Grain Size and Trace Metal Concentrations on the Newfoundland Shelf: Results from the Hibernia GBS and Terra Nova FPSO Oil Production Platforms

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by

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ABSTRACT

Zions, V.S., Law, B.A., Milligan, T.G., MacPherson, P., Hannah, C.G., Lee, K and Amirault, B. 2014. Grain size and trace metal concentrations on the Newfoundland shelf: Results from the Hibernia GBS and Terra Nova FPSO oil production platforms. Can. Tech. Rep. Fish. Aquat. Sci. 3077: vii + 98 p.

Bottom sediment samples for trace metal and sediment grain size analysis were collected on the Newfoundland shelf during the summers of 2005 through 2008 at two oil and gas extraction platforms. Samples were collected at the Hibernia GBS (Gravity Based Structure) in 2005, 2006, and 2008 and at the Terra Nova FPSO (Floating Production Storing and Offloading) in 2007 and 2008. Sampling stations were located along transects extending from the production platforms in north, east, south, west, south-east, south-west and north-west directions. Sediment samples were collected using a slow-corer which allowed for retention of coarse sandy sediments. Cores were sectioned into 2 cm layers for sediment grain size and trace metals analysis. Sediment analysis revealed median diameters that ranged from 202 µm to 287 µm and mud fractions (<63 µm) that ranged from 0.07 % to 4.36 % throughout the sampling program. Metal concentrations were plotted against aluminum for grain size normalization and compared to background concentrations collected from sandy sediments throughout the Newfoundland and Scotian shelves. Barium concentrations were measured above background levels during each year sampled at a variety of sediment depths. Slight elevations in iron, manganese and strontium concentration were also measured in several core samples which could be the result of produced water discharge.

RÉSUMÉ

Zions, V.S., Law, B.A., Milligan, T.G., MacPherson, P., Hannah, C.G., Lee, K and Amirault, B. 2014. Taille des grains et concentrations de métaux à l'état de traces sur le plateau de Terre-Neuve : Résultats des unités de production pétrolière de la plateforme gravitaire d'Hibernia et du navire de production, de stockage et de déchargement Terra Nova. Can. Tech. Rep. Fish. Aquat. Sci. 3077: vii + 98 p.

De 2005 à 2008, on a recueilli, pendant l'été, des échantillons de sédiments des fonds marins sur deux plateformes d'extraction de pétrole et de gaz sur le plateau de Terre-Neuve afin d'analyser les métaux à l'état de traces et la taille des grains. Les échantillons ont été prélevés sur la plateforme gravitaire d'Hibernia en 2005, en 2006, puis en 2008, et sur le navire de production, de stockage et de déchargement (NPSD) Terra Nova en 2007 et en 2008. Des stations d'échantillonnage étaient situées le long de transects au nord, à l'est, au sud, à l'ouest, au sud-est, au sud-ouest et au nord-ouest des plateformes de production. On a recueilli les échantillons à l'aide d'un carottier SLO-CORER, qui a permis la rétention de sédiments de sable grossier. Les carottes ont été divisées en couches de 2 cm aux fins d'analyse de la taille des grains de sédiments et des métaux à l'état de traces. Par suite de l'analyse des sédiments, on a constaté des diamètres moyens de 202 µm à 287 µm et des fractions de la boue (<63 µm) de 0,07 % à 4,36 % au cours du programme d'échantillonnage. Les concentrations de métaux ont été établies en

fonction des concentrations d'aluminium, aux fins de normalisation de la taille des grains, puis comparées aux concentrations de fond recueillies à partir de sédiments sableux sur le plateau de Terre-Neuve et le plateau néo-écossais. Les concentrations de baryum ont été supérieures aux concentrations de fond chaque année où l'on a prélevé des sédiments à diverses profondeurs. Par ailleurs, on a mesuré une légère augmentation des concentrations de fer, de manganèse et de strontium dans plusieurs carottes d'échantillonnage, ce qui pourrait avoir découlé de l'évacuation d'eau produite.

INTRODUCTION

Offshore oil and gas operations have been active on the Newfoundland shelf since 1992 at the Hibernia GBS (Gravity Based Structure) and 2002 at the Terra Nova FPSO (Floating Production Storage and Offloading). Oil and gas production processes have the potential to negatively impact the natural environment and are therefore subject to environmental effects monitoring; where the objective is to examine the extent and severity of change to the environment. In 1995 an initial study of the sedimentary environment on the Newfoundland shelf was carried out in the area where the planned Hibernia GBS was to be located (Milligan *et al.*, 1997). To assess the potential impact of drilling activities on the Newfoundland Shelf, suspended sediments were collected from the entire water column including the benthic boundary layer (bbl). The bbl is the layer of water which flows directly over the benthos, where flow velocities decrease logarithmically towards zero at the sediment-water interface. The amount of turbulence within the bbl is determined by the shear stress exerted on the benthos from the free stream velocity and the roughness of the seabed. At Hibernia the total concentration of suspended particulate material was generally <2 g m^{-3}, with a range from 0.19 g m^{-3} to 5.91 g m^{-3}, and within the bbl several samples reached 200 g m^{-3} (Milligan *et al.*, 1997). Water column samples analyzed for grain size generally had modal diameters <50 µm, while in the bbl water samples contained grain size between 200-300 µm. These 200-300 µm grains were similar to the sediment size from the seabed surface. It was suggested that during the time of increased flow velocities, suspended sediment concentrations would increase as large particles became entrained; which permitted the release of smaller particles from interstitial spaces.

A study by Saunders *et al.* (1999) revisited the Hibernia study site in 1997 to determine the extent of drilling waste dispersion in comparison to the initial 1995 background study. This study employed similar sampling procedures as the previous study with suspended sediment samples taken throughout the water column and in the bbl. During this study the suspended particulate material was also generally <2 g m^{-3} and ranged from 0.30 g m^{-3} to 4.09 g m^{-3} through the water column. In the bbl suspended particulate material ranged from 0.35 g m^{-3} to 10.18 g m^{-3}. These values were similar to those measured in the background study (Milligan *et al.*, 1995). Saunders *et al*. also found sand grains between 250 µm and 300 µm in the bbl samples.

A study by Law *et al.* (2002) highlighted sampling around the Hibernia GBS from 1998-2000. Suspended sediment samples were collected throughout the water column and in the bbl. Water samples revealed similar suspended sediment concentrations to the previous studies, generally less than 2 g m^{-3}. In 1998 suspended particulate material measured 0.15 g m^{-3} to 7.75 g m^{-3} in the water column and 0.19 g m^{-3} to 5.04 g m^{-3} in the bbl. In 1999 suspended particulate material measured 0.06 g m^{-3} to 3.83 g m^{-3} in the water column and 0.42 g m^{-3} to 9.96 g m^{-3} in the bbl. In 2000 suspended particulate material measured 0.02 g m^{-3} to 2.49 g m^{-3} in the water column and 0.13 g m^{-3} to 4.77 g m^{-3} in the bbl. Expanding upon the work of Muschenheim and Milligan

(1996) on the Scotia shelf, Law *et al.* (2002) found bentonite drill mud signatures in samples analyzed for grain size from the lower water column and from samples in the bbl at the Hibernia oil field.

The benthic boundary layer transport (bblt) model was developed to simulate the transport processes of drilling wastes, which consist of drilling mud and rock cuttings once discharged from drilling platforms (Hannah *et al.*, 1995; Hannah and Drozdowski, 2005). Drilling muds are primarily composed of barite with a modal diameter of 27μm and bentonite clay (<2μm). The second purpose for the development of the bblt was to model growth days lost for filter feeding benthic organisms (eg. scallops) (Gordon *et al.*, 2000). The bblt model determines the vertical distribution of drilling wastes as a balance between the shear velocity in the bbl and the settling velocity of the drill waste particles (Hannah, 1995; Muschenheim *et al.*, 2010). The model is capable of using variable settling rates as drilling wastes behave differently depending on particle shape, size and type, water-based muds versus synthetic-based muds, and whether the particles themselves are flocculated (Niu *et al.*, 2008). Drilling wastes that form into flocs can settle out of the water column during times of low current stress and can be redistributed when stress is high (Curran *et.al.*, 2002).

A report by Muschenheim *et al*. (2010) outlined methods developed to sample sandy shelf sediments intact, retrieving cores upwards of 40cm deep. Trace metal analysis including barium, which represents the major constituent of barite drilling mud, showed elevated levels in drilling areas on the Scotian shelf. The bblt model assumes that all drilling wastes discharged are dispersed. The report of Muschenheim *et al.* (2010) suggested however that during drilling operations the single grain barite fraction can become incorporated into the sandy interstitial space of bottom sediment. This loss from the system is not presently incorporated in the bblt model. If sandy sediments are a repository for drilling wastes such as single grain barite, resuspension events could supply drilling wastes to the water column, more specifically the bbl on longer time scales than previously predicted.

Past research (1995-2002) on the Newfoundland shelf focused on reporting of suspended sediment concentrations. This study focuses on the sediment and chemical analysis from bottom sediment core samples collected on the Newfoundland Self around the Hibernia GBS (N 46.750, W 48.481) and Terra Nova FPSO (N 46.475, W 48.481). Bottom sediment core samples were collected using a slow-corer and analyzed for trace metal concentrations, as well as disaggregated inorganic grain size (DIGS) to determine the extent of drilling wastes incorporated into bottom sediments. Future calculations may lead to loss terms for drilling wastes being included into the bblt model. In addition to barium, a full suite of trace metal analysis are provided to lend support to a larger produced water study; which focused the dispersal of produced water plumes.

METHODS

Study Site

The Hibernia oil field was discovered in 1979 and is located in the Jeanne d'Arc Basin in the northeast portion of the Grand Banks, approximately 315 km east southeast of St. John's Newfoundland. The Hibernia GBS is a stationary platform for oil production that was installed in June of 1997 and began producing oil in November of that year. The Hibernia GBS is 244 m high with a production capacity of 230 000 barrels of crude oil per day and storage capacity of 1.3 million barrels within the lower portion of the platform. Water depth around Hibernia is on average 81 m and ranged from 77-84 m at station locations. The reference station located 50 km east of the GBS had a water depth of 73 m.

The Terra Nova oil field was discovered in 1984 and is also located in the Jeanne d'Arc Basin; 35 km southeast of the Hibernia oil field, 350 km east southeast of St. John's Newfoundland. Oil production from the Terra Nova FPSO vessel began in January of 2002. The floating production vessel is 292.2 m long, 45.5 m wide and has a capacity to store 960,000 barrels of crude oil. Water depth at the Terra Nova site had an average of 96 m ranging from 90-101 m at the sample stations.

Sample Collection

Samples were collected from the Newfoundland Shelf in 2005, 2006, 2007 and 2008 from the C.C.G.S. Hudson (Fig. 1). During the 2005, 2006 and 2008 studies, sample collection was concentrated around the Hibernia GBS (Fig. 2) and in 2007 and 2008 the Terra Nova FSPO (Fig. 3). Sediment samples were collected using a slow-corer from transects projecting away from the oil platforms in north, east, south, west, south-east, south-west and north-west directions (Fig. 2, 3; Table 1). Samples were collected 500 m, 750 m and 1 km away from Hibernia GBS and 500 m, 1 km and 5 km away from Terra Nova FPSO. The 15 cores collected from transects around Hibernia ranged in length from 8 to 32 cm; 14 cores collected from transects around Terra Nova FSPO ranged in length from 12 to 31 cm. Cores were sectioned into 2 cm layers for analysis of sediment grain size distribution and trace metal concentrations.

Sediment core samples were collected using a slow-corer (Bothner, 1998; Law *et. al.*, 2008). The slow-corer uses approximately 350 kg of weight with a hydraulically damped system to gradually drive a poly carbonate core barrel into the bottom sediment. The slow rate of decent of the core barrel ensures the sediment-water interface is preserved during collection. A seal with an o-ring around the top of the core barrel and a gasket spade plate that swings into position once the core clears the bottom ensures no sediment is lost on recovery. The slow-corer is fundamental to sediment sampling where sediments are sandy as other coring methods are unable to both penetrate the sediment and retain the undisturbed bottom sediment. Vibra corers disturb the sediment during collection, and gravity corers often bounce off the bottom in sandy environments.

Particle Size Analysis

Down core sediment layers were analyzed for disaggregated inorganic grain size (DIGS) using a Coulter Counter Multisizer IIe. The Coulter Counter is an electro resistance particle size analyzer. It counts particles by pumping a suspension through the aperture of a glass tube. Two electrodes, one inside and one outside of the tube, create a constant electrical current that is impeded as particles pass through the aperture sensing zone. The impedance of the current caused by a particle generates a voltage spike that is proportional to the volume of the particle. Volumes are converted to diameters by assuming particles are spheres. Each aperture tube can count particles that are 2-60 % the size of the aperture, so multiple tubes are used to measure the full range of particle sizes in typical marine sediments. Three tubes were used during these analyses: 30 µm, 200 µm, and 1000 µm, which measure particle diameters from 0.8 µm to 600 µm.

Sediment samples were homogenized and approximately 0.5 g transferred into a 50 ml beaker. Organic material was removed with a treatment of 35 % hydrogen peroxide (H_2O_2). A 1 % salt solution (electrolyte) was added to the treated sediment and the beaker was placed in a sonic bath for 1 min to loosen any sediment adhered to the sides. The 30 µm and 200 µm aperture tubes required approximately 200 ml of electrolyte solution for sufficient particle counts. For the 1000 µm tube a glycerine solution was used to increase viscosity and prevent settling of the sand sized particles during analysis (Kranck and Milligan, 1979; Milligan and Kranck, 1991). Sediment size distributions were plotted as equivalent weight percent versus the log of particle diameter (µm). For more detailed descriptions of the Coulter Counter method see Kranck and Milligan (1979), and Milligan and Kranck (1991).

Trace Metal Analysis

Subsamples from each 2 cm interval were dried (<60ºC) and sieved through a 1 mm screen to remove larger particles and possible shell fragments if present. Approximately 30 g of each dried and sieved sediment sample was subsampled into cleaned and dried scintillation vials for shipment to commercial labs. Samples collected during the 2005, 2006 and 2007 sampling cruises were sent to RPC (Research and Productivity Council) in Fredericton NB, and samples from 2008 sampling were sent to IML (Institute Maurice-Lamontagne), a DFO analytical lab in Mont-Joli QC. Samples were analyzed for trace metal concentrations for a suite of elements (Table 2-4, 15-16). This report concentrates on the measurements of aluminum, zinc, iron, manganese, barium, and strontium. Barium is of particular interest as its presence can be an indicator of drill waste. Strontium can also be an indicator of drill mud presence and is sometimes associated with increases in Ba concentration (Muschenheim *et al.*, 2010). Elevated concentrations of Zn, Fe, and Mn along with Ba can be linked to produced water and can be present in concentrations 1000 times greater than ambient seawater (Scott *et al.*, 2007). Sediment samples were digested with a mixture of nitric acid (3 ml) and hydrofluoric acid (3 ml) and heated to dryness. Hydrochloric acid (0.5 ml) and nitric acid (~ 3 ml) were added and then the sample was diluted with ~ 30 ml deionized water. This solution was heated until the residue was dissolved and then diluted for subsequent trace metal analysis. All samples were analysed by inductively coupled plasma mass spectrometry (ICP-MS) for trace elements and inductively coupled plasma emission spectrometry (ICP-ES) for high concentration elements, with detection limits for each lab listed in table 20.

All trace metals concentrations (mg kg^{-1}) were normalized against aluminum to remove grain size effects and to determine the anthropogenic inputs into the bottom sediments. Background levels of trace metals in the sediment were determined from analysis of a collection of sandy sediment samples from the Newfoundland and Scotian Shelves (Yeats *et al.*, 2010).

RESULTS

Hibernia GBS

Plots of the DIGS distributions analysed down core for Hibernia are shown in figures 4 to 13, and the DIGS data are listed in tables 5 to 14. Samples collected from Hibernia were primarily composed of medium sized sand grains with a distinct modal peak that ranged between 256 µm to 337 µm (Table 2-13; Fig. 4-13). The median diameter, D50 ranged from 232 µm to 288 µm (Table 2-13). Size distributions showed little fine material with the percentage of fines, mud fraction <63 µm within Hibernia samples ranged from 0.07 % to 4.36 % (Table 2-13). These sediments were classified as non-cohesive sands (Law *et al*., 2008).

Metals analyses were completed down-core for a suite of trace metals (Fig. 14-27; Table 2-4). Metals were plotted against aluminum for grain size normalization and compared to background levels from samples collected throughout the Newfoundland and Scotian Shelves (Fig. 14-27).

Samples collected from five stations at Hibernia in 2005 did not exceed background levels for Zn (Fig. 14) which ranged from 2 mg kg^{-1} to 9 mg kg^{-1} (Table 2). Slight elevations above background were seen in samples from stations HS1 and HN1 for Fe (Fig. 15) and Mn (Fig. 16), mostly in the 2-4 cm and 8-10 cm samples. Iron ranged in concentration from 1300 mg kg^{-1} to 6920 mg kg^{-1} and Mn ranged from 28 mg kg^{-1} to 228 mg kg^{-1} (Table 2). Barium concentrations were elevated above background levels for all five stations, with the highest value of 574 mg kg^{-1} seen in the 2-4 cm sample from station HN1 (Fig. 17). Barium concentrations ranged from 101mg kg^{-1} to 574 mg kg^{-1} (Table 2). Strontium ranged from 29 mg kg^{-1} to 48 mg kg^{-1} and had two samples with slight elevations above background from stations HN1 and HS0 (Fig. 18, Table 2).

Seven cores collected in 2006 from Hibernia showed no elevation in Zn concentration (Fig. 19), which ranged from 2 mg kg^{-1} to 6 mg kg^{-1} (Table 3). Slightly elevated concentrations of Fe (Fig. 20) were seen in most of the HW0 samples (0-10 cm, 20-22 cm) and at 4-6 cm depth for station HNE500, with concentration ranging from 840 mg kg^{-1} to 5180 mg kg^{-1} (Table 3). Manganese concentration (Fig. 21) was elevated in one sample (6-8 cm) at station HNE500 and ranged from 13 mg kg^{-1} to 187 mg kg^{-1} (Table 3). Concentrations of Ba (Fig. 22) were elevated at all stations except W0 and ranged from 44 mg kg^{-1} to 335 mg kg^{-1} (Table 3). Strontium concentrations ranged from 26 mg kg^{-1} to 44 mg kg^{-1} (Table 3) and were found in excess of background levels at Station HW0 from 0-2 cm and 6-12 cm (Fig. 23).

In 2008 Hibernia samples had no elevated levels of Zn (Fig. 24) above background and ranged from 1 mg kg^{-1} to 3 mg kg^{-1} in concentration (Table 4). Concentration of Fe (Fig. 25) ranged from 524 mg kg^{-1} to 2655 mg kg^{-1} (Table 4) and was shown to be slightly elevated at 12-14 cm depth for station HN5K. Manganese ranged from 7 mg kg^{-1} to 83 mg kg^{-1} (Table 4) in concentration, which was within background levels (Fig. 26). Barium (Fig. 27) ranged from 48 mg kg^{-1} to 141 mg kg^{-1} (Table 4) in concentration and was slightly elevated at 2-4 cm for station HS1K. Strontium was not measured in samples collected in 2008.

The reference station R50K was sampled in 2006 and 2008 and is located 50 km east of the Hibernia GBS center. In 2006 Ba (Fig. 22) was measured in excess of background levels for all depths within the core collected. In 2008 at a depth of 4-6 cm Fe (Fig. 25) was found in slight excess of background levels. All other samples analyzed from the reference station were within background levels. Concentrations of Zn from the two sampling years ranged from 2 mg kg^{-1} to 4 mg kg^{-1}, Fe from 1207 mg kg^{-1} to 3270 mg kg^{-1}, Mn from 6 mg kg^{-1} to 94 mg kg^{-1}, Ba from 43 mg kg^{-1} to 302 mg kg^{-1}, and Sr (2006) from 32 mg kg^{-1} to 38 mg kg^{-1} (Table 3-4).

Terra Nova FPSO

The DIGS distributions analysed down core from Terra Nova are shown in figures 28 to 30, and inorganic size spectra are listed in tables 17 to 19. Samples collected from Terra Nova were primarily composed of medium sized sand grains. Size distributions showed little fine material with a distinct modal peak that ranged between 222 µm to 256 µm (Table 17-19; Fig. 28-30). The median diameter, D50, ranged from 202 µm to 247 µm (Table 17-19). The percentage of fines <63µm within Terra Nova samples ranged from 0.16 % to 2.49 % (Table 17-19). These samples were also classified as non-cohesive sands (Law *et al.*, 2008).

In 2007 there were no elevated levels of Zn (Fig. 31), Fe (Fig. 32) or Mn (Fig. 33) concentrations above background from the three stations sampled from Terra Nova. Metal concentrations ranged from 3 mg kg^{-1} to 6 mg kg^{-1} for Zn, 1470 mg kg^{-1} to 3550 mg kg^{-1} for Fe, and 32 mg kg^{-1} to 122 mg kg^{-1} for Mn (Table 15). Barium (Fig. 34) however was elevated at station TSE3K from 0-8 cm depth and station TW2K from 0-6 cm and 8-10 cm depth. Barium concentration ranged from 124 mg kg^{-1} to 822 mg kg^{-1} (Table 15). Strontium (Fig. 35) was also in excess of background levels for all stations sampled, and ranged from 37 mg kg^{-1} to 105 mg kg^{-1} (Table 15).

In 2008 there were no elevated values of Zn (Fig. 36) or Mn (Fig. 38) observed within the 11 stations sampled at Terra Nova. Metal concentrations ranged from 1 mg kg^{-1} to 13 mg kg^{-1} for Zn and 7 mg kg^{-1} to 90 mg kg^{-1} for Mn (Table 16). Concentration of Fe (Fig. 37) ranged from 242 mg kg^{-1} to 3354 mg kg^{-1} (Table 16) and a slight elevation above background was seen at 24-26 cm depth for station TE5K. Concentration of Ba (Fig. 39) ranged from 12 mg kg^{-1} to 250 mg kg^{-1} and was measured in excess of background levels at several stations. Station TS5K had elevated Ba concentration from 0-8 cm, station TN1K had slight elevations from 0-2 cm, and station TS500 was elevated from 0-12 cm. Strontium levels were not measured for samples collected in 2008.

DISCUSSION

Trace metal sample analysis indicated that a fraction of drilling mud's used at the Hibernia and Terra Nova oil fields were indeed buried into the sandy bank sediments of these energetic areas. Long term sampling from 2005-2008 indicate that drilling waste barium can persist in these sediments for long periods of time.

Hibernia GBS

Trace metal analysis was used to determine the presence of drilling wastes in the vicinity of the GBS. Barium which is an indicator of sedimentary barite from drill mud, and strontium which can also be associated with drill mud mixtures (Muschenheim *et. al.,* 2010) were of particular interest. Barium was elevated at all but two stations sampled at Hibernia during 2005 and 2006, and in one of three stations during 2008. Barium elevations were seen in all directions radiating outwards from the rig; however were not seen outside a distance of 1 km. This could be attributed to the lack of samples collected outside of this area or due to deposition at the time of drilling, creating only a localized effect. In 2008 three cores were collected at Hibernia with one core taken 5km from the rig; however the only station with slight elevations of barium was 1 km towards the south. A study by Amos and Judge (1991) looked at the combined influence of hydrodynamic processes on the eastern Canadian continental shelf to characterize the transport of sediment. Their findings show a predominantly southward movement of medium sand grains on the Grand Banks of Newfoundland to a depth of 120 m. This movement of sediment as bedload may explain the presence of drilling wastes to the south of Hibernia GBS.

Yeats *et. al.* (2010) showed that trace metals barium, strontium, zinc, iron and manganese were found in excess of background levels in water column samples taken in the vicinity of Hibernia in 2005 and 2006. These metals have been associated with produced water discharges. The presence of elevated metal concentrations in the water column and the substrate at Hibernia could be a sign of suspended particulates being incorporated into the bed during times of low current stress. Azetsu-Scott *et. al.* (2007) showed in laboratory studies the precipitation of heavy metals from produced water, which occurred within a period of hours in oxygenated conditions. When an undiluted produced water sample was observed, the descent of an aggregated particle (~5 mm diameter) was measured at a settling rate of >100 m/day. Settling velocities of this rate would allow for rapid deposition of particulate metals to the substrate if current stress was minimal. Once metals have reached the substrate, either from precipitation of produced water or discharges of drill mud, it appears there is long term burial within the sediments. Munchenheim *et. al.* (2010) suggested that elevated barium concentrations at depth within the sediments could be attributed to the sequestering of barite grains (~20 µm) within the interstitial spaces of the sandy sediments.

Terra Nova FPSO

Sediment characteristics at Terra Nova field are quite similar to those at Hibernia, which is not unexpected considering both are situated on the Grand Banks portion of the Newfoundland Shelf. Sediment is predominantly composed of medium sand grains as the distinct modal peak ranged from 222 µm to 256 µm, slightly lower than values seen at Hibernia. The decline in modal diameter compared to that at Hibernia may suggest that there is less turbulence acting on the bottom sediments as a result of surface waves. This is also seen in the median diameter at Terra Nova which ranged from 202.34 µm to 246.9 µm, also slightly lower than at Hibernia. Water depth at Hibernia is on average 15m shallower than at Terra Nova. This difference in water depth could mean more wave activity at the shallower Hibernia site and result in a larger median diameter (Anderson, 2001).

Although barium was also the major contributor to elevated metals around the Terra Nova FPSO, only 5 of 14 stations showed elevations through 2007 and 2008. Sample stations at Terra Nova were located between 2km and 3km from the FPSO in 2007 and 0.5 km to 20 km away in 2008. Barium was seen to have the greatest elevation at Terra Nova in 2007, 3 km south-east of the FPSO with an excess of ~600 mg kg^{-1} above background. Elevated levels were also found to the west and south, with the south having the most samples with elevated Ba concentrations. The mean current direction across the Grand Bank is predominantly towards the South (Fader *et al.*, 1982). Zinc, iron and manganese had slight elevations sporadically throughout the sampling program at Terra Nova. Strontium was also measured in excess of background levels at the Terra Nova field site in 2007. Strontium may be associated with drill wastes as was examined at Hibernia by Muschenheim *et. al.* (2010); it is also however an element that is abundant in exoskeleton material and may be an artefact of biological material. Elevated Ba may exist as part of drill wastes, as other metals associated with produced water plumes (Zn, Fe, Mn) are not significantly elevated above background levels at this field.

CONCLUSION

Elevated trace metal concentrations were observed at Hibernia GBS and Terra Nova FPSO. Evidence of the presence of drilling wastes was shown by elevated barium and strontium and to a lesser extent the presence of produced water by elevated iron and manganese concentrations in the sediment. Sediment samples are needed to determine an inventory of buried metals for future monitoring initiatives. Also, through an inventory of buried metals, a loss term may be incorporated into the bblt model. Environmental effects monitoring should continue in order to determine if metals persist at elevated levels as the oil well ages, and to identify any changes to metal concentrations in the sediments as produced water production continues.

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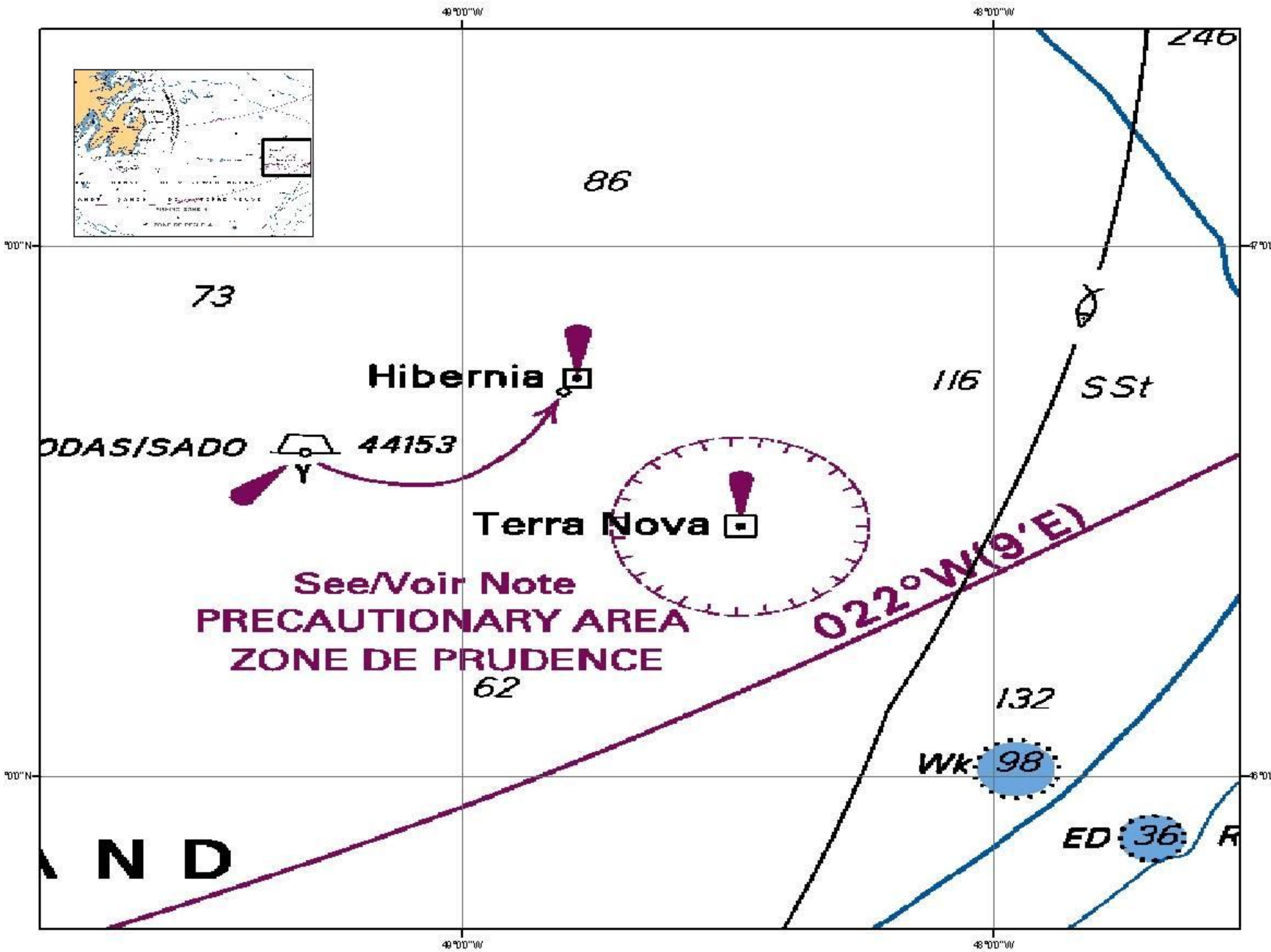

Figure 1. Map of Hibernia GBS and Terra Nova FPSO located on the Newfoundland Shelf

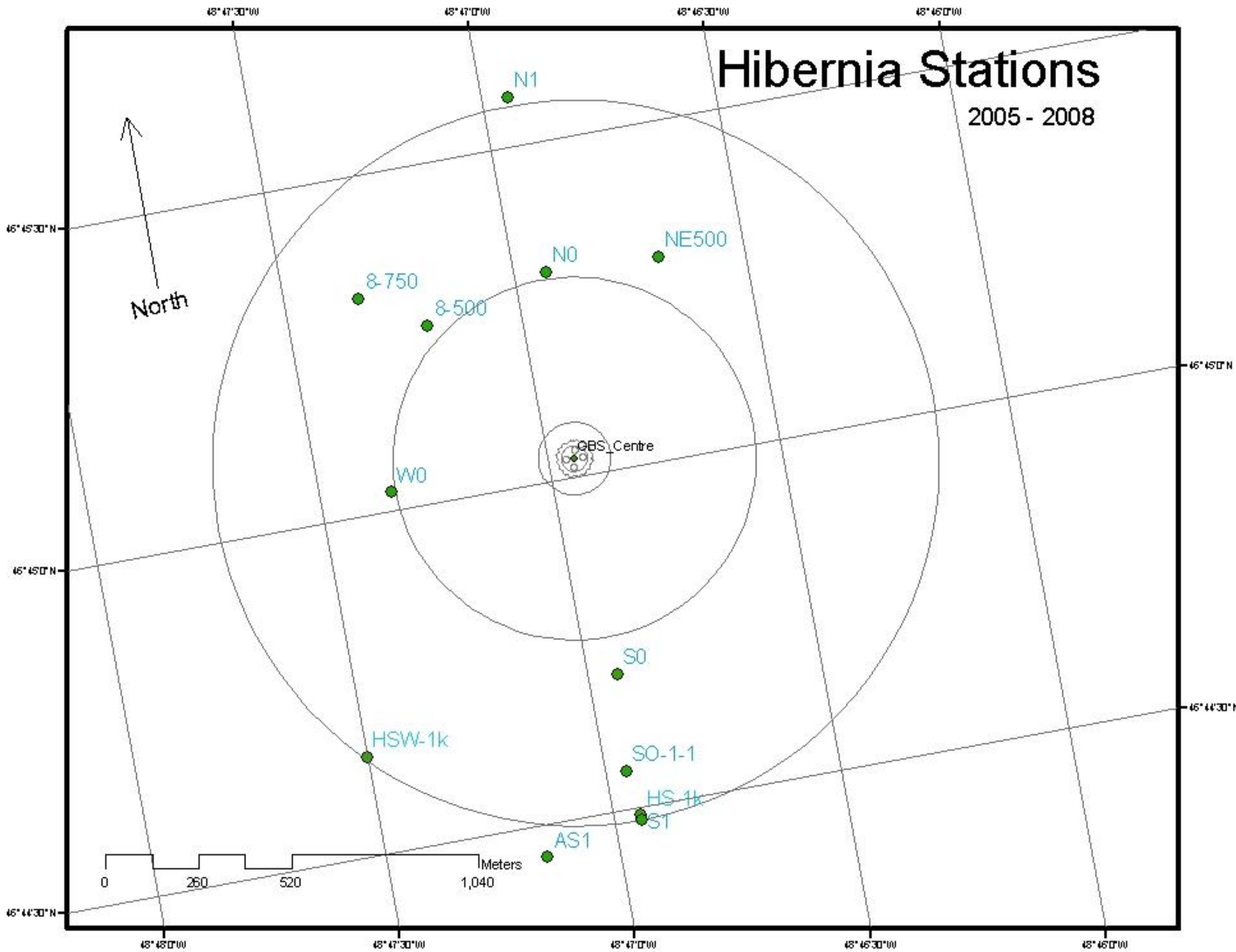

Figure 2. Station location map of Hibernia GBS. Station HN5K is located 5km north of the Hibernia GBS and the reference station R50K is located 50km to the east.

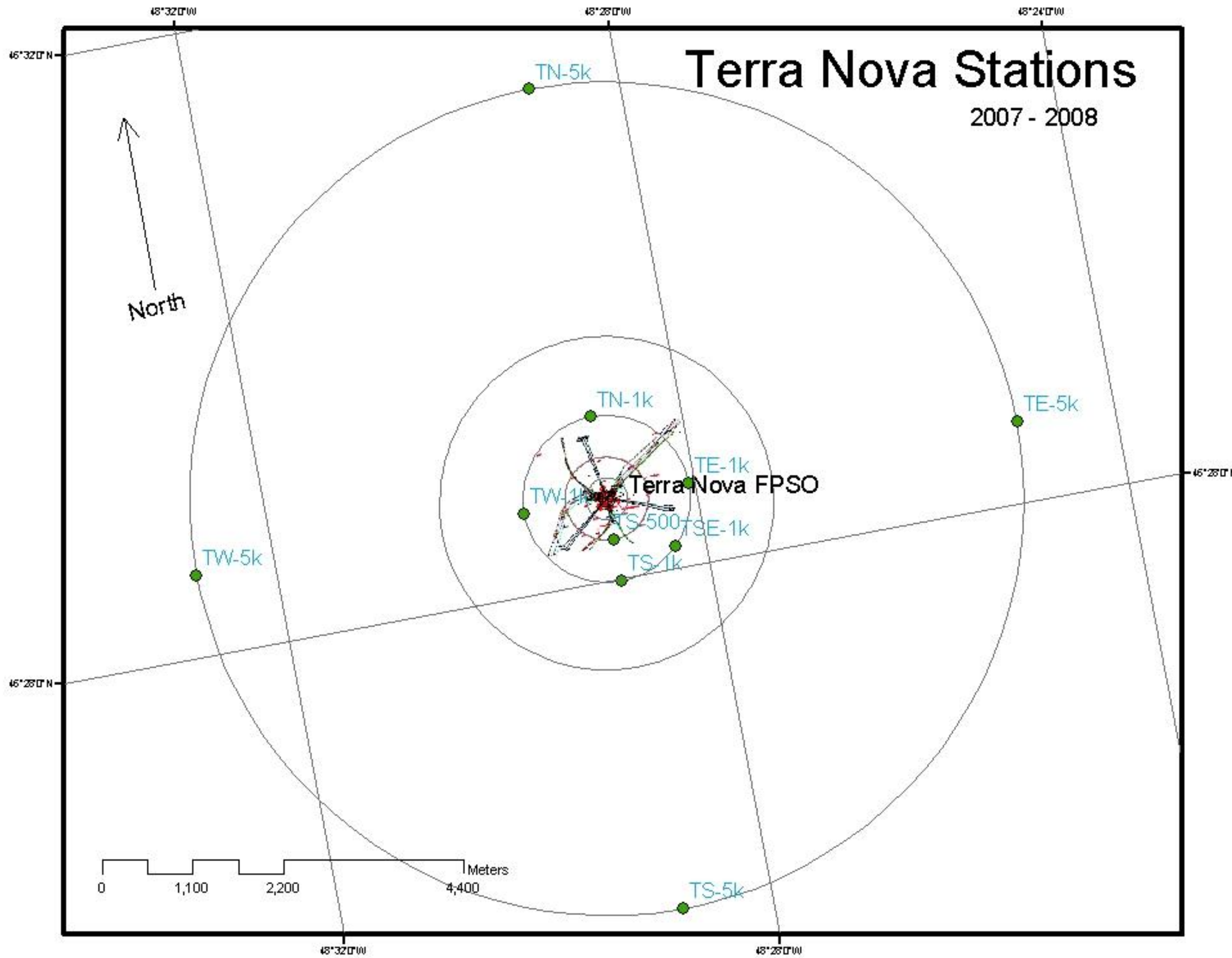

Figure 3. Station location map of Terra Nova FPSO. Station TN20K is located 20km north of the FPSO.

Table 1. Station locations.

