Metals In The Environment
Geological Survey of Canada

Geological Survey of Canada Open File 3869

Geochemistry of snow from the Rouyn-Noranda region of Western Quebec: An environmental database

Kliza, D.A., Telmer, K.T., Bonham-Carter, G.F., and Hall, G.E.M.

GSC-MITE Initiative

Mineral Resources Division
Geological Survey of Canada
Project No. 890043

September 2000

Natural Resources Canada | Ressources naturelles Canada

Canada

TABLE OF CONTENTS

INTRODUCTION

The data presented in this Open File represent preliminary results from an environmental project under the Geological Survey of Canada's Metals in the Environment initiative (GSC-MITE). GSC-MITE, which started in April 1997, consists of a diverse collection of projects to examine the distribution of metals in the environment and the extent that natural metal levels have been affected by human activity. The goal of GSC-MITE in its initial 5-year term is to examine the natural sources and processes involved in the cycling of metals such as mercury, lead, zinc and copper in the environment. One group of GSC-MITE projects deals with the effects of major point sources on the natural biogeochemical cycle of metals. Several coordinated studies have focused on the geological impact of airborne metal emissions in the vicinity of the Horne Smelter at Rouyn-Noranda, Quebec, as seen in a variety of sample media (soil, lake sediments, water, trees, peat and snow). The first five of these sample media provide a picture of the dispersion of metals from the smelter, either integrated over the life of the smelting operation (or time-resolved as in the example of tree rings, and to some extent for peat, lake sediment and soil). Snow provides data about present-day atmospheric deposition and is a particularly useful medium for winter conditions. The purpose, then, of the snow study is to characterize the spatial distribution, chemistry and mineralogy of modern airborne emissions under winter conditions.

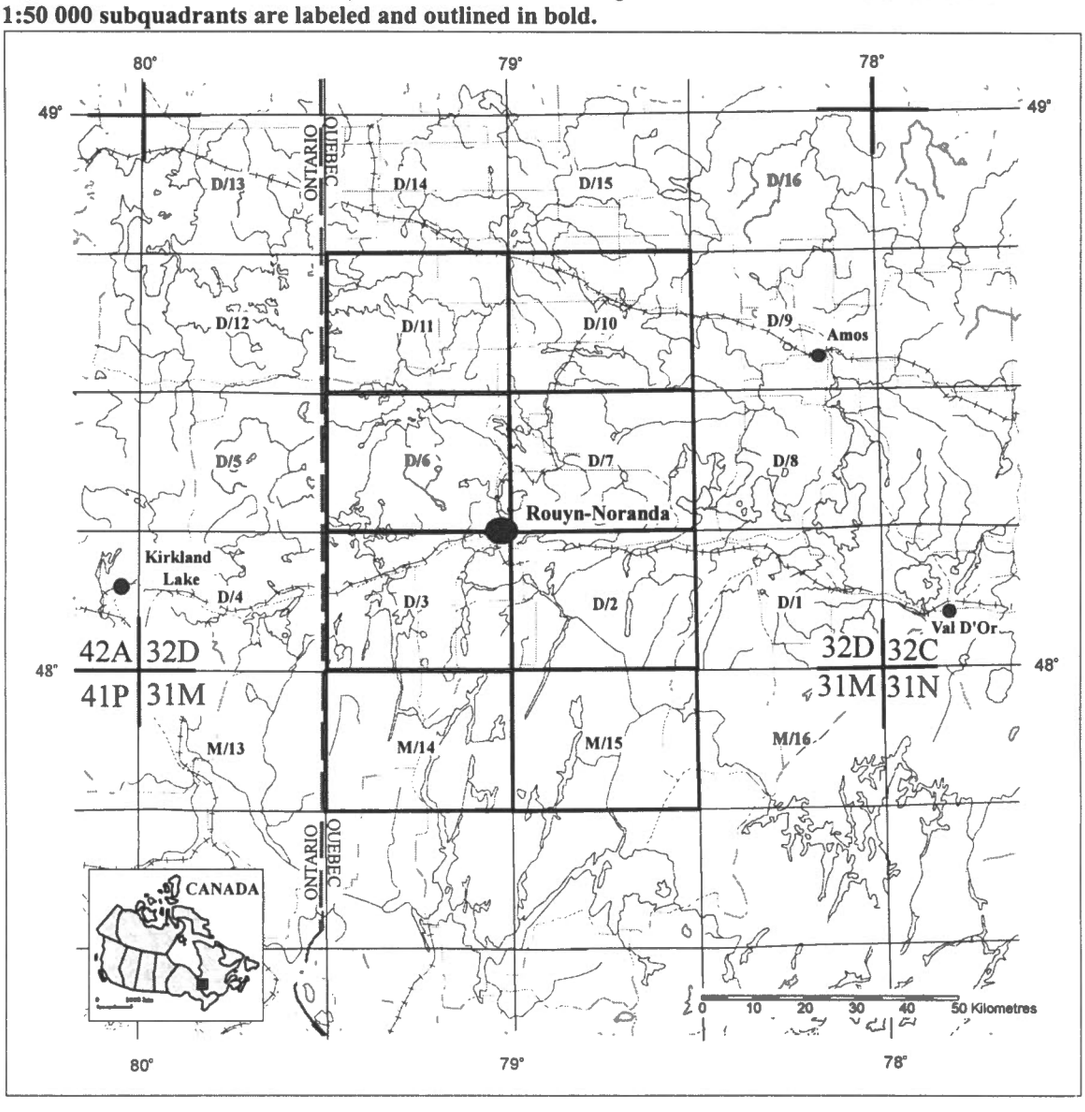
Centred in Rouyn-Noranda, the Horne smelter and refinery has been owned and operated by Noranda Inc. since 1927 with the discovery of gold and other precious metals in the region. The Horne smelter complex is a world leader in copper and precious metal production as well as recycling and production of sulphuric acid. The emission of SO_2 and metals to the atmosphere can potentially increase the acidity of lakes, rivers and soils, which impairs their ability to sustain life. By examining several media including lake sediments, lake water, river water, till, soil, humus, vegetation, precipitation, and atmospheric particulates, the 'footprint' of emissions from Noranda's operation can be determined. In order to do this, background levels of SO_2 and metals, in the metal-rich greenstone of the Abitibi-Témiscamingue region, must be established in order to measure the relative contribution and extent of smelter emissions to the environment.

This report presents analytical, statistical and graphical data from a 1998 snow survey that extended radially from the smelter to about 50 km from the town of Rouyn-Noranda. An important objective for collecting these data is to determine the spatial extent of the smelter footprint, and to distinguish smelter-derived metals from natural background metal levels. The survey was designed to capture present-day atmospheric deposition of metals, both of smelter origin and from natural sources. The snow data show the areal distribution of metal loading around the smelter and provide an estimate of metal levels in the background. The data also can be used to fit a model of atmospheric deposition of metal versus distance of transport from the smelter, and to estimate the total mass of metal within the smelter footprint. By making assumptions about the duration of the sampled snow period, these approximate estimates of metal deposition can be compared to emission data as measured at the stack, over a similar time period.

DESCRIPTION OF STUDY AREA

The study area is located within a 200 km radius of the Horne smelter in the Abitibi-Témiscamingue Region of Western Quebec (Figure 1). The town of Rouyn-Noranda (48°19'N, 70°00'W) is approximately 550 km NW of Montreal along highway 117N. The town intersects 4 1:50 000 NTS map sheets as shown in Figure 1. The snow samples collected in 1998 were limited to the region within 50 km of the smelter.

Figure 1: The MITE snow survey is contained in NTS Map sheets 32D and 31M. The relevant 1:50 000 subquadrants are labeled and outlined in bold.



Geology

The district of Rouyn-Noranda is located in the Superior Province of the Canadian Shield, primarily in the Archean Abitibi greenstone belt that extends from east of Chibougamau to west of Kirkland Lake (Figure 2; Dugas and Hogg, 1962). The area is underlain by meta-volcanic and meta-sedimentary formations of Archean age that have been folded, faulted, and intruded by many kinds of igneous rocks. The folded belts are intruded by diorite, gabbro, peridotite bodies, by large irregular shaped granitic masses, and by regionally extensive diabase dykes (Dugas and Hogg, 1962; Robinson, 1951).

The Lake Dufault anticlinorum is the dominant fold structure of the district. The town of Rouyn-Noranda lies in the central part of this fold where volcanic formations have been intruded by granitic masses. Many important ore deposits, including the Horne, have been found in or near the nose of this structure (Robinson, 1951).

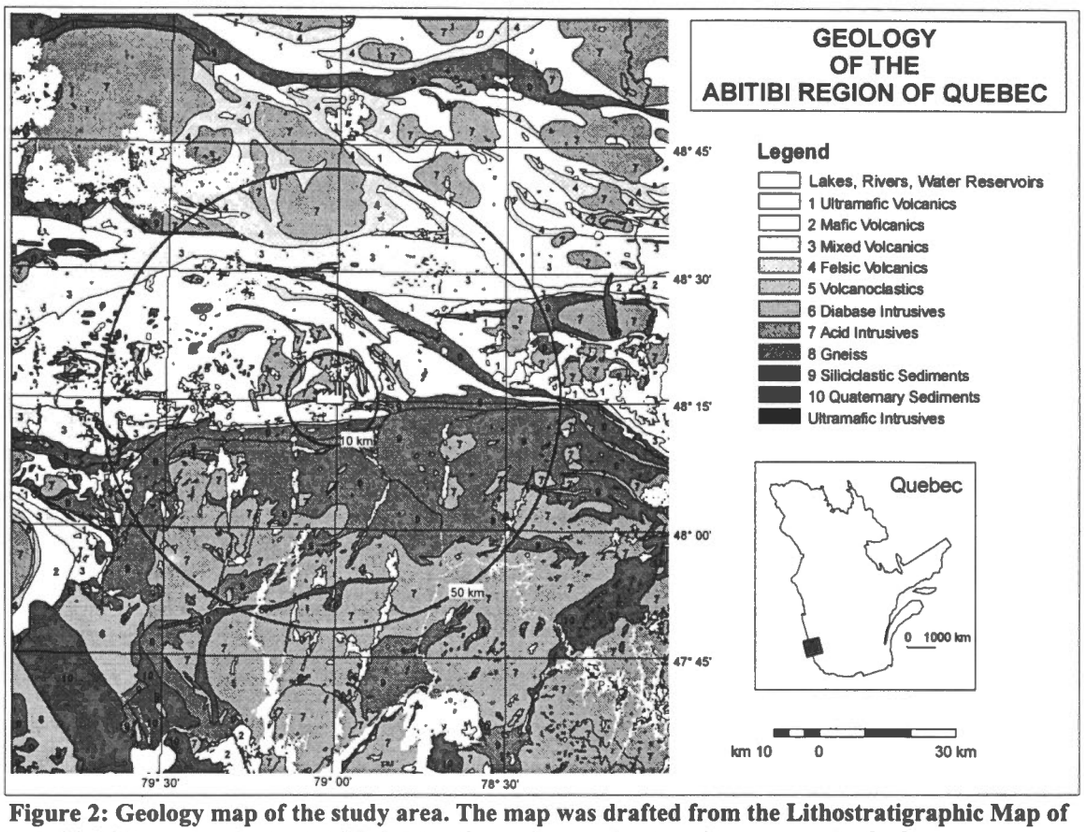


Figure 2: Geology map of the study area. The map was drafted from the Lithostratigraphic Map of the Abitibi Subprovince (MAP 2484 Ministère de l'Energie et des Ressources du Québec).

The largest sedimentary belts in the region lie to the north and to the south of the Lac Dufault anticlinorum (Dugas and Hogg, 1962), which itself is bounded to the north and south by fault structures (Robinson, 1951). The significant Larder Lake-Bouzan fault to the south hosts many major to minor base metal and gold deposits including Kirkland Lake, Larder Lake, Rouyn, Cadillac, Malartic, and Val d'Or gold finds. This fault zone extends more than 140 miles with an average width of 100 ft of highly schistose and altered material (Robinson, 1951). Portions of the study area to the south lie in the high-grade metamorphic terrain of the Proterozoic Grenville Province dominantly composed of gneisses.

Industry

Rouyn-Noranda has a population of 30,000 and boasts a disproportionately large infrastructure due its heavy industry oriented economy - mainly mining, smelting, and forestry. Agricultural development is extensive only in flat-lying areas underlain by glaciolacustrine deposits. The Horne smelter and refinery is at the centre of Rouyn-Noranda. The smelter has been owned and operated by Noranda Inc. since 1927. Between 1927 and 1976, the plant was essentially in continuous operation (with several major phases of development), and the smelter feed came entirely from local ores. In 1976, Noranda's Horne mine closed, and the plant became a custom smelter and refiner of ores and metal-bearing materials for suppliers all over the world. Currently, 100% of the feed comes from outside customers. In 1984, the plant expanded its facilities to recycle materials such as computer parts containing appreciable concentrations gold, silver, copper, platinum, palladium, selenium, tellurium, nickel, lead and bismuth. In 1989, a sulphuric acid plant was commissioned and Noranda Minerals Inc. became one of the largest producers and distributors of sulphuric acid in North America. These improvements in processing have made the Horne smelter complex a world class copper and precious metal producer while making significant reductions in atmospheric emissions of metals in recent years (Figure 3).

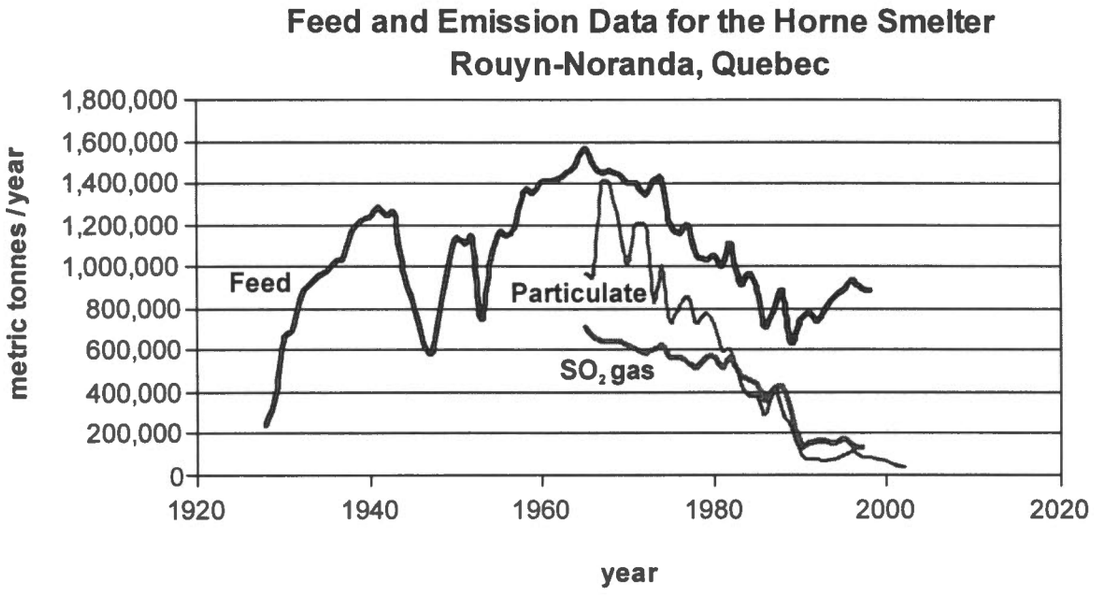


Figure 3: Feed and emission data (particulate and SO_2 gas) for the Horne smelter in Rouyn-Noranda, Quebec. (Data supplied by Noranda Inc.).

At present, the plant has two active stacks emitting SO_2 and heavy metals.

The directions and strength of wind as well as the thermal and structural conditions of the atmosphere affect the dispersal of airborne smelter emissions from the stacks. Wind data for December through March (1954-1993 average) for the town of Rouyn-Noranda show that in general winds blow more frequently from the W than from the E, and winds from NW and S are particularly important (Figure 4).

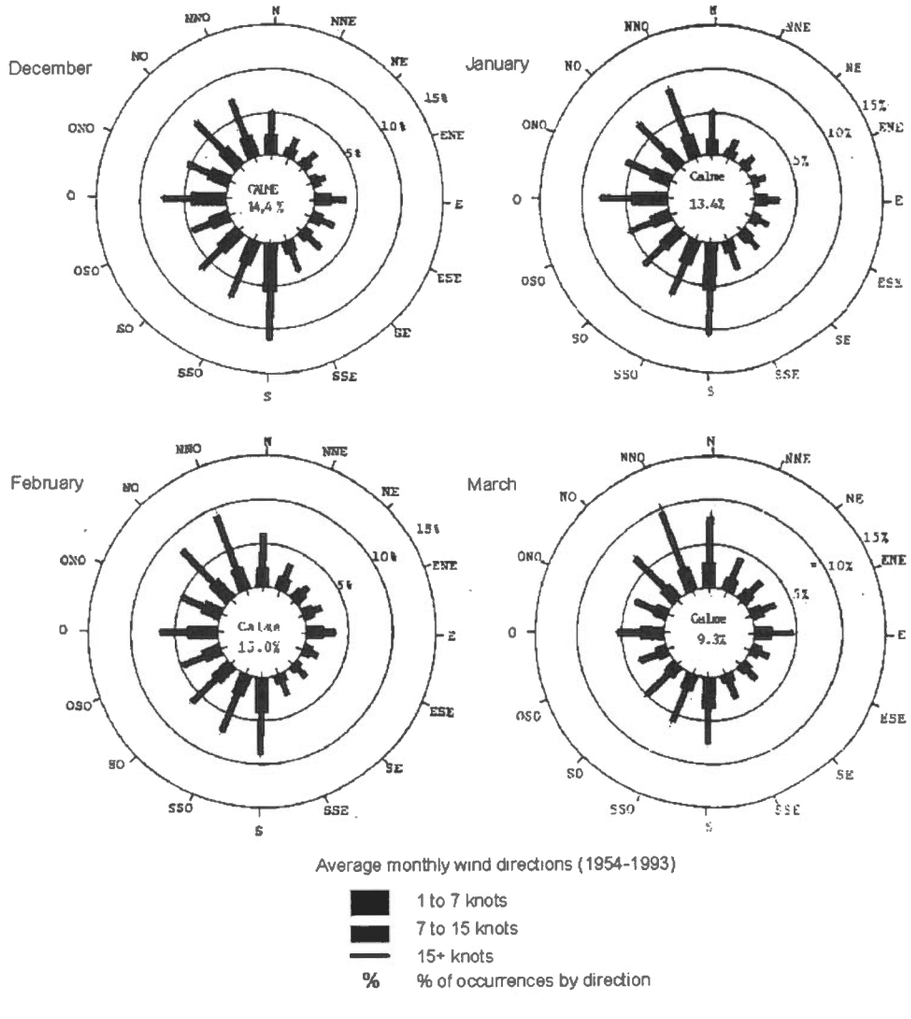


Figure 4: Wind rose-diagrams of average monthly wind directions for December, January, February, March for the town of Rouyn-Noranda, Quebec. (Data supplied by Noranda Inc.).

METHODOLOGY FOR SNOW COLLECTION AND SAMPLE PREPARATION

Snow samples were collected between March 10th and 12th, 1998 in order to capture maximum snowpack before the spring thaw. A total of 82 sites were sampled and at every tenth site, a field duplicate was collected, totaling 93 samples (see Figure 5).

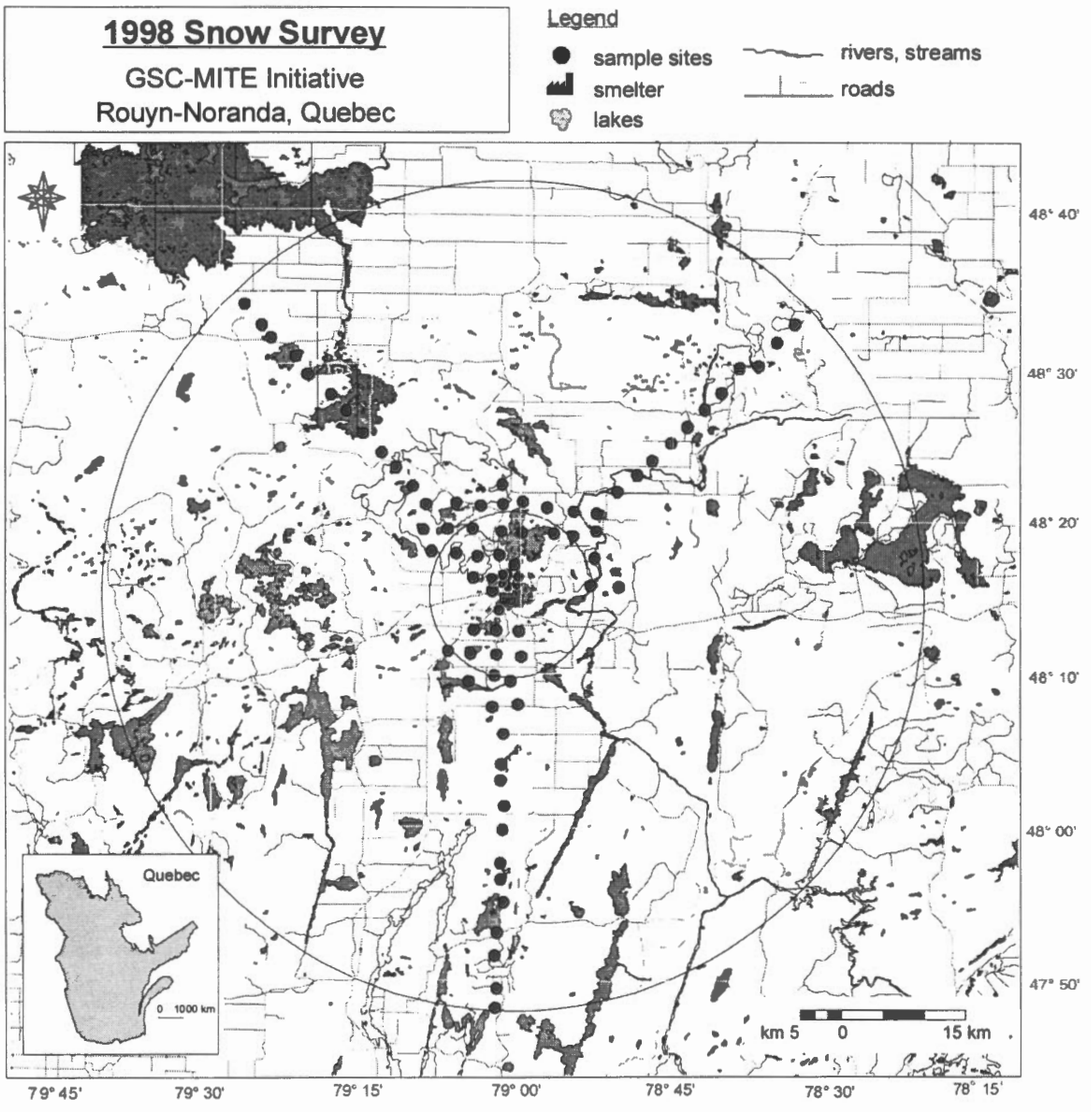


Figure 5: Location map of 1998 snow survey sites around the town of in Rouyn-Noranda, Quebec.

Where practical, sampling was done on a 9 km^2 grid close to the smelter, and along three radial traverses, with a sample spacing of about 3 km, as shown in Figure 5. Table 1 lists coordinates of the snow survey samples. Additional field data are shown in Appendix A.

Table 1: Sample locations for all sample sites of the 1998 snow survey in Rouyn-Noranda, Quebec.

Sample	Latitude	Longitude
RN98SNOW-01	48.2335	-79.0355
RN98SNOW-02	48.2537	-79.0475
RN98SNOW-03	48.2632	-79.0323
RN98SNOW-04	48.2650	-79.0473
RN98SNOW-05	48.2715	-79.0303
RN98SNOW-06	48.2929	-79.0360
RN98SNOW-07	48.2716	-79.0237
RN98SNOW-08	48.2597	-79.0214
RN98SNOW-09	48.2618	-79.0065
RN98SNOW-10	48.2696	-79.0047
RN98SNOW-11	48.5622	-79.4611
RN98SNOW-12	48.5400	-79.4325
RN98SNOW-13	48.5267	-79.4167
RN98SNOW-14	48.5067	-79.3763
RN98SNOW-15	48.4875	-79.3564
RN98SNOW-16	48.4658	-79.3167
RN98SNOW-17	48.4483	-79.2914
RN98SNOW-18	48.4239	-79.2633
RN98SNOW-19	48.4033	-79.2319
RN98SNOW-20	48.3875	-79.2083

Sample	Latitude	Longitude
RN98SNOW-42	48.4539	-78.6997
RN98SNOW-43	48.4347	-78.7283
RN98SNOW-44	48.4172	-78.7547
RN98SNOW-45	48.3992	-78.7861
RN98SNOW-46	48.3819	-78.8103
RN98SNOW-47	48.3633	-78.8431
RN98SNOW-48	48.3394	-78.8764
RN98SNOW-49	48.3414	-78.9158
RN98SNOW-50	48.3450	-78.9586
RN98SNOW-51	48.3514	-78.9983
RN98SNOW-52	48.3175	-79.9994
RN98SNOW-53	48.3172	-78.9469
RN98SNOW-54	48.3147	-78.9144
RN98SNOW-55	48.3200	-78.8767
RN98SNOW-56	48.2906	-78.8797
RN98SNOW-57	48.2611	-78.8847
RN98SNOW-58	48.2594	-78.8394
RN98SNOW-59	47.8019	-79.0356
RN98SNOW-60	47.8233	-79.0336
RN98SNOW-61	47.8586	-79.0375

Sample	Latitude	Longitude
RN98SNOW-21	48.3675	-79.1803
RN98SNOW-22	48.3475	-79.1578
RN98SNOW-23	48.3497	-79.1081
RN98SNOW-24	48.3464	-79.0672
RN98SNOW-25	48.3486	-79.0311
RN98SNOW-26	48.3703	-79.0328
RN98SNOW-27	48.3186	-79.0333
RN98SNOW-28	48.6333	-79.0800
RN98SNOW-29	48.3214	-79.1219
RN98SNOW-30	48.3200	-79.1614
RN98SNOW-31	48.1297	-79.1478
RN98SNOW-32	48.2947	-79.1072
RN98SNOW-33	48.2914	-79.0725
RN98SNOW-34	48.2822	-79.0108
RN98SNOW-35	48.2678	-79.0478
RN98SNOW-36	48.2683	-79.0786
RN98SNOW-37	48.5472	-78.5519
RN98SNOW-38	48.5275	-78.5817
RN98SNOW-39	48.5014	-78.6117
RN98SNOW-40	48.4994	-78.6425
RN98SNOW-41	48.4719	-78.6719

Sample	Latitude	Longitude
RN98SNOW-62	47.8833	-79.0342
RN98SNOW-63	47.9164	-79.0239
RN98SNOW-64	47.9414	-79.0292
RN98SNOW-65	47.9592	-78.0294
RN98SNOW-66	47.9958	-79.0267
RN98SNOW-67	48.0219	-79.0242
RN98SNOW-68	48.0497	-79.0306
RN98SNOW-69	48.0672	-79.0297
RN98SNOW-70	48.0997	-79.0272
RN98SNOW-71	48.1289	-79.0456
RN98SNOW-72	48.1319	-79.0028
RN98SNOW-73	48.1569	-79.0158
RN98SNOW-74	48.1628	-79.0428
RN98SNOW-75	48.1567	-79.0847
RN98SNOW-76	48.1886	-79.1189
RN98SNOW-77	48.1861	-79.0819
RN98SNOW-78	48.2119	-79.0767
RN98SNOW-79	48.2117	-79.0400
RN98SNOW-80	48.1856	-79.0397
RN98SNOW-81	48.1831	-78.9986
RN98SNOW-82	48.2111	-79.0033

Field Methods

Sampling was performed at each site with a polycarbonate (PC) snow corer (tube) sampler with a high-density polyethylene core catcher designed at the GSC. Regional snow samples were collected by truck and by helicopter. At every station, sampling was done well away from the vehicle (50 to 300 m), in undisturbed, relatively clean snow. Snow cores ranged from 30 to 90 cm, depending on the snowpack depth. Each snow core was put into a 30 x 45 cm polyethylene bag (~0.1 mm thick). The open end was rolled and sealed with a plastic tie to make the bag airtight, and tagged (see Figure 8).

Figure 8 (right): A photo of the PC snow corer, metre stick, sample tags and 16L toolbox for scale. The inside core diameter is 9.0 cm.

Lab Preparation

Snow samples were stored in a freezer. All processing was carried out in a 'Class 100' clean room at GSC-Ottawa. Samples were brought out to thaw approximately 24 hours before the day of preparation. The outside of each sample bag was thoroughly washed with deionized water and checked for any punctures or cracks. The samples were weighed to determine total mass of snow. Each sample bag was placed into another unused bag in order to contain the snow meltwater if the sample bag leaked. To begin melting, samples were placed on a countertop until slushy (~ 6 hours). The partly melted samples were subsequently moved to a refrigerator to continue melting at temperatures of approximately 4°C for 12 hours.

In the clean lab, the melted snow was filtered, allowing particles >0.45µm to be analyzed separately from the dissolved and colloidal material passing through the filter. Each chilled but melted sample was well agitated, and then passed though a pre-weighed 0.45 µm non-fibrous Millipore Duripore filter membrane using a vacuum filter apparatus. The volume of filtrate was recorded at this stage to provide a measure of the amount of snow in the sample. Deionized water was used to rinse the inside of the sample bag and was then passed through the same filter membrane ensuring all the particles >0.45µm were captured. The deionized water was collected in the beaker of filtered meltwater and the total meltwater sample was separated into aliquots for cation, anion and mercury analyses. The cation aliquot was preserved by acidification with 0.4% HNO_3, the Hg aliquot by addition of BrCl to 0.5%, and no preservation was required for the anion aliquot. The filter membrane was placed in a covered Petrie dish to dry, then weighed.

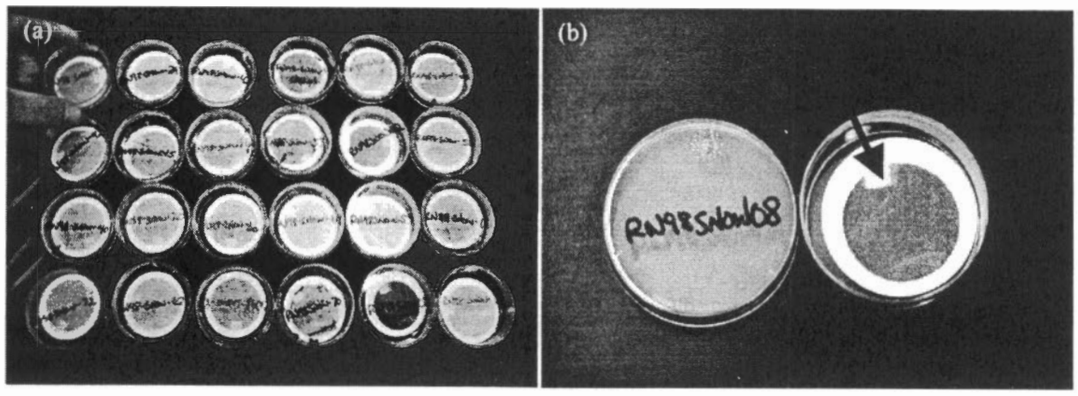


Figure 9: Filter papers containing snow particulates were stored in petrie dishes ready to be digested and analyzed geochemically. Filter papers were stamped with double-sided tape (see arrow in (b)) and prepared for SEM analysis.

A small sample of the dried particulate material on the filter membrane was extracted onto a SEM stub utilizing double-sided tape (Figure 9). This method does fractionate particle size with the more coarse material being preferentially sampled by the tape. However, examination of the remaining fines showed that the assessment of bulk morphology was not seriously impaired by fractionation. SEM micrographs of the particulate material revealed various distinctive types of particle morphology. This was an effective method for qualitatively apportioning atmospheric particles as to their source.

The geochemical analyses are reported for the <0.45 µm and the >0.45 µm fractions separately, in Appendix B and Appendix C, respectively. The <0.45 µm portion represents the fraction of the snow load most readily dissolved and so may give an estimate of the most readily available metals (potentially important for impact studies). However, the >0.45 µm fraction may also contain metals in relatively available form (0.45 - 2 µm, for example), so the total loading values (combining the two fractions), reported in Appendix D, may give a more reliable picture of metal deposition for use in impact studies. The total load provides an estimate of the total dry and wet deposition of material (including aerosol particles) accumulated since the first snowfall.

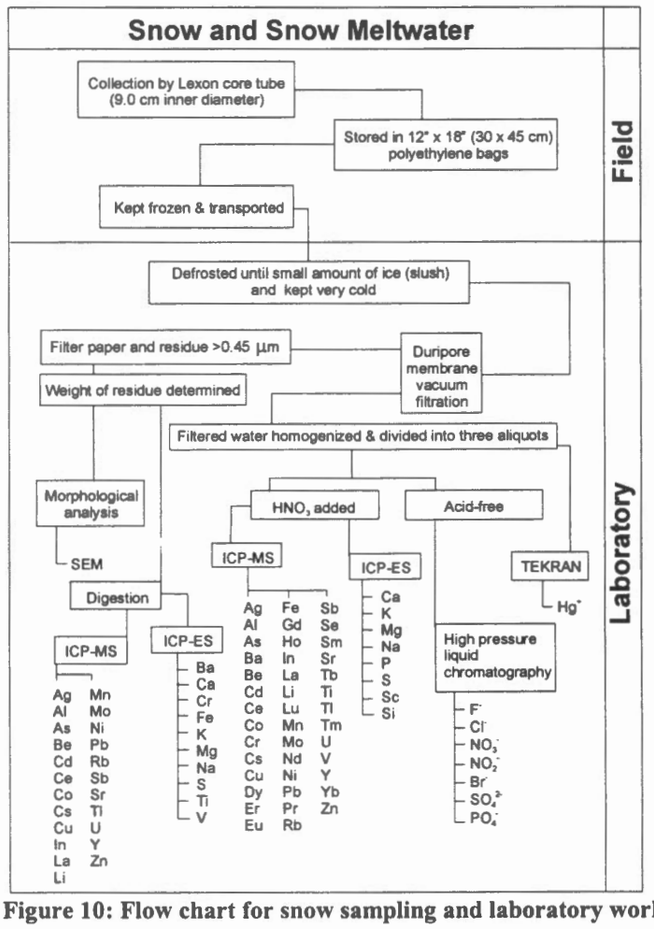


Figure 10: Flow chart for snow sampling and laboratory work

ANALYTICAL METHODS

Filtered snow meltwater (<0.45 µm fraction)

For major and trace metal determinations, standard water analytical procedures were employed in the GSC's Analytical Method Development laboratories, Ottawa. Mercury concentrations were determined using cold vapour atomic fluorescence spectrometry (Hall and Pelchat, 1999). Forty-one major and trace elements were determined directly by ICP-ES and ICP-MS, respectively (Hall *et al.*, 1996). Anions were determined using high–performance ion chromatography (IC) (Smee *et al.*, 1978).

Table 2 lists the elements determined in the meltwater fraction, type of sample preservation, analytical technique, and detection limit for each element.

Table 2: Summary table of elements determined, methods of analyses used, units and detection limits (ppb = µg/L).

Symbol	Element	Preservation	Method	Units	DL
NO_2^-	Nitrite	-	Chromatography	ppb	50
NO_3^-	Nitrate	-	Chromatography	ppb	50
F^-	Fluorine	-	Chromatography	ppb	50
PO_4^-	Phosphate	-	Chromatography	ppb	50
Br^-	Bromine	-	Chromatography	ppb	50
SO_4^{2-}	Sulphate	-	Chromatography	ppb	50
Cl^-	Chlorine	-	Chromatography	ppb	100
Hg	Mercury	0.5% BrCl	TEKRAN	ppb	0.005
Ag	Silver	0.4% HNO_3	ICP-MS	ppb	0.05
Al	Aluminum	0.4% HNO_3	ICP-MS	ppb	2
As	Arsenic	0.4% HNO_3	ICP-MS	ppb	0.1
Ba	Barium	0.4% HNO_3	ICP-MS	ppb	0.2
Be	Beryllium	0.4% HNO_3	ICP-MS	ppb	0.005
Ca	Calcium	0.4% HNO_3	ICP-ES	ppm	0.02
Cd	Cadmium	0.4% HNO_3	ICP-MS	ppb	0.05
Ce	Cerium	0.4% HNO_3	ICP-MS	ppb	0.01
Co	Cobalt	0.4% HNO_3	ICP-MS	ppb	0.05
Cr	Chromium	0.4% HNO_3	ICP-MS	ppb	0.1
Cs	Cesium	0.4% HNO_3	ICP-MS	ppb	0.01
Cu	Copper	0.4% HNO_3	ICP-MS	ppb	0.1
Dy	Dysprosium	0.4% HNO_3	ICP-MS	ppb	0.005
Er	Erbium	0.4% HNO_3	ICP-MS	ppb	0.005
Eu	Europium	0.4% HNO_3	ICP-MS	ppb	0.005
Fe	Iron	0.4% HNO_3	ICP-MS	ppb	5
Gd	Germanium	0.4% HNO_3	ICP-MS	ppb	0.005
Ho	Holmium	0.4% HNO_3	ICP-MS	ppb	0.005
In	Indium	0.4% HNO_3	ICP-MS	ppb	0.01
K	Potassium	0.4% HNO_3	ICP-ES	ppm	0.03
La	Lanthanum	0.4% HNO_3	ICP-MS	ppb	0.01
Li	Lithium	0.4% HNO_3	ICP-MS	ppb	0.005
Lu	Lutetium	0.4% HNO_3	ICP-MS	ppb	0.005
Mg	Magnesium	0.4% HNO_3	ICP-ES	ppm	0.005
Mn	Manganese	0.4% HNO_3	ICP-MS	ppb	0.1
Mo	Molybdenum	0.4% HNO_3	ICP-MS	ppb	0.05
Na	Sodium	0.4% HNO_3	ICP-ES	ppb	50
Nd	Neodymium	0.4% HNO_3	ICP-MS	ppb	0.005
Ni	Nickel	0.4% HNO_3	ICP-MS	ppb	0.2
P	Phosphorous	0.4% HNO_3	ICP-ES	ppb	100
Pb	Lead	0.4% HNO_3	ICP-MS	ppb	0.01
Pr	Praseodymium	0.4% HNO_3	ICP-MS	ppb	0.005
Rb	Rubidium	0.4% HNO_3	ICP-MS	ppb	0.05
S	Sulphur	0.4% HNO_3	ICP-ES	ppb	150
Sb	Antimony	0.4% HNO_3	ICP-MS	ppb	0.01
Sc	Scandium	0.4% HNO_3	ICP-ES	ppb	1
Se	Selenium	0.4% HNO_3	ICP-MS	ppb	1
Si	Silica	0.4% HNO_3	ICP-ES	ppm	0.01
Sm	Samarium	0.4% HNO_3	ICP-MS	ppb	0.005
Sr	Strontium	0.4% HNO_3	ICP-MS	ppb	0.5
Tb	Terbium	0.4% HNO_3	ICP-MS	ppb	0.005
Ti	Titanium	0.4% HNO_3	ICP-MS	ppb	0.5
Tl	Thallium	0.4% HNO_3	ICP-MS	ppb	0.005
Tm	Thulium	0.4% HNO_3	ICP-MS	ppb	0.005
U	Uranium	0.4% HNO_3	ICP-MS	ppb	0.005
V	Vanadium	0.4% HNO_3	ICP-MS	ppb	0.1
Y	Yttrium	0.4% HNO_3	ICP-MS	ppb	0.01
Yb	Ytterbium	0.4% HNO_3	ICP-MS	ppb	0.005
Zn	Zinc	0.4% HNO_3	ICP-MS	ppb	0.5

Snow particulate (>0.45 µm fraction)

Major and trace element concentrations were determined by ICP-ES and ICP-MS, respectively, and As was determined using a hydride generation procedure directly (without pre-concentration) and ICP-MS, as summarized in Table 3.

Table 3: Summary table of elements determined from particulate samples, methods of analyses, units and detection limits (ppb = ng/g).

Symbol	Element	Method	Units	DL
Ag	Silver	ICP-MS	ppb	0.001
Al	Aluminum	ICP-MS	ppb	0.04
As	Arsenic	Hydride-ICP-MS	ppb	0.004
Ba	Barium	ICP-ES	ppb	0.02
Be	Beryllium	ICP-MS	ppb	0.0001
Ca	Calcium	ICP-ES	ppb	0.4
Cd	Cadmium	ICP-MS	ppb	0.001
Ce	Cerium	ICP-MS	ppb	0.0002
Co	Cobalt	ICP-MS	ppb	0.001
Cr	Chromium	ICP-ES	ppb	0.02
Cs	Cesium	ICP-MS	ppb	0.0002
Cu	Copper	ICP-MS	ppb	0.002
Fe	Iron	ICP-ES	ppb	0.1
In	Indium	ICP-MS	ppb	0.0002
K	Potassium	ICP-ES	ppb	0.6
La	Lanthanum	ICP-MS	ppb	0.0002
Li	Lithium	ICP-MS	ppb	0.001
Mg	Magnesium	ICP-ES	ppb	0.1
Mn	Manganese	ICP-MS	ppb	0.002
Mo	Molybdenum	ICP-MS	ppb	0.001
Na	Sodium	ICP-ES	ppb	1
Ni	Nickel	ICP-MS	ppb	0.004
Pb	Lead	ICP-MS	ppb	0.0002
Rb	Rubidium	ICP-MS	ppb	0.001
S	Sulphur	ICP-ES	ppb	1
Sb	Antimony	ICP-MS	ppb	0.0002
Sr	Strontium	ICP-MS	ppb	0.01
Ti	Titanium	ICP-ES	ppb	0.04
Tl	Thallium	ICP-MS	ppb	0.0001
U	Uranium	ICP-MS	ppb	0.0001
V	Vanadium	ICP-ES	ppb	0.04
Y	Yttrium	ICP-MS	ppb	0.0002
Zn	Zinc	ICP-MS	ppb	0.01

DATA PRESENTATION

The analytical results of this study are given in tabular form in Appendices B and C. In each of these appendices, tables of four types are shown: (1) a table (samples x elements) with values in terms of element concentrations, (2) a table (samples x elements) with concentration values converted to element mass per unit area of ground, (3) a table with statistical summaries for each element, and (4) a group of quality-control tables listing results of field and lab duplicates, and standard reference materials where possible. Appendix D combines the results from Appendices B and C, showing total loading of metals in ng/cm^2. Appendix E contains several graphical displays for each element, including maps to show spatial distributions. In Appendix F, graphs of element levels as a function of distance from the smelter are plotted.

In the next section, the calculations used to convert element concentration values to units of mass deposited per unit area are summarized.

Format of snow data

Where data values are below the analytical detection limit (DL), a value of half the detection limit is assigned for statistical purposes, but <DL is shown in the concentration tables, with the DL value shown at the top of the table.

All concentration values were converted to element mass/unit area using Equations (1) or (2). For the mass of an element in meltwater (<0.45 µm), Equation (1) was used:

$$M_{<0.45}\,(ng/cm^2) = C_{<0.45}\,(\mu g/L) * V\,(ml) * 10^3\,(ng/\mu g) * 10^{-3}\,(L/ml)\,/A\,(cm^2), \qquad (1)$$

where $M_{<0.45}$ is the mass of an element (or anion) <0.45µm per unit area (ng/cm^2),
$C_{<0.45}$ is the concentration of element (or anion) <0.45µm (µg/L or ppb),
V is volume of meltwater (ml), and
A is the cross-section area of sampling tube (64 cm^2).

For the element mass/unit area in the particulate fraction (>0.45 µm), Equation (2) was applied:

$$M_{>0.45}\,(ng/cm^2) = C_{>0.45}\,(ng/g) * V\,(ml) * 1\,(g/ml)\ /\ A\,(cm^2), \qquad (2)$$

where $M_{>0.45}$ is the mass of an element per unit area >0.45µm (ng/cm^2), and
$C_{>0.45}$ is the concentration of element >0.45µm (ng/g or ppb).

Finally, Equation (3) was applied to determine the total mass of element per unit area of ground, combining the values from Equations (1) and (2):

$$M_{total}\,(ng/cm^2) = M_{<0.45}\,(ng/cm^2) + M_{>0.45}\,(ng/cm^2), \qquad (3)$$

where M_{total} is the total mass of element (or anion) deposited per unit area (ng/cm^2).

This puts the final results (Appendix D) in units that facilitate the subsequent modelling of metal deposition per unit area with distance from the smelter. It is also possible, then, to estimate total loading, and by determining a background value (loading unaffected by presence of the smelter), to estimate the metal loading caused by deposition from the smelter. Also, note that by expressing the values in terms of element mass (instead of concentration), the effect of different depths of snow (and therefore different volumes of the sample meltwater) is removed.

The <0.45µm (meltwater) data are reported in Appendix B, with concentration data in the first table (including the meltwater volume), mass per unit area data in the second table, and statistical summaries as the third table. Note that the units for NO_3, SO_4 and Cl are reported as µg/cm^2, not ng/cm^2. The >0.45µm data (again with separate tables of

concentrations, mass/unit area values and statistical summaries) are reported in Appendix C. The combined data are shown in Appendix D. Values less than the detection limit are reported as <DL in the concentration tables, and as ** in the mass per unit area tables. Users of the data may wish to make some assumption about the element mass (using half the detection limit for example); but for reporting purposes, such assumptions have not been made.

Quality control

Quality control procedures, where possible, followed current quality control protocols employed at GSC in the National Geochemical Reconnaissance program.

Field duplicates were collected and used to estimate the heterogeneity of the sampling medium (snow) and associated sampling and analytical variance. Sample splits were used to assess short-term analytical precision or variability. Standard and in-house reference samples (SLRS-3, a standard reference water from the National Research Council of Canada and bulk filtered, acidified Ottawa River) were inserted randomly to assess analytical accuracy. However, there was insufficient material in the solid >0.45 µm portion to repeat the analyses. Additionally, "blank" reference samples (deionized water) were analyzed to assess contamination. In the >0.45 µm portion, blanks contained significant amounts of Al, and smaller amounts of Mn, Cu, Zn, Cd, and Pb. This is most probably an effect of digestion and subsequent leaching of contaminants from the filter papers. The <0.45 µm portion blanks showed values above detection limit for Li, Be, and Pb; however, values were very low.

Quality control results are shown for the data as separate tables in Appendices B and C.

COMMENT

The correct interpretation of snow data requires an appreciation of snow as a unique medium used for examining both long- and short-range transportation and subsequent deposition of smelter emissions. It is important to recognize a number of points that are particular to this sampling medium:

- Snow serves to collect wet and dry deposition over a time period that varies year to year;
- It is not known if what is deposited remains *in situ* or moves within the snow pack;
- It is not known if there is migration of elements from ground into snowpack;
- It is not known what happens to the geochemical profile of a column of snowpack if partial melting of the snowpack occurs during the time span of the deposition period; and
- It is not known what portion of the chemical signature is deposition from road dust, urban centre activities, wind blown terrestrial material, and industrial activities such as smelter or mining operations.

ACKNOWLEDGEMENTS

Heliforex Inc. in Val d'Or, Quebec supported the field survey. The work of the staffs of the Analytical Method Development (AMD) Laboratory and the Analytical Chemistry (AC) Laboratory, both at the GSC-Ottawa, is gratefully acknowledged. P. Hunt in the SEM & Image Analysis Lab, GSC-Ottawa provided thermoprints and digital images. A personal credit is extended to Noranda Inc., Quebec, especially to Robert Prairie, (Montreal) and Stéphane Robert (Rouyn-Noranda) for extensive advice and information to help in data collection, interpretation and presentation. Finally, Bob Garrett is gratefully acknowledged for his editing and advice.

Data from all open files are available on CD, diskette, and in original published form from:

GSC Bookstore
601 Booth Street
Ottawa, ON K1A 0E8

Tel: (613) 995-4342
Toll free: 1-888-252-4301
Fax: (613) 943-0646

REFERENCES

Dugas, J., and Hogg, W.M.A.
1962: An outline of the Rouyn-Noranda Area, Quebec, Canadian Mining Journal, p. 101-104.

Hall, G.E.M., Vaive, J.E., and Pelchat, J.C.
1996: Performance of inductively coupled plasma mass spectrometric methods used in the determination of trace elements in surface waters in hydrogeochemical surveys, Journal of Analytical Atomic Spectrometry, v. 11, p. 779-786.

Hall, G.E.M. and Pelchat, P.
1999: Development of a mercury vapour analysers for measurement of Hg in solution and air, Water, Air, and Soil Pollution, v.111, p. 287-295.

MERQ-OGS
1983: Lithostratigraphic map of the Abitibi Subprovince; Ontario Geological Survey/Ministère de l'Energie et des Ressources Québec; 1:50 000; catalogued as "MAP 2484" in Ontario and "DV 83-16" in Quebec.

Robinson, W.G.
1951: Structural geology and ore deposits of the Rouyn-Noranda District, *presentation for* Annual Convention of the Prospectors and Developers Association, p. 61-73.

Smee, B.W., Hall, G.E.M., and Koop, D.J.
1978: Analysis of fluoride, chloride, nitrate and sulphate in natural waters using ion chromatography, Journal of Geochemical Exploration, v. 10, p. 257-265.

Soveri, J., Peltonen, K., Grennfelt, P., Rodhe, H., Thornelof, E., and Wisniewski, J., (eds.)
1995: Evaluation of the changes in regional wintertime deposition in Finland during 1976-1993, Water, Air, and Soil Pollution, v. 85, no. 4, p. 2191-2197.

APPENDIX A

Snow Field Data

Table A1: Field measurements and observations.

Sample	Latitude	Longitude	Distance from Smelter (km)	Relief	Transport	Date	Time	Temp (°C)	Weather
RN98SNOW-01	48.2335	-79.0355	2.40	low	truck	10-Mar	2:48	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-02	48.2537	-79.0475	2.33	high	truck	10-Mar	3:18	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-03	48.2632	-79.0323	1.81	high	truck	10-Mar	3:33	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-04	48.2650	-79.0473	2.78	moderate	truck	10-Mar	3:48	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-05	48.2715	-79.0303	2.52	low	truck	10-Mar	4:02	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-06	48.2929	-79.0360	4.90	mod-high	truck	10-Mar	4:19	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-07	48.2716	-79.0237	2.37	moderate	truck	10-Mar	4:31	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-08	48.2597	-79.0214	1.05	low	truck	10-Mar	4:45	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-09	48.2618	-79.0065	1.42	low	truck	10-Mar	4:59	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-10	48.2696	-79.0047	2.26	moderate	truck	10-Mar	5:12	-19	10% cloud; cold, windy (-32), sunny
RN98SNOW-11	48.5622	-79.4611	47.78	moderate	helicopter	11-Mar	9:55	-29	no cloud; cold; sunny
RN98SNOW-12	48.5400	-79.4325	44.54	low	helicopter	11-Mar	10:00	-29	no cloud; cold; sunny
RN98SNOW-13	48.5267	-79.4167	42.66	moderate	helicopter	11-Mar	10:05	-29	no cloud; cold; sunny
RN98SNOW-14	48.5067	-79.3763	39.00	moderate	helicopter	11-Mar	10:11	-29	no cloud; cold; sunny
RN98SNOW-15	48.4875	-79.3564	36.43	moderate	helicopter	11-Mar	10:16	-29	no cloud; cold; sunny
RN98SNOW-16	48.4658	-79.3167	32.91	low	helicopter	11-Mar	10:26	-29	no cloud; cold; sunny
RN98SNOW-17	48.4483	-79.2914	29.96	mod-low	helicopter	11-Mar	10:35	-29	no cloud; cold; sunny
RN98SNOW-18	48.4239	-79.2633	26.56	moderate	helicopter	11-Mar	10:42	-29	no cloud; cold; sunny
RN98SNOW-19	48.4033	-79.2319	23.30	high	helicopter	11-Mar	10:50	-29	no cloud; cold; sunny
RN98SNOW-20	48.3875	-79.2083	20.82	high	helicopter	11-Mar	10:59	-29	no cloud; cold; sunny
RN98SNOW-21	48.3675	-79.1803	17.78	low	helicopter	11-Mar	11:10	-29	no cloud; cold; sunny
RN98SNOW-22	48.3475	-79.1578	15.02	low	helicopter	11-Mar	11:17	-29	no cloud; cold; sunny
RN98SNOW-23	48.3497	-79.1081	12.93	high	helicopter	11-Mar	11:24	-29	no cloud; cold; sunny
RN98SNOW-24	48.3464	-79.0672	11.28	high	helicopter	11-Mar	11:31	-29	no cloud; cold; sunny
RN98SNOW-25	48.3486	-79.0311	10.93	low-mod	helicopter	11-Mar	11:39	-29	no cloud; cold; sunny
RN98SNOW-26	48.3703	-79.0328	13.35	low	helicopter	11-Mar	11:46	-29	no cloud; cold; sunny
RN98SNOW-27	48.3186	-79.0333	7.64	low-mod	helicopter	11-Mar	11:53	-29	no cloud; cold; sunny
RN98SNOW-28	48.3219	-79.0800	9.21	mod-high	helicopter	11-Mar	12:01	-29	no cloud; cold; sunny
RN98SNOW-29	48.3214	-79.1219	11.08	low	helicopter	11-Mar	12:10	-29	no cloud; cold; sunny
RN98SNOW-30	48.3200	-79.1614	13.22	moderate	helicopter	11-Mar	12:16	-29	no cloud; cold; sunny
RN98SNOW-31	48.2964	-79.1478	10.98	low	helicopter	11-Mar	12:29	-29	no cloud; cold; sunny
RN98SNOW-32	48.2947	-79.1072	8.32	moderate	helicopter	11-Mar	12:35	-29	no cloud; cold; sunny
RN98SNOW-33	48.2914	-79.0725	6.14	low	helicopter	11-Mar	12:50	-29	no cloud; cold; sunny
RN98SNOW-34	48.2822	-79.0108	3.51	low	helicopter	11-Mar	12:53	-29	no cloud; cold; sunny
RN98SNOW-35	48.2678	-79.0478	3.00	high	helicopter	11-Mar	13:05	-29	no cloud; cold; sunny
RN98SNOW-36	48.2683	-79.0786	5.01	low	helicopter	11-Mar	13:15	-29	no cloud; cold; sunny
RN98SNOW-37	48.5472	-78.5519	47.63	moderate	helicopter	11-Mar	15:13	-29	no cloud; cold; sunny
RN98SNOW-38	48.5275	-78.5817	44.53	low	helicopter	11-Mar	15:22	-29	no cloud; cold; sunny
RN98SNOW-39	48.5014	-78.6117	40.92	low	helicopter	11-Mar	15:27	-29	no cloud; cold; sunny

Table A1 continued.

Sample	Latitude	Longitude	Distance from Smelter (km)	Relief	Transport	Date	Time	Temp (°C)	Weather
RN98SNOW-40	48.4994	-78.6425	39.13	low	helicopter	11-Mar	15:36	-29	no cloud; cold; sunny
RN98SNOW-41	48.4719	-78.6719	35.44	mod-high	helicopter	11-Mar	15:48	-29	no cloud; cold; sunny
RN98SNOW-42	48.4539	-78.6997	32.57	low-mod	helicopter	11-Mar	15:55	-29	no cloud; cold; sunny
RN98SNOW-43	48.4347	-78.7283	29.56	low-mod	helicopter	11-Mar	16:03	-29	no cloud; cold; sunny
RN98SNOW-44	48.4172	-78.7547	26.81	low	helicopter	11-Mar	16:07	-29	no cloud; cold; sunny
RN98SNOW-45	48.3975	-78.7861	23.61	low	helicopter	11-Mar	16:21	-29	off/on snow; partly cloudy
RN98SNOW-46	48.3819	-78.8103	21.12	low-mod	helicopter	11-Mar	16:30	-29	off/on snow; partly cloudy
RN98SNOW-47	48.3633	-78.8431	17.93	low	helicopter	11-Mar	16:35	-29	off/on snow; partly cloudy
RN98SNOW-48	48.3394	-78.8764	14.31	low-mod	helicopter	11-Mar	16:42	-29	off/on snow; partly cloudy
RN98SNOW-49	48.3414	-78.9158	12.61	low	helicopter	11-Mar	16:51	-29	off/on snow; partly cloudy
RN98SNOW-50	48.3450	-78.9586	11.32	high	helicopter	11-Mar	17:00	-29	off/on snow; partly cloudy
RN98SNOW-51	48.3514	-78.9983	11.27	low	helicopter	11-Mar	17:15	-29	off/on snow; partly cloudy
RN98SNOW-52	48.3175	-79.9994	7.52	moderate	helicopter	11-Mar	17:21	-29	off/on snow; partly cloudy
RN98SNOW-53	48.3172	-78.9469	9.00	low	helicopter	11-Mar	17:29	-29	off/on snow; partly cloudy
RN98SNOW-54	48.3147	-78.9144	10.38	high	helicopter	11-Mar	17:39	-29	off/on snow; partly cloudy
RN98SNOW-55	48.3200	-78.8767	12.72	low	helicopter	11-Mar	17:46	-29	off/on snow; partly cloudy
RN98SNOW-56	48.2906	-78.8797	10.76	low-mod	helicopter	11-Mar	17:55	-29	off/on snow; partly cloudy
RN98SNOW-57	48.2611	-78.8847	9.84	low	helicopter	11-Mar	18:01	-29	off/on snow; partly cloudy
RN98SNOW-58	48.2594	-78.8394	13.17	low	helicopter	11-Mar	18:10	-29	off/on snow; partly cloudy
RN98SNOW-59	47.8019	-79.0356	49.99	low	helicopter	12-Mar	9:04	-29	cold; no wind; partly cloudy
RN98SNOW-60	47.8233	-79.0336	47.60	low	helicopter	12-Mar	9:14	-29	cold; no wind; partly cloudy
RN98SNOW-61	47.8586	-79.0375	43.68	low	helicopter	12-Mar	9:21	-29	cold; no wind; partly cloudy
RN98SNOW-62	47.8833	-79.0342	40.93	low	helicopter	12-Mar	9:27	-29	cold; no wind; partly cloudy
RN98SNOW-63	47.9164	-79.0239	37.23	low	helicopter	12-Mar	9:36	-29	cold; no wind; partly cloudy
RN98SNOW-64	47.9414	-79.0292	34.45	low	helicopter	12-Mar	9:45	-29	cold; no wind; partly cloudy
RN98SNOW-65	47.9592	-78.0294	32.47	low	helicopter	12-Mar	9:52	-29	cold; no wind; partly cloudy
RN98SNOW-66	47.9958	-79.0267	28.40	mod-high	helicopter	12-Mar	10:00	-29	cold; no wind; partly cloudy
RN98SNOW-67	48.0219	-79.0242	25.49	low	helicopter	12-Mar	10:07	-29	cold; no wind; partly cloudy
RN98SNOW-68	48.0497	-79.0306	22.41	moderate	helicopter	12-Mar	10:16	-29	cold; no wind; partly cloudy
RN98SNOW-69	48.0672	-79.0297	20.46	high	helicopter	12-Mar	10:23	-29	cold; no wind; partly cloudy
RN98SNOW-70	48.0997	-79.0272	16.84	low	helicopter	12-Mar	10:31	-29	cold; no wind; partly cloudy
RN98SNOW-71	48.1289	-79.0456	13.75	low-mod	helicopter	12-Mar	10:40	-29	cold; no wind; partly cloudy
RN98SNOW-72	48.1319	-79.0028	13.28	low	helicopter	12-Mar	10:49	-29	cold; no wind; partly cloudy
RN98SNOW-73	48.1569	-79.0158	10.47	mod-high	helicopter	12-Mar	10:55	-29	cold; no wind; partly cloudy
RN98SNOW-74	48.1628	-79.0428	10.30	low-mod	helicopter	12-Mar	11:05	-29	cold; no wind; partly cloudy
RN98SNOW-75	48.1567	-79.0847	11.64	low	helicopter	12-Mar	11:12	-29	cold; no wind; partly cloudy
RN98SNOW-76	48.1886	-79.1189	10.29	mod-high	helicopter	12-Mar	11:20	-29	cold; no wind; partly cloudy
RN98SNOW-77	48.1861	-79.0819	8.70	low	helicopter	12-Mar	11:30	-29	cold; no wind; partly cloudy
RN98SNOW-78	48.2119	-79.0767	6.23	high	helicopter	12-Mar	11:37	-29	cold; no wind; partly cloudy
RN98SNOW-79	48.2117	-79.0400	4.70	high	helicopter	12-Mar	11:43	-29	cold; no wind; partly cloudy
RN98SNOW-80	48.1856	-79.0397	7.47	low	helicopter	12-Mar	11:51	-29	cold; no wind; partly cloudy
RN98SNOW-81	48.1831	-78.9986	7.66	low	helicopter	12-Mar	12:01	-29	cold; no wind; partly cloudy
RN98SNOW-82	48.2111	-79.0033	4.58	low	helicopter	12-Mar	12:09	-29	cold; no wind; partly cloudy

Table A1 continued.

Sample	Area Type	Pack (cm)	Colour	Pack Status	Core (cm)	Meltwater vol. (ml)
RN98SNOW-01	forest beside road to mine	70	white	fluffy, new snow	50	761.2
RN98SNOW-02	beside highway 101	70	white	fluffy, new snow	50	1143.5
RN98SNOW-03	on road to Lac Marlon; about 60 m off road into sparse deciduous forest	75	white	fluffy, new snow	50	770.9
RN98SNOW-04	open area at inter. of comm. and road to Lac Marlon	80	white	fluffy, new snow	40	1102.9
RN98SNOW-05	along hwy 101; in sparse mixed woods	70	white	fluffy, new snow	50	672.2
RN98SNOW-06	in neighbourhood "Amulet" in empty lot on leeward side of hill; 25 cm new snow	65	white	fluffy, new snow	45	722.3
RN98SNOW-07	edge of hill with few birch in new neighbourhood; S. of Lac Dufault	80	white	fluffy, new snow	45	449.0
RN98SNOW-08	in industrial area behind building facing smelter	65	grey	dense snow; blown	45	934.4
RN98SNOW-09	near smelter; open area of the golf course	70	white	dense snow; blown	45	651.3
RN98SNOW-10	on road to tailings dump in smelter affected area, near golf course; treeless	60	white	dense snow; blown	40	838.0
RN98SNOW-11	N. traverse; in valley	100	white	new light sfc (~30 cm); corn bottom	60	889.7
RN98SNOW-12	N. traverse; forest of birch and small poplar	90	white	new light sfc (~30 cm); corn bottom	70	1026.5
RN98SNOW-13	N. traverse; very open area; shrubs and newly planted (~5 yrs) spruce/fir	90	white	new light sfc (~30 cm); corn bottom	50	791.5
RN98SNOW-14	N. traverse; island on Lac Hebecourt; small island of fir and spruce trees	70	white	new light sfc (~30 cm); corn bottom	50	808.2
RN98SNOW-15	N. traverse; edge of trees on shore of small island on Lac Bayard	70	white	new light sfc (~30 cm); corn bottom	50	743.9
RN98SNOW-16	N. traverse; on shore of Lac Duparquet (Baie Magusi)	70	white	new light sfc (~30 cm); corn bottom	50	884.6
RN98SNOW-17	N. traverse; on shore of Lac Duparquet (Baie Kanasuta)	75	white	new light sfc (~30 cm); corn bottom	30	521.6
RN98SNOW-18	N. traverse; clearcut beside logging road	90	white	new light sfc (~30 cm); corn bottom	40	728.1
RN98SNOW-19	N.traverse; tight hilltop	70	white	new light sfc (~30 cm); corn bottom	50	852.3
RN98SNOW-20	N.traverse; swamp; tucked between two hills; no drifting; no wind	80	white	new light sfc (~30 cm); corn bottom	50	771.7
RN98SNOW-21	N.traverse; Lac Nora; swampy/flooded area of embayment	90	white	new light sfc (~30 cm); corn bottom	60	851.0
RN98SNOW-22	N.traverse; clearing in coniferous forest (tall trees)	100	white	new light sfc (~30 cm); corn bottom	50	769.3
RN98SNOW-23	swampy area by Lac Duprat; mixed forest	90	white	new light sfc (~30 cm); corn bottom	70	928.5
RN98SNOW-24	opening beside road to Waite mine	90	white	new light sfc (~30 cm); corn bottom	60	1043.3
RN98SNOW-25	field between mine and neighbourhood along highway	n/a	white	new light sfc (~30 cm); corn bottom	n/a	970.9
RN98SNOW-26	bog	50	white	new light sfc (~30 cm); corn bottom	30	385.6
RN98SNOW-27	bay at Baie Sergius of lac Dufault; in path in mixed woods	90	white	new light sfc (~30 cm); corn bottom	60	1032.0
RN98SNOW-28	open field up from road to old mine tailings	90	white	new light sfc (~30 cm); corn bottom	70	1169.0
RN98SNOW-29	in embayment of Lac Foureen	90	white	new light sfc (~30 cm); corn bottom	70	891.0
RN98SNOW-30	off road to cottage; spruce woods on either side	100	white	new light sfc (~30 cm); corn bottom	70	1077.0
RN98SNOW-31	open area onlyfew kms from tailings	90	white	new light sfc (~30 cm); corn bottom	70	984.2
RN98SNOW-32	in a valley of a meandering stream	90	white	new light sfc (~30 cm); corn bottom	70	1029.7
RN98SNOW-33		80	white	new light sfc (~30 cm); corn bottom	50	721.9
RN98SNOW-34	near sewage plant; across from building on shore of Lac Dufault	70	white	new light sfc (~30 cm); corn bottom	40	703.9
RN98SNOW-35	by tower near Lac Marlon	100	white	new light sfc (~30 cm); corn bottom	70	905.9
RN98SNOW-36	near Lac Marlon	90	white	new light sfc (~30 cm); corn bottom	50	767.6
RN98SNOW-37	NE traverse; near SE-07	75	white	new light sfc (~30 cm); corn bottom	40	633.3
RN98SNOW-38	NE traverse; bog with hunting stand; sampled flooded area	90	white	new light sfc (~30 cm); corn bottom	65	930.0
RN98SNOW-39	NE traverse; on a small nameless lake or bog with meandering stream	90	white	new light sfc (~30 cm); corn bottom	65	1020.5

Table A1 continued.

Sample	Area Type	Pack (cm)	Colour	Pack Status	Core (cm)	Meltwater vol. (ml)
RN98SNOW-40	NE traverse; little clearing in middle of birch/spruce	95	white	new light sfc (~30 cm); corn bottom	70	911.9
RN98SNOW-41	NE traverse; at edge of the park in swampy area	90	white	new light sfc (~30 cm); corn bottom	70	659.5
RN98SNOW-42	NE traverse; in Reserve D'Aiguebelle; shore of very long skinny lake	90	white	new light sfc (~30 cm); corn bottom	70	866.3
RN98SNOW-43	NE traverse; in Reserve D'Aiguebelle; horseshoe-shaped clearing	85	white	new light sfc (~30 cm); corn bottom	60	901.1
RN98SNOW-44	NE traverse; woods near highway, young replanted forest; 500 m from highway	75	white	new light sfc (~30 cm); corn bottom	50	745.4
RN98SNOW-45	NE traverse; clearing near deserted road	80	white	new light sfc (~30 cm); corn bottom	50	909.3
RN98SNOW-46	NE traverse; near Kenojevis River in clearing	75	white	new light sfc (~30 cm); corn bottom	60	1046.2
RN98SNOW-47	NE traverse; near St. Joseph de Clericy; near highway	85	white	new light sfc (~30 cm); corn bottom	60	936.7
RN98SNOW-48	NE traverse; near lac Herve on path to hunting cabin	85	white	new light sfc (~30 cm); corn bottom	70	864.6
RN98SNOW-49	near Kenojevis River; S. of St. Joseph de Clericy; marsh on side of road	85	white	new light sfc (~30 cm); corn bottom	60	862.0
RN98SNOW-50	"highlands"; near Lac Dufault and skadoo trails	65	white	new light sfc (~30 cm); corn bottom	40	667.8
RN98SNOW-51	swamp beside Lac Dufault	90	white	new light sfc (~30 cm); corn bottom	60	857.7
RN98SNOW-52	horseshoe island in Lac Dufault; sample taken at peak of island	60	white	new light sfc (~30 cm); corn bottom	50	697.1
RN98SNOW-53	just off Lac Dufault in marshy area	80	white	new light sfc (~30 cm); corn bottom	50	874.0
RN98SNOW-54	top of a recently logged hill	70	white	new light sfc (~30 cm); corn bottom	50	729.6
RN98SNOW-55	on an oxbow lake of the Kenojevis R.	75	white	new light sfc (~30 cm); corn bottom	55	750.5
RN98SNOW-56	right on the Kenojevis R.	74	white	new light sfc (~30 cm); corn bottom	45	779.6
RN98SNOW-57	open area just off river; beside the Kenojevis R.	75	white	new light sfc (~30 cm); corn bottom	50	776.0
RN98SNOW-58	S. of Lac Malartic	85	white	new light sfc (~30 cm); corn bottom	65	939.5
RN98SNOW-59	S. traverse; clearing around hunting stand	90	white	new light sfc (~30 cm); corn bottom	50	853.1
RN98SNOW-60	S. traverse; open area with tall brush	90	white	new light sfc (~30 cm); corn bottom	60	897.6
RN98SNOW-61	S. traverse; young regrowth forest	90	white	new light sfc (~30 cm); corn bottom	60	997.7
RN98SNOW-62	S. traverse; edge of Lac Claire; lots of drifting and rabbit tracks	80	white	new light sfc (~30 cm); corn bottom	50	795.5
RN98SNOW-63	S. traverse; marshy area away from shore of Lac Claire	85	white	new light sfc (~30 cm); corn bottom	60	948.7
RN98SNOW-64	S. traverse; small river; sampled at treeline	90	white	new light sfc (~30 cm); corn bottom	70	1092.1
RN98SNOW-65	S. traverse	90	white	new light sfc (~30 cm); corn bottom	60	856.5
RN98SNOW-66	S. traverse; top of hill; sample taken down largest slope and in the trees	85	white	new light sfc (~30 cm); corn bottom	60	871.3
RN98SNOW-67	S. traverse; clearing in woods	70	white	new light sfc (~30 cm); corn bottom	50	794.3
RN98SNOW-68	S. traverse; in valley; sampled up valley side;	80	white	new light sfc (~30 cm); corn bottom	60	1107.2
RN98SNOW-69	S. traverse; on Lac Bellecomb; way in an embayment with very high sides	90	white	new light sfc (~30 cm); corn bottom	60	457.4
RN98SNOW-70	S. traverse; open area near a farm beside meandering creek	85	white	new light sfc (~30 cm); corn bottom	60	928.5
RN98SNOW-71	marsh; sample up a small hill in front of helicopter	80	white	new light sfc (~30 cm); corn bottom	60	737.1
RN98SNOW-72	agricultural area; 300 m from highway in someone's back acreage	90	white	new light sfc (~30 cm); corn bottom	60	842.1
RN98SNOW-73	on shoreline of Beauchast River	75	white	new light sfc (~30 cm); corn bottom	50	758.1
RN98SNOW-74	agricultural area 300 m from highway	85	white	new light sfc (~30 cm); corn bottom	60	917.1
RN98SNOW-75	farmland	70	white	new light sfc (~30 cm); corn bottom	55	933.8
RN98SNOW-76	on river near highway 391 across road from gravel pit	75	white	new light sfc (~30 cm); corn bottom	50	803.1
RN98SNOW-77	clearing	90	white	new light sfc (~30 cm); corn bottom	65	994.8
RN98SNOW-78	near highway at edge of Lac Pelletier	70	white	new light sfc (~30 cm); corn bottom	50	874.0
RN98SNOW-79	hill top	75	white	new light sfc (~30 cm); corn bottom	50	779.1
RN98SNOW-80	forest clearing near highway to Granada	75	white	new light sfc (~30 cm); corn bottom	55	895.3
RN98SNOW-81	clearing with skadoo tracks	85	white	new light sfc (~30 cm); corn bottom	60	896.2
RN98SNOW-82	swamps near Rouyn	85	white	new light sfc (~30 cm); corn bottom	60	893.6

APPENDIX B

Analytical Results

Filtered Snow Meltwater (<0.45 µm)

Analytical results for Filtered Snow Meltwater (ppb)

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B1: Results in units of concentration.

Sample	Sample Volume	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Gd	Ho	In
Units	ml	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL		0.05	2	0.1	0.2	0.005	20	0.05	0.01	0.05	0.1	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01
RN98-SNOW-01	761.2	0.26	6	14.2	2.2	0.005	76	0.71	0.01	0.05	0.3	<DL	202	<DL	<DL	<DL	9	<DL	<DL	<DL
RN98-SNOW-02	1143.5	0.12	8	18.1	2.7	<DL	92	1.01	0.02	0.07	0.5	<DL	299	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-03	770.9	0.14	6	56.3	4.0	<DL	87	1.20	0.01	0.07	0.3	<DL	424	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-04	1102.9	0.37	6	27.6	2.2	0.009	71	0.87	0.02	0.05	0.4	<DL	264	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-05	672.2	0.26	8	34.2	4.5	0.013	95	0.81	0.03	0.09	0.5	<DL	278	<DL	<DL	<DL	9	<DL	<DL	<DL
RN98-SNOW-06	722.3	0.34	8	20.2	3.0	0.005	81	0.51	0.02	0.06	0.4	<DL	181	<DL	<DL	<DL	<DL	0.005	<DL	<DL
RN98-SNOW-07	449.0	0.40	6	33.3	5.1	0.010	72	1.13	0.02	0.09	0.5	<DL	633	<DL	<DL	<DL	12	<DL	<DL	<DL
RN98-SNOW-08	934.4	<DL	18	32.8	15.5	0.043	213	3.79	0.06	0.41	0.6	<DL	1205	<DL	<DL	<DL	9	0.006	<DL	<DL
RN98-SNOW-09	651.3	<DL	6	15.4	13.3	0.007	102	0.77	0.01	0.13	0.2	<DL	310	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-10	838.0	0.28	14	50.6	6.4	0.037	77	2.67	0.04	0.17	0.7	<DL	576	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-11	889.7	<DL	4	0.2	0.6	<DL	201	<DL	0.02	<DL	<DL	<DL	1.2	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-12	1026.5	<DL	3	0.3	0.5	<DL	49	0.06	<DL	<DL	<DL	<DL	1.1	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-13	791.5	<DL	3	0.3	0.5	<DL	69	0.06	<DL	<DL	<DL	<DL	0.8	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-14	808.2	<DL	3	0.4	0.5	<DL	45	0.06	<DL	<DL	<DL	<DL	1.0	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-15	743.9	<DL	3	0.3	0.4	<DL	46	<DL	<DL	<DL	<DL	<DL	1.4	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-16	884.6	<DL	<DL	0.2	0.3	<DL	71	<DL	<DL	<DL	<DL	<DL	0.7	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-17	521.6	<DL	3	0.4	0.4	0.007	93	0.06	<DL	<DL	<DL	<DL	1.7	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18	728.1	<DL	3	0.5	0.9	0.006	132	0.16	0.02	<DL	0.1	<DL	1.6	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-19	852.3	<DL	3	0.6	0.5	0.007	44	0.06	<DL	<DL	<DL	<DL	3.1	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-20	771.7	<DL	3	0.7	0.5	<DL	44	0.10	<DL	<DL	<DL	<DL	4.3	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-21	851.0	<DL	3	1.0	0.5	0.009	52	0.07	<DL	<DL	<DL	<DL	6.8	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-22	769.3	<DL	3	1.5	0.6	<DL	39	0.09	<DL	<DL	<DL	<DL	8.6	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-23	928.5	<DL	3	1.8	0.6	<DL	84	0.08	0.01	<DL	<DL	<DL	6.6	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-24	1043.3	<DL	3	6.9	1.0	0.005	52	0.18	<DL	<DL	0.1	<DL	27.2	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-25	970.9	0.06	4	7.2	1.0	0.007	51	0.35	<DL	<DL	0.2	<DL	42.7	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-26	385.6	<DL	<DL	2.0	0.7	0.007	44	0.14	<DL	<DL	<DL	<DL	11.8	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-27	1032.0	0.13	4	13.4	1.4	0.009	70	0.44	<DL	<DL	0.3	<DL	89	<DL	<DL	<DL	14	<DL	<DL	<DL
RN98-SNOW-28	1169.0	<DL	3	3.8	0.7	<DL	69	0.16	<DL	<DL	0.1	<DL	13.4	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-29	891.0	<DL	3	3.0	0.7	<DL	78	0.14	<DL	<DL	0.1	<DL	14.8	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-30	1077.0	<DL	3	1.9	0.5	<DL	54	0.10	<DL	<DL	<DL	<DL	9.3	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-31	984.2	<DL	5	3.2	0.8	<DL	74	0.19	<DL	<DL	0.2	<DL	13.5	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-32	1029.7	<DL	4	4.4	1.2	<DL	147	0.27	0.02	<DL	0.1	<DL	23.4	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-33	721.9	0.06	3	9.5	0.8	<DL	85	0.37	<DL	<DL	0.2	<DL	44.7	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-34	703.9	0.28	6	53.2	3.4	0.012	89	1.47	0.01	0.08	0.4	<DL	270	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-35	905.9	0.20	4	20.7	2.2	0.009	65	0.57	0.01	<DL	0.3	<DL	163	<DL	<DL	<DL	17	<DL	<DL	<DL
RN98-SNOW-36	767.6	0.22	5	16.8	1.6	0.008	79	0.62	0.01	<DL	0.3	<DL	102	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-37	633.3	<DL	3	0.5	0.6	<DL	86	<DL	0.02	<DL	<DL	<DL	0.9	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-38	930	<DL	3	0.6	0.4	<DL	61	0.06	<DL	<DL	<DL	<DL	1.4	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39	1020.5	<DL	3	0.8	0.5	<DL	64	0.08	<DL	<DL	<DL	<DL	1.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-40	911.9	<DL	2	0.8	0.4	<DL	59	<DL	<DL	<DL	<DL	<DL	0.8	<DL	<DL	<DL	<DL	<DL	<DL	<DL

Table B1 continued

Sample	Sample Volume	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Gd	Ho	In
Units	ml	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL		0.05	2	0.1	0.2	0.005	20	0.05	0.01	0.05	0.1	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01
RN98-SNOW-41	659.5	<DL	5	1.6	0.7	0.005	84	0.09	<DL	<DL	<DL	<DL	2.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-42	866.3	<DL	2	0.9	0.4	<DL	53	0.06	<DL	<DL	<DL	<DL	1.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-43	901.1	<DL	2	0.8	0.5	<DL	69	0.06	<DL	<DL	<DL	<DL	2.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-44	745.4	<DL	3	0.7	0.5	<DL	71	0.10	<DL	<DL	<DL	<DL	3.1	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-45	909.3	<DL	2	0.9	0.9	<DL	153	0.07	0.02	<DL	<DL	<DL	2.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-46	1046.2	<DL	3	1.1	0.9	<DL	103	0.18	0.01	<DL	<DL	<DL	3.8	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-47	936.7	<DL	<DL	1.3	0.4	<DL	48	0.07	<DL	<DL	<DL	<DL	4.7	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-48	864.6	<DL	2	2.4	0.5	<DL	58	0.15	<DL	<DL	0.1	<DL	8.0	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-49	862.0	<DL	3	5.1	0.9	0.006	81	0.23	<DL	<DL	0.1	<DL	19.0	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-50	667.8	0.09	7	7.6	1.4	<DL	91	0.63	0.02	<DL	0.2	<DL	37.4	<DL	<DL	<DL	11	<DL	<DL	<DL
RN98-SNOW-51	857.7	0.07	4	4.1	0.9	<DL	67	0.74	<DL	<DL	0.1	<DL	26.4	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-52	697.1	0.16	4	10.4	2.2	<DL	82	0.82	0.01	<DL	0.2	<DL	75.2	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-53	874.0	<DL	8	6.5	1.1	<DL	171	0.43	0.02	<DL	0.2	<DL	33.7	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-54	729.6	<DL	3	3.5	0.6	<DL	64	0.20	<DL	<DL	0.1	<DL	18.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-55	750.5	<DL	3	3.5	0.6	<DL	61	0.19	<DL	<DL	<DL	<DL	13.4	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-56	779.6	<DL	3	3.8	0.6	<DL	128	0.33	<DL	0.06	0.2	<DL	12.7	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-57	776.0	<DL	3	4.9	0.8	<DL	57	0.27	<DL	<DL	0.1	<DL	29.2	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-58	939.5	<DL	3	2.2	0.5	<DL	54	0.13	<DL	<DL	<DL	<DL	8.9	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-59	853.1	<DL	3	0.7	0.8	<DL	82	0.11	0.02	<DL	<DL	<DL	1.3	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-60	897.6	<DL	3	0.8	0.7	<DL	100	0.08	0.01	<DL	<DL	<DL	1.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-61	997.7	<DL	9	0.7	0.5	<DL	55	0.11	<DL	<DL	<DL	<DL	1.9	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-62	795.5	<DL	3	0.9	0.4	<DL	50	0.06	<DL	<DL	<DL	<DL	2.3	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-63	948.7	<DL	2	0.7	0.5	<DL	45	0.07	<DL	<DL	<DL	<DL	2.1	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-64	1092.1	<DL	3	1.1	0.7	<DL	71	0.10	<DL	<DL	<DL	<DL	2.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-65	856.5	<DL	3	2.5	0.6	0.020	66	0.14	<DL	<DL	0.6	<DL	3.1	<DL	<DL	<DL	33	<DL	<DL	<DL
RN98-SNOW-66	871.3	<DL	3	3.1	0.7	0.021	68	0.20	<DL	<DL	0.6	<DL	4.2	<DL	<DL	<DL	34	<DL	<DL	<DL
RN98-SNOW-67	794.3	<DL	2	1.2	0.5	<DL	49	0.08	<DL	<DL	<DL	<DL	4.5	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-68	1107.2	<DL	3	2.6	1.2	<DL	156	0.12	0.01	<DL	<DL	<DL	6.5	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-69	457.4	<DL	<DL	3.0	0.6	<DL	34	0.17	<DL	<DL	<DL	<DL	6.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-70	928.5	<DL	3	3.5	0.7	<DL	119	0.35	0.02	<DL	0.1	<DL	10.2	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-71	737.1	0.05	5	5.1	0.9	<DL	60	0.34	<DL	<DL	0.2	<DL	24.3	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-72	842.1	0.06	3	5.0	0.9	<DL	48	0.32	<DL	<DL	0.2	<DL	24.7	<DL	<DL	<DL	8	<DL	<DL	<DL
RN98-SNOW-73	758.1	<DL	5	11.4	1.7	<DL	520	0.76	0.02	<DL	0.3	<DL	43.7	<DL	<DL	<DL	9	<DL	<DL	<DL
RN98-SNOW-74	917.1	0.09	4	7.9	1.0	<DL	124	0.43	<DL	<DL	0.2	<DL	47.3	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-75	933.8	<DL	4	4.6	1.4	<DL	265	0.40	0.01	<DL	0.1	<DL	28.0	<DL	<DL	<DL	8	<DL	<DL	<DL
RN98-SNOW-76	803.1	<DL	5	3.1	0.7	<DL	55	0.18	0.01	<DL	0.2	<DL	20.8	<DL	<DL	<DL	13	<DL	<DL	<DL
RN98-SNOW-77	994.8	<DL	3	3.8	0.7	<DL	68	0.30	<DL	<DL	0.2	<DL	21.1	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-78	874.0	0.08	5	11.3	1.1	<DL	74	0.47	0.01	<DL	0.3	<DL	68.7	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-79	779.1	0.22	5	15.9	1.6	<DL	64	0.88	0.01	<DL	0.3	<DL	149	<DL	<DL	<DL	8	<DL	<DL	<DL
RN98-SNOW-80	895.3	0.09	4	10.1	1.4	<DL	65	0.63	0.01	<DL	0.3	<DL	73.1	<DL	<DL	<DL	11	<DL	<DL	<DL
RN98-SNOW-81	896.2	0.12	5	20.2	2.0	<DL	79	1.13	<DL	<DL	0.4	<DL	87.4	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-82	893.6	0.15	6	29.8	2.7	0.007	59	1.39	0.01	0.06	0.5	<DL	172	<DL	<DL	<DL	12	<DL	<DL	<DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B1 continued

Sample	K	La	Li	Lu	Mg	Mn	Mo	Na	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Si	Sm	Sr	Tb	Ti	Tl	Tm
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	30	0.01	0.005	0.005	5	0.1	0.05	50	0.005	0.2	100	0.01	0.005	0.05	150	0.01	1	10	0.005	0.5	0.005	2	0.005	0.005
RN98-SNOW-01	<DL	<DL	<DL	<DL	9	1.4	0.05	111	<DL	0.9	<DL	204	<DL	<DL	<DL	1.40	2	<DL	<DL	<DL	<DL	<DL	0.025	<DL
RN98-SNOW-02	<DL	0.01	0.015	<DL	15	1.4	0.06	676	0.008	1.3	<DL	330	<DL	<DL	249	1.80	3	<DL	<DL	0.6	<DL	<DL	0.039	<DL
RN98-SNOW-03	<DL	<DL	<DL	<DL	11	1.3	0.09	173	0.010	1.6	<DL	223	<DL	0.11	<DL	2.04	2	<DL	<DL	<DL	<DL	<DL	0.035	<DL
RN98-SNOW-04	<DL	<DL	0.016	<DL	11	1.1	0.07	122	0.006	1.2	<DL	184	<DL	0.06	337	1.31	3	<DL	<DL	<DL	<DL	<DL	0.022	<DL
RN98-SNOW-05	<DL	0.01	0.011	<DL	14	1.5	0.08	441	0.008	1.9	<DL	199	<DL	0.05	157	2.01	2	<DL	<DL	<DL	<DL	<DL	0.031	<DL
RN98-SNOW-06	<DL	0.01	0.010	<DL	12	1.8	<DL	386	0.006	1.0	<DL	133	<DL	<DL	234	1.16	1	<DL	<DL	<DL	<DL	<DL	0.017	<DL
RN98-SNOW-07	<DL	<DL	0.009	<DL	13	1.4	0.09	348	0.008	2.6	<DL	227	<DL	<DL	292	1.80	3	<DL	<DL	<DL	<DL	<DL	0.032	<DL
RN98-SNOW-08	<DL	0.04	0.052	<DL	43	5.2	0.27	1394	0.024	8.0	<DL	237	0.007	0.09	848	2.46	2	<DL	0.006	1.2	<DL	<DL	0.084	<DL
RN98-SNOW-09	<DL	<DL	0.016	<DL	15	2.2	0.12	230	0.007	2.4	<DL	143	<DL	<DL	<DL	1.46	1	<DL	<DL	0.6	<DL	<DL	0.023	<DL
RN98-SNOW-10	<DL	0.02	0.028	<DL	22	1.7	0.11	333	0.020	3.4	<DL	474	<DL	0.06	628	5.96	6	<DL	<DL	<DL	<DL	<DL	0.071	<DL
RN98-SNOW-11	252	0.01	0.006	<DL	105	3.5	<DL	<DL	0.009	<DL	<DL	1.95	<DL	0.31	<DL	0.03	<DL	<DL	<DL	0.6	<DL	<DL	<DL	<DL
RN98-SNOW-12	<DL	<DL	0.006	<DL	7	2.1	<DL	<DL	<DL	<DL	<DL	1.47	<DL	<DL	<DL	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-13	<DL	<DL	0.009	<DL	13	7.5	<DL	<DL	0.006	<DL	<DL	1.28	<DL	<DL	199	0.02	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-14	<DL	<DL	0.005	<DL	7	0.9	<DL	<DL	<DL	<DL	<DL	1.48	<DL	<DL	<DL	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-15	<DL	<DL	0.006	<DL	6	0.8	<DL	<DL	<DL	<DL	<DL	1.92	<DL	<DL	<DL	0.02	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-16	40	<DL	<DL	<DL	13	1.5	<DL	<DL	<DL	<DL	<DL	0.80	<DL	0.07	<DL	0.02	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-17	<DL	<DL	<DL	<DL	17	0.9	<DL	<DL	0.006	<DL	<DL	1.31	<DL	0.09	<DL	0.04	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18	54	<DL	<DL	<DL	40	4.3	<DL	<DL	0.005	0.5	<DL	1.71	<DL	0.06	<DL	0.06	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-19	<DL	<DL	0.005	<DL	6	1.0	<DL	<DL	<DL	<DL	<DL	2.68	<DL	<DL	230	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-20	<DL	<DL	<DL	<DL	6	1.0	<DL	<DL	<DL	<DL	<DL	3.90	<DL	<DL	155	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-21	<DL	<DL	0.016	<DL	7	1.2	<DL	<DL	0.005	<DL	<DL	5.76	<DL	<DL	257	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-22	<DL	<DL	0.008	<DL	5	0.9	<DL	<DL	<DL	<DL	<DL	8.52	<DL	<DL	217	0.13	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-23	<DL	<DL	0.008	<DL	34	1.6	<DL	<DL	<DL	<DL	<DL	9.06	<DL	0.11	<DL	0.14	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-24	<DL	<DL	0.007	<DL	10	1.7	<DL	<DL	<DL	0.2	<DL	31.8	<DL	<DL	228	0.40	<DL	<DL	<DL	<DL	<DL	<DL	0.005	<DL
RN98-SNOW-25	<DL	<DL	0.011	<DL	9	1.6	<DL	70	<DL	0.3	<DL	54.1	<DL	0.06	224	0.45	<DL	<DL	<DL	<DL	<DL	<DL	0.009	<DL
RN98-SNOW-26	<DL	<DL	0.011	<DL	7	1.6	<DL	<DL	<DL	<DL	<DL	10.9	<DL	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-27	48	<DL	0.014	<DL	14	2.9	<DL	105	0.008	<DL	<DL	77.6	<DL	0.12	318	0.91	1	<DL	<DL	<DL	<DL	<DL	0.012	<DL
RN98-SNOW-28	<DL	<DL	0.010	<DL	7	0.9	<DL	<DL	<DL	<DL	<DL	15.9	<DL	<DL	255	0.21	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-29	<DL	<DL	0.009	<DL	12	2.4	<DL	<DL	<DL	<DL	<DL	15.2	<DL	<DL	284	0.19	<DL	<DL	<DL	<DL	<DL	<DL	0.005	<DL
RN98-SNOW-30	<DL	<DL	<DL	<DL	6	0.8	<DL	<DL	<DL	<DL	<DL	8.8	<DL	<DL	311	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-31	<DL	<DL	0.014	<DL	9	1.3	<DL	<DL	<DL	0.4	<DL	20.4	<DL	0.05	316	0.20	<DL	<DL	<DL	<DL	<DL	<DL	0.006	<DL
RN98-SNOW-32	304	0.01	0.021	<DL	78	11.2	<DL	<DL	<DL	0.6	<DL	18.8	<DL	0.52	374	0.27	<DL	<DL	<DL	0.7	<DL	<DL	0.007	<DL
RN98-SNOW-33	<DL	<DL	0.010	<DL	16	4.6	<DL	<DL	<DL	0.4	<DL	42.5	<DL	0.06	237	0.40	<DL	<DL	<DL	<DL	<DL	<DL	0.006	<DL
RN98-SNOW-34	<DL	<DL	0.014	<DL	14	1.8	0.08	226	0.007	1.5	<DL	363	<DL	0.07	541	3.76	4	<DL	<DL	<DL	<DL	<DL	0.051	<DL
RN98-SNOW-35	<DL	<DL	0.007	<DL	8	1.0	0.08	79	<DL	0.8	<DL	101	<DL	<DL	355	0.94	2	<DL	<DL	<DL	<DL	<DL	0.015	<DL
RN98-SNOW-36	<DL	<DL	0.007	<DL	9	1.1	0.05	59	<DL	0.6	<DL	114	<DL	<DL	292	0.85	2	<DL	<DL	<DL	<DL	<DL	0.013	<DL
RN98-SNOW-37	<DL	0.01	<DL	<DL	17	3.6	<DL	<DL	0.007	<DL	<DL	2.22	<DL	<DL	269	0.04	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-38	<DL	<DL	<DL	<DL	6	1.0	<DL	<DL	<DL	<DL	<DL	2.66	<DL	<DL	394	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39	<DL	<DL	<DL	<DL	8	2.1	<DL	<DL	<DL	<DL	<DL	2.56	<DL	0.07	433	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-40	<DL	<DL	<DL	<DL	6	1.1	<DL	<DL	<DL	<DL	<DL	1.78	<DL	<DL	284	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL

