

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 – October 2024

Enclosed is the PAS Dashboard Report for the month of **October 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 NOx analyzer at Brooks Meadowplace failed October 9 and was repaired October 15 with an uptime of 76.8%. **REF#435481**.

The Airpointer sample pump seized October 12 and was replaced October 15. The NOx analyzer permeation tube was replaced October 30, with a total NOx downtime of 86.6% in October. **REF#435482**.

AAAQO/G Exceedance Summary:

There were 3 exceedances of the 1-hour PM_{2.5} AAAQG (80 µg/m³) in October.

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Wind Direction	Wind Speed	Reference Number
		(MST)	(MST)	(µg/m ³)		(km/h)	
Raymond	03-Oct-24	17:00	18:00	227	E	0.6	435434
Raymond	10-Oct-24	18:00	19:00	87	E	0.4	435437
Raymond	11-Oct-24	17:00	18:00	84	NNE	0.4	435438

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

October 2024 Monthly Ambient Air Quality Summary

Oct-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)			8	Crescent Heights	0.1	0.0	0	0	0	6.8	Oct-31 22:00	0.6	Oct-31	100.0	Oct-22
NO (ppb)					1.6	0.0				36.1	Oct-31 03:00	6.6	Oct-31	100.0	Oct-22
NO ₂ (ppb)	159				4.6	0.0	0			25.8	Oct-31 21:00	11.4	Oct-31	100.0	Oct-22
NO _x (ppb)					6.1	0.0				60.0	Oct-31 03:00	17.9	Oct-31	100.0	Oct-22
O ₃ (ppb)	76				23.3	0.8	0			45.8	Oct-07 16:00	35.4	Oct-27	100.0	Oct-02
CO (ppm)					0.1	0.1				0.4	Oct-31 21:00	0.2	Oct-31	100.0	Oct-22
CO 8-Hour (ppm)	5				-	0.1	0			0.2	Nov-01 00:00	-	-	100.0	-
THC (ppm)					2.0	1.8				2.5	Oct-31 23:00	2.3	Oct-31	100.0	Oct-23
PM _{2.5} (µg/m ³)	80	29			5.4	1.1	0	0		21.1	Oct-31 22:00	12.2	Oct-15	100.0	Oct-23
ET (°C)					9.6	-4.8				27.5	Oct-14 16:00	16.7	Oct-08	100.0	-
RH (%)					57.3	12.4				100.0	Oct-12 04:00	95.4	Oct-22	100.0	-
GSR (W/m ²)					112.0	0.0				598.9	Oct-03 13:00	166.1	Oct-03	100.0	-
WSPD (km/h)					5.9	0.0				36.5	Oct-27 16:00	22.0	Oct-19	100.0	-
WDIR					SW									100.0	-

Pollutant (units)	Analyzer		Notes
	Make	Model	
SO ₂	TEI	43i-TLE	
NO/NO ₂ /NO _x	TEI	42i	
O ₃	TECO	49i	
CO	TEI	48i-TLE	
THC	TECO	51C-LT	Analyzer maintenance performed October 22, allowed to stabilize and calibrated October 23.
PM _{2.5}	API	T640	
ET/RH	RMYoung	41382VC	
GSR	EPPLEY		
WS/WD	RMYoung	5305-10	

Oct-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)				Brooks Meadow Place	0.8	0.0				20.5	Oct-25 08:00	3.5	Oct-23	76.8	Oct-08
NO ₂ (ppb)	159				3.7	0.0	0			16.2	Oct-25 07:00	7.6	Oct-25	76.8	Oct-08
NO _x (ppb)					4.4	0.0				36.6	Oct-25 08:00	10.9	Oct-25	76.8	Oct-08
O ₃ (ppb)	76				21.1	0.4	0			45.6	Oct-07 15:00	31.0	Oct-19	99.7	Oct-08
PM _{2.5} (µg/m ³)	80	29			5.5	0.7	0	0		26.9	Oct-04 18:00	13.2	Oct-15	100.0	Oct-08
ET (°C)					7.2	-7.2				25.5	Oct-08 15:00	15.1	Oct-08	100.0	-
RH (%)					55.6	47.0				63.1	Oct-07 16:00	59.1	Oct-08	100.0	-
WSPD (km/h)					4.7	0.5				43.6	Oct-04 19:00	22.7	Oct-19	100.0	-
WDIR					SW									100.0	-

Pollutant (units)	Analyzer		Notes
	Make	Model	
NO/NO ₂ /NO _x	TEI	42iQ	Analyzer failed October 9. Repairs completed October 15, allowed to stabilize and calibrated October 16. Manual span check October 28.
O ₃	TEI	49iQ	Analyzer offline during NO _x maintenance October 29.
PM _{2.5}	API	T640	
ET/RH			
WS/WD			

Oct-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)				Hanna Airpointer	2.9	0.0				51.7	Oct-16 09:00	10.3	Oct-16	86.6	Oct-15
NO ₂ (ppb)	159				4.1	0.0	0			24.0	Oct-08 07:00	7.6	Oct-23	86.6	Oct-15
NO _x (ppb)					7.0	0.0				62.3	Oct-25 08:00	14.1	Oct-16	86.6	Oct-15
O ₃ (ppb)	76				23.4	0.0	0			46.5	Oct-17 13:00	31.9	Oct-19	90.1	Oct-15
PM _{2.5} (µg/m ³)	80	29			4.0	0.3	0	0		73.6	Oct-31 18:00	7.9	Oct-16	100.0	Oct-15
ET (°C)					6.3	-5.9				23.9	Oct-08 15:00	15.1	Oct-08	100.0	-
RH (%)					64.8	19.0				97.1	Oct-22 23:00	91.0	Oct-29	100.0	-
WSPD (km/h)					0.6	0.0				15.3	Oct-27 16:00	7.2	Oct-27	100.0	-
WDIR					SSE									100.0	-

