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Publications in this series have not been edited; they are released as submitted by the author.

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Abstract

In this study we investigated coda-wave attenuation (Q_C) from the eastern Canadian Arctic in Nunavut and the Hudson Bay complex including portions of northern Manitoba, Ontario, Quebec and Labrador. We used earthquake recordings from 15 broadband and 3 short period seismograph stations of the Canadian National Seismic Network (CNSN) and 29 broadband stations of the POLARIS network across the region. Our dataset is comprised of 637 earthquakes recorded between 1985 and 2021 with magnitudes ranging from 1.3 to 6.1, depths from 0 to 20 km and epicentral distances of 5 to 100 km. This gives a total of 246 high signal-to-noise (S/N) traces (S/N≥5.0) useful for Q_C calculation (with a maximum ellipse parameter, a_2, of 100) across the region. Coda windows were selected to start at $t_c = 2t_S$ (two times the travel time of the direct S wave), and were filtered at center frequencies of 2, 4, 8, 12 and 16 Hz. Our study reveals a consistent pattern. We find that in the northern section of the study area, the highest Q_0 values (e.g., Q_0 of 110 and 112) are at station POIN and station RES, respectively, which are located in the older Archean province. The lowest Q_0 values that we find (e.g., Q_0 of 55 and 61) are at station AKVQ and IVKQ respectively, located in northern Quebec. Smaller Q_0 values for stations in the south are explained by the younger age of the rocks and proximity to the main fault systems. An average for all the data results in a Q relationship of $Q_C = 82f^{1.08}$ for the frequency band of 2 to 16 Hz for the entire region.

Introduction

Intraplate seismicity is characteristic of all continents, but in general, it is less frequent and weaker than seismicity observed near active plate boundaries. However, intraplate earthquakes can be large and destructive, with potential for significant impacts and loss of life. In parts of eastern and northeastern Canada, the causes of intraplate seismicity have been cited as pre-existing terrane boundaries, Glacial Isostatic Adjustment (GIA) and hotspot tracks (Vasudevan et al., 2010). Understanding both seismicity and seismic attenuation plays a crucial role in evaluating and mitigating seismic hazard.

Over the past few decades, only a few seismic attenuation studies in the east and northeastern Canada have been conducted that were mainly focused on Lg-wave analysis (e.g. Mitchell & Jemberie 2015; Zhao & Mousavi, 2018). In this study, we examine seismic attenuation characteristics of the eastern Canadian Arctic in the Nunavut territories plus portions of the mainland surrounding the Hudson Bay complex in northern Manitoba, Ontario, Quebec and Labrador. The Hudson Bay complex is composed of Hudson Bay, James Bay, Hudson Strait, Ungava Bay and Foxe Basin (Figure 1). Our analysis based upon seismic data collected by the Canadian National Seismic Network (CNSN) and the Polaris Network from 1985 to 2021. The single scattering approximation (Sato, 1977) using *S*-wave coda is applied; the attenuation and frequency dependency for different paths and the correlation of the results with the geotectonic of the region are presented. This article is one in a series of articles that examines coda wave attenuation across Canada in a wide range of tectonic environments (e.g. Farahbod & Cassidy, 2016; Farahbod et al., 2016; Farahbod & Cassidy, 2018; Farahbod et al., 2019 and Farahbod & Cassidy 2022).

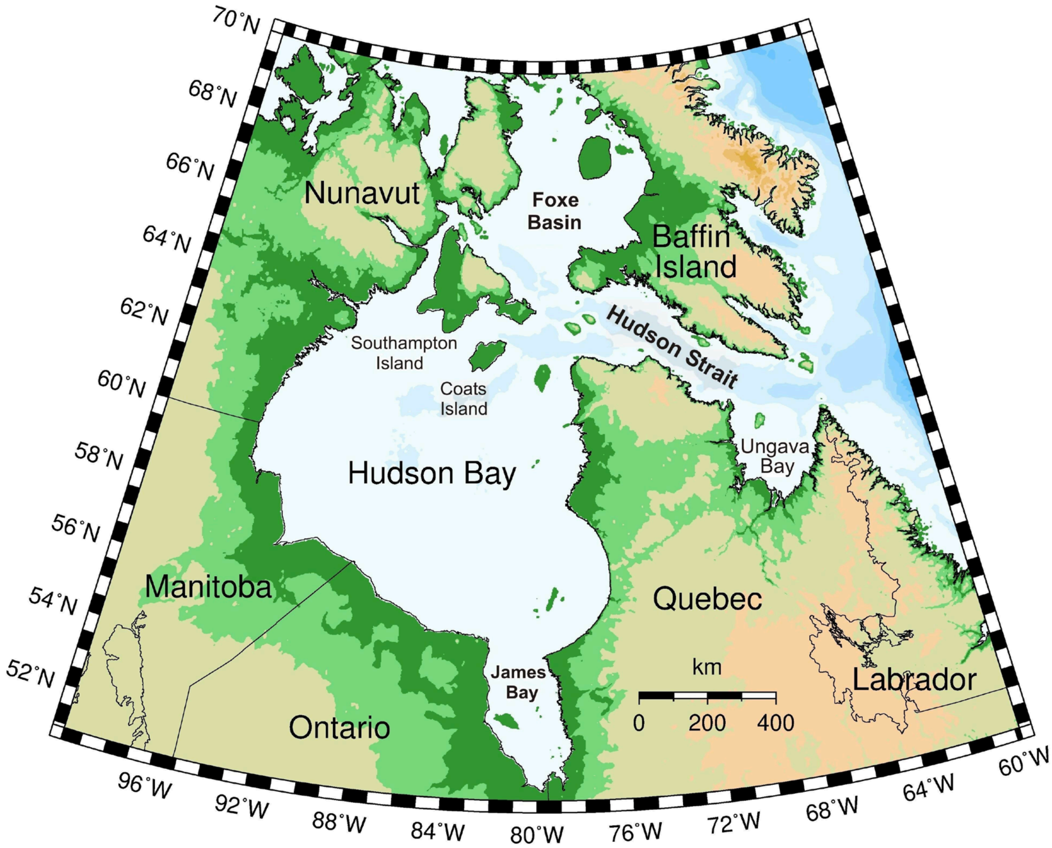

Figure 1: The Hudson Bay complex includes Hudson Bay and smaller James Bay to the south, Hudson Strait, Ungava Bay; and Foxe Basin.

Geology and tectonic setting

The study area in this research may be divided into three physiographic regions including Arctic Lands, Hudson Bay Lowlands and the Canadian Shield (Figure 2).

Canada's Arctic Lands are generally thought to lie north of the tree-line (the limit of trees latitudinally on continental plains and altitudinally on highlands and mountains) and cover 2.6 million km^2 or 26 per cent of the country. They include the Arctic Coastal Plains and Arctic Lowlands, the Innuitian Region of the High Arctic, and parts of the Canadian Shield in Nunavut, northern Quebec and Labrador. However, extensive areas of Subarctic Lands must also be recognized. Taken together, Canada's Arctic and Subarctic Lands comprise nearly 40–45 per cent of Canada's land surface (Acton et al., 2015).

Geological structure and lithology (i.e., physical characteristics of rock) largely shape the landscape. For example, the Ungava Peninsula and most of Baffin Island are part of the Canadian Shield, and are composed of resistant igneous, metamorphic and sedimentary rock. Higher elevations consist of bedrock outcrops, while upland surfaces and upper valley-side slopes are covered by angular rock-rubble accumulations. Bedrock is disrupted by joint and fissure widening, and by its separation into angular blocks. By contrast, areas of unconsolidated sediments from the Paleocene to Quaternary periods (65 million to 10,000 years ago) form more undulating, poorly drained lowland terrain. Several distinctive landforms occur in the Arctic Lands; most often associated with the growth of permafrost and ground ice. The rock layers in the south are mainly flat lying, but in the Arctic Archipelago they have been folded and then eroded. Faulting followed by further deepening during glaciation may have caused the many channels among the islands (Acton et al., 2015).

The Hudson Bay Lowland forms the main central depression on the surface of the Canadian Shield. It is a low, swampy plain with subdued glacial features and a belt of raised beaches that border Hudson Bay. It is a vast and flat physiographic region of Canada covering an area about 320,000 square km. Most of the area lies within Ontario and Manitoba, with a small extension into Quebec.

The inland edge of the lowland coincides approximately with the highest level of marine inundation which followed the disappearance of glacial ice from Hudson Bay about 7,500 years ago. Nearer the Shield adjacent to the lowlands are streamlined hills of glacial till (i.e., an unsorted mixture of clay, sand, etc.), which were formed beneath ice moving southwest from Hudson Bay towards Manitoba, and south and southeast out of James Bay. These have not been totally masked by younger marine deposits and therefore give the surface a corrugated appearance. Closer to the coast, where the marine mantle is thicker, there are typically vast level plains of muskeg with thick peat accumulations and innumerable ponds. These plains contrast with terrain in a wide zone (50–80 km) inland of the coast. There, scores of parallel, gravel beach ridges were thrown up by storm waves during the last 5,000–6,000 years, as sea level fell in response to rapid uplift of the Earth's crust. Dry, forested, low ridges separated by boggy depressions characterize this zone (Acton et al., 2015).

The Canadian Shield covers about 5 million km^2 or 48 per cent of Canada's land surface (including freshwater lakes and Arctic islands). Even if the Arctic Shield is excluded, the Canadian Shield Forest Lands remain the largest physiographic region in Canada, comprising 32 per cent of the land surface. The Shield is composed of crystalline Precambrian rocks formed during several phases of mountain building between four and one billion years ago. In the last billion years it has remained a relatively stable bulwark, unaffected by the plate tectonic movements, which have impinged on it to form the mountainous fringe of Canada (Acton et al., 2015).

The southeastern and eastern borders have been uplifted in the relatively recent geological past as a result of tectonic movements associated with the opening of the Atlantic Ocean. Glacial erosion had little effect, except along the eastern rim. Approximately half of the Shield is classified as upland. Extending from northwestern Quebec through northern Ontario, Manitoba, Saskatchewan and southern Nunavut to northwestern mainland Nunavut and the eastern Mackenzie districts in the Northwest Territories, this terrain (200–500 m elevation) is upland only by virtue of its elevation above the Hudson Bay Lowland and the Interior Plains which border it. Bedrock relief of only 50–60 m has been smoothed by a thin mantle of glacial till (i.e., an unsorted mixture of clay, sand, etc.) and sediment deposited in glacial lakes (Acton et al., 2015).

Figure 2: Physiographic regions of the study area (original map from Harrison Panabaker, The Canadian Encyclopedia).

In terms of the geological history, the Arctic continental shelf (Figure 3) is formed of less deformed sediments and volcanics mainly of the Mesozoic and Cenozoic age. The Innuitian orogen consists of mountain belts of deformed and metamorphosed sedimentary and volcanic rocks intruded by granitic plutons (Atlas of Canada, 2010). The Arctic Platform and Hudson Bay Lowlands are both formed of thick flat-lying Phanerozoic strata.

The Churchill province which is comprised of the two Archean fragments of Rae and Hearne domains sutured to the Superior craton (Earth's largest Archean crustal body) during the 1.8 billion-year old Trans-Hudson Orogeny (Darbyshire et al., 2017). The Hearne is distinguished from Rae by its relatively young (Mesoarchaean) volcanic rocks, and by its lack of Archean magmatism or tectonism post 2.66 Ga (Bastow et al., 2015). The Archean era in this province is characterized by granite-greenstone terranes and nebulitic migmatitic gneisses that range from granodiorite to quartz monzonite are among the oldest rocks in the area and exposed in parts of northern Baffin Island. A phase of high-grade metamorphism is locally recorded at about 2.5 Ga across much of the Churchill Province (Berman et al., 2002).

The Superior Province is the core of the Canadian Shield and North America and it covers an area of approximately 1,400,000 km^2. Its north, west and southeast boundaries (Trans-Hudsonian and Grenvillian orogens) are mainly tectonic, while in the south (Penokean Orogen) and north-east (Northern Quebec Orogen), the Superior Province is overlain or overthrust by Paleoproterozoic supracrustal sequences (Card and Poulsen, 1998).

In Quebec, the Superior Province can be divided into two major zones. The southern zone is characterized by an alternation of linear sub-provinces of metasedimentary, volcano-plutonic and metamorphic composition, and characterized by a regional structural grain oriented E-W. The northern zone, which is almost entirely plutonic includes various geological domains generally oriented NNW-SSE. Data collected in the northeastern part of the Superior Province have highlighted the evolution of the Archean crust. The Hudson Bay Terrane, in the south and west, shows evidence of an Eoarchean crust (> 3600 Ma) and includes some of the oldest rocks on Earth. The Superior Province consists largely of Neoarchean rocks (2.8 to 2.5 Ga) and it would be the result of collisional and accretionary events occurring between 2720 and 2680 Ma involving some proto-continental terranes showing traces of an evolution older than 2.8 Ga, and then cratonization between 2680 and 2600 Ma (Percival et al., 2012). In southernmost Nunavut, basal clastic rocks and overlying volcanic and carbonate units are well exposed on the Islands in southern Hudson Bay. These rocks record the subsidence and rifting of the western margin of the Superior craton.

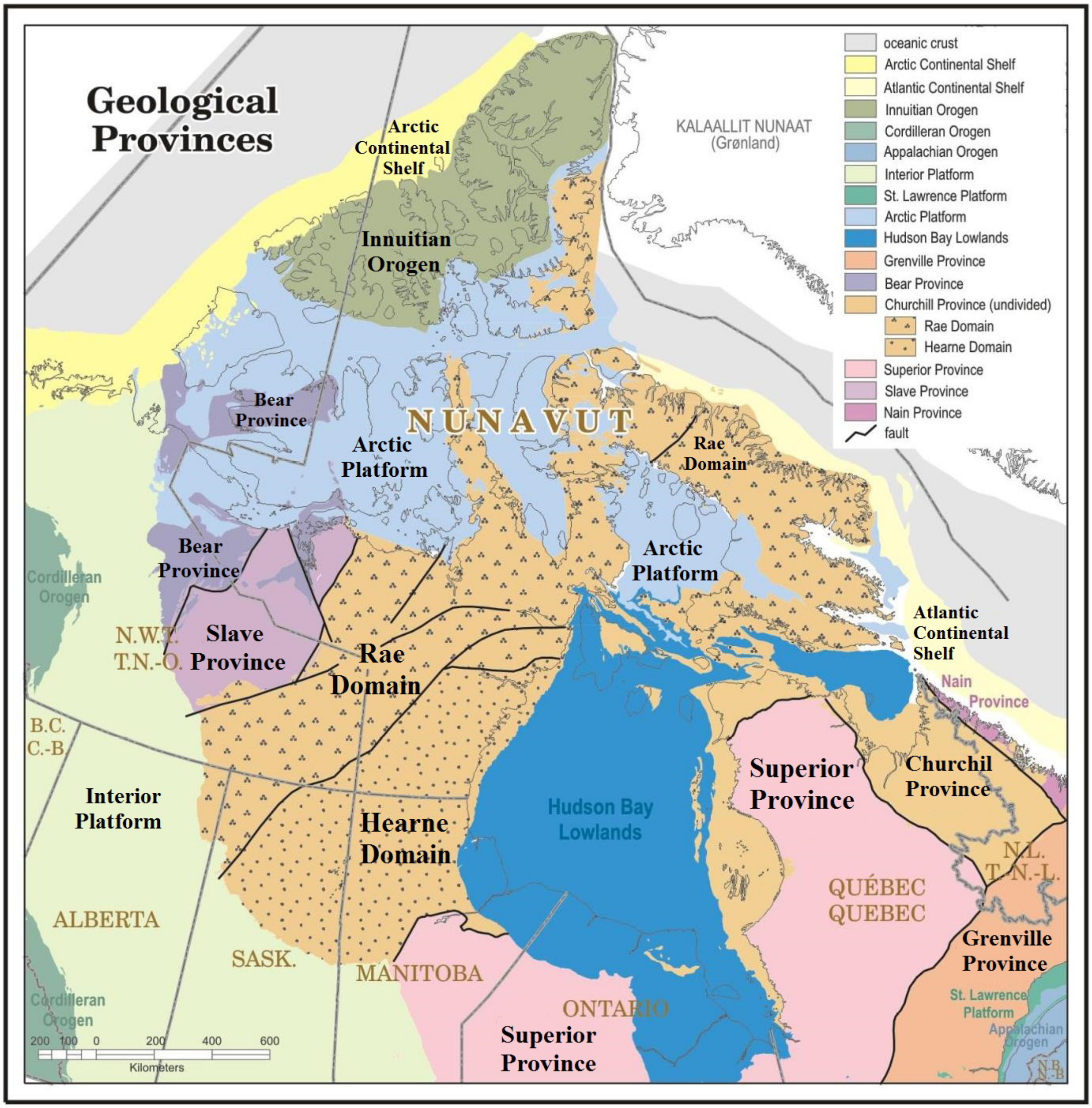

Figure 3: Geological Provinces of the study area (map: courtesy of de Kemp et al., 2006).

Regional Seismicity

The seismicity of northern and eastern Canada is complex (Bent et al., 2018, Cassidy et al., 2010). Much of the seismicity appears to be localized near Paleozoic fault structures, such as the Boothia Uplift-

Bell Arch zone in northern Hudson Bay, a reactivated Paleozoic structure (BU-BA; Figure 4, Basham et al., 1977).

In the northern craton, earthquakes occur on Baffin Island, along an arcuate band between the Boothia and the Ungava peninsulas, and in the Sverdrup Basin (Innuitian orogen). The Baffin and Boothia-Ungava earthquakes are spatially associated with Cretaceous normal faults, but also with steep gradients in the postglacial uplift rate, suggesting that they may represent differential uplift localized on preexisting faults. The Sverdrup earthquakes represent deformation beneath a thick accumulation of sediments (Adams and Basham, 1989).

