



# KITIMAT AIRSHED GROUP

Quarterly Air Quality Data Reports 2023

October – December 2023

## Table of Contents

Automated Data Summary for Kitimaat Haisla Village Monitor	1
Automated Data Summary for Kitimat Haul Road Monitor	5
Automated Data Summary for Industrial Avenue Monitor	9
Automated Data Summary for Kitimat Riverlodge Monitor	12
Automated Data Summary for Kitimat Whitesail Monitor	16
Automated Data Summary for Kitimat Yacht Club Monitor	20
Automated Data Summary for Terrace Skeena Middle School Monitor	23
Trinity Consultants Downtime and Maintenance Summaries	26



# Kitimat Airshed Group Society

---

Quarterly Data Summary Reports for October 1 to December 30, 2023

Our fourth quarterly data summary report includes ambient air quality stations in Kitimat, Kitimaat Village and Terrace. These reports are automatically generated using unverified data extracted from the BC Air Data Archive (Envista database) managed by the Ministry of Environment and Climate Change Strategy (BC ENV). Summary reports will be posted quarterly to provide an overview of the air quality status in the Kitimat Terrace airshed. These reports are reviewed and elaborated on by the Data Review Committee.

During this quarter, Rio Tinto's aluminum smelter continued to stabilize after reaching full production. Permit limits for total fluoride and particulate matter reverted back to the normal limits from the temporary emissions limits for the smelter restart. Further information can be found on the [Rio Tinto BC Works Website](#). Trinity Consultants maintains and operates the air quality stations for Rio Tinto in Kitimat, Kitimaat Village, and Lakelse Lake. It is important to note that the Whitesail Station's PM 2.5 BAM instrument had periods of missed data due to a faulty bearing in December. Trinity's station notes are attached at the end of the report for reference.

Other notable activities in the Kitimat airshed are the ongoing construction at [LNG Canada's](#) project site, which is 90% complete, and the construction of the Haisla bridge replacement project, which officially opened in June 2023.

Submitted by Brittany Bayne on behalf of the Kitimat Airshed Data Review Committee

270 City Centre  
Kitimat, BC, V8C 2H7

---



Ministry of  
Environment and  
Climate Change Strategy

## Automated Data Summary for **Kitimat Haisla Village** **2023 Q4**

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

## Kitimat Haisla Village

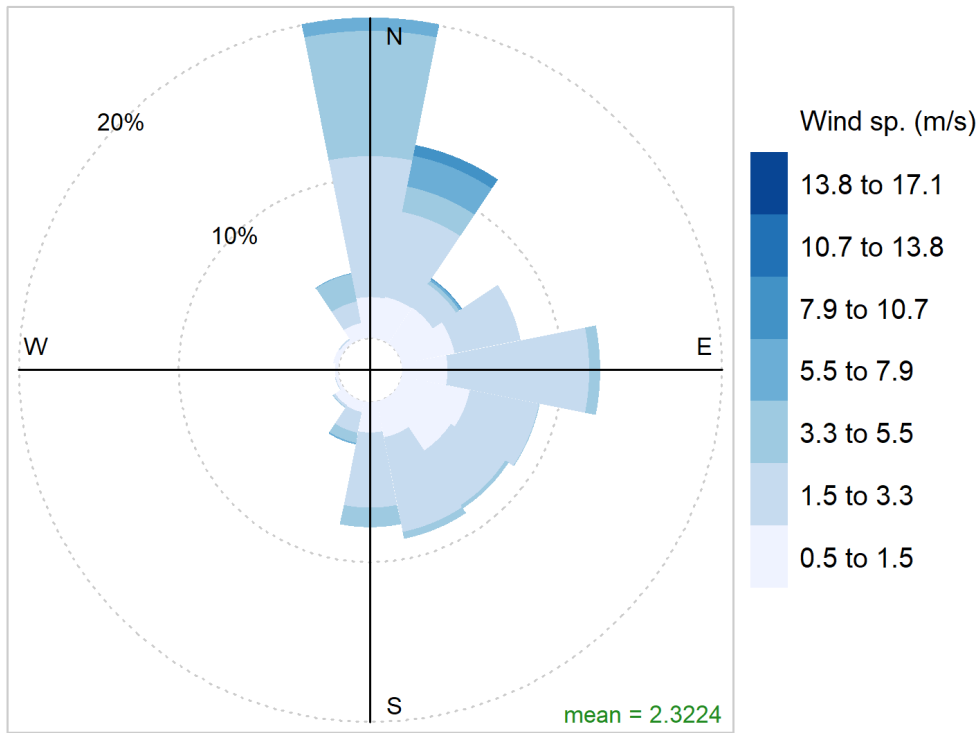
### 2023 Q4

Parameter	Unit	Avg	Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
SO2	1 H			70	0	0.3	23.3	-0.4	40.2	2023-10-07 15:00:00	95.2	Y
PM2.5	1 H					2.2	0.0	0.0	40.0	2023-12-02 11:00:00	83.6	Y
	24 H			25	0	2.3	0.0	0.2	6.4	2023-10-13	83.7	Y
Wind spd	1 H					2.2	0.0	0.0	8.9	2023-11-12 14:00:00	98.6	Y
Temp	1 H					5.5		-2.7	16.5	2023-10-08 03:00:00	97.7	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
Comp threshold is 60%

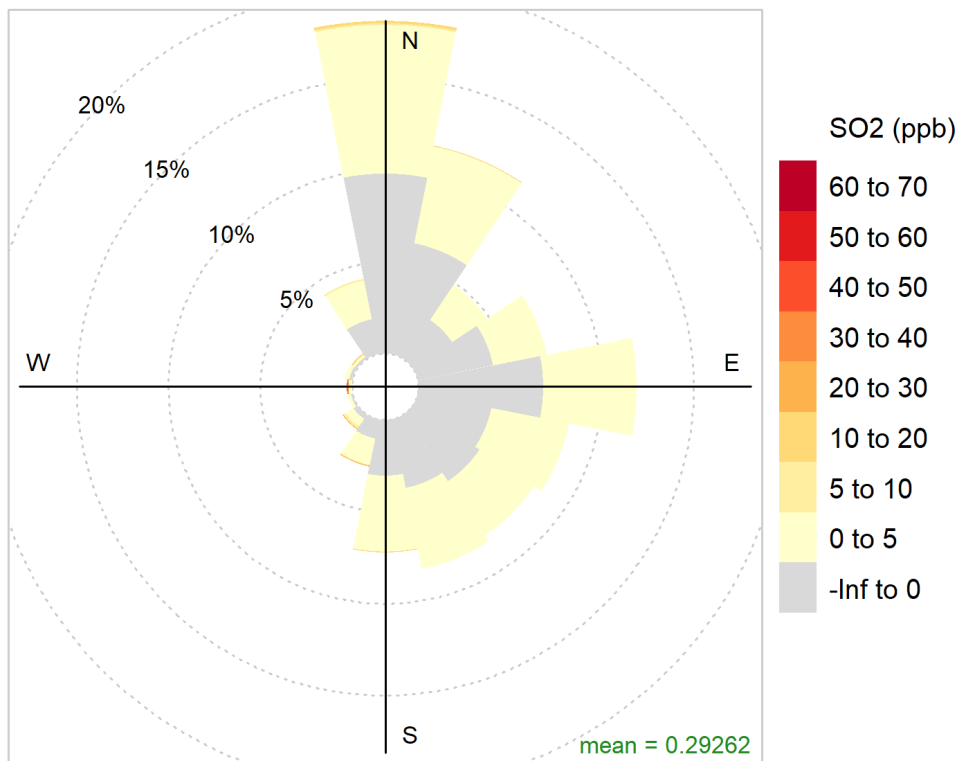
Parameter	Conversion	Unit	Notes
SO2	1 : 2.62	ppb : ug/m3	
PM2.5			
Wind spd			
Temp			