Pollutant (units)	Analyzer			Notes
	Make		Model	
NO/NO ₂ /NO _x	Airpointer API		200e	Sample pump seized October 12. Replaced October 15. Failing permeation tube replaced October 30; analyzer found to be 14% out and linear, data was adjusted back to October 15 installation calibration.
O ₃	Airpointer API		400e	
PM _{2.5}	Sharp		5030	
ET/RH				
WS/WD				

Oct-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)				Raymond Airpointer	0.2	0.0				15.4	Oct-22 09:00	1.2	Oct-22	94.8	Oct-02
NO ₂ (ppb)	159				1.1	0.1	0			7.7	Oct-11 07:00	3.3	Oct-11	94.8	Oct-02
NO _x (ppb)					1.3	0.2				21.9	Oct-22 09:00	3.9	Oct-11	94.8	Oct-02
O ₃ (ppb)	76				31.8	6.7	0			53.7	Oct-07 12:00	40.9	Oct-07	94.8	Oct-02
PM _{2.5} (µg/m ³)	80	29			6.7	0.1	3	0		226.9	Oct-03 18:00	17.7	Oct-03	94.9	Oct-02
ET (°C)					8.8	-4.9				25.5	Oct-14 15:00	16.7	Oct-14	94.9	-
RH (%)					52.4	14.9				100.0	Oct-29 05:00	82.6	Oct-21	94.9	-
WSPD (km/h)					2.1	0.1				11.4	Oct-27 15:00	4.7	Oct-27	94.9	-
WDIR					WSW									94.9	-

Pollutant (units)	Analyzer			Notes
	Make		Model	
NO/NO ₂ /NO _x	Airpointer API		200e	Station entered service October 2. 1 hour of data was not captured October 4 and 28. Power outage October 9-10.
O ₃	Airpointer API		400e	
PM _{2.5}	Sharp		5030	
ET/RH				
WS/WD				



