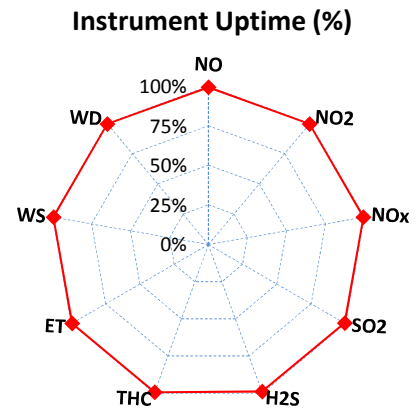
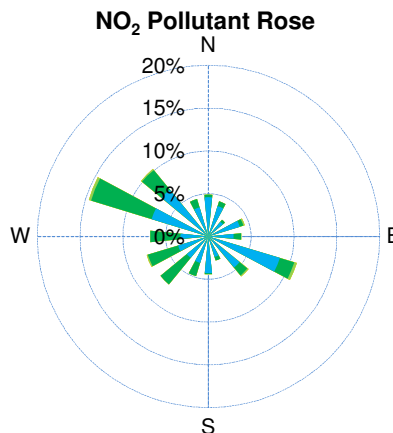
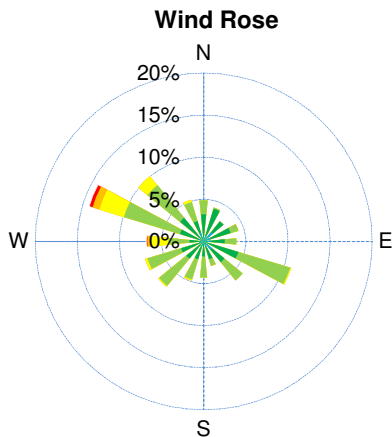
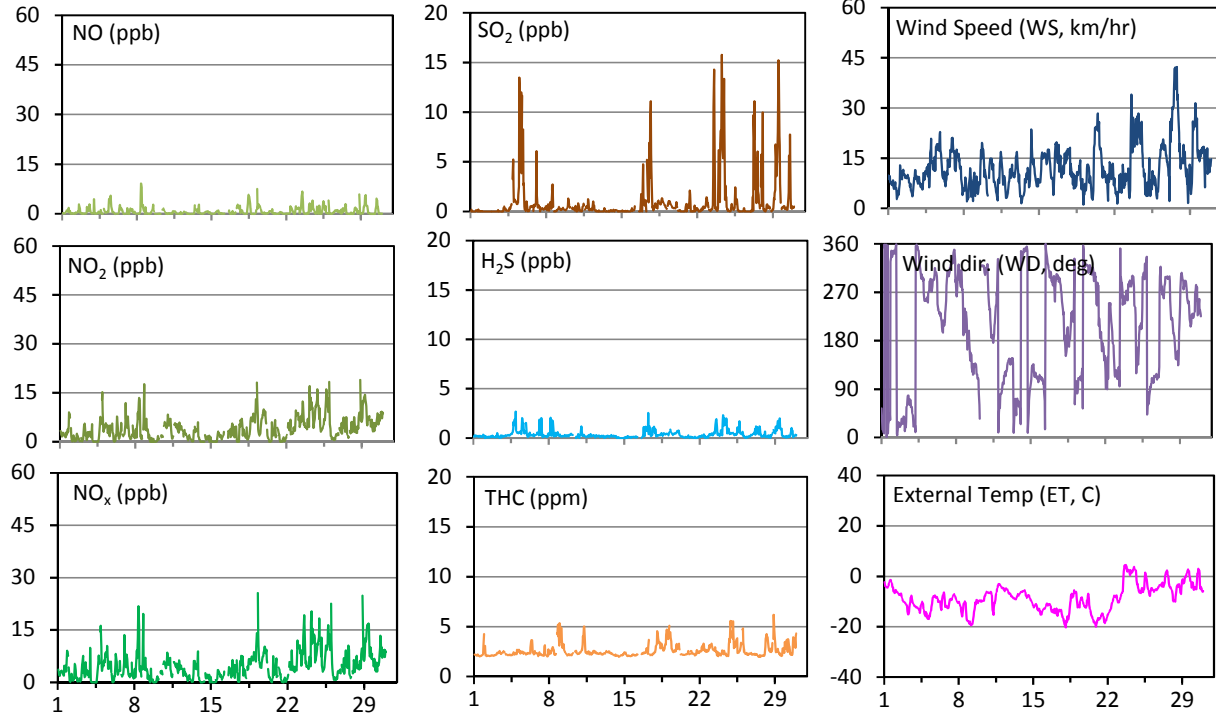