A higher seismicity rate in northern Hudson Bay than in the southern part may be a result of GIA (James & Schamehorn, 2016; Basham et al., 1977). The BU-BA region was probably reactivated by glacial unloading that flanked both sides of this seismic band (Adams and Basham, 1989). However, the precise relationships between observed seismicity and GIA-induced stresses, the background stress field, lithospheric structure, and other seismogenic factors, are not well understood.

Historically, the largest instrumentally recorded earthquake in the study area is the 1933 Baffin Bay earthquake (M 7.3) where M is moment magnitude or the best estimate from the available information (Bent, 2002). In spite of its size, the 1933 earthquake did not result in any damage because of its offshore location combined with the sparse population of the adjacent onshore areas (Bent, 2002). Prior to this earthquake Baffin Bay had been believed to be aseismic, but subsequent improved seismic monitoring in northern Canada has shown the Baffin Bay region to be very active (Basham et al. 1982; also see Figure 4). Subsequent to 1933, there have been four earthquakes of magnitude 6.0 or greater in Baffin Bay and one on Baffin Island (Figure 4; Bent, 2002).

Since the 1963 Baffin Island earthquake (M 6.1), three out of four magnitude 6+ earthquakes in eastern Canada occurred in the study area. The 2017 (M5.9) Barrow Strait earthquake (Bent et al., 2018) was the last one that caused damage to the community of Resolute, north of the Arctic Circle (Figure 5). It was followed by two aftershocks larger than M 5.0 (Motazedian & Ma, 2018). The other two large events are the 1989 Ungava earthquake (M 6.3) and the 1992 Franklin Lake (M 6.0) earthquake sequence. The second one on 4 January 1992 is the largest known earthquake from a relatively aseismic section of what has been identified by Basham et al. (1977) as the Boothia-Ungava Seismic Zone (Bent & Cassidy, 1993). This seismic zone marks the northeastern boundary of the Canadian Shield, and it has been speculated that the Baffin Island-Foxe Basin region is decoupled from the Shield along this band of seismicity (Basham et al., 1977).

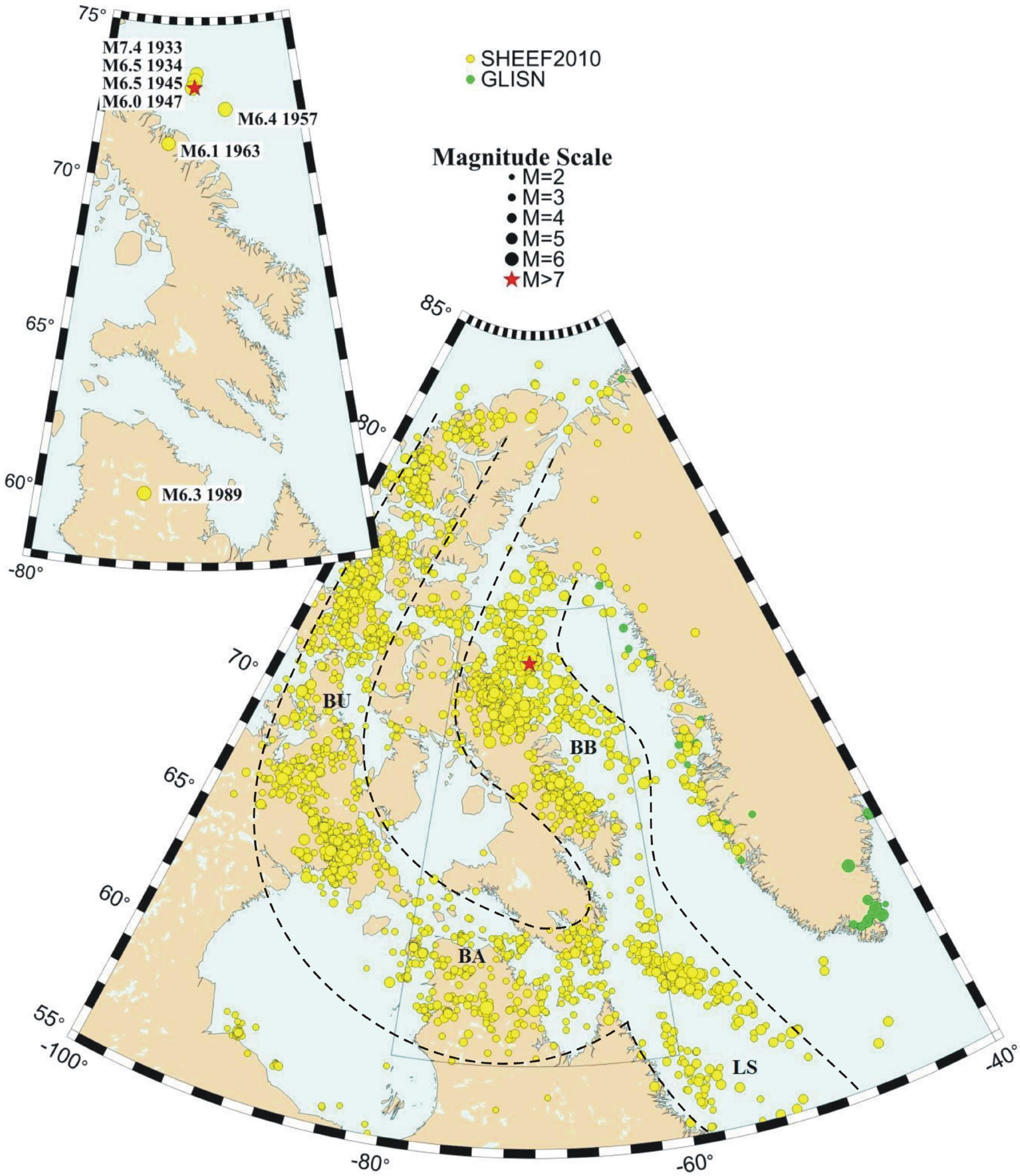

Figure 4: Background seismicity of the study area and surrounding regions from a combination of the Natural resources Canada seismicity catalogue SHEEF2010 (from 1809 to 2010) with Greenland seismicity catalogue GLISN (from 1969 to 2016) after removing duplicate events. BA = Bell Arch, BB

= Baffin Bay, BU = Boothia Uplift, LS = Labrador Sea (after Basham et al., 1977). The red star is the 1933 M7.3 earthquake. Inset: Locations of earthquakes in the catalogue (BB) that have magnitude 6.0 or larger (map: modified from James & Schamehorn, 2016).

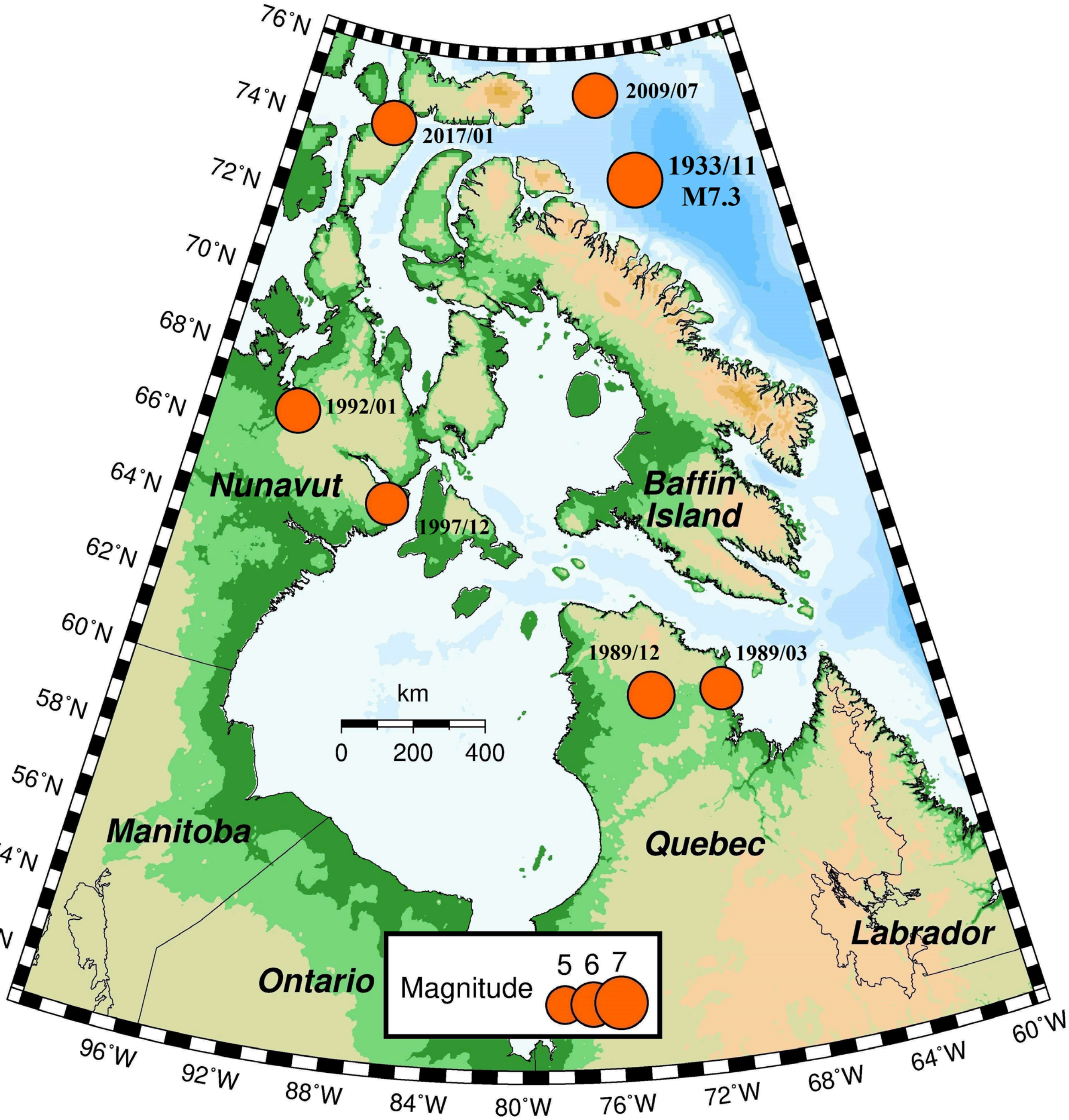

Figure 5: Largest instrumentally recorded earthquakes (M > 5.5) in the study area since 1985 plus the 1933 Baffin Bay earthquake (Data taken from the Natural Resources Canada earthquake catalog, Bent & Cassidy, 1993; and Motazedian & Ma, 2018).

The coda *Q* method

In this study and in all of our studies across Canada, we determine the coda *Q* factor using the single backscattering approximation, which explains the decay of earthquake coda under the assumption of weak isotropic scattering from homogeneously distributed heterogeneities [Aki, 1969; Aki & Chouet, 1975; Sato 1977]. The coda waves are assumed to comprise S-to-S backscattered waves, which do not produce secondary scattering when encountering another scatterer and the measured coda *Q*, (Q_C) depends on both intrinsic and scattering attenuation [Aki & Chouet, 1975; Wu & Aki, 1988]. The coda wave amplitude at frequency f, and lapse time t (time from the event origin) is described by

$$A(f, t) = S(f)t^{-\nu}e^{-\pi ft/Q_C} \qquad (1)$$

where S(f) is the source factor which is related to the earthquake's source spectrum and includes station site, backscattering, and source effects [Wu & Aki, 1988]. The geometrical spreading parameter ν is 1, 0.5 and 0.75 for body-wave scattering (this study), surface wave scattering, and diffusion, respectively [Aki & Chouet, 1975]. Equation (1) assumes that the source and receiver are at the same point, a good approximation only for signals at a lapse time, t, greater than 2 times the travel time of the direct S wave, t_S [Rautian & Khalturin, 1978; Sato, 1977]. Equation (1) for body-wave can be written as

$$ln(A(f, t)) + ln(t) = ln(S(f)) - \pi ft/Q_C \qquad (2)$$

so that, Q_C can be obtained by linear regression of ln(A(f, t)) on t over a coda time window at a constant frequency f. In practice, A(f, t) is obtained by bandpass-filtering the coda signal over a narrow passband centered on frequency f and fitting a time decay envelope to the filtered signal [Rautian & Khalturin, 1978]. When many decay curves are available for the same region, all data can be inverted simultaneously to obtain one Q_C value [Aki & Chouet, 1975; Havskov et al., 1989]. Obtaining one *Q* value for each decay curve and averaging Q^{-1} values gives the same result [Kvamme, 1985]. This latter method has the additional advantages of faster computation and the ability to check the fit to equation (2) to eliminate bad results [Havskov et al., 1989].

Assuming that the coda window starts at t_1=2t_S, the end time t_2 controls the maximum size of the volume sampled by the backscattered waves [Zelt et al., 1999]. The sampling volume is one-half of a three-dimensional ellipsoid, with the source and receiver as focal points, semi-major axis $a_1 = V_S t/2$ and semi-minor axis $a_2 = (a_1^2 – R^2/4)^{1/2}$, where V_S is the average S-wave velocity (3.5 km/sec) and R is the station-event separation [Pauli, 1984]. For similar a_1 and a_2, the sampled volume is nearly a sphere and the maximum depth sampled is approximately given by $Z_{max} = a_2 + d/2$, where d is the event depth [Havskov et al., 1989; Zelt et al., 1999].

Practically, to make meaningful comparisons of Q_C from different regions, it is important to make estimates of the volumes sampled by different stations. The average sampling volume can be determined by setting $t = (t_1 + t_2)/2$ in the equation for a_1 [Havskov et al., 1989]. Therefore, by varying t_2, it is possible to ensure that the volumes being sampled by each event-station combination are approximately the same [Zelt et al., 1999].

Data and Analysis

For calculating Q_C, we used seismic waveform data from 3 short period (JAQ, KUQ and LG4Q) and 15 broadband CNSN sites in Nunavut, Manitoba, Ontario, Quebec and Labrador (Figure 6) and 29 broadband POLARIS sites (Figure 7). These data have sampling rates of either 100 Hz or 40 Hz (broadband station) and 60 Hz (short period station) with a flat frequency response from 1 to 16 Hz. Selected earthquakes in a radius of 100 km around each seismic station (if seismicity was reported) are provided in Appendix 1 (CNSN stations) and Appendix 2 (POLARIS stations).

Our dataset is comprised of 266 earthquakes recorded by the CNSN stations between March 23, 1985 and December 22, 2020 with magnitudes ranging from 1.3 to 6.1 (Figure 8). Also, 371 earthquakes recorded by the POLARIS stations between May 15, 2006 and June 13, 2017 with magnitudes ranging from 1.5 to 4.4 (Figure 9). Depths range from 0 to 20 km and epicentral distances range from 5 to 100 km. This gives a total of 246 high signal-to-noise (S/N) traces (S/N≥5.0) useful for Q_C calculation; however, the number of traces actually used for analysis depends on sampling size. The coda window length used in this study is 20 seconds except for epicentral distances less than 30 km which is 10 sec.

For each event-station combination, we picked P-wave and S-wave arrivals and relocated earthquakes considering a velocity model used for standard earthquake locations in this region. Then we calculated Q_C at five frequencies between 2 and 16 Hz (Figure 10) using equation (2). The frequency dependence of Q_C can be expressed as $Q_C = Q_0 f^{\alpha}$ [Rautian & Khalturin, 1978]; Q_0 (Q_C at 1 Hz) and α, are obtained by linear regression of log (Q_C) on log (f). For each station, Q_C is determined by averaging the calculated values from all events.

In general, Q_C increases with lapse time which likely is a result of including a greater volume of less complex upper mantle material in the sampling volume [Pauli, 1984 & Zelt et al., 1999]. Therefore, in order to reduce sampling size and to ensure that approximately equivalent volumes are sampled at each station used to calculate Q_C, we fixed a_2 and average of maximum lapse time to specific values. These values are selected based on the location distribution of earthquakes around the stations.

We used the computer program SEISAN [Havskov and Ottemöller, 2012] to calculate coda Q. The program calculates Q_C for a series of events and stations at five frequencies (2, 4, 8, 12 and 16 Hz). On completion, the average values are calculated and a Q_C versus f curve is fit to the calculated values [Havskov and Ottemöller, 2010]. The program also plots the individual events and filtered coda windows (Figure 10).