October 2024 NO₂

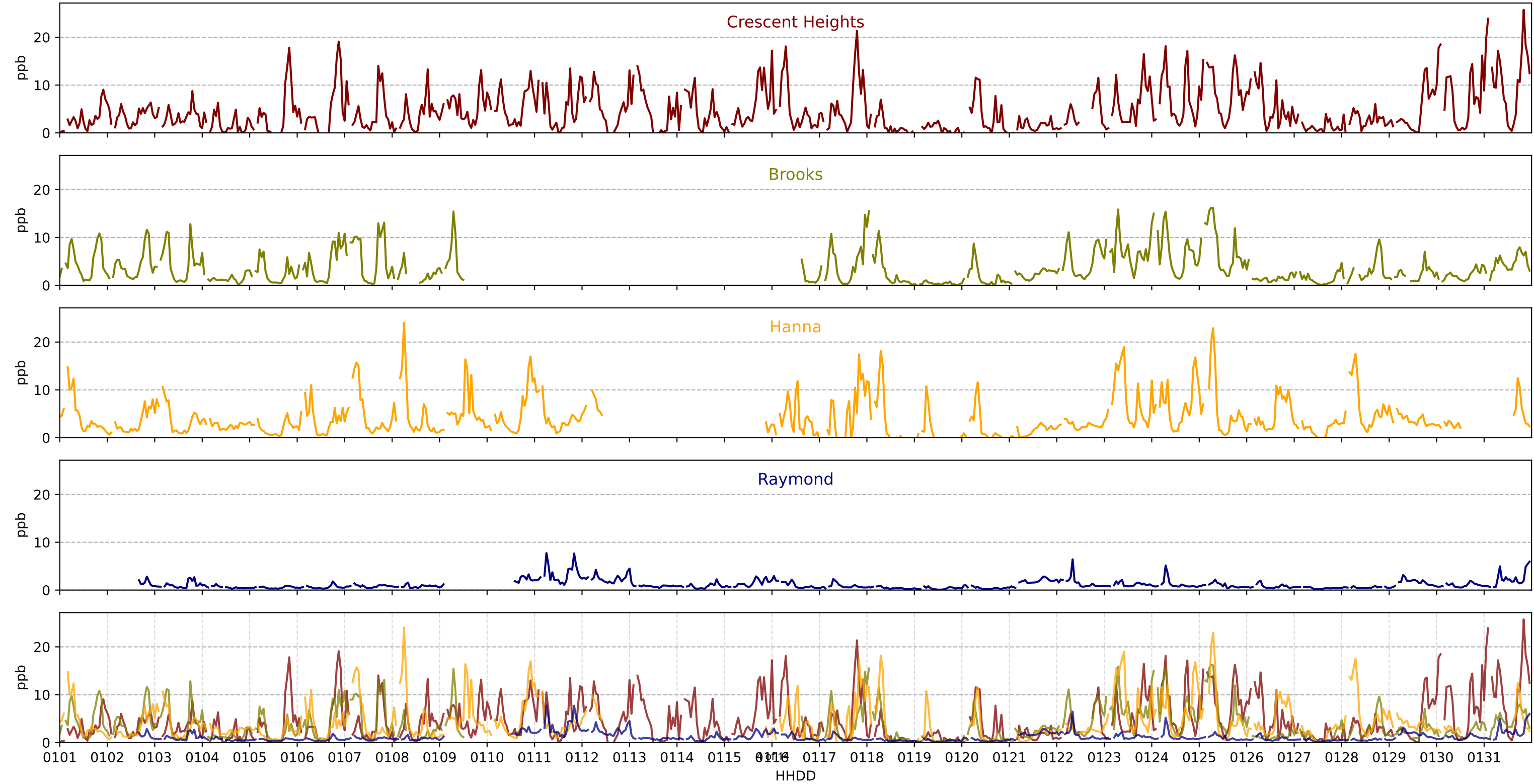
NO₂ AAAQO = 172 ppb

Crescent Heights

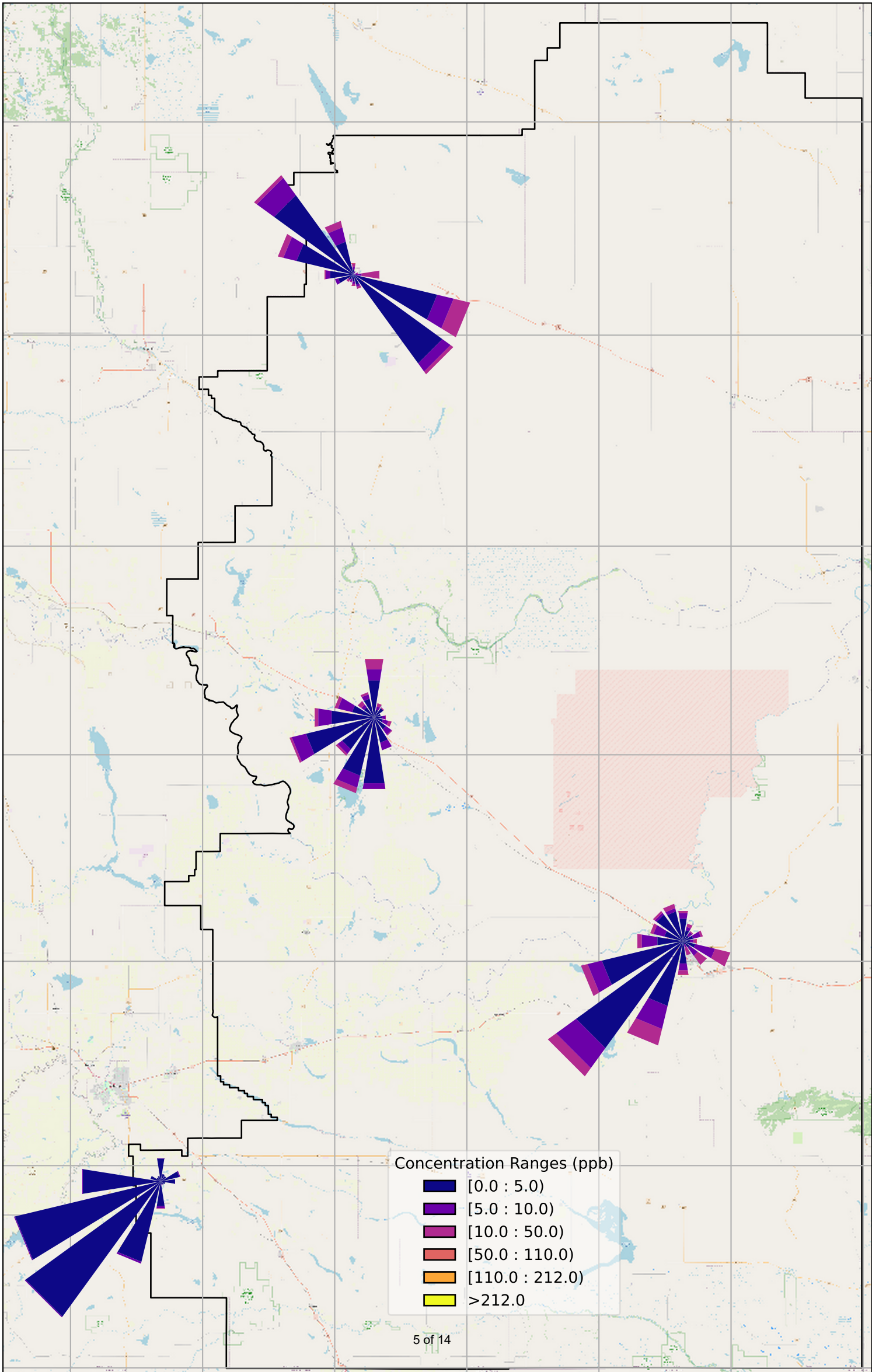
