

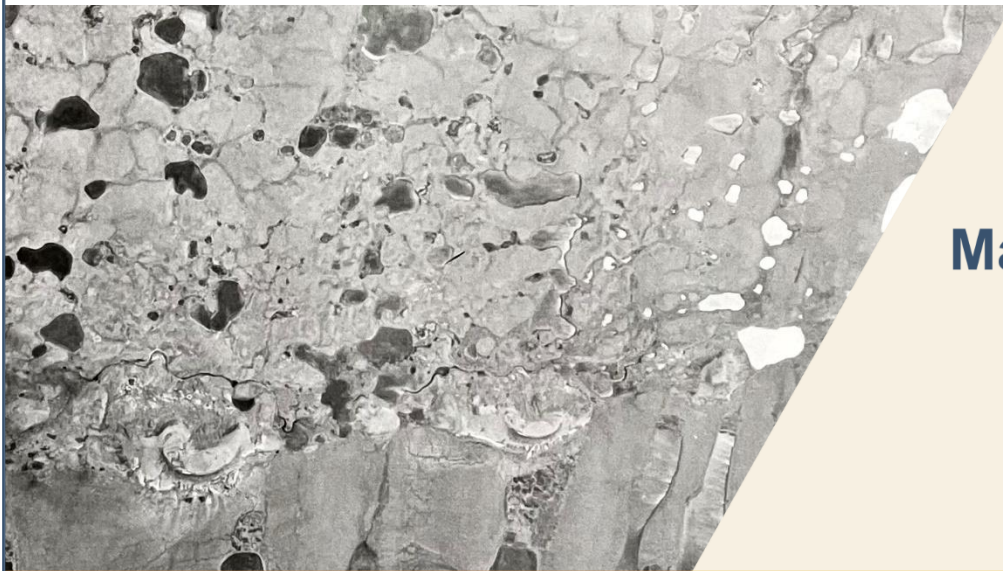


Natural Resources
Canada

Ressources naturelles
Canada

CANADIAN GEOSCIENCE MAP 451
RECONNAISSANCE SURFICIAL GEOLOGY
BEBENSEE LAKE

Northwest Territories–Nunavut
NTS 86-M



**Map Information
Document**

**Geological Survey of Canada
Canadian Geoscience Maps**

2022

Canada 



MAP NUMBER

Natural Resources Canada, Geological Survey of Canada
Canadian Geoscience Map 451

TITLE

Reconnaissance surficial geology, Bebensee Lake, Northwest Territories–Nunavut,
NTS 86-M

SCALE

1:125 000

CATALOGUE INFORMATION

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ABSTRACT

Preliminary surficial geology, based on airphoto interpretation and limited legacy field data of the Bebensee Lake map area, records a complex glacial landscape. Highly streamlined till, till blanket, hummocky till, moraine complex, and ridged till are dominant units. Glaciofluvial sand and gravel form eskers, subglacial meltwater corridors, ice-contact deposits, and outwash plains. Fine-grained glaciolacustrine sediments in the south occur predominantly in lowlands below 250 m elevation, relating to glacial Lake McConnell. Multiple lobes of Laurentide ice glaciated the area. Relict glacial landforms record older westward to west-southwestward ice flow. In the southeast, these are strongly overprinted by subsequent north-oriented flutings, decreasing in intensity northward, and originating from a lobe south of the map area. Streamlined till landforms, relating to a third lobe originating east and northeast of the map region, indicate the last ice flow was dominantly westward in east-central regions, and southwestward in the north and west. During deglaciation, widespread hummocky till was deposited, and major moraines and esker complexes formed along the margins of two ice lobes.