Windrose  
Kitimat Haisla Village - 2023 Q4

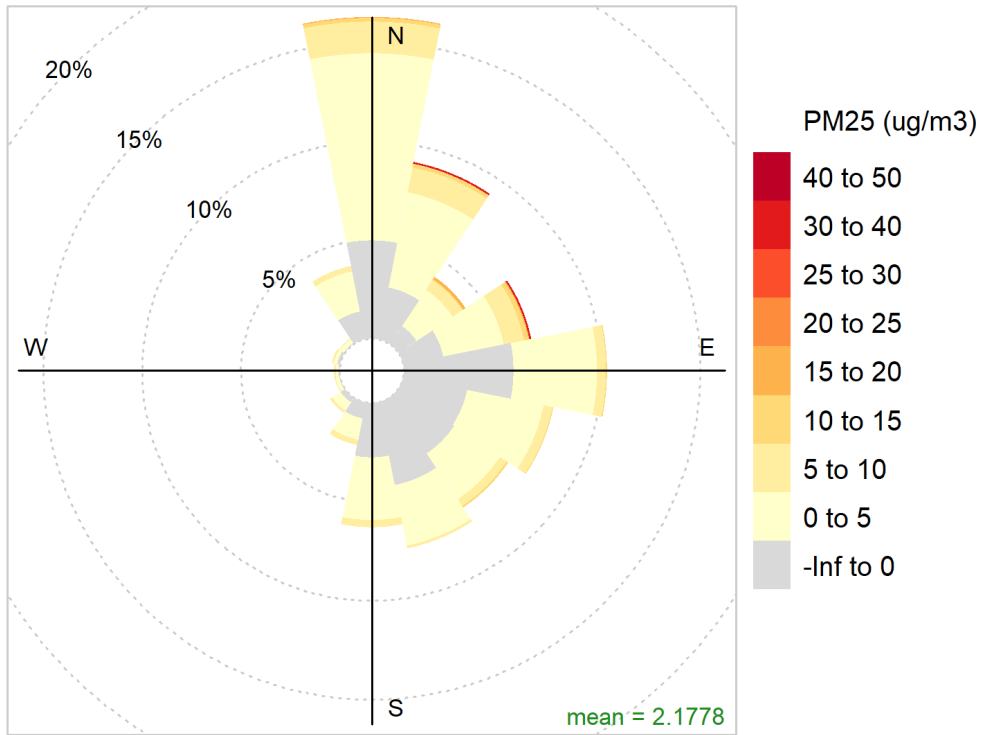


calms = 5.67%

SO2 pollution rose  
Kitimat Haisla Village - 2023 Q4



PM2.5 pollution rose  
Kitimat Haisla Village - 2023 Q4





**Automated Data Summary for**

**Kitimat Haul Road  
2023 Q4**

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.



## Kitimat Haul Road

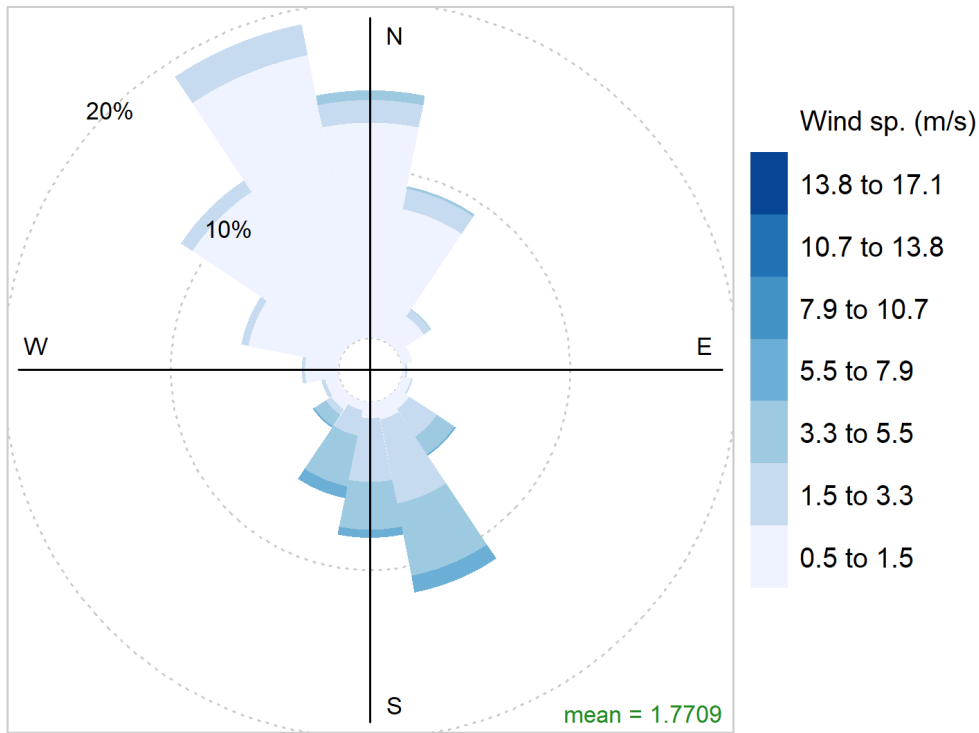
### 2023 Q4

Parameter	Unit	Avg	Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
SO2	1 H	70		70	0	3.8	1.3	-0.2	55.9	2023-12-22 14:00:00	93.7	Y
HF	1 H	63		63	0	0.1	0.0	0.0	0.3	2023-10-08 00:04:00	94.7	Y
	24 H					0.1	0.0	0.0	0.3	2023-10-08	98.9	Y
PM2.5	1 H					5.0	0.0	0.0	45.0	2023-10-18 02:00:00	94.7	Y
	24 H	25		25	0	4.9	0.0	0.9	12.1	2023-11-02	94.6	Y
Wind spd	1 H					1.7	0.0	0.0	7.6	2023-12-03 23:00:00	97.3	Y
Temp	1 H					4.6		-5.1	16.6	2023-10-08 02:00:00	100.0	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
 Comp threshold is 60%

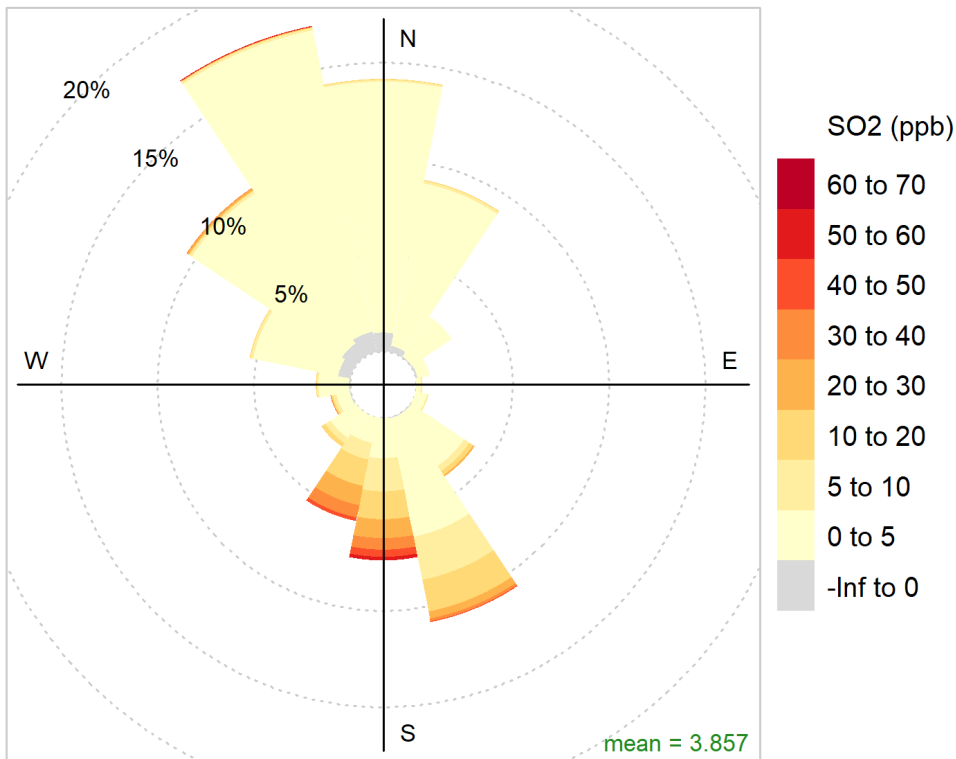
Parameter	Conversion	Unit	Notes
SO2	1 : 2.62	ppb : ug/m3	
HF	1 : 0.82	ppb : ug/m3	
PM2.5			
Wind spd			
Temp			

