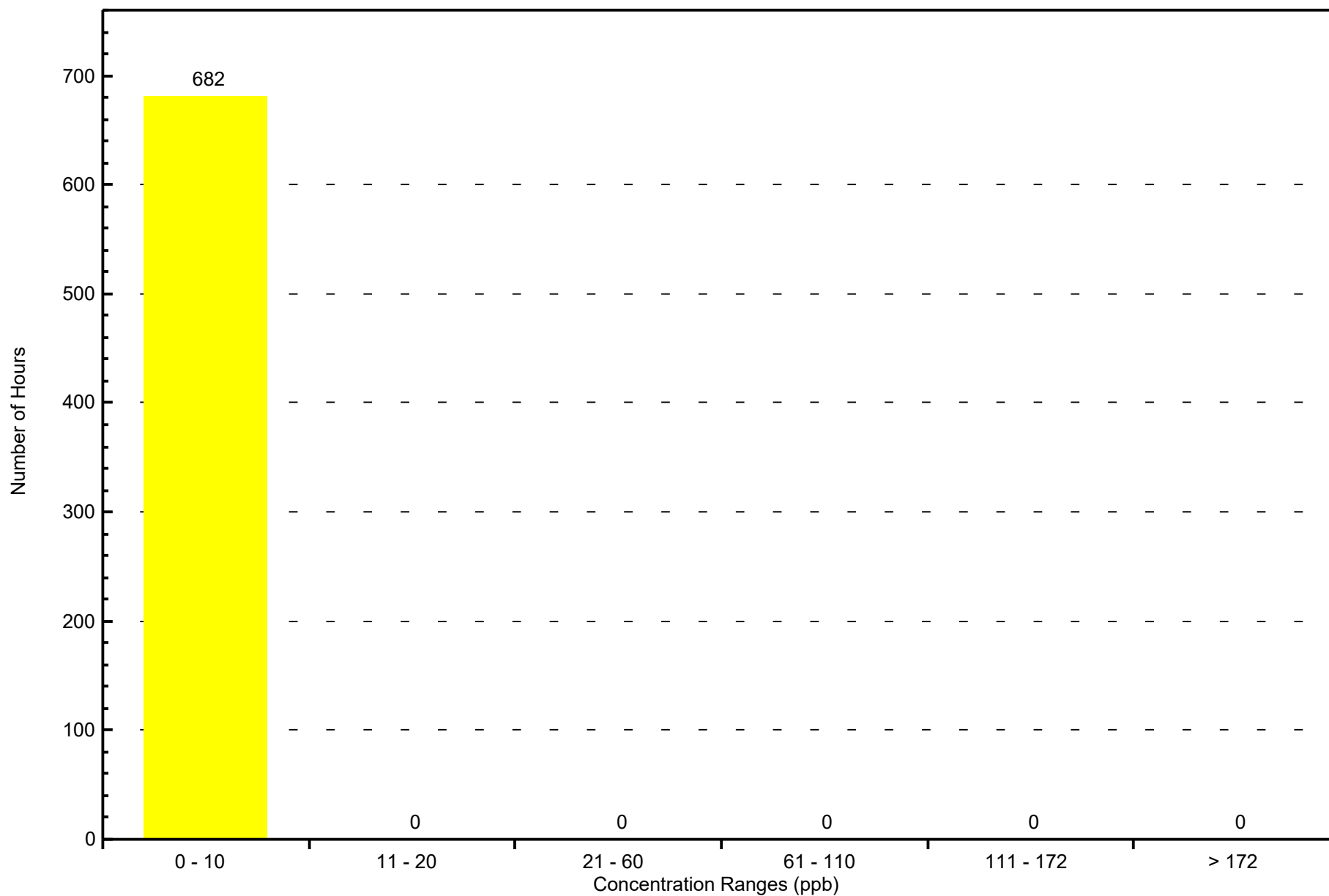
Donnelly - September 2019





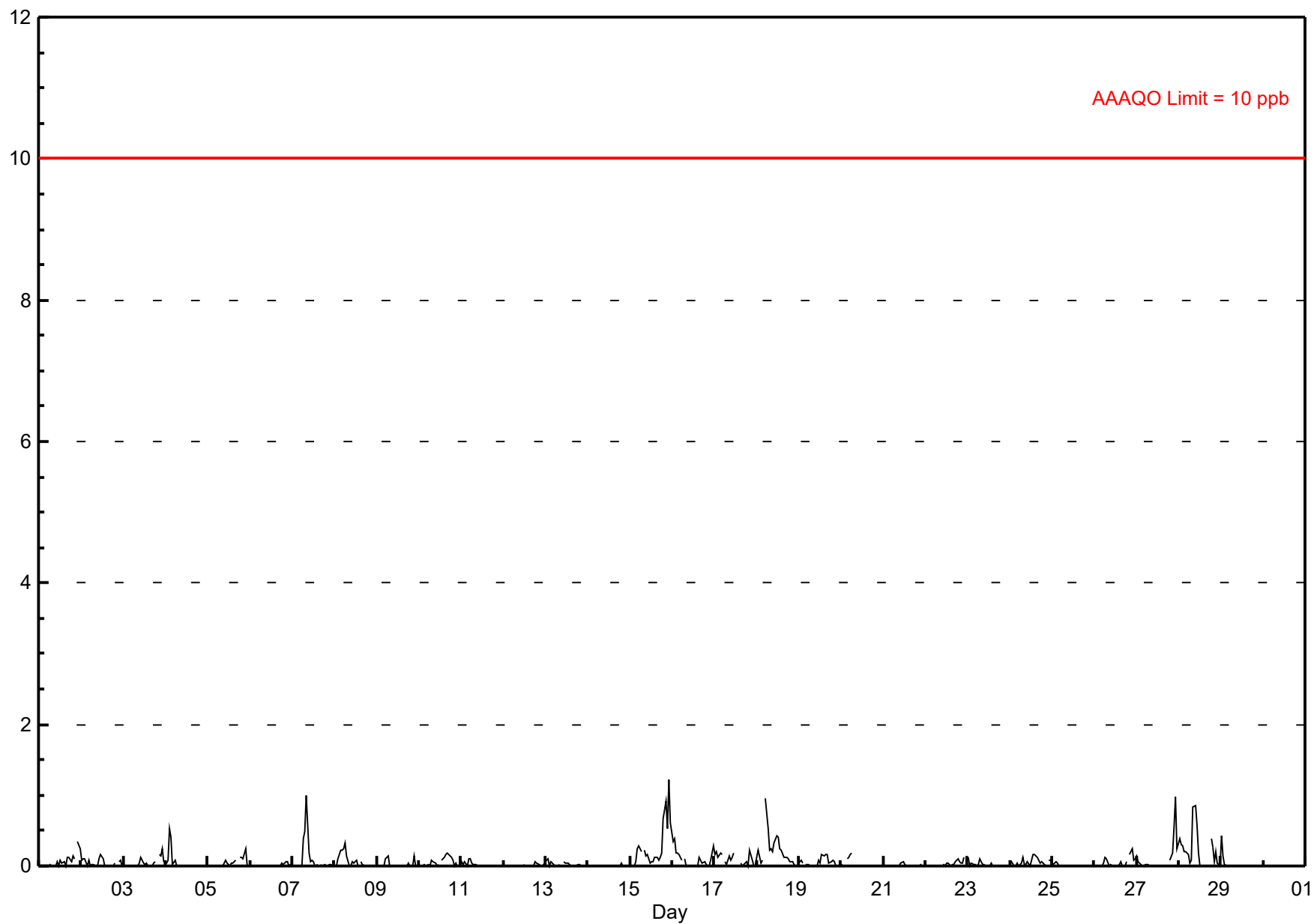
# Histogram of Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Donnelly - September 2019**



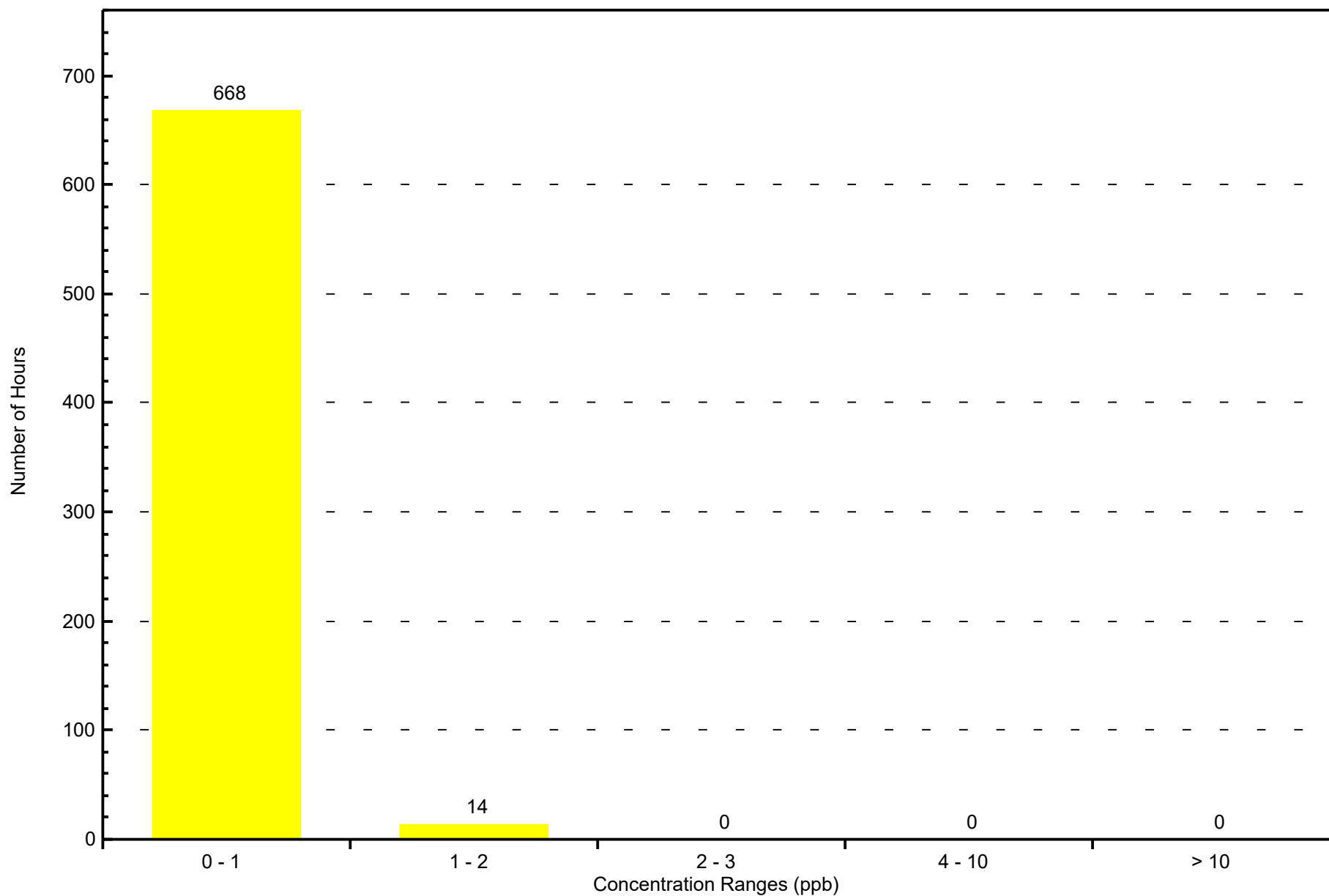
## Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Donnelly - September 2019



## Histogram of Hourly Averages

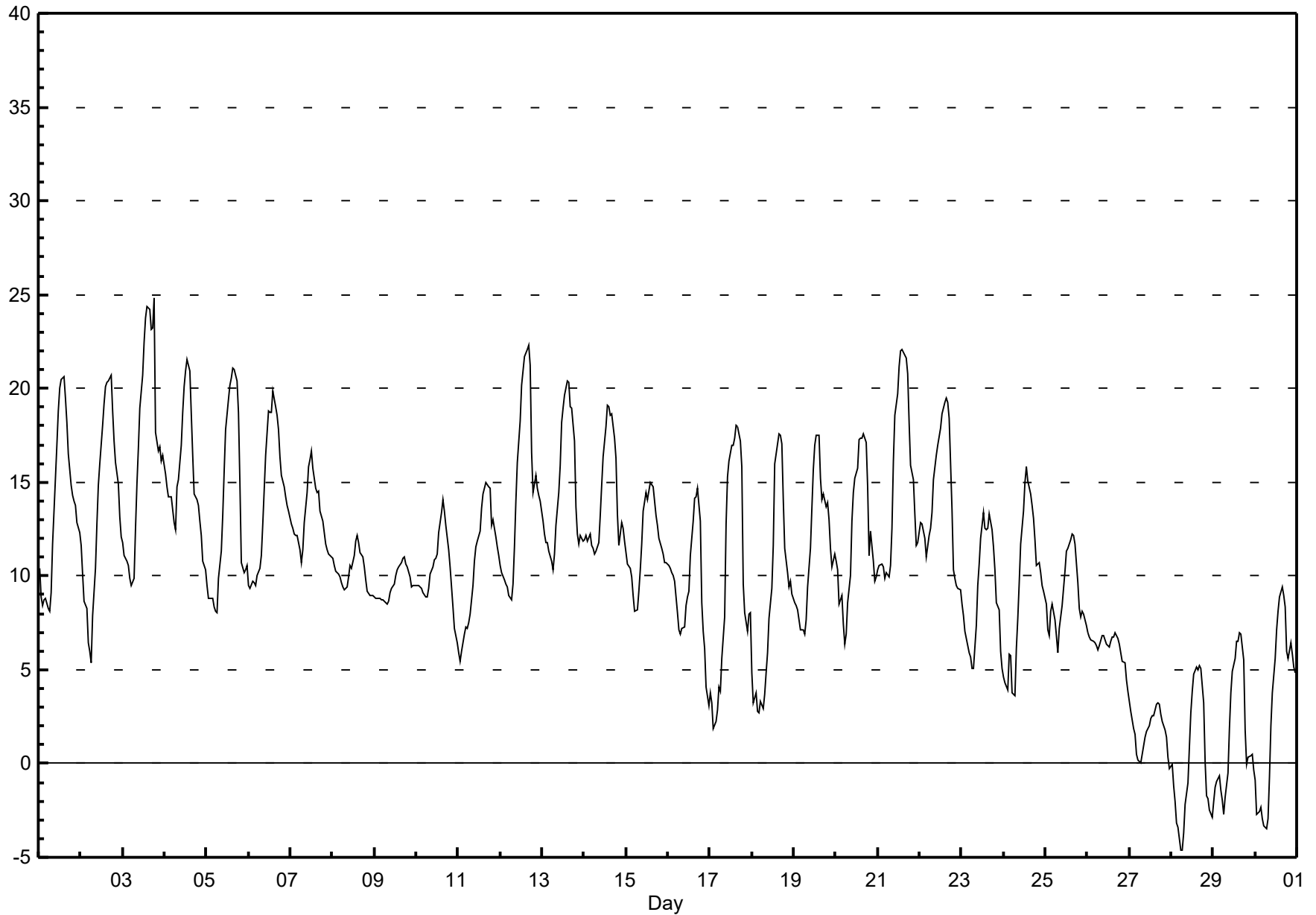
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Donnelly - September 2019