Table B1 continued

Sample	K	La	Li	Lu	Mg	Mn	Mo	Na	Nd	Ni	P	Pb	Pr	Rb	S	Sb	Se	Si	Sm	Sr	Tb	Ti	Tl	Tm
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	30	0.01	0.005	0.005	5	0.1	0.05	50	0.005	0.2	100	0.01	0.005	0.05	150	0.01	1	10	0.005	0.5	0.005	2	0.005	0.005
RN98-SNOW-41	69	<DL	<DL	<DL	18	23.0	<DL	<DL	<DL	<DL	<DL	6.01	<DL	0.19	462	0.11	<DL	<DL	<DL	<DL	<DL	<DL	0.006	<DL
RN98-SNOW-42	<DL	<DL	<DL	<DL	<DL	0.9	<DL	<DL	<DL	<DL	<DL	2.94	<DL	<DL	393	0.06	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-43	<DL	<DL	0.009	<DL	7	1.1	<DL	<DL	<DL	<DL	<DL	2.87	<DL	<DL	299	0.07	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-44	<DL	<DL	0.007	<DL	7	1.5	<DL	<DL	<DL	<DL	<DL	4.25	<DL	<DL	334	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-45	490	<DL	0.007	<DL	61	21.7	<DL	<DL	0.009	<DL	<DL	3.70	<DL	0.57	359	0.06	<DL	<DL	<DL	0.7	<DL	<DL	<DL	<DL
RN98-SNOW-46	<DL	<DL	0.009	<DL	12	10.4	<DL	<DL	0.006	<DL	<DL	5.53	<DL	<DL	299	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-47	<DL	<DL	0.020	<DL	<DL	0.7	<DL	<DL	<DL	<DL	<DL	6.69	<DL	<DL	245	0.13	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-48	<DL	<DL	0.007	<DL	7	0.7	<DL	<DL	<DL	<DL	<DL	12.8	<DL	<DL	220	0.19	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-49	<DL	<DL	0.013	<DL	13	2.6	<DL	<DL	0.006	<DL	<DL	31.0	<DL	0.12	231	0.45	<DL	<DL	<DL	<DL	<DL	<DL	0.007	<DL
RN98-SNOW-50	<DL	0.01	0.013	<DL	9	1.6	<DL	52	0.010	0.3	<DL	98.1	<DL	<DL	450	0.63	<DL	<DL	<DL	<DL	<DL	<DL	0.011	<DL
RN98-SNOW-51	<DL	<DL	0.012	<DL	8	1.1	<DL	<DL	0.005	0.2	<DL	51.1	<DL	<DL	344	0.33	<DL	<DL	<DL	<DL	<DL	<DL	0.007	<DL
RN98-SNOW-52	<DL	<DL	<DL	<DL	10	1.3	0.05	76	<DL	0.5	<DL	143	<DL	<DL	400	1.01	2	<DL	<DL	<DL	<DL	<DL	0.018	<DL
RN98-SNOW-53	<DL	<DL	0.008	<DL	27	8.0	<DL	51	0.008	0.3	<DL	62.4	<DL	0.10	338	0.67	<DL	<DL	<DL	<DL	<DL	<DL	0.009	<DL
RN98-SNOW-54	<DL	<DL	0.010	<DL	7	1.3	<DL	<DL	<DL	<DL	<DL	24.8	<DL	0.05	341	0.28	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-55	<DL	<DL	<DL	<DL	6	1.0	<DL	<DL	<DL	<DL	<DL	23.4	<DL	<DL	<DL	0.30	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-56	44	<DL	<DL	<DL	19	1.1	<DL	<DL	<DL	0.2	<DL	24.6	<DL	0.11	363	0.30	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-57	<DL	<DL	0.018	<DL	7	0.9	<DL	<DL	0.005	0.2	<DL	50.3	<DL	<DL	382	0.40	<DL	<DL	<DL	<DL	<DL	<DL	0.007	<DL
RN98-SNOW-58	<DL	<DL	<DL	<DL	6	1.1	<DL	<DL	<DL	<DL	<DL	17.1	<DL	<DL	234	0.17	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-59	<DL	0.01	<DL	<DL	22	24.7	<DL	<DL	0.009	<DL	<DL	2.77	<DL	0.10	280	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-60	54	<DL	<DL	<DL	19	5.7	<DL	<DL	0.007	<DL	<DL	3.33	<DL	0.08	327	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-61	41	<DL	<DL	<DL	7	1.2	<DL	<DL	0.006	<DL	<DL	3.94	<DL	0.07	342	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-62	<DL	<DL	0.009	<DL	6	1.0	<DL	<DL	<DL	<DL	<DL	4.60	<DL	<DL	379	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-63	<DL	<DL	<DL	<DL	6	1.3	<DL	<DL	<DL	<DL	<DL	4.37	<DL	<DL	285	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-64	189	<DL	0.011	<DL	15	6.7	<DL	<DL	<DL	<DL	<DL	4.74	<DL	0.68	245	0.12	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-65	<DL	<DL	0.041	<DL	8	1.4	<DL	<DL	<DL	0.3	<DL	5.36	<DL	0.06	246	0.11	3	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-66	36	<DL	0.040	<DL	9	2.7	<DL	<DL	<DL	0.3	<DL	8.59	<DL	0.08	385	0.16	3	<DL	<DL	<DL	<DL	<DL	0.006	<DL
RN98-SNOW-67	39	<DL	0.005	<DL	9	2.7	<DL	<DL	<DL	<DL	<DL	7.64	<DL	0.11	307	0.14	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-68	311	<DL	<DL	<DL	40	59.9	<DL	<DL	0.006	<DL	<DL	13.1	<DL	0.35	356	0.27	<DL	<DL	<DL	0.9	<DL	<DL	<DL	<DL
RN98-SNOW-69	<DL	<DL	0.011	<DL	<DL	0.5	<DL	<DL	<DL	0.3	<DL	11.1	<DL	<DL	204	0.20	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-70	226	<DL	0.018	<DL	42	38.8	<DL	<DL	0.007	<DL	<DL	15.3	<DL	0.59	222	0.34	<DL	<DL	<DL	<DL	<DL	<DL	0.011	<DL
RN98-SNOW-71	<DL	<DL	0.007	<DL	9	1.3	<DL	55	<DL	0.3	<DL	33.8	<DL	0.08	307	0.37	<DL	<DL	<DL	<DL	<DL	<DL	0.007	<DL
RN98-SNOW-72	<DL	<DL	0.009	<DL	7	0.9	<DL	<DL	<DL	0.2	<DL	49.3	<DL	<DL	238	0.45	<DL	<DL	<DL	<DL	<DL	<DL	0.009	<DL
RN98-SNOW-73	642	0.02	0.020	<DL	133	15.8	<DL	87	0.012	0.4	<DL	63.4	<DL	2.30	601	1.11	<DL	<DL	<DL	3.8	<DL	<DL	0.013	<DL
RN98-SNOW-74	34	<DL	0.014	<DL	19	6.6	<DL	<DL	0.006	0.4	<DL	65.1	<DL	0.40	304	0.66	<DL	<DL	<DL	0.5	<DL	<DL	0.015	<DL
RN98-SNOW-75	81	<DL	0.013	<DL	43	2.7	<DL	53	0.007	0.3	<DL	42.4	<DL	0.14	418	0.50	<DL	<DL	<DL	1.1	<DL	<DL	0.010	<DL
RN98-SNOW-76	<DL	<DL	0.013	<DL	9	1.2	<DL	197	0.006	0.2	<DL	21.3	<DL	<DL	174	0.28	<DL	<DL	<DL	<DL	<DL	<DL	0.006	<DL
RN98-SNOW-77	40	<DL	0.011	<DL	10	1.0	<DL	<DL	<DL	0.2	<DL	28.7	<DL	0.11	374	0.28	<DL	<DL	<DL	<DL	<DL	<DL	0.007	<DL
RN98-SNOW-78	42	<DL	0.006	<DL	19	1.9	<DL	77	0.007	0.4	<DL	75.1	<DL	0.18	281	0.91	1	<DL	<DL	<DL	<DL	<DL	0.013	<DL
RN98-SNOW-79	<DL	<DL	0.006	<DL	8	1.3	0.06	80	0.005	0.7	<DL	158	<DL	<DL	264	1.13	2	<DL	<DL	<DL	<DL	<DL	0.028	<DL
RN98-SNOW-80	<DL	<DL	<DL	<DL	16	3.0	0.05	72	0.009	0.4	<DL	93.9	<DL	0.08	207	0.81	<DL	<DL	<DL	<DL	<DL	<DL	0.016	<DL
RN98-SNOW-81	<DL	<DL	0.008	<DL	10	1.0	0.07	82	<DL	0.6	<DL	131	<DL	0.05	365	1.40	1	<DL	<DL	<DL	<DL	<DL	0.031	<DL
RN98-SNOW-82	<DL	<DL	<DL	<DL	9	1.1	0.06	120	<DL	1.1	<DL	261	<DL	<DL	423	2.28	2	<DL	<DL	<DL	<DL	<DL	0.041	<DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B1 continued

Sample	U	V	Y	Yb	Zn	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.1	0.01	0.005	0.5	50	50	50	50	50	50	100
RN98-SNOW-01	<DL	0.2	<DL	<DL	39.2	<DL	1195	<DL	<DL	<DL	800	190
RN98-SNOW-02	<DL	0.2	<DL	<DL	65.5	<DL	1083	<DL	<DL	<DL	870	1140
RN98-SNOW-03	<DL	0.3	<DL	<DL	67.4	<DL	1313	<DL	<DL	<DL	990	270
RN98-SNOW-04	<DL	0.3	<DL	<DL	52.8	<DL	1604	<DL	<DL	<DL	1070	180
RN98-SNOW-05	<DL	0.3	<DL	<DL	67.2	<DL	1545	<DL	<DL	<DL	1060	670
RN98-SNOW-06	<DL	0.2	<DL	<DL	40.6	<DL	1453	<DL	<DL	<DL	860	640
RN98-SNOW-07	<DL	0.3	<DL	<DL	75.6	<DL	1558	<DL	<DL	<DL	1190	330
RN98-SNOW-08	<DL	0.7	0.02	<DL	166	<DL	2281	<DL	<DL	<DL	2310	2280
RN98-SNOW-09	<DL	0.3	<DL	<DL	47.9	<DL	852	<DL	<DL	<DL	730	350
RN98-SNOW-10	<DL	0.4	0.01	<DL	163	<DL	1650	<DL	<DL	<DL	1810	230
RN98-SNOW-11	<DL	0.1	<DL	<DL	1.8	<DL	1721	<DL	<DL	<DL	810	110
RN98-SNOW-12	<DL	<DL	<DL	<DL	2.1	<DL	1806	<DL	<DL	<DL	790	<DL
RN98-SNOW-13	<DL	<DL	<DL	<DL	3.0	<DL	1762	<DL	<DL	<DL	710	110
RN98-SNOW-14	<DL	<DL	<DL	<DL	2.7	<DL	1569	<DL	<DL	<DL	590	110
RN98-SNOW-15	<DL	0.1	<DL	<DL	2.3	<DL	1854	<DL	<DL	<DL	720	100
RN98-SNOW-16	<DL	<DL	<DL	<DL	1.1	<DL	1372	<DL	<DL	<DL	460	120
RN98-SNOW-17	<DL	<DL	<DL	<DL	2.0	<DL	1346	<DL	<DL	<DL	630	<DL
RN98-SNOW-18	<DL	<DL	<DL	<DL	3.0	<DL	2036	<DL	<DL	<DL	820	130
RN98-SNOW-19	<DL	0.1	<DL	<DL	3.8	<DL	1638	<DL	<DL	<DL	820	100
RN98-SNOW-20	<DL	0.1	<DL	<DL	3.3	<DL	1581	<DL	<DL	<DL	780	<DL
RN98-SNOW-21	<DL	<DL	<DL	<DL	4.4	<DL	1992	<DL	<DL	<DL	910	110
RN98-SNOW-22	<DL	0.1	<DL	<DL	4.5	<DL	1775	<DL	<DL	<DL	800	<DL
RN98-SNOW-23	<DL	0.1	<DL	<DL	4.5	<DL	1565	<DL	<DL	<DL	770	100
RN98-SNOW-24	<DL	0.1	<DL	<DL	11.5	<DL	1735	<DL	<DL	<DL	860	130
RN98-SNOW-25	<DL	0.1	<DL	<DL	15.4	<DL	1629	<DL	<DL	<DL	850	190
RN98-SNOW-26	<DL	<DL	<DL	<DL	4.1	<DL	1177	<DL	<DL	<DL	560	110
RN98-SNOW-27	<DL	0.1	<DL	<DL	22.7	<DL	1779	<DL	<DL	<DL	940	210
RN98-SNOW-28	<DL	0.1	<DL	<DL	6.3	<DL	1541	<DL	<DL	<DL	640	110
RN98-SNOW-29	<DL	0.1	<DL	<DL	7.8	<DL	1815	<DL	<DL	<DL	850	110
RN98-SNOW-30	<DL	<DL	<DL	<DL	4.1	<DL	1724	<DL	<DL	<DL	740	<DL
RN98-SNOW-31	<DL	0.1	<DL	<DL	9.5	<DL	1617	<DL	<DL	<DL	810	130
RN98-SNOW-32	<DL	<DL	<DL	<DL	11.0	<DL	1669	<DL	<DL	<DL	850	150
RN98-SNOW-33	<DL	0.1	<DL	<DL	15.9	<DL	1736	<DL	<DL	<DL	860	120
RN98-SNOW-34	<DL	0.3	<DL	<DL	101	<DL	1472	<DL	<DL	<DL	1310	200
RN98-SNOW-35	<DL	0.3	<DL	<DL	29.8	<DL	1801	<DL	<DL	<DL	900	150
RN98-SNOW-36	<DL	0.2	<DL	<DL	31.4	<DL	1680	<DL	<DL	<DL	930	100
RN98-SNOW-37	<DL	0.1	<DL	<DL	2.9	<DL	1682	<DL	<DL	<DL	670	100
RN98-SNOW-38	<DL	< DL	<DL	<DL	2.1	<DL	1596	<DL	<DL	<DL	650	<DL
RN98-SNOW-39	<DL	0.1	<DL	<DL	2.5	<DL	1674	<DL	<DL	<DL	810	<DL
RN98-SNOW-40	<DL	0.1	<DL	<DL	1.9	<DL	1425	<DL	<DL	<DL	670	<DL

Table B1 continued

Sample	U	V	Y	Yb	Zn	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.1	0.01	0.005	0.5	50	50	50	50	50	50	100
RN98-SNOW-41	<DL	0.1	<DL	<DL	4.1	<DL	1605	<DL	<DL	<DL	970	130
RN98-SNOW-42	<DL	<DL	<DL	<DL	2.1	<DL	1493	<DL	<DL	<DL	650	<DL
RN98-SNOW-43	<DL	<DL	<DL	<DL	2.6	<DL	1752	<DL	<DL	<DL	720	100
RN98-SNOW-44	<DL	<DL	<DL	<DL	2.7	<DL	1830	<DL	<DL	<DL	740	<DL
RN98-SNOW-45	<DL	<DL	<DL	<DL	2.5	<DL	1147	<DL	<DL	<DL	470	120
RN98-SNOW-46	<DL	<DL	<DL	<DL	4.4	<DL	1549	<DL	<DL	<DL	720	110
RN98-SNOW-47	<DL	<DL	<DL	<DL	2.7	<DL	1316	<DL	<DL	<DL	520	120
RN98-SNOW-48	<DL	<DL	<DL	<DL	5.6	<DL	1371	<DL	<DL	<DL	590	110
RN98-SNOW-49	<DL	0.1	<DL	<DL	9.6	<DL	1705	<DL	<DL	<DL	790	120
RN98-SNOW-50	<DL	0.2	<DL	<DL	27.5	<DL	1765	<DL	<DL	<DL	930	120
RN98-SNOW-51	<DL	0.1	<DL	<DL	16.6	<DL	1824	<DL	<DL	<DL	850	140
RN98-SNOW-52	<DL	0.1	<DL	<DL	35.6	<DL	1578	<DL	<DL	<DL	890	120
RN98-SNOW-53	<DL	0.1	<DL	<DL	18.4	<DL	1572	<DL	<DL	<DL	940	130
RN98-SNOW-54	<DL	0.1	<DL	<DL	8.6	<DL	1439	<DL	<DL	<DL	700	<DL
RN98-SNOW-55	<DL	<DL	<DL	<DL	7.1	<DL	1631	<DL	<DL	<DL	700	<DL
RN98-SNOW-56	<DL	<DL	<DL	<DL	9.4	<DL	1583	<DL	<DL	<DL	730	120
RN98-SNOW-57	<DL	0.1	<DL	<DL	12.8	<DL	1768	<DL	<DL	<DL	780	110
RN98-SNOW-58	<DL	<DL	<DL	<DL	5.8	<DL	1600	<DL	<DL	<DL	630	<DL
RN98-SNOW-59	<DL	<DL	<DL	<DL	2.9	<DL	1660	<DL	<DL	<DL	770	<DL
RN98-SNOW-60	<DL	<DL	<DL	<DL	2.3	<DL	1879	<DL	<DL	<DL	890	<DL
RN98-SNOW-61	<DL	<DL	<DL	<DL	3.1	<DL	1685	<DL	<DL	<DL	750	100
RN98-SNOW-62	<DL	0.1	<DL	<DL	2.5	<DL	1894	<DL	<DL	<DL	930	100
RN98-SNOW-63	<DL	<DL	<DL	<DL	2.6	<DL	1610	<DL	<DL	<DL	680	<DL
RN98-SNOW-64	<DL	<DL	<DL	<DL	3.4	<DL	1489	<DL	<DL	<DL	820	<DL
RN98-SNOW-65	<DL	0.3	<DL	<DL	7.4	<DL	1709	<DL	<DL	<DL	900	110
RN98-SNOW-66	<DL	0.3	<DL	<DL	4.9	<DL	1660	<DL	<DL	<DL	860	120
RN98-SNOW-67	<DL	<DL	<DL	<DL	3.1	<DL	1295	<DL	<DL	<DL	740	<DL
RN98-SNOW-68	<DL	<DL	<DL	<DL	6.1	<DL	1581	<DL	<DL	<DL	990	120
RN98-SNOW-69	<DL	<DL	<DL	<DL	4.7	<DL	1249	<DL	<DL	<DL	510	<DL
RN98-SNOW-70	<DL	<DL	<DL	<DL	8.3	<DL	1289	<DL	<DL	<DL	830	<DL
RN98-SNOW-71	<DL	0.1	<DL	<DL	11.4	<DL	1467	<DL	<DL	<DL	800	140
RN98-SNOW-72	<DL	0.1	<DL	<DL	12.6	<DL	1655	<DL	<DL	<DL	820	120
RN98-SNOW-73	<DL	0.2	<DL	<DL	27.4	<DL	1809	<DL	<DL	<DL	1390	220
RN98-SNOW-74	<DL	0.2	<DL	<DL	20.2	<DL	1876	<DL	<DL	<DL	1020	160
RN98-SNOW-75	<DL	0.1	<DL	<DL	17.7	<DL	2007	<DL	<DL	<DL	1200	160
RN98-SNOW-76	<DL	0.1	<DL	<DL	8.9	<DL	1666	<DL	<DL	<DL	800	370
RN98-SNOW-77	<DL	0.1	<DL	<DL	12.5	<DL	1605	<DL	<DL	<DL	730	140
RN98-SNOW-78	<DL	0.1	<DL	<DL	25.2	<DL	1393	<DL	<DL	<DL	740	140
RN98-SNOW-79	<DL	0.2	<DL	<DL	42.6	<DL	1491	<DL	<DL	<DL	840	180
RN98-SNOW-80	<DL	0.1	<DL	<DL	23.0	<DL	1488	<DL	<DL	<DL	840	200
RN98-SNOW-81	<DL	0.2	<DL	<DL	39.0	<DL	1514	<DL	<DL	<DL	940	190
RN98-SNOW-82	<DL	0.2	<DL	<DL	69.5	<DL	1420	<DL	<DL	<DL	1120	160

Analytical Results for Filtered Snow Meltwater (ng/cm^2)

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B2: Data in units of ng/cm^2

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Gd
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-01	3.0	65	169	26	0.06	903	8.5	0.1	0.6	3.0	<DL	2405	<DL	<DL	<DL	107	<DL
RN98-SNOW-02	2.2	139	324	48	<DL	1649	18.0	0.4	1.3	8.0	<DL	5336	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-03	1.7	66	678	48	<DL	1048	14.5	0.2	0.8	3.3	<DL	5103	<DL	<DL	<DL	84	<DL
RN98-SNOW-04	6.4	103	476	38	0.15	1227	14.9	0.3	0.9	6.7	<DL	4556	<DL	<DL	<DL	103	<DL
RN98-SNOW-05	2.7	86	359	47	0.13	993	8.5	0.3	1.0	5.3	<DL	2917	<DL	<DL	<DL	95	<DL
RN98-SNOW-06	3.8	90	228	34	0.06	920	5.7	0.2	0.7	4.7	<DL	2042	<DL	<DL	<DL	<DL	0.06
RN98-SNOW-07	2.8	43	234	36	0.07	508	7.9	0.1	0.6	3.2	<DL	4439	<DL	<DL	<DL	84	<DL
RN98-SNOW-08	<DL	258	478	227	0.63	3109	55.3	0.9	5.9	8.6	<DL	17594	<DL	<DL	<DL	131	0.08
RN98-SNOW-09	<DL	65	156	135	0.07	1034	7.8	0.1	1.3	1.8	<DL	3157	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-10	3.6	179	662	84	0.48	1008	34.9	0.5	2.2	8.6	<DL	7539	<DL	<DL	<DL	92	<DL
RN98-SNOW-11	<DL	54	3	8	<DL	2794	<DL	0.3	<DL	<DL	<DL	17	<DL	<DL	<DL	83	<DL
RN98-SNOW-12	<DL	48	4	8	<DL	784	1.0	<DL	<DL	<DL	<DL	17	<DL	<DL	<DL	112	<DL
RN98-SNOW-13	<DL	35	4	6	<DL	851	0.7	<DL	<DL	<DL	<DL	10	<DL	<DL	<DL	74	<DL
RN98-SNOW-14	<DL	32	5	6	<DL	572	0.8	<DL	<DL	<DL	<DL	12	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-15	<DL	34	3	5	<DL	533	<DL	<DL	<DL	<DL	<DL	17	<DL	<DL	<DL	81	<DL
RN98-SNOW-16	<DL	<DL	3	4	<DL	977	<DL	<DL	<DL	<DL	<DL	10	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-17	<DL	24	3	3	0.06	758	0.4	<DL	<DL	<DL	<DL	14	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18	<DL	38	6	11	0.07	1496	1.8	0.2	<DL	1.1	<DL	18	<DL	<DL	<DL	68	<DL
RN98-SNOW-19	<DL	36	8	7	0.09	587	0.8	<DL	<DL	<DL	<DL	41	<DL	<DL	<DL	67	<DL
RN98-SNOW-20	<DL	37	9	6	<DL	531	1.2	<DL	<DL	<DL	<DL	52	<DL	<DL	<DL	84	<DL
RN98-SNOW-21	<DL	45	14	7	0.12	687	0.9	<DL	<DL	<DL	<DL	90	<DL	<DL	<DL	80	<DL
RN98-SNOW-22	<DL	34	18	7	<DL	473	1.0	<DL	<DL	<DL	<DL	103	<DL	<DL	<DL	87	<DL
RN98-SNOW-23	<DL	48	26	9	<DL	1212	1.1	0.2	<DL	<DL	<DL	96	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-24	<DL	47	112	16	0.09	851	2.9	<DL	<DL	2.3	<DL	443	<DL	<DL	<DL	114	<DL
RN98-SNOW-25	0.8	55	110	16	0.11	777	5.3	<DL	<DL	2.7	<DL	648	<DL	<DL	<DL	152	<DL
RN98-SNOW-26	<DL	<DL	12	4	<DL	263	0.9	<DL	<DL	<DL	<DL	71	<DL	<DL	<DL	36	<DL
RN98-SNOW-27	2.1	68	216	23	0.14	1127	7.1	<DL	<DL	5.5	<DL	1429	<DL	<DL	<DL	226	<DL
RN98-SNOW-28	<DL	53	69	12	<DL	1256	3.0	<DL	<DL	2.0	<DL	245	<DL	<DL	<DL	91	<DL
RN98-SNOW-29	<DL	40	42	10	<DL	1085	2.0	<DL	<DL	1.5	<DL	206	<DL	<DL	<DL	70	<DL
RN98-SNOW-30	<DL	50	31	8	<DL	907	1.7	<DL	<DL	<DL	<DL	156	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-31	<DL	83	50	12	<DL	1143	2.9	<DL	<DL	2.3	<DL	207	<DL	<DL	<DL	92	<DL
RN98-SNOW-32	<DL	56	70	20	<DL	2360	4.3	0.3	<DL	1.8	<DL	376	<DL	<DL	<DL	80	<DL
RN98-SNOW-33	0.7	35	108	9	<DL	960	4.1	<DL	<DL	1.9	<DL	504	<DL	<DL	<DL	79	<DL
RN98-SNOW-34	3.1	62	585	37	0.13	984	16.2	0.1	0.8	4.5	<DL	2973	<DL	<DL	<DL	66	<DL
RN98-SNOW-35	2.8	61	292	32	0.13	926	8.0	0.2	<DL	3.8	<DL	2303	<DL	<DL	<DL	247	<DL
RN98-SNOW-36	2.7	59	202	19	0.09	951	7.5	0.1	<DL	3.8	<DL	1222	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-37	<DL	30	5	6	<DL	847	<DL	<DL	<DL	<DL	<DL	9	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-38	<DL	45	9	6	<DL	892	0.9	<DL	<DL	<DL	<DL	20	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39	<DL	43	12	8	<DL	1020	1.3	<DL	<DL	<DL	<DL	19	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-40	<DL	33	12	5	<DL	837	<DL	<DL	<DL	<DL	<DL	11	<DL	<DL	<DL	<DL	<DL

Table B2 continued

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Gd
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-41	<DL	50	16	8	0.05	866	0.9	<DL	<DL	<DL	<DL	25	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-42	<DL	30	13	5	<DL	713	0.8	<DL	<DL	<DL	<DL	20	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-43	<DL	34	11	8	<DL	977	0.8	<DL	<DL	<DL	<DL	31	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-44	<DL	33	9	6	<DL	828	1.2	<DL	<DL	<DL	<DL	36	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-45	<DL	34	12	13	<DL	2172	1.0	0.2	<DL	<DL	<DL	31	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-46	<DL	44	19	15	<DL	1689	2.9	0.2	<DL	<DL	<DL	62	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-47	<DL	<DL	19	6	<DL	701	1.0	<DL	<DL	<DL	<DL	69	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-48	<DL	31	33	7	<DL	787	2.0	<DL	<DL	1.5	<DL	108	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-49	<DL	42	68	12	<DL	1097	3.1	<DL	<DL	1.9	<DL	256	<DL	<DL	<DL	94	<DL
RN98-SNOW-50	1.0	69	80	14	<DL	948	6.5	0.2	<DL	2.5	<DL	390	<DL	<DL	<DL	115	<DL
RN98-SNOW-51	0.9	47	54	12	<DL	904	10.0	<DL	<DL	1.7	<DL	353	<DL	<DL	<DL	94	<DL
RN98-SNOW-52	1.7	47	114	24	<DL	889	8.9	0.1	<DL	2.1	<DL	819	<DL	<DL	<DL	65	<DL
RN98-SNOW-53	<DL	109	89	14	<DL	2338	5.9	0.3	<DL	2.6	<DL	460	<DL	<DL	<DL	137	<DL
RN98-SNOW-54	<DL	32	40	7	<DL	733	2.2	<DL	<DL	1.6	<DL	211	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-55	<DL	29	41	7	<DL	714	2.2	<DL	<DL	<DL	<DL	157	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-56	<DL	34	47	8	<DL	1556	4.1	<DL	0.8	2.1	<DL	154	<DL	<DL	<DL	61	<DL
RN98-SNOW-57	<DL	36	59	10	<DL	687	3.3	<DL	<DL	1.7	<DL	354	<DL	<DL	<DL	61	<DL
RN98-SNOW-58	<DL	37	32	7	<DL	786	1.8	<DL	<DL	1.6	<DL	131	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-59	<DL	37	9	11	<DL	1092	1.5	0.3	<DL	<DL	<DL	17	<DL	<DL	<DL	93	<DL
RN98-SNOW-60	<DL	38	11	10	<DL	1399	1.1	0.2	<DL	<DL	<DL	21	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-61	<DL	143	11	7	<DL	861	1.7	<DL	<DL	<DL	<DL	29	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-62	<DL	37	12	5	<DL	620	0.7	<DL	<DL	<DL	<DL	28	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-63	<DL	33	11	7	<DL	666	1.0	<DL	<DL	<DL	<DL	31	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-64	<DL	58	18	11	<DL	1208	1.8	<DL	<DL	<DL	<DL	43	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-65	<DL	43	34	8	0.26	887	1.8	<DL	<DL	8.2	<DL	42	<DL	<DL	<DL	442	<DL
RN98-SNOW-66	<DL	45	42	9	0.28	921	2.7	<DL	<DL	8.3	<DL	57	<DL	<DL	<DL	463	<DL
RN98-SNOW-67	<DL	27	15	6	<DL	612	0.9	<DL	<DL	<DL	<DL	55	<DL	<DL	<DL	62	<DL
RN98-SNOW-68	<DL	45	45	21	<DL	2705	2.0	0.2	<DL	<DL	<DL	113	<DL	<DL	<DL	87	<DL
RN98-SNOW-69	<DL	<DL	21	4	<DL	240	1.2	<DL	<DL	<DL	<DL	44	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-70	<DL	39	50	11	<DL	1719	5.1	0.2	<DL	1.6	<DL	147	<DL	<DL	<DL	87	<DL
RN98-SNOW-71	0.6	52	59	11	<DL	695	3.9	<DL	<DL	1.7	<DL	280	<DL	<DL	<DL	81	<DL
RN98-SNOW-72	0.8	39	66	12	<DL	628	4.2	<DL	<DL	2.0	<DL	325	<DL	<DL	<DL	105	<DL
RN98-SNOW-73	<DL	53	135	20	<DL	6158	9.0	0.3	<DL	3.1	<DL	518	<DL	<DL	<DL	107	<DL
RN98-SNOW-74	1.2	62	113	15	<DL	1772	6.1	<DL	<DL	3.3	<DL	677	<DL	<DL	<DL	143	<DL
RN98-SNOW-75	<DL	55	67	20	<DL	3865	5.8	0.2	<DL	1.8	<DL	409	<DL	<DL	<DL	117	<DL
RN98-SNOW-76	<DL	61	38	9	<DL	695	2.2	0.1	<DL	2.9	<DL	261	<DL	<DL	<DL	163	<DL
RN98-SNOW-77	<DL	45	59	10	<DL	1062	4.7	<DL	<DL	2.3	<DL	328	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-78	1.1	61	155	14	<DL	1008	6.4	0.2	<DL	3.6	<DL	938	<DL	<DL	<DL	137	<DL
RN98-SNOW-79	2.7	60	194	20	<DL	776	10.7	0.1	<DL	3.5	<DL	1812	<DL	<DL	<DL	97	<DL
RN98-SNOW-80	1.2	55	142	19	<DL	904	8.7	0.2	<DL	3.6	<DL	1022	<DL	<DL	<DL	154	<DL
RN98-SNOW-81	1.6	64	282	28	<DL	1111	15.9	<DL	<DL	5.0	<DL	1224	<DL	<DL	<DL	140	<DL
RN98-SNOW-82	2.1	82	417	38	0.10	821	19.4	0.2	0.8	7.1	<DL	2402	<DL	<DL	<DL	168	<DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B2 continued

Sample	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nd	Ni	P	Pb	Pr	Rb	S	Sb
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-01	<DL	<DL	<DL	<DL	<DL	<DL	109	17	0.6	1321	<DL	11.1	<DL	2424	<DL	<DL	<DL	16.6
RN98-SNOW-02	<DL	<DL	<DL	0.21	0.27	<DL	273	25	1.1	12072	0.14	23.9	<DL	5898	<DL	<DL	4453	32.2
RN98-SNOW-03	<DL	<DL	<DL	<DL	<DL	<DL	135	15	1.1	2083	0.12	19.6	<DL	2690	<DL	1.3	<DL	24.6
RN98-SNOW-04	<DL	<DL	<DL	<DL	0.28	<DL	185	19	1.1	2098	0.10	21.2	<DL	3179	<DL	1.0	5808	22.6
RN98-SNOW-05	<DL	<DL	<DL	0.15	0.12	<DL	151	16	0.8	4636	0.09	19.4	<DL	2090	<DL	0.5	1650	21.1
RN98-SNOW-06	<DL	<DL	<DL	0.12	0.11	<DL	137	21	<DL	4361	0.07	11.5	<DL	1500	<DL	<DL	2637	13.1
RN98-SNOW-07	<DL	<DL	<DL	<DL	0.06	<DL	94	10	0.7	2441	0.05	18.0	<DL	1593	<DL	<DL	2049	12.7
RN98-SNOW-08	<DL	<DL	<DL	0.57	0.77	<DL	632	75	4.0	20358	0.34	116.1	<DL	3469	0.09	1.3	12387	35.9
RN98-SNOW-09	<DL	<DL	<DL	<DL	0.16	<DL	151	22	1.2	2341	0.07	24.0	<DL	1455	<DL	<DL	<DL	14.8
RN98-SNOW-10	<DL	<DL	<DL	0.31	0.36	<DL	284	22	1.4	4363	0.26	44.3	<DL	6202	<DL	0.7	8225	78.1
RN98-SNOW-11	<DL	<DL	3510	0.15	0.08	<DL	1457	49	<DL	<DL	0.13	<DL	<DL	27	<DL	4.4	<DL	0.5
RN98-SNOW-12	<DL	<DL	<DL	<DL	0.10	<DL	107	33	<DL	<DL	<DL	<DL	<DL	24	<DL	<DL	<DL	0.4
RN98-SNOW-13	<DL	<DL	<DL	<DL	0.11	<DL	162	92	<DL	<DL	0.07	<DL	<DL	16	<DL	<DL	2467	0.3
RN98-SNOW-14	<DL	<DL	<DL	<DL	0.06	<DL	83	11	<DL	<DL	<DL	<DL	<DL	19	<DL	<DL	<DL	0.3
RN98-SNOW-15	<DL	<DL	<DL	<DL	0.07	<DL	66	9	<DL	<DL	<DL	<DL	<DL	22	<DL	<DL	<DL	0.2
RN98-SNOW-16	<DL	<DL	550	<DL	<DL	<DL	177	20	<DL	<DL	<DL	<DL	<DL	11	<DL	0.9	<DL	0.2
RN98-SNOW-17	<DL	<DL	<DL	<DL	<DL	<DL	136	7	<DL	<DL	<DL	<DL	<DL	11	<DL	0.7	<DL	0.3
RN98-SNOW-18	<DL	<DL	616	<DL	<DL	<DL	455	49	<DL	<DL	0.06	5.5	<DL	19	<DL	0.7	<DL	0.7
RN98-SNOW-19	<DL	<DL	<DL	<DL	0.07	<DL	83	14	<DL	<DL	<DL	<DL	<DL	36	<DL	<DL	3057	0.6
RN98-SNOW-20	<DL	<DL	<DL	<DL	<DL	<DL	67	12	<DL	<DL	<DL	<DL	<DL	47	<DL	<DL	1871	0.7
RN98-SNOW-21	<DL	<DL	<DL	<DL	0.21	<DL	89	16	<DL	<DL	0.07	<DL	<DL	77	<DL	<DL	3411	1.3
RN98-SNOW-22	<DL	<DL	<DL	<DL	0.09	<DL	65	10	<DL	<DL	<DL	<DL	<DL	102	<DL	<DL	2603	1.5
RN98-SNOW-23	<DL	<DL	<DL	<DL	0.11	<DL	500	23	<DL	<DL	<DL	<DL	<DL	131	<DL	1.6	<DL	2.0
RN98-SNOW-24	<DL	<DL	<DL	<DL	0.11	<DL	160	28	<DL	<DL	<DL	3.7	<DL	519	<DL	<DL	3710	6.5
RN98-SNOW-25	<DL	<DL	<DL	<DL	0.17	<DL	142	24	<DL	1065	<DL	5.2	<DL	821	<DL	1.0	3394	6.9
RN98-SNOW-26	<DL	<DL	<DL	<DL	0.06	<DL	42	9	<DL	<DL	<DL	<DL	<DL	66	<DL	<DL	<DL	0.7
RN98-SNOW-27	<DL	<DL	781	<DL	0.23	<DL	231	46	<DL	1696	0.12	<DL	<DL	1252	<DL	2.0	5129	14.7
RN98-SNOW-28	<DL	<DL	<DL	<DL	0.18	<DL	129	17	<DL	<DL	<DL	<DL	<DL	290	<DL	<DL	4657	3.8
RN98-SNOW-29	<DL	<DL	<DL	<DL	0.13	<DL	160	33	<DL	<DL	<DL	<DL	<DL	212	<DL	<DL	3961	2.7
RN98-SNOW-30	<DL	<DL	<DL	<DL	<DL	<DL	97	14	<DL	<DL	<DL	<DL	<DL	148	<DL	<DL	5236	1.7
RN98-SNOW-31	<DL	<DL	<DL	<DL	0.21	<DL	135	20	<DL	<DL	<DL	5.5	<DL	314	<DL	0.8	4866	3.1
RN98-SNOW-32	<DL	<DL	4897	0.16	0.33	<DL	1261	181	<DL	<DL	<DL	9.8	<DL	303	<DL	8.4	6017	4.3
RN98-SNOW-33	<DL	<DL	<DL	<DL	0.11	<DL	183	52	<DL	<DL	<DL	4.2	<DL	479	<DL	0.6	2675	4.5
RN98-SNOW-34	<DL	<DL	<DL	<DL	0.15	<DL	152	19	0.9	2489	0.07	16.6	<DL	3994	<DL	0.8	5950	41.3
RN98-SNOW-35	<DL	<DL	<DL	<DL	0.10	<DL	120	14	1.1	1122	<DL	10.8	<DL	1428	<DL	<DL	5029	13.3
RN98-SNOW-36	<DL	<DL	<DL	<DL	0.08	<DL	107	13	0.6	705	<DL	6.8	<DL	1364	<DL	<DL	3503	10.2
RN98-SNOW-37	<DL	<DL	<DL	<DL	<DL	<DL	168	35	<DL	<DL	0.07	<DL	<DL	22	<DL	<DL	2663	0.4
RN98-SNOW-38	<DL	<DL	<DL	<DL	<DL	<DL	87	15	<DL	<DL	<DL	<DL	<DL	39	<DL	<DL	5732	0.7
RN98-SNOW-39	<DL	<DL	<DL	<DL	<DL	<DL	134	34	<DL	<DL	<DL	<DL	<DL	41	<DL	1.1	6902	0.8
RN98-SNOW-40	<DL	<DL	<DL	<DL	<DL	<DL	82	16	<DL	<DL	<DL	<DL	<DL	25	<DL	<DL	4052	0.5

Table B2 continued

Sample	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nd	Ni	P	Pb	Pr	Rb	S	Sb
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-41	<DL	<DL	708	<DL	<DL	<DL	185	237	<DL	<DL	<DL	<DL	<DL	62	<DL	2.0	4763	1.2
RN98-SNOW-42	<DL	<DL	<DL	<DL	<DL	<DL	<DL	13	<DL	<DL	<DL	<DL	<DL	40	<DL	<DL	5313	0.8
RN98-SNOW-43	<DL	<DL	<DL	<DL	0.12	<DL	101	16	<DL	<DL	<DL	<DL	<DL	40	<DL	<DL	4207	1.0
RN98-SNOW-44	<DL	<DL	<DL	<DL	0.08	<DL	83	17	<DL	<DL	<DL	<DL	<DL	49	<DL	<DL	3894	0.9
RN98-SNOW-45	<DL	<DL	6965	<DL	0.10	<DL	860	308	<DL	<DL	0.12	<DL	<DL	53	<DL	8.0	5105	0.9
RN98-SNOW-46	<DL	<DL	<DL	<DL	0.14	<DL	199	170	<DL	<DL	0.10	<DL	<DL	90	<DL	<DL	4889	1.7
RN98-SNOW-47	<DL	<DL	<DL	<DL	0.29	<DL	<DL	10	<DL	<DL	<DL	<DL	<DL	98	<DL	<DL	3583	1.9
RN98-SNOW-48	<DL	<DL	<DL	<DL	0.10	<DL	90	9	<DL	<DL	<DL	<DL	<DL	173	<DL	<DL	2973	2.6
RN98-SNOW-49	<DL	<DL	<DL	<DL	0.18	<DL	178	35	<DL	<DL	0.07	<DL	<DL	418	<DL	1.6	3112	6.1
RN98-SNOW-50	<DL	<DL	<DL	0.13	0.14	<DL	96	17	<DL	541	0.10	3.3	<DL	1023	<DL	<DL	4698	6.6
RN98-SNOW-51	<DL	<DL	<DL	<DL	0.16	<DL	107	15	<DL	<DL	0.07	3.2	<DL	684	<DL	<DL	4608	4.4
RN98-SNOW-52	<DL	<DL	<DL	<DL	<DL	<DL	114	14	0.6	831	<DL	5.7	<DL	1566	<DL	<DL	4354	11.0
RN98-SNOW-53	<DL	<DL	<DL	<DL	0.11	<DL	369	109	<DL	690	0.11	3.7	<DL	853	<DL	1.4	4609	9.2
RN98-SNOW-54	<DL	<DL	<DL	<DL	0.11	<DL	82	15	<DL	<DL	<DL	<DL	<DL	283	<DL	0.6	3893	3.2
RN98-SNOW-55	<DL	<DL	<DL	<DL	<DL	<DL	72	11	<DL	<DL	<DL	<DL	<DL	275	<DL	<DL	<DL	3.5
RN98-SNOW-56	<DL	<DL	532	<DL	<DL	<DL	236	14	<DL	<DL	<DL	2.8	<DL	300	<DL	1.4	4425	3.6
RN98-SNOW-57	<DL	<DL	<DL	<DL	0.22	<DL	85	10	<DL	<DL	0.06	2.8	<DL	609	<DL	<DL	4633	4.8
RN98-SNOW-58	<DL	<DL	<DL	<DL	<DL	<DL	88	15	<DL	<DL	<DL	<DL	<DL	251	<DL	<DL	3435	2.6
RN98-SNOW-59	<DL	<DL	<DL	<DL	<DL	<DL	294	329	<DL	<DL	0.12	<DL	<DL	37	<DL	1.4	3730	0.7
RN98-SNOW-60	<DL	<DL	753	<DL	<DL	<DL	260	80	<DL	<DL	0.10	<DL	<DL	47	<DL	1.1	4589	1.1
RN98-SNOW-61	<DL	<DL	643	<DL	<DL	<DL	105	19	<DL	<DL	0.09	<DL	<DL	61	<DL	1.1	5328	1.2
RN98-SNOW-62	<DL	<DL	<DL	<DL	0.11	<DL	78	13	<DL	<DL	<DL	<DL	<DL	57	<DL	<DL	4716	0.9
RN98-SNOW-63	<DL	<DL	<DL	<DL	<DL	<DL	85	19	<DL	<DL	<DL	<DL	<DL	65	<DL	<DL	4222	1.2
RN98-SNOW-64	<DL	<DL	3225	<DL	0.18	<DL	255	115	<DL	<DL	<DL	<DL	<DL	81	<DL	11.5	4184	2.1
RN98-SNOW-65	<DL	<DL	<DL	<DL	0.54	<DL	105	18	<DL	<DL	<DL	3.5	<DL	72	<DL	0.8	3287	1.5
RN98-SNOW-66	<DL	<DL	495	<DL	0.54	<DL	122	36	<DL	<DL	<DL	3.8	<DL	117	<DL	1.0	5239	2.2
RN98-SNOW-67	<DL	<DL	486	<DL	0.06	<DL	116	33	<DL	<DL	<DL	<DL	<DL	95	<DL	1.3	3804	1.7
RN98-SNOW-68	<DL	<DL	5385	<DL	<DL	<DL	694	1036	<DL	<DL	0.10	<DL	<DL	227	<DL	6.1	6164	4.7
RN98-SNOW-69	<DL	<DL	<DL	<DL	0.08	<DL	<DL	3	<DL	<DL	<DL	2.4	<DL	79	<DL	<DL	1458	1.5
RN98-SNOW-70	<DL	<DL	3286	<DL	0.26	<DL	611	563	<DL	<DL	0.10	<DL	<DL	223	<DL	8.5	3220	5.0
RN98-SNOW-71	<DL	<DL	<DL	<DL	0.08	<DL	99	15	<DL	630	<DL	3.8	<DL	389	<DL	0.9	3539	4.3
RN98-SNOW-72	<DL	<DL	<DL	<DL	0.11	<DL	86	12	<DL	<DL	<DL	3.2	<DL	649	<DL	<DL	3126	5.9
RN98-SNOW-73	<DL	<DL	7609	0.19	0.24	<DL	1570	188	<DL	1032	0.14	5.2	<DL	751	<DL	27.3	7116	13.1
RN98-SNOW-74	<DL	<DL	487	<DL	0.20	<DL	268	95	<DL	<DL	0.08	5.0	<DL	933	<DL	5.8	4350	9.4
RN98-SNOW-75	<DL	<DL	1181	<DL	0.18	<DL	624	40	<DL	776	0.10	4.8	<DL	619	<DL	2.1	6104	7.3
RN98-SNOW-76	<DL	<DL	<DL	<DL	0.16	<DL	110	15	<DL	2475	0.08	2.9	<DL	268	<DL	<DL	2183	3.5
RN98-SNOW-77	<DL	<DL	622	<DL	0.16	<DL	148	16	<DL	<DL	<DL	3.6	<DL	446	<DL	1.7	5815	4.4
RN98-SNOW-78	<DL	<DL	576	<DL	0.08	<DL	259	26	<DL	1053	0.09	5.5	<DL	1026	<DL	2.4	3835	12.5
RN98-SNOW-79	<DL	<DL	<DL	<DL	0.07	<DL	103	15	0.7	976	0.07	8.3	<DL	1930	<DL	<DL	3214	13.8
RN98-SNOW-80	<DL	<DL	<DL	<DL	<DL	<DL	221	42	0.7	1000	0.13	5.9	<DL	1314	<DL	1.2	2901	11.3
RN98-SNOW-81	<DL	<DL	<DL	<DL	0.12	<DL	142	15	1.0	1149	<DL	9.0	<DL	1837	<DL	0.7	5111	19.6
RN98-SNOW-82	<DL	<DL	<DL	<DL	<DL	<DL	132	15	0.9	1670	<DL	15.6	<DL	3638	<DL	<DL	5900	31.8

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Filtered Snow Meltwater (<0.45 µm)

Table B2 continued

Sample	Se	Si	Sm	Sr	Tb	Ti	Tl	Tm	U	V	Y	Yb	Zn	NO_2	NO_3	F
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-01	20.2	<DL	<DL	<DL	<DL	<DL	0.30	<DL	<DL	1.8	<DL	<DL	466	<DL	14213	<DL
RN98-SNOW-02	46.5	<DL	<DL	10.2	<DL	<DL	0.70	<DL	<DL	2.7	<DL	<DL	1171	<DL	19350	<DL
RN98-SNOW-03	20.5	<DL	<DL	<DL	<DL	<DL	0.42	<DL	<DL	3.6	<DL	<DL	811	<DL	15815	<DL
RN98-SNOW-04	48.3	<DL	<DL	<DL	<DL	<DL	0.37	<DL	<DL	5.0	<DL	<DL	910	<DL	27641	<DL
RN98-SNOW-05	24.2	<DL	<DL	<DL	<DL	<DL	0.33	<DL	<DL	2.8	<DL	<DL	706	<DL	16227	<DL
RN98-SNOW-06	13.5	<DL	<DL	<DL	<DL	<DL	0.19	<DL	<DL	2.0	<DL	<DL	458	<DL	16398	<DL
RN98-SNOW-07	17.5	<DL	<DL	<DL	<DL	<DL	0.22	<DL	<DL	2.0	<DL	<DL	530	<DL	10930	<DL
RN98-SNOW-08	32.1	<DL	0.09	19.3	<DL	<DL	1.22	<DL	<DL	10.2	0.34	<DL	2423	<DL	33303	<DL
RN98-SNOW-09	13.2	<DL	<DL	6.0	<DL	<DL	0.23	<DL	<DL	3.3	<DL	<DL	487	<DL	8670	<DL
RN98-SNOW-10	72.0	<DL	<DL	<DL	<DL	<DL	0.93	<DL	<DL	4.8	0.17	<DL	2132	<DL	21605	<DL
RN98-SNOW-11	<DL	<DL	<DL	8.1	<DL	<DL	<DL	<DL	<DL	1.5	<DL	<DL	25	<DL	23925	<DL
RN98-SNOW-12	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	33	<DL	28967	<DL
RN98-SNOW-13	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	37	<DL	21791	<DL
RN98-SNOW-14	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	33	<DL	19814	<DL
RN98-SNOW-15	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.4	<DL	<DL	27	<DL	21550	<DL
RN98-SNOW-16	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	16	<DL	18964	<DL
RN98-SNOW-17	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	16	<DL	10970	<DL
RN98-SNOW-18	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	35	<DL	23163	<DL
RN98-SNOW-19	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.3	<DL	<DL	50	<DL	21814	<DL
RN98-SNOW-20	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.3	<DL	<DL	40	<DL	19063	<DL
RN98-SNOW-21	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	59	<DL	26487	<DL
RN98-SNOW-22	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.3	<DL	<DL	54	<DL	21336	<DL
RN98-SNOW-23	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.6	<DL	<DL	65	<DL	22705	<DL
RN98-SNOW-24	<DL	<DL	<DL	<DL	<DL	<DL	0.09	<DL	<DL	2.0	<DL	<DL	187	<DL	28283	<DL
RN98-SNOW-25	<DL	<DL	<DL	<DL	<DL	<DL	0.13	<DL	<DL	2.0	<DL	<DL	233	<DL	24712	<DL
RN98-SNOW-26	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	25	<DL	7091	<DL
RN98-SNOW-27	22.6	<DL	<DL	<DL	<DL	<DL	0.20	<DL	<DL	2.3	<DL	<DL	366	<DL	28686	<DL
RN98-SNOW-28	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	2.0	<DL	<DL	115	<DL	28147	<DL
RN98-SNOW-29	<DL	<DL	<DL	<DL	<DL	<DL	0.07	<DL	<DL	1.7	<DL	<DL	109	<DL	25268	<DL
RN98-SNOW-30	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	70	<DL	29012	<DL
RN98-SNOW-31	<DL	<DL	<DL	<DL	<DL	<DL	0.09	<DL	<DL	1.8	<DL	<DL	146	<DL	24866	<DL
RN98-SNOW-32	<DL	<DL	<DL	10.8	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	177	<DL	26853	<DL
RN98-SNOW-33	<DL	<DL	<DL	<DL	<DL	<DL	0.07	<DL	<DL	1.5	<DL	<DL	179	<DL	19582	<DL
RN98-SNOW-34	40.7	<DL	<DL	<DL	<DL	<DL	0.56	<DL	<DL	2.9	<DL	<DL	1109	<DL	16190	<DL
RN98-SNOW-35	21.2	<DL	<DL	<DL	<DL	<DL	0.21	<DL	<DL	4.7	<DL	<DL	421	<DL	25493	<DL
RN98-SNOW-36	18.0	<DL	<DL	<DL	<DL	<DL	0.15	<DL	<DL	2.0	<DL	<DL	377	<DL	20150	<DL
RN98-SNOW-37	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.0	<DL	<DL	29	<DL	16644	<DL
RN98-SNOW-38	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	30	<DL	23192	<DL
RN98-SNOW-39	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.9	<DL	<DL	40	<DL	26692	<DL
RN98-SNOW-40	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.7	<DL	<DL	27	<DL	20304	<DL

Table B2 continued

Sample	Se	Si	Sm	Sr	Tb	Ti	Tl	Tm	U	V	Y	Yb	Zn	NO_2	NO_3	F
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-41	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.1	<DL	<DL	42	<DL	16539	<DL
RN98-SNOW-42	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	29	<DL	20209	<DL
RN98-SNOW-43	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	36	<DL	24668	<DL
RN98-SNOW-44	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	32	<DL	21314	<DL
RN98-SNOW-45	<DL	<DL	<DL	9.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	35	<DL	16296	<DL
RN98-SNOW-46	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	71	<DL	25321	<DL
RN98-SNOW-47	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	40	<DL	19261	<DL
RN98-SNOW-48	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	75	<DL	18521	<DL
RN98-SNOW-49	<DL	<DL	<DL	<DL	<DL	<DL	0.09	<DL	<DL	1.3	<DL	<DL	129	<DL	22964	<DL
RN98-SNOW-50	<DL	<DL	<DL	<DL	<DL	<DL	0.11	<DL	<DL	1.6	<DL	<DL	287	<DL	18417	<DL
RN98-SNOW-51	<DL	<DL	<DL	<DL	<DL	<DL	0.10	<DL	<DL	1.6	<DL	<DL	222	<DL	24444	<DL
RN98-SNOW-52	16.3	<DL	<DL	<DL	<DL	<DL	0.20	<DL	<DL	1.3	<DL	<DL	388	<DL	17188	<DL
RN98-SNOW-53	<DL	<DL	<DL	<DL	<DL	<DL	0.13	<DL	<DL	1.4	<DL	<DL	252	<DL	21468	<DL
RN98-SNOW-54	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.1	<DL	<DL	98	<DL	16405	<DL
RN98-SNOW-55	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	83	<DL	19126	<DL
RN98-SNOW-56	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	115	<DL	19283	<DL
RN98-SNOW-57	<DL	<DL	<DL	<DL	<DL	<DL	0.08	<DL	<DL	1.5	<DL	<DL	156	<DL	21437	<DL
RN98-SNOW-58	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	85	<DL	23488	<DL
RN98-SNOW-59	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	38	<DL	22127	<DL
RN98-SNOW-60	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	32	<DL	26353	<DL
RN98-SNOW-61	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	48	<DL	26268	<DL
RN98-SNOW-62	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.4	<DL	<DL	31	<DL	23542	<DL
RN98-SNOW-63	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	38	<DL	23866	<DL
RN98-SNOW-64	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	58	<DL	25408	<DL
RN98-SNOW-65	36.1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	3.6	<DL	<DL	99	<DL	22871	<DL
RN98-SNOW-66	36.8	<DL	<DL	<DL	<DL	<DL	0.08	<DL	<DL	3.5	<DL	<DL	66	<DL	22599	<DL
RN98-SNOW-67	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	39	<DL	16072	<DL
RN98-SNOW-68	<DL	<DL	<DL	17.7	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	106	<DL	27351	<DL
RN98-SNOW-69	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	33	<DL	8926	<DL
RN98-SNOW-70	<DL	<DL	<DL	<DL	<DL	<DL	0.15	<DL	<DL	<DL	<DL	<DL	120	<DL	18701	<DL
RN98-SNOW-71	<DL	<DL	<DL	<DL	<DL	<DL	0.09	<DL	<DL	1.3	<DL	<DL	131	<DL	16896	<DL
RN98-SNOW-72	<DL	<DL	<DL	<DL	<DL	<DL	0.11	<DL	<DL	1.7	<DL	<DL	166	<DL	21776	<DL
RN98-SNOW-73	<DL	<DL	<DL	50.1	<DL	<DL	0.16	<DL	<DL	1.9	<DL	<DL	325	<DL	21428	<DL
RN98-SNOW-74	<DL	<DL	<DL	7.5	<DL	<DL	0.21	<DL	<DL	2.1	<DL	<DL	289	<DL	26882	<DL
RN98-SNOW-75	<DL	<DL	<DL	17.9	<DL	<DL	0.14	<DL	<DL	1.6	<DL	<DL	258	<DL	29283	<DL
RN98-SNOW-76	<DL	<DL	<DL	<DL	<DL	<DL	0.08	<DL	<DL	1.5	<DL	<DL	112	<DL	20906	<DL
RN98-SNOW-77	<DL	<DL	<DL	<DL	<DL	<DL	0.12	<DL	<DL	1.9	<DL	<DL	195	<DL	24948	<DL
RN98-SNOW-78	15.0	<DL	<DL	<DL	<DL	<DL	0.17	<DL	<DL	1.6	<DL	<DL	344	<DL	19023	<DL
RN98-SNOW-79	18.3	<DL	<DL	<DL	<DL	<DL	0.34	<DL	<DL	1.9	<DL	<DL	518	<DL	18151	<DL
RN98-SNOW-80	<DL	<DL	<DL	<DL	<DL	<DL	0.22	<DL	<DL	2.0	<DL	<DL	322	<DL	20816	<DL
RN98-SNOW-81	19.6	<DL	<DL	<DL	<DL	<DL	0.43	<DL	<DL	2.1	<DL	<DL	546	<DL	21201	<DL
RN98-SNOW-82	33.5	<DL	<DL	<DL	<DL	<DL	0.57	<DL	<DL	2.4	<DL	<DL	971	<DL	19827	<DL

Table B2 continued

Sample	PO_4	Br	SO_4	Cl
Units	ng/cm²	ng/cm²	ng/cm²	ng/cm²
RN98-SNOW-01	<DL	<DL	9515	2260
RN98-SNOW-02	<DL	<DL	15544	20369
RN98-SNOW-03	<DL	<DL	11925	3252
RN98-SNOW-04	<DL	<DL	18439	3102
RN98-SNOW-05	<DL	<DL	11133	7037
RN98-SNOW-06	<DL	<DL	9706	7223
RN98-SNOW-07	<DL	<DL	8349	2315
RN98-SNOW-08	<DL	<DL	33726	33288
RN98-SNOW-09	<DL	<DL	7429	3562
RN98-SNOW-10	<DL	<DL	23700	3012
RN98-SNOW-11	<DL	<DL	11260	1529
RN98-SNOW-12	<DL	<DL	12671	<DL
RN98-SNOW-13	<DL	<DL	8781	1360
RN98-SNOW-14	<DL	<DL	7451	1389
RN98-SNOW-15	<DL	<DL	8369	1162
RN98-SNOW-16	<DL	<DL	6358	1659
RN98-SNOW-17	<DL	<DL	5135	<DL
RN98-SNOW-18	<DL	<DL	9329	1479
RN98-SNOW-19	<DL	<DL	10920	1332
RN98-SNOW-20	<DL	<DL	9405	<DL
RN98-SNOW-21	<DL	<DL	12100	1463
RN98-SNOW-22	<DL	<DL	9616	<DL
RN98-SNOW-23	<DL	<DL	11171	1451
RN98-SNOW-24	<DL	<DL	14019	2119
RN98-SNOW-25	<DL	<DL	12895	2882
RN98-SNOW-26	<DL	<DL	3374	663
RN98-SNOW-27	<DL	<DL	15158	3386
RN98-SNOW-28	<DL	<DL	11690	2009
RN98-SNOW-29	<DL	<DL	11834	1531
RN98-SNOW-30	<DL	<DL	12453	<DL
RN98-SNOW-31	<DL	<DL	12456	1999
RN98-SNOW-32	<DL	<DL	13676	2413
RN98-SNOW-33	<DL	<DL	9701	1354
RN98-SNOW-34	<DL	<DL	14408	2200
RN98-SNOW-35	<DL	<DL	12739	2123
RN98-SNOW-36	<DL	<DL	11154	1199
RN98-SNOW-37	<DL	<DL	6630	990
RN98-SNOW-38	<DL	<DL	9445	<DL
RN98-SNOW-39	<DL	<DL	12916	<DL
RN98-SNOW-40	<DL	<DL	9546	<DL

Table B2 continued

Sample	PO_4	Br	SO_4	Cl
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-41	<DL	<DL	9996	1340
RN98-SNOW-42	<DL	<DL	8798	<DL
RN98-SNOW-43	<DL	<DL	10137	1408
RN98-SNOW-44	<DL	<DL	8619	<DL
RN98-SNOW-45	<DL	<DL	6678	1705
RN98-SNOW-46	<DL	<DL	11770	1798
RN98-SNOW-47	<DL	<DL	7611	1756
RN98-SNOW-48	<DL	<DL	7971	1486
RN98-SNOW-49	<DL	<DL	10640	1616
RN98-SNOW-50	<DL	<DL	9704	1252
RN98-SNOW-51	<DL	<DL	11391	1876
RN98-SNOW-52	<DL	<DL	9694	1307
RN98-SNOW-53	<DL	<DL	12837	1775
RN98-SNOW-54	<DL	<DL	7980	<DL
RN98-SNOW-55	<DL	<DL	8209	<DL
RN98-SNOW-56	<DL	<DL	8892	1462
RN98-SNOW-57	<DL	<DL	9458	1334
RN98-SNOW-58	<DL	<DL	9248	<DL
RN98-SNOW-59	<DL	<DL	10264	<DL
RN98-SNOW-60	<DL	<DL	12482	<DL
RN98-SNOW-61	<DL	<DL	11692	1559
RN98-SNOW-62	<DL	<DL	11560	1243
RN98-SNOW-63	<DL	<DL	10080	<DL
RN98-SNOW-64	<DL	<DL	13993	<DL
RN98-SNOW-65	<DL	<DL	12045	1472
RN98-SNOW-66	<DL	<DL	11708	1634
RN98-SNOW-67	<DL	<DL	9184	<DL
RN98-SNOW-68	<DL	<DL	17127	2076
RN98-SNOW-69	<DL	<DL	3645	<DL
RN98-SNOW-70	<DL	<DL	12041	<DL
RN98-SNOW-71	<DL	<DL	9214	1612
RN98-SNOW-72	<DL	<DL	10789	1579
RN98-SNOW-73	<DL	<DL	16465	2606
RN98-SNOW-74	<DL	<DL	14616	2293
RN98-SNOW-75	<DL	<DL	17509	2335
RN98-SNOW-76	<DL	<DL	10039	4643
RN98-SNOW-77	<DL	<DL	11347	2176
RN98-SNOW-78	<DL	<DL	10106	1912
RN98-SNOW-79	<DL	<DL	10226	2191
RN98-SNOW-80	<DL	<DL	11751	2798
RN98-SNOW-81	<DL	<DL	13163	2661
RN98-SNOW-82	<DL	<DL	15638	2234

Summary Statistics

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Summary Statistics for Filtered Snow Meltwater (<0.45 µm)

Table B3: Summary statistics.

											*****PERCENTILES*****								
Element	**Units**	**no.<DL**	**n**	**Mean**	**St. Dev.**	**Variance**	**Skew**	**Kurt**	**Geomean**	**Min**	**25th**	**50th**	**75th**	**80th**	**90th**	**95th**	**98th**	**99th**	**Max**
Ag	ng/cm²	57	25	2.1	1.3	2	1.4	3.4	1.8	0.6	1.1	2.1	2.8	2.9	3.4	3.8	5.2	5.8	6.4
Al	ng/cm²	4	78	56	35	1254	3	15	50	24	36	46	61	63	84	114	160	198	258
As	ng/cm²	0	82	104	152	22960	2	5	41	3	12	42	114	156	291	473	614	665	678
Ba	ng/cm²	0	82	19	30	890	5	32	12	3	7	10	20	21	37	48	103	153	227
Be	ng/cm²	60	22	0.2	0.1	0	2.4	5.7	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.6	0.6	0.6
Ca	ng/cm²	0	82	1142	832	691701	4	17	982	240	762	913	1123	1224	1767	2688	3396	4301	6158
Cd	ng/cm²	5	77	5.6	8.0	65	4.0	20.6	3.1	0.4	1.2	2.9	7.1	8.0	12.2	16.6	26.8	39.8	55.3
Ce	ng/cm²	49	33	0.2	0.1	0	3.5	15.4	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.8	0.9
Co	ng/cm²	69	13	1.4	1.4	2	3.1	10.1	1.1	0.6	0.8	0.8	1.3	1.3	2.0	3.7	5.1	5.5	5.9
Cr	ng/cm²	35	47	3.5	2.2	5	1.3	0.5	3.0	1.1	1.9	2.7	4.2	5.0	7.5	8.3	8.6	8.6	8.6
Cs	ng/cm²	82	0																
Cu	ng/cm²	0	82	987	2342	5482784	5	32	181	9	32	157	670	1182	2866	4550	6173	9449	17594
Dy	ng/cm²	82	0																
Er	ng/cm²	82	0																
Eu	ng/cm²	82	0																
Fe	ng/cm²	31	51	117	79	6243	3	12	103	36	81	93	124	137	163	236	442	452	463
Gd	ng/cm²	80	2	0.1	0.0	0			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ho	ng/cm²	82	0																
In	ng/cm²	82	0																
K	ng/cm²	62	20	2165	2351	5527035	1	0	1273	486	570	731	3342	3787	5543	6997	7364	7487	7609
La	ng/cm²	73	9	0.2	0.1	0	2.2	5.0	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.6
Li	ng/cm²	24	58	0.17	0.13	0.02	2.67	8.72	0.14	0.06	0.10	0.12	0.19	0.22	0.28	0.39	0.54	0.64	0.77
Lu	ng/cm²	82	0																
Mg	ng/cm²	3	79	233	287	82139	3	11	161	42	97	135	226	259	522	710	1347	1482	1570
Mn	ng/cm²	0	82	60	138	18986	5	33	26	3	14	18	36	48	114	235	418	653	1036
Mo	ng/cm²	65	17	1.1	0.8	1	3.5	13.3	1.0	0.6	0.7	0.9	1.1	1.1	1.3	2.0	3.2	3.6	4.0
Na	ng/cm²	55	27	2814	4191	17563576	3	13	1710	541	988	1321	2458	2486	4472	9841	16049	18204	20358
Nd	ng/cm²	47	35	0.1	0.1	0	3.0	10.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3
Ni	ng/cm²	42	40	12.0	18.9	357	4.6	24.5	7.4	2.4	3.7	5.5	12.5	16.9	21.5	25.0	60.1	88.1	116.1
P	ng/cm²	82	0																
Pb	ng/cm²	0	82	783	1238	1531623	3	7	236	11	58	259	1001	1354	2074	3454	4718	5956	6202
Pr	ng/cm²	81	1	0.1					0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rb	ng/cm²	42	40	2.9	4.7	23	3.9	17.9	1.6	0.5	0.9	1.3	2.0	2.8	8.1	8.6	15.0	21.1	27.3
S	ng/cm²	13	69	4344	1659	2752117	2	7	4066	1458	3287	4222	5111	5269	5963	6607	7826	9557	12387
Sb	ng/cm²	0	82	7.6	11.7	138	3.5	16.1	3.1	0.2	1.0	3.3	10.0	12.6	19.3	31.5	38.0	48.3	78.1
Sc	ng/cm²	82	0																
Si	ng/cm²	82	0																
Sm	ng/cm²	81	1	0.09					0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Sr	ng/cm²	72	10	15.7	13.0	169	2.4	6.5	12.8	6.0	8.4	10.5	17.9	18.2	22.4	36.3	44.6	47.4	50.1

Table B3 continued

Element	Units	no.<DL	n	Mean	St. Dev.	Variance	Skew	Kurt	Geomean	Min	*****PERCENTILES***** 25th	50th	75th	80th	90th	95th	98th	99th	Max
Tb	ng/cm²	82	0																
Ti	ng/cm²	82	0																
Tl	ng/cm²	42	40	0.25	0.24	0.06	2.38	6.30	0.19	0.07	0.10	0.16	0.30	0.35	0.56	0.71	0.99	1.11	1.22
Tm	ng/cm²	82	0																
U	ng/cm²	82	0																
V	ng/cm²	30	52	2.2	1.5	2	3.6	17.3	2.0	1.0	1.5	1.9	2.2	2.6	3.6	4.7	5.0	7.6	10.2
Y	ng/cm²	80	2	0.25	0.12	0.01			0.24	0.17	0.21	0.25	0.29	0.30	0.32	0.33	0.33	0.33	0.34
Yb	ng/cm²	82	0																
Zn	ng/cm²	0	82	260	411	168943	3	14	118	16	38	108	314	375	544	968	1536	2188	2423
NO_2	ng/cm²	82	0																
NO_3	ng/cm²	0	82	21310	4976	24761165	0	1		7091	18766	21452	24828	25391	27304	28666	29115	30047	33302
F	ng/cm²	82	0																
PO_4	ng/cm²	82	0																
Br	ng/cm²	82	0																
SO_4	ng/cm²	0	82	11249	4043	16346177	2	12		3374	9268	10855	12476	12883	15103	17094	20438	25605	33726
Cl	ng/cm²	20	62	2907	4701	22098750	5	32	2074	663	1462	1787	2330	2650	3373	6917	17477	25407	33288

Quality Control

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B4: Quality control data (field duplicates).

Element	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn	Mo	Na	Ni	P	Pb
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	20	1	1	20	1	1	1	2	5	30	5	5	1	10	50	2	100	10
RN98-SNOW-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98SNOW10 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		
RN98SNOW20 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		
RN98SNOW30 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		
RN98-SNOW-40 dup.	<DL	<DL	<DL	61	<DL	<DL	<DL	<DL	<DL	<DL	<DL	10	1	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-40	<DL	<DL	<DL	59	<DL	<DL	<DL	<DL	<DL	<DL	<DL	6	1	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]				2.467								4.093	0.248					
mean $(x+x_{dup})/2$				61.214								9.861	1.276					
%RSD	**	**	**	4.0	**	**	**	**	**	**	**	41.5	19.4	**	**	**	**	**
RN98SNOW50 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		

Table B4continued.

Element	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn	Mo	Na	Ni	P	Pb
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	20	1	1	20	1	1	1	2	5	30	5	5	1	10	50	2	100	10
RN98SNOW60 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		
RN98SNOW70 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		
RN98SNOW80 dup.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RN98-SNOW-80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
abs difference [$x-x_{dup}$]																		
mean $(x+x_{dup})/2$																		
%RSD																		

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B4 continued

Element	S	Sc	Si	Sr	Ti	V	Y	Zn	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Ce 140	Co 59	Cr 52
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	150	1	10	1	2	2	1	5	0.05	2	0.1	0.2	0.005	0.05	0.01	0.05	0.1
RN98-SNOW-10	-	-	-	-	-	-	-	-	0.28	14	50.6	6.4	0.037	2.67	0.04	0.17	0.7
RN98SNOW10 dup.	-	-	-	-	-	-	-	-	0.47	16	35.2	7.0	0.020	2.97	0.04	0.18	0.7
abs difference [$x-x_{dup}$]									0.187	2.600	15.340	0.590	0.017	0.298	0.000	0.006	0.040
mean $(x+x_{dup})/2$									0.278	13.700	50.570	6.420	0.037	2.667	0.037	0.170	0.660
%RSD									67.3	19.0	30.3	9.2	45.5	11.2	0.0	3.5	6.1
RN98SNOW20 dup.	-	-	-	-	-	-	-	-	<DL	4	0.6	0.5	0.007	0.06	<DL	<DL	0.1
RN98-SNOW-20	-	-	-	-	-	-	-	-	<DL	3	0.7	0.5	<DL	0.10	<DL	<DL	<DL
abs difference [$x-x_{dup}$]										1.100	0.180	0.010		0.039			
mean $(x+x_{dup})/2$										4.200	0.560	0.530		0.057			0.110
%RSD									**	26.2	32.1	1.9	*	68.4	**	**	*
RN98SNOW30 dup.	-	-	-	-	-	-	-	-	<DL	4	1.2	0.5	<DL	0.09	<DL	<DL	0.2
RN98-SNOW-30	-	-	-	-	-	-	-	-	<DL	3	1.9	0.5	<DL	0.10	<DL	<DL	<DL
abs difference [$x-x_{dup}$]										1.200	0.670	0.060		0.008			
mean $(x+x_{dup})/2$										4.200	1.200	0.520		0.094			0.160
%RSD									**	28.6	55.8	11.5	**	8.5	**	**	*
RN98-SNOW-40 dup.	390	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	3	1.1	0.4	<DL	0.06	<DL	<DL	<DL
RN98-SNOW-40	284	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	2	0.8	0.4	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	105.406									0.300	0.240	0.060					
mean $(x+x_{dup})/2$	389.768									2.600	1.050	0.420		0.059			
%RSD	27.0	**	**	**	**	**	**	**	**	11.5	22.9	14.3	**		**	**	**
RN98SNOW50 dup.	-	-	-	-	-	-	-	-	0.07	6	5.2	1.4	0.011	0.44	0.01	<DL	0.3
RN98-SNOW-50	-	-	-	-	-	-	-	-	0.09	7	7.6	1.4	<DL	0.63	0.02	<DL	0.2
abs difference [$x-x_{dup}$]									0.026	0.400	2.410	0.000		0.186	0.010		0.020
mean $(x+x_{dup})/2$									0.068	6.200	5.210	1.360		0.441	0.011		0.260
%RSD									38.2	6.5	46.3	0.0	*	42.2	90.9	**	7.7

Table B4 continued

Element	S	Sc	Si	Sr	Ti	V	Y	Zn	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Ce 140	Co 59	Cr 52
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	**150**	**1**	**10**	**1**	**2**	**2**	**1**	**5**	**0.05**	**2**	**0.1**	**0.2**	**0.005**	**0.05**	**0.01**	**0.05**	**0.1**
RN98SNOW60 dup.	-	-	-	-	-	-	-	-	<DL	5	0.5	0.8	0.017	0.08	0.02	<DL	0.1
RN98-SNOW-60	-	-	-	-	-	-	-	-	<DL	3	0.8	0.7	<DL	0.08	0.01	<DL	<DL
abs difference [$x-x_{dup}$]										1.900	0.280	0.160		0.005	0.005		
mean $(x+x_{dup})/2$										4.600	0.480	0.840		0.082	0.017		
%RSD									**	41.3	58.3	19.0	*	6.1	29.4	**	*
RN98SNOW70 dup.	-	-	-	-	-	-	-	-	<DL	5	2.9	1.2	0.006	0.50	0.02	<DL	0.1
RN98-SNOW-70	-	-	-	-	-	-	-	-	<DL	3	3.5	0.7	<DL	0.35	0.02	<DL	0.1
abs difference [$x-x_{dup}$]										2.300	0.580	0.500		0.149	0.002		0.000
mean $(x+x_{dup})/2$										5.000	2.890	1.230		0.498	0.018		0.110
%RSD									**	46.0	20.1	40.7	*	29.9	11.1	**	0.0
RN98SNOW80 dup.	-	-	-	-	-	-	-	-	0.06	5	8.0	1.1	0.011	0.46	0.01	<DL	0.3
RN98-SNOW-80	-	-	-	-	-	-	-	-	0.09	4	10.1	1.4	<DL	0.63	0.01	<DL	0.3
abs difference [$x-x_{dup}$]									0.024	1.100	2.080	0.260		0.169	0.000		0.010
mean $(x+x_{dup})/2$									0.063	5.000	8.040	1.130		0.456	0.012		0.270
%RSD									38.1	22.0	25.9	23.0	*	37.1	0.0	**	3.7

- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B4 continued

Element	Cs 133	Cu 65	Dy 163	Er 166	Eu 151	Fe 54	Gd 160	Ho 165	In 115	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Ni 60	Pb 208
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	**0.01**	**0.1**	**0.005**	**0.005**	**0.005**	**5**	**0.005**	**0.005**	**0.01**	**0.01**	**0.005**	**0.005**	**0.1**	**0.05**	**0.005**	**0.2**	**0.01**
RN98-SNOW-10	<DL	<DL	<DL	<DL	<DL	7	<DL	<DL	<DL	0.02	0.028	<DL	1.7	0.11	0.020	3.4	473.70
RN98SNOW10 dup.	<DL	514.2	<DL	<DL	<DL	7	<DL	<DL	<DL	0.02	0.053	<DL	1.5	0.11	0.019	3.8	509.21
abs difference [$x-x_{dup}$]						0.000				0.004	0.025		0.110	0.003	0.001	0.420	35.514
mean $(x+x_{dup})/2$						7.000				0.024	0.028		1.650	0.110	0.020	3.380	473.697
%RSD	**	*	**	**	**	0.0	**	**	**	16.7	90.9	**	6.7	2.7	4.0	12.4	7.5
RN98SNOW20 dup.	<DL	4.0	<DL	<DL	<DL	7	<DL	<DL	<DL	<DL	0.067	<DL	1.0	<DL	<DL	<DL	3.19
RN98-SNOW-20	<DL	4.3	<DL	<DL	<DL	7	<DL	<DL	<DL	<DL	<DL	<DL	1.0	<DL	<DL	<DL	3.90
abs difference [$x-x_{dup}$]		0.310				0.000							0.010				0.709
mean $(x+x_{dup})/2$		3.970				7.000					0.067		1.020				3.186
%RSD	**	7.8	**	**	**	0.0	**	**	**	**		**	1.0	**	**	**	22.3
RN98SNOW30 dup.	<DL	9.2	<DL	<DL	<DL	8	<DL	<DL	<DL	<DL	0.077	<DL	0.8	<DL	<DL	<DL	8.62
RN98-SNOW-30	<DL	9.3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.8	<DL	<DL	<DL	8.79
abs difference [$x-x_{dup}$]		0.130											0.010				0.166
mean $(x+x_{dup})/2$		9.160				8.000					0.077		0.840				8.623
%RSD	**	1.4	**	**	**	*	**	**	**	**		**	1.2	**	**	**	1.9
RN98-SNOW-40 dup.	<DL	1.3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.4	<DL	<DL	<DL	3.01
RN98-SNOW-40	<DL	0.8	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	1.1	<DL	<DL	<DL	1.78
abs difference [$x-x_{dup}$]		0.520											0.280				1.228
mean $(x+x_{dup})/2$		1.270											1.400				3.011
%RSD	**	40.9	**	**	**	**	**	**	**	**	**	**	20.0	**	**	**	40.8
RN98SNOW50 dup.	<DL	25.6	<DL	<DL	<DL	11	<DL	<DL	<DL	<DL	0.110	<DL	1.3	<DL	0.005	0.4	73.42
RN98-SNOW-50	<DL	37.4	<DL	<DL	<DL	11	<DL	<DL	<DL	0.01	0.013	<DL	1.6	<DL	0.010	0.3	98.08
abs difference [$x-x_{dup}$]		11.730				0.000					0.097		0.260		0.005	0.050	24.651
mean $(x+x_{dup})/2$		25.620				11.000					0.110		1.330		0.005	0.370	73.424
%RSD	**	45.8	**	**	**	0.0	**	**	**		88.0	**	19.5	**	90.4	13.5	33.6

Table B4 continued

Element	Cs 133	Cu 65	Dy 163	Er 166	Eu 151	Fe 54	Gd 160	Ho 165	In 115	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Ni 60	Pb 208
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01	0.01	0.005	0.005	0.1	0.05	0.005	0.2	0.01
RN98SNOW60 dup.	<DL	1.5	<DL	<DL	<DL	6	<DL	<DL	<DL	<DL	0.094	<DL	9.6	<DL	0.007	<DL	2.35
RN98-SNOW-60	<DL	1.5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	5.7	<DL	0.007	<DL	3.33
abs difference [$x-x_{dup}$]		0.020											3.860		0.001		0.983
mean $(x+x_{dup})/2$		1.500											9.550		0.007		2.347
%RSD	**	1.3	**	**	**	*	**	**	**	**	*	**	40.4	**	6.8	**	41.9
RN98SNOW70 dup.	<DL	10.5	<DL	<DL	<DL	8	<DL	<DL	<DL	<DL	0.087	<DL	78.4	<DL	0.007	<DL	17.60
RN98-SNOW-70	<DL	10.2	<DL	<DL	<DL	6	<DL	<DL	<DL	<DL	0.018	<DL	38.8	<DL	0.007	<DL	15.34
abs difference [$x-x_{dup}$]		0.360				2.000					0.070		39.540		0.000		2.251
mean $(x+x_{dup})/2$		10.520				8.000					0.087		78.380		0.007		17.595
%RSD	**	3.4	**	**	**	25.0	**	**	**	**	79.7	**	50.4	**	5.7	**	12.8
RN98SNOW80 dup.	<DL	67.5	<DL	<DL	<DL	12	<DL	<DL	<DL	<DL	0.100	<DL	4.6	<DL	<DL	0.4	63.64
RN98-SNOW-80	<DL	73.1	<DL	<DL	<DL	11	<DL	<DL	<DL	<DL	<DL	<DL	3.0	0.05	0.009	0.4	93.90
abs difference [$x-x_{dup}$]		5.570				1.000							1.630			0.010	30.268
mean $(x+x_{dup})/2$		67.480				12.000							4.640			0.410	63.635
%RSD	**	8.3	**	**	**	8.3	**	**	**	**	*	**	35.1	*	*	2.4	47.6

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B4 continued

Element	Pr 141	Rb 85	Sb 121	Se 82	Sm 147	Sr 88	Tb 159	Ti 47	Tl 205	Tm 169	U 238	V 51	Y 89	Yb 174	Zn 66
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.05	0.01	1	0.005	0.5	0.005	0.5	0.005	0.005	0.005	0.1	0.01	0.005	0.5
RN98-SNOW-10	<DL	0.06	5.96	6	<DL	<DL	<DL	<DL	0.071	<DL	<DL	0.4	0.01	<DL	162.9
RN98SNOW10 dup.	<DL	0.08	5.56	5	<DL	0.6	<DL	<DL	0.058	<DL	<DL	0.4	0.01	<DL	147.8
abs difference [$x-x_{dup}$]		0.025	0.398	0.800					0.013			0.010	0.000		15.080
mean $(x+x_{dup})/2$		0.055	5.961	5.500					0.071			0.370	0.013		162.860
%RSD	**	45.5	6.7	14.5	**	*	**	**	18.1	**	**	2.7	0.0	**	9.3
RN98SNOW20 dup.	<DL	<DL	0.06	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	3.3
RN98-SNOW-20	<DL	<DL	0.05	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	3.3
abs difference [$x-x_{dup}$]			0.010									0.020			0.020
mean $(x+x_{dup})/2$			0.064									0.130			3.310
%RSD	**	**	15.6	**	**	**	**	**	**	**	**	15.4	**	**	0.6
RN98SNOW30 dup.	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.2	<DL	<DL	4.1
RN98-SNOW-30	<DL	<DL	0.10	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	4.1
abs difference [$x-x_{dup}$]			0.008												0.050
mean $(x+x_{dup})/2$			0.110												4.080
%RSD	**	**	7.3	**	**	**	**	**	**	**	**	*	**	**	1.2
RN98-SNOW-40 dup.	<DL	<DL	0.11	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	2.6
RN98-SNOW-40	<DL	<DL	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	1.9
abs difference [$x-x_{dup}$]			0.074									0.000			0.630
mean $(x+x_{dup})/2$			0.107									0.120			2.550
%RSD	**	**	69.2	**	**	**	**	**	**	**	**	0.0	**	**	24.7
RN98SNOW50 dup.	<DL	<DL	0.57	<DL	<DL	<DL	<DL	<DL	0.007	<DL	<DL	0.2	<DL	<DL	19.1
RN98-SNOW-50	<DL	<DL	0.63	<DL	<DL	<DL	<DL	<DL	0.011	<DL	<DL	0.2	<DL	<DL	27.5
abs difference [$x-x_{dup}$]			0.065						0.004			0.020			8.370
mean $(x+x_{dup})/2$			0.565						0.007			0.170			19.090
%RSD	**	**	11.5	**	**	**	**	**	49.3	**	**	11.8	**	**	43.8

Table B4 continued

Element	Pr 141	Rb 85	Sb 121	Se 82	Sm 147	Sr 88	Tb 159	Ti 47	Tl 205	Tm 169	U 238	V 51	Y 89	Yb 174	Zn 66
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.05	0.01	1	0.005	0.5	0.005	0.5	0.005	0.005	0.005	0.1	0.01	0.005	0.5
RN98SNOW60 dup.	<DL	0.17	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	3.4
RN98-SNOW-60	<DL	0.08	0.08	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	2.3
abs difference [$x-x_{dup}$]		0.092	0.006												1.090
mean $(x+x_{dup})/2$		0.169	0.075												3.360
%RSD	**	54.4	8.0	**	**	**	**	**	**	**	**	*	**	**	32.4
RN98SNOW70 dup.	<DL	1.82	0.34	<DL	<DL	<DL	<DL	<DL	0.008	<DL	<DL	<DL	<DL	<DL	11.3
RN98-SNOW-70	<DL	0.59	0.34	<DL	<DL	<DL	<DL	<DL	0.011	<DL	<DL	<DL	<DL	<DL	8.3
abs difference [$x-x_{dup}$]		1.231	0.006						0.003						2.970
mean $(x+x_{dup})/2$		1.816	0.337						0.008						11.270
%RSD	**	67.8	1.8	**	**	**	**	**	31.3	**	**	**	**	**	26.4
RN98SNOW80 dup.	<DL	0.13	0.64	<DL	<DL	0.6	<DL	<DL	0.011	<DL	<DL	0.1	<DL	<DL	19.0
RN98-SNOW-80	<DL	<DL	0.81	<DL	<DL	<DL	<DL	<DL	0.016	<DL	<DL	0.1	<DL	<DL	23.0
abs difference [$x-x_{dup}$]			0.174						0.005			0.010			4.050
mean $(x+x_{dup})/2$		0.132	0.635			0.550			0.011			0.130			18.960
%RSD	**		27.4	**	**		**	**	40.7	**	**	7.7	**	**	21.4

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B4 continued

Element	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Method	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	50	50	50	50	50	50	100
RN98-SNOW-10	<DL	1650	<DL	<DL	<DL	1810	230
RN98SNOW10 dup.	<DL	1805	<DL	<DL	<DL	1640	240
abs difference [$x-x_{dup}$]		155.000				170.000	10.000
mean $(x+x_{dup})/2$		1650.000				1810.000	230.000
%RSD	**	9.4	**	**	**	9.4	4.3
RN98SNOW20 dup.	<DL	1755	<DL	<DL	<DL	840	110
RN98-SNOW-20	<DL	1581	<DL	<DL	<DL	780	<DL
abs difference [$x-x_{dup}$]		174.000				60.000	
mean $(x+x_{dup})/2$		1755.000				840.000	110.000
%RSD	**	9.9	**	**	**	7.1	
RN98SNOW30 dup.	<DL	1722	<DL	<DL	<DL	750	<DL
RN98-SNOW-30	<DL	1724	<DL	<DL	<DL	740	<DL
abs difference [$x-x_{dup}$]		2.000				10.000	
mean $(x+x_{dup})/2$		1722.000				750.000	
%RSD	**	0.1	**	**	**	1.3	**
RN98-SNOW-40 dup.	<DL	1567	<DL	<DL	<DL	790	<DL
RN98-SNOW-40	<DL	1425	<DL	<DL	<DL	670	<DL
abs difference [$x-x_{dup}$]		142.000				120.000	
mean $(x+x_{dup})/2$		1567.000				790.000	
%RSD	**	9.1	**	**	**	15.2	**
RN98SNOW50 dup.	<DL	1491	<DL	<DL	<DL	760	140
RN98-SNOW-50	<DL	1765	<DL	<DL	<DL	930	120
abs difference [$x-x_{dup}$]		274.000				170.000	20.000
mean $(x+x_{dup})/2$		1491.000				760.000	140.000
%RSD	**	18.4	**	**	**	22.4	14.3

Table B4 continued

Element	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Method	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography	Chromatography
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	50	50	50	50	50	50	100
RN98SNOW60 dup.	<DL	1591	<DL	<DL	<DL	840	110
RN98-SNOW-60	<DL	1879	<DL	<DL	<DL	890	<DL
abs difference [$x-x_{dup}$]		288.000				50.000	
mean $(x+x_{dup})/2$		1591.000				840.000	
%RSD	**	18.1	**	**	**	6.0	*
RN98SNOW70 dup.	<DL	1386	<DL	<DL	<DL	1180	110
RN98-SNOW-70	<DL	1289	<DL	<DL	<DL	830	<DL
abs difference [$x-x_{dup}$]		97.000				350.000	
mean $(x+x_{dup})/2$		1386.000				1180.000	
%RSD	**	7.0	**	**	**	29.7	*
RN98SNOW80 dup.	<DL	1461	<DL	<DL	<DL	810	190
RN98-SNOW-80	<DL	1488	<DL	<DL	<DL	840	200
abs difference [$x-x_{dup}$]		27.000				30.000	10.000
mean $(x+x_{dup})/2$		1461.000				810.000	190.000
%RSD	**	1.8	**	**	**	3.7	5.3

- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B5: Quality control data (lab and field blanks).