Windrose  
Kitimat Haul Road - 2023 Q4

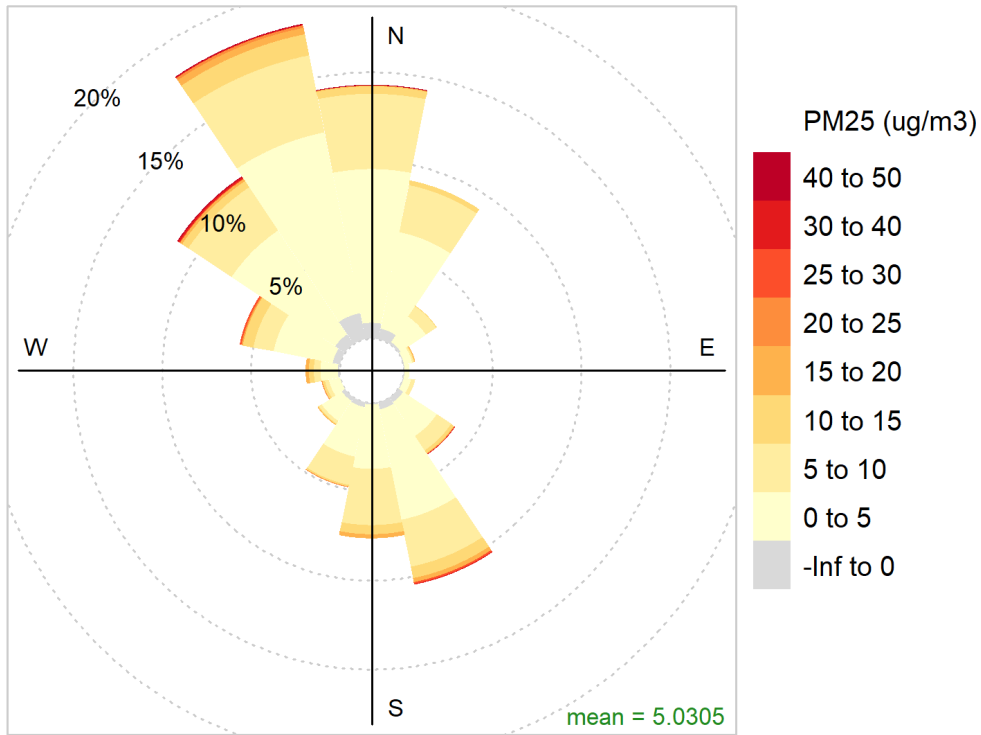


calms = 3.16%

SO2 pollution rose  
Kitimat Haul Road - 2023 Q4



PM2.5 pollution rose  
Kitimat Haul Road - 2023 Q4





Ministry of  
Environment and  
Climate Change Strategy

## Automated Data Summary for Kitimat Industrial Ave 2023 Q4

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

## Kitimat Industrial Ave

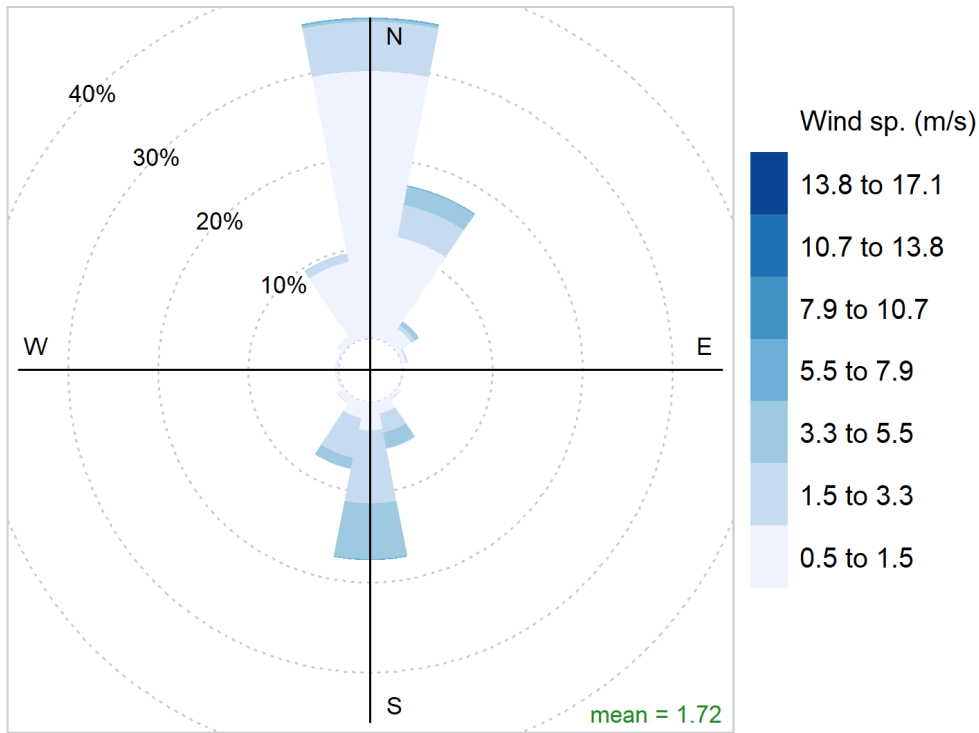
### 2023 Q4

Parameter	Unit Avg Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
SO2	1 H	70	0	1.7	0.0	0.2	41.3	See notes below	94.4	Y
Wind spd	1 H			1.5	0.0	0.0	7.1	2023-12-26 07:00:00	96.4	Y
Temp	1 H			4.2		-5.8	15.6	2023-10-06 16:00:00	99.7	Y
Humidity	1 H			89.1	0.0	27.0	95.8	More than 5 occurrences (n = 7)	99.7	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
Comp threshold is 60%

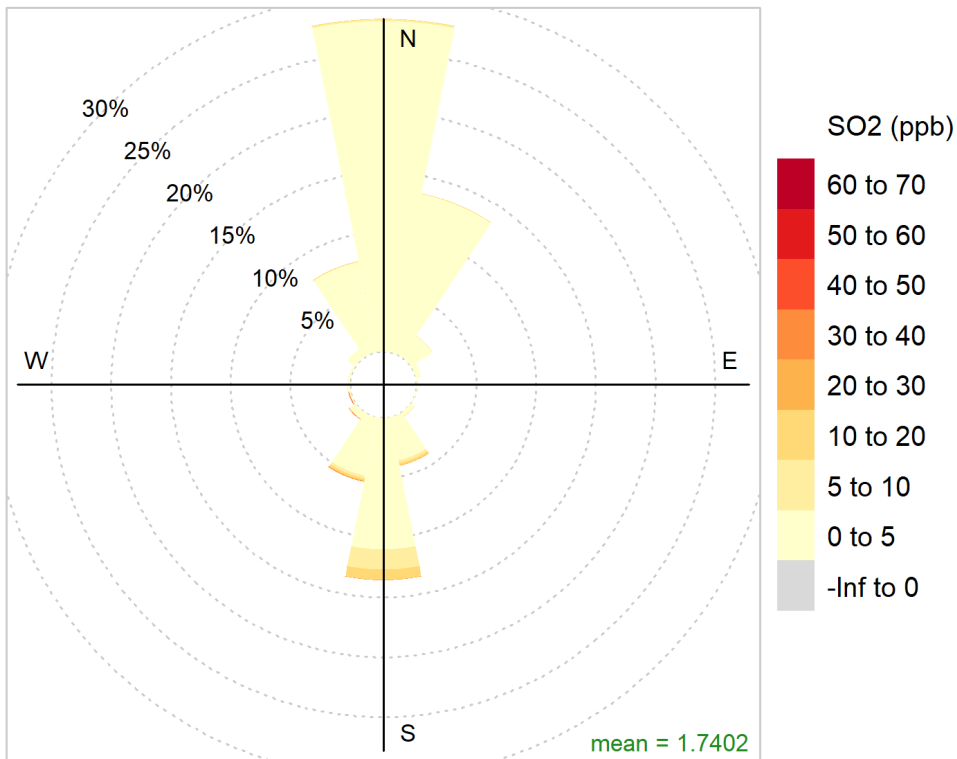
Parameter	Conversion	Unit	Notes
SO2	1 : 2.62	ppb : ug/m3	The data in the quarterly reports is unvalidated and the numbers are subject to change as data is validated. The max value for SO2 1hr shown on the BC Ministry of Environment website is 40.8 2023-10-06 13:00:00
Wind spd			
Temp			
Humidity			

