



Natural Resources  
Canada

Ressources naturelles  
Canada

# CANADIAN GEOSCIENCE MAP 342

## SURFICIAL GEOLOGY

# WHOLDAIA LAKE SOUTH

Northwest Territories  
75-A south



## Map Information Document

### Geological Survey of Canada Canadian Geoscience Maps

2018

Canada 



## **MAP NUMBER**

Natural Resources Canada, Geological Survey of Canada  
Canadian Geoscience Map 342

## **TITLE**

Surficial geology, Wholdaia Lake South, Northwest Territories, 75-A south

## **SCALE**

1:100 000

## **CATALOGUE INFORMATION**

Catalogue No. M183-1/342-2017E-PDF  
ISBN 978-0-660-24030-5  
<https://doi.org/10.4095/306373>

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## **RECOMMENDED CITATION**

Lauzon, G. and Campbell, J.E., 2018. Surficial geology, Wholdaia Lake south, Northwest Territories, 75-A south; Geological Survey of Canada, Canadian Geoscience Map 342, scale 1:100 000. <https://doi.org/10.4095/306373>

## **ABSTRACT**

Wholdaia Lake south map area is predominantly mantled by thin till and thick till interspersed with organic deposits; outcrop exposure is concentrated in the south and

northeast. A network of southwest-trending meltwater corridors, containing eskers and associated glaciofluvial sediments and sandy diamictons cross the territory at regular intervals. Boulder fields surrounding Scott and Wignes lakes mark the paleoshoreline (~450 m a.s.l.) of a short-lived proglacial lake. Reworked and/or winnowed sediments and paleoshorelines ( $\leq 400$  m a.s.l.) suggest proglacial lake(s) in the region of Flett Lake–northern Selwyn Lake. Three regional ice-flow directions have been identified. The oldest, poorly defined ice flow is inferred to be to the southeast followed by a regional southward ice flow. Overprinting these is the main southwest ice flow, which is reflected in the landforms. In the Selwyn Lake area, orientation of ribbed moraines and streamlined landforms is consistent with the dominant southwest glacial flow, whereas the northwest map area is characterized by an abundance of streamlined landforms, indicating late rapid glacial flow toward the west-southwest.

## **RÉSUMÉ**

La région cartographique de Wholdaia Lake Sud est principalement couverte d'accumulations de till minces et épaisses, parsemées de dépôts organiques. Les affleurements du substratum rocheux sont concentrés principalement au sud et au nord-est. L'ensemble du territoire est traversé par un réseau de couloirs d'eau de fonte de direction sud-ouest, espacés régulièrement, qui renferment des eskers et autres sédiments fluvioglaciaires associés ainsi que des diamictons sableux. Des champs de blocs entourant les lacs Scott et Wignes tracent le paléorivage (~450 m ASL) d'un lac proglaciaire de courte durée. Des sédiments remaniés/vannés et des paléorivages ( $\leq 400$  m ASL) laissent croire à l'existence de lacs proglaciaires dans la région s'étendant du lac Flett à la partie nord du lac Selwyn. Trois directions d'écoulement glaciaire à l'échelle régionale ont été reconnues. L'écoulement glaciaire le plus ancien, mal défini, dont on déduit qu'il était dirigé vers le sud-est, aurait été suivi d'un écoulement régional vers le sud. Aux traces de ces deux écoulements se superposent celles de l'écoulement principal vers le sud-est, dont l'existence se reflète dans les formes de terrain. Dans la région du lac Selwyn, l'orientation des moraines côtelées et des formes de terrain fuselées est cohérente avec la direction de l'écoulement glaciaire dominant vers le sud-ouest, alors que le secteur nord-ouest de la carte est caractérisé par une abondance de formes fuselées, qui indiquent un écoulement glaciaire rapide de phase tardive vers l'ouest–sud-ouest.

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## **SHEET 1 OF 1, SURFICIAL GEOLOGY**

### **GENERAL INFORMATION**

Authors: G. Lauzon and J.E. Campbell

Geology based on aerial photography interpretation and, LANDSAT TM 7 and SPOT imagery by G. Lauzon and J.E. Campbell and on fieldwork in 2014 (J.E. Campbell), 2015 (G. Lauzon and J.E. Campbell), and 2016 (G. Lauzon, J.E. Campbell, and M. Roy)

Geology conforms to Surficial Data Model v. 2.3 (Deblonde et al., 2017).