Element	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Co 59	Cr 52	Cs 133	Cu 65	Dy 163	Er 166	Eu 151	Fe 54	Gd 160	Ho 165	In 115
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.05	2	0.1	0.2	0.005	0.05	0.05	0.1	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01
BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.1	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 7	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 8	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK Dup	<DL	<DL	<DL	<DL	0.006	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	6	<DL	<DL	<DL
Filtered BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK Dup	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
n<DL	19	19	19	19	18	19	19	19	19	17	19	19	19	18	19	19	19
mean										0.175							
stdev										0.049							
%RSD	**	**	**	**	**	**	**	**	**	28.284	**	**	**	**	**	**	**

- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B5 continued

Element	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Pb 208	Pr 141	Rb 85	Sb 121	Se 82	Sm 147	Sr 88	Tb 159	Ti 47	Tl 205	Tm 169
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.01	0.005	0.005	0.1	0.05	0.005	0.01	0.005	0.05	0.01	1	0.005	0.5	0.005	0.5	0.005	0.005
BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	0.01	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 7	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 8	<DL	<DL	<DL	<DL	<DL	<DL	0.16	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK Dup	<DL	<DL	<DL	<DL	<DL	<DL	0.03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	0.005	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK Dup	<DL	0.101	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
n<DL	19	17.000	19	19	19	19	16	19	19	19	19	19	19	19	19	19	19
mean		0.053					0.058										
stdev		0.068					0.069										
%RSD	**	127.611	**	**	**	**	119.964	**	**	**	**	**	**	**	**	**	**

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B5 continued

Element	U 238	V 51	Y 89	Yb 174	Zn 66	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	Chromato.	Chromato.	Chromato.	Chromato.	Chromato.	Chromato.	Chromato.
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.1	0.01	0.005	0.5	50	50	50	50	50	50	100
BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 7	<DL	<DL	<DL	<DL	0.6	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 8	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK Dup	<DL	<DL	<DL	<DL	<DL	<DL	52	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 1	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 4	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 5	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
Filtered BLANK 6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	-	-	-	-	-	-	-
LAB BLANK	<DL	<DL	<DL	<DL	<DL	-	-	-	-	-	-	-
LAB BLANK	<DL	<DL	<DL	<DL	<DL	-	-	-	-	-	-	-
LAB BLANK Dup	<DL	<DL	<DL	<DL	<DL	-	-	-	-	-	-	-
n<DL	19	19	19	19	18	15	15	15	15	15	15	15
mean												
stdev												
%RSD	**	**	**	**	**	**	**	**	**	**	**	**

\- = no analyses
** = both values <DL
* = one value <DL

Table B6: Quality control data for ICP-MS analyses (lab standard reference material).

Element	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Co 59	Cr 52	Cs 133	Cu 65	Dy 163	Er 166	Eu 151
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	**0.05**	**2**	**0.1**	**0.2**	**0.005**	**0.05**	**0.05**	**0.1**	**0.01**	**0.1**	**0.005**	**0.005**	**0.005**
SLRS-3	<DL	34	0.8	14.0	0.012	<DL	<DL	0.3	<DL	1.5	0.018	0.010	0.005
SLRS-3	<DL	29	0.5	14.0	0.016	<DL	<DL	0.2	<DL	1.3	0.021	0.011	0.007
SLRS-3	<DL	35	0.9	14.1	0.007	<DL	<DL	0.3	<DL	1.5	0.026	0.014	0.005
SLRS-3 Dup	<DL	33	0.5	13.5	0.007	<DL	<DL	0.3	<DL	1.4	0.020	0.011	0.006
mean		32.800	0.693	13.880	0.010			0.288		1.430	0.021	0.011	0.006
stdev		2.547	0.225	0.285	0.004			0.033		0.080	0.003	0.002	0.001
%RSD	**	7.765	32.534	2.053	43.328	**	**	11.492	**	5.623	14.579	14.055	12.382
Certified (SLRS-3)	-	31 +/- 3	0.72 +/- 0.05	13.4 +/- 0.6	0.005 +/- 0.001	0.013 +/- 0.002	0.027 +/- 0.003	0.30 +/- 0.04	-	1.35 +/- 0.07	-	-	-
% Error		5.8	3.8	3.6	105.0	na	na	4.2		5.9			
OTT 96	-	71	0.7	16.0	0.011	<DL	<DL	0.3	<DL	1.4	0.020	0.012	0.007
OTT 96	-	71	0.6	15.7	0.009	<DL	<DL	0.3	<DL	1.3	0.024	0.015	0.006
OTT 96	-	76	0.8	16.1	0.007	<DL	<DL	0.3	<DL	1.4	0.021	0.012	<DL
OTT 96	-	73	0.8	15.6	0.008	<DL	<DL	0.3	<DL	1.4	0.021	0.012	0.006
OTT 96	-	75	0.9	16.0	0.010	<DL	<DL	0.3	<DL	1.4	0.023	0.010	0.006
OTT 96	-	75	0.7	15.6	0.005	<DL	<DL	0.3	<DL	1.4	0.023	0.013	0.008
OTT 96	-	73	0.6	15.3	<DL	<DL	<DL	0.3	<DL	1.4	0.020	0.014	0.007
OTT 96	-	69	0.6	15.7	<DL	<DL	<DL	0.3	<DL	1.3	0.021	0.013	0.006
OTT 96 Dup	-	64	0.6	16.4	0.008	<DL	<DL	0.3	<DL	1.4	0.022	0.015	0.006
mean		71.689	0.688	15.820	0.008			0.291		1.360	0.022	0.013	0.006
stdev		3.616	0.091	0.316	0.002			0.019		0.042	0.001	0.002	0.001
%RSD		5.044	13.162	2.000	22.967	**	**	6.528	**	3.120	5.596	13.528	10.492
OTT-96	-	na	na	na	na	na	na	na	na	na	na	na	na

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B6 continued

Element	Fe 54	Gd 160	Ho 165	In 115	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Pb 208	Pr 141	Rb 85	Sb 121	Se 82	Sm 147
ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	**5**	**0.005**	**0.005**	**0.01**	**0.01**	**0.005**	**0.005**	**0.1**	**0.05**	**0.005**	**0.01**	**0.005**	**0.05**	**0.01**	**1**	**0.005**
SLRS-3	97	0.028	<DL	<DL	0.24	0.518	<DL	4.0	0.22	0.236	0.07	0.060	1.60	0.16	<DL	0.045
SLRS-3	88	0.033	<DL	<DL	0.23	0.473	<DL	3.7	0.20	0.224	0.07	0.058	1.52	0.15	<DL	0.047
SLRS-3	100	0.032	<DL	<DL	0.26	0.578	<DL	4.2	0.22	0.228	0.07	0.063	1.70	0.16	<DL	0.042
SLRS-3 Dup	99	0.028	<DL	<DL	0.23	0.495	<DL	3.8	0.20	0.220	0.016	0.060	1.56	0.15	<DL	0.040
mean	96.000	0.030			0.241	0.516		3.910	0.209	0.227	0.056	0.060	1.594	0.156		0.043
stdev	5.477	0.003			0.014	0.046		0.217	0.012	0.007	0.026	0.002	0.079	0.005		0.003
%RSD	5.705	8.591	**	**	5.917	8.825	**	5.549	5.948	2.999	47.033	3.611	4.957	3.172	**	7.525
Certified (SLRS-3)	100 +/- 2	-	-	-	-	-	-	3.9 +/- 0.3	0.19 +/- 0.01	-	0.068 +/-0.007	-	-	-	-	-
% Error	4.0							0.3	10.1		18.2					
OTT 96	101	0.026	<DL	<DL	0.28	0.507	<DL	4.8	0.36	0.225	0.10	0.057	1.48	0.10	<DL	0.042
OTT 96	100	0.031	<DL	<DL	0.25	0.489	<DL	4.7	0.36	0.232	0.10	0.061	1.40	0.07	<DL	0.037
OTT 96	104	0.032	<DL	<DL	0.26	0.535	<DL	4.9	0.36	0.228	0.10	0.060	1.49	0.07	<DL	0.041
OTT 96	104	0.028	<DL	<DL	0.24	0.539	<DL	4.8	0.35	0.249	0.11	0.057	1.44	0.07	<DL	0.037
OTT 96	103	0.030	<DL	<DL	0.25	0.537	<DL	4.9	0.36	0.243	0.10	0.057	1.49	0.07	<DL	0.041
OTT 96	104	0.027	<DL	<DL	0.24	0.547	<DL	4.9	0.34	0.226	0.09	0.054	1.45	0.07	<DL	0.038
OTT 96	104	0.024	<DL	<DL	0.24	0.512	<DL	4.9	0.36	0.228	0.10	0.055	1.47	0.07	<DL	0.033
OTT 96	99	0.026	<DL	<DL	0.24	0.509	<DL	4.8	0.36	0.223	0.10	0.059	1.45	0.07	<DL	0.035
OTT 96 Dup	109	0.029	<DL	<DL	0.25	0.583	<DL	4.9	0.36	0.251	0.010	0.059	1.52	0.07	<DL	0.041
mean	103.111	0.028			0.249	0.529		4.836	0.355	0.234	0.091	0.058	1.465	0.072		0.038
stdev	2.934	0.003			0.012	0.028		0.089	0.005	0.011	0.031	0.002	0.035	0.010		0.003
%RSD	2.846	9.411	**	**	4.886	5.258	**	1.841	1.535	4.670	33.584	4.096	2.415	13.806	**	8.097
OTT-96	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B6 continued

Element	Sr 88	Tb 159	Ti 47	Tl 205	Tm 169	U 238	V 51	Y 89	Yb 174	Zn 66	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.5	0.005	0.5	0.005	0.005	0.005	0.1	0.01	0.005	0.5	50	50	50	50	50	50	100
SLRS-3	33.6	<DL	0.9	0.008	<DL	0.044	0.3	0.12	0.011	1.2	-	-	-	-	-	-	-
SLRS-3	31.7	<DL	0.8	0.007	<DL	0.043	0.3	0.12	0.010	1.1	-	-	-	-	-	-	-
SLRS-3	34.1	<DL	1.0	0.009	<DL	0.046	0.4	0.13	0.010	1.2	-	-	-	-	-	-	-
SLRS-3 Dup	33.0	<DL	0.8	<DL	<DL	0.07	0.3	0.12	0.011	1.3	-	-	-	-	-	-	-
mean	33.100		0.885	0.008		0.051	0.313	0.122	0.011	1.195							
stdev	1.035		0.093	0.001		0.013	0.033	0.005	0.001	0.049							
%RSD	3.126	**	10.539	12.265	**	26.200	10.573	3.756	5.555	4.128							
Certified (SLRS-3)	-	-	-	-	-	-	0.3 +/- 0.02	-	-	1.04 +/- 0.09	-	-	-	-	-	-	-
% Error							4.2			14.9							
OTT 96	42.6	<DL	1.6	<DL	<DL	0.086	0.3	0.12	0.010	0.9	-	-	-	-	-	-	-
OTT 96	44.4	<DL	1.9	<DL	<DL	0.079	0.3	0.12	0.011	0.9	-	-	-	-	-	-	-
OTT 96	45.7	<DL	1.8	<DL	<DL	0.078	0.3	0.13	0.012	0.9	-	-	-	-	-	-	-
OTT 96	44.5	0.005	1.9	<DL	<DL	0.079	0.3	0.12	0.013	0.9	-	-	-	-	-	-	-
OTT 96	45.5	<DL	1.7	<DL	<DL	0.082	0.3	0.12	0.011	1.0	-	-	-	-	-	-	-
OTT 96	45.0	<DL	1.8	<DL	<DL	0.079	0.3	0.12	0.009	0.9	-	-	-	-	-	-	-
OTT 96	44.2	<DL	1.6	0.007	<DL	0.074	0.3	0.13	0.011	0.9	-	-	-	-	-	-	-
OTT 96	43.1	<DL	1.6	<DL	<DL	0.081	0.3	0.12	0.012	0.9	-	-	-	-	-	-	-
OTT 96 Dup	46.5	<DL	1.3	<DL	<DL	0.10	0.3	0.13	0.010	0.9	-	-	-	-	-	-	-
mean	44.594	0.005	1.690	0.007		0.082	0.310	0.124	0.011	0.927							
stdev	1.229		0.190			0.008	0.018	0.004	0.001	0.022							
%RSD	2.757	**	11.231	**	**	9.503	5.815	3.089	11.257	2.413							
OTT-96	na	na	na	na	na	na	na	na	na	na	-	-	-	-	-	-	-

- = no analyses
** = both values <DL
* = one value <DL

Table B7: Quality control ICP-ES analyses (lab blanks).

Elements	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppm	ppb
DL	20	1	1	20	1	1	1	2	5	0.03	5	0.005	1
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
n<DL	3	3	3	3	3	3	3	3	3	3	3	3	3

Elements	Mo	Na	Ni	P	Pb	S	Sc	Si	Sr	Ti	V	Y	Zn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	10	0.05	2	100	10	150	1	10	1	2	2	1	5
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
LAB BLANK	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
n<DL	3	3	3	3	3	3	3	3	3	3	3	3	3

- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B8: Quality control data for ICP-ES analyses (lab control reference material).

Elements	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppm	ppb
DL	20	1	1	20	1	1	1	2	5	0.03	5	0.005	1
SLRS-3	31	14	<DL	5883	<DL	<DL	1	<DL	100	0.69	<DL	1.647	4
SLRS-3	32	14	<DL	5926	<DL	<DL	<DL	<DL	101	0.69	<DL	1.655	4
SLRS-3	33	14	<DL	6099	<DL	<DL	<DL	<DL	103	0.70	<DL	1.674	4
mean	32.11	10.75		4481.92					77.33	0.53		1.245	3.21
stdev	0.84	6.50		2976.07					48.23	0.33		0.83	1.48
%RSD	2.6	60.5	**	66.4	**	**	**	**	62.4	62.9	**	66.4	46.0
SLRS-3	31 +/- 3	13.4 +/- 0.6	0.005 +/- 0.001	-	0.013 +/- 0.002	0.027 +/- 0.003	0.30 +/- 0.04	1.35 +/- 0.07	100 +/- 2	0.7 +/- 0.1	-	1.6 +/- 0.2	3.9 +/- 0.3
% Error	3.6	4.5	na		na	na	na	na	1.4	99.9		22.2	1.3

Elements	Mo	Na	Ni	P	Pb	S	Sc	Si	Sr	Ti	V	Y	Zn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	10	0.05	2	100	10	150	1	10	1	2	2	1	5
SLRS-3	<DL	2.331	<DL	<DL	<DL	3027	<DL	1704	33	<DL	<DL	<DL	<DL
SLRS-3	<DL	2.304	<DL	<DL	<DL	3169	<DL	1702	33	<DL	<DL	<DL	<DL
SLRS-3	<DL	2.371	<DL	<DL	<DL	3259	<DL	1759	34	<DL	<DL	<DL	<DL
mean		1.76				2401.26		1293.96	25.25				
stdev		1.14				1503.89		856.38	16.17				
%RSD	**	64.8	**	**	**	62.6	**	66.2	64.0	**	**	**	**
SLRS-3	0.19 +/- 0.01	2.3 +/- 0.2	0.83 +/- 0.08	-	0.068 +/- 0.007	-	-	-	-	-	0.3 +/- 0.02	-	1.04 +/- 0.09
% Error	na	23.3	na		na						na		na

\- = no analyses
** = both values <DL
* = one value <DL

Table B9: Quality control data for anion analyses (lab repeats/duplicates).

Element	NO_2	NO_3	F	PO_4	Br	SO_4	Cl
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	50	50	50	50	50	50	100
RN98-SNOW-16	<DL	1372	<DL	<DL	<DL	460	120
RN98-SNOW-16rep	<DL	1367	<DL	<DL	<DL	460	100
abs difference [$x-x_{dup}$]		5				0	20
mean $(x+x_{dup})/2$		1369.5				460	110
%RSD	**	0.003651	**	**	**	0	0.181818
RN98-SNOW-36	<DL	1680	<DL	<DL	<DL	930	100
RN98-SNOW-36rep	<DL	1690	<DL	<DL	<DL	900	120
abs difference [$x-x_{dup}$]		10				30	20
mean $(x+x_{dup})/2$		1685				915	110
%RSD	**	0.005935	**	**	**	0.032787	0.181818
RN98-SNOW-55	<DL	1631	<DL	<DL	<DL	700	<DL
RN98-SNOW-55rep	<DL	1659	<DL	<DL	<DL	670	100
abs difference [$x-x_{dup}$]		28				30	
mean $(x+x_{dup})/2$		1645				685	
%RSD	**	0.017021	**	**	**	0.043796	*
RN98-SNOW-75	<DL	2007	<DL	<DL	<DL	1200	160
RN98-SNOW-75rep	<DL	1974	<DL	<DL	<DL	1220	160
abs difference [$x-x_{dup}$]		33				20	0
mean $(x+x_{dup})/2$		1990.5				1210	160
%RSD	**	0.016579	**	**	**	0.016529	0

\- = no analyses
** = both values <DL
* = one value <DL

Table B10: Quality control for ICP-MS analyses (lab repeats/duplicates).

Element	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Ce 140	Co 59	Cr 52	Cs 133	Cu 65	Dy 163	Er 166	Eu 151	Fe 54	Gd 160	Ho 165	In 115
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.05	2	0.1	0.2	0.005	0.05	0.01	0.05	0.1	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01
RN98-SNOW-03	0.14	6	56.3	4.0	<DL	1.20	0.01	0.07	0.3	<DL	<DL	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-03 rep	0.13	5	46.1	4.1	0.006	1.21	0.01	0.07	0.3	<DL	<DL	<DL	<DL	<DL	7	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	0.011	0.1	10.25	0.03		0.007	0.001	0.002	0.01						0			
mean $(x+x_{dup})/2$	0.1355	5.45	51.175	4.035		1.2055	0.0135	0.068	0.275						7			
%RSD	8.1	1.8	20.0	0.7	*	0.6	7.4	2.9	3.6	**	**	**	**	**	0.0	**	**	**
RN98-SNOW-18	<DL	3	0.5	0.9	0.006	0.16	0.02	<DL	0.1	<DL	1.6	<DL	<DL	<DL	6	<DL	<DL	<DL
RN98-SNOW-18 rep	<DL	3	0.5	0.9	<DL	0.15	0.02	<DL	<DL	<DL	1.6	<DL	<DL	<DL	5	<DL	<DL	<DL
abs difference [$x-x_{dup}$]		0	0.07	0.02		0.008	0.002				0.02				1			
mean $(x+x_{dup})/2$		3.3	0.505	0.92		0.158	0.017				1.59				5.5			
%RSD	**	0.0	13.9	2.2	*	5.1	11.8	**	*	**	1.3	**	**	**	18.2	**	**	**
RN98-SNOW-25	0.06	4	7.2	1.0	0.007	0.35	<DL	<DL	0.2	<DL	42.7	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-25 rep	0.06	4	6.5	1.0	0.012	0.33	<DL	<DL	0.2	<DL	42.8	<DL	<DL	<DL	10	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	0.003	0	0.77	0.04	0.0051	0.016			0		0.1				0			
mean $(x+x_{dup})/2$	0.0575	3.6	6.835	1.02	0.00955	0.342			0.18		42.74				10			
%RSD	5.2	0.0	11.3	3.9	53.4	4.7	**	**	0.0	**	0.2	**	**	**	0.0	**	**	**
RN98-SNOW-39	<DL	3	0.8	0.5	<DL	0.08	<DL	<DL	<DL	<DL	1.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39 rep	<DL	3	0.6	0.5	<DL	0.08	<DL	<DL	<DL	<DL	1.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]		0.1	0.18	0		0.001					0							
mean $(x+x_{dup})/2$		2.75	0.68	0.48		0.0795					1.17							
%RSD	**	3.6	26.5	0.0	**	1.3	**	**	**	**	0.0	**	**	**	**	**	**	**
RN98-SNOW-57	<DL	3	4.9	0.8	<DL	0.27	<DL	<DL	0.1	<DL	29.2	<DL	<DL	<DL	5	<DL	<DL	<DL
RN98-SNOW-57 rep	<DL	3	5.3	0.8	0.007	0.27	<DL	<DL	0.2	<DL	30.1	<DL	<DL	<DL	7	<DL	<DL	<DL
abs difference [$x-x_{dup}$]		0.3	0.4	0.01		0.007			0.05		0.91				2			
mean $(x+x_{dup})/2$		3.15	5.05	0.795		0.2705			0.165		29.685				6			
%RSD	**	9.5	7.9	1.3	*	2.6	**	**	30.3	**	3.1	**	**	**	33.3	**	**	**

Table B10 continued

Element	Ag 107	Al 27	As 75	Ba 138	Be 9	Cd 114	Ce 140	Co 59	Cr 52	Cs 133	Cu 65	Dy 163	Er 166	Eu 151	Fe 54	Gd 160	Ho 165	In 115
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.05	2	0.1	0.2	0.005	0.05	0.01	0.05	0.1	0.01	0.1	0.005	0.005	0.005	5	0.005	0.005	0.01
RN98-SNOW-69	<DL	<DL	3.0	0.6	<DL	0.17	<DL	<DL	<DL	<DL	6.2	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-69 rep	<DL	<DL	3.2	0.6	<DL	0.18	<DL	<DL	<DL	<DL	6.3	<DL	<DL	<DL	6	<DL	<DL	<DL
abs difference [$x-x_{dup}$]			0.21	0.01		0.003					0.15							
mean $(x+x_{dup})/2$			3.075	0.555		0.1745					6.265							
%RSD	**	**	6.8	1.8	**	1.7	**	**	**	**	2.4	**	**	**	*	**	**	**
RN98-SNOW-71	0.05	5	5.1	0.9	<DL	0.34	<DL	<DL	0.2	<DL	24.3	<DL	<DL	<DL	7	<DL	<DL	<DL
RN98-SNOW-71 rep	0.06	5	5.4	1.0	0.006	0.35	<DL	<DL	0.2	<DL	24.4	<DL	<DL	<DL	8	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	0.003	0	0.25	0.02		0.01			0.05		0.09				1			
mean $(x+x_{dup})/2$	0.0545	4.5	5.235	0.95		0.345			0.175		24.355				7.5			
%RSD	5.5	0.0	4.8	2.1	*	2.9	**	**	28.6	**	0.4	**	**	**	13.3	**	**	**
RN98-SNOW-10-dupl	0.47	16	35.2	7.0	0.020	2.97	0.04	0.18	0.7	0.003	514.2	<DL	<DL	<DL	7	<DL	<DL	0.003
RN98-SNOW-10-dupl rep	0.46	16	35.6	7.1	0.024	2.97	0.04	0.18	0.8	0.003	518.4	<DL	<DL	<DL	9	<DL	<DL	0.003
abs difference [$x-x_{dup}$]	0.004	0.1	0.34	0.09	0.0037	0.005	0.001	0.003	0.08	0	4.25				2			0
mean $(x+x_{dup})/2$	0.463	16.35	35.4	7.055	0.02185	2.9675	0.0365	0.1775	0.74	0.0025	516.275				8			0.0025
%RSD	0.9	0.6	1.0	1.3	16.9	0.2	2.7	1.7	10.8	0.0	0.8	**	**	**	25.0	**	**	0.0
RN98-SNOW-78	0.08	5	11.3	1.1	<DL	0.47	0.01	<DL	0.3	<DL	68.7	<DL	<DL	<DL	10	<DL	<DL	<DL
RN98-SNOW-78 rep	0.08	5	12.1	1.1	0.008	0.46	0.01	<DL	0.3	<DL	71.0	<DL	<DL	<DL	11	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	0	0.3	0.72	0.05		0.004	0.001		0.01		2.27				1			
mean $(x+x_{dup})/2$	0.077	4.65	11.7	1.075		0.465	0.0115		0.265		69.825				10.5			
%RSD	0.0	6.5	6.2	4.7	*	0.9	8.7	**	3.8	**	3.3	**	**	**	9.5	**	**	**

- = no analyses
** = both values <DL
* = one value <DL

Table B10 continued

Element	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Ni 60	Pb 208	Pr 141	Rb 85	Sb 121	Se 82	Sm 147	Sr 88	Tb 159	Ti 47	Tl 205
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.01	0.005	0.005	0.1	0.05	0.005	0.2	0.01	0.005	0.05	0.01	1	0.005	0.5	0.005	0.5	0.005
RN98-SNOW-03	<DL	<DL	<DL	1.3	0.09	0.010	1.6	223.31	<DL	0.11	2.04	2	<DL	<DL	<DL	<DL	0.035
RN98-SNOW-03 rep	<DL	0.008	<DL	1.3	0.09	0.007	1.7	232.01	<DL	0.11	2.00	2	<DL	<DL	<DL	<DL	0.039
abs difference [$x-x_{dup}$]				0.01	0.002	0.0032	0.05	8.698		0.004	0.036	0					0.0044
mean $(x+x_{dup})/2$				1.275	0.09	0.0086	1.655	227.659		0.108	2.021	1.7					0.0368
%RSD	**	*	**	0.8	2.2	37.2	3.0	3.8	**	3.7	1.8	0.0	**	**	**	**	12.0
RN98-SNOW-18	<DL	<DL	<DL	4.3	<DL	0.005	0.5	1.71	<DL	0.06	0.06	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18 rep	<DL	<DL	<DL	4.2	<DL	<DL	0.2	1.73	<DL	0.06	0.07	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]				0.11			0.25	0.019		0.004	0.003						
mean $(x+x_{dup})/2$				4.265			0.355	1.7215		0.061	0.0635						
%RSD	**	**	**	2.6	**	**	70.4	1.1	**	6.6	4.7	**	**	**	**	**	**
RN98-SNOW-25	<DL	0.011	<DL	1.6	<DL	<DL	0.3	54.10	<DL	0.06	0.45	<DL	<DL	<DL	<DL	<DL	0.009
RN98-SNOW-25 rep	<DL	0.006	<DL	1.6	<DL	0.005	0.3	55.42	<DL	0.06	0.48	<DL	<DL	<DL	<DL	<DL	0.009
abs difference [$x-x_{dup}$]		0.0055		0.02			0.01	1.315		0	0.031						0
mean $(x+x_{dup})/2$		0.00865		1.6			0.335	54.7605		0.063	0.4675						0.0088
%RSD	**	63.6	**	1.3	**	**	3.0	2.4	**	0.0	6.6	**	**	**	**	**	0.0
RN98-SNOW-39	<DL	<DL	<DL	2.1	<DL	<DL	<DL	2.56	<DL	0.07	0.05	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39 rep	<DL	<DL	<DL	2.1	<DL	<DL	<DL	2.68	<DL	0.07	0.06	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]				0.04				0.116		0.003	0.003						
mean $(x+x_{dup})/2$				2.11				2.617		0.0695	0.0545						
%RSD	**	**	**	1.9	**	**	**	4.4	**	4.3	5.5	**	**	**	**	**	**
RN98-SNOW-57	<DL	0.018	<DL	0.9	<DL	0.005	0.2	50.27	<DL	<DL	0.40	<DL	<DL	<DL	<DL	<DL	0.007
RN98-SNOW-57 rep	<DL	0.008	<DL	0.9	<DL	0.005	0.2	49.22	<DL	<DL	0.42	<DL	<DL	<DL	<DL	<DL	0.007
abs difference [$x-x_{dup}$]		0.0108		0.02		0.0001	0	1.042			0.02						0.0003
mean $(x+x_{dup})/2$		0.013		0.86		0.00515	0.23	49.744			0.405						0.00675
%RSD	**	83.1	**	2.3	**	1.9	0.0	2.1	**	**	4.9	**	**	**	**	**	4.4

Table B10 continued

Element	La 139	Li 7	Lu 175	Mn 55	Mo 98	Nd 146	Ni 60	Pb 208	Pr 141	Rb 85	Sb 121	Se 82	Sm 147	Sr 88	Tb 159	Ti 47	Tl 205
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.01	0.005	0.005	0.1	0.05	0.005	0.2	0.01	0.005	0.05	0.01	1	0.005	0.5	0.005	0.5	0.005
RN98-SNOW-69	<DL	0.011	<DL	0.5	<DL	<DL	0.3	11.11	<DL	<DL	0.20	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-69 rep	<DL	0.012	<DL	0.5	<DL	<DL	0.4	11.08	<DL	<DL	0.21	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]		0.0009		0.02			0.01	0.034			0.003						
mean $(x+x_{dup})/2$		0.01155		0.47			0.345	11.097			0.2045						
%RSD	**	7.8	**	4.3	**	**	2.9	0.3	**	**	1.5	**	**	**	**	**	**
RN98-SNOW-71	<DL	0.007	<DL	1.3	<DL	<DL	0.3	33.79	<DL	0.08	0.37	<DL	<DL	<DL	<DL	<DL	0.007
RN98-SNOW-71 rep	<DL	0.016	<DL	1.3	<DL	<DL	0.3	33.36	<DL	0.07	0.36	<DL	<DL	<DL	<DL	<DL	0.007
abs difference [$x-x_{dup}$]		0.0083		0.01			0.01	0.433		0.002	0.014						0.0009
mean $(x+x_{dup})/2$		0.01135		1.305			0.335	33.5745		0.074	0.366						0.00695
%RSD	**	73.1	**	0.8	**	**	3.0	1.3	**	2.7	3.8	**	**	**	**	**	12.9
RN98-SNOW-10-dupl	0.02	0.053	<DL	1.5	0.11	0.019	3.8	0.058	<DL	0.08	5.56	5	<DL	0.6	<DL	<DL	<DL
RN98-SNOW-10-dupl rep	0.02	0.070	<DL	1.6	0.11	0.021	3.8	0.056	<DL	0.08	5.51	5	<DL	0.6	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	0.003	0.0168		0.03	0	0.0014	0.02	0.0017		0.002	0.056	0.4		0			
mean $(x+x_{dup})/2$	0.0215	0.0611		1.555	0.113	0.0198	3.81	0.05725		0.081	5.535	4.9		0.59			
%RSD	14.0	27.5	**	1.9	0.0	7.1	0.5	3.0	**	2.5	1.0	8.2	**	0.0	**	**	**
RN98-SNOW-78	<DL	0.006	<DL	1.9	<DL	0.007	0.4	75.12	<DL	0.18	0.91	1	<DL	<DL	<DL	<DL	0.013
RN98-SNOW-78 rep	<DL	0.007	<DL	2.0	<DL	0.006	0.4	76.03	<DL	0.19	0.95	<DL	<DL	<DL	<DL	<DL	0.012
abs difference [$x-x_{dup}$]		0.0019		0.08		0.0007	0.03	0.901		0.009	0.04						0.0008
mean $(x+x_{dup})/2$		0.00645		1.91		0.00615	0.415	75.5745		0.1825	0.933						0.0122
%RSD	**	29.5	**	4.2	**	11.4	7.2	1.2	**	4.9	4.3	*	**	**	**	**	6.6

\- = no analyses
** = both values <DL
* = one value <DL

Table B10 continued

Element	Tm 169	U 238	V 51	Y 89	Yb 174	Zn 66
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.005	0.1	0.01	0.005	0.5
RN98-SNOW-03	<DL	<DL	0.3	<DL	<DL	67.4
RN98-SNOW-03 rep	<DL	<DL	0.3	<DL	<DL	67.0
abs difference [$x-x_{dup}$]			0.02			0.4
mean $(x+x_{dup})/2$			0.31			67.15
%RSD	**	**	6.5	**	**	0.6
RN98-SNOW-18	<DL	<DL	<DL	<DL	<DL	3.0
RN98-SNOW-18 rep	<DL	<DL	<DL	<DL	<DL	3.0
abs difference [$x-x_{dup}$]						0.02
mean $(x+x_{dup})/2$						3.03
%RSD	**	**	**	**	**	0.7
RN98-SNOW-25	<DL	<DL	0.1	<DL	<DL	15.4
RN98-SNOW-25 rep	<DL	<DL	0.1	<DL	<DL	15.2
abs difference [$x-x_{dup}$]			0			0.15
mean $(x+x_{dup})/2$			0.13			15.315
%RSD	**	**	0.0	**	**	1.0
RN98-SNOW-39	<DL	<DL	0.1	<DL	<DL	2.5
RN98-SNOW-39 rep	<DL	<DL	0.1	<DL	<DL	2.5
abs difference [$x-x_{dup}$]			0.01			0.01
mean $(x+x_{dup})/2$			0.115			2.485
%RSD	**	**	8.7	**	**	0.4
RN98-SNOW-57	<DL	<DL	0.1	<DL	<DL	12.8
RN98-SNOW-57 rep	<DL	<DL	0.1	<DL	<DL	13.3
abs difference [$x-x_{dup}$]			0.02			0.41
mean $(x+x_{dup})/2$			0.13			13.045
%RSD	**	**	15.4	**	**	3.1

Table B10 continued

Element	Tm 169	U 238	V 51	Y 89	Yb 174	Zn 66
Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
Unit	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.005	0.005	0.1	0.01	0.005	0.5
RN98-SNOW-69	<DL	<DL	<DL	<DL	<DL	4.7
RN98-SNOW-69 rep	<DL	<DL	<DL	<DL	<DL	4.7
abs difference [$x-x_{dup}$]						0.03
mean $(x+x_{dup})/2$						4.675
%RSD	**	**	**	**	**	0.6
RN98-SNOW-71	<DL	<DL	0.1	<DL	<DL	11.4
RN98-SNOW-71 rep	<DL	<DL	0.1	<DL	<DL	11.5
abs difference [$x-x_{dup}$]			0.01			0.14
mean $(x+x_{dup})/2$			0.115			11.43
%RSD	**	**	8.7	**	**	1.2
RN98-SNOW-10-dupl	<DL	509.21	0.4	0.01	<DL	147.8
RN98-SNOW-10-dupl rep	<DL	500.68	0.4	0.01	<DL	147.6
abs difference [$x-x_{dup}$]		8.532	0.04	0.001		0.19
mean $(x+x_{dup})/2$		504.945	0.38	0.0125		147.685
%RSD	**	1.7	10.5	8.0	**	0.0
RN98-SNOW-78	<DL	<DL	0.1	<DL	<DL	25.2
RN98-SNOW-78 rep	<DL	<DL	0.1	<DL	<DL	26.4
abs difference [$x-x_{dup}$]			0.01			1.18
mean $(x+x_{dup})/2$			0.125			25.8
%RSD	**	**	8.0	**	**	4.6

\- = no analyses
** = both values <DL
* = one value <DL

Table B11: Quality control for lab repeats of ICP-ES analyses.

Elements	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn	Mo	Na	Ni	P	Pb
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	20	1	1	20	1	1	1	2	5	30	5	5	1	10	50	2	100	10
RN98-SNOW-03	<DL	4	<DL	87	1	<DL	<DL	424	<DL	<DL	<DL	11	1	<DL	173	<DL	<DL	217
RN98-SNOW-03 rep	<DL	4	<DL	87	1	<DL	<DL	420	<DL	53	<DL	11	1	<DL	177	<DL	<DL	220
abs difference [$x-x_{dup}$]		0.07684		0.51507	0.28865			3.27784				0.00772	0.02134		4.09242			2.81658
mean $(x+x_{dup})/2$		3.92709		86.7607	1.1557			422				11.1938	1.20993		174.946			218.423
%RSD	**	2.0	**	0.6	25.0	**	**	0.8	**	*	**	0.1	1.8	**	2.3	**	**	1.3
RN98-SNOW-18	<DL	<DL	<DL	132	<DL	<DL	<DL	<DL	<DL	54	<DL	40	4	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18 rep	<DL	<DL	<DL	132	<DL	<DL	<DL	<DL	<DL	<DL	<DL	40	4	<DL	<DL	<DL	115	<DL
abs difference [$x-x_{dup}$]				0.34204								0.13658	0.05353					
mean $(x+x_{dup})/2$				131.694								39.9112	4.06856					
%RSD	**	**	**	0.3	**	**	**	**	**	*	**	0.3	1.3	**	**	**	*	**
RN98-SNOW-25	<DL	1	<DL	51	<DL	<DL	<DL	41	7	<DL	<DL	9	2	<DL	70	<DL	<DL	53
RN98-SNOW-25 rep	<DL	<DL	<DL	52	<DL	<DL	<DL	41	8	<DL	<DL	9	2	<DL	76	<DL	<DL	47
abs difference [$x-x_{dup}$]				0.6851				0.03924	0.31377			0.02569	0.01058		5.43465			6.20513
mean $(x+x_{dup})/2$				51.5328				40.7982	7.35743			9.34398	1.54068		72.9293			50.2407
%RSD	**	*	**	1.3	**	**	**	0.1	4.3	**	**	0.3	0.7	**	7.5	**	**	12.4
RN98-SNOW-39	<DL	<DL	<DL	64	<DL	<DL	<DL	<DL	<DL	<DL	<DL	8	2	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39 rep	<DL	<DL	<DL	64	<DL	<DL	<DL	<DL	<DL	44	<DL	8	2	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]				0.38584								0.01623	0.00898					
mean $(x+x_{dup})/2$				63.7603								8.38815	1.99425					
%RSD	**	**	**	0.6	**	**	**	**	**	*	**	0.2	0.5	**	**	**	**	**

Table B11 continued

Elements	Al	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	La	Mg	Mn	Mo	Na	Ni	P	Pb
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	20	1	1	20	1	1	1	2	5	30	5	5	1	10	50	2	100	10
RN98-SNOW-57	<DL	<DL	<DL	57	<DL	<DL	<DL	28	<DL	<DL	<DL	7	<DL	<DL	<DL	<DL	<DL	46
RN98-SNOW-57 rep	<DL	<DL	<DL	57	<DL	<DL	<DL	28	<DL	<DL	<DL	7	<DL	<DL	<DL	<DL	<DL	47
abs difference [$x-x_{dup}$]				0.54821				0.28431				0.03208						1.28308
mean $(x+x_{dup})/2$				56.9012				28.0017				6.97367						46.1698
%RSD	**	**	**	1.0	**	**	**	1.0	**	**	**	0.5	**	**	**	**	**	2.8
RN98-SNOW-69	<DL	<DL	<DL	34	<DL	<DL	<DL	6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	13
RN98-SNOW-69 rep	<DL	<DL	<DL	32	<DL	<DL	<DL	6	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	11
abs difference [$x-x_{dup}$]				1.21065				0.24062										1.5899
mean $(x+x_{dup})/2$				32.9596				5.8016										11.9332
%RSD	**	**	**	3.7	**	**	**	4.1	**	**	**	**	**	**	**	**	**	13.3
RN98-SNOW-71	<DL	<DL	<DL	60	<DL	<DL	<DL	23	<DL	<DL	<DL	9	1	<DL	55	<DL	<DL	34
RN98-SNOW-71 rep	<DL	<DL	<DL	60	<DL	<DL	<DL	23	<DL	<DL	<DL	8	1	<DL	52	<DL	<DL	35
abs difference [$x-x_{dup}$]				0.64465				0.20856				0.082	0.02322		3.05725			0.53692
mean $(x+x_{dup})/2$				60.0549				22.6914				8.541	1.16054		53.135			34.368
%RSD	**	**	**	1.1	**	**	**	0.9	**	**	**	1.0	2.0	**	5.8	**	**	1.6
RN98-SNOW-78	<DL	1	<DL	74	<DL	<DL	<DL	64	8	42	<DL	19	2	<DL	77	<DL	<DL	68
RN98-SNOW-78 rep	<DL	1	<DL	73	<DL	<DL	<DL	64	9	56	<DL	19	2	<DL	76	<DL	<DL	67
abs difference [$x-x_{dup}$]		0.10977		0.89331				0.14489	0.18481	13.8302		0.04369	0.00509		1.33708			0.89282
mean $(x+x_{dup})/2$		1.06268		73.3624				64.3873	8.48783	49.1072		18.9729	1.72793		76.404			67.1241
%RSD		10.3		1.2				0.2	2.2	28.2	**	0.2	0.3	**	1.8	**	**	1.3

\- = no analyses
** = both values <DL
* = one value <DL

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control for Filtered Snow Meltwater (<0.45 µm)

Table B11 continued

Elements	S	Sc	Si	Sr	Ti	V	Y	Zn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	150	1	10	1	2	2	1	5
RN98-SNOW-03	<DL	<DL	<DL	<DL	<DL	<DL	<DL	64
RN98-SNOW-03 rep	323	<DL	<DL	<DL	<DL	<DL	<DL	64
abs difference [$x-x_{dup}$]								0.2063
mean $(x+x_{dup})/2$								64.1243
%RSD	*	**	**	**	**	**	**	0.3
RN98-SNOW-18	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18 rep	189	<DL	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]								
mean $(x+x_{dup})/2$								
%RSD	*	**	**	**	**	**	**	**
RN98-SNOW-25	224	<DL	<DL	<DL	<DL	<DL	<DL	15
RN98-SNOW-25 rep	377	<DL	<DL	<DL	<DL	<DL	<DL	15
abs difference [$x-x_{dup}$]	153.59							0.21138
mean $(x+x_{dup})/2$	300.513							14.8067
%RSD	51.1	**	**	**	**	**	**	1.4
RN98-SNOW-39	433	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-39 rep	319	<DL	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]	113.684							
mean $(x+x_{dup})/2$	375.989							
%RSD	30.2	**	**	**	**	**	**	**

Table B11 continued

Elements	S	Sc	Si	Sr	Ti	V	Y	Zn
Method	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES	ICP-ES
Unit	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	150	1	10	1	2	2	1	5
RN98-SNOW-03	382	<DL	<DL	<DL	<DL	<DL	<DL	13
RN98-SNOW-03 rep	346	<DL	<DL	<DL	<DL	<DL	<DL	13
abs difference [$x-x_{dup}$]	36.1756							0.00029
mean $(x+x_{dup})/2$	363.988							12.6062
%RSD	9.9	**	**	**	**	**	**	0.0
RN98-SNOW-18	204	<DL	<DL	<DL	<DL	<DL	<DL	<DL
RN98-SNOW-18 rep	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
abs difference [$x-x_{dup}$]								
mean $(x+x_{dup})/2$								
%RSD	*	**	**	**	**	**	**	**
RN98-SNOW-25	307	<DL	<DL	<DL	<DL	<DL	<DL	11
RN98-SNOW-25 rep	296	<DL	<DL	<DL	<DL	<DL	<DL	11
abs difference [$x-x_{dup}$]	11.628							0.0578
mean $(x+x_{dup})/2$	301.44							10.6081
%RSD	3.9	**	**	**	**	**	**	0.5
RN98-SNOW-39	281	<DL	<DL	<DL	<DL	<DL	<DL	24
RN98-SNOW-39 rep	229	<DL	<DL	<DL	<DL	<DL	<DL	24
abs difference [$x-x_{dup}$]	51.9784							0.31142
mean $(x+x_{dup})/2$	254.861							23.7343
%RSD	20.4	**	**	**	**	**	**	1.3

\- = no analyses
** = both values <DL
* = one value <DL

APPENDIX C

Analytical Results

Filtered Snow Particulates (>0.45 µm)

Analytical results for Snow Particulate (ppb)

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Snow Particulate (>0.45 µm)

Table C1: Results in units of concentration.

Sample	Sample Volume	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K
Units	ml	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL		0.001	0.04	0.004	0.02	0.0001	0.4	0.001	0.0002	0.001	0.02	0.0002	0.002	0.1	0.0002	0.6
RN98-SNOW-01	761.2	1.393	140.10	14.735	9.38	0.0186	27.6	0.241	0.1039	0.284	1.61	0.0080	78.735	211.2	0.1582	29.3
RN98-SNOW-02	1143.5	1.077	152.70	25.948	10.57	0.0229	39.7	0.484	0.0961	0.466	1.84	0.0047	145.184	354.7	0.1480	30.2
RN98-SNOW-03	770.9	1.120	124.97	22.834	27.40	0.0588	38.4	0.329	0.0899	0.295	1.41	0.0047	229.009	305.9	0.1385	27.5
RN98-SNOW-04	1102.9	0.006	34.47	0.067	0.41	0.0009	12.1	0.009	0.0188	0.011	0.28	0.0045	0.563	19.9	0.0007	11.5
RN98-SNOW-05	672.2	0.007	37.22	0.069	0.35	0.0011	4.8	0.115	0.0315	0.013	0.22	0.0051	0.489	21.7	0.0013	10.9
RN98-SNOW-06	722.3	0.006	43.97	0.067	0.36	0.0013	5.1	0.008	0.0320	0.013	0.40	0.0054	0.581	24.5	0.0013	12.5
RN98-SNOW-07	449.0	0.007	52.14	0.083	0.48	0.0012	7.3	0.015	0.0420	0.016	0.25	0.0061	0.743	30.7	0.0015	15.7
RN98-SNOW-08	934.4	0.007	40.85	0.275	0.31	0.0014	4.6	0.011	0.0350	0.013	0.18	0.0051	0.995	23.0	0.0021	11.2
RN98-SNOW-09	651.3	0.008	43.82	0.079	0.37	0.0016	8.2	0.006	0.0274	0.011	0.19	0.0060	0.965	24.1	0.0012	12.4
RN98-SNOW-10	838.0	0.013	59.16	0.147	0.53	0.0016	12.5	0.018	0.0450	0.020	0.24	0.0075	1.459	31.8	0.0016	16.4
RN98-SNOW-11	889.7	0.036	54.15	0.135	0.54	0.0021	9.4	0.055	0.0325	0.015	0.24	0.0063	1.565	28.4	0.0017	13.7
RN98-SNOW-12	1026.5	0.020	36.91	0.185	0.50	0.0015	5.4	0.011	0.0324	0.015	0.21	0.0046	2.930	23.9	0.0026	10.0
RN98-SNOW-13	791.5	0.031	50.09	0.248	0.63	0.0024	10.0	0.015	0.0423	0.021	0.23	0.0064	4.138	34.1	0.0034	13.8
RN98-SNOW-14	808.2	0.035	41.65	0.317	0.67	0.0026	6.3	0.017	0.0353	0.014	0.30	0.0050	4.825	29.2	0.0041	12.0
RN98-SNOW-15	743.9	0.045	41.33	0.430	0.86	0.0027	5.5	0.021	0.0360	0.023	0.20	0.0053	6.154	31.7	0.0060	11.4
RN98-SNOW-16	884.6	0.045	52.49	0.699	0.85	0.0020	10.8	0.012	0.0357	0.029	0.20	0.0053	2.946	37.4	0.0062	14.1
RN98-SNOW-17	521.6	0.007	54.31	0.096	0.42	0.0017	8.7	0.014	0.0321	0.013	0.23	0.0070	0.603	28.6	0.0009	14.8
RN98-SNOW-18	728.1	0.008	52.48	0.123	0.40	0.0012	6.9	0.009	0.0390	0.012	0.17	0.0056	0.546	25.9	0.0016	13.2
RN98-SNOW-19	852.3	0.012	34.17	0.111	0.38	0.0009	5.9	0.012	0.0327	0.010	0.09	0.0049	0.522	21.3	0.0017	11.2
RN98-SNOW-20	771.7	0.010	45.01	0.120	0.42	0.0019	8.5	0.056	0.0424	0.012	0.12	0.0065	0.689	27.2	0.0018	13.2
RN98-SNOW-21	851.0	0.045	78.49	0.637	1.21	0.0021	17.8	0.029	0.0632	0.029	0.27	0.0092	2.222	51.2	0.0064	24.2
RN98-SNOW-22	769.3	0.016	64.21	0.223	0.53	0.0016	8.7	0.010	0.0498	0.015	0.32	0.0076	1.167	35.0	0.0028	15.5
RN98-SNOW-23	928.5	0.015	48.02	0.226	0.58	0.0014	10.2	0.011	0.0420	0.012	0.18	0.0060	1.324	28.9	0.0027	13.6
RN98-SNOW-24	1043.3	0.023	59.59	0.236	0.65	0.0017	12.0	0.033	0.0462	0.018	0.17	0.0068	1.731	38.2	0.0031	16.0
RN98-SNOW-25	970.9	0.081	50.52	0.281	0.75	0.0016	27.3	0.015	0.0328	0.018	0.10	0.0068	1.958	28.5	0.0039	16.0
RN98-SNOW-26	385.6	0.036	45.95	0.233	0.53	0.0011	10.6	0.015	0.0312	0.014	0.09	0.0053	1.643	27.2	0.0039	11.7
RN98-SNOW-27	1032.0	0.041	50.92	0.421	0.69	0.0012	10.3	0.021	0.0463	0.018	0.20	0.0058	2.561	35.1	0.0067	14.6
RN98-SNOW-28	1169.0	0.055	50.55	0.645	0.93	0.0012	10.6	0.023	0.0413	0.021	0.17	0.0057	3.131	38.0	0.0097	13.9
RN98-SNOW-29	891.0	0.067	45.22	0.757	1.10	0.0028	7.0	0.024	0.0408	0.022	0.23	0.0056	4.150	41.1	0.0131	14.8
RN98-SNOW-30	1077.0	0.015	82.52	0.168	0.69	0.0022	12.7	0.011	0.0578	0.015	0.30	0.0093	1.429	45.4	0.0020	22.5
RN98-SNOW-31	984.2	0.014	86.95	0.142	0.63	0.0025	10.3	0.023	0.0630	0.019	0.16	0.0116	0.861	41.7	0.0021	22.8
RN98-SNOW-32	1029.7	0.023	76.51	0.170	0.61	0.0019	8.6	0.018	0.0603	0.019	0.17	0.0103	1.021	38.7	0.0041	20.5
RN98-SNOW-33	721.9	0.019	65.43	0.149	0.57	0.0018	5.0	0.027	0.0534	0.015	0.08	0.0090	1.251	29.4	0.0033	15.7
RN98-SNOW-34	703.9	0.021	65.17	0.149	0.60	0.0017	7.3	0.023	0.0584	0.020	0.24	0.0094	1.194	34.7	0.0039	18.8
RN98-SNOW-35	905.9	0.027	66.48	0.188	0.76	0.0019	10.8	0.021	0.0522	0.018	0.23	0.0098	1.628	36.7	0.0052	20.2
RN98-SNOW-36	767.6	0.032	79.00	0.198	0.87	0.0034	10.8	0.030	0.0726	0.023	0.29	0.0120	2.052	41.7	0.0055	21.2
RN98-SNOW-37	633.3	0.046	80.62	0.314	0.97	0.0031	10.7	0.028	0.0655	0.023	0.32	0.0119	2.845	44.5	0.0072	22.0
RN98-SNOW-38	930	0.058	66.35	0.331	1.23	0.0025	9.3	0.031	0.0523	0.028	0.26	0.0086	3.758	39.6	0.0089	17.5
RN98-SNOW-39	1020.5	0.081	55.73	0.470	1.21	0.0027	13.5	0.027	0.0350	0.025	0.21	0.0079	4.860	33.7	0.0097	16.0
RN98-SNOW-40	911.9	0.152	112.64	1.065	2.26	0.0062	15.3	0.085	0.0833	0.046	0.41	0.0144	9.561	69.0	0.0253	29.2

Table C1 continued

Sample	Sample Volume	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K
Units	ml	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL		0.001	0.04	0.004	0.02	0.0001	0.4	0.001	0.0002	0.001	0.02	0.0002	0.002	0.1	0.0002	0.6
RN98-SNOW-41	659.5	0.144	47.11	1.392	2.61	0.0114	9.5	0.027	0.0326	0.047	0.33	0.0048	9.850	45.6	0.0169	11.8
RN98-SNOW-42	866.3	0.178	53.48	1.992	1.99	0.0026	9.2	0.086	0.0360	0.042	0.20	0.0045	10.110	48.5	0.0243	11.9
RN98-SNOW-43	901.1	0.114	75.61	0.874	1.51	0.0039	12.4	0.036	0.0601	0.041	0.21	0.0086	6.628	57.7	0.0122	16.8
RN98-SNOW-44	745.4	0.098	56.65	1.043	1.85	0.0027	13.8	0.029	0.0435	0.029	0.13	0.0061	5.920	41.4	0.0096	13.9
RN98-SNOW-45	909.3	0.082	51.33	0.715	1.35	0.0049	7.3	0.028	0.0424	0.027	0.13	0.0060	10.315	39.9	0.0111	11.5
RN98-SNOW-46	1046.2	0.037	46.48	0.340	0.73	0.0014	7.5	0.020	0.0374	0.017	0.13	0.0052	2.959	28.8	0.0067	11.1
RN98-SNOW-47	936.7	0.055	115.29	0.630	1.93	0.0035	31.6	0.055	0.0662	0.039	0.18	0.0050	4.398	65.0	0.0126	27.1
RN98-SNOW-48	864.6	0.114	54.13	0.886	1.88	0.0028	20.4	0.058	0.0310	0.040	0.20	0.0047	10.627	40.0	0.0144	17.5
RN98-SNOW-49	862.0	0.211	64.81	2.458	2.54	0.0042	11.6	0.055	0.0485	0.047	0.29	0.0067	18.921	56.0	0.0252	14.0
RN98-SNOW-50	667.8	0.149	57.06	2.027	2.00	0.0027	9.8	0.063	0.0419	0.046	0.18	0.0050	7.478	67.8	0.0210	14.5
RN98-SNOW-51	857.7	0.264	112.60	3.254	3.69	0.0079	11.6	0.112	0.0617	0.073	0.37	0.0065	12.078	141	0.0478	23.9
RN98-SNOW-52	697.1	0.098	46.17	1.166	1.84	0.0110	8.0	0.034	0.0377	0.029	0.21	0.0053	6.233	36.4	0.0231	10.7
RN98-SNOW-53	874.0	0.519	109.30	6.115	8.43	0.0147	16.8	0.115	0.0751	0.153	0.61	0.0088	35.284	147	0.0878	22.6
RN98-SNOW-54	729.6	0.446	221.75	4.315	4.03	0.0143	33.4	0.362	0.1291	0.116	0.47	0.0095	21.600	412	0.0580	47.4
RN98-SNOW-55	750.5	0.150	86.21	1.454	1.98	0.0028	15.4	0.093	0.0622	0.038	0.38	0.0073	8.684	65.3	0.0206	18.3
RN98-SNOW-56	779.6	0.094	58.63	1.141	1.13	0.0025	9.4	0.036	0.0471	0.023	0.32	0.0067	4.502	40.3	0.0138	14.1
RN98-SNOW-57	776.0	0.147	74.51	1.171	1.29	0.0030	26.7	0.066	0.0462	0.037	0.26	0.0067	5.548	53.0	0.0165	19.7
RN98-SNOW-58	939.5	0.127	58.82	1.509	1.88	0.0029	10.5	0.035	0.0416	0.034	0.27	0.0056	7.578	51.9	0.0231	13.8
RN98-SNOW-59	853.1	0.115	54.33	0.681	1.44	0.0031	12.1	0.066	0.0325	0.029	0.22	0.0063	6.726	38.8	0.0137	14.4
RN98-SNOW-60	897.6	0.193	114.87	1.815	2.83	0.0090	19.6	0.080	0.0741	0.055	0.28	0.0101	12.112	73.1	0.0340	23.5
RN98-SNOW-61	997.7	0.183	61.41	1.442	2.28	0.0054	10.7	0.105	0.0528	0.049	0.23	0.0070	11.395	51.3	0.0308	14.8
RN98-SNOW-62	795.5	0.355	91.58	2.811	4.12	0.0101	49.1	0.146	0.0477	0.080	0.37	0.0075	24.307	81.8	0.0440	25.0
RN98-SNOW-63	948.7	0.258	61.37	2.101	2.35	0.0069	11.0	0.045	0.0460	0.058	0.34	0.0070	13.603	56.1	0.0392	15.7
RN98-SNOW-64	1092.1	0.141	72.60	0.961	1.77	0.0051	18.0	0.041	0.0426	0.043	0.23	0.0065	8.810	50.6	0.0210	16.1
RN98-SNOW-65	856.5	0.149	111.78	0.977	1.86	0.0044	23.2	0.043	0.0776	0.055	0.34	0.0084	7.223	73.2	0.0162	22.1
RN98-SNOW-66	871.3	0.118	73.76	0.911	1.72	0.0040	14.4	0.034	0.0534	0.041	0.31	0.0068	7.799	51.8	0.0192	17.2
RN98-SNOW-67	794.3	0.506	73.63	4.225	3.27	0.0090	13.9	0.104	0.0611	0.115	0.71	0.0069	21.229	87.4	0.0545	16.8
RN98-SNOW-68	1107.2	0.486	99.00	3.364	3.99	0.0116	16.9	0.097	0.0623	0.095	0.39	0.0080	26.373	94.3	0.0587	20.9
RN98-SNOW-69	457.4	0.694	88.46	6.660	4.77	0.0184	17.7	0.187	0.0554	0.147	0.61	0.0068	39.056	110	0.0824	19.5
RN98-SNOW-70	928.5	0.716	65.61	9.028	7.74	0.0113	11.4	0.132	0.0482	0.114	0.75	0.0051	43.116	91.1	0.0718	12.8
RN98-SNOW-71	737.1	1.768	152.21	22.793	18.8	0.0878	40.1	0.361	0.1086	0.547	1.79	0.0082	120.871	323	0.1337	31.0
RN98-SNOW-72	842.1	0.884	195.70	15.939	11.4	0.0819	51.5	0.277	0.1144	0.246	1.30	0.0073	53.465	234	0.0817	36.3
RN98-SNOW-73	758.1	3.443	156.45	31.012	40.3	0.0389	44.4	0.465	0.0993	0.555	2.07	0.0066	245.158	364	0.1894	28.6
RN98-SNOW-74	917.1	6.078	748.81	90.314	68.6	0.3076	192.9	1.334	0.4898	1.858	4.45	0.0154	840.268	1665	0.4366	137.1
RN98-SNOW-75	933.8	4.488	295.70	53.129	42.6	0.2299	77.8	0.585	0.2817	1.902	2.64	0.0097	488.447	907	0.2657	69.3
RN98-SNOW-76	803.1	2.620	171.74	66.437	57.6	0.1096	52.8	0.871	0.1613	1.819	3.80	0.0089	358.846	791	0.5040	37.5
RN98-SNOW-77	994.8	0.359	78.88	3.894	3.92	0.0102	16.6	0.088	0.0611	0.080	0.45	0.0054	21.553	83.5	0.0413	17.7
RN98-SNOW-78	874.0	2.376	114.63	36.766	17.4	0.0425	27.4	0.425	0.0842	0.492	1.61	0.0059	118.339	292	0.2353	21.9
RN98-SNOW-79	779.1	0.615	68.91	5.368	8.74	0.0105	12.9	0.103	0.0477	0.108	0.61	0.0052	47.606	92.5	0.0581	14.5
RN98-SNOW-80	895.3	0.416	74.84	4.680	5.11	0.0052	11.2	0.080	0.0606	0.108	0.62	0.0068	24.220	76.5	0.0512	16.8
RN98-SNOW-81	896.2	0.818	118.91	11.269	7.11	0.0187	24.7	0.218	0.0807	0.178	0.92	0.0082	50.035	152	0.1237	24.4
RN98-SNOW-82	893.6	1.935	100.96	17.847	11.1	0.0545	26.5	0.388	0.0912	0.363	1.36	0.0081	99.347	201	0.1927	23.5

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Snow Particulate (>0.45 µm)

Table C1 continued

Sample	La	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.0002	0.001	0.1	0.002	0.001	1	0.004	0.0002	0.001	1	0.0002	0.01	0.04	0.0001	0.0001	0.04	0.0002	0.01
RN98-SNOW-01	0.0480	0.054	22.5	1.110	0.340	43	3.094	83.5	0.126	54	6.794	0.50	6.42	0.0057	0.0043	0.33	0.0364	34.0
RN98-SNOW-02	0.0367	0.051	27.1	1.639	0.439	47	3.275	103	0.093	181	8.054	0.65	9.52	0.0083	0.0040	0.52	0.0326	100
RN98-SNOW-03	0.0300	0.051	18.4	1.371	0.362	37	4.512	68.4	0.084	123	3.495	0.79	8.06	0.0051	0.0033	0.67	0.0197	51.3
RN98-SNOW-04	0.0142	0.022	6.0	0.257	0.010	10	0.179	0.23	0.053	7	0.0204	0.09	1.27	0.0004	0.0012	0.04	0.0059	0.39
RN98-SNOW-05	0.0214	0.023	4.8	0.217	0.013	10	0.194	0.31	0.057	5	0.0179	0.07	1.42	0.0005	0.0015	0.06	0.0100	0.32
RN98-SNOW-06	0.0227	0.026	5.7	0.327	0.013	12	0.210	0.44	0.063	7	0.0153	0.08	1.53	0.0005	0.0015	0.05	0.0103	0.44
RN98-SNOW-07	0.0259	0.030	7.2	0.277	0.014	13	0.210	0.51	0.073	8	0.0175	0.11	1.91	0.0006	0.0018	0.07	0.0138	0.53
RN98-SNOW-08	0.0221	0.025	5.0	0.196	0.013	13	0.202	0.39	0.061	6	0.0216	0.08	1.49	0.0004	0.0014	0.05	0.0112	0.58
RN98-SNOW-09	0.0161	0.028	5.0	0.265	0.013	11	0.129	0.49	0.067	6	0.0145	0.09	1.56	0.0005	0.0016	0.05	0.0088	0.48
RN98-SNOW-10	0.0274	0.037	7.4	0.300	0.014	16	0.209	0.83	0.092	8	0.0296	0.12	2.07	0.0006	0.0019	0.06	0.0152	0.97
RN98-SNOW-11	0.0205	0.034	7.3	0.324	0.019	14	0.189	0.77	0.073	9	0.0473	0.12	2.01	0.0007	0.0017	0.07	0.0114	0.79
RN98-SNOW-12	0.0206	0.024	4.9	0.223	0.017	11	0.218	0.84	0.052	7	0.0593	0.08	1.45	0.0006	0.0014	0.05	0.0104	1.24
RN98-SNOW-13	0.0247	0.031	6.7	0.318	0.021	14	0.193	1.26	0.072	9	0.0793	0.12	2.00	0.0008	0.0018	0.07	0.0149	1.50
RN98-SNOW-14	0.0219	0.025	5.4	0.260	0.021	12	0.162	1.39	0.059	10	0.1184	0.09	1.59	0.0007	0.0014	0.06	0.0112	1.66
RN98-SNOW-15	0.0231	0.026	5.7	0.243	0.024	12	0.243	1.80	0.058	10	0.1597	0.09	1.61	0.0008	0.0015	0.07	0.0115	2.15
RN98-SNOW-16	0.0285	0.026	8.2	0.342	0.020	15	0.362	2.48	0.062	7	0.2254	0.14	2.18	0.0008	0.0017	0.09	0.0117	1.47
RN98-SNOW-17	0.0188	0.036	6.3	0.324	0.013	15	0.125	0.35	0.078	10	0.0231	0.11	2.09	0.0007	0.0022	0.05	0.0112	0.45
RN98-SNOW-18	0.0249	0.028	6.0	0.257	0.012	12	0.141	0.75	0.065	6	0.0380	0.09	1.82	0.0005	0.0018	0.07	0.0141	0.35
RN98-SNOW-19	0.0201	0.022	4.8	0.230	0.011	10	0.101	0.61	0.055	7	0.0322	0.08	1.48	0.0005	0.0016	0.05	0.0109	0.38
RN98-SNOW-20	0.0272	0.029	6.3	0.285	0.012	12	0.115	0.74	0.070	6	0.0306	0.10	1.76	0.0006	0.0018	0.07	0.0148	0.44
RN98-SNOW-21	0.0451	0.043	11.7	1.664	0.033	21	0.389	4.26	0.106	15	0.1467	0.21	3.16	0.0015	0.0036	0.15	0.0204	1.51
RN98-SNOW-22	0.0298	0.034	7.5	0.370	0.015	14	0.175	1.42	0.085	8	0.0753	0.12	2.10	0.0009	0.0022	0.09	0.0187	0.65
RN98-SNOW-23	0.0267	0.027	6.4	0.299	0.015	12	0.151	1.69	0.068	10	0.0760	0.10	1.76	0.0008	0.0018	0.07	0.0149	0.64
RN98-SNOW-24	0.0264	0.031	10.1	0.430	0.015	17	0.162	1.68	0.079	10	0.0762	0.14	2.32	0.0009	0.0020	0.09	0.0153	0.77
RN98-SNOW-25	0.0222	0.025	11.3	1.754	0.016	12	0.186	2.66	0.071	12	0.1684	0.21	1.59	0.0008	0.0019	0.06	0.0099	1.29
RN98-SNOW-26	0.0193	0.021	6.5	0.420	0.014	12	0.139	2.66	0.061	6	0.1452	0.13	1.64	0.0007	0.0021	0.07	0.0115	1.10
RN98-SNOW-27	0.0267	0.023	7.8	0.322	0.017	14	0.172	3.66	0.067	10	0.2133	0.13	2.05	0.0007	0.0021	0.08	0.0162	1.74
RN98-SNOW-28	0.0254	0.023	6.9	0.313	0.018	15	0.204	4.99	0.066	13	0.3372	0.14	2.05	0.0010	0.0020	0.08	0.0150	2.68
RN98-SNOW-29	0.0221	0.021	5.6	0.279	0.030	13	0.272	5.36	0.063	14	0.3279	0.11	2.11	0.0011	0.0018	0.09	0.0124	2.73
RN98-SNOW-30	0.0313	0.044	10.5	0.973	0.018	18	0.159	1.41	0.109	8	0.0586	0.17	3.00	0.0011	0.0020	0.12	0.0228	1.10
RN98-SNOW-31	0.0330	0.048	9.8	0.601	0.013	17	0.217	1.26	0.126	6	0.0412	0.17	3.00	0.0011	0.0028	0.10	0.0248	0.54
RN98-SNOW-32	0.0327	0.043	8.5	0.396	0.016	14	0.253	1.32	0.115	6	0.0494	0.14	2.76	0.0011	0.0028	0.10	0.0221	0.73
RN98-SNOW-33	0.0305	0.036	5.9	0.298	0.015	13	0.220	1.09	0.097	6	0.0468	0.10	1.96	0.0009	0.0023	0.07	0.0209	0.79
RN98-SNOW-34	0.0335	0.039	7.1	0.337	0.013	13	0.234	1.64	0.100	7	0.0424	0.12	2.24	0.0009	0.0022	0.08	0.0211	0.83
RN98-SNOW-35	0.0282	0.041	8.1	0.853	0.019	14	0.244	2.98	0.105	12	0.0635	0.16	2.40	0.0009	0.0025	0.09	0.0182	1.07
RN98-SNOW-36	0.0408	0.055	9.6	0.509	0.021	18	0.262	2.69	0.133	8	0.0667	0.20	2.82	0.0013	0.0034	0.10	0.0279	1.08
RN98-SNOW-37	0.0345	0.052	9.5	0.489	0.022	17	0.262	3.52	0.124	9	0.0983	0.18	2.77	0.0012	0.0027	0.11	0.0229	1.66
RN98-SNOW-38	0.0311	0.038	8.2	0.423	0.024	15	0.407	4.29	0.097	9	0.1321	0.16	2.16	0.0009	0.0022	0.09	0.0177	1.87
RN98-SNOW-39	0.0213	0.033	7.4	2.499	0.025	12	0.340	8.71	0.084	14	0.1714	0.17	1.88	0.0010	0.0023	0.08	0.0132	2.03
RN98-SNOW-40	0.0472	0.064	13.4	0.642	0.053	26	0.499	10.2	0.159	16	0.3641	0.25	3.78	0.0017	0.0041	0.16	0.0326	3.90

Table C1 continued

Sample	La	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.0002	0.001	0.1	0.002	0.001	1	0.004	0.0002	0.001	1	0.0002	0.01	0.04	0.0001	0.0001	0.04	0.0002	0.01
RN98-SNOW-41	0.0212	0.025	6.9	0.372	0.048	12	0.488	9.54	0.059	12	0.5272	0.16	1.79	0.0012	0.0016	0.10	0.0111	4.48
RN98-SNOW-42	0.0220	0.026	8.0	0.378	0.054	14	0.419	12.7	0.060	13	0.7566	0.15	2.07	0.0015	0.0019	0.10	0.0139	6.44
RN98-SNOW-43	0.0383	0.045	10.2	0.470	0.048	22	0.383	6.43	0.100	16	0.4223	0.17	2.85	0.0009	0.0023	0.10	0.0230	3.44
RN98-SNOW-44	0.0265	0.031	7.5	0.369	0.029	13	0.300	6.54	0.073	14	0.3640	0.14	2.09	0.0011	0.0022	0.08	0.0164	2.95
RN98-SNOW-45	0.0264	0.029	6.3	0.336	0.033	13	0.285	5.03	0.070	17	0.2592	0.13	1.96	0.0011	0.0022	0.07	0.0159	4.03
RN98-SNOW-46	0.0232	0.025	6.0	0.288	0.019	12	0.210	3.03	0.062	9	0.1401	0.11	1.71	0.0006	0.0018	0.06	0.0134	1.81
RN98-SNOW-47	0.0356	0.037	17.1	0.863	0.030	37	0.350	5.54	0.102	11	0.3289	0.56	4.73	0.0010	0.0019	0.16	0.0252	6.43
RN98-SNOW-48	0.0191	0.027	9.9	2.014	0.035	15	0.404	15.1	0.073	17	0.4372	0.23	1.87	0.0010	0.0021	0.08	0.0114	3.44
RN98-SNOW-49	0.0291	0.034	8.5	0.670	0.054	17	0.432	16.1	0.080	24	0.7738	0.18	2.20	0.0019	0.0021	0.11	0.0177	6.46
RN98-SNOW-50	0.0249	0.028	7.3	0.413	0.038	15	0.376	9.57	0.075	36	0.7788	0.16	2.05	0.0018	0.0021	0.09	0.0118	9.64
RN98-SNOW-51	0.0341	0.045	16.7	0.689	0.078	26	0.593	19.5	0.101	71	1.600	0.25	2.87	0.0069	0.0029	0.17	0.0202	20.6
RN98-SNOW-52	0.0245	0.026	6.1	0.293	0.033	13	0.480	8.23	0.061	11	0.4346	0.13	1.84	0.0014	0.0018	0.07	0.0132	3.30
RN98-SNOW-53	0.0425	0.052	17.0	0.862	0.171	25	1.517	42.0	0.115	48	3.864	0.38	3.90	0.0055	0.0036	0.25	0.0283	18.4
RN98-SNOW-54	0.0608	0.093	37.5	2.124	0.079	48	0.762	23.5	0.182	294	1.808	0.51	5.64	0.0168	0.0043	0.36	0.0414	82.7
RN98-SNOW-55	0.0381	0.041	12.1	0.548	0.039	21	0.419	13.0	0.096	25	0.5627	0.22	2.98	0.0021	0.0024	0.12	0.0234	5.94
RN98-SNOW-56	0.0283	0.031	7.4	0.352	0.022	16	0.280	8.48	0.077	14	0.4852	0.14	2.13	0.0013	0.0019	0.09	0.0172	3.35
RN98-SNOW-57	0.0290	0.033	11.1	0.507	0.035	20	0.302	12.3	0.097	19	0.4183	0.21	2.65	0.0015	0.0026	0.10	0.0178	4.41
RN98-SNOW-58	0.0253	0.028	8.1	0.391	0.056	16	0.423	8.99	0.070	18	0.6729	0.16	2.12	0.0017	0.0017	0.10	0.0144	5.50
RN98-SNOW-59	0.0209	0.030	7.5	1.217	0.024	13	0.362	9.75	0.077	12	0.2771	0.16	1.99	0.0011	0.0018	0.09	0.0111	2.60
RN98-SNOW-60	0.0375	0.049	14.8	0.745	0.047	29	0.596	14.4	0.122	15	0.6219	0.34	4.05	0.0019	0.0030	0.17	0.0259	4.28
RN98-SNOW-61	0.0285	0.033	8.0	0.394	0.053	15	0.545	15.3	0.084	14	0.7291	0.17	2.18	0.0014	0.0020	0.11	0.0169	5.40
RN98-SNOW-62	0.0274	0.042	17.4	1.216	0.075	23	0.837	43.9	0.131	30	1.543	0.50	3.99	0.0020	0.0026	0.17	0.0181	10.9
RN98-SNOW-63	0.0267	0.030	8.2	0.430	0.058	16	0.615	19.8	0.083	14	0.8490	0.17	2.65	0.0015	0.0022	0.10	0.0149	5.55
RN98-SNOW-64	0.0252	0.034	10.1	0.434	0.040	16	0.486	13.4	0.084	12	0.4604	0.21	2.22	0.0010	0.0022	0.11	0.0158	3.76
RN98-SNOW-65	0.0394	0.043	16.8	0.824	0.063	28	0.529	8.52	0.113	12	0.5773	0.31	4.53	0.0013	0.0026	0.18	0.0246	4.52
RN98-SNOW-66	0.0324	0.036	10.4	0.470	0.046	18	0.436	12.3	0.090	13	0.4904	0.19	2.60	0.0009	0.0026	0.12	0.0177	3.65
RN98-SNOW-67	0.0281	0.034	10.4	0.524	0.131	18	1.086	30.5	0.085	19	2.668	0.23	3.30	0.0024	0.0022	0.14	0.0167	12.0
RN98-SNOW-68	0.0373	0.045	14.6	0.829	0.113	23	1.036	24.6	0.103	21	1.693	0.27	4.04	0.0025	0.0029	0.16	0.0220	9.91
RN98-SNOW-69	0.0256	0.040	12.0	0.753	0.171	22	1.449	43.9	0.092	32	3.447	0.27	3.68	0.0039	0.0027	0.19	0.0151	17.2
RN98-SNOW-70	0.0250	0.029	9.5	0.509	0.177	17	1.485	46.7	0.065	27	2.554	0.28	2.62	0.0035	0.0022	0.22	0.0155	13.6
RN98-SNOW-71	0.0539	0.064	31.2	1.968	0.465	45	4.667	92.5	0.139	82	8.078	0.92	7.22	0.0076	0.0047	0.58	0.0382	55.5
RN98-SNOW-72	0.0504	0.072	43.4	2.163	0.216	61	2.078	58.5	0.149	50	4.231	0.93	9.13	0.0051	0.0045	0.50	0.0429	34.8
RN98-SNOW-73	0.0460	0.061	31.5	1.942	0.651	47	5.870	143	0.110	122	9.524	1.27	7.69	0.0114	0.0053	0.74	0.0365	60.5
RN98-SNOW-74	0.1556	0.215	127.4	9.982	2.422	215	15.24	198	0.371	677	19.24	3.77	41.12	0.0454	0.0206	3.50	0.1292	322
RN98-SNOW-75	0.0738	0.136	45.4	4.773	1.700	97	11.94	169	0.239	240	11.93	2.06	20.83	0.0173	0.0134	1.81	0.0501	129
RN98-SNOW-76	0.0767	0.068	38.5	2.857	1.789	46	11.71	275	0.152	198	29.92	1.95	9.53	0.0224	0.0117	1.24	0.0527	148
RN98-SNOW-77	0.0338	0.034	12.2	0.680	0.101	20	0.829	27.1	0.082	24	2.304	0.25	3.12	0.0024	0.0019	0.16	0.0196	12.9
RN98-SNOW-78	0.0462	0.045	20.4	1.458	0.554	30	4.234	250	0.092	73	15.89	0.70	5.31	0.0123	0.0048	0.52	0.0288	51.4
RN98-SNOW-79	0.0259	0.031	9.9	0.549	0.143	18	1.335	33.1	0.069	31	2.537	0.31	2.86	0.0034	0.0023	0.25	0.0182	13.0
RN98-SNOW-80	0.0300	0.034	9.1	0.463	0.106	19	0.818	28.8	0.085	21	1.959	0.21	2.65	0.0026	0.0024	0.13	0.0174	9.57
RN98-SNOW-81	0.0415	0.048	19.7	0.878	0.217	32	1.697	66.7	0.116	35	3.723	0.41	5.01	0.0053	0.0037	0.27	0.0282	23.9
RN98-SNOW-82	0.0465	0.050	19.4	1.006	0.335	29	2.611	117	0.114	59	8.163	0.60	5.45	0.0073	0.0039	0.30	0.0322	33.8

Analytical Results for Snow Particulate (ng/cm^2)

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Snow Particulate (>0.45 µm)

Table C2: Data in units of ng/cm^2

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-01	16.6	1666	175	112	0.22	328	2.9	1.2	3.4	19.2	0.10	936	2512	1.88	348
RN98-SNOW-02	19.2	2728	464	189	0.41	709	8.6	1.7	8.3	33.0	0.08	2594	6338	2.64	539
RN98-SNOW-03	13.5	1505	275	330	0.71	463	4.0	1.1	3.6	17.0	0.06	2758	3685	1.67	331
RN98-SNOW-04	12.3	1131	156	133	0.19	197	2.3	0.8	2.0	12.9	0.09	743	1571	1.24	220
RN98-SNOW-05	18.6	1599	239	198	0.92	422	3.8	1.1	5.8	18.8	0.09	1270	3390	1.40	326
RN98-SNOW-06	10.0	2209	180	129	0.92	581	3.1	1.3	2.8	14.7	0.08	603	2645	0.92	410
RN98-SNOW-07	24.2	1098	218	283	0.27	312	3.3	0.7	3.9	14.5	0.05	1720	2556	1.33	201
RN98-SNOW-08	88.7	10933	1319	1001	4.49	2817	19.5	7.2	27.1	65.0	0.22	12268	24316	6.37	2001
RN98-SNOW-09	45.7	3009	541	434	2.34	792	6.0	2.9	19.4	26.9	0.10	4971	9236	2.70	705
RN98-SNOW-10	34.3	2249	870	754	1.44	692	11.4	2.1	23.8	49.8	0.12	4699	10362	6.60	491
RN98-SNOW-11	0.1	479	1	6	0.01	168	0.1	0.3	0.1	3.8	0.06	8	276	0.01	160
RN98-SNOW-12	0.1	597	1	6	0.02	76	1.8	0.5	0.2	3.5	0.08	8	347	0.02	175
RN98-SNOW-13	0.1	544	1	4	0.02	63	0.1	0.4	0.2	4.9	0.07	7	303	0.02	155
RN98-SNOW-14	0.1	658	1	6	0.02	92	0.2	0.5	0.2	3.2	0.08	9	388	0.02	198
RN98-SNOW-15	0.1	475	3	4	0.02	54	0.1	0.4	0.1	2.1	0.06	12	268	0.02	131
RN98-SNOW-16	0.1	606	1	5	0.02	113	0.1	0.4	0.2	2.7	0.08	13	333	0.02	171
RN98-SNOW-17	0.1	482	1	4	0.01	102	0.1	0.4	0.2	1.9	0.06	12	259	0.01	134
RN98-SNOW-18	0.4	616	2	6	0.02	107	0.6	0.4	0.2	2.8	0.07	18	323	0.02	156
RN98-SNOW-19	0.3	492	2	7	0.02	72	0.1	0.4	0.2	2.8	0.06	39	318	0.03	134
RN98-SNOW-20	0.4	604	3	8	0.03	121	0.2	0.5	0.3	2.7	0.08	50	411	0.04	167
RN98-SNOW-21	0.5	554	4	9	0.03	84	0.2	0.5	0.2	4.0	0.07	64	389	0.05	159
RN98-SNOW-22	0.5	497	5	10	0.03	66	0.3	0.4	0.3	2.4	0.06	74	381	0.07	137
RN98-SNOW-23	0.6	762	10	12	0.03	157	0.2	0.5	0.4	3.0	0.08	43	542	0.09	204
RN98-SNOW-24	2.3	768	23	43	0.19	155	0.4	0.5	0.8	5.4	0.08	161	743	0.28	193
RN98-SNOW-25	2.7	811	30	30	0.04	139	1.3	0.5	0.6	3.1	0.07	153	736	0.37	181
RN98-SNOW-26	0.7	456	5	9	0.02	75	0.2	0.4	0.2	1.2	0.05	40	348	0.07	101
RN98-SNOW-27	5.8	1272	63	63	0.16	267	1.4	1.0	1.3	7.2	0.09	348	1347	0.67	285
RN98-SNOW-28	1.8	1035	19	34	0.05	252	0.5	0.8	0.5	2.4	0.11	108	756	0.18	254
RN98-SNOW-29	1.1	715	10	19	0.07	101	0.4	0.6	0.4	1.9	0.08	144	556	0.15	161
RN98-SNOW-30	0.6	782	6	12	0.02	127	0.3	0.6	0.3	2.2	0.09	50	485	0.11	188
RN98-SNOW-31	0.8	1773	10	30	0.05	486	0.8	1.0	0.6	2.8	0.08	68	999	0.19	417
RN98-SNOW-32	1.8	871	14	30	0.05	329	0.9	0.5	0.6	3.2	0.08	171	644	0.23	282
RN98-SNOW-33	2.4	731	28	29	0.05	131	0.6	0.5	0.5	3.3	0.08	213	632	0.28	158
RN98-SNOW-34	26.1	1261	404	191	0.47	302	4.7	0.9	5.4	17.7	0.07	1302	3215	2.59	240
RN98-SNOW-35	8.7	975	76	124	0.15	183	1.5	0.7	1.5	8.6	0.07	674	1309	0.82	205
RN98-SNOW-36	5.0	898	56	61	0.06	134	1.0	0.7	1.3	7.5	0.08	290	917	0.61	201
RN98-SNOW-37	0.1	537	1	4	0.02	86	0.1	0.3	0.1	2.3	0.07	6	283	0.01	147
RN98-SNOW-38	0.1	763	2	6	0.02	100	0.1	0.6	0.2	2.5	0.08	8	377	0.02	192
RN98-SNOW-39	0.2	545	2	6	0.02	94	0.2	0.5	0.2	1.4	0.08	8	339	0.03	179
RN98-SNOW-40	0.1	641	2	6	0.03	122	0.8	0.6	0.2	1.7	0.09	10	388	0.03	189

Table C2 continued

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-41	0.5	809	7	12	0.02	183	0.3	0.7	0.3	2.8	0.09	23	527	0.07	249
RN98-SNOW-42	0.2	869	3	7	0.02	118	0.1	0.7	0.2	4.4	0.10	16	473	0.04	209
RN98-SNOW-43	0.2	676	3	8	0.02	144	0.2	0.6	0.2	2.6	0.08	19	407	0.04	191
RN98-SNOW-44	0.3	694	3	8	0.02	140	0.4	0.5	0.2	2.0	0.08	20	444	0.04	187
RN98-SNOW-45	1.2	718	4	11	0.02	388	0.2	0.5	0.2	1.5	0.10	28	405	0.06	227
RN98-SNOW-46	0.6	751	4	9	0.02	173	0.2	0.5	0.2	1.5	0.09	27	445	0.06	191
RN98-SNOW-47	0.6	745	6	10	0.02	151	0.3	0.7	0.3	2.9	0.09	37	514	0.10	213
RN98-SNOW-48	0.7	683	9	13	0.02	144	0.3	0.6	0.3	2.3	0.08	42	513	0.13	187
RN98-SNOW-49	2.0	768	27	27	0.04	131	0.8	0.6	0.6	2.4	0.07	101	914	0.28	195
RN98-SNOW-50	2.8	1175	34	38	0.08	121	1.2	0.6	0.8	3.9	0.07	126	1468	0.50	250
RN98-SNOW-51	1.3	619	16	25	0.15	107	0.5	0.5	0.4	2.8	0.07	84	488	0.31	143
RN98-SNOW-52	5.7	1191	67	92	0.16	182	1.3	0.8	1.7	6.7	0.10	384	1601	0.96	246
RN98-SNOW-53	6.1	3028	59	55	0.19	456	4.9	1.8	1.6	6.4	0.13	295	5623	0.79	647
RN98-SNOW-54	1.7	983	17	23	0.03	176	1.1	0.7	0.4	4.3	0.08	99	744	0.23	209
RN98-SNOW-55	1.1	688	13	13	0.03	111	0.4	0.6	0.3	3.7	0.08	53	473	0.16	165
RN98-SNOW-56	1.8	908	14	16	0.04	325	0.8	0.6	0.4	3.2	0.08	68	645	0.20	240
RN98-SNOW-57	1.5	713	18	23	0.03	127	0.4	0.5	0.4	3.3	0.07	92	629	0.28	168
RN98-SNOW-58	1.0	664	11	16	0.04	103	0.3	0.6	0.3	3.4	0.08	61	603	0.19	218
RN98-SNOW-59	0.2	1100	2	9	0.03	169	0.1	0.8	0.2	4.0	0.12	19	605	0.03	300
RN98-SNOW-60	0.2	1219	2	9	0.03	144	0.3	0.9	0.3	2.2	0.16	12	585	0.03	319
RN98-SNOW-61	0.4	1193	3	9	0.03	134	0.3	0.9	0.3	2.6	0.16	16	604	0.06	320
RN98-SNOW-62	0.2	813	2	7	0.02	62	0.3	0.7	0.2	1.0	0.11	16	365	0.04	195
RN98-SNOW-63	0.3	966	2	9	0.02	108	0.3	0.9	0.3	3.6	0.14	18	514	0.06	278
RN98-SNOW-64	0.5	1134	3	13	0.03	184	0.4	0.9	0.3	3.9	0.17	28	626	0.09	345
RN98-SNOW-65	0.4	1057	3	12	0.04	145	0.4	1.0	0.3	3.9	0.16	27	558	0.07	284
RN98-SNOW-66	0.6	1098	4	13	0.04	146	0.4	0.9	0.3	4.4	0.16	39	606	0.10	300
RN98-SNOW-67	0.7	823	4	15	0.03	115	0.4	0.6	0.3	3.2	0.11	47	491	0.11	218
RN98-SNOW-68	1.4	964	8	21	0.05	233	0.5	0.6	0.4	3.7	0.14	84	583	0.17	278
RN98-SNOW-69	1.1	805	8	16	0.04	109	0.6	0.6	0.3	2.9	0.10	68	493	0.18	209
RN98-SNOW-70	1.7	788	10	21	0.05	175	1.0	0.5	0.4	3.2	0.09	98	563	0.20	208
RN98-SNOW-71	2.2	1323	21	33	0.10	225	0.9	0.9	0.6	3.2	0.12	139	842	0.39	271
RN98-SNOW-72	2.4	808	19	30	0.07	141	1.4	0.7	0.6	3.1	0.09	150	675	0.40	195
RN98-SNOW-73	4.2	1085	33	49	0.12	582	1.7	0.6	0.9	4.4	0.09	288	969	0.52	296
RN98-SNOW-74	3.7	879	30	34	0.10	158	0.6	0.7	0.8	4.9	0.10	195	804	0.56	225
RN98-SNOW-75	2.1	1059	14	26	0.07	262	0.6	0.6	0.6	3.4	0.09	129	738	0.31	235
RN98-SNOW-76	1.9	1403	12	23	0.06	291	0.5	1.0	0.7	4.3	0.10	91	918	0.20	277
RN98-SNOW-77	1.8	1147	14	27	0.06	224	0.5	0.8	0.6	4.9	0.11	121	805	0.30	268
RN98-SNOW-78	6.9	1005	58	45	0.12	190	1.4	0.8	1.6	9.7	0.09	290	1194	0.74	229
RN98-SNOW-79	10.0	1448	137	87	0.23	300	2.7	1.0	2.2	11.2	0.10	609	1854	1.51	297
RN98-SNOW-80	6.8	1385	47	56	0.16	236	1.4	0.9	1.3	5.5	0.11	369	1319	0.82	292
RN98-SNOW-81	9.7	1239	93	67	0.26	248	2.6	0.8	2.1	8.5	0.10	547	1537	1.15	273
RN98-SNOW-82	27.0	1410	249	155	0.76	370	5.4	1.3	5.1	19.0	0.11	1387	2807	2.69	327

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Analytical Data for Snow Particulate (>0.45 µm)

Table C2 continued

Sample	La	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-01	0.57	0.64	267	13	4.0	507	36.80	994	1.5	645	80.8	6.0	76	0.07	0.05	4.0	0.43	404
RN98-SNOW-02	0.66	0.92	485	29	7.8	840	58.52	1848	1.7	3226	143.9	11.7	170	0.15	0.07	9.2	0.58	1791
RN98-SNOW-03	0.36	0.62	221	17	4.4	442	54.35	823	1.0	1478	42.1	9.5	97	0.06	0.04	8.1	0.24	618
RN98-SNOW-04	0.43	0.50	164	9	3.0	296	25.59	804	1.1	472	44.0	4.9	45	0.06	0.04	3.7	0.27	235
RN98-SNOW-05	0.57	0.68	328	21	4.9	468	49.02	971	1.5	861	84.8	9.6	76	0.08	0.05	6.1	0.40	583
RN98-SNOW-06	0.57	0.81	489	24	2.4	690	23.45	661	1.7	566	47.8	10.5	103	0.06	0.05	5.6	0.48	393
RN98-SNOW-07	0.32	0.43	221	14	4.6	333	41.18	1003	0.8	858	66.8	8.9	54	0.08	0.04	5.2	0.26	425
RN98-SNOW-08	2.27	3.14	1860	146	35.4	3140	222.53	2897	5.4	9885	280.9	55.0	600	0.66	0.30	51.1	1.89	4706
RN98-SNOW-09	0.75	1.39	462	49	17.3	986	121.50	1723	2.4	2438	121.4	21.0	212	0.18	0.14	18.4	0.51	1308
RN98-SNOW-10	1.00	0.90	504	37	23.4	598	153.29	3603	2.0	2589	391.8	25.5	125	0.29	0.15	16.2	0.69	1939
RN98-SNOW-11	0.20	0.31	83	4	0.1	137	2.49	3	0.7	101	0.3	1.2	18	0.01	0.02	0.6	0.08	5
RN98-SNOW-12	0.34	0.37	76	3	0.2	154	3.11	5	0.9	86	0.3	1.2	23	0.01	0.02	0.9	0.16	5
RN98-SNOW-13	0.28	0.33	70	4	0.2	148	2.60	5	0.8	90	0.2	1.0	19	0.01	0.02	0.6	0.13	5
RN98-SNOW-14	0.33	0.38	90	4	0.2	163	2.66	6	0.9	95	0.2	1.3	24	0.01	0.02	0.9	0.17	7
RN98-SNOW-15	0.26	0.29	58	2	0.1	145	2.35	4	0.7	65	0.3	0.9	17	0.00	0.02	0.6	0.13	7
RN98-SNOW-16	0.22	0.39	69	4	0.2	146	1.78	7	0.9	83	0.2	1.2	21	0.01	0.02	0.7	0.12	7
RN98-SNOW-17	0.22	0.30	60	2	0.1	126	1.70	7	0.7	67	0.2	1.0	17	0.00	0.02	0.5	0.12	8
RN98-SNOW-18	0.23	0.39	83	4	0.2	158	2.15	9	0.8	104	0.5	1.4	23	0.01	0.02	0.8	0.13	9
RN98-SNOW-19	0.27	0.31	65	3	0.2	147	2.91	11	0.7	90	0.8	1.1	19	0.01	0.02	0.6	0.14	17
RN98-SNOW-20	0.30	0.38	81	4	0.3	168	2.33	15	0.9	109	1.0	1.4	24	0.01	0.02	0.9	0.18	18
RN98-SNOW-21	0.29	0.34	72	3	0.3	155	2.15	18	0.8	128	1.6	1.2	21	0.01	0.02	0.8	0.15	22
RN98-SNOW-22	0.28	0.31	68	3	0.3	144	2.92	22	0.7	115	1.9	1.1	19	0.01	0.02	0.9	0.14	26
RN98-SNOW-23	0.41	0.37	119	5	0.3	223	5.26	36	0.9	108	3.3	2.0	32	0.01	0.02	1.3	0.17	21
RN98-SNOW-24	0.35	0.40	112	6	0.8	198	7.96	156	1.0	198	8.6	2.5	29	0.02	0.03	1.6	0.18	73
RN98-SNOW-25	0.33	0.40	121	6	0.8	215	6.35	193	0.9	194	11.5	2.2	31	0.02	0.03	1.4	0.21	98
RN98-SNOW-26	0.23	0.27	62	3	0.3	134	2.31	39	0.6	96	2.5	1.0	17	0.01	0.01	0.6	0.14	21
RN98-SNOW-27	0.54	0.54	196	11	1.6	315	13.37	436	1.3	386	37.2	4.1	50	0.04	0.03	2.5	0.32	209
RN98-SNOW-28	0.48	0.56	137	7	0.5	234	5.48	119	1.3	247	6.6	2.6	38	0.02	0.04	1.5	0.30	54
RN98-SNOW-29	0.37	0.40	87	5	0.5	178	3.97	70	1.0	242	3.6	1.8	27	0.01	0.03	1.0	0.22	56
RN98-SNOW-30	0.39	0.42	101	5	0.3	202	3.53	51	1.0	155	2.4	1.9	29	0.01	0.03	1.1	0.23	30
RN98-SNOW-31	0.55	0.57	263	13	0.5	570	5.39	85	1.6	171	5.1	8.6	73	0.02	0.03	2.4	0.39	99
RN98-SNOW-32	0.31	0.44	160	32	0.6	236	6.50	243	1.2	277	7.0	3.6	30	0.02	0.03	1.3	0.18	55
RN98-SNOW-33	0.33	0.39	95	8	0.6	194	4.88	182	0.9	271	8.7	2.0	25	0.02	0.02	1.2	0.20	73
RN98-SNOW-34	0.51	0.50	224	16	6.1	330	46.57	2750	1.0	807	174.8	7.7	58	0.14	0.05	5.7	0.32	565
RN98-SNOW-35	0.37	0.43	140	8	2.0	250	18.90	469	1.0	435	35.9	4.4	41	0.05	0.03	3.5	0.26	184
RN98-SNOW-36	0.36	0.41	109	6	1.3	234	9.81	345	1.0	257	23.5	2.5	32	0.03	0.03	1.6	0.21	115
RN98-SNOW-37	0.19	0.35	62	3	0.1	147	1.23	3	0.8	95	0.2	1.1	21	0.01	0.02	0.5	0.11	4
RN98-SNOW-38	0.36	0.41	88	4	0.2	178	2.05	11	1.0	90	0.6	1.3	26	0.01	0.03	1.0	0.21	5
RN98-SNOW-39	0.32	0.36	77	4	0.2	166	1.61	10	0.9	104	0.5	1.2	24	0.01	0.03	0.8	0.17	6
RN98-SNOW-40	0.39	0.41	90	4	0.2	171	1.64	11	1.0	89	0.4	1.4	25	0.01	0.03	1.0	0.21	6

Table C2 continued

Sample	La	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-41	0.47	0.45	120	17	0.3	212	4.01	44	1.1	159	1.5	2.1	33	0.02	0.04	1.5	0.21	16
RN98-SNOW-42	0.40	0.46	101	5	0.2	194	2.37	19	1.1	108	1.0	1.6	28	0.01	0.03	1.2	0.25	9
RN98-SNOW-43	0.38	0.39	90	4	0.2	168	2.13	24	1.0	134	1.1	1.4	25	0.01	0.03	1.0	0.21	9
RN98-SNOW-44	0.31	0.36	117	5	0.2	194	1.89	20	0.9	113	0.9	1.6	27	0.01	0.02	1.0	0.18	9
RN98-SNOW-45	0.32	0.36	160	25	0.2	168	2.64	38	1.0	167	2.4	2.9	23	0.01	0.03	0.9	0.14	18
RN98-SNOW-46	0.32	0.34	105	7	0.2	197	2.27	44	1.0	96	2.4	2.2	27	0.01	0.03	1.2	0.19	18
RN98-SNOW-47	0.39	0.34	115	5	0.2	205	2.52	54	1.0	141	3.1	1.9	30	0.01	0.03	1.2	0.24	25
RN98-SNOW-48	0.34	0.31	93	4	0.2	197	2.76	67	0.9	177	4.6	1.8	28	0.01	0.03	1.1	0.20	36
RN98-SNOW-49	0.33	0.38	98	6	0.5	200	5.07	129	1.0	487	10.5	2.1	28	0.02	0.03	1.3	0.16	130
RN98-SNOW-50	0.36	0.47	174	7	0.8	268	6.19	203	1.1	739	16.7	2.6	30	0.07	0.03	1.7	0.21	215
RN98-SNOW-51	0.33	0.35	82	4	0.4	170	6.43	110	0.8	148	5.8	1.7	25	0.02	0.02	1.0	0.18	44
RN98-SNOW-52	0.46	0.56	185	9	1.9	277	16.52	457	1.3	528	42.1	4.1	42	0.06	0.04	2.7	0.31	200
RN98-SNOW-53	0.83	1.27	513	29	1.1	662	10.40	321	2.5	4016	24.7	7.0	77	0.23	0.06	4.8	0.56	1129
RN98-SNOW-54	0.43	0.47	138	6	0.4	238	4.77	148	1.1	280	6.4	2.5	34	0.02	0.03	1.4	0.27	68
RN98-SNOW-55	0.33	0.37	87	4	0.3	183	3.28	99	0.9	161	5.7	1.6	25	0.01	0.02	1.1	0.20	39
RN98-SNOW-56	0.35	0.41	135	6	0.4	243	3.68	149	1.2	227	5.1	2.6	32	0.02	0.03	1.3	0.22	54
RN98-SNOW-57	0.31	0.34	98	5	0.7	196	5.13	109	0.9	215	8.2	1.9	26	0.02	0.02	1.2	0.17	67
RN98-SNOW-58	0.32	0.31	83	4	0.4	192	4.00	79	0.9	203	4.8	1.7	31	0.02	0.03	1.3	0.18	40
RN98-SNOW-59	0.42	0.58	139	13	0.2	239	2.11	19	1.5	113	0.8	2.3	40	0.01	0.03	1.6	0.30	15
RN98-SNOW-60	0.46	0.67	138	8	0.2	233	3.05	18	1.8	88	0.6	2.4	42	0.02	0.04	1.5	0.35	8
RN98-SNOW-61	0.51	0.67	132	6	0.2	224	3.94	21	1.8	89	0.8	2.3	43	0.02	0.04	1.5	0.34	11
RN98-SNOW-62	0.38	0.45	74	4	0.2	156	2.74	14	1.2	71	0.6	1.3	24	0.01	0.03	0.9	0.26	10
RN98-SNOW-63	0.50	0.58	105	5	0.2	186	3.48	24	1.5	102	0.6	1.7	33	0.01	0.03	1.1	0.31	12
RN98-SNOW-64	0.48	0.70	139	15	0.3	239	4.16	51	1.8	206	1.1	2.7	41	0.02	0.04	1.5	0.31	18
RN98-SNOW-65	0.55	0.73	128	7	0.3	238	3.50	36	1.8	104	0.9	2.7	38	0.02	0.05	1.3	0.37	14
RN98-SNOW-66	0.47	0.71	129	7	0.3	232	3.56	48	1.7	117	1.3	2.4	38	0.02	0.04	1.5	0.31	23
RN98-SNOW-67	0.39	0.48	102	5	0.3	184	5.05	53	1.2	111	1.6	1.9	27	0.01	0.03	1.1	0.22	23
RN98-SNOW-68	0.37	0.57	128	43	0.4	205	5.88	151	1.5	235	3.0	2.9	33	0.02	0.04	1.3	0.23	35
RN98-SNOW-69	0.34	0.46	96	5	0.4	187	3.56	73	1.1	115	2.6	1.8	27	0.01	0.03	1.2	0.23	28
RN98-SNOW-70	0.30	0.43	109	18	0.4	193	5.25	141	1.1	173	4.0	2.3	29	0.02	0.03	1.3	0.16	38
RN98-SNOW-71	0.43	0.56	171	9	0.5	329	6.86	165	1.4	169	7.2	3.9	47	0.02	0.03	1.9	0.30	49
RN98-SNOW-72	0.37	0.43	106	5	0.7	202	7.18	201	1.1	179	9.6	2.2	29	0.02	0.03	1.4	0.22	71
RN98-SNOW-73	0.32	0.49	206	14	0.9	276	9.92	520	1.5	355	18.3	5.9	47	0.02	0.03	2.0	0.21	129
RN98-SNOW-74	0.38	0.43	117	6	0.8	229	8.81	284	1.2	202	12.2	2.5	38	0.02	0.03	1.5	0.21	80
RN98-SNOW-75	0.37	0.50	147	6	0.6	240	7.09	195	1.2	182	6.7	3.0	32	0.01	0.03	1.6	0.23	55
RN98-SNOW-76	0.49	0.54	210	10	0.8	353	6.64	107	1.4	153	7.2	3.9	57	0.02	0.03	2.2	0.31	57
RN98-SNOW-77	0.50	0.55	162	7	0.7	277	6.77	191	1.4	197	7.6	2.9	40	0.01	0.04	1.9	0.28	57
RN98-SNOW-78	0.38	0.46	142	7	1.8	250	14.84	417	1.2	266	36.4	3.2	45	0.03	0.03	2.0	0.23	164
RN98-SNOW-79	0.51	0.58	240	11	2.6	385	20.66	812	1.4	422	45.3	5.0	61	0.06	0.04	3.3	0.34	291
RN98-SNOW-80	0.52	0.63	204	12	1.6	323	14.49	344	1.4	290	23.7	3.8	57	0.03	0.04	2.3	0.31	139
RN98-SNOW-81	0.36	0.56	167	11	2.4	314	20.29	615	1.3	448	48.3	3.8	52	0.06	0.04	2.7	0.21	241
RN98-SNOW-82	0.65	0.70	271	14	4.7	400	36.45	1644	1.6	827	114.0	8.4	76	0.10	0.05	4.3	0.45	472

Summary Statistics

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Summary Statistics for Snow Particulate (>0.45 µm)

Table C3: Summary statistics.