Windrose  
Kitimat Industrial Ave - 2023 Q4



calms = 0.06%

SO2 pollution rose  
Kitimat Industrial Ave - 2023 Q4





## Automated Data Summary for

# Kitimat Riverlodge 2023 Q4

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

## Kitimat Riverlodge

### 2023 Q4

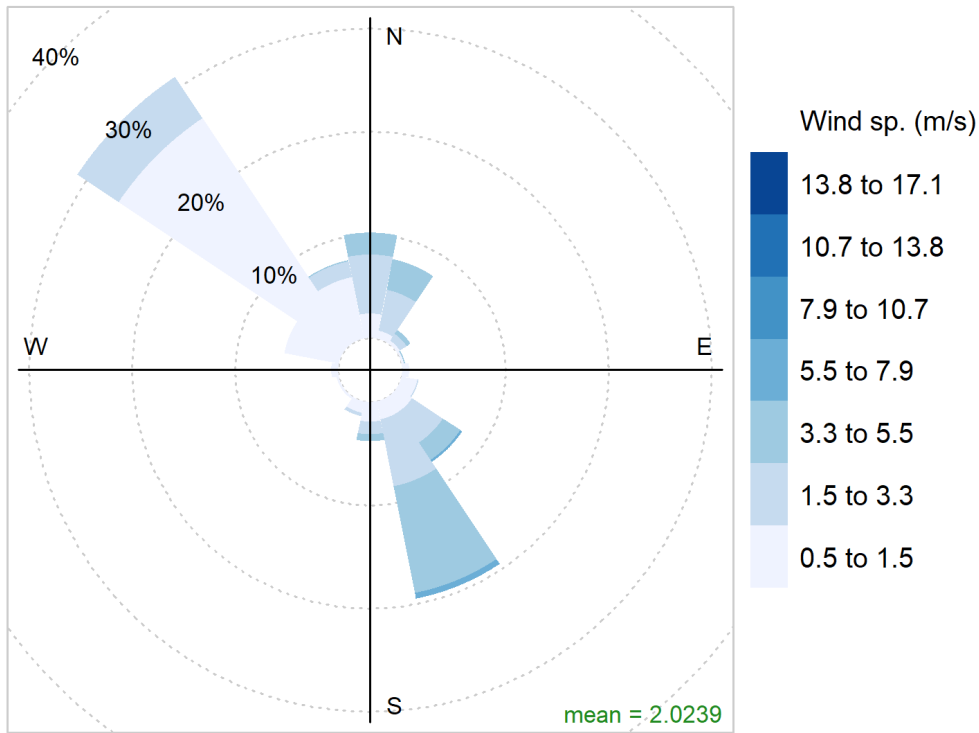
Parameter	Unit Avg Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
SO2	1 H	70	0	0.5	2.2	-0.2	27.7	2023-10-06 13:00:00	95.3	Y
HF	1 H	63	0	0.1	0.0	0.0	0.2	More than 5 occurrences (n = 20)	95.3	Y
	24 H			0.1	0.0	0.1	0.2	More than 5 occurrences (n = 18)	100.0	Y
PM2.5	1 H			4.9	0.0	0.0	46.0	2023-10-17 23:00:00	91.8	Y
	24 H	25	0	4.9	0.0	1.5	14.0	2023-11-02	91.3	Y
PM10	1 H			6.9	0.0	0.0	985.0	See notes	95.2	Y
	24 H	50	2	7.0	0.0	1.4	52.5	2023-10-24	94.6	Y
Wind spd	1 H			1.6	0.0	0.0	6.5	2023-12-26 07:00:00	95.9	Y
Temp	1 H			4.6		-5.6	15.9	2023-10-08 03:00:00	99.9	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
Comp threshold is 60%

Parameter	Conversion	Unit	Notes
SO2	1 : 2.62	ppb : ug/m3	
HF	1 : 0.82	ppb : ug/m3	
PM2.5			Corrected PM 10 1hr Max for Riverlodge is 78 ug/m3 2023-11-13 18:00:00. Further information is below.
PM10			
Wind spd			
Temp			

