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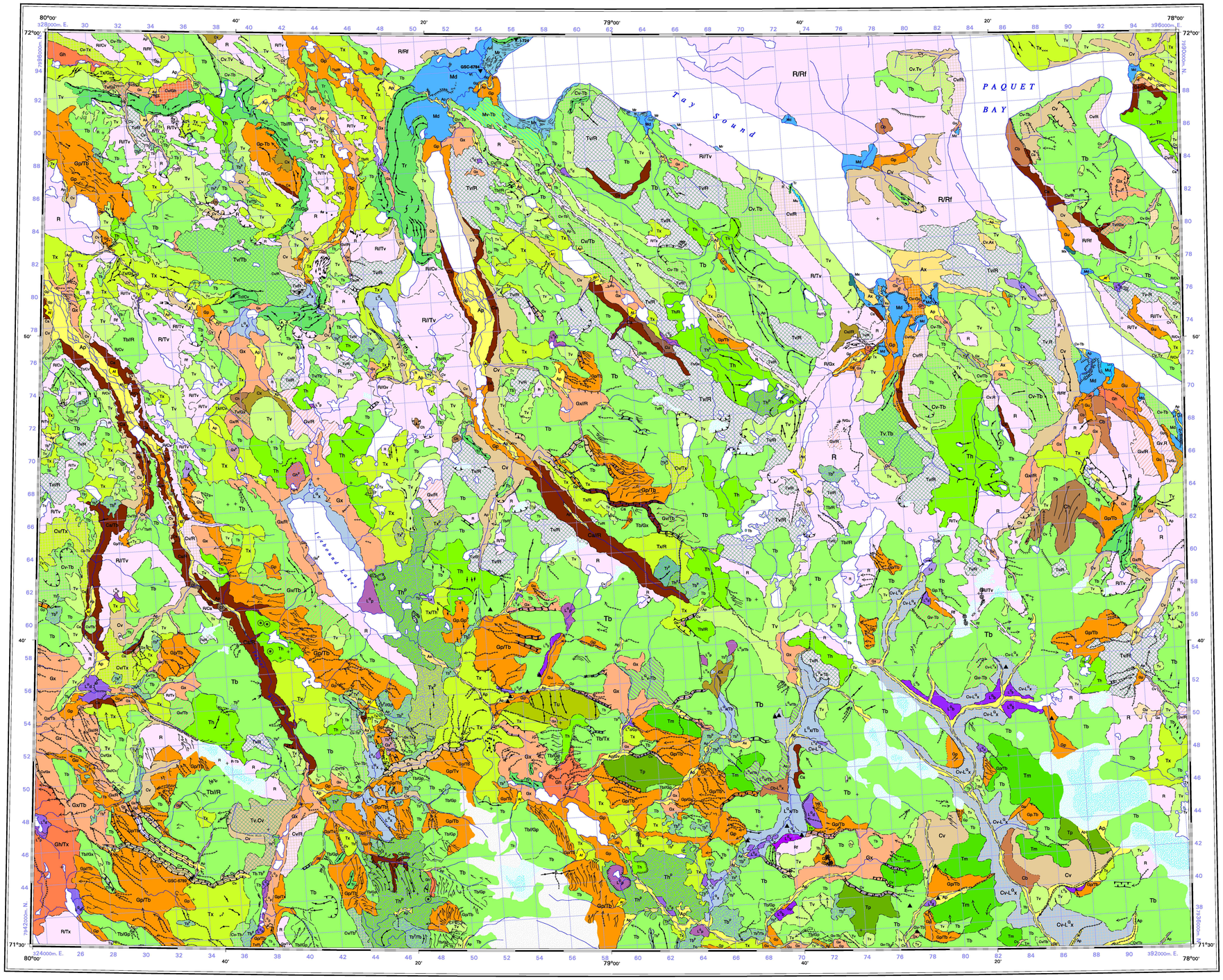
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



OPEN FILE 5114

SURFICIAL GEOLOGY

ICEBOUND LAKES (NORTHWEST)

