



Natural Resources  
Canada

Ressources naturelles  
Canada

# CANADIAN GEOSCIENCE MAP 151

## SURFICIAL GEOLOGY

# WALKER LAKE SOUTH

Nunavut  
NTS 56-J south



## Map Information Document

Preliminary

Geological Survey of Canada  
Canadian Geoscience Maps

2015

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## PUBLICATION



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1:100 000

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### ABSTRACT

Much of the Walker Lake South map area is covered by streamlined till plains with shallow glacially-eroded basins; however the southeast is dominated by a bedrock highland. Striae and streamlined landforms in till indicate initial north-northeast then persistent northwestward ice flow during the last glaciation, although late-glacial flow reversals occurred to the south and east down glacial troughs in the bedrock highland. Weathered bedrock and regotill indicate areas of cold-based ice conditions and combined with the hummocky till, delineate the presence of late-ice remnants in highlands. Large subglacial corridors containing eskers and other ice-contact deposits carried meltwater northward into the Arctic Ocean. South of the regional drainage divide, short-lived glacial lakes, marked by wave-cut notches and boulder lags on the till surface, developed as the ice front receded southwards into the upland south of the

Ford Lake-Wager Bay lowlands. The marine limit ranges from 100–110 m a.s.l. in this area.

## RÉSUMÉ

La plus grande partie de la région cartographique de Walker Lake Sud est occupée par des plaines de till profilé parsemées de bassins peu profonds creusés par les glaciers. Cependant, la partie sud-est est dominée par des hautes terres rocheuses. Des stries et des formes profilées dans le till indiquent un écoulement glaciaire initial de direction nord-nord-est, suivi d'un écoulement glaciaire durable vers le nord-ouest au cours de la dernière glaciation, bien que des inversions tardiglaciaires de l'écoulement se soient produites au sud et à l'est dans des cuvettes glaciaires au sein des hautes terres rocheuses. De la roche météorisée et un régotill rendent compte de secteurs où prévalaient des conditions de glacier à base froide, ce qui, combiné à la présence de till bosselé, permet de délimiter des zones de glaces résiduelles tardives dans les hautes terres. De larges corridors sous-glaciaires, contenant des eskers et d'autres dépôts de contact glaciaire, ont permis de diriger les eaux de fonte vers le nord jusqu'à l'océan Arctique. Au sud de la ligne régionale de partage des eaux, des lacs glaciaires éphémères, dont rendent compte des encoches d'abrasion littorale et des blocs résiduels à la surface du till, se sont formés alors que le front glaciaire se retirait vers le sud dans les hautes terres, au sud des basses terres du lac Ford et de la baie Wager. Dans cette région, la limite marine se situe entre 100 et 110 m au-dessus du niveau de la mer.

## ABOUT THE MAP

### General Information

Authors: L.A. Dredge, J.E. Campbell, and I. McMartin

Geology based on aerial photograph interpretation, LANDSAT TM 7 classification and SPOT imagery by L.A. Dredge and J.E. Campbell, and on field work in 2012 by J.E. Campbell and L.A. Dredge.

Geological compilation by L.A. Dredge and J.E. Campbell, 2012–2015

Geology conforms to Surficial Data Model v. 2.1

Field site data provided by McMartin et al., 2015 (GSC Open File 7748)

Geomatics by L. Robertson

Cartography by D. Viner

Initiative of the Geological Survey of Canada, conducted under the auspices of the Multiple Metals Melville Peninsula project as part of Natural Resources Canada's Geomapping for Energy and Minerals (GEM) program.

Logistical support provided by the Polar Continental Shelf Program as part of its mandate to promote scientific research in the Canadian north. PCSP 015-12

Map projection Universal Transverse Mercator, zone 15.  
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 the Geological Survey of Canada. Illumination: azimuth 45°, altitude 45°, vertical factor 1x

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area. Mean magnetic declination 2015, 12°27'W, decreasing 11.9' annually. Readings vary from 10°32'W in the SW corner to 14°21'W in the NE corner of the map.

This map is not to be used for navigational purposes.

Title photograph: One of the glacial trough valleys cut into bedrock uplands by a south-flowing glacier tongue just before the close of glaciation, north of Wager Bay, Nunavut. Photograph by J.E. Campbell. 2013-153

The Geological Survey of Canada welcomes corrections or additional information from users.

Data may include additional observations not portrayed on this map. See documentation accompanying the data.