Location	Station	Water Depth (m)	Latitude	Longitude	Core ID	Core Length (cm)
Hibernia 2005	W0	83	46.7492	-48.7910		19.0
Hibernia 2005	N1	84	46.7608	-48.7820	279623	29.0
Hibernia 2005	S0	83	46.7451	-48.7822	279631	26.5
Hibernia 2005	N0	84	46.7557	-48.7826	279624	25.5
Hibernia 2005	S1	83	46.7413	-48.7828	279633	23.0
Hibernia 2006	N0	77	46.7557	-48.7826	300625	15.5
Hibernia 2006	8-750	83	46.7550	-48.7899	300717	24.0
Hibernia 2006	8-500	82	46.7547	-48.7879	300937	8.0
Hibernia 2006	W0	82	46.7492	-48.7910	300938	22.0
Hibernia 2006	AS-1	80	46.7405	-48.7848	300939	26.0
Hibernia 2006	S0-1-1	75	46.7418	-48.7835	300940	30.5
Hibernia 2006	NE500	83	46.7558	-48.7765	300941	25.5
Reference Station	R50K	73	46.6970	-48.4253	300983	10.0
Hibernia 2008	HS1K	80	46.7415	-48.7829	333273	19.5
Hibernia 2008	HSW1K	80	46.7441	-48.7924	333281	27.0
Hibernia 2008	HN5K	83	46.7953	-48.7828	333296	22.0
Terra Nova 2007	TW2K	95	46.4753	-48.5075	314765	20.0
Terra Nova 2007	TS3K	96	46.4483	-48.4804	314615	26.0
Terra Nova 2007	TSE3K	97	46.4564	-48.4525	314616	8.0
Terra Nova 2008	TN1K	96	46.4843	-48.4810	333103	18.0
Terra Nova 2008	TE1K	97	46.4756	-48.4679	333104	27.0
Terra Nova 2008	TSE1K	96	46.4690	-48.4716	333100	20.5
Terra Nova 2008	TS1K	96	46.4663	-48.4811	333101	25.0
Terra Nova 2008	TW1K	96	46.4758	-48.4942	333102	29.0
Terra Nova 2008	TS500	96	46.4697	-48.4800	333099	28.5
Terra Nova 2008	TN5K	96	46.5205	-48.4806	333189	15.0
Terra Nova 2008	TE5K	98	46.4755	-48.4154	333191	31.0
Terra Nova 2008	TS5K	90	46.4287	-48.4822	333087	24.5
Terra Nova 2008	TW5K	93	46.4754	-48.5462	333190	23.0
Terra Nova 2008	TN20K	101	46.6548	-48.4801	333066	25.0

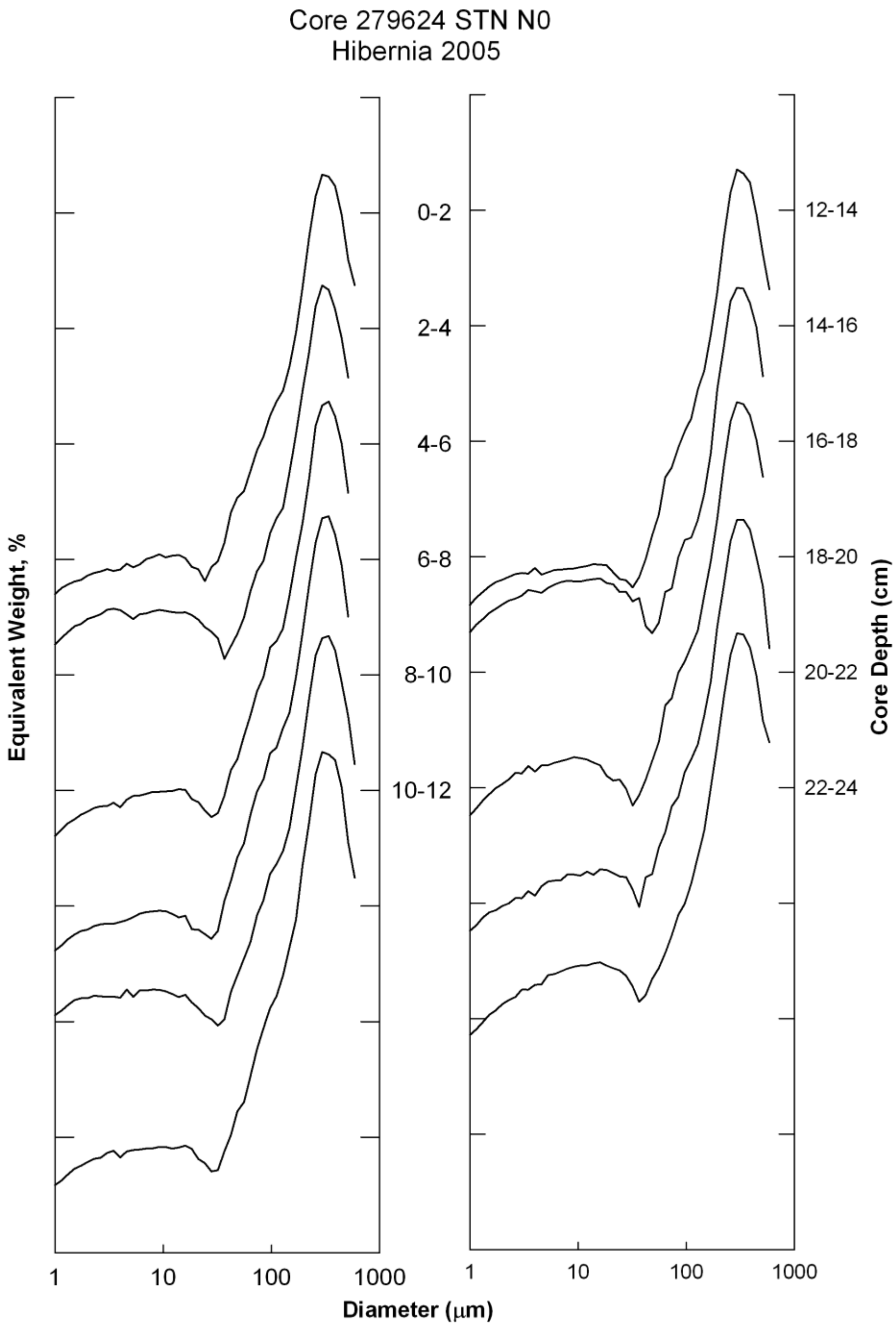

Figure 4. Core 279624 (Station N0) collected from Hibernia GBS, 2005. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

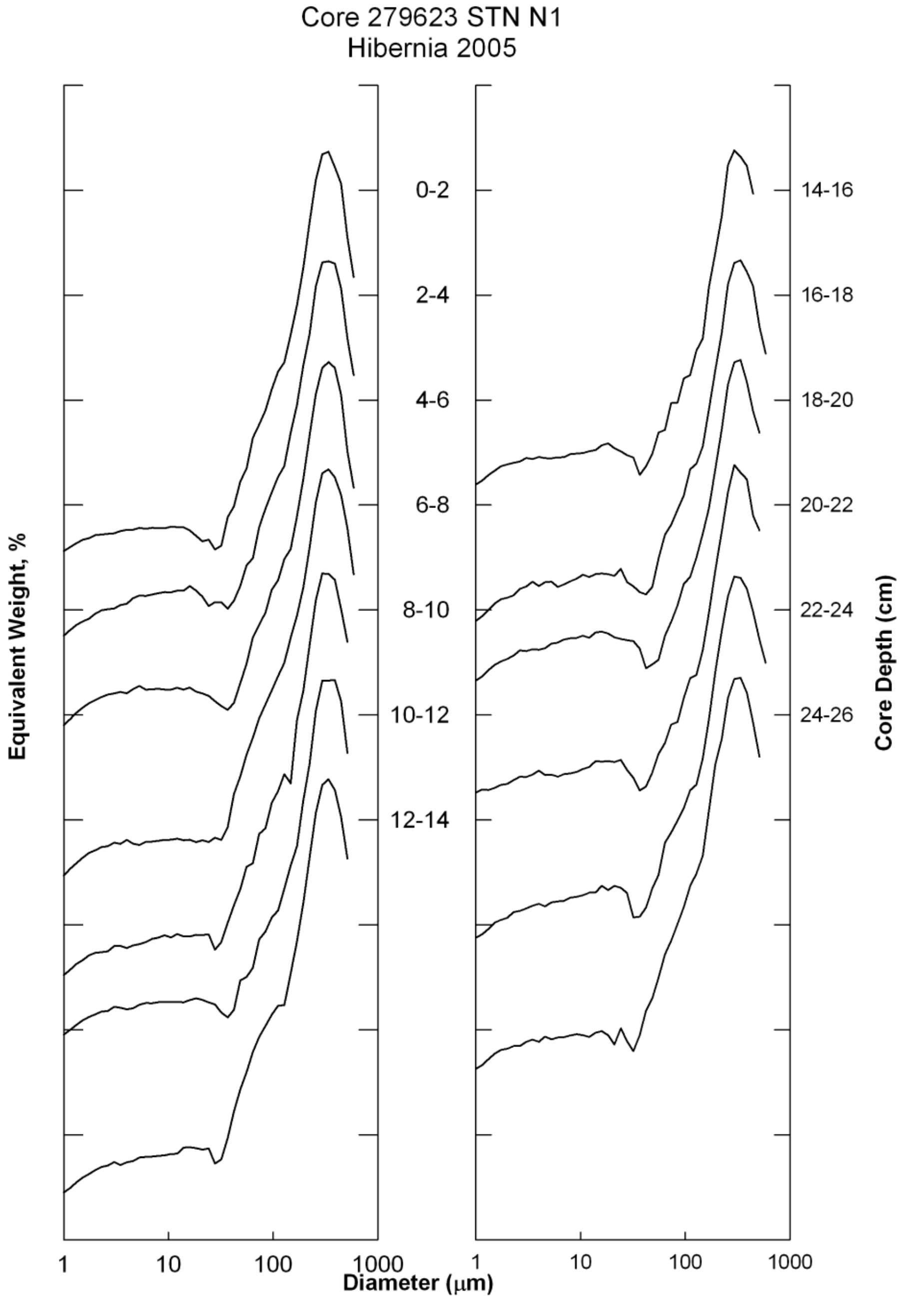

Figure 5. Core 279623 (Station N1) collected from Hibernia GBS, 2005. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

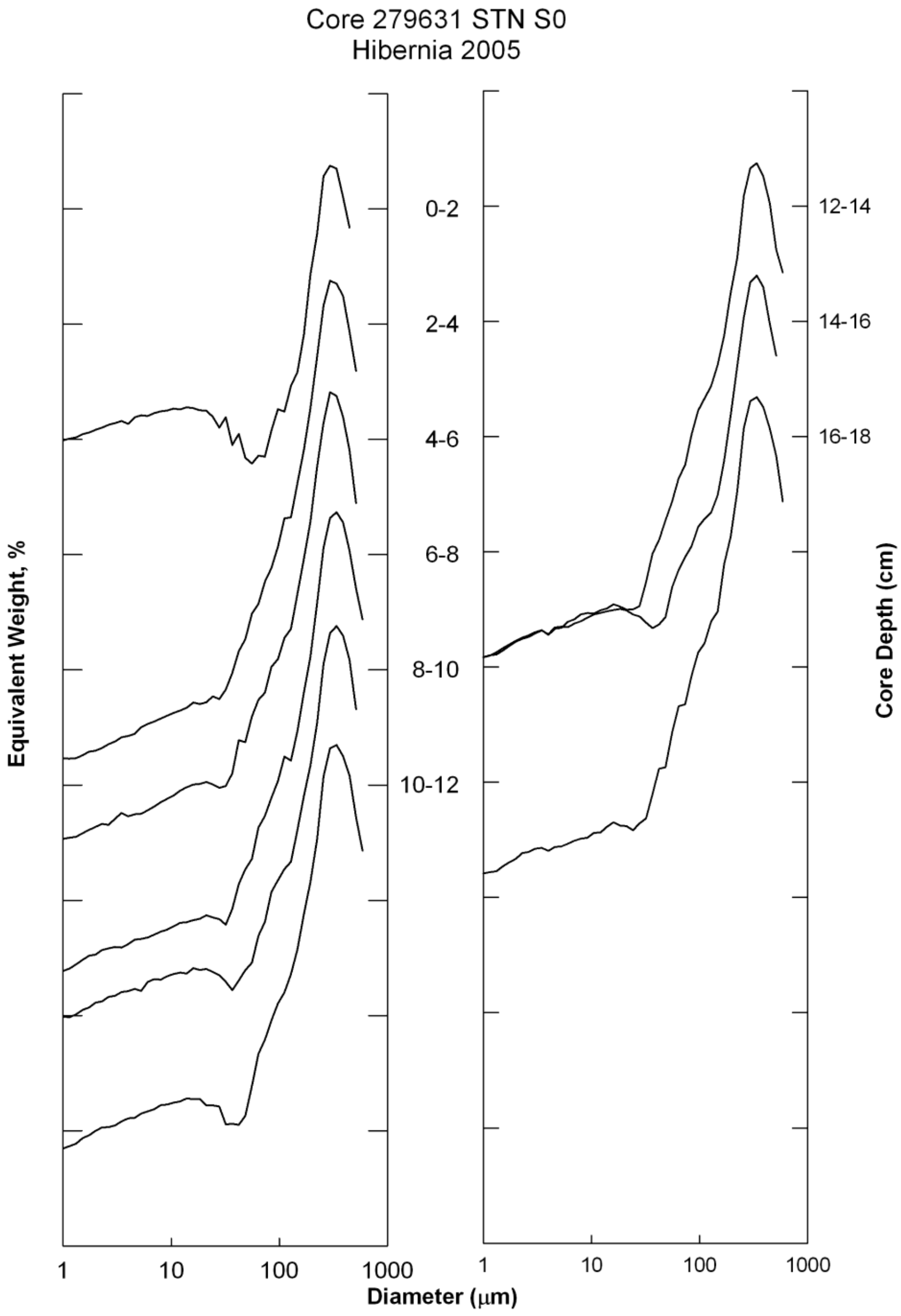

Figure 6. Core 279631 (Station S0) collected from Hibernia GBS, 2005. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

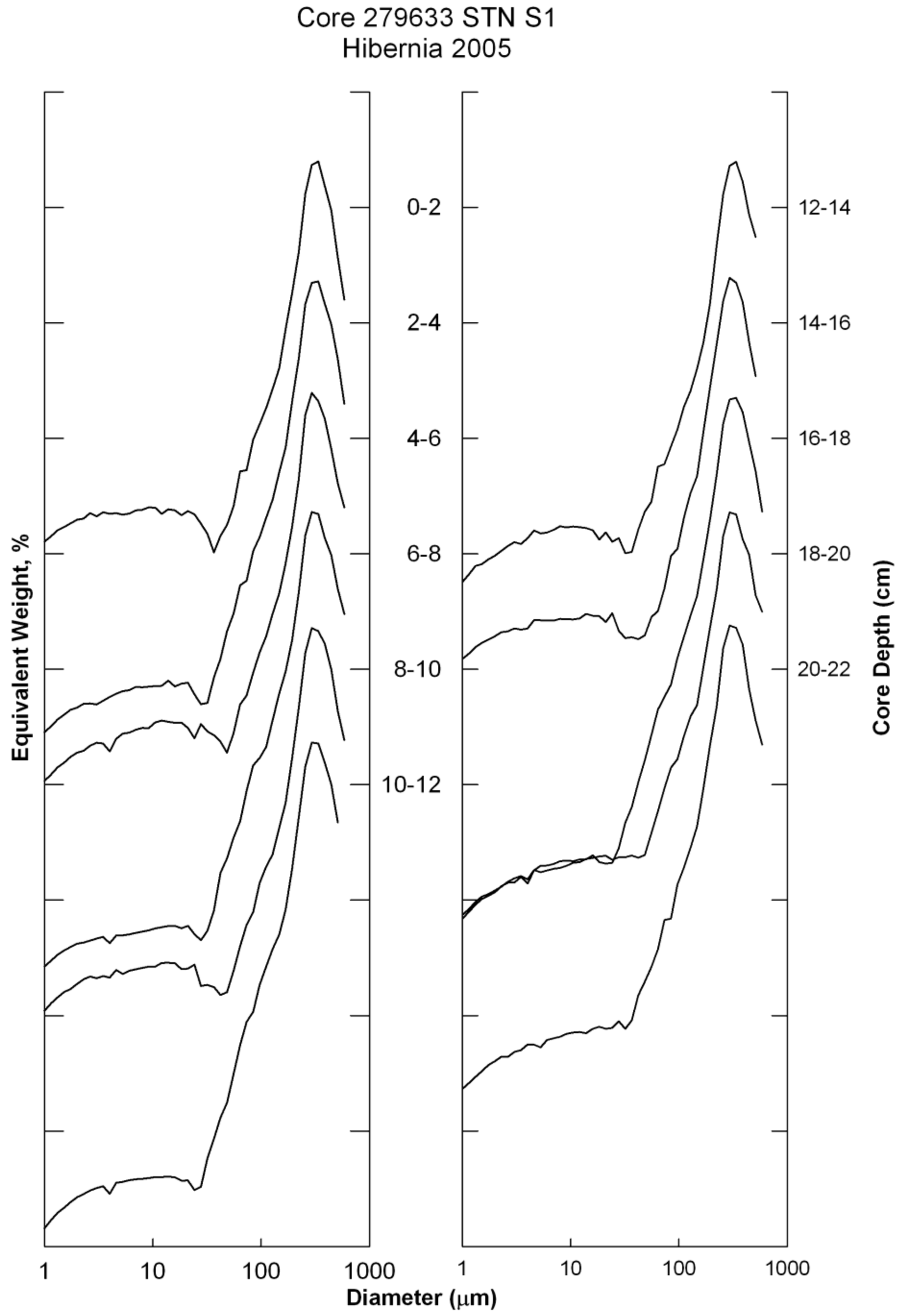

Figure 7. Core 279633 (Station S1) collected from Hibernia GBS, 2005. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to

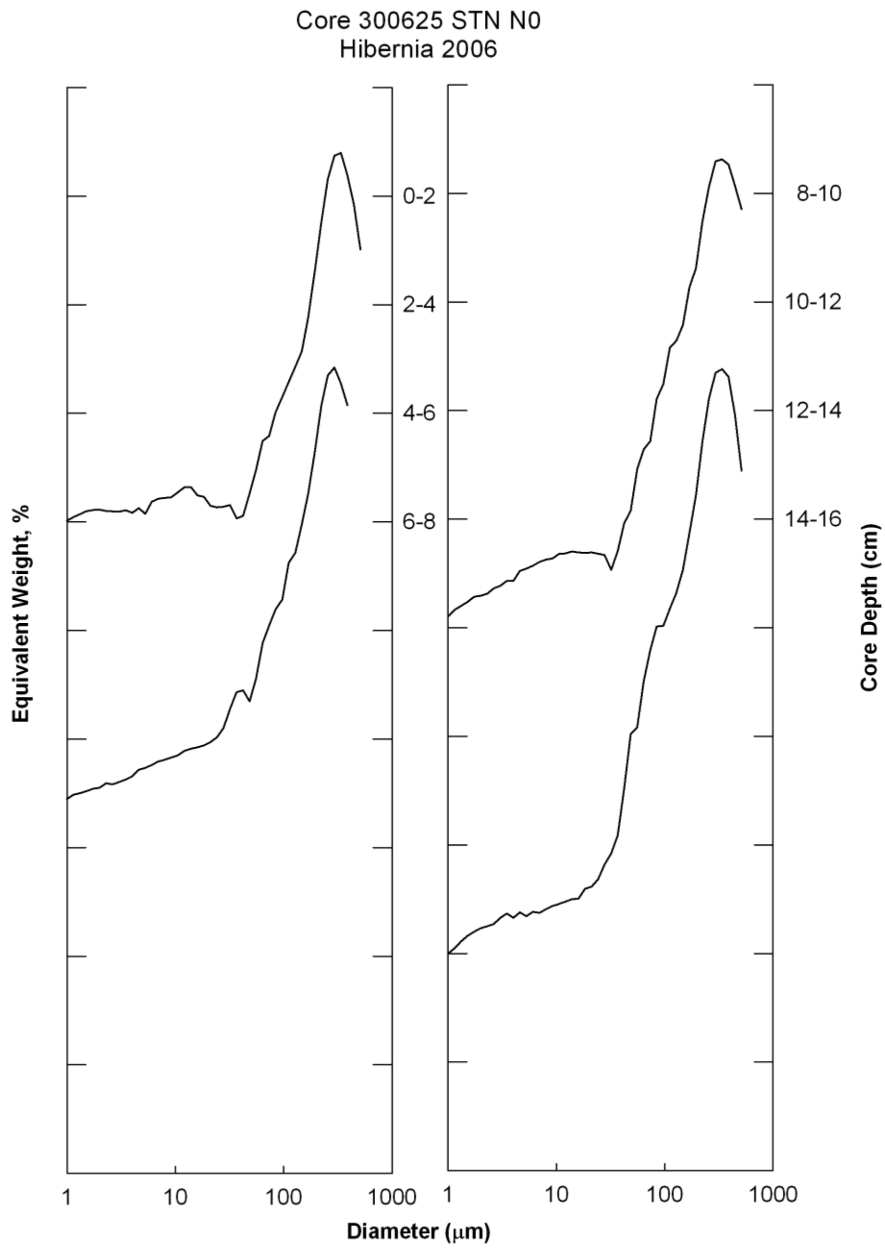

Figure 8. Core 300625 (Station N0) collected from Hibernia GBS, 2006. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by two decades and is presented as log vs. log plot to preserve the shape of the distribution.

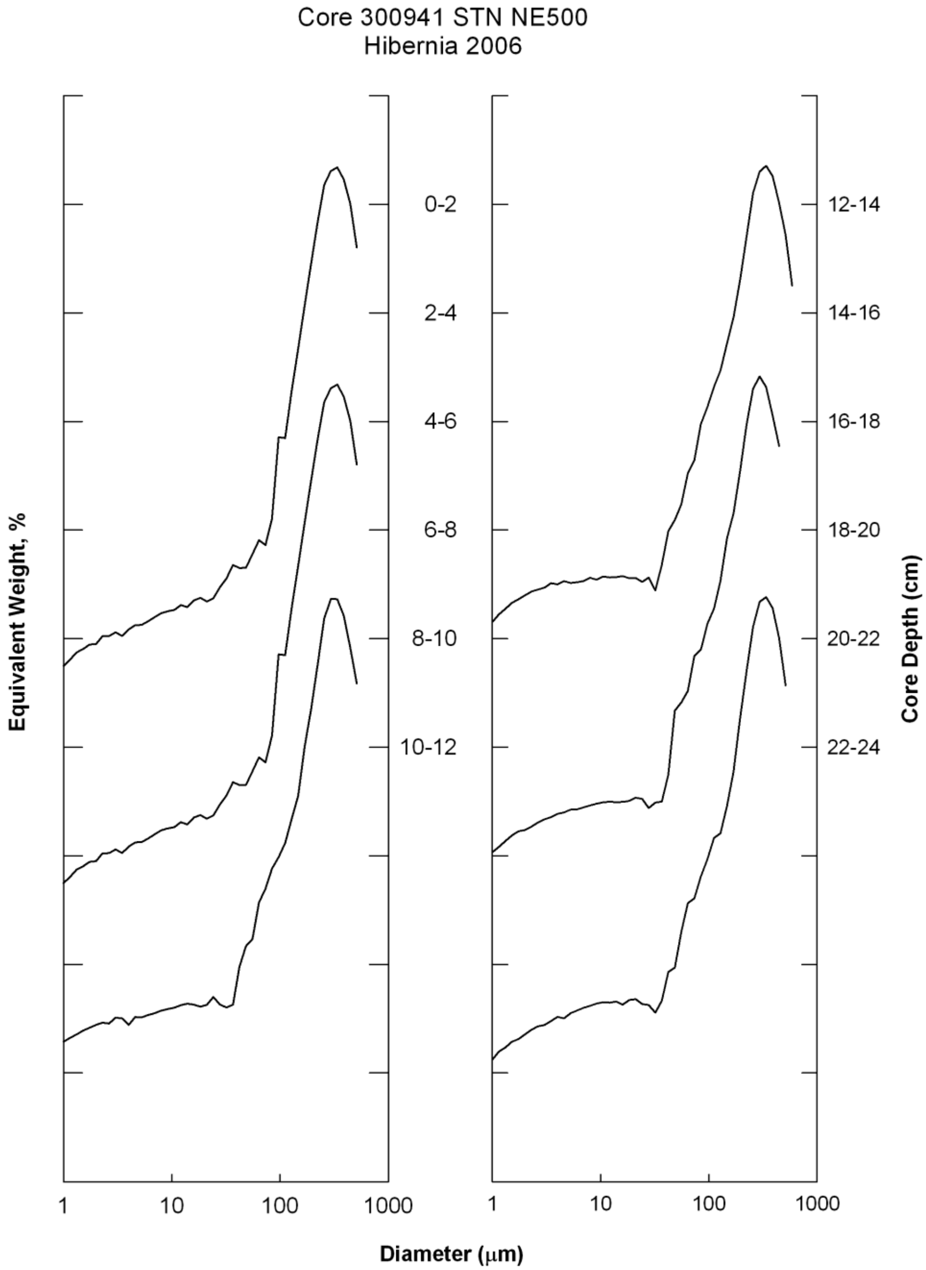

Figure 9. Core 300941 (Station NE500) collected from Hibernia GBS, 2006. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by two decades and is presented as log vs. log plot to preserve the shape of the distribution.

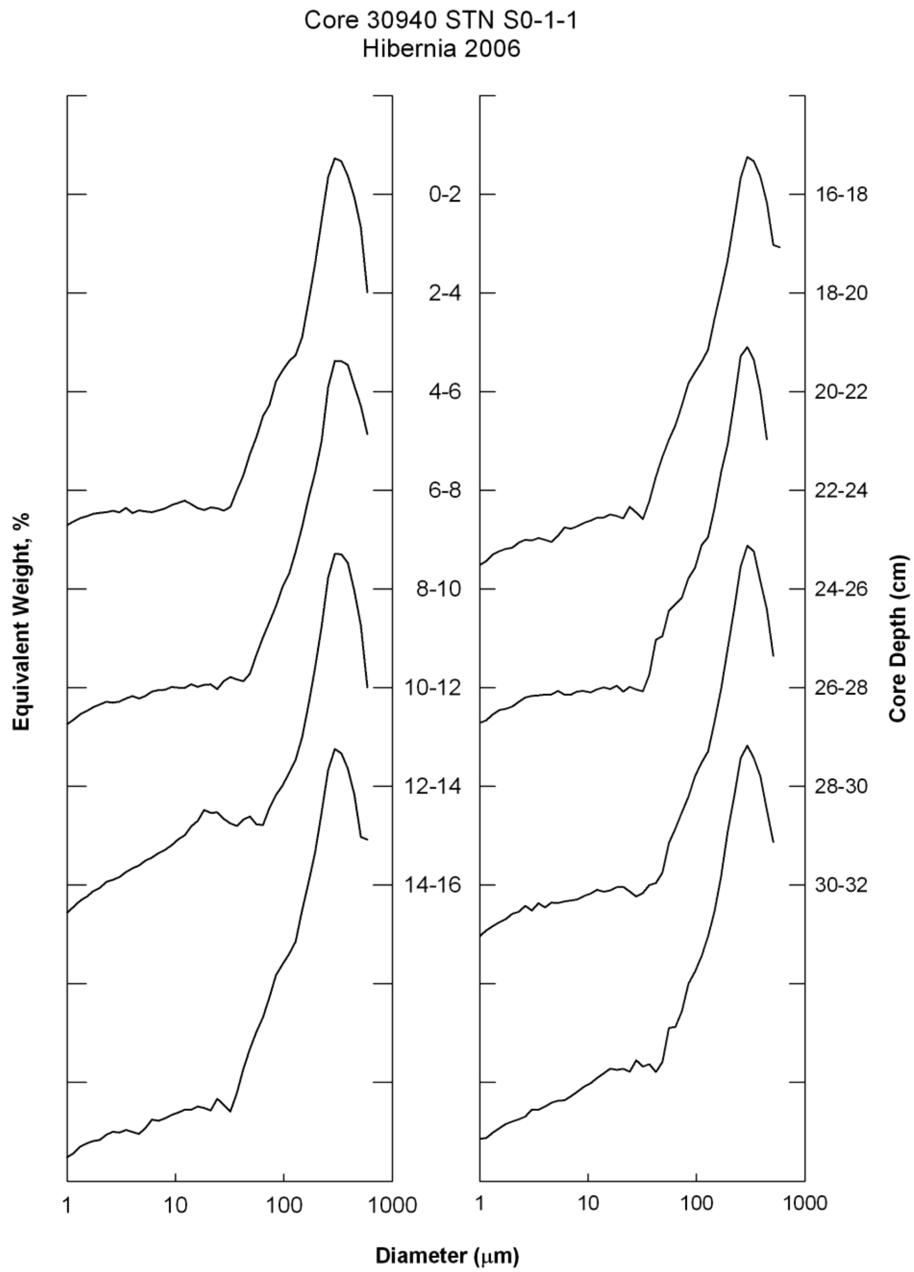

Figure 10. Core 300940 (Station S0-1-1) collected from Hibernia GBS, 2006. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by two decades and is presented as log vs. log plot to preserve the shape of the distribution.

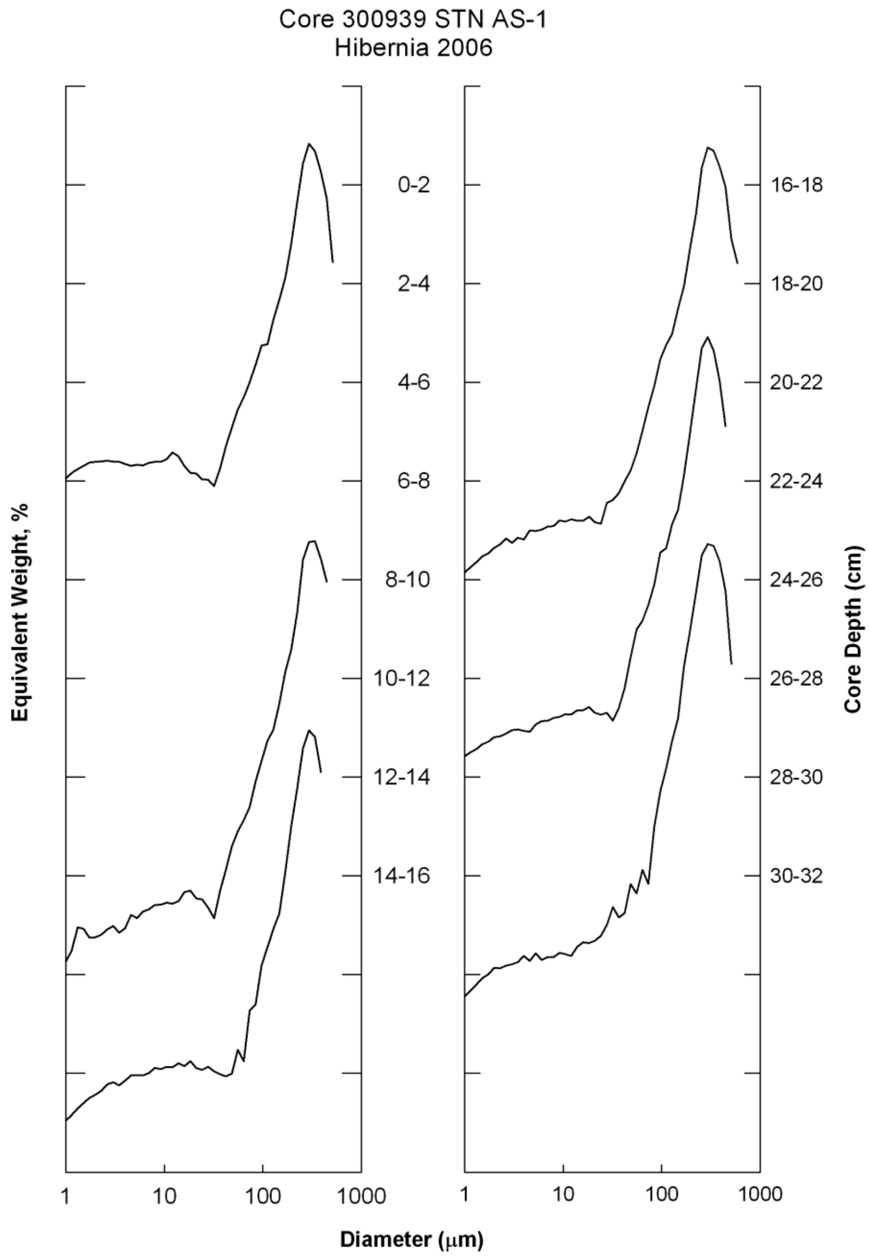

Figure 11. Core 300939 (Station AS-1) collected from Hibernia GBS, 2006. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by two decades and is presented as log vs. log plot to preserve the shape of the distribution.

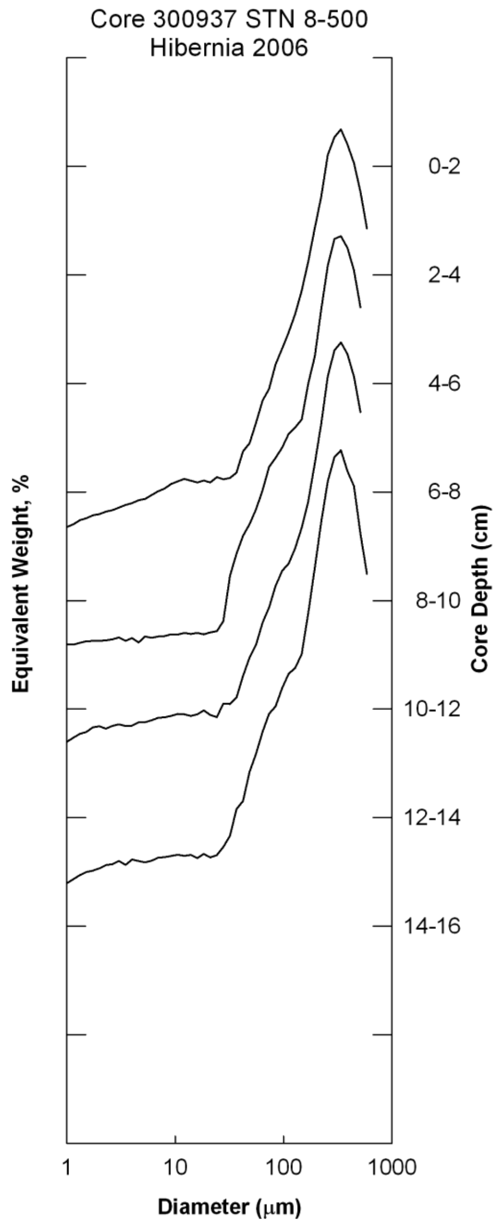

Figure 12. Core 300937 (Station 8-500) collected from Hibernia GBS, 2006. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

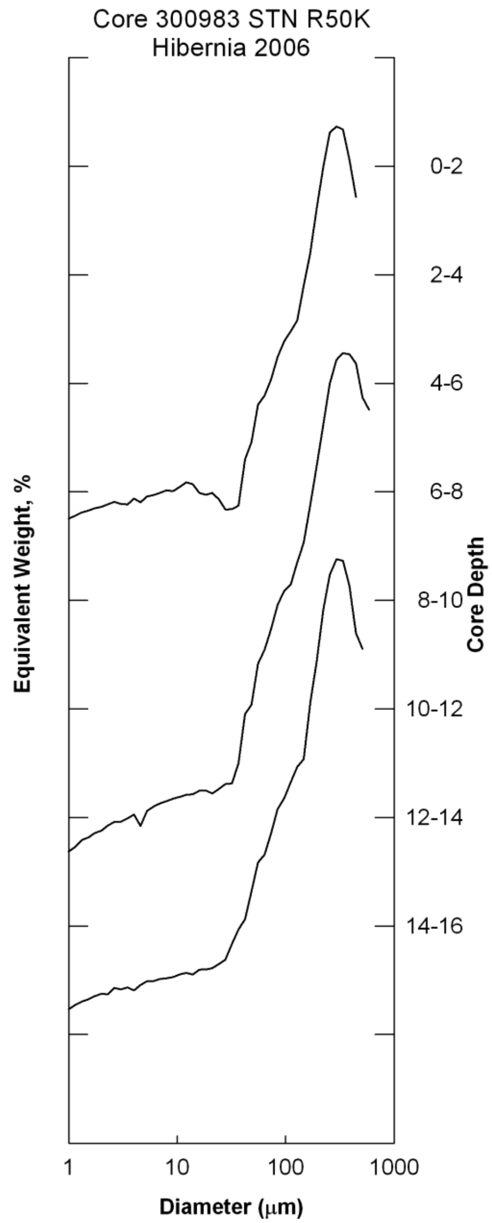

Figure 13. Core 300983 from the reference station (R50K) collected from Hibernia GBS, 2006. The reference station is located 50km east of the GBS. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by two decades and is presented as log vs. log plot to preserve the shape of the distribution.

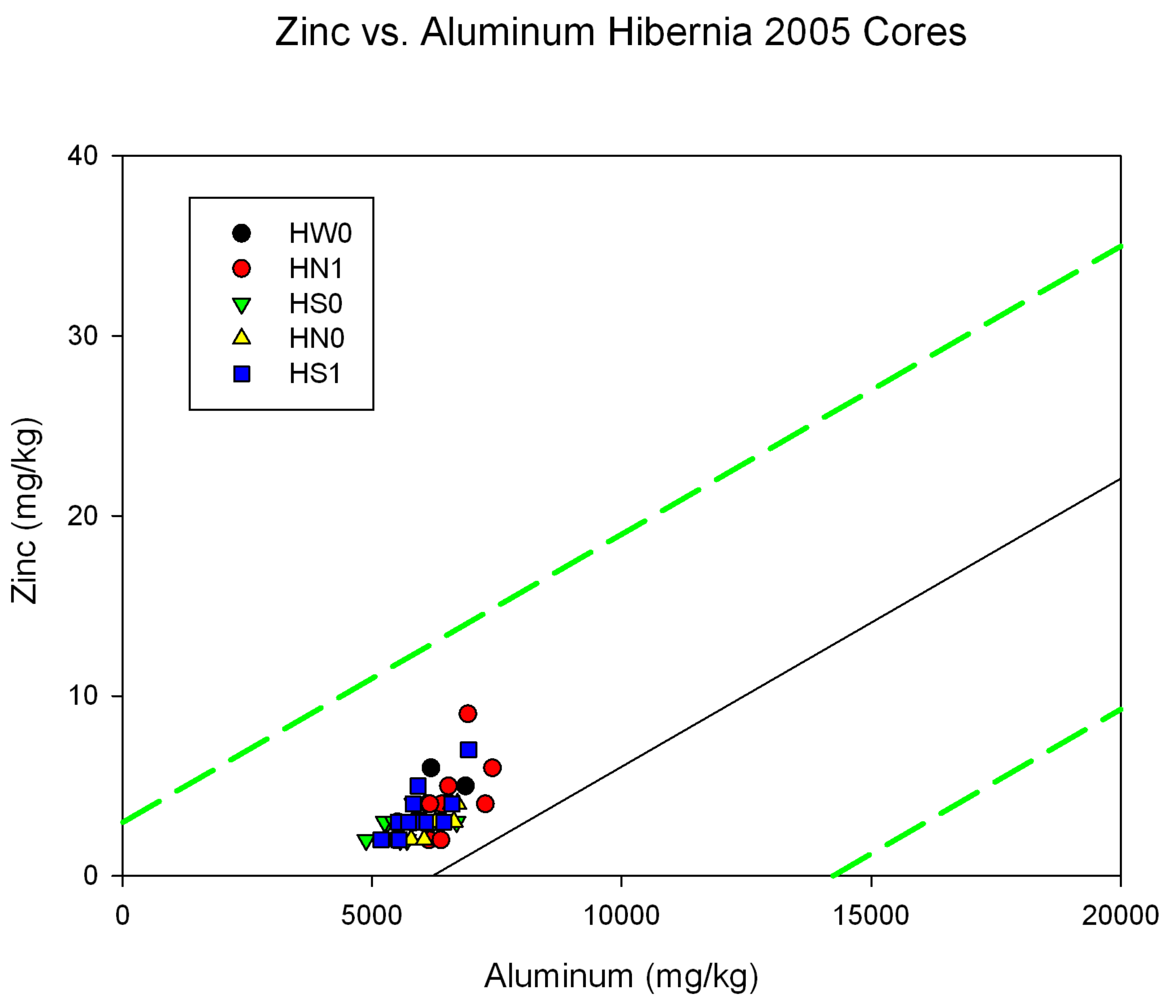

Figure 14. Zinc vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2005. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

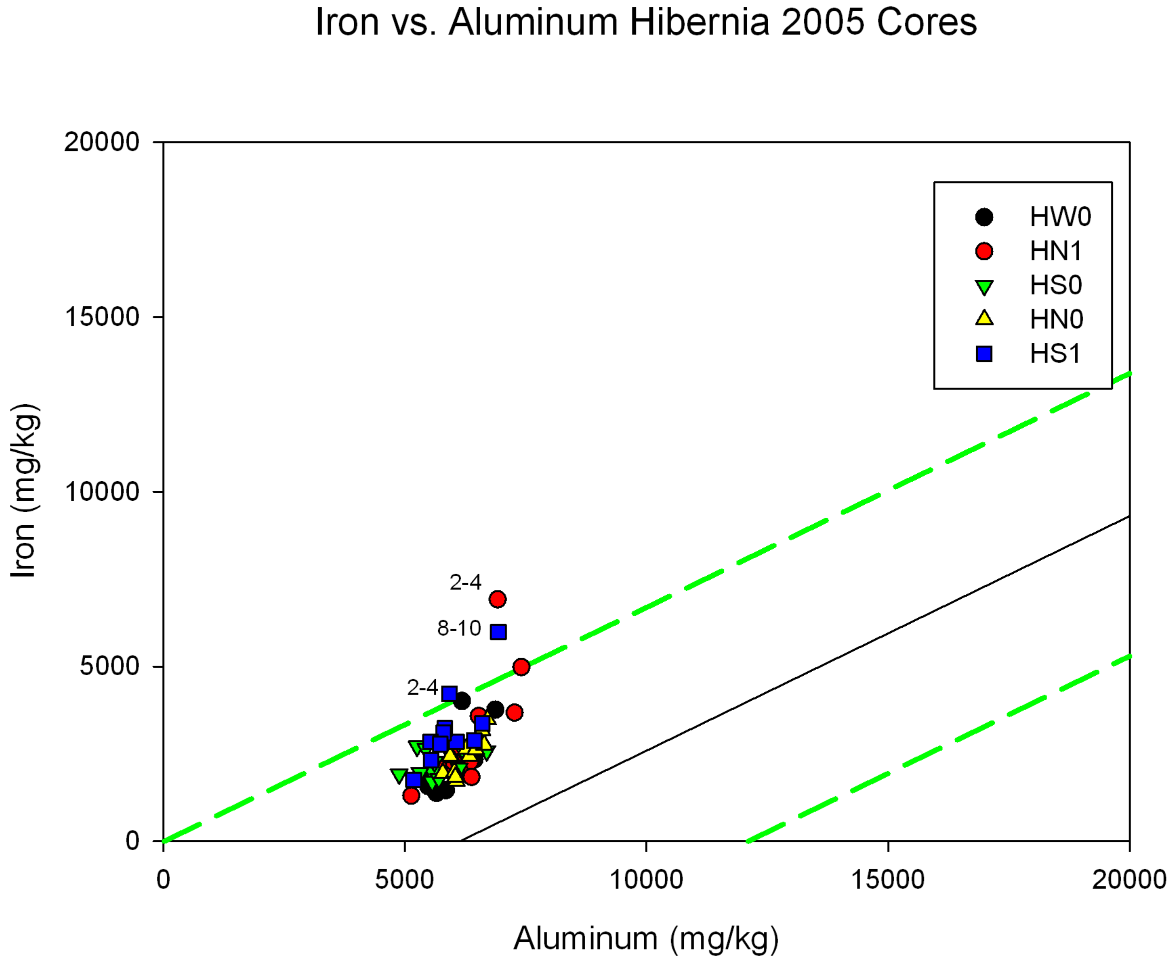

Figure 15. Iron vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2005. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

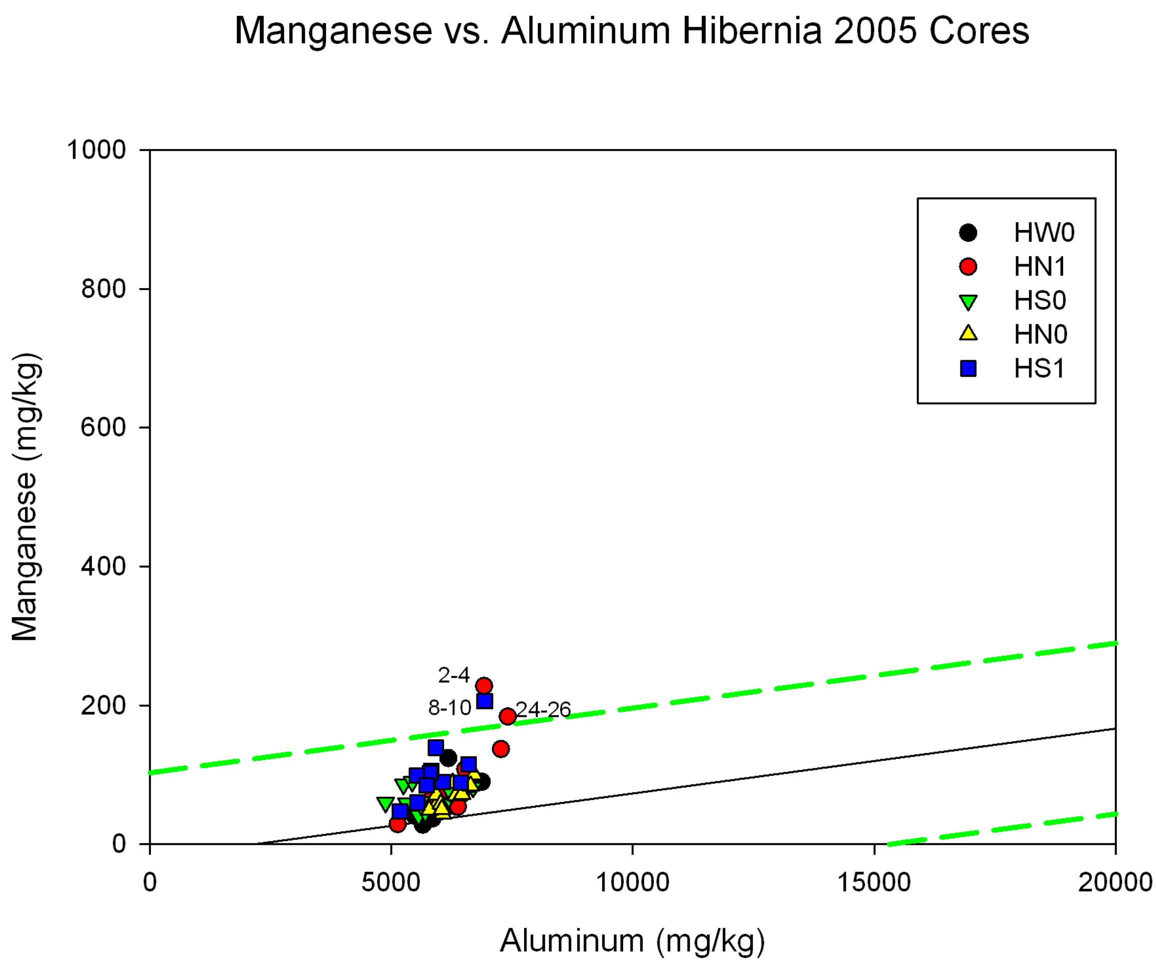

Figure 16. Manganese vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2005. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