## Hourly Averages

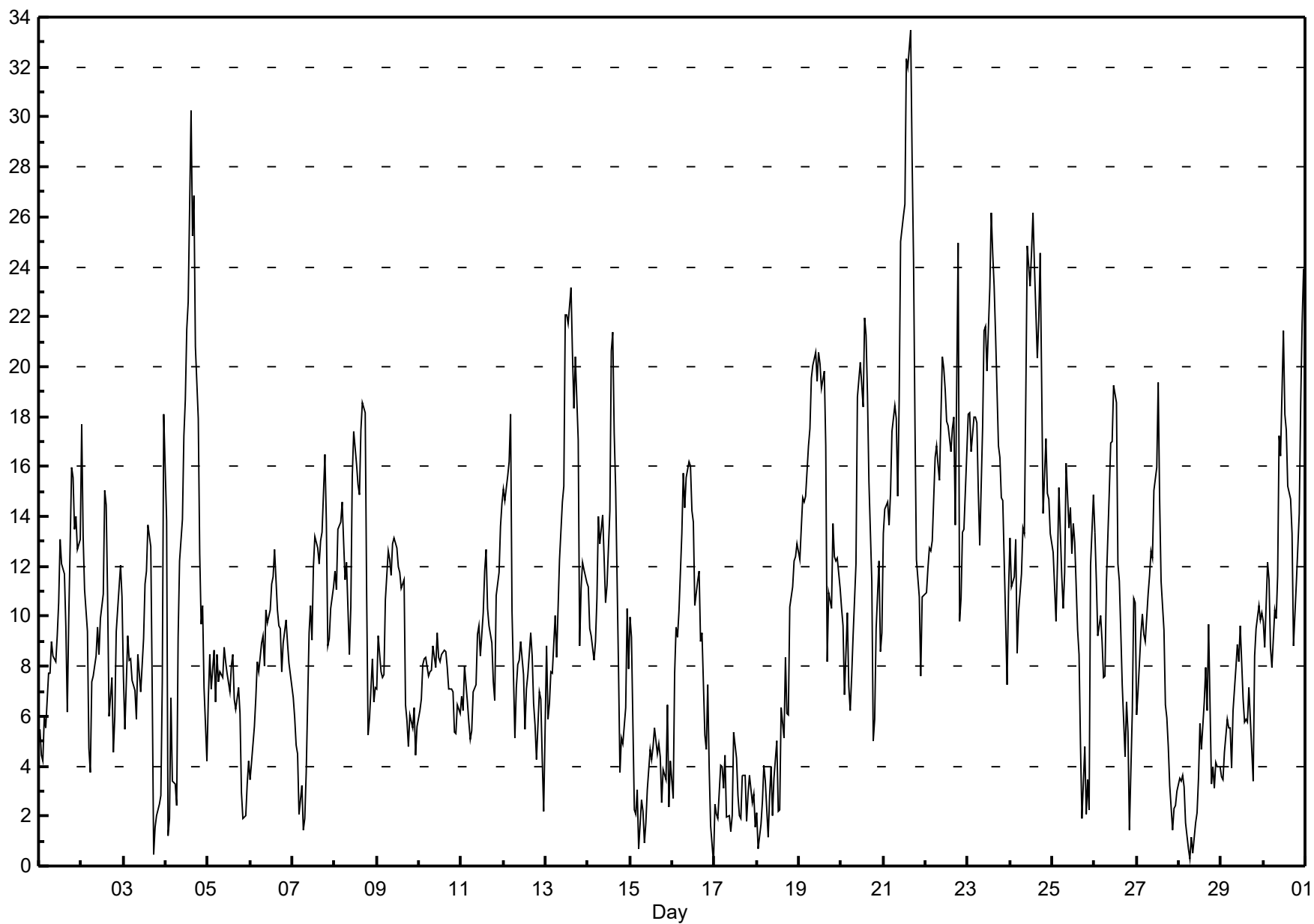
External Temperature (ET) - °C

Donnelly - September 2019



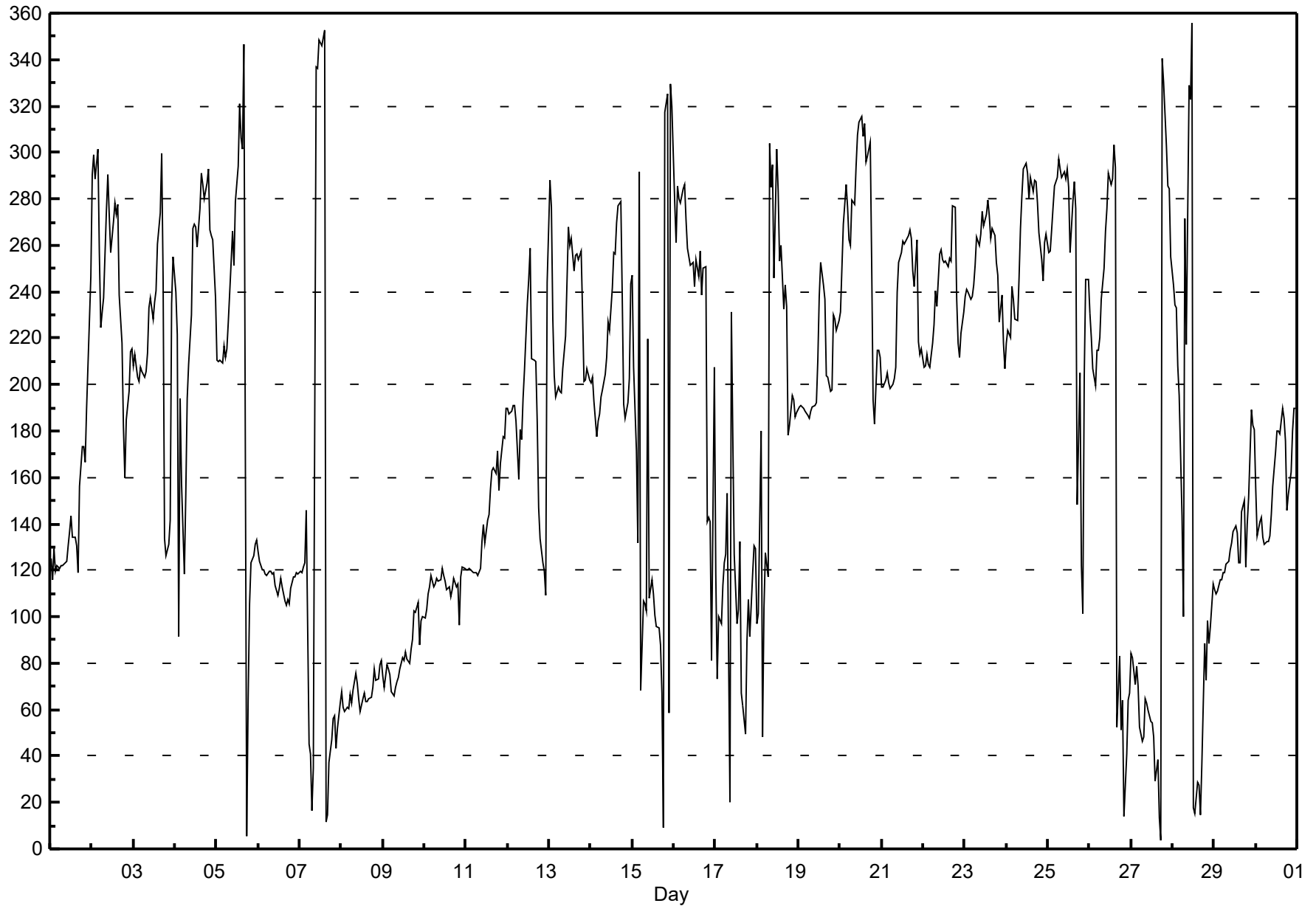
## Hourly Averages

**Wind Speed (WS) - km/h**  
**Donnelly - September 2019**



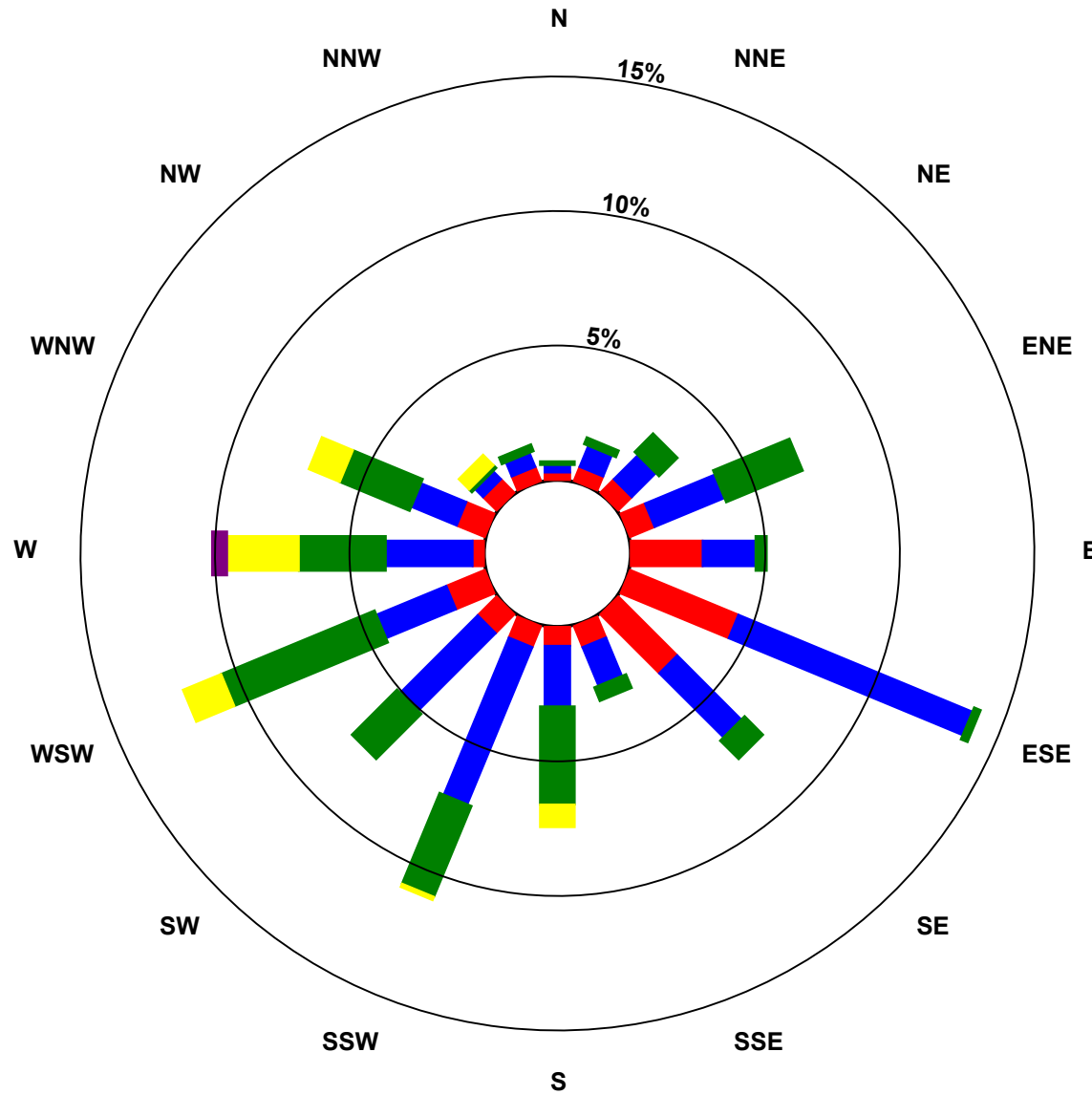
## Hourly Averages

Wind Direction (WD) - deg  
Donnelly - September 2019

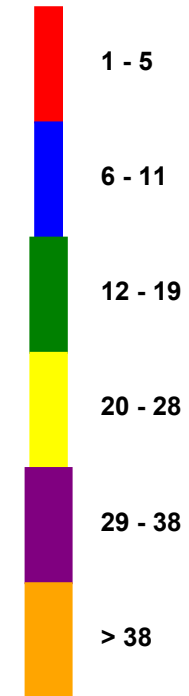


## Wind Rose

Wind Speed (WS) (km/h)  
Donnelly - September 2019



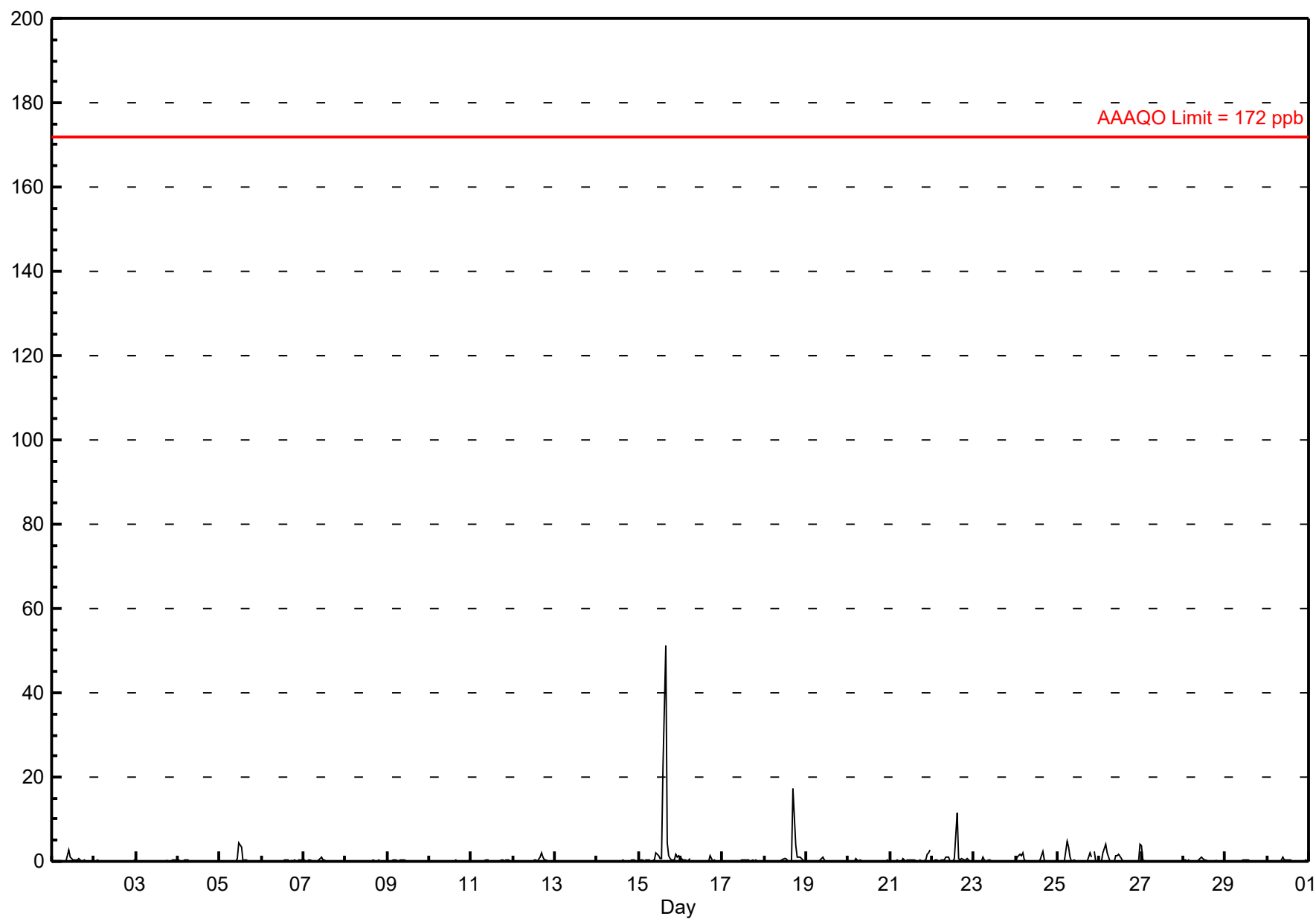
## Wind Speed Classes (km/h)



## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

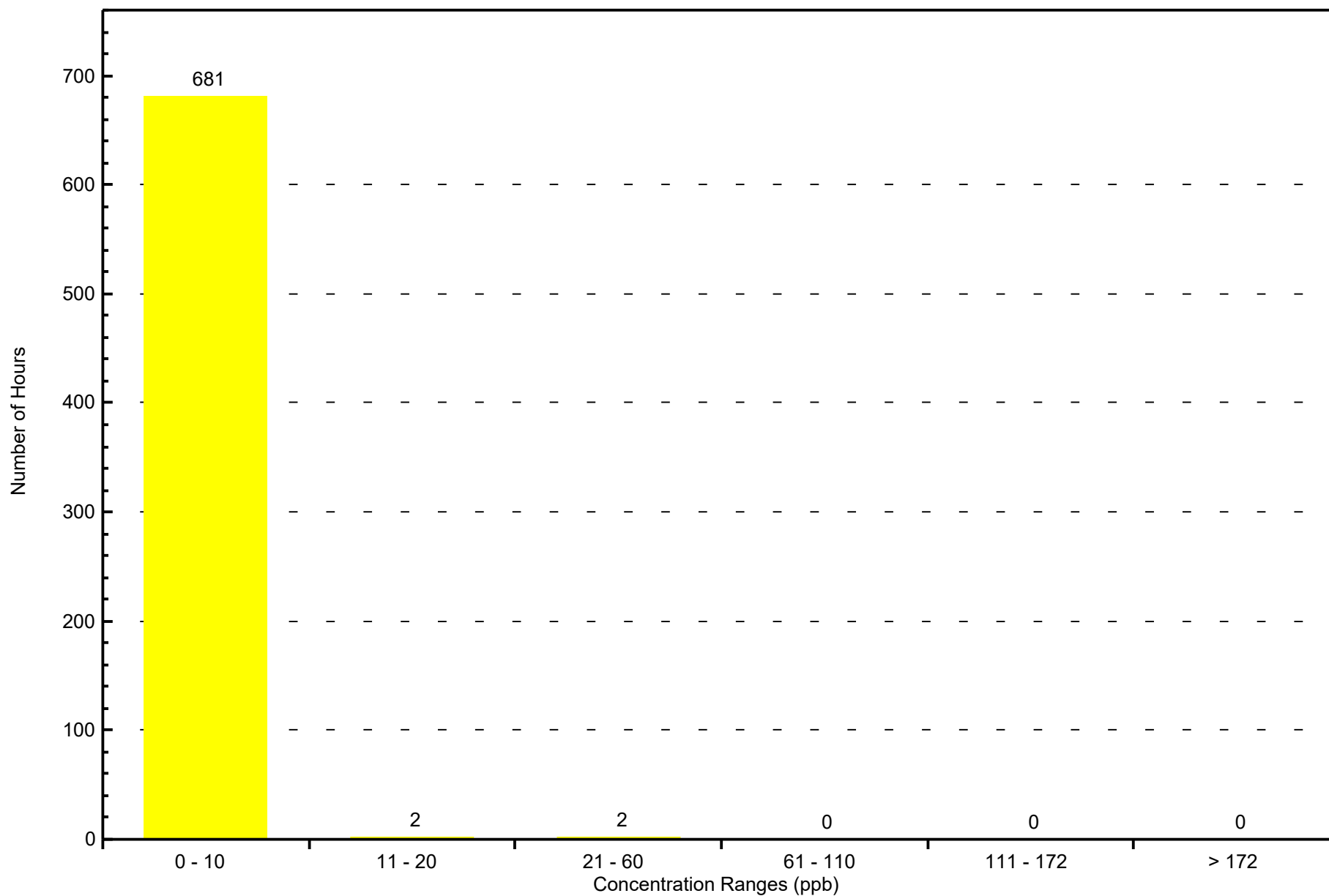
Wembley - September 2019





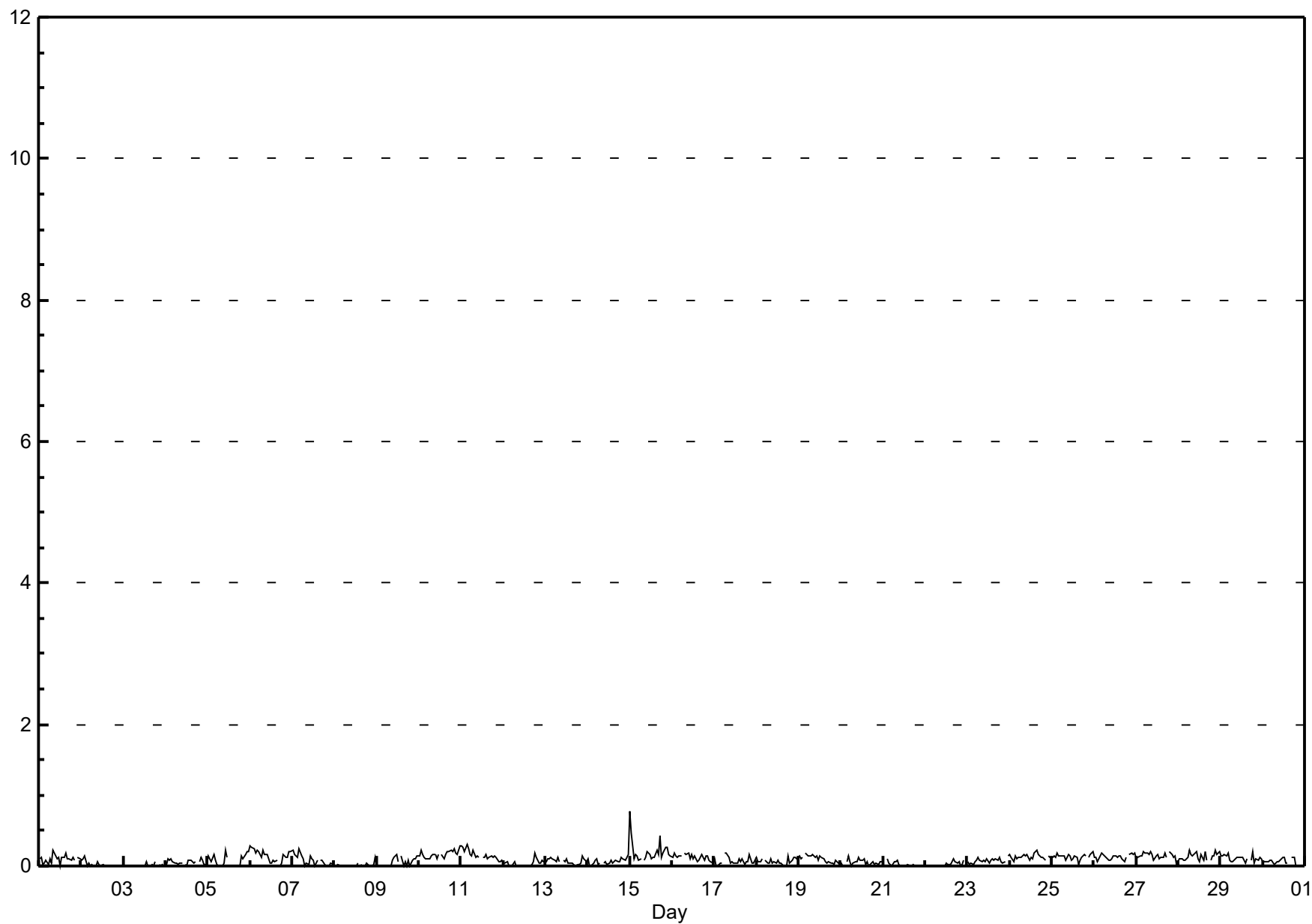
## Histogram of Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wembley - September 2019**



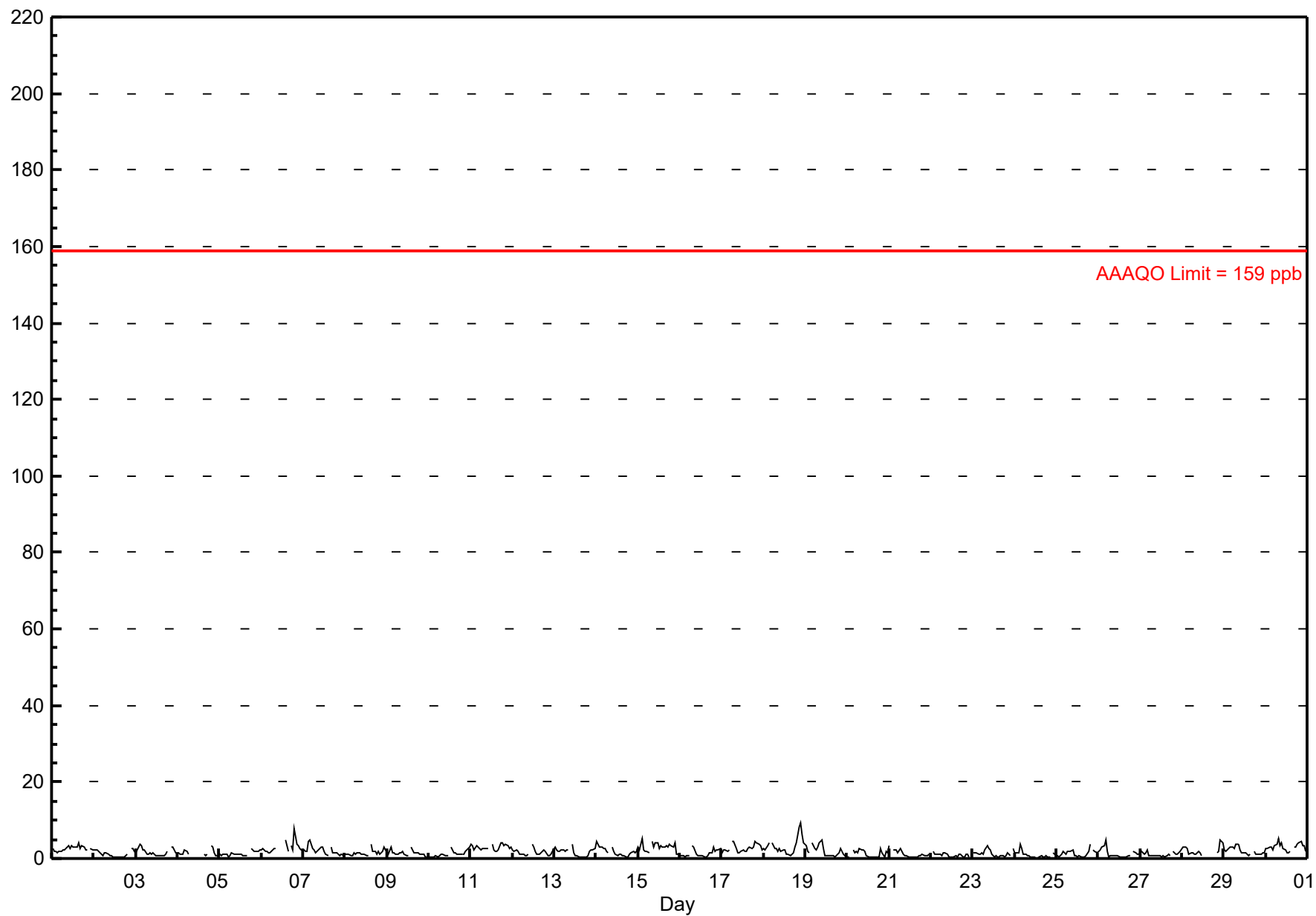
## Hourly Averages

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



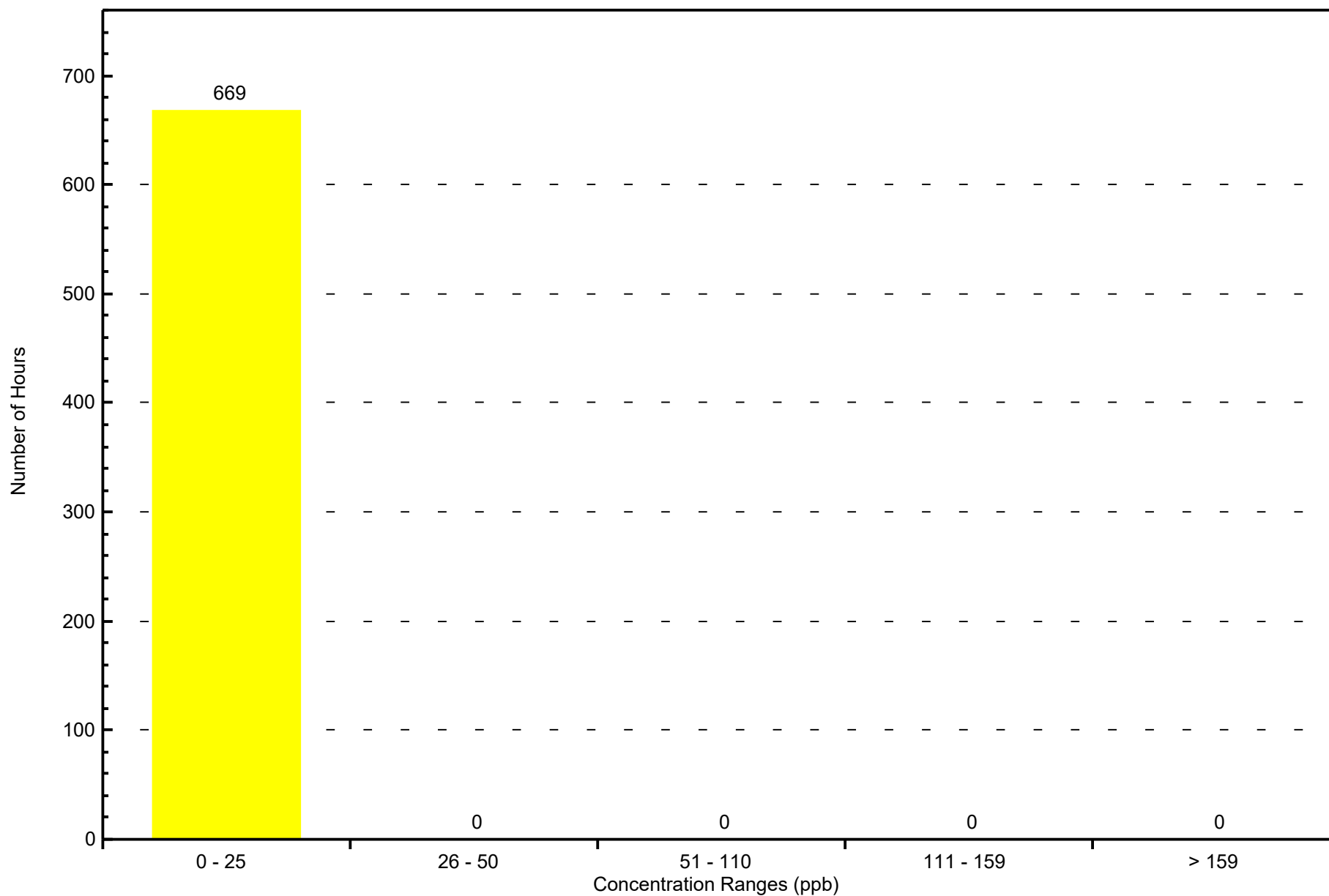
## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Wembley - September 2019