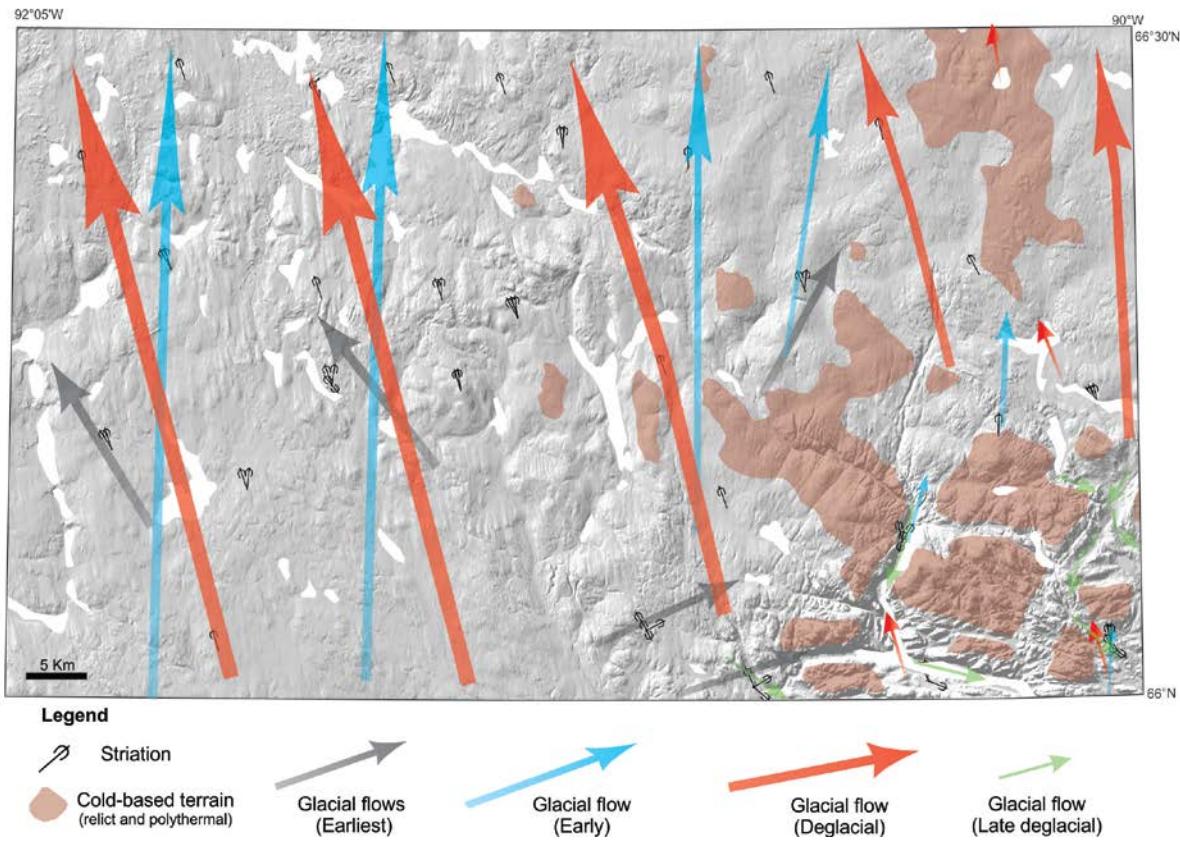
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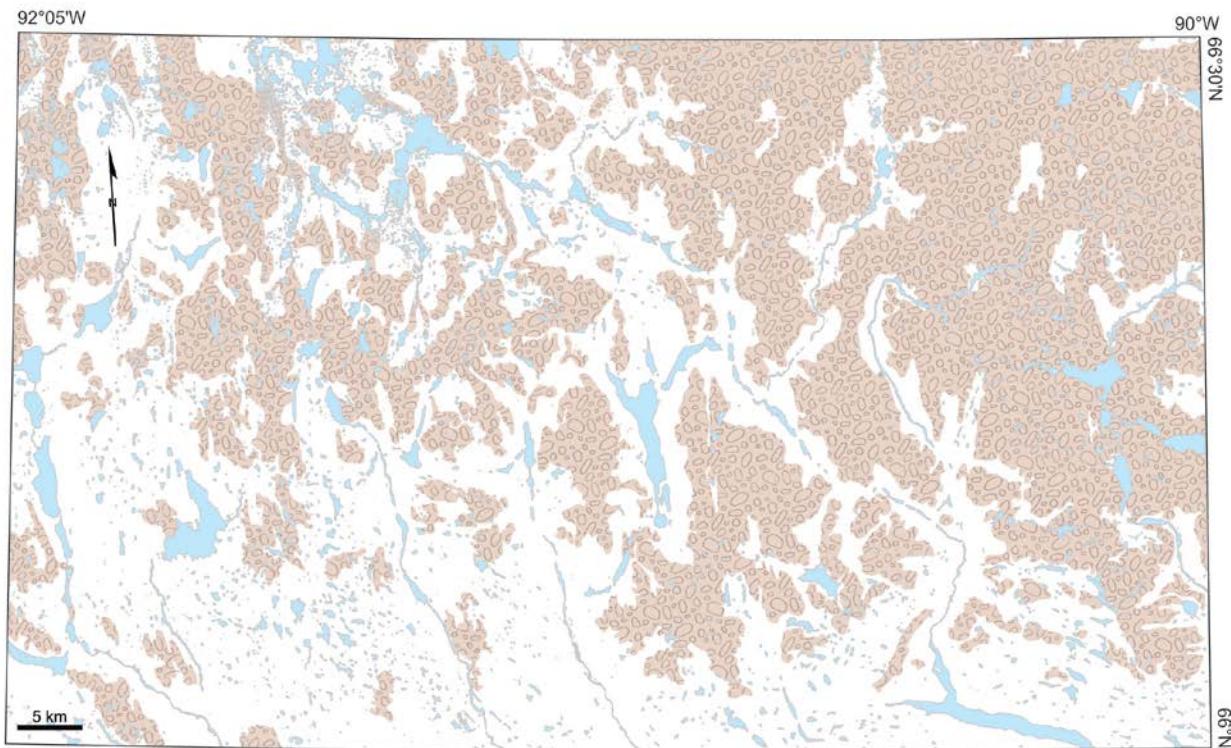
## Map Viewing Files