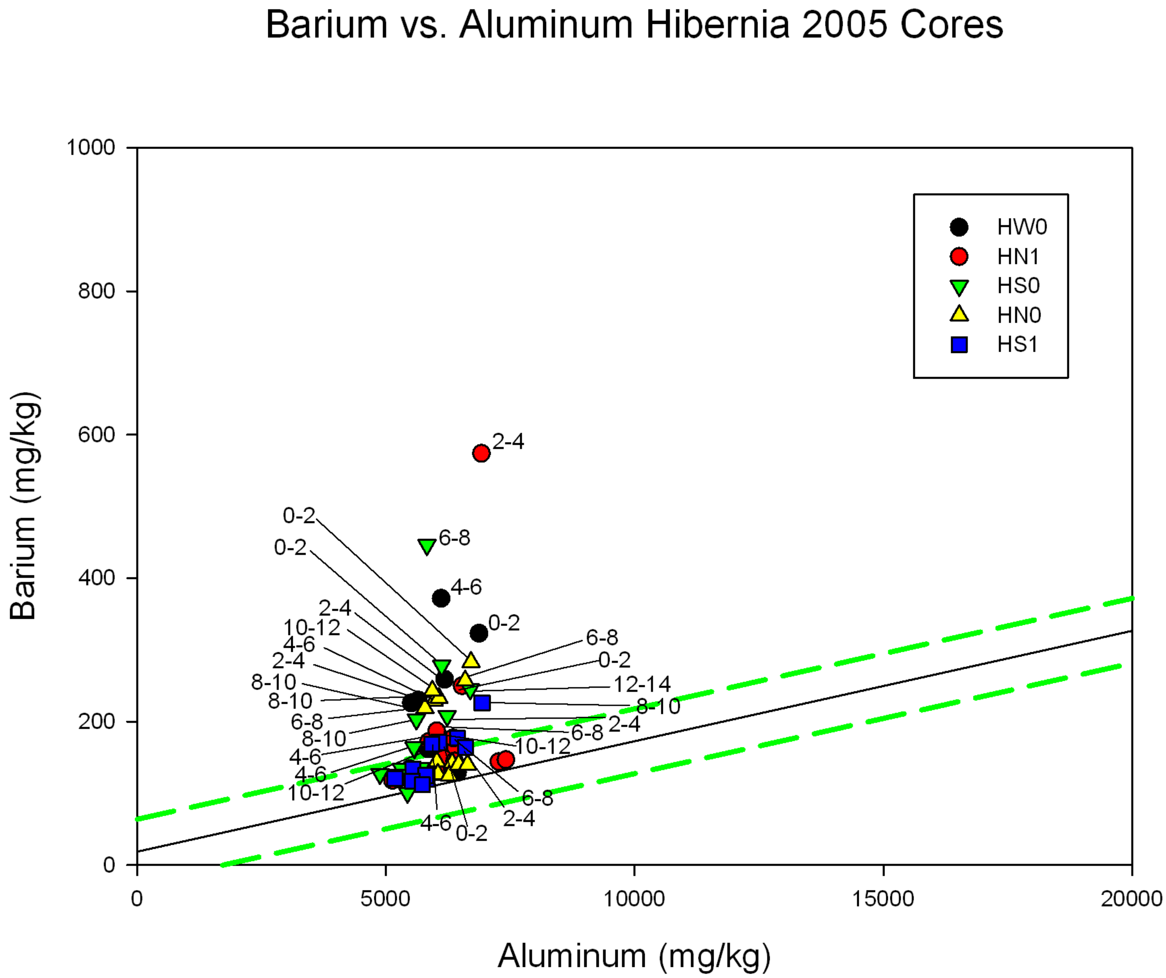

Figure 17. Barium vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2005. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

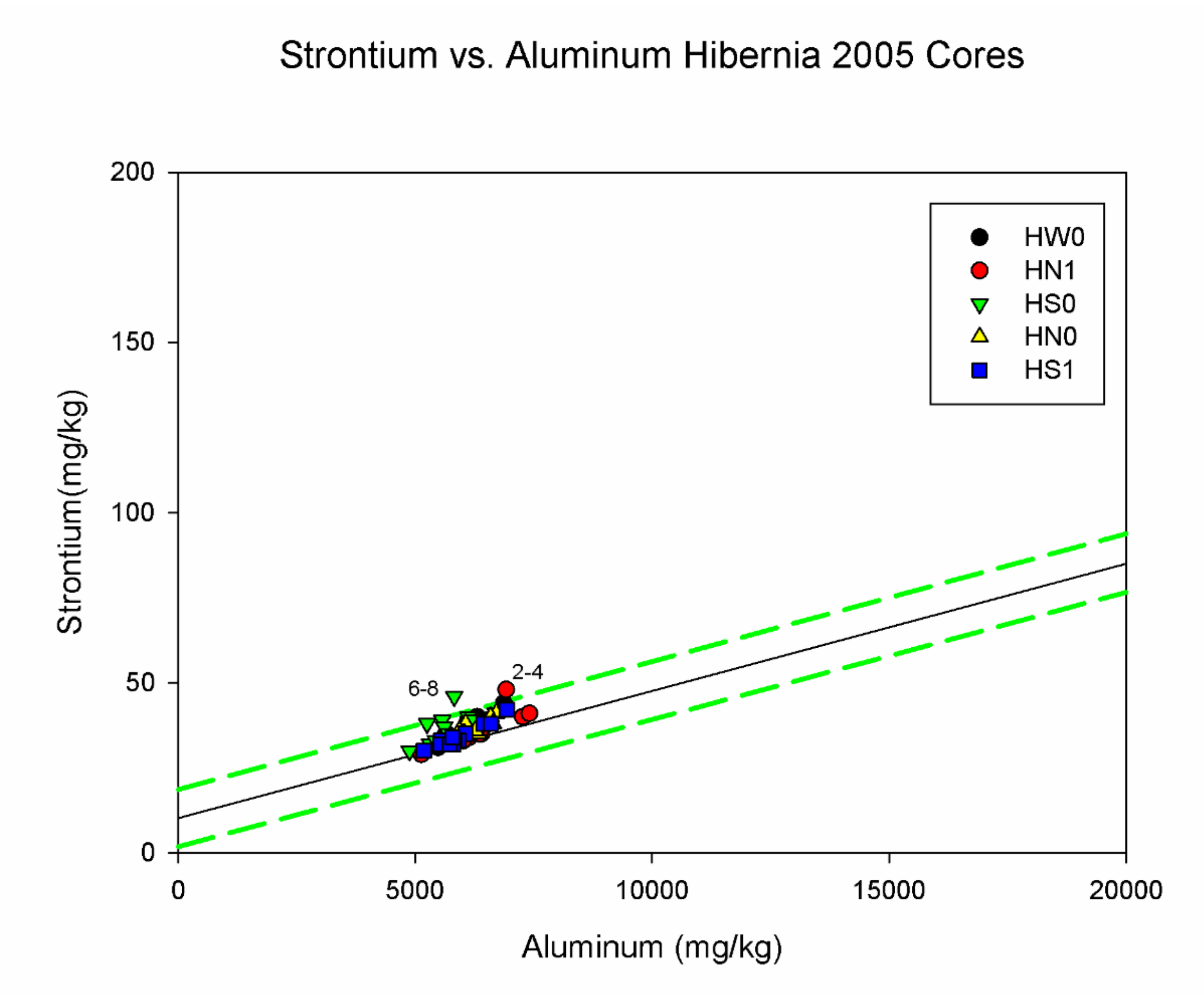

Figure 18. Strontium vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2005. Samples in excess of background levels are labelled as depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

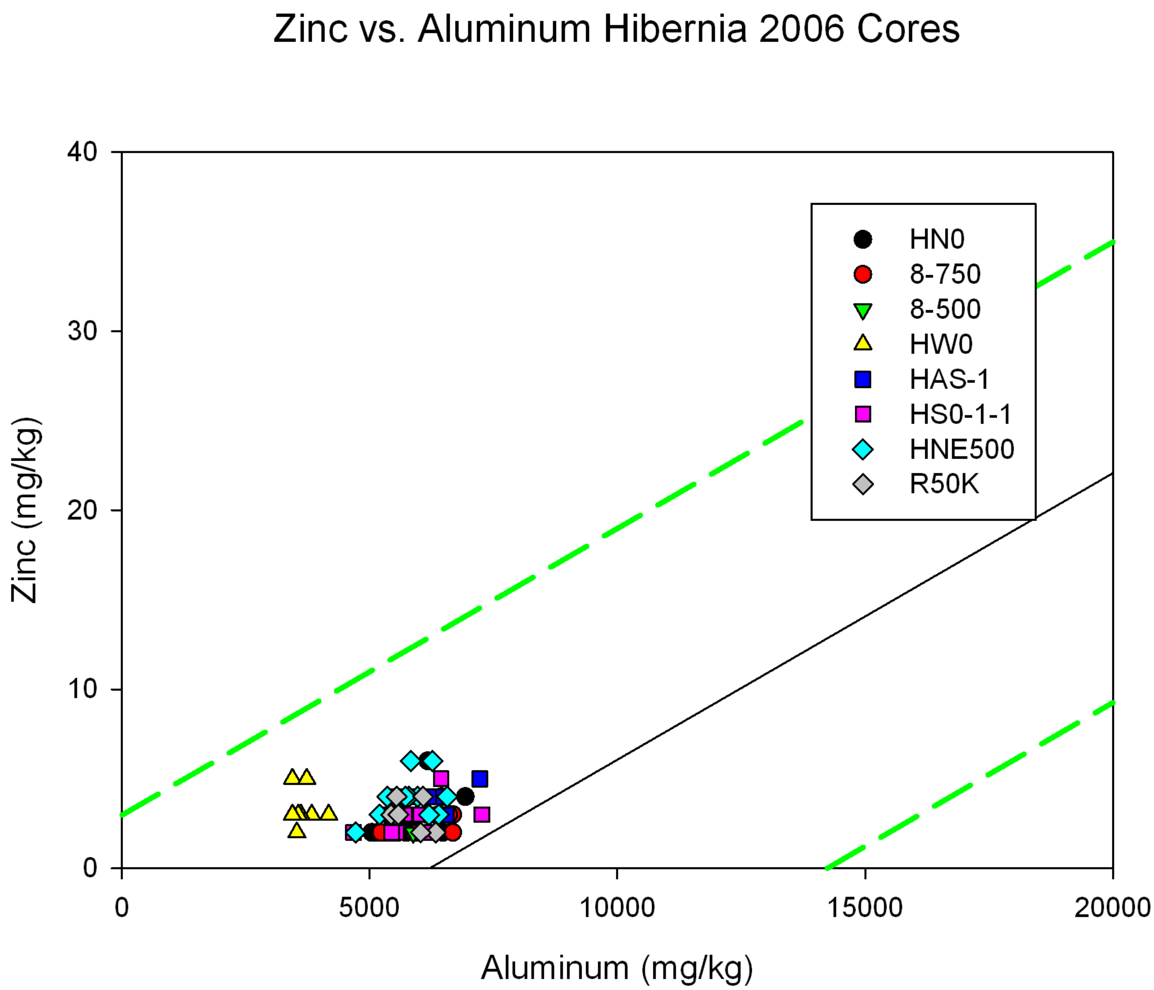

Figure 19. Zinc vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2006. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

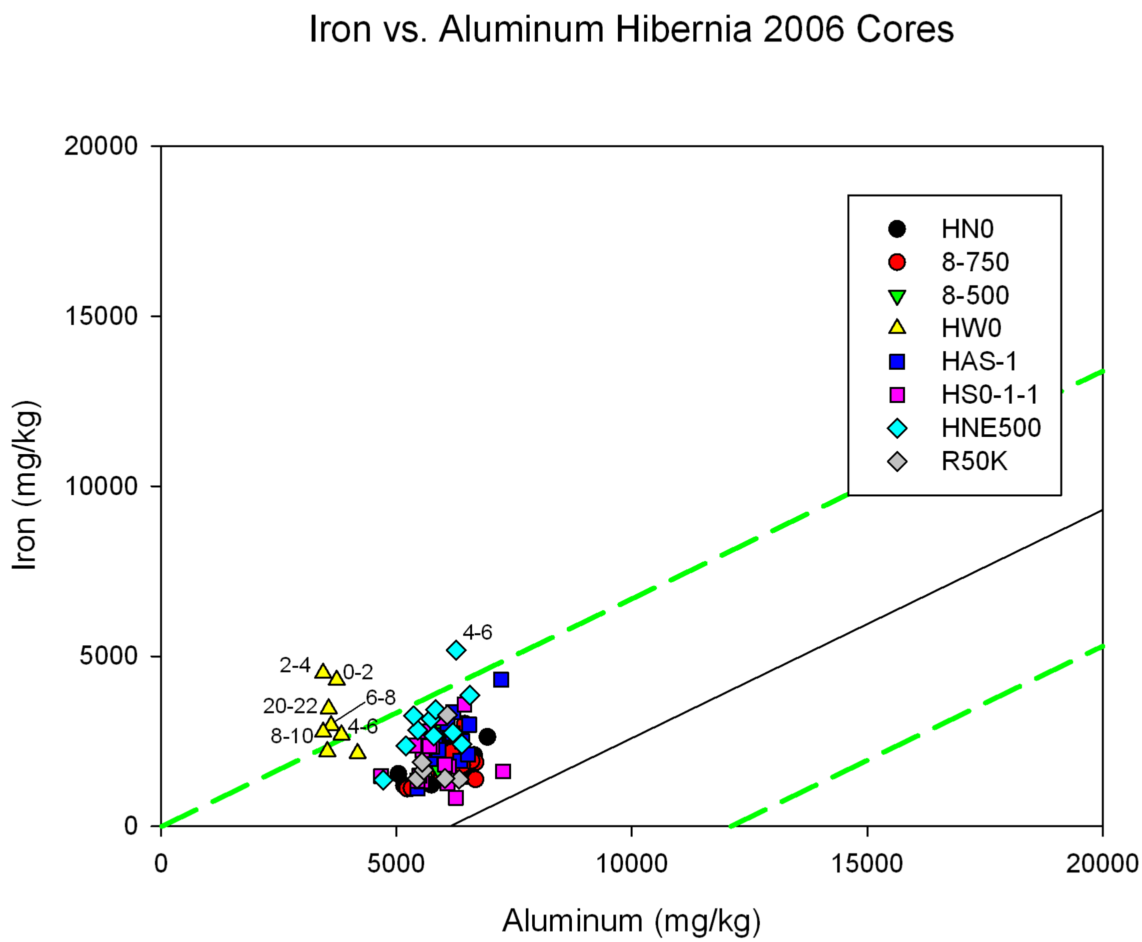

Figure 20. Iron vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2006. Samples in excess of background levels are labelled as depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

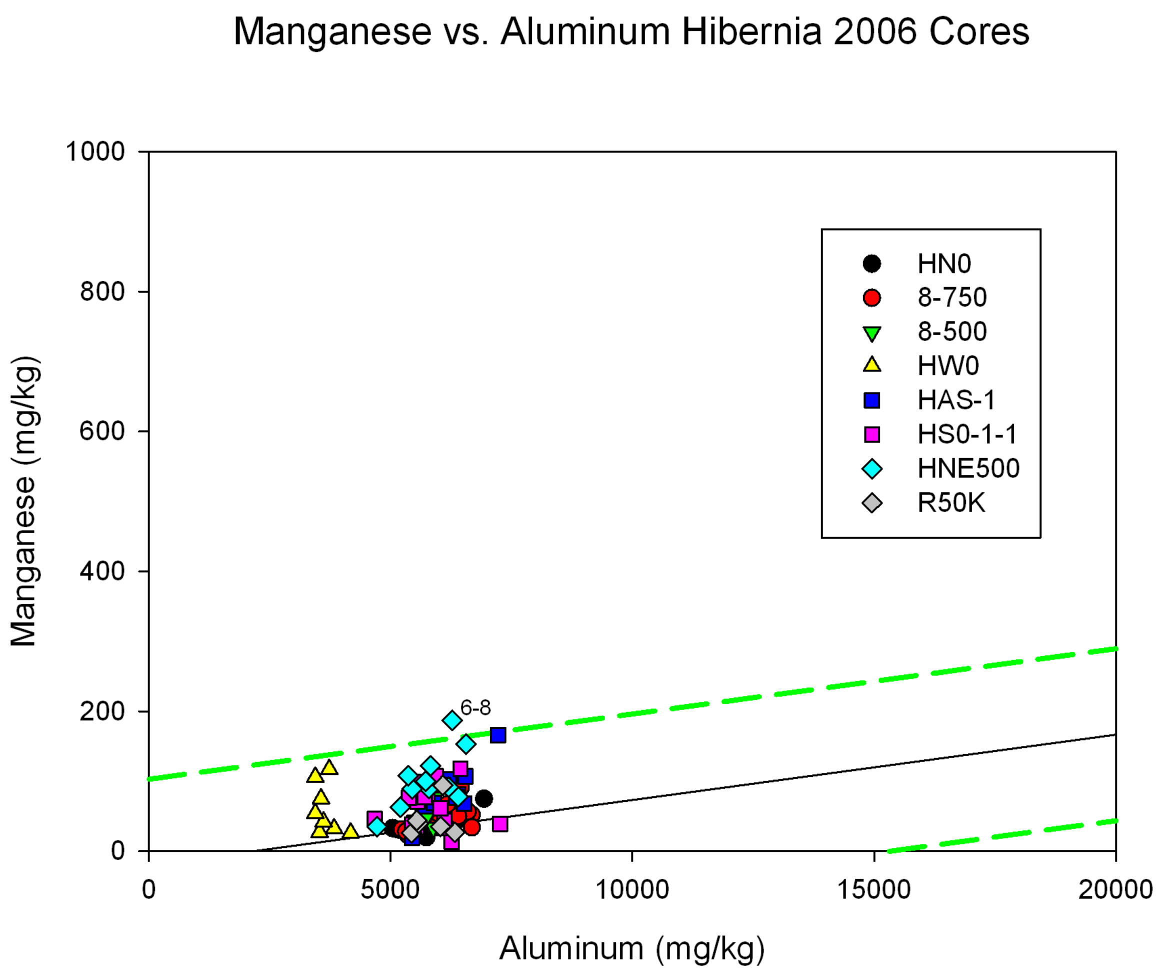

Figure 21. Manganese vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2006. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

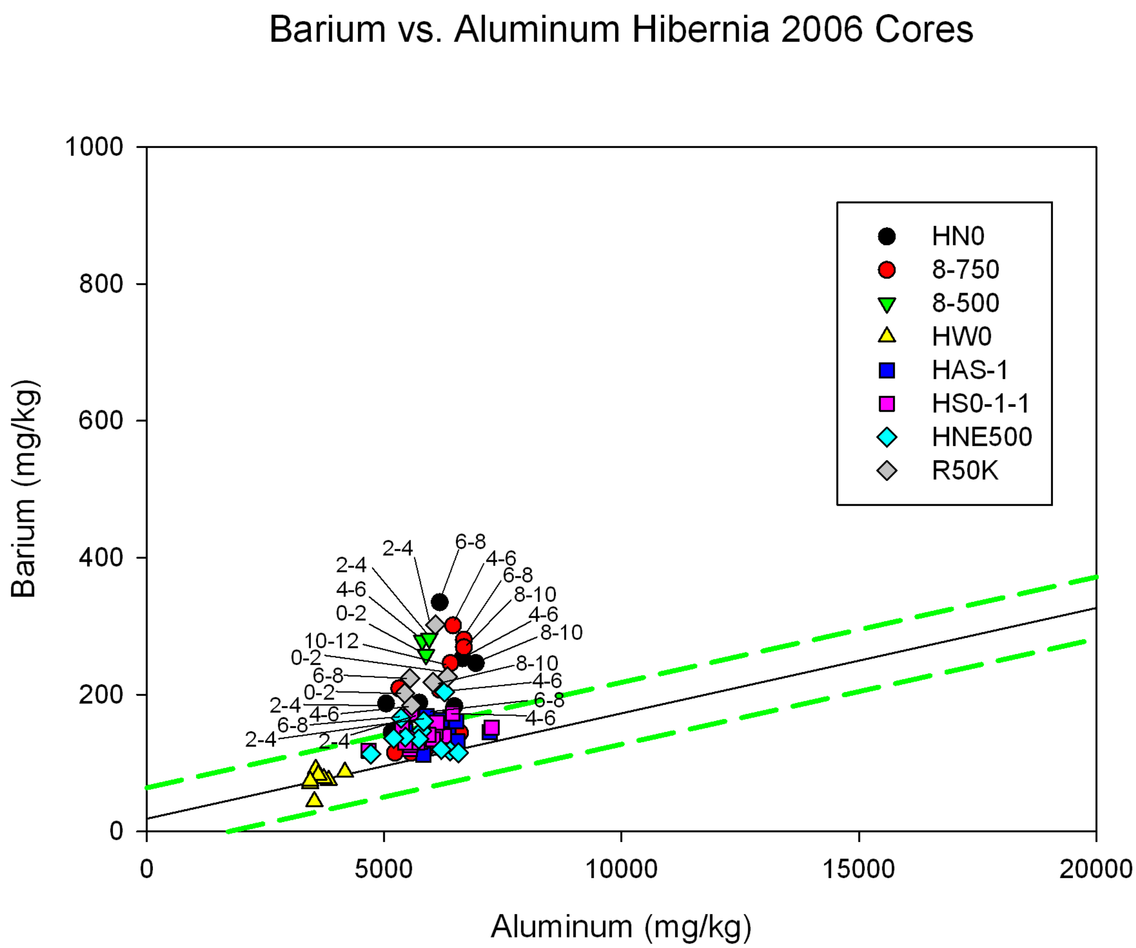

Figure 22. Barium vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2006. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

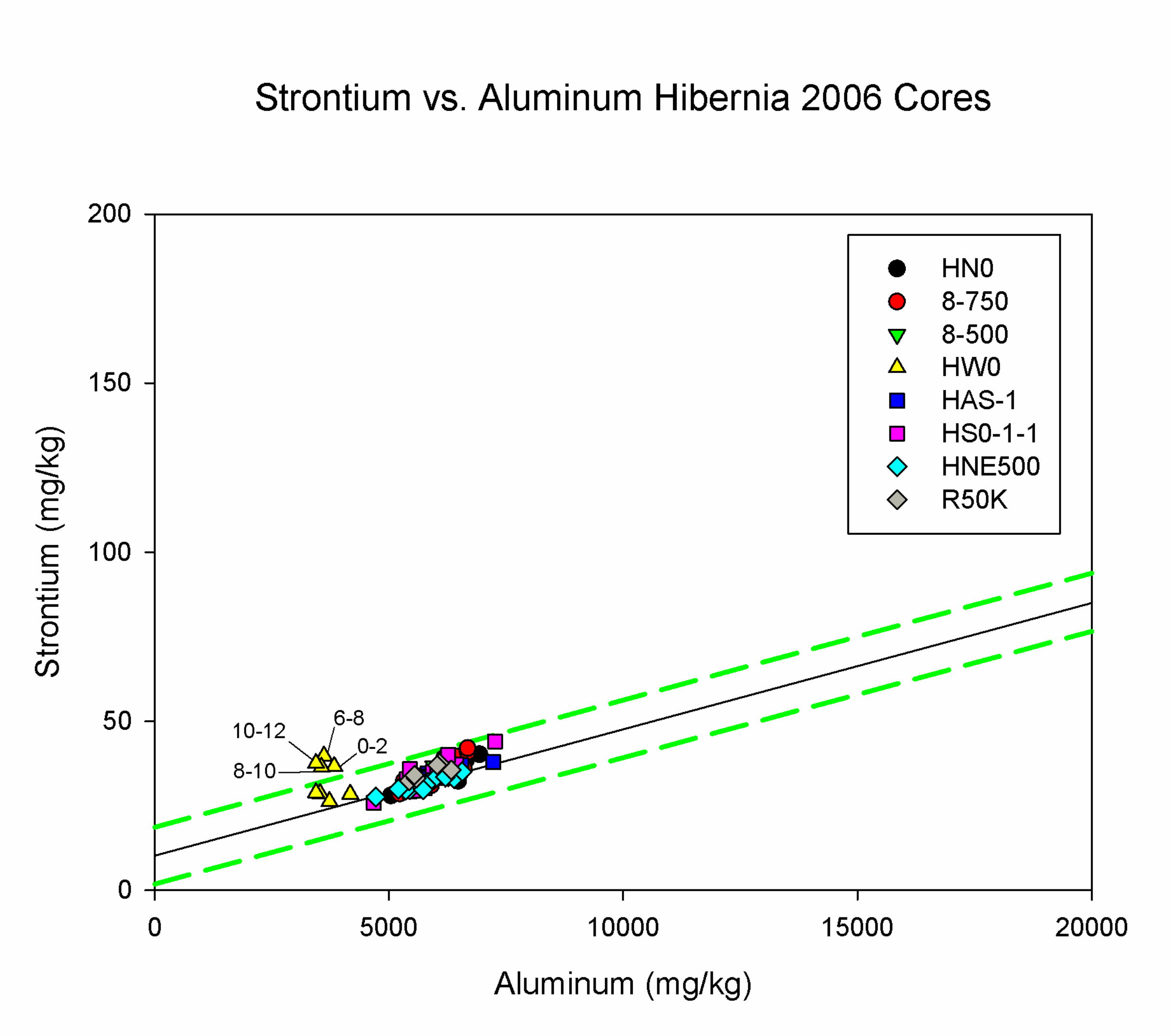

Figure 23. Strontium vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2006. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

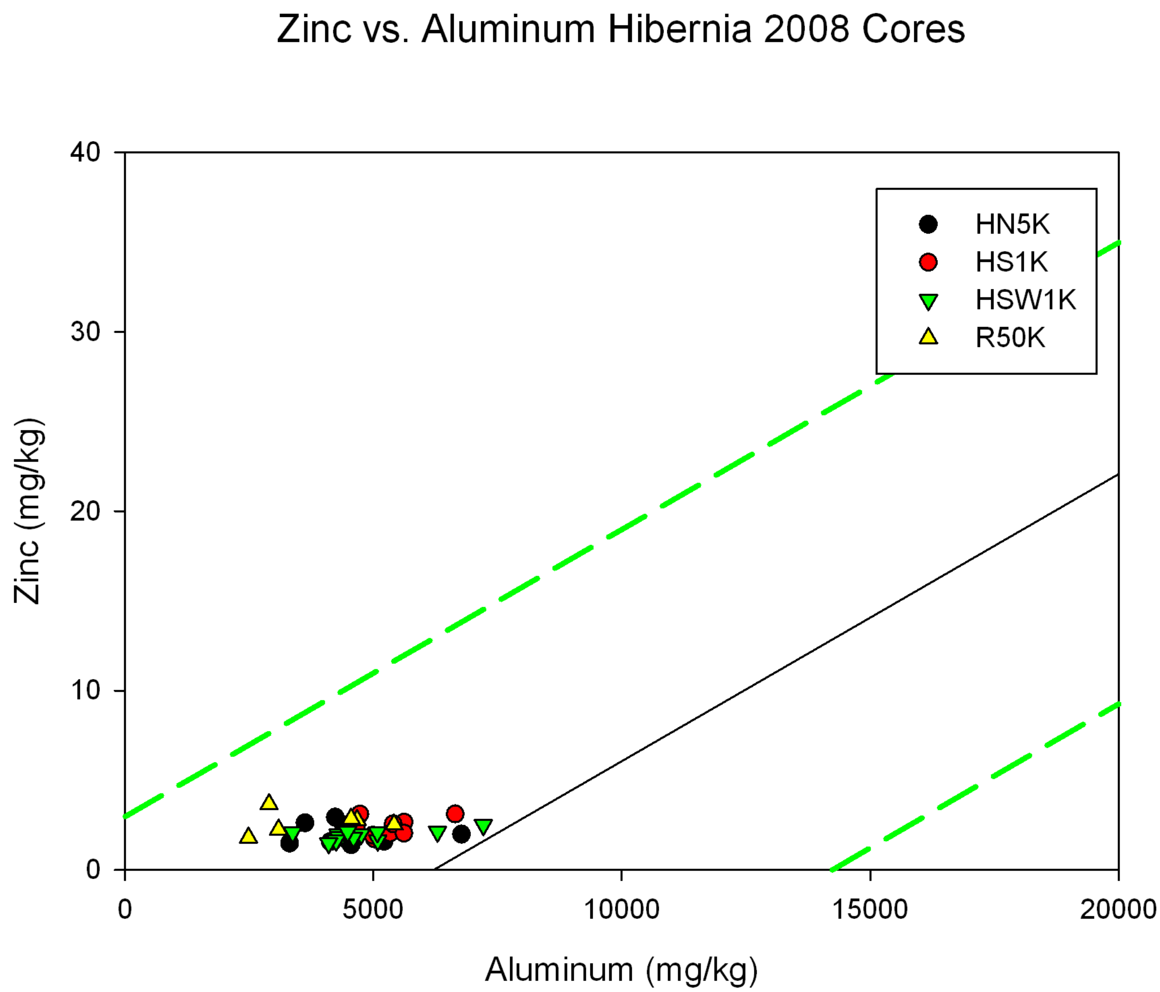

Figure 24. Zinc vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2008. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

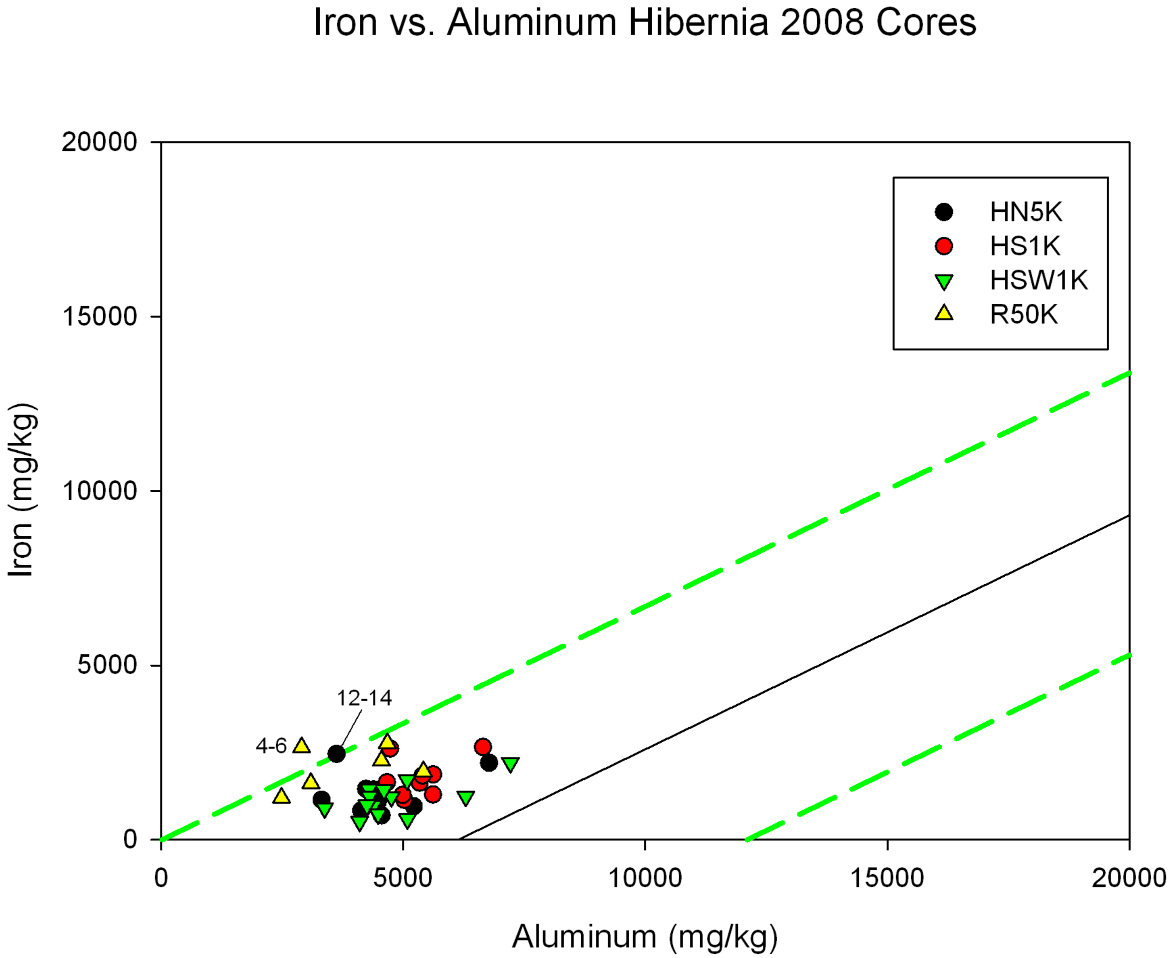

Figure 25. Iron vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2008. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

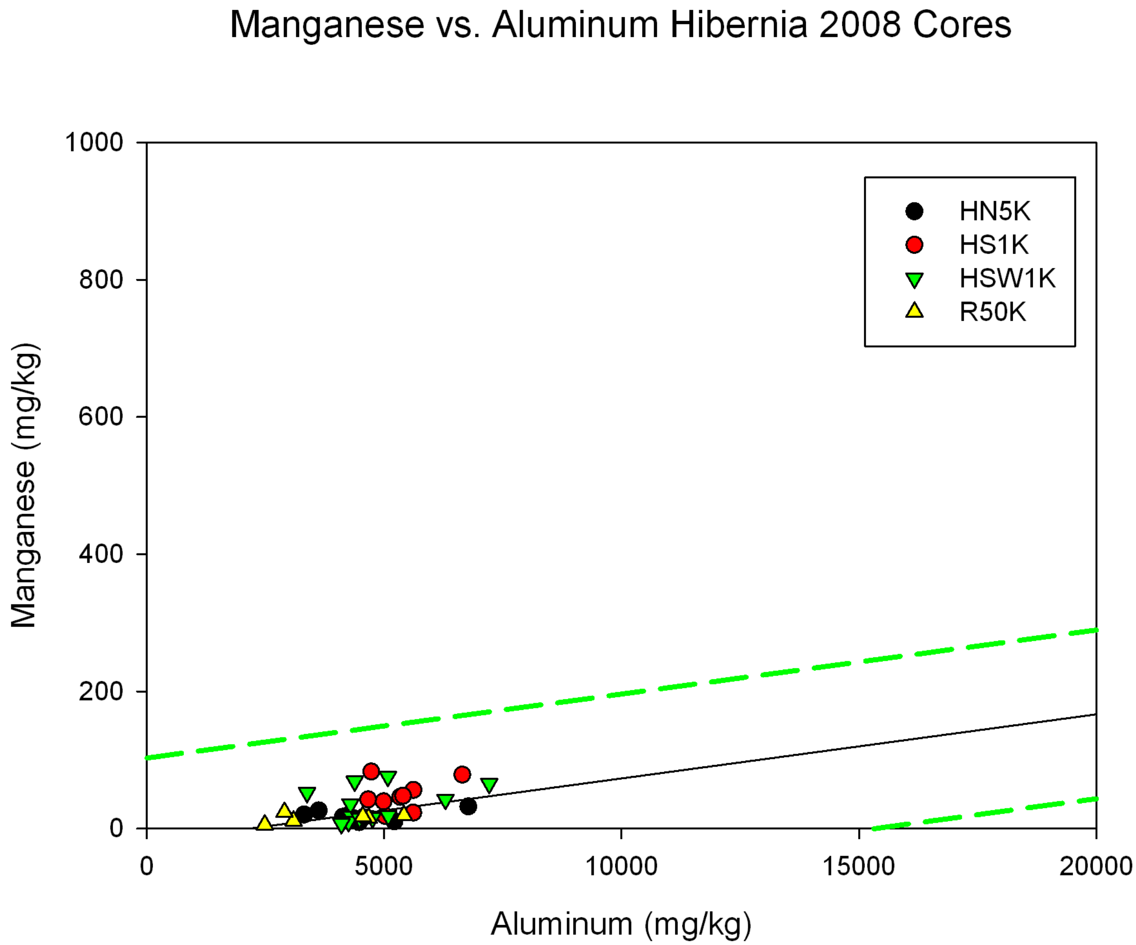

Figure 26. Manganese vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2008. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

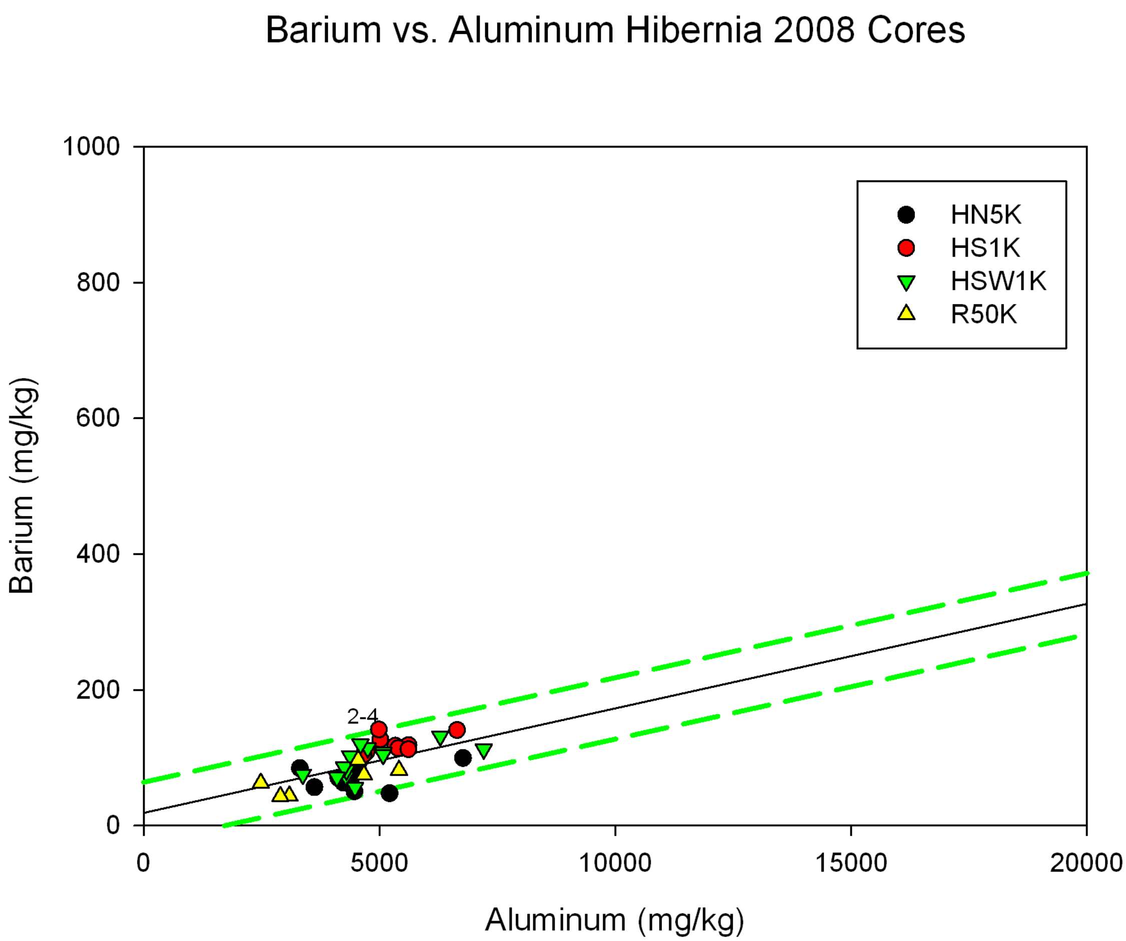

Figure 27. Barium vs. aluminum plotted by core. Cores collected from Hibernia GBS, 2008. Samples in excess of background concentrations are labelled by depth in the core. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

Table 2. Metals analysis measured as mg kg^{-1}: Hibernia 2005.