BAFFIN ISLAND

NUNAVUT

Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilometres

Universal Transverse Mercator Projection
North American Datum 1983
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Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
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Geology by P.J. Holme, E.C. Little, and D.J. Utting, 2003–2006

Digital data preparation by C. Gilbert, Canada-Nunavut Geoscience Office

Digital cartography by M.M. Proulx, Data Dissemination Division (DDD)

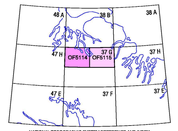
This map was produced from processes that conform to the Scientific and Technical Publishing Services Subdivision (DDD) Quality Management System, registered to the ISO 9001: 2000 standard

LOCATION MAP

Drainage was produced by C. Gilbert, Canada-Nunavut Geoscience Office. Geology and drainage has been registered to Landsat 7 images GS8010_0100_00911_l7 and GS8009_0100_00911_l7 available from www.geogratis.ca. As a result, some inconsistencies may exist between this Open File and the NTDB vector topo data.

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area. Mean magnetic declination 2007, 43°54' E., decreasing 54.9' annually. Readings vary from 45°26' W in the NE corner to 42°15' W in the SW corner of the map



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

LEGEND

Coloured legend blocks indicate map units that appear on this map only.

Notes regarding compound units: *Where surficial geology types are interspersed in patches or patterns too small to be discerned at the scale of mapping, the proportion of each surficial geology component is given (in descending order) by a compound unit designation. The relationship between these components is represented by a symbol between the individual components as follows:*
- *overlying (i.e. stratigraphic relationship).*
- *approximates 50% cover for each surficial geology type in the label.*
/ *approximates 70% to 30%.*
// *approximates 90% to 10%.*

Example: Tb/R *approximates 70% till blanket and 30% bedrock coverage.*

Note: *When veneers form the dominate coverage of a compound unit, a hatch-fill is used in combination with the secondary unit.*

QUATERNARY

HOLOCENE

Snow: *Snow cover visible on ca. 1958 aerial photographs such that surficial geology could not be distinguished.*

Ice (ca. 1958): *Glacial ice cover from ca. 1958 AD aerial photographs. Thickness is variable.*

Ice (ca. 2000): *Glacial ice cover identified from ca. 2000 Landsat-7 coverage. Thickness is variable.*

Ev — **Eolian veneer:** *Thin, discontinuous sheets of well sorted, massive silt and sand deposited by wind. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Eb — **Eolian blanket:** *Well sorted, massive silt and sand deposited by wind. Typically forms gently rolling geomorphology marked by dunes. Thickness is less than 5 m.*

ALLUVIUM: *Predominantly composed of sorted and commonly stratified gravel, sand, minor silt, and organic detritus deposited by post-glacial fluvial processes. Fan deposits may include gravelly diamictons.*

Ap — **Alluvial plain/terraces:** *Typically forms a single level (i.e. a plain) within approximately 1 m of the active stream channel or may form terraces separated by scarps. Thickness ranges from 1 to 10 m.*

Av — **Alluvial veneer:** *Thin, discontinuous deposit. Thickness is less than 1 m.*

Af — **Alluvial fan:** *Forms fan-shaped landforms that exibits a steep gradient from the apex to the toe of the deposit. Thickness can reach up to 10 m.*

Ax — **Alluvial complex:** *Consists primarily of alluvial units but may contain till, glaciolacustrine, glaciofluvial, glaciomarine, marine, and/or colluvium sediments that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

LACUSTRINE: *Composed of sand, silt, and minor clay deposited in active lake environments.*

Lp — **Lacustrine plain:** *Deposit that forms the substrate of existing major fresh-water lakes. May also contain minor amounts of submerged rock, alluvium, colluvium, till, and/or glaciofluvial sediments. Thickness ranges from 1 to 3 m.*

Lv — **Lacustrine veneer:** *Thin, discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Ld — **Lacustrine delta:** *Active sediment build-up from flowing water entering standing water. May have gently- or steeply-dipping fronts. Thickness ranges from 3 to greater than 5 m.*

