

File Names

12:00 Monday, March 21, 2005 1

File #	Original File Name
1	PAC2001_SMMT_HAB_GAS_PART_DENUD+FILTER_20010816D16_V1.csv

Dataset Key Phrases

2

Data Exchange Standard Version	Principal Investigator Name--last first	Principal Investigator Affiliation	File Contents Description--short long	Sampling Interval As Reported in Main Table	Sampling Frequency Of Data in Main Table	Quality Control Level	Organization Acronym	Organization Name	Data Usage Acknowledgement	Study Or Network Acronym
NARSTO 2002/05/28 (2.301)	Wiebe ; Dr. AI	Air Quality Research Branch, Meteorological Service of Canada	GAS_PART_DN+FP ; Denuder/filterpack measurements of gases and particulate inorganic ions with 2.5 um cutoff	4 h day/8 h night	Same as sampling interval	1	ENVCAN	Environment Canada	Meteorological Service of Canada, Environment Canada, 4905 Dufferin St., Toronto, Ont. Canada M3H 5T4	PAC2001

Study Or Network Name	Country Code	State Or Province Code	Principal Investigator Contact Information	Co-investigator Name--last first	Co-investigator Affiliation	Name And Affiliation Of Person Who Generated This File	Date Of Last Modification To Data In Main Table	Name And Version Of Software Used To Create This File	Companion File Name format And Version	Date This File Generated archive Version Number
Pacific 2001	CA (CANADA)	BC	Dr. AI Wiebe, 4905 Dufferin St., Toronto ON, CANADA, M3H 5T4 AI.Wiebe@ec.gc.ca	Hayden ; Katherine	Air Quality Research Branch, Meteorological Service of Canada	Katherine Hayden, Meteorological Service of Canada	2002/11/15	Excel/2000	None ; 0	2004/10/26 ; 1

Table Explanation Of Zero Or Negative Values			Table Explanation Of Reported Detection Limit Values		Table Explanation Of Reported Uncertainty	Table User Note	Table User Note2	Table User Note3	Table User Note4	Table Name	Table Focus
Zero or negative values appear in this table. These values occur when the measurement is within the detection limit and correcting for the blank value results in a negative value.			Detection limit values are not flagged. We plan to evaluate and state detection limit values in the next version of this file.		Not applicable	Not applicable	Not applicable			GAS_PART_DENUDER+FP	Surface--fixed

Site Information

Site ID	Name	State Province code	Latitude: decimal degree	Longitude: decimal degree	Sampling height above ground (m)	Ground elevation above sea level (m)	Site land use	Site location setting	Measurement start date	Measurement end date	Co-incident measurements	Study site ID	Lat lon accuracy
PC01CABCSMMT	Sumas	BC	49.05166	-122.24666	1.5	300.0	Forest	Rural	2001/08/16	2001/08/31			15

NARSTO Standard Flags

Flag: NARSTO	Description
H1	Historical data that have not been assessed or validated
	Historical data that have not been assessed or validated
	Historical data that have not been assessed or validated
M1	Missing value because no value is available
	Missing value because no value is available
	Missing value because no value is available
M2	Missing value because invalidated by data originator
	Missing value because invalidated by data originator
	Missing value because invalidated by data originator
V0	Valid value
	Valid value
	Valid value
V1	Valid value but comprised wholly or partially of below detection limit data
	Valid value but comprised wholly or partially of below detection limit data
	Valid value but comprised wholly or partially of below detection limit data
V2	Valid estimated value
	Valid estimated value
	Valid estimated value
V3	Valid interpolated value
	Valid interpolated value
	Valid interpolated value
V4	Valid value despite failing to meet some QC or statistical criteria
	Valid value despite failing to meet some QC or statistical criteria
	Valid value despite failing to meet some QC or statistical criteria
V5	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
	Valid value but qualified because of possible contamination (e.g., pollution source, laboratory contamination source)
V6	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)
	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)
	Valid value but qualified due to non-standard sampling conditions (e.g., instrument malfunction, sample handling)

NARSTO Standard Flags

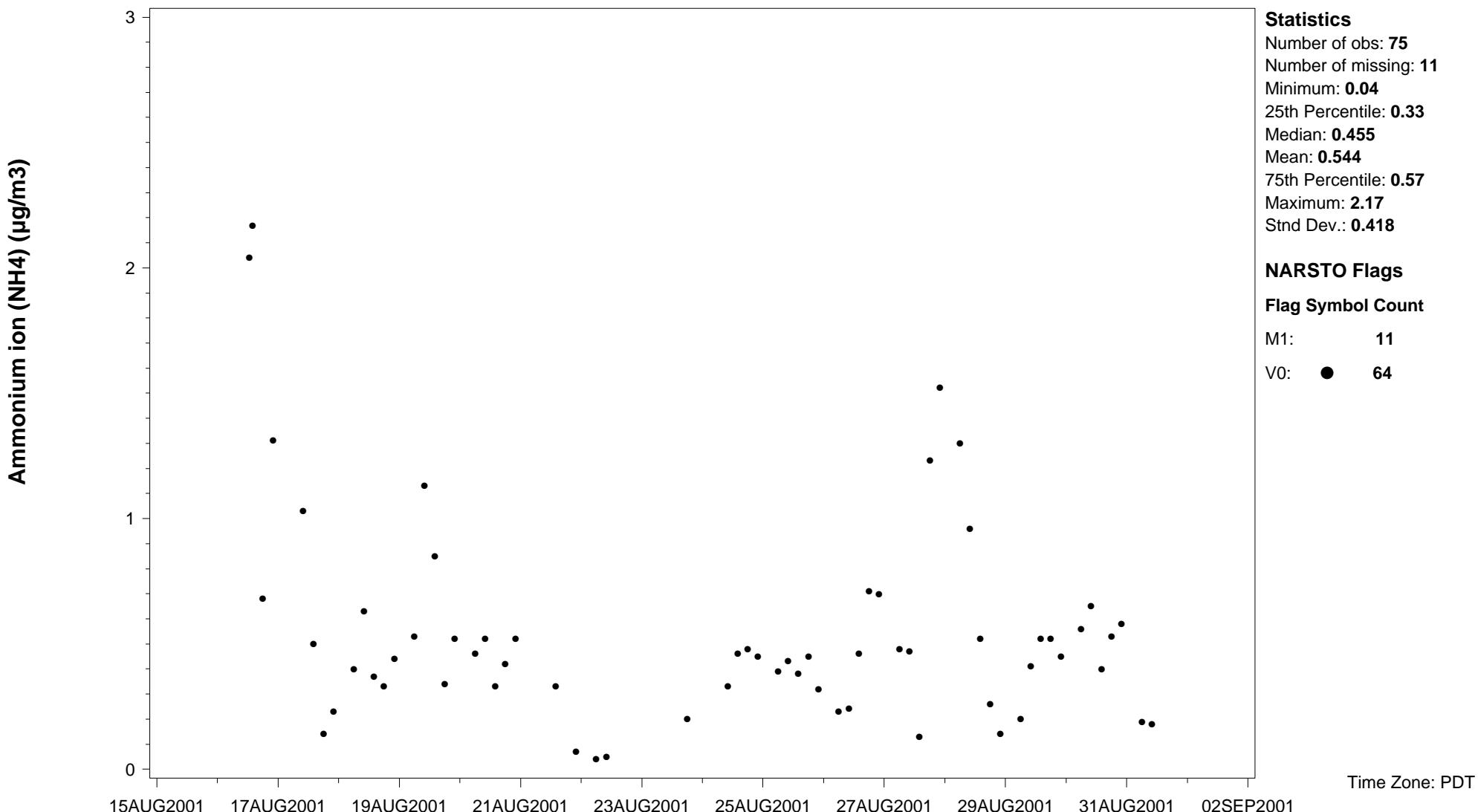
Flag: NARSTO	Description
V7	Valid value but set equal to the detection limit (DL) because the measured value was below the DL
	Valid value but set equal to the detection limit (DL) because the measured value was below the DL
	Valid value but set equal to the detection limit (DL) because the measured value was below the DL

NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Ammonium ion (NH4)** Common Name: **NH4+** Units: **µg/m³** Sampling interval: **4 h day/8 h night**
 Sampling frequency: **Same as sampling interval** CAS ID: **C14798-03-9** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**

