

October 28, 2024

Lorna Morishita

Executive Director of Palliser Airshed Society
PO Box 23121 Medicine Hat Mall
Medicine Hat AB T1B 4C7

RE: Palliser Airshed Society (PAS) Ambient Air Monitoring Report – September 2024

Enclosed is the PAS Dashboard Report for the month of **September 2024**.

Continuous Monitoring – Crescent Heights, Brooks, Brooks – Meadow Place, Taber and Hanna Airpointer Monitoring Stations

Included in this report are: Monthly Air Monitoring Summary Table, Station Issue Summary, Station Summary Graphs and Station Wind Roses.

Continuous Monitoring Instrumentation Uptime Summary:

The PM analyzer at Hanna failed September 4 and was repaired and returned to service September 12 with an uptime of 73.1% **REF#434660**.

The ET/RH sensor at Hanna was damaged and failed to return valid readings from September 10 to 30, uptime of 28.3%. **REF#434660**.

The wind system at Hanna collapsed and was damaged September 6, returning to service when replaced September 30 with an uptime of 14.0%. **REF#434660**.

AAAQO/G Exceedance Summary:

There were no exceedances of the AAAQO/G in September.

If you have any questions, please contact the WSP office at 780.401.1356.

X *Patrick Andersen*

Patrick Andersen, B.Sc.
WSP AQM Data Specialist

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Lenin Flores
Project Manager

September 2024 Monthly Ambient Air Quality Summary

| Sep-24 | | | | Palliser Airshed Society | | | Maximum Recorded Values | | | | | | Operational Time (%) | Calibration Date | |
|--|------------|-------|--------|--------------------------|-----------------|----------------|-------------------------|-------|--------|-------|--------------|--------------|----------------------|------------------|--------|
| Pollutant (units) | Objectives | | | Station | Monthly Average | 1-Hour Minimum | Exceedence | | | 1-hr | | 24-hr / 8-hr | | | |
| | 1-hr | 24-hr | 30-day | | | | 1-hr | 24-hr | 30-day | Conc | Day | Conc | | | Day |
| SO ₂ (ppb) | 172 | 48 | 8 | Crescent Heights | 0.1 | 0.0 | 0 | 0 | 0 | 1.3 | Sep-07 20:00 | 0.3 | Sep-11 | 99.9 | Sep-25 |
| NO (ppb) | | | | | 1.3 | 0.0 | | | | 23.6 | Sep-01 08:00 | 2.6 | Sep-11 | 100.0 | Sep-24 |
| NO ₂ (ppb) | 159 | | | | 3.8 | 0.0 | 0 | | | 25.4 | Sep-02 21:00 | 7.1 | Sep-06 | 100.0 | Sep-24 |
| NO _x (ppb) | | | | | 5.0 | 0.0 | | | | 39.0 | Sep-11 11:00 | 9.2 | Sep-06 | 100.0 | Sep-24 |
| O ₃ (ppb) | 76 | | | | 26.4 | 1.2 | 0 | | | 51.5 | Sep-09 15:00 | 37.9 | Sep-27 | 100.0 | Sep-25 |
| CO (ppm) | | | | | 0.2 | 0.1 | | | | 0.4 | Sep-13 04:00 | 0.3 | Sep-12 | 99.7 | Sep-24 |
| CO 8-Hour (ppm) | 5 | | | | - | 0.1 | 0 | | | 0.4 | Sep-13 05:00 | - | - | 100.0 | - |
| THC (ppm) | | | | | 2.0 | 1.8 | | | | 2.7 | Sep-01 23:00 | 2.1 | Sep-28 | 99.7 | Sep-24 |
| PM _{2.5} (µg/m ³) | 80 | 29 | | | 7.6 | 1.0 | 0 | 0 | | 55.8 | Sep-11 21:00 | 24.5 | Sep-09 | 99.9 | Jun-12 |
| ET (°C) | | | | | 17.2 | 4.9 | | | | 34.0 | Sep-07 16:00 | 24.3 | Sep-07 | 100.0 | - |
| RH (%) | | | | | 58.2 | 11.4 | | | | 100.0 | Sep-12 12:00 | 94.2 | Sep-12 | 100.0 | - |
| GSR (W/m ²) | | | | | 165.6 | 0.0 | | | | 770.5 | Sep-01 13:00 | 255.2 | Sep-01 | 100.0 | - |
| WSPD (km/h) | | | | | 3.0 | 0.0 | | | | 35.2 | Sep-27 13:00 | 17.5 | Sep-27 | 100.0 | - |
| WDIR | | | | | WSW | | | | | | | | | 100.0 | - |

| Pollutant (units) | Analyzer | | | Notes |
|-------------------------------------|----------|---------|--|--|
| | Make | Model | | |
| SO ₂ | TEI | 43i | | Station was audited September 19. |
| NO/NO ₂ /NO _x | TEI | 42i | | Manual span check September 24. |
| O ₃ | TECO | 49i | | Analyzer maintenance performed September 24, allowed to stabilize and calibrated September 25. |
| CO | TEI | 48i-TLE | | Manual span check September 25. Analyzer offline for 1 hour September 17. |
| THC | TECO | 51C-LT | | Span cylinder replaced September 19. |
| PM _{2.5} | SHARP | 5030 | | Analyzer offline for 1 hour September 17. |
| ET/RH | RMYoung | 41382VC | | |
| GSR | EPPLEY | | | |
| WS/WD | RMYoung | 5305-10 | | |

| Sep-24 | | | | Palliser Airshed Society | | | Maximum Recorded Values | | | | | | Operational Time (%) | Calibration Date | |
|--|------------|-------|--------|--------------------------|-----------------|----------------|-------------------------|-------|--------|------|--------------|--------------|----------------------|------------------|--------|
| Pollutant (units) | Objectives | | | Station | Monthly Average | 1-Hour Minimum | Exceedence | | | 1-hr | | 24-hr / 8-hr | | | |
| | 1-hr | 24-hr | 30-day | | | | 1-hr | 24-hr | 30-day | Conc | Day | Conc | | | Day |
| NO (ppb) | | | | Taber | 1.5 | 0.0 | | | | 32.2 | Sep-23 07:00 | 3.7 | Sep-16 | 99.6 | Sep-30 |
| NO ₂ (ppb) | 159 | | | | 3.0 | 0.2 | 0 | | | 18.2 | Sep-07 20:00 | 6.2 | Sep-16 | 99.6 | Sep-30 |
| NO _x (ppb) | | | | | 4.4 | 0.0 | | | | 45.5 | Sep-10 08:00 | 9.8 | Sep-16 | 99.6 | Sep-30 |
| O ₃ (ppb) | 76 | | | | 26.2 | 2.1 | 0 | | | 50.7 | Sep-02 16:00 | 39.7 | Sep-26 | 99.7 | Sep-30 |
| PM _{2.5} (µg/m ³) | 80 | 29 | | | 6.8 | 0.1 | 0 | 0 | | 41.8 | Sep-09 16:00 | 22.0 | Sep-09 | 99.7 | Jun-20 |
| ET (°C) | | | | | 16.3 | 2.4 | | | | 33.5 | Sep-06 16:00 | 22.8 | Sep-02 | 98.9 | - |
| RH (%) | | | | | 57.9 | 14.9 | | | | 99.2 | Sep-12 13:00 | 95.5 | Sep-12 | 98.9 | - |
| WSPD (km/h) | | | | | 3.7 | 0.0 | | | | 24.2 | Sep-29 16:00 | 11.4 | Sep-26 | 98.9 | - |
| WDIR | | | | | WSW | | | | | | | | | 98.9 | - |