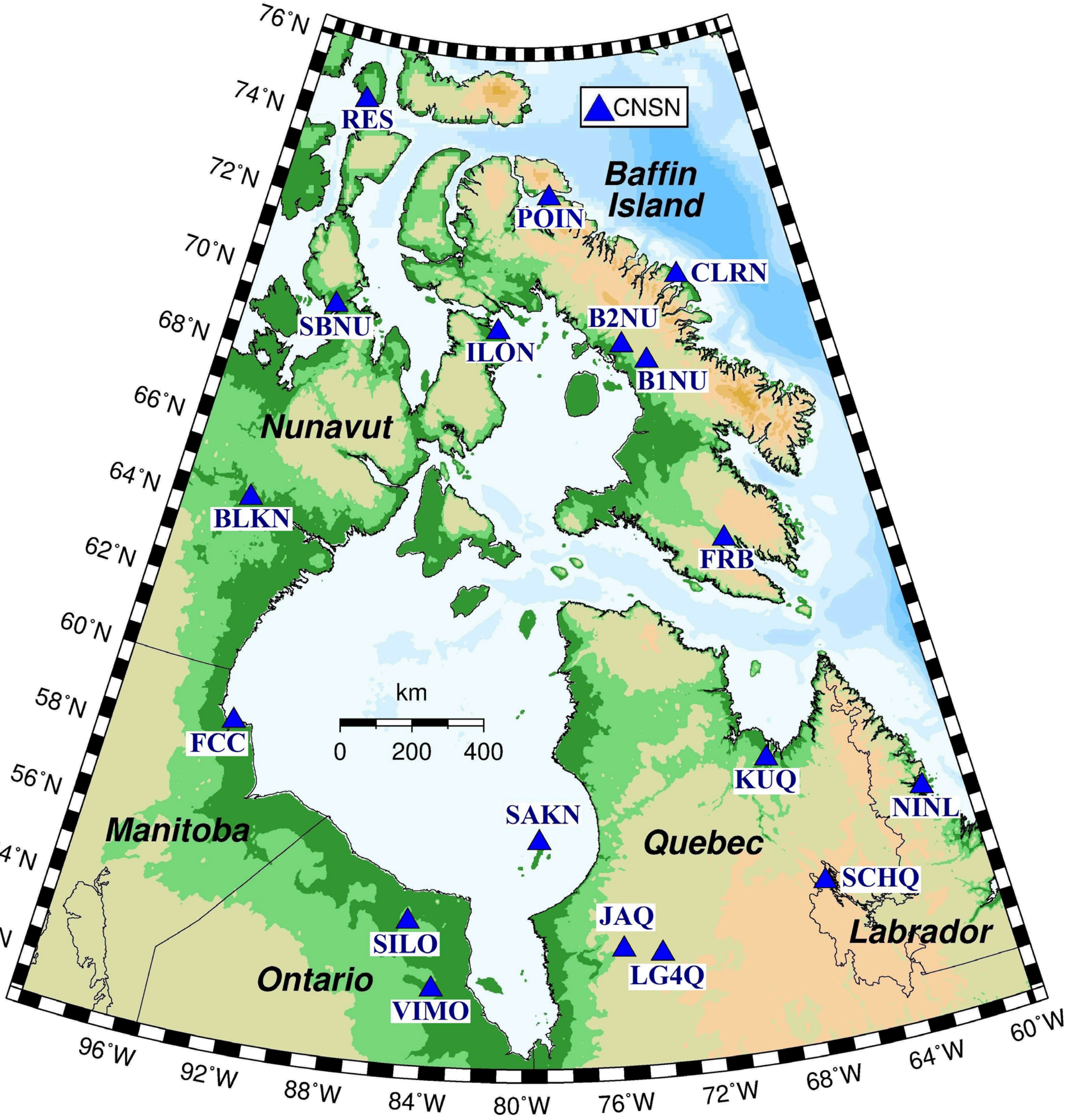

Figure 6: CNSN seismograph stations in the study area. Data for this study from the CNSN stations (blue triangles) covered the time period March 23, 1985 - December 22, 2020.

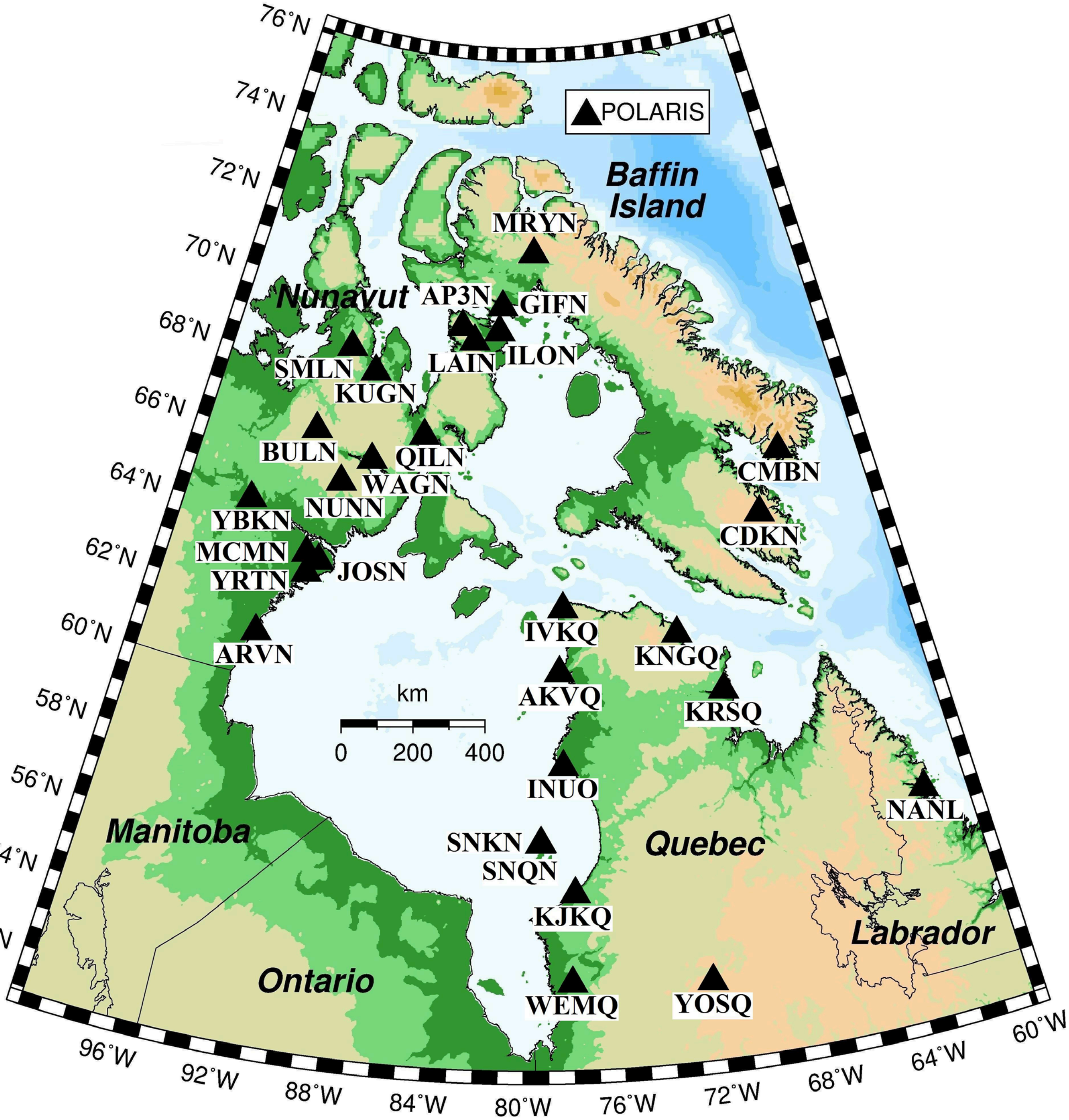

Figure 7: POLARIS seismograph stations in the study area. Data for this study from the POLARIS stations (black triangles) covered the time period May 15, 2006 - June 13, 2017.

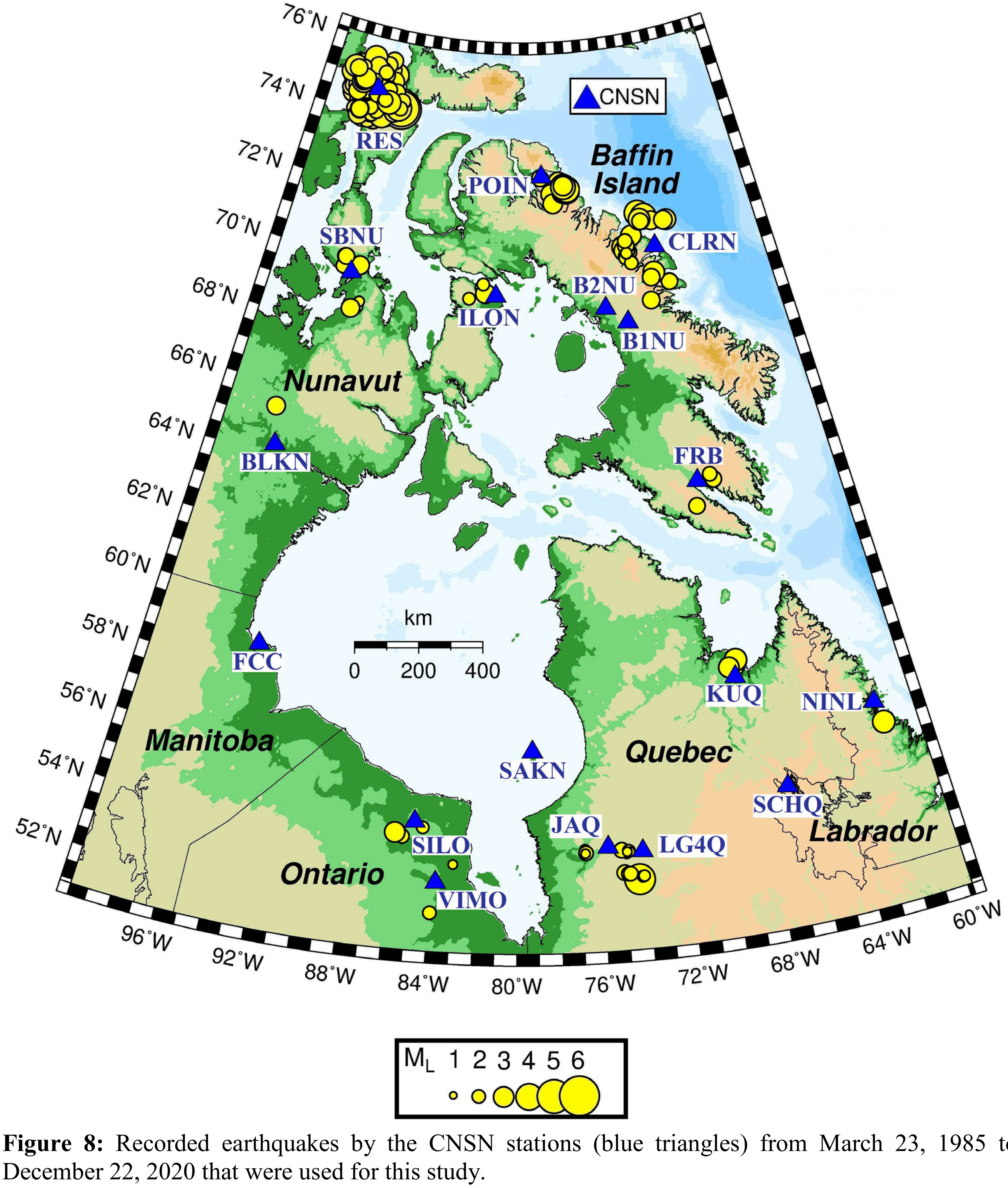

Figure 8: Recorded earthquakes by the CNSN stations (blue triangles) from March 23, 1985 to December 22, 2020 that were used for this study.

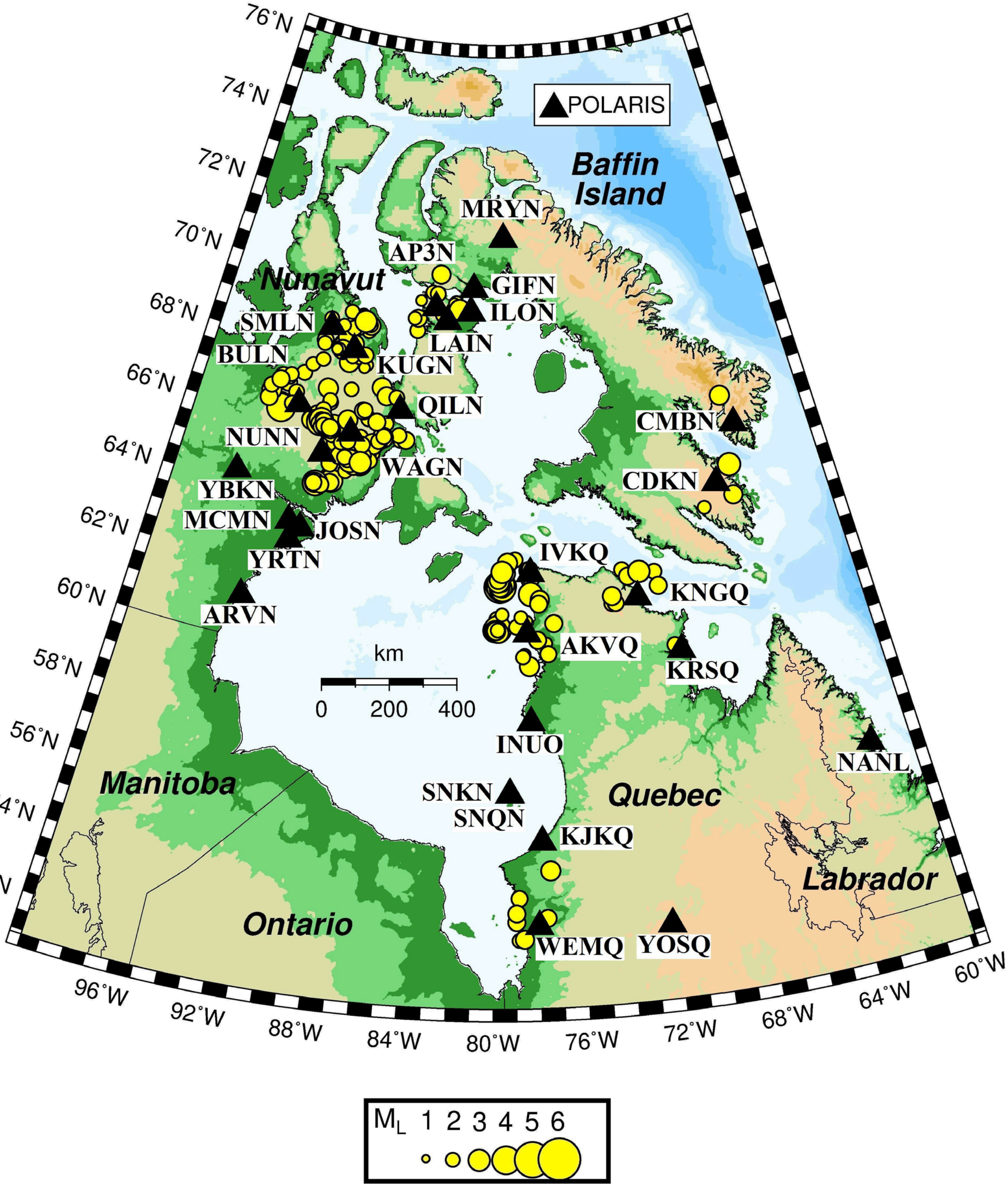

Figure 9: Recorded earthquakes by the POLARIS stations (black triangles) from May 15, 2006 to June 13, 2017 that were used for this study.

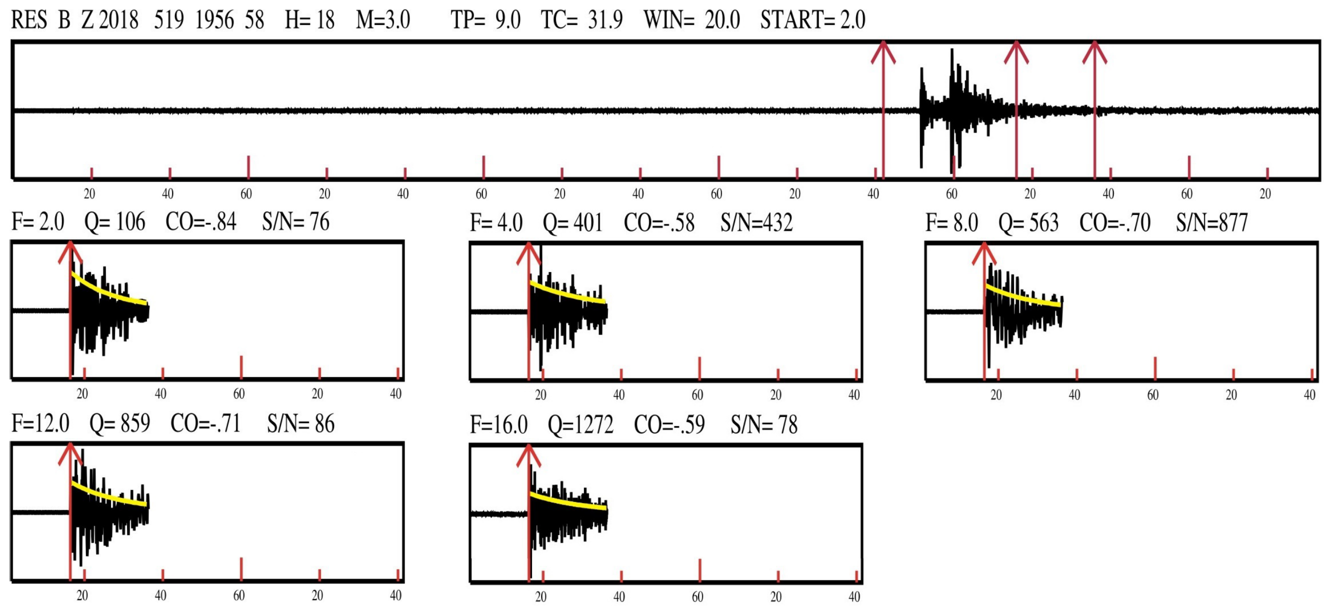

Figure 10: Data processing example for an earthquake on May 19, 2018 (station RES). The first step is a visual inspection of available waveforms and the selection of the closest stations to the event with the highest SN ratio (top). For each station (if SN**≥5.0)**, the top trace is the original unfiltered waveform where the 3 vertical lines indicate (from left) origin time, start and end of coda window. Above the seismogram is first the station code, origin time, depth (h), magnitude (ML), P-wave travel time (TP, s), start of coda window from the origin (TC, s), window length (WIN, s) and start of coda window in terms of S-wave travel time (t coda > ST*S-travel time). The amplitude decay corresponding to estimation parameters (f: frequency, C: correlation coefficient and SN: signal-to-noise ratio) are shown by the yellow curve in the five filtered segment.