Brooks

Hanna

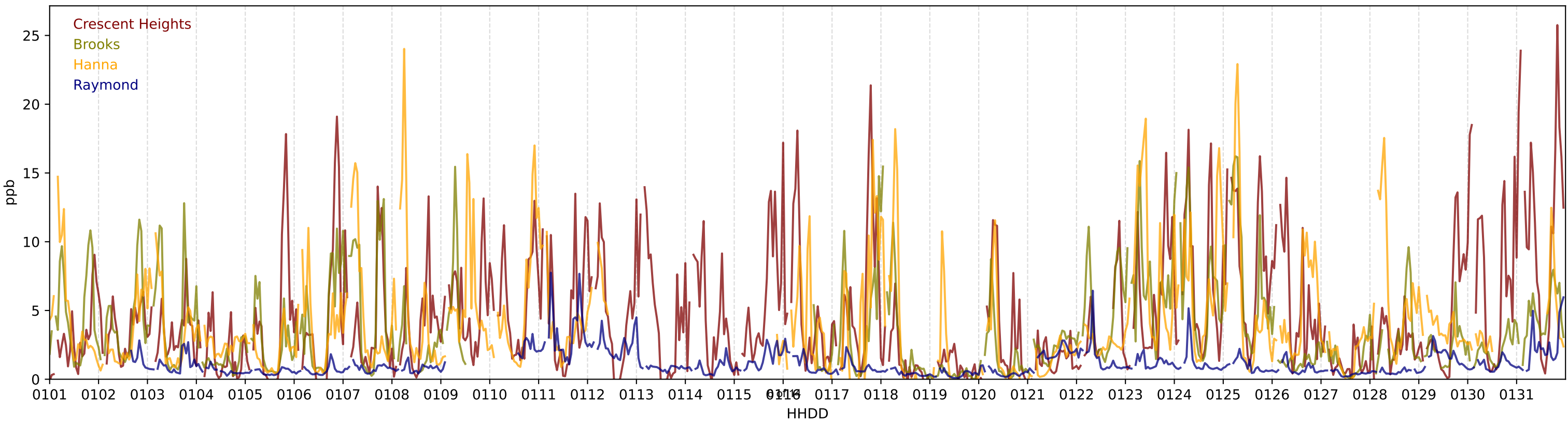
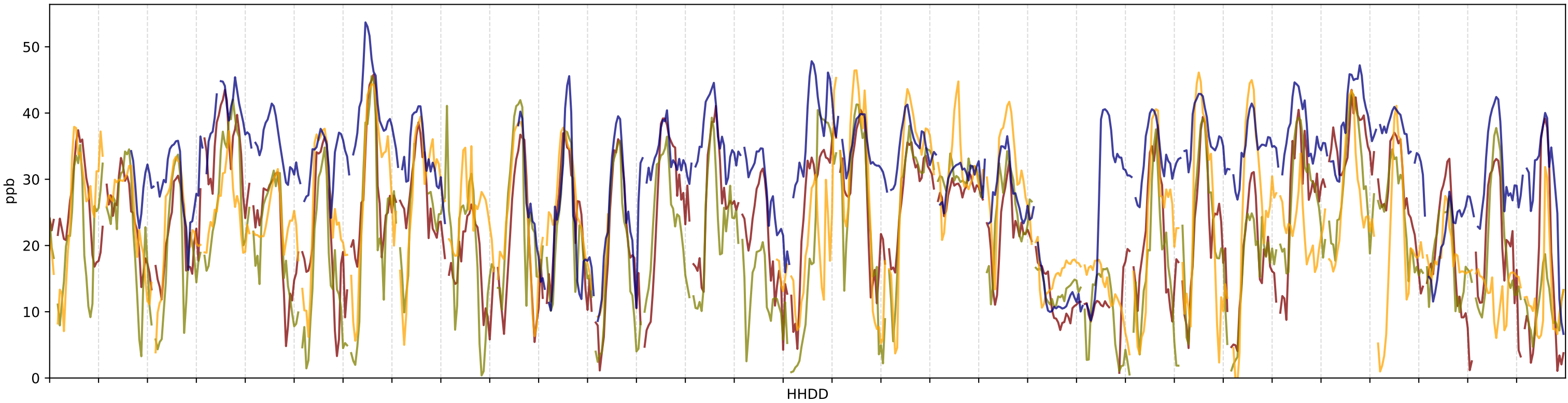
Raymond