Station	Depth (cm)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium
N0	0-2	6710	0.2	< 1	283	0.1	< 0.1	< 0.05
N0	2-4	5970	0.1	< 1	229	0.1	< 0.1	< 0.05
N0	4-6	6060	0.2	< 1	233	0.1	< 0.1	< 0.05
N0	6-8	6590	0.2	< 1	257	0.1	< 0.1	< 0.05
N0	8-10	5780	0.2	< 1	219	0.1	< 0.1	< 0.05
N0	10-12	5930	0.2	< 1	243	0.1	< 0.1	< 0.05
N0	12-14	6020	1.4	< 1	144	0.1	< 0.1	< 0.05
N0	14-16	6330	0.2	< 1	142	0.1	< 0.1	< 0.05
N0	16-18	6040	0.2	< 1	127	0.1	< 0.1	< 0.05
N0	18-20	6270	0.2	< 1	125	0.1	< 0.1	< 0.05
N0	20-22	6460	0.3	< 1	140	0.1	< 0.1	< 0.05
N0	22-24	6640	0.2	< 1	140	0.1	< 0.1	< 0.05
N1	0-2	6530	0.3	< 1	250	0.1	< 0.1	< 0.05
N1	2-4	6920	0.2	< 1	574	0.1	< 0.1	< 0.05
N1	4-6	5860	0.1	< 1	172	0.1	< 0.1	< 0.05
N1	6-8	6020	0.1	< 1	187	0.1	< 0.1	< 0.05
N1	8-10	6400	0.1	< 1	163	0.2	< 0.1	< 0.05
N1	10-12	6350	0.2	< 1	177	0.1	< 0.1	< 0.05
N1	12-14	6140	0.1	< 1	144	0.1	< 0.1	< 0.05
N1	14-16	6160	0.2	< 1	148	0.1	< 0.1	< 0.05
N1	16-18	6380	0.9	< 1	145	0.1	< 0.1	< 0.05
N1	18-20	6010	0.3	< 1	130	0.2	< 0.1	< 0.05
N1	20-22	5130	0.1	< 1	118	< 0.1	< 0.1	< 0.05
N1	22-24	7270	0.2	< 1	144	0.1	< 0.1	< 0.05
N1	24-26	7410	1.5	< 1	147	0.1	< 0.1	< 0.05
S0	0-2	6120	0.1	< 1	278	0.1	< 0.1	< 0.05
S0	2-4	6230	0.1	< 1	208	0.1	< 0.1	< 0.05
S0	4-6	5570	0.1	< 1	163	0.1	< 0.1	< 0.05
S0	6-8	5820	0.3	< 1	446	0.1	< 0.1	< 0.05
S0	8-10	5610	0.3	< 1	203	< 0.1	< 0.1	< 0.05
S0	10-12	5560	0.2	< 1	164	< 0.1	< 0.1	< 0.05
S0	12-14	6690	< 0.1	< 1	245	0.1	< 0.1	< 0.05
S0	14-16	5310	< 0.1	< 1	134	< 0.1	< 0.1	< 0.05
S0	16-18	5700	0.1	< 1	135	0.1	< 0.1	< 0.05
S0	18-20	4880	0.1	< 1	127	< 0.1	< 0.1	< 0.05
S0	20-22	5250	0.2	< 1	126	< 0.1	< 0.1	< 0.05
S0	22-24	5430	0.3	< 1	101	0.1	< 0.1	< 0.05
S1	0-2	6060	0.1	< 1	171	0.1	< 0.1	< 0.05
S1	2-4	5920	0.2	< 1	169	0.1	< 0.1	< 0.05
S1	4-6	6430	0.2	< 1	177	0.2	< 0.1	< 0.05
S1	4-6	5780	0.1	< 1	170	< 0.1	< 0.1	< 0.05
S1	6-8	6600	0.2	< 1	164	0.1	< 0.1	< 0.05
S1	8-10	6930	0.3	< 1	226	0.1	< 0.1	< 0.05
S1	10-12	5540	0.1	< 1	134	< 0.1	< 0.1	< 0.05
S1	12-14	5820	0.2	< 1	120	0.1	< 0.1	< 0.05
S1	14-16	5800	0.2	< 1	125	0.1	< 0.1	< 0.05
S1	16-18	5530	0.1	< 1	117	< 0.1	< 0.1	< 0.05
S1	18-20	5730	0.1	< 1	112	0.1	< 0.1	< 0.05
S1	20-22	5180	0.1	< 1	121	< 0.1	< 0.1	< 0.05
W0	0-2	6870	0.2	1	323	0.1	< 0.1	< 0.05
W0	2-4	6180	0.2	1	259	0.1	< 0.1	< 0.05
W0	4-6	6110	0.2	< 1	372	0.1	< 0.1	< 0.05

Station	Depth (cm)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium
W0	6-8	5510	0.1	1	226	0.1	< 0.1	< 0.05
W0	8-10	5650	0.1	< 1	230	0.1	< 0.1	< 0.05
W0	10-12	5850	0.2	< 1	162	0.1	< 0.1	< 0.05
W0	12-14	5480	0.2	< 1	134	0.1	< 0.1	< 0.05
W0	12-14	6310	0.2	< 1	236	0.1	< 0.1	< 0.05
W0	14-16	6440	1.6	< 1	129	0.1	< 0.1	< 0.05

Table 2. Continued.

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
N0	0-2	6	0.7	1	3480	3.7	2.5	1.9
N0	2-4	4	0.5	1	2400	2.8	2.2	1.7
N0	4-6	4	0.5	< 1	1720	3.7	2.2	1.7
N0	6-8	6	0.7	1	3170	3.8	2.5	1.7
N0	8-10	5	0.4	1	1950	3.4	2.2	1.6
N0	10-12	5	0.5	1	2430	3.6	3.1	1.7
N0	12-14	4	0.4	< 1	1980	3.9	2.4	1.6
N0	14-16	4	0.5	1	2440	4.2	2.7	1.7
N0	16-18	4	0.4	1	1830	3.3	3.0	1.6
N0	18-20	5	0.6	1	2650	3.3	3.0	1.6
N0	20-22	5	0.6	1	2630	4.4	3.5	1.6
N0	22-24	5	0.6	2	2760	5.9	2.9	1.7
N1	0-2	5	0.8	2	3580	4.2	2.7	1.9
N1	2-4	9	1.3	2	6920	6.9	2.9	2.0
N1	4-6	4	0.5	1	2120	2.9	2.3	1.7
N1	6-8	5	0.6	1	2440	3.3	2.1	1.8
N1	8-10	4	0.6	1	2660	3.7	2.3	1.8
N1	10-12	5	0.6	1	2270	4.0	2.3	1.7
N1	12-14	4	0.5	1	2000	3.8	2.3	1.8
N1	14-16	4	0.6	1	2550	3.3	2.3	1.8
N1	16-18	4	0.5	< 1	1840	3.3	2.3	1.7
N1	18-20	4	0.5	1	2260	4.1	2.0	1.8
N1	20-22	3	0.4	1	1300	2.5	1.6	1.8
N1	22-24	6	0.8	2	3680	8.4	2.5	1.8
N1	24-26	6	1.0	2	4980	7.7	2.6	2.0
S0	0-2	4	0.5	< 1	2080	2.9	3.0	1.7
S0	2-4	5	0.6	< 1	2540	4.8	2.4	1.6
S0	4-6	5	0.5	1	1970	3.3	2.3	1.7
S0	6-8	5	0.6	1	2780	5.3	2.5	1.6
S0	8-10	4	0.5	1	2270	2.7	2.1	1.6
S0	10-12	4	0.4	< 1	1700	2.7	2.1	1.5
S0	12-14	5	0.6	1	2580	3.7	2.5	1.7
S0	14-16	4	0.4	< 1	1960	3.3	2.0	1.6
S0	16-18	3	0.4	< 1	1790	3.0	2.0	1.5
S0	18-20	4	0.4	< 1	1920	2.6	1.8	1.6
S0	20-22	4	0.5	1	2720	2.8	2.0	1.6
S0	22-24	4	0.5	1	2650	4.6	2.1	1.6
S1	0-2	5	0.6	1	2850	3.2	2.3	1.6

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
S1	2-4	5	0.8	2	4220	3.6	2.4	1.7
S1	4-6	5	0.6	1	2880	3.0	2.6	1.8
S1	4-6	4	0.5	< 1	2030	2.9	2.3	1.4
S1	6-8	5	0.7	1	3370	3.8	3.0	1.7
S1	8-10	7	1.0	2	5990	5.4	2.9	1.8
S1	10-12	4	0.5	< 1	2320	3.4	2.7	1.6
S1	12-14	5	0.6	1	3230	3.9	2.1	1.6
S1	14-16	4	0.6	2	3100	4.1	2.1	1.6
S1	16-18	4	0.6	1	2840	3.8	2.1	1.5
S1	18-20	5	0.6	1	2780	3.4	1.9	1.6
S1	20-22	4	0.4	1	1760	2.9	2.5	1.4
W0	0-2	6	0.8	2	3760	4.2	3.2	2.1
W0	2-4	7	0.9	2	4010	3.2	3.0	1.8
W0	4-6	5	0.6	1	2590	3.9	2.4	1.7
W0	6-8	4	0.5	1	1780	2.7	2.2	1.7
W0	8-10	4	0.4	< 1	1380	3.0	2.1	1.7
W0	10-12	4	0.4	< 1	1460	3.1	2.1	1.7
W0	12-14	4	0.4	1	1580	2.8	2.1	1.7
W0	12-14	4	0.5	1	2620	4.0	2.4	1.5
W0	14-16	4	0.6	1	2340	3.2	2.2	1.8

Table 2. Continued.

Station	Depth (cm)	Manganese	Molybdenum	Nickel	Potassium	Rubidium	Selenium	Silver	Sodium
N0	0-2	100	< 0.1	1	3660	8.7	< 1	< 0.1	3420
N0	2-4	61	< 0.1	< 1	3420	8.4	< 1	< 0.1	2930
N0	4-6	44	< 0.1	< 1	3710	8.9	< 1	< 0.1	3060
N0	6-8	82	< 0.1	1	3950	9.5	< 1	< 0.1	3400
N0	8-10	49	0.2	< 1	3530	8.8	< 1	< 0.1	3120
N0	10-12	71	0.1	< 1	3540	8.4	< 1	< 0.1	3220
N0	12-14	58	< 0.1	< 1	3740	9.5	< 1	< 0.1	2600
N0	14-16	70	0.1	< 1	3780	9.0	< 1	< 0.1	4140
N0	16-18	50	< 0.1	< 1	3620	8.9	< 1	< 0.1	3430
N0	18-20	88	< 0.1	< 1	3570	8.5	< 1	< 0.1	3190
N0	20-22	72	< 0.1	< 1	3620	9.1	< 1	< 0.1	3120
N0	22-24	84	< 0.1	< 1	3860	9.3	< 1	< 0.1	3530
N1	0-2	108	< 0.1	< 1	3710	9.1	< 1	< 0.1	3180
N1	2-4	228	0.1	1	3450	8.6	< 1	< 0.1	3270
N1	4-6	69	< 0.1	< 1	3740	9.2	< 1	< 0.1	2790
N1	6-8	69	< 0.1	< 1	3400	8.4	< 1	< 0.1	3190
N1	8-10	81	< 0.1	< 1	3410	8.4	< 1	< 0.1	3170
N1	10-12	54	< 0.1	3	3700	9.3	< 1	< 0.1	3390
N1	12-14	56	< 0.1	< 1	3570	8.8	< 1	< 0.1	2990
N1	14-16	70	< 0.1	< 1	3670	9.0	< 1	< 0.1	2970
N1	16-18	54	< 0.1	< 1	3950	9.5	< 1	< 0.1	3140
N1	18-20	75	< 0.1	< 1	3340	8.2	< 1	< 0.1	3060
N1	20-22	29	< 0.1	< 1	3240	7.8	< 1	< 0.1	2700
N1	22-24	137	< 0.1	< 1	4020	10.0	< 1	< 0.1	3510
N1	24-26	184	< 0.1	1	3920	9.4	< 1	< 0.1	3870
S0	0-2	58	< 0.1	< 1	3500	8.6	< 1	< 0.1	3620

Station	Depth (cm)	Manganese	Molybdenum	Nickel	Potassium	Rubidium	Selenium	Silver	Sodium
S0	2-4	74	< 0.1	1	3660	8.6	< 1	< 0.1	3060
S0	4-6	58	< 0.1	< 1	3120	7.5	< 1	< 0.1	3040
S0	6-8	86	< 0.1	< 1	3640	8.8	< 1	< 0.1	3160
S0	8-10	61	< 0.1	< 1	3400	8.3	< 1	< 0.1	3140
S0	10-12	41	< 0.1	< 1	3460	8.4	< 1	< 0.1	3180
S0	12-14	82	< 0.1	< 1	3810	9.6	< 1	< 0.1	3700
S0	14-16	59	< 0.1	< 1	3250	7.6	< 1	< 0.1	2820
S0	16-18	46	< 0.1	< 1	3660	9.0	< 1	< 0.1	3050
S0	18-20	60	< 0.1	< 1	3020	7.2	< 1	< 0.1	2750
S0	20-22	86	< 0.1	< 1	3210	7.7	< 1	< 0.1	2850
S0	22-24	90	< 0.1	< 1	3020	7.2	< 1	< 0.1	2960
S1	0-2	90	< 0.1	< 1	3740	8.8	< 1	< 0.1	3180
S1	2-4	139	< 0.1	< 1	3310	8.2	< 1	< 0.1	3410
S1	4-6	89	< 0.1	< 1	3510	8.6	< 1	< 0.1	3500
S1	4-6	59	< 0.1	< 1	3590	8.7	< 1	< 0.1	3130
S1	6-8	115	< 0.1	< 1	3750	9.4	< 1	< 0.1	3110
S1	8-10	206	0.2	< 1	3700	8.7	< 1	< 0.1	3870
S1	10-12	60	< 0.1	< 1	3360	8.1	< 1	< 0.1	3460
S1	12-14	106	0.4	< 1	3180	7.6	< 1	< 0.1	3380
S1	14-16	103	< 0.1	< 1	3230	7.8	< 1	< 0.1	3360
S1	16-18	99	< 0.1	< 1	3220	7.9	< 1	< 0.1	3330
S1	18-20	85	0.2	< 1	3220	7.9	< 1	< 0.1	3360
S1	20-22	47	< 0.1	< 1	3360	7.8	< 1	< 0.1	3100
W0	0-2	90	< 0.1	< 1	4070	9.7	< 1	< 0.1	3530
W0	2-4	124	< 0.1	< 1	3990	9.9	< 1	< 0.1	3070
W0	4-6	61	< 0.1	< 1	3730	9.2	< 1	< 0.1	3260
W0	6-8	49	< 0.1	< 1	3430	8.5	< 1	< 0.1	3410
W0	8-10	28	< 0.1	< 1	3710	9.1	< 1	< 0.1	3080
W0	10-12	37	< 0.1	< 1	3540	8.4	< 1	< 0.1	2960
W0	12-14	41	< 0.1	< 1	3490	8.5	< 1	< 0.1	3070
W0	12-14	74	< 0.1	< 1	3630	8.6	< 1	< 0.1	3750
W0	14-16	71	< 0.1	< 1	3750	9.3	< 1	< 0.1	3590

Table 2. Continued.

Station	Depth (cm)	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
N0	0-2	41	< 200	< 0.1	< 0.1	0.1	0.2	9	4
N0	2-4	36	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
N0	4-6	38	< 200	< 0.1	< 0.1	< 0.1	0.2	5	3
N0	6-8	40	< 200	< 0.1	< 0.1	0.1	0.2	8	4
N0	8-10	34	< 200	< 0.1	< 0.1	< 0.1	0.2	5	2
N0	10-12	36	< 200	< 0.1	< 0.1	1.0	0.2	7	3
N0	12-14	35	< 200	< 0.1	< 0.1	0.1	0.2	5	3
N0	14-16	35	< 200	< 0.1	< 0.1	0.7	0.2	6	3
N0	16-18	35	< 200	< 0.1	< 0.1	1.6	0.2	5	2
N0	18-20	36	< 200	< 0.1	< 0.1	1.6	0.2	7	3
N0	20-22	38	< 200	< 0.1	< 0.1	1.5	0.2	7	3
N0	22-24	38	< 200	< 0.1	< 0.1	0.3	0.3	7	3
N1	0-2	39	< 200	< 0.1	< 0.1	0.4	0.2	9	5
N1	2-4	48	200	< 0.1	< 0.1	0.2	0.3	15	9
N1	4-6	33	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
N1	6-8	35	< 200	< 0.1	< 0.1	< 0.1	0.1	7	3
N1	8-10	35	< 200	< 0.1	< 0.1	0.2	0.2	7	4

Station	Depth (cm)	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
N1	10-12	35	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
N1	12-14	34	< 200	< 0.1	< 0.1	0.1	0.2	6	2
N1	14-16	35	< 200	< 0.1	< 0.1	0.1	0.2	7	4
N1	16-18	36	< 200	< 0.1	< 0.1	< 0.1	0.2	5	2
N1	18-20	33	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
N1	20-22	29	< 200	< 0.1	< 0.1	< 0.1	0.2	4	< 2
N1	22-24	40	< 200	< 0.1	< 0.1	0.1	0.3	9	4
N1	24-26	41	< 200	< 0.1	< 0.1	0.2	0.3	12	6
S0	0-2	40	< 200	< 0.1	< 0.1	0.4	0.2	6	3
S0	2-4	39	< 200	< 0.1	< 0.1	0.1	0.2	7	3
S0	4-6	39	< 200	< 0.1	< 0.1	< 0.1	0.2	5	3
S0	6-8	46	300	< 0.1	< 0.1	< 0.1	0.2	7	4
S0	8-10	37	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
S0	10-12	33	200	< 0.1	< 0.1	< 0.1	0.2	5	2
S0	12-14	41	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
S0	14-16	32	< 200	< 0.1	< 0.1	0.1	0.2	5	3
S0	16-18	35	< 200	< 0.1	< 0.1	< 0.1	0.2	4	2
S0	18-20	30	< 200	< 0.1	< 0.1	< 0.1	0.2	5	2
S0	20-22	38	< 200	< 0.1	< 0.1	< 0.1	0.2	6	3
S0	22-24	33	< 200	< 0.1	< 0.1	0.1	0.2	7	3
S1	0-2	35	< 200	< 0.1	< 0.1	0.1	0.2	7	3
S1	2-4	33	< 200	< 0.1	< 0.1	0.2	0.2	10	5
S1	4-6	38	< 200	< 0.1	< 0.1	0.5	0.2	7	3
S1	4-6	34	< 200	< 0.1	< 0.1	0.2	0.2	6	3
S1	6-8	38	< 200	< 0.1	< 0.1	0.7	0.2	8	4
S1	8-10	42	200	< 0.1	< 0.1	0.5	0.2	13	7
S1	10-12	33	< 200	< 0.1	< 0.1	1.0	0.2	6	2
S1	12-14	33	< 200	< 0.1	< 0.1	0.2	0.2	8	4
S1	14-16	32	< 200	< 0.1	< 0.1	0.2	0.2	7	3
S1	16-18	32	< 200	< 0.1	< 0.1	0.1	0.2	7	3
S1	18-20	32	< 200	< 0.1	< 0.1	0.1	0.2	7	3
S1	20-22	30	< 200	< 0.1	< 0.1	1.0	0.2	5	2
W0	0-2	44	200	< 0.1	< 0.1	0.1	0.2	10	5
W0	2-4	37	200	< 0.1	< 0.1	0.2	0.2	10	6
W0	4-6	39	300	< 0.1	< 0.1	< 0.1	0.2	7	4
W0	6-8	33	200	< 0.1	< 0.1	< 0.1	0.1	5	3
W0	8-10	35	300	< 0.1	< 0.1	< 0.1	0.1	4	< 2
W0	10-12	34	< 200	< 0.1	< 0.1	< 0.1	0.2	4	< 2
W0	12-14	31	< 200	< 0.1	< 0.1	< 0.1	0.2	5	2
W0	12-14	40	< 200	< 0.1	< 0.1	0.2	0.2	7	3
W0	14-16	37	< 200	< 0.1	< 0.1	< 0.1	0.2	6	4

Table 3. Metals analysis measured as mg kg^{-1}: Hibernia 2006.

Station	Depth (cm)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium
R50K	0-2	5430	0.13	< 1	202	0.10	< 0.1	0.01
R50K	0-2	6330	0.11	< 1	226	0.12	< 0.1	< 0.01
R50K	2-4	6080	0.18	< 1	302	0.12	< 0.1	< 0.01
R50K	4-6	5580	0.14	< 1	184	0.12	< 0.1	< 0.01
R50K	6-8	5540	0.12	< 1	224	0.10	< 0.1	< 0.01
R50K	8-10	6030	0.13	< 1	218	0.12	< 0.1	< 0.01
N0	0-2	5740	0.12	< 1	188	0.11	< 0.1	< 0.01
N0	2-4	5040	0.11	< 1	187	0.10	< 0.1	< 0.01
N0	4-6	6650	0.12	< 1	253	0.11	< 0.1	< 0.01
N0	6-8	6170	0.14	< 1	335	0.12	< 0.1	< 0.01
N0	8-10	6930	0.20	< 1	246	0.12	< 0.1	0.01
N0	10-12	6480	0.11	< 1	183	0.12	< 0.1	< 0.01
N0	12-14	5160	0.12	< 1	145	0.09	< 0.1	< 0.01
NE500	0-2	5450	0.09	< 1	138	0.10	< 0.1	< 0.01
NE500	2-4	5830	0.11	< 1	161	0.15	< 0.1	< 0.01
NE500	4-6	5970	0.10	< 1	179	0.11	< 0.1	< 0.01
NE500	4-6	6270	0.16	< 1	204	0.12	< 0.1	< 0.01
NE500	6-8	5360	0.11	< 1	166	0.11	< 0.1	< 0.01
NE500	8-10	5790	0.10	< 1	147	0.10	< 0.1	< 0.01
NE500	10-12	5200	0.15	< 1	136	0.10	< 0.1	< 0.01
NE500	12-14	4720	0.10	< 1	113	0.08	< 0.1	< 0.01
NE500	14-16	5730	0.12	< 1	135	0.10	< 0.1	< 0.01
NE500	16-18	6390	0.10	< 1	118	0.12	< 0.1	< 0.01
NE500	18-20	6200	0.10	< 1	120	0.12	< 0.1	< 0.01
NE500	20-22	6560	0.15	< 1	115	0.13	< 0.1	< 0.01
S0-1-1	0-2	6080	0.10	< 1	145	0.13	< 0.1	< 0.01
S0-1-1	2-4	5570	0.12	< 1	170	0.11	< 0.1	< 0.01
S0-1-1	2-4	5490	0.11	< 1	137	0.10	< 0.1	< 0.01
S0-1-1	4-6	6440	0.18	< 1	172	0.11	< 0.1	< 0.01
S0-1-1	6-8	5380	0.12	< 1	152	0.10	< 0.1	< 0.01
S0-1-1	8-10	6110	0.11	< 1	159	0.11	< 0.1	< 0.01
S0-1-1	10-12	4670	0.11	< 1	118	0.08	< 0.1	< 0.01
S0-1-1	12-14	5930	0.13	< 1	141	0.12	< 0.1	< 0.01
S0-1-1	14-16	5760	0.11	< 1	131	0.10	< 0.1	< 0.01
S0-1-1	16-18	5700	0.13	< 1	130	0.11	< 0.1	< 0.01
S0-1-1	18-20	5550	0.12	< 1	126	0.12	< 0.1	< 0.01
S0-1-1	20-22	5540	0.11	< 1	120	0.11	< 0.1	< 0.01
S0-1-1	22-24	6030	0.14	< 1	135	0.12	< 0.1	< 0.01
S0-1-1	22-24	5440	0.11	< 1	130	0.12	< 0.1	< 0.01
S0-1-1	24-26	7260	0.13	< 1	152	0.14	< 0.1	< 0.01
S0-1-1	26-28	6260	0.08	< 1	139	0.11	< 0.1	< 0.01
AS-1	0-2	5440	0.10	< 1	147	0.10	< 0.1	< 0.01
AS-1	2-4	6200	0.12	< 1	163	0.11	< 0.1	< 0.01
AS-1	4-6	6400	0.13	< 1	165	0.12	< 0.1	< 0.01
AS-1	6-8	5890	0.10	< 1	169	0.12	< 0.1	< 0.01
AS-1	8-10	5820	0.12	< 1	152	0.11	< 0.1	< 0.01
AS-1	8-10	6080	0.12	< 1	149	0.11	< 0.1	< 0.01
AS-1	10-12	6520	0.11	< 1	161	0.13	< 0.1	< 0.01
AS-1	12-14	5720	0.14	< 1	133	0.10	< 0.1	< 0.01
AS-1	14-16	5740	0.11	< 1	122	0.12	< 0.1	< 0.01
AS-1	16-18	6360	0.12	< 1	150	0.13	< 0.1	< 0.01
AS-1	18-20	6190	0.15	< 1	132	0.12	< 0.1	< 0.01

Station	Depth (cm)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium
AS-1	20-22	7220	0.16	< 1	145	0.13	< 0.1	< 0.01
AS-1	22-24	6540	0.13	< 1	132	0.13	< 0.1	< 0.01
AS-1	24-26	5820	0.15	< 1	112	0.11	< 0.1	< 0.01
W0	0-2	3830	0.10	2	74.9	0.09	< 0.1	< 0.01
W0	2-4	4170	0.10	1	86.9	0.09	< 0.1	< 0.01
W0	4-6	3530	0.09	1	43.9	0.10	< 0.1	< 0.01
W0	6-8	3610	0.12	2	82.6	0.08	< 0.1	< 0.01
W0	8-10	3560	0.11	2	91.0	0.07	< 0.1	< 0.01
W0	10-12	3440	0.12	2	70.1	0.09	< 0.1	< 0.01
W0	20-22	3730	0.14	2	77.2	0.09	< 0.1	< 0.01
W0	20-22	3440	0.11	2	73.9	0.07	< 0.1	< 0.01
8-500	0-2	5880	0.13	< 1	258	0.11	< 0.1	< 0.01
8-500	2-4	5950	0.14	< 1	282	0.11	< 0.1	< 0.01
8-500	4-6	5800	0.14	< 1	279	0.11	< 0.1	< 0.01
8-500	6-8	5750	0.16	< 1	165	0.12	< 0.1	0.01
8-750	0-2	5320	0.15	< 1	209	0.10	< 0.1	< 0.01
8-750	2-4	6170	0.15	< 1	207	0.12	< 0.1	< 0.01
8-750	4-6	6450	0.20	1	301	0.12	< 0.1	< 0.01
8-750	6-8	6680	0.16	< 1	280	0.12	< 0.1	< 0.01
8-750	8-10	6680	0.16	< 1	269	0.12	< 0.1	< 0.01
8-750	10-12	6400	0.14	< 1	246	0.12	< 0.1	< 0.01
8-750	12-14	5360	0.13	< 1	153	0.10	< 0.1	< 0.01
8-750	14-16	5900	0.15	< 1	123	0.11	< 0.1	< 0.01
8-750	16-18	5440	0.14	< 1	120	0.11	< 0.1	< 0.01
8-750	16-18	5680	0.14	< 1	131	0.10	< 0.1	< 0.01
8-750	18-20	5960	0.12	< 1	130	0.11	< 0.1	< 0.01
8-750	18-20	5570	0.12	< 1	115	0.11	< 0.1	< 0.01
8-750	20-22	6600	0.14	< 1	144	0.12	< 0.1	< 0.01
8-750	22-24	5230	0.13	< 1	115	0.10	< 0.1	< 0.01

Table 3. Continued.

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
R50K	0-2	3	0.6	1	1390	3.6	2.3	2.3
R50K	0-2	4	0.5	< 1	1380	3.4	2.8	2.4
R50K	2-4	6	0.7	1	3270	3.8	2.4	2.4
R50K	4-6	5	0.6	< 1	1650	3.1	2.4	2.4
R50K	6-8	5	0.6	1	1880	3.4	2.3	2.6
R50K	8-10	3	0.4	< 1	1400	3.0	2.6	2.4
N0	0-2	4	0.4	2	1220	3.0	2.2	2.3
N0	2-4	4	0.4	1	1540	4.0	2.0	2.2
N0	4-6	5	0.5	< 1	2090	3.3	2.4	2.4
N0	6-8	5	0.6	1	2580	3.2	2.4	2.4
N0	8-10	6	0.6	1	2630	3.6	2.5	2.4
N0	10-12	4	0.4	1	1470	3.9	2.2	2.5
N0	12-14	3	0.3	< 1	1200	3.3	2.1	2.3
NE500	0-2	5	0.6	1	2830	4.4	2.2	2.4
NE500	2-4	6	0.7	1	3430	3.8	2.5	2.3
NE500	4-6	5	0.6	1	3010	5.1	2.4	2.4
NE500	4-6	6	1.0	2	5180	5.0	2.6	2.8
NE500	6-8	6	0.6	1	3250	4.3	2.2	2.4
NE500	8-10	4	0.5	1	2660	5.6	2.3	2.3
NE500	10-12	4	0.5	1	2360	2.8	2.0	2.3

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
NE500	12-14	3	0.3	< 1	1360	3.5	1.9	2.3
NE500	14-16	5	0.6	2	3150	2.9	2.2	2.4
NE500	16-18	4	0.5	1	2420	4.0	2.1	2.5
NE500	18-20	4	0.5	1	2760	7.7	2.2	2.3
NE500	20-22	6	0.8	1	3850	4.2	2.2	2.6
S0-1-1	0-2	3	0.3	1	1260	3.1	2.2	2.3
S0-1-1	2-4	4	0.6	1	2780	3.9	2.4	2.4
S0-1-1	2-4	3	0.3	1	1490	4.9	2.1	2.2
S0-1-1	4-6	6	0.7	2	3580	4.2	2.4	2.4
S0-1-1	6-8	4	0.5	2	2370	3.5	2.1	2.2
S0-1-1	8-10	4	0.4	1	1750	3.0	2.1	2.1
S0-1-1	10-12	3	0.4	1	1470	4.2	1.8	2.2
S0-1-1	12-14	5	0.6	1	3180	4.0	2.2	2.3
S0-1-1	14-16	4	0.4	1	2330	3.9	2.2	2.2
S0-1-1	16-18	5	0.5	1	2350	3.6	2.1	2.3
S0-1-1	18-20	4	0.5	1	2230	5.2	2.2	2.3
S0-1-1	20-22	4	0.3	1	1310	2.8	2.0	2.2
S0-1-1	22-24	4	0.4	1	1810	3.5	2.2	2.5
S0-1-1	22-24	3	0.3	1	1340	3.0	2.1	2.2
S0-1-1	24-26	4	0.4	1	1610	3.4	2.4	2.4
S0-1-1	26-28	3	0.2	1	840	2.8	2.2	2.4
AS-1	0-2	3	0.3	< 1	1110	2.8	2.2	2.2
AS-1	2-4	5	0.7	1	3350	3.3	2.5	2.5
AS-1	4-6	5	0.8	1	2500	4.4	2.4	2.6
AS-1	6-8	4	0.5	1	2250	3.1	2.5	2.3
AS-1	8-10	4	1.0	1	2590	4.7	2.4	2.3
AS-1	8-10	5	0.9	1	3020	4.7	2.3	2.5
AS-1	10-12	4	0.4	< 1	2120	3.2	2.4	2.3
AS-1	12-14	4	0.6	1	1990	4.4	2.2	2.2
AS-1	14-16	4	0.7	1	2200	3.1	2.0	2.4
AS-1	16-18	4	0.6	1	1930	3.8	2.2	2.3
AS-1	18-20	5	0.8	1	2740	3.8	2.3	2.4
AS-1	20-22	6	0.8	2	4310	4.5	2.4	2.6
AS-1	22-24	5	0.8	2	2990	3.8	2.2	2.5
AS-1	24-26	5	0.7	2	2670	4.1	2.1	2.4
W0	0-2	5	0.5	< 1	2690	2.4	1.5	2.0
W0	2-4	5	0.5	< 1	2140	2.8	1.8	2.1
W0	4-6	5	0.4	< 1	2200	2.4	1.3	2.2
W0	6-8	6	0.5	1	2960	3.2	1.6	2.2
W0	8-10	7	0.6	< 1	3460	3.1	1.9	1.9
W0	10-12	10	0.8	1	4500	4.3	2.1	2.1
W0	20-22	8	0.7	1	4300	5.2	2.2	2.0
W0	20-22	6	0.5	< 1	2770	3.3	1.9	1.9
8-500	0-2	4	0.4	1	1700	3.2	2.4	2.3
8-500	2-4	5	0.7	2	2930	3.4	2.3	2.3
8-500	4-6	5	0.5	2	2130	3.4	2.5	2.2
8-500	6-8	4	0.5	1	2180	4.4	2.2	2.3
8-750	0-2	6	0.4	< 1	1120	3.0	2.3	2.3
8-750	2-4	4	0.5	1	2190	2.8	2.4	2.3
8-750	4-6	6	0.7	2	3010	4.8	2.7	2.5
8-750	6-8	4	0.5	1	1880	3.7	2.6	2.4
8-750	8-10	4	0.4	< 1	1380	3.2	2.4	2.4
8-750	10-12	4	0.5	1	1800	2.9	2.4	2.6
8-750	12-14	4	0.3	< 1	1170	3.1	2.0	2.2

8-750	14-16	4	0.4	1	1590	2.8	2.0	2.3
8-750	16-18	4	0.3	< 1	1080	3.2	2.2	2.2
8-750	16-18	4	0.4	1	1830	4.0	2.2	2.3
8-750	18-20	4	0.4	1	1520	2.7	2.1	2.4
8-750	18-20	3	0.3	1	1270	2.6	1.9	2.4
8-750	20-22	4	0.4	1	1930	5.1	2.5	2.3
8-750	22-24	4	0.3	< 1	1110	3.1	2.0	2.3

Table 3. Continued.

Station	Depth (cm)	Manganese	Molybdenum	Nickel	Potassium	Rubidium	Selenium	Silver	Sodium
R50K	0-2	26	< 0.1	1	3240	8.4	< 1	0.04	2150
R50K	0-2	27	0.1	< 1	3790	9.9	< 1	0.04	2460
R50K	2-4	94	< 0.1	1	3040	7.8	< 1	0.03	2680
R50K	4-6	40	< 0.1	1	3430	10.4	< 1	0.04	2110
R50K	6-8	44	< 0.1	1	3090	8.7	< 1	0.04	2170
R50K	8-10	35	< 0.1	< 1	3900	10.6	< 1	0.03	2300
N0	0-2	20	< 0.1	1	3690	9.7	< 1	0.03	2640
N0	2-4	33	< 0.1	< 1	3140	8.2	< 1	0.03	2400
N0	4-6	49	< 0.1	1	3720	9.4	< 1	0.03	2530
N0	6-8	65	< 0.1	1	3300	8.6	< 1	0.03	2520
N0	8-10	75	< 0.1	1	3840	9.8	< 1	0.03	2700
N0	10-12	47	< 0.1	< 1	3690	9.6	< 1	0.04	2740
N0	12-14	31	< 0.1	< 1	3400	8.6	< 1	0.03	2060
NE500	0-2	89	< 0.1	< 1	3080	8.4	< 1	0.03	2560
NE500	2-4	122	< 0.1	< 1	3230	8.5	< 1	0.03	2770
NE500	4-6	96	< 0.1	< 1	3500	8.8	< 1	0.03	2520
NE500	4-6	187	< 0.1	1	3100	8.6	< 1	0.05	2660
NE500	6-8	108	< 0.1	1	2960	8.2	< 1	0.04	2550
NE500	8-10	90	< 0.1	< 1	3220	8.0	< 1	0.03	2620
NE500	10-12	63	0.1	< 1	3060	8.3	< 1	0.04	2580
NE500	12-14	35	< 0.1	< 1	2860	7.9	< 1	0.03	2450
NE500	14-16	100	< 0.1	< 1	3220	8.5	< 1	0.04	2350
NE500	16-18	78	< 0.1	< 1	3350	8.5	< 1	0.03	2830
NE500	18-20	92	< 0.1	< 1	3290	9.0	< 1	0.03	2600
NE500	20-22	153	< 0.1	1	2980	8.2	< 1	0.04	2620
S0-1-1	0-2	33	< 0.1	< 1	3430	9.4	< 1	0.02	2430
S0-1-1	2-4	99	< 0.1	< 1	3290	8.8	< 1	0.03	2580
S0-1-1	2-4	41	< 0.1	< 1	2980	8.3	< 1	0.03	2340
S0-1-1	4-6	118	< 0.1	1	3290	9.1	< 1	0.03	2480
S0-1-1	6-8	76	< 0.1	< 1	2970	8.2	< 1	0.04	2350
S0-1-1	8-10	44	< 0.1	< 1	3440	8.9	< 1	0.03	2430
S0-1-1	10-12	46	< 0.1	< 1	2720	7.4	< 1	0.03	2140
S0-1-1	12-14	107	< 0.1	< 1	3150	8.5	< 1	0.03	2230
S0-1-1	14-16	79	< 0.1	< 1	3440	9.3	< 1	0.03	2170
S0-1-1	16-18	77	< 0.1	< 1	3150	8.2	< 1	0.04	2300
S0-1-1	18-20	71	< 0.1	< 1	3100	8.8	< 1	0.05	2110
S0-1-1	20-22	34	< 0.1	< 1	3230	9.0	< 1	0.03	2100
S0-1-1	22-24	61	< 0.1	< 1	3570	9.6	< 1	0.03	2270
S0-1-1	22-24	38	< 0.1	< 1	3260	8.5	< 1	0.03	2130
S0-1-1	24-26	39	< 0.1	1	3930	10.2	< 1	0.03	2700
S0-1-1	26-28	13	< 0.1	< 1	3960	10.4	< 1	0.03	2280
AS-1	0-2	19	< 0.1	< 1	3410	8.6	< 1	0.03	2160
AS-1	2-4	103	< 0.1	< 1	3290	8.8	< 1	0.04	2450

Station	Depth (cm)	Manganese	Molybdenum	Nickel	Potassium	Rubidium	Selenium	Silver	Sodium
AS-1	4-6	81	< 0.1	1	3700	9.9	< 1	0.04	2470
AS-1	6-8	69	< 0.1	< 1	3340	9.1	< 1	0.04	2680
AS-1	8-10	91	< 0.1	1	3160	8.6	< 1	0.04	2910
AS-1	8-10	94	< 0.1	< 1	3190	8.6	< 1	0.04	2390
AS-1	10-12	68	< 0.1	< 1	3760	9.9	< 1	0.03	2420
AS-1	12-14	64	< 0.1	2	3210	8.5	< 1	0.04	3300
AS-1	14-16	74	< 0.1	< 1	3100	8.5	< 1	0.04	2470
AS-1	16-18	77	0.2	< 1	3880	9.8	< 1	0.04	3740
AS-1	18-20	97	< 0.1	< 1	3360	9.0	< 1	0.04	3720
AS-1	20-22	166	< 0.1	1	3760	10.4	< 1	0.04	2650
AS-1	22-24	107	< 0.1	< 1	3290	8.6	< 1	0.04	3270
AS-1	24-26	95	0.1	1	3120	8.3	< 1	0.04	3410
W0	0-2	32	< 0.1	< 1	2210	6.3	< 1	0.02	2080
W0	2-4	26	< 0.1	< 1	2450	7.0	< 1	0.03	1930
W0	4-6	27	< 0.1	1	1390	4.1	< 1	0.02	1990
W0	6-8	42	< 0.1	1	2010	5.4	< 1	0.02	2110
W0	8-10	75	< 0.1	1	2340	6.5	< 1	< 0.02	1410
W0	10-12	106	0.1	1	1940	5.7	< 1	0.04	1480
W0	20-22	117	0.1	< 1	2290	6.1	< 1	0.04	1520
W0	20-22	54	< 0.1	< 1	2370	6.4	< 1	< 0.02	1800
8-500	0-2	34	< 0.1	< 1	3490	9.3	< 1	0.03	2520
8-500	2-4	81	< 0.1	1	3110	8.8	< 1	0.04	2530
8-500	4-6	55	< 0.1	< 1	3510	9.9	< 1	0.04	2280
8-500	6-8	50	< 0.1	< 1	3220	9.0	< 1	0.04	2830
8-750	0-2	28	< 0.1	< 1	3380	8.6	< 1	0.04	2760
8-750	2-4	67	< 0.1	1	3670	9.6	< 1	0.04	2860
8-750	4-6	91	< 0.1	1	3520	9.4	< 1	0.27	3030
8-750	6-8	52	< 0.1	1	3720	9.6	< 1	0.04	3100
8-750	8-10	34	< 0.1	< 1	4040	11.0	< 1	0.03	2920
8-750	10-12	50	< 0.1	1	3940	10.2	< 1	0.03	2560
8-750	12-14	23	< 0.1	< 1	3470	8.8	< 1	0.03	2360
8-750	14-16	48	< 0.1	< 1	3320	8.8	< 1	0.03	2540
8-750	16-18	24	0.1	< 1	3320	9.7	< 1	0.02	2130
8-750	16-18	56	< 0.1	1	3450	9.1	< 1	0.04	2300
8-750	18-20	55	< 0.1	< 1	3410	9.2	< 1	0.04	2400
8-750	18-20	33	< 0.1	< 1	3240	8.3	< 1	0.03	2370
8-750	20-22	57	< 0.1	< 1	3900	10.3	< 1	0.03	2380
8-750	22-24	31	< 0.1	< 1	3290	9.6	< 1	0.02	2130

Table 3. Continued.