Husky Energy East Station - November 2017 Summary Report

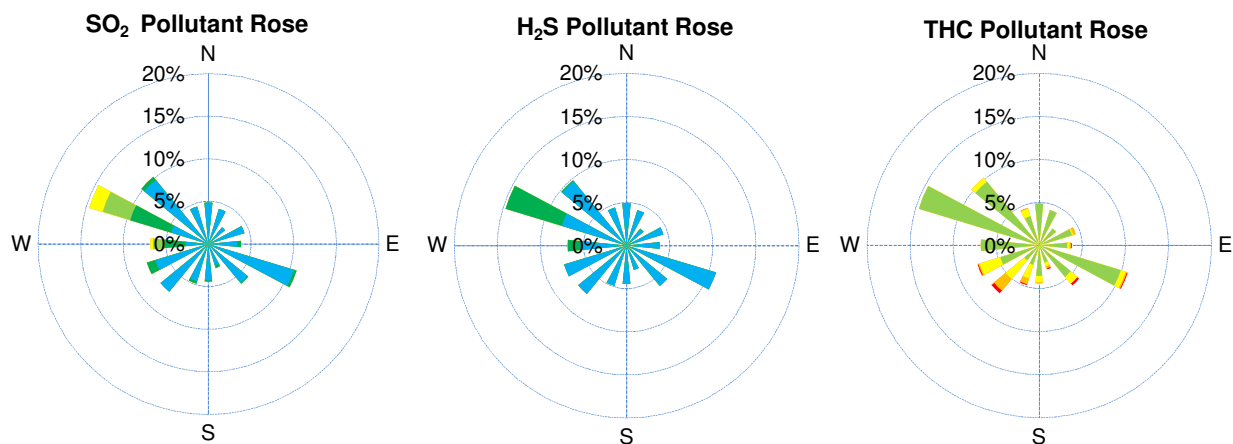
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		SAAQS Standards	Exceed Days	Maximum		SAAQS Standards	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.7	99.4%	1.6	Nov-23	-	-	9.2	Nov-08 10:00	-	-
NO ₂	ppb	4.0	99.4%	10.2	Nov-24	106	0	19.0	Nov-28 21:00	159	0
NO _x	ppb	4.7	99.4%	11.5	Nov-24	-	-	25.6	Nov-19 07:00	-	-
SO ₂	ppb	0.4	99.4%	4.5	Nov-24	48	0	15.8	Nov-24 07:00	172	0
H ₂ S	ppb	0.4	99.0%	1.0	Nov-24	3.6	0	2.7	Nov-04 23:00	11.0	0
THC	ppm	2.6	99.4%	3.4	Nov-18	-	-	6.2	Nov-28 22:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



Parameters	Unit	Color Code for Wind Spd & Pollutant Conc. Class					
Wind Speed	km/hr	1 ≤ WS < 5	5 ≤ WS < 10	10 ≤ WS < 20	20 ≤ WS < 30	30 ≤ WS < 40	WS ≥ 40
SO ₂	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
NO ₂	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
H ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 11	C ≥ 11
THC	ppm	0 ≤ C < 1	1 ≤ C < 2	2 ≤ C < 3	3 ≤ C < 4	4 ≤ C < 5	C ≥ 5

Husky Energy East Station - November 2017 Summary Report



Monthly Update

*Air monitoring data has been validated. Data may change after validation process.

*All compliance parameters were within the Saskatchewan Ambient Air Quality Standards.

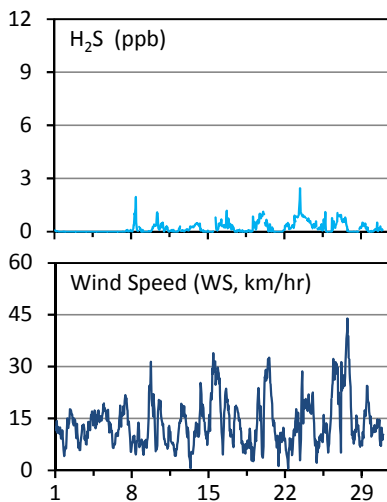
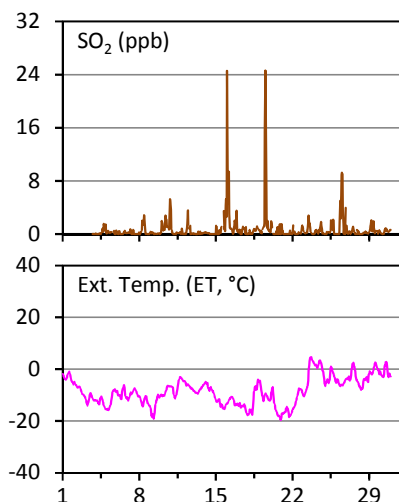
*All compliance parameters are above 90% operational. Operational issues include two intermittent power disruptions at the station.

The H₂S analyzer was slow to recover following the power disruption; 3 hours of data are flagged as analyzer failure.

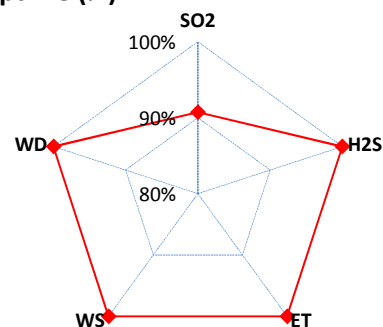
Husky Energy West Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		AAAQO / SAAQS	Exceed Days	Maximum		AAAQO / SAAQS	Exceed Hours
SO ₂	ppb	0.7	90.7%	Conc.	Time			Conc.	Time		
H ₂ S	ppb	0.4	100.0%	3.6	Nov-19	48 / 48	0 / 0	24.6	Nov-19 13:00	172 / 172	0 / 0
				1.0	Nov-23	3 / 3.6	0 / 0	2.0	Nov-23 11:00	10 / 11.0	0 / 0

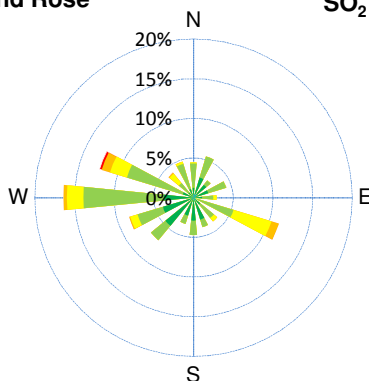
AAAQO: Alberta Ambient Air Quality Objectives; SAAQS: Saskatchewan Ambient Air Quality Standards.