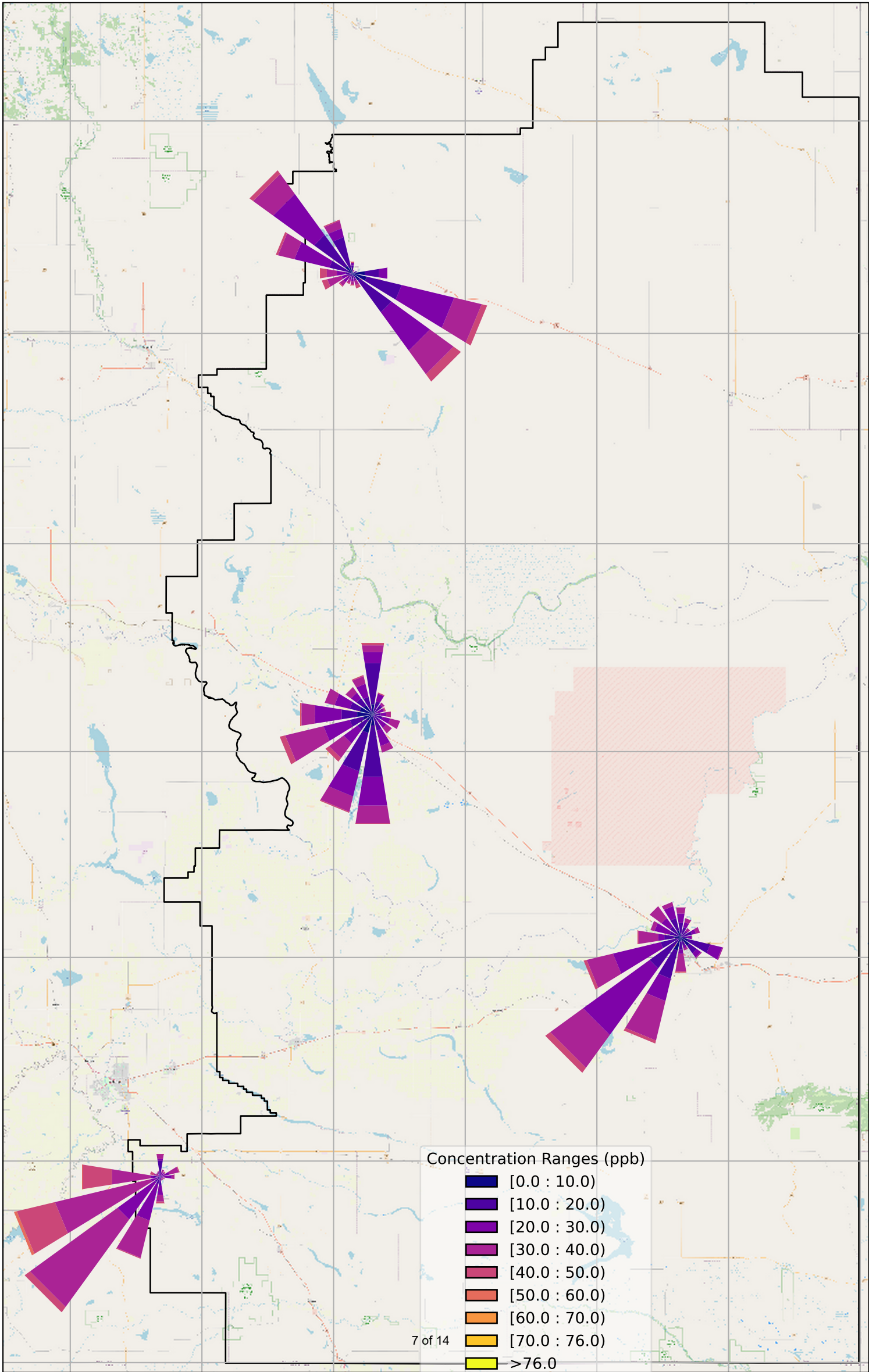
October 2024 NO₂ Roses



October 2024 O₃ vs NO₂



October 2024 O₃ Roses



October 2024 PM_{2.5}

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

Crescent Heights

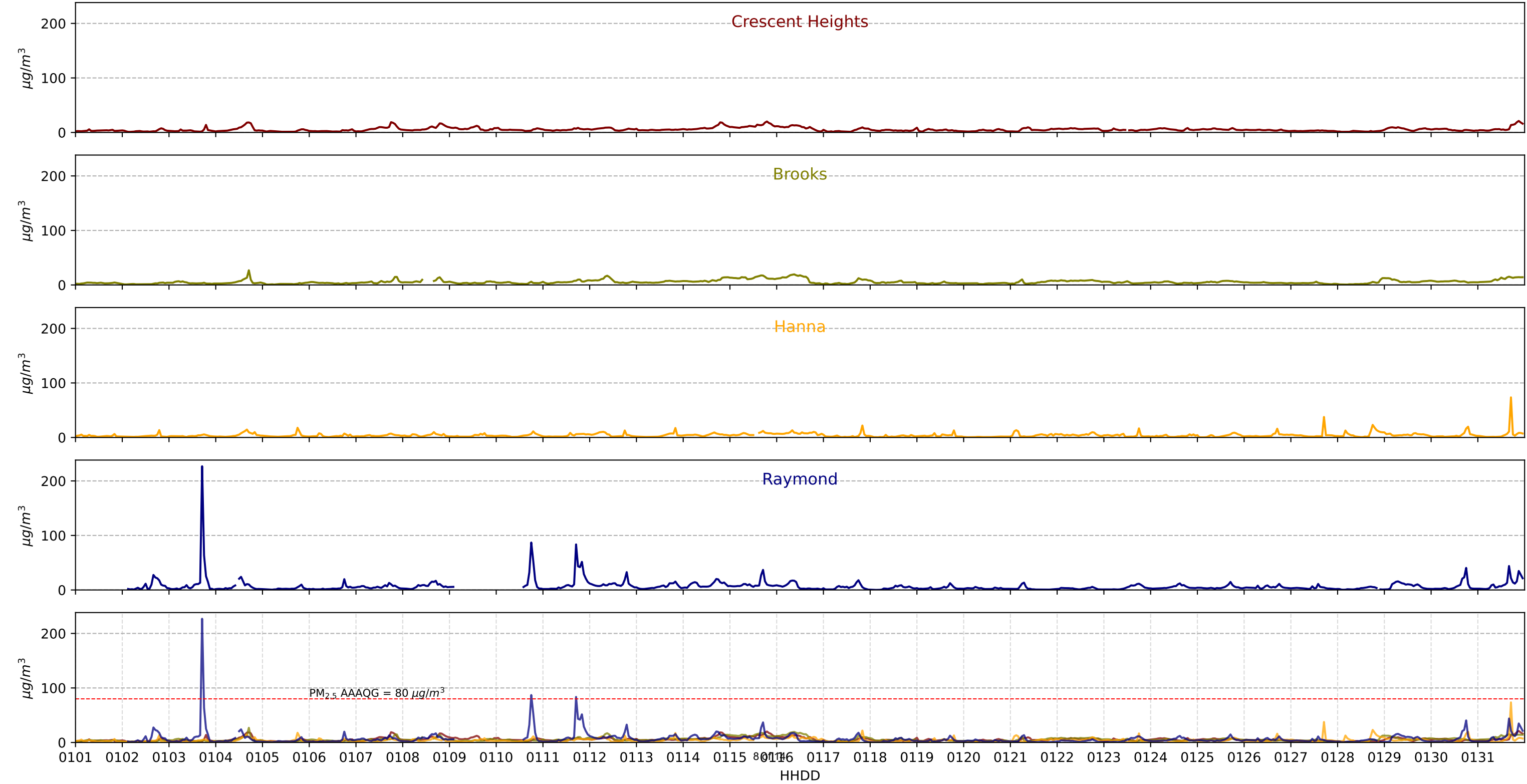
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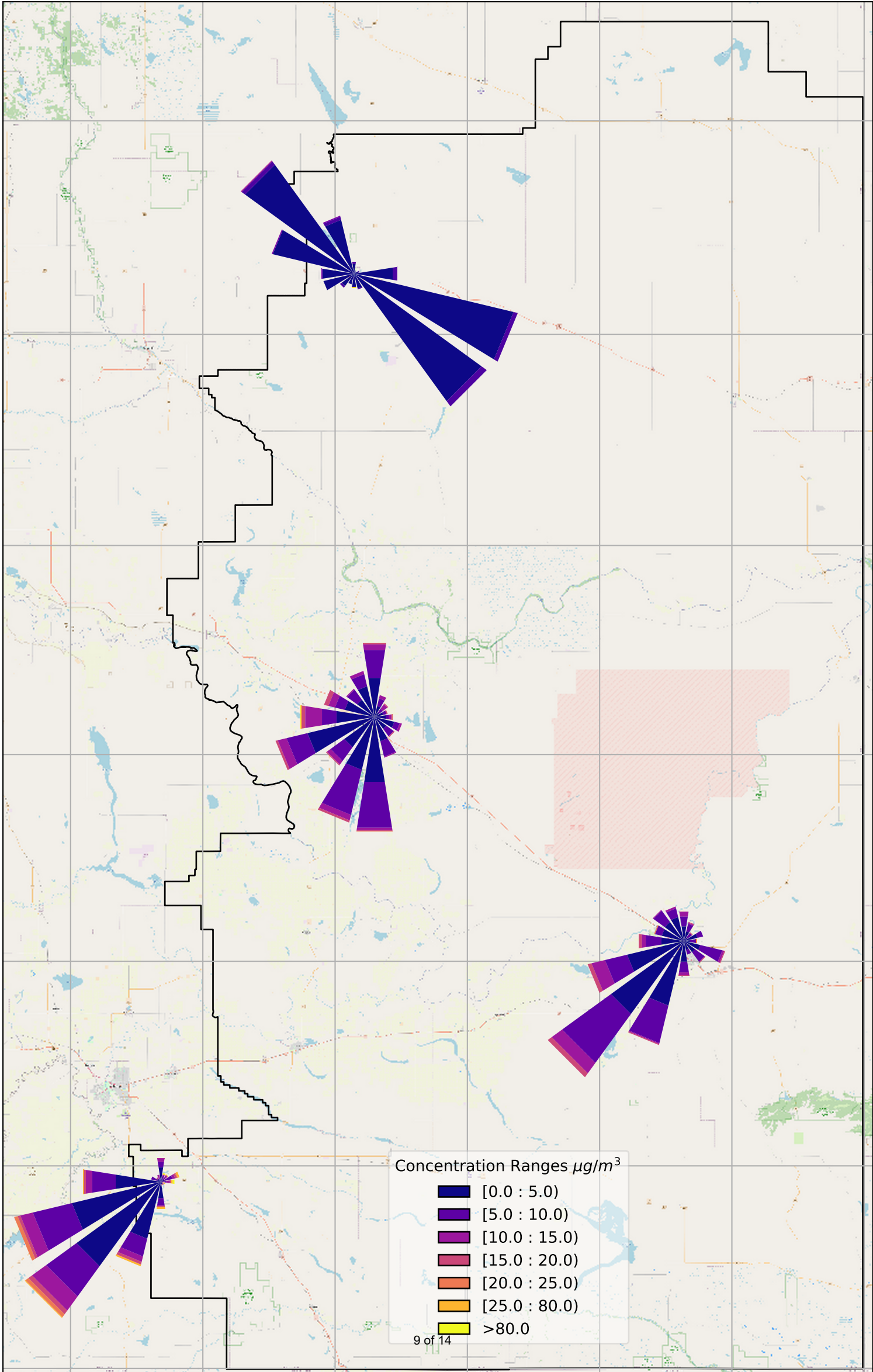
Hanna