Lx — **Lacustrine complex:** *Consists primarily of exposed lacustrine units but may contain till, glaciolacustrine, glaciofluvial, glaciomarine, marine, colluvium, and/or alluvium sediments, that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

COLLUVIUM: *Mass wasting debris (i.e. deposited by direct gravity-induced movement that may involve water and/or ice). Typically unsorted, but may be stratified as a result of gravity induced movement (e.g. debris flows). The character of the deposit depends primarily on its parent material.*

Cv — **Colluvial veneer:** *Thin, discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Cb — **Colluvial blanket:** *A mantle of sediment. Thickness is greater than 1 m.*

Ca — **Colluvial apron:** *Forms a slope deposit comprising debris flows, avalanche-dominated fans, and sollifucted sediments derived from bedrock and glacial sediment sources. Thickness is up to 10 m, thinning at head and toe of the deposit.*

Cf — **Colluvial fan:** *Fan-shaped accumulations of mass wasted debris. Thickness can reach up to 10 m.*

Ch — **Landslide Sediments:** *Forms a hummocky or ridged topography with ridges transverse to direction of movement. Thickness is highly variable, but may range up to 10 m (direction of movement indicated by symbol).*

Cx — **Colluvial - complex:** *Consists primarily of colluvial materials but may contain till, glaciolacustrine, glaciofluvial, glaciomarine, marine, and/or alluvial sediments, that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

Cu — **Colluvium - undifferentiated:** *Comprises colluvial sediments with mixed surface morphologies. Thickness is greater than 1 m.*

GLACIOLACUSTRINE: *Lacustrine deposits in, or along the margins of a glacial lake. May have been ice-dammed, or formed as a result of elevated water levels due to glacial melt. Typically well stratified silt and sand; deltas are composed of cross-stratified sand and gravels, and may include lenses of finer material.*

L^G_v — **Glaciolacustrine veneer:** *Thin, discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

L^G_p — **Glaciolacustrine plain/terrace:** *Typically forms a single plain, or may form terraces and wave-cut benches separated by scarps. Thickness ranges from 1 to greater than 20 m.*

L^G_b — **Glaciolacustrine blanket:** *A mantle of material. Thickness ranges from 1 to 5 m.*

L^G_d — **Glaciolacustrine delta:** *Sediment built-up from flowing glacially derived water entering a glacial lake. The feature may have gently- or steeply-dipping fronts. Thickness ranges from 3 to greater than 10 m.*

L^G_r — **Glaciolacustrine ridges:** *Consists primarily of glaciolacustrine materials, but also includes cross-valley (DeGeer) moraines. Local relief varies from 1 to greater than 20 m, composed of sand and gravel. Deposits between ridges are more typical of glaciolacustrine deposits (silty-fine sands). Thickness ranges from 1 to greater than 20 m.*

L^G_x — **Glaciolacustrine complex:** *Consists primarily of glaciolacustrine materials but may contain till, glaciofluvial, glaciomarine, marine, colluvium, and/or alluvium sediments, that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. In upper slopes of valleys with cross-valley (DeGeer) moraines, more till is present and is inferred to represent the washing zone of a paleo-lake. Thickness is greater than 1 m.*

GLACIOMARINE and MARINE: *Sediments deposited by a postglacial transgression (over isostatically depressed crust) and regression. Typically fine sand, silt, clay, and stoney mud; sometimes rhythmically stratified. Beach sediments may be composed of gravel and sand. Deltas are composed of cross-stratified sand and gravels, and may include lenses of finer material.*

Mv — **Glaciomarine/Marine veneer:** *Thin, discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Mp — **Offshore glaciomarine/marine:** *Usually forms thick sequences that exhibit extensive gullying; locally fossiliferous. In most cases rhythmically stratified silt, silty-clay, and clay (cf. nearshore glaciomarine). Thickness ranges from 1 to greater than 20 m.*