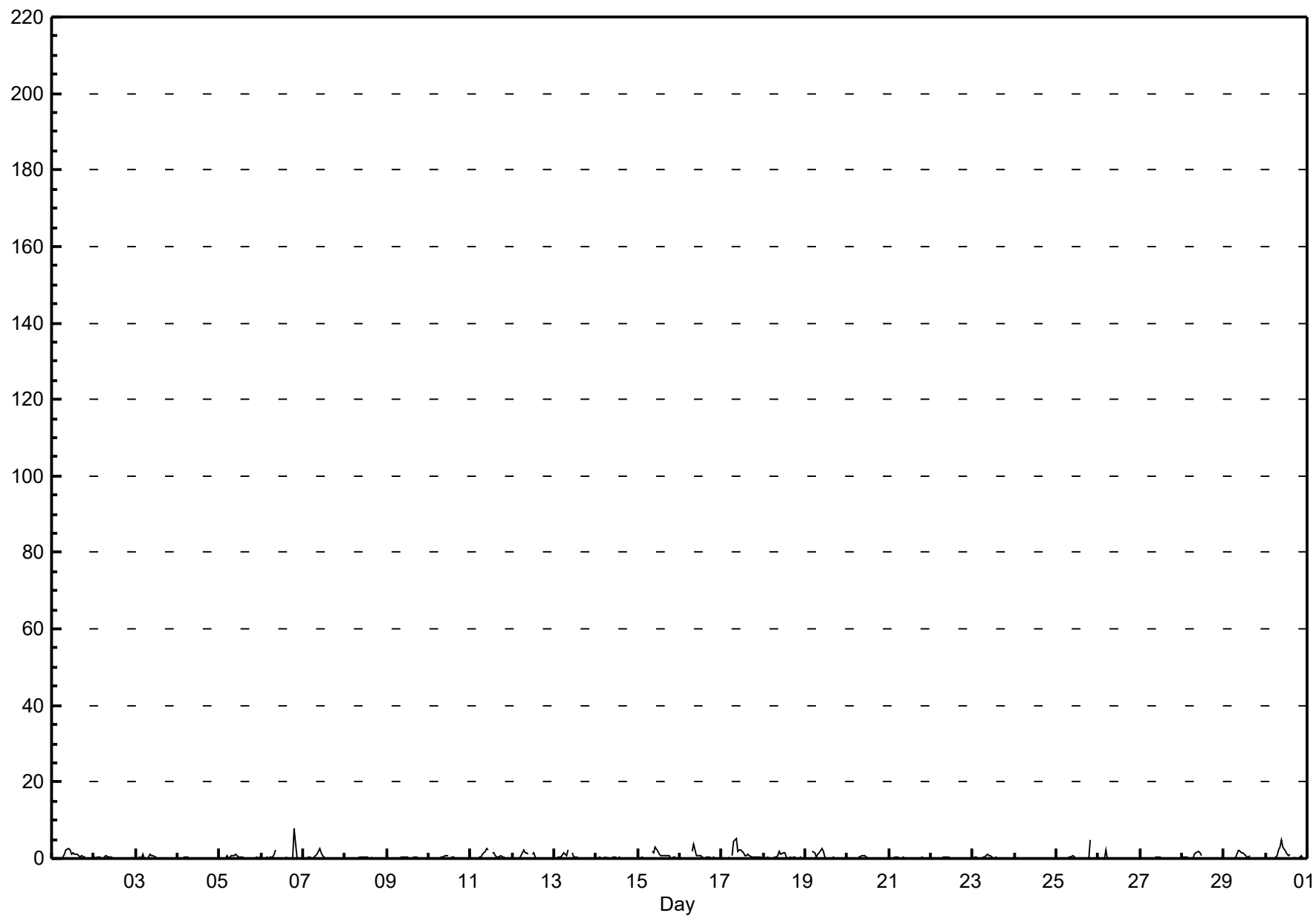
## Histogram of Hourly Averages

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Wembley - September 2019**



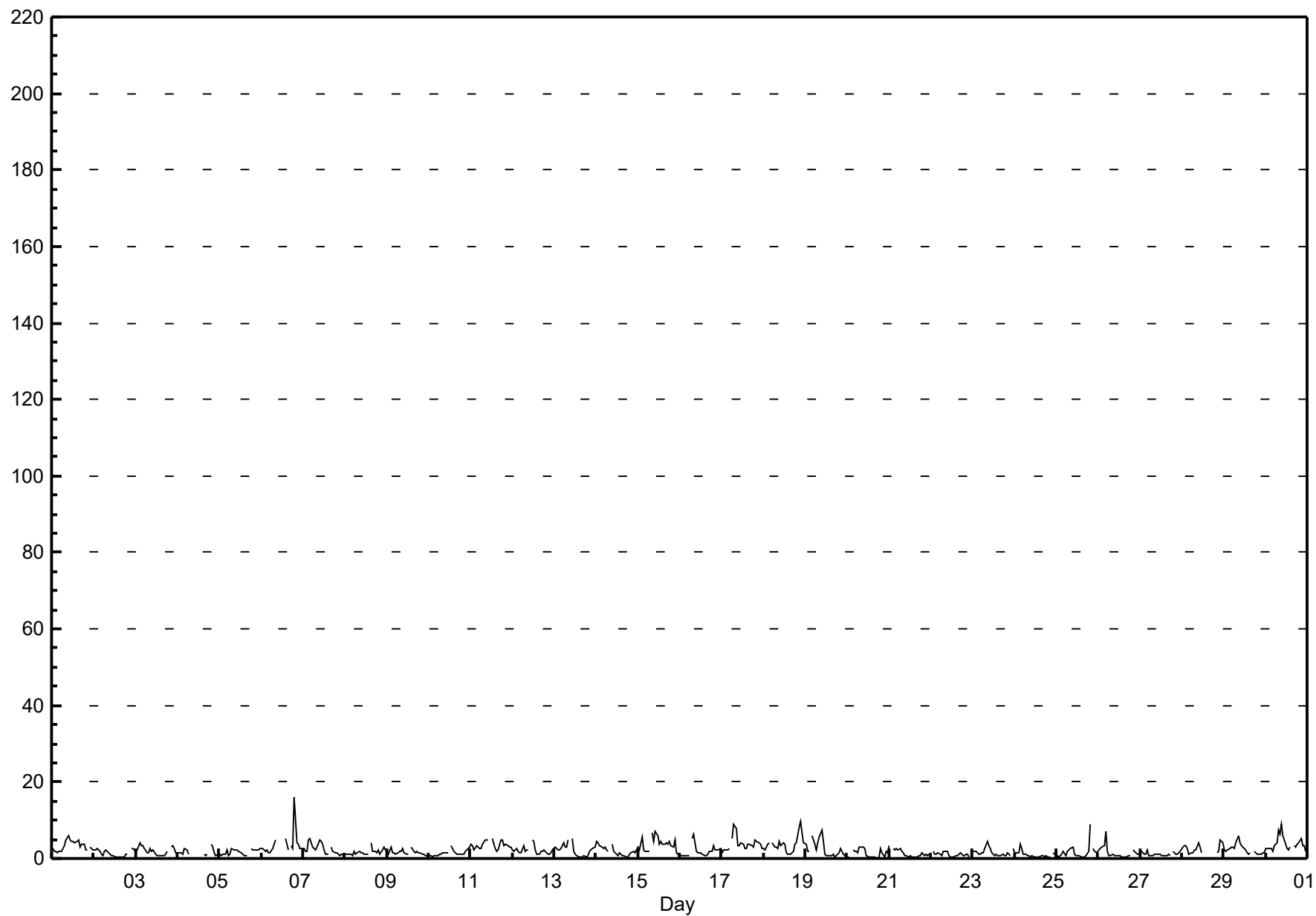
## Hourly Averages

**Nitrogen Oxide (NO) - ppb**  
**Wembley - September 2019**



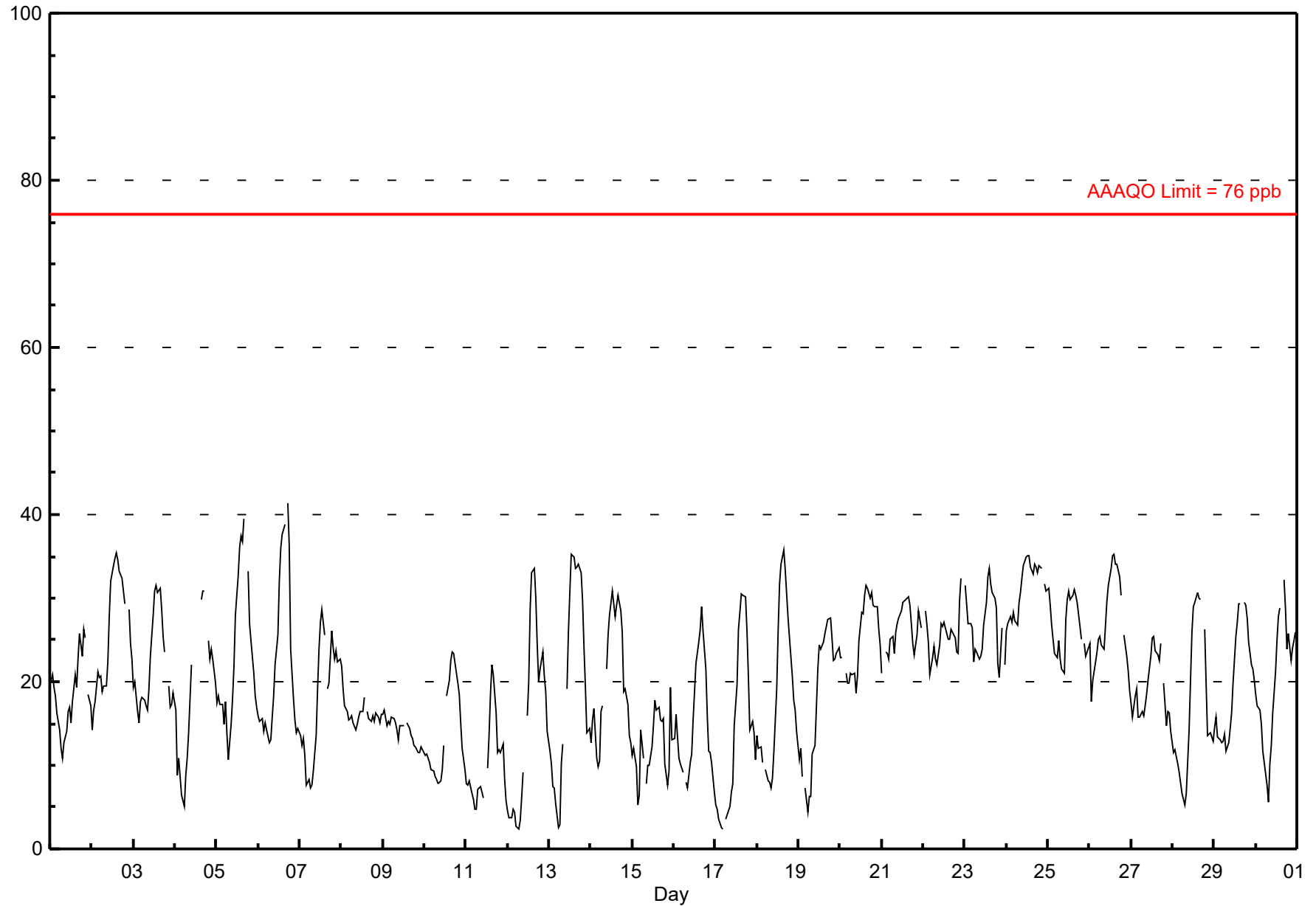
## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Wembley - September 2019



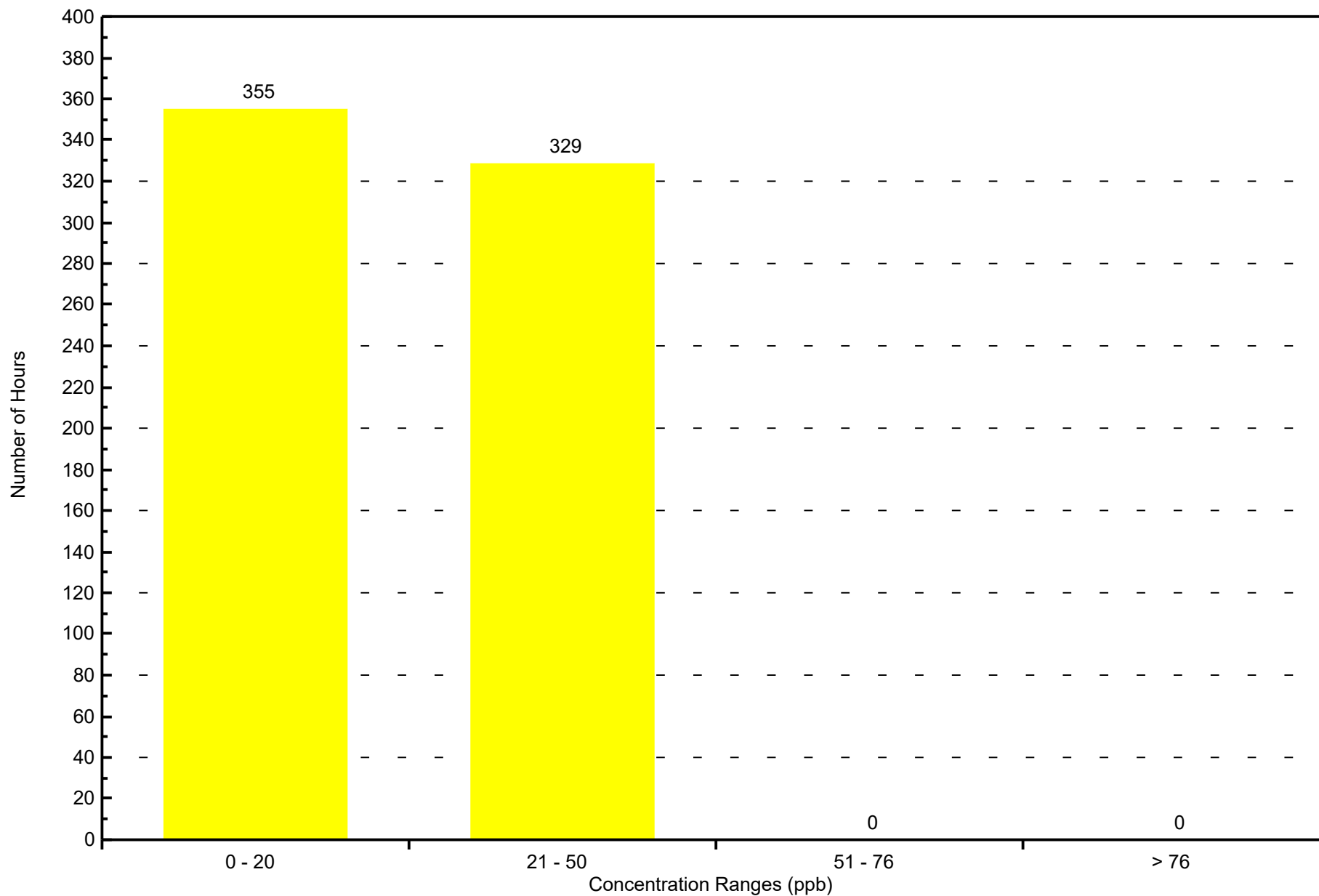
## Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Wembley - September 2019



# Histogram of Hourly Averages

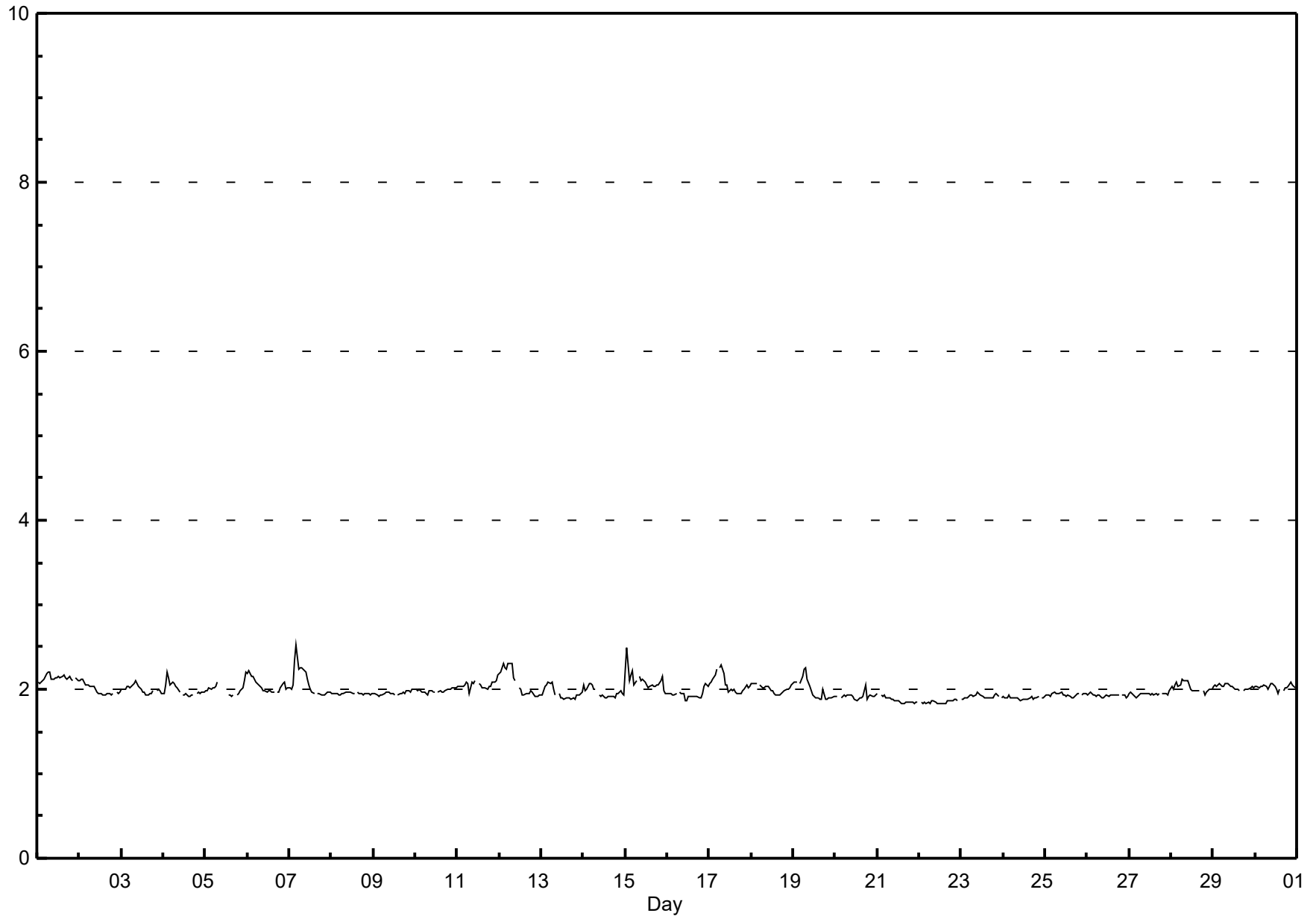
Ozone (O<sub>3</sub>) - ppb  
Wembley - September 2019





