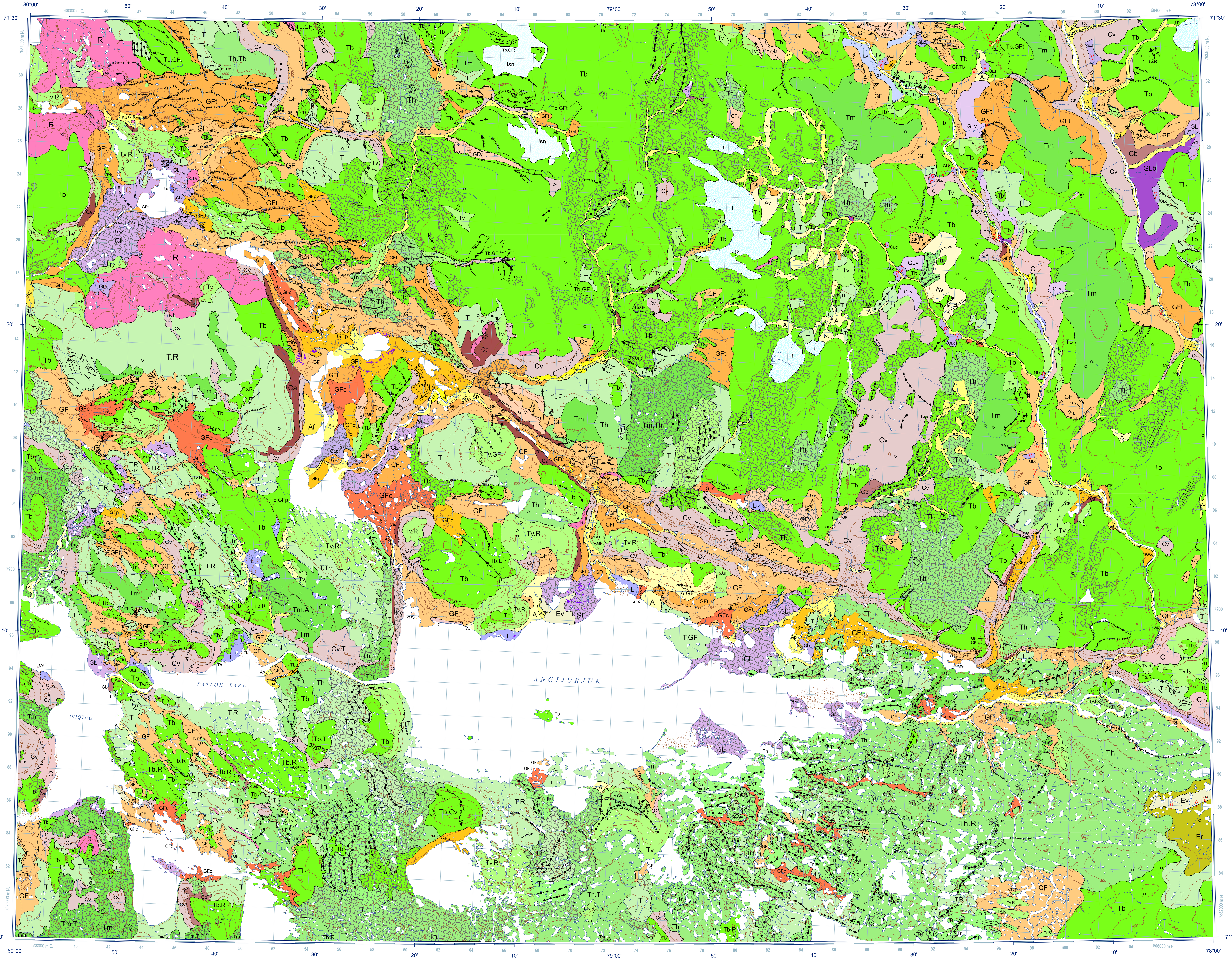


QUATERNARY

HOLOCENE

MODERN GLACIAL ENVIRONMENT

I	**Ice:** variable thickness; probably Neoglacial in age; glacier ice cover observed on ca. 1958 aerial photographs.