Coda Q Results

In order to make a regional comparison of Q_C over the study area, it is necessary to use the shortest possible event-station paths. This, rules out simply selecting all the data with high signal-to-noise ratio. Therefore, we calculated Q_C at different stations by using different sets of ellipse parameter a_2 (20-100 km) and lapse time (12-60 sec) with maximum sampling depth (on average) between 24 km and 95 km (Tables 1 and 2). For several stations due to the quality of waveforms no Q estimate is available. The corresponding estimated Q_0 error for each station with five or more events ranges from 2 to 17 (bold values in Table 1). Error in frequency dependency factor (α) varies between 0.01 and 0.28 (Table 2).

Overall, there is an increase in Q_0 values with increasing sampling volume. Our estimated Q_0 values (with five or more events used for each estimate) are the lowest at station AKVQ (Q_0 = 55, a_2=80 km) in the Bell Arch region. The highest Q_0 value is observed at station RES in the northern section of the study area (Q_0 = 112, a_2=80 km). Also, the calculated Q_0 at this station demonstrates an overall decrease of 12% after the occurrence of the 2017 (M5.9) Barrow Strait earthquake for the period of 2017-2020 (from 92 to 81 based on 74 and 46 measurements, respectively). This is similar to some worldwide observations of decrease in Q after a large earthquake (e.g., Peng et al., 1987; Hiramatsu et al., 2000).

An average for all the data results in a Q relationship of $Q_C = 82f^{1.08}$ for the frequency band of 2 to 16 Hz for the entire region. The average Q relationship for each station is given in Table 3.

Summary and conclusions

We investigated coda-wave attenuation from the eastern Canadian Arctic in Nunavut and the Hudson Bay complex including portions of the surrounding mainland in the northern Manitoba, Ontario, Quebec and Labrador using the single scattering approximation on records from short period and broadband stations of the regional Canadian National Seismic Network and the POLARIS network. Coda windows were selected to start at $t_C = 2t_S$ and were filtered at center frequencies of 2, 4, 8, 12 and 16 Hz. We estimated coda Q for stations in a vast area covering a wide range of tectonic settings (Figures 11 & 12). The highest Q_0 values of 110 and 112 (t_{lapse}=42 sec, station POIN and t_{lapse}=48 sec, station RES; respectively) is on the northern part of the study area in the older Archean province. The lowest Q_0 of 55 and 61 (t_{lapse}=48 sec, station AKVQ and t_{lapse}=54 sec, station IVKQ; respectively) was observed in the south, at the edge of the Trans-Hudson Orogen in the relatively young Proterozoic province. In general, lower calculated Q_0 values for stations in the south (either AKVQ or IVKQ) are mainly attributed to the younger age of the rocks and proximity to the main fault systems. Fracturing, crack opening, and saturation increase of pore fluid cause attenuation and make S-wave Q lower in/near a fault zone (Blakeslee et al., 1989; Lees and Lindley, 1994). We also find some preliminary indication (to be pursued with additional research) for temporal changes in coda Q following a large earthquake in the vicinity of a recording station (Jin and Aki, 1988). For example, at RES (at an epicentral distance of <90 km), we find an overall decrease of 12% in Q0 for the period of 2017-2020 after the occurrence of the 2017 (M5.9) Barrow Strait earthquake. This is consistent with other worldwide observations, and likely related to changes in near-field fractures and fluids following this earthquake.

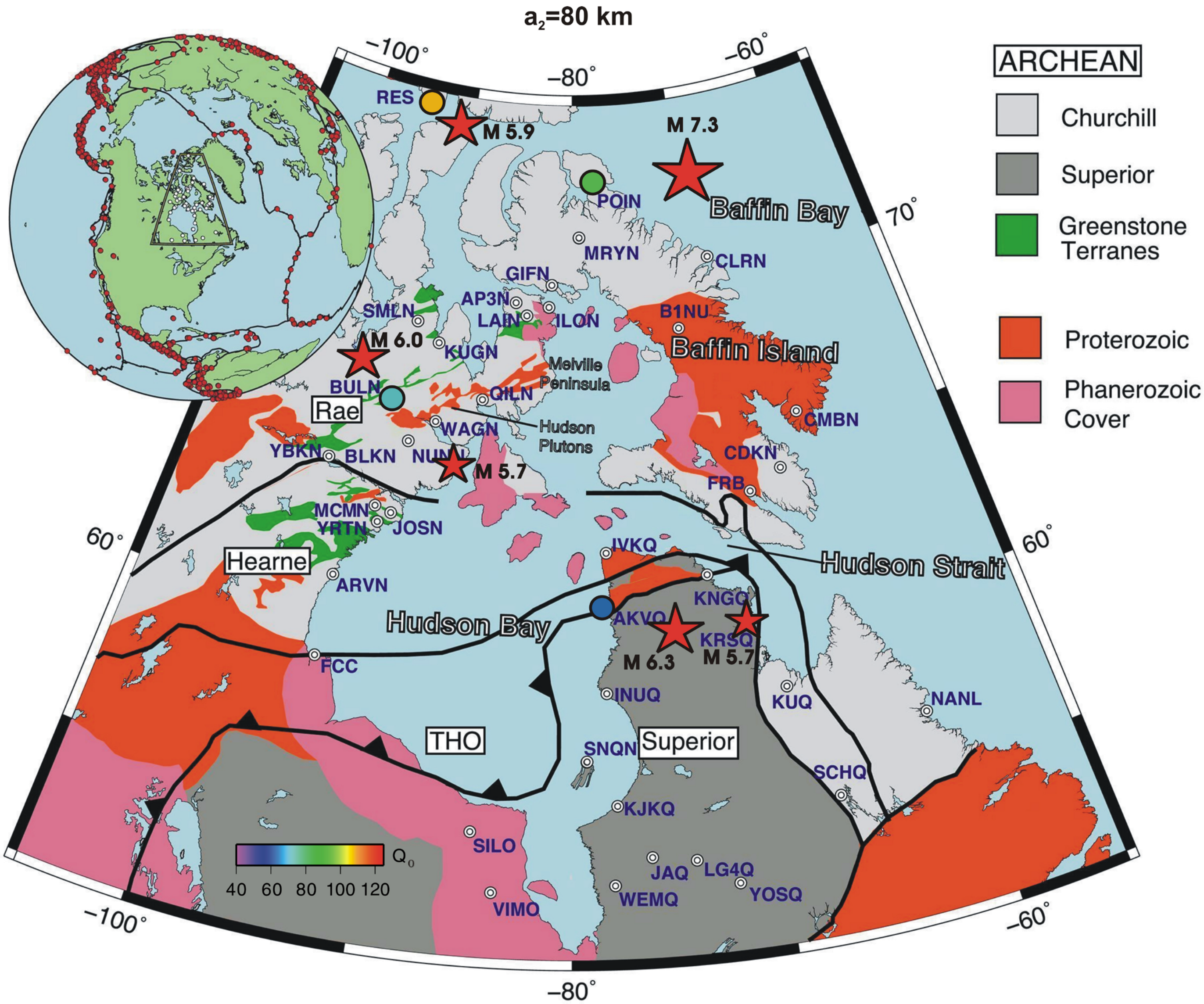

Figure 11: Map of Q_0 variations (shaded circles) with five or more events used for each estimate and ellipse parameter a_2=80 km (AKVQ, BULN, POIN and RES), superimposed on the geological map of the region (original map: courtesy of Liddell et al., 2018). Stars represent the largest instrumentally recorded earthquakes (M > 5.5) in the study area since 1985 plus the 1933 Baffin Bay earthquake. THO stands for the Trans-Hudson Orogen.

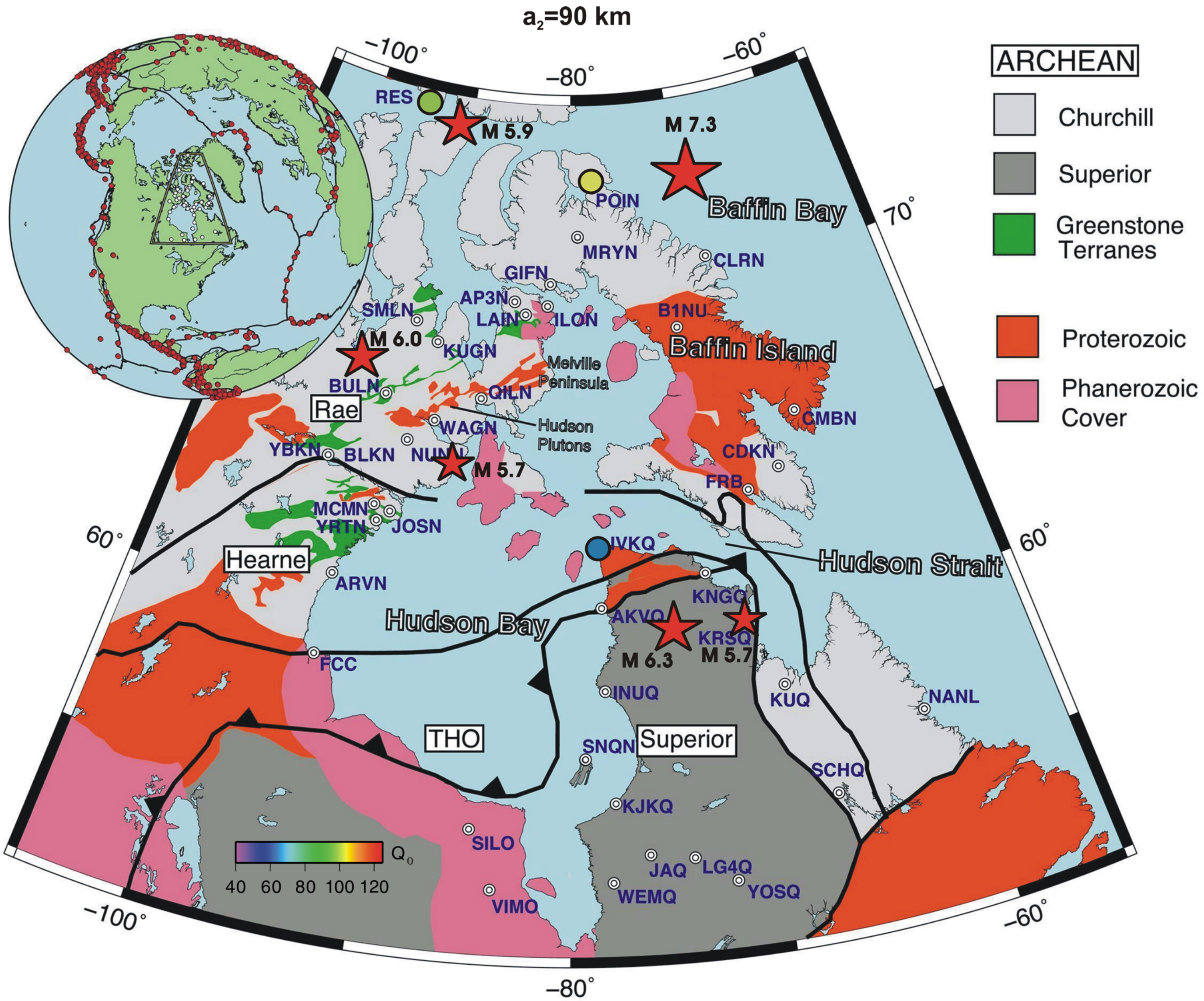

Figure 12: Map of Q_0 variations (shaded circles) with five or more events used for each estimate and ellipse parameter a_2=90 km (IVKQ, POIN and RES), superimposed on the geological map of the region (original map: courtesy of Liddell et al., 2018). Stars represent the largest instrumentally recorded earthquakes (M > 5.5) in the study area since 1985 plus the 1933 Baffin Bay earthquake. THO stands for the Trans-Hudson Orogen.

Table 1: Average Q_0 and estimated uncertainties for different sampling volumes. Number of events is given in parentheses after each estimated value. Values based on more than 4 data points are highlighted in bold.

Station	Q_0 ± error (a_2=20 km, t_{lapse}=12s)	Q_0 ± error (a_2=30 km, t_{lapse}=18 s)	Q_0 ± error (a_2=40 km, t_{lapse}=24 s)	Q_0 ± error (a_2=50 km, t_{lapse}=30 s)	Q_0 ± error (a_2=60 km, t_{lapse}=36 s)	Q_0 ± error (a_2=70 km, t_{lapse}=42 s)	Q_0 ± error (a_2=80 km, t_{lapse}=48 s)	Q_0 ± error (a_2=90 km, t_{lapse}=54 s)	Q_0 ± error (a_2=100 km, t_{lapse}=60s)
AKVQ	-	-	-	-	-	-	**55 ± 14(6)**	-	-
BULN	-	-	-	61 ± 17(3)	-	-	**70 ± 2(6)**	-	-
CLRN	-	-	-	-	-	-	92 ± 4(1)	81 ± 8(4)	-
FRB	-	-	-	55 ± 6(1)	-	-	-	-	-
ILON	-	-	57 ± 6(2)	-	-	-	-	-	-
IVKQ	-	-	-	-	-	-	-	**61 ± 7(21)**	-
KUGN	62 ± 10(3)	-	-	-	-	-	-	-	-
LG4Q	-	-	-	-	-	-	68 ± 6(2)	-	-
POIN	48 ± 10(1)	-	-	96 ± 5(2)	144 ± 7(3)	**110 ± 8(11)**	**92 ± 3(5)**	**100± 12(5)**	-
RES	-	**100 ± 11(9)**	**80 ± 3(13)**	**86 ± 4(17)**	**76 ± 5(16)**	**75 ± 2(30)**	**112 ± 4(21)**	**96 ± 2(12)**	-
SMLN	-	-	93 ± 5(2)	-	-	-	-	-	-
WAGN	42 ± 17(2)	-	-	-	-	-	-	-	-

Table 2: Average α values and estimated uncertainties for different sampling volumes (CNSN stations).

Station	α ± error (a_2=20 km, t_{lapse}=12s)	α ± error (a_2=30 km, t_{lapse}=18 s)	α ± error (a_2=40 km, t_{lapse}=24 s)	α ± error (a_2=50 km, t_{lapse}=30 s)	α ± error (a_2=60 km, t_{lapse}=36 s)	α ± error (a_2=70 km, t_{lapse}=42 s)	α ± error (a_2=80 km, t_{lapse}=48 s)	α ± error (a_2=90 km, t_{lapse}=54 s)	α ± error (a_2=100 km, t_{lapse}=60s)
AKVQ	-	-	-	-	-	-	1. 30 ± 0.17	-	-
BULN	-	-	-	1.29 ± 0.28	-	-	1.17 ± 0.01	-	-
CLRN	-	-	-	-	-	-	1.01 ± 0.02	1.13 ± 0.09	-
FRB	-	-	-	1.30 ± 0.04	-	-	-	-	-
ILON	-	-	1.16 ± 0.07	-	-	-	-	-	-
IVKQ	-	-	-	-	-	-	-	1.28 ± 0.08	-
KUGN	1.13 ± 0.09	-	-	-	-	-	-	-	-
LG4Q	-	-	-	-	-	-	1.21 ± 0.05	-	-
POIN	1.24 ± 0.11	-	-	1.01 ± 0.07	0.87 ± 0.03	0.90 ± 0.09	1.01 ± 0.04	0.99 ± 0.11	-
RES	-	0.95 ± 0.12	1.10 ± 0.03	1.05 ± 0.05	1.13 ± 0.04	1.12 ± 0.02	0.87 ± 0.05	1.02 ± 0.01	-
SMLN	-	-	1.05 ± 0.02	-	-	-	-	-	-
WAGN	1.38 ± 0.22	-	-	-	-	-	-	-	-
Ave. Zmax	24 ± 6 km	33 ± 5 km	43 ± 6 km	54 ± 7 km	63 ± 5 km	73 ± 6 km	84 ± 5 km	95 ± 7 km	-

Table 3: Overall average value of Q_0 and α for each station (frequency band of 2 to 16 Hz). Number of events is given in parentheses after each estimated value.

Station	Q_0 ± error	α ± error
AKVQ	57 ± 15(8)	1.26 ±.0.18
BULN	68 ± 3(9)	1.18 ±.0.04
CLRN	76 ± 6(7)	1.14 ±.0.07
FRB	55 ± 6(1)	1.30 ±.0.04
ILON	61 ± 9(3)	1.14 ±.0.10
IVKQ	59 ± 6(24)	1.30 ±.0.07
KUGN	62 ± 10(3)	1.13 ±.0.09
LG4Q	68 ± 6(3)	1.21 ±.0.05
NUNN	82 ± 3(2)	0.99 ±.0.01
POIN	94 ± 4(27)	1.02 ±.0.04
QILN	70 ± 5(4)	1.29 ±.0.03
RES	89 ± 1(120)	1.03 ±.0.01
SILO	88 ± 3(2)	0.99 ±.0.04
SMLN	93 ± 5(2)	1.05 ±.0.02
WAGN	42 ± 17(2)	1.38 ±.0.22

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Appendix 1

Selected earthquakes for this study within 100 km of the CNSN stations (alphabetically sorted)
(Source: http://www.earthquakescanada.nrcan.gc.ca)

Station B1NU

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2001-12-24 06:28:06	68.986	-69.572	18.0	2.6	BAFFIN ISLAND SEISMIC ZONE, NU.

