



# 2018 Air Quality Monitoring Results

# Supplementary Data

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This report provides detailed, site-specific air quality information, and is provided as a companion document to the Department of Environment and Local Government's "Air Quality Monitoring Results 2018" report, which is available electronically via the DELG website:

**[www.gnb.ca/environment](http://www.gnb.ca/environment)**

**Feedback**

We are interested in your feedback on this report. All suggestions will be considered, and if possible, incorporated in future reports. You may contact the Air and Water Sciences Branch, Department of Environment and Local Government (DELG) at [elg/egl-info@gnb.ca](mailto:elg/egl-info@gnb.ca) with any comments.

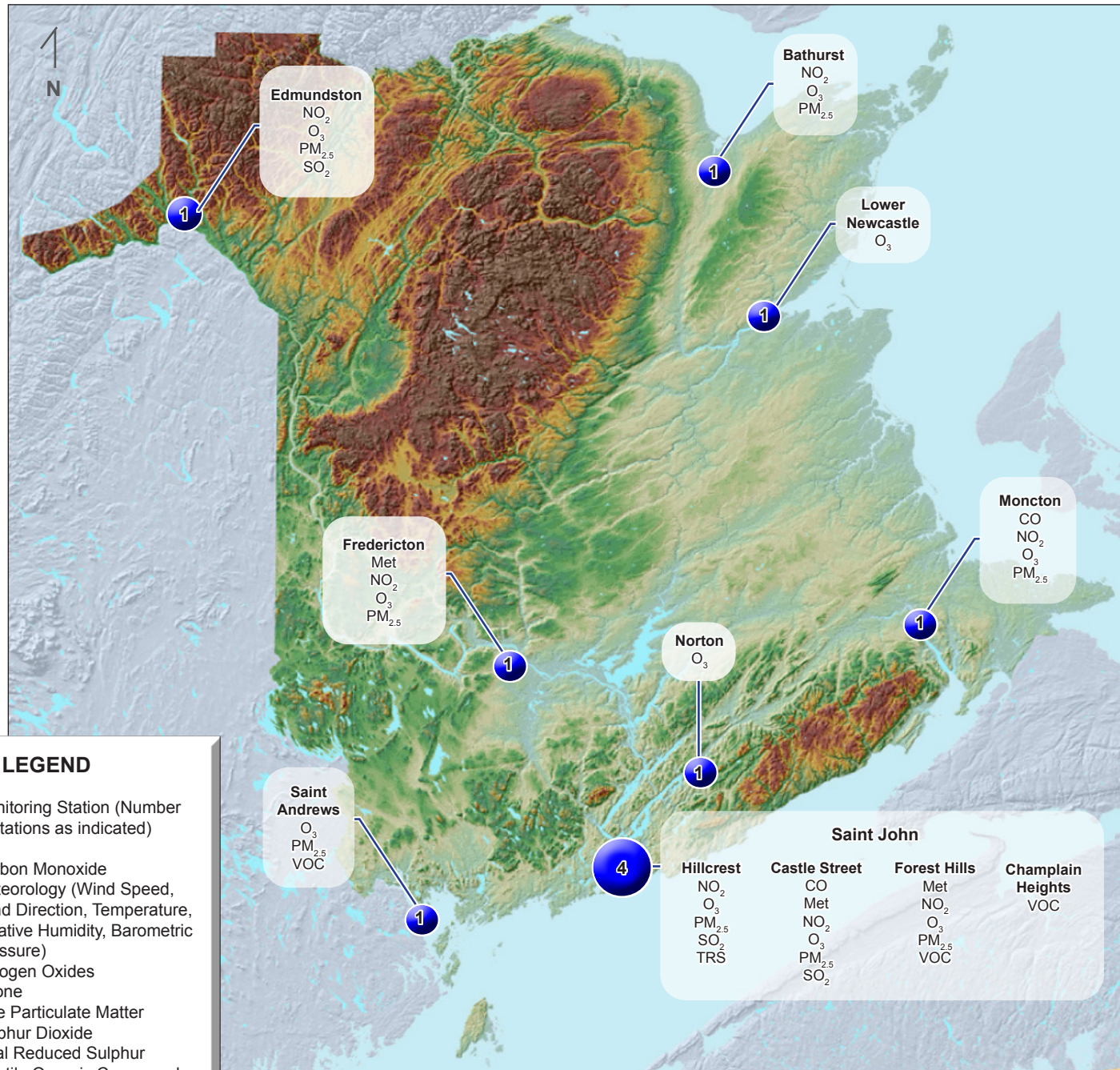
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## List of Acronyms and Abbreviations

CO	Carbon Monoxide
eq/ha/yr	Equivalents (molar equivalent acidity) per hectare per year
PM <sub>2.5</sub>	Fine Particulate Matter (less than 2.5 microns)
H <sub>2</sub> S	Hydrogen Sulphide
kg/ha/yr	Kilograms per hectare per year
Met	Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric pressure)
µg/m <sup>3</sup>	Micrograms per cubic meter
meq/L	Milliequivalents (molar equivalent acidity) per litre
mg/L	Milligrams per litre
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
O <sub>3</sub>	Ozone
ppb	Parts per billion
ppm	Parts per million
SO <sub>2</sub>	Sulphur Dioxide
TRS	Total Reduced Sulphur
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound

**PART I:**  
**THE PROVINCIAL AIR QUALITY MONITORING NETWORK:**  
**STATIONS OPERATED BY THE PROVINCE**



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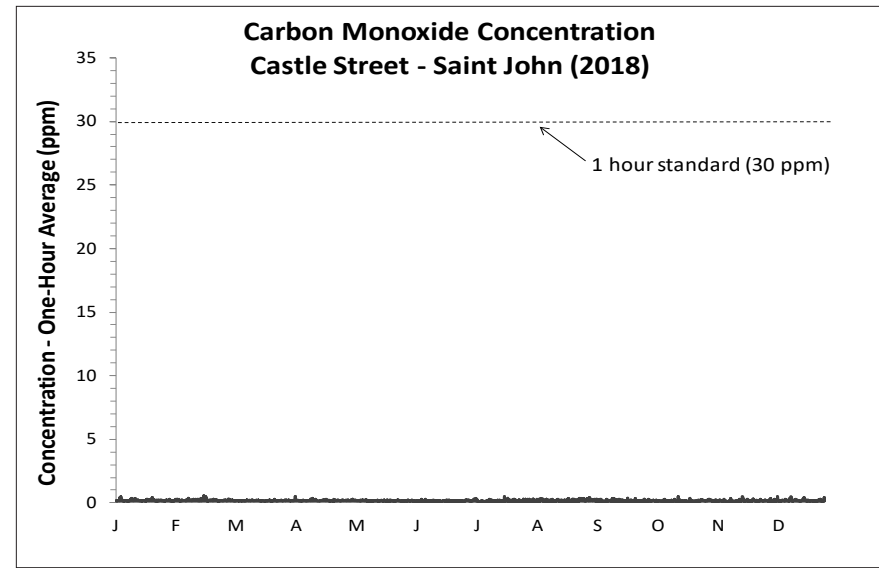
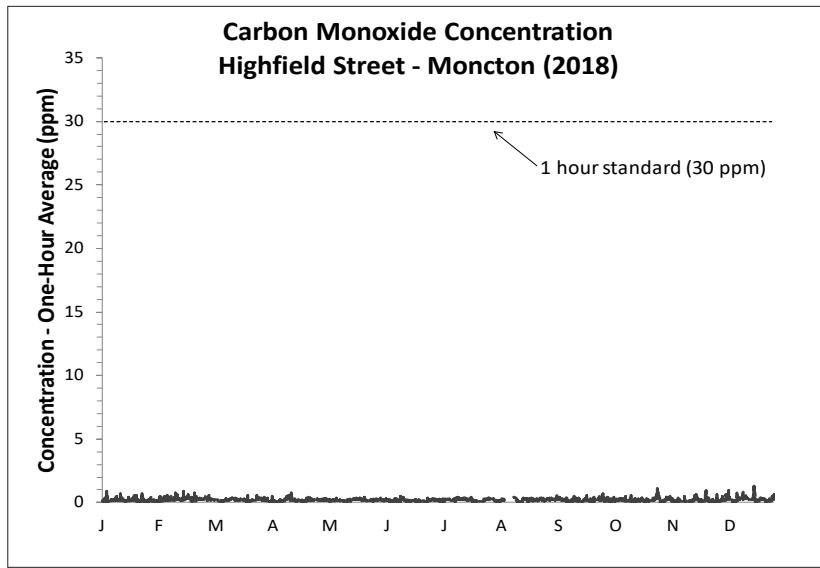
Monitoring Station (Number of stations as indicated)

CO Carbon Monoxide  
 Met Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric Pressure)

NO<sub>x</sub> Nitrogen Oxides  
 O<sub>3</sub> Ozone  
 PM<sub>2.5</sub> Fine Particulate Matter  
 SO<sub>2</sub> Sulphur Dioxide  
 TRS Total Reduced Sulphur  
 VOC Volatile Organic Compounds

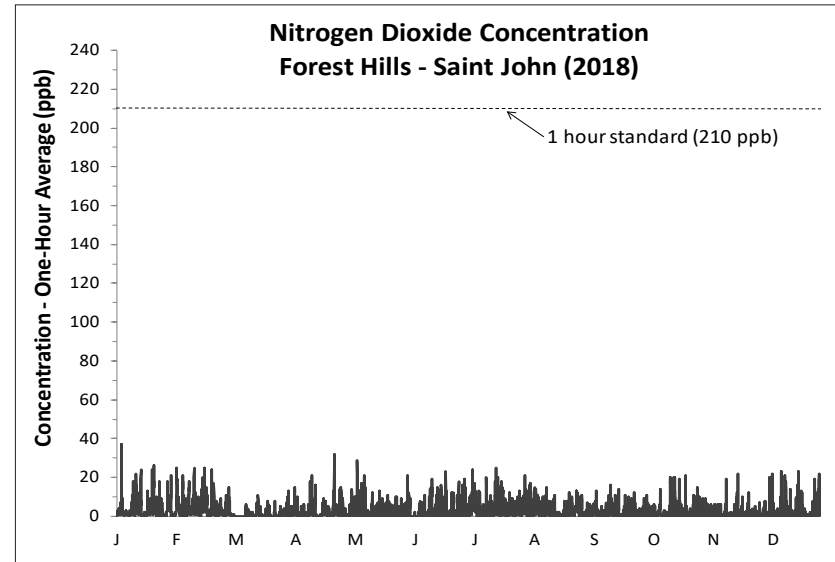
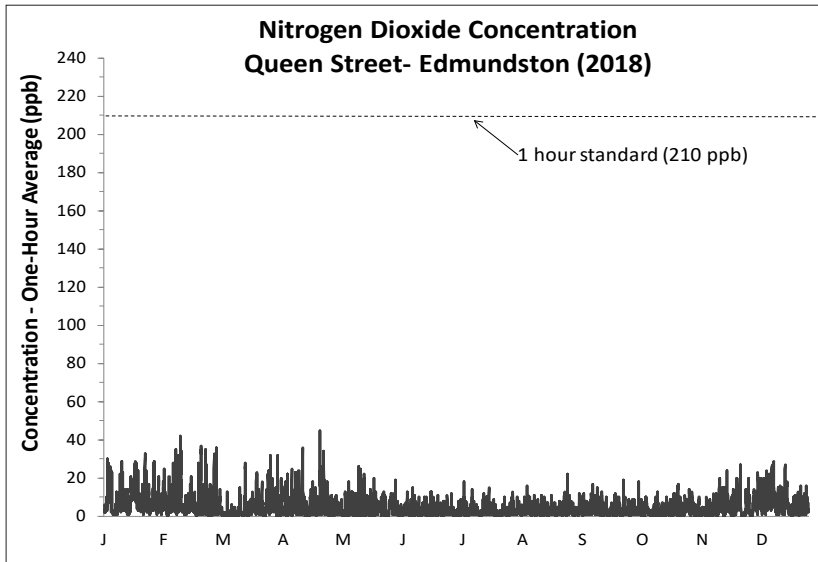
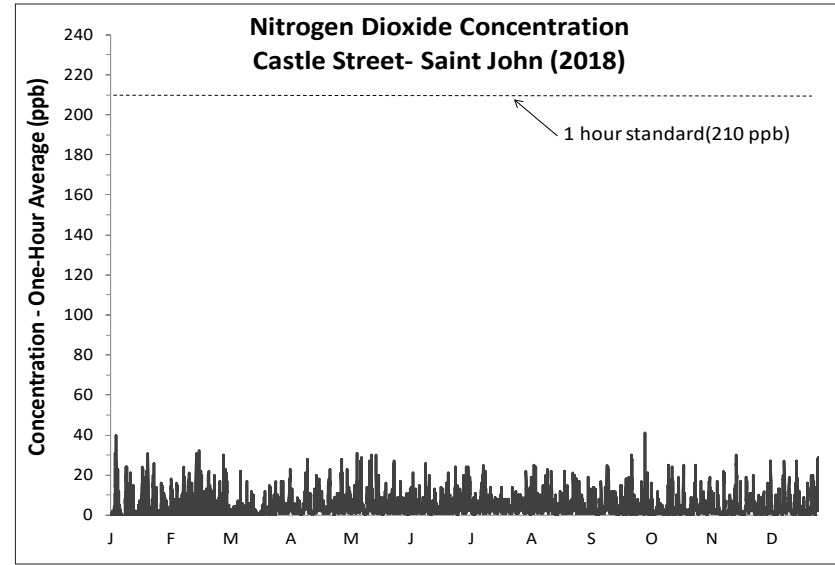
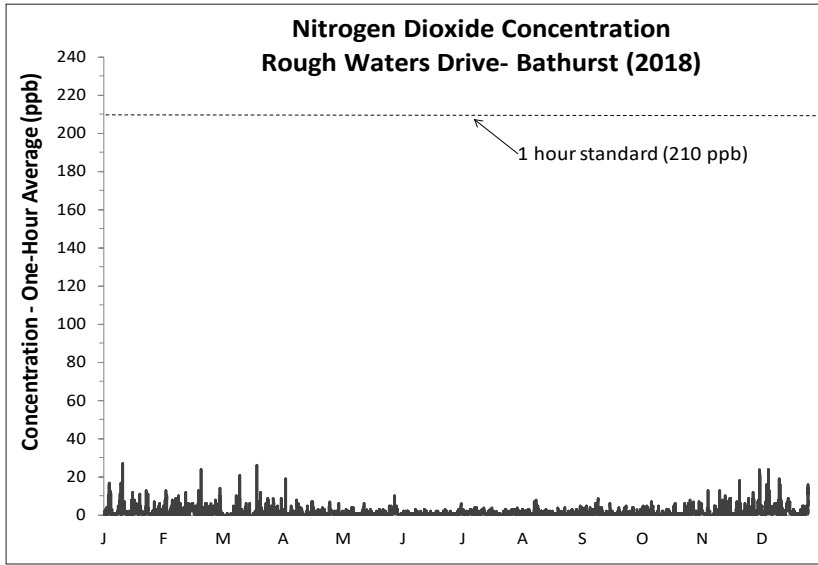
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Carbon Monoxide



# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

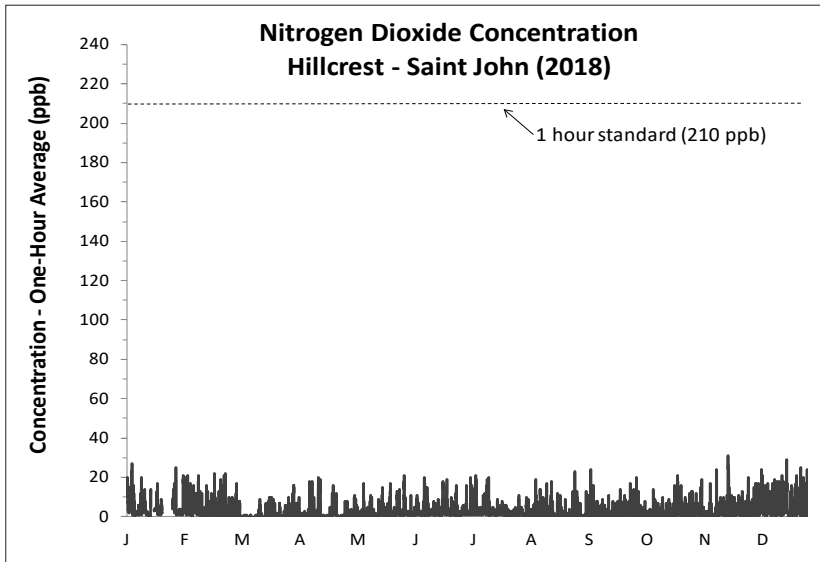
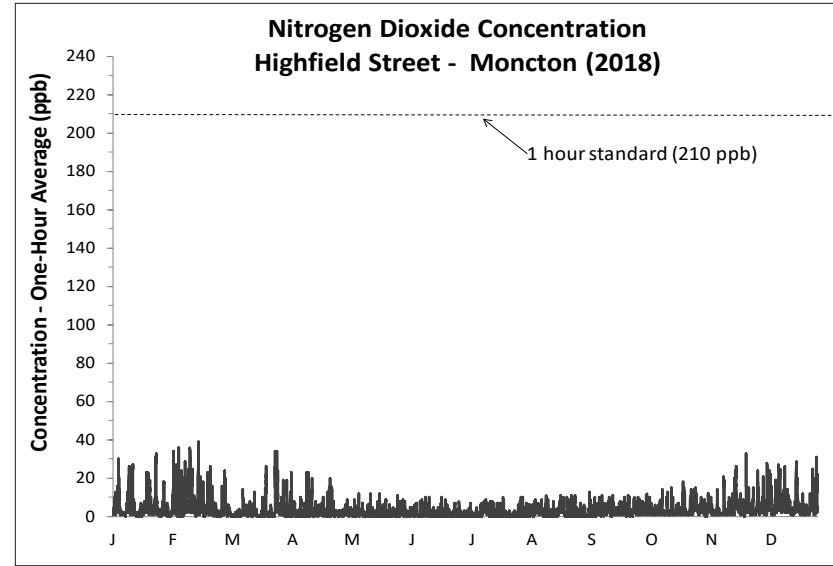
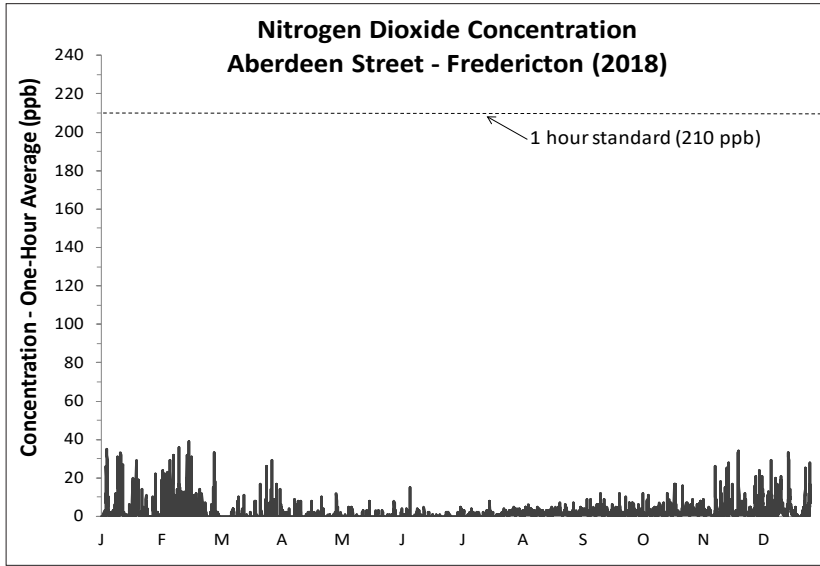
## Nitrogen Dioxide





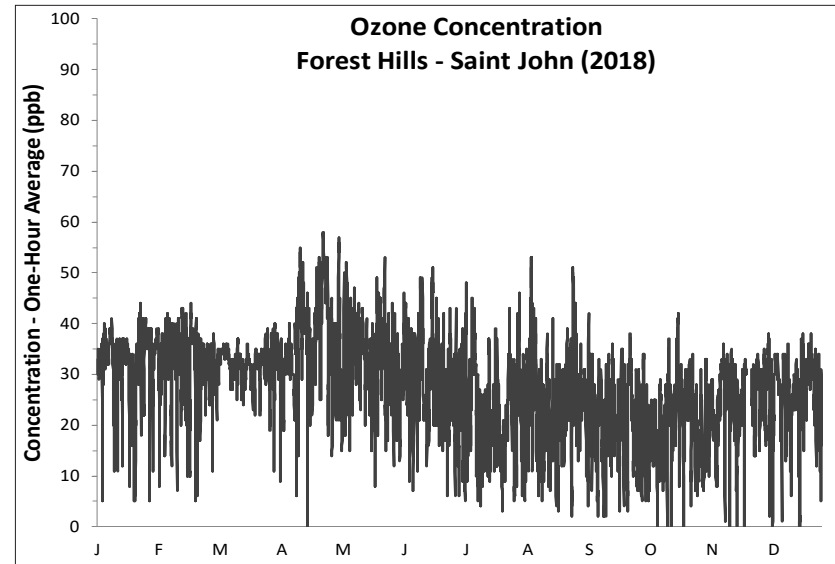
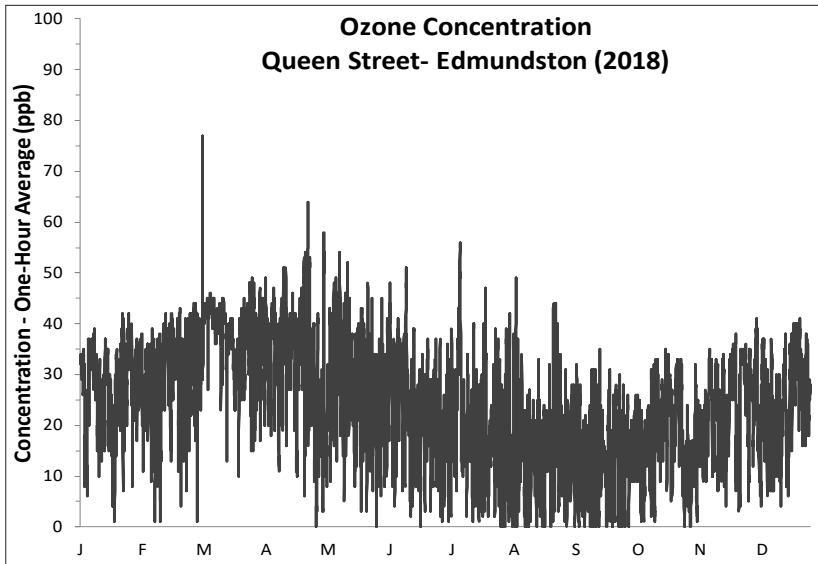
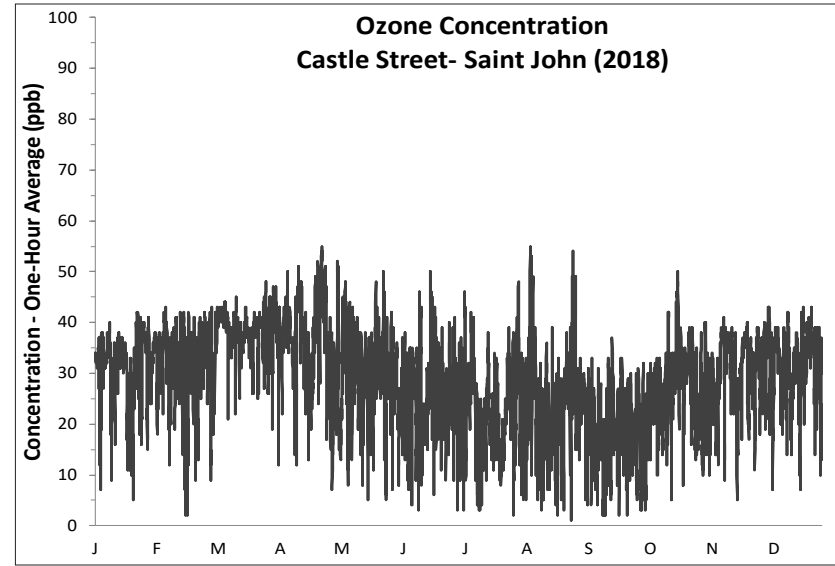
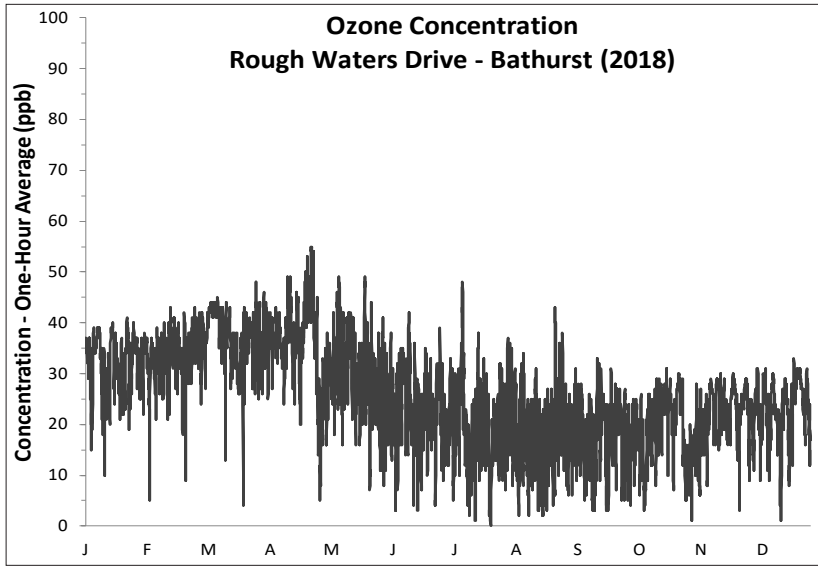
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Nitrogen Dioxide



