Natural Resources Canada | Ressources naturelles Canada

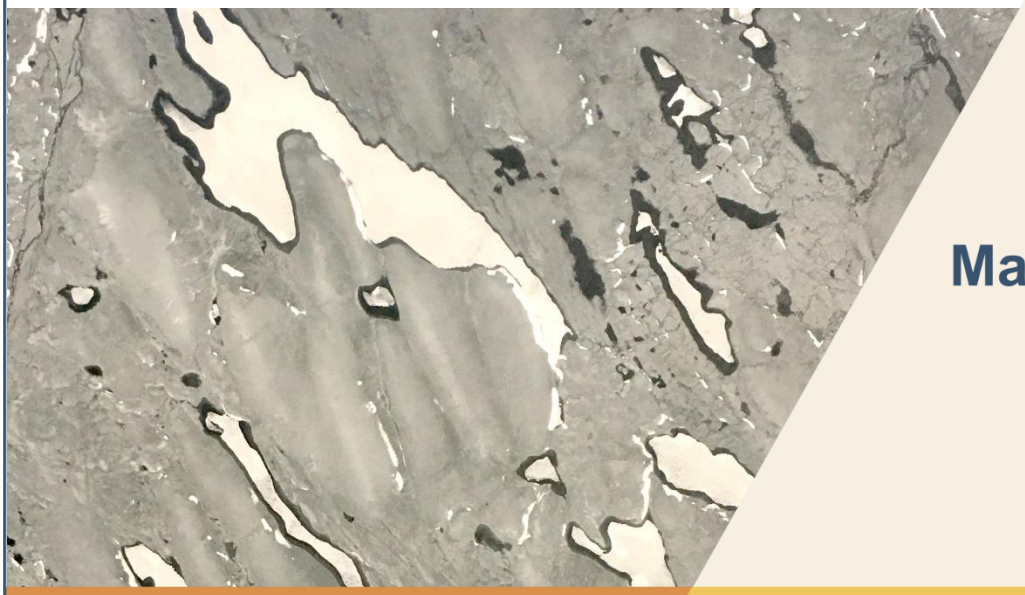
CANADIAN GEOSCIENCE MAP 427

RECONNAISSANCE SURFICIAL GEOLOGY

TINNEY HILLS

Nunavut

NTS 76-J



Map Information Document

Geological Survey of Canada Canadian Geoscience Maps

2022

Canada

MAP NUMBER

Natural Resources Canada, Geological Survey of Canada
Canadian Geoscience Map 427

TITLE

Reconnaissance surficial geology, Tinney Hills, Nunavut, NTS 76-J

SCALE

1:125 000

CATALOGUE INFORMATION

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ABSTRACT

The Tinney Hills map area consists primarily of glacially and meltwater scoured bedrock, discontinuous till in the southwest and central-east, and postglacial marine sediments in coastal lowlands and along river valleys inland. The boundaries of many till deposits are cut to bedrock by widespread subglacial meltwater erosion. Ridged till in particular, is often associated with eskers and other glaciofluvial sediments and meltwater erosion. Striations and streamlined till landforms indicate regional ice flow towards the north-northwest and northwest, and later crosscutting relationships recording minor variations locally. Orientation of eskers and outwash plains suggest ice recession was primarily southeastward. Small, isolated glacial lakes formed where retreating or stagnant ice temporarily blocked local drainage. Below 200 to 220 m elevation, the region was inundated by the sea during ice retreat. Glaciomarine and marine sediments consist of littoral beach and offshore sediments, winnowed till surfaces, and isolated deltas. Isostatic rebound caused marine regression, recorded by deltas and beaches at 210 to 220 m elevation, and decreasing to current sea level.

RÉSUMÉ

La région cartographique de Tinney Hills est principalement composée d'un substratum rocheux affouillé par les glaciers et les eaux de fonte, de till discontinu dans le sud-ouest et le centre est de la région, ainsi que de sédiments marins postglaciaires dans les basses terres côtières et le long des vallées fluviales, à l'intérieur des terres. Le pourtour de nombreux dépôts de till est marqué par une érosion s'étendant jusqu'au substratum rocheux, qui témoigne d'une action étendue des eaux de fonte sous-glaciaires. Du till à crêtes, en particulier, est souvent associé à des eskers, à d'autres sédiments fluvioglaciaires et à une érosion due aux eaux de fonte. Des stries et des reliefs de till profilés indiquent un écoulement glaciaire dirigé vers le nord–nord-ouest et le nord-ouest à l'échelle régionale. Des relations de recoupement ultérieures indiquent de légères variations locales de l'écoulement. L'orientation des eskers et des plaines d'épandage fluvioglaciaires suggère que le retrait glaciaire s'est surtout effectué vers le sud-est. De petits lacs glaciaires isolés se sont formés là où la glace en retrait ou stagnante bloquait temporairement l'écoulement des eaux à l'échelle locale. Au-dessous d'une altitude de 200 à 220 m, la région a été inondée par la mer pendant le retrait glaciaire. Les dépôts marins et glaciomarins comprennent des sédiments de milieu marin franc et de plage littorale, des surfaces de till vanné et des deltas isolés. Le relèvement isostatique postglaciaire a entraîné une régression marine, dont témoignent des deltas et des plages s'échelonnant depuis une altitude de 210 à 220 m jusqu'au niveau actuel de la mer.