NONGLACIAL ENVIRONMENT

Isn	**Snow:** thickness is greater than 50 cm; snow cover observed on ca. 1958 aerial photographs such that surficial geology could not be distinguished.
Er	**Dune sediments:** silt and sand; well sorted, massive; thickness is less than 5 m; typically forms gently rolling geomorphology marked by dunes.
Ev	**Eolian veneer:** silt and sand; well sorted, massive; thickness is less than 1 m; thin, discontinuous sheets deposited by wind.

COLLUVIAL DEPOSITS: 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.

Ca	**Colluvial apron:** diamicton; thickness is up to 10 m; forms a slope deposit comprising debris flows, avalanche-dominated fans, and soliflucted sediments derived from bedrock and glacial sediment sources; thinning at head and toe of the deposit.
Cv	**Colluvial veneer:** diamicton; thickness is less than 1 m; thin, discontinuous deposit.
Cb	**Colluvial blanket:** diamicton; thickness is greater than 1 m; forms a mantle of sediment.
C	**Undifferentiated colluvial deposits:** diamicton; thickness is greater than 1 m; may contain pockets of till, glaciolacustrine, glaciofluvial, and/or alluvial sediments, that are too small to be represented at the scale of mapping.

ALLUVIAL SEDIMENTS: predominantly composed of gravel, sand, minor silt, and organic detritus; sorted and commonly stratified; deposited by post-glacial fluvial processes; fan deposits may include gravelly diamictons.

Ap	**Alluvial floodplain sediments:** sand and gravel; thickness ranges from 1 to 5 m; typically forms a single level within approximately 1 m of active stream channel.
Af	**Alluvial fan sediments:** sand and gravel; thickness can reach up to 10 m; forms fan-shaped landforms with gentle slopes where streams enter larger valleys.
At	**Alluvial terraced sediments:** sand and gravel; thickness ranges from less than 1 to 10 m; deposits are of floodplain origin and presently are isolated from flooding by stream incision.
Av	**Alluvial veneer:** sand and gravel; thickness is less than 1m; thin, discontinuous deposit.
A	**Undifferentiated alluvial sediments:** sand and gravel; thickness is greater than 1 m; consists primarily of alluvial units but may contain pockets of till, glaciolacustrine, glaviofluvial, and/or colluvium sediments that are too small to be represented at the scale of mapping.

LACUSTRINE SEDIMENTS: sand, silt and minor clay; deposited in active lake environments.

Ld	**Deltaic sediments:** silt and sand; thickness ranges from 3 m to greater than 5 m; active sediment build-up from flowing water entering standing water; may have gently or steeply-dipping fronts.
Lv	**Lacustrine veneer:** silt and sand; thickness is less than 1 m; thin, discontinuous deposit.
L	**Undifferentiated lacustrine sediments:** silt and sand; thickness is greater than 1 m; may contain pockets of till, glaciolacustrine, glaciofluvial, colluvium, and/or alluvial sediments, that are too small to be represented at the scale of mapping.

GLACIAL ENVIRONMENT

GLACIOLACUSTRINE SEDIMENTS: 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.

GLd	**Deltaic sediments:** sand and gravel; thickness ranges from 3 m to greater than 10 m; sediment built-up from flowing glacially derived water entering a glacial lake; the delta may have gently or steeply-dipping front.
GLv	**Glaciolacustrine veneer:** sand and gravel; thickness is less than 1 m; thin, discontinuous deposit.
GLb	**Glaciolacustrine blanket:** sand and gravel; thickness ranges from 1 to 5 m.
GL	**Undifferentiated glaciolacustrine sediments:** sand and gravel; thickness is greater than 1 m; may contain pockets of till, glaciofluvial, colluvium, and/or alluvial sediments, that are too small to be represented at the scale of mapping; in upper slopes of valleys with cross-valley (De Geer) moraines, more till is present and is inferred to represent the wasting zone of a paleo-lake.

