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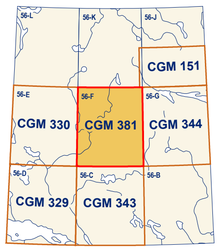
Abstract

This new surficial geology map product represents the conversion of Preliminary Map 4-1981 (Thomas and Dyke, 1981) and its legend, using the Geological Survey of Canada's Surficial Data Model (SDM version 2.3.14) (Deblonde et al., 2018). All geoscience knowledge and information from Preliminary Map 4-1981 that conformed to the SDM were maintained during the conversion process. Selected eskers had their flow direction changed from northward to southward. Supplementary legacy information was added to complement the converted geoscience data. This consists of field stations and striations from McMartin et al., (2016 and 2017) and Wright (1967). 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 préliminaire 4-1981 (Thomas et Dyke, 1981) et de sa légende, en se servant du Modèle de données pour les formations superficielles (MDFS version 2.3.14) de la Commission géologique du Canada (Deblonde et al., 2018). Toutes les connaissances et l'information de nature géoscientifique de la Carte préliminaire 4-1981 qui sont en conformité avec le modèle de données ont été conservées pendant le processus de conversion. Des eskers choisis témoignent d'une inversion de leur direction d'écoulement du nord au sud. Des éléments d'information existants ont été ajoutés en complément aux données géoscientifiques converties. Il s'agit de stations de terrain et de stries glaciaires tirées de McMartin et al., (2016 et 2017) et de Wright (1967). 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 de la géologie 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 381

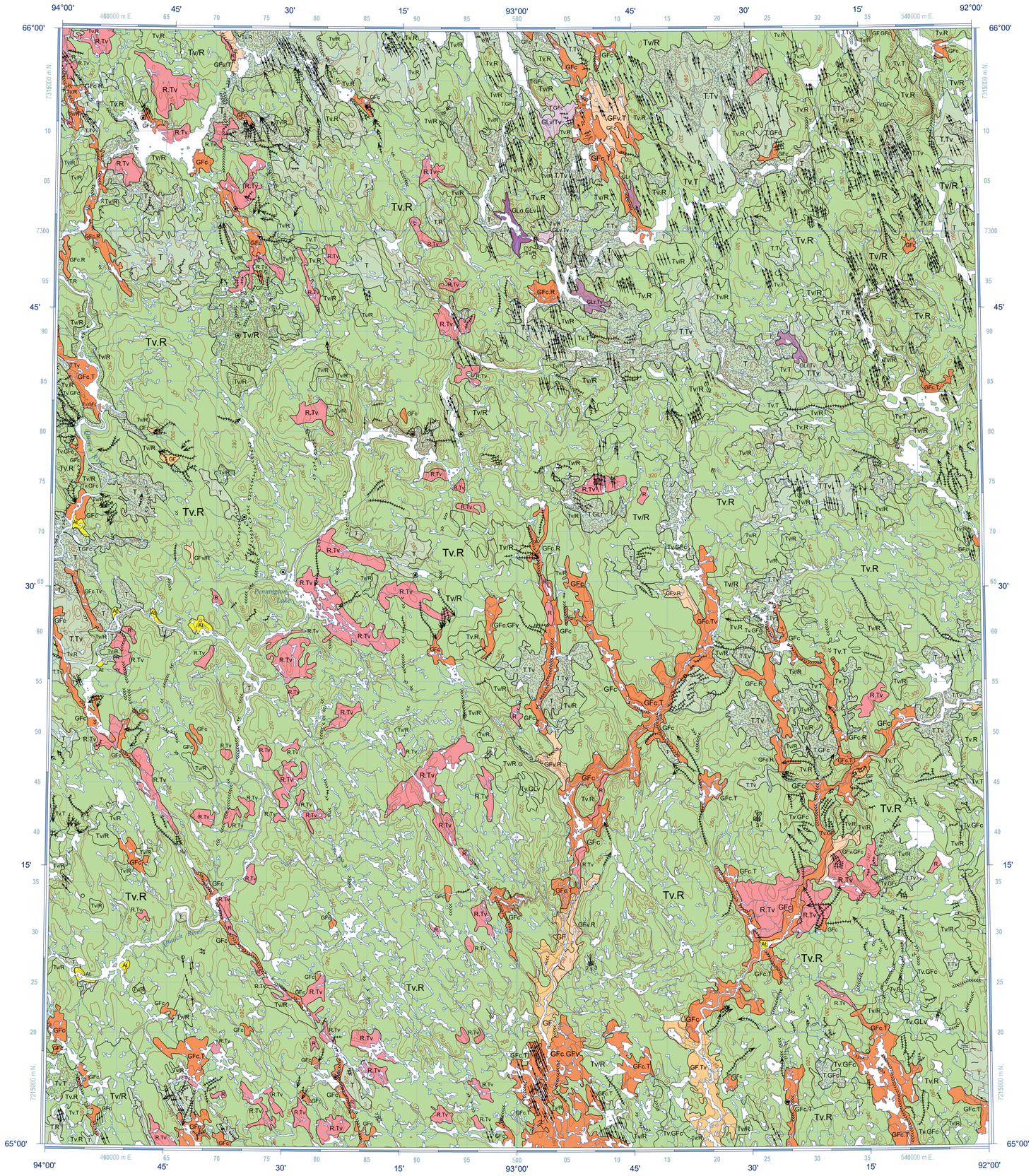
SURFICIAL GEOLOGY

PENNINGTON LAKE

Nunavut

NTS 56-F

1:250 000



QUATERNARY

POST LAST GLACIATION

NONGLACIAL ENVIRONMENT

ALLUVIAL SEDIMENTS: silt, sand, and fine gravel, moderately to well sorted, but commonly interstratified with beds of distinctly different grain sizes; crossbedding, scour-and-fill structures, and ripple marks common; up to 5 m thick.