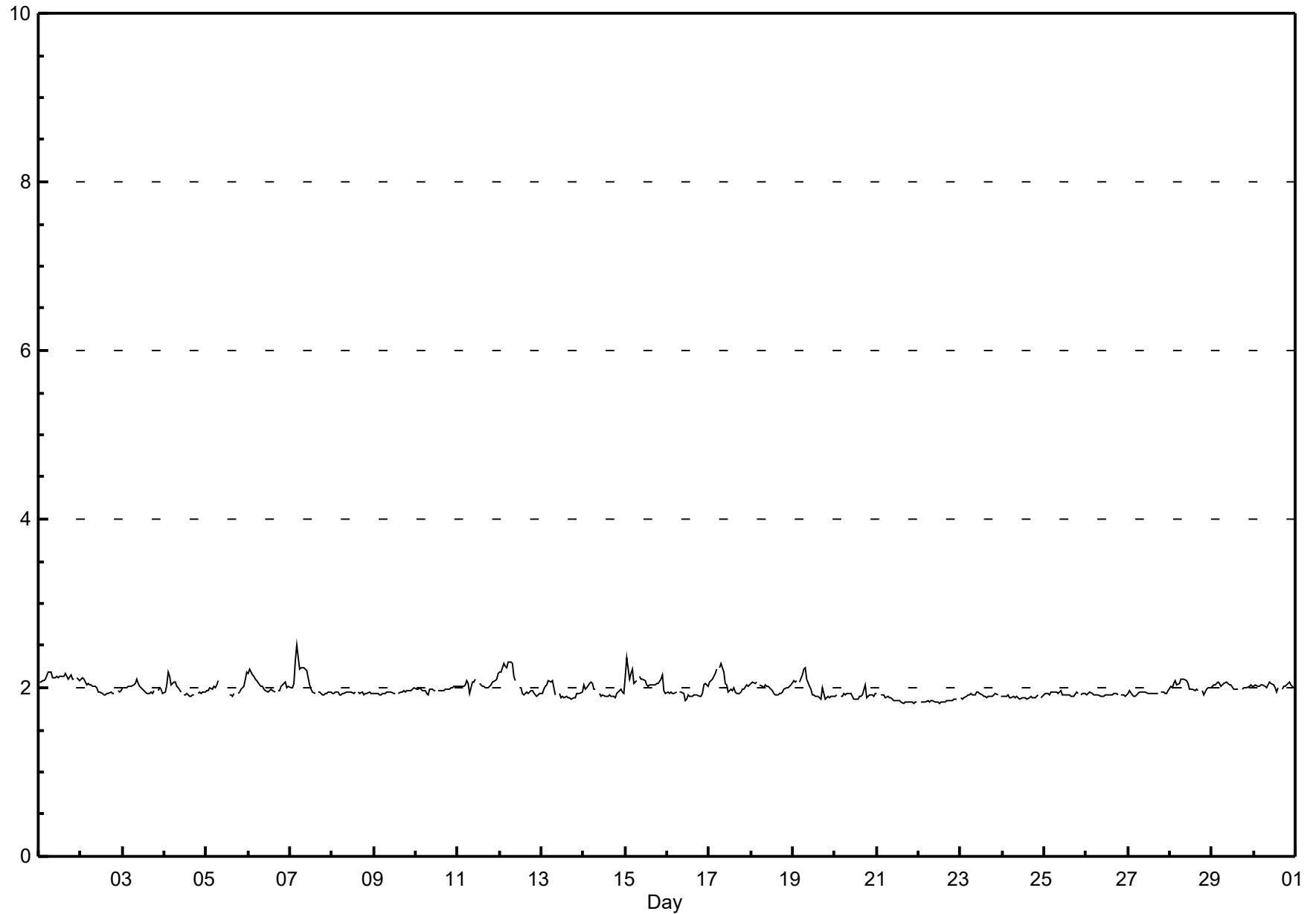
## Hourly Averages

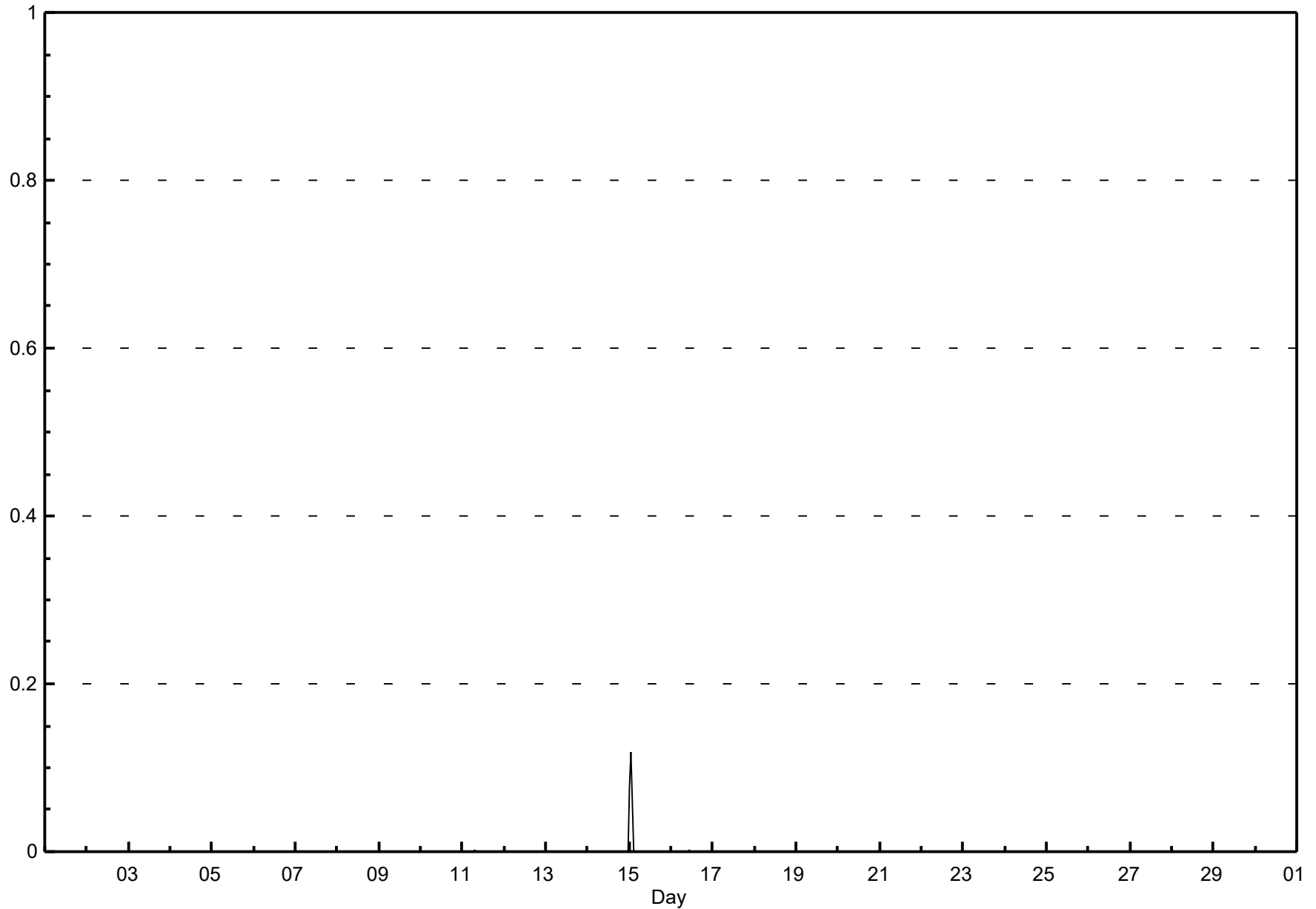
Total Hydrocarbons (THC) - ppm  
Wembley - September 2019



## Hourly Averages

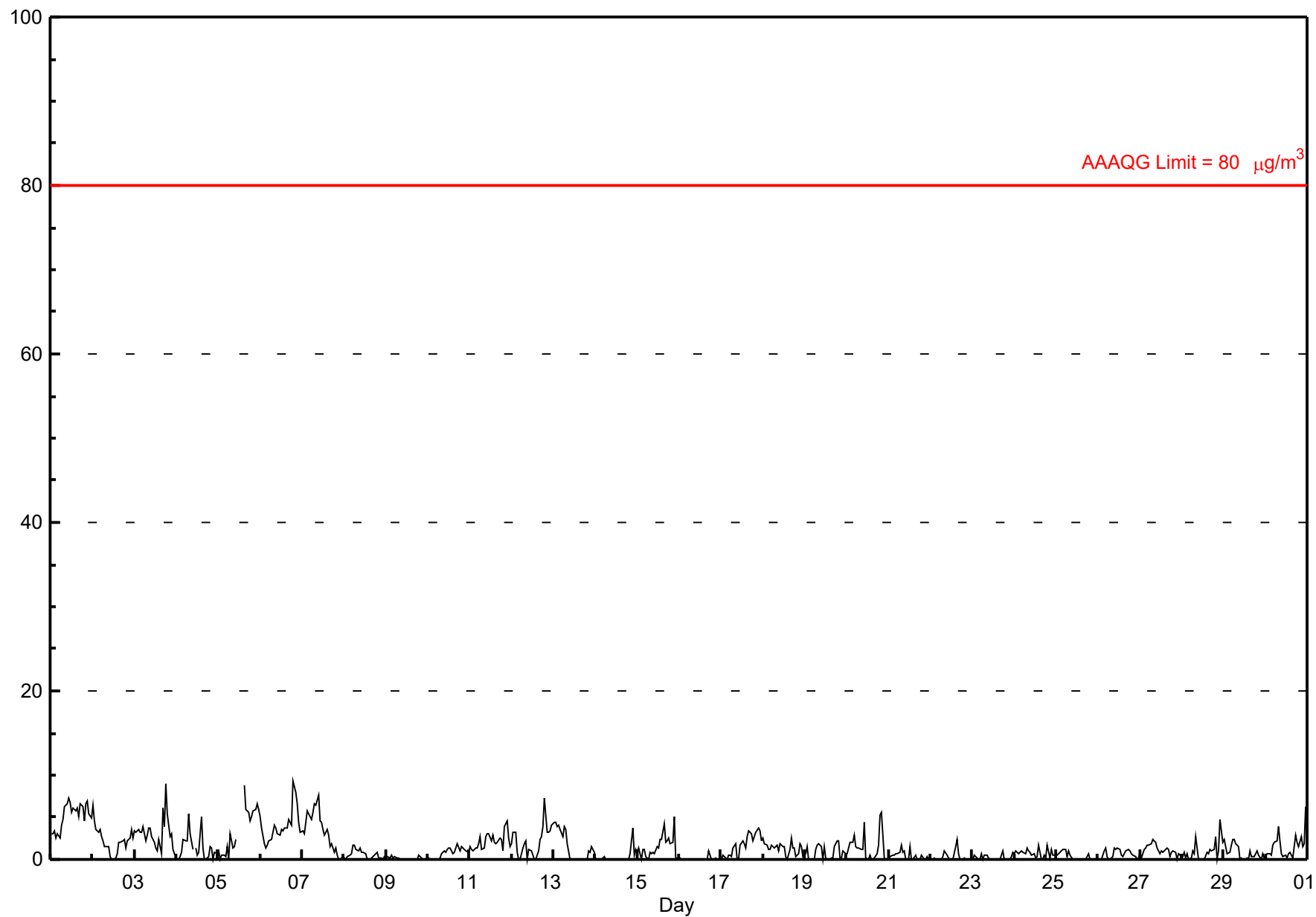
Methane (CH<sub>4</sub>) - ppm  
Wembley - September 2019





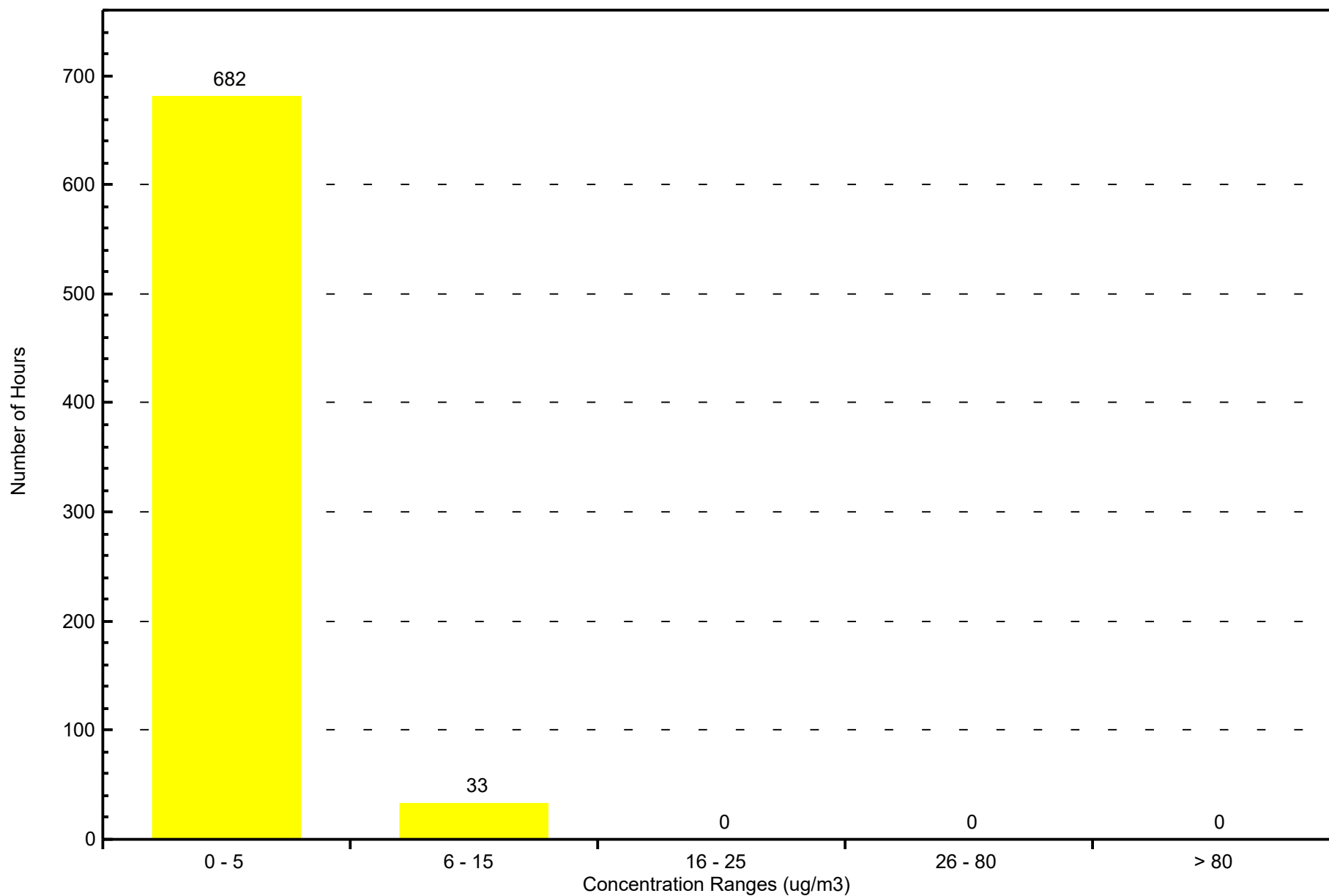
## Hourly Averages

PM<sub>2.5</sub> (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Wembley - September 2019