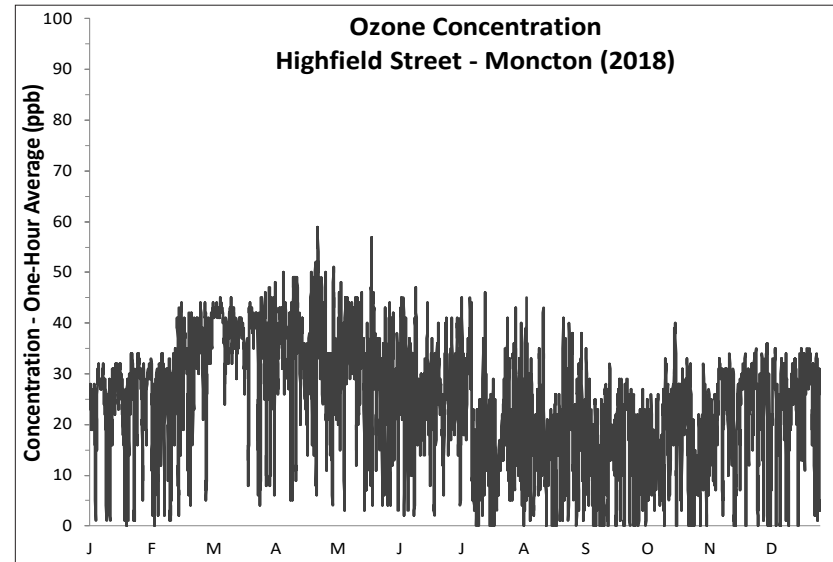
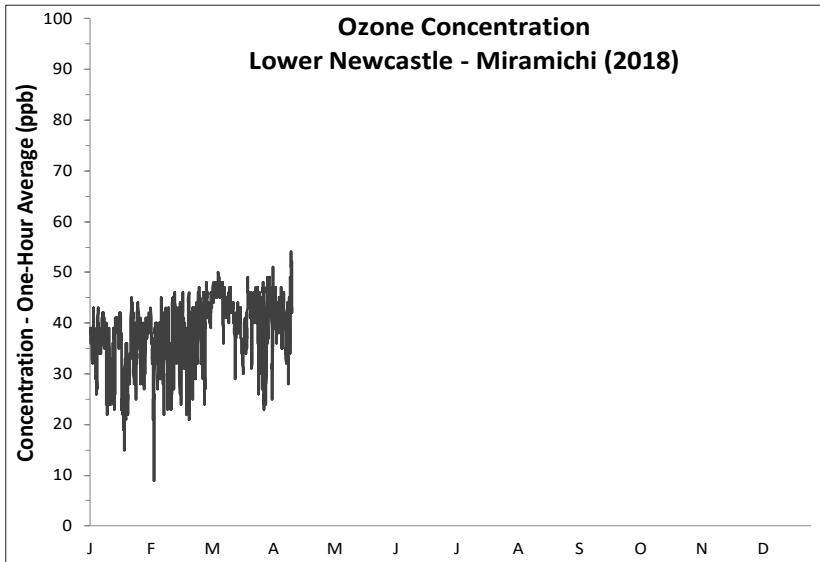
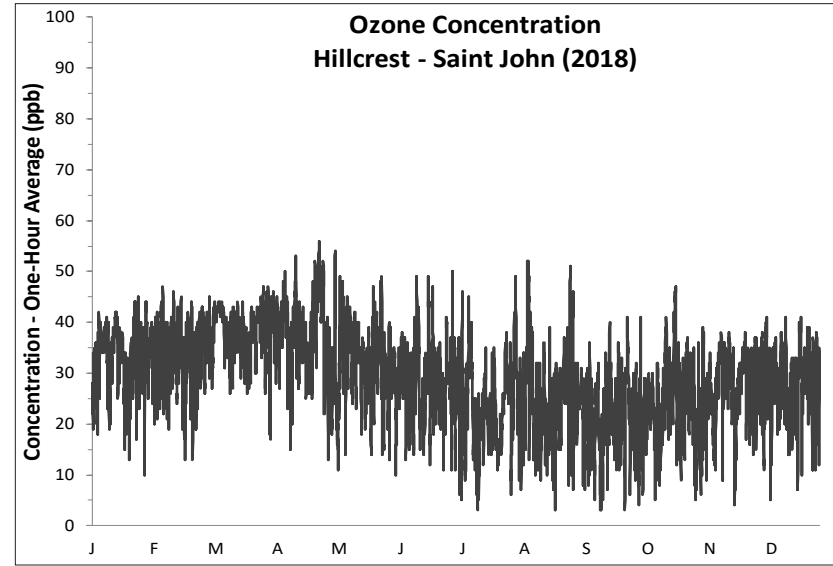
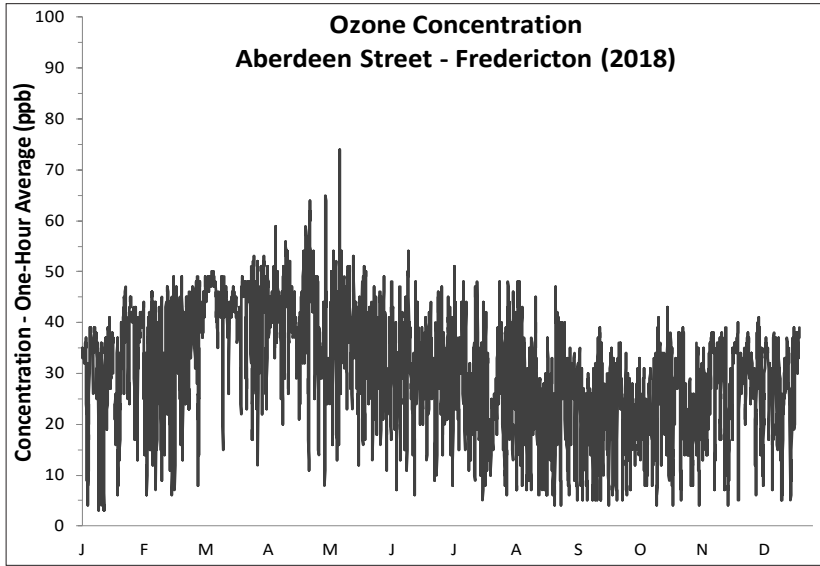
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Ozone



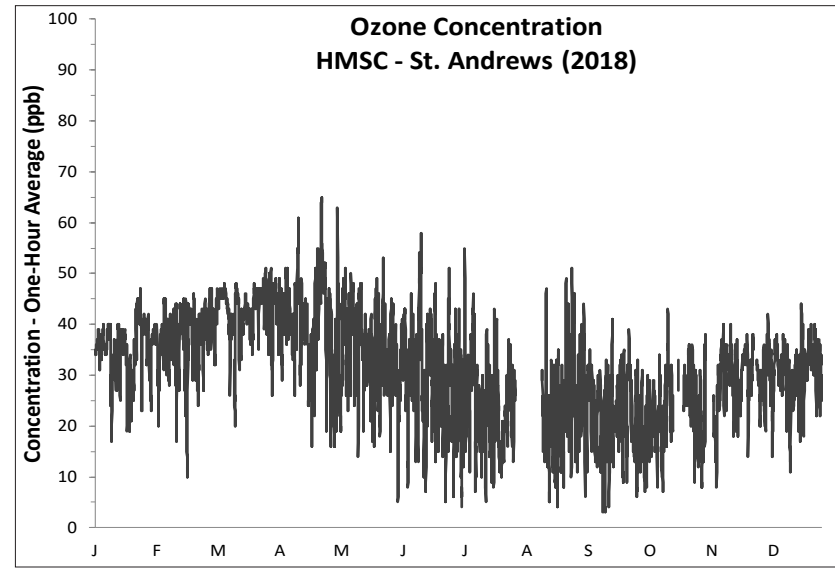
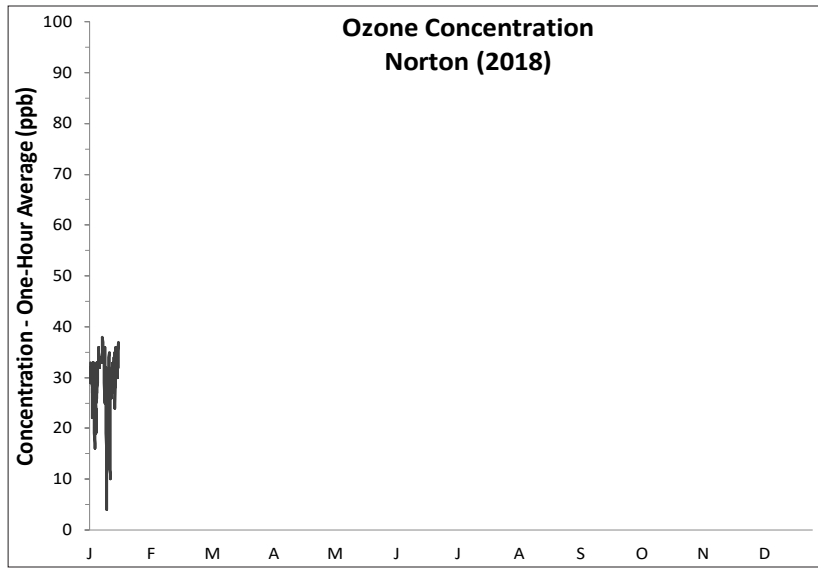
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## Ozone



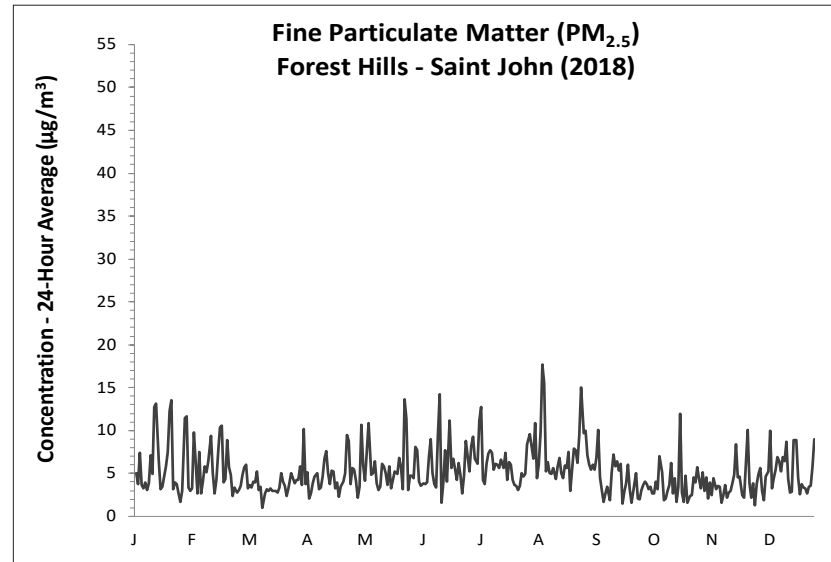
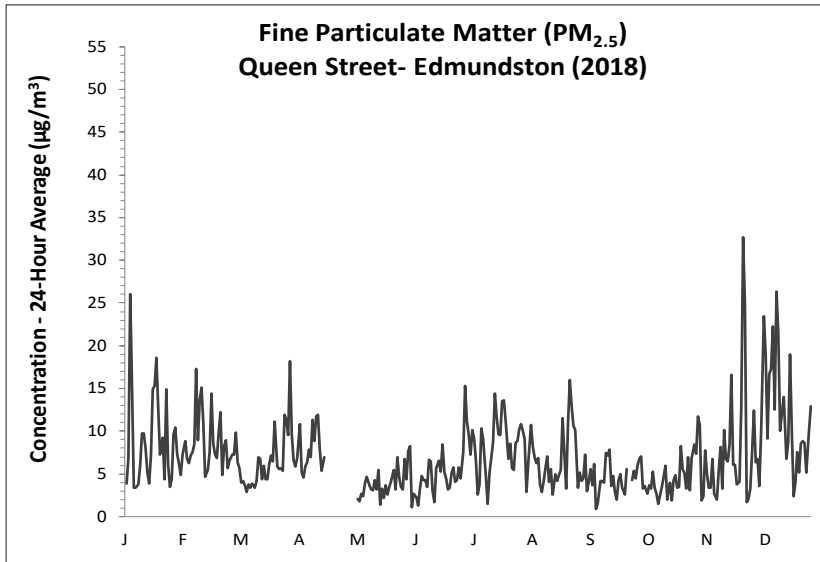
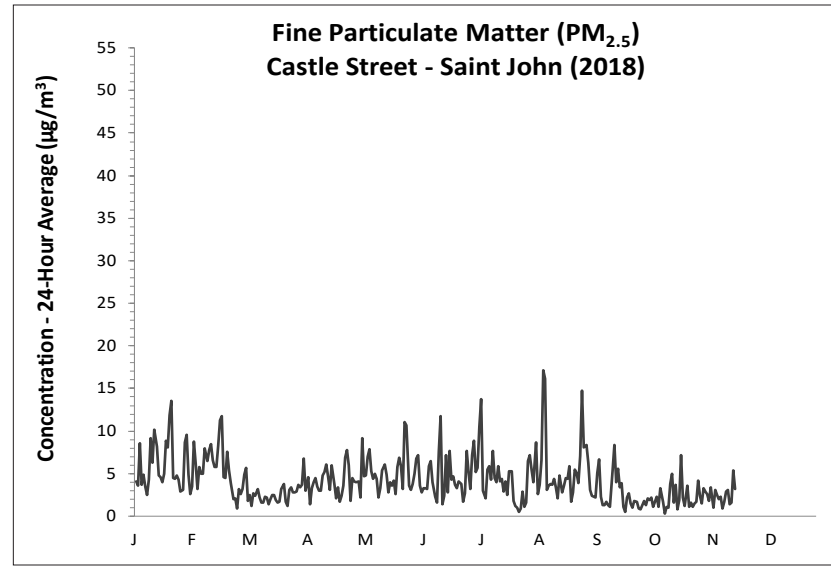
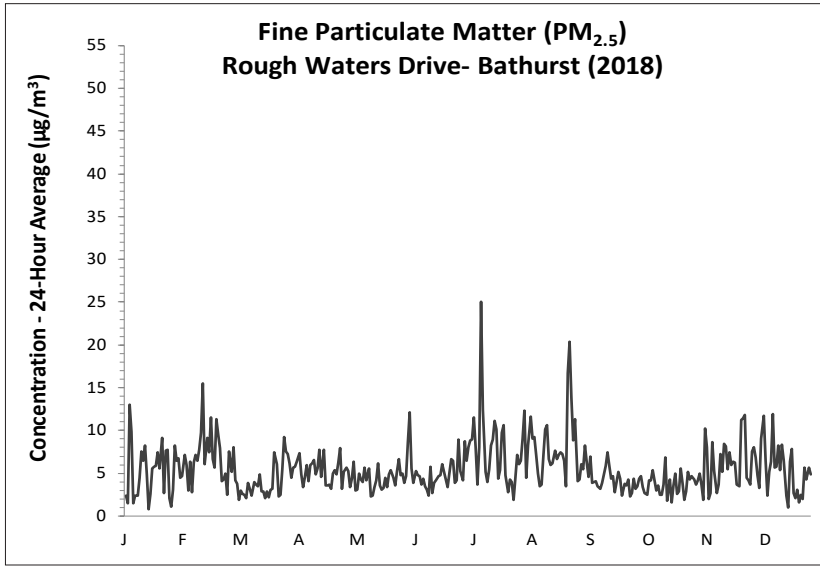
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## Ozone



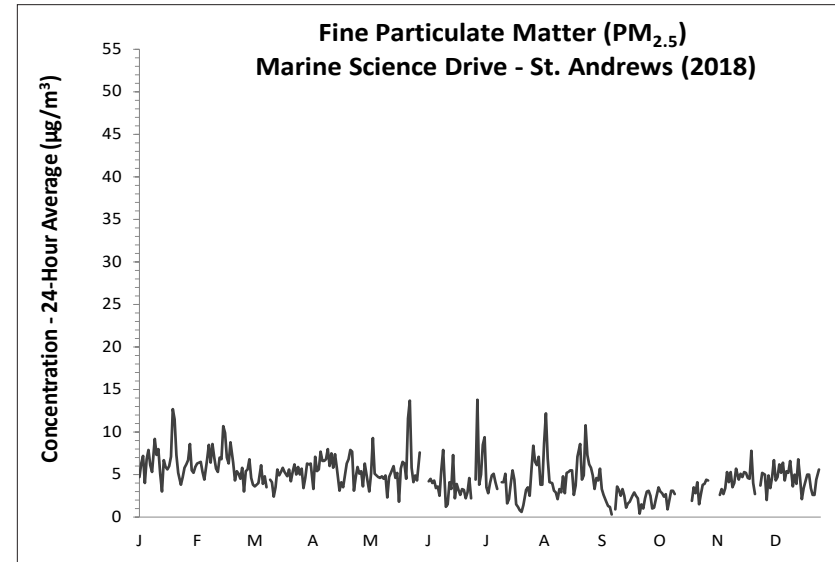
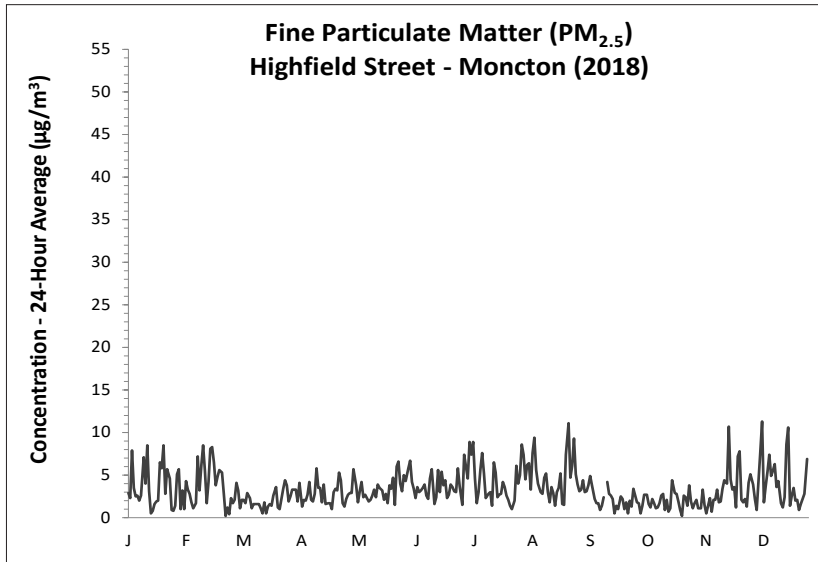
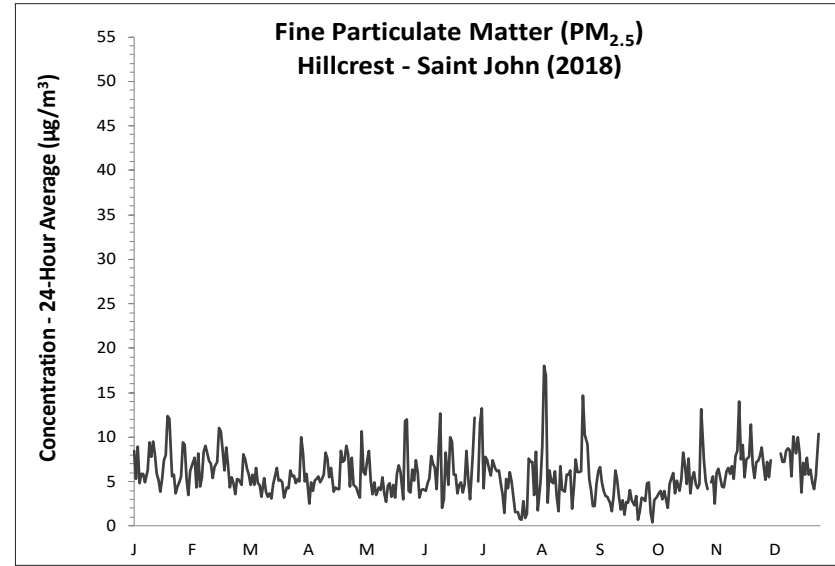
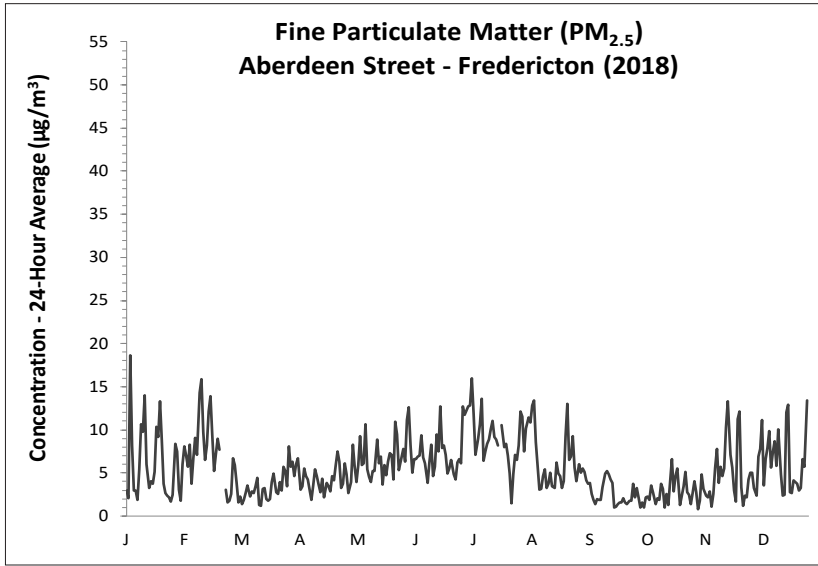
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Fine Particulate Matter