Station	Depth (cm)	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
R50K	0-2	32.4	< 200	< 0.1	< 0.05	0.1	0.22	4	3
R50K	0-2	35.6	< 200	< 0.1	0.06	< 0.1	0.17	4	2
R50K	2-4	37.6	< 200	< 0.1	< 0.05	< 0.1	0.19	8	4
R50K	4-6	33.1	< 200	< 0.1	0.06	< 0.1	0.17	5	3
R50K	6-8	34.0	< 200	< 0.1	0.05	< 0.1	0.26	5	4
R50K	8-10	37.0	< 200	< 0.1	0.06	< 0.1	0.14	4	2
N0	0-2	32.9	< 200	< 0.1	0.06	< 0.1	0.22	4	2
N0	2-4	28.0	< 200	< 0.1	< 0.05	< 0.1	0.17	4	2
N0	4-6	38.5	< 200	< 0.1	0.06	< 0.1	0.14	6	3
N0	6-8	39.0	< 200	< 0.1	< 0.05	< 0.1	0.18	6	6
N0	8-10	40.2	< 200	< 0.1	0.06	< 0.1	0.19	7	4

Station	Depth (cm)	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
N0	10-12	32.4	< 200	< 0.1	0.06	< 0.1	0.20	4	2
N0	12-14	28.9	< 200	< 0.1	< 0.05	< 0.1	0.18	4	2
NE500	0-2	29.8	< 200	< 0.1	< 0.05	< 0.1	0.20	6	3
NE500	2-4	32.0	< 200	< 0.1	0.05	< 0.1	0.20	7	6
NE500	4-6	32.9	< 200	< 0.1	0.05	< 0.1	0.20	6	4
NE500	4-6	33.7	< 200	< 0.1	0.05	< 0.1	0.26	10	6
NE500	6-8	29.6	< 200	< 0.1	0.05	< 0.1	0.22	7	4
NE500	8-10	31.2	< 200	< 0.1	< 0.05	< 0.1	0.20	6	4
NE500	10-12	30.0	< 200	< 0.1	< 0.05	< 0.1	0.18	5	3
NE500	12-14	27.6	< 200	< 0.1	< 0.05	< 0.1	0.22	4	2
NE500	14-16	29.8	< 200	< 0.1	0.05	< 0.1	0.17	7	4
NE500	16-18	33.0	< 200	< 0.1	0.05	< 0.1	0.18	5	3
NE500	18-20	33.5	< 200	< 0.1	0.05	< 0.1	0.28	6	3
NE500	20-22	35.1	< 200	< 0.1	0.05	< 0.1	0.22	8	4
S0-1-1	0-2	33.3	< 200	< 0.1	0.06	0.3	0.16	4	2
S0-1-1	2-4	33.2	< 200	< 0.1	0.05	0.5	0.19	6	4
S0-1-1	2-4	33.1	< 200	< 0.1	< 0.05	0.3	0.22	4	2
S0-1-1	4-6	37.2	< 200	< 0.1	0.05	0.3	0.18	8	5
S0-1-1	6-8	32.9	< 200	< 0.1	< 0.05	0.3	0.21	6	3
S0-1-1	8-10	33.5	< 200	< 0.1	< 0.05	0.3	0.16	5	3
S0-1-1	10-12	25.8	< 200	< 0.1	< 0.05	< 0.1	0.22	4	2
S0-1-1	12-14	34.9	< 200	< 0.1	< 0.05	0.3	0.17	7	4
S0-1-1	14-16	30.2	< 200	< 0.1	0.05	0.4	0.23	6	3
S0-1-1	16-18	32.1	< 200	< 0.1	< 0.05	0.3	0.19	6	3
S0-1-1	18-20	30.8	< 200	< 0.1	< 0.05	0.3	0.30	6	3
S0-1-1	20-22	29.4	< 200	< 0.1	0.05	0.3	0.16	4	2
S0-1-1	22-24	34.4	< 200	< 0.1	0.05	0.4	0.17	5	3
S0-1-1	22-24	35.8	< 200	< 0.1	< 0.05	0.2	0.19	4	2
S0-1-1	24-26	44.0	< 200	< 0.1	0.06	0.4	0.19	5	3
S0-1-1	26-28	40.0	< 200	< 0.1	0.06	0.3	0.15	3	2
AS-1	0-2	29.3	< 200	< 0.1	0.05	< 0.1	0.16	3	2
AS-1	2-4	34.6	< 200	< 0.1	0.06	< 0.1	0.18	7	4
AS-1	4-6	35.1	< 200	< 0.1	0.06	0.2	0.26	6	4
AS-1	6-8	34.2	< 200	< 0.1	0.05	0.1	0.16	5	3
AS-1	8-10	34.5	300	< 0.1	< 0.05	< 0.1	0.24	6	4
AS-1	8-10	33.6	< 200	< 0.1	< 0.05	< 0.1	0.19	6	4
AS-1	10-12	35.6	< 200	< 0.1	0.06	< 0.1	0.17	5	3
AS-1	12-14	33.5	300	< 0.1	< 0.05	< 0.1	0.21	5	3
AS-1	14-16	30.9	200	< 0.1	< 0.05	< 0.1	0.21	6	3
AS-1	16-18	34.4	300	< 0.1	0.05	< 0.1	0.18	5	3
AS-1	18-20	36.3	300	< 0.1	0.05	< 0.1	0.18	6	4
AS-1	20-22	37.9	< 200	< 0.1	0.06	< 0.1	0.24	9	5
AS-1	22-24	37.0	200	< 0.1	< 0.05	< 0.1	0.21	7	3
AS-1	24-26	33.3	200	< 0.1	< 0.05	0.1	0.19	6	3
W0	0-2	36.6	< 200	< 0.1	< 0.05	0.2	0.31	8	3
W0	2-4	28.4	< 200	< 0.1	< 0.05	< 0.1	0.22	7	3
W0	4-6	28.6	< 200	< 0.1	< 0.05	0.2	0.22	7	2
W0	6-8	39.7	< 200	< 0.1	< 0.05	0.2	0.20	9	3
W0	8-10	36.4	< 200	< 0.1	< 0.05	0.3	0.22	10	3
W0	10-12	37.5	< 200	< 0.1	< 0.05	0.4	0.34	11	5
W0	20-22	26.2	< 200	< 0.1	< 0.05	0.4	0.21	11	5
W0	20-22	28.8	< 200	< 0.1	< 0.05	0.2	0.38	8	3
8-500	0-2	34.7	< 200	< 0.1	0.05	< 0.1	0.16	5	2
8-500	2-4	36.7	< 200	< 0.1	0.05	0.3	0.18	7	4

Station	Depth (cm)	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
8-500	4-6	34.6	< 200	< 0.1	0.05	< 0.1	0.24	6	3
8-500	6-8	30.9	< 200	< 0.1	0.05	< 0.1	0.20	5	4
8-750	0-2	32.4	< 200	< 0.1	0.05	< 0.1	0.19	4	2
8-750	2-4	34.9	< 200	< 0.1	0.06	< 0.1	0.17	5	3
8-750	4-6	39.5	300	< 0.1	0.06	0.1	0.18	8	4
8-750	6-8	40.9	< 200	< 0.1	0.05	< 0.1	0.21	6	3
8-750	8-10	42.0	< 200	< 0.1	0.06	< 0.1	0.16	4	2
8-750	10-12	35.7	< 200	< 0.1	0.06	< 0.1	0.16	5	3
8-750	12-14	30.4	< 200	< 0.1	0.05	< 0.1	0.18	4	2
8-750	14-16	31.0	< 200	< 0.1	< 0.05	< 0.1	0.17	4	2
8-750	16-18	30.6	< 200	< 0.1	0.05	0.3	0.17	4	2
8-750	16-18	31.6	< 200	< 0.1	0.05	< 0.1	0.20	5	3
8-750	18-20	32.7	< 200	< 0.1	0.06	< 0.1	0.18	5	2
8-750	18-20	30.6	< 200	< 0.1	< 0.05	< 0.1	0.14	4	2
8-750	20-22	36.2	< 200	< 0.1	0.06	< 0.1	0.23	5	3
8-750	22-24	28.6	< 200	< 0.1	0.05	< 0.1	0.19	4	2

Table 4. Metals analysis measured as mg kg^{-1}: Hibernia 2008.

Station	Depth (cm)	Aluminium	Antimony	Barium	Beryllium	Bismuth	Cadmium
R50K	0-2	2484.341	0.076	62.918	0.052	0.003	0.003
R50K	2-4	3092.468	0.077	44.022	0.071	0.004	0.004
R50K	4-6	2901.773	0.113	42.928	0.111	0.005	0.006
R50K	6-8	5415.639	0.092	81.620	0.109	0.004	0.005
R50K	8-10	4672.292	0.144	75.071	0.074	0.005	0.012
R50K	10-12	4548.225	0.208	97.080	0.084	0.010	0.004
HN5K	0-2	3315.461	0.051	84.628	0.064	0.003	< DL
HN5K	2-4	5217.428	0.044	47.637	0.112	0.004	0.005
HN5K	4-6	4472.946	0.048	50.508	0.076	0.003	0.007
HN5K	6-8	4132.724	0.041	70.032	0.077	0.005	< DL
HN5K	8-10	4555.564	0.045	81.885	0.090	0.003	< DL
HN5K	10-12	6774.099	0.053	99.616	0.112	0.005	0.010
HN5K	12-14	3621.322	0.063	56.570	0.075	0.004	< DL
HN5K	14-16	4393.228	0.096	66.897	0.092	0.008	0.006
HN5K	16-18	4234.628	0.073	63.329	0.092	0.003	0.009
HS1K	0-2	5021.667	0.118	126.933	0.091	0.004	0.002
HS1K	2-4	4988.139	0.119	141.444	0.095	0.006	< DL
HS1K	4-6	4729.326	0.124	108.936	0.107	0.005	0.010
HS1K	6-8	5338.106	0.095	117.643	0.093	0.003	< DL
HS1K	8-10	5618.840	0.119	118.320	0.113	0.003	< DL
HS1K	10-12	4665.486	0.091	104.197	0.081	0.004	0.015
HS1K	12-14	6646.177	0.130	140.670	0.111	0.004	0.003
HS1K	14-16	5400.743	0.112	113.808	0.093	0.003	< DL
HS1K	16-18	5613.657	0.117	112.606	0.093	0.004	< DL
HSW1K	0-2	5085.293	0.114	107.539	0.081	0.003	0.004
HSW1K	2-4	4753.084	0.115	114.190	0.081	0.003	< DL
HSW1K	4-6	4598.412	0.135	119.830	0.071	0.005	< DL
HSW1K	6-8	6289.553	0.152	131.601	0.103	0.005	0.004
HSW1K	8-10	4378.930	0.113	102.641	0.073	0.004	0.005
HSW1K	10-12	3375.922	0.134	75.305	0.058	0.002	0.005
HSW1K	12-14	4290.728	0.140	72.500	0.090	0.004	0.012
HSW1K	14-16	5076.630	0.150	104.338	0.076	0.003	< DL
HSW1K	16-18	4300.314	0.157	81.445	0.080	0.004	< DL
HSW1K	18-20	4250.864	0.128	86.176	0.075	0.002	0.01
HSW1K	18-20	4479.352	0.110	55.991	0.074	0.002	0.003
HSW1K	20-22	7211.599	0.144	112.403	0.154	0.002	0.011
HSW1K	22-24	4100.357	0.099	70.895	0.069	0.005	0.006

Table 4. Continued.

Station	Depth (cm)	Chromium	Copper	Iron	Lead	Lithium	Manganese	Molybdenum
R50K	0-2	4.124	4.630	1207.762	1.462	2.354	5.647	0.065
R50K	2-4	4.952	6.172	1624.587	1.534	2.417	11.329	0.058
R50K	4-6	5.724	3.361	2653.013	1.123	2.167	24.148	0.098
R50K	6-8	4.723	3.689	1962.885	1.905	3.097	19.211	0.094
R50K	8-10	4.418	4.973	2771.595	1.248	3.049	15.683	0.071
R50K	10-12	5.788	5.724	2268.495	2.045	2.795	17.837	0.111
HN5K	0-2	1.975	7.085	1143.056	1.419	2.395	20.585	0.044
HN5K	2-4	1.399	7.658	957.230	1.252	2.476	10.492	0.081
HN5K	4-6	4.530	2.869	1086.621	1.111	1.929	9.518	0.147
HN5K	6-8	4.503	7.750	829.843	1.631	2.724	17.028	0.050

Station	Depth (cm)	Chromium	Copper	Iron	Lead	Lithium	Manganese	Molybdenum
HN5K	8-10	2.117	2.312	698.185	1.206	2.665	16.353	0.042
HN5K	10-12	10.271	5.835	2207.118	1.764	2.413	32.254	0.044
HN5K	12-14	1.982	7.590	2457.957	1.113	2.691	26.261	0.047
HN5K	14-16	2.492	6.002	1436.811	1.178	2.987	14.283	0.137
HN5K	16-18	2.981	0.599	1453.058	1.049	2.169	18.815	0.046
HS1K	0-2	3.414	4.044	1141.164	1.736	2.201	18.366	0.096
HS1K	2-4	2.955	6.841	1286.951	2.028	2.275	39.594	0.077
HS1K	4-6	4.777	7.547	2608.529	1.718	2.438	83.099	0.087
HS1K	6-8	2.659	5.812	1632.414	1.548	2.547	46.266	0.068
HS1K	8-10	2.765	3.400	1872.253	1.950	2.584	56.354	0.081
HS1K	10-12	5.074	5.931	1646.435	1.466	2.308	42.573	0.107
HS1K	12-14	4.065	7.210	2655.342	2.046	2.699	78.690	0.108
HS1K	14-16	4.113	12.321	1839.199	1.783	2.284	47.769	0.073
HS1K	16-18	2.537	4.500	1292.875	1.697	2.522	23.183	0.073
HSW1K	0-2	2.639	8.186	588.732	1.646	2.429	18.386	0.044
HSW1K	2-4	2.621	10.157	1229.618	1.700	2.691	15.457	0.053
HSW1K	4-6	3.399	6.740	1424.451	1.766	2.312	18.379	0.067
HSW1K	6-8	3.130	4.852	1239.537	1.768	2.384	42.533	0.138
HSW1K	8-10	2.571	6.785	970.074	1.572	2.290	69.001	0.046
HSW1K	10-12	2.062	6.205	907.997	1.314	1.986	52.492	0.069
HSW1K	12-14	2.693	5.641	1446.675	1.758	2.347	35.845	0.442
HSW1K	14-16	2.965	4.219	1715.366	1.914	2.350	75.892	0.062
HSW1K	16-18	3.667	9.294	1243.422	1.506	2.413	17.754	0.046
HSW1K	18-20	2.345	6.181	987.206	1.367	2.300	10.136	0.079
HSW1K	18-20	2.124	0.942	735.447	1.170	2.272	15.139	0.094
HSW1K	20-22	4.896	6.732	2205.845	1.875	2.704	65.489	0.125
HSW1K	22-24	3.314	5.832	524.469	1.246	2.395	7.005	0.050

Table 4. Continued.

Station	Depth (cm)	Nickel	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
R50K	0-2	1.244	1989	0.050	1223	0.020	4.691	1.803
R50K	2-4	1.067	1990	0.015	1410	0.034	6.116	2.255
R50K	4-6	1.330	1394	0.032	2343	0.020	9.957	3.662
R50K	6-8	1.319	2633	0.020	2227	0.025	8.263	2.540
R50K	8-10	1.660	2243	0.049	1736	0.024	8.670	2.781
R50K	10-12	2.009	3390	0.043	1763	0.039	8.375	2.866
HN5K	0-2	3.410	2329	0.073	1815	0.027	2.615	1.491
HN5K	2-4	7.028	1458	0.069	2981	0.026	3.604	1.594
HN5K	4-6	5.749	1717	0.077	2280	0.029	5.181	1.677
HN5K	6-8	3.710	2267	0.069	2085	0.026	3.032	1.579
HN5K	8-10	4.723	1966	0.093	2438	0.029	3.437	1.406
HN5K	10-12	5.332	3389	0.069	2909	0.058	8.423	1.997
HN5K	12-14	5.894	1656	0.096	1904	0.021	7.949	2.621
HN5K	14-16	9.180	2273	0.087	3839	0.028	5.690	2.532
HN5K	16-18	11.261	1876	0.085	2914	0.033	5.754	2.938
HS1K	0-2	1.097	2998	0.082	2835	0.036	3.894	1.734
HS1K	2-4	1.202	3131	0.065	3146	0.040	3.936	1.933
HS1K	4-6	1.860	2549	0.081	4158	0.033	7.471	3.116
HS1K	6-8	1.146	2744	0.066	2942	0.032	4.495	2.062
HS1K	8-10	1.398	2980	0.074	3464	0.040	4.871	2.660
HS1K	10-12	1.158	2599	0.051	3816	0.027	4.373	2.491
HS1K	12-14	1.835	3358	0.072	4415	0.042	6.505	3.127

Station	Depth (cm)	Nickel	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
HS1K	14-16	1.426	2935	0.094	2898	0.036	4.786	2.565
HS1K	16-18	1.082	3295	0.088	2795	0.036	4.328	2.046
HSW1K	0-2	0.911	3225	0.053	3246	0.032	2.373	1.642
HSW1K	2-4	1.337	3078	0.066	3450	0.032	3.557	2.004
HSW1K	4-6	1.105	2940	0.095	4493	0.029	3.364	1.810
HSW1K	6-8	1.220	3653	0.086	3326	0.040	3.163	2.131
HSW1K	8-10	1.167	2853	0.054	3059	0.031	2.772	1.975
HSW1K	10-12	0.881	2128	0.062	2621	0.024	2.437	2.086
HSW1K	12-14	1.023	2780	0.075	2647	0.035	3.472	1.973
HSW1K	14-16	1.388	2942	0.099	2236	0.037	3.819	2.100
HSW1K	16-18	0.924	2671	0.049	2959	0.028	3.257	1.829
HSW1K	18-20	0.974	2564	0.076	2804	0.027	2.853	1.627
HSW1K	18-20	0.936	2213	0.069	2150	0.026	2.674	2.129
HSW1K	20-22	1.673	2906	0.122	3172	0.036	4.308	2.498
HSW1K	22-24	1.722	2652	0.094	2543	0.026	2.345	1.500

Table 5. Inorganic grain size spectra: Hibernia 2005 station N0.

ID	294103	294104	294105	294106	294107	294108	294109	294110	294111
Station	NO	NO	NO	NO	NO	NO	NO	NO	NO
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (μm)									
0.76	0.005	0.017	0.004	0.004	0.010	0.003	0.004	0.020	0.005
0.87	0.005	0.018	0.004	0.004	0.011	0.004	0.004	0.022	0.006
1.00	0.006	0.021	0.005	0.005	0.012	0.004	0.004	0.026	0.007
1.15	0.006	0.024	0.005	0.005	0.014	0.005	0.005	0.029	0.008
1.32	0.006	0.026	0.006	0.006	0.015	0.005	0.006	0.033	0.009
1.52	0.007	0.028	0.006	0.006	0.016	0.006	0.006	0.035	0.010
1.74	0.007	0.031	0.007	0.006	0.016	0.006	0.006	0.038	0.011
2.00	0.008	0.032	0.007	0.007	0.017	0.006	0.007	0.042	0.012
2.30	0.008	0.034	0.007	0.007	0.017	0.007	0.007	0.043	0.013
2.64	0.008	0.037	0.007	0.007	0.016	0.007	0.007	0.046	0.013
3.03	0.008	0.037	0.008	0.007	0.016	0.008	0.007	0.051	0.015
3.48	0.008	0.036	0.007	0.007	0.016	0.007	0.008	0.050	0.014
4.00	0.009	0.033	0.008	0.008	0.019	0.008	0.007	0.049	0.016
4.59	0.009	0.030	0.009	0.008	0.016	0.008	0.007	0.054	0.016
5.28	0.009	0.034	0.009	0.009	0.019	0.008	0.008	0.057	0.016
6.06	0.010	0.034	0.009	0.009	0.019	0.008	0.008	0.060	0.017
6.96	0.010	0.036	0.010	0.009	0.019	0.008	0.008	0.062	0.018
8.00	0.011	0.037	0.010	0.009	0.019	0.008	0.008	0.061	0.018
9.19	0.010	0.036	0.010	0.009	0.018	0.008	0.008	0.061	0.018
10.56	0.011	0.035	0.010	0.009	0.017	0.008	0.008	0.063	0.017
12.13	0.011	0.035	0.010	0.008	0.016	0.008	0.009	0.064	0.016
13.93	0.010	0.035	0.010	0.008	0.017	0.008	0.009	0.065	0.016
16.00	0.009	0.033	0.008	0.006	0.015	0.008	0.008	0.059	0.013
18.38	0.008	0.030	0.008	0.006	0.013	0.006	0.007	0.058	0.012
21.11	0.006	0.026	0.007	0.006	0.011	0.006	0.006	0.049	0.012
24.25	0.009	0.024	0.006	0.005	0.010	0.005	0.006	0.050	0.010
27.86	0.010	0.021	0.006	0.006	0.009	0.005	0.005	0.041	0.007
32.00	0.014	0.014	0.009	0.011	0.010	0.007	0.007	0.044	0.009
36.76	0.025	0.018	0.015	0.016	0.018	0.010	0.009	0.025	0.012
42.22	0.034	0.023	0.019	0.026	0.025	0.017	0.015	0.022	0.017
48.50	0.039	0.031	0.030	0.035	0.035	0.020	0.023	0.027	0.025
55.72	0.058	0.053	0.045	0.062	0.049	0.034	0.049	0.049	0.052
64.00	0.088	0.079	0.072	0.098	0.083	0.058	0.059	0.053	0.060
73.52	0.116	0.097	0.096	0.125	0.112	0.088	0.088	0.099	0.099
84.45	0.175	0.168	0.173	0.209	0.190	0.130	0.122	0.140	0.124
97.01	0.233	0.227	0.196	0.236	0.230	0.166	0.157	0.146	0.169
111.43	0.288	0.279	0.253	0.347	0.299	0.250	0.278	0.207	0.229
128.00	0.468	0.566	0.488	0.472	0.473	0.439	0.409	0.351	0.462
147.03	0.921	1.219	1.041	0.964	1.056	0.764	0.839	0.788	0.915
168.90	2.257	2.856	2.060	2.309	2.379	2.237	1.966	2.821	2.134
194.01	6.176	6.281	5.018	6.028	6.274	5.333	5.843	6.662	6.222
222.86	13.924	15.610	14.384	14.037	14.779	13.875	14.109	16.246	14.719
256.00	21.445	23.517	21.535	22.754	20.824	21.535	22.467	21.222	21.717
294.07	20.599	21.611	23.230	23.645	21.753	20.528	20.723	20.868	20.886
337.79	17.051	14.564	17.311	16.358	16.300	18.370	17.326	15.661	16.692
388.02	9.572	8.223	10.044	8.884	8.607	10.648	9.145	9.663	10.215

ID	294103	294104	294105	294106	294107	294108	294109	294110	294111
Station	NO	NO	NO	NO	NO	NO	NO	NO	NO
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
445.72	3.921	3.745	3.779	3.200	4.398	3.547	4.131	3.621	4.900
512.00	2.370				1.690	1.764	2.052		
% <16µm	18.25	68.45	16.79	15.55	35.66	14.80	14.95	102.98	29.04
% <64µm	39.54	95.70	32.04	33.59	55.29	26.71	28.65	145.32	45.68
~D50	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00
modal	21.44	23.52	23.23	23.65	21.75	21.54	22.47	21.22	21.72

Table 5. continued.

ID	294112	294113	294114
Station	NO	NO	NO
Depth (cm)	18-20	20-22	22-24
Diameter (µm)			
0.76	0.005	0.006	0.009
0.87	0.006	0.007	0.010
1.00	0.006	0.008	0.012
1.15	0.008	0.009	0.013
1.32	0.008	0.011	0.015
1.52	0.009	0.012	0.016
1.74	0.009	0.013	0.018
2.00	0.010	0.014	0.019
2.30	0.011	0.015	0.020
2.64	0.011	0.018	0.021
3.03	0.013	0.018	0.021
3.48	0.012	0.020	0.023
4.00	0.014	0.020	0.021
4.59	0.015	0.024	0.025
5.28	0.016	0.024	0.026
6.06	0.016	0.026	0.027
6.96	0.018	0.027	0.028
8.00	0.018	0.028	0.028
9.19	0.017	0.029	0.030
10.56	0.019	0.029	0.030
12.13	0.018	0.030	0.032
13.93	0.020	0.031	0.029
16.00	0.019	0.029	0.029
18.38	0.018	0.027	0.033
21.11	0.017	0.026	0.022
24.25	0.017	0.024	0.026
27.86	0.013	0.019	0.021
32.00	0.009	0.014	0.016
36.76	0.017	0.016	0.013
42.22	0.018	0.022	0.018
48.50	0.030	0.027	0.028
55.72	0.041	0.037	0.047
64.00	0.069	0.053	0.060
73.52	0.083	0.079	0.088
84.45	0.137	0.099	0.128

ID	294112	294113	294114
Station	NO	NO	NO
Depth (cm)	18-20	20-22	22-24
Diameter (µm)			
97.01	0.177	0.148	0.178
111.43	0.236	0.251	0.238
128.00	0.422	0.425	0.564
147.03	0.833	1.002	1.242
168.90	2.483	2.357	3.391
194.01	5.716	6.142	8.234
222.86	13.577	14.037	17.761
256.00	20.761	21.693	23.308
294.07	20.944	21.131	19.888
337.79	17.110	16.392	13.385
388.02	9.878	9.273	8.524
445.72	5.494	3.796	2.285
512.00	1.603	2.459	
% <16µm	27.77	42.00	47.26
% <64µm	47.75	66.15	72.55
~D50	256.00	256.00	256.00
modal	20.94	21.69	23.31

Table 6. Inorganic grain size spectra: Hibernia 2005 station N1.

ID	294126	294127	294128	294129	294130	294131	294132	294133	294134
Station	N1	N1	N1	N1	N1	N1	N1	N1	N1
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
0.76	0.003	0.005	0.007	0.003	0.003	0.008	0.002	0.014	0.007
0.87	0.004	0.006	0.008	0.003	0.003	0.009	0.003	0.016	0.008
1.00	0.004	0.006	0.009	0.003	0.004	0.010	0.003	0.017	0.009
1.15	0.004	0.007	0.011	0.004	0.004	0.011	0.004	0.019	0.010
1.32	0.005	0.008	0.012	0.004	0.005	0.012	0.004	0.021	0.012
1.52	0.005	0.008	0.013	0.005	0.005	0.013	0.004	0.023	0.013
1.74	0.005	0.009	0.014	0.005	0.005	0.014	0.005	0.024	0.013
2.00	0.005	0.010	0.015	0.006	0.005	0.015	0.005	0.025	0.014
2.30	0.005	0.010	0.016	0.006	0.006	0.015	0.005	0.026	0.016
2.64	0.005	0.010	0.016	0.006	0.006	0.017	0.006	0.028	0.017
3.03	0.006	0.011	0.017	0.006	0.006	0.016	0.005	0.027	0.019
3.48	0.006	0.011	0.016	0.006	0.006	0.016	0.005	0.029	0.017
4.00	0.006	0.013	0.018	0.006	0.006	0.016	0.006	0.028	0.018
4.59	0.006	0.014	0.019	0.006	0.007	0.017	0.006	0.028	0.019
5.28	0.006	0.014	0.017	0.006	0.007	0.018	0.006	0.028	0.017
6.06	0.006	0.014	0.018	0.006	0.007	0.018	0.006	0.029	0.018
6.96	0.006	0.014	0.018	0.006	0.008	0.018	0.006	0.031	0.019
8.00	0.006	0.015	0.018	0.006	0.008	0.018	0.006	0.031	0.020
9.19	0.006	0.015	0.017	0.006	0.008	0.018	0.007	0.031	0.022
10.56	0.006	0.015	0.018	0.007	0.008	0.018	0.007	0.033	0.021
12.13	0.006	0.015	0.017	0.006	0.008	0.018	0.008	0.033	0.022
13.93	0.006	0.017	0.018	0.006	0.008	0.019	0.008	0.037	0.022
16.00	0.005	0.015	0.017	0.006	0.008	0.020	0.007	0.039	0.022
18.38	0.005	0.013	0.016	0.006	0.008	0.019	0.007	0.035	0.021

ID	294126	294127	294128	294129	294130	294131	294132	294133	294134
Station	N1	N1	N1	N1	N1	N1	N1	N1	N1
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
21.11	0.005	0.011	0.015	0.006	0.008	0.018	0.007	0.033	0.025
24.25	0.004	0.012	0.014	0.007	0.006	0.017	0.005	0.030	0.018
27.86	0.004	0.012	0.012	0.006	0.007	0.015	0.006	0.028	0.017
32.00	0.008	0.010	0.011	0.009	0.010	0.013	0.009	0.019	0.015
36.76	0.010	0.012	0.013	0.018	0.015	0.015	0.017	0.023	0.014
42.22	0.017	0.017	0.020	0.026	0.022	0.030	0.027	0.031	0.017
48.50	0.022	0.027	0.031	0.042	0.036	0.032	0.039	0.049	0.031
55.72	0.044	0.031	0.055	0.061	0.039	0.039	0.062	0.052	0.052
64.00	0.058	0.061	0.073	0.093	0.074	0.073	0.085	0.094	0.065
73.52	0.080	0.093	0.094	0.127	0.083	0.087	0.109	0.095	0.090
84.45	0.127	0.132	0.156	0.171	0.146	0.118	0.139	0.161	0.123
97.01	0.187	0.186	0.192	0.235	0.188	0.137	0.170	0.173	0.219
111.43	0.229	0.236	0.306	0.314	0.274	0.221	0.172	0.295	0.248
128.00	0.420	0.489	0.381	0.545	0.223	0.367	0.345	0.385	0.362
147.03	0.801	0.897	0.777	0.880	0.890	0.560	0.694	1.198	0.820
168.90	1.815	2.130	1.771	1.637	1.696	1.528	1.602	2.548	1.934
194.01	4.991	4.291	4.651	3.946	4.659	3.435	4.416	5.607	4.355
222.86	12.587	12.177	11.480	10.643	12.419	10.969	11.683	17.361	12.705
256.00	21.999	20.526	20.180	20.086	22.280	21.191	21.528	23.995	20.309
294.07	23.237	21.081	23.063	21.927	22.103	21.325	24.385	20.911	21.512
337.79	16.611	20.025	20.331	18.364	19.452	21.512	19.346	16.986	16.690
388.02	11.585	11.654	11.292	12.527	10.238	13.567	10.735	9.270	12.216
445.72	3.544	3.877	3.249	6.006	4.982	4.354	4.286		4.999
512.00	1.489	1.736	1.467	2.192					2.772
% <16µm	11.76	24.89	33.07	11.97	13.32	33.71	11.60	58.02	34.99
% <64µm	24.01	40.97	53.43	30.65	29.22	55.58	30.33	91.94	58.20
~D50	256.00	256.00	256.00	294.07	256.00	294.07	256.00	256.00	256.00
modal	23.24	21.08	23.06	21.93	22.28	21.51	24.39	24.00	21.51

Table 6. Continued.

ID	294135	294136	294137	294138
Station	N1	N1	N1	N1
Depth (cm)	18-20	20-22	22-24	24-26
Diameter (µm)				
0.76	0.019	0.017	0.007	0.004
0.87	0.021	0.018	0.008	0.004
1.00	0.023	0.019	0.008	0.005
1.15	0.027	0.019	0.009	0.005
1.32	0.030	0.020	0.011	0.006
1.52	0.032	0.022	0.011	0.006
1.74	0.034	0.022	0.012	0.007
2.00	0.037	0.024	0.013	0.007
2.30	0.041	0.026	0.014	0.007
2.64	0.041	0.026	0.014	0.008
3.03	0.042	0.027	0.015	0.008
3.48	0.042	0.030	0.016	0.008
4.00	0.043	0.027	0.015	0.009
4.59	0.048	0.027	0.016	0.008
5.28	0.049	0.026	0.017	0.008

ID	294135	294136	294137	294138
Station	N1	N1	N1	N1
Depth (cm)	18-20	20-22	22-24	24-26
Diameter (µm)				
6.06	0.052	0.027	0.017	0.009
6.96	0.054	0.028	0.018	0.009
8.00	0.054	0.029	0.019	0.009
9.19	0.057	0.031	0.019	0.009
10.56	0.054	0.032	0.020	0.009
12.13	0.061	0.036	0.020	0.009
13.93	0.062	0.036	0.024	0.010
16.00	0.060	0.036	0.021	0.009
18.38	0.055	0.036	0.024	0.007
21.11	0.053	0.037	0.023	0.010
24.25	0.052	0.030	0.020	0.008
27.86	0.051	0.025	0.012	0.006
32.00	0.043	0.019	0.012	0.009
36.76	0.028	0.021	0.015	0.015
42.22	0.030	0.028	0.022	0.020
48.50	0.034	0.043	0.030	0.032
55.72	0.057	0.054	0.061	0.052
64.00	0.077	0.081	0.076	0.071
73.52	0.111	0.086	0.099	0.102
84.45	0.177	0.144	0.129	0.148
97.01	0.207	0.225	0.192	0.235
111.43	0.315	0.240	0.216	0.308
128.00	0.532	0.414	0.384	0.455
147.03	0.939	0.944	0.913	1.231
168.90	2.203	2.396	2.587	3.398
194.01	5.250	5.549	6.312	5.878
222.86	14.092	13.251	13.570	14.469
256.00	22.954	24.126	20.829	21.995
294.07	24.209	20.419	20.243	22.644
337.79	14.831	17.573	15.946	16.311
388.02	7.835	7.915	9.611	8.445
445.72	4.879	5.738	5.203	3.979
512.00			3.128	
% <16µm	92.57	56.81	32.27	16.28
% <64µm	138.74	89.77	56.19	33.15
~D50	256.00	256.00	256.00	256.00
modal	24.21	24.13	20.83	22.64

Table 7. Inorganic grain size spectra: Hibernia 2005, station S0.

ID	294152	294153	294154	294155	294156	294157	294158	294159	294160
Station	S0	S0	S0	S0	S0	S0	S0	S0	S0
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
0.76	0.092	0.002	0.003	0.002	0.009	0.006	0.001	0.011	0.002
0.87	0.098	0.002	0.003	0.002	0.010	0.007	0.001	0.012	0.002
1.00	0.101	0.002	0.003	0.003	0.010	0.007	0.001	0.013	0.002
1.15	0.104	0.002	0.004	0.003	0.010	0.008	0.001	0.013	0.002

ID	294152	294153	294154	294155	294156	294157	294158	294159	294160
Station	S0	S0	S0	S0	S0	S0	S0	S0	S0
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
1.32	0.111	0.002	0.004	0.003	0.011	0.009	0.001	0.014	0.002
1.52	0.115	0.002	0.004	0.003	0.012	0.009	0.002	0.015	0.002
1.74	0.121	0.002	0.004	0.003	0.013	0.010	0.002	0.017	0.002
2.00	0.126	0.002	0.005	0.004	0.013	0.011	0.002	0.018	0.002
2.30	0.134	0.002	0.005	0.004	0.015	0.011	0.002	0.018	0.002
2.64	0.138	0.002	0.005	0.004	0.015	0.011	0.002	0.020	0.003
3.03	0.144	0.003	0.006	0.004	0.016	0.012	0.002	0.021	0.003
3.48	0.137	0.003	0.005	0.004	0.016	0.013	0.002	0.019	0.003
4.00	0.155	0.003	0.006	0.005	0.017	0.013	0.002	0.022	0.003
4.59	0.162	0.003	0.006	0.005	0.016	0.014	0.002	0.022	0.003
5.28	0.160	0.003	0.006	0.005	0.020	0.015	0.002	0.022	0.003
6.06	0.169	0.004	0.007	0.005	0.021	0.015	0.003	0.024	0.003
6.96	0.175	0.004	0.007	0.005	0.020	0.017	0.003	0.025	0.003
8.00	0.178	0.004	0.008	0.006	0.022	0.017	0.003	0.027	0.003
9.19	0.185	0.004	0.008	0.006	0.023	0.018	0.003	0.029	0.004
10.56	0.182	0.004	0.009	0.006	0.024	0.018	0.003	0.029	0.004
12.13	0.190	0.005	0.010	0.006	0.023	0.019	0.003	0.030	0.004
13.93	0.187	0.005	0.010	0.007	0.026	0.019	0.004	0.031	0.004
16.00	0.179	0.005	0.010	0.007	0.025	0.019	0.003	0.032	0.004
18.38	0.177	0.005	0.011	0.007	0.025	0.017	0.003	0.031	0.004
21.11	0.157	0.006	0.010	0.007	0.024	0.017	0.003	0.029	0.004
24.25	0.126	0.006	0.009	0.007	0.022	0.016	0.003	0.027	0.004
27.86	0.156	0.007	0.010	0.006	0.020	0.011	0.005	0.024	0.005
32.00	0.089	0.009	0.013	0.008	0.017	0.011	0.010	0.022	0.008
36.76	0.111	0.015	0.024	0.014	0.020	0.011	0.013	0.023	0.013
42.22	0.069	0.018	0.024	0.019	0.025	0.013	0.019	0.027	0.013
48.50	0.062	0.031	0.039	0.023	0.029	0.024	0.027	0.049	0.027
55.72	0.072	0.037	0.055	0.043	0.049	0.047	0.043	0.069	0.046
64.00	0.071	0.058	0.063	0.054	0.065	0.062	0.057	0.090	0.047
73.52	0.119	0.077	0.106	0.078	0.118	0.091	0.105	0.112	0.085
84.45	0.183	0.117	0.124	0.108	0.149	0.127	0.168	0.165	0.134
97.01	0.174	0.206	0.189	0.177	0.187	0.159	0.215	0.194	0.161
111.43	0.291	0.210	0.226	0.163	0.216	0.228	0.275	0.220	0.249
128.00	0.383	0.417	0.455	0.294	0.407	0.375	0.418	0.309	0.302
147.03	0.815	0.813	0.922	0.639	0.805	0.762	0.750	0.616	0.778
168.90	2.711	1.870	1.933	1.302	1.483	1.442	1.750	1.509	1.341
194.01	6.017	5.170	5.742	3.749	3.428	3.365	3.546	4.097	3.363
222.86	19.253	14.508	13.947	11.468	11.258	11.878	12.164	10.750	11.761
256.00	23.670	23.825	25.666	20.809	20.811	20.884	21.277	21.875	20.324
294.07	22.415	22.437	23.809	23.296	23.928	22.290	23.592	24.921	21.968
337.79	12.651	17.594	15.669	19.031	19.804	17.820	18.077	19.808	18.028
388.02	6.884	8.574	8.010	10.783	12.164	12.093	10.612	9.525	11.761
445.72		3.922	2.807	5.072	4.562	5.257	4.169	5.025	6.784
512.00				2.741		2.701	2.649		2.728
% <16µm	316.38	6.37	12.66	9.46	36.09	27.77	4.72	45.16	5.93
% <64µm	436.26	20.25	33.17	23.55	61.64	46.46	17.74	78.57	18.77
~D50	256.00	256.00	256.00	294.07	256.00	256.00	256.00	256.00	294.07
modal	23.67	23.82	25.67	23.30	23.93	22.29	23.59	24.92	21.97

Table 8. Inorganic gain size spectra: Hibernia 2005, station S1.

ID	294115	294116	294117	294118	294119	294120	294121	294122	294123	294124	294125
Station	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22
Diameter (µm)											
0.76	0.012	0.003	0.010	0.002	0.010	0.001	0.005	0.012	0.001	0.007	0.002
0.87	0.013	0.003	0.011	0.003	0.011	0.001	0.006	0.012	0.001	0.007	0.002
1.00	0.014	0.003	0.012	0.003	0.013	0.002	0.007	0.014	0.001	0.008	0.003
1.15	0.016	0.004	0.014	0.003	0.014	0.002	0.008	0.015	0.001	0.010	0.003
1.32	0.017	0.004	0.015	0.004	0.016	0.002	0.008	0.017	0.001	0.011	0.003
1.52	0.018	0.004	0.017	0.004	0.017	0.002	0.009	0.018	0.001	0.011	0.004
1.74	0.020	0.005	0.019	0.004	0.019	0.003	0.010	0.019	0.001	0.012	0.004
2.00	0.020	0.005	0.020	0.004	0.021	0.003	0.011	0.021	0.001	0.013	0.004
2.30	0.023	0.005	0.022	0.004	0.022	0.003	0.012	0.021	0.001	0.014	0.004
2.64	0.021	0.005	0.023	0.005	0.021	0.003	0.013	0.023	0.001	0.015	0.005
3.03	0.023	0.005	0.023	0.005	0.022	0.003	0.012	0.022	0.002	0.016	0.005
3.48	0.022	0.006	0.019	0.004	0.021	0.003	0.014	0.023	0.001	0.015	0.006
4.00	0.023	0.006	0.025	0.005	0.025	0.004	0.016	0.027	0.002	0.018	0.006
4.59	0.022	0.006	0.028	0.005	0.023	0.004	0.015	0.027	0.002	0.017	0.005
5.28	0.022	0.007	0.028	0.005	0.024	0.004	0.015	0.026	0.002	0.018	0.006
6.06	0.024	0.007	0.030	0.005	0.025	0.004	0.016	0.026	0.002	0.019	0.006
6.96	0.024	0.007	0.031	0.005	0.026	0.004	0.017	0.027	0.002	0.019	0.007
8.00	0.025	0.007	0.031	0.005	0.027	0.004	0.017	0.027	0.002	0.020	0.007
9.19	0.025	0.007	0.035	0.006	0.027	0.004	0.017	0.027	0.002	0.021	0.007
10.56	0.022	0.007	0.036	0.006	0.029	0.004	0.017	0.028	0.002	0.021	0.007
12.13	0.024	0.008	0.035	0.006	0.029	0.004	0.017	0.030	0.002	0.023	0.007
13.93	0.024	0.007	0.034	0.006	0.028	0.004	0.016	0.029	0.002	0.023	0.008
16.00	0.022	0.007	0.034	0.006	0.025	0.004	0.013	0.029	0.002	0.024	0.008
18.38	0.023	0.008	0.031	0.006	0.025	0.004	0.015	0.026	0.002	0.024	0.008
21.11	0.022	0.006	0.025	0.005	0.028	0.003	0.013	0.031	0.002	0.022	0.008
24.25	0.018	0.005	0.033	0.004	0.018	0.003	0.014	0.021	0.003	0.024	0.009
27.86	0.015	0.005	0.029	0.005	0.018	0.006	0.010	0.019	0.005	0.023	0.008
32.00	0.010	0.008	0.027	0.008	0.018	0.009	0.010	0.019	0.006	0.024	0.009
36.76	0.014	0.012	0.024	0.017	0.015	0.013	0.016	0.018	0.010	0.023	0.015
42.22	0.018	0.021	0.019	0.023	0.016	0.017	0.023	0.020	0.016	0.025	0.020
48.50	0.026	0.030	0.028	0.035	0.025	0.031	0.028	0.028	0.027	0.038	0.026
55.72	0.052	0.053	0.050	0.048	0.040	0.055	0.057	0.032	0.045	0.059	0.037
64.00	0.053	0.058	0.059	0.088	0.061	0.088	0.060	0.050	0.058	0.093	0.067
73.52	0.097	0.105	0.093	0.147	0.078	0.107	0.085	0.096	0.074	0.141	0.069
84.45	0.132	0.139	0.140	0.170	0.141	0.184	0.119	0.110	0.125	0.166	0.137
97.01	0.183	0.204	0.192	0.211	0.195	0.265	0.188	0.206	0.191	0.264	0.191
111.43	0.268	0.294	0.303	0.362	0.249	0.377	0.256	0.336	0.291	0.390	0.284
128.00	0.404	0.506	0.453	0.614	0.422	0.502	0.399	0.468	0.430	0.487	0.432
147.03	0.886	0.836	0.828	0.957	0.699	0.829	0.680	1.147	0.901	1.049	0.932
168.90	1.820	2.093	1.728	1.799	1.709	1.883	1.466	2.748	1.970	2.283	2.188
194.01	4.122	4.923	4.453	4.649	4.649	5.226	4.687	6.514	4.827	4.863	4.733
222.86	13.115	14.559	15.973	14.399	13.870	14.346	12.967	15.427	13.367	14.189	15.174
256.00	23.329	22.194	24.685	22.984	22.669	23.139	22.936	24.559	21.695	22.830	23.890
294.07	25.011	22.799	20.966	22.059	21.375	22.692	24.839	22.251	22.362	21.909	22.809
337.79	15.270	14.579	14.705	13.635	16.520	15.427	16.668	15.144	16.840	13.395	16.335
388.02	9.382	9.634	8.011	9.703	9.907	10.004	8.642	6.754	9.243	9.796	6.693
445.72	3.670	4.813	4.076	4.956	4.334	4.717	5.533	3.458	5.170	4.373	3.585
512.00	1.585	1.985	2.517	3.008	2.427				2.304	3.145	2.221
% <16µm	45.31	12.11	51.77	10.00	46.82	6.73	27.61	49.06	3.48	34.01	11.11

ID	294115	294116	294117	294118	294119	294120	294121	294122	294123	294124	294125
Station	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22
% <64µm	67.29	27.80	81.75	25.76	69.58	21.26	47.59	73.26	15.34	62.66	25.88
~D50	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00	256.00
modal	25.01	22.80	24.69	22.98	22.67	23.14	24.84	24.56	22.36	22.83	23.89

Table 9. Inorganic gain size spectra: Hibernia 2006, station N0.