Geomatics by L. Robertson

Cartography by D. Viner

Scientific editing by E. Inglis

Initiative of the Geological Survey of Canada, conducted under the auspices of the South Rae project (GEM2) as part of Natural Resources Canada's Geo-mapping for Energy and Minerals 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

Shaded-relief image derived from the digital elevation model supplied by Natural Resources Canada

Illumination: azimuth 315°, altitude 45°, vertical factor 1

Mean magnetic declination 2018, 9°11'E, decreasing 11.4' annually  
Readings vary from 8°13'E in the NE corner to 10°06'E in the SW corner of the map.

This map is not to be used for navigational purposes.

Title photograph: Ribbed moraine in the vicinity of Selwyn Lake, oriented perpendicular to the southwest glacial flow, Northwest Territories. Photograph by G. Lauzon.  
2017-081

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/>).

### **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:

- Striation point of origin relocated to end of symbol from midpoint
- Crevasse-fill ridge symbol colour changed to red

### **ACKNOWLEDGMENTS**

Deepest appreciation to M. Roy (supervisor from Université du Québec à Montréal), L. Robertson, S. Pehrsson, S. Eagles, and G. Buller (Geological Survey of Canada) and the field assistants: N. Bocking, B. Mowbray, and G. Robinson. Logistical support was provided by Helicopter Transport Services in La Ronge, Saskatchewan (C. Alvaer, Y. Gingras, and M. Paynton), Discovery Mining Service, Yellowknife, and A. Duff and J. Duff of Scott's General Store, Stoney Rapids.

### **REFERENCES**

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., 2017. Surficial Data Model, version 2.3.0: revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, 1 .zip file. <https://doi.org/10.4095/302717>

### **SUGGESTED READINGS**

Aylsworth, J.M. and Shilts, W.W., 1989. Glacial features around the Keewatin Ice divide: districts of MacKenzie and Keewatin; Geological Survey of Canada, Paper 88-24, 1 .zip file. <https://doi.org/10.4095/127320>

Campbell, J.E. and Eagles, S., 2014. Report of 2014 Activities for the Geologic and Metallogenic Framework of the South Rae Craton, southeast Northwest Territories: Reconnaissance Surficial and Bedrock Fieldwork in the GEM 2 South Rae Project Area; Geological Survey of Canada, Open File 7701, 7 p. <https://doi.org/10.4095/295463>

Campbell, J.E., Lauzon, G., and Dyke, A.S., 2015. Into the unknown: Surficial geological investigations in the south Rae area, Northwest Territories: Northwest Territories Geoscience Office, Yellowknife Geoscience Forum Abstracts Volume, p. 20–21.

Campbell, J.E., Lauzon, G., Dyke, A.S., Haiblen, A.M., and Roy, M., 2016. Report of 2016 Activities for the Regional Surficial Geological Mapping of the South Rae Craton, southeast NWT: GEM 2 South Rae Quaternary and Bedrock Project; Geological Survey of Canada, Open File 8143, 13 p. <https://doi.org/10.4095/299391>

Geological Survey of Canada, 2017. Surficial geology, Snowbird Lake, Northwest Territories, NTS 65-D; Geological Survey of Canada, Canadian Geoscience Map 202 (2nd edition, preliminary, Surficial Data Model v. 2.3 conversion of NWT Open File 2015-03); Northwest Territories Geological Survey, NWT Open File 2017-04, scale 1:125 000. <https://doi.org/10.4095/305333>

Pehrsson, S.J., Campbell, J.E., Martel, E., McCurdy, M.W., Agosta-Gongora, P., Theissen, E., Jamieson, D., Lauzon, G., Buller, G., Falck, H., and Dyke, A.S., 2015. Report of 2015 Activities for the Geologic and Metallogenic Framework of the South Rae Craton, southeast Northwest Territories: GEM 2 South Rae Quaternary and Bedrock Project; Geological Survey of Canada, Open File 7958, 24 p. <https://doi.org/10.4095/297387>

### ***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 Figure 1

### ***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: 106°00'00"W  
Eastern longitude: 104°00'00"W  
Northern latitude: 60°30'00"N  
Southern latitude: 60°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 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., 2017. Surficial Data Model, version 2.3.0: revisions to the science language of the integrated Geological Survey of Canada data model for surficial geology maps; Geological Survey of Canada, Open File 8236, 1 .zip file.  
<https://doi.org/10.4095/302717>