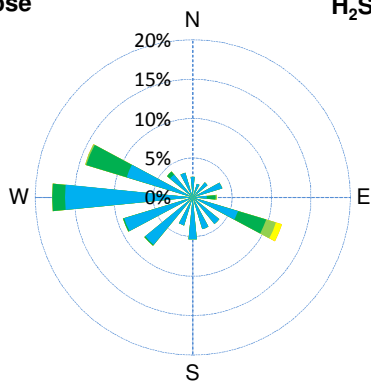
Uptime (%)



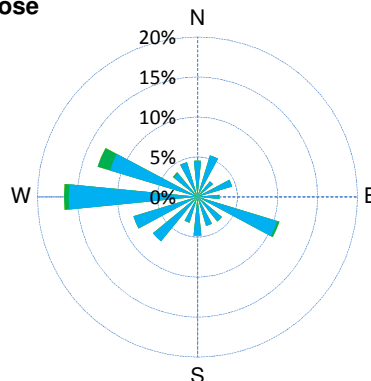
Wind Rose



SO₂ Rose



H₂S Rose



Parameters	Unit	Color Code for Wind Spd & Pollutant Conc. Class					
Wind Speed	km/hr	1 ≤ WS < 5	5 ≤ WS < 10	10 ≤ WS < 20	20 ≤ WS < 30	30 ≤ WS < 40	WS ≥ 40
SO ₂	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 11	C ≥ 11

Monthly Update

*Air monitoring data has been validated. Data may change after validation process.

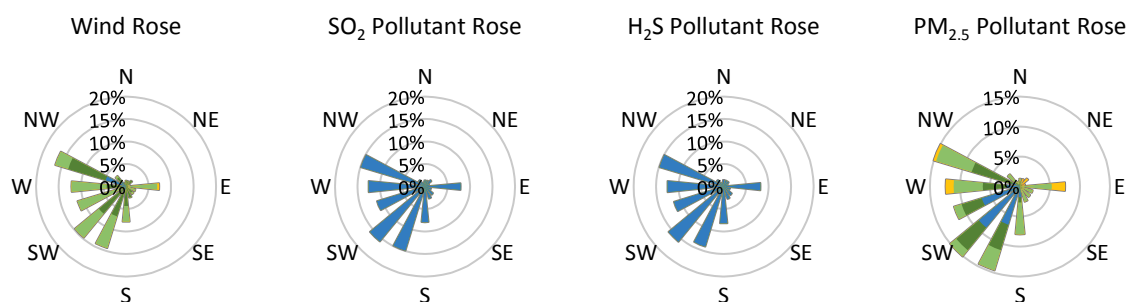
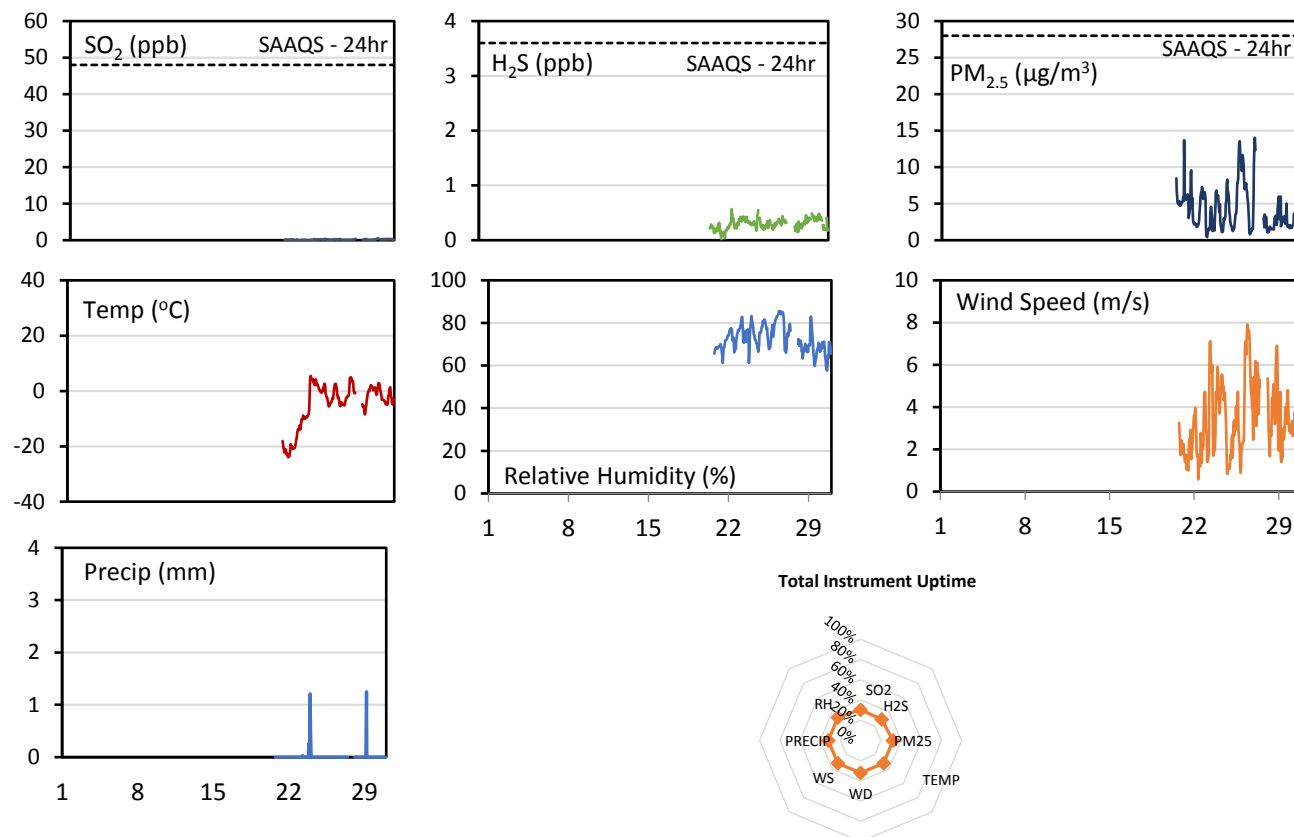
*All compliance parameters were within the Alberta Ambient Air Quality Objectives and the Saskatchewan Ambient Air Quality Standards.

*All compliance parameters are above 90% operational. Operational issues include the SO₂ analyzer malfunctioning throughout the month. The analyzer was down Nov 1-3, due to a failure with the UV lamp and 12V power supply. The analyzer also flat-lined on Nov 5 for 5 hours.

