References and additional striation data from:

Aylsworth, J.M., Cunningham, C.M., and Shilts, W.W., 1989. Surficial geology, Thirty Mile Lake, District of Keewatin, Northwest Territories; Geological Survey of Canada, Map 39-1989, scale 1:125 000. https://doi.org/10.4095/127680

Deblonde, C., Cocking, R.B., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2017. Surficial Data Model, version 2.3.0: revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, 1 .zip file. https://doi.org/10.4095/302717

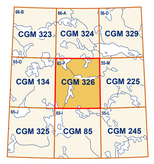
McMartin, I. and Henderson, P. J., 2004. Ice flow history and glacial stratigraphy, Kivalliq Region, Nunavut (NTS 55 J, K, L, M, N, O; 65 I and P): complete datasets, maps and photographs from the Western Churchill NATMAP Project; Geological Survey of Canada, Open File 4595, 1 .zip file. https://doi.org/10.4095/215057

Abstract

This new surficial geology map product represents the conversion of Map 39-1989 and its legend, using the Geological Survey of Canada's Surficial Data Model (SDM version 2.3) (GSC Open File 8236). All geoscience knowledge and information from Map 39-1989 that conformed to the current SDM were maintained during the conversion process. Additional material, such as marginal notes or figures that exist on the original map, is not included here. Supplementary, limited legacy information was added to complement the converted geoscience data. This consists of glacial striations and ice-flow landforms from McMartin and Henderson (2004); these are identified in the accompanying geodatabase. The purpose of converting legacy map data to a common science language and common legend is to enable and facilitate the efficient digital compilation, interpretation, management, and dissemination of geological map information in a structured and consistent manner. This provides an effective knowledge management tool designed around a geodatabase that can expand, following the type of information to appear on new surficial geology maps.

Résumé

Ce nouveau produit cartographique de la géologie des formations superficielles correspond à la conversion de la Carte 39-1989 et de sa légende, en se servant du Modèle de données pour les formations superficielles (MDFS version 2.3) de la Commission géologique du Canada, lequel peut être consulté dans le Dossier public 8236. Toutes les connaissances et l'information de nature géoscientifique de la Carte 39-1989 qui sont en conformité avec le modèle de données ont été conservées pendant le processus de conversion. Des éléments additionnels tels que des notes marginales ou des figures qui pourraient être présents sur la carte originale ne sont pas inclus ici. Une faible quantité d'information ancienne a été ajoutée en complément aux données géoscientifiques converties. Il s'agit de stries glaciaires ainsi que de reliefs d'écoulement glaciaire tirés de McMartin et Henderson (2004). Ces entités sont identifiées dans la géodatabase du présent produit cartographique. Le but de la conversion de cartes publiées antérieurement suivant un langage scientifique commun et une légende commune est de permettre et de faciliter la compilation, l'interprétation, la gestion et la diffusion efficaces de l'information géologique cartographique en mode numérique de façon structurée et cohérente. Cette façon de faire offre un outil efficace de gestion des connaissances élaboré à l'aide d'une géodatabase qui pourra évoluer suivant le type d'information à paraître sur les nouvelles cartes des formations superficielles.



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

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CANADIAN GEOSCIENCE MAP 326

RECONNAISSANCE SURFICIAL GEOLOGY

THIRTY MILE LAKE

Nunavut

NTS 65-P

1:125 000

QUATERNARY

HOLOCENE

NONGLACIAL ENVIRONMENT

ALLUVIAL SEDIMENTS: stream-deposited material within modern active drainage systems; "modern" is defined as the period since retreat of the sea, proglacial lakes, or glacial ice.

A — **Alluvial sediments, undifferentiated:** alluvium mixed with marine silt, sand or gravel washed from slopes by wave action or deposited in the sea by meltwater stream; variable thickness; occurs as flat areas in stream valleys or abandoned channels above marine limit; surface generally covered by fibrous peat on which mosses, sedges, and grasses grow; surface characterized by frost polygons and thaw ponds related to vertical ice wedges extending to a depth of 2 to 3 m.

L — **Lacustrine sediments, undifferentiated:** silt and sand; variable thickness; permanently drained postglacial lake basins; may include deposit of silty sediment with up to 15% organic carbon.

