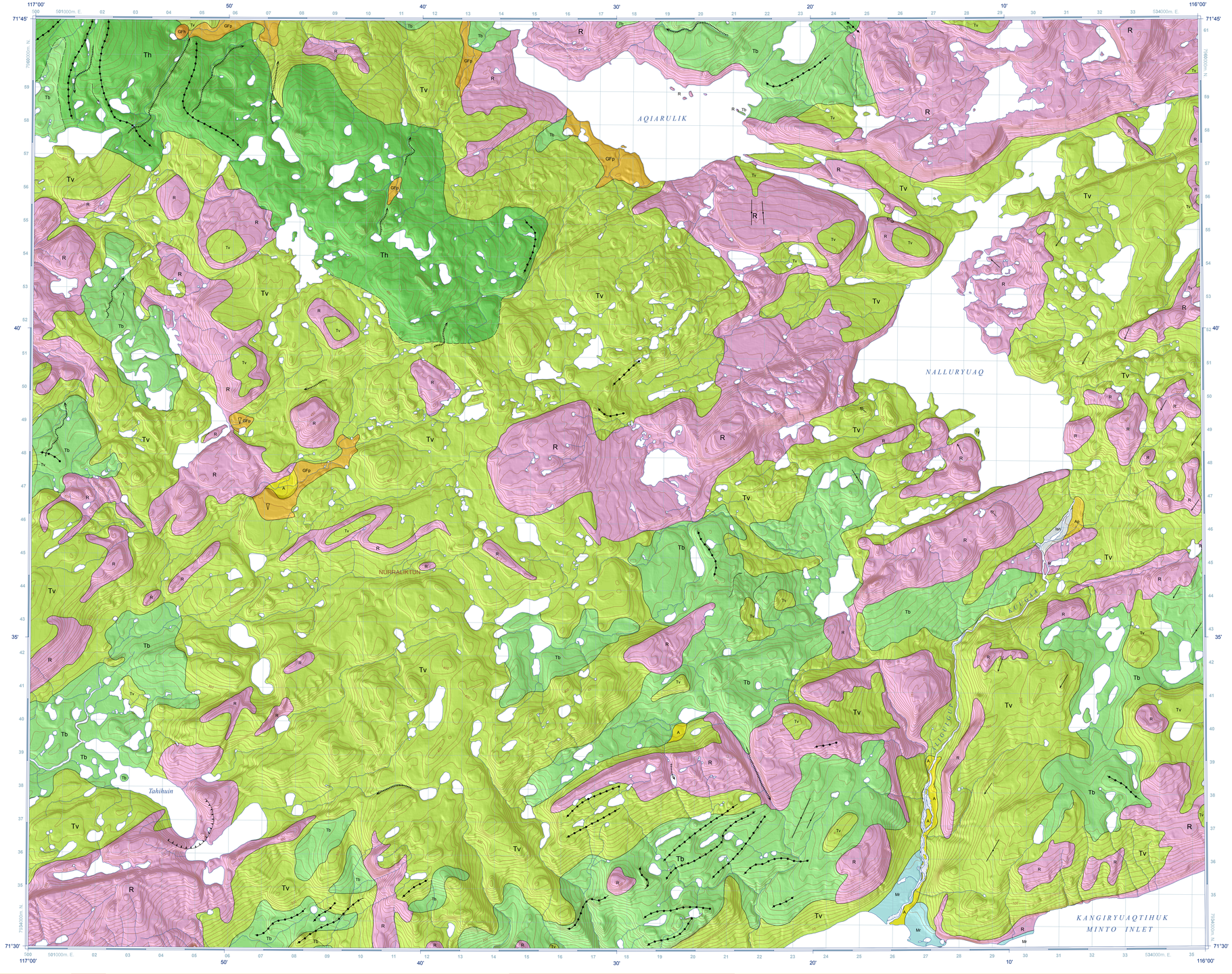
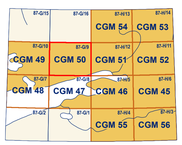


Abstract

In Minto Inlet, continental Laurentide ice flow was northwesterly, as recorded to the east and north of the inlet by crag-and-tails, striations, till lineations including drumlins, and eskers. Deglacial drawdown to a westerly flowing Minto Inlet glacier led to scouring by glacial ice and meltwater which stripped till and exposed bedrock. Till is calcareous, incorporating local igneous rocks with a few shield erratics. To the north of the inlet where flow was less active between the Minto glacier and the northwest flow, massive till deposits still contain buried glacier ice. There are numerous gravelly kames and kettle lakes, as well as thaw flow slides in these ice-rich sediments. Under an area of northeasterly ice flow northeast of the head of the inlet, ponding of meltwater permitted rapid ice flow which created till lineations. Postglacial marine overlap has left discontinuous flights of raised beaches on exposed coasts, and thick silty glaciomarine sediments around embayments on the northwest shore of the inlet.