Mm — **Nearshore glaciomarine/marine:** *Usually forms thin sheets to gullied blankets that fill topographic lows. Maybe well sorted, massive or rhythmically stratified silt to fine and/or medium sand (cf. offshore glaciomarine). Thickness typically less than 5 m, but may reach 10 m.*

Mr — **Glaciomarine/Marine littoral sediments:** *Generally well sorted sand and gravel that locally includes washed till. Usually forms flights of beach ridges (i.e. raised beaches), bars, spits, terraces, and ice-pushed ridges. Thicknesses range from 1 to 5 m.*

Mh — **Ice-contact glaciomarine blanket:** *Fine sand, silt, clay, and stoney mud. Any stratification observed is commonly deformed by syndepositional slumping and ice meltout. Surface is hummocky, pitted, or ridged with relief up to 10 m. Typically underlain by hummocky moraine sediment. Thickness ranges from 1 to 20 m.*

Mt — **Glaciomarine/Marine tidal flats:** *Moderately sorted silty-sand to silt and clay that locally contains pockets of nearshore silts and sands; commonly strewn with a boulder lag. Thickness ranges from 1 to 10 m.*

Md — **Glaciomarine/Marine delta:** *Sediment build-up from flowing water entering the marine environment. Usually have steeply-dipping fronts (i.e. 'Gilbert-type' deltas). Thickness ranges from 5 to greater than 20 m.*

Mx — **Glaciomarine/Marine - complex:** *Consists primarily of marine sediments but may contain pockets of till, glaciofluvial and/or alluvial, and colluvial sediments that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

Mu — **Glaciomarine/Marine - undifferentiated:** *Comprises glaciomarine/marine sediments with mixed surface morphologies. Thickness is greater than 1 m.*

EARLY HOLOCENE TO MIDDLE-NEOGENE

GLACIOFLUVIAL: *Well to poorly stratified gravel, sand, and silt; minor diamicton; deposited behind, at, or in front of the ice margin by glacial meltwater.*

Gv — **Glaciofluvial veneer:** *Thin to discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Gp — **Glaciofluvial plain/terraces:** *Typically forms a single level (i.e. a plain) and/or forms terraces separated by scarps. Patches of colluvium that are too small to be represented at the scale of mapping may be present along the terrace scarps. Thickness ranges from 1 to greater than 20 m.*

Gh — **Ice contact glaciofluvial:** *Complex arrangement of surface slope steepness and aspects often forming kettle and kame topography and including esker ridges. Thickness ranges from less than 5 to greater than 15 m.*

Gx — **Glaciofluvial - complex:** *Consists primarily of glaciofluvial materials but may contain till, glaciolacustrine, glaciomarine, marine, colluvium, and/or alluvium sediments, that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

Gu — **Glaciofluvial - undifferentiated:** *Consists of glaciofluvial materials with mixed surface morphologies. Thickness is greater than 1 m.*

TILL: *Diamicton deposited directly by or from glacier ice; sandy to silty matrix (with minor clay) with striated clasts of various lithologies.*

Tv — **Till veneer:** *Thin, discontinuous deposit. Hatch-fill is used when the veneer is the dominant proportion of a compound unit. Thickness is less than 1 m.*

Tb — **Till blanket:** *Surface morphology conforms to underlying bedrock topography. May exhibit crag-and-tails, flutings, and/or other drumlinoid forms; occasionally exhibits roches moutonnées in areas of thin till blankets (e.g. 1 to 2 m). Thicknesses ranges from 1 to 5 m.*

Tp — **Till plain:** *Surface morphology is a single level or gently sloping, low relief plain; a result of overlying till masking the underlying topography. Thickness ranges from 1 to 20 m.*

Trm — **Rolling till plain:** *Surface morphology forms gently rolling plains with 1 to 2 m relief, may exhibit flutings and/or other drumlinoid forms. Generally masks underlying topography. Thickness is greater than 5 m.*