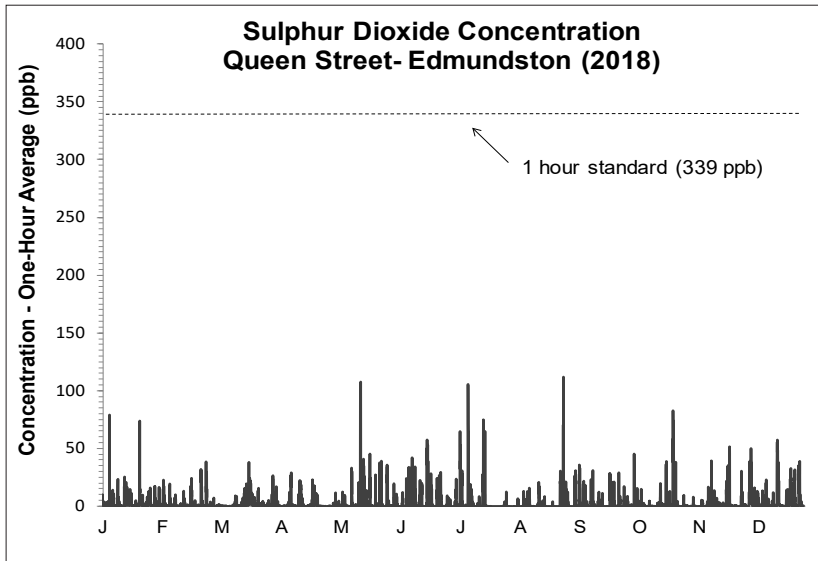
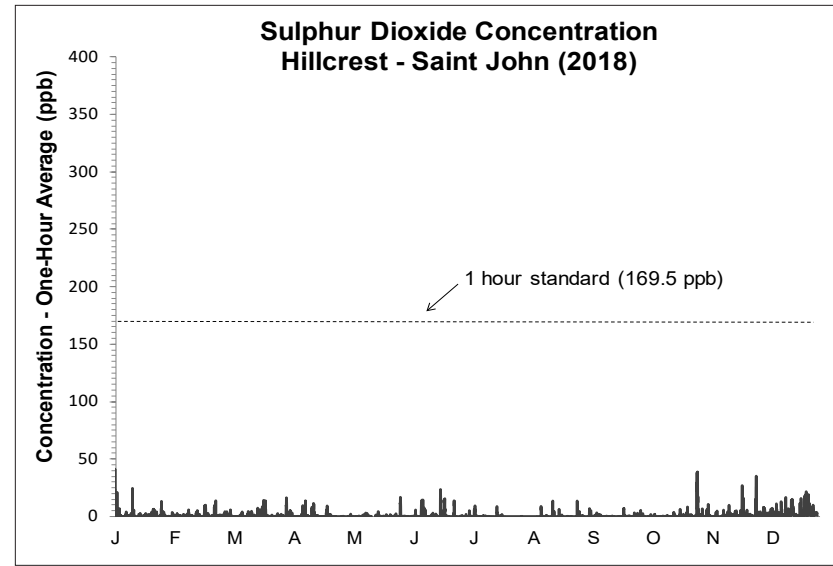
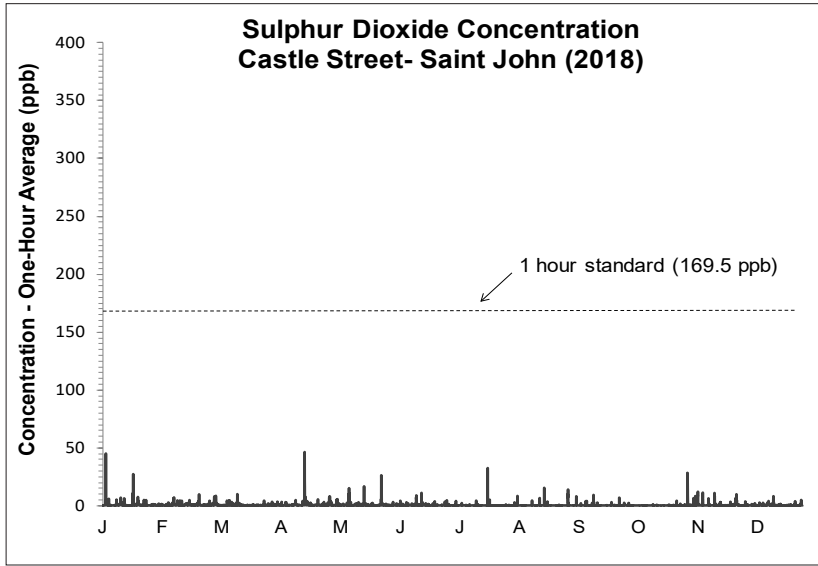
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## Fine Particulate Matter



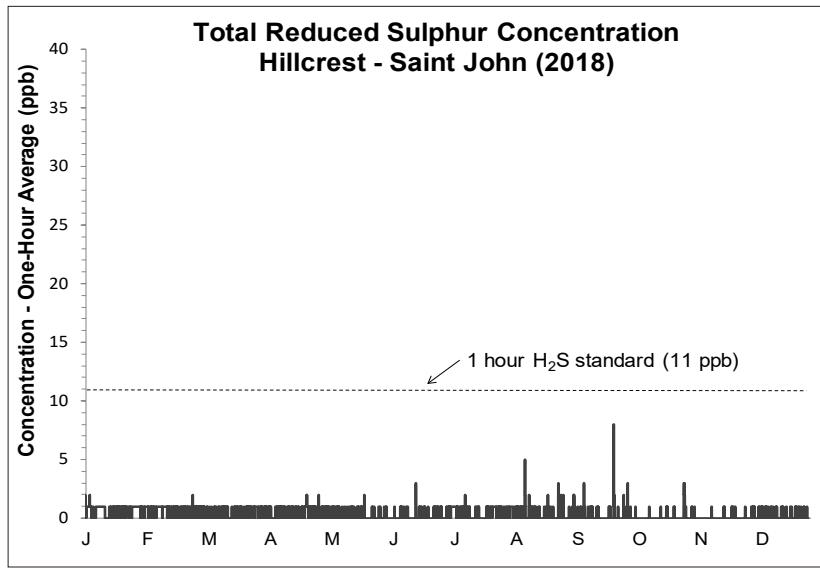
# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

## Sulphur Dioxide



# PART I: STATIONS OPERATED BY THE PROVINCE - Continuous Air Quality Monitoring Results

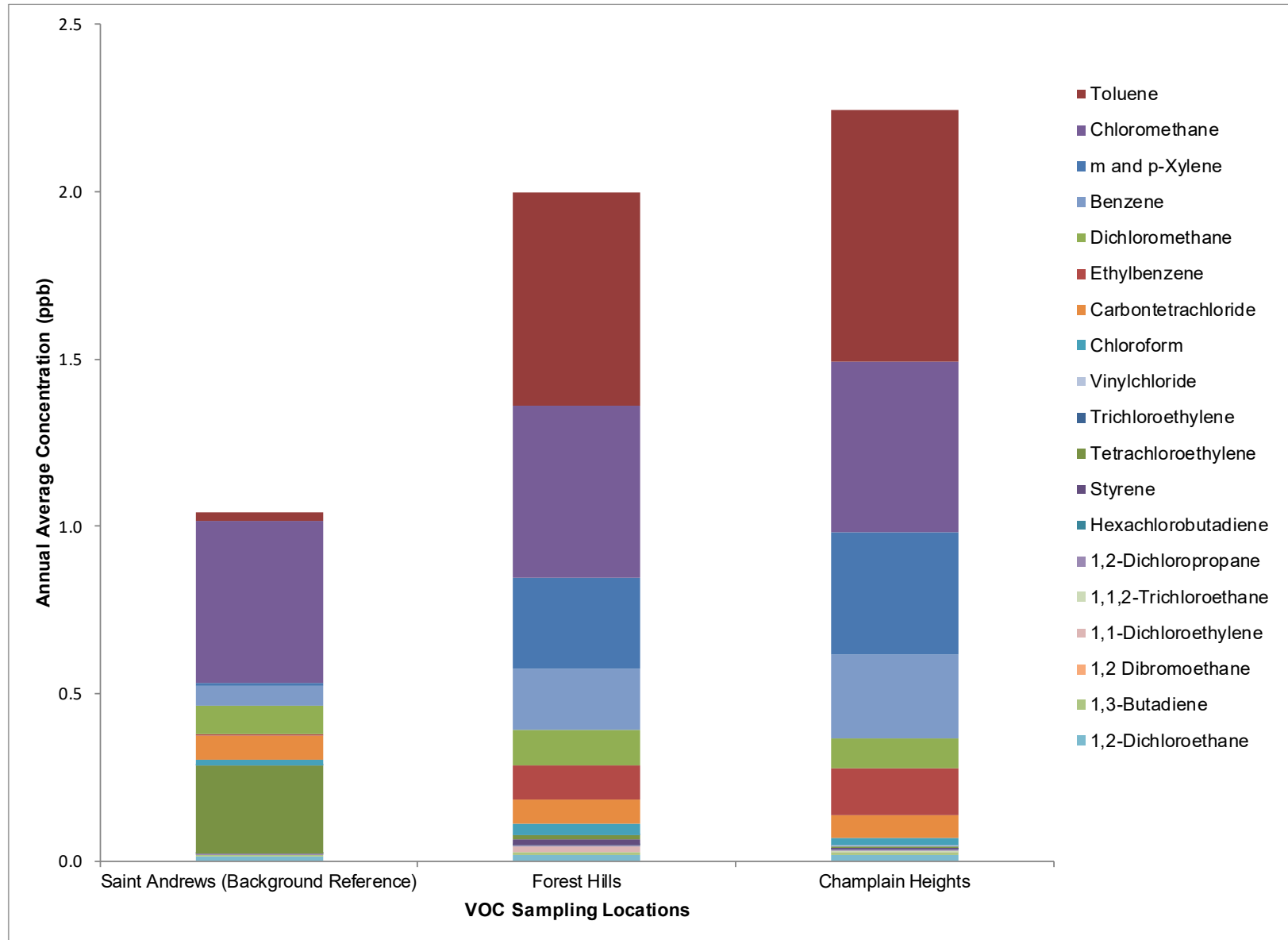
## Total Reduced Sulphur



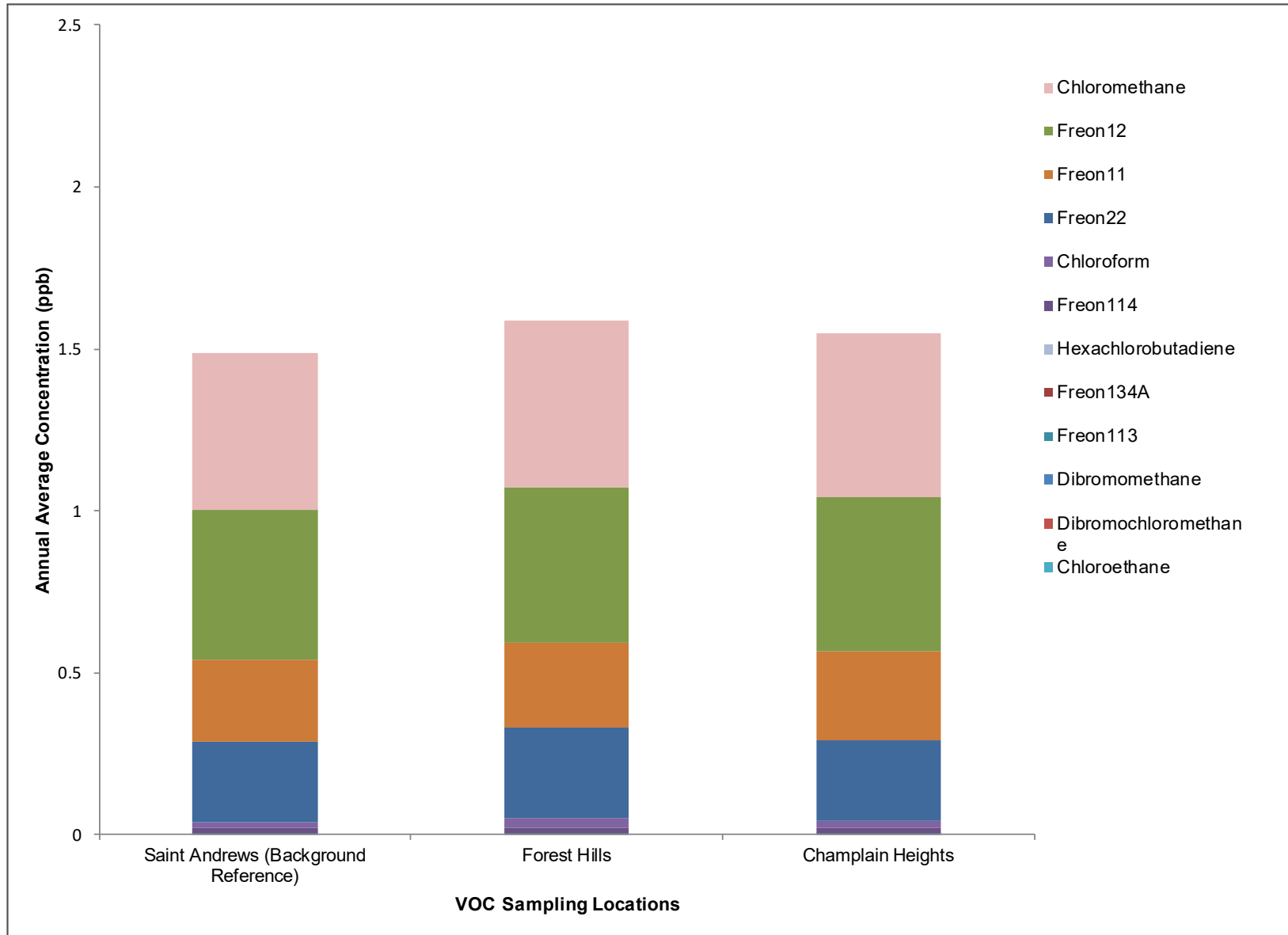


**PART I: STATIONS OPERATED BY THE PROVINCE - Volatile Organic Compounds, Saint John Region**

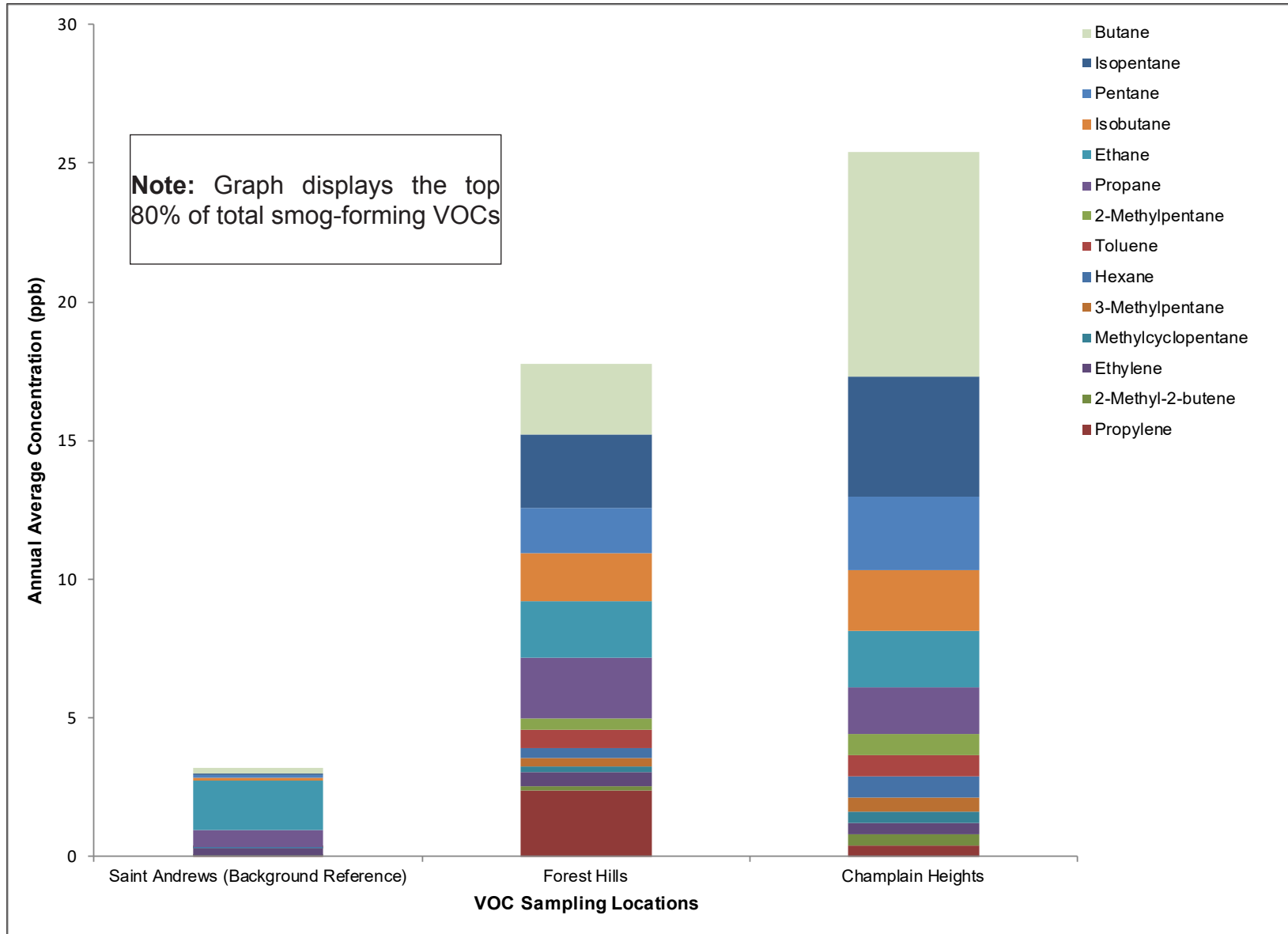
**Air Toxics - 2018 Annual Average Concentration Range Chart**



**PART I: STATIONS OPERATED BY THE PROVINCE - Volatile Organic Compounds, Saint John Region**  
**Ozone Depleting Substances - 2018 Annual Average Concentration Range Chart**



**PART I: STATIONS OPERATED BY THE PROVINCE - Volatile Organic Compounds, Saint John Region**  
**Smog-Forming VOCs - 2018 Annual Average Concentration Range Chart**

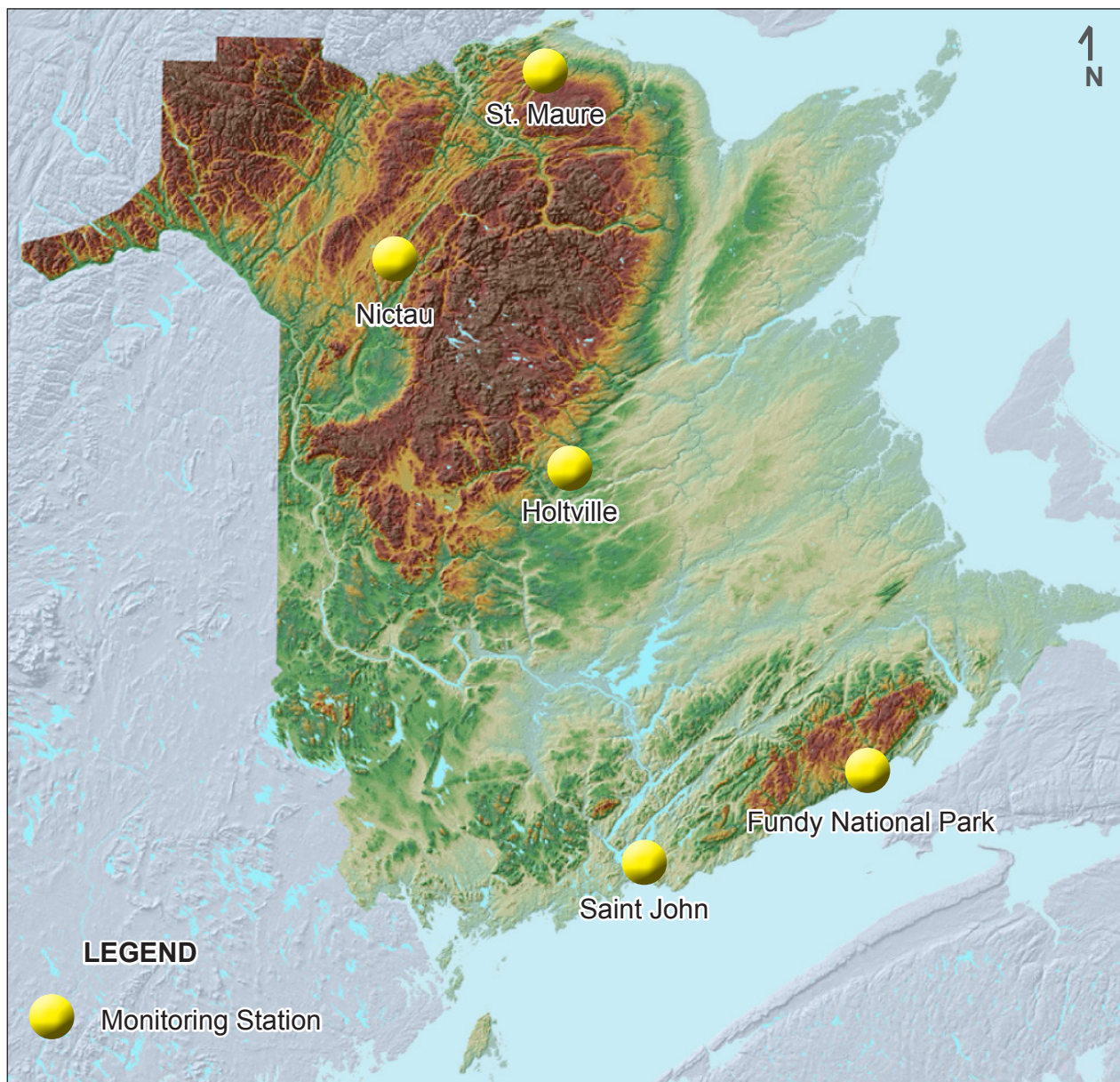


**PART I: STATIONS OPERATED BY THE PROVINCE - Volatile Organic Compounds, Saint John Region**  
**Aldehydes - 2018 Annual Average Concentrations Table**