| Pollutant (units) | Analyzer | | | Notes |
|-------------------------------------|----------|--------|--|--|
| | Make | Model | | |
| NO/NO ₂ /NO _x | API | 42i | | Station power outage September 29-30. Station was removed from service September 30. |
| O ₃ | API | T400 | | |
| PM _{2.5} | SHARP | 5030 | | |
| ET/RH | Vaisala | WXT520 | | Data logger failed to capture 6 hours of data September 8. |
| WS/WD | Vaisala | WXT520 | | Data logger failed to capture 6 hours of data September 8. |

| Sep-24 | | | | Palliser Airshed Society | | | | | | | | | Maximum Recorded Values | | | | | |
|--|------------|-------|--------|--------------------------|--------------------|-------------------|------------|-------|--------|------|--------------|--------------|-------------------------|-------------------------|---------------------|--|--|--|
| Pollutant (units) | Objectives | | | Station | Monthly Average | 1-Hour Minimum | 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 | | | | | |
| NO (ppb) | | | | Brooks Meadow Place | 0.6 | 0.0 | | | | 32.7 | Sep-16 07:00 | 3.6 | Sep-02 | 99.4 | Sep-18 | | | |
| NO ₂ (ppb) | 159 | | | | 3.6 | 0.1 | 0 | | | 20.4 | Sep-02 22:00 | 7.7 | Sep-02 | 99.4 | Sep-18 | | | |
| NO _x (ppb) | | | | | 4.1 | 0.0 | | | | 51.6 | Sep-16 07:00 | 11.3 | Sep-02 | 99.4 | Sep-18 | | | |
| O ₃ (ppb) | 76 | | | | 25.3 | 0.7 | 0 | | | 58.3 | Sep-09 15:00 | 39.2 | Sep-26 | 99.9 | Sep-18 | | | |
| PM _{2.5} (µg/m ³) | 80 | 29 | | | 7.9 | 1.0 | 0 | 0 | | 41.4 | Sep-09 15:00 | 24.3 | Sep-09 | 99.9 | Aug-29 | | | |
| ET (°C) | | | | | 15.3 | 3.0 | | | | 34.1 | Sep-02 16:00 | 21.9 | Sep-02 | 99.9 | - | | | |
| RH (%) | | | | | 59.0 | 52.6 | | | | 67.1 | Sep-02 16:00 | 63.2 | Sep-02 | 99.9 | - | | | |
| WSPD (km/h) | | | | | 3.1 | 0.1 | | | | 32.3 | Sep-27 12:00 | 18.5 | Sep-12 | 99.9 | - | | | |
| WDIR | | | | | WNW | | | | | | | | | 99.9 | - | | | |

| Pollutant (units) | Analyzer | | | Notes |
|-------------------------------------|----------|--|-------|--|
| | Make | | Model | |
| NO/NO ₂ /NO _x | TEI | | 42i | Power outage September 11. Station was audited September 20. Manual span checks September 22. |
| O ₃ | TEI | | 49iQ | |
| PM _{2.5} | API | | T640 | |
| ET/RH | | | | |
| WS/WD | | | | |

| Jan-00 | | | | Palliser Airshed Society | | | | | | | | | Maximum Recorded Values | | | | | |
|--|------------|-------|--------|--------------------------|--------------------|-------------------|------------|-------|--------|------|--------------|--------------|-------------------------|-------------------------|---------------------|--|--|--|
| Pollutant (units) | Objectives | | | Station | Monthly Average | 1-Hour Minimum | 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 | | | | | |
| NO (ppb) | | | | Hanna Air Pointer | 1.1 | 0.0 | | | | 13.3 | Sep-24 06:00 | 2.5 | Sep-24 | 99.8 | Sep-04 | | | |
| NO ₂ (ppb) | 159 | | | | 2.7 | 0.0 | 0 | | | 17.1 | Sep-24 06:00 | 4.6 | Sep-17 | 99.8 | Sep-04 | | | |
| NO _x (ppb) | | | | | 3.7 | 0.3 | | | | 30.5 | Sep-24 06:00 | 6.1 | Sep-16 | 99.8 | Sep-04 | | | |
| O ₃ (ppb) | 76 | | | | 28.7 | 5.0 | 0 | | | 55.1 | Sep-08 13:00 | 42.5 | Sep-08 | 99.8 | Sep-04 | | | |
| PM _{2.5} (µg/m ³) | 80 | 29 | | | 4.0 | 0.5 | 0 | 0 | | 21.5 | Sep-13 12:00 | 14.3 | Sep-13 | 73.1 | Sep-12 | | | |
| ET (°C) | | | | | 19.4 | 4.3 | | | | 37.4 | Sep-08 16:00 | 23.9 | Sep-08 | 28.3 | - | | | |
| RH (%) | | | | | 41.7 | 9.7 | | | | 87.8 | Sep-10 11:00 | 54.4 | Sep-04 | 28.3 | - | | | |
| WSPD (km/h) | | | | | 1.1 | 0.2 | | | | 10.9 | Sep-30 16:00 | 1.5 | Sep-03 | 14.0 | - | | | |
| WDIR | | | | | WNW | | | | | | | | | 14.0 | - | | | |

| Pollutant (units) | Analyzer | | | Notes |
|-------------------------------------|----------|--|-------|--|
| | Make | | Model | |
| NO/NO ₂ /NO _x | TEI | | 42i | Station began operation September 4. Data logger failed to capture 1 hour on September 13. Manual span checks September 22. |
| O ₃ | TEI | | 49iQ | |
| PM _{2.5} | API | | T640 | Analyzer failed September 4, returned to service September 12. |
| ET/RH | | | | Meteorological system damaged September 10, replaced September 30. |
| WS/WD | | | | Wind system collapsed September 6, replaced September 30. |