Station BLKN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2020-05-13 11:30:56	65.372	-96.582	18.0	2.8	121 km N from Baker Lake, NU

Station CLRN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2011-02-03 16:58:53	70.575	-71.220	18.0	3.2	100 km W from Clyde River, NU
2011-05-12 09:22:15	70.895	-70.392	18.0	2.5	82 km NW from Clyde River, NU
2011-06-07 09:58:49	71.147	-67.226	18.0	3.1	91 km NE from Clyde River, NU
2014-02-27 13:59:38	71.347	-69.101	18.0	3.8	100 km N from Clyde River, NU
2016-06-24 10:03:48	70.411	-70.940	18.0	2.9	88 km W from Clyde River, NU
2016-08-17 11:27:36	69.746	-69.009	18.0	3.2	82 km S from Clyde River, NU
2017-02-06 04:27:02	71.230	-69.198	18.0	2.4	88 km N from Clyde River, NU
2017-10-26 15:39:32	71.193	-68.508	18.0	2.8	81 km N from Clyde River, NU
2017-11-20 06:33:15	70.872	-70.407	18.0	3.1	81 km NW from Clyde River, NU
2018-03-18 20:22:13	69.623	-69.274	18.0	2.6	98 km S from Clyde River, NU
2018-11-22 08:28:13	70.474	-71.148	18.0	3.0	95 km W from Clyde River, NU
2018-12-08 05:30:35	70.327	-71.160	18.0	1.9	98 km W from Clyde River, NU
2018-12-20 13:12:53	70.610	-70.966	18.0	2.5	90 km W from Clyde River, NU
2019-02-15 11:42:49	70.254	-71.140	18.0	1.8	99 km W from Clyde River, NU
2020-02-23 10:37:10	70.099	-70.688	18.0	2.0	89 km SW from Clyde River, NU
2020-04-26 08:04:41	70.393	-71.000	18.0	1.7	91 km W from Clyde River, NU
2020-07-05 06:44:56	71.275	-69.495	18.0	3.2	96 km N from Clyde River, NU
2020-08-24 06:14:02	71.226	-69.435	18.0	2.5	90 km N from Clyde River, NU
2020-11-20 09:08:38	70.730	-70.981	18.0	2.1	93 km W from Clyde River, NU
2020-12-22 08:25:36	71.148	-67.475	18.0	2.7	86 km NE from Clyde River, NU

Station FRB

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2000-12-07 05:33:44	63.036	-68.818	18.0	2.5	58 km E from LAKE HARBOUR, NU
2008-11-12 08:44:12	63.703	-67.520	18.0	2.5	50 km E from Iqaluit, NU
2014-02-02 04:11:53	63.860	-67.660	18.0	2.2	44 km E from Iqaluit, NU

Station ILON

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-09-08 12:00:51	69.611	-82.960	18.0	2.0	52 km NW from Igloolik, NU
2009-04-21 01:42:49	69.263	-83.957	18.0	1.9	86 km W from Igloolik, NU
2010-07-02 02:50:35	69.598	-83.100	18.0	1.5	56 km NW from Igloolik, NU
2011-02-11 13:11:36	69.427	-82.680	18.0	2.9	35 km W from Igloolik, NU
2020-05-03 22:20:34	69.681	-82.871	18.0	1.8	54 km NW from Igloolik, NU

Station JAQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
1985-03-23 21:07:11	53.626	-74.850	1.0	1.8	50 KM E FROM LA GRANDE-3, QUE.
1985-04-06 04:54:46	53.771	-76.807	2.0	1.5	INDUCED EARTHQUAKE 50 KM W FROM LA GRANDE-3, QUE.
1985-10-30 21:05:15	53.682	-75.094	2.0	2.3	INDUCED EVENT LG3 RESERVOIR 35 KM E FROM LA GRANDE-3, QUE.
1986-05-10 08:37:43	53.660	-74.760	2.0	1.8	INDUCED EVENT LG3 60 KM E FROM LA GRANDE-3, QUE.
1986-05-18 12:49:15	53.623	-74.694	2.0	1.4	INDUCED EVENT LG3 60 KM E FROM LA GRANDE-3, QUE.
1986-05-31 17:31:55	53.630	-74.840	2.0	1.4	INDUCED EVENT LG3 50 KM E FROM LA GRANDE-3, QUE.
1988-02-09 11:14:22	53.670	-76.757	2.0	2.2	JAMES BAY REGION, QUE.
1992-02-15 21:31:23	53.650	-76.800	0.0	1.4	54 KM E OF RADISSON, (LG-2), QUE.

Station KUQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2001-11-18 18:59:27	58.341	-68.253	18.0	2.2	10 km N from Kuujjuaq, Que.
2016-03-13 04:34:07	58.565	-68.224	18.0	3.4	53 km N from Kuujjuaq, QC
2016-03-13 04:35:06	58.395	-68.645	18.0	3.0	36 km NW from Kuujjuaq, QC

Station LG4Q

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2002-06-05 20:17:36	52.850	-74.354	5.0	4.5	230 km E from Radisson (LG-2), Que.
2002-12-10 18:16:22	53.065	-75.032	5.0	2.3	185 km E from Radisson (LG-2), Que.
2002-12-11 05:14:19	53.021	-74.845	5.0	2.1	200 km E from Radisson (LG-2), Que.
2002-12-11 06:38:11	53.023	-74.749	5.0	2.1	200 km E from Radisson (LG-2), Que.

Station NINL

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2020-12-03 17:17:33	55.911	-61.501	18.0	3.4	38 km W from Davis Inlet, NL

Station POIN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2018-10-31 05:33:23	72.525	-76.379	18.0	2.2	57 km E from Pond Inlet, NU
2018-11-22 22:42:04	72.281	-75.951	18.0	3.4	83 km SE from Pond Inlet, NU
2018-12-20 09:39:27	72.221	-75.840	18.0	2.7	90 km SE from Pond Inlet, NU
2019-02-04 21:55:32	72.201	-75.854	18.0	2.6	91 km SE from Pond Inlet, NU
2019-02-19 09:29:30	72.027	-76.874	18.0	2.1	84 km SE from Pond Inlet, NU
2019-03-09 23:48:51	72.355	-76.249	18.0	2.7	70 km SE from Pond Inlet, NU
2019-03-17 12:28:06	72.335	-76.210	18.0	2.3	72 km SE from Pond Inlet, NU
2019-04-25 21:51:42	72.278	-75.785	18.0	2.1	88 km SE from Pond Inlet, NU
2019-04-25 21:52:38	72.279	-75.806	18.0	2.7	87 km SE from Pond Inlet, NU
2019-04-26 08:15:47	72.243	-76.134	18.0	2.4	81 km SE from Pond Inlet, NU
2019-04-29 05:23:32	72.525	-76.390	18.0	3.0	57 km E from Pond Inlet, NU
2019-06-05 10:24:28	72.192	-76.106	18.0	2.1	85 km SE from Pond Inlet, NU
2019-06-29 15:43:11	72.395	-76.695	18.0	1.9	55 km SE from Pond Inlet, NU
2019-10-19 15:41:46	72.220	-77.143	18.0	2.9	61 km SE from Pond Inlet, NU
2020-01-13 15:32:21	72.268	-75.721	18.0	3.3	90 km SE from Pond Inlet, NU
2020-02-29 20:29:43	72.295	-75.747	18.0	3.8	88 km SE from Pond Inlet, NU
2020-04-10 12:24:45	71.945	-76.984	18.0	2.9	91 km S from Pond Inlet, NU
2020-04-10 22:40:59	72.241	-76.022	18.0	3.2	84 km SE from Pond Inlet, NU
2020-04-21 00:35:11	72.289	-75.752	18.0	4.0	88 km SE from Pond Inlet, NU
2020-06-28 22:17:11	72.669	-78.076	18.0	2.4	5 km SW from Pond Inlet, NU
2020-07-07 00:11:08	72.258	-75.850	18.0	3.1	87 km SE from Pond Inlet, NU
2020-07-08 07:29:42	72.307	-76.114	18.0	2.2	77 km SE from Pond Inlet, NU
2020-07-29 03:03:58	72.323	-75.699	18.0	2.5	88 km SE from Pond Inlet, NU
2020-07-29 03:41:42	72.316	-75.700	18.0	3.8	88 km SE from Pond Inlet, NU

2020-10-25 12:23:31	72.369	-75.787	18.0	2.6	83 km SE from Pond Inlet, NU
2020-11-25 01:16:00	72.358	-75.582	18.0	2.2	89 km SE from Pond Inlet, NU
2020-12-07 05:02:46	72.434	-76.041	18.0	2.3	72 km SE from Pond Inlet, NU
2020-12-10 15:39:22	72.422	-76.000	18.0	2.8	73 km SE from Pond Inlet, NU
2020-12-11 05:00:51	72.440	-76.013	18.0	2.0	72 km SE from Pond Inlet, NU
2020-12-11 05:03:27	72.396	-76.033	18.0	2.1	74 km SE from Pond Inlet, NU
2020-12-11 05:03:28	72.397	-76.096	18.0	2.1	72 km SE from Pond Inlet, NU
2020-12-13 12:05:39	72.407	-76.004	18.0	3.7	74 km SE from Pond Inlet, NU
2020-12-13 12:14:31	72.410	-76.000	18.0	2.2	74 km SE from Pond Inlet, NU
2020-12-14 01:32:59	72.442	-76.000	18.0	2.7	72 km SE from Pond Inlet, NU
2020-12-14 10:28:54	72.410	-76.020	18.0	2.4	73 km SE from Pond Inlet, NU
2020-12-14 11:03:10	72.421	-75.985	18.0	2.1	74 km SE from Pond Inlet, NU
2020-12-15 04:30:23	72.404	-76.000	18.0	2.4	74 km SE from Pond Inlet, NU
2020-12-17 00:02:58	72.391	-75.981	18.0	3.7	76 km SE from Pond Inlet, NU
2020-12-17 06:21:08	72.416	-76.029	18.0	2.7	73 km SE from Pond Inlet, NU
2020-12-17 06:24:11	72.390	-75.980	18.0	2.2	76 km SE from Pond Inlet, NU
2020-12-18 07:53:01	72.399	-75.980	18.0	3.6	75 km SE from Pond Inlet, NU
2020-12-18 10:26:18	72.420	-75.986	18.0	2.9	74 km SE from Pond Inlet, NU

Station RES

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
1992-11-03 10:38:37	74.532	-93.012	18.0	3.8	BARROW STRAIT, N.W.T.
1993-04-27 14:53:32	74.282	-93.278	18.0	3.4	PERRY CHANNEL, N.W.T. 66 KM SE OF RESOLUTE, N.W.T.
1993-05-01 19:48:13	74.309	-94.367	18.0	3.2	SUMMERSET ISLAND, DISTRICT OF FRANKLIN BOOTHIA REGION, N.W.T.
1993-11-22 09:00:49	73.975	-95.299	18.0	2.8	NORTHERN SOMERSET IS. N.W.T.
1994-12-08 22:20:14	75.100	-95.212	18.0	2.4	RESOLUTE BAY REGION, N.W.T.
1995-12-19 22:58:25	74.179	-94.171	18.0	2.0	BOOTHIA UNGAVA SEISMIC ZONE.
1996-03-24 06:41:07	74.414	-95.109	18.0	2.1	BOOTHIA UNGAVA SEISMIC ZONE.
1996-04-06 04:13:07	73.838	-95.898	18.0	2.9	BOOTHIA UNGAVA SEISMIC ZONE.
1996-10-01 10:21:46	74.731	-96.499	18.0	3.4	47 km W from RESOLUTE, N.W.T.
1996-11-16 22:23:33	74.457	-93.413	18.0	2.9	Barrow Strait, N.W.T.
1997-07-13 08:30:52	74.462	-97.262	18.0	3.4	75 km W from RESOLUTE, N.W.T.
1998-06-07 04:51:20	74.450	-93.542	18.0	2.7	49 km SE from RESOLUTE, N.W.T.
1999-07-01 11:29:09	73.861	-94.791	18.0	3.2	94 km S from RESOLUTE, Nunavut.
1999-09-03 02:18:14	74.585	-93.453	18.0	3.9	Cornwallis Island, Nunavut.
1999-10-06 13:13:19	74.529	-96.904	18.0	3.2	Barrow Strait, Nunavut.
2000-04-30 01:40:12	74.533	-96.819	18.0	3.4	Barrow Strait, Nunavut.
2000-11-21 13:55:05	75.170	-93.287	18.0	3.5	70 km NE from RESOLUTE, Nunavut.

2001-03-06 09:50:10	74.527	-92.624	18.0	2.2	70 km E from Resolute, Nunavut.
2001-05-10 08:50:45	74.521	-94.182	18.0	2.6	29 km SE from Resolute, Nunavut.
2001-05-16 12:19:58	74.218	-96.466	18.0	3.1	71 km SW from Resolute, Nunavut.
2001-05-31 14:20:32	75.189	-96.840	18.0	3.2	79 km NW from Resolute, Nunavut.
2001-06-15 10:25:43	75.173	-96.780	18.0	2.7	76 km NW from Resolute, Nunavut.
2001-06-24 16:17:29	75.177	-96.915	18.0	2.2	79 km NW from Resolute, Nunavut.
2001-09-18 02:20:08	73.977	-95.394	18.0	3.0	82 km S from Resolute, Nunavut.
2002-10-10 14:16:38	74.549	-93.328	18.0	3.0	50 km SE from Resolute, Nunavut.
2002-11-09 16:07:23	74.049	-94.379	18.0	2.9	75 km S from Resolute, Nunavut.
2002-11-09 20:05:17	74.009	-94.628	18.0	3.7	83 km S from Resolute, Nunavut.
2002-12-25 13:55:44	73.804	-95.266	18.0	2.5	100 km S from Resolute, Nunavut.
2004-04-13 09:12:55	74.428	-94.370	18.0	2.5	33 km SE from Resolute, NU
2004-07-04 17:47:09	74.462	-94.249	18.0	3.7	33 km SE from Resolute, NU
2005-07-23 13:15:20	74.037	-95.983	18.0	2.9	82 km SW from Resolute, NU
2005-09-07 20:22:17	74.055	-96.560	18.0	2.6	90 km SW from Resolute, NU
2006-04-05 21:36:26	74.448	-94.083	18.0	2.2	35 km SE from Resolute, NU
2006-06-01 06:29:59	75.152	-96.317	18.0	3.2	30 km SE from Polaris, NU
2006-06-04 08:06:47	74.276	-95.581	18.0	2.8	55 km SW from Resolute, NU
2006-12-30 04:14:25	74.089	-95.174	18.0	2.3	69 km S from Resolute, NU
2007-05-30 09:50:18	75.293	-93.800	18.0	2.5	73 km NE from Resolute, NU
2007-09-02 16:51:45	74.234	-93.608	18.0	2.8	63 km SE from Resolute, NU
2008-01-25 22:20:09	74.636	-94.480	18.0	4.6	18 km E from Resolute, NU. Felt.
2008-02-14 19:46:20	74.357	-94.530	18.0	4.6	40 km S from Resolute, NU. Felt.
2008-02-15 05:28:33	74.357	-94.469	18.0	2.4	39 km S from Resolute, NU
2008-02-24 01:18:32	74.369	-94.439	18.0	2.5	38 km S from Resolute, NU
2008-03-07 10:54:56	74.656	-94.257	10.0	2.6	18 km E from Resolute, NU
2008-04-26 16:09:10	74.586	-93.682	18.0	2.4	36 km E from Resolute, NU
2008-06-02 16:17:34	74.679	-96.616	18.0	2.7	53 km W from Resolute, NU
2008-06-02 23:18:57	74.061	-92.902	18.0	2.3	92 km SE from Resolute, NU
2008-07-21 01:04:03	74.424	-92.990	18.0	2.7	60 km SE from Resolute, NU
2009-02-03 23:36:47	74.174	-95.676	18.0	3.0	64 km SW from Resolute, NU
2009-02-06 22:33:17	74.554	-93.518	18.0	2.5	41 km SE from Resolute, NU
2009-02-07 22:00:31	75.051	-96.697	18.0	2.7	40 km S from Polaris, NU
2009-02-13 03:22:59	74.916	-97.410	18.0	3.9	60 km S from Polaris, NU
2009-04-06 00:55:31	74.026	-96.143	18.0	2.5	85 km SW from Resolute, NU
2009-04-10 00:19:32	74.895	-97.525	18.0	2.0	60 km S from Polaris, NU
2009-04-27 01:41:48	74.020	-92.980	18.0	2.1	95 km SE from Resolute, NU
2009-04-27 18:54:23	74.618	-94.456	18.0	2.1	14 km SE from Resolute, NU
2009-06-06 20:27:44	74.337	-93.185	18.0	2.6	63 km SE from Resolute, NU
2009-06-12 13:39:37	75.164	-96.872	18.0	2.5	26 km S from Polaris, NU
2009-07-18 05:20:24	74.415	-92.838	18.0	2.3	67 km SE from Resolute, NU