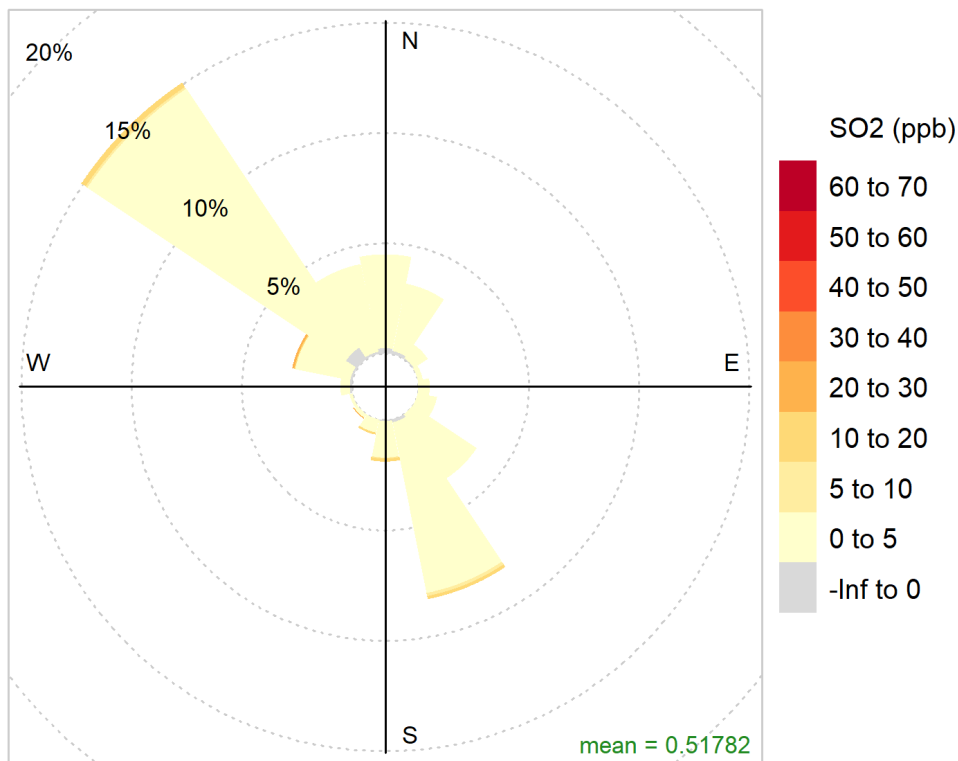


Windrose  
Kitimat Riverlodge - 2023 Q4

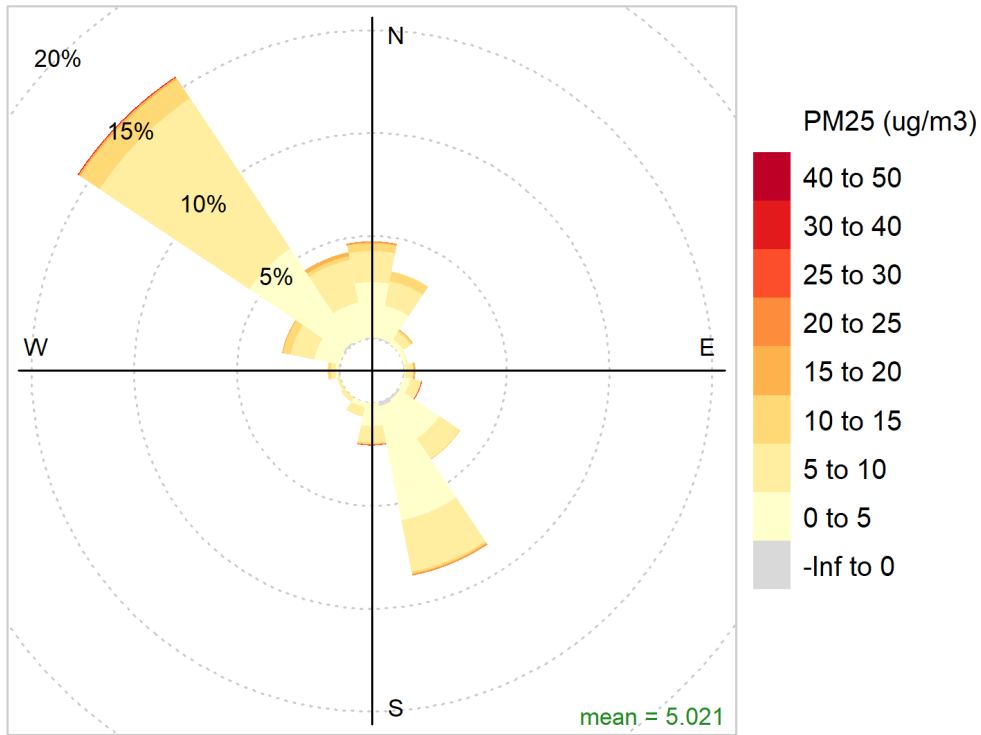


calms = 17.38%

SO2 pollution rose  
Kitimat Riverlodge - 2023 Q4



PM2.5 pollution rose  
Kitimat Riverlodge - 2023 Q4





Ministry of  
Environment and  
Climate Change Strategy

## Automated Data Summary for

# Kitimat Whitesail 2023 Q4

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

## Kitimat Whitesail

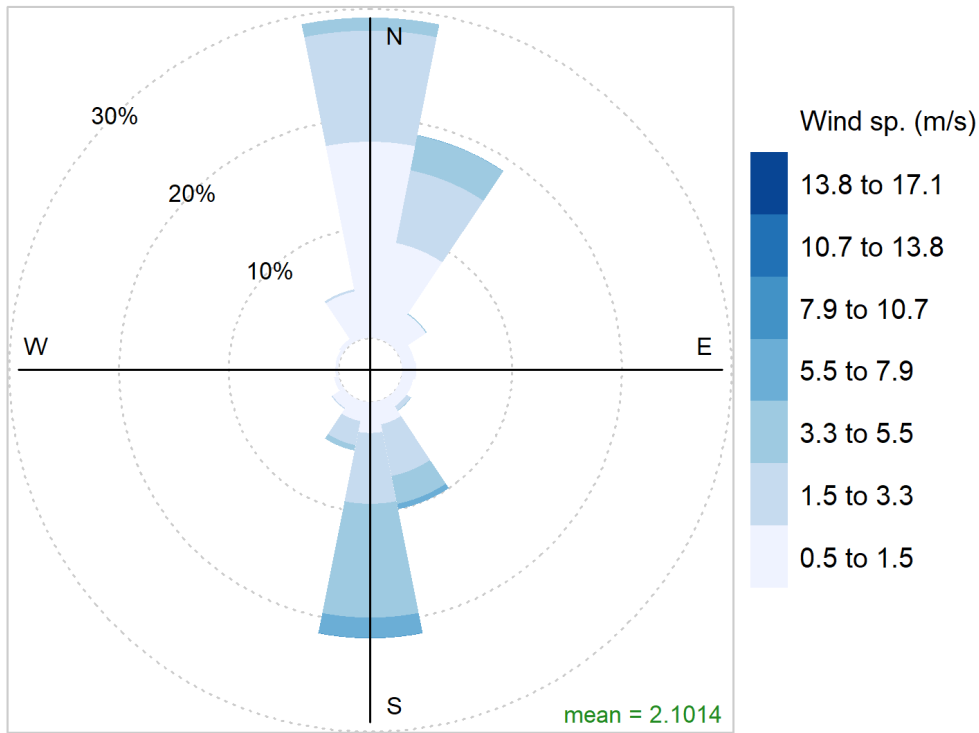
### 2023 Q4

Parameter	Unit Avg Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
AQHI	1 H					1	12	2023-10-07 15:00:00	88.6	Y
NO2	1 H	60	0	1.6	0.0	0.2	12.7	2023-12-09 18:00:00	95.0	Y
SO2	1 H	70	0	0.6	0.5	-0.1	25.1	2023-10-06 11:00:00	95.0	Y
O3	1 H	82	0	15.1	0.1	-0.2	42.0	2023-12-26 11:00:00	95.0	Y
PM2.5	1 H			3.8	0.0	0.0	629.0	See notes	87.4	Y
	24 H	25	0	3.2	0.0	0.7	13.7	2023-10-17	84.8	Y
Wind spd	1 H			2.0	0.0	0.0	8.0	2023-12-26 07:00:00	95.7	Y
Temp	1 H			4.2		-5.3	15.7	2023-10-08 03:00:00	100.0	Y
Humidity	1 H			93.4	0.0	29.1	100.0	More than 5 occurrences (n = 430)	100.0	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
Comp threshold is 60%

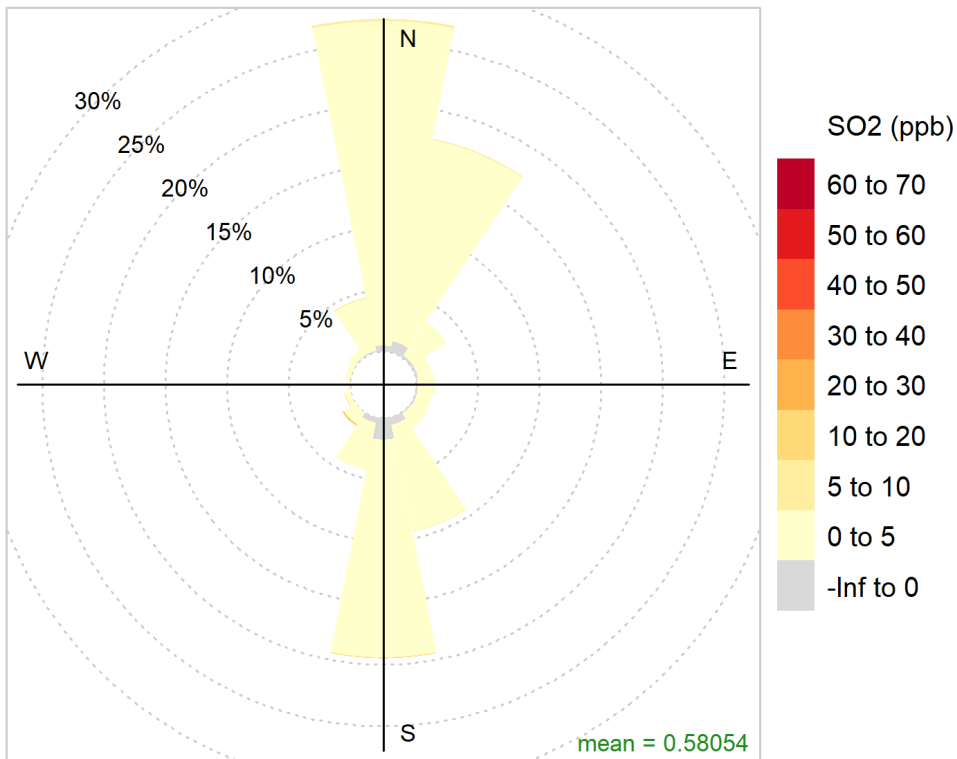
Parameter	Conversion	Unit	Notes
AQHI			
NO2	1 : 1.88	ppb : ug/m3	
SO2	1 : 2.62	ppb : ug/m3	
O3	1 : 1.96	ppb : ug/m3	
PM2.5			The corrected PM2.5 2hr max for Whitesail is 79.0 ug/m3 2023-10-17 20:00:00. Further information is below.
Wind spd			
Temp			
Humidity			