Tr — **Ridged till complex:** *Surface morphology forms parallel ridges (i.e. moraines) less than 15 m high and less than 50 m apart. Moraines are composed of till, intervening areas may be till and/or ice-marginal glaciofluvial deposits. Thickness is variable, but is usually less than 15 m.*

Th — **Hummocky till:** *Forms hummocky surface morphology (i.e. kame and kettle topography); in places the unit may exhibit prominent ridges marking recessional ice margins, or diffuse zones marking boundaries between glacial-ice regimes. Thickness is highly variable, but is usually less than 20 m.*

Tx — **Till - complex:** *Consists primarily of till but may contain glaciofluvial, glaciolacustrine, glaciomarine, lacustrine, marine, colluvium, and/or alluvium sediments, that are interspersed with the primary constituent and are too small to be represented at the scale of mapping. Thickness is greater than 1 m.*

Tu — **Till - undifferentiated:** *Consists of till deposits with mixed surface morphologies. Thickness is greater than 1 m.*

PRE-GLACIAL

BEDROCK

R — **Bedrock:** *outcrops of bedrock, may have thin mantle (<10 cm) of unconsolidated or organic material.*

Rf — **Bedrock - Felsenmeer:** *Frost-heaved, angular blocks of bedrock.*

Surficial materials contact (defined, approximate, inferred)

Observation point

Ice movement indicator (Uni-directional, Bi-directional)

Glaciolacustrine deltas (too small to map at mapping scale)

Flute

Crag-and-tail

Kame

Esker (flow direction known, unknown)

Moraine; major

Moraine; lateral

Moraine; minor

Cirque

Ice contact

Meltwater channel, major (arrow indicates flow direction)

Meltwater channel, minor (flow direction known, unknown)

Meltwater channel, lateral (barb on upslope side)

Escarpment

Kettle (small, large)

Shorelines

Glacial lake limit

Ice-divide

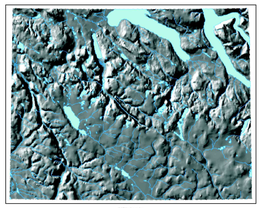
Radiocarbon age (lab number) GSC-1679

REFERENCES

Falconer, G., Ives, J.D., Loken, O.H., and Andrews, J.T.
1965: Major end moraines in eastern and central Arctic Canada. Canada Dept. Mines and Tech. Surveys Geog. Br. Geog. Bull., vol.7, no.2, pp.137–153.

Table 1. Radiocarbon ages obtained from NTS 37G. Not applicable = "na"; No data = "nd".

Lab Number	Location: Longitude	Latitude	Elevation (m)	Material	Species	Age Uncorrected for 13C Content (ka)	13C (‰)	Age Normalized to 13C Content (ka)	Reservoir Corrected Age (kª) (–0.40 ka	Reservoir Corrected Age (kª) (–0.690 ka	Comments
GSC-6786	-76.3889	71.8335	40	Shell	Mya truncata	7.690 ± 0.08	na	7.690 ± 0.08	7.29	7.000	Surface collection from glaciomarine sands.
GSC-6784	-79.2329	71.9810	42	Shell	Mytilus edulis	4.780 ± 0.08	na	4.780 ± 0.08	3.98	4.711	Surface collection from foreset beds.
I-724	-79.1700	72.0000	76	Shell	na	8.350 ± 0.30	nd	nd	nd	nd	Falconer et al. 1965.
GSC-6788	-79.7265	71.5371	42	peat	na	2.060 ± 0.06	-28.40‰	2.050 ± 0.06	na	na	Delta foreset beds at ~42 m asl
GSC-6792	-77.7144	71.7481	33	peat	na	0.710 ± 0.05	-28.20‰	0.650 ± 0.05	na	na	Overlying pisrar stratified sand and underlying loess.
* Reservoir Correction "A": Historical GSC correction applied to all marine shells.											
** Reservoir Correction "B": Marine reservoir correction of –690 yrs from McNeely et al. 2006 for non-P. arctica shells from waters within close proximity to Pond Inlet, Nunavut.											



Hillshade

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