September 2024 NO₂

NO₂ AAAQO = 172 ppb

Crescent Heights

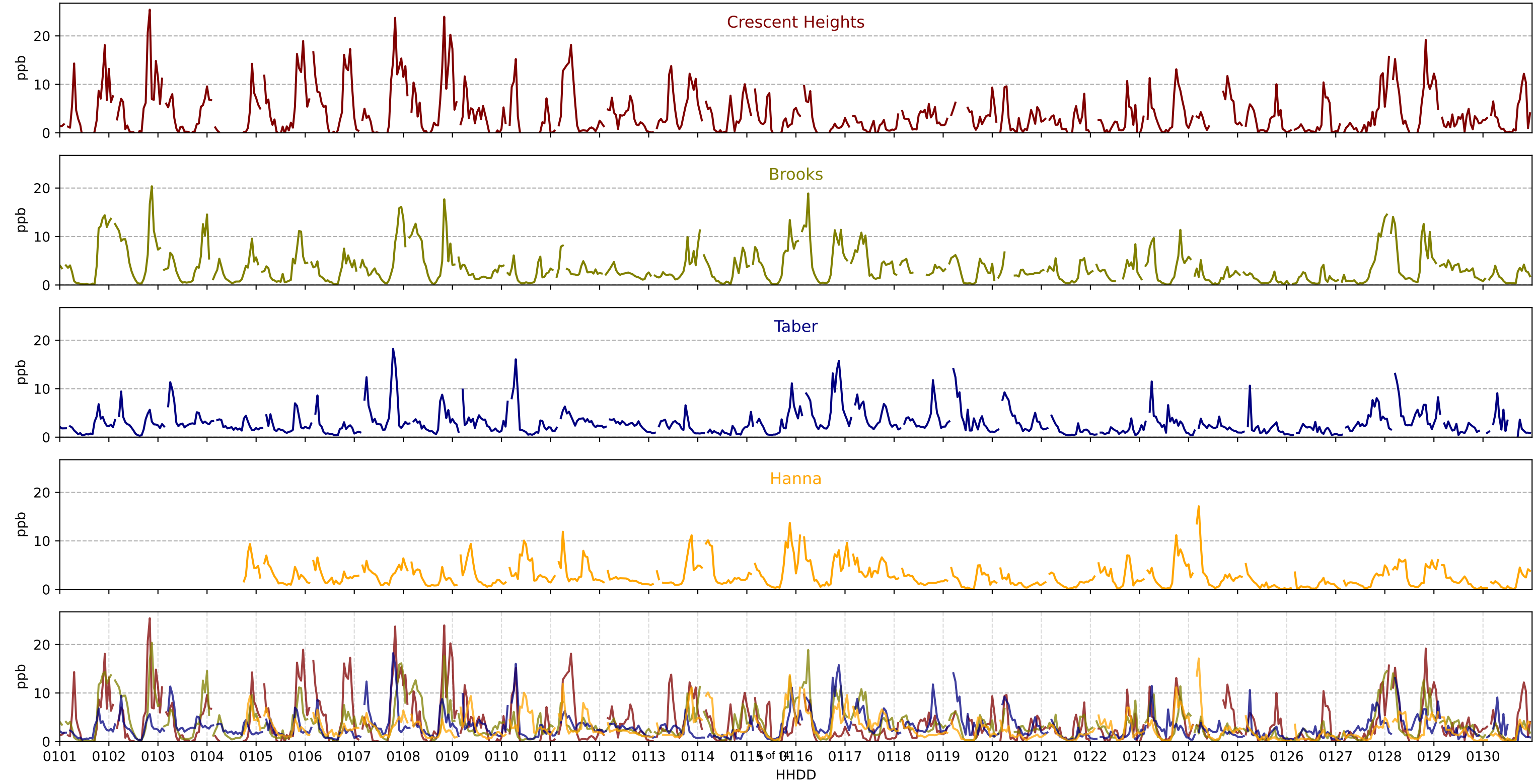
Brooks

Taber