<b>Parameter</b>	<b>Forest Hills, Annual Mean (ppb)</b>
2-Pentanone/Isovaleraldehyde	0.0010
Acetaldehyde	0.2476
Acetone	0.4493
Acrolein	0.0011
Benzaldehyde	0.0225
Butanal	0.0118
Crotonaldehyde	0.0112
Formaldehyde	1.4670
Hexanal	0.0133
Methyl Ethyl Ketone	0.0468
Methyl Isobutyl Ketone	0.0052
m-Tolualdehyde	0.0015
Propionaldehyde	0.0352
p-Tolualdehyde	0.0389
Valeraldehyde	0.0034

**PART II:**  
**ACID PRECIPITATION MONITORING NETWORK**

# 2018 Acid Precipitation Network Map



## PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends

### Annual Sulphate and Nitrate Wet Deposition (eq/ha/yr) at New Brunswick Monitoring Sites, 2009-2018

Site	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
St. Maure	176.43	177.00	168.80	120.53	121.30	140.76	86.68	95.41	85.79*	108.07
Robertville	200.84	184.26	173.56	118.33	124.20	168.35	85.95	--	--	--
Nictau	154.56	121.21	150.02	96.50	108.13	119.96	80.73	71.17	81.29	59.98**
Trout Brook	163.08	135.17	134.02	101.20	100.78	116.05	65.07	--	--	--
Holtville	210.01	122.63	184.33	98.19	127.23	126.63	78.33	73.59	99.39	117.31
Harcourt	199.91	159.91	139.40	91.68	99.92	120.67	74.02	--	--	--
South Oromocto Lake	230.26	163.31	164.09	128.81	154.73	150.02	107.51	--	--	--
Pennfield	349.97	290.78	--	228.24	265.32	223.61	179.91	--	--	--
Lakewood Heights	310.16	194.27	--	169.58	193.66	164.38	144.65	173.21	134.98	203.97
Fundy	322.81	226.37	263.55	208.08	249.13	200.13	143.40	126.30	122.62	206.17

\*41 weeks of data

\*\*42 weeks of data

-- insufficient data

## PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends

**Annual Sulphate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2009-2018**

Site	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
St. Maure	7.67	7.80	7.19	5.17	5.06	5.92	3.60	3.97	3.58*	4.56
Robertville	8.76	8.06	7.38	4.92	5.17	7.13	3.51	--	--	--
Nictau	6.44	5.01	6.07	3.77	4.25	4.65	3.02	2.59	3.07	2.26**
Trout Brook	6.91	5.69	5.49	4.09	4.01	4.71	2.46	--	--	--
Holtville	8.93	4.99	7.52	3.88	5.02	5.00	2.92	2.79	3.86	4.43
Harcourt	8.52	6.76	5.69	3.67	3.92	4.82	2.77	--	--	--
South Oromocto Lake	9.80	6.77	6.73	5.16	6.24	5.96	4.00	--	--	--
Pennfield	15.20	12.49	---	9.65	11.28	9.31	7.30	--	--	--
Lakewood Heights	13.48	8.29	---	7.20	8.20	8.12	5.98	7.28	5.63	8.68
Fundy	13.91	9.65	11.20	8.86	10.64	8.21	5.82	5.14	5.09	8.52

\*41 weeks of data

\*\*42 weeks of data

-- insufficient data



**PART II: ACID PRECIPITATION MONITORING NETWORK - Sulphate and Nitrate Deposition Trends**

**Annual Nitrate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2009-2018**

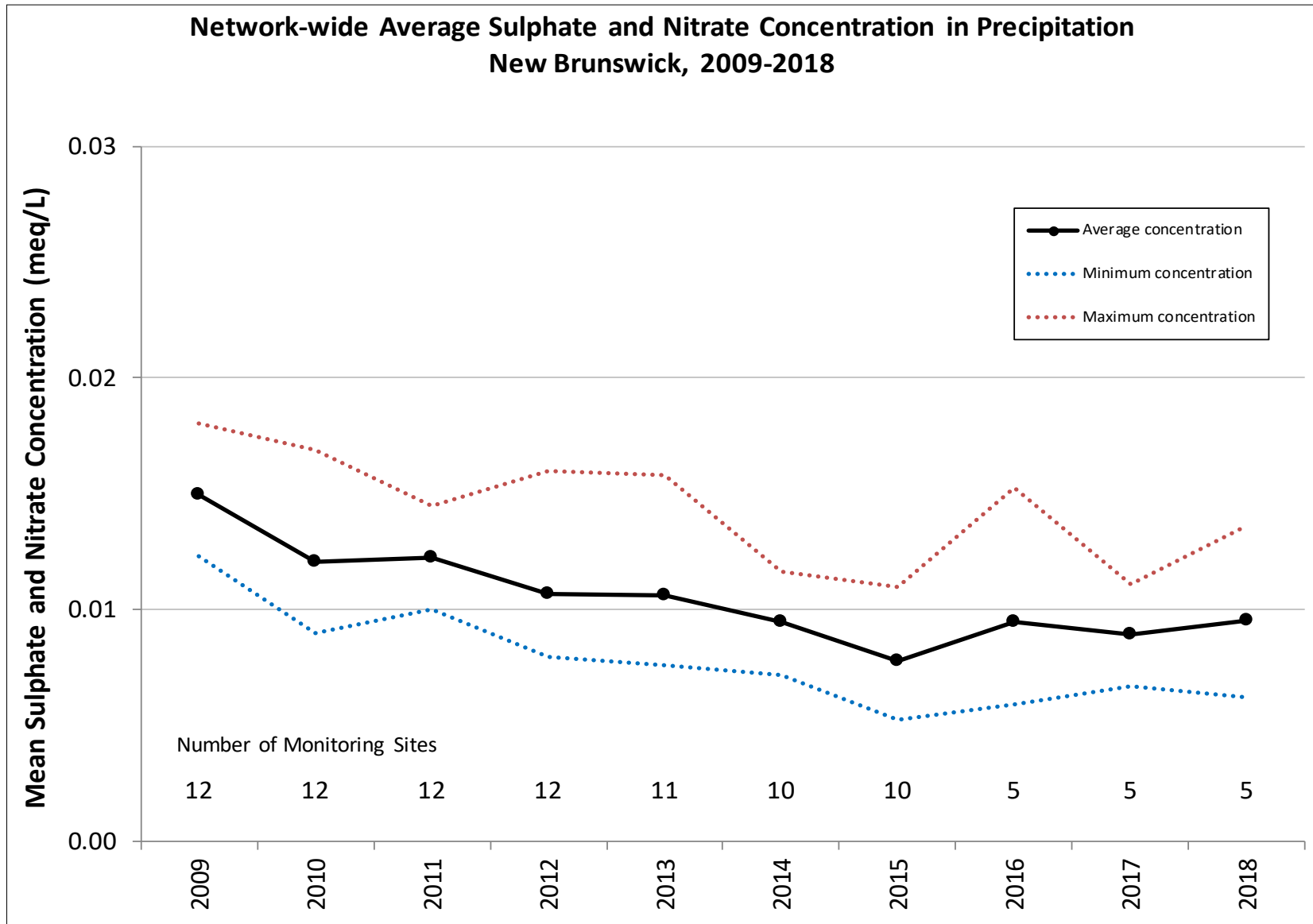
Site	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
St. Maure	1.03	0.90	1.18	0.80	0.99	1.09	0.72	0.80	0.70*	0.81
Robertville	1.15	1.02	1.24	0.99	1.03	1.17	0.79	--	--	--
Nictau	1.27	1.05	1.46	1.12	1.23	1.44	1.11	1.07	1.08	0.80**
Trout Brook	1.19	1.04	1.23	1.00	1.07	1.11	0.86	--	--	--
Holtville	1.50	1.16	1.72	1.08	1.41	1.40	1.08	0.97	1.19	1.56
Harcourt	1.40	1.19	1.30	0.95	1.14	1.26	1.01	--	--	--
South Oromocto Lake	1.63	1.39	1.49	1.33	1.54	1.61	1.51	--	--	--
Pennfield	2.08	1.90	---	1.70	1.89	1.85	1.74	--	--	--
Lakewood Heights	1.84	1.35	---	1.22	1.42	1.57	1.25	1.34	1.10	1.44
Fundy	2.06	1.58	1.89	1.46	1.71	1.81	1.39	1.20	1.03	1.79

\*41 weeks of data

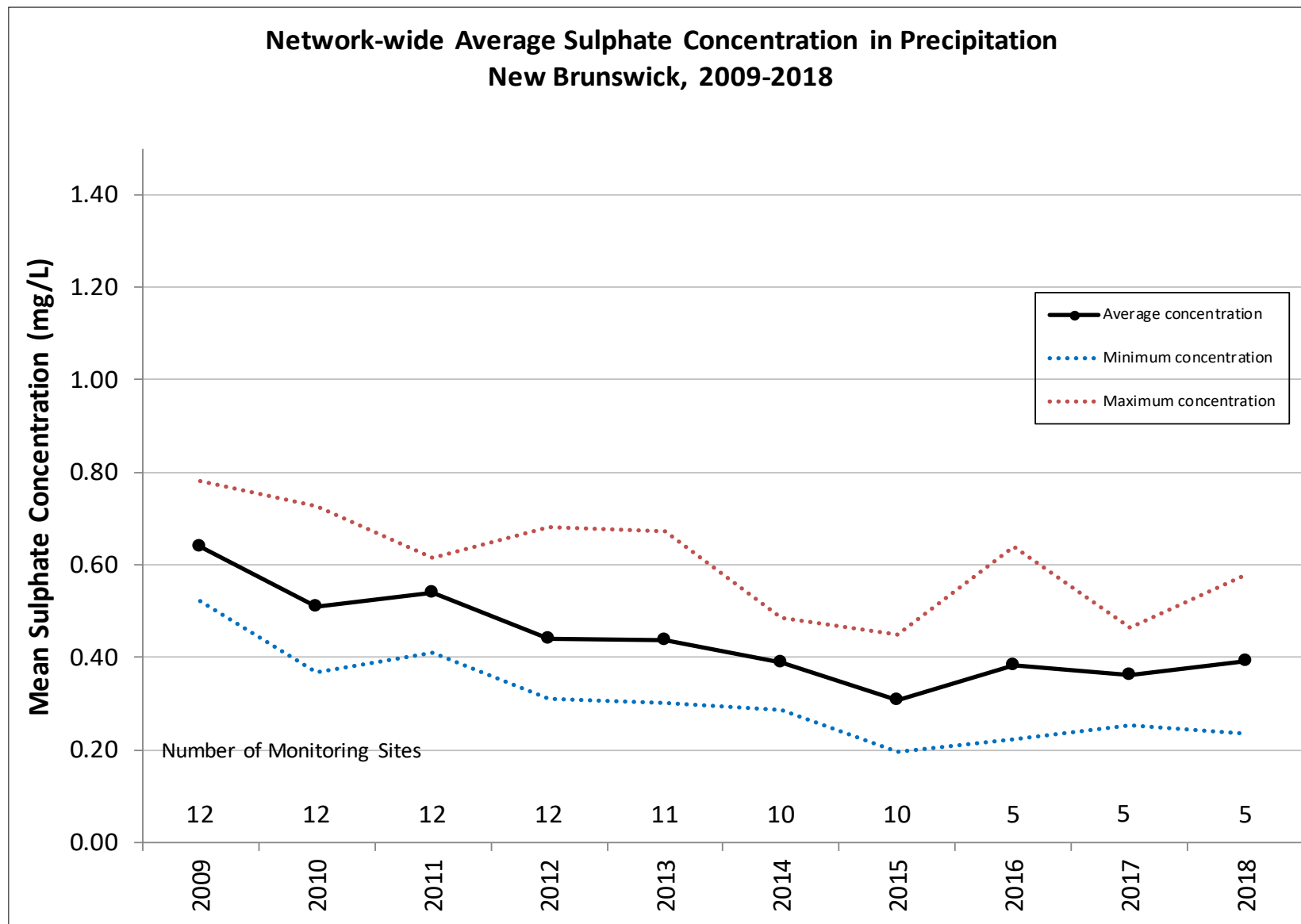
\*\*42 weeks of data

-- insufficient data

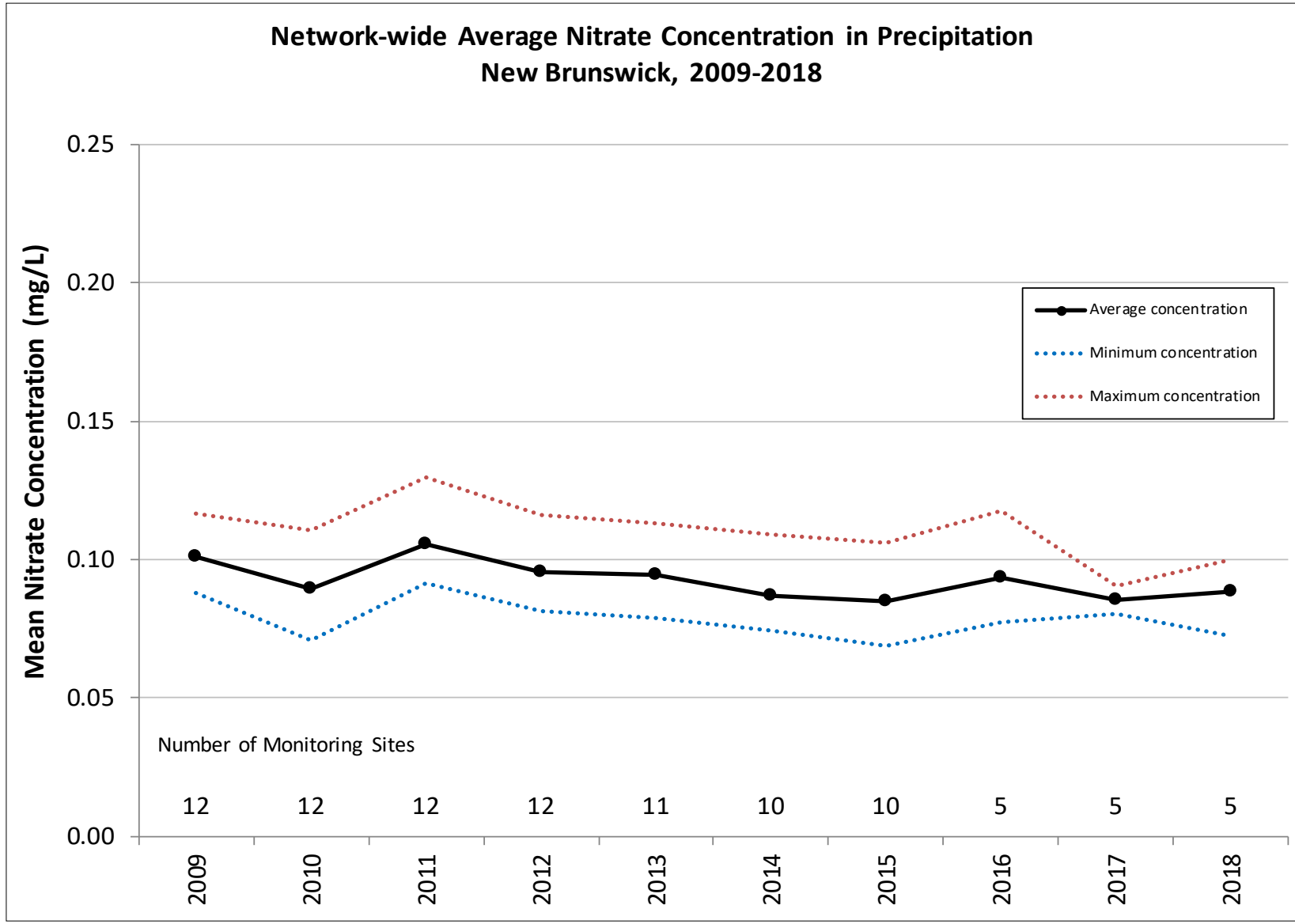
**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



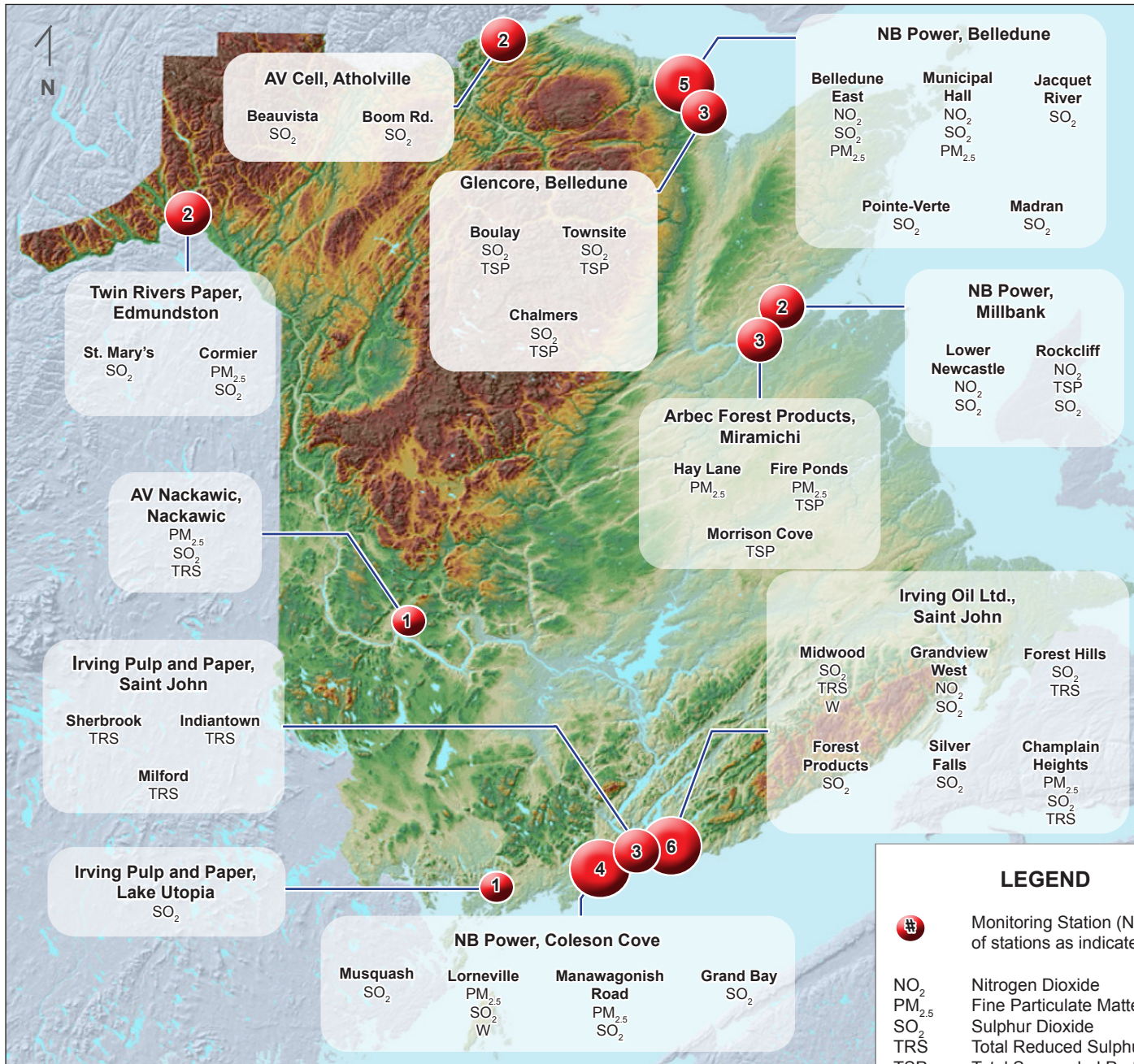
**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



**PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends**



**PART III:**  
**THE PROVINCIAL AIR QUALITY MONITORING NETWORK:**  
**STATIONS OPERATED BY INDUSTRY**

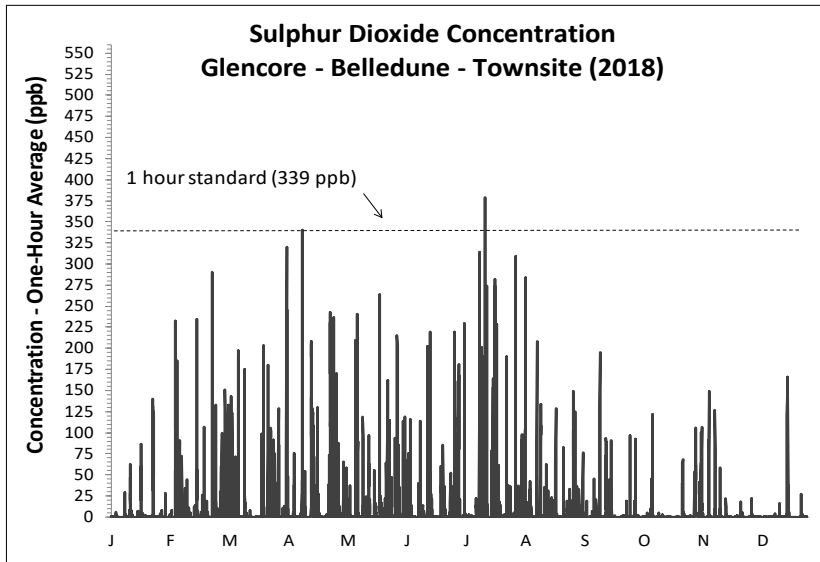
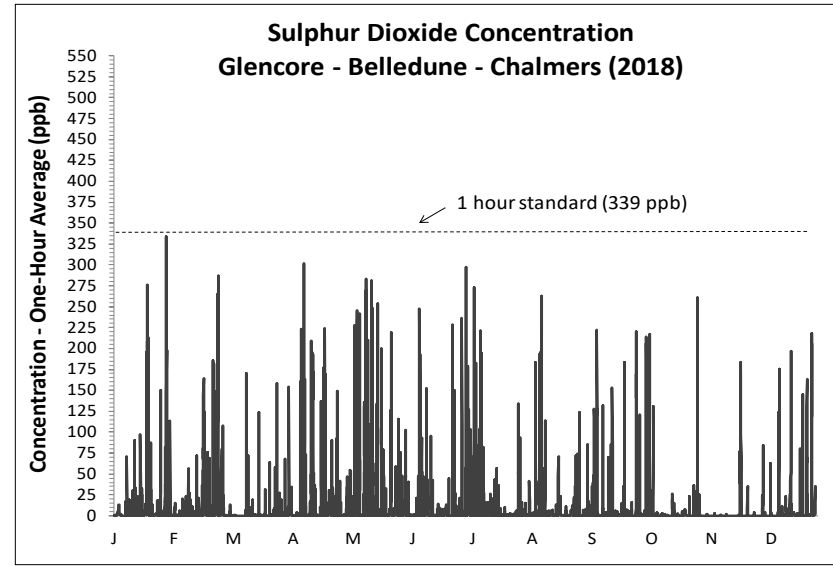
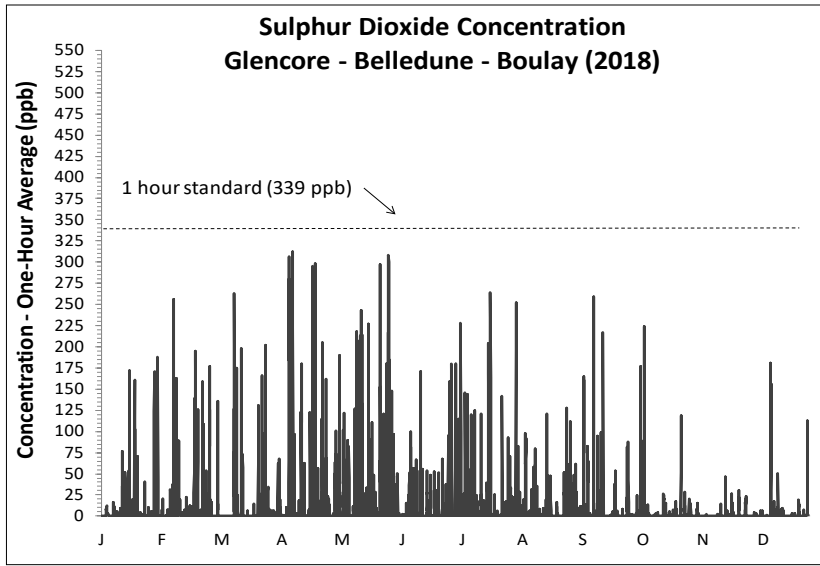