											PERCENTILES								
Element	**Units**	**no.<DL**	**n**	**Mean**	**St. Dev.**	**Variance**	**Skew**	**Kurt**	**Geomean**	**Min**	**25th**	**50th**	**75th**	**80th**	**90th**	**95th**	**98th**	**99th**	**Max**
Al	ng/cm^2	0	82	5.6	12.5	155.0	4.5	25.4	1.3	0.1	0.4	1.2	4.8	6.7	16.3	26.0	38.6	53.9	88.7
Ag	ng/cm^2	0	82	1136	1213	1471613	7	54	948	456	689	870	1187	1256	1589	2247	3016	4530	10933
As	ng/cm^2	0	82	77	195	37947	4	23	13	1	3	11	44	62	214	398	666	955	1319
Ba	ng/cm^2	0	82	67	150	22599	5	23	24	4	9	20	48	63	153	278	555	801	1001
Be	ng/cm^2	0	82	0.21	0.59	0.34	5.68	37.23	0.06	0.01	0.02	0.04	0.14	0.16	0.40	0.91	1.78	2.75	4.49
Ca	ng/cm^2	0	82	243	327	106648	6	48	178	54	114	153	260	302	452	582	741	1177	2817
Cd	ng/cm^2	0	82	1.5	2.8	7.7	4.3	23.3	0.6	0.1	0.3	0.5	1.4	1.7	3.7	5.4	9.7	12.9	19.5
Ce	ng/cm^2	0	82	0.8	0.8	0.7	6.3	47.0	0.7	0.3	0.5	0.6	0.9	0.9	1.1	1.7	2.4	3.7	7.2
Co	ng/cm^2	0	82	1.8	4.5	20.5	4.5	20.6	0.6	0.1	0.2	0.4	1.2	1.6	3.5	5.7	21.1	24.4	27.1
Cr	ng/cm^2	0	82	6.9	10.0	100.0	3.9	17.5	4.3	1.0	2.7	3.4	5.5	7.4	16.8	19.2	39.3	52.7	65.0
Cs	ng/cm^2	0	82	0.09	0.03	0.00	1.79	4.47	0.09	0.05	0.08	0.09	0.10	0.11	0.13	0.16	0.16	0.18	0.22
Cu	ng/cm^2	0	82	525	1576	2485058	6	39	92	6	24	79	289	365	1236	2550	4802	6357	12268
Fe	ng/cm^2	0	82	1502	3091	9553396	6	38	800	259	445	606	1145	1444	2790	5526	9664	13013	24316
In	ng/cm^2	0	82	0.60	1.14	1.31	3.75	16.28	0.18	0.01	0.05	0.19	0.60	0.82	1.50	2.64	4.10	6.42	6.60
K	ng/cm^2	0	82	266	220	48474	6	49	234	101	187	215	284	296	344	488	669	952	2001
La	ng/cm^2	0	82	0.43	0.25	0.06	5.48	39.01	0.39	0.19	0.32	0.37	0.48	0.50	0.56	0.66	0.90	1.25	2.27
Li	ng/cm^2	0	82	0.53	0.35	0.12	5.58	39.18	0.48	0.27	0.37	0.44	0.57	0.58	0.70	0.89	1.32	1.72	3.14
Mg	ng/cm^2	0	82	173	215	46222	6	48	134	58	90	120	170	203	267	484	507	769	1860
Mn	ng/cm^2	0	82	11	18	310	6	42	8	2	4	6	13	14	24	32	45	67	146
Mo	ng/cm^2	0	82	1.9	5.0	25.4	5.1	28.3	0.6	0.1	0.2	0.4	1.0	1.8	4.3	6.0	19.6	25.7	35.4
Na	ng/cm^2	0	82	299	354	125099	7	53	244	126	178	213	277	322	466	658	896	1395	3140
Ni	ng/cm^2	0	82	15.30	33.08	1094.25	4.50	22.91	6.28	1.23	2.68	4.96	9.89	14.77	36.77	54.08	133.58	166.45	222.53
Pb	ng/cm^2	0	82	353	663	439619	3	11	91	3	21	103	338	453	956	1719	2806	3031	3603
Rb	ng/cm^2	0	82	1.2	0.6	0.4	4.5	29.5	1.1	0.6	0.9	1.1	1.4	1.5	1.7	1.8	2.5	3.0	5.4
S	ng/cm^2	0	82	508	1243	1545439	6	41	226	65	108	175	339	446	825	2390	3526	5131	9885
Sb	ng/cm^2	0	82	26.2	60.2	3620.3	4.2	20.2	4.8	0.2	1.0	4.9	22.2	36.3	65.0	121.0	215.1	302.0	391.8
Sr	ng/cm^2	0	82	4.2	6.9	48.0	5.6	37.0	2.7	0.9	1.6	2.3	3.9	4.3	8.6	10.5	22.7	31.1	55.0
Ti	ng/cm^2	0	82	49	69	4790	7	51	37	17	25	32	45	51	76	103	186	286	600
Tl	ng/cm^2	0	82	0.04	0.08	0.01	5.52	36.71	0.02	0.00	0.01	0.02	0.03	0.05	0.08	0.15	0.25	0.36	0.66
U	ng/cm^2	0	82	0.04	0.04	0.00	5.69	37.83	0.03	0.01	0.03	0.03	0.04	0.04	0.05	0.06	0.14	0.18	0.30
V	ng/cm^2	0	82	2.9	6.1	37.5	6.5	48.9	1.7	0.5	1.0	1.3	2.2	2.6	5.2	8.0	17.0	24.6	51.1
Y	ng/cm^2	0	82	0.27	0.21	0.05	5.71	41.70	0.24	0.08	0.18	0.22	0.31	0.31	0.40	0.51	0.62	0.92	1.89
Zn	ng/cm^2	0	82	224	612	374012	6	37	50	4	15	42	136	207	468	1104	1847	2464	4706

Quality Control Data

NOTE
control reference material was not available for these analyses.

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control Data for Snow Particulate (>0.45 µm)

Table C4: Quality control data (field duplicates).

Elements	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K	La	Li
Units	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**
DL	**0.001**	**0.04**	**0.004**	**0.02**	**0.0001**	**0.4**	**0.001**	**0.0002**	**0.001**	**0.02**	**0.0002**	**0.002**	**0.1**	**0.0002**	**0.6**	**0.0002**	**0.001**
RN98-SNOW-10	2.620	171.74	66.437	57.58	0.1096	52.8	0.871	0.1613	1.819	3.80	0.0089	358.846	791.4	0.5040	37.5	0.0767	0.068
RN98-SNOW-10 Dupl.	3.891	149.70	64.082	46.05	0.0804	54.1	0.557	0.1199	0.960	4.36	0.0069	263.328	632.3	0.3040	32.1	0.0615	0.066
abs difference [$x-x_{dup}$]	1.272	22.040	2.355	11.524	0.029	1.268	0.314	0.041	0.859	0.560	0.002	95.518	159.011	0.200	5.432	0.015	0.002
mean $(x+x_{dup})/2$	3.256	160.724	65.260	51.815	0.095	53.462	0.714	0.141	1.390	4.081	0.008	311.087	711.850	0.404	34.804	0.069	0.067
abs difference/mean	0.391	0.137	0.036	0.222	0.308	0.024	0.439	0.294	0.618	0.137	0.262	0.307	0.223	0.495	0.156	0.221	0.037
RN98-SNOW-20	0.031	50.09	0.248	0.63	0.0024	10.0	0.015	0.0423	0.021	0.23	0.0064	4.138	34.1	0.0034	13.8	0.0247	0.031
RN98-SNOW-20 Dupl.	0.011	22.23	0.193	0.29	0.0016	3.6	0.005	0.0149	0.010	0.36	0.0014	1.811	19.3	0.0019	5.2	0.0085	0.013
abs difference [$x-x_{dup}$]	0.020	27.862	0.055	0.340	0.001	6.413	0.010	0.027	0.011	0.131	0.005	2.327	14.795	0.001	8.649	0.016	0.019
mean $(x+x_{dup})/2$	0.021	36.157	0.221	0.460	0.002	6.840	0.010	0.029	0.016	0.292	0.004	2.975	26.666	0.003	9.508	0.017	0.022
abs difference/mean	0.947	0.771	0.248	0.740	0.415	0.938	0.989	0.957	0.733	0.449	1.289	0.782	0.555	0.577	0.910	0.976	0.851
RN98-SNOW-30	0.037	46.48	0.340	0.73	0.0014	7.5	0.020	0.0374	0.017	0.13	0.0052	2.959	28.8	0.0067	11.1	0.0232	0.025
RN98-SNOW-30 Dupl.	0.031	37.13	0.315	0.74	0.0018	7.8	0.009	0.0411	0.014	0.27	0.0038	2.264	27.4	0.0056	10.5	0.0226	0.019
abs difference [$x-x_{dup}$]	0.006	9.349	0.025	0.018	0.000	0.264	0.010	0.004	0.003	0.139	0.001	0.695	1.447	0.001	0.655	0.001	0.006
mean $(x+x_{dup})/2$	0.034	41.807	0.328	0.734	0.002	7.655	0.014	0.039	0.016	0.201	0.005	2.612	28.105	0.006	10.822	0.023	0.022
abs difference/mean	0.172	0.224	0.077	0.024	0.256	0.035	0.701	0.096	0.188	0.691	0.298	0.266	0.051	0.179	0.061	0.027	0.278
RN98-SNOW-40	0.010	45.01	0.120	0.42	0.0019	8.5	0.056	0.0424	0.012	0.12	0.0065	0.689	27.2	0.0018	13.2	0.0272	0.029
RN98-SNOW-40 Dupl.	0.029	52.03	0.256	0.82	0.0016	45.5	0.015	0.0499	0.021	0.35	0.0066	0.776	32.8	0.0030	20.0	0.0382	0.029
abs difference [$x-x_{dup}$]	0.019	7.016	0.136	0.402	0.000	36.928	0.040	0.008	0.009	0.236	0.000	0.087	5.530	0.001	6.730	0.011	0.001
mean $(x+x_{dup})/2$	0.019	48.520	0.188	0.621	0.002	27.009	0.036	0.046	0.016	0.237	0.007	0.732	29.992	0.002	16.602	0.033	0.029
abs difference/mean	0.975	0.145	0.725	0.647	0.151	1.367	1.128	0.163	0.553	0.995	0.013	0.119	0.184	0.477	0.405	0.337	0.032
RN98-SNOW-50	0.264	112.60	3.254	3.69	0.0079	11.6	0.112	0.0617	0.073	0.37	0.0065	12.078	140.7	0.0478	23.9	0.0341	0.045
RN98-SNOW-50 Dupl.	0.224	81.41	2.964	3.39	0.0053	11.2	0.093	0.0642	0.063	0.57	0.0051	8.380	118.0	0.0391	19.1	0.0299	0.045
abs difference [$x-x_{dup}$]	0.041	31.187	0.290	0.299	0.003	0.419	0.019	0.003	0.011	0.197	0.001	3.698	22.713	0.009	4.867	0.004	0.000
mean $(x+x_{dup})/2$	0.244	97.003	3.109	3.539	0.007	11.393	0.103	0.063	0.068	0.470	0.006	10.229	129.368	0.043	21.493	0.032	0.045
abs difference/mean	0.167	0.322	0.093	0.084	0.394	0.037	0.184	0.040	0.156	0.418	0.230	0.362	0.176	0.200	0.226	0.129	0.001

Table C4 continued

Elements	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K	La	Li
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.001	0.04	0.004	0.02	0.0001	0.4	0.001	0.0002	0.001	0.02	0.0002	0.002	0.1	0.0002	0.6	0.0002	0.001
RN98-SNOW-60	0.014	86.95	0.142	0.63	0.0025	10.3	0.023	0.0630	0.019	0.16	0.0116	0.861	41.7	0.0021	22.8	0.0330	0.048
RN98-SNOW-60 Dupl.	0.027	91.84	0.148	0.77	0.0026	19.3	0.008	0.0692	0.023	0.42	0.0093	0.741	55.2	0.0022	24.9	0.0310	0.050
abs difference [$x-x_{dup}$]	0.013	4.893	0.006	0.139	0.000	8.989	0.016	0.006	0.005	0.263	0.002	0.120	13.530	0.000	2.185	0.002	0.002
mean $(x+x_{dup})/2$	0.021	89.396	0.145	0.697	0.003	14.790	0.015	0.066	0.021	0.290	0.010	0.801	48.465	0.002	23.854	0.032	0.049
abs difference/mean	0.608	0.055	0.042	0.199	0.044	0.608	1.015	0.094	0.236	0.907	0.221	0.150	0.279	0.021	0.092	0.062	0.047
RN98-SNOW-70	0.115	54.33	0.681	1.44	0.0031	12.1	0.066	0.0325	0.029	0.22	0.0063	6.726	38.8	0.0137	14.4	0.0209	0.030
RN98-SNOW-70 Dupl.	0.129	66.72	0.876	2.38	0.0091	93.9	0.256	0.0471	0.050	0.42	0.0093	8.318	48.7	0.0201	24.3	0.0293	0.034
abs difference [$x-x_{dup}$]	0.014	12.390	0.195	0.946	0.006	81.861	0.190	0.015	0.021	0.202	0.003	1.592	9.938	0.006	9.948	0.008	0.005
mean $(x+x_{dup})/2$	0.122	60.524	0.778	1.909	0.006	53.015	0.161	0.040	0.039	0.320	0.008	7.522	43.752	0.017	19.337	0.025	0.032
abs difference/mean	0.118	0.205	0.250	0.496	0.977	1.544	1.182	0.367	0.533	0.631	0.384	0.212	0.227	0.376	0.514	0.334	0.140
RN98-SNOW-80	0.486	99.00	3.364	3.99	0.0116	16.9	0.097	0.0623	0.095	0.39	0.0080	26.373	94.3	0.0587	20.9	0.0373	0.045
RN98-SNOW-80 Dupl.	0.422	84.18	4.115	3.62	0.0132	20.7	0.076	0.0622	0.092	0.85	0.0073	27.244	95.0	0.0616	20.2	0.0339	0.038
abs difference [$x-x_{dup}$]	0.063	14.820	0.751	0.376	0.002	3.855	0.021	0.000	0.003	0.459	0.001	0.871	0.745	0.003	0.700	0.003	0.007
mean $(x+x_{dup})/2$	0.454	91.592	3.740	3.807	0.012	18.805	0.086	0.062	0.094	0.624	0.008	26.809	94.648	0.060	20.542	0.036	0.042
abs difference/mean	0.140	0.162	0.201	0.099	0.128	0.205	0.243	0.000	0.031	0.737	0.086	0.032	0.008	0.049	0.034	0.097	0.175

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Quality Control Data for Snow Particulate (>0.45 µm)

Table C4 continued

Elements	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.1	0.002	0.001	1	0.004	0.0002	0.001	1	0.0002	0.01	0.04	0.0001	0.0001	0.04	0.0002	0.01
RN98-SNOW-10	38.5	2.857	1.789	46	11.707	275.1820	0.152	198	29.9226	1.95	9.53	0.0224	0.0117	1.24	0.0527	148.05
RN98-SNOW-10 Dupl.	35.6	2.110	1.179	43	9.355	220.1764	0.113	164	28.1159	1.24	8.58	0.0166	0.0086	0.92	0.0427	106.65
abs difference [$x-x_{dup}$]	2.870	0.747	0.611	2.375	2.352	55.006	0.039	34.055	1.807	0.710	0.948	0.006	0.003	0.315	0.010	41.403
mean $(x+x_{dup})/2$	37.046	2.484	1.484	44.458	10.531	247.679	0.132	180.679	29.019	1.590	9.053	0.020	0.010	1.078	0.048	127.351
abs difference/mean	0.077	0.301	0.412	0.053	0.223	0.222	0.292	0.188	0.062	0.446	0.105	0.295	0.307	0.292	0.209	0.325
RN98-SNOW-20	6.7	0.318	0.021	14	0.193	1.2559	0.072	9	0.0793	0.12	2.00	0.0008	0.0018	0.07	0.0149	1.50
RN98-SNOW-20 Dupl.	2.3	0.129	0.015	6	0.115	0.5304	0.020	8	0.0509	0.04	1.70	0.0002	0.0009	0.04	0.0050	0.92
abs difference [$x-x_{dup}$]	4.392	0.189	0.006	7.751	0.078	0.726	0.052	0.780	0.028	0.073	0.297	0.001	0.001	0.027	0.010	0.583
mean $(x+x_{dup})/2$	4.521	0.223	0.018	10.019	0.154	0.893	0.046	8.673	0.065	0.079	1.849	0.001	0.001	0.058	0.010	1.207
abs difference/mean	0.971	0.845	0.337	0.774	0.507	0.812	1.131	0.090	0.436	0.923	0.161	1.255	0.650	0.456	1.002	0.483
RN98-SNOW-30	6.0	0.288	0.019	12	0.210	3.0252	0.062	9	0.1401	0.11	1.71	0.0006	0.0018	0.06	0.0134	1.81
RN98-SNOW-30 Dupl.	5.0	0.232	0.017	11	0.181	1.8930	0.045	10	0.2387	0.10	2.29	0.0007	0.0016	0.07	0.0119	1.44
abs difference [$x-x_{dup}$]	0.981	0.056	0.002	1.243	0.029	1.132	0.017	1.215	0.099	0.016	0.580	0.000	0.000	0.008	0.002	0.369
mean $(x+x_{dup})/2$	5.538	0.260	0.018	11.400	0.195	2.459	0.053	9.793	0.189	0.105	1.996	0.001	0.002	0.068	0.013	1.626
abs difference/mean	0.177	0.214	0.099	0.109	0.151	0.460	0.312	0.124	0.520	0.155	0.291	0.119	0.076	0.117	0.121	0.227
RN98-SNOW-40	6.3	0.285	0.012	12	0.115	0.7423	0.070	6	0.0306	0.10	1.76	0.0006	0.0018	0.07	0.0148	0.44
RN98-SNOW-40 Dupl.	9.4	1.191	0.016	12	0.288	1.3827	0.077	13	0.2269	0.19	2.55	0.0009	0.0024	0.08	0.0150	0.80
abs difference [$x-x_{dup}$]	3.141	0.905	0.003	0.033	0.173	0.640	0.007	6.787	0.196	0.097	0.784	0.000	0.001	0.012	0.000	0.367
mean $(x+x_{dup})/2$	7.853	0.738	0.014	11.984	0.202	1.062	0.074	9.669	0.129	0.146	2.153	0.001	0.002	0.079	0.015	0.621
abs difference/mean	0.400	1.226	0.244	0.003	0.857	0.603	0.091	0.702	1.525	0.662	0.364	0.330	0.253	0.154	0.010	0.590
RN98-SNOW-50	16.7	0.689	0.078	26	0.593	19.4723	0.101	71	1.5999	0.25	2.87	0.0069	0.0029	0.17	0.0202	20.59
RN98-SNOW-50 Dupl.	9.3	0.510	0.066	17	0.576	13.0351	0.074	59	1.8920	0.19	3.07	0.0049	0.0027	0.15	0.0144	15.93
abs difference [$x-x_{dup}$]	7.407	0.179	0.012	8.767	0.018	6.437	0.027	12.173	0.292	0.055	0.200	0.002	0.000	0.013	0.006	4.657
mean $(x+x_{dup})/2$	12.977	0.600	0.072	21.262	0.585	16.254	0.088	64.700	1.746	0.219	2.971	0.006	0.003	0.160	0.017	18.262
abs difference/mean	0.571	0.298	0.170	0.412	0.031	0.396	0.308	0.188	0.167	0.251	0.067	0.351	0.073	0.083	0.334	0.255

Table C4 continued

Elements	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.1	0.002	0.001	1	0.004	0.0002	0.001	1	0.0002	0.01	0.04	0.0001	0.0001	0.04	0.0002	0.01
RN98-SNOW-60	9.8	0.601	0.013	17	0.217	1.2647	0.126	6	0.0412	0.17	3.00	0.0011	0.0028	0.10	0.0248	0.54
RN98-SNOW-60 Dupl.	11.6	0.977	0.013	20	0.240	0.9601	0.112	8	0.1034	0.24	4.42	0.0011	0.0031	0.14	0.0182	0.69
abs difference [$x-x_{dup}$]	1.774	0.376	0.001	3.460	0.023	0.305	0.014	2.068	0.062	0.064	1.420	0.000	0.000	0.038	0.007	0.152
mean $(x+x_{dup})/2$	10.736	0.789	0.013	18.355	0.229	1.112	0.119	7.289	0.072	0.204	3.713	0.001	0.003	0.124	0.021	0.612
abs difference/mean	0.165	0.477	0.042	0.189	0.101	0.274	0.113	0.284	0.861	0.311	0.383	0.009	0.115	0.307	0.304	0.249
RN98-SNOW-70	7.5	1.217	0.024	13	0.362	9.7497	0.077	12	0.2771	0.16	1.99	0.0011	0.0018	0.09	0.0111	2.60
RN98-SNOW-70 Dupl.	28.4	18.548	0.040	14	0.534	12.1290	0.126	34	0.5690	0.74	2.79	0.0018	0.0025	0.11	0.0168	6.26
abs difference [$x-x_{dup}$]	20.962	17.331	0.015	0.613	0.172	2.379	0.049	21.863	0.292	0.585	0.802	0.001	0.001	0.021	0.006	3.661
mean $(x+x_{dup})/2$	17.960	9.883	0.032	13.604	0.448	10.939	0.102	22.864	0.423	0.450	2.393	0.001	0.002	0.101	0.014	4.426
abs difference/mean	1.167	1.754	0.471	0.045	0.383	0.217	0.481	0.956	0.690	1.301	0.335	0.456	0.310	0.213	0.408	0.827
RN98-SNOW-80	14.6	0.829	0.113	23	1.036	24.6035	0.103	21	1.6926	0.27	4.04	0.0025	0.0029	0.16	0.0220	9.91
RN98-SNOW-80 Dupl.	14.9	0.857	0.101	22	0.995	20.8558	0.094	22	1.6663	0.37	4.23	0.0024	0.0028	0.18	0.0232	10.77
abs difference [$x-x_{dup}$]	0.270	0.028	0.011	1.010	0.041	3.748	0.008	1.649	0.026	0.099	0.186	0.000	0.000	0.013	0.001	0.861
mean $(x+x_{dup})/2$	14.748	0.843	0.107	22.592	1.015	22.730	0.099	21.571	1.679	0.319	4.134	0.002	0.003	0.171	0.023	10.340
abs difference/mean	0.018	0.033	0.104	0.045	0.040	0.165	0.083	0.076	0.016	0.310	0.045	0.022	0.054	0.079	0.050	0.083

Table C5: Quality control data (lab and field blanks).

Element	Ag	Al[1]	As	Ba	Be	Ca	Cd[1]	Ce	Co	Cr	Cs	Cu[1]	Fe	In	K	La
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.001	0.04	0.004	0.02	0.0001	0.4	0.001	0.0002	0.001	0.02	0.0002	0.002	0.1	0.0002	0.6	0.0002
BLANK 1	<DL	0.33	<DL	<DL	<DL	0.6	0.002	<DL	<DL	0.17	<DL	0.005	<DL	<DL	0.7	<DL
BLANK 2	<DL	0.79	0.006	<DL	<DL	1.1	0.004	0.0003	<DL	0.23	<DL	0.025	0.1	<DL	0.7	<DL
BLANK 3	<DL	0.25	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.16	<DL	0.008	<DL	<DL	<DL	<DL
BLANK 4	<DL	0.55	0.008	<DL	<DL	0.8	0.018	0.0003	<DL	0.29	<DL	0.010	0.3	<DL	<DL	<DL
BLANK 5	<DL	0.53	0.004	<DL	<DL	0.9	0.002	<DL	<DL	0.24	<DL	0.002	<DL	<DL	<DL	<DL
BLANK 6	<DL	0.14	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.12	<DL	0.005	<DL	<DL	<DL	<DL
BLANK 7	<DL	0.22	0.004	<DL	<DL	<DL	<DL	<DL	<DL	0.13	<DL	0.004	<DL	<DL	<DL	<DL
BLANK 8	<DL	2.35	<DL	0.03	<DL	3.5	0.025	0.0007	0.001	0.33	0.0005	0.048	0.4	<DL	1.9	0.0010
BLANK dupl	<DL	0.47	<DL	<DL	<DL	0.8	<DL	<DL	<DL	0.17	<DL	0.011	0.2	<DL	<DL	<DL
n<DL	9	0	5.000	8	9	3	4	6	8	0	8	0	5.0	9	6.0	8
st dev		0.68	0.002			1.1	0.011	0.0003		0.07		0.015	0.1		0.7	
mean		0.62	0.006	0.03		1.3	0.010	0.0004	0.001	0.21	0.0005	0.013	0.3		1.1	0.0010
%RSD		108	29.532			85	107	63		35		112	45		60	

Element	Li	Mg	Mn[1]	Mo	Na	Ni	Pb[1]	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
DL	0.001	0.1	0.002	0.001	1	0.004	0.0002	0.001	1	0.0002	0.01	0.04	0.0001	0.0001	0.04	0.0002	0.01
BLANK 1	<DL	0.2	<DL	<DL	4	<DL	0.0053	<DL	3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 2	<DL	0.3	0.008	0.001	6	<DL	0.0469	<DL	4	<DL	<DL	0.06	<DL	<DL	<DL	<DL	0.02
BLANK 3	<DL	<DL	0.008	<DL	3	<DL	0.0143	<DL	3	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 4	<DL	0.2	0.008	0.001	5	<DL	0.0075	<DL	3	<DL	<DL	0.05	<DL	<DL	<DL	<DL	0.02
BLANK 5	<DL	0.2	0.007	<DL	2	<DL	0.0045	<DL	2	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL
BLANK 6	<DL	0.3	0.008	<DL	<DL	<DL	0.0065	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	<DL	0.01
BLANK 7	<DL	0.3	0.009	<DL	3	<DL	0.0049	<DL	2	<DL	<DL	0.06	<DL	<DL	<DL	<DL	<DL
BLANK 8	0.001	1.4	0.022	0.003	20	<DL	0.0889	0.002	12	<DL	0.01	0.22	<DL	0.0001	<DL	0.0002	0.07
BLANK dupl	<DL	0.3	0.006	<DL	4	<DL	0.0403	<DL	3	<DL	<DL	0.06	<DL	<DL	<DL	<DL	0.01
n<DL	9	1.0	1	7	1	9	0	8	1	9	8	4	9	8	9	8	3
st dev		0.4	0.005	0.001	6		0.0291		3			0.08					0.02
mean	0.001	0.4	0.009	0.002	6		0.0243	0.002	4		0.01	0.09		0.0001		0.0002	0.03
%RSD		101	54	53	98		120		79			85					87

NOTE[1]: maybe a problem with filter paper contamination, especially Al, Mn, Cu, Zn, Cd, and Pb.

APPENDIX D

Analytical Results

Combining Meltwater and Particulate Data

NOTE

These data are the only data used for all graphical analyses and interpretation. Also, these summaries show only the elements determined for both the <0.45 µm and >0.45 µm fractions. If one portion of the total is below analytical detection limit, it is denoted by asterisks.

Snow Chemistry (ng/cm^2)

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Snow Chemistry

Table D1: Data in units of ng/cm^2.

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K	La
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-01	19.61	1732	344	137	0.28	1231	11.3	1.38	3.98	22.2	**0.17	3341	2619	**1.96	**582	**0.65
RN98-SNOW-02	21.46	2868	788	237	**0.45	2358	26.7	2.07	9.63	41.0	**0.16	7930	**6377	**2.72	**773	0.87
RN98-SNOW-03	15.18	1572	953	378	**0.75	1511	18.4	1.24	4.36	20.3	**0.13	7861	3770	**1.75	**565	**0.44
RN98-SNOW-04	18.78	1234	631	171	0.35	1424	17.2	1.12	2.84	19.6	**0.17	5299	1674	**1.32	**454	**0.51
RN98-SNOW-05	21.31	1685	598	245	1.05	1415	12.3	1.40	6.74	24.1	**0.16	4186	3484	**1.48	**560	0.71
RN98-SNOW-06	13.79	2299	408	163	0.98	1501	8.9	1.52	3.49	19.4	**0.16	2646	**2684	**1.00	**644	0.69
RN98-SNOW-07	26.98	1141	451	319	0.34	820	11.2	0.80	4.49	17.7	**0.12	6159	2640	**1.41	**435	**0.40
RN98-SNOW-08	**89.14	11191	1797	1228	5.12	5925	74.8	8.06	33.07	73.6	**0.30	29862	24448	**6.45	**2235	2.84
RN98-SNOW-09	**46.06	3074	697	569	2.41	1826	13.7	2.99	20.64	28.7	**0.18	8128	**9275	**2.78	**939	**0.83
RN98-SNOW-10	37.94	2428	1532	838	1.92	1699	46.3	2.60	26.04	58.4	**0.20	12237	10453	**6.68	**725	1.32
RN98-SNOW-11	**0.47	533	4	14	**0.05	2963	**0.5	0.53	**0.54	**4.6	**0.14	25	360	**0.09	3670	0.35
RN98-SNOW-12	**0.50	645	5	13	**0.06	861	2.8	**0.58	**0.59	**4.3	**0.16	25	460	**0.10	**409	**0.42
RN98-SNOW-13	**0.46	578	5	11	**0.05	913	0.8	**0.47	**0.55	**5.7	**0.14	17	377	**0.09	**389	**0.36
RN98-SNOW-14	**0.48	690	6	12	**0.05	664	1.0	**0.61	**0.59	**4.0	**0.15	22	**427	**0.10	**432	**0.40
RN98-SNOW-15	**0.48	508	6	9	**0.05	587	**0.5	**0.48	**0.54	**2.9	**0.14	28	348	**0.10	**365	**0.33
RN98-SNOW-16	**0.50	**621	4	9	**0.06	1090	**0.5	**0.46	**0.54	**3.4	**0.16	23	**372	**0.10	721	**0.30
RN98-SNOW-17	**0.49	506	4	8	0.07	860	0.6	**0.44	**0.55	**2.7	**0.14	26	**298	**0.09	**368	**0.30
RN98-SNOW-18	**0.80	654	8	17	0.10	1604	2.5	0.57	**0.56	3.9	**0.15	36	391	**0.10	772	**0.31
RN98-SNOW-19	**0.65	528	10	13	0.11	659	0.9	**0.51	**0.59	**3.6	**0.14	80	385	**0.11	**368	**0.35
RN98-SNOW-20	**0.77	641	12	14	**0.07	652	1.3	**0.59	**0.65	**3.5	**0.16	102	495	**0.12	**401	**0.38
RN98-SNOW-21	**0.85	599	18	16	0.15	771	1.1	**0.55	**0.57	**4.8	**0.15	154	468	**0.13	**393	**0.37
RN98-SNOW-22	**0.93	530	23	17	**0.07	539	1.3	**0.51	**0.66	**3.2	**0.14	177	469	**0.15	**371	**0.36
RN98-SNOW-23	**1.04	809	37	21	**0.07	1369	1.3	0.68	**0.82	**3.7	**0.16	138	**581	**0.17	**438	**0.49
RN98-SNOW-24	**2.74	815	135	59	0.27	1007	3.3	**0.61	**1.15	7.6	**0.16	603	858	**0.35	**427	**0.42
RN98-SNOW-25	3.55	866	140	46	0.15	916	6.6	**0.62	**1.02	5.8	**0.15	801	887	**0.45	**415	**0.41
RN98-SNOW-26	**1.08	**471	18	13	0.06	338	1.1	**0.44	**0.64	**2.0	**0.13	111	384	**0.15	**335	**0.31
RN98-SNOW-27	7.94	1340	278	86	0.30	1394	8.5	**1.06	**1.69	12.7	**0.17	1777	1572	**0.74	1066	**0.62
RN98-SNOW-28	**2.19	1088	88	46	**0.09	1508	3.5	**0.87	**0.92	4.4	**0.19	353	847	**0.25	**488	**0.56
RN98-SNOW-29	**1.53	755	52	29	**0.11	1186	2.4	**0.67	**0.76	3.4	**0.16	349	625	**0.23	**395	**0.45
RN98-SNOW-30	**1.02	833	37	20	**0.06	1034	2.0	**0.71	**0.68	**3.0	**0.17	206	**524	**0.19	**422	**0.47
RN98-SNOW-31	**1.23	1856	60	42	**0.09	1629	3.7	**1.10	**1.00	5.1	**0.16	275	1091	**0.27	**651	0.62
RN98-SNOW-32	**2.22	927	85	50	**0.08	2689	5.2	0.77	**1.04	4.9	**0.15	547	725	**0.31	5178	0.47
RN98-SNOW-33	3.05	766	135	38	**0.09	1091	4.7	**0.63	**0.92	5.2	**0.15	718	711	**0.36	**392	**0.41
RN98-SNOW-34	29.23	1322	989	228	0.60	1286	20.9	1.06	6.25	22.2	**0.14	4275	3281	**2.67	**474	**0.59
RN98-SNOW-35	11.55	1036	368	155	0.28	1109	9.5	0.86	**1.92	12.4	**0.15	2977	1556	**0.90	**439	**0.44
RN98-SNOW-36	7.66	956	258	80	0.15	1085	8.4	0.87	**1.68	11.3	**0.16	1512	**956	**0.69	**435	**0.44
RN98-SNOW-37	**0.46	567	6	10	**0.06	933	**0.5	0.40	**0.52	**3.1	**0.15	15	**322	**0.09	**381	**0.26
RN98-SNOW-38	**0.50	808	11	12	**0.06	992	1.1	**0.64	**0.56	**3.3	**0.16	28	**416	**0.10	**426	**0.44
RN98-SNOW-39	**0.58	588	14	14	**0.05	1114	1.5	**0.60	**0.55	**2.1	**0.16	27	**378	**0.11	**413	**0.40
RN98-SNOW-40	**0.53	674	13	11	**0.07	959	**1.2	**0.68	**0.56	**2.5	**0.17	21	**427	**0.10	**423	**0.47

Table D1 continued

Sample	Ag	Al	As	Ba	Be	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	In	K	La
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-41	**0.86	859	23	20	**0.07	1049	1.2	**0.73	**0.69	**3.6	**0.17	48	**566	**0.14	958	**0.54
RN98-SNOW-42	**0.61	899	16	13	**0.06	831	1.0	**0.75	**0.60	**5.2	**0.18	36	**512	**0.12	**443	**0.48
RN98-SNOW-43	**0.61	710	14	16	**0.06	1121	0.9	**0.67	**0.57	**3.4	**0.16	50	**447	**0.12	**425	**0.45
RN98-SNOW-44	**0.65	727	11	14	**0.06	969	1.5	**0.62	**0.60	**2.8	**0.16	56	**484	**0.11	**421	**0.39
RN98-SNOW-45	**1.55	752	16	23	**0.06	2560	1.2	0.68	**0.64	**2.3	**0.18	59	**444	**0.13	7192	**0.39
RN98-SNOW-46	**0.97	795	22	23	**0.06	1861	3.2	0.69	**0.62	**2.3	**0.16	88	**484	**0.14	**425	**0.39
RN98-SNOW-47	**0.99	**761	25	16	**0.06	852	1.3	**0.76	**0.65	**3.7	**0.16	106	**553	**0.18	**447	**0.47
RN98-SNOW-48	**1.13	714	42	19	**0.05	931	2.3	**0.64	**0.67	3.8	**0.15	150	**552	**0.21	**421	**0.42
RN98-SNOW-49	**2.39	810	96	39	0.08	1229	4.0	**0.64	**1.02	4.3	**0.15	356	1008	**0.36	**429	**0.41
RN98-SNOW-50	3.74	1244	113	53	**0.12	1069	7.7	0.86	**1.16	6.4	**0.15	516	1583	**0.58	**484	0.48
RN98-SNOW-51	2.23	666	70	36	**0.19	1011	10.4	**0.58	**0.78	4.6	**0.15	437	582	**0.39	**377	**0.41
RN98-SNOW-52	7.37	1237	180	115	**0.20	1071	10.2	0.95	**2.06	8.7	**0.17	1203	1666	**1.03	**480	**0.54
RN98-SNOW-53	**6.48	3138	148	69	**0.23	2794	10.8	2.02	**1.97	9.0	**0.21	755	5760	**0.87	**881	**0.91
RN98-SNOW-54	**2.10	1015	56	30	**0.07	909	3.3	**0.79	**0.82	5.9	**0.16	310	**783	**0.31	**443	**0.51
RN98-SNOW-55	**1.50	717	54	20	**0.07	825	2.7	**0.63	**0.66	**4.5	**0.16	210	**512	**0.24	**399	**0.41
RN98-SNOW-56	**2.18	942	61	24	**0.08	1880	4.9	**0.64	1.20	5.3	**0.16	222	706	**0.28	773	**0.43
RN98-SNOW-57	**1.93	750	77	32	**0.07	814	3.7	**0.58	**0.81	5.0	**0.15	446	689	**0.36	**402	**0.39
RN98-SNOW-58	**1.38	700	43	23	**0.08	889	2.2	**0.68	**0.72	**5.0	**0.16	192	**642	**0.27	**452	**0.40
RN98-SNOW-59	**0.59	1137	11	20	**0.07	1261	1.6	1.05	**0.59	**4.7	**0.20	36	699	**0.10	**534	0.50
RN98-SNOW-60	**0.59	1257	13	18	**0.07	1543	1.4	1.05	**0.65	**3.0	**0.24	33	**624	**0.11	1072	**0.54
RN98-SNOW-61	**0.74	1336	14	16	**0.07	995	2.0	**1.02	**0.69	**3.4	**0.24	45	**643	**0.14	963	**0.59
RN98-SNOW-62	**0.63	851	13	12	**0.06	682	1.1	**0.74	**0.58	**1.8	**0.19	44	**404	**0.12	**429	**0.46
RN98-SNOW-63	**0.70	999	13	16	**0.06	775	1.3	**0.94	**0.69	**4.4	**0.22	48	**553	**0.14	**512	**0.57
RN98-SNOW-64	**0.86	1192	21	24	**0.07	1392	2.1	**0.97	**0.70	**4.6	**0.24	71	**665	**0.17	3570	**0.56
RN98-SNOW-65	**0.83	1100	36	20	0.31	1032	2.2	**1.05	**0.69	12.1	**0.24	69	999	**0.15	**518	**0.62
RN98-SNOW-66	**1.02	1142	46	22	0.33	1068	3.1	**0.97	**0.70	12.7	**0.24	95	1069	**0.18	794	**0.55
RN98-SNOW-67	**1.11	851	19	22	**0.07	727	1.3	**0.73	**0.74	**4.0	**0.19	102	554	**0.19	704	**0.46
RN98-SNOW-68	**1.80	1009	53	42	**0.09	2939	2.5	0.85	**0.82	**4.4	**0.22	197	669	**0.25	5663	**0.45
RN98-SNOW-69	**1.47	**821	29	20	**0.08	349	1.8	**0.67	**0.72	**3.7	**0.18	113	**532	**0.26	**443	**0.42
RN98-SNOW-70	**2.06	827	60	31	**0.08	1895	6.0	0.70	**0.81	4.8	**0.17	245	650	**0.28	3494	**0.38
RN98-SNOW-71	2.83	1375	80	43	**0.14	921	4.8	**0.93	**1.03	4.9	**0.19	419	923	**0.47	**505	**0.51
RN98-SNOW-72	3.19	847	85	42	**0.11	769	5.6	**0.77	**1.04	5.0	**0.17	475	780	**0.48	**429	**0.45
RN98-SNOW-73	**4.60	1138	168	69	**0.16	6740	10.7	0.83	**1.34	7.5	**0.17	805	1075	**0.60	7905	**0.51
RN98-SNOW-74	4.93	941	143	48	**0.14	1930	6.8	**0.74	**1.22	8.2	**0.18	872	947	**0.64	712	**0.46
RN98-SNOW-75	**2.45	1115	81	46	**0.11	4128	6.4	0.81	**1.01	5.1	**0.17	537	854	**0.38	1416	0.45
RN98-SNOW-76	**2.25	1464	51	32	**0.09	986	2.7	1.10	**1.08	7.2	**0.18	351	1081	**0.28	**511	**0.57
RN98-SNOW-77	**2.23	1192	73	37	**0.10	1286	5.3	**0.91	**1.02	7.2	**0.18	450	**844	**0.38	890	**0.58
RN98-SNOW-78	7.96	1067	213	59	**0.16	1198	7.8	1.00	**1.96	13.3	**0.17	1228	1330	**0.82	806	**0.46
RN98-SNOW-79	12.69	1507	331	106	**0.27	1077	13.3	1.12	**2.56	14.8	**0.18	2422	1952	**1.58	**531	**0.58
RN98-SNOW-80	8.01	1440	189	75	**0.20	1140	10.1	1.04	**1.72	9.1	**0.19	1391	1473	**0.90	**526	**0.60
RN98-SNOW-81	11.34	1303	376	94	**0.30	1359	18.5	**0.85	**2.45	13.6	**0.17	1771	1677	**1.23	**507	**0.44
RN98-SNOW-82	29.14	1492	666	193	**0.86	1191	24.8	1.43	5.90	26.1	**0.19	3789	2974	**2.77	**561	**0.73

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Snow Chemistry

Table D1 continued

Sample	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-01	**0.68	376	30	4.67	1828	47.9	3418	**1.9	**1816	97.4	**9.9	**92	0.36	**0.09	5.7	**0.51	870
RN98-SNOW-02	1.18	758	54	8.90	12912	82.5	7746	**2.0	7678	176.1	21.9	**186	0.84	**0.11	11.9	**0.66	2962
RN98-SNOW-03	**0.66	356	32	5.46	2525	74.0	3513	2.3	**2649	66.7	**13.4	**113	0.48	**0.08	11.7	**0.32	1430
RN98-SNOW-04	0.78	349	27	4.18	2393	46.8	3983	2.1	6280	66.6	**8.8	**61	0.43	**0.08	8.7	**0.35	1145
RN98-SNOW-05	0.79	479	37	5.70	5104	68.5	3061	2.0	2511	105.9	**13.5	**91	0.41	**0.09	9.0	**0.48	1289
RN98-SNOW-06	0.93	627	45	**2.83	5051	35.0	2160	**2.1	3204	60.8	**14.4	**119	0.25	**0.09	7.7	**0.56	851
RN98-SNOW-07	0.49	315	24	5.22	2774	59.2	2596	**1.2	2908	79.5	**12.8	**70	0.30	**0.08	7.2	**0.33	955
RN98-SNOW-08	3.90	2493	221	39.37	23498	338.6	6366	6.7	22272	316.8	74.4	**616	1.88	**0.34	61.3	2.22	7129
RN98-SNOW-09	1.54	613	70	18.54	3327	145.5	3178	**2.8	**3609	136.2	27.0	**228	0.41	**0.18	21.7	**0.59	1796
RN98-SNOW-10	1.26	787	59	24.87	4960	197.5	9806	2.7	10813	469.9	**29.4	**140	1.22	**0.19	21.0	0.86	4071
RN98-SNOW-11	0.39	1540	53	**0.53	**528	**4.1	30	5.1	**1272	0.8	9.3	**33	**0.04	**0.06	2.1	**0.16	31
RN98-SNOW-12	0.47	183	36	**0.60	**545	**4.7	29	**1.3	**1257	0.7	**5.1	**38	**0.05	**0.06	**1.7	**0.24	38
RN98-SNOW-13	0.43	233	96	**0.55	**539	**4.2	21	**1.2	2556	0.5	**4.9	**35	**0.04	**0.06	**1.4	**0.21	42
RN98-SNOW-14	0.45	174	15	**0.57	**554	**4.2	25	**1.3	**1266	0.5	**5.2	**40	**0.05	**0.06	**1.7	**0.25	40
RN98-SNOW-15	0.36	124	11	**0.54	**536	**3.9	27	**1.1	**1236	0.5	**4.8	**33	**0.04	**0.06	2.0	**0.21	34
RN98-SNOW-16	**0.43	246	24	**0.57	**537	**3.3	18	1.8	**1254	0.4	**5.1	**37	**0.05	**0.06	**1.5	**0.20	22
RN98-SNOW-17	**0.34	196	10	**0.51	**517	**3.3	17	1.4	**1238	0.5	**4.9	**32	**0.04	**0.05	**1.3	**0.20	24
RN98-SNOW-18	**0.43	537	53	**0.60	**549	7.6	28	1.5	**1275	1.2	**5.3	**38	**0.05	**0.06	**1.6	**0.21	44
RN98-SNOW-19	0.39	149	17	**0.61	**538	**4.5	47	**1.1	3146	1.4	**5.0	**35	**0.05	**0.06	2.0	**0.22	67
RN98-SNOW-20	**0.42	148	16	**0.64	**559	**3.9	62	**1.3	1980	1.6	**5.3	**40	**0.05	**0.06	2.2	**0.26	58
RN98-SNOW-21	0.55	161	19	**0.67	**546	**3.7	95	**1.2	3539	2.9	**5.1	**37	**0.05	**0.06	**1.6	**0.23	81
RN98-SNOW-22	0.40	133	13	**0.68	**535	**4.5	124	**1.1	2718	3.4	**5.0	**35	**0.05	**0.06	2.2	**0.22	80
RN98-SNOW-23	0.48	619	28	**0.69	**614	**6.8	167	2.5	**1279	5.3	**5.9	**47	**0.05	**0.06	2.9	**0.25	86
RN98-SNOW-24	0.52	272	34	**1.17	**589	11.7	674	**1.4	3909	15.1	**6.4	**45	0.11	**0.06	3.5	**0.26	261
RN98-SNOW-25	0.57	263	30	**1.21	1280	11.5	1014	1.9	3588	18.3	**6.1	**47	0.16	**0.07	3.4	**0.29	331
RN98-SNOW-26	0.33	103	12	**0.68	**525	**3.9	105	**1.0	**1267	3.2	**4.9	**33	**0.04	**0.05	**1.4	**0.22	46
RN98-SNOW-27	0.77	427	57	**2.01	2011	**14.9	1688	3.3	5515	51.9	**8.0	**66	0.24	**0.07	4.8	**0.39	575
RN98-SNOW-28	0.73	266	24	**0.91	**625	**7.0	410	**1.7	4904	10.4	**6.5	**54	**0.06	**0.08	3.5	**0.38	169
RN98-SNOW-29	0.53	247	38	**0.85	**569	**5.5	282	**1.4	4202	6.3	**5.7	**43	0.09	**0.07	2.7	**0.30	165
RN98-SNOW-30	**0.46	199	19	**0.70	**593	**5.1	199	**1.4	5391	4.1	**5.8	**44	**0.05	**0.07	**1.9	**0.30	100
RN98-SNOW-31	0.78	398	33	**0.86	**961	10.9	399	2.4	5037	8.2	**12.5	**88	0.10	**0.07	4.3	**0.47	245
RN98-SNOW-32	0.77	1421	213	**0.95	**627	16.3	546	9.6	6295	11.3	14.4	**46	0.12	**0.07	**2.0	**0.26	233
RN98-SNOW-33	0.50	279	59	**1.00	**585	9.0	661	1.5	2947	13.3	**6.0	**40	0.09	**0.06	2.7	**0.28	252
RN98-SNOW-34	0.65	376	35	6.95	2819	63.2	6744	1.8	6757	216.1	**11.6	**74	0.69	**0.09	8.5	**0.40	1674
RN98-SNOW-35	0.53	260	22	3.10	1372	29.7	1897	**1.4	5464	49.2	**8.3	**56	0.26	**0.07	8.2	**0.34	605
RN98-SNOW-36	0.49	216	19	1.89	939	16.6	1709	**1.4	3759	33.7	**6.4	**47	0.18	**0.07	3.6	**0.29	492
RN98-SNOW-37	**0.39	230	38	**0.52	**538	**2.8	25	**1.2	2759	0.6	**5.0	**36	**0.05	**0.06	1.5	**0.19	34
RN98-SNOW-38	**0.45	175	19	**0.57	**569	**3.6	50	**1.3	5821	1.3	**5.2	**42	**0.05	**0.07	**1.8	**0.28	35
RN98-SNOW-39	**0.40	211	38	**0.56	**557	**3.2	51	2.0	7005	1.4	**5.1	**39	**0.05	**0.06	2.7	**0.25	46
RN98-SNOW-40	**0.45	172	20	**0.57	**562	**3.2	36	**1.4	4141	0.9	**5.3	**41	**0.05	**0.07	2.7	**0.29	34

Table D1 continued

Sample	Li	Mg	Mn	Mo	Na	Ni	Pb	Rb	S	Sb	Sr	Ti	Tl	U	V	Y	Zn
Units	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2	ng/cm^2
RN98-SNOW-41	**0.49	306	254	**0.73	**603	**5.6	106	3.1	4922	2.7	**6.0	**48	0.05	**0.08	2.6	**0.29	58
RN98-SNOW-42	0.50	**140	18	**0.60	**585	**3.9	59	**1.5	5421	1.8	**5.5	**44	**0.05	**0.07	1.9	**0.33	38
RN98-SNOW-43	0.51	191	20	**0.60	**559	**3.7	64	**1.3	4341	2.1	**5.3	**40	**0.05	**0.06	1.8	**0.29	45
RN98-SNOW-44	0.44	200	22	**0.57	**585	**3.5	69	**1.3	4007	1.8	**5.5	**43	**0.05	**0.06	1.8	**0.26	41
RN98-SNOW-45	0.46	1020	333	**0.62	**559	**4.2	90	9.0	5272	3.3	12.5	**38	**0.05	**0.07	1.7	**0.22	53
RN98-SNOW-46	0.48	305	177	**0.62	**588	**3.8	134	**1.4	4984	4.1	**6.1	**42	**0.05	**0.07	1.9	**0.27	89
RN98-SNOW-47	0.63	**154	15	**0.64	**596	**4.1	152	**1.4	3725	5.0	**5.8	**46	**0.05	**0.07	2.0	**0.32	65
RN98-SNOW-48	0.41	183	13	**0.64	**588	**4.3	240	**1.3	3150	7.2	**5.7	**43	**0.05	**0.07	1.8	**0.28	111
RN98-SNOW-49	0.56	276	41	**0.90	**591	**6.6	547	2.6	3599	16.6	**6.0	**43	0.11	**0.07	2.6	0.24	259
RN98-SNOW-50	0.61	270	24	**1.21	809	9.5	1227	**1.4	5436	23.3	**6.5	**46	0.18	**0.07	3.3	0.29	501
RN98-SNOW-51	0.51	189	19	**0.83	**561	9.7	795	**1.2	4756	10.2	**5.6	**40	0.12	**0.06	2.6	0.25	266
RN98-SNOW-52	**0.60	298	23	2.45	1108	22.2	2023	**1.6	4882	53.0	**8.1	**58	0.26	**0.08	4.0	0.39	588
RN98-SNOW-53	1.38	882	138	**1.47	1352	14.1	1174	3.9	8625	33.9	**10.9	**93	0.35	**0.10	6.2	0.64	1381
RN98-SNOW-54	0.58	220	21	**0.84	**629	**6.3	431	1.7	4173	9.6	**6.4	**50	**0.06	**0.07	2.6	0.34	166
RN98-SNOW-55	**0.41	159	15	**0.65	**574	**4.8	375	**1.3	1332	9.2	**5.5	**41	**0.05	**0.06	1.9	**0.28	122
RN98-SNOW-56	**0.45	371	20	**0.81	**634	6.5	449	2.5	4652	8.7	**6.5	**48	**0.06	**0.07	2.0	**0.30	169
RN98-SNOW-57	0.56	183	15	**1.07	**587	7.9	718	**1.2	4848	12.9	**5.9	**41	0.10	**0.06	2.7	0.25	222
RN98-SNOW-58	**0.34	171	20	**0.83	**583	**5.6	329	**1.3	3638	7.4	**5.6	**47	**0.05	**0.07	2.1	**0.26	125
RN98-SNOW-59	**0.62	434	342	**0.64	**630	**3.7	56	2.8	3843	1.5	**6.2	**56	**0.05	**0.07	2.4	**0.38	53
RN98-SNOW-60	**0.71	399	88	**0.57	**624	**4.6	64	2.8	4677	1.7	**6.3	**58	**0.05	**0.08	2.3	**0.43	39
RN98-SNOW-61	**0.71	237	25	**0.64	**615	**5.5	82	2.9	5417	2.0	**6.2	**59	**0.06	**0.08	2.3	**0.42	60
RN98-SNOW-62	0.56	152	16	**0.58	**547	**4.3	71	**1.6	4787	1.5	**5.2	**40	**0.05	**0.07	2.3	0.34	41
RN98-SNOW-63	**0.62	190	24	**0.58	**577	**5.0	89	**1.9	4323	1.8	**5.7	**49	**0.05	**0.07	1.9	**0.39	50
RN98-SNOW-64	0.89	394	129	**0.71	**630	**5.7	132	13.3	4390	3.2	**6.6	**57	**0.05	**0.08	2.3	**0.39	76
RN98-SNOW-65	1.27	233	25	**0.67	**629	7.0	108	2.6	3391	2.4	**6.6	**53	**0.06	**0.08	5.0	0.45	113
RN98-SNOW-66	1.26	251	43	**0.69	**623	7.4	165	2.7	5356	3.5	**6.3	**53	0.10	**0.08	5.0	0.39	89
RN98-SNOW-67	0.54	218	38	**0.69	**575	**6.6	148	2.5	3915	3.3	**5.9	**42	**0.05	**0.07	1.9	**0.30	62
RN98-SNOW-68	**0.61	822	1079	**0.82	**596	**7.4	378	7.6	6400	7.7	20.6	**48	**0.06	**0.08	2.1	**0.31	141
RN98-SNOW-69	0.54	**135	8	**0.77	**578	6.0	153	**1.5	1573	4.1	**5.7	**43	**0.05	**0.07	2.0	**0.31	61
RN98-SNOW-70	0.69	719	581	**0.75	**584	**6.8	364	9.6	3393	9.0	**6.2	**44	0.17	**0.07	2.1	**0.24	158
RN98-SNOW-71	0.65	270	24	**0.94	959	10.7	555	2.3	3708	11.5	**7.8	**62	0.11	**0.07	3.2	0.38	180
RN98-SNOW-72	0.55	192	17	**1.09	**593	10.3	850	**1.5	3305	15.5	**6.1	**44	0.13	**0.06	3.1	0.30	237
RN98-SNOW-73	0.73	1776	202	**1.28	1308	15.1	1271	28.8	7471	31.4	56.0	**63	0.18	**0.07	3.9	0.29	454
RN98-SNOW-74	0.63	386	101	**1.22	**620	13.8	1217	7.0	4552	21.6	9.9	**54	0.23	**0.07	3.6	0.29	368
RN98-SNOW-75	0.68	771	46	**0.97	1016	11.9	814	3.3	6286	14.0	21.0	**48	0.16	**0.07	3.2	0.31	313
RN98-SNOW-76	0.71	320	25	**1.18	2828	9.5	375	**1.8	2336	10.7	**7.8	**72	0.10	**0.07	3.7	0.39	168
RN98-SNOW-77	0.72	310	23	**1.11	**668	10.3	638	3.1	6013	12.0	**6.8	**56	0.13	**0.08	3.7	0.35	252
RN98-SNOW-78	0.53	401	33	**2.18	1303	20.3	1443	3.6	4101	48.9	**7.1	**61	0.20	**0.07	3.6	0.31	508
RN98-SNOW-79	0.65	342	26	3.35	1361	28.9	2742	**1.8	3636	59.1	**8.9	**77	0.41	**0.08	5.2	0.42	809
RN98-SNOW-80	**0.67	425	54	2.30	1323	20.4	1658	2.6	3191	35.0	**7.7	**72	0.26	**0.08	4.3	0.39	461
RN98-SNOW-81	0.67	309	25	3.38	1462	29.3	2452	2.0	5560	67.9	**7.7	**67	0.48	**0.08	4.8	0.29	787
RN98-SNOW-82	**0.74	403	29	5.57	2070	52.1	5282	**2.0	6728	145.8	**12.3	**92	0.67	**0.09	6.6	0.53	1443

Summary Statistics

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Summary Statistics for Snow Chemistry

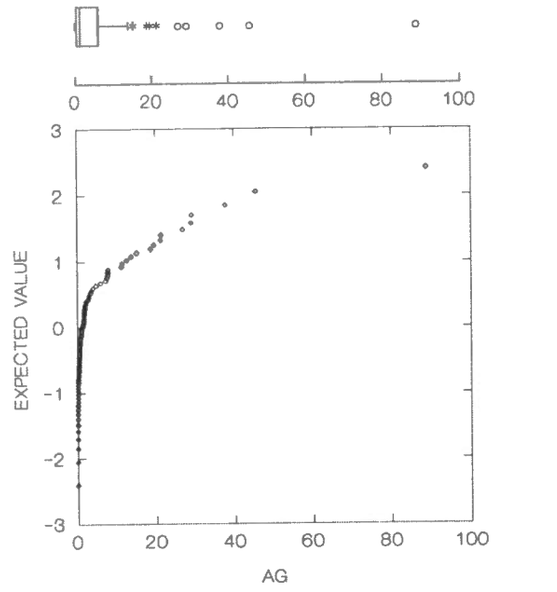
Table D2: Summary statistics.

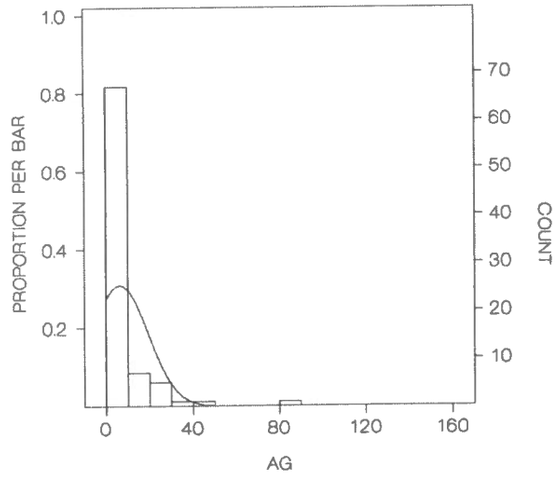
										PERCENTILES								
Element	**Units**	**n**	**Mean**	**St. Dev.**	**Variance**	**Skew**	**Kurt**	**Geomean**	**Min**	**25th**	**50th**	**75th**	**80th**	**90th**	**95th**	**98th**	**99th**	**Max**
Ag	ng/cm^2	82	6.57	12.88	165.93	4.09	21.41	2.28	0.46	0.77	1.67	6.09	7.96	19.53	29.03	41.03	54.24	89.14
Al	ng/cm^2	82	1190	1242	1543404	7	53	997	471	719	913	1242	1333	1673	2422	3098	4668	11191
As	ng/cm^2	82	181	323	104239	3	11	56	4	14	54	163	249	583	783	1196	1582	1797
Ba	ng/cm^2	82	86	179	31874	5	24	38	8	16	29	66	85	191	315	671	912	1228
Be	ng/cm^2	82	0.28	0.66	0.43	5.76	38.55	0.13	0.05	0.07	0.09	0.20	0.28	0.44	0.98	2.10	2.92	5.12
Ca	ng/cm^2	82	1385	1010	1020108	3	14	1189	338	910	1088	1481	1592	2315	2931	4811	6080	6740
Cd	ng/cm^2	82	6.8	10.5	110.9	4.2	23.1	3.5	0.5	1.3	3.1	8.5	10.1	13.7	20.8	34.1	51.7	74.8
Ce	ng/cm^2	82	0.96	0.90	0.82	6.34	47.81	0.83	0.40	0.63	0.75	1.01	1.05	1.36	2.00	2.75	3.95	8.06
Co	ng/cm^2	82	2.34	5.11	26.06	4.64	22.80	1.15	0.52	0.64	0.81	1.60	1.95	4.33	6.71	22.69	27.38	33.07
Cr	ng/cm^2	82	9.2	11.6	134.1	3.5	15.0	6.2	1.8	3.6	4.9	9.1	12.6	20.2	26.0	47.6	61.3	73.6
Cs	ng/cm^2	82	0.17	0.03	0.00	1.79	4.47	0.17	0.12	0.15	0.16	0.18	0.19	0.21	0.24	0.24	0.26	0.30
Cu	ng/cm^2	82	1512	3871	14986679	5	36	279	15	57	233	856	1488	4146	7776	9689	15586	29862
Fe	ng/cm^2	82	1590	3097	9590606	6	38	897	298	487	694	1271	1581	2945	5660	9723	13112	24448
In	ng/cm^2	82	0.68	1.14	1.31	3.75	16.28	0.33	0.09	0.13	0.26	0.68	0.89	1.57	2.72	4.18	6.50	6.68
K	ng/cm^2	82	971	1426	2034601	3	12	642	335	423	482	761	803	1382	3665	6244	7327	7905
La	ng/cm^2	82	0.52	0.30	0.09	6.02	44.32	0.48	0.26	0.41	0.46	0.56	0.58	0.65	0.82	1.06	1.61	2.84
Li	ng/cm^2	82	0.66	0.43	0.19	5.51	38.91	0.60	0.33	0.46	0.56	0.70	0.73	0.88	1.26	1.44	1.99	3.90
Mg	ng/cm^2	82	399	385	148216	3	13	309	103	191	271	400	432	770	1013	1630	1912	2493
Mn	ng/cm^2	82	72	144	20597	5	32	37	8	20	28	53	59	173	252	433	676	1079
Mo	ng/cm^2	82	2.45	5.46	29.77	5.14	29.59	1.18	0.51	0.63	0.82	1.42	2.28	5.17	6.89	20.94	27.62	39.37
Na	ng/cm^2	82	1488	2962	8770675	6	40	900	517	569	609	1297	1359	2749	4879	8071	14924	23498
Ni	ng/cm^2	82	22.0	46.6	2171.7	4.9	28.7	9.8	2.8	4.3	6.9	15.1	20.3	51.7	73.7	165.3	224.3	338.6
Pb	ng/cm^2	82	1135	1861	3463399	3	8	333	17	84	375	1260	1705	3166	5217	7125	8137	9806
Rb	ng/cm^2	82	2.9	3.6	13.3	5.1	32.6	2.1	1.0	1.4	1.8	2.7	2.8	5.0	9.0	11.0	16.3	28.8
S	ng/cm^2	82	4349	2734	7475562	4	22	3746	1236	2997	4054	5382	5458	6389	7448	9457	12990	22272
Sb	ng/cm^2	82	33.8	71.3	5085.1	4.1	19.7	8.3	0.4	2.0	8.4	33.1	49.1	78.3	145.3	254.4	345.9	469.9
Sr	ng/cm^2	82	9.6	10.2	103.5	4.6	24.9	7.7	4.8	5.5	6.3	8.9	10.7	14.3	21.8	39.5	59.5	74.4
Ti	ng/cm^2	82	64.1	69.2	4789.7	6.7	51.2	54.0	32.5	40.6	47.1	60.8	66.9	91.6	118.4	201.7	301.4	616.0
Tl	ng/cm^2	82	0.19	0.28	0.08	3.89	18.97	0.11	0.04	0.05	0.06	0.20	0.25	0.41	0.67	0.99	1.35	1.88
U	ng/cm^2	82	0.08	0.04	0.00	5.69	37.83	0.07	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.18	0.22	0.34
V	ng/cm^2	82	4.6	7.3	53.1	6.3	46.6	3.2	1.3	2.0	2.7	4.2	4.9	8.2	11.6	21.3	29.2	61.3
Y	ng/cm^2	82	0.35	0.24	0.06	6.17	46.69	0.32	0.16	0.26	0.30	0.39	0.39	0.48	0.59	0.74	1.12	2.22
Zn	ng/cm^2	82	484	989	977581	5	27	175	22	54	162	484	585	1274	1662	3383	4652	7129

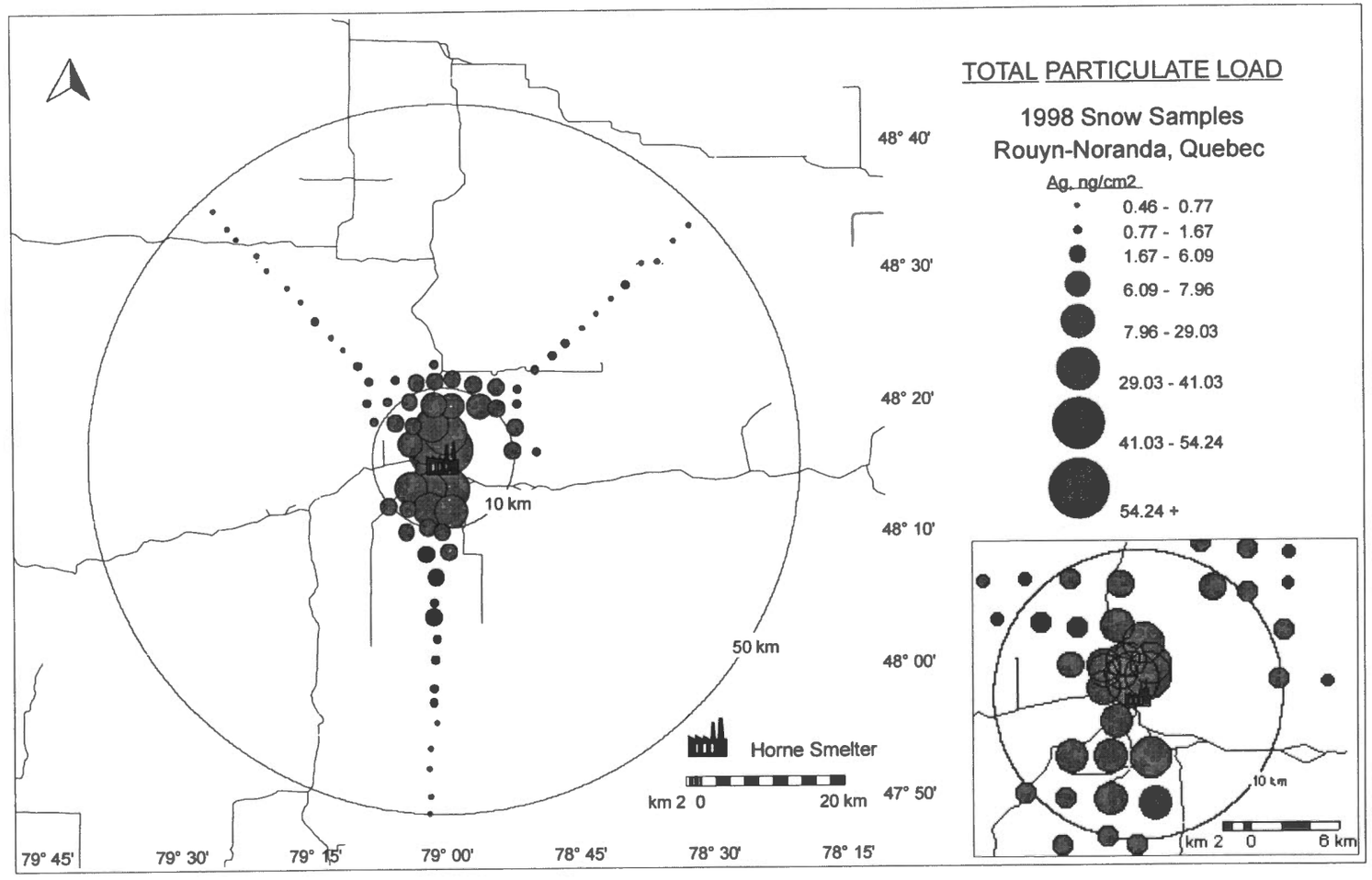
APPENDIX E

Statistical Graphics

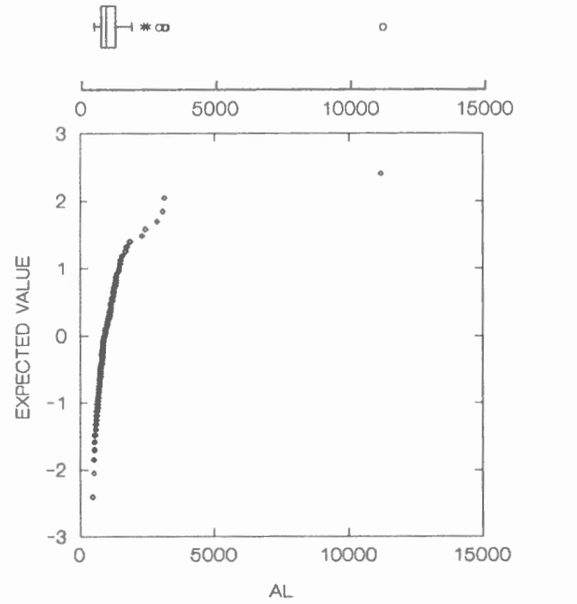
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

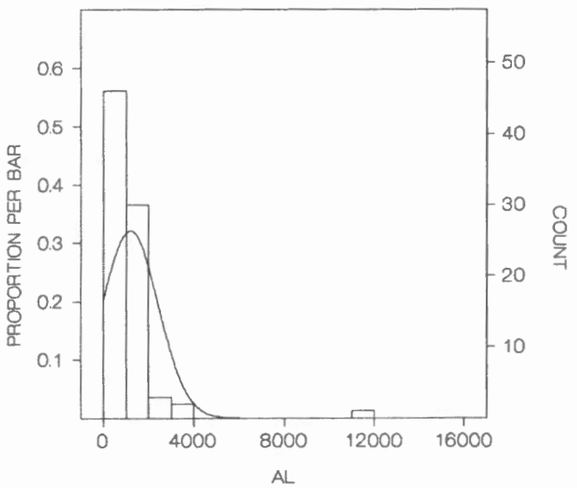


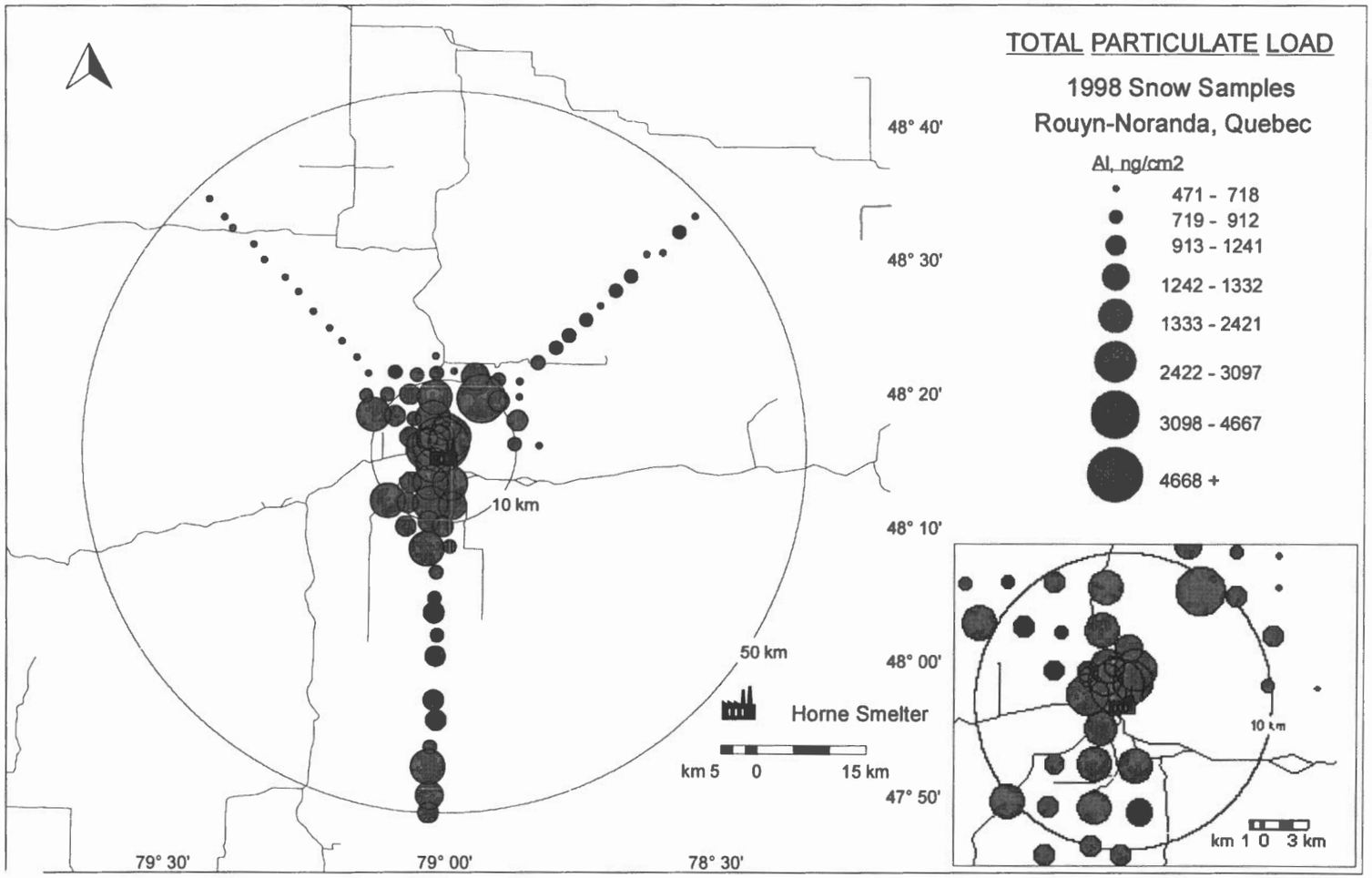




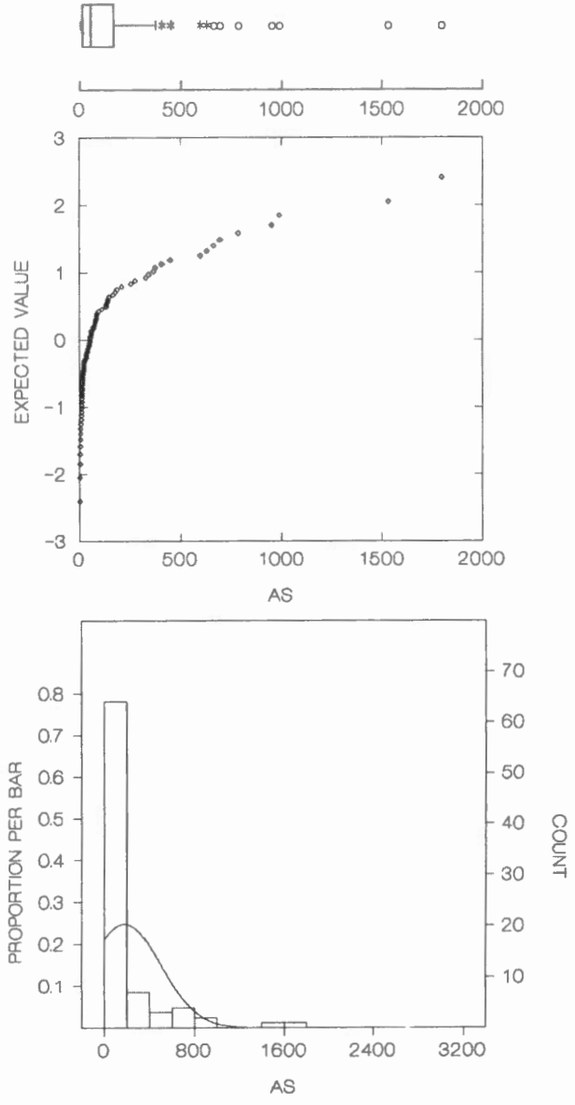
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

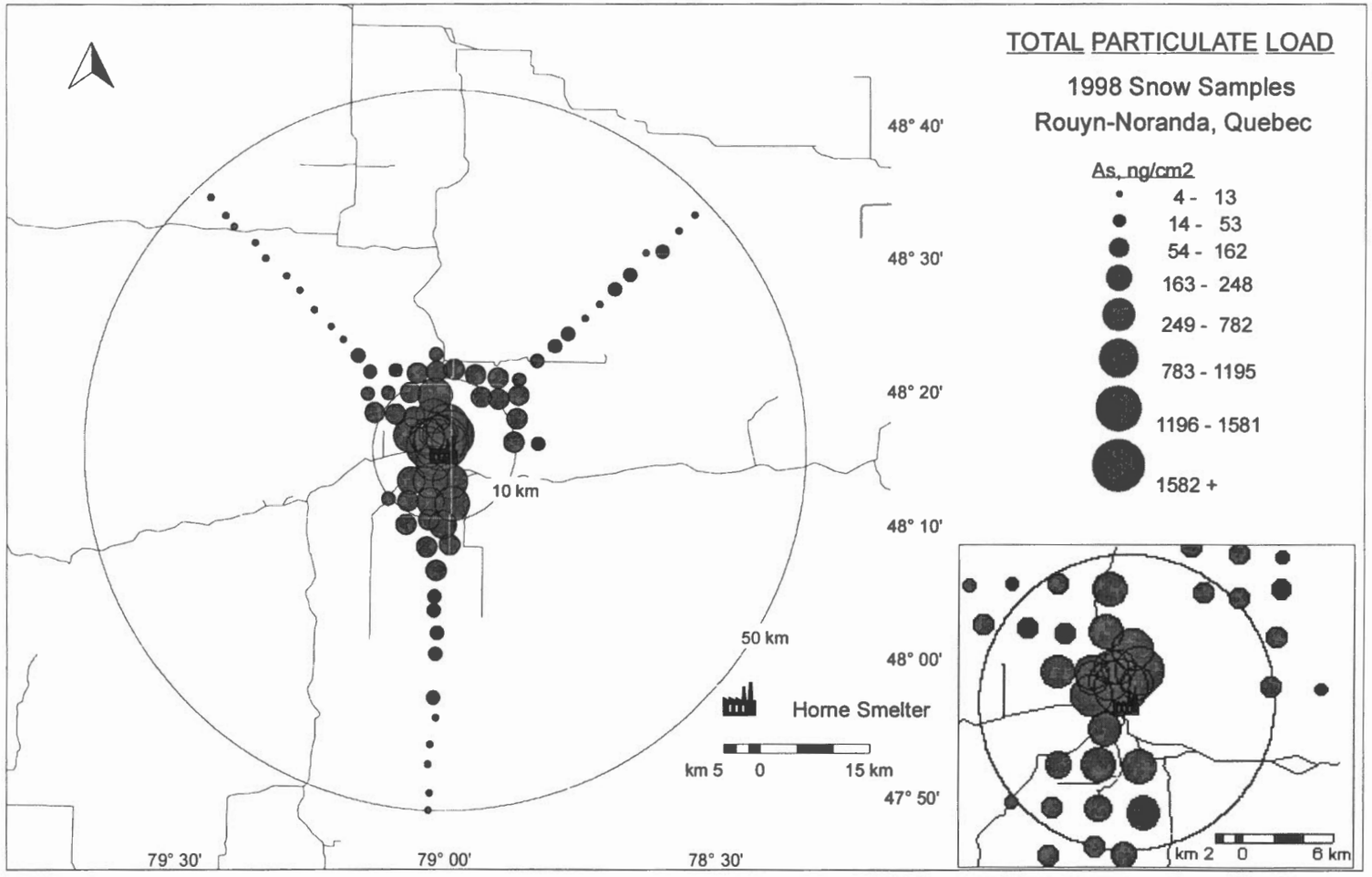




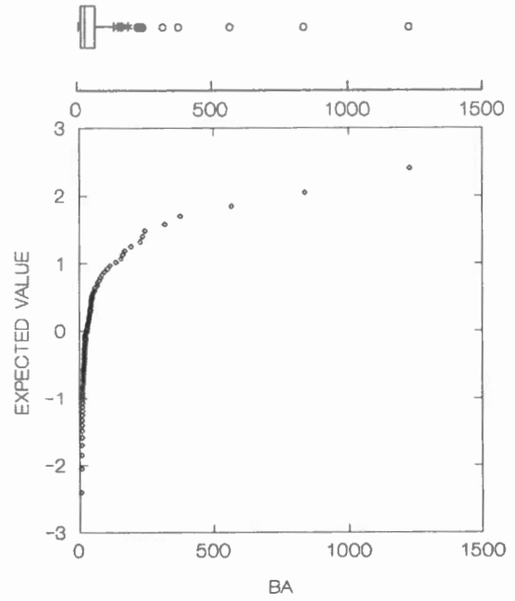


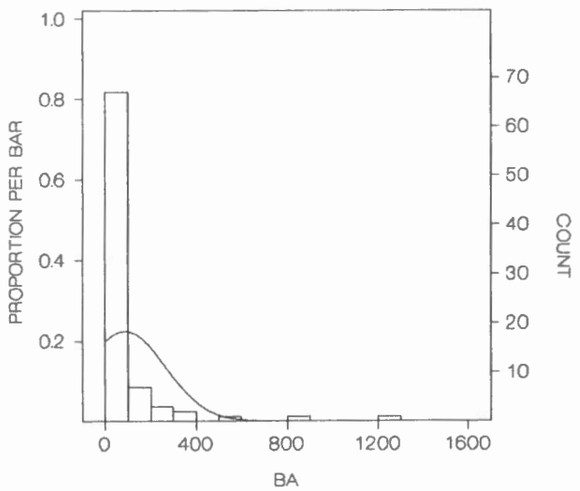
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