EARLY HOLOCENE AND PLEISTOCENE

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

GFp	**Outwash plain sediments:** sand and gravel; thickness ranges from 1 m to greater than 5 m; typically forms a single level plain.
GFt	**Terraced sediments:** sand and gravel; thickness ranges from 1 to 20 m; typically 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 scarps.
GFc	**Ice-contact sediments:** sand and gravel; thickness ranges from less than 5 m to greater than 15 m; kettle and kame topography, including esker ridges.
GFv	**Glaciofluvial veneer:** sand and gravel; thickness is less than 1 m; thin to discontinuous deposit.
GF	**Undifferentiated glaciofluvial sediments:** sand and gravel; thickness is greater than 1 m; may contain pockets of till, glaciolacustrine, colluvium, and/or alluvial sediments, that are too small to be represented at the scale mapping.

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

Th	**Hummocky till:** diamicton; thickness is highly variable, but is usually less than 20 m; 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.
Tm	**Morainal plain:** diamicton; thickness is greater than 5 m; rolling till plain; surface morphology forms gently rolling plains with 1 to 2 m relief; complex may exhibit drumlinoid forms; generally masks underlying topography.
Tr	**Ridged till:** diamicton; thickness is variable, but is usually less than 15 m; surface morphology forms parallel ridges (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.
Tv	**Till veneer:** diamicton; thickness is less than 1 m; thin, discontinuous deposit.
Tb	**Till blanket:** diamicton; thickness ranges from 1 m to 20 m; surface morphology ranges from conforming to underlying bedrock topography to rolling plain masking the underlying topography; may exhibit crag-and-tails and drumlinoids; occasionally exhibits roches moutonnées (fluted bedrock) in areas of thinner till blankets (e.g. 1 to 2 m).
T	**Undifferentiated till:** diamicton; thickness is greater than 1 m; may contain pockets of glaciofluvial, glaciolacustrine, lacustrine, colluvium, and/or alluvial sediments that are too small to be represented at the scale of mapping.

PRE-QUATERNARY

R	**Bedrock:** outcrops of bedrock; may have thin mantle (less than 10 cm) of unconsolidated or organic material.

NOTES: Complex units where the surficial cover forms a complex and the map units are too small to be mapped individually, yet constitutes a significant aerial extent of the total polygon, a dot (".") separates the first dominant map unit designator from the less abundant secondary unit (e.g. Er.Cv designates an area of dunes.with some areas of colluvial veneer).

Patterned ground area exhibits a hexagonal polygon network where polygon diameter ranges from 20 to 50 m; may indicate the presence of buried glacial ice at depth

K — Kettle, large

Geological contact, defined

Geological contact, approximate

Terrace scarp

Beach crest

Glaciolacustrine limit of submergence, defined

Paleodrainage direction

Minor meltwater channel, direction unknown

Minor meltwater channel, direction known

Lateral meltwater channel (barb on upslope side)