**LEGEND**

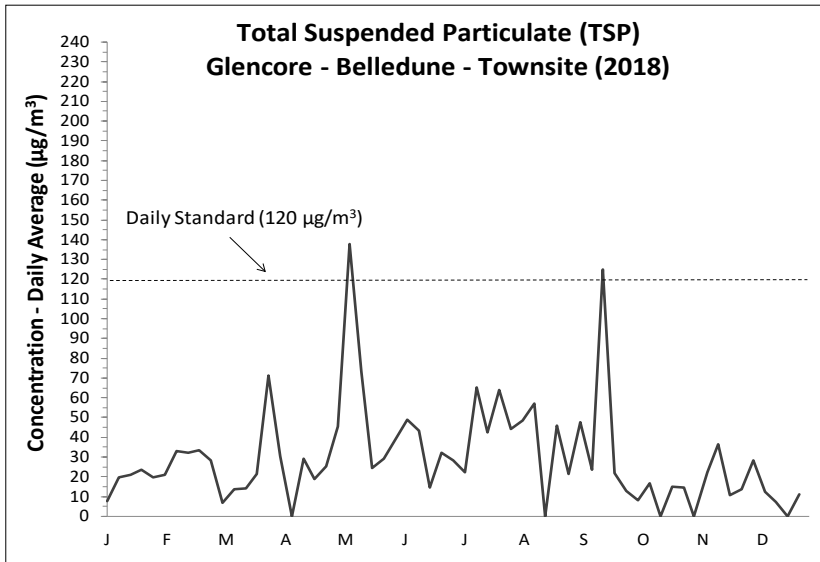
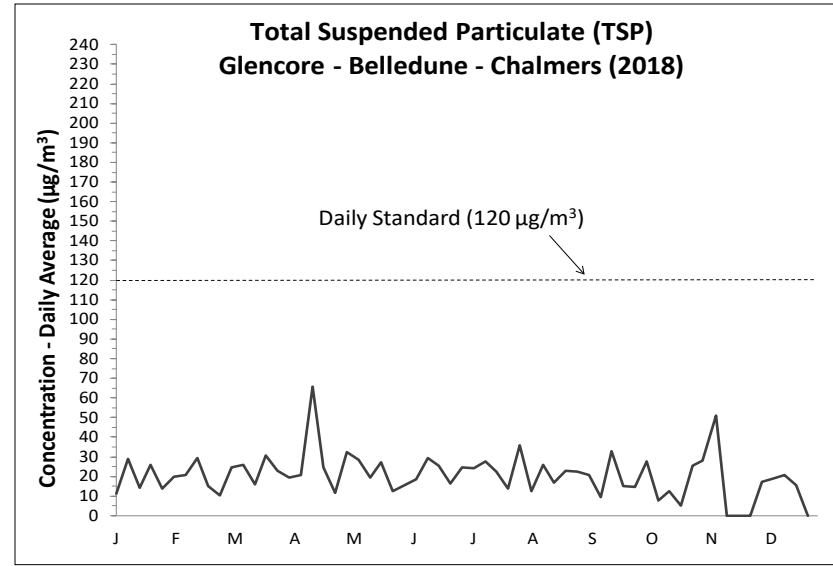
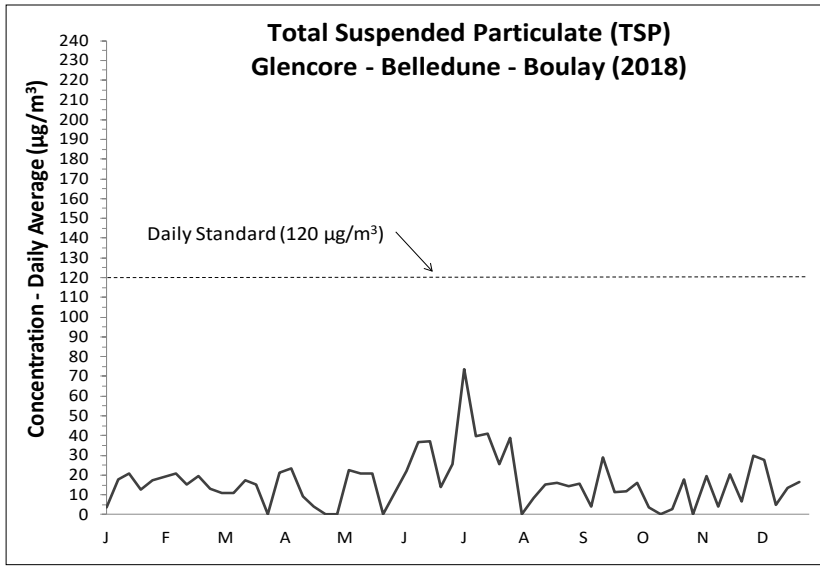
Monitoring Station (Number of stations as indicated)

NO<sub>2</sub> Nitrogen Dioxide  
 PM<sub>2.5</sub> Fine Particulate Matter  
 SO<sub>2</sub> Sulphur Dioxide  
 TRS Total Reduced Sulphur  
 TSP Total Suspended Particulate  
 W Wind Speed & Direction

**PART III: STATIONS OPERATED BY INDUSTRY - Glencore, Belledune - Sulphur Dioxide**

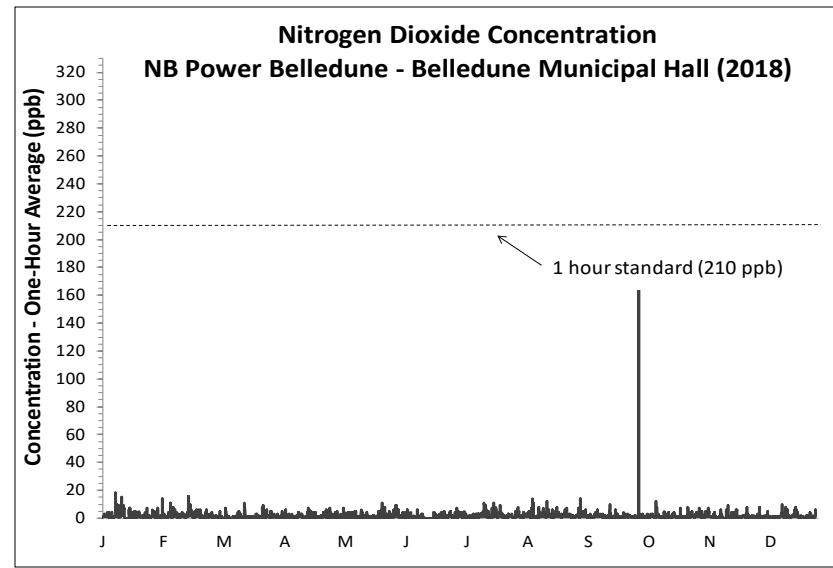
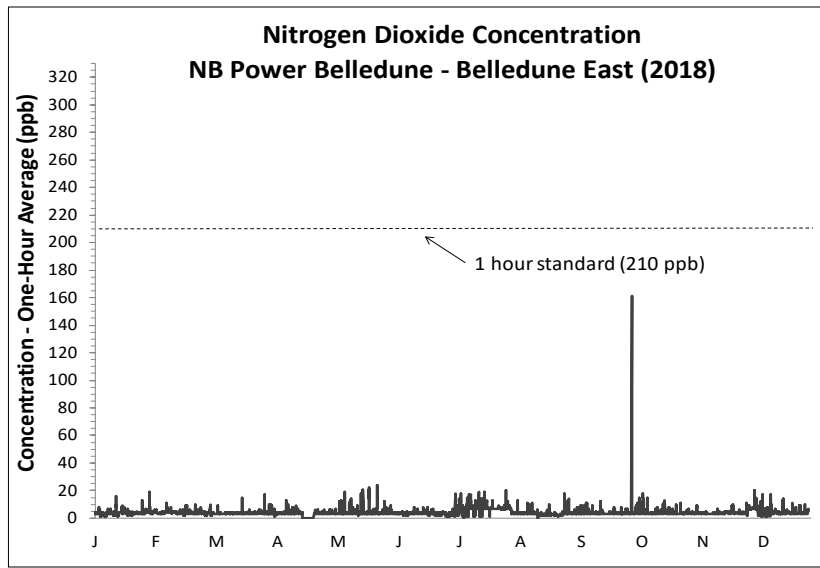


**PART III: STATIONS OPERATED BY INDUSTRY - Glencore, Belledune - Total Suspended Particulate**

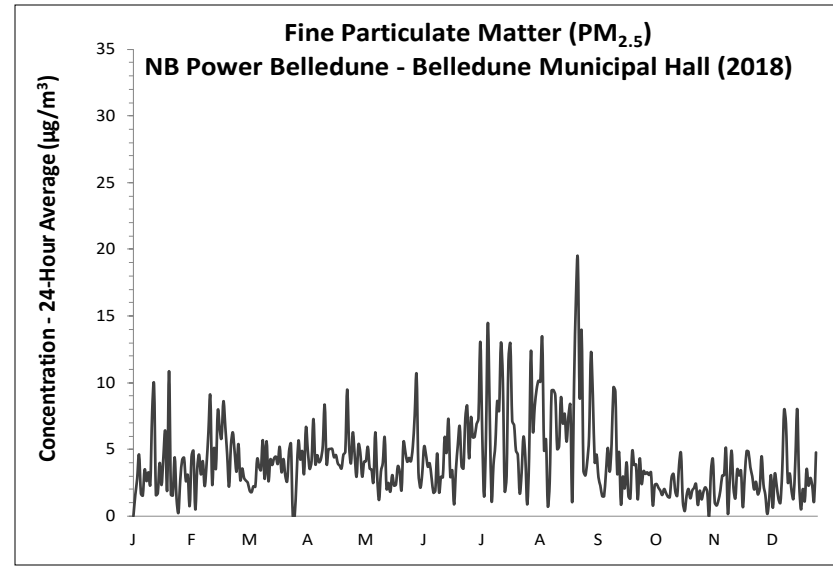
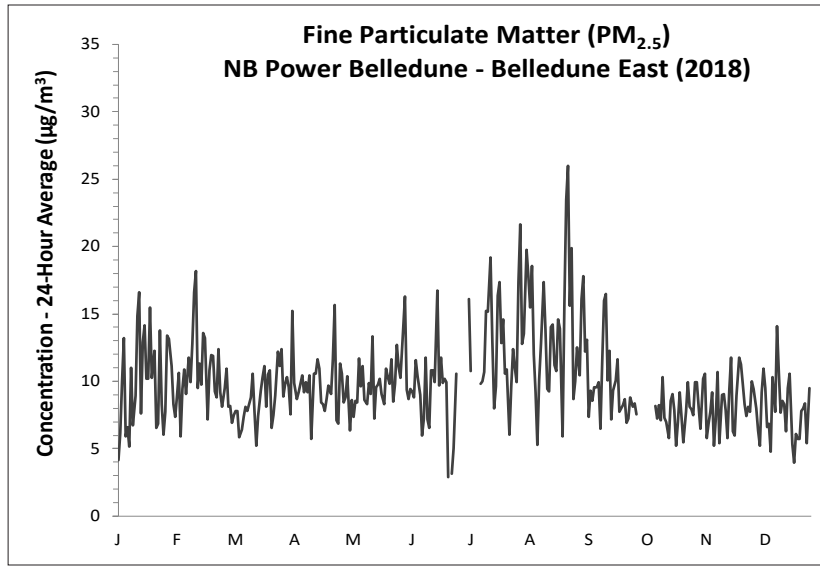




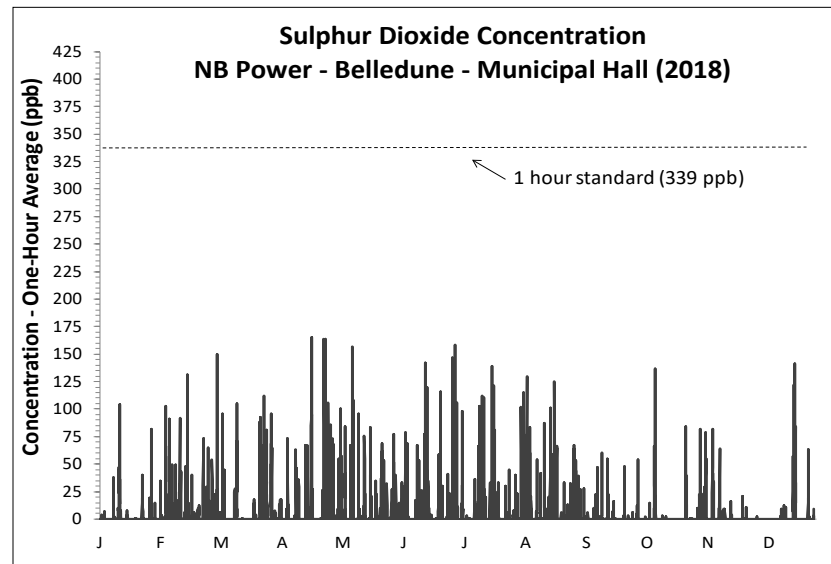
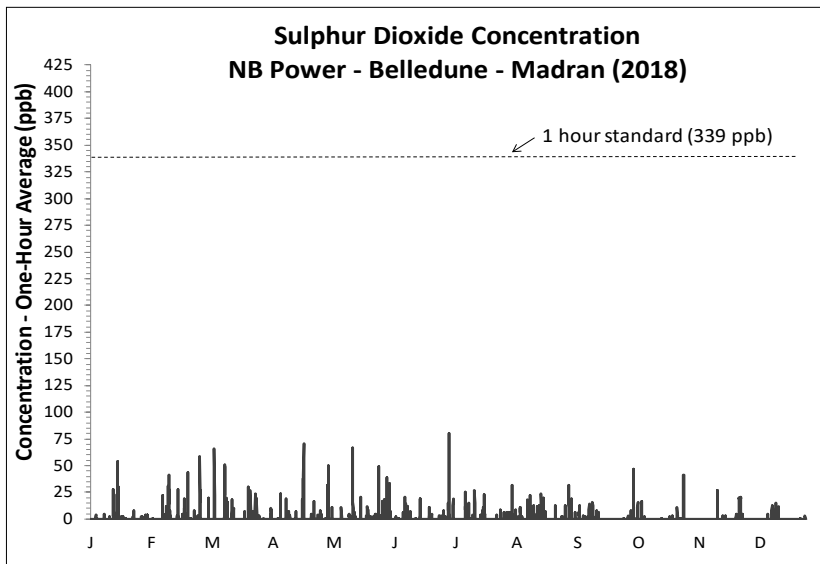
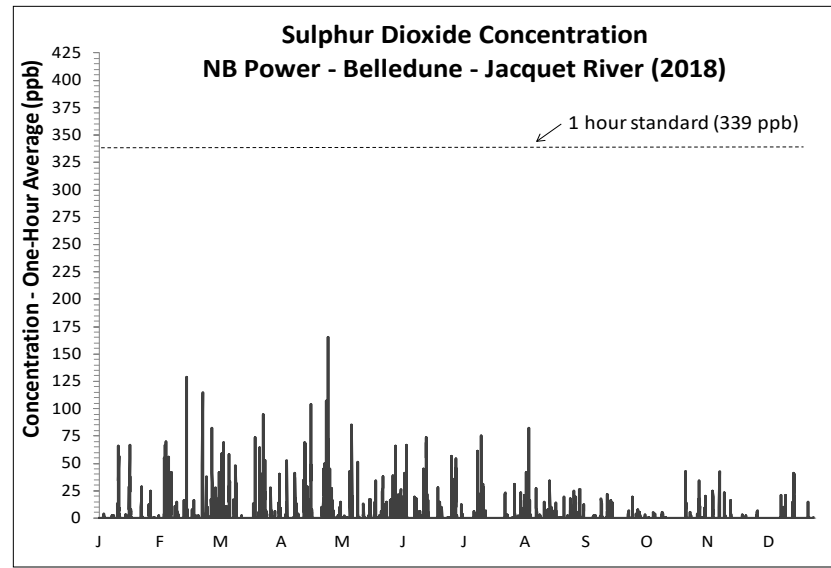
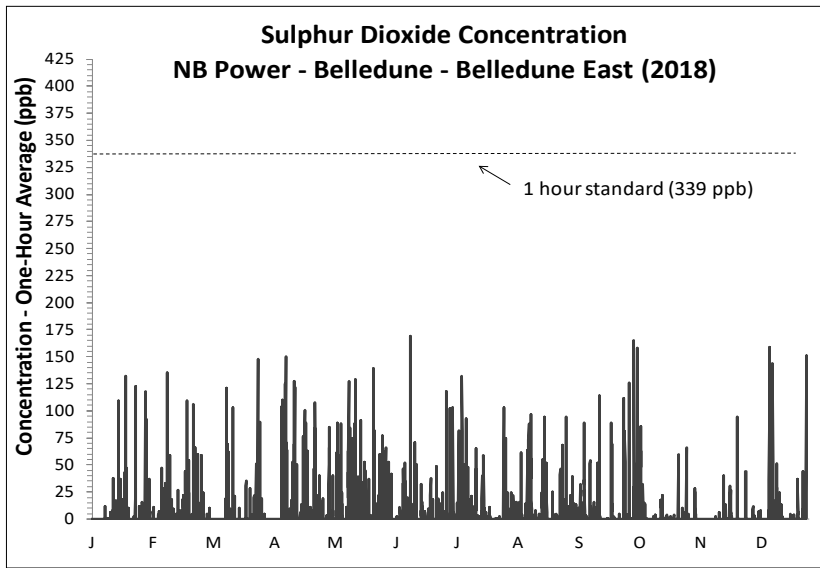
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Nitrogen Dioxide**



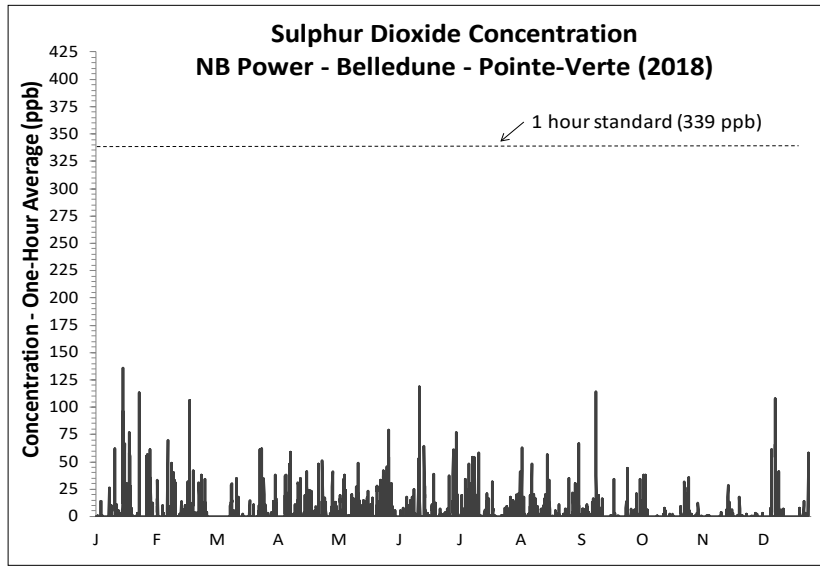
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Fine Particulate Matter**



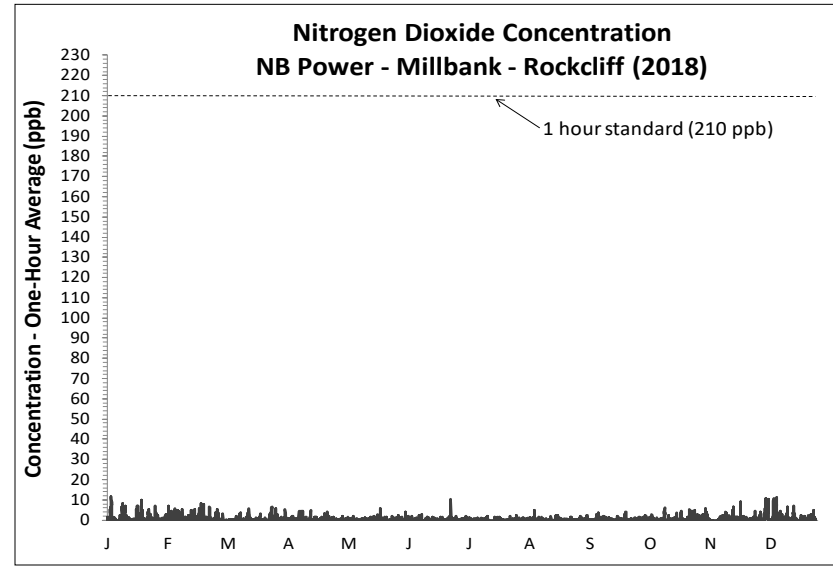
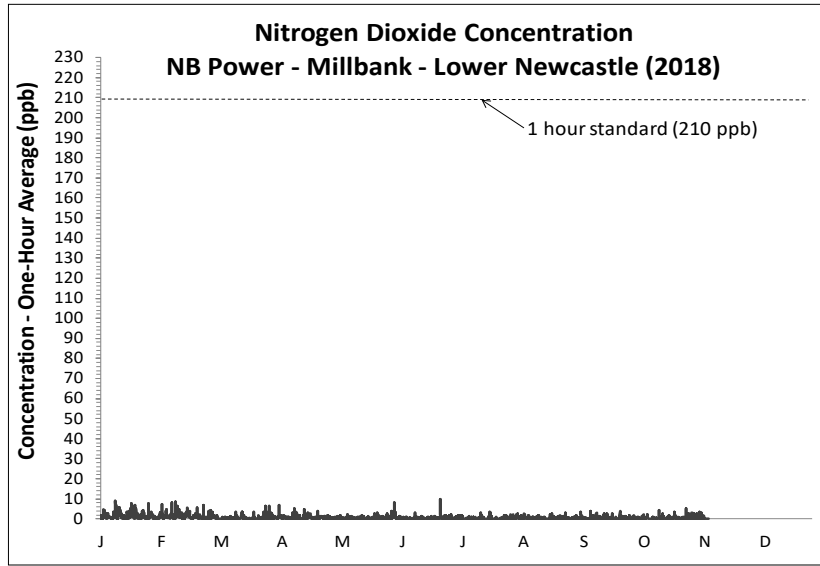
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Sulphur Dioxide**