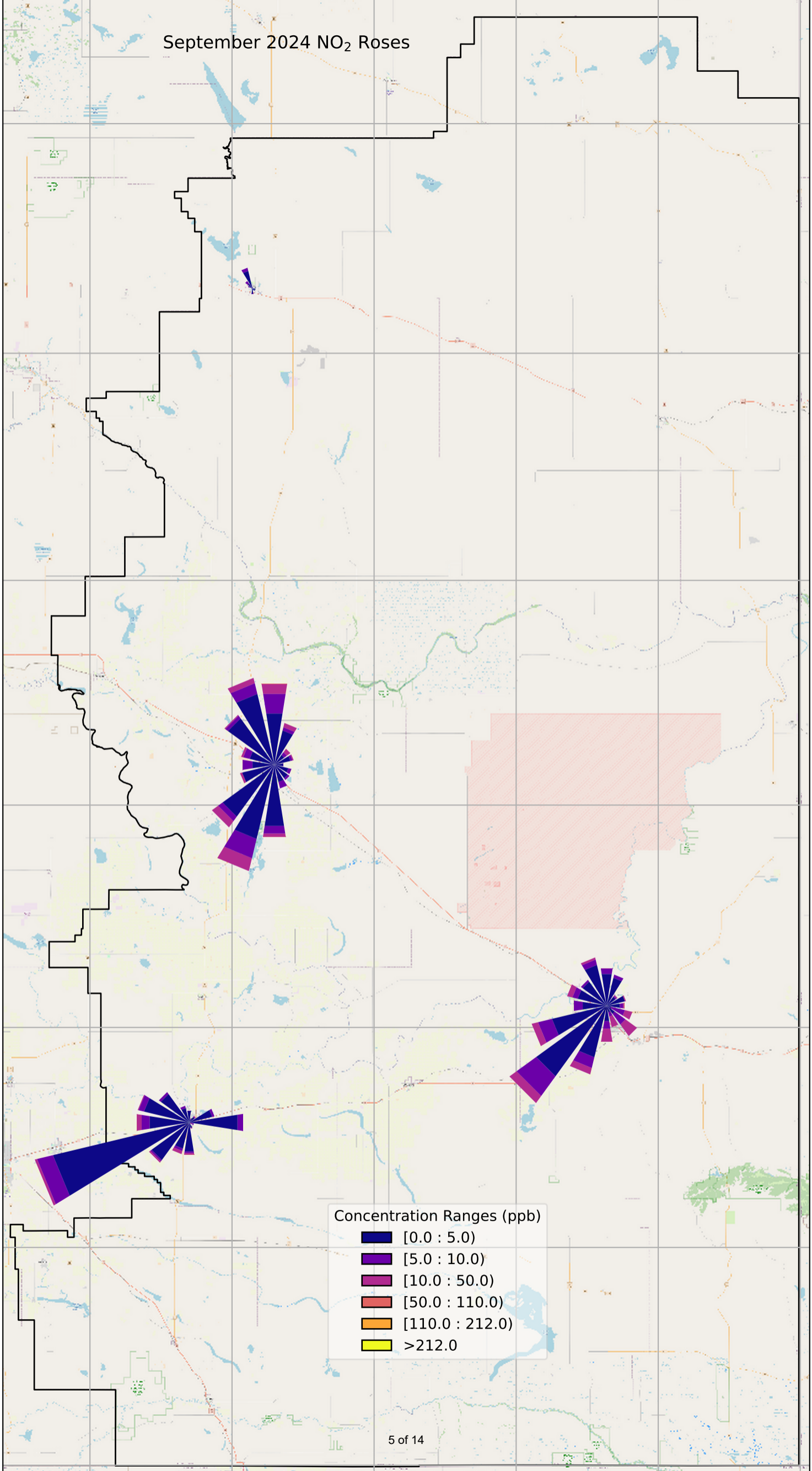
Hanna

of 0

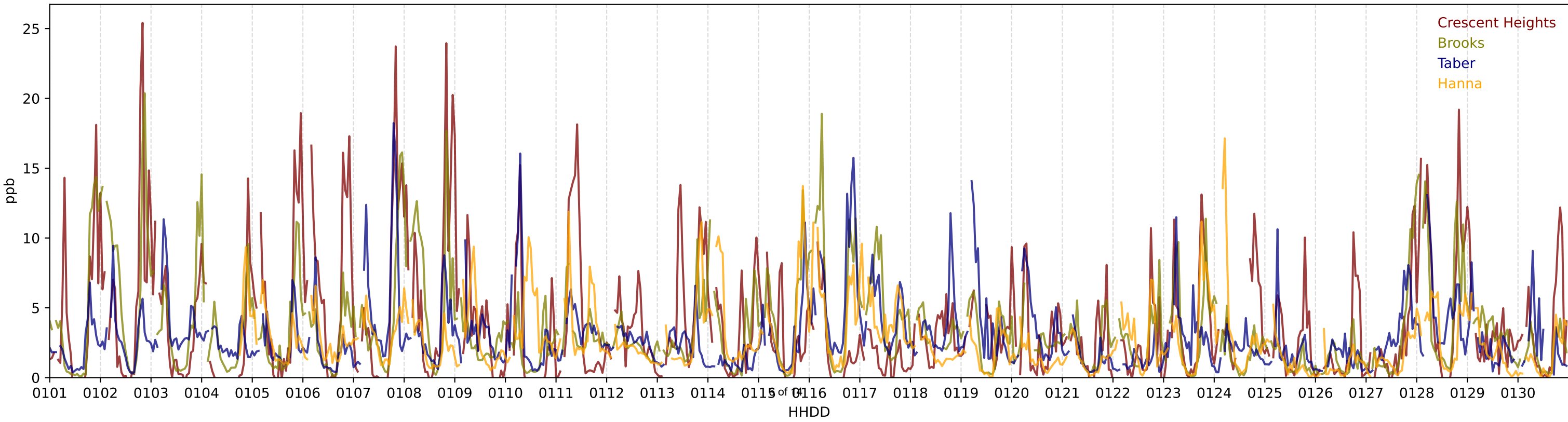
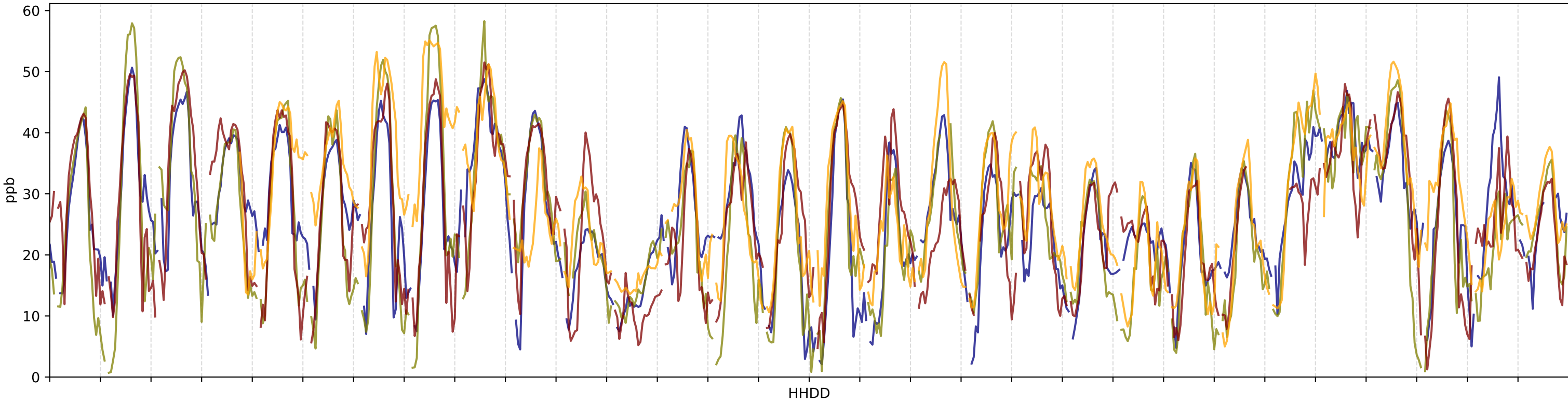
HHDD