2009-09-22 10:24:32	74.565	-97.694	18.0	2.6	85 km W from Resolute, NU
2009-10-18 07:04:29	75.290	-97.006	5.0	2.9	12 km S from Polaris, NU
2009-12-23 07:26:28	74.557	-93.300	18.0	2.5	50 km E from Resolute, NU
2010-02-23 23:44:36	74.812	-93.500	18.0	2.3	40 km E from Resolute, NU
2010-02-28 04:20:05	74.379	-94.220	18.0	2.2	40 km SE from Resolute, NU
2010-02-28 06:59:53	74.656	-92.589	18.0	2.0	67 km E from Resolute, NU
2010-03-21 03:02:39	75.543	-93.920	18.0	2.6	85 km E from Polaris, NU
2010-05-06 15:34:48	74.557	-93.121	2.0	4.0	45 km SE from Resolute, NU
2010-05-08 04:09:13	75.088	-97.800	18.0	2.4	40 km SW from Polaris, NU
2010-07-20 03:45:15	74.425	-92.963	18.0	3.9	BOOTHIA UNGAVA SEISMIC ZONE.
2010-08-16 21:08:21	74.399	-94.000	18.0	2.2	40 km SE from Resolute, NU
2010-09-28 11:23:58	74.336	-93.335	18.0	2.8	60 km SE from Resolute, NU
2010-10-26 11:49:42	74.611	-93.756	18.0	3.0	33 km E from Resolute, NU
2010-10-27 08:17:12	74.173	-94.540	18.0	2.2	60 km S from Resolute, NU
2010-10-28 20:48:55	74.611	-97.620	18.0	2.2	83 km W from Resolute, NU
2010-11-23 22:39:55	74.929	-96.787	18.0	3.7	52 km S from Polaris, NU
2010-12-16 08:16:36	73.982	-96.476	18.0	2.9	94 km SW from Resolute, NU
2010-12-26 19:44:20	74.006	-94.326	18.0	3.3	80 km S from Resolute, NU
2011-01-14 02:56:52	75.178	-94.520	18.0	2.7	55 km N from Resolute, NU
2011-03-10 20:56:32	74.334	-94.405	18.0	2.7	42 km S from Resolute, NU
2011-05-06 17:41:17	75.396	-94.320	18.0	2.4	80 km N of Resolute, NU
2011-05-09 10:36:19	74.645	-97.289	18.0	2.1	73 km W from Resolute, NU
2011-06-04 13:07:10	74.289	-93.463	18.0	2.9	61 km SE from Resolute, NU
2011-06-19 12:56:49	74.343	-95.359	18.0	2.3	43 km S from Resolute, NU
2011-09-12 16:46:12	74.116	-93.662	18.0	2.9	75 km SE from Resolute, NU
2011-11-01 22:29:19	75.180	-96.818	18.0	2.1	24 km S from Polaris, NU
2011-11-04 09:11:21	74.171	-92.700	18.0	2.3	87 km SE from Resolute, NU
2012-01-04 18:16:59	75.530	-95.964	18.0	3.3	30 km NE from Polaris, NU
2012-03-04 06:23:27	74.974	-93.427	18.0	2.9	52 km NE from Resolute, NU
2012-03-26 07:36:18	74.174	-95.933	18.0	2.7	67 km SW from Resolute, NU
2012-04-01 13:40:57	74.888	-97.016	18.0	2.4	57 km S from Polaris, NU
2012-07-13 03:29:11	74.001	-96.204	18.0	3.4	88 km SW from Resolute, NU
2012-07-22 23:27:57	75.100	-94.485	18.0	2.7	46 km N from Resolute, NU
2012-10-29 09:25:18	73.936	-95.191	18.0	2.2	86 km S from Resolute, NU
2012-11-06 05:47:29	74.556	-94.732	18.0	3.8	16 km S from Resolute, NU
2013-02-28 17:04:15	73.940	-93.694	18.0	2.8	91 km SE from Resolute, NU
2013-03-09 06:50:56	74.018	-96.880	18.0	2.2	100 km SW from Resolute, NU
2013-03-24 13:05:13	74.017	-92.916	18.0	2.4	95 km SE from Resolute, NU
2014-03-16 08:32:46	74.639	-96.005	18.0	3.2	35 km W from Resolute, NU
2014-12-02 01:21:01	74.431	-94.543	18.0	3.1	31 km S from Resolute, NU
2014-12-27 23:46:16	74.989	-98.040	18.0	3.1	56 km SW from Polaris, NU

2015-04-18 21:09:09	74.342	-93.129	18.0	2.8	64 km SE from Resolute, NU
2017-01-08 23:47:11	74.269	-92.144	18.0	5.9	93 km SE from Resolute, NU. Felt
2017-01-09 00:28:45	74.252	-92.230	18.0	3.7	92 km SE from Resolute, NU. Aftershock
2017-01-09 02:39:02	74.283	-92.265	18.0	3.6	90 km SE from Resolute, NU. Aftershock
2017-01-09 08:07:47	74.302	-92.240	18.0	3.0	89 km SE from Resolute, NU. Aftershock
2017-01-09 09:57:37	74.304	-92.336	18.0	2.1	86 km SE from Resolute, NU. Aftershock
2017-01-09 10:50:11	74.304	-92.195	18.0	3.0	90 km SE from Resolute, NU. Aftershock
2017-01-09 15:50:45	74.278	-92.265	18.0	3.1	90 km SE from Resolute, NU. Aftershock
2017-01-09 17:55:35	74.370	-92.152	18.0	5.0	88 km SE from Resolute, NU. Aftershock
2017-01-09 19:43:46	74.324	-92.240	18.0	4.4	88 km SE from Resolute, NU. Aftershock
2017-01-11 05:45:07	74.264	-92.273	18.0	2.2	91 km SE from Resolute, NU. Aftershock
2017-01-13 01:40:13	74.268	-92.240	18.0	2.5	91 km SE from Resolute, NU. Aftershock
2017-01-16 00:46:38	74.290	-92.273	18.0	2.4	89 km SE from Resolute, NU. Aftershock
2017-01-17 15:31:02	74.270	-92.240	18.0	2.1	91 km SE from Resolute, NU. Aftershock
2017-01-23 06:26:08	74.338	-92.273	18.0	2.8	86 km SE from Resolute, NU. Aftershock
2017-01-23 07:37:14	74.341	-92.234	18.0	2.7	87 km SE from Resolute, NU. Aftershock
2017-01-25 12:13:27	74.245	-92.324	18.0	3.6	90 km SE from Resolute, NU. Aftershock
2017-01-31 04:23:19	74.394	-92.240	18.0	2.6	84 km E from Resolute, NU. Aftershock
2017-02-02 13:16:25	74.270	-92.240	18.0	2.0	91 km SE from Resolute, NU. Aftershock
2017-02-10 15:01:49	74.288	-92.167	18.0	5.3	92 km SE from Resolute, NU. Felt
2017-02-16 06:47:56	75.157	-97.804	18.0	3.4	37 km SW from Polaris, NU
2017-02-20 05:52:20	73.960	-94.468	18.0	2.3	83 km S from Resolute, NU
2017-03-09 05:47:53	74.240	-92.470	18.0	2.7	87 km SE from Resolute, NU
2017-04-05 05:18:32	75.155	-95.131	18.0	3.5	52 km N from Resolute, NU
2017-05-12 19:34:10	74.351	-92.244	18.0	2.2	86 km SE from Resolute, NU
2017-05-19 12:42:11	74.332	-92.389	18.0	2.4	83 km SE from Resolute, NU
2017-10-06 10:04:47	73.876	-96.316	18.0	2.9	102 km SW from Resolute, NU
2017-11-01 20:58:05	74.161	-92.938	18.0	2.0	82 km SE from Resolute, NU
2017-11-04 19:23:28	74.070	-93.427	18.0	2.8	82 km SE from Resolute, NU
2018-05-19 20:00:39	74.268	-92.675	18.0	3.0	80 km SE from Resolute, NU
2019-01-10 18:28:13	73.980	-93.974	18.0	3.5	84 km S from Resolute, NU
2019-01-15 09:37:54	74.111	-92.883	18.0	2.6	88 km SE from Resolute, NU
2019-03-25 10:48:55	74.361	-92.124	18.0	2.4	89 km SE from Resolute, NU
2019-04-13 22:22:18	74.666	-94.160	18.0	3.0	20 km E from Resolute, NU
2019-04-28 01:03:55	73.970	-94.999	18.0	2.1	81 km S from Resolute, NU
2019-05-31 15:23:15	74.504	-96.916	18.0	2.8	66 km W from Resolute, NU
2019-07-03 07:49:19	74.474	-94.840	18.0	2.5	25 km S from Resolute, NU
2019-08-31 12:12:16	74.481	-94.565	18.0	2.6	25 km S from Resolute, NU
2019-09-10 10:26:22	75.116	-96.650	18.0	2.2	32 km S from Polaris, NU
2019-09-24 08:29:29	75.318	-95.472	18.0	2.6	41 km E from Polaris, NU
2019-10-08 21:05:08	74.288	-92.400	18.0	3.8	86 km SE from Resolute, NU

2019-11-04 09:21:39	74.468	-94.220	18.0	2.5	31 km SE from Resolute, NU
2019-12-24 10:04:29	74.143	-95.139	18.0	2.1	62 km S from Resolute, NU
2020-01-16 06:33:46	74.278	-94.362	18.0	2.1	49 km S from Resolute, NU
2020-01-31 00:36:04	75.179	-94.454	18.0	2.2	55 km N from Resolute, NU
2020-03-24 02:24:32	74.451	-93.120	18.0	2.6	58 km SE from Resolute, NU
2020-03-26 17:11:55	74.737	-93.824	18.0	2.4	30 km E from Resolute, NU
2020-04-10 21:03:51	74.705	-92.897	18.0	2.5	57 km E from Resolute, NU
2020-04-27 21:21:39	74.483	-92.118	18.0	2.3	84 km E from Resolute, NU
2020-05-02 04:59:24	74.734	-94.537	18.0	2.5	10 km NE from Resolute, NU
2020-05-11 14:18:00	74.473	-94.156	18.0	2.3	32 km SE from Resolute, NU
2020-05-12 12:19:35	74.079	-94.612	18.0	2.3	69 km S from Resolute, NU
2020-05-21 09:26:15	74.137	-95.231	18.0	2.1	64 km S from Resolute, NU
2020-06-03 22:13:23	74.731	-93.724	18.0	2.3	33 km E from Resolute, NU
2020-06-18 23:30:32	74.282	-92.264	18.0	2.2	90 km SE from Resolute, NU
2020-08-14 09:56:54	74.525	-94.813	18.0	2.5	19 km S from Resolute, NU
2020-08-28 15:26:46	74.026	-96.263	18.0	2.7	86 km SW from Resolute, NU
2020-08-28 15:29:46	74.026	-96.262	18.0	2.6	86 km SW from Resolute, NU
2020-09-01 09:51:00	74.794	-96.626	18.0	3.3	54 km W from Resolute, NU
2020-09-01 10:14:25	74.801	-96.620	18.0	2.8	54 km W from Resolute, NU
2020-09-01 11:19:52	74.863	-95.506	18.0	2.5	27 km NW from Resolute, NU
2020-09-01 20:15:03	74.790	-96.630	18.0	2.2	54 km W from Resolute, NU
2020-09-16 02:07:44	74.381	-93.511	18.0	3.5	53 km SE from Resolute, NU
2020-09-19 18:48:44	75.212	-96.871	18.0	2.0	20 km S from Polaris, NU
2020-09-20 14:18:19	74.429	-93.940	18.0	2.2	40 km SE from Resolute, NU
2020-11-20 03:49:52	74.883	-96.416	18.0	3.0	51 km NW from Resolute, NU
2020-12-02 16:46:23	75.118	-97.499	18.0	2.6	36 km SW from Polaris, NU

Station SBNU

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2005-07-14 15:38:20	69.782	-93.003	18.0	2.7	34 km S from Taloyoak, NU
2008-03-21 06:15:18	69.660	-94.320	18.0	2.1	35 km NW from Taloyoak, NU
2008-07-17 00:03:56	68.620	-92.577	18.0	1.8	109 km S from Taloyoak, NU
2010-06-04 07:07:46	68.780	-92.503	18.0	1.6	95 km SE from Taloyoak, NU
2011-07-14 05:56:28	69.957	-94.350	18.0	2.3	57 km NW from Taloyoak, NU
2018-02-13 21:35:05	69.955	-94.229	18.0	2.5	54 km NW from Taloyoak, NU
2020-03-27 12:41:36	68.554	-93.031	18.0	2.7	112 km S from Taloyoak, NU

Station SILO

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2004-07-24 18:19:01	54.036	-85.452	18.0	2.2	90 km NW from Attawapiskat Indian Reserve 91, ON
2006-04-08 10:29:54	54.322	-84.513	5.0	1.9	85 km N from Attawapiskat Indian Reserve 91, ON
2014-12-03 07:58:48	54.132	-85.813	19.0	3.0	116 km NW from Attawapiskat Indian Reserve 91, ON

Station VIMO

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2005-04-24 04:00:35	51.965	-83.934	18.0	2.0	150 km SW from Attawapiskat, ON
2006-04-27 12:00:29	53.354	-82.986	5.0	1.3	60 km NW from Attawapiskat, ON

Appendix 2

Selected earthquakes for this study within 100 km of the POLARIS stations (alphabetically sorted)
(Source: http://www.earthquakescanada.nrcan.gc.ca)

Station AKVQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2006-09-29 01:59:13	59.939	-78.123	18.0	2.7	50 km W from Puvirnituq, QC
2006-12-17 13:16:51	60.262	-78.356	18.0	1.7	60 km S from Akulivik, QC
2007-02-17 23:38:13	61.190	-79.807	5.0	2.5	97 km NW from Akulivik, QC
2007-02-18 16:57:44	60.547	-77.182	5.0	1.7	58 km N from Puvirnituq, QC
2007-02-18 17:35:07	61.153	-78.177	5.0	1.6	40 km N from Akulivik, QC
2007-04-13 04:07:10	61.197	-79.655	18.0	2.0	90 km NW from Akulivik, QC
2007-08-14 04:50:33	60.895	-79.928	5.0	3.0	95 km W from Akulivik, QC
2007-08-14 06:05:40	60.940	-79.856	18.0	2.3	91 km W from Akulivik, QC
2007-08-14 08:00:22	60.919	-79.941	5.0	3.3	96 km W from Akulivik, QC
2007-08-14 08:53:13	60.933	-79.923	5.0	2.1	95 km W from Akulivik, QC
2007-08-14 16:38:52	60.937	-79.901	5.0	2.7	94 km W from Akulivik, QC
2007-08-14 16:39:13	60.923	-79.950	5.0	2.9	96 km W from Akulivik, QC
2007-08-14 17:11:01	60.932	-79.952	5.0	2.8	95 km W from Akulivik, QC
2007-08-14 17:41:20	60.909	-79.969	5.0	1.8	97 km W from Akulivik, QC
2007-08-17 04:20:10	60.910	-79.923	5.0	2.4	95 km W from Akulivik, QC
2007-09-02 12:44:26	60.937	-79.790	18.0	3.8	88 km W from Akulivik, QC
2007-09-02 15:52:22	60.945	-79.780	18.0	2.3	88 km W from Akulivik, QC. Aftershock.
2007-09-02 18:22:20	60.937	-79.790	18.0	1.6	88 km W from Akulivik, QC. Aftershock.
2007-09-02 19:13:34	60.937	-79.790	18.0	1.7	88 km W from Akulivik, QC. Aftershock.
2007-09-09 21:05:44	60.842	-79.740	18.0	2.7	84 km W from Akulivik, QC
2007-09-18 05:36:26	60.640	-77.624	18.0	2.4	36 km SE from Akulivik, QC
2007-10-11 03:36:19	60.906	-79.928	18.0	2.8	95 km W from Akulivik, QC
2008-01-17 04:59:01	60.252	-77.078	18.0	2.3	27 km NE from Puvirnituq, QC
2008-03-04 22:40:31	61.326	-79.543	18.0	1.9	89 km NW from Akulivik, QC
2008-07-05 21:56:37	60.950	-79.804	18.0	2.0	87 km W from Akulivik, QC
2008-07-30 07:54:21	61.069	-76.722	18.0	2.4	86 km E from Akulivik, QC
2008-09-04 20:05:36	61.025	-78.646	18.0	2.2	37 km NW from Akulivik, QC
2008-10-22 04:11:14	60.893	-79.877	18.0	2.6	92 km W from Akulivik, QC
2009-03-30 21:14:00	60.988	-78.766	5.0	2.1	37 km NW from Akulivik, QC
2009-04-16 10:26:37	60.910	-79.796	18.0	2.0	88 km W from Akulivik, QC
2010-06-05 06:08:38	61.249	-78.525	5.0	1.9	55 km N from Akulivik, QC
2010-06-06 17:43:26	60.184	-78.453	5.0	2.0	67 km W from Puvirnituq, QC
2011-03-20 07:36:58	61.591	-77.503	18.0	2.4	95 km S from Ivujivik, QC

Station AP3N

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-09-08 12:00:51	69.611	-82.960	18.0	2.0	52 km NW from Igloolik, NU
2008-03-29 05:50:03	70.289	-84.188	18.0	1.5	137 km NW from Igloolik, NU
2009-04-21 01:42:49	69.263	-83.957	18.0	1.9	86 km W from Igloolik, NU
2009-06-11 21:27:21	69.622	-85.620	18.0	1.5	152 km W from Igloolik, NU
2010-01-04 12:35:39	70.339	-84.260	18.0	2.6	143 km NW from Igloolik, NU
2010-01-26 17:47:00	68.807	-85.700	18.0	2.2	170 km W from Igloolik, NU
2010-03-14 06:08:55	69.854	-84.790	18.0	2.0	128 km NW from Igloolik, NU
2010-06-18 01:15:37	69.827	-84.396	18.0	2.1	113 km NW from Igloolik, NU
2010-07-02 02:50:35	69.598	-83.100	18.0	1.5	56 km NW from Igloolik, NU
2010-10-17 00:00:48	69.143	-85.728	18.0	2.5	160 km W from Igloolik, NU
2011-02-11 13:11:36	69.427	-82.680	18.0	2.9	35 km W from Igloolik, NU
2011-11-10 02:18:10	69.132	-85.980	18.0	1.9	168 km W from Igloolik, NU