ID	300213	300215	300217	300219
Station	N0	N0	N0	N0
Depth (cm)	0-2	4-6	8-10	12-14
Diameter (µm)				
0.76	0.010	0.003	0.001	0.000
0.87	0.010	0.003	0.001	0.000
1.00	0.011	0.003	0.001	0.000
1.15	0.012	0.003	0.002	0.000
1.32	0.013	0.003	0.002	0.000
1.52	0.013	0.003	0.002	0.000
1.74	0.013	0.004	0.002	0.000
2.00	0.013	0.004	0.002	0.000
2.30	0.013	0.004	0.002	0.000
2.64	0.012	0.004	0.002	0.000
3.03	0.013	0.004	0.003	0.000
3.48	0.012	0.005	0.003	0.000
4.00	0.013	0.005	0.003	0.000
4.59	0.012	0.005	0.004	0.000
5.28	0.015	0.006	0.004	0.000
6.06	0.016	0.006	0.004	0.000
6.96	0.017	0.006	0.004	0.000
8.00	0.017	0.007	0.004	0.000
9.19	0.019	0.007	0.005	0.000
10.56	0.021	0.008	0.005	0.000
12.13	0.021	0.008	0.005	0.000
13.93	0.018	0.008	0.005	0.000
16.00	0.017	0.009	0.005	0.000
18.38	0.014	0.009	0.005	0.000
21.11	0.014	0.010	0.005	0.000
24.25	0.014	0.013	0.005	0.001
27.86	0.014	0.019	0.003	0.001
32.00	0.011	0.027	0.005	0.001
36.76	0.011	0.028	0.009	0.003
42.22	0.018	0.022	0.012	0.010
48.50	0.030	0.036	0.029	0.012
55.72	0.056	0.076	0.044	0.032
64.00	0.062	0.111	0.052	0.062
73.52	0.103	0.157	0.129	0.103
84.45	0.141	0.193	0.176	0.104
97.01	0.195	0.421	0.382	0.151
111.43	0.268	0.517	0.440	0.210
128.00	0.373	0.949	0.612	0.340
147.03	0.773	1.842	1.361	0.744

ID	300213	300215	300217	300219
Station	N0	N0	N0	N0
Depth (cm)	0-2	4-6	8-10	12-14
Diameter (µm)				
168.90	2.030	4.412	2.045	1.651
194.01	5.714	11.704	5.496	5.162
222.86	14.365	22.325	11.451	12.844
256.00	23.551	26.410	19.798	22.308
294.07	24.967	18.764	20.616	24.067
337.79	15.431	11.836	18.430	20.410
388.02	8.295		11.665	8.982
445.72	3.223		7.159	2.795
512.00				
% <16µm	31.21	10.99	6.61	0.46
% <64µm	51.11	36.02	18.80	6.67
~D50	256.00	222.86	256.00	256.00
modal	24.97	26.41	20.62	24.07

Table 10. Inorganic grain size spectra: Hibernia 2006, station NE500.

ID	300265	300267	300269	300271	300273	300275
Station	NE500	NE500	NE500	NE500	NE500	NE500
Depth (cm)	0-2	4-6	8-10	12-14	16-18	20-22
Diameter (µm)						
0.76	0.000	0.000	0.002	0.001	0.001	0.001
0.87	0.001	0.001	0.002	0.001	0.001	0.001
1.00	0.001	0.001	0.002	0.002	0.001	0.002
1.15	0.001	0.001	0.002	0.002	0.001	0.002
1.32	0.001	0.001	0.002	0.002	0.002	0.002
1.52	0.001	0.001	0.003	0.002	0.002	0.002
1.74	0.001	0.001	0.003	0.003	0.002	0.002
2.00	0.001	0.001	0.003	0.003	0.002	0.002
2.30	0.001	0.001	0.003	0.003	0.002	0.003
2.64	0.001	0.001	0.003	0.003	0.002	0.003
3.03	0.001	0.001	0.003	0.003	0.002	0.003
3.48	0.001	0.001	0.003	0.003	0.002	0.003
4.00	0.001	0.001	0.003	0.003	0.003	0.003
4.59	0.001	0.001	0.003	0.003	0.003	0.004
5.28	0.001	0.001	0.003	0.003	0.003	0.004
6.06	0.002	0.002	0.004	0.003	0.003	0.004
6.96	0.002	0.002	0.004	0.004	0.003	0.004
8.00	0.002	0.002	0.004	0.003	0.003	0.004
9.19	0.002	0.002	0.004	0.004	0.003	0.004
10.56	0.002	0.002	0.004	0.004	0.003	0.004
12.13	0.002	0.002	0.004	0.004	0.003	0.005
13.93	0.002	0.002	0.004	0.004	0.003	0.004
16.00	0.002	0.002	0.004	0.004	0.003	0.005
18.38	0.002	0.002	0.004	0.004	0.003	0.005
21.11	0.002	0.002	0.005	0.003	0.003	0.004
24.25	0.003	0.003	0.004	0.004	0.003	0.004
27.86	0.004	0.004	0.004	0.003	0.003	0.004
32.00	0.005	0.005	0.004	0.005	0.003	0.005

ID	300265	300267	300269	300271	300273	300275
Station	NE500	NE500	NE500	NE500	NE500	NE500
Depth (cm)	0-2	4-6	8-10	12-14	16-18	20-22
Diameter (µm)						
36.76	0.004	0.004	0.010	0.010	0.006	0.009
42.22	0.005	0.005	0.015	0.012	0.022	0.009
48.50	0.006	0.006	0.017	0.017	0.026	0.020
55.72	0.008	0.008	0.037	0.033	0.033	0.037
64.00	0.007	0.007	0.050	0.044	0.069	0.041
73.52	0.013	0.013	0.076	0.095	0.079	0.065
84.45	0.072	0.072	0.097	0.137	0.138	0.094
97.01	0.070	0.070	0.131	0.209	0.189	0.146
111.43	0.191	0.191	0.218	0.294	0.343	0.161
128.00	0.468	0.468	0.356	0.525	0.842	0.289
147.03	1.169	1.169	1.011	0.906	1.423	0.595
168.90	2.863	2.863	2.260	1.998	3.457	1.831
194.01	6.879	6.879	5.773	4.983	9.273	4.978
222.86	15.032	15.032	15.240	12.676	19.995	12.812
256.00	20.227	20.227	23.163	19.982	26.058	21.835
294.07	21.885	21.885	23.089	22.640	20.730	24.122
337.79	16.933	16.933	16.260	18.144	11.323	19.080
388.02	10.108	10.108	8.233	10.242	5.927	10.078
445.72	4.013	4.013	3.870	5.187		3.707
512.00				1.780		
% <16µm	2.78	2.78	6.89	6.34	4.94	6.71
% <64µm	6.91	6.91	17.35	15.79	15.47	16.79
~D50	256.00	256.00	256.00	256.00	256.00	256.00
modal	21.89	21.89	23.16	22.64	26.06	24.12

Table 11. Inorganic grain size spectra: Hibernia 2006, S0-1-1.

ID	300251	300253	300255	300257	300259	300261	300263
Station	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1
Depth (cm)	0-2	4-6	8-10	12-14	16-18	20-22	24-26
Diameter (µm)							
0.76	0.004	0.004	0.005	0.002	0.004	0.003	0.002
0.87	0.004	0.004	0.005	0.002	0.004	0.003	0.003
1.00	0.005	0.005	0.006	0.002	0.005	0.003	0.003
1.15	0.005	0.005	0.007	0.002	0.005	0.004	0.003
1.32	0.005	0.006	0.008	0.002	0.006	0.004	0.003
1.52	0.006	0.006	0.009	0.003	0.006	0.005	0.004
1.74	0.006	0.007	0.009	0.003	0.006	0.005	0.004
2.00	0.006	0.007	0.011	0.003	0.007	0.005	0.004
2.30	0.006	0.007	0.011	0.003	0.008	0.006	0.005
2.64	0.006	0.007	0.012	0.003	0.008	0.006	0.005
3.03	0.007	0.008	0.014	0.003	0.008	0.007	0.005
3.48	0.006	0.008	0.015	0.003	0.009	0.006	0.006
4.00	0.006	0.008	0.016	0.003	0.009	0.007	0.006
4.59	0.006	0.008	0.018	0.003	0.009	0.007	0.007
5.28	0.006	0.009	0.019	0.004	0.009	0.007	0.007
6.06	0.006	0.009	0.021	0.004	0.008	0.007	0.007
6.96	0.007	0.010	0.023	0.004	0.009	0.007	0.008

ID	300251	300253	300255	300257	300259	300261	300263
Station	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1	S0-1-1
Depth (cm)	0-2	4-6	8-10	12-14	16-18	20-22	24-26
Diameter (µm)							
8.00	0.007	0.010	0.025	0.005	0.009	0.008	0.009
9.19	0.007	0.010	0.029	0.005	0.009	0.008	0.010
10.56	0.008	0.010	0.032	0.005	0.010	0.009	0.011
12.13	0.007	0.011	0.039	0.005	0.010	0.009	0.012
13.93	0.007	0.010	0.045	0.006	0.010	0.009	0.014
16.00	0.006	0.011	0.058	0.006	0.011	0.010	0.013
18.38	0.007	0.011	0.054	0.005	0.009	0.010	0.014
21.11	0.007	0.010	0.055	0.007	0.010	0.009	0.013
24.25	0.006	0.012	0.047	0.006	0.010	0.008	0.017
27.86	0.007	0.013	0.042	0.005	0.009	0.008	0.015
32.00	0.010	0.012	0.040	0.008	0.014	0.010	0.015
36.76	0.014	0.012	0.046	0.014	0.031	0.010	0.013
42.22	0.023	0.014	0.050	0.022	0.033	0.013	0.016
48.50	0.035	0.022	0.041	0.033	0.061	0.027	0.036
55.72	0.057	0.032	0.041	0.046	0.070	0.038	0.037
64.00	0.073	0.046	0.061	0.073	0.082	0.055	0.053
73.52	0.127	0.067	0.082	0.122	0.129	0.079	0.100
84.45	0.165	0.106	0.102	0.158	0.165	0.127	0.133
97.01	0.204	0.143	0.138	0.201	0.278	0.174	0.190
111.43	0.234	0.239	0.186	0.267	0.335	0.226	0.303
128.00	0.356	0.424	0.314	0.554	0.665	0.455	0.547
147.03	0.823	0.840	0.681	1.070	1.527	0.972	1.228
168.90	1.988	1.509	1.603	2.154	2.919	2.468	3.452
194.01	5.493	3.173	4.201	5.457	7.755	6.203	7.875
222.86	14.958	11.156	13.110	14.666	22.976	16.882	19.307
256.00	23.260	20.572	22.767	23.919	28.329	27.485	25.972
294.07	21.614	20.394	22.533	21.705	20.981	24.188	19.273
337.79	15.402	18.657	18.467	15.150	10.147	12.067	12.750
388.02	9.364	11.456	9.613	8.304	3.286	6.250	5.762
445.72	4.612	7.180	4.283	3.071		2.095	2.728
512.00	1.022	3.721	1.007	2.903			
% <16µm	13.40	17.03	37.83	7.58	16.90	13.29	13.82
% <64µm	30.55	31.75	85.11	22.61	42.57	27.48	32.59
~D50	256.00	294.07	256.00	256.00	222.07	256.00	256.00
modal	23.26	20.57	22.77	23.92	28.33	27.48	25.97

Table 12. Inorganic Grain size spectra: Hibernia 2006, station AS-1.

ID	2699741	2699745	2699747	2699752	2699754	2699756
Station	AS-1	AS-1	AS-1	AS-1	AS-1	AS-1
Depth (cm)	0-2	8-10	12-14	16-18	20-22	24-26
Diameter (µm)						
0.76	0.009	0.001	0.003	0.001	0.002	0.001
0.87	0.011	0.001	0.003	0.001	0.002	0.001
1.00	0.012	0.002	0.004	0.001	0.002	0.001
1.15	0.013	0.003	0.004	0.002	0.002	0.001
1.32	0.014	0.003	0.005	0.002	0.002	0.001
1.52	0.015	0.002	0.006	0.002	0.002	0.001

ID	2699741	2699745	2699747	2699752	2699754	2699756
Station	AS-1	AS-1	AS-1	AS-1	AS-1	AS-1
Depth (cm)	0-2	8-10	12-14	16-18	20-22	24-26
Diameter (μm)						
1.74	0.016	0.002	0.006	0.002	0.003	0.001
2.00	0.016	0.003	0.007	0.002	0.003	0.001
2.30	0.016	0.003	0.008	0.003	0.003	0.001
2.64	0.016	0.003	0.008	0.002	0.003	0.001
3.03	0.016	0.003	0.008	0.003	0.003	0.001
3.48	0.015	0.003	0.008	0.003	0.003	0.002
4.00	0.014	0.004	0.010	0.003	0.003	0.001
4.59	0.015	0.004	0.010	0.003	0.003	0.002
5.28	0.014	0.004	0.010	0.003	0.004	0.001
6.06	0.015	0.005	0.010	0.003	0.004	0.002
6.96	0.016	0.005	0.011	0.003	0.004	0.002
8.00	0.016	0.005	0.011	0.004	0.004	0.002
9.19	0.017	0.005	0.012	0.004	0.004	0.002
10.56	0.019	0.005	0.012	0.004	0.004	0.002
12.13	0.018	0.006	0.013	0.004	0.005	0.002
13.93	0.014	0.007	0.012	0.004	0.005	0.002
16.00	0.012	0.007	0.013	0.004	0.005	0.002
18.38	0.012	0.006	0.011	0.004	0.005	0.002
21.11	0.010	0.006	0.011	0.004	0.004	0.002
24.25	0.010	0.005	0.012	0.006	0.004	0.003
27.86	0.009	0.004	0.010	0.006	0.004	0.005
32.00	0.013	0.007	0.010	0.008	0.005	0.004
36.76	0.023	0.012	0.009	0.010	0.008	0.004
42.22	0.035	0.020	0.010	0.013	0.016	0.008
48.50	0.053	0.028	0.017	0.019	0.031	0.007
55.72	0.071	0.037	0.013	0.033	0.039	0.012
64.00	0.100	0.050	0.043	0.056	0.056	0.008
73.52	0.151	0.090	0.050	0.092	0.090	0.032
84.45	0.236	0.146	0.124	0.171	0.189	0.072
97.01	0.243	0.235	0.190	0.240	0.209	0.123
111.43	0.432	0.303	0.290	0.308	0.364	0.233
128.00	0.684	0.555	0.415	0.558	0.511	0.394
147.03	1.146	1.166	1.097	0.943	1.143	1.331
168.90	2.518	1.956	3.180	2.239	3.052	3.018
194.01	6.761	4.687	7.708	5.020	8.457	7.355
222.86	16.617	16.024	19.774	14.908	22.213	17.701
256.00	26.135	24.149	29.807	23.999	28.702	23.013
294.07	21.962	24.634	25.717	22.065	20.909	22.053
337.79	13.524	16.251	11.307	15.277	10.311	15.452
388.02	7.261	9.545		9.551	3.604	7.734
445.72	1.654			2.803		1.403
512.00				1.606		
% <16μm	32.72	7.90	17.88	5.96	6.83	2.86
% <64μm	57.55	21.01	29.61	16.58	18.97	7.79
~D50	256.00	256.00	256.00	256.00	222.86	256.00
modal	26.13	24.63	29.81	24.00	28.70	23.01

Table 13. Inorganic grain size spectra: Hibernia 2006, station 8-500.

ID	2699772	2699773	2699774	2699775
Station	8-500	8-500	8-500	8-500
Depth (cm)	0-2	2-4	4-6	6-8
Diameter (µm)				
0.76	0.004	0.004	0.005	0.002
0.87	0.005	0.004	0.005	0.002
1.00	0.005	0.004	0.005	0.003
1.15	0.005	0.004	0.006	0.003
1.32	0.006	0.004	0.006	0.003
1.52	0.006	0.004	0.007	0.003
1.74	0.006	0.004	0.007	0.003
2.00	0.007	0.004	0.007	0.004
2.30	0.007	0.004	0.007	0.004
2.64	0.007	0.005	0.007	0.004
3.03	0.008	0.004	0.007	0.004
3.48	0.008	0.005	0.007	0.004
4.00	0.008	0.004	0.008	0.004
4.59	0.009	0.005	0.008	0.004
5.28	0.009	0.005	0.008	0.004
6.06	0.010	0.005	0.008	0.004
6.96	0.011	0.005	0.008	0.004
8.00	0.012	0.005	0.009	0.004
9.19	0.013	0.005	0.009	0.005
10.56	0.013	0.005	0.009	0.004
12.13	0.013	0.005	0.009	0.005
13.93	0.012	0.005	0.009	0.004
16.00	0.013	0.005	0.010	0.005
18.38	0.012	0.005	0.009	0.004
21.11	0.014	0.005	0.008	0.005
24.25	0.013	0.006	0.011	0.005
27.86	0.013	0.017	0.011	0.007
32.00	0.015	0.027	0.013	0.012
36.76	0.024	0.039	0.020	0.014
42.22	0.028	0.050	0.030	0.026
48.50	0.043	0.069	0.039	0.039
55.72	0.069	0.103	0.063	0.062
64.00	0.089	0.170	0.086	0.090
73.52	0.150	0.206	0.136	0.106
84.45	0.210	0.257	0.188	0.157
97.01	0.297	0.344	0.219	0.212
111.43	0.438	0.393	0.305	0.239
128.00	0.715	0.466	0.469	0.322
147.03	1.327	0.996	0.817	0.764
168.90	2.682	1.766	1.820	1.981
194.01	5.276	4.829	4.261	5.314
222.86	12.743	12.156	11.666	12.528
256.00	18.562	21.459	20.119	21.017
294.07	21.968	22.724	23.870	24.241
337.79	15.920	17.749	18.629	15.558
388.02	10.727	11.041	11.589	11.342
445.72	5.807	5.017	5.451	4.115
512.00	2.661			1.754
% <16µm	18.38	9.82	15.97	8.22

ID	2699772	2699773	2699774	2699775
Station	8-500	8-500	8-500	8-500
Depth (cm)	0-2	2-4	4-6	6-8
% <64µm	42.88	42.62	37.34	26.06
~D50	256.00	256.00	256.00	222.86
modal	21.97	22.72	23.87	24.24

Table 14. Inorganic grain size spectra: Hibernia 2006, station R50K.

ID	2699664	2699666	2699671
Station	RK50	RK50	RK50
Depth (cm)	0-2	4-6	8-10
Diameter (µm)			
0.76	0.005	0.000	0.002
0.87	0.006	0.000	0.002
1.00	0.006	0.001	0.002
1.15	0.006	0.001	0.002
1.32	0.007	0.001	0.002
1.52	0.007	0.001	0.002
1.74	0.007	0.001	0.002
2.00	0.008	0.001	0.002
2.30	0.008	0.001	0.003
2.64	0.008	0.001	0.003
3.03	0.008	0.001	0.003
3.48	0.009	0.001	0.003
4.00	0.008	0.001	0.003
4.59	0.009	0.001	0.003
5.28	0.009	0.001	0.003
6.06	0.010	0.001	0.003
6.96	0.010	0.001	0.003
8.00	0.010	0.001	0.003
9.19	0.011	0.002	0.004
10.56	0.012	0.002	0.004
12.13	0.012	0.002	0.004
13.93	0.010	0.002	0.004
16.00	0.009	0.002	0.004
18.38	0.010	0.002	0.004
21.11	0.009	0.002	0.004
24.25	0.007	0.002	0.005
27.86	0.007	0.002	0.007
32.00	0.007	0.003	0.009
36.76	0.020	0.009	0.012
42.22	0.029	0.011	0.021
48.50	0.064	0.026	0.039
55.72	0.077	0.035	0.045
64.00	0.109	0.054	0.071
73.52	0.174	0.091	0.119
84.45	0.245	0.122	0.150
97.01	0.301	0.140	0.211
111.43	0.380	0.225	0.293
128.00	0.794	0.341	0.345
147.03	1.588	0.759	1.136

ID	2699664	2699666	2699671
Station	RK50	RK50	RK50
Depth (cm)	0-2	4-6	8-10
Diameter (µm)			
168.90	4.130	1.744	2.782
194.01	9.810	4.152	8.185
222.86	20.422	9.960	17.213
256.00	23.236	16.465	23.969
294.07	21.735	18.959	23.158
337.79	11.442	18.508	13.593
388.02	5.211	15.229	4.986
445.72		7.417	3.577
512.00		5.716	
% <16µm	18.59	2.30	6.08
% <64µm	42.41	11.67	21.09
~D50	256.00	294.07	256.00
modal	23.24	18.96	23.97

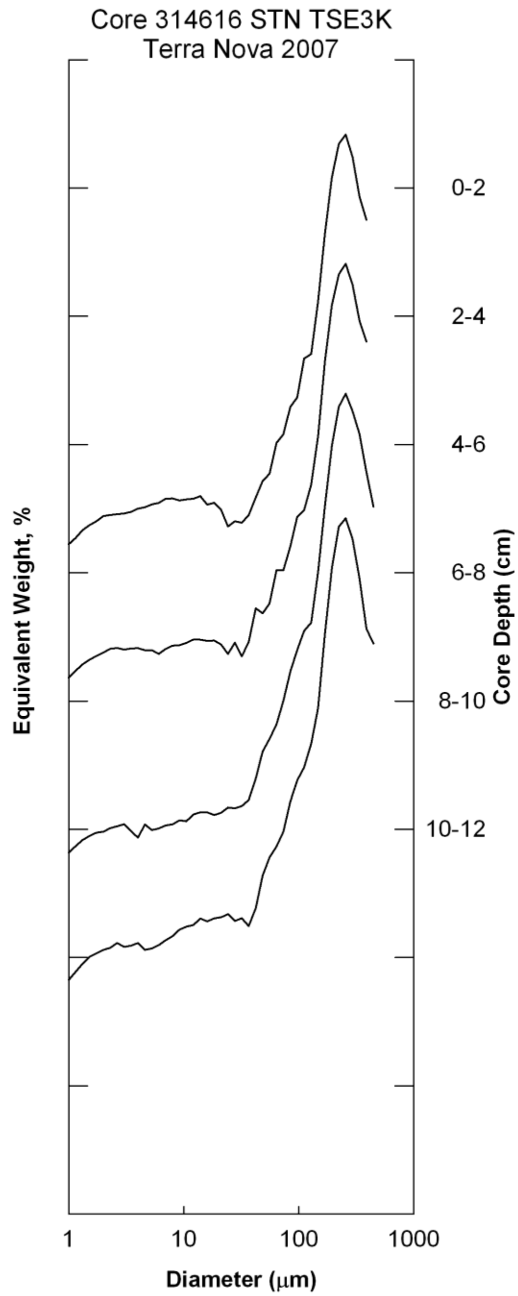

Figure 28. Core 314616 (Station TSE3K) collected from Terra Nova FPSO, 2007. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

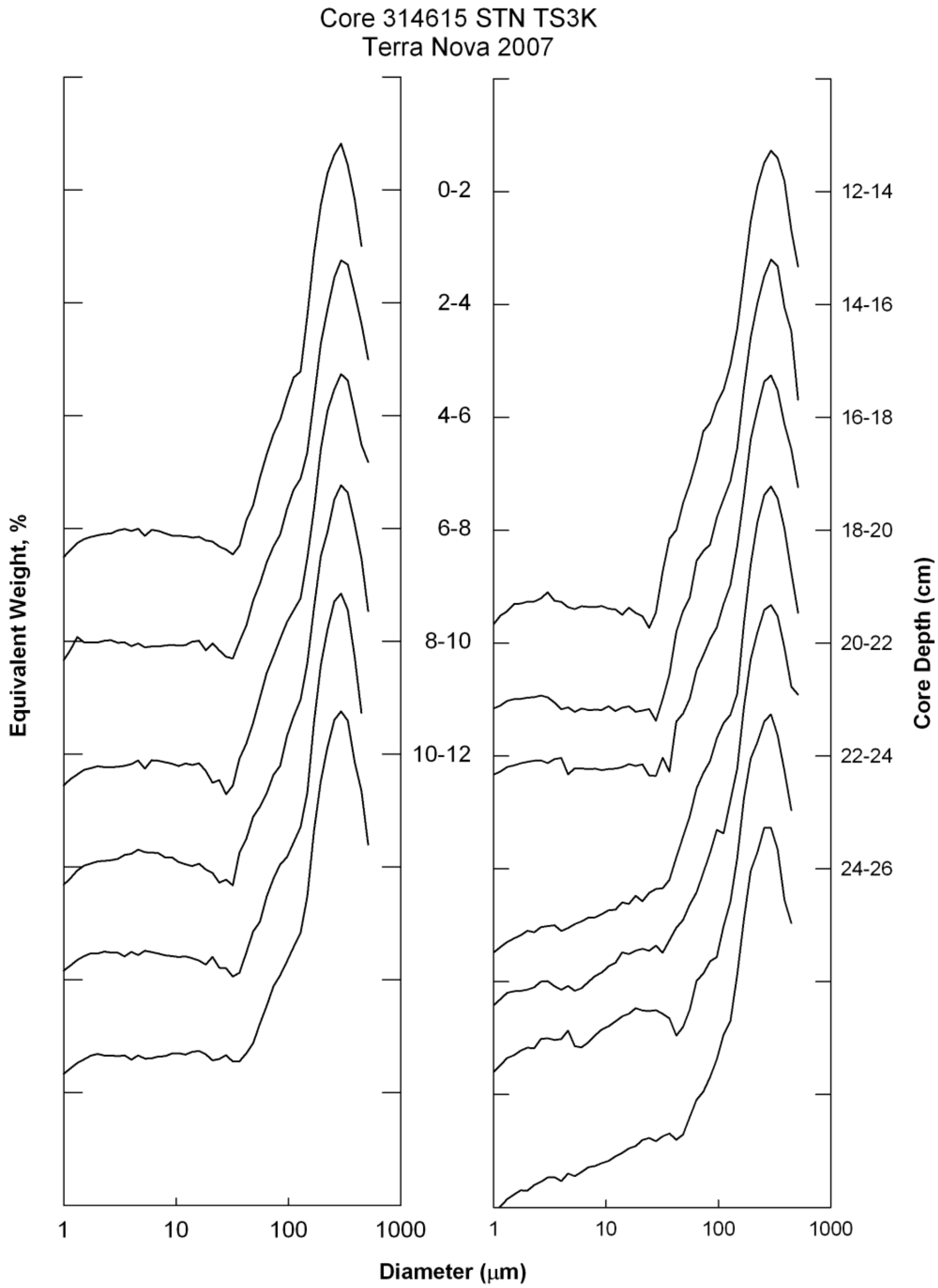

Figure 29. Core 314615 (Station TS3K) collected from Terra Nova FPSO, 2007. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

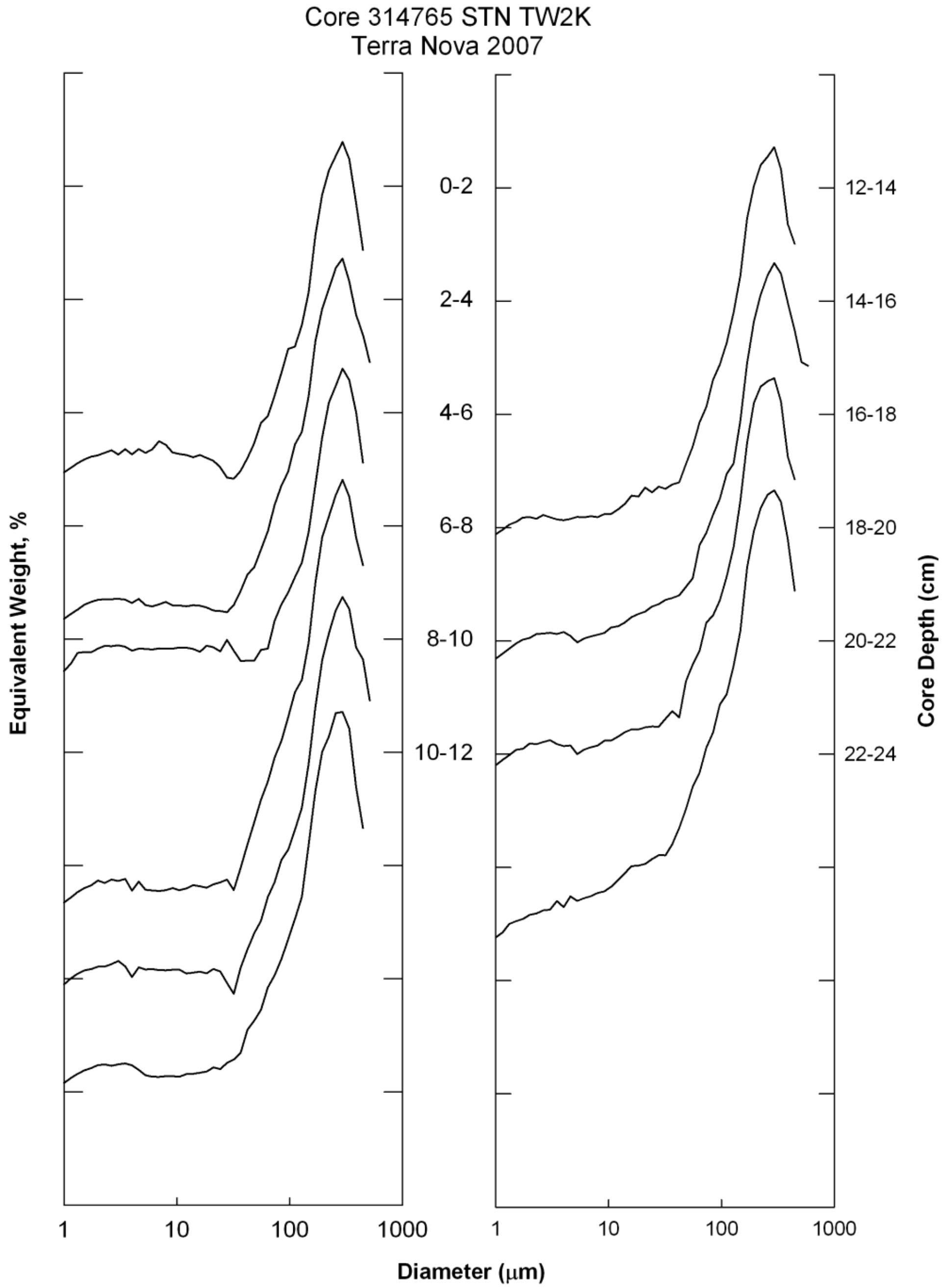

Figure 30. Core 314765 (Station TW2K) collected from Terra Nova FPSO, 2007. The y-origin for each curve starts at $1e^{-3}$ and increases decadally, $1e^{1}$. Each curve is offset by one decade and is presented as log vs. log plot to preserve the shape of the distribution.

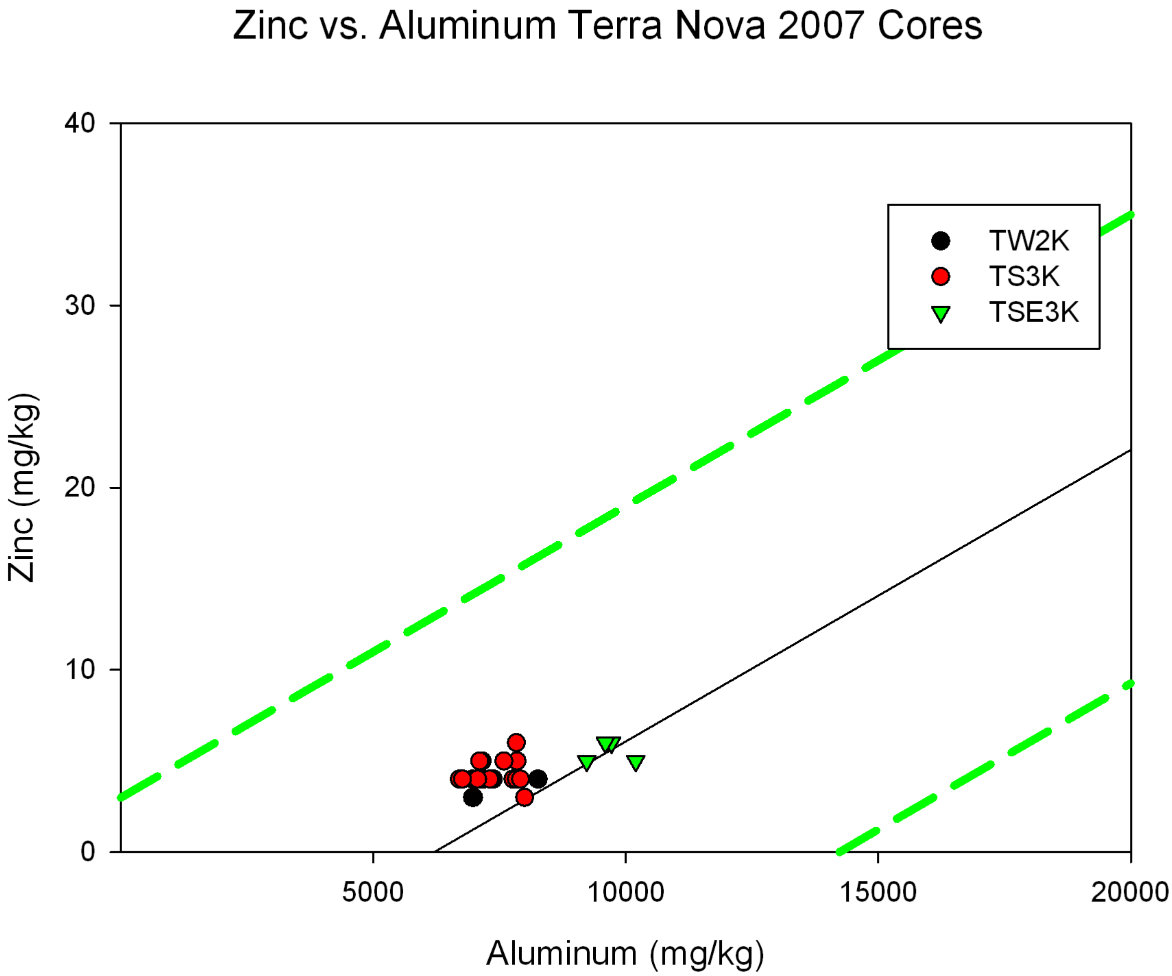

Figure 31. Zinc vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2007. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

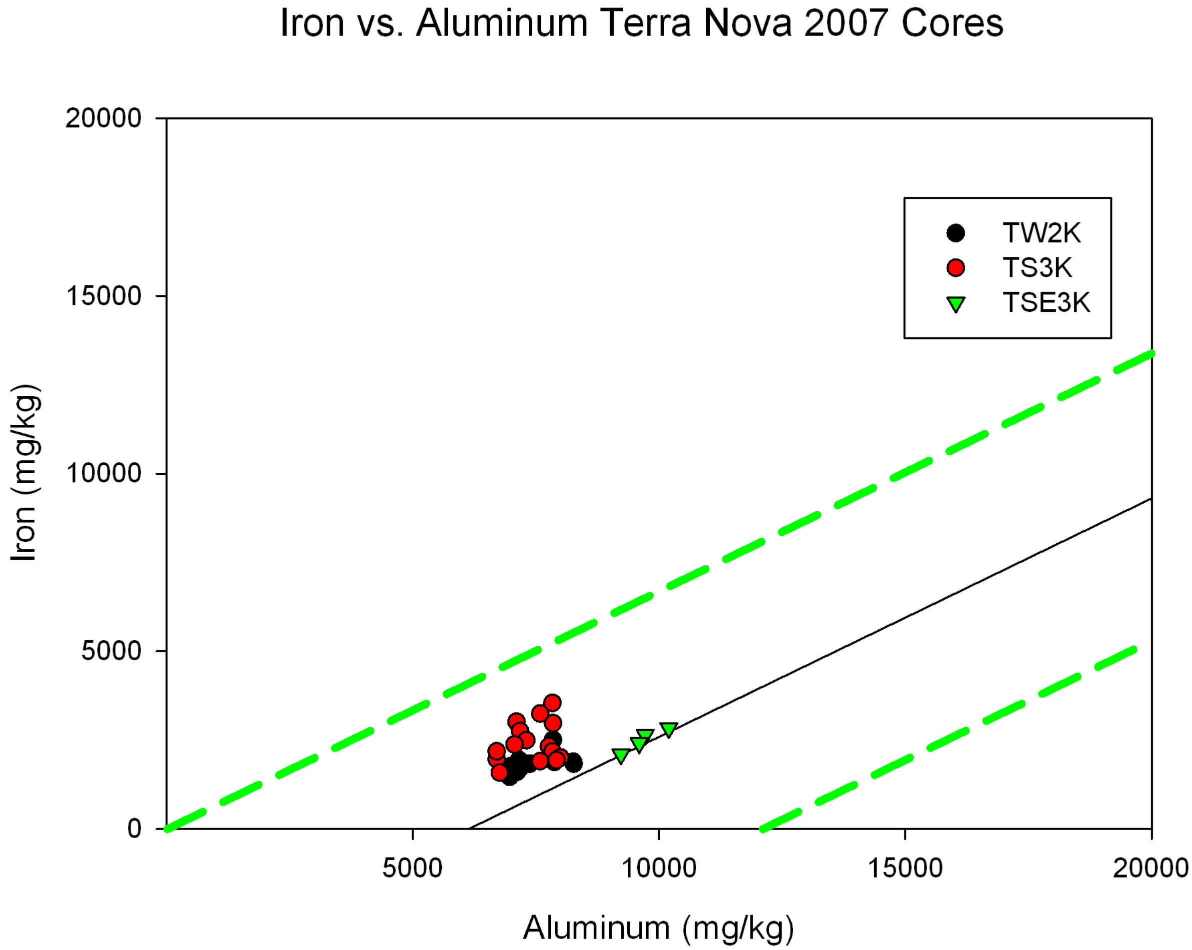

Figure 32. Iron vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2007. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

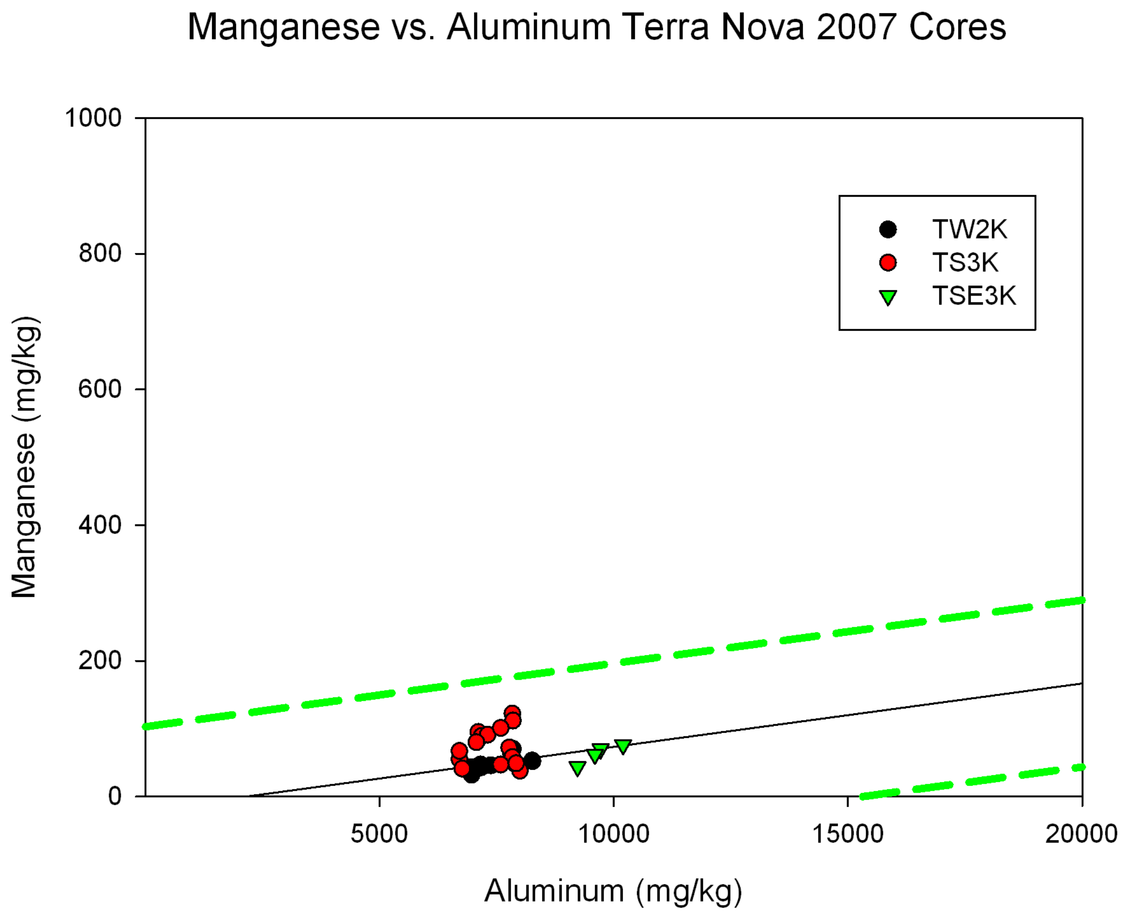

Figure 33. Manganese vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2007. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