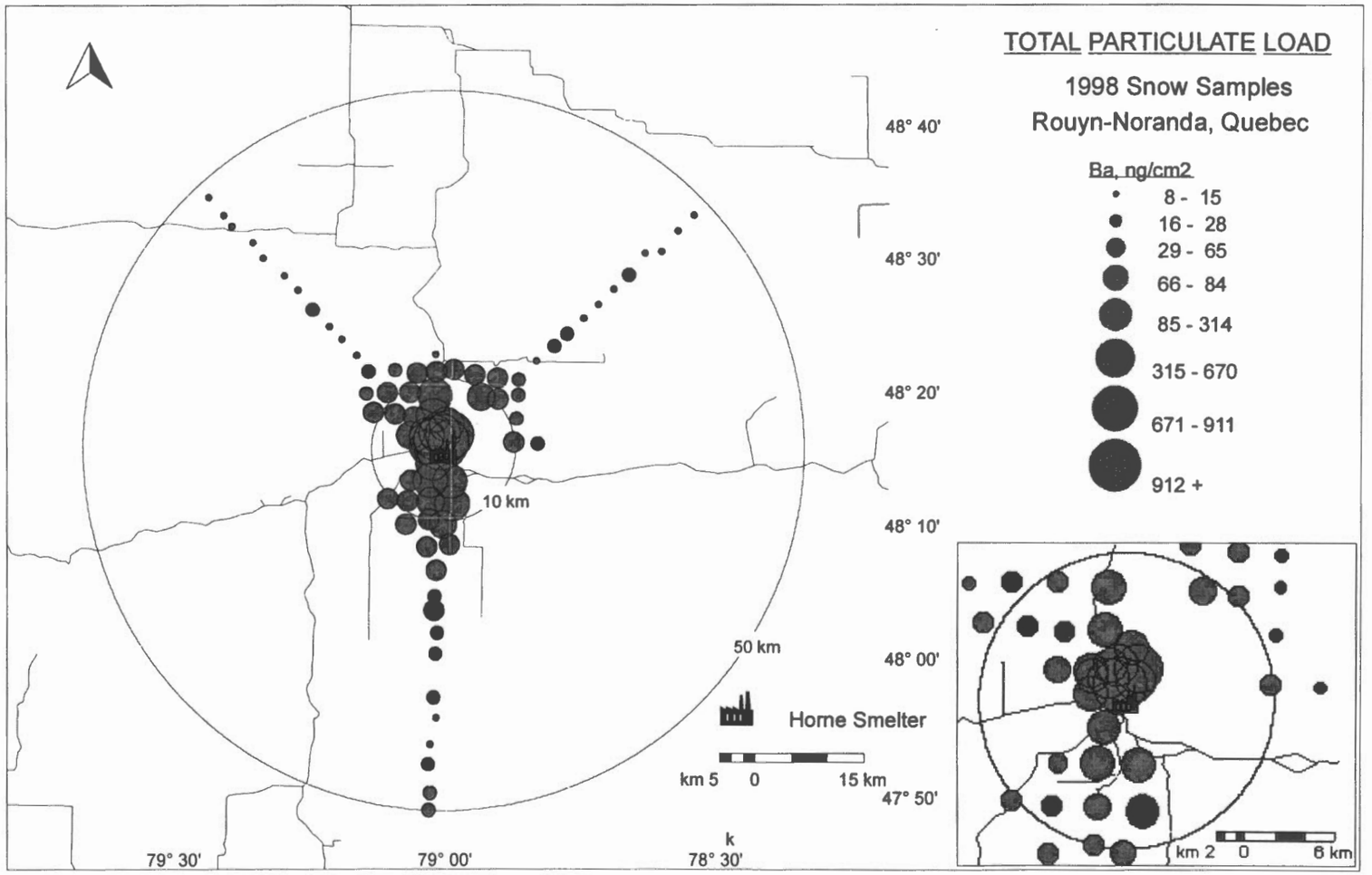




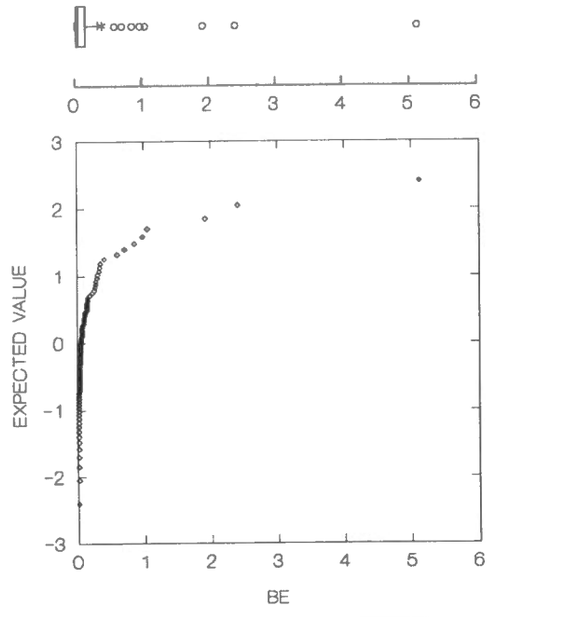
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

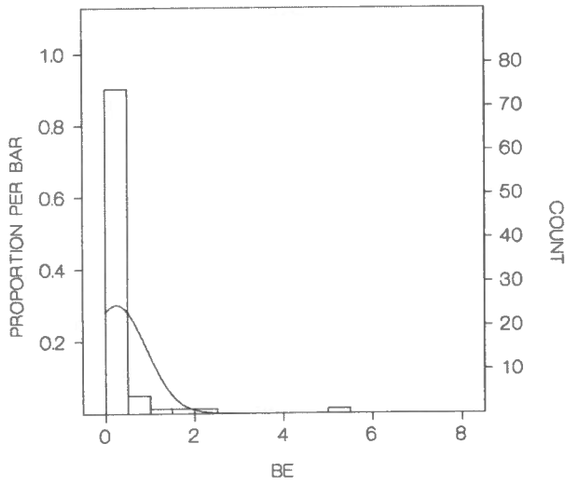


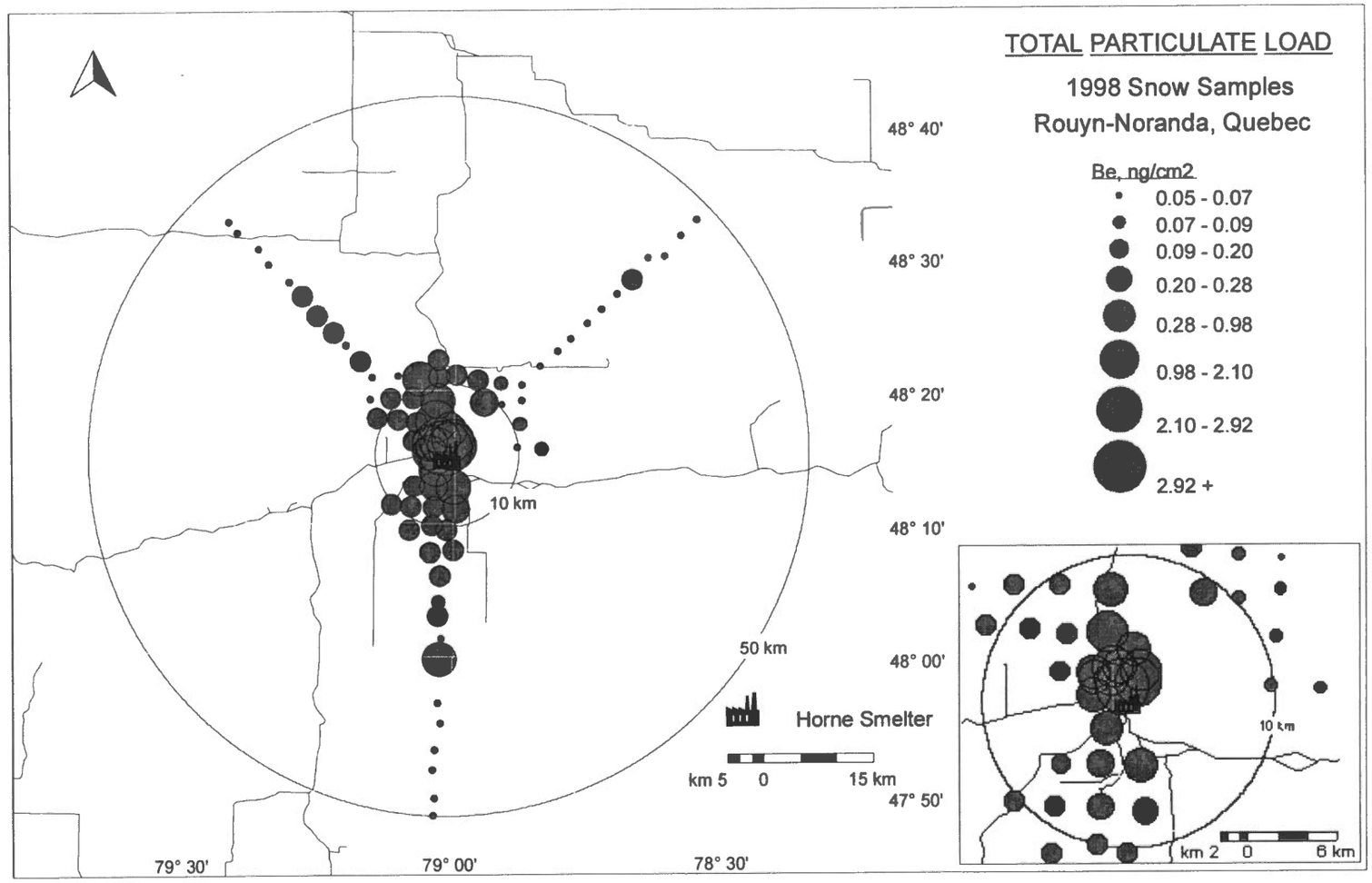




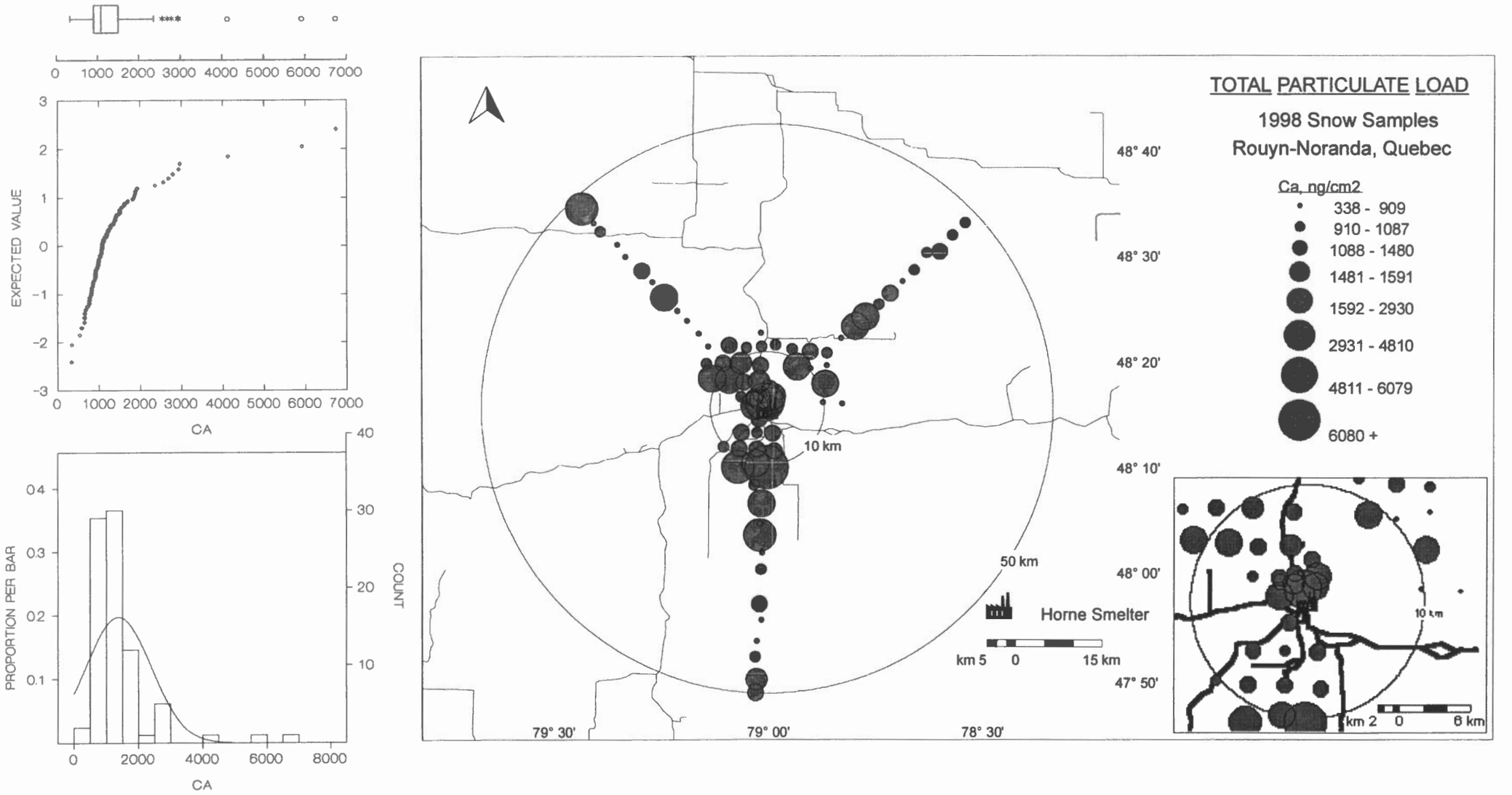
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



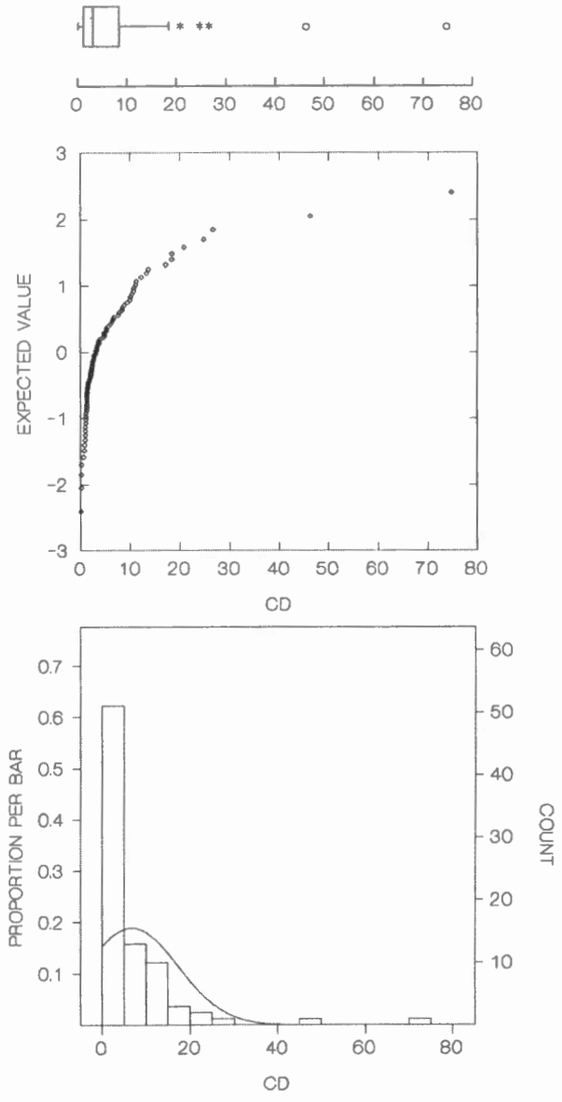


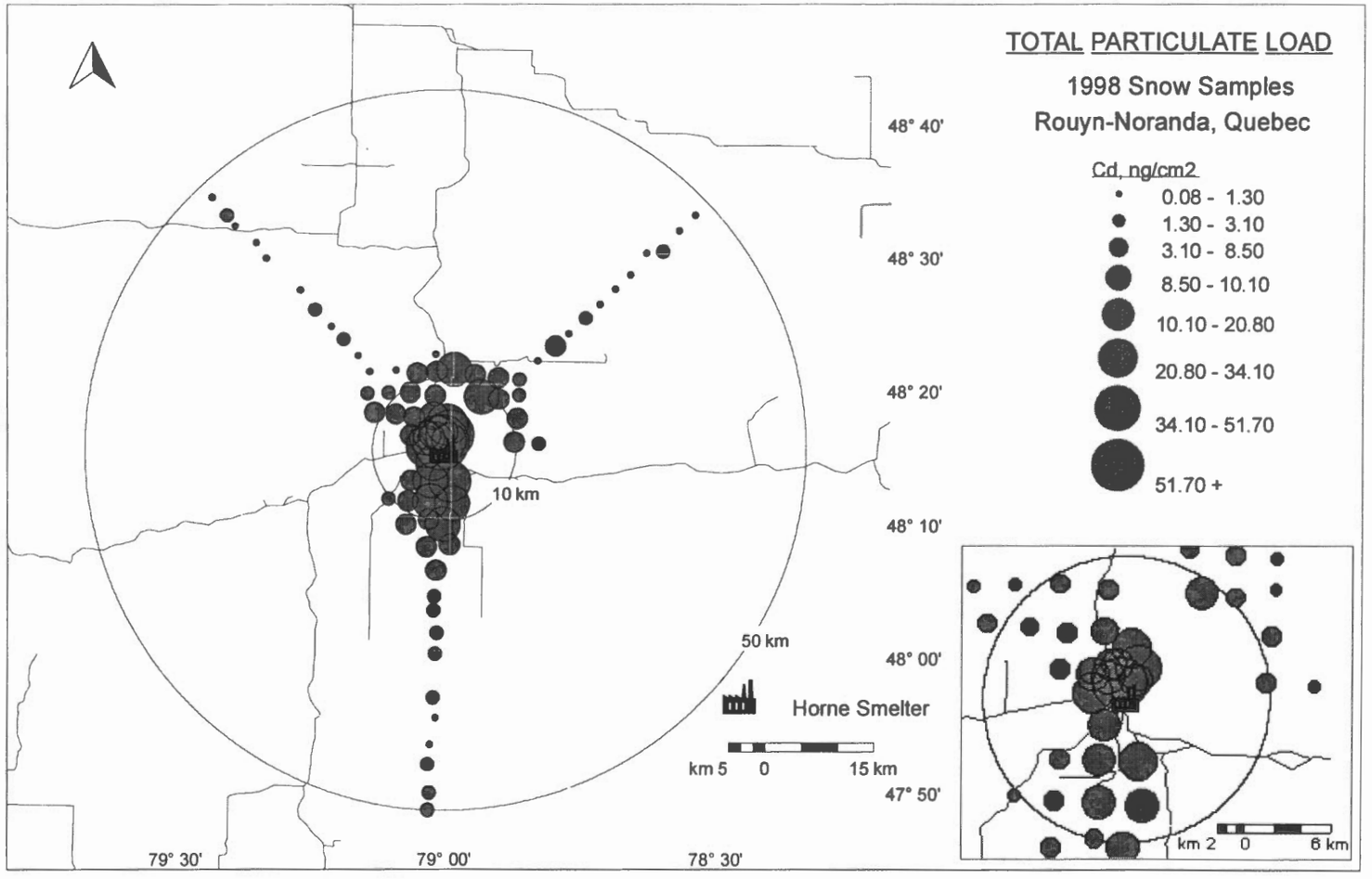


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

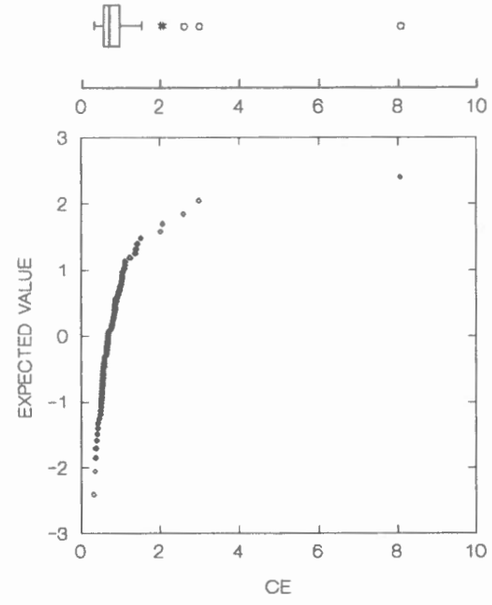


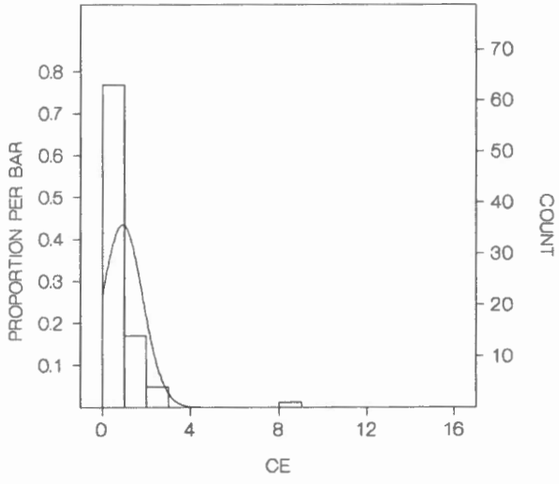
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

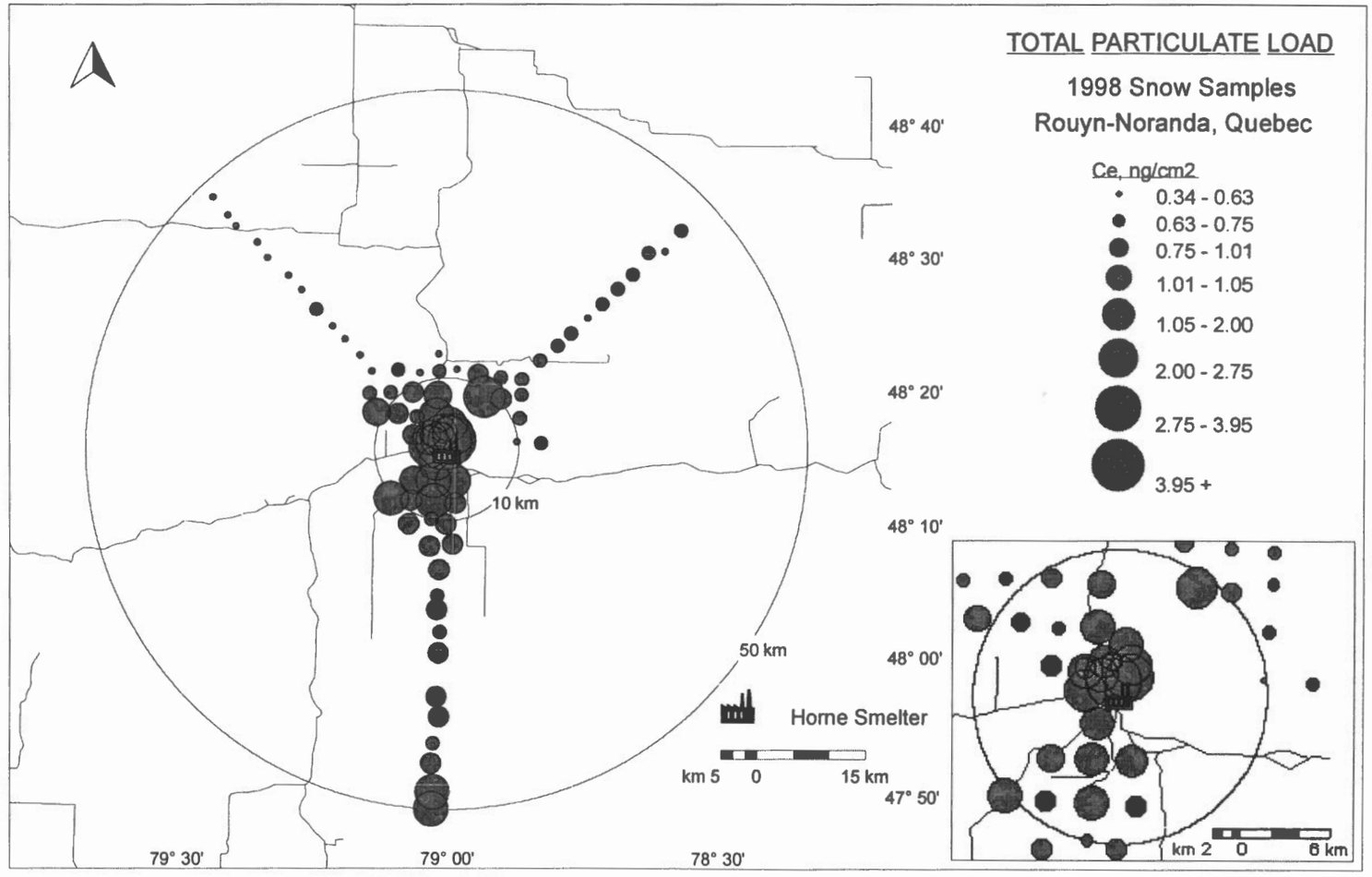




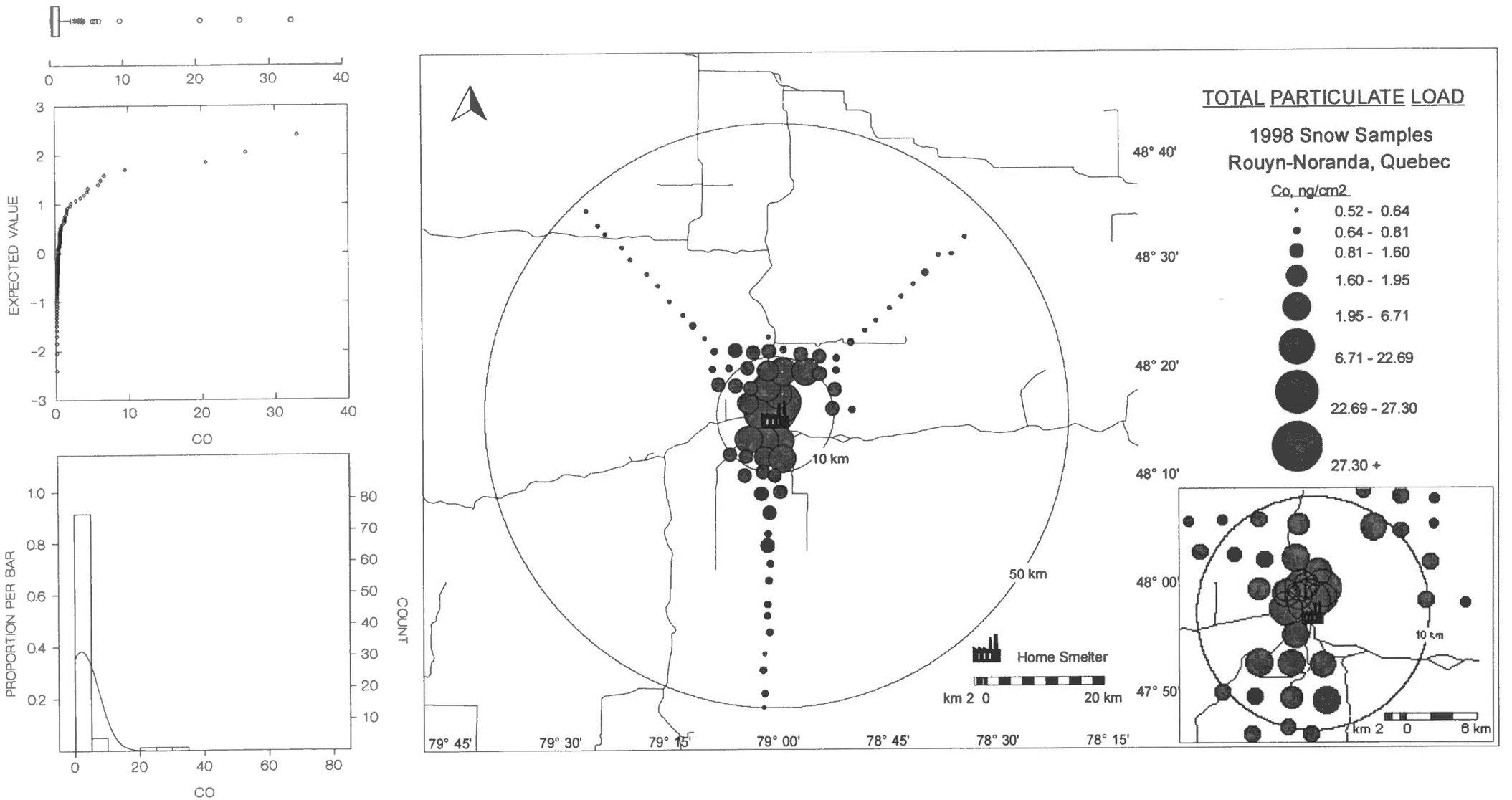
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



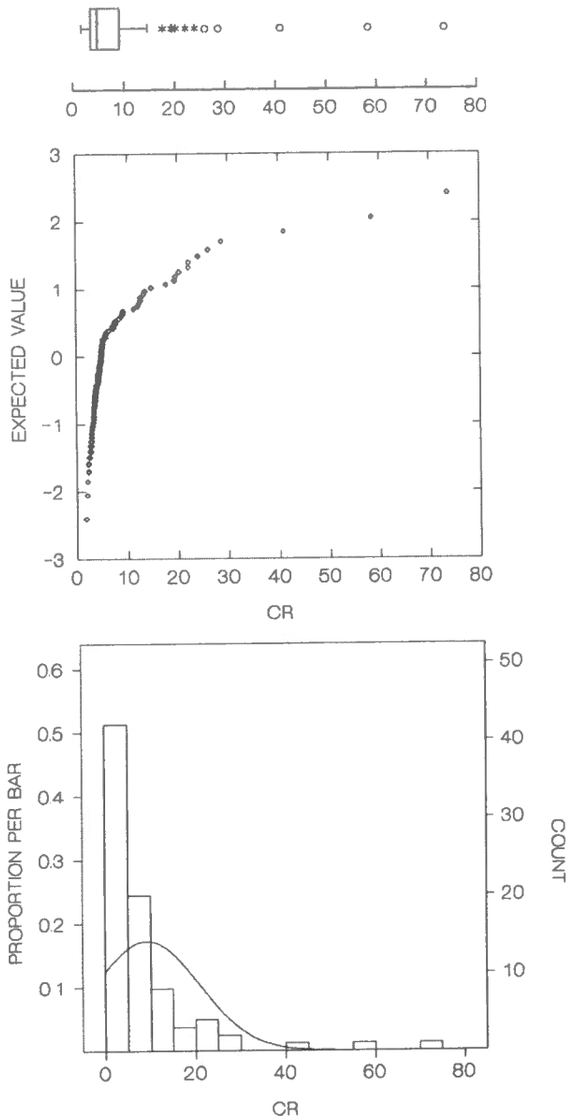


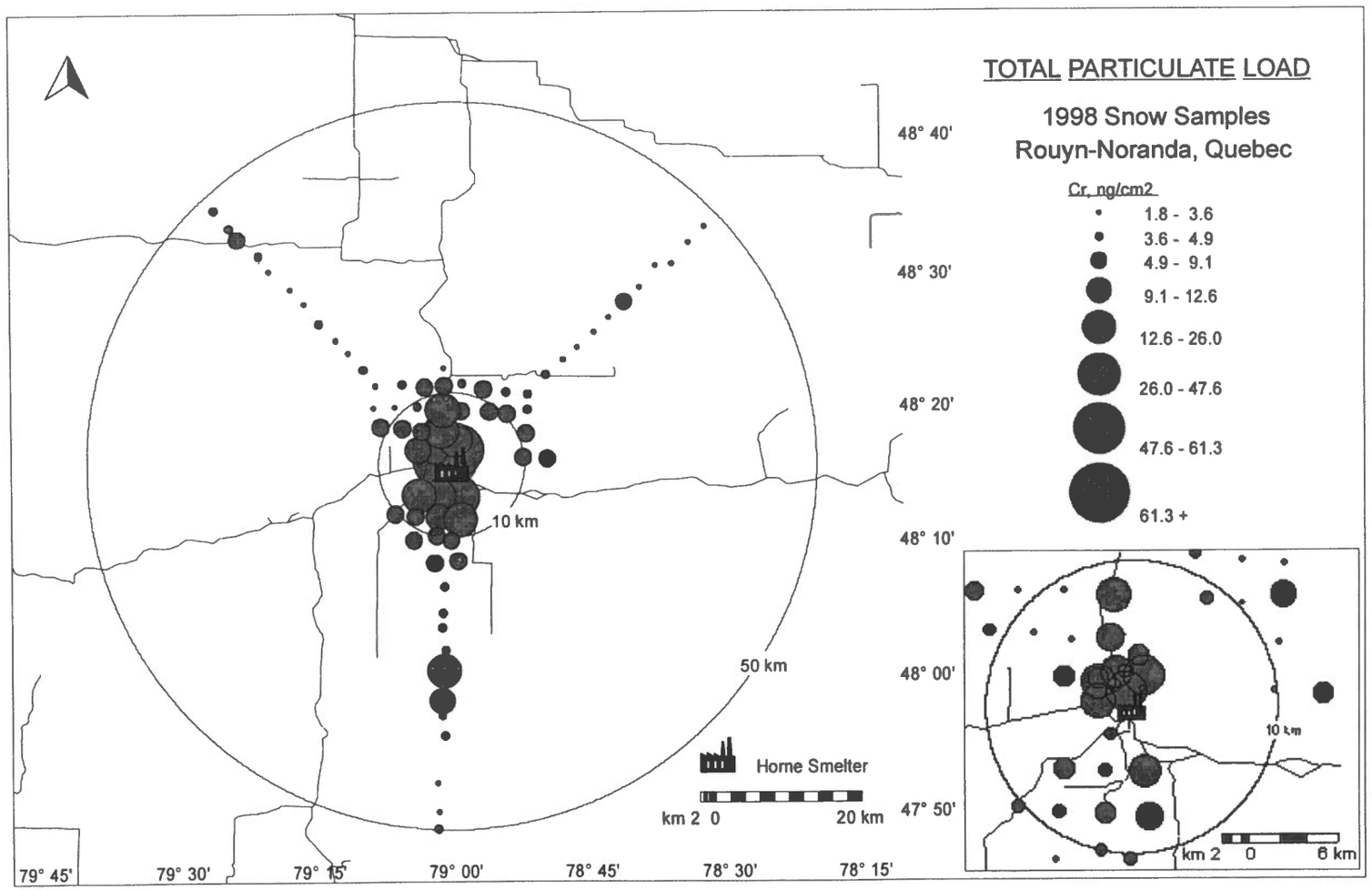


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

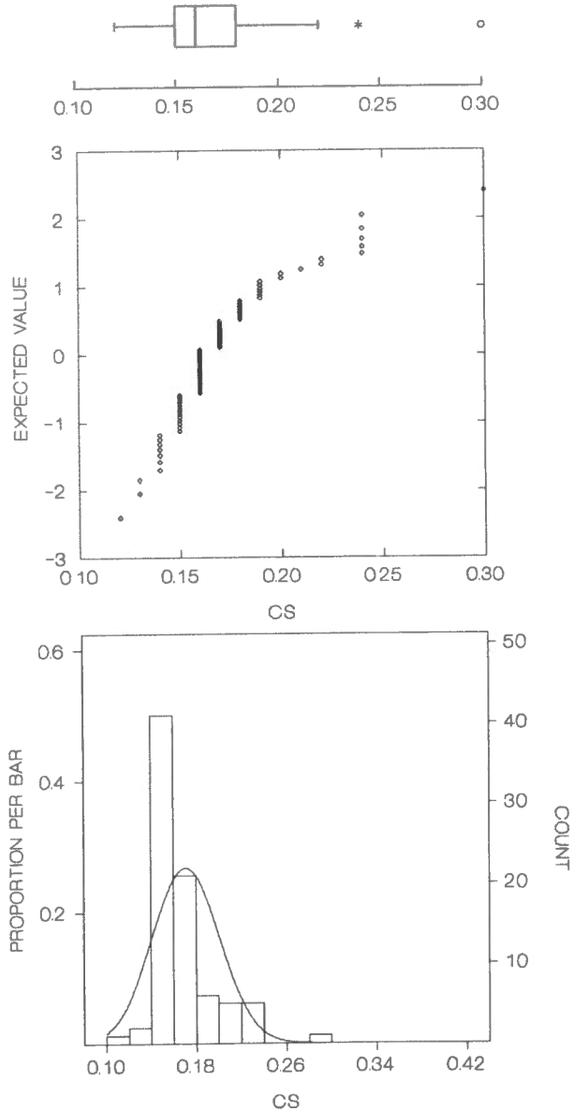


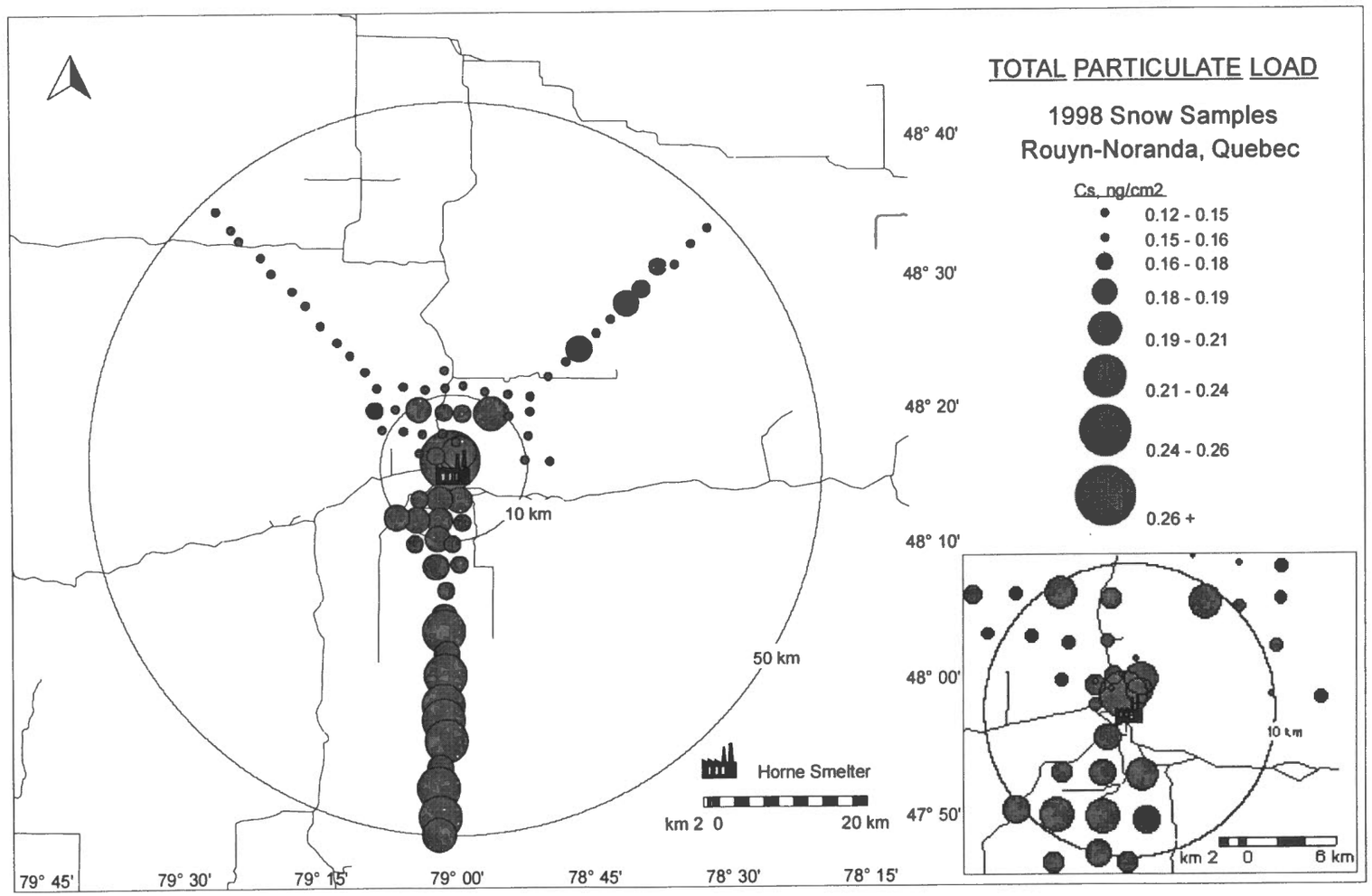
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



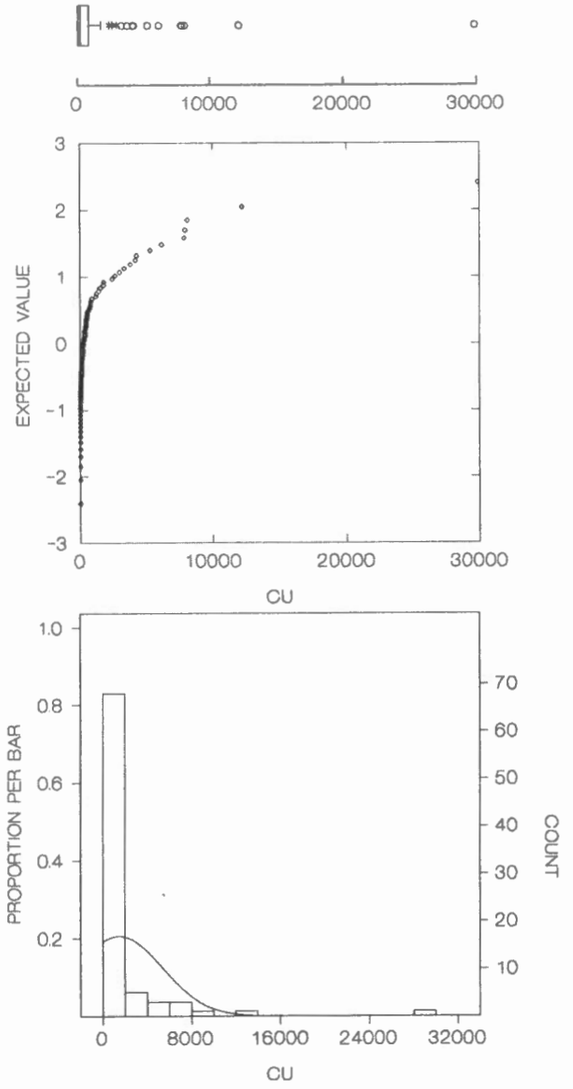


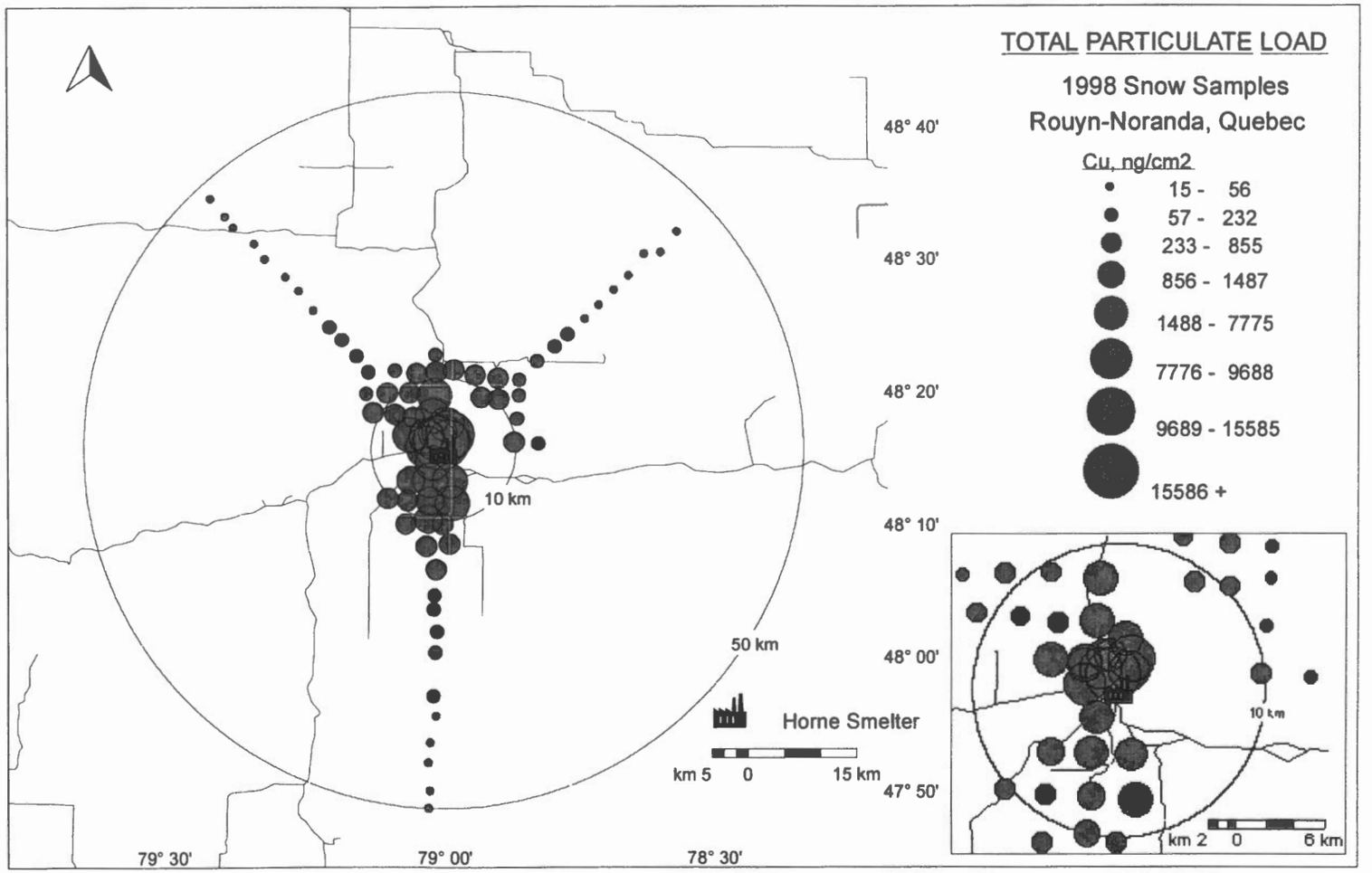
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



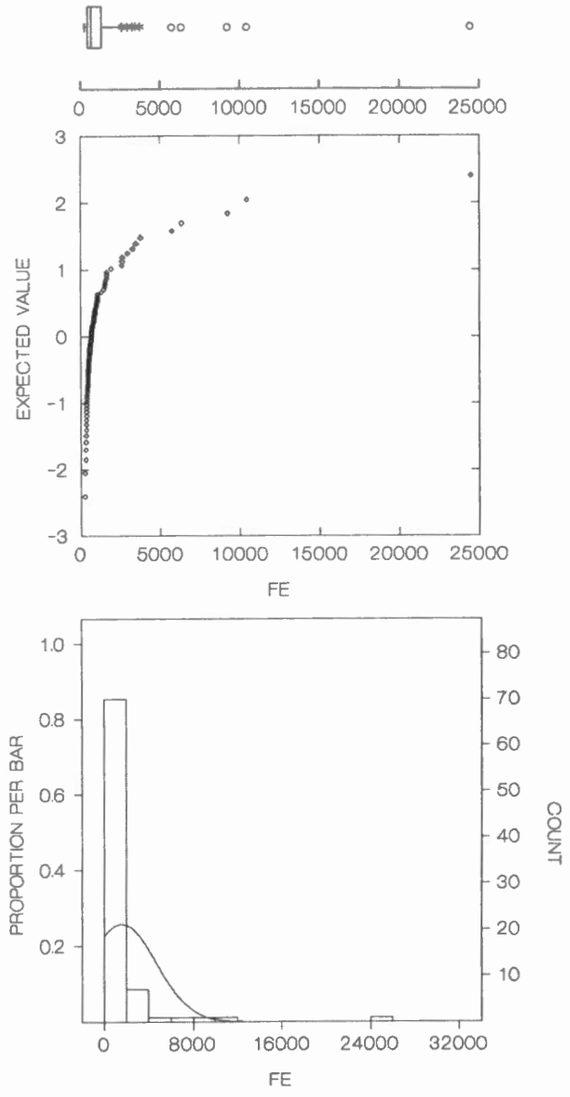


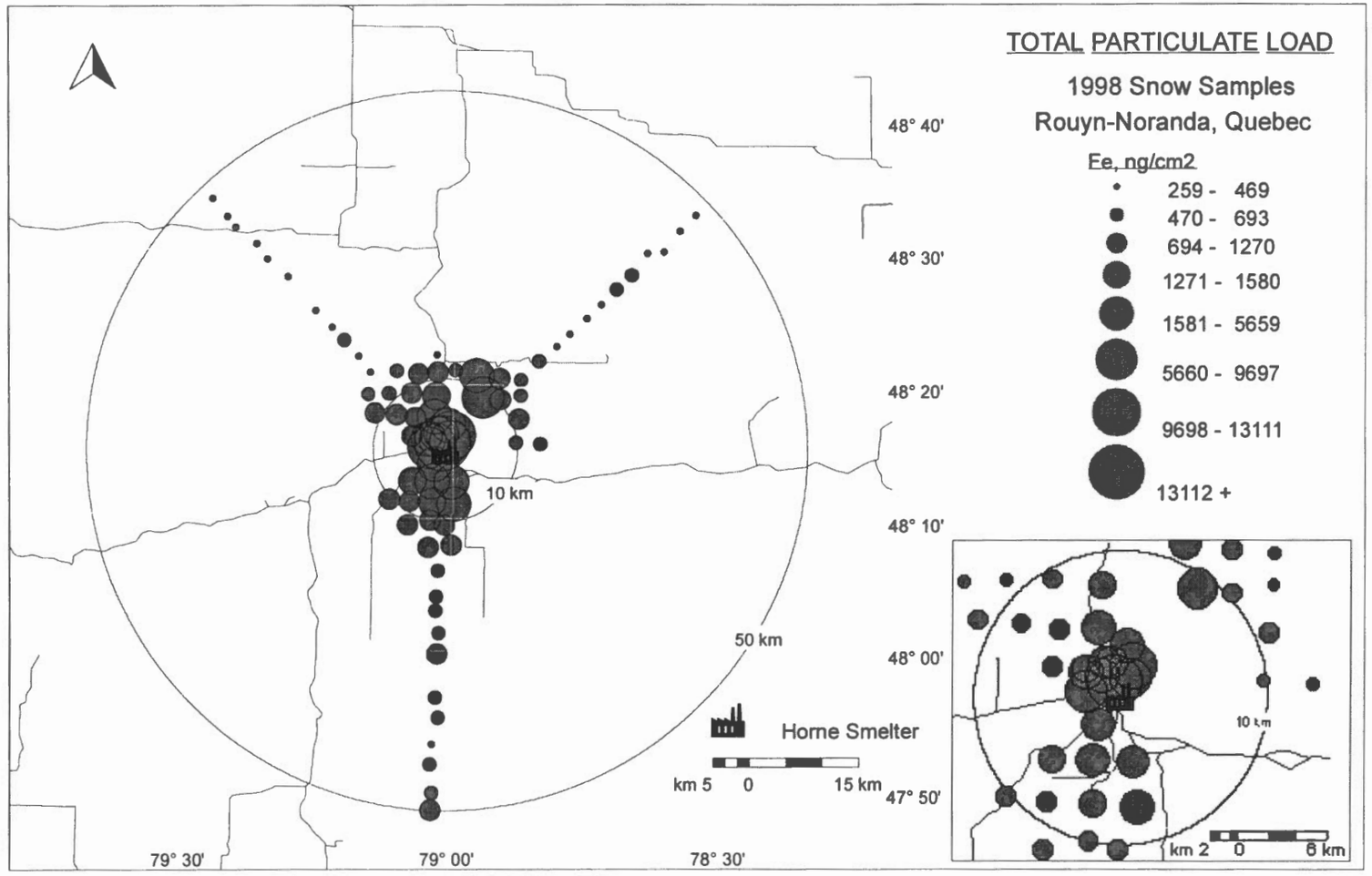
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



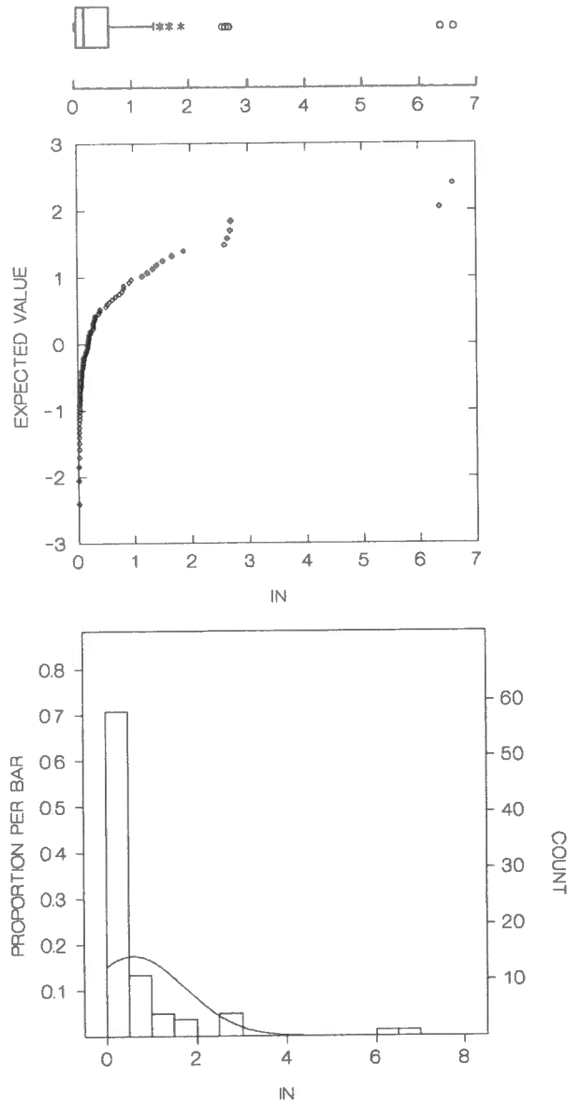


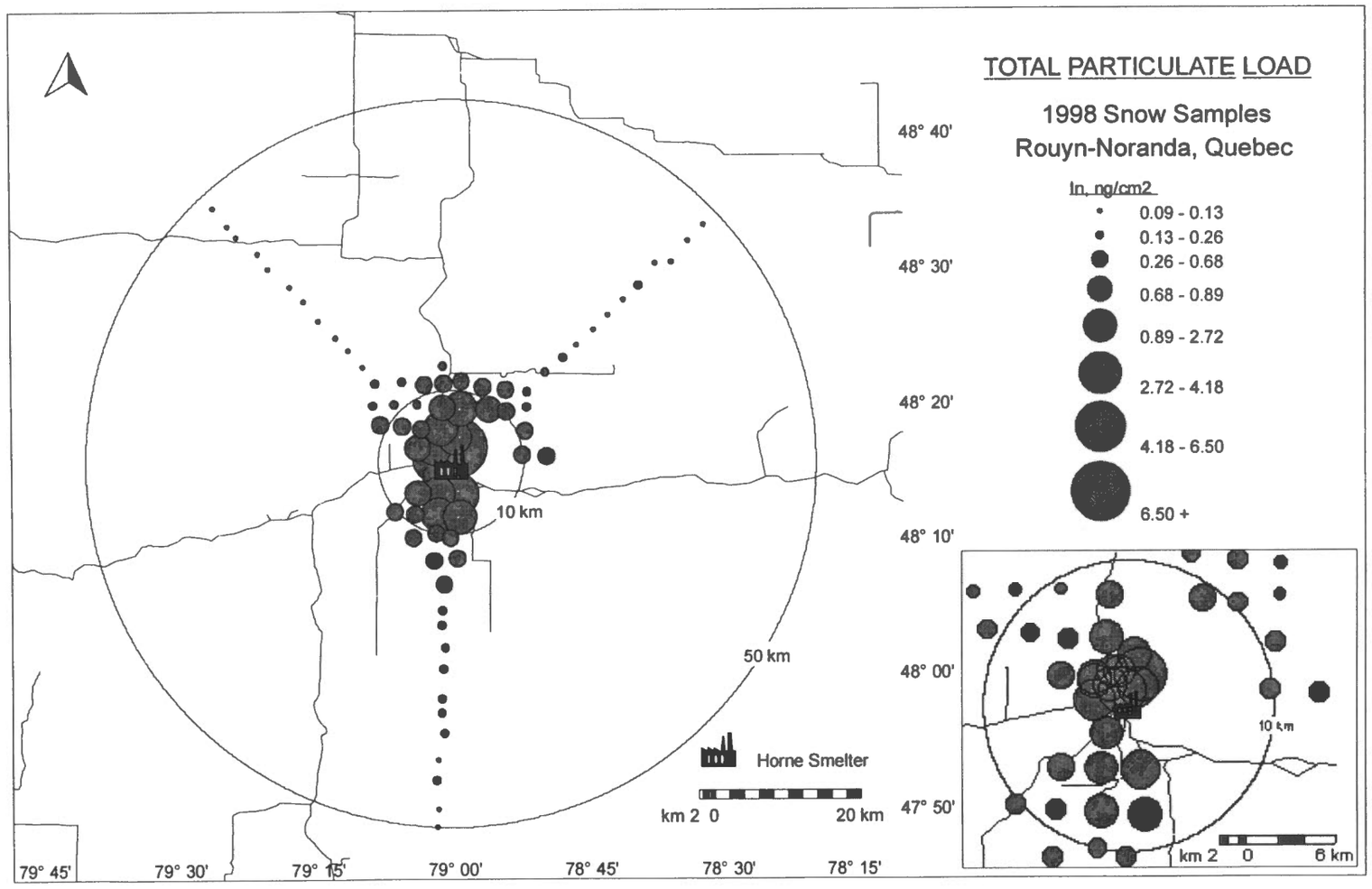
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



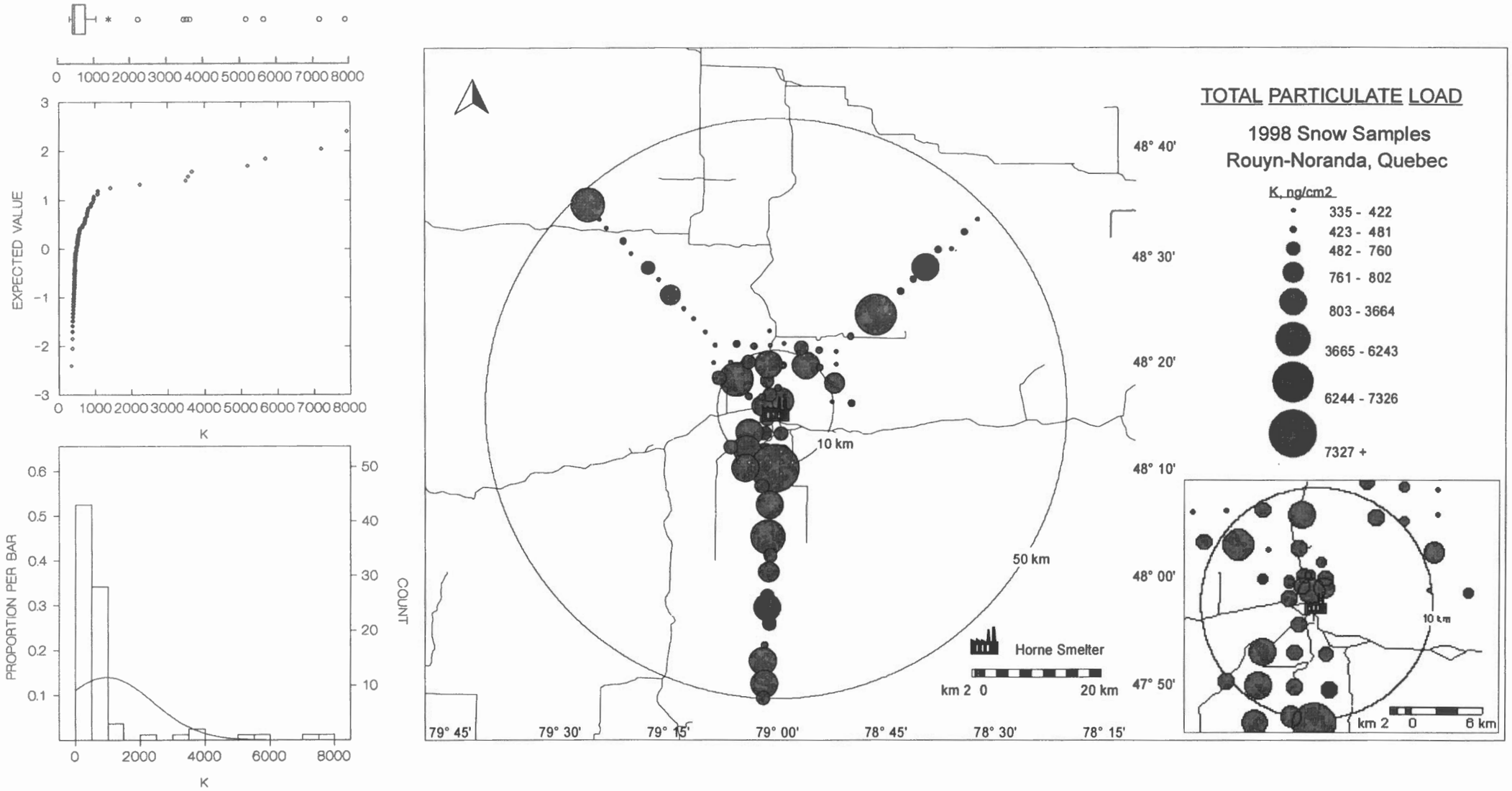


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

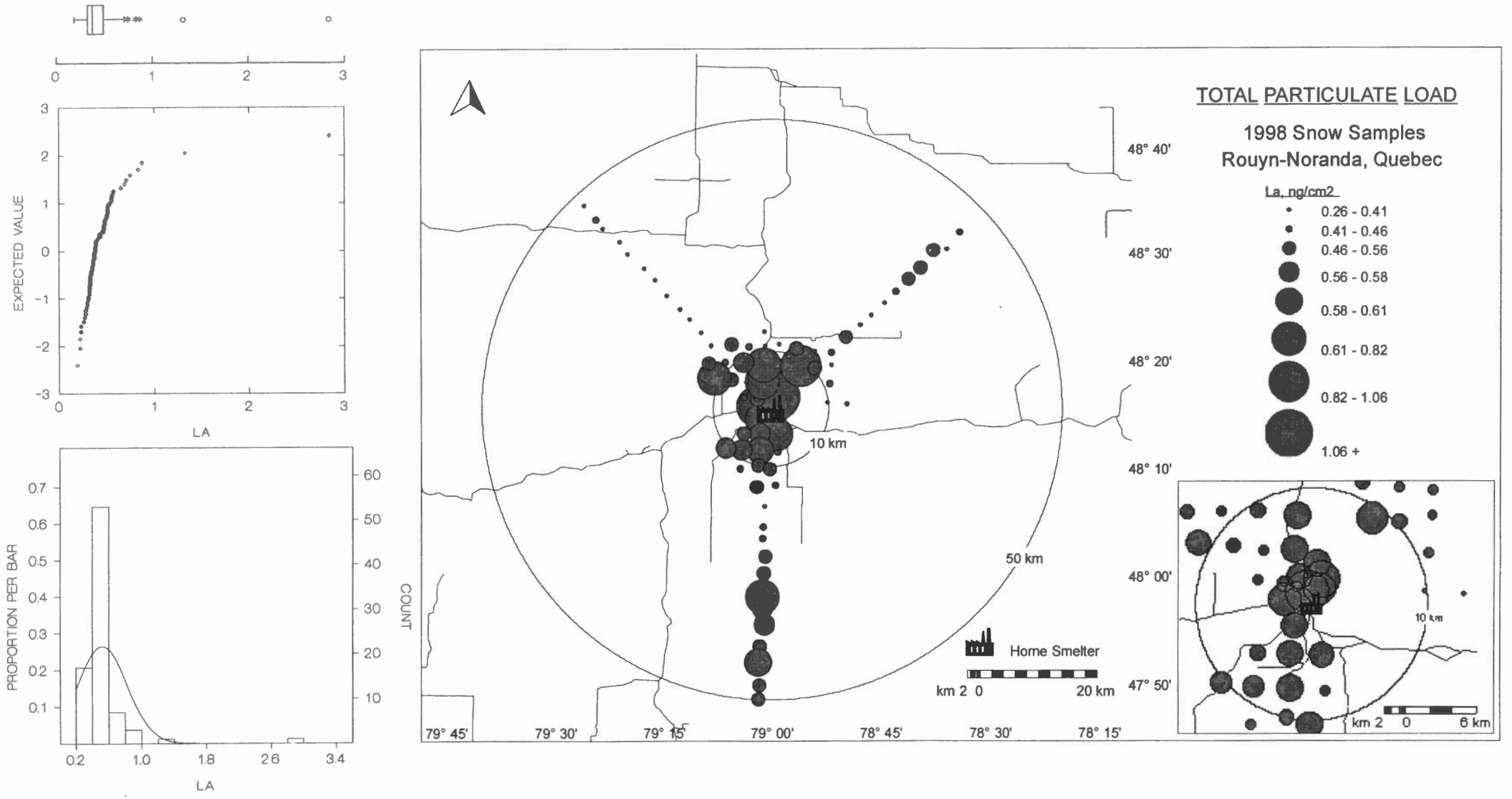




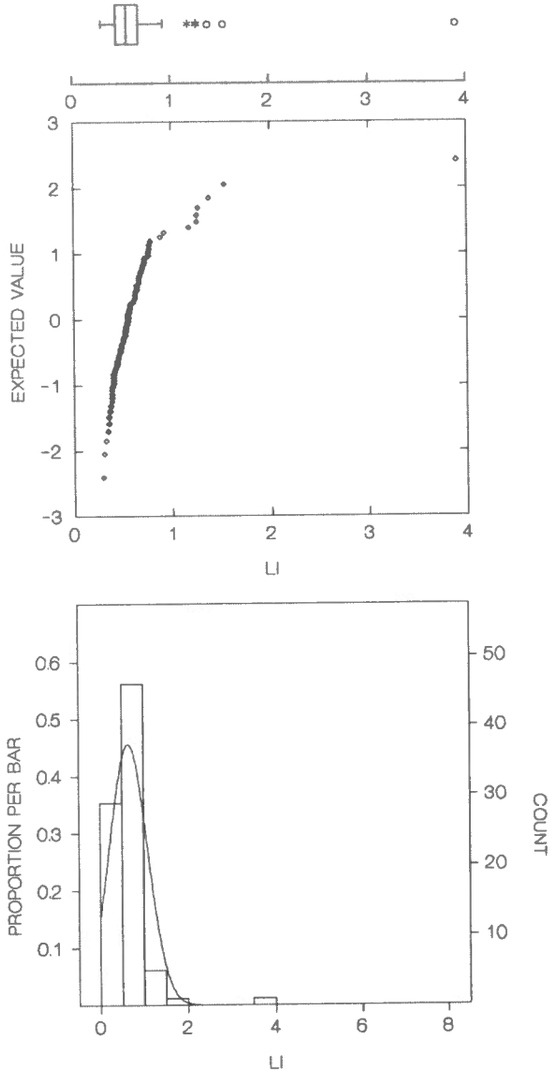
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

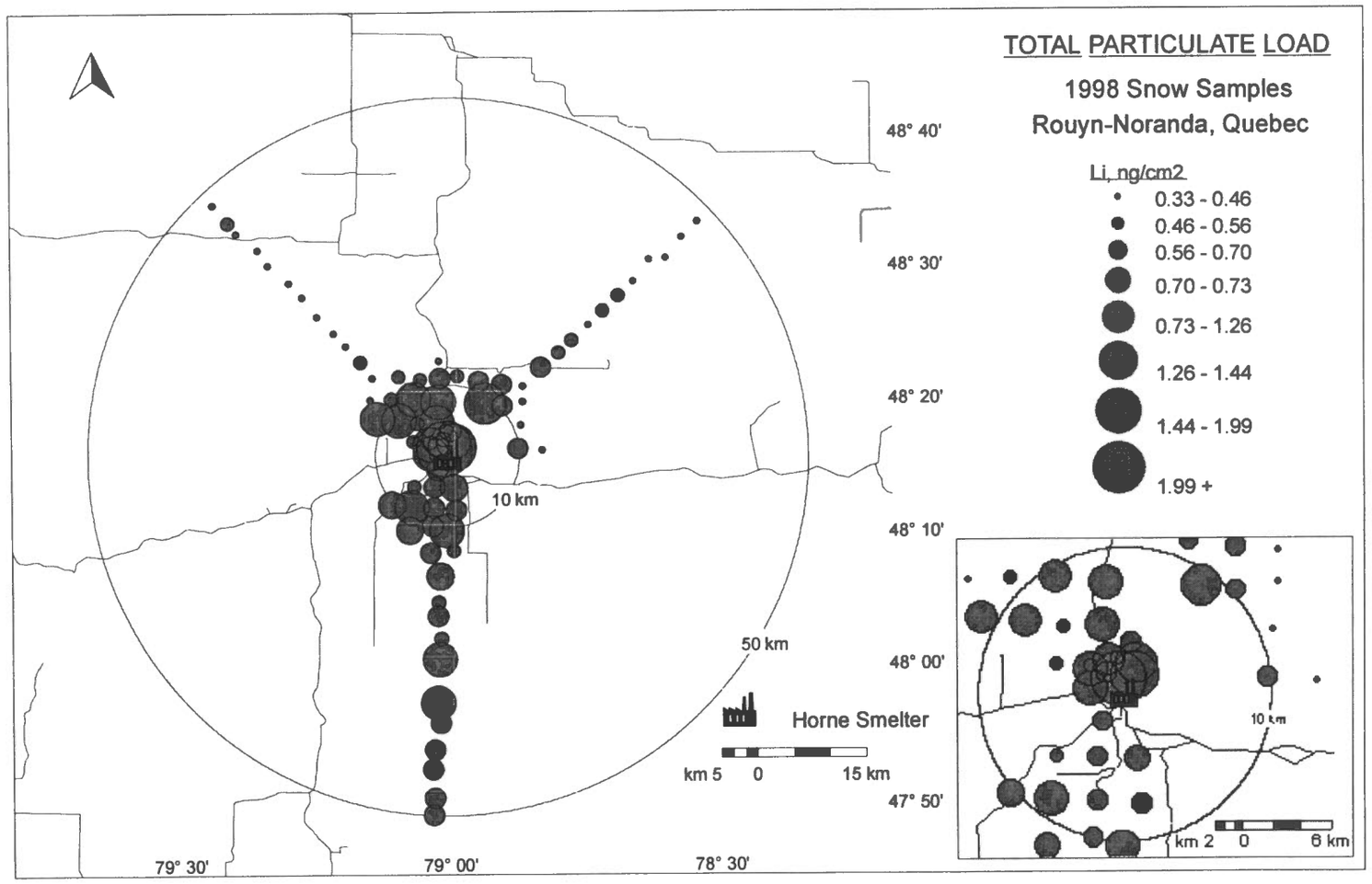


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

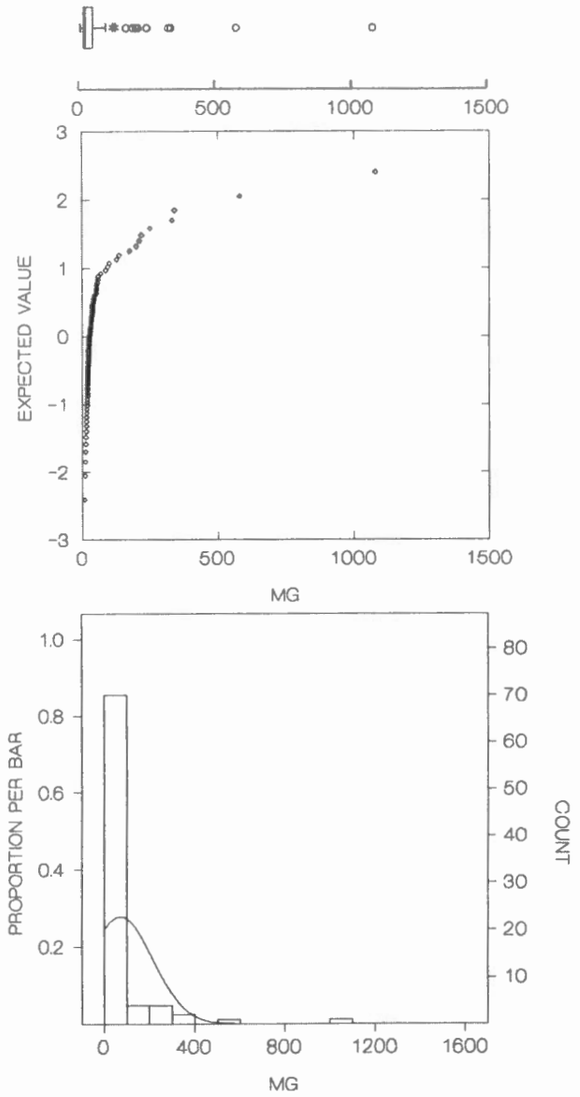


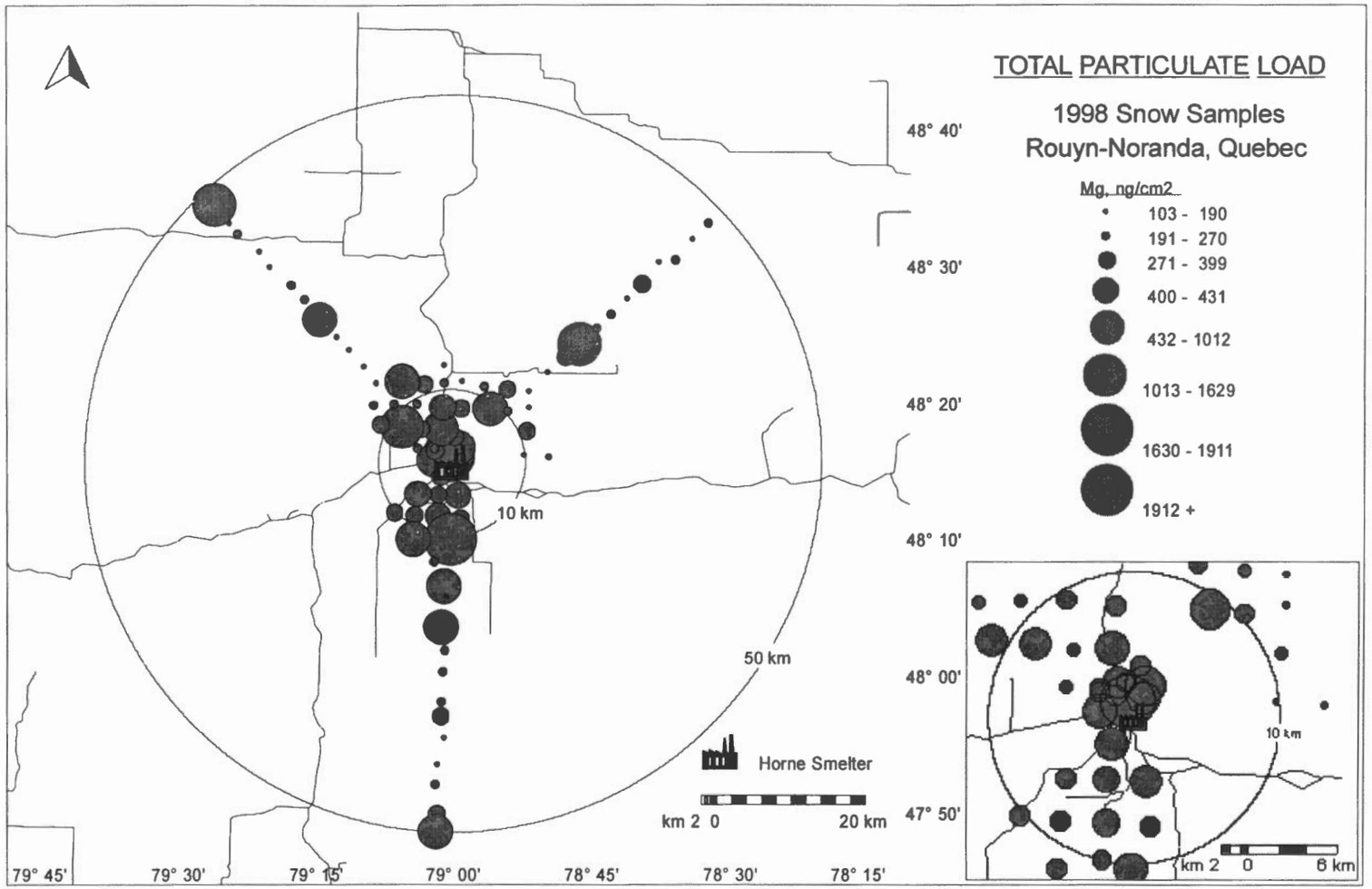
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



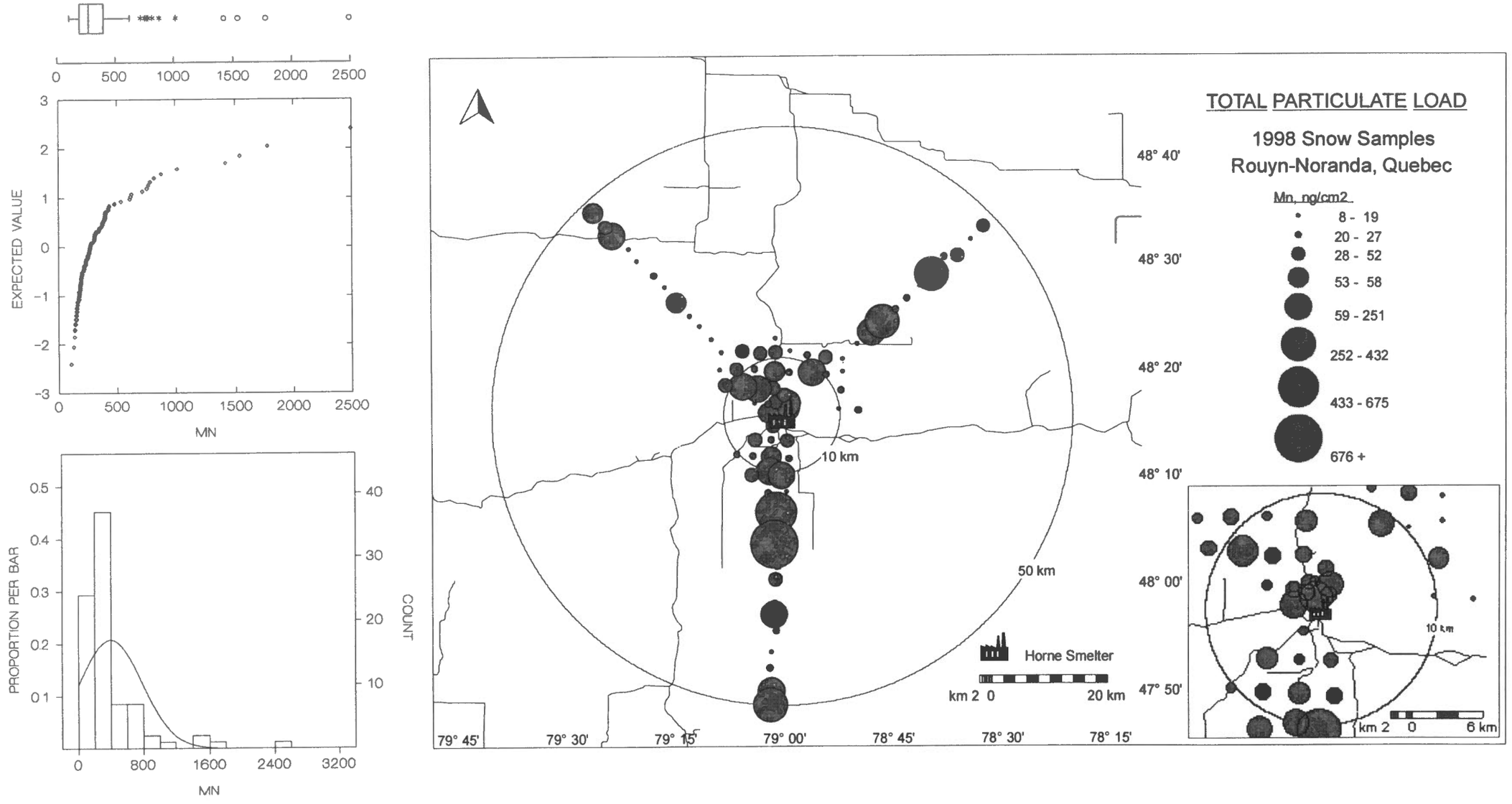


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

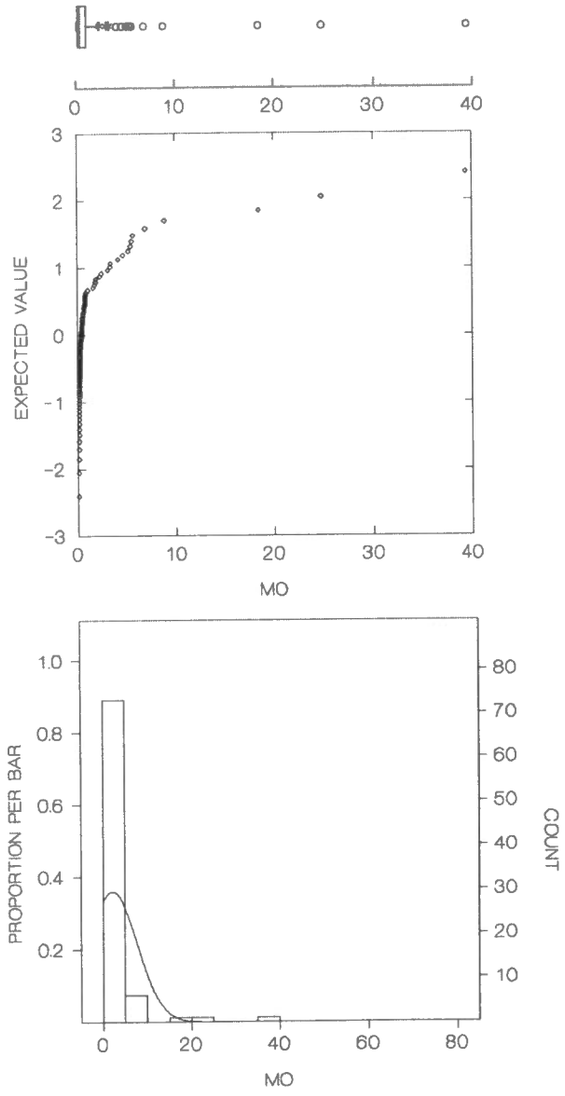


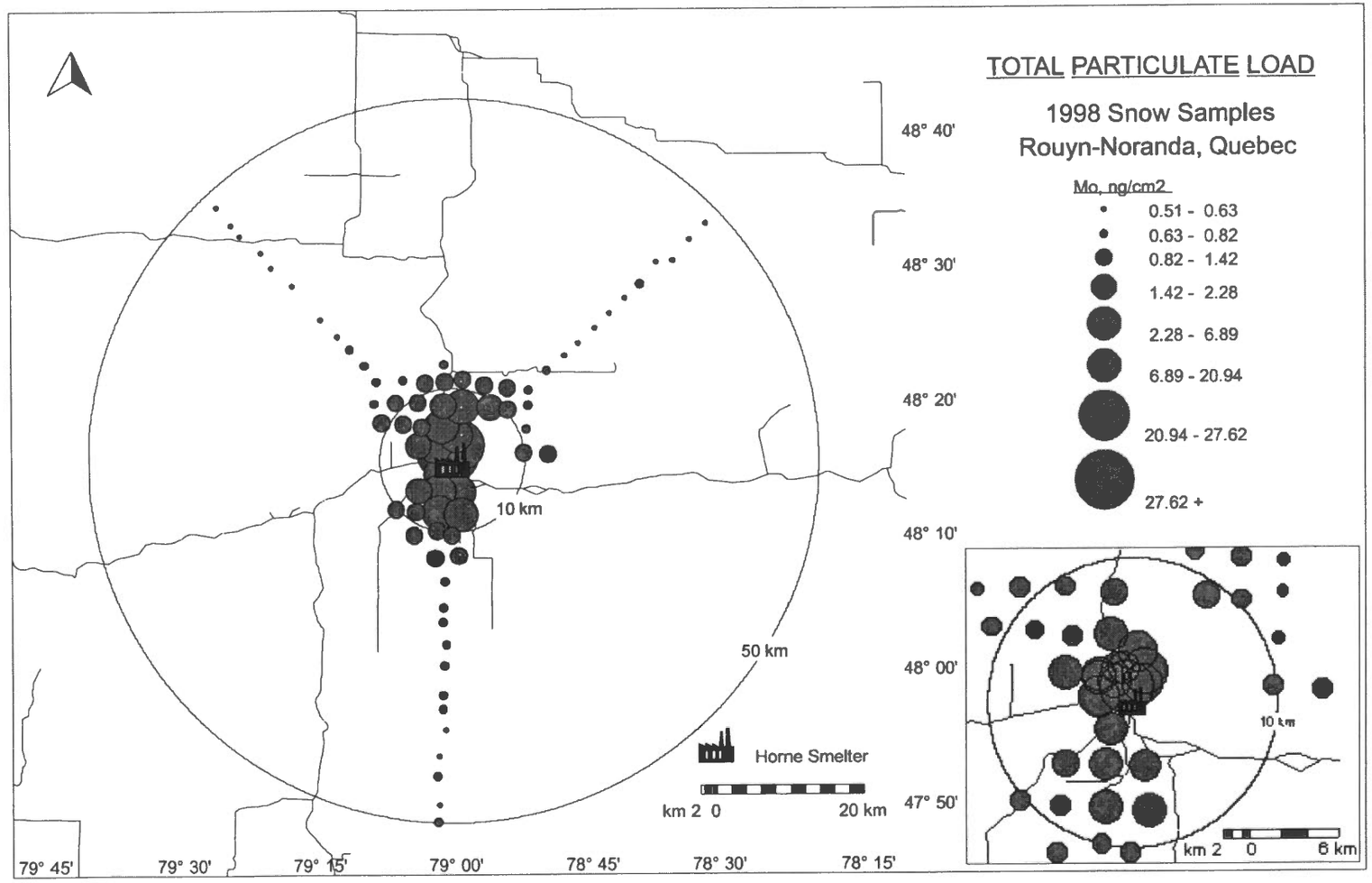


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

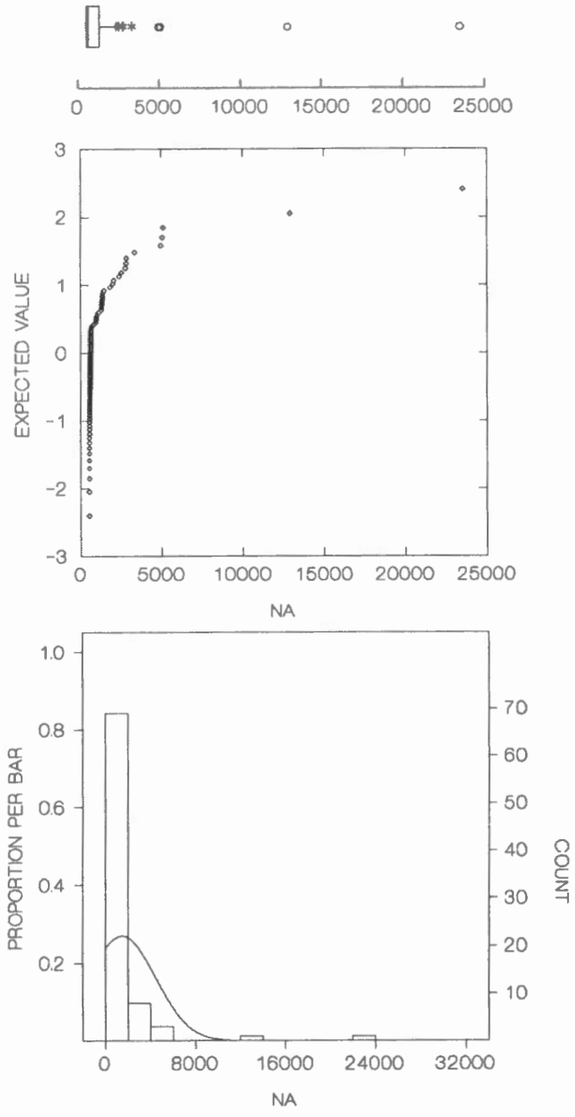


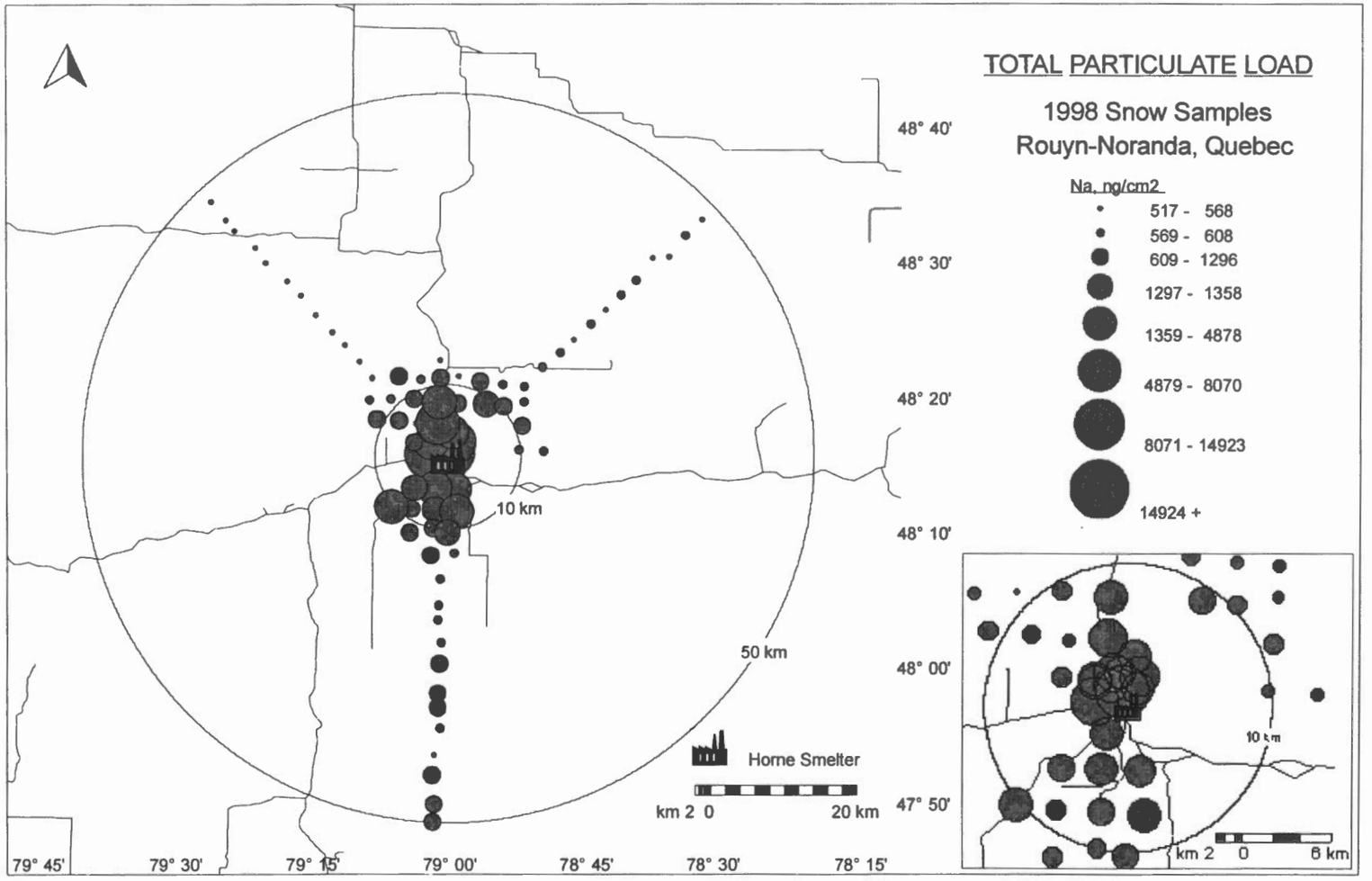
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