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SHEET 1 OF 1, RECONNAISSANCE SURFICIAL GEOLOGY

GENERAL INFORMATION

Author: D.E. Kerr

Geology by D.E. Kerr, based on airphoto interpretation in 2018 and 2019 of 1:60 000 scale photos taken in 1955 to 1958, and limited fieldwork in 1986 and 1987; striations from Bird and Bird (1961) and unpublished field manuscript map by W. Blake Jr., Operation Bathurst Inlet, 1962

Geology conforms to Surficial Data Model v. 2.4.0 (Deblonde et al., 2019).

Geomatics by L. Robertson and J. Kingsley

Cartography by M.J. Baldock

Scientific editing by L. Ewert

Initiative of the Geological Survey of Canada, conducted under the auspices of the Supporting Adaptation in Permafrost Regions project as part of Natural Resources Canada's Climate Change Geoscience program

Map projection Universal Transverse Mercator, zone 13
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

Mean magnetic declination 2022, 10°36'E, decreasing 4.6' annually
Readings vary from 9°24'E in the NE corner to 11°40'E in the SW corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Fluted till plain dissected by meltwater channels, Nunavut. Photograph by the National Air Photo Library. NAPL photo A16126-9

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/).

Map Viewing Files

The published map is distributed as a Portable Document File (PDF), and may contain a subset of the overall geological data for legibility reasons at the publication scale.

Cartographic Representations Used on Map

This map utilizes ESRI Cartographic Representations in order to customize the display of standard GSC symbols for visual clarity on the PDF of the map only. The digital data still contains the original symbol from the standard GSC symbol set. The following legend features have Cartographic Representations applied:
-Extensive gullied terrain
-Geomorphology lines

Definition Queries Used on Map

This map utilizes definition queries in order to customize the display for visualization on the PDF of the map only and does not affect the digital data. The following features have a definition query applied:
-Field station locations

References

Bird, J.B. and Bird, M.B., 1961. Bathurst Inlet, Northwest Territories; Geographical Branch, Canada Department of Mines and Technical Surveys, Geographical Memoir 7, 66 p. https://doi.org/10.4095/290069

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., 2019. Surficial Data Model: the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, ver. 2.4.0, 1 .zip file. https://doi.org/10.4095/315021

Kerr, D.E., 1994. Late Quaternary stratigraphy and depositional history of the Parry Peninsula-Perry River area, District of Mackenzie, Northwest Territories; Geological Survey of Canada, Bulletin 465, 39 p. https://doi.org/10.4095/194069

Suggested readings

Blake, W., Jr., 1963. Notes on glacial geology, northeastern District of Mackenzie; Geological Survey of Canada, Paper 63-28, 12 p. https://doi.org/10.4095/101060

Craig, B.G. and Fyles, J.G., 1960. Pleistocene geology of Arctic Canada; Geological Survey of Canada, Paper 60-10, 21 p. https://doi.org/10.4095/101191

AUTHOR CONTACT

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COORDINATE SYSTEM

Projection: Universal Transverse Mercator
Units: metres
Zone: 13
Horizontal Datum: NAD83
Vertical Datum: mean sea level

BOUNDING COORDINATES

Western longitude: 108°00'00"W
Eastern longitude: 106°00'00"W
Northern latitude: 67°00'00"N
Southern latitude: 66°00'00"N

SOFTWARE VERSION

Data has been originally compiled and formatted for use with ArcGIS™ desktop version 10.7.1 developed by ESRI®.

DATA MODEL INFORMATION

Surficial

The Geological Survey of Canada (GSC) through the Geo-mapping for Energy and Minerals Program (GEM) has undertaken the Geological Map Flow to develop protocols for the collection, management (compilation, interpretation), and dissemination of surficial and bedrock geology data and map information. To this end, a data model has been created.

The Surficial Data Model (SDM) was designed using ESRI geodatabase architecture. The XML workspace document provided can be imported into a geodatabase, and the geodatabase will then be populated with the feature datasets, feature classes, tables, relationship classes, subtypes, and domains.

Shapefile and table (.dbf) versions of the data are included within the data. Column names have been simplified and the text values have been maintained within the shapefile attributes. The direction columns are numerical, to display rotation for points, and the symbol fields will hold the correct values to be matched to the appropriate style file.

For a more in depth description of the data model please refer to the official publication:

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., 2019. Surficial Data Model: the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, ver. 2.4.0, 1 .zip file. https://doi.org/10.4095/315021