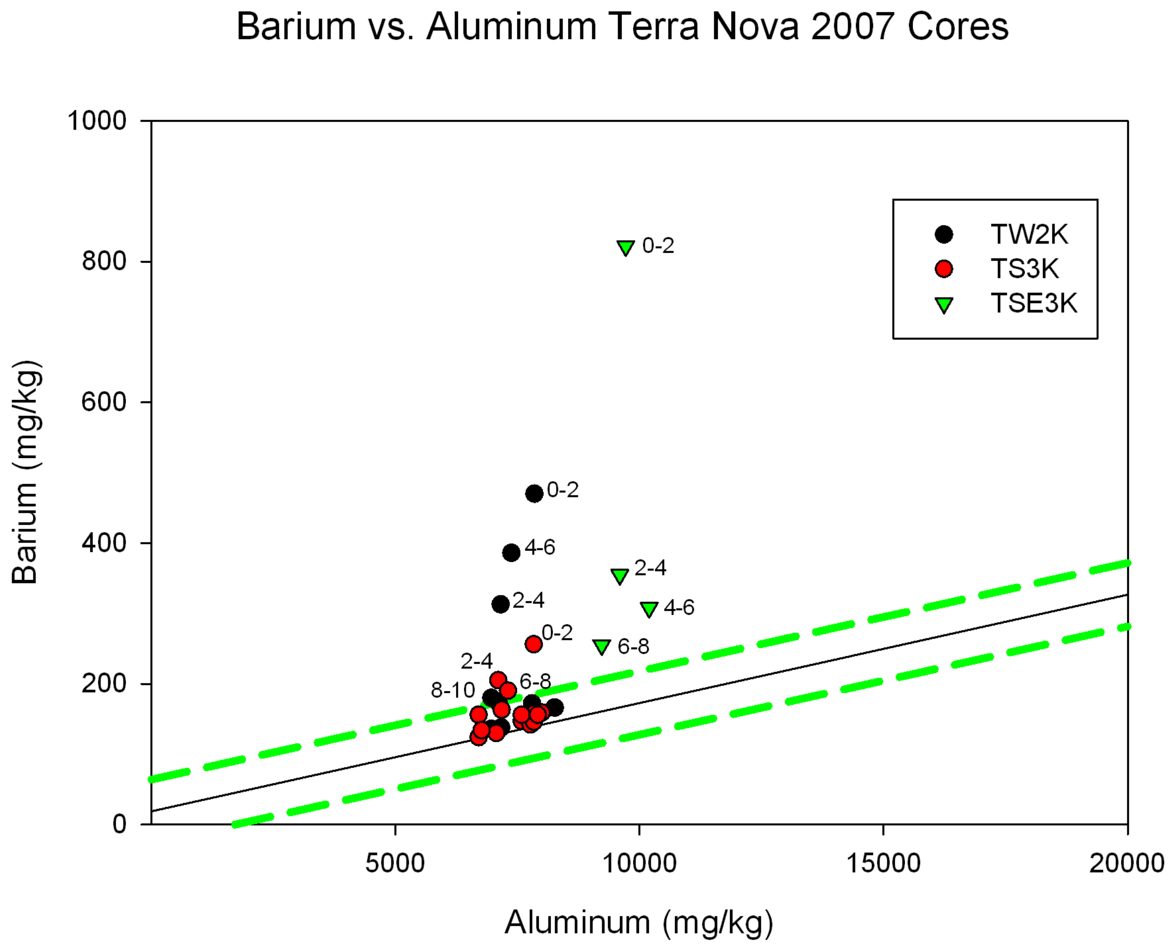

Figure 34. Barium vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2007. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence

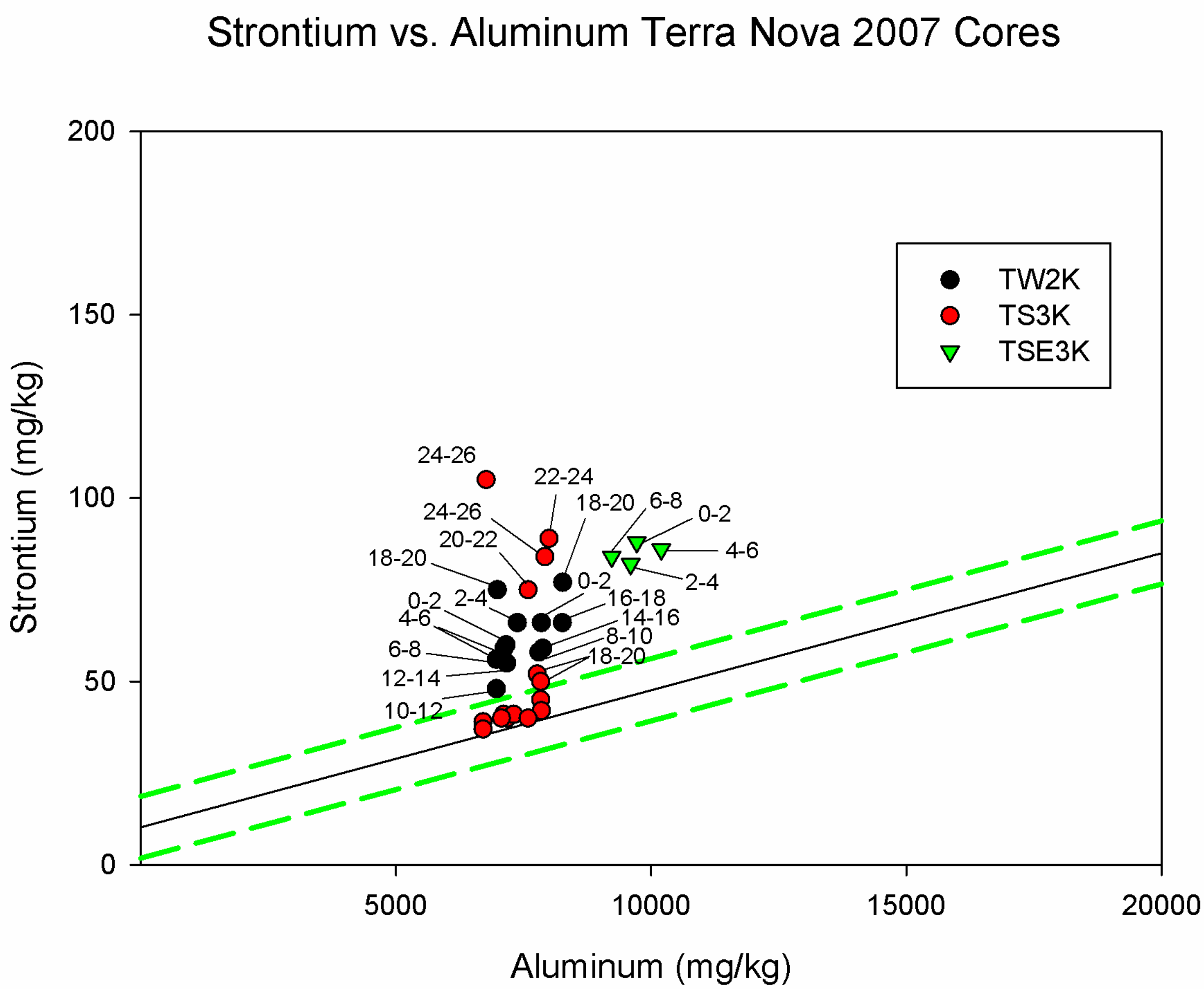

Figure 35. Strontium vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2007. Samples in excess of background concentrations are labelled by depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

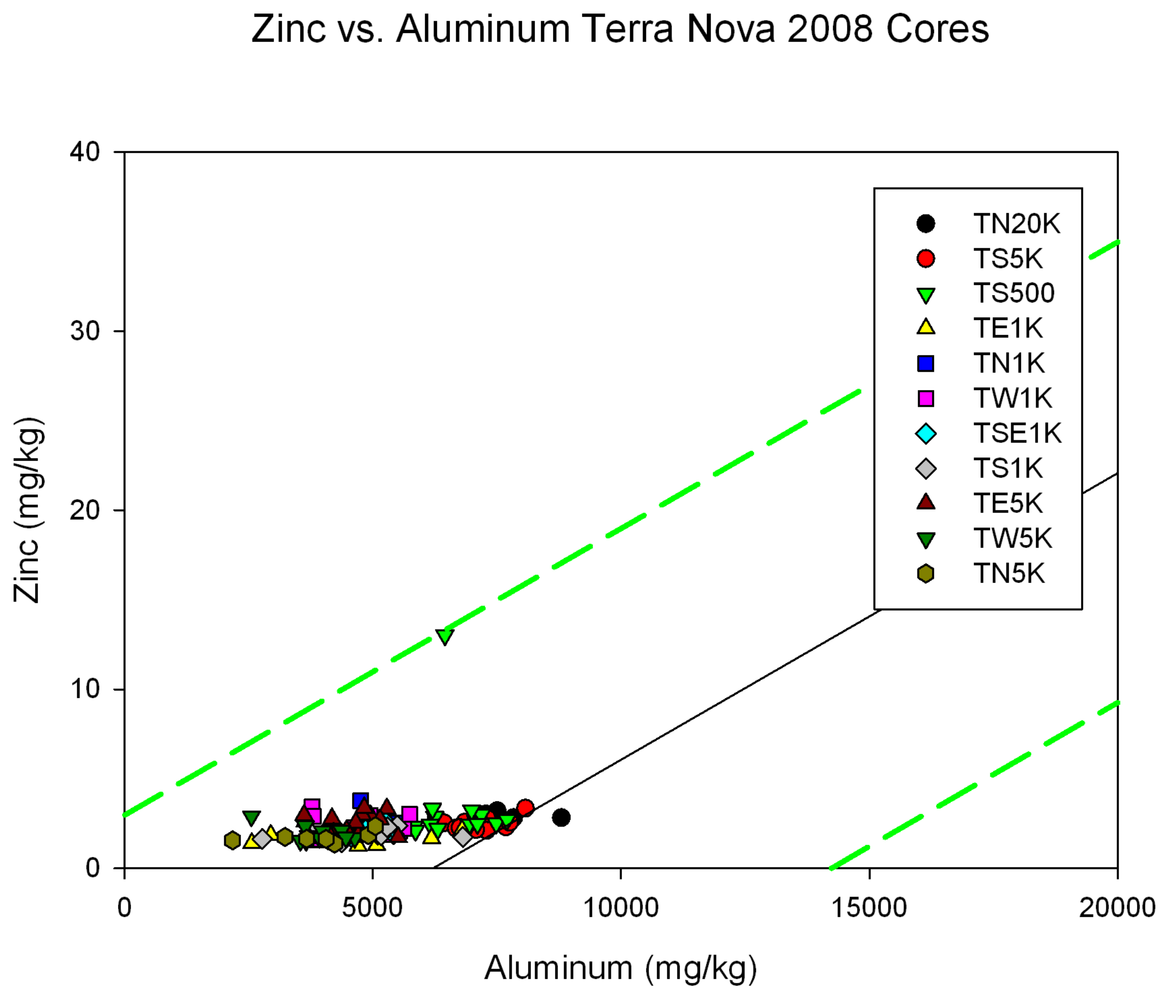

Figure 36. Zinc vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2008. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

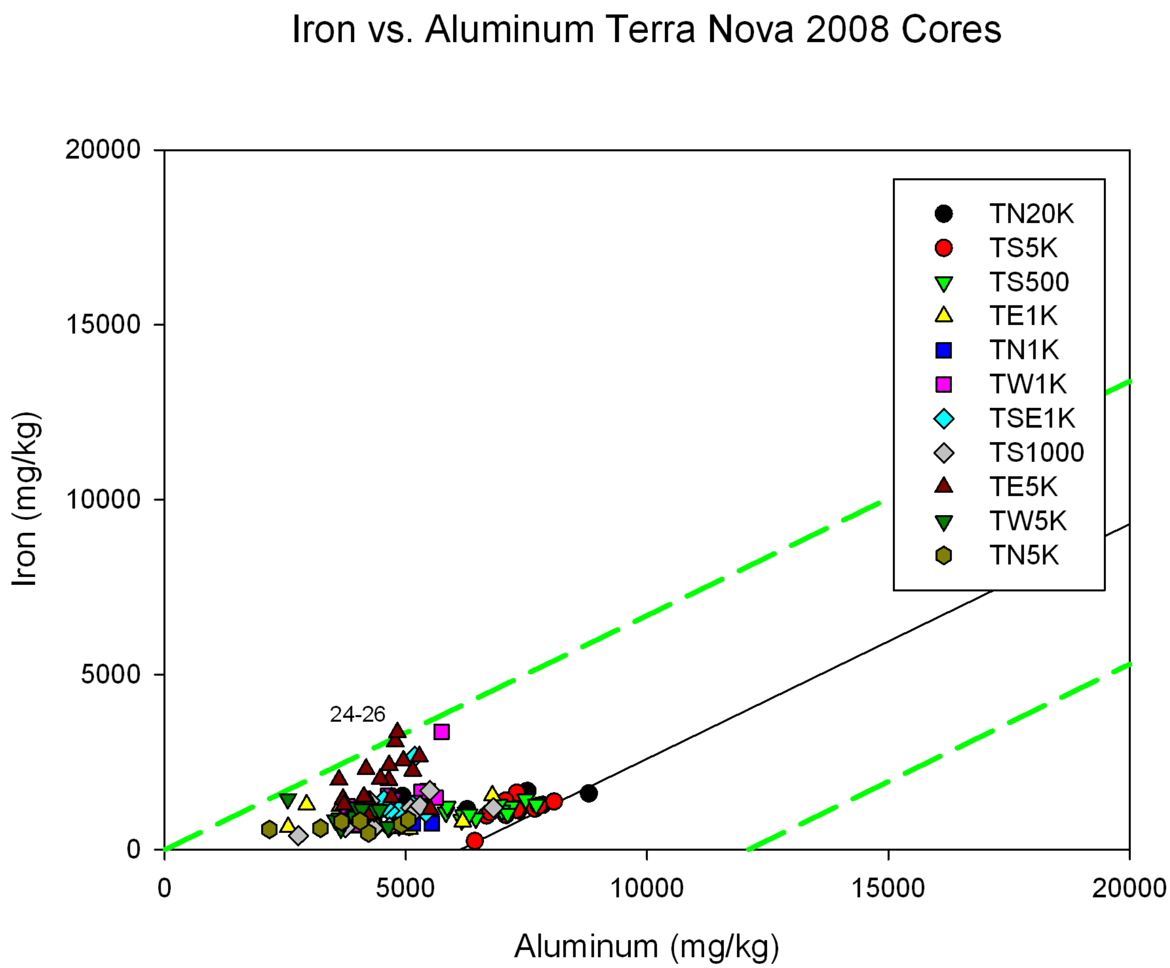

Figure 37. Iron vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2008. Samples in excess of background concentrations are labelled as depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

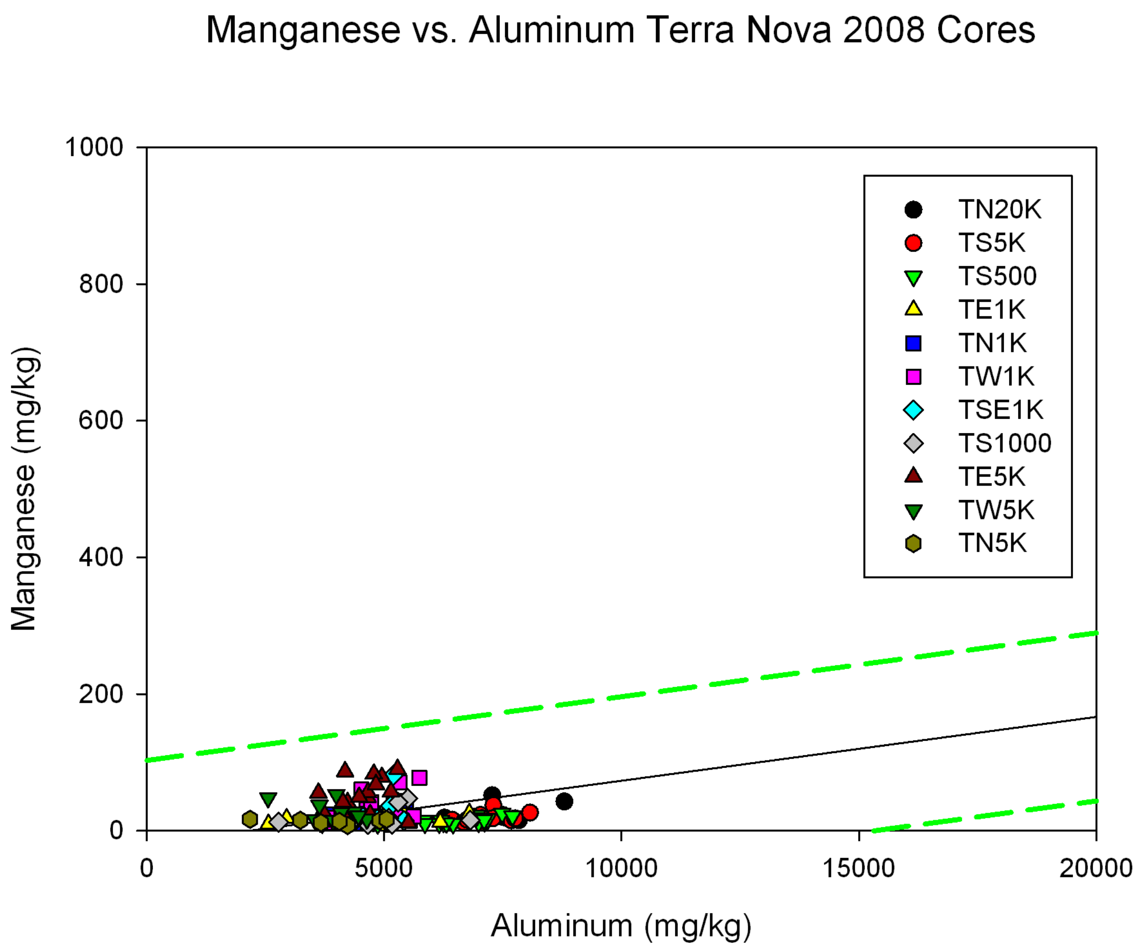

Figure 38. Manganese vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2008. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

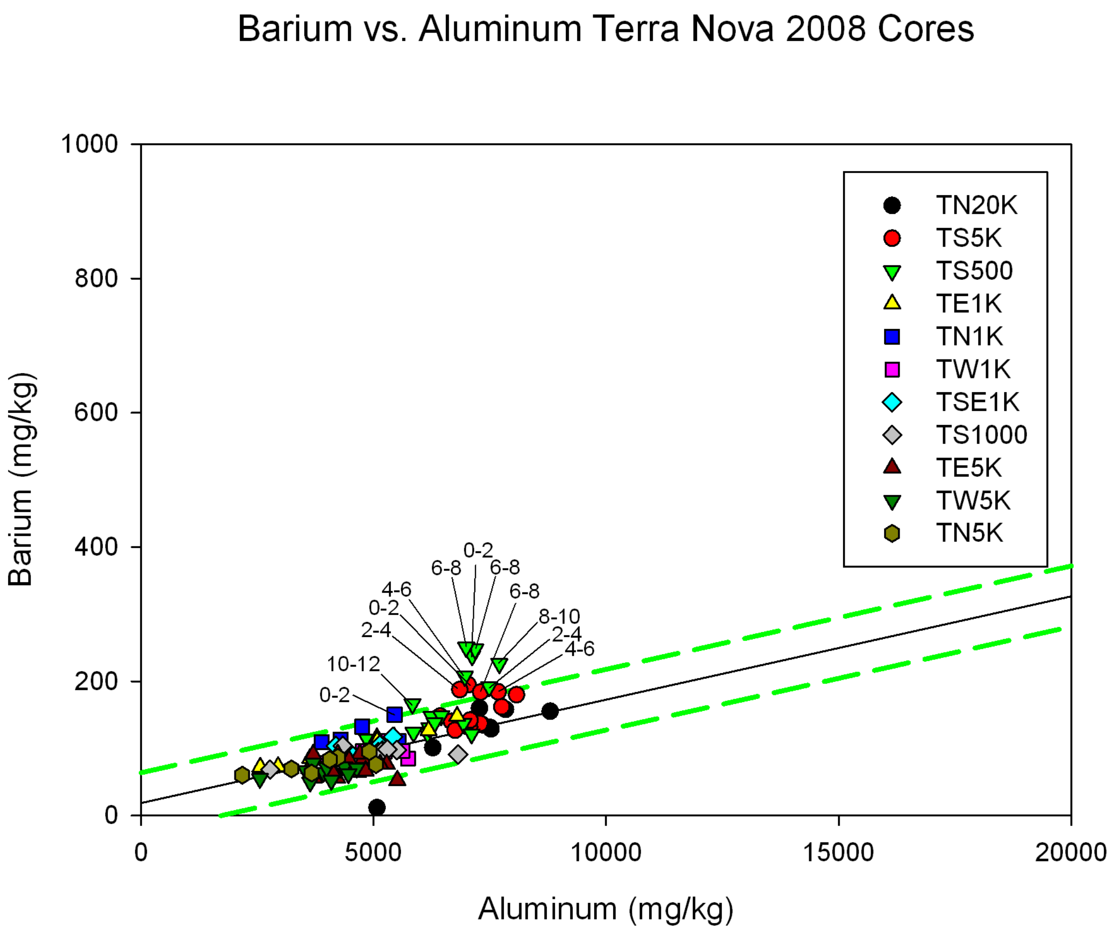

Figure 39. Barium vs. aluminum plotted by core. Cores collected from Terra Nova FPSO, 2008. Samples in excess of background concentrations are labelled as depth (cm) in the core. The black line represents the best fit line from the background data and the green lines represent the 95 % confidence interval.

Table 15. Metals analysis measured as mg kg^{-1}: Terra Nova 2007.

Station	Depth (cm)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium
TSE3K	0-2	9720	0.2	1	822	0.2	< 1	0.05
TSE3K	2-4	9600	0.2	< 1	355	0.2	< 1	0.04
TSE3K	4-6	10200	0.2	< 1	308	0.2	< 1	0.03
TSE3K	6-8	9230	0.2	< 1	255	0.2	< 1	0.05
TS3K	0-2	7840	0.2	1	256	0.1	< 1	< 0.01
TS3K	2-4	7110	0.2	1	205	0.1	< 1	0.01
TS3K	4-6	7180	0.1	1	163	0.1	< 1	0.01
TS3K	6-8	7310	0.1	< 1	190	0.1	< 1	0.01
TS3K	8-10	6710	0.1	< 1	156	0.1	< 1	< 0.01
TS3K	10-12	7850	0.2	< 1	158	0.1	< 1	< 0.01
TS3K	12-14	7590	0.1	< 1	147	0.2	< 1	0.01
TS3K	14-16	7070	0.1	< 1	130	0.2	< 1	0.01
TS3K	16-18	6710	0.2	< 1	124	0.1	< 1	0.02
TS3K	18-20	7770	0.1	< 1	142	0.2	< 1	0.03
TS3K	18-20	7840	0.1	< 1	146	0.1	< 1	0.03
TS3K	20-22	7590	0.1	< 1	156	0.1	< 1	0.07
TS3K	22-24	8000	0.1	< 1	159	0.1	< 1	0.16
TS3K	24-26	7920	0.2	< 1	156	0.1	< 1	0.19
TS3K	24-26	6770	0.1	< 1	134	0.1	< 1	0.20
TW2K	0-2	7850	0.1	< 1	470	0.1	< 1	0.07
TW2K	0-2	7160	0.1	< 1	313	0.1	< 1	0.07
TW2K	2-4	7380	0.1	< 1	386	0.1	< 1	0.03
TW2K	4-6	7120	0.1	< 1	173	0.2	< 1	0.04
TW2K	6-8	6970	0.1	< 1	180	0.1	< 1	0.04
TW2K	8-10	7800	0.1	< 1	172	0.1	< 1	0.04
TW2K	10-12	6970	0.2	< 1	136	0.2	< 1	0.04
TW2K	12-14	7170	0.1	< 1	138	0.1	< 1	0.04
TW2K	14-16	7880	0.1	< 1	157	0.2	< 1	0.04
TW2K	16-18	8260	0.1	< 1	166	0.2	< 1	0.07
TW2K	18-20	6990	0.1	< 1	135	0.2	< 1	0.11
TW2K	18-20	8270	0.1	< 1	166	0.2	< 1	0.11

Table 15. Continued.

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
TSE3K	0-2	5	0.6	2	2650	4.9	3.3	2.8
TSE3K	2-4	4	0.6	2	2420	4.3	3.1	2.8
TSE3K	4-6	4	0.6	2	2840	5.3	3.2	2.8
TSE3K	6-8	4	0.5	2	2100	4.6	3.0	2.8
TS3K	0-2	5	0.7	2	3550	4.2	2.5	2.6
TS3K	2-4	5	0.6	2	3020	4.6	2.4	2.6
TS3K	4-6	4	0.6	2	2760	4.8	2.3	2.6
TS3K	6-8	4	0.5	2	2500	3.8	2.2	2.5
TS3K	8-10	4	0.4	1	1960	3.2	2.2	2.4
TS3K	10-12	6	0.6	2	2980	3.7	2.3	2.5
TS3K	12-14	5	0.6	2	3250	4.4	2.3	2.7
TS3K	14-16	4	0.5	2	2380	3.4	2.0	2.5
TS3K	16-18	4	0.5	2	2190	4.2	2.0	2.4
TS3K	18-20	4	0.5	2	2330	6.3	2.5	2.6
TS3K	18-20	4	0.5	2	2180	4.0	2.4	2.5
TS3K	20-22	4	0.5	2	1910	3.9	2.4	2.6

Station	Depth (cm)	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium
TS3K	22-24	3	0.4	1	2010	4.2	2.5	2.5
TS3K	24-26	4	0.4	1	1940	3.8	2.5	2.6
TS3K	24-26	4	0.4	1	1590	4.4	2.1	2.5
TW2K	0-2	5	0.6	2	2510	4.6	2.7	2.6
TW2K	0-2	4	0.4	2	1940	5.0	2.6	2.6
TW2K	2-4	4	0.4	2	1840	4.2	2.7	2.6
TW2K	4-6	4	0.4	2	1610	3.7	2.5	2.5
TW2K	6-8	4	0.4	2	1760	3.5	2.5	2.5
TW2K	8-10	4	0.5	2	2190	3.5	2.5	2.5
TW2K	10-12	3	0.4	2	1470	3.4	2.2	2.6
TW2K	12-14	3	0.4	2	1700	3.8	2.2	2.5
TW2K	14-16	4	0.4	2	1890	4.1	2.4	2.6
TW2K	16-18	4	0.5	2	1890	4.4	2.6	2.7
TW2K	18-20	3	0.4	1	1610	4.0	2.1	2.5
TW2K	18-20	3	0.5	2	1840	4.9	2.7	2.7

Table 15. Continued.

Station	Depth (cm)	Manganese	Mercury	Molybdenum	Nickel	Potassium	Rubidium	Selenium	Silver
TSE3K	0-2	70	< 0.01	0.1	1	4590	11.8	< 1	< 0.1
TSE3K	2-4	62	-	< 0.1	1	4450	11.3	< 1	< 0.1
TSE3K	4-6	76	-	0.1	1	4510	11.8	< 1	< 0.1
TSE3K	6-8	44	< 0.01	0.1	1	4480	11.2	< 1	< 0.1
TS3K	0-2	122	< 0.01	< 0.1	1	3240	8.1	< 1	< 0.1
TS3K	2-4	95	-	< 0.1	< 1	3100	8.1	< 1	< 0.1
TS3K	4-6	89	-	< 0.1	1	3220	8.3	< 1	< 0.1
TS3K	6-8	91	< 0.01	< 0.1	< 1	3170	8.0	< 1	< 0.1
TS3K	8-10	55	-	< 0.1	< 1	3230	8.4	< 1	< 0.1
TS3K	10-12	112	-	0.1	1	3200	7.9	< 1	< 0.1
TS3K	12-14	101	< 0.01	0.1	< 1	3310	8.1	< 1	< 0.1
TS3K	14-16	80	-	< 0.1	< 1	3110	8.0	< 1	< 0.1
TS3K	16-18	67	-	0.2	1	3030	7.9	< 1	< 0.1
TS3K	18-20	72	< 0.01	0.2	< 1	3430	9.1	< 1	< 0.1
TS3K	18-20	58	< 0.01	0.2	< 1	3650	9.0	< 1	< 0.1
TS3K	20-22	47	-	0.2	< 1	3700	9.4	< 1	< 0.1
TS3K	22-24	38	-	0.2	< 1	4070	10.4	< 1	< 0.1
TS3K	24-26	49	< 0.01	0.2	1	3900	10.2	< 1	< 0.1
TS3K	24-26	41	< 0.01	0.2	< 1	3300	8.4	< 1	< 0.1
TW2K	0-2	70	< 0.01	0.2	1	3670	9.6	< 1	< 0.1
TW2K	0-2	47	< 0.01	0.1	1	3370	9.0	< 1	< 0.1
TW2K	2-4	46	-	0.2	1	3290	8.7	< 1	< 0.1
TW2K	4-6	42	-	0.1	< 1	3440	9.4	< 1	< 0.1
TW2K	6-8	43	< 0.01	0.2	< 1	3480	9.1	< 1	< 0.1
TW2K	8-10	65	-	0.1	1	3730	10.0	< 1	< 0.1
TW2K	10-12	32	-	0.2	1	3310	8.6	< 1	< 0.1
TW2K	12-14	43	< 0.01	0.2	1	3490	9.2	< 1	< 0.1
TW2K	14-16	49	-	0.3	1	3780	9.4	< 1	< 0.1
TW2K	16-18	53	-	0.3	1	4030	11.0	< 1	< 0.1
TW2K	18-20	40	< 0.01	0.3	1	3200	8.3	< 1	< 0.1
TW2K	18-20	52	< 0.01	0.3	1	3900	10.1	< 1	< 0.1

Table 15. Continued.

Station	Depth (cm)	Sodium	Strontium	Sulfur	Tellurium	Thallium	Tin	Uranium	Vanadium	Zinc
TSE3K	0-2	4010	88	500	< 0.1	< 0.1	0.2	0.2	8	6
TSE3K	2-4	3850	82	300	< 0.1	< 0.1	0.1	0.2	7	6
TSE3K	4-6	3710	86	200	< 0.1	< 0.1	0.1	0.3	8	5
TSE3K	6-8	3780	84	200	< 0.1	< 0.1	0.1	0.3	7	5
TS3K	0-2	3130	45	< 200	< 0.1	< 0.1	0.1	0.2	8	6
TS3K	2-4	2900	41	< 200	< 0.1	< 0.1	0.1	0.2	7	5
TS3K	4-6	3040	40	200	< 0.1	< 0.1	0.1	0.2	6	4
TS3K	6-8	2960	41	200	< 0.1	< 0.1	< 0.1	0.2	6	4
TS3K	8-10	2900	39	< 200	< 0.1	< 0.1	< 0.1	0.2	5	4
TS3K	10-12	3210	42	< 200	< 0.1	< 0.1	0.1	0.2	6	5
TS3K	12-14	3100	40	200	< 0.1	< 0.1	0.1	0.2	7	5
TS3K	14-16	2810	40	< 200	< 0.1	< 0.1	< 0.1	0.2	6	4
TS3K	16-18	2650	37	< 200	< 0.1	< 0.1	< 0.1	0.2	6	4
TS3K	18-20	2880	52	< 200	< 0.1	< 0.1	< 0.1	0.2	6	4
TS3K	18-20	2800	50	< 200	< 0.1	< 0.1	< 0.1	0.2	6	4
TS3K	20-22	2840	75	< 200	< 0.1	< 0.1	0.3	0.2	6	5
TS3K	22-24	2970	89	< 200	< 0.1	< 0.1	< 0.1	0.2	5	3
TS3K	24-26	2810	84	< 200	< 0.1	< 0.1	< 0.1	0.3	6	4
TS3K	24-26	2690	105	< 200	< 0.1	< 0.1	< 0.1	0.3	6	4
TW2K	0-2	3300	66	300	< 0.1	< 0.1	0.1	0.2	7	5
TW2K	0-2	2980	60	200	< 0.1	< 0.1	0.1	0.2	6	5
TW2K	2-4	3270	66	300	< 0.1	< 0.1	0.1	0.2	6	4
TW2K	4-6	3050	59	200	< 0.1	< 0.1	< 0.1	0.2	5	4
TW2K	6-8	2890	56	200	< 0.1	< 0.1	0.2	0.2	5	4
TW2K	8-10	3000	58	200	< 0.1	< 0.1	0.1	0.2	6	4
TW2K	10-12	2640	48	< 200	< 0.1	< 0.1	< 0.1	0.2	5	3
TW2K	12-14	2680	55	< 200	< 0.1	< 0.1	0.1	0.3	5	4
TW2K	14-16	3210	59	< 200	< 0.1	< 0.1	0.1	0.3	6	4
TW2K	16-18	3180	66	300	< 0.1	< 0.1	0.1	0.3	6	4
TW2K	18-20	2980	75	< 200	< 0.1	< 0.1	0.1	0.4	5	3
TW2K	18-20	3150	77	< 200	< 0.1	< 0.1	0.1	0.4	6	4

Table 16. Metals analysis measured as mg kg^{-1}: Terra Nova 2008.

Station	Depth (cm)	Aluminium	Antimony	Barium	Beryllium	Bismuth	Cadmium	Chromium
TN1K	0-2	5453.304	0.139	150.186	0.095	0.004	< DL	4.084
TN1K	2-4	4757.341	0.098	132.442	0.080	0.003	0.005	3.175
TN1K	4-6	4294.160	0.097	113.311	0.083	0.002	0.007	2.08
TN1K	6-8	3888.967	0.095	109.752	0.085	0.008	< DL	2.282
TN1K	8-10	4351.495	0.130	84.515	0.098	0.003	0.004	2.247
TN1K	10-12	5537.816	0.099	110.957	0.089	0.003	< DL	1.927
TN1K	12-14	5146.622	0.093	95.823	0.100	0.003	0.003	2.121
TN1K	14-16	4131.225	0.129	69.264	0.092	0.003	< DL	2.654
TN5K	0-2	4906.932	0.093	95.549	0.101	0.003	< DL	1.918
TN5K	2-4	2176.699	0.088	60.295	0.080	0.003	< DL	1.537
TN5K	2-4	5049.127	0.098	76.140	0.087	0.003	< DL	1.793
TN5K	4-6	3666.165	0.084	63.239	0.083	0.003	< DL	1.923
TN5K	6-8	3234.565	0.087	69.697	0.082	0.003	< DL	1.742
TN5K	8-10	4227.660	0.192	86.881	0.130	0.011	0.006	1.994
TN5K	10-12	4055.297	0.111	83.419	0.085	0.005	0.009	2.214
TN20K	0-2	5074.463	0.114	11.612	0.090	0.004	0.015	2.327
TN20K	2-4	7336.743	0.128	135.409	0.132	0.005	0.026	2.386
TN20K	4-6	7011.499	0.120	132.916	0.121	0.005	0.056	3.327
TN20K	6-8	8796.046	0.117	155.347	0.152	0.006	0.033	4.218
TN20K	8-10	7503.739	0.120	131.111	0.127	0.007	0.057	3.102
TN20K	10-12	7838.976	0.134	158.148	0.150	0.007	0.071	2.658
TN20K	12-14	7523.785	0.131	129.144	0.146	0.007	0.103	6.619
TN20K	14-16	6274.433	0.125	101.133	0.114	0.006	0.097	3.061
TN20K	16-18	4702.000	0.108	85.386	0.075	0.006	0.146	2.957
TN20K	18-20	4777.137	0.469	81.812	0.067	0.006	0.087	2.086
TN20K	20-22	4931.695	0.091	76.319	0.090	0.004	0.090	3.442
TN20K	22-24	7278.109	0.134	159.962	0.130	0.006	0.115	2.918
TE1K	0-2	2942.589	0.085	72.867	0.103	0.004	< DL	2.519
TE1K	2-4	5069.011	0.098	115.932	0.092	0.004	< DL	2.018
TE1K	4-6	3637.453	0.080	85.320	0.071	0.003	0.004	2.032
TE1K	6-8	6179.237	0.067	126.819	0.123	0.003	< DL	1.529
TE1K	8-10	2562.22	0.078	72.048	0.076	0.003	< DL	1.644
TE1K	10-12	5439.700	0.091	117.318	0.100	0.008	< DL	2.225
TE1K	12-14	4099.859	0.093	66.685	0.093	0.006	< DL	1.845
TE1K	14-16	4700.419	0.145	83.978	0.081	0.002	< DL	1.618
TE1K	16-18	4268.547	0.074	84.008	0.089	0.002	0.013	1.886
TE1K	18-20	3838.754	0.099	60.589	0.067	0.003	< DL	1.875
TE1K	20-22	5075.807	0.082	111.411	0.115	0.003	< DL	1.689
TE1K	22-24	6794.616	0.079	147.764	0.097	0.004	0.003	1.661
TE5K	0-2	4175.611	0.142	82.257	0.077	0.003	0.009	2.081
TE5K	2-4	5282.046	0.098	76.508	0.098	0.004	< DL	3.441
TE5K	4-6	3615.460	0.079	70.652	0.066	0.005	< DL	3.27
TE5K	6-8	4228.676	0.076	91.777	0.084	0.005	< DL	2.333
TE5K	8-10	4214.255	0.072	56.400	0.092	0.004	< DL	1.62
TE5K	10-12	4653.24	0.084	68.777	0.089	0.004	0.013	3.511
TE5K	12-14	4953.593	0.091	74.045	0.098	0.004	< DL	4.041
TE5K	14-16	4780.877	0.099	85.464	0.093	0.004	0.005	4.64
TE5K	16-18	4704.920	0.072	91.752	0.101	0.003	0.002	12.466
TE5K	18-20	4654.689	0.090	64.555	0.099	0.004	< DL	3.63
TE5K	20-22	3699.397	0.090	91.273	0.072	0.004	0.007	2.356
TE5K	22-24	4130.781	0.080	63.289	0.090	0.003	< DL	4.954
TE5K	24-26	4824.453	0.139	66.620	0.120	0.006	0.006	4.505

Station	Depth (cm)	Aluminium	Antimony	Barium	Beryllium	Bismuth	Cadmium	Chromium
TE5K	26-28	4471.486	0.093	83.189	0.086	0.002	< DL	5.282
TE5K	28-30	5143.715	0.098	76.620	0.102	0.005	< DL	7.173
TE5K	30-32	3719.237	0.073	56.572	0.091	0.002	< DL	2.053
TE5K	32-34	5508.848	0.087	52.680	0.147	0.003	0.004	2.215
TSE1K	0-2	4853.861	0.110	84.729	0.092	0.007	< DL	1.929
TSE1K	2-4	4666.168	0.102	87.149	0.086	0.003	0.006	3.165
TSE1K	4-6	4218.395	0.110	90.331	0.085	0.003	< DL	2.303
TSE1K	6-8	5421.157	0.107	117.321	0.114	0.004	< DL	2.090
TSE1K	8-10	4254.910	0.124	96.029	0.100	0.008	< DL	3.597
TSE1K	10-12	4193.879	0.118	103.834	0.090	0.005	< DL	3.449
TSE1K	12-14	5133.145	0.114	105.196	0.092	0.007	< DL	2.252
TSE1K	14-16	4560.825	0.109	84.998	0.087	0.003	< DL	4.751
TSE1K	16-18	5186.507	0.177	96.842	0.108	0.004	0.030	3.926
TSE1K	18-19	4554.303	0.101	88.642	0.102	0.004	< DL	2.299
TS500	0-2	7119.180	0.128	237.696	0.121	0.006	0.047	3.334
TS500	2-4	7483.729	0.116	191.777	0.119	0.007	0.028	4.172
TS500	4-6	6959.168	0.116	207.398	0.116	0.008	0.023	2.713
TS500	4-6	6249.183	0.116	147.261	0.112	0.003	0	2.425
TS500	6-8	7183.717	0.119	247.673	0.129	0.006	0.039	2.843
TS500	6-8	6989.243	0.121	250.459	0.133	0.006	0.041	5.167
TS500	8-10	7701.913	0.147	226.277	0.134	0.006	0.026	3.862
TS500	10-12	5833.264	0.115	166.120	0.092	0.006	0.036	3.111
TS500	12-14	4864.066	0.112	113.348	0.096	0.005	0.038	2.390
TS500	14-16	6930.741	0.139	137.637	0.120	0.005	0.058	3.298
TS500	16-18	6157.378	0.125	122.053	0.143	0.006	0.041	2.824
TS500	18-20	6199.722	0.121	130.562	0.108	0.004	0.051	2.707
TS500	20-22	5858.481	0.120	123.752	0.080	0.003	0.069	2.545
TS500	22-24	7107.053	0.141	121.567	0.110	0.005	0.097	3.488
TS500	24-26	6451.844	0.133	148.532	0.092	0.005	0.184	2.227
TS500	26-28	6311.480	0.162	137.979	0.133	0.003	0.184	2.508
TS1K	0-2	5098.045	0.073	94.014	0.099	0.003	< DL	2.334
TS1K	2-4	3743.203	0.084	68.512	0.082	0.003	< DL	1.592
TS1K	4-6	5164.351	0.091	95.141	0.104	0.004	< DL	2.310
TS1K	6-8	4658.116	0.095	81.406	0.107	0.005	< DL	2.492
TS1K	8-10	6814.483	0.084	90.989	0.132	0.003	< DL	2.055
TS1K	10-12	4257.292	0.090	73.742	0.075	0.003	< DL	3.281
TS1K	12-14	5498.810	0.102	97.534	0.101	0.004	0.007	4.978
TS1K	14-16	4375.521	0.077	76.151	0.079	0.225	< DL	2.211
TS1K	14-16	5291.656	0.074	98.628	0.088	0.008	< DL	1.614
TS1K	16-18	4334.686	0.097	104.010	0.075	0.005	0.007	1.665
TS1K	18-20	4344.202	0.092	76.010	0.091	0.006	0.038	1.888
TS1K	20-22	2773.401	0.073	68.453	0.067	0.002	0.071	1.164
TS5K	0-2	7034.013	0.152	194.974	0.145	0.012	0.040	2.932
TS5K	2-4	6855.140	0.150	187.562	0.113	0.006	0.051	2.401
TS5K	4-6	7677.550	0.148	184.028	0.122	0.007	0.018	4.889
TS5K	4-6	8074.389	0.122	179.913	0.129	0.017	0.013	3.379
TS5K	6-8	7302.949	0.139	183.952	0.125	0.005	0.040	3.952
TS5K	8-10	6431.665	0.116	147.950	0.117	0.005	0.054	0.666
TS5K	10-12	6673.512	0.122	140.226	0.105	0.006	0.046	2.657
TS5K	12-14	7289.377	0.126	136.928	0.109	0.008	0.040	2.633
TS5K	14-16	7067.228	0.128	131.771	0.117	0.010	0.036	2.577
TS5K	16-18	7072.028	0.126	142.179	0.111	0.005	0.034	3.781
TS5K	18-20	6752.854	0.113	127.211	0.112	0.005	0.050	2.403
TS5K	20-22	7754.697	0.154	161.790	0.120	0.007	0.039	2.990

Station	Depth (cm)	Aluminium	Antimony	Barium	Beryllium	Bismuth	Cadmium	Chromium
TW1K	0-2	4760.750	0.099	95.748	0.099	0.003	0.003	2.437
TW1K	2-4	5319.455	0.105	111.560	0.099	0.006	< DL	2.762
TW1K	4-6	4517.597	0.117	80.824	0.088	0.003	< DL	2.015
TW1K	6-8	3953.990	0.101	68.653	0.073	0.002	0.002	2.500
TW1K	6-8	3776.807	0.105	77.915	0.080	0.004	< DL	2.298
TW1K	8-10	4055.396	0.107	63.390	0.112	0.003	0.004	2.145
TW1K	10-12	4816.924	0.095	85.058	0.120	0.004	< DL	2.046
TW1K	12-14	4629.221	0.110	81.736	0.101	0.004	0.009	3.422
TW1K	14-16	4726.310	0.109	72.820	0.097	0.003	0.01	2.736
TW1K	16-18	4165.071	0.093	68.724	0.083	0.003	0.005	2.187
TW1K	18-20	3795.578	0.117	69.487	0.075	0.003	< DL	10.086
TW1K	20-22	5737.591	0.133	84.738	0.101	0.004	< DL	5.098
TW1K	22-24	5193.230	0.110	99.437	0.090	0.003	< DL	2.130
TW1K	24-26	5620.742	0.143	96.243	0.098	0.006	0.045	3.940
TW1K	24-26	4944.800	97.298	97.298	0.088	0.004	0.012	3.335
TW1K	26-28	5243.185	0.089	95.542	0.089	0.003	0.018	2.515
TW5K	0-2	3655.255	0.070	62.943	0.074	0.003	< DL	2.336
TW5K	2-4	4366.674	0.087	72.815	0.085	0.004	< DL	1.749
TW5K	4-6	3539.972	0.074	67.087	0.059	0.003	< DL	1.406
TW5K	6-8	4633.573	0.073	70.594	0.085	0.004	< DL	1.974
TW5K	8-10	3696.179	0.129	78.020	0.086	0.008	< DL	2.329
TW5K	10-12	3922.059	0.065	64.108	0.098	0.004	< DL	1.666
TW5K	12-14	3988.125	0.079	71.490	0.087	0.007	0.004	2.207
TW5K	12-14	2554.404	0.074	54.788	0.077	0.008	< DL	6.333
TW5K	14-16	3633.752	0.067	49.650	0.083	0.003	< DL	1.582
TW5K	16-18	4089.489	0.080	52.048	0.107	0.010	0.006	2.056
TW5K	18-20	4455.890	0.084	62.060	0.115	0.004	< DL	2.168

Table 16. Continued.