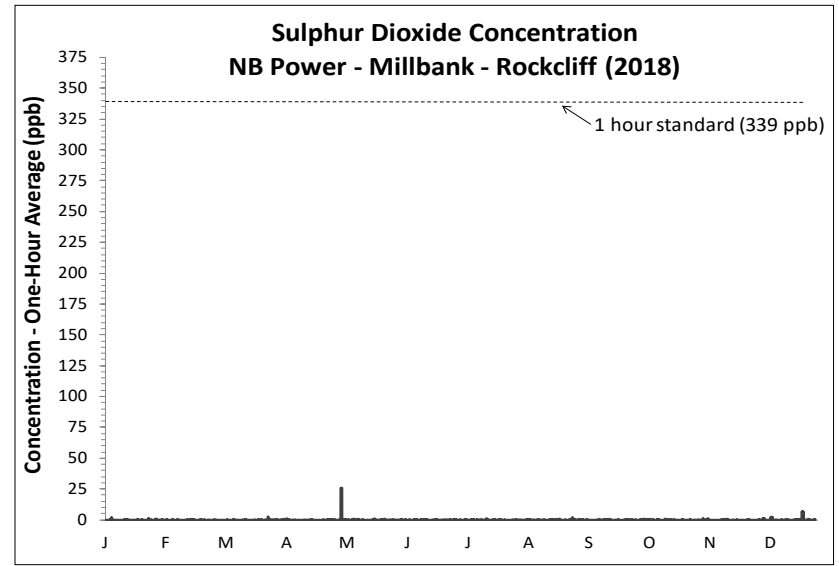
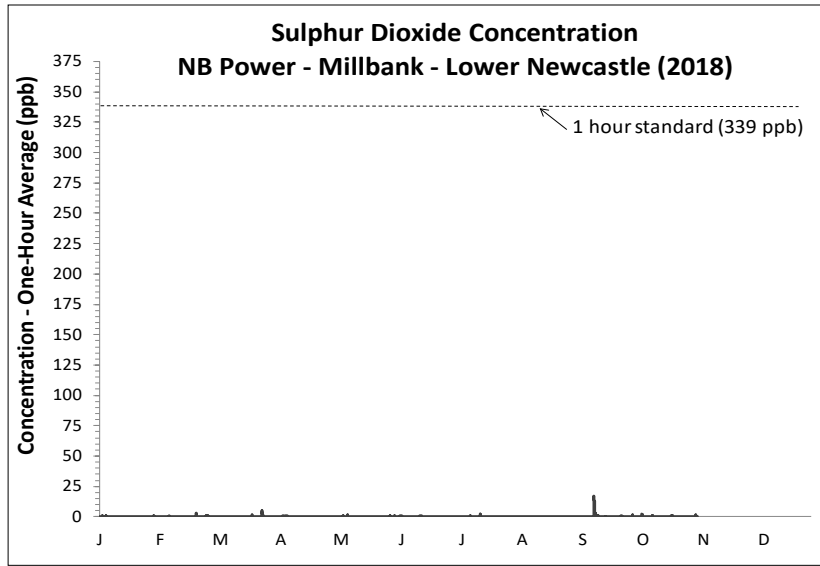
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Belledune - Sulphur Dioxide**



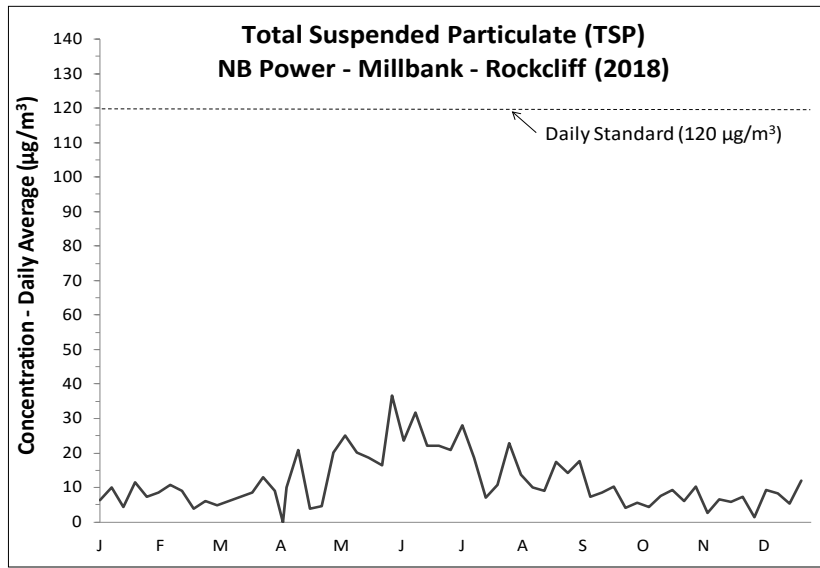
### PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Nitrogen Dioxide



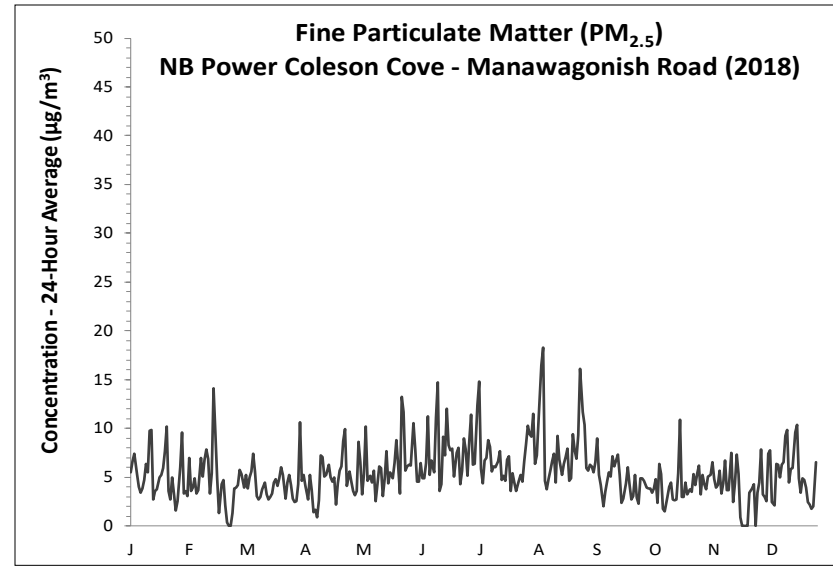
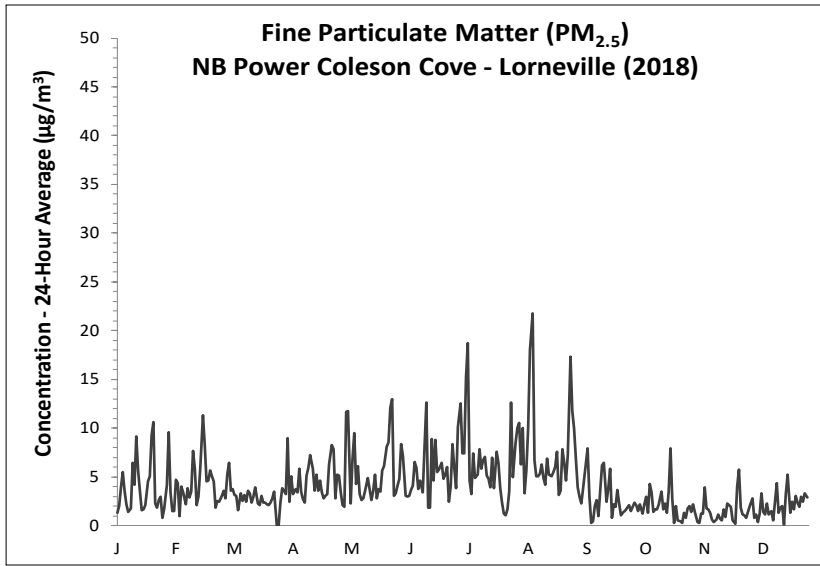
### PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Sulphur Dioxide



### PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Millbank - Total Suspended Particulate

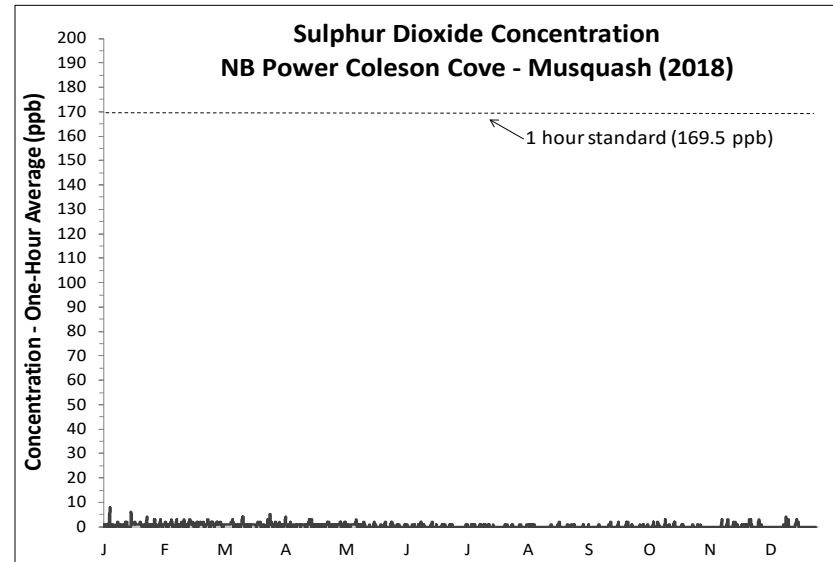
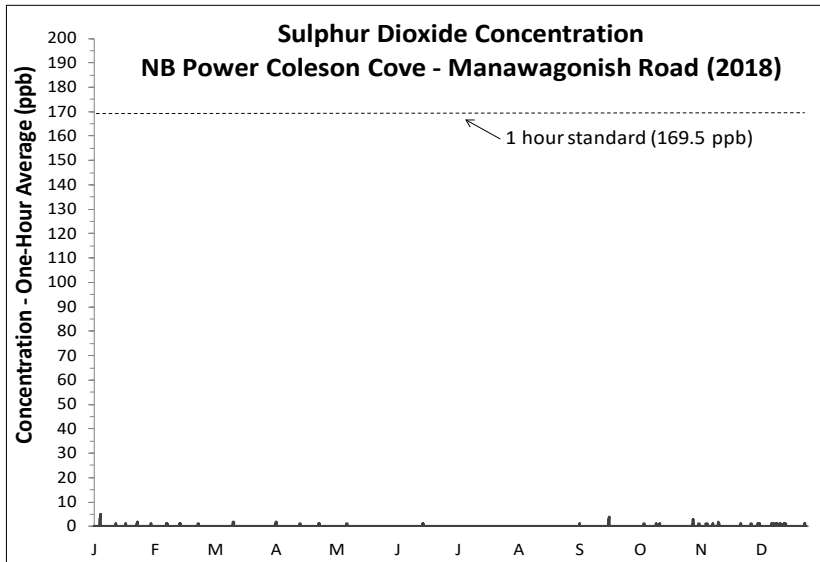
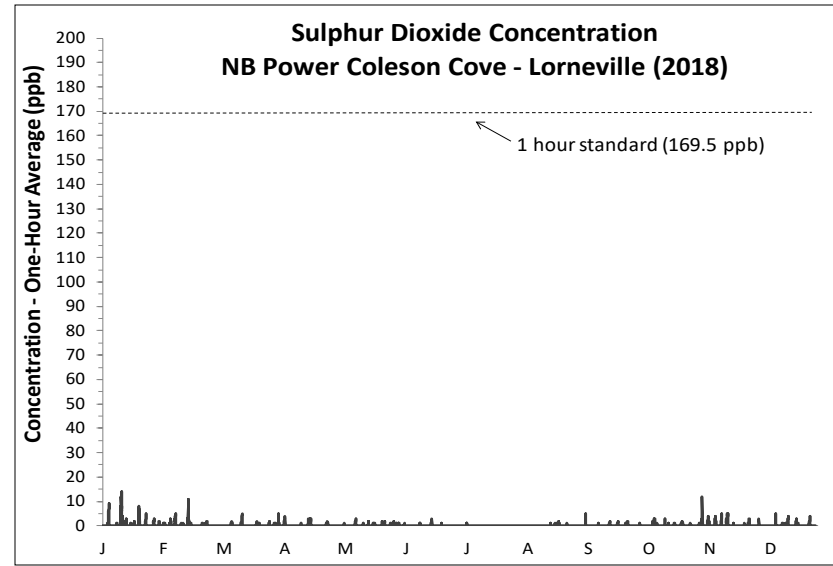
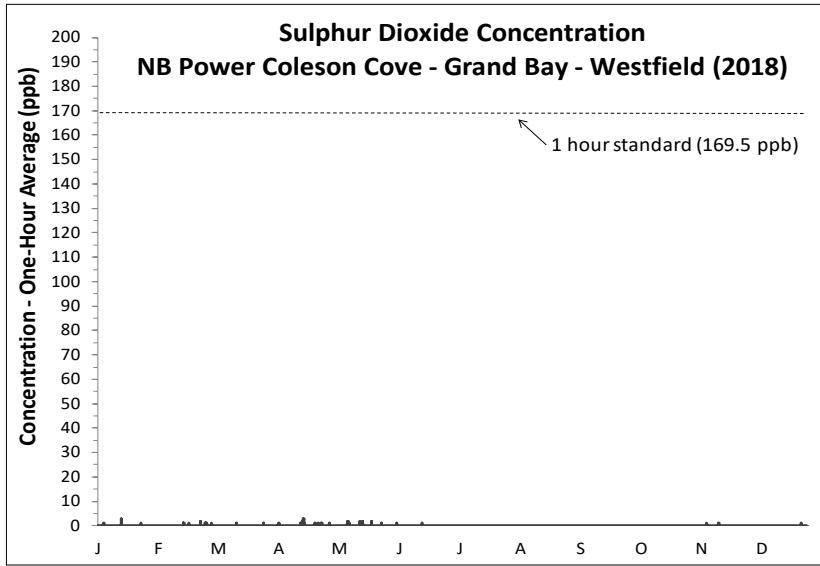


**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Coleson Cove - Fine Particulate Matter**





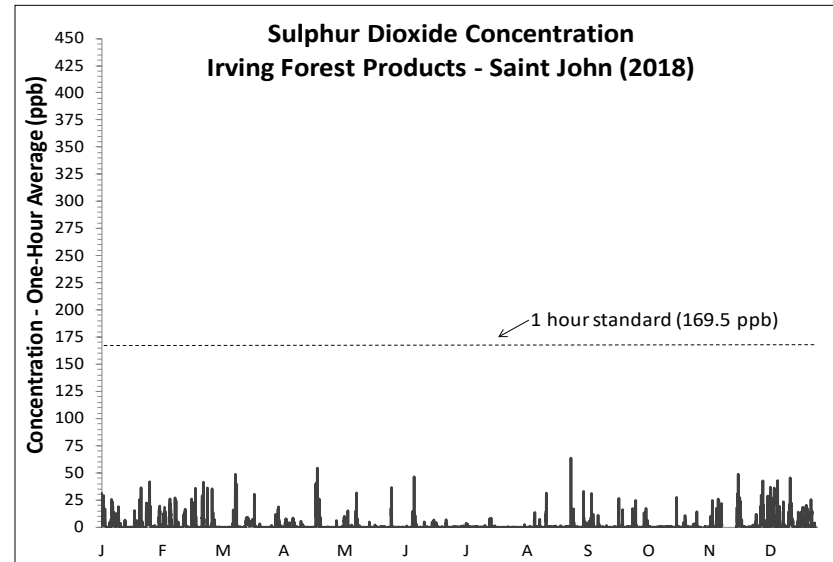
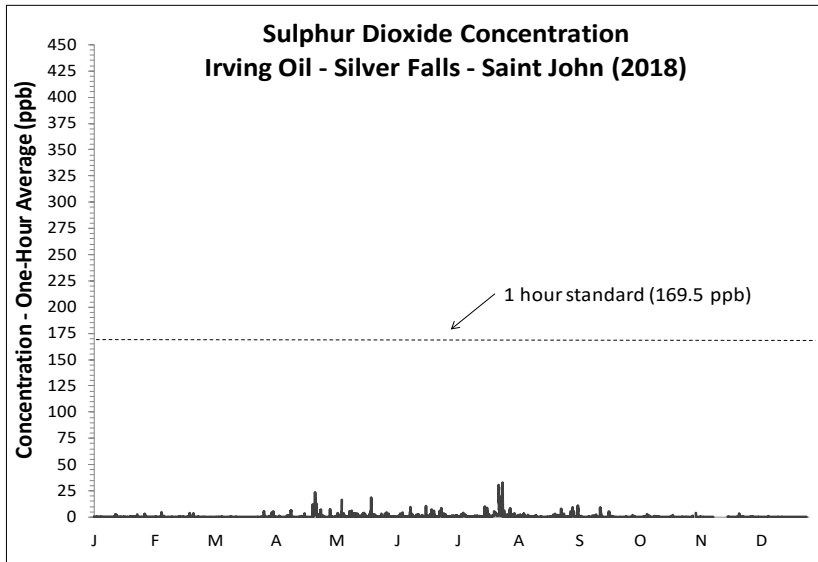
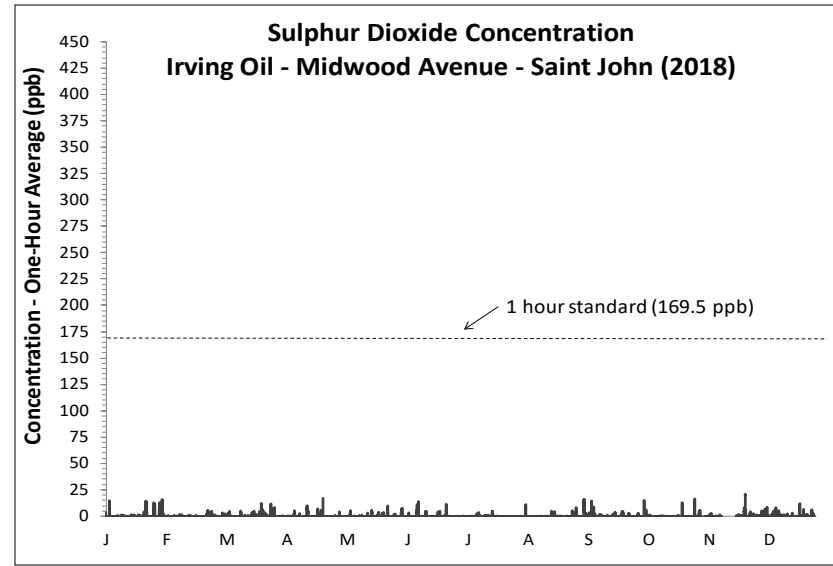
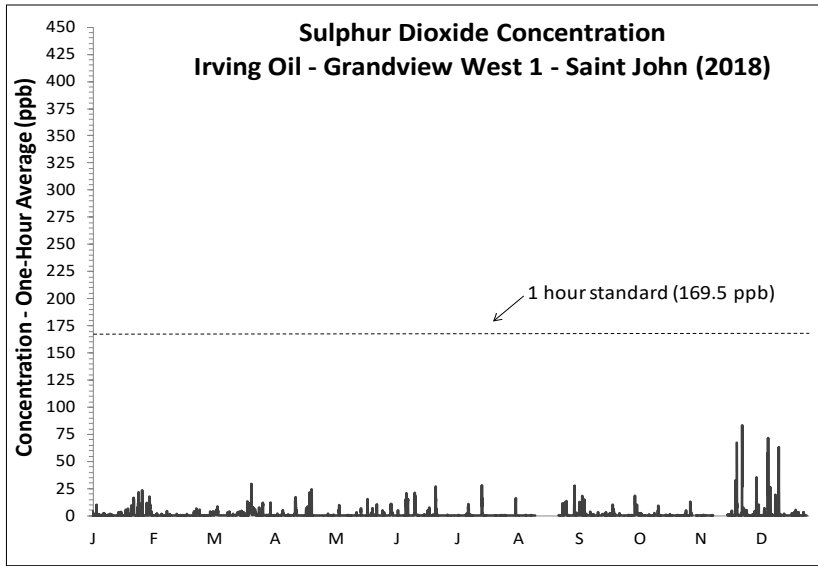
**PART III: STATIONS OPERATED BY INDUSTRY - NB Power, Coleson Cove - Sulphur Dioxide**



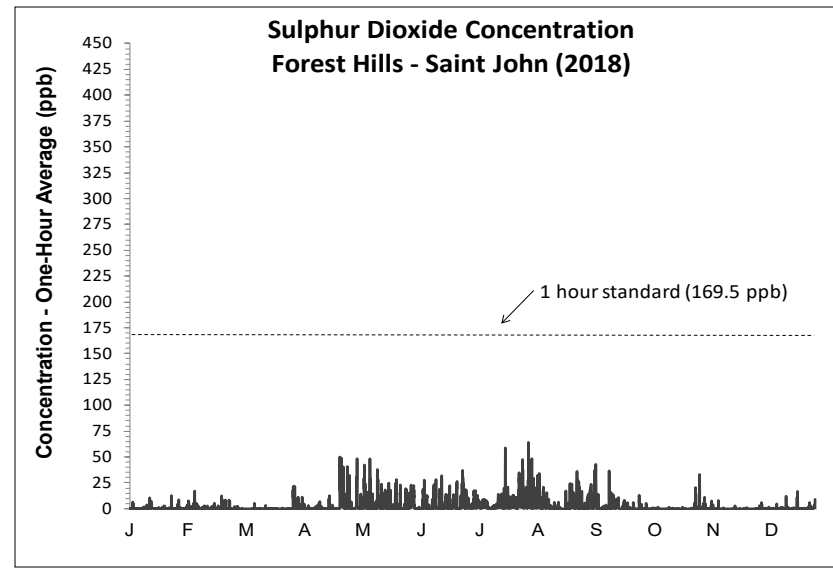
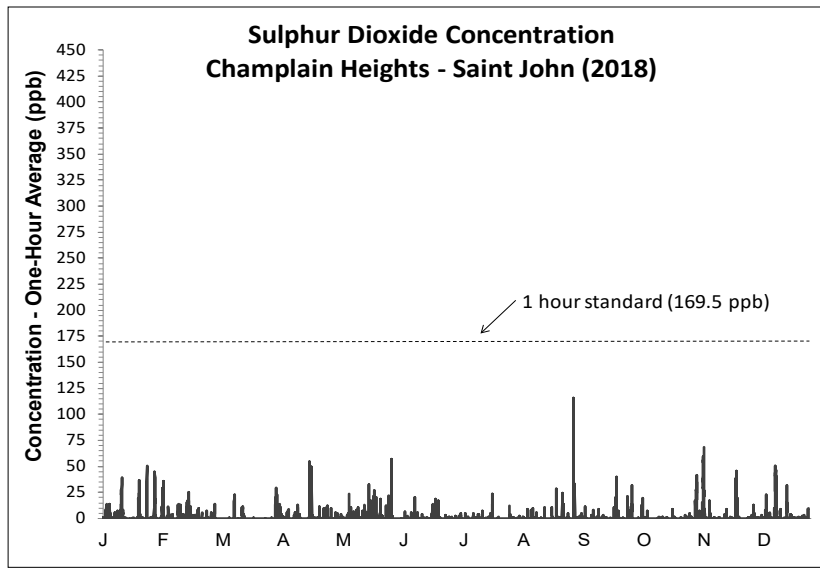
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Nitrogen Dioxide**