Windrose  
Kitimat Whitesail - 2023 Q4

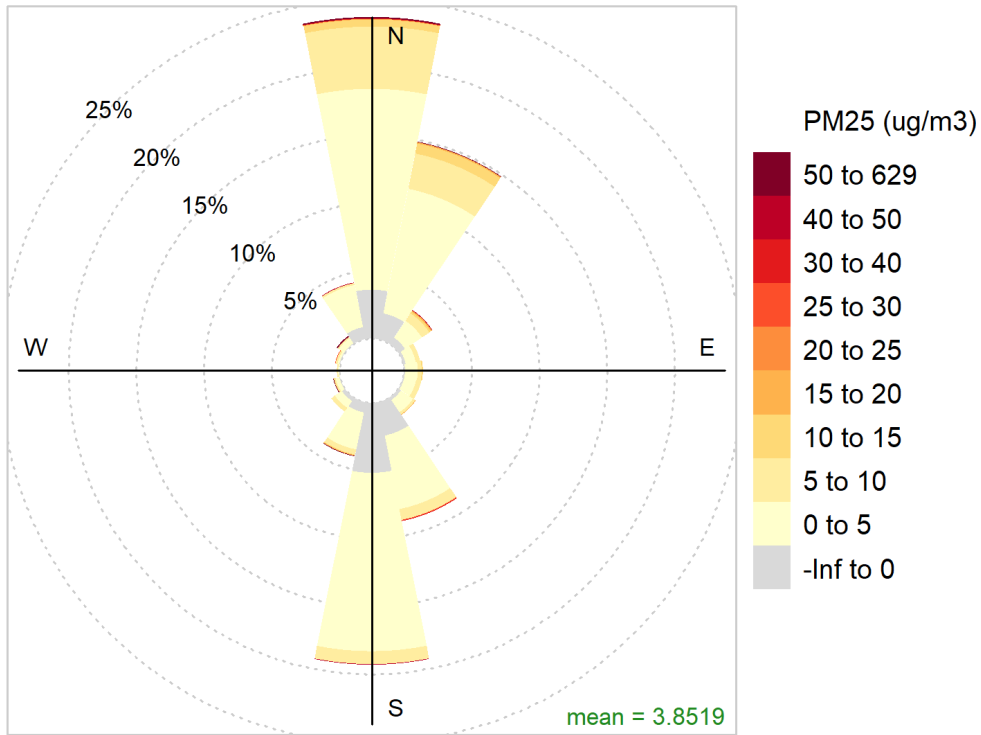


calms = 4.45%

SO<sub>2</sub> pollution rose  
Kitimat Whitesail - 2023 Q4



PM2.5 pollution rose  
Kitimat Whitesail - 2023 Q4





**Automated Data Summary for**

**Kitimat Yacht Club  
2023 Q4**

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

# Kitimat Yacht Club

## 2023 Q4

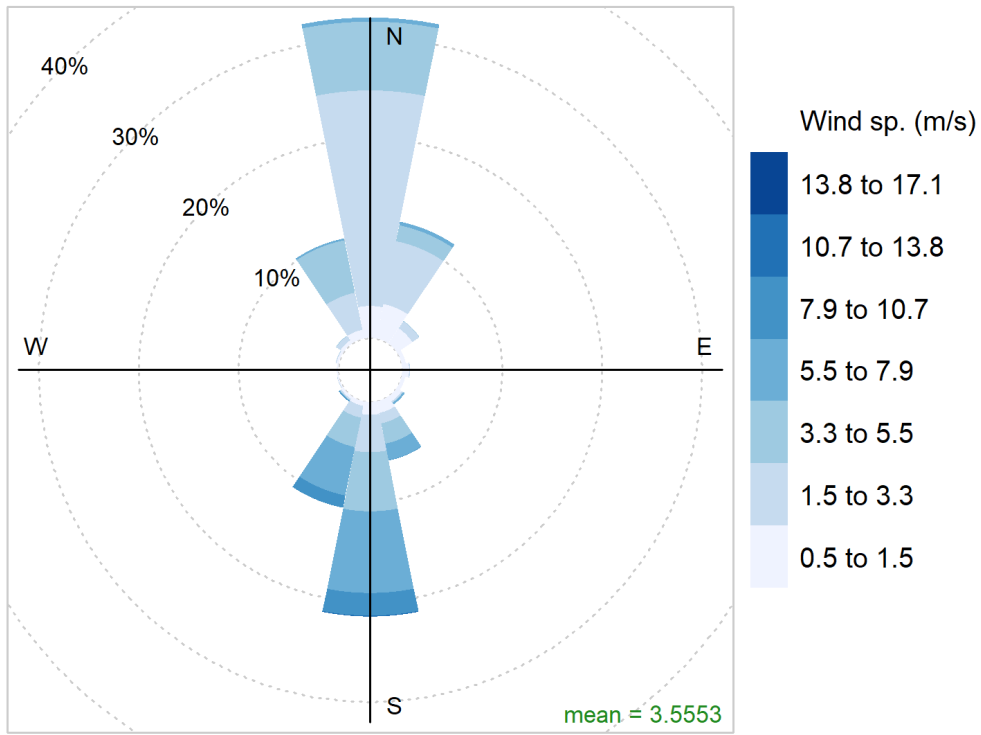
Parameter	Unit	Avg	Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
Wind spd	1 H					3.5	0.0	0.0	11.1	2023-12-13 09:00:00	98.4	Y
Temp	1 H					5.1		-3.6	15.7	2023-10-07 23:00:00	100.0	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
 Comp threshold is 60%

Parameter	Conversion	Unit	Notes
Wind spd			
Temp			



Windrose  
Kitimat Yacht Club - 2023 Q4



calms = 0.37%



**Automated Data Summary for**  
**Terrace Skeena Middle School**  
**2023 Q4**

Provided to the Kitimat Airshed Group by the  
B.C. Ministry of Environment and Climate Change Strategy

Generated:  
2 January 2024

**Note**

This report is generated automatically and contains unvalidated data.

## Terrace Skeena Middle School

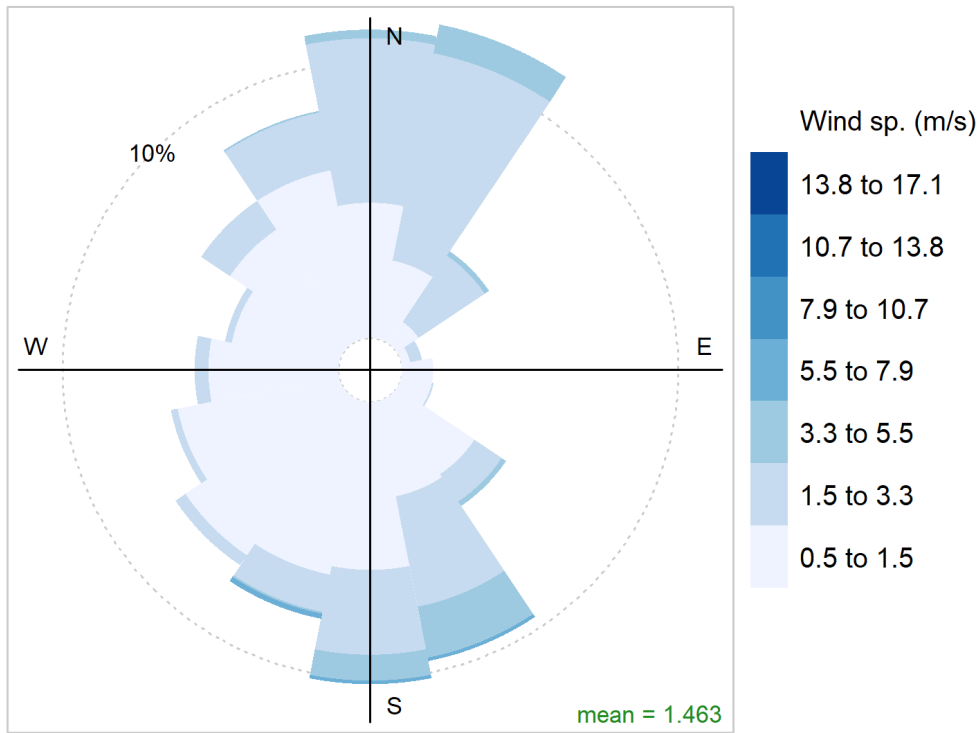
### 2023 Q4

Parameter	Unit	Avg	Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	% Comp	Comp
AQHI	1 H							1	9	2023-11-05 22:00:00	99.9	Y
NO2	1 H	60		0		2.3	20.3	-1.9	15.0	2023-10-27 19:00:00	93.8	Y
SO2	1 H	70		0		0.6	0.0	0.0	5.6	2023-10-11 14:00:00	95.8	Y
O3	1 H	82		0		14.2	0.7	-0.3	41.8	2023-12-26 09:00:00	95.7	Y
PM2.5	1 H					7.0	0.0	0.0	86.6	2023-11-05 22:00:00	99.9	Y
	24 H	25		0		7.0	0.0	2.7	21.7	2023-10-29	100.0	Y
Wind spd	1 H					1.1	0.0	0.0	7.2	2023-12-26 08:00:00	99.8	Y
Temp	1 H					4.6		-6.7	17.9	2023-10-08 03:00:00	100.0	Y
Humidity	1 H					85.4	0.0	23.3	98.6	2023-12-21 10:00:00 2023-12-21 16:00:00 2023-12-21 17:00:00	100.0	Y

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period; Qtr = Quarter  
Comp threshold is 60%

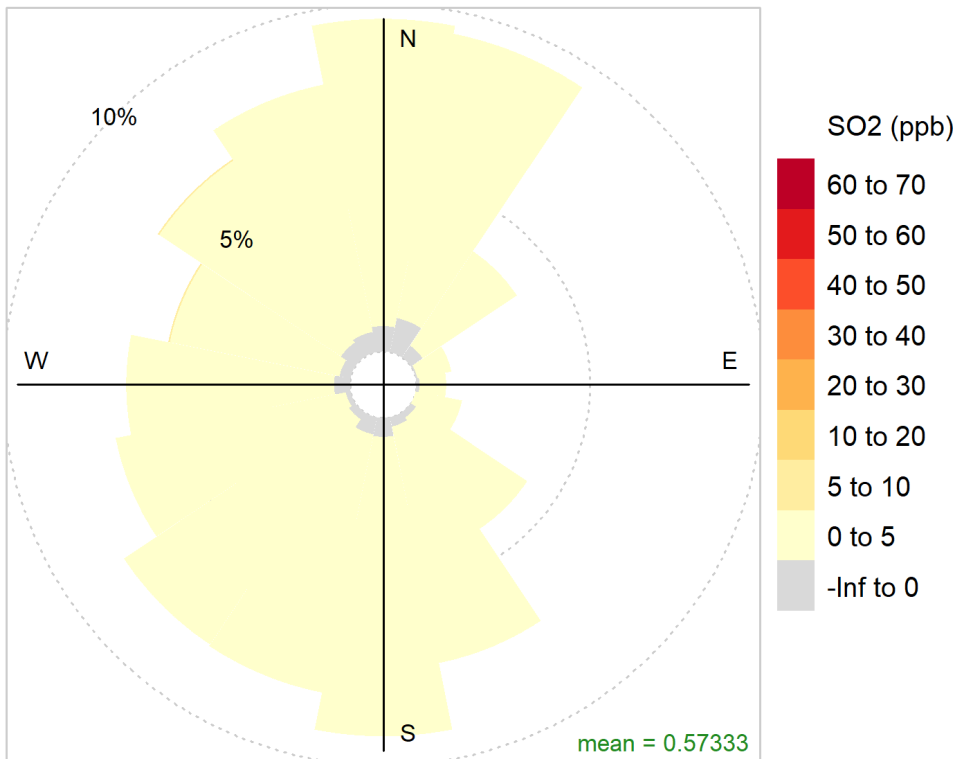
Parameter	Conversion	Unit	Notes
AQHI			
NO2	1 : 1.88	ppb : ug/m3	
SO2	1 : 2.62	ppb : ug/m3	
O3	1 : 1.96	ppb : ug/m3	
PM2.5			
Wind spd			
Temp			
Humidity			