Station	Depth (cm)	Copper	Iron	Lead	Lithium	Manganese	Molybdenum	Nickel
TN1K	0-2	1.686	1665.070	1.929	2.487	43.216	0.066	1.331
TN1K	2-4	1.020	1112.721	1.506	2.371	24.263	0.054	1.571
TN1K	4-6	0.721	1157.881	1.296	2.446	21.091	0.038	1.066
TN1K	6-8	0.947	1030.692	1.334	2.092	23.564	0.047	0.845
TN1K	8-10	0.854	801.793	1.339	2.465	11.074	0.061	0.988
TN1K	10-12	9.007	742.452	1.543	3.000	14.569	0.054	1.019
TN1K	12-14	3.651	746.528	1.555	3.039	13.872	0.047	1.023
TN1K	14-16	0.854	1137.513	1.235	2.876	14.600	0.109	1.471
TN5K	0-2	5.970	714.245	1.329	2.940	15.147	0.043	0.914
TN5K	2-4	10.407	575.378	1.222	2.096	16.863	0.064	0.595
TN5K	2-4	0.731	841.852	1.722	2.623	16.809	0.046	0.791
TN5K	4-6	6.670	794.227	0.987	2.723	11.801	0.035	0.913
TN5K	6-8	9.242	608.266	1.168	2.552	15.396	0.110	0.878
TN5K	8-10	10.793	468.824	1.249	2.382	7.684	0.462	1.041
TN5K	10-12	10.044	809.691	1.260	2.379	13.678	0.172	1.144
TN20K	0-2	2.586	646.932	1.610	2.058	9.766	0.087	2.257
TN20K	2-4	5.618	1116.125	2.377	2.755	20.623	0.098	2.213
TN20K	4-6	3.082	1277.623	1.939	2.591	18.882	0.162	3.588
TN20K	6-8	3.116	1600.377	2.150	2.857	42.721	0.114	2.377
TN20K	8-10	4.718	1660.762	2.000	2.960	22.586	0.164	3.093
TN20K	10-12	9.053	1271.686	2.305	2.591	15.407	0.269	3.764
TN20K	12-14	1.830	1666.445	1.999	2.694	19.737	0.331	4.339

Station	Depth (cm)	Copper	Iron	Lead	Lithium	Manganese	Molybdenum	Nickel
TN20K	14-16	3.532	1149.440	1.576	1.996	19.171	0.377	3.095
TN20K	16-18	7.887	1080.039	1.518	2.257	15.153	0.438	5.621
TN20K	18-20	3.990	978.971	1.313	2.230	11.191	0.335	7.479
TN20K	20-22	4.665	1527.351	1.463	2.656	19.097	0.272	3.139
TN20K	22-24	4.064	1457.735	2.833	2.473	51.874	0.341	3.229
TE1K	0-2	0.880	1277.270	1.675	1.915	18.046	0.052	1.144
TE1K	2-4	1.174	1172.313	1.621	2.522	28.019	0.048	1.175
TE1K	4-6	1.491	1234.101	1.755	2.265	19.704	0.053	0.820
TE1K	6-8	1.063	792.295	1.760	2.702	12.142	0.051	0.854
TE1K	8-10	1.247	636.477	1.369	1.888	9.647	0.072	0.736
TE1K	10-12	0.996	1139.365	1.673	2.569	26.390	0.037	1.207
TE1K	12-14	1.554	901.170	1.159	2.343	12.000	0.062	1.043
TE1K	14-16	0.548	676.133	1.353	2.278	14.202	0.031	0.943
TE1K	16-18	0.667	677.209	1.207	2.523	11.226	0.038	0.861
TE1K	18-20	0.658	921.135	1.020	2.150	12.032	0.067	0.906
TE1K	20-22	0.755	584.254	1.611	2.436	7.059	0.089	1.972
TE1K	22-24	0.561	1536.747	1.643	2.527	25.540	0.330	3.921
TE5K	0-2	5.282	2299.499	1.284	2.387	86.843	0.108	1.267
TE5K	2-4	7.878	2660.415	1.509	2.691	90.217	0.061	1.740
TE5K	4-6	10.591	1987.251	1.327	2.782	55.361	0.065	1.115
TE5K	6-8	6.363	1382.855	1.363	2.334	41.593	0.050	1.123
TE5K	8-10	2.384	1006.561	1.184	2.269	15.253	0.071	0.913
TE5K	10-12	5.230	1979.740	1.136	2.541	49.014	0.034	1.720
TE5K	12-14	4.909	2539.462	1.431	2.697	78.739	0.042	1.704
TE5K	14-16	4.995	3082.650	1.702	2.339	83.262	0.048	1.683
TE5K	16-18	3.935	1484.206	1.368	2.417	24.148	0.027	1.125
TE5K	18-20	4.244	2405.930	1.537	2.823	56.151	0.074	1.635
TE5K	20-22	4.529	1444.621	1.542	2.449	21.596	0.037	0.784
TE5K	22-24	5.637	1506.597	1.446	2.473	41.926	0.038	1.378
TE5K	24-26	4.574	3346.799	1.331	2.445	67.824	0.124	1.933
TE5K	26-28	4.561	2019.134	1.397	2.630	49.521	0.039	1.158
TE5K	28-30	5.092	2251.678	1.361	2.898	57.044	0.059	1.398
TE5K	30-32	1.565	1283.239	1.266	2.387	26.634	0.058	1.588
TE5K	32-34	8.013	1141.734	1.496	3.283	11.763	0.046	4.013
TSE1K	0-2	10.361	1125.903	1.403	2.640	17.493	0.046	1.154
TSE1K	2-4	10.268	1106.940	1.367	2.897	15.656	0.042	1.135
TSE1K	4-6	2.612	1135.714	1.282	2.381	25.169	0.060	1.111
TSE1K	6-8	5.245	1050.948	1.583	2.660	14.773	0.078	1.029
TSE1K	8-10	4.698	1084.534	1.254	2.511	14.404	0.098	1.523
TSE1K	10-12	5.669	1022.951	1.478	2.267	15.142	0.055	0.822
TSE1K	12-14	5.048	1253.603	1.356	2.584	36.307	0.075	1.121
TSE1K	14-16	6.499	1223.755	1.554	2.648	21.562	0.081	0.876
TSE1K	16-18	9.554	2662.027	1.458	2.418	80.821	0.096	1.482
TSE1K	18-19	8.557	1412.275	1.395	2.389	20.389	0.162	1.116
TS500	0-2	3.545	1127.364	2.179	2.501	12.792	0.142	2.067
TS500	2-4	5.684	1429.838	2.145	2.635	25.377	0.128	2.040
TS500	4-6	10.897	1176.248	2.218	2.516	22.765	0.146	1.840
TS500	4-6	0.849	1060.358	1.662	2.317	11.897	0.174	1.739
TS500	6-8	4.702	1228.831	2.164	2.597	17.911	0.185	2.395
TS500	6-8	1.012	1108.682	1.943	2.920	12.023	0.182	2.579
TS500	8-10	3.705	1276.952	2.430	2.777	21.298	0.200	2.185
TS500	10-12	3.218	1058.107	1.787	2.441	15.176	0.255	2.173
TS500	12-14	5.367	679.035	1.702	2.414	9.671	0.219	1.746
TS500	14-16	3.569	1286.705	2.059	2.710	19.050	0.258	3.016

Station	Depth (cm)	Copper	Iron	Lead	Lithium	Manganese	Molybdenum	Nickel
TS500	16-18	7.366	841.720	1.777	2.605	10.828	0.187	2.406
TS500	18-20	2.455	972.036	1.834	2.262	15.035	0.232	3.221
TS500	20-22	7.309	1222.940	1.750	1.859	10.619	0.335	6.323
TS500	22-24	0.932	1025.776	1.898	2.184	15.675	0.321	5.240
TS500	24-26	0.832	892.766	2.033	2.306	10.009	0.304	3.051
TS500	26-28	0.996	999.231	1.889	2.360	11.167	0.490	4.560
TS1K	0-2	6.365	1190.037	1.282	2.715	17.954	0.044	1.148
TS1K	2-4	5.468	623.989	0.861	2.352	15.507	0.054	0.821
TS1K	4-6	7.116	1052.394	1.440	3.002	9.673	0.049	1.276
TS1K	6-8	5.340	633.838	1.486	3.001	9.308	0.038	1.068
TS1K	8-10	2.822	1188.460	1.396	2.797	15.252	0.048	1.106
TS1K	10-12	3.867	1382.242	1.352	2.709	17.551	0.033	1.094
TS1K	12-14	9.029	1677.518	1.414	2.544	47.391	0.155	2.330
TS1K	14-16	6.425	639.421	1.284	2.431	14.108	0.050	2.548
TS1K	14-16	1.370	1247.148	1.393	2.653	41.657	0.054	3.421
TS1K	16-18	5.644	605.160	1.450	2.426	14.008	0.061	5.135
TS1K	18-20	2.923	1068.586	1.332	2.312	15.639	0.061	14.929
TS1K	20-22	5.118	390.928	1.214	2.307	12.694	0.143	21.186
TS5K	0-2	3.381	1329.924	2.175	2.695	23.071	0.119	4.328
TS5K	2-4	7.145	1205.803	2.131	2.623	20.468	0.103	4.306
TS5K	4-6	7.296	1167.374	2.269	2.366	14.970	0.085	3.401
TS5K	4-6	1.466	1368.960	2.186	2.419	26.295	0.087	2.436
TS5K	6-8	3.655	1618.439	2.314	2.606	37.407	0.105	4.736
TS5K	8-10	3.268	241.509	1.857	2.495	15.870	0.189	1.095
TS5K	10-12	7.584	968.402	1.769	2.550	12.289	0.163	4.564
TS5K	12-14	3.819	1132.588	1.842	2.227	18.34	0.149	5.043
TS5K	14-16	4.365	1390.822	1.823	2.591	18.105	0.160	5.683
TS5K	16-18	6.453	982.347	2.009	2.473	11.716	0.313	4.143
TS5K	18-20	5.090	1065.521	1.837	3.082	15.863	0.222	6.653
TS5K	20-22	5.987	1251.499	2.088	2.408	17.874	0.210	3.517
TW1K	0-2	0.843	1416.700	1.428	2.685	25.800	0.050	0.989
TW1K	2-4	1.304	1643.600	1.600	2.758	70.476	0.080	1.153
TW1K	4-6	0.742	1131.400	1.242	2.766	60.099	0.038	1.489
TW1K	6-8	1.054	678.100	1.045	2.183	11.309	0.112	0.911
TW1K	6-8	0.711	1046.800	1.159	2.757	15.794	0.053	0.862
TW1K	8-10	1.383	711.500	1.194	2.736	13.977	0.047	0.891
TW1K	10-12	1.021	675.200	1.279	3.092	15.669	0.081	1.010
TW1K	12-14	0.816	1526.600	1.498	2.646	45.517	0.053	1.066
TW1K	14-16	10.146	1401.600	1.203	2.601	41.903	0.062	1.158
TW1K	16-18	2.430	1323.300	1.310	2.880	20.336	0.083	0.899
TW1K	18-20	8.197	1225.800	1.024	2.882	19.299	0.074	1.008
TW1K	20-22	7.119	3353.700	1.425	2.801	77.259	0.106	1.868
TW1K	22-24	5.122	1329.400	1.365	2.862	40.748	0.079	0.973
TW1K	24-26	4.584	1469.300	1.955	2.947	20.888	0.078	2.297
TW1K	24-26	1.314	1045.500	1.406	2.649	16.970	0.070	1.640
TW1K	26-28	7.351	1203.700	1.378	2.776	19.651	0.069	2.982
TW5K	0-2	9.487	602.035	1.110	2.212	11.904	0.080	0.673
TW5K	2-4	5.294	1155.011	1.245	2.791	27.123	0.039	0.731
TW5K	4-6	7.304	840.718	1.055	2.259	16.012	0.045	0.617
TW5K	6-8	4.532	632.853	1.473	2.784	16.376	0.029	1.186
TW5K	8-10	3.275	779.882	1.604	2.672	10.705	0.038	0.950
TW5K	10-12	6.870	947.472	1.148	2.803	14.837	0.040	0.878
TW5K	12-14	6.555	1209.685	1.157	2.625	52.850	0.042	1.166
TW5K	12-14	1.720	1439.669	1.120	2.244	47.842	0.025	0.953

Station	Depth (cm)	Copper	Iron	Lead	Lithium	Manganese	Molybdenum	Nickel
TW5K	14-16	6.362	885.834	1.171	2.603	37.090	0.091	0.715
TW5K	16-18	4.877	1155.521	1.149	2.548	26.299	0.036	1.008
TW5K	18-20	8.597	1132.842	1.134	2.690	21.884	0.172	0.878

Table 16. Continued.

Station	Depth (cm)	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
TN1K	0-2	2857	0.130	3282	0.040	4.970	2.536
TN1K	2-4	2429	0.078	3027	0.033	3.714	3.778
TN1K	4-6	2156	0.098	2724	0.030	3.267	1.941
TN1K	6-8	2239	0.077	2619	0.033	3.014	1.727
TN1K	8-10	2337	0.099	3156	0.034	3.338	1.738
TN1K	10-12	3221	0.095	3867	0.035	3.029	2.085
TN1K	12-14	2410	0.099	3787	0.035	3.319	1.938
TN1K	14-16	2089	0.094	3065	0.031	3.346	1.989
TN5K	0-2	2451	0.072	2537	0.038	2.987	1.853
TN5K	2-4	1966	0.022	2145	0.028	2.820	1.559
TN5K	2-4	2547	0.065	3307	0.033	3.006	2.352
TN5K	4-6	1703	0.051	2170	0.023	2.816	1.655
TN5K	6-8	2100	0.035	2508	0.027	3.225	1.760
TN5K	8-10	1877	0.134	2121	0.034	2.684	1.388
TN5K	10-12	2102	0.100	2410	0.034	3.130	1.641
TN20K	0-2	2886	0.106	2550	0.063	4.082	1.913
TN20K	2-4	3700	0.111	3866	0.068	4.101	2.762
TN20K	4-6	3420	0.119	5246	0.068	5.200	2.377
TN20K	6-8	3815	0.103	3534	0.068	5.382	2.825
TN20K	8-10	3536	0.121	3038	0.076	5.920	3.210
TN20K	10-12	4501	0.135	3191	0.090	5.256	2.828
TN20K	12-14	3472	0.170	3889	0.085	6.251	2.868
TN20K	14-16	2323	0.170	2201	0.076	4.920	2.701
TN20K	16-18	2309	0.150	3538	0.058	4.386	2.403
TN20K	18-20	2571	0.169	4637	0.050	4.689	2.119
TN20K	20-22	2366	0.106	2162	0.055	6.008	2.711
TN20K	22-24	3914	0.193	2653	0.075	6.338	3.027
TE1K	0-2	1923	0.091	2558	0.038	4.008	1.854
TE1K	2-4	2708	0.067	2621	0.038	3.589	1.898
TE1K	4-6	2120	0.083	2233	0.033	3.172	2.597
TE1K	6-8	3619	0.075	3533	0.045	3.446	1.666
TE1K	8-10	2274	0.079	2011	0.031	2.531	1.399
TE1K	10-12	2930	0.064	2426	0.042	3.121	1.891
TE1K	12-14	2034	0.079	1907	0.031	2.950	1.880
TE1K	14-16	2382	0.071	2824	0.030	3.426	1.261
TE1K	16-18	2248	0.083	2368	0.025	2.715	1.494
TE1K	18-20	1607	0.065	1901	0.023	3.273	1.466
TE1K	20-22	3095	0.082	2424	0.036	3.257	1.289
TE1K	22-24	3785	0.051	3445	0.044	3.638	2.131
TE5K	0-2	1790	0.039	2361	0.027	4.115	2.788
TE5K	2-4	2102	0.060	2782	0.025	5.046	3.331
TE5K	4-6	2037	0.020	2919	0.025	4.509	2.980
TE5K	6-8	2307	0.070	2163	0.027	3.428	1.859
TE5K	8-10	1560	0.040	2241	0.025	2.828	1.981
TE5K	10-12	1462	0.027	2380	0.020	4.038	2.428
TE5K	12-14	1791	0.033	2503	0.023	5.470	2.953

Station	Depth (cm)	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
TE5K	14-16	2053	0.045	2448	0.031	6.073	3.016
TE5K	16-18	2415	0.042	2512	0.029	3.506	1.862
TE5K	18-20	2247	0.089	3530	0.030	5.300	2.561
TE5K	20-22	2569	0.031	3046	0.035	3.430	1.716
TE5K	22-24	2143	0.022	2559	0.031	4.065	1.863
TE5K	24-26	2094	0.042	4184	0.029	6.349	3.388
TE5K	26-28	2184	0.043	2672	0.027	4.318	2.115
TE5K	28-30	2292	0.065	2972	0.030	5.186	2.740
TE5K	30-32	1876	0.034	2544	0.024	3.656	1.680
TE5K	32-34	2417	0.057	3517	0.035	4.850	1.741
TSE1K	0-2	2385	0.102	2714	0.031	3.829	2.173
TSE1K	2-4	2347	0.095	3151	0.029	3.917	2.153
TSE1K	4-6	2059	0.132	3279	0.025	3.832	1.937
TSE1K	6-8	2779	0.066	5105	0.030	3.538	1.908
TSE1K	8-10	2129	0.064	2848	0.033	3.654	2.170
TSE1K	10-12	2427	0.059	3059	0.032	2.969	1.660
TSE1K	12-14	2678	0.059	2385	0.034	3.633	2.050
TSE1K	14-16	2665	0.030	3821	0.032	3.238	1.751
TSE1K	16-18	2353	0.100	2773	0.035	5.589	2.762
TSE1K	18-19	2245	0.081	2715	0.030	4.046	2.010
TS500	0-2	3701	0.149	3472	0.059	4.948	2.588
TS500	2-4	3757	0.160	3332	0.061	5.895	2.516
TS500	4-6	3856	0.177	3289	0.060	4.920	2.448
TS500	4-6	2865	0.132	2900	0.051	5.215	2.877
TS500	6-8	3701	0.186	4526	0.055	5.643	2.990
TS500	6-8	3775	0.160	5718	0.053	4.963	3.247
TS500	8-10	3804	0.176	4266	0.059	6.042	2.719
TS500	10-12	3124	0.182	2918	0.050	4.749	2.335
TS500	12-14	2958	0.136	2789	0.050	4.619	2.213
TS500	14-16	3966	0.154	4666	0.063	6.180	2.427
TS500	16-18	3580	0.126	3661	0.057	4.868	2.439
TS500	18-20	3080	0.133	3240	0.053	4.867	3.324
TS500	20-22	2477	0.217	2888	0.059	5.225	2.102
TS500	22-24	2502	0.156	3216	0.058	5.273	2.485
TS500	24-26	3668	0.148	3932	0.064	4.321	13.025
TS500	26-28	3235	0.163	4690	0.060	5.283	2.202
TS1K	0-2	2166	0.038	2868	0.029	3.107	1.890
TS1K	2-4	1506	0.041	2223	0.022	2.617	1.989
TS1K	4-6	2835	0.074	3203	0.036	4.005	1.832
TS1K	6-8	2163	0.058	2521	0.030	2.987	1.862
TS1K	8-10	2349	0.053	4092	0.031	3.246	1.748
TS1K	10-12	2101	0.044	3305	0.026	3.506	1.836
TS1K	12-14	2368	0.058	4296	0.031	4.038	2.388
TS1K	14-16	2298	0.038	2858	0.031	2.550	1.447
TS1K	14-16	2723	0.029	3769	0.035	2.746	2.295
TS1K	16-18	2366	0.086	2356	0.042	2.571	1.678
TS1K	18-20	1882	0.120	3451	0.040	3.470	1.997
TS1K	20-22	2330	0.149	4846	0.064	3.016	1.642
TS5K	0-2	3657	0.203	4437	0.059	5.517	2.823
TS5K	2-4	3485	0.159	3568	0.054	5.828	2.583
TS5K	4-6	3977	0.135	3203	0.062	4.631	2.313
TS5K	4-6	3914	0.141	3007	0.058	5.147	3.358
TS5K	6-8	4124	0.152	3080	0.067	5.966	2.794
TS5K	8-10	3130	0.009	3952	0.059	0.987	2.533

Station	Depth (cm)	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
TS5K	10-12	3564	0.136	3282	0.059	4.207	2.245
TS5K	12-14	3306	0.190	3117	0.067	5.064	2.118
TS5K	14-16	3029	0.126	4144	0.051	4.887	3.006
TS5K	16-18	3851	0.168	3166	0.063	4.393	2.159
TS5K	18-20	3203	0.135	3779	0.066	5.184	2.278
TS5K	20-22	3833	0.162	3107	0.072	5.437	2.572
TW1K	0-2	2515	0.106	3425	0.037	3.710	2.199
TW1K	2-4	2531	0.114	5686	0.034	3.875	2.335
TW1K	4-6	2223	0.102	2905	0.032	3.461	1.816
TW1K	6-8	2013	0.101	2507	0.033	3.042	1.604
TW1K	6-8	1948	0.095	3080	0.031	2.925	3.439
TW1K	8-10	1935	0.077	3600	0.029	2.932	1.922
TW1K	10-12	2065	0.074	3627	0.028	3.360	1.864
TW1K	12-14	2431	0.116	2744	0.035	4.197	2.263
TW1K	14-16	2197	0.074	2676	0.031	3.693	2.224
TW1K	16-18	2296	0.110	3609	0.033	3.705	2.015
TW1K	18-20	1771	0.094	2743	0.027	3.646	2.894
TW1K	20-22	2360	0.125	2840	0.035	6.996	3.019
TW1K	22-24	2932	0.095	2793	0.038	3.743	2.045
TW1K	24-26	2512	0.135	3742	0.036	4.877	2.207
TW1K	24-26	2562	0.114	3571	0.037	4.314	2.949
TW1K	26-28	2729	0.103	2525	0.040	3.988	1.884
TW5K	0-2	1725	0.042	2300	0.030	2.645	1.540
TW5K	2-4	2141	0.047	2521	0.032	3.354	2.093
TW5K	4-6	1861	0.024	1866	0.028	2.489	1.541
TW5K	6-8	2362	0.033	2059	0.030	2.903	1.699
TW5K	8-10	1695	0.044	1979	0.027	3.245	1.803
TW5K	10-12	1963	0.034	1756	0.026	3.214	1.700
TW5K	12-14	1884	0.046	2082	0.029	3.332	2.048
TW5K	12-14	1737	0.039	1627	0.028	3.805	2.911
TW5K	14-16	1696	0.029	2043	0.027	2.820	2.350
TW5K	16-18	1744	0.051	2187	0.024	3.610	1.605
TW5K	18-20	2536	0.015	2763	0.037	3.349	1.712

Table 17. Inorganic grain size spectra: Terra Nova 2007, station TSE3K.

ID	3130911	3130912	3130913	3130914
Station	TSE3K	TSE3K	TSE3K	TSE3K
Depth (cm)	0-2	2-4	4-6	6-8
Diameter (µm)				
0.76	0.015	0.014	0.007	0.006
0.87	0.017	0.015	0.007	0.007
1.00	0.019	0.017	0.007	0.008
1.15	0.022	0.019	0.008	0.009
1.32	0.023	0.021	0.009	0.010
1.52	0.025	0.022	0.009	0.011
1.74	0.028	0.024	0.010	0.011
2.00	0.028	0.026	0.010	0.012
2.30	0.029	0.026	0.011	0.013
2.64	0.029	0.025	0.011	0.012
3.03	0.030	0.026	0.010	0.012
3.48	0.032	0.026	0.009	0.013
4.00	0.032	0.025	0.011	0.011
4.59	0.034	0.025	0.010	0.012
5.28	0.035	0.023	0.010	0.012
6.06	0.038	0.025	0.011	0.014
6.96	0.038	0.027	0.011	0.015
8.00	0.037	0.027	0.012	0.016
9.19	0.037	0.028	0.012	0.017
10.56	0.038	0.030	0.013	0.018
12.13	0.040	0.030	0.014	0.020
13.93	0.034	0.029	0.014	0.019
16.00	0.035	0.030	0.013	0.020
18.38	0.031	0.028	0.013	0.021
21.11	0.023	0.023	0.015	0.022
24.25	0.025	0.029	0.015	0.019
27.86	0.025	0.022	0.015	0.020
32.00	0.028	0.029	0.017	0.018
36.76	0.039	0.053	0.025	0.024
42.22	0.052	0.048	0.040	0.044
48.50	0.059	0.058	0.051	0.060
55.72	0.103	0.104	0.066	0.073
64.00	0.120	0.105	0.100	0.096
73.52	0.196	0.160	0.169	0.164
84.45	0.232	0.272	0.250	0.241
97.01	0.467	0.308	0.352	0.304
111.43	0.507	0.486	0.408	0.463
128.00	1.298	1.158	1.011	0.881
147.03	4.451	4.498	3.353	3.372
168.90	12.080	12.195	9.758	10.841
194.01	22.049	21.192	19.708	22.849
222.86	26.045	25.663	24.903	26.584
256.00	17.301	17.483	18.139	18.164
294.07	8.539	9.185	12.028	8.981
337.79	5.637	6.340	6.057	3.646
388.02			3.270	2.812
445.72				
512.00				
% <16µm	65.80	53.19	22.26	27.95

ID	3130911	3130912	3130913	3130914
Station	TSE3K	TSE3K	TSE3K	TSE3K
Depth (cm)	0-2	2-4	4-6	6-8
% <64µm	107.73	95.54	49.21	60.10
~D50	194.01	194.01	222.86	194.01
modal	26.05	25.66	24.90	26.58

Table 18. Inorganic grain size spectra: Terra Nova 2007, station TS3K.

ID	3130891	3130892	3130893	3130894	3130895	3130896	3130897	3130901	3130902
Station	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
0.76	0.005	0.006	0.005	0.006	0.011	0.013	0.001	0.002	0.006
0.87	0.006	0.007	0.005	0.007	0.012	0.015	0.001	0.003	0.007
1.00	0.006	0.008	0.006	0.008	0.013	0.016	0.002	0.003	0.007
1.15	0.007	0.011	0.007	0.009	0.015	0.018	0.002	0.003	0.008
1.32	0.008	0.010	0.007	0.010	0.016	0.020	0.002	0.003	0.008
1.52	0.008	0.010	0.008	0.011	0.017	0.021	0.002	0.003	0.009
1.74	0.009	0.010	0.008	0.011	0.017	0.022	0.002	0.003	0.009
2.00	0.009	0.010	0.008	0.011	0.018	0.021	0.002	0.003	0.009
2.30	0.009	0.010	0.008	0.011	0.017	0.021	0.002	0.003	0.009
2.64	0.010	0.010	0.008	0.012	0.017	0.021	0.003	0.003	0.009
3.03	0.010	0.010	0.008	0.013	0.016	0.021	0.002	0.003	0.009
3.48	0.009	0.009	0.008	0.013	0.018	0.020	0.002	0.003	0.010
4.00	0.010	0.010	0.009	0.014	0.017	0.021	0.002	0.003	0.007
4.59	0.009	0.009	0.007	0.013	0.018	0.020	0.002	0.002	0.008
5.28	0.010	0.009	0.009	0.013	0.018	0.020	0.002	0.003	0.008
6.06	0.009	0.009	0.009	0.013	0.017	0.021	0.002	0.003	0.008
6.96	0.009	0.009	0.008	0.012	0.017	0.021	0.002	0.003	0.008
8.00	0.009	0.009	0.008	0.012	0.016	0.022	0.002	0.003	0.007
9.19	0.009	0.009	0.008	0.011	0.016	0.022	0.002	0.003	0.008
10.56	0.009	0.009	0.008	0.011	0.016	0.022	0.002	0.002	0.008
12.13	0.008	0.010	0.008	0.010	0.016	0.023	0.002	0.003	0.008
13.93	0.008	0.010	0.008	0.011	0.015	0.023	0.002	0.003	0.008
16.00	0.008	0.008	0.007	0.009	0.014	0.022	0.002	0.002	0.008
18.38	0.008	0.010	0.006	0.009	0.016	0.019	0.002	0.003	0.008
21.11	0.007	0.008	0.006	0.007	0.013	0.020	0.001	0.003	0.007
24.25	0.006	0.007	0.004	0.008	0.013	0.021	0.002	0.002	0.007
27.86	0.006	0.007	0.005	0.007	0.011	0.019	0.004	0.003	0.010
32.00	0.007	0.010	0.009	0.013	0.012	0.019	0.008	0.005	0.007
36.76	0.012	0.014	0.012	0.018	0.018	0.022	0.010	0.013	0.020
42.22	0.016	0.023	0.019	0.028	0.027	0.027	0.017	0.019	0.024
48.50	0.028	0.032	0.031	0.034	0.033	0.041	0.026	0.025	0.032
55.72	0.045	0.050	0.052	0.045	0.055	0.059	0.042	0.054	0.058
64.00	0.068	0.069	0.074	0.065	0.079	0.087	0.075	0.065	0.078
73.52	0.092	0.088	0.105	0.079	0.105	0.110	0.089	0.075	0.108
84.45	0.145	0.148	0.148	0.144	0.122	0.146	0.134	0.130	0.138
97.01	0.217	0.220	0.188	0.215	0.165	0.196	0.176	0.189	0.222
111.43	0.245	0.275	0.239	0.303	0.226	0.260	0.291	0.273	0.326
128.00	0.763	0.470	0.541	0.638	0.451	0.545	0.606	0.532	0.719
147.03	2.754	1.417	1.493	1.986	1.925	2.106	1.826	1.814	2.026

ID	3130891	3130892	3130893	3130894	3130895	3130896	3130897	3130901	3130902
Station	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K	TS3K
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18
Diameter (µm)									
168.90	7.310	4.335	5.022	5.670	6.129	5.772	5.434	5.109	6.386
194.01	14.057	8.712	11.063	9.336	12.732	11.539	11.198	10.257	11.826
222.86	20.406	16.684	17.045	17.963	22.513	20.018	17.980	17.782	20.620
256.00	25.607	23.722	23.233	24.077	26.380	23.859	23.076	25.037	23.567
294.07	16.477	21.701	20.417	20.723	18.911	19.772	19.835	21.891	17.311
337.79	8.350	12.135	10.747	11.096	7.383	8.574	12.436	9.446	8.695
388.02	3.180	6.513	5.499	5.435	2.317	4.722	4.525	5.783	5.219
445.72		3.137	3.866	1.847		1.578	2.159	1.427	2.403
512.00									
% <16µm	18.54	20.35	16.71	24.39	35.25	44.62	4.59	6.23	17.69
% <64µm	32.83	37.30	31.95	42.23	56.15	71.59	16.04	19.13	35.75
~D50	222.86	256.00	256.00	256.00	222.86	222.86	256.00	256.00	222.86
modal	25.61	23.72	23.23	24.08	26.38	23.86	23.08	25.04	23.57

Table 18. Continued.

ID	3130903	3130904	3130905	3130906
Station	TS3K	TS3K	TS3K	TS3K
Depth (cm)	18-20	20-22	22-24	24-26
Diameter (µm)				
0.76	0.002	0.006	0.014	0.008
0.87	0.002	0.006	0.016	0.009
1.00	0.002	0.007	0.018	0.010
1.15	0.002	0.008	0.021	0.012
1.32	0.002	0.008	0.022	0.013
1.52	0.003	0.008	0.025	0.014
1.74	0.003	0.008	0.026	0.014
2.00	0.003	0.009	0.026	0.016
2.30	0.003	0.010	0.031	0.017
2.64	0.003	0.010	0.031	0.018
3.03	0.003	0.009	0.030	0.019
3.48	0.003	0.008	0.031	0.017
4.00	0.003	0.009	0.037	0.020
4.59	0.003	0.008	0.027	0.019
5.28	0.003	0.009	0.026	0.021
6.06	0.004	0.010	0.029	0.023
6.96	0.004	0.011	0.033	0.023
8.00	0.004	0.012	0.038	0.025
9.19	0.004	0.014	0.040	0.026
10.56	0.004	0.015	0.044	0.028
12.13	0.005	0.018	0.049	0.030
13.93	0.005	0.018	0.052	0.033
16.00	0.006	0.019	0.058	0.035
18.38	0.005	0.020	0.055	0.040
21.11	0.006	0.019	0.055	0.041
24.25	0.007	0.021	0.056	0.039
27.86	0.007	0.018	0.052	0.043
32.00	0.008	0.023	0.047	0.045
36.76	0.013	0.030	0.033	0.040
42.22	0.019	0.035	0.040	0.044

ID	3130903	3130904	3130905	3130906
Station	TS3K	TS3K	TS3K	TS3K
Depth (cm)	18-20	20-22	22-24	24-26
Diameter (µm)				
48.50	0.029	0.048	0.057	0.063
55.72	0.052	0.062	0.102	0.090
64.00	0.070	0.092	0.118	0.106
73.52	0.090	0.138	0.151	0.142
84.45	0.143	0.221	0.165	0.205
97.01	0.195	0.206	0.310	0.339
111.43	0.231	0.402	0.511	0.447
128.00	0.356	0.771	1.242	1.150
147.03	1.507	2.709	4.209	3.586
168.90	4.979	7.197	9.482	9.601
194.01	11.786	12.405	13.226	14.025
222.86	20.464	19.633	20.136	23.056
256.00	24.420	21.732	23.386	23.044
294.07	19.123	17.292	15.173	14.811
337.79	10.350	9.086	7.376	5.294
388.02	4.216	4.109	3.292	3.300
445.72	1.849	3.490		
512.00				
% <16µm	6.99	22.21	66.78	41.44
% <64µm	22.10	51.68	122.27	89.37
~D50	222.86	222.86	222.86	222.86
modal	24.42	21.73	23.39	23.06

Table 19. Inorganic grain size spectra: Terra Nova 2007, station TW2K.

ID	3130871	3130872	3130873	3130874	3130875	3130876	3130877	3130881	3130882	3130883
Station	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20
Diameter (µm)										
0.76	0.027	0.014	0.047	0.004	0.008	0.011	0.008	0.006	0.007	0.002
0.87	0.030	0.015	0.052	0.005	0.009	0.012	0.009	0.007	0.008	0.002
1.00	0.032	0.017	0.060	0.005	0.010	0.013	0.010	0.008	0.009	0.003
1.15	0.036	0.018	0.075	0.006	0.011	0.014	0.011	0.009	0.010	0.003
1.32	0.038	0.020	0.077	0.006	0.012	0.016	0.011	0.009	0.011	0.003
1.52	0.041	0.021	0.076	0.007	0.012	0.016	0.012	0.010	0.011	0.003
1.74	0.042	0.022	0.082	0.007	0.013	0.017	0.012	0.011	0.012	0.004
2.00	0.044	0.022	0.087	0.007	0.013	0.017	0.012	0.011	0.012	0.004
2.30	0.046	0.022	0.086	0.008	0.013	0.017	0.013	0.012	0.013	0.004
2.64	0.042	0.023	0.088	0.007	0.014	0.018	0.012	0.012	0.013	0.004
3.03	0.047	0.022	0.085	0.008	0.013	0.018	0.012	0.011	0.012	0.005
3.48	0.043	0.021	0.079	0.006	0.010	0.017	0.012	0.012	0.012	0.004
4.00	0.048	0.023	0.082	0.007	0.013	0.016	0.012	0.011	0.012	0.006
4.59	0.044	0.020	0.082	0.006	0.012	0.014	0.012	0.010	0.010	0.005
5.28	0.047	0.019	0.081	0.006	0.012	0.014	0.012	0.010	0.011	0.005
6.06	0.056	0.020	0.083	0.006	0.012	0.014	0.013	0.011	0.011	0.006
6.96	0.052	0.021	0.082	0.006	0.012	0.014	0.012	0.011	0.012	0.006
8.00	0.044	0.020	0.082	0.006	0.012	0.014	0.013	0.012	0.013	0.006
9.19	0.043	0.020	0.084	0.006	0.012	0.014	0.013	0.013	0.013	0.007

ID	3130871	3130872	3130873	3130874	3130875	3130876	3130877	3130881	3130882	3130883
Station	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K	TW2K
Depth (cm)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20
Diameter (µm)										
10.56	0.042	0.019	0.084	0.006	0.011	0.014	0.014	0.013	0.014	0.008
12.13	0.040	0.020	0.082	0.007	0.011	0.014	0.016	0.014	0.016	0.009
13.93	0.042	0.020	0.077	0.007	0.012	0.015	0.019	0.016	0.017	0.010
16.00	0.040	0.019	0.087	0.006	0.011	0.015	0.019	0.017	0.017	0.010
18.38	0.037	0.018	0.084	0.007	0.012	0.016	0.023	0.018	0.017	0.011
21.11	0.033	0.018	0.078	0.007	0.012	0.016	0.020	0.020	0.018	0.012
24.25	0.027	0.017	0.098	0.008	0.009	0.018	0.023	0.021	0.017	0.013
27.86	0.026	0.020	0.079	0.006	0.007	0.019	0.022	0.023	0.021	0.013
32.00	0.030	0.026	0.064	0.009	0.012	0.022	0.024	0.024	0.024	0.016
36.76	0.040	0.037	0.064	0.015	0.018	0.036	0.025	0.025	0.021	0.022
42.22	0.054	0.043	0.064	0.024	0.025	0.043	0.037	0.030	0.044	0.033
48.50	0.081	0.062	0.080	0.038	0.033	0.053	0.052	0.036	0.062	0.052
55.72	0.093	0.089	0.082	0.055	0.053	0.084	0.085	0.070	0.081	0.068
64.00	0.141	0.152	0.144	0.090	0.071	0.107	0.116	0.090	0.145	0.114
73.52	0.223	0.226	0.202	0.125	0.112	0.149	0.202	0.130	0.168	0.156
84.45	0.364	0.300	0.257	0.203	0.137	0.222	0.276	0.180	0.227	0.274
97.01	0.381	0.522	0.351	0.339	0.206	0.336	0.426	0.298	0.368	0.337
111.43	0.590	0.673	0.471	0.434	0.322	0.527	0.791	0.368	0.672	0.599
128.00	1.149	1.392	0.874	0.925	0.787	1.516	1.674	0.880	1.719	1.222
147.03	3.665	4.249	2.306	3.131	2.497	4.550	5.401	2.839	5.632	4.461
168.90	8.376	8.238	6.015	7.887	6.512	10.099	10.385	6.608	12.595	9.338
194.01	13.746	12.401	12.285	12.143	11.250	13.783	15.914	11.392	17.600	14.871
222.86	18.411	18.898	17.154	18.644	17.909	22.167	18.792	16.802	19.531	19.448
256.00	24.491	22.869	24.431	25.436	23.442	22.665	22.899	21.699	20.923	21.342
294.07	17.275	14.356	19.337	18.009	18.410	16.155	14.533	17.447	12.928	16.843
337.79	7.075	7.298	10.079	7.837	8.415	4.929	4.796	9.685	4.245	7.868
388.02	2.725	4.847	3.598	4.481	6.612	2.145	3.193	5.485	2.664	2.767
445.72		2.790			2.866			2.889		
512.00								2.684		
% <16µm	92.70	43.94	171.31	13.90	25.74	32.89	27.13	24.05	25.94	11.00
% <64µm	138.76	78.86	249.40	31.49	45.00	65.12	60.09	52.52	58.12	35.96
~D50	222.86	222.86	222.86	222.86	256.00	222.86	222.86	222.86	222.86	222.86
modal	24.49	22.87	24.43	25.44	23.44	22.67	22.90	21.70	20.92	21.34

Table 20. Detection limits for metals concentrations in mg kg^{-1} from analytical labs RPC (Fredericton, NB) and IML (Mont-Joli, QC).

Lab	RPC	RPC	RPC	IML
Year	2005	2006	2007	2008
Aluminum	1.00	1.00	1.00	0.001
Antimony	0.10	0.10	0.10	0.001
Arsenic	1.00	1.00	1.00	-
Barium	1.00	1.00	2.00	-
Beryllium	0.10	0.10	0.10	0.001
Bismuth	0.10	1.00	1.00	0.001
Cadmium	0.05	0.01	0.01	0.001
Calcium	50.00	50.00	50.00	0.001
Chromium	1.00	1.00	1.00	0.001
Cobalt	0.10	0.10	0.10	-
Copper	1.00	1.00	1.00	0.001
Iron	20.00	20.00	20.00	0.001
Lanthanum	0.10	0.10	0.10	-
Lead	0.10	0.10	0.10	0.001
Lithium	0.20	0.10	0.10	0.003
Magnesium	10.00	10.00	10.00	0.001
Manganese	1.00	1.00	1.00	0.002
Mercury	-	0.01	0.01	-
Molybdenum	0.10	0.10	0.10	0.001
Nickel	1.00	1.00	1.00	0.001
Potassium	20.00	20.00	20.00	0.003
Rubidium	0.10	0.10	0.10	-
Selenium	1.00	1.00	1.00	0.007
Silver	0.10	0.10	0.10	-
Sodium	50.00	50.00	50.00	0.001
Strontium	1.00	1.00	1.00	-
Sulfur	200.00	200.00	200.00	-
Tellurium	0.10	0.10	0.10	-
Thallium	0.10	0.10	0.10	0.001
Titanium	-	-	-	0.009
Tin	0.10	0.10	0.10	-
Uranium	0.10	0.10	0.10	-
Vanadium	1.00	1.00	1.00	0.001
Zinc	2.00	1.00	1.00	0.005