Station BULN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-02-20 17:22:12	66.904	-94.124	18.0	2.5	BOOTHIA UNGAVA SEISMIC ZONE.
2007-05-21 10:03:17	66.201	-91.880	18.0	2.0	255 km W from Repulse Bay, NU
2007-06-04 13:13:59	66.694	-93.452	18.0	2.2	240 km SE from Gjoa Haven, NU
2008-02-20 07:48:09	66.012	-91.536	22.0	3.6	Wager Bay region, NU
2008-03-26 00:19:37	66.601	-91.095	18.0	2.1	215 km W from Repulse Bay, NU
2008-10-05 19:36:52	66.967	-91.387	18.0	2.7	187 km S from Kugaaruk, NU
2008-10-09 02:37:49	66.351	-94.339	18.0	2.8	240 km N from Baker Lake, NU
2008-11-08 07:01:45	66.060	-92.147	18.0	2.6	Wager Bay region, NU
2008-11-29 17:50:47	66.182	-91.711	18.0	3.1	248 km W from Repulse Bay, NU
2009-07-14 01:42:01	66.660	-91.097	18.0	2.0	Wager Bay region, NU
2009-07-24 22:21:07	66.277	-94.200	18.0	2.2	235 km N from Baker Lake, NU
2009-08-22 06:06:15	66.191	-94.247	18.0	3.9	225 km N from Baker Lake, NU
2010-03-18 17:55:14	66.095	-92.048	18.0	2.3	Wager Bay region, NU
2010-04-12 01:47:59	66.088	-91.456	5.0	3.3	Wager Bay region, NU
2010-04-12 12:46:24	66.090	-91.456	5.0	2.1	Wager Bay region, NU
2010-04-22 01:47:29	66.051	-91.627	18.0	3.3	Wager Bay region, NU
2010-07-21 01:51:54	65.986	-91.550	18.0	2.3	246 km W from Repulse Bay, NU
2010-10-28 16:12:43	67.061	-94.157	18.0	2.1	190 km SE from Gjoa Haven, NU
2011-02-10 15:52:45	66.603	-95.111	18.0	2.8	228 km S from Gjoa Haven, NU
2011-02-16 02:01:21	65.906	-91.432	18.0	2.1	244 km W from Repulse Bay, NU
2011-03-26 03:01:21	66.376	-93.559	18.0	2.1	257 km NE from Baker Lake, NU
2011-04-19 22:15:09	66.375	-91.452	18.0	2.2	233 km W from Repulse Bay, NU

2011-05-20 13:40:49	66.062	-91.256	18.0	2.5	Wager Bay region, NU
2011-05-21 07:15:53	67.243	-93.176	18.0	2.1	190 km SE from Gjoa Haven, NU
2011-08-17 07:40:54	65.965	-91.252	18.0	2.1	Wager Bay, NU
2011-12-06 05:32:48	66.402	-95.155	18.0	2.5	236 km N from Baker Lake, NU
2012-03-16 11:31:07	67.040	-94.537	18.0	2.5	186 km S from Gjoa Haven, NU
2012-04-14 16:27:47	67.134	-94.023	18.0	2.0	184 km SE from Gjoa Haven, NU
2012-04-28 16:57:50	66.740	-95.174	18.0	2.2	215 km S from Gjoa Haven, NU
2012-05-20 11:38:26	66.943	-94.676	18.0	2.4	195 km S from Gjoa Haven, NU
2012-07-15 10:51:18	66.050	-92.080	18.0	2.8	265 km NE from Baker Lake, NU

Station CDKN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2009-09-23 21:40:38	64.648	-65.298	18.0	3.2	168 km S from Pangnirtung, NU
2010-05-20 10:53:37	63.833	-65.468	18.0	2.6	151 km E from Iqaluit, NU
2012-02-28 00:55:39	63.659	-67.316	18.0	1.8	60 km E from Iqaluit, NU

Station CMBN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2011-06-16 23:45:23	66.486	-64.892	18.0	2.8	53 km NE from Pangnirtung, NU

Station GIFN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-09-08 12:00:51	69.611	-82.960	18.0	2.0	52 km NW from Igloolik, NU
2011-02-11 13:11:36	69.427	-82.680	18.0	2.9	35 km W from Igloolik, NU

Station IVKQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2006-10-02 21:09:01	62.032	-79.530	18.0	2.5	95 km SW from Ivujivik, QC
2006-10-17 21:22:01	62.249	-77.952	5.0	2.5	19 km S from Ivujivik, QC
2006-10-18 00:42:23	62.253	-77.880	5.0	2.2	18 km S from Ivujivik, QC
2006-11-09 22:41:15	62.037	-79.558	18.0	2.4	95 km SW from Ivujivik, QC
2007-01-10 22:36:48	62.284	-79.446	18.0	2.7	80 km W from Ivujivik, QC
2007-01-18 22:08:10	62.129	-79.674	18.0	2.6	97 km W from Ivujivik, QC
2007-04-04 13:00:08	62.029	-79.550	18.0	2.3	95 km SW from Ivujivik, QC
2007-10-28 16:01:12	61.868	-77.931	18.0	3.4	60 km S from Ivujivik, QC

2008-01-24 02:22:41	62.151	-79.724	18.0	2.2	95 km W from Ivujivik, QC
2008-01-24 10:47:15	62.178	-79.665	18.0	2.0	96 km W from Ivujivik, QC
2008-01-24 10:50:28	62.127	-79.658	18.0	2.5	96 km W from Ivujivik, QC
2008-01-24 11:58:21	62.127	-79.609	18.0	2.0	95 km W from Ivujivik, QC
2008-01-24 12:39:55	62.140	-79.677	18.0	2.4	95 km W from Ivujivik, QC
2008-01-24 12:57:47	62.135	-79.593	18.0	2.2	94 km W from Ivujivik, QC
2008-01-24 14:04:51	62.151	-79.759	5.0	2.5	95 km W from Ivujivik, QC
2008-01-24 18:16:57	62.138	-79.642	18.0	2.5	96 km W from Ivujivik, QC
2008-02-06 10:31:15	62.192	-79.696	18.0	2.2	96 km W from Ivujivik, QC
2008-06-15 06:43:07	61.705	-77.424	18.0	2.6	84 km S from Ivujivik, QC
2008-10-16 11:25:17	62.498	-78.055	5.0	2.4	13 km NW from Ivujivik, QC
2008-10-17 14:35:39	62.507	-78.038	5.0	2.2	12 km NW from Ivujivik, QC
2008-10-17 14:51:37	62.531	-77.975	5.0	2.2	13 km N from Ivujivik, QC
2009-03-21 01:34:47	62.069	-79.628	5.0	2.6	98 km SW from Ivujivik, QC
2009-03-21 19:17:53	62.055	-79.660	4.0	4.4	99 km SW from Ivujivik, QC
2009-03-21 19:23:34	62.055	-79.660	5.0	2.4	99 km SW from Ivujivik, QC
2009-03-21 19:28:40	62.037	-79.652	5.0	3.4	100 km SW from Ivujivik, QC
2009-03-21 19:30:42	62.055	-79.660	5.0	2.4	99 km SW from Ivujivik, QC
2009-03-21 19:32:45	62.196	-79.617	5.0	3.0	92 km W from Ivujivik, QC
2009-03-21 19:34:48	62.085	-79.654	5.0	3.8	95 km W from Ivujivik, QC
2009-03-21 19:42:03	62.055	-79.660	5.0	2.2	99 km SW from Ivujivik, QC
2009-03-21 20:17:20	62.099	-79.682	5.0	2.8	98 km W from Ivujivik, QC
2009-03-21 20:43:33	62.101	-79.698	5.0	2.7	99 km W from Ivujivik, QC
2009-03-21 21:02:26	62.091	-79.668	5.0	2.2	98 km W from Ivujivik, QC
2009-03-21 22:02:19	62.123	-79.632	5.0	2.9	95 km W from Ivujivik, QC
2009-03-21 22:57:08	62.120	-79.684	5.0	2.4	98 km W from Ivujivik, QC
2009-03-21 23:14:07	62.070	-79.641	5.0	3.1	98 km SW from Ivujivik, QC
2009-03-21 23:26:24	62.072	-79.677	5.0	3.1	99 km W from Ivujivik, QC
2009-03-21 23:28:31	62.098	-79.620	5.0	2.8	96 km W from Ivujivik, QC
2009-03-21 23:39:00	62.146	-79.665	5.0	2.5	96 km W from Ivujivik, QC
2009-03-22 00:05:50	62.096	-79.681	5.0	2.9	98 km W from Ivujivik, QC
2009-03-22 01:41:21	62.096	-79.640	5.0	2.1	97 km W from Ivujivik, QC
2009-03-22 02:33:54	62.089	-79.664	5.0	2.6	99 km SW from Ivujivik, QC
2009-03-22 03:12:29	62.033	-79.644	5.0	2.8	100 km SW from Ivujivik, QC
2009-03-22 05:31:17	62.073	-79.616	5.0	3.9	95 km SW from Ivujivik, QC
2009-03-22 05:35:10	62.084	-79.475	5.0	3.6	90 km SW from Ivujivik, QC
2009-03-22 07:40:22	62.107	-79.704	5.0	2.9	99 km W from Ivujivik, QC
2009-03-22 16:12:46	62.180	-79.630	5.0	2.3	93 km W from Ivujivik, QC
2009-03-22 16:23:00	62.112	-79.652	5.0	2.3	96 km W from Ivujivik, QC
2009-03-22 16:27:15	62.104	-79.700	5.0	3.8	90 km W from Ivujivik, QC
2009-03-22 16:31:29	62.055	-79.660	5.0	2.1	99 km SW from Ivujivik, QC

2009-03-22 16:38:51	62.084	-79.639	5.0	3.4	90 km W from Ivujivik, QC
2009-03-22 17:20:41	62.020	-79.626	5.0	2.6	99 km SW from Ivujivik, QC
2009-03-22 21:58:29	62.126	-79.621	5.0	2.1	94 km W from Ivujivik, QC
2009-03-23 11:08:36	62.047	-79.634	5.0	2.5	99 km SW from Ivujivik, QC
2009-03-24 05:28:32	62.050	-79.673	5.0	2.2	100 km SW from Ivujivik, QC
2009-03-24 07:43:58	62.039	-79.594	5.0	2.1	97 km SW from Ivujivik, QC
2009-03-24 12:00:27	62.051	-79.625	5.0	3.4	98 km SW from Ivujivik, QC
2009-03-24 12:04:20	62.074	-79.654	5.0	3.1	98 km W from Ivujivik, QC
2009-03-24 17:12:37	62.052	-79.635	5.0	2.8	98 km SW from Ivujivik, QC
2009-03-25 06:25:20	62.048	-79.662	5.0	2.2	100 km SW from Ivujivik, QC
2009-03-25 21:50:37	62.037	-79.551	5.0	2.1	95 km SW from Ivujivik, QC
2009-03-26 07:00:56	62.038	-79.570	5.0	2.6	96 km SW from Ivujivik, QC
2009-03-27 12:03:43	62.043	-79.634	4.5	3.7	99 km SW from Ivujivik, QC
2009-03-27 12:19:29	62.046	-79.610	5.0	3.3	97 km SW from Ivujivik, QC
2009-03-27 12:27:14	62.063	-79.657	2.0	3.7	99 km SW from Ivujivik, QC
2009-03-27 12:30:59	62.014	-79.485	5.0	2.9	93 km SW from Ivujivik, QC
2009-03-27 12:37:44	62.088	-79.579	5.0	2.3	94 km W from Ivujivik, QC
2009-03-28 19:32:26	62.043	-79.576	5.0	2.6	96 km SW from Ivujivik, QC
2009-03-29 05:02:23	62.051	-79.576	5.0	2.3	96 km SW from Ivujivik, QC
2009-03-29 12:52:12	62.041	-79.610	5.0	2.8	98 km SW from Ivujivik, QC
2009-03-29 12:58:09	62.032	-79.538	5.0	2.0	95 km SW from Ivujivik, QC
2009-03-29 17:29:35	62.053	-79.660	5.0	2.2	99 km SW from Ivujivik, QC
2009-03-31 02:38:12	62.051	-79.657	5.0	2.0	97 km SW from Ivujivik, QC
2009-04-01 02:32:49	62.047	-79.648	5.0	2.3	99 km SW from Ivujivik, QC
2009-04-01 04:27:33	62.039	-79.598	5.0	3.6	97 km SW from Ivujivik, QC
2009-04-04 02:46:08	62.034	-79.601	5.0	3.2	98 km SW from Ivujivik, QC
2009-04-05 14:52:55	62.045	-79.660	5.0	2.7	100 km SW from Ivujivik, QC
2009-04-07 00:21:02	62.044	-79.632	5.0	3.2	100 km SW from Ivujivik, QC
2009-04-07 06:15:32	62.038	-79.649	5.0	2.0	100 km SW from Ivujivik, QC
2009-04-07 06:39:25	62.031	-79.615	5.0	2.0	100 km SW from Ivujivik, QC
2009-04-08 17:44:16	62.029	-79.655	5.0	2.1	100 km SW from Ivujivik, QC
2009-04-09 08:38:55	62.043	-79.629	5.0	2.5	98 km SW from Ivujivik, QC
2009-04-09 20:17:22	62.005	-79.600	5.0	2.0	99 km SW from Ivujivik, QC
2009-04-09 20:18:19	62.068	-79.654	5.0	2.3	98 km SW from Ivujivik, QC
2009-04-11 10:46:33	62.033	-79.577	5.0	2.1	97 km SW from Ivujivik, QC
2009-05-14 07:36:06	61.974	-79.581	5.0	2.7	100 km SW from Ivujivik, QC
2009-06-09 20:50:33	62.053	-79.617	5.0	3.6	97 km SW from Ivujivik, QC
2009-06-09 21:26:02	62.041	-79.574	5.0	2.0	96 km SW from Ivujivik, QC
2009-06-09 21:35:44	62.052	-79.673	5.0	2.4	100 km SW from Ivujivik, QC
2009-06-09 23:15:16	62.058	-79.622	5.0	3.9	97 km SW from Ivujivik, QC
2009-06-09 23:27:32	62.065	-79.615	5.0	2.6	97 km SW from Ivujivik, QC

2009-06-10 01:59:15	62.063	-79.626	5.0	2.6	97 km SW from Ivujivik, QC
2009-06-28 00:23:32	62.068	-79.564	5.0	3.4	94 km SW from Ivujivik, QC
2009-06-28 01:20:01	62.069	-79.537	5.0	2.5	93 km SW from Ivujivik, QC
2009-06-28 02:27:27	62.065	-79.530	5.0	2.6	93 km SW from Ivujivik, QC
2009-08-06 20:33:14	62.025	-79.529	18.0	3.6	95 km SW from Ivujivik, QC
2009-08-06 21:48:48	62.127	-79.456	18.0	3.1	86 km W from Ivujivik, QC
2009-08-06 22:02:35	62.048	-79.558	18.0	2.8	95 km SW from Ivujivik, QC
2009-08-07 09:18:55	62.060	-79.660	5.0	2.8	99 km SW from Ivujivik, QC
2009-11-02 11:15:54	62.784	-78.799	18.0	2.1	61 km NW from Ivujivik, QC
2010-02-03 10:55:36	62.130	-79.512	5.0	2.0	Mansel Island, NU
2010-03-02 11:33:12	62.426	-79.336	18.0	2.6	73 km W from Ivujivik, QC
2010-07-13 21:02:43	62.708	-79.238	18.0	2.8	75 km NW from Ivujivik, QC
2010-07-24 10:39:19	62.425	-79.265	18.0	2.3	70 km W from Ivujivik, QC
2011-03-20 07:36:58	61.591	-77.503	18.0	2.4	95 km S from Ivujivik, QC
2012-04-05 23:48:49	62.210	-79.750	18.0	3.1	Mansel Island, NU
2012-04-06 15:26:26	62.247	-79.756	18.0	2.4	100 km W from Ivujivik, QC
2013-06-06 08:23:41	62.465	-79.546	18.0	3.0	84 km W from Ivujivik, QC

Station KIKQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2015-10-04 08:13:47	54.497	-77.415	1.0	2.8	87 km S from Whapmagoostui, QC

Station KNGQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2012-01-20 09:21:55	62.346	-72.668	18.0	2.2	90 km NE from Purtuniq, QC
2012-04-24 16:01:10	61.475	-73.416	18.0	2.1	48 km SE from Purtuniq, QC
2014-04-08 04:56:09	62.191	-70.852	18.0	2.2	88 km NE from Kangiqsujuaq, QC
2014-04-26 12:51:57	61.814	-70.712	18.0	2.4	70 km E from Kangiqsujuaq, QC
2015-03-18 15:07:16	62.153	-72.385	18.0	2.5	66 km N from Kangiqsujuaq, QC
2015-05-25 16:17:16	61.478	-73.216	18.0	2.3	54 km SE from Purtuniq, QC
2015-09-23 08:19:10	62.249	-71.719	18.0	3.0	74 km N from Kangiqsujuaq, QC
2016-10-21 21:39:35	61.671	-73.380	18.0	2.6	34 km SE from Purtuniq, QC

Station KRSQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2011-08-29 03:38:47	60.187	-70.278	18.0	2.2	23 km NW from Kangirsuk, QC