## Histogram of Hourly Averages

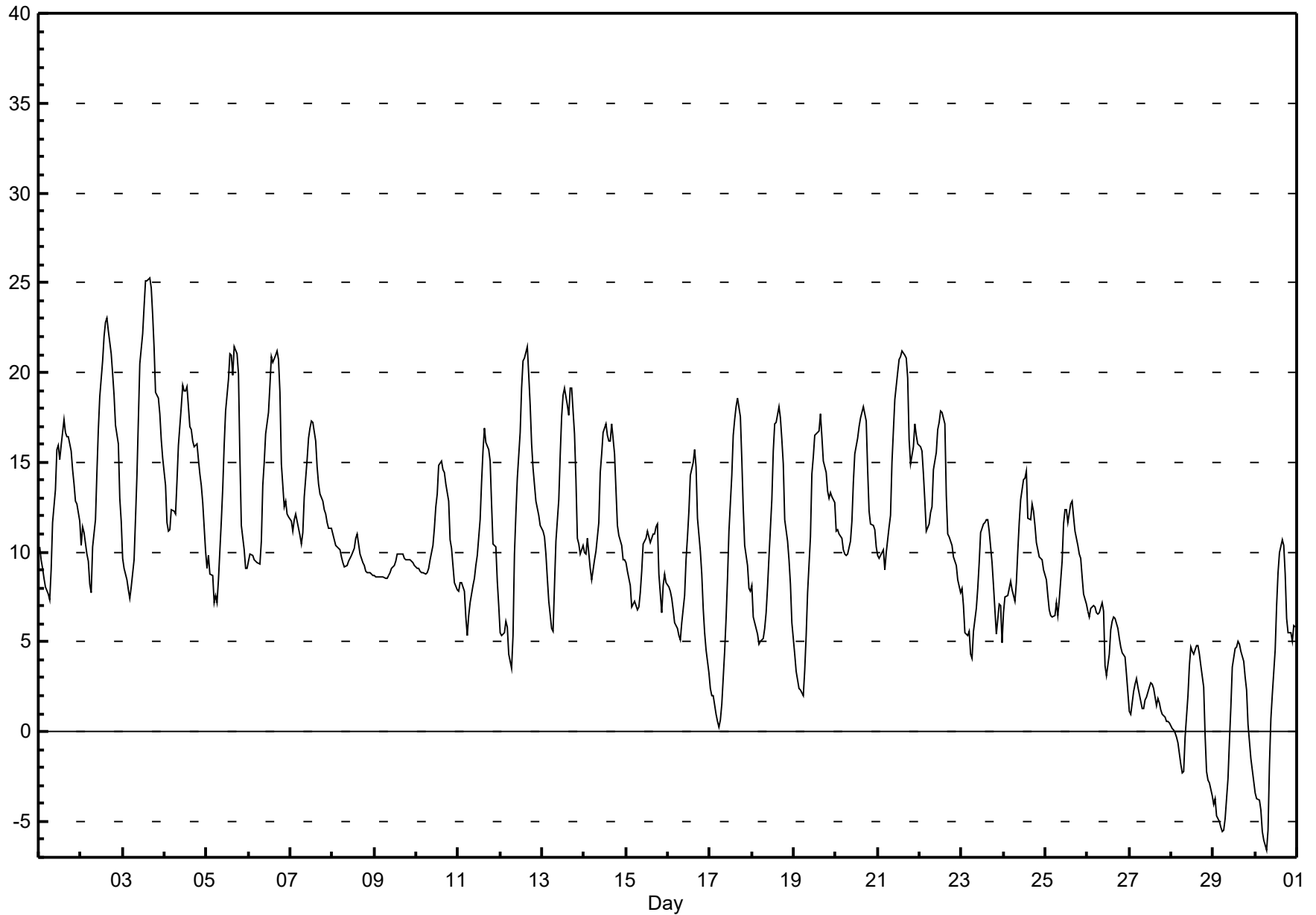
**PM<sub>2.5</sub> (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Wembley - September 2019**



## Hourly Averages

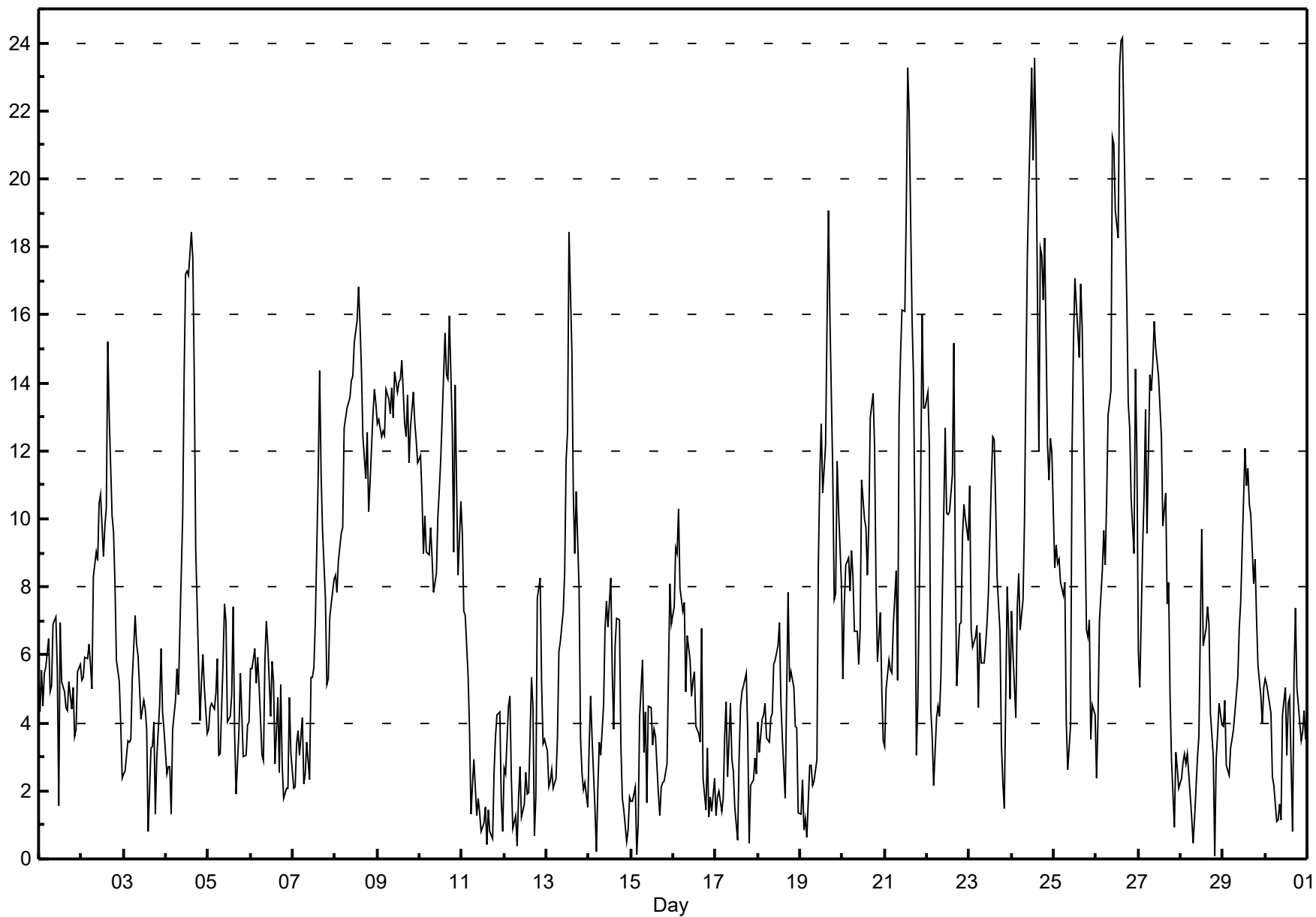
External Temperature (ET) - °C

Wembley - September 2019



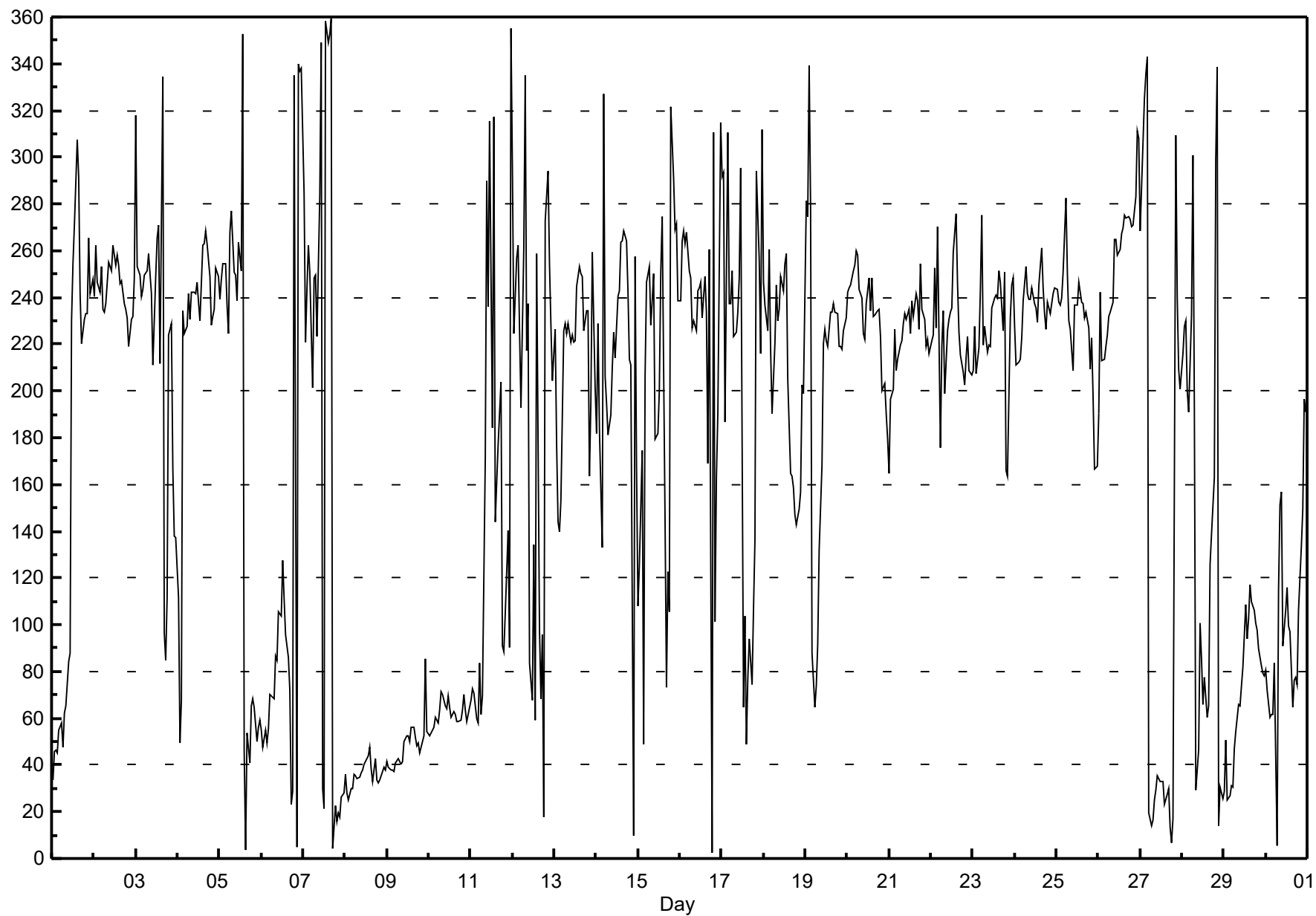
## Hourly Averages

**Wind Speed (WS) - km/h**  
**Wembley - September 2019**



## Hourly Averages

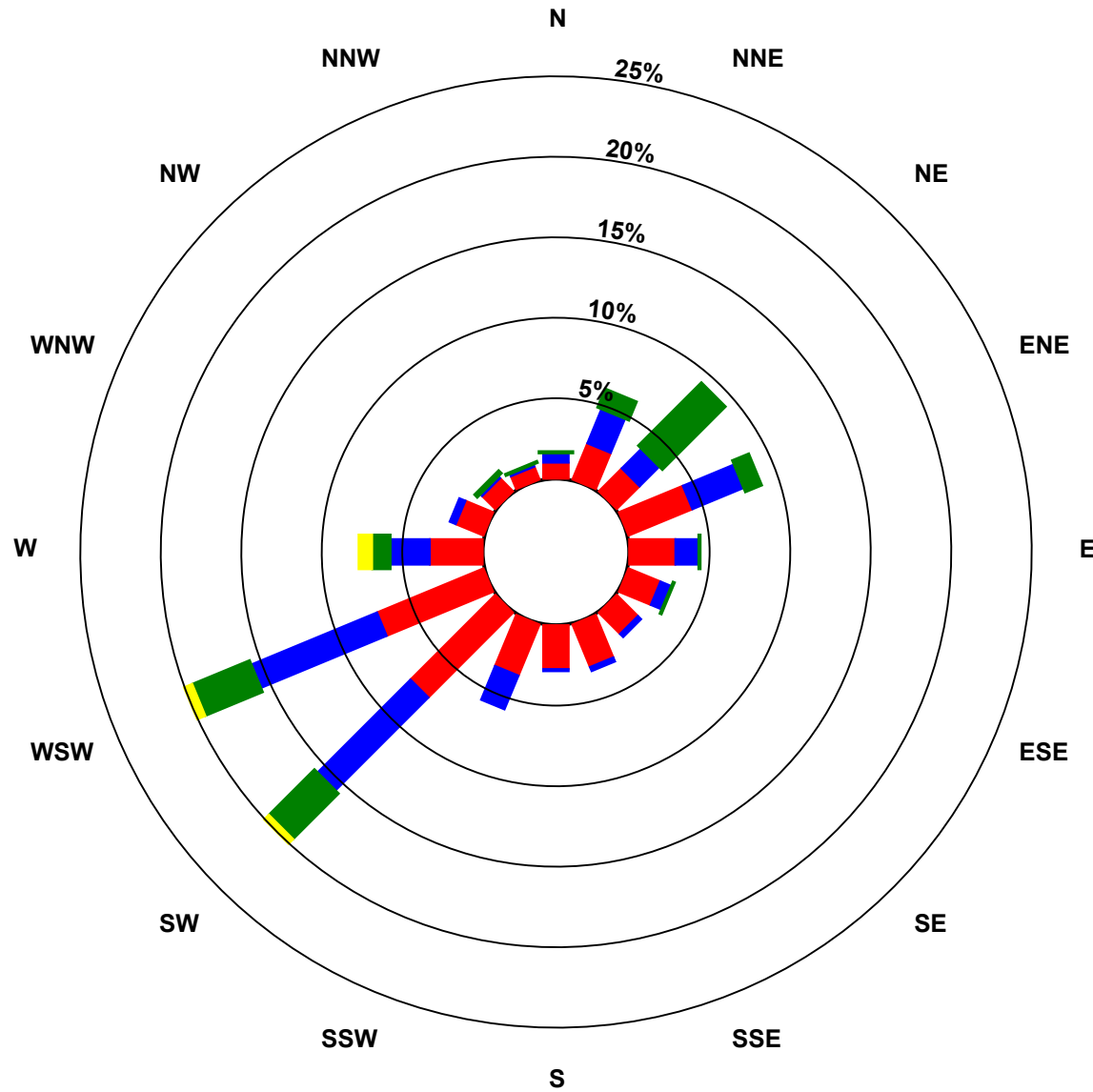
Wind Direction (WD) - deg  
Wembley - September 2019