Windrose  
Terrace Skeena Middle School - 2023 Q4

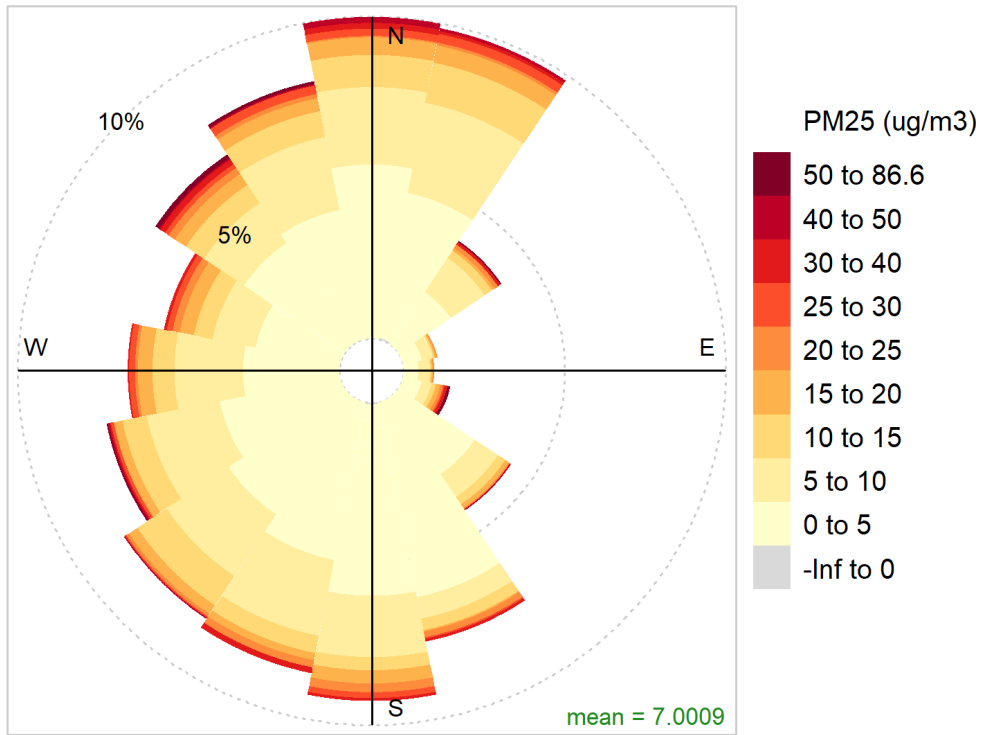


calms = 26.41%

SO2 pollution rose  
Terrace Skeena Middle School - 2023 Q4



PM2.5 pollution rose  
Terrace Skeena Middle School - 2023 Q4



## Significant Offline Periods

Station	Start Date	Start Hour	End Date	End Hour	Parameters	Description
Riverlodge	2023-10-10	1900	2023-10-18	500	Wind	Reading Erroenously; Sensor Malfunctioning
Riverlodge	2023-11-15	1200	2024-01-01	0	Wind	Reading Erroenously; Sensor Malfunctioning
Industrial	2023-11-09	200	2023-11-09	1400	SO2	Stopped Communicating; Rebooted
Industrial	2023-11-27	1500	2023-11-27	1600	SO2	Stopped Communicating; Rebooted
Haul Road	2023-12-18	900	2023-12-19	1000	SO2	Stopped Communicating; Rebooted
Whitesail	2023-12-18	2000	2023-12-19	1700	PM	Tape Shuttle Issue
Whitesail	2023-12-21	400	2023-12-21	1600	PM	Tape Shuttle Issue
Whitesail	2023-12-24	100	2023-12-26	1300	PM	Tape Shuttle Issue
Whitesail	2023-12-28	100	2023-12-28	500	PM	Tape Shuttle Issue
Whitesail	2023-12-30	100	2023-12-31	800	PM	Tape Shuttle Issue
Whitesail	2023-12-31	1700	2024-01-01	0	PM	Tape Shuttle Issue

## Maintenance

Station	Start Date	Start Hour	End Date	End Hour	Parameters	Description
Village	2023-10-17	1100	2023-10-20	1200	PM	Zero Background Test
Village	2023-10-20	1300	2023-10-20	1300	PM	Flow Check; Pump Replaced
Village	2023-10-20	1300	2023-10-26	1700	PM	Zero Background Test Take 2
Village	2023-10-23	1100	2023-10-23	1300	All Met	Met Calibration Check
Village	2023-10-23	1300	2023-10-23	1400	SO2	Calibrator MFC Verification
Village	2023-10-26	1800	2023-11-07	1800	PM	Wrong Background Value Entered in BAM
Village	2023-11-13	1100	2023-11-13	1100	SO2	Filter Changed
Village	2023-11-24	1200	2023-11-24	1300	PM	Monthly BAM Maintenance

Village	2023-12-02	1600	2023-12-02	1600	SO2	Filter Changed
Village	2023-12-18	1300	2023-12-18	1600	SO2	SO2 Calibration
Village	2023-12-27	1100	2023-12-27	1200	PM	Monthly BAM Maintenance
Haul Road	2023-10-13	1200	2023-10-13	1200	SO2/HF	Troubleshooting calibration system
Haul Road	2023-10-24	1000	2023-10-24	1200	All Met	Met Calibration Check
Haul Road	2023-10-24	1400	2023-10-24	1500	SO2/HF	Calibrator MFC Verification
Haul Road	2023-10-24	1400	2023-10-24	1600	PM	Monthly BAM Maintenance
Haul Road	2023-10-31	1200	2023-10-31	1200	SO2/HF	SO2 pump replaced; Calibrator Troubleshooting
Haul Road	2023-11-01	1400	2023-11-01	1500	SO2/HF	Calibrator Troubleshooting
Haul Road	2023-11-02	1100	2023-11-02	1300	SO2/HF	SO2 Calibration
Haul Road	2023-11-17	1300	2023-11-21	1500	PM	Zero Background Test
Haul Road	2023-12-07	1100	2023-12-07	1400	SO2/HF	HF MP Verification; HF Analyzer Swap
Haul Road	2023-12-26	1500	2023-12-26	1600	PM	Monthly BAM Maintenance
Industrial	2023-10-25	1500	2023-10-25	1700	All Met	Met Calibration Check
Industrial	2023-10-28	1300	2023-10-28	1300	SO2	Calibrator MFC Verification
Industrial	2023-11-28	1100	2023-11-28	1300	SO2	SO2 Calibration
Industrial	2023-12-07	1600	2023-12-07	1600	SO2	Filter Change
Riverlodge	2023-10-22	1100	2023-10-22	1300	All Met	Met Calibration Check
Riverlodge	2023-10-22	1500	2023-10-22	1700	SO2/HF	Calibrator MFC Verification
Riverlodge	2023-10-22	1600	2023-10-22	1900	PM10/PM2.5	Monthly BAM Maintenance
Riverlodge	2023-11-24	1500	2023-11-24	1500	PM10	Monthly BAM Maintenance
Riverlodge	2023-11-24	1600	2023-11-28	1500	PM10	Zero Background Test
Riverlodge	2023-11-28	1500	2023-11-28	1500	PM25	Monthly BAM Maintenance
Riverlodge	2023-11-28	1600	2023-12-05	1400	PM25	Zero Background Test
Riverlodge	2023-12-12	1400	2023-12-12	1400	SO2/HF	HF MP Verification
Riverlodge	2023-12-18	1300	2023-12-18	1400	SO2/HF	SO2 MP Verification
Riverlodge	2023-12-26	1600	2023-12-26	1700	PM10	Monthly BAM Maintenance
Riverlodge	2023-12-27	1400	2023-12-27	1600	PM2.5	Monthly BAM Maintenance

Whitesail	2023-10-03	900	2023-10-03	1000	SO2/O3/NOx	NOx/SO2 Multipoint Verification
Whitesail	2023-10-27	1000	2023-10-27	1500	All Met	Met Calibration Check
Whitesail	2023-10-27	1600	2023-10-27	1700	SO2/O3/NOx	Calibrator MFC Verification
Whitesail	2023-10-27	1700	2023-10-27	1700	PM	Monthly BAM Maintenance
Whitesail	2023-10-27	1800	2023-10-31	1100	PM	Zero Background Test
Whitesail	2023-10-28	900	2023-10-28	1100	SO2/O3/NOx	Ozone Transfer Standard Check
Whitesail	2023-11-02	1300	2023-11-02	1500	SO2/O3/NOx	NOx Multipoint Verification / SO2 Calibration
Whitesail	2023-11-13	1300	2023-11-13	1300	SO2/O3/NOx	Filters Changed
Whitesail	2023-11-22	1300	2023-11-22	1800	PM	Monthly BAM Maintenance
Whitesail	2023-12-10	1100	2023-12-10	1100	SO2/O3/NOx	Filters Changed
Whitesail	2023-12-21	1600	2023-12-21	1600	PM	Monthly BAM Maintenance
Yacht Club	2023-10-28	1200	2023-10-28	1300	All Met	Met Calibration Check



**Fwd: FW: [External] RE: Q4 Particulate measurements - high results.**

Lis Stannus <lstannus@gmail.com>  
 To: Kitimat Airshed Group <kitimatairshedgroup@gmail.com>  
 Cc: "Zettler, Shawn (RTA)" <shawn.zettler@riotinto.com>, Chris.Horne@ingcanada.ca

Brittany,  
 See Shawn's message to append this information to the end of the Q4 report. In my opinion, we should be flagging the discrepancy in the ENV report with the explanation appended to our report. We  
 However, the protocol needs to be discussed as a group.  
 Lis

----- Forwarded message -----  
 From: **Zettler, Shawn (RTCMI)** <shawn.zettler@riotinto.com>  
 Date: Tue, Jan 23, 2024 at 3:19 PM  
 Subject: FW: [External] RE: Q4 Particulate measurements - high results.  
 To: Brittany Bayne, Lis Stannus <lstannus@gmail.com>

Hi Brittany,  
  
 Can you please append the below email to the Q4 data report.  
 The PM10 1hr max value provided in the Ministry report for the Riverlodge station is invalid as is the PM2.5 max value for the Whitesail Station.

