



Natural Resources
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Ressources naturelles
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CANADIAN GEOSCIENCE MAP 295

SURFICIAL GEOLOGY

ROOT RIVER

Northwest Territories
NTS 95-K northeast

**Map Information
Document**

**Geological Survey of Canada
Canadian Geoscience Maps**

2018

Canada 



MAP NUMBER

Natural Resources Canada, Geological Survey of Canada
Canadian Geoscience Map 295

TITLE

Surficial geology, Root River, Northwest Territories, NTS 95-K northeast

SCALE

1:100 000

CATALOGUE INFORMATION

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ABSTRACT

The surficial geology represented in this map has been prepared at 1:50 000 scale and published at 1:100 000 scale. Surficial deposits cover approximate 95% of the map area. Exposed bedrock covers approximately 5% of the map-area. About 45% of the

total surface is covered by till (units Tb, Tv, Tp, Td, Tr, Tm, Tx, Te). Lacustrine (units Lp, Lb, Lv, Lm, Lx) deposits cover 13% of the map-area and are widespread within valleys, but are also heavily colluviated. About 32% of the area is covered by slope deposits (units Cv, Cx and Cz) the main component being landslide deposits (unit Cz). Glaciofluvial sediments (units Gt, Gp, Gd, Gf, Gv and Gx) cover about 3% of the map area, forming terraces along the trench and English Chief River and its tributaries. About 7% of the map area is covered by alluvial deposits (units Ap, Af, Ax). Peat deposits cover ~0.01%.

RÉSUMÉ

La géologie des formations superficielles représentée sur cette carte a été préparée à l'échelle de 1/50 000 et publiée à l'échelle de 1/100 000. Les dépôts superficiels occupent environ 95 % de la région cartographique. Des affleurements rocheux couvrent approximativement 5 % de la région cartographique. Environ 45 % de la surface totale est couverte de till (unités Tb, Tv, Tp, Td, Tr, Tm, Tx, Te). Des dépôts lacustres (unités Lp, Lb, Lv, Lm, Lx) couvrent 13 % de la région cartographique et sont très répandus dans les vallées, mais présentent un important colluvionnement. Environ 32 % de la région est couverte par des dépôts de pente (unités Cv, Cx, Cz) dont la principale composante correspond à des dépôts de glissement (unité Cz). Des sédiments fluvioglaciaires (unités Gt, Gp, Gd, Gf, Gv, Gx) couvrent environ 3 % de la région cartographique, formant des terrasses le long du sillon et de la rivière English Chief, ainsi que de ses affluents. Environ 7 % de la région cartographique est couverte par des dépôts alluvionnaires (unités Ap, Af, Ax), tandis que des dépôts de tourbe en couvrent ~0,01 %.

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SHEET 1 OF 1, SURIFICIAL GEOLOGY

GENERAL INFORMATION

Authors: A. Duk-Rodkin and D. Huntley

Geology by A. Duk-Rodkin and D. Huntley, 2007

Air photo interpretation by A. Duk-Rodkin

Geomatics and cartography by D.A. Lemay and M. Le

Map projection Universal Transverse Mercator, zone 10
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 2018, 19°53'E, decreasing 22.9' annually
Readings vary from 20°01'E in the NW corner to 19°44'E in the SE 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.

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.

DESCRIPTIVE NOTES

This map area is located ~40 km west of the Mackenzie River. It is crossed from west to east by Root River in the north, and ~20 km east of the eastern border of the map the river turns 90° south draining into the Mackenzie River. There are two north-south ranges (Iverson and Whittaker) separated by a trench that extends along the western part of the map-area. The trench is developed in Upper Devonian shale and mudstone while the ranges are formed in Middle Devonian limestone, dolomite, Lower Devonian dolomite, breccia and limestone; numerous sinkholes are found in the Iverson Range. The drainage is structurally controlled by synclines and/or faults. The headwaters for the tributaries in this map-area are in these two ranges. Landslide deposits occupy most of the trench area where stream incision occurs on interbedded glaciolacustrine and glaciofluvial deposits overlying Upper Devonian shale and mudstone. Major landslides also occur along English Chief River and its tributaries in similar geological settings. The middle and lower drainage courses east of Iverson Range extend across the Mackenzie Plains. These plains are developed on Upper Devonian sandstone, siltstone, shale and limestone. The plains have a characteristic glacial morphology and sedimentology that has mostly been derived from the Laurentide Ice Sheet. The Laurentide glacier covered this area during the Late Pleistocene Glaciation. As well, the Laurentide glacier carried distinctive pink Canadian Shield granites from a minimum distance of 400 km to the east. These granite erratics are widespread at elevations below 1300–1400 m.

Other glaciers that affected this area were of local montane origin (valley glaciers from the Cordilleran Ice Sheet did not reach this area). Cirque glaciers formed in this area during the Late and pre-Late Pleistocene. The Late Pleistocene cirques formed at elevations between 1300–1800 metres and they are filled with glacial sediment of local provenance. They are considered to have formed a few thousand years after the

Laurentide maximum, and their deposits usually truncate those of Laurentide origin. The Laurentide glacier deposited sediments in older cirques carved during a previous glaciation (s). These cirques are of two types: 1 - pre-Late Pleistocene cirques formed in Iverson Range at elevations 1300–1500 m during MIS 6-8 (?), well preserved but filled with glacial deposits of Laurentide origin; 2 – uncorrelated cirques carved at elevations between 970–1060 m along the sides of an unnamed range located between the Mackenzie Plains and Carlson River. These cirques are relatively well preserved and they contain Shield granite erratics up to 100 m above the cirques. Cirques contain limited Laurentide materials. These cirques are carved in Upper Devonian sandstone, siltstone and shale.

ADDITIONAL INFORMATION

The Additional Information folder of this product's digital download contains figures and tables that appear in the map surround as well as additional geological information not depicted on the map, nor this document, nor the geodatabase.

- PDF of each figure/table that appears in the CGM surround.
- Excel file of the Master Legend Table (legend symbols, descriptions, headings, etc.).

AUTHOR CONTACT

Questions, suggestions, and comments regarding the geological information contained in the data sets should be addressed to:

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COORDINATE SYSTEM

Projection: Universal Transverse Mercator
Units: metres
Zone: 10
Horizontal Datum: NAD83
Vertical Datum: mean sea level

BOUNDING COORDINATES

Western longitude: 125°00'00"W
Eastern longitude: 124°00'00"W
Northern latitude: 63°00'00"N
Southern latitude: 62°30'00"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

No Model

This Canadian Geoscience Map does not conform to either the Bedrock or Surficial Mapping Geodatabase Data Models. The author may have included a complete description of the feature classes and attributes in the Data\Data Model Info folder.