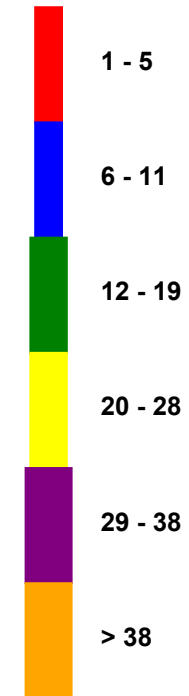


## Wind Rose

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



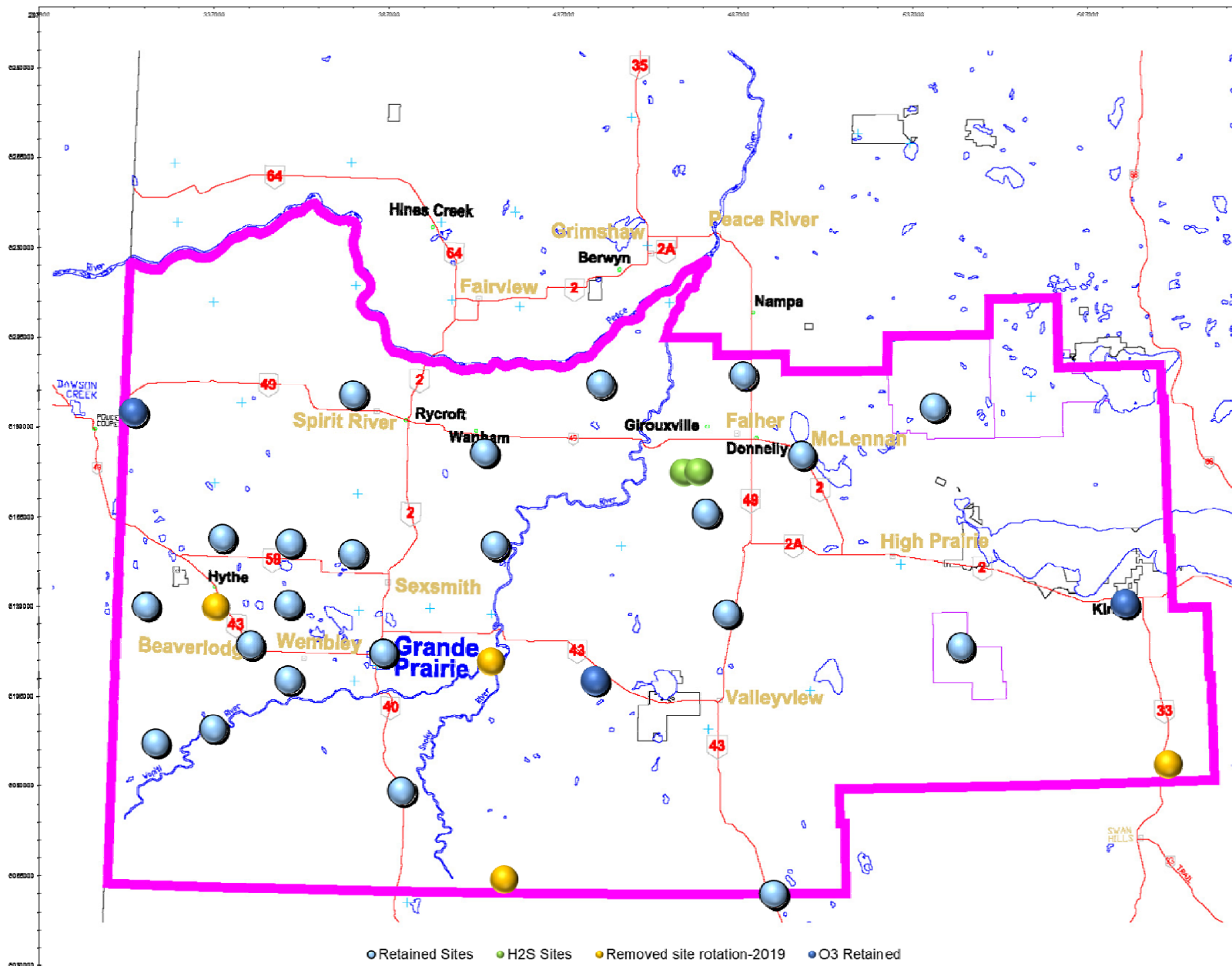
## Wind Speed Classes (km/h)



PAZA

## Monthly Passive Data Summary

## Location of PAZA Passive Monitoring Stations



**Peace Airshed Zone Association - PAZA Passive Stations**  
**September 2019**

| Station Number    | Station Name      | SO2<br>ppb | O3<br>ppb | NO2<br>ppb | H2S<br>ppb | Site<br>Legal    |
|-------------------|-------------------|------------|-----------|------------|------------|------------------|
| <b>Duplicates</b> |                   |            |           |            |            |                  |
| 19a               | Wanham            | 0.2        |           |            |            |                  |
| 19b               | Wanham            | 0.3        |           |            |            |                  |
| 21a               | Eaglesham         |            |           | 0.7        |            |                  |
| 21b               | Eaglesham         |            |           | 0.7        |            |                  |
| 33a               | Wapiti            |            |           | 1.0        |            |                  |
| 33b               | Wapiti            |            |           | 0.8        |            |                  |
| 37a               | Crooked Creek     | 0.2        |           |            |            |                  |
| 37b               | Crooked Creek     | 0.3        |           |            |            |                  |
| 35a               | Jean Cote         |            |           | 0.7        |            |                  |
| 35b               | Jean Cote         |            |           | 1.1        |            |                  |
| 40a               | McLennan          | 0.2        |           |            |            |                  |
| 40b               | McLennan          | 0.2        |           |            |            |                  |
| 47a               | Kinuso            |            | 18.6      |            |            |                  |
| 47b               | Kinuso            |            | 36.4      |            |            |                  |
| 63a               | Girouxville 3     |            |           |            | 0.2        |                  |
| 63b               | Girouxville 3     |            |           |            | 0.2        |                  |
| 2                 | Bay Tree          | 0.1        | 25.0      | 0.5        |            | 13-16-078-13 W6M |
| 5                 | Boone Creek       | 0.1        |           | 0.1        |            | 16-36-074-11 W6M |
| 7                 | Steeprock Creek   | 0.2        |           | 0.2        |            | 09-35-072-13 W6M |
| 9                 | Spirit River      | 0.3        |           | 0.3        |            | 08-12-079-07 W6M |
| 11                | Webber Creek      | 0.2        |           | 0.2        |            | 09-36-074-09 W6M |
| 12                | Hythe             | 0.4        |           | 0.4        |            | 14-36-072-11 W6M |
| 14                | Sylvester         | 0.4        |           | 0.4        |            | 08-06-069-12 W6M |
| 16                | Beaverlodge       | 0.3        |           | 1.5        |            | 15-36-071-10 W6M |
| 17                | Poplar            | 0.5        |           | 1.0        |            | 13-06-073-08 W6M |
| 18                | Saddle Hills      | 0.2        |           | 0.6        |            | 04-25-074-07 W6M |
| 19                | Wanham            | 0.2        |           | 0.8        |            | 16-22-077-03 W6M |
| 21                | Eaglesham         | 0.2        |           | 0.7        |            | 16-21-079-25 W5M |
| 24                | Wembley           | 1.0        |           | 1.6        |            | 12-31-070-08 W6M |
| 25                | Pinto Creek       | BDL        |           | 0.6        |            | 04-24-069-11 W6M |
| 27                | Grande Prairie I  | 0.7        |           | 3.2        |            | 08-15-071-06 W6M |
| 29                | Smoky Heights     | 0.5        |           | 0.5        |            | 04-06-075-02 W6M |
| 32                | Gold Creek        | 0.8        |           | 2.0        |            | 06-33-067-05 W6M |
| 33                | Wapiti            | 0.3        |           | 0.9        |            | 02-25-071-03 W6M |
| 35                | Jean Cote         | 0.2        |           | 0.9        |            | 12-35-079-21 W5M |
| 36                | Guy               | 0.1        |           | 0.9        | 0.1        | 03-04-076-22 W5M |
| 37                | Crooked Creek     | 0.2        | 32.4      | 0.7        |            | 16-01-071-26 W5M |
| 38                | Karr Creek        | 0.3        |           | 1.1        |            | 10-16-065-02 W6M |
| 39                | Clouston Creek    | 0.2        |           | 0.6        |            | 12-01-073-22 W5M |
| 40                | McLennan          | 0.2        |           | 0.6        |            | 03-29-077-19 W5M |
| 44                | Peavine           | 0.1        |           | 0.2        |            | 03-05-079-15 W5M |
| 46                | Little Smoky      | 0.1        |           | 1.3        |            | 12-01-065-21 W5M |
| 47                | Kinuso            | 0.1        | 27.5      | 0.3        |            | 12-10-073-10 W5M |
| 48                | Deer Mountain 2   | 0.1        |           | 0.4        |            | *                |
| 49                | Grande Prairie HP | 0.6        |           | 4.0        |            | 17-26-071-06 W6M |
| 50                | East Prairie      | 0.1        |           | 0.4        |            | 13-02-072-15 W5M |
| 63                | Girouxville 3     |            |           |            | 0.2        | 14-02-077-23 W5M |
| 64                | Girouxville 4     |            |           |            | 0.1        | 4-08-077-22 W5M  |

\*BDL = Below Detection Level

\*N/S - No sample

## Passive Summary for September 2019

| Stats                                          | Sulphur Dioxide<br>SO <sub>2</sub> | Ozone<br>O <sub>3</sub> | Nitrogen Dioxide<br>NO <sub>2</sub> | Hydrogen Sulphide<br>H <sub>2</sub> S |
|------------------------------------------------|------------------------------------|-------------------------|-------------------------------------|---------------------------------------|
|                                                | ppb                                | ppb                     | ppb                                 | ppb                                   |
| Passive Summary for September 2019 (PAZA Zone) |                                    |                         |                                     |                                       |
| Mean                                           | 0.3                                | 28.3                    | 0.9                                 | 0.2                                   |
| Standard Deviation                             | 0.2                                | 3.8                     | 0.9                                 | 0.1                                   |
| Minimum                                        | 0.1                                | 25.0                    | 0.1                                 | 0.1                                   |
| Minimum At                                     | Deer Mountain 2                    | Bay Tree (#2)           | Boone Creek (#5)                    | Guy (#36)                             |
| Maximum                                        | 1.0                                | 32.4                    | 4.0                                 | 0.2                                   |
| Maximum At                                     | Wembley (#24)                      | Crooked Creek (#37)     | Grande Prairie HP                   | Girouxville 3 (#63)                   |

### Comparison between Continuous and Passive monitoring at Beaverlodge (passive #16 Beaverlodge)

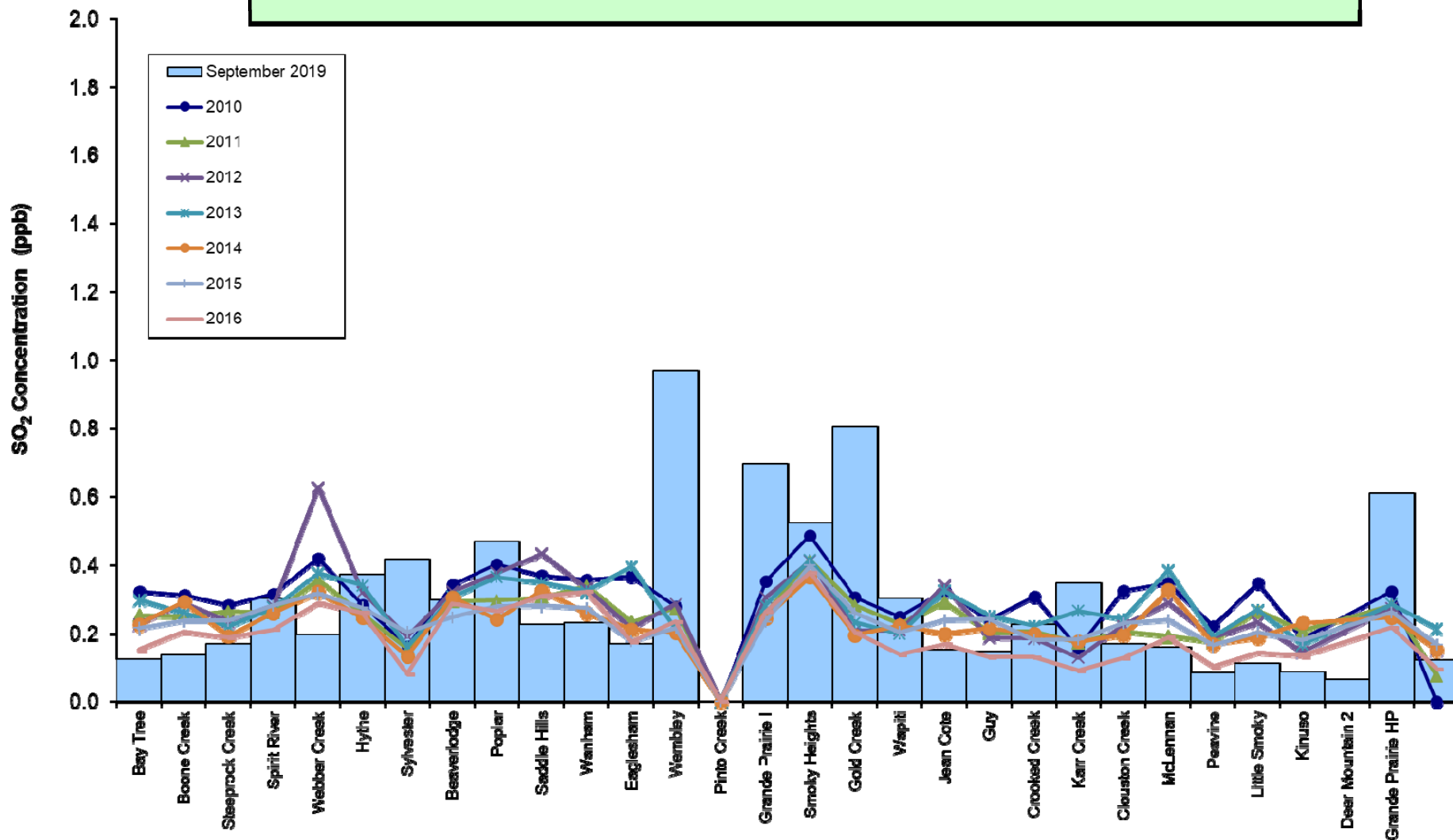
|                        | SO <sub>2</sub> | NO <sub>2</sub> |
|------------------------|-----------------|-----------------|
| 1A Beaverlodge station | 0.2             | 2.4             |
| 1A Beaverlodge passive | 0.4             | 0.4             |

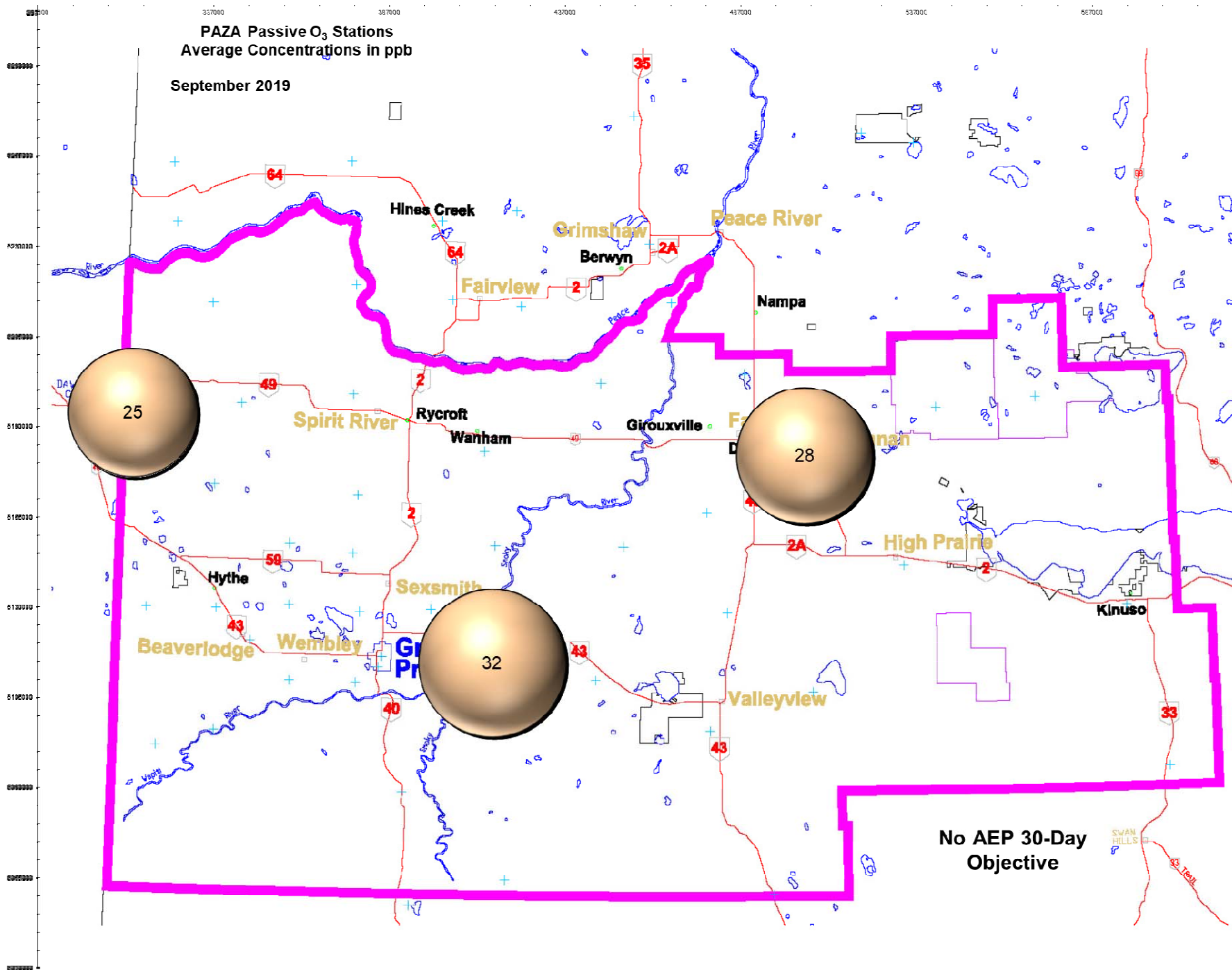
### Comparison between Continuous and Passive monitoring at Henry Pirker (passive #49 Grande Prairie HP)

|                         | SO <sub>2</sub> | NO <sub>2</sub> |
|-------------------------|-----------------|-----------------|
| 1A Henry Pirker station | 0.6             | 5.1             |
| Grande Prairie passive  | BDL             | 0.6             |



