References and additional striation data from:

Aylsworth, J.M., 1990. Surficial geology, Aberdeen Lake, District of Keewatin, Northwest Territories; Geological Survey of Canada, Map 44-1989, scale 1:125 000. https://doi.org/10.4095/130944

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

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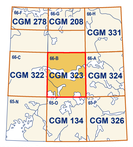
Abstract

This new surficial geology map product represents the conversion of Map 44-1989 and its legend, using the Geological Survey of Canada's Surficial Data Model (SDM version 2.3) (Open File 8236). All geoscience knowledge and information from Map 44-1989 that conformed to the current SDM were maintained during the conversion process. Supplementary, limited legacy information was added to complement the converted geoscience data. This consists of glacial striations from Wright (1955), as well as striations and field data from McMartin et al. (2017); these are identified in the accompanying geodatabase. The purpose of converting legacy map data to a common science language and a 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 44-1989 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 (Dossier public 8236). Toutes les connaissances et l'information de nature géoscientifique de la Carte 44-1989 qui sont en conformité avec le modèle de données ont été conservées pendant le processus de conversion. Une faible quantité d'information ancienne a été ajoutée en complément aux données géoscientifiques converties. Il s'agit de stries glaciaires tirées de Wright (1955), et des stries et données de terrain de McMartin et al. (2017). 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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Natural Resources Canada — Ressources naturelles Canada

CANADIAN GEOSCIENCE MAP 323

SURFICIAL GEOLOGY

ABERDEEN LAKE

Nunavut

NTS 66-B

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.

- **Ap** — **Alluvial floodplain sediments:** silt, sand, and gravel; variable thickness; deposited in channels and on floodplains; may include alluvium in terraces which formed as streams cut to present level in glacial and marine sedimentary fill.
- **A** — **Alluvial sediments, undifferentiated:** silt, sand and gravel; variable thickness; when associated with glaciofluvial sediments it occurs as flat areas in stream valleys or abandoned channels; when associated with marine sediments it occurs as flat areas consisting of modern alluvium mixed with marine silt and sand that were washed from slopes by wave action or deposited in the sea by meltwater streams; 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:** sand, pebbly sand, and gravel; variable thickness; deposited in the Tyrell Sea by glacial or nonglacial streams; surface characterized by sparse vegetation and polygonal frost cracks.
- **M** — **Marine sediments, undifferentiated:** sand and gravel; variable thickness; deposited in the Tyrell Sea by glacial or nonglacial streams; appears as secondary unit in complex polygons.

GLACIAL ENVIRONMENT

GLACIOLACUSTRINE SEDIMENTS: materials deposited in glacial lakes ponded on the western side of the Keewatin Ice Divide and glacial deposits modified by glaciolacustrine processes.

- **GLr** — **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.
- **GLd** — **Deltaic sediments:** sand, pebbly sand, and gravel; variable thickness; deposited in glacial lakes by glacial or nonglacial streams and susequently abandoned as glacial lakes drained; surface characterized by sparse vegetation and polygonal frost cracks.

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.
- **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 till 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).
- **Tm** — **Moraine complex:** diamicton, sand, and gravel, undifferentiated; variable thickness; disintegration moraine; occurs as short ridges or hummocks, probably deposited in holes and crevasses in stagnant ice; ridge orientation may form a reticulate pattern; sparsely vegetated; periglacial features vary from mudboils in till to frost cracks in sorted sediments.
- **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 diamicton; noncalcareous; grey till; variable thickness; includes areas of clay-rich red till; plain surface characterized by 1–2 m diameter patches of bare or lichen-covered mud (mudboils) surrounded by elevated peaty rings on which grow shrubs, mosses and grasses; at lake margins characterized by cobble-covered, 2 m wide ribs separated by 2 m wide-boulder filled troughs, generally trending downslope to a water depth of about 2 m; may include prominent striped pattern on airphotos.
- **Tv** — **Till veneer:** generally sandy, silty diamicton; less than 1 m thick; appears as secondary unit in complex polygons.

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 aerial 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 relationship: a stratigraphic relationship is shown with two map-unit designators separated by a slash (`/`) (e.g. Tr/R designates ridged moraine overlying bedrock).

- Geological contact, defined
- Beach crest, bar, or ice-shoved ridge
- Limit of submergence:
  - *Marine*
  - *Glaciolacustrine*
- Major meltwater channel, direction unspecified
- Minor moraine ridge, undifferentiated, ribbed, De Geer
- Esker, direction known or inferred
- Drumlinoid, fluting
- Crag-and-tail
- Roche moutonnée, length not mapped to scale
- Hummock (hummocky moraine)
- Striation:
  - *Well defined, ice flow direction unknown*
  - *Well defined, ice flow direction known*
  - *Crossed, 1 = older, 3 = younger*
- Small bedrock outcrop
- Station location:
  - *Remote observation*
  - *Ground observation*
- Sample location, various types, *see* geodatabase

Recommended citation
Geological Survey of Canada, 2017. Surficial geology, Aberdeen Lake, Nunavut, NTS 66-B; Geological Survey of Canada, Canadian Geoscience Map 323 (preliminary, Surficial Data Model v. 2.3 conversion of Map 44-1989), scale 1:125 000. https://doi.org/10.4095/304279

Celebrating 175 yrs

Geological Survey of Canada
Canadian Geoscience Maps

Canada

Author: Geological Survey of Canada

Geology based on airphoto interpretation with ground observations by J.M. Aylsworth, 1980, 1983. Striation measurements J.G. Fyles, 1954.

Geology conforms to Surficial Data Model v. 2.3

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

Geomatics by QSP Geographics Inc. and A. Noad

Cartography by E. Everett

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

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

CANADIAN GEOSCIENCE MAP 323
SURFICIAL GEOLOGY
ABERDEEN LAKE
Nunavut
NTS 66-B
1:125 000

2 0 2 4 6 8 10 km

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, 1°08'E, decreasing 6' annually. Readings vary from 2°44'E in the SW corner to 0°35'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.

CANADIAN GEOSCIENCE MAP 323
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Nunavut
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