WYAMZ Kerrobert Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
SO ₂	ppb	0.2	30%	0.3	Nov-30	48	0	0.5	Nov-29 10:00	172	0
H ₂ S	ppb	0.3	29%	0.4	Nov-29	3.6	0	0.6	Nov-22 17:00	11	0
PM _{2.5}	µg/m ³	4.2	32%	8.1	Nov-26	28	0	14.0	Nov-27 09:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
SO ₂	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
PM _{2.5}	µg/m ³	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

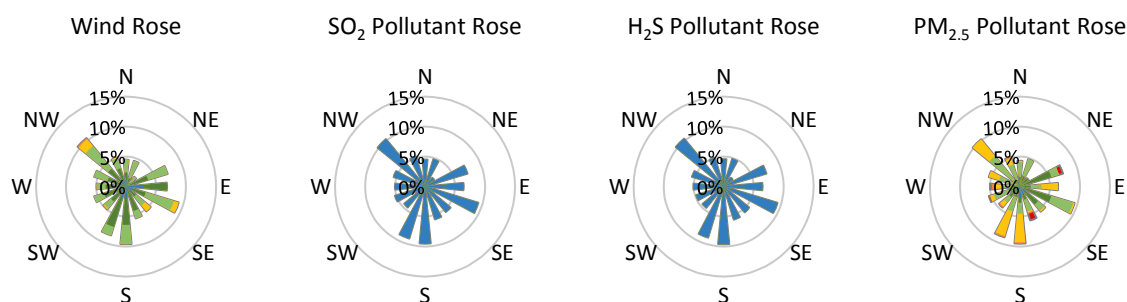
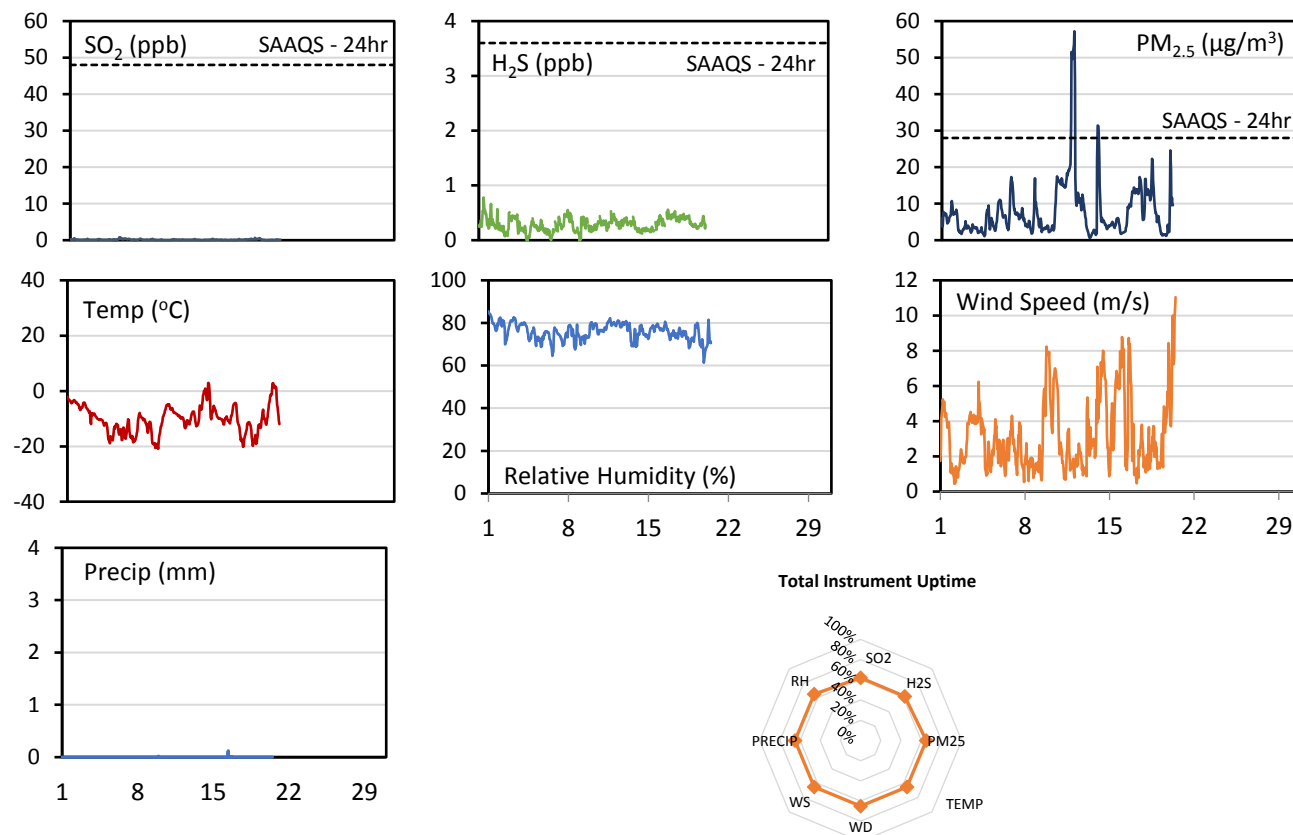
Monthly Update

- Airpointer relocated to Kerrobert from Kindersley November 20, 2017 (35% total uptime expected)
- Achieved >30% of scheduled uptime for all parameters except H₂S (29%)
- Downtime of 4% results from routine daily internal zeroes and spans

WYAMZ Kindersley Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
SO ₂	ppb	0.2	62%	0.3	Nov-18	48	0	0.8	Nov-05 15:00	172	0
H ₂ S	ppb	0.3	62%	0.4	Nov-17	3.6	0	0.8	Nov-01 10:00	11	0
PM _{2.5}	µg/m ³	8.0	65%	21.2	Nov-12	28	0	57.2	Nov-12 04:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
SO ₂	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
PM _{2.5}	µg/m ³	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