- The corrected maximums should be:
- The PM10 1hr max for Riverlodge should be 78 ug/m<sup>3</sup>, Nov. 13 at 6:00 pm.
  - The PM2.5 1hr max for Whitesail should be 79 ug/m<sup>3</sup>, Oct. 17 at 8:00 pm.

Many thanks,  
  
 Shawn.

**From:** Wyndam Lewis <wlewis@trinityconsultants.com>  
**Sent:** Tuesday, January 23, 2024 2:25 PM  
**To:** Zettler, Shawn (RTCMI) <shawn.zettler@riotinto.com>  
**Subject:** [External] RE: Q4 Particulate measurements - high results.

Hi Shawn,  
  
**Riverlodge:**

The 2 hours at Riverlodge in October are also invalid. I tried to pull the data off the Envidas logger to get a better visual of how the data is being flagged, but this logger was replaced very recently. It flagging.

TMSTAMP	PM10	PM10_Vol	PM10_FRH	BAM10Sta
10/22/2023 13:00	-2	0.7	21	
10/22/2023 14:00	4	0.701	21	
10/22/2023 15:00	6	0.7	22	
10/22/2023 16:00	985	0	22	M
10/22/2023 17:00	985	0	24	M
10/22/2023 18:00	12	0.702	26	
10/22/2023 19:00	10	0.7	25	
10/22/2023 20:00	9	0.701	24	

TMSTAMP	PM10	PM10_Vol	PM10_FRH	BAM10Sta
10/24/2023 3:00	12	0.701	19	
10/24/2023 4:00	10	0.701	17	
10/24/2023 5:00	9	0.701	17	
10/24/2023 6:00	985	0	21	T
10/24/2023 7:00	14	0.7	16	
10/24/2023 8:00	16	0.701	16	
10/24/2023 9:00	9	0.701	16	

**Whitesail:**

The one hour of PM2.5 on Nov 2<sup>nd</sup> at Whitesail is invalid; the BAM was malfunctioning for several hours before and after this hour.

The one hour of PM2.5 on Dec 31<sup>st</sup> at 2100 at Whitesail is also invalid; the BAM was malfunctioning from 1700 to 100 the following morning.

These malfunctions pertained to an issue with an intermittently bad ball slide mechanism, which was replaced on Jan 4<sup>th</sup>, 2024. Times in which the ball slide was not functioning properly is evident by near concentrations of -15 ug/m3. For example:

12/31/2023 9:00	-1	0.701	19
12/31/2023 10:00	1	0.701	19
12/31/2023 11:00	6	0.701	18
12/31/2023 12:00	4	0.701	19
12/31/2023 13:00	2	0.701	19
12/31/2023 14:00	3	0.7	19
12/31/2023 15:00	5	0.701	19
12/31/2023 16:00	4	0.701	19
12/31/2023 17:00	-15	0.7	20
12/31/2023 18:00	38	0.701	19
12/31/2023 19:00	-13	0.701	20
12/31/2023 20:00	-1	0.701	19
12/31/2023 21:00	629	0.701	19
12/31/2023 22:00	-15	0.7	19 D
12/31/2023 23:00	-15	0.701	19
1/1/2024 0:00	5	0.701	19
1/1/2024 1:00	201	0.701	19
1/1/2024 2:00	4	0.701	19
1/1/2024 3:00	5	0.701	19
1/1/2024 4:00	6	0.701	18
1/1/2024 5:00	4	0.7	18
1/1/2024 6:00	3	0.701	18
1/1/2024 7:00	4	0.701	18
1/1/2024 8:00	8	0.701	18
1/1/2024 9:00	5	0.7	18
1/1/2024 10:00	9	0.701	18
1/1/2024 11:00	7	0.701	19

**Wyndam Lewis**

Data Manager, Meteorologist

P 530.774.7559

4525 Wasatch Blvd., Suite 200 Salt Lake City, UT 84124



Check out our live data service: [mytrinitydata.com](http://mytrinitydata.com)

---

**From:** Zettler, Shawn (RTCM) <[shawn.zettler@riotinto.com](mailto:shawn.zettler@riotinto.com)>  
**Sent:** Monday, January 22, 2024 12:26 PM  
**To:** Wyndam Lewis <[wlewis@trinityconsultants.com](mailto:wlewis@trinityconsultants.com)>  
**Subject:** Q4 Particulate measurements - high results.

Hi Wyndam,

I am looking at a Q4 air quality summary report from the BC Ministry of Environment and the report shows some high PM measurements that I am wondering if they are incorrect.

Riverlodge:

- Two hours of PM10 at 985 ug/m<sup>3</sup> (please see the below screen grabs).

Whitesail:

- One hour of PM2.5 at 260 ug/m<sup>3</sup>, Nov. 2 7pm
- One hour of PM2.5 at 629 ug/m<sup>3</sup>, Dec. 31, 9pm

Can you please check to confirm if the measurements are erroneous and the cause for the error.

Many thanks,

Shawn.

Riverlodge

10/22/2023	1:00 PM	0
10/22/2023	2:00 PM	4
10/22/2023	3:00 PM	6
10/22/2023	4:00 PM	985
10/22/2023	5:00 PM	
10/22/2023	6:00 PM	
10/22/2023	7:00 PM	10

10/24/2023	5:00 AM	9
10/24/2023	6:00 AM	985
10/24/2023	7:00 AM	
10/24/2023	8:00 AM	16
10/24/2023	9:00 AM	9

# KITIMAT RIVERIOAGE

## 2023 Q4

Parameter	Unit Avg Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max
SO2	1 H	70	0	0.5	2.2	-0.2	27.7	
HF	1 H	63	0	0.1	0.0	0.0	0.2	More than 5 occurrences (n = 2)
	24 H			0.1	0.0	0.1	0.2	More than 5 occurrences (n = 1)
PM2.5	1 H			4.9	0.0	0.0	46.0	2023-10-17 23:00:00
	24 H	25	0	4.9	0.0	1.5	14.0	2023-11-02
PM10	1 H			6.9	0.0	0.0	985.0	
	24 H	50	2	7.0	0.0	1.4	52.5	2023-10-24
Wind spd	1 H			1.6	0.0	0.0	6.5	2023-12-26 07:00:00
Temp	1 H			4.6		-5.6	15.9	2023-10-08 03:00:00

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period of Max

### Whitesail

11/2/2023	6:00 PM	
11/2/2023	7:00 PM	260
11/2/2023	8:00 PM	
11/2/2023	9:00 PM	

12/31/2023	8:00 PM	0
12/31/2023	9:00 PM	629
12/31/2023	10:00 PM	
12/31/2023	11:00 PM	

### Kitimat Whitesail

#### 2023 Q4

Parameter	Unit Avg Prd	Obj	Excd	Qtr Avg	% Neg	Min	Max	Prd of Max	%
AQHI	1 H					1	12	2023-10-07 15:00:00	
NO2	1 H	60	0	1.6	0.0	0.2	12.7		
SO2	1 H	70	0	0.6	0.5	-0.1	25.1		
O3	1 H	82	0	15.1	0.1	-0.2	42.0		
PM2.5	1 H			3.8	0.0	0.0	629.0		
	24 H	25	0	3.2	0.0	0.7	13.7	2023-10-17	
Wind spd	1 H			2.0	0.0	0.0	8.0	2023-12-26 07:00:00	
Temp	1 H			4.2		-5.3	15.7	2023-10-08 03:00:00	
Humidity	1 H			93.4	0.0	29.1	100.0	More than 5 occurrences (n = 430)	

Avg = Average; Comp = Completeness; Excd = number of exceedances; Neg = negative data; Obj = Air quality objective; Prd = Period of Max