Résumé

Dans l'inlet Minto, l'écoulement glaciaire Laurentide continental était vers le nord-ouest, tel qu'indiqué à l'est et au nord de l'inlet par des crag-and-tails, stries, linéations notamment drumlins, et eskers. Durant la déglaciation s'écoulant vers l'ouest dans l'inlet Minto, la glace et les eaux de fonte ont érodé le till et les affleurements rocheux. Le till est calcaire, incorporant des roches ignées locales avec quelques blocs erratiques du bouclier. Au nord de l'entrée où l'écoulement glaciaire était moins actif entre le glacier de Minto et la glace avec un l'écoulement au nord-ouest, des dépôts de till contiennent encore la glace de glacier enterrée. Il y a de nombreux kames graveleux et des lacs kettle, ainsi que des glissements de terrain causé par le dégel dans les sédiments riches en glace. Sous la glace s'écoulement vers le nord-est, au nord-est de la tête de l'inlet, l'accumulation des eaux de fonte a permit l'écoulement glaciaire rapide qui a créé des linéations dans le till. L'invasion marine postglaciaire a laissé une série discontinue de plages soulevées sur les côtes exposées, et d'épais sédiments fins glaciomarins à certains endroits le long de la rive nord-ouest de l'inlet.



National Topographic System reference and index to adjoining published Geological Survey of Canada maps

Cover illustration:
West from south bay, Minto Inlet. Mostly thin till (Tv) and exposed bedrock; flight of raised beaches at shore on extreme right. Photograph by R. Rainbird.
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CANADIAN GEOSCIENCE MAP 50
SURFICIAL GEOLOGY
NALLURYUAQ
Northwest Territories
1:50 000

LEGEND

HOLOCENE

Nonglacial Environment

Isn — Snow packs, icings: perennial ice and snow accumulations along rivers and streams.

ALLUVIAL SEDIMENTS: gravel and sand, may include boulders, minor organics and muck; <1–10 m thick.

Ap — Floodplain sediments: gravel and/or sand, minor silt; forming braidplains scoured by the nival freshnet; <1–10 m thick.

A — Undifferentiated sediments: alluvial plains, fans, terraces.

HOLOCENE AND LATE WISCONSINAN

Postglacial and Proglacial Environment

MARINE SEDIMENTS: gravel and/or sand, silt, minor clay, <1–20 m thick; deposited in offshore, nearshore, deltaic and shoreline environments during deglaciation and regression of postglacial higher sea levels.

Mr — Beach sediments: gravel (including large boulders on bedrock promontories), and/or sand, minor silt; forming ridges and swales. Modern beach zones <50 m wide rarely mapped; 1–3 m thick.

LATE WISCONSINAN

Proglacial and Glacial Environment

GLACIOFLUVIAL SEDIMENTS: gravel and boulders, sand, minor silt; <1–50 m thick; deposited behind, at and in front of an ice margin.

GFh — Hummocky sediments: gravel, boulders, sand, silt; rolling to tightly hummocky terrain; 1–30 m thick.

GFp — Outwash plain sediments: gravel, boulders, sand, silt; relict proglacial braidplains and terraces, fans with eskers, which may form long valley trains; minor kettle holes; 1–30 m thick.

Glacial Environment

TILL: nonsorted to poorly sorted stony mud, locally clast supported, locally icy, 1–100 m thick; deposited subglacially and at ice margins; lithic composition reflects underlying or up ice substrate, but erratics may be common. Till below the marine limit commonly reworked leaving local concentrations of boulders, gravel, sand or silt, and subdued or erased glacial landforms.

Tv — Till veneer: diamicton; mimicking the surface of the substrate, particularly bedrock which is discontinuously exposed; included silt to boulder size colluvial deposits primarily talus, solifluctuting slopes and undifferentiated valley bottom sediments; <2 m thick.

Th — Hummocky till: diamicton; may be underlain by massive deposits of segregated ice (relict glacier) and/or glaciolacustrine silt; hummocky terrain; 5–10 m thick.

Tb — Till blanket: diamicton; forming an undulating blanket, or a drumlinized sheet, or a meltwater dissected cap, or a fluted plain where a glacial lake has thawed the relict glacier ice and reduced basal glacier friction; 2–20 m thick.

PRE-QUATERNARY

BEDROCK

R — Paleozoic carbonate rock fractured to blocks or disaggregated to pitted rubble by glacial and subaerial processes, except, polished intact bedrock locally exposed where streamlined till cover has been recently removed.

Geological boundary (defined)
Geological boundary (approximate)
Delta
Minor meltwater channel central axis (lateral uphill left)
Minor meltwater channel central axis (lateral uphill right)
Minor meltwater (sense known)
Major moraine ridge
Drumlinoid ridge or fluting
Fluted bedrock (sense known)
Cirque headwall
Striae (sense known)
Striae (sense unknown)

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Canada

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Geology by D.A.Hodgson, 2011

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Map projection Universal Transverse Mercator, zone 11. North American Datum 1983

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

SURFICIAL GEOLOGY
NALLURYUAQ
Northwest Territories
1:50 000

1 0 1 2 3 4 km

Shaded relief image derived from the digital elevation model supplied by GeoBase.
Illumination: azimuth 225°, altitude 45°, vertical factor 1x

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area.
Magnetic declination 2012, 22°19' E, decreasing 57' annually.

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

This publication is available for free download through GEOSCAN (http://geoscan.ess.nrcan.gc.ca/).

Preliminary publications in this series have not been scientifically edited.

CANADIAN GEOSCIENCE MAP 50
SURFICIAL GEOLOGY
NALLURYUAQ
Northwest Territories