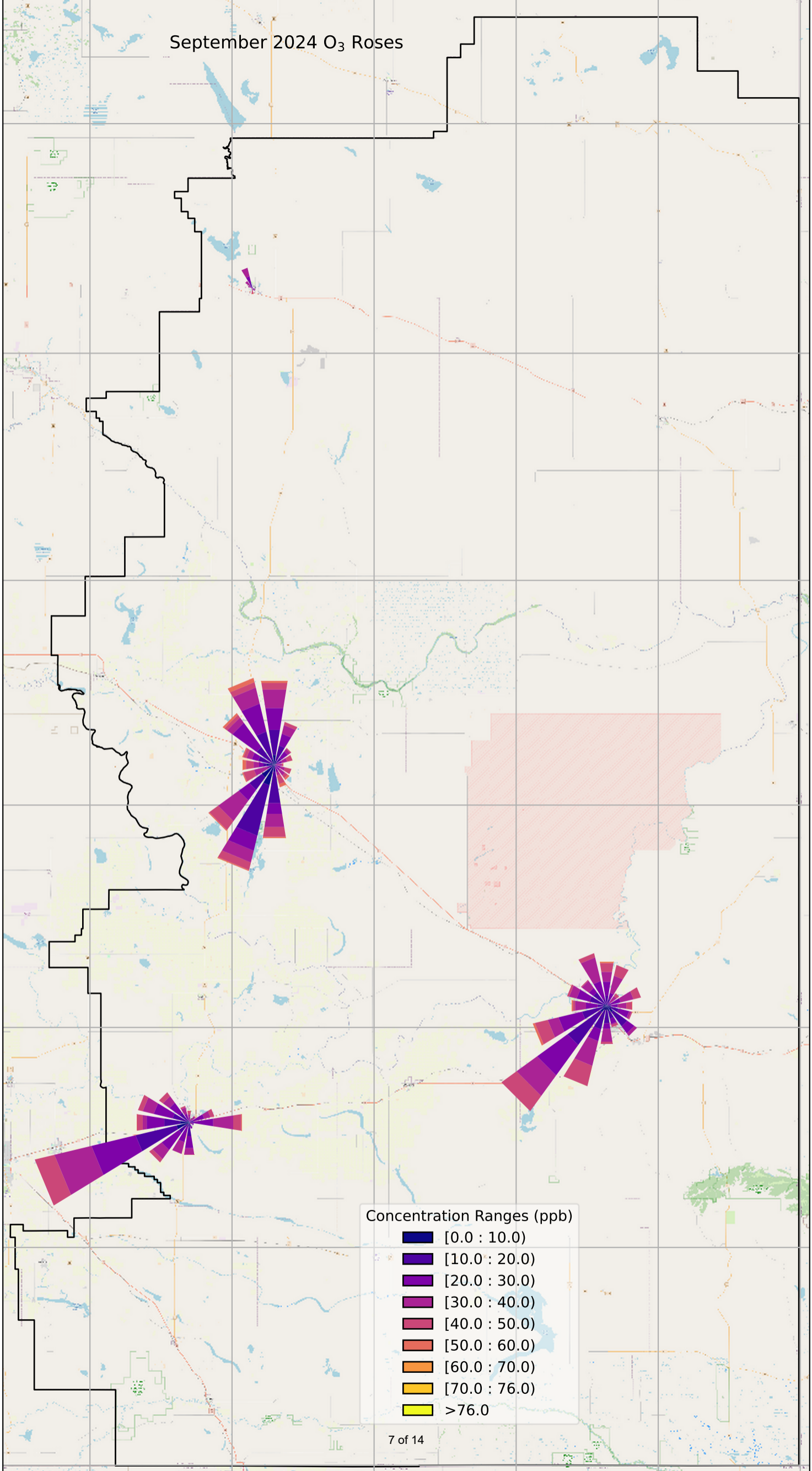
September 2024 NO₂ Roses



September 2024 O₃ vs NO₂



September 2024 O₃ Roses



Concentration Ranges (ppb)

- [0.0 : 10.0)
- [10.0 : 20.0)
- [20.0 : 30.0)
- [30.0 : 40.0)
- [40.0 : 50.0)
- [50.0 : 60.0)
- [60.0 : 70.0)
- [70.0 : 76.0)
- >76.0