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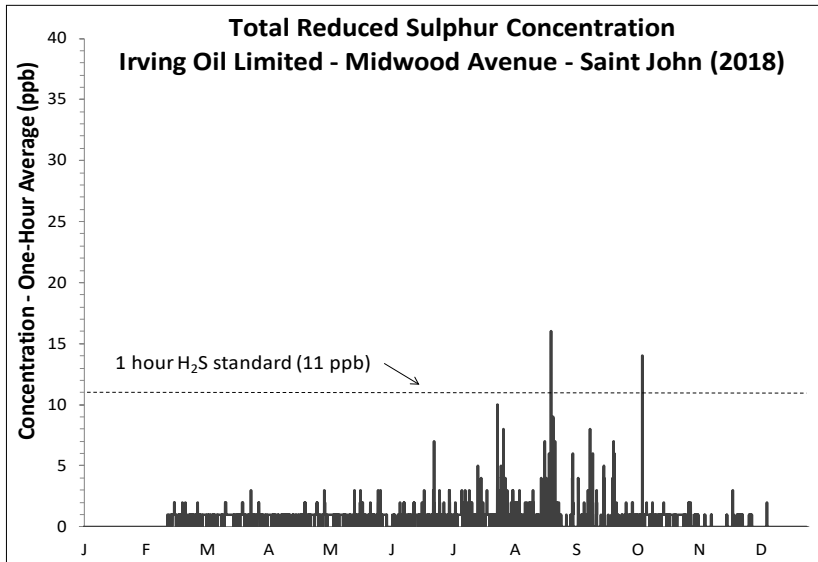
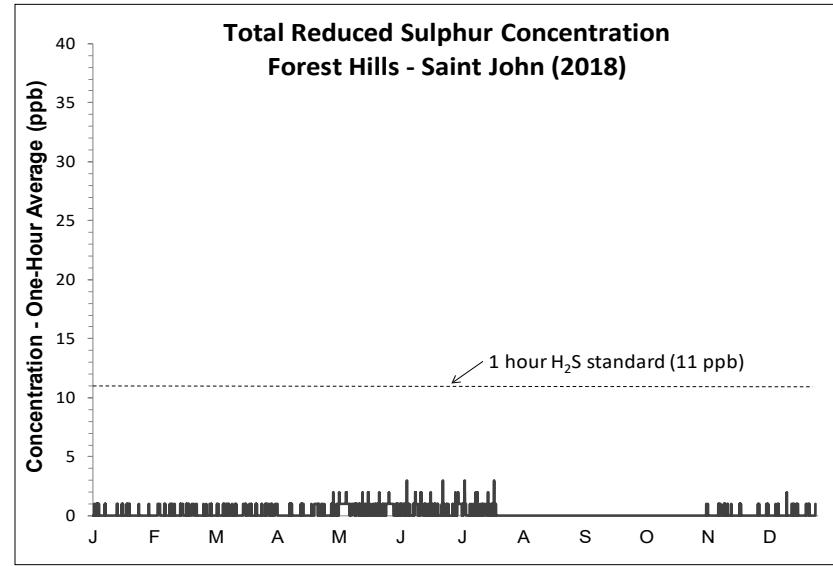
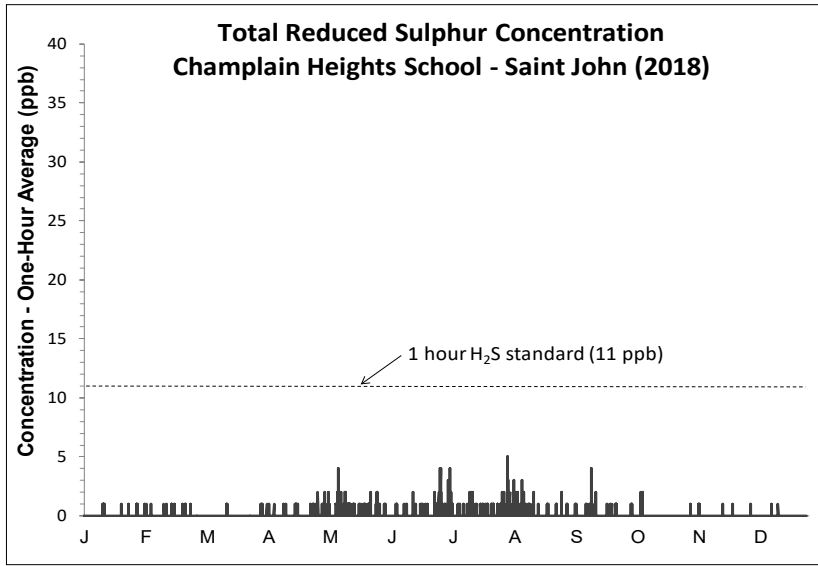
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Sulphur Dioxide**



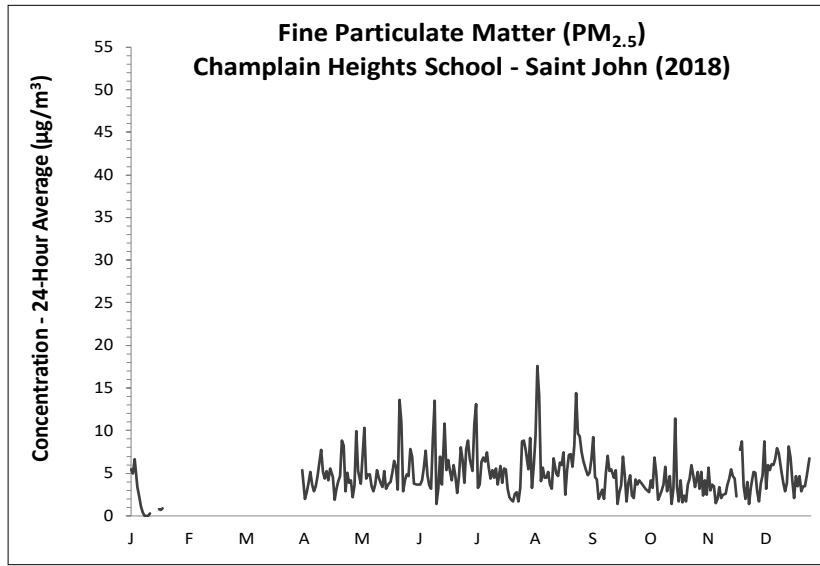
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Sulphur Dioxide**



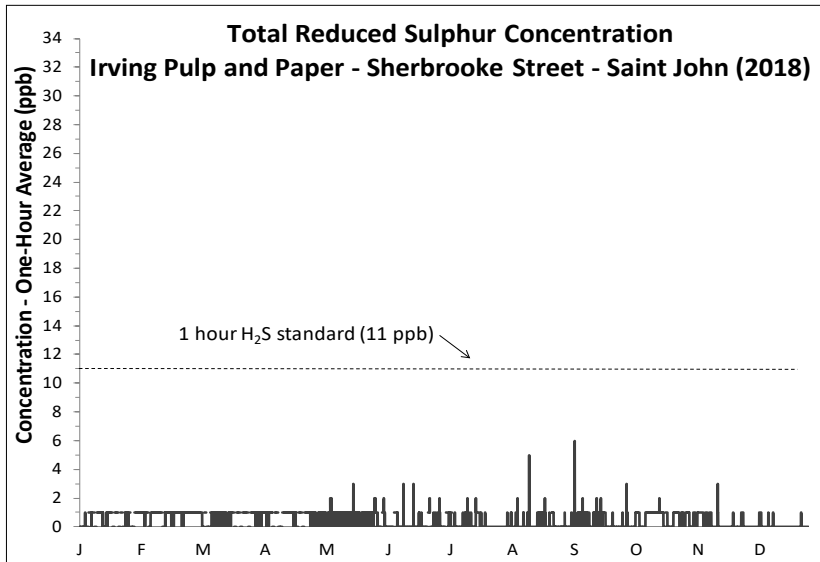
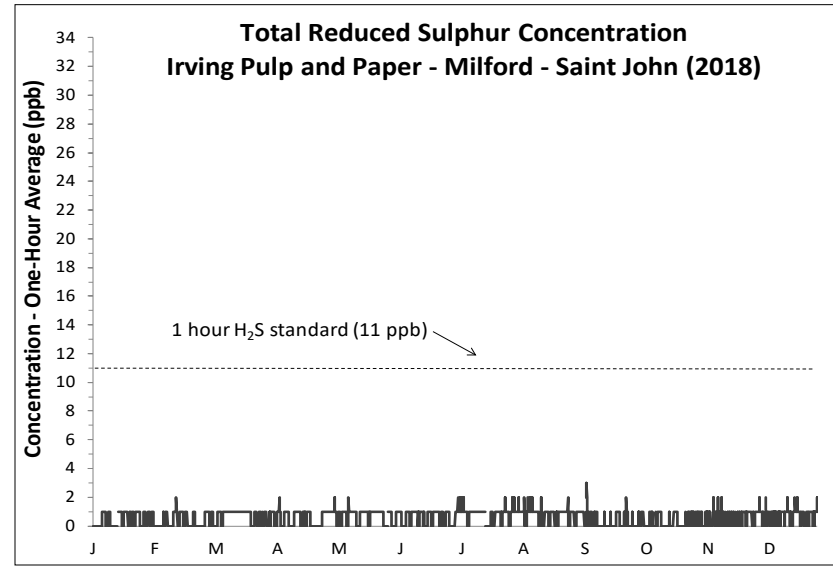
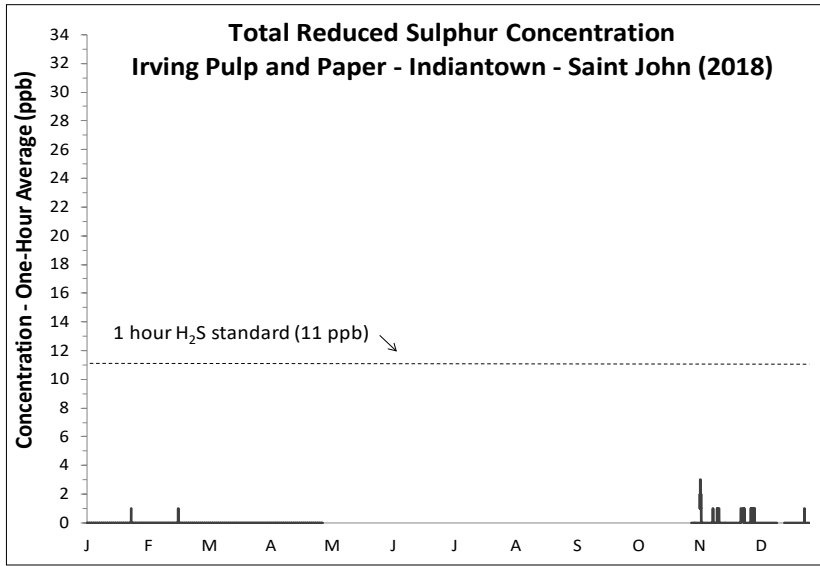
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Total Reduced Sulphur**



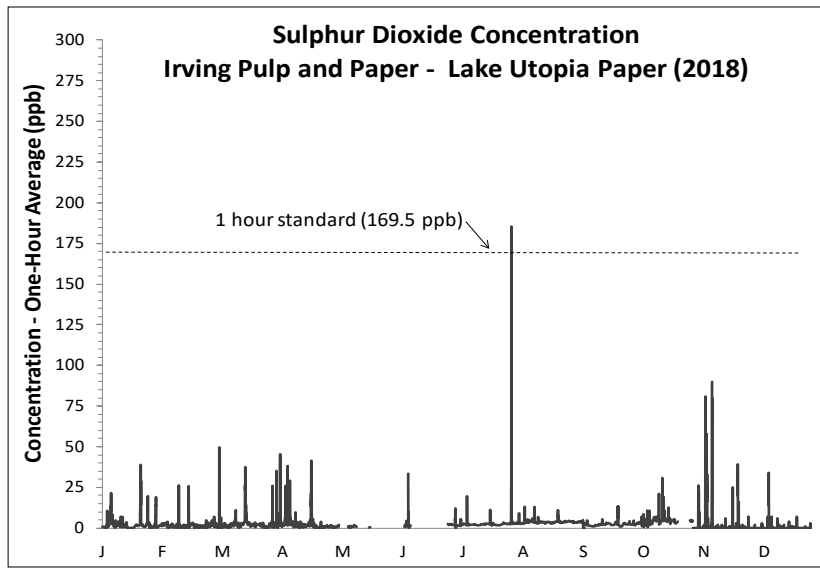
**PART III: STATIONS OPERATED BY INDUSTRY - Irving Oil Ltd., Saint John - Fine Particulate Matter**



**PART III: STATIONS OPERATED BY INDUSTRY - Irving Pulp and Paper, Saint John - Total Reduced Sulphur**

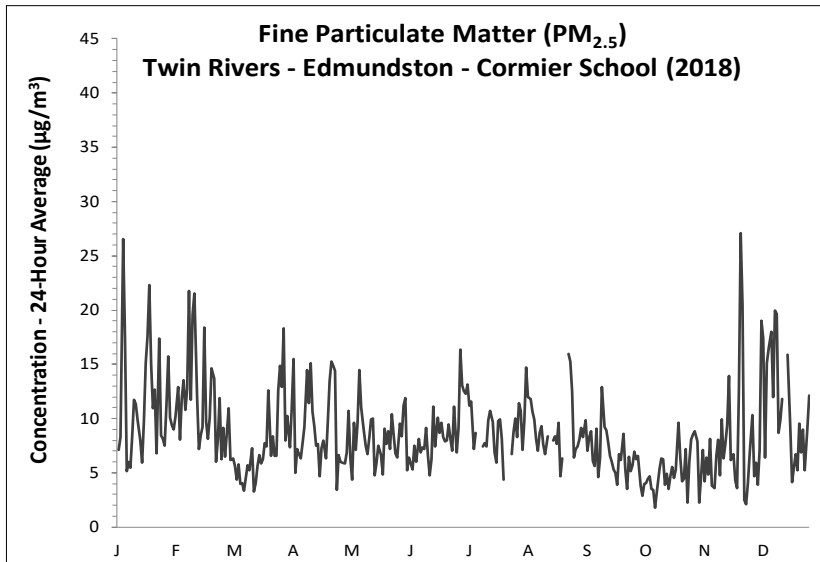
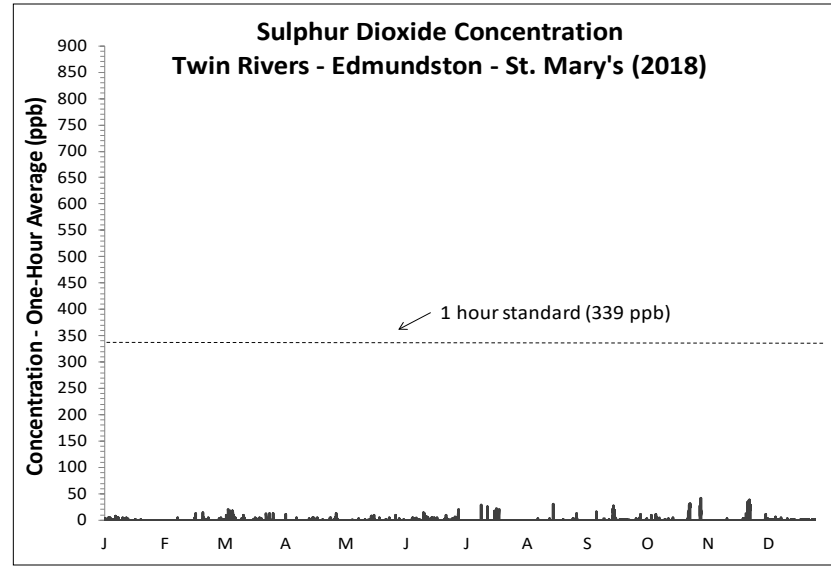
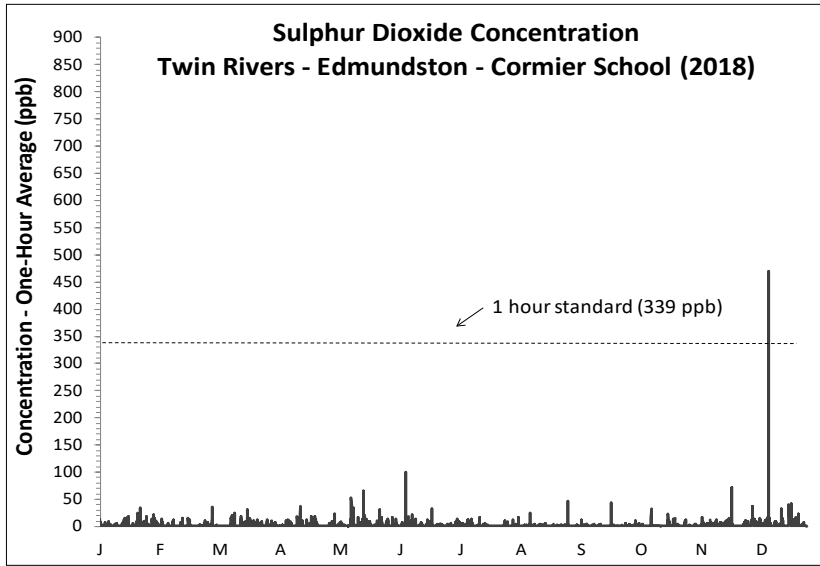


### PART III: STATIONS OPERATED BY INDUSTRY - Irving Pulp and Paper, Lake Utopia - Sulphur Dioxide

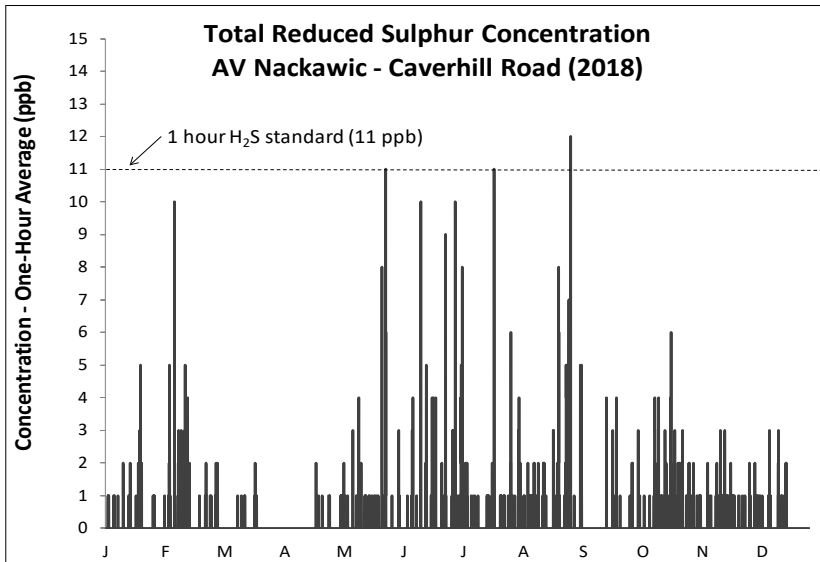
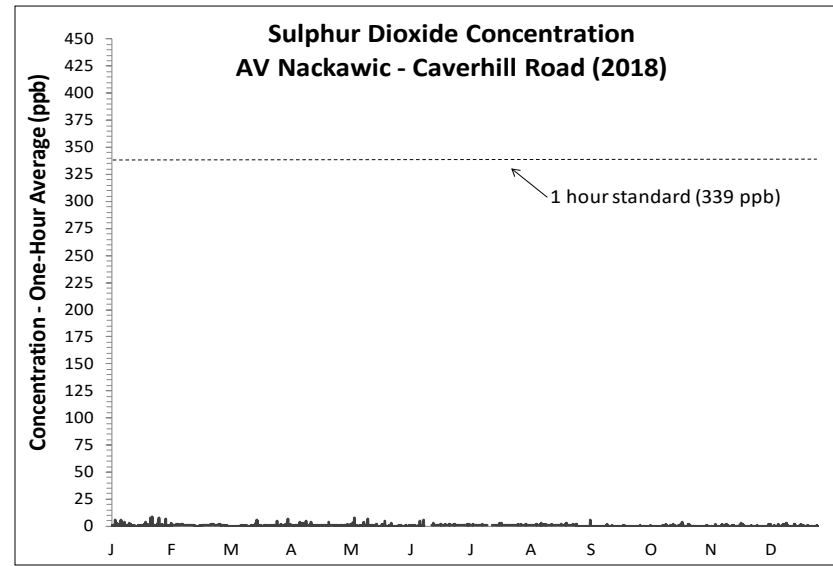
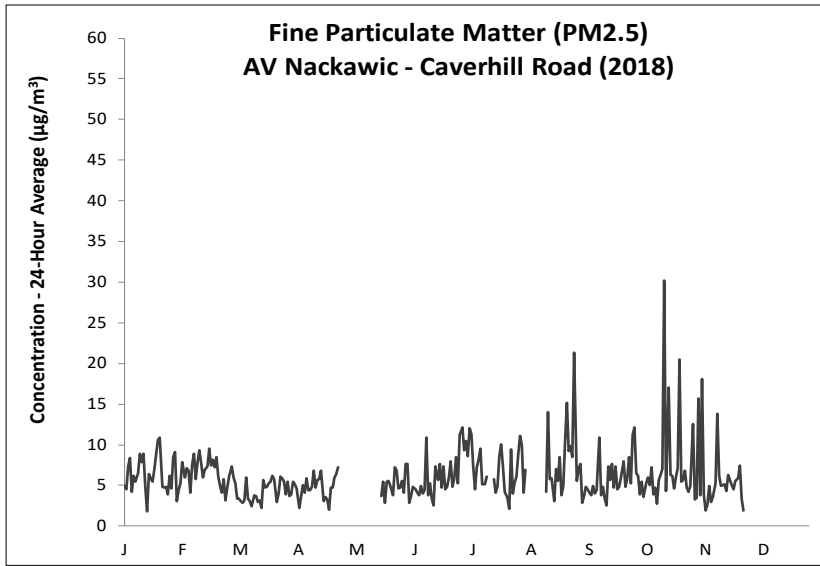