NONGLACIAL AND GLACIAL ENVIRONMENT

MARINE SEDIMENTS: materials deposited in the Tyrrell Sea, and glacial deposits modified by marine processes.

Mr — **Beach and nearshore sediments:** sand, gravel, cobbles, or boulders; generally well sorted; variable thickness; deposited as beaches, bars, spits, and ice-pushed ridges; surface characterized by sparse vegetation and orthogonal frost cracks.

Md — **Marine deltaic sediments:** silt, sand and gravel; variable thickness; deposited by postglacial and glacial streams in the Tyrrell Sea.

Mv — **Marine veneer:** sand; less than 2 m thick; deposited by a migrating shoreline, offlap sediments; probably a lag developed by wave reworking of marine clayey sand or silty sand or glacial till; characterized in places by a surface mottled pattern resulting from periglacial processes or gullying by streams or tidal currents.

Mb — **Marine blanket:** clay, silt and silty sand; greater than 2 m thick; deposited in a deep water, offshore environment; may occur anywhere below marine limit but distribution is patchy above 60 m a.s.l.; thickest deposits generally occur in major river valleys or valleys with major eskers; prominent striped pattern on airphotos; difficult to differentiate on airphotos from Tp; surface vegetation is dominantly shrubs in turf circles around mudboils; mottled pattern due to shrub- and mudboil-covered mounds, 5 to 10 m in diameter and less than 0.5 m high, surrounded by light coloured grass-sedge vegetation; likely has high ground ice content.

M — **Marine sediments, undifferentiated:** silt, sand, gravel and cobbles; variable thickness; deposited in or reworked by the Tyrrell Sea; appears as secondary unit in complex polygons.

GLACIAL ENVIRONMENT

GLACIOFLUVIAL SEDIMENTS: water-sorted sediments deposited in, or around, or near a glacier; largely as a result of meltwater stream flow.

GFp — **Outwash plain sediments:** sand, gravel; variable thickness; with terraced, hummocky, and kettled surfaces; deposited by subaerial meltwater streams in areas above local sea level or level of proglacial lakes; includes 1) sediment deposited between the esker ridge and valley sides, commonly over stagnant ice that forms temporary floor, 2) outwash fans, 3) outwash plains, and 4) materials on the floor or at the mouth of meltwater channels, sparsely vegetated.

GFf2 — **Subaqueous outwash fan sediments:** silt, sand, and fine-gravel; variable thickness; with terraced, hummocky, and kettled surfaces; distal fine sediment debouching from the subaqueous mouth of an ice tunnel; material settled preferentially in depressions between the esker ridge and valleysides; vegetation is commonly sedge, grass, and moss growing on thin, fibrous peat; surface characterized by thaw ponds and tundra polygons; difficult to differentiate from unit A on airphotos.

GFc — **Ice-contact sediments:** sand and gravel; stratified; variable thickness; deposited near ice margins in, over, or around ice or in ice tunnels, commonly as eskers but includes isolated hummocky deposits of uncertain origin; many eskers are beaded or interrupted at irregular intervals by major bulges marking positions where deltaic or subaqueous fan deposition occurred during periods of slowed ice retreat.

GF — **Glaciofluvial sediments, undifferentiated:** silt, sand and gravel, variable thickness; deposited in or near a glacier; appears as secondary unit in complex polygons.

GLACIAL SEDIMENTS (TILL): poorly sorted sediments with distinctive forms deposited directly by glacial ice.

Th — **Hummocky till:** diamicton; variable thickness; without significant boulder cover; occurring as low, rounded hummocks; includes ridges of till that are minor end moraines or erosion remnants between subparallel meltwater channels; extensive areas are present in the region of the Keewatin Ice Divide and in some places adjacent to areas of ribbed moraines (Tr); exact origin unknown; may have formed in association with stagnant ice and in some places from erosion of till surfaces by streams in anastomosing meltwater channels; vegetation and periglacial features similar to those on till plain (Tp).