September 2024 PM_{2.5}

PM_{2.5} AAAQG = 80 $\mu\text{g}/\text{m}^3$

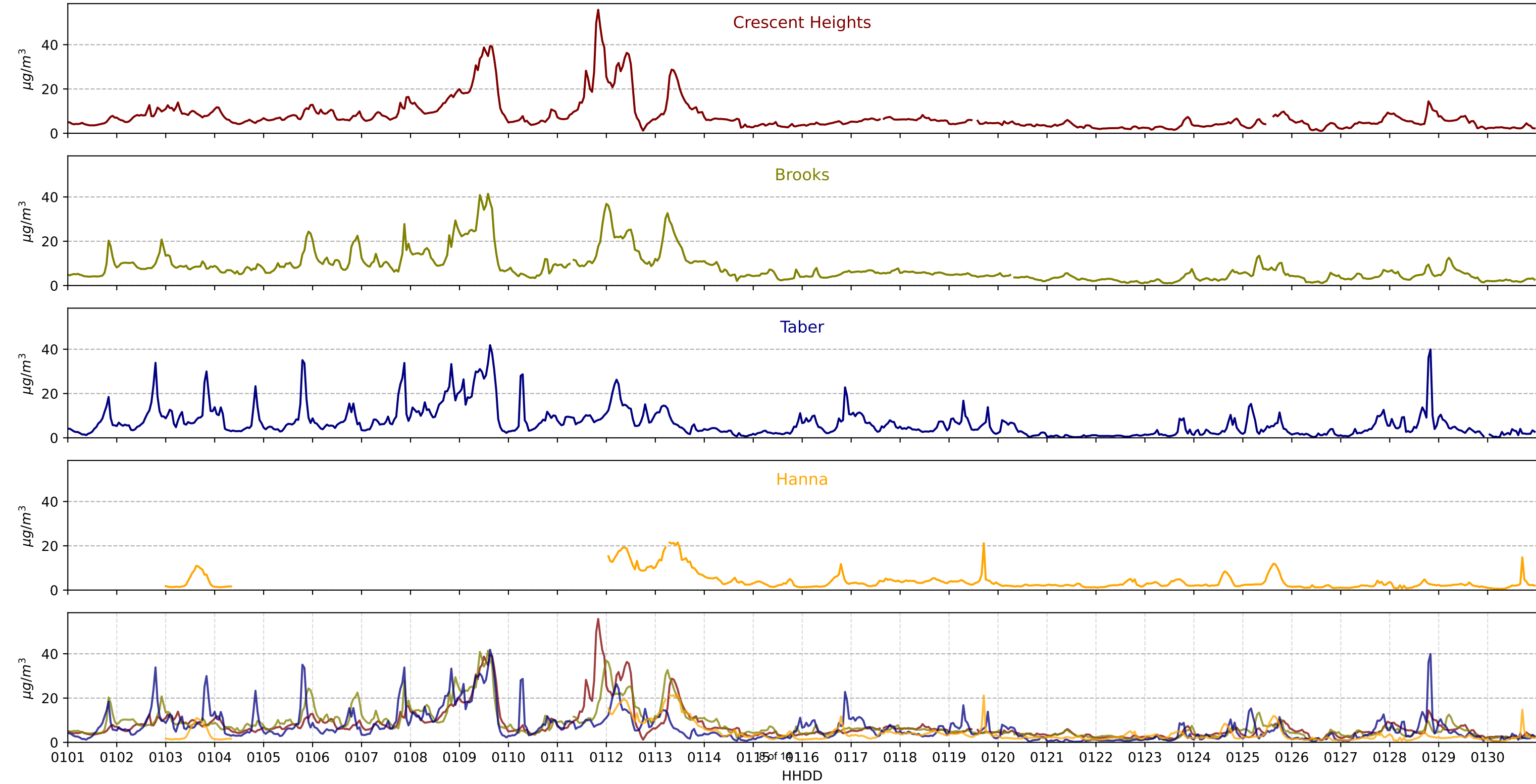
Crescent Heights

Brooks

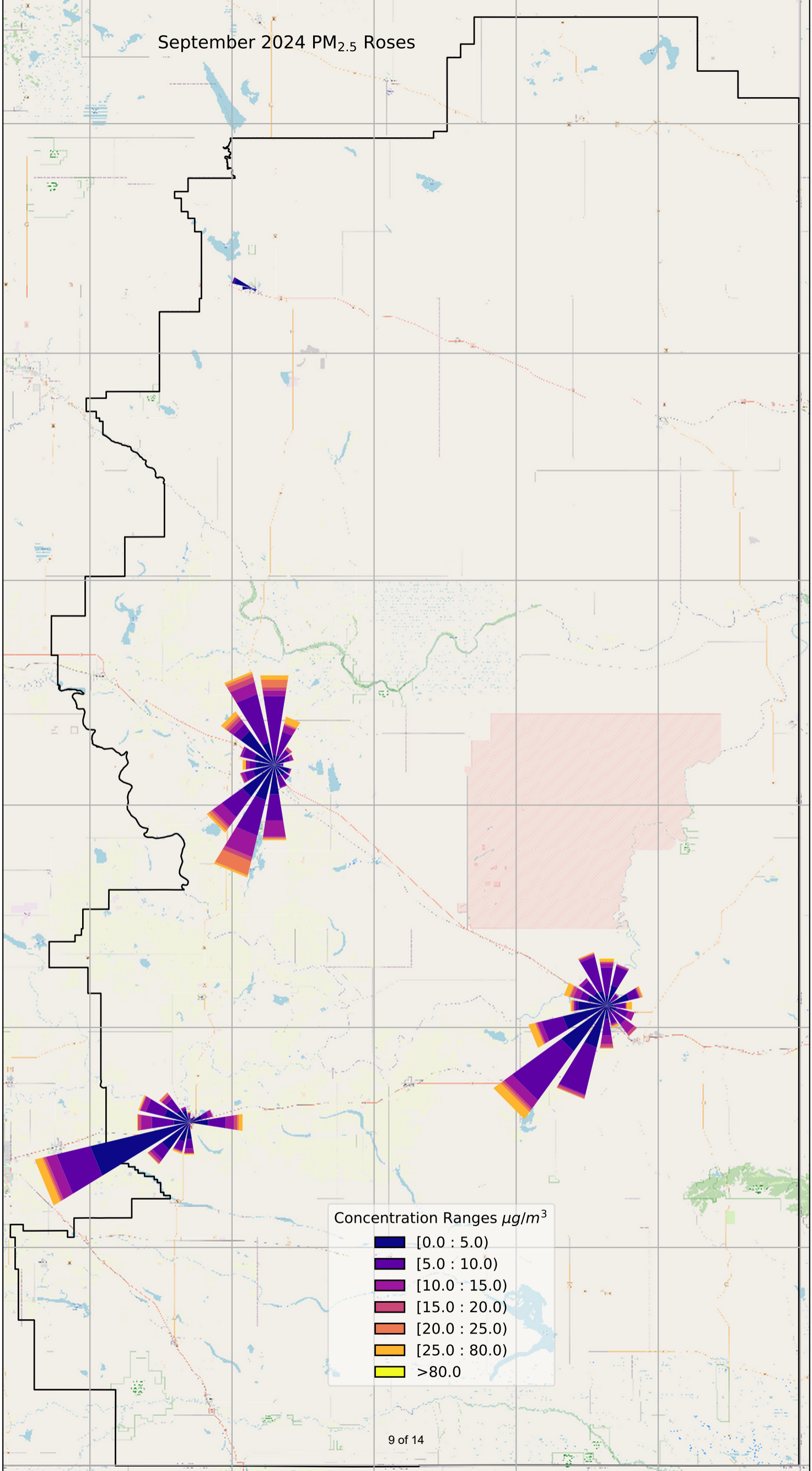
Taber

Hanna

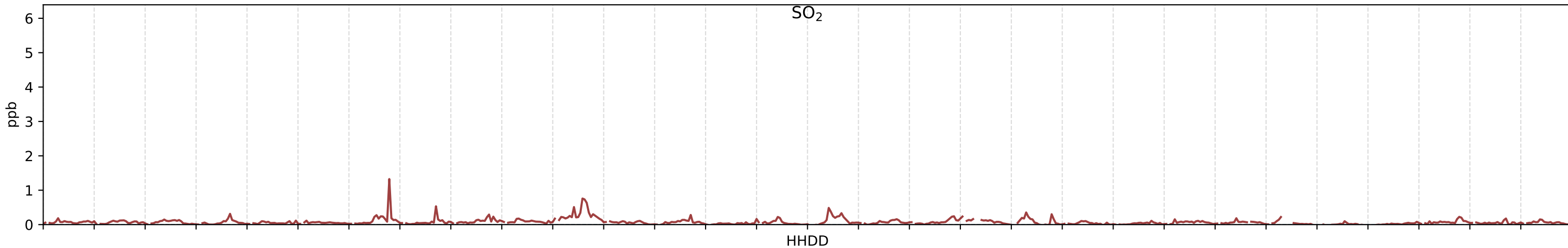
5 of 10



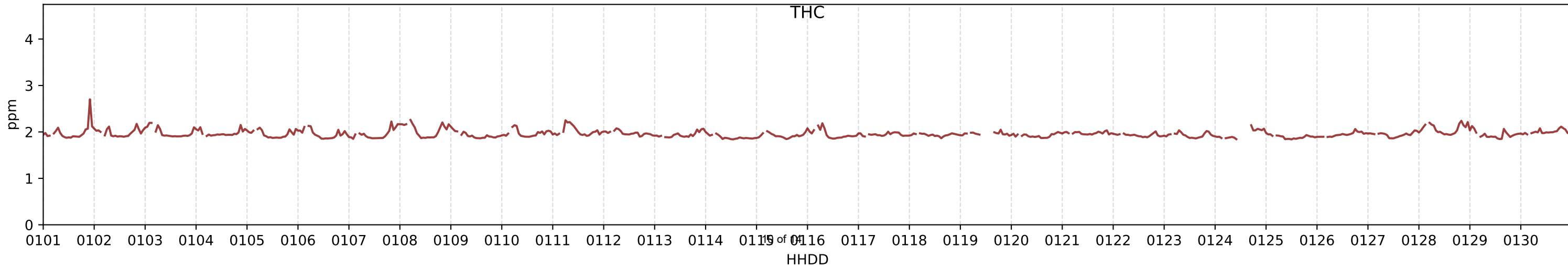
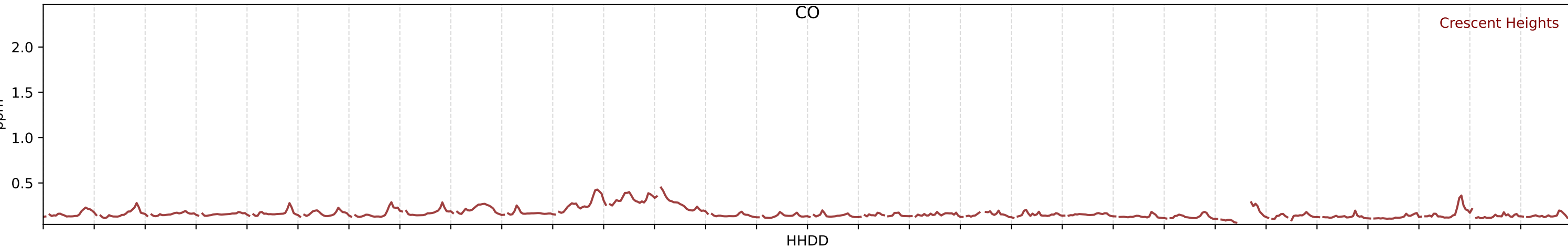