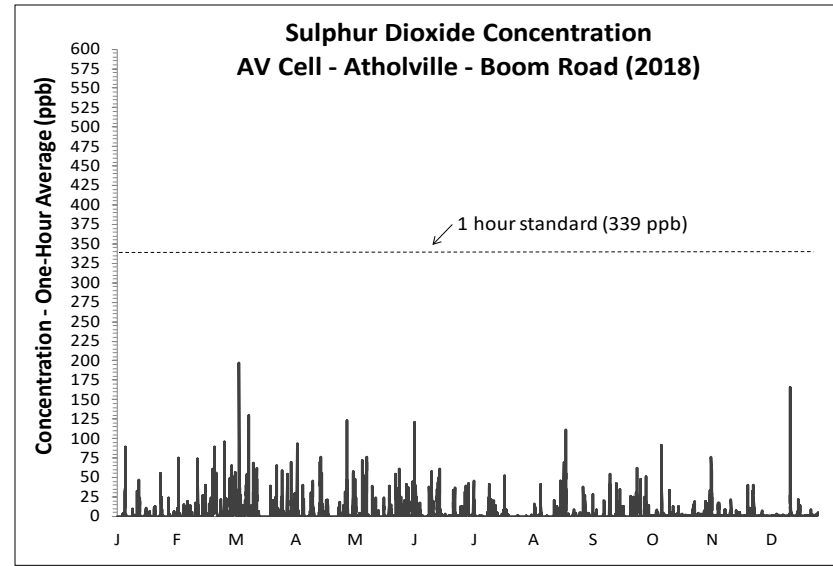
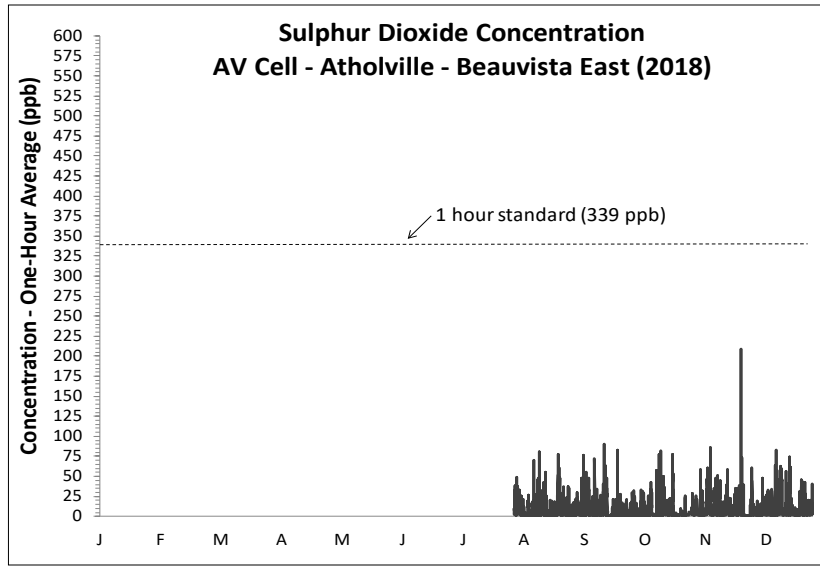
**PART III: STATIONS OPERATED BY INDUSTRY - Twin Rivers Paper Company, Edmundston - All Parameters**



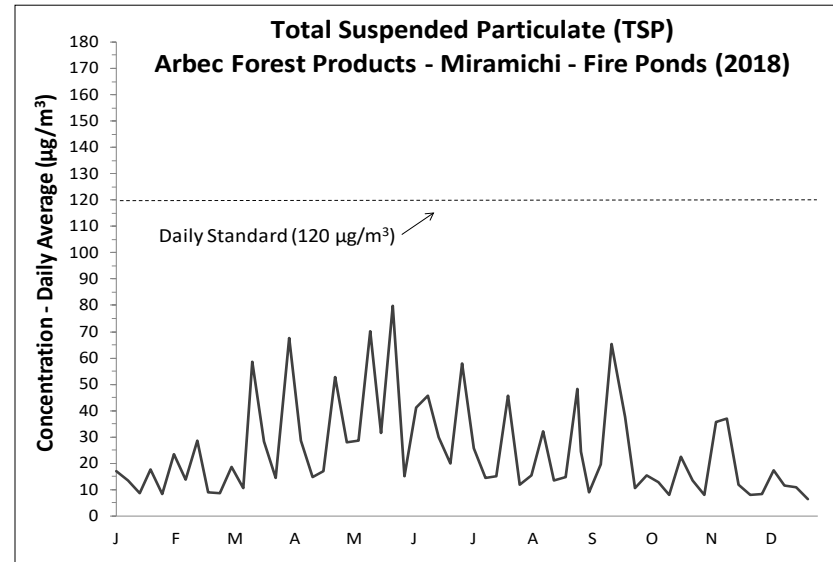
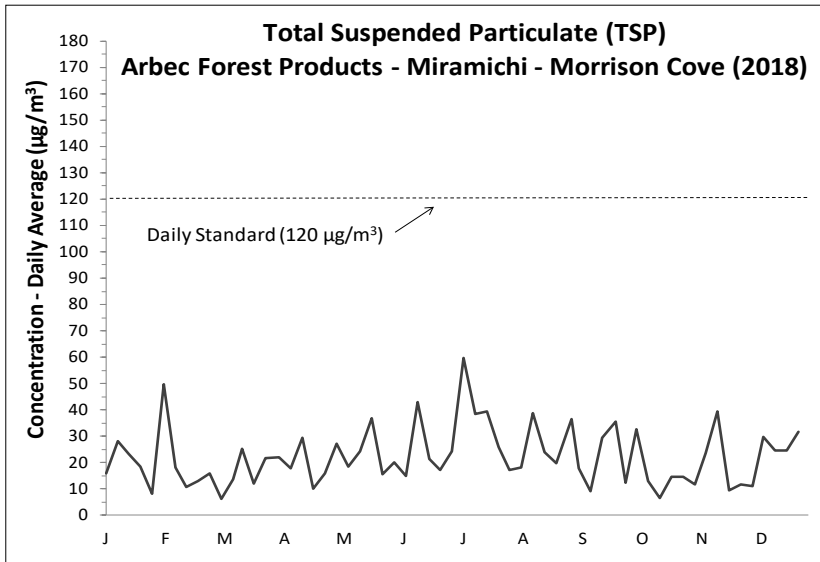
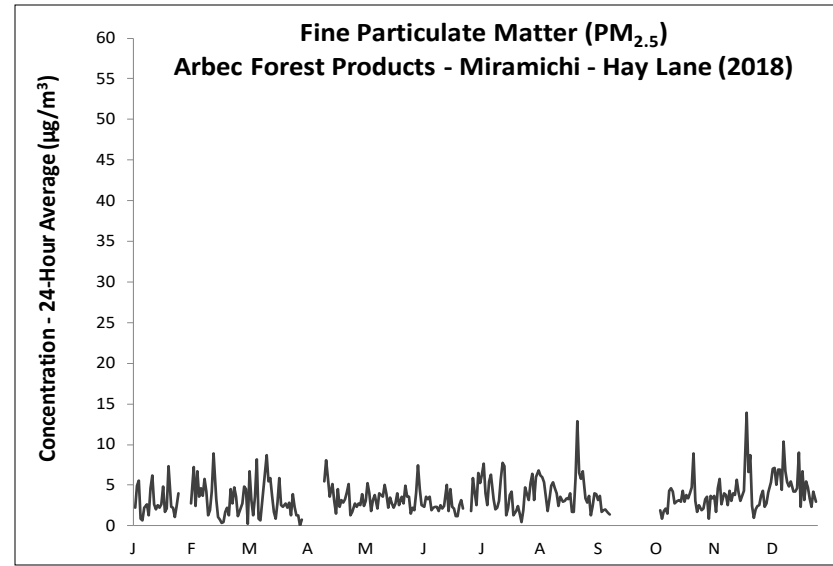
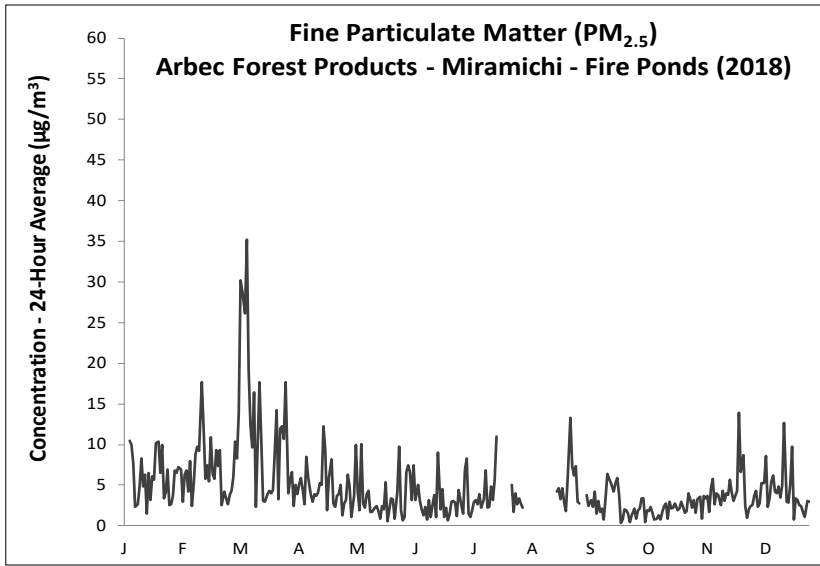
**PART III: STATIONS OPERATED BY INDUSTRY - AV Nackawic, Nackawic - All Parameters**



### PART III: STATIONS OPERATED BY INDUSTRY - AV Cell, Atholville - Sulphur Dioxide



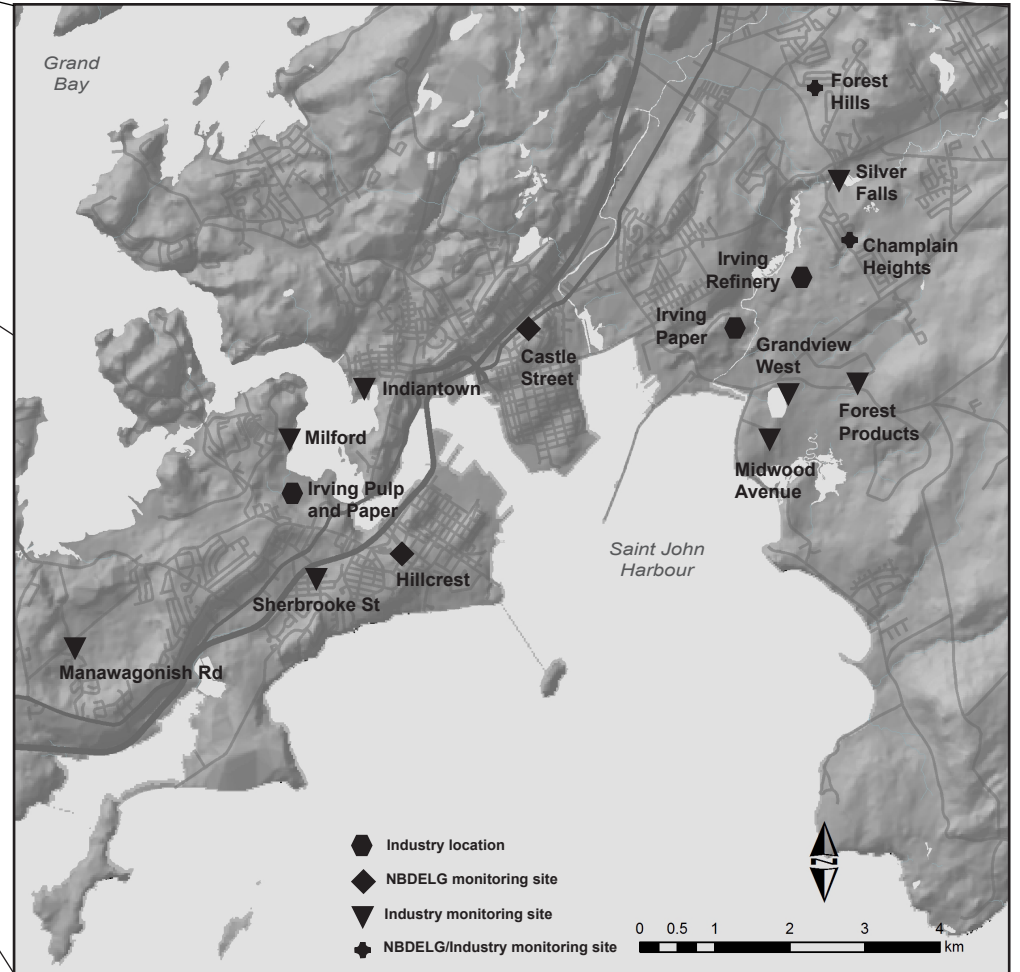
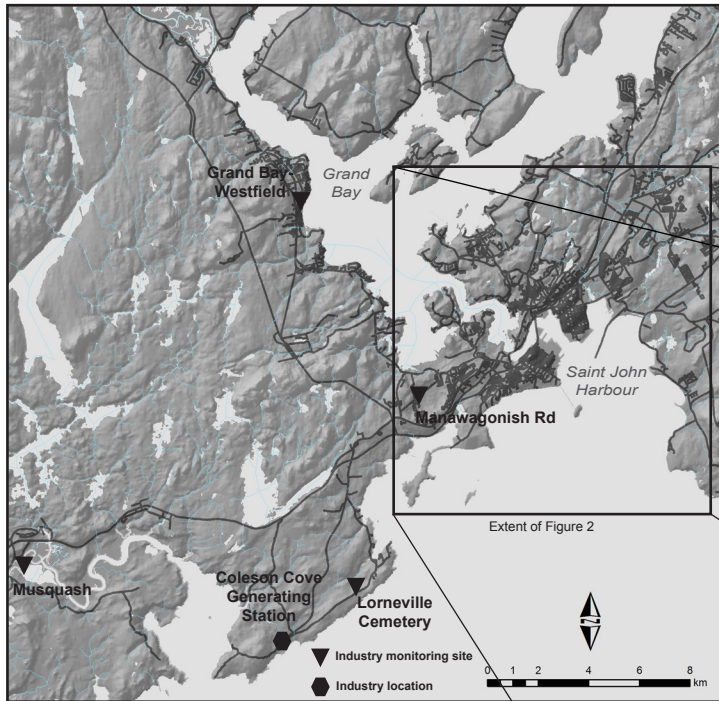
**PART III: STATIONS OPERATED BY INDUSTRY - Arbec Forest Products, Miramichi- All Parameters**



**PART IV:**  
**DETAILED STATION LOCATION MAPS**

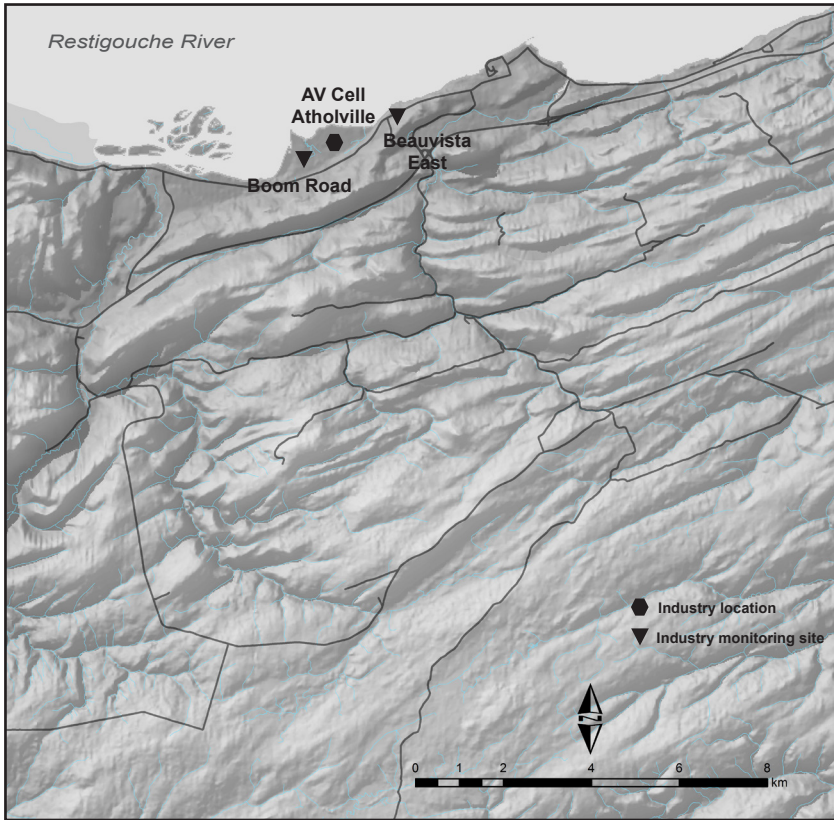
# PART IV: DETAILED STATION LOCATION MAPS - Saint John Region

## Grand Bay/Musquash/Saint John Area

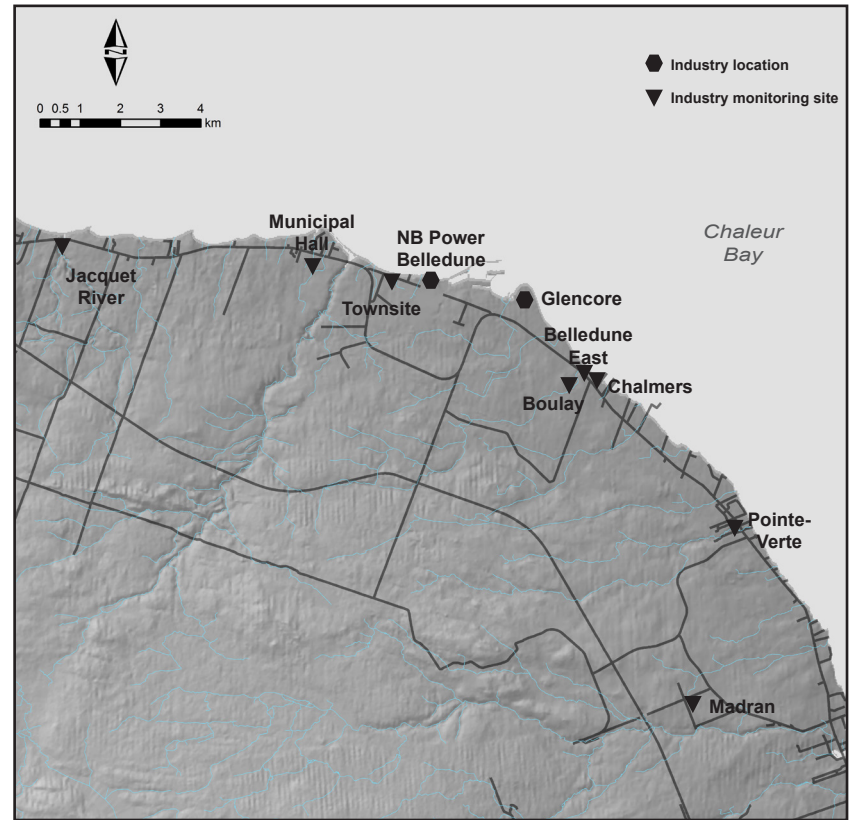


The City of Saint John

# PART IV: DETAILED STATION LOCATION MAPS - Atholville and Belledune

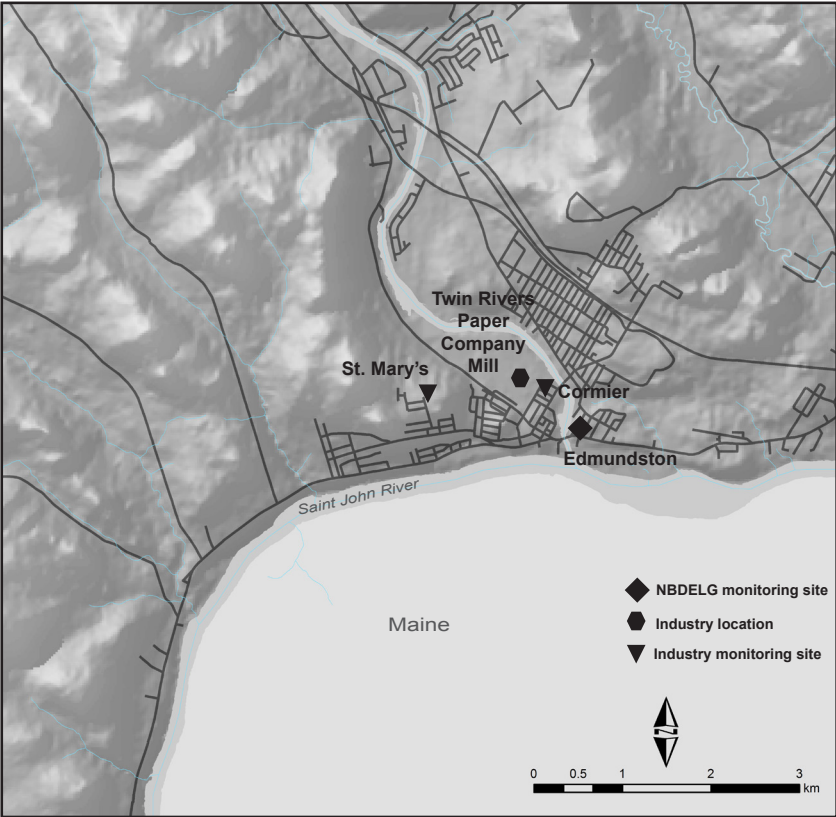


Atholville Area

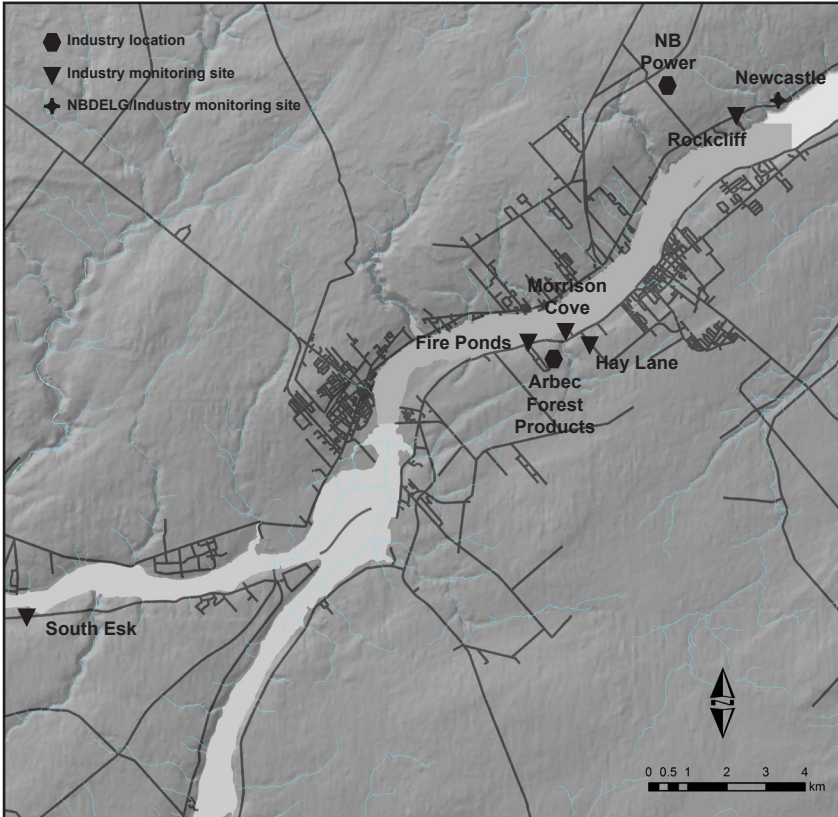


Belledune Area

**PART IV: DETAILED STATION LOCATION MAPS - Edmundston and Lower Newcastle**



Edmundston Area



Lower Newcastle