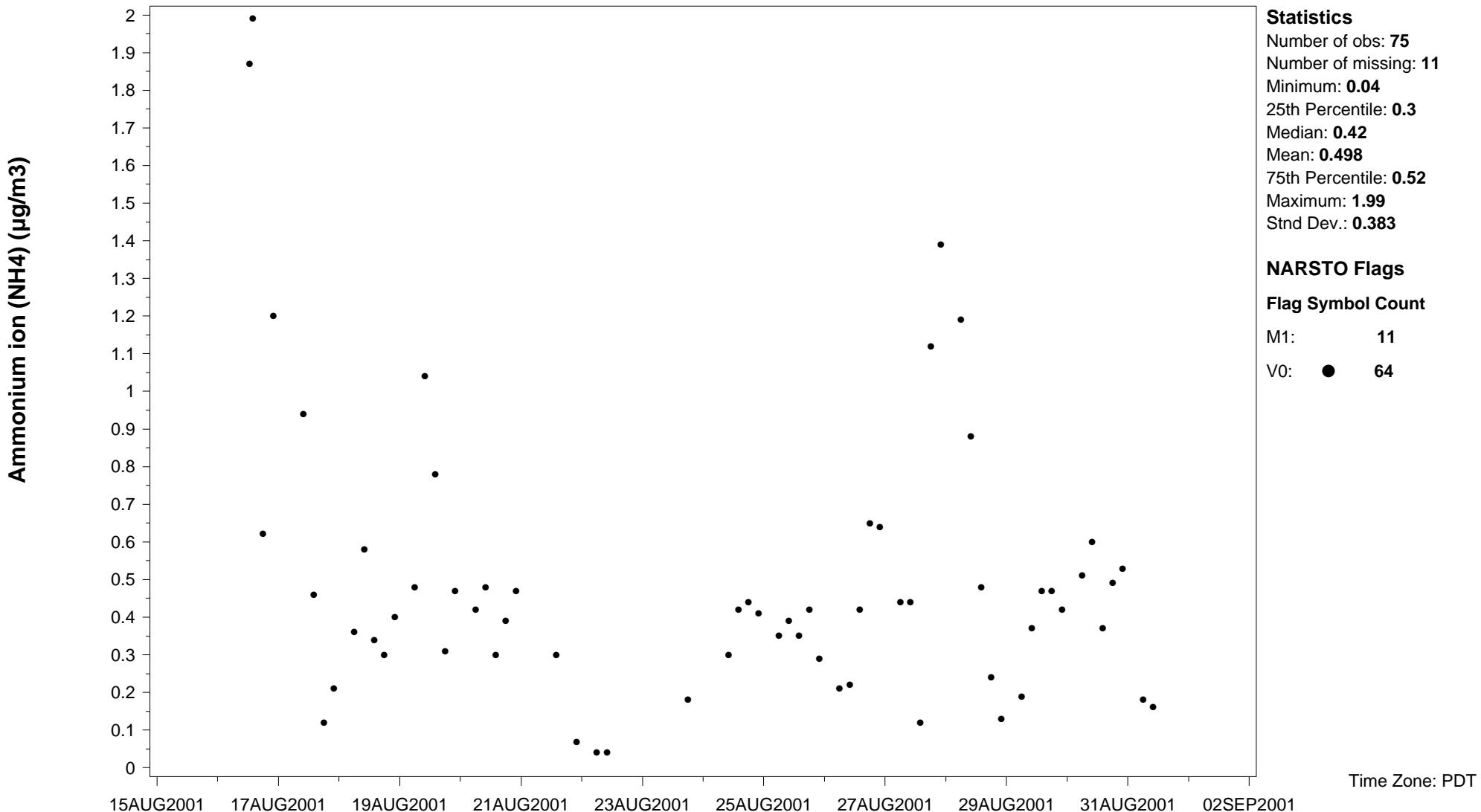


NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Ammonium ion (NH4)** Common Name: **NH4+** Units: **µg/m³** Sampling interval: **4 h day/8 h night**
 Sampling frequency: **Same as sampling interval** CAS ID: **C14798-03-9** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**

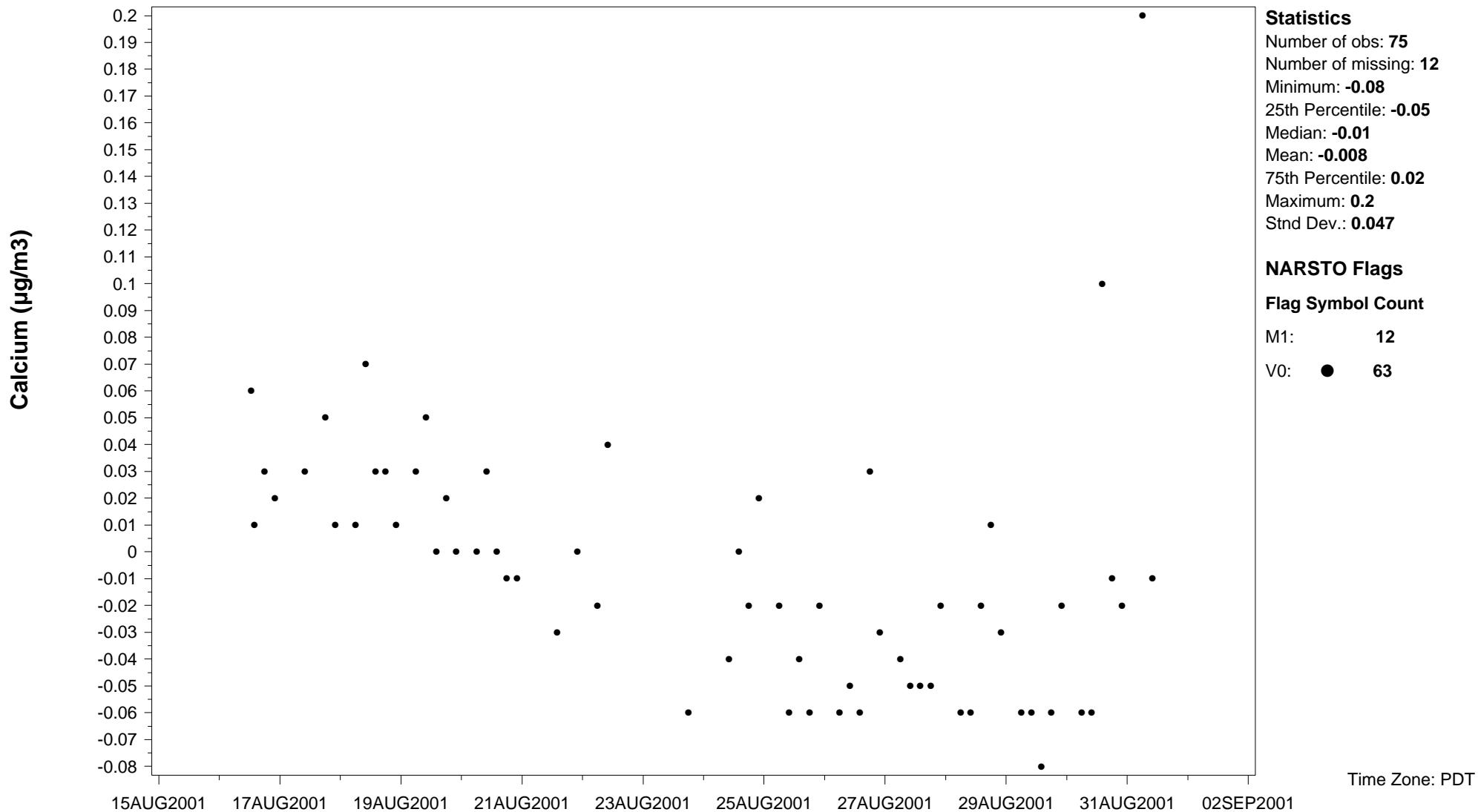


NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Calcium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7440-70-2** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



Site ID: **PC01CABCSMMT** Variable name: **Calcium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**

CAS ID: **C7440-70-2** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**

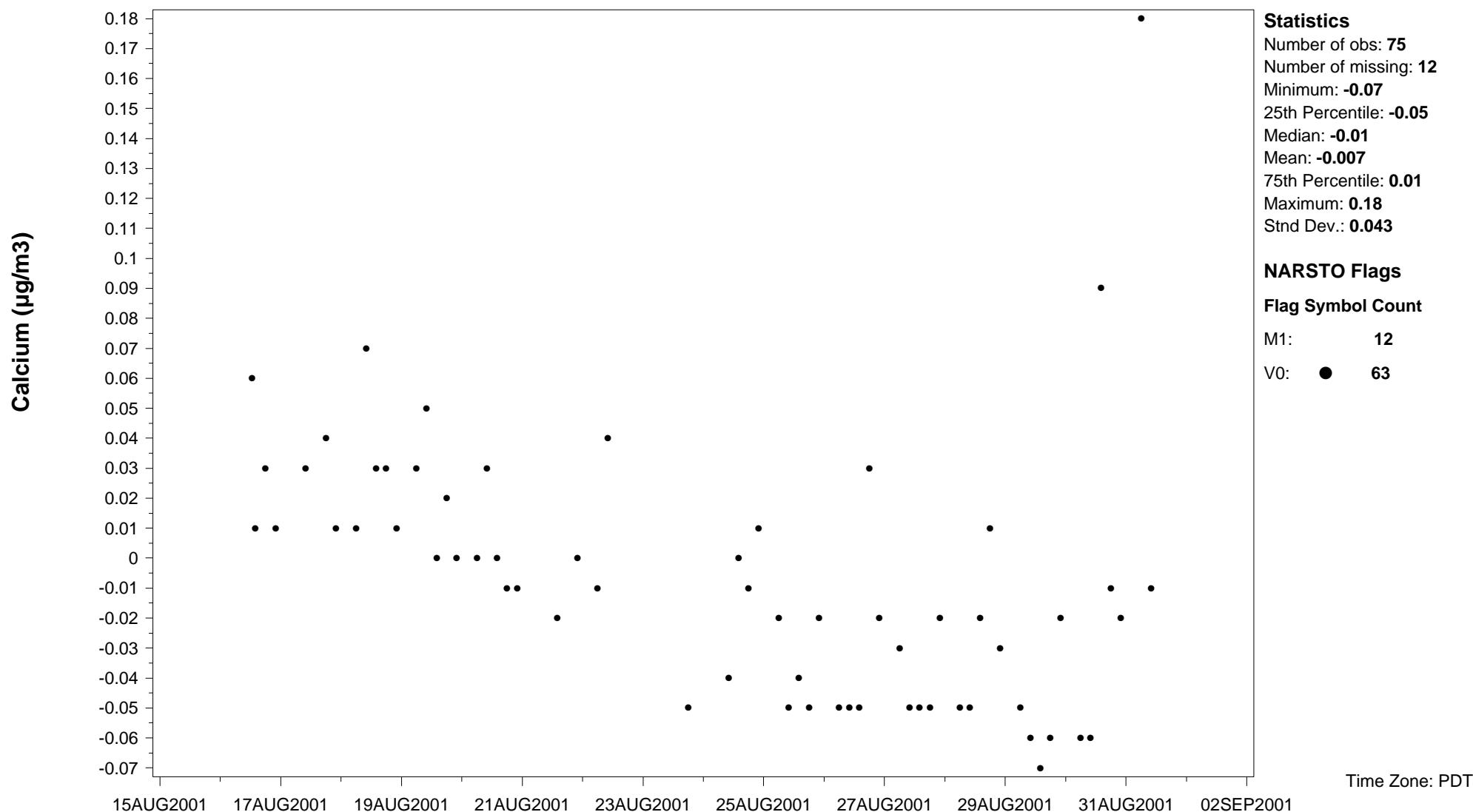
Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**

Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**

Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**

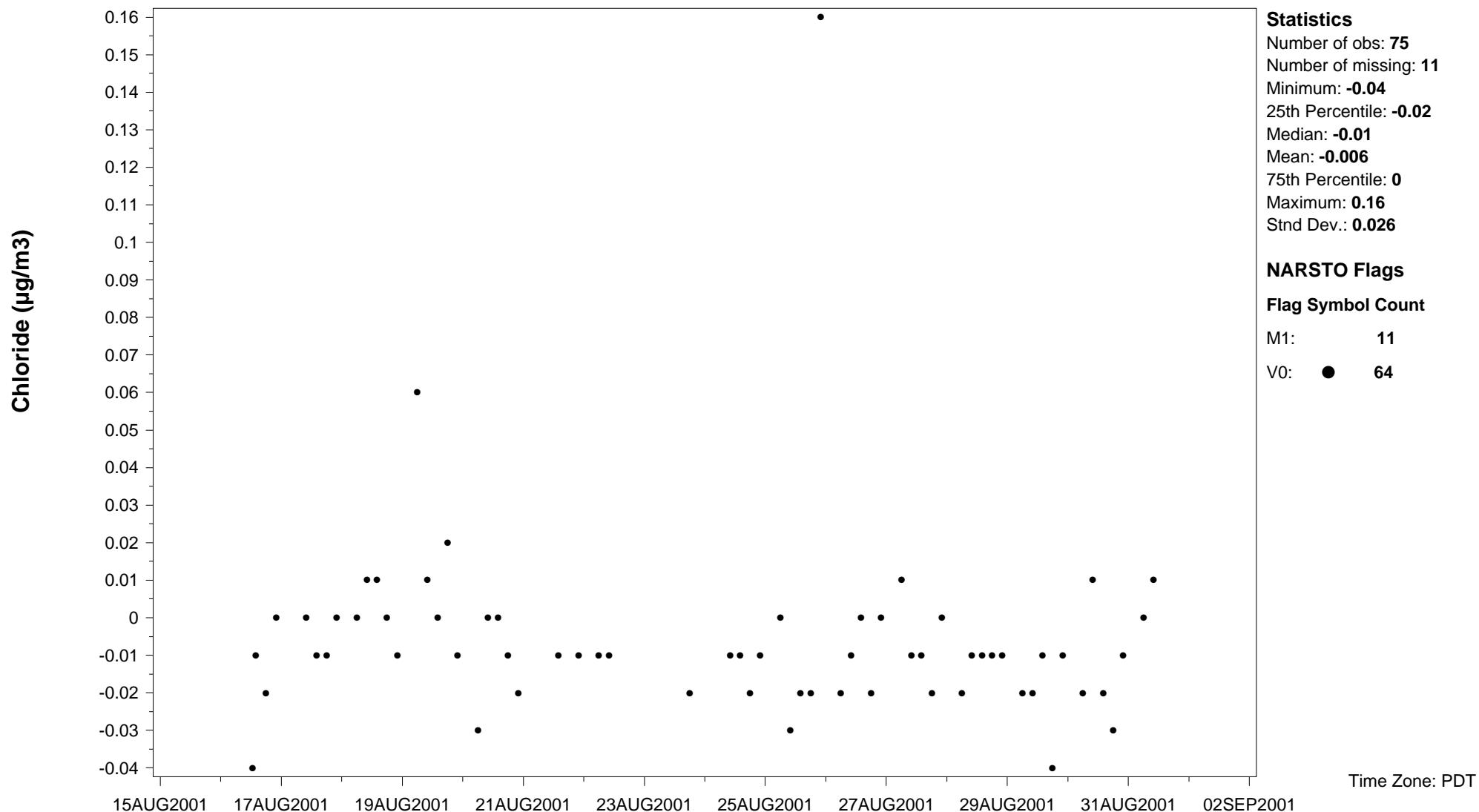
Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**



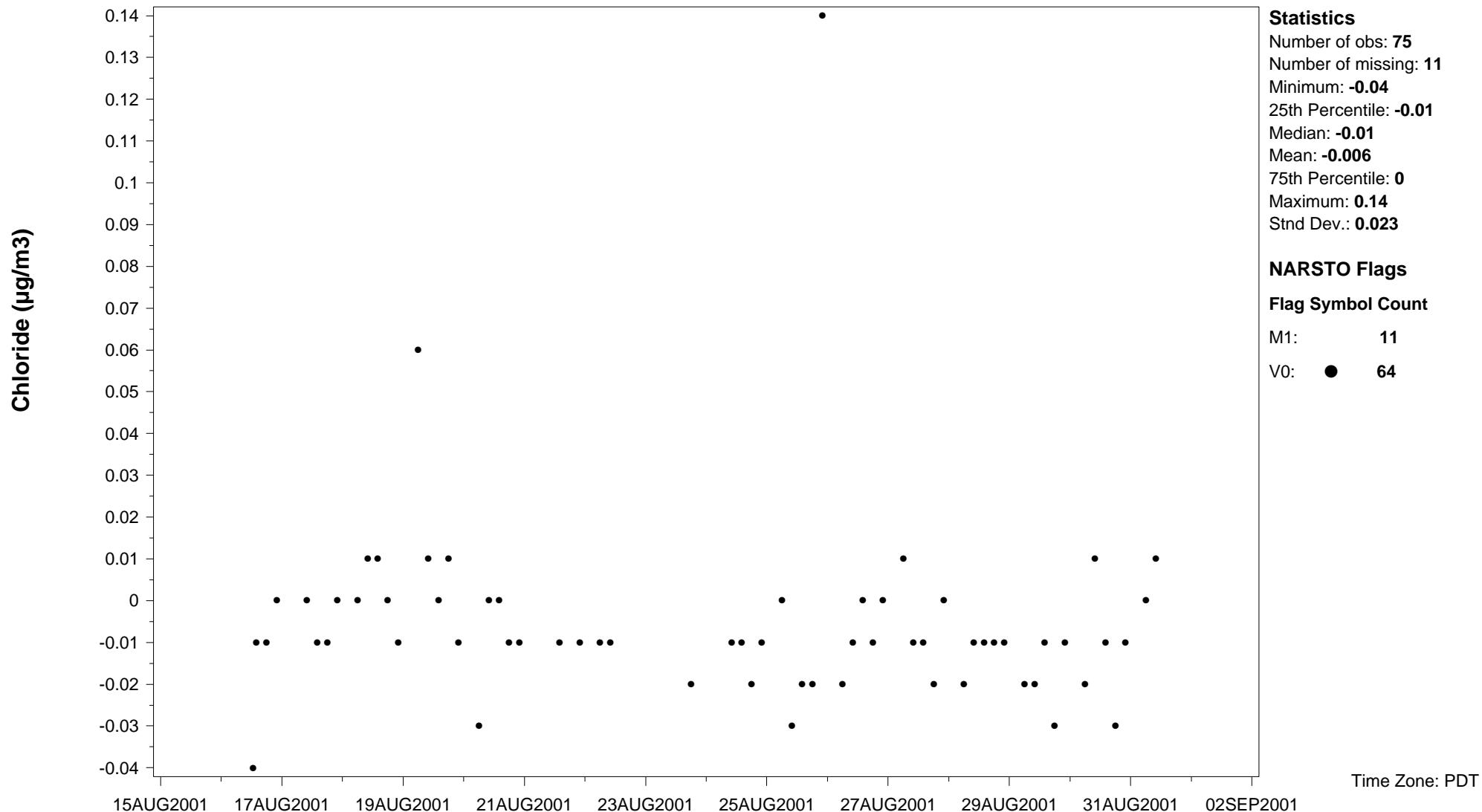
Site ID: **PC01CABCSMMT** Variable name: **Chloride** Units: **µg/m³** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C16887-00-6** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