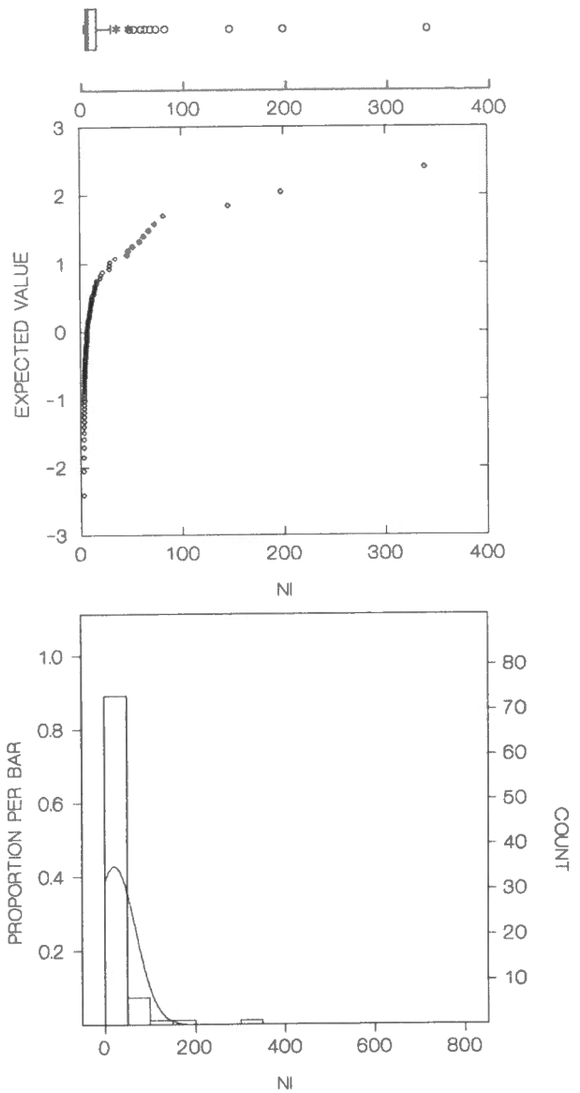


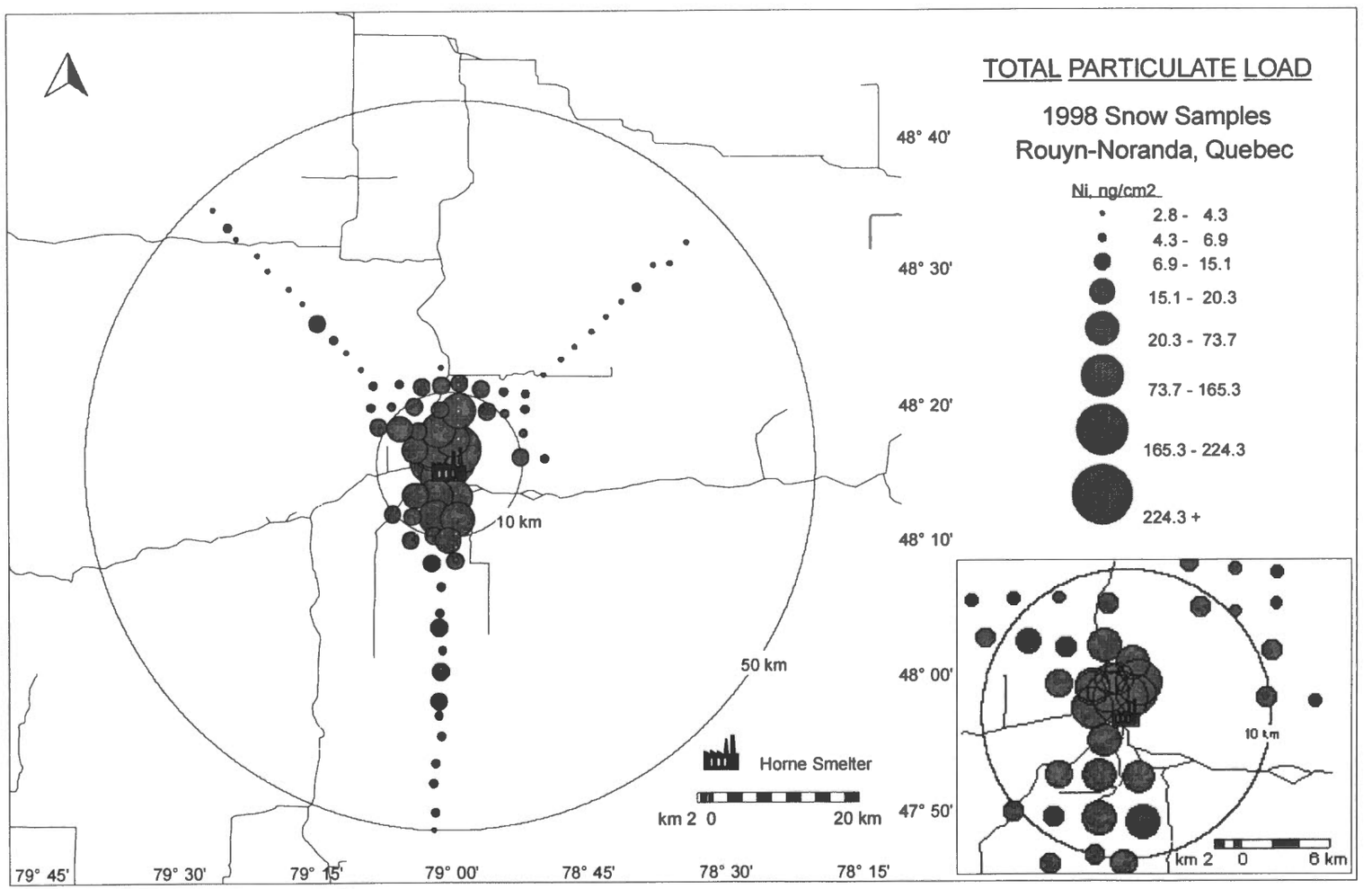
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



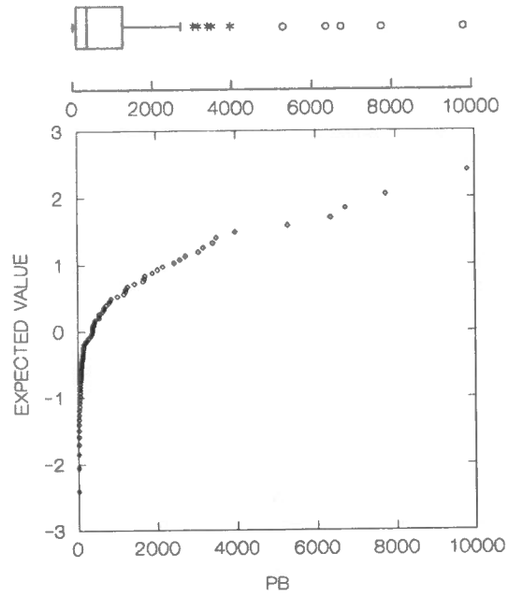


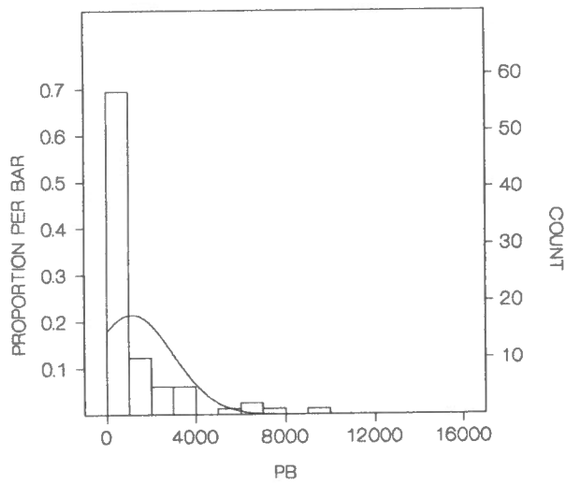
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

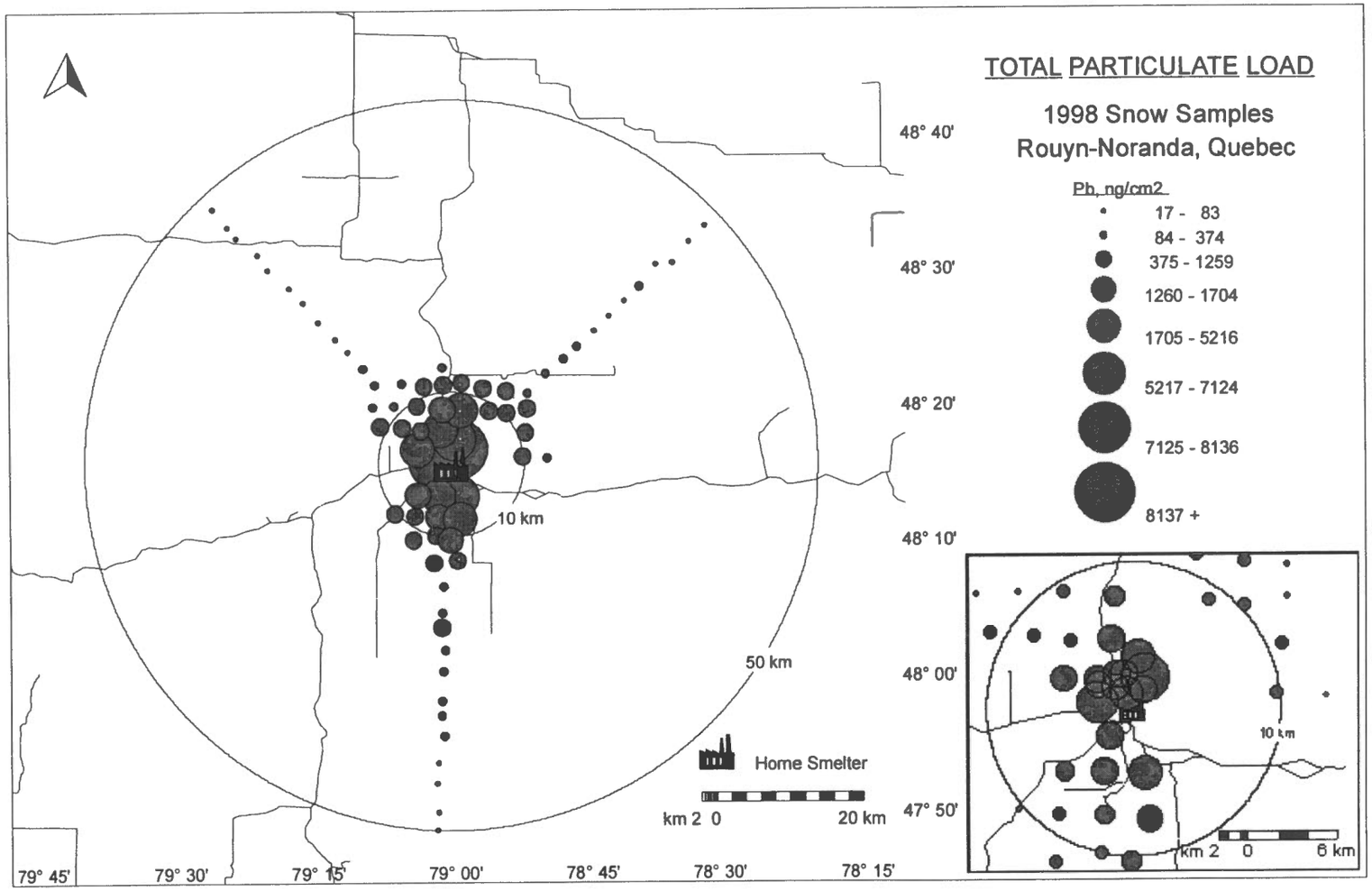




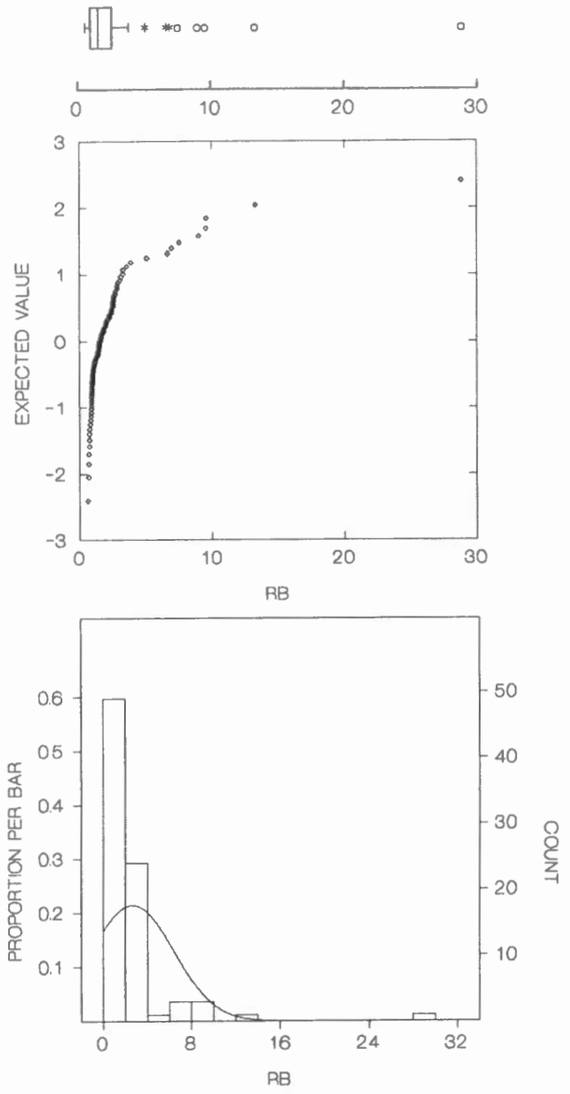
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

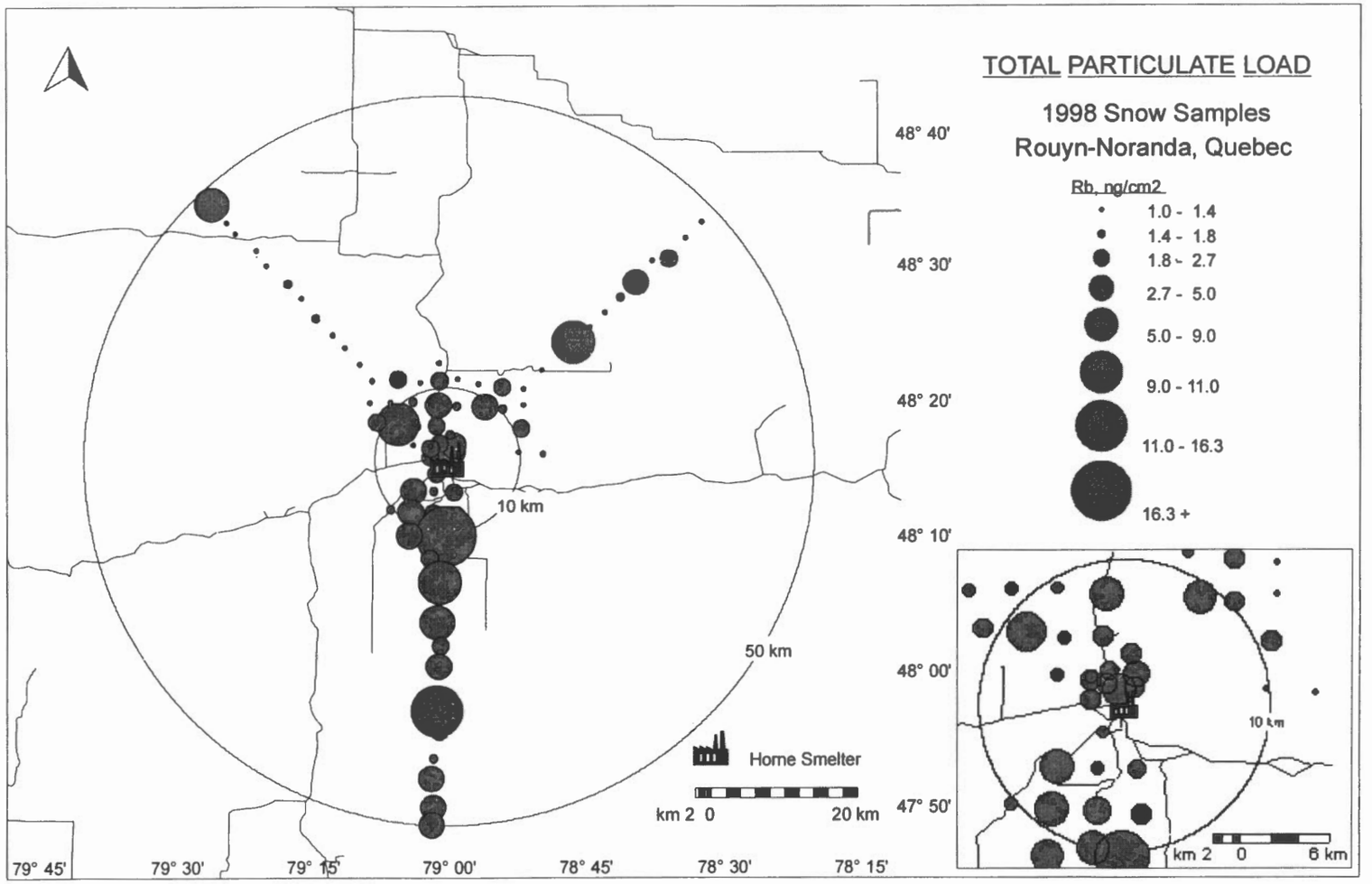




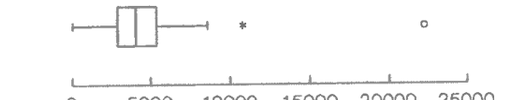


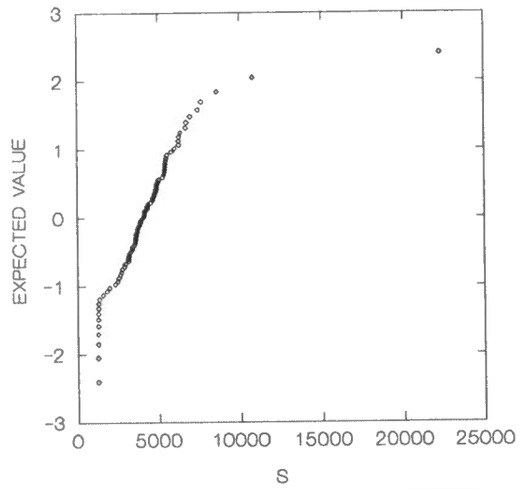
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

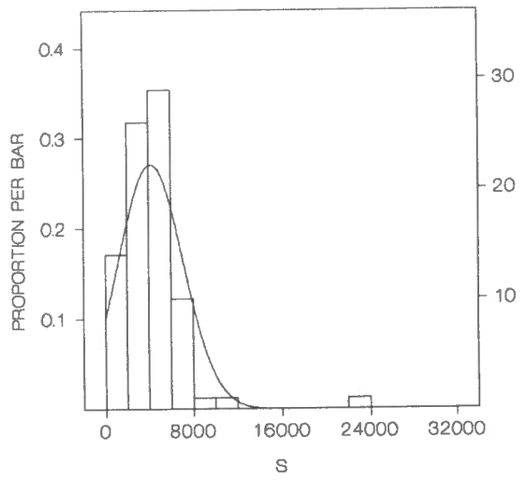


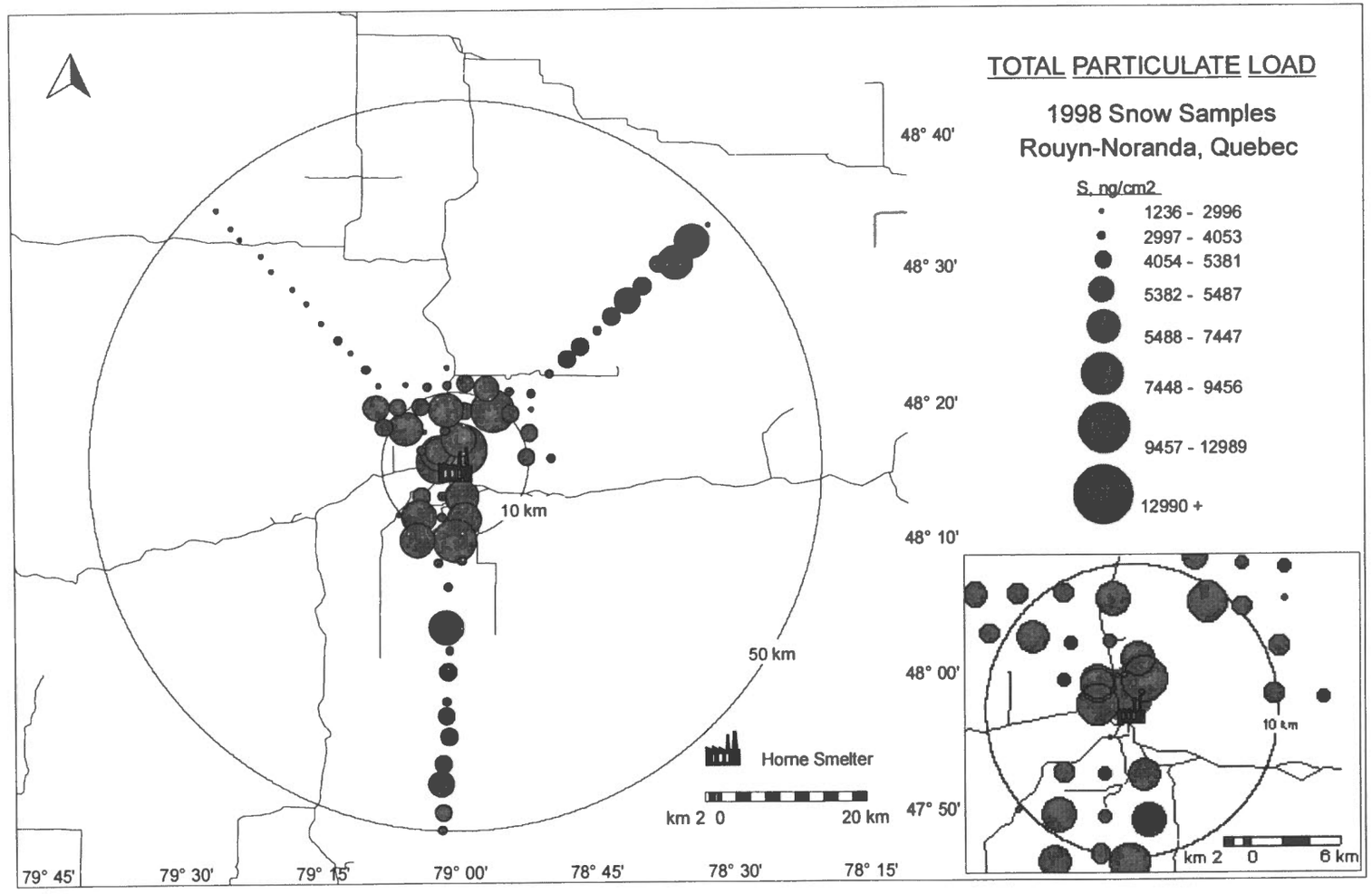


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

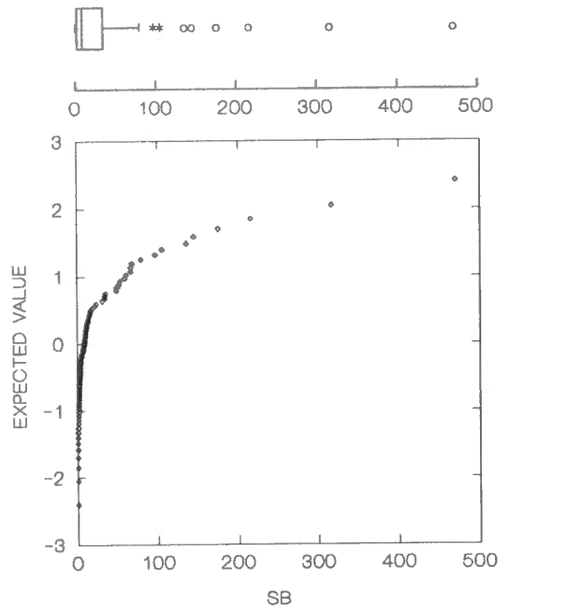


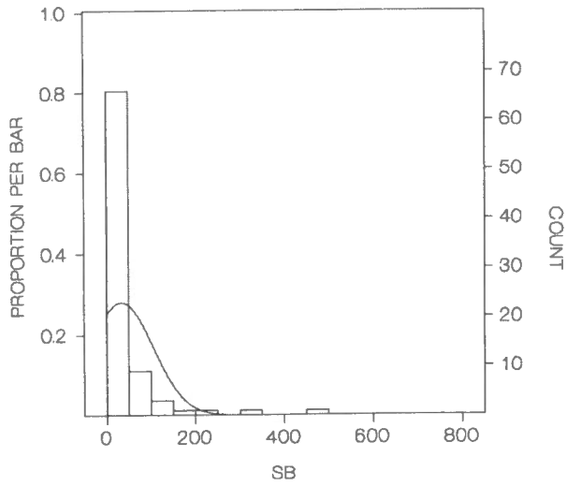


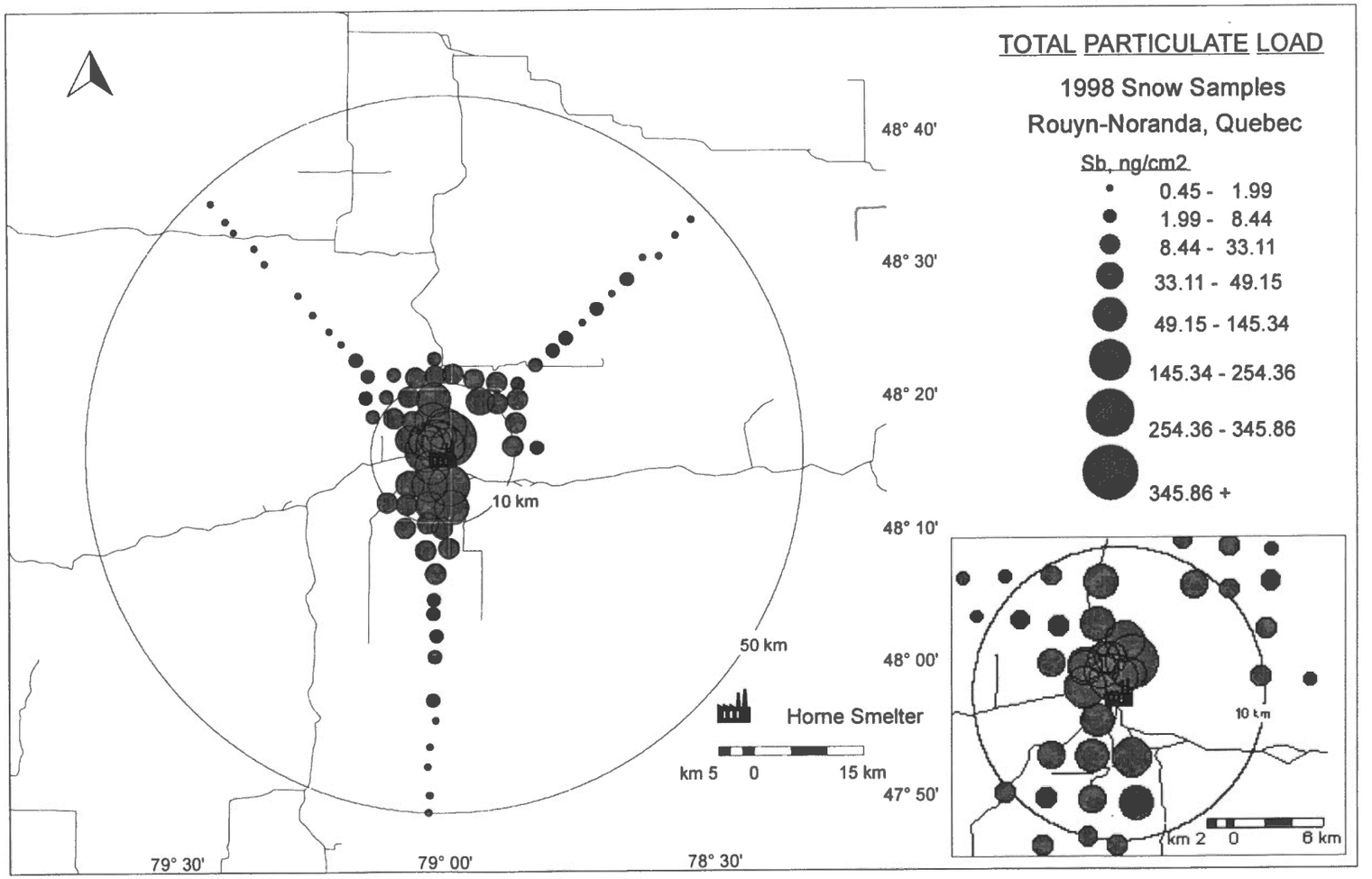




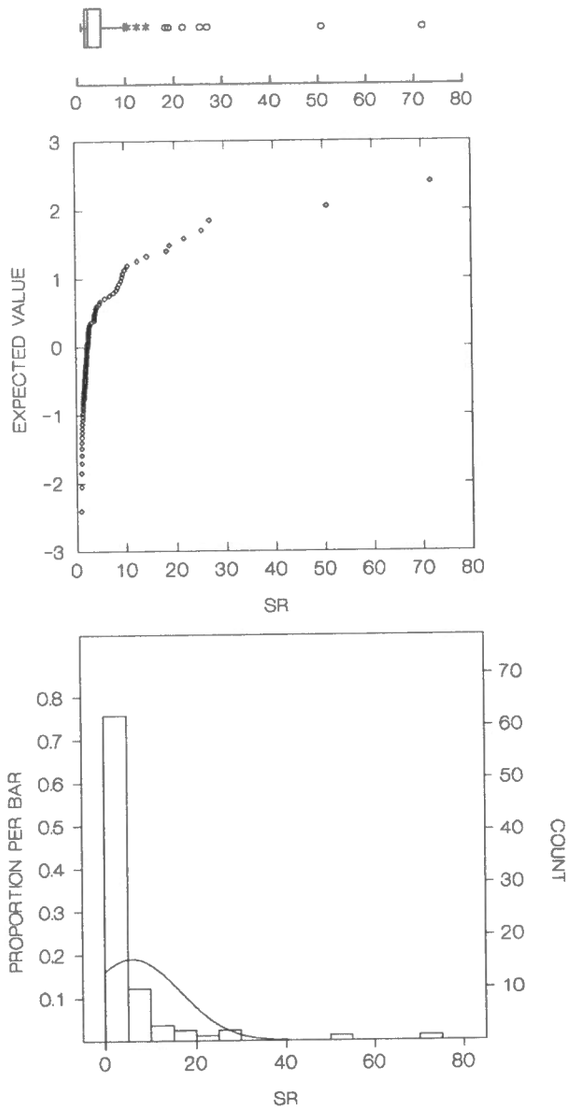
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

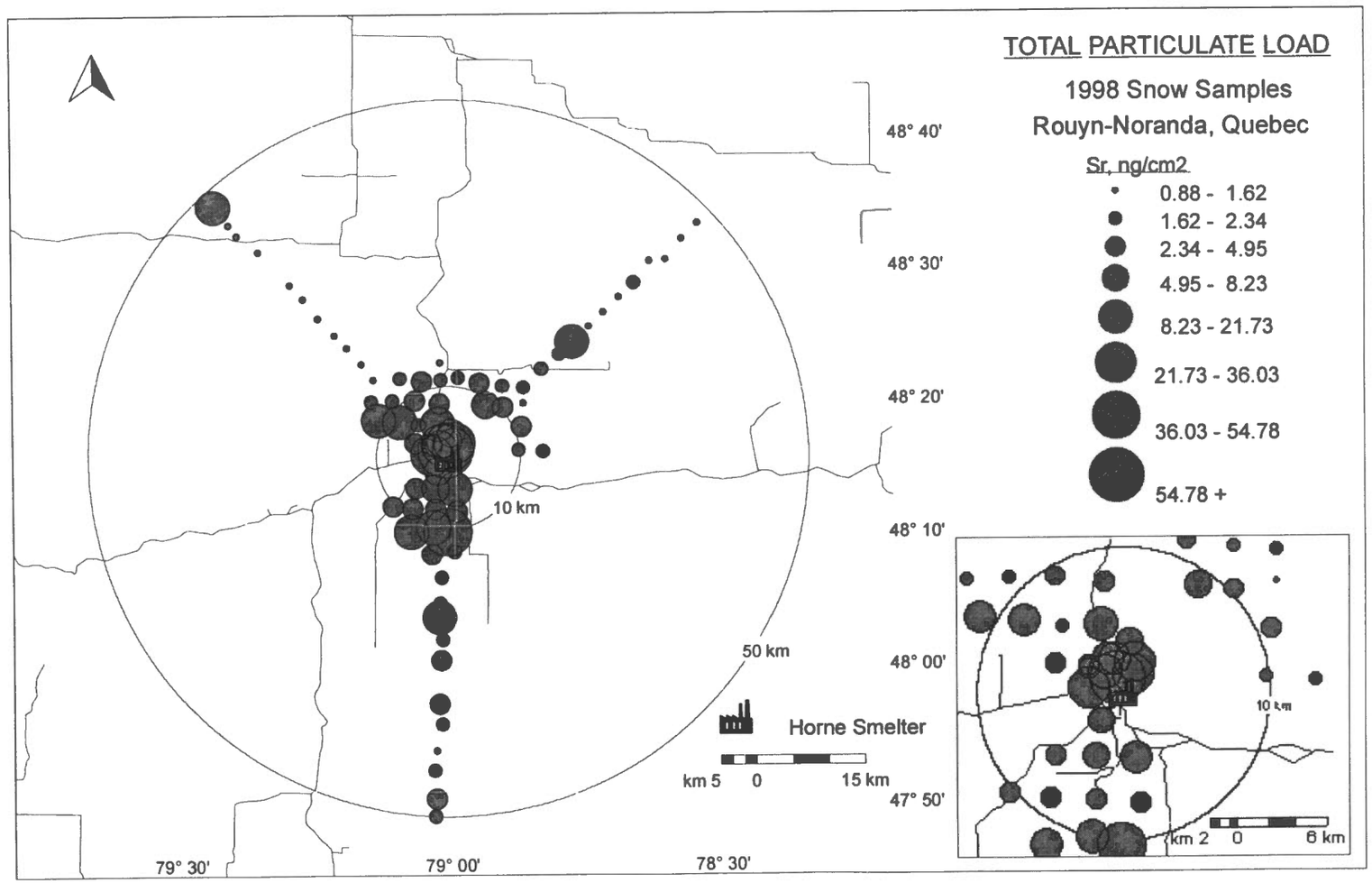




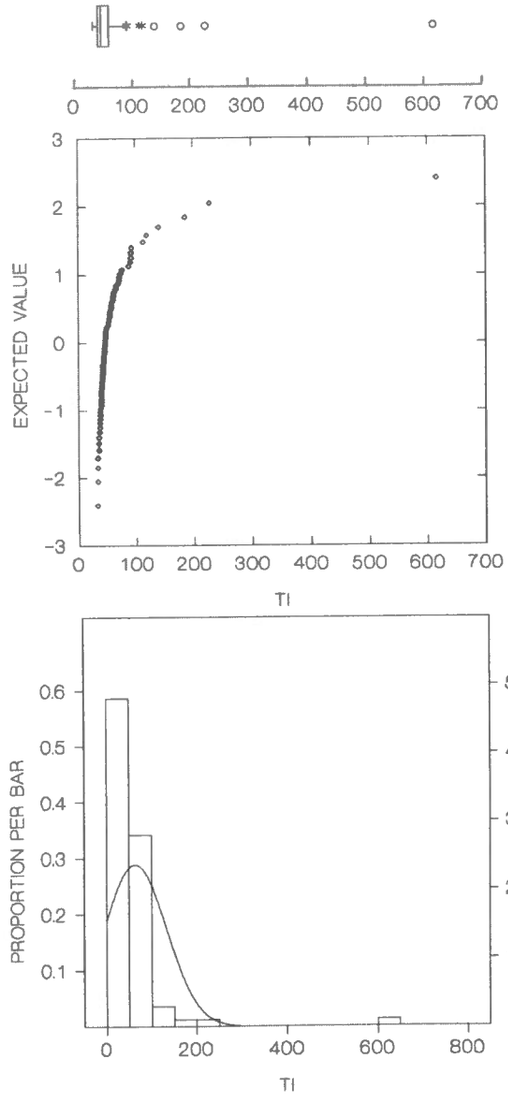


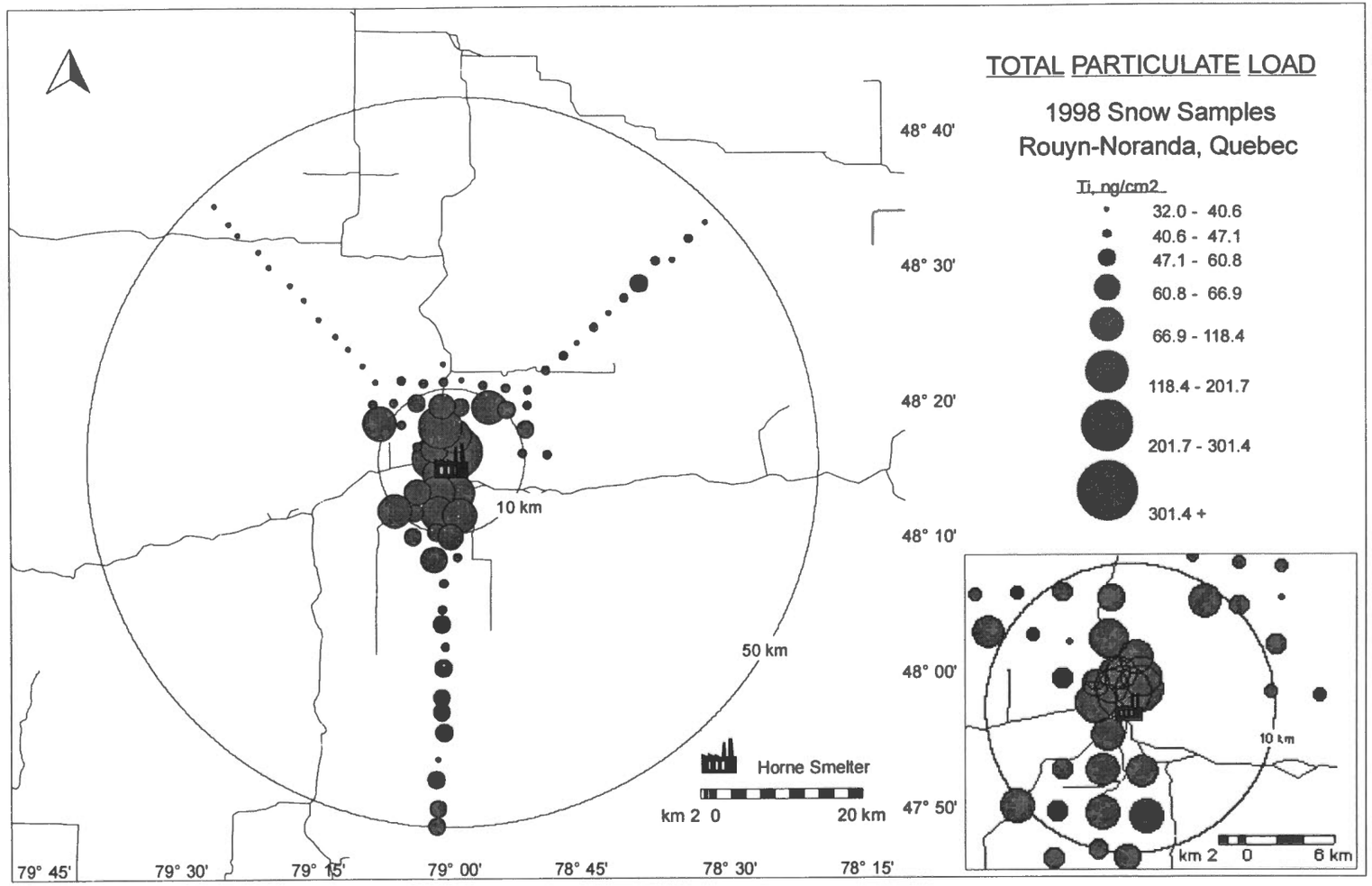
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



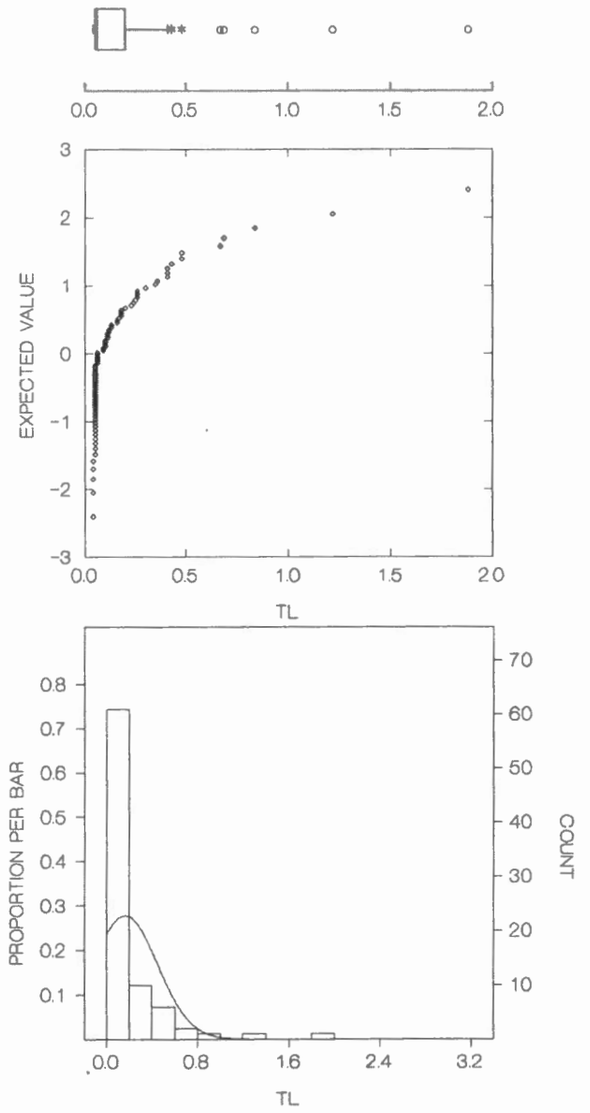


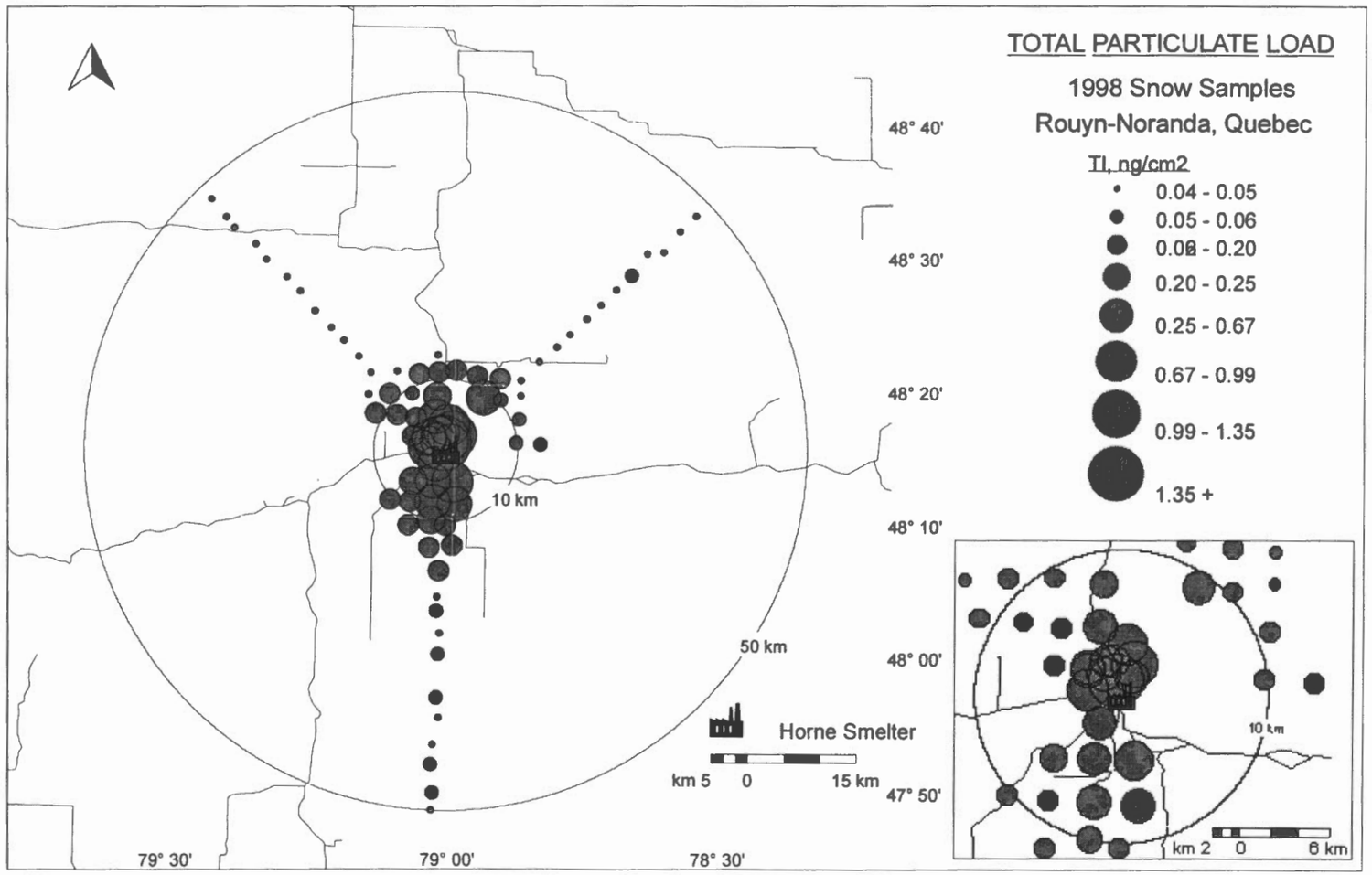
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



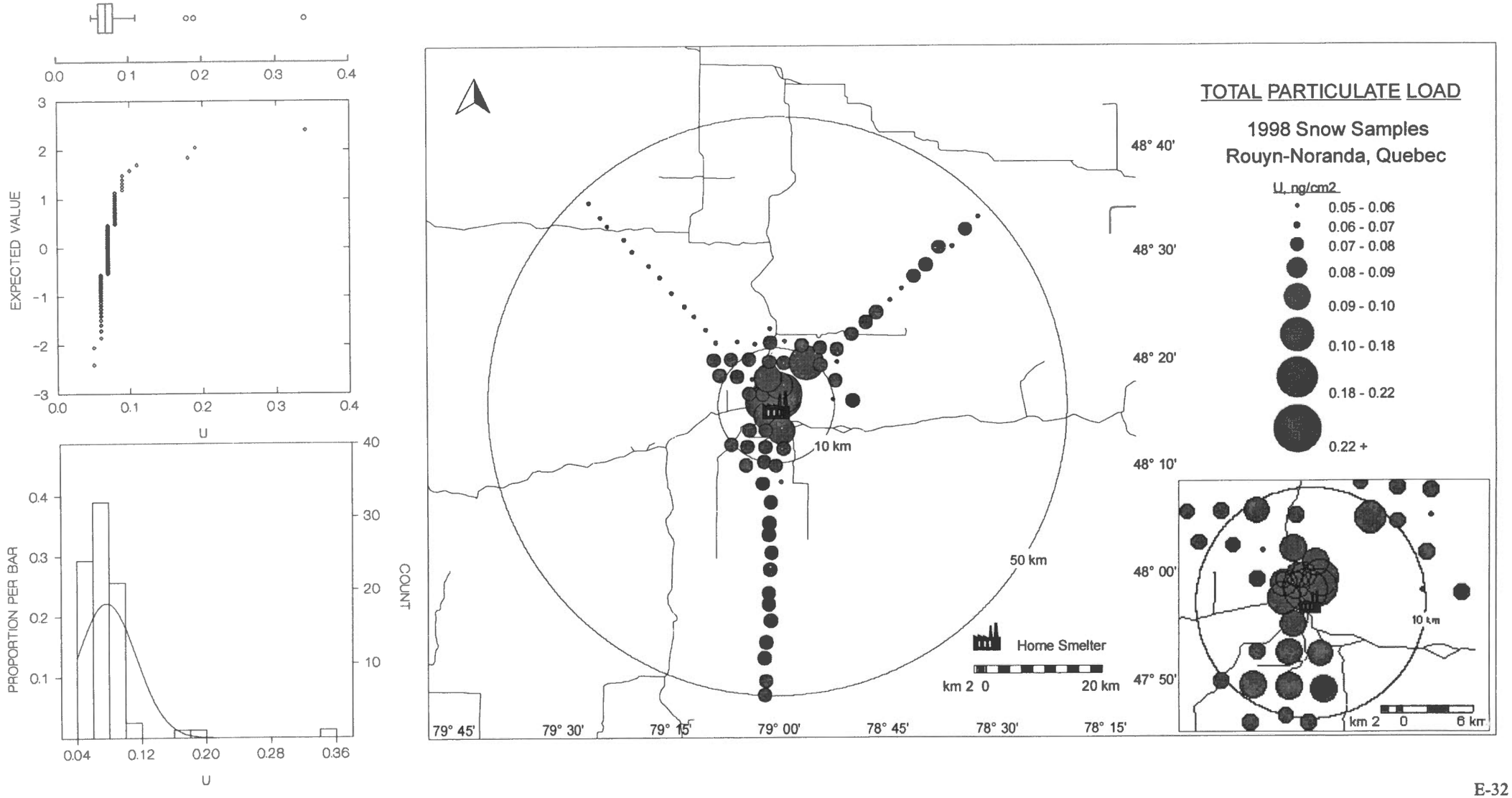


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

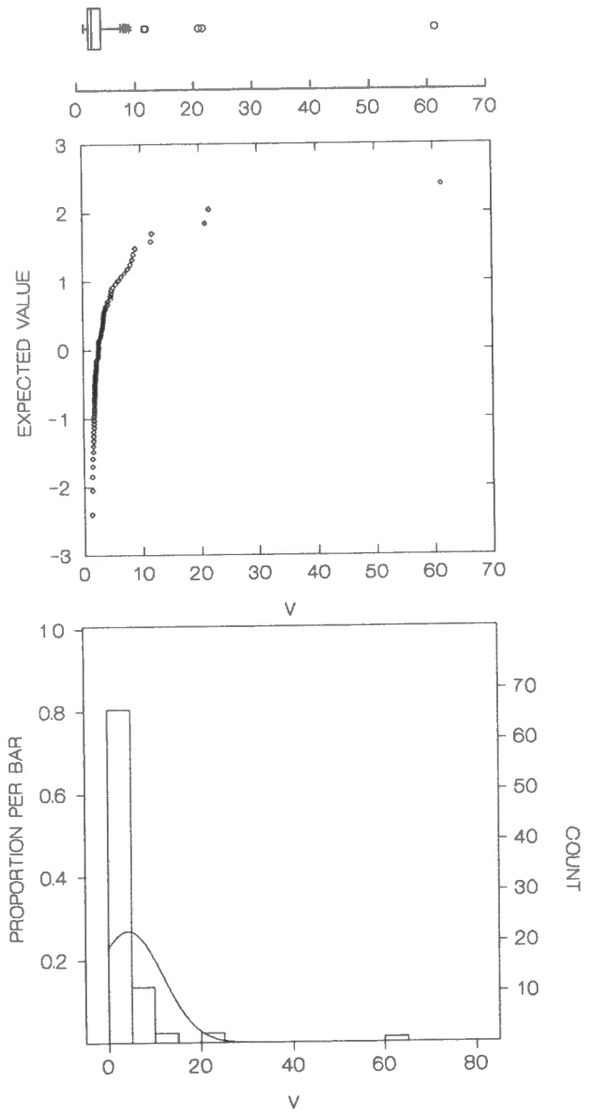


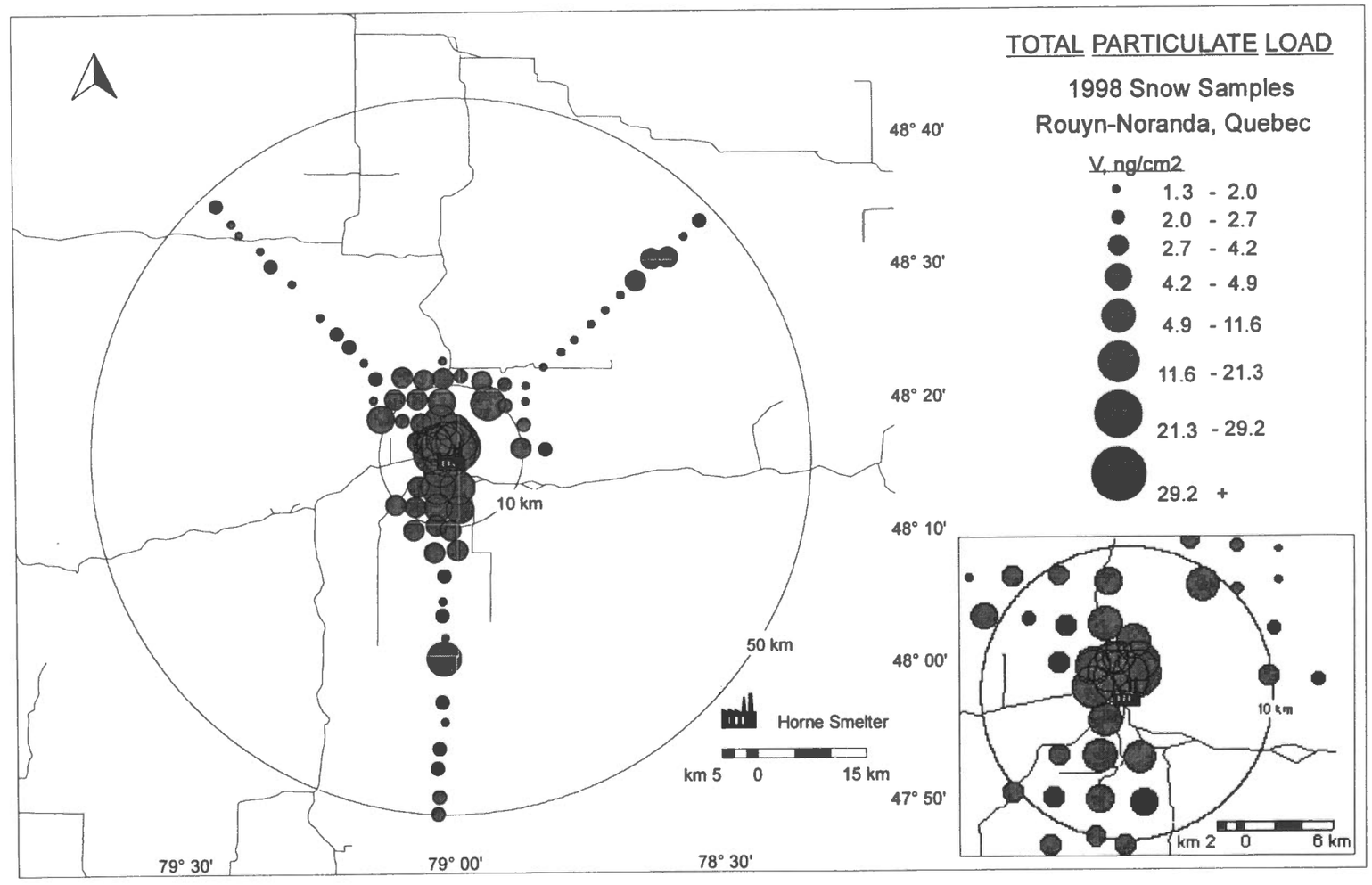


MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

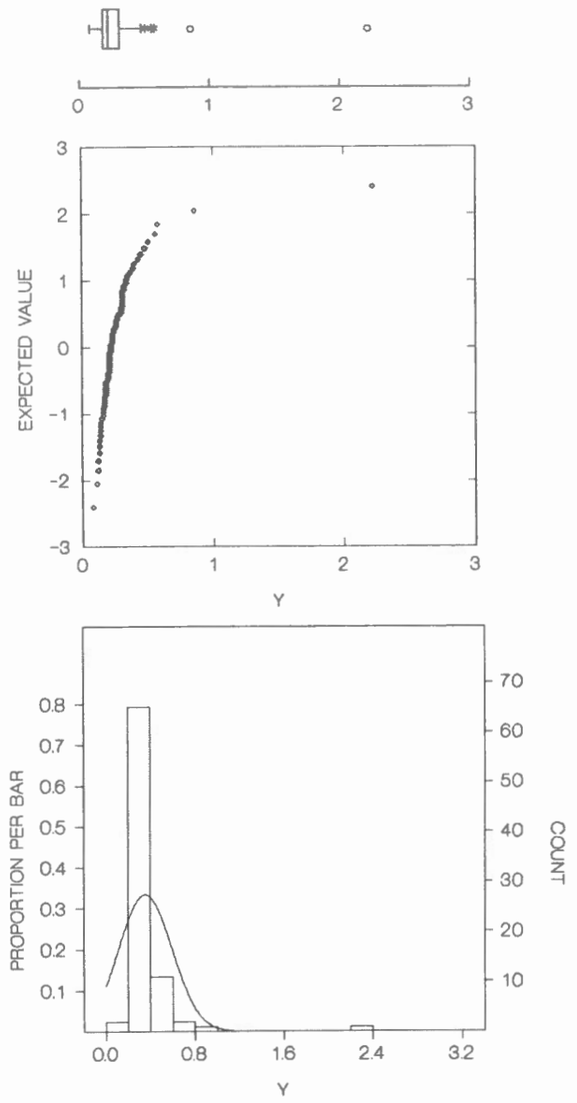


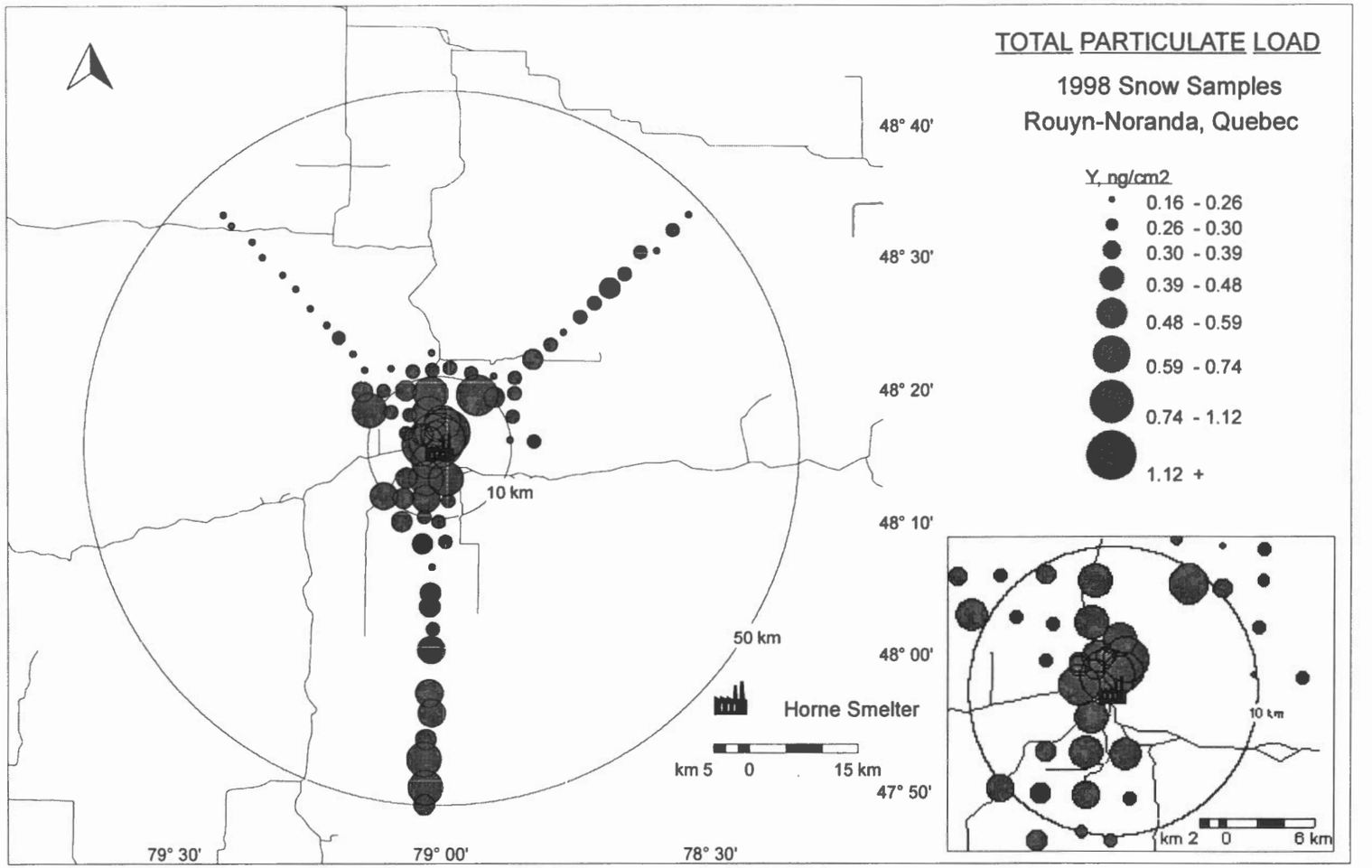
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data



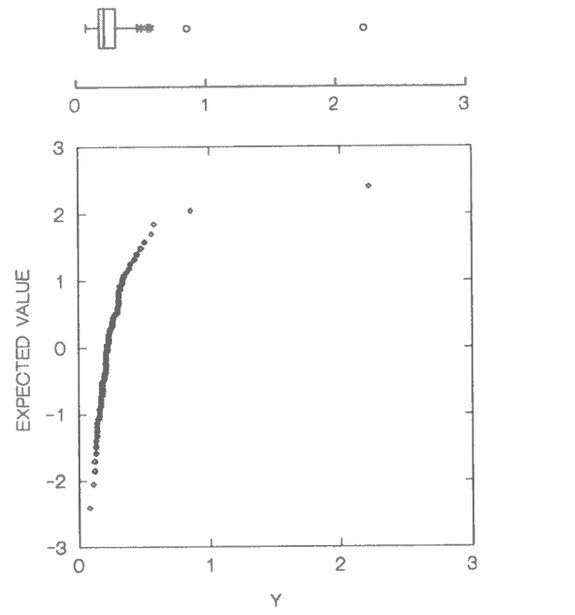


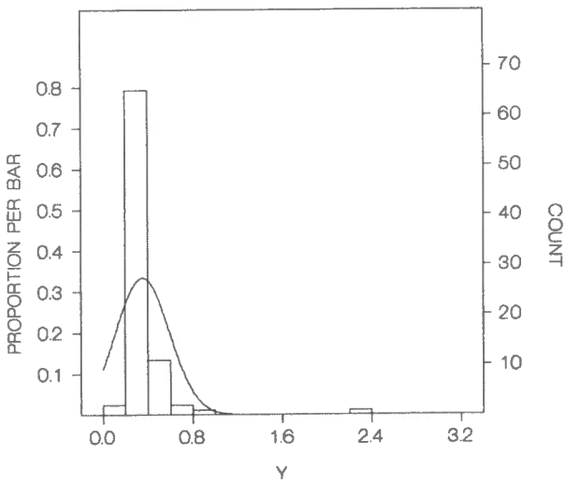
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

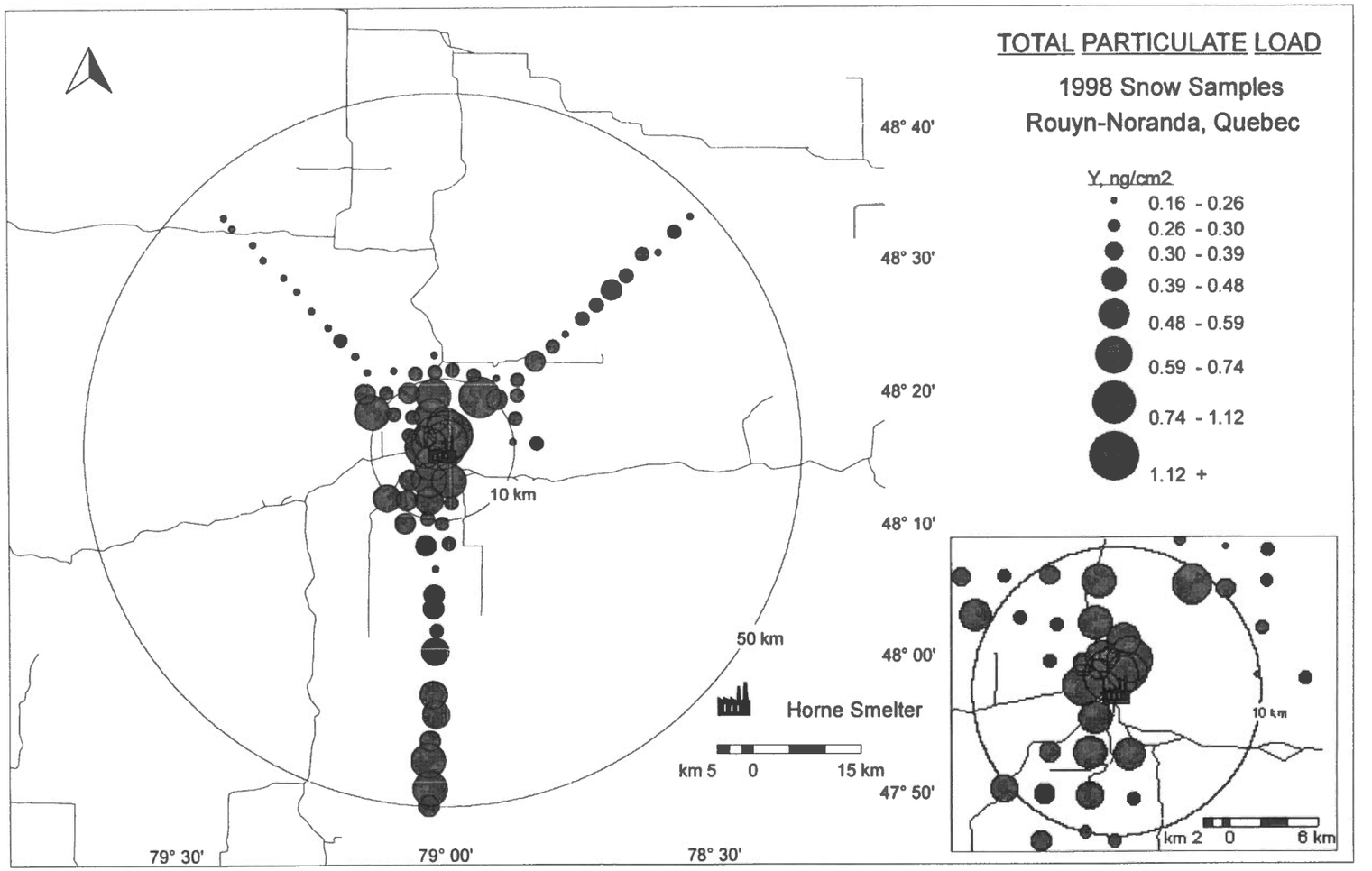




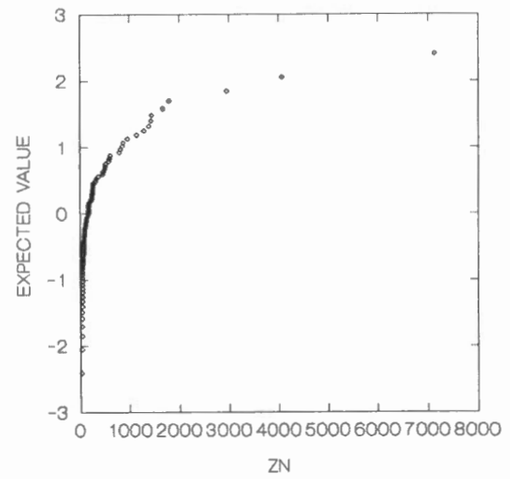
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Statistical Data

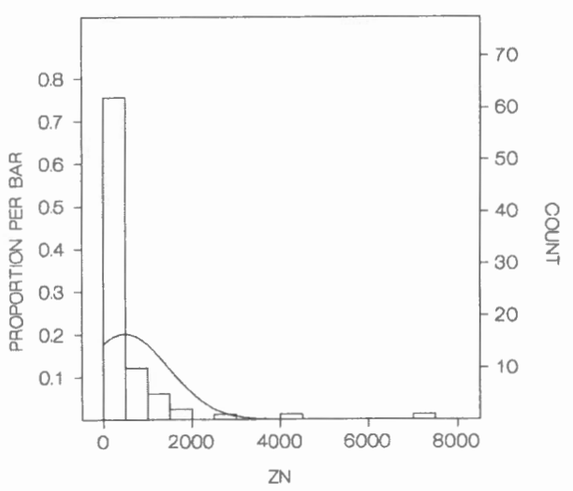


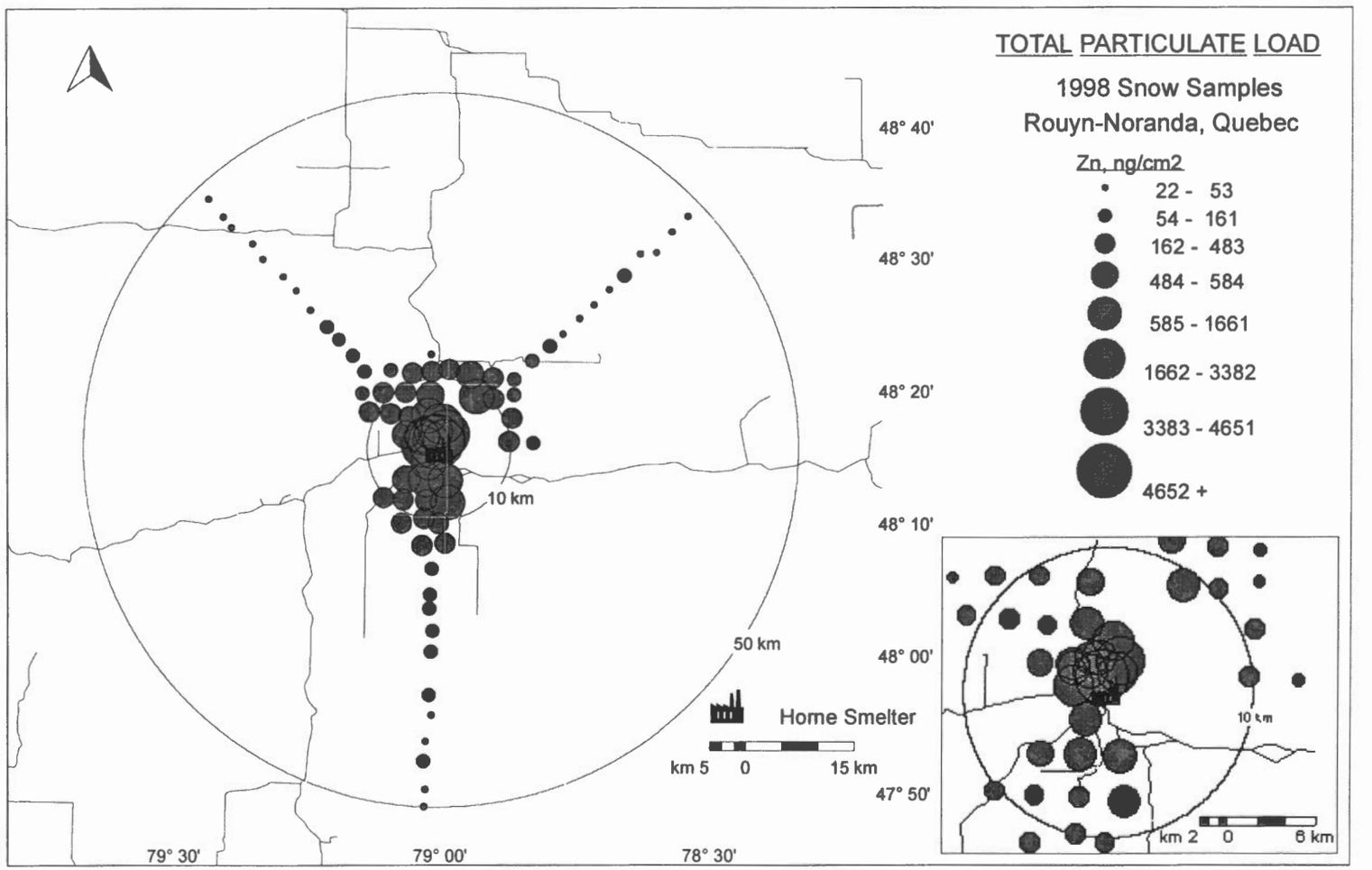




MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Québec
Graphical Data







APPENDIX F

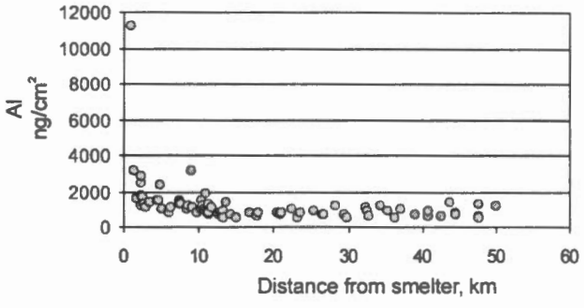
Graphical Data

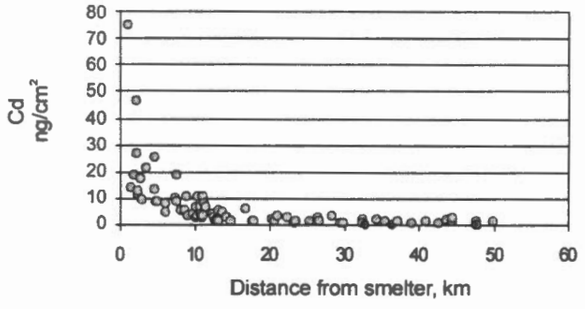
Distance-from-smelter Plots

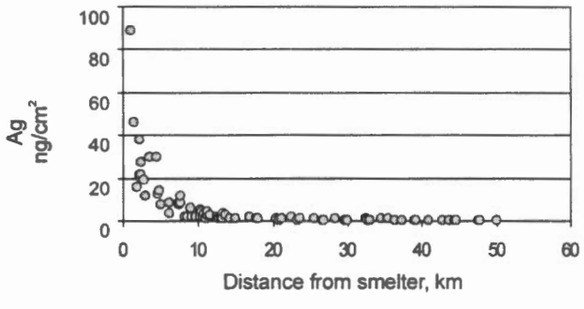
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Graphical Data Prologue

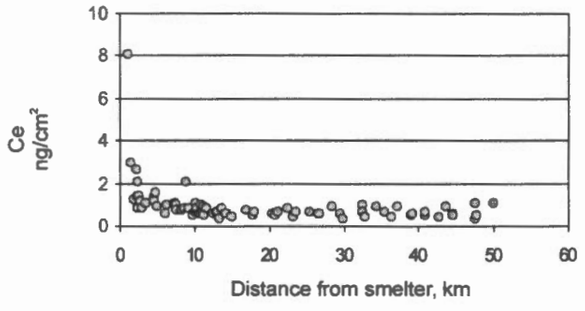
The following graphs represent the total metal load (natural + anthropogenic) in snow versus distance from smelter. The graphs show that the mass of metals per unit area contained in snow shows a strong negative correlation with distance from smelter. However, the non-smelter related metals such as Cr, Cs, K, Mn, Mg, Nd, Rb, Se, and S show very week to no patterns with increasing distance. It is also observed that highest metal loads occur within 10 to 15 km from the smelter.

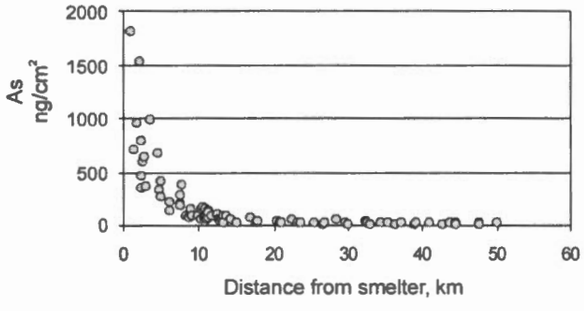
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Distance-from-smelter Plots

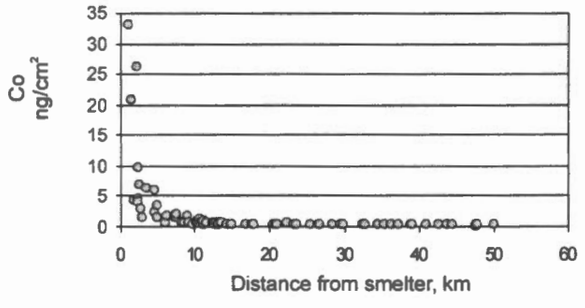


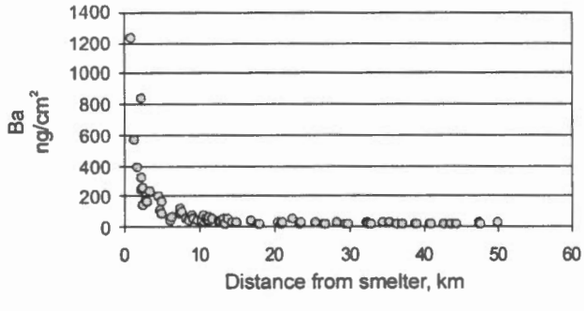


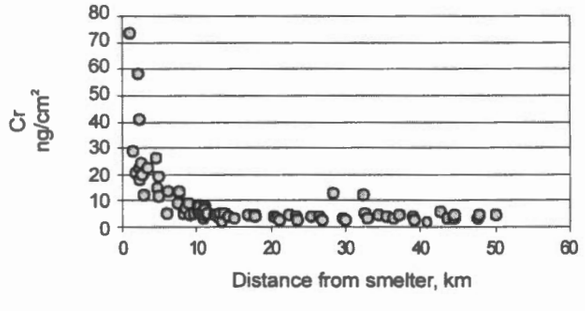


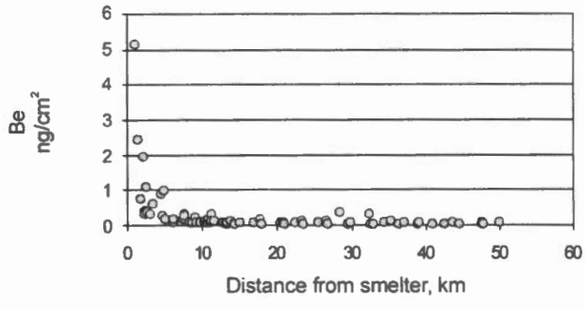


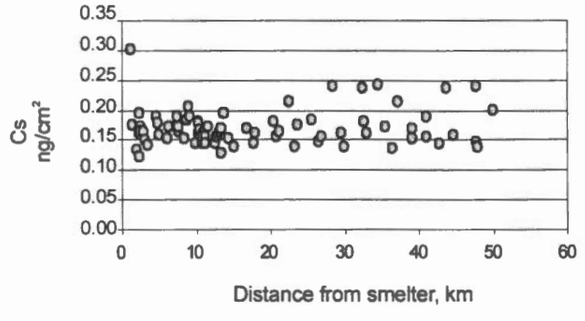


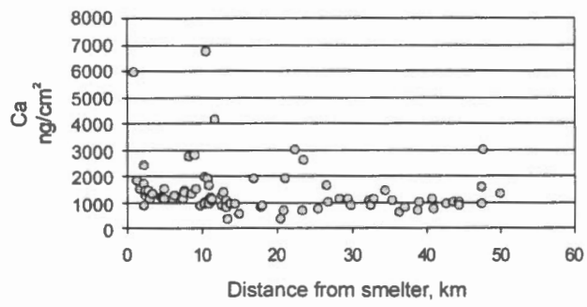


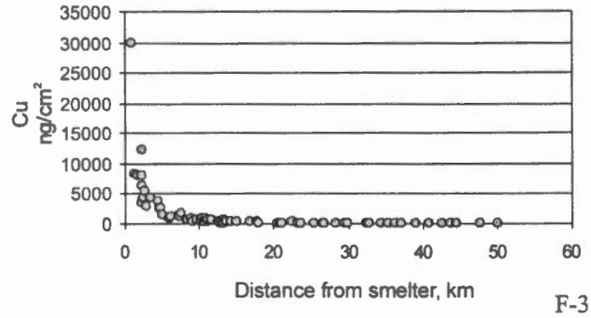




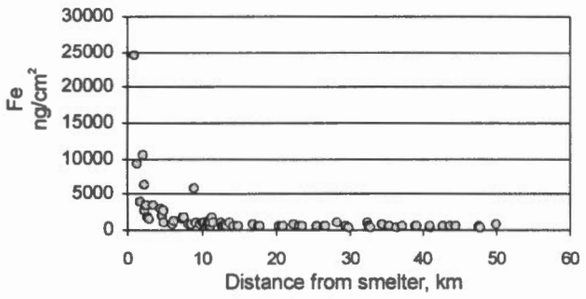


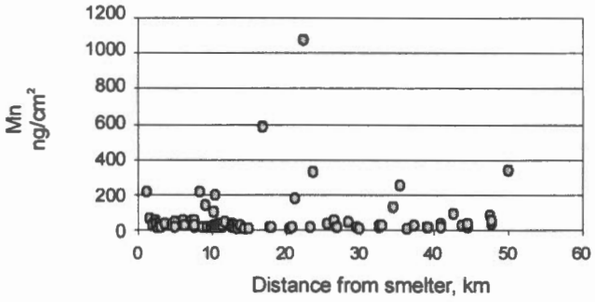


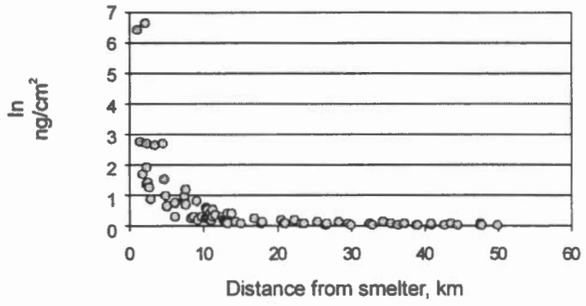


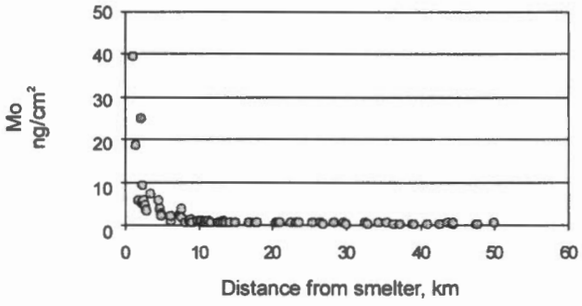


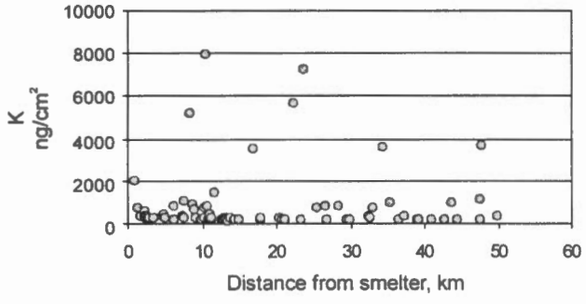
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Distance-from-smelter Plots

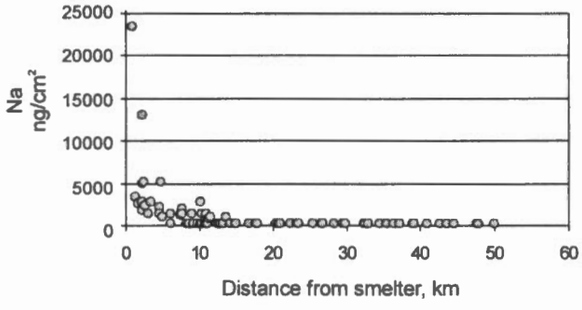


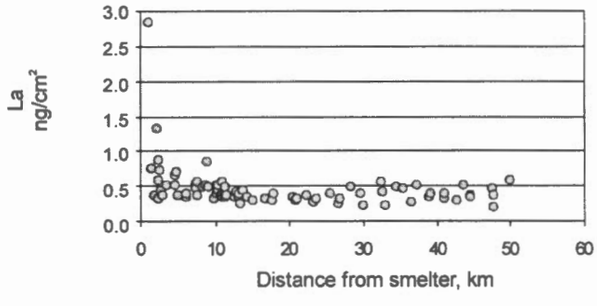


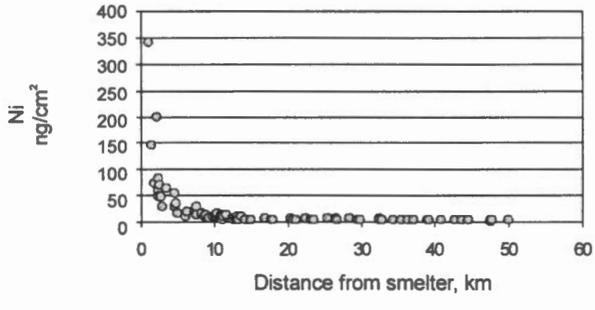


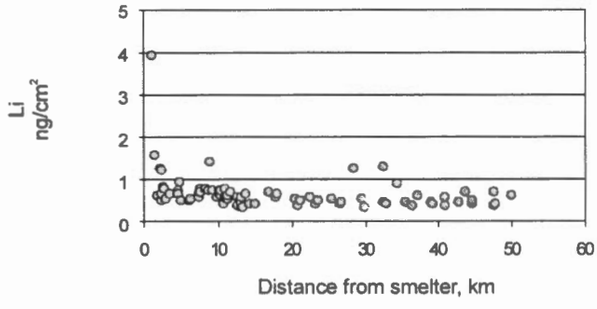


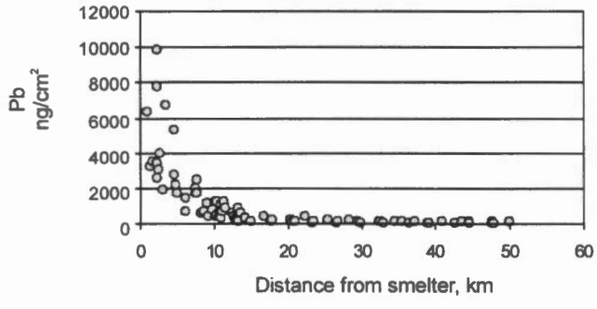


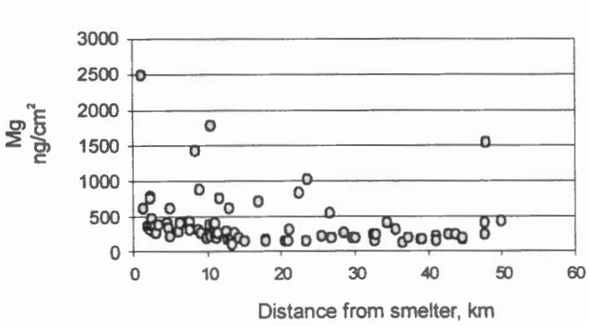


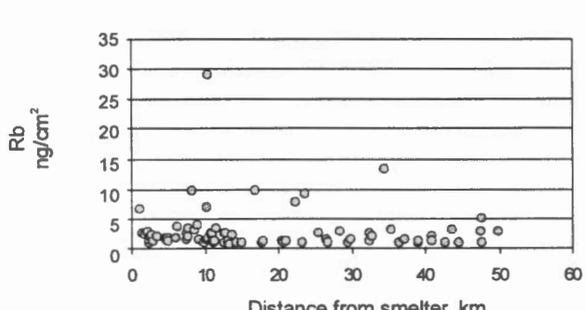




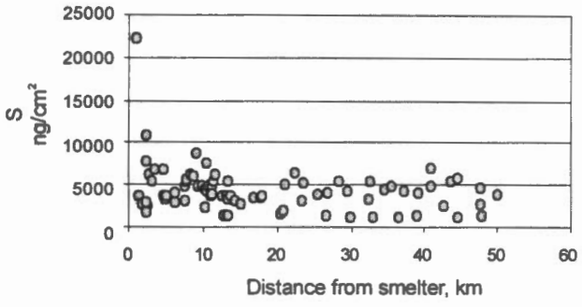


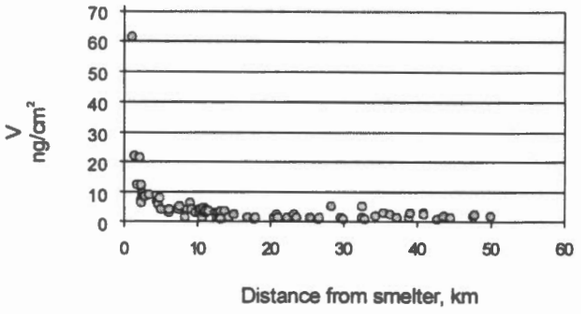


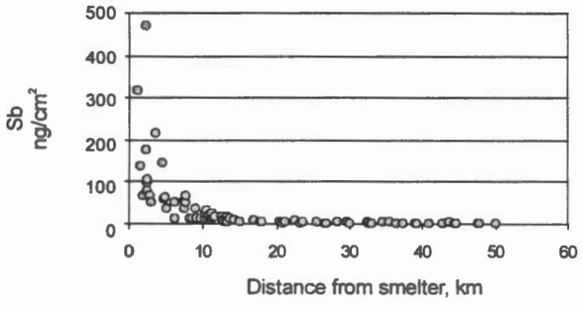


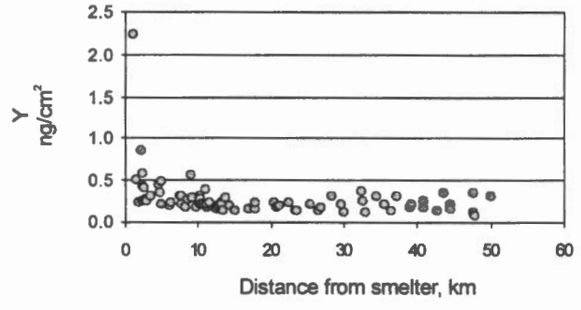


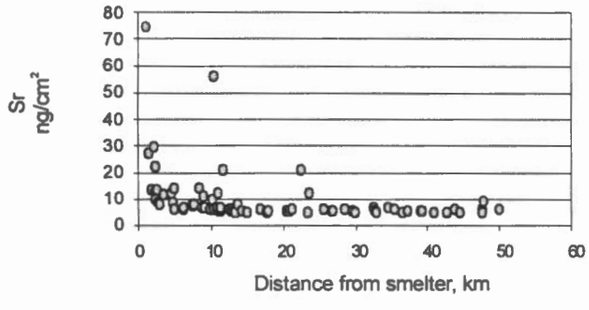
MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
Distance-from-smelter Plots

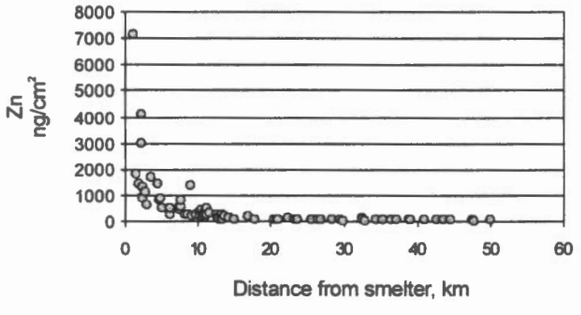


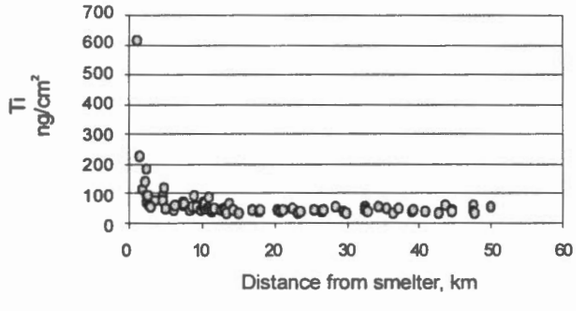


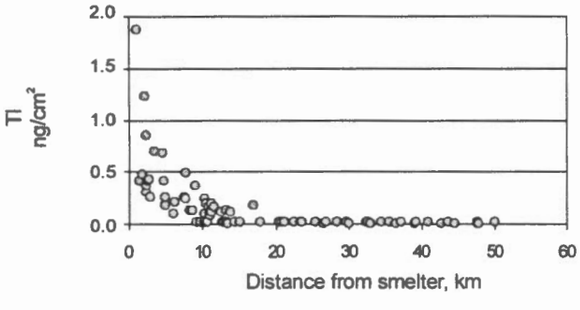


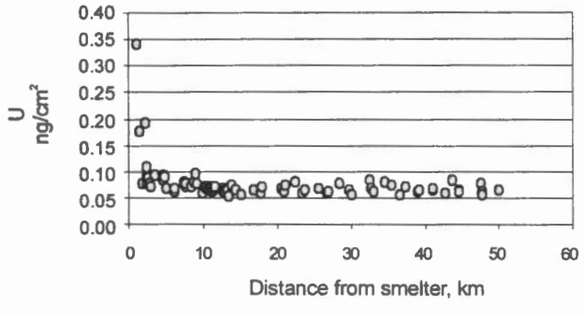












APPENDIX G

Scanning Electron Microscope Thermoprints

MITE-GSC, 1998 Snow Data, Rouyn-Noranda, Quebec
SEM Data

Table G1: Summary table of snow particulate observed under the scanning electron microscope, including location of sample, particulate morphology, and composition of smelter-made particles.