Tr — **Ridged moraine:** diamicton, in places sand and gravel; generally bouldery; variable thickness; ribbed (Rogen) moraine, forming hummocks and straight to sinuous ridges, generally less than 1 km long and 2 to 10 m high; ridges generally oriented at right angles and form trains parallel to direction of ice flow; individual ribs may be asymmetric in cross-section with steep side facing down-ice; trains of ribs pass laterally into drumlin fields and may be drumlinized in the transition zone; surfaces have sparse vegetation and generally a heavy cover of large boulders and mudboils where composed of till, and marked by frost cracks where composed of gravel.

Tp — **Till plain:** generally sandy, silty till, noncalcareous; grey; variable thickness; forms till plains; includes areas of clay-rich red till; may exhibit stripes; vegetation (shrubs, mosses, grasses) grows in elevated peaty rings around mudboils 1–2 m diameter.

Tv — **Till veneer:** generally sandy, silty diamicton; less than 1 m thick; appears as secondary unit in complex polygons.

T — **Till, undifferentiated:** diamicton; variable thickness.

PRE-QUATERNARY

R — **Bedrock, undifferentiated:** Precambrian intrusive igneous and metamorphic rocks, red volcanic rocks, and unmetamorphosed sediments; surface comprises more than 80% outcrop; vegetation sparse; surface may be glacially rounded or covered by felsenmeer; bedrock (20 to 80% outcrop) is mantled with less than 1 m of the surficial deposit indicated in complex polygons.

Complex units: two map-unit designators are used in cases where the surficial cover forms a complex area and the map units are too small to be mapped individually, yet constitute a significant areal extent of the total polygon (e.g. R.Tv designates an area of bedrock with numerous small deposits of till veneer). In such instances a dot (.') is used to separate the map-unit designator.

Stratigraphic units: a stratigraphic relationship is shown with two map-unit designators separated by a slash ('/') (e.g. Mr/R designates marine beaches overlying bedrock).

- Reworked sediments, by marine waves
- Geological contact
- Beach crest, bar, or ice-shoved ridge
- Limit of marine submergence, defined
- Major meltwater channel, direction unspecified
- Minor ribbed moraine ridge
- Esker, direction known
- Drumlinoid, fluting
- Crag-and-tail
- Fluted bedrock or drift (well defined or unspecified; direction known, length not mapped to scale)
- Hummock, hummocky moraine

Striation:

- *Poorly defined, direction of ice movement unknown*
- *Poorly defined, direction of ice movement known*
- *Well defined, direction of ice movement unknown*
- *Well defined, direction of ice movement known*
- *Crossed, 1 = older, 4 = younger*

× Small bedrock outcrop

Recommended citation

Geological Survey of Canada, 2017. Reconnaissance surficial geology, Thirty Mile Lake, Nunavut, NTS 65-P; Geological Survey of Canada, Canadian Geoscience Map 326 (preliminary, Surficial Data Model v. 2.3 conversion of Map 39-1989), scale 1:125 000. https://doi.org/10.4095/305841

Celebrating 175 yrs

Geological Survey of Canada
Canadian Geoscience Maps

Canada

Author: Geological Survey of Canada

Geology by J.M. Aylsworth and M.D. Clarke, based on airphoto interpretation. Striation measurements by J.G. Fyles, R.C. Shields and J.A. Fraser, 1954.

Geology conforms to Surficial Data Model v. 2.3

Data conversion by D.E. Kerr, 2015, 2016

Geomatics by QSP Geographics Inc. and C. Lai

Cartography by M.J. Baldock

Initiative of the Geological Survey of Canada, conducted under the auspices of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) Program.

CANADIAN GEOSCIENCE MAP 326

RECONNAISSANCE SURFICIAL GEOLOGY

THIRTY MILE LAKE

Nunavut

NTS 65-P

1:125 000

2 0 2 4 6 8 10 km

Map projection Universal Transverse Mercator, zone 14. North American Datum 1983

Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications.
Elevations in metres above mean sea level

Mean magnetic declination 2017, 0°59'W, increasing 2.8' annually. Readings vary from 0°37'E in the SW corner to 2°41'W in the NE corner of the map.

This map is not to be used for navigational purposes.

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

Data may include additional observations not portrayed on this map. See map info document accompanying the downloaded data for more information about this publication.

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

This publication has been scientifically reviewed, but it has not undergone a formal edit.

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