RÉSUMÉ

La cartographie préliminaire de la géologie des formations superficielles de la région cartographique de Bebensee Lake, fondée sur l'interprétation de photos aériennes et une quantité limitée d'anciennes données de terrain, rend compte d'un paysage glaciaire complexe. Du till fortement profilé, une nappe de till, du till bosselé, un complexe morainique et du till à crêtes sont les unités dominantes. Du sable et du gravier fluvioglaciaires forment des eskers, des couloirs d'eaux de fonte sous-glaciaires, des dépôts juxtaglaciaires et des plaines d'épandage. Dans le sud de la carte, des sédiments glaciolacustres à grain fin se trouvent principalement dans les basses terres à moins de 250 m d'altitude et sont liés au Lac glaciaire McConnell. De multiples lobes de glace laurentidiens ont recouvert la région. Des formes de relief glaciaires reliques témoignent d'un écoulement plus ancien dans une direction variant de l'ouest à l'ouest-sud-ouest. Dans le sud-est, des cannelures de direction nord de formation subséquente se superposent à ces reliefs glaciaires, suivant une intensité qui diminue vers le nord, et tirent leur origine d'un lobe situé au sud de la région cartographique. Des formes profilées dans le till, liées à un troisième lobe tirant sa source à l'est et au nord-est de la région cartographique, indiquent que le dernier écoulement glaciaire était principalement dirigé vers l'ouest dans les régions du centre est, et vers le sud-ouest dans le nord et l'ouest. Pendant la déglaciation, du till bosselé a été déposé sur une vaste étendue, et des moraines et des complexes d'eskers majeurs se sont formés le long des bordures de deux lobes de glace.

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SHEET 1 OF 1, RECONNAISSANCE SURFICIAL GEOLOGY

GENERAL INFORMATION

Author: D.E. Kerr

Geology by D.E. Kerr, 2020 and 2021, based on airphoto interpretation of 1:70 000 scale NAPL airphotos taken in July, 1952; striations from Craig et al., 1960, and unpublished field manuscript by V.K. Prest, 1985

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

Geomatics by L. Robertson

Cartography by N. Côté

Scientific editing by L. Ewert

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

Map projection Universal Transverse Mercator, zone 11
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, 18°34'E, decreasing 16.2' annually

Readings vary from 18°55'E in the NW corner to 18°10'E in the SE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Hummocky ground moraine in north half of image, with east-west oriented moraine ridge separating fluted till in south half, Northwest Territories and Nunavut. Photo from the National Air Photo Library. NAPL photo A14149-62

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

- Terrace scarp
- Beach crest, depositional and erosional, trim line
- Limit of glaciolacustrine submergence
- Meltwater channel
- Meltwater erosional depression
- Moraine ridge
- Ice-contact scarp
- Esker
- Drumlinoid ridge
- Drumlin ridgeCrag-and-tail ridge
- Crag-and-tail ridge
- Pre-crag ridge, large
- Fluted drift
- Fluted bedrock ridge

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

Craig, B.G., Davison, W.L., Fraser, J.A., Fulton, R.J., Heywood, W.W., and Irvine, T.N., 1960. Surficial geology, north-central District of Mackenzie, Northwest Territories; Geological Survey of Canada, Preliminary Map 24-1960, scale 1:1 013 760. <https://doi.org/10.4095/108725>

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>

SUGGESTED READINGS

Prest, V.K., 1984. Glacial geology of the Bebensee Lake map-area, (NTS 86-M), Great Bear Lake region, Northwest Territories; *in* Contributions to the geology of the Northwest Territories, v. 2, (ed.) J.A. Brophy, Indian and Northern Affairs Canada, p. 63–70.

St-Onge, D.A., 1980. Glacial Lake Coppermine, north-central District of Mackenzie, Northwest Territories; *Canadian Journal of Earth Sciences*, v. 17, p. 1310–1315. <https://dx.doi.org/10.1139/e80-137>.

St-Onge, D.A. and Dredge, L.A., 1985. Northeast extension of Glacial Lake McConnell in the Dease River basin, District of Mackenzie; *in* Current Research, Part A; Geological Survey of Canada, Paper 85-1A, p. 181–186. <https://doi.org/10.4095/120042>

St-Onge, D.A., Geurts, M.A., Guay, F., Dewez, V., Landriault, F., and Léveillé, P., 1981. Aspects of the deglaciation of the Coppermine River region, District of Mackenzie; *in* Current Research, Part A; Geological Survey of Canada, Paper 81-1A, p. 327–331. <https://doi.org/10.4095/109563>

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COORDINATE SYSTEM

Projection: Universal Transverse Mercator

Units: metres

Zone: 11

Horizontal Datum: NAD83

Vertical Datum: mean sea level

BOUNDING COORDINATES

Western longitude: 120°00'00"W

Eastern longitude: 118°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 10.8.2 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>