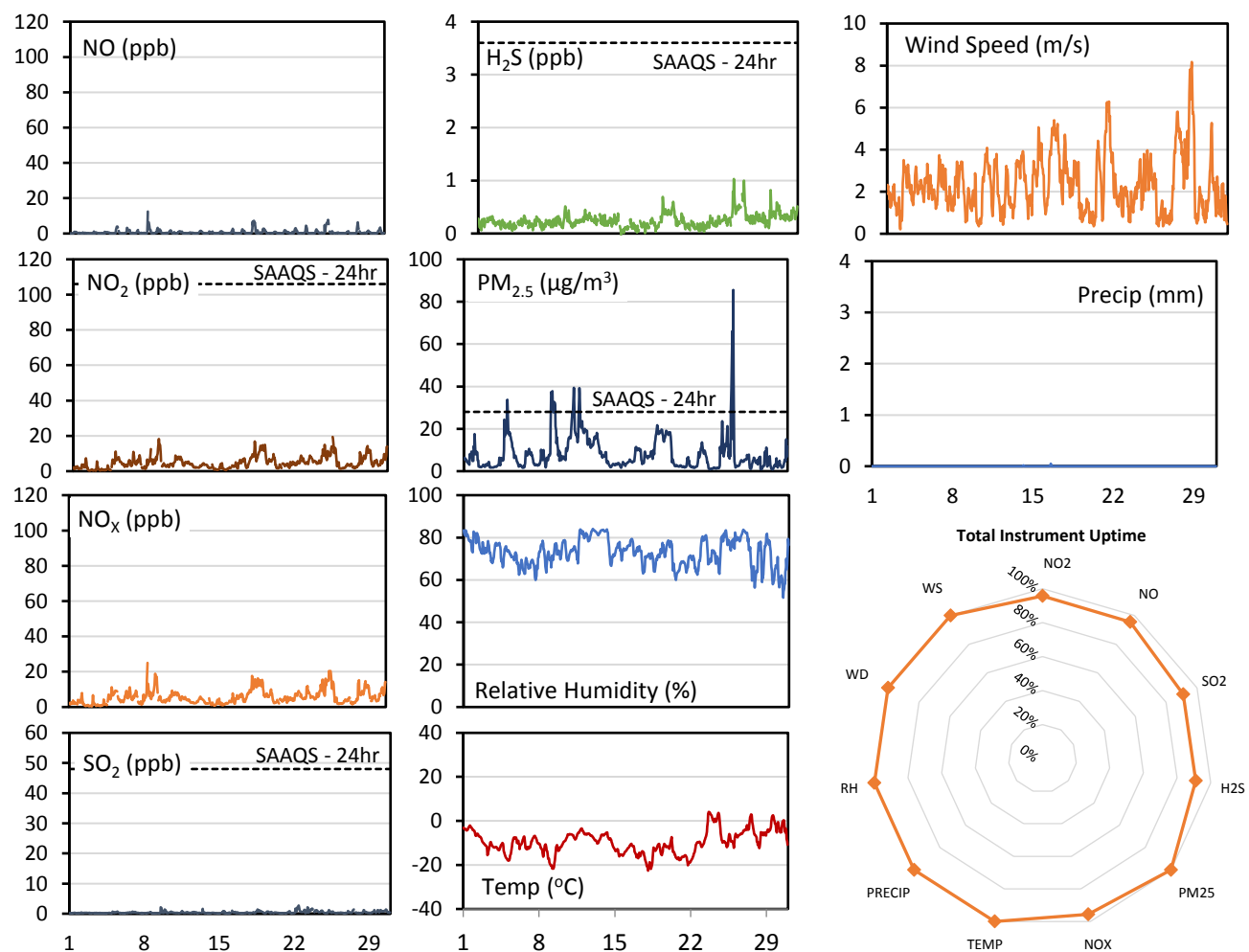
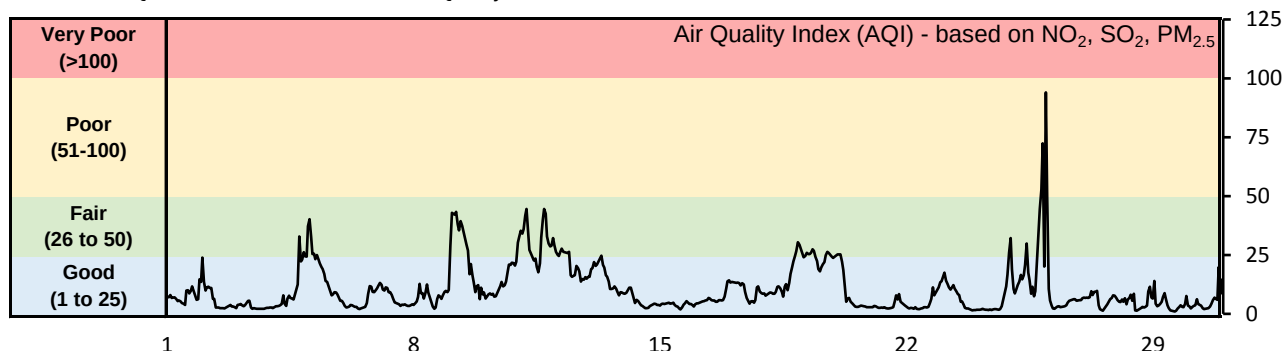
Monthly Update

- Airpointer relocated to Kerrobert November 20, 2017 (65% total uptime expected)
- Achieved >60% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily internal zeroes and spans