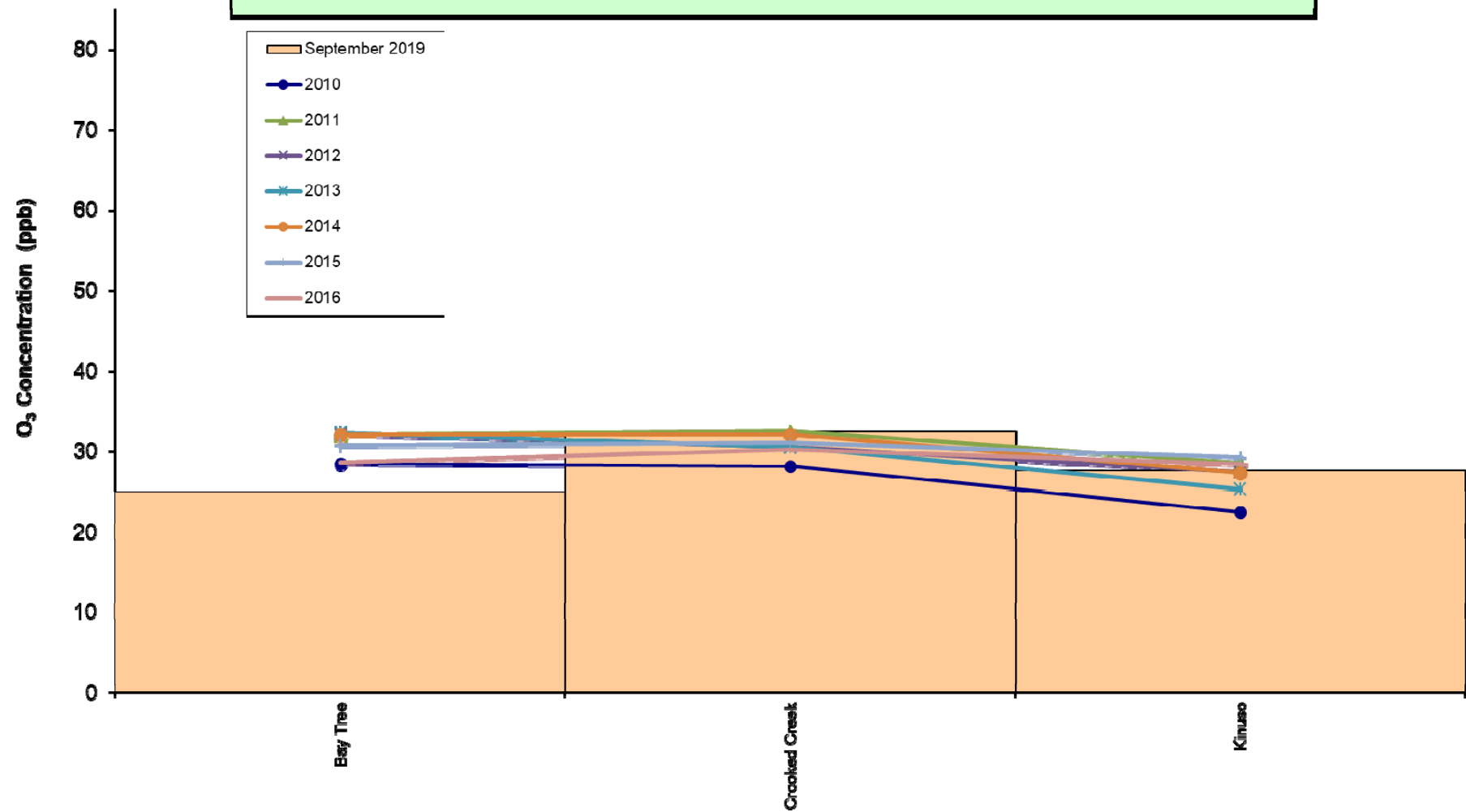
Alberta Ambient Air Quality Objective - 30-day Objective is 11 ppb

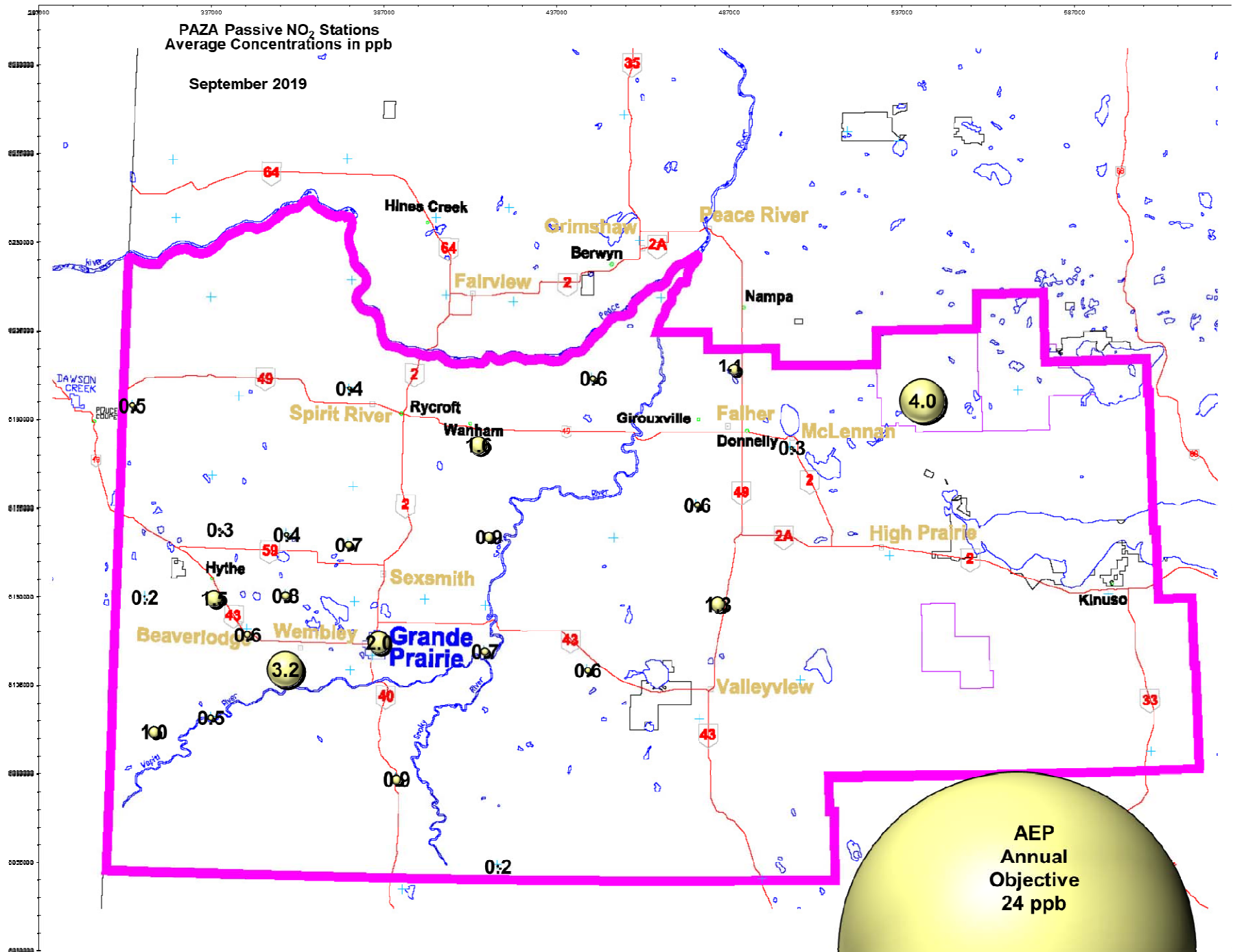




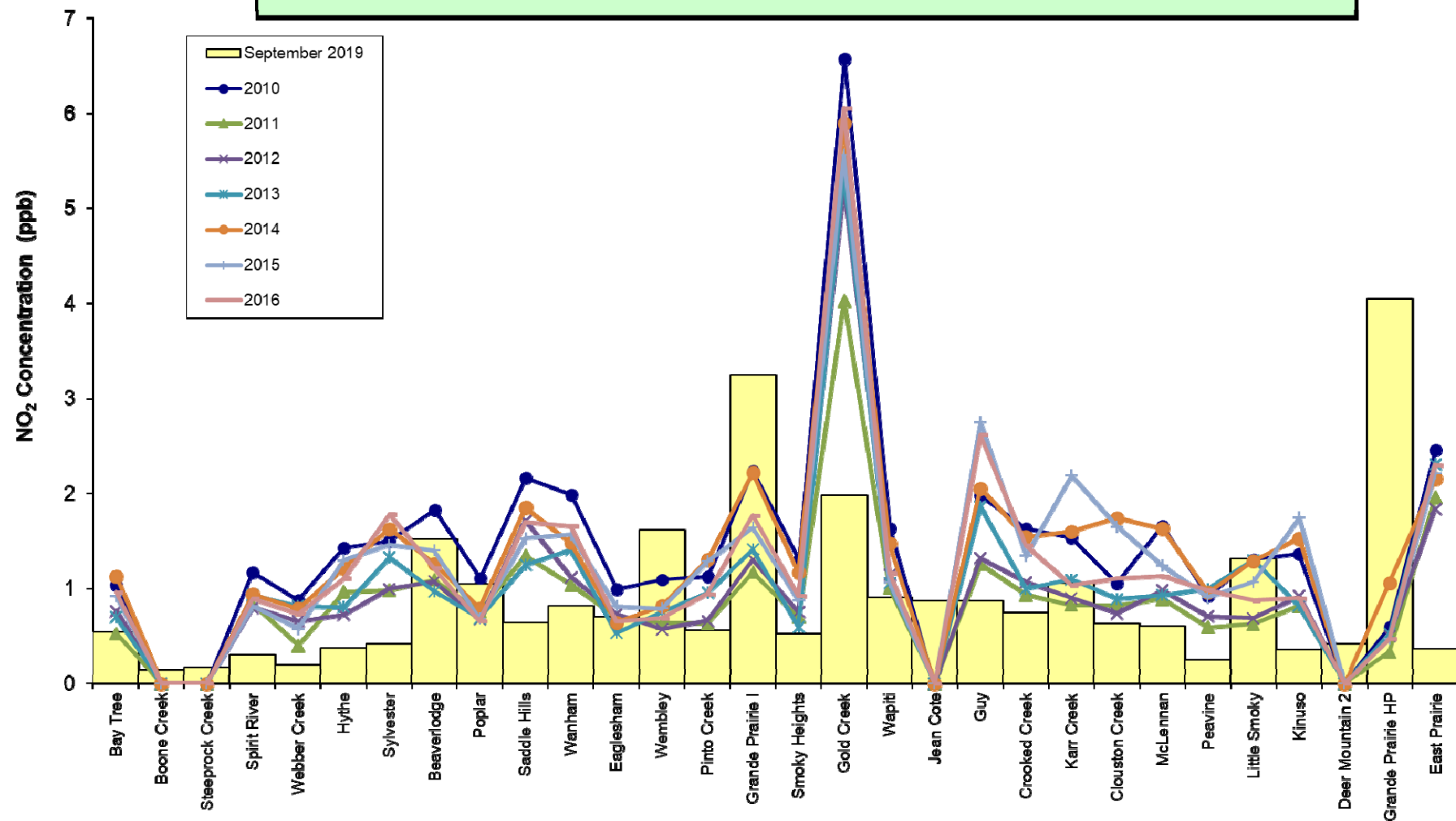


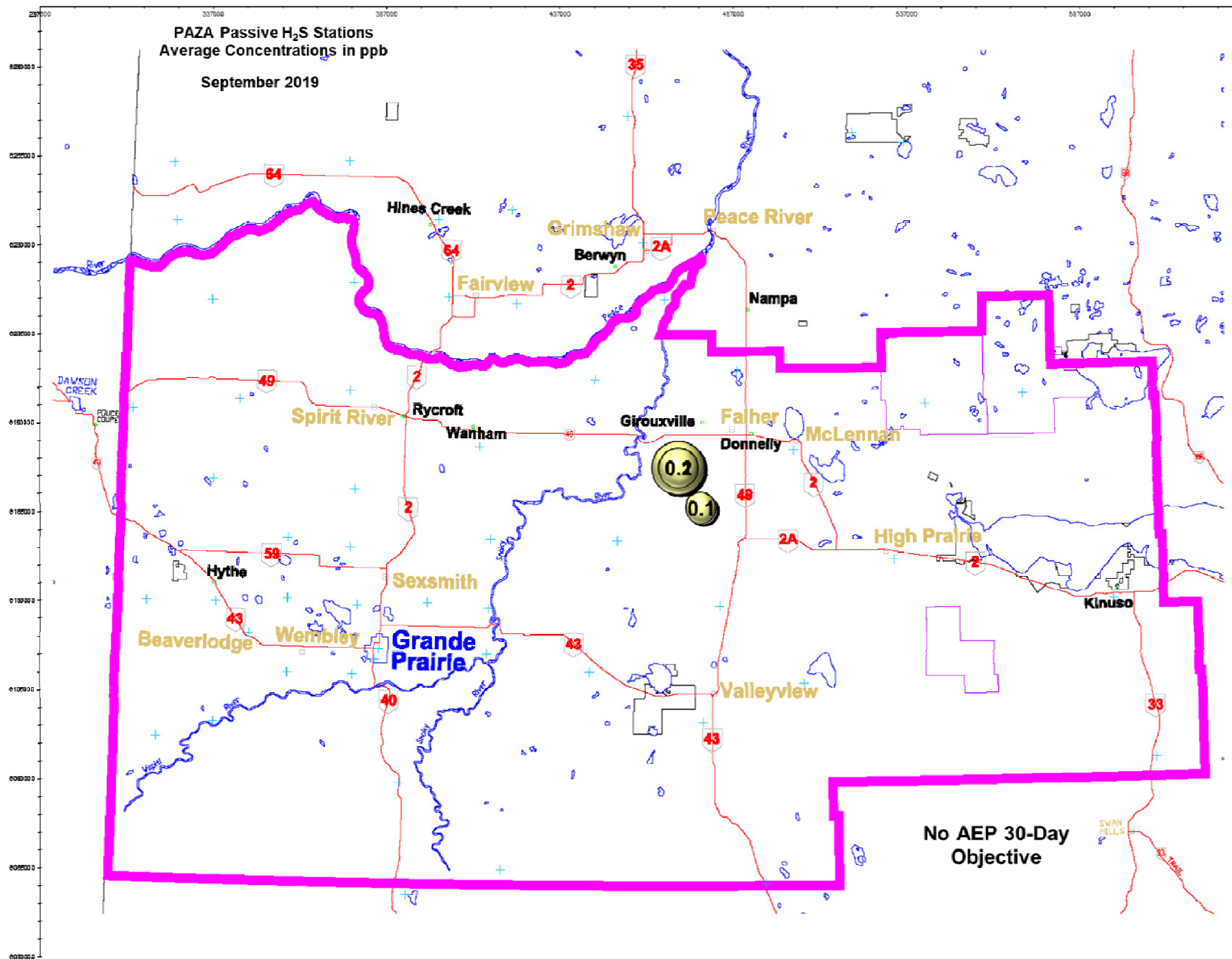
Alberta Ambient Air Quality Objective - No Annual O<sub>3</sub> Objective





Alberta Ambient Air Quality Objective - Annual NO<sub>2</sub> Objective is 24 ppb





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