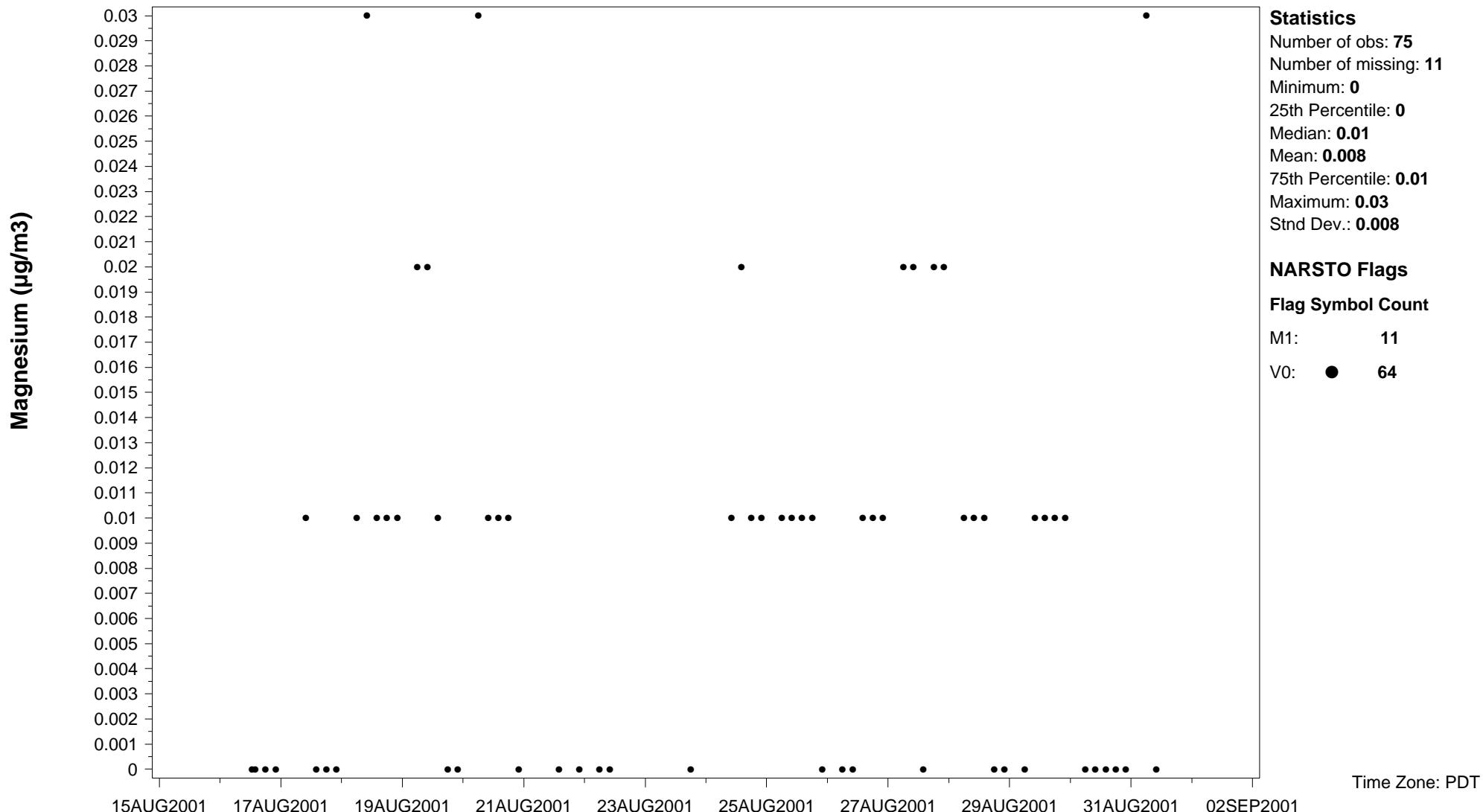
Site ID: **PC01CABCSMMT** Variable name: **Chloride** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C16887-00-6** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



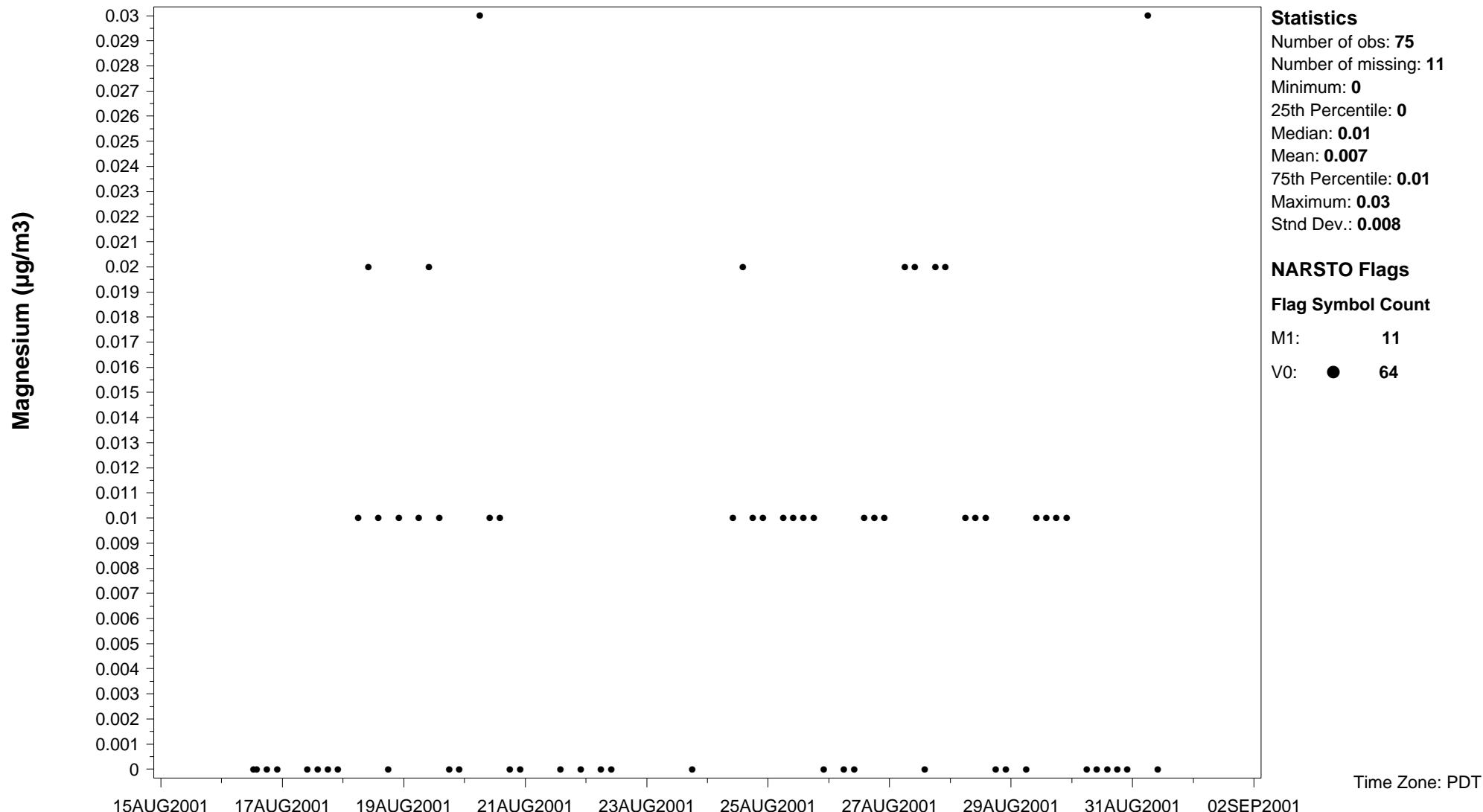
Site ID: **PC01CABCSMMT** Variable name: **Magnesium** Units: **µg/m³** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7439-95-4** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



Site ID: **PC01CABCSMMT** Variable name: **Magnesium** Units: **µg/m³** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7439-95-4** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**