Raymond

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

0101 0102 0103 0104 0105 0106 0107 0108 0109 0110 0111 0112 0113 0114 0115 0116 0117 0118 0119 0120 0121 0122 0123 0124 0125 0126 0127 0128 0129 0130 0131
HHDD

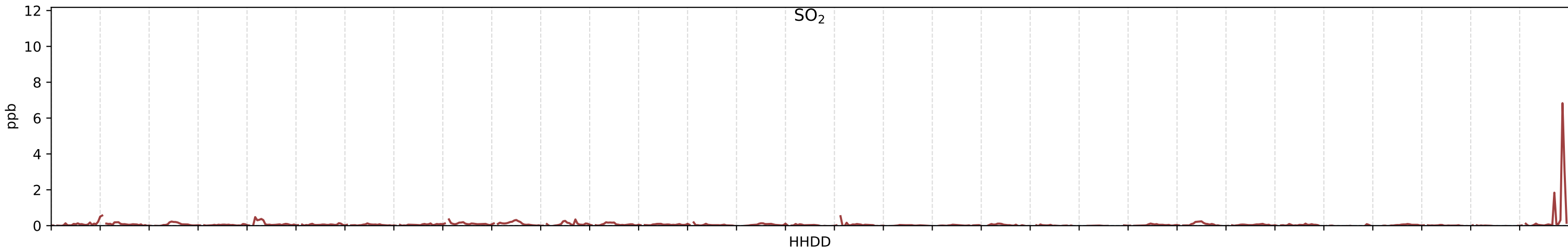




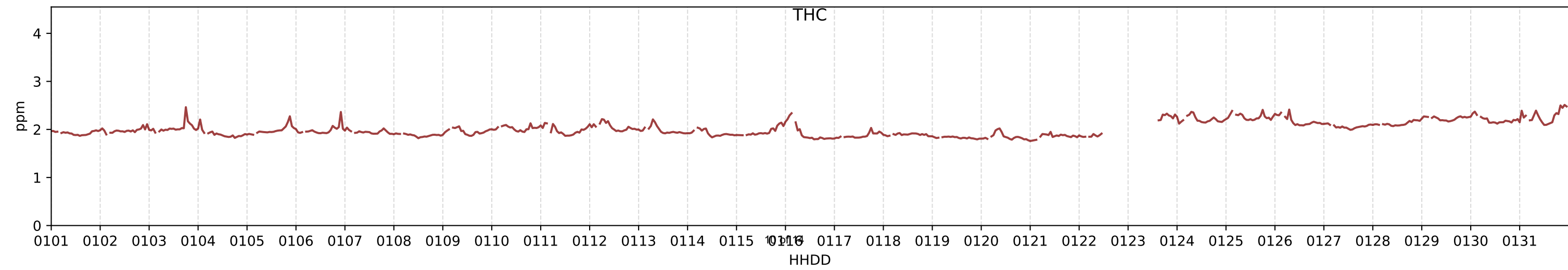
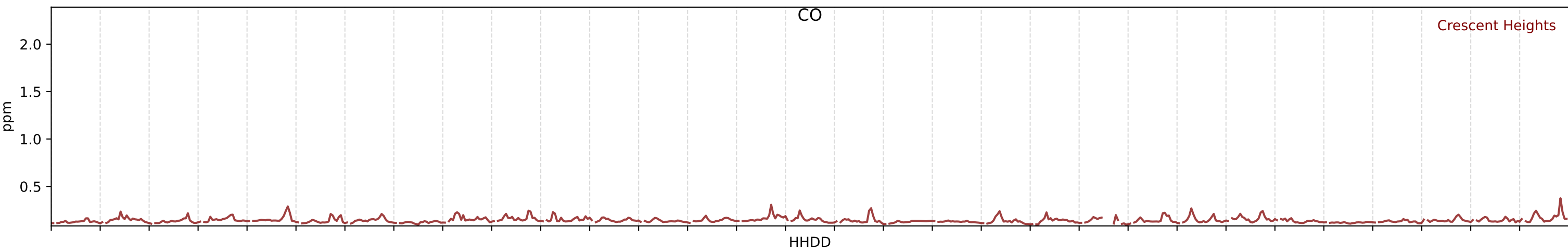
Concentration Ranges $\mu\text{g}/\text{m}^3$