At — **Alluvial terraced sediments:** silt, sand, and gravel; variable thickness; terrace above present flood zone; vegetated.

LAST GLACIATION

PROGLACIAL AND GLACIAL ENVIRONMENT

GLACIOLACUSTRINE SEDIMENTS: silty fine sand to gravelly coarse sand, poorly sorted and stratified; generally 1 to 2 m, but up to 10 m thick; deposited in proglacial lakes.

GLr — **Beach sediments:** sand, with well developed cross-stratification; variable thickness; occur as beaches and terraces.

GLo — **Offshore sediments:** silty sand, with poorly developed subhorizontal stratification; variable thickness; offshore environment.

GLv — **Glaciolacustrine veneer:** sand, with well developed cross-stratification; less than 1 m thick; occurs as beaches generally overlying bedrock.

GLACIOFLUVIAL SEDIMENTS: sand and gravel; deposited by meltwater flowing from, or in contact with, glacier ice.

GFc — **Ice-contact sediments:** sand and gravel, irregular to cross-stratified with poor to moderate sorting; up to 30 m thick; occur as ice-contact deltas, sinuous ridges, isolated hummocks, local blanket deposits, and esker and kame complexes; may locally overlie bedrock.

GFv — **Glaciofluvial veneer:** sand and gravel; less than 1 m thick; generally overlies bedrock.

GF — **Glaciofluvial sediments, undifferentiated:** sand and gravel, massive to well stratified and sorted; up to 70 m thick; with smooth, flat to inclined surfaces; occur as deltas, fans, or terraced valley-fill deposits.

GLACIAL ENVIRONMENT

GLACIAL SEDIMENTS (TILL): unsorted glacial debris, diamicton; deposited beneath or along the margin of glacier.

Tv — **Till veneer:** silty, gravelly sand (diamicton) with less than 10% clay; less than 1 m thick; generally overlies bedrock; where washed scoured lag overlay is present, the upper metre is abnormally sandy due to either removal of fines by wave action or intermixing of glaciolacustrine or glaciofluvial sand.

T — **Till, undifferentiated:** silty, gravelly sand (diamicton) with less than 10% clay, nonsorted, nonstratified, compact but unlithified; generally 7 up to 20 m thick; boulders up to 2 m long common on the surface; occurs mainly as blanket on underlying bedrock or as hummocks and ridges (moraines); where washed scoured lag overlay is present, the upper metre is abnormally sandy due to either removal of fines by wave action or intermixing of glaciolacustrine or glaciofluvial sand.

PRE-TERTIARY

R — **Bedrock, undifferentiated:** Precambrian igneous and metamorphic crystalline rock of variable composition and structure.

Complex units: two map-unit designators separated by a dot (.) are used where the surficial cover forms a complex area and the units are too small to be mapped individually (e.g. GF.Tv designates an area of undifferentiated glaciofluvial sediments with till veneer deposits). The map-unit polygon is coloured according to the dominant unit and labeled in descending order of cover.

Stratigraphic relationship: two map-unit designators separated by a slash (/) are used where a stratigraphic relationship is observed or confidently inferred (e.g. GFv/T indicates glaciofluvial veneer sediments overlying till, undifferentiated). The map-unit polygon is coloured according to the overlying unit.

- Lag deposit area, the upper metre of till is abnormally sandy due to either removal of fines by wave action or intermixing of glaciolacustrine or glaciofluvial sand.
- Geological contact, defined
- Beach crest, depositional
- Meltwater channel:
  - *Minor, paleocurrent direction unknown*
  - *Minor, paleocurrent direction known*
- Moraine ridge: minor, unspecified
- Esker:
  - *Paleocurrent direction unknown*
  - *Paleocurrent direction known*
- Drumlinoid, length not mapped to scale
- Crag-and-tail, length not mapped to scale
- Striation:
  - *Well defined, ice-flow direction unknown*
  - *Well defined, ice-flow direction known*
  - *Crossed (1 = oldest, 2 = younger, 3 = youngest)*
- Drillhole location, shallow drill site
- Station location, ground observation

Recommended citation
Geological Survey of Canada, 2022. Surficial geology, Pennington Lake, Nunavut, NTS 56-F; Geological Survey of Canada, Canadian Geoscience Map 381 (Surficial Data Model v. 2.3.14 conversion of Map 4-1981), scale 1:250 000. https://doi.org/10.4095/313294

Geological Survey of Canada
Canadian Geoscience Maps

Canada

Author: Geological Survey of Canada

Geology by R.D. Thomas (east half) and A.S. Dyke (west half), 1976 and 1977

Geological compilation by R.D. Thomas

Geology conforms to Surficial Data Model v. 2.3.14 (Deblonde et al., 2018).

Geological data conversion by D.E. Kerr, 2017 and 2018

Geomatics by M. Tougas, K. McNeil, and C.D. Stevens

Cartography by M.J. Baldock

Scientific editing by L. Ewert

CANADIAN GEOSCIENCE MAP 381

SURFICIAL GEOLOGY

PENNINGTON LAKE

Nunavut

NTS 56-F

1:250 000

5 0 5 10 15 20 km

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 15 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 2022, 6°22'W, decreasing 15.7' annually
Readings vary from 8°08'W in the NE corner to 4°39'W in the SW 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 (gscpublications-cgcpublications@nrcan-rncan.gc.ca).

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 (https://geoscan.nrcan.gc.ca/).

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SURFICIAL GEOLOGY

PENNINGTON LAKE

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NTS 56-F