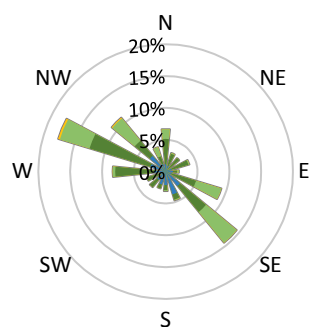
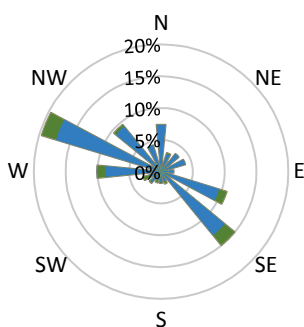
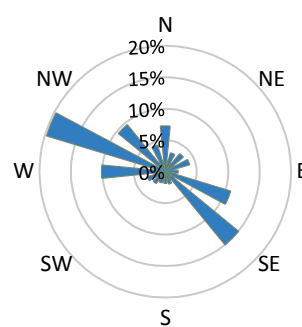
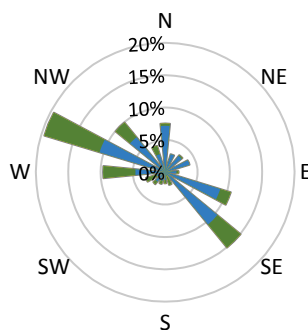
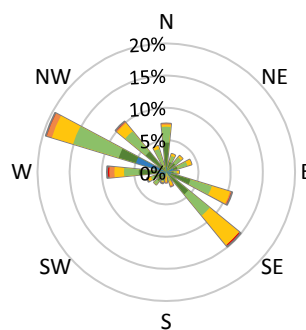
WYAMZ Maidstone Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.7	96%	2.4	Nov-25	-	-	12.5	Nov-08 10:00	-	-
NO ₂	ppb	4.8	96%	11.1	Nov-25	106	0	19.4	Nov-25 18:00	159	0
NO _x	ppb	5.5	96%	13.6	Nov-25	-	-	25.0	Nov-08 10:00	-	-
SO ₂	ppb	0.4	91%	1.1	Nov-22	48	0	2.7	Nov-22 10:00	172	0
H ₂ S	ppb	0.2	91%	0.6	Nov-25	3.6	0	1.0	Nov-25 00:00	11	0
PM _{2.5}	µg/m ³	8.3	100%	24.4	Nov-11	28	0	85.5	Nov-25 23:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



Wind Rose


SO₂ Pollutant Rose

H₂S Pollutant Rose

NO₂ Pollutant Rose

PM_{2.5} Pollutant Rose


Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$
SO ₂	ppb	$0 \leq C < 1$	$1 \leq C < 5$	$5 \leq C < 10$	$10 \leq C < 57$	$57 \leq C < 172$	$C \geq 172$
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$
H ₂ S	ppb	$0 \leq C < 1$	$1 \leq C < 3.6$	$3.6 \leq C < 5$	$5 \leq C < 8$	$8 \leq C < 10.8$	$C \geq 10.8$
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$

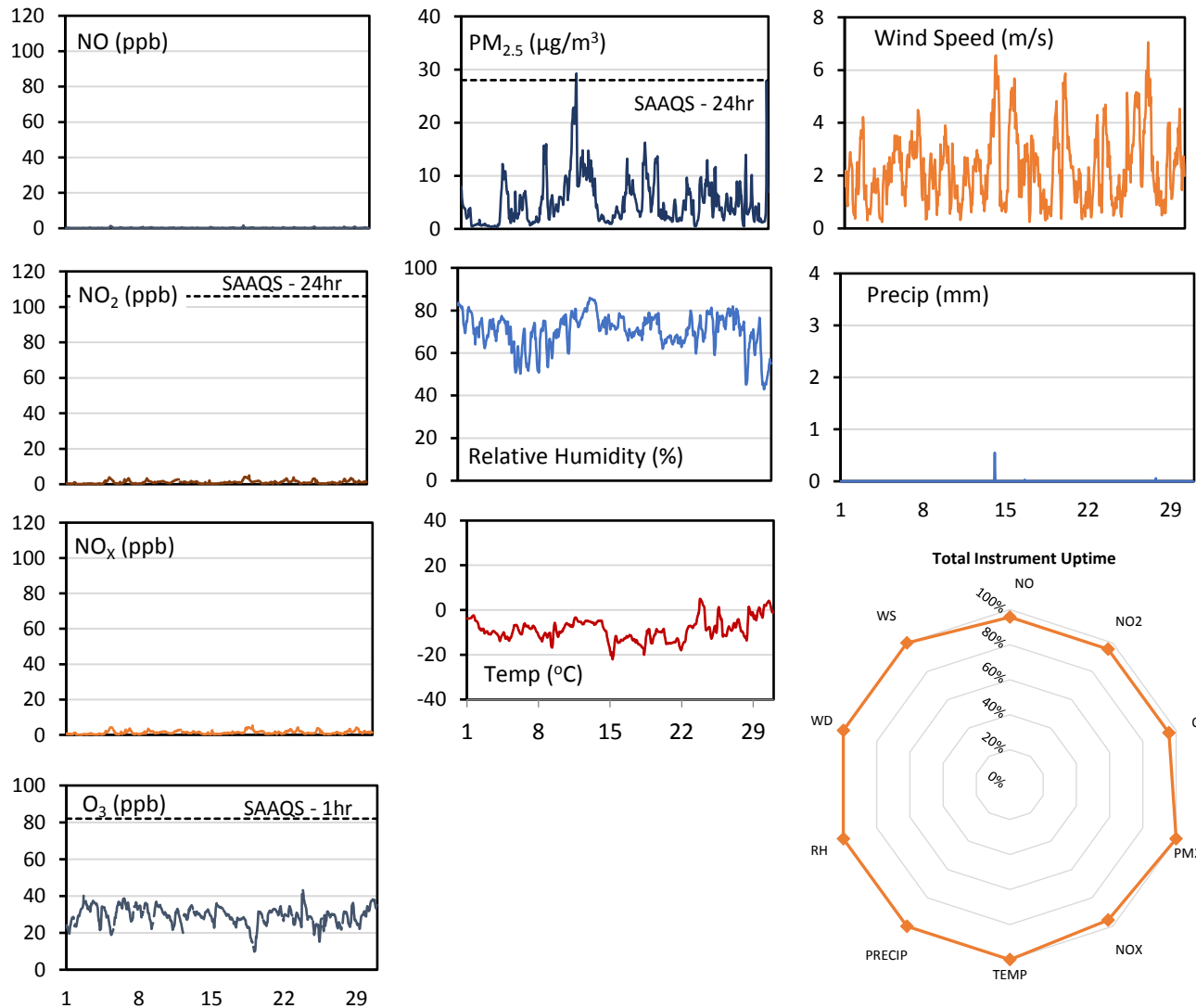
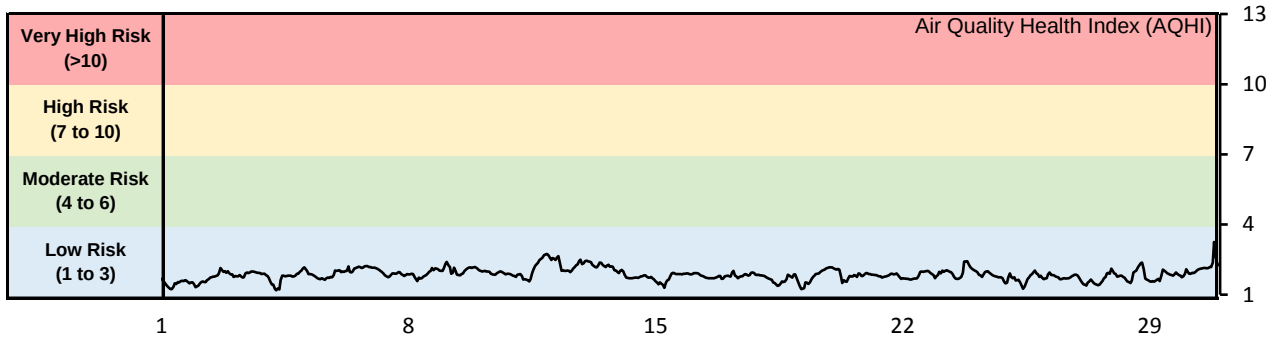
Monthly Update