- [0.0 : 5.0)
- [5.0 : 10.0)
- [10.0 : 15.0)
- [15.0 : 20.0)
- [20.0 : 25.0)
- [25.0 : 80.0)
- >80.0

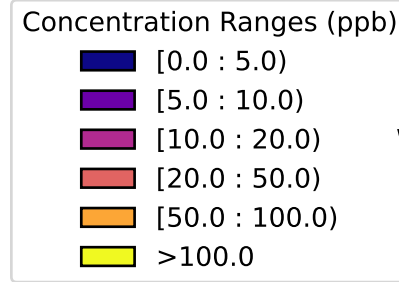
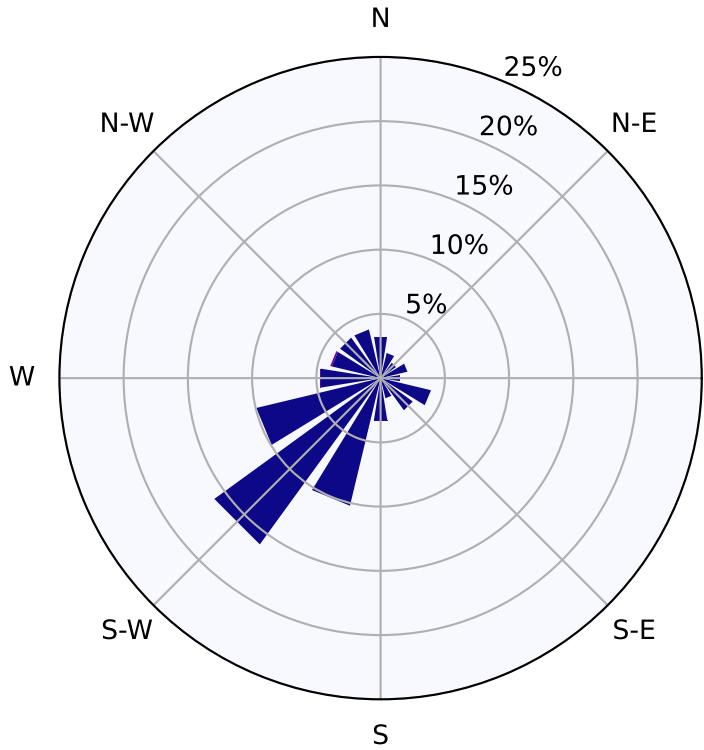
SO₂ AAAQO = 172 ppb



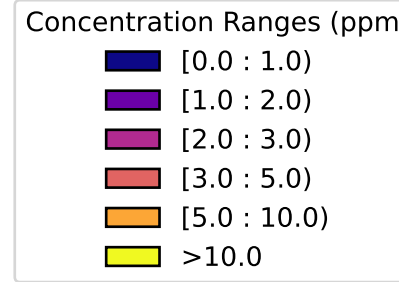
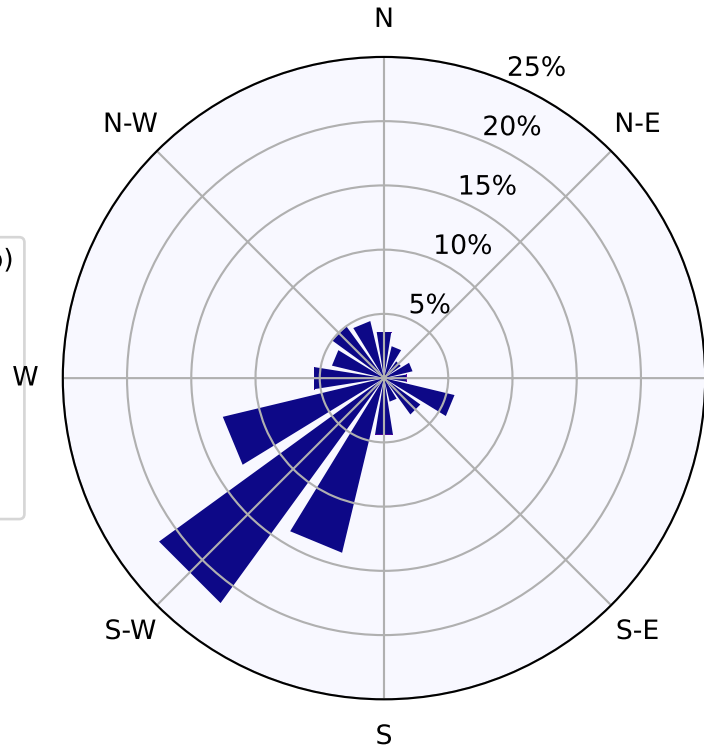
CO AAAQO = 13 ppm