Sample site	Location	Composition of mineral grains, fragments and other material	Composition of smelter-made spheres	Max size observed	Thermal prints
RN98-SNOW-02	2.3km W of smelter	Sliver of Sn/Zn/Fe; mafic minerals; Fe_xS_x; Fe_xO_x; sphalerite; diopside; barite; galena; chalcopyrite; Fe/O/Ca/S and Mg/Si/Fe/O minerals; quartz; plagioclase; native S; chlorite; biotite; Al/Si/O cysts	Ti/Si/Fe/Al/O spheres Fe/O spheres Cu/S spheres Fe/Zn/Si/O spheres	3.5 µm	10
RN98-SNOW-60	47.6km S of the smelter, open area	Ilmenite; garnet; Si/O cysts; albite; labradorite; pyroxene; native Fe; quartz; biotite; Fe-oxide	Ni/Zn/Cu/O spheres Ni/ Fe/O/Zn spheres	2.0 µm	2
RN98-SNOW-66	28.4km S of smelter; hilltop	Sphalerite; chalcopyrite; Fe-oxide; Fe/Cu minerals; biotite; K-feldspar; chlorite; plagioclase; ilmenite; diatoms			4
RN98-SNOW-08	1.1km N of smelter	Plagioclase; Fe-oxide; barite; apatite; quartz; K-feldspar; native Zn; chalcopyrite; sphalerite; native S	Fe/Cu/O spheres Cu/S/Fe/O spheres Cu/Sn/S/Al/Si/Ca/O spheres Cu/Fe/S/Zn/O spheres Si/O/Zn/Trace Cu spheres Cu/S spheres Fe/O spheres	27.5 µm	10
RN98-SNOW-80	7.5km W of smelter	Cu/Fe/S minerals; Fe-oxide; quartz; K-spar; barite; chalcopyrite; Pb/As/Sn particle; Si/O cysts; pollen	Ba/S spheres Cu/O spheres S spheres	7.8 µm	4
RN98-SNOW-48	14.3km NE of smelter	Sulphur; pyrite; chalcopyrite; S/Fe, S/Fe/O, S/Fe/Cu minerals; Sn/As/Fe/P/Si colloid; Zn/Ca/Pb/Si and Fe/O/Zn/Si minerals			2
RN98-SNOW-20	20.8km N of smelter	Zn/Fe, S/Fe, and Cu/S particles; Fe-oxide; biotite; quartz; titanite, Al/Si/O cysts			1
RN98-SNOW-40	39.1km SE of smelter	Pb and Sb minerals; biotite; pyrite; quartz; ilmenite; rutile; Si/Al/Fe minerals; Fe-oxide; Al/Si/O cysts	Fe/O spheres	2.0 µm	3
RN98-SNOW-45	23.6km NE of smelter	Pyrite; chlorite; chalcopyrite; albite; rutile; ilmenite; plagioclase; quartz; Fe precipitate			1
RN98-SNOW-30	13.2km NW of smelter	Chalcopyrite; quartz; native Ni; Cu/O minerals; Fe-oxide; quartz; K-spar; albite; Al/Si/Fe minerals; chlorite; biotite; barite; plagioclase; titanite			2
RN98-SNOW-53	9.0km N of smelter	native Zn; native S; native Fe; pyrite; Fe-oxide; quartz; K-spar; chlorite; plagioclase; sphalerite; pollen; Si/O cysts			3
RN98-SNOW-10	2.3km N of smelter	Native Cu; native S; pyrite; quartz; barite; Fe/Zn/Si/O minerals; chalcopyrite; chlorite; Fe-oxide; biotite; sponge spicules; siliceous cysts	Cu/S spheres Fe/O spheres Cu/S/Fe spheres	11.4 µm	4
RN98-SNOW-42	32.6km NE of smelter	Ilmenite; K-spar; quartz; Fe-oxide; native Fe; Cu/S/Fe and Fe/Bi/Sn/As/Cu/Zn minerals; Al/Si/O cysts	Fe/O spheres	4.6 µm	3
RN98-SNOW-50	11.3km N of smelter	Barite; pyrite; biotite; chlorite; native Ni; sphalerite; mafic minerals; quartz; Si/Al/O cysts	Fe/O spheres Cu/S spheres Si/Al/K/O spheres	19.3 µm	4
RN98-SNOW-72	13.2km E of smelter	Sphalerite; pyrite; barite; native Cu; chalcopyrite; Pb/Al/Si/O minerals; organic material;	Ti spheres Cu spheres Ni/Fe/S spheres Pb/Cu/S/Si/K/O spheres Fe/O spheres Sb/S/O spheres	5.4 µm	1
RN98-SNOW-70	16.8km S of smelter	S/Pb/O minerals; barite; chalcopyrite; K-spar; pyroxene; biotite; quartz; Fe-oxide; siliceous cysts; organic material	Fe/O spheres	2.9 µm	4
RN98-SNOW-62	40.9km S of smelter	Si/Pb/Ca/Fe/Cu minerals; Al/Si/O cysts	Cu/S/Se spheres Fe/O spheres	5.5 µm	1

Sample site identification: **RN98-SNOW-02**
Date of analysis: 09-14-98

- Sampled by truck, relatively near smelter.
- Very Fe-rich particulate: Fe_xS_x and Fe_xO_x with lots of pyrite fragments and sphalerite; very small mafic minerals; Sn/Zn/Fe, Fe/O/Ca/S mineral grains; diopside; Mg/Si/Fe/O mineral grains; barite, galena, chalcopyrite, quartz, plagioclase, native sulphur, chlorite, and biotite.
- Smelter particulate: Ti/Si/O/Fe/Al sphere; lots of very small Fe-oxide spheres; Cu/S sphere (S02-02); Fe/Zn/Si/O sphere (S02-04).
- Al/Si/O spheres identified as Al-siliceous cysts because of their distinct apertures; the organic material also contains some trace of Al.

For SEM pictures, either connect to http://minchem.gsc.nrcan.gc.ca/sempics/kliza/ or refer to the edited thermal prints following all sample descriptions.

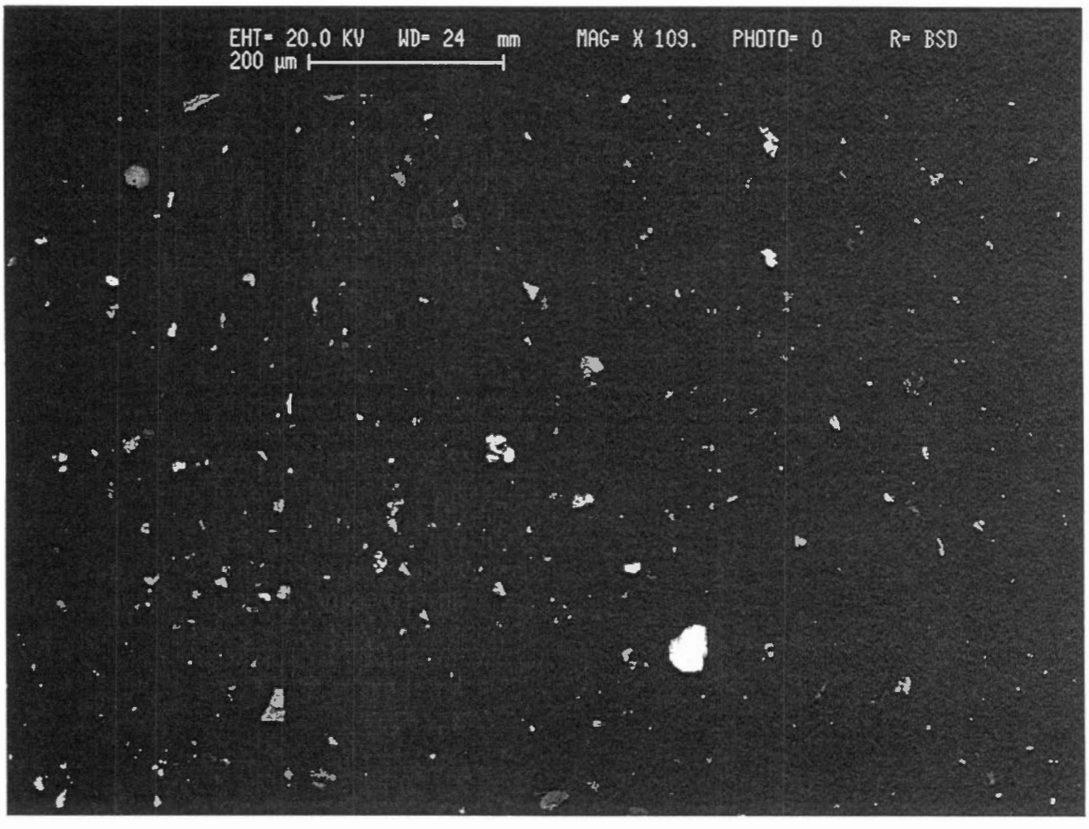


Figure 1: Thermal print #S02-01. An overview of snow particulate in back-scatter setting showing dense Pb/S particulate.

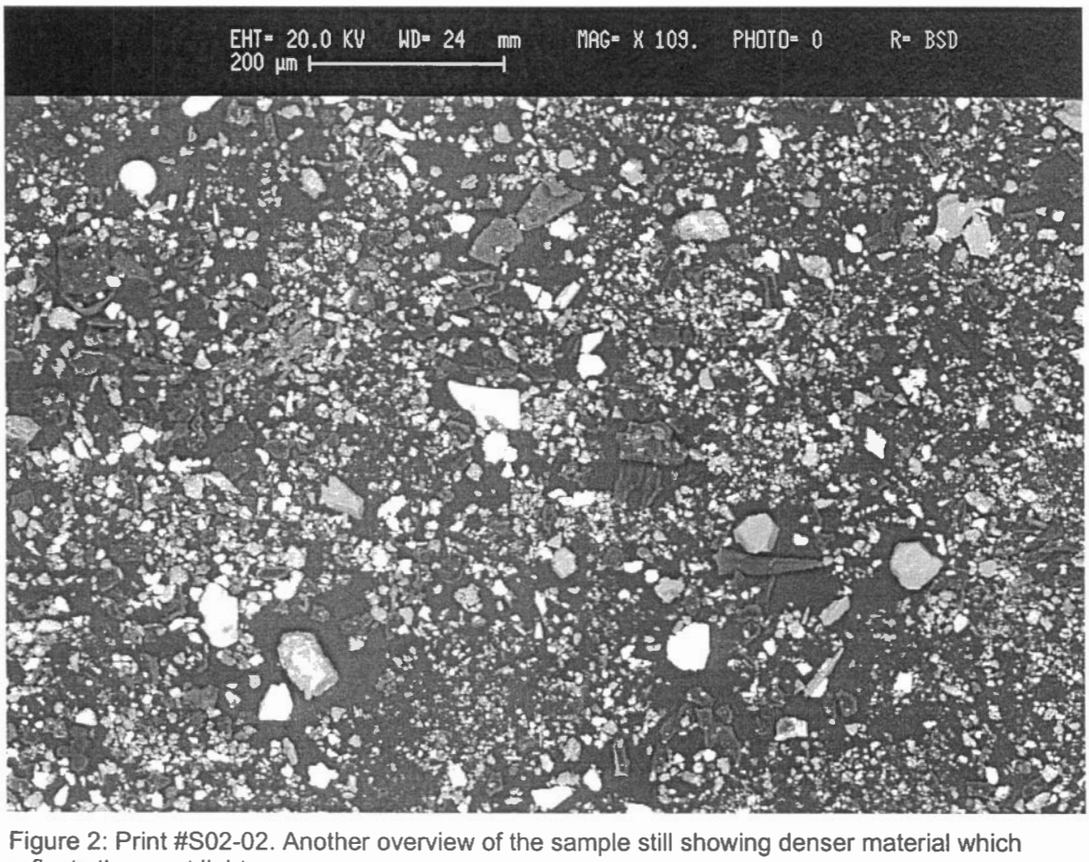


Figure 2: Print #S02-02. Another overview of the sample still showing denser material which reflects the most light.

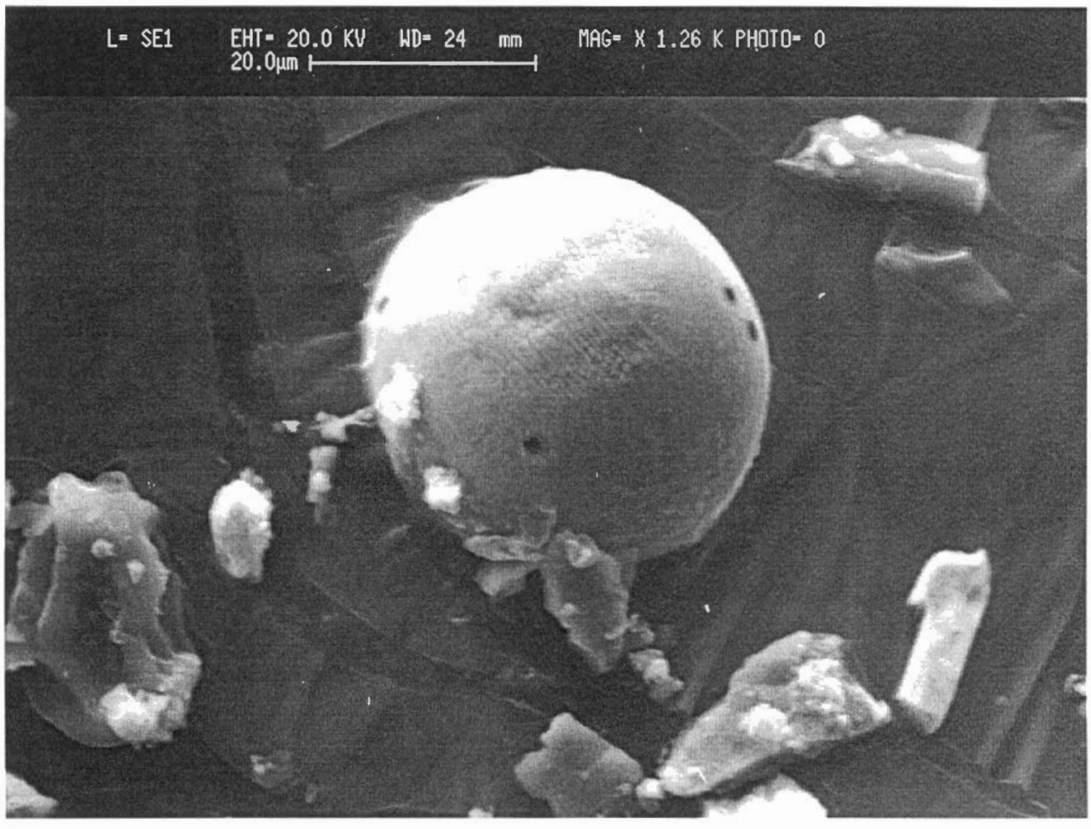


Figure 3: Print #S02-03. A sphere composed of Cu and S. Most likely smelter derived. Note the pockmarks on the surfaces and its texture.

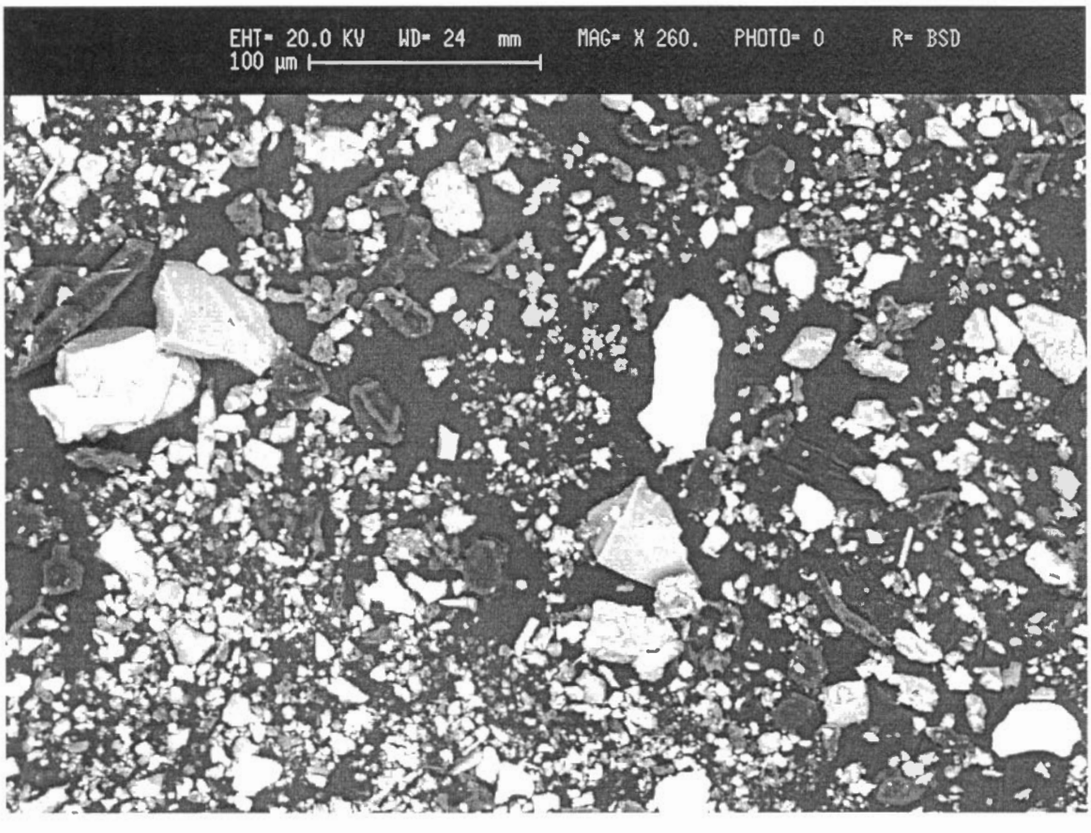


Figure 4: Print #S02-04. Another overview of the snow particulates from this sample site relatively near the smelter. Again, the densest particles (e.g., lead, sulphur, etc.) reflect the most light.

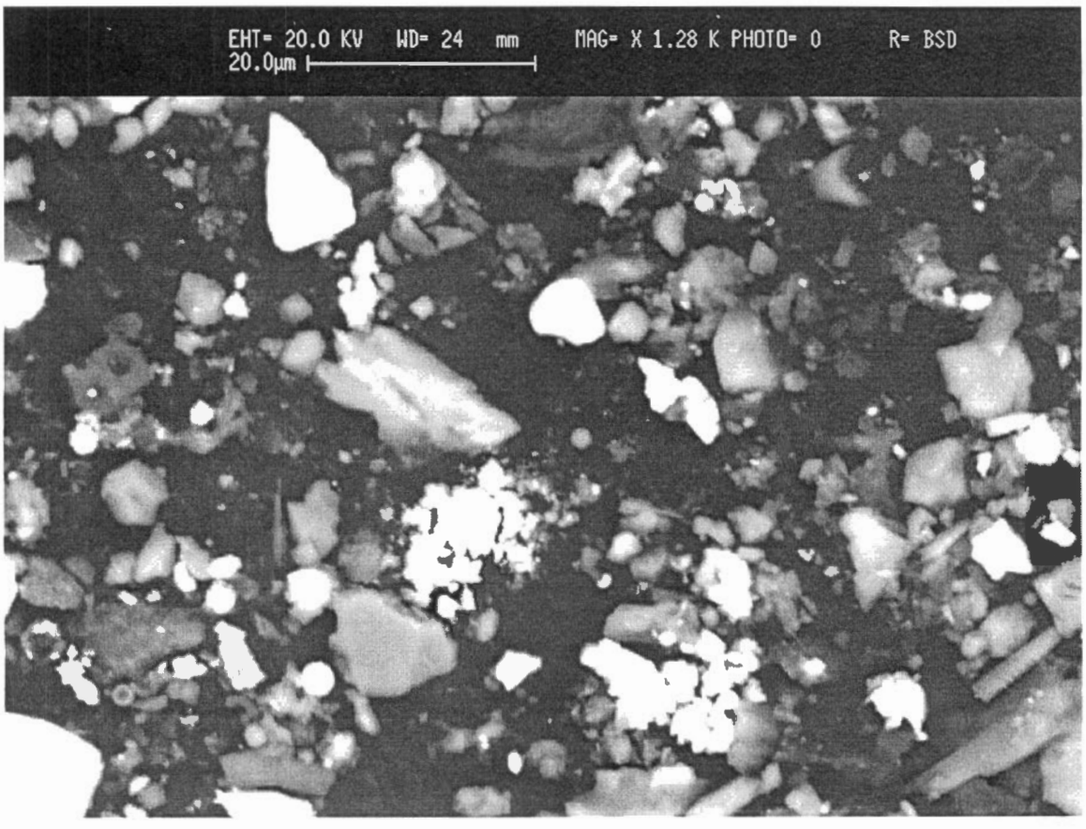


Figure 5: Print #S02-05. A closer view of the particulates than in the other pictures. This view shows abundant sulphur grains (brightest) and several spheres.

Figure 6: Print #S02-06. Organic material.

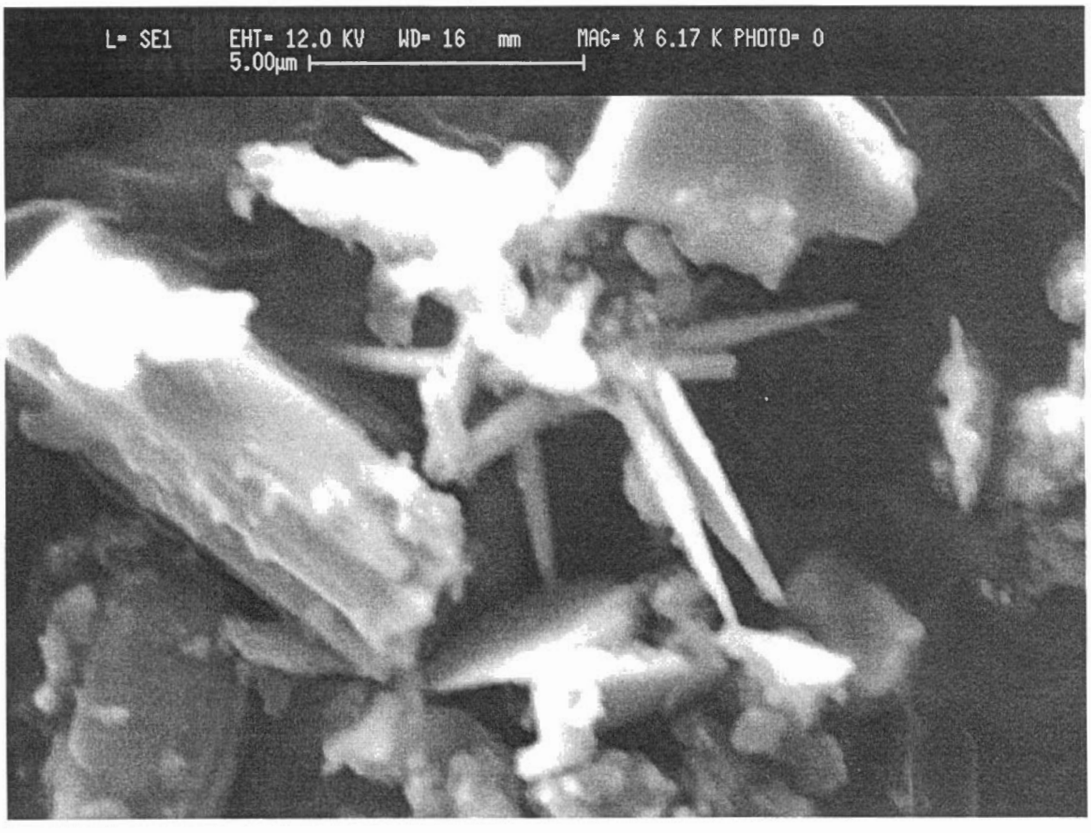


Figure 7: Print #S02-07. Radiating sulphur crystals.

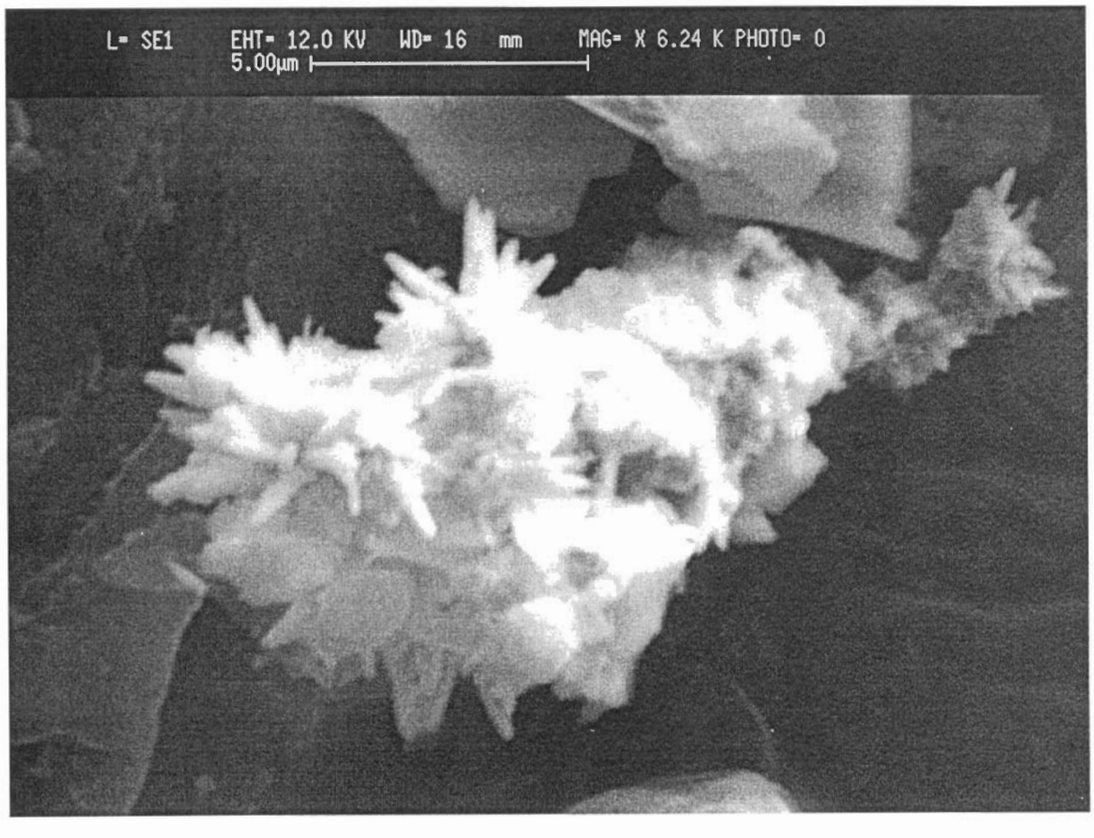


Figure 8: Print #S02-09. Close up of another bundle of sulphur crystals.

Sample site identification: **RN98-SNOW-08**
Date of analysis: 09-14-98

- Visibly, very dirty snow collected within a kilometre of the smelter.
- Extremely rich in metals; particulate angular and size variable (S08-02).
- Particulate consists of large grains of plagioclase, shavings of Fe-oxide, barite, apatite, quartz, K-spar, native Zn, chalcopyrite, sphalerite, and native S.
- Smelter-derived material include: Fe/Cu/O (S08-03); Cu/S/Fe/O(S08-04); Cu/Fe/S/O (S08-06); Cu/S/Trace Fe/O (S08-04); Cu/Sn/S/Al/Si/Ca/O (S08-01); Cu/Fe/S/Zn/O (S08-08); Si/O/Trace Cu/Zn (S08-10); Cu/S (S08-10); and Fe/O (S08-10).
- One large (8 µm) sphere (S08-01) looks like a ball of yarn (stringy texture); another sphere (3 µm) has a "rosebud" texture (S08-03); another sphere has a "Swiss cheese" texture (S08-06); another has an agglutinated texture (S08-08); and another has a "snowflake" texture (S08-10).

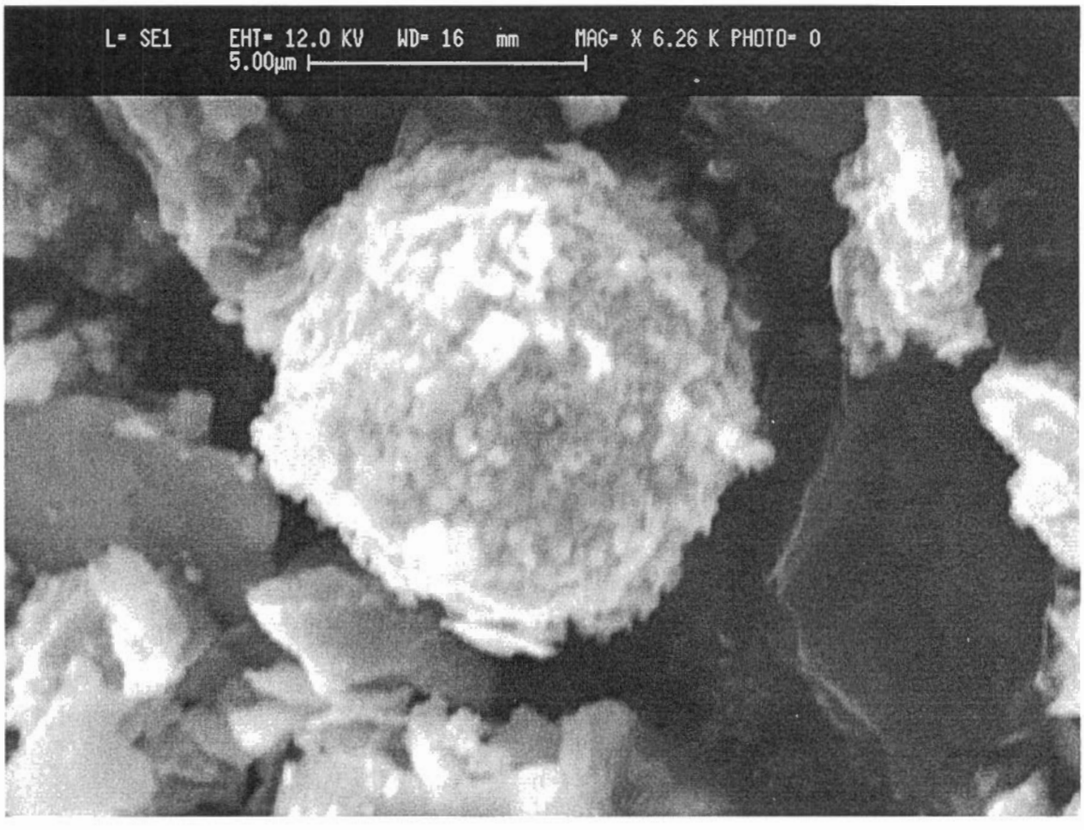


Figure 11: Print #S08-01. A large (8 µm) sphere with a stringy texture, maybe agglutinated.

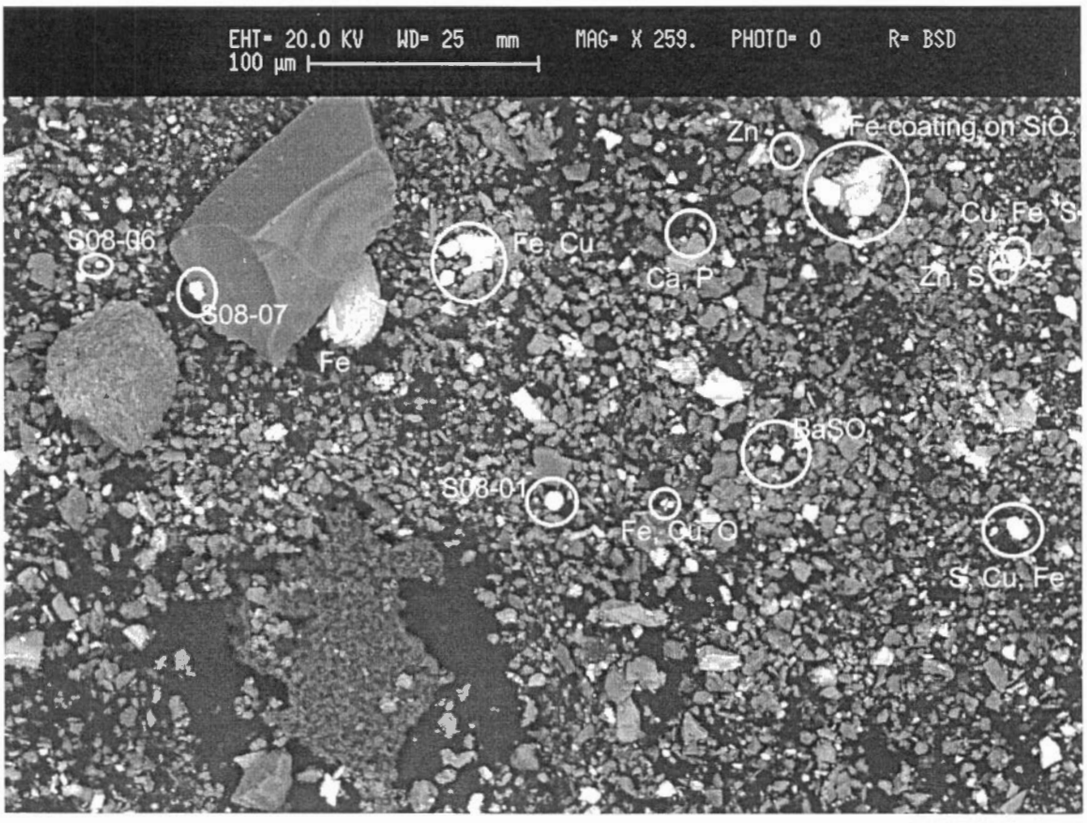


Figure 12: Print #S08-02. An overview of sample S08 which is extremely rich in metals, especially Fe, Cu, S and Zn. Particulate is angular and size variable with large grains like plagioclase, small shavings of Fe-oxide, barite, apatite, quartz, K-spar, native Zn, chalcopyrite, and sphalerite.

Figure 13: Print #S08-03. A smelter-derived sphere exhibiting a "rosebud" texture and composed of Fe/Cu/O surrounded by Cu/Fe/S fragments.

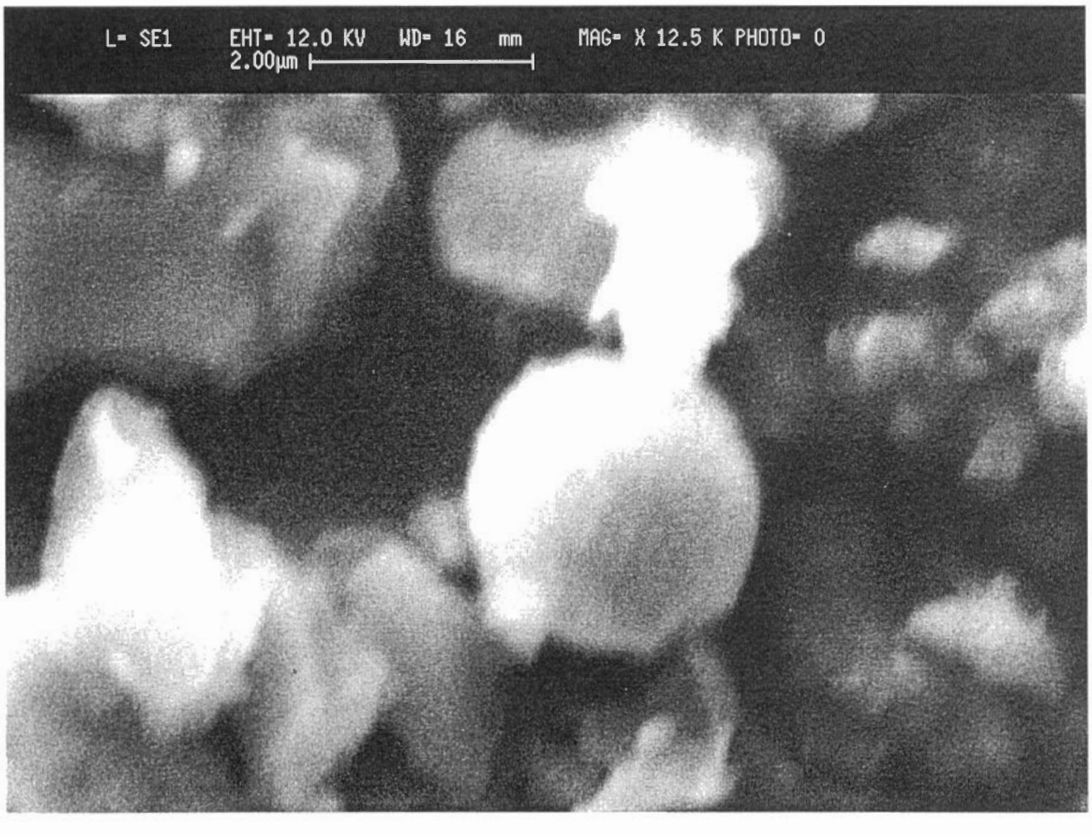


Figure 14: Print #S08-04. A smelter-derived Cu/S/Trace Fe sphere with a smooth texture, just larger than 2 µm in diameter.

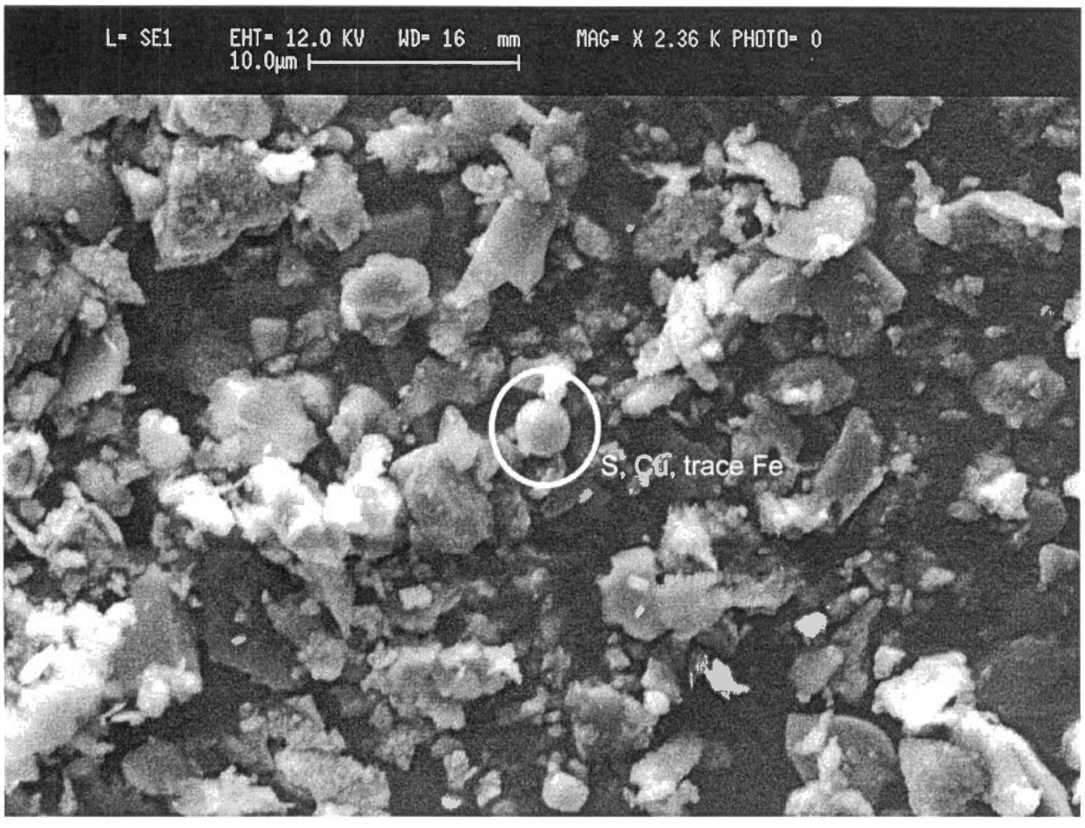


Figure 15: Print #S08-05. Close up of snow particulates in sample S08 displaying a S/Cu/Trace Fe sphere in the centre of view.

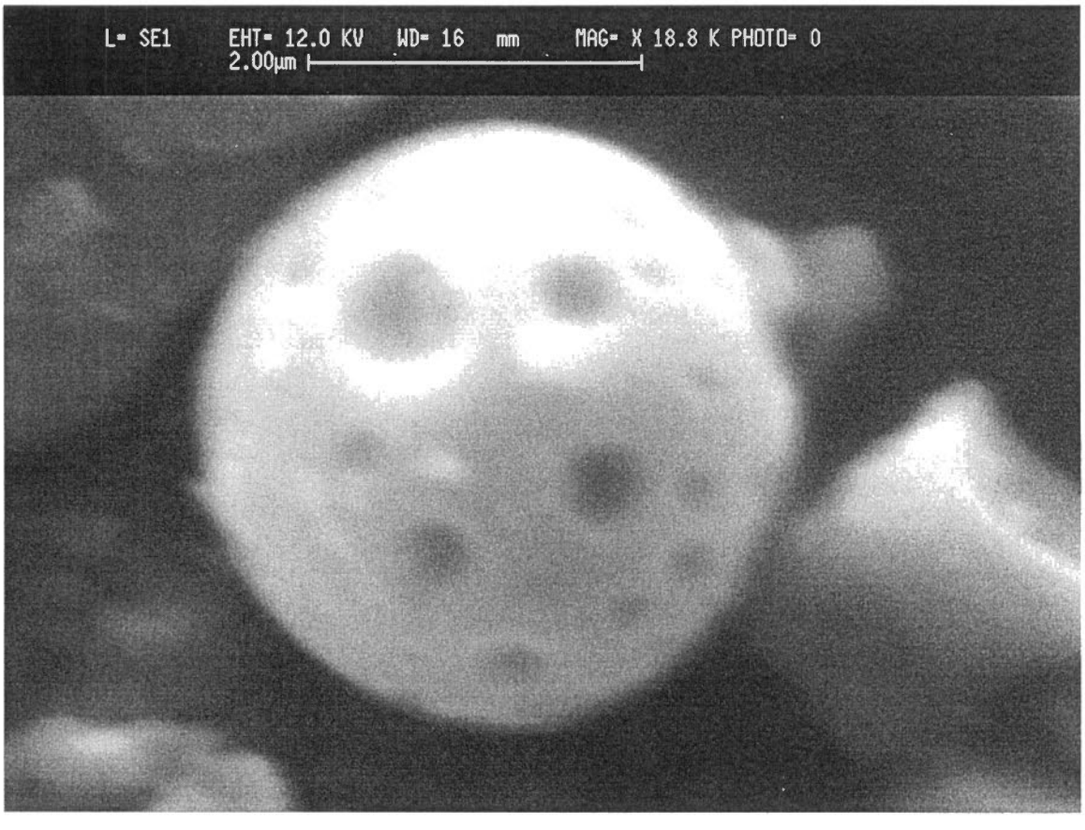


Figure 16: Print #S08-06. Close up of the S, Cu, Fe sphere displaying a pockmarked surface or a "Swiss cheese" texture.

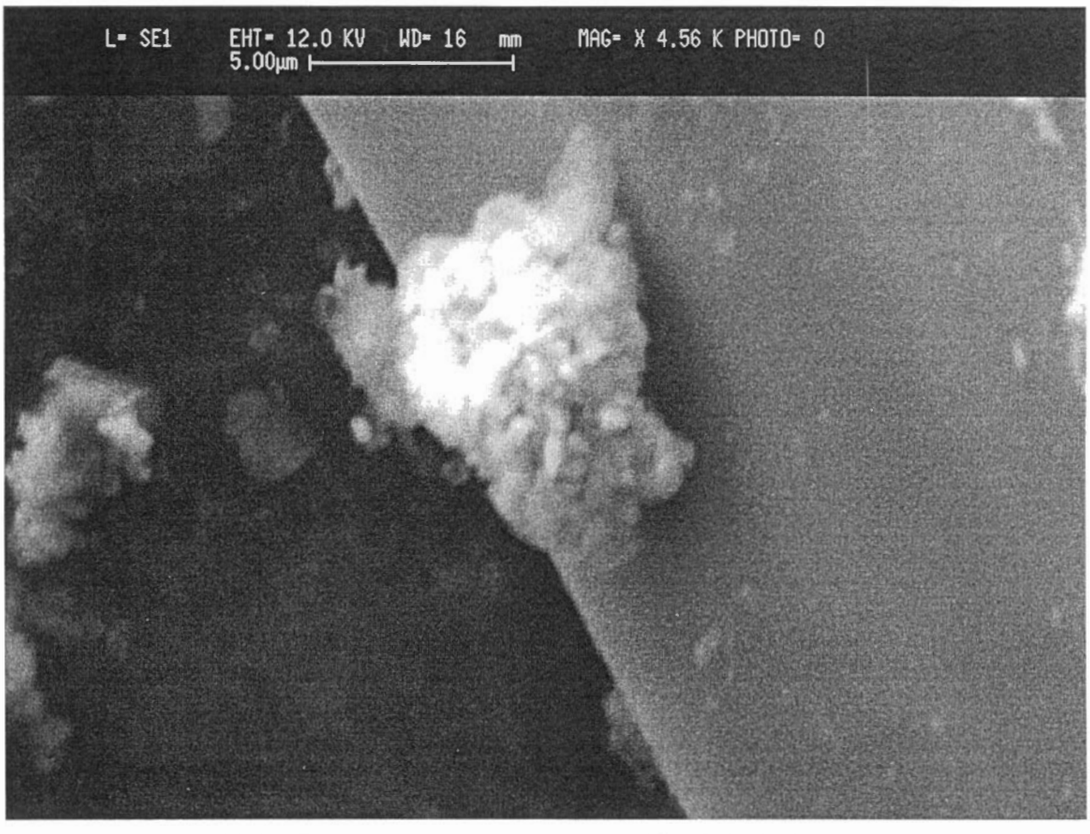


Figure 17: Print #S08-07. Barite agglomerate clinging to side of plagioclase grain.

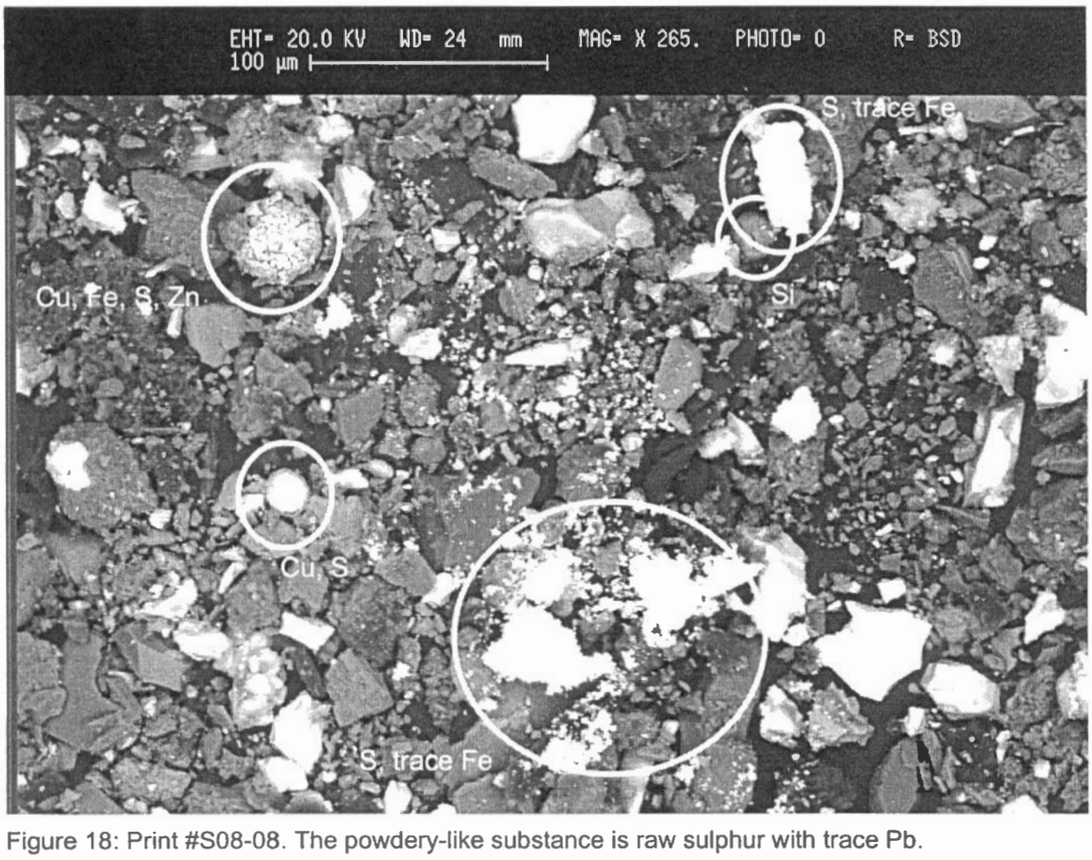


Figure 18: Print #S08-08. The powdery-like substance is raw sulphur with trace Pb.

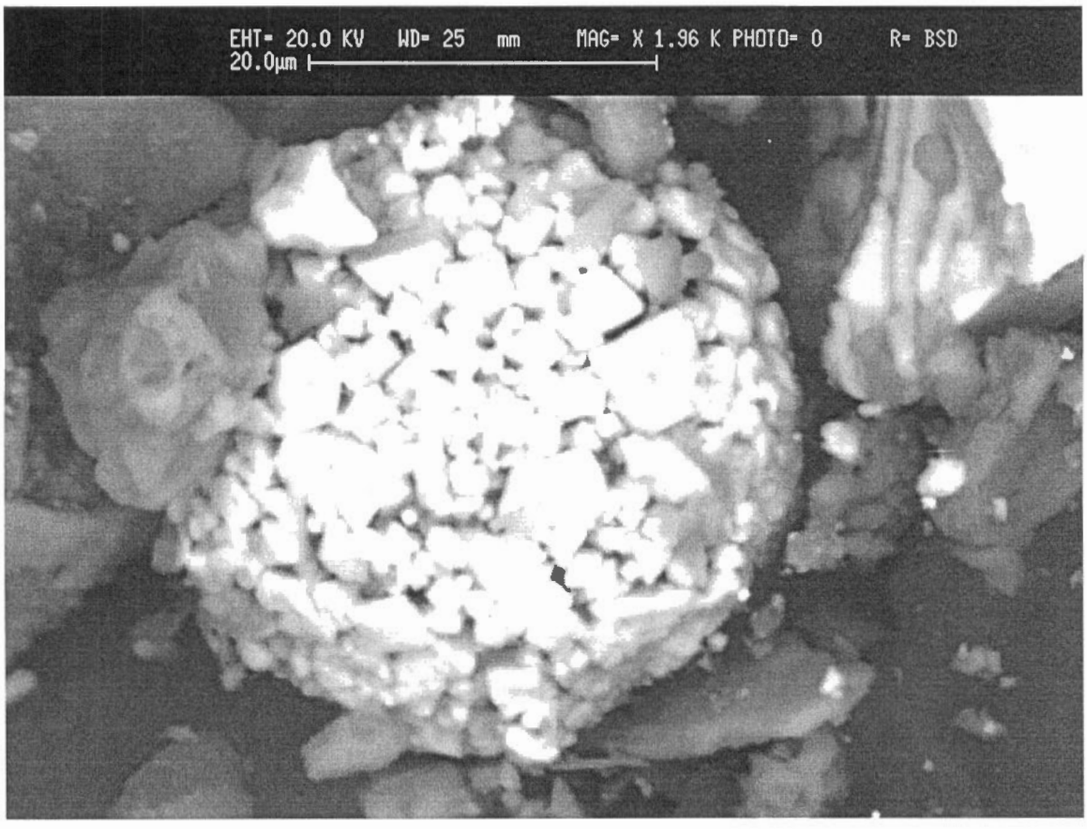


Figure 19: Print #S08-09. Cu, Fe, S, Zn agglomerate.

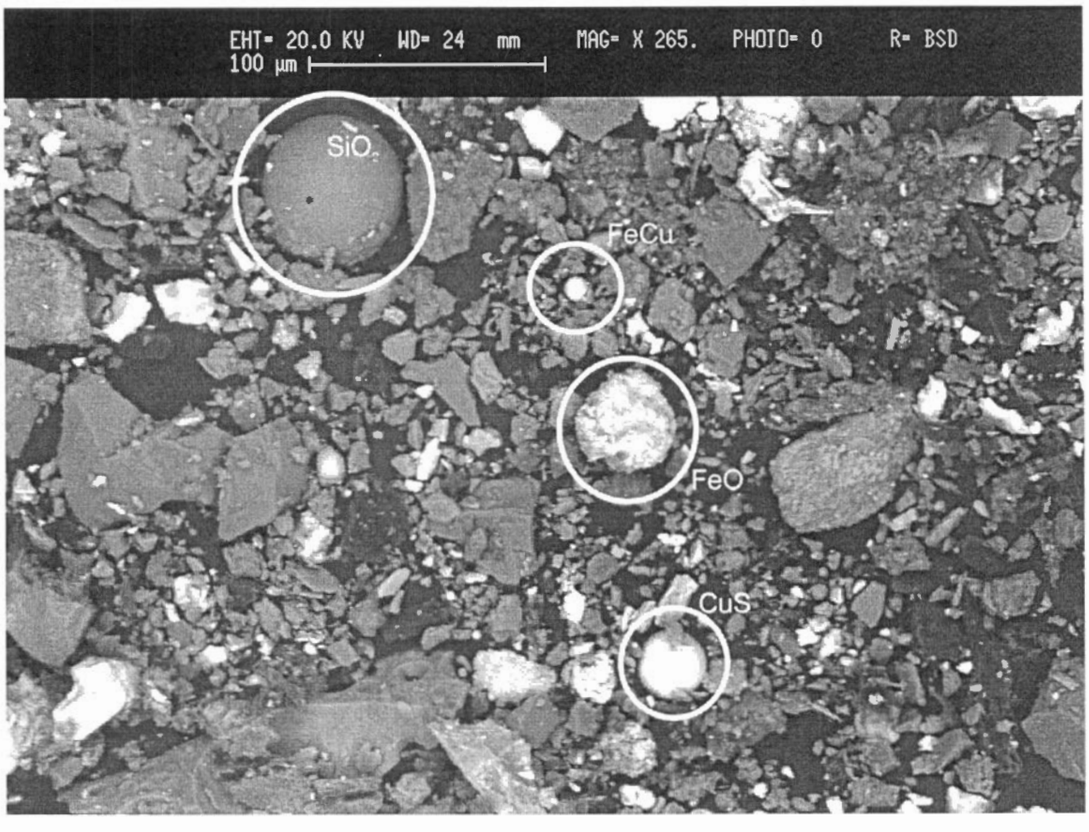


Figure 20: Print #S08-10. Several spheres both natural (siliceous algal cyst) and smelter-derived. The siliceous cyst has a very prominent aperture near the centre of the exposed face.

Sample site identification: **RN98-SNOW-10**
Date of analysis: 09-14-98

- Sample site within kilometers of smelter near tailing ponds.
- Particulate material is composed of pyrite, quartz, Fe/Zn/Si/O mineral grain, chlorite, barite, chalcopyrite, large Fe/O mineral grains, biotite, native Cu, and native S crystals.
- It also consists of sponge spicules, many siliceous algae cysts and metallic spheres (smelter-produced).
- Smelter-derived spheres composed of Cu/S (S10-04); Fe/O (S10-01); and Cu/S/Fe (S10-01).

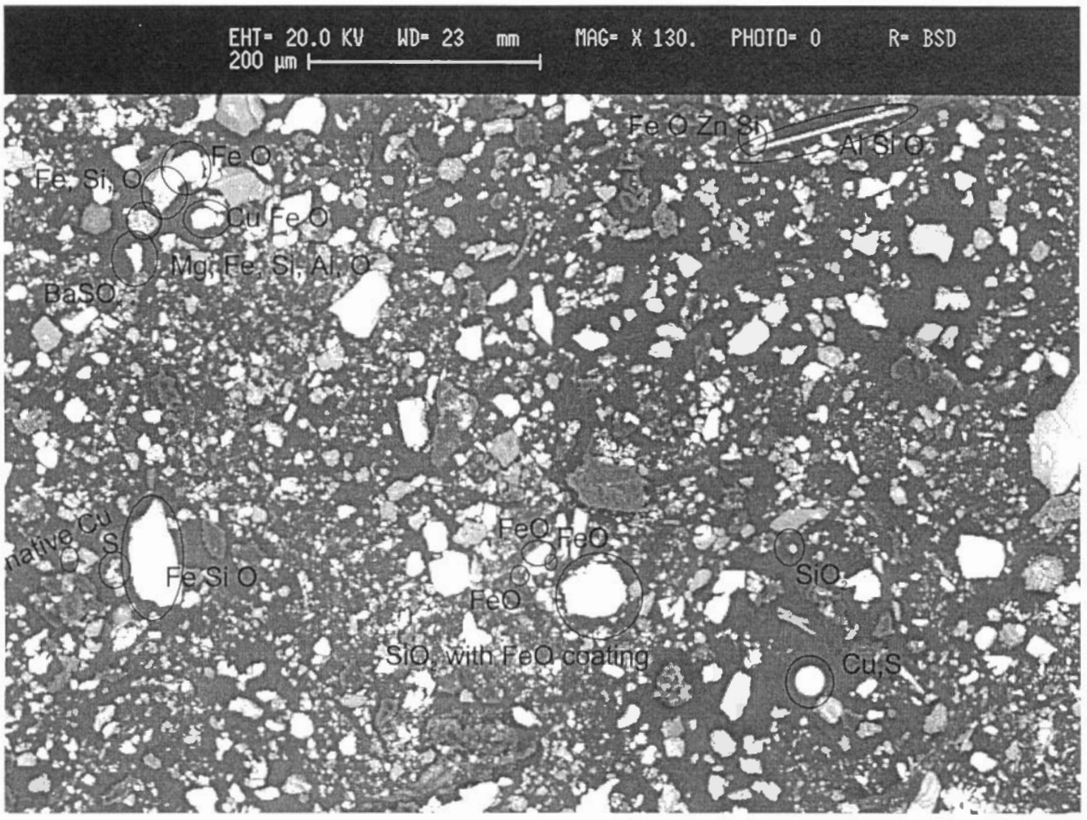


Figure 21: Print #S10-01. Overview of particulate found near smelter. Particulate material is composed of pyrite, quartz, Fe/Zn/Si/O mineral grain, chlorite, barite, chalcopyrite, large Fe/O mineral grains, biotite, native Cu, and native S crystals.

Figure 22: Print #S10-02. This picture shows slightly oxidized native copper along with a sphere of Si/O/Al and bright Fe/O grain in left hand corner.

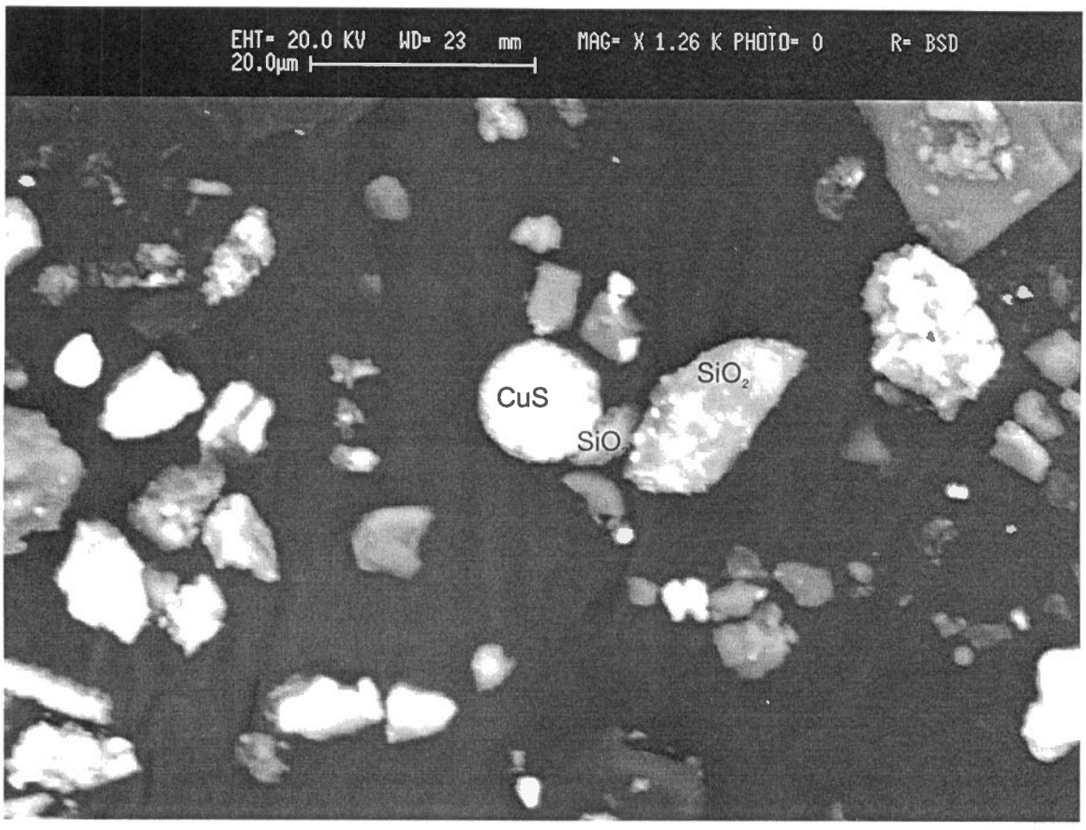


Figure 23: Print #S10-03. Abundant small dense particles (mafic?) lying on top of larger grains. These are generally composed of Fe, Mg, Ca, Si, and O. A smelter-derived sphere of copper and sulphur exhibits a coarse surficial texture.

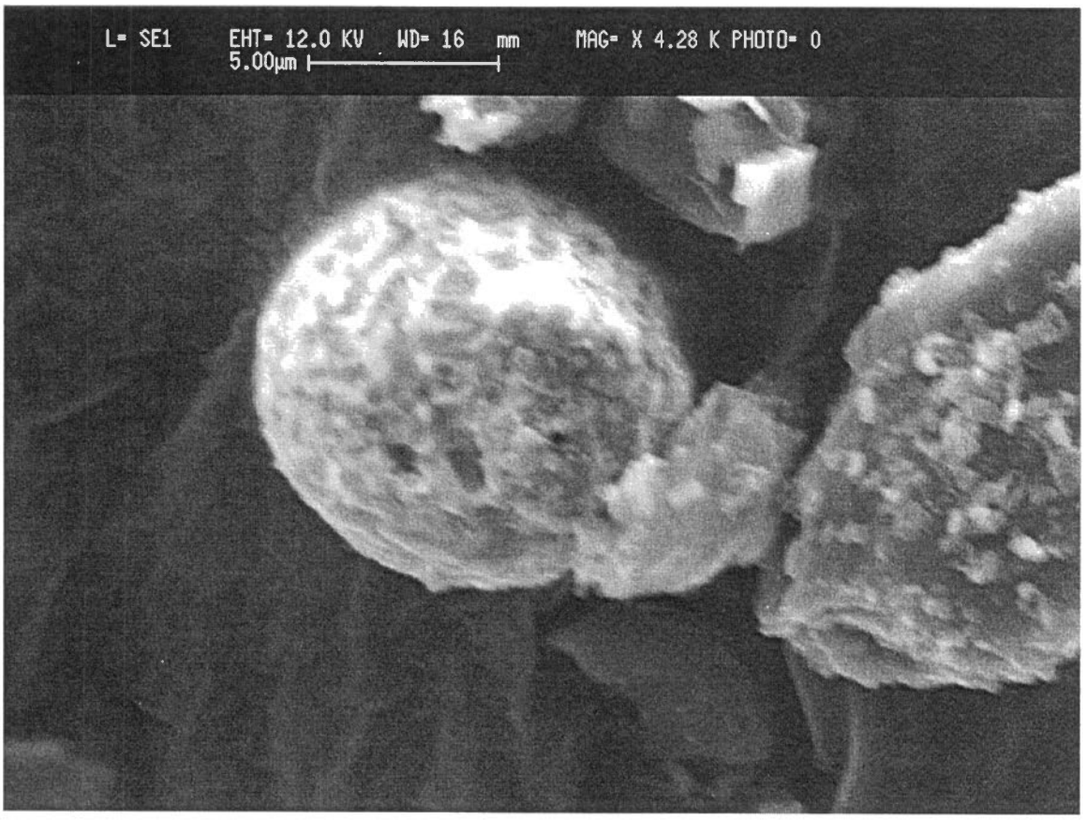


Figure 24: Print #S10-04. Close up of the S10-03 Cu/S sphere.

Sample site identifications: **RN98-SNOW-20**
Date of analysis: 09-24-98

- Sample site in a remote area 20 km north of the smelter.
- Mostly homogenous and very fine material.
- Particulate consists of small mineral grains of Zn/Fe, S/Fe, Fe/O, Cu/S, plus biotite, quartz, and titanite.
- Al/Si/O spheres identified as siliceous algal cysts, not smelter-derived material.

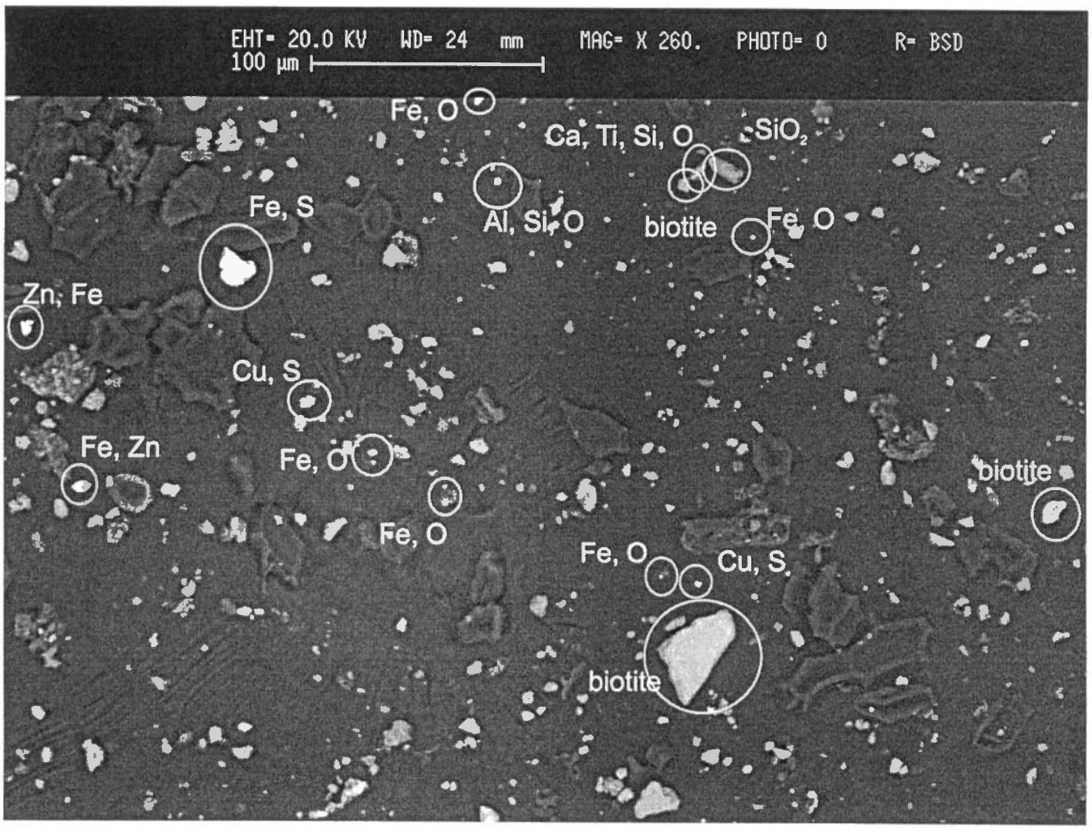


Figure 25: Print #S20-01. An overview of snow particulates found at this site. Abundant low density, large particles along with small, uniformly-sized, dense (heavy metal) particles.

Sample site identification: **RN98-SNOW-30**
Date of analyses: 09-24-98

- Particulates consists of chalcopyrite, quartz, native Ni, Fe/O (both very small and large grains), Cu/O mineral grains, quartz, K-spar, albite, Al/Si/Fe mineral grains, chlorite, plagioclase, biotite, barite, and titanite.
- No sphere-shaped particles observed.

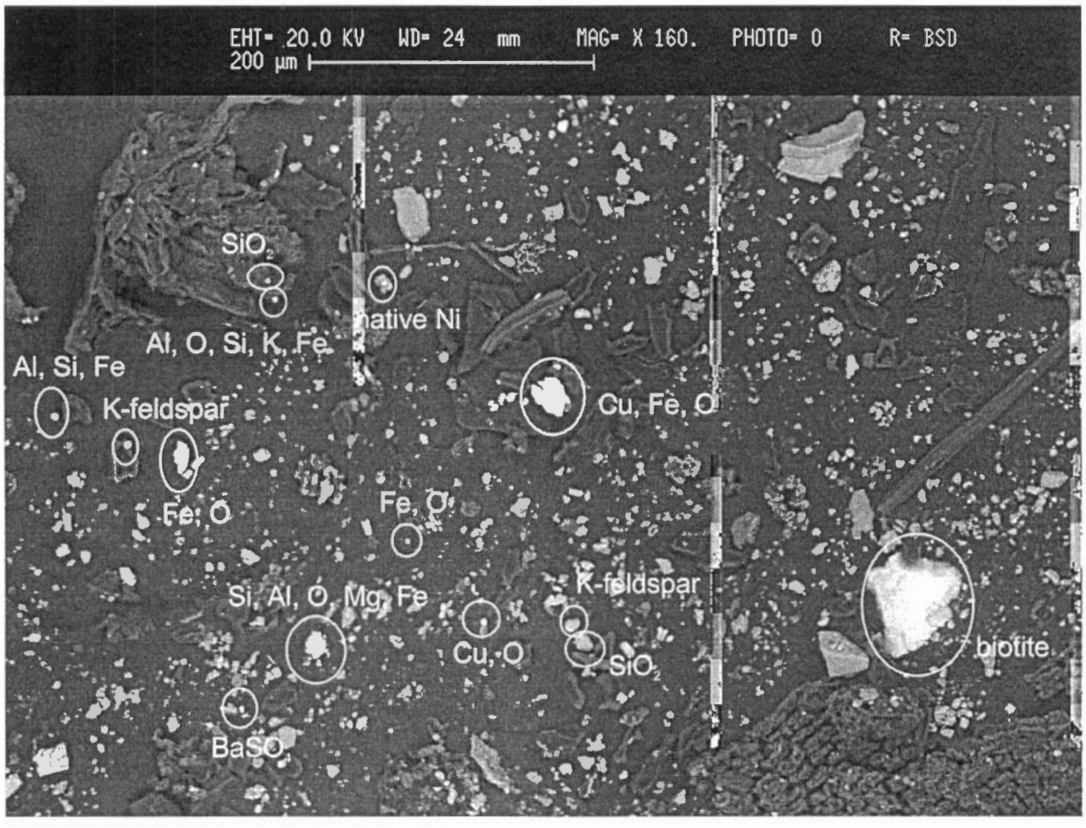


Figure 26: Print #S30-01. First overview of the sample particulate on the denser side of the stub.

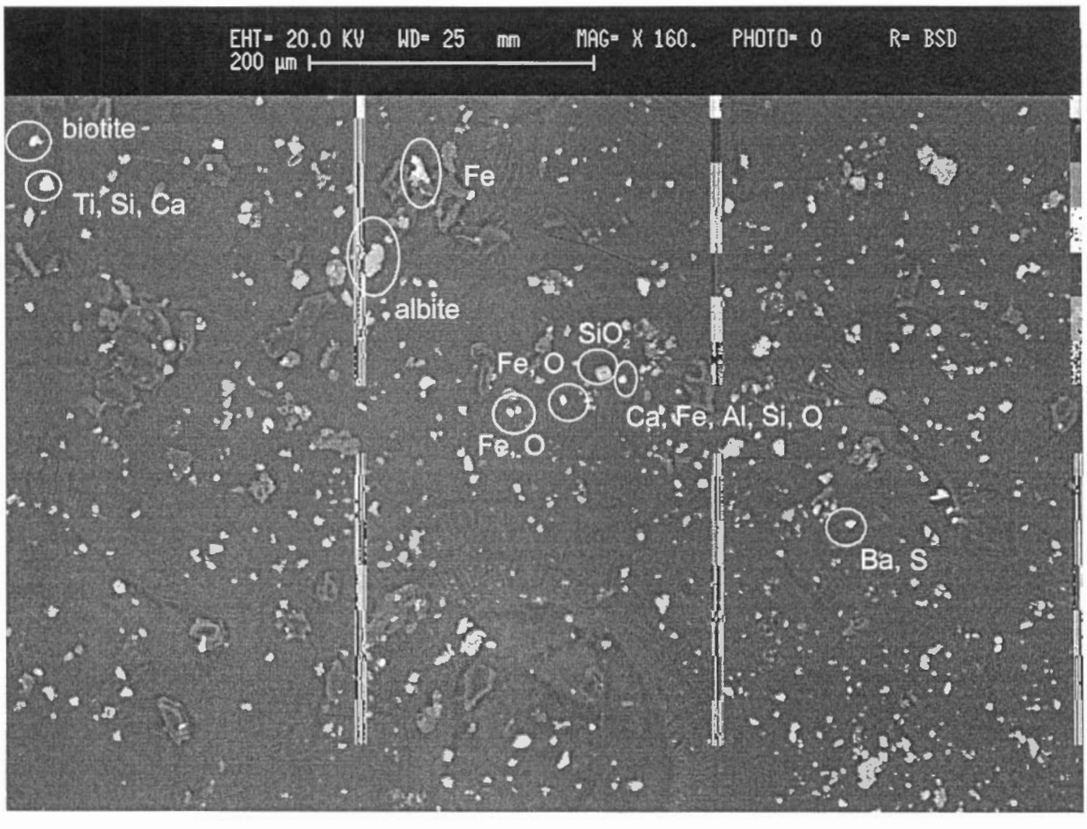


Figure 27: Print #S30-02. A second overview of the particulates on the side of the stub which had less material. One sphere appears composed of Ti, Si and Ca.

Sample site identification: **RN98-SNOW-40**
Date of analysis: 09-24-98

- Remote sample site located in a forest clearing 39 km NE of the smelter.
- Particulates consists of many Pb and Sb mineral grains, biotite, pyrite, quartz, ilmenite, rutile, Fe/O mineral grains, and Si/Al/Fe mineral grains.
- Smelter-derived material include Fe/O (S40-01) spheres. The Al/Si/O have been identified as siliceous algal cysts.

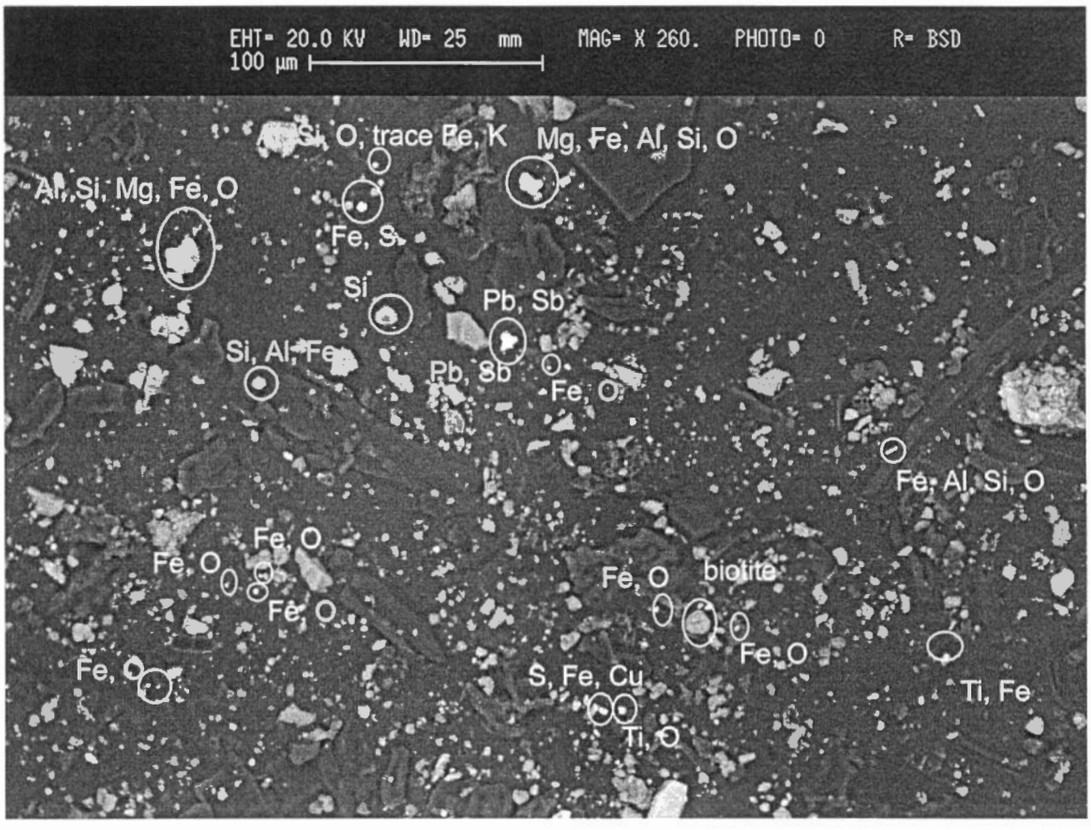


Figure 28: Print #S40-01. Overview of snow particulate found NE of the smelter.

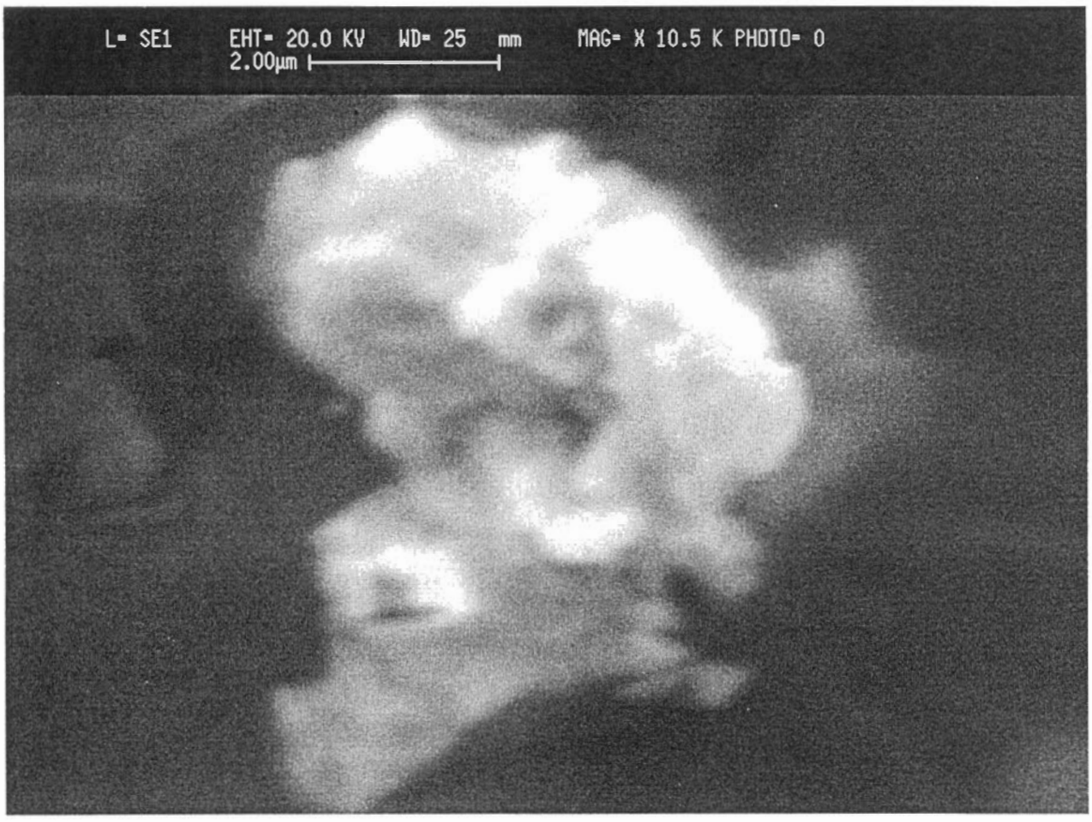


Figure 29: Print #S40-02. A close up of a Pb/Sb particulate grain.

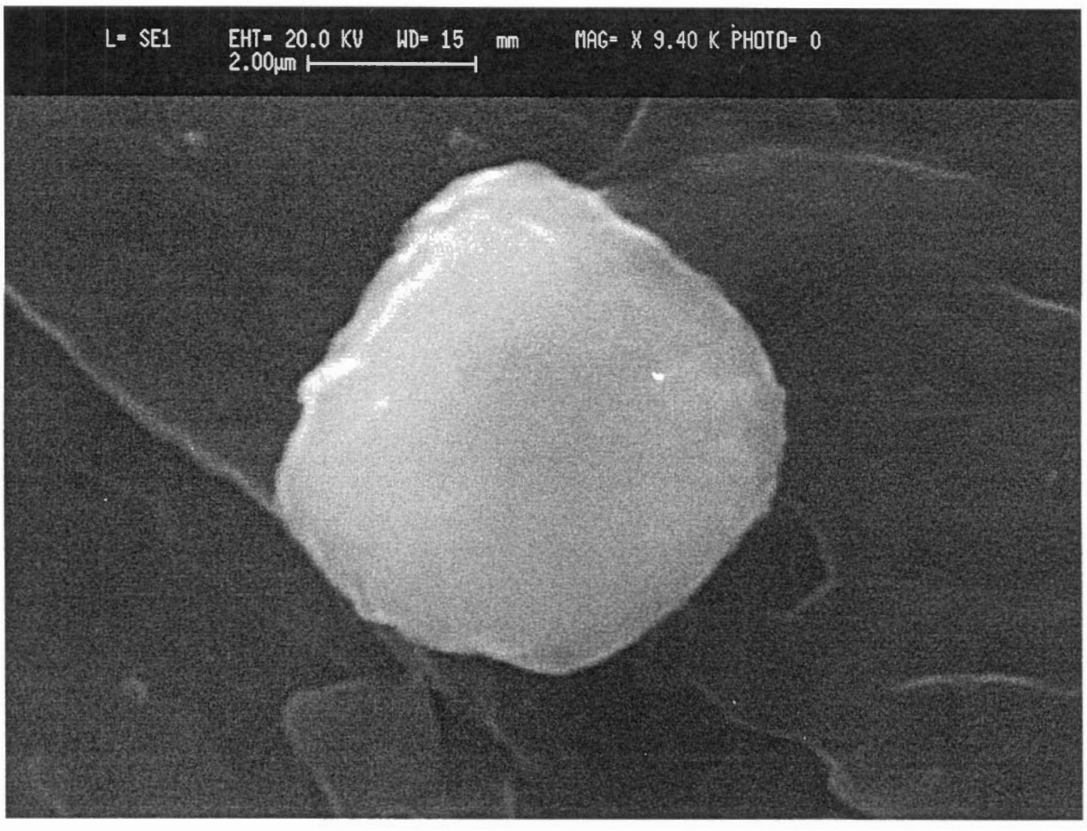


Figure 30: Print #S40-03. Close up of a Si/Al/Fe mineral grain.

Sample site identification: **RN98-SNOW-42**
Date of analyses: 09-14-98

- Sample from the NE traverse within the Reserve D'Aiguebelle (remote and protected environment).
- Particulates include ilmenite, K-spar, quartz, Fe/O mineral grains, Cu, S, Fe mineral grain, native Fe, and a Bi/Sn/As/Cu/Zn mineral grain.
- Smelter-derived particulates includes Fe/O spheres (S42-02). Also, Al/Si/O cysts (S42-02) were identified.