- Achieved >90% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily internal zeroes and spans (8% for H₂S and SO₂)

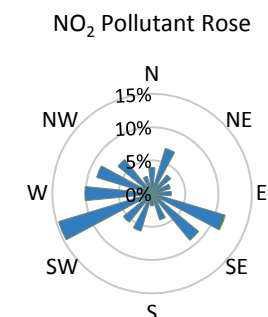
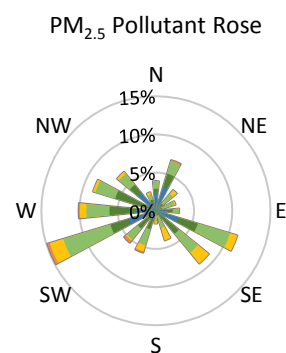
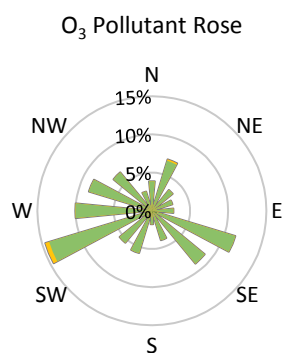
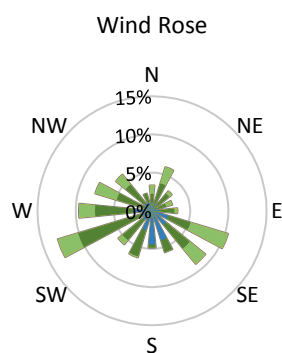
WYAMZ Meadow Lake Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.2	96%	0.4	Nov-05	-	-	1.6	Nov-18 14:00	-	-
NO ₂	ppb	1.1	96%	2.1	Nov-19	106	0	5.0	Nov-19 06:00	159	0
NO _x	ppb	1.3	96%	2.5	Nov-18	-	-	5.3	Nov-19 06:00	-	-
O ₃	ppb	29.3	96%	35.8	Nov-06	-	-	43.2	Nov-23 20:00	82	0
PM _{2.5}	µg/m ³	5.1	100%	14.8	Nov-12	28	0	29.3	Nov-12 06:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



WYAMZ Meadow Lake Station - November 2017 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class						
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$	
O ₃	ppb	$0 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 40$	$40 \leq C < 60$	$60 \leq C < 82$	$C \geq 82$	
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$	
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$	