September 2024 PM_{2.5} Roses



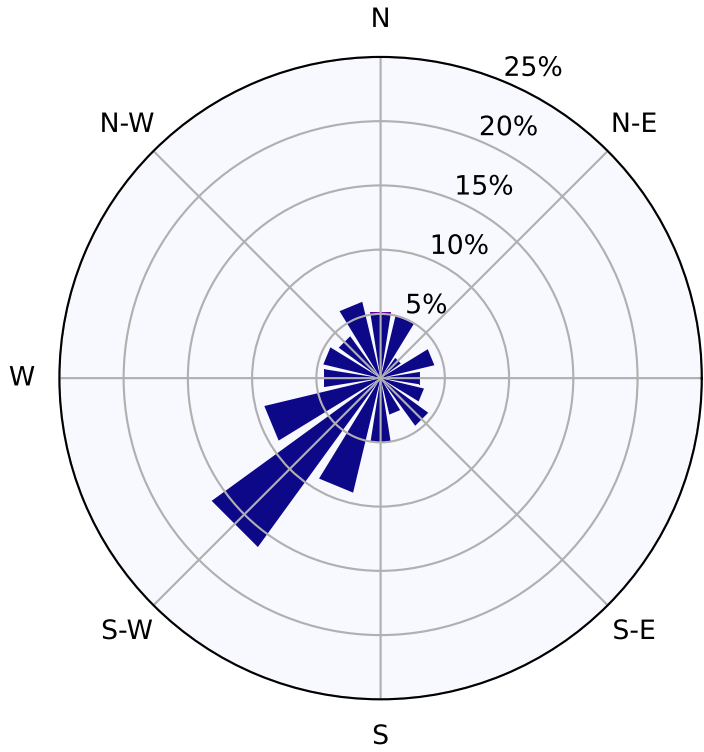
SO₂ AAAQO = 172 pbb



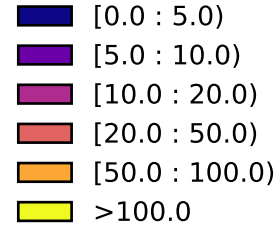
CO AAAQO = 13 ppm



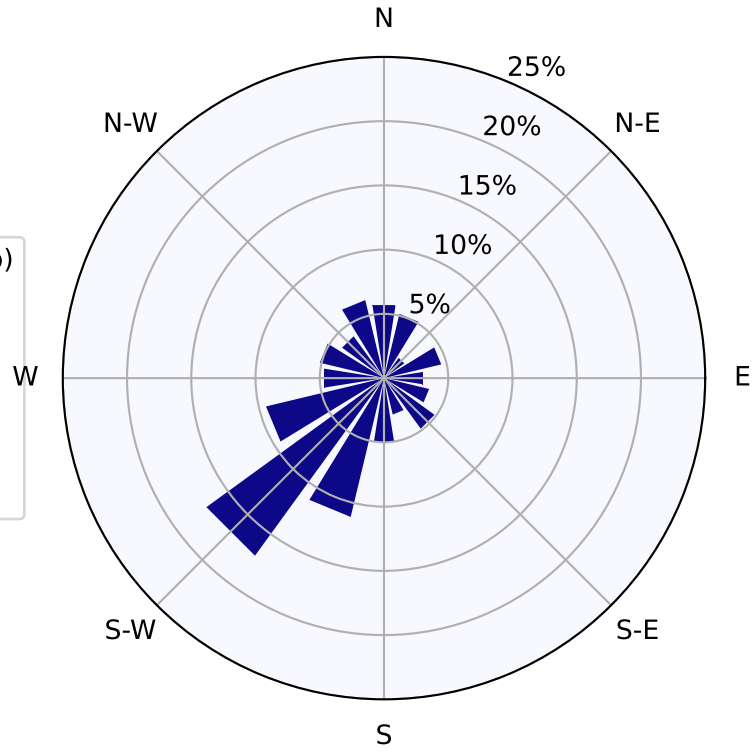
Crescent Heights SO₂



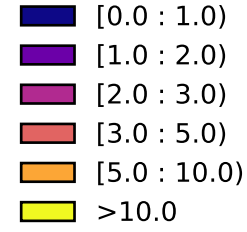
Concentration Ranges (ppb)