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.

## ABOUT THE GEOLOGY



**Figure 1.** Generalised glacial ice-flow directions and chronology derived from small scale ice-flow indicators (e.g. striations) and the trends of streamlined landforms. The dominant direction of regional dispersal is related to the north-northeast flow. The brown polygons represent areas of minimum cold-based (frozen bed) conditions during or at least parts of the last glaciation based on the presence of relict and polythermal terrains.



**Figure 2.** Regions of till and/or exposed bedrock with dense and continuous surface boulder cover (>70%) deposited primarily by glacial ice; also may include boulder lags from meltwater scouring in meltwater corridors and felsenmeier (patterned beige). The most extensive boulder cover occurs on top of the uplands in the eastern part of the map sheet (Figure 1), much of which was under cold-based conditions that occurred during at least parts of the last glaciation and/or downwasting of ice remnants in these uplands (McMartin et al., 2015). The boulder concentration polygons are included in the digital geodatabase that accompanies this map.

### Acknowledgments

The following field assistant, GSC staff, and expediting services are thanked for their assistance and logistical support: K. Robillard; G. Buller, S. Eagles, L. Robertson, É. Girard and D. Corrigan (GSC); Polar Continental Shelf Project; Helicopter Transport Services (T. Halton); North Country Gold Corp.; Repulse Bay RCMP; Repulse Bay Health Centre; and J. Kaufmann (Naujat Co-op).

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## Author Contact

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

J.E. Campbell  
Geological Survey of Canada  
601 Booth Street  
Ottawa ON  
K1A 0E8  
[Janet.Campbell3@canada.ca](mailto:Janet.Campbell3@canada.ca)

## **Coordinate System**

Projection: Universal Transverse Mercator

Units: metres

Zone: 15

Horizontal Datum: NAD83

Vertical Datum: mean sea level

## **Bounding Coordinates**

Western longitude: 92°05'00"W

Eastern longitude: 90°00'00"W

Northern latitude: 66°30'00"N

Southern latitude: 66°00'00"N

## **Surficial Data Model Information**

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:

Deblonde, C., Plouffe, A., Eagles, S., Everett, D., Huntley, D.H., Inglis, E., Kerr, D.E., Moore, A., Parent, M., Robertson, L., Smith, I.R., St-Onge, D.A., and Weatherston, A., 2014. Science language for an integrated Geological Survey of Canada data model for surficial geology maps, version 2.0; Geological Survey of Canada, Open File 7631, 464 p. doi:10.4095/294225

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