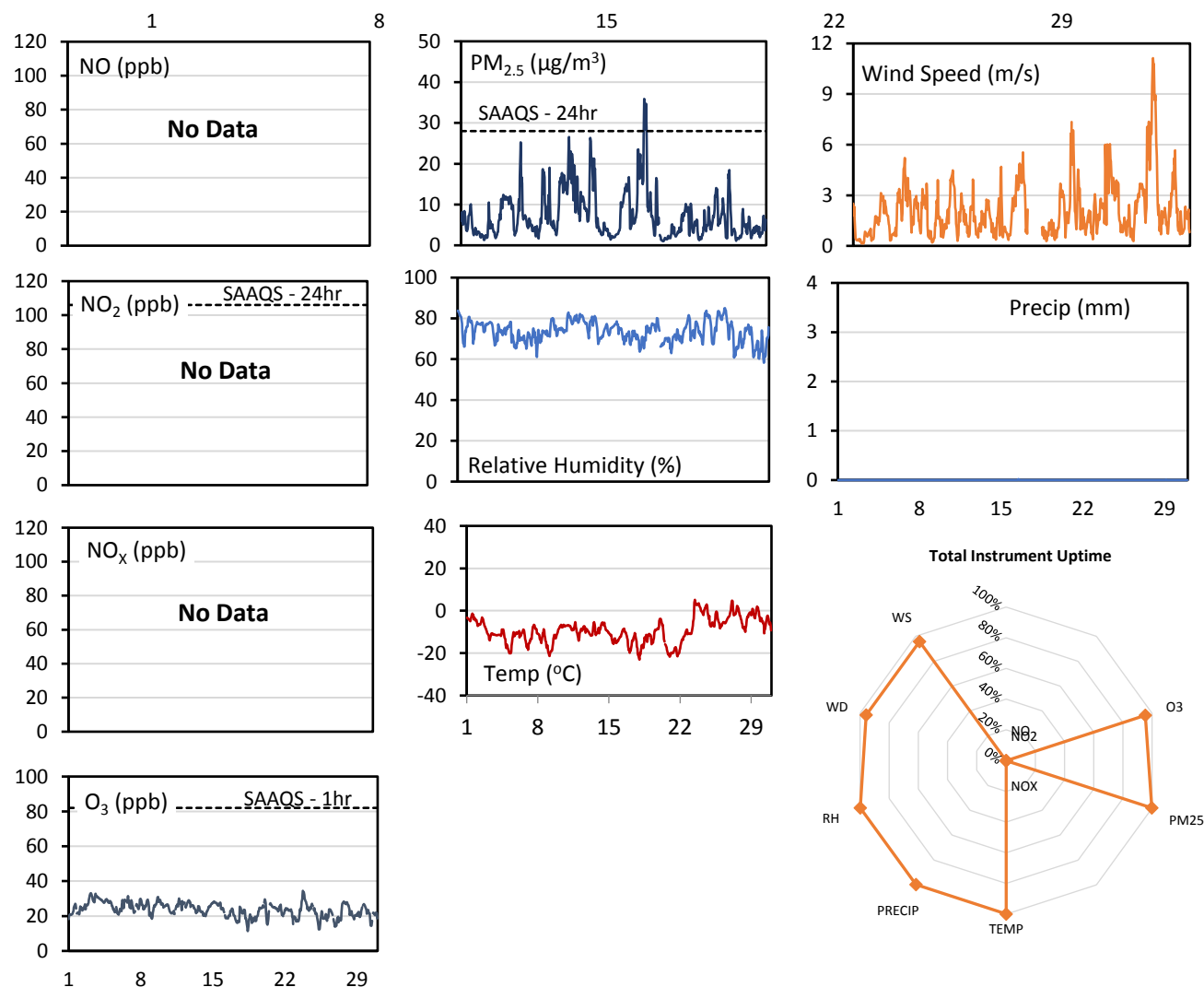
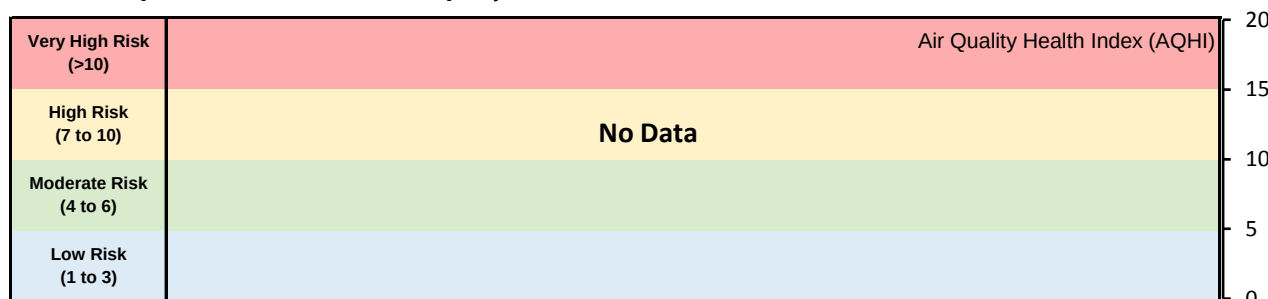
Monthly Update

- Achieved > 90% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily internal zeroes and spans

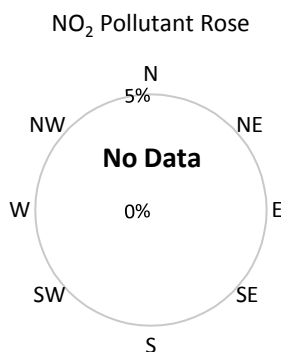
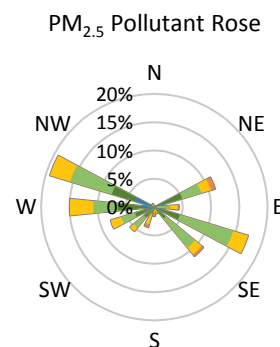
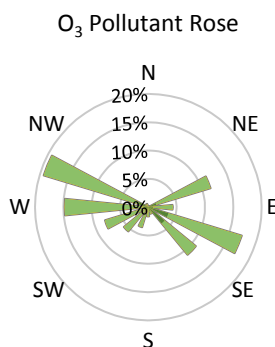
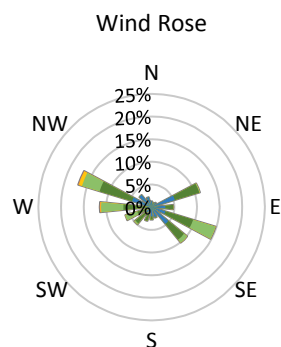
WYAMZ Unity Station - November 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	N/A	0%	N/A	N/A	-	-	N/A	N/A	-	-
NO ₂	ppb	N/A	0%	N/A	N/A	106	0	N/A	N/A	159	0
NO _x	ppb	N/A	0%	N/A	N/A	-	-	N/A	N/A	-	-
O ₃	ppb	23.7	95%	30.9	Nov-03	-	-	34.5	Nov-23 18:00	82	0
PM _{2.5}	µg/m ³	7.4	100%	17.4	Nov-11	28	0	35.9	Nov-19 00:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



WYAMZ Unity Station - November 2017 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$
O ₃	ppb	$0 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 40$	$40 \leq C < 60$	$60 \leq C < 82$	$C \geq 82$
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$

Monthly Update

- Achieved >90% of scheduled uptime for O₃ and PM_{2.5}
- Downtime of 4% results from routine daily internal zeroes and spans
- NO_x analyzer removed for repairs