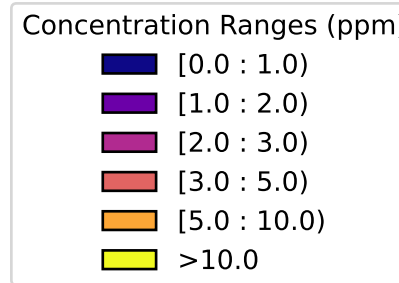
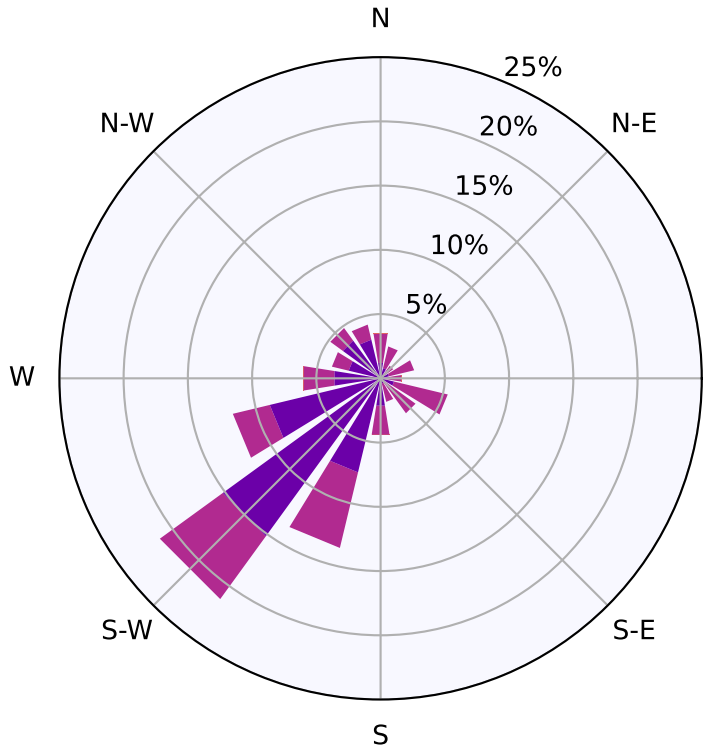
Crescent Heights SO₂

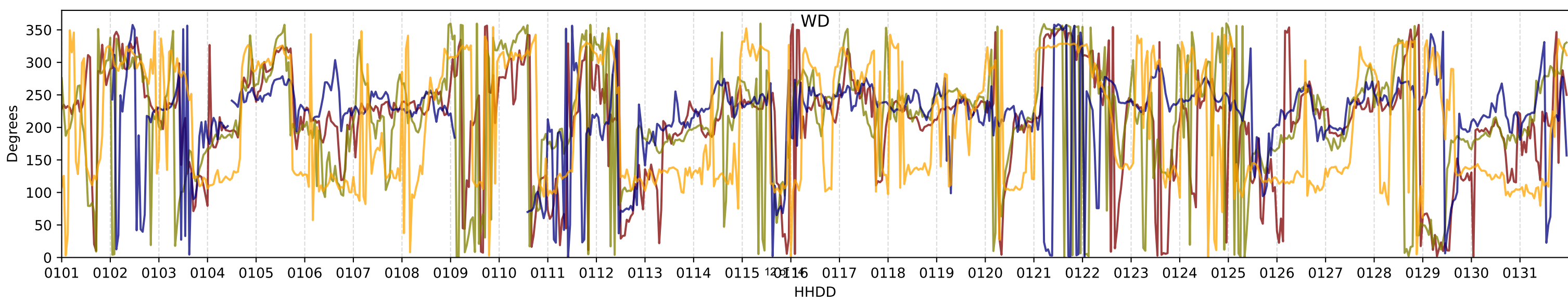
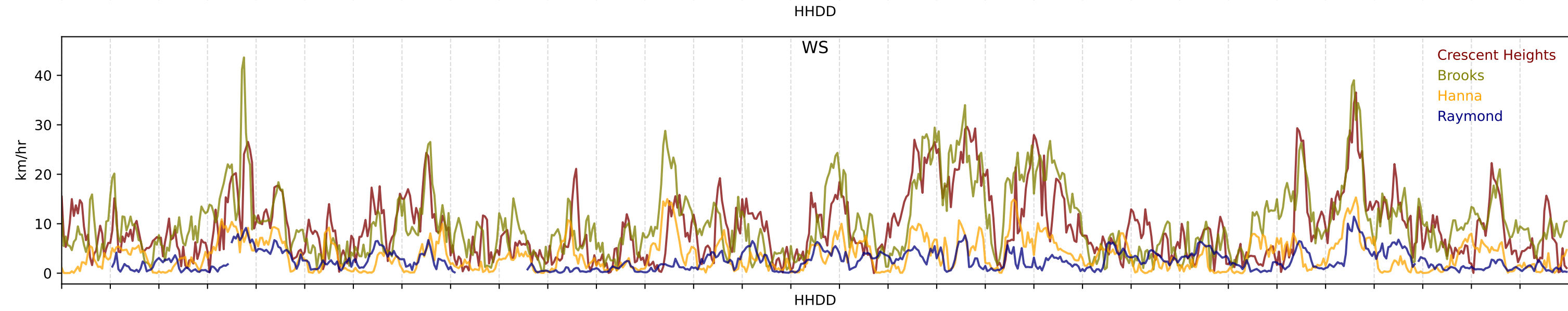
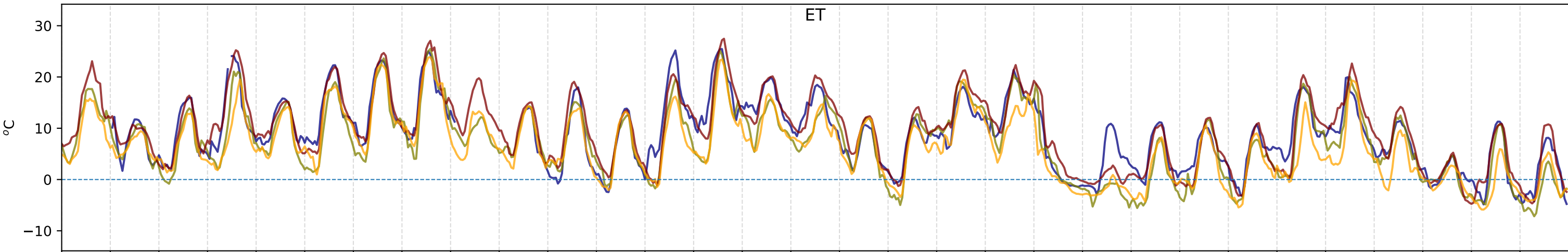


Crescent Heights CO



Crescent Heights THC





October 2024 WS Roses