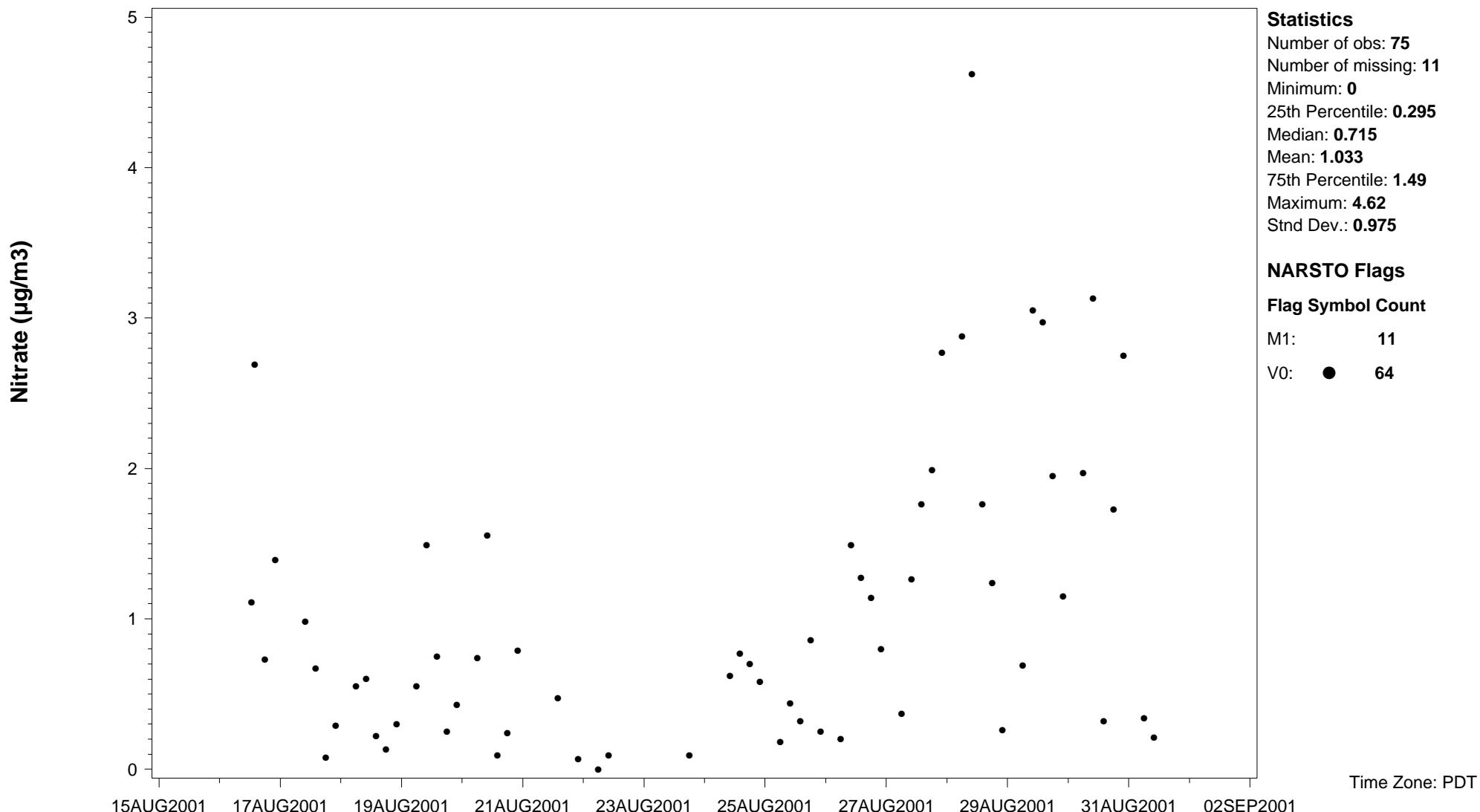


NAtChem Time Series Plot

21MAR2005

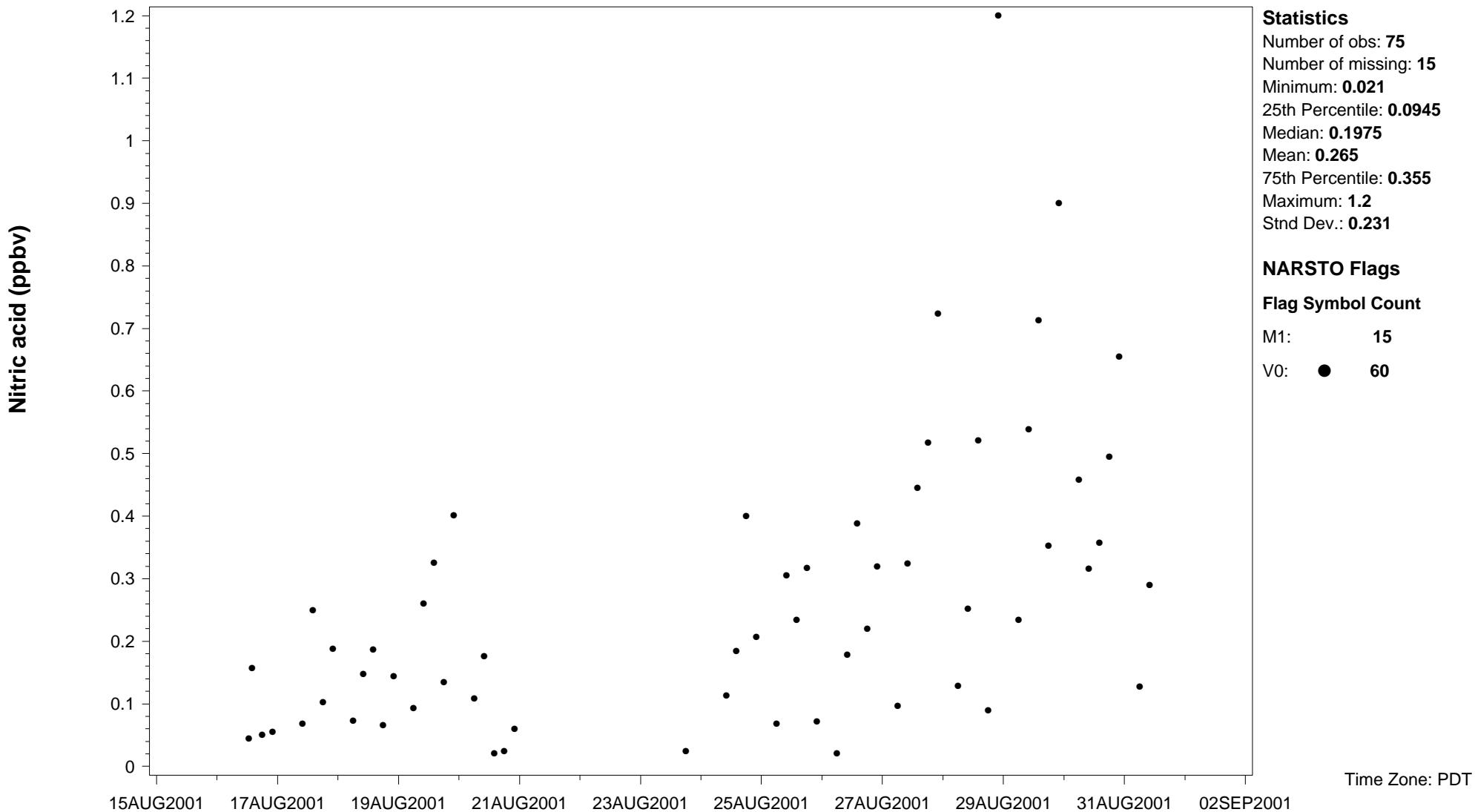
Site ID: **PC01CABCSMMT** Variable name: **Nitrate** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C14797-55-8** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected** Sampling Height above ground (m): **1.5**
 Instrument name and model number: **Triple URG denuder system** Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**



Site ID: **PC01CABCSMMT** Variable name: **Nitric acid** Units: **ppbv** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7697-37-2** Observation type: **Gas** Particle diameter--upper bound (UM): **2.5** Field sampling or measurement principle: **Denuder--annular+filter**
 Coating or absorbing solution/media: **NaCl** Inlet type: **Impactor--elutriator combination** Laboratory analytical method: **IC**
 Sample preparation: **Water extraction** Blank Correction: **Blank corrected** Sampling Height above ground (m): **1.5**
 Instrument name and model number: **Triple URG denuder system** Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**