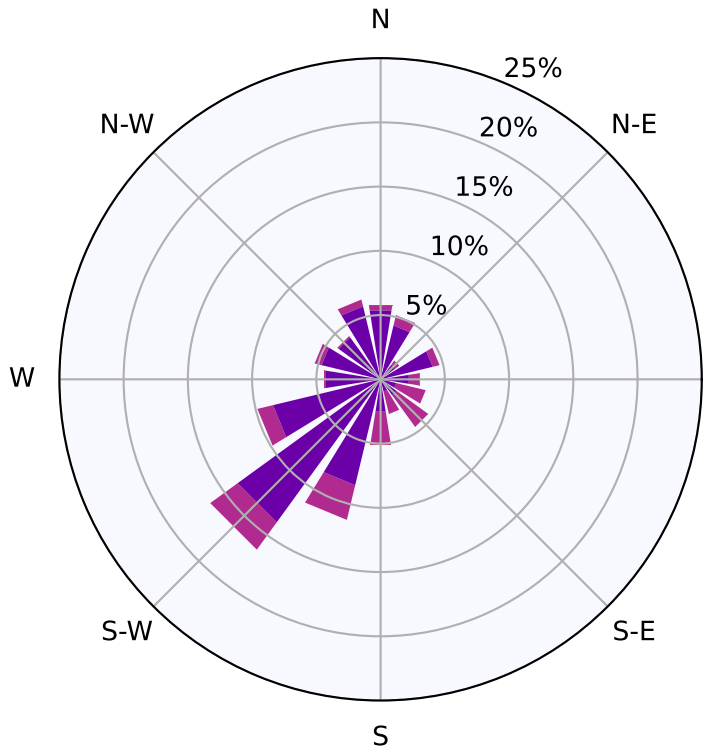
Crescent Heights CO



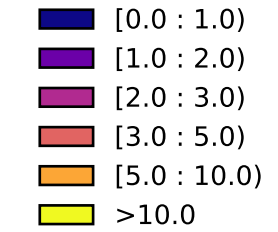
Concentration Ranges (ppm)

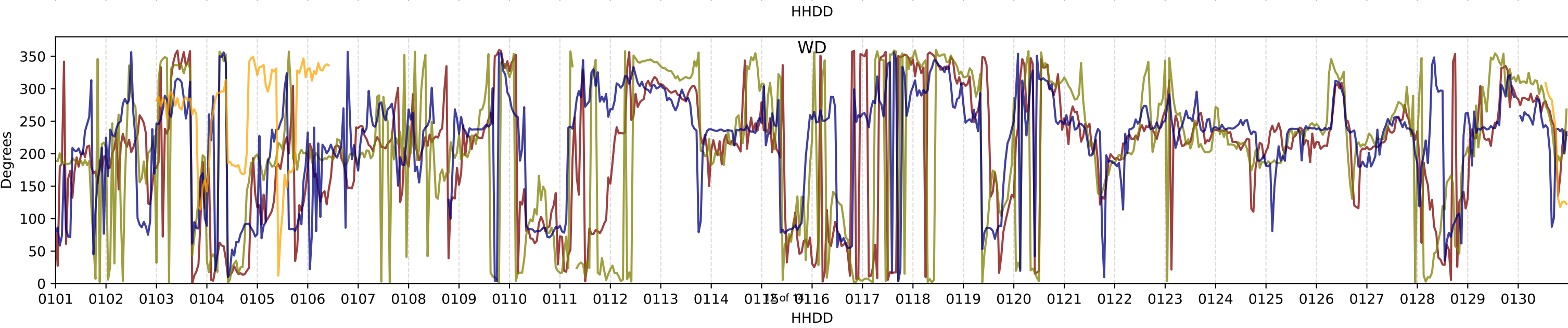
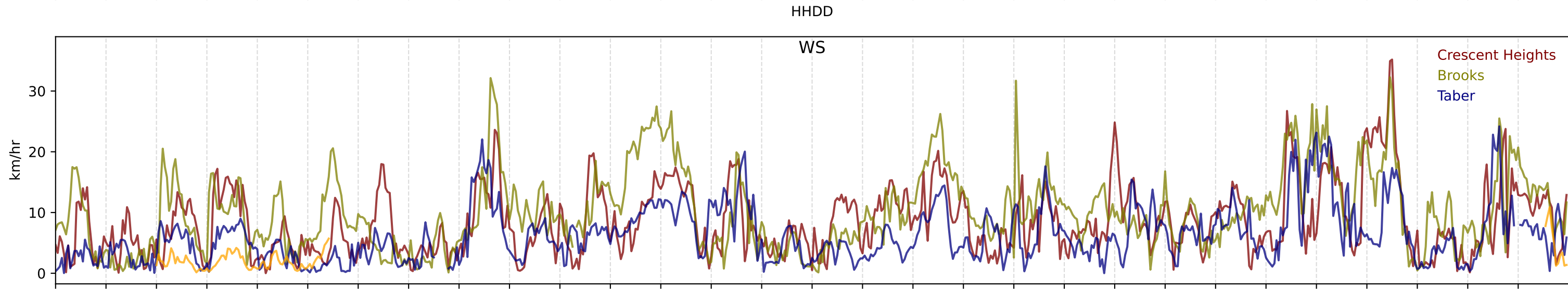
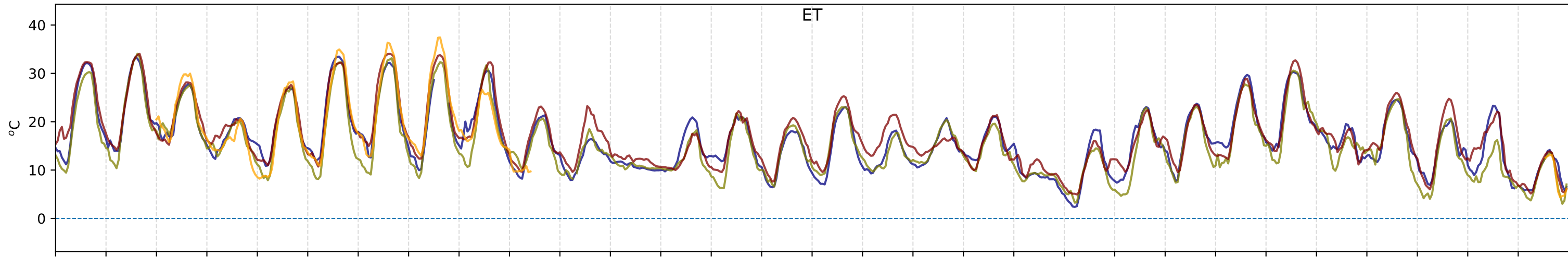


Crescent Heights THC



Concentration Ranges (ppm)





September 2024 WS Roses