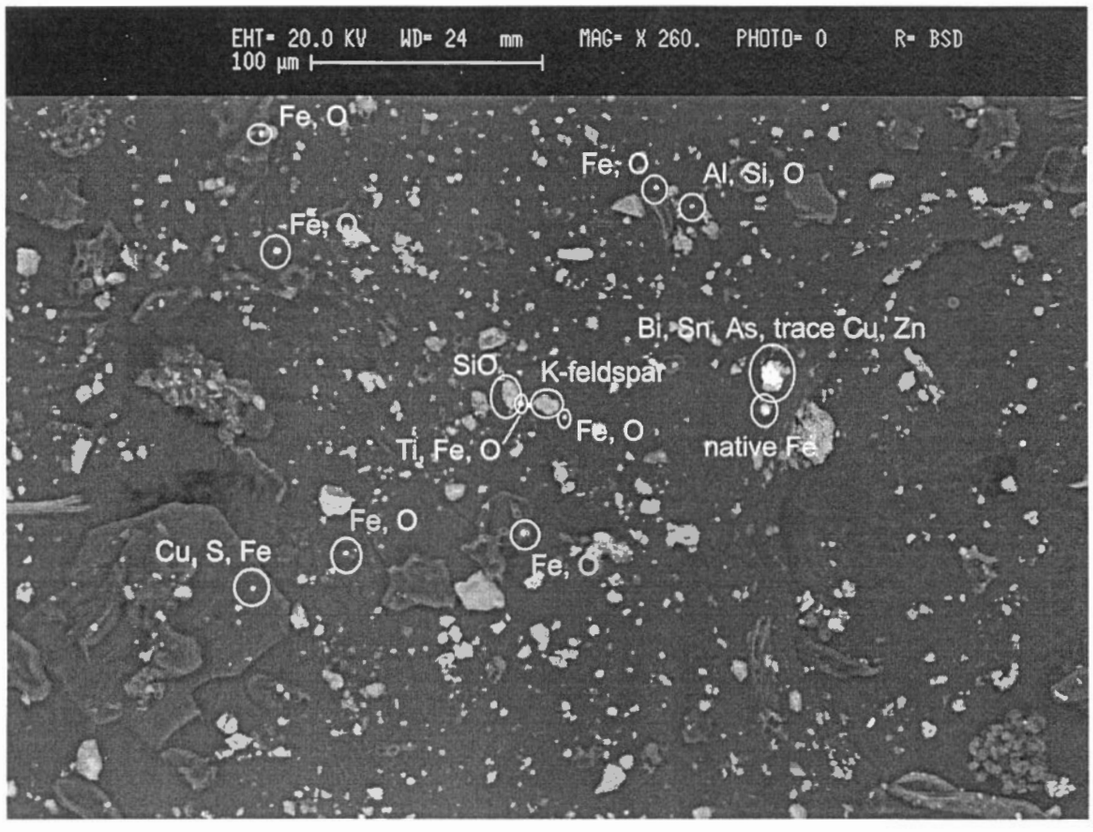


Figure 31: Print #S42-01. Overview of the snow particulates. This sample has many Fe-oxide spheres.

Figure 32: Print #S42-02. Many Fe-oxide spheres and organic fragments.

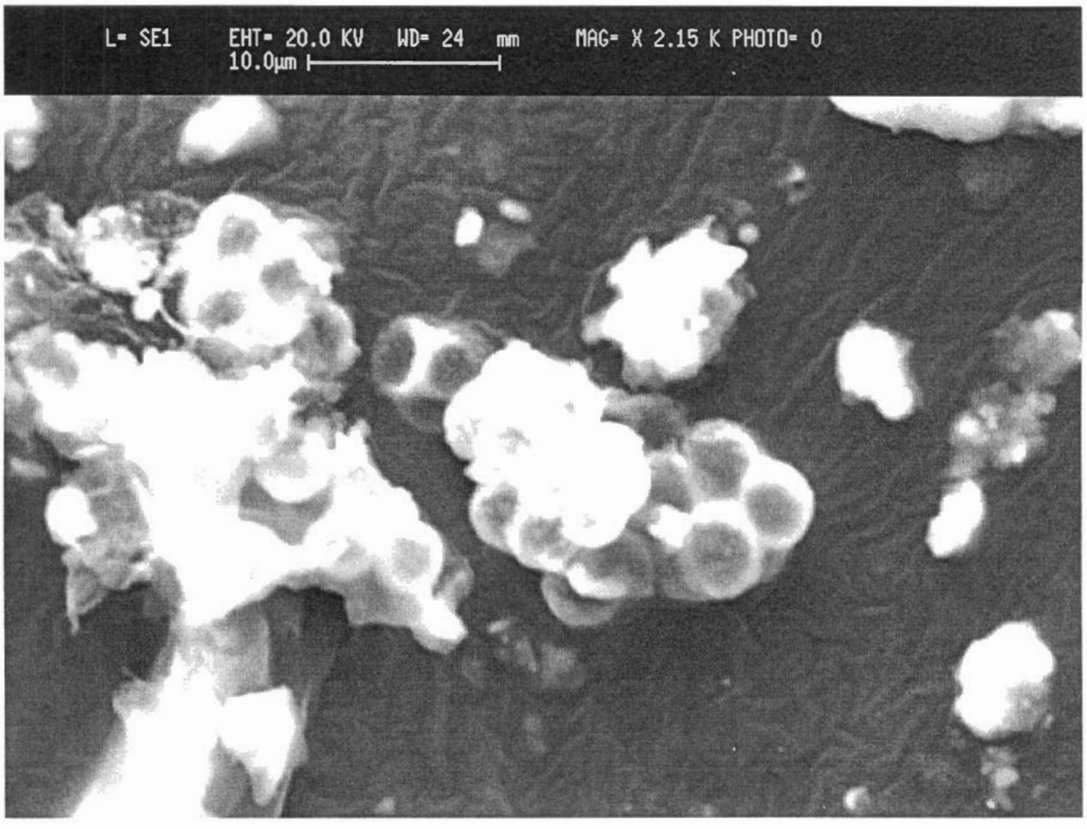


Figure 33: Print #S42-03. Organic sphere clusters like eggs or pollen (unidentified).

Sample site identification: **RN98-SNOW-45**
Date of analysis: 09-24-98

- Sample located on NE traverse at a remote site (23 km from smelter) in forest clearing.
- Particulate consists of pyrite, chlorite, chalcopyrite, albite, rutile, ilmenite, plagioclase, quartz, and Fe coating (rust?).
- No spheres were observed, but abundant organic material.

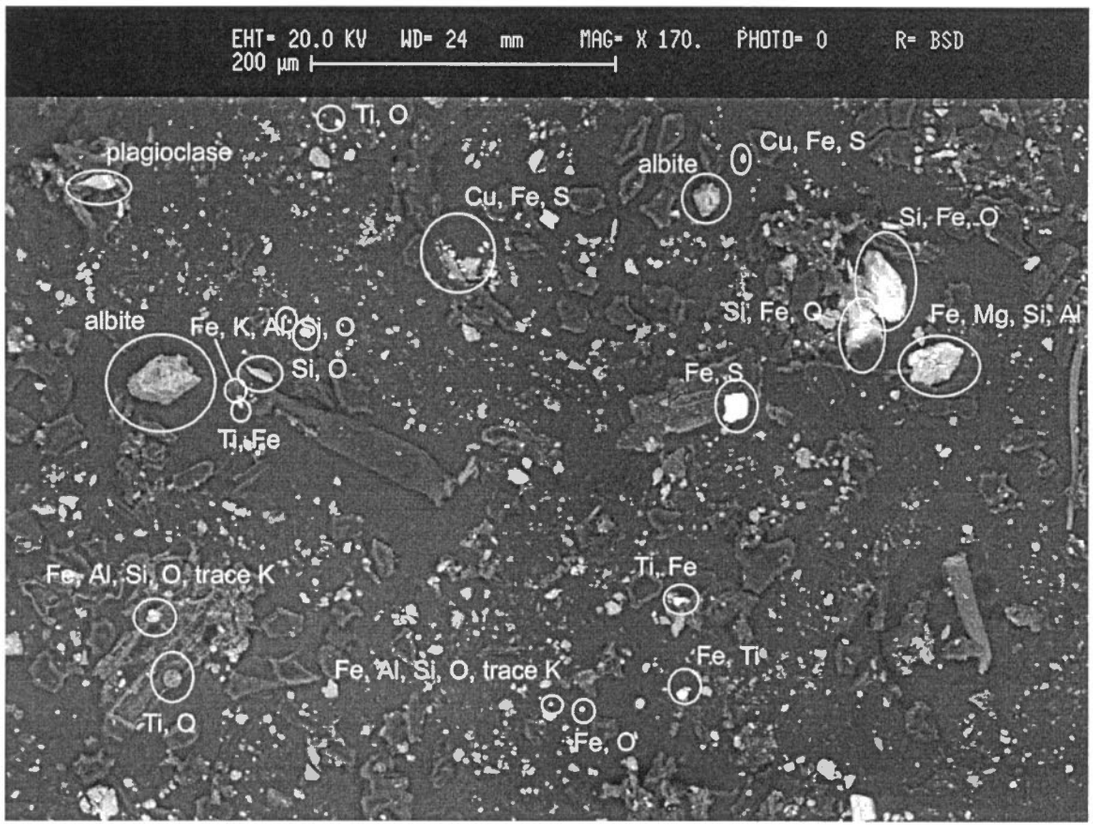


Figure 34: Print #S45-01. An overview of particulates.

Sample site identification: **RN98-SNOW-48**
Date of analysis: 10-01-98

- Sample located on the NE traverse near Lac Hervé.
- Particulates contain an abundance of sulphur (S48-01), pyrite, chalcopyrite, plus S/Fe, S/Fe/O and S/Fe/Cu mineral grains.
- Particulates also contain a Sn/As/Fe/P/Si colloid or mineral grain (see S48-02), Zn/Ca/Pb/Si mineral grains, and Fe/O/Zn/Si mineral grains.

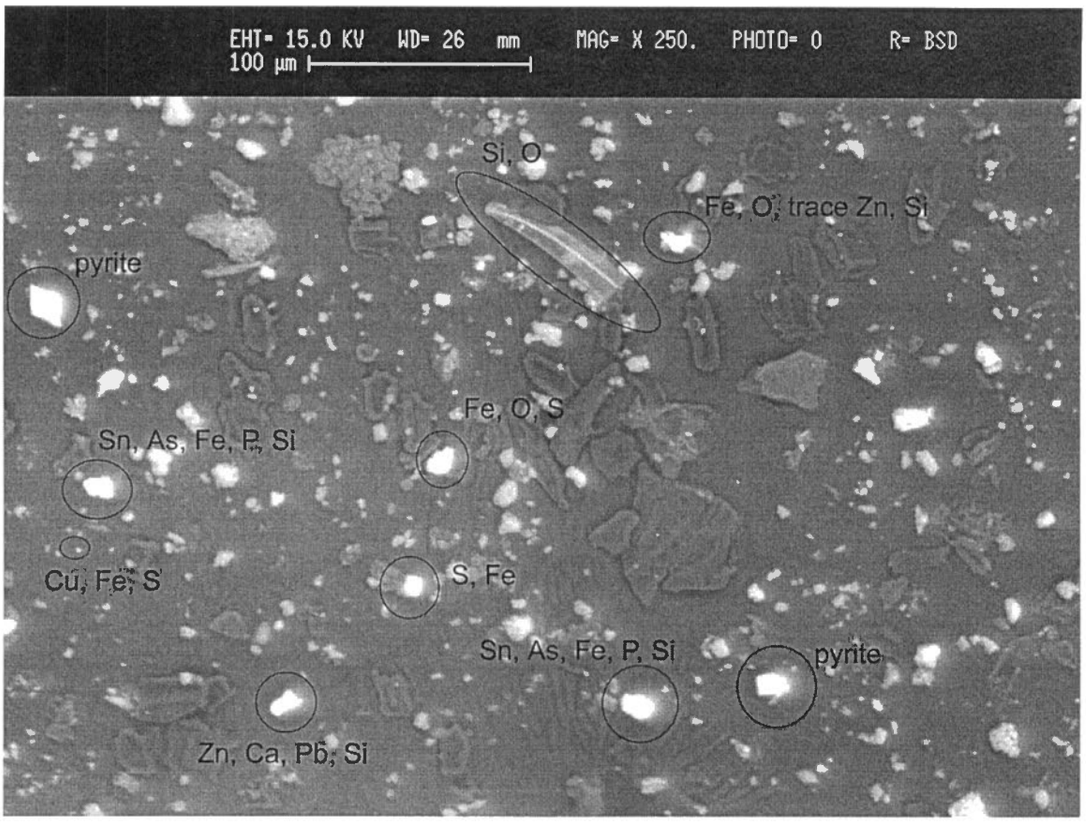


Figure 35: Print #S48-01. Overview of snow particulates on the NE traverse.

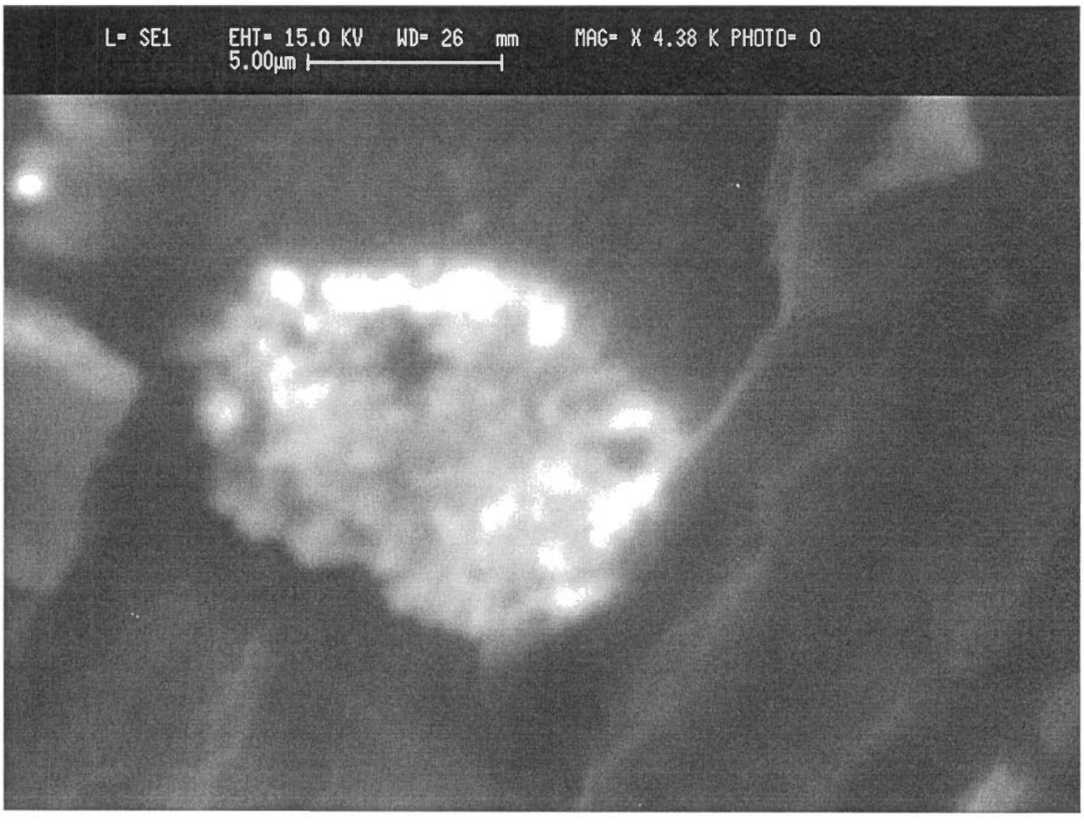


Figure 36: Print #S48-02. Close up of a colloid composed of tin, antimony, phosphorous, iron, arsenic, and silica.

Sample site identification: **RN98-SNOW-50**
Date of analysis: 09-14-98

- Just north of Lac Dufault, relatively close to the smelter.
- Particulates consist of barite, pyrite, biotite, chlorite, native Ni, sphalerite, mafic minerals, and quartz
- Smelter-derived particulate include FE/O sphere (S50-01); Si/Al/O cysts; Cu/S spheres with "snowflake" (S50-01) and "potato" (S50-03) textures; and Si/O/Al/K spheres.

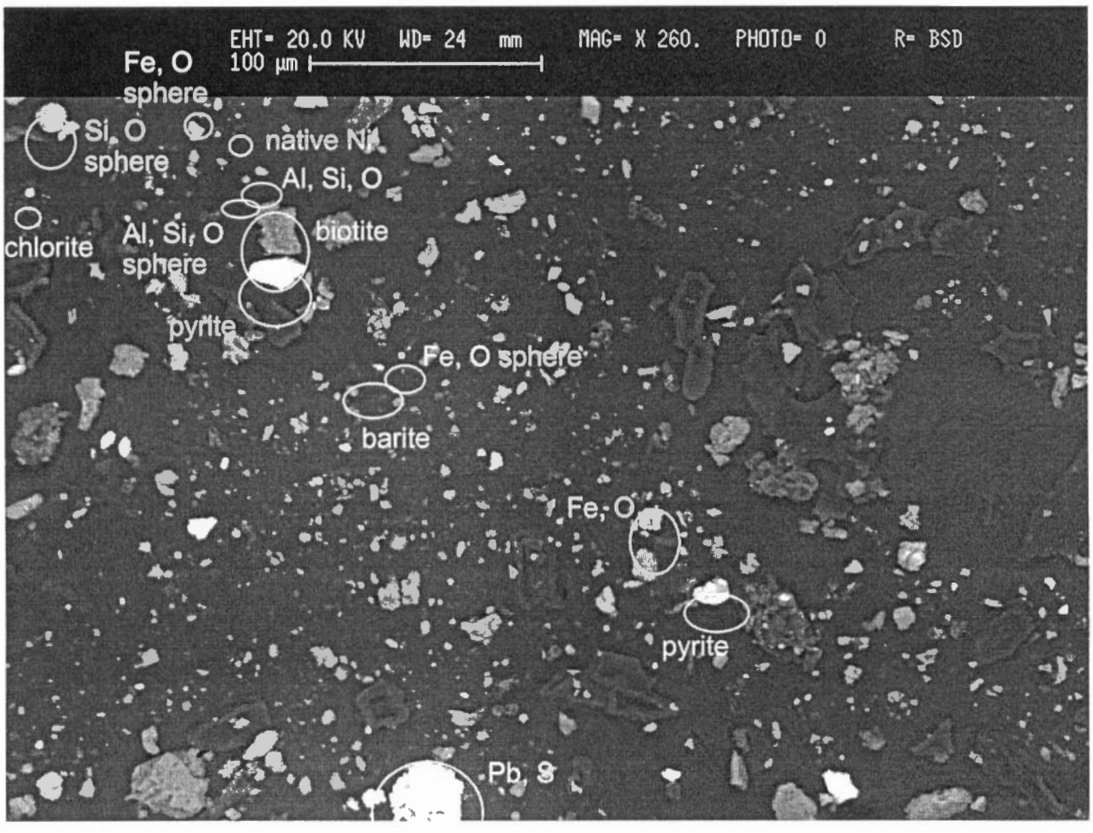


Figure 37: Print #S50-01. Overview of this sample indicating a large variation of sizes and few very dense particles.

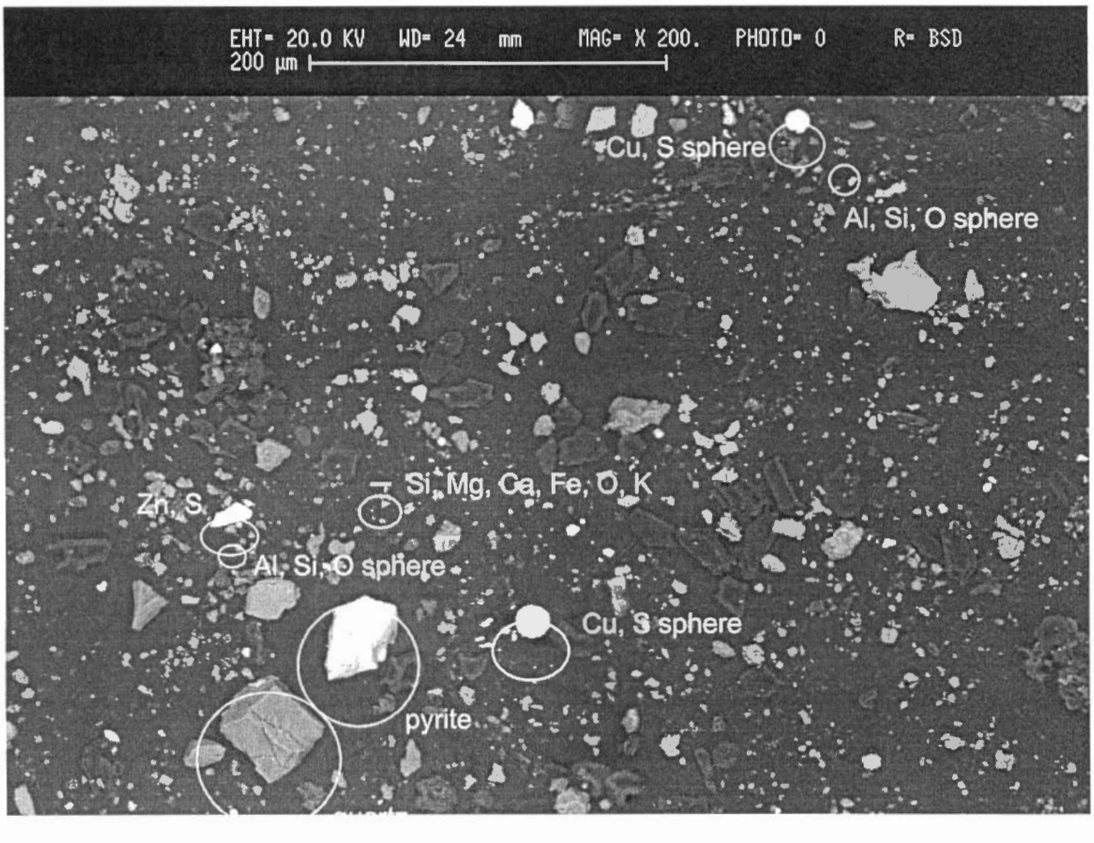


Figure 38: Print #S50-02. Another overview of this sample with two metallic spheres within the view.

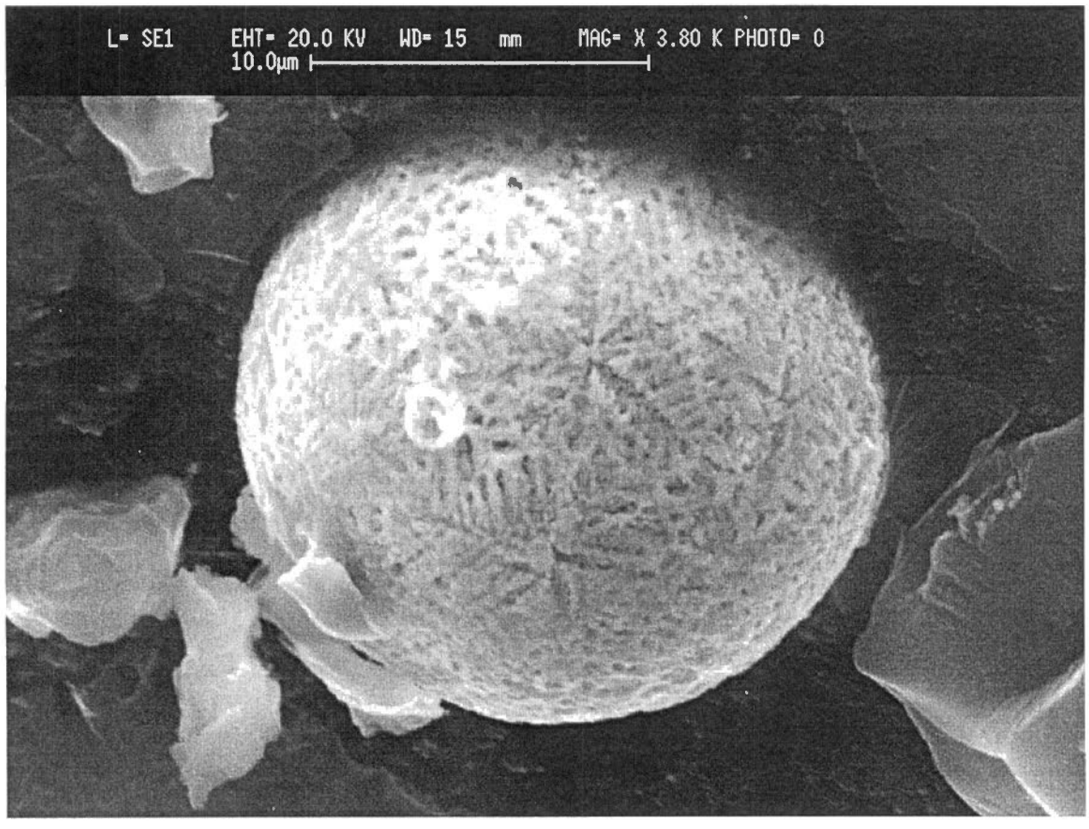


Figure 39: Print #S50-03. Metallic sphere composed of Cu and S with a distinct "snowflake" texture.

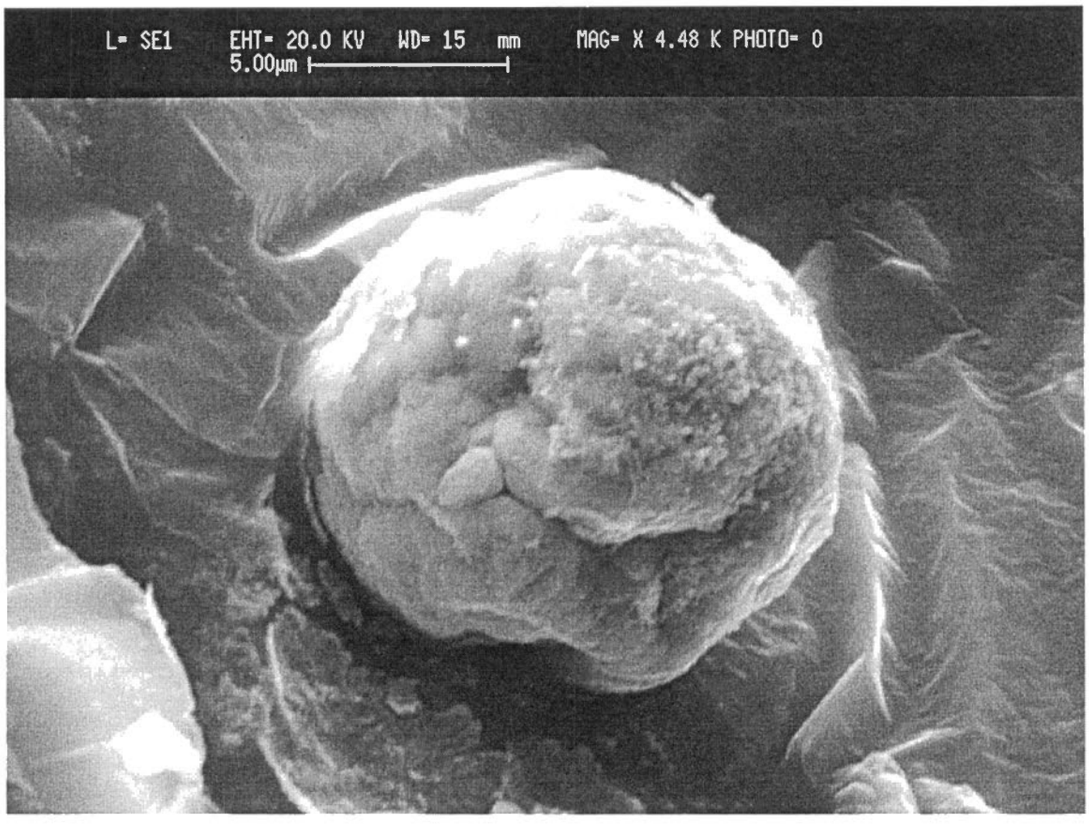


Figure 40: Print #S50-04. Pseudo-sphere composed of Cu and S. This one has a potato-like structure.

Sample site identification: **RN98-SNOW-53**
Date of analysis: 09-14-98

- Sample located beside Lac Dufault, relatively close to the smelter.
- Particulates rich in Zn, S and Fe.
- Also, particulates consist of pollen, cysts, large Fe/O mineral grains, chlorite, pyrite, quartz, K-spar, plagioclase, and sphalerite.

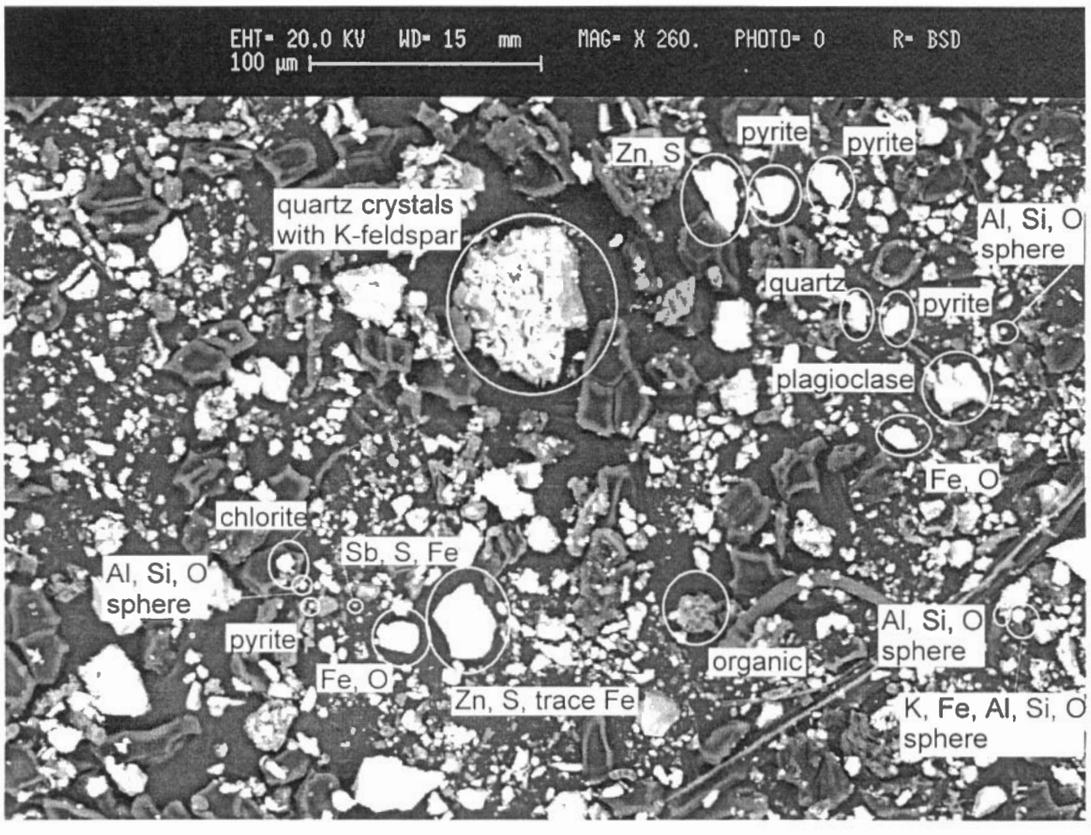


Figure 41: Print #S53-01. Overview of this sample showing the abundant mineral-rich particulates, many containing Zn and S. Note all spheres tend to be Al/Si/O (algal cysts? Or pyrometallogical slag?).

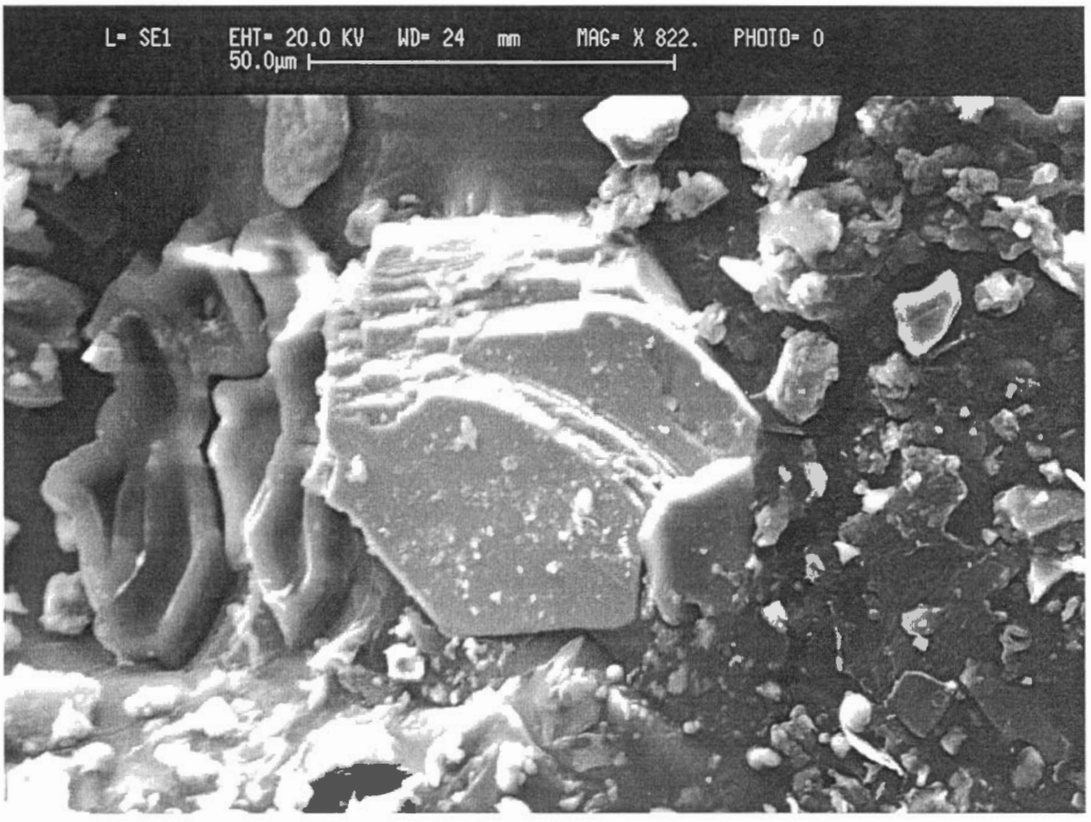


Figure 42: Print #S53-02. A sphalerite crystal (Zn, S).

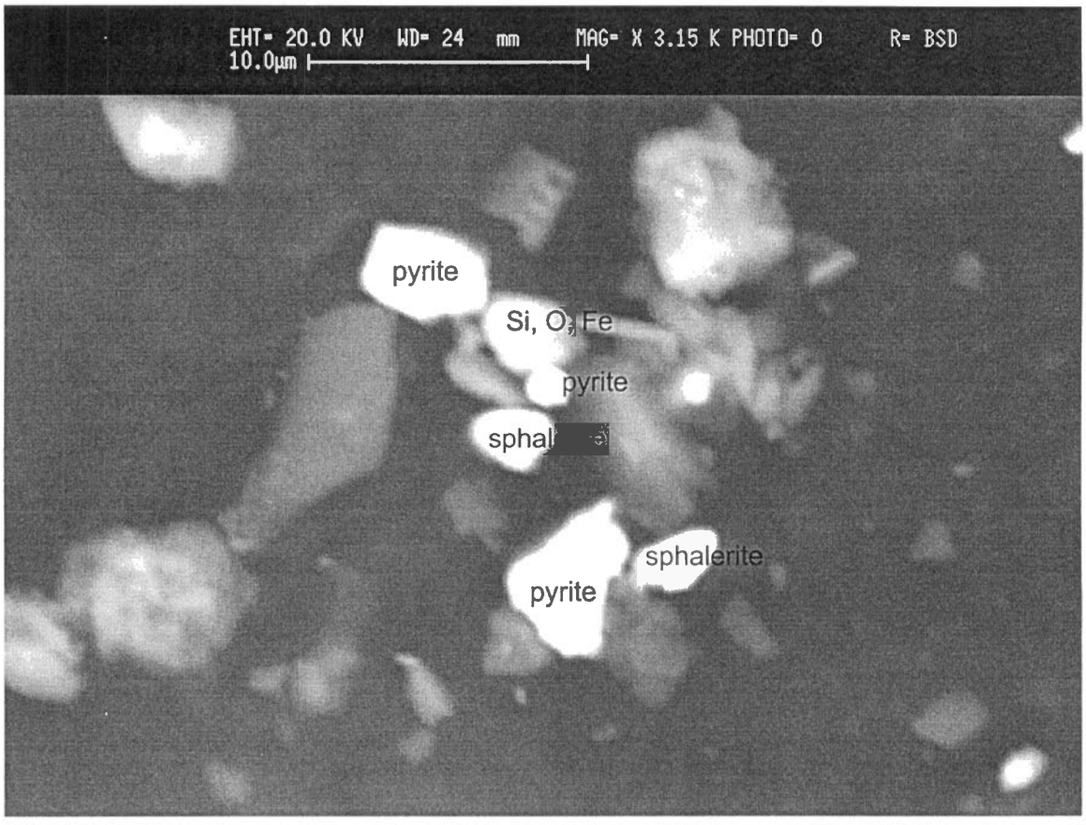


Figure 43: Print #S53-03. Dense sulphurous crystals of pyrite and sphalerite.

Sample site identification: **RN98-SNOW-60**
Date of analysis: 09-14-98

- Sample site located 47 km south of the smelter.
- Particulates consist of ilmenite; garnet (S60-01); siliceous cysts; albite, labradorite, pyroxene, native Fe, quartz, biotite, and Fe/O mineral grains.
- SPHERES: Ni/O/Zn/Cu sphere; Ni/ Fe/ O/Zn sphere (S60-02).
- S60-02 shows size distribution.

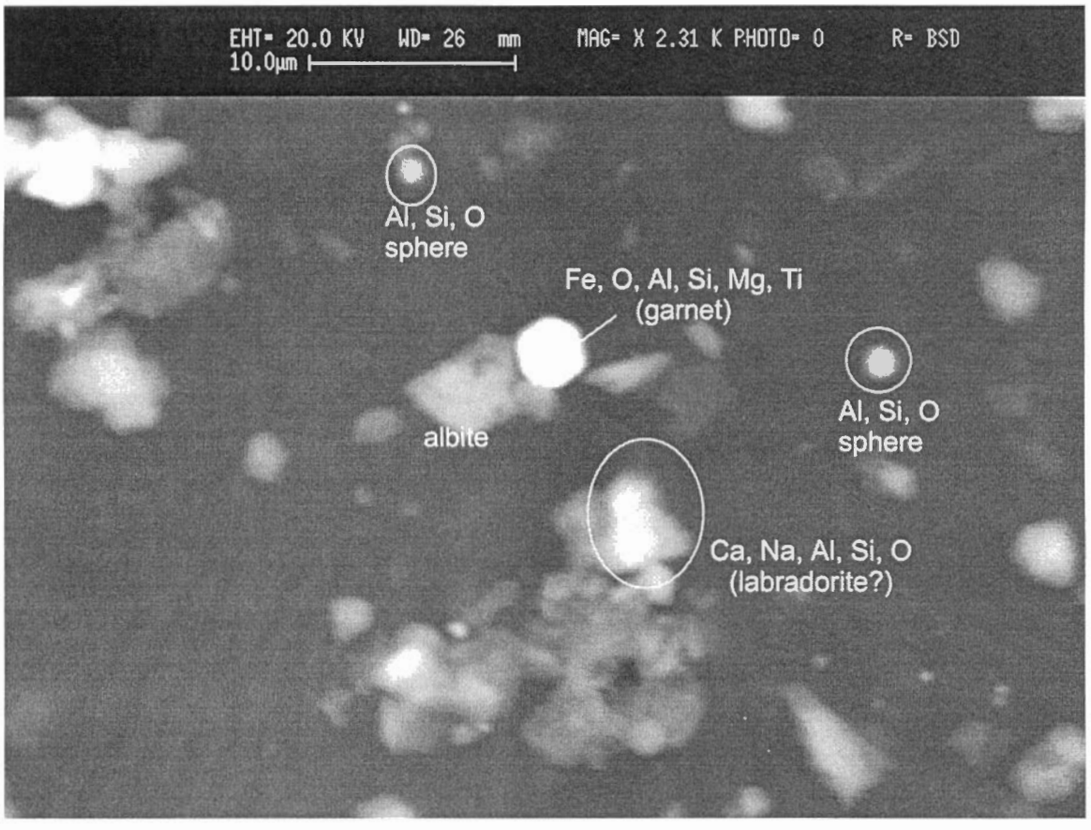


Figure 44: Print #S60-01. A large crystal of garnet can see the hexagonal outline. Also found in this sample are Fe, Ni, Zn, O, Cu spheres.

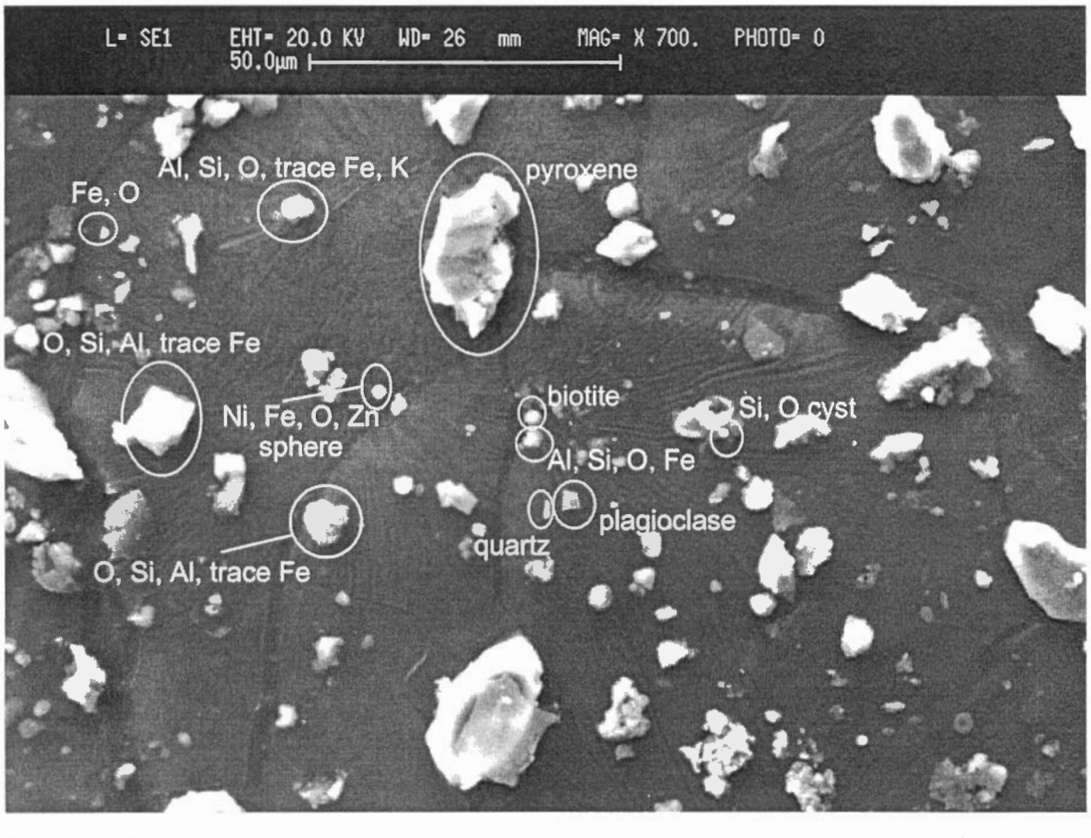


Figure 45: Print #S60-02. Overview of the sample showing the large variation in size of particulates.

Sample site identification: **RN98-SNOW-62**
Sate of analysis: 09-24-98

- Sample located relatively far from the smelter beside Lac Claire, 40 km due south.
- Particulates contain some Al/Si/O cysts, many small spheres and Si/Pb/Ca/Fe/Cu mineral grains.
- Smelter-derived material include Cu/S/Se spheres and abundant Fe/O spheres (≤ 2µm).

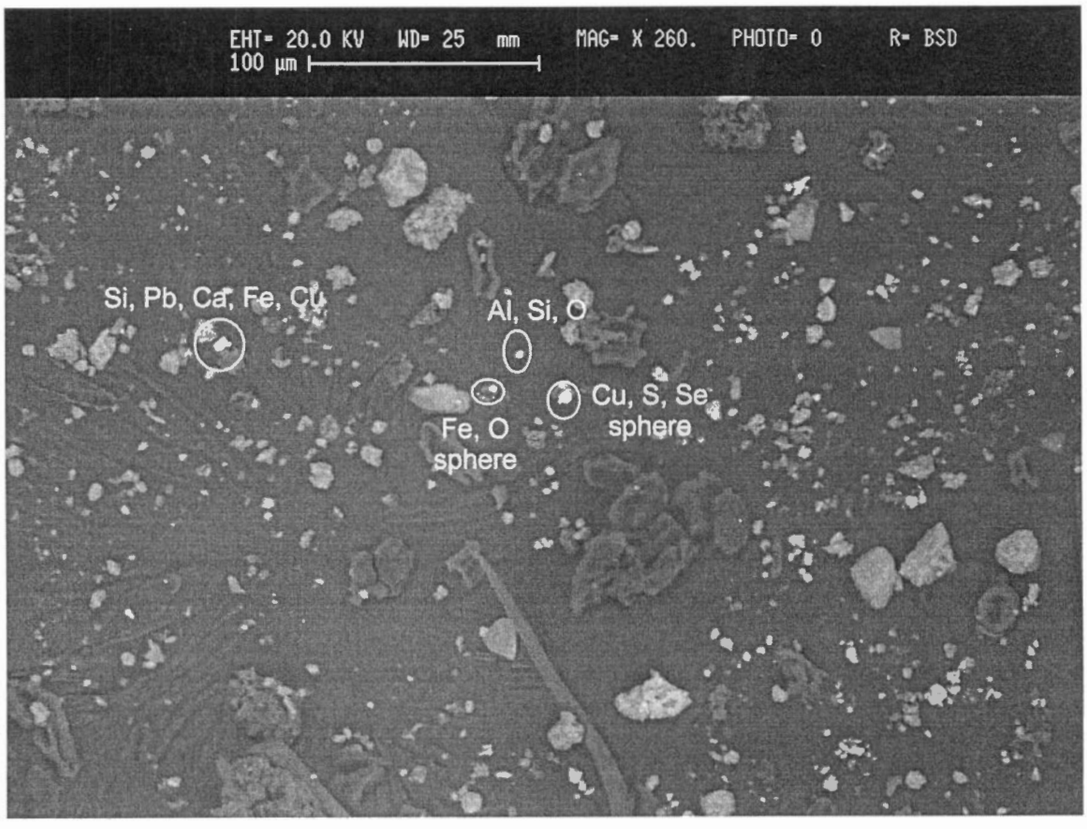


Figure 46: Print #S62-01. An overview of this sample showing very little dense (metallic) particles. Found many small Fe/O spheres (<2 µm) as well as some siliceous cysts.

Sample site identification: **RN98-SNOW-66**
Date of analysis: 10-01-98

- Sample site located south of the smelter on the top of a hill.
- Particulates consist of many small, dense (heavy) metals such as sphalerite, chalcopyrite, Fe/O mineral grains, and Fe/Cu mineral grains (S66-04).
- Also, particulates consist of diatoms, biotite, K-spar, chlorite, plagioclase, and ilmenite.
- No spheres were observed.

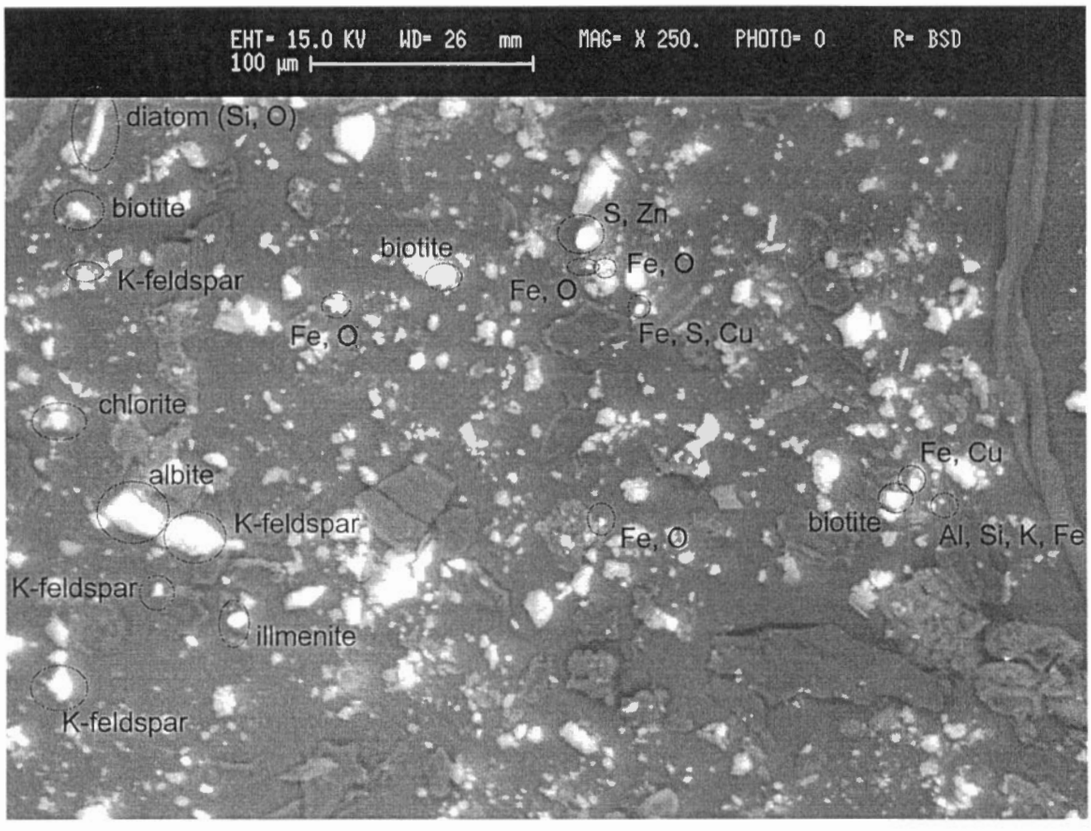


Figure 47: Print #S66-01. An overview of the sample.

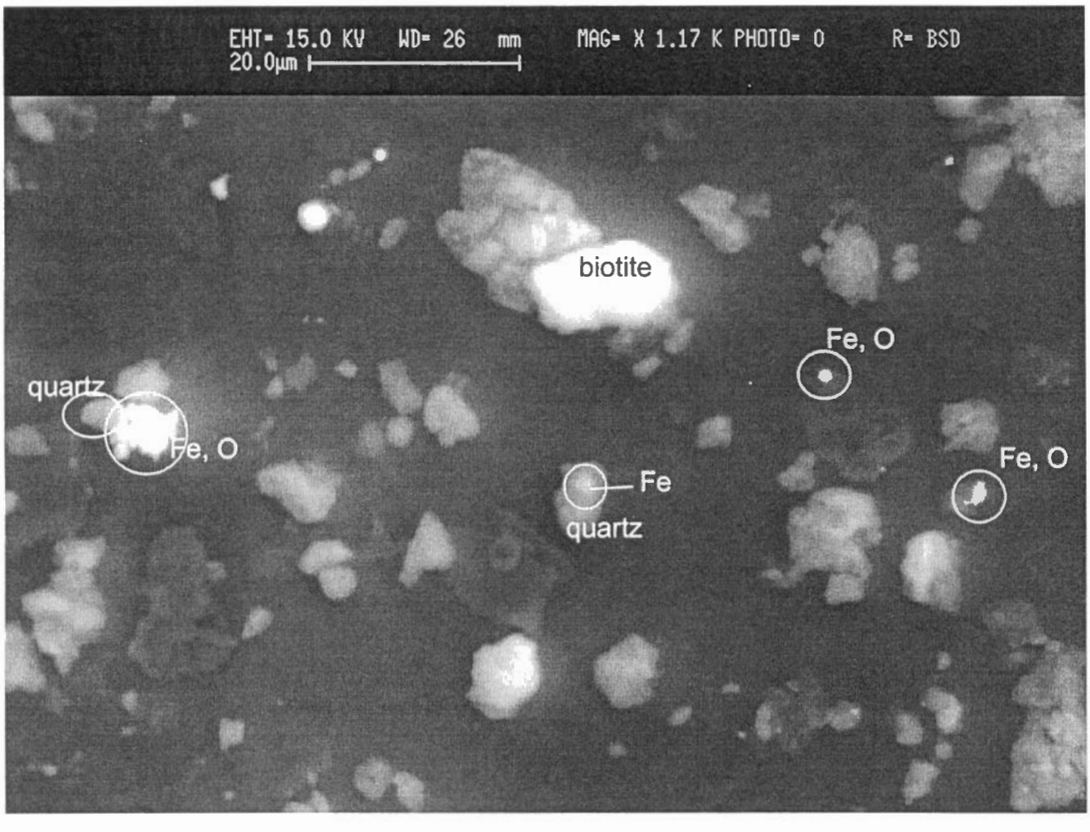


Figure 48: Print #S66-02. Close up of Fe-rich particles and Fe-oxide particles on quartz grains.

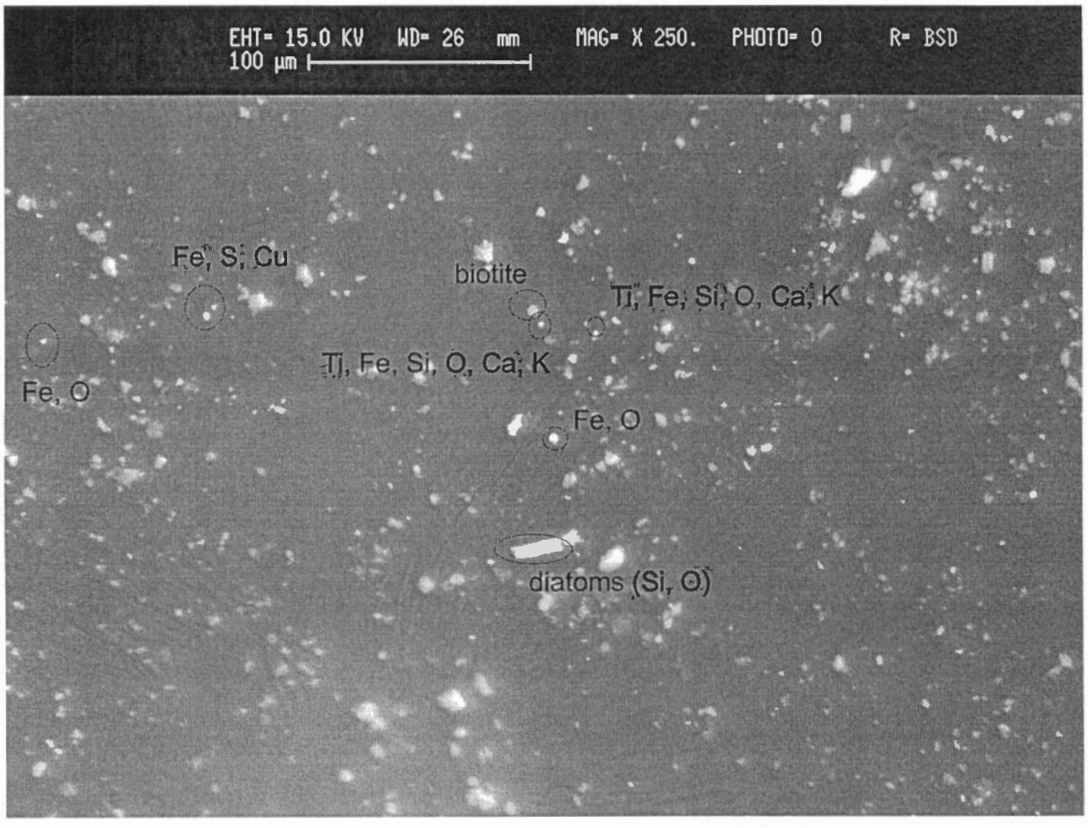


Figure 49: Print #S66-03. Another overview of snow particulates from site RN98-SNOW-66.

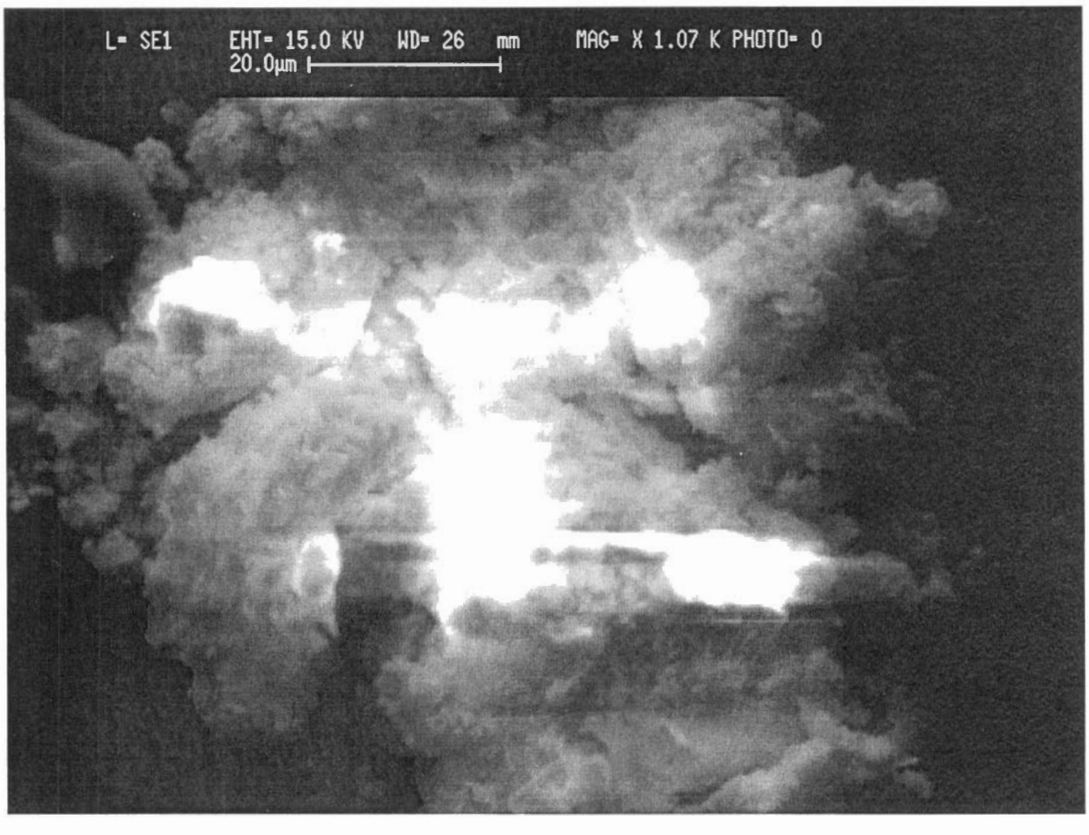


Figure 50: Print #S66-04. Colloid or mineral grain of iron, copper and oxygen.

Sample site identification: **RN98-SNOW-70**
Date of analysis: 09-14-98

- Sample site located 16 km south of the smelter.
- Particulates consist of mostly angular grains of S/Pb/O mineral grains; barite, chalcopyrite, K-spar, pyroxene, biotite, quartz, Fe/O mineral grains, siliceous cysts, and a lot of organic material.
- Smelter-derived material includes Fe/O spheres (S70-02).

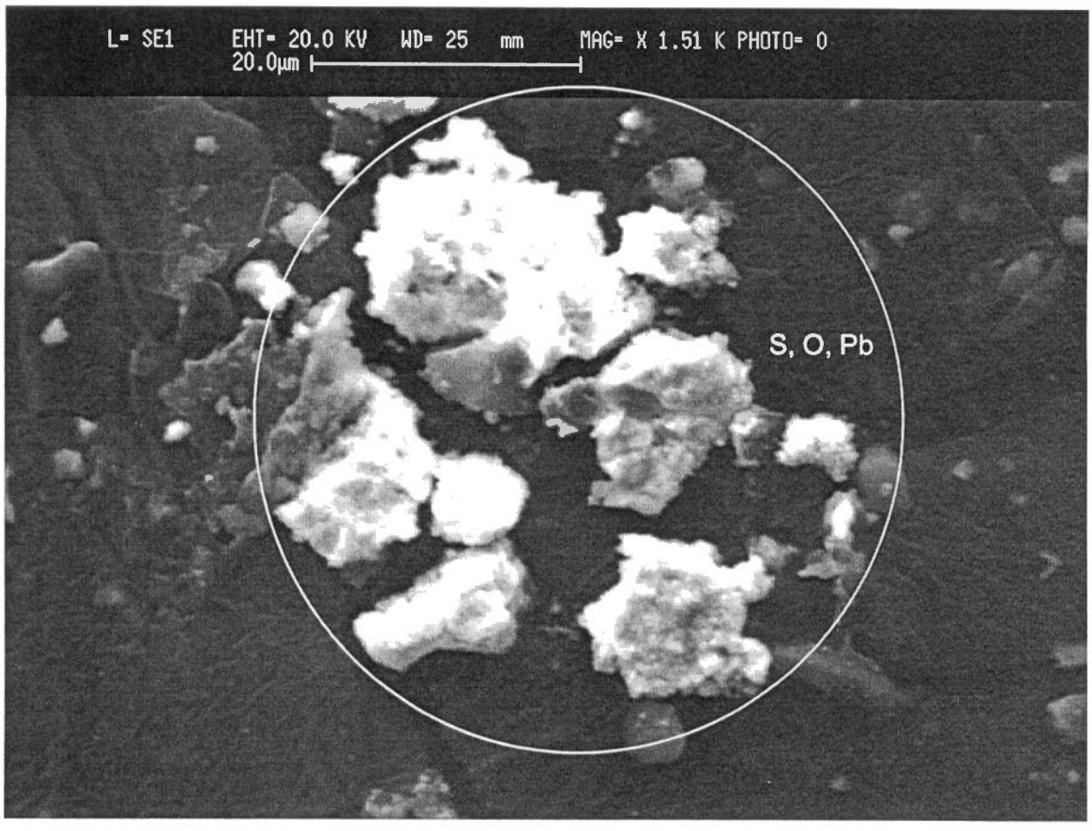


Figure 51: Print #S70-01. A sulphate mineral with dissolution features or gaseous crystallization.

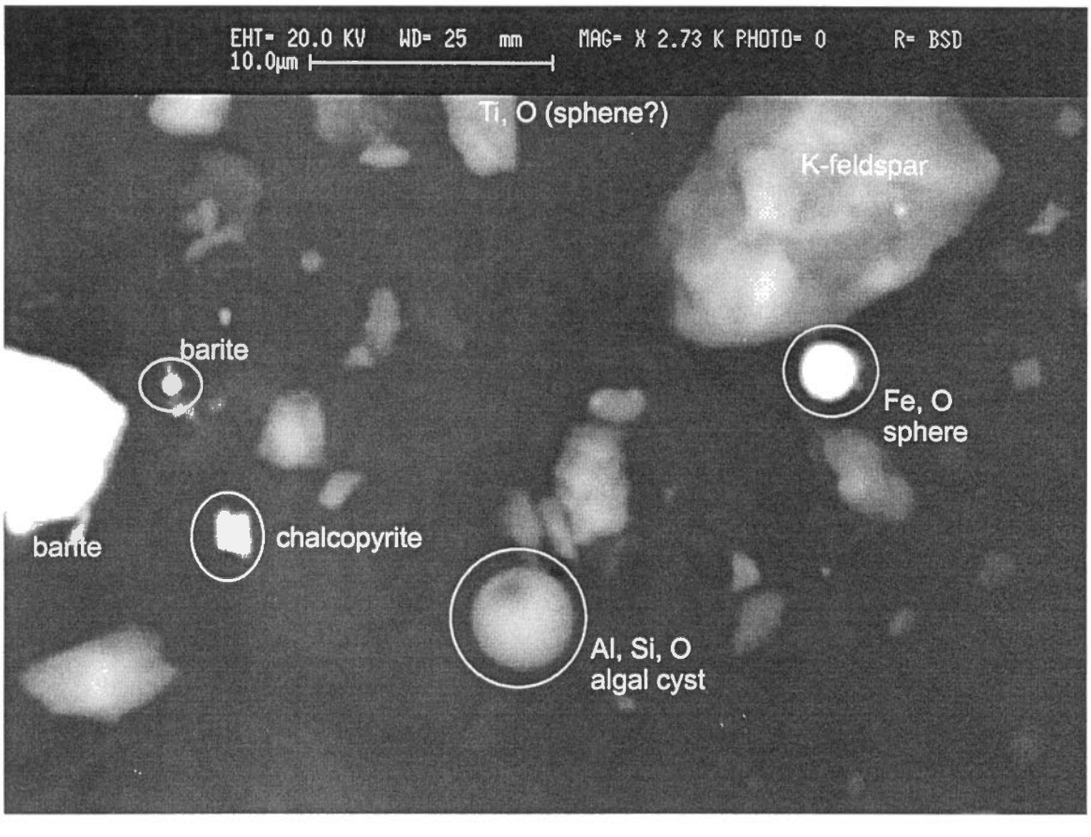


Figure 52: Print #S70-02. An unfocused close up distinctly showing an Al/Si/O cyst and its aperture, near the centre of the picture.

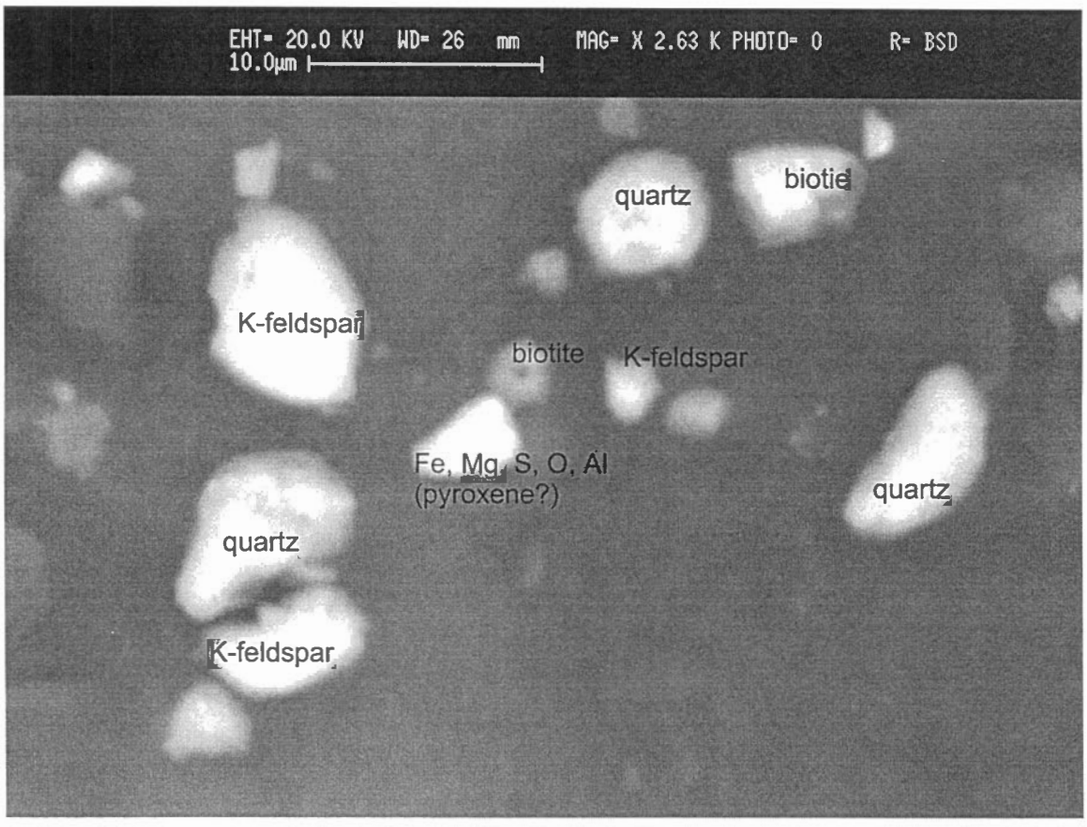


Figure 53: Print #S70-03. Another close up of typical snow particulates found in this sample.

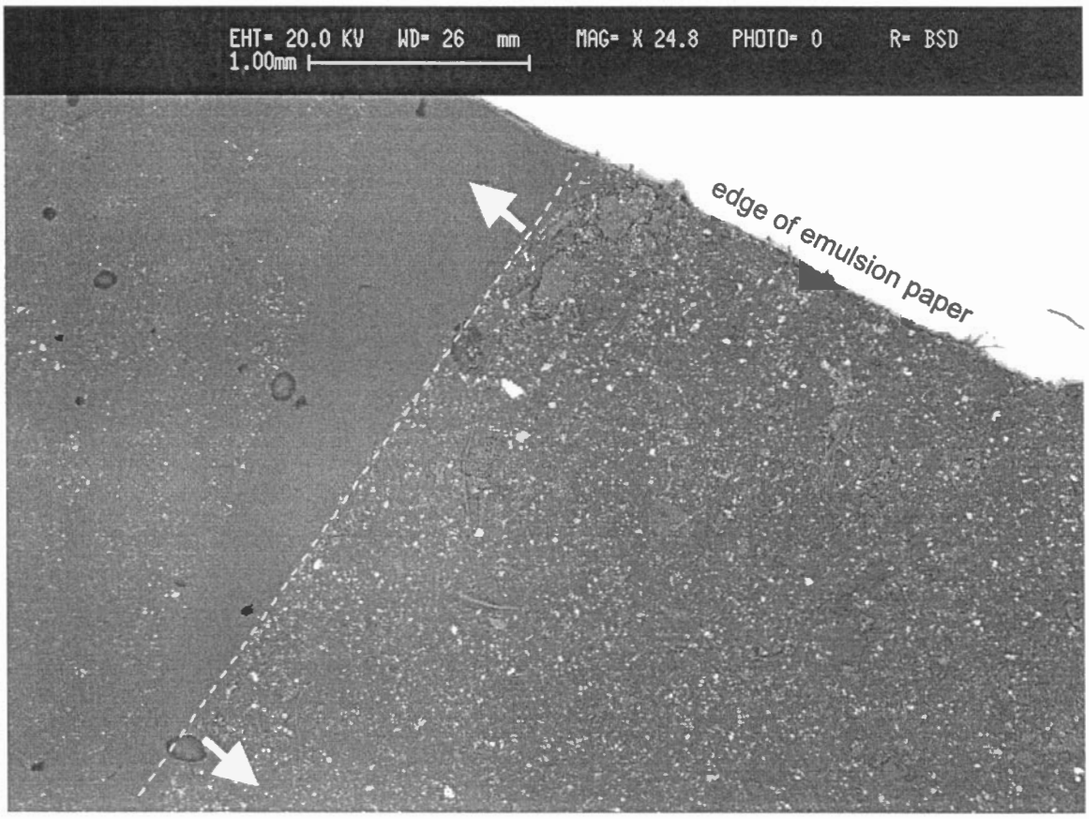


Figure 54: Print #S70-04. A distal look at the SEM plug containing the sample. The background is an emulsion paper. One half of the plug was pushed down onto one section of the filter paper containing the snow particulates to capture most of sample. The other half was then pushed down on the same spot to capture the particulates left on the filter paper. These two halves are shown by the arrows on the picture.

Sample site identification: **RN98-SNOW-72**
Date of analysis: 09-24-98

- Sample contains fewer mineral particulates than the majority of samples, but quite a variety of metallic spheres.
- Particulates consist mostly of organic material with sphalerite, pyrite, barite, native Cu, chalcopyrite, and Pb/Al/Si/O minerals.
- Smelter-derived material includes Ti spheres, Cu spheres, Ni/Fe/S spheres, Pb/Cu/S/Si/O/K spheres, Fe/O spheres, and Sb/S/O spheres.

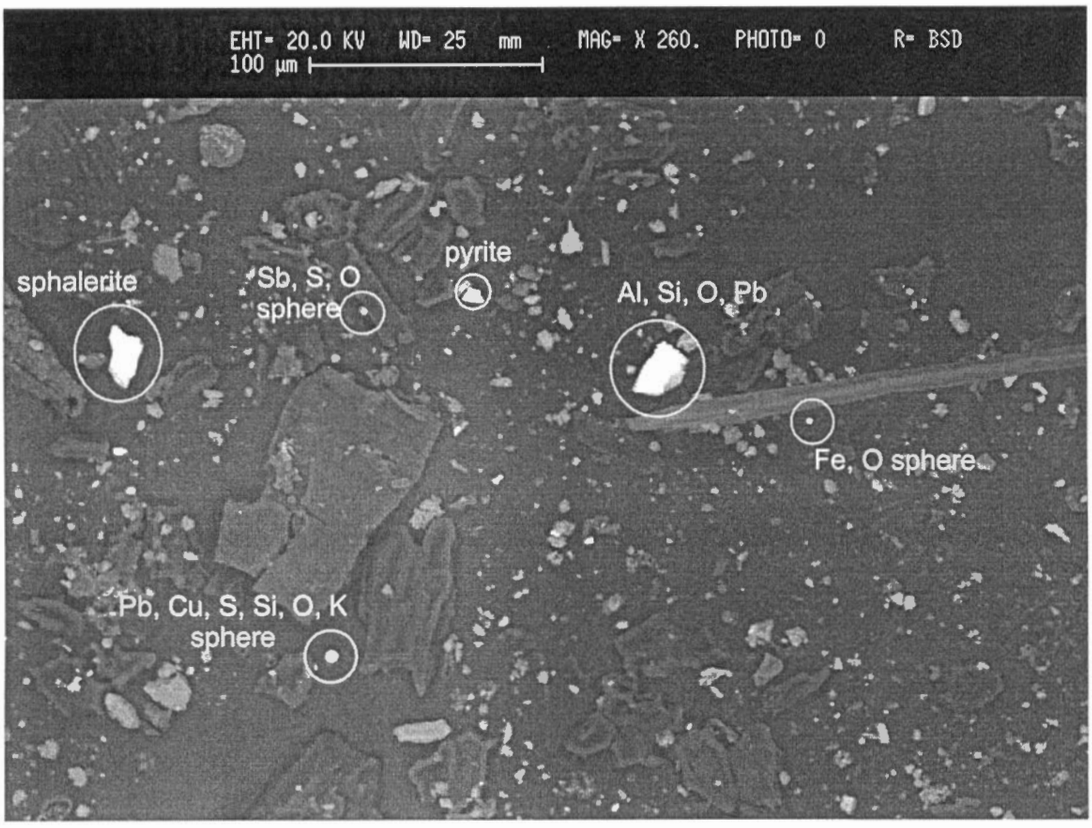


Figure 55: Print #S72-01. Little material in this sample seems to be highly reflective (dense/metalliferous). Other particulates in this sample that do not appear on the thermoprint include barite, native copper, native copper spheres, chalcopyrite, iron-oxide spheres, titanium spheres, nickel-iron-sulphurous spheres, sphalerite, and some alumino-siliceous algal cysts. Note that all spheres in this sample are very small (<2 µm).

Sample site identification: **RN98-SNOW-80**
Date of analysis: 09-24-98

- Particulates consist of Fe/O mineral grains, chalcopyrite, quartz, K-spar, Cu/Fe/S mineral grain, barite, siliceous cysts, pollen, and Pb/As/Sn particles (computer parts?).
- Smelter-derived material includes many smelter-produced metallic spheres, Ba/S spheres (S80-01), Cu/O spheres (S80--03, -04, -05), and S spheres (S80-03).
- The Cu/O sphere in S80-04, -05 has a "Swiss cheese" texture developed most likely from degassing when emitted from smelter.

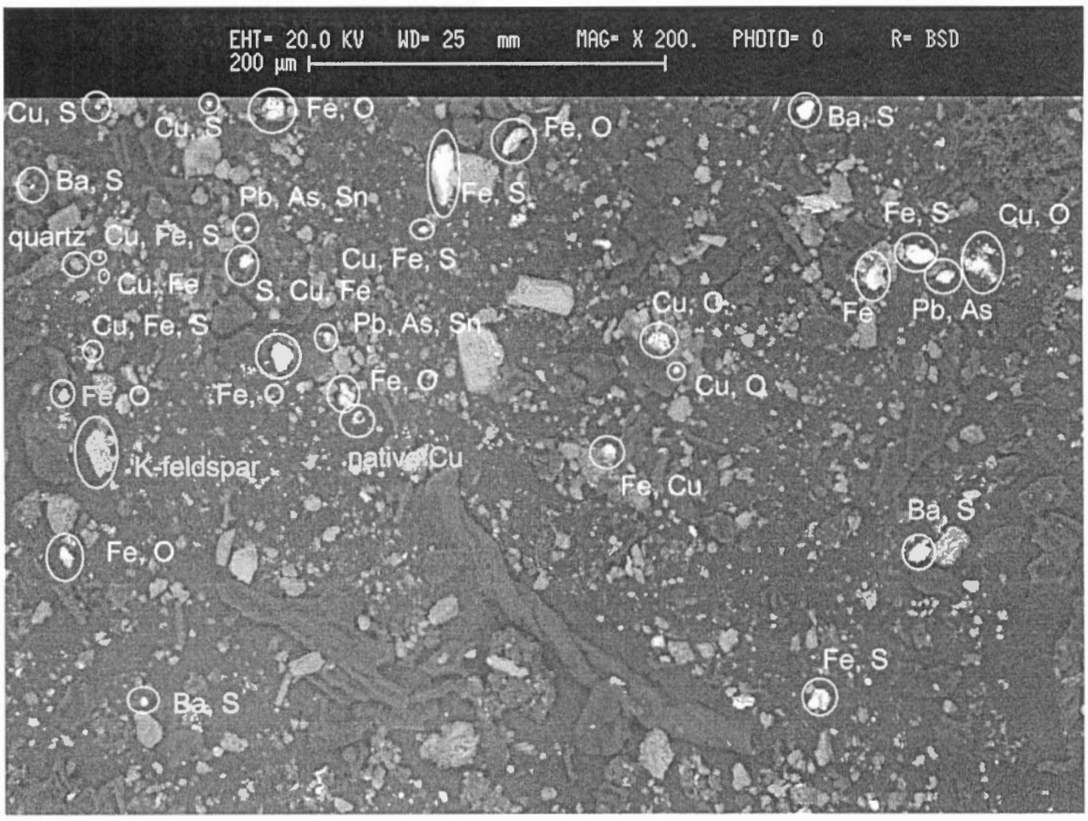


Figure 56: Print #S80-01. Overview of the sample RN98-SNOW-80.

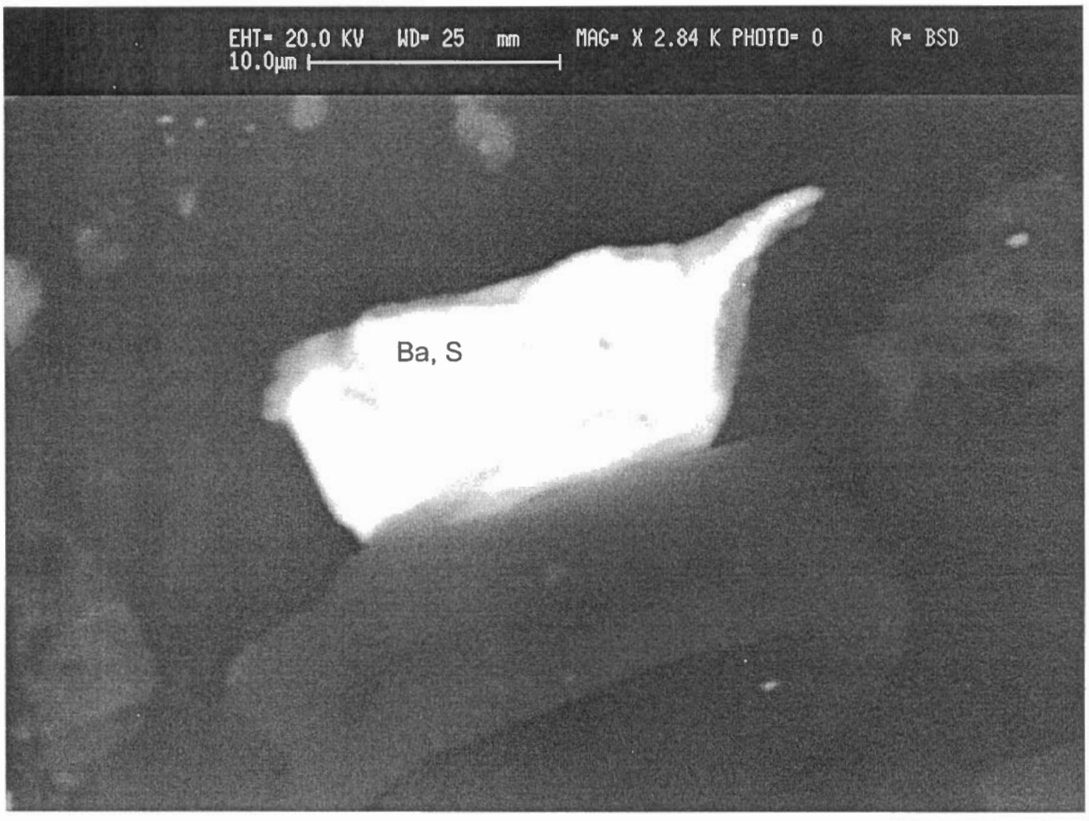


Figure 57: Print # S80-02. Close up of a barite mineral.

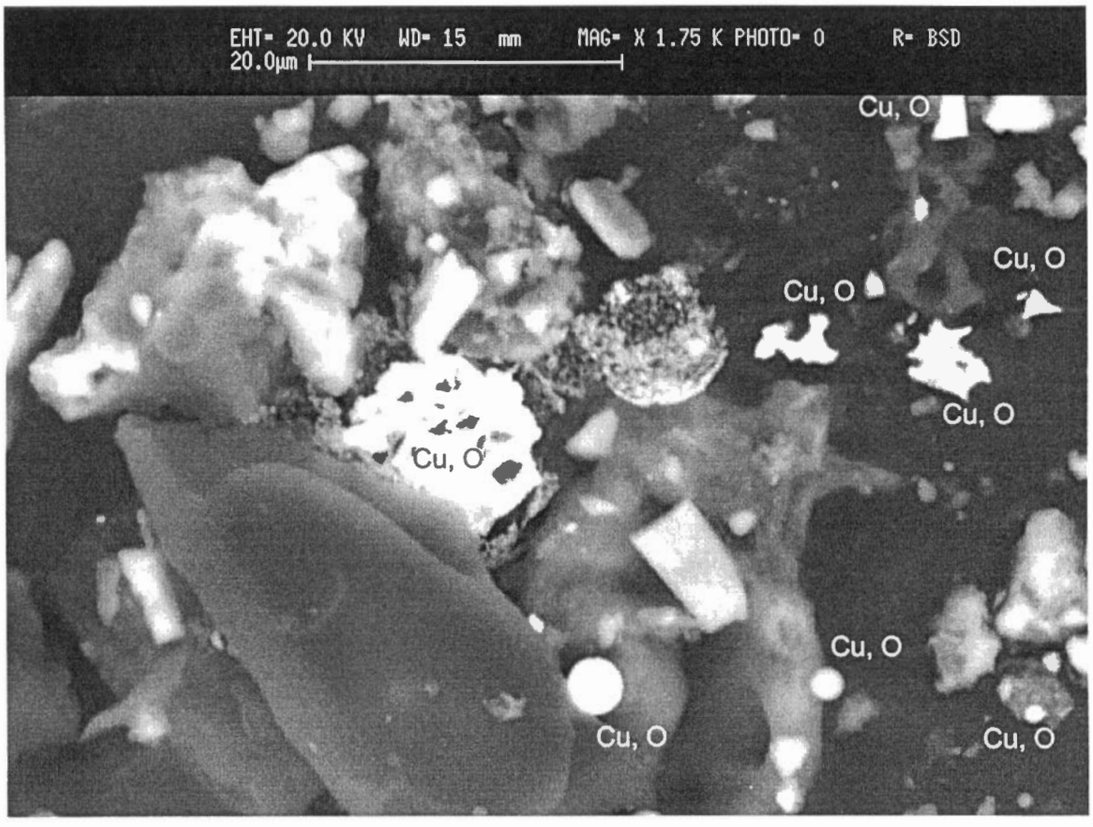


Figure 58: Print #S80-03. Organic debris with a few copper-oxide spheres as well as copper-oxide fragments.

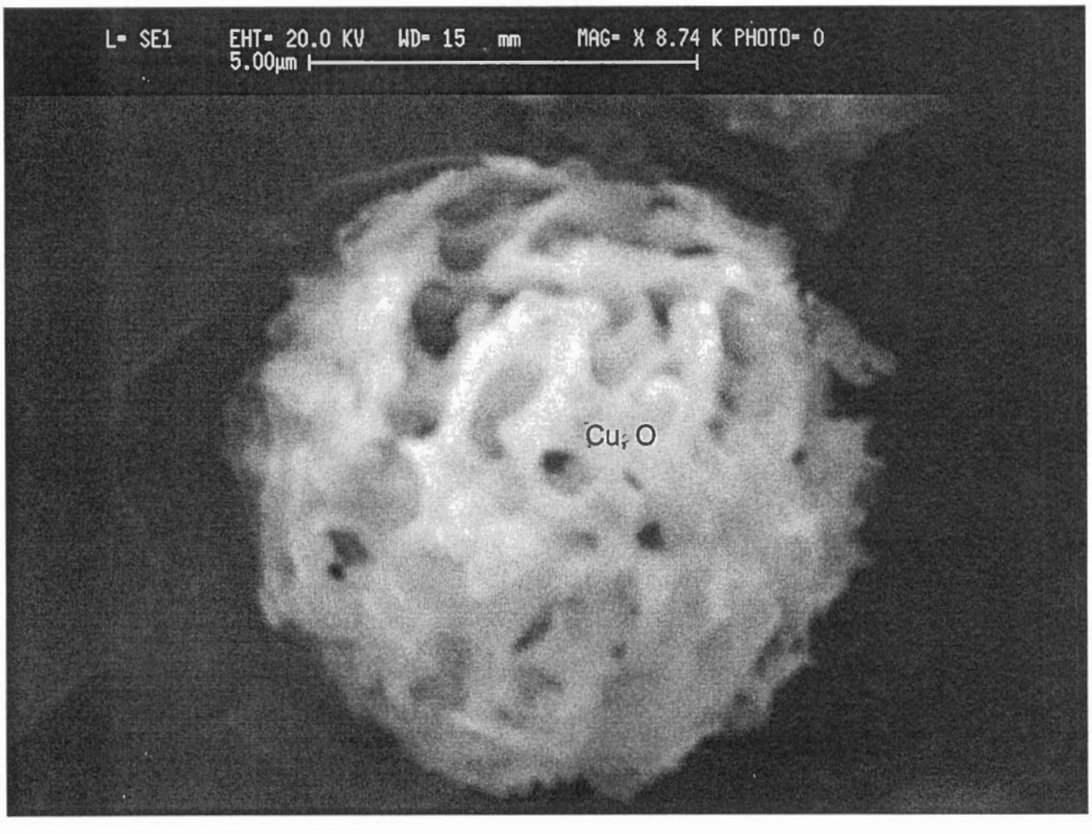


Figure 59: Print #S80-03. Copper-oxide sphere with a "Swiss cheese" texture due to degassing or dissolution effects.

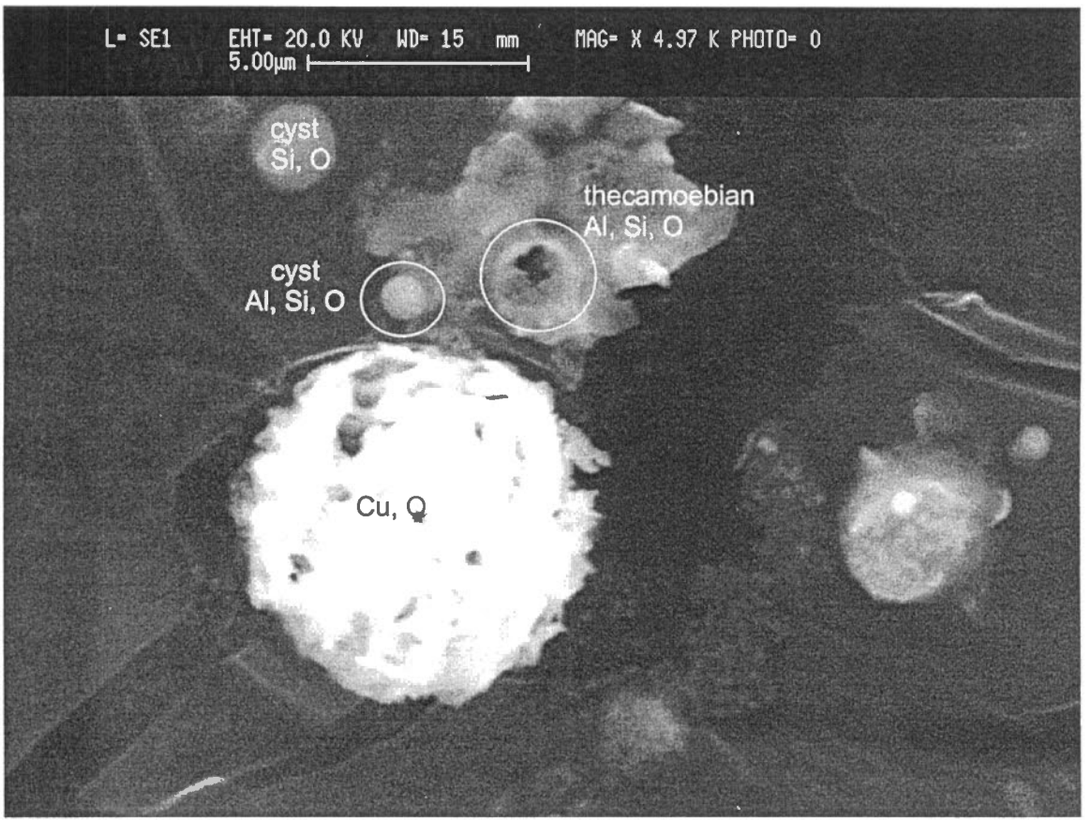


Figure 60: Print #S80-05. The same copper sphere from S80-04 at a more distal view. The sphere is surrounded by siliceous algal cysts as well as a distinct testate of a thecamoebian.