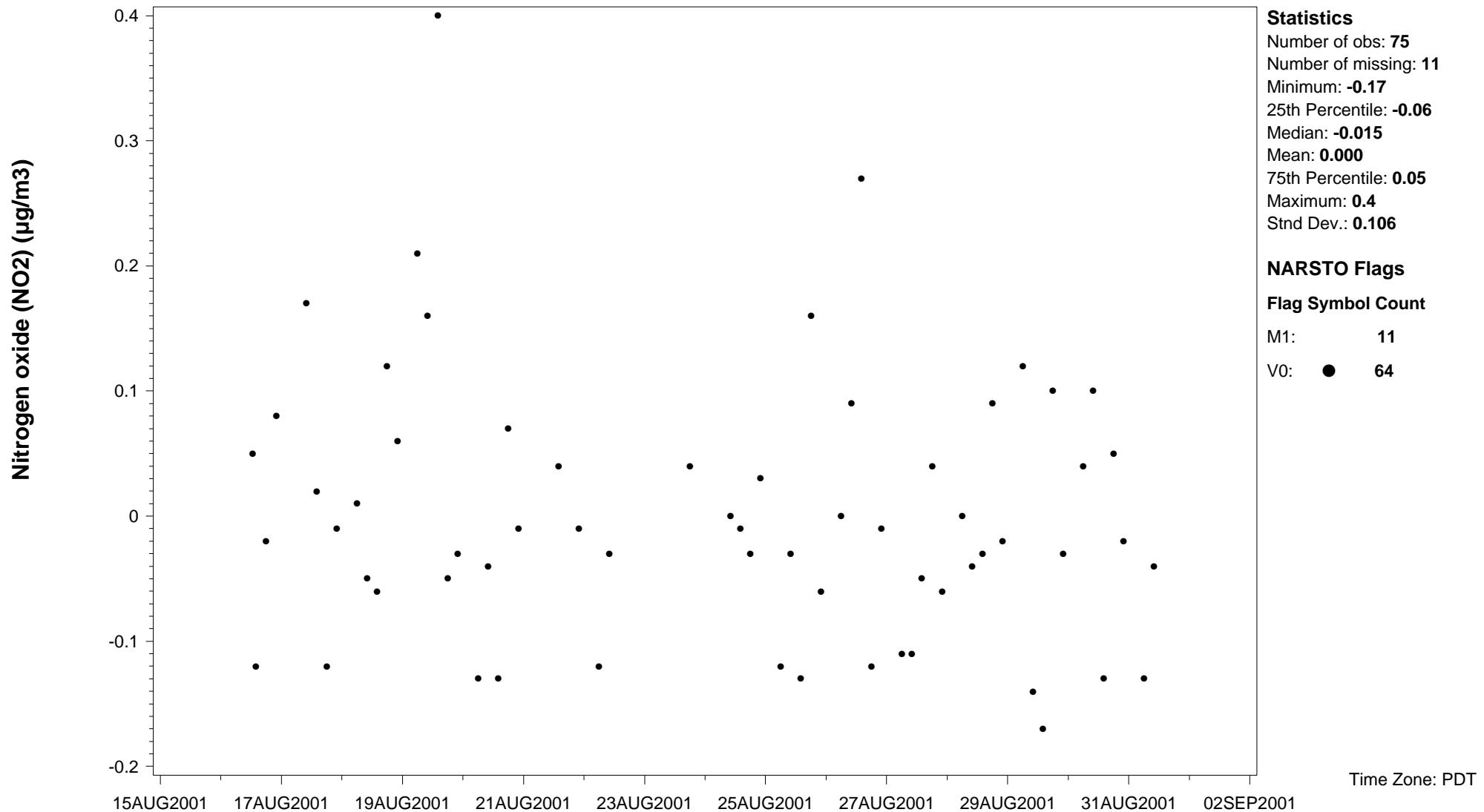


NAtChem Time Series Plot

21MAR2005

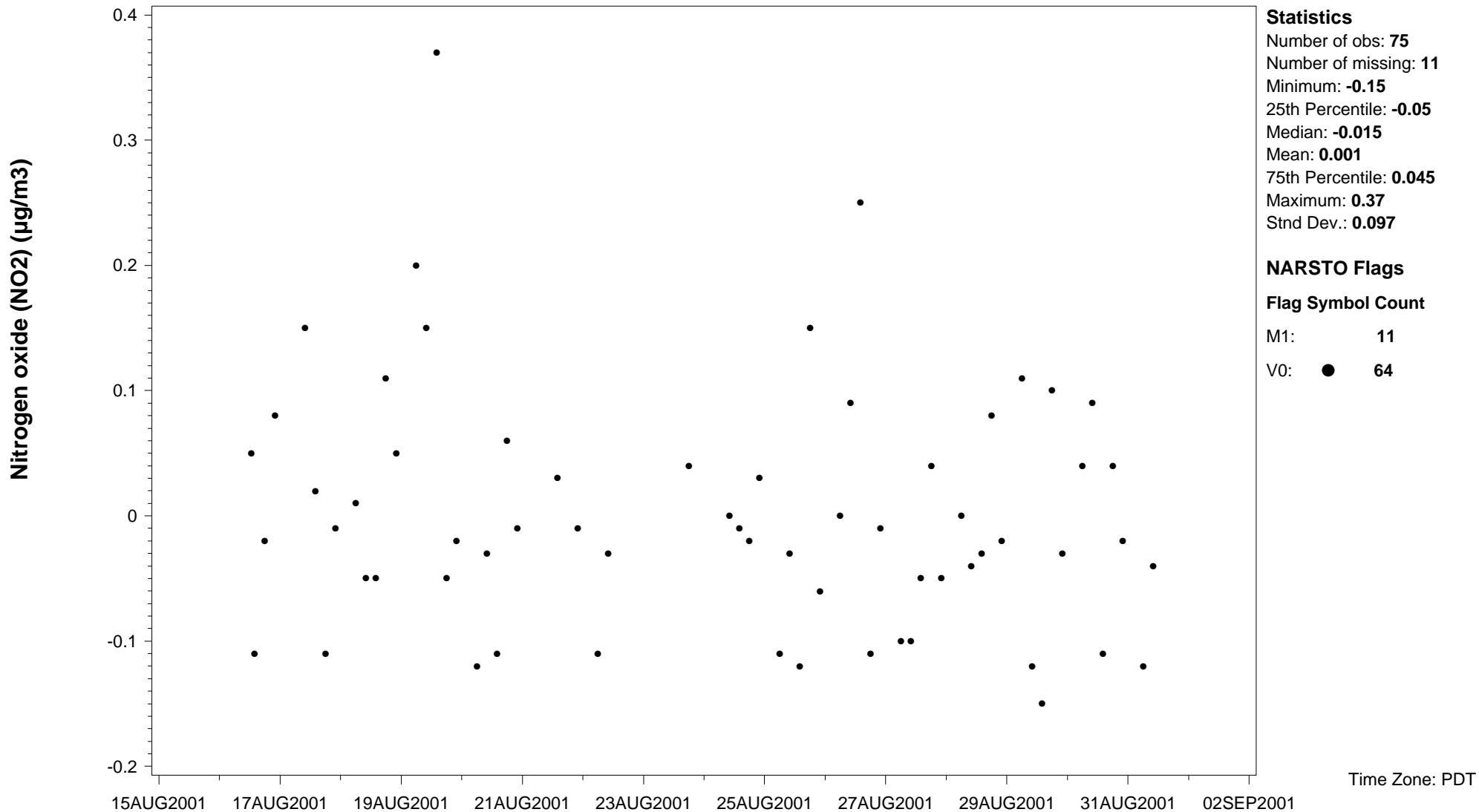
Site ID: **PC01CABCSMMT** Variable name: **Nitrogen oxide (NO₂)** Units: **µg/m³** Sampling interval: **4 h day/8 h night**
 Sampling frequency: **Same as sampling interval** CAS ID: **C10102-44-0** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**



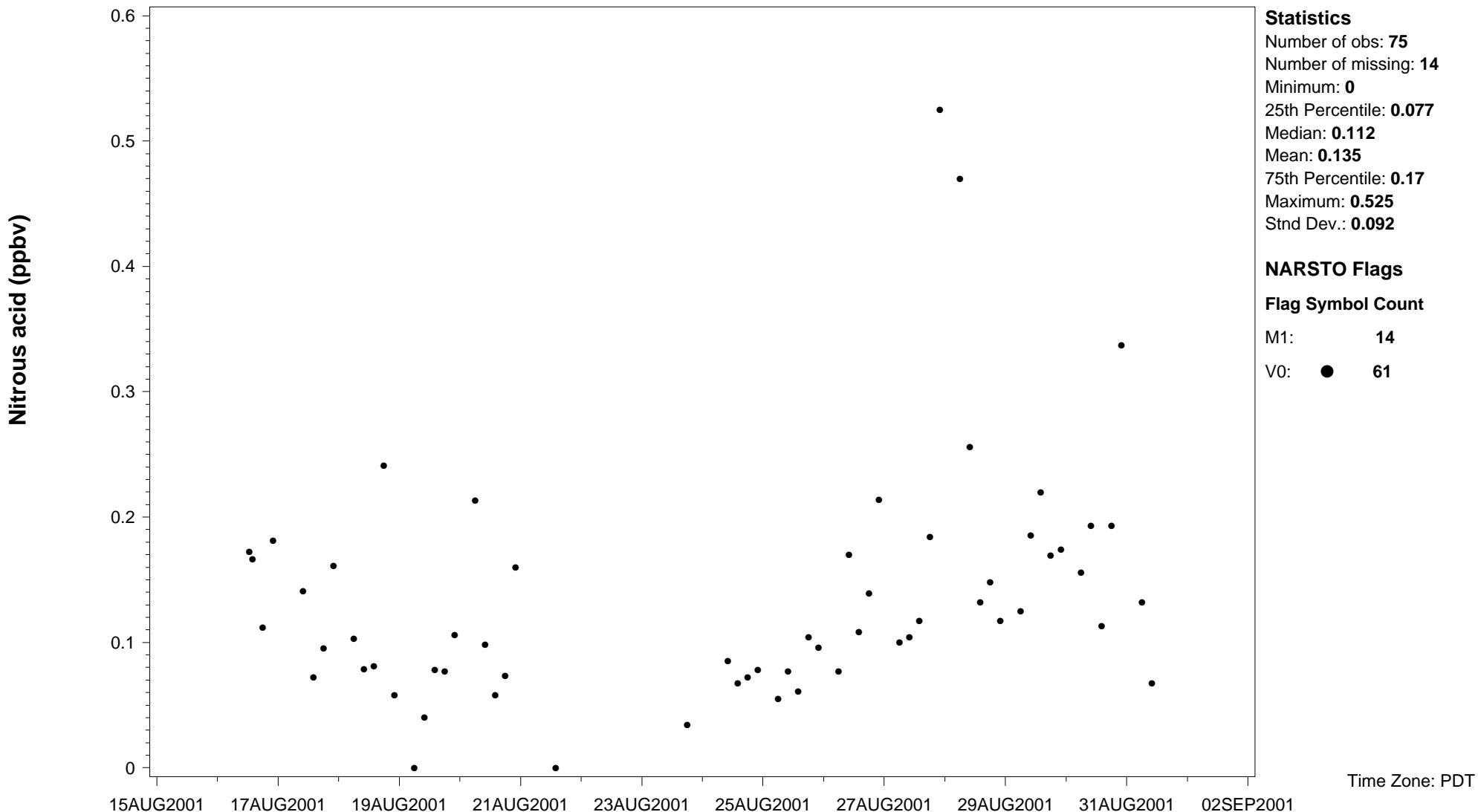
Site ID: **PC01CABCSMMT** Variable name: **Nitrogen oxide (NO₂)** Units: **µg/m³** Sampling interval: **4 h day/8 h night**
 Sampling frequency: **Same as sampling interval** CAS ID: **C10102-44-0** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



