

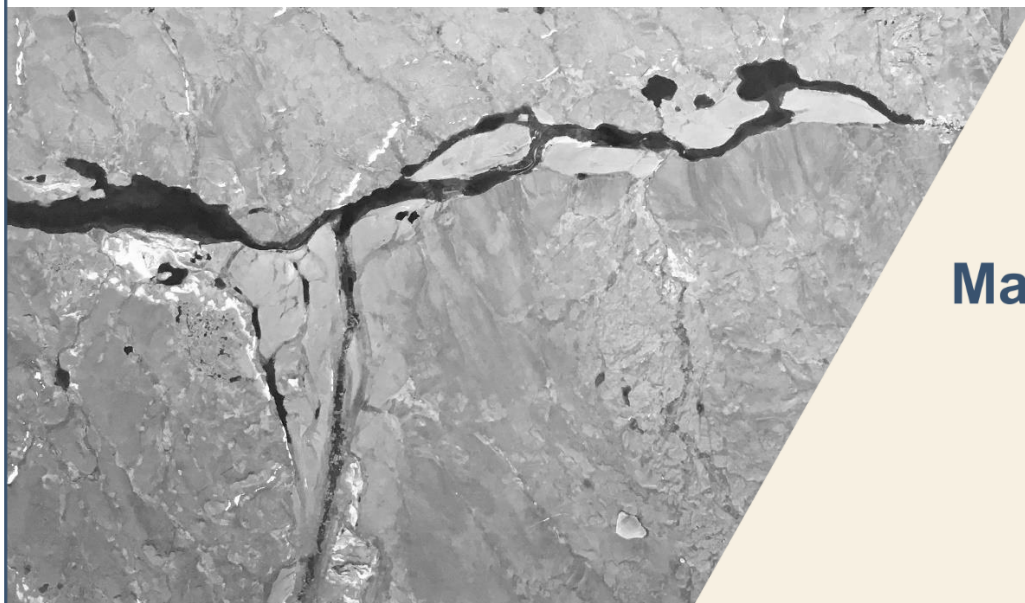


Natural Resources
Canada

Ressources naturelles
Canada

CANADIAN GEOSCIENCE MAP 423
RECONNAISSANCE SURFICIAL GEOLOGY
ARCTIC SOUND

Nunavut
NTS 76-N



**Map Information
Document**

Geological Survey of Canada
Canadian Geoscience Maps

2022

Canada 



MAP NUMBER

Natural Resources Canada, Geological Survey of Canada
Canadian Geoscience Map 423

TITLE

Reconnaissance surficial geology, Arctic Sound, Nunavut, NTS 76-N

SCALE

1:125 000

CATALOGUE INFORMATION

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ABSTRACT

The Arctic Sound map area consists primarily of glacially scoured bedrock, minor till in the southwest, and postglacial marine sediments in coastal lowlands and inland along river valleys. The till deposits are cut to bedrock by subglacial meltwater corridors defined by eskers and other glaciofluvial sediments. Glacial lakes occupied the James River valley where retreating or stagnant ice blocked drainage to the east. Glacio-lacustrine deltas record falling lake levels, from 310 m to 290 m and 260 m elevation. Striations and streamlined landforms indicate ice flow to the north-northwest, and later crosscutting relationships recording minor variations locally. Orientation of minor moraines, eskers, and outwash plains suggest ice recession was primarily southeastward. A series of small glaciomarine deltas following a northwest-southeast trend, and postglacial marine deltas and fine-grained sediments, reach elevations of 210 m in the northwest and 200 m in the southeast. Isostatic rebound caused marine regression, forming raised beaches from 210 m elevation to current sea level.

RÉSUMÉ

La région cartographique d'Arctic Sound se compose principalement d'un substratum rocheux affouillé par les glaciers, d'un peu de till dans le sud-ouest, ainsi que de sédiments marins postglaciaires dans les basses terres côtières et le long des vallées fluviales, à l'intérieur des terres. Les dépôts de till sont incisés jusqu'au substratum rocheux par des corridors d'eau de fonte sous-glaciaires définis par des eskers et d'autres sédiments fluvioglaciaires. Des lacs glaciaires occupaient la vallée de la rivière James où un glacier en retrait ou de la glace stagnante bloquait l'écoulement des eaux vers l'est. Des deltas glaciolacustres enregistrent une chute du niveau des lacs, de 310 m à 290 m, puis à 260 m d'altitude. Des stries et des formes fuselées témoignent d'un écoulement glaciaire vers le nord-nord-ouest, et des relations de recoupement ultérieures indiquent de légères variations locales de l'écoulement. L'orientation des moraines mineures, des eskers et des plaines d'épandage fluvioglaciaires suggère que le retrait glaciaire s'est surtout effectué vers le sud-est. Une série de petits deltas glaciomarins suivant un axe nord-ouest-sud-est, ainsi que des deltas marins postglaciaires et des sédiments à grain fin, atteignent des altitudes de 210 m dans le nord-ouest et de 200 m dans le sud-est. Le relèvement isostatique postglaciaire a entraîné une régression marine, laissant des plages soulevées depuis une altitude de 210 m jusqu'au niveau de la mer actuel.

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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 of 1:60 000 scale photos taken in 1955 and 1957, and limited fieldwork in 1986 and 1987; additional striations from Bird and Bird (1961), Kerr (1994), and unpublished field manuscript map by W. Blake Jr., 1962.

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

Geomatics by L. Robertson, S. Eagles, and J. Kingsley

Cartography by N. Côté

Scientific editing by L. Ewert

Initiative of the Geological Survey of Canada, conducted under the auspices of Natural Resources Canada's Climate Change Geoscience program.

Map projection Universal Transverse Mercator, zone 12
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, 12°17'E, decreasing 7.4' annually

Readings vary from 13°17'E in the SW corner to 11°10'E in the NE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Glaciofluvial outwash plain and terraced sediments along the James River. Photo from the National Air Photo Library. NAPL photo A15690-43

The Geological Survey of Canada welcomes corrections or additional information from users (gscpublications-cgcpublishations@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.

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 stations

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: 12

Horizontal Datum: NAD83

Vertical Datum: mean sea level

BOUNDING COORDINATES

Western longitude: 110°00'00"W

Eastern longitude: 108°00'00"W

Northern latitude: 68°00'00"N

Southern latitude: 67°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>