Natural Resources Canada
Ressources naturelles Canada

CANADIAN GEOSCIENCE MAP 304

RECONNAISSANCE SURFICIAL GEOLOGY

WILLOW LAKE

Northwest Territories
NTS 85-L

Map Information Document

Preliminary

Celebrating 175 yrs

Geological Survey of Canada
Canadian Geoscience Maps

2017

Canada

MAP NUMBER

Natural Resources Canada, Geological Survey of Canada
Canadian Geoscience Map 304 (Preliminary)

TITLE

Reconnaissance surficial geology, Willow Lake, Northwest Territories, NTS 85-L

SCALE

1:125 000

CATALOGUE INFORMATION

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ABSTRACT
Glaciolacustrine sediments, associated with glacial Lake McConnell, were deposited as veneers over till in the broad, poorly drained low-lying areas of the northern, central and southeastern regions of the map area, below 290 m a.s.l. They are commonly overlain by organics and exhibit thermokarst activity. Glaciofluvial sediments and some bedrock ridges were reworked into glaciolacustrine beaches in the eastern lowlands. These beaches, occurring between 220 to 290 m a.s.l., mark the decreasing elevation of the glacial lake over time due to isostatic rebound. In the south, the Horn Plateau, rising to over 700 m, and consisting of till blanket, hummocky till, moraine complex, and colluvium on its slopes, remained above the limit of glaciolacustrine inundation. Crag-and-tails, drumlins and drumlinoids record a westward ice flow during the last glaciation, with local northwestward and southwestward diversions around the Plateau. A series of small moraine ridges on the Plateau may mark the retreat of ice margins or stagnating lobes during deglaciation about 11–10 ka BP.

RÉSUMÉ
Des sédiments glaciolacustres, associés au Lac glaciaire McConnell, ont été déposés sous forme de placages sur du till dans les vastes étendues mal drainées de faible altitude des secteurs nord, central et sud-est de la région cartographique, à une altitude inférieure à 290 m au-dessus du niveau de la mer. Ils sont habituellement recouverts de matière organique et présentent des signes d'activité thermokarstique. Des sédiments fluvioglaciaires percés de quelques crêtes rocheuses ont été remaniés sous la forme de plages glaciolacustres dans les basses terres situées à l'est. Ces plages, présentes entre 220 et 290 m au-dessus du niveau de la mer, témoignent de l'altitude décroissante de la surface du lac glaciaire au fil du temps, en raison du relèvement isostatique. Dans le sud, le plateau Horn, s'élevant à plus de 700 m et constitué d'une nappe de till, de till bosselé, d'un complexe morainique et de colluvions sur ses versants, est demeuré au-dessus de la limite de l'inondation glaciolacustre. Des structures en crag-and-tail, des drumlins et des drumlinoïdes rendent compte d'un écoulement glaciaire vers l'ouest au cours de la dernière glaciation, avec des dérivations vers le nord-ouest et le sud-ouest par endroits autour du plateau. Une série de petites crêtes morainiques sur le plateau pourraient marquer la position de marges glaciaires en retrait ou de lobes stagnants pendant la déglaciation à environ 11–10 ka BP.

SHEET 1 OF 1, RECONNAISSANCE SURFICIAL GEOLOGY

GENERAL INFORMATION

Authors: D.E. Kerr, P.D. Morse, and S.A. Wolfe

Geology by D.E. Kerr, based on airphoto interpretation of 1:60 000 scale photos taken in 1954, and P.D. Morse, remote imagery analysis, 2015, 2016.

Geology conforms to Surficial Data Model v. 2.2

Geomatics by L. Robertson

Cartography by M.J. Baldock

Initiative of the Geological Survey of Canada, conducted under the auspices of the Mackenzie Region Project as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) 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 2017, 18°52'E, decreasing 21.6' annually. Readings vary from 19°20'E in the NW corner to 18°21'E in the SE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Stream following a meltwater channel eroded through till on north slope of the Horn Plateau, Northwest Territories. Photograph by S.J.A. Day. 2016-078

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/).

Preliminary publications in this series have not been scientifically edited..

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.

References

Cocking, R.B., Deblonde, C., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Laviolette, A., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2016. Surficial Data Model, version 2.2.0: Revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8041, 45 p. doi:10.4095/298767

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Author Contact

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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: 63°00’00”N
Southern latitude: 62°00’00”N

Software Version
Data has been originally compiled and formatted for use with ArcGIS™ desktop version 10.2.2 developed by ESRI®.

Data Model Information
Surficial
The Geological Survey of Canada (GSC) through the Geomapping 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:

Cocking, R.B., Deblonde, C., Kerr, D.E., Campbell, J.E., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Laviolette, A., Parent, M., Plouffe, A., Robertson, L., Smith, I.R., and Weatherston, A., 2016. Surficial Data Model, version 2.2.0: Revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8041, 45 p. doi:10.4095/298767