Major meltwater channel

Minor moraine ridge, De Geer, unspecified

Major moraine ridge, lateral

Major moraine ridge, end

Ice-contact scarp

Esker, direction unknown

Esker, direction known

Drumlinoid ridge

Fluted bedrock, direction known

Delta, glaciolacustrine, paleocurrent unknown

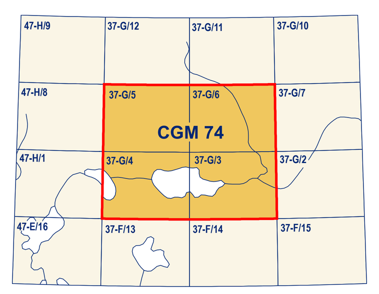
Station location, ground observation

Abstract

In 2002, 2003 and 2005, the Canada–Nunavut Geoscience Office and the Geological Survey of Canada, in collaboration with Polar Continental Shelf Program, Dalhousie University, and University of Alberta, undertook studies of northern Baffin Island to provide an improved understanding of the distribution, nature and chemistry of surficial materials, and glacial history of this region, much of which is extensively covered by thick glacial deposits. Widespread till blanket and hummocky till are common in the map area, and locally meltwater channels dissected the till blanket. Ponding of glacial meltwater resulted in deposition of glaciolacustrine sediments. Some of the smaller preserved glaciers are likely Holocene in age, rather than remnants from the continental ice sheet (Pleistocene), like the Barnes Ice Cap. A complex glacial history resulted from overprinting of both erosive and non-erosive basal thermal regimes at various stages of the deglaciation, as well as overprinting of Last Glacial Maximum (LGM)-related geomorphology.

Résumé

En 2002, 2003 et 2005, le Bureau géoscientifique Canada-Nunavut et la Commission géologique du Canada, en collaboration avec le Programme du plateau continental polaire et les universités Dalhousie et de l'Alberta, ont poursuivi des études dans le nord de l'île de Baffin afin d'obtenir une meilleure compréhension de la distribution, de la nature et de la géochimie des matériaux superficiels, ainsi que de l'histoire glaciaire de cette région largement couverte d'épais dépôts glaciaires. La présence d'une nappe étendue de till et de till bosselé est commune dans la région cartographique et, par endroits, des chenaux d'eau de fonte entaillent la nappe de till. La retenue des eaux de fonte a permis le dépôt de sédiments glaciolacustres. Certains des glaciers mineurs subsistants datent vraisemblablement de l'Holocène, plutôt que de constituer des vestiges de la calotte glaciaire continentale (inlandsis du Pléistocène), comme la calotte glaciaire de Barnes. L'histoire glaciaire complexe de la région est la conséquence de la superposition des effets érosifs et non érosifs des régimes thermiques à la base du glacier à diverses étapes de la déglaciation, qui se superposent à la géomorphologie reliée au dernier pléniglaciaire.



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2nd EDITION

CANADIAN GEOSCIENCE MAP 74

SURFICIAL GEOLOGY

ICEBOUND LAKES (SOUTHWEST)

Baffin Island, Nunavut

NTS 37-G/3, NTS 37-G/4, NTS 37-G/5, and NTS 37-G/6

1:100 000

Recommended citation

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Geological Survey of Canada
Canadian Geoscience Maps

Canada

Authors: E.C. Little, P.J. Holme, and D.E. Kerr

Geology by E.C. Little and P.J. Holme in 2002, 2003 and 2005, with additional air photo interpretation by D.E. Kerr in 2011

Geological compilation by D.E. Kerr, 2011

Geology conforms to Surficial Data Model v. 2.0

Geomatics and cartography by G.S. Hanna

Joint initiative of the Geological Survey of Canada and Canada-Nunavut Geoscience Office, conducted under the auspices of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program

Map projection Universal Transverse Mercator, zone 17. North American Datum 1983

Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications. Elevations in feet above mean sea level

SURFICIAL GEOLOGY

ICEBOUND LAKES (SOUTHWEST)

Baffin Island, Nunavut

NTS 37-G/3, NTS 37-G/4, NTS 37-G/5, and NTS 37-G/6

1:100 000

2 0 2 4 6 8 km

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area. Mean magnetic declination 2015, 35°09'W, decreasing 42.6' annually. Readings vary from 33°59'W in the SW corner to 36°13'W in the NE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Glaciated terrain, Icebound Lakes map sheet, Baffin Island, Nunavut. Photograph by E.C. Little. 2012-005

The Geological Survey of Canada welcomes corrections or additional information from users.

Data may include additional observations not portrayed on this map. *See* documentation accompanying the data.

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Preliminary publications in this series have not been scientifically edited.

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