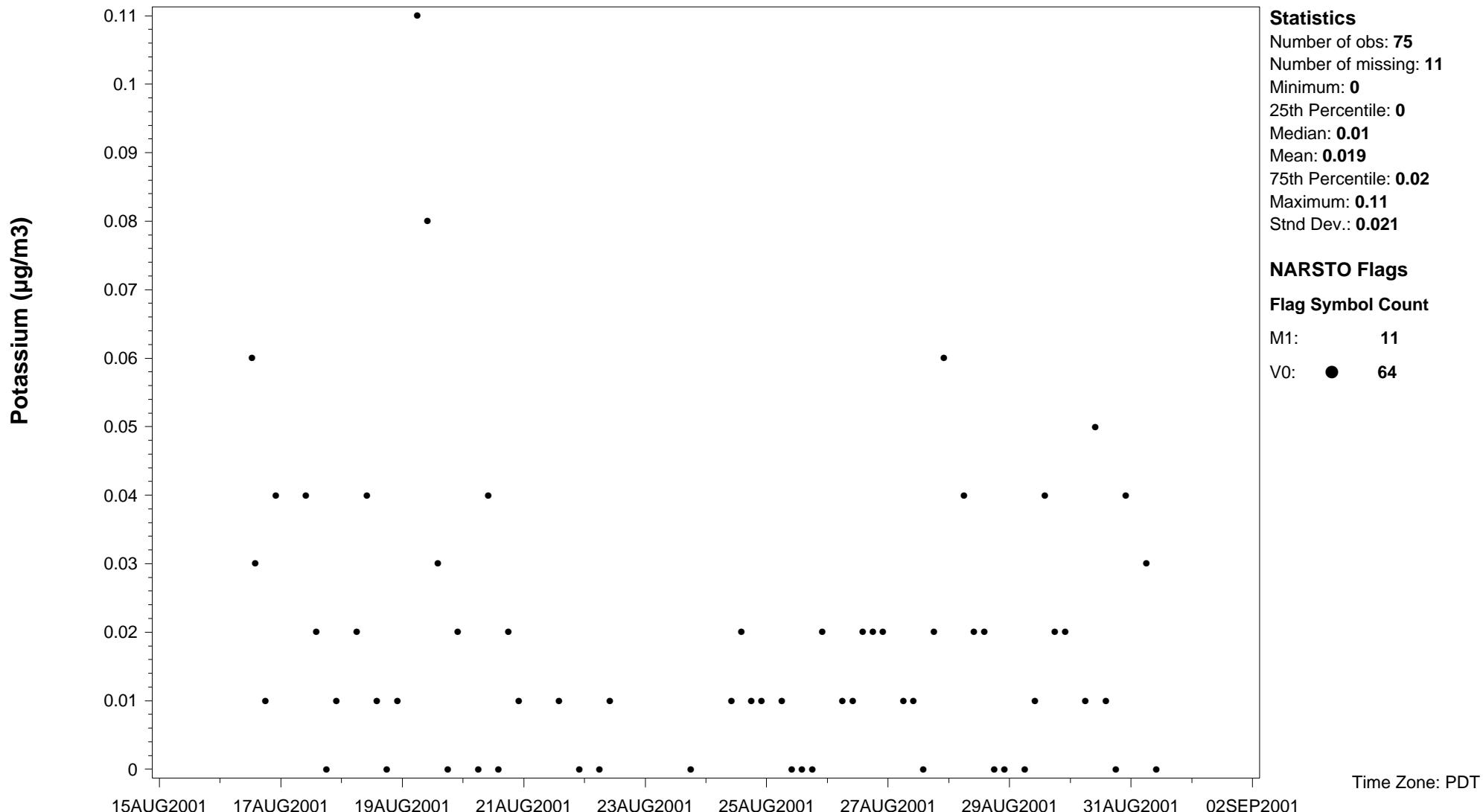
Site ID: **PC01CABCSMMT** Variable name: **Nitrous acid** Units: **ppbv** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7782-77-6** Observation type: **Gas** Particle diameter--upper bound (UM): **2.5** Field sampling or measurement principle: **Denuder--annular+filter**
 Coating or absorbing solution/media: **Na₂CO₃** Inlet type: **Impactor--elutriator combination** Laboratory analytical method: **IC**
 Sample preparation: **Water extraction** Blank Correction: **Blank corrected** Sampling Height above ground (m): **1.5**
 Instrument name and model number: **Triple URG denuder system** Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**



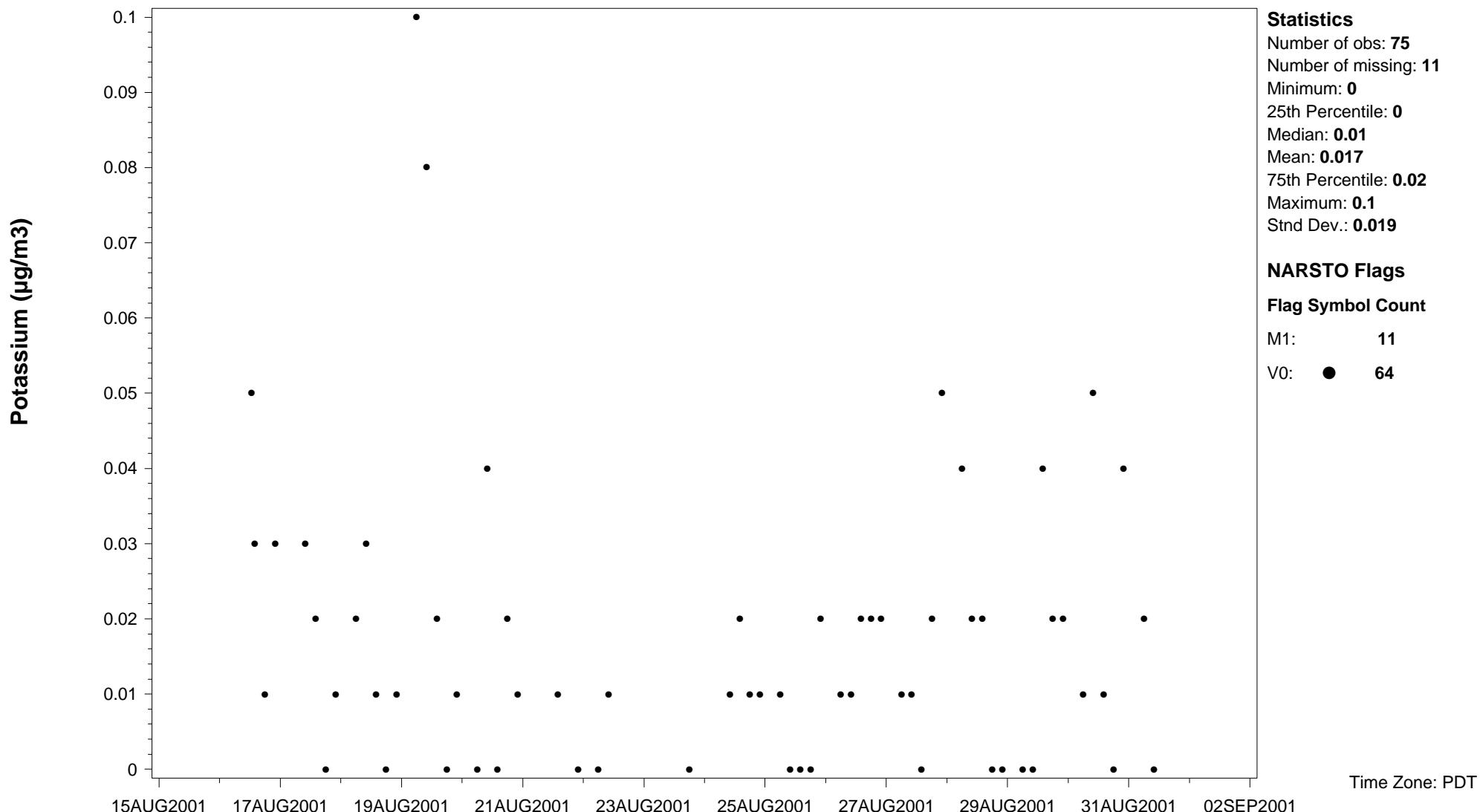
Site ID: **PC01CABCSMMT** Variable name: **Potassium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7440-09-7** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



Site ID: **PC01CABCSMMT** Variable name: **Potassium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7440-09-7** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**

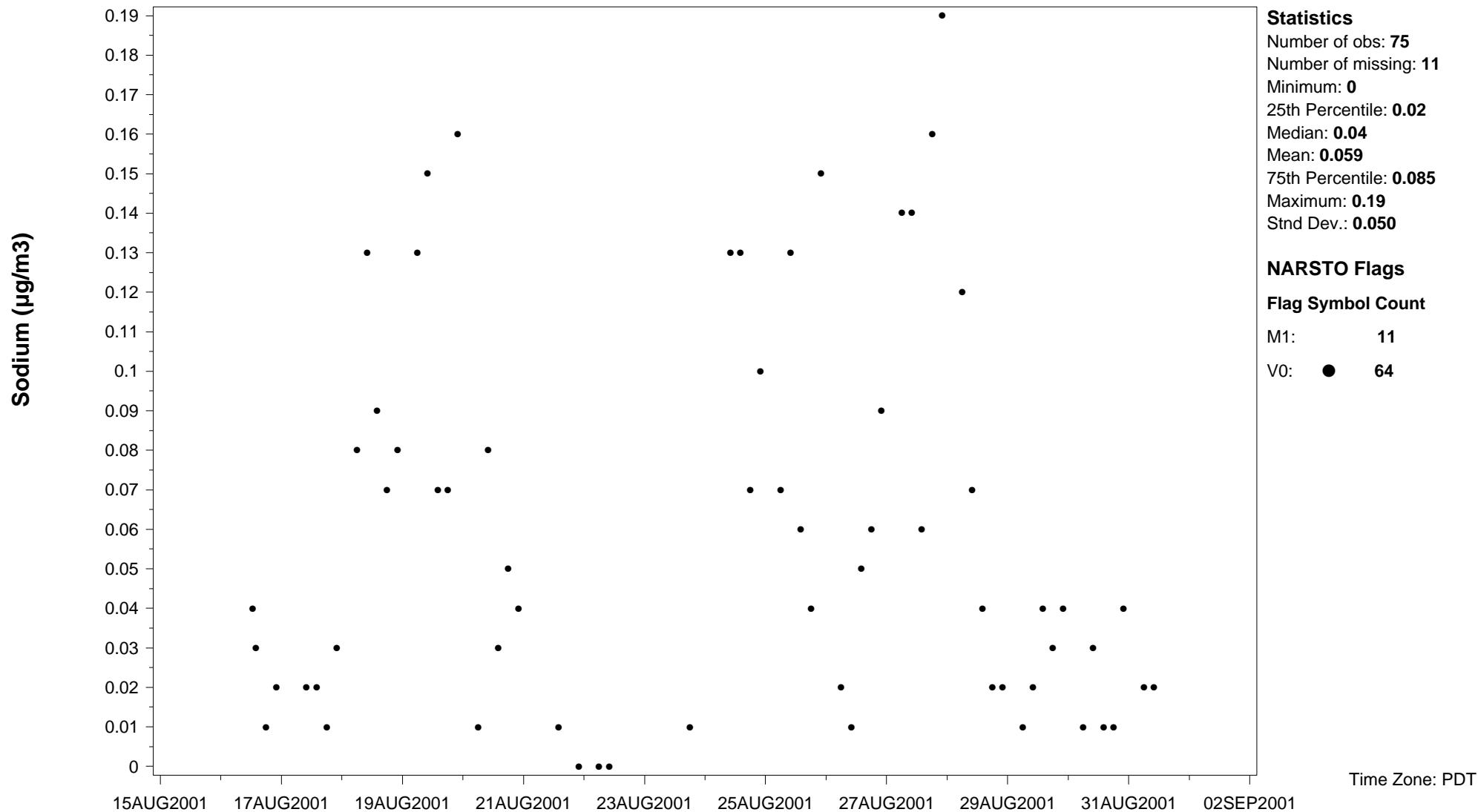


NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Sodium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**
 CAS ID: **C7440-23-5** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**
 Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**
 Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**
 Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**
 Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