Station KUGN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-09-23 09:27:09	68.929	-90.040	18.0	1.9	45 km N from Kugaaruk, NU
2007-11-21 05:51:37	69.061	-89.791	18.0	1.7	60 km N from Kugaaruk, NU
2008-01-14 08:54:36	67.742	-90.271	18.0	2.8	91 km S from Kugaaruk, NU
2008-04-05 16:15:36	67.967	-89.583	18.0	2.6	75 km S from Kugaaruk, NU
2009-03-06 17:30:48	67.736	-89.023	18.0	1.7	95 km S from Kugaaruk, NU
2009-04-14 14:04:42	68.186	-90.893	18.0	2.6	59 km SW from Kugaaruk, NU
2009-04-20 14:22:37	68.152	-90.731	18.0	1.7	57 km SW from Kugaaruk, NU
2009-04-21 06:24:36	68.120	-90.753	18.0	1.6	60 km SW from Kugaaruk, NU
2009-05-04 23:43:45	68.640	-89.201	18.0	2.0	28 km NE from Kugaaruk, NU
2009-05-14 23:33:50	68.761	-90.492	18.0	1.9	37 km NW from Kugaaruk, NU
2009-05-17 04:47:43	68.257	-89.930	18.0	1.8	31 km S from Kugaaruk, NU
2009-05-28 04:35:32	67.992	-90.984	18.0	1.7	77 km SW from Kugaaruk, NU
2009-06-16 20:48:13	68.043	-91.028	18.0	1.8	74 km SW from Kugaaruk, NU
2009-06-25 14:20:25	68.068	-90.680	18.0	1.5	63 km SW from Kugaaruk, NU
2009-07-02 23:50:02	69.073	-90.646	18.0	2.0	70 km NW from Kugaaruk, NU
2009-08-26 03:58:30	68.130	-90.172	18.0	1.7	47 km S from Kugaaruk, NU
2009-10-13 19:25:00	68.236	-90.100	18.0	2.6	35 km S from Kugaaruk, NU
2009-12-08 12:04:41	68.708	-89.982	18.0	2.3	20 km N from Kugaaruk, NU
2010-03-19 17:27:26	68.305	-90.652	18.0	1.6	45 km SW from Kugaaruk, NU
2010-04-19 01:46:58	68.862	-89.169	18.0	1.7	45 km NE from Kugaaruk, NU
2010-05-05 17:31:40	68.193	-91.085	18.0	1.9	64 km SW from Kugaaruk, NU
2010-06-15 03:41:15	68.076	-90.389	18.0	1.5	56 km SW from Kugaaruk, NU
2010-10-08 11:37:09	68.246	-90.228	18.0	1.5	35 km SW from Kugaaruk, NU
2010-10-28 16:09:14	68.134	-90.440	18.0	2.6	50 km SW from Kugaaruk, NU
2010-11-07 10:11:53	68.689	-91.063	18.0	1.9	53 km W from Kugaaruk, NU
2011-02-21 21:03:51	68.764	-89.472	18.0	1.5	29 km NE from Kugaaruk, NU
2011-03-24 15:55:38	68.141	-90.652	18.0	2.6	55 km SW from Kugaaruk, NU
2011-05-05 21:44:07	68.390	-90.832	18.0	2.0	44 km W from Kugaaruk, NU
2011-05-09 20:37:31	67.650	-89.163	18.0	1.6	103 km S from Kugaaruk, NU
2011-05-20 05:56:42	68.939	-89.632	18.0	2.6	45 km N from Kugaaruk, NU
2011-07-02 10:36:58	68.666	-90.312	18.0	2.1	25 km NW from Kugaaruk, NU
2012-03-10 00:26:34	68.050	-90.876	18.0	2.7	69 km SW from Kugaaruk, NU
2012-04-06 07:08:36	68.791	-89.101	18.0	2.6	40 km NE from Kugaaruk, NU
2012-04-06 07:10:09	68.803	-89.160	18.0	2.0	40 km NE from Kugaaruk, NU
2012-04-29 00:47:49	67.892	-90.131	18.0	1.9	75 km S from Kugaaruk, NU
2012-05-04 16:35:54	68.875	-89.551	18.0	3.1	40 km N from Kugaaruk, NU
2012-05-28 22:02:23	67.981	-89.242	18.0	2.3	66 km S from Kugaaruk, NU
2012-07-09 06:14:18	67.032	-89.834	18.0	2.0	167 km W from Repulse Bay, NU

Station LAIN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-09-08 12:00:51	69.611	-82.960	18.0	2.0	52 km NW from Igloolik, NU
2009-04-21 01:42:49	69.263	-83.957	18.0	1.9	86 km W from Igloolik, NU
2010-06-18 01:15:37	69.827	-84.396	18.0	2.1	113 km NW from Igloolik, NU
2010-07-02 02:50:35	69.598	-83.100	18.0	1.5	56 km NW from Igloolik, NU
2011-02-11 13:11:36	69.427	-82.680	18.0	2.9	35 km W from Igloolik, NU

Station MCMN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2011-10-28 09:43:32	63.160	-91.344	18.0	1.6	38 km SW from Chesterfield Inlet, NU
2012-05-06 17:11:50	62.903	-92.070	1.0	2.0	10 km N from Rankin Inlet, NU

Station NUNN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-11-05 20:19:21	64.642	-90.361	18.0	2.4	145 km N from Chesterfield Inlet, NU
2007-11-29 00:55:35	65.474	-89.105	18.0	2.0	Wager Bay, NU
2007-12-24 17:19:25	65.839	-90.583	18.0	3.1	Wager Bay region, NU
2008-02-20 07:48:09	66.012	-91.536	22.0	3.6	Wager Bay region, NU
2008-02-24 01:09:15	64.540	-90.191	15.0	3.2	Wager Bay region, NU
2008-05-11 09:41:17	64.490	-90.252	18.0	2.5	130 km N from Chesterfield Inlet, NU
2008-05-22 12:07:10	64.854	-89.423	18.0	2.0	Wager Bay region, NU
2008-11-05 00:10:47	65.881	-90.664	18.0	2.3	Wager Bay region, NU
2009-04-05 13:19:47	64.415	-91.139	18.0	3.5	122 km N from Chesterfield Inlet, NU
2009-04-05 13:27:17	64.415	-91.200	18.0	2.7	122 km N from Chesterfield Inlet, NU
2009-04-05 13:32:02	64.394	-90.799	18.0	2.3	118 km N from Chesterfield Inlet, NU
2009-04-06 23:25:54	65.543	-89.279	18.0	2.4	Wager Bay, NU
2009-04-06 23:32:07	65.507	-89.297	18.0	2.2	Wager Bay, NU
2009-05-09 07:51:48	65.822	-90.832	18.0	2.3	Wager Bay region, NU
2010-04-12 01:47:59	66.088	-91.456	5.0	3.3	Wager Bay region, NU
2010-04-12 12:46:24	66.090	-91.456	5.0	2.1	Wager Bay region, NU
2010-04-22 01:47:29	66.051	-91.627	18.0	3.3	Wager Bay region, NU
2010-07-21 01:51:54	65.986	-91.550	18.0	2.3	246 km W from Repulse Bay, NU
2010-07-28 23:11:56	65.845	-90.836	18.0	2.6	221 km W from Repulse Bay, NU
2010-09-24 07:49:39	65.749	-90.688	18.0	2.0	Wager Bay, NU
2011-01-22 07:28:27	64.986	-90.450	18.0	2.3	184 km N from Chesterfield Inlet, NU
2011-02-16 02:01:21	65.906	-91.432	18.0	2.1	244 km W from Repulse Bay, NU

2011-02-25 10:23:06	65.237	-89.941	18.0	2.5	215 km N from Chesterfield Inlet, NU
2011-03-08 07:05:45	64.423	-91.241	18.0	2.3	124 km N from Chesterfield Inlet, NU
2011-03-22 04:53:02	65.636	-89.750	18.0	2.2	Wager Bay, NU
2011-04-11 10:59:31	65.922	-91.224	18.0	2.2	235 km W from Repulse Bay, NU
2011-04-19 18:31:07	65.145	-89.231	18.0	3.2	207 km SW from Repulse Bay, NU
2011-05-20 13:40:49	66.062	-91.256	18.0	2.5	Wager Bay region, NU
2011-08-17 07:40:54	65.965	-91.252	18.0	2.1	Wager Bay, NU
2011-09-11 08:16:35	65.850	-90.796	18.0	2.1	Wager Bay, NU
2011-09-27 15:12:47	65.941	-90.821	18.0	2.4	Wager Bay, NU
2011-10-20 20:35:13	65.144	-89.396	18.0	2.0	211 km N from Chesterfield Inlet, NU
2011-11-05 01:49:04	65.590	-89.960	18.0	2.0	200 km SW from Repulse Bay, NU
2012-01-09 13:23:30	65.224	-89.588	18.0	2.2	211 km SW from Repulse Bay, NU
2012-05-26 12:10:31	65.650	-89.522	18.0	2.2	178 km SW from Repulse Bay, NU

Station QILN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2006-05-15 15:34:55	65.857	-86.168	18.0	2.2	76 km S from Repulse Bay, NU
2006-06-21 09:30:56	67.201	-87.751	18.0	2.7	100 km NW from Repulse Bay, NU
2006-08-08 07:44:09	65.870	-85.814	18.0	2.5	67 km S from Repulse Bay, NU
2007-05-01 00:23:07	66.987	-87.384	18.0	2.6	70 km NW from Repulse Bay, NU
2007-12-10 08:03:10	65.980	-86.280	18.0	2.1	60 km S from Repulse Bay, NU
2008-07-26 00:45:49	65.878	-87.326	5.0	2.9	Wager Bay region, NU
2008-07-26 15:21:16	65.902	-87.407	18.0	2.5	Wager Bay region, NU
2009-09-30 21:00:15	66.972	-86.686	18.0	2.2	53 km N from Repulse Bay, NU
2009-10-22 09:40:42	66.246	-87.220	18.0	2.1	54 km SW from Repulse Bay, NU
2010-05-10 17:20:52	66.330	-88.381	18.0	2.1	100 km W from Repulse Bay, NU

Station SMLN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2010-08-30 03:20:27	68.816	-92.056	18.0	2.0	95 km W from Kugaaruk, NU
2010-11-03 21:40:09	67.520	-92.728	18.0	2.0	166 km SW from Kugaaruk, NU
2010-11-07 10:11:53	68.689	-91.063	18.0	1.9	53 km W from Kugaaruk, NU
2011-05-20 11:30:20	68.046	-91.148	18.0	1.9	77 km SW from Kugaaruk, NU
2011-05-30 00:13:34	67.693	-92.112	18.0	2.0	134 km SW from Kugaaruk, NU
2011-06-22 20:38:27	68.208	-92.226	18.0	2.3	105 km W from Kugaaruk, NU
2011-11-07 21:10:00	68.125	-92.220	18.0	2.0	110 km SW from Kugaaruk, NU
2012-04-01 08:20:19	68.031	-91.252	18.0	1.5	82 km SW from Kugaaruk, NU

Station WAGN

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2006-09-03 09:08:04	65.748	-89.921	18.0	2.7	Wager Bay, NT
2006-09-22 14:04:12	65.834	-90.075	18.0	2.4	Wager Bay, NU
2006-09-24 17:48:31	65.421	-87.892	18.0	2.1	Wager Bay region, NU
2006-11-17 15:44:19	65.564	-89.751	18.0	2.3	Wager Bay, NU
2006-11-30 10:28:36	65.789	-90.317	12.0	4.3	Wager Bay region, NU
2006-11-30 10:40:33	65.712	-90.158	18.0	3.0	Wager Bay, NU. Aftershock.
2006-11-30 11:20:42	65.738	-90.373	18.0	2.5	Wager Bay, NU. Aftershock.
2006-12-02 00:20:15	65.792	-90.600	18.0	3.0	Wager Bay, NU. Aftershock.
2006-12-18 16:49:53	65.824	-90.391	18.0	3.3	Wager Bay, NU
2006-12-21 08:59:43	65.725	-90.766	18.0	2.3	Wager Bay region, NU
2006-12-27 09:01:12	65.652	-90.564	18.0	2.6	Wager Bay.
2007-01-12 13:23:25	65.566	-90.312	18.0	2.5	Wager Bay region, NU
2007-02-13 19:30:42	66.053	-90.627	18.0	2.6	BOOTHIA UNGAVA SEISMIC ZONE.
2007-04-11 03:37:39	65.815	-90.639	18.0	2.1	Wager Bay region, NU
2007-04-13 20:40:44	65.605	-87.720	18.0	2.0	Wager Bay, NU
2007-05-16 19:50:12	65.758	-90.468	18.0	2.2	Wager Bay, NU
2007-06-01 16:36:52	65.747	-89.768	18.0	2.3	Wager Bay, NU
2007-08-16 23:26:19	65.303	-88.258	18.0	2.0	Wager Bay region, NU
2007-11-29 00:55:35	65.474	-89.105	18.0	2.0	Wager Bay, NU
2007-12-24 09:22:19	65.133	-88.330	18.0	2.1	Wager Bay region, NU
2007-12-24 17:19:25	65.839	-90.583	18.0	3.1	Wager Bay region, NU
2008-02-20 07:48:09	66.012	-91.536	22.0	3.6	Wager Bay region, NU
2008-07-26 00:45:49	65.878	-87.326	5.0	2.9	Wager Bay region, NU
2008-07-26 15:21:16	65.902	-87.407	18.0	2.5	Wager Bay region, NU
2008-08-20 17:52:25	65.365	-88.322	18.0	3.0	Wager Bay, NU
2008-11-05 00:10:47	65.881	-90.664	18.0	2.3	Wager Bay region, NU
2009-01-06 17:44:56	65.084	-88.580	18.0	3.1	Wager Bay region, NU
2009-04-06 23:25:54	65.543	-89.279	18.0	2.4	Wager Bay, NU
2009-04-06 23:32:07	65.507	-89.297	18.0	2.2	Wager Bay, NU
2009-04-11 09:35:06	65.793	-88.785	18.0	2.3	Wager Bay, NU
2009-05-09 07:51:48	65.822	-90.832	18.0	2.3	Wager Bay region, NU
2009-08-29 17:24:04	65.728	-87.459	5.0	2.0	Wager Bay region, NU
2009-11-04 00:29:33	66.214	-89.652	18.0	2.0	Wager Bay region, NU
2010-01-09 02:10:06	66.213	-89.751	18.0	2.8	Wager Bay region, NU
2010-03-27 22:16:17	65.659	-87.942	5.0	2.9	Wager Bay region, NU
2010-04-10 23:24:29	65.080	-88.752	5.0	2.0	Wager Bay region, NU
2010-04-11 06:01:02	65.076	-88.485	5.0	2.7	Wager Bay, NU
2010-04-12 01:47:59	66.088	-91.456	5.0	3.3	Wager Bay region, NU
2010-04-12 12:46:24	66.090	-91.456	5.0	2.1	Wager Bay region, NU

2010-05-10 17:20:52	66.330	-88.381	18.0	2.1	100 km W from Repulse Bay, NU
2010-07-21 01:51:54	65.986	-91.550	18.0	2.3	246 km W from Repulse Bay, NU
2010-07-28 23:11:56	65.845	-90.836	18.0	2.6	221 km W from Repulse Bay, NU
2010-08-05 22:28:53	65.354	-88.823	18.0	2.7	Wager Bay region, NU
2010-09-10 18:45:16	65.220	-87.984	5.0	2.1	167 km SW from Repulse Bay, NU
2010-09-24 07:49:39	65.749	-90.688	18.0	2.0	Wager Bay, NU
2010-10-06 15:05:12	65.760	-87.559	18.0	2.2	105 km SW from Repulse Bay, NU
2010-12-07 18:42:51	65.021	-88.955	18.0	2.4	206 km NE from Chesterfield Inlet, NU
2010-12-18 17:40:44	65.909	-87.260	18.0	2.2	83 km SW from Repulse Bay, NU
2011-02-16 02:01:21	65.906	-91.432	18.0	2.1	244 km W from Repulse Bay, NU
2011-02-25 10:23:06	65.237	-89.941	18.0	2.5	215 km N from Chesterfield Inlet, NU
2011-03-22 04:53:02	65.636	-89.750	18.0	2.2	Wager Bay, NU
2011-04-11 10:59:31	65.922	-91.224	18.0	2.2	235 km W from Repulse Bay, NU
2011-04-17 21:38:23	65.382	-88.810	18.0	2.8	174 km SW from Repulse Bay, NU
2011-04-19 18:31:07	65.145	-89.231	18.0	3.2	207 km SW from Repulse Bay, NU
2011-05-20 13:40:49	66.062	-91.256	18.0	2.5	Wager Bay region, NU
2011-07-19 09:54:44	65.333	-88.420	18.0	2.2	167 km SW from Repulse Bay, NU
2011-08-08 19:49:18	66.260	-87.847	18.0	2.5	78 km W from Repulse Bay, NU
2011-08-17 07:40:54	65.965	-91.252	18.0	2.1	Wager Bay, NU
2011-09-11 08:16:35	65.850	-90.796	18.0	2.1	Wager Bay, NU
2011-09-27 15:12:47	65.941	-90.821	18.0	2.4	Wager Bay, NU
2011-10-20 20:35:13	65.144	-89.396	18.0	2.0	211 km N from Chesterfield Inlet, NU
2011-11-05 01:49:04	65.590	-89.960	18.0	2.0	200 km SW from Repulse Bay, NU
2011-11-05 14:10:11	65.617	-88.622	18.0	2.3	148 km SW from Repulse Bay, NU
2012-01-09 13:23:30	65.224	-89.588	18.0	2.2	211 km SW from Repulse Bay, NU
2012-03-11 00:33:30	65.135	-88.553	5.0	3.0	188 km SW from Repulse Bay, NU
2012-05-08 06:16:31	66.510	-88.811	18.0	2.5	113 km W from Repulse Bay, NU
2012-05-08 07:40:21	66.542	-88.724	18.0	2.1	110 km W from Repulse Bay, NU
2012-05-26 12:10:31	65.650	-89.522	18.0	2.2	178 km SW from Repulse Bay, NU

Station WEMQ

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2007-04-25 04:42:21	52.681	-78.856	18.0	2.0	34 km S from Wemindji, QC
2008-10-20 06:20:03	52.706	-78.624	18.0	2.6	35 km S from Wemindji, QC
2013-04-30 06:42:51	53.167	-78.984	18.0	2.4	James Bay
2015-08-05 01:00:40	53.784	-78.841	18.0	2.3	3 km E from Chisasibi, QC
2016-05-25 01:03:33	53.387	-78.962	18.0	2.4	44 km N from Wemindji, QC
2017-06-13 00:02:07	53.261	-77.593	18.0	2.5	87 km E from Wemindji, QC