Site ID: **PC01CABCSMMT** Variable name: **Sodium** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night** Sampling frequency: **Same as sampling interval**

CAS ID: **C7440-23-5** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**

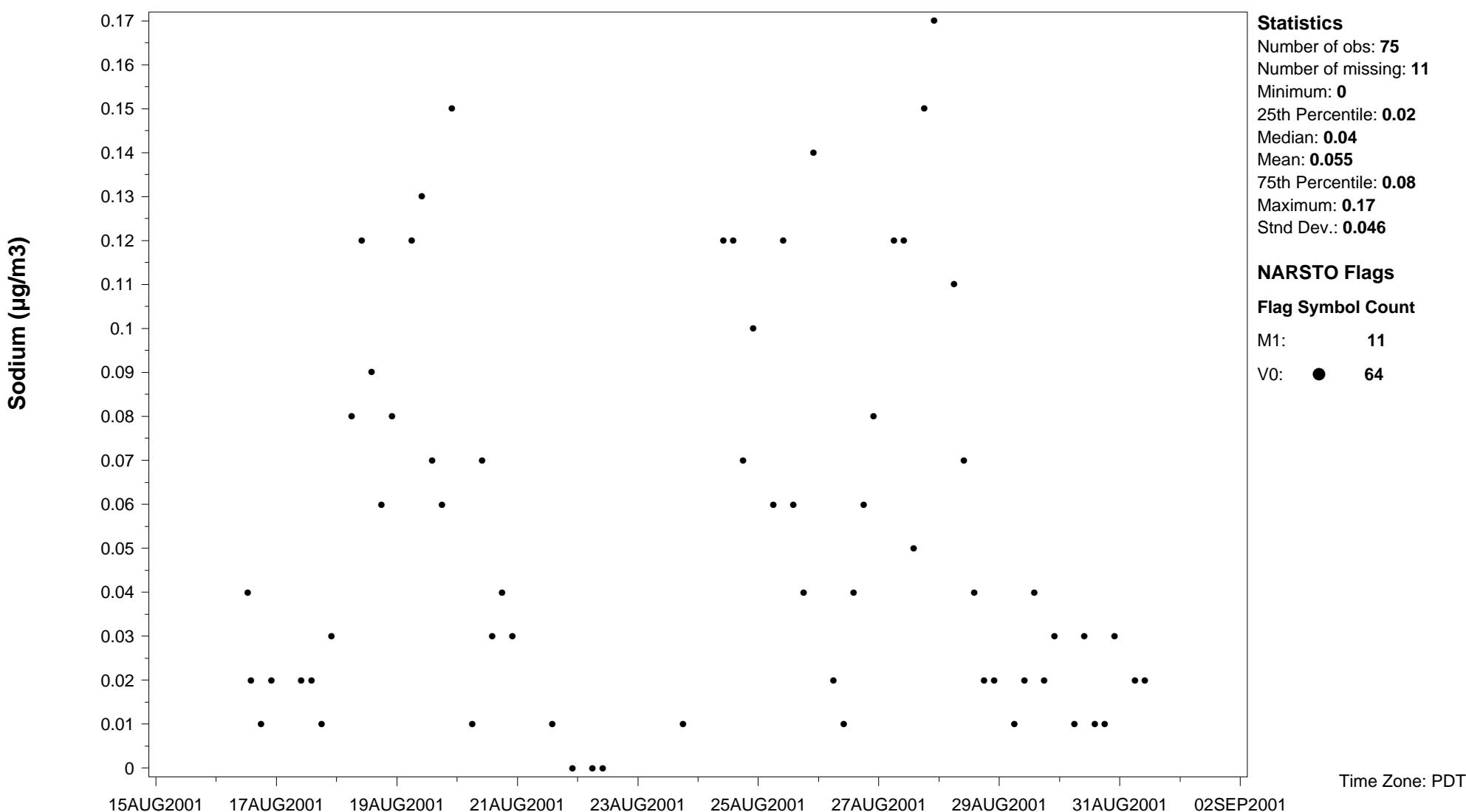
Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**

Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**

Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**

Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name:**Sumas, British Columbia** Latitude:**49.05166 deg.** Longitude:**-122.24666 deg.** Start Date:**2001-08-16** End Date:**2001-08-31**



NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Sulfate** Common Name: **Sulphate** Units: **µg/m³** Sampling interval: **4 h day/8 h night**

Sampling frequency: **Same as sampling interval** CAS ID: **C14808-79-8** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**

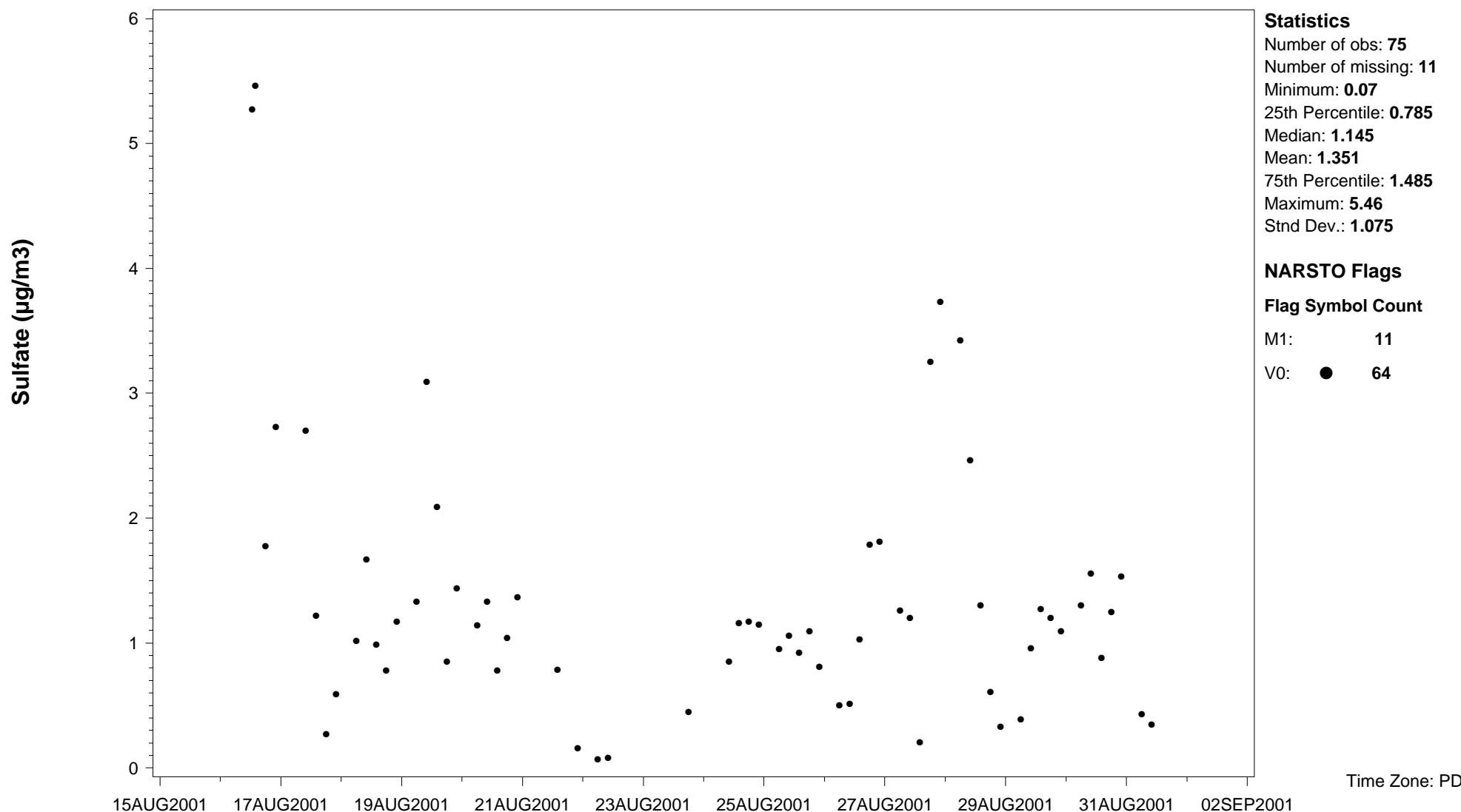
Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**

Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**

Volume standardization: **0 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**

Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**



NAtChem Time Series Plot

21MAR2005

Site ID: **PC01CABCSMMT** Variable name: **Sulfate** Common Name: **Sulphate** Units: **$\mu\text{g}/\text{m}^3$** Sampling interval: **4 h day/8 h night**

Sampling frequency: **Same as sampling interval** CAS ID: **C14808-79-8** Observation type: **Particles** Particle diameter--upper bound (UM): **2.5**

Field sampling or measurement principle: **Denuder--annular+filter** Medium: **Teflon** Inlet type: **Impactor--elutriator combination**

Laboratory analytical method: **IC** Sample preparation: **Water extraction** Blank Correction: **Blank corrected**

Volume standardization: **25 deg. C; 1 atmosphere** Sampling Height above ground (m): **1.5** Instrument name and model number: **Triple URG denuder system**

Measurement principal investigator: **Dr. Al Wiebe** Detection Limit: **Not available**

Site Name: **Sumas, British Columbia** Latitude: **49.05166 deg.** Longitude: **-122.24666 deg.** Start Date: **2